

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

In the Matter of	)	
	)	
Facilitating the Communications of Earth Stations	)	IB Docket No. 18-315
in Motion with Non-Geostationary Orbit Space	)	
Stations	)	

**COMMENTS OF THE ESIM COALITION**

The Boeing Company, Kymeta Corporation, SES Americom, Inc. & O3b Limited, Panasonic Avionics Corporation, Telesat Canada, WorldVu Satellites Limited, and Kepler Communications Inc. (collectively, the “ESIM Coalition”) respectfully submit these comments in response to the Federal Communications Commission’s (the “Commission”) Notice of Proposed Rulemaking (“NPRM”) to facilitate communications of earth stations in motion (“ESIMs”) with non-geostationary satellite orbit, fixed-satellite service (“NGSO FSS”) systems.<sup>1</sup>

Together, the members of the ESIM Coalition represent nearly every component of the ESIM ecosystem, including spacecraft and terminal manufacturers, in-flight connectivity providers, and satellite network operators. ESIM Coalition members deliver the kinds of innovative, satellite-based services to U.S. consumers on the go that are flourishing today and will expand even further as a result of the Commission’s ESIM streamlining efforts. The ESIM Coalition looks forward to working with the Commission to develop a regulatory framework that unlocks the benefits of NGSO-provisioned connectivity to ESIMs, while adequately protecting other, co-frequency satellite networks and terrestrial services.

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<sup>1</sup> *Facilitating the Communications of Earth Stations in Motion with Non-Geostationary Orbit Space Stations*, Notice of Proposed Rulemaking, IB Dkt No. 18-315, FCC 18-160 (rel. Nov. 16, 2018) (“NPRM”).

**I. The Commission Should Adopt Its Proposal to Authorize NGSO-ESIM Operations in the Proposed Portions of the Ku- and Ka-bands**

The ESIM Coalition supports the Commission’s proposals to allow ESIMs to communicate with NGSO FSS operators in the portions of the Ku- and Ka-bands currently allocated for NGSO FSS operations in the U.S. Table of Frequency Allocations.<sup>2</sup> Consumer demand for satellite-provisioned mobile connectivity is rapidly increasing.<sup>3</sup> At the same time, the terminals and technology underlying the fabric of ESIM connectivity are becoming increasingly cost-effective while simultaneously providing increased speeds and decreased latency to the consumer.<sup>4</sup> Adoption of the Commission’s proposals to authorize ESIMs to communicate with NGSO FSS systems will foster continued innovation in satellite-based mobile connectivity that will ultimately benefit U.S. consumers.

**A. The Commission Should Permit ESIM Connectivity to NGSO Systems in the 11.7-12.2 GHz, 14.0-14.5 GHz, 18.3-18.6 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz and 29.5-30.0 GHz Bands on a Primary Basis**

Specifically, the Commission should adopt its proposal to allow ESIMs to communicate with NGSO FSS systems on a primary basis in the following frequency bands: 11.7-12.2 GHz (space-to-Earth); 14.0-14.5 GHz (Earth-to-space); 18.3-18.6 GHz (space-to-Earth); 19.7-20.2 GHz (space-to-Earth); 28.35-28.6 GHz (Earth-to-space); and 29.5-30.0 GHz (Earth-to-

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<sup>2</sup> NPRM at ¶¶ 8-14.

<sup>3</sup> See, e.g., *Space: Investing in the Final Frontier*, MORGAN STANLEY RESEARCH (Nov. 7, 2018), <https://www.morganstanley.com/ideas/investing-in-space>.

<sup>4</sup> See *Kymeta Successfully Demonstrates Hybrid Data Backhaul on Cellular and Satellite Networks*, KYMETA (Oct. 22, 2018), <https://www.kymetacorp.com/2018/10/24/kymeta-successfully-demonstrates-hybrid-data-backhaul-cellular-satellite-networks/> (“The technology brought by Kymeta demonstrated that reliable satellite communications can exist on virtually any mobile platform, on the move, and with little to no operator training or involvement.”); Patrick Gannon, *Transition time for the Satellite Industry?*, BUSINESSCOM NETWORKS (Dec. 28, 2017), <https://www.bcsatellite.net/blog/transition-time-for-the-satellite-industry> (low earth orbit satellite latency is “on a par” with terrestrial services).

space).<sup>5</sup> The ESIM Coalition also supports adoption of the proposal to add a paragraph (c) to footnote NG527A to indicate that ESIMs can operate with NGSO FSS space stations in these six frequency bands,<sup>6</sup> but the Commission should align the added language to conform to Section 25.289, which uses the term “unacceptable interference.”<sup>7</sup> This will ensure the Part 25 rules accurately reflect the current NGSO-GSO sharing environment and extend this well-accepted framework to NGSO FSS operations with ESIMs.

**B. The Commission Should Permit ESIM Connectivity to NGSO Systems in the 18.8-19.3 and 28.6-29.1 GHz Bands on a Primary Basis**

In addition, the Commission should adopt its proposal to allow ESIMs to communicate with NGSO FSS systems on a primary basis in the 18.8-19.3 GHz (space-to-Earth), and the 28.6-29.1 GHz (Earth-to-space) frequency bands.<sup>8</sup> The ESIM Coalition also supports adoption of the proposed paragraph (e) to footnote NG527A to indicate that ESIMs can operate with both GSO FSS and NGSO FSS networks in these two frequency bands, provided that GSO FSS operations not cause harmful interference to, or claim protection from, NGSO FSS networks.<sup>9</sup>

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<sup>5</sup> NPRM at ¶ 9.

