

| PROJECT         | CUSTOMER | VEHICLE         |
|-----------------|----------|-----------------|
| Xtrapolis-PRASA | PRASA    | 251 – TC2 – VFT |

RTR Vehicle Functional Static Testing TS251 TC2 Report  
GIB0000007316



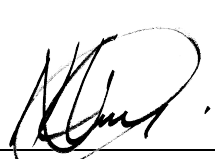
|           | CREATED             | VERIFIED       | APPROVED        | DISTRIBUTION                                                                                                                                                        |
|-----------|---------------------|----------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name      | Kealeboga MOCWAGOLE | Sifiso LUKHELE | Kgomotso NKOANA | Confidentiality Category<br><i>Restricted</i> <i>Project</i> <i>Normal</i><br><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> |
| Date      | 18/10/2024          | 18/10/2024     | 18/10/2024      | Control Category<br><i>Controlled</i> <i>Not Controlled</i><br><input checked="" type="checkbox"/> <input type="checkbox"/>                                         |
| Signature |                     |                |                 | Language<br><b>EN</b>                                                                                                                                               |

This report has been automatically generated from TES version 1

## Table of modifications

| Rev | Date       | Modifications Content | Writer              |
|-----|------------|-----------------------|---------------------|
| A0  | 18/10/2024 | Creation              | Kealeboga MOCWAGOLE |

## Internal validations

|                 | Name                | Function            | Date       | Signature                                                                                                                        |
|-----------------|---------------------|---------------------|------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Creator</b>  | Kealeboga MOCWAGOLE | EPU Manager         | 18/10/2024 | X <br>Kealeboga MOCWAGOLE<br>EPU Manager      |
| <b>Verifier</b> | Sifiso LUKHELE      | Serial Test Manager | 18/10/2024 | X <br>Sifiso LUKHELE<br>Serial Test Manager |
| <b>Approver</b> | Kgomotso NKOANA     | Test Expert         | 18/10/2024 | X <br>Kgomotso NKOANA<br>Test Expert        |

## Execution Plan

|                   |            |
|-------------------|------------|
| <b>Start Date</b> | 11/10/2024 |
| <b>End Date</b>   | 12/10/2024 |

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## Section 1 – Purpose / Objectives

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### 1. Energy Distribution

Ensure the distribution of 110Vdc and 400Vac through the vehicle from the battery and Auxiliary converter

### 2. TCMS Network

Verify the working of the TCMS network and its core elements, i.e TRS, CRS.

### 3. Cabin Control

Verify the cabin control functions in both normal and backup modes, their commanding of the train lines, and the TCMS response to each function.

### 4. Internal Lighting

Verify the working of all internal lighting functions.

### 5. PACIS System

Verify power supply to all PACIS network equipment.

### 6. Dead Man

Verify the functioning of the dead man system, its associated components e.g buzzer, and its TCMS responses.

### 7. External Signalling

Ensure all external signalling functions on the TC car are working, this test excludes the pneumatic horn.

### 8. Rescue Mode and Emergency Disconnection

Verify the correct operation of the emergency disconnection function, as well as the correct activation of the Back-Up mode.

### 9. Driver Desk Illumination

Verify the correct operation of all driver desk indicators, as well as

auxiliary systems such as the sunblind etc. that assist the driver.

10. Emergency Brake

Verify all electrical components of the Emergency braking system.

11. Service Brake

Verify all electrical components of the Service brake system.

12. Holding and Parking Brake

Verify all electrical components of the Parking/holding brake system.

13. Passenger Doors

Ensure proper operation of the train doors.

14. HVAC

Verify the voltage distribution to and correct operation of the HVAC system

15. Fire Protection

Verify the configuration of the fire detection units, as well as the presence of the safety resistor in the auxiliary converter.

16. Driving Command

Ensure the correct responses via train line and TCMS of all driving command signals.

17. Train-Ground Communication

Setup the Train-to-ground systems, and verify correct installation of the antennas by VSWR test.

18. Vehicle Normalization

Ensure that all connectors, panels, and covers are normalized.

## Section 3 – Energy Distribution

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### 3.1 Instructions list

### 3.1.1 015\_NRG-Energy Distribution

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                                                              | File | Result status | Result value | Operator                        | Vehicle |
|-------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|---------------------------------|---------|
| 10001 | I    | Energy Distribution (SPP=013/015/018)                                                                                                                                    |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10002 | I    | Initial conditions                                                                                                                                                       |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10003 | I    | Car should be de-prepared with non-active cab                                                                                                                            |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10004 | I    | Car should be without 400Vac shore supply                                                                                                                                |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10005 | I    | All the Circuit Breakers should be OPEN                                                                                                                                  |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10006 | I    | Connector XBAT+ Positive and XBAT-2 Negative should not be connected to the battery                                                                                      |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10007 | I    | Voltage Isolation                                                                                                                                                        |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10008 | A    | Open the left side cover of the Static Converter (CVS) and check Visually that the cables are correctly connected to the points XBAT+(BCOF) and XBAT-1/ XBAT-2 (ISO_BCM) |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10009 | R    | Cables are correctly connected in the Power Bus XBAT+ Positive (BCOF) and XBAT-1/ XBAT-2 Negative (ISO_BCM)                                                              |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10010 | A    | Check Resistance (Ohm) between point XBAT+ Positive of the power bus (BCOF) and car body                                                                                 |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10011 | R    | Value (Ohm) Should be infinite. There is NO Continuity between point XBAT+ Positive of the power bus (BCOF) and car body                                                 |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10012 | A    | Check Resistance (Ohm) between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body                                                                             |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |

|       |   |                                                                                                                              |  |    |  |                                 |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------------|--|----|--|---------------------------------|-----|
| 10013 | R | Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10014 | A | Check Resistance (Ohm) between point XBAT-2 Negative of the Power Bus (ISO_BCM) and car body                                 |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10015 | R | Value (Ohm) Should be about 0 Ohm. There is Continuity between point XBAT-1 Negative of the Power Bus (ISO_BCM) and car body |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10016 | I | Close left side cover of the Static Converter (CVS)                                                                          |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10017 | A | Put Connector XBAT+ Positive and XBAT-2 Negative in the Battery                                                              |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10018 | R | Confirm the presence of battery voltage (above 80V dc) between Circuit Breaker 15Q2 point 1 and car body. (Permanent Line)   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10019 | A | Close Circuit Breaker 15Q2 (Permanent Line)                                                                                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10020 | A | Close Circuit Breaker 15Q4 (Permanent Line)                                                                                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10021 | A | Close Circuit Breaker 15Q1 (Normal Line)                                                                                     |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10022 | A | Close Circuit Breaker 15Q3 (Normal Line)                                                                                     |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10023 | I | 230Vac and 400Vac Isolation                                                                                                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10024 | A | Close Circuit Breaker 13Q1 (230Vac)                                                                                          |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10025 | A | Close Circuit Breaker 13Q3 (230Vac)                                                                                          |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10026 | A | Close Circuit Breaker 13Q4                                                                                                   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10027 | I | Permanent and Normal Line                                                                                                    |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10028 | A | Close Circuit Breaker 20Q1                                                                                                   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                    |  |    |                                 |     |
|-------|---|----------------------------------------------------------------------------------------------------|--|----|---------------------------------|-----|
| 10029 | A | Close Circuit Breaker 18Q1                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10030 | A | Close Circuit Breaker 20Q2                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10031 | A | Close Circuit Breaker 18Q2                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10032 | A | Close Circuit Breaker 25Q6                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10033 | A | Close Circuit Breaker 27Q1                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10034 | A | Prior to Switching the car ON and Plugging the shore supply onto the CVS. Open the CVS Agate cover |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10035 | R | The AGATE is OFF                                                                                   |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10036 | I | MCE Software Upload                                                                                |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10037 | A | Turn the Backup Mode Switch 27S1 to "Back Up" position                                             |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10038 | A | Insert a USB programmed with the latest MCE Software into the MCE                                  |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10039 | A | Close Circuit Breaker 40Q1                                                                         |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10040 | A | Turn Battery Contactor Switch 18S1 to ON Position                                                  |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10041 | A | Wait for about 12 minutes while the MCE is taking the software                                     |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10042 | A | Open Circuit Breaker 40Q1, remove the USB and Close Circuit Breaker 40Q1                           |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10043 | I | Low voltage watchdog and battery connection                                                        |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10044 | A | Turn Battery Contactor Switch 18S1 to Off Position                                                 |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10045 | A | Turn Driver's Master Key 30A1.S1 to Non Active Cabin                                               |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                        |  |    |   |                                 |     |
|-------|---|------------------------------------------------------------------------|--|----|---|---------------------------------|-----|
| 10046 | A | Turn the Backup Mode Switch 27S1 to "Normal" position                  |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10047 | I | Cab Selected On Train Train Line Dev4/1 = END2 90XP14 pin 3            |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10048 | A | Force [NI] Dev4/1 = 1.0                                                |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10049 | I | 110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29               |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10050 | R | Read Defined Variable [NI] Dev5/40 = 1.0                               |  | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10051 | I | Cab Selected On Train Train Line Dev4/1 = END2 90XP14 pin 3            |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10052 | A | Force [NI] Dev4/1 = 0.0                                                |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10053 | A | Reset circuit breaker 15Q4                                             |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10054 | R | Check that relay 15K2 is not active                                    |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10055 | I | 110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29               |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10056 | R | Read Defined Variable [NI] Dev5/40 = 0.0                               |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10057 | A | Turn key 30A1.S1 to Active Cabin Position                              |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10058 | R | Relay 15K2 is active                                                   |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10059 | I | 110Vdc Permanent Train Line Dev5/40 = END2 90XP14 pin 29               |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10060 | R | Read Defined Variable [NI] Dev5/40 = 1.0                               |  | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10061 | A | Turn Battery Contactor Switch 18S1 to ON Position                      |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10062 | A | Wait only for TCMS to initialize                                       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10063 | A | Whilst PACIS is still initializing, turn and hold 18S1 to OFF position |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                                            |  |    |   |                                       |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------------|--|----|---|---------------------------------------|-----|
| 10064 | R | Read Defined Variable [TT]<br>(MPU1)li_nrg_tc2battoffreqr1___1<br>= 1.0                                                    |  | OK | 1 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10065 | R | Read Defined Variable [TT]<br>(MPU1)li_nrg_tc2battoffreqr2___1<br>= 1.0                                                    |  | OK | 1 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10066 | A | Put Battery Contactor Switch 18S1<br>to normal position                                                                    |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10067 | I | Battery Connection Train Line<br>Dev2/76 = Coupler pin 012<br>Dev2/80 = Coupler pin 112<br>Dev5/79 = END2 90XP14 pin 30    |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10068 | R | Read Defined Variable [NI]<br>Dev2/76 = 1.0                                                                                |  | OK | 1 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10069 | R | Read Defined Variable [NI]<br>Dev2/80 = 1.0                                                                                |  | OK | 1 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10070 | R | Read Defined Variable [NI]<br>Dev5/79 = 1.0                                                                                |  | OK | 1 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10071 | I | Battery Disconnection Train Line<br>Dev2/77 = Coupler pin 027<br>Dev2/40 = Coupler pin 127<br>Dev5/75 = END2 90XP14 pin 31 |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10072 | R | Read Defined Variable [NI]<br>Dev2/77 = 0.0                                                                                |  | OK | 0 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10073 | R | Read Defined Variable [NI]<br>Dev2/40 = 0.0                                                                                |  | OK | 0 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10074 | R | Read Defined Variable [NI]<br>Dev5/75 = 0.0                                                                                |  | OK | 0 | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10075 | I | AC address coding and Shore Supply<br>Mode                                                                                 |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10076 | A | Use the AGATE to shut down the<br>train                                                                                    |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10077 | A | Remove connector -18XP11_1<br>from the Auxiliary Converter                                                                 |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10078 | A | Check continuity between pins 51<br>and 52 ; and pins 63 and 64 on<br>connector 18XP11_1                                   |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |
| 10079 | R | Pins 51 and 52 are continuous; and<br>pins 63 and 64 are continuous                                                        |  | OK |   | Goitsemodimo<br>Kgatitswe -<br>526511 | TC2 |

|       |   |                                                                                                                                                                                                                                                             |  |    |     |                                 |     |
|-------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|-----|---------------------------------|-----|
| 10080 | A | Switch ON the IES Status on the test bench to make available the IES STATUS signal in the Auxiliary Converter                                                                                                                                               |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10081 | R | Check continuity between point 65 and point 70 (IES STATUS) on connector -18XP11_1 from the Auxiliary Converter (ACU)                                                                                                                                       |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10082 | A | Return the connector -18XP11_1 into the Auxiliary Converter                                                                                                                                                                                                 |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10083 | A | Turn Switch "27S1" (Backup Mode Position) to 'Normal Mode'                                                                                                                                                                                                  |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10084 | I | Turn the ACU Isolation Switch 18S3 to "Normal" position                                                                                                                                                                                                     |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10085 | A | Turn Battery Contactor Switch "18S1" to ON Position                                                                                                                                                                                                         |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10086 | I | In LV1 , check the voltage on point 2 of CB 18Q1                                                                                                                                                                                                            |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10087 | R | Voltage on point 2 of CB 18Q1                                                                                                                                                                                                                               |  | OK | 110 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10088 | I | NOTE: When shore supply is connected to Auxiliary Converter, BE CAREFUL not to touch connector - 90XR53.X3/-90XR53.X2/-90XR53.X1 (3000Volts) and connector -90XR52.X1/--90XR52.X2/-90XR52.X3 (400Volts) located in the END 2 Intercar Connector of the car. |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10089 | A | Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on                                                                                                                                               |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10090 | R | Auxiliary Converter is working                                                                                                                                                                                                                              |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10091 | R | In LV1 , check the voltage on point 2 of CB 18Q1, compare with the value read before, and see that the new value is higher than before                                                                                                                      |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10092 | A | Perform a phase rotation measurement on Connector 90XR52 between phases U(X1),V(X2),W(X3) and ensure the rotation is in the correct direction                                                                                                               |  | OK |     | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                                            |  |    |   |                                 |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------------|--|----|---|---------------------------------|-----|
| 10093 | R | Phase rotation between U,V,W is correct                                                                                    |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10094 | R | Check 230Vac between points L and N of the plug -13XT2                                                                     |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10095 | R | Check 230Vac between points L and N of the plug -13XT3                                                                     |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10096 | A | Switch off the shore supply power source and remove the external shore supply                                              |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10097 | A | Switch OFF the IES Status on the test bench to normalize the lines of status signal (IES STATUS)                           |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10098 | R | The battery is no longer being charged                                                                                     |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10099 | R | Check 0Vac between points L and N of the plug -13XT2                                                                       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10100 | R | Check 0Vac between points L and N of the plug -13XT3                                                                       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10101 | I | Battery Disconnection                                                                                                      |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10102 | A | Turn Driver's Master Key 30A1.S1 to Non Active Cabin                                                                       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10103 | R | Battery is still connected to the Normal Line                                                                              |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10104 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                                  |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10105 | A | Turn Switch "27S1" (Backup Mode Position) to 'Back up Mode'                                                                |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10106 | I | Battery Disconnection Train Line<br>Dev4/75 = END2 90XP14 pin 31<br>Dev2/77 = Coupler pin 027<br>Dev2/40 = Coupler pin 127 |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10107 | A | Force [NI] Dev4/75 = 1.0                                                                                                   |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10108 | R | Read Defined Variable [NI]<br>Dev2/77 = 1.0                                                                                |  | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10109 | R | Read Defined Variable [NI]<br>Dev2/40 = 1.0                                                                                |  | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                                            |  |    |   |                                 |     |
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| 10110 | R | The Normal Line is disconnected from the battery                                                                           |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10111 | I | Battery Disconnection Train Line<br>Dev4/75 = END2 90XP14 pin 31<br>Dev2/77 = Coupler pin 027<br>Dev2/40 = Coupler pin 127 |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10112 | A | Force [NI] Dev4/75 = 0.0                                                                                                   |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10113 | R | Read Defined Variable [NI]<br>Dev2/77 = 0.0                                                                                |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10114 | R | Read Defined Variable [NI]<br>Dev2/40 = 0.0                                                                                |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10115 | I | Battery Connection Train Line<br>Dev2/76 = Coupler pin 012<br>Dev2/80 = Coupler pin 112<br>Dev5/79 = END2 90XP14 pin 30    |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10116 | R | Read Defined Variable [NI]<br>Dev2/76 = 0.0                                                                                |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10117 | R | Read Defined Variable [NI]<br>Dev2/80 = 0.0                                                                                |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10118 | R | Read Defined Variable [NI]<br>Dev5/79 = 0.0                                                                                |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10119 | A | Turn Battery Contactor Switch 18S1 to ON Position                                                                          |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10120 | I | Shore Supply Power ON                                                                                                      |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10121 | A | Turn the IES STATUS toggle switch on the Testbench into IES2                                                               |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10122 | A | Ensure shore supply power source is off. Input Shore Supply Connector on Auxiliary Converter and switch it on              |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10123 | I | END OF TEST                                                                                                                |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |



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## Section 4 – TCMS Network

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### 4.1 Instructions list

#### 4.1.1 025\_NET-TCMS Network

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                      | File | Result status | Result value | Operator                | Vehicle |
|-------|------|--------------------------------------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | TCMS Network (SPP=25)                                                                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10002 | I    | Initial conditions                                                                               |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10003 | I    | Backup Mode Switch 27S1 in "Normal" Position                                                     |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10004 | I    | Car should be prepared (Battery contactor switch 18S1 in ON position)                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10005 | I    | Vehicle test bench should be configured as TC1:<br>1. TC1 Data plugs<br>2. MCE switch set to TC1 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10006 | I    | The test bench should be connected to the vehicle                                                |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10007 | I    | Power supply to the 25A2 BRIOM 32/16 ETH 2                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10008 | A    | Close Circuit Breaker 25Q2                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10009 | R    | BRIOM 25A2 is ON                                                                                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10010 | A    | Check visually that ground braid is connected to BRIOM                                           |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10011 | I    | Power supply to the 25A3 BRIOM 32/16 ETH 3                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10012 | A    | Close Circuit Breaker 25Q3                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10013 | R    | BRIOM 25A3 is ON                                                                                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |

|       |   |                                                        |  |    |  |                            |     |
|-------|---|--------------------------------------------------------|--|----|--|----------------------------|-----|
| 10014 | A | Check visually that ground braid is connected to BRIOM |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10015 | I | Power supply to the 25A4 BRIOM 32/16 ETH 4             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10016 | A | Close Circuit Breaker 25Q4                             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10017 | R | BRIOM 25A4 is ON                                       |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10018 | A | Check visually that ground braid is connected to BRIOM |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10019 | I | Power supply to the 25A5 BRIOM 32/16 ETH 5             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10020 | A | Close Circuit Breaker 25Q5                             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10021 | R | BRIOM 25A5 is ON                                       |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10022 | A | Check visually that ground braid is connected to BRIOM |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10023 | I | Power supply to the 25A6 BRIOM 32/16 ETH 6             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10024 | A | Close Circuit Breaker 25Q6                             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10025 | R | BRIOM 25A6 is ON                                       |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10026 | A | Check visually that ground braid is connected to BRIOM |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10027 | I | Power supply to the 25A7 BRIOM 32/16 ETH 7             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10028 | A | Close Circuit Breaker 25Q7                             |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10029 | R | BRIOM 25A7 is ON                                       |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10030 | A | Check visually that ground braid is                    |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |

|       |   |                                                     |  |    |  |                         |     |
|-------|---|-----------------------------------------------------|--|----|--|-------------------------|-----|
|       |   | connected to BRIOM                                  |  |    |  |                         |     |
| 10031 | I | Power supply to the 25A11 SWITCH ETHERNET (CRS2)    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10032 | A | Close Circuit Breaker 25Q11                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10033 | R | CRS2 25A11 is ON                                    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10034 | I | Power supply to the 25A12 SWITCH ETHERNET (CRS3)    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10035 | A | Close Circuit Breaker 25Q12                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10036 | R | CRS3 25A12 is ON                                    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10037 | I | Power supply to the 25A15 TRAIN ROUTER SWITCH (TRS) |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10038 | A | Close Circuit Breaker 25Q15                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10039 | R | TRS 25A15 is ON                                     |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10040 | A | Close Circuit Breaker 25Q14                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10041 | A | Close Circuit Breaker 25Q10                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10042 | I | Power supply to the 25A10 SWITCH ETHERNET (CRS1)    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10043 | R | CRS1 25A10 is ON                                    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10044 | I | Power supply to the 25A14 ETHERNET REPEATER (TBR)   |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10045 | R | TBR 25A14 is ON                                     |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10046 | I | Power supply to the 25A17 DDU ACE                   |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10047 | A | Close Circuit Breaker 25Q17                         |  | OK |  | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                        |                                                                                   |    |  |                            |     |
|-------|---|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|--|----------------------------|-----|
| 10048 | R | The DDU is ON                                                          |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10049 | I | DDU Software Upload                                                    |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10050 | I | Perform the following procedure to upload software on the DDU          |  | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10051 | I | Ethernet Loop                                                          |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10052 | A | Check that the LED on ETH0 of the TBR is flashing                      |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10053 | R | The TBR has LED on port ETH0 flashing                                  |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10054 | A | For each CRS, check that the LEDs on ports X3 and X4 are flashing      |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10055 | R | CRS1 has LEDs on ports X3 and X4 flashing                              |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10056 | R | CRS2 has LEDs on ports X3 and X4 flashing                              |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10057 | R | CRS3 has LEDs on ports X3 and X4 flashing                              |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10058 | A | Check that the TRS has LEDs on ports ETH4 and ETH5 flashing            |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10059 | R | The TRS has LEDs on ports ETH4 and ETH5 flashing                       |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10060 | R | Check on the DDU that all Router Switches are available on the network |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |
| 10061 | I | END OF TEST                                                            |                                                                                   | OK |  | Nqobile Chirwa<br>- 484648 | TC2 |



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## Section 5 – Cabin Control

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### 5.1 Instructions list

### 5.1.1 020\_CAB-Cabin Control

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                           | File | Result status | Result value | Operator                | Vehicle |
|-------|------|-------------------------------------------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | Cabin Control (SPP=020)                                                                               |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10002 | I    | Initial Conditions                                                                                    |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10003 | I    | Vehicle test bench should be configured as TC1:<br>1. TC1 Data plugs<br>2. MCE should reflect as MPU1 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10004 | I    | Shore Supply is connected and ON                                                                      |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10005 | I    | Car should be prepared                                                                                |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10006 | I    | Cabin should be active                                                                                |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10007 | I    | Use the voltage detector/ magnetic stick to check whether a relay is energized or not                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10008 | I    | Normal Mode - Active Cabin                                                                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10009 | R    | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2masterkey__1 = 1.0                                      |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10010 | I    | Cab Active TC2 Train Line<br>Dev5/2 = END2 90XP14 pin 4                                               |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10011 | R    | Read Defined Variable [NI] Dev5/2 = 1.0                                                               |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10012 | I    | Master Key TC2 Train Line<br>Dev5/17 = END2 90XP14 pin 17                                             |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10013 | R    | Read Defined Variable [NI] Dev5/17 = 1.0                                                              |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10014 | R    | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelayr1__1 = 0.0                                     |      | OK            | 0            | Nqobile Chirwa - 484648 | TC2     |
| 10015 | R    | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelayr2__1 = 0.0                                     |      | OK            | 0            | Nqobile Chirwa - 484648 | TC2     |

