GUIDELINES FOR SATELLITE RADIO SPECTRUM LICENSE

January, 2021

National Communications Authority

GUIDELINE FOR SATELLITE RADIO SPECTRUM LICENSES

1. INTRODUCTION

Article 41 for the National Communication Law 2017, prohibits the possession, installation, maintenance, working or use of "apparatus for Satellite radio" without a license granted by National Communication Authority (NCA) under the same Act. The licensing of apparatus for Satellite Radio Spectrum Services is governed by the NCA. The terms and conditions under which a license is granted, see Appendix 1.

In this document, the NCA sets out its guidelines for all applicants wishing to apply Satellite Radio Spectrum Service licenses. NCA encourages all applicants to read these guidelines carefully before submitting an application.

Satellite stations are used to transmit and receive radio, television and telephone transmissions anywhere via satellite. Satellite communication has been considered as the most reliable means of communications. Due to its global nature, most of the spectrum management is done internationally through ITU-R. Satellite operators intending to deploy their space station in space are required to launch coordination request to ITU-R via national administrations. Similarly, coordination may also be required before deployment of large earth stations. Small Earth Stations such as VSATs as being low powered terminals are not required to be coordinated. In Somalia, space station licenses are required for only Somali registered satellite networks. The terms & conditions for operating space station(s) are agreed and issued for the Somali registered satellite operator as and when required. However, for operation of Earth Stations following licenses are available:

A) Fixed Earth Stations (FES)
B) Satellite Earth Station Network Link
C) Transportable Earth Stations (TES)

Please note that these licenses are for transmitters while receive only satellite stations do not require any individual license.

Appendix A to these guidelines provides the templates of the licenses alongwith the specific terms and conditions and technical schedule(s).

Appendix B to these guidelines provides application form to be used for license applications, modifications, renewals or cancellations. The application form describe the information and any documents that need to be provided for the application to be processed.

2. SUMMARY OF LICENSEE'S RESPONSIBILITIES

Licensees are generally responsible to ensure that:

a) equipment is deployed, operated and maintained to meet the regulations and the terms of the license and to prevent undue interference
b) relevant operational staff of the licensee are trained and certified by the licensee to be competent to undertake their roles
c) records of the operational characteristics of all satellite earth stations are maintained, which shall be made available to NCA for inspection on request
d) the license is current and renewed in a timely manner
e) transmissions at any terminal are disabled if requested by NCA.
f) the clearance to operate at a location should be acquired from the concerned authorities before deployment of the station

Please see Appendix A for detailed terms and conditions.

3. FIXED EARTH STATION

This section provides information on the technical considerations for issuing fixed earth station licenses. Fixed earth stations are sited at fixed locations and may be used to provide fixed services or as feeder links to satellites, which provide broadcast satellite services, mobile satellite services

or aeronautical mobile services accordingly. VSAT hub stations are also covered under the fixed earth station license.

Operation of Satellite earth stations on-board vessels is covered under the Ship Radio Station license and on aircraft under the Aircraft Radio Station license respectively and the respective guidelines may be consulted for further details.

3.1 ELIGIBILITY CRITERIA ELIGIBILITY CRITERIA

Eligible persons who may apply for a permanent earth station license are:

A) Fixed and broadcast satellite service providers that are licensed in Somalia
B) Government ministries and government agencies for fulfilling their own communication needs.
C) Public commercial service providers

3.2 TECHNICAL DETAILS TECHNICAL DETAILS

It is internationally recognised that there is a need to protect aircraft avionics from the possibility of interference arising from earth stations operating in close proximity to airports. Consequently, the deployment and operation of satellite earth stations in areas around and within the perimeter fences of following airports is not allowed:

A) Civil airports
B) Military airport

The following technical conditions are to be followed for operating the satellite Earth Stations in Somalia:

The antenna radiation pattern is required to meet the minimum performance specified by ITU Recommendation ITU-R S.580

Earth stations can only transmit to and receive from the satellite which is specified in the license. All transmissions are required to comply with the technical parameters mentioned in the technical schedule (1) of the license. NCA may require the licensee to provide additional screening at the installation. Site shielding may also be required which can be a natural or manufactured obstruction

positioned between the earth station and potentially interfering stations and / or stations potentially being interfered with.

