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# **UK Interface Requirement 2077**

## Satellite Earth Station Networks

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# 1. References

[1]	EN 301 428	Satellite Earth Stations and Systems (SES); Harmonized EN 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 essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[2]	EN 302 186	Satellite Earth Stations and Systems (SES); Harmonized EN for satellite mobile Aircraft Earth Stations (AESs) operating in the 11/12/14 GHz frequency bands covering essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[3]	EN 302 448	Satellite Earth Stations and Systems (SES); Harmonized EN for tracking Earth Stations on Trains (ESTs) operating in the 14/12 GHz frequency bands covering essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[4]	EN 302 977	Satellite Earth Stations and Systems (SES); Harmonized EN for Vehicle-Mounted Earth Stations (VMES) operating in the 12/14 GHz frequency bands covering essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[5]	EN 301 360	Satellite Earth Stations and Systems (SES); Harmonized EN for Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) transmitting towards geostationary satellites in the 27,5 GHz to 29,5 GHz frequency bands covering essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[6]	EN 301 459	Satellite Earth Stations and Systems (SES); Harmonized EN for Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) transmitting towards satellites in geostationary orbit in the 29,5 GHz to 30,0 GHz frequency bands covering essential requirements under article 3.2 of the Radio Equipment Directive (Directive 2014/53/EU)
[7]	EN 301 489-12	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 12: Specific conditions for Very Small Aperture Terminal,

		Satellite Interactive Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)
[8]	EN 300 673	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for Very Small Aperture Terminal (VSAT), Satellite News Gathering (SNG), Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)
[9]	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 Radio Equipment Directive (Directive 2014/53/EU)
[10]	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 the Radio Equipment Directive (Directive 2014/53/EU)

## 2. Foreword

- 2.1 In accordance with Articles 8 and 7 of Radio Equipment Directive (Directive 2014/53/EU), this UK Interface Requirement contains the requirements for the licensing of satellite earth station networks in the specified frequency bands.
- 2.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 2014/53/EU.
- 2.3 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, in order to be installed or used in the UK, the equipment must meet the minimum requirements specified in this UK Interface Requirement for the stated equipment types and for the stated frequency bands. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 2014/53/EU.
- 2.4 The requirements given in the main body of this UK Radio Interface Requirement will apply to the licensing of satellite earth station networks.
- 2.5 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 satellite earth station networks.
- 2.6 All UK Radio Interface Requirements notified under Directive 2015/1535/EU will be published and will be made available free of charge from the Ofcom web-site at <http://www.ofcom.org.uk>.
- 2.7 Further information on this UK Radio Interface Requirement can be obtained from the technical enquiry contact given at the back of this document

## 3. Minimum requirements for operation within the UK

- 3.1 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.
- 3.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for satellite earth station networks. It does not prescribe technical interpretation of the 'essential requirements' of Directive 2014/53/EU.
- 3.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the licensing of satellite earth station networks in the UK. Tables 3.1 and 3.2 contain the relevant equipment parameters. These taken together with the 'essential requirements' detailed in Article 3.2 of Directive 2014/53/EU constitute the minimum requirements for satellite earth station networks within the UK. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 2014/53/EU.
- 3.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the satellite earth station networks and with other radiocommunications services, whilst promoting enterprise, innovation and competition.
- 3.5 This UK Radio Interface requirement provides the necessary technical information which facilitates access to the satellite earth station networks spectrum by making clear the assumptions that are made in planning the use of the satellite earth station networks spectrum in the UK. It is not the intention of this UK Radio Interface Requirement to duplicate or impose any additional 'essential requirements' of the Directive 2014/53/EU 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 3.1: Minimum requirements for the use of Satellite Earth Station Networks operating with Geostationary satellites		
Mandatory (1-11)		
1	Radiocommunication Service	Fixed-Satellite Service
2	Application	Satellite Earth Station Network
3	Frequency band	14.0 – 14.25 GHz <sup>1</sup> , 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz <sup>2</sup>
4	Channelling	n/a
5	Modulation/Occupied bandwidth	n/a
6	Direction/Separation	n/a
7	Transmit power/Power density	e.i.r.p from a single terminal $\leq 55$ dBW <sup>3</sup>
8	Channel access and occupation rules	n/a
9	Authorisation regime	Light Licence
10	Additional essential requirements	n/a
Informative (12-15)		
12	Frequency planning assumptions	n/a
13	Reference	Harmonised Standards EN 301 428 [1]; EN 302 186 [2]; EN 302 448 [3]; EN 302 977 [4]; EN 301 360 [5]; EN 301 459 [6]; EN 301 489-12 [7]; EN 300 673 [8]
14	Remarks	<p><b>Note 1:</b> In order to ensure compatibility with avionic systems the CAA require that prior to installation within the perimeter fence of aerodromes, permission is obtained from either the CAA or the appropriate Airport authority. Further information, along with a list of designated airfields is provided in Annex A.</p> <p><b>Note 2:</b> For terminals transmitting with e.i.r.p. &gt; 55 dBW, individual clearance is only usually possible when the terminal is located at a fixed location.</p>

