Malaysian Communications and Multimedia Commission
Suruhanjaya Komunikasi dan Multimedia Malaysia

Public Consultation

Proposed Malaysia's Positions for World Radiocommunication Conference 2023 (WRC-23) Agenda Items

Publication date: 17 July 2023
Closing date for responses: 16 August 2023

Contents

Sections

Annexes

1. Background

The objective of this Public Consultation (PC) is to invite comments from industry experts, interested parties and members of the public on the proposed Malaysia's position for World Radiocommunication Conference 2023 (WRC-23) agenda items.

The World Radiocommunication Conference (WRC) is a treaty-level forum where 193 International Telecommunication Union (ITU) Member States come together to review, and revise the Radio Regulations, an international treaty governing the use of radio frequency spectrum, geostationary satellite and non-geostationary satellite orbits. WRC is held every 3 to 4 years with the purpose of reaching consensus on changes in the Radio Regulations. The changes to the Radio Regulations will result in changes and/or updates to Malaysia's Spectrum Plan and possible changes to the policy and regulatory matters.

The next WRC, which is WRC-23, will be held from 20 November to 15 December 2023 in Dubai, United Arab Emirates. WRC-23 will address more than 33 agenda items. Work towards the WRC is conducted based on agreed-upon agenda items, which cover a wide range of radiocommunication services and applications. The summary of the WRC-23 agenda items is provided in **Annex I**.

MCMC has formed the National Preparatory Working Group for WRC-23 (NPWG-23) to discuss and develop Malaysia's views and positions on WRC-23 agenda items. There are 5 Working Groups under the NPWG-23 comprising members of the industry including (but not limited to) broadcasters, telecommunication service providers, satellite network operators, amateur radio operators, manufacturers, academicians, researchers as well as spectrum users from the government agencies. The respective Working Groups of NPWG-23 have produced the output on proposed Malaysia's positions in the respective sections of this PC document.

To strike a balance between national interest and market opportunities, a comprehensive working process needs to be planned, regularly improvised and diligently implemented and executed; hence, there is a requirement for this PC process.

This PC assumes some prior knowledge on spectrum issues. It also considers the outcome of the 2nd Session of the Conference Preparatory Meeting for WRC-23 (CPM23-2) that provides a basis for the discussions at the WRC-23.

The Report of the CPM23-2[1] (CPM Report) should be read together with this PC document.

[1] https://www.itu.int/pub/R-ACT-CPM-2023

2. Fixed, Mobile and Broadcasting Issues

2.1 Agenda Item 1.1

"To consider, based on the results of the ITU-R studies, possible measures to address, in the frequency band 4800-4990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the pfd criteria in No. ***5.441B*** *in accordance with Resolution* ***223 (Rev.WRC-19)****".*

Background

WRC-15 established No. **5.441B** of the Radio Regulations (RR) which provided International Mobile Telecommunications (IMT) identification for three Region 3 countries in the 4800-4990 MHz frequency band, already allocated to the mobile service (MS) on a primary basis, and introduced, inter alia, additional criterion consisting of a limit on the pfd produced by IMT station up to 19 km above sea level at 20 km from the coast in order to protect aeronautical mobile service (AMS). This criterion was subject to review at WRC-19.

Due to diverging views with regards to the relevance of pfd criterion to protect AMS, its value, conditions and frequency band for its application, noting that preparatory work was not finalized, WRC-15 invited ITU-R to study the technical and regulatory conditions for the use of IMT in this band in order to protect AMS and review pfd criterion in the RR No. **5.441B** at WRC-19.

In accordance with Resolution **223 (Rev.WRC-15)**, ITU-R carried out but did not finalize studies mentioned above. The report on the above-mentioned ITU-R studies were submitted to WRC-19 for its consideration and necessary action, as appropriate.

WRC-19 updated RR No. **5.441B** and Resolution **223 (Rev.WRC-19)** and as a result additional countries were included in the IMT identification in RR No. **5.441B** (now the footnote includes 40 countries) and for 11 of these countries, the pfd criterion in footnote RR No**. 5.441B** was deactivated. However, due to diverging views on whether to apply a pfd criterion, WRC-23 was invited, in accordance with Resolution **223 (Rev.WRC-19)**, to consider possible measures to address protection of stations of the aeronautical and maritime mobile services (AMS/MMS) located in international airspace and waters from other stations located within national territories, and to review the pfd criterion in No. **5.441B**.

Proposed Position for Agenda Item 1.1

Malaysia supports the appropriate measures to address the protection of stations of the aeronautical and maritime mobile services located in international airspace and waters (i.e., outside national territories) operating in the 4800-4990 MHz frequency band, and the implementation of IMT systems in this frequency band, as practicable.

2.2 Agenda Item 1.2

"To consider identification of the frequency bands 3300-3400 MHz, 3600-3800 MHz, 6425-7025 MHz, 7025-7125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution ***245 (WRC-19)****".*

Background

Information and emerging communication technologies (ICTs) play an important role in supporting socio-economic development. IMT systems are able to support various usage scenarios including enhanced mobile broadband (eMBB), massive machine type communications (mMTC) and ultra-reliable low-latency communications (URLLC).

With demand for IMT applications continuing to increase, additional IMT spectrum identifications in the mid-range frequency bands need to be considered to enable future deployments, where these applications and services might be difficult to implement using lower or higher frequency bands.

However, when considering potential candidate frequency bands for IMT identification, there is a need to ensure the protection of services already allocated in these frequency bands and in adjacent bands (as appropriate) on a primary basis.

Resolution **245 (WRC-19)** calls for studies of technical, operational and regulatory issues pertaining to the possible use of the terrestrial component of IMT in the frequency bands, as well as sharing and compatibility studies[2], with a view to ensuring the protection of services to which the frequency band is allocated on a primary basis, without imposing additional regulatory or technical constraints on those services, and also, as appropriate, on services in adjacent bands, for the frequency bands:

- 3600-3800 MHz and 3300-3400 MHz (Region 2);
- 3300-3400 MHz (amend footnote in Region 1);
- 7025-7125 MHz (globally);
- 6425-7025 MHz (Region 1)[3]; and
- 10.0-10.5 GHz (Region 2).

In light of *considering j)* of Resolution **245 (WRC-19)**, Malaysia may benefit from economies of scale and global/regional harmonization of IMT eco-system.

Proposed Position for Agenda Item 1.2

Malaysia supports the identification of IMT in the 7025-7125 MHz frequency band with appropriate regulatory and technical conditions, taking into account the results of studies to ensure the protection of services to which the frequency band is allocated on a primary basis and in adjacent bands.

---

[2] Including studies with respect to services in adjacent bands, as appropriate.

[3] At the CPM23-2, there was a proposal to identify the 6425-7025 MHz frequency band for some countries in Region 3 for IMT by creating a new RR footnote with appropriate conditions.

Malaysia notes that the following frequency bands are being considered for other Regions and would not oppose an IMT identification in those Regions, where relevant:

- 3600-3800 MHz and 3300-3400 MHz (Region 2);
- 3300-3400 MHz (amend footnote in Region 1);
- 6425-7025 MHz (Region 1); and
- 10.0-10.5 GHz (Region 2).

2.3 Agenda Item 1.3

"To consider primary allocation of the band 3600-3800 MHz to the mobile service in Region 1 and take appropriate regulatory actions, in accordance with ***Resolution 246 (WRC-19)****".*

Background

Resolution **246 (WRC-19)** resolves to invite ITU-R to conduct sharing and compatibility studies in time for WRC-23 between the mobile service and other services allocated on a primary basis within the 3600-3800 MHz frequency band and adjacent bands in Region 1, as appropriate, to ensure protection of those services to which the frequency band is allocated on a primary basis, and not impose constraints on the existing services and their future development.

Further to Resolution **246 (WRC-19)**, efficient implementation of broadband connectivity, inter alia, could play an important role in development of telecommunications services in many countries.

Proposed Position for Agenda Item 1.3

Malaysia notes that this agenda item is a Region 1 issue and supports the APT Preliminary View for this agenda item, as developed at APG23-5, as follows:

A possible upgrade of mobile service to primary allocation in the 3600-3800 MHz frequency band in Region 1 shall protect existing and planned services to which the frequency band is allocated on a primary basis (and in adjacent bands, as appropriate) in Region 3, taking into account the results of sharing and compatibility studies and such upgrading shall not have any adverse effect on the allocation of the existing services and their future development in Region 3.

2.4 Agenda Item 1.4

*"To consider, in accordance with Resolution **247 (WRC-19)**, the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level".*

Background

WRC-23 agenda item 1.4 considers the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level pursuant to Resolution **247 (WRC-19)**.

HIBS are located in the stratosphere, providing both uplink and downlink mobile connectivity to the ground-based IMT mobile stations. HIBS are intended to be used as part of terrestrial IMT networks, as an application of the mobile service, and may use the same frequency bands with ground-based IMT base stations. The IMT mobile stations to be served by HIBS are proposed to be the same as the ground-based IMT base stations. Currently, the IMT mobile stations support a variety of frequency bands identified for IMT, including frequency bands below 2.7 GHz.

WRC-2000 identified through RR No. **5.388A** the 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz frequency bands in Regions 1 and 3, and the 1885-1980 MHz and 2110-2160 MHz frequency bands in Region 2 that may be used by high-altitude platform stations as base stations to provide IMT, in accordance with Resolution **221 (Rev.WRC-07)**. Furthermore, Resolution **221 (Rev.WRC-07)** provides the technical conditions that need to be met by these high-altitude platform stations to ensure that emissions to neighbouring countries do not cause co-channel harmful interference to the other services and applications allocated in these frequency bands, including terrestrial IMT-2000 stations.

The work under WRC-23 agenda item 1.4 includes studying sharing and compatibility in the 694-960 MHz, 1710-1885 MHz and 2500-2690 MHz frequency bands, as well as appropriate modifications to the existing RR No. **5.388A** and associated Resolution **221 (Rev.WRC-07)**. These studies are intended to allow the use of such frequency bands by HIBS. This would allow HIBS to provide mobile-broadband connectivity to underserved communities, and in rural and remote areas, while ensuring the protection of existing primary services in the same and adjacent frequency bands.

Proposed Position for Agenda Item 1.4

Malaysia supports establishing regulatory provisions for the use of HIBS in certain frequency bands below 2.7 GHz already identified for IMT referred to in Resolution **247 (WRC-19)**, provided that the regulatory provisions will ensure protection of the existing services to which the frequency band is allocated on a primary basis, and the adjacent bands, as well as no additional regulatory or technical constraints imposed on the deployment of ground-based IMT systems in those frequency bands.

2.5 Agenda Item 1.5

"To review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review, in accordance with Resolution ***235 (WRC-15)****".*

Background

The spectrum below 1 GHz is well suited for mobile broadband applications. In particular, the unique propagation characteristics of the bands below 1 GHz allow for wider area coverage, which in turn requires fewer infrastructures and facilitates service delivery to rural or sparsely populated areas.

During WRC-15, after a proposal of WRC-19 agenda item by multiple Region 1 administrations for studying Region 1 identification of 470-694/698 MHz frequency band for IMT, an agenda item was proposed for WRC-23 and approved in WRC-19 as agenda item 1.5 and the relevant Resolution **235 (WRC-15)** was kept intact.

This agenda item addresses the future spectrum use of the 470-694 MHz frequency band in Region 1. In that regard, a review of the current spectrum use and a study of future spectrum needs in the 470-960 MHz frequency band were requested as well as an assessment of the results of sharing and compatibility studies between the broadcasting and mobile, except aeronautical mobile, services in the 470-694 MHz frequency band, as well as other existing services in accordance with Resolution **235 (WRC-15)** for consideration of possible regulatory actions.

Proposed Position for Agenda Item 1.5

Malaysia notes that this agenda item is a Region 1 issue and supports the APT Preliminary View for this agenda item, as developed at APG23-5, as follows:

The conclusion to be reached on agenda item 1.5 is a Region 1 issue and WRC-23 decisions shall in no way adversely affect Region 3 frequency allocations and existing and future use of the relevant frequency band.

2.6 Agenda Item 9.1 Topic C

*"To study the use of International Mobile Telecommunication systems for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis, in accordance with Resolution **175 (WRC-19)**".*

Background

Resolution **175 (WRC-19)** resolves to invite the ITU Radiocommunication Sector "to conduct any necessary studies on the use of IMT systems for fixed wireless broadband in the frequency bands allocated to the fixed service on primary basis, taking into account the relevant ITU-R studies, Handbooks, Recommendations and Reports".

Examples were provided for some relevant published ITU-R Recommendations, Reports, and Handbook of fixed wireless access. When these initial publications were developed, the expectations for fixed wireless applications were very different than those of today, including fixed wireless access, backhaul, core, transport and others. Therefore, the ITU-R WPs 5A and 5C found it is timely to progress this work by revising the existing relevant publications and to develop any new ones as required to reflect the new technological capabilities and approaches of fixed wireless applications. All input contributions were introduced in the joint activity of ITU-R WPs 5A and 5C but were not fully discussed and no agreement was found on a single way forward. In view of this, different approaches are proposed to address the required studies by WRC-23 agenda item 9.1, topic c).

Proposed Position for Agenda Item 9.1 Topic C

Malaysia is of the view that this agenda item may be addressed through the revision of the existing ITU-R Recommendation(s), Report(s) and/or Handbook. Should such a revision still not satisfy the requirements of this agenda item, the development of new Recommendation(s), Report(s) and/or Handbook in the ITU-R is supported.

