



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 06 March 2015

EXPLANATORY MEMORANDUM

1 INTRODUCTION

WRC-12 decided to allocate the frequency band 694-790 MHz in Region 1 to the mobile, except aeronautical mobile, service on a primary basis and identified this band for IMT. The allocation will be effective immediately after WRC-15 to be held in November 2015.

The 37th meeting of ECC (Aarhus, June 2014) agreed to develop an ECC Decision on harmonised technical conditions for mobile/fixed communications networks (MFCN) in the 700 MHz (694-790 MHz), on the basis of the CEPT Report 53 [2], noting that this Decision would not be designating this band for MFCN. This CEPT Report was produced in response to a mandate from the European Commission, and includes the MFCN frequency arrangement and technical conditions for this band.

2 BACKGROUND

The CEPT recognised the importance of a harmonised frequency arrangement for MFCN and the need of common and minimal least restrictive technical conditions (LRTC) for MFCN in the band 694-790 MHz.

The following principles have been considered to define the MFCN frequency arrangement:

- Facilitation of roaming and border coordination to achieve global economies of scale for equipment;
- Use of a 5 MHz block approach which is in line with the foreseen mobile systems to be used in the 700 MHz;
- Protection of broadcasting below 694 MHz: an unwanted emission limit for terminal equipment of -42 dBm/8 MHz (assuming an MFCN channel of 10 MHz or less and a 9 MHz guard band) has been defined;
- Spectrum efficiency and high level of flexibility in order to adapt to national circumstances as well as to meet the changing need and demand for capacity in time and geography;
- No Digital Terrestrial Television (DTT) usage was assumed in the 694-790 MHz frequency band.

Maximum inter-regional harmonisation is achieved by basing the channelling arrangement on the lower duplexer of the APT 700 MHz band plan, as developed in the Asia Pacific Telecommunity and adopted in many parts of the world. In that way, the harmonisation of the CEPT frequency arrangement for the 694-790 MHz band with the lower duplexer (uplink in 703-733 MHz and downlink in 758-788 MHz) of the APT band plan for 700 MHz will provide economies of scale.

In consequence, CEPT has identified a channelling arrangement for MFCN including FDD (2 x 30 MHz, uplink in 703-733 MHz and downlink in 758-788 MHz). In addition the channelling arrangement allows flexibility to administrations to choose different options for the use of the duplex gap and the guard bands to respond to various national demands. An approach of “zero or up to four block(s) of 5 MHz” Supplemental Downlink (SDL) in 738-758 MHz leaves flexibility to administrations for the use of the duplex gap and the guard bands¹ to respond to various national demands.

When defining LRTC, 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.

Moreover careful consideration has been given to the protection of broadcasting service in the 470-694 MHz band.

¹ 788-791 MHz is a guard band including 1 MHz outside the band 694-790 MHz, i.e. spectrum between the upper edge of MFCN downlink in the 700 MHz band and the lower edge of MFCN downlink in the 800 MHz band.

CEPT took into account the need of unwanted emission limit to be respected by terminal equipment that would satisfy the following criteria:

- manage the risk of interference between mobile use and the broadcasting service below 694 MHz;
- be technically feasible for practical implementation of IMT terminals; and
- achieve global harmonisation of mobile terminals.

Based on results of studies and taking into account the above criteria, CEPT agreed on an unwanted emission limit. CEPT noted that manufacturers have indicated that they are able to develop and manufacture terminals for the agreed CEPT unwanted emission limit in a common implementation with current 3GPP band 28. This unwanted emission limit has already been included in technical specification for mobile terminals 3GPP TS 36.101.

CEPT noted that the additional SDL option in the duplex gap may require further standardisation initiatives. The aggregation of the flexible SDL option in 738-758 MHz with an FDD mobile band outside the 700 MHz band may require further study. Various alternative options for other possible usage of the FDD duplex gap (733-758 MHz) and of the guard bands (694-703 MHz and 788-791 MHz) were under study when this ECC Decision was finally approved. The usage conditions for these options are not covered in this decision and will be provided in other CEPT deliverable(s).

