

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)	
)	
Amendment of Part 101 of the Commission's)	
Rules to Facilitate the Use of Microwave for)	
Wireless Backhaul and Other Uses and to)	WT Docket No. 10-153
Provide Additional Flexibility to Broadcast)	
Auxiliary Service and Operational Fixed)	
Microwave Licensees)	
)	
Petition for Rulemaking filed by Fixed)	
Wireless Communications Coalition to)	
Amend Part 101 of the Commission's Rules to)	RM-11602
Authorize 60 and 80 MHz Channels in)	
Certain Bands for Broadband)	
Communications)	

OPPOSITION TO PETITION FOR RECONSIDERATION

The Fixed Wireless Communications Coalition (FWCC)¹ opposes the Petition for Reconsideration filed by Wireless Strategies, Inc. (WSI) in the above-referenced docket.²

WSI asks the Commission to reconsider its rejection of WSI's proposed rule change that would permit the use of antennas that fail to meet Category B requirements.

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.

² Petition for Reconsideration of Wireless Strategies, Inc. in WT Docket No. 10-153 (filed Sept. 6, 2012) (WSI Petition).

In the alternative, WSI seeks a rule change that would allow the use of one-foot antennas in the 6 and 11 GHz bands.

A. WSI'S PETITION DOES NOT MEET THE MINIMUM STANDARDS FOR RECONSIDERATION.

WSI previously filed several pleadings that lay out essentially the same arguments as its present Petition. The Commission had ample opportunity to consider those arguments before it rejected WSI's request.³ This Petition now recycles some of those same points without adding any new substance.

The Commission has held:

Reconsideration is appropriate only when the petitioner either shows a material error or omission in the original order or raises additional facts not known or not existing until after the petitioner's last opportunity to present such matters.⁴

WSI's Petition fails this test, and therefore must be denied.

B. ADOPTION OF WSI'S PROPOSAL WOULD HINDER THE INTRODUCTION OF NEW LINKS AND IMPAIR SPECTRUM EFFICIENCY.

The Part 101 frequency coordination procedures are one of the Commission's great success stories. Applicants and licensees themselves, with the help of private frequency coordinators, achieve very dense packing of links and extremely high spectrum efficiencies, with practically no Commission involvement. Any proposal that threatens the functioning of these arrangements must be subject to the greatest scrutiny.

³ *Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Second Notice of Inquiry, Order on Reconsideration, and Memorandum Opinion and Order, 27 FCC Rcd 9735 at ¶ 75 (2012) (*Second Further Notice*).

⁴ *National Association of Broadcasters*, Memorandum Opinion and Order, 18 FCC Rcd 24414 at ¶ 4 (2003).

The present rules require Fixed Service antennas to meet at least the Category B standard in all cases, and to upgrade to Category A if use of a Category B antenna causes interference to another licensee or applicant.⁵ These rules reflect good engineering practice.

WSI seeks abolition of the Category B minimum.⁶

Other things being equal, the directionality of an antenna depends closely on its size. A smaller antenna has a shorter, fatter main lobe in the direction of the receive antenna, and bigger sidelobes in other directions.⁷ This puts more energy into directions away from the antenna axis—energy that threatens interference to other users.⁸ Worse, because a small antenna wastes more of its radiated energy off to the sides and back, the fraction that reaches the receive antenna may be insufficient to maintain communications; and a smaller antenna at the receiving station collects less energy than a larger antenna would. A licensee using small antennas thus may have to raise the transmitter power to deliver a sufficiently strong signal. That greater power increases the emissions not only toward the receiver, but in other directions as well, increasing the overall potential for interference. The smaller antenna, in short, “sterilizes” a greater area against use by others.

⁵ 47 C.F.R. § 101.115(c).

⁶ Elsewhere in the proceeding, the Commission seeks comment on WSI’s request that upgrades be permitted to fall short of Category A. *See Second Further Notice* at ¶¶ 71-74. The FWCC has filed in opposition to this proposal. *See Comments of the Fixed Wireless Communications Coalition* at 3-5 (filed Oct. 5, 2011).