2.7 RR No. 21.5

*"Verification of No. **21.5** for the notification of IMT stations operating in the frequency band 24.45-27.5 GHz which use an antenna that consists of an array of active elements".*

Background

The objective of Article **21** is to ensure sharing of terrestrial and space services in frequency bands above 1 GHz is operating in a satisfactory manner.

At WRC-19, two contributions in relation to RR No. **21.5** were submitted. This topic was extensively discussed under WRC-19 agenda item 1.13 and the results of discussions were included in WRC-19 Document 550. The text set out in the annex to the Document 550 was approved as a decision of the conference and included in the minutes of the twelfth plenary meeting (WRC-19 Document 573), which reproduced below:

"ITU-R is invited to study, as a matter of urgency, the applicability of the limit specified in No. **21.5** of the Radio Regulations to IMT stations, that use an antenna that consists of an array of active elements, with a view to recommend ways for its possible replacement or revision for such stations, as well as any necessary updates to Table **21-2** related to terrestrial and space services sharing frequency bands.

Furthermore, the ITU-R is invited to study, as a matter of urgency, verification of No. **21.5** regarding the notification of IMT stations that use an antenna that consists of an array of active elements, as appropriate."

The applicable portions of the Radio Regulations regarding this topic include:

21.3 § 3 1) The maximum equivalent isotropically radiated power (e.i.r.p.) of a station in the fixed or mobile service shall not exceed +55 dBW.

21.5 3) The power delivered by a transmitter to the antenna of a station in the fixed or mobile services shall not exceed +13 dBW in frequency bands between 1 GHz and 10 GHz, or +10 dBW in frequency bands above 10 GHz, except as cited in No. **21.5A**. (WRC-2000)

This outcome of WRC-19 on RR No. **21.5** was brought to the attention of CPM23-1 that requests study be performed in ITU-R. This does not specifically request action or reporting to WRC-23 so is not included in the topics under WRC-23 agenda item 9.1. However, ITU-R WP 5D, as the responsible group, is invited to carry out the requested study as a matter of urgency and to report the results of the study to the Director of the Radiocommunication Bureau to be considered as the Director deems appropriate.

Proposed Position for RR No. 21.5

Malaysia notes that ITU-R studies on the applicability of the limit specified in RR No. **21.5** to IMT stations using active antenna systems (AAS) and the verification of RR No. **21.5** regarding the notification of these IMT stations are still ongoing.

Malaysia is of the view that the use of total radiated power (TRP) parameter within a reference bandwidth may be considered for the purpose of verification of RR No. **21.5** in the notification of IMT stations that use an antenna that consists of an array of active elements in the 24.45-27.5 GHz frequency range.

Malaysia also supports the APT Preliminary View for this topic, as developed at APG23-5, that change to RR No. **21.5** may not be necessary at this stage to address the issues raised in Document 550 of WRC-19.

3. Aeronautical, Maritime and Amateur Issues

3.1 Agenda Item 1.6

*"To consider, in accordance with Resolution **772 (WRC-19)**, regulatory provisions to facilitate radiocommunications for sub-orbital vehicles".*

Background

The ITU-R was invited to study the spectrum needs for stations on board sub-orbital vehicles, appropriate modification, if any, to the Radio Regulations (RR), excluding any new allocations or changes to the existing allocations in RR Article **5** to accommodate stations on board sub-orbital vehicles of which one objective is to facilitate radiocommunications that support aviation to safely integrate sub-orbital vehicles into airspace and ensure interoperability with international civil aviation.

In Report ITU-R M.2477, in preparation of WRC-19, as contained in recognizing b) of Resolution **772 (WRC-19)**, sub-orbital flight is described as "The intentional flight of a vehicle expected to reach the upper atmosphere with a portion of its flight path that may occur in space without completing a full orbit around the Earth before returning back to the surface of the Earth." A sub-orbital vehicle is described as "a vehicle executing sub-orbital flight".

Sub-orbital vehicles are to be safely integrated into the airspace used by conventional aircraft and minimize disruption during the transition to and from controlled airspace.

Proposed Position for Agenda Item 1.6

Malaysia supports possible spectrum needs for stations on board sub-orbital vehicles, appropriate modification, if any, to the Radio Regulations (RR), excluding any new allocations or changes to the existing allocations in RR Article **5** to accommodate stations on board sub-orbital vehicles to facilitate radiocommunications that support aviation to safely integrate sub-orbital vehicles into airspace and ensure interoperability with international civil aviation.

The sub-orbital vehicles shall ensure that it does not affect the existing civil aviation and space launch systems, and not impose any additional constraint on other services or applications operated in the same services.

As such, Malaysia is considering **Method B** to address this agenda item.

3.2 Agenda Item 1.7

*"To consider a new aeronautical mobile-satellite (R) service allocation in accordance with Resolution **428 (WRC-19)** for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the aeronautical mobile (R) service, in the aeronautical radionavigation service, and in adjacent frequency bands".*

Background

The level of aircraft traffic in oceanic and remote areas remains limited due to the difficulty of providing and maintaining suitable terrestrial communication, navigation and surveillance means, which results in applying a large separation distance between aircraft. Progress has been made over the last years in the areas of navigation and surveillance, with the existing availability of global navigation satellite systems and reception by satellite of automatic dependent surveillance-broadcast signals in the 1087.7-1092.3 MHz frequency band.

WRC-23 agenda item 1.7 deals with a possible new allocation to the aeronautical mobile-satellite (R) service (AMS(R)S) within the 117.975-137 MHz frequency band, to relay standard VHF communications operating under the AM(R)S, and to complement terrestrial infrastructures over oceanic and remote areas. This would not require modification to aircraft equipment, as the space segment would be able to receive and transmit to standard VHF radios already installed on board aircraft.

The systems operating under an allocation either in-band or adjacent band were identified and sharing and compatibility studies were carried out to determine the operating conditions for systems intended to operate under a new AMS(R)S allocation. This is to ensure the protection of these in-band and adjacent band systems from possible interference resulting from the introduction of a new AMS(R)S system in this frequency band, and also to ensure that AMS(R)S protection will not constrain planned usage of those systems as mandated by Resolution **428 (WRC-19)**.

Proposed Position for Agenda Item 1.7

Malaysia supports new allocation to the AMS(R)S in the 117.975-137 MHz frequency band, or part thereof, limited to non-geostationary satellite systems and to internationally standardized aeronautical systems while ensuring coexistence with existing services/applications in the same and adjacent frequency bands.

As such, Malaysia prefers **Method B** and if necessary, a new WRC-23 Resolution may be developed to address AMS(R)S regulatory framework particularly in addressing the respective roles of ITU and International Civil Aviation Organization (ICAO).

3.3 Agenda Item 1.8

*"To consider, on the basis of ITU-R studies in accordance with Resolution **171 (WRC-19)**, appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution **155 (Rev.WRC-19)** and No. **5.484B** to accommodate the use of fixed-satellite service networks by control and non-payload communications of unmanned aircraft systems".*

Background

In compliance with Resolution **171 (WRC-19)**, under its agenda item 1.8, WRC-23 is to review and undertake a potential revision of Resolution **155 (Rev.WRC-19)** and No. **5.484B** in the frequency bands referred to in Resolution **155 (Rev. WRC-19)**.

Since first being identified as a WRC agenda item by WRC-07, Unmanned Aircraft Systems (UAS) for Control and Non-Payload Communication (CNPC) links have been the subject of consideration by ITU-R at three consecutive Conferences since WRC-2012. The requirements of numerous UAS applications for communications beyond line of sight will necessitate the use of safe satellite communications to provide all, or components of, the CNPC for UAS. WRC-15 adopted RR No. **5.484B** and the associated Resolution **155 (WRC-15)** which provides regulatory and technical provisions for UAS CNPC operation through the identified regular fixed-satellite service (FSS) frequency bands. However, in this Resolution, WRC-15 also stipulates that WRC-23 shall review RR No. **5.484B** and this Resolution and until this has happened, the Bureau shall not process submissions for networks under this Resolution.

Under this agenda item, assignments pertaining to geostationary FSS networks operating in the following frequency bands may be used for UAS CNPC links:

- 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth) and 11.7-12.2 GHz (space-to-Earth) frequency bands in Region 2;
- 12.2-12.5 GHz (space-to-Earth) frequency band in Region 3;
- 12.5-12.75 GHz (space-to-Earth) frequency band in Regions 1 and 3; and
- 19.7-20.2 GHz (space-to-Earth), 14-14.47 GHz (Earth-to-space) and 29.5-30.0 GHz (Earth-to-space) frequency bands.

In accordance with the Radio Regulations, the FSS frequency bands are intended to be used for telecommunication services and not for safety of life applications.

Proposed Position for Agenda Item 1.8

Due to the complexity of the agenda item, Malaysia is considering **Method A** at this moment.

Nevertheless, if all safety issues of the UA CNPC links operated under FSS frequency bands have been resolved at WRC-23, Malaysia may consider **Method B**.

3.4 Agenda Item 1.9

*"To review Appendix **27** of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU-R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (R) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with Resolution **429 (WRC-19)**"*

Background

HF Radio communications is the long-range communication system supporting safe, efficient air travel over long-range routes beyond the range of ground-based VHF radiocommunication systems. However, technology now provides for satellite communications which have also been recognized by regulatory authorities for use in long-range communications.

Communications using both satellite and terrestrial means for long-range communication provides diversity and synergy that offers increased availability and reliability.

The current HF voice systems suffer from noise and propagation effects that require skilled and knowledgeable radio operators on the ground to provide reliable HF communications. Existing HF data links do not have the throughput required to sufficiently satisfy the communication needs.

In order to use digital HF aeronautical spectrum which would increase the data rates to reach required performance by modern aeronautical systems, Radio Regulations (RR) Appendix **27** needs to allow the use of multiple contiguous and/or non-contiguous 3 kHz channels simultaneously.

Proposed Position for Agenda Item 1.9

Malaysia supports modifications to the Radio Regulations (RR) to accommodate digital technologies for aeronautical wideband HF systems, while ensuring compliance with safety requirements and protection of other primary services in the same and adjacent bands, in particular, the existing AM(R)S HF systems.

Malaysia is of the view that:

- changes to the RR should allow implementation of new digital wideband HF systems taking into account technology neutrality;
- digital wideband HF systems operating in the bands allocated to the aeronautical mobile (route) service (AM(R)S) relating to RR Appendix **27** shall be operated in accordance with the ICAO Standards and Recommended Practices (SARPs); and
- by enabling this new system, the effectiveness and efficiency throughout the HF band could be improved.

As such, Malaysia prefers **Method B** to address this agenda item.

3.5 Agenda Item 1.10

"To conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution ***430 (WRC-19)****".*

Background

Wideband line-of-sight data links (WB LOS DLs) operating in the aeronautical mobile (OR) service (AM(OR)S) is not related to safety of life. They are used to exchange mission data between aircraft and aeronautical stations to support applications such as: observation missions, search and rescue, earth science and land management.

This agenda item considers possible new allocations to the AM(OR)S in the 15.4-15.7 GHz and 22-22.21 GHz frequency bands to support the growing use of WB LOS DL.

Per the Radio Regulations (RR), stations in the AM(OR)S can support bi-directional communication links including those between aircraft stations or an aircraft station and an aeronautical station on the ground, on board a ship or on a platform at sea.

Under the EESS (passive) allocation, the 22.21-22.5 GHz frequency band allows for remote sensing observations near a water absorption line that is essential for measuring atmospheric water vapour, which in turn helps reducing error in other geophysical parameters due to the presence of water vapour.

Passive ground-based water-vapour radiometers operating in the 22-22.5 GHz frequency band are also used worldwide to characterize vertical profiles of water-vapour concentrations for applications including, but not limited to, studies of Earth's atmosphere, climatology and meteorology. Furthermore, such radiometers are an important helper application for several application of different radiocommunication services to calibrate signals that travel through Earth's atmosphere and are subject to attenuation and phase shifts caused by water molecules in the troposphere.

This agenda item seeks possible new allocations to the aeronautical mobile service (AMS) for non-safety applications. To address this agenda item, ITU-R has undertaken studies, pursuant to Resolution **430 (WRC-19)**, on frequency-related matters for these possible new allocations.

Proposed Position for Agenda Item 1.10

Malaysia supports new allocation to the AM(OR)S in the 15.4-15.7 GHz frequency band or part thereof, and/or remove the exception to AM(OR)S of the mobile allocation in the 22-22.21 GHz frequency band or part thereof.

Malaysia also is of the view that the protection of existing primary services in the 15.4-15.7 GHz and 22-22.21 GHz frequency bands and in the adjacent frequency bands shall be ensured.

As such, Malaysia is considering **Method B** and/or **C** or **Method E** to address this agenda item.

3.6 Agenda Item 1.11

*"To consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System (GMDSS) and the implementation of e-navigation, in accordance with Resolution **361 (Rev.WRC-19)**".*

3.6.1 Issue A: Global maritime distress and safety system modernization

Background

In 2022, the International Maritime Organization (IMO) has adopted amendments to the 1974 Safety of Life at Sea (SOLAS) Convention Chapters III and IV, together with related and consequential amendments to existing instruments other than SOLAS. These amendments will enter into force in 2024 and concluded the IMO work on modernization of the global maritime distress and safety system (GMDSS).