The implementation of the 700 MHz frequency arrangement by national administrations will require coordination with any other administration whose broadcasting service and/or other primary terrestrial services are considered to be affected. For broadcasting, the coordination procedure will take into account the framework GE-06 agreement.

3 REQUIREMENT FOR AN ECC DECISION

CEPT recognises that for MFCN to continue to develop successfully, industry stakeholders must be given the confidence and certainty to make the necessary investment. CEPT believes that the continued development of MFCN services will be facilitated by the introduction of harmonised frequency arrangements across CEPT countries wishing to implement MFCN in the band 694-790 MHz. However, CEPT also recognises that administrations need flexibility to adapt their use of the band 694-790 MHz to national circumstances and to others usages.

CEPT recognises that implementation of MFCN in the band 694-790 MHz (FDD 2x30 MHz and SDL on optional basis) based on LRTC and on common frequency arrangements will reduce capital expenditure for operators and cost of manufacturing equipment and will secure future investments by providing economies of scale that promote opportunities and benefits for end users. Access to the 694-790 MHz band will enable mobile broadband operators to improve coverage, capacity and performance, especially in rural areas and for indoor use.

In consequence, this Decision provides administrations with the harmonised channelling arrangement and LRTC for the use of the 700 MHz band by MFCN. This decision does not designate this band for MFCN, hence taking into account the different timing of administrations.

ECC DECISION OF 06 MARCH 2015 ON 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)

“The European Conference of Postal and Telecommunications Administrations,

considering

- a) that WRC-12 allocated the frequency band 694-790 MHz in Region 1 to the mobile, except aeronautical mobile, service on a primary basis and identified the band for IMT and that this allocation will be effective immediately after WRC-15;
- b) that the frequency band 694-790 MHz is also allocated in Region 1 to the broadcasting service on a primary basis and that the GE-06 agreement applies for this band and the bands above and below;
- c) that in accordance with RR 5.312 the band 645-862 MHz is also allocated to the aeronautical radionavigation service on a primary basis in some CEPT countries;
- d) that MFCN for the purpose of this Decision includes IMT and other mobile and fixed communications networks;
- e) that harmonised technical conditions (incl. a harmonised frequency arrangement) will support the implementation of MFCN in this band and facilitate global roaming, economies of scale and availability of low-cost equipment;
- f) that in Recommendation ITU-R M.1036 the 2x30 MHz frequency arrangement (703-733 / 758-788 MHz) is part of the channelling arrangement A5 and contained in 3GPP specifications as part of operating band 28;
- g) that harmonisation of the CEPT frequency arrangements in accordance with the the lower duplexer of the A5 band plan will achieve maximum inter-regional harmonisation and thus provide economies of scale;
- h) that differences in the market demand for spectrum for MFCN and different licensing schemes across CEPT countries is likely to lead to different timescales concerning the introduction of MFCN in the band 694-790 MHz;
- i) that some administrations have indicated a wish to implement MFCN in this frequency band in a short time frame while others have not taken such a decision yet;
- j) that coexistence with the 800 MHz band plan (using a reversed duplex arrangement) is achieved by placing the 700 MHz downlink band (using a conventional duplex arrangement) adjacent to the 800 MHz downlink band;
- k) that CEPT Report 53 [2] contains the MFCN frequency arrangement and common and minimal LRTC for the 694-790 MHz band including various options for applications in the FDD duplex gap and the guard bands;
- l) that data traffic over mobile broadband networks is predicted to increase over the coming years with an evolution towards asymmetrical traffic due to mobile multimedia usage which may lead to an increasing demand for downlink capacity which could be addressed by MFCN SDL;
- m) that the use of MFCN in parts of the band 694-790 MHz would not prevent administrations from using also parts of the band for other terrestrial applications to adapt to national circumstances and furthermore some administrations may not make available all the frequencies in the 694-790 MHz band for MFCN because they have already been allocated to other services and applications;