It is also required that relevant satellite data shall have been submitted to the ITU in accordance with established ITU procedures before deployment of the earth station.

4. SATELLITE EARTH STATION NETWORK LINK

This section provides information on the technical considerations for the issuing of satellite earth station network link licenses. Satellite earth stations operating as a part of a VSAT network (VSAT) or as a part of any such network of terminals where all traffic is routed via satellite are required to be issued a satellite earth station network link license. The communication may be to and from a central control hub earth station in a star configuration, or as mesh network, which in its simplest form may be a point to point VSAT link. The appropriate topology will be selected, by the licensee, depending on the applications and traffic flow requirements. After the issuance of VSAT Service Licenses , this licensing option is available for only foreign missions & Embassies (on reciprocal grounds) and government organizations & security agencies.

4.1 ELIGIBILITY CRITERIA ELIGIBILITY CRITERIA

The satellite earth station network link license cannot be used for the provision of commercial services and is available only for fulfilling the internal communication needs for:

a) Foreign missions and embassies
b) Government organizations and security agencies.

4.2 TECHNICAL DETAILS TECHNICAL DETAILS

Earth station antennas are required to be employed for transmission at elevation angles of not less than 10 degrees measured from the horizontal plane to the direction of maximum radiation as per ITU-R radio regulation as per ITU-R RR 21.14.

The level of off-axis equivalent isotropically radiated power (e.i.r.p.) emitted by any earth station must not exceed those limits specified in ITU-R Radio Regulations RR 22.26-22.39 in bands where these limits are applied.

The Antenna Radiation Pattern Envelope must meet the minimum performance specified by ITU Recommendation S.580.

It is internationally recognised that there is a need to protect aircraft avionics from the possibility of interference arising from earth stations operating in close proximity to airports. Consequently, the deployment and operation of satellite earth stations in areas around and within the perimeter fences of the following airports is not allowed:

A) Civil airports
B) Military airport

The maximum transmitter power is restricted to 50 dBW.

5. TRANSPORTABLE EARTH STATION

This section provides information on the technical considerations for the issuing of transportable earth station licenses. TES operations are commonly associated with the broadcasting industry, where they are used to provide outside broadcast links either back to a studio or directly to a broadcasting satellite. Installations range from small flyaway terminals to terminals carried by large vehicles.

A Transportable Earth Station (TES) License authorizes the deployment of any number of TES terminals in the assigned exclusive channel(s) at any location except the restricted locations mentioned in the technical schedule (1) of the license. However, the planned locations and

technical parameters for each station are to be submitted to NCA 10 working days prior to their deployment as per the format provided in the technical schedule (2) of the license.

The applicants that need to use TES terminals during an event can apply for the temporary license.

5.1 ELIGIBILITY CRITERIA

Eligible persons who may apply for Transportable Earth Station License are

A) Organizations registered in the Somalia for providing broadcasting services
B) organisations which are authorised to provide broadcasting services in Somalia via an authorization issued by the Ministry of Information, Culture and Tourism.

5.2 TECHNICAL DETAILS

Licensees are required to meet the following conditions while deploying / operating the transportable earth stations:

Earth station antennas are required to be employed for transmission at elevation angles of not less than 10 degrees measured from the horizontal plane to the direction of maximum radiation as per ITU-R radio regulation RR21.14.

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

The level of off-axis equivalent isotropic radiated power (e.i.r.p.) emitted by any earth station must not exceed those limits specified in ITU-R 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 must have a minimum antenna diameter of 1.2m. Earth stations with an antenna diameter of less than 4.5m will be operated on a non-interference basis with respect to maritime radiolocation stations in accordance with ITU-R radio regulation RR 5.502.

The operator is required to acquire all necessary permissions at each notified location where the transportable earth station will be deployed prior to commencing operation.

All transmissions in the fixed satellite service must be terminated prior to any change of location. The apparatus is required to be attended at all times during TES operation, and an emergency contact be identified for the designated site.

The Antenna Radiation Pattern Envelope is required to meet the minimum performance specified by ITU-R Recommendation ITUR.S.580.

