An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Permitted Licence Exemptions for Terminals for Satellite Services

Technical Document

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1. Introduction

1.1 Background

1. The Commission for Communications Regulation ("ComReg") is the statutory body responsible for the regulation of the electronic communications (telecommunications, radiocommunication and broadcasting networks), postal and premium rate sectors in Ireland in accordance with European Union ("EU") and Irish law. ComReg also manages Ireland's radio frequency spectrum ("radio spectrum" or "spectrum") and national numbering resource.

2. Under the Wireless Telegraphy Act 1926[1] as amended ("the 1926 Act"), all apparatus for Wireless Telegraphy requires a licence, unless that apparatus has been specifically exempted from licensing under Irish legislation by means of an Exemption Order.

3. This document contains technical requirements for the operation of Terminals for Satellite Services on a licence-exempt basis in Ireland by the Wireless Telegraphy Act 1926 (Section 3) (Exemption of Terminals for Satellite Services) Order 2020 which was published in June 2020. The technical requirements set out in this document are informed by relevant ECC Decisions[2] which harmonise the exemption from individual licensing and free circulation and use of certain TSS across Europe. The ECC adopted and published those Decisions having publicly consulted upon and received input from a wide range of stakeholders across Europe.[3]

4. The manner in which the radio spectrum is allocated in Ireland is laid down in the "Radio Frequency Plan for Ireland" (ComReg Document 20/58R, as amended).

1.2 Terminals for Satellite Services

5. Terminals for Satellite Services ("TSS") are a type of radio equipment used to communicate with a satellite from the Earth (terrestrial, at sea or aeronautical). TSS are used to provide business/consumer communications such as telephony, data, and broadband.

[1] http://www.irishstatutebook.ie/eli/1926/act/45/enacted/en/html
[2] https://www.ecodocdb.dk/document/category/ECC_Decisions?status=ACTIVE
[3] https://www.cept.org/ecc/tools-and-services/ecc-public-consultation

6. TSS differ from Satellite Earth Stations ("SES")[4] in that SES are generally larger in size and are also used for backhaul, broadcast feeder links and corporate type communications. TSS are of a smaller size, and can be fixed to rooftops, vehicles and aircraft. Some examples of TSS are, but not limited to, Aircraft Earth Stations, Earth Stations on Mobile Platforms, Earth Stations on Vessels, High E.I.R.P Satellite Terminals and Low E.I.R.P Satellite Terminals.

7. Certain TSS can operate in Ireland on a non-interference and non-protected basis in accordance with the requirements laid down in this document (and any revisions thereof), and by Exemption Order Wireless Telegraphy Act 1926 (Section 3) (Exemption of Terminals for Satellite Services) Order 2020. The legislation and documentation relevant to TSS are listed in Chapter 3 of this document.

1.3 Radio Equipment Compliance and Requirements

8. The Radio Equipment (RE) Directive[5] ensures a single market for radio equipment by setting essential requirements for safety and health, electromagnetic compatibility, and the efficient use of the radio spectrum. It applies to all products using the radio frequency spectrum. The RE Directive was transposed into Irish Law as S.I. No. 248/2017 - European Union (Radio Equipment) Regulations 2017.[6]

9. All radio and telecommunications terminal equipment must comply with the essential requirements and other relevant provisions of S.I. No. 248/2017 before being placed on the market or put into service in Ireland. In terms of the usage of terminals in the satellite service in Ireland, such radio equipment must operate in accordance with the relevant technical requirements laid down in these documents.

[4] Information regarding ComReg's licencing scheme for ground based Satellite Earth Stations is available here.
[5] Directive 2014/53/EU, https://ec.europa.eu/growth/sectors/electrical-engineering/red-directive_en
[6] http://www.irishstatutebook.ie/eli/2017/si/248/made/en/print

1.4 Harmonised standards

10. A list of harmonised standards under the RE Directive is published in the Official Journal of the European Union ("OJEU") and is published electronically on the European Commission website[7]. The OJEU maintains the list of harmonised standards and defines which parts and which versions are in force. Conformity to the harmonised standards which are in force at the time of putting into service is recommended. Users are advised to refer to the latest publication of the OJEU for information on current harmonised standards.

11. Where standards are contained in Irish Regulations, these refer to the standards in force at the time of writing of those Regulations. If a standard is superseded this should be read as referring to the relevant successor or most up-to-date revision of that standard.

