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June 14, 2016

## Ex Parte

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> 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 & WT Docket No. 10-112**

Dear Ms. Dortch:

Verizon supports pragmatic Commission efforts to advance this proceeding by establishing a regime under which satellite operators and terrestrial mobile services can coexist in the 28 GHz band. Satellite operators, who have always had secondary status in the band, seek interference protections as a matter of right for new earth stations in markets licensed to mobile operators. For all the reasons explained in Verizon's previous comments, heightened protections for new earth stations would be bad public policy. But if the Commission determines to create some form of protection for earth stations, it must ensure that these earth stations do not create coverage gaps in licensees' operations that impair the deployment of and investment in 5G.

If the Commission grants new interference protections to satellite users of 28 GHz spectrum, it should establish 200-meter coordination zones around them. It should require earth stations to limit their power flux density ("PFD") at 200 meters from satellite earth station transmission antenna and 10 meters height above ground level to -77.6 dBm/m<sup>2</sup>/MHz.<sup>1</sup> The Commission must adopt a number of criteria for the establishment of such zones to avoid harming the potential deployment of 5G in areas where it is likely to be used:

***First, no station may be located in an "urban core zone."*** Echostar and AT&T identified a list of urban core zones that could serve as a starting point for these criteria,<sup>2</sup> but the list of zones is far too limited.<sup>3</sup> If relied upon alone, the list would permit intrusive earth stations in numerous areas that are densely populated and heavily transited. For example, the proposed Washington, D.C. zone would permit earth stations in such areas as Tysons Corner, Virginia, which are strong candidates for future next generation terrestrial technology. So while the EchoStar/AT&T list can be useful, it should be only be a starting point.

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<sup>1</sup> See Ex Parte Letter of AT&T, Ericsson, Nokia, Samsung, T-Mobile, and Verizon, GN Docket No. 14-177 (June 1, 2016) ("*June 1 Joint Filers Letter*").

<sup>2</sup> See Letter from Stacey Black and Jennifer Manner to Marlene H. Dortch, GN Docket No. 14-177, *et al.*, Addendum, (Apr. 6, 2016).

<sup>3</sup> See Ex Parte Letter of Gregory M. Romano to Marlene H. Dortch, Docket No. 14-177 (Apr. 26, 2016).

***Second, to minimize the impact on the public of any coordination zone, the area of the station's 200-meter coordination zone may not cover more than one-tenth of one percent (0.1%) of the population of the census tract in which it is located. The coordination zone also may not cover more than one tenth of one percent (0.1%) of any census tract that borders the one in which the station is located.*** These density criteria will help ensure that within any particular market, satellite users may construct earth stations only in its relatively less-densely populated areas. This calculation should be performed at the granular census tract level to avoid the anomalies that can occur with density calculations using larger geographic areas.<sup>4</sup>

***Third, the station's 200-meter radius coordination zone may not cover any portion of certain types of properties that support transient populations.*** To ensure that coordination zones do not unnecessarily diminish service to the public or undermine the benefits of 5G, any coexistence regime must account for the many uses envisioned for 5G technology that involve serving areas where people transit or work, as opposed to where they live. It must also account for licensees deploying 5G technology in areas where few live or work, but that could be the location of important industrial or agricultural applications. So coexistence criteria based on permanent populations (the metrics used for Nos. 1 and 2 above) cannot, alone, ensure that earth stations avoid creating significant impairments to terrestrial licensees. The Commission thus should prohibit the construction of an earth station if its 200-meter radius coordination zone would cover any portion of the following:

- Campuses of any degree-granting, post-secondary, Title IV-eligible educational institutions as identified by the US Department of Education.<sup>5</sup>
- Primary airports with over 10,000 passenger boardings per year as identified by the Federal Aviation Administration.<sup>6</sup>
- Athletic and/or entertainment venues (indoor and outdoor) with capacity greater than 7,000 under any configuration, to include without limitation football and baseball stadiums, racetracks, golf courses, concert venues of all types, and amusement/theme parks.
- National and State Parks as identified by the US Department of the Interior and appropriate state agencies.<sup>7</sup>
- United States Military Bases as identified by the Department of Defense.<sup>8</sup>

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<sup>4</sup> As Verizon has explained throughout this docket, though, the Commission should not consider census tracts for license areas because they are far too small, with over 74,000 in the United States. Licensing based on small geographic units—including census tracts as well as counties—would create substantial administrative and operational problems. See, e.g., Verizon Comments at 18-20. But to use census tracts for limited siting purposes, the analysis only needs to be undertaken occasionally when earth station sites are considered. And it will be focused only on discrete 200-meter coordination zones, which do not create the same border issues that would cause operational challenges when they need to be managed among licensees.

