

# Certificate of Acceptance

PA05/05043

**Manufacturer: Dual Inventive**

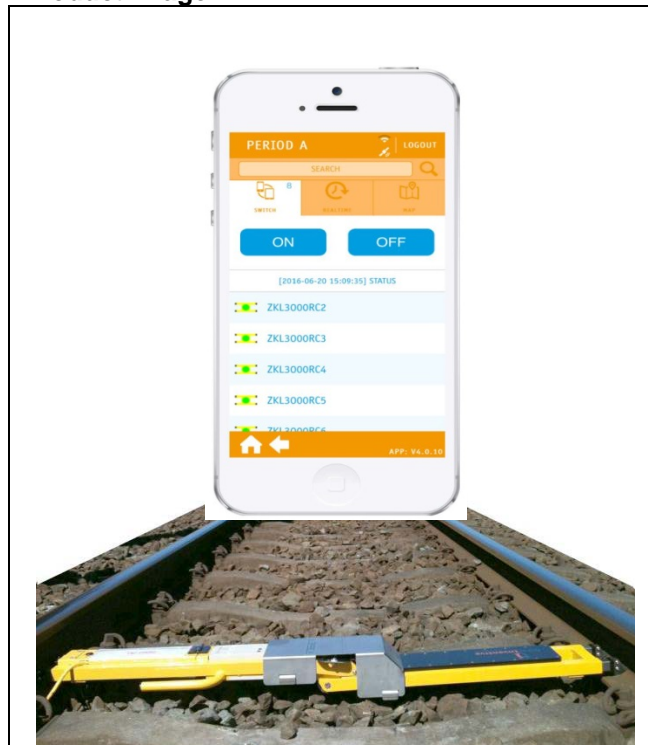
**Issue : 8**  
**Valid From : 07/01/2020**

## ZKL 3000 RC and RS 3000

### Product Description

A remote controlled T-COD for activating track circuits during planned engineering operations. This product may also be left deactivated in traffic in between shift operations (as per operating instructions).

### Product Image



### Scope of Acceptance

#### Full Acceptance

Products and control processes fully approved within the limitations specified on this certificate.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.

Reviewed by:

Authorised by:

Samantha Flint  
Product Acceptance Coordinator

Malcolm Miles  
Professional Head of Plant

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### Specific Conditions

*The following Conditions are specific to the approved product/s contained within this Certificate. These conditions must be adhered to in addition to the Network Rail General Conditions contained within the "General Terms and Conditions" section.*

*Failure to adhere to these conditions may result in the withdrawal or suspension of Acceptance of some, or all of the items contained within the accepted configuration.*

#### Manufacturer

- 1) See General Terms and Conditions

#### User

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1)  | All staff must be fully briefed of the use of the ZKL 3000 RC prior to entering the worksite                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2)  | Equipment SHALL ONLY be used by authorised personnel in accordance with mandatory rules and regulations, equipment operating instructions, and the operators declared Safe System of Work for ALL operational circumstances on Network Rail infrastructure                                                                                                                                                                                                                                                                 |
| 3)  | Equipment Operator(s) and planners SHALL ensure that equipment is maintained in accordance with equipment manufacturer's recommendations detailed in the Operation and Maintenance Manual. Excluding pre-use maintenance activities, all other maintenance SHALL ONLY be conducted by the OEM or their approved agencies.<br><br>If at any point a product is found to be defective it SHALL be removed from the infrastructure, labelled 'DO NOT USE' (with a fault description if possible) and returned to the provider |
| 4)  | Equipment Operator(s) SHALL ensure that all staff required to use the equipment are suitably trained and endorsed with COSS (RC) on their sentinel cards (or to most recent equivalent)                                                                                                                                                                                                                                                                                                                                    |
| 5)  | Product SHALL <b>NOT</b> to be used for additional protection of possessions                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6)  | Local telecommunications coverage SHALL be established prior to the deployment of an (RC) unit to determine if it can be suitably managed during operation                                                                                                                                                                                                                                                                                                                                                                 |
| 7)  | Appropriate PPE SHALL be worn at all times whilst the equipment is being installed/operated                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 8)  | Unit weight is: 9 Kg<br>Carry case: 6.5 Kg<br>Total = 15.5 Kg                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 9)  | The number of projects which can be operated by a single COSS(RC) SHALL be limited to 3 to reduce the likelihood of confusion when protecting multiple worksites.                                                                                                                                                                                                                                                                                                                                                          |
| 10) | Once placed in circuit the product SHALL be secured by an external padlock. Padlock specifications are not specified but SHALL be robust enough to suitably resist tampering. Padlock keys/codes SHALL ONLY to be retained by the persons responsible (as defined within the work plan) to install and remove the product                                                                                                                                                                                                  |
| 11) | In the event of product/communications failure it is possible to operate the (RC) unit manually via a key operated switch. Such keys SHALL ONLY be retained by the persons responsible (as defined within the work plan) to operate the product (i.e. the delegated COSS RC or suitably briefed equivalent)                                                                                                                                                                                                                |

