Radio Spectrum Guidelines

Satellite Filing Guide

Relevant to

International Coordination

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National Telecommunications Regulatory Authority (NTRA)

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Introduction

Radio spectrum and satellite orbital slots are considered valuable and limited resources, which need to be managed efficiently to avoid harmful interference between satellite networks. The International Telecommunication Union (ITU) is the United Nations agency in the field of radio spectrum, whereas, it deals with spectrum management and orbital slots to achieve optimal use of such resources.

The satellite network filing can only be submitted to the ITU by an administration of an ITU Member State, National Telecom Regulatory Authority of Egypt (NTRA) acts as the notifying administration for Egyptian satellite networks and represents Egyptian administration in activities carries in the ITU Level to **Register, Coordinate, Record and Protect** Egyptian satellite networks.

Therefore, NTRA develop procedures for satellite filing management used by national satellite operators in order to define the relation between NTRA and national satellite operators to apply the regulatory requirement set by the ITU in order to ensure efficient usage of Radio spectrum and satellite orbital slots which will aid the national satellite operator to achieve their goals of business projects by obtaining international recognition for the national frequency assignments, finalizing the required coordination with the affected administration for national frequency assignments, and reserving the rights of the satellite operators to protect the frequency assignment recorded in Master Information Frequency Register (MIFR) from any potential interference.

Whereas, providing connectivity to all citizens is a major goal. In particular, it is well known that access to information and communication technologies is difficult in rural or remote areas, due to several factors including terrain and their isolation, Space-based connectivity is used to complement terrestrial networks helping to make smart societies a reality and achieve the Sustainable Development Goals (including intelligent transport systems, e-government, tele-education, e-health, e-logistics, smart energy, smart agriculture).

Based on the above, NTRA publishes this guide including the main areas of cooperation with the national satellite operators and the procedures should be followed in the field of space services (Registration of frequency assignments, technical Coordination of Egyptian satellite networks, Recording of frequency assignment in MIFR and Protection of the frequency assignments).

Deployment of Satellite networks:

The process to deploy a satellite network in accordance to the relevant provisions of radio regulations can be divided into **2 phases (**Technical/ regulatory), as follow:

Technical phase

This phase includes the technical parameters and operational measures to provide the services without causing or receipt any harmful interference to/from the other satellite networks. Therefore determining these parameters is the first steps to create the filling submitted to ITU.
Moreover, the submitted technical parameters shall affect the regulatory phase especially the coordination stage

And, the technical elements to deploy a satellite network could be summarized in the following:

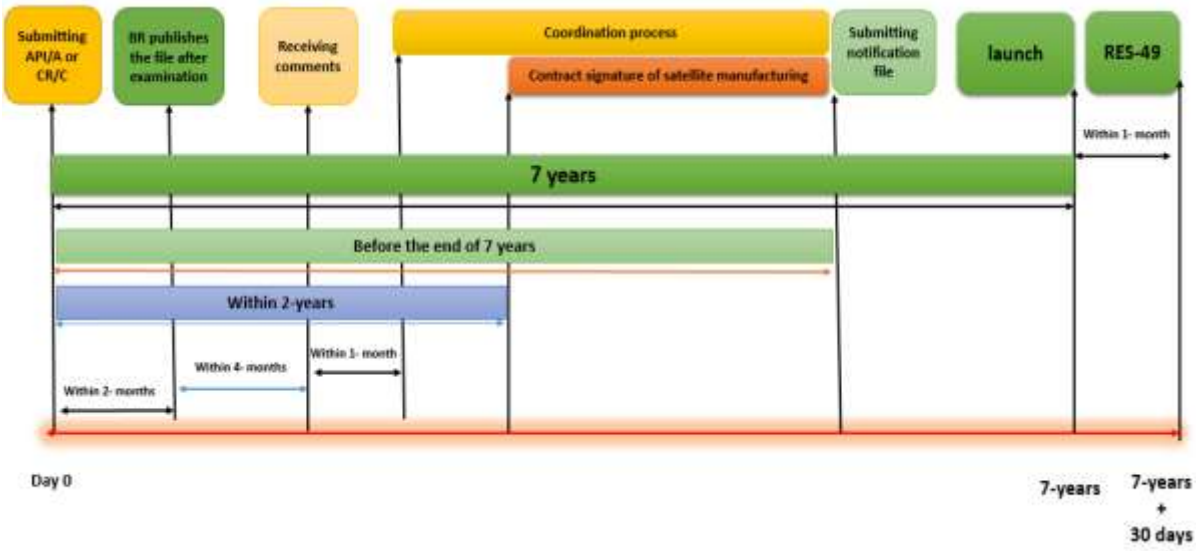
- Identify set of applications, services, usages required from satellite.
- Identify Service area (Global, Regional, Sub-regional, and Country).
- Identify appropriate orbital locations.
- Identify frequencies range of allocated for the required services
- Identify Operation requirements to provide required services
- Develop technical and economic feasibility studies and time plan.
- Initiate Payload Design and procurement.
- Contract with the launcher and launch facilities.