|       |   |                                                                   |  |    |   |                               |     |
|-------|---|-------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10016 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelay3 = 0.0     |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10017 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2KeyRelayR4 = 0.0    |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10018 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR1 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10019 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR2 = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR3 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10021 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR4 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10022 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR5 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10023 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2cabinactiveno = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10024 | A | Force [TT]<br>(MPU1)lo_cab_tc2cabdisconnectr1 = 1.0               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10025 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR1 = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10026 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR2 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10027 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR3 = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10028 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR4 = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10029 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR5 = 1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10030 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2cabinactiveno = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                      |  |    |   |                               |     |
|-------|---|----------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10031 | I | Cab Active TC2 Train Line<br>Dev5/2 = END2 90XP14 pin 4              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10032 | R | Read Defined Variable [NI] Dev5/2 =<br>0.0                           |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10033 | A | Force [TT]<br>(MPU1)lo_cab_tc2cabdisconnectr1 =<br>0.0               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10034 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR1 =<br>0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10035 | I | Normal Mode - Non-Active Cabin -<br>20K2 Memory                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10036 | A | Turn Driver's Master Key 30A1.S1 to<br>Non-Active Cabin Position     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10037 | I | Master Key TC2 Train Line<br>Dev5/17 = END2 90XP14 pin 17            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10038 | R | Read Defined Variable [NI] Dev5/17 =<br>0.0                          |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10039 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2masterkey__1 = 0.0     |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10040 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelayr1__1 = 1.0    |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10041 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelayr2__1 = 1.0    |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10042 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2keyrelayr3 = 1.0       |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10043 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2KeyRelayR4 = 1.0       |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10044 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR1 =<br>0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10045 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR2 =<br>1.0 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10046 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR3 =<br>0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10047 | R | Read Defined Variable [TT]                                           |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                  |  |    |   |                               |     |
|-------|---|------------------------------------------------------------------------------------------------------------------|--|----|---|-------------------------------|-----|
|       |   | (MPU1)Li_CAB_Tc2CabinActiveR4 = 0.0                                                                              |  |    |   |                               |     |
| 10048 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR5 = 0.0                                                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10049 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2cabinactiveno = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10050 | A | Force [TT]<br>(MPU1)lo_cab_tc2cabdisconnectr2 = 1.0                                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10051 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR1 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10052 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR2 = 0.0                                                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10053 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR3 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10054 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR4 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10055 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2CabinActiveR5 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10056 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2cabinactiveno = 0.0                                                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10057 | A | Release [TT]<br>(MPU1)lo_cab_tc2cabdisconnectr1                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10058 | A | Release [TT]<br>(MPU1)lo_cab_tc2cabdisconnectr2                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10059 | I | Other Cab Active                                                                                                 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10060 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2othercabinactive___1 = 1.0                                         |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10061 | I | Cab Selected on Train Line<br>Dev4/1 = END2 90XP14 pin 3<br>Dev2/1 = COUPLER pin 040<br>Dev2/2 = COUPLER pin 140 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10062 | A | Force [NI] Dev4/1 = 1.0                                                                                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                        |  |    |   |                         |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------|--|----|---|-------------------------|-----|
| 10063 | R | Read Defined Variable [NI] Dev2/1 = 1.0                                                                                |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10064 | R | Read Defined Variable [NI] Dev2/2 = 1.0                                                                                |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10065 | R | Read Defined Variable [TT] (MPU1)li_cab_tc2othercabinactive___1 = 0.0                                                  |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10066 | I | Cab Selected on Train Train Line<br>Dev4/1 = END2 90XP14 pin 3<br>Dev2/1 = COUPLER pin 040<br>Dev2/2 = COUPLER pin 140 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10067 | A | Force [NI] Dev4/1 = 0.0                                                                                                |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10068 | R | Read Defined Variable [NI] Dev2/1 = 0.0                                                                                |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10069 | R | Read Defined Variable [NI] Dev2/2 = 0.0                                                                                |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10070 | R | Read Defined Variable [TT] (MPU1)li_cab_tc2othercabinactive___1 = 1.0                                                  |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10071 | I | Backup Mode - Active Cabin                                                                                             |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10072 | A | Turn Switch '27S1' (Backup Mode Position) to 'BACKUP Position                                                          |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10073 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                              |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10074 | I | Cab Selected on Train Train Line<br>Dev5/1 = END2 90XP14 pin 3                                                         |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10075 | R | Read Defined Variable [NI] Dev5/1 = 1.0                                                                                |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10076 | R | Check Relay "20K1" is Energized                                                                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10077 | R | Check Relay "20K1a" is Energized                                                                                       |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10078 | R | Check Relay "20K1b" is Energized                                                                                       |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10079 | R | Check Relay "20K1c" is Energized                                                                                       |  | OK |   | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                  |  |    |   |                               |     |
|-------|---|------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10080 | R | Check Relay "20K2" is Energized                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10081 | R | Check Relay "20K11" is Energized                                 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10082 | R | Check Relay "20K12a" is Energized                                |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10083 | R | Check Relay "20K12b" is Energized                                |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10084 | R | Check Relay "20K10b" is Energized                                |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10085 | I | Backup Mode- Non-Active Cabin                                    |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10086 | A | Turn Driver's Master Key 30A1.S1 to<br>Non-Active Cabin Position |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10087 | I | Cab Selected on Train Train Line<br>Dev5/1 = END2 90XP14 pin 3   |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10088 | R | Read Defined Variable [NI] Dev5/1 =<br>0.0                       |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10089 | R | Check Relay "20K1" is De-energized                               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10090 | R | Check Relay "20K1a" is De-energized                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10091 | R | Check Relay "20K1b" is De-energized                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10092 | R | Check Relay "20K1c" is De-energized                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10093 | R | Check Relay "20K2" is De-energized                               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10094 | R | Check Relay "20K11" is De-energized                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10095 | R | Check Relay "20K12a" is De-energized                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10096 | R | Check Relay "20K12b" is De-energized                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10097 | R | Check Relay "20K10b" is De-energized                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                      |  |    |   |                               |     |
|-------|---|--------------------------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10098 | I | Automatic Start                                                                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10099 | A | Turn Battery Contactor Switch 18S1" to OFF position                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10100 | A | Turn Switch '27S1' (Backup Mode Position) to 'Normal' Position                       |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10101 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10102 | A | Turn Battery Contactor Switch 18S1" to ON position - Allow time for TCMS to start up |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10103 | A | Close Circuit Breaker 84Q1                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10104 | A | Press and hold the Automatic Start Pushbutton 20S1                                   |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10105 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2automaticstartr1 = 1.0                 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10106 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2automaticstartr2 = 1.0                 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10107 | R | Read Defined Variable [TT]<br>(MPU1)lo_cab_tc2automaticstartr1 = 1.0                 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10108 | R | Read Defined Variable [TT]<br>(MPU1)lo_cab_tc2automaticstartr2 = 1.0                 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10109 | R | Check that the pushbutton lamp on 20S1 is ON                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10110 | A | Release the Automatic Start Pushbutton 20S1                                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10111 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2automaticstartr1 = 0.0                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10112 | R | Read Defined Variable [TT]<br>(MPU1)li_cab_tc2automaticstartr2 = 0.0                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10113 | R | Read Defined Variable [TT]<br>(MPU1)lo_cab_tc2automaticstartr1 = 0.0                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                      |  |    |   |                               |     |
|-------|---|----------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10114 | R | Read Defined Variable [TT]<br>(MPU1)lo_cab_tc2automaticstartr2 = 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10115 | I | Standby Mode                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10116 | A | Turn Driver's Master Key 30A1.S1 to<br>Non-Active Cabin Position     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10117 | A | Press and hold the Standby State<br>pushbutton 20S2                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10118 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2ISMR1__1 = 1.0         |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10119 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2ISMR2__1 = 1.0         |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10120 | A | Release the Standby State pushbutton<br>20S2                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10121 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2ISMR1__1 = 0.0         |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10122 | R | Read Defined Variable [TT]<br>(MPU1)Li_CAB_Tc2ISMR2__1 = 0.0         |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10123 | A | Force [TT] (MPU1)lo_cab_tc2ismlamp<br>= 1.0                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10124 | R | The Standby State pushbutton lamp<br>20S2 is ON                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10125 | A | Release [TT]<br>(MPU1)lo_cab_tc2ismlamp                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10126 | R | The Standby State pushbutton lamp<br>20S2 is OFF                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10127 | A | Turn Driver's Master Key 30A1.S1 to<br>Active Cabin Position         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10128 | I | END OF TEST                                                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |



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## Section 6 – Internal Lighting

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### 6.1 Instructions list

### 6.1.1 052\_LGT-Internal Lighting

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                           | File | Result status | Result value | Operator                 | Vehicle |
|-------|------|-------------------------------------------------------|------|---------------|--------------|--------------------------|---------|
| 10001 | I    | Internal Lighting (SPP=052)                           |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10002 | I    | Initial Conditions                                    |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10003 | I    | Car should be prepared                                |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10004 | I    | Key 30A1.S1 should be in Active Cabin position        |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10005 | I    | Circuit Breakers                                      |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10006 | A    | Close Circuit Breaker 52Q1                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10007 | A    | Close Circuit Breaker 52Q2                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10008 | A    | Close Circuit Breaker 52Q3                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10009 | A    | Close Circuit Breaker 52Q4                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10010 | A    | Close Circuit Breaker 52Q5                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10011 | A    | Close Circuit Breaker 52Q6                            |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10012 | I    | Cab Ceiling Lighting                                  |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10013 | A    | Turn battery contactor switch 18S1 to OFF position    |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10014 | A    | Wait 3 minutes for cab lights to switch off           |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10015 | R    | All cabin ceiling lights are OFF (52U40, 52U41,52U42) |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |
| 10016 | R    | Both cab ceiling light pushbutton lamps are OFF       |      | OK            |              | Tebogo Mtombeni - 529938 | TC2     |

|       |   |                                                                                            |  |    |                          |     |
|-------|---|--------------------------------------------------------------------------------------------|--|----|--------------------------|-----|
|       |   | (52S3 Left and 52S4 Right)                                                                 |  |    |                          |     |
| 10017 | A | Push the cab lighting LEFT side button (52S3)                                              |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10018 | I | Wait 3 minutes for the lights to turn off. Continue with the following steps while waiting |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10019 | R | Cabin ceiling light 52U40 is ON                                                            |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10020 | R | Cabin ceiling light 52U41 is ON                                                            |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10021 | R | Cabin ceiling light 52U42 is ON                                                            |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10022 | R | Left pushbutton lamp 52S3 is ON                                                            |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10023 | R | Right pushbutton lamp 52S4 is ON                                                           |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10024 | A | Press and hold the cab lighting LEFT side button (52S3)                                    |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10025 | R | The intensity of cabin ceiling light 52U40 decreases                                       |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10026 | R | The intensity of cabin ceiling light 52U41 decreases                                       |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10027 | R | The intensity of cabin ceiling light 52U42 decreases                                       |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10028 | A | Release cab lighting LEFT side button (52S3)                                               |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10029 | I | After the 180s (3 min) timer is expired                                                    |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10030 | R | Cabin ceiling light 52U40 is OFF                                                           |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10031 | R | Cabin ceiling light 52U41 is OFF                                                           |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10032 | R | Cabin ceiling light 52U42 is OFF                                                           |  | OK | Tebogo Mtombeni - 529938 | TC2 |
| 10033 | R | Left pushbutton lamp 52S3 is OFF                                                           |  | OK | Tebogo Mtombeni - 529938 | TC2 |

|       |   |                                                                            |  |    |  |                          |     |
|-------|---|----------------------------------------------------------------------------|--|----|--|--------------------------|-----|
| 10034 | R | Right pushbutton lamp 52S4 is OFF                                          |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10035 | A | Push the cab lighting RIGHT side button (52S4)                             |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10036 | R | Cabin ceiling light 52U40 is ON                                            |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10037 | R | Cabin ceiling light 52U41 is ON                                            |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10038 | R | Cabin ceiling light 52U42 is ON                                            |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10039 | R | Right pushbutton lamp 52S4 is ON                                           |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10040 | A | Push the cab lighting RIGHT side button (52S4)                             |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10041 | R | Cabin ceiling light 52U40 is OFF                                           |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10042 | R | Cabin ceiling light 52U41 is OFF                                           |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10043 | R | Cabin ceiling light 52U42 is OFF                                           |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10044 | R | Right pushbutton lamp 52S4 is OFF                                          |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10045 | I | Turn battery contactor switch 18S1 to ON position                          |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10046 | R | In the saloon, all RIGHT side emergency lights are ON on all light modules |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10047 | R | In the saloon, all LEFT side emergency lights are ON on all light modules  |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10048 | R | Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right) |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10049 | A | Press and hold the cab lighting RIGHT side button (52S4)                   |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |
| 10050 | R | The intensity of cabin ceiling light 52U40 decreases                       |  | OK |  | Tebogo Mtombeni - 529938 | TC2 |

|       |   |                                                                                    |  |    |   |                          |     |
|-------|---|------------------------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10051 | R | The intensity of cabin ceiling light 52U41 decreases                               |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10052 | R | The intensity of cabin ceiling light 52U42 decreases                               |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10053 | A | Release cab lighting LEFT side button (52S4)                                       |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10054 | A | Open Circuit Breaker 52Q6                                                          |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10055 | A | Press and hold the Lamp Test pushbutton 84S1                                       |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10056 | R | Both cab ceiling light pushbutton lamps are ON (52S3 Left and 52S4 Right)          |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10057 | A | Release the Lamp Test pushbutton 84S1                                              |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10058 | R | Both cab ceiling light pushbutton lamps are OFF (52S3 Left and 52S4 Right)         |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10059 | A | Close Circuit Breaker 52Q6                                                         |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10060 | I | Cleaning Light Command                                                             |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10061 | I | Turn battery contactor switch 18S1 to OFF position                                 |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10062 | A | Turn Cleaning Staff Lights Switch 52S6 to ON position                              |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10063 | I | Lighting 33% Train Line Dev5/8 = END2 90XP15 pin 27                                |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10064 | R | Read Defined Variable [NI] Dev5/8 = 1.0                                            |  | OK | 1 | Tebogo Mtombeni - 529938 | TC2 |
| 10065 | R | The saloon RIGHT side emergency lights (low intensity) are ON on all light modules |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10066 | R | The saloon LEFT side emergency lights (low intensity) are ON on all light modules  |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10067 | A | Open Circuit Breaker 52Q5                                                          |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |

|       |   |                                                                                             |  |    |   |                                |     |
|-------|---|---------------------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10068 | I | Lighting 33% Train Line<br>Dev5/8 = END2 90XP15 pin 27                                      |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10069 | R | Read Defined Variable [NI]<br>Dev5/8 = 0.0                                                  |  | OK | 0 | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10070 | R | The saloon RIGHT side<br>emergency lights (low intensity)<br>are OFF on all light modules   |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10071 | R | The saloon LEFT side emergency<br>lights (low intensity) are OFF on<br>all light modules    |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10072 | A | Close Circuit Breaker 52Q5                                                                  |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10073 | I | Main Light Command                                                                          |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10074 | A | Turn Cleaning Staff Lights<br>Switch 52S6 to ON position                                    |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10075 | I | Lighting 33% Train Line<br>Dev5/8 = END2 90XP15 pin 27                                      |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10076 | R | Read Defined Variable [NI]<br>Dev5/8 = 1.0                                                  |  | OK | 1 | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10077 | R | All saloon emergency lights (low<br>intensity) are ON on all light<br>modules (Left+Right)  |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10078 | I | Turn battery contactor switch<br>18S1 to ON position - allow<br>time for TCMS to initialize |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10079 | A | Force [TT]<br>(MPU1)lo_lgt_tc2mainlgtcmd<br>= 1.0                                           |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10080 | I | Lighting 33% Train Line<br>Dev5/8 = END2 90XP15 pin 27                                      |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10081 | R | Read Defined Variable [NI]<br>Dev5/8 = 0.0                                                  |  | OK | 0 | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10082 | I | Main Lighting Command Train<br>Line<br>Dev5/24 = END2 90XP15 pin 26                         |  | OK |   | Tebogo<br>Mtombeni -<br>529938 | TC2 |
| 10083 | R | Read Defined Variable [NI]<br>Dev5/24 = 1.0                                                 |  | OK | 1 | Tebogo<br>Mtombeni -<br>529938 | TC2 |

|       |   |                                                                                      |  |    |   |                          |     |
|-------|---|--------------------------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10084 | R | The saloon RIGHT side main lighting (high intensity) is ON on all light modules      |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10085 | R | The saloon LEFT side main lighting (high intensity) is ON on all light modules       |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10086 | A | Release [TT] (MPU1)lo_lgt_tc2mainlgtcmd                                              |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10087 | I | Main Lighting Command Train Line<br>Dev5/24 = END2 90XP15 pin 26                     |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10088 | R | Read Defined Variable [NI]<br>Dev5/24 = 0.0                                          |  | OK | 0 | Tebogo Mtombeni - 529938 | TC2 |
| 10089 | I | Lighting 33% Train Line<br>Dev5/8 = END2 90XP15 pin 27                               |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10090 | R | Read Defined Variable [NI]<br>Dev5/8 = 0.0                                           |  | OK | 0 | Tebogo Mtombeni - 529938 | TC2 |
| 10091 | R | All saloon emergency lights (low intensity) are ON on all light modules (Left+Right) |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |
| 10092 | I | END OF TEST                                                                          |  | OK |   | Tebogo Mtombeni - 529938 | TC2 |



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## Section 7 – PACIS System

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### 7.1 Instructions list

### 7.1.1 054\_PIS-PACIS System

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                          | File | Result status | Result value | Operator                | Vehicle |
|-------|------|------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | PACIS System (SPP=054)                               |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10002 | I    | Initial conditions                                   |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10003 | I    | Car must be prepared - battery contactor 18S1 closed |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10004 | I    | Circuit Breakers                                     |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10005 | A    | Close Circuit Breaker 54Q1                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10006 | A    | Close Circuit Breaker 54Q2                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10007 | A    | Close Circuit Breaker 54Q3                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10008 | A    | Close Circuit Breaker 54Q10                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10009 | A    | Close Circuit Breaker 54Q11                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10010 | A    | Close Circuit Breaker 54Q13                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10011 | A    | Close Circuit Breaker 54Q15                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10012 | A    | Close Circuit Breaker 55Q1                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10013 | A    | Close Circuit Breaker 55Q2                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10014 | A    | Close Circuit Breaker 55Q3                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10015 | I    | Train Router Switch 'TRS'                            |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10016 | R    | TRS1 is ON                                           |      | OK            |              | Gcobani Baliso - 480570 | TC2     |

|       |   |                                                                                  |  |    |      |                         |     |
|-------|---|----------------------------------------------------------------------------------|--|----|------|-------------------------|-----|
| 10017 | I | Power Supply to UMC Rack                                                         |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10018 | R | All cards on the UMC Rack are ON - PS, EBM, DPC-IOC, NVR, Media Server           |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10019 | I | Driver Control Panel                                                             |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10020 | R | Driver Control Panel is ON                                                       |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10021 | I | Ethernet Switch 'CRS1'                                                           |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10022 | R | CRS1 is ON                                                                       |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10023 | I | DPAI-1                                                                           |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10024 | R | DPAI-1 is ON                                                                     |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10025 | I | DPAI-2                                                                           |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10026 | R | DPAI-2 is ON                                                                     |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10027 | I | Impedance of Loudspeaker                                                         |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10028 | I | Saloon Speakers Commanded by DPAI-1                                              |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10029 | A | Measure the impedance on connector '54XP1_X4' between pins: z 32 (+) and z30 (-) |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10030 | R | Impedance Result Max : $x \leq 24$ ()                                            |  | OK | 24   | Gcobani Baliso - 480570 | TC2 |
| 10031 | I | Saloon Speakers Commanded by DPAI-2                                              |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10032 | A | Measure the impedance on connector '54XP2_X4' between pins: z32(+) and z30 (-)   |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10033 | R | Impedance Result Max : $x \leq 32$ ()                                            |  | OK | 30.7 | Gcobani Baliso - 480570 | TC2 |
| 10034 | I | Front Display 'FRT1'                                                             |  | OK |      | Gcobani Baliso - 480570 | TC2 |
| 10035 | R | The PWR (power) LED is ON on the Front                                           |  | OK |      | Gcobani Baliso - 480570 | TC2 |

|       |   |                                                        |  |    |  |                            |     |
|-------|---|--------------------------------------------------------|--|----|--|----------------------------|-----|
|       |   | Display FRT1                                           |  |    |  |                            |     |
| 10036 | I | Lateral Display 'LAT1'                                 |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10037 | R | The PWR (power) LED is ON on the Lateral Display LAT1  |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10038 | I | Lateral Display 'LAT2'                                 |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10039 | R | The PWR (power) LED is ON on the Lateral Display LAT2  |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10040 | I | Interior Display 'INT1'                                |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10041 | R | The PWR (power) LED is ON on the Interior Display INT1 |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10042 | I | Interior Display 'INT2'                                |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10043 | R | The PWR (power) LED is ON on the Interior Display INT2 |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10044 | I | Data plugs                                             |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10045 | A | Insert and secure data plugs in the TRS and CRS'       |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |
| 10046 | I | END OF TEST                                            |  | OK |  | Gcobani Baliso<br>- 480570 | TC2 |



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## Section 8 – Dead Man

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### 8.1 Instructions list

### 8.1.1 060\_DSD-Dead Man

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                 | File | Result status | Result value | Operator                       | Vehicle |
|-------|------|---------------------------------------------------------------------------------------------|------|---------------|--------------|--------------------------------|---------|
| 10001 | I    | Dead Man (SPP=60)                                                                           |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10002 | I    | Initial conditions                                                                          |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10003 | I    | TC car is in service and cabin should be active                                             |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10004 | A    | Position the "Dead Man Override" switch to "Normal" position.                               |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10005 | I    | Circuit Breakers                                                                            |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10006 | A    | Close Circuit Breaker 60Q1                                                                  |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10007 | A    | Close Circuit Breaker 30Q3                                                                  |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10008 | I    | Buzzer 60W1                                                                                 |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10009 | A    | Force [TT]<br>(MPU1)lo_dsd_tc2dmbuzzerr1 = 1.0                                              |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10010 | R    | The buzzer 60W1 is ON.<br>A noise coming from the buzzer can be clearly heard in the cabin. |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10011 | A    | Release [TT]<br>(MPU1)lo_dsd_tc2dmbuzzerr1                                                  |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10012 | R    | The buzzer 60W1 is OFF.<br>No noise coming from buzzer.                                     |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10013 | A    | Force [TT]<br>(MPU1)lo_dsd_tc2dmbuzzerr2 = 1.0                                              |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10014 | R    | The buzzer 60W1 is ON.<br>A noise coming from the buzzer can be clearly heard in the cabin. |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10015 | A    | Release [TT]<br>(MPU1)lo_dsd_tc2dmbuzzerr2                                                  |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |

|       |   |                                                                         |                                                                                     |    |   |                                |     |
|-------|---|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--------------------------------|-----|
| 10016 | R | The buzzer 60W1 is OFF.<br>No noise coming from buzzer.                 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10017 | I | Dead Man Lamp                                                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10018 | A | Position the Running Direction switch<br>to "FORWARD"                   |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10019 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr1<br>= 1.0 |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr2<br>= 1.0 |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10021 | A | Position the Running Direction switch<br>30A1.S1 in "Neutral"           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10022 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr1<br>= 0.0 |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10023 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr2<br>= 0.0 |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10024 | R | On the alarm module, check the Dead<br>man deactivated symbol is OFF.   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10025 | A | Force [TT]<br>(MPU1)lo_dsd_tc2deadmanlampr1<br>= 1.0                    |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10026 | R | On the alarm module, check the Dead<br>man deactivated symbol is ON     |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10027 | A | Release [TT]<br>(MPU1)lo_dsd_tc2deadmanlampr1                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10028 | R | On the alarm module, check the Dead<br>man deactivated symbol is OFF.   |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10029 | A | Force [TT]<br>(MPU1)lo_dsd_tc2deadmanlampr2<br>= 1.0                    |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10030 | R | On the alarm module, check the Dead<br>man deactivated symbol is ON     |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10031 | A | Release [TT]<br>(MPU1)lo_dsd_tc2deadmanlampr2                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                    |                                                                                     |    |   |                          |     |
|-------|---|--------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--------------------------|-----|
| 10032 | R | On alarm module, check the Dead man deactivated symbol is OFF.     |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10033 | I | DSD function                                                       |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10034 | A | Position the Running Direction switch to "FORWARD"                 |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10035 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0  |                                                                                     | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10036 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 0.0  |                                                                                     | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10037 | A | Timer 5.0 S                                                        |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10038 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0  |                                                                                     | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10039 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr2 = 1.0  |                                                                                     | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10040 | R | On alarm module, check the Dead man deactivated symbol is ON       |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10041 | A | Press and hold the dead man button 60S3 on the driver desk         |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10042 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0  |                                                                                     | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10043 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr1 = 1.0         |                                                                                     | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10044 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2deadmanr2 = 1.0         |                                                                                     | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10045 | R | On the alarm module, check the Dead man deactivated symbol is OFF. |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10046 | A | Release the dead man button 60S3                                   |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10047 | A | Timer 5.0 S                                                        |                                                                                     | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10048 | R | Read Defined Variable [TT]                                         |                                                                                     | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                                                                    |                                                                                     |    |   |                                |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--------------------------------|-----|
|       |   | (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0                                                                                             |                                                                                     |    |   |                                |     |
| 10049 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanr1 = 0.0                                                                      |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10050 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanr2 = 0.0                                                                      |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10051 | R | On alarm module, check the Dead Man deactivated symbol is ON                                                                       |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10052 | A | Press and hold the dead man switch, which is positioned on master controller.                                                      |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10053 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0                                                               |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10054 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanr1 = 1.0                                                                      |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10055 | R | On the alarm module, check the Dead man deactivated symbol is OFF.                                                                 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10056 | A | Release the dead man button on the master controller                                                                               |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10057 | A | Timer 5.0 S                                                                                                                        |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10058 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr1 = 1.0                                                               |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10059 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanr1 = 0.0                                                                      |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10060 | R | On alarm module, check the Dead Man deactivated symbol is ON                                                                       |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10061 | I | DSD Override indication                                                                                                            |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10062 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is OFF.                                                       |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10063 | A | Press and hold dead man button 60S3                                                                                                |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10064 | A | Position the "Dead Man Override" switch to "Override" position (do not release the dead man device actuated in the previous step). |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                             |                                                                                   |    |   |                                |     |
|-------|---|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|--------------------------------|-----|
| 10065 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is ON  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10066 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2ebdeadmanrelayr1<br>= 1.0     |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10067 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanoverridr1<br>= 1.0     |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10068 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanoverridr2<br>= 1.0     |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10069 | A | Release the dead man button                                                 |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10070 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is ON  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10071 | A | Position the "Dead Man Override"<br>switch to "Normal" position.            |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10072 | R | On the alarm module, verify that the Dead Man override (60H2) symbol is OFF |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10073 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanoverridr1<br>= 0.0     |                                                                                   | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10074 | R | Read Defined Variable [TT]<br>(MPU1)li_dsd_tc2deadmanoverridr2<br>= 0.0     |                                                                                   | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10075 | R | On alarm module, check the Dead<br>man deactivated (60H1) symbol is ON      |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10076 | A | Position the Running Direction switch<br>30A1.S1 in "Neutral"               |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10077 | R | On alarm module, check the Dead<br>man deactivated symbol is OFF            |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10078 | I | END OF TEST                                                                 |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |



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## Section 9 – External Signaling

### 9.1 Instructions list

#### 9.1.2 070\_SIG\_2-Warning Hooters

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                          | File | Result status | Result value | Operator                 | Vehicle |
|-------|------|----------------------------------------------------------------------|------|---------------|--------------|--------------------------|---------|
| 10001 | I    | Warning Hooters SPP=071                                              |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10002 | I    | Initial Conditions                                                   |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10003 | I    | The air in the main pipe should be at least 4 bar                    |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10004 | I    | For this test wear earplugs.                                         |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10005 | I    | Start of Test                                                        |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10006 | I    | The pressure setting of point H1.12 must be set to 4 bar             |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10007 | R    | Enter the value measured above                                       |      | OK            | 3.9          | Anthonia Mabowa - 494131 | TC2     |
| 10008 | R    | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR1 = 1.0 |      | OK            | 1            | Anthonia Mabowa - 494131 | TC2     |
| 10009 | R    | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR2 = 1.0 |      | OK            | 1            | Anthonia Mabowa - 494131 | TC2     |
| 10010 | A    | Press the foot pedal 57A13.S1 to actuate the horn and maintain it    |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10011 | R    | Horn sound can be heard at 100m distance from the cab                |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10012 | R    | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR1 = 0.0 |      | OK            | 0            | Anthonia Mabowa - 494131 | TC2     |

|       |   |                                                                                            |  |    |   |                                |     |
|-------|---|--------------------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10013 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR2<br>= 0.0                    |  | OK | 0 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10014 | A | Release the foot heater pedal                                                              |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10015 | R | Horn sound stops                                                                           |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10016 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR1<br>= 1.0                    |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10017 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningHootersR2<br>= 1.0                    |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10018 | A | Actuate the low pitch horn by pressing<br>down the valve H1.3.1 under the<br>driver's desk |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10019 | R | The horn sound can be heard in low<br>pitch                                                |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10020 | A | Release the valve H1.3.1                                                                   |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10021 | R | Horn sound stops                                                                           |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10022 | I | Electric Horn Test                                                                         |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10023 | A | Press the button 71S1 and maintain it                                                      |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10024 | R | The sound of the whistle can be heard<br>at least 20m from the cab                         |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10025 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningWhistleR1<br>= 1.0                    |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10026 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningWhistleR2<br>= 1.0                    |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10027 | A | Release the button 71S1                                                                    |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10028 | R | Whistle sound stops                                                                        |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |

|       |   |                                                                         |  |    |   |                                |     |
|-------|---|-------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10029 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningWhistleR1<br>= 0.0 |  | OK | 0 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10030 | R | Read Defined Variable [TT]<br>(MPU1)Li_SGL_Tc2WarningWhistleR2<br>= 0.0 |  | OK | 0 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10031 | I | END OF TEST                                                             |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |

