

**COMMISSION IMPLEMENTING DECISION (EU) 2018/637****of 20 April 2018****amending Decision 2009/766/EC on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community as regards relevant technical conditions for the Internet of Things***(notified under document C(2018) 2261)***(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision) <sup>(1)</sup>, and in particular Article 4(3) thereof,

Whereas:

- (1) The efficient use of the 900 MHz and 1 800 MHz bands has been reviewed by the Member States with a view to covering additional technologies while ensuring technical compatibility with the GSM system and other wireless broadband systems by appropriate means in accordance with Council Directive 87/372/EEC <sup>(2)</sup>.
- (2) The Internet of Things (IoT) generally refers to the interconnection via the internet of devices embedded in everyday objects, which enable these objects to exchange data. Wireless IoT may also be realised through electronic communications services based on cellular technologies, which normally make use of licensed spectrum. Wireless IoT applications serve a wide range of industrial sectors such as energy or automotive and rely on spectrum availability.
- (3) In its Spectrum Roadmap for IoT <sup>(3)</sup>, the Radio Spectrum Policy Group (RSPG) set up by Commission Decision 2002/622/EC <sup>(4)</sup>, takes the view that frequency bands designated for electronic communications services (mobile networks) may be used for emerging IoT applications and services. Union-harmonised frequency bands used for the provision of terrestrial wireless broadband electronic communications services by mobile networks may therefore be an important resource for wireless IoT. The RSPG concluded that, in line with the principle of technology neutrality, the harmonised technical conditions for the use of these bands should take into account wireless IoT requirements.
- (4) On 14 July 2017, the Commission issued under Article 4(2) of the Radio Spectrum Decision a mandate to the European Conference of Postal and Telecommunications Administrations (CEPT), a mandate to review the harmonised technical conditions for use of the 900 MHz and 1 800 MHz bands for terrestrial wireless broadband electronic communications services to also allow their use by the Internet of Things. This mandate noted in particular that, in accordance with Report 266 of the CEPT's Electronic Communications Committee, there is no need to modify the technical conditions based on the frequency division duplex mode and least restrictive technical conditions (block edge masks) in any other Union-harmonised frequency band in order to allow for IoT use.
- (5) Based on this mandate, on 13 March 2018 the CEPT presented its Report 66 (the CEPT Report) to the Commission, which identified the following wireless IoT technologies in relation to mobile broadband (i.e. cellular) communications systems, which have been recently specified by the European Telecommunications Standards Institute (ETSI) <sup>(5)</sup>: Extended Coverage GSM IoT (EC-GSM-IoT), LTE Machine Type Communications (LTE-MTC),

<sup>(1)</sup> OJ L 108, 24.4.2002, p. 1.

<sup>(2)</sup> Council Directive 87/372/EEC of 25 June 1987 on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community (OJ L 196, 17.7.1987, p. 85).

<sup>(3)</sup> Document RSPG17-006 final of 9 November 2016.

<sup>(4)</sup> Commission Decision 2002/622/EC of 26 July 2002 establishing a Radio Spectrum Policy Group (OJ L 198, 27.7.2002, p. 49).

<sup>(5)</sup> Corresponding to standards up to and including 3GPP Release 13.

LTE evolved Machine Type Communications (LTE-eMTC), and Narrowband IoT (NB-IoT). The CEPT Report does not identify relevant wireless IoT technologies related to UMTS systems.

- (6) The aforementioned cellular IoT technologies can be deployed in three modes: (a) independently of the provision of wireless broadband electronic communications services ('standalone'), (b) by pre-empting a portion of the resources within a frequency block used for the provision of wireless broadband electronic communications services ('in-band'), or (c) on the side of a frequency block used for the provision of wireless broadband electronic communications services ('guard-band').
- (7) According to the CEPT Report, EC-GSM-IoT is an integrated part of the GSM system under Directive 87/372/EEC. It inherently has the spectrum characteristics of the GSM system and can be deployed either in-band or standalone. Therefore, EC-GSM-IoT complies with the technical conditions applicable to a GSM system without any need to amend these conditions.
- (8) As regards LTE-MTC and LTE-eMTC, the CEPT Report emphasises that these two technologies only use the in-band deployment mode, whereby the transmitter requirements are equal to or tighter than those of an LTE system. Therefore, both LTE-MTC and LTE-eMTC comply with the technical conditions applicable to an LTE system without any need of amending those conditions.
- (9) As regards NB-IoT, the CEPT Report concludes that the use of all three deployment modes, this is to say, in-band, standalone or guard-band, is possible. It recommends an amendment to the technical conditions for use of the 900 MHz and 1 800 MHz bands regarding the standalone and guard-band deployment modes.
- (10) ETSI has adopted harmonised standards in order to give presumption of conformity with Article 3(2) of Directive 2014/53/EU of the European Parliament and of the Council <sup>(1)</sup> ('the Radio Equipment Directive') in order to include wireless IoT technologies in the three deployment modes.
- (11) The CEPT Report has not identified any unmanageable cross-border coordination issues between the Member States that may result from the introduction of the aforementioned wireless IoT technologies in the 900 MHz and 1 800 MHz frequency bands.
- (12) The results of the work carried out pursuant to the mandate issued to CEPT should be integrated in the Union law as soon as possible given the increasing market demand for wireless IoT applications, provided that cellular IoT use within the 900 MHz and 1 800 MHz frequency bands gives appropriate protection to existing systems in adjacent bands.
- (13) Commission Decision 2009/766/EC <sup>(2)</sup>, which refers to the types of terrestrial systems which may use the 900 MHz and 1 800 MHz bands, should therefore be amended accordingly.
- (14) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