1.5 Classifications for radio and telecommunications terminal equipment

12. Commission Decision 2000/299/EC[8] established classifications for radio and telecommunications terminal equipment. Radio and telecommunications terminal equipment which can be placed on the market and put into service without restrictions has been designated as Class 1. A list of Class 1 radio and telecommunications terminal equipment is maintained on the CEPT website.[9] Radio equipment which has restrictions placed on it in terms of either placing on the market or putting into service is designated as Class 2 equipment and should accordingly be marked with the alert symbol.

[7] https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/red_en

[8] http://www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:097:0013:0014:EN:PDF

[9] http://www.cept.org/ecc/topics/short-range-device-regulations-and-indicative-list-of-equipment-sub-classes-in-accordance-with-the-rtte-directive-(19995ec)

1.6 Further information

13. ComReg may, from time to time, introduce additional requirements where necessary for the purposes of ensuring the effective and efficient use of the radio spectrum. Such additional requirements may be necessitated by, inter alia, changes to spectrum allocations and/or technological developments. ComReg reserves the right to amend interface requirements where necessary and this document is therefore subject to revision.

14. Web addresses referenced throughout this document are for convenience only. Please note that ComReg is not responsible for the content of external websites.

15. The information in this document is made available by ComReg on the understanding that it is for information purposes only. It is not intended to form the basis of any investment decision and should not be considered as a recommendation by the Commissioners or their advisors to participate in any tender for the allocation of radio spectrum.

16. ComReg makes no representation or warranty nor accepts any responsibility as to the accuracy or completeness of the information contained in this document and any liability in respect of any such information or any inaccuracy in, or omission from this document is hereby expressly disclaimed.

2. Technical Requirements for Licence Exemption of TSS

17. The technical requirements set out in this document are informed by relevant ECC[10] Decisions which harmonise the exemption from individual licensing and free circulation and use of certain TSS across Europe.

18. ComReg considers that the risk of harmful interference between incumbent users and the TSS set out in this document to be negligible. Other ECC Decisions in regard to fixed earth stations may be considered for implementation on an individual authorisation basis under an appropriate licensing scheme. ComReg expects that these ECC Decisions will form part of its considerations in an upcoming future work plan item to consult on, amongst other issues, the authorisation of SES below 3GHz as proposed in the Radio Spectrum Management Strategy 2019-2021.[11]

19. Receive only apparatus for Wireless Telegraphy are covered under S.I. No. 197 of 2005, if the earths stations operate on a receive only basis in frequency bands allocated at a national level in Ireland for space-to-earth satellite services, as set out in ComReg Document 20/58R, as amended.

[10] The Electronic Communications Committee ("ECC") develops common policies and regulations in electronic communications for Europe and is a focal point for information on spectrum use.

[11] See section 5.2.6 of ComReg Document 18/118 - Radio Spectrum Management Strategy Statement 2019 to 2021 – published 20 December 2018.

2.1 Aircraft Earth Stations ("AES")

These technical requirements are based on ECC Decision (05)11[12]

Aircraft Earth Stations ("AES") which:

a) Operate in the frequency bands indicated in table 1 below to provide non-safety broad-band data services to users on board aircraft;
b) Fulfil the requirements laid down in the relevant harmonised standards/ITU Recommendations in table 1 below;
c) Have an e.i.r.p of 50 dBW or less;
d) Operate under the control of a network control facility; and
e) In any event fulfil all notifications and technical requirements set out in ECC Decision (05)11.

are exempt from the requirement for an individual licence.

Table 1

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
AES	EN 302-186	14.0 – 14.5 GHz (E - s[13])
	ITU-R M.1643[14]	10.7 – 11.7 GHz (s - E[15])
		12.5 – 12.75 GHz (s - E)

[12] ECC Decision (05)11 - The free circulation and use of Aircraft Earth Stations (AES) in the frequency bands 14.0-14.5 GHz (Earth-to-space), 10.7-11.7 GHz (space-to-Earth) and 12.5-12.75 GHz (space-to-Earth).
[13] Earth to space
[14] including the essential requirements in Part B and Part C of Annex 1 in regard to the protection of the fixed service and sharing of the radio astronomy service.
[15] Space to Earth

2.2 Earth Stations on board Vessels ("ESV")

These technical requirements are based on ECC Decision (05)10[16]

Earth Stations on boards Vessels (ESV) which:

a) Operate in the frequency bands indicated in table 2 below;
b) comply with Resolution 902 (WRC-03);
c) Fulfil the requirements laid down in the harmonised standards indicated in table 2 below;
d) Have an antenna size 0.6m or larger;
e) Have an e.i.r.p of 50 dBW or less;
f) Operate under the control of a network control facility; and
g) In any event fulfil all notifications and technical requirements of ECC Decision (05)10.

are exempt from the requirement for an individual licence.