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|     |                                                                                                                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12) | All deployment and operations of the ZKL 3000 RC SHALL be managed via the MTinfo process (as defined within the training programme). Access and use of this software process SHALL ONLY be done by person(s) competent in the activity and with suitable knowledge of worksite/activity planning procedures |
| 13) | When carrying the ZKL3000 RC prior to installation or following removal the product SHALL ONLY be held as stated in the training programme so as not to damage the contact points                                                                                                                           |
| 14) | Product battery life SHALL be managed as defined during the planning phase. When using an external battery pack care SHALL be taken to locate and secure the battery module in a position where it cannot foul the running rail or be influenced by passing traffic                                         |
| 15) | Product SHALL NOT to be left in traffic during OTM maintenance activities that involve disturbance between the running rails.                                                                                                                                                                               |
| 16) | When using an RS3000 or Dual Inventive Application it SHALL be retained and operated by a competent COSS (RC) in line with the specified worksite plan at all times                                                                                                                                         |
| 17) | All pre-use and battery inspections SHALL be completed before each operation either using the Dual Inventive Application or on-site inspection.                                                                                                                                                             |
| 18) | When using an RS3000 or Dual Inventive Application all maintenance and control procedures SHALL be adhere to as per items 2, 3, 4, 7, 10, 13                                                                                                                                                                |
| 19) | Where the RS3000 or Dual Inventive Application it is to be operated from a signal box location care SHALL be taken to ensure all local and mandated communications protocols are adhere to. This process SHALL be agreed with the relevant signalling team prior to finalising the work plan                |
| 20) | Where used in 3 <sup>rd</sup> Rail 750V DC areas, the locations at which ZKL3000 RC units are to be installed SHALL be in compliance with the requirements of NR/L3/OPS/009                                                                                                                                 |
| 21) | The ZKL3000(RC) SHALL <b>NOT</b> to be used in locations equipped with 4 <sup>th</sup> Rail electrification                                                                                                                                                                                                 |
| 22) | The Dual Inventive App SHALL ONLY be downloaded from an approved store (iOS App Store, Google Play or Windows store)                                                                                                                                                                                        |
| 23) | The Dual Inventive App SHALL <b>NOT</b> be used on a device that has been jailbroken or rooted                                                                                                                                                                                                              |
| 24) | Solar Panel SHALL ONLY to be used for charging ZKL 3000 RC batteries                                                                                                                                                                                                                                        |
| 25) | The solar panel mounting base SHALL ONLY be used at sites approved by the Route Services Buildings and Civils Engineer                                                                                                                                                                                      |

## Product Configuration

### System or Complete Assembly

| Part No.   | Description                                                                           | Catalogue No. |
|------------|---------------------------------------------------------------------------------------|---------------|
| 1010004400 | ZKL 3000 RC (version 3.xx) including remote switch connection                         | 0057/052973   |
| 4010001001 | RS 3000                                                                               | 0057/052974   |
| 4010000013 | Transportation case, for use with ZKL 3000 RC AND RS 3000 remote control T-COD system | 0057/052975   |
| 4010000014 | Battery Compartment Key                                                               | 0057/052976   |
| 4010000016 | Test Tool                                                                             | 0057/052977   |

