

SPECIFICATION BR 1929

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DEVELOPMENT AND SUPPLY OF
DATA RADIO FOR NETWORKER ROLLING STOCK

Director of Signal and Telecommunications Engineering
British Railways Board
Macmillan House
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Ref: 4/202-56-60

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2007/3600r/2

SCHEDULE OF REQUIREMENTS

1. Development of Train Radios to BR 1929.
2. Provision of 6 prototype train radios to BR 1929.
3. Provision of a fixed system simulator to BR 1929 to allow full testing of the train radio.
4. Three copies of all documentation of train radio and fixed system simulator.
5. Timescales
 - (a) Functional Spec submitted for approval - end February, 1990.
 - (b) Functional Spec agreed by BRHQ - end March 1990.
 - (c) First functional tests on first prototype radio - June 1990.
 - (d) Completion of testing on prototype - August, 1990.
 - (e) Completion of contract - October, 1990.

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Table A: List of Radio Channels/CTCSS Frequencies

SPECIFICATION BR 1929

1. DEFINITIONS AND ABBREVIATIONS

1.1 For the purposes of this specification the words and phrases defined in the General and Special Conditions of Contract shall have the same meanings.

1.2 Glossary of Abbreviations

BSI	British Standards Institution
CCITT	International Telegraph and Telephone Consultative Committee
CEPT	Committee of European Post and Telecommunications Administrations
DTI	Department of Trade and Industry
ETC	Electric Traction Control
ETD	Extension Trunk Dialling
FRU	Field Replaceable Unit
IEE	Institution of Electrical Engineers
PMI	Pre-Maintenance Inspection
WAN	Wide Area Network

1.3 Definitions of Terms

Emergency	An emergency of any kind including any circumstances whatever resulting from major accidents, natural disasters and incidents involving toxic or radio-active materials.
Engineer	Appointed Representative of the Director of S&T Engineering, British Rail.

2. REFERENCES

All documents referenced shall be the current issue at date of tender.

British Rail

ETP101	British Railways Code of Practice for earthing and bonding for 50 Hz single phase AC electrification.
BR 967	British Rail specification for environmental conditions for signalling apparatus.
BR 1661	Train to Signalbox Radio System (Mobile Equipment)
BR 1686	Protection of telecommunications equipment against electrical interference.
BR 1845	Train Signalbox Radio System (Fixed Equipment)
TEE/E/83/R/58	Power Supply Units.

British Standards

BS	308	Engineering drawing practice
BS	3939	Graphical symbols for electrical power telecommunications and electronics diagrams.
BS	4505/1	Digital Data Transmissions
BS	4727	Glossary of telecommunications & Electronics Terms
BS	4730	UK 7 bit Data Code.
BS	4884	TECHNICAL MANUALS

Department of Trade & Industry Specifications.

MPT 1317	Code of Practice for transmission of digital information over land PMR radio systems.
MPT 1326	Angle modulated VHF and UHF radio equipment
MPT 1306	Continuous tone-controlled signalling system - (CTCSS).

Railway Industries Association. Specifications

BRB/RIA 13	General Specification for Electronic Equipment.
BRB/RIA 12	General Specification for Protection of electronic equipment on Trains.

OTHERS

The Health and Safety at Work Act 1974

U.I.C. Code 751-3 ORI Technical Regulations for International Ground-Train Radio Systems.

3. SCOPE The specification details the requirements for the development of a duplex radio to act as the interface between an on-train data system and a WAN connected to British Rail's Train - signalbox Radio Systems.

2007/3600r/6

4. TECHNICAL ENQUIRIES

All technical enquiries relating to this specification should be addressed to:-

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5. DESIGN PHILOSOPHY.

- 5.1. As a means of providing better Passenger Information and improving train availability British Rail is fitting new rolling stock with On-Train Data systems. Data will be loaded into this system via the BR train signalbox radio systems in two ways; by short fixed format data messages and by larger free format messages. In a similar manner data will be down loaded from the train as fixed format messages, or as long messages on request from the ground based equipment.
- 5.2. The on-train data radio will operate in the same manner as described in BR Specification 1661, except that the actual data messages to which it will respond are generally different. It is anticipated that for the train driver's use, radios to BR1661 will also be fitted to the train.
- 5.3. The on-train data radio will be coded with the identity of the multiple unit in which it is fitted and all radio messages will carry this identity unless addressed to all trains.
- 5.4. The interface to the on-train data equipment will be bipolar 20mA current loop.