

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of

	)	
Recommendations Approved By The	)	
Advisory Committee For The 2015 World	)	IB Docket No. 04-286
Radio Conference	)	
	)	

**COMMENTS OF INMARSAT INC**

Inmarsat, Inc. (“Inmarsat”) respectfully submits these comments on the draft recommendation, WAC/099(17.12.14) of the 2015 World Radiocommunication Conference Advisory Committee (“Advisory Committee”) on Agenda Item 1.1, as set forth in the Commission’s Public Notice of the above-captioned proceeding.

The Advisory Committee approved draft recommendations for the 2015 World Radiocommunication Conference (“WRC”), that contained two differing views concerning the allocations for the frequency bands 3400-4200 MHz and 4500-4800 MHz (the C-band spectrum). Inmarsat supports View A of the Advisory Committee’s recommendation that the United States should propose there be no change (“NOC”) to Agenda Item 1.1 concerning the allocations for the frequency bands 3400-4200 MHz and 4500-4800 MHz.

Both Inmarsat’s and many other satellite operators’ fixed-satellite services (“FSS”) operate in the C-band. The spectrum is the backbone of both existing and planned future satellite service provision. The C-band spectrum’s ability to operate with little interference in adverse meteorological conditions makes it ideal for both private and governmental telecommunications, satellite telemetry, emergency response, meteorological and research data transmission, and aeronautical and maritime safety communications.

There are currently 169 commercial satellites in orbit that use the C-band for two-way transmission, including Inmarsat's own 10 satellites, as well as 35 planned satellites expected for launch by the industry by the end of 2015.<sup>1</sup> This figure in the aggregate represents more than \$42 billion and decades of infrastructure investment.

The C-band's unique transmission properties make it ideal for satellite telecommunications and it has formed a large part of the satellite industry's operations since the industry's inception. Because of its importance, potential interference with C-band represents good cause for Inmarsat's concerns. In particular, Inmarsat's maritime and aviation safety services require extremely high reliability for safety of life services. Feeder links are as important a piece of the overall service as any other links. If International Mobile Telecommunications ("IMT") were to use C-band spectrum as envisioned in View B, despite its vague description, the potential level of harmful interference to existing services would have the potential to derail the decades-long and multibillion-dollar investment of the satellite industry and potentially impact overall safety service reliability.

**I. VIEW B DOES NOT ADEQUATELY PROTECT EXISTING PRIMARY FSS SERVICES AS PRESCRIBED BY WRC-15 AGENDA ITEM 1.1**

The ITU-R conducted a study as required in Resolution 233<sup>2</sup> to determine IMT compatibility with existing satellite services and found that IMT advanced cell deployment scenarios would require separation distances of up to several hundred kilometers from existing FSS earth stations to avoid harmful interference.<sup>3</sup> Importantly, the study, in which

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<sup>1</sup> Winston Caldwell, *C-Band Interference - Why NABA Members Should Care*, National Association of Broadcasters (May 2013), [http://www.nabnet.com/nabaweb/newsletter/NABAcaster%20Issue\\_2%20Final%201.pdf](http://www.nabnet.com/nabaweb/newsletter/NABAcaster%20Issue_2%20Final%201.pdf).

<sup>2</sup> Resolution 233 (WRC-12), The World Radiocommunication Conference Agenda and Relevant Resolutions, International Telecommunications Union (Geneva, 2012), [http://www.itu.int/dms\\_pub/itu-r/oth/12/01/R12010000014A01PDFE.pdf](http://www.itu.int/dms_pub/itu-r/oth/12/01/R12010000014A01PDFE.pdf).

