

August 22, 2017

Ex Parte

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177; IB Docket Nos. 15-256, 97-95; RM-11664; and WT Docket No. 10-112.

Dear Ms. Dortch:

We are writing to respond on behalf of Iridium Communications, Inc. (“Iridium”) to the Roadmap for High Band Spectrum submitted by CTIA on July 14, 2017.¹

Tossed in among the Roadmap’s numerous proposals is a request that the FCC authorize terrestrial mobile services in the 29.1-29.25 GHz band, a small 150 MHz slice of spectrum that Iridium uses for feeder links on a co-primary basis. We urge the Commission, as it has at least twice before, to decline to pursue this element of the Roadmap. Designating this isolated 150 MHz of spectrum for terrestrial mobile services is unnecessary to meet CTIA’s goal of making 15 GHz of new spectrum available for 5G operators. It also would conflict with the Commission’s conclusions in this proceeding, and do nothing to meet the needs of terrestrial 5G operators as expressed in the record and the Roadmap itself.

With good reason, the Commission *explicitly declined* to identify the 29.1-29.25 GHz band as a candidate for terrestrial mobile operations in the original *NPRM* in this proceeding.² Recognizing that Iridium operates in the band with “co-primary status,” and that the band “offer[s] considerably less than [the] 500 megahertz of contiguous spectrum [that] commenters have suggested is necessary for mobile operations,” the Commission determined that its “efforts are better directed toward bands that offer more contiguous spectrum.”³ The Commission declined to revisit its conclusion about the 29.1-29.25 GHz band in the *Report and Order*⁴ or the

¹ See Letter from Scott K. Bergmann, CTIA, to Marlene H. Dortch, FCC, GN Docket Nos. 14-177 *et al.* (filed July 14, 2017) (“Roadmap”).

² *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, FCC 15-138, 30 FCC Rcd. 11,878 ¶ 70 (2015) (“*NPRM*”).

³ *Id.*

⁴ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, FCC 15-138, 31 FCC Rcd. 8014 (2016) (“*Report and Order* or *Further Notice*”).

Further Notice,⁵ seeking instead to focus the proceeding on more promising bands identified as candidates for IMT-2020.

CTIA offers precious little reason for the Commission now to shift direction and pivot toward the small sliver of spectrum in the 29.1-29.25 GHz band. In fact, the Roadmap itself undermines this element of CTIA's proposal, as does the record in this proceeding.

In the Roadmap, CTIA asks the Commission to make "at least 15 gigahertz" of spectrum available "*in large contiguous blocks*" for terrestrial providers, and emphasizes the need to make new spectrum available for "*exclusive terrestrial use*."⁶ To accomplish this goal, CTIA recommends that the FCC permit terrestrial mobile operations across:

- **4 GHz** of nearly contiguous spectrum in the 24 and 28 GHz bands;
- **500 MHz** of contiguous spectrum in the 42 GHz band;
- **5 GHz** of almost contiguous spectrum in the 47 and 50 GHz bands;
- **1.6 GHz** of contiguous spectrum in the 32 GHz band;
- **5 GHz** in the 70 GHz band; and finally
- **150 MHz** of isolated spectrum at 29.1-29.25 GHz.⁷

One of these requests is not like the others. The 150 MHz available in the 29.1-29.25 GHz band is far smaller than the enormous contiguous blocks that CTIA claims are essential for terrestrial 5G operators and that CTIA urges the Commission to create in other bands. Nor could the FCC make the 29.1-29.25 GHz band available "for exclusive terrestrial use," as CTIA says is necessary, due to Iridium's co-primary status—which CTIA failed even to acknowledge.⁸ Although CTIA half-heartedly suggests that the 29.1-29.25 GHz band is sufficiently "lower in frequency" to permit 5G operations across smaller contiguous spectrum blocks, the difference between the 150 MHz available at 29.1 GHz to 29.25 GHz, and the size of the contiguous blocks CTIA seeks elsewhere in the millimeter wave bands, speaks for itself.⁹ Indeed, even in the 28 GHz band, CTIA previously urged the Commission to adopt *channel sizes* of at least 200 MHz.¹⁰

⁵ *Further Notice* ¶ 373.

⁶ Roadmap at 1-2 (emphasis added).

⁷ *Id.* at 2-9. Some other LMDS spectrum was also sought.

⁸ *Id.* at 3.

⁹ *Id.* at 7.

¹⁰ See Reply Comments of CTIA at 12-13, GN Docket No. 14-177 (filed Feb. 26, 2016).