Table 2

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
ESV	EN 302 340	14.0 – 14.5 GHz (E - s)
		10.7 – 11.7 GHz (s - E)
		12.5 – 12.75 GHz (s - E)

[16]ECC DECISION (05)10 - The free circulation and use of Earth Stations on board Vessels operating in fixed satellite service networks in the frequency bands 14-14.5 GHz

2.3 High E.I.R.P. Satellite Terminal ("HEST")

These technical requirements are based on ECC Decision (06)03[17]

High E.I.R.P satellite terminals (HEST) which:

a) Operate with geostationary satellites as part of the fixed satellite service (FSS) within the frequency bands 10.70-12.75 GHz or 19.7-20.2 GHz (space-to-Earth) and 14.00-14.25 GHz or 29.50-30.00 GHz (Earth-to-space), and the broadcasting satellite service (BSS) within the frequency bands 11.70-12.50 GHz (space-to-Earth) under the control of the satellite system, providing digital communications;

b) Use an equivalent isotropically radiated power (e.i.r.p.) ≥34 dBW and ≤50 dBW;

c) comply with the following requirements that ensure compliance with aircraft HIRF protection criteria based on ECC Report 272, using maximum HIRF field strengths of 190 V/m in 14.00-14.25 GHz and 150 V/m in 29.50-30.00 GHz:

   I. The maximum e.i.r.p. of HEST shall be limited to 50 dBW;
   II. The maximum e.i.r.p. of HEST operating within TDMA networks shall be respected after taking into consideration the duty cycle (see section 3.3 and 3.4 of ECC Report 272);
   III. When an antenna is coupled to more than one transmitter or a transmitter provides more than one carrier (multi-carrier operation), the above e.i.r.p. level is the sum of all simultaneous emissions from the antenna on the main lobe;

d) Fulfil the requirements laid down in the harmonised standards indicated in table 3 below;

e) Operate under the control of a network control facility.

are exempt from the requirement for an individual licence.

Table 3

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
HEST	EN 301-459	10.70-12.75GHz (s – E)

[17]ECC DECISION (06)03 - Exemption from Individual Licensing of high e.i.r.p. satellite terminals (HEST) operating within the frequency bands 10.70-12.75 GHz or 19.70-20.20 GHz space-to-Earth and 14.00-14.25 GHz or 29.50-30.00 GHz Earth-to-space

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
		29.50-30.00GHz (E – s)
	EN 301-459	19.70-20.20GHz (s – E) 29.50-30.00GHz (E – s)
	EN 301-428	12.5-12.75GHz (s – E) 14.00-14.25GHz (E – s)

2.4 Low E.I.R.P. Satellite Terminals ("LEST")

These technical requirements are based on ECC Decision (06)02[18]

Low E.I.R.P satellite terminals (LEST) which:

a) Operate with geostationary satellites as part of the fixed satellite service (FSS) within the frequency bands 10.70 - 12.75 GHz or 19.7 – 20.2 GHz (space-to-Earth) and 14.00 – 14.25 GHz or 29.50 – 30.00 GHz (Earth-to-space), and the broadcasting satellite service (BSS) within the frequency bands 11.70 – 12.50 GHz (space-to-Earth) under the control of the satellite system, providing digital communications;

b) Use an equivalent isotropically radiated power (e.i.r.p.) not exceeding 34 dBW. When an antenna is coupled to more than one transmitter or a transmitter provides more than one carrier (multi-carrier operation), the above e.i.r.p level is the sum of all simultaneous emissions from the antenna on the main lobe;

c) Fulfil the requirements laid down in the harmonised standards indicated in table 4 below;

d) Operate under the control of a network control facility.

are exempt from the requirement for an individual licence.

Table 4

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
LEST	EN 301 428	10.7 – 10.95 GHz
	EN 301 459	10.7 – 10.95 GHz
	N/A	11.7 – 12.5 GHz
	EN 301 428	12.5 – 12.75 GHz
	EN 301 459	12.5 – 12.75 GHz
	EN 301 428	14 – 14.25 GHz
	EN 301 360	19.7 – 20.1 GHz
	EN 301 459	19.7 – 20.1 GHz

[18]ECC DECISION (06)02 – Exemption from Individual Licensing of low e.i.r.p. satellite terminals (LEST) operating within the frequency bands 10.70 - 12.75 GHz or 19.70 - 20.20 GHz Space-to-Earth and 14.00 - 14.25 GHz or 29.50 - 30.00 GHz Earth-to-Space

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
	EN 301 360	20.1 – 20.2 GHz
	EN 301 459	20.1 – 20.2 GHz
	EN 301 459	29.5 – 29.9 GHz
	EN 301 459	29.9 – 30 GHz

2.5 Transmit only Mobile Satellite Terminals

These technical requirements are based on ECC Decision (09)04[19].

