



## NIGCOMSAT SYSTEM OPERATION GUIDE (NSOG)

Document NSOG–200 (Rev. 01)

### FPROCEDURE OF ACCESS NIGCOMSAT SYSTEM

Approval Date: 1 October 2011

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## 1. PROCEDURES OF ACCESS NIGCOMSAT SYSTEM

Formal procedures for controlling the f earth stations to access the space segment are necessary to prevent interference to other users of the satellite system, to ensure the establishment of a proper interface with the space segment and to maintain system discipline.

The following paragraphs describe the procedures in obtaining approval for an earth station to operate within the space segment.

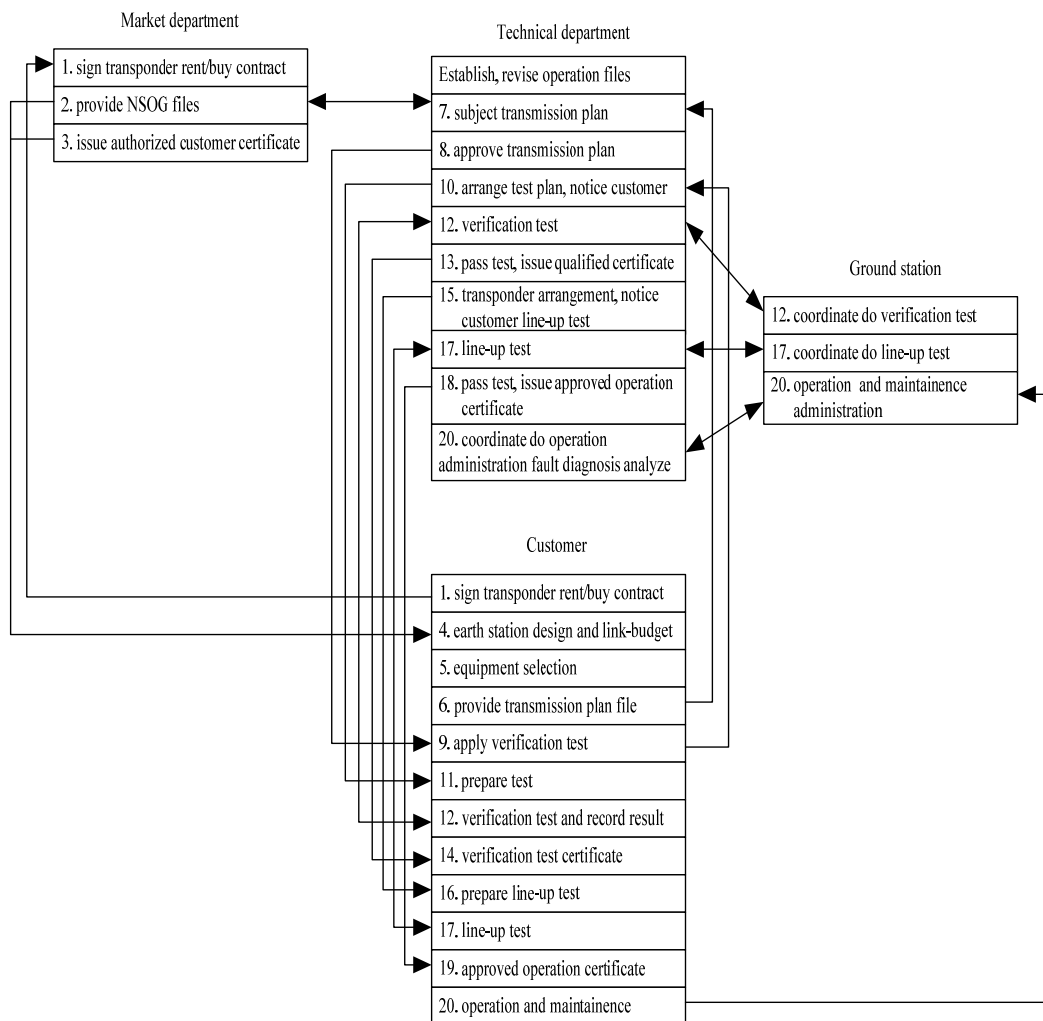


Figure 1 General procedures of access Nigcomsat system

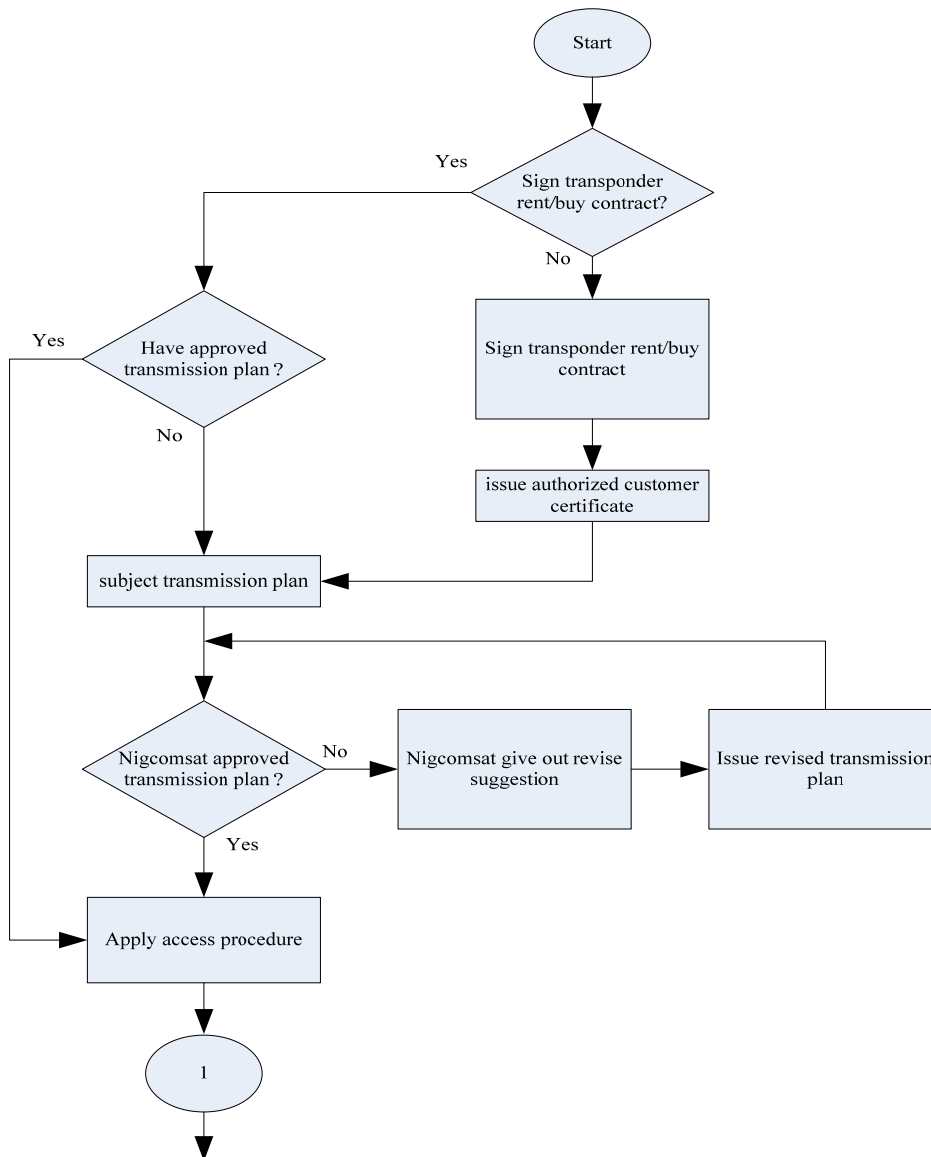


Figure 2 Procedures of providing transmission plan

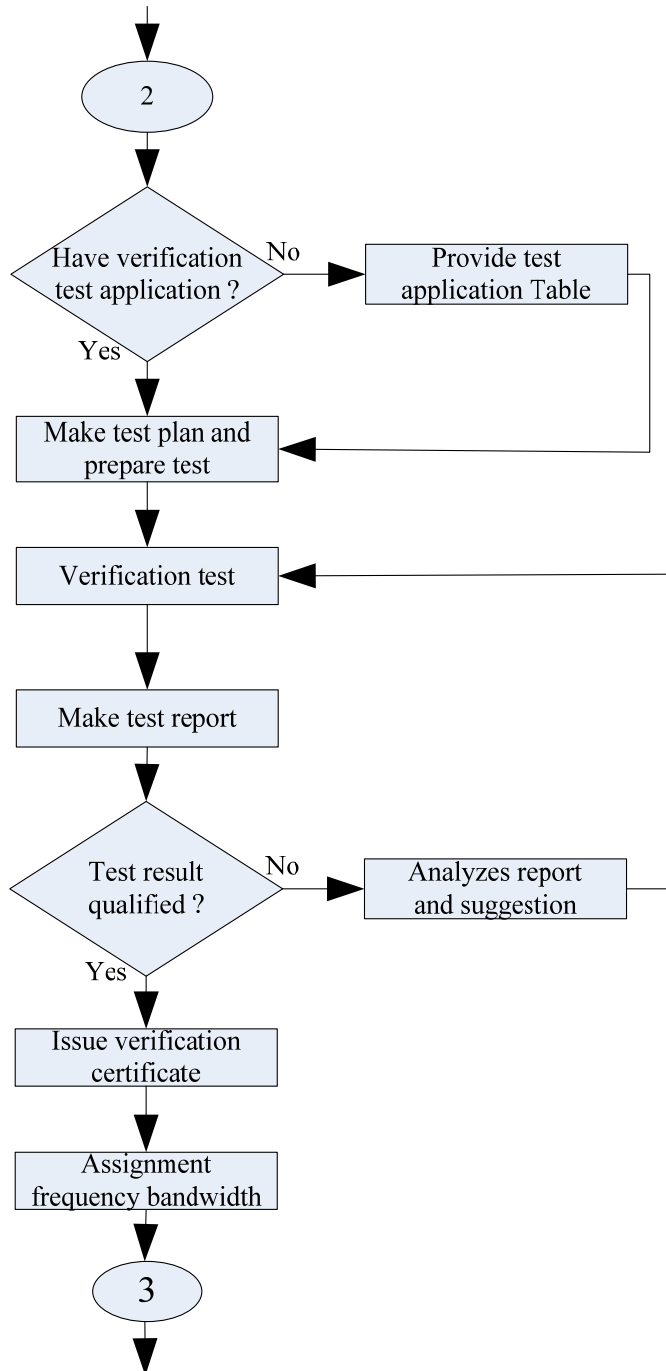


Figure 3 Earth station verification test procedures

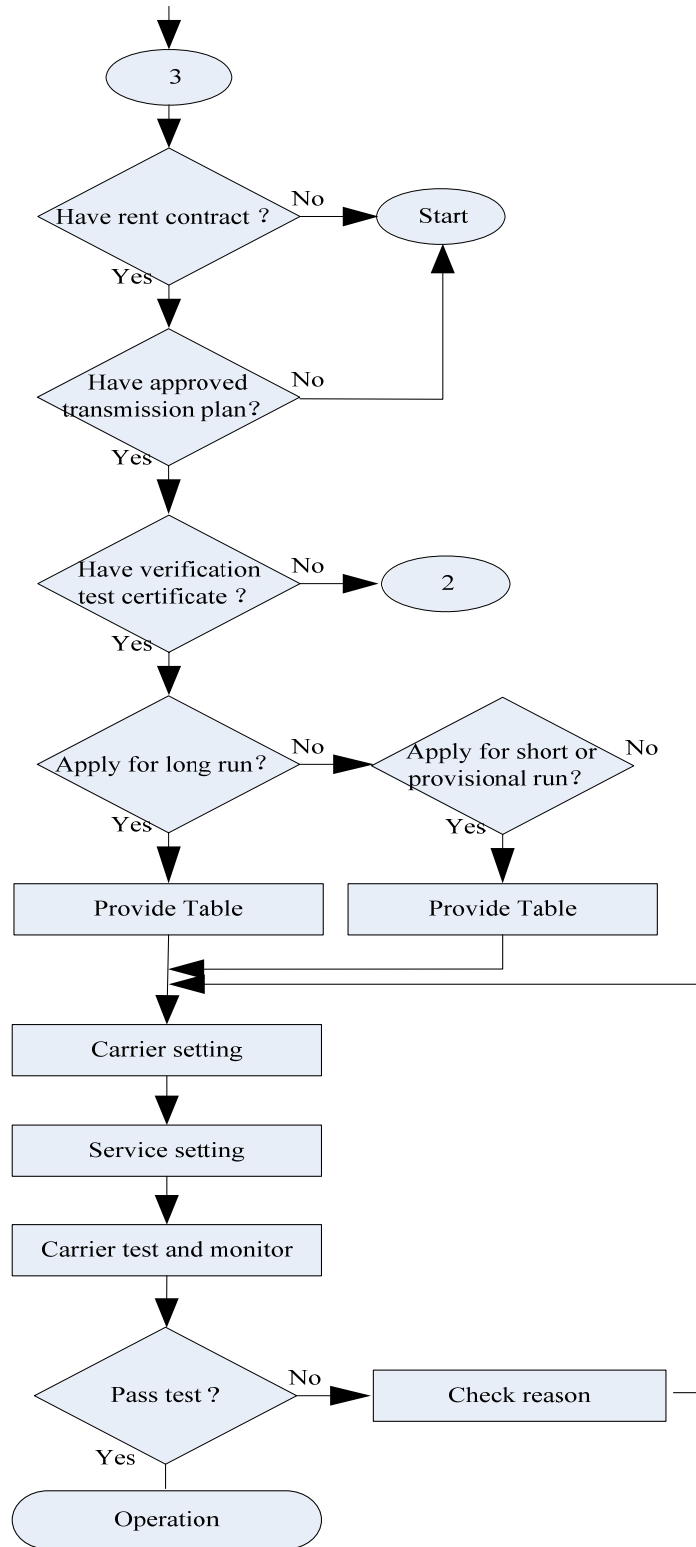


Figure 4 Procedures of earth station line-up test



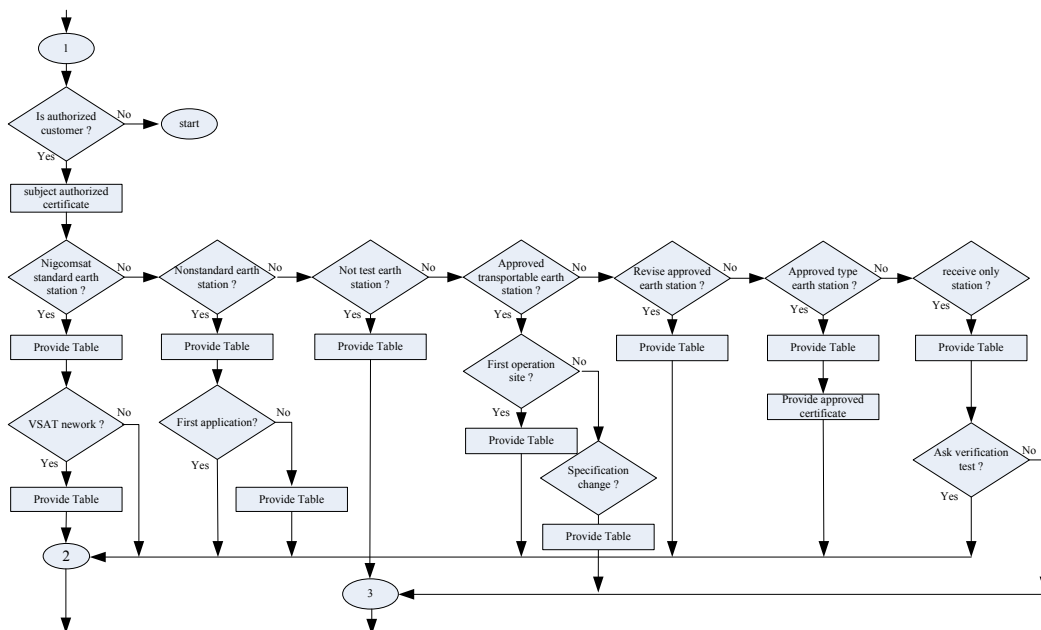
## 2. EARTH STATION REGISTRATION

The earth station approval process is a means of ensuring that quality. The approval of most earth stations requires the submittal of a registration form that includes administrative data, earth station characteristics, and predicted performance data.

It is a major element for any earth station, regardless of type (fixed or transportable) and service, that co-ordination of RF frequency bands in accordance with the International Telecommunication Union Radio Regulations (ITU Radio Regulations) currently in force has been undertaken to prevent later limitations in use. Any constraints shall be reported to Nigcomsat.

