Standard Radio System Plan

REQUIREMENTS FOR

INTERNATIONAL MOBILE TELECOMMUNICATIONS SYSTEMS

OPERATING IN THE FREQUENCY BANDS OF

703 MHz TO 743 MHz
AND
758 MHz TO 798 MHz

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SECTION

1. FOREWORD

1.1 This Standard Radio System Plan ("**SRSP**") is prepared by the Malaysian Communications and Multimedia Commission ("**MCMC**") pursuant to the Communications and Multimedia Act 1998 ("**Act**") and the Spectrum Plan to provide information on the minimum technical and regulatory requirements for efficient use of the **703 MHz to 743 MHz** and **758 MHz to 798 MHz** frequency bands.

1.2 This SRSP does not attempt to establish any detailed equipment standards.

1.3 In the event there are any inconsistencies between this SRSP and the Act or any subsidiary legislations made under the Act, the Act or the subsidiary legislations shall prevail.

2. ABBREVIATIONS

AA	Apparatus Assignment
CA	Class Assignment
CEPT	European Conference of Postal and Telecommunications Administrations
EIRP	Effective Isotropic Radiated Power
FACSMAB	Frequency Assignment Committee Singapore, Malaysia and Brunei Darussalam
FDD	Frequency Division Duplex
IMT	International Mobile Telecommunications
ITU	International Telecommunication Union
ITU-R	ITU Radiocommunication Sector
JCC	Joint Committee on Communications between Indonesia and Malaysia
JTC	Joint Technical Committee on Coordination and Assignment of Frequencies along Malaysia-Thailand Common Border
SA	Spectrum Assignment
SCS	Subcarrier Spacing
SRSP	Standard Radio System Plan
TRP	Total Radiated Power

3. INTENT

3.1 This SRSP is intended to ensure the efficient provision of mobile services in Malaysia with minimal service disruption and radio frequency interference among the service providers.

3.2 This SRSP states the requirements for the utilisation of IMT systems in Malaysia in the frequency bands of **703 MHz to 743 MHz** paired with **758 MHz to 798 MHz**. These frequency bands shall be referred to as the **"said bands"**.

3.3 The usage of the said bands are intended for the purpose of providing wireless telecommunication connectivity and including but not limited to applications such as voice, internet, video, images, interactive multimedia, high-speed data, low latency applications and mobile television.

3.4 The term 'IMT' referred to herein, is the root name which encompasses IMT-2020 and the upgrade for the next generation of this technology as well as any other new technology that is made available in the future.

4. GENERAL

4.1 Technical characteristics of the equipment used in IMT systems shall conform to all applicable Malaysian standards, international standards, ITU and its radio regulations as agreed and adopted by Malaysia.

4.2 All equipment installations shall comply with safety rules as specified in the applicable standards.

4.3 The equipment used shall be certified under the Communications and Multimedia (Technical Standards) Regulations 2000.

4.4 The assignment of the said bands and the information in this SRSP are subject to review from time to time to reflect new developments in the communications and multimedia industry.

5. CHANNEL ARRANGEMENT

5.1 The allocation of services within the said bands is described in the Spectrum Plan.

5.2 The frequency arrangement for the implementation of IMT systems in the said bands is based on Recommendation ITU-R M.1036.

5.3 The channelling plan for the IMT systems may be based on the arrangement shown in **Appendix A** of this SRSP.

6. REQUIREMENTS FOR USAGE OF SPECTRUM

6.1 This SRSP covers the minimum key characteristics considered necessary in order to make the best use of the said bands.

6.2 It should be further noted that the operation of the IMT systems in the said bands should not cause any interference at all times, to other services in the adjacent frequency bands. The coexistence and mitigation of interference may require adopting a number of engineering solutions based on industry best practice, guidelines and recommendations as described in this SRSP.

6.3 Maximum radiated power and unwanted emission for IMT systems are as follows:

6.3.1 Base station

6.3.1.1 base station in-block transmissions should not exceed **64 dBm/5 MHz EIRP** per antenna;

6.3.1.2 on a case to case basis, higher EIRP value may be permitted if acceptable technical justification is provided; and

6.3.1.3 the unwanted emissions in out-of-band and spurious domain outside an assignment holder's assigned frequency blocks shall comply with Recommendation ITU-R M.2070 and 3GPP TS 38.104.

6.3.2 User terminal station

6.3.2.1 IMT user terminal station transmissions should not exceed **23 dBm TRP** for mobile/nomadic terminal station and **23 dBm EIRP** for fixed terminal station; and

6.3.2.2 the unwanted emissions in out-of-band and spurious domain outside an assignment holder's assigned frequency blocks shall comply with Recommendation ITU-R M.2071 and 3GPP TS 38.101.