Transmit Only Mobile Satellite Terminals which:

a) Operate in the frequency bands indicated in table 5 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 5 below;
c) that the equipment shall not transmit at a higher e.i.r.p than 30 dBm and shall operate in accordance with the provisions of ITU RR 5.364; the equipment shall not exceed a maximum duty cycle of 1% and the level of unwanted emissions shall not exceed the limits specified in Table 1 to Annex 1 of ITU-R Recommendation M. 1343-1; and
d) that whenever use of the non-voice transmit only Mobile Earth Stations operating within the frequency band indicated in this Decision is permitted in the country of registration, administrations shall permit free circulation and use of visiting transmit-only Mobile Earth Stations fulfilling the following criteria:
    I. such transmit-only Mobile Earth Stations are registered to the authorized satellite network operator and meet the requirements of c);
    II. frequency planning or individual frequency assignments are not required in the visited country.

are exempt from the requirement for an individual licence.

Table 5

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
Transmit Only Mobile Satellite Terminals	EN 301 426	1613.8 – 1626.5 MHz (E – s)
	EN 301 441	1613.8 – 1626.5 MHz (E – s)
	EN 301 473	1613.8 – 1626.5 MHz (E – s)

[19] ECC DECISION (09)04 – Exemption from individual licensing and the free circulation and use of transmit only mobile satellite terminals operating in the Mobile Satellite Service allocations in the 1613.8 - 1626.5 MHz band

2.6 Earth Stations on Mobile Platforms ("ESOMPs") – GSO

These technical requirements are based on ECC Decision (13)01[20]

ESOMPs operating in **geostationary** satellite systems which:

a) Operate in the frequency bands indicated in table 6 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 6 below;
c) Within the frequency bands 17.3-20.2 GHz and 27.5-30.0 GHz, ESOMPs shall operate only in the portions of these frequency bands identified for their use within the territory of operation;
d) ESOMPs operating in international waters or international airspace (which may transmit within the range 27.5-30.0 GHz), shall ensure protection of fixed service systems in the CEPT;
e) ESOMPs transmitting in the band 29.5-30.0 GHz shall comply with the requirements in Annex 1 Of ECC/DEC/(13)01;
f) ESOMPs transmitting in the band 27.5-29.5 GHz shall comply with the requirements in Annexes 1, 2, and 3 of ECC/DEC/(13)01;
g) ESOMPs receiving in the band 17.7-19.7 GHz shall not claim protection from interference from fixed stations operating in the same band and in conformity with their national regulations;
h) ESOMPs receiving in the band 17.3-17.7 GHz shall not claim protection from BSS feeder links operating in the same band and in conformity with their national regulations; and
i) ESOMPs are **not permitted** to operate within a 12 nautical mile radius of Dublin port. If operation is required within this area a licence to do so is required[21].

are exempt from the requirement for an individual licence.

Table 6

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
ESOMPS	EN 303 978	17.3 – 20.2 GHz (s – E)
		27.5 – 30 GHz (E – s)

[20]ECC DECISION (13)01 - The harmonised use, free circulation and exemption from individual licensing of Earth Stations On Mobile Platforms (ESOMPs) within the frequency bands 17.3-20.2 GHz and 27.5-30.0 GHz

[21]Information on ComReg's Satellite Licensing Scheme can be found here

2.7 Earth Stations on Mobile Platforms ("ESOMPs") - NGSO FSS satellites

These technical requirements are based on ECC Decision (15)04[22]

ESOMPs operating in **non-geostationary** satellite systems which:

a) Operate in the frequency bands indicated in table 7 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 7 below;
c) within the frequency bands 27.5-29.1 GHz and 29.5-30.0 GHz, ESOMPs shall operate only in the portions of these frequency bands identified for their use within the territory of operation;
d) ESOMPs operating in international waters (which may transmit within the range 27.5-29.1 GHz), shall ensure protection of fixed service systems in the CEPT;
e) ESOMPs transmitting in the band 29.5-30.0 GHz shall comply with the requirements in Annex 1 of ECC/DEC/(15)04;
f) ESOMPs transmitting in the band 27.5-29.1 GHz shall comply with the requirements in Annexes 1, 2 and 3 of ECC/DEC/(15)04;
g) ESOMPs receiving in the band 17.7-19.7 GHz shall not claim protection from interference from fixed stations operating in the same band and in conformity with their national regulations;
h) ESOMPs receiving in the band 17.3-17.7 GHz shall not claim protection from BSS feeder links operating in the same band and in conformity with their national regulations;
i) ESOMPs are **not permitted** to operate within a 12 nautical mile radius of Dublin port. If operation is required within this area a licence to do so is required[23].

are exempt from the requirement for an individual licence.