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| Part No.   | Description                                                                         | Catalogue No.                                                                |
|------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 4010000018 | User manual on Dual Inventive USB stick, for use with ZKL 3000 RC and RS 3000       | 0057/052978                                                                  |
| 4010000019 | Padlock                                                                             | 0057/052979                                                                  |
| 4010000029 | Locking clamp, RVS additional security, for use with ZKL 3000 RC AND RS 3000        | 0057/052980                                                                  |
| 4010000051 | Back-up Battery                                                                     | 0057/052981                                                                  |
| 4010000052 | Main Battery                                                                        | 0057/052982                                                                  |
| 4010000058 | 10m Power Cable and Adapter                                                         | 0057/052983                                                                  |
| 4010001060 | Main Battery Charger                                                                | 0057/052984                                                                  |
| 4010001061 | Back-up Battery Charger                                                             | 0057/052985                                                                  |
| 4010000063 | 20m Power Cable and Adapter                                                         | 0057/052986                                                                  |
| 7010000030 | Fleet Service ZKL 3000 RC                                                           | 0057/052987                                                                  |
| 4010000054 | Manual override key                                                                 | 0057/052988                                                                  |
| 4010000025 | Contact points (8 per ZKL 3000 RC), for use with ZKL 3000 RC AND RS 3000            | 0057/052989                                                                  |
| 4010000062 | Back-up by-pass connection for use with ZKL 3000 RC AND RS 3000                     | 0057/052990                                                                  |
| 4010000003 | Solar Panel plus pole support and connector                                         | 0087/000890                                                                  |
| 4010000006 | BBX 3000 mounting base and connector                                                | 0087/000873                                                                  |
| 4010000007 | Solar panel for ZKL 3000 RC and RS 3000 plus BBX 3000 mounting base and connector   | 0087/000969                                                                  |
| 4010000008 | Solar panel for ZKL 3000 RC and RS 3000                                             | 0087/000970                                                                  |
| N/A        | MTinfo 3000 Smartphone Application for use on iOS, Android or Windows smart devices | iOS App Store, Google Play or Windows store                                  |
| N/A        | MTinfo 3000 (version 5.xx) web interface                                            | Access only via: <a href="https://mtinfo3000.com">https://mtinfo3000.com</a> |

