

EUROPEAN RADIOCOMMUNICATIONS COMMITTEE

ECC Decision
of 18 March 2005
on the use of the band 27.5-29.5 GHz
by the Fixed Service
and uncoordinated Earth stations
of the Fixed-Satellite Service (Earth-to-space)

(ECC/DEC/(05)01)



EXPLANATORY MEMORANDUM

1 INTRODUCTION

This ECC Decision addresses the use of the band 27.5-29.5 GHz by the Fixed Service (FS) and Fixed-Satellite Service (FSS) in relation to the requirements and priorities of CEPT administrations.

2 BACKGROUND

The band covered by this ECC Decision is allocated, among others, to the FS and FSS (Earth-to-space) on a primary basis in the Radio Regulations.

ERC Recommendation 13-04 identifies the band 27.5-29.5 GHz as a preferred band for Fixed Wireless Access (FWA), taking into account sharing requirements with other services. Some CEPT administrations have already assigned frequencies for FWA systems in this band. It should additionally be noted that, spectrum assignments can be done on a spectrum block and area basis or on an individual link by link basis.

ERC Recommendation T/R 13-02 also defines a channel arrangement for the FS in the band 27.5-29.5 GHz, which is used by administrations for assignments to P-P and MP systems, and both standards and equipment have already been developed according to this ERC Recommendation.

The FS is a key medium for delivering telecommunication services with a rapid deployment. In particular, the increasing demand for the provision of wireless local loop applications and for mobile network infrastructure (e.g. UMTS/IMT-2000) will result in the deployment of large numbers of FS stations in this and other bands.

Satellite systems are also a key medium for delivery of future telecommunication services enabling broadband communication to rapidly be established over wide areas. Recent proposals for new GSO and NGSO systems in the FSS indicate that large numbers of user terminals are intended to be deployed on a basis for direct customer access in this frequency band. In particular, some European administrations are promoting GSO FSS systems in this band in the context of removing the "digital divide" taking into account that, below 70 GHz, the 27.5-29.5 GHz frequency range is currently the most suitable for transmission by low-cost terminals in such systems and has the potential to make them economically and technologically viable, in complement to the satellite exclusive 29.5-30.0 GHz frequency range. Some CEPT countries have already filed FSS systems and launched satellites operating in this band.

In 2000, the ERC adopted the Decision ERC/DEC(00)09 to provide a clear regulatory framework for both FS and FSS.

WRC-03 identified a number of frequency bands for high-density applications in the fixed satellite service (HDFSS) through No. **5.516B**. The bands 27.5-27.82 GHz in Region 1, 28.45-28.94 GHz in all Regions and 29.46-30 GHz in Region 1 are among the bands identified. This identification has made the concept of geographical band segmentation, associated with conditional bands, that was proposed in the ERC/DEC(00)09 as being no longer necessary. However, some administrations have already granted licences to FS operators in part or all of the former conditional bands making the frequency segmentation difficult to implement on their territories.

Compatibility studies carried out by the ERC and the ECC have shown that the interference between FS terminals and uncoordinated transmitting FSS terminals is regarded to be unacceptable in the same densely populated geographical area, even with the implementation of mitigation techniques.

3 REQUIREMENT FOR AN ECC DECISION

In order to provide a clear regulatory framework for future investment and deployment of fixed and fixed satellite systems, to facilitate the use of transportable and uncoordinated FSS terminals and to take into account the decision taken by WRC-03 with regard to HDFSS, the previous ERC/DEC(00)09 needed to be reviewed so as to set out the regulatory framework for the use of FS and FSS terminals in the band 27.5-29.5 GHz.

This ECC Decision identifies bands for FS and uncoordinated FSS Earth stations, taking into account the existing channel arrangement for the FS as detailed in CEPT Recommendation T/R 13-02. However, coordinated FSS Earth stations can still make use of the whole band 27.5-29.5 GHz, using established co-ordination procedures.

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“The European Conference of Postal and Telecommunications Administrations,

