MCMC MTSFB TC TXXX:2025

TECHNICAL CODE

SATELLITE EARTH STATION TERMINAL - SPECIFICATIONS

Developed by

Malaysian Technical Standards Forum Bhd

Registered by

MCMC

Registered date:

MCMC MTSFB TC GXXX:2025

Development of technical codes

The Communications and Multimedia Act 1998 (Laws of Malaysia Act 588) ('the Act') provides for Technical Standards Forum designated under section 184 of the Act or the Malaysian Communications and Multimedia Commission ('the Commission') to prepare a technical code. The technical code prepared pursuant to section 185 of the Act shall consist of, at least, the requirement for network interoperability and the promotion of safety of network facilities.

Section 96 of the Act also provides for the Commission to determine a technical code in accordance with section 55 of the Act if the technical code is not developed under an applicable provision of the Act and it is unlikely to be developed by the Technical Standards Forum within a reasonable time.

In exercise of the power conferred by section 184 of the Act, the Commission has designated the Malaysian Technical Standards Forum Bhd ('MTSFB') as a Technical Standards Forum which is obligated, among others, to prepare the technical code under section 185 of the Act.

A technical code prepared in accordance with section 185 shall not be effective until it is registered by the Commission pursuant to section 95 of the Act.

For further information on the technical code, please contact:

Malaysian Communications and Multimedia Commission (MCMC)
MCMC Tower 1
Jalan Impact
Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
MALAYSIA

Tel : +60 3 8688 8000
Fax : +60 3 8688 1000
Website: www.mcmc.gov.my

OR

Malaysian Technical Standards Forum Bhd (MTSFB)
Level 3A, MCMC Tower 2
Jalan Impact
Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
MALAYSIA

Tel : +60 3 8680 9950
Fax : +60 3 8680 9940
Email : support@mtsfb.org.my
Website: www.mtsfb.org.my

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Committee representation

This technical code was developed by Communications Terminal Working Group of the Malaysian Technical Standards Forum Bhd (MTSFB), which consists of representatives from the following organisations:

International Islamic University Malaysia

Maxis Broadband Sdn Bhd

Multimedia University

SIRIM Berhad

TM Technology Services Sdn Bhd

Universiti Teknologi Mara

Foreword

This technical code for the Satellite Earth Station Terminal - Specifications (‘this Technical Code’) was developed pursuant to Section 185 of the Communications and Multimedia Act 1998 (Laws of Malaysia Act 588) by the Communications Terminal Working Group (CT WG) of the Malaysian Technical Standards Forum Bhd (MTSFB).

This Technical Code was developed for the purpose of certifying communications equipment under the Communications and Multimedia (Technical Standards) Regulations 2000.

Satellite earth station terminal shall comply with all the requirements within this Technical Code and MCMC MTSFB TC (Communications Equipment - Baseline requirements)

This Technical Code shall continue to be valid and effective from the date of its registration until it is replaced or revoked.

SATELLITE EARTH STATION TERMINAL - SPECIFICATIONS

1. Scope

This Technical Code applies to fixed and portable Satellite Earth Station Terminals (SESTs) operating within frequency bands allocated for satellite services in Malaysia. It covers, but is not limited to, hub stations, gateway stations, Very Small Aperture Terminals (VSAT) and other user terminals.

2. Normative references

The following normative references are indispensable for the application of this Technical Code. For dated references, only the edition cited applies. For undated references, the latest edition of the normative references (including any amendments) applies.

MCMC MTSFB TC (Communications Equipment – Baseline Requirements)

ETSI EN 301 441 *Satellite Earth Stations and Systems (SES); Harmonized EN for Mobile Earth Stations (MES), including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) operating in the 1,6 GHz/2,4 GHz frequency bands under the Mobile Satellite Service (MSS) covering essential requirements under Article 3.2 of the R&TTE/RED directive.*

ETSI EN 301 489 *Electro Magnetic Compatibility (EMC) standard for radio equipment and services. Includes Part 1 (generic) + specific parts for satellite earth stations to ensure devices do not create harmful interference.*

ETSI EN 301 681 *Satellite Earth Stations and Systems (SES); Harmonised Standard for Mobile Earth Stations (MES) of Geostationary mobile satellite systems, including handheld earth stations, for Satellite Personal Communications Networks (S-PCN) under the Mobile Satellite Service (MSS), operating in the 1,5 GHz and 1,6 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU*

47 C.F.R. § 1.4000, *Restrictions impairing reception of television broadcast signals, direct broadcast satellite services or multichannel multipoint distribution services*

MCMC Apparatus Assignment

MCMC Class Assignment

3. Abbreviations

For the purposes of this Technical Code, the following abbreviations apply.

