



INFORMATION PAPER

FREQUENCY SPECTRUM MANAGEMENT PANEL (FSMP)

SIXTH MEETING

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Agenda Item 5 New Provisions to Support Aeronautical Radiocommunications

AGENDA ITEM 1.8 - TO CONSIDER POSSIBLE REGULATORY ACTIONS TO SUPPORT GLOBAL MARITIME DISTRESS SAFETY SYSTEMS (GMDSS) MODERNIZATION AND TO SUPPORT THE INTRODUCTION OF ADDITIONAL SATELLITE SYSTEMS INTO THE GMDSS, IN ACCORDANCE WITH RESOLUTION 359 (REV. WRC-15)

(Presented by Mexico)

<i>Executive Summary</i>	
<i>During the preparatory meetings for WRC-19 organized by the Instituto Federal de Telecomunicaciones (IFT) (Mexico), the company IRIDIUM has presented a proposal of contribution to Agenda Item 1.8 of the WRC-19. The proposal requests changes to the ITU Radio Regulations.</i>	
Strategic Objectives	<ul style="list-style-type: none">• <i>Safety</i>• <i>Air Navigation Capacity and Efficiency</i>
References	<ul style="list-style-type: none">• <i>ICAO Position for the International Telecommunication Union (ITU) World Radiocommunication Conference 2019 (WRC-19)</i>• <i>Doc. 9718 - Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies.</i>• <i>Annex 10 — Aeronautical Telecommunications. Volume V — Aeronautical Radio Frequency Spectrum Utilization</i>• <i>ITU Radio Regulations</i>

1. INTRODUCTION

1.1 The *Instituto Federal de Telecomunicaciones (IFT)* is an autonomous body whose objective is the efficient development of telecommunications and broadcasting. It regulates, promotes and supervises the use and exploitation of the radio spectrum, infrastructure, networks and the provision of services. With the attributions granted by the law, it creates the *Comite Técnico en Materia de Espectro Radioelectrico (CTER)* as consultant and non-binding participation, which is responsible for the preparation of contributions and work documents that serve as significant inputs regarding the radioelectric spectrum planning, administration and management, in order to promote the efficient use and exploitation of this resource.

1.2 Within the committee activities, the WRC-19 Agenda Item 1.8 was analyzed in order to consider possible regulatory actions to support Global Maritime Distress Safety Systems (GMDSS) modernization and to support the introduction of additional satellite systems into the GMDSS, in accordance with Resolution 359 (Rev. WRC-15).

“Resolution 359 of WRC-15 establishes the consideration of regulatory provisions for updating and modernization of the Global Maritime Distress and Safety System.

Considering:

- a) that there is a continuing need in the Global Maritime Distress and Safety System (GMDSS), on a global basis, for improved communications to enhance maritime capabilities;*
 - b) that the International Maritime Organization (IMO) is considering GMDSS modernization;*
 - c) (...)*
 - d) that IMO is considering recognition of additional global and regional GMDSS satellite communication systems;*
 - e) that GMDSS satellite systems need to provide protection of incumbent services in accordance with the Radio Regulations, including those in adjacent frequency bands, from harmful interference, and such GMDSS satellite systems should operate within the interference environment of existing systems,*
- (...)*

Recognizing:

- (...)*
- c) that due to the importance of GMDSS communication systems in ensuring the safe operation of shipping and commerce and security at sea, they must be resilient to interference;*
- d) that IMO has received an application to recognize an existing satellite system as part of the GMDSS, and consequential regulatory actions may need to be considered;*
- e) that Nos. 4.6, 5.369 and 5.372 provide information on the use of the frequency band 1 616-1 626.5 MHz, or parts thereof,*

Resolves to invite ITU-R:

1 to conduct studies, taking into consideration the activities of IMO, as well as information and requirements provided by IMO, in order to determine the regulatory provisions to support GMDSS modernization;

2 to conduct studies, taking into consideration the activities of IMO and the recognition of additional satellite systems for use in the GMDSS, including consideration of the mobile-satellite service (MSS) allocations used and the potential impact of possible modifications to the provisions of the Radio Regulations on sharing and compatibility with other services and systems in the frequency band and adjacent frequency bands,

(...)”

2. **DISCUSSION**

Current Situation

2.1 The CTER Working Group (GT5) has met on several occasions to analyze the different proposals and positions of some interested parties in the POD 1.8. However, given the nature and importance of this point, the creation of a work subgroup formed by the *Dirección General de Aeronáutica Civil* (DGAC), representatives of the company "IRIDIUM Communications of Mexico" and IFT, it was necessary; aiming to work jointly and be able to reach consensus that allows on one hand, the IFT to guarantee the current and future operations of the radiocommunication systems associated with the services allocated in the frequency band 1613.8-1626.5 MHz and in the other hand, to define a position regarding the POD 1.8 at WRC-19.