- n) that as an alternative to the optional unpaired frequency arrangement (SDL) administrations could choose other options such as Programme Making and Special Events (PMSE), Public Protection and Disaster Relief (PPDR), Machine to Machine (M2M) that could respond to additional demands by using all or part of the duplex gap of the paired band plan (733-758 MHz) and, if appropriate, the guard bands;
- o) that the options listed in considering n) are also being studied in CEPT for usage in the FDD duplex gap and the guard bands of the MFCN paired frequency arrangement. The relevant technical conditions for these options are not covered by this ECC Decision and are expected to be subject to additional ECC deliverable(s);
- p) 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;
- q) that the protection of the broadcasting service below 694 MHz from MFCN implies a guard band of 9 MHz above 694 MHz;
- r) that the protection of the broadcasting service from MFCN terminals also requires the implementation of unwanted emission limits below 694 MHz;
- s) that for the protection of the broadcasting service below 694 MHz additional measures may need to be applied by administrations at the national level to manage possible interference as a result of nearby MFCN base stations, taking into account the experience of the 800 MHz band;
- t) that interference from broadcasting transmitters to MFCN BS receivers either due to transmitter in band power or unwanted emissions may arise, and that in such cases, appropriate mitigation techniques can be applied by mobile operators on a case-by-case basis at national level;
- u) that administrations wishing to deploy MFCN will have to fulfil cross-border coordination obligations, taking into account the GE-06 Agreement;
- v) that this ECC Decision should retain flexibility to administrations to determine at a national level the use of this frequency band;
- w) that a preferred block size of 5 MHz does not preclude the option of smaller channel bandwidths within a block;
- x) that in EU/EFTA countries the radio equipment that is under the scope of this Decision shall comply with the R&TTE Directive. Conformity with the essential requirements of the R&TTE Directive may be demonstrated by compliance with the applicable harmonised European standard(s) or by using the other conformity assessment procedures set out in the R&TTE Directive.

DECIDES

1. that administrations wishing to introduce Mobile Fixed Communication Networks (MFCN) in the band 694-790 MHz shall apply the frequency arrangement and technical conditions according to decides 2 to 4;
2. that, as part of the harmonised technical conditions, the MFCN frequency arrangement in the band 694-790 MHz includes a paired frequency arrangement (FDD 2x30 MHz) and an optional unpaired frequency arrangement (SDL) as provided in Annex 1;
3. that, in order to address national needs:
 - a) the MFCN frequency arrangement contains an optional element to allow administrations to implement zero or up to four block(s) of 5 MHz for SDL;
 - b) the optional element within the MFCN frequency arrangement provides flexibility for administrations to choose between different options, including 'non MFCN' options such as PPDR, PMSE, M2M, for the use of the duplex gap of the MFCN FDD 2x 30 MHz.

4. that the LRTC to be applied to the MFCN frequency arrangement are specified in Annex 2;
5. that this Decision does not preclude the use of the band by other services to which the band is allocated;
6. that this Decision **enters into force** on 6 March 2015;
7. that CEPT administrations shall communicate the **national measures** implementing this Decision to the ECC Chairman and the Office when the Decision is nationally implemented.”

Note:

Please check the Office documentation database <http://www.ecodocdb.dk> for the up to date position on the implementation of this and other ECC Decisions.

ANNEX 1: HARMONISED FREQUENCY ARRANGEMENT FOR MFCN (FDD AND OPTION FOR SDL)

The frequency arrangement shall be as follows:

- The block sizes shall be in multiples of 5 MHz, which does not preclude smaller channel bandwidths within a block;
- A paired frequency arrangement (FDD);
 - terminal station transmitter: 703-733 MHz;
 - base station transmitter: 758-788 MHz;
- An unpaired frequency arrangement (SDL) on optional basis;
 - SDL using 'zero or up to four' of the following frequency blocks: 738-743 MHz, 743-748 MHz, 748-753 MHz and 753-758 MHz. The decision on the number of contiguous blocks would be taken at national level. This approach ensures flexibility for combination with other options identified by CEPT in considering n).