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### Assessed Documentation

| Reference                                                 | Title                                                                                                                                 | Doc. Rev.  | Date and Applies to Cert. issue No. |        |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------|--------|
| B1                                                        | User guide containing maintenance / operation instructions                                                                            | 14-06-2012 | B1                                  | T1 / 1 |
| A2                                                        | Trial strategy and acceptance plan                                                                                                    | 2012       | A2                                  | 1      |
| A3                                                        | System safety plan Phase 1-2                                                                                                          | 2012       | A3                                  | 1      |
| A4                                                        | ZKL-RC Risk assessment                                                                                                                | 2012       | A4                                  | 1      |
| C8                                                        | Phase 1a trial evaluation report                                                                                                      | 2012       | C8                                  | 1      |
| D1                                                        | Local trial plan for phase 2                                                                                                          | 2012/13    | D1                                  | 1      |
| 0                                                         | File register.xls                                                                                                                     | On going   | 0                                   | 1      |
| Certificate                                               | PD T-COD 004 (En)                                                                                                                     | 16-08-2012 | Certificate                         | 1      |
| A21i. ZKL(RC) Briefing of risk control measures v09       | E03. ZKL-RC Risk assessment v17                                                                                                       | v09        | 27 Nov 2015                         | 3      |
| E01. ZKLRC Safety case and phase 3 local trial plan v04-6 | Safety Case for Use of Multiple ZKL(RC) Remotely Controlled Track Circuit Operating Devices (includes local trial report for phase 3) | V4.6       | 27 Nov 2015                         | 3      |
| E03. ZKL-RC Risk assessment v17                           | E03. ZKL (RC) Risk assessment                                                                                                         | V17        | 13 Jan 2016                         | 3      |
| Email                                                     | Confirmation from Mike Carey SRP Chair                                                                                                | N/A        | 13 Sep 2016                         | 4      |
| Installation Manual                                       | By-pass Installation Manual                                                                                                           | 1.00       | 27-01-2016                          | 4      |
| Installation Manual                                       | ZKL 3000 RC Installation Manual                                                                                                       | 1          | May 2016                            | 4      |
| Drawing                                                   | By-pass Clamp                                                                                                                         | 1          | N/A                                 | 4      |
| 71003 ZKL 3000 RC                                         | PDA to Mobile Phone                                                                                                                   | 1          | 27-06-16                            | 5      |
| D6                                                        | Cyber Security Audit Report                                                                                                           | 1          | June 2015                           | 5      |
| ZKL 3000 RC                                               | Switching Manual                                                                                                                      | 1          | Aug 2017                            | 5      |
| ZKL 3000 RC                                               | RAMS-Summary                                                                                                                          | 1          | Feb 2017                            | 5      |
| 20180222                                                  | Solar NRG Impact analysis                                                                                                             | 1          | July 2018                           | 6      |
| 15C01294RPT01                                             | Solar NRG 3000 EMC Test report                                                                                                        | 1          | July 2018                           | 6      |
| 71003 ZKL 3000                                            | MTinfo 3000                                                                                                                           | 1          | July 2018                           | 6      |
| HL_MTinfo3000_V5_PP_ZKL3000RC_IA_ENG                      | Manual for using the web interface MTinfo 3000 version 5 to prepare for the use of the ZKL 3000 RC system                             | 1          | May 2019                            | 7      |
| HL_SWITCHING_ZKL3000RC_MTinfo3000APP_PP_ENG_IA            | Manual for switching the ZKL3000 RC using the MTinfo 3000 app                                                                         | 1          | June 2019                           | 7      |
| ZKL_3000RC_V5_ENG_APR_2019_INTERACTIEF[1]                 | Manual for installing ZKL 3000 Remote Control (RC) Line Blockage System ZKL 3000 RC                                                   | 1          | April 2019                          | 7      |
| 71003 ZKL 3000 RC - MTinfo 3000 v5                        | MTinfo 3000 V4 to V5                                                                                                                  | 1          | 21-08-2017                          | 7      |
| Change 50 ZKL 3000 RC                                     | Translation change 50 of CIA ZKL 3000 RC v8                                                                                           | 1          | 16-05-2019                          | 7      |

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| Reference                                           | Title                                                | Doc. Rev. | Date and Applies to Cert. issue No. |   |
|-----------------------------------------------------|------------------------------------------------------|-----------|-------------------------------------|---|
| Security Audit - mtinfo3000                         | Security Audit – Mtinfo3000                          | -         | April 2018                          | 7 |
| Change 52 ZKL 3000 RC                               | Translation change 52 of changelog ZKL 3000 RC v9.01 | 1         | 16-05-2019                          | 7 |
| BICON Report DUA-20181002-L1-SE EMC Test Report     | BICON EMC Test Report: ZKL 3000 RC v3                | -         | 15-11/2018                          | 7 |
| M18.003-P18.002 Dual Inventive Env Test Report      | Vibration and shock tests on a ZKL 3000 RC           | -         | 09-11-2018                          | 7 |
| C18.001-P18.002 Dual Inventive Env Test Certificate | Test Certificate: ZKL 3000 RC                        | -         | 01-11-2018                          | 7 |
| Change 53 ZKL 3000 RC                               | Abstract change 53 of changelog ZKL 3000 RC v9.01    | 1         | 21-05-2019                          | 7 |
| 71003 - LED PCB LID testing                         | LED PCB LID                                          | 1         | 15-04-2019                          | 7 |
| 71027 - Delta Safety Case 20181129 - v1.01          | ZKL 3000 RC v3 Delta Safety Case                     | 1         | 27-05-2019                          | 7 |
| [C1] 71003 - Hazardlog ZKL 3000 RC - 4.00           | ZKL 3000 RC Hazard Log                               | 4         | 28-11-2018                          | 7 |
| ISA Certificaat_180243_15 012_ZKL_3000RC_v3_NL      | DEKRA Rail Certificate for ZKL 3000 RC v3            | -         | 20-12-2018                          | 7 |
| BBX3000_solar_panel_base_01042019                   | Quick Start BBX3000                                  | -         | March 2019                          | 7 |
| 20181217 Ballast Box                                | Memo: Ballast Box Calculations                       | -         | 27/08/2018                          | 7 |