Therefore, WRC-23 is invited to consider possible regulatory actions in support of the modernization of the GMDSS which has just been finalized by the IMO on the followings:

i. The deletion of narrow-band direct-printing (NBDP) for distress and safety communications from GMDSS in RR Appendices **15** and **17** for MF and HF bands;
ii. Introduction of a new automatic connection system (ACS) which will be proposed to be implemented on the frequencies which had previously been used by NBDP for GMDSS in all MF and HF bands in RR Article **5** and Appendix **17** by a footnote;
iii. Introduction of the NAVDAT frequencies in MF and HF in RR Appendix **15** resulting the NAVDAT will be part of the GMDSS;
iv. To implement automatic identification system search and rescue transmitter (AIS SART) as locating equipment for which frequencies are protected by reference in RR Appendix **15** so that survival craft stations may carry this equipment as an alternative to the RADAR-SART to be in line with SOLAS Chapter IV; and
v. The removal of non-406 MHz satellite EPIRBs, leaving only satellite EPIRBs operating on 406 MHz. Consequently, satellite EPIRBs operating on 1.6 GHz (1645.5-1646.5 MHz) and EPIRBs using VHF digital selective calling (DSC) operating on 156.525 MHz no longer form a part of the GMDSS. Given the removal of 1.6 GHz EPIRBs by the IMO, and noting that the use of the 1.6 GHz EPIRB has already ceased operation.

Proposed Position for Agenda Item 1.11 Issue A

Malaysia supports regulatory actions to implement GMDSS modernisation, taking into consideration the consequential amendments by the decision of IMO, as follows:

- Removal of narrow band direct printing (NBDP) from the GMDSS;
- Introduction of the NAVDAT frequencies in the Appendix **15** of the Radio Regulations;
- Implementation of an automatic connection system (ACS) for DSC in MF and HF frequency bands;
- Inclusion of AIS SART as homing equipment for survival craft stations; and
- Removal of the use of satellite EPIRBs in 1.6 GHz frequency band.

As such, Malaysia supports **Method A** and further considering **Alternative A1**.

3.6.2 Issue B: E-navigation

Background

E-navigation is a concept under study at IMO since the MSC 81 in 2005. The definition of e-navigation is given by IMO:

"E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment."

As shipping moves into the digital world, e-navigation is expected to provide digital communications and digital information for the benefit of maritime safety, security and protection of the marine environment, reducing the administrative burden and increasing the efficiency of maritime trade and transport.

Among the objectives of e-navigation, quoting the strategy implementation plan of the IMO, there are the improvements of communications in general, the standardization and automation of ship's reporting and the integration and presentation of available information in graphical displays received via communication equipment.

Communication is a key element for e-navigation. The VHF data exchange system (VDES) and NAVDAT systems would also support e-navigation by means of enabling broadcasting (by NAVDAT) and exchange of digital files (by VDES). From a spectrum regulatory point of view, the requirements for e-navigation are thus covered.

Proposed Position for Agenda Item 1.11 Issue B

Malaysia supports no change to Article **5** of the Radio Regulations. As such, Malaysia supports **Method B**.

3.6.3 Issue C: Introduction of additional satellite systems into global maritime distress and safety system

Background

Two satellite systems have been providing safety communication in the GMDSS. The introduction of an additional GSO MSS system for GMDSS may require new or modified regulatory provisions, based on the results of the ITU-R studies.

The IMO considered an existing geostationary satellite system operating at 1610-1626.5 MHz (Earth-to-space) and 2483.5-2500 MHz (space-to-Earth). These frequency bands already contain a primary allocation to the mobile-satellite service (MSS); for this reason, no new allocation is necessary by WRC-23 in order to accommodate the GMDSS.

The IMO's Maritime Safety Committee (MSC) in resolution MSC.529(106), has "*recognized the maritime mobile satellite services provided by CTTIC through BDMSS*" [4, 5,] limited to the coverage area within 75°E to 135°E longitude and 10°N to 55°N latitude which partly overlaps Regions 1 and 3, "*for use in the GMDSS*". The IMO MSC also noted[6] "*the commitment of China and CTTIC to addressing any outstanding implementation issues, including those listed in NCSR 9/WP.5, Annex 2, Appendix 2, before the commencement of services*" including the following outstanding implementation issue within the purview of ITU: "*6. WRC-23 to complete the necessary regulatory actions to safeguard the availability and full protection of the spectrum used for BDMSS (e.g., solving the issue of frequency coordination with other systems and inclusion of the frequencies used by BDMSS in Appendix **15** of the ITU Radio Regulations)*".

In this regard, CPM23-2 noted that in "solving the issue of frequency coordination", WRC-23 does not have the mandate to address this but the candidate GSO MSS system/network needs to comply with regulatory procedures "to safeguard the availability and full protection of the spectrum it proposes to use". This includes solving the issues of any experienced interference and frequency coordination with other existing systems in a timely manner.

Thus, before the commencement of GMDSS services by the candidate geostationary-satellite system, it needs to complete coordination with the HIBLEO-2, and HIBLEO-X and HIBLEO-4 satellite systems.

Proposed Position for Agenda Item 1.11 Issue C

Malaysia supports the introduction of additional GSO satellite systems into the GMDSS, provided that coordination and notification in accordance with the relevant and applicable provisions of Articles **9** and **11** of the Radio Regulations and associated Rules of Procedure need to be completed in order to protect services to which the bands are currently allocated.

---

4 China Transport Telecommunication Information Group Co. Ltd. (CTTIC).

5 BeiDou Message Service System (BDMSS).

6 *Report of the Maritime Safety Committee on its 106th Session,* MSC 106/19 at § 13.24.4 (30 November 2022).

3.7 Agenda Item 9.1 Topic B

"Review the amateur service and the amateur-satellite service allocations in the frequency band 1240-1300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite service (space-to-Earth) operating in the same band in accordance with ***Resolution 774 (WRC-19).****"*

Background

Resolution **774 (WRC-19)** studies the technical and operational measures to be applied in the 1240-1300 MHz frequency band to ensure the protection of the radionavigation-satellite service (space-to-Earth).

The 1240-1300 MHz frequency band is allocated to the radionavigation-satellite service (RNSS) on a primary basis and used by various global and regional RNSS systems (e.g. GALILEO, GLONASS, COMPASS, GPS, QZSS) in different portions of the 1240-1300 MHz frequency band, for various applications, including high-accuracy location services with ubiquitous deployment of RNSS receivers. Furthermore, the band is allocated to amateur and amateur-satellite services on a secondary basis.

Proposed Position for Agenda Item 9.1 Topic B

Malaysia supports:
- No changes to the Radio Regulations; and
- Studies in line with Resolution **774 (WRC-19)** to ensure protection of radionavigation-satellite (space-to-Earth) service receivers while allowing the amateur service and amateur-satellite service (Earth-to-space) to continue operating in the 1240-1300 MHz frequency band, without considering its removal.

3.8 Resolution 427

"To study the Articles, limited to Chapters IV, V, VI and VIII of Volume I of the Radio Regulations and their associated Appendices, as appropriate, in order to identify outdated aeronautical provisions with respect to ICAO standards and recommended practices and to develop examples of regulatory texts for updating these provisions, while ensuring that potential changes to such provisions will not impact any other systems or services operating in accordance with the Radio Regulations".

Background

Resolution **427 (WRC-19)** resolves to invite ITU-R to study the Articles, limited to Chapters IV, V, VI and VIII of Volume I, of the Radio Regulations and their associated Appendices, as appropriate, in order to identify outdated aeronautical provisions with respect to ICAO standards and recommended practices and to develop examples of regulatory texts for updating these provisions, while ensuring that potential changes to such provisions will not impact any other systems or services operating in accordance with the Radio Regulations.

Based on the above study, Resolution **430 (WRC-19)** also instructs the Director of the Radiocommunication Bureau to include in the Report of the Director to WRC-23 the progress on the ITU-R studies.

Proposed Position for Resolution 427

Malaysia supports further studies on the relevant Articles of the Radio Regulations and their associated appendices to identify outdated aeronautical provisions, and the development of regulatory texts for updating these provisions, in accordance with Resolution **427 (WRC-19)**.

4. Science Issues

4.1 Agenda Item 1.12

"To conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite service (active) for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution ***656 (Rev.WRC19)****".*

Background

This agenda item seeks a new secondary allocation to the Earth exploration-satellite service (EESS) (active) for spaceborne radar sounders within a range of frequencies around 45 MHz while taking into account the protection of incumbent services including those in adjacent bands.

A secondary allocation to the EESS (active) for spaceborne radar sounders in the 40-50 MHz frequency range will enable the collection of scientific data from space-based ground-penetrating radar (GPR) type missions. The radar returns from such sounder emissions will result in sub-surface data with a vertical resolution of 5-7 m. Such scientific data can be used to determine the thickness, inner structure, and thermal stability of ice sheets, as well as the occurrence, distribution, and dynamics of aquifers in desert environments.

Proposed Position for Agenda Item 1.12

Malaysia supports the establishment of a new secondary allocation to the EESS (active) in the 40-50 MHz frequency band, limited to the operation of spaceborne radar sounder systems, while ensuring protection to incumbent services in the 40-50 MHz frequency band and in the adjacent frequency bands. As such, Malaysia supports **Method A1**.

4.2 Agenda Item 1.13

*"To consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution **661 (WRC19)**".*

Background

The 14.8-15.35 GHz frequency band is currently allocated on a primary basis to the fixed service (FS) and the mobile service (MS), and on a secondary basis to the space research service (SRS).

Within the SRS, the frequency band is expected to be used for high-speed science data return from space science missions to a limited number of earth stations located globally. Additionally, the frequency band is also currently used in two capacities by Data Relay Satellite (DRS) systems operated by multiple administrations. These uses include forward feeder uplinks from DRS earth stations to relay satellites in the geostationary-satellite orbit (GSO), as well as inter-satellite return links to relay data from non-GSO space science spacecraft (including crewed space vehicles and stations) through DRS satellites to the Earth.

The space research satellite requirements for use of the frequency band are expected to continue to increase in the coming years as a result of increasing numbers of robotic science satellites and crewed vehicles, limited bandwidth and/or increasing congestion in other SRS frequency bands, and increasing science mission data transport needs.

The purpose of this agenda item is to explore the feasibility of establishing a regulatory framework to provide for the operation of SRS systems in this frequency band on a primary basis, consistent with not causing harmful interference to nor constraining the operation of systems operating in other primary services in the frequency band.

Proposed Position for Agenda Item 1.13

Malaysia supports the upgrading of the status of space research service allocation to primary, provided that it does not impose constraints on the current use and future deployment of existing primary services in the same and adjacent frequency bands.

However, some studies carried out by ITU-R indicate that the pfd limits identified for SRS do not provide sufficient protection to the incumbent terrestrial services. As such, Malaysia supports **Method B**, which upgrades only SRS (space-to-space) from secondary to primary status and retain the secondary allocation to SRS (space-to-Earth) and SRS (Earth-to-space).

4.3 Agenda Item 1.14

"To review and consider possible adjustments of the existing frequency allocations or possible new primary frequency allocations to the Earth exploration-satellite service (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements, in accordance with Resolution ***662 (WRC19)****".*

Background

The objective of this agenda item is to review and consider possible adjustment of the existing or possible new primary frequency allocation to the Earth exploration-satellite service (EESS) (passive) in the frequency range 231.5-252 GHz. This is to ensure alignment with more up-to-date remote sensing observation requirements and correspond to the observation requirements for satellite passive microwave sensing without unduly constraining the operation of other primary services currently allocated in the same frequency range.

The ability of EESS (passive) microwave remote sensing instruments to measure ice clouds depends on the specific microwave frequencies. The 231.5-252 GHz frequency band provides the optimal sensitivity to ice particles. The frequency band around 243.2 GHz (2 × 3000 MHz bandwidth (BW) in the 239.2-242.2 GHz and 244.2-247.2 GHz frequency bands) is being considered for future ice cloud imaging (ICI) EESS (passive) sensors. ICI data will enhance the ability of Numerical Weather Prediction (NWP) centres to initialize global and regional models with information on ice clouds, which is not well represented in the weather and climate models today. In addition, various portions of the frequency range 231.5-252 GHz play an important role in the measurement of chemical processes and compounds within Earth's atmosphere, such as nitric acid, ozone, sulphur dioxide, and isotopic oxygen.

However, compatibility studies show that sharing between the conical scanning passive sensors (such as the ICI) and systems of the fixed service (FS) and mobile service (MS) in the 239.2-242.2 GHz and 244.2-247.2 GHz frequency bands is not feasible, hence power limitation may need to be imposed. Alternatively, assessment of the sharing studies indicates that shifting the current FS and MS allocations in the 239.2-241 GHz frequency band (1.8 GHz of bandwidth) to the 235-238 GHz frequency band could avoid potential interference to the EESS (passive) while gaining 1.2 GHz of additional primary allocations, and the two frequency ranges 231.5-235 GHz (3.5 GHz of bandwidth) and 238-241 GHz (3 GHz of bandwidth) would be transformed into one block of contiguous allocations in the frequency range 231.5-239.2 GHz (7.7 GHz of contiguous bandwidth).