Regulatory phase:

The notified administration should follow regulatory rules stipulated in the RR to allow satellite filing to get international recognition to reserve its right in frequency assignments of the satellite networks recorded in MIFR as mentioned in Article 9, 11, Appendix 30, 3A & 30B of RR.

The regulatory elements to deploy a satellite could be summarized in the following:

- Identifying Submission requirements to the ITU for Recognition process and Submit satellite network files including all technical requirement to the ITU-R (Registration).
- Initiating Coordination process with all potential affected satellite networks (Coordination).
- Submitting final information (Notification Information) after coordination procedure for international recognition of satellite networks as defined by the ITU (Recording).
- Submitting the comments for the satellite networks published in BR-IFIC containing particulars of frequency allotments and assignments to space services, and, issued by the ITU every 2 weeks to ensure interference free operation of national satellite networks (Protection).



Successful apply of these 2 phases will lead to deploy satellite in a timely manner. This guide concerns with regulatory procedures for satellite network filing management indicated above which divided to **4 stages** (A. Registration stage, B. Registration stage, C. Coordination stage and D. Protection stage) for any satellite filing be launched.

A. Registration stage

It is considered the first stage in launching satellite network by defining and submitting the initial information of satellite project to the ITU to get the date of receipt, which is considered the beginning of regulatory deadlines (**7 years** for non-planned satellite networks / **8 years** for planned satellite networks). This information is examined by BR to ensure the matching of RR and including all mandatory data in accordance to appendix 4 of RR and defining the coordination requirements for the satellite networks. After the examination of the satellite filing, the ITU publishes the satellite filing in BR-IFIC, which issued by the ITU every **2 Weeks.**

Procedures:

1. The national satellite operator submits the satellite filing to NTRA to take the appropriate actions regarding this filing.
2. NTRA will examine the satellite filing once received and requesting any additional data if needed.
3. NTRA will submit the satellite filing for publication to the ITU **within 15 working days** from the date of fulfillment of required data.
4. NTRA will acknowledge the national satellite operator with date of submission **within 5 working days** from the date of submission of the satellite filing.
5. NTRA will provide the national satellite operators with the received comments of other administration regarding to the Egyptian satellite filing **within 10 working days** after the end date of the regulatory period (4-Months).
6. The ITU will issue the cost recovery invoice for the submitted satellite filing.
7. The national satellite operators should pay all invoices issued from the ITU, in addition any NTRA financial dues relating to the satellite filing **within 3 months** from the date of the issuance of the payment request.
8. The national satellite operator should inform the NTRA when the payment transfer is done.

The Egyptian administration has the right to nominate one filing per year to the free entitlement of the required Cost recovery from the ITU. Therefore, NTRA nominates the file for each year in a case-by-case basis.

B. Coordination stage

It includes the technical negotiations between the Egyptian administration and all other affected administrations to reach the appropriate technical proposal(s) to eliminate any harmful interference between subjected satellite networks, in addition, it is considered mandatory process for recoding of frequency assignments.

In some cases, the Egyptian administration may request an assistance from the BR to finalize the required coordination with other administration(s).