### Certificate History

| Issue | Date         | Issue History                                                                                                                                                                                                                                                                                                                            |
|-------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T1    | 11 Jan 2013  | First accepted for trial use                                                                                                                                                                                                                                                                                                             |
| T2    | 31 Jan 2013  | Second acceptance in order to take out the condition 'Not to be used outside of a possession' and add 'Equipment must only be used once a line blockage has been taken'.                                                                                                                                                                 |
| T3    | 18 July 2013 | Third acceptance certificate. Changes made to the operational procedures in light of moving to trial phase 2c & 2d, whereby the use of the ZKL3000 (RC) forms part of the process of taking the line blockage. As such a line blockage can not be a pre requisite of the ZKL's deployment as stated in Issue 2 of the trial certificate. |
| 1     | 30 Jan 2014  | Full Approval within the scope of the limitations on this certificate                                                                                                                                                                                                                                                                    |
| 2     | 7 April 2015 | Restrictions amended to permit use within 3 <sup>rd</sup> Rail DC electrified areas.                                                                                                                                                                                                                                                     |
| 3     | 13 Jan 2016  | Certificate reissued to acknowledge the enabling of multiple ZKL installation.                                                                                                                                                                                                                                                           |

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|   |                 |                                                                                                                                                                                    |
|---|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 | 31 Oct 2016     | Certificate reissued to include a By-pass Clamp to ensure electrical continuity is maintained. Item is not a safety critical component as confirmed by SRP Chair.                  |
| 5 | 29 Nov 2017     | Certificate reissued to include Dual Inventive RS3000 switching function to Dual Inventive Application .                                                                           |
| 6 | 9 July 2018     | Certificate reissued to include Dual Inventive Solar Panel NRG 3000 and update to the Dual Inventive Mobile App                                                                    |
| 7 | 24 June 2019    | Certificate re-issued following update of ZKL 3000 RC to version 3 and MTinfo to version 5. Solar panel mounting base also included. User conditions amended in line with updates. |
| 8 | 07 January 2020 | Certificate re-issued to change manufacturer part numbers following stock system update, no change to product.                                                                     |

## Contact Details

### Manufacturer

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### Applicant

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## General Terms & Conditions

### 1) General

1) This certificate can only be amended by Network Rail Technology Introduction Group. Any alterations made by a different person will invalidate the entire certificate.

2) Failure to abide by the requirements in this Certificate of Acceptance may invalidate the certificate, thereby restricting the right to operate the product and / or limiting the future supply and deployment of the product on the infrastructure.

3) Upon the review date this certificate and the product it relates to is invalid and not accepted for use. Manufacturers are to make an application for a review prior to the review date.

### 2) Manufacturer

The Manufacturer shall:

1) Ensure that all products supplied comply with the standards defined in the Acceptance Requirements or otherwise documented as part of the assessment, including meeting the reliability requirements included in the Acceptance Requirements and in any deed of warranty for the relevant certificate number.

2) Notify Network Rail Technology Introduction Group:

a. Within 48 hours, of any deficiencies affecting the quality, functionality or safety integrity of the product (including corrective action undertaken or proposed).

b. Of any intended change to the accepted product; changes include:

i. a change to the product configuration (to the actual product or its application);

ii. a variation to or addition of manufacturing locations or processes;

iii. a change in the name or ownership of the manufacturing company;

iv. any changes to the ability or intention to support with technical services, spares or repairs.

