
Interface Requirement 2093

Earth Stations in Motion (ESIM)

Contents

Section

1. Foreword	1
2. Minimum requirements for operation within the UK	2
3. Additional performance parameters	5
4. References	6
5. Contact details	7
6. Document history	8

1. Foreword

- 1.1 The Radio Equipment Regulations 2017 (SI 2017/1206) set out the obligations on economic operators for placing radio equipment on the market. This UK Interface Requirement contains the requirements for the authorisation and use of Earth Stations in Motion (ESIMs) in the specified frequency bands.
- 1.2 It is required by the Wireless Telegraphy Act 2006 that no radio equipment is installed or used in the UK except under the authority of a licence granted by or otherwise exempted by regulations made by Ofcom. It is a condition of such a licence or exemption regulations as appropriate that the equipment must meet the minimum requirements specified in this UK Interface Requirement for the stated equipment types and for the stated frequency bands.
- 1.3 The requirements given in the main body of this UK Radio Interface Requirement apply to the authorisation of ESIMs.
- 1.4 This UK Radio Interface Requirement will be revised as necessary, for example to follow:
 - i) current technology developments for reasons related to the effective and appropriate use of the spectrum in particular maximising spectrum utilisation; and
 - ii) changes to the available spectrum allocated for ESIMs.
- 1.5 All UK Radio Interface Requirements will be published and will be made available free of charge from the Ofcom website.
- 1.6 Further information on this UK Radio Interface Requirement can be obtained from the enquiry contact given at the back of this document.

2. Minimum requirements for operation within the UK

- 2.1 The minimum requirements in this document are made for reasons related to the effective and appropriate use of the radio spectrum, in particular, maximising spectrum utilisation.
- 2.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for Earth Stations in Motion (ESIMs). It does not prescribe technical interpretation of the 'essential requirements' of the Radio Equipment Regulations 2017.
- 2.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the authorisation of ESIMs in the UK. Tables 2.1 and 2.2 contain the relevant equipment parameters. These together with the 'essential requirements' detailed in Regulation 6 of Radio Equipment Regulations 2017 constitute the minimum equipment requirements for ESIMs within the UK.
- 2.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the spectrum for ESIMs and with other radiocommunications services, whilst promoting enterprise, innovation and competition.
- 2.5 This UK Radio Interface Requirement provides the necessary technical information which facilitates access to the ESIMs spectrum by making clear the assumptions that are made in planning the use of ESIMs in the UK. It is not the intention of this UK Radio Interface Requirement to duplicate or impose any additional 'essential requirements' of the Radio Equipment Regulations 2017 on products. Any specified parameters within this document are for the purpose of identifying product options and not as a national de facto product requirement.

Table 2.1: Minimum requirements for the use of Earth Stations in Motion (ESIMs) transmitting to satellites in geostationary orbit

Mandatory (1-11)		
1	Radiocommunication Service	Fixed-Satellite Service
2	Application	Earth Stations in Motion (ESIMs)
3	Frequency band	27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz for operation in UK territory. 27.5 – 30 GHz for operation outside UK territory.
4	Channelling	-
5	Modulation/Occupied bandwidth	-
6	Direction/Separation	-
7	Transmit power/Power density	e.i.r.p from a single terminal ≤ 55 dBW ¹
8	Channel access and occupation rules	-
9	Authorisation regime	Licence exempt – for land-based ESIMs. Licensed – for ESIMs mounted on aircraft or ships.
10	Additional essential requirements	Operation with geostationary satellites
Informative (11-15)		
11	Frequency planning assumptions	Use of 17.3 – 20.2 GHz for reception is unprotected.
12	Planned changes	-
13	Reference	ETSI EN 303 978
14	Notification	2022/7008/XI
15	Remarks	<p>Note 1: Unless otherwise agreed through bilateral coordination of satellite networks, the limits on off-axis e.i.r.p. emission density within the band specified in section 4.2.3 of ETSI EN 303 978 may be used to ensure that transmissions from ESIMs protect other satellite networks.</p> <p>Note 2: The limitations on power flux density (pfd) contained in ECC Decision (13)01 may be used to ensure that transmissions from aircraft and ship mounted ESIMs protect terrestrial services, where appropriate.</p>

¹ The elevation angle of the antenna shall be higher than 3 degrees.

Table 2.2: Minimum requirements for the use of Earth Stations in Motion (ESIMs) transmitting to satellites in non-geostationary orbit

Mandatory (1-11)		
1	Radiocommunication Service	Fixed-Satellite Service
2	Application	Earth Stations in Motion (ESIMs)
3	Frequency band	27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.5 – 30 GHz for operation in UK territory. 27.5 – 29.1 GHz and 29.5 – 30 GHz for operation outside UK territory.
4	Channelling	-
5	Modulation/Occupied bandwidth	-
6	Direction/Separation	-
7	Transmit power/Power density	e.i.r.p from a single terminal ≤ 55 dBW ²
8	Channel access and occupation rules	-
9	Authorisation regime	Licensed – for land-based and ship mounted ESIMs.
10	Additional essential requirements	Operation with non-geostationary satellites
Informative (11-15)		
11	Frequency planning assumptions	Use of 17.3 – 20.2 GHz for reception is unprotected.
12	Planned changes	-
13	Reference	ETSI EN 303 979
14	Notification Number	2022/7008/XI
15	Remarks	<p>Note 1: The earth stations operating with non-geostationary satellites shall ensure compliance with the equivalent power flux-density limitations specified in Article 22 of the ITU Radio Regulations.</p> <p>Note 2: The limitations on power flux density (pfd) contained in ECC Decision (15)04 may be used to ensure that transmissions from ship mounted ESIMs protect terrestrial services, where appropriate.</p>

² The elevation angle of the antenna shall be higher than 3 degrees.

3. Additional performance parameters

(informative)

3.1 None specified

4. References

	Reference	Reference description
[1]	ETSI EN 303 978 V2.1.2	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.
[2]	EN 303 979 V2.1.2	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.
[3]	ECC Decision (13)01	ECC Decision of 8 March 2013 on the use, free circulation, and exemption from individual licensing of Earth stations on mobile platforms (ESOMPs) in the frequency bands available for use by uncoordinated FSS Earth stations within the ranges 17.3-20.2 GHz and 27.5-30.0 GHz.
[4]	ECC Decision (15)04	ECC Decision of 3 July 2015 on the harmonised use, free circulation and exemption from individual licensing of Land, Maritime and Aeronautical 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.

5. Contact details

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6. Document history

Version	Date	Changes
0.1	14 August 2013	Draft published
1.0	February 2014	Document published
2.0	January 2018	Includes non-geostationary use Replaced R&TTE Directive 1999/5/EC and Directive 98/34/EC with Radio Equipment Directive (Directive 2014/53/EU) and Directive (EU) 2015/1535 respectively.
2.1	June 2021	Format update
3.0	March 2023	Revised to make licence exemption apply only to ESIM terminals that operate with geostationary satellites.