CNPC	Control and Non-Payload Communications
DTH	Direct to Home
EMC	Electromagnetic Compatibility
FSS	Fixed Satellite Service
ITU	International Telecommunication Union
NFP	Network Facilities Provider
NSP	Network Service Provider
RF	Radio Frequency

SAR	Specific Absorption Rate
SESTs	Satellite Earth Station Terminals
UAS	Unmanned Aircraft Systems
VSAT	Very Small Aperture Terminal

4. Terms and definitions

For the purposes of this Technical Code, the following definitions apply.

4.1 Fixed Satellite Service (FSS)

A fixed / transportable ground station used for VSAT and/or Hub and intended for communication with one or more space stations provided by Network Facilities Provider (NFP) and/or Network Service Provider (NSP) in the designated frequency bands.

4.2 Hub

A central Fixed Satellite Service (FSS) earth station connecting to multiple VSAT within a compound of a designated location.

4.3 Mobile satellite access device

A portable two-way radiocommunications device communicating with any satellite station provided by a licensee for the provision of application services in the designated frequency bands.

4.4 Network Facilities Provider (NFP)

License provider or operator for any part of the radiocommunication facility.

4.5 Network Service Provider (NSP)

License organisation or company that provides network service to the end user.

4.6 Radionavigation

Radiodetermination used for the purposes of navigation, including the purpose of announcing obstruction warnings.

4.7 Satellite broadcasting receiver device

An earth station which is used to receive radio or television transmission provided by a licensee in the designated frequency bands.

4.8 Satellite radionavigation receiver device

A receiver device communicating with a space station which provides positional information in the designated frequency bands.

4.9 Very Small Aperture Terminal (VSAT)

A two-way earth station that transmits and receives data from FSS.

5. General requirements

5.1 Equipment operating requirements

The SESTs shall be designed to meet the following basic requirements:

a) It shall not cause interference with other authorised radiocommunication services and be able to tolerate any interference caused by other radiocommunication services, electrical or electronic equipment.

b) It shall not include controls that are external or easily accessible and allow its operation to be adjusted in a manner as specified in this Technical Code.

c) Its default setting shall be within the frequency range stipulated in MCMC Class Assignment or Apparatus Assignment (AA).

5.2 Baseline requirements

The baseline requirements for product marking, electrical safety and health, power supply, Electromagnetic Compatibility (EMC), and Specific Absorption Rate (SAR) shall adhere to the requirements outlined in MCMC MTSFB TC (Communications Equipment – Baseline Requirements).

6. Radio Frequency (RF)

The SESTs shall operate only within the specified frequency bands and transmitter output power. It shall conform to the test references as specified in Table 1 and fulfil the relevant requirements of this Technical Code on all the permitted frequencies which it is intended to operate.

Table 1. Technical requirements for SESTs

No	Operating frequency (MHz)		Type of equipment / applications	Maximum antenna diameter (m)	Maximum output power (W)	Test reference	Remarks
	Downlink	Uplink					
1.	Not Available[1]	6 425 - 6 725	FSS Earth Station[2] (VSAT and Hub)	No maximum limit	Not exceed power limits in Article 21 and Article 22 of the ITU Regulations	Manufacturer declaration	Limited to locations in Table 8-3, Class Assignment No 2 of 2025
2.	3 700 - 5 200	5 925 - 6 425	FSS Earth Station[2] (VSAT Only)	VSAT: 2.4 Hub: Subject to Apparatus Assignment	Not exceed power limits in Article 21 and Article 22 of the ITU Regulations	ETSI EN 301 447 V1.1.1	
3.	10 700 - 10 950	13 750 - 14 500	FSS Earth Station[2] (VSAT only)	VSAT: 1.2 Hub: Subject to Apparatus Assignment	Not exceed power limits in Article 21 and Article 22 of the ITU Regulations	ETSI EN 301 430 V1.1.1	
4.	10 950 - 11 200					ETSI EN 301 430 V1.1.1	
5.	11 200 - 11 450					ETSI EN 301 430 V1.1.1	

