ESIMS - Mobile broadband provision on a global scale: an harmonised regulatory approach

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Mobile Satellite Broadband Markets

Customers on land, at sea and in the air

Maritime	Enterprise/Energy	Aviation	Government
			

- Affordable broadband connectivity with mobility for land, maritime and aviation users
- Mission-critical communications where terrestrial networks are unreliable or don’t exist

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ESIMs (Earth Stations in Motion)

- ESIMs operate in Ka-band GSO Fixed-Satellite Service (FSS) networks (RR. 5.527A and Res.156 (WRC-15)
- User Terminals with small directional antennas for the provision of broadband communication services.
- May be mounted on aircraft, ships, land vehicles & platforms…

ESIMs expand the traditional FSS and MSS type applications providing truly global broadband services to mobile platforms

ESIMs in the Radio Regulations

(RR 5.527A for GSO FSS Ka-band (19.7-20.2/29.5-30.0 GHz)

RESOLUTION **156 (WRC-15)**

Use of the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz by earth stations in motion communicating with geostationary space stations in the fixed-satellite service

…Resolves…

1 that earth stations in motion communicating with the GSO FSS shall operate under the following conditions:

- Tx: off-axis e.i.r.p. density limits & protect terrestrial of RR 5.542 (29.5-29.9 GHz in R1&3)
- Rx: no protection from terrestrial of RR 5.524 (19.7-20.1 GHz in R1&3)
- Subject to Network Control and Monitoring Centre (NCMC)
- Employ techniques to track the associated GSO FSS satellite;
- Point of contact for the purpose of tracing any suspected cases of interference

ESIMs at WRC-19
(17.7-19.7 / 27.5-29.5GHz)

New A.I. 1.5 - Resolution 158 (WRC-15) resolves to invite ITU-R

1. to study the technical and operational characteristics and user requirements of different types of ESIMS that operate .. within geostationary FSS allocations in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz…..

2. to study sharing and compatibility between ESIMs operating with GSO 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 those frequency bands …..;

ECC/DEC(13)01
(17.7-20.2 / 27.5-30.0GHz)

- In force since the beginning of 2013
- Widely implemented
- Provisions for the harmonised use, free circulation and exemption from individual licensing of ESIMs.

For relevant portions of **17.7-19.7 & 27.5-29.5GHz** band:

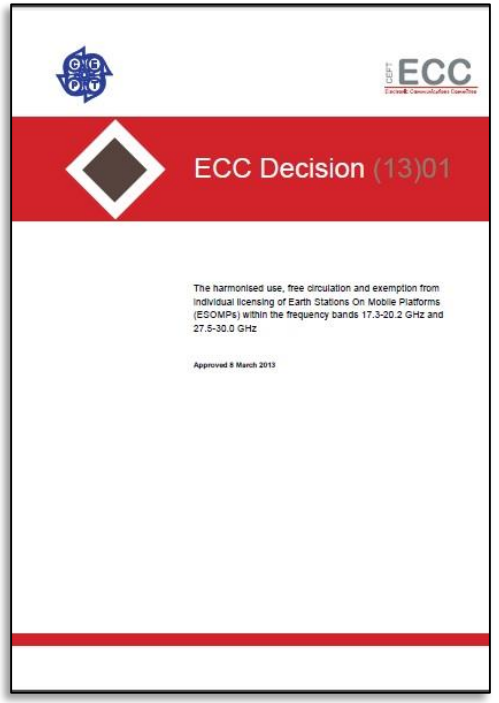
- PFD values on the ground, function of the angle of arrival, for ESIMs on aircraft
- PFD threshold at the low-water mark of the territory of affected administration for ESIMs installed on Vessels.

Clear evidence that there are solutions available to the issues raised in A.I. 1.5 (WRC-19).

Licensing ESIM terminals

The need for a commonly agreed approach

- **Global: ITU GMPCS-MoU**
  - Global MSS since the late ‘90s.
  - Free circulation is offered to user terminals, which are:
    - authorised by another administration (principle of mutual recognition)
    - type approved and bear the GMPCS-MoU mark.
  - Domestic licences should be granted based on class/blanket licences, rather than individual terminal-by-terminal licences.



- **Europe: ECC/DEC(13)01 for ESIMs**
  - Provisions for the harmonised use, free circulation and exemption from individual licensing of ESIMs.

Best practices: visiting foreign ESIMs

(e.g. ESIM on a UK vessel in Italian waters)

- Free circulation: authorisation of foreign visiting ESIMs is a fundamental aspect to allow global operations:
  - Based on the principle of mutual recognition of authorisations issued by other administrations
  - In line with main international treaties.
- Underlying assumptions:
  - ESIMs do not need any direct interconnection with the networks located on the territory of the country where they are operated, as they will be communicating directly with the satellite.
  - ESIMs are duly authorised by the country of origin
  - ESIMs do not cause any interference to any system in the visited country

This type of authorisation is often imbedded in the national regulations in terms of exemption from licensing for foreign visiting user terminals. Alternatively, the authorisation is provided on an ad-hoc basis by the national administration.