[22] ECC DECISION (15)04 - The harmonised use, free circulation and exemption from individual licensing of Land and Maritime Earth Stations On Mobile Platforms (ESOMPs) operating with NGSO FSS satellite systems in the frequency ranges 17.3-20.2 GHz, 27.5-29.1 GHz and 29.5-30.0 GHz
[23] Information on ComReg's Satellite Licensing Scheme can be found here

Table 7

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
ESOMPS	EN 303 979	17.3 – 20.2 GHz (s - E)
		27.5 – 29.1 GHz (E- s)
		29.5 – 30 GHz (E- s)

2.8 Earth Stations In-Motion ("ESIM") operating with GSO FSS satellite systems

These technical requirements are based on ECC Decision (18)04[24]

ESIM operating in geostationary satellite systems which:

a) Operate in the frequency bands indicated in table 8 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 8 below;
c) ESIM operating in the frequency band 14.25 - 14.5 GHz (Earth-to-space) are licence exempt provided that the protection zones for the fixed service stations have been implemented using the methodology given in Annex 1 of ECC/DEC/(18)04;
d) ESIM operating in the frequency band 14.47-14.5 GHz (Earth-to-space) are licence exempt provided that the protection zones for the radio astronomy service stations have been implemented using the methodology given in Annex 2 of ECC/DEC/(18)04;
e) land based ESIM operating to GSO satellite networks shall:
    I. comply with the requirements in Annex 3 of ECC/DEC/(18)04;
    II. operate on a non-protected basis with regard to the fixed service stations of the frequency band 10.7-11.7 GHz;
    III. maintain compatibility with fixed and radio astronomy services as mentioned in considering i) of ECC/DEC/(18)04
f) that the total equivalent isotropically radiated power (e.i.r.p.) of land based ESIM shall not exceed 54.5 dBW; and
g) that Annex 4 of ECC/DEC/(18)04 information shall be provided to the European Communications Office by the ESIM operator
h) In any event fulfil all requirements of the Regulations.

are exempt from the requirement for an individual licence

Table 8

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
ESIMS	EN 302 977	10.7 – 12.75 GHz (s – E)

[24]ECC DECISION (18)04 - The harmonised use, exemption from individual licensing and free circulation and use of land based Earth Stations In-Motion (ESIM) operating with GSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
	EN 302 448	14.0 – 14.5 GHz (E – s)
	EN 303 980	

2.9 Earth Stations In-Motion ("ESIM") operating with NGSO FSS satellite systems.

These technical requirements are based on ECC Decision (18)05[25]

ESIM operating in non-geostationary satellite systems which:

a) Operate in the frequency bands indicated in table 9 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 9 below,
c) comply with the requirements in Annex 1 and 2 of ECC/DEC/(18)05;
d) use an equivalent isotropically radiated power (e.i.r.p.) not exceeding 54.5 dBW. When an antenna is coupled to more than one transmitter or a transmitter provides more than one carrier (multi-carrier operation), the above e.i.r.p. level is the sum of all simultaneous emissions from the antenna on the main lobe; and
e) operate on a non-protected basis with regards to the fixed service stations of the frequency band 10.7-11.7 GHz.

are exempt from the requirement for an individual licence

Table 9

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
ESIM	EN 302 977	10.7 – 12.75 GHz (s – E) 14.0 – 14.5 GHz (E – s)
	EN 302 448	
	EN 303 980	

[25]ECC DECISION (18)05 - The harmonised use, exemption from individual licensing and free circulation and use of Earth Stations In-Motion (ESIM) operating with NGSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

2.10 Satellite Mobile Terminals operating under the control of networks

These technical requirements are based on ECC Decision (12)01[26]

With the exception of satellite terminals installed permanently on maritime vessels or aircraft, Satellite Mobile Terminals operating under the control of terrestrial or satellite networks which:

a) Operate in the frequency bands indicated in table 10 below;
b) Fulfil the requirements laid down in the ERC/ECC Decision and/or ITU RR reference indicated in table 10 below,
c) Have an EIRP of 50 dBW or less; and
d) In any event fulfil all technical requirements of ECC Decision (12)01.