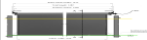
### 9.1.1 070\_SIG-External Signaling

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                | File                                                                              | Result status | Result value | Operator                        | Vehicle |
|-------|------|------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------|--------------|---------------------------------|---------|
| 10001 | I    | External Signalling (SPP=70)                               |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10002 | I    | Use the image below for reference throughout the procedure |  | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10003 | I    | Initial Conditions                                         |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10004 | A    | Turn IES switch on Test bench to ON position               |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10005 | I    | Shore Supply is connected to the car                       |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10006 | I    | TC1 car prepared and cab active                            |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10007 | A    | Check if the mirrors do not have cracks or is not chipped. |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10008 | I    | Circuit Breakers                                           |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10009 | A    | Close Circuit Breaker 70Q1                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10010 | A    | Close Circuit Breaker 70Q2                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10011 | A    | Close Circuit Breaker 70Q3                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10012 | A    | Close Circuit Breaker 72Q4                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10013 | A    | Close Circuit Breaker 75Q1                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10014 | A    | Close Circuit Breaker 72Q2                                 |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10015 | I    | Left Platform and Head Lights                              |                                                                                   | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |

|       |   |                                                               |  |    |                                 |     |
|-------|---|---------------------------------------------------------------|--|----|---------------------------------|-----|
| 10016 | A | Check that the following external lights on the LEFT are ON:  |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10017 | R | Platform lights 70H12 white LEDs                              |  | OK | Impi Tsela - 435647             | TC2 |
| 10018 | R | Platform lights 70H5 while light                              |  | OK | Impi Tsela - 435647             | TC2 |
| 10019 | R | Head lights 70H3 white light                                  |  | OK | Impi Tsela - 435647             | TC2 |
| 10020 | I | Right Platform and Head Lights                                |  | OK | Impi Tsela - 435647             | TC2 |
| 10021 | A | Check that the following external lights on the RIGHT are on: |  | OK | Impi Tsela - 435647             | TC2 |
| 10022 | R | Platform lights 70H11 white LEDs                              |  | OK | Impi Tsela - 435647             | TC2 |
| 10023 | R | Platform lights 70H6 while light                              |  | OK | Impi Tsela - 435647             | TC2 |
| 10024 | R | Head lights 70H4 white light                                  |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10025 | I | Back Lights                                                   |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10026 | A | Turn key 30A1.S1 to Non-Active Cabin Position                 |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10027 | A | Reset Circuit Breaker 20Q2 (On and Off)                       |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10028 | R | All white lights, on the LEFT and Right side are OFF          |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10029 | R | Left red light 70H7 is ON                                     |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10030 | R | Right red light 70H9 is ON                                    |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10031 | R | Red LEDs on Platform light 70H11 are ON                       |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10032 | I | Coupled Train                                                 |  | OK | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                         |  |    |   |                                 |     |
|-------|---|-------------------------------------------------------------------------|--|----|---|---------------------------------|-----|
| 10033 | A | Turn key 30A1.S1 to Activate Cabin                                      |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10034 | R | All white lights are ON, and red lights are OFF                         |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10035 | I | Coupling Relay Train Line Dev 1/2 = coupler pin 103                     |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10036 | A | Force [NI] Dev1/62 = 1                                                  |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10037 | R | All External lights are OFF                                             |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10038 | I | Coupling Relay Train Line Dev 1/62 = coupler 103                        |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10039 | A | Force [NI] Dev1/62 = 0                                                  |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10040 | R | All white lights are ON, and red lights                                 |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10041 | I | Main lights and Dimming                                                 |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10042 | A | Switch the External lights switch 70S2 to "Bright Light" position       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10043 | R | The External lights switch 70S2 lamp is ON                              |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10044 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight1 = 0.00            |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10045 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight2 = 0.00            |  | OK | 0 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10046 | R | The headlights 70H3 and 70H4 are in bright light configuration          |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10047 | A | Switch the External lights switch 70S2 to "Normal" or "Dimmed" position |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10048 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight1 = 1.00            |  | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                                                                                |                                                                                   |    |   |                                 |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|---------------------------------|-----|
| 10049 | R | Read Defined Variable [TT] (MPU1)li_sgl_tc2headlight2 = 1.00                                                                                                   |                                                                                   | OK | 1 | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10050 | R | The External lights switch lamp 70S2 is OFF                                                                                                                    |                                                                                   | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10051 | R | The headlights 70H3 and 70H4 are in normal/dimmed configuration                                                                                                |                                                                                   | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10052 | I | Sunshade adjustment settings                                                                                                                                   |                                                                                   | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10053 | I | To set the limits, it must be done using the appropriate tool (square torx/ screwdriver). The white nut moves the limit down and the red one moves up.         |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10054 | A | Look at the picture below for upper limit and the lower limit. The yellow line represents the upper limit, and the green one represents the lower limit.       |  | OK |   | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10055 | A | Rotate the red nut with a square torx either clockwise or ant-clockwise until the upper limit is set to the desired position as shown on the picture above.    |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |
| 10056 | A | Turn the Sunshade Control Switch 72S3 to position 1 (Up) and maintain it                                                                                       |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |
| 10057 | R | The sunshade stops at the upper position that was set above.                                                                                                   |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |
| 10058 | A | Rotate the white nut with a square torx either clockwise or anti-clockwise until the lower limit is set to the desired position as shown on the picture above. |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |
| 10059 | A | Turn the Sunshade Control Switch 72S3 to position 2 (down) and maintain it                                                                                     |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |
| 10060 | R | The sunshade stops at the lower position that was set above.                                                                                                   |                                                                                   | OK |   | Impi Tsela - 435647             | TC2 |



Serial Tests Report  
TS251 – TC2 – VFT  
RTR Vehicle Functional Static Testing Report

Document Reference  
GIB0000007316  
Version: A0

Emission date  
18/10/2024

|       |   |             |  |    |  |                        |     |
|-------|---|-------------|--|----|--|------------------------|-----|
| 10061 | I | END OF TEST |  | OK |  | Impi Tsela -<br>435647 | TC2 |
|-------|---|-------------|--|----|--|------------------------|-----|



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## Section 10 – Rescue Mode and Emergency Disconnection

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### 10.1 Instructions list

### 10.1.1 027\_ERM-Rescue Mode and Emergency Disconnection

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                       | File | Result status | Result value | Operator                 | Vehicle |
|-------|------|-------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|--------------------------|---------|
| 10001 | I    | Rescue Mode and Emergency Disconnection (SPP=027)                                                                 |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10002 | I    | Initial Conditions                                                                                                |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10003 | I    | Car is powered OFF                                                                                                |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10004 | I    | Circuit breaker 61Q1 must be off                                                                                  |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10005 | I    | Backup Mode                                                                                                       |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10006 | A    | Turn Switch 27S1 (Backup Mode Position) to 'BACKUP Position                                                       |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10007 | A    | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                         |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10008 | A    | Turn Battery contactor Switch 18S1 to ON position                                                                 |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10009 | I    | Backup Mode Train Lines<br>Dev5/33 = END2 90XP15 pin 23<br>Dev2/67 = Coupler pin 007<br>Dev2/25 = Coupler pin 107 |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10010 | R    | Read Defined Variable [NI]<br>Dev5/33 = 1.0                                                                       |      | OK            | 1            | Anthonia Mabowa - 494131 | TC2     |
| 10011 | R    | Read Defined Variable [NI]<br>Dev2/25 = 1.0                                                                       |      | OK            | 1            | Anthonia Mabowa - 494131 | TC2     |
| 10012 | R    | Read Defined Variable [NI]<br>Dev2/67 = 1.0                                                                       |      | OK            | 1            | Anthonia Mabowa - 494131 | TC2     |
| 10013 | R    | Relay 27K1 is energized                                                                                           |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10014 | R    | Relay 27K2 is De-energized                                                                                        |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |
| 10015 | A    | Timer 30.0 S                                                                                                      |      | OK            |              | Anthonia Mabowa - 494131 | TC2     |

|       |   |                                                                                                                   |      |    |   |                          |     |
|-------|---|-------------------------------------------------------------------------------------------------------------------|------|----|---|--------------------------|-----|
| 10016 | R | Relay 27K2 is energized                                                                                           |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10017 | I | Check that the Backup mode LED 27H2 is ON                                                                         | TCMS | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10018 | A | Turn Driver's Master Key 30A1.S1 to Non-Active Cabin Position                                                     |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10019 | I | Backup Mode Train Lines<br>Dev5/33 = END2 90XP15 pin 23<br>Dev2/67 = Coupler pin 007<br>Dev2/25 = Coupler pin 107 |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10020 | R | Read Defined Variable [NI]<br>Dev5/33 = 0.0                                                                       |      | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10021 | R | Read Defined Variable [NI]<br>Dev2/25 = 0.0                                                                       |      | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10022 | R | Read Defined Variable [NI]<br>Dev2/67 = 0.0                                                                       |      | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10023 | R | Relay 27K1 is De-energized                                                                                        |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10024 | R | Relay 27K2 is De-energized                                                                                        |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10025 | R | Check that the Backup mode LED 27H2 is OFF                                                                        |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10026 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                         |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10027 | A | Turn Battery contactor Switch 18S1 to OFF position                                                                |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10028 | A | Turn Switch '27S1' (Backup Mode Position) to Normal Position                                                      |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10029 | I | Turn ERTMS Isolation Switch 62S1 to Normal position                                                               |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10030 | A | Turn Battery contactor Switch 18S1 to ON position                                                                 |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10031 | A | Check continuity between point 20 on Backup State Switch 27S1 and ground                                          |      | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10032 | R | The points are continuous.                                                                                        |      | OK |   | Anthonia Mabowa - 494131 | TC2 |

|       |   |                                                                                                                                  |  |    |   |                                |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10033 | I | Backup Mode Train Line<br>Dev5/33 = END2 90XP15 pin 23                                                                           |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10034 | R | Read Defined Variable [NI]<br>Dev5/33 = 0.0                                                                                      |  | OK | 0 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10035 | A | Force [TT]<br>(BCU2)LO_SPEED_THRSLD1 =<br>0.0                                                                                    |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10036 | I | Emergency Disconnection                                                                                                          |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10037 | I | Emergency Disconnection Train<br>Lines<br>Dev5/34 = END2 90XP15 pin 24<br>Dev2/79 = Coupler pin 019<br>Dev2/75 = Coupler pin 119 |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10038 | R | Read Defined Variable [NI]<br>Dev5/34 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10039 | R | Read Defined Variable [NI]<br>Dev2/79 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10040 | R | Read Defined Variable [NI]<br>Dev2/75 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10041 | I | Emergency Brake ERTMS 1 Train<br>Line<br>Dev4/88 = END2 90XP14 pin 18                                                            |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10042 | A | Force [NI] Dev4/88 = 1.0                                                                                                         |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10043 | I | Emergency Disconnection Train<br>Lines<br>Dev5/34 = END2 90XP15 pin 24<br>Dev2/79 = Coupler pin 019<br>Dev2/75 = Coupler pin 119 |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10044 | R | Read Defined Variable [NI]<br>Dev5/34 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10045 | R | Read Defined Variable [NI]<br>Dev2/79 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10046 | R | Read Defined Variable [NI]<br>Dev2/75 = 1.0                                                                                      |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10047 | I | Emergency Brake ERTMS 2 Train<br>Line<br>Dev4/80 = END2 90XP14 pin 20                                                            |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |

|       |   |                                                                                                                               |  |    |   |                          |     |
|-------|---|-------------------------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10048 | A | Force [NI] Dev4/80 = 1.0                                                                                                      |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10049 | I | Emergency Disconnection Train Lines<br>Dev5/34 = END2 90XP15 pin 24<br>Dev2/79 = Coupler pin 019<br>Dev2/75 = Coupler pin 119 |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10050 | R | Read Defined Variable [NI]<br>Dev5/34 = 0.0                                                                                   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10051 | R | Read Defined Variable [NI]<br>Dev2/79 = 0.0                                                                                   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10052 | R | Read Defined Variable [NI]<br>Dev2/75 = 0.0                                                                                   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10053 | I | Emergency Brake ERTMS 1 Train Line<br>Dev4/88 = END2 90XP14 pin 18                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10054 | A | Force [NI] Dev4/88 = 0.0                                                                                                      |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10055 | I | Emergency Brake ERTMS 2 Train Line<br>Dev4/80 = END2 90XP14 pin 20                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10056 | A | Force [NI] Dev4/80 = 0.0                                                                                                      |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10057 | I | Emergency Disconnection Train Line<br>Dev5/34 = END2 90XP15 pin 24                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10058 | R | Read Defined Variable [NI]<br>Dev5/34 = 1.0                                                                                   |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |
| 10059 | I | V<3km/h Train Line<br>Dev4/39 = END2 90XP15 pin 29                                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10060 | A | Force [NI] Dev4/39 = 1.0                                                                                                      |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10061 | I | Emergency Disconnection Train Line<br>Dev5/34 = END2 90XP15 pin 24                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10062 | R | Read Defined Variable [NI]<br>Dev5/34 = 0.0                                                                                   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10063 | I | V<3km/h Train Line<br>Dev4/39 = END2 90XP15 pin 29                                                                            |  | OK |   | Anthonia Mabowa - 494131 | TC2 |

|       |   |                                                                    |  |    |   |                          |     |
|-------|---|--------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10064 | A | Force [NI] Dev4/39 = 0.0                                           |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10065 | I | Emergency Disconnection Train Line<br>Dev5/34 = END2 90XP15 pin 24 |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10066 | R | Read Defined Variable [NI]<br>Dev5/34 = 1.0                        |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |
| 10067 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr1 = 1.0   |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |
| 10068 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr2 = 1.0   |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |
| 10069 | I | Place ERTMS Isolation Switch in "Isolation" position               |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10070 | I | Emergency Disconnection Train Line<br>Dev5/34 = END2 90XP15 pin 24 |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10071 | R | Read Defined Variable [NI]<br>Dev5/34 = 0.0                        |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10072 | A | Release [TT]<br>(BCU2)LO_SPEED_THRSLD1                             |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10073 | A | Push the blue "Emergency Pantograph Down" pushbutton               |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10074 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr1 = 0.0   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10075 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr2 = 0.0   |  | OK | 0 | Anthonia Mabowa - 494131 | TC2 |
| 10076 | I | Emergency Disconnection Train Line<br>Dev5/34 = END2 90XP15 pin 24 |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10077 | R | Read Defined Variable [NI]<br>Dev5/34 = 1.0                        |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |
| 10078 | A | Release the "Emergency Pantograph Down" pushbutton                 |  | OK |   | Anthonia Mabowa - 494131 | TC2 |
| 10079 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr1 = 1.0   |  | OK | 1 | Anthonia Mabowa - 494131 | TC2 |

|       |   |                                                                       |  |    |   |                                |     |
|-------|---|-----------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10080 | R | Read Defined Variable [TT]<br>(MPU1)li_erm_tc2noemerdiscr2<br>= 1.0   |  | OK | 1 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10081 | I | Emergency Disconnection Train<br>Line<br>Dev5/34 = END2 90XP15 pin 24 |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10082 | R | Read Defined Variable [NI]<br>Dev5/34 = 0.0                           |  | OK | 0 | Anthonia<br>Mabowa -<br>494131 | TC2 |
| 10083 | I | END OF TEST                                                           |  | OK |   | Anthonia<br>Mabowa -<br>494131 | TC2 |



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RTR Vehicle Functional Static Testing Report

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## Section 11 – Driver Desk Illumination

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### 11.1 Instructions list

### 11.1.1 084\_DDK-Driver Desk Illumination

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                     | File | Result status | Result value | Operator                        | Vehicle |
|-------|------|-----------------------------------------------------------------|------|---------------|--------------|---------------------------------|---------|
| 10001 | I    | Driver Desk Illumination (SPP=084)                              |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10002 | I    | Initial Conditions:                                             |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10003 | I    | Car is prepared and cab is active                               |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10004 | A    | Close Circuit Breaker 81Q1                                      |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10005 | I    | Indicator Modules                                               |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10006 | R    | Check that the Line Indicator Module 81A1 is ON                 |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10007 | R    | Check that the Pressure gauge 84P1 is ON                        |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10008 | R    | Check that the light of the Speed Indicator 61A2 is ON          |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10009 | I    | Lamp Test                                                       |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10010 | A    | Press and hold the Lamp Test pushbutton 84S1                    |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10011 | R    | Check that the White Lamp Test pushbutton Lamp 84S1 is ON       |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10012 | R    | Check that the White Automatic Start pushbutton lamp 20S1 is ON |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |
| 10013 | R    | Check that the Orange Standby State pushbutton lamp 20S2 is ON  |      | OK            |              | Goitsemodimo Kgatitswe - 526511 | TC2     |

|       |   |                                                                                  |  |    |  |                                 |     |
|-------|---|----------------------------------------------------------------------------------|--|----|--|---------------------------------|-----|
| 10014 | R | Check that the White Pantograph Up/Down pushbutton lamp 21S1 is ON               |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10015 | R | Check that the White Close Main Circuit Breaker pushbutton lamp 22S11 is ON      |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10016 | R | Check that the Red Open Main Circuit Breaker pushbutton lamp 22S12 is ON         |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10017 | R | Check that the White Reduced Power lamp 30S2 is ON                               |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10018 | R | Check that the Red Override Passenger Emergency Alarm pushbutton lamp 44S5 is ON |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10019 | R | Check that the Yellow Door Auth Left pushbutton lamp 50S5 is ON                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10020 | R | Check that the Yellow Door Auth Right pushbutton lamp 50S6 is ON                 |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10021 | R | Check that the White Door Open Left pushbutton lamp 50S1 is ON                   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10022 | R | Check that the White Door Open Right pushbutton lamp 50S2 is ON                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10023 | R | Check that the Blue Door Close Left pushbutton lamp 50S3 is ON                   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10024 | R | Check that the Blue Door Close Right pushbutton lamp 50S4 is ON                  |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                         |                                                                                     |    |  |                                 |     |
|-------|---|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|---------------------------------|-----|
| 10025 | R | Check that the White Cab Lighting Left Side pushbutton lamp 52S3 is ON  |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10026 | R | Check that the White Cab Lighting Right Side pushbutton lamp 52S4 is ON |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10027 | R | Check that the White Foot Heater pushbutton lamp 57S3 is ON             |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10028 | R | Check that the Red Front CCTV Event pushbutton lamp 66S1 is ON          |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10029 | R | Check that the White Windscreen Demister pushbutton lamp 72S2 is ON     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10030 | I | Use the following image to verify the train status LEDs 84A1            |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10031 | R | Check that 31H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10032 | R | Check that 60H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10033 | R | Check that 18H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10034 | R | Check that 44H4 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10035 | R | Check that 44H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10036 | R | Check that 51H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10037 | R | Check that 45H2 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10038 | R | Check that 40H2 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10039 | R | Check that 40H1 is ON                                                   |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                                                                                                                                                                           |                                                                                     |    |  |                                 |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|---------------------------------|-----|
| 10040 | R | Check that 41H1 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10041 | R | Check that 60H2 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10042 | R | Check that 27H2 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10043 | R | Check that 62H1 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10044 | R | Check that 44H5 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10045 | R | Check that 31H2 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10046 | R | Check that 67H1 is ON                                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10047 | A | Release the Lamp Test pushbutton 84S1                                                                                                                                                                                     |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10048 | I | Dimmer Switch Adjustment                                                                                                                                                                                                  |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10049 | I | Open the driver desk plate on which the dimmer switch 84S2 is located to access the bottom of the dimmer switch. Use the image to identify the trimmer screw which is used to adjust the limits of the dimmer             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10050 | A | Adjust the trimmer (potentiometer) to increase the lower limit of the dimmer- allowing the cab lights to dim to a minimum lighting that is still visible and not zero. Then, reassemble the driver desk plate in location |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10051 | A | Press the Lamp Test pushbutton 84S1 and maintain it                                                                                                                                                                       |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10052 | A | While pressing 84S1, turn the dimmer switch and observe that the                                                                                                                                                          |                                                                                     | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                                                                           |  |    |  |                                 |     |
|-------|---|---------------------------------------------------------------------------|--|----|--|---------------------------------|-----|
|       |   | brightness of all the following lamps increases and decreases accordingly |  |    |  |                                 |     |
| 10053 | R | Check that 61A2 (Speed Indicator) can be dimmed                           |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10054 | R | Check that the Line Indicator Module 81A1 can be dimmed                   |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10055 | R | Check that the Pressure gauge 84P1 can be dimmed                          |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10056 | R | Check that the Train Status LEDs 84A1 can be dimmed                       |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10057 | R | Check that 84S1 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10058 | R | Check that 20S1 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10059 | R | Check that 20S2 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10060 | R | Check that 21S1 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10061 | R | Check that 22S11 can be dimmed                                            |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10062 | R | Check that 22S12 can be dimmed                                            |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10063 | R | Check that 30S2 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10064 | R | Check that 44S5 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10065 | R | Check that 50S5 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10066 | R | Check that 50S6 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10067 | R | Check that 50S1 can be dimmed                                             |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |

|       |   |                               |  |    |  |                                 |     |
|-------|---|-------------------------------|--|----|--|---------------------------------|-----|
| 10068 | R | Check that 50S2 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10069 | R | Check that 50S3 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10070 | R | Check that 50S4 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10071 | R | Check that 52S3 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10072 | R | Check that 52S4 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10073 | R | Check that 57S3 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10074 | R | Check that 66S1 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10075 | R | Check that 67S1 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |
| 10076 | R | Check that 72S2 can be dimmed |  | OK |  | Goitsemodimo Kgatitswe - 526511 | TC2 |



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## Section 12 – Emergency Brake