As Iridium has explained previously,¹¹ network operators and equipment makers overwhelmingly agree that terrestrial 5G networks will need much more than 150 MHz of contiguous spectrum to deliver the performance expected of next-generation systems.¹² Indeed, Verizon advocated against spectrum aggregation limits on the ground that 5G operators must be able to “assemble substantial amounts of contiguous mmW spectrum” in order to deliver next-generation wireless services.¹³ For precisely the same reason, both AT&T and Verizon urged the Commission to create “a single 3 GHz band of contiguous spectrum (with channels at least 200 MHz wide)” by combining the 37 and 39 GHz bands.¹⁴ Moreover, the 29.1-29.25 GHz band remains a poor candidate for even a one-way downlink channel. Not only is the band smaller than the minimum channel size supported by the record, but the extreme inefficiencies of carrier aggregation in high-band spectrum would make supplemental downlink operations a practical impossibility, or at least a useless endeavor.¹⁵

Another problem with designating the 29.1-29.25 GHz band for terrestrial mobile service is that the band will not be available internationally. This band cannot be harmonized overseas because the ITU has not designated it for consideration as an IMT 2020 (5G) candidate band.¹⁶ And while the Commission correctly established itself as a leader in identifying spectrum as the world was just beginning to formulate a 5G agenda, it has now appropriately shifted to a more collaborative path forward by focusing in the *Further Notice* on bands that could be harmonized.¹⁷

¹¹ See Partial Opposition of Iridium Communications, Inc. to Nextlink Petition for Reconsideration, GN Docket No. 14-177 *et al.* at 4-7; Reply Comments of Iridium Communications, Inc., GN Docket No. 14-177 (filed Oct. 31, 2016).

¹² See, e.g., Comments of CTIA at 13, GN Docket Nos. 14-177 *et al.* (filed Sept. 30, 2016) (“access to these kinds of large contiguous blocks of spectrum”—i.e., blocks as wide as “5.5 gigahertz”—“will be key to leveraging the millimeter wave bands in support of 5G systems”); Verizon Comments at 6, 13-15 GN Docket Nos. 14-177 *et al.* (filed Jan. 28, 2016) (“Verizon Comments”); Reply Comments of AT&T at 8, GN Docket Nos. 14-177 *et al.* (filed Feb. 26, 2016); Comments of the Telecommunications Industry Association at 5, 10-12, GN Docket No. 14-177 (filed Sept. 30, 2016); Comments of Qualcomm Incorporated at I, GN Docket No. 14-177 (filed Jan. 27, 2016); Comments of Huawei Technologies, Inc. at 5-6, GN Docket No. 14-177 (filed Jan. 28, 2016).

¹³ Verizon Comments at 6; see also Letter from Charla M. Rath, Vice President, Wireless Policy Development, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177 (filed July 7, 2016) (reiterating Verizon’s opposition to spectrum screens or caps because 5G operators must “access large swaths of contiguous spectrum in a single band”).

¹⁴ Letter from Charla Rath, Vice President, Wireless Policy Development, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177, at 1 (filed Mar. 16, 2016); see also Verizon Comments at 7-9; Comments of AT&T at 19, GN Docket No. 14-177 (filed Jan. 28, 2016).

¹⁵ See, e.g., Comments of AT&T at 7, GN Docket No. 14-177 *et al.*, at 10 (filed Sept. 30, 2016).

¹⁶ See World Radiocommunication Conference, Final Acts, Resolution 238 (WRC-15) (2015) *available at* https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0014PDFE.pdf (declining to identify the 29.1-29.25 GHz band as even a candidate band for IMT-2020). See also Reply Comments of Iridium Communications, Inc. at 6-7, GN Docket No. 14-177 (filed Feb. 26, 2016) (explaining that “the possibility of internationally harmonized use of the A2 Band for 5G operations in the next decade has evaporated”).

¹⁷ See *NPRM* ¶ 20 (noting that “substantial international harmonization would help promote development of mmW mobile service by reducing development and equipment costs and promoting a unified world market”);

Iridium understands that, in some cases, the Commission may have reason to disregard the fundamental precepts that millimeter wave bands available to terrestrial 5G networks should have substantial contiguous spectrum and support internationally harmonized use. This is not one of them. The 29.1-29.25 GHz already supports a unique global co-primary incumbent satellite network that provides services critical to our national security and to American industry. The possibility that the band could also support a nationwide terrestrial 5G network is slim to non-existent—and CTIA has done nothing to show otherwise. Even in the unlikely event some terrestrial 5G operators could find some tertiary use of this spectrum, the limited value to consumers of a lower bandwidth, and likely one-way, service would hardly be worth the Commission’s effort, or the clear and present danger it would pose to critical Iridium services.

The bottom line is that the Commission need not revisit its twice-made decision to continue to exclude terrestrial mobile services from the 29.1-29.25 band. Rather, it should continue to focus on other, more promising, spectrum for future 5G services.

Respectfully Submitted

A handwritten signature in dark ink that reads "SCOTT HARRIS". The signature is stylized, with the first name "SCOTT" in all caps and the last name "HARRIS" in all caps, though the letters are connected in a cursive-like fashion.

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Further Notice ¶ 370 (seeking “comment on proposing mobile service rules for most of the bands identified at the 2015 World Radio Conference”).