



ECC Recommendation (21)02

Guidance on the application of the least restrictive technical conditions (LRTC) in ECC Decision (11)06 (amended 26 October 2018) to ensure protection of the military radiolocation systems operating below 3400 MHz from indoor non-AAS small cells operating in the band 3400-3800 MHz

approved 05 November 2021

INTRODUCTION

The technical conditions for Mobile/Fixed Communications Networks (MFCN) operating in the band 3400-3800 MHz are specified in ECC Decision (11)06 [1] and the corresponding EC Decision 2019/235 [2].

Base station additional baseline power limits below 3400 MHz are stated in Table 5 of the ECC Decision (11)06 (extracted below) and reflect the need for protection of the military radiolocation systems that are operating below 3400 MHz in some CEPT countries.

Table 1: Base station additional baseline power limits below 3400 MHz for country specific cases, for non-AAS and AAS base stations (note 1) cases (ECC Decision (11)06 Table 5)

Case	BEM element	Frequency range	Non-AAS e.i.r.p. limit dBm/MHz per antenna	AAS TRP limit dBm/MHz per cell (note 2)
A	Additional baseline	Below 3400 MHz (note 3)	-59 dBm	-52
B	Additional baseline	Below 3400 MHz (note 3)	-50 dBm	
C	Additional baseline	Below 3400 MHz (note 3)	Not applicable	Not applicable

Note 1: Alternative measures may be required on a case by case basis for indoor AAS BSs on a national basis
Note2: In a multi-sector base station, the radiated power limit applies to each one of the individual sectors
Note 3: In cases where CEPT administrations have already implemented a guard band when issuing licences for MFCN before the adoption of this ECC Decision and in accordance with ECC Decision(11)06 (approved 9 December 2011, amended 14 March 2014), these CEPT administrations may apply the additional baseline only below such guard band, provided it complies with the protection of radars in the adjacent band and with cross-border obligations

It is further stated in the ECC Decision (11)06 that:

“Explanatory note to Table 5: The additional baseline power limits given in Table 5 were derived assuming only outdoor cells. Therefore, in the case of an indoor cell, the power limits can be relaxed on a case by case basis.

The additional baseline limit reflects the need for protection for military radiolocation in some countries. CEPT administrations may select the limits from case A or B for non-AAS depending on the level of protection required for the radar in the region in question.

A coordination zone of up to 12 km around fixed terrestrial radars, based on an AAS TRP limit of –52 dBm/MHz per cell, may be required. Such coordination is the responsibility of the relevant administration. Other mitigation measures like geographical separation, in-block power limit or an additional guard band may be necessary.

In case of indoor deployments, administrations may define a relaxed limit applying to specific implementation cases to ensure a more efficient usage of spectrum.”

Considering the growing interest for indoor small cells deployment in the band in Europe, there is a need for clear and harmonised requirements for indoor non-AAS small cells in the band. In particular, there is currently an uncertainty due to the explanatory note to Table 5 of ECC Decision (11)06 (quoted below Table 1) regarding

the required emission limits for indoor small cells to ensure protection of the military radiolocation systems, and the applicability of the additional baseline power limits that are given in the table to the specific case of indoor small cells.

This ECC Recommendation aims at supporting the development of clear and harmonised technical conditions that would enable indoor non-AAS small cell deployments and their positive impact on the use of radio spectrum and on the development of wireless communications in Europe, also noting the benefit of harmonised requirements on the eco-system development.

This ECC Recommendation defines the harmonised relaxation to the additional baseline power limits for non-AAS base stations specified in Case A and Case B of Table 5 of the ECC Decision (11)06. This ECC Recommendation does not override specific regulations made at a national level which, in case of indoor deployments, make use of the flexibility to relax the power limits given in ECC Decision (11)06, and does not impact Case C.

ECC RECOMMENDATION 21(02) OF 05 NOVEMBER 2021 ON THE GUIDANCE ON THE APPLICATION OF THE LEAST RESTRICTIVE TECHNICAL CONDITIONS (LRTC) IN ECC DECISION (11)06 (AMENDED 26 OCTOBER 2018) TO ENSURE PROTECTION OF THE MILITARY RADIOLOCATION SYSTEMS OPERATING BELOW 3400 MHZ FROM INDOOR NON-AAS SMALL CELLS OPERATING IN THE BAND 3400-3800 MHZ

