



ZICTA

ZAMBIA INFORMATION AND COMMUNICATIONS TECHNOLOGY AUTHORITY

Satellite Earth Station Licensing Guidelines

June 2018

The Zambia Information and Communications Technology Authority (ZICTA) is provided for under section 4 of the Information and Communication Technologies (ICT) Act No. 15 of 2009 (hereinafter referred to as “the Act”). Section 6 of the Act empowers ZICTA to regulate the provision of electronic communication services and products and monitor the performance of the sector, including the levels of investment and the availability, quality, cost and standards of the electronic communication services. The Authority’s mandate is also reflected in the provisions of the Electronic Communications and Transactions Act No. 21 of 2009.

Under Parts IV and VI of the Act the Authority is empowered to prescribe the manner of application for assignment of scarce resources as well as prescribing standard terms and conditions of such assignments. The Authority, is under Section 7 of the Act, empowered to make guidelines for the better carrying out of its mandate.

Pursuant to the mandate referred to above, the Authority hereby issues these guidelines.

ABBREVIATIONS

BSS	Broadcasting Satellite Service
CAA	Civil Aviation Authority
EIRP	Equivalent Isotropically Radiated Power
ESIM	Earth Stations in Motion
ETSI	European Telecommunications Standards Institute
FSS	Fixed Satellite Service
ICNIRP	International Commission for Non-Ionising Radiation Protection
ICT	Information and Communication Technology
ITU	International Telecommunications Union
RR	Radio Regulations
UHF	Ultra High Frequency
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal
ZEMA	Zambia Environment Management Agency

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I PREAMBLE

These guidelines have been developed pursuant to the Information and Communications Technology Act No. 15 of 2009 of laws of Zambia. The guidelines will be used as a guide to prospective and existing satellite service licensees.

II DEFINITIONS

In these guidelines, unless the context otherwise requires, any word or expression has the meaning assigned to it in the Act-

“*Act*” means the Information and Communication Technologies Act No. 15 of 2009;

“*Authority*” means the Zambia Information and Communication Technology Authority established under section 4 of the Act;

“*Communication*” means sending and receiving of voice, video and/or data by either radio or wired networks;

“*Data*” means electronic representation of information in any form;

“*Earth Station*” means 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;

“*Earth Stations in Motion (ESIMs)*” means earth stations mounted on aircraft, ships and land vehicles for provision of broadband communication services;

“*Hub*” means a centralized node in the earth station star network;

“*Licensee*” means holder of a licence to establish and operate an Earth station;

“*Licensing Area*” means a geographical area centred at a given geographical coordinates of a named location (which is usually a district/town);

“*Radio Determination*” means the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves;

“*Radio Station*” means one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radio communication service;

“*Receive only*” means an Earth Station that shall not transmit any kind of signals but shall operate as receiving stations only;

“*Rural Licensing Areas*” means all other areas that are not included in the list of the urban towns and cities as listed in Annex II;

“*Urban Licensing Areas*” means the broadcasting areas located in urban Zambia as contained in Annex II; and

“*Very Small Aperture Terminal (VSAT)*” means a small satellite earth station using antenna dishes with diameters of up to 2.4 meters to provide communication of voice, data and video;

1. CATEGORIES OF LICENSES

A person intending to establish and operate an Earth station shall apply to the Authority for a licence in the following categories:

1.2 VSAT Licence Categories:

1.2.1 Rural VSAT

Under this category a person shall be authorized to establish and operate a VSAT earth station in a rural licensing area with service provided by a duly locally licenced service provider. Annex I defines Rural Licensing Areas.

1.2.2 Urban VSAT

Under this category a person shall be authorized to establish and operate a VSAT Earth station in an urban location with service provided by a duly locally licenced service provider. Annex I outlines Urban Licensing Areas in this context.

1.2.3 Cross-border VSAT

Under this category a person shall be authorized to setup and operate VSAT Earth stations from a service provider who is not locally licensed. Voice service shall not be allowed for this category.

1.3 Permanent Earth Station

Under this category, a person shall be authorised to setup fixed satellite Earth stations that operate as hubs, television broadcasting feeder links and Earth stations used as gateway facilities for international traffic.

1.4 Satellite News Gathering

Under this category a person shall be authorized to setup and operate satellite news gathering (SNG) services through the use of transportable Earth stations.

1.5 Receive only Earth Station

Under this category a person shall be authorised to setup, operate and receive Earth stations only. Operators shall not be amenable to license fees but shall be required to obtain authorization from the Authority. This requirement for authorization excludes television broadcasting satellite receivers.

1.6 Mobile Satellite Terminals

Under this category users of hand-held and portable Earth station terminals are exempted from individual terminal-by-terminal authorization provided they are type-approved, distributed and the service provided by a duly licenced operator or dealer.

