

IR 2087 - UK Interface Requirement 2087

**LTE and WiMAX equipment in 900 MHz and 1800 MHz
Bands**

Contents

Section		Page
1	References	3
2	Foreword	4
3	Minimum requirements for operation within the UK	5
4	Additional performance parameters	8
5	Contact details	9
6	Document history	10

Section 1

References

- 1.1 Directive 2009/114/EC of the European Parliament and of the Council of 16 September 2009 amending Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community
- 1.2 Commission Decision 2009/766/EC of 16 October 2009 on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community
- 1.3 Decision 2011/251/EU: Commission implementing decision of 18 April 2011 amending Decision 2009/766/EC on the harmonisation of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community.
- 1.4 Recommendation ITU-R M.1457 – Detailed specifications of the radio interfaces of International Mobile Telecommunications-2000 (IMT-2000).
- 1.5 Resolution ITU-R 56 – Naming for International Mobile Telecommunications
- 1.6 ETSI TS 136 101: LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception
- 1.7 ETSI TS 136 104: LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception
- 1.8 ETSI TS 136 106: LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); FDD repeater radio transmission and reception
- 1.9 ETSI EN 301 908-13: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU); Part 13: Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)
- 1.10 ETSI EN 301 908-14: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU); Part 14: Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS)
- 1.11 ETSI EN 301 908-15: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU); Part 15: Evolved Universal Terrestrial Radio Access (E-UTRA FDD) (Repeaters)
- 1.12 ETSI EN 301 908-21: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU); Part 21: OFDMA TDD WMAN (Mobile WiMAX) FDD User Equipment (UE)

- 1.13 ETSI EN 301 908-22: IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU); Part 22: OFDMA TDD WMAN (Mobile WiMAX) FDD Base Stations (BS)
- 1.14 IEEE Std 802.16: Standard for local and metropolitan area networks – Air interface for broadband wireless access systems
- 1.15 CEPT Report 40: Report from CEPT to European Commission in response to Task 2 of the Mandate to CEPT on the 900/1800 MHz bands - Compatibility study for LTE and WiMAX operating within the bands 880-915 MHz / 925-960 MHz and 1710-1785 MHz / 1805-1880 MHz (900/1800 MHz bands)
- 1.16 CEPT Report 41: Report from CEPT to European Commission in response to Task 2 of the Mandate to CEPT on the 900/1800 MHz bands - Compatibility between LTE and WiMAX operating within the bands 880-915 MHz / 925-960 MHz and 1710-1785 MHz / 1805-1880 MHz (900/1800 MHz bands) and systems operating in adjacent bands
- 1.17 UK Interface Requirement IR 2014: Public Wireless Networks
- 1.18 UK Interface Requirement IR 2019: Third Generation Mobile

Section 2

Foreword

- 2.1 The Radio Directive (Directive 2014/53/EU) was implemented in the United Kingdom (UK) by the Radio Equipment Regulations 2017. In accordance with Articles 8 and 7 of Directive 2014/53/EU, this UK Interface Requirement contains the requirements for the licensing and use of LTE and WiMAX radio equipment in the specified frequency bands.
- 2.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 2014/53/EU.
- 2.3 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, in order to be installed or used in the UK, the equipment must meet the minimum requirements specified in this UK Interface Requirement for the stated equipment types and for the stated frequency bands. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 2014/53/EU.
- 2.4 The requirements given in the main body of this UK Radio Interface Requirement will apply to the licensing of LTE and WiMAX radio equipment in the 900 MHz and 1800 MHz bands.
- 2.5 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 mobile.
- 2.6 All UK Radio Interface Requirements notified under Directive 2015/1535/EU will be published and will be made available free of charge from the Ofcom web-site at <http://stakeholders.ofcom.org.uk/spectrum/technical/interface-requirements/>.
- 2.7 Further information on this UK Radio Interface Requirement can be obtained from the technical enquiry contact given at the back of this document.

Section 3

Minimum requirements for operation within the UK

- 3.1 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.
- 3.2 This UK Radio Interface Requirement gives a high-level description of how the spectrum in the UK is used for LTE and WiMAX in the 900 MHz and 1800 MHz bands. It does not prescribe technical interpretation of the 'essential requirements' of Directive 2014/53/EU.
- 3.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the licensing of LTE and WiMAX radio equipment in the 900 MHz and 1800 MHz bands in the UK. Tables 3.1 and 3.2 contain the relevant equipment parameters. These taken together with the 'essential requirements' detailed in Article 3.2 of Directive 2014/53/EU constitute the minimum requirements for the authorisation and use of LTE and WiMAX radio equipment in the 900 MHz and 1800 MHz bands within the UK. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 2014/53/EU.
- 3.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the 900 MHz and 1800 MHz bands and with other radiocommunications services, whilst promoting enterprise, innovation and competition.
- 3.5 This UK Radio Interface requirement provides the necessary technical information which facilitates access to the 900 MHz and 1800 MHz spectrum by making clear the assumptions that are made in planning the use of the 900 MHz and 1800 MHz 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 2014/53/EU. Any specified parameters within this document are for the purpose of identifying product options and not as a national de facto product requirement.

