CEPT ECC
Electronic Communications Committee

ECC Decision (09)03

Harmonised technical conditions for mobile/fixed communications networks (MFCN) operating in the band 791-862 MHz[1]

approved 30 October 2009

latest corrected 30 October 2026

[1] Comparable technical specifications to those given in this ECC Decision are given in EC Decision 2010/267/EU. EU Member States and, if so approved by the EEA Joint Committee, Iceland, Liechtenstein and Norway are obliged to implement the EC Decision.

EXPLANATORY MEMORANDUM

1 INTRODUCTION

WRC-07 allocated on a primary basis the 790-862 MHz band to the mobile service in Region 1.

This Decision, developed in response to this agreement, contains annexes defining the harmonised frequency arrangement and technical conditions for this band. These annexes are based on studies undertaken by ECC and described in CEPT Report 30 [1] and CEPT Report 31 [2].

ECC has also undertaken studies on cross-border coordination, which are described in CEPT Report 29 [3].

These CEPT Reports were produced in response to a mandate from the European Commission[2], which requested CEPT to carry out investigations to define the technical conditions applicable for the sub-band 790-862 MHz optimised for, but not limited to, mobile/fixed communications networks.

With its update in 2025, this Decision is valid for 791-862 MHz.

2 BACKGROUND

The CEPT has recognised the importance of the availability of common and minimal (least restrictive) technical conditions for the band 791-862 MHz. These technical conditions will provide significant economies of scale and facilitate the introduction of new applications depending on national decisions.

To maintain the required flexibility for administrations regarding the introduction of mobile/fixed communications networks in these bands, block edge masks have been developed.

The following principles have been applied:

1. A harmonised frequency arrangement has been defined to facilitate roaming, cross-border coordination and to achieve economies of scale for equipment;
2. Recognising the advantage of a single harmonised frequency arrangement, the frequency arrangement is based on FDD (full duplex) which has been considered here;
3. Careful consideration has been given to the block sizes for the band plans;
4. The size of the duplex gap has been carefully studied, resulting in a total of 11 MHz.

3 REQUIREMENT FOR AN ECC DECISION

The ECC recognises that implementation of mobile/fixed communications networks in the band 791-862 MHz based on common and minimal (least restrictive) technical conditions and a harmonised frequency arrangement will maximise the opportunities and benefits for end users. Access to the 791-862 MHz band facilitates (together with the 700 MHz and 900 MHz frequency bands) better area coverage for mobile/fixed communications networks in particular in rural areas and allows improved in-building penetration when compared to the use of higher frequencies.

The ECC believes that the continued development of mobile/fixed communications services will be facilitated by a harmonised frequency arrangement across countries wishing to implement mobile/fixed communications networks in the band 791-862 MHz.

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[2] For the text of this Mandate, see CEPT Report 31, annex 1 [2]. This includes a description of the tasks undertaken by CEPT in response to the Mandate.

ECC DECISION OF 30 OCTOBER 2009 ON HARMONISED TECHNICAL CONDITIONS FOR MOBILE/FIXED COMMUNICATIONS NETWORKS (MFCN) OPERATING IN THE BAND 791-862 MHZ (ECC DECISION (09)03), AMENDED 7 NOVEMBER 2025 AND CORRECTED 30 OCTOBER 2026

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that WRC-07 allocated the band 790-862 MHz to the mobile service on a primary basis in the whole of Region 1 and identified this band for IMT (see RR No. 5.317A);

b) that "mobile/fixed communications networks" for the purpose of this Decision includes IMT and other communications networks in the mobile and fixed services;

c) that harmonised frequency arrangements facilitate economies of scale and availability of low-cost equipment;

d) that ECC Decision (15)01 [4] harmonises the frequency band 694-791 MHz for MFCN;

e) that global roaming is facilitated by harmonised frequency arrangements and circulation arrangements for the use of mobile/fixed communications networks terminals;