6. NOTE ON APPLICABLE STANDARDS

Earth station systems must meet the type approval requirements defined by the NCA Type Approval Guidelines for Radio Equipment and Telecommunications Terminal Equipment.

7. COORDINATION REQUIREMENTS

Frequency allocations for space radiocommunication services in Somalia are in accordance with the ITU Allocations for Region 1. A significant number of the bands which are allocated to the space radiocommunication services are also allocated internationally to one or more terrestrial services. This is particularly relevant in the case of bands used for telecommunication applications and it is important therefore that the allocations between satellite and terrestrial services are coordinated. The specific utilisation for the various bands is subject to particular implementation arrangements, such as the relevant intra / inter-service sharing and co-ordination considerations which are mainly derived from ITU specified criteria. Therefore for the uplink (Earth to Space) communication there will be coordination requirements which will be facilitated by NCA. For Organizations planning to launch filing through or on behalf of NCA the Coordination Guidelines for Satellite Network are to be followed.

APPENDIX A: LICENCE TEMPLATES AND TERMS & CONDITIONS

National Communications authority
Federal Republic of Somalia

License Number: **NCA-XXXX/2021**

LICENSE

For the Provision of

Fixed Earth Station License

WHEREAS [Company Name] requested authorization to Fixed Earth Station Services in Somalia under the authority of the National Communications Authority (NCA).

AND WHEREAS, in accordance with mandate and the policy of the Ministry of Post, Telecommunications & Technology, the National Communications Authority, with principal responsibility for Radio Spectrum Licensing, **MAY GRANT** a Fixed Earth Station License.

NOW, THEREFORE, by Article 41 of Communication Act of October 02, 2017 and pursuant to section 2 of its regulations, the National Communications Authority hereby grants a Fixed Earth Station License [**Company Name**]

The [**Company Name**] is hereby authorized to establish, install and work Fixed Earth Station in Somalia for the specified term of this License and subject to the provisions of the Spectrum Regulations and the License terms and conditions overleaf.

Dated: 13 January 2019

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General Manager
National Communications Authority
Federal Republic of Somalia

Terms and Condition

1. **Radio equipment operation**

1.1 The licensee shall not operate any Transportable Earth Station at any restricted location which isdefined in the technical schedule (1).
1.2 Deployment of earth stations belonging to satellites that are not operational at an orbital location known to NCA is not allowed.

2. **Technical conditions Technical conditions**

2.1 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.
2.2 The component of effective isotropic radiated power directed towards the horizon and the minimum elevation angle above the horizontal must comply with ITU-R Radio Regulations and not exceed those limits specified by ITU-R RR Nos. 21.8 – 21.15.
2.3 The level of off axis EIRP emitted by any earth station shall not exceed those limits specified in ITU-R RR 22.26-22.39 in bands where these limits are applied.
2.4 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 stations.
2.5 The operator shall acquire all necessary permissions at each notified location where the earth station will be deployed prior to commencing operation.
2.6 All transmissions on the earth station(s) must be terminated prior to any change of location.
2.7 The apparatus shall be attended at all times during earth station operation, and an emergency contact identified for the designated site for each time it is deployed.
2.8 The Antenna Radiation Pattern Envelope meets the minimum performance specified by ITU-R Recommendation ITUR.S.580.

3. **Definitions**

3.1 EIRP: Effective Isotropic Radiated Power (EIRP) mea EIRP: ns the amount of power that a theoretical isotropic antenna would emit to produce the peak power density observed in the direction of maximum antenna gain.
3.2 ITU: The International Telecommunication Union is t ITU: he United Nations specialized agency for information and communication technologies – ICTs. It allocates global radio spectrum and satellite orbits and develops the technical standards that ensure networks and technologies seamlessly interconnect.
3.3 ITU-R: ITU Radiocommunication Sector (ITU-R) is one of the three sectors (divisions or units) of the International Telecommunication Union (ITU) and is responsible for radio communication.
3.4 Technical Schedule Technical Schedule nical Schedule(1): Part of a radio spectrum license where the technical conditions for using the radio frequencies are defined.

4. Technical Schedule (1)

This schedule forms part of the Transportable Earth Station License No. XXXX issued to XXXX, the Licensee on [Date].