are exempt from the requirement for an individual licence

Table 10

Frequency Band	System	ERC/ECC Decision and/or ITU RR reference
1518-1525 MHz	MSS space-to-Earth	Res.225 (Rev.WRC-12)
1525-1544 MHz	MSS space-to-Earth	Res.225 (Rev.WRC-12)
1545-1559 MHz	MSS space-to-Earth	Res.225 (Rev.WRC-12)
1610-1626.5 MHz **1613.8-1626.5 MHz**	MSS Earth-to-space space-to-Earth (secondary)	Res.225 (Rev.WRC-12) ECTRA/DEC/(97)02, ECC/DEC/(09)02
1626.5-1645.5 MHz	MSS Earth-to-space	Res.225 (Rev.WRC-12)
1646.5-1660.5 MHz	MSS Earth-to-space	Res.225 (Rev.WRC-12)
1670-1675 MHz	MSS Earth-to-space	Res.225 (Rev.WRC-12)
1980.0-2010.0 MHz	MSS Earth-to-space	Res.212 (Rev.WRC-15) ECC/DEC/(06)09

[26]ECC DECISION (12)01 - Exemption from individual licensing and free circulation and use of terrestrial and satellite mobile terminals operating under the control of networks

Frequency Band	System	ERC/ECC Decision and/or ITU RR reference
2170-2200 MHz	MSS space-to-Earth	Res.212 (Rev.WRC-15) ECC/DEC/(06)09
2483.5-2500 MHz	MSS space-to-Earth	Res.225 (Rev.WRC-12) ECC/DEC/(09)02, ECTRA/DEC/(97)02

2.11 Fixed Satellite Terminals

These technical requirements are based on ECC/DEC/(17)04[27]

Fixed Satellite Terminals operating with non-geostationary satellite systems which:

a) Operate in the frequency bands indicated in table 11 below;
b) Fulfil the requirements laid down in the harmonised standards indicated in table 11 below;
c) Comply with the requirements in Annex 1 of ECC/DEC/(17)04;
d) Shall have a EIRP of 50 dBW or less; and
e) Operate on non-protected basis with regards to the fixed service stations of the frequency band 10.7-11.7 GHz;
f) Operate with NGSO FSS satellite systems while maintaining compatibility with other services as mentioned in considering's e), f), g), h), i), k) and l) in ECC/DEC/(17)04

are exempt from the requirement for an individual licence.

Fixed Satellite Terminals operating in the frequency bands 10.7-12.75 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) with non-geostationary satellite systems shall not cause harmful interference to stations of the radio astronomy service.

Table 11

Terminal Type	Harmonised Standard/ITU Recommendation	Frequency Bands
Fixed Earth Terminals	EN 303 980	10.7 – 12.75 GHz (s – E) 14.0 – 14.5 GHz (E – s)
	EN 303 981	

[27] ECC/DEC/(17)04 - The harmonised use and exemption from individual licensing of fixed earth stations operating with NGSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

2.12 Uncoordinated Satellite Terminals (27.5 – 29.5 GHz)

These technical requirements are based on ECC/DEC/(05)01[28]

Uncoordinated Satellite Terminals operating in satellite systems which:

a) Operate in the frequency bands indicated in table 12 below;
b) Uncoordinated FSS earth stations transmitting within the band 27.5-29.5 GHz shall comply with the requirements in Annex 2 of ECC/DEC/(05)01
c) Uncoordinated FSS earth stations in the band identified in Table 12 shall not claim protection from stations of the fixed service;
d) Shall have a EIRP of 50 dBW or less; and
e) In any event fulfil all technical requirements of ECC/DEC/(05)01

are exempt from the requirement for an individual licence.

Table 12

Terminal Type	Frequency Bands
Uncoordinated Satellite Terminals	27.5-27.8285 GHz (E-s) 28.4445-28.9485 GHz (E-s) 29.4525-29.5 GHz (E-s)

[28] ECC/DEC/(05)01 – 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)

2.13 Uncoordinated Satellite Terminals (17.7-19.7 GHz)

These technical requirements are based on ECC/DEC/(00)07[29]

Uncoordinated Satellite Terminals operating in satellite systems which:

a) Operate in the frequency bands indicated in table 13 below;
b) to avoid the interference from FS stations, uncoordinated FSS earth stations shall implement the mitigation techniques described in Annex 2 of ECC/DEC/(00)07;
c) in any event fulfil all technical requirements of ECC/DEC/(00)07.

are exempt from the requirement for an individual licence.