Procedures:

Case 1: Receiving Coordination request from the national satellite operator(s).

1. NTRA will study the coordination request regarding the Egyptian satellite networks and request any additional data if needed.
2. NTRA will send the final coordination proposal to the affected administrations with a copy to the ITU **within 5 working days** after the date of receiving the request.
3. NTRA will study the response from the affected administrations regarding the coordination request.
4. NTRA will send the response to the concerned national satellite operators **within 7 working days** from the date of receiving the response.
5. In case of no response from other administrations regarding the coordination request, NTRA will send a reminder for the coordination proposal to the affected administration with a copy to the ITU **after 3-6 months** from the date of sending the coordination request proposal.
6. In case of no reply after sending the first reminder, NTRA could send the second reminder for the coordination request to the affected administration with a copy to the ITU **after 2 months** from the date of sending the first reminder.
7. In case of no reply **within 2 months** from the date of second reminder, NTRA will send a request for assistance from the BR according to the applicable provisions of RR (see 9.60 / 13.1 / 4.1.21….) with list of administrations which have not been responded.

8. The BR will send letter to all listed administration(s) in NTRA's assistance request to advise them for reply and make efforts to finalize the required coordination.

Case 2: Receiving Coordination requests from other administration(s).

1. NTRA will study the coordination request when receiving it.
2. NTRA will send it to the concerned national satellite operator **within 7 working day** from the date of receiving this request.
3. The national satellite operator is requested to send its comments regarding this request **within 15 working** days from receiving it.
4. NTRA will study and review the comments provided from national satellite operator regarding the coordination request
5. NTRA will send the final technical response to other administration within **7 working days** from the date of receiving these comments.

NTRA is seeking to finalize the required coordination for the Egyptian satellite filing before the End of the regulatory deadlines of the satellite filing in accordance with applicable regulatory provisions of the RR,

Moreover, NTRA may send to or receive from other administrations a request to hold coordination meeting between the Egyptian administration and other administrations to finalize the coordination process of the satellite networks in accordance the procedures mentioned in (Annex 1).

In summary, the coordination procedures chart mentioned in (Annex 2) shows, the NTRA coordination process regarding the coordination requests from other administrations or concerned operators to finalize the coordination process between the Egyptian networks and other administration's networks.

