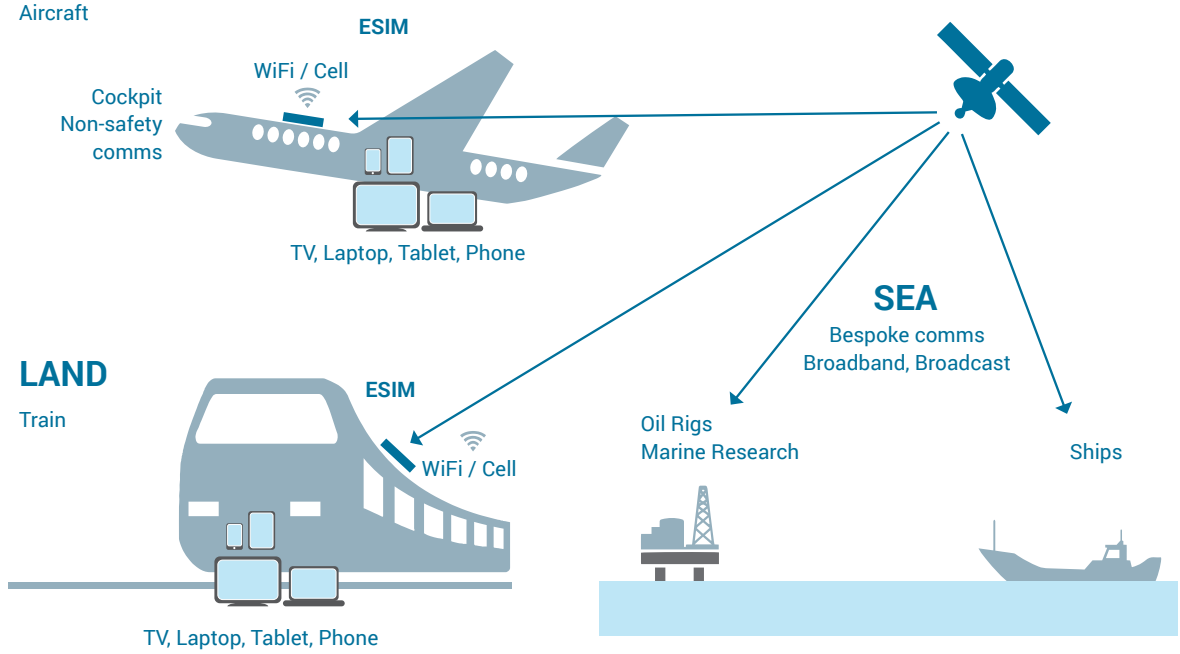
GLOBAL SATELLITE COALITION

Agenda Item 1.5

WRC-19 Agenda item 1.5: Mobile Broadband via Satellite

Overview: **WRC-19 Agenda item 1.5** considers the use of the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) by earth stations in motion (ESIM) communicating with geostationary satellite orbit (GSO) FSS space stations. This agenda item builds on the provisions adopted at WRC-15 for the operation of ESIM communicating with GSO FSS space stations in the 29.5-30 GHz and 19.7-20.2 GHz bands. Expanding the frequency bands for ESIMs is necessary to support the rapid growth in demand for broadband communications on the move in the air, at sea, and on the land. The GSC supports a regulatory environment that recognizes the ability of ESIMs to operate within GSO FSS networks on all of the spectrum they currently use through adoption of the solution developed as Method B in the CPM Report.

Background and ITU-R Studies: ITU-R studies have identified ways for ESIMs to operate compatibly with other services (both space and terrestrial) and have also resulted in example guidelines to assist administrations wishing to authorize ESIM on their territories. The following diagram shows how ESIMs expand the traditional FSS applications by providing truly broadband services to mobile platforms.



Some of the key aspects are:

- Use of ESIMs with a GSO FSS network would not change the sharing environment with other GSO FSS networks, as ESIMs would operate within the same technical envelope as existing GSO FSS networks.

- For the 17.7-19.7 GHz band (i.e. the ESIM receive band), introducing ESIMs use would not impact the sharing with other services (space or terrestrial) as there would be no change to the transmission parameters from the GSO FSS satellite to serve ESIMs.
- For the 27.5-29.5 GHz band (i.e. the ESIM transmit band), means to protect other services have been developed
  - Off-axis e.i.r.p density limits (Option 2 for condition a) in Annex 1 of the draft WRC Resolution) and an alternative e.r.i.p. limit (Option 1 for condition b) in Annex 1) to address compatibility with NGSO FSS systems in frequency bands where there is no coordination requirement. Compatibility with NGSO FSS in other bands, and with NGSO MSS feeder links, would be addressed through normal satellite coordination.
  - For aeronautical ESIMs, complying with a power flux density (pfd) on the Earth's surface to protect terrestrial services (Option 1 in Annex 2 of the draft WRC Resolution). The alternative pfd masks proposed in Annex 2 would leave ESIMs without the necessary power to communicate effectively and would over-protect terrestrial services. Operations that do not satisfy the pfd mask would be subject to domestic regulation.
  - For maritime ESIMs, a 60 km distance from the shore beyond which ESIMs can safely operate without interfering with terrestrial services (Annex 2 of the draft WRC Resolution). ESIM operation inside that distance would be coordinated.
  - For land ESIM, administrations can address compatibility with other services domestically, and through bi-lateral agreements with neighbouring administrations (Annex 3 of the draft WRC-Resolution)

The GSC recommends that Method B with the above referenced Options in the CPM text be adopted by WRC-19. This regulatory solution will provide access to existing GSO FSS spectrum to support these growing global mobile broadband requirements and result in rational and efficient use of the radio spectrum resource, while also ensuring the protection of existing services.

Note: *Iridium does not support the GSC position on ESIM use of 19.4-19.6 GHz and 29.1-29.3 GHz.*

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