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### 12.1 Instructions list

### 12.1.1 044\_UBK-Emergency Brake

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                | File                                                                                | Result status | Result value | Operator                       | Vehicle |
|-------|------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------|--------------------------------|---------|
| 10001 | I    | Emergency Brake (SPP=044)                                                                                                  |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10002 | I    | Initial Conditions                                                                                                         |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10003 | I    | No air connected to the vehicle OR<br>main pipe pressure below 6Bar                                                        |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10004 | I    | No PEAs are activated                                                                                                      |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10005 | I    | Battery Contactor Switch 18S1 in ON<br>position                                                                            |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10006 | A    | Turn Driver's Master Key 30A1.S1 to<br>Non-Active Cabin Position                                                           |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10007 | A    | Open and Close (Reset) Circuit<br>breaker 20Q2                                                                             |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10008 | I    | Back Up mode switch 27S1 in Normal<br>position                                                                             |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10009 | I    | Direction Switch 30A1.S2 in "Neutral"<br>position                                                                          |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10010 | I    | Visual Inspection                                                                                                          |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10011 | A    | Physically and visually inspect all the<br>Disk Break Units (DBU) and brake<br>pads, to ensure they are securely<br>fitted |  | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10012 | R    | All the brake DBUs are correctly<br>installed and all the brake pads are<br>correctly installed and locked                 |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10013 | A    | Check the pipe installation                                                                                                |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10014 | R    | All the pipes are installed on the<br>vehicle                                                                              |                                                                                     | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |

|       |   |                                                                                                                                                                                                                                             |  |    |   |                          |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10015 | A | Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors                                                                                                                               |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10016 | R | All the PEAs are installed and connected                                                                                                                                                                                                    |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10017 | I | Circuit Breakers                                                                                                                                                                                                                            |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10018 | A | Close Circuit Breaker 44Q1                                                                                                                                                                                                                  |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10019 | A | Close Circuit Breaker 44Q2                                                                                                                                                                                                                  |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10020 | A | Close Circuit Breaker 44Q3                                                                                                                                                                                                                  |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10021 | A | Close Circuit Breaker 44Q4                                                                                                                                                                                                                  |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10022 | I | Emergency Brake Loop                                                                                                                                                                                                                        |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10023 | I | Emergency Brake Loop Train Line<br>Dev2/3 = coupler pin 005<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8                                                                                                                       |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10024 | R | Read Defined Variable [NI] Dev2/3 = 1.0                                                                                                                                                                                                     |  | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10025 | R | Read Defined Variable [NI] Dev2/4 = 1.0                                                                                                                                                                                                     |  | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10026 | R | Read Defined Variable [NI] Dev5/5 = 0.0                                                                                                                                                                                                     |  | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10027 | A | Close the Isolation cock to the coupler F2.1/1; and connect the air supply to the vehicle coupling flexible hose F3/1. Turn on the air supply and allow the pressure to reach 7Bar. Check the pressure on test point C1.1 test point: B RTP |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10028 | R | The pressure on test point C 1.1 >=7 Bar                                                                                                                                                                                                    |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10029 | I | Emergency Brake Loop Train Line<br>Dev5/5 = END2 90XP14 pin 8                                                                                                                                                                               |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                                                       |  |    |   |                                |     |
|-------|---|-----------------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10030 | R | Read Defined Variable [NI] Dev5/5 = 1.0                                                                               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10031 | A | Push the Emergency Brake<br>Mushroom 44S1                                                                             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10032 | I | Emergency Brake Loop Train Line<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8                             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10033 | R | Read Defined Variable [NI] Dev2/4 = 1.0                                                                               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10034 | R | Read Defined Variable [NI] Dev5/5 = 0.0                                                                               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10035 | A | Release the Emergency Brake<br>Mushroom 44S1                                                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10036 | I | Emergency Brake Loop Train Line<br>Dev5/5 = END2 90XP14 pin 8                                                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10037 | R | Read Defined Variable [NI] Dev5/5 = 1.0                                                                               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10038 | I | Coupling                                                                                                              |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10039 | I | Coupling Relay Train Line<br>Dev1/62 = coupler pin 103                                                                |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10040 | A | Force [NI] Dev1/62 = 1.0                                                                                              |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10041 | R | Read Defined Variable [TT]<br>(MPU1)Li_CPM_Tc2CoupDetec1 = 1.0                                                        |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10042 | I | Emergency Brake Loop Train Line<br>Dev2/3 = coupler pin 005<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8 |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10043 | R | Read Defined Variable [NI] Dev2/3 = 0.0                                                                               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10044 | R | Read Defined Variable [NI] Dev2/4 = 0.0                                                                               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10045 | R | Read Defined Variable [NI] Dev5/5 = 0.0                                                                               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10046 | I | Coupling Relay Train Line<br>Dev1/62 = coupler pin 103                                                                |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                                           |                                                                                     |    |   |                                |     |
|-------|---|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--------------------------------|-----|
| 10047 | A | Force [NI] Dev1/62 = 0.0                                                                  |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10048 | R | Read Defined Variable [TT]<br>(MPU1)li_CPM_Tc2CoupDetec1 =<br>0.0                         |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10049 | I | Emergency Brake Loop Train Line<br>Dev2/4 = coupler pin 105<br>Dev5/5 = END2 90XP14 pin 8 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10050 | R | Read Defined Variable [NI] Dev2/4 =<br>1.0                                                |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10051 | R | Read Defined Variable [NI] Dev5/5 =<br>1.0                                                |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10052 | I | Loop Override                                                                             |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10053 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2ebloopoverrider1<br>= 1.0                   |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10054 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2ebloopoverrider2<br>= 1.0                   |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10055 | A | Turn Driver's Master Key 30A1.S1 to<br>Active Cabin Position                              |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10056 | A | Turn the Emergency Braking Loop<br>Override Switch 44S2 to<br>"Override/Bypass" position  |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10057 | A | Check that the Emergency Braking<br>Loop Override Lamp 44H5 is ON                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10058 | I | Emergency Brake Loop Override Train<br>Line<br>Dev5/6 = END2 90XP14 pin 9                 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10059 | R | Read Defined Variable [NI] Dev5/6 =<br>1.0                                                |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10060 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2ebloopoverrider1<br>= 0.0                   |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10061 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2ebloopoverrider2<br>= 0.0                   |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10062 | A | Return the Emergency Braking Loop<br>Override Switch 44S2 to "Normal"                     |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                        |                                                                                   |    |   |                          |     |
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|       |   | position                                                               |                                                                                   |    |   |                          |     |
| 10063 | R | Check that the Emergency Braking Loop Override Lamp 44H5 is OFF        |  | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10064 | I | Emergency Brake Loop Override Train Line<br>Dev5/6 = END2 90XP14 pin 9 |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10065 | R | Read Defined Variable [NI] Dev5/6 = 0.0                                |                                                                                   | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10066 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2ebloopoverrider1 = 1.0      |                                                                                   | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10067 | I | Reset Emergency Brake                                                  |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10068 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0        |                                                                                   | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10069 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 1.0        |                                                                                   | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10070 | I | Turn Direction Switch 30A1.S2 to "Forward" position                    |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10071 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0        |                                                                                   | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10072 | I | Emergency Brake Train Line                                             |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10073 | I | Emergency Brake Loop Train Line<br>Dev4/5 = END2 90XP14 pin 8          |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10074 | A | Force [NI] Dev4/5 = 1.0                                                |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10075 | A | Force [TT] (MPU1)lo_ubk_tc2emergbraker1 = 1.0                          |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10076 | A | Press and hold the Dead Man pushbutton 60S3                            |                                                                                   | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10077 | R | Read Defined Variable [TT] (MPU1)li_dsd_tc2ebdeadmanrelayr1 = 0.0      |                                                                                   | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                                                   |  |    |   |                                |     |
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| 10078 | A | Ensure the Master Controller S3.3 (3.4) is NOT in Emergency Brake position                                        |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10079 | I | Emergency Brake ERTMS1 Train Line Dev4/88 = END2 90XP14 pin 18                                                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10080 | A | Force [NI] Dev4/88 = 1.0                                                                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10081 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay1 = 0.0                                                      |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10082 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay2 = 1.0                                                      |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10083 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 1.0                                                   |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10084 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 1.0                                                   |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10085 | I | Emergency Brake ERTMS2 Train Line Dev4/80 = END2 90XP14 pin 20                                                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10086 | A | Force [NI] Dev4/80 = 1.0                                                                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10087 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay1 = 0.0                                                      |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10088 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2emergrelay2 = 0.0                                                      |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10089 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr1 = 0.0                                                   |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10090 | R | Read Defined Variable [TT] (MPU1)li_ubk_tc2rearmebrelayr2 = 0.0                                                   |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10091 | I | Emergency Brake Train Line Dev2/84 = coupler pin 038<br>Dev2/85 = coupler pin 138<br>Dev5/61 = END2 90XP15 pin 67 |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10092 | R | Read Defined Variable [NI] Dev5/61 = 1.0                                                                          |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10093 | R | Read Defined Variable [NI] Dev2/84 = 1.0                                                                          |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                                                                      |    |    |   |                          |     |
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| 10094 | R | Read Defined Variable [NI] Dev2/85 = 1.0                                                                             |    | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10095 | R | Check that the Emergency Brake Loop Lamp 44H4 is OFF                                                                 | EB | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10096 | R | Read Defined Variable [TT] (BCU2)LI_NEB = 1.0                                                                        |    | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10097 | A | Force [TT] (MPU1)lo_ubk_tc2emergbraker1 = 0.0                                                                        |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10098 | I | Emergency Brake Train Line<br>Dev2/84 = coupler pin 038<br>Dev2/85 = coupler pin 138<br>Dev5/61 = END2 90XP15 pin 67 |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10099 | R | Read Defined Variable [NI] Dev5/61 = 0.0                                                                             |    | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10100 | R | Read Defined Variable [NI] Dev2/84 = 0.0                                                                             |    | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10101 | R | Read Defined Variable [NI] Dev2/85 = 0.0                                                                             |    | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10102 | R | Check that the Emergency Brake Loop Lamp 44H4 is ON                                                                  | EB | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10103 | A | Force [TT] (MPU1)lo_ubk_tc2emergbraker2 = 1.0                                                                        |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10104 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67                                                           |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10105 | R | Read Defined Variable [NI] Dev5/61 = 1.0                                                                             |    | OK | 1 | Nokuzola Mdluli - 491469 | TC2 |
| 10106 | A | Release the Dead Man pushbutton 60S3                                                                                 |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10107 | I | Emergency Brake ERTMS1 Train Line<br>Dev4/88 = END2 90XP14 pin 18                                                    |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10108 | A | Force [NI] Dev4/88 = 0.0                                                                                             |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10109 | I | Emergency Brake ERTMS2 Train Line<br>Dev4/80= END2 90XP14 pin 20                                                     |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |
| 10110 | A | Force [NI] Dev4/80 = 0.0                                                                                             |    | OK |   | Nokuzola Mdluli - 491469 | TC2 |

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| 10111 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10112 | R | Read Defined Variable [NI] Dev5/61<br>= 0.0                         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10113 | A | Turn the ERTMS Isolation switch<br>62S1 to "Isolation" position     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10114 | A | Turn the Dead Man Override switch<br>60S1 to "Override" position    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10115 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10116 | R | Read Defined Variable [NI] Dev5/61<br>= 1.0                         |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10117 | I | Emergency Brake Pushbutton                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10118 | A | Push the Emergency Brake<br>Mushroom 44S1                           |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10119 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10120 | R | Read Defined Variable [NI] Dev5/61<br>= 0.0                         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10121 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2emgcybrkpbr1 =<br>1.0 |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10122 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2emgcybrkpbr2 =<br>1.0 |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10123 | A | Check continuity between<br>93XT104_5 pin 36 and 93XT103 pin<br>28  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10124 | A | The points are continuous                                           |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10125 | A | Release the Emergency Brake<br>Mushroom 44S1                        |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10126 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2emgcybrkpbr1 =<br>0.0 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10127 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2emgcybrkpbr2 =<br>0.0 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |

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| 10128 | A | Force [TT]<br>(MPU1)lo_ubk_tc2emergbraker2 =<br>0.0                                      |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10129 | A | Return the Dead Man Override switch<br>60S1 to "Normal" position                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10130 | A | Return the ERTMS Isolation switch<br>62S1 to "Normal" position                           |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10131 | I | Emergency Brake Loop Train Line<br>Dev4/5 = END2 90XP14 pin 8                            |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10132 | A | Force [NI] Dev4/5 = 0.0                                                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10133 | A | Turn the Emergency Braking Loop<br>Override Switch 44S2 to<br>"Override/Bypass" position |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10134 | A | Press and hold the Dead Man<br>pushbutton 60S3                                           |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10135 | I | Emergency Brake Train Line<br>Dev5/61 = END2 90XP15 pin 67                               |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10136 | R | Read Defined Variable [NI] Dev5/61<br>= 1.0                                              |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10137 | A | Release the Dead Man pushbutton<br>60S3                                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10138 | A | Return the Emergency Braking Loop<br>Override Switch 44S2 to "Normal"<br>position        |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10139 | A | Turn Driver's Master Key 30A1.S1 to<br>Non-Active Cabin Position                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10140 | I | Emergency Brake Train Line<br>Dev4/61 = END2 90XP15 pin 67                               |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10141 | A | Force [NI] Dev4/61 = 1.0                                                                 |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10142 | A | Measure the voltage on terminal<br>block 93XT104_2 at pin 34, and pin<br>35              |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10143 | R | 110Vdc measured on terminal block<br>93XT104_2 at pin 34, and pin 35                     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10144 | I | Emergency Brake Train Line<br>Dev4/61 = END2 90XP15 pin 67                               |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

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| 10145 | A | Force [NI] Dev4/61 = 0.0                                                                                       |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10146 | I | PEA Loop                                                                                                       |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10147 | A | Check all the Passenger Emergency Alarm handles, and ensure they are connected to their respective connectors  |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10148 | R | All the PEAs are installed and connected                                                                       |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10149 | A | Open and Close (Reset) Circuit breaker 20Q2                                                                    |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10150 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017<br>Dev2/59 = coupler pin 117<br>Dev5/62 = END2 90XP15 pin 95 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10151 | R | Read Defined Variable [NI] Dev2/58 = 1.0                                                                       |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10152 | R | Read Defined Variable [NI] Dev2/59 = 1.0                                                                       |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10153 | R | Read Defined Variable [NI] Dev5/62 = 1.0                                                                       |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10154 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                      |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10155 | R | Check that the PEA Lamp 44H1 is ON                                                                             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10156 | I | PEA Loop Train Lines<br>Dev5/62 = END2 90XP15 pin 95                                                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10157 | R | Read Defined Variable [NI] Dev5/62 = 0.0                                                                       |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10158 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2pealoop = 1.0                                                    |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10159 | I | PEA Loop OTDR Train Line<br>Dev5/7 = END2 90XP14 pin 10                                                        |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10160 | R | Read Defined Variable [NI] Dev5/7 = 0.0                                                                        |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10161 | I | PEA Loop Train Lines<br>Dev4/62 = END2 90XP15 pin 95                                                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

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| 10162 | A | Force [NI] Dev4/62 = 1.0                                             |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10163 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10164 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                          |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10165 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2pealoop = 0.0          |                                                                                   | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10166 | I | PEA Loop OTDR Train Line<br>Dev5/7 = END2 90XP14 pin 10              |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10167 | R | Read Defined Variable [NI] Dev5/7 =<br>1.0                           |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10168 | R | Check that the PEA Lamp 44H1 is<br>OFF                               |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10169 | I | PEA Reset                                                            |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10170 | A | Activate the PEA on door 1 (44S11)                                   |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10171 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10172 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                          |                                                                                   | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10173 | R | Read Defined Variable [TT]<br>(MPU1)Li_UBK_Tc2StateResetPea =<br>1.0 |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10174 | A | Turn and hold the PEA Reset Switch<br>44S6 in Reset position         |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10175 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2restpeaswitch =<br>1.0 |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10176 | R | Read Defined Variable [TT]<br>(MPU1)lo_ubk_tc2resetpea = 1.0         |                                                                                   | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10177 | R | Read Defined Variable [TT]<br>(MPU1)Li_UBK_Tc2StateResetPea =<br>0.0 |                                                                                   | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10178 | A | Release the PEA Reset Switch 44S6                                    |                                                                                   | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

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| 10179 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2restpeaswitch =<br>0.0 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10180 | A | Timer 5.0 S                                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10181 | R | Read Defined Variable [TT]<br>(MPU1)Li_UBK_Tc2StateResetPea =<br>1.0 |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10182 | R | Read Defined Variable [TT]<br>(MPU1)lo_ubk_tc2resetpea = 0.0         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10183 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10184 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                          |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10185 | A | Activate the PEA on door 2 (44S12)                                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10186 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10187 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                          |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10188 | A | Turn the PEA Reset Switch 44S6 to<br>Reset position, and release it  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10189 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10190 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                          |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10191 | A | Activate the PEA on door 3 (44S13)                                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10192 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10193 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                          |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10194 | A | Turn the PEA Reset Switch 44S6 to<br>Reset position, and release it  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10195 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                    |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10196 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                          |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                     |  |    |   |                                |     |
|-------|---|---------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10197 | A | Activate the PEA on door 4 (44S14)                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10198 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10199 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10200 | A | Turn the PEA Reset Switch 44S6 to<br>Reset position, and release it |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10201 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10202 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                         |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10203 | A | Activate the PEA on door 5 (44S15)                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10204 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10205 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10206 | A | Turn the PEA Reset Switch 44S6 to<br>Reset position, and release it |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10207 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10208 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                         |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10209 | A | Activate the PEA on door 6 (44S16)                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10210 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10211 | R | Read Defined Variable [NI] Dev2/58<br>= 0.0                         |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10212 | A | Turn the PEA Reset Switch 44S6 to<br>Reset position, and release it |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10213 | I | PEA Loop Train Lines<br>Dev2/58 = coupler pin 017                   |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10214 | R | Read Defined Variable [NI] Dev2/58<br>= 1.0                         |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                          |  |    |   |                                |     |
|-------|---|--------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10215 | I | PEA Loop Train Lines<br>Dev4/62 = END2 90XP15 pin 95                     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10216 | A | Force [NI] Dev4/62 = 0.0                                                 |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10217 | I | PEA Override                                                             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10218 | A | Press and hold the Override PEA<br>pushbutton 44S5                       |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10219 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2peaoverridebuttr1<br>= 1.0 |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10220 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2peaoverridebuttr2<br>= 1.0 |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10221 | R | Read Defined Variable [TT]<br>(MPU1)lo_ubk_tc2peaoverrider1 =<br>1.0     |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10222 | R | Read Defined Variable [TT]<br>(MPU1)lo_ubk_tc2peaoverrider2 =<br>1.0     |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10223 | R | Check that the Override PEA<br>pushbutton lamp 44S5 turns ON             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10224 | A | Release the Override PEA pushbutton<br>44S5.                             |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10225 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2peaoverridebuttr1<br>= 0.0 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10226 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2peaoverridebuttr2<br>= 0.0 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10227 | A | Force [TT]<br>(MPU1)lo_ubk_tc2peaoverrider1 =<br>0.0                     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10228 | A | Force [TT]<br>(MPU1)lo_ubk_tc2peaoverrider2 =<br>0.0                     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10229 | R | Check that the Override PEA<br>pushbutton lamp 44S5 turns OFF            |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10230 | I | END OF TEST                                                              |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |



Serial Tests Report  
TS251 – TC2 – VFT  
RTR Vehicle Functional Static Testing Report

Document Reference  
GIB0000007316  
Version: A0

Emission date  
18/10/2024



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## Section 13 – Service Brake

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### 13.1 Instructions list

### 13.1.1 040\_SBK-Service Brake

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                      | File | Result status | Result value | Operator                | Vehicle |
|-------|------|------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | Service Brake (SPP = 040)                                                                                        |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10002 | I    | Initial Conditions                                                                                               |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10003 | I    | No air supply to the vehicle - pressure in tank <6Bar                                                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10004 | I    | All brake panel cocks are in normal position (not isolated)                                                      |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10005 | I    | The Service Brake Isolation Switch 40S1 should be in Normal position                                             |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10006 | I    | Circuit Breakers                                                                                                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10007 | A    | Close Circuit Breaker 40Q2                                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10008 | A    | Close Circuit Breaker 40Q3                                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10009 | A    | Close Circuit Breaker 40Q4                                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10010 | A    | Close Circuit Breaker 40Q5                                                                                       |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10011 | I    | Brake Air Supply and Brake Application                                                                           |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10012 | I    | EB Reduced Train Lines<br>Dev2/78 = Coupler pin 031<br>Dev2/81 = Coupler pin 131<br>Dev5/51 = END2 90XP15 pin 60 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10013 | R    | Read Defined Variable [NI] Dev2/78 = 1.0                                                                         |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10014 | R    | Read Defined Variable [NI] Dev2/81 = 1.0                                                                         |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10015 | R    | Read Defined Variable [NI] Dev5/51 = 1.0                                                                         |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |

|       |   |                                                                                                                     |                                                                                     |    |   |                               |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|-------------------------------|-----|
| 10016 | I | Brake Applied Train Lines<br>Dev2/36 = Coupler pin 010<br>Dev2/37 = Coupler pin 110<br>Dev5/49 = END2 90XP15 pin 50 |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10017 | R | Read Defined Variable [NI] Dev2/36 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10018 | R | Read Defined Variable [NI] Dev2/37 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10019 | R | Read Defined Variable [NI] Dev5/49 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc2brakeairsupokr1 = 0.0                                                 |                                                                                     | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10021 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc2brakeairsupokr2 = 0.0                                                 |                                                                                     | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10022 | R | Read Defined Variable [TT]<br>(BCU2)LI_BRPS_NOK = 1.0                                                               |                                                                                     | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10023 | R | Read Defined Variable [TT]<br>(BCU2)LI_BRAKE_NOT_APPLIED = 1.0                                                      |                                                                                     | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10024 | R | The Reduced Brake Lamp 40H2 on the Indicator module 84A1 is ON                                                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10025 | A | Close/Isolate the coupler Isolation cock F2.1/1                                                                     |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10026 | A | Open the Isolation cock F2.2/1                                                                                      |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10027 | A | Connect the air supply to the vehicle main pipe coupling flexible hose F3/1, and switch the supply ON               |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10028 | I | Take note of any air leaks in the pipes or valves                                                                   |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10029 | A | Allow the pressure to go above 6 bar. The pressure can be checked at the B RTP test point                           |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10030 | R | B RTP pressure is measured >=6 Bar                                                                                  |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10031 | I | EB Reduced Train Lines<br>Dev2/78 = Coupler pin 031<br>Dev2/81 = Coupler pin 131                                    |                                                                                     | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                     |                                                                                     |    |   |                         |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|-------------------------|-----|
|       |   | Dev5/51 = END2 90XP15 pin 60                                                                                        |                                                                                     |    |   |                         |     |
| 10032 | R | Read Defined Variable [NI] Dev2/78 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10033 | R | Read Defined Variable [NI] Dev2/81 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10034 | R | Read Defined Variable [NI] Dev5/51 = 0.0                                                                            |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10035 | I | Brake Applied Train Lines<br>Dev2/36 = Coupler pin 010<br>Dev2/37 = Coupler pin 110<br>Dev5/49 = END2 90XP15 pin 50 |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10036 | R | Read Defined Variable [NI] Dev2/36 = 1.0                                                                            |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10037 | R | Read Defined Variable [NI] Dev2/37 = 1.0                                                                            |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10038 | R | Read Defined Variable [NI] Dev5/49 = 1.0                                                                            |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10039 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr1 = 1.0                                                   |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10040 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2brakeairsuppokr2 = 1.0                                                   |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10041 | R | Read Defined Variable [TT] (BCU2)LI_BRPS_NOK = 0.0                                                                  |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10042 | R | Read Defined Variable [TT] (BCU2)LI_BRAKE_NOT_APPLIED = 0.0                                                         |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10043 | R | The Reduced Brake Lamp 40H2 on the Indicator module 84A1 is OFF                                                     |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10044 | A | Put the Master controller in 100% Traction position                                                                 |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10045 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28                                                                  |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10046 | A | Force [NI] Dev4/38 = 1.0                                                                                            |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10047 | R | Lamp 40H1 on the Indicator module 84A1 is ON                                                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                        |                                                                                   |    |   |                         |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|-------------------------|-----|
| 10048 | A | Return the Master controller to Normal position (Coasting)                                                             |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10049 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28                                                                     |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10050 | A | Force [NI] Dev4/38 = 0.0                                                                                               |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10051 | R | Lamp 40H1 on the Indicator module 84A1 is OFF                                                                          |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10052 | I | Remote Isolation                                                                                                       |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10053 | A | Turn the key 30A1.S1 to Non-active cab position                                                                        |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10054 | R | Read Defined Variable [TT] (BCU2)LI_BRAKE_ISO = 1.0                                                                    |                                                                                   | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10055 | I | Remote Isolation Train Lines<br>Dev4/50 = END2 90XP15 pin 59<br>Dev2/38 = Coupler pin 025<br>Dev2/39 = Coupler pin 125 |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10056 | A | Force [NI] Dev4/50 = 1.0                                                                                               |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10057 | R | Read Defined Variable [NI] Dev2/38 = 1.0                                                                               |                                                                                   | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10058 | R | Read Defined Variable [NI] Dev2/39 = 1.0                                                                               |                                                                                   | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10059 | I | Remote Isolation Train Lines<br>Dev4/50 = END2 90XP15 pin 59<br>Dev2/38 = Coupler pin 025<br>Dev2/39 = Coupler pin 125 |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10060 | A | Force [NI] Dev4/50 = 0.0                                                                                               |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10061 | R | Read Defined Variable [NI] Dev2/38 = 0.0                                                                               |                                                                                   | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10062 | R | Read Defined Variable [NI] Dev2/39 = 0.0                                                                               |                                                                                   | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10063 | A | Turn the key 30A1.S1 to Active cab position                                                                            |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10064 | A | Turn the Service Brake Isolation Switch 40S2 to Isolation position                                                     |                                                                                   | OK |   | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                                                  |  |    |   |                               |     |
|-------|---|--------------------------------------------------------------------------------------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10065 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc2remoteisowitchr1<br>= 1.0                                                                          |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10066 | R | Read Defined Variable [TT]<br>(MPU1)li_sbk_tc2remoteisowitchr2<br>= 1.0                                                                          |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10067 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60                                                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10068 | R | Read Defined Variable [NI] Dev5/51<br>= 1.0                                                                                                      |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10069 | A | Force [TT]<br>(MPU1)lo_sbk_tc2isobrake = 1.0                                                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10070 | R | Read Defined Variable [TT]<br>(BCU2)LI_BRAKE_ISO = 0.0                                                                                           |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10071 | I | Remote Isolation Train Lines<br>Dev2/39 = Coupler pin 125<br>Dev5/50 = END2 90XP15 pin 59                                                        |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10072 | R | Read Defined Variable [NI] Dev2/39<br>= 1.0                                                                                                      |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10073 | R | Read Defined Variable [NI] Dev5/50<br>= 0.0                                                                                                      |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10074 | R | The Remote Isolation relay valve<br>C1.1_SERC is actuated, and the<br>service brake is isolated (confirm that<br>air is released from the valve) |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10075 | A | Release [TT]<br>(MPU1)lo_sbk_tc2isobrake                                                                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10076 | A | Turn the Service Brake Isolation<br>Switch 40S2 to Normal position                                                                               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10077 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60                                                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10078 | R | Read Defined Variable [NI] Dev5/51<br>= 0.0                                                                                                      |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10079 | I | Manual Isolation                                                                                                                                 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10080 | A | Turn the Manual Isolation Cock<br>C1.3.1 to Isolated position                                                                                    |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10081 | I | EB Reduced Train Lines<br>Dev5/51 = END2 90XP15 pin 60                                                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                      |  |    |   |                         |     |
|-------|---|--------------------------------------------------------------------------------------|--|----|---|-------------------------|-----|
| 10082 | R | Read Defined Variable [NI] Dev5/51 = 1.0                                             |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10083 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2servicebrakedc = 1.0                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10084 | R | Read Defined Variable [TT] (BCU2)LI_SERVICE_BR_DC = 1.0                              |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10085 | A | Turn the Manual Isolation Cock C1.3.1 to Normal position                             |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10086 | I | EB Reduced Train Lines Dev5/51 = END2 90XP15 pin 60                                  |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10087 | R | Read Defined Variable [NI] Dev5/51 = 0.0                                             |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10088 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2servicebrakedc = 0.0                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10089 | R | Read Defined Variable [TT] (BCU2)LI_SERVICE_BR_DC = 0.0                              |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10090 | I | MCE Fault                                                                            |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10091 | A | Force [TT] (BCU2)LO_BRK_FLT = 1.0                                                    |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10092 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2bcufault = 1.0                            |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10093 | A | Force [TT] (BCU2)LO_BRK_FLT = 0.0                                                    |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10094 | R | Read Defined Variable [TT] (MPU1)li_sbk_tc2bcufault = 0.0                            |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10095 | A | Release [TT] (BCU2)LO_BRK_FLT                                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10096 | I | Speed sensor test for TC2                                                            |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10097 | A | All connectors from speed sensor (one per axle) is connected to its axle in TC2 car. |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10098 | R | Read Defined Variable [TT] (MPU1)BCU2_BcuSpdSensWSP1Flt = 0.0                        |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                     |  |    |   |                               |     |
|-------|---|---------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10099 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuSpdSensWSP2Flt<br>= 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10100 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuSpdSensWSP3Flt<br>= 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10101 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuSpdSensWSP4Flt<br>= 0.0 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10102 | I | END OF TEST                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |



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## Section 14 – Holding and Parking Brake

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### 14.1 Instructions list

### 14.1.1 045\_PBK-Holding and Parking Brake

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                   | File | Result status | Result value | Operator                | Vehicle |
|-------|------|-------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | Holding and Parking Brake (SPP = 045)                                                                                         |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10002 | I    | Initial Conditions                                                                                                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10003 | A    | Using the tools list on the side of your screen, record the serial number of the manometer that will be used during this test |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10004 | I    | Confirm the presence of air supply to the vehicle. The pressure can be checked at test point BRTP > 4.8 Bar                   |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10005 | I    | Ensure that the Parking Brake Switch 45S1 is in "Normal" position                                                             |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10006 | I    | Parking Brake Pressure Switch                                                                                                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10007 | A    | Turn the key 30A1.S1 to Active cab position                                                                                   |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10008 | A    | Check that the pressure on test point C1.11/1 is >4.8 Bar                                                                     |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10009 | R    | Read Defined Variable [TT] (BCU2)LI_PARK_BR_RELEASE = 1.0                                                                     |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10010 | R    | Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeRelease = 1.0                                                                  |      | OK            | 1            | Nqobile Chirwa - 484648 | TC2     |
| 10011 | R    | Read Defined Variable [TT] (BCU2)LI_PARK_BR_DC = 0.0                                                                          |      | OK            | 0            | Nqobile Chirwa - 484648 | TC2     |
| 10012 | R    | Read Defined Variable [TT] (MPU1)BCU2_ParkBrakeSolDC = 0.0                                                                    |      | OK            | 0            | Nqobile Chirwa - 484648 | TC2     |
| 10013 | I    | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018<br>Dev2/49 = Coupler pin 118                                   |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |

|       |   |                                                                                                                                       |                                                                                   |    |   |                               |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|-------------------------------|-----|
|       |   | Dev5/58 = END2 90XP15 pin 77                                                                                                          |                                                                                   |    |   |                               |     |
| 10014 | R | Read Defined Variable [NI]<br>Dev2/74 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10015 | R | Read Defined Variable [NI]<br>Dev2/49 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10016 | R | Read Defined Variable [NI]<br>Dev5/58 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10017 | R | Check that the Parking Brake<br>Applied Lamp 45H2 on the<br>indicator module 84A1 is OFF                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10018 | I | Remote Parking Brake Command                                                                                                          |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10019 | A | Turn the Parking Brake Switch<br>45S1 to "Parking Brake" position                                                                     |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10020 | R | Confirm that the parking brake is<br>applied, and air is released from<br>electro valve C1.5                                          |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10021 | I | Remote Parking Brake Command<br>Train lines<br>Dev2/86 = Coupler pin 030<br>Dev2/87 = Coupler pin 130<br>Dev5/57 = END2 90XP15 pin 68 |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10022 | R | Read Defined Variable [NI]<br>Dev2/86 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10023 | R | Read Defined Variable [NI]<br>Dev2/87 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10024 | R | Read Defined Variable [NI]<br>Dev5/57 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10025 | A | Allow the air to reach below 4.8<br>Bar - verify on test point C1.11/1                                                                |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10026 | R | Read Defined Variable [TT]<br>(BCU2)LI_PARK_BR_RELEASE =<br>0.0                                                                       |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10027 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_ParkBrakeRelease<br>= 0.0                                                                    |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10028 | I | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018<br>Dev2/49 = Coupler pin 118<br>Dev5/58 = END2 90XP15 pin 77           |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                                       |                                                                                   |    |   |                               |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|-------------------------------|-----|
| 10029 | R | Read Defined Variable [NI]<br>Dev2/74 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10030 | R | Read Defined Variable [NI]<br>Dev2/49 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10031 | R | Read Defined Variable [NI]<br>Dev5/58 = 1.0                                                                                           |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10032 | R | Check that the Parking Brake<br>Applied Lamp 45H2 on the<br>indicator module 84A1 turns ON                                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10033 | A | Turn the Parking Brake Switch<br>45S1 to "Normal" position                                                                            |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10034 | I | Remote Parking Brake Command<br>Train lines<br>Dev2/86 = Coupler pin 030<br>Dev2/87 = Coupler pin 130<br>Dev5/57 = END2 90XP15 pin 68 |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10035 | R | Read Defined Variable [NI]<br>Dev2/86 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10036 | R | Read Defined Variable [NI]<br>Dev2/87 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10037 | R | Read Defined Variable [NI]<br>Dev5/57 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10038 | I | Parking Brake Manual Isolation                                                                                                        |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10039 | A | Turn the Parking Brake Isolation<br>cock C1.3.2 to "Isolated" position                                                                |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10040 | R | Read Defined Variable [TT]<br>(BCU2)LI_PARK_BR_DC = 1.0                                                                               |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10041 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_ParkBrakeIsolDC =<br>1.0                                                                     |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10042 | R | Read Defined Variable [TT]<br>(MPU1)li_pbk_tc2parkbrakeisol<br>= 1.0                                                                  |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10043 | I | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018<br>Dev2/49 = Coupler pin 118<br>Dev5/58 = END2 90XP15 pin 77           |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10044 | R | Read Defined Variable [NI]<br>Dev2/74 = 0.0                                                                                           |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                        |  |    |   |                               |     |
|-------|---|------------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10045 | R | Read Defined Variable [NI]<br>Dev2/49 = 0.0                            |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10046 | R | Read Defined Variable [NI]<br>Dev5/58 = 0.0                            |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10047 | A | Return the Parking Brake Isolation<br>cock C1.3.2 to "Normal" position |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10048 | R | Read Defined Variable [TT]<br>(BCU2)LI_PARK_BR_DC = 0.0                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10049 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_ParkBrakeIsolDC =<br>0.0      |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10050 | R | Read Defined Variable [TT]<br>(MPU1)li_pbk_tc2parkbrakeisol<br>= 0.0   |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10051 | I | Parking Brake Applied Train Lines<br>Dev2/74 = Coupler pin 018         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10052 | R | Read Defined Variable [NI]<br>Dev2/74 = 1.0                            |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10053 | I | END OF TEST                                                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |



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## Section 15 – Passenger Doors

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### 15.1 Instructions list

### 15.1.1 050\_DOR-Passenger Doors

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                          | File | Result status | Result value | Operator                | Vehicle |
|-------|------|----------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | Passenger Doors (SPP=050)                                            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10002 | I    | Initial Conditions:                                                  |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10003 | A    | Turn Driver's Master Key 30A1.S1 to Active Cabin Position            |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10004 | I    | Car Should be Prepared (closed battery contacts)                     |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10005 | I    | Cab door windows should be closed                                    |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10006 | I    | Cab doors should be closed and unlocked                              |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10007 | I    | Cab Door Windows                                                     |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10008 | A    | Open and close both the LEFT and RIGHT cab door windows              |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10009 | R    | The LEFT cab door window opens and closes correctly                  |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10010 | R    | The RIGHT cab door window opens and closes correctly                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10011 | I    | Cabin Doors                                                          |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10012 | A    | Open all 3 cab doors (LEFT, RIGHT, and saloon access) and close them |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10013 | R    | The LEFT cab door can open fully and close shut                      |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10014 | R    | The RIGHT cab door can open fully and close shut                     |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10015 | R    | The saloon access door can open fully and close shut                 |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |

|       |   |                                                                                    |  |    |  |                               |     |
|-------|---|------------------------------------------------------------------------------------|--|----|--|-------------------------------|-----|
| 10016 | A | Lock the 3 doors                                                                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10017 | R | The LEFT cab door lock is functioning correctly and the door cannot be opened      |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10018 | R | The RIGHT cab door lock is functioning correctly and the door cannot be opened     |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10019 | R | The Saloon access door lock is functioning correctly and the door cannot be opened |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10020 | A | Unlock the doors                                                                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10021 | A | Repeat the open, close and lock operations from the outside of the vehicle         |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10022 | R | Both cab doors can be opened, closed and locked from the outside                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10023 | I | External access locks                                                              |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10024 | I | Ensure Door 1 and Door 2 are closed                                                |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10025 | A | Insert a square key into the external access lock of Door 1, and unlock the door   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10026 | R | The door is unlocked and can be opened freely                                      |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10027 | A | Close the door, and lock the external access lock with the square key              |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10028 | R | The door is locked and can no longer be opened manually                            |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10029 | A | Insert a square key into the external access lock of Door 2, and unlock the door   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10030 | R | The door is unlocked and can be opened freely                                      |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10031 | A | Close the door, and lock the external access lock with the square key              |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10032 | R | The door is locked and can no longer be opened manually                            |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                      |  |    |  |                               |     |
|-------|---|--------------------------------------|--|----|--|-------------------------------|-----|
| 10033 | I | Circuit Breakers                     |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10034 | A | Close Circuit Breaker 50Q1           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10035 | R | DCU 1 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10036 | R | Check on the DDU that DCU1 is online |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10037 | A | Close Circuit Breaker 50Q2           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10038 | R | DCU 2 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10039 | R | Check on the DDU that DCU2 is online |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10040 | A | Close Circuit Breaker 50Q3           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10041 | R | DCU 3 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10042 | R | Check on the DDU that DCU3 is online |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10043 | A | Close Circuit Breaker 50Q4           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10044 | R | DCU 4 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10045 | R | Check on the DDU that DCU4 is online |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10046 | A | Close Circuit Breaker 50Q5           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10047 | R | DCU 5 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10048 | R | Check on the DDU that DCU5 is online |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10049 | A | Close Circuit Breaker 50Q6           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10050 | R | DCU 6 is powered ON                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                      |                                                                                   |    |   |                               |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|-------------------------------|-----|
| 10051 | R | Check on the DDU that DCU6 is online                                                                                 |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10052 | A | Close Circuit Breaker 50Q7                                                                                           |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10053 | I | Car ID Code                                                                                                          |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10054 | A | Using the Door Status screen on the DDU, check that all the doors on TC2 are available - as in the picture below     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10055 | R | All doors are available                                                                                              |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10056 | I | Left Side Doors                                                                                                      |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10057 | I | Door Authorization                                                                                                   |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10058 | I | V<3km/h Train Line<br>Dev4/39 = END2 90XP15 pin 29                                                                   |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10059 | A | Force [NI] Dev4/39 = 1.0                                                                                             |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10060 | A | Switch Door Authorization Selector<br>50S7 to DRIVER                                                                 |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10061 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2ertmsauthdoorr1 = 0.0                                                  |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10062 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2ertmsauthdoorr2 = 0.0                                                  |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10063 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2authdoorpleft = 0.0                                                    |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10064 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2doorauthdlefr1 = 1.0                                                   |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10065 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2doorauthdlefr2 = 1.0                                                   |                                                                                   | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10066 | I | Door Auth Left Train Lines<br>Dev2/56 = Coupler pin 009<br>Dev2/57 = Coupler pin 124<br>Dev5/64 = END2 90XP15 pin 85 |                                                                                   | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10067 | R | Read Defined Variable [NI] Dev2/56 = 0.0                                                                             |                                                                                   | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                      |  |    |   |                         |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------|--|----|---|-------------------------|-----|
| 10068 | R | Read Defined Variable [NI] Dev2/57 = 0.0                                                                             |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10069 | R | Read Defined Variable [NI] Dev5/64 = 0.0                                                                             |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10070 | A | Press the Doors LEFT Side Authorization button 50S5                                                                  |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10071 | R | Check that the YELLOW LEFT Side Authorization pushbutton lamp 50S5 turns ON                                          |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10072 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbleft = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10073 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdlefr1 = 0.0                                                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10074 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdlefr2 = 0.0                                                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10075 | I | Door Auth Left Train Lines<br>Dev2/56 = Coupler pin 009<br>Dev2/57 = Coupler pin 124<br>Dev5/64 = END2 90XP15 pin 85 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10076 | R | Read Defined Variable [NI] Dev2/56 = 1.0                                                                             |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10077 | R | Read Defined Variable [NI] Dev2/57 = 1.0                                                                             |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10078 | R | Read Defined Variable [NI] Dev5/64 = 1.0                                                                             |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10079 | A | Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position                                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10080 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdlefr1 = 0.0                                                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10081 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                            |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10082 | I | Door Open                                                                                                            |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10083 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpblefr1 = 0.0                                                     |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10084 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2opendoorpblefr2 = 0.0                                                     |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                           |  |    |   |                               |     |
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| 10085 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgtleftr1 = 0.0     |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10086 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgtleftr2 = 0.0     |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10087 | A | Press the LEFT side Door Open<br>pushbutton 50S1                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10088 | R | Check that the WHITE LEFT Side Door<br>Open pushbutton lamp 50S1 turns ON |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10089 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>open                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10090 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorleft = 1.0          |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10091 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorpleftr1 = 1.0       |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10092 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorpleftr2 = 1.0       |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10093 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgtleftr1 = 1.0     |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10094 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgtleftr2 = 1.0     |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10095 | I | Door Closing                                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10096 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorpleftr1 = 0.0      |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10097 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorpleftr2 = 0.0      |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10098 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgtleftr1 = 0.0    |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10099 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgtleftr2 = 0.0    |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                       |  |    |   |                               |     |
|-------|---|-----------------------------------------------------------------------------------------------------------------------|--|----|---|-------------------------------|-----|
| 10100 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorlineleft = 0.0                                                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10101 | I | Door Close Left Train Lines<br>Dev2/50 = Coupler pin 004<br>Dev2/51 = Coupler pin 137<br>Dev5/60 = END2 90XP15 pin 79 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10102 | R | Read Defined Variable [NI] Dev2/50 = 0.0                                                                              |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10103 | R | Read Defined Variable [NI] Dev2/51 = 0.0                                                                              |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10104 | R | Read Defined Variable [NI] Dev5/60 = 0.0                                                                              |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10105 | A | Press the LEFT side Door Close<br>pushbutton 50S3                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10106 | R | Check that the BLUE LEFT Side Door<br>Close pushbutton lamp 50S3 turns ON                                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10107 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>close                                                                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10108 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorpleftr1 = 1.0                                                  |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10109 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorpleftr2 = 1.0                                                  |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10110 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgtleftr1 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10111 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgtleftr2 = 1.0                                                |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10112 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorlineleft = 1.0                                                 |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10113 | I | Door Close Left Train Lines<br>Dev2/50 = Coupler pin 004<br>Dev2/51 = Coupler pin 137<br>Dev5/60 = END2 90XP15 pin 79 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10114 | R | Read Defined Variable [NI] Dev2/50 = 1.0                                                                              |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |

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| 10115 | R | Read Defined Variable [NI] Dev2/51 = 1.0                                                                              |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10116 | R | Read Defined Variable [NI] Dev5/60 = 1.0                                                                              |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10117 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdleftr1 = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10118 | I | Right Side Doors                                                                                                      |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10119 | I | Door Authorization                                                                                                    |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10120 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbright = 0.0                                                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10121 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrihtr1 = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10122 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrihtr2 = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10123 | I | Door Auth Right Train Lines<br>Dev2/54 = Coupler pin 024<br>Dev2/64 = Coupler pin 109<br>Dev5/56 = END2 90XP15 pin 84 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10124 | R | Read Defined Variable [NI] Dev2/54 = 0.0                                                                              |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10125 | R | Read Defined Variable [NI] Dev2/64 = 0.0                                                                              |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10126 | R | Read Defined Variable [NI] Dev5/56 = 0.0                                                                              |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10127 | A | Press the Doors RIGHT Side Authorization button 50S6                                                                  |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10128 | R | Check that the YELLOW RIGHT Side Authorization pushbutton lamp 50S6 turns ON                                          |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10129 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2authdoorpbright = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10130 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrihtr1 = 0.0                                                      |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |

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| 10131 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2doorauthdrightr2 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10132 | I | Door Auth Right Train Lines<br>Dev2/54 = Coupler pin 024<br>Dev2/64 = Coupler pin 109<br>Dev5/56 = END2 90XP15 pin 84 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10133 | R | Read Defined Variable [NI] Dev2/54 = 1.0                                                                              |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10134 | R | Read Defined Variable [NI] Dev2/64 = 1.0                                                                              |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10135 | R | Read Defined Variable [NI] Dev5/56 = 1.0                                                                              |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10136 | A | Turn Driver's Master Key 30A1.S1 to NON-Active Cabin Position                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10137 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2doorauthdrightr1 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10138 | A | Turn Driver's Master Key 30A1.S1 to Active Cabin Position                                                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10139 | I | Door Open                                                                                                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10140 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorpbright1 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10141 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorpbright2 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10142 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgrightr1 = 0.0                                                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10143 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgrightr2 = 0.0                                                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10144 | A | Press the RIGHT side Door Open pushbutton 50S2                                                                        |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10145 | R | Check that the WHITE RIGHT Side Door Open pushbutton lamp 50S2 turns ON                                               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10146 | R | Check that doors 2, 4 and 6 (RIGHT SIDE) open                                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

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| 10147 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorright = 1.0                                                      |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10148 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorbrightr1 = 1.0                                                   |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10149 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2opendoorbrightr2 = 1.0                                                   |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10150 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgrightr1 = 1.0                                                  |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10151 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2opendoorlgrightr2 = 1.0                                                  |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10152 | I | Door Closing                                                                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10153 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorbrightr1 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10154 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorbrightr2 = 0.0                                                  |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10155 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgrightr1 = 0.0                                                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10156 | R | Read Defined Variable [TT]<br>(MPU1)lo_dor_tc2closedoorlgrightr2 = 0.0                                                 |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10157 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2closedoorlinerright = 0.0                                                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10158 | I | Door Close Right Train Lines<br>Dev2/52 = Coupler pin 037<br>Dev2/53 = Coupler pin 104<br>Dev5/59 = END2 90XP15 pin 78 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10159 | R | Read Defined Variable [NI] Dev2/52 = 0.0                                                                               |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10160 | R | Read Defined Variable [NI] Dev2/53 = 0.0                                                                               |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10161 | R | Read Defined Variable [NI] Dev5/59 = 0.0                                                                               |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |

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| 10162 | A | Press the RIGHT side Door Close pushbutton 50S4                                                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10163 | R | Check that the BLUE RIGHT Side Door Close pushbutton lamp 50S4 turns ON                                                |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10164 | R | Check that doors 2, 4 and 6 (RIGHT SIDE) close                                                                         |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10165 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbright1 = 1.0                                                     |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10166 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorpbright2 = 1.0                                                     |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10167 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgrightr1 = 1.0                                                    |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10168 | R | Read Defined Variable [TT] (MPU1)lo_dor_tc2closedoorlgrightr2 = 1.0                                                    |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10169 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2closedoorlinerright = 1.0                                                   |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10170 | I | Door Close Right Train Lines<br>Dev2/52 = Coupler pin 037<br>Dev2/53 = Coupler pin 104<br>Dev5/59 = END2 90XP15 pin 78 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10171 | R | Read Defined Variable [NI] Dev2/52 = 1.0                                                                               |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10172 | R | Read Defined Variable [NI] Dev2/53 = 1.0                                                                               |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10173 | R | Read Defined Variable [NI] Dev5/59 = 1.0                                                                               |  | OK | 1 | Ntobeko Ndlovu - 421595 | TC2 |
| 10174 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2doorauthdrightr1 = 1.0                                                      |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10175 | I | Closing Conditions                                                                                                     |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10176 | A | Press the Doors LEFT Side Authorization button 50S5                                                                    |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10177 | I | Door Close Left Train Line<br>Dev5/60 = END2 90XP15 pin 79                                                             |  | OK |   | Nqobile Chirwa - 484648 | TC2 |

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| 10178 | R | Read Defined Variable [NI] Dev5/60 = 0.0                        |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10179 | A | Press the Doors RIGHT Side Authorization button 50S4            |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10180 | I | Door Close Right Train Lines Dev5/59 = END2 90XP15 pin 78       |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10181 | R | Read Defined Variable [NI] Dev5/59 = 0.0                        |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10182 | A | Press the LEFT side Door Open pushbutton 50S1                   |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10183 | A | Press the RIGHT side Door Open pushbutton 50S2                  |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10184 | I | V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28                 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10185 | A | Force [NI] Dev4/38 = 1.0                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10186 | R | Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive1 = 1.0 |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10187 | R | Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive2 = 1.0 |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10188 | I | Door Close Right Train Lines Dev5/59 = END2 90XP15 pin 78       |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10189 | R | Read Defined Variable [NI] Dev5/59 = 1.0                        |  | OK | 1 | Ntobeko Ndlovu - 421595 | TC2 |
| 10190 | I | Door Close Left Train Line Dev5/60 = END2 90XP15 pin 79         |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10191 | R | Read Defined Variable [NI] Dev5/60 = 1.0                        |  | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10192 | R | Check that all the Doors Close                                  |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10193 | I | V>5km/h Train Line Dev4/38 = END2 90XP15 pin 28                 |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10194 | A | Force [NI] Dev4/38 = 0.0                                        |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10195 | R | Read Defined Variable [TT] (MPU1)li_rec_tc2thresholdfive1 = 0.0 |  | OK | 0 | Nqobile Chirwa - 484648 | TC2 |

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| 10196 | R | Read Defined Variable [TT]<br>(MPU1)li_rec_tc2thresholdfive2 = 0.0                |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10197 | I | ERTMS Control                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10198 | A | Switch Door Authorization Selector<br>50S7 to ERTMS                               |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10199 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2ertmsauthdoorr1 =<br>1.0            |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10200 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2ertmsauthdoorr2 =<br>1.0            |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10201 | I | Left Doors                                                                        |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10202 | I | ERTMS Auth Left Train Line<br>Dev4/86 = END2 90XP15 pin 44                        |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10203 | A | Force [NI] Dev4/86 = 1.0                                                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10204 | R | Check that the YELLOW LEFT Side<br>Authorization pushbutton lamp 50S5<br>turns ON |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10205 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr1<br>= 1.0                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10206 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2<br>= 1.0                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10207 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorleft = 1.0                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10208 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>open                                   |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10209 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorleft                                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10210 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>close                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10211 | A | Press the LEFT side Door Open<br>pushbutton 50S1                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10212 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>open                                   |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