6.4 For the deployment of IMT systems using Non-Standalone (NSA) network, the said bands is allowed to be used for IMT-Advanced and limited for anchor purposes only.

6.5 A radio system conforming to the requirements of this SRSP may require modifications if major interference is caused to other radiocommunication stations or systems.

6.6 For avoidance of doubt, MCMC shall not be responsible for any costs incurred as a result of the system modification. The cost of modification shall be fully borne by the assignment holder.

7. PRINCIPLES OF ASSIGNMENT

7.1 Authorisation to use the said bands for IMT base station apparatus and user terminal station shall be subject to the followings :

7.1.1 by way of AA for IMT base station apparatus; and

7.1.2 by way of CA for IMT user terminal station and is required to comply with the latest provisions of the CA issued by MCMC pursuant to section 169 of the Act which confers rights on any person to use any frequency band or bands for a specified purpose.

7.2 The assignment shall be subject to all conditions as specified in regulations 9, 10 and 22 of the Communications and Multimedia (Spectrum) Regulations 2000 ("**Spectrum Regulations**"), and any additional conditions as may be imposed by MCMC from time to time.

7.3 Issuance of AA within the said bands shall be subject to successful coordination with Malaysia's neighbouring countries for stations that are to be located along the common border areas.

8. COORDINATION REQUIREMENT

8.1 Operator-to-Operator Coordination in the Adjacent Frequency Bands

8.1.1 Coordination between IMT base stations operating in the adjacent frequency bands of the said bands may be required to mitigate the interference.

8.1.2 The assignment holder operating in the said bands shall ensure that its systems only operate within the assigned frequency bands.

8.1.3 In the event of any interference, MCMC will be guided by the interference resolution process as shown in **Appendix B** of this SRSP.

8.2 Common Border Area Coordination

8.2.1 The use of the said bands shall also require coordination at common border area(s) with the neighbouring countries within the coordination zones. The coordination zones are based on agreement reached at border committees namely FACSMAB, JTC and JCC. Agreement on the said bands plan may differ from one neighbouring country to another subject to the requirement of the respective country.

8.2.2 In the event there is no agreement on coordination zone, a zone within 50 km from the border of the neighbouring countries will be used.

8.2.3 It shall be noted that the coordination distance and other coordination parameters between Malaysia and the neighbouring countries may be reviewed and updated from time to time.

8.2.4 The use of the said bands will be subject to the analogue television switch-off timeline in the neighbouring countries and may limit deployment in the following areas:

8.2.4.1 West Coast of Peninsular Malaysia; and

8.2.4.2 within border areas with Republic of Indonesia in Sabah and Sarawak.

8.3 Assignment holders shall take full advantage of the interference mitigation techniques such as antenna discrimination, tilting, polarisation, frequency discrimination, shielding/blocking (introduction of diffraction loss), site selection, power control and/or filter installation to facilitate the coordination of systems.

8.4 Any costs incurred as a result of the coordination process shall be fully borne by the assignment holder.

9. EFFECTIVE DATE

9.1 This SRSP shall be effective on the date of issuance of this document.

10. REFERENCES

i. **Spectrum Plan**

ii. **Recommendation ITU-R M.1036** - Frequency arrangements for implementation of the terrestrial component of International Mobile Telecommunications in the bands identified for IMT in the Radio Regulations

iii. **Recommendation ITU-R M.2070** - Generic unwanted emission characteristic of base stations using the terrestrial radio interfaces of IMT-Advanced

iv. **Recommendation ITU-R M.2071** - Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced

v. **Report ITU-R M.2411** - Requirements, evaluation criteria and submission templates for the development of IMT-2020

vi. **3GPP TS 38.101-1** - Technical Specification Group Radio Access Network; NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone

vii. **3GPP TS 38.104** - Technical Specification Group Radio Access Network; NR; Base Station (BS) radio transmission and reception

viii. **3GPP TS 38.141-2** - Technical Specification Group Radio Access Network; NR; Base Station (BS) conformance testing Part 2: Radiated conformance testing