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<sup>1</sup> The elevation angle of the terminal shall be higher than 5°

<sup>2</sup> The elevation angle of the terminal shall be higher than 10°

<sup>3</sup> Terminals transmitting with e.i.r.p. > 55 dBW require individual clearance by the UK administration and registration of the terminal(s) against the licence



		<b>Note 3:</b> In the bands 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz, terminals that transmit with e.i.r.p. $\leq$ 55 dBW are exempt from licensing (see UK Interface Requirement 2066).
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**Table 3.2: Minimum requirements for the use of Satellite Earth Station Networks operating with Non-Geostationary satellites**

Mandatory (1-11)		
1	Radiocommunication Service	Fixed-Satellite Service
2	Application	Satellite Earth Station Network
3	Frequency band	Land stations: 14.0 – 14.25 GHz <sup>4</sup> , 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.5 – 30 GHz <sup>5</sup>  Aeronautical stations: 14.0 – 14.25 GHz
4	Channelling	n/a
5	Modulation/Occupied bandwidth	n/a
6	Direction/Separation	n/a
7	Transmit power/Power density	e.i.r.p from a single terminal $\leq 55$ dBW <sup>6</sup>
8	Channel access and occupation rules	n/a
9	Authorisation regime	Light licence
10	Additional essential requirements	n/a
Informative (12-15)		
12	Frequency planning assumptions	n/a
13	Reference	EN 303 979 EN 303 980
14	Remarks	<b>Note 1:</b> In order to ensure compatibility with avionic systems the CAA require that prior to installation within the perimeter fence of aerodromes, permission is obtained from either the CAA or the appropriate Airport authority. Further information, along with a list of designated airfields is provided in Annex A.  <b>Note 2:</b> For terminals transmitting with e.i.r.p. > 55 dBW, individual clearance is only usually

<sup>4</sup> The elevation angle of the terminal shall be higher than 5°

<sup>5</sup> The elevation angle of the terminal shall be higher than 10°

<sup>6</sup> The elevation angle of the antenna shall be higher than 3 degrees.

		<p>possible when the terminal is located at a fixed location.</p> <p><b>Note 3:</b> In the bands 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.5 – 30 GHz, terminals that transmit with e.i.r.p. <math>\leq</math> 55 dBW are exempt from licensing (see UK Interface Requirement 2066).</p> <p><b>Note 4:</b> 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>
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## 4. Additional performance parameters

### (informative)

4.1 None specified

## 5. Contact details

**Ofcom Spectrum Licensing, PO Box 1285 Warrington, WA1 9GL**

- Tel: 020 7981 3131
- Fax: 020 7981 3235
- Email: [spectrum.licensing@ofcom.org.uk](mailto:spectrum.licensing@ofcom.org.uk)
- Website: <http://www.ofcom.org.uk>

**Technical queries, Spectrum Group, Ofcom, Riverside House 2a Southwark  
Bridge Road, London, SE1 9HA**

- Tel: 020 7981 3154
- Fax: 020 7981 3208
- Email: [James.Richardson@Ofcom.org.uk](mailto:James.Richardson@Ofcom.org.uk)

## 6. Document history

Version	Date	Changes
0.1	Jan 2009	Draft Published
1.0	May 2009	Final document published
2.0	July 2010	Transmit power level change
3.0	January 2018	Included Non-Geostationary use Replaced R&TTE Directive 1999/5/EC and Directive 98/34/EC with Radio Equipment Directive 2014/53/EU and Directive (EU) 2015/1535 respectively.

## 7. Annex A (Informative)

Prior to installation of equipment subject to this IR, within the perimeter fence of the airfields listed below, the CAA requires that permission be obtained from either the CAA or the Airport Authority.

CAA Contact: 020 7453 6531.