2.2 Currently, the frequency band is allocated in the Radio Regulations (RR) frequency table of the International Telecommunication Union (ITU) and in the *Cuadro Nacional de Atribución de Frecuencias* (CNAF-MEX) to the radiocommunication services specified in the following table:

Frequency (MHz)	Band	RR Frequency Allocation (Region 2)	CNAF-MEX Frequency Allocation
1613.8-1626.5		MOBILE-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-Earth)	MOBILE-SATELLITE (Earth-to-space) RADIODETERMINATION-SATELLITE (Earth-to-space) AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-Earth) *MX179

*MX179 Considering that it is allocated to the aeronautical radionavigation service on a primary basis, the frequency band 1613.8-1626.5 MHz is classified as a protected spectrum. The use of this frequency band by the mobile-satellite services and radiodetermination-satellite services should not cause harmful interference to the operation of the aeronautical radionavigation service or claim protection against harmful interference for this service.”

IRIDIUM Proposal

2.3 IRIDIUM proposes regulatory modifications (“Method”) that will contribute to the introduction of additional satellite systems in the GMDSS for a global coverage, competence and redundancy in maritime security services.

- Inclusion of band 1616-1626.5 MHz in the frequency list of the Global Maritime Distress and Safety System (GMDSS), Appendix 15 to Radio Regulations
- Inclusion of a note to Appendix 15 to warranty the protection of the secondary space-to-Earth link through the usage of the same frequencies in a primary Earth-to-space direction
- Identification of the attributions of the satellite mobile service used by Article 5 of the GMDSS
- Modification of footnotes 5.364 and 5.368 to show the regulatory protection of band 1616-1626.5 MHz when used by the GMDSS

Appendix 15 (Rev. CMR-19)

Frequencies for distress and safety communications for the Global Maritime Safety System (GMDSS)

Table 15-2 (CMR 19)

Frequencies above 30 MHz (VHF/UHF)

<u>Frecuency</u> <u>(MHz)</u>	<u>Description of</u> <u>usage</u>	
1 616-1 626,5	SAT-COM	<p>Además de su disponibilidad para fines ajenos a la seguridad, la banda 1 616-1 626,5 MHz es utilizada para fines de socorro y seguridad en las direcciones Tierra-espacio y espacio-Tierra en el servicio móvil marítimo por satélite. Las comunicaciones de socorro, urgencia y seguridad del SMSSM tienen prioridad con respecto a las comunicaciones ajenas a la seguridad en un sistema de satélites.</p> <p>In addition to its availability for routine non-safety purposes, the band 1616-1626.5 MHz is used for distress and safety purposes in the Earth-to-space and space-toEarth directions in the maritime mobile-satellite service. The GMDSS distress, urgency and safety communications have priority over non-safety communications within a satellites system.</p>

- 5.364** The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth to space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). **Except when used for distress and safety purposes in the band 1 616-1 626.5 MHz by satellite networks in the maritime mobile-satellite service using the same channel in the Earth-to-space and space-to-Earth directions**, stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.
- 5.368** With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service and aeronautical mobile-satellite (route) in the band **1 610-1 626,5 MHz and the Global Maritime Distress and Safety System in the band 1 616-1 626,5 MHz. (CMR-19)**

IRIDIUM Point of View

2.4 The usage of frequencies in band 1616-1626.5 MHz for the provision of satellite services in the Global Maritime Distress and Safety System (GMDSS) will not affect the provision of aeronautical services. Band 1616-1626.5 MHz is currently available for two aeronautical services:

- Aeronautical radio navigation service (ARNS)
- Aeronautical mobile (R) services/Aeronautical mobile satellite (route) service (AMS (R) S) that provides cabin communications, search and rescue included

2.5 IRIDIUM provides AMS (R) S and will continue to do so in parallel to the GMDSS service provision without any impact. From the operational point of view, satellite service provision in the GMDSS will not affect the priority of aeronautical communications. This is easy to achieve because:

- The regulatory measures to support the introduction of additional satellite suppliers in the GMDSS do not suggest the modification of existent spectrum attributions. Satellite services in the GMDSS will be provided using frequencies already allocated to the mobile satellite service; there will be no attributions to new services that may cause interference to existing aeronautical applications.

2.6 Furthermore, from a regulatory perspective, the proposed revision of notes 5.364, 5.365, 5.366, 5.367 and 5.368 would establish GMDSS communications priority exclusively on non-security services. This would imply that the revision of footnotes will not affect the priority in aeronautical security services like AMS (R) S.

2.7 Regulatory measures to support the introduction of additional satellite suppliers in the GMDSS are not in conflict with the official position of ICAO on Agenda Item 1.8 of the World Radiocommunication Conference 2019 (WRC-19).

2.8 This is consistent with proposed regulatory measures to support the introduction of additional satellite suppliers in the GMDSS because they:

- Do not include any regulation to modify existent spectrum attributions, and cannot affect the capacity of search and rescue aircrafts to effectively communicate with vessels during rescue operations in case of an emergency and
- Will not undermine IRIDIUM capacity to comply with requirements of the SARPS because the aeronautical systems will have priority over other communications.