#### Article 1

Decision 2009/766/EC is amended as follows:

- (1) in Article 2, point (a) is replaced by the following:

'(a) "GSM system" means an electronic communications network as specified by ETSI standards, in particular EN 301 502, EN 301 511, and EN 301 908-18, also including Extended Coverage GSM IoT (EC-GSM-IoT);'

<sup>(1)</sup> Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62).

<sup>(2)</sup> Commission Decision 2009/766/EC of 16 October 2009 on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community (OJ L 274, 20.10.2009, p. 32).

(2) in Article 4, paragraph 1 is replaced by the following:

‘1. The 1 800 MHz band shall be designated and made available for:

(a) GSM systems, with the exception of EC-GSM-IoT, by 9 November 2009;

(b) EC-GSM-IoT by 30 September 2018.’;

(3) the following Article 4a is added:

‘Article 4a

The 900 MHz band shall be designated and made available for EC-GSM-IoT by 30 September 2018.’;

(4) the Annex to Decision 2009/766/EC is replaced by the text in the Annex to this Decision.

*Article 2*

This Decision is addressed to the Member States.

Done at Brussels, 20 April 2018.

*For the Commission*  
Mariya GABRIEL  
*Member of the Commission*

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## ANNEX

## 'ANNEX

**LIST OF TERRESTRIAL SYSTEMS REFERRED TO IN ARTICLE 3 AND ARTICLE 4(2)**

The following technical parameters shall be applied as an essential component of the conditions necessary to ensure coexistence in the absence of bilateral or multilateral agreements between neighbouring networks, without precluding less stringent technical parameters if agreed among the operators of such networks.

Systems	Technical parameters	Implementation deadlines
UMTS, as specified by ETSI Standards, in particular EN 301 908-1, EN 301 908-2, EN 301 908-3 and EN 301 908-11	<ol style="list-style-type: none"> <li>Carrier separation of 5 MHz or more between two neighbouring UMTS networks.</li> <li>Carrier separation of 2,8 MHz or more between a neighbouring UMTS network and a GSM network.</li> </ol>	9 May 2010
LTE <sup>(1)</sup> , as specified by ETSI Standards, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14, EN 301 908-15, and EN 301 908-18	<ol style="list-style-type: none"> <li>A frequency separation of 200 kHz or more between the LTE channel edge and the GSM carrier's channel edge between a neighbouring LTE network and a GSM network.</li> <li>No frequency separation is required between LTE channel edge and the UMTS carrier's channel edge between a neighbouring LTE network and a UMTS network.</li> <li>No frequency separation is required between LTE channel edges between two neighbouring LTE networks.</li> </ol>	31 December 2011, except 30 September 2018 for LTE-MTC and LTE-eMTC
WiMAX, as specified by ETSI Standards, in particular EN 301 908-1, EN 301 908-21 and EN 301 908-22	<ol style="list-style-type: none"> <li>A frequency separation of 200 kHz or more between the WiMAX channel edge and the GSM carrier's channel edge between a neighbouring WiMAX network and a GSM network.</li> <li>No frequency separation is required between the WiMAX channel edge and the UMTS carrier's channel edge between a neighbouring WiMAX network and a UMTS network.</li> <li>No frequency separation is required between WiMAX channel edges between two neighbouring WiMAX networks.</li> </ol>	31 December 2011
Narrowband IoT (NB-IoT) as specified by ETSI standards, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14, EN 301 908-15, and EN 301 908-18	<ol style="list-style-type: none"> <li>Standalone mode: <ul style="list-style-type: none"> <li>A frequency separation of 200 kHz or more between the standalone NB-IoT channel edge of a network and the UMTS/LTE channel edge of the neighbouring network;</li> <li>A frequency separation of 200 kHz or more between the standalone NB-IoT channel edge of a network and the GSM channel edge of the neighbouring network.</li> </ul> </li> <li>In-band mode: the same parameters apply as for LTE.</li> <li>Guard-band mode: a frequency separation of 200 kHz or more, between the NB-IoT channel edge and the edge of the operator's block, taking into account existing guard bands between operators' block edges or the edge of the operating band (adjacent to other services).</li> </ol>	30 September 2018

<sup>(1)</sup> Including LTE Machine Type Communications (LTE-MTC) and LTE evolved Machine Type Communications (LTE-eMTC), which operate under the same technical conditions as LTE.'