f) that the block edge mask (BEM) concept has been developed by CEPT to facilitate implementation of spectrum rights of use which are as technology neutral as possible;

g) that, within the duplex gap, radio microphones (e.g. for PMSE) are harmonised in 821.5-832 MHz as per ERC Recommendation 70-03, annex 10 [5];

h) that the preferred block size is 5 MHz, which does not preclude smaller channel bandwidths within a block;

i) that in accordance with RR No. 5.312 the band 645-862 MHz is allocated to the aeronautical radionavigation service on a primary basis in some CEPT countries;

j) that in some CEPT countries the implementation of this Decision is possible after concluding a bilateral agreement concerning the use of stations in the mobile service in one country and stations of other primary services in another country (e.g. stations of aeronautical radionavigation service);

k) that CEPT Report 30 [1] addresses the common and minimal (least restrictive) technical conditions for MFCN in the 790-862 MHz band;

l) that CEPT Report 31 [2] addresses frequency arrangements for the 790-862 MHz band;

m) that in EU/EFTA countries the radio equipment that is under the scope of this Decision shall comply with the RE Directive. Conformity with the essential requirements of the RE Directive may be demonstrated by compliance with the applicable harmonised European standard(s), cited in the Official Journal (OJ) of the European Union, or by using the other conformity assessment procedures set out in the RE Directive;

DECIDES

1. that the frequency band 791-821 MHz / 832-862 MHz is designated to mobile/fixed communications networks;

2. that CEPT administrations wishing to implement mobile/fixed communications networks in that band shall adhere to the harmonised frequency arrangement given in Annex 1;

3. that CEPT administrations implementing mobile/fixed communications networks shall adopt the common and minimal (least restrictive) technical conditions specified in Annex 2;

4. that this Decision enters into force on 30 October 2009;

5. that the preferred date for implementation of this Decision shall be 1 May 2010;

6. that CEPT administrations shall communicate the national measures implementing this Decision to the ECC Chair and the European Communications Office when the Decision is nationally implemented."

Note:

Please check the ECO Documentation Database https://docdb.cept.org/ for the up to date position on the implementation of this and other ECC Decisions.

ANNEX 1: HARMONISED FREQUENCY ARRANGEMENT

The harmonised frequency arrangement is 2 x 30 MHz with a duplex gap of 11 MHz, based on a block size of 5 MHz, paired and with reverse duplex direction. The FDD downlink starts at 791 MHz and FDD uplink starts at 832 MHz.

791-796	796-801	801-806	806-811	811-816	816-821	821-832	832-837	837-842	842-847	847-852	852-857	857-862
Downlink						**Duplex gap**	**Uplink**					
30 MHz (6 blocks of 5 MHz)						**11 MHz**	**30 MHz (6 blocks of 5 MHz)**					

ANNEX 2: TECHNICAL CONDITIONS BASED ON BEM APPROACH

The technical conditions presented in this annex are in the form of a block-edge mask (BEM) as derived in CEPT Report 30 [1]. BEM is related to spectrum licensing and the avoidance of interference between users of spectrum.

A BEM is an emission mask that is defined, as a function of frequency, relative to the edge of a block of spectrum that is licensed to an operator. It consists of in-block and out-of-block components which specify the permitted emission levels over frequencies inside and outside the licensed block of spectrum respectively. The out-of-block component of the BEM itself consists of a baseline level and, where applicable, intermediate (transition) levels which describe the transition from the in-block level to the baseline level as a function of frequency.

Accordingly, the BEM levels are built up by combining the values listed in the tables below in such a way that the limit at any frequency is given by the highest (least stringent) value of a) the baseline requirements, b) the transition requirements, and c) the in-block requirements (where appropriate).

The BEM in the 791-862 MHz band is optimised for FDD mobile/fixed communications networks. The least restrictive conditions given in this annex apply to the harmonised frequency arrangement as described in Annex 1.