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| 10213 | I | ERTMS Auth Left Train Line<br>Dev4/86 = END2 90XP15 pin 44                         |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10214 | A | Force [NI] Dev4/86 = 0.0                                                           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10215 | A | Press the LEFT side Door Close<br>pushbutton 50S3                                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10216 | R | Check that doors 1, 3 and 5 (LEFT SIDE)<br>close                                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10217 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr1                                 |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10218 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2                                 |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10219 | I | Right Doors                                                                        |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10220 | I | ERTMS Auth Right Train Line<br>Dev4/87 = END2 90XP15 pin 47                        |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10221 | A | Force [NI] Dev4/87 = 1.0                                                           |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10222 | R | Check that the YELLOW RIGHT Side<br>Authorization pushbutton lamp 50S6<br>turns ON |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10223 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthrightr1<br>= 1.0                        |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10224 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthrightr2<br>= 1.0                        |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10225 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorright = 1.0                                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10226 | R | Check that doors 2, 4 and 6 (RIGHT<br>SIDE) open                                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10227 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorright                                      |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10228 | R | Check that doors 2, 4 and 6 (RIGHT<br>SIDE) close                                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10229 | A | Press the RIGHT side Door Open<br>pushbutton 50S2                                  |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                        |                                                                                     |    |   |                         |     |
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| 10230 | R | Check that doors 2, 4 and 6 (RIGHT SIDE) open                                                          |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10231 | I | ERTMS Auth Right Train Line Dev4/87 = END2 90XP15 pin 47                                               |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10232 | A | Force [NI] Dev4/87 = 0.0                                                                               |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10233 | R | Check that doors 2, 4 and 6 (RIGHT SIDE) close                                                         |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10234 | A | Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr1                                                      |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10235 | A | Release [TT] (MPU1)lo_dor_tc2distertmsauthrightr2                                                      |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10236 | I | Opening Gap, Safety Loop and Obstacle Detection                                                        |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10237 | A | Close Circuit Breaker 51Q1                                                                             |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10238 | A | Check that the Door Safety Loop Indicator lamp 51H1 is ON                                              |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10239 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr1 = 1.0                                      |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10240 | R | Read Defined Variable [TT] (MPU1)li_dor_tc2alldoorsclosedr2 = 1.0                                      |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10241 | I | Safety Doors Loop Train Line Dev2/60 = Coupler pin 016 Dev2/61 = Coupler pin 116                       |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10242 | R | Read Defined Variable [NI] Dev2/60 = 0.0                                                               |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10243 | R | Read Defined Variable [NI] Dev2/61 = 0.0                                                               |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10244 | I | Doors Open Train Line Dev2/82 = Coupler pin 029 Dev2/83 = Coupler pin 129 Dev5/55 = END2 90XP15 pin 66 |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10245 | R | Read Defined Variable [NI] Dev2/82 = 1.0                                                               |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10246 | R | Read Defined Variable [NI] Dev2/83 = 1.0                                                               |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                 |                                                                                     |    |   |                         |     |
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| 10247 | R | Read Defined Variable [NI] Dev5/55 = 1.0                                                                        |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10248 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP25 pin 96                                                    |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10249 | A | Force [NI] Dev4/89 = 1.0                                                                                        |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10250 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2alldoorsclosedr1 = 0.0                                            |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10251 | R | Read Defined Variable [TT]<br>(MPU1)li_dor_tc2alldoorsclosedr2 = 0.0                                            |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10252 | I | Safety Doors Loop Train Line<br>Dev2/60 = Coupler pin 016<br>Dev2/61 = Coupler pin 116                          |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10253 | R | Read Defined Variable [NI] Dev2/60 = 1.0                                                                        |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10254 | R | Read Defined Variable [NI] Dev2/61 = 1.0                                                                        |                                                                                     | OK | 1 | Nqobile Chirwa - 484648 | TC2 |
| 10255 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029<br>Dev2/83 = Coupler pin 129<br>Dev5/55 = END2 90XP15 pin 66 |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10256 | R | Read Defined Variable [NI] Dev2/82 = 0.0                                                                        |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10257 | R | Read Defined Variable [NI] Dev2/83 = 0.0                                                                        |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10258 | R | Read Defined Variable [NI] Dev5/55 = 0.0                                                                        |                                                                                     | OK | 0 | Nqobile Chirwa - 484648 | TC2 |
| 10259 | A | Check that the Door Safety Loop Indicator lamp 51H1 is OFF                                                      |  | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10260 | I | Door 1                                                                                                          |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10261 | I | ERTMS Auth Left Train Line<br>Dev4/86 = END2 90XP15 pin 44                                                      |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10262 | A | Force [NI] Dev4/86 = 1.0                                                                                        |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |
| 10263 | A | Force [TT]                                                                                                      |                                                                                     | OK |   | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                               |  |    |      |                               |     |
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|       |   | (MPU1)lo_dor_tc2distertmsauthlefr1 = 1.0                                                                      |  |    |      |                               |     |
| 10264 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2 = 1.0                                                        |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10265 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorleft = 1.0                                                              |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10266 | R | Check that the door opens in 3 sec (+1/-0)                                                                    |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10267 | R | Check that the GREEN leds on both sides of the door blink while the door opens<br>[Safety Request: Prasa8-05] |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10268 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029                                                            |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10269 | R | Read Defined Variable [NI] Dev2/82 = 1.0                                                                      |  | OK | 1    | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10270 | I | Door Opening Gap                                                                                              |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10271 | A | Measure the opening gap of the door.<br>(The measurement must be done at the BOTTOM of the door).             |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10272 | R | Door 1 gap<br>Result Min/Max : 1390<= x <= 1410 (mm)                                                          |  | OK | 1409 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10273 | A | Measure the opening gap of the door.<br>(The measurement must be done at the TOP of the door).                |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10274 | R | Door 1 gap<br>Result Min/Max : 1390<= x <= 1410 (mm)                                                          |  | OK | 1405 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10275 | A | Measure the opening gap of the door.<br>(The measurement must be done in the MIDDLE of the door).             |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10276 | R | Door 1 gap<br>Result Min/Max : 1390<= x <= 1410 (mm)                                                          |  | OK | 1408 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10277 | I | Door 3                                                                                                        |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10278 | I | Door Opening Gap                                                                                              |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10279 | A | Measure the opening gap of the door.<br>(The measurement must be done at the                                  |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                 |  |    |      |                               |     |
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|       |   | BOTTOM of the door).                                                                                            |  |    |      |                               |     |
| 10280 | R | Door 3 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1407 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10281 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>TOP of the door).               |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10282 | R | Door 3 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1403 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10283 | A | Measure the opening gap of the door.<br>(The measurement must be done in the<br>MIDDLE of the door).            |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10284 | R | Door 3 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1408 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10285 | I | Door 5                                                                                                          |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10286 | I | Door Opening Gap                                                                                                |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10287 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>BOTTOM of the door).            |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10288 | R | Door 5 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1407 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10289 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>TOP of the door).               |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10290 | R | Door 5 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1404 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10291 | A | Measure the opening gap of the door.<br>(The measurement must be done in the<br>MIDDLE of the door).            |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10292 | R | Door 5 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                         |  | OK | 1408 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10293 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorleft                                                                    |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10294 | R | Check if ALL left doors closes in 3 sec<br>(+1/-0)                                                              |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10295 | R | Check that the RED leds on both sides of<br>the door blink while the door closes<br>[Safety Request: Prasa8-05] |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                     |  |    |   |                               |     |
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| 10296 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10297 | R | Read Defined Variable [NI] Dev2/82 = 0                                                                              |  | OK | 0 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10298 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr1                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10299 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10300 | I | ERTMS Auth Left Train Line<br>Dev4/86 = END2 90XP15 pin 44                                                          |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10301 | A | Force [NI] Dev4/86 = 0                                                                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10302 | I | Door 2                                                                                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10303 | I | ERTMS Auth Right Train Line<br>Dev4/87 = END2 90XP15 pin 47                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10304 | A | Force [NI] Dev4/87 = 1                                                                                              |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10305 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthright1<br>= 1                                                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10306 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthright2<br>= 1                                                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10307 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorright = 1                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10308 | R | Check that the door opens in 3 sec (+1/-<br>0)                                                                      |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10309 | R | Check that the GREEN leds on both<br>sides of the door blink while the door<br>opens<br>[Safety Request: Prasa8-05] |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10310 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029                                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10311 | R | Read Defined Variable [NI] Dev2/82 = 1                                                                              |  | OK | 1 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10312 | I | Door Opening Gap                                                                                                    |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                      |  |    |      |                               |     |
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| 10313 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>BOTTOM of the door). |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10314 | R | Door 2 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1395 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10315 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>TOP of the door).    |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10316 | R | Door 2 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1397 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10317 | A | Measure the opening gap of the door.<br>(The measurement must be done in the<br>MIDDLE of the door). |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10318 | R | Door 2 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1397 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10319 | I | Door 4                                                                                               |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10320 | I | Door Opening Gap                                                                                     |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10321 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>BOTTOM of the door). |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10322 | R | Door 4 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1395 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10323 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>TOP of the door).    |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10324 | R | Door 4 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1397 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10325 | A | Measure the opening gap of the door.<br>(The measurement must be done in the<br>MIDDLE of the door). |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10326 | R | Door 4 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                              |  | OK | 1396 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10327 | I | Door 6                                                                                               |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10328 | I | Door Opening Gap                                                                                     |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                                                                                                                                           |  |    |      |                               |     |
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| 10329 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>BOTTOM of the door).                                                                      |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10330 | R | Door 6 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                                                                                   |  | OK | 1397 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10331 | A | Measure the opening gap of the door.<br>(The measurement must be done at the<br>TOP of the door).                                                                         |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10332 | R | Door 6 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                                                                                   |  | OK | 1395 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10333 | A | Measure the opening gap of the door.<br>(The measurement must be done in the<br>MIDDLE of the door).                                                                      |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10334 | R | Door 6 gap<br>Result Min/Max : 1390<= x <= 1410<br>(mm)                                                                                                                   |  | OK | 1396 | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10335 | I | Obstacle Detection                                                                                                                                                        |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10336 | I | ERTMS Auth Left Train Line<br>Dev4/86 = END2 90XP15 pin 44                                                                                                                |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10337 | A | Force [NI] Dev4/86 = 1.0                                                                                                                                                  |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10338 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr1<br>= 1.0                                                                                                                 |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10339 | A | Force [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2<br>= 1.0                                                                                                                 |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10340 | A | Position an obstacle on the floor in the<br>centre of each and every door closing<br>line                                                                                 |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10341 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorright                                                                                                                             |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10342 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorleft                                                                                                                              |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10343 | R | All doors will hit the obstacles, reopen<br>and try to close again 3 times.<br>On the third attempt ALL doors will stop<br>and stand ajar - free to be opened<br>manually |  | OK |      | Nqobile<br>Chirwa -<br>484648 | TC2 |

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| 10344 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorright = 1.0                                                            |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10345 | A | Force [TT]<br>(MPU1)lo_dor_tc2opendoorleft = 1.0                                                             |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10346 | A | Remove the obstacles                                                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10347 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorright                                                                |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10348 | A | Release [TT]<br>(MPU1)lo_dor_tc2opendoorleft                                                                 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10349 | R | Check if ALL doors closes in 3 sec (+1/-0)                                                                   |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10350 | R | Check that the RED leds on both sides of the door blink while the door closes<br>[Safety Request: Prasa8-05] |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10351 | I | Doors Open Train Line<br>Dev2/82 = Coupler pin 029                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10352 | R | Read Defined Variable [NI] Dev2/82 = 0.0                                                                     |  | OK | 0 | Ntobeko<br>Ndlovu -<br>421595 | TC2 |
| 10353 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthrightr1                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10354 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthrightr2                                                         |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10355 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr1                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10356 | A | Release [TT]<br>(MPU1)lo_dor_tc2distertmsauthlefr2                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10357 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP25 pin 96                                                 |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10358 | A | Force [NI] Dev4/89 = 0.0                                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10359 | I | ERTMS Auth Right Train Line<br>Dev4/87 = END2 90XP15 pin 47                                                  |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10360 | A | Force [NI] Dev4/87 = 0.0                                                                                     |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10361 | I | V<3km/h Train Line<br>Dev4/39 = END2 90XP15 pin 29                                                           |  | OK |   | Nqobile<br>Chirwa -<br>484648 | TC2 |

|       |   |                                                      |  |    |  |                               |     |
|-------|---|------------------------------------------------------|--|----|--|-------------------------------|-----|
| 10362 | A | Force [NI] Dev4/39 = 0.0                             |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10363 | A | Switch Door Authorization Selector<br>50S7 to DRIVER |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10364 | I | End of test                                          |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |



Serial Tests Report  
TS251 – TC2 – VFT  
RTR Vehicle Functional Static Testing Report

Document Reference  
GIB0000007316  
Version: A0

Emission date  
18/10/2024

## Section 16 – HVAC Air Conditioning

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### 16.1 Instructions list

### 16.1.1 057\_HVA-HVAC\_TK

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                          | File                                                                                | Result status | Result value | Operator | Vehicle |
|-------|------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------|----------|---------|
| 10001 | I    | HVA_057 Air Conditioning                                                                             |                                                                                     | NE            |              |          | TC2     |
| 10002 | I    | Initial conditions                                                                                   |                                                                                     | NE            |              |          | TC2     |
| 10003 | A    | Car Should be Prepared                                                                               |                                                                                     | NE            |              |          | TC2     |
| 10004 | I    | Power Supply                                                                                         |                                                                                     | NE            |              |          | TC2     |
| 10005 | A    | Close Circuit Breaker 57Q1                                                                           |                                                                                     | NE            |              |          | TC2     |
| 10006 | A    | Close Circuit Breaker 57Q2                                                                           |                                                                                     | NE            |              |          | TC2     |
| 10007 | I    | HVAC Electronic Power Supply                                                                         |                                                                                     | NE            |              |          | TC2     |
| 10008 | R    | The HVAC electronic is ON                                                                            |                                                                                     | NE            |              |          | TC2     |
| 10009 | A    | Close Circuit Breaker F1 on the HVAC Panel                                                           |                                                                                     | NE            |              |          | TC2     |
| 10010 | A    | Turn the control switch to AUTO position on the HVAC Panel                                           |                                                                                     | NE            |              |          | TC2     |
| 10011 | I    | Software Upload                                                                                      |                                                                                     | NE            |              |          | TC2     |
| 10012 | I    | Follow the procedure in the document below to upload software onto the HVAC electronic               |                                                                                     | NE            |              |          | TC2     |
| 10013 | A    |                                                                                                      |  | NE            |              |          | TC2     |
| 10014 | I    | Checking 400Vac                                                                                      |                                                                                     | NE            |              |          | TC2     |
| 10015 | A    | Ensure that the 400Vac Shore Supply is connected to the vehicle, else connect it                     |                                                                                     | NE            |              |          | TC2     |
| 10016 | A    | Disconnect connector 57XP4_X5 and use a multimeter to measure 400Vac between phases a1, a2 and b1    |                                                                                     | NE            |              |          | TC2     |
| 10017 | R    | 400Vac is measured between each of the phases                                                        |                                                                                     | NE            |              |          | TC2     |
| 10018 | A    | On the same connector, with a phasemeter, check the correct Phase Rotation between L1- Phase a1, L2- |                                                                                     | NE            |              |          | TC2     |

|       |   |                                                                                                                                       |                                                                                     |    |  |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|-----|
|       |   | Phase a2, L3- Phase b1                                                                                                                |                                                                                     |    |  |     |
| 10019 | R | The phase rotation is correct between all three phases                                                                                |                                                                                     | NE |  | TC2 |
| 10020 | A | Normalize connector 57XP4_X5                                                                                                          |                                                                                     | NE |  | TC2 |
| 10021 | I | HVAC 50% restriction                                                                                                                  |                                                                                     | NE |  | TC2 |
| 10022 | A | Force [TT] NRG_HvacTc250Cmd = 0                                                                                                       |                                                                                     | NE |  | TC2 |
| 10023 | A | Force [TT] NRG_HvacTc2Cab50Cmd = 0                                                                                                    |                                                                                     | NE |  | TC2 |
| 10024 | I | HVAC inhib                                                                                                                            |                                                                                     | NE |  | TC2 |
| 10025 | A | Force [TT]<br>(MPU1)lo_hva_tc2hvacinhibr1___1 = 1                                                                                     |                                                                                     | NE |  | TC2 |
| 10026 | A | Force [TT]<br>(MPU1)lo_hva_tc2hvacinhibr2___1 = 1                                                                                     |                                                                                     | NE |  | TC2 |
| 10027 | R | HVAC unit turns ON and starts to work                                                                                                 |                                                                                     | NE |  | TC2 |
| 10028 | I | Emergency Ventilation                                                                                                                 |                                                                                     | NE |  | TC2 |
| 10029 | A | Force [TT]<br>(MPU1)lo_hva_tc2emergventil___1 = 1                                                                                     |                                                                                     | NE |  | TC2 |
| 10030 | A | All saloon HVAC units are in ventilation mode, not heating/cooling                                                                    |                                                                                     | NE |  | TC2 |
| 10031 | A | Connect the laptop to the HVAC maintenance software using HCU Finder and verify that main mode changed to Emergency                   |  | NE |  | TC2 |
| 10032 | A | Release [TT]<br>(MPU1)lo_hva_tc2emergventil___1                                                                                       |                                                                                     | NE |  | TC2 |
| 10033 | I | Forced Mode (Saloon HVAC)                                                                                                             |                                                                                     | NE |  | TC2 |
| 10034 | I | In the maintenance software, select the 'Forced' tab, and use the "Required working mode" drop down box to force the following modes: |                                                                                     | NE |  | TC2 |
| 10035 | A | For the next sections, walk through the whole car and physically check (feel) that the HVAC is functioning as desired                 |                                                                                     | NE |  | TC2 |

|       |   |                                                                                                                  |                                                                                   |    |  |     |
|-------|---|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|--|-----|
| 10036 | A | Force Ventilation mode on the Saloon HVAC                                                                        |                                                                                   | NE |  | TC2 |
| 10037 | I | Ventilation mode                                                                                                 |  | NE |  | TC2 |
| 10038 | R | All saloon HVAC units work in Ventilation mode. Not heating/cooling                                              |                                                                                   | NE |  | TC2 |
| 10039 | I | Cooling Mode                                                                                                     |                                                                                   | NE |  | TC2 |
| 10040 | A | Force Cooling mode on the Saloon HVAC                                                                            |                                                                                   | NE |  | TC2 |
| 10041 | R | All saloon HVAC units work in Cooling mode                                                                       |                                                                                   | NE |  | TC2 |
| 10042 | I | Heating Mode                                                                                                     |                                                                                   | NE |  | TC2 |
| 10043 | A | Force Heating mode on the Saloon HVAC                                                                            |                                                                                   | NE |  | TC2 |
| 10044 | R | All saloon HVAC units work in Heating mode                                                                       |                                                                                   | NE |  | TC2 |
| 10045 | I | Automatic Mode                                                                                                   |                                                                                   | NE |  | TC2 |
| 10046 | A | Force Self-Test on the Saloon HVAC                                                                               |                                                                                   | NE |  | TC2 |
| 10047 | R | All saloon HVAC units work according to the mode described in the "Actual working mode"                          |                                                                                   | NE |  | TC2 |
| 10048 | R | The Exhaust fans are Turned OFF                                                                                  |                                                                                   | NE |  | TC2 |
| 10049 | I | Cabin Footrest Heater Test                                                                                       |                                                                                   | NE |  | TC2 |
| 10050 | I | Use the tools list to record the serial number of the Infrared Thermometer that will be used in the next section |                                                                                   | NE |  | TC2 |
| 10051 | A | Close Circuit Breaker 57Q3                                                                                       |                                                                                   | NE |  | TC2 |
| 10052 | R | The Foot Heater pushbutton white lamp 57S3 is OFF                                                                |                                                                                   | NE |  | TC2 |
| 10053 | R | Foot Heater is Off (UDM)                                                                                         |                                                                                   | NE |  | TC2 |
| 10054 | A | Press the Foot Heater Pushbutton 57S3                                                                            |                                                                                   | NE |  | TC2 |
| 10055 | R | The Foot Heater pushbutton white lamp 57S3 is ON                                                                 |                                                                                   | NE |  | TC2 |

|       |   |                                                                                                                                                |                                                                                     |    |  |  |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|--|-----|
| 10056 | R | Read Defined Variable [TT]<br>(MPU1)li_hva_tc2footheaterfault___1<br>= 0                                                                       |                                                                                     | NE |  |  | TC2 |
| 10057 | R | Foot Heater is ON (allow some time<br>for it to heat up and confirm with<br>Infrared Thermometer that it is heating<br>up)                     |                                                                                     | NE |  |  | TC2 |
| 10058 | A | Once verified working, press the Foot<br>Heater Pushbutton 57S3                                                                                |                                                                                     | NE |  |  | TC2 |
| 10059 | R | The Foot Heater pushbutton white<br>lamp 57S3 is OFF                                                                                           |                                                                                     | NE |  |  | TC2 |
| 10060 | R | Read Defined Variable [TT]<br>(MPU1)li_hva_tc2footheaterfault___1<br>= 0                                                                       |                                                                                     | NE |  |  | TC2 |
| 10061 | R | Foot Heater is OFF (allow some time<br>for it to cool down and confirm with<br>Infrared Thermometer that it is cooling<br>down)                |                                                                                     | NE |  |  | TC2 |
| 10062 | A | Check that the Footrest can go up by<br>slightly pressing the adjusting pedal.                                                                 |                                                                                     | NE |  |  | TC2 |
| 10063 | R | The Footrest is adjustable, it can go up.                                                                                                      |                                                                                     | NE |  |  | TC2 |
| 10064 | A | Check that the Footrest can go down<br>by pressing the adjusting pedal. Ensure<br>the other foot applies force on the<br>Footrest              |                                                                                     | NE |  |  | TC2 |
| 10065 | R | The Footrest is adjustable, it can go<br>down.                                                                                                 |                                                                                     | NE |  |  | TC2 |
| 10066 | I | Forced Mode (Cabin HVAC)                                                                                                                       |  | NE |  |  | TC2 |
| 10067 | I | In the maintenance software, select<br>the 'Forced' tab, and use the "Required<br>working mode" drop down box to force<br>the following modes: |                                                                                     | NE |  |  | TC2 |
| 10068 | I | Ventilation Mode                                                                                                                               |                                                                                     | NE |  |  | TC2 |
| 10069 | A | Force Ventilation mode on the Cab<br>HVAC                                                                                                      |                                                                                     | NE |  |  | TC2 |
| 10070 | R | The Cab HVAC works in Ventilation<br>mode. Not heating/cooling                                                                                 |                                                                                     | NE |  |  | TC2 |
| 10071 | I | Cooling Mode                                                                                                                                   |                                                                                     | NE |  |  | TC2 |

|       |   |                                                                                                                    |                                                                                     |    |  |     |
|-------|---|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|-----|
| 10072 | A | Force Cooling mode on the Cab HVAC                                                                                 |                                                                                     | NE |  | TC2 |
| 10073 | R | The Cab HVAC works in Cooling mode                                                                                 |                                                                                     | NE |  | TC2 |
| 10074 | I | Heating Mode                                                                                                       |                                                                                     | NE |  | TC2 |
| 10075 | A | Force Heating mode on the Cab HVAC                                                                                 |                                                                                     | NE |  | TC2 |
| 10076 | R | The Cab HVAC works in Heating mode                                                                                 |                                                                                     | NE |  | TC2 |
| 10077 | I | Automatic Mode                                                                                                     |                                                                                     | NE |  | TC2 |
| 10078 | A | Force Automatic mode on the Cab HVAC                                                                               |                                                                                     | NE |  | TC2 |
| 10079 | R | The Cab HVAC works in Automatic mode -according to the mode described in the "Actual working mode"                 |                                                                                     | NE |  | TC2 |
| 10080 | I | HVAC Faults                                                                                                        |                                                                                     | NE |  | TC2 |
| 10081 | A | In the maintenance software, select the "Alarms / Warnings" tab                                                    |                                                                                     | NE |  | TC2 |
| 10082 | A | Ensure there are no active faults on the HVAC                                                                      |  | NE |  | TC2 |
| 10083 | R | No active faults identified on the HVAC unit                                                                       |                                                                                     | NE |  | TC2 |
| 10084 | I | Air Flow Measure                                                                                                   |                                                                                     | NE |  | TC2 |
| 10085 | A | Check that the windshield air outlet is open                                                                       |                                                                                     | NE |  | TC2 |
| 10086 | A | On the left side diffuser, put the anemometer in the middle of the air diffuser directly in contact with the grill |                                                                                     | NE |  | TC2 |
| 10087 | A | Record average speed over 30 s                                                                                     |                                                                                     | NE |  | TC2 |
| 10088 | R | Average air speed                                                                                                  |                                                                                     | NE |  | TC2 |
| 10089 | A | On the right diffuser, put the anemometer in the middle of the air diffuser directly in contact with the grill     |                                                                                     | NE |  | TC2 |
| 10090 | A | Record average speed over 30 s                                                                                     |                                                                                     | NE |  | TC2 |
| 10091 | R | Average air speed                                                                                                  |                                                                                     | NE |  | TC2 |

|       |   |                                                                                                                              |  |    |  |  |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------------|--|----|--|--|-----|
| 10092 | A | Compare the two recorded air speeds, left and right. The values should be within 15% of each other.                          |  | NE |  |  | TC2 |
|       |   | If the difference is greater than 15%, check if the flexible duct going to the windshield diffuser is not loose or squeezed. |  |    |  |  |     |
| 10093 | R | The difference between left and right air flow is less than 15%                                                              |  | NE |  |  | TC2 |
| 10094 | A | Release [TT]<br>(MPU1)lo_hva_tc2hvacinhibr1__1                                                                               |  | NE |  |  | TC2 |
| 10095 | A | Release [TT]<br>(MPU1)lo_hva_tc2hvacinhibr2__1                                                                               |  | NE |  |  | TC2 |
| 10096 | A | Release [TT] NRG_HvacTc250Cmd                                                                                                |  | NE |  |  | TC2 |
| 10097 | A | Release [TT] NRG_HvacTc2Cab50Cmd                                                                                             |  | NE |  |  | TC2 |
| 10098 | I | End of Test                                                                                                                  |  | NE |  |  | TC2 |

### 16.1.2 057\_HVA\_SME-HVAC\_SME

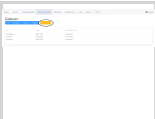
I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                                 | File | Result status | Result value | Operator                | Vehicle |
|-------|------|---------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|-------------------------|---------|
| 10001 | I    | HVA_057 Air Conditioning                                                                                                                    |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10002 | I    | Initial conditions                                                                                                                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10003 | A    | Car Should be Prepared with CVS running and 400V ac available in the car                                                                    |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10004 | I    | HVAC Electronic Power Supply                                                                                                                |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10005 | A    | Close Circuit Breaker 13Q1 and 13Q5                                                                                                         |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10006 | A    | Allow the HVAC to initialize and check on the DDU if the HVAC is online                                                                     |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10007 | I    | Checking 400Vac                                                                                                                             |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10008 | A    | Close Circuit Breaker 57Q1                                                                                                                  |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10009 | A    | Disconnect connector 57XP4_X5, use multimeter and Measure 400Vac between phase a1, a2 and b1                                                |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10010 | R    | 400Vac measured between all phases                                                                                                          |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10011 | A    | On same connector 57XP4_X5, with a phasemeter, check the correct Phase Rotation between points a1- Phase L1, a2- Phase L2 and b1- Phase L3. |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10012 | R    | The phase rotation is correct between all three phases                                                                                      |      | OK            |              | Nqobile Chirwa - 484648 | TC2     |
| 10013 | A    | Normalize connector 57XP4_X5                                                                                                                |      | OK            |              | Gcobani Baliso - 480570 | TC2     |
| 10014 | I    | Controller power supply                                                                                                                     |      | OK            |              | Gcobani Baliso - 480570 | TC2     |

