

NIGERIAN COMMUNICATIONS COMMISSION

Draft

**COMMERCIAL SATELLITE COMMUNICATIONS
GUIDELINES**

30TH JUNE 2008

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Guidelines Objectives & Scope

1. The objectives and scope of these Guidelines are as follows:

Objectives

- a) The objectives of these guidelines shall be:
 - i) To ensure a well developed and organized satellite communications market in Nigeria with appropriate legal framework that meets international best practices, encourages innovation and guarantees public safety in the rendering of commercial satellite services.
 - ii) To manage scarce frequency resource, especially in bands where satellite shares frequency with terrestrial systems and to encourage the use of satellite connectivity to un-served areas that lack terrestrial transmission infrastructure backbone.
 - iii) To encourage the use of satellite communication infrastructure in Nigeria as a means of providing long-haul transmission facilities and ensure that investors are adequately protected.
 - iv) To provide guidelines for protection from impermissible levels of interference to reception of signals by earth stations in the Fixed/Mobile Satellite Service from terrestrial stations in a co-equally shared band.
 - v) To ensure that satellite space segment providers provide reliable, cost-effective and secured service to users in Nigeria under fair and favourable commercial and technical conditions. This provision, by extension, covers associated players in the supply chain as well as Earth Station service providers, Bandwidth Re-sellers and vendors of terminal equipment or franchise holders.
 - vi) To ensure a standard means of obtaining accurate records of all users of satellite services in Nigeria in order to simplify and facilitate interference resolution among satellite service providers, or between satellite and terrestrial systems.
 - vii) To ensure regular update of facilities' database for use in processing satellite coordination requests from neighbouring countries, International Telecommunications Union (ITU), regional telecommunications organizations and regulatory authorities in other countries.

- viii) To ensure that the general public and workers in telecom companies are well protected from possible health hazards that can arise from over exposure to high level electric fields at high frequencies.

Scope

- b) The provisions of these guidelines apply only to the following:
 - i) Commercial Satellite Services, i.e. those who provide service to third parties or who own satellite space segments or earth station for self-provision support of their businesses.
 - ii) Space Segment Providers, earth station providers, Bandwidth resellers, IDA operators, GMPCS providers and suppliers of user terminal.
 - iii) GSO and non-GSO satellites including LEO's, MEO's, HEO's, HAPS, and other similar orbits that may be developed in future.
 - iv) Those already providing services to Nigerian users prior to the release of this Policy and future satellite service providers.
- c) For avoidance of doubt, all military and non-commercial government satellites are outside the scope of this policy. Equally, radionavigation satellites, armature satellites, earth exploration and space research satellites, Broadcasting satellites and receive-only ground stations do not come within the scope of this policy.

Licence selection criteria

- 2 a) The following technical and operational issues shall be taken into consideration in the license approval process:
 - i) Lifetime of satellite/orbit/inclination.
 - ii) Multiple Access Method.
 - iii) Transponder redundancy, space segment redundancy, RF redundancy.
 - iv) Type of modulation.
 - v) Link budget and fade margin.
 - vi) C/I ratio.
 - vii) Transponder traffic loading.
 - viii) Saturation flux density at satellite input.
 - ix) Number of earth stations, linkages, number of gateways.
 - x) Received power level contour.
 - xi) Location of Network Control Centre, Network Operating Centre.

- b) In addition to the foregoing, applicants will be required to show evidence of the following service capabilities:
 - i) Service Scalability: There must be service flexibility such that single subscribers can sign-on whatever data rate they desire. Whole transponders or fractional transponder capability may also be required.
 - ii) Multiple Service Mode: Shared bandwidth, guaranteed bandwidth and dedicated bandwidth.
 - iii) Sign-on time variable of between few hours to months or years.
 - iv) 24-Hr On-line Technical Support.
 - v) Commercial conditions imposed on users such as payment terms, liability, quality of service guarantee, etc.
 - vi) Local representation in Nigeria.
 - vii) Evidence of ITU coordination filings and license from the operator's host country regulator, for space segment providers.