1.7 Earth Stations in Motion (ESIMs)

Under this category a person shall, in consultation with other regulatory agencies, be authorised, to operate earth stations mounted on aircraft, ships and land vehicles for provision of broadband communication services. ESIMs installed on vessels and aircraft shall be authorized as part of aircraft and maritime licenses.

2. FEES

The applicable licence fees for each category shall be as provided for in the Information and Communication Technologies (Fees) Regulations of 2017 as may be amended from time to time.

3. SATELLITE FREQUENCY BANDS

The Frequency of operation available for licensing of various categories of satellite Earth stations are drawn from the National Radio Frequency Spectrum Plan. This plan is updated approximately every 4 years after the World Radio communication Conference. The main frequency bands used for satellite Radio communication services are shown in Table 1. For more details, reference can be made to the Table of Frequency Allocation in the National Radio Frequency Spectrum Plan.

Table 1 Satellite Frequency Bands and Services

Band	Frequency Range	Service
VHF Band	137 - 138 MHz	MOBILE-SATELLITE, METEOROLOGICAL-SATELLITE
	144 - 146 MHz	AMATEUR-SATELLITE
	148-149.9 MHz	MOBILE-SATELLITE
	149.95 - 150.05 MHz	MOBILE-SATELLITE
UHF Band	399.9-400.05 MHz	MOBILE-SATELLITE
	401-406 MHz	SPACE OPERATION, EARTH EXPLORATION-SATELLITE, METEOROLOGICAL-SATELLITE
	406-406.1 MHz	MOBILE-SATELLITE
	435-438 MHz	Amateur-satellite
L Band	1.2 – 2.5 GHz	MOBILE-SATELLITE, RADIONAVIGATION-SATELLITE, EARTH EXPLORATION-SATELLITE, RADIONAVIGATION-SATELLITE, METEOROLOGICAL-SATELLITE, RADIO DETERMINATION SATELLITE
C Band	3 400-4 200 MHz	FIXED-SATELLITE
	5 091-5 250 MHz	
	5 850-6 700 MHz	
Ku band	10.7-13.25 GHz	FIXED-SATELLITE
	13.75-14.5 GHz	
	14.5-14.8 GHz	FIXED-SATELLITE (Feeder Links)
	17.3-17.7 GHz	
Ka band	19.7-20.2 GHz	FIXED-SATELLITE

Band	Frequency Range	Service
	29.5-30.0 GHz	

4. TECHNICAL LICENCE CONDITIONS AND REQUIREMENTS

A Licensee shall, over and above the ordinary conditions, adhere to the following special conditions for Earth station licenses:

4.1. Provision of Public Services

A licensee shall not connect to any public telecommunication network or provide public services or carry third-party traffic under a commercial agreement, unless the licensee has been so authorised in the Network and/or Service licence issued by the Authority.

4.2. Limits for Bands Shared with Terrestrial Services

These limits and requirements apply to Earth stations that share bands with terrestrial services.

4.2.1. EIRP Limits

The EIRP transmitted in any direction towards the horizon by an earth station shall not exceed the limits specified in ITU RR Nos. 21.8 to 21.15 or any amendment thereto.

4.2.2. Minimum Angle of Elevation

Fixed earth station antennas shall not be deployed for transmission at elevation angles of less than 3° measured from the horizontal plane to the direction of maximum radiation.

4.2.3. Off-axis Limits

Off-axis power limits on Earth stations of a geostationary-satellite network in the fixed-satellite service shall be in accordance with ITU-R RR 22.26-22.39 or any amendments made thereto.

4.3. Non-Ionising Radiation Emissions

A Licensee shall ensure that limitations on access, visible warnings and engineering controls are used to limit non-ionising radiation emissions from all types of Earth station installations to conform to limits specified by the ICNIRP and ITU Recommendations. In particular, a Licensee shall adhere to Recommendation ITU-T K.52 or any amendment made thereto which outlines the compliance with exposure standards.

4.4. Satellite News Gathering

A satellite news gathering licensee shall ensure that all necessary permits and clearances for media content production are obtained from relevant authorities.

4.5. ESIMs Technical Requirements

- 4.5.1. ESIMs operating in FSS networks shall not claim protection from, nor cause interference to services having allocations in the band.
- 4.5.2. ESIMs in the C, Ku- and Ka-bands shall be required to meet technical characteristics equivalent to fixed Earth stations and adhere to the regulatory references in the Radio Regulations and the applicable ETSI published standards to ensure protection of existing FSS services and avionics. The applicable bands and standards are shown in Table 2.