Additionally, to ensure there will be no potential future impact, some limitation to the existing EESS (passive) in the 235-238 GHz frequency band could be imposed, such as limiting it for use by limb sounding passive sensor only and/or by adding condition that EESS (passive) shall not claim protection from stations of FS and MS.

Proposed Position on Agenda Item 1.14

Malaysia supports the addition of new primary allocations to EESS (passive) in the 239.2-242.2 GHz and 244.2-247.2 GHz frequency bands, and shift of the current FS and MS allocations in the 239.2-241 GHz frequency band to the 235-238 GHz frequency band. As such, Malaysia is in favour of **Method B** for this agenda item.

4.4 Agenda Item 9.1 Topic A

*"In accordance with Resolution **657 (Rev.WRC-19)**, review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services".*

Background

Space weather refers to the physical processes occurring in the space environment that ultimately affects human activities on Earth and in space. Space weather is influenced by the X-ray, ultraviolet (UV), high energic particles and strong solar wind generated by Coronal Mass Ejection (CME).

Space weather observations are important for detecting and forecasting solar activity events that impact services critical to the economy, safety and security of administrations and their population. These observations are made from ground-based and space-based systems. Some of the sensors operate by receiving signals of opportunity, including, but not limited to, low-level natural emissions of the Sun, Earth's atmosphere, and other celestial bodies, and therefore may suffer harmful interference at levels which could be tolerated by other radio systems. However, no frequency bands have been documented in any manner in the Radio Regulations for space weather sensor applications.

Agenda item 9.1, topic a) was therefore established with a view to describing appropriate recognition and protection of space weather sensors in the Radio Regulations (RR) without placing additional constraints on incumbent services.

Proposed Position on Agenda Item 9.1 Topic A

Malaysia supports the recognition and protection of space weather sensors, including identification of space weather sensor systems under an appropriate radiocommunication service and development of a new WRC Resolution on the importance of space weather sensor systems.

Furthermore, identification of new allocations and the associated sharing studies need to be included in the new WRC Resolution, taking into account protection of incumbent services to which the band is allocated as well as in the adjacent band.

4.5 Agenda Item 9.1 Topic D

"Protection of EESS (passive) in the frequency band 36-37 GHz from non-GSO FSS space stations".

Background

Under WRC-23 agenda item 9.1, topic d), which is a continuation of study matters that began but were not fully resolved under WRC-19 agenda item 1.6, there are two potential interference scenarios that were studied, while taking into account the fixed-satellite service (FSS) characteristics provided by the relevant ITU-R contributing groups and the Earth exploration-satellite service (EESS) (passive) characteristics contained in Recommendation **ITU-R RS.1861-1**:

1. Interference into the sensing channel of EESS (passive) from non-geostationary-satellite orbit (non-GSO) FSS constellations operating in the 37.5-38 GHz frequency band at a lower altitude than EESS (passive) sensors;

    - results of one study considering two different non-GSO FSS systems indicate that an unwanted emission power density limit of -31 dBW/100 MHz in the 36-37 GHz frequency band would be needed.
    - results of another study considering one non-GSO FSS system show that there is a minimum positive margin of 10-15 dB to EESS (passive) protection criteria.
    - when considering an additional attenuation provided by the FSS satellite body of more than 18 dB, all studies conclude that no specific unwanted emission limit would be needed.

2. Interference into the cold calibration channel of EESS (passive) from non-GSO FSS constellations operating in the 37.5-38 GHz frequency band at a higher altitude than EESS (passive) sensors.

    - results of two studies considering three different non-GSO FSS systems indicate that an unwanted emission power density limit of -31 dBW/100 MHz in the frequency band 36-37 GHz would be needed, without apportionment of the EESS (passive) criterion.
    - another study that considers a different set of operational FSS characteristics has shown that there is a minimum margin of approximately 7 dB to the EESS (passive) protection criteria when only assessing interference from the particular constellation considered, and no specific unwanted emission limit would be needed.

Proposed Position on Agenda Item 9.1 Topic D

Malaysia supports the protection of EESS (passive) sensors, including cold-sky calibration, in the 36–37 GHz frequency band from non-GSO FSS operations in the 37.5–38 GHz frequency band, with an unwanted emission power density limit, as appropriate, based on the results of ITU-R studies.

4.6 Resolution 655

"Definition of time scale and dissemination of time signals via radiocommunication systems".

Background

Resolution **655 (WRC-15)**, on the definition of time scale and dissemination of time signals via radiocommunication systems, invited ITU-R to prepare a report(s), in cooperation with organizations under the Metre Convention and other interested parties, of various aspects of the current and possible future reference time scales as well as content and structure of time signals to be disseminated by radiocommunication systems.

This work, as originally called for in Resolution **655 (WRC-15)**, is complete. Meanwhile, in parallel with the work in ITU-R since WRC-15, General Conference on Weights and Measures (CGPM) adopted the resolution for the definition of Coordinated Universal Time (UTC) and the resolution to decide to increase the maximum value for the difference (UT1 – UTC) by 2035. This value is serving as the trigger to activate the leap second adjustment. Increasing the maximum value from the current value of 0.9 seconds can avoid leap-second adjustments in UTC for at least a century.

Moving forwards, International Committee on Weights and Measures (CIPM) has been tasked to consult with ITU and other organizations to prepare proposals of the specific new maximum value and when to implement it (i.e. the duration of the transition period) for the agreement at the 28th Meeting of the CGPM (2026).

Proposed Position on Resolution 655

Malaysia supports the ITU-R studies called for by Resolution **655 (WRC-15)**, recognizing that the 27th General Conference on Weights and Measures (CGPM) in November 2022 adopted Resolution 4 and decided that the maximum value for the difference (UT1 – UTC) would be increased.

Malaysia is of the view that modification to Resolution **655 (WRC-15)** is necessary to reflect the decision made by CGPM.

5. Satellite Issues

5.1 Agenda Item 1.15

*"To harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution **172 (WRC-19)**".*

Background

WRC-23 agenda item 1.15 calls for studies on the possible operation of earth stations in motion on board aircraft and vessels (A-ESIM and M-ESIM, respectively) communicating with geostationary space stations in the fixed-satellite service in the 12.75-13.25 GHz (Earth-to-space) frequency band. The use of the 12.75-13.25 GHz frequency band by geostationary-satellite networks in the fixed-satellite service is subject to Appendix **30B** of the Radio Regulations (RR Appendix **30B**), which contains a worldwide fixed-satellite service allotment Plan and assignments in the List and has its own regulatory procedures and technical criteria.

In RR Appendix **30B**, the explicit agreement of an administration for the inclusion partially or wholly of its territory in the service area of a proposed RR Appendix **30B** assignment (§ 6.6 of RR Appendix **30B**) is required.

Additionally, § 6.16 of RR Appendix **30B** provides that an administration may at any time exclude its territory from the service area of an RR Appendix **30B** assignment. Therefore, A-ESIM and M-ESIM in the 12.75-13.25 GHz frequency band need to have the capability to restrict operations to territories of those administrations where agreement under § 6.6 of RR Appendix **30B** has been obtained and authorization for such operations has been granted.

Studies have been carried out on sharing and compatibility between ESIM and terrestrial as well as space services allocated in the frequency bands above. The studies carried out so far have identified provisions to protect such services and guidelines to assist an administration wishing to authorize ESIM to operate on the territory under its jurisdiction including responsibilities of administrations and entities responsible for the operation, authorization and the interference management system of these earth stations.

Proposed Position for Agenda Item 1.15

Malaysia supports the development of regulatory framework and technical requirements for the operation of earth stations in motion on board aircraft and vessels communicating with GSO FSS space stations in the 12.75-13.25 GHz frequency band (Earth-to-space) under **Method B**, taking into account the following:

- ensuring protection of services currently allocated in the same and adjacent frequency bands;
- the provisions of RR Appendix **30B**; and
- ensuring no changes or restrictions to the allotment in the Plan, assignments in the List of RR Appendix **30B**, and those recorded in the Master International Frequency Register (MIFR) including the assignments arising from the implementation of Resolution **170 (WRC-19)**.

5.2 Agenda Item 1.16

"To study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the 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 non-geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution ***173 (WRC-19)****".*

Background

WRC-23 agenda item 1.16 considers the use of the 17.7-18.6 GHz, 18.8-19.3 GHz, 19.7-20.2 GHz (space-to-Earth), 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) frequency bands by earth stations in motion (ESIM) communicating with non-geostationary (non-GSO) space stations in the fixed-satellite service (FSS). The studies under this agenda item considered two types of ESIM: aeronautical (A-ESIM) and maritime (M-ESIM).

ITU-R has studied the main technical and operational requirements for earth stations on mobile platforms operating in non-GSO FSS systems in the above frequency bands as provided in Report ITU-R S.2261 (09/2012). The Report describes how such earth stations operating in these frequency bands need to be designed and operated to meet the existing technical and/or operational requirements applicable to non-GSO FSS earth stations.

There are a number of differences between GSO satellite networks and non-GSO satellite systems, including the number, the altitude and the coverage of space stations. The impact of these differences and, in particular, the interference environment resulting from the operation of non-GSO A-ESIM and M-ESIM, has been studied in order to develop technical, operational and regulatory provisions for their operations in the frequency bands subject to Resolution **173 (WRC-19)**.

Proposed Position for Agenda Item 1.16

Malaysia supports the development of regulatory framework and operational conditions to facilitate the use of A-ESIM and M-ESIM communicating with non-GSO FSS space stations in the 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) frequency bands under **Method B**, while ensuring protection of existing services including the terrestrial stations, GSO FSS networks and other services operating in the same and adjacent frequency bands.

5.3 Agenda Item 1.17

*"To determine and carry out, on the basis of ITU-R studies in accordance with Resolution **773 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate".*

Background

There is growing interest by some members of the ITU for utilizing satellite-to-satellite links for relaying data to/from the Earth using a GSO or a non-GSO FSS service provider[7] space station that is operating at an orbital altitude greater than that of the non-GSO user space station[8] generating the data. Utilization of satellite-to-satellite links needs to be done in an appropriate manner to fully preserve the incumbent services in the planned and non-planned bands where such satellite-to-satellite service is not currently deployed.

As most of these non-GSO missions are in low-Earth orbit (LEO) in the order of 300 to 900 km, the user space station download is mostly related to the short duration access they have to their respective earth stations, normally about 10 minutes per orbit. For low latency applications that require access to instrument data in near-real time (e.g. weather forecasting, disaster risk reduction), this can limit the amount of data that is made available to end users within an acceptable time delay. By utilizing inter-satellite links to relay data to the ground, data can be made available in near-real time across a much greater portion of the user space station's orbit, enhancing the availability and value of instrument data for low latency applications.

Both small and large satellite missions would benefit from satellite-to-satellite transmission services. Even nano-satellites (1-25 kg) may carry a satellite-to-satellite transmission payload.

Sharing studies were performed with all incumbent services for all configurations of operations considered under this agenda item (i.e. operations limited within the cone of coverage of the FSS space station or operations feasible outside this cone of coverage). These studies have shown that some incumbent services could be severely impacted by satellite-to-satellite operations.

Therefore, the use of the 18.1-18.6 GHz and 18.8-20.2 GHz (space-to-Earth) and 27.5-30 GHz (Earth-to-space) frequency bands, or parts thereof, for transmissions between space stations should ensure compatibility with, and impose no additional regulatory or technical constraints on, services to which the frequency bands are currently allocated on a primary basis and services using adjacent frequency bands allocated on a primary basis in accordance with Resolution **773 (WRC-19)**.

---

[7] A service provider space station is a FSS space station transmitting in the 11.7-12.7 GHz, 18.1-18.6 GHz and 18.8-20.2 GHz (space-to-Earth) frequency bands, or parts thereof, towards space stations at lower altitudes and receiving in the 27.5-30 GHz (Earth-to-space) frequency band, or parts thereof, from space stations at lower altitudes.

[8] A user space station is a space station transmitting in the 27.5-30 GHz (Earth-to-space) frequency band), or parts thereof, towards space stations at higher altitudes and receiving in the 11.7-12.7 GHz, 18.1-18.6 GHz and 18.8-20.2 GHz (space-to-Earth) frequency bands, or parts thereof, from space stations at higher altitudes.

Proposed Position for Agenda Item 1.17

Malaysia supports no change to the 11.7-12.7 GHz frequency band as the studies conducted did not support use of the band for space-to-space links.

In addition, Malaysia supports the development of a regulatory framework to enable viable space-to-space operations (between both GSO and non-GSO service provider space stations and associated user non-GSO space stations) within the FSS allocation in the 18.1-18.6 GHz, 18.8-20.2 GHz (space-to-Earth) and 27.5-30 GHz (Earth-to-space) frequency bands, or parts thereof, while ensuring protection of, and not imposing additional constraint to the existing services in the same and adjacent frequency bands.

Malaysia is also of the view that the introduction of space-to-space transmissions must ensure the same level of protection for GSO and non-GSO as currently provided in the Radio Regulations and must not impose new constraints on GSO networks and non-GSO systems to protect the inter-satellite links from interference.

Considering the above, Malaysia is considering **Method B** to satisfy this agenda item.

