



# ECC Decision (11)01

The Protection of the Earth Exploration-Satellite Service  
(passive) in the 1400-1427 MHz Band

**Approved 11 March 2011**

**Amended 03 March 2017**

## EXPLANATORY MEMORANDUM

### 1 INTRODUCTION

This ECC Decision has been developed with the aim of providing long-term coexistence conditions between active services operating below 1400 MHz or above 1427 MHz and the earth exploration-satellite service (EESS) (passive) in the band 1400-1427 MHz.

It provides relevant compatibility conditions to apply to active stations to ensure a relevant and long-term protection of EESS (passive) sensors.

### 2 BACKGROUND

The World Radiocommunication Conference 2007 (WRC-07) took important decisions concerning the protection of the earth exploration-satellite service passive bands, in particular under its agenda item 1.20 with the adoption of Resolution 750 (WRC-07), referred by footnote 5.338A addressing the compatibility between the EESS (passive) and relevant active services in various frequency bands.

Although this Resolution 750 (WRC-07) recommends unwanted emission levels in the band 1400-1427 MHz to be applied to stations of active services operating in 1350-1400 MHz and 1427-1452 MHz, the discussions during WRC-07 showed that no administration argued against ensuring protection of the EESS (passive). Administrations having advocated recommended levels mainly presented arguments in relation to the application schedule of these limits highlighting regulatory constraints in relation with current issued licenses or requiring time for development of equipment fulfilling the requirements specified at WRC-07.

ECC further considered these WRC-07 results and came to the conclusion that translating the recommended levels adopted at WRC-07 into mandatory limits within an ECC Decision would provide a clear and non-ambiguous message towards reaching long term EESS (passive) bands protection. In addition, it will also give a clear sign to the international community about the recognition by Europe of the societal and economical values of these applications related to climate monitoring and natural disasters prediction.

Resolution 750 has been subsequently revised, first at WRC-12 but with no impact on ECC/DEC/(11)01, and secondly at WRC-15, this time in relation with the protection of EESS (passive) band 1400-1427 MHz.

Indeed, WRC-15 took the decision to set-up mandatory unwanted emission limits in the band 1400-1427 MHz to be applied to IMT stations operating in the 1427-1452 MHz band; therefore this case does not have to be covered by the present Decision anymore.

### 3 REQUIREMENT FOR AN ECC DECISION

The allocation or designation of frequency bands under specified conditions in CEPT member countries is laid down by law, regulation or administrative action. ECC Decisions are required to deal with the carriage and use of equipment throughout Europe.

The ECC also recognizes that a clear and non-ambiguous message toward reaching long term EESS (passive) bands protection is necessary, stressing the societal and economical values of these applications related to climate change and natural disasters prediction.

The harmonisation on a European basis of the condition of use of the bands below 1400 MHz and above 1427 MHz by active services in view of ensuring long-term protection of EESS (passive) in the 1400-1427 MHz band would be in particular consistent with the Radio Spectrum Policy Group Report and Opinion on "a coordinated EU spectrum approach for scientific use of radio spectrum" and would represent a clear sign to the international community about the importance of such applications.

**ECC DECISION OF 11 MARCH 2011 ON THE PROTECTION OF THE EARTH EXPLORATION-SATELLITE SERVICE (PASSIVE) IN THE 1400-1427 MHz BAND, AMENDED 03 MARCH 2017**