⁷ Although the antenna pattern depends on size for all types of antennas, the details of this relationship will vary among different antenna technologies, such as parabolic, phased array, etc.

⁸ For more detail, see Letter from Mitchell Lazarus, Counsel for FWCC to Marlene H. Dortch, Secretary, FCC, in WT Docket No. 10-153 (filed Dec. 30, 2011).

The FWCC has no objection to non-traditional antennas that achieve a smaller size while still meeting the Commission’s requirements for directionality. (And we support rewriting those standards to better accommodate non-traditional antennas.) The Part 101 antenna standards specify performance rather than size; antenna technologies under development might allow future antennas of smaller size to satisfy these standards. The FWCC would not oppose WSI’s alternative request for a “minimum antenna size of 1 foot in the 6 GHz and 11 GHz bands”⁹ if a manufacturer could achieve the one-foot size while still complying with the Commission’s present directionality standards. (In that event, of course, WSI would not need a rule change to accomplish its goals.) We do, however, oppose eliminating *all* standards for directionality—the effective result of eliminating the Category B minimum. And we likewise oppose WSI’s alternative request for one-foot antennas in the 6 and 11 GHz bands, if (as we suspect) allowing those antennas would entail relaxing the directionality standards beyond those in the current rules.

WSI contends that Sections 101.103 and 101.115(f) will prevent harmful interference to other applicants and licensees.¹⁰ We disagree.

Section 101.103 merely outlines the frequency coordination procedures; it does not impose mandatory requirements on incumbent licensees.¹¹ The only obligation on an incumbent

⁹ WSI Petition at 2.

¹⁰ WSI Petition at 1-2.

¹¹ “All applicants and licensees must cooperate fully and make reasonable efforts to resolve technical problems and conflicts that may inhibit the most effective and efficient use of the radio spectrum; however, the party being coordinated with is not obligated to suggest changes or re-engineer a proposal in cases involving conflicts.” 47 C.F.R. § 101.103(d)(1).

is to upgrade from a Category B antenna that causes predicted interference to a Category A¹²—a provision that WSI has challenged.¹³ WSI correctly notes that Section 101.103 prevents any *proposed* antenna for a new link from causing harmful interference to existing licensees and prior applicants;¹⁴ but that solves the wrong problem. Our concern is that *existing* licensees with poor antennas will unnecessarily hinder new applicants’ abilities to coordinate. Section 101.103 does nothing to mitigate this harm.

Section 101.115(f) on its face applies only to the 11 GHz band. Under the current form of the rule, a licensee using a Category B antenna that is predicted to cause interference to another licensee or applicant, where the interference would not occur were the licensee using a Category A antenna, must either replace its antenna with a Category A, or turn down the power so the energy radiated in direction of the victim is not greater than would be produced by a Category A. WSI seeks to strike both the Category A and Category B references, and instead require a licensee to upgrade its antenna and/or turn down its power just enough resolve the immediate interference.¹⁵

The present rule requires a Category B licensee to go through this upgrade procedure at most only once. Under WSI’s proposal, however, a licensee will have every incentive to initially put in the least expensive and least directional antenna possible, and when required to upgrade

¹² 47 C.F.R. § 101.115(c).

¹³ *Second Further Notice* at ¶¶ 71-74.

¹⁴ WSI Petition at 1-2.

¹⁵ Other amendments to Section 101.115(f) proposed by Comsearch and the FWCC would clarify the licensee’s obligations without changing the central intent described in text. *See Second Further Notice* at ¶¶ 66-70.

(by reason of causing predicted interference), to install an antenna barely capable of clearing the interference case. The result can be a sequence of multiple upgrades by the same licensee as successive applicants seek to use the band.

This might not be a problem if licensees could be counted on to execute prompt upgrades when needed. In reality, however, licensees often drag their feet. The upgrading incumbent typically faces substantial expense, not only in acquiring and installing the larger antenna, but also in paying higher ongoing costs for tower space. If the tower holding the present antenna cannot accommodate an antenna large enough to protect the newcomer, then the incumbent may have to engineer and construct an entirely new link using a different tower. Worse still, depending on geography and tower availability, it may take two or more links to replace the single link that relied on the small antenna.

