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AGENDA ITEM 1.5
PRELIMINARY VIEW FOR WRC-19
(Item on the Agenda: 3.1 (SGT-3))
(Document submitted by the Coordinator)

Source: documents 4246/17, 4287/17

SGT-3 – Satellite regulatory

Coordinator:

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Rapporteur Agenda Item:

Alternate Rapporteur Agenda Item: Gustavo VARGAS - COL

ATTACHMENT

Source: document 428701-1-5BR/176

Note to the secretariat: text highlighted in cyan, was proposed for deletion in doc 4287 but is re-instated, whereas text in green was text in doc 4287 that is now being moved (deletion in one area but added in another).

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Agenda Item 1.5: to consider 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 communicating with geostationary space stations in the fixed-satellite service and take appropriate action, in accordance with Resolution 158 (WRC-15);

BACKGROUND:

The topic of earth station in motion (ESIMs) communicating with geostationary (GSO) space stations in the fixed-satellite service (FSS) was addressed at WRC-15. Specifically, the Conference addressed ESIM operations in the frequency bands 29.5-30.0 GHz (Earth-to-space) and 19.7-20.2 GHz (space-to-Earth) and adopted footnote No. 5.527A and Resolution 156, which establish a framework for operation of ESIM globally with GSO FSS satellites in these bands. ~~The framework is based on relevant ITU-R Reports on this topic.~~

Recognizing the increasing need for communications on the move, including the availability of global broadband satellite services, WRC-15 adopted Agenda Item 1.5 for WRC-19 to consider the operation of ESIMs in the 27.5-29.5 GHz (Earth-to-space) and 17.7-19.7 GHz (space-to-Earth) FSS frequency bands by GSO space stations. In addition to being adjacent to the frequency bands where FSS ESIM operations are allowed, ~~it was also recognized that GSO FSS satellites are operating in these bands and in some cases are already communicating with ESIM or plan to expand their use to include such operations.~~

~~The frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz, or portions thereof, are allocated to the fixed service on a primary basis in Region 2. In the 17.7-19.7 GHz range, some Region 2 administrations have widely deployed fixed services, consisting mostly of point to point applications in both urban and rural areas. In the 27.5-29.5 GHz range, there are currently very limited some fixed deployments in some by some Region 2 administrations, but rapid growth and wide scale deployments of both point to point and point to multipoint systems mobile systems deployments are expected/planned in the 27.5-28.35 GHz portion of the frequency band in the future.~~

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ESIMs serve a wide range of applications on-board aircraft and ships as well as on land ~~and the number of users and data requirements are growing. ESIM-delivered services are key to government users and enterprise users in many sectors including maritime shipping, media and energy customers who often have to operate in remote parts of the world.~~ The expectation of the user is to be able to be connected anywhere and broadband global satellite service is a key component on how to meet that need. As an example of how demand for ESIM type services is growing, the in-flight connectivity market is expected to reach USD 5.80 Billion by 2020. This market segment is geared toward providing air travelers enhanced on-demand entertainment options as well as allowing them to create a virtual office on the aircraft. ~~ESIM-delivered services are also key to government users and enterprise users in many sectors including maritime shipping, media and energy customers who often have to operate in very remote parts of the world.~~

~~It should be noted that resolution of technical issues related to assessing the impact of time-varying ESIMs interference on operation of non-geostationary satellite orbit (NGSO) MSS feeder links in the 19.3-19.7 GHz (space to Earth) and 29.1-29.5 GHz (Earth to space) bands, and to developing appropriate~~

~~methodologies to carry out such analysis would be essential to ensure protection of existing and planned services provided by such systems.~~

Considering that the growing demand for broadband communications includes requirements for users on vessels, aircraft and vehicles at fixed locations and while in motion, Resolution 158 (WRC-15) invites ITU-R to study the technical and operational characteristics and user requirements of different types of earth stations in motion, ~~including vessels, aircraft and land-based vehicles,~~ that operate or plan to operate within geostationary FSS allocations in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz, or portions thereof. This includes ~~ing~~ the use of spectrum to provide the envisioned services to various types of earth station in motion and the degree to which flexible access to spectrum can facilitate sharing with other services allocated in these bands, ~~and to study~~ The Resolution also calls for sharing and compatibility studies between earth stations in motion operating with geostationary FSS networks and current and planned stations of existing services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz to ensure protection of, and not impose undue constraints on, services allocated in ~~these~~ frequency bands, ~~including services provided by NGSO MSS feeder link systems and NGSO FSS systems.~~

ISSUES:

Editorial note: the following paragraph is a modification of the 3rd paragraph (in green highlight) from the background above.

The frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz, or portions thereof, are allocated to the fixed and mobile services on a primary basis in Region 2. In the 17.7-19.7 GHz range, some Region 2 administrations have widely deployed fixed services, consisting mostly of point-to-point applications in both urban and rural areas. In the 27.5-29.5 GHz range, there are currently some fixed deployments by some Region 2 administrations, but rapid growth and wide-scale deployments of mobile systems deployments are expected/planned by some administrations in the 27.5-28.35 GHz portion of the frequency band.

Considering the significant amount of existing and/or potential fixed and mobile system deployments in the frequency bands 17.7-19.7/27.5-29.5 GHz, appropriate sharing and compatibility studies between earth stations in motion operating with geostationary FSS networks and fixed and mobile service systems are necessary to ensure protection of, and not impose undue constraints on the fixed and mobile services. These studies are also necessary to provide administrations with technical information related to sharing between these services (see recognizing further k of Resolution 158).

Editorial note: the following paragraph is a modification of the 5th paragraph (in green highlight) from the background above.

It should be noted that resolution of technical issues related to assessing the impact of time-varying ESIMs interference on operation of non-geostationary satellite orbit (NGSO) MSS feeder links in the 19.3-19.7 GHz (space-to-Earth) and 29.1-29.5 GHz (Earth-to-space) bands, and to developing appropriate methodologies to carry out such analysis would be essential to ensure protection of existing and planned services provided by such systems. (See recognizing further g) and h) of Resolution 158).

BRAZIL, CANADA

The Portions of the 17.7-19.7 GHz and 27.5-29.5 GHz “Ka-band” is-are widely used by Brazil and other certain administrations in Region 2 for the provision of satellite communication services. Very significant investments has-have been made to deploy satellite networks in these bands that are delivering important services in Region 2 and around the world. Ka-band is the most likely spectrum for operators to expand

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their existing satellite fleet as well as the spectrum where new comers to the satellite market will deploy their networks. Sharing and compatibility studies between earth stations in motion operating with geostationary FSS networks, and current and planned stations of existing services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz are necessary to ensure protection of, and not impose undue constraints on, services allocated in these frequency bands, including services provided by NGSO MSS feeder link systems and NGSO FSS systems.

[editorial note: new text]

It should be noted that resolution of technical issues related to assessing the impact of time-varying ESIMs interference on operation of non-geostationary satellite orbit (NGSO) FSS in the 18.8-19.3 GHz (space-to-Earth) and 28.66-29.1 GHz (Earth-to-space) bands, and to developing appropriate methodologies to carry out such analysis would be essential to ensure protection of existing and planned services provided by such systems. (See recognizing further f) of Resolution 158).

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PRELIMINARY VIEWS:

Brazil

The Brazilian Administration supports studies under the terms of Resolution 158 (WRC-15). Studies are necessary to determine compatibility of ESIMs with services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz.

CAN

The Canadian Administration support studies under the terms of Resolution 158 (WRC-15). Studies are necessary to determine compatibility of ESIMs with services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz. Sharing and compatibility studies between ESIM and FSS networks should include consideration of both geostationary and non-geostationary satellite systems, including non-GSO MSS feeder links, to ensure their protection.

Source: document 4246

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B. USArazil, USA

Support studies under the terms of Resolution 158 (WRC-15) on sharing and compatibility between ESIMs and current and planned stations of existing services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz, while ensuring protection and not imposing undue constraints on these allocated services, and to take appropriate action based on the results of these studies.

Before identifying use of the frequency bands, or portions thereof, for ESIM operation, studies should address each operational type of earth stations in motion to include the appropriate technical and regulatory provisions necessary to ensure protection of existing and planned allocated services.