<sup>5</sup> See “Federal School Code List” database, available at <http://ifap.ed.gov/ifap/fedSchoolCodeList.jsp>.

<sup>6</sup> See spreadsheet entitled “Enplanements at all Airports,” available at [http://www.faa.gov/airports/planning\\_capacity/passenger\\_allcargo\\_stats/passenger/](http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/).

<sup>7</sup> Available at <https://www.nps.gov/hfc/cfm/cartto-atoz.cfm>.

- Manufacturing, mining warehousing and transportation facilities defined by the presence of workers identified in North American Industry Classification System (NAICS) codes 21, 31 – 33 and 48 – 49 by the Bureau of Labor Statistics.
- Interstate and U.S. Highways (lanes, medians, shoulders and rights of way) as defined by the US Department of Transportation.
- Dock and port facilities as identified by the US Army Corps of Engineers.<sup>9</sup>
- Any commercial or governmental facility that employs more than 100 full time employees or covers more than one acre of real property.

***Fourth, the rules should permit satellite operators to negotiate private coexistence arrangements with licensees, including easements on spectrum licenses, and/or to purchase licenses at auction in order to eliminate any coexistence concerns.*** Although under the above criteria there would be numerous potential construction sites for satellite operators, they also may prefer to negotiate directly with licensees for sites in other areas. Satellite operations also may choose to participate at auction for terrestrial spectrum. The Commission should encourage such market arrangements, as it initially proposed in the NPRM.<sup>10</sup> Permitting satellite operators to protect their investments in earth stations through private agreements (in addition to their Commission-guaranteed rights as set forth above) will help satellite operators find places to construct earth stations.

***Fifth, any existing satellite gateway as of the date of the release of the Notice of Proposed Rulemaking should be grandfathered.*** Grandfathered earth stations that do not meet the criteria described above should not be required to move or modify their operations. The obvious date for the FCC to use to grandfather a satellite gateway system is whether the system was granted or applied for by October 23, 2015, the date that the FCC adopted its Notice of Proposed Rulemaking.

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Although the Commission need not protect satellite earth stations in the 28 GHz band, if it decides to do so, it must craft criteria for protection zones that take into account the significant public benefits likely to follow widespread deployment of 5G technology and avoid tipping the balance against the deployment of 5G in the 28 GHz band. Verizon proposes the criteria above in a good faith attempt to help the Commission in case it plans to go in that direction.

Finally, the Commission should reject requests to elevate satellite use of this spectrum from secondary to primary status. Granting primary status to satellite operators would create the risk that future terrestrial operations might need to be curtailed if they are alleged to cause

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<sup>8</sup> Available at <http://www.militaryinstallations.dod.mil/MOS/f?p=MI:ENTRY:0>.

<sup>9</sup> Available at <http://www.navigationdatacenter.us/ports/ports.htm>.

<sup>10</sup> See Verizon Comments, GN Docket No. 14-177, et al (Jan. 28, 2016), at 22-24.

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aggregate interference to satellite operators.<sup>11</sup> The Commission should continue forward on its path to move quickly to adopt rules in this proceeding to encourage deployment that will make the United States a global leader in 5G.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chandan". The signature is fluid and cursive, with a large initial "C" and a long, sweeping tail.

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<sup>11</sup> AT&T, Ericsson, Nokia, Samsung, T-Mobile, and Verizon have already provided the FCC a detailed analysis that supports the conclusion that 5G systems will not cause problematic aggregate impact to FSS from any realistic combination of scenarios. *See June 1 Joint Filers Letter.*