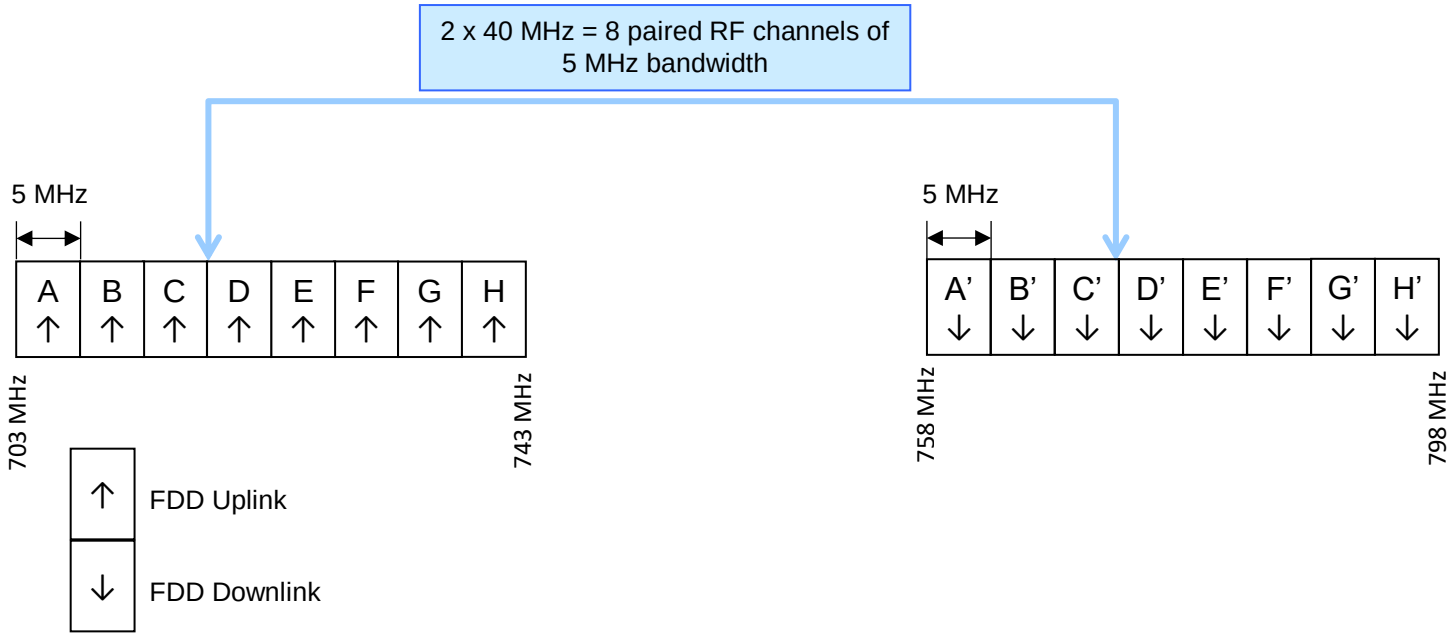
ix. **3GPP TS 38.521** - Technical Specification Group Radio Access Network; NR; User Equipment (UE) conformance specification; Radio transmission and reception

x. **CEPT Reports 53** - (Report A) To develop harmonised technical conditions for the 694 -790 MHz ('700 MHz') frequency band in the EU for the provision of wireless broadband and other uses in support of EU spectrum policy objectives

xi. **CEPT Reports 60** - (Report B) To develop harmonised technical conditions for the 694 -790 MHz ('700 MHz') frequency band in the EU for the provision of wireless broadband and other uses in support of EU spectrum policy objectives

APPENDIX A: CHANNEL ARRANGEMENT

CHANNEL ARRANGEMENT OF IMT SYSTEMS IN
FREQUENCY BANDS OF 703 MHz TO 743 MHz PAIRED WITH 758 MHz TO 798 MHz



Frequency Band	SCS kHz	5 MHz	10 MHz	15 MHz	20 MHz
FDD band (703-743 / 758–798 MHz)	15	Yes	Yes	Yes	Yes
	30	No	Yes	Yes	Yes

Note:

The use of contiguous channel frequencies in the said bands may provide the flexibility of combining the carriers to support higher channel bandwidth for IMT systems. The implementation methods for deployment of IMT systems are subject to mitigation techniques required to be applied.