Table 1. Technical requirements for SESTs *(continued)*

No	Operating frequency (MHz)		Type of equipment / applications	Maximum antenna diameter (m)	Maximum output power (W)	Test reference	Remarks
	Downlink	Uplink					
6.	11 450 - 11 700					ETSI EN 301 430 V1.1.1	
7.	11 700 - 12 200					ETSI EN 301 360 V1.2.1	
8.	12 200 - 12 750					ETSI EN 301 430 V1.1.1	
9.	19 700 - 21 200	29 500 - 30 000	FSS Earth Station[2] (VSAT only)	VSAT: 1.2 Hub: Subject to Apparatus Assignment	Not exceed power limits in Article 21 and Article 22 of the ITU Regulations	ETSI EN 301 360 V1.2.1	
10.	1 164 - 1 400		Satellite radionavigation receiver device	Not applicable	Not applicable (receive only)	Manufacturer declaration	Non-parabolic Antenna
11.	1 518 - 1 559		Mobile satellite access device		7 W	ETSI EN 301 681	
12.	1 610 - 1 660.5		Mobile satellite access device		7 W	ETSI EN 301 441	
13.	1 668 - 1 668.4		Mobile satellite access device				
14.	1 980 - 2 010		Mobile satellite access device				
15.	2 170 - 2 200		Mobile satellite access device				
16.	2 483.5 - 2 500		Mobile satellite access device				
17.	1 525 - 1 559		UAS (CNPC and/or payload communications)	To comply to MCMC MTSFB TC T020			
18.	1 616 - 1 626.5						
19.	1 626.5 - 1 660.5						

Table 1. Technical requirements for SESTs *(concluded)*

No	Operating frequency (MHz) Downlink	Operating frequency (MHz) Uplink	Type of equipment / applications	Maximum antenna diameter (m)	Maximum output power (W)	Test reference	Remarks
20.	10.7 GHz - 10.95 GHz		Satellite broadcasting receiver device	a) Single satellite broadcasting: ≤ 0.8[3] b) Multiple satellite broadcasting: ≤ 1.2[3]	Not applicable (receive only)	ETSI EN 301 489	
	10.95 GHz - 11.20 GHz						
	11.20 GHz - 11.45 GHz						
	11.45 GHz - 11.70 GHz						
21.	11.70 GHz - 11.95 GHz		Satellite broadcasting receiver device	a) Single satellite broadcasting: ≤ 0.83 b) Multiple satellite broadcasting: ≤ 1.23	Not applicable (receive only)	ETSI EN 301 489	
	12.20 GHz - 12.50 GHz						
	12.443 GHz - 12.497 GHz						
22.	11.523 GHz - 11.577 GHz		Satellite broadcasting receiver device (DTH)	Single satellite broadcasting: ≤ 0.66	Not applicable (receive only)	ETS 300 784 (Within 10.70 GHz - 12.75 GHz) 47 C.F.R. § 1.4000	

Note:
1. Frequency band is only allowed until 31 May 2025.
2. FSS earth station shall be operated by a valid NSP and/or NFP license holder and comply with all the conditions as specified in the latest reference.

Acknowledgements

Members of the Communications Terminal Working Group

Working Group Leaders

Ms Wan Zarina Wan Abdullah (Chair)	SIRIM Berhad
Ts Pang Chee Wai (Vice Chair)	Maxis Broadband Sdn Bhd
Ir Dr Khaizuran Abdullah (Secretary)	International Islamic University Malaysia

Drafting Committee Members

Ir Dr Khairayu Badron (Draft lead)	International Islamic University Malaysia
Ms Humairah Ahmad Nasir (Secretariat)	Malaysian Technical Standards Forum Bhd
Prof Ts Ir Dr Ahmad Fadzil Ismail	International Islamic University Malaysia
Mr Ahmad Amzar Hanis Ahmad	SIRIM Berhad
Ms Hafizah Zainal Abiddin	SIRIM Berhad
Ms Nurfarah Diyanah Binti Mahat	SIRIM Berhad
Ms Mazlina Othman	TM Technology Services Sdn Bhd
Mr Muhammad Khalish Bin Md Mokhtar	TM Technology Services Sdn Bhd
Ts Dr Fatimah Zaharah Ali	Universiti Teknologi MARA (UiTM)
Ms Sumaiyah Abd Ghani	*MEASAT Satellite Systems Sdn Bhd*

Contributors

Dr Atikah Balqis Binti Basri	International Islamic University Malaysia
Prof. Ts. Dr. Mohamad Yusoff Alias	Multimedia University
Ts Jaganathan Subramaniam	TM Technology Services Sdn Bhd
Ms Siti Saleha binti Omar	TM Technology Services Sdn Bhd
Professor Ir. Dr. Mohamad Huzaimy	Universiti Teknologi MARA (UiTM)
Mr Marhisyam Mohd	*Angkasa-X Innovation*
Mr Tan Yie Jie	*Angkasa-X Innovation*
Nor Azimuddin Bin Arifin	*Binasat Digital Sdn Bhd*

Mr Mohd Fawzy bin Ahmad Basir	*TS Global Network Sdn Bhd*
Mr Zaaim Redha	*Zeta IOS*