The following types of earth stations may become operational in the Nigcomsat satellite system:

- 1) Standard earth stations.
- 2) Special earth stations.



Fi

Figure 5 Different earth station application procedures

## 2.1 The Standard Earth Station Registration Procedures

Standard earth stations comprise Standards A, B, C, E, F, G, H and K as defined in the Nigcomsat Earth Station Standards (NESS) documents. The registration and approval procedure depicts a generic process for the registration and approval of earth stations. The procedure for the registration of a new earth station is as follows:

- 1) If you are not an Authorized customer of Nigcomsat, contact the Nigcomsat Sales or Market staff for guidance on the necessary business arrangements to become an authorized customer of Nigcomsat;
- 2) The Registration, Certification & Test Request forms should all be submitted to Nigcomsat Sales Support;
- 3) Nigcomsat will:
  - Process the registration;
  - Acknowledge receipt & assign a unique Nigcomsat Designator Code;
  - Schedule the verification tests (if required).
- 4) If Nigcomsat facilities have been requested for Verification testing, Nigcomsat will provide a Verification Test Schedule and Test Plan. Earth station under test engineers should review the test plan to ensure they understand the procedures, and have the resources and test equipment to perform verification testing;
- 5) At least one business day prior to the scheduled test time, the Earth Station test engineer must:
  - contact the Nigcomsat Antenna Verification Test Facility to confirm that they are ready to begin testing as planned;
  - Prior to testing the test engineer should ensure the following:
    - A good communications link is available;
    - Provide antenna slew rate and jackscrew measurements;
    - Confirm and meet the planned scheduled test time.



- 6) At the scheduled test time, the earth station test engineers should contact the Nigcomsat Antenna Verification Test Facility to perform verification tests of the antenna. Testing is designed to confirm satisfactory performance of the following key earth station parameters:
  - Transmit antenna gain;
  - Transmit sidelobe patterns;
  - Transmit axial ratio (polarization isolation);
  - Transmit e.i.r.p. and frequency stability;
  - Receive G/T performance.
- 7) On completion of testing, Nigcomsat will forward Verification test results to the Authorized Registrant.
- 8) If Verification testing is successful and the Approval Certification Form was previously submitted with the Registration document, the antenna will be approved. If the Approval Certification form was not previously submitted, the Authorized Registrant will be notified. The Standard Certification Form should be signed by the Authorized Registrant and returned to Nigcomsat Sales Support.
- 9) Approval to radiate carriers for service can only be provided by the Nigcomsat on the successful completion of NSOG line-up tests. Nigcomsat will notify the Authorized Registrant of the appropriate NSOG tests based on the registrant's service request.

## 2.2 The Standard Earth Station Registration and Approval Process

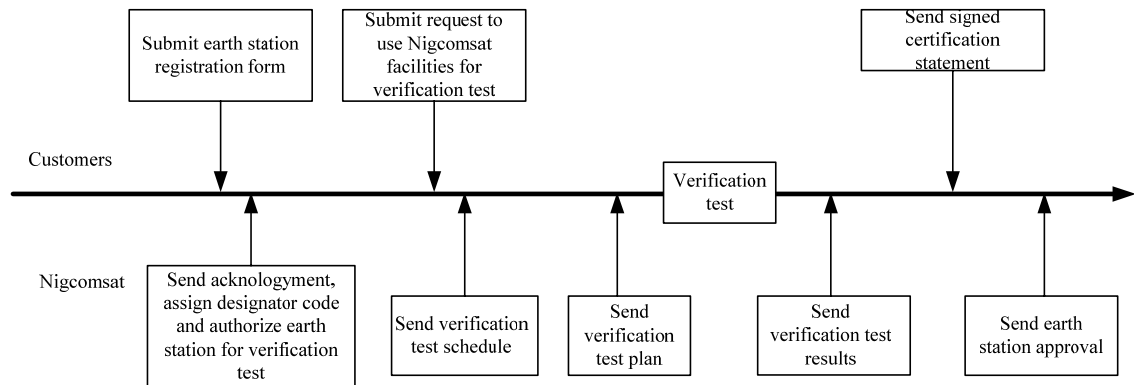


Figure 6 The standard earth station registration and approval process

## 2.3 The Special Earth Station Registration Procedures

### 1) General Terms

In addition to standard earth station, earth station are classified into the following categories to simply the registration and approval

- Previously approved earth stations
- Transportable earth stations
- Untested earth stations
- Nonstandard earth station
- Receive-only earth stations
- Type-approved earth stations
- VSAT earth stations

### 2) Previously Approved Earth Stations

Earth stations in this category generally consist of antennas in one of the following situations:

- Previously operational in the Nigcomsat system & retired from service, now being

reactivated

- Previously operational in another satellite system & moving to the Nigcomsat system

In both cases the Authorized Registrant must submit a new Earth Station Registration form.

In some cases, Nigcomsat will accept the original verification test results for earth stations that previously operated in the Nigcomsat system. If the earth station was relocated, refurbished, repaired or modified during retirement in a manner that modifies the previously approved mandatory characteristics, then retesting of those characteristics will be required.

Nigcomsat is working with other satellite system operators to establish common earth station verification tests so that it may be possible for earth stations approved by another system to simply submit their Earth Station Registration form to Nigcomsat and automatically receive approval to operate in the Nigcomsat system.

### 3) Transportable Earth Stations

The owner/operator of transportable earth stations is responsible for obtaining the necessary approvals from the Authorized Registrant. The operation of an approved transportable earth station needs no further registration or additional Nigcomsat approvals.

### 4) Untested Earth Stations

In response to an Authorized Registrant's need to act quickly for special events, Nigcomsat may grant temporary approval to new earth stations which have submitted an Earth Station Registration form, but are unable to perform verification testing before the special event.