No incumbent will be eager to undertake these costs and disruptions. The incumbent is much more likely to dispute the frequency coordinator's interference calculations, argue that other frequencies are available, or otherwise challenge and stall. The newcomer in turn, rather than shoulder the costs and delays of dealing with the recalcitrant incumbent, will likely switch to another, less suitable band. We speak from experience: although the present rules require an incumbent to upgrade from Category B antennas to Category A where necessary to accommodate an applicant, Category B users have been chronically slow to comply.¹⁶ WSI's proposal would not only make the need for upgrades more likely, by allowing initial construction

¹⁶ Earlier in this proceeding, the FWCC suggested a rule change to require that needed upgrades from Category B to Category A antennas take place within a set time. *See* Comments of the Fixed Wireless Communications Coalition at 4 (filed Oct. 4, 2011).

with an inferior antenna, but would multiply the number of times a given licensee might be called upon to upgrade.

Fixed Service users have always shared their bands on a co-equal basis. A first-in-time user has rights against later applicants, but only if it uses (or upgrades to) a Category A antenna. The WSI proposal would upset that co-equal balance by letting the user of a less-directional, interfering antenna effectively block later entrants.

Moreover, the deployment of many less-directional antennas over a geographic area would raise the noise floor, and thus require additional margin in the interference calculation algorithms due to massive multiple exposure. This form of spectrum pollution would impede frequency coordination, undermine spectrum efficiency, and further limit the number of licensees who can operate in the area.

Finally, the current rule requiring Category B antennas at a minimum gives frequency coordinators a basis for planning. Today, a coordinator studying a new application can pick a frequency that both minimizes disruption to existing users and also leaves the maximum possible room for later entrants. These calculations rely, in part, on knowing in advance the minimum antenna characteristics of both the present applicant and any later entrants. WSI's proposal would eliminate these certainties, and greatly hamper coordinators in looking ahead to maximize use of the spectrum.

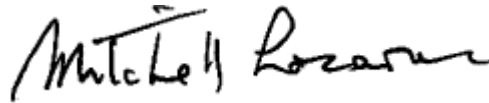
WSI knows about these objections—we served WSI with a copy of our December 30, 2011, *ex parte* letter that lays them out in detail. But WSI's Petition defends the proposal solely on the ground that it would reduce antenna and tower costs. As a general matter the FWCC favors reducing licensees' costs; we commented favorably on all of the Commission's proposals to ease the requirements for Category A and Category B antennas. But the benefits of

economizing on small antennas must be balanced against the potential harm to other users and to the goals of spectrum efficiency. The cost of letting licensees get by with sub-Category-B antennas, in wasted spectrum and hindrance to subsequent applicants, is simply too high.

CONCLUSION

For all of the reasons above, the Commission should reject WSI's Petition to allow antennas that fail to meet Category B requirements.

Respectfully submitted,

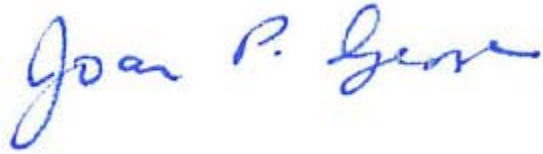
A handwritten signature in black ink that reads "Mitchell Lazarus". The signature is written in a cursive, slightly slanted style.

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December 5, 2012

CERTIFICATE OF SERVICE

I, Joan P. George, a secretary with the firm of Fletcher, Heald & Hildreth, PLC, hereby state that true copies of the foregoing Opposition to Petition for Reconsideration were sent this 5th day of December, 2012, by first class mail, postage prepaid to the attached service list, except those listed at the FCC in Washington, DC, which are hand delivered.

A handwritten signature in blue ink that reads "Joan P. George". The signature is written in a cursive style with a large initial 'J' and a long horizontal stroke at the end.

Joan P. George

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