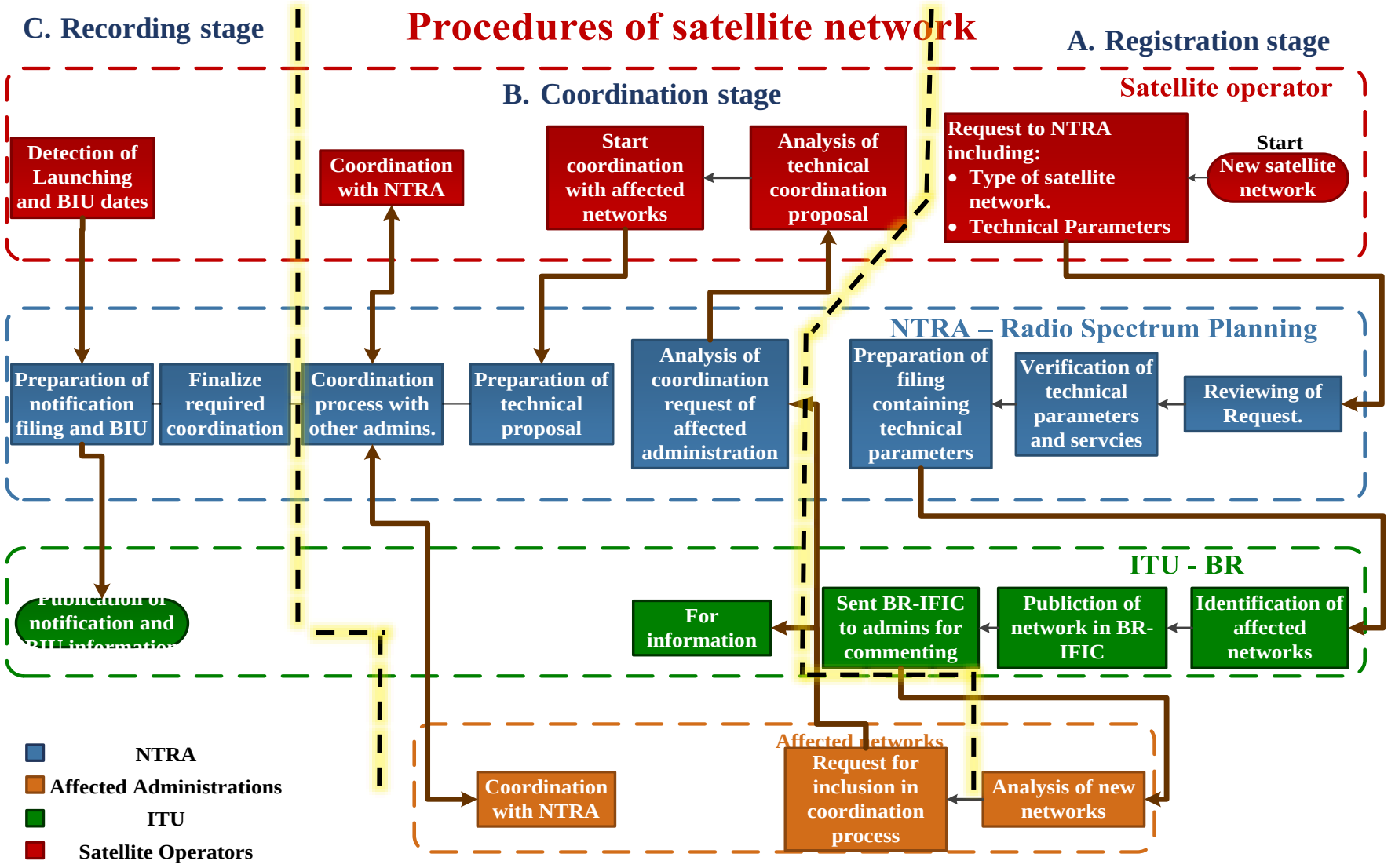
C. Recording stage (Notification- Brought into Use BIU)

Obtaining international recognition for the national frequency assignments requires recording of theses assignments in MIFR. This right oblige other administrations to coordinate with theses assignments when making their own networks in order to avoid harmful interference between satellite networks. Therefore, to achieve successful recording of the national frequency assignments during the regulatory deadlines, NTRA will assist all the national satellite operators.

Procedures:

1. The national satellite operator will submit the final information for the satellite networks filing (Notification file) **at least 6 months** before the end of the regulatory deadline.
2. NTRA will study the information to ensure that the data included in the notification file is complying with the RR provisions and may request any additional data if needed.
3. NTRA will submit the notification file to the BR **within 15 working days** from the date of receiving all required data.
4. The national satellite operator is requested to send to the NTRA the administrative due diligence information for the satellite network(s) filing (RES-49) **at least 3 months** before the end of the regulatory deadline.
5. NTRA will study the RES-49 file to ensure that the data included in the file is complying with the provisions defined by Radio Regulation and request any additional data if needed.
6. NTRA will submit the RES-49 file **within 15 working days** to BR via the e-submission of satellite network filings – ITU).
7. **Within 3 working days,** NTRA will inform the national satellite operator with the date of satellite network filing submission to the BR**.**
8. The ITU will issue the cost recovery invoice for the submitted notification file.
9. The national satellite operator should pay the invoice issued from the ITU, in addition any NTRA financial dues relating to the satellite filing **within 3 months** from the issuance of the payment request.
10. The national satellite operator should inform the NTRA when the payment transfer is done.