2.9 Moreover, the recommendations included in ICAO Doc 9718 - *Handbook on Radio Frequency Spectrum Requirements for Civil Aviation* do not reflect the development of the ICAO position on Agenda Item 1.8, which reflects an ICAO general policy and is intrinsically subject to changes. The revisions needed to harmonize the manual with the current ICAO position on Agenda Item 1.8 will not be published before the WRC-19. If the aeronautical administrations took this manual as a reference, there would be no support from the aeronautical and telecommunications administrations to what is proposed in 1.8. In this regard, the contributions of Canada and United States to CITELE supporting the actions to facilitate new satellite providers, such as IRIDIUM, are highlighted.

2.10 Specifically, Doc 9718 suggests that the ICAO policy supports "*without changes in footnotes 5,364, 5,365, 5,366, 5,367 and 5,368*" of the Radio Regulations. This represents an outdated position that has been replaced by the additional study of Agenda Item 1.8, made by ICAO, and therefore accepts the revisions to the footnotes if the additional provision of Global Maritime Distress and Safety System (GMDSS) of the satellite system does not adversely affect its compliance with ICAO Standards and Recommended Practices (SARPs) in relation to AMS (R) S.

DGAC Point of View

2.11 ICAO Doc 9718 indicates that States use the texts of this policy document, according to the need and opportunity at a national level on matters related to the use of the radio frequency spectrum by international civil aviation. In particular, they should incorporate the ICAO policy statements in the States' proposals and be used in their preparations for the ITU WRCs as an updated agreement within ICAO on the reference topic.

2.12 Therefore, the DGAC of Mexico considers that the proposal of modification by IRIDIUM to ITU Regulation regarding to the frequencies 1616 - 1626.5 for the GMDSS is opposed with the provisions of the Frequency Band and Frequency Attribution List established in ICAO Doc 9718, which establishes that the band 1 610-1 626.5 MHz is destined for Aeronautical Mobile-Satellite Service (SMAS) route.

ICAO Position regarding POD Agenda Item 1.8

2.13 Ensure that changes to the regulatory provisions and spectrum allocations that result from this Agenda Item does not adversely affect the ability of Search and Rescue aircraft to effectively communicate with ships during disaster relief operations. Ensure that no regulatory provision arising from this Agenda Item adversely affects compliance with SARPs by the satellite systems of the SMAS (route).

3. CONCLUSION

3.1 We consider appropriate that ICAO provide its point of view regarding this modification proposal, as we consider it contradicts with the ICAO Policy in Doc 9718, in the sense of not introducing changes in the Notes 5,364, 5,366, 5,367 and 5,368.

3.2 In the same way, it is of particular importance that the IFT can know the current and future vision that ICAO has on the use of the frequency band 1613.8-1625 MHz, as well as the technical operation conditions that must be met by the systems that coexist in the band. Consequently, the IFT may have sufficient inputs to determine the spectral planning actions and regulatory measures needed to guarantee operations in the frequency band 1613.8-1625 MHz under safe conditions and free of harmful interference.

***** APPENDIX A*****

Doc. 9718 – AN/957, Quinta edición - 2010

POLÍTICA DE LA OACI	
<ul style="list-style-type: none"> • No introducir cambios en la atribución al servicio de radionavegación por satélite en la banda 1 559–1 610 MHz. • 1 559–1 610 MHz: No introducir cambios en la utilización de esta banda para los futuros elementos del GNSS, incluido el GLONASS y el GPS que deben protegerse. • No realizar ninguna nueva atribución en la banda 1 559–1 610 MHz. • No introducir cambios en las Notas 5.364, 5.365, 5.366, 5.367 y 5.368. • Suprimir las Notas 5.362B y 5.362C de estas bandas sobre la base de que la atribución al servicio fijo no es compatible con el funcionamiento seguro de los servicios GNSS de la OACI. • Suprimir la Nota 5.371. 	

Doc. 9718 – AN/957, Second Edition-2018

ICAO POLICY	
<ul style="list-style-type: none"> • No change to the allocation to the radionavigation-satellite service in the band 1 559–1 610 MHz. • 1 559–1 610 MHz: No change to the use of this band for future GNSS elements, including GLONASS and GPS which must be protected. • No new allocations to be made in the band 1 559–1 610 MHz. • No change to RR Nos. 5.364, 5.365, 5.366, 5.367 and 5.368. • Delete RR No. 5.371. 	

5.364 *The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of –15 dB(W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed –3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.*

5.365 *The use of the band 1 613.8-1 626.5 MHz by the mobile-satellite service (space-to-Earth) is subject to coordination under No. 9.11A.*

5.366 *The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.*

5.367 *Additional allocation: The frequency band 1 610-1 626.5 MHz is also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-12)*

5.368 *With respect to the radiodetermination-satellite and mobile-satellite services the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.*

— END —