Frequency Channel (s)	
Maximum power allowed	
Restricted Locations	

5. Technical Schedule (2)

This schedule forms part of the Transportable Earth Station License No. XXXX issued to XXXX, the Licensee on [Date].

Earth station details						
E Stn name:						
E Stn location:						
E Stn Lat:		E Stn Long:				
Registration Number of The vehicle (if mounted)						
E Stn height (base):		Antenna height (centre):				
Antenna type / reference:		Antenna details:				
Antenna manufacturer:		Antenna diameter:				
Name of satellite						
Orbital location (longitude)						
Satellite operator:						
Carrier characteristics Carrier characteristics						
Tx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW	
Rx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW	
Tx ant. beamwidth (deg):		Tx ant. radiation pattern:				
Antenna orientation						
Operating angles:	Azimuth (from):		Azimuth (to):		Elevation:	
Date: start of transmissions						
Date: end of transmissions						

National Communications authority
Federal Republic of Somalia

License Number: **NCA-XXXX/2021**

LICENSE

For the Provision of

Transportable Earth Station License (Temporary)

WHEREAS [Company Name] requested authorization to Transportable Earth Station Services in Somalia under the authority of the National Communications Authority (NCA).

AND WHEREAS, in accordance with mandate and the policy of the Ministry of Post, Telecommunications & Technology, the National Communications Authority, with principal responsibility for Radio Spectrum Licensing, **MAY GRANT** Transportable Earth Station License.

NOW, THEREFORE, by Article 41 of Communication Act of October 02, 2017 and pursuant to section 2 of its regulations, the National Communications Authority hereby grants Transportable Earth Station License [**Company Name**]

The [**Company Name**] is hereby authorized to establish, install and work Transportable Earth Station in Somalia for the specified term of this License and subject to the provisions of the Spectrum Regulations and the License terms and conditions overleaf.

Dated: 13 January 2021

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General Manager
National Communications Authority
Federal Republic of Somalia

Terms and Condition

1. Radio equipment operation

1.1 The licensee shall not operate any Transportable Earth Station at any restricted location which isdefined in the technical schedule (1).
1.2 Deployment of earth stations belonging to satellites that are not operational at an orbital location known to NCA is not allowed.

2. Technical conditions Technical conditions

2.1 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.
2.2 The component of effective isotropic radiated power directed towards the horizon and the minimum elevation angle above the horizontal must comply with ITU-R Radio Regulations and not exceed those limits specified by ITU-R RR Nos. 21.8 – 21.15.
2.3 The level of off axis EIRP emitted by any earth station shall not exceed those limits specified in ITU-R RR 22.26-22.39 in bands where these limits are applied.
2.4 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 stations.
2.5 The operator shall acquire all necessary permissions at each notified location where the earth station will be deployed prior to commencing operation.
2.6 All transmissions on the earth station(s) must be terminated prior to any change of location.
2.7 The apparatus shall be attended at all times during earth station operation, and an emergency contact identified for the designated site for each time it is deployed.
2.8 The Antenna Radiation Pattern Envelope meets the minimum performance specified by ITU-R Recommendation ITUR.S.580.

3. Definitions

3.1 EIRP: Effective Isotropic Radiated Power (EIRP) mea EIRP: ns the amount of power that a theoretical isotropic antenna would emit to produce the peak power density observed in the direction of maximum antenna gain.
3.2 ITU: The International Telecommunication Union is t ITU: he United Nations specialized agency for information and communication technologies – ICTs. It allocates global radio spectrum and satellite orbits and develops the technical standards that ensure networks and technologies seamlessly interconnect.
3.3 ITU-R: ITU Radiocommunication Sector (ITU-R) is one of the three sectors (divisions or units) of the International Telecommunication Union (ITU) and is responsible for radio communication.
3.4 Technical Schedule Technical Schedule nical Schedule(1): Part of a radio spectrum license where the technical conditions for using the radio frequencies are defined.

4. Technical Specification

This schedule forms part of the Transportable Earth Station License No. XXXX issued to XXXX, the Licensee on [Date].