11. After a new satellite launching, the national satellite operator shall provide the NTRA with the following documents:
    1. A confirmation letter of a successful launching (when a new satellite is used to bring into use the relevant frequency assignment(s)).
    2. A confirmation letter of the frequency assignment(s) intended to be brought into use.
12. The national satellite operators shall provide the NTRA with the following information if it is required by the BR:
    1. The commercial name of the satellite;
    2. Certified frequency plan provided by the manufacturer of the satellite including information on the payload description (for example block diagram, frequency plan, travelling wave tube amplifier (TWTA) power, number of transponders, transponder bandwidth, and expected orbital mission life (OML));
    3. The results of the in-orbit payload/transponder tests performed upon delivery of the satellite;
    4. The satellite network operator's license application to the administration;
    5. The transponder lease contracts.

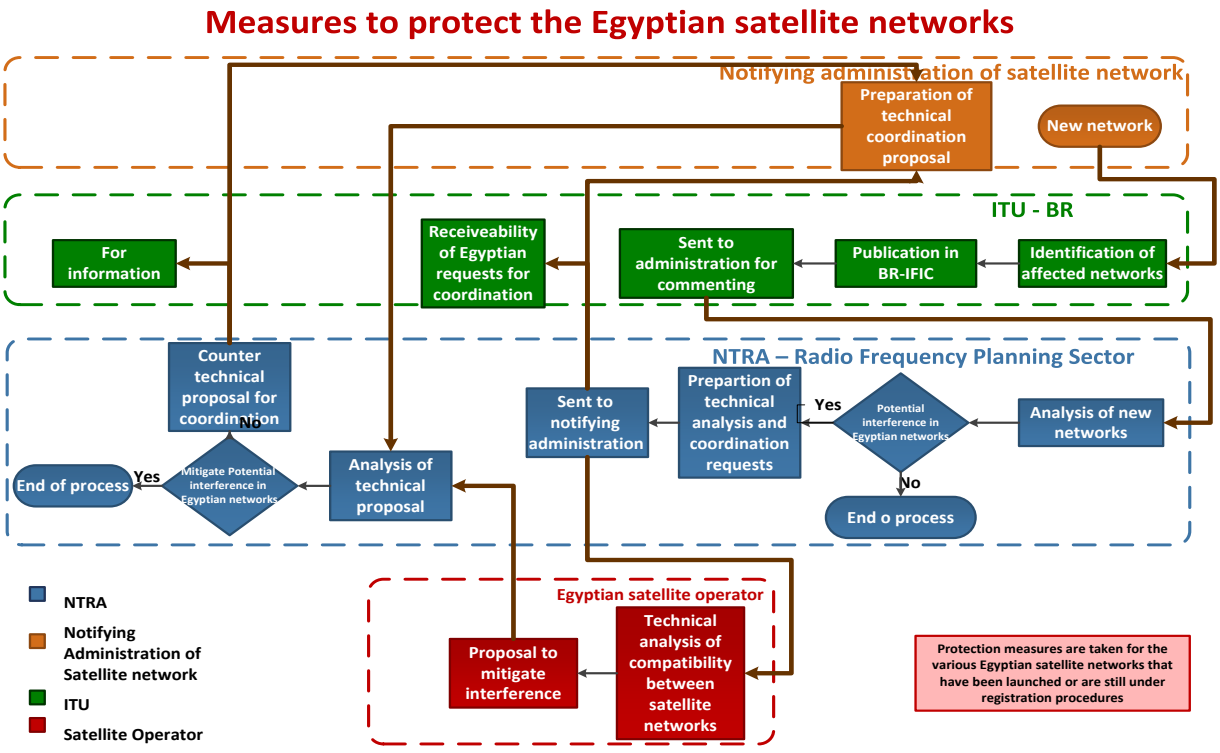

Procedures of satellite network
C. Recording stage
B. Coordination stage
A. Registration stage
Satellite operator
Request to NTRA including:
• Type of satellite network.
• Technical Parameters
Start
New satellite network
Start coordination with affected networks
Analysis of technical coordination proposal
Detection of Launching and BIU dates
Coordination with NTRA
NTRA – Radio Spectrum Planning
Preparation of notification filing and BIU
Finalize required coordination
Coordination process with other admins.
Preparation of technical proposal
Analysis of coordination request of affected administration
Preparation of filing containing technical parameters
Verification of technical parameters and servcies
Reviewing of Request.
ITU - BR
Publication of notification and
For information
Sent BR-IFIC to admins for commenting
Publiction of network in BR-IFIC
Identification of affected networks
Affected Networks
Request for inclusion in coordination process
Analysis of new networks
Coordination with NTRA
NTRA
Affected Administrations
ITU
Satellite Operators

