



TANZANIA COMMUNICATIONS REGULATORY AUTHORITY

GUIDELINES FOR OPERATING EARTH STATION IN MOTION IN TANZANIA TERRITORY

ISSUED BY TCRA – JULY 2025



**GUIDELINES FOR OPERATING EARTH STATION IN MOTION (ESIM) IN
TANZANIA TERRITORY**

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List of abbreviations

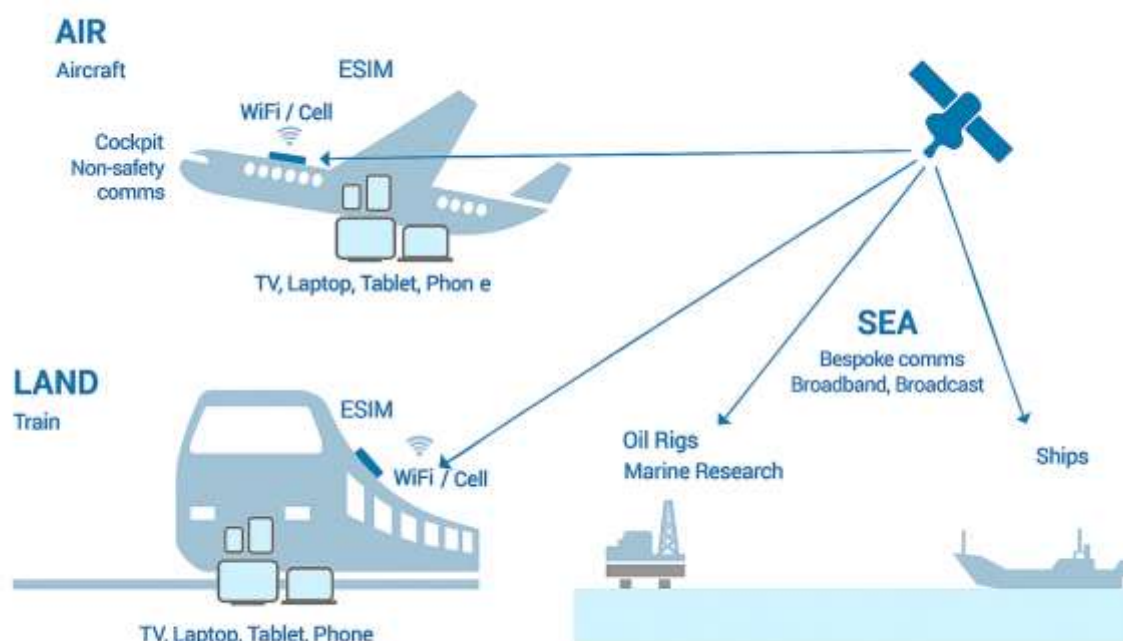
BIU	Bringing into Use
BR IFIC	BR International Frequency Information Circular
ESIM	Earth Station in Motion
M-ESIM	Maritime Earth Station in Motion
A-ESIM	Aeronautical Earth Station in Motion
AES	Aircraft Earth Station
ESV	Earth Stations in Vessels
FSS	Fixed Satellite Services
GSO	Geostationary Orbit
MIFR	Master International Frequency Register
NGSO	Non-Geostationary Orbit
ITU	International Telecommunication Union
TCAA	Tanzania Civil Aviation Authority
TCRA	Tanzania Communications Regulatory Authority
WRC	World Radiocommunication Conference

Definition of terms

Earth Station	A station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication.
Earth Station in Motion	Earth stations installed on platforms in motion (land vehicle, aircraft, marine vessel) that communicate with space stations in the geostationary-satellite orbit (GSO) or non- geostationary-satellite orbit (NGSO) operating in the Fixed Satellite Service (FSS).
Domestic ESIM	An ESIM installed in land vehicle, aircraft, or marine vessel registered in Tanzania.
Visiting ESIM	An ESIM installed in land vehicle, aircraft or marine vessel registered in the country other than Tanzania and intends to operate in Tanzania territory.
Earth Stations on Vessels	Earth stations installed on platforms in motion (marine vessel) that communicate with space stations in the geostationary-satellite orbit (GSO) or non- geostationary-satellite orbit (NGSO) operating in the Fixed Satellite Service (FSS).
Aircraft Earth Station	Earth stations installed on platforms in motion (aircraft) that communicate with space stations in the geostationary-satellite orbit (GSO) or non- geostationary-satellite orbit (NGSO) operating in the Fixed Satellite Service (FSS).

