

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
WiMAX Forum Petition for Rulemaking	)	RM-11793
To Adopt AeroMACS Service Rules	)	

**REPLY COMMENTS OF GLOBALSTAR, INC.**

Globalstar, Inc. (“Globalstar”) hereby replies to comments on the above-captioned WiMAX Forum Petition for Rulemaking asking the Federal Communications Commission (“Commission”) to establish service rules for the Aeronautical Mobile Airport Communications System (“AeroMACS”).<sup>1</sup> As the Boeing Company stated in its comments, any service rules adopted for AeroMACS operations should ensure that airport surface communications do not cause harmful aggregate interference to Globalstar’s mobile satellite service (“MSS”) operations.<sup>2</sup>

Globalstar, a leading provider of global mobile satellite voice and data services, has invested over \$5 billion to develop its global non-geostationary (“NGSO”) MSS network and uses its constellation of satellites and 24 ground stations on six continents to provide affordable, high-quality MSS to over 700,000 customers in over 120 countries around the world. Globalstar is licensed for uplink transmissions (mobile earth stations to satellites) in the Big LEO band at

---

<sup>1</sup> WiMAX Forum Petition for Rulemaking to Adopt AeroMACS Service Rules, RM-11793 (Mar. 31, 2017) (“Petition”); Public Notice, *Wireless Telecommunications Bureau Seeks Comment on WiMAX Forum Petition Proposing Rules for the Aeronautical Mobile Airport Communication System*, RM-11793, DA 17-696 (rel. July 19, 2017).

<sup>2</sup> See Comments of the Boeing Company, RM-11793, at 6-7 (Aug. 18, 2017).

1610-1618.725 MHz, and for downlink transmissions (satellites to mobile earth stations) at 2483.5-2500 MHz.<sup>3</sup>

Globalstar also holds licenses for uplink transmissions between its gateway earth stations and space stations (“feeder links”) in the 5096-5250 MHz band.<sup>4</sup> This licensed feeder link spectrum overlaps with the Commission’s allocation for AeroMACS operations (an implementation of Aeronautical Mobile (R) Service) in the 5091-5150 MHz band<sup>5</sup> and with the Unlicensed National Information ((U-NII) spectrum in the 5150-5250 MHz band (the “U-NII-1 band”). In 2014, the Commission adopted rules designed to protect Globalstar’s MSS system from harmful aggregate interference from outdoor access points operating in the U-NII-1 band.<sup>6</sup> These rules limit the energy that outdoor U-NII-1 access points direct upward so that, in the aggregate, they avoid causing harmful interference to Globalstar’s MSS feeder links operating within the same band.<sup>7</sup>

---

<sup>3</sup> *Application of Loral/Qualcomm Partnership, L.P. for Authority to Construct, Launch, and Operate Globalstar, a Low Earth Orbit Satellite System, to Provide Mobile Satellite Services in the 1610-1626.5 MHz/2483.5-2500 MHz Bands*, Order and Authorization, 10 FCC Rcd 2333 (1995); *Globalstar Licensee LLC; Application for Modification of Non-geostationary Mobile Satellite Service Space Station License; GUSA Licensee LLC; Applications for Modification of Mobile Satellite Service Earth Station Licenses; GCL Licensee LLC, Applications for Modification of Mobile Satellite Service Earth Station Licenses*, Order, 26 FCC Rcd 3948, ¶¶ 2 n.1, 3 (IB 2011) (“2011 Globalstar Licensing Order”). Iridium is authorized to share spectrum with Globalstar at 1617.775-1618.725 MHz.

<sup>4</sup> *2011 Globalstar Licensing Order* ¶ 3.

<sup>5</sup> *See Amendment of Parts 1, 2, 15, 25, 27, 74, 78, 80, 87, 90, 97, and 101 of the Commission’s Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates*, Report and Order, Order, and Notice of Proposed Rulemaking, 30 FCC Rcd 4183, ¶ 51 (2015).

<sup>6</sup> *Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd 4127 (2014) (“5 GHz Order”); 47 C.F.R. § 15.407(a)(1)(i).