The BEM has been derived to allow coexistence between applications in the 791-862 MHz band and other applications in adjacent bands but in the same geographical area. The derived BEM does not take account of coexistence with aeronautical radio navigation systems (ARNS) operating in some CEPT countries (RR No. 5.312). Therefore, the BEM has to be associated with other requirements in such instances. This can be done at a national level or with cross-border coordination developed by bilateral or multilateral agreements.

BEM shall be applied as an essential component of the technical conditions necessary to ensure coexistence between services at a national level. However, it should be understood that the derived BEM does not always provide the required level of protection of victim services and additional mitigation techniques would need to be applied in order to resolve any remaining cases of interference.

Operators of mobile/fixed communications networks (MFCN) in the 791-862 MHz band may agree, on a bilateral or multilateral basis, less stringent technical parameters providing that they continue to comply with the technical conditions applicable for the protection of other services, applications or networks and with their cross-border obligations. Administrations should ensure that these less stringent technical parameters can be used, if agreed among all affected parties.

The BEM is presented as upper limits on the mean *e.i.r.p.* or TRP (total radiated power) over an averaging time interval, and over a measurement frequency bandwidth. In the time domain, the *e.i.r.p.* or TRP is averaged over the active portions of signal bursts and corresponds to a single power control setting. In the frequency domain, the *e.i.r.p.* or TRP is determined over the measurement bandwidth (e.g. MFCN block) specified in the following tables. It should be noted that the actual measurement bandwidth of the measurement equipment used for purposes of compliance testing may be smaller than the measurement bandwidth provided in the tables. For requirements with a measurement bandwidth of 5 MHz, the measurement bandwidth is aligned within a block.

TRP is a measure of how much power the antenna actually radiates. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere. For an isotropic antenna radiation pattern, *e.i.r.p.* and TRP are equivalent. For a directional antenna radiation pattern, *e.i.r.p.* in the direction of the main beam is (by definition) greater than the TRP.

In general, and unless stated otherwise, the BEM levels correspond to the power radiated by the relevant device irrespective of the number of transmit antennas, except for the case of MFCN base station transition requirements which are specified per antenna.

The term *block edge* refers to the frequency boundary of spectrum licensed to a mobile/fixed communication network. The term *band edge* refers to the boundary of a range of frequencies allocated for a certain use.

A2.1 TECHNICAL CONDITIONS FOR FDD BASE STATIONS

An administration may choose to specify an in-block *e.i.r.p.* limit for base stations. Such limit may range from 56 dBm/5 MHz to 64 dBm/5 MHz based on compatibility studies and deployment requirements in this band. It should be noted that administrations may consider authorising higher in-block *e.i.r.p.* in specific circumstances, e.g. in rural deployments.

Table 1 and Table 2 define the out-of-block BEM requirements for base stations within the spectrum allocated to mobile/fixed communications networks (MFCN).

Table 1: Baseline requirements – BS BEM out-of-block *e.i.r.p.* limits

Frequency range of out-of-block emissions	Maximum mean out-of-block *e.i.r.p.*	Measurement bandwidth
Frequencies allocated to FDD uplink	-49.5 dBm	5 MHz

Table 2: Transition requirements – BS BEM out-of-block *e.i.r.p.* limits per antenna[3] over frequencies of FDD downlink

Frequency range of out-of-block emissions	Maximum mean out-of-block *e.i.r.p.*	Measurement bandwidth
-10 to -5 MHz from lower block edge	18 dBm	5 MHz
-5 to 0 MHz from lower block edge	22 dBm	5 MHz
0 to +5 MHz from upper block edge	22 dBm	5 MHz
+5 to +10 MHz from upper block edge	18 dBm	5 MHz
Remaining FDD downlink frequencies	11 dBm	1 MHz

The spurious domain in this Decision for a base station starts 10 MHz from the band edge and the corresponding spurious emission limits are defined in ERC Recommendation 74-01 [6]. For MFCN base stations capable of multi-band operation, where multiple bands are mapped on the same antenna connector, the spurious emission requirement does not apply in the frequency range(s) between 10 MHz below the lower band edge and 10 MHz above the upper band edge of each supported band by the base station (see Figure 1).