“The European Conference of Postal and Telecommunications Administrations,

*considering*

- a) that the frequency band 1400-1427 MHz is allocated to the earth exploration-satellite service (EESS) (passive), to the space research service (passive) and to the radio astronomy service, all three on a primary basis subject to RR N° 5.340;
- b) that the only direct way to access to soil moisture and sea surface salinity is through the use of microwave radiometers operating at frequencies near 1400 MHz;
- c) that EESS (passive) sensors provide worldwide measurements for the benefit of all countries, even if these sensors are not operated by their country;
- d) that the frequency band is used by passive sensors to study natural phenomena producing radio emissions at frequencies fixed by the laws of nature, and therefore shifting frequency to avoid or mitigate interference problems may not be possible;
- e) that the unwanted emissions from active services have the potential to cause unacceptable interference to EESS (passive) sensors;
- f) that, for technical or operational reasons, the general limits in Appendix 3 of RR may be insufficient in protecting the EESS (passive) in specific bands;
- g) that, in many cases, the bands adjacent or nearby to passive service bands are used and will continue to be used for various active service applications;
- h) that the frequency band 1350-1400 MHz is allocated to the radiolocation service, to the fixed service and to the mobile service, all three on a primary basis;
- i) that the frequency band 1427-1429 MHz is allocated to the space operation (Earth-to-space) service, to the mobile except aeronautical service and to the fixed service, all three on a primary basis;
- j) that the frequency band 1429-1452 MHz is allocated to the mobile service and to the fixed service, both on a primary basis;
- k) that studies have concluded that appropriate compatibility criteria applicable to the active services referred to in considering h), i) and j) would reduce this interference to a level that would permit passive sensors to operate successfully, while allowing continuing operation of these active services in the adjacent bands;
- l) that the band 1427-1452 MHz is identified for IMT and that Resolution 750 (Rev. WRC-15) includes mandatory unwanted emission limits in the band 1400-1427 MHz to be applied to IMT base stations and mobile stations;
- m) that Resolution 750 (Rev. WRC-15) urges administrations to take all reasonable steps to comply with the recommended relevant compatibility criteria applied to the active services referred to in considering h), i) and j), including the mobile service (except IMT stations in the 1427-1452 MHz);
- n) that translating these recommended compatibility criteria into mandatory limits in CEPT would ensure future EESS (passive) operations in these bands and will also give a clear sign to the international community about the recognition by CEPT of the societal and economical values of these applications related to climate change and natural disasters prediction.

*DECIDES*

1. that CEPT administrations shall ensure that no active service be operated in the band 1400-1427 MHz in accordance with No. 5.340;
2. that the unwanted emissions limits detailed in the Annex shall apply to stations in the active services operating in CEPT countries in the 1350-1400 MHz and 1427-1452 MHz bands brought into use after the date mentioned in Decides 4;
3. that this Decision enters into force on 11 March 2011;
4. that the preferred date for implementation of this Decision shall be 01 January 2012;
5. 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

**Table 1: Limits of unwanted emission power into the 1400-1427 MHz band from active service stations operating in the 1350-1400 MHz and 1427-1452 MHz bands**

EESS (passive) band	Active service band	Active service	Maximum level of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) band <sup>1</sup>
1400-1427 MHz	1350-1400 MHz	radiolocation <sup>2</sup>	-29 dBW in the 27 MHz of the EESS (passive) band
		fixed	-45 dBW in the 27 MHz of the EESS (passive) band for point-to-point
		mobile	-60 dBW in the 27 MHz of the EESS (passive) band for mobile service stations except transportable radio-relay stations -45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations
	1427-1429 MHz	space operation (earth-to-space)	-36 dBW in the 27 MHz of the EESS (passive) band
		mobile except aeronautical mobile	-60 dBW in the 27 MHz of the EESS (passive) band for mobile service stations except IMT stations and transportable radio-relay stations <sup>3</sup> -45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations
		fixed	-45 dBW in the 27 MHz of the EESS (passive) band for point-to-point
	1429-1452 MHz	mobile	-60 dBW in the 27 MHz of the EESS (passive) band for mobile service stations except IMT stations and transportable radio-relay stations -45 dBW in the 27 MHz of the EESS (passive) band for transportable radio-relay stations -28 dBW in the 27 MHz of the EESS (passive) band for aeronautical telemetry stations <sup>4</sup>
		fixed	-45 dBW in the 27 MHz of the EESS (passive) band for point-to-point

<sup>1</sup> The unwanted emission power level is to be understood here as the level measured at the antenna port.

<sup>2</sup> The mean power is to be understood here as the total power measured at the antenna port (or an equivalent thereof) in the band 1400-1427 MHz, averaged over a period of the order of 5 seconds.

<sup>3</sup> WRC-15 took the decision to set-up mandatory unwanted emission limits in the band 1400-1427 MHz to be applied to IMT stations operating in the 1427-1452 MHz band.

<sup>4</sup> The band 1429-1435 MHz is also allocated to the aeronautical mobile service in eight Region 1 administrations on a primary basis exclusively for the purposes of aeronautical telemetry within their national territory (RR No. 5.342).