

IWG-3/WRC-07/Proposal/Doc.22r1

IWG-3 Views A and B on Agenda Item 1.4 (related to 3650-3700 MHz)

WRC-07 Agenda Item 1.4: To consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution 228 (Rev. WRC-03).

Summary

At the request of the WAC, members of IWG-2 and IWG-3 met within IWG-3 to jointly consider how to treat the band 3650-3700 MHz as it relates to WRC-07 Agenda Item 1.4 which is “To consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution 228 (Rev. WRC-03).

After extensive debate, IWG-3 members were unable to reach agreement on this issue. Consequently, two views on the treatment of 3650-3700 MHz with respect to Agenda Item 1.4 were developed. These two documents are attached as View A and View B.

View A proposes no change to the Table of Frequency Allocations of the Radio Regulations with regard to the 3650 – 3700 MHz band. View A states that such a proposal is consistent with the results of the ITU-R studies to date have shown that sharing of the 3650 – 3700 MHz band by IMT-Advanced systems and the fixed satellite service is not feasible in the same geographic area. View A also states that there are significant FSS assets on the 3650 – 3700 MHz around the world, including a significant number of space networks registered by the United States that utilize this band, that would be severely impacted by the identification of this band under WRC-07 agenda item 1.4. View A was supported by Boeing, Intelsat, the Global VSAT Forum; Northrop Grumman Corporation and the Satellite Industry Association (SIA - whose members also include Arrowhead Global Solutions, Inc.; Artel, Inc.; ATK, Inc.; The DirecTV Group; EMC, Inc.; Eutelsat, Inc.; Globalstar, LLC; Hughes Network Systems, LLC; ICO Global communications; Inmarsat, Inc.; Integral Systems, Inc.; IOT Systems; Iridium Satellite LLC; Lockheed Martin Corp.; Loral Space & Communications Inc.; Loral Skynet ; Marshall Communications Corp.; Mobile Satellite Ventures LP; SES-New Skies, Inc.; SES-Americom, Inc.; Spacecom Corp.; Spacenet, Inc.; Stratos Global Corp. and TerreStar Networks, Inc.).

View B proposes that the US have no proposal of no change to 3650-3700 MHz under Agenda Item 1.4. View B states that unlike the satellite operations in the US above 3700 MHz, which is much more heavily used with satellites at approximately 2 degree spacing across the domestic arc and the corresponding higher number of associated earth stations, the United States does not believe that the limited number of satellites and earth stations below 3700 MHz present the same sharing concerns and therefore do not justify a no change proposal from the United States. Further, View B states that it would send the wrong message internationally, especially as the United States decided to limit satellite

use in the band in order to facilitate broader terrestrial use. View B states that, however, given the type of terrestrial use in the US (e.g., low EIRP limits), the United States does not propose the identification of the 3650-3700 MHz band under agenda item 1.4 at this time. View B was supported by Intel, Motorola, Nokia, Sprint Nextel, and the Wireless Communications Association International, Inc.

IWG-3 respectfully submits the two views to the WRC Advisory Committee for consideration.

IWG-3/WRC-07/Proposal/Doc.20**DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

WRC-07 Agenda Item 1.4: To consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution **228 (Rev. WRC-03)**.

Background

The RCS had previously proposed in IWG-3/WRC-07/Proposal/Background/Doc. 4 that the ITU Table of Frequency Allocations not be changed in the frequency band 3400 – 4200 MHz, citing that ITU-R studies had not shown compatibility between IMT systems and the radiolocation service, nor between IMT systems and the fixed or fixed satellite service. The Satellite Industry Association (“SIA”) proposed in IWG-3/WRC-07/Proposal/Doc. 15 that the ITU Table of Frequency Allocations not be changed in the frequency band 3400 – 4200 MHz citing that ITU-R studies had shown that sharing between IMT systems and the fixed satellite service was not feasible within the same geographic area.

After discussion within IWG-3, the SIA document was subsequently modified such that it proposed no change to the ITU Table of Frequency Allocation only in the 3700 – 4200 MHz band (see WAC/135(04.10.06) and FCC Public Notice DA 06-2013, October 12, 2006). The RCS document was modified so that it proposed no change to the ITU Table of Frequency Allocation only to the frequency band 3400 – 3650 MHz.

The modified RCS document was subsequently submitted to and reviewed by IWG-2 (see document IWG-2/067). After consideration of this document, IWG-2 felt that the “no change” should be extended to the entire 3400 – 4200 MHz band, and not limited to the 3400 – 3650 MHz band. IWG-2 emphasized the extreme significance of the 3650 – 4200 MHz band for the FSS industry. IWG-2 comments were submitted to IWG-3 for further consideration of this matter (see IWG-3/WRC-07/Background/Doc. 7).

With regard to the 3650 – 3700 MHz band, IWG-3 had indicated that “no change” status as originally proposed by RCS (and also by SIA) should not be applied to this band and opposed adding sharing issues with the fixed satellite service (“FSS”). IWG-3 indicated that although the 3700 – 4200 MHz band was extensively used by FSS in the United States; this was not the case in the band below 3700, as the density of FSS earth station deployment is much lower. In the United States, the 3650 – 3700 MHz band is allocated to the fixed and mobile terrestrial services and FSS use is limited to certain grandfathered sites. Further, the use of the 3600 – 3650 MHz band by the FCC is limited to international, inter-continental systems. IWG-3’s comments are contained in document IWG-3/WRC-07/Proposal/Doc.17r2.