**Table 3.1: Minimum requirements for the use of:
LTE and WiMAX operating in the 880 MHz-915 MHz or 1710 MHz-
1785 MHz bands**

Mandatory (1-10)								
1	Frequency band(s)	880.1 MHz to 914.9 MHz 1710.1 MHz to 1785 MHz						
2	Radiocommunication Service	Mobile service						
3	Application	IMT						
4	Channelling	100 kHz channel raster						
5	Modulation / Occupied bandwidth	QPSK Up to 64-QAM						
6	Direction / Separation	Mobile transmit Repeater transmit/receive <u>Uplink/downlink separation</u> <table border="1"> <thead> <tr> <th>Frequency band</th> <th>Separation</th> </tr> </thead> <tbody> <tr> <td>880.1 to 914.9 MHz</td> <td>45 MHz</td> </tr> <tr> <td>1710.1 to 1785 MHz</td> <td>95 MHz</td> </tr> </tbody> </table>	Frequency band	Separation	880.1 to 914.9 MHz	45 MHz	1710.1 to 1785 MHz	95 MHz
Frequency band	Separation							
880.1 to 914.9 MHz	45 MHz							
1710.1 to 1785 MHz	95 MHz							
7	Maximum Transmit Power / Power Density	23dBm						
8	Channel access and occupation rules	SC-FDMA or OFDMA						
9	Authorisation regime	Network user equipment meeting the minimum requirements outlined in this Interface Requirement is exempt from licensing provided that it meets the requirements of the relevant exemption regulations WT Act licence required for repeaters						
10	Additional essential requirements							
Informative (11-13)								
11	Frequency planning assumptions	ETSI TS 136 101 ETSI TS 136 106 IEEE Std 802.16 CEPT Report 40 CEPT Report 41						
12	Planned changes							
13	Reference	EN 301 908-13 EN 301 908-15 EN 301 908-21						
14	Notification	2011/486/UK						
15	Remarks							

**Table 3.2: Minimum requirements for the use of:
LTE and WiMAX operating in the 925-960 MHz or 1805-1880 MHz
bands**

Mandatory (1-10)								
1	Frequency band(s)	925.1 MHz to 959.9 MHz 1805.1 MHz to 1880 MHz						
2	Radiocommunication Service	Mobile service						
3	Application	IMT						
4	Channelling	100 kHz channel raster						
5	Modulation / Occupied bandwidth	QPSK Up to 64-QAM						
6	Direction / Separation	Base station transmit Repeater transmit/receive <u>Uplink/downlink separation</u> <table border="1"> <thead> <tr> <th>Frequency band</th> <th>Separation</th> </tr> </thead> <tbody> <tr> <td>925.1 to 959.9 MHz</td> <td>45 MHz</td> </tr> <tr> <td>1805.1 to 1880 MHz</td> <td>95 MHz</td> </tr> </tbody> </table>	Frequency band	Separation	925.1 to 959.9 MHz	45 MHz	1805.1 to 1880 MHz	95 MHz
Frequency band	Separation							
925.1 to 959.9 MHz	45 MHz							
1805.1 to 1880 MHz	95 MHz							
7	Maximum Transmit Power / Power Density	61dBm/(5 MHz) EIRP						
8	Channel access and occupation rules	OFDMA						
9	Authorisation regime	WT Act licence						
10	Additional essential requirements							
Informative (11-13)								
11	Frequency planning assumptions	ETSI TS 136 104 ETSI TS 136 106 IEEE Std 802.16 CEPT Report 40 CEPT Report 41						
12	Planned changes							
13	Reference	EN 301 908-14 EN 301 908-15 EN 301 908-22						
14	Notification	2011/486/UK						
15	Remarks	Not all frequencies within this range are available for licensing. Ofcom may impose additional restrictions on the maximum power used for specific frequencies and locations						

Section 4

Additional performance parameters

(informative)

None specified

Section 5

Contact details

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Section 6

Document history

Version	Date	Changes
1.0	December 2012	Published
2.0	January 2018	Replaced R&TTE Directive 1999/5/EC and Directive 98/34/EC with Radio Equipment Directive and Directive (EU) 2015/1535 respectively. Minor editorials