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| **The Meeting of the SATRC Working Group**  **on Spectrum** | **SAPIX-SPEC1/ OUT-04** |
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Working Group on Spectrum

**QUESTIONNAIRE ON**

**SPECTRUM APPROACHES AND REGULATORY REQUIREMENTS TO ENABLE SATELLITE - IMT INTEGRATION**

**1. BACKGROUND AND PURPOSE**

Currently, there is increasing interest of the satellite communication industry to explore the market potential for an integrated satellite and terrestrial network infrastructure for making the IMT services available across the geography, irrespective of location and terrain.

On one hand, smartphone mobile handsets are incorporating the Satellite frequency bands in the chipsets to communicate with the existing satellite systems. On the other hand, the satellite operators are collaborating with Mobile Network Operators (MNOs) to incorporate the IMT spectrum bands in future satellites for directly communicating with the devices.

The concept of Supplemental Coverage from Space is picking up to close coverage gaps in terrestrial service and to make available the emergency service across the geographies.

Integration of terrestrial networks with satellite networking technologies can provide coverage in areas that terrestrial networks cannot reach would help to deliver resilient services, bringing significant social and economic benefits.

The current step in the development of Mobile Satellite Services (MSS) focuses on the ability to communicate with standard smartphones. 3GPP in its Release 17 has come out with the framework of 5G Non-Terrestrial Network (NTN).

With such developments, the role of regulators and spectrum managers is to enable the Satellite-IMT integration, permit extra-terrestrial use of IMT spectrum and put to flexible use of the spectrum for maximum efficiency.

**2. SCOPE**

The scope of the study includes the following:

* Satellite - IMT integration – benefits and regulatory issues
* Spectrum approaches to satellite - IMT integration
* Examination of spectrum approaches to satellite - IMT integration in SATRC member countries
* International practices
* Recommendations

**3. METHODOLOGY FOR CARRYING OUT THE STUDY**

The study will be carried out by the Experts of Working Group on Spectrum nominated by the SATRC Members. Therefore, in order to pursue the study, the following questions have been developed to obtain necessary information from the SATRC Members on the subject matter of the Work Item. Based on the information, the Experts will develop a draft Report on the Work Item for consideration of SATRC-26.

**4. QUESTIONS**

1. Whether Mobile Satellite Services (MSS) are operational in your country? If yes,
2. What is the licensing regime for MSS services?
3. Which frequency spectrum bands/frequency ranges have been assigned or earmarked for MSS for user terminals (uplink and downlink)?
4. How is the spectrum assigned for MSS and to whom?
5. Whether the regulatory regime permits an open sky policy, where the service licensee is permitted to tie up directly with foreign satellite operators?
6. Whether MSS services are available for commercial use by the general public or government users, or both?
7. What measures are being adopted to prevent any misuse of satellite-based services?
8. 3GPP in its Release 17 has identified following two bands in FR1 with existing MSS allocations for 5G Non-Terrestrial Network (NTN):

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| 3GPP Band # | Uplink | Downlink | Duplex | Nickname |
| n255 | 1626.5-1660.5 MHz | 1525-1559 MHz | FDD | MSS L-band |
| n256 | 1980-2010 MHz | 2170-2200 MHz | FDD | MSS S-band |

Further, in Release18, another MSS FDD band will be added as:

L-band: 1610 - 1626.5 MHz (Uplink)

S-band: 2483.5 - 2500 MHz (Downlink)

Whether the above frequency ranges are allocated and made available for MSS in your country? If not, for what purpose these frequency ranges have been allocated? Kindly provide details.

1. What changes in the existing MSS licensing framework are proposed or contemplated to support Satellite-IMT integration in your country? Kindly provide details.
2. What are the allocated frequency bands that have been identified for IMT in your country?
3. Whether the regulatory regime in your country permit use of frequency spectrum bands assigned/ earmarked for mobile services with NTN networks? Kindly provide details.
4. Considering that some of the mobile handsets available in the market are capable of providing satellite-based emergency service, whether your country permits or is planning to permit such use? Kindly provide details.
5. What efforts are being taken or considered for the integration of Terrestrial Networks (TN) and Non-Terrestrial Networks (NTN)? Kindly provide details.

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