D. Protection stage:

To ensure interference free operation of satellite networks it is necessary to protect the national frequency assignments from any harmful interference, this could be done via periodic analysis of new satellite networks of other administrations. This requires NTRA to submit its comments and analysis for satellite networks filings that published in BR-IFIC, the NTRA cooperate with national satellite operators for eliminating any harmful interference caused by/to the Egyptian satellite networks.

Procedures:

1. All the notified administrations including the Egyptian administration are submitting their satellite filings to the BR.
2. The BR is publishing all the received satellite filings in the BR-IFIC that issued every **2 weeks.**
3. NTRA will examine all the satellite filings published in the BR-IFIC to avoid any harmful interference to the Egyptian assignments.
4. NTRA's comments for the published satellite filings will be submitted to the notified administration with a copy to the BR **within 2 months** from the BR-IFIC publication date.



Cancellation of the satellite filing:

There are many reasons for cancelling/suppression the frequency assignments and the satellite filings as follow:

I. Non-payment of the ITU invoice in due date (6 months from the date of invoice).

II. Not submitting the Notification file and launching information (RES-49/ RES-552) file. These files should have submitted to BR **within 30 days** after the date of bringing to use

III. In case of any administration that is recorded under 11.41 complains from any interference from the satellite filing, and the operator fails to immediately eliminate such interference.

IV. The satellite network is operating outside characteristics as recorded in the MIFR.

V. The satellite suffers an anomaly and as a result is no longer able to operate all, or part of, the assignments notified to the ITU

VI. The satellite is relocated from the relevant orbital location.

VII. The operator is unable to remedy the interference within six months NTRA may suspend the filing in accordance with No. 11.49 of the Radio Regulations. If within the period of suspension NTRA is satisfied that the interference has been remedied, NTRA will permit transmissions to be recommenced and will notify the ITU-BR that the assignment has been brought back into regular use. Otherwise, the filing will be cancelled by the ITU-BR.

General Requirements:

- NTRA could ask the national satellite operators the following before the submission of the API or CRC:
    1. The business plan including the key milestones of the satellite network.
    2. Information on the resources available to construct and launch the proposed satellite, or to use an in-orbit satellite, and to operate the network for at least three years after launch.
- **After 3 years** of start of regulatory deadline of the filing and Evidence of commitment to construct, a satellite (or move an existing satellite) to be placed at a given orbital location is needed.
- **After 5 years** of start of regulatory deadline of the filing Evidence of commitment to deploy a satellite (or move an existing satellite) to be placed at a given orbital location is needed.
- **After 5 years** of start of regulatory deadline of the filing Evidence for the construction or use of at least one telemetry, tracking and command (TT&C) earth station and of at least one feeder-link earth station communicating with the satellite is needed.
- On Notification of the Assignment, the national satellite operator intends to notify any satellite network filing should provide an Evidence that it has TT&C facility for controlling the satellite network
- The national satellite operator will provide to NTRA yearly progress reports for each satellite network indicating any variations from the previously submitted business plan and details of their coordination progress and status. Such reports should contain, at a minimum:
    1. Project activities undertaken, or completed;
    2. Frequency coordination activities undertaken, or completed, in the previous months;
    3. Information about any changes or updates to the latest version of the business plan submitted to NTRA.