“The European Conference of Postal and Telecommunications Administrations,

considering

- a) that ECC Decision (11)06 [1] provides the harmonised frequency arrangements and least restrictive technical conditions (LRTC) for mobile/fixed communications networks (MFCN) operating in the band 3400-3800 MHz;
- b) that EC Decision 2019/235 [2] is the “Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band” which has been developed on basis of CEPT Report 67 [3];
- c) that both ECC Decision (11)06 and EC Decision 2019/235 are consistent concerning additional baseline power limits below 3400 MHz;
- d) that ECC Report 281 [4] provides analysis of the suitability of the regulatory technical conditions for 5G MFCN operation in the 3400-3800 MHz band;
- e) that CEPT Report 67 provides a response to the EC Mandate to develop harmonised technical conditions for spectrum use in support of the introduction of next-generation (5G) terrestrial wireless systems in the Union and a review of the harmonised technical conditions applicable to the 3.4-3.8 GHz ('3.6 GHz') frequency band;
- f) that there is a growing interest for indoor small cell deployments in the 3400-3800 MHz band in CEPT countries;
- g) that building exit losses and potentially additional clutter losses could allow for relaxed additional baseline power limits for indoor small cells, still protecting radiolocation systems below 3400 MHz [5]-[12];
- h) that the additional baseline power limits given in Table 5 of ECC Decision (11)06 (amended 26 October 2018), defined for the protection of radiolocation systems below 3400 MHz, were derived assuming only outdoor base stations;
- i) that there is a need of additional guidance on the harmonised application of least restrictive technical conditions (LRTC) in Table 5 of ECC Decision (11)06 (amended 26 October 2018) for indoor small cells operating in the 3400-3800 MHz band due to growing interest for indoor small cells deployment in the band;
- j) that only non-AAS is implemented in indoor small cells in the 3400-3800 MHz band;
- k) that indoor small cells are usually used for offices, industrial buildings and/or larger public buildings like airports or even underground;
- l) that there could be some specific areas with high density of indoor small cells (e.g. offices with multiple floors).

recommends

1. the following relaxation for indoor small cells to the additional baseline power limits for non-AAS base stations specified in Table 5 of the ECC Decision (11)06 (amended 26 October 2018):
 - a) for Case A, an e.i.r.p. limit of -49 dBm/MHz per antenna¹;
 - b) for Case B, an e.i.r.p. limit of -34 dBm/MHz per antenna¹;

¹ For the limits specified in *recommends* 1 under current technology for indoor small cells a guard band of up to 20 MHz might be needed in order to fulfil the requirements. This is under the responsibility of the relevant administration.

2. that Note (3) specified in Table 5 of the ECC Decision (11)06 (amended 26 October 2018) also applies to indoor small cells and the implementation of this ECC Recommendation;
3. that this ECC Recommendation does not override specific regulations made at a national level which, in case of indoor deployments, make use of the flexibility to relax the additional baseline power limits given in ECC Decision (11)06.”

Note:

Please check the Office documentation database <https://docdb.cept.org> for the up to date position on the implementation of this and other ECC Recommendations.

ANNEX 1: LIST OF REFERENCES

- [1] [ECC Decision \(11\)06](#): “Harmonised frequency arrangements and least restrictive technical conditions (LRTC) for mobile/fixed communications networks (MFCN) operating in the band 3400-3800 MHz”, approved December 2011, latest amended October 2018
- [2] EC Decision 2019/235: “Commission Implementing Decision (EU) 2019/235 of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band”
- [3] [CEPT Report 67](#): “Report A from CEPT to the European Commission in response to the Mandate “to develop harmonised technical conditions for spectrum use in support of the introduction of next-generation (5G) terrestrial wireless systems in the Union” and a review of the harmonised technical conditions applicable to the 3.4-3.8 GHz (‘3.6 GHz’) frequency band”, approved July 2018
- [4] [ECC Report 281](#): “Analysis of the suitability of the regulatory technical conditions for 5G MFCN operation in the 3400-3800 MHz band”, approved July 2018
- [5] Recommendation ITU-R P.2109: “Prediction of building entry loss”
- [6] Report ITU-R P.2346: “Compilation of measurement data relating to building entry loss”
- [7] Report ITU-R M.2292: “Characteristics of terrestrial IMT-Advanced systems for frequency sharing/interference analyses”
- [8] Recommendation ITU-R P.1238: “Propagation data and prediction methods for the planning of indoor radiocommunication systems and radio local area networks in the frequency range 300 MHz to 450 GHz”
- [9] Report ITU-R P.2040: “Effects of building materials and structures on radiowave propagation above about 100 MHz”
- [10] Recommendation ITU-R P.2108: “Prediction of clutter loss”
- [11] Report ITU-R M.2111: “Sharing studies between IMT-Advanced and the radiolocation service in the 3 400-3 700 MHz bands”
- [12] Report ITU-R M.2481: “In-band and adjacent band coexistence and compatibility studies between IMT systems in 3 300-3 400 MHz and radiolocation systems in 3 100-3 400 MHz”