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

In the Matter of	)	
	)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services	)	GN Docket No. 14-177
	)	
Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands	)	IB Docket No. 15-256
	)	
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band	)	RM-11664
	)	
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	)	WT Docket No. 10-112
	)	
Allocation and Designation of Spectrum for 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	)	IB Docket No. 97-95

To: Marlene H. Dortch
Office of the Secretary, Federal Communications Commission

COMSEARCH COMMENTS

In response to the above-mentioned *Further Notice of Proposed Rulemaking* (FNPRM)[1], Comsearch hereby submits the following comments.

[1] FCC 16-89, 31 FCC Rcd 8014, 81 FR 58269, released July 14, 2016 (FNPRM).

I. INTRODUCTION

Comsearch applauds the Commission's efforts to make more spectrum available through the new Upper Microwave Flexible Use Service (UMFUS). We believe the spectrum in these bands will greatly facilitate the evolution of 5G mobile services. We suggest one key to getting maximum utility from this service will be the sharing mechanisms outlined in the NPRM, and the Commission should work with all stakeholders to sufficiently examine and study all mechanisms for sharing among dissimilar services as well as sharing between Federal and non-Federal users.

II. COMSEARCH BACKGROUND

Comsearch is a leading provider of spectrum management and wireless engineering products and services to the commercial and federal market. Since 1977, Comsearch has been actively engaged with Commission, the National Telecommunications Information Administration (NTIA), and various industry groups and standards organizations to develop rules, industry recommendations, and standards that promote the efficient use of the radio spectrum.

In addition to being an FCC-authorized TV White Space (TVWS) Database Administrator[2] and an FCC-certified 70-80-90 GHz Link Registration Database Administrator[3],

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[2] See *Office of Engineering and Technology Invites Proposals from Entities Seeking to be Designated TV Band Device Database Managers*, ET Docket No. 04-186 (DA 09-2479) (Public Notice) 23 FCC Record 16807 (2008), and *Second Report and Order and Memorandum Opinion and Order*, (Order) ET Docket No. 04-186, ET Docket No. 02-380, 23 FCC Record 16807 (2008).

[3] See *Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands*, WT Docket No. 02-146, 18 FCC Record 23318 (2003); *Wireless Telecommunications Bureau Opens Filing Window For Proposals To Develop And Manage Independent Database Of Site Registrations By Licensees In The 71-76 GHz, 81-86 GHz and 92-95 GHz Bands* (DA 04-672).

we support the American Society for Healthcare Engineering (ASHE) of the American Hospital Association as the WMTS frequency coordinator.[4] Comsearch is also an active participant in the Wireless Innovation Forum Spectrum Sharing Committee, where we are creating guidelines for developing and certifying Spectrum Access Systems.

III. COMMENTS

The 70/80 GHz band is critical in supporting 5G for backhaul and for the evolution of LTE. Point-to-point microwave radio is a key component in today´s mobile networks, as well as used in many other network types such as fixed networks, broadcaster, utilities and public safety.

The attractiveness of the 70/80 GHz band is now rapidly increasing. Figure 1 below shows annual 70/80 GHz path registrations for ten years from 2006-2016. There are about 11,800 registered paths, close to 200 licensees, about 25 equipment manufacturers and over 20 antenna manufacturers in the 70/80 GHz band.

The 70/80 GHz band offers very wide bandwidth, which enables capacities on the order of 10 Gbps or more over distances of a few kilometers.[5] It is expected that high-capacity demand backhaul will transition from lower bands to the 70/80 GHz band, especially in support for 5G.[6] As more mmW spectrum bands are made available, the demand for this backhaul band will increase. The band is typically used today for high-capacity backhaul solutions and for cases where there is no fiber infrastructure available.

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[4] See *Amendment of Parts 2 and 95 of the Commission's Rules to Create a Wireless Medical Telemetry Service, "Designated the American Society for Health Care Engineering of the American Hospital Association to serve as the frequency coordinator for the Wireless Medical Telemetry Service"*, ET Docket 99-255, 16 FCC Record 4543 (2001).

[5] We note that the average path length for all paths is actually 10.03 km. However, this is strongly influenced by over 1400 paths with path lengths over 20 km which includes 725 with path lengths over 50 km. The majority of these paths over 20 km are licensed under an experimental authorization.

[6] See the comprehensive global view on FS microwave radio spectrum use in the Ericsson Mobility Report June 2016: https://www.ericsson.com/mobility-report/the-need-for-spectrum-harmonization.

