



Analogue and Digital PMR446 Information Sheet

Business Radio

Information

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Contents

Purpose of this document	3
Background	3
Sale of Analogue and Digital PMR446 equipment	4
Analogue and Digital PMR446 channels	4
Interference to and protection of Analogue and Digital PMR446 Users	4
Impact on licensed users within the 446.1 to 446.2 MHz band	5
General Non-specific Short Range Devices (SRD) channels	5
PMR446 Base Stations	5
American Family Radio Service (FRS)	6
Converted radio equipment	6
Use of non licence-exempt compliant equipment	6
International co-ordination	6
Further information	6

Analogue and Digital PMR446 Information Sheet

Purpose of this document

This document:

- combines and updates the previously separate Analogue PMR446 (OfW57) and Digital PMR446 Information Sheets;
- is relevant if you intend to supply and / or operate Analogue and / or Digital PMR446 equipment, such as 'walkie-talkie' handsets, within the UK;
- clarifies that the Analogue 446.0 to 446.1 MHz and Digital 446.1 to 446.2 MHz PMR446 bands are not 'licence exempt bands', but bands in which equipment that meets certain technical requirements, e.g. UK IR2009, may be operated on a licence-exempt basis;
- identifies some alternative PMR446-type systems that are and are not legal to use within the UK on a licence exempt basis; and
- highlights that you may be committing an offence if you operate equipment, including equipment that meets the requirements of the R&TTE Directive, within 446.0 to 446.2 MHz that does not meet the PMR446 licence-exempt operation requirements.

Background

Ofcom has worked with colleagues in Europe to, initially, identify spectrum for the Analogue PMR446 service (446.0 to 446.1 MHz) and, latterly, identify spectrum for the UK's Digital PMR446 service (446.1 to 446.2 MHz).

The Analogue PMR446 service is harmonised throughout Europe. This means that Analogue PMR446 compliant equipment bought in the UK may be used on a licence-exempt basis within any European country.

The Digital PMR446 service is not harmonised throughout Europe. Please note that UK Digital PMR446 compliant equipment may not therefore be used on a licence-exempt basis within all European countries. Likewise, Digital PMR446 equipment that is licence-exempt compliant within other European countries may not necessarily meet the UK's licence exemption operation requirements.

Please note that Analogue and Digital PMR446 equipment usage within the UK is limited to mobile-only, low-power (i.e. 0.5W ERP¹ maximum), short-range, simplex, two-way, peer-to-peer use. Analogue PMR446 and Digital PMR446 allow speech and / or tones. Additionally, Digital PMR446 facilitates the transmission of data, and has an automatic transmission timeout of 180 seconds.

¹ The effective radiated power (ERP) is typically (e.g. ignoring the antenna cable loss) equal to the transmit power multiplied by the antenna gain, e.g. a transmitter output power of 0.5 watts with an antenna gain of 1 would result in an ERP of 0.5 watts.

Sale of Analogue and Digital PMR446 equipment

All radio equipment, including Analogue and Digital PMR446 equipment, must meet the minimum requirements of the Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive for it to be placed on the European market. Manufacturers show R&TTE Directive compliance by the inclusion of a valid CE Mark on the equipment and its packaging.

Radio equipment must also meet the relevant Interface Requirement for it to be operated on a licensed or licence-exempt basis. The UK Interface Requirement IR2009 details the UK's Analogue and Digital PMR446 licence exempt operation requirements. This Interface Requirement is based on the ERC/DEC/(98) 25, 26 & 27 and ECC Decision (05)12 agreements.

Please note that Digital PMR446 use is not harmonised throughout Europe and manufacturers are required to identify this restriction. Digital PMR446 equipment therefore has a bracketed Exclamation Mark next to the CE Mark. Adjacent to the Exclamation Mark will be a list of the countries in which the specific equipment may be used on a licence exempt basis.

Analogue and Digital PMR446 channels

Analogue PMR446 equipment has eight 12.5 kHz channels spaced equally between 446.0 to 446.1 MHz.

Digital PMR446 equipment has eight 12.5 kHz channels and / or sixteen 6.25 kHz channels. These channels are spaced equally between 446.1 to 446.2 MHz. As the sixteen 6.25 kHz channels overlay the eight 12.5 kHz channels it is possible that operation nearby within one channel could cause harmful interference to another, e.g. transmissions within 6.25 kHz channels 1 & 2 could affect 12.5 kHz channel 1, and vice versa.

PMR 446 is not suitable for safety of life use or for users who need to have access to frequencies at particular locations and times.

