

Licensing Procedures Manual for Satellite (Transportable Earth Station) Applications

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1 PURPOSE OF MANUAL

This is the Licensing Procedures Manual for Satellite (Transportable Earth Station) applications (TES) and complements the more general licensing policy and procedures described in the overarching Licensing Policy Manual of Ofcom.

This Manual provides information specifically relevant to the licensing of Satellite (Transportable Earth Stations). The manual will be subject to revision as necessary to align with current technological developments for reasons related to the effective and appropriate use of the spectrum.

2 RELEVANT LEGISLATION AND POLICY

2.1 Radio Equipment Directive (Directive 2014/53/EU)

The Radio Equipment Directive (RED) is European legislation which sets out regulatory compliance requirements for radiocommunications equipment in the European Union. The RED updates and replaces Directive 1999/5/EC, the Radio and Telecommunications Terminal Directive (R&TTE Directive) with effect from 13 June 2016. There are many similarities between the RED and R&TTE; equipment must conform with a set of essential requirements, and compliance with harmonised standards offers a presumption of conformity.

A transitional period applies so existing radio equipment covered by the RED but which has been tested and certified in conformity with the R&TTE Directive before 13 June 2016 may continue to be placed on the market until 12 June 2017 (i.e. up to one year after the RED comes into effect) and indeed can be put into service after that date. From 13 June 2017, however, equipment covered by the RED can only be placed on the market if it conforms with the RED.

2.2 Wireless Telegraphy (WT) Act 2006 – Licensing

Installation and use of radio equipment is authorised by a licence issued under the WT Act 2006.

2.3 Wireless Telegraphy (WT) Act 2006 - Spectrum Pricing

The WT Act 2006 provides Ofcom with spectrum management legislation to manage the spectrum more effectively and promote its optimal utilisation. Licence fees are set out annually in regulations made under the WT Act 2006.

2.4 Broadcasting Act 1990

For satellite broadcasting, a Broadcasting Act licence may also be required.

2.5 Directive 2015/1535/EU

Directive 2015/1535/EU is intended to help avoid the creation of trade barriers within the European Community. It requires Member States to notify the Technical Regulations pertinent to a particular licence type to the European Commission to allow Member States the opportunity to comment.

All new and revised Technical Regulations are notified to the EC under the Directive notification procedures. All Technical Regulations are subject to a 3-month mandatory 'stand still period', for consultation which starts when they are received by the EC. Following the

'stand still period' and provided no objections are received from Member States then the new or amended Technical Regulation can be published and implemented.

2.6 Enforcement

Ofcom provides an enforcement service which aims to ensure that licensees operate within the conditions of their licence. On the whole, this requires us to investigate complaints of interference affecting existing licensees.

3 EQUIPMENT REQUIREMENTS

3.1 Minimum Requirements

The "essential requirements" of Article 3.2 of Directive 2014/53/EU include the minimum system requirements that are deemed necessary for reasons related to the effective and appropriate use of the radio spectrum. The information sheet OFW 241 gives a high level description of how spectrum in the UK is used for fixed satellite systems.

3.2 Operational Requirements

Operators are required to conform to all conditions defined within the licence. Details can be found in Section 12.

All transmissions to the satellite must be authorised by the Satellite Operator and the licensed apparatus must comply with their published technical Requirements and the UK Frequency Allocation Tables. Earth station antennas shall not be employed for transmission at elevation angles of less than 10 degrees measured from the horizontal plane to the direction of maximum radiation.¹

The component of effective isotropic radiated power directed towards the horizon and the minimum elevation angle above the horizontal must comply with ITU Radio Regulations and not exceed those limits specified by Radio Regulations RR Nos. 21.8 – 21.15.

The level of off axis equivalent isotropically radiated power (e.i.r.p.) emitted by any earth station brought into service after June 2000 shall not exceed those limits specified in Radio Regulations RR 22.26-22.39 in bands where these limits are applied

In the band 13.78-14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2m. Earth stations with an antenna diameter of less than 4.5m shall operate on a non-interference basis with respect to maritime Radiolocation stations².

