

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
)	
Amendment of Part 27 of the)	WT Docket No. 07-293
Commission's Rules to Govern the)	
Operation of Wireless Communications)	
Services in the 2.3 GHz Band)	
)	
Establishment of Rules and Policies for the Digital)	IB Docket No. 95-91
Audio Radio Satellite Service in the 2310-2360)	GEN Docket No. 90-357
MHz Frequency Band)	RM No. 8610

To: The Commission

OPPOSITION TO PETITIONS FOR RECONSIDERATION

Aerospace and Flight Test Radio Coordinating Council ("AFTRCC"), by its counsel, hereby submits its Opposition to Petitions for Partial Reconsideration of the Commission's May 20, 2010 Report and Order in these proceedings filed by the WCS Coalition and AT&T, Inc., respectively (collectively, the "Petitions").¹ The Coalition argues that new Rule 27.73(a), which requires coordination of Wireless Communications Service ("WCS") operations with adjacent aeronautical mobile telemetry ("AMT") communications, should not reference ITU-R Recommendation M. 1459. AT&T (and the Coalition) argue that the WCS service Rules should be changed in other respects such as by allowing mobile FDD operations in the upper bands closest to AMT. There is no merit to these requests as detailed below. They should be denied.

¹ *Report and Order*, FCC 10-92, WT Docket No. 07-293 et al (released May 20, 2010) ("*Report and Order*").

Introduction

This proceeding has been underway at the Commission, in one form or another, for over 13 years, since the adoption of service rules for Satellite DARS.² In 2007, the Commission initiated a companion to the initial proceeding, WT Docket No. 07-293, the purpose of which has been to, inter alia, consider changes in the technical rules governing WCS operations in 2305-2320/2345-2360 MHz. These bands are immediately adjacent to AMT at 2360-2390 MHz and Satellite DARS at 2320-2345 MHz. Scores of pleadings and ex parte materials have been submitted in the years since, including numerous engineering statements.

AFTRCC argued strongly for the adoption of tight out-of-band emission (“OOBE”) requirements on WCS base and subscriber stations. In the *Report and Order*, the Commission opted for a standard more liberal than AFTRCC had sought, requiring WCS base stations to attenuate their emissions from $43 + 10 \log(P)$ dB at the band edge to a level of $70 + 10 \log(P)$ dB at 2365 MHz (the prior Rule had specified $43 + 10 \log(P)$ at the band edge and $70 + 10 \log(P)$ at 2370 MHz).³ Likewise, for WCS mobile stations the new Rule requires attenuation to a level of $70 + 10 \log(P)$ dB at 2365 MHz.⁴

Instead of a tighter emission mask, the Commission opted for coordination between WCS and AMT. Under the terms of this regime, prior coordination is required for WCS base stations within 45 km, or line-of-sight of AMT receive antennas, whichever is the greater distance.⁵ The Commission expressed the view that there is a range of techniques that can be used to facilitate successful coordination; that with good faith on both sides, it expects this approach to be workable; but that, in the event of disagreement, it stands ready, together with the National

² Establishment of Rules and Policies for the Digital Audio Radio Service in the 2310-2360 MHz Frequency Band, *Report and Order, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 5745 (1997).

³ Rule 27.53(a)(1)(iii).

⁴ Rule 27.53(a)(4)(iii).

⁵ Rule 27.73(a).

Telecommunications and Information Administration, as appropriate, to resolve individual disputes.

AFTRCC preferred the technological solution it recommended. Nonetheless, it is pleased the Commission recognized the gravity and scope of the interference threat, and it is prepared to work with the new coordination Rules, toward the goal of protecting sensitive Government and Non-Government AMT facilities and the safety communications they enable, while not unduly restricting the development of WCS operations.

New Rule 23.73(a) states that “[c]oordination is necessary to protect AMT receive systems consistent with [ITU_R] Recommendation [M.1459]” *Id.* at 14-18. The Coalition would have the reference removed, pointing to the text of the *Report and Order* where it is stated that:

Although the interference protection mechanism outlined in Recommendation ITU-R M. 1459 has been used in the past for the coordination of base stations and AMT receivers, we will rely upon the AMT entity and the WCS licensee to use accepted engineer practices and/or standards to evaluate each AMT/WCS deployment based on the relevant operating characteristics and to come to a mutually acceptable agreement.