694-703	703-708	708-713	713-718	718-723	723-728	728-733	733-738	738-743	743-748	748-753	753-758	758-763	763-768	768-773	773-778	778-783	783-788	788-791
Guard band	Uplink						Gap	SDL (A)				Downlink				Guard band		
9 MHz	30 MHz (6 blocks of 5 MHz)						5 MHz	20 MHz (zero up to 4 blocks of 5 MHz)				30 MHz (6 blocks of 5 MHz)				3 MHz		

(A) SDL Option: "The zero or up to 4 blocks of 5 MHz approach" provides flexibility for combination with other options being considered in CEPT (see considering n).

ANNEX 2: LEAST RESTRICTIVE TECHNICAL CONDITIONS (LRTC) FOR THE MFCN FREQUENCY ARRANGEMENT

The technical conditions presented in this annex are in the form of block-edge masks (BEMs). BEMs are 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.

The technical conditions derived below for the frequency range 694-790 MHz are optimised for, but not limited to, fixed/mobile communications networks (two-way). Therefore, they are derived both for base stations (BS) and terminal stations (TS). The BEMs have been developed to ensure coexistence with other MFCN blocks (including the option for SDL), as well as other services and applications in the band and in adjacent bands. Additional measures may be required at a national level to achieve coexistence with other services and applications using the guard bands or the duplex gap.

In the derivation of the BEM elements for protection of PPDR and M2M frequency blocks, it has been assumed that the same protection requirements as for MFCN should be applied. These requirements are applicable when PPDR and M2M options are implemented in the guard bands or the duplex gap at a national level. Those options for PPDR and M2M are being studied in CEPT. For PPDR, it is assumed that the bandwidth used is either 3 MHz or a multiple of 5 MHz. For M2M it is assumed that the bandwidth is between 200 kHz and 3 MHz. BEM requirements for TSs and BSs to protect broadcasting below 694 MHz are also sufficient for the protection of PMSE operating below 694 MHz.

A2.1 BASE STATION

The MFCN Base Station (BS) BEM consists of several elements. The in-block power limit is applied to a block licensed to an operator. The out-of-block elements consist of a baseline level, designed to protect the spectrum of other MFCN operators as well as adjacent services, and transitional levels enabling filter roll-off from in-block to baseline levels. Additionally, elements are provided for guard bands between MFCN and other services and between the MFCN uplink (UL) and downlink (DL). The BEM is based on minimum coupling loss (MCL) analysis and simulations.

Table 1 contains the different elements of the BS BEM, and Tables 2 to 8 contain the power limits for the different BEM elements.

To obtain a BS BEM for a specific block in the paired FDD or the optional unpaired spectrum, the BEM elements that are defined in Table 1 are used as follows:

- In-block power limit is used for the block assigned to the operator.
- Transitional regions are determined, and corresponding power limits are used. The transitional regions may overlap with guard bands and adjacent bands, in which case transitional power limits are used. Transitional requirements do not apply in spectrum used by MFCN, PPDR or M2M UL.
- For remaining spectrum assigned to MFCN UL and DL (including SDL spectrum, if applicable), for DTT spectrum below 694 MHz, for spectrum used for MFCN above 790 MHz or used for PPDR or M2M UL or DL, baseline power limits are used.
- For remaining guard band spectrum (i.e. not covered by transitional regions or used by PPDR or M2M) guard band power limits are used.
- For spectrum between 733 and 758 MHz not used by MFCN (including SDL), PPDR or M2M, FDD duplex gap requirements apply.

Operators of mobile/fixed communications networks (MFCN) in the 694-790 MHz band may agree, on a bilateral or multilateral basis, less stringent technical parameters provided 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.

Table 1: MFCN BS BEM elements

In-block	Block for which the BEM is derived.
Baseline	Spectrum used for MFCN UL and DL (including SDL, if applicable), for DTT, for MFCN above 790 MHz (UL and DL), for PPDR or M2M UL or DL
Transitional region	The transitional region applies from 0 to 10 MHz below and above the block assigned to the operator, except from in the uplink region of MFCN (703-733 MHz), PPDR or M2M.
Guard bands	<ul style="list-style-type: none"> - Spectrum between the DTT allocation below 694 MHz and the lower edge of the MFCN uplink (694-703 MHz); - Spectrum between the upper edge of MFCN downlink below 788 MHz and the lower edge of MFCN downlink above 790 MHz (if applicable) (788-791 MHz). In case of overlap between transitional regions and guard bands, transitional power limits are used. When spectrum is used by PPDR or M2M baseline or transitional power limits are used.
Duplex Gap	Spectrum in the FDD duplex gap which is not used by SDL, PPDR or M2M. In case of overlap between transitional regions and the part of the FDD duplex gap not used by SDL, PPDR or M2M, transitional power limits are used.