5.4 Agenda Item 1.18

*"To consider studies relating to spectrum needs and potential new allocations to the mobile-satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution **248 (WRC-19)**".*

Background

In accordance with Resolution **248 (WRC-19)**, WRC-23 agenda item 1.18 calls to conduct the studies relating to spectrum needs and potential new allocations to the mobile-satellite service in the 1695-1710 MHz (Region 2), 2010-2025 MHz (Region 1), 3300-3315 MHz (Region 2) and 3385-3400 MHz (Region 2) frequency bands for future development of narrowband mobile-satellite systems while ensuring the protection of existing primary services in the frequency bands and adjacent frequency bands.

The above studies are limited to MSS non-geostationary satellites operating low data-rate systems, taking into account *recognizing c)* of Resolution **248 (WRC-19)**.

Discussions in the responsible group on Resolution **248 (WRC-19)** have shown the language of the Resolution is ambiguous and unclear regarding the appropriate technical and operational characteristics of narrowband MSS that should be used in the sharing and compatibility studies and studies on spectrum needs. Given the ambiguity of Resolution **248 (WRC-19)** and subsequent lack of agreed technical and operational characteristics of narrowband MSS by the responsible group, sharing and compatibility studies with existing primary services and studies on the spectrum needs could not be concluded to determine the suitability of new allocations to the MSS for low data rate/narrowband applications.

Proposed Position for Agenda Item 1.18

Considering the required studies under WRC-23 agenda item 1.18 was not fully completed and noting that this is a Region 1 and 2 issue, Malaysia is of the view that any possible regulatory actions and allocation in Region 1 and Region 2 should not cause unacceptable interference and impose adverse impact on existing services in Region 3 in the identified frequency bands and the adjacent frequency bands.

5.5 Agenda Item 1.19

*"To consider a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2, while protecting existing primary services in the band, in accordance with Resolution **174 (WRC-19)**".*

Background

During WRC-19, Resolution **174 (WRC-19)** was established to consider a new primary allocation to the FSS in the space-to-Earth direction in the 17.3-17.7 GHz frequency band in Region 2, which is already allocated to the broadcasting-satellite service (BSS) on primary status.

An FSS (space-to-Earth) emission is similar to a BSS (space-to-Earth) emission. Both consist of a space station transmitting a signal towards the Earth that will be received by fixed earth station terminals. In principle, the interference scenario with respect to other services should not be different; however, with this new allocation, the flexibility in possible uses of the band would be increased.

In Region 1, the frequency band is already allocated to the FSS, a new allocation in Region 2 progresses the principle of Regional harmonization, which allows for synchronization of frequency bands across both Regions. The consideration of Recommendation ITU-R BO.1834 and Recommendation ITU-R BO.1835, which addresses compatibility and sharing between the BSS networks using the Region 2 BSS allocation in the 17.3-17.8 GHz frequency band and feeder links of BSS networks using the worldwide FSS (Earth-to-space) allocation in the 17.3-17.8 GHz frequency band, is well suited for addressing an approach to study the proposed FSS (space-to-Earth) allocation with existing feeder links of BSS networks using the 17.3-17.8 GHz frequency band.

For the coordination between new FSS GSO (space-to-Earth) frequency assignments with respect to BSS frequency assignments and between new FSS GSO (space-to-Earth) frequency assignments, no modification to Radio Regulations would be required, since RR No. **9.7** already covers the coordination process and RR Appendix **5**, Table 5-1 already contemplates a coordination trigger (8° of orbital arc).

Proposed Position for Agenda Item 1.19

Malaysia supports possible allocation to the FSS in Region 2 in the 17.3-17.7 GHz frequency band (space-to-Earth) while ensuring protection to existing allocations and services in the same and adjacent frequency bands in Region 3.

Malaysia is of the view that the additional allocation to Region 2 shall protect the receiving space stations operating under RR Appendix **30A**.

5.6 Agenda Item 7

*"To consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC07)**, in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit".*

Background

In accordance with Resolution **86 (Rev.WRC-07)**, this agenda item considers proposals on issues dealing with measures for improvements of the advance publication, coordination, notification and recording procedures in the Radio Regulations for frequency assignments pertaining to satellite networks, which have been identified by the administrations, Radio Regulation Board or the Radiocommunication Bureau.

There are 13 topics identified under this agenda item:

Topic	Description
A	Tolerances for certain orbital characteristics of non-GSO space stations in the FSS, BSS or MSS
B	Non-GSO bringing into use post-milestone procedure
C	Protection of geostationary satellite networks in the mobile-satellite service operating in the 7/8 GHz and 20/30 GHz bands from emissions of non-geostationary satellite systems operating in the same frequency bands and identical directions
D1	Modifications of Appendix 1 to Annex 4 of RR Appendix **30B**
D2	New RR Appendix **4** parameters for Recommendation ITU-R S.1503 updates
D3	RR reminders for BIU/BBIU
E	RR Appendix **30B** improved procedures for new Member States
F	Excluding uplink service area in RR Appendix **30A** for Regions 1 and 3 and RR Appendix **30B**
G	Revisions to Resolution **770 (WRC-19)** to allow its implementation
H	Enhanced protection of RR Appendices **30/30A** in Regions 1 and 3 and RR Appendix **30B**
I	Special agreements under RR Appendix **30B**
J	Modifications to Resolution **76 (Rev. WRC-15)**
K	Modification to Resolution **553 (Rev. WRC-15)** to remove certain restrictions that prevent administrations from taking effective advantage of the Resolution

5.6.1 Topic A – Tolerances for certain orbital characteristics of non GSO space stations in the FSS, BSS or MSS

Background

This topic considers the adoption of possible tolerances for certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite or broadcasting-satellite services to account for potential differences between values recorded in the Master International Frequency Register (MIFR) for the specified orbital characteristics of non-GSO space stations operating on notified frequency assignments and those representative of the actual deployment of these non-GSO space stations.

Proposed Position for Agenda Item 7 Topic A

Malaysia supports the implementation of possible tolerances for certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite, or broadcasting-satellite services, that are not too stringent to allow proper deployment of the systems.

5.6.2 Topic B – Non-GSO bringing into use post-milestone procedure

Background

This topic considers the possible adoption of a procedure to apply in cases where a non-GSO system subject to the milestone procedure in Resolution **35 (WRC-19)** has completed the milestone procedure, but subsequently experiences a sustained reduction in the number of space stations deployed and capable of transmitting/receiving the assigned frequencies.

WRC-19 invited ITU-R to study, as a matter of urgency, possible development of a post milestone procedure taking into account the reporting defined in *resolves* 19 of the Resolution **35 (WRC-19)**.

Proposed Position for Agenda Item 7 Topic B

Malaysia supports **Method B2** for the development of post-milestone procedures to permit some operational flexibility in the maintenance of the non-GSO system while keeping reasonable alignment over time between the number of capable non-GSO system satellites deployed for a system, and the number notified in the MIFR.

5.6.3 Topic C – Protection of geostationary satellite networks in the mobile-satellite service operating in the 7/8 GHz and 20/30 GHz bands from emissions of non-geostationary satellite systems operating in the same frequency bands and identical directions

Background

This topic was established to verify the effectiveness of the regulatory protection of the geostationary-satellite orbit (GSO) mobile-satellite service (MSS) from interference caused by non-GSO systems, and to identify possible inconsistencies in the provisions of the Radio Regulations.

The scope of this topic is limited to the 7250-7750 MHz (space-to-Earth), 7900-8025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) frequency ranges with MSS or maritime MSS allocations.

Proposed Position for Agenda Item 7 Topic C

Malaysia supports development of regulatory provisions in addressing the shortcomings and other issues with respect to the protection of GSO MSS networks from non-GSO systems, by extending the concept of RR No. **22.2** to GSO MSS with respect to non-GSO systems in the 7250-7750 MHz (space-to-Earth), 7900-8025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) frequency bands.

5.6.4 Topic D – Topics for which consensus was achieved in the ITU-R

Topic D is a collection of three (3) different topics that are viewed as being straightforward and for which consensus was achieved within the ITU-R when presented.

Topic D1 - Modifications to Appendix 1 to Annex 4 of RR Appendix 30B

Background

In §§ 1.1 and 1.2 of Annex 4 of Appendix **30B** of Radio Regulations (RR) 2016, an allotment or an assignment was considered as being affected by a proposed new allotment or assignment if the orbital spacing between its orbital position and the orbital position of the proposed new allotment or assignment was equal to or less than:

a. 10° in the frequency bands 4500-4800 MHz (space-to-Earth) and 6725-7025 MHz (Earth-to-space).
b. 9° in the frequency bands 10.70-10.95 GHz (space-to-Earth), 11.20-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space).

The World Radiocommunication Conference 2019 (WRC-19) adopted modifications to Annex 4 of RR Appendix **30B** replacing the orbital separation from 10° and 9° to 7° and 6°, respectively. However, in § 2 of Appendix 1 to Annex 4 of RR Appendix **30B**, the calculation of the aggregate *C/I* ratio at a given downlink test point still considers 10° and 9°.

Given the straightforward nature of the topic and the fact that consensus was achieved, only a single method has been developed to address this topic – modification to section 2 of Appendix 1 to Annex 4 of RR Appendix **30B** to align the values of orbital separation with those in sections 1.1 and 1.2 of the Annex adopted by WRC-19.

Proposed Positions for Agenda Item 7 Topic D1

Malaysia supports the modification to Appendix 1 to Annex 4 of RR Appendix **30B** to reflect the values of the minimum orbital separation as adopted by WRC-19.

Topic D2 – New RR Appendix 4 parameters for Recommendation ITU-R S.1503 updates

Background

This topic addresses modification of RR Appendix **4** data items to support implementation of agreed revisions to Recommendation ITU-R S.1503-3.

ITU-R has been working on changes to Recommendation ITU-R S.1503-3 titled "Functional description to be used in developing software tools for determining conformity of non-geostationary-satellite orbit fixed-satellite service systems or networks with limits contained in Article **22** of the Radio Regulations".

Given the straightforward nature of the topic and the fact that consensus was achieved, only a single method has been developed to address this topic. However, the final RR Appendix **4** elements will need to be aligned with the agreed revision of Recommendation ITU-R S.15033.

Proposed Position for Agenda Item 7 Topic D2

Malaysia supports the modification of RR Appendix **4** to support the implementation of agreed revisions to the Recommendation ITU-R S.1503-3, including new data elements and modified data items.

Topic D3 – RR reminders for BIU/BBIU

Background

This topic addresses the establishment of reminders for confirming the bringing into use (or bringing back into use) of a satellite network or system under RR Nos. **11.44B**, **11.44C**, **11.49** (**11.49.1** and **11.49.2**), RR Appendices **30/30A** § 5.2.10 (20*bis* and 24*bis*) and RR Appendix **30B** § 8.17 (14*ter*).

The BR, as an internal practice, has been sending a message recalling the 90-day obligation under RR Nos. **11.44B** or **11.44C** to administrations informing them of their satellite system bringing into use. For the BR practice to be fully suitable, the message should be sent

sufficiently early to the notifying administration to ensure a proper response within the regulatory time-frame.

Given the straightforward nature of the topic and the fact that consensus was achieved, only a single method has been developed to address this topic.

Proposed Position for Agenda Item 7 Topic D3

Malaysia supports the addition of footnotes to the Radio Regulations providing a formal reminder of the deadline for informing the Bureau of completion of BIU/BBIU in cases not subject to RR No. **11.47** or RR Appendices **30/30A** § 5.2.7 or RR Appendix **30B** § 8.16, as applicable, and for bringing into use or bringing back into use initiated to be sent by the Bureau to the notifying administration.

5.6.5 Topic E – RR Appendix 30B improved procedures for new Member States

Background

This topic proposes to modify the Article 7 procedure of RR Appendix **30B** (Rev. WRC-19) to better facilitate the new ITU Member States to obtain a national allotment like other ITU Member States that already have a national allotment in the fixed-satellite service Plan.

Despite the procedure in Resolution **170 (WRC-19)** being available to new ITU Member States, a study shows that while providing improvement and reducing the coordination requirements, the use of the preferential criteria in Resolution **170 (WRC-19)** does not eliminate the need for coordination for submissions under Article 7.

Proposed Position for Agenda Item 7 Topic E

Malaysia supports possible amendments to RR Appendix **30B** to better facilitate any new ITU Member States to obtain a national allotment by reconsidering the priority between the Article 7 requests and the application of Article 6 for additional systems.

5.6.6 Topic F – Excluding uplink service area in RR Appendix 30A for Regions 1 and 3 and RR Appendix 30B

Background

This topic was created to establish adequate mechanisms to prevent one administration from creating an obstacle to the establishment of space systems by other countries for the feeder-link in the RR Appendix **30A** or uplink in the RR Appendix **30B**.

In spite of the purpose of the planned space services together with their current associated procedures, submissions of global uplink coverage area or submissions in which the coverage area extends well beyond the service area create obstacles for an administration or a group of

named administrations to deploy its new national system or their subregional systems, as appropriate for close orbital separations.

Proposed Position for Agenda Item 7 Topic F

Malaysia supports development of appropriate regulatory measure for facilitation of equitable feeder-link/uplink spectrum access while taking into consideration existing assignment and allotments in RR Appendices **30A** and **30B**.

Malaysia further supports the development of a procedure that allows exclusion of the territory of an administration from the feeder-link service area of a satellite network of other administrations when requested.