Licence Process

- 3. a) Service providers wishing to provide service or obtain landing rights in Nigeria must obtain and complete an application Form.
- b) Upon the grant of a license under these guidelines, the following guarantees shall inure in a licensee:
 - i) Nigerian Communications Commission (NCC) guarantees protection of satellite service providers and prompt action in the event of interference to its services by earth station located in the territory of Nigeria. The licensee shall however be obligated to provide details of the source of interference and the geographical location of the interfering party.
 - ii) The operator will be certified and accredited for the processing of funds transfer through the Central Bank of Nigeria for the purpose of paying for the satellite services.
 - iii) The Commission will give full support to the licensee in case of any request for coordination.
 - iv) The Commission shall also render any other support within the scope of the commission's powers and statutory duties.
 - v) All successful applicants will be issued license documents stipulating full details of rights, privileges and obligations.

Authorization for Landing Rights

- 4) A satellite operator authorized by another Administration can request, on its own initiative, the authorization of the Commission to provide services in Nigeria. Once the approval of the Commission is obtained, a non-Nigerian space station is eligible to serve Nigeria and the name of that satellite shall be included in the list of "Authorized Space Stations",

- 5) An applicant for a license for International Satellite Operation shall:
 - a) formally register its legal representative in Nigeria with the Commission, with a commitment to keep this data up to date, and to provide the space segment solely through the aforementioned representative;
 - b) obtain Agency recognition to the effect that prior technical coordination of orbiting parameters and the associated frequency bands with the Administration of Nigeria has been carried out, in accordance with ITU Radio Regulation procedures;
 - c) submit simplified technical information on the satellite system, indicating its possible uses, orbiting parameters, frequency bands and geographical areas to be covered, (footprints) and any other relevant data;
 - d) submit any other documents issued by a competent authority showing the terms authorized in the country of origin for use of the space segment;
 - e) comply with legal and regulatory conditions and standards governing satellite use, especially the provisions contained in the Act;
 - f) pay for license for the foreign satellite landing rights and for use of the associated radio frequencies, an amount determined by the Commission ;
 - g) submit formal undertaking to the effect that it shall submit quarterly to the Commission, information on the following:
 - i) all new activations and updates (in the event that there are changes) of access to the space segment granted.
 - ii) submit the degree of compliance with the parameters of quality of service applicable to the provision of space segment.

- 6) Only persons that have been licensed or granted a permit or authorization to provide telecommunication services may provide such services via satellite.

Licensee's Obligations

- 7) In addition to any other obligation provided by the Act or other legislation, a licensee under these guidelines shall be bound by the following obligations:
 - i) A licensee shall provide accurate information relating to network systems, operations and subscribers, such as location, Transmit power, etc. as may be required by the Commission.
 - ii) A Licensee shall ensure that no user or operator is provided service or connected to its network without license from the Commission.
 - iii) In view of the fact that satellite networks support vital telecom infrastructure with bearing on safety of life and national security, a licensee shall not disconnect or cause cessation of service to a Nigerian user without a written permission from the Commission, even if such cessation is as a result of debt owed. If no such express permission is received from the Commission within 14 working days, after recorded delivery to the Commission, the licensee shall deem the request as thereby granted and shall then be at liberty to effect the disconnection.
 - iv) Network Security: A licensee shall ensure that the subscriber's security is guaranteed and accordingly, the licensee shall not at any time grant a direct access to subscriber data to a third party.

Specific License Conditions

- 8) In addition to the foregoing, a licensee shall always comply with the following conditions:
 - i) All satellite space segment providers must obtain landing rights from the Commission before being allowed to provide services to users within the Nigerian geographical territory, including air space and territorial waters.
 - ii) All satellite space segment providers may permit only end-users who are licensed by the Commission to have access into their network either directly or indirectly through country representatives. Where an intermediate bulk agent or reseller in the supply chain leases a

transponder or bandwidth from the space segment provider, for distribution to smaller users, the provider must ensure that all end-users accessing their network are licensed by the Commission before allowing access.

- iii) Space Segment providers must ensure that power flux densities of their transmitted signals are within the limits specified by ITU when the band in question is shared with terrestrial services.
- iv) Where the Licensee operate several satellites, a separate license is required for the constellation satellites in each separate band, e.g. C, Ku, Ka, since License conditions may vary from band to band.

License Categories

- 9a) Licences under these guidelines shall be categorized as follows:
 - i) Category A: Landing Rights for Space Segment Providers.
 - ii) Category B: Bandwidth Resellers, including VSAT operators.
 - iii) Category C: Earth Station License (EIRP above 0.5kw/100w including Hub Stations)
 - iv) Category D: Sales and Installation of terminal equipment.
 - v) Category E: Space Station
 - vi) An applicant/operator may at any time apply for one or more category(ies) of license.
- b) All VSAT hubs, nodes or remote sites capable of providing 2 way communication must be registered with the Commission, but do not require a license if power output is less than 100w.