The operator adhere to any Health and Safety Executive requirements and must obtain the necessary local permissions from the appropriate authorities at each notified location site prior to commencing operation.

The Apparatus shall be attended at all times during TES operation, and an emergency contact identified for the designated site.

The Apparatus used for transmission complies with the Radio Equipment Directive and all appropriate National Interface Requirements for Satellite Earth Stations in force within the UK.

¹ ITU-RR 21.14

² ITU-RR 5.502

The Antenna Radiation Pattern Envelope meets the minimum performance specified by ITU Recommendation ITU-R S.465, or ITU-R.S.580 for antennas installed after 1995.

3.3 National and International Obligations

The earth station must obtain satisfactory site clearance and coordination for operation at the specified location prior to commencing operation in the UK.

The relevant satellite data shall have been submitted to the ITU in accordance with established ITU procedures.

All transmissions to the satellite must be authorised by the Satellite Operator and the apparatus must comply with their published technical requirements and the UK Frequency Allocation Tables.

All transmissions in the Fixed Satellite Service must be terminated prior to any change of location; unless operating under a specific exemption authorised by Ofcom.

The licensee agrees to participate fully in any subsequent UK coordination and site clearance procedures.

4 TAKE-OVERS, TRANSFERS AND CHANGES OF NAME

Details of the legal provisions surrounding changes to a licensee's circumstances are set out in the overarching Ofcom Licensing Policy Manual.

5 COORDINATION AND SITE CLEARANCE

Due to the nature of transportable earth stations, special clearance procedures are applied. Prior to any transmission, you must apply and obtain clearance using Ofcom's online clearance tool SPECTRAsc.

SPECTRAsc is a site-clearance tool that allows licensees to obtain authorisation to transmit using pre-registered and licensed transportable earth stations (TES).

SPECTRAsc is not a space-segment co-ordination tool; and clearance from SPECTRAsc is not related to any agreement that you may have with a satellite operator.

SPECTRAsc minimises the risk of interference to other licensed services and sensitive sites from TES transmissions and facilitates an on-line rapid clearance process. Immediate clearance cannot be guaranteed for all applications, and for complex cases Ofcom will continue to provide a manual clearance service where necessary.

For all clearance requests, SPECTRAsc produces a clearance response advising the TES operator online and by email of any conditions attached to the authorisation.

Where SPECTRAsc issues a notification of transmissions for civil airports, the notification must be faxed or emailed by the licensee to the relevant Air Traffic Control Centre.

6 PLANNING AND PROTECTION

Licensees must ensure that their apparatus (i.e. equipment with antennas) meet current planning requirements, and where the antennas may constitute a hazard, particularly to aircraft, then it is the applicant's responsibility to obtain appropriate approvals.

7 DISCLOSURE OF INFORMATION

Ofcom will not disclose licensee information to any third party without the express consent of the applicant, however it reserves the right to disclose information relating to operational characteristics and geographical position of the station to others that share the use of the frequency band.

8 DESCRIPTION OF LICENCE PRODUCT

See section 12 which details the terms, provisions and limitations of the licence.

9 LICENCE APPLICATIONS

9.1 General

Prior to TES transmission at a particular location, the TES operator must hold a licence and have obtained clearance using SPECTRAsc for each and every transmission. The licensee must appoint an individual officer to be responsible for the correct operation, supervision and maintenance of that earth station, and supply details to Ofcom.

It is the licensee's responsibility to obtain consent from the relevant satellite operator prior to transmission.

9.2 Making your Application

Before making an application, you should remember that no matter who applies on your behalf, you are still legally responsible for all actions carried out on your proposed radio system. Any false information may lead to the granting of the licence being refused or revoked. Also, the licence application form does carry legal status from an evidential point of view and applicants are therefore asked to sign the declaration.

Form OfW 101 should be used for TES applications in geographical areas and frequency bands managed by Ofcom. You can obtain a copy of the OfW 101 application form from the Ofcom website, www.ofcom.org.uk

9.3 How to complete your application form

It is essential that all questions are answered as fully as possible. Incomplete forms will be returned to the applicant. You should consider each question mandatory unless otherwise stated.