Table 2 ESIM Bands and Standards

Band (Earth-to-Space/space-to-Earth) GHz	ITU References	ETSI Standard
5.925-6.425/3.700-4.200	Resolution 902 (WRC-03), ITU-R S.1587-3	EN 301 447
14.0-14.5/10.7-12.75	Resolution 902 (WRC-03), ITU-R M.1643, ITU-R S.1587-3	EN 302 186 EN 302 340
29.5-30.0 / 19.7-20.2	RR No. 5.527A, Res. 156 (WRC15), ITU-R S.2357, ITU-R S.2223, Resolution COM152.	ETSI EN 303 978

- 4.5.3. ESIMs are authorised for provision of broadband services and shall not be used or relied upon to provide safety-of-life services.
- 4.5.4. Operation of aircraft Earth stations outside the country of the aircraft registration requires authorization by the relevant national Administration and/or Civil Aviation Authority of the country where the aircraft intends to flyover or land.
- 4.5.5. A person in charge of a mobile platform shall operate and use the Earth station only for the purpose for which the license was granted and shall be liable for any misuse.

5. GENERAL RADIO LICENCE CONDITIONS

5.1. Operation of radio communication station

A licensee shall only operate a radio communication station for the sole purpose of receiving and/ or transmitting messages and shall only communicate with such stations as authorized by the Authority.

5.2. Site Approval

The Authority shall approve the site or sites at which a radio station will be operated.

5.3. License Duration

This radio license shall remain valid for a period of 12 Months from the date of issue, unless cancelled or revoked.

5.4. Provision of Information.

A licensee of individual spectrum shall furnish to the Authority with any information upon request such as documents, accounts, returns, proposed new sites equipment details.

5.5. Dispute Resolution.

The Authority shall provide for the settlement of disputes arising in connection with the terms and conditions of the license.

5.6. Breach Of license term and Conditions.

A Licensee shall be liable to pay fines for any breach of any specified terms and conditions of the licence.

5.7. License Renewal.

A licensee shall apply for renewal of the radio Licence at least three (3) months before date of expiry. The Licence shall only be renewed upon the payment of prescribed fees where applicable and where there has been no breach of licence terms and the law on the part of the applicant.

5.8. License Expiry and use of frequency

Any use of the frequencies after date of expiry is illegal

5.9. License not transferable.

A Radio license shall not be bought, sold, leased, mortgaged or charged, or in any manner assigned, demised or encumbered.

5.10. Notice not to renew license

The licence may be renewed upon the licensee's written notice to the Authority which notice shall be submitted not less than three (3) months before the expiry of a licence in a prescribed manner upon the payment of a prescribed fee.

5.11. Compliance.

A Licensee shall establish, install and operate its radio station and comply with the provision of the Act, Regulations and provision of this license at all times.

5.12. Exclusivity

The allocation or assignment of the frequency or frequencies shall not be construed as conferring an exclusive right in respect of such frequency or frequencies.

5.13. License suspension or cancellation

A radio license may be cancelled or suspended, revoked where the licensee fail to operate within the provisions of the Act, Regulations or of these terms or conditions

of the radio license.

5.14. License Withdraw

A licensee shall within six months from the date of issue of the license commence operations in default of which the license shall lapse.

5.15. Interference

A licensee shall not operate any radio equipment that causes undue interference to other existing radio services.

5.16. Equipment Operation and Labelling

A licensee shall clearly label its equipment and antennas in the manner and form as prescribed by the Authority.

5.17. Amendment of License

The Authority reserves the right to amend this Licence where the Authority determines that such amendment is necessary in the public interest, to achieve the objectives of the Act ,the Regulations or any other relevant Policy and/or Regulatory Requirement provided that the Authority shall issue to the Licensee ninety (90) days' notice of such intention.

5.18. Type Approval of Equipment

A licensee shall ensure that all radio equipment and devices used under this license is type approved by the Authority and complies with all approved industrial standards.

5.19. Approval for Erection of Stations

A Licensee, shall before erection of any radio station-

- (a) Seek the approval of the Authority; and
- (b) Ensure full compliance to all restrictions and conditions as specified by other relevant Laws in force in Zambia.

5.20. Inspection

The Authority shall in accordance with the provision of the ICT Act carryout inspections of equipment and perform any measurements for the purpose of assessing its performance or to ensure that the equipment is being used in accordance with the Terms of this Licence, Act ,Regulations or Guidelines issued by the Authority.

5.21. Comply with other Agencies

A Licensee shall fully comply with the requirements of the Civil Aviation Authority (CAA), Zambia Environment Management Agency (ZEMA), Local council and any other applicable Authority with regard to all aspects of the transmission masts or towers.

5.22. Network Information

A licensee shall provide the Authority with an up to date list of radio station equipment make, model, serial number and physical location.

