Single Network Future: Supplemental Coverage from Space (SCS)

BEREC External Workshop
Usage of Satellite Technologies in Mobile Communications

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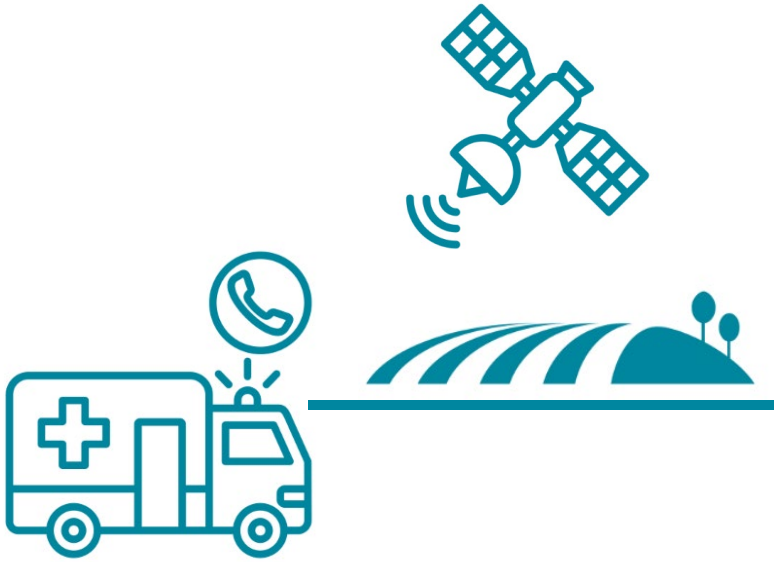
Space Bureau

Background

- On March 14, 2024, the FCC adopted rules to advance the FCC's vision for a "single network future" in which satellite and terrestrial networks will work seamlessly together to provide consumers with coverage that neither network could achieve on its own.
- This domestic regulatory framework, called Supplemental Coverage from Space (SCS), will allow collaboration between satellite operators and wireless providers to enable satellite connectivity directly to consumer handsets using spectrum previously allocated only to terrestrial wireless service.
- SCS will mean consumers have greater connectivity in more places, including remote, unserved, and underserved areas as well as areas affected by disasters.



U.S. Table of Frequency Allocations and Frequency Bands Designated as Eligible for SCS

- The framework in the Report and Order focuses on the use of spectrum bands previously designated for terrestrial use in the United States. It also requires collaboration with such terrestrial use licensees. Already existing space-based coverage within bands already allocated to mobile satellite service (MSS) remains distinct.
- The SCS *Report and Order* designates certain spectrum bands as eligible for SCS that have no primary, non-flexible-use legacy incumbents, federal or non-federal. This minimizes the risk of harmful interference.
- The SCS *Report and Order* modifies the United States Table of Frequency Allocations to authorize bi-directional, secondary mobile-satellite service (MSS) operations in the following frequency bands:
  - 600 MHz: 614-652 MHz and 663-698 MHz;
  - 700 MHz: 698-769 MHz, 775 MHz-799 MHz, and 805-806 MHz;
  - 800 MHz: 824-849 MHz and 869-894 MHz;
  - Broadband PCS: 1850-1915 MHz and 1930-1995 MHz; and
  - AWS-H Block: 1915-1920 MHz and 1995-2000 MHz

Criteria for SCS Framework

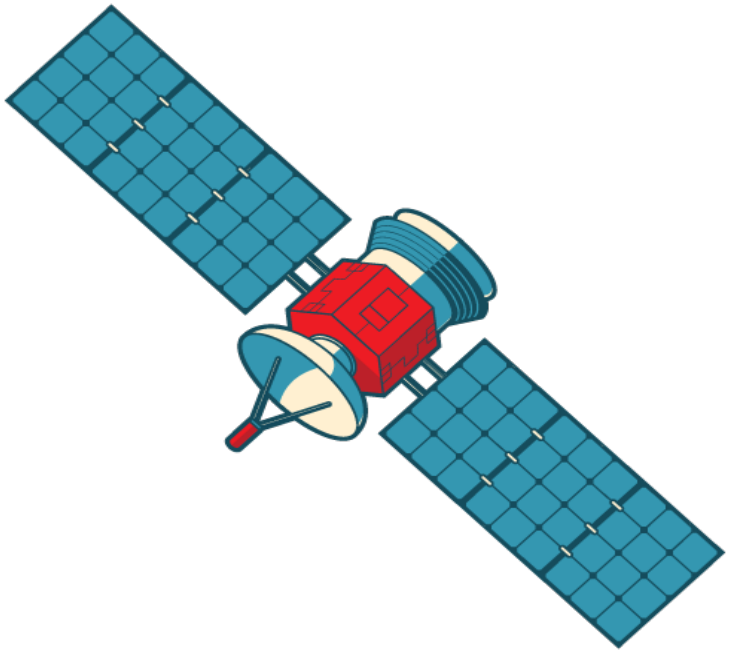
For the bands that have been deemed eligible, the FCC will authorize SCS only where terrestrial licensees and satellite operators meet certain requirements to minimize harmful interference.