License duration

- c) The duration of a license issued by virtue of these guidelines shall be 5 years, or the remaining life span of satellite, whichever is less.

License Renewal

- d) All licenses shall be subject to renewal after expiration and all applicable fees are payable on renewal. The Commission reserves the right to review its license fees from time to time.

Licensing Criteria

- e) Licensing of earth stations, space segments, VSAT terminals and landing rights are on the basis of first-come-first-serve or any other licensing mode specified by the Commission upon compliance with technical standards.

Processing Time

- f) The Commission shall process all licenses applications within three months or notify the applicant in the same time frame of unsuccessful application.

Application

- g) License application Form shall be available from the Commissions offices nationwide or at the Commission's website (www.ncc.gov.ng).

VARIOUS LICENSES

Network Operator and Service Provider Licensing

10._a) Public network operators shall be licensed so as to guarantee quality assurance for the service being provided. The licenses referred to here shall be known as Service Provider Licenses, Value Added Service Licenses or certain types of Class Licenses.

Individual and Blanket Earth Station Licensing

- b) Every VSAT or mobile terminal shall be licensed individually; in addition to the network operator's license.

CONSUMER ISSUES

Operational Support

- 11. a) All Space Segment providers shall maintain 24 hours operational support to clients in Nigeria to attend to technical and operational issues. In this regard, all calls made for maintenance support shall be at the expense of the Space Segment provider.

End-user Terminal License

- b) No operating license shall be required for the use of portable terminal equipment by end-users.

- c) Corporate users with multiple VSAT terminals connected to a hub shall not be required to obtain license for each earth station installed. However, all remote sites must be registered with the Commission.
- d) Receive-only earth stations are not subject to licensing but must be registered with the Commission.
- e) Space Segment Providers are not obligated to maintain an office in Nigeria. However, they shall have an authorized representatives in Nigeria who shall also act as contact person for information exchange.

Service Outage

- 12._a) Any service outage lasting for more than 6 (six) hours shall entitle the customer to an outage credit equivalent to the pro-rated service fee due for that portion of time during which the outage lasted
- b) Space Segment service providers shall ensure that their customers comply with all conditions guiding the use of satellite services in Nigeria and all conditions stipulated in respect of connections to public switched telephone service or the national network.
- c) Resellers and service providers shall not transmit any international traffic across the Nigerian borders without a written permission from the Commission.

Health and Safety

- 13. a) All satellite dishes except for receive-only must be located at least the distances stated below, from residential areas or any buildings, depending on the EIRP, as follows:

Vertical/Horizontal	Distance
20w	- 5m
50w	- 10m
100w	- 15m
1k	- 50m
5kw	- 100m

- b) Transmitters shall not be located in hospital premises, airports, seaports, satellite on board ships, except with prior approval of the Commission, upon an expert's advice.
- c) No earth station shall be located within 100m of the geographical boundary of an airport and all towers shall be fenced

- d) Without derogating from the generality, the provisions of Chapter 5 of the Commission's *Guidelines on Technical Specifications for the Installation of Telecommunications Masts & Towers* shall apply, mutatis mutandis, to these Guidelines.
- e) For disaster relief for satellite operations, the provisions of the United Nations Tampere Convention shall apply.
- f) All space segment providers, whether private or treaty-based, recognized by ITU, or that have satisfied ITU filing conditions will be eligible for landing rights licenses in Nigeria. They will also be allowed to directly sign on users, subject to the Commission certification.
- g) Custom duties on satellite equipment will be the same as applicable to telecommunication equipment.

Suspension of Services to a Customer & Quality of Service

- 14._a) Any interruption of services to a particular end-user or customer by a licensee due to a fault from the transmitting earth station and/or in breach of the terms of the contract shall be subject to prior notification and approval by the Commission. The licensee shall also show proof that the customer has been served necessary advance notice and at least a reminder.

Provided that the Commission reserves the right to order the suspension of services to a particular end-user or customer as a result of non-compliance with the Commission's guidelines.

- b) Licensees shall always maintain a quality of service not less than 99.5 percentile.

Ground Segment

- 15) In addition to licensing of the space segment, authorization requirements for satellite service providers and individual licensing for earth station facilities is mandatory before any Satellite Ground Equipment is allowed.

