



**UK Interface Requirement 2009
Private Business Mobile Radio
Operating in the licence exempt
PMR 446 MHz band
(Version 1.1)**

98/34/EC Notification Number: 2000/275/UK

Published 15 December 2000]

Blank Page

References

ETS 300 296 ETSI Telecommunication Standard – Radio Equipment and Systems (RES); Land mobile group; Technical characteristics and test conditions for radio equipment using integral antennas intended primarily for analogue speech

1. Foreword

- 1.1 The Radio Equipment and Telecommunications Terminal Equipment Directive 99/5/EC (R&TTE Directive) was implemented in the United Kingdom (UK) on the 8 April 2000 by The Radio Equipment and Telecommunications Terminal Equipment Regulations 2000, Statutory Instrument 2000 No. 730. In accordance with Articles 4.1 and 7.2 of Directive 1999/5/EC, this UK Radio Interface Requirement contains the requirements for the use of private business mobile radio systems in the PMR 446 frequency band.
- 1.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with the requirements of Directive 1999/5/EC.
- 1.3 It is required by the Wireless Telegraphy Act 1949 that no radio equipment is installed or used in the UK except under the authority of a licence granted by or otherwise exempted by regulations made by the Secretary of State. It is a condition of such a licence or exemption regulations as appropriate that the equipment must meet the minimum requirements specified in this UK Radio Interface Requirement for the stated equipment types and for the stated frequency bands.
- 1.4 The criteria given in the main body of this UK Radio Interface Requirement will apply to licence exempt PMR 446 MHz private business mobile radio systems (PBR) in the UK.
- 1.5 This UK Radio Interface Requirement will be revised as necessary to follow;
 - i) current technology developments for reasons related to the effective and appropriate use of the spectrum in particular maximising spectrum utilisation; and
 - ii) changes to the available spectrum allocated for PMR 446 radio systems.
- 1.6 All UK Radio Interface Requirements notified under Directive 98/34/EC will be published and will be made available free of charge from the RA Information and Library Service and/or the RA web-site. The addresses for both the Library and the web-site are given on the back cover of this document.
- 1.7 Further information on this UK Radio Interface Requirement can be obtained from the technical enquiry contact given on the back of this document.

2. Minimum Equipment Requirements for Operation within the UK

- 2.1 The minimum radio requirements in this document are made for reasons related to the effective and appropriate use of the radio spectrum, in particular maximising spectrum utilisation.
- 2.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for PMR 446 radio systems. It does not prescribe a technical interpretation of the ‘essential requirements’ of Directive 1999/5/EC.
- 2.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the use of licence exempt PMR 446 radio equipment in the UK. Table 2.1 contains the relevant equipment parameters. These together with the ‘essential requirement’ detailed in Article 3.2 of the Directive 1999/5/EC constitute the minimum equipment requirements for PMR 446 radio equipment within the UK.

Table 2.1: Minimum Equipment Requirements

Operational Frequency Range	Channel Centre Frequencies (MHz)	Additional Technical Information
	446.00625 446.01875 446.03125 446.04375 446.05625 446.06875 446.08125 446.09375	1 These frequencies are shared and users may, under local heavy use conditions, experience interference and channel sharing problems. 2. Equipment may also be capable of reception of broadcast (AM/FM) frequencies. 3. Use of speech privacy measures, including speech inversion, is permitted. 4. PMR 446 may only be used for speech transmissions
Channel Spacing	12.5 kHz	
Modulation	Angle	
Output Power	500 mW (maximum ERP)	

Annex A Additional Performance Parameters (Informative)

- A.1 Tables A.1, to A. 3 stipulate additional performance parameters and limits that the Radiocommunications Agency assume are fulfilled by PMR 446 radio equipment when planning and managing the radio spectrum in the UK.
- A.2 Where equivalent performance parameters and limits are defined in relevant harmonised standards under Directive 99/5/EC, those limits shall take precedence.
- A.3 The additional performance parameters and limits contained in this annex are based on the following reference standards.