<sup>6</sup> *Id.*

<sup>7</sup> 47 C.F.R. § 25.289 (“Unless otherwise provided in this chapter, an NGSO system licensee must not cause *unacceptable interference* to, or claim protection from, a GSO FSS or GSO BSS network.”) (emphasis added).

<sup>8</sup> NPRM at ¶ 10.

<sup>9</sup> See 47 C.F.R. § 2.106, Footnote NG165 (providing that GSO FSS operation shall not cause harmful interference to, or claim protection from, NGSO FSS networks).

**C. The Commission Should Permit ESIM Connectivity to NGSO Systems in the 19.3-19.4, 18.3-18.6 GHz, 19.6-19.7, and 17.8-18.3 GHz Bands**

Finally, the ESIM Coalition supports the proposal to allow ESIMs to receive signals from NGSO FSS space stations on a secondary basis in the 17.8-18.3 GHz (space-to-Earth) frequency band and on a non-interference basis in the 19.3-19.4 GHz (space-to-Earth) and 19.6-19.7 GHz (space-to-Earth) frequency bands.<sup>10</sup> As the Commission points out, NGSO ESIMs can ensure adequate protection of terrestrial operations via compliance with the existing International Telecommunication Union power flux density limits, currently codified in the Commission's rules.<sup>11</sup>

**II. The Commission Should Permit Blanket Licensing of ESIMs Communicating with NGSO FSS Space Stations**

The ESIM Coalition supports the Commission's proposal to allow blanket licensing of ESIMs communicating with NGSO FSS systems.<sup>12</sup> Blanket licensing of ESIMs communicating with NGSO FSS systems is consistent with longstanding Commission precedent permitting blanket licensing for aeronautical and other mobile terminals.<sup>13</sup> Currently, the Commission permits blanket licensing for ESIMs that communicate with GSO FSS systems,<sup>14</sup> and the ESIM Coalition believes there is no reason why this licensing approach cannot be applied to ESIMs

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<sup>10</sup> NPRM at ¶ 12.

<sup>11</sup> *Id.* at ¶¶ 11-13; *see also* 47 C.F.R. § 25.146(a)(1).

<sup>12</sup> NPRM at ¶ 15.

<sup>13</sup> *See, e.g., Panasonic Avionics Corp., Application for Authority to Operate Up to 50 Technically Identical Aeronautical Mobile-Satellite Service Aircraft Earth Stations in the 14.0-14.4 GHz and 11.7-12.2 GHz Frequency Bands*, Order and Authorization, 26 FCC Rcd 12557 (2011); *O3b Limited*, IBFS File No. SES-LIC-20130528-00455 (granted May 13, 2014).

<sup>14</sup> *See* 47 C.F.R. § 25.138.

communicating with NGSO FSS systems as well. The aforementioned blanket licensing regime has already shown significant public benefits. For example, the Commission's grant of a blanket license for 11,000 Kymeta ESIMs communicating with GSO satellite systems in the Ku-band<sup>15</sup> has allowed it to more swiftly deploy its flat-panel antennas to end users. The Commission's proposal will also promote the development and deployment of ESIMs capable of communicating with both GSO and NGSO satellite systems. This will facilitate the spread of accessible, broadband mobility services, along with a host of other satellite-based innovations and applications.

If earth station operators were forced to instead individually license ESIM terminals, the deployment of NGSO-based services and applications could be stymied. This would be an inefficient result that would create unmanageable administrative burdens and ultimately limit the ability of NGSO FSS operators to expeditiously deploy innovative services to U.S. consumers. In contrast, the Commission's proposal to adopt blanket licensing for ESIMs will facilitate efficient processing, resulting in significant cost savings for ESIM operators, NGSO FSS operators, and U.S. consumers.

### **III. The Commission Should Ensure the Same Self-Monitoring and Network Control Requirements Apply to All ESIMs**

The NPRM seeks comment on limiting rules containing references to EIRP spectral density, self-monitoring and network control requirements to GSO ESIMs.<sup>16</sup> The ESIM Coalition generally supports the conforming rule changes proposed in the NPRM to

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<sup>15</sup> See *Kymeta Corp.*, IBFS File No. SES-LIC-20170223-00195 (granted Aug. 24, 2017).

<sup>16</sup> See NPRM at ¶ 19 (suggesting Sections 25.228(a), (b) and (c) codify the two-degree spacing requirements for ESIMs communicating with GSO FSS satellite networks, but they also contain self-monitoring and network monitoring and control ("NCMC") requirements for NGSO operations).

accommodate ESIM communications with NGSO FSS systems. Consistent with this view, the Coalition believes ESIM terminal self-monitoring and NCMC requirements are essential to ensuring operations are conducted in accordance with applicable license provisions, consistent with the ESIM rules, and without causing interference to other satellite and earth station operations. There is no basis to treat GSO FSS and NGSO FSS ESIMs differently with respect to these important requirements.

To accomplish this, the Commission could maintain the integrity of the GSO ESIM provisions while adopting separate provisions that account for the specifics of NGSO systems, provided that in both cases the core requirements of terminal self-monitoring and NCMC requirements are retained.

#### **IV. CONCLUSION**

The ESIM Coalition commends the Commission for initiating this proceeding and appreciates the Commission's efforts to adopt a framework to enable NGSO-provisioned ESIM connectivity. By adopting the foregoing proposals, the Commission will enable consumers to tap the potential of NGSO FSS systems to provide innovative services and applications in the United States.

Respectfully submitted,

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