3) The Manufacturer shall provide Network Rail Technology Introduction Group at least 12 (twelve) months notice of its intention to discontinue supply or to provide such notice as is reasonable if such discontinuance is outside its control and will offer the opportunity of a Last Time Buy to Network Rail together with date for last order placement and supply of the parts affected. The introduction of proposed alternative products shall be communicated to the Network Rail Technology Introduction Group.

4) Provide further copies of operating and maintenance manuals to purchasers / users of the product as necessary (including certificates of conformance, calibration etc).

5) Provide further copies of training manuals and an appropriate level of training to purchasers or users of the product as necessary.

6) Where applicable, specialist technical support, repairs and servicing of the product shall be carried out by the Original Equipment Manufacturer (OEM) or authorised agent only.

7) Network Rail may request information from the manufacturer to prove product compliance with clauses 1 and 2 above and reserve the right to suspend and/or withdraw any application where information is not forthcoming within a reasonable timeframe.

8) In accordance with Network Rail's Quality Assurance Policy Statement 2011, where the specification and/or Product Acceptance Certificates specify quality assurance classifications (QA1 to QA5) for the products, the manufacturer shall comply with the specified level of quality assurance for each product and allow Network Rail access to carry out its quality assurance checks.

9) The manufacturer shall give Network Rail's representatives access at all reasonable times to its premises and allow them to inspect its quality systems and production methods and, if requested, to inspect, examine and test the products both during and after their manufacture and the materials being used in their manufacture.

### 3) Conditions of Use

Specifiers, installers, operators, maintainers, etc. using the product shall:

1) Comply with the certificate conditions. If a condition is not understood guidance must be sought from Network Rail Technology Introduction Group.

2) Check that the application of use complies with the relevant certificate's scope of acceptance.

3) Report any defect if it is a design or manufacturing fault likely to affect performance and/or the safe operation of the railway in writing to Network Rail Technology Introduction Group.

4) Inform Network Rail Technology Introduction Group in writing of a change to the product configuration (or to the actual product or its application).

5) Operate, maintain and service the product in accordance with Network Rail standards and Operation and Maintenance manuals as appropriate.

6) Be appropriately trained and authorised for the installation, maintenance and use of the product.

7) Only send products for repair or reconditioning to the Original Equipment Manufacturer (OEM) or authorised agent.

8) Users are to be aware that Product Acceptance is not a substitute for design approval.



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#### **4) Compliance**

Railways and Other Guided Systems (ROGS) Regulations

1) Where the product is to be used in areas where Network Rail is not the Infrastructure Manager (e.g. leased stations), the sponsor shall additionally obtain formal consent from the Infrastructure Manager for the locality where the equipment is to be installed. This may include a requirement for additional safety verification. The decision of that Infrastructure Manager is binding, and cannot be overridden by Network Rail except by the escalation processes established in the ROGS regulations

2) As required in Railway Group Standard GE/RT8270, at each use of this product the project or group responsible for installation and commissioning shall be required to demonstrate compatibility with:

- a. All rail vehicle types that have access rights over the area affected by the change
- b. Infrastructure managed by others
- c. Neighbours.

Railway Interoperability Regulations

3) For interoperable constituents of systems the project or group responsible for installation and commissioning shall be required to demonstrate compliance with the relevant Technical Specifications for Interoperability (TSI) where appropriate.

4) An authorisation from the national safety authority (i.e. the Railway Safety Directorate of the Office of Rail Regulation) is required before the equipment is to be used in revenue earning service.

#### **5) Supply Chain Arrangements**

1) Certificates of acceptance do not imply any particular quantity of supply nor any exclusivity of supply.

2) Products may be purchased by Network Rail or its agents, suppliers or contractors.

3) Manufacturers should note that it is not necessary to enter into any exclusive supply arrangements with resellers or other suppliers.