For earth stations in this category, untested approval will be granted only once for a specific earth station and will be limited to a specific duration. It is expected that immediately following the special event the earth station will perform verification testing and obtain permanent approval.

#### 5) Non-Standard Earth Stations

Some earth stations will submit an Earth Station Registration form and perform verification testing, but fail to comply with some element of the minimum earth station standards. However, the other measured performance characteristics may render the earth station acceptable, from the customer's perspective, for a particular service.

In this event the Authorized Registrant may request Nigcomsat's approval as a nonstandard earth station. Nigcomsat will evaluate whether the performance characteristics will create harmful interference to other operational or planned services.

When the operation of such an antenna does not result in harmful interference, Nigcomsat will provide approval as a non-standard earth station. This approval may be limited in duration or limited to a particular type of service.

#### 6) Receive-Only Earth Stations

Receive-only earth stations which are used for carrier-based services should submit an Earth Station Registration form and must verify the receive G/T performance.

The earth station registration form, verification testing and approval of Standard G receive-only earth stations which are used for lease services are optional.

#### 7) Type Approved Earth Stations

Earth station manufacturing technology makes it possible to produce and assemble earth stations that reliably replicate standard performance. This allows Nigcomsat to "type" approve earth stations from manufacturers who have successfully demonstrated the proper design and production quality.

Because complexity and configuration variability of earth stations tends to increase with the size of the antenna, most type-approved earth stations have small aperture antennas.

There are three configurations that are type approved:

- Antenna Models (no transmit or receive electronic equipment)
- Antenna System (includes receive LNA equipment)
- Earth Station (includes transmit HPA and receive LNA equipment)

#### 8) VSAT earth stations

VSAT networks in general comprise one (or more) large Hub Stations and numerous small remote stations (the VSAT terminals) which often located in different places. In the context of earth station approval, the Hub stations are subject to the normal procedures for standard (or non-standard) earth stations. For the VSAT terminals, once type approved the approval is normally limited to a simple registration via the Nigcomsat.

### 3. APPROVAL FOR ACCESS AND OPERATION

#### 3.1 Document of Approval

Following receipt and evaluation of the application, Nigcomsat will register the earth station; provide a document of approval to access the space segment for the earth station. Furthermore, the document of approval specifies conditions and criteria applicable to this earth station. With the issuance of this document, the earth station has obtained”

APPROVAL TO ACCESS THE SPACE SEGMENT". This approval to access can be conditioned by the subsequent successful performance of Earth Station Verification Test (ESVA) and carrier line-up tests.

### 3.2 Verification and Authorization to Operate

Prior to commencement of operations the earth station shall demonstrate compliance with the specified earth station mandatory performance characteristics. Upon successful completion of all verification and initial line-up testing the earth station will be granted "AUTHORISATION TO OPERATE".

The entity to which an allotment of capacity has been made by Nigcomsat will be responsible and liable to Nigcomsat for compliance with the registered performance characteristics and correct operation of the station throughout the allotment period.

When an earth station fails to meet the mandatory performance characteristics and/or its transmitting signals interfere with effective operation of the overall Nigcomsat space segment or other space systems, Nigcomsat may require that earth station to curtail or to cease temporarily operations with the space segment or may even withdraw the "Authorization to Operate" for that earth station until satisfactory performance is restored.

## 4. FORMS

- EARTH STATION REGISTRATION FORM
- REQUEST TO USE NIGCOMSAT FACILITIES FOR VERIFICATION TEST
- REQUEST FOR LINK-BUDGET TO CALCULATE G/T
- EARTH STATION VERIFICATION TEST REPORT
- CERTIFICATION FORM OF NIGCOMSAT
- APPLICATION FOR APPROVAL OF A NEW VSAT NETWORK



**NigComSAT**  
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Rev.01

- 
- REGISTRATION OF REMOTE TERMINALS OF A VSAT NETWORK
  - CHANGE OF USER’S EARTH STATION



EARTH STATION REGISTRATION FORM

Submit to: Nigcomsat sales and market  
 Abuja, Nigeria  
 Telephone:  
 Fax:

Page 1

Signatory	DATE	Direct Access Customer
Today's date DD/MM/YYYY		
Sig./DATE/DAC Name		
Country registered		
Sent by (individual)		
Reference		
Telephone		
FAX		
e-mail		
Earth station name		
Country located		
Approval authority		
<b>Contract information</b>		
Owner		
Telephone		Fax
e-mail		
Earth station operator		
Telephone		Fax
e-mail		
24 hour remote contact		
Telephone		Fax
e-mail		
<b>Nigcomsat antenna type</b>		
	c-band	Ku-band
		Ka-band
Standard C	A B D1 D2	F1 F2 F3 G H2 H3
Standard Ku	H4 C E1 E2 E3	G K2 K3
Standard Ka(diameter)		



EARTH STATION REGISTRATION FORM

Page 2

<b>Type Approved</b>		If type approved, complete item 1-4 in addition to remainder of this form				
1. Nigcomsat Type Approval #						
2. Authority Name						
3. Other Type Approval #						
4. Type Approved as		Antenna model	Antenna system	Earth station		
Attach or FAX a copy of the manufacture's type approval certificate or shipping document for this earth station.						
<b>Antenna information</b>						
Antenna manufacturer						
Antenna model #						
Feed manufacturer		FAX				
Feed model #						
<b>Antenna manufacturer's specifications</b>						
C-band						
Ku-band						
Ka-band						
<b>Usable frequency ranges</b>						
HPA		MHz	to	MHz		
LNA/LNB/LNC		MHz	to	MHz		
Number of feed ports		transmit		receive		
e-mail						
<b>Antenna Shape</b>						
Circular diameters		meters				
Rectangular		By		meters		
Elliptical		By		meters		
diamond		By		meters		
<b>Antenna Feed type</b>		offset	Center fed	Cassegrain	Gregorian	Other
<b>Auto Track</b>		Monopulse	Step	Step with memory	Program only	
<b>Manual</b>		Handcrank	Motors	Fixed	Other	
<b>Design Parameters</b>						
transmit			receive			
Transmit axial ratio		LNA/LNB noise temperature				
Transmit antenna gain		Antenna noise temperature				
HPA Max Rated Power		Receive antenna gain				
Maximum EIRP		G/T		@ elevation angle		

