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WRC-23 activities
ITU-APT Foundation

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Space is the future for communications on Earth.

- OneWeb is building an unparalleled end-to-end system that will supply broadband-style data speeds to every part of the world.
- Our LEO satellite network is in its final phase of deployment to meet this truly global connectivity challenge.
- Full global coverage expected in 2023.

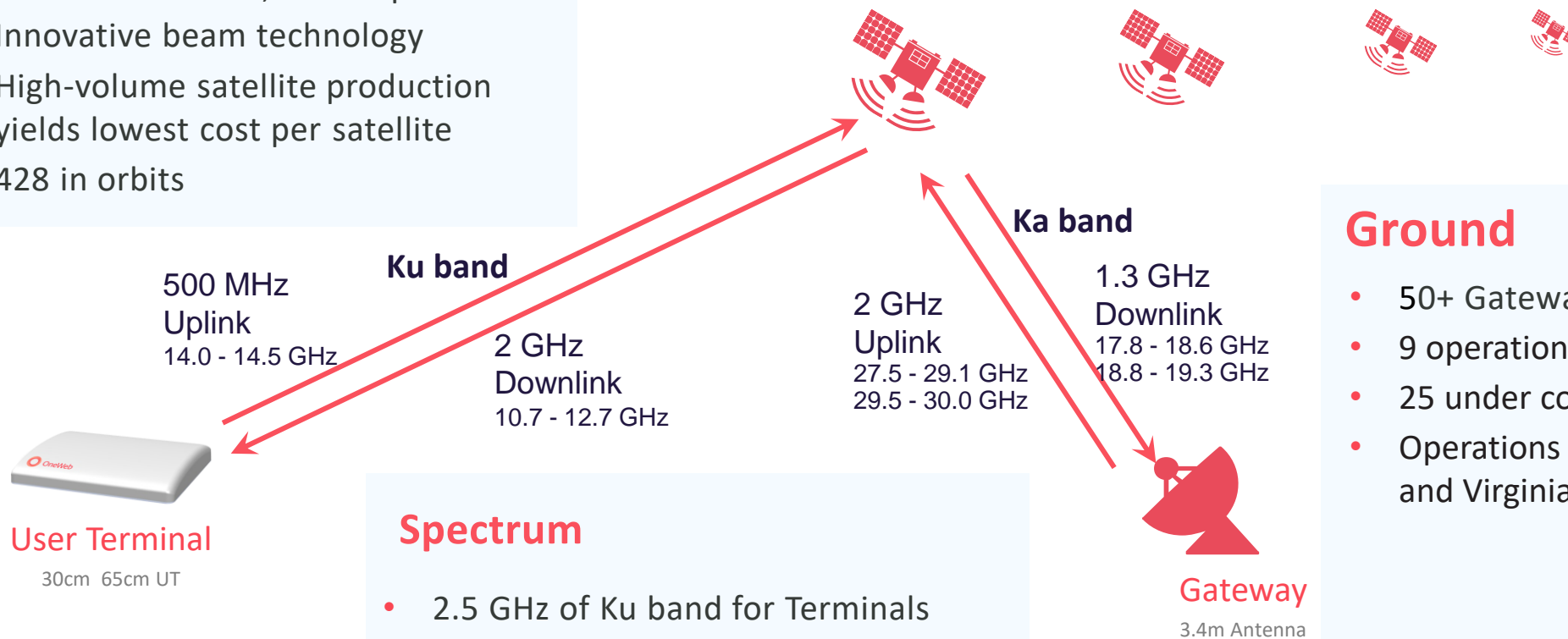


How it Works



Space

- 650 LEO satellites; orbital planes
- Innovative beam technology
- High-volume satellite production yields lowest cost per satellite
- 428 in orbits



Spectrum

- 2.5 GHz of Ku band for Terminals
- 3.3 GHz of Ka band for Gateways

Ground

- 50+ Gateways across the globe
- 9 operational
- 25 under construction
- Operations Centers in London and Virginia



User Terminal
30cm 65cm UT

Gateway
3.4m Antenna

Agenda Item 7

Improvements to satellite procedures – Res. 86 (WRC-07)

Agenda Item 7: *to consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution 86 (Rev.WRC-07), in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit.*

Background

This is a standing Agenda Item. The following items have been identified to study:

- A. Tolerances for certain orbital characteristics of NGSO space stations in the FSS, MSS and BSS (notified vs actual).
- B. NGSO post-milestone procedure.
- C. Protection of GSO networks in the MSS in 7/8 and 20/30 GHz from NGSO.
- D. Modifications to Appendix 1 to Annex 4 of Appendix 30B
- E. Improved procedures under RR Appendix 30B for new ITU Member States
- F. Excluding uplink service areas in AP30A (Regions 1& 3) and AP30B bands

General position

Improvements to international regulatory procedures enable efficiency for notifying administrations of satellite networks and systems to increase transparency and ease regulatory burden, administration would support studies on the above issues at this point of the WRC process

Topic A, Tolerances for Certain Orbital Characteristics of Non-GSO Space Stations in the FSS, BSS and MSS

Background

- WRC-19 invited the ITU-R to study “as a matter of urgency, tolerances for certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite or broadcasting satellite services to account for potential differences between the notified and deployed orbital characteristics for
 - i) the inclination of the orbital plane,
 - ii) the altitude of the apogee of the space station,
 - iii) the altitude of the perigee of the space station and
 - iv) the argument of the perigee of the orbital plane.”

