GSOA
GLOBAL SATELLITE OPERATORS ASSOCIATION

Agenda Item
1.3

WRC-23 Agenda Item 1.3

Overview

This agenda item considers a primary allocation of the band 3.6-3.8 GHz to the mobile service within Region 1 and take appropriate regulatory actions, in accordance with Resolution **246 (WRC19)**, with two key points:

› **Conduct sharing and compatibility studies to ensure protection of primary services, and not impose undue constraints on existing services and their future development**

› **Only consider possible upgrade of the existing secondary Mobile Service allocation in 3.6-3.8 GHz (except aeronautical mobile) to primary in Region 1, excluding any IMT identification in Region 1 (R1)**

Background on C-band downlink (3.6-3.8 GHz in R1)

ITU-R sharing studies between Mobile Service (MS) systems and Fixed Satellite Service (FSS) earth stations (Report ITU-R S.2368) **have showed that:**

- The required separation distances are in the tens to over 100s of km to meet the long-term and short-term FSS protection criteria, respectively
- When FSS earth stations are deployed in a ubiquitous manner or with no individual licensing, MS and FSS sharing is not feasible in the same area (no minimum separation distance guaranteed)
- Deployment of MS stations prevents future FSS earth stations from being deployed in the same area

Note that a total of ~ 1GHz of spectrum is already allocated and identified to IMT in the mid-band (e.g. 2GHz – 3.6GHz) in R1 without the need to further pressure the satellite ecosystem.

Resolution 246 (WRC 19) recognises that "for African countries, especially those in tropical areas, the operations of FSS systems (space-to-Earth) are more reliable for use in C-band frequencies (3400-4200 MHz), rather than in higher frequency bands".

In many R1 countries, e.g. in Africa, the reliance on C-band FSS services is profound and pervasive with thousands of earth stations, including for business to consumer (B2C) services with a significant number of smaller, often self-installed, antennas located at consumer households. Protection of such high number of earth station would not allow for a widescale outdoor MS deployment.

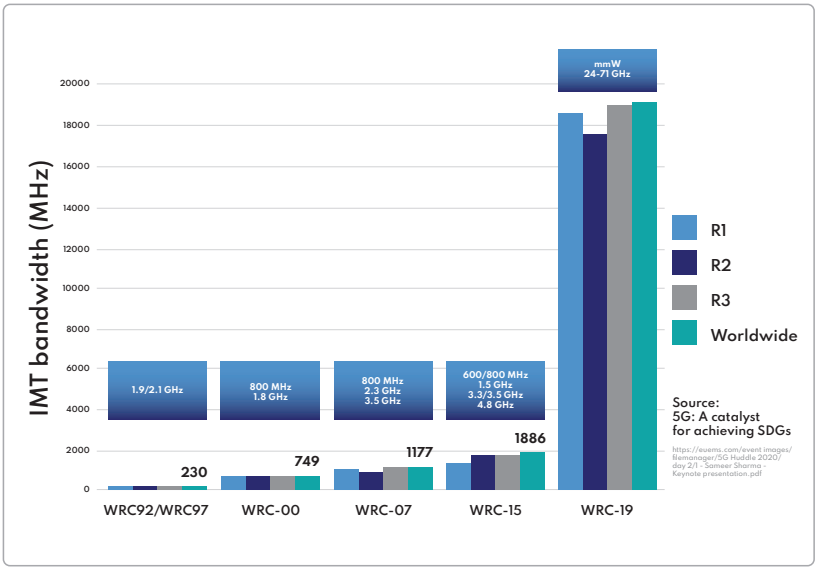

Figure 1: Amount of spectrum available for mobile services

Key Points

- There is enough harmonized mid-band spectrum available to MS including in C-band (3.3-3.6 GHz). According to an LS Telcom study[1], on average less than 50% of available spectrum <5GHz is licensed over Africa
- In Africa, the following mid-band spectrum is already harmonized and ready for MS: **1427–1518 MHz, 1710–1980 MHz, 2110–2170 MHz, 2300–2400 MHz, 2500–2690 MHz, 3300–3400 MHz, 3400–3600 MHz, 4800–4990 MHz.** These frequencies are part of 3GPP standards and have a mature MS device ecosystem

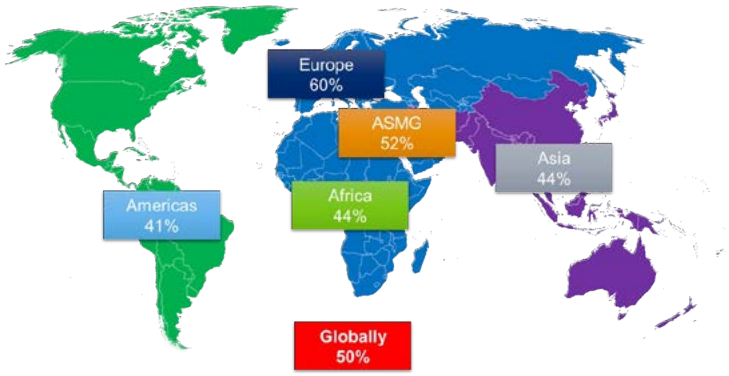

Figure 2: Percentage of spectrum available for IMT/MS which is licensed and in use

- Specifically in C-band, 3300–3400 MHz in combination with 3400–3600 MHz represent 300 MHz of harmonized spectrum for Africa. If 3600–3700 MHz is also added, this totals 400 MHz to be available for ATU, in line with CEPT and ASMG

Allocating the entire 3.6-3.8 GHz band for MS is not the norm, as numerous countries around the world are stopping below 3.6 GHz or 3.7 GHz.

In all countries deploying IMT or MS in C band, FSS earth stations had to be removed to avoid constraining IMT or MS. This confirms GSOA's findings that IMT/MS and FSS sharing is not feasible. Migration of FSS leads to complexity for satellite operators to accommodate their existing customers operating in 3.6-3.8 GHz to the limited satellite capacity above 3.8 GHz. The choice of one administration can impact the capacity provision of a satellite operator over a whole region for additional users to migrate to 3.8-4.2 GHz. It is both a difficult and costly exercise that impacts consumers with potential service disruption and the need for regulators to support consequential ground works to facilitate the migration.

GSOA Position

- **MS should use available spectrum before seeking more spectrum that impacts existing services.**
- **Using 3.6-3.8 GHz in R1 for MS would lead to excessive interference making the band unusable for FSS.**
- **An IMT identification is not in the scope of the agenda item, nor in Resolution 246 (WRC 19).**
- **No undue constraints should be imposed on the existing services and their future development.**

GSOA supports No Change to ITU RR for 3.6-3.8 GHz in R1 but recognizes the various preferences in R1. An upgrade of MS in 3.6-3.7 GHz could be a balance between MS and FSS use. Methods which do not propose any conditions to protect existing services should also be opposed.

1 https://www.lstelcom.com/fileadmin/content/lst/marketing/media/2019_Study_LicensingUseofMobileSpectrum.pdf

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