Table 2: MFCN BS in-block power limit

Frequency range	Maximum mean e.i.r.p.	Measurement Bandwidth
Block assigned to the operator	Not mandatory. In case an upper bound is desired by an administration, a value of 64 dBm/5 MHz per antenna may be applied.	5 MHz

Table 3: MFCN BS baseline requirements

Frequency range	Bandwidth of protected block	Maximum mean e.i.r.p.	Measurement bandwidth
Uplink frequencies in the range 698-743 MHz ⁽²⁾	≥ 5 MHz	-50 dBm per cell ⁽¹⁾	5 MHz
	3 MHz	-52 dBm per cell ⁽¹⁾	3 MHz ⁽²⁾
	≤ 3 MHz	-64 dBm per cell ⁽¹⁾	200 kHz ⁽²⁾
Uplink frequencies in the range 832-862 MHz	≥ 5 MHz	-49 dBm per cell ⁽¹⁾	5 MHz
Downlink frequencies in the range 738-791 MHz	≥ 5 MHz	16 dBm per antenna	5 MHz
	3 MHz	14 dBm per antenna	3 MHz
	< 3 MHz	2 dBm per antenna	200 kHz
Downlink frequencies in the range 791-821 MHz	≥ 5 MHz	16 dBm per antenna	5 MHz

⁽¹⁾ In a multi sector site "cell" refers to one of the sectors.

⁽²⁾ Administrations may select a measurement bandwidth of 3 MHz or 200 kHz for protection of block size 3 MHz depending on national options implemented.

Table 4: MFCN BS transition requirements in the range 733-788 MHz

Frequency range	Maximum mean e.i.r.p.	Measurement bandwidth
-10 to -5 MHz from lower block edge	18 dBm per antenna	5 MHz
-5 to 0 MHz from lower block edge	22 dBm per antenna	5 MHz
0 to +5 MHz from upper block edge	22 dBm per antenna	5 MHz
+5 to +10 MHz from upper block edge	18 dBm per antenna	5 MHz

Table 5: MFCN BS transition requirements above 788 MHz

Frequency range	Maximum mean e.i.r.p.	Measurement bandwidth
791-796 MHz for block with upper edge at 788 MHz	19 dBm per antenna	5 MHz
791-796 MHz for block with upper edge at 783 MHz	17 dBm per antenna	5 MHz
796-801 MHz for block with upper edge at 788 MHz	17 dBm per antenna	5 MHz
788-791 MHz for block with upper edge at 788 MHz	21 dBm per antenna	3 MHz
788-791 MHz for block with upper edge at 783 MHz	16 dBm per antenna	3 MHz
788-791 MHz for block with upper edge at 788 MHz for protection of systems with bandwidth < 3 MHz	11 dBm per antenna	200 kHz
788-791 MHz for block with upper edge at 783 MHz for protection of systems with bandwidth < 3 MHz	4 dBm per antenna	200 kHz

Table 6: MFCN BS Requirements for the part of the FDD duplex gap not used by SDL, PPDR or M2M

Frequency range	Maximum mean e.i.r.p.	Measurement bandwidth
-10 to 0 MHz offset from DL lower band edge or lower edge of the lowest SDL block, but above uplink upper band edge	16 dBm per antenna	5 MHz
More than 10 MHz offset from DL lower band edge or lower edge of the lowest SDL block, but above uplink upper band edge	-4 dBm per antenna	5 MHz

Table 7: MFCN BS Requirements for spectrum in guard bands not used by PPDR or M2M

Frequency range	Maximum mean out-of-block e.i.r.p.	Measurement bandwidth
Spectrum between broadcasting band edge and FDD uplink lower band edge (694-703 MHz)	-32 dBm per cell ⁽¹⁾	1 MHz
Spectrum between downlink upper band edge and downlink of 800 MHz MFCN (788-791 MHz)	14 dBm per antenna	3 MHz

⁽¹⁾ In a multi sector site "cell" refers to one of the sectors.