5.6.7 Topic G – Revisions to Resolution 770 (WRC-19) to allow its implementation

Background

Resolution **770 (WRC-19)** provides a methodology to determine conformity of non-GSO satellite systems with single-entry interference thresholds in RR Article 22 to ensure the protection of the GSO fixed-satellite service (FSS) and broadcasting-satellite service (BSS) in the 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) frequency bands.

In addressing the *invites* of Resolution **770 (WRC-19)** to provide a functional description to implement the methodology contained in that Resolution, it has been determined that additional information is required to allow for a proper implementation.

Proposed Position for Agenda Item 7 Topic G

Malaysia supports regulatory corrections and clarifications related to the implementation of the methodology contained in Resolution **770 (WRC-19)** before it can be consistently applied.

5.6.8 Topic H – Enhanced protection of RR Appendices 30/30A in Regions 1 and 3 and RR Appendix 30B

Background

The scope of Topic H under agenda item 7 is limited to:

a. Reviewing the possible removal of the provisions associated with implicit agreement in Regions 1 and 3 RR Appendices **30/30A** and for RR Appendix **30B**, where appropriate; and
b. Consideration of applying a degradation tolerance of 0.25 dB in terms of the Equivalent Protection Margin (EPM) degradation for assignments in the Regions 1 and 3 Appendices **30/30A** Plan, as opposed to the current trigger of 0.45 dB.

Implicit agreement

Before WRC-15, in accordance with § 4.1.10 of Article 4 of RR Appendices **30/30A**, an administration that has not notified its comments either to the administration seeking agreement or to the Bureau within a period of four months following the date of its BR IFIC referred to in § 4.1.5 shall be deemed to have agreed to the proposed assignment. This concept of "implicit agreement" since WRC-2000 had led to a situation in which the reference situation (EPM) of many assignments in the BSS Plans has severely been degraded.

WRC-15 modified the above-mentioned § 4.1.10 indicating that an administration that has not notified its agreement within a period of four months following the date of the BR IFIC referred to in § 4.1.5 shall be deemed to have not agreed to the proposed assignment unless the provisions of §§ 4.1.10a to 4.1.10d and § 4.1.21 are applied.

EPM degradation Tolerance in Appendices 30/30A in Regions 1 and 3

The revision of the Regions 1 and 3 Plan by WRC-2000 was accompanied with an increase in the equivalent downlink protection margin from 0.25 dB to a value of 0.45 dB to facilitate the replanning. However, after revising the Plans the tolerance was maintained at 0.45 dB, despite Plan assignments holding a higher status than List assignments.

EPM has been used together with the power flux-density (pfd) criterion to determine the compatibility among assignments in RR Appendices **30/30A** Regions 1 and 3 Plan and List. In accordance with Section 1 of Annex 1 to RR Appendix **30** and Section 4 of Annex 1 to RR Appendix **30A**, EPM of an assignment is allowed to be degraded up to 0.45 dB below 0 dB or, if already negative, not more than 0.45 dB.

Proposed Position for Agenda Item 7 Topic H

Malaysia supports the enhancement of the protection of Appendices **30/30A** in Regions 1 and 3 and Appendix **30B** for networks in the Plan and the List.

Malaysia also supports reasonable solution in ensuring the reference situation is not degraded due to the concept of "implicit agreement" in AP **30/30A** and **30B**.

5.6.9 Topic I – Special agreements under RR Appendix 30B

Background

Following application of § 6.15 of RR Appendix **30B**, some national allotments currently possess low overall aggregate carrier-to-interference levels. Therefore, this topic considers methods to restore adequate overall aggregate carrier-to-interference levels without changing the orbital position of the national allotment.

Proposed Position for Agenda Item 7 Topic I

Malaysia supports the development of a regulatory solution based on specific agreement to allow an administration suffering from low reference protection margin for its national allotment under Appendix **30B** due to agreements under § 6.15 to retrieve adequate reference protection margin.

5.6.10 Topic J – Modifications to Resolution 76 (Rev. WRC-15)

Background

Resolution **76 (Rev. WRC-15)** calls for the development of Recommendations on procedures ensuring that the aggregate epfd limits are not exceeded and calls for collaboration among administrations to jointly ensure those levels are not exceeded.

While the aggregate epfd limits are specified in Tables 1A to 1D of the Resolution, there is no clear methodology nor procedures outlined in Resolution **76 (Rev.WRC15)** for the administrations involved to collaboratively determine whether these aggregate levels are exceeded.

Proposed Position for Agenda Item 7 Topic J

Malaysia supports possible modifications to Resolution **76 (Rev.WRC-15)** to introduce the concept of "consultation process/meetings" to collaboratively determine whether the aggregate interference levels in Tables 1A to 1D of the Resolution are exceeded.

5.6.11 Topic K – Modification to Resolution 553 (Rev. WRC-15) to remove certain restrictions that prevent administrations from taking effective advantage of the Resolution

Background

Resolution **553 (Rev.WRC-15)** was adopted to provide a better situation regarding equitable access compared with the planning approach. As stated in *considering further a)* to this Resolution, a priori planning for BSS networks in this frequency band was avoided as it "freezes access according to technological assumptions at the time of planning and then prevents flexible use taking account of real-world demand and technical developments".

Proposed Position for Agenda Item 7 Topic K

Malaysia supports **Method K2** for the modification to Resolution **553 (Rev.WRC-15)** to remove certain restrictions in the Resolution that could prevent administrations from effectively using the Resolution.

6. General and Regulatory Issues

6.1 Agenda Item 2

*"To examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with further resolves of Resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in resolves of that Resolution".*

Background

This is a standing agenda item at every WRC to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations (RR) in order to determine their suitability for incorporation by reference in the RR. As such ITU-R Recommendations may be revised by ITU-R Study Groups, it is necessary for the next WRC to decide whether to update the corresponding references in the RR in accordance with Resolution **27 (Rev.WRC-19)**.

Resolution **27 (Rev.WRC-19)** outlines the principles of incorporated by reference and informs on the procedure for updating the corresponding reference. Incorporated by reference is a concept where the content of a particular ITU-R Recommendation be made mandatory by a specific provision in the Radio Regulations to the extent as specified by the provision.

The CPM Report contains a list of those ITU-R Recommendations incorporated by reference in the Radio Regulations, which have been revised and approved during the elapsed study period.

Proposed Position for Agenda Item 2

Malaysia supports the examination and review of ITU-R Recommendations incorporated by reference in the Radio Regulations and, where appropriate, the updating of these references in accordance with Resolution **27 (Rev.WRC-19)**.

Malaysia also has no objections regarding the updating of the most recent version of Recommendation ITU-R M.585 on "Assignment and use of identities in the maritime mobile service" (Recommendation ITU-R M.585-9) in the relevant references in the Radio Regulations.

6.2 Agenda Item 4

*"In accordance with Resolution **95 (Rev.WRC-19)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation".*

Background

This is a standing agenda item in every WRC agenda with the aim to ensure all Resolutions and Recommendations of previous WRC contained in Volume 3 of the Radio Regulations remain updated. It is the purview of the conference to decide on the need for any modification or suppression of WRC Resolutions or Recommendations in accordance with Resolution **95 (Rev.WRC-19)**.

Resolution **95 (Rev.WRC-19)** invites administrations to review the Resolutions and Recommendations of previous conferences that are not related to any other agenda item of the conference with a view to:

- abrogating those Resolutions and Recommendations that have served their purpose or have become no longer necessary;
- reviewing the need for those Resolutions and Recommendations, or parts thereof, requesting ITU-R studies on which no progress has been made during the last two periods between conferences; and
- updating and modifying Resolutions and Recommendations, or parts thereof, that have become out of date, and to correct obvious omissions, inconsistencies, ambiguities, or editorial errors, and effect any necessary alignment.

Additionally, Resolution **95 (Rev.WRC-19)** invites future competent world radiocommunication conferences to review the Resolutions and Recommendations of previous conferences that are related to the agenda items of the conference, other than the standing agenda item mentioned in resolves, under those specific agenda items, with a view to their possible revision, replacement or abrogation, and to take appropriate action.

The CPM Report contains list of suggestions on possible changes for WARC/WRC Resolutions and Recommendations. This list are developed during the CPM23-2 meeting based on report submitted by the ITU-R Director of Radiocommunication Bureau.

Proposed Position for Agenda Item 4

In accordance with the principle and intent of Resolution **95 (Rev.WRC-19)**, Malaysia supports modification or suppression, as appropriate, the Resolutions and Recommendations contained in Volume 3 of the Radio Regulations to ensure Resolutions and Recommendations of past WRCs remain relevant and kept up to date.

6.3 Agenda Item 8

*"To consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-19)**".*

Background

Agenda item 8 is a standing agenda item of WRC that requests administrations to review footnotes to the Table of Frequency Allocations and to propose the deletion of their country footnotes or of their country names from footnotes, if no longer required.

Footnotes are an integral part of the Table of Frequency Allocations in the Radio Regulations and form part of an international treaty text. Footnotes are used in Article 5 Volume 1 of the Radio Regulations to provide information related to frequency allocation of the specific band. For the Table of Frequency Allocations to effectively inform administrations the footnotes to the table must kept up to date.

Proposed Position for Agenda Item 8

Malaysia supports the principles and intent of Resolution **26 (Rev.WRC-19)** for administrations to remove their country footnotes or their country names associated with specific footnotes of the Table of Frequency Allocations in Article **5** of the Radio Regulations when no longer required.

Malaysia does not intend to modify any footnotes where Malaysia's name has been included in footnotes at previous conferences.

6.4 Agenda Item 10

"To recommend to the Council items for inclusion in the agenda for the next WRC, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the Convention and Resolution ***804 (Rev.WRC-19)".***

Background

Agenda item 10 requests WRC-23 to recommend to the Council items for inclusion in the agenda for WRC-27, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention and Resolution **804 (Rev.WRC-19)**.

WRC-19 has established the preliminary agenda for WRC-27 which includes 13 preliminary agenda items (see Resolution **812 (WRC-19)**). Further agenda items for WRC-27 will be considered based on inputs from the regional organizations and administrations to WRC-23.

The principles for development of agendas of WRCs are included in Annex 1 of Resolution **804 (Rev. WRC-19)** that encourage regional and inter-regional coordination on the subjects to be considered in the preparatory process for the WRC, in accordance with Resolution **72 (Rev.WRC-19)** and Resolution **80 (Rev. Marrakesh, 2002)** of the Plenipotentiary Conference, with a view to addressing potentially difficult issues well before a WRC.

In the CPM Report, links to suggestion by regional organizations and administrations on additional agenda for WRC-27 are included for information. At WRC-23, a list of agenda for WRC-27, taking into account the outcome of WRC-23, will be finalized for recommendation to the Council.

Proposed Position for Agenda Item 10

Malaysia is of the view that proposals for agenda item 10 could be supported, subject to further studies and taking into account the potential coexistence with, and protection of the incumbent services.

7. Responding to this Consultation

7.1 Submission of responses

MCMC invites submissions from industry experts, interested parties and members of the public on the proposed Malaysia's position on WRC-23 agenda items, on or before **12:00 noon, 16 August 2023 (Wednesday)**.

Summary of the proposed Malaysia's position on WRC-23 agenda items is provided in **Annex II** of this document.

Please ensure the following:

- Responses must relate to the WRC-23 agenda items in the template provided in **Annex III** of this document;
- Indicate the specific WRC-23 agenda item to which a comment relates to;
- Provide clear rationale for suggestions and opinions; and
- Provide evidence to support the views given, where applicable.

Submissions of the responses and comments should be made in digital form via email and addressed to:

The Chairman
Malaysian Communications and Multimedia Commission
MCMC Tower 1
Jalan Impact, Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia
(Attention: Spectrum Planning and Assignment Division)

Email: npwg.sec@mcmc.gov.my

All submissions should be accompanied by a cover letter signed by an authorised person from the organization providing the response. Joint responses by industry players are most welcome.

All responses and comments will be published and made available to the public in MCMC's website.

Confidential treatment may be requested on any part of the submission that is believed to be proprietary, confidential or commercially sensitive with supporting justification for MCMC's consideration. In such cases, the submission must be provided in a non-confidential form suitable for publication, with any confidential information redacted as necessary and placed instead in a separate annex and clearly marked as "**CONFIDENTIAL**".

If MCMC grants confidential treatment, it will consider, but will not publicly disclose the information. However, if MCMC rejects the request, the information will be returned and not be considered as part of the submission.

Any submission that requests confidential treatment for all, or a substantial part of the submission, will not be accepted by the MCMC.