1. Introduction

A Satellite Earth Station is a type of radio equipment located on Earth's surface or within the major portion of the Earth's atmosphere used to communicate with a space station (satellite). Earth Station in Motion (ESIM) refers to the earth stations communicating with GSO networks or Non-GSO systems in the Fixed Satellite Service (FSS) using the frequency bands allocated to FSS to transmit or receive while in motion. These earth stations provide broadband connectivity ubiquitously on Land (Land ESIM), peer-to-peer for maritime (Maritime ESIM) and gate-to-gate for aviation (Aeronautical ESIM) while communicating with space stations based on national administration authorizations licensing conditions.



2. Objectives

To provide guidance to ESIM operator(s) seeking authorization to operate within the United Republic of Tanzania.

3. Scope

These guidelines cover:-

- 3.1 The use of frequency bands 12.75-13.25 GHz (Earth-to-space), 17.7-20.2 GHz (space-to-Earth), and 27.5-30 GHz (Earth-to-space) by ESIM communicating with the GSO space station in the FSS. The band 12.75-13.25 GHz (Earth-to-space) is limited to A-ESIM and M-ESIM only.
- 3.2 The use of frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5- 30 GHz (Earth-to-space) by ESIM communication with Non-GSO space station in the FSS.
- 3.3 The use of frequency bands 5925- 6425 MHz (Earth-to-space) and 14-14.5 GHz (Earth-to-space) by ESV and AES communicating with GSO and Non GSO space stations in the FSS.

4. Earth Station in Motion Authorization

For the purpose of these guidelines, the term ESIM is used to collectively refer to ESIM/ESV/AES.

ESIM Authorization refers to a permission granted by the Tanzania Communications Regulatory Authority (TCRA) to operate an ESIM/ESV/AES for Aeronautical, Maritime, and Land applications within the territorial boundaries of Tanzania.

4.1 Requirement for operating ESIM in Tanzania

The operation of the ESIM within the territorial boundaries, territorial waters and airspace under the jurisdiction of the United Republic of Tanzania, shall be carried out only if authorized by the TCRA.

4.2 Regulatory and technical requirements for ESIM operations

4.2.1 General requirement

- (i) A satellite network from which the ESIM get services must have a Landing Rights Authorization in Tanzania.
- (ii) Prior to granting authorization, applicants shall be required to demonstrate that ITU coordination of the ESIM has been initiated by submission of API or CR/C.
- (iii) All ESIM shall be authorized to operate within the national territory of Tanzania. This is for both domestic and visiting ESIM. Authorization fee as shown in **Section 4.4** of this document is subject to domestic ESIM. No fee is charged for visiting ESIM.
- (iv) All visiting ESIM shall ensure that their continued operation in Tanzania does not cause harmful interference to the existing networks during their stay in Tanzania.
- (v) ESIM must have the capability to confine its operations exclusively within the territories of administrations to which authorization has been granted.
- (vi) ESIM shall use techniques to track the associated GSO or Non-GSO FSS satellite; The earth stations must immediately cease transmission in an event where unintended satellite tracking is detected or anticipated.
- (vii) ESIM shall have the ability to monitor and control transmission power and frequency, and should a fault that can cause harmful interference to FSS or terrestrial networks be detected, the ESIM must automatically cease its transmissions.
- (viii) ESIM are authorised for the provision of broadband services and shall not be used or relied upon for safety-of-life applications. Operations of ESIM shall comply with the coordination agreements for the frequency assignments of the typical earth station of Non-GSO or GSO FSS network obtained under the relevant provisions of the ITU Radio Regulations.
- (ix) Receive only ESIM shall not require any Authorization from TCRA.

