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Level 2

Technical Requirements for Legacy Train Radio Communications

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Issue record

Issue	Date	Comments
1	August 2001	First Issue
2	June 2005	Re-define as applicable to Legacy Radio Systems
3	April 2006	Updated to reflect the transfer of maintenance delivery from Engineering to Maintenance.
4	August 2008	Updated to reflect Phase 2A reorganisation
5	March 2010	Updated to reflect Engineering reorganisation

Reference documentation

NR/L2/TEL/30026, *Operation and management of the National Radio Network*

NR/SP/TEL/30024, *Fault priority and response times for operational telecommunications services*

GE/RT8080, *Train radio systems for voice and related messaging and communications*

GI/RT7033, *Lineside operational safety signs*

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 6 March 2010.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

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1 Purpose

This document identifies the Technical requirements for legacy analogue radio systems providing two-way speech communication to trains to comply with Railway Group Standard GE/RT8080. It does not apply to GSM-R, GSM-P, IVRS or Shunting radio systems. It shall cease to apply after 1st January 2011 unless the specific restriction in GE/RT8080 2.3.3 is amended or removed.

2 Scope

This company procedure details the requirements, which shall be met by Network Rail in the provision, management and maintenance of the fixed infrastructure for communication to trains. Network Rail Routes shall confirm that before new radio systems are introduced into service, or alterations are made during their operational lifetime, all radio systems comply with the requirements of this procedure. Where requirements are met through arrangements managed by Network Rail's Professional Head (S&T), this will be indicated.

Train Operators are responsible for the performance of train borne radios.

Railway Group Standard GE/RT8080 2.3.4 shall not lessen the requirements detailed in this document in respect of the performance of existing legacy train radio communication systems on Network Rail's infrastructure.

3 Definitions

Adequate radio coverage

The radio coverage, which will give adequate quality speech communication to a properly installed train radio.

Adequate quality speech communication

The quality of speech communication may be described on a five-step scale. Adequate quality speech communication is defined as being of level three or higher on the following scale.

5	Very good quality communication
4	Good quality communication with marginal background noise
3	Clear communication with moderate background noise.
2	Intermittently broken communication with moderately high background noise.
1	Severely broken communication with high-level background noise.

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CSR

A secure radio system (Cab Secure Radio) enabling at any time and location a train that is in service direct speech communication between the driver and the signaller at the controlling signalling centre

Corrective Action Time

Term used in NR/SP/TEL/30024. Equivalent to Rectification Time (see below).

Designated Location

A shore location identified by Network Rail with specified staff responsible for dealing with radio communications of an emergency nature.

DOO(P)

Driver Only Operation of Passenger Trains

Driver Only

Train operation where no other person is provided on the train for the purpose of advising the Driver to start the train and to carry out protection of the train as required.

ECR

Electrical Control Room.

Emergency

Current unforeseen or unplanned event, which has life threatening or extreme loss implications and requires immediate attention.

Emergency Call

A radio facility that permits a Driver to communicate rapidly with a Designated Location, and takes priority over non-emergency calls.

General Broadcast Call

A radio facility, which permits Designated Locations to communicate rapidly with all Drivers in a defined area, and takes priority over all non-emergency calls.

GSM-P

The public mobile phone networks employed to provide group call functionality in emergency situations.

GSM-R

Network Rail's private mobile phone network; to be employed for all aspects of train radio communications.

IVRS

Interim Voice Radio System - permitting emergency group calls during early GSM-R deployment.

NRN

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The Network Rail National Band III trunked Radio system providing half duplex communication between train mounted equipment and Designated Locations and with connection to the rail internal telephone network.

Priority Call

A facility to permit prioritised communication between a NRN radio user and the Route Control or Electrical Control

Rectification Time

The rectification time for a fault is the response time plus the repair time. This is equivalent to the corrective action time in NR/SP/TEL/30024.

RETB

Radio Electronic Token Block Signalling System.

Secure Radio System

A system providing discrete, person-to-person communication between train drivers and signallers, with train identification.

Shore Facilities

Equipment at fixed locations forming part of the total system necessary for radio communication with a train.

TD

Train Descriptor - a sub-system of the Signalling infrastructure providing positional information.

Token

The authority issued to a train driver giving permission to proceed over a section of RETB route.

Token Exchange Point

On a RETB operated route, the section of line between the line-side boards where electronic tokens are exchanged.

4 Responsibilities

This specification shall be complied with by all those involved in the design, provision, management, maintenance and use of radio systems used for communication to trains on Network Rail infrastructure.