|       |   |                                                                                                                                                                                                                 |                                                                                     |    |  |                         |     |
|-------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|-------------------------|-----|
| 10015 | A | Close Circuit Breaker 57Q2                                                                                                                                                                                      |                                                                                     | OK |  | Gcobani Baliso - 480570 | TC2 |
| 10016 | R | HVAC unit turns ON and starts to work                                                                                                                                                                           |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10017 | I | HVAC inhib                                                                                                                                                                                                      |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10018 | A | Force [TT] (MPU1)lo_hva_tc2hvacinhibr1___1 = 1.0                                                                                                                                                                |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10019 | A | Force [TT] (MPU1)lo_hva_tc2hvacinhibr2___1 = 1.0                                                                                                                                                                |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10020 | I | 50% HVAC restriction                                                                                                                                                                                            |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10021 | A | Force [TT] NRG_HvacTc2Cab50Cmd = 0                                                                                                                                                                              |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10022 | A | Force [TT] NRG_HvacTc250Cmd = 0                                                                                                                                                                                 |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10023 | I | Saloon HVAC                                                                                                                                                                                                     |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10024 | I | HVAC web portal                                                                                                                                                                                                 |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10025 | I | Connect the laptop to the HVAC maintenance software using web browser. Enter the following IP address on the web browser<br>10.136.xxx.28<br>xxx represents the train number<br>Login: maint<br>Password: maint |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10026 | R | On status tab, Active mode is off for both cab and saloon                                                                                                                                                       |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10027 | A | Go to Alarms tab and clear all the alarms for saloon and cabin                                                                                                                                                  |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10028 | I | Full "Self test" saloon                                                                                                                                                                                         |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10029 | I | For the following tests make sure on the webHMI tab you change controller to be controlled by webHMI and not MPU                                                                                                |  | OK |  | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                                       |                                                                                    |    |  |                         |     |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----|--|-------------------------|-----|
| 10030 | A | Before running the full test, please click on reset test to reset the previous results.                                               |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10031 | A | Select Full-Test on the Saloon HVAC                                                                                                   |   | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10032 | R | All saloon HVAC units work according to the mode described in the "ACTIVE MODE" on the status tab                                     |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10033 | R | When the test is complete, please check if the status is showing as "TEST PASS" and the test took 3 mins +/- 2 seconds for each mode. |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10034 | I | Forced Mode (Saloon HVAC)                                                                                                             |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10035 | I | During all tests Walk through the whole car and physically check (feel) that the HVAC is functioning as desired                       |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10036 | I | Go to maintenance tab to force the following modes                                                                                    |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10037 | I | Cooling Mode                                                                                                                          |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10038 | A | Select forced Cooling mode on the Saloon HVAC and let it run for 5 mins                                                               |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10039 | R | All HVAC units are cooling                                                                                                            |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10040 | I | Heating Mode                                                                                                                          |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10041 | A | Select forced Heating mode on the Saloon HVAC and let it run for 5 mins                                                               |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10042 | R | All HVAC units are heating                                                                                                            |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10043 | I | Cabin Footrest Heater Test                                                                                                            |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10044 | I | Use the tools list to record the serial number of the Infrared Thermometer that will be used in the next section                      |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10045 | A | Close Circuit Breaker 57Q3                                                                                                            |                                                                                    | OK |  | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                          |  |    |   |                          |     |
|-------|---|--------------------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------|-----|
| 10046 | R | The Foot Heater pushbutton white lamp 57S3 is OFF                                                                        |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10047 | R | Foot Heater is Off (UDM)                                                                                                 |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10048 | A | Press the Foot Heater Pushbutton 57S3                                                                                    |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10049 | R | The Foot Heater pushbutton white lamp 57S3 is ON                                                                         |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10050 | R | Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault__1 = 0.0                                                      |  | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10051 | R | Foot Heater is ON (allow some time for it to heat up and confirm with Infrared Thermometer that it is heating up)        |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10052 | A | Once verified working, press the Foot Heater Pushbutton 57S3                                                             |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10053 | R | The Foot Heater pushbutton white lamp 57S3 is OFF                                                                        |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10054 | R | Read Defined Variable [TT] (MPU1)li_hva_tc2footheaterfault__1 = 0.0                                                      |  | OK | 0 | Nokuzola Mdluli - 491469 | TC2 |
| 10055 | R | Foot Heater is OFF (allow some time for it to cool down and confirm with Infrared Thermometer that it is cooling down)   |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10056 | A | Check that the Footrest can go up by slightly pressing the adjusting pedal.                                              |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10057 | R | The Footrest is adjustable, it can go up.                                                                                |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10058 | A | Check that the Footrest can go down by pressing the adjusting pedal. Ensure the other foot applies force on the Footrest |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10059 | R | The Footrest is adjustable, it can go down.                                                                              |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10060 | I | Cab Hvac                                                                                                                 |  | OK |   | Nqobile Chirwa - 484648  | TC2 |
| 10061 | I | Full "Self test" Cab                                                                                                     |  | OK |   | Nqobile Chirwa - 484648  | TC2 |

|       |   |                                                                                                                                         |                                                                                     |    |  |                         |     |
|-------|---|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|-------------------------|-----|
| 10062 | A | Before running the full test, please click on reset test to reset the previous results.                                                 |    | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10063 | A | Select Full test on the Cab HVAC                                                                                                        |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10064 | R | The cab HVAC works according to the mode described in the "ACTIVE MODE" on the status tab                                               |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10065 | R | When the test is complete, please check if the status is showing as "TEST PASS" and the test took 3 mins +/- 2 seconds for each mode.   |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10066 | I | Forced Mode (Cabin HVAC)                                                                                                                |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10067 | I | For the coming test, check(feel) that the air coming through the supply air duct in the cabin is as desired "VENT/COOL or HEAT"         |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10068 | I | Go to maintenance tab to force the following modes                                                                                      |  | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10069 | I | Cooling Mode                                                                                                                            |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10070 | A | Select forced Cooling mode on the Cabin HVAC and let it run for 5 mins                                                                  |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10071 | R | All HVAC ducts in the cab are cooling                                                                                                   |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10072 | I | Heating Mode                                                                                                                            |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10073 | R | Select forced heating mode on the Cabin HVAC and let it run for 5 mins                                                                  |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10074 | R | All HVAC ducts in the cab are heating                                                                                                   |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10075 | I | HVAC Faults                                                                                                                             |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10076 | A | In the maintenance software, select the "Alarms" tab                                                                                    |                                                                                     | OK |  | Nqobile Chirwa - 484648 | TC2 |
| 10077 | A | Ensure there are no active faults on the HVAC for Cabin and Saloon. Use the highlighted drop down to navigate between saloon and cabin. |  | OK |  | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                                                                                                                                                                                              |  |    |    |                         |     |
|-------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|----|-------------------------|-----|
| 10078 | R | No active faults identified on the HVAC unit                                                                                                                                                                                 |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10079 | I | Air Flow Measure                                                                                                                                                                                                             |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10080 | I | Using the tools list on the side of your screen, log the serial number of the anemometer used                                                                                                                                |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10081 | A | Turn the cab ventilation control switch 57S1 to high speed position                                                                                                                                                          |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10082 | A | Check that the windshield air outlet is open                                                                                                                                                                                 |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10083 | A | On the left side diffuser, put an anemometer in the middle of the air diffuser directly in contact with the grill                                                                                                            |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10084 | A | Record the average air speed over 30 s                                                                                                                                                                                       |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10085 | R | Average air speed<br>Read Undefined Value : x (m/s)                                                                                                                                                                          |  | OK | 21 | Nqobile Chirwa - 484648 | TC2 |
| 10086 | A | On the right side diffuser, put the anemometer in the middle of air diffuser directly in contact with the grill                                                                                                              |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10087 | A | Record the average air speed over 30s                                                                                                                                                                                        |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10088 | R | Average air speed<br>Read Undefined Value : x (m/s)                                                                                                                                                                          |  | OK | 23 | Nqobile Chirwa - 484648 | TC2 |
| 10089 | A | Compare the two recorded air speeds, left and right. the values should be within 15% of each other.<br><br>If the difference is greater than 15%, check that the flexible duct going to windshield diffuser is not squeezed. |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10090 | R | Difference between left-right air flow is within 15%                                                                                                                                                                         |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10091 | A | Turn the Cab Ventilation Control Switch 57S1 to OFF position                                                                                                                                                                 |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10092 | R | Cabin HVAC turned OFF                                                                                                                                                                                                        |  | OK |    | Nqobile Chirwa - 484648 | TC2 |
| 10093 | A | Release [TT]<br>(MPU1)lo_hva_tc2hvacinhibr1__1                                                                                                                                                                               |  | OK |    | Nqobile Chirwa - 484648 | TC2 |

|       |   |                                                 |  |    |  |                               |     |
|-------|---|-------------------------------------------------|--|----|--|-------------------------------|-----|
| 10094 | A | Release [TT]<br>(MPU1)lo_hva_tc2hvacinhibr2___1 |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10095 | A | Release [TT] NRG_HvacTc2Cab50Cmd                |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10096 | A | Release [TT] NRG_HvacTc250Cmd                   |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |
| 10097 | I | END TEST                                        |  | OK |  | Nqobile<br>Chirwa -<br>484648 | TC2 |



Serial Tests Report  
TS251 – TC2 – VFT  
RTR Vehicle Functional Static Testing Report

Document Reference  
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## Section 17 – Fire Protection

### 17.1 Instructions list

#### 17.1.1 067\_FSD-Fire Protection

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                            | File | Result status | Result value | Operator                   | Vehicle |
|-------|------|----------------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|----------------------------|---------|
| 10001 | I    | Fire Protection System (SPP=067)                                                                                                       |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10002 | I    | Initial conditions                                                                                                                     |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10003 | I    | Car Should be Prepared                                                                                                                 |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10004 | I    | Fire Detection Control                                                                                                                 |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10005 | I    | Fire Detection Train Lines<br>Dev4/76 = END2<br>90XP14 pin 21<br>Dev2/7 = END1<br>Coupler pin 008<br>Dev2/33 = END1<br>Coupler pin 108 |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10006 | A    | Force [NI] Dev4/76 = 1.0                                                                                                               |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10007 | R    | Read Defined Variable [NI] Dev2/7 = 1.0                                                                                                |      | OK            | 1            | Mpumelelo Sithole - 529980 | TC2     |
| 10008 | R    | Read Defined Variable [NI] Dev2/33 = 1.0                                                                                               |      | OK            | 1            | Mpumelelo Sithole - 529980 | TC2     |
| 10009 | A    | Check on the Alarm Module that the Fire Alarm 67H1 is illuminated                                                                      |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |
| 10010 | I    | Fire Detection Train Lines<br>Dev4/76 = END2<br>90XP14 pin 21<br>Dev2/7 = END1                                                         |      | OK            |              | Mpumelelo Sithole - 529980 | TC2     |

|       |   |                                                                                                           |  |    |   |                            |     |
|-------|---|-----------------------------------------------------------------------------------------------------------|--|----|---|----------------------------|-----|
|       |   | Coupler pin 008<br>Dev2/33 = END1<br>Coupler pin 108                                                      |  |    |   |                            |     |
| 10011 | A | Force [NI] Dev4/76 = 0.0                                                                                  |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10012 | R | Read Defined Variable [NI] Dev2/7 = 0.0                                                                   |  | OK | 0 | Mpumelelo Sithole - 529980 | TC2 |
| 10013 | R | Read Defined Variable [NI] Dev2/33 = 0.0                                                                  |  | OK | 0 | Mpumelelo Sithole - 529980 | TC2 |
| 10014 | A | Check on the Alarm Module that the Fire Alarm 67H1 is OFF                                                 |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10015 | I | Continuity Check                                                                                          |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10016 | A | Check the continuity between the two provided points of the line below                                    |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10017 | A | From: [(local: +END2 connector -90XP13.b (pin 4))] to: [-67A1 (local: +END2 connector -90XP13.a (pin 7))] |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10018 | A | From: [(local: +END2 connector -90XP13.b (pin 5))] to: [-67A1 (local: +END2 connector -90XP13.a (pin 8))] |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |
| 10019 | I | END OF TEST                                                                                               |  | OK |   | Mpumelelo Sithole - 529980 | TC2 |

## Section 18 – Driving Command

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### 18.1 Instructions list

### 18.1.1 030\_DRC-Driving Command

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                    | File | Result status | Result value | Operator                     | Vehicle |
|-------|------|----------------------------------------------------------------|------|---------------|--------------|------------------------------|---------|
| 10001 | I    | Driving Command (SPP=30/31)                                    |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10002 | I    | Initial conditions                                             |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10003 | I    | Cabin should be active                                         |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10004 | A    | Ensure all the doors are closed                                |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10005 | A    | Ensure that there is air connected to the main pipe            |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10006 | A    | Force [TT] (BCU1)li_mp_ps_ok = 1.0                             |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10007 | I    | Circuit Breakers                                               |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10008 | A    | Close Circuit Breaker "30Q1"                                   |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10009 | A    | Close Circuit Breaker "30Q2"                                   |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10010 | A    | Close Circuit Breaker "30Q3"                                   |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10011 | A    | Close Circuit Breaker "31Q1"                                   |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10012 | I    | Direction Selector Switch                                      |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10013 | I    | Set the Running Direction Switch 30A1.S2 to "Neutral" position |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10014 | R    | Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror1 = 0.0    |      | OK            | 0            | Thandanani Makhanya - 463827 | TC2     |
| 10015 | R    | Read Defined Variable [TT] (MPU1)li_drc_tc2dsnozeror2 = 0.0    |      | OK            | 0            | Thandanani Makhanya - 463827 | TC2     |
| 10016 | I    | Set the Running Direction Switch 30A1.S2 to "Reverse" position |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |

|       |   |                                                                                                               |  |    |   |                                    |     |
|-------|---|---------------------------------------------------------------------------------------------------------------|--|----|---|------------------------------------|-----|
| 10017 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsnozeror1 = 1.0                                                |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10018 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsnozeror2 = 1.0                                                |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10019 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsreverser1 = 1.0                                               |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsreverser2 = 1.0                                               |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10021 | I | Reverse Train lines<br>Dev2/28 = coupler pin 011<br>Dev2/29 = coupler pin 132<br>Dev5/78 = END2 90XP15 pin 30 |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10022 | R | Read Defined Variable [NI] Dev2/28 = 1.0                                                                      |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10023 | R | Read Defined Variable [NI] Dev2/29 = 1.0                                                                      |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10024 | R | Read Defined Variable [NI] Dev5/78 = 1.0                                                                      |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10025 | I | Set the Running Direction Switch<br>30A1.S2 to "Forward" position                                             |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10026 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsnozeror1 = 1.0                                                |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10027 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsreverser1 = 0.0                                               |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10028 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsreverser2 = 0.0                                               |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10029 | R | Read Defined Variable [NI] Dev2/28 = 0.0                                                                      |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10030 | I | Reverse Train lines<br>Dev2/28 = coupler pin 011<br>Dev2/29 = coupler pin 132<br>Dev5/78 = END2 90XP15 pin 30 |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10031 | R | Read Defined Variable [NI] Dev2/29 = 0.0                                                                      |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10032 | R | Read Defined Variable [NI] Dev5/78 = 0.0                                                                      |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10033 | I | Forward Train lines<br>Dev2/26 = coupler pin 032<br>Dev2/27 = coupler pin 111                                 |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |

|       |   |                                                                                                               |  |    |   |                              |     |
|-------|---|---------------------------------------------------------------------------------------------------------------|--|----|---|------------------------------|-----|
|       |   | Dev5/35 = END2 90XP15 pin 25                                                                                  |  |    |   |                              |     |
| 10034 | R | Read Defined Variable [NI] Dev2/26 = 1.0                                                                      |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10035 | R | Read Defined Variable [NI] Dev2/27 = 1.0                                                                      |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10036 | R | Read Defined Variable [NI] Dev5/35 = 1.0                                                                      |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10037 | I | Set the Running Direction Switch 30A1.S2 to "Neutral" position                                                |  | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10038 | R | Read Defined Variable [NI] Dev2/26 = 0.0                                                                      |  | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10039 | I | Forward Train lines<br>Dev2/26 = coupler pin 032<br>Dev2/27 = coupler pin 111<br>Dev5/35 = END2 90XP15 pin 25 |  | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10040 | R | Read Defined Variable [NI] Dev2/27 = 0.0                                                                      |  | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10041 | R | Read Defined Variable [NI] Dev5/35 = 0.0                                                                      |  | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10042 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsnozeror1 = 0.0                                                |  | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10043 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dsreverser1 = 0.0                                               |  | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10044 | I | Driving Mode                                                                                                  |  | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10045 | A | Turn the Driving Mode Switch 30S1 to "Speed" position                                                         |  | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10046 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r1 = 1.0                                               |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10047 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r2 = 1.0                                               |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10048 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r1 = 1.0                                               |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10049 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r2 = 1.0                                               |  | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10050 | A | Turn the Driving Mode Switch 30S1 to "Effort" position                                                        |  | OK |   | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                 |  |    |   |                                    |     |
|-------|---|-----------------------------------------------------------------|--|----|---|------------------------------------|-----|
| 10051 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10052 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit3r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10053 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10054 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10055 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10056 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10057 | A | Turn the Driving Mode Switch 30S1 to<br>"Depot" position        |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10058 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10059 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10060 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10061 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit3r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10062 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10063 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10064 | A | Turn the Driving Mode Switch 30S1 to<br>"Couple/Wash" position  |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10065 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit1r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10066 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit2r1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10067 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit3r1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10068 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit3r2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |

|       |   |                                                                    |  |    |   |                                    |     |
|-------|---|--------------------------------------------------------------------|--|----|---|------------------------------------|-----|
| 10069 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r1 = 1.0    |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10070 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2dmodebit4r2 = 1.0    |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10071 | I | Reduced Power                                                      |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10072 | A | Press and hold the Reduced Power<br>Pushbutton 30S2                |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10073 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2reducedpowerr1 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10074 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2reducedpowerr2 = 1.0 |  | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10075 | A | Release the Reduced Power Pushbutton<br>30S2                       |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10076 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2reducedpowerr1 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10077 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2reducedpowerr2 = 0.0 |  | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10078 | A | Force [TT]<br>(MPU1)lo_drc_tc2reducedlampr1 = 1.0                  |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10079 | R | Check that the Reduced Power<br>Pushbutton lamp is ON              |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10080 | A | Release [TT]<br>(MPU1)lo_drc_tc2reducedlampr1                      |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10081 | R | Check that the Reduced Power<br>Pushbutton lamp is OFF             |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10082 | A | Force [TT]<br>(MPU1)lo_drc_tc2reducedlampr2 = 1.0                  |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10083 | R | Check that the Reduced Power<br>Pushbutton lamp is ON              |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10084 | A | Release [TT]<br>(MPU1)lo_drc_tc2reducedlampr2                      |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10085 | R | Check that the Reduced Power<br>Pushbutton lamp is OFF             |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |

|       |   |                                                                                                          |  |    |      |                                    |     |
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| 10086 | I | Master Controller Traction / No Brake                                                                    |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10087 | I | The Master Controller should be in "OFF" position                                                        |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10088 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch1 :<br>5479<= x <= 6369                                 |  | OK | 5952 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10089 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch2 :<br>5479<= x <= 6369                                 |  | OK | 5968 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10090 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr1 = 0.0                                            |  | OK | 0    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10091 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr2 = 0.0                                            |  | OK | 0    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10092 | I | No Brake Train lines<br>Dev2/32 = coupler pin 039<br>Dev2/8 = coupler pin 139<br>Dev5/82 = 90XP15 pin 32 |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10093 | R | Read Defined Variable [NI] Dev2/32 = 1.0                                                                 |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10094 | R | Read Defined Variable [NI] Dev2/8 = 1.0                                                                  |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10095 | R | Read Defined Variable [NI] Dev5/82 = 1.0                                                                 |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10096 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuTINoBr = 1.0                                                 |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10097 | I | Ensure that the blue mushroom is released                                                                |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10098 | A | Turn Emergency Braking Loop Override Switch 44S2 to BYPASS                                               |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10099 | I | Emergency Brake Train Line<br>Dev 4/61 = 90XP15 pin 67                                                   |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10100 | A | Force [NI] Dev4/61 = 1.0                                                                                 |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10101 | R | Read Defined Variable [NI] Dev2/84 = 1.0                                                                 |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10102 | R | Read Defined Variable [NI] Dev2/85 = 1.0                                                                 |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10103 | A | Turn the Traction Interlock Override Switch 31S1 to "Override" position    |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10104 | R | Check that the indicator lamp 31H1 is ON                                   |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10105 | I | Emergency Brake Train Loop Dev 4/61 = 90XP15 pin 67                        |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10106 | A | Force [NI] Dev4/61 = 0.0                                                   |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10107 | R | Read Defined Variable [NI] Dev2/84 = 0.0                                   |  | OK | 0     | Thandanani Makhanya - 463827 | TC2 |
| 10108 | R | Read Defined Variable [NI] Dev2/85 = 0.0                                   |  | OK | 0     | Thandanani Makhanya - 463827 | TC2 |
| 10109 | A | Turn the Emergency Braking Loop Override Switch 44S2 to NORMAL             |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10110 | A | Check that the indicator lamp 31H1 is OFF                                  |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10111 | A | Place the Master Controller in "100% Traction" position                    |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10112 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch1 :<br>29183<= x <= 31102 |  | OK | 30848 | Thandanani Makhanya - 463827 | TC2 |
| 10113 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch2 :<br>29183<= x <= 31102 |  | OK | 30512 | Thandanani Makhanya - 463827 | TC2 |
| 10114 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mctractrionr1 = 1.0          |  | OK | 1     | Thandanani Makhanya - 463827 | TC2 |
| 10115 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mctractrionr2 = 1.0          |  | OK | 1     | Thandanani Makhanya - 463827 | TC2 |
| 10116 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr1 = 1.0              |  | OK | 1     | Thandanani Makhanya - 463827 | TC2 |
| 10117 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr2 = 1.0              |  | OK | 1     | Thandanani Makhanya - 463827 | TC2 |
| 10118 | I | No Brake Train line<br>Dev2/32 = coupler pin 039                           |  | OK |       | Thandanani Makhanya - 463827 | TC2 |
| 10119 | R | Read Defined Variable [NI] Dev2/32 = 1.0                                   |  | OK | 1     | Thandanani Makhanya - 463827 | TC2 |

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| 10120 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuTINoBr = 1.0                                                       |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10121 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuTITract = 1.0                                                      |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10122 | I | Traction Train lines<br>Dev2/30 = coupler pin 026<br>Dev2/31 = coupler pin 126<br>Dev5/41 = END2 90XP15 pin 31 |  | OK |       | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10123 | R | Read Defined Variable [NI] Dev2/30 = 1.0                                                                       |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10124 | R | Read Defined Variable [NI] Dev2/31 = 1.0                                                                       |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10125 | R | Read Defined Variable [NI] Dev5/81 = 1.0                                                                       |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10126 | A | Place the Master Controller in "100% Service Brake" position                                                   |  | OK |       | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10127 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch1 :<br>29183<= x <= 31102                                     |  | OK | 30848 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10128 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch2 :<br>29183<= x <= 31102                                     |  | OK | 30848 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10129 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker1 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10130 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker2 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10131 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mctractonr1 = 0.0                                                |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10132 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mctractonr2 = 0.0                                                |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10133 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr1 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10134 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcemergencybraker1 = 0.0                                         |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10135 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcemergencybraker2 = 0.0                                         |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10136 | I | No Brake Train lines<br>Dev2/32 = coupler pin 039<br>Dev2/8 = coupler pin 139<br>Dev5/82 = 90XP15 pin 32       |  | OK |       | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10137 | R | Read Defined Variable [NI] Dev2/32 = 0.0                                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10138 | R | Read Defined Variable [NI] Dev2/8 = 0.0                                                                        |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10139 | R | Read Defined Variable [NI] Dev5/82 = 0.0                                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10140 | I | Traction Train lines<br>Dev2/30 = coupler pin 026<br>Dev2/31 = coupler pin 126<br>Dev5/81 = END2 90XP15 pin 31 |  | OK |       | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10141 | R | Read Defined Variable [NI] Dev2/30 = 0.0                                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10142 | R | Read Defined Variable [NI] Dev2/31 = 0.0                                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10143 | R | Read Defined Variable [NI] Dev5/81 = 0.0                                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10144 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuTINoBr = 0.0                                                       |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10145 | R | Read Defined Variable [TT]<br>(MPU1)BCU2_BcuTITract = 0.0                                                      |  | OK | 0     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10146 | A | Place the Master Controller in<br>"Emergency Brake" position                                                   |  | OK |       | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10147 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch1 :<br>29183<= x <= 31102                                     |  | OK | 30848 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10148 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch2 :<br>29183<= x <= 31102                                     |  | OK | 30848 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10149 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker1 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10150 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker2 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10151 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr1 = 1.0                                                  |  | OK | 1     | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10152 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcemergencybraker1<br>= 1.0                                                |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10153 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcemergencybraker2<br>= 1.0                                                |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10154 | A | Place the Master Controller in "OFF"<br>position                                                                         |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10155 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch1 :<br>5479<= x <= 6369                                                 |  | OK | 5952 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10156 | R | Read Min/Max [TT]<br>(MPU1)ai_drc_tc2mcpositionch2 :<br>5479<= x <= 6369                                                 |  | OK | 5968 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10157 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcnoastr1 = 0.0                                                            |  | OK | 0    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10158 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker1 = 0.0                                                            |  | OK | 0    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10159 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2mcbraker2 = 0.0                                                            |  | OK | 0    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10160 | I | Traction Interlock                                                                                                       |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10161 | I | Traction Interlock Override                                                                                              |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10162 | I | Traction Interlock Train lines<br>Dev2/34 = coupler pin 006<br>Dev2/35 = coupler pin 106<br>Dev5/83 = END2 90XP15 pin 41 |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10163 | R | Read Defined Variable [NI] Dev2/34 =<br>1.0                                                                              |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10164 | R | Read Defined Variable [NI] Dev2/35 =<br>1.0                                                                              |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10165 | R | Read Defined Variable [NI] Dev5/83 =<br>1.0                                                                              |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10166 | I | Traction Interlock Bypass Train Line<br>Dev5/4 = END2 90XP14 pin 6                                                       |  | OK |      | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10167 | R | Read Defined Variable [NI] Dev5/4 =<br>1.0                                                                               |  | OK | 1    | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10168 | R | Read Defined Variable [TT]<br>(BCU2)LI_NOT_INHIB = 1.0                                                                   |                                                                                     | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10169 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractintoverrider1 = 1.0                                                   |                                                                                     | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10170 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractintoverrider2 = 1.0                                                   |                                                                                     | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10171 | R | Check that the Indicator Lamp 31H2 is ON                                                                                 |    | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10172 | A | Turn the Traction Interlock Override Switch 31S1 to "Normal" position                                                    |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10173 | I | Traction Interlock Train lines<br>Dev2/34 = coupler pin 006<br>Dev2/35 = coupler pin 106<br>Dev5/83 = END2 90XP15 pin 41 |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10174 | R | Read Defined Variable [NI] Dev2/34 = 0.0                                                                                 |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10175 | R | Read Defined Variable [NI] Dev2/35 = 0.0                                                                                 |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10176 | R | Read Defined Variable [NI] Dev5/83 = 0.0                                                                                 |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10177 | I | Traction Interlock Bypass Train Line<br>Dev5/4 = END2 90XP14 pin 6                                                       |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10178 | R | Read Defined Variable [NI] Dev5/4 = 0.0                                                                                  |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10179 | R | Read Defined Variable [TT]<br>(BCU2)LI_NOT_INHIB = 0.0                                                                   |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10180 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractintoverrider1 = 0.0                                                   |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10181 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractintoverrider2 = 0.0                                                   |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10182 | R | Check that the Indicator Lamp 31H2 is OFF                                                                                |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10183 | I | Traction Interlock Relay                                                                                                 |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10184 | A | Open Circuit Breaker "30Q1"                                             |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10185 | A | Open Circuit Breaker "30Q2"                                             |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10186 | I | Set the Running Direction Switch<br>30A1.S2 to "Forward" position       |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10187 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP15 pin 96            |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10188 | A | Force [NI] Dev4/89 = 1.0                                                |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10189 | A | Force [TT]<br>(MPU1)lo_drc_tc2tractionloopr1 = 1.0                      |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10190 | I | Emergency Brake Loop Train Line<br>Dev4/5 = END2 90XP14 pin 9           |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10191 | A | Force [NI] Dev4/5 = 1.0                                                 |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10192 | A | Force [TT]<br>(MPU1)lo_ubk_tc2emergbraker1 = 1.0                        |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10193 | A | Turn the Dead Man Override Switch<br>60S1 to "Override" position        |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10194 | A | Turn the ERTMS Isolation switch 62S1<br>to "Isolation" position         |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10195 | I | Traction Interlock Train lines<br>Dev5/83 = END2 90XP15 pin 41          |                                                                                     | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10196 | R | Read Defined Variable [NI] Dev5/83 =<br>1.0                             |                                                                                     | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10197 | R | Read Defined Variable [TT]<br>(MPU1)li_ubk_tc2emergrelay1 = 0.0         |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10198 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 =<br>0.0 |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10199 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr2 =<br>0.0 |                                                                                     | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10200 | R | Check that the Indicator Lamp 31H1 is<br>ON                             |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |

