



IR 2019

Third Generation Mobile

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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 Recommendation ITU-R M.1457 – Detailed specifications of the radio interfaces of International Mobile Telecommunications-2000 (IMT-2000).
- 1.4 Resolution ITU-R 56 – Naming for International Mobile Telecommunications
- 1.5 ETSI EN 301 908-01 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third Generation cellular networks; Part 1: Harmonized standard for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive.
- 1.6 ETSI EN 301 908-02 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 2: Harmonized standard for IMT-2000, CDMA Direct Spread (UTRA FDD and E-UTRA FDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive.
- 1.7 ETSI EN 301 908-03 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 3: Harmonized standard for IMT-2000, CDMA Direct Spread (UTRA FDD and E-UTRA FDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive.
- 1.8 ETSI EN 301 908-06 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 6: Harmonized standard for IMT-2000, CDMA TDD (UTRA TDD and E-UTRA TDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive.
- 1.9 ETSI EN 301 908-07 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third Generation cellular networks; Part 7: Harmonized standard for IMT-2000, CDMA TDD (UTRA TDD and E-UTRA TDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive.

- 1.10 ETSI EN 301 908-11 – Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 11: Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD and E-UTRA FDD) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive.
- 1.11 Note 1 - These references are included for information purposes only. Compliance with referenced standards is not mandatory.
- 1.12 Note 2 - Documents listed above are not produced by Ofcom, therefore interested parties should source the documentation by their own means. For information:
- The ITU website is located at <http://www.itu.int>
 - The ETSI website for technical standard documentation is located at <http://www.etsi.org>
- 1.13 Note 3 - Ofcom is not responsible for the content of external internet sites.

Section 2

Foreword

- 2.1 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 third generation mobile in the specified frequency bands.
- 2.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 1999/5/EC.
- 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 1999/5/EC.
- 2.4 The requirements given in the main body of this UK Radio Interface Requirement will apply to the licensing of third generation mobile.
- 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 third generation mobile.
- 2.6 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 web-site at http://www.ofcom.org.uk/radiocomms/ifi/tech/interface_req/.
- 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 third generation mobile. It does not prescribe technical interpretation of the 'essential requirements' of Directive 1999/5/EC.
- 3.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the licensing or licence exemption of third generation mobile in the UK. Tables 3.1 to 3.4 contain the relevant equipment parameters. These taken together with the 'essential requirements' detailed in Article 3.2 of Directive 1999/5/EC constitute the minimum requirements for third generation mobile 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 1999/5/EC.
- 3.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the third generation mobile 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 third generation mobile spectrum by making clear the assumptions that are made in planning the use of the third generation mobile 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 3.1: Minimum requirements for the use of: - third generation mobile (mobile stations) operating in the 1899.9 to 1920 MHz band

Mandatory (1-10)		
1	Frequency band(s)	1899.9 to 1920 MHz
2	Radiocommunication Service	Mobile Service
3	Application	IMT
4	Channelling	200 kHz channel raster
5	Modulation / Occupied bandwidth	QPSK 8-PSK 16QAM
6	Direction / Separation	Time-division duplex (TDD)
7	Maximum Transmit Power / Power Density	24 dBm Power class 2 21 dBm Power class 3
8	Channel access and occupation rules	CDMA/TDMA
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
10	Additional essential requirements	
Informative (11-13)		
11	Frequency planning assumptions	ETSI TS 125 102
12	Planned changes	
13	Reference	
14	Notification	2010/165/UK
15	Remarks	

Table 3.2: Minimum requirements for the use of: - third generation mobile (base stations) operating in the 1899.9 to 1920 MHz band

Mandatory (1-10)		
1	Frequency band(s)	1899.9 to 1920 MHz
2	Radiocommunication Service	Mobile Service
3	Application	IMT
4	Channelling	200 kHz channel raster
5	Modulation / Occupied bandwidth	QPSK 8-PSK 16QAM 64QAM
6	Direction / Separation	Time-division duplex (TDD)
7	Maximum Transmit Power / Power Density	62 dBm EIRP 58 dBm/MHz EIRP
8	Channel access and occupation rules	CDMA/TDMA
9	Authorisation regime	WT Act licence
10	Additional essential requirements	
Informative (11-13)		
11	Frequency planning assumptions	ETSI TS 125 105
12	Planned changes	
13	Reference	
14	Notification	2010/165/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

Table 3.3: Minimum requirements for the use of: - third generation mobile (mobile stations and repeaters) operating in the 880.1 to 914.9 MHz, 1710.1 to 1785 MHz or 1920 to 1980 MHz bands

Mandatory (1-10)										
1	Frequency band(s)	880.1 to 914.9 MHz 1710.1 to 1785 MHz 1920 to 1980 MHz								
2	Radiocommunication Service	Mobile Service								
3	Application	IMT								
4	Channelling	200 kHz channel raster								
5	Modulation / Occupied bandwidth	QPSK 16QAM								
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> <tr> <td>1920 to 1980 MHz</td> <td>190 MHz</td> </tr> </tbody> </table>	Frequency band	Separation	880.1 to 914.9 MHz	45 MHz	1710.1 to 1785 MHz	95 MHz	1920 to 1980 MHz	190 MHz
Frequency band	Separation									
880.1 to 914.9 MHz	45 MHz									
1710.1 to 1785 MHz	95 MHz									
1920 to 1980 MHz	190 MHz									
7	Maximum Transmit Power / Power Density	24 dBm Power class 3 23 dBm Power class 3bis 21 dBm Power class 4								
8	Channel access and occupation rules	CDMA								
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 125 101 ETSI TS 125 106								
12	Planned changes									
13	Reference									
14	Notification	2010/165/UK								
15	Remarks									

Table 3.4: Minimum requirements for the use of: - third generation mobile (base stations and repeaters) operating in the 925.1 to 959.9 MHz, 1805.1 to 1880 MHz or 2110 to 2170 MHz bands

Mandatory (1-10)										
1	Frequency band(s)	925.1 to 959.9 MHz 1805.1 to 1880 MHz 2110 to 2170 MHz								
2	Radiocommunication Service	Mobile Service								
3	Application	IMT								
4	Channelling	200 kHz channel raster								
5	Modulation / Occupied bandwidth	QPSK 16QAM 64QAM								
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> <tr> <td>2110 to 2170 MHz</td> <td>190 MHz</td> </tr> </tbody> </table>	Frequency band	Separation	925.1 to 959.9 MHz	45 MHz	1805.1 to 1880 MHz	95 MHz	2110 to 2170 MHz	190 MHz
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Frequency band	Maximum Transmit Power									
925.1 to 959.9 MHz	62 dBm EIRP									
1805.1 to 1880 MHz	62 dBm EIRP									
2110 to 2170 MHz	62 dBm EIRP 58 dBm/MHz EIRP									
8	Channel access and occupation rules	CDMA								
9	Authorisation regime	WT Act licence								
10	Additional essential requirements									
Informative (11-13)										
11	Frequency planning assumptions	ETSI TS 125 104 ETSI TS 125 106								
12	Planned changes									
13	Reference									
14	Notification	2010/165/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	21 May 2001	Publication
1.1	20 Jun 2005	Rebranding to Ofcom format
2.0	12 Mar 2010	Addition of 900 MHz and 1800 MHz bands; reformat to TCAM template.