Id. at para 184. The Coalition goes on to say that it “fears” that the Recommendation would be “slavishly applied” by AFTRCC such that local conditions will not be taken in account, and WCS deployment delayed. *Id.* at 15-16.

In addition, the Coalition and one of its members, AT&T, argue that various technical rules should be changed including, in particular, the requirement that WCS licensees using FDD technology use the upper bands (2345-2360 MHz) for base stations, and the lower bands (2305-2320 MHz) for mobile/portables.⁶ AT&T argues that the requirement is not necessary for the

⁶ AT&T Petition for Reconsideration at 20-21.

protection of AMT since both base and mobile TDD transmissions are allowed in the upper bands, and the rule limits the ability of licensees to pair WCS with other spectrum.

There is no basis to these complaints. They should be rejected.

Discussion

The Coalition's request to strike Rule 23.73(a)'s reference to the Recommendation is without merit. Based on the record in this proceeding, the Commission was justified in adopting a Rule protecting AMT "consistent with [the] Recommendation." If there be any tension between the text and the Rule, it is the text that needs revision, not the Rule.

One of the most firmly established principles of administrative law is that an agency

. . . cannot allow (a litigant) to sit back and hope that a decision will be in its favor, and then, when it isn't, to parry with an offer of more evidence. No judging processing in any breach of government could operate in efficiently or accurately if such a procedure were allowed.⁷

Rather, reconsideration is appropriate only where the petitions can show a material error or omission in the original order -- as opposed to a conclusion as to a set of facts which is more to its liking.⁸

These principles apply with full force to the Petition's criticism of Rule 27.73. The Recommendation figured prominently in at least a dozen AFTRCC filings.⁹ The Petitioner responded to most, if not all, of these filings, but at no point did it challenge the relevance, much

⁷ *Colorado Radio Corp. v FCC*, 118 F.2d 24, (D.C. Cir. 1941)

⁸ *WWIZ, Inc.*, 37 FCC 684, 686 (1964), aff'd sub nom. *Lorain Journal Co. v. FCC*, 351 F.2d 824 (D.C. Cir. 1965), cert. denied 383 U.S. 967 (1966). See also Rule 1.429(b).

⁹ AFTRCC Comments filed in WT Docket No. 07-293 on February 14, 2008 at Attachment pp. 1-2; ex parte filed November 17, 2008 at Attachment p. 6; ex parte filed November 21, 2008 at Attachment p. 4; ex parte filed November 24, 2008 at Attachment p. 5; ex parte filed November 25, 2008 at Attachment p. 5; ex parte filed December 3, 2008 at Attachment p. 5; ex parte filed December 9, 2008 at Attachment p. 5; Reply to Comments filed April 30, 2010 at pp. 6-9; ex parte filed June 22, 2010; ex parte filed June 23, 2010; ex parte filed June 24, 2010 at p. 1; ex parte filed July 1, 2010.

less the validity, of the Recommendation. Its attempt to do so now is untimely, and in direct contravention of Rule 1.429 and the teaching of *Colorado Radio, supra*. The request should therefore be dismissed.

If, despite this, the Commission should nonetheless be disposed to reach the merits of the Petitioner's argument, AFTRCC offers the following.

The Coalition argues that the Recommendation "does not reflect the vulnerability of any given AMT receiver to interference;" and that "not all AMT receivers will employ a 41 dBi gain antenna, as is assumed by ITU-R M. 1459." It concludes by asking, in cases where a lower gain antenna has been employed, "Why . . . should WCS wireless service in a given area be precluded . . .?" *Id.* at 16-17.

Preliminarily, AFTRCC recognizes that the coordination contemplated by the Commission is intended to take into account local conditions: That is exactly what the parties will do when actual coordinations are undertaken. However, what the Petition does not grasp is that the Recommendation itself incorporates the flexibility -- and the methodology -- needed to accomplish this. In fact, the scenarios depicted by the Petition are anticipated by the Recommendation and serve to underscore the appropriateness of the Rule as adopted.

