UK Interface Requirement 2043

Broadband Fixed Wireless Access Radio Systems in parts of the 28 GHz Frequency Band Administered by Ofcom

Please note: This document has been notified to the European Commission in draft, as required by Directive 98/34/EC on Standards and Technical Regulations. A standstill period of three months must be observed before it is officially adopted. Therefore, while the UK intends to adopt this measure “as is” on the standstill end date, comments made during this period will have to be taken into account and may result in amendments.

The standstill end date is 24 January 05.

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Contents

2. References

Equipment Standards

[1]	EN 302 326-3	"Fixed Radio Systems; Multipoint Equipment and Antennas; **Harmonised** EN covering the essential requirements under Article 3.2 of the R&TTE Directive for Multi Point Radio Antennas".
[2]	EN 302 326-2	"Fixed Radio Systems; Multipoint equipment and antennas; **Harmonised** EN covering the essential requirements of Article 3.2 of the R&TTE Directive for Digital Multipoint Radio Equipment".
[3]	EN 302 217-2-2	"Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 2-2: **Harmonised** EN covering essential requirements of Article 3.2 of R&TTE Directive for equipment operating in frequency bands where no frequency co-ordination is applied
[4]	EN 302 217-4-2	"Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 4-2: **Harmonised** EN covering essential requirements of Article 3.2 of R&TTE Directive for antennas

Conformance Testing

[5]	EN 301 126-2-1	"Fixed Radio Systems; Conformance Testing; Part 2-1: Point-to-multipoint Equipment – Definitions, General Requirements and Test Procedures"
[6]	EN 301 126-2-2	"Fixed Radio Systems; Conformance Testing; Part 2-2: Point-to-multipoint Equipment – Test Procedures for FDMA systems"
[7]	EN 301 126-2-3	"Fixed Radio Systems; Conformance Testing; Part 2-3: Point-to-multipoint Equipment – Test Procedures for TDMA systems"
[8]	EN 301 126-2-5	"Fixed Radio Systems; Conformance Testing; Part 2-5: Point-to-multipoint Equipment – Test Procedures for DS-CDMA systems"
[9]	EN 301 126-3-2	"Fixed Radio Systems; Conformance Testing; Part 3-2: Point-to-multipoint Antennas – Definitions, General Requirements and Test Procedures"

Technical General

[10]	EN 301 390	"Fixed Radio Systems; Point-to-point & Point-to-multipoint systems; Spurious emissions and receiver immunity at equipment / antenna port of Digital Fixed Radio Systems"

Spectrum Regulatory

[11]	CEPT Decision ECC/DEC(05)01	"ECC Decision of 18 March 2005 on the use of the band 27.5-29.5 GHz by the Fixed Service and uncoordinated Earth stations of the Fixed-Satellite Service (Earth-to-space)".
[12]	CEPT Recommendation T/R 13-02	"Preferred Channel Arrangements for Fixed Services in the Range 22.0 – 29.5 GHz".

Note: These references are included for information purposes only. Compliance with the equipment standards referenced is not mandatory. However compliance to relevant regulatory reference (spectrum use) would be reflected in the licence product.

Note: Documents listed above are not produced by Ofcom, therefore interested parties should source the documentation by their own means.
For information;
The CEPT website for technical regulatory documentation is located at;
http://www.ero.dk
The ETSI website for technical standard documentation is located at;
http://www.etsi.org

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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 Interface Requirement contains the requirements for the licensing and use of Broadband Fixed Wireless Access in the specified frequency bands.

1.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 1999/5/EC.

1.3 It is required by the Wireless Telegraphy Act 2006 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 Ofcom. 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 Interface Requirement for the stated equipment types and for the stated frequency bands.

1.4 The requirements given in the main body of this UK Radio Interface Requirement will apply to the licensing of terrestrial Broadband Fixed Wireless Access radio systems in the 28 GHz band.

1.5 This UK Radio Interface Requirement will be revised as necessary, for example 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 Broadband Fixed Wireless Access in the 28 GHz band.

1.6 All UK Radio Interface Requirements notified under Directive 1998/34/EC will be published and will be made available free of charge from the Ofcom website at www.ofcom.org.uk.

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 requirements in this document are made for reasons related to the effective and appropriate use of the radio spectrum, in particular maximising spectrum utilisation and to facilitate inter-opertaor coexistence.