9.3.1 New Customers

If you are a new customer, it is particularly important that you include all contact details on your application form, so that Ofcom can set up a new customer account.

9.3.2 Checking your application

Please ensure that you fill the licence application legibly, completely and accurately. Any missing information may result in a delay to the process or the form being returned. Information subsequently found to be inaccurate may render any licence invalid.

9.3.3 Licence Fees

Fees for Satellite (Transportable Earth Station) licences are calculated according to the frequency band of operation along with the maximum bandwidth being accessed and the aggregate power supplied to the antenna. Details are provided in the relevant Statutory Instrument (S.I.) on Wireless Telegraphy (Licence Charges) Regulations, available from the Office of Public Sector Information website at www.opsi.gov.uk.

9.3.4 Payment Method

New customers will be billed on issue of the licence. Amendments will be billed on renewal of the amended licence. Payments should be made payable to the "Ofcom". Permitted methods of payment are described in the Ofcom generic Licensing Policy Manual.

9.3.5 Where to send your form

Please send applications to:

Spectrum.licensing@ofcom.org.uk

9.3.6 Applying for individual clearance using SPECTRAsc

The online tool SPECTRAsc can be accessed via the Ofcom website <http://www.ofcom.org.uk>.

Before using SPECTRAsc to apply for clearance to transmit, you must first have registered your equipment and obtained a licence. A licence can be obtained by completing application form OfW101 and returning it to Ofcom. The application form is available on the Ofcom website.

10 DISCLAIMER

Revisions to this document will be done periodically or when there is a substantive need to update the document. This document can therefore only be fully accurate at the time of writing and Ofcom apologises for any inaccuracies that may occur between major revisions. Please contact Ofcom if you have any queries or concerns.

If Ofcom are prevented from issuing appropriate documents to an applicant, for example as a result of an internal system failure, a temporary alternative may be provided.

11 CONTACT DETAILS

For information regarding the Satellite (Transportable Earth Station) licence, please contact:

Ofcom Spectrum
Licensing
PO Box 1285
Warrington. WA1 9GL

Email: Spectrum.Licensing@ofcom.org.uk

Telephone: 020 7981 3131

Ofcom website: www.ofcom.org.uk

12 THE SATELLITE (TRANSPORTABLE EARTH STATION LICENCE)

Wireless Telegraphy Act 2006

Satellite (Transportable Earth Station) Category

<X>

Sector/class/product	Satellite Services / Light / <Product>
Licence number	<Lic_No>
Licensee	<Lic_Name>
Licensee address	<Address>
Licence first issue date	<Date>
Licence version date	<LV_Date>
Payment interval	<P_Intv>

1. This Licence is issued by the Office of Communications ("Ofcom") on **<Date>** and replaces any previous authority granted in respect of the service subject to this Licence by Ofcom or by the Secretary of State.
2. This Licence authorises **<Lic_Name>** ("the Licensee") to establish, install and/or use radio transmitting and/or receiving stations and/or radio apparatus as described in the schedule(s) (hereinafter together called "the Radio Equipment") subject to the terms set out below and subject to the terms of the General Licence Conditions booklet (Version OF195.1).

ISSUED BY OFCOM

SATELLITE (TRANSPORTABLE EARTH STATION)

SCHEDULE 1 TO LICENCE NUMBER <Lic_No>

TERMS, PROVISIONS AND LIMITATIONS COVERED BY THIS LICENCE

This schedule forms part of Licence <Lic_No>, issued to <Lic_Name>, the Licensee on <Date>, and describes the terms and equipment specifications covered by this licence.

1. The Licensee may establish and use:

Transportable sending and receiving Earth Station(s) ("the Station(s)") for the purpose of providing Wireless Telegraphy links between the Station(s) and Geostationary Satellite(s).

2. Limitations on use.

The Stations(s) shall:

- a) Use only the antenna type(s) specified in the Antenna Type column of the schedule;
- b) operate only in accordance with the conditions specified in any variation to licence schedule authorised by Ofcom's online clearance and authorisation tool SPECTRAsc.