Best practices: domestic ESIMs

(e.g. ESIM on an UK vessel in UK waters)

- Land, Aero and Maritime ESIMs have very similar technical characteristics
- Domestic ESIM authorisation is very well suited by a class/blanket licence: e.g. a licence that authorizes a “family” of user terminals with given characteristics.
  - Due to the ubiquitous nature of ESIMs, specific coordination for individual user terminals is neither possible nor necessary.
  - A class license greatly simplifies the task of administrations and operator/service providers alike.
  - Class license can cover and regulate operation of ESIMs with appropriate conditions
  - Alternatively, for maritime or aeronautical terminals, ESIMs operation can be covered by the ship or aircraft radio licence. This is also a good solution as it is normally a simple addition to an already existing licence.
- Also fundamental for the entire process:
  - Clarity and transparency in the national licensing framework
  - Reasonable spectrum pricing

Current progress

- **ATU**: finalizing a Recommendation on a "Harmonised Approach to Domestic Licensing and Mutual Licence Recognition at Sub-regional Level of Earth Stations In Motion (ESIMs)", next meeting 19th -22nd September.
- **CITEL** has recently (June 2016) initiated work toward the adoption of two Recommendations:
  - VSATs: generic or blanket licensing regimes for ubiquitously deployed fixed satellite service earth stations.
  - ESIMs: consideration of adoption of national provisions to facilitate the deployment of ESIMs in the band 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) consistently with the framework adopted by WRC-15.
- **9th APT Policy & Regulation Forum for Pacific** recently (June 2016) adopted a Resolution regarding regional regulatory "……harmonization of regulatory arrangements, necessary to remove barriers and facilitate the smooth circulation of terminals within the region such as mobile phones, maritime and aeronautical terminals, including mutual recognition of arrangements of type approvals and licensing framework".

Preparation for WRC-19

- AI 1.5 – ESIM Studies
- AI 1.8 – GMDSS Studies
- AI 1.10 – GADSS Studies
- AI 1.14 – HAPS Studies
- AI 1.13 – IMT Studies
- AI 9.1.1 S-Band – IMT sharing
- AI 9.1.7 Issue 2 – Unlicensed VSATs

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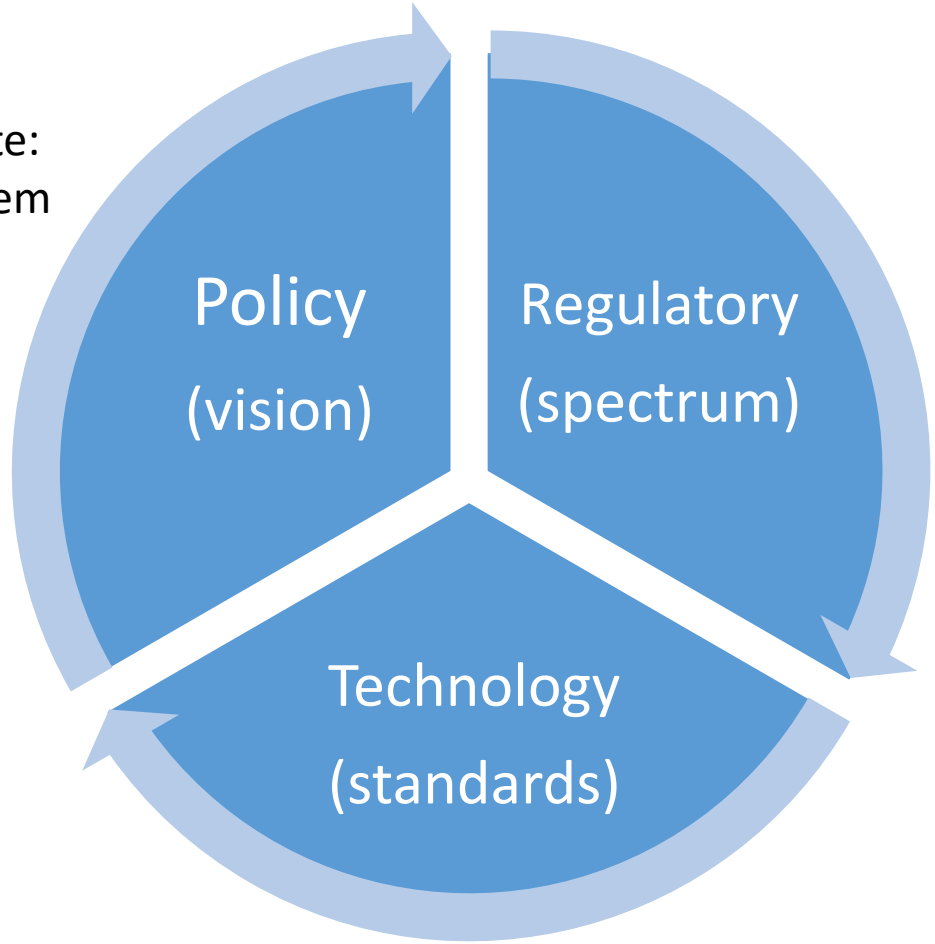
The role of satellites

Satellite:
integral part of the ecosystem



Satellite & terrestrial spectrum:
win-win approach

Satellite integration into the service & application platform

Guidelines on ESIMs for policy makers

- Establishment of a commonly agreed ((sub-)regionally harmonised) approach to ESIMs licensing:

- Foreign visiting ESIMs: free circulation when already authorised in the country of origin (principle of mutual recognition).

- Domestic ESIMs: class/blanket licences, e.g. no cumbersome individual terminal-by-terminal licenses

- Clarity in the national licensing framework

Thank you!

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