4.2.2 Specific Requirements for ESIM Communicating with a GSO and Non-GSO network in the FSS

- (i) ESIM communicating with GSO networks in FSS in the in frequency band 17.7-20.2 GHz (space-to-Earth) and 27.5-30 GHz (Earth-to-space) shall be in accordance with ITU Resolution 156 of the World Radiocommunication Conference 2015 (WRC-15) and Resolution 169 of the World Radiocommunication Conference 2019 (REV.WRC-19).
- (ii) ESIM communicating with FSS in the GSO networks in frequency band 12.75-13.25 GHz (Earth-to-space) shall be in accordance with ITU Resolution 121 of the World Radiocommunication Conference 2023 (WRC-23).
- (iii) ESIM communicating with Non-GSO networks in the FSS, in frequency band 17.7-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) shall be in accordance with ITU Resolution 123 of the World Radiocommunication Conference 2023 (WRC-23).
- (iv) ESIM communicating with GSO space station or Non-GSO systems in the FSS, in frequency bands 5925- 6425 MHZ (Earth-to-space) and 14-14.5 GHz (Earth-to-space) shall be in accordance with ITU Resolution 902 (Rev.WRC-23).

4.3 Application requirements

Below are the requirements for submission before authorization:

- (i) A copy of dully filled ESIM Application Form as annexed to these guidelines.
- (ii) A copy of the license and/or authorization form, from the home country in which the equipment (ship, vehicle or aircraft) is registered (*Applicable for Visiting ESIM*).
- (iii) A certified copy of aircraft registration (*applicable to Domestic aeronautical ESIM*) issued by the Tanzania Civil Aviation Authority (TCAA).

- (iv) A certified copy of ship or vessel registration (*applicable to domestic maritime ESIM*) issued by Tanzania Shipping Agency Corporation (TASAC) or Zanzibar Maritime Authority (ZMA).
- (v) A certified copy of vehicle registration (*applicable to domestic Land ESIM*) issued by Tanzania Revenue Authority (TRA).
- (vi) Proof that the notifying administration of the GSO or Non-GSO FSS with which the ESIM communicate has submitted relevant Appendix 4 of the Radio Regulation information related to characteristics of the subject ESIM to the Bureau.

4.4 ESIM Licence Fee and Duration

- i. The Licence fee and duration for domestic ESIM shall be in accordance with the provisions outlined in the First Schedule, Sub-Category 6D, as specified under the Electronic and Postal Communications (Licensing) (Amendment) Regulations, 2025.
- ii. Licensing for visiting ESIM (on-board foreign registered vehicles, vessels, and aircraft) shall be issued based on the authorization from the country of origin. No fees shall be required for visiting ESIM.

Annex: Earth Station in Motion/Earth Station on Board Vessel Application Form

1. General Information

1.1	Company Name	
1.2	Company Address (Physical, Telephone, Email)	
1.3	Contact Person (Names, Position Held, Telephone, Email)	

2. Technical Parameters

2.1 Earth Station in Motion (ESIM) or EARTH STATION ON BOARD VESSEL (ESV)

Type of ESIM (Tick)	Maritime (M-ESIM or ESV)		Aeronautical (AES or A-ESIM)		Land	
Manufacturer						
Type and Model						
Frequency Range						
Mode of operation (<i>Tick appropriate box</i>)	TX and RX		TX Only		RX Only	
Domestic or Visiting? (<i>Tick appropriate box</i>)	Domestic		Foreign			
Vessel/Vehicle/Aircraft Registration Number						
Country of Registration						
Techniques to maintain pointing accuracy with associated GSO or Non-GSO satellites? Yes/No						

	925-6 425 MHz	14-14.5 GHz
Minimum diameter of ESV antenna		
Tracking accuracy of ESV antenna		
Maximum ESV e.i.r.p. spectral density toward the horizon		
Maximum ESV e.i.r.p. towards the horizon		
Maximum off-axis e.i.r.p. density ²		

2.2 Associated GSO FSS Satellite Network

Satellite name	
Notifying Administration	
Orbital Position Degree (E/W)	
Landing rights number from Tanzania	

2.3 Associated Non- GSO FSS Satellite System

Satellite name	
Notifying Administration	
Landing rights number from Tanzania	

3. ITU Coordination Requirement for the ESIM/ESV

ESIM Appendix 4 information submitted to ITU? Yes/No	
If Yes provide the ITU BR IFIC Number published and Special Section	
Notifying Administration Name	



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