



*Communication for all in East Africa*

**HARMONISED APPROACH TO DOMESTIC  
LICENSING AND MUTUAL LICENSE RECOGNITION  
OF EARTH STATIONS IN MOTION**

**Prepared by EACO**

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## ACRONYM

FSS	Fixed Satellite Services
ESIMs	Earth Stations in Motion
WRC	World Radiocommunication Conference
GSO	Geo Stationary Orbit

# 1 INTRODUCTION

## 1.1 EARTH STATIONS IN MOTION (ESIMS) TECHNOLOGY AND SERVICES

The global demand, utilization and application of broadband communications includes requirements of connectivity for users on vessels, aircraft and vehicles in motion. In other words, the demand is for user terminals that operate at both fixed locations and while in motion, often in very remote parts of the globe.

State-of-the-art Ka-band (20/30 GHz) Fixed-Satellite Service (FSS) networks that employ advanced technology are available and are capable of meeting the connectivity requirements of mobile broadband users, including high-throughput (high data rate) applications.

Resolution 156 of the 2015 World Radiocommunications Conference (WRC-15), recognizes, provides and sets out conditions for use of the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz by ESIMs communicating with geostationary space stations in the fixed-satellite service.

ESIMs are, in the context of Resolution 156 (WRC-15), satellite user terminals operating within geostationary FSS networks in the 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) bands, with small directional antennas, for the provision of broadband communication services. The terminals may be mounted on aircraft, ships or land vehicles or may be transportable devices used in motion or at temporary halts.

The technology allows the following applications:

**Maritime:** ESIM service provision can be tailored to the needs of the maritime industry providing services to the crew and passengers (voice and internet browsing), the ship management (cargo monitoring and mechanical supervision) and to the safety and security of the vessel (video monitoring, access to real-time weather and updated navigation charts).

**Aeronautical:** ESIMs can meet the requirements of the industry by providing a truly global high-speed connectivity solution for the aeronautical sector. In addition to in-flight entertainment and broadband internet access, satellite connectivity also provides improved operational efficiencies for airlines, allowing them to communicate with cabin crew and non-safety related systems on board the aircraft.

**Disaster relief:** ESIMs are especially well suited to support emergency preparedness/disaster relief communications when terrestrial networks are unreliable or fail. In addition to providing high-bandwidth to affected users, it can provide backhaul to restore terrestrial communications.

**Government:** ESIMs are ideal to expand the potential for high-bandwidth applications such as live video, remote networks and sensors. Offering outstanding quality, global coverage and seamless mobility, ESIMs can support government users on land, at sea and in the air.

**Media:** High-bandwidth, reliable, ubiquitous communications, which can be provided by ESIMs, are also essential to media users who are covering fast-breaking events, such as natural disasters, sporting events, civil unrest and other media events.

## 1.2 GENERAL DEPLOYMENT AND UTILIZATION FRAMEWORK

Recognizing that there is a need for global broadband mobile-satellite communications and that part of this need could be met by allowing ESIMs to communicate with space stations of the FSS, the Radio Regulations (see RR. No. 5.527A) provide for ESIMs to communicate with geostationary (GSO) FSS space stations in the frequency bands 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) under certain conditions, which are specified in Resolution 156 (WRC-15).

Advances in satellite antenna technology, particularly the development of stabilized antennas capable of maintaining a high degree of pointing accuracy even when moving rapidly, have allowed the development of mobile terminals with very stable pointing characteristics. These mobile terminals are designed to operate in the same interference environment and comply with the same regulatory constraints as those for typical uncoordinated FSS earth stations.

Technical and operational conditions for the use of ESIMs are based on internationally adopted specifications, as indicated below, and cover aspects such as techniques to track the associated GSO FSS satellites, resistance to capturing and tracking adjacent GSO satellites and off-axis EIRP limit. By complying with such provisions, ESIMs can share spectrum with other FSS networks.

Moreover, authorizations of use of ESIMs should consider operational conditions specified in Resolution 156 (WRC-15) such that the notifying administration for the satellite network within which ESIMs operate shall ensure that they have the capability to limit their operations to the territories of administrations having authorized them and that the operators shall provide a point of contact for the purpose of tracing any suspected cases of interference from them.