For example, line of sight conditions are critical in assessing the risk of interference to any given AMT facility, as the *Report and Order* correctly recognizes. Thus, coordination must take into account the presence of local obstructions which can block line of sight. These obstructions can be a hill or buildings or other natural or man-made obstacles. Consideration of "clutter" like this is contemplated by the Recommendation. *See id.* at Section 2.1 (referencing the lower band for AMT airspace as "determined by visibility").

Likewise, the Recommendation does not assume a 41 dBi gain antenna, but rather develops a composite pattern based on antenna gains ranging from 29 dB to 41.2 dB. This includes the full range of gains found in AMT operations including side-lobe and back-lobe effects. Furthermore, the example antenna used by the Recommendation's methodology is the standard 8-foot (2.44 meter) dish in typical use at Government and industry flight test centers throughout the United States.¹⁰ The Petitioner's 41 dB premise is thus factually incorrect and affords no reason for removing the Rule's reference to the Recommendation.

Even still, contends the Coalition, the Recommendation was intended to deal with interference from satellites, not terrestrial sources such as WCS. *Id.* at 17. However, the power flux density ("pfd") levels set forth in the Recommendation are appropriate for AMT antennas regardless of the source of the interference, whether satellite or terrestrial. That is the essence of a pfd value. *See also* Section 2.2.4 (explaining how to consider aggregate effects of interference from satellites, terrestrial sources, and internal noise). If anything, the satellite case is more forgiving than the terrestrial case: In the case of satellites, the Recommendation is at least able to take advantage of variations in satellite geometry, i.e. from satellites positioned directly overhead (and the aircraft telemetry signal is strongest), to ones where the satellite is just above the horizon (and the aircraft telemetry signal is at its weakest). By contrast, WCS antennas can all be expected to operate at or near ground level and at correspondingly low elevation angles with respect to the AMT ground station antenna. Although a WCS antenna could be on the top of a tall building or mountain, it would be a rare case indeed for that to resemble a satellite directly above the AMT antenna. And, instead of there being a single interferor as with a

¹⁰ *Id.*, Section 2.1, Telemetry System Characteristics and Figure 1 ("measured data on 2.44 m diameter antennas").

satellite, there will often, if not typically, be numerous interfering WCS stations, the aggregate effects of which must be taken into account.

The Coalition contends that the Recommendation fails to take into account “the directional nature of AMT receive antennas and the critical role of the direction in which the AMT directional antenna is pointing.” The Coalition goes on to post a scenario where there are “two WCS base stations, one due east and one west of the AMT receiver, each of which individually comports with the $-180 \text{ dBW/m}^2/4 \text{ kHz}$ benchmark, but which cumulatively exceed that level.” *Id.* at 17-18. The Petitioner says that the fact that only one of the base stations will be within the AMT field of view at any one time should be considered -- its premise again being that the Recommendation does not allow consideration of such scenarios.

Contrary to the Petitioner’s contentions, the Recommendation gives careful consideration to side-lobe effects. Throughout, the Recommendation recognizes that interference occurs whenever any lobe of the antenna receives interference; it does not make the assumption, as the Coalition mistakenly does, that the interference is limited to the energy received only in the center of the AMT antenna’s main lobe. The Recommendation’s deliberate accounting for such efforts underscores its suitability as a standard to be used in coordination between WCS and AMT.

The Recommendation deals with antenna pointing as well by observing in Annex 2 that a flight path “may be selected so as to avoid the most critical azimuths corresponding to near boresight conjunction and the avoidance of lower elevation angles,” *id.* at Annex 2, Section 1.6. As the Recommendation acknowledges, the extent to which pointing angle can be employed depends entirely on local flight operations. In any event, the Recommendation again anticipates, and addresses, the scenario raised by the Petitioner’s argument.