2.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for Broadband Fixed Wireless Access in 28 GHz . It does not prescribe 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 licensing of Broadband Fixed Wireless Access at 28 GHz, in the UK. Table 2.1 and 2.2 contains the relevant equipment parameters. These together with the 'essential requirements' detailed in Article 3.2 of Directive 1999/5/EC constitute the minimum equipment requirements for Broadband Fixed Wireless Access at 28 GHz within the UK.

2.4 The technical parameters specified in the UK radio Interface Requirement are applied to achieve the desired level of compatibility within the 28 GHz Broadband Fixed Wireless Access spectrum and with other radiocommunications services, whist promoting enterprise, innovation and competition.

2.5 'Non-essential parameters' are those parameters contained in any Reference Standard, which are not cross-referenced to the generic Harmonised Standards [1] [2] [3] [4]. The assumption that radio systems that comply with the 'essential requirements' detailed in Article 3.2 of Directive 1999/5/EC, with this UK Radio Interface Requirement and the 'non-essential parameters' will be made for the purposes of facilitating inter-operator co-existence in accordance with the coexistence guidelines.

2.6 Radio systems that comply with the 'essential requirements' detailed in Article 3.2 of Directive 1999/5/EC and with the UK Interface Requirement but not with the 'non-essential parameters', may require re-evaluation of the guidelines to facilitate inter-operator coexistence. Therefore, they will be licensed on the condition that the system shall not cause any harmful interference, increase the inter-operator co-ordination burden or degrade the co-existence environment over and above that resulting from adherence to the coexistence guidelines detailed in the applicable technical document. These considerations are based on the originally awarded spectrum and not segmented areas and/or spectrum as a result of a trade.

2.7 It is assumed that equipment and antennas are assessed using the test methods contained in EN 301 126-2/3 [5] [6] [7] [8] [9] and EN 301 390 [10]. However, manufacturers are free to choose alternative methods for assessing their equipment providing they can equate their results to the limits stated.

2.8 This UK Radio Interface requirement provides the necessary technical information which facilitates access to the 28 GHz Broadband Fixed Wireless Access spectrum by making clear the assumptions that are made in planning the use of the 28 GHz Broadband Fixed Wireless Access spectrum in the UK. It is not the intention of this UK Radio Interface Requirement to duplicate or impose any additional 'essential requirements' of the Directive 1999/5/EC on products. Any specified parameters within this document are for the purpose of identifying product options and not as a national de facto product requirement.

Table 2.1: minimum equipment requirements for Multi Point Systems

	Parameters	(Previously IR2040)
1	Frequency band (GHz)	28.0525 – 28.4445 29.0605 – 29.4525 In accordance with ERC/DEC/(05)01 [11]
2	Radio service	FIXED SERVICE
3	Application	P-MP, MP-MP (See Annex A) For infrastructure, access or combination. **Note-10**
4	Channelling/modulation	In accordance with CEPT Recommendation T/R 13-02 Annex C [12]. 3.5, 7, 14 or 28 MHz channels. **Note-1**
5	Transmit power limit	As referenced in the applicable co-ordination requirement. Boundary PFD limit at the licensed geographical border **Note-2**
6	Channel occupation rules	N/A
7	Duplex type/separation	FDD **Note-3** CEPT REC T/R13-02 Annex C [12]
8	Licensing regime	Spectrum block assignment on a regional basis. Tradable Licence Geographical limitations are determined by the licence. Co-ordination and site clearance procedures managed by the National Frequency Assignment Panel (NFAP).
9	Additional essential requirements (art. 3.3)	N/A
10	Frequency planning assumptions	Antenna parameters: EN 302 326-3 [1] **Note-4** Emission spectrum mask: EN 302 326-2 [2] **Note-5** Equipment types in accordance with: EN 302 326-2 [1]: FDMA, TDMA, DS-CDMA & MC-TDMA Receiver parameters: EN 301 390 [10]
11	Reference	Harmonised Standard: EN 302 326 [1] [2]
12	Remarks	**Note-1:** 56 and 112 MHz channel spacing will not be used. **Note-2:** For some deployment situations, the EIRP may need to be decreased in certain directions for the purposes of facilitating coexistence between operators. **Note-3:** Although this plan assumed an FDD system TDD systems will also be allowed **Note-4:** Antennas assumed to be used in determining coexistence guidelines are drawn from EN 302 326-3 [2]. **Note-5:** Although the standard specifies point to multi-point systems, mesh systems are not excluded from the specification.
13	Notification number	98/34/EC Notification Number: 200X/XXX/UK
14	Additional	Refer to Annex B for cross referenced existing standards.