APPENDIX B: INTERFERENCE RESOLUTION PROCESS

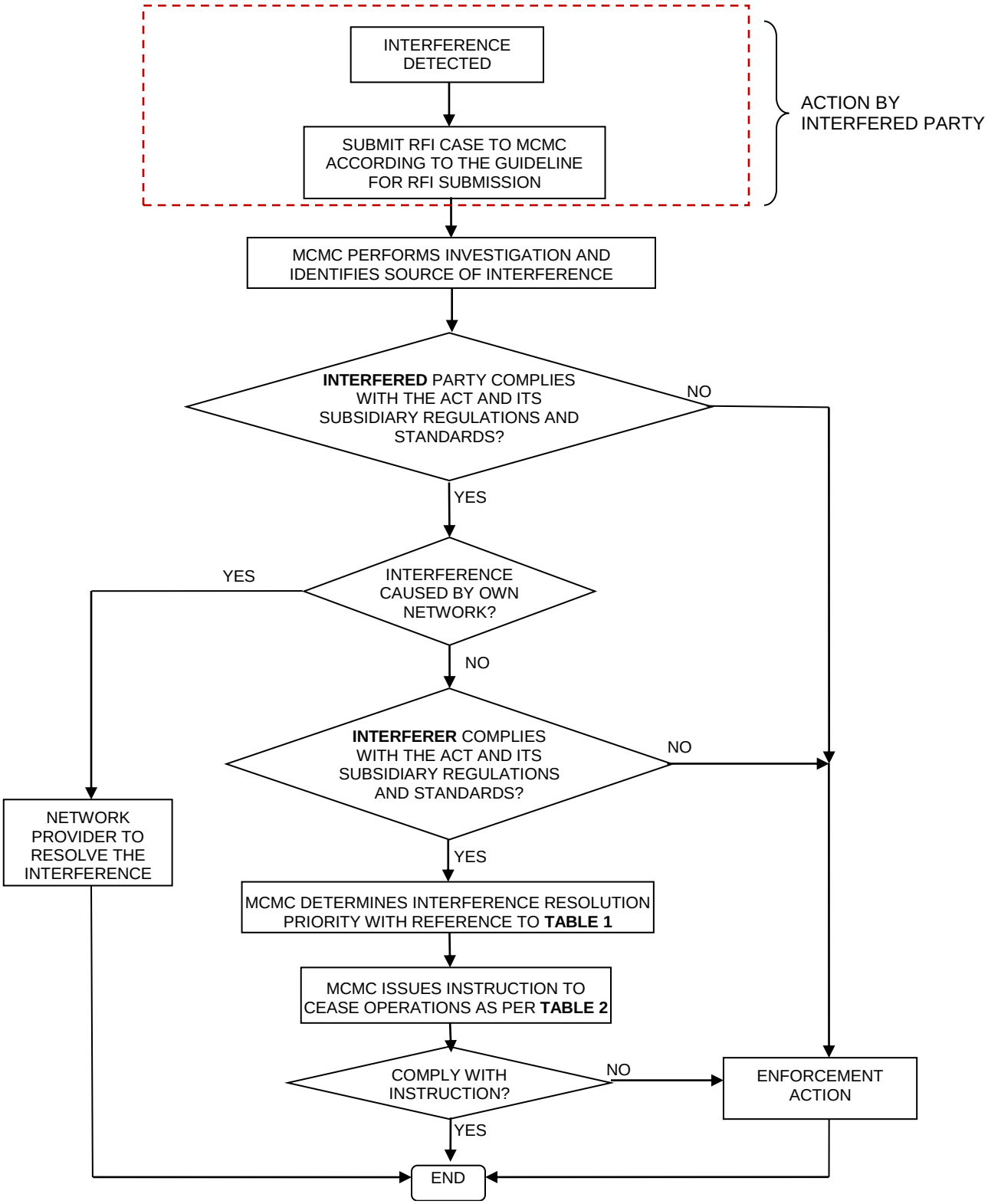


TABLE 1: INTERFERENCE RESOLUTION PRIORITY

No.	Types of Priority	Description
1	Service Priority	Primary services have priority over secondary services. Among co-primary or co-secondary services, the stated priority is accorded as provided in the Spectrum Plan.
2	Assignment Type Priority	SA and AA have equal priority but are of higher priority than CA.
3	Service Type Priority	In the event where service priority and assignment type priority are equal for affected parties, the following list will determine the priority level for the interference case (the earlier in the list is given higher priority): i. safety or radionavigation service; and ii. based on the date of AA - Priority is given to the earliest/first installation.

TABLE 2: INTERFERENCE RESOLUTION TIMELINE TO PARTIES

No.	Types of Interference	Description	Resolution Timeline
1	Harmful	Interference which endangers or seriously degrades, obstructs or repeatedly interrupts the functioning of a radionavigation service or one or more safety services operating in accordance with Spectrum Regulations.	To cease* operation immediately within 24 hours or earlier as specified in the notice issued by MCMC.
2	Major	Electromagnetic interference rendering any apparatus or services unsuitable for their intended purpose. For this purpose, interference to public correspondence service is considered under this category.	To cease* operation within 3 days or earlier as specified in notice issued by MCMC if interference cannot be resolved.
3	Minor	Electromagnetic interference which does not affect the overall operation of any radiocommunications transmission.	To cease* operation within 7 days or earlier as specified in the notice issued by MCMC if interference cannot be resolved.

*Note:
Resumption of operation of the apparatus is not allowed unless the assignment holder submit interference resolution or mitigation plan and has completed the implementation of the mitigation plan to the satisfaction of MCMC.