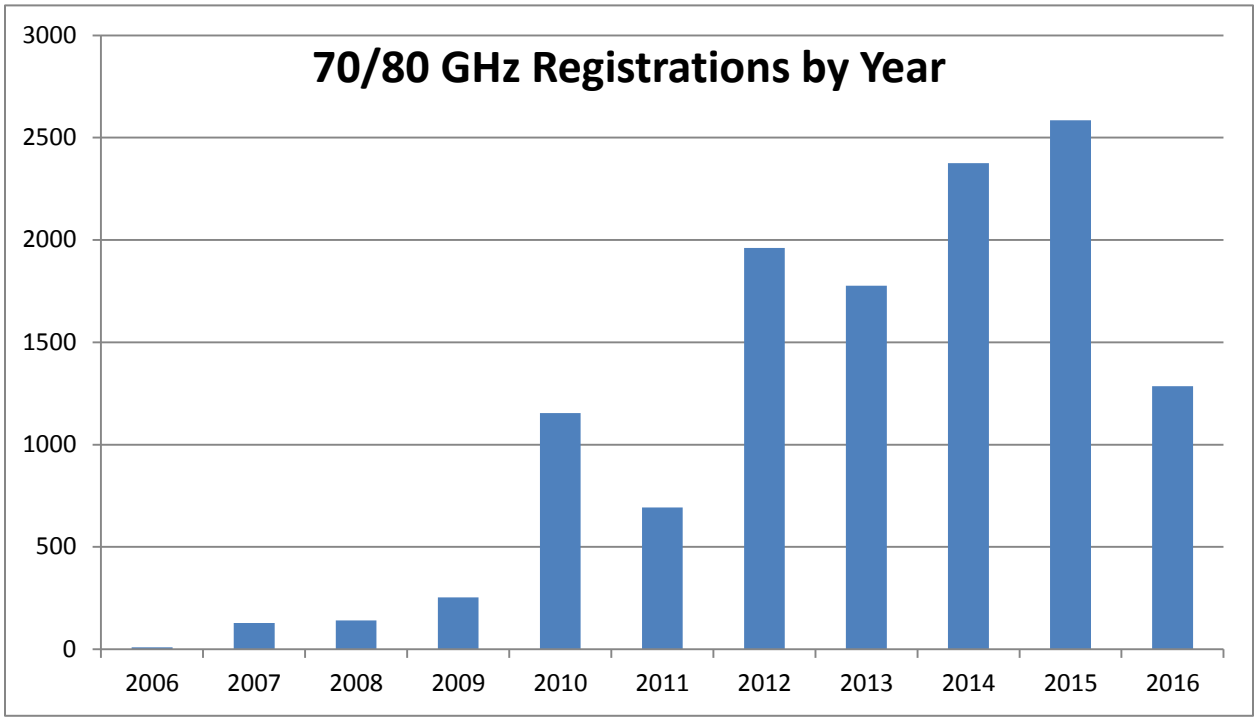

Figure 1: Annual 70/80 GHz Path Registrations

While Comsearch generally supports mobile operations in the 70/80 GHz band, we suggest that more study is needed to determine the details of coexistence between mobile and fixed services, particularly in the context of a newly-proposed spectrum management regime. Accordingly, we do not necessarily agree with the Commission's conclusion in the FNPRM:[7]

> "In looking at whether incumbent fixed services, new more dynamic fixed services, and potential mobile services (and equipment) in these bands may coexist, it is apparent that the use of a central coordinating database capable of calculating and enforcing protections among different types of users, like a Spectrum Access System, could facilitate this coexistence."

As both a 70/80 GHz Database Administrator and a prospective 3.5 GHz SAS provider, we are aware of the intricate issues associated with coexistence among mobile and fixed operations as well as coexistence between Federal and non-Federal systems. However, as noted

[7] FNPRM at ¶ 437.

in the FNPRM, the existing 70/80 GHz registration regime has been in place for over ten years and has effectively managed this coexistence.[8]

We believe the Commission needs to examine the merits and benefits of both spectrum management regimes including the development of interference mitigation techniques as well as a sufficiently lightweight registration/licensing process that accommodates flexible use and the respective differences of mobile area-based operation and point-to-point operation. In addition, sufficient study and analysis of fixed/mobile coexistence are needed to inform details of a coordination regime including respective protection zone sizes and interference considerations. The Commission should also study Federal and non-Federal coexistence issues before suggesting that an Environmental Sensing Capability (ESC) is warranted to inform of Federal system operation.[9]

[8] *Id* @ ¶ 439.
[9] To be sure, the Commission should thoroughly investigate alternatives to the ESC and propose it as a last resort to other means to allow Federal users to become "informing incumbents".

IV. CONCLUSIONS

While Comsearch supports mobile operation in the 70/80 GHz band, the proposed SAS approach requires more study considering feasibility and ultimate effectiveness. We suggest the current registration and licensing framework is adequate for accommodating shared usage among fixed and mobile systems and Federal and non-Federal users with appropriate modifications.

Respectfully Submitted,

/s/ H. Mark Gibson

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