5.23. Authority Not Liable

The Authority is not responsible for any damage or liability that may arise with Respect to structural failures in towers and buildings, and electromagnetic radiations.

6. THE APPLICATION PROCESS

6.1 Online Application

Applications for satellite Earth stations are completed online via the Online Spectrum Management System found on the Authority website:

- <https://webcpreistration.zicta.zm/>

The process for the application is two-fold.

- 1) Registration process to register (if you are a new applicant) ; and
- 2) Licence application

To complete the actual application, the essential technical information listed in Annex iv will be required.

6.2 Application Documentation

The applicant shall submit the following mandatory documentation via the online spectrum licensing portal:

- 1) A certified copy of a valid company registration in Zambia in the case of companies, or certified copy of either National Registration Card (NRC) or passport in the case of individuals.
- 2) A written permission from owner of premises/sites authorizing radio equipment installation where applicable.
- 3) A letter of support from identified Electronic Communication Network and Service provider.
- 4) Schematic Network diagram for the earth station network setup.

A completed online application and any supporting documentation uploaded will form the basis of the Authority's processing of the license and subsequent decision on any application made. It is therefore, in the interest of an applicant to supply/submit all relevant information pertaining to the application. The Authority may request for further particulars or information in relation to the application

Incomplete license applications will not be processed by the Authority until all the required information is submitted by the applicant.

6.3 Non -Refundable Application Processing Fee

An Applicant shall be required to pay a non-refundable application processing fee upon submission of a completed online application. The non-refundable application processing fee may vary from time to time subject to provision of the Regulations in force on fee issued under the Act.

6.4 Decision Notification

The Authority shall

- (a) notify the applicant in writing of its decision on the application.
- (b) where the applicant is successful, advise the applicant on the required license award preconditions such as payment of the initial license fees

Unsuccessful applicants shall be accorded another opportunity to lodge in a fresh application on condition that the reasons given for initial rejection by the Authority are rectified.

6.5 Payment of Annual License Fees

The successful applicant shall be required to pay the required annual license fees within 30 days of the licence application approval.

6.6 License Issuance

The issued license shall specifically designate/indicate the frequency/frequency range and all applicable technical conditions.

For further Information contact:

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Annex I: Licensing Areas

Urban Licensing Areas are towns and cities with a population of more than approximately 50,000 people (Zambia 2010 Census Of Population and Housing, Migration And Urbanisation Analytical Report, Central Statistical Office). Currently, the qualifying 18 urban centres are listed in Table 4.

(1) Urban Licensing Areas

Table 3 Urban Licence Areas

No.	Urban Centre Name	Licensing Area Reference Centre Coordinates	
1	Lusaka	28°22'00" E	15°26'00" S
2	Kitwe	28°13'00" E	12°47'00" S
3	Ndola	28°38'00"E	12°59'00"S
4	Kabwe	28°15'00" E	14°10'00" S
5	Chingola	27°51'00"E	12°32'00"S
6	Mufulira	28°14'00"E	12°33'00"S
7	Livingstone	25°59'00" E	17°30'00" S
8	Luanshya	28°24'00"E	13° 8'00" S
9	Chipata	32°36'00" E	13°35'00" S
10	Kasama	31°10'00" E	10°12'00" S
11	Solwezi	26°25'00" E	12°10'00" S
12	Mansa	28°53'00" E	11°10'00" S
13	Chililabombwe	27°50'00"E	12°22'00"S
14	Mazabuka	27°44'00"E	15°51'00"S
15	Kafue	28°10'00"E	15°45'00"S
16	Choma	26°58'00"E	16°50'00"S
17	Kalulushi	28° 5'00"E	12°50'00"S
18	Mongu	23°08'00"E	15°15'00"S

(2) Rural

Rural licensing areas in the context are all areas in Zambia NOT listed as Urban Licensing areas in Table 4.

Annex II: Technical Information Required for Completion of Online Application*Table 4 Essential Earth Station Technical Information*

Geographical Information			
Earth Station Site:			
Town/ City:		District:	
Province:			
Coordinates - Lat:		Long:	
Transmitter			
Make:		Model:	
Tx Frequency (GHz):		Bandwidth (MHz):	
Rx Frequency (GHz):		Bandwidth (MHz):	
Tx EIRP (dBW):			
Satellite Name:			
Orbital Location:			
Satellite Operator:			
Antenna Characteristics			
Antenna Type :			
Make:		Model:	
Antenna Gain (dBi/ dBd)			
Elevation (Degrees)			
Azimuth (Degrees)			
Transmission Line			
Transmission Line/ Cable Type			
Transmission Line/ Cable Size			
Total Cable Length (m)			