APG23-3 Preliminary View

- APT Members support the ongoing activities that are carried out by ITU-R WP 4A regarding Topic A namely the development of the definition of tolerances of non-geostationary-satellite orbit (non-GSO) space stations in the FSS, BSS and MSS, as well as appropriate regulatory consequences for operations beyond the specified allowable tolerances.
- ...

OneWeb View

- Non-GSO space stations tolerances should take account for potential differences between the notified and deployed orbital characteristics, including recognizing the need for some separation between orbital planes of a given NGSO system to minimize the possibility of collisions.

Topic B, Post-milestone reporting procedure for non-GSO systems

Background

- WRC-19 discussed at length and ultimately agreed on Resolution **35 (WRC-19)**, “A milestone-based approach for the implementation of frequency assignments to space stations in a non-geostationary-satellite system in specific frequency bands and services.”
- Resolves 19 of Resolution **35 (WRC-19)** requires administrations to inform the BR, for information purposes only, of the date when the number of capable satellites deployed falls below a specified threshold.
- This topic B is to study the possible development of a post-milestone procedure, to address the case where a non-GSO system has completed the milestone process and subsequently experiences a reduction in the number of satellites deployed, taking into account *resolves* 19 of Resolution **35 (WRC-19)**.

APG23-3 Preliminary View

- APT Members support the ongoing activities that are carried out by ITU-R WP 4A regarding Topic B namely the development of the post-milestone procedures for NGSO satellite systems in FSS, BSS and MSS.
- Post-milestone procedures for NGSO to be finalized by the WRC-23 should take into account resolves 19 of Resolution 35 (WRC-19)
- Necessary operational flexibility for the maintenance of the non-GSO system should be duly considered
- ...

OneWeb View

- Important to gain additional experience with new milestone procedure before adopting additional, detailed provisions
- Ensure any deadlines have requirement that BR send reminder

Agenda Item 1.15

GSO ESIM in 12.75-13.25 GHz (Earth-to-space)

Agenda Item 1.15: *to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with **Resolution 172 (WRC-19)**.*

Background

- Growing demand for connectivity on the move by aviation, shipping industries, and passengers for Internet-based applications.
- GSO satellites providing aero/maritime links in these globally allocated Appendix 30B downlinks can unlock additional needed capacity.
- Previous WRCs have adopted provisions to allow for such operations in other frequency bands.

APG23-3 Preliminary View

- APT Members support on-going studies being carried out by ITU-R Working party 4A.
- The use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels shall not limit the access of other administrations to their national resources in Appendix 30B as well as implementation of Resolution 170 (WRC 19)
- and shall not adversely affect the operation of existing services and their future development
- ...

OneWeb View

- OneWeb plans to utilize this band for service links
- This additional use should not affect or limit use of existing Appendix 30B allotments/assignments and should protect NGSO systems and terrestrial services in the band
- Technical studies should include compatibility with other services and assessment of measures that may be required to protect NGSO systems in accordance with Resolution 172(WRC-19). Limits such as those in Section 1a of Annex 1 to Resolution 169 should be applied.

Agenda Item 1.17

Space-to-space links in Ku/Ka

Agenda Item 1.17 *to determine and carry out, on the basis of the ITU-R studies, the appropriate regulatory actions for the provision of inter-satellite links in the 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz bands or portions thereof, by adding an inter-satellite service allocation where appropriate*

Background

- Introduction of space-to-space links in certain Ku & Ka band frequencies (11.7-12.7, 18.1-18.6, 18.8-20.2 and 27.5-30 GHz)
- Two concepts of operation: “within the cone” (within the cone of a space station’s coverage to serve stations on Earth) and “expanded cone” (outside of today’s expected cone of operations)
- All sharing studies for the “within the cone” concept of operations completed at WP4A
- For the expanded cone concept, various operators and administrations at WP-4A expressed serious concerns regarding links between LEO space stations and suggested as a preliminary solution the possibility of excluding LEO-to-LEO from the expanded cone concept

APG23-3 Preliminary View

- APT Members support on-going studies being carried out.
- APT members are of the view that the use of these bands for inter-satellite service needs to fully protect the FSS in these bands
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OneWeb View

- Ensure NGSO transmissions are protected through appropriate constraints placed on space-to-space links

Agenda Item 10

new agenda items for future WRC-27

Agenda Item 10

Background

- WRC-23 will decide the Agenda of WRC-27
- WRC-19 adopted preliminary Agenda Items for WRC-27. Member states can make additional proposal

OneWeb View

- Support the following preliminary Agenda Items:
 - Use of NGSO feeder links in 71-76 GHz and 81-86 GHz
- Regulatory measures for ESIMs in V band communicating with GSO - expand to NGSO



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Global Connectivity Coming Soon

#OneWebOneWorld