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| 10201 | A | Press and Activate the Mushroom switch 44S1                          |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10202 | R | Check that the Indicator Lamp 31H1 is OFF                            |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10203 | A | Release the Mushroom switch 44S1                                     |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10204 | R | Check that the Indicator Lamp 31H1 is ON                             |    | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10205 | A | Place the Master Controller in "100% Traction" position              |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10206 | I | Traction Train lines<br>Dev5/81 = END2 90XP15 pin 31                 |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10207 | R | Read Defined Variable [NI] Dev5/81 = 1.0                             |                                                                                     | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10208 | A | Place the Master Controller in "Neutral" position                    |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10209 | A | Close Circuit Breaker "30Q1"                                         |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10210 | A | Close Circuit Breaker "30Q2"                                         |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10211 | I | Set the Running Direction Switch 30A1.S2 to "Neutral" position       |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10212 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 = 1.0 |                                                                                     | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10213 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr2 = 1.0 |                                                                                     | OK | 1 | Thandanani Makhanya - 463827 | TC2 |
| 10214 | I | Traction Interlock Train lines<br>Dev5/83 = END2 90XP15 pin 41       |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10215 | R | Read Defined Variable [NI] Dev5/83 = 0.0                             |                                                                                     | OK | 0 | Thandanani Makhanya - 463827 | TC2 |
| 10216 | R | Check Indicator Lamp 31H1 is OFF                                     |  | OK |   | Thandanani Makhanya - 463827 | TC2 |
| 10217 | A | Release [TT]<br>(MPU1)lo_drc_tc2tractionloopr1                       |                                                                                     | OK |   | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                      |                                                                                   |    |   |                                    |     |
|-------|---|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|---|------------------------------------|-----|
| 10218 | A | Force [TT]<br>(MPU1)lo_drc_tc2tractionloopr2 = 1.0                   |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10219 | I | Set the Running Direction Switch<br>30A1.S2 to "Reverse" position    |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10220 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 = 0.0 |                                                                                   | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10221 | R | Check Indicator Lamp 31H1 is ON                                      |  | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10222 | I | Traction Authorization at V>5km/h                                    |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10223 | I | Safety Doors Loop Train Line<br>Dev4/89 = END2 90XP15 pin 96         |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10224 | A | Force [NI] Dev4/89 = 0.0                                             |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10225 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 = 1.0 |                                                                                   | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10226 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28                   |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10227 | A | Force [NI] Dev4/38 = 1.0                                             |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10228 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 = 0.0 |                                                                                   | OK | 0 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10229 | I | PEA Loop Train Line<br>Dev4/62 = END2 90XP15 pin 95                  |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10230 | A | Force [NI] Dev4/62 = 1.0                                             |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10231 | R | Read Defined Variable [TT]<br>(MPU1)li_drc_tc2tractionauthorr1 = 1.0 |                                                                                   | OK | 1 | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10232 | I | PEA Loop Train Line<br>Dev4/62 = END2 90XP15 pin 95                  |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10233 | A | Force [NI] Dev4/62 = 0.0                                             |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10234 | I | V>5km/h Train Line<br>Dev4/38 = END2 90XP15 pin 28                   |                                                                                   | OK |   | Thandanani<br>Makhanya<br>- 463827 | TC2 |

|       |   |                                                                  |  |    |  |                                    |     |
|-------|---|------------------------------------------------------------------|--|----|--|------------------------------------|-----|
| 10235 | A | Force [NI] Dev4/38 = 0.0                                         |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10236 | I | Emergency Brake Loop Train Line<br>Dev4/5 = END2 90XP14 pin 9    |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10237 | A | Force [NI] Dev4/5 = 0.0                                          |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10238 | A | Release [TT]<br>(MPU1)lo_ubk_tc2emergbraker1                     |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10239 | A | Release [TT]<br>(MPU1)lo_drc_tc2tractionloopr2                   |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10240 | I | Set the Running Direction Switch<br>30A1.S2 to "Normal" position |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10241 | A | Turn the Dead Man Override Switch<br>60S1 to "Normal" position   |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10242 | A | Turn the ERTMS Isolation switch 62S1<br>to "Normal" position     |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |
| 10243 | I | END OF TEST                                                      |  | OK |  | Thandanani<br>Makhanya<br>- 463827 | TC2 |



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## Section 19 – Train-Ground Communication

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### 19.1 Instructions list

### 19.1.1 062\_ETC-ERTMS

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                     | File                                                                                | Result status | Result value | Operator                 | Vehicle |
|-------|------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------|--------------------------|---------|
| 10001 | I    | ERTMS (SPP=062)                                                                 |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10002 | A    | Ensure Circuit Breaker 62Q1 is OPEN                                             |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10003 | I    | DMI Power Supply                                                                |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10004 | A    | Use the following procedure to perform Electrical check on the DMI power supply |    | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10005 | A    | Close Circuit Breaker 62Q1                                                      |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10006 | R    | The ERTMS Display Unit (MMI) is powered ON                                      |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10007 | A    | Place the ERTMS Isolation Switch 62S1 is in Isolation position                  |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10008 | R    | The ERTMS Display Unit (MMI) is powered OFF                                     |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10009 | I    | DMI Software Upload                                                             |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10010 | A    | Use the following procedure to upload the DMI software                          |  | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10011 | I    | Emergency Brake By ERTMS                                                        |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10012 | I    | Emergency Brake ERTMS Train lines<br>Dev4/88 =END2 Emergency Brake ERTMS 1      |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10013 | A    | Force [NI] Dev4/88 = 1.0                                                        |                                                                                     | OK            |              | Nokuzola Mdluli - 491469 | TC2     |
| 10014 | R    | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r1 = 0.0                 |                                                                                     | OK            | 0            | Nokuzola Mdluli - 491469 | TC2     |

|       |   |                                                                                  |  |    |   |                                |     |
|-------|---|----------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10015 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r2 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10016 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r1 =<br>1.0               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10017 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r2 =<br>1.0               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10018 | I | Emergency Brake ERTMS Train<br>lines<br>Dev4/80 =END2 Emergency<br>Brake ERTMS 2 |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10019 | A | Force [NI] Dev4/80 = 1.0                                                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10020 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r1 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10021 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r2 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10022 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r1 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10023 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r2 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10024 | A | Force [NI] Dev4/88 = 0.0                                                         |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10025 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r1 =<br>1.0               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10026 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r2 =<br>1.0               |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10027 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r1 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10028 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r2 =<br>0.0               |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                                                              |  |    |   |                                |     |
|-------|---|--------------------------------------------------------------------------------------------------------------|--|----|---|--------------------------------|-----|
| 10029 | A | Force [NI] Dev4/80 = 0.0                                                                                     |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10030 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r1 =<br>1.0                                           |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10031 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk1r2 =<br>1.0                                           |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10032 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r1 =<br>1.0                                           |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10033 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsebk2r2 =<br>1.0                                           |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10034 | I | ERTMS Bypass/Reset                                                                                           |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10035 | I | ERTMS Bypass Train Lines<br>Dev2/5 = coupler pin 036<br>Dev2/6 = coupler pin 136<br>Dev5/8 = END2 train line |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10036 | R | Read Defined Variable [NI]<br>Dev2/5 = 1.0                                                                   |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10037 | R | Read Defined Variable [NI]<br>Dev2/6 = 1.0                                                                   |  | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10038 | R | Read Defined Variable [NI]<br>Dev5/88 = 1.00                                                                 |  | OK | 1 | Ntobeko<br>Ndlovu -<br>421595  | TC2 |
| 10039 | A | Turn cab key 30A1.S1 to non-<br>active cab position                                                          |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10040 | R | Read Defined Variable [NI]<br>Dev2/5 = 0.0                                                                   |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10041 | R | Read Defined Variable [NI]<br>Dev2/6 = 0.0                                                                   |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10042 | R | Read Defined Variable [NI]<br>Dev5/88 = 0.00                                                                 |  | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10043 | A | Turn cab key 30A1.S1 to active<br>cab position                                                               |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10044 | A | Place the ERTMS Isolation Switch<br>62S1 in Normal position                                                  |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |

|       |   |                                                                                                                                                                          |                                                                                     |    |   |                                |     |
|-------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--------------------------------|-----|
| 10045 | R | Read Defined Variable [NI]<br>Dev2/5 = 0.0                                                                                                                               |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10046 | R | Read Defined Variable [NI]<br>Dev5/88 = 0.00                                                                                                                             |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10047 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsbypassr1<br>= 0.0                                                                                                     |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10048 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsbypassr2<br>= 0.0                                                                                                     |                                                                                     | OK | 0 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10049 | R | The indicator Lamp 62H1 is OFF                                                                                                                                           |    | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10050 | A | Place the ERTMS Isolation Switch<br>62S1 in Isolation position                                                                                                           |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10051 | R | Read Defined Variable [NI]<br>Dev2/5 = 1.0                                                                                                                               |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10052 | R | Read Defined Variable [NI]<br>Dev5/88 = 1.00                                                                                                                             |                                                                                     | OK | 1 | Ntobeko<br>Ndlovu -<br>421595  | TC2 |
| 10053 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsbypassr1<br>= 1.0                                                                                                     |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10054 | R | Read Defined Variable [TT]<br>(MPU1)li_ets_tc2ertmsbypassr2<br>= 1.0                                                                                                     |                                                                                     | OK | 1 | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10055 | R | The indicator Lamp 62H1 is ON                                                                                                                                            |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10056 | A | Place the ERTMS Isolation Switch<br>62S1 in Normal position                                                                                                              |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10057 | I | Eurobalise Antenna Cable                                                                                                                                                 |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10058 | A | Check continuity between [Inter-<br>car (LOCAL: +END2; Connector -<br>90XR10) and Eurobalise Antenna<br>(LOCAL: +UCA; connector -<br>62XP3_X1] according to the<br>image |  | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10059 | R | Eurobalise Antenna cable is<br>correctly configured                                                                                                                      |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |
| 10060 | I | END OF TEST                                                                                                                                                              |                                                                                     | OK |   | Nokuzola<br>Mdluli -<br>491469 | TC2 |



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### 19.1.2 063\_065\_COM-Train-Ground Communication

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                                                                                                                                                                                                | File | Result status | Result value | Operator                     | Vehicle |
|-------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------------|------------------------------|---------|
| 10001 | I    | Train-Ground Communication (SPP=063; 065)                                                                                                                                                                                                                  |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10002 | A    | Turn Driver Key 30A1.S1 to Active Cab position                                                                                                                                                                                                             |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10003 | I    | UHF Radio                                                                                                                                                                                                                                                  |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10004 | I    | Using the tool list on the side of your screen, note the serial number of the antenna cable tester used in this procedure                                                                                                                                  |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10005 | I    | Tester Calibration                                                                                                                                                                                                                                         |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10006 | I    | PERFORM THIS CALIBRATION BEFORE TESTING EACH CABLE                                                                                                                                                                                                         |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10007 | A    | Select "preset", then Set the test frequency by selecting "FREQ/DIST" then setting the start and stop frequency, select "calibrate", then "Full 1-port" then Calibrate the Antenna cable tester using the 0.5m extension cable and the T-calibration unit. |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10008 | I    | Antenna Cable                                                                                                                                                                                                                                              |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |
| 10009 | A    | Ensure the frequency range is 450MHz - 470MHz; Connect the UHF antenna cable to the measuring cable and note the resulting waveform                                                                                                                        |      | OK            |              | Thandanani Makhanya - 463827 | TC2     |

|       |   |                                                                                                                                                             |  |    |      |                              |     |
|-------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|------|------------------------------|-----|
| 10010 | A | Save the waveform result with the following name:<br>TS#(#-Train number)_TC2_ UHF                                                                           |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10011 | R | The maximum peak of the waveform is =<br>Result Max : x <= 1.5 ()                                                                                           |  | OK | 1.01 | Thandanani Makhanya - 463827 | TC2 |
| 10012 | A | Normalize the UHF antenna cable                                                                                                                             |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10013 | I | Power Supply                                                                                                                                                |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10014 | A | Close Circuit Breaker 63Q2                                                                                                                                  |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10015 | R | Check that the UHF Radio is ON                                                                                                                              |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10016 | R | Check that the UHF hand held is ON                                                                                                                          |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10017 | A | press the volume buttons '+' and '-' on the top of the radio, and endure that the sound level increases and decreases accordingly                           |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10018 | A | Open Circuit Breaker 63Q2                                                                                                                                   |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10019 | R | Check that the UHF Radio is OFF                                                                                                                             |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10020 | A | Close Circuit Breaker 63Q1                                                                                                                                  |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10021 | A | Turn the UHF Radio Emergency Supply switch 63S1 to the "Emergency" position, and release it                                                                 |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10022 | R | Check that the UHF Radio is ON                                                                                                                              |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10023 | I | After 10 minutes, the UHF Radio should go OFF. Proceed to the next set of steps and validate the next line after 10 minutes. When the Radio goes off, Close |  | OK |      | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                                                                                        |  |    |  |                              |     |
|-------|---|----------------------------------------------------------------------------------------------------------------------------------------|--|----|--|------------------------------|-----|
|       |   | 63Q2 to switch on the radio, then continue with the test                                                                               |  |    |  |                              |     |
| 10024 | R | After 10 minutes the UHF Radio turns OFF                                                                                               |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10025 | I | GSMR Radio                                                                                                                             |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10026 | I | Power Supply GSM_RADIO                                                                                                                 |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10027 | A | Close Circuit Breaker 65Q2                                                                                                             |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10028 | R | Check that the GSM Radio is ON                                                                                                         |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10029 | A | press the volume buttons '+' and '-' on top of the radio handheld, and endure that the sound level increases and decreases accordingly |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10030 | A | Open Circuit Breaker 65Q2                                                                                                              |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10031 | R | Check that the GSM Radio is OFF                                                                                                        |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10032 | A | Close Circuit Breaker 65Q1                                                                                                             |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10033 | A | Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it                                            |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10034 | R | Check that the GSM Radio is ON                                                                                                         |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10035 | I | After 10 minutes, the GSM Radio should go OFF. Proceed to the next set of steps and validate the next line after 10 minutes.           |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10036 | R | After 10 minutes the GSM Radio turns OFF                                                                                               |  | OK |  | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                                             |  |    |      |                              |     |
|-------|---|---------------------------------------------------------------------------------------------|--|----|------|------------------------------|-----|
| 10037 | I | Antenna Cable                                                                               |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10038 | A | Set the tester frequency range to 876MHz - 960MHz then Recalibrate the Antenna cable tester |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10039 | A | Connect the GSMR antenna cable to the measuring cable and note the resulting waveform       |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10040 | R | The maximum peak of the waveform is = Result Max : $x \leq 2$ ()                            |  | OK | 1.03 | Thandanani Makhanya - 463827 | TC2 |
| 10041 | A | Save the waveform result with the following name: TS#(#-Train number)_TC2_ GSMR             |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10042 | A | Normalize the GSMR antenna cable                                                            |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10043 | I | HMI Power On                                                                                |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10044 | I | Proceed with the following steps after the Radio has turned OFF                             |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10045 | A | Close Circuit Breaker 65Q2 - allow time for the Radio to turn ON                            |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10046 | A | Turn Driver Key 30A1.S1 to Non-Active Cab position                                          |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10047 | A | Reset (Off then On) Circuit Breaker 20Q2                                                    |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10048 | R | The GSMR HMI Screen turns OFF                                                               |  | OK |      | Thandanani Makhanya - 463827 | TC2 |
| 10049 | A | Turn the GSM Radio Emergency Supply switch 65S1 to the "Emergency" position, and release it |  | OK |      | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                                     |                                                                                   |    |  |                              |     |
|-------|---|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----|--|------------------------------|-----|
| 10050 | R | The GSMR HMI Screen turns ON                                                        |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10051 | A | Open Circuit Breaker 65Q1                                                           |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10052 | R | The GSMR HMI Screen turns OFF                                                       |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10053 | A | Turn Driver Key 30A1.S1 to Active Cab position                                      |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10054 | R | The GSMR turns ON                                                                   |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10055 | A | Close Circuit Breaker 65Q1                                                          |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10056 | I | Software Installation                                                               |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10057 | A | Follow the below procedure to install software onto the GSMR                        |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10058 | A | Ensure that Deadman is not overridden, set the direction switch to Forward position |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10059 | R | After Deadman trips, GSMR HMI reports DSD Alert! and the GSMR buzzer can be heard   |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10060 | I | Handset and Loudspeaker Volume                                                      |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10061 | A | Pick up the GSM-R handset. On the GSM-R, press the "11" key                         |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10062 | R | On the GSM-R MMI, volume symbol flashes above the "11" key.                         |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10063 | A | Adjust the volume using the arrow upward (louder) or arrow downward (quieter)       |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10064 | R | The sound change is audible (in the handset and visible on MMI)                     |                                                                                   | OK |  | Thandanani Makhanya - 463827 | TC2 |

|       |   |                                                                                                        |  |    |  |                              |     |
|-------|---|--------------------------------------------------------------------------------------------------------|--|----|--|------------------------------|-----|
|       |   | immediately                                                                                            |  |    |  |                              |     |
| 10065 | A | On the GSM-R, press the "11" key.                                                                      |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10066 | R | On the GSM-R MMI, volume symbol is no longer flashing above the "11" key.                              |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10067 | A | Hang up the GSM-R handset.<br>On GSM-R M, Press the "11" key.                                          |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10068 | R | On the GSM-R MMI, volume symbol flashes above the "11" key.                                            |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10069 | A | Adjust the volume using the arrow upward (louder) or arrow downward (quieter)                          |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10070 | R | The sound change is audible (in the loudspeaker located in the ceiling and visible on MMI) immediately |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10071 | A | On the GSM-R, press the "11" key.                                                                      |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10072 | R | On the GSM-R M, volume symbol is no longer flashing above the "11" key.                                |  | OK |  | Thandanani Makhanya - 463827 | TC2 |
| 10073 | I | END OF TEST                                                                                            |  | OK |  | Thandanani Makhanya - 463827 | TC2 |



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## Section 20 – Vehicle Normalization

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### 20.1 Instructions list

### 20.1.1 NORM-Vehicle Normalization

I - Information      A - Action      R - Result      NE - Not Executed

| N°    | Type | Instruction                                                                 | File | Result status | Result value | Operator                       | Vehicle |
|-------|------|-----------------------------------------------------------------------------|------|---------------|--------------|--------------------------------|---------|
| 10001 | I    | Initial Conditions                                                          |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10002 | I    | This inspection must be performed by the EPU/Acting EPU Manager on shift    |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10003 | I    | The VFT procedures are all completed                                        |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10004 | I    | Vehicle Normalization Check                                                 |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10005 | R    | On LV1 all Circuit Breakers are installed and secured                       |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10006 | R    | On LV1 all Switches and Buttons are installed properly                      |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10007 | R    | On LV1 all Relays and Timers are installed and secured                      |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10008 | R    | On LV1 all Dataplugs are installed, tightened and earth braids are fastened |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10009 | R    | On LV1 BRIOMs are properly installed                                        |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10010 | R    | On LV1 all UMC Rack cards are installed properly                            |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10011 | R    | On LV1 all Connectors are tightened                                         |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10012 | R    | On LV1 there are no missing components, device, wiring or connectors.       |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |
| 10013 | R    | On LV2 the MCE is installed and properly                                    |      | OK            |              | Nokuzola<br>Mdluli -<br>491469 | TC2     |

|       |   |                                                                                            |                                                                                     |    |  |                          |     |
|-------|---|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--|--------------------------|-----|
|       |   | tightened                                                                                  |                                                                                     |    |  |                          |     |
| 10014 | R | On LV2 the GSMR-Radio is installed and properly tightened and its connectors are tightened |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10015 | R | On LV2 the UHF-Radio is installed and properly tightened and its connectors are tightened  |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10016 | R | On LV2 OTDR is installed and properly tightened, and its connectors are tightened.         |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10017 | A | On LV2 CPM is installed and properly tightened, and its connectors are tightened.          |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10018 | R | On LV2 all Circuit Breakers are installed and secured                                      |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10019 | R | On LV2 all Connectors are tightened                                                        |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10020 | R | On LV2 there are no missing components, device, wiring or connectors.                      |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10021 | A | On the Driver's Desk, all Switches and Buttons are installed properly. Refer to the image  |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10022 | R | On the Driver's Desk, DDU is installed and properly tightened                              |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10023 | R | On the Driver's Desk, ERTMS HMI is installed and properly tightened                        |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10024 | R | On the Driver's Desk, GSMR HMI and Handset are installed and properly tightened            |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10025 | R | On the Driver's Desk, Speedometer is installed                                             |                                                                                     | OK |  | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                      |  |    |  |                          |     |
|-------|---|--------------------------------------------------------------------------------------|--|----|--|--------------------------|-----|
|       |   | and properly tightened                                                               |  |    |  |                          |     |
| 10026 | R | On the Driver's Desk, Pressure Gauge is installed and properly tightened             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10027 | R | On the Driver's Desk, Alarm Module is installed and properly tightened               |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10028 | R | On the Driver's Desk, Voltage/Traction Indicator is installed and properly tightened |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10029 | R | On the Driver's Desk, Master Controller is installed and properly tightened          |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10030 | R | On the UDM, all connectors are tightened                                             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10031 | R | On the UDR, Wiper Controller is properly installed                                   |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10032 | R | On the UDL, BRIOMs are properly installed                                            |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10033 | R | CPM is properly installed and secured                                                |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10034 | R | Driver Foot Heater is properly installed                                             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10035 | R | On the Cab Ceiling, Lights are all properly installed                                |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10036 | R | On the Cab Ceiling, Speakers are all properly installed                              |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10037 | R | On the Cab Ceiling, Fire Detector is properly installed and secured                  |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10038 | R | On the Cab Ceiling, Frontal Camera is properly installed                             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                                   |  |    |  |                          |     |
|-------|---|---------------------------------------------------------------------------------------------------|--|----|--|--------------------------|-----|
| 10039 | R | All DCUs are properly installed and secured                                                       |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10040 | R | All Internal Displays are properly installed and secured                                          |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10041 | R | All Light Covers are properly installed                                                           |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10042 | R | All Saloon Cameras are properly installed                                                         |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10043 | R | All PEAs and PEIs are properly installed                                                          |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10044 | R | On LV7 all Dataplugs are installed, tightened and earth braids are fastened                       |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10045 | R | On HC Cubicle the Controller is installed and properly tightened and its connectors are tightened |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10046 | R | On the LVB, all Relays and Timers are installed and properly tightened                            |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10047 | R | On the LVB, all Circuit Breakers are installed and properly tightened                             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10048 | R | On the Underframe, CVS Agate is installed and properly tightened                                  |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10049 | R | On the Underframe, Speed Sensors are installed and properly tightened                             |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10050 | R | On the Underframe, Battery Box cables are properly connected                                      |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10051 | R | ALL underframe covers are normalised                                                              |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10052 | R | On END1 the Octopus cables are disconnected from the coupler and properly stored.                 |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |

|       |   |                                                                                |  |    |  |                          |     |
|-------|---|--------------------------------------------------------------------------------|--|----|--|--------------------------|-----|
| 10053 | R | On END2 the Octopus cables are disconnected from the car and properly stored.  |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10054 | R | The Test Bench is switched OFF and Octopus is disconnected and properly stored |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10055 | R | ALL P.Os of this car are closed                                                |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |
| 10056 | I | End Of Test                                                                    |  | OK |  | Nokuzola Mdluli - 491469 | TC2 |



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## Section 19 – Report summaries

### 19.1 Results status

| Test Instruction Sheet                  | Compliant | Incomplete | Non-compliant |
|-----------------------------------------|-----------|------------|---------------|
| Vehicle Normalization                   | X         |            |               |
| Train-Ground Communication              | X         |            |               |
| TCMS Network                            | X         |            |               |
| Service Brake                           | X         |            |               |
| Rescue Mode and Emergency Disconnection | X         |            |               |
| Passenger Doors                         | X         |            |               |
| PACIS System                            | X         |            |               |
| Internal Lighting                       | X         |            |               |
| HVAC Air Conditioning                   | X         |            |               |
| Holding and Parking Brake               | X         |            |               |
| Fire Protection                         | X         |            |               |
| External Signaling                      | X         |            |               |
| Energy Distribution                     | X         |            |               |
| Emergency Brake                         | X         |            |               |
| Driving Command                         | X         |            |               |
| Driver Desk Illumination                | X         |            |               |
| Dead Man                                | X         |            |               |
| Cabin Control                           | X         |            |               |

### 19.2 Tools used

| Function | Tool name | Tool number | Next Calibration date |
|----------|-----------|-------------|-----------------------|
|----------|-----------|-------------|-----------------------|

|             |             |            |            |
|-------------|-------------|------------|------------|
| 015_NRG     | NPhasemètre | Phasemeter | 10/31/2024 |
| 040_SBK     | Manometro   | Manometer  | 10/29/2024 |
| 045_PBK     | Manometro   | Manometer  | 10/29/2024 |
| 057_HVA_SME | NPhasemètre | Phasemeter | 10/31/2024 |
| 067_FSD     | Multimetro  | Meter 1    | 10/31/2024 |
| 070_SIG_2   | Manometro   | Manometer  | 10/29/2024 |

| Vehicle | Equipment | Expected version | Version loaded |
|---------|-----------|------------------|----------------|
| TC2     |           |                  |                |



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