<sup>3</sup> ITU-R Document JTG 4-5-6-7/584 (Annex 11, Attachment 3): Draft new Report ITU-R [C-BAND DOWNLINK] *Sharing studies between IMT-Advanced systems and geostationary satellite networks in the*

the United States participated, concluded that sharing in the C-band between incumbent satellite services and prospective IMT services would be very difficult and could therefore result in harmful interference.<sup>4</sup>

Inmarsat believes the results of the study and the studies before it should be sufficient for the United States to adopt a NOC position ahead of and at WRC 15. Of equal importance, View B oddly neglects to address the study as required by Resolution 233, which calls for each View to consider “current and planned use of these bands by the existing services, as well as the applicable studies already performed in ITU-R.”<sup>5</sup> If the United States were to support View B, it would amount to not only dismissing the very study in which it participated and supported, it would also run directly counter to the study’s conclusion and therefore recommended course of action. The United States should therefore discount View B.

## **II. U.S. DOMESTIC USE IS NOT THE SAME AS INTERNATIONAL USE**

View B too narrowly focuses on 3400-3800 MHz, characterizing it as of potential benefit to IMT, and neglects to address JTG 4-5-6-7’s work encompassing this band and the rest of the C-band. Neither U.S. domestic policy nor possible ramifications in the U.S. directly translate to workable outcomes at the international level. Inmarsat’s own systems use C-band in varying ways among different countries where it has earth stations and the characteristics that apply to use in the United States may not necessarily directly comport

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*fixed-satellite service in the 3 400-4 200 MHz and 4 500-4 800 MHz frequency bands in the WRC study cycle leading to WRC-15, available at [https://www.itu.int/md/choice\\_md.asp?id=R12-SG05-C-0126!R1!MSW-E&lang=en&type=sitems](https://www.itu.int/md/choice_md.asp?id=R12-SG05-C-0126!R1!MSW-E&lang=en&type=sitems). Other studies have reached similar conclusions. See Alion Science and Technology: Follow-on Sharing Study on Effects of International Mobile Telecommunications-advanced Systems on C-Band Earth Stations (Sept. 2013), available at [http://satellite-spectrum-initiative.com/files/Report\\_NABA%20Effort\\_ESO-13-012\\_20130930\\_Signed\[1\].pdf](http://satellite-spectrum-initiative.com/files/Report_NABA%20Effort_ESO-13-012_20130930_Signed[1].pdf). C.f. ITU-R CPM15.02. Director of the Radiocommunication Bureau, Draft CPM Report, Section 1/1.1/4.1.8.2 (showing FSS in the 3700-4200 MHz range is subject to harmful interference from the Mobile Service in adjacent band if a minimum separation distance in the range of several kilometers is not guaranteed).*

<sup>4</sup> *Id.*

<sup>5</sup> Resolution 233, *supra* note 2 at 72.

with the realities in other countries. In other countries Inmarsat is able to use a broader range of C-band frequencies to support customer requirements. As outlined above for example, C-band use is much more prevalent in areas prone to heavy rains, such as the tropics and subtropics, because its transmission characteristics make it less prone to atmospheric interference than other bands that may meet with more success in the United States. It is therefore the preferred spectrum for critical systems such as emergency response, maritime and aviation safety services, and mission critical government applications, including the United States. This makes C-band uniquely dependable for signal transmission in a way that many other bands cannot match. For this reason, it comprises an important part of reliable satellite transmissions both domestically and globally.

Because of differing uses globally and domestically, solutions that protect transmissions in various bands that may work in the U.S. do not necessarily apply abroad.

### **III. CONCLUSION**

For the reasons mentioned above, Inmarsat urges the United States to support the draft proposal for NOC under Agenda Item 1.1 and support View A in WAC/099(17.12.14). The proposed change in Agenda Item 1.1 will affect a multibillion dollar industry and could jeopardize new technologies that satellite companies have invested billions of dollars and years of development in, including Inmarsat's own legacy MSS networks and its upcoming GlobalXpress service.<sup>6</sup> The proposed changes could also affect users including disaster relief, maritime and aviation safety services, and emergency response services. For these reasons, the United States should espouse View A of WAC/099(17.12.14).

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<sup>6</sup> Inmarsat continues to lead the industry in innovation and introduced its next-generation GlobalXpress service in 2014 with global service in 2015.

Respectfully submitted,

Inmarsat, Inc.

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January 16, 2015