EARTH STATION REGISTRATION FORM

Page 3

<b>Earth station geographical information</b>					
Nearest town					
Altitude above sea level					
Transportable yes/no					
Latitude	north	south	D	M	S
longitude	east	west	D	M	S
Unable geostationary arc					
<b>Earth station type</b>					
truck mount					
Fixed Land					
Marine					
<b>Earth station operation</b>					
Manned full-time					
Manual part-time					
Remotely controlled					
<b>Service information</b>					
Planned operation satellite location	°E				
Check all services which apply					
FDMA					
TDMA					
DVB-S					
<b>Application completed and submitted by</b>					
Name					
Title					
Date					
Additional comments					



EARTH STATION REGISTRATION FORM

Page 4

VSAT and Type-Approved							
Serial number				location			
Name & No.	Antenna	feed	LNA	City or town	latitude	longitude	Altitude above
<b>Application completed and submitted by</b>							
Name							
Title							
Date							



REQUEST TO USE NIGCOMSAT FACILITIES FOR VERIFICATION TEST

Submit to: Nigcomsat sales and market  
 Abuja, Nigeria  
 Telephone:  
 Fax:

Date DD/MM/YYYY					
Sent by (individual)					
Earth station name					
Telephone					
Antenna size (meters)					
Latitude	north	south	Deg	Min	Sec
longitude	east	west	Deg	Min	Sec
Elevation above sea level (meters)					
Proposed test date					
Proposed time					
Antenna pointing limitations					
Slew range (degrees)					
Centered on orbital location					
Slew speed (degrees/second)	Azimuth		Elevation		
Verification to be preformed					
Transmit antenna gain					
Transmit sidelobe patterns					
Polarization isolation					
Antenna eirp and tracking stability					
Receive G/T performance					
Antenna positioner type	Azimuth over elevation		Elevation over azimuth		
<b>Application completed and submitted by</b>					
Name					
Title					
Date					
Additional comments					

REQUEST FOR LINK-BUDGET TO CALCULATE G/T

Submit to: Nigcomsat sales and market

Abuja, Nigeria

Telephone:

Fax:

Nigcomsat earth station code					
Spectrum analyzer manufacturer					
Spectrum analyzer model No.					
<b>Earth station information</b>					
Antenna size (meters)					
Latitude	north	south	D	M	S
longitude	east	west	D	M	S
Elevation above sea level (meters)					
<b>Schedule information</b>					
Test time (UTC)					
Test date					
<b>Nigcomsat spacecraft</b>					
Satellite location (°E)					
Test frequency					
Earth station elevation angle					
Spectrum analyzer test results					
Carrier + Noise level          dBm					
Noise Floor Level                  dBm					
Spectrum analyzer noise floor dBm					
Resolution bandwidth          Hz					
Correction factor (e.g. 0.75 or 1.2)					
C/No measured (dB/Hz)					
Please attached analyzer display results					
<b>Application completed and submitted by</b>					
Name					
Title					
Date					
Additional comments					

EARTH STATION VERIFICATION TEST REPORT

Submit to: Nigcomsat sales and market  
Abuja, Nigeria  
Telephone:  
Fax:

Page 1

<b>Signatory</b>		
Date DD/MM/YYYY		
Company		
Sent by (individual)		
Title		
Telephone		
FAX( e-mail)		
Earth station name		
Nigcomsat earth station code		
<b>Nigcomsat antenna type</b>		
Standard C-band	A B D1 D2 F1 F2 F3 G H2 H3	
Standard Ku-band	H4 E1 E2 E3 G K2 K3	
Standard Ka-band (diameter)		
Measurement facility	Satellite location	antenna test range
<b>Transmit Gain</b>		
Horizontal (measured)	dBi	MHz
Vertical (measured)	dBi	MHz
Measurement method and calculation:		
<b>Transmit sidelobe</b>	Reference 32-29log	Reference 29-25log
Attach the sidelobe patterns measurements:		
<b>Transmit polarization isolation</b>	Horizontal	Vertical
Minimum measured isolation		
Maximum measured isolation		
Satellite isolation		
Test frequency		
Measurement step size azimuth	degrees	degrees
Measurement step size elevation	degrees	degrees
Factory feed measurements	dB	dB
<b>Receive measurement</b>		
Antenna receive gain	dBi	dBi
System noise temperature	° K	° K
G/T measurement	dB/K	dB/K
Attached detailed methods:		



CERTIFICATION FORM OF NIGCOMSAT

The \_\_\_\_\_ was verified tested on \_\_\_\_\_ using the Nigcomsat-1 facility. This earth station is designed to be compliant with the following NESS standard:

**Nigcomsat standard**

- A      B      D1      D2      F1      F2      F3      G      H2      H3      H4
- E1      E2      E3      G      K2      K3

Ka(diameter):

The following verification tests were performed:

Comments:

