

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)	
)	
Expanding Flexible Use of the 3.7 GHz to 4.2 GHz Band)	GN Docket No. 18-122
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183
)	

**COMMENTS OF THE
FIXED WIRELESS COMMUNICATIONS COALITION**

The Fixed Wireless Communications Coalition, Inc. (“FWCC”)¹ files these comments in response to the Commission’s public notice of May 1, 2018.²

Limitation on these comments. The FWCC is a trade group that does not itself operate fixed service facilities. The commitments below bind only the FWCC, not individual licensees—whether or not they are FWCC members—whose own situations may lead them to take different positions.

FWCC members operate licensed fixed microwave links in the 3.7-4.2 GHz band. There are presently 914 such links (discrete transmit frequencies) under 61 call signs.³

¹ The FWCC is a coalition of companies, associations, and individuals actively involved in the fixed services—*i.e.*, 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.

² *Office of Engineering and Technology, International, and Wireless Telecommunications Bureaus Seek Comment for Report on the Feasibility of Allowing Commercial Wireless Services, Licensed or Unlicensed, to Use or Share Use of the Frequencies Between 3.7-4.2 GHz*, GN Docket No. 18-122, Public Notice, DA 18-446 (released May 1, 2018).

³ Data as of May 10, 2018, courtesy of Comsearch.

The FWCC does not oppose repurposing the band or opening it to new services, so long as the fixed links are either fully protected or relocated to other bands. The number of 4 GHz links has been declining in recent years, so as time goes on there are likely to be fewer that need protection or relocation.

As part of an otherwise acceptable agreement to protect or relocate the existing links, the FWCC will not promote the installation of new links in the band. (A freeze currently in effect bars new applications for the time being.⁴)

PROTECTION

Most fixed links in the band operate at reliability levels of 99.999% or 99.9999%. These numbers allow for total annual outages of only five minutes or thirty seconds, respectively. Even very brief interference to one receiver can disable an entire network of links for several minutes, using up years' worth of outage allowance.

Between sunset and sunrise, when the links are under stress from atmospheric multipath fading, interference levels as low as 1 dB can cause link outage. Both national and international recommendations set a 1 dB interference criterion.⁵

To avoid impairing reliability, an incoming service will have to show that the probability of 1 dB or more of nighttime interference into any given receiver over the course of a year is on the order of one in a million to one in ten million. Frequency coordination among fixed service

⁴ *Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations and Fixed Microwave Stations in the 3.7-4.2 GHz Band*, GN Docket Nos. 17-183, 18-122, Public Notice, DA 18-398 (released April 19, 2018).

⁵ TIA/EIA, *Interference Criteria for Microwave Systems*, Telecommunications Systems Bulletin TSB10-F (June 1994) (national recommendation); ITU-R Recommendation F.758-6, *System Parameters and Considerations in the Development of Criteria for Sharing or Compatibility between Digital Fixed Wireless Systems in the Fixed Service and Systems in Other Services and Other Sources of Interference* (Sept. 2015) (international recommendation).

and earth station facilities routinely achieves these levels. Adequate protection should be feasible for fixed transmitters, using established methods of frequency coordination, but will be much more difficult for mobile devices.


RELOCATION

The FWCC will not object to relocation to other frequency bands, so long as proponents of the incoming service pay all expenses needed to enable fixed microwave service in the new band of at least equal quality in all pertinent respects. Because all other fixed service bands have propagation properties inferior to 4 GHz, there may be some long 4 GHz links for which a higher frequency band cannot provide adequate range. In such cases the incoming service providers will have to cover the additional costs of an intermediate facility between the existing towers.

CONCLUSION

The FWCC acknowledges the declining fixed-service use of the 4 GHz band and the public interest in introducing new services to the band. We ask, however, that existing links be allowed to continue operating free of new interference, either at 4 GHz or elsewhere in the spectrum.

Respectfully submitted,



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