Finally, although AFTRCC is in agreement with the Petition that the field of view is important, it is not for the same reasons as the Coalition. Multiple entry effects from an aggregate of potential interferors must be taken into account. Lower gain antennas have a broader beamwidth/field of view, and will be accounted for as part of the local conditions to be considered by the Parties. There is nothing whatsoever in Recommendation M. 1459 which precludes consideration of these kinds of factors.

In summary, the Petition's arguments have little or nothing to do with the Recommendation -- which remains as relevant today as it was in 2003 when the Commission incorporated the exact same Recommendation in Rule 25.253(f) for coordination of ancillary terrestrial repeaters. The Recommendation provides the internationally- and Commission-accepted methodology for coordinating potential interfering sources with AMT using the baseline pfd levels specified therein. The local operating characteristics referenced by the Petition will be input values to that methodology. This is exactly what the *Report and Order* contemplates. The Petitioner's arguments to the contrary rest on no more than speculation as to the future coordination process, but speculation is no reason to revise a Commission Rule.

Other Issues

There is likewise no merit to AT&T's challenge to the Commission's limitation of the upper bands to base stations only in the FDD context. *Id.* at 20-21. The Commission's Rule represents a prophylactic measure which lends itself to a much more effective coordination regime. While the Rules currently allow TDD use for mobile/portable/fixed CPE use in the upper bands, the industry is evolving toward LTE over WiMax as AT&T

acknowledges.¹¹ LTE allows for FDD deployments with base stations operating in the upper bands paired with mobiles and portables in the lower bands where they will not present an interference risk to AMT. In other words, base stations-only in the upper bands, as AFTRCC sought,¹² will produce additional benefits in terms of a stable coordination environment for AMT, and clearly outweighs any limitations WCS might experience on the ability to pair with other systems.¹³ Even if WCS upper bands may be used for TDD (WiMax) deployment, that is no reason to make the sharing conditions worse by allowing yet additional mobile/portable operations in the upper bands.

WCS parties make a number of other arguments about various aspects of the technical rules, such as duty cycle, power limits on point-to-point units at customer premises, the prohibition on low power fixed CPE outdoor antennas, and the like, which affect SDARS as well as AMT (although the Petitions limit their arguments to the absence of any effects from the changes on SDARS). Certain of these involve claims by WCS parties as to tests conducted by SDARS representatives and data filed by Sirius XM Radio Inc.¹⁴ AFTRCC expects Sirius will address such claims in its comments. In any event, control of adjacent band interference to AMT depends importantly on preservation of the new WCS technical rules adopted in the *Report and Order*. While this is true generally, it has particular application to the rules for WCS subscriber equipment, whether mobile, portable, or fixed. Given the ubiquity and sheer number of these

¹¹ AT&T Petition at 6 (“Most wireless providers are moving to LTE technology for 4G service”); *see also* Declaration of Douglas Duet attached to the Petition (making clear the reasons for the shift to LTE, chiefly the fact that WiMax “is not as well-suited to mobile service as LTE”). *Id.* at 1-2.

¹² *See ex parte* filed September 15, 2009 at 1.

¹³ For the same reasons, WCS operations should not be allowed to deploy FDD base stations in the lower band, as AT&T alternatively suggests as note 81.

¹⁴ *See, e.g.*, Coalition Petition at 9.

devices, the new rules represent the most effective protection against such interference. Accordingly, the reconsideration sought by the Coalition and AT&T should be denied.¹⁵

Conclusion

The Petitioner's own arguments demonstrate why ITU-R Recommendation M. 1459 is highly relevant, and why the Rule should not be changed. Likewise, the changes sought in the WCS technical rules, such as allowing FDD mobiles and portables in the upper bands, would weaken provisions in the *Report and Order* for AMT protections against adjacent band operations, and should be denied.

Respectfully submitted,

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¹⁵ AFTRCC has had an opportunity to review the Opposition being filed by The Boeing Company and fully supports the points made therein.

CERTIFICATE OF SERVICE

I, Stephanie M. Lemke, hereby certify that I have caused the attached Opposition To Petitions For Reconsideration to be deposited in the U.S. Mail, first-class postage prepaid, this 18th day of October 2010, addressed as follows:

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