Transmit antenna gain: \_\_\_\_\_ successfully completed \_\_\_\_\_ \_\_\_\_\_

Transmit sidelobe patterns: \_\_\_\_\_ meets NESS standard \_\_\_\_\_ \_\_\_\_\_

Polarization isolation: \_\_\_\_\_ meets NESS standard \_\_\_\_\_ \_\_\_\_\_

Transmit eirp and frequency stability: \_\_\_\_\_ successfully completed \_\_\_\_\_ \_\_\_\_\_

Receive G/T performance: \_\_\_\_\_ meets NESS standard \_\_\_\_\_ \_\_\_\_\_

**Certification Statement**

We hereby certify that we have received and evaluated the attached earth station verification test data and results for the earth station identified above, and certify that earth station is fully compliant with the Nigcomsat Earth Station Standard specified above. We certify that following Nigcomsat’s approval, this earth station will be operated in compliance with the Nigcomsat Satellite Operation Guide procedures. A complete report of the earth station verification testing will be maintained by the earth station as part



of its permanent record. We certify that once approved by Nigcomsat, all reasonable efforts will be made to ensure that this earth station continues to meet the Nigcomsat Earth Station Standard specified above for the operational life of the earth station. We also certify that we are aware of, and shall adhere to, the specific responsibilities and liabilities under the Nigcomsat Operating Agreement for mis-operation of earth stations.

\_\_\_\_\_  
Signature of the Authorized Applicant                      Title

\_\_\_\_\_  
Name of Authorized Applicant (Print)                      Date

Number of pages attached \_\_\_\_\_





APPLICATION FOR APPROVAL OF A NEW VSAT NETWORK

To: Head of Systems Operations Division

Applicant: ..... Date: ..... Ref: .....

<b>1. GENERAL</b>
1.1 Controlling Hub Station Name: .....
1.2 Earth Station Code (if registered before with Nigcomsat) : .....
<b>2. VSAT NETWORK DATA</b>
2.1 Network Name: .....
2.1.1 Network Topology
<input type="checkbox"/> Meshed <input type="checkbox"/> Star <input type="checkbox"/> Unidirectional <input type="checkbox"/> Bi-directional
2.2 Outbound/Inbound Carriers
2.2.1 Outbound Access Protocol
<input type="checkbox"/> TDM <input type="checkbox"/> CDMA <input type="checkbox"/> other
2.2.2 Inbound Access Protocol
<input type="checkbox"/> SCPC <input type="checkbox"/> TDMA <input type="checkbox"/> DAMA <input type="checkbox"/> CDMA <input type="checkbox"/> ALOHA <input type="checkbox"/> other
2.3 Manufacturer of VSAT Network Management System: .....
2.4 VSAT Control Centre: .....
Address: .....
P.O. Box: ..... Postal Code: ..... Town: ..... Country: .....
Telephone: +..... Facsimile: +..... E-mail: .....
2.5 If not manned 24h/day, state single point of contact: .....
2.6 Operator Name: .....
Address: ..... P.O. Box: ..... Postal Code: .....
Town: ..... Country: .....
Telephone: +..... Facsimile: +..... E-mail : .....



<b>3. NETWORK MANAGEMENT SYSTEM</b>
3.1 Can the VSATs radio equipment be powered off remotely from the Hub (i.e. by removing remotely the supply voltage of the VSATs radio equipment ODU (Outdoor Unit)) <input type="checkbox"/> Yes <input type="checkbox"/> No
3.2. If answer in 3.1 was Yes, state the Number of VSATs that can be simultaneously powered-off with one command from NMS : ....., and state the time necessary to power-off after the command is sent from NMS : .....
3.3 If answer in 3.1 was No, describe means to remotely cease radiation of VSATs from NMS : .....
3.4 Describe the means to change the frequency and EIRP of the VSATs from NMS : .....
3.5 Describe the means to enforce continuous mode of operations of VSATs : .....
3.6 Describe / send by facsimile details of NMS monitoring facilities: .....
3.7 Describe Pointing Methods: .....
3.8 Describe Cross-Polarization Alignment Methods: .....
3.9 Maximum theoretical separation between outbound and inbound frequency: ..... KHz
<b>4. DATA TO BE TREATED CONFIDENTIALLY</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>5. AGREEMENTS AND CERTIFICATION</b>
The applicant agrees with respect to the subject Hub Station and its VSAT Network:
for which he has submitted this application to be responsible and liable to Nigcomsat. for compliance .....with the requirements of the document of approval as specified by Nigcomsat
The applicant also certifies that it is in possession of all the relevant authorizations to operate earth stations, as required by the appropriate National Regulatory Agencies.
Place:..... Date: ..... Signature: .....



REGISTRATION OF REMOTE TERMINALS OF A VSAT NETWORK

Use separate form for each batch of identical type of terminals in the VSAT network

To : Head of Systems Operations Division

Applicant : ..... Date : ..... Ref : .....

<b>1. VSAT NETWORK IDENTIFICATION</b>	
1.1. Network Code : .....	1.2. Hub station Code : .....
<b>2. Nigcomsat Type Approved</b> (if applies), Certificate N° : .....	
<b>3. ANTENNA DATA</b>	
3.1 Manufacturer of main reflector : .....	
3.2 Model (if appl.): .....	3.3 F/D (focal length): .....
3.4 Type	
<input type="checkbox"/> Front fed <input type="checkbox"/> Offset Front fed <input type="checkbox"/> other	
3.5 Main Reflector	
<input type="checkbox"/> Circular    Diameter: .....m <input type="checkbox"/> Non. Circ. Hor. Axis:.....m    Hor. Axis:..... m	
3.6 Frequency Bands [GHz]    Gain [dBi]	
Rx <input type="checkbox"/> 10.70-10.95 .....	Tx <input type="checkbox"/> 12.75-13.00 .....
Rx <input type="checkbox"/> 10.95-11.20 .....	Tx <input type="checkbox"/> 13.00-13.25 .....
Rx <input type="checkbox"/> 11.20-11.70 .....	Tx <input type="checkbox"/> 13.75-14.00 .....
Rx <input type="checkbox"/> 11.70-12.50 .....	Tx <input type="checkbox"/> 14.00-14.50 .....
Rx <input type="checkbox"/> 12.50-12.75 .....	Tx <input type="checkbox"/> 18.10-18.40.....
Rx <input type="checkbox"/> 19.70-20.20 .....	Tx <input type="checkbox"/> 29.50-30.00 .....
3.7 G/T: .....dB/K    at ..... GHz	