Table 8: MFCN BS Baseline requirements for DTT spectrum

Frequency range	Maximum mean e.i.r.p.	Measurement bandwidth
For DTT frequencies below 694 MHz where broadcasting is protected	-23 dBm per cell ⁽¹⁾	8 MHz

⁽²⁾ In a multi sector site "cell" refers to one of the sectors.

A2.2 TERMINAL STATION

The terminal station (TS) BEM consists of an in-block level, elements for the spectrum between the MFCN UL and DL -(including SDL, if applicable), requirements for the guard band between DTT and the MFCN UL, and a baseline level for DTT spectrum, see Table 9: through Table 12:. Further requirements will have to be taken into account by ETSI in the harmonised standards, which may require close cooperation between ETSI, CEPT and Standard Developing Organisations.

The power limits are specified as e.i.r.p. for terminal stations designed to be fixed or installed and as total radiated power (TRP) for terminal stations designed to be mobile or nomadic².

Administrations may relax the in-block power limit in certain situations, for example fixed TS in rural areas, provided that protection of other services, networks and applications is not compromised and cross-border obligations are fulfilled.

Table 9: TS in-block emission limit

Maximum mean in-block power
23 dBm

Note: 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.

Table 10: TS Requirements for guard band (694-703 MHz)

Frequency range of out-of-block emissions	Maximum mean out-of-block e.i.r.p.	Measurement bandwidth
694 – 698 MHz	-7 dBm	4 MHz
698 - 703 MHz	2 dBm	5 MHz

² 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.

Table 11: TS requirements for duplex gap (733-758 MHz)

Frequency range of out-of-block emissions	Maximum mean out-of-block e.i.r.p.	Measurement bandwidth
733-738 MHz	2 dBm	5 MHz
738 – 753 MHz (not applicable for blocks used by SDL)	-6 dBm	5 MHz
753 – 758 MHz (not applicable for blocks used by SDL)	-18 dBm	5 MHz

Table 12: Unwanted emissions requirements for TS over frequencies occupied by broadcasting

Frequency range of unwanted emissions	Maximum mean unwanted emission power (see Notes)	Measurement Bandwidth
470-694 MHz	-42 dBm	8 MHz

Note 1: Unwanted emission limit was based on broadcasting using DVB-T2 and derived for an MFCN system with a bandwidth of 10 MHz for a DTT-MFCN centre frequency separation of 18 MHz (assuming an 8 MHz TV channel, 9 MHz guard band and a 10 MHz MFCN bandwidth).

If administrations wish to allow the deployment of MFCN on a national basis with a bandwidth greater than 10 MHz and in case an out-of-band power higher than -42 dBm/8MHz is generated in the band below 694 MHz, they should consider:

either implementing the greater MFCN bandwidth starting at a frequency higher than 703 MHz so that the required limit of out-of-band power is still met;

and/or applying mitigation techniques (see Note 3).

Note 2: This value has been derived with regard to fixed DTT reception. Administrations who wish to consider portable-indoor DTT reception may need, on a case-by-case basis, to implement further measures at a national/local level (see Note 3).

Note 3: Examples of potential mitigation techniques which may be considered by administrations include using additional DTT filtering, reducing the in-block power of the TS, reducing the bandwidth of the TS transmissions, or using techniques contained in the non-exhaustive list of potential mitigation techniques given in CEPT Report 30 [1].

ANNEX 3: LIST OF REFERENCES

This annex contains the list of relevant reference documents.

- [1] CEPT Report 30: The identification of common and minimal (least restrictive) technical conditions for 790 - 862 MHz for the digital dividend in the European Union
- [2] CEPT Report 53: to develop harmonised technical conditions for the 694 -790 MHz ('700 MHz') frequency band in the EU for the provision of wireless broadband and other uses in support of EU spectrum policy objectives