Uncoordinated FSS earth stations in the band identified in Table 13 shall operate on a non-interfering, non-protected basis and shall not claim protection from licensed fixed stations operating in the same band.

Table 13

Terminal Type	Frequency Bands
Uncoordinated Satellite Terminals	17.7-19.7 GHz (s-E)

[29] ECC/DEC/(00)07 – The shared use of the band 17.7-19.7 GHz by the fixed service and earth stations of the fixed-satellite service (space-to-Earth)

3. Relevant Documentation

3.1 National Legislation

Primary Legislation

Wireless Telegraphy Acts 1926, as amended

Secondary Legislation

Wireless Telegraphy Act 1926 (Section 3) (Exemption of Terminals for Satellite Services) Order 2020

3.2 Relevant ECC Decisions

ECC Decision (05)11 - The free circulation and use of Aircraft Earth Stations (AES) in the frequency bands 14.0-14.5 GHz (Earth-to-space), 10.7-11.7 GHz (space-to-Earth) and 12.5-12.75 GHz (space-to-Earth).

ECC Decision (05)10 - The free circulation and use of Earth Stations on board Vessels operating in fixed satellite service networks in the frequency bands 14-14.5 GHz (Earth-to-space), 10.7-11.7 GHz (space-to-Earth) and 12.5-12.75 GHz (space-to-Earth).

ECC Decision (06)03 - Exemption from Individual Licensing of high e.i.r.p. satellite terminals (HEST) operating within the frequency bands 10.70-12.75 GHz or 19.70-20.20 GHz space-to-Earth and 14.00-14.25 GHz or 29.50-30.00 GHz Earth-to-space.

ECC Decision (06)02 – Exemption from Individual Licensing of low e.i.r.p. satellite terminals (LEST) operating within the frequency bands 10.70 - 12.75 GHz or 19.70 - 20.20 GHz Space-to-Earth and 14.00 - 14.25 GHz or 29.50 - 30.00 GHz Earth-to-Space.

ECC Decision (09)04– Exemption from individual licensing and the free circulation and use of transmit only mobile satellite terminals operating in the Mobile Satellite Service allocations in the 1613.8 - 1626.5 MHz band

ECC Decision (13)01 - The harmonised use, free circulation and exemption from individual licensing of Earth Stations On Mobile Platforms (ESOMPs) within the frequency bands 17.3-20.2 GHz and 27.5-30.0 GHz.

ECC Decision (15)04 - The harmonised use, free circulation and exemption from individual licensing of Land and Maritime Earth Stations On Mobile Platforms (ESOMPs) operating with NGSO FSS satellite systems in the frequency ranges 17.3-20.2 GHz, 27.5-29.1 GHz and 29.5-30.0 GHz

ECC Decision (18)04 - The harmonised use, exemption from individual licensing and free circulation and use of land based Earth Stations In-Motion (ESIM) operating with GSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

ECC Decision (18)05 - The harmonised use, exemption from individual licensing and free circulation and use of Earth Stations In-Motion (ESIM) operating with NGSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

ECC Decision (12)01 - Exemption from individual licensing and free circulation and use of terrestrial and satellite mobile terminals operating under the control of networks

ECC/DEC/(17)04 - The harmonised use and exemption from individual licensing of fixed earth stations operating with NGSO FSS satellite systems in the frequency bands 10.7-12.75 GHz and 14.0-14.5 GHz

ECC/DEC/(05)01 – 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/(00)07 – The shared use of the band 17.7-19.7 GHz by the fixed service and earth stations of the fixed-satellite service (space-to-Earth)

3.3 ETSI Harmonised Standards

ETSI EN 302 186 - Satellite Earth Stations and Systems (SES); Harmonised Standard for satellite mobile Aircraft Earth Stations (AESs) operating in the 11/12/14 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 302 340- Satellite Earth Stations and Systems (SES); Harmonised Standard for satellite Earth Stations on board Vessels (ESVs) operating in the 11/12/14 GHz frequency bands allocated to the Fixed Satellite Service (FSS) covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 301 428 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Very Small Aperture Terminal (VSAT); Transmit-only, transmit/receive or receive-only satellite earth stations operating in the 11/12/14 GHz frequency bands covering the essential requirements of article 3.2 of Directive 2014/53/EU