3. Apparatus

The Licensee shall ensure that:

- a) The apparatus comprised in the Station(s) (" the Apparatus ") is so designed, constructed, maintained and operated, that its use does not cause any undue interference to other users of the spectrum.
- b) The Apparatus complies with (and is maintained in accordance with) the relevant performance specification(s) published by the operator(s) of the Geostationary Satellite(s).
- c) Earth station antennae shall not be employed for transmission at elevation angles of less than 3 degrees measured from the horizontal plane to the direction of maximum radiation as outlined in ITU Radio Regulation – RR ART. 21.14.
- d) The component of effective isotropic radiated power directed towards the horizon and the minimum elevation angle above the horizontal must comply with ITU Radio Regulations and not exceed those limits specified by Radio Regulations RR ART. 21.8 – RR ART.21.15.

- e) The apparatus used for transmission complies with the Radio Equipment Directive and all appropriate National Interface Requirements for Satellite Earth Stations in force within the UK.
- f) The Antenna Radiation Pattern Envelope meets the minimum performance specified by ITU Recommendation ITU-R S465, or ITU-R S580 for antennas installed after 1995.

4. National and international obligations

- a) The earth station operator must obtain national clearance and coordination at each location prior to commencing operation in the UK.
- b) The relevant satellite data shall have been submitted to ITU in accordance with established ITU procedures.
- c) All transmissions in the Fixed Satellite Service must be terminated prior to any change of location; unless operating under a specific exemption authorised by Ofcom.
- d) The licensee shall comply with any notice given by Ofcom under section 9A of the Wireless Telegraphy Act 2006 requiring the licensee to cease or suspend the uplinking by means of the licensed apparatus of any service specified in such notice by such date as may be specified.
- e) The licensee shall provide such information as Ofcom may request by notice in writing for the purpose of determining whether section 9A of the Wireless Telegraphy Act 2006 applies in relation to a service for which the licensee provides uplink facilities using the licensed apparatus or for any purpose connected with the giving of a notice by Ofcom under section 9A of the Act.

5. Interpretation

In this and subsequent schedules

- a) "Earth Station" means a radio transmitter located on the surface of the earth and intended for communication with one or more satellites.
- b) "Geostationary Satellite" means a satellite in geostationary orbit which remains approximately in a fixed position relative to a position on the surface of the earth.
- c) "Uplink" and any cognate expression refers to a transmission in the Earth-to-space direction.

Notes

1. This licence does not affect the requirement, when necessary, to obtain licences or authorisations under other Acts. Some installations may require Local Authority Planning Approval.
2. The Licensee must apply for a variation of the Licence from Ofcom before making any changes which may contravene the Licence.
3. Technical terms used in this licence shall have the meanings assigned to them in the Radio Regulations.

SCHEDULE 2

Licence No	<Lic_No>	Licence version date	<LV_Date>	Payment interval	<P_Intv>
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Antenna Type	Make/Model	Serial No.	Frequency band*	Tx Gain	Dish Size
<antenna_type>	<model>	<Serial_No>	<band>	<Tx_gain>	<dish_size>

* The associated frequency ranges for each band are as follows:

C band 5.925 – 7.075 GHz

Ku band 13.78 – 14.5 GHz

Ka band 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz, 29.4625 – 30 GHz

13 DEFINITIONS

Fixed Service: A radiocommunication service between specified fixed points.

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 service.

Earth station:

The ITU definition of an earth station applies:

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.

ITU Regulations require that receiving stations should use equipment with technical characteristics appropriate for the class of emission concerned; in particular, selectivity should be appropriate having regard to RR **No. 3.9** on the bandwidth of emissions.

Earth Station Licences for operation in the Fixed Satellite Service bands typically provide for radio transmissions (uplinks) to specific orbital satellite positions, using transponders or spot frequencies that have been independently assigned by satellite operators.

Satellite Network:

A Satellite Network is defined as:

a satellite system or a part of a satellite system consisting of only one satellite and the cooperating earth stations.