

**UK Radio Interface Requirement 2041 for
Broadband Fixed Wireless Access Point-to-Point
Radio Systems in the 28 GHz Frequency Band
Administered by the Radiocommunications Agency
(Version 4.0)**

98/34/EC Notification Number: 2001/0326/UK

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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, Statutory Instrument (SI) 730 of 13 March 2000. In accordance with Articles 4.1 and 7.2 of Directive 1999/5/EC, this document contains the requirements for the licensing and use of terrestrial point-to-point Broadband Fixed Wireless Access in the specified frequency bands.
- 1.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment and antennas 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 document 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 point-to-point Broadband Fixed Wireless Access radio systems in the 28 GHz band.
- 1.5 This UK Radio Interface Requirement will be revised as necessary to follow current technology developments for reasons related to the effective and appropriate use of the spectrum in particular maximising spectrum utilisation.
- 1.6 The RA has publicly consulted with manufacturers and operators on all aspects of this UK Radio Interface Requirement, including any assumptions made for the criteria and parameter values necessary to facilitate inter-operator coexistence as detailed in RA 390. 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 and Antenna 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 and to facilitate inter-operator coexistence.
- 2.2 This UK Radio Interface Requirement does not prescribe a technical interpretation of the ‘essential requirements’ of Directive 1999/5/EC.
- 2.3 The candidate Harmonised Standard EN 301 751 [1] is the generic Harmonised Standard that implements the ‘essential requirements’ under Article 3.2 of Directive 1999/5/EC for radio systems that can provide terrestrial point-to-point Broadband Fixed Wireless Access. ETSI has the responsibility for developing and maintaining this generic Harmonised Standard. Conformance with the Harmonised Standard gives a presumption of compliance with those relevant ‘essential requirements’ of Directive 1999/5/EC as covered by the said harmonised standard.
- 2.4 This UK Radio Interface Requirement stipulates the minimum equipment and antenna requirements necessary to allow terrestrial point-to-point Broadband Fixed Wireless Access radio systems to be licensed in the UK. Tables 2.1 and 2.2, respectively, contain the relevant minimum equipment parameters and antenna reference codes with associated parameters from the standards, permissible within the frequency band identified for terrestrial point-to-point Broadband Fixed Wireless Access in the UK. These together with the ‘essential requirement’ prescribed in Article 3.2 of the Directive 1999/5/EC constitute the minimum system requirements for terrestrial point-to-point Broadband Fixed Wireless Access radio operation within the UK.
- 2.5 ‘Non-essential parameters’ are those parameters contained in any Reference Standard shown in tables 2.1 and 2.2, which are not cross-referenced to the generic Harmonised Standard [1]. 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 guidelines in RA 390.
- 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 RA 390.
- 2.7 It is assumed that equipment and antennas are assessed using the test methods contained in EN 301 126 [5][6] and EN 301 390 [7]. 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 terrestrial Broadband Fixed Wireless Access radio services in the 28 GHz band by making clear the assumptions that are made in planning the use of this 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 de facto national product requirement.

Table 2.1: Minimum Equipment Requirements

Reference Standards Assumed to be fulfilled in frequency planning and defining the equipment type (digital equipment unless otherwise stated)	Frequency Range (GHz)	Channel plan Note 1	Channel Spacing (MHz) Note 2	Maximum Mean Radiated Power (dBW eirp) Note 3	Comments
EN 300 431 [2] Fixed Radio Systems; Point-to-point equipment; Parameters for radio system for the transmission of digital signals operating in the frequency range 24.5 GHz to 29.5 GHz	28.0525 to 28.4445 paired with 29.0605 to 29.4525	In accordance with CEPT Recommendation T/R 13-02 Annex C [3].	3.5 7 14 28	+32	Note 1: Although this plan assumed an FDD system, TDD systems will also be allowed. Note 2: 56 and 112 MHz channel spacing will not be used. Note 3: For some deployment situations, the EIRP may need to be decreased in certain directions for the purposes of facilitating coexistence between operators as detailed in RA 390.

Table 2.2: Minimum Antenna Requirements; 24 – 30 GHz

Reference Standards Assumed to be fulfilled for effective frequency planning and defining the antenna type	Frequency Ranges (GHz)	Radiation Pattern Envelope Note 1	Minimum Cross polar discrimination (dB)	Minimum Antenna Gain (dBi)	Comments
ETS 300 833 [4] Fixed Radio systems; Point to point Antennas; Antennas for point-to-point fixed radio systems operating in the frequency bands 3 GHz to 60 GHz;	28.0525 to 28.4445 paired with 29.0605 to 29.4525	See Figure 5b in the reference standard	27	32	Note 1: This antenna has be 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.

3. References

3.1 References - equipment

- [1] EN 301 751 “Fixed Radio Systems; Point-to-Point equipments and antennas; Generic harmonised standard for Point-to-Point digital fixed radio systems and antennas covering the essential requirements under Article 3.2 of the 1999/5/EC Directive”
- [2] EN 300 431 “Fixed Radio Systems; Point-to-point equipment; Parameters for radio system for the transmission of digital signals operating in the frequency range 24.5 GHz to 29.5 GHz”
- [3] ERC Recommendation T/R 13-02 E “Preferred Channel Arrangements for Fixed Services in the Range 22.0 – 29.5 GHz”

3.2 References - antennas

- [4] EN 300 833 “Fixed Radio Systems; Point to Point Antennas; Antennas for point-to-point fixed radio systems operating in the frequency band 3 GHz to 60 GHz”

3.3 References - equipment & antennas

- [5] EN 301 126-1 “Fixed Radio Systems; Conformance Testing; Part 1: Point-to-point equipment – Definitions, general requirements and test procedures”
- [6] EN 301 126-3-1 “Fixed Radio Systems; Conformance testing; Part 3-1: Point-to-point antennas – Definitions, general requirements and test procedures”
- [7] 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”

Note: These references are included for information purposes only. Compliance with these referenced standards is not mandatory.

Document history

Draft	Date	Changes
1.0	Feb 2001	First draft submitted to the BFWA technical group
2.0	Mar 2001	Second draft submitted to the BFWA technical group
3.0	Mar 2001	Third draft submitted to the EU for approval
4.0	Oct 2001	Reference to RA 390 added, draft removed, minor editorials

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
Broadband Fixed Wireless Access Section:
Tel.: +44-(0)207-211-0255
Fax: +44-(0)207-211- 0203
Email: peter.jessup@ra.gsi.gov.uk

Web site: www.radio.gov.uk

This is a UK Radio Interface Requirement

Postal address:

Broadband Fixed Wireless Access Section, Wyndham House, 189 Marsh Wall, LONDON, E14 9SX