A. Annex I – Resolution 811 (WRC-19)

Agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

Considering

a) that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for a world radiocommunication conference (WRC) should be established four to six years in advance and that a final agenda shall be established by the ITU Council two years before the conference;

b) Article 13 of the ITU Constitution relating to the competence and scheduling of WRCs and Article 7 of the Convention relating to their agendas;

c) the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and WRCs,

recognizing

a) that this conference has identified a number of urgent issues requiring further examination by WRC-23;

b) that, in preparing this agenda, some items proposed by administrations could not be included and have had to be deferred to future conference agendas,

resolves

to recommend to the Council that a WRC be held in 2023 for a maximum period of four weeks, with the following agenda:

1 on the basis of proposals from administrations, taking account of the results of WRC-19 and the Report of the Conference Preparatory Meeting, and with due regard to the requirements of existing and future services in the frequency bands under consideration, to consider and take appropriate action in respect of the following items:

1.1 to consider, based on the results of ITU-R studies, possible measures to address, in the frequency band 4 800-4 990 MHz, protection of stations of the aeronautical and maritime mobile services located in international airspace and waters from other stations located within national territories, and to review the power flux-density criteria in No. **5.441B** in accordance with Resolution **223 (Rev.WRC-19)**;

1.2 to consider identification of the frequency bands 3300-3400 MHz, 3600-3800 MHz, 6425-7025 MHz, 7025-7125 MHz and 10.0-10.5 GHz for International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **245 (WRC-19**);

1.3 to consider primary allocation of the frequency band 3600-3800 MHz to the mobile service in Region 1 and take appropriate regulatory actions, in accordance with **Resolution 246 (WRC-19)**;

1.4 to consider, in accordance with Resolution **247 (WRC-19)**, the use of high-altitude platform stations as IMT base stations (HIBS) in the mobile service in certain frequency bands below 2.7 GHz already identified for IMT, on a global or regional level;

1.5 to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review, in accordance with Resolution **235 (WRC-15)**;

1.6 to consider, in accordance with Resolution **772 (WRC-19)**, regulatory provisions to facilitate radiocommunications for sub-orbital vehicles;

1.7 to consider a new aeronautical mobile-satellite (R) service allocation in accordance with Resolution **428 (WRC-19)** for both the Earth-to-space and space-to-Earth directions of aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz, while preventing any undue constraints on existing VHF systems operating in the aeronautical mobile (R) service, in the aeronautical radionavigation service, and in adjacent frequency bands;

1.8 to consider, on the basis of ITU-R studies in accordance with Resolution **171 (WRC-19)**, appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution **155 (Rev.WRC-19)** and No. **5.484B** to accommodate the use of fixed-satellite service networks by control and non-payload communications of unmanned aircraft systems;

1.9 to review Appendix **27** of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU-R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (R) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with Resolution **429 (WRC-19)**;

1.10 to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution **430 (WRC-19)**;

1.11 to consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System (GMDSS) and the implementation of e-navigation, in accordance with Resolution **361 (Rev.WRC-19)**;

1.12 to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite service (active) for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution **656 (Rev.WRC-19)**;

1.13 to consider a possible upgrade of the allocation of the frequency band 14.8-15.35 GHz to the space research service, in accordance with Resolution **661 (WRC-19)**;

1.14 to review and consider possible adjustments of the existing frequency allocations or possible new primary frequency allocations to the Earth exploration-satellite service (passive) in the frequency range 231.5-252 GHz, to ensure alignment with more up-to-date remote-sensing observation requirements, in accordance with Resolution **662 (WRC-19)**;

1.15 to harmonize the use of the frequency band 12.75-13.25 GHz (Earth-to-space) by earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service globally, in accordance with Resolution **172 (WRC-19)**;

1.16 to study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the 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 non-geostationary fixed-satellite service earth stations in motion, while ensuring due protection of existing services in those frequency bands, in accordance with Resolution **173 (WRC-19)**;

1.17 to determine and carry out, on the basis of ITU-R studies in accordance with Resolution **773 (WRC-19)**, the appropriate regulatory actions for the provision of inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate;

1.18 to consider studies relating to spectrum needs and potential new allocations to the mobile- satellite service for future development of narrowband mobile-satellite systems, in accordance with Resolution **248 (WRC-19)**;

1.19 to consider a new primary allocation to the fixed-satellite service in the space-to-Earth direction in the frequency band 17.3-17.7 GHz in Region 2, while protecting existing primary services in the band, in accordance with Resolution **174 (WRC-19)**;

2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with *further resolves* of Resolution **27 (Rev.WRC-19)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in *resolves* of that Resolution;

3 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the conference;

4 in accordance with Resolution **95 (Rev.WRC-19)**, to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

5 to review, and take appropriate action on, the Report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the ITU Convention;

6 to identify those items requiring urgent action by the radiocommunication study groups in preparation for the next world radiocommunication conference;

7 to consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)**, in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

8 to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-19)**;

9 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the ITU Convention

9.1 on the activities of the ITU Radiocommunication Sector since WRC-19:

- In accordance with Resolution **657 (Rev.WRC-19)**, review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services;

- Review the amateur service and the amateur-satellite service allocations in the frequency band 1240-1300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite service (space-to-Earth) operating in the same band in accordance with Resolution **774 (WRC-19)**;

- Study the use of International Mobile Telecommunication systems for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis, in accordance with Resolution **175 (WRC-19)**;

9.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations[9]; and

9.3 on action in response to Resolution **80 (Rev.WRC-07)**;

10 to recommend to the ITU Council items for inclusion in the agenda for the next world radiocommunication conference, and items for the preliminary agenda of future conferences, in accordance with Article 7 of the ITU Convention and Resolution **804 (Rev.WRC-19)**,

invites the ITU Council

to finalize the agenda and arrange for the convening of WRC-23, and to initiate as soon as possible the necessary consultations with Member States,

instructs the Director of the Radiocommunication Bureau

1 to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting (CPM) and to prepare a report to WRC-23;

2 to submit a draft report on any difficulties or inconsistencies encountered in the application of the Radio Regulations referred in agenda item 9.2 to the second session of the CPM and to submit the final report at least five months before the next WRC,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

[9] This agenda sub-item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. Administrations are invited to inform the Director of the Radiocommunication Bureau of any difficulties or inconsistencies encountered in the Radio Regulations.

B. Annex II – Summary of Proposed Malaysia's Positions for WRC Agenda Items.

Agenda Item	Proposed Malaysia (MLA) Positions
Fixed, Mobile and Broadcasting Issues	
1.1	Malaysia supports the appropriate measures to address the protection of stations of the aeronautical and maritime mobile services located in international airspace and waters (i.e., outside national territories) operating in the 4800-4990 MHz frequency band, and the implementation of IMT systems in this frequency band, as practicable.
1.2	Malaysia supports the identification of IMT in the 7025-7125 MHz frequency band with appropriate regulatory and technical conditions, taking into account the results of studies to ensure the protection of services to which the frequency band is allocated on a primary basis and in adjacent bands. Malaysia notes that the following frequency bands are being considered for other Regions and would not oppose an IMT identification in those Regions, where relevant: - 3600-3800 MHz and 3300-3400 MHz (Region 2); - 3300-3400 MHz (amend footnote in Region 1); - 6425-7025 MHz (Region 1); and - 10.0-10.5 GHz (Region 2).
1.3	Malaysia notes that this agenda item is a Region 1 issue and supports the APT Preliminary View for this agenda item, as developed at APG23-5, as follows: A possible upgrade of mobile service to primary allocation in the 3600-3800 MHz frequency band in Region 1 shall protect existing and planned services to which the frequency band is allocated on a primary basis (and in adjacent bands, as appropriate) in Region 3, taking into account the results of sharing and compatibility studies and such upgrading shall not have any adverse effect on the allocation of the existing services and their future development in Region 3.
1.4	Malaysia supports establishing regulatory provisions for the use of HIBS in certain frequency bands below 2.7 GHz already identified for IMT referred to in Resolution **247 (WRC-19)**, provided that the regulatory provisions will ensure protection of the existing services to which the frequency band is allocated on a primary basis, and the adjacent bands, as well as no additional regulatory or technical constraints imposed on the deployment of ground-based IMT systems in those frequency bands.

Agenda Item	Proposed Malaysia (MLA) Positions
1.5	Malaysia notes that this agenda item is a Region 1 issue and supports the APT Preliminary View for this agenda item, as developed at APG23-5, as follows: The conclusion to be reached on agenda item 1.5 is a Region 1 issue and WRC-23 decisions shall in no way adversely affect Region 3 frequency allocations and existing and future use of the relevant frequency band.
9.1(c)	Malaysia is of the view that this agenda item may be addressed through the revision of the existing ITU-R Recommendation(s), Report(s) and/or Handbook. Should such a revision still not satisfy the requirements of this agenda item, the development of new Recommendation(s), Report(s) and/or Handbook in the ITU-R is supported.
RR No. 21.5	Malaysia notes that ITU-R studies on the applicability of the limit specified in RR No. **21.5** to IMT stations using active antenna systems (AAS) and the verification of RR No. **21.5** regarding the notification of these IMT stations are still ongoing. Malaysia is of the view that the use of total radiated power (TRP) parameter within a reference bandwidth may be considered for the purpose of verification of RR No. **21.5** in the notification of IMT stations that use an antenna that consists of an array of active elements in the 24.45-27.5 GHz frequency range. Malaysia also supports the APT Preliminary View for this topic, as developed at APG23-5, that change to RR No. **21.5** may not be necessary at this stage to address the issues raised in Document 550 of WRC-19.
Aeronautical, Maritime and Amateur Issues	
1.6	Malaysia supports possible spectrum needs for stations on board sub-orbital vehicles, appropriate modification, if any, to the Radio Regulations (RR), excluding any new allocations or changes to the existing allocations in RR Article **5** to accommodate stations on board sub-orbital vehicles to facilitate radiocommunications that support aviation to safely integrate sub-orbital vehicles into airspace and ensure interoperability with international civil aviation. The sub-orbital vehicles shall ensure that it does not affect the existing civil aviation and space launch systems, and not impose any additional constraint on other services or applications operated in the same services. As such, Malaysia is considering **Method B** to address this agenda item.

Agenda Item	Proposed Malaysia (MLA) Positions
1.7	Malaysia supports new allocation to the AMS(R)S in the 117.975-137 MHz frequency band, or part thereof, limited to non-geostationary satellite systems and to internationally standardized aeronautical systems while ensuring coexistence with existing services/applications in the same and adjacent frequency bands. As such, Malaysia prefers **Method B** and if necessary, a new WRC-23 Resolution may be developed to address AMS(R)S regulatory framework particularly in addressing the respective roles of ITU and International Civil Aviation Organization (ICAO).
1.8	Due to the complexity of the agenda item, Malaysia is considering **Method A** at this moment. Nevertheless, if all safety issues of the UA CNPC links operated under FSS frequency bands have been resolved at WRC-23, Malaysia may consider **Method B**.
1.9	Malaysia supports modifications to the Radio Regulations (RR) to accommodate digital technologies for aeronautical wideband HF systems, while ensuring compliance with safety requirements and protection of other primary services in the same and adjacent bands, in particular, the existing AM(R)S HF systems. Malaysia is of the view that: - changes to the RR should allow implementation of new digital wideband HF systems taking into account technology neutrality; - digital wideband HF systems operating in the bands allocated to the aeronautical mobile (route) service (AM(R)S) relating to RR Appendix **27** shall be operated in accordance with the ICAO Standards and Recommended Practices (SARPs); and - by enabling this new system, the effectiveness and efficiency throughout the HF band could be improved. As such, Malaysia prefers **Method B** to address this agenda item.
1.10	Malaysia supports new allocation to the AM(OR)S in the 15.4-15.7 GHz frequency band or part thereof, and/or remove the exception to AM(OR)S of the mobile allocation in the 22-22.21 GHz frequency band or part thereof. Malaysia also is of the view that the protection of existing primary services in the 15.4-15.7 GHz and 22-22.21 GHz frequency bands and in the adjacent frequency bands shall be ensured. As such, Malaysia is considering **Method B** and/or **C** or **Method E** to address this agenda item.

Agenda Item	Proposed Malaysia (MLA) Positions
1.11	Issue A: Malaysia supports regulatory actions to implement GMDSS modernisation, taking into consideration the consequential amendments by the decision of IMO, as follows: - Removal of narrow band direct printing (NBDP) from the GMDSS; - Introduction of the NAVDAT frequencies in the Appendix **15** of the Radio Regulations; - Implementation of an automatic connection system (ACS) for DSC in MF and HF frequency bands; - Inclusion of AIS SART as homing equipment for survival craft stations; and - Removal of the use of satellite EPIRBs in 1.6 GHz frequency band. As such, Malaysia supports **Method A** and further considering **Alternative A1**. Issue B: Malaysia supports no change to Article **5** of the Radio Regulations. As such, Malaysia supports **Method B**. Issue C: Malaysia supports the introduction of additional GSO satellite systems into the GMDSS, provided that coordination and notification in accordance with the relevant and applicable provisions of Articles **9** and **11** of the Radio Regulations and associated Rules of Procedure need to be completed in order to protect services to which the bands are currently allocated.
9.1(b)	Malaysia supports: - No changes to the Radio Regulations; and - Studies in line with Resolution **774 (WRC-19)** to ensure protection of radionavigation-satellite (space-to-Earth) service receivers while allowing the amateur service and amateur-satellite service (Earth-to-space) to continue operating in the 1240-1300 MHz frequency band, without considering its removal.
Res. 427	Malaysia supports further studies on the relevant Articles of the Radio Regulations and their associated appendices to identify outdated aeronautical provisions, and the development of regulatory texts for updating these provisions, in accordance with Resolution **427 (WRC-19)**.
Science Issues	
1.12	Malaysia supports the establishment of a new secondary allocation to the EESS (active) in the 40-50 MHz frequency band, limited to the operation of spaceborne radar sounder systems, while ensuring protection to incumbent services in the 40-50 MHz frequency band and in the adjacent frequency bands. As such, Malaysia supports **Method A1**.