Aerodrome name	Address	Postcode	Telephone	UK/CI/NI	Easting	Northing	Aerodrome POC
Aberdeen/ Dyce	Aberdeen Airport	AB21 7DU	01224 723714	UK	387997	812609	Duty Tels Officer
Alderney	Alderney Airport	GY9 3AJ	01481 822851	CI	556723	5506468	Senior Air Traffic Controller
Belfast Aldergrove	Belfast International Airport	BT29 4AB	028 9448 4281	NI	315195	380283	Duty Air Traffic Engineer
Belfast City	Belfast City Airport	BT3 9JH	028 9045 4871	NI	337483	376510	ATC Supervisor
Benbecula	Benbecula Aerodrome	HS7 5LA	01870 602051	UK	78483	855733	Senior Air Traffic Controller
Biggin Hill	Biggin Hill Airport	TN16 3BN	01959 574677	UK	541691	161064	ATS Manager
Birmingham	Birmingham International Airport	B26 3QJ	0121 780 0922	UK	417220	284022	Duty Engineering Officer
Blackpool	Blackpool Airport	FY4 2QY	01253 343434	UK	332307	431071	Senior Telecommunications Officer
Bournemouth	Bournemouth International Airport	BH23 6SE	01202 364150	UK	411201	97844	ATS Manager
Bristol	Bristol Airport	BS48 3DY	08701 212747	UK	350055	165098	Air Traffic Engineering Manager
Cambridge	Cambridge Airport	CB5 8RX	01223 293737	UK	548723	258544	Senior Air Traffic Controller

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Aerodrome name	Address	Postcode	Telephone	UK/CI/NI	Easting	Northing	Aerodrome POC
Cardiff	Cardiff International Airport	CF62 3BD	01446 712562	UK	306643	167265	Duty Engineering Officer
Carlisle	Carlisle Airport	CA6 4NW	01228 573629	UK	348265	560609	Senior Telecommunications Officer
Coventry	Coventry Airport	CV8 3AZ	02476 308638	UK	435519	274761	Senior Air Traffic Engineer
Cranfield	Cranfield Aerodrome	MK43 0AL	01234 754761	UK	494909	242446	Manager ATS
Dundee	Dundee Airport	DD2 1UH	01382 643242	UK	336868	729382	Senior Air Traffic Controller
Doncaster/ Sheffield	Robin Hood Airport	DN9 3RH	01302 624870	UK	46603	39807	ATC Manager
East Midlands	East Midlands Airport	DE74 2SA	01332 852910	UK	445367	326168	Duty Engineering Officer
Edinburgh	Edinburgh Airport	EH12 9DN	0131 317 7638	UK	314389	673842	Duty Air Traffic Engineer
Exeter	Exeter Airport	EX5 2BD	01392 367433	UK	300326	93702	Senior Air Traffic Controller
Farnborough	Farnborough Airport	GU14 6XA	01252 526015	UK	485452	153678	Senior Air Traffic Controller
Filton	Filton Aerodrome	BS99 7AR	0117 969 9094	UK	359103	180229	Senior Air Traffic Controller
Glasgow	NATS, Control Tower	PA3 2SG	0141 840 8029	UK	247869	666993	Manager Engineering
Gloucestershire	Gloucestershire Aerodrome	GL51 6SR	01452 857700	UK	388598	221747	Duty Aerodrome Controller
Guernsey	Guernsey Airport	GY8 0DJ	01481 237766	CI	528960	5476102	Senior Air Traffic Controller
Hawarden	Hawarden Airport	CH4 0DR	01244 522012	UK	334748	364998	Senior Air Traffic Controller
Humberside	Humberside Airport	DN39 6YH	01652 682022	UK	509295	409914	Air Traffic Manager