- One terrestrial licensee, or multiple terrestrial licensees together, must hold all licenses on the relevant channel throughout a defined geographically independent area (GIA).
- The terrestrial licensee(s) must lease access to the spectrum rights to a participating satellite operator.
- The satellite operator must have a part 25 SCS license that reflects those frequencies and the geographically independent area in which the satellite operator and terrestrial wireless provider will offer SCS.

Technical Considerations

Imposed technical rules and other recommendations to mitigate potential harmful interference to existing services.

- Potential Satellite-to-Satellite Interference Issues
- Terrestrial Partners with Existing Lease Arrangement
- Downlink Power Flux Density Limits
- Market Area Boundary Limits
- Out of Band Emission (OOBE) Limits
- Terrestrial Device Power and Out of Band Emission (OOBE) Limits
- Elevation Angle for Satellite Downlinks
- Equipment Authorization for SCS
- Protection of Radio Astronomy (RAS) and Space Sciences Services



International Coordination

- Adopted U.S. domestic regulatory framework to prevent interference to our neighbours, Mexico and Canada
  - We plan to work closely with our counterparts in those countries and establish mutually agreeable cross border arrangements. In the absence of such an arrangement, ITU RR Art 4.4 will apply.
- U.S. satellite license is a facility-based license and includes all operations —including authorization of transmission or reception at the space station facility to/from stations located outside the U.S.
  - Emphasized that prior to conducting any communications with earth stations outside the U.S., the space station licensee must ensure that all of its operations are authorized by the country in which such communications will occur, and that it will satisfy all terms and conditions of any foreign license or authorization, including but not limited to any transmit power, out of band emission (OOBE), geographic, or other limits.

International Coordination (con't)

- FCC licensing is an important aspect of ensuring that the United States satisfies the treaty obligation for authorization and continuing supervision of the space activities of non-governmental entities.
- Recognizes that outside of the U.S. SCS may occur in bands not allocated for such services in the International Table and U.S. licensed space station operations must be consistent with ITU Radio Regulation Article No. 4.4.
- Given this, the FCC clarified international coordination obligations, including outlining steps to ensure that SCS operations will be consistent with relevant ITU Radio Regulations, including some express conditions in the SCS licenses:
  - U.S.-licensed space stations intending to provide SCS outside the U.S. must certify to the FCC that they have obtained all necessary authorizations from the relevant countries and demonstrate that such operations will not cause harmful interference to operations in conformity with the ITU Radio Regulations before the initiation of service in those countries.

International Coordination (con't)

- Applications will be reviewed on a case-by-case basis and additional license conditions will be included as necessary to ensure ongoing supervision of the space station operations, as circumstances require.
- With respect to international activities, FCC will continue to participate in all SCS sharing studies and will work closely with international partners on matters related to SCS to ensure the most efficient and effective use of the spectrum without causing harmful interference to incumbent services.
- Any changes to FCC rules as a result of WRC-27 and other international efforts will be applicable to all existing and future part 25 SCS licensees.
- FCC also intends to keep the ITU informed on any SCS applications and deployments to help with information sharing and transparency.

911 Call and Text Routing via SCS and Wireless Emergency Alerts

Establishes, on an interim basis, a requirement that terrestrial providers must route all SCS 911 voice calls and texts to a Public Safety Answering Point (PSAP) using either location-based routing or an emergency call center.

- Location-Based Routing: Terrestrial providers must use information regarding the location of a device for purposes of delivering SCS voice calls and text messages and must transmit the phone number of the device used to send the voice call or text and available location information to an appropriate PSAP.
- Emergency Call Center Service: Terrestrial providers must use an emergency call center, at which emergency call center personnel must determine the emergency caller's phone number and location and then transfer or otherwise direct the voice call or text message to an appropriate PSAP.

Also requires terrestrial providers that use SCS to:

- Submit annual reports to the Commission that explain how their SCS deployments have supported 911 call/text routing to the appropriate PSAP;
- Submit a one-time privacy certification; and
- Provide consumer disclosures regarding the extent of SCS 911 connectivity.

Deferred consideration of the applicability of WEA requirements to SCS pending completion of an initiative by the Public Safety and Homeland Security Bureau to start testing technologies that might be able to deliver WEA alert messages to mobile phones without using cell towers.

Further Notice of Proposed Rulemaking

Along with the Report and Order, the Commission adopted a Further Notice of Proposed Rulemaking that seeks to develop the record in two key areas:

- Seeks comment on 911 service for SCS connection including the use of location-based routing of SCS voice calls and texts.
- Seeks comment on procedures related to the protection of radio astronomy.

Thank you