ETSI EN 301 459 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) transmitting towards satellites in geostationary orbit, operating in the 29,5 GHz to 30,0 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 301 360 – Satellite Earth Stations and Systems (SES); Harmonised Standard for Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) transmitting towards satellites in geostationary orbit, operating in the 27,5 GHz to 29,5 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 301 426 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Low data rate Land Mobile satellite Earth Stations (LMES) and Maritime Mobile satellite Earth Stations (MMES) not intended for distress and safety communications operating in the 1,5 GHz/1,6 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 301 441 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Mobile Earth Stations (MES), including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) operating in the 1,6 GHz/2,4 GHz frequency band under the Mobile Satellite Service (MSS) covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 301 473 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Aircraft Earth Stations (AES) providing Aeronautical Mobile Satellite Service (AMSS)/ Mobile Satellite Service (MSS) and/or the Aeronautical Mobile Satellite on Route Service (AMS(R)S)/ Mobile Satellite Service (MSS), operating in the frequency band below 3 GHz covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 303 978 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Earth Stations on Mobile Platforms (ESOMP) transmitting towards satellites in geostationary orbit, operating in the 27,5 GHz to 30,0 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 303 979 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Earth Stations on Mobile Platforms (ESOMP) transmitting towards satellites in non-geostationary orbit, operating in the 27,5 GHz to 29,1 GHz and 29,5 GHz to 30,0 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 302 448 - Satellite Earth Stations and Systems (SES); Harmonised Standard for tracking Earth Stations on Trains (ESTs) operating in the 14/12 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 302 977 - Satellite Earth Stations and Systems (SES); Harmonised Standard for Vehicle-Mounted Earth Stations (VMES) operating in the 14/12 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU

ETSI EN 303 980 - Satellite Earth Stations and Systems (SES); Harmonised Standard for fixed and in-motion Earth Stations communicating with non-geostationary satellite systems (NEST) in the 11 GHz to 14 GHz frequency bands covering essential requirements of article 3.2 of Directive 2014/53/EU

Annex: 1 Terms and Definitions

Aircraft Earth Station: a mobile earth station in the aeronautical mobile-satellite service located on board aircraft

Broadcasting-satellite service: A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public

CEPT: European Conference of Postal and Telecommunications Administrations;

dBW: The decibel watt or dBW is a unit for the measurement of the strength of a signal expressed in decibels relative to one watt.

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Earth station: A station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication:

- with one or more space stations; or
- with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space.

Earth Station on board Vessel: a mobile earth station on board a ship which operates in the fixed satellite service bands;

Earth Station in Motion: land-based terminal operating to Ku-band GSO satellite networks;

Earth Station on Mobile Platform: terminals that operate in FSS networks, with small directional antennas for the provision of broadband communication services, and which may be mounted on aircraft, ships or land vehicles or may be transportable devices used in motion or at temporary halts;

ECC: Electronics Communications Committee (of CEPT)

ECO: European Communications Office

e.i.r.p (equivalent isotropically radiated power): The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain)

ETSI: European Telecommunications Standards Institute

Fixed-satellite service: A radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radiocommunication services.

Feeder link: A radio link from an earth station at a given location to a space station, or vice versa, conveying information for a space radiocommunication service other than for the fixed-satellite service. The given location may be at a specified fixed point, or at any fixed point within specified areas

Geosynchronous satellite: An earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis.

Geostationary satellite: A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth.

Geostationary-satellite orbit: The orbit of a geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator

High EIRP Satellite Terminal: satellite terminals operating with E.I.R.P. above 34 dBW and below 60 dBW;

Harmful interference: Interference which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations (CS).

Harmonised Standard: a technical specification adopted by a recognised standards body under a mandate from the European Commission in uniformity with the procedures laid down in [Directive 98/34EC] as amended from time to time, for the purpose of establishing a European requirement, compliance with which is not compulsory;

Interference: The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

ITU: International Telecommunication Union

Low EIRP Satellite Terminal: means a satellite terminal operating with E.I.R.P. not exceeding 34 dBW;

Multi-satellite link: A radio link between a transmitting earth station and a receiving earth station through two or more satellites, without any intermediate earth station.

Network Control Facility: A single point of network control that has the ability to control a network of satellites

Satellite: A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body

Satellite system: A space system using one or more artificial earth satellites

Satellite network: A satellite system or a part of a satellite system, consisting of only one satellite and the cooperating earth stations.

Satellite link: A radio link between a transmitting earth station and a receiving earth station through one satellite.

SIT Station: earth station adapted or designed to operate as set out in [ERC/DEC(00)03 and EN-459];

Space station: A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.

TDMA: Time-division multiple access

Terminal for Transmit Only Satellite Services: a terminal designed to operate in the absence of any real time control from the satellite network control function.