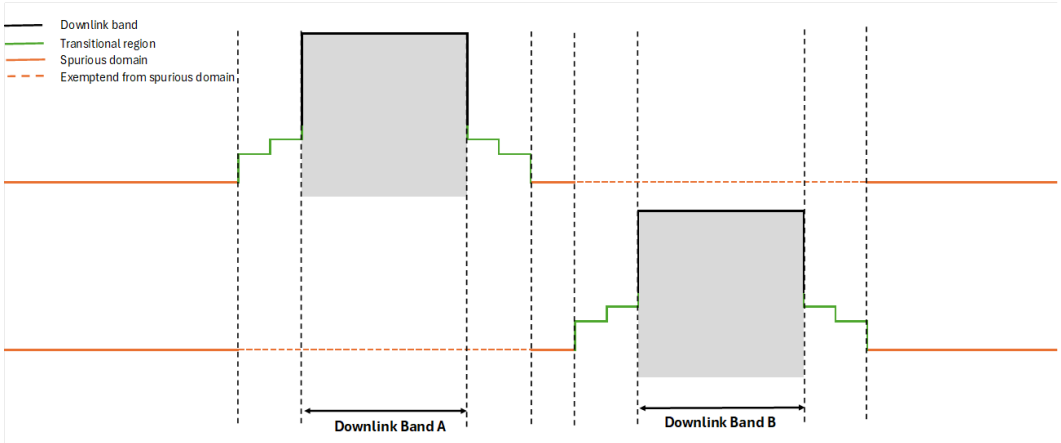


Figure 1 Scenario where multiple bands are mapped on the same antenna connector

[3] For one to four antennas.

A2.2 TECHNICAL CONDITIONS FOR FDD TERMINAL STATIONS

In Table 3, the power limit is specified as *e.i.r.p.* for TS designed to be fixed or installed and as TRP for the TS designed to be mobile or nomadic. Note that *e.i.r.p.* and TRP are equivalent for isotropic antennas.

A2.2.1 In-block requirements for all terminal stations

Table 3 defines the maximum value of the in-block emission level for FDD terminal stations (TS). Administrations may relax this limit in certain situations, for example fixed TS in rural areas, providing that protection of other services, networks and applications is not compromised and cross-border obligations are fulfilled.

Table 3 FDD TS in-block emission limit

Maximum mean in-block power	23 dBm[4]

[4] It is recognised that this value is subject to a tolerance of up to +2 dB, to take account of operation under extreme environmental conditions and production spread.

ANNEX 3: LIST OF REFERENCES

[1] CEPT Report 30: “Report from CEPT to the European Commission in response to the Mandate on the identification of common and minimal (least restrictive) technical conditions for 790 - 862 MHz for the digital dividend in the European Union”, approved October 2009

[2] CEPT Report 31: “Report from CEPT to the European Commission in response to the Mandate “Frequency (channelling) arrangements for the 790-862 MHz band” (Task 2 of the 2nd Mandate to CEPT on the digital dividend)”, approved October 2009

[3] CEPT Report 29: “Report from CEPT to the European Commission in response to the Mandate on “Technical considerations regarding harmonisation options for the digital dividend in the European Union” “Guideline on cross border coordination issues between mobile services in one country and broadcasting services in another country”, approved June 2009

[4] ECC Decision (15)01: “Harmonised technical conditions for mobile/fixed communications networks (MFCN) in the band 694-790 MHz including a paired frequency arrangement (Frequency Division Duplex 2x30 MHz) and an optional unpaired frequency arrangement (Supplemental Downlink)”, approved March 2015

[5] ERC Recommendation 70-03: “Relating to the use of Short Range Devices (SRD)”, approved October 1997, latest amended February 2025

[6] ERC Recommendation 74-01: “Unwanted Emissions in the Spurious Domain”, approved 1998, latest corrected May 2022