## 2 PURPOSE

The purpose of this recommendation is to establish frameworks/agreements within EACO for:-

- an harmonised approach to domestic licensing of ESIMs and
- mutual licence recognition (including type approval) of ESIMs

This is to simplify the national licensing process and facilitate seamless movement of duly authorized/licenced ESIMs within EACO to allow for maximized benefit from the possibilities offered by the ESIMs technology.

Taking full advantage of innovative technologies such as ESIMs, will undoubtedly give EACO the possibility to decisively reduce the digital divide both between the member countries and other parts of the world and between EACO urban cities and rural communities, thereby support the much needed continued growth of ICTs for social-economic development.

The ultimate rationale for a harmonised licensing framework is to create an environment of mutual benefit to EACO member countries.

### 3 RECOMMENDATION

#### *Fully recognizing*

1. the potential benefits of frameworks/agreements on an harmonised approach to domestic licensing and seamless movement of duly authorized/licenced ESIMs via mutual licence recognition;
2. the pivotal role of EACO Harmonised framework in ICTs development;
3. the sovereign right of each Member State to regulate its telecommunications;

#### *taking into account*

1. relevant international, regional as well as national laws and regulations, including those concerning licensing and frequency assignments;
2. the existing EACO agreements and the crucial role they play in facilitating ICTs;

#### *convinced*

a) of the need to reach EACO sub-regional and preferably regional and global arrangements on issues related to facilitating:

1. Seamless circulation of ESIM terminals (i.e. provide permission for a foreign ESIM terminal to operate on a temporary basis when in a visited country, as long as duly authorized in the country of origin);
2. A simplified administrative process, without the need to obtain individual terminal-by-terminal authorization (e.g. based on a class-licensing regime).

b) that such arrangements would necessarily include as a matter of priority the conditions pursuant to which Administrations would grant mutual recognition of type approval of terminals, mutual recognition of terminal licensing; and that such arrangements could form the basis of national regulations on these matters;

#### *recommends*

A. that the EACO member countries develop and establish, as a matter of urgency, frameworks/agreements for:-

- a harmonised approach to domestic licensing of ESIMs and
- mutual licence recognition (including type approval) of ESIMs

in order to simplify the national licensing process and facilitate seamless movement of duly authorized/licenced ESIMs within EACO and to allow for maximized benefit from the possibilities offered by this technology;

B. the following treatment of the key points below under such frameworks/agreements:

#### **a) Point 1. Licensing of ESIMs and Mutual Recognition thereof**

- i. Licensing process of ESIMs to be harmonised, as much as possible, among the member countries.
- ii. ESIMs to be licenced without the need for individual terminal-by-terminal authorization (e.g. on a class licensing basis).

- iii. Licence duly issued by EACO member country to be recognised within the territories of other member countries, to grant the possibility for ESIMs to circulate across borders.

**b) Point 2. Type Approvals of Terminals and Mutual Recognition thereof**

- i. ESIMs equipment to meet all specifications in Resolution 156 (WRC-15), Reports ITU-R S.2223, ITU-R S.2357 and, possibly, ETSI EN 303 978, ECC/DEC (13)01 or other mutually agreed specifications.
- ii. Such technical specifications to be the basis for the essential requirements necessary for the type approval of terminals, and the compliance with such technical requirements to be the basis for mutual recognition of type approval.
- iii. Type approval duly given by a member country to be recognised within the territories of other member countries

**c) Point 3. Inspection of ESIMs and ESIMs Licence and/or Type Approval Certificates**

- i. The aspect of inspection of ESIMs to be included, for verification of compliance with applicable regulations.
- ii. The aspect of inspection of license/ type approval certificates to be included, to curb abuse and illegal activities under the frameworks/agreements.

**d) Point 4. Customs Clearance for visiting terminals on a temporary basis**

- i. Duly licenced ESIM terminals to be exempted from customs and taxes in the visited country, when they are to operate on a temporary basis.
- ii. The timescale for such temporary use to be indicated, to curb abuse and illegal activities.