
Train Describer (TD)

Includes:	Processor based Train Describers.
Excludes:	Electro Mechanical Train Describers.
Related Test Specifications:	NR/L2/SIG/30014/D120/TS12-04
Related Standards:	NR/PS/SIG/00009 - Message Handling & Data Transmission Requirements Between Processor Based Systems, NR/PS/SIG/00012 - Specification for the Preparation & Implementation of Train Describer System Parameter Tables, BR800 - Specification for Train Describers, BR1922 – Message Handling and Data Transmission between a Solid State Interlocking and a Train Describer System. Note: all relevant Technical Instructions and Notice Boards are to be checked for new instructions.
Related Design details:	Scheme Plan, TD Block Schematic, VDU Maps and data listings. Signalling input design (for non Processor Interlockings) or SSI Ident Listings. Project SDS, IECC ECS Specification.
Recording of Testing:	Completion of tests shall be by application of the check marks and recording of values on test copy diagrams and by signing the appropriate test certificate.
Pre-requisites:	Equipment room, TD / VSCS hardware SAT testing, SSI data and VSCS FAT testing complete.

Warning

Components of Processor Based Systems may be sensitive to Electro Static Discharge. Suitable ESD precautions / equipment *shall* be used when handling circuit boards.

General

This test specification is formed of the following sections, which correlate to the competency levels identified in NR/L2/SIG/30014/B410 for this type of equipment or testing.

1. Verification
2. Wire Count and Continuity
3. Check to Scheme Plan
4. Data Test
5. Function Tests
6. Supplementary Tests

This test specification details the SAT testing required on a Processor based Train Describer System. It assumes any FAT testing has been carried out by the manufacturer prior to installation on site. Sections 1, 2, 5 & 6 *shall* be carried out on the final target hardware and requires Equipment & Panel Design / Installation complete. Sections 3 & 4 are data specific and can be carried out off site on suitable test systems.

Train Describer (TD)

1. VERIFICATION**1.1. CHECK for CORRECT TYPE**

1.1.1. Check equipment provided is as specified in the wiring diagrams and TD Schematics for all elements of the system including:

- Equipment room & TD cubicle.
- Signallers panel 'In Line Displays'.
- Signallers TD Alarm panel.
- Signallers OCU's.
- TD IDF.
- Out based Signallers OCU's.

1.2. CHECK for NO DAMAGE:

1.2.1. Visually Check TD Equipment for damage.

1.3. CHECK for CORRECT LABELLING

1.3.1. Check all labels are secure and provide information which can be readily identified and complies with the system diagrams. In particular Check all printed circuit cards are suitably labelled.

1.4. CHECK FOR CORRECT INSTALLATION.

- 1.4.1. Check all cards and apparatus are secure within the housings.
- 1.4.2. Check that all external connections and cable terminations are secure and adequately protected.
- 1.4.3. Check polarisation of connectors where appropriate.
- 1.4.4. Check that all fuses are of the correct rating.
- 1.4.5. Check external line circuits are fitted with suitable fuses and high voltage transient protection.
- 1.4.6. Check all exposed metalwork is continuity bonded to earth.
- 1.4.7. Check that System/maintenance handbooks, either provisional or final are available during testing.
- 1.4.8. Check that the legend on each of the function keys on each OCU corresponds to that specified in the design requirements.
- 1.4.9. Check TD for compliancy by reference to Network Rail approval documentation. Check TD has specific approval for intended location and use, e.g. for external links over FTN.
- 1.4.10. Record the serial numbers of all modules, including spares.
- 1.4.11. Record Hardware, Software and Firmware versions and check for compliance to Network Rail Approval certificate.

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Train Describer (TD)

1.5. CHECK FOR CORRECT VERSIONS

- 1.5.1. *Check* data and data listings provided are as specified on Train Describer SRIS.
- 1.5.2. *Check* Hardware and Software versions are as detailed on SRIS and Build Standard Lists. This is particularly vital when using Test systems and not final hardware.
- 1.5.3. For TD's interfacing to SSI, *Check* the SRIS details the correct versions of SSI data that the TD has been built to.
- 1.5.4. *Check* the correct versions of data have been installed in all Systems and data SUM checks and dates match TD SRIS

2. WIRE COUNT AND CONTINUITY

2.1. *WIRE COUNT* all TD terminations (to the wiring diagram).

2.2. *CONTINUITY TEST*: all external connecting cables to TD system, including:

- Power Supply Cables
- I/O cables, Serial and Parallel to Signalling Inputs
- Telecom cables
- Signallers panel 'In Line Displays'.
- Signallers TD Alarm panel.
- Signallers OCU's.

3. CHECK TO SCHEME PLAN**3.1. TD OCU/VDU SCREEN LAYOUT**

3.1.1. *Check* the TD OCU/VDU Maps corresponds to Scheme Plan for:

- Track Layout.
- Main running signals have appropriately orientated post, in correct position and side of track.
- Point ends and crossings geographically correct
- Station Platforms shown and correct numbers
- Boundary with and the name of any adjacent signalling control centre
- Line Names and Directions

3.2. SIGNALLING PANEL LAYOUT

3.2.1. *Check* the Signallers Panel 'In Line Displays' corresponds to Scheme Plan for:

- Main running signals have ILPD in correct position
- ILPD for Dual Berths located between Signals

Train Describer (TD)

- ILPD for Last Sent Berths on correct lines
- ILPD for Approach Berths on correct lines

4. DATA TEST**4.1. CONFIGURATION****4.1.1. Communication Links**

- *Check* each communications channel has been configured correctly. This may include, but is not limited to the following:
 - o Baud rate
 - o Message length
 - o Parity
 - o Initialisation protocol,
 - o Message repeat counts
 - o Headers
- *Test* alarm reporting for each communications channel

4.1.2. Function Keys

- *Test* that operating each of the function keys loads the set up address berth with the correct berth ident.

4.1.3. Alarms

- *Test* that the audible and visual alarms provided correspond to the specified design requirements with respect to appearance, tone and length. Alarms may include, but are not limited to the following:
 - o Description Received Warning
 - o Non Described Alarm
 - o Link Failure Alarm
 - o Update Alarm
- *Test* that where an alarm is required to be driven via berth occupancy and/or signalling inputs, e.g. An alarm berth as defined in section 6.2.1 of RT/E/PS/00012, that the alarm raises and cancels correctly.
- *Test* that where required, the facility to transmit a *116 alarm to an adjacent signal box has been provided.
- *Check* that the signaller is given sufficient advanced warning of trains approaching their control area. *Check* that alarms are not raised unnecessarily for trains which are not routed into that control area.

4.1.4. Time, Date and Year display

- *Check* that a time display has been provided for the signaller.
- *Check* that if specified, a data display has been provided for the signaller.