Table 2.2: minimum equipment requirements for Point to Point Systems

	Parameters	(Previously IR2041)
1	Frequency band (GHz)	28.0525 – 28.4445 29.0605 – 29.4525 In accordance with ERC/DEC/(05)01 [11]
2	Radio service	FIXED SERVICE
3	Application	P-P (See Annex A) For infrastructure, access or combination
4	Channelling/modulation	In accordance with CEPT Recommendation T/R 13-02 Annex C [12]. 3.5, 7, 14 or 28 MHz channels **Note-6**
5	Transmit power limit	As referenced in the applicable co-ordination requirement. Boundary PFD limit at the licensed geographical border **Note-7**
6	Channel occupation rules	N/A
7	Duplex type/separation	FDD **Note-8** CEPT ECC REC T/R13-02 Annex C [12]
8	Licensing regime	Spectrum block allocation on a regional basis. Tradable Licence. Geographical limitations are determined by the licence. Co-ordination and site clearance procedures managed by the National Frequency Assignment Panel (NFAP).
9	Additional essential requirements (art. 3.3)	N/A
10	Frequency planning assumptions	Antenna parameters: EN 302 217-4-2 [4] Figure 15 **Note-9** Emission spectrum mask: EN 302 217-2-2 [7] Receiver parameters: EN 301 390 [10]
11	Reference	Harmonised Standard: EN 302 217 [3] [4]
12	Remarks	**Note-6:** 56 and 112 MHz channel spacing will not be used.
		Note-7: For some deployment situations, the EIRP may need to be decreased in certain directions for the purposes of facilitating coexistence between operators
		Note-8: Although this plan assumed an FDD system TDD systems will also be allowed.
		Note-9: This antenna has been chosen for use in radio networks where there is a medium potential for inter and intra-system interference and where high capacity digital radio is required.
		Note-10 MP compliant systems are not required to meet the point to point considerations listed in Table 2.2 (page 7) in addition to the considerations in Table 2.1, where they are deployed in a point to point system.
13	Notification number	98/34/EC Notification Number: 200X/XXX/UK
14	Additional	Refer to Annex B for cross referenced existing standards.

Annex A.

Additional performance parameters (informative)

Note:

Nothing within the considerations referenced in Tables 2.1 and 2.2 prevents the use of Multi Point or Point to Point equipment that has been compliance tested under either standard reference, from being used in either architecture arrangement (noting the assumptions made during spectrum planning arrangements any applicable co-ordination/co-existence process and the licence requirements).

Annex B

Cross Reference to Historically Relevant ENs

The following standards are presumed to be in conformity with Directive 1999/5/EC and are listed in the forward of the Multi Part standards in shown in Tables 2.1 & 2.2.

MP equipment ENs

Frequency Range	Nominal Access Method	ETSI MP System Equipment Standards
24.25 – 29.5 GHz	Common to all	EN 301 213-1
24.25 – 29.5 GHz	TDMA	EN 301 213-3
24.25 – 29.5 GHz	MC-TDMA	EN 301 213-5
24.25 – 29.5 GHz	FDMA	EN 301 213-2
24.25 – 29.5 GHz	DS-CDMA	EN 301 213-4

P-P equipment ENs

Frequency Range	Nominal Access Method	ETSI P-P Equipment Standard
24.25 – 29.5 GHz	[Digital]	EN 300 431
7 – 55 GHz	Packet Data	EN 301 785

MP antenna ENs

Frequency Range	ETSI MP Antenna Standards
11 – 60 GHz - general aspects	EN 301 215-1
24 – 30 GHz	EN 301 215-2

P-P antenna ENs

Frequency Range	ETSI Point to Point Antenna Standard
3 – 60 GHz	EN 300 833

MP harmonised EN

Description	ETSI MP Harmonised EN
Generic Harmonised Standard	EN 301 753

P-P harmonised EN

Description	ETSI P-P Harmonised EN
Generic Harmonised Standard	EN 301 751

Interested parties should refer to the forward of EN 302 326-1 (Multi Point) and EN 302 217-1 (Point to Point) to determine existing standard applicability and note the formal publication date of all parts of these said standards in the European Community - Official Journal.

Document History

Draft	Date	Changes
1.0	Aug 2004	Merged IR 2040 and IR2041 into common agreed format
1.1	Oct 2004	Added cross reference table. Added MP approval for P-P deployment text
1.2	January 2006	Updated WT Act references

Technical enquiries to;

Tel: 020 7783 4347

Fax: 020 7783 3333

Email: mbt.enquirypoint@ofcom.org.uk

Website: www.ofcom.org.uk