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Aerodrome name	Address	Postcode	Telephone	UK/CI/NI	Easting	Northing	Aerodrome POC
Inverness	Inverness Airport	IV2 7JB	01667 464293	UK	277380	851836	ATC Inverness
Isle of Man	Isle of Man Airport	IM9 2AS	01624 821600	UK	228463	468452	Senior Air Traffic Engineer
Jersey	Jersey Airport	JE1 1BW	01534 492226	CI	558699	5451100	Senior Air Traffic Controller
Kirkwall	Kirkwall Airport	KW15 1TH	01856 886205	UK	348020	1008196	Senior Air Traffic Controller
Lands End/ St Just	Lands End Aerodrome	TR19 7RL	01736 788944	UK	137630	28983	Senior Air Traffic Controller
Leeds Bradford	Leeds Bradford International Airport	LS19 7TU	0113 391 3277	UK	422418	441129	Duty Air Traffic Engineer
Liverpool	Liverpool Airport Plc	L24 1YD	0151 288 4300	UK	343507	382196	Senior Air Traffic Controller
London City	London City Airport	E16 2PX	020 7646 0205	UK	542674	180487	Duty Air Traffic Engineer
London Gatwick	London (Gatwick) Airport	RH6 ONP	01293 601060	UK	526676	140318	Duty Air Traffic Engineer
London Luton	London Luton Airport	LU2 9LY	01582 395029	UK	512422	220804	Duty Air Traffic Engineer
London Stansted	London Stansted Airport	CM24 1QW	01279 669316	UK	553916	223081	Duty Air Traffic Engineer
Londonderry/ Eglinton	City of Derry Airport	BT47 3PY	028 7181 1099	NI	253681	422039	Senior Air Traffic Engineer
Manchester	Manchester Airport	M90 1QX	0161 499 5025	UK	381796	384132	Duty Air Traffic Engineer
Manchester Woodford	Manchester Woodford	SK7 1QR	0161 439 3383	UK	390174	382355	Senior Air Traffic Controller
Manston	Kent International Airport	CT12 5BP	01843 825063	UK	633140	165662	Senior Air Traffic Controller

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Aerodrome name	Address	Postcode	Telephone	UK/CI/NI	Easting	Northing	Aerodrome POC
Newcastle	Newcastle Airport	NE13 8BZ	0191 214 3244	UK	419802	571483	Senior Air Traffic Controller
Northolt	RAF Northolt	HA4 6NG	020 8833 8228	UK	509755	184987	Air Traffic Supervisor
Norwich	Norwich Airport	NR6 6JA	01603 420645	UK	622014	313753	Tels/Engineering
Oxford/ Kidlington	Oxford Airport	OX5 1RA	01865 844272	UK	446949	215594	Senior Air Traffic Controller
Pembrey	Pembrey Airport	SA16 0HZ	01554 891534	UK	240360	204220	Senior Air Traffic Controller
Plymouth	Plymouth City Airport	PL6 8BW	01752 515341	UK	250511	60229	Senior Air Traffic Controller
Prestwick	Glasgow Prestwick International Airport	KA9 2PL	01292 511107	UK	236746	626815	Senior Air Traffic Controller
Redhill	Terminal Building	RH1 5YP	01737 823377	UK	530105	147698	Senior Air Traffic Controller
Scatsta	Scatsta Aerodrome	ZE2 9QP	01806 242791	UK	438844	1172284	Senior Air Traffic Controller
Scilly Isles/ St Marys	St Mary's Airport	TR21 ONG	01720 422677	UK	92020	10300	Senior Air Traffic Controller
Shoreham	Shoreham Airport	BN4 5FJ	01273 467377	UK	519999	105406	Senior Air Traffic Controller
Southampton	Southampton Airport	SO18 2NL	023 8062 7113	UK	445278	116962	Duty Air Traffic Engineer
Southend	London Southend Airport	SS2 6YF	01702 608120	UK	586898	189290	Senior Air Traffic Controller
Stornoway	Stornoway Aerodrome	HS2 0BN	01851 707415	UK	145851	933141	Senior Air Traffic Controller
Sumburgh	Sumburgh Airport	ZE3 9JP	01950 460173	UK	439533	1110613	Senior Air Traffic Controller
Swansea	Swansea Aerodrome	SA2 7JU	01792 204063	UK	256904	191635	Senior Air Traffic Controller

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Aerodrome name	Address	Postcode	Telephone	UK/CI/NI	Easting	Northing	Aerodrome POC
Teeside	Teeside International Airport Ltd	DL2 1LU	01325 332811	UK	437041	512801	Senior Air Traffic Controller
Warton	British Aerospace	PR4 1AX	01772 852374	UK	341805	427980	Senior Air Traffic Controller
Wick	Wick Aerodrome	KW1 4QP	01955 602215	UK	336317	952799	Senior Air Traffic Controller
Wolverhampton	Wolverhampton Aerodrome	DY7 5DY	01384 221378	UK	382473	291103	Senior Air Traffic Controller
Wycombe Air Park/ Booker	Wycombe Air Park	SL7 3DP	01494 529261	UK	482630	190993	Senior Air Traffic Controller
Yeovil/ Westland	Yeovil Aerodrome	BA20 2YB	01935 475222	UK	353823	115831	Senior Air Traffic Controller