ETS 300 296

Notes

1. It is assumed that equipment will meet, where indicated, the levels in tables A.2 and A.3 under normal and extreme conditions as defined in Table A.1. Manufacturers are free to declare different reasonable operating conditions. In such cases it is the responsibility of the user to ensure they operate the equipment within these conditions.
2. The limits given in these tables assume that equipment performance is assessed using the test methods contained in ETR 027 (Radio Equipment and Systems (RES); Methods of Measurement for Private Mobile Radio Equipment) and the requirements contained in EN 300 793 (Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Presentation of Equipment for Type Testing).

Table A.1: Additional Performance Parameters - Operating Conditions

Environmental Conditions		Temperature	Relative Humidity	Additional Technical Information
	Normal conditions	+15°C to+35°C	20% to 75%	
	Extreme conditions	-20°C to+55°C	20% to 75%	1. For handportable stations with integral power supplies frequency error shall be measured over the range 0 to 30°C
Mains voltage	Normal conditions	Nominal mains voltage		
	Extreme conditions	Nominal mains voltage \pm 10 %		

Table A.2: Additional Performance Parameters - Transmitter

Adjacent channel power	- 60 dBc			
Spurious emissions		Frequency range	Tx operating	Tx Standby
	Conducted	9 kHz to 1 GHz	0.25 μ W (-36 dBm)	2.0 nW (-57 dBm)
		1 GHz to 4 GHz	1 μ W (30.0 dBm)	20 nW (-47.0 dBm)
	Radiated	30 MHz to 1 GHz	0.25 μ W (-36 dBm)	2.0 nW (-57 dBm)
		1 GHz to 4 GHz	1 μ W (30.0 dBm)	20 nW (-47.0 dBm)
Carrier power tolerance	Normal conditions		Extreme conditions	
	± 1.5 dB		-3/+2 dB	
Frequency deviation	± 2.5 kHz			
Selective Signalling	Digitally Coded Squelch (DCS) or Continuous tone control and signalling system (CTCSS) (not mandatory but strongly recommended)			
Frequency error	300 to 500 MHz			
	± 1 kHz (base) ± 1.5 kHz (mobile)			For handportable equipment with integral power supplies, under extreme temperature conditions the frequency error shall not exceed ± 2.5 kHz between 300 and 500 MHz

Table A.3: Additional Performance Parameters - Receiver

Co-channel rejection	Between -12 dB and 0 dB relative to +6 dB μ V	
Adjacent channel selectivity	Normal conditions	Extreme conditions
	Minimum 60 dB relative to +6 dB μ V	Minimum 50 dB relative to +6 dB μ V
Spurious response rejection	70 dB relative to +6 dB μ V	
Intermodulation response rejection	70 dB (base) relative to +6 dB μ V 60 dB (mobile) relative to +6 dB μ V	
Spurious radiations	9 kHz to 1 GHz	1 to 4 GHz
	2.0 nW (-57 dBm)	20.0 nW (-47 dBm)
Receiver response rejection	67 dB relative to +6 dB μ V	
Blocking or desensitisation	84 dB relative to +6 dB μ V	

Document history

Draft	Date	Changes

Radiocommunications Agency

General Enquiries to the
Information and Library Service:
Tel.: +44-(0) 207-211-0502 or 0505
Fax: +44 (0) 207-211- 0507
Email: library@ra.gsi.gov.uk

Technical Enquiries to the
Private Business Systems Unit
Tel.: +44-(0)207-211-0181
Fax: +44-(0)207-211- 0118
Email: henleya@ra.gsi.gov.uk

Web site: www.radio.gov.uk

This is a UK Radio Interface Requirement

Postal address:

Private Business Systems Unit, Wyndham House, 189 Marsh Wall, LONDON, E14 9SX

