

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

In Matter of	)	
	)	
Office of Engineering and Technology seeks	)	ET Docket No. 18-70
comment on Google's request for waiver of	)	
Section 15.255(c)(3) of the Commission's	)	
rules for radars used for interactive motion	)	
sensing in the 57 – 64 GHz band	)	

**“Reply to Comments”  
of the Frequency Allocations in Remote Sensing  
of the IEEE Geoscience and Remote Sensing Society**

Here, the Frequency Allocations in Remote Sensing (FARS) Technical Committee of the International of Electrical and Electronic Engineers (IEEE) Geoscience and Remote Sensing Society provides a reply to comments on the waiver requested by Google of Section 15.255(c)(3) of the Commission's rules for radars used for interactive motion sensing in the 57-64 GHz band.

FARS strongly agrees with Item 5 of the comments submitted by NRAO on the necessity to perform further investigations regarding the second and fourth harmonics of radiation in the 57-64 GHz band, which would overlap the 114.25-116 GHz and 226-231.5 GHz bands that are allocated to the Earth Exploration Satellite Service (passive) in addition to Radio Astronomy. These bands are important for measuring atmospheric components since the first of them is close to the Oxygen resonant line at 118 GHz, while the second includes 230 GHz used for other gaseous species. Spaceborne remote sensing sensors that will operate in these frequencies are being planned for the coming years, with several projects already under development, such as MetOp Second Generation. NASA has provided a list of proposed instruments expected to use this band in Appendix B of the FCC Notice of Proposed Rulemaking and Order in ET Docket no. 18-21. Potential aggregate interference that passive satellite sensors would experience from a large number of devices on the ground radiating in these second and fourth harmonics should also be considered. Accounting for the fact that eventually almost any smartphones, tablets, smartwatches and similar devices could be covered by the proposed waiver, any predictions of interference should include the expected future growth of users of such devices.

With regards to Item 7 of the NRAO comments, the effect of aggregate interference from airborne devices to passive satellite services should also be carefully studied. Given that attenuation of the signal in the 57-64 GHz band is lower in the direction of an orbiting satellite sensor than toward the Earth surface, any harmful signal from these systems would impact spaceborne remote sensing even more than radio astronomy.

Respectfully,



Paolo de Matthaëis  
Chair, IEEE GRSS Frequency Allocations in Remote Sensing Technical Committee