Digital 12.5kHz Channel	1		2		3		4		5		6		7		8	
Digital 6.25kHz Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Figure 1: Digital 6.25 kHz and 12.5 kHz channel arrangements

Interference to and protection of Analogue and Digital PMR446 Users

The Analogue and Digital PMR446 services are operated on a non-interference and non-protected basis. It is therefore a condition of licence-exempt operation that users of PMR446 equipment select a channel that does not cause interference problems for other users.

Impact on licensed users within the 446.1 to 446.2 MHz band

In August 2004 we announced our intention to make the 446.1 to 446.2 MHz band available to Digital PMR446 and consequently closed the band to new licence applications. Existing licensed users may however continue to operate in the band if they wish and hence share the band with Digital PMR446 users.

The experience of analogue PMR446 demonstrates that the risk of interference is low (there have been no reported interference issues). We will however investigate the source of interference on a case-by-case basis in the unlikely event that any interference issues to licensed systems arise. Additionally, if an existing licensee wishes to use an alternative channel outside of the 446.1 to 446.2 MHz band then we will seek to offer an alternative assignment.

Please note that it is a requirement of licence-exempt use that Digital PMR446 users do not cause interference to other users. It is especially important in this case because the licensed user(s), unlike a PMR446 user, will not be able to change to an alternative channel.

General Non-specific Short Range Devices (SRD) channels

There are a number of very low-power ultra-high frequency (UHF) channels between 434.04 to 434.79 MHz that are available for general non-specific short-range licence-exempt equipment use within the UK. The licence exemption details for these and other non-specific SRD channels are shown within the UK Interface Requirement 2030.

We are aware that it is possible to purchase hand-held equipment that combines the Analogue PMR446 channels with these UHF SRD channels. Our investigations have discovered that the identified combined PMR446 / SRD equipment is CE Marked. This means that it can be sold legally within Europe. It is assumed that the equipment also meets the relevant UK IR2030 requirements, e.g. has a maximum ERP of 10mW, and can therefore be used on a licence exempt basis within the UK.

We realise that some of the SRD channels align with the input frequencies of certain UK Amateur Radio Repeaters. We understand the frustration that this is causing some Amateur Repeater users. We are therefore working to address this problem in the longer term. In the meantime, however, we suggest that a short call to the SRD user informing them of the interference problem and a polite request for them to select an alternative channel might be the simplest solution.

PMR446 Base Stations

Both Analogue and Digital PMR446 equipment must be used on a mobile basis only for it to meet the licence-exempt operation requirements within the UK.

Please note that PMR446 equipment that is designed for base station use, or mobile equipment that is configured as a base station, e.g. as an Internet Gateway, is unlikely to meet the licence-exempt operation requirements.

Please see the 'Use of non licence-exempt compliant equipment' section on the next page.

American Family Radio Service (FRS)

Although similar in concept, American Family Radio Service (FRS) equipment cannot be used within the UK on a licence-exempt basis.

Please note that the use of FRS equipment within the UK is likely to cause harmful interference to frequencies used by the Home Office

Converted radio equipment

PMR446 users are reminded that their radios are only licence-exempt if they are built and operated within the conditions of the exemption regulations. If modifications are made to the equipment, such as adding an antenna connector, the overall maximum ERP or other technical parameters must not exceed the permitted levels set out in the Interface Requirement.

You should also be aware, especially when buying in the second-hand market, that equipment that has been approved for licensed use in the past does not necessarily mean that it is suitable for conversion for PMR446 licence exempt use.

Examples include:

- the channel width could be too wide, e.g. 25 kHz instead of 12.5 / 6.25 kHz;
- some channels are not in the spectrum that can be used by licence-exempt equipment;
- the output power is too high, e.g. resulting in an ERP greater than 0.5 watts.

Use of non licence-exempt compliant equipment

You may be committing an offence if you operate equipment, including equipment that meets the requirements of the R&TTE Directive, within 446.0 to 446.2 MHz that does not meet the PMR446 licence-exempt operation requirements.

International co-ordination

Unlike most radio systems that are operated within geographical areas adjacent to our neighbours, Analogue and Digital PMR446 equipment does not require international co-ordination prior to it being used.

Further information

More information on the R&TTE Directive can be found here:

http://ec.europa.eu/enterprise/sectors/rtte/documents/index_en.htm

The UK Interface Requirement IR2009 is available here:

<http://stakeholders.ofcom.org.uk/binaries/spectrum/spectrum-policy-area/spectrum-management/research-guidelines-tech-info/interface-requirements/IR2009.pdf>

More information on General Non-specific Short Range Devices can be found here:

http://stakeholders.ofcom.org.uk/binaries/spectrum/spectrum-policy-area/spectrum-management/research-guidelines-tech-info/interface-requirements/IR_2030-june2014.pdf

General Analogue and Digital PMR446 enquiries should be sent to:

spectrum.licensing@ofcom.org.uk