Earth station details						
E Stn name:						
E Stn location:						
E Stn Lat:		E Stn Long:				
Registration Number of The vehicle (if mounted)						
E Stn height (base):		Antenna height (centre):				
Antenna type / reference:		Antenna details:				
Antenna manufacturer:		Antenna diameter:				
Name of satellite						
Orbital location (longitude)						
Satellite operator:						
Carrier characteristics Carrier characteristics						
Tx frequency:	GHz	Bandwidth:		MHz	Max. eirp:	dBW
Rx frequency:	GHz	Bandwidth:		MHz	Max. eirp:	dBW
Tx ant. beamwidth (deg):		Tx ant. radiation pattern:				
Antenna orientation						
Operating angles:	Azimuth (from):		Azimuth (to):		Elevation:	

National Communications authority
Federal Republic of Somalia

License Number: **NCA-XXXX/2021**

LICENSE

For the Provision of

Transportable Earth Station License (Permanent)

WHEREAS [Company Name] requested authorization to Transportable Earth Station Services in Somalia under the authority of the National Communications Authority (NCA).

AND WHEREAS, in accordance with mandate and the policy of the Ministry of Post, Telecommunications & Technology, the National Communications Authority, with principal responsibility for Radio Spectrum Licensing, **MAY GRANT** to Transportable Earth Station License.

NOW, THEREFORE, by Article 41 of Communication Act of October 02, 2017 and pursuant to section 2 of its regulations, the National Communications Authority hereby grants to Transportable Earth Station License [**Company Name**]

The [**Company Name**] is hereby authorized to establish, install and work to Transportable Earth Station in Somalia for the specified term of this License and subject to the provisions of the Spectrum Regulations and the License terms and conditions overleaf.

Dated: 13 January 2021

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General Manager
National Communications Authority
Federal Republic of Somalia

Terms and Condition

1. Radio equipment operation

1.1 The licensee shall not operate any Transportable Earth Station at any restricted location which isdefined in the technical schedule (1).

1.2 Deployment of earth stations belonging to satellites that are not operational at an orbital location known to NCA is not allowed.

2. Technical conditions Technical conditions

2.1 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.

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

2.3 The level of off axis EIRP emitted by any earth station shall not exceed those limits specified in ITU-R RR 22.26-22.39 in bands where these limits are applied.

2.4 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 stations.

2.5 The operator shall acquire all necessary permissions at each notified location where the earth station will be deployed prior to commencing operation.

2.6 All transmissions on the earth station(s) must be terminated prior to any change of location.

2.7 The apparatus shall be attended at all times during earth station operation, and an emergency contact identified for the designated site for each time it is deployed.

2.8 The Antenna Radiation Pattern Envelope meets the minimum performance specified by ITU-R Recommendation ITUR.S.580.

3. Definitions

3.1 EIRP: Effective Isotropic Radiated Power (EIRP) mea EIRP: ns the amount of power that a theoretical isotropic antenna would emit to produce the peak power density observed in the direction of maximum antenna gain.

3.2 ITU: The International Telecommunication Union is t ITU: he United Nations specialized agency for information and communication technologies – ICTs. It allocates global radio spectrum and satellite orbits and develops the technical standards that ensure networks and technologies seamlessly interconnect.

3.3 ITU-R: ITU Radiocommunication Sector (ITU-R) is one of the three sectors (divisions or units) of the International Telecommunication Union (ITU) and is responsible for radio communication.

3.4 Technical Schedule Technical Schedule nical Schedule(1): Part of a radio spectrum license where the technical conditions for using the radio frequencies are defined.

4. Technical Specification (1)

This schedule forms part of the Transportable Earth Station License No. XXXX issued to XXXX, the Licensee on [Date].

