

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Expanding Flexible Use in Mid-Band Spectrum)	GN Docket No. 17-183
Between 3.7 and 24 GHz)	

COMMENTS OF VIVINT WIRELESS, INC.

I. INTRODUCTION/SUMMARY

Vivint Wireless, Inc. (“Vivint”) submits these comments (“Comments”) in response to the above-captioned Notice of Inquiry.¹ Vivint applauds the Federal Communications Commission’s (“FCC” or “Commission”) decision to evaluate spectrum between 3.7 GHz and 24 GHz (“mid-band frequencies”) to meet the nation’s ever-increasing demands for spectrum. Vivint, as a fixed wireless broadband provider, appreciates that the ability to deliver 5G and other next generation high-throughput broadband services requires access to new radiofrequency spectrum.

Whereas the Commission has undertaken an exhaustive examination of spectrum below 3.7 GHz during the course of various proceedings over the last decade,² and has begun in earnest

¹ See *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, Notice of Inquiry, FCC 17-104 (rel. Aug. 3, 2017) (“Notice”).

² See, e.g., *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition, Amendment of Parts 15, 74 and 90 of the Commission's Rules Regarding Low Power Auxiliary Stations, Including Wireless Microphones*, WT Docket Nos. 08-166 and 08-167 and ET Docket No. 10-24, Report and Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 643 (2010) (*TV Bands Wireless Microphones R&O and Further NPRM*); *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition, Amendment of Parts 15, 74, and 90 of the Commission's Rules Regarding Low Power Auxiliary Stations*, WT Docket Nos. 08-166 and 08-167 and ET Docket No. 10-24, Second Report and Order, 29 FCC Rcd 6103 (2014) (*TV Bands Wireless Microphones Second R&O*); *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services; Establishing a More Flexible Framework To Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands; Petition for Rulemaking of the Fixed Wireless Communications Coalition To Create Service Rules for the 42-43.5 GHz Band; Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services; Allocation and Designation of Spectrum for*

to repurpose spectrum above 24 GHz for the delivery of wireless broadband services in recent years, mid-band frequencies remain a largely untapped resource for next generation services. Enabling more flexible access to mid-band frequencies will have dramatic and immediate benefits for Vivint and other providers of fixed wireless broadband services. Mid-band frequencies enjoy propagation characteristics more favorable for fixed wireless broadband services, and recent technological advances can facilitate spectrum sharing while ensuring that longstanding incumbent services in mid-band frequencies enjoy comprehensive interference protection.

Vivint welcomes the opportunity to participate in this proceeding as the Commission explores appropriate regulatory frameworks and service rules to make spectrum in mid-band frequencies available for more flexible use.

II. DISCUSSION

A. Modified Citizens Broadband Radio Service Rules Should Extend to the 3.7-4.2 GHz Band

The Commission seeks general comment “on the potential for more intensive use of the 3.7-4.2 GHz band for wireless broadband.”³ In addition, the Commission seeks comment on whether to relax existing service rules to facilitate more flexible deployment of point-to-point and point-to-multipoint fixed service (“FS”) broadband services, and the viability of the band to accommodate cellularized mobile services.⁴

Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum To Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0- 38.0 GHz and 40.0-40.5 GHz for Government Operations, GN Docket No. 14-177; IB Docket No. 15-256; RM-11664; WT Docket No. 10-112; IB Docket No. 97-95, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (*Spectrum Frontiers Order*).

³ Notice at ¶ 16.

⁴ *Id.* at ¶¶ 18-20.

Vivint agrees that more intensive use of the 3.7-4.2 GHz band represents an achievable goal for the Commission in the near term. The current manual coordination process for FS and fixed satellite service (“FSS”) in the 3.7-4.2 GHz has been in place and largely unchanged for decades,⁵ and creates unacceptable inefficiencies (*e.g.*, a minimum 30-day “standstill” period to allow for responses to coordination requests).⁶ Vivint encourages the Commission to undertake a fulsome investigation of options for streamlining and automating access to spectrum in the 3.7-4.2 GHz band, and in particular to consider extending the Spectrum Access System (“SAS”) and Citizens Broadband Radio Service (“CBRS”) rules implemented in the 3550-3700 MHz upward with certain adjustments to reflect the interference protection needs of the incumbents in the 3.7-4.2 GHz band. Vivint envisions a staggered approach to such an implementation.

Phase One:

Near term, Vivint encourages the Commission to permit fixed wireless broadband communications between small cells or access points and tethered End Users Devices (“EUDs”) under a modified General Authorized Access (“GAA”) framework borrowed from the Citizens Broadband Radio Service (“CBRS”) in the adjacent 3550-3700 MHz. Under this initial phase SAS administrators would assign spectrum in 20 megahertz blocks with channel bonding up to 100 megahertz permitted. The use of 20 megahertz blocks will enable transmission efficiencies achieved by 5G voluntary standards, including Long-Term Evolution (“LTE”) derivatives. Power limits for fixed wireless broadband service devices and tethered EUDs would carry forward from Part 96 with appropriate dynamic adjustment by the SAS to protect incumbent FS

⁵ See *Establishment of Domestic Communications-Satellite Facilities by Non-Governmental Entities*, 35 FCC 2d 844, 846-47 (1972) (“*Open Skies*”).

⁶ See 47 CFR § 25.203 (allowing potentially affected parties 30 days to react to coordination requests).

and FSS sites taking into consideration that these incumbents employ highly directional antennas with significant discrimination and generous link margin.⁷

Phase Two:

Long term, Vivint encourages the Commission to explore an auction of Priority Access License (“PAL”) rights to 3.7-4.2 GHz spectrum for fixed wireless broadband devices and tethered EUDs. Vivint appreciates that PAL license rights may be encumbered in certain instances by the need to protect incumbent interests. Nevertheless, Vivint expects that third parties will express interest in such rights if auctioned, and that the implementation of a well-designed SAS can balance and protect the needs of new entrants and incumbents without diminishing the utility of the spectrum.

B. The 5.925-7.125 GHz Can Support Expanded Unlicensed Services

The Commission seeks comment on the potential for the 5.925-6.425 GHz and 6.425-7.125 GHz to support more flexible wireless broadband uses.⁸ Vivint supports an extension of modified U-NII rules throughout this frequency range that incorporate a SAS feature. FSS networks in this spectrum transmit earth-to-space, which places affected receivers in orbit far removed from any future low-power unlicensed devices. Microwave links and other services can be protected through Dynamic Frequency Selection (“DFS”) technology or SAS implementation.

⁷ See 47 CFR § 96.41.

⁸ See Notice at ¶¶ 26-36.

III. CONCLUSION

For the foregoing reasons Vivint urges the Commission to proceed with a rulemaking allowing more flexible use of mid-band frequencies, including the deployment of an SAS in the 3.7-4.2 GHz, and the adoption of a regulatory framework that would facilitate GAA and eventual PAL use of this band under modified Part 96 rules.

Respectfully submitted,

/s/

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