<sup>7</sup> Specifically, the Commission’s U-NII-1 rules allow fixed outdoor U-NII-1 access points at a maximum conducted output power level not to exceed 1 W and a power spectral density

When the International Telecommunications Union (“ITU”) allocated the 5091-5150 MHz band to the aeronautical mobile (route) service (AM(R)S) for use by applications similar to AeroMACS operations and other aeronautical services at WRC-2007, it similarly took into consideration the issue of aggregate interference to Globalstar MSS feeder links. The ITU’s decision was based in part on an agreement on aggregate interference between Globalstar and various aeronautical interests, memorialized in ITU Recommendation ITU-R M.1827-1.<sup>8</sup> Under this agreement, aggregate emissions from all aeronautical operations at 5091-5150 MHz are limited to a noise level increase at Globalstar’s satellite receivers of no more than 6%, with aeronautical navigational service (“ARNS”) operations accounting for no more than 3%, aeronautical mobile telemetry (“AMT”) accounting for no more than 1%, and AeroMACS operations accounting for no more than 2%. If no ARNS is present at 5091-5150 MHz, AeroMACS is permitted to increase the noise level at 5091-5150 MHz by up to 5%.

Despite this ITU recommendation, the WiMAX Forum in its Petition does not address the need to protect Globalstar from aggregate interference from AeroMACS operations. As it considers the Petition, the Commission should not make the same omission. Globalstar agrees with Boeing that “a significant issue exists with respect to the manner in which AeroMACS

---

(“PSD”) not to exceed 17 dBm/MHz, with an allowance for a 6 dBi antenna gain and a limit of 125 mW EIRP at any elevation angle above 30 degrees measured from the horizon. *5 GHz Order* ¶ 37; 47 C.F.R. § 15.407(a)(1)(i).

<sup>8</sup> International Telecommunications Union, Recommendation ITU-R M.1827-1, *Guideline on Technical and Operational Requirements for Stations of the Aeronautical Mobile (R) Service Limited to Surface Application at Airports in the Frequency Band 5091-5150 MHz* (Jan. 2015). At WRC-07, the ITU resolved that “any AM(R)S systems operating in the frequency band 5091-5150 shall meet the [Standards and Recommended Practices (SARPs)] requirements published in Annex 10 of the ICAO Convention on International Civil Aviation and the requirements of Recommendation ITU-R M.1827, to ensure compatibility with FSS systems operating in that band.” International Telecommunications Union, *Final Acts of WRC-07*, at 476-77, Resolution 748, *Compatibility Between the Aeronautical Mobile (R) Service and the Fixed-Satellite Service (Earth-to-Space) in the Band 5091-5150 MHz* (Geneva, 2007).

can protect the Earth-to-space feeder links for the Globalstar MSS system.”<sup>9</sup> Any service rules for AeroMACS systems must sufficiently limit emissions that will enable compliance with the ITU’s provisions and avoid aggregate interference to Globalstar’s MSS operations.<sup>10</sup> If the Commission does not adopt appropriate technical rules in this proceeding, widespread AeroMACS operations could result in aggregate interference to Globalstar that materially reduces the capacity of Globalstar’s MSS network, diminishes the quality of its services, and causes unacceptable harm to first responders, public safety personnel, consumers, and other customers who rely on Globalstar’s satellite offerings.

Respectfully submitted,

L. Barbee Ponder IV  
General Counsel & Vice President  
Regulatory Affairs  
Globalstar, Inc.  
300 Holiday Square Blvd  
Covington, LA 70433

/s/ Regina M. Keeney  
Regina M. Keeney  
Stephen J. Berman  
Lawler, Metzger, Keeney & Logan, LLC  
1717 K Street NW, Suite 1075  
Washington, DC 20006  
(202) 777-7700

*Counsel for Globalstar, Inc.*

September 5, 2017

---

<sup>9</sup> Boeing Comments at 6.

<sup>10</sup> As Boeing states, “[t]he Commission should ensure that such interference mitigation measures are adequately identified, validated, and incorporated in the service rules that are eventually proposed by the Commission for AeroMACS in the United States. In this manner, ‘testing and validation of these concepts and updating of AeroMACS standards can be completed before saturation occurs.’” Boeing Comments at 7 (quoting *Considerations for Improving the Capacity and Performance of AeroMACS*, March 2014, by Robert Kerczewski, *et al.*, at 6, included within *Proceedings of IEEE Aerospace Conference 2014*, Big Sky, Montana (2014).