Frequency Channel (s)	
Maximum power allowed	
Restricted Locations	

5. Technical Specification (2)

This schedule forms part of the Transportable Earth Station License No. XXXX issued to XXXX, the Licensee on [Date]

Earth station details						
E Stn name:						
E Stn location:						
E Stn Lat:		E Stn Long:				
Registration Number of The vehicle (if mounted)						
E Stn height (base):		Antenna height (centre):				
Antenna type / reference:		Antenna details:				
Antenna manufacturer:		Antenna diameter:				
Name of satellite						
Orbital location (longitude)						
Satellite operator:						
Carrier characteristics Carrier characteristics						
Tx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW	
Rx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW	
Tx ant. beamwidth (deg):		Tx ant. radiation pattern:				
Antenna orientation						
Operating angles:	Azimuth (from):		Azimuth (to):		Elevation:	

National Communications authority
Federal Republic of Somalia

License Number: **NCA-XXXX/2021**

LICENSE

For the Provision of

Earth Station Network Link License

WHEREAS [Company Name] requested authorization to Earth Station Network Link Services in Somalia under the authority of the National Communications Authority (NCA).

AND WHEREAS, in accordance with mandate and the policy of the Ministry of Post, Telecommunications & Technology, the National Communications Authority, with principal responsibility for Radio Spectrum Licensing, **MAY GRANT** to Earth Station Network Link License.

NOW, THEREFORE, by Article 41 of Communication Act of October 02, 2017 and pursuant to section 2 of its regulations, the National Communications Authority hereby grants to Earth Station Network Link License [**Company Name**]

The [**Company Name**] is hereby authorized to establish, install and work to Earth Station Network Link Service in Somalia for the specified term of this License and subject to the provisions of the Spectrum Regulations and the License terms and conditions overleaf.

Dated: 13 January 2021

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General Manager
National Communications Authority
Federal Republic of Somalia

Terms and Condition

1. Radio equipment operation

1.1 . Deployment of earth stations belonging to satellites that are not operational at an orbital location known to ictQATAR is not allowed.

2. Technical Conditions

2.1 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.

2.2 The component of effective isotropic radiated power directed towards the horizon and the minimum elevation angle above the horizontal shall comply with ITU-R Radio Regulations and shall not exceed those limits specified by ITU-R RR Nos. 21.8 – 21.15. The level of off-axis EIRP emitted by any earth station shall not exceed those limits specified in ITUR RR 22.26-22.39 in bands where these limits are applied.

2.3 The Antenna Radiation pattern Envelope must meet the minimum performance specified by ITU-R Recommendation S.580.

2.4 In the case of mobile operation, the radio equipment shall employ a stabilised platform with the ability to maintain a pointing accuracy of +/- 0.2 degrees towards the relevant Geostationary Satellite

3. Definitions

3.1 EIRP: Effective Isotropic Radiated Power (EIRP) mea EIRP: ns the amount of power that a theoretical isotropic antenna would emit to produce the peak power density observed in the direction of maximum antenna gain.

3.2 ITU: The International Telecommunication Union is t ITU: he United Nations specialized agency for information and communication technologies – ICTs. It allocates global radio spectrum and satellite orbits and develops the technical standards that ensure networks and technologies seamlessly interconnect.

3.3 ITU-R: ITU Radiocommunication Sector (ITU-R) is one of the three sectors (divisions or units) of the International Telecommunication Union (ITU) and is responsible for radio communication.

3.4 Technical Schedule Technical Schedule nical Schedule(1): Part of a radio spectrum license where the technical conditions for using the radio frequencies are defined.

4. Technical Specification (1)

This schedule forms part of the Satellite Earth Station Network Link License No. XXXX issued to XXXX, the Licensee on [Date].

Number of VSAT earth stations in network:					
Network details					
Network configuration (e.g. Star, Mesh):					
Location of hub:		Lat:		Long:	
Hub bite rate:	kbit/s				
Dependant VSAT uplink:	kbit/s	Dependent VSAT downlink:		kbit/s	
Satellite operator:					
Name of space station:		Orbital longitude:			
Carrier modulation system:					

Earth station details (For Each Earth Station)					
E Stn name:					
E Stn location:					
E Stn Lat:		E Stn Long:			
E Stn height (base):		Antenna height (centre):			
Antenna type / reference:		Antenna details:			
Antenna manufacturer:		Antenna diameter:			
Carrier characteristics Carrier characteristics					
Tx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW
Rx frequency:	GHz	Bandwidth:	MHz	Max. eirp:	dBW
Tx ant. beamwidth (deg):		Tx ant. radiation pattern:			
Antenna orientation					

Operating angles:	Azimuth (from):		Azimuth (to):		Elevation:	