<b>4. OUTDOOR UNIT</b>
4.1 Outdoor unit manufacturer : .....
4.2 Outdoor unit model : .....
4.3 Power Amplifier
<input type="checkbox"/> SSPA      Rating: ..... Watt <input type="checkbox"/> other (describe) .....
4.4 Maximum EIRP capability (in the direction of the satellite) : ..... dBW
<b>5. INDOOR UNIT :</b>
5.1 Manufacturer : ..... 5.2. Model : .....
5.3 Typical Eb/No vs BER: ..... dB @ 1E-3..... dB @ 1E-6
<b>6. TERMINAL DATA</b>
6.1 Location Data : Provide location data for all individual terminals of this type in table on the next page.
<b>7. DATA TO BE TREATED CONFIDENTIALLY</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>8. AGREEMENTS AND CERTIFICATION</b>
The applicant agrees with respect to the earth station of : .....
for which he has submitted this application to be responsible and liable to Nigcomsat for compliance with the requirements of the document .
The applicant also certifies that it is in possession of all the relevant authorizations to operate earth stations, as required by the appropriate National Regulatory Agencies.
Place : ..... Date : ..... Signature : .....



**SIMPLIFIED FORMAT FOR PROVISION OF VSAT LOCATIONS UPDATES**

Nigcomsat Network Code: -----

VSAT Antenna Diameter: -----

VSAT Antenna Manufacturer and Model: -----

VSAT Radio Unit Manufacturer and Model: -----

Country	Nearest Town	Latitude				Longitude			
		Deg	Min	Sec	N or S	Deg	Min	Sec	E or W

**Application Form for Changed Items of the Earth Station**

COMPANY:

APPLICANT'S SIGNATURE:

ITEMS	ADD/MODIFY	ORIGINAL TECHNICAL STATUS	MODIFIED TECHNICAL STATUS	REMARKS



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Change of User Information

ORGANIZATION/COMPANY:			
ADDRESS:			POST CODE:
PERSON IN CHARGE:	TEL:	FACSIMILE:	E-mail:
TECHNICAL RESPONSIBLE PERSON:	TEL:	FACSIMILE:	E-mail:

Change of Communication Network

NETWORK NAME:			
DESIGNER:			
ADDRESS:			POST CODE:
TECHNICAL RESPONSIBLE PERSON:	TEL:	FACSIMILE:	E-mail:

Change of the Earth Station Characteristic

	UNIT	MANUFACTURE	MODEL	TYPE	PARAMETER
ANTENNA SYSTEM	ANTENNA TYPE				APERTURE: TRANSMISSION GAIN: FEED LOSS:
	FEED SYSTEM				PORT NUMBER: POLARIZATION: PORT ISOLATION
	TRACKING SYSTEM				TRACKING MODE : AZIMUTH/ELEVATION:
	HPA				SATURATION POWER: EXPERTING OUTPUT BACKOFF: POWER STABILITY: INTER-MODULATION CHARACTERISTIC: BANDWIDTH: SPURIOUS(MAX):
RF SYSTEM	UP CONVERTER				INPUT FREQUENCY RANGE: FREQUENCY ADJUSTMENT STEP: FREQUENCY STABILITY: OUTPUT LEVEL RANGE:
	LNA/LNB/LNC				NOISE TEMPERATURE/NOISE FIGURE: OUTPUT FREQUENCY RANGE:
	DOWN CONVERTER				OUTPUT FREQUENCY RANGE:
	UPC				FUNCTION : YES <input type="checkbox"/> NO <input type="checkbox"/> CONTROL RANGE:
	MODULATION				OUTPUT FREQUENCY RANGE: UTPUT POWER RANGE: MODULATION TYPE: FREQUENCY ADJUSTMENT STEP:
IF SYSTEM	FEED CABLE				LENGTH: m CABLE LEAKAGE: dB

## APPENDIX I NIGCOMSAT SYSTEM OPERATION GUIDE (NSOG)

### Category 1—INTRODUCTORY

NSOG No.	Titles
NSOG101	INTRODUCTION AND NSOG DOCUMENT LIST
NSOG102	TERMS, DEFINITIONS AND ABBREVIATIONS
NSOG103	OPERATIONAL MANAGEMENT COORDINATION AND CONTROL

### Category 2—ACCESS TO THE NIGCOMSAT SYSTEM

NSOG No.	Titles
NSOG200	PROCEDURE OF ACCESS NIGCOMSAT SYSTEM
NSOG201	EARTH STATION VERIFICATION TEST
NSOG202	CARRIER LINE UP TEST
NSOG203	TRANSMISSION PLAN
NSOG204	MONITOR AND CONTROL
NSOG205	NIGCOMSAT TYPE APPROVAL





## APPENDIX II HISTORY OF NIGCOMSAT SYSTEM OPERATION GUIDE ( NSOG)

VERSION

01

APPROVED DATE

2011-10-01



### APPENDIX III REVISION

NO REVISION OF THIS VERSION.