- Once the relevant assignment(s) is recorded in the Master Register and brought into use, the national satellite operator will provide NTRA with yearly reports covering the operational status of the assignment(s). The report to NTRA for a satellite network must contain at least the following information:

    1. The satellite name;
    2. Information on which company built the spacecraft, which one launched it and from where, or if not a newly launched spacecraft, who is/was the owner, who is/was the administration licensing the spacecraft and what was its original or previous orbital location; and
    3. Whether the satellite is (still) capable of operating on the frequencies notified or brought into use, based on the operational or testing activities undertaken.
    4. A high level assessment of the operational health and status of the spacecraft in orbit;
    5. The frequency bands used by each satellite beam and its geographical coverage;
    6. Information related to the ground segment that demonstrates that the satellite network can operate according to its design and mission. This may include the location, characteristics and coordination status of its earth stations, and the location and point of contact of its Network Operations Control (NOC) facility;
    7. Whether any issues (operational or due to interference) has been experienced by the payload.
    8. The services provided by the satellite and the obtained licenses outside Egypt.

Implementation

This document is effective from the date of its issuance and NTRA may need to modify some aspects of this document from time to time due to change of international regulation.

Abbreviation:

- NTRA: National Telecommunication Regulatory Authority.
- ITU: International Telecommunication Union.
- BR: Radio communication Bureau
- MIFR: Master International Frequency Register.
- RR: Radio Regulations.
- RES: Resolution.
- API: Advanced Publication Information.
- CRC: Coordination filing
- AP30: Appendix 30 satellite filing (downlink) in broadcasting satellite service.
- AP30A: Appendix 30 satellite filing (uplink) in broadcasting satellite service.
- AP30B: Appendix 30B satellite filing in fixed satellite service
- IFIC: international frequency information circular
- BIU: brought into use
- NOC: network operation control
- TT&C: tracking and command.
- TWTA: travelling wave tube amplifier
- OML: orbital mission life.

References:

- *Article 9 of Radio regulations (Procedure for effecting coordination with or obtaining agreement of other administrations).*
- *Article 11 of Radio regulations (Notification and recording of frequency assignments).*
- *Appendix 30 of Radio regulations (Provisions for all services and associated Plans and List for the broadcasting-satellite service in the frequency bands 11.7-12.2 GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2)).*
- *Appendix 30A of Radio regulations (Provisions and associated Plans and List for feeder links for the broadcasting-satellite service (11.7-12.5 GHz in Region 1, 12.2-12.7 GHz in Region 2 and 11.7-12.2 GHz in Region 3) in the frequency bands 14.5-14.8 GHz and 17.3-18.1 GHz in Regions 1 and 3, and 17.3-17.8 GHz in Region 2).*
- *Resolution 49 of Radio regulations (Administrative due diligence applicable to some satellite Radio communication services).*

- *Procedures for National Satellite Network operators document published via NTRA website (https://www.tra.gov.eg/wp-content/uploads/2021/06/EGY-NTRA-June21 Coordination.pdf).*

Annex 1

NTRA Procedures to hold Coordination Meetings

1. NTRA may receive a request for an Administrative Satellite coordination meeting from another Administration or from any national satellite operators.
2. NTRA will study the request and could ask any clarification/additional data if needed **within 7 working days** from receiving the request.
3. NTRA will inform the concerned national satellite operators regarding the coordination meeting.
4. The national operators must indicate their interest in participating in the requested meeting **within 10 working days** from the date of informing them for meeting.
5. When NTRA determine the interested national satellite operators for the coordination meeting, it will coordinate with the concerned Administration to reach to an agreed meeting venue, dates and agenda.
6. If the proposed meeting venue, dates and agenda are finalized, the following information should be provided to NTRA by the concerned national Operator(s) at **least twenty (15) working days** prior to the meeting date:
    I. A list of participants from each national satellite Operator;
    II. Technical analysis of the coordination requirements between satellite networks of the concerned Administration and Satellite Networks of national satellite Operator; and
    III. The proposed coordination meeting plan and strategy of each national satellite Operator.
7. National satellite Operators should send a brief report to NTRA within **15 working days** after the end of meeting for the coordination results after each meeting.

Moreover, the national satellite operators shall inform NTRA with agreed date and agenda of the Satellite operator-to-operator coordination meeting in advanced, in addition, the final summary record and any produced agreement shall be provided to NTRA in order to approve or ratify them within 15 working days after the end of meeting.

Annex 2

NTRA Coordination Procedures Chart