September 18, 2015

VIA ECFS

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

Re:  GN Docket No 14-177 - Use of Spectrum Bands Above 24 GHz for Mobile Radio Services; Written Ex Parte Communication

Dear Ms. Dortch:

Vivint Wireless, Inc. (“Vivint”) submits this ex parte filing to provide the Commission with additional information about its operations in the LMDS Band (27.5-28.35 GHz, 29.1-29.25 GHz, and 31.0-31.3 GHz) and the 39 GHz Band (38.6-40.0 GHz). Vivint also urges the Commission to seek additional input about existing operations as it considers whether and how to permit mobile operations, particularly any 5G services that may be developed, in these bands.

Vivint holds several long-term lease authorizations to use LMDS spectrum to provide fixed point-to-multipoint wireless broadband service. Vivint launched its fixed broadband service using such millimeter wave (“mmW”) spectrum in 2013. Since then, Vivint has exponentially expanded its operations and service areas. It currently has operational networks in Utah; El Paso and San Antonio, Texas. The company focuses on offering its fixed wireless broadband service to suburban and exurb areas where it is more cost-effective than fiber broadband service while providing equal (in some instances superior) throughput. Its fixed wireless broadband service customer base has more than doubled within the last year to more than twenty-thousand customers. Vivint has the ability to expand rapidly.

Vivint’s broadband speed offerings have increased since 2013 from 50 mbps to 100 mbps while its retail price has remained steady. Vivint’s service is symmetrical, offering these speeds for both download and upload. Vivint also has plans to offer 1 gigabit services in the next few years. As a result, Vivint is delivering, and will continue to deliver, robust facilities-based competition in its service areas to traditional fixed broadband providers including telecommunications carriers and cable operators. Such “[c]ompetition is crucial for promoting consumer welfare and spurring innovation and investment in broadband access networks. Competition provides consumers the benefits of choice, better service and lower prices.”

In addition to delivering facilities-based competition, Vivint’s fixed wireless broadband service helps the Commission towards meeting the goal of at least 100 million U.S. homes with access to actual download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps by 2020. Vivint’s fixed wireless broadband service also fulfills the Commission’s

2  Id. at p. 9.
benchmark for fixed 25 Mbps/3 Mbps broadband or higher service.\textsuperscript{3} Such speeds allow Vivint’s customers to use common applications for video services (e.g., Netflix, Hulu, etc.), VoIP services, and social networking and cloud applications to access photos and music.

Given the expected ongoing growth of Vivint’s operations, its delivery of facilities-based competition, and its broadband service speeds, the Commission should carefully consider the actions and technical requirements needed to protect Vivint’s fixed wireless broadband service as well as other existing fixed service operations in the mmW bands from any mobile operations that may eventually be permitted. Vivint maintains that any mobile use should only be permitted on a subordinated basis to existing fixed use, particularly in the LMDS band.

As explained in its Comments and Reply Comments\textsuperscript{4} in response to the Notice of Inquiry,\textsuperscript{5} the Commission should refrain from bifurcating fixed and mobile licensing rights in the mmW bands in the same geographic area. Existing mmW applications like Vivint’s employ directional antennas that are generally oriented horizontally. Such antennas may be deployed on towers, but many are installed on residential rooftops and other modest structures. As a result, existing mmW antennas would likely experience a strong reduction in clean signal-to-noise ratio as itinerant, mobile devices employing omnidirectional antennas passed in front of them. Moreover, coordination between unaffiliated fixed operators and itinerant mobile devices would be impractical (perhaps impossible), given the scale and scope of the fixed operations in many mmW bands.

Vivint agrees with other commenters that the Commission must seek additional input on certain critical questions should it move forward.\textsuperscript{6} Such questions include:

- What technical data has been collected about existing fixed operations, including secondary market operations, to determine and establish vital protection criteria from undeveloped mobile operations?
- What research has been conducted to analyze the potential cumulative interference of mobile operations to existing fixed operations?
- What propagation models have been developed to calculate interference to existing fixed services from mobile operations? Will the Commission look to propagation models used in the AWS-3 and 3.5 GHz proceedings? Will the models be tested?

• How will current and future operations of existing fixed operations in the mmW bands be protected if different licensing models (e.g. exclusive license, shared license, unlicensed) are adopted?

• What research has occurred to evaluate the ability of existing fixed terrestrial antennas, which are generally oriented horizontally with significant beamwidth, to discriminate against mobile signals? What assumptions (e.g., link margins) were involved in this research?

• What research exists to evaluate coexistence and/or coordination between mobile services and point-to-point and point-to-multipoint fixed terrestrial services in dense urban and suburban environments?

Respectfully submitted,

/s/ Luke Langford

Luke Langford, Chief Operating Officer
Vivint Wireless, Inc.
4931 North 300 West
Provo, UT 84604
Tel: 617-860-3537