Agenda Item	Proposed Malaysia (MLA) Positions
1.13	Malaysia supports the upgrading of the status of space research service allocation to primary, provided that it does not impose constraints on the current use and future deployment of existing primary services in the same and adjacent frequency bands. However, some studies carried out by ITU-R indicate that the pfd limits identified for SRS do not provide sufficient protection to the incumbent terrestrial services. As such, Malaysia supports **Method B**, which upgrades only SRS (space-to-space) from secondary to primary status and retain the secondary allocation to SRS (space-to-Earth) and SRS (Earth-to-space).
1.14	Malaysia supports the addition of new primary allocations to EESS (passive) in the 239.2-242.2 GHz and 244.2-247.2 GHz frequency bands, and shift of the current FS and MS allocations in the 239.2-241 GHz frequency band to the 235-238 GHz frequency band. As such, Malaysia is in favour of **Method B** for this agenda item.
9.1 (a)	Malaysia supports the recognition and protection of space weather sensors, including identification of space weather sensor systems under an appropriate radiocommunication service and development of a new WRC Resolution on the importance of space weather sensor systems. Furthermore, identification of new allocations and the associated sharing studies need to be included in the new WRC Resolution, taking into account protection of incumbent services to which the band is allocated as well as in the adjacent band.
9.1 (d)	Malaysia supports the protection of EESS (passive) sensors, including cold-sky calibration, in the 36–37 GHz frequency band from non-GSO FSS operations in the 37.5–38 GHz frequency band, with an unwanted emission power density limit, as appropriate, based on the results of ITU-R studies.
Res. 655	Malaysia supports the ITU-R studies called for by Resolution **655 (WRC-15)**, recognizing that the 27th General Conference on Weights and Measures (CGPM) in November 2022 adopted Resolution 4 and decided that the maximum value for the difference (UT1 – UTC) would be increased. Malaysia is of the view that modification to Resolution **655 (WRC-15)** is necessary to reflect the decision made by CGPM.
Satellite Issues	
1.15	Malaysia supports the development of regulatory framework and technical requirements for the operation of earth stations in motion on board aircraft and vessels communicating with GSO FSS space stations in the 12.75-13.25

Agenda Item	Proposed Malaysia (MLA) Positions
	GHz frequency band (Earth-to-space) under **Method B**, taking into account the following: - ensuring protection of services currently allocated in the same and adjacent frequency bands; - the provisions of RR Appendix **30B**; and - ensuring no changes or restrictions to the allotment in the Plan, assignments in the List of RR Appendix **30B**, and those recorded in the Master International Frequency Register (MIFR) including the assignments arising from the implementation of Resolution **170 (WRC-19)**.
1.16	Malaysia supports the development of regulatory framework and operational conditions to facilitate the use of A-ESIM and M-ESIM communicating with non-GSO FSS space stations in the 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) frequency bands under **Method B**, while ensuring protection of existing services including the terrestrial stations, GSO FSS networks and other services operating in the same and adjacent frequency bands.
1.17	Malaysia supports no change to the 11.7-12.7 GHz frequency band as the studies conducted did not support use of the band for space-to-space links. In addition, Malaysia supports the development of a regulatory framework to enable viable space-to-space operations (between both GSO and non-GSO service provider space stations and associated user non-GSO space stations) within the FSS allocation in the 18.1-18.6 GHz, 18.8-20.2 GHz (space-to-Earth) and 27.5-30 GHz (Earth-to-space) frequency bands, or parts thereof, while ensuring protection of, and not imposing additional constraint to the existing services in the same and adjacent frequency bands. Malaysia is also of the view that the introduction of space-to-space transmissions must ensure the same level of protection for GSO and non-GSO as currently provided in the Radio Regulations and must not impose new constraints on GSO networks and non-GSO systems to protect the inter-satellite links from interference. Considering the above, Malaysia is considering **Method B** to satisfy this agenda item.
1.18	Considering the required studies under WRC-23 agenda item 1.18 was not fully completed and noting that this is a Region 1 and 2 issue, Malaysia is of the view that any possible regulatory actions and allocation in Region 1 and Region 2 should not cause unacceptable interference and impose adverse impact on existing services in Region 3 in the identified frequency bands and the adjacent frequency bands.

Agenda Item	Proposed Malaysia (MLA) Positions	
1.19	Malaysia supports possible allocation to the FSS in Region 2 in the 17.3-17.7 GHz frequency band (space-to-Earth) while ensuring protection to existing allocations and services in the same and adjacent frequency bands in Region 3. Malaysia is of the view that the additional allocation to Region 2 shall protect the receiving space stations operating under RR Appendix **30A**.	
7	**Topic A**	Malaysia supports the implementation of possible tolerances for certain orbital characteristics of non-GSO space stations of the fixed-satellite, mobile-satellite, or broadcasting-satellite services, that are not too stringent to allow proper deployment of the systems.
	Topic B	Malaysia supports **Method B2** for the development of post-milestone procedures to permit some operational flexibility in the maintenance of the non-GSO system while keeping reasonable alignment over time between the number of capable non-GSO system satellites deployed for a system, and the number notified in the MIFR.
	Topic C	Malaysia supports development of regulatory provisions in addressing the shortcomings and other issues with respect to the protection of GSO MSS networks from non-GSO systems, by extending the concept of RR No. 22.2 to GSO MSS with respect to non-GSO systems in the 7250-7750 MHz (space-to-Earth), 7900-8025 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) frequency bands.
	Topic D	<u>D1:</u> Malaysia supports the modification to Appendix 1 to Annex 4 of RR Appendix **30B** to reflect the values of the minimum orbital separation as adopted by WRC-19. <u>D2:</u> Malaysia supports the modification of RR Appendix **4** to support the implementation of agreed revisions to the Recommendation ITU-R S.1503-3, including new data elements and modified data items. <u>D3:</u> Malaysia supports the addition of footnotes to the Radio Regulations providing a formal reminder of the deadline for informing the Bureau of completion of BIU/BBIU in cases not subject to RR No. **11.47** or RR Appendices **30/30A** § 5.2.7 or RR Appendix **30B** § 8.16, as applicable, and for bringing into use or bringing back into use initiated to be sent by the Bureau to the notifying administration.

Agenda Item	Proposed Malaysia (MLA) Positions	
	Topic E	Malaysia supports possible amendments to RR Appendix **30B** to better facilitate any new ITU Member States to obtain a national allotment by reconsidering the priority between the Article 7 requests and the application of Article 6 for additional systems.
	Topic F	Malaysia supports development of appropriate regulatory measure for facilitation of equitable feeder-link/uplink spectrum access while taking into consideration existing assignment and allotments in RR Appendices **30A** and **30B**. Malaysia further supports the development of a procedure that allows exclusion of the territory of an administration from the feeder-link service area of a satellite network of other administrations when requested.
	Topic G	Malaysia supports regulatory corrections and clarifications related to the implementation of the methodology contained in Resolution **770 (WRC-19)** before it can be consistently applied.
	Topic H	Malaysia supports the enhancement of the protection of Appendices **30/30A** in Regions 1 and 3 and Appendix **30B** for networks in the Plan and the List. Malaysia also supports reasonable solution in ensuring the reference situation is not degraded due to the concept of "implicit agreement" in AP**30/30A** and **30B**.
	Topic I	Malaysia supports the development of a regulatory solution based on specific agreement to allow an administration suffering from low reference protection margin for its national allotment under Appendix **30B** due to agreements under § 6.15 to retrieve adequate reference protection margin.
	Topic J	Malaysia supports possible modifications to Resolution **76 (Rev.WRC-15)** to introduce the concept of "consultation process/meetings" to collaboratively determine whether the aggregate interference levels in Tables 1A to 1D of the Resolution are exceeded.
	Topic K	Malaysia supports **Method K2** for the modification to Resolution **553 (Rev.WRC-15)** to remove certain restrictions in the Resolution that could prevent administrations from effectively using the Resolution.

Agenda Item	Proposed Malaysia (MLA) Positions
General and Regulatory Issues	
2	Malaysia supports the examination and review of ITU-R Recommendations incorporated by reference in the Radio Regulations and, where appropriate, the updating of these references in accordance with Resolution **27 (Rev.WRC-19)**. Malaysia also has no objections regarding the updating of the most recent version of Recommendation ITU-R M.585 on "Assignment and use of identities in the maritime mobile service" (Recommendation ITU-R M.585-9) in the relevant references in the Radio Regulations.
4	In accordance with the principle and intent of Resolution **95 (Rev.WRC-19)**, Malaysia supports modification or suppression, as appropriate, the Resolutions and Recommendations contained in Volume 3 of the Radio Regulations to ensure Resolutions and Recommendations of past WRCs remain relevant and kept up to date.
8	Malaysia supports the principles and intent of Resolution **26 (Rev.WRC-19)** for administrations to remove their country footnotes or their country names associated with specific footnotes of the Table of Frequency Allocations in Article **5** of the Radio Regulations when no longer required. Malaysia does not intend to modify any footnotes where Malaysia's name has been included in footnotes at previous conferences.
10	Malaysia is of the view that proposals for agenda item 10 could be supported, subject to further studies and taking into account the potential coexistence with, and protection of the incumbent services.

C. Annex III – Template for Response

The MCMC invites comments on proposed Malaysia's Positions for WRC-23 agenda items raised in this PC document.

Please specify your preferred method(s) based on the Report of the CPM23-2. The digital copy of the Report is available at:

https://www.itu.int/pub/R-ACT-CPM-2023

Agenda Item	Comments and Views on Proposed Malaysia's Positions
Fixed, Mobile and Broadcasting Issues	
1.1	
1.2	
1.3	
1.4	
1.5	
9.1(c)	
RR No. 21.5	
Aeronautical, Maritime and Amateur Issues	
1.6	
1.7	
1.8	
1.9	
1.10	
1.11	

Agenda Item	Comments and Views on Proposed Malaysia's Positions
9.1(b)	
Res. 427	
Science Issues	
1.12	
1.13	
1.14	
9.1 (a)	
9.1 (d)	
Res. 655	
Satellite Issues	
1.15	
1.16	
1.17	
1.18	
1.19	

Agenda Item	Comments and Views on Proposed Malaysia's Positions	
7	**Topic A**	
	Topic B	
	Topic C	
	Topic D	
	Topic E	
	Topic F	
	Topic G	
	Topic H	
	Topic I	
	Topic J	
	Topic K	
General and Regulatory Issues		
2		
4		
8		
10		

D. Annex IV – Glossary of Terms

Abbreviations	Radio services
AAS	active antenna systems
AIS	automatic identifications system
AMS	aeronautical mobile service
AMRD	autonomous maritime radio devices
AM(R)S	aeronautical mobile (route) service
AM(OR)S	aeronautical mobile (off-route) service
AMSS	aeronautical mobile-satellite service
AMS(R)S	aeronautical mobile-satellite (route) service
API	advance publication information
ARNS	aeronautical radionavigation service
ARNSS	aeronautical radionavigation-satellite service
ARS	amateur service
ARSS	amateur-satellite service
BDMSS	beidou message service system
BIU	bringing into use
BS	broadcasting service
BSS	broadcasting-satellite service
CIPM	international committee on weights and measures
CGPM	general conference on weights and measures
CME	coronal mass ejection
CNPC	control and non-payload communication
CPM	conference preparatory meeting
CTTIC	China Transport Telecommunication Information Group Co. Ltd.
DCS	data collection system
DSC	digital selective calling
DRS	data relay satellite
EESS	earth exploration-satellite service
EIRP	effective isotropic radiated power
EPIRB	emergency position indicating radio beacon
eMBB	enhanced mobile broadband
epfd	equivalent power flux density
ESIM	earth stations in motion
FS	fixed service
FSS	fixed-satellite service
GADSS	global aeronautical distress and safety system
GMDSS	global maritime distress and safety system
GSO	geostationary satellite orbit
HAPS	high altitude platform station
HF	high frequency
HIBS	International Mobile Telecommunications (IMT) base stations
ICAO	International Civil Aviation Organization
ICI	ice cloud imaging
IMO	International Maritime Organization
IMT	International mobile telecommunications
ISS	inter-satellite service
ITS	intelligent transport system

Abbreviations	Radio services
ITU-R	international telecommunication union radiocommunication sector
LMS	land mobile service
LMSS	land mobile-satellite service
MetAids	meteorological aids service
MetSat	meteorological-satellite service
MF	Medium frequency
MMS	maritime mobile service
MMSS	maritime mobile-satellite service
MMTC	massive machine-type communication
MRNS	maritime radionavigation service
MRNSS	maritime radionavigation-satellite service
MS	mobile service
MSC	maritime safety committee
MSS	mobile-satellite service
NAVDAT	navigational data
NAVTEX	navigational text
NBDP	narrow-band direct-printing
NPWG-23	national preparatory working group for WRC-23
NWP	numerical weather prediction
PFD	power flux density
RAS	radio astronomy service
RDS	radiodetermination service
RDSS	radiodetermination-satellite service
RLAN	radio local area network
RLS	radiolocation service
RLSS	radiolocation-satellite service
RNS	radionavigation service
RNSS	radionavigation-satellite service
RR	radio regulations
SART	search and rescue transmitter
SOLAS	Safety of Life at Sea
SRS	space research service
TRP	total radiated power
UAS	unmanned aircraft systems
uRLLC	Ultra-reliable and low latency communication
VDES	VHF data exchange system
VHF	Very high frequency
WRC	world radiocommunication conference


MCMC