Fees and Charges

- 16) The commission shall administer the following fees with respect to satellite licenses:
- a) A one-off administrative fee (for application) in respect of costs related to the issuing, monitoring and enforcement of a license shall be paid.

This shall be the sum of N50,000.00 or as may be reviewed by the Commission.

- b) Spectrum usage fee, which shall be based on the economic value of the spectrum. The following table shall guide the commission in imposing spectrum fees:

Band	Flat Fee	
L	20,600,000.00	
C	45,600,000.00	
Ku	22,800,000.00	
Ka	3,420,000.00	
S/No	Landing Rights	Amount Per Annum
i	Class I (less than 100 kHz aggregated band (width))	₦2,000.00 per annum
ii	Class II (bandwidth between 100KHz and 2MHz)	₦10,000.00 per annum
iii	Class III (bandwidth greater than 2MHz)	₦20,000.00 per annum

- c) Licensees will, in addition, and upon final approval, pay annual regulatory fees as follows:

S/No	Annual Regulatory Fees	Amount Per Annum
i	Processing fee	₦50,000.00
ii	Landing rights and permit to provide service	₦500,000.00
iii	Sales and Installation of Terminals	₦500,000.00

VSAT Terminal Fees

- d) License fee will depend on number of remote sites for closed user groups and are renewable annually as follows:

S/No	Terminals	Amount Per Annum
i)	1-20 terminals	₦500,000.00
ii)	21-100 terminals	₦1,000,000.00
iii)	101-300 terminals	₦2,500,000.00
iv)	301-500 terminals	₦5,000,000.00
v)	501-1000 terminals	₦10,000,000.00
vi)	Transportable Earth Stations	₦1,500,000.00

Mobile Earth Station Fees

- e) Portable Mobile Satellite Earth Stations and receive only stations are license exempt

Late Payment

- f) Any license fees not paid as and when due shall attract a delinquency charge at the rate of 1.7% per month until the license fee is settled.

Satellite Filing

- 17. a) A satellite network filing may only be submitted to ITU by an Administration of an ITU member State.
- b) All filings for earth stations or space stations shall be done electronically and in accordance with the format specified by ITU through the Ministry of Communications.
- c) The process and procedures for Satellite filings have been articulated and will be published and may be amended by the Commission from time to time.

Coordination

- 18. a) The Coordination procedures stated in Appendix 7 of the ITU Radio Guidelines shall be applicable to these Guidelines.
- b) In addition, an applicant requesting for earth station license in Nigeria shall be required to submit detailed coordination contours and interference analysis where operating band is allocated on co-primary or secondary basis. However there shall be no coordination requirement in primary allocations that are exclusive.
- c) Operators are expected to adhere strictly to the following ITU-R series recommendation and guidelines on sharing between fixed services and fixed satellite services:
SF. 356 - 4, SF. 357 - 4, SF. 358 - 5, SF. 406 - 8,
SF. 1004/5/6/8, SF.1193, SF. 1320

and other applicable 600/700 series recommendation or amendments thereof.
- d) Space Segment providers must engineer their system in such a way that the following capability and flexibility are in-built into their system:
 - ii) Ability to vary power received in response to request.
 - iii) Lease period (minimum 6 months).

- iv) Monthly payment of service fee.
 - v) Change of centre frequency.
- e) Where the space segment provider is forced to pre-empt or interrupt service in a transponder in order to protect the satellite in case of emergency, the provider must within such a period as may be agreed with the client make alternate provision for continuation of service via a spare transponder or another satellite in its constellation and give reasonable notice before interrupting the service.
- f) Space segment providers shall submit terms and conditions of service to the Commission for approval and any changes thereof must be approved by the Commission before coming into force. Such approvals shall be granted within 90 days of application failing which they shall be deemed approved. Operational requirements shall also be subjected to approval by Commission.

Type Approval

19. a) All satellite ground stations equipment and end-user terminals must be type-approved by the Commission before being imported or put into service in Nigeria. Manufacturers will be allowed, for each model, to obtain general certification for their equipment after which users will not be required to type-approve other units purchased.
- b) Type Approval may however be waived where applicant or licensee satisfies the commission that ITU certification has been given under GMPCS Memorandum of Understanding with respect to the equipment in issue.
- c) Self-declaration of conformity by manufacturers shall not be tenable as alternative to the requirement of type approval under this regulation.

