Before the
Federal Communications Commission
Washington DC 20554

In the Matter of
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services
Amendment of the Commission’s Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands
Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz Bands
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band

COMMENTS OF THE FIXED WIRELESS COMMUNICATIONS COALITION

The Fixed Wireless Communications Coalition, Inc. (FWCC)\(^1\) files these comments in response to the October 17, 2014 Notice of Inquiry in the above-referenced docket.\(^2\)

\(^1\) The FWCC is a coalition of companies, associations, and individuals interested in the fixed service—i.e., in terrestrial fixed microwave communications. Our membership includes manufacturers of microwave equipment, fixed microwave engineering firms, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. The membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. Our members build, install, and use both licensed and unlicensed point-to-point, point-to-multipoint, and other fixed wireless systems, in frequency bands from 900 MHz to 95 GHz. For more information, see www.fwcc.us.

The FWCC appreciates both the Commission’s efforts to plan for the future of mobile services and the Notice’s recognition that incumbent and alternative services in frequency bands above 24 GHz may still be part of that plan.3

There is an extensive list of issues being explored in the Notice and, as Commissioner O’Rielly aptly states, “no one in this room knows where it will eventually take us.”4 But there is one certainty at the outset: demand for mobile data will continue to expand.

A corollary to that certainty is that wireless backhaul capacity must keep pace. All data sent to or from a mobile device must pass over a backhaul connection to get to the carrier’s network. While some of those connections can use fiber-optic cable, in many cases wireless backhaul connections may be the best (or only) choice, especially in rugged rural terrain and built-up urban areas where fiber is impractical.

The implementation of “5G” services and the growing use of small cell technologies for data delivery will only further demand for Fixed Service wireless backhaul solutions. Fixed Service wireless backhaul is already being utilized in millimeter wave (mmW) bands. But as the Notice observes,5 there are pending FWCC proposals to further advance the fixed use of certain bands above 24 GHz for wireless backhaul applications.6 These proposals are viable now and, if

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3 E.g., Notice at ¶¶ 15 & 44-45.
4 Statement of Commissioner Michael O’Rielly.
5 Notice at ¶ 64 and n.64.
6 We acknowledge the Notice’s disclaimer that “[f]or the most part, proposals relating to fixed operation in these bands will be addressed separately.” The following discussion involves those proposals to the extent they are relevant to questions on alternative uses and wireless backhaul as raised in the Notice. The proposals are discussed in detail in prior filings. To the extent necessary for this proceeding, the FWCC incorporates its prior filings here by reference.
adopted, would provide both immediate and future benefits to mobile service (including 5G) deployment.

A. 42-43.5 GHz Band

The 42 GHz band is already allocated for the Fixed Service. In May 2012, the FWCC filed a Petition for Rulemaking that requested Fixed Service rules at 41-42.5 GHz.\(^7\) The FWCC later revised the proposal to specify the 42-43.5 GHz band.\(^8\) As explained in these proposals, this 1.5 GHz of spectrum can help to meet the growing demand for backhaul, especially in urban settings. Carriers squeezed for spectrum and unable to acquire more respond by deploying ever-smaller cells, especially in heavily populated areas. The shrinkage and multiplication of cells sets off a commensurate growth in demand for short-range backhaul links with high data capacity. In urban settings, backhaul antennas often must be small enough for installation on crowded building tops and towers. The 42/43 GHz band, with its short wavelength and correspondingly small antennas, is ideal for this application through a link-by-link licensing scheme with prior frequency coordination.\(^9\)

B. 71-76/81-86 GHz Bands

Similarly, the 71-76/81-86 GHz bands are also well suited for wireless backhaul and are already being utilized nationwide for Fixed Service connectivity across rooftops and towers. The

\(^7\) Petition for Rulemaking of the Fixed Wireless Communications Coalition, RM-11664 (filed May 9, 2012).

\(^8\) See Letter from Mitchell Lazarus, Esq., counsel for the Fixed Wireless Communications Coalition to Marlene H. Dortch, Secretary, Federal Communications Coalition, RM-11664 (filed Feb. 11, 2013).

\(^9\) The FWCC understands the band is used by a relatively small number of Federal uplink earth stations, and for RAS observations at thirteen facilities. The FWCC’s request incorporates rules to protect the RAS sites and requires FS users to accept interference from Federal earth stations.
Notice reports that (as of June 2014) 270 active nationwide licenses and approximately 10,240 and 8,260 fixed links had been registered in the 70 and 80 GHz bands, respectively.\textsuperscript{10} However, use of the 70/80 GHz band appears to be growing rapidly: a third-party database manager reports that the number of fixed links registered nationwide has already grown to approximately 23,000 over the past few months. The upward trend of incumbent Fixed Service operations will only continue once this band’s full potential is realized.

Small cell deployment will increasingly bring mobile network base stations and associated infrastructure, including backhaul, into locations that are physically closer to the consumer and to the street level. Increased density will also decrease the needed link distances from kilometers to a few hundred meters (or in some cases, much less).

For small cells to be practical, both the base station and the backhaul elements must shrink to the point where they can integrate inconspicuously into the urban environment. Hence, the FWCC proposed changes to Part 101 rules that would allow for antennas that are even smaller, thinner, and lighter (and aesthetically less objectionable) than those permitted under current rules.\textsuperscript{11} If adopted, the proposal would enable quick deployment of smaller 70/80 GHz band antennas--already available from manufacturers--that can, for example, be mounted directly on walls, street signs and other fixtures, and in tight spaces on already crowded towers. The benefits to wireless backhaul, and to mobile data services by extension, would be immediate and substantial, especially in dense urban environments saturated with data-hungry users.

\textsuperscript{10} See, Notice at ¶ 76.

\textsuperscript{11} Letter from Mitchell Lazarus, counsel for the FWCC, to Marlene H. Dortch, Secretary, FCC, in WT Docket No. 10-153 (filed March 24, 2014); Letter from Mitchell Lazarus, counsel for the FWCC, to Marlene H. Dortch, Secretary, FCC, in WT Docket No. 10-153 (filed April 4, 2013); Comments of the Fixed Wireless Communications Coalition in Response to Notice of Inquiry, WT Docket No. 10-153 (filed Oct. 5, 2012).
CONCLUSION

Some claim that “5G” services utilizing mmW bands to provide increased data capacity to mobile devices could be viable in five years. Only time will tell if this is realistic. Regardless of how 5G is implemented, the FWCC believes that significant utilization of above 24 GHz spectrum for Fixed Service wireless backhaul will be a necessary part of the infrastructure to support mobile services in the future.

Respectfully submitted,

Cheng-yi Liu
FLETCHER, HEALD & HILDRETH, P.L.C.
1300 North 17th Street, 11th Floor
Arlington, VA 22209
703-812-0400
Counsel for the Fixed Wireless

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Communications Coalition