considering

- a) that the band 27.5-29.5 GHz is allocated to both the Fixed Service and the Fixed-Satellite Service (Earth-to-space), as well as the mobile service on a primary basis in the Radio Regulations;
- b) that ERC Recommendation 13-04 identifies the band 27.5-29.5 GHz as a preferred band for Fixed Wireless Access (FWA), taking into account sharing requirements with other services;
- c) that ERC Recommendation T/R 13-02 defines a RF channel arrangement for the FS in the band 27.5-29.5 GHz, and both standards and equipment have already been developed according to this ERC Recommendation;
- d) that some CEPT administrations have already assigned frequencies (or frequency blocks) for some FWA, P-P and MP systems in parts of this band;
- e) that the future expansion of the FS in this band is important to provide Europe’s telecommunication infrastructure, particularly in relation to the FWA in densely populated areas, as well as to support the future deployment of mobile systems (e.g. UMTS/IMT-2000);
- f) that the introduction of future FSS systems will enhance and enable broadband communications over wide areas in CEPT, including areas where terrestrial means are not feasible or available;
- g) that a number of GSO/NGSO FSS systems are currently being planned to operate in this band, and that some of them intend to deploy large numbers of user terminals on an uncoordinated basis in some parts of the band;
- h) that some FSS systems intend to deploy a small number of large antenna Earth Stations on a coordinated basis;
- i) that some European administrations are promoting GSO FSS systems in this band in the context of removing the “digital divide” at European level;
- j) that, below 70 GHz, the 27.5-29.5 GHz frequency range is currently the most suitable for transmission by low-cost terminals in systems mentioned in considering i) and has the potential to make them economically and technologically viable, in complement to the satellite exclusive 29.5-30.0 GHz frequency range;
- k) that WRC-03 has identified a number of frequency bands for High-Density applications in the Fixed-Satellite Service (HDFSS) through No. **5.516B**, among which are the bands 27.5-27.82 GHz in Region 1, 28.45-28.94 GHz in all Regions and 29.46-30 GHz in Region 1;
- l) that the probability of interference to FS receiver stations by FSS uncoordinated transmitting Earth stations operating in the same geographical area is generally regarded as being not acceptable especially in densely populated areas, even when mitigation techniques are implemented;
- m) that a maximum EIRP density level of 6 dBW/MHz applied to each FS transmitter in the direction of the GSO arc would ensure that harmful interference is not caused to FSS space stations;

- n) that the use of transmit power reduction mechanisms (e.g. Automatic Power Control and/or Power Setting) by the FWA terminal stations will ensure that the maximum EIRP density level defined in considering m) will not be exceeded by a single station towards the GSO arc;
- o) that an adjacent band EIRP limitation is needed for the Earth stations in order to solve the FS/FSS adjacent band compatibility;
- p) that a guard band of 10 MHz between FS and FSS bands is necessary to ensure adequate protection from Earth stations in-band emission;
- q) that the band 29.5-30 GHz is exclusively allocated to FSS on a primary basis, and is therefore mainly intended for the use of uncoordinated Earth stations;
- r) that the international coordination of FSS Earth stations, in accordance with RR provisions, can be sought in the whole band 27.5-29.5 GHz;
- s) that the method of national co-ordination, of individual earth stations in the whole band, may need to take account of spectrum that is allocated on a spectrum block, area assigned basis, to fixed service operators (as referenced in ECC/ERC reports 99, 97, 32 and ECC Recommendation 01-03);
- t) that the downlink bands identified by WRC-03 for HDFSS in Region 1 are subject to other Decision(s) by ECC;

DECIDES

1. to designate the bands 27.5-27.8285 GHz, 28.4445-28.8365 GHz and 29.4525-29.5 GHz for the use of uncoordinated FSS Earth stations¹;
2. to designate the band 28.8365-28.9485 GHz for the use of uncoordinated FSS Earth stations, without prejudice to the FS systems licensed in this band in some countries before the date of adoption of this ECC Decision¹;
3. to designate the bands 27.8285-28.4445 GHz and 28.9485-29.4525 GHz for the use of FS systems¹;
4. that CEPT administrations shall not authorise the deployment of FS stations in the bands mentioned in Decide 1, nor authorise any new FS stations except in an already licensed network in the band specified in Decide 2;
5. that CEPT administrations shall not authorise the deployment of uncoordinated FSS Earth stations in the bands mentioned in Decide 3;
6. that new FWA terminal stations shall implement transmit power reduction mechanisms (e.g. Automatic Power Control and/or Power Setting) in the bands referred to in Decides 3;
7. that for uncoordinated FSS Earth stations operating in the bands referred to in Decides 1 and 2:
 - the off axis² EIRP density radiated in the adjacent bands used by the FS according to Decide 3 shall be limited to -35 dBW/MHz;
 - the elevation angle shall be higher than 10°;
8. that FSS systems using uncoordinated FSS earth stations in the bands referred to in Decide 1 and 2 shall implement Automatic Power Control in the uncoordinated FSS earth stations and/or automatic on-board satellite gain control;
9. that uncoordinated FSS Earth stations shall not have their occupied band edges closer than 10 MHz from the edges of the bands identified in Decides 3;
10. that this Decision shall enter into force on 18 March 2005;

¹ See Annex.

² Off axis refers to angles greater than 7° from the axis of the main beam

11. that this Decision supersedes the ERC Decision (00)09 which is hereby withdrawn;
12. that CEPT Member administrations shall communicate the national measures implementing this Decision to the ECC Chairman and the Office when the Decision is nationally implemented, including, if applicable, information with respect to their situation regarding decides 2.”

Note:

Please check the Office web site (<http://www.ero.dk>) for the up to date position on the implementation of this and other ECC decisions.

ANNEX

Band segmentation