Technical Parameter

20. a) Digital VSAT networks operating in the 12/14GHz band shall have a maximum outbound downlink EIRP density of +10dBw/4kHz per carrier and earth station antennas with maximum input power density of -14dBw/4kHz.
- b) Analog VSAT networks operating in the 12/14GHz or 4/6GHz bands shall have a maximum outbound downlink power density of + 17dBw/4kHz per carrier and maximum antenna input power densities of -8.0dBw/4kHz .

Earth Stations:

- c) All earth stations with EIRP above 1kw (1000 watts) must obtain equipment type approval and site approval from the Commission before importation and installation of equipment. These approvals must be obtained for each site irrespective of whether such equipment has been given a general type approval earlier or not.

Interference Mitigating Techniques

- 21. The Commission shall encourage the use of the following technical means to ensure interference free operation in band shared by both satellite and terrestrial systems:
 - a) Limitation on satellite power flux density (PFD) produced at the surface of the earth
 - b) Limitation on the Effective Instantaneous power radiated by terrestrial stations.
 - c) Maintenance of high antenna performance standards.
 - d) Controlling the elevation angles of satellite earth station antennas in order to limit power radiated to the horizon.
 - e) Ensuring minimum separation between terrestrial stations and satellite earth stations.
- 22. For avoidance of doubt, the Commission shall always adopt radiation limits specified by ITU in Article 21 of the Radio Regulations and shall mandate licensees to adhere accordingly.

Conditions for VSAT provision

- 23. a) IDA operating licensing meant for closed user groups are not allowed to carry third party traffic.
- b) IDA operators are not permitted to provide services outside the borders of Nigeria.

APPLICATION FORM FOR SATELLITE OPERATOR LICENSE

- 1) Name of Company:
- 2) Address (Registered):
- 3) Present Telecom Operating Licenses held: Please tick
 - IDA ISP PNL
 - VAN (Prepaid) FWA Full Gateway
 - Community Telephone Others
- 4) Network Topology:
 - STAR
 - MESH
- 5) Proposed Space Segment Provider(s) [e.g. Panamsat, Intelsat, etc]: _

- 6) Capacity/Bandwidth Leased (MBit/sec) (MHz):_-----
—
- 7) Proposed Location of Hub(s): -----
- 8) Hub Station Coordination Completion: YES NO
- 9) Planned Area of Operation (i.e. location of remote/subscriber units):
 - DOMESTIC
 - CROSS-BORDER

(N.B. no cross-border service can be provided without a complementary IDA License)
- 10) Proposed Service:
 - Data only
 - Data & Voice
 - Multimedia

Definitions

24. Terms and expressions defined in the Act shall have the same meanings in these Guidelines and Policy. In addition, unless the context otherwise requires:

“Act” means the Nigerian Communications Act 2003 and any amendment thereof

“Commercial satellite” means a satellite launched for profit making or business purpose

“Earth station” means the ground component of satellite Tx/Rx component

“Space segment” means any satellite station in orbit

“Military satellite” means a satellite with payload for military applications

“Payload” means application software/services which a satellite is providing

“Radio navigation satellite” means any satellite that uses radio frequency to provide location based services

“Earth exploration satellite” means any satellite that provides pictures or images

“Space research satellite” means any satellite for scientific research

“Broadcast satellite” means any radio or TV broadcast satellite

“Space segment provider” means an owner of a satellite in space

“Earth station provider” means the owner of an earth station

“Bandwidth reseller” means a vendor who sells satellite capacity

“VSAT” stands for “Very Small Aperture Terminal” and means any small fixed earth station used to link to satellites operating in C, Ku and Ka bands

“GMPCS” stands for ‘Global Mobile Personal Communications Systems’

“GSO” stands for ‘Geo-Stationary Orbit’ and means a satellite location at 36,000km above sea level

"GEO" stands for 'Geo-Stationary Earth Orbit' and means any satellite that moves at the same speed relative to the earth

"MEO" stands for 'Medium Earth Orbit'

"LEO" stands for 'Low Earth Orbit'

"HEO" stands for 'Highly Elliptical Orbit'

"HAPS" stands for 'Highly Altitude Platform Station'

"Transponder" means the Transmit/Receive part of a satellite and microwave repeaters carried by a communications satellite

"DAMA" stands for 'Demand Assigned Multiple Access'

"C/I" means 'Carrier to Interference' ratio

"RF" stands for 'Radio frequency'

"SAR satellite" means 'Search and Rescue Satellite'

"ssb" means 'Subscribers'