IWG-3 is aware that ITU-R Working Party 8F (“WP8F”) has conducted a number of technical studies pertaining to sharing of the 3400 – 4200 MHz band by FSS and systems beyond IMT-2000 (hereafter referred to as “IMT-Advanced”). WP8F has indicated that some physical separation between and FSS receive earth station and the IMT-Advanced transmitter would be required. Based upon the results of the sharing studies conducted by WP8F and the

allocation/use of the 3400 – 4200 MHz band within the United States, the administration of the United States has supported within WP8F the position that sharing between IMT-Advanced and FSS in the 3600 – 4200 MHz band is not feasible in the same geographic area (see ITU-R Document 8F/947).

In the course of further discussions of this issue by IWG-3, FSS representatives emphasized that frequencies below 3700 MHz, especially the band 3625-3700 MHz, had significant use in other areas of the world, i.e. outside of the United States. For example one global FSS operator, Intelsat, operates 14 U.S. licensed satellites that utilize the 3625 – 3700 MHz band. These satellites cumulatively provide an equivalent of 124, 36-MHz transponders in this band. This is, in turn, equivalent to approximately five satellites, with each carrying 24 standard 36-MHz transponders. The signals from these channels are received by over 1100 receive stations worldwide. In addition to Intelsat, several other satellite operators have significant investments in spacecraft with payloads that include the band 3625 – 3700 MHz with large number of customers using these frequencies worldwide. The identification of the 3650 – 3700 MHz band as a candidate for identification for IMT-Advanced systems would encourage the introduction of terrestrial systems that are not compatible with extensive FSS operations and would affect the significant investments already made by FSS operators and users.

IWG-3 notes that the decision to use the 3650 – 3700 MHz band for terrestrial services can continue on a country-by-country basis as is currently happening. However, given the mixed allocation environment that is currently prevalent worldwide with respect to the 3400 – 4200 MHz and the extensive use of this by U.S. registered space stations (and their associated receive earth stations worldwide) the identification of the 3650 – 3700 MHz band on a worldwide basis does not seem to be feasible or appropriate.

Proposal

No change to the table of Frequency Allocations of the Radio Regulations with regard to the 3650 – 3700 MHz band.

Reasons

Results of the ITU-R studies to date have shown that sharing of the 3650 – 3700 MHz band by IMT-Advanced systems and the fixed satellite service is not feasible in the same geographic area. This band may be used for terrestrial services (e.g. BWA) on a country-by-country basis. However, there are significant FSS assets on the 3650 – 3700 MHz around the world, including a significant number of space networks registered by the United States that utilize this band, that would be severely impacted by the identification of this band under WRC-07 agenda item 1.4.

IWG-3/WRC-07/Proposal/Doc.21r1**DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

WRC-07 Agenda Item 1.4: To consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution **228 (Rev. WRC-03)**.

Background:

Document IWG-3/WRC-07/Proposal/Doc. 20 proposes no change to the International Table of Frequency Allocations in the band 3650-3700 MHz, because of the potential for interference to satellite downlinks deployed in the same geographic area.

In the United States, fixed and mobile terrestrial services are allocated on a primary basis in 3650-3700 MHz and the FCC adopted service rules to govern the terrestrial operations with the intent of stimulating the rapid expansion of broadband wireless services. When adopting the terrestrial allocations, the FCC limited the FSS use to certain grandfathered sites¹ in order to ensure availability of the band for terrestrial services. Further, use of the FSS allocation is limited to international/inter-continental systems.

Any US proposal for no change to expand terrestrial use of the band internationally because of concerns with interference to or constraining satellite use would be inconsistent with domestic use of the band, and would disenfranchise domestic terrestrial users from the benefits of a potential global market. It would send the wrong message internationally, especially as the United States decided to limit satellite use in the band in order to facilitate broader terrestrial use. Unlike the satellite operations in the United States above 3700 MHz, which is much more heavily used with satellites at approximately 2 degree spacing across the domestic arc and the corresponding higher number of associated earth stations, the United States does not believe that the limited number of satellites and earth stations below 3700 MHz present the same sharing concerns and therefore do not justify a no change proposal from the United States. Further, it is common US policy to promote international use that is harmonized with its domestic use. US service providers who use the 3650-3700 MHz band and manufacturers who build equipment for the band would benefit from harmonized use outside of the United States, as economies of scale would result in lower equipment costs which could also be passed on to US consumers.

However, given the type of terrestrial use in the US (e.g., low EIRP limits), the United States does not propose the identification of the 3650-3700 MHz band under agenda item 1.4.

Proposal:

Considering the above perspectives, the United States has decided not to have a proposal under agenda item 1.4 on 3650-3700 MHz.

¹ Although there are only 49 grandfathered sites, BWA transmitters must be coordinated within a 150 km radius around each of these sites. Many of the grandfathered sites are in close proximity, resulting in a significant overlap of the 150 km coordination zones (see Attachment 1)

Reason: Unlike the satellite operations in the US above 3700 MHz, which is much more heavily used with satellites at approximately 2 degree spacing across the domestic arc and the corresponding higher number of associated earth stations, the United States does not believe that the limited number of satellites and earth stations below 3700 MHz present the same sharing concerns and therefore do not justify a no change proposal from the United States. Further, it would send the wrong message internationally, especially as the United States decided to limit satellite use in the band in order to facilitate broader terrestrial use. However, given the type of terrestrial use in the US (e.g., low EIRP limits), the United States does not propose the identification of the 3650-3700 MHz band under agenda item 1.4.

Attachment 1 (for information; not intended to be part of the proposal)

Coordination Zones: 3650 to 3700 MHz



Small dark gray circles = Federal Government stations
Large light gray circles = Grandfathered FSS stations
Not displayed, Guam FSS stations

Federal Communications Commis
Office of Engineering And Techno