

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

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

To: The Commission

**OPPOSITION OF
THE BOEING COMPANY**

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October 18, 2010

SUMMARY

The Commission should not modify Section 27.73(a) of its rules, the current language of which was recommended verbatim by the National Telecommunications and Information Administration (“NTIA”) as necessary to protect flight test operations. Following negotiations with the WCS Coalition, the NTIA put forth a compromise to adjacent spectrum sharing between WCS licensee and AMT operations, a compromise that the Commission endorsed and adopted in its entirety.

The compromise included an out-of-band emissions (“OOBE”) limit above 2360 MHz that was agreed to by the WCS Coalition and NTIA, as well as a coordination zone around aeronautical mobile telemetry (“AMT”) receive sites. In advocating a coordination approach, the NTIA urged that Section 27.73(a) be modified to state “[t]his coordination is necessary to protect AMT receive systems consistent with Recommendation ITU-R M.1459.”¹ The Commission adopted this recommendation in its entirety.

The Commission should not allow the WCS Coalition to take advantage of the compromise OOBE limits, while rejecting the AMT protection standard that NTIA deemed “necessary.” The WCS Coalition’s petition claims that Section 27.73(a) and the corresponding language of the WCS Order are inconsistent regarding protection of AMT receive sites. On the contrary, the language of Section 27.73(a) and the WCS Order, based on the NTIA letter, clearly assert the ITU-R Recommendation as the standard for interference to AMT receivers. The NTIA letter and the WCS Order also endorse a

¹ See Letter from Karl Nebbia, Associate Administrator, Office of Spectrum Management, NTIA to Julius Knapp, Chief, Office of Engineering and Technology, FCC dated May 4, 2010, Enclosure 3.

flexible coordination approach taking into account local conditions and relevant operating characteristics. To that end, as a member of the Aerospace and Flight Test Radio Coordinating Council (“AFTRCC”), Boeing stands ready to cooperate and actively participate in coordination discussions with WCS licensees consistent with the flexible approach contained in the NTIA letter and the WCS Order.

Further, the Commission should not reconsider its decision to restrict mobile and portable WCS transmitters that use frequency division duplex (“FDD”) technology to the lower portion of the WCS band and base station transmissions to the upper portion of the band. The flight test community can coordinate with fixed WCS base station transmitters, but cannot coordinate with mobile or portable transmitters.

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To: The Commission

**OPPOSITION OF
THE BOEING COMPANY**

The Boeing Company ("Boeing"), by its attorneys and pursuant to Section 1.429 of the Commission's Rules, 47 C.F.R. § 1.429, hereby submits the following opposition to the WCS Coalition and AT&T Inc. ("AT&T") Petitions for Partial Reconsideration of the Report and Order and Second Report and Order in the above referenced proceeding.²

Boeing opposes any change to Section 27.73(a) of the Commission's rules regarding coordination of wireless communication service ("WCS") operations and aeronautical mobile telemetry ("AMT") receive sites because the rule reflects an appropriate compromise as written. The existing language of the rule is a critical component of the compromise that was developed by the National Telecommunications

² See *Amendment of Part 27 of the 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 Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, WT Docket No. 07-293; IB Docket No. 95-91; GEN Docket No. 90-357; No. RM-8610, Report and Order and Second Report and Order, FCC 10-82 (May 20, 2010) ("WCS Order").

and Information Administration (“NTIA”) and accepted by the Commission reaffirming Recommendation ITU-R-M.1459 (“the ITU-R Recommendation”) as the standard for protection of AMT receivers.

The WCS Coalition has opportunistically argued that Section 27.73(a) and the corresponding language in the WCS Order are inconsistent regarding protection of AMT receive sites. There is no conflict, however, between Section 27.73(a) and the WCS Order, both of which resulted from the Commission’s endorsement of the NTIA effort to strike a balance between the needs of adjacent WCS and AMT licensees. Further, Boeing, as a member of the Aerospace and Flight Test Radio Coordinating Council (“AFTRCC”), stands ready to implement the compromise by fully cooperating with WCS licensees in their coordination with AFTRCC.³ Therefore, the WCS Coalition’s concerns are misplaced and Commission reconsideration of Section 27.73(a) is unnecessary.

In addition, mobile and portable WCS transmissions using frequency division duplex (“FDD”) technology should remain restricted to the lower portion of the WCS band and base stations should be restricted to the upper portion adjacent to the flight test spectrum. Fixed base stations can be coordinated with AMT receives sites, but mobiles and portables cannot. Therefore, the Commission should deny AT&T’s petition for reconsideration on that issue.

I. INTRODUCTION

Boeing is participating in this proceeding as a global leader in the design and manufacture of commercial and military aircraft, and as one of the world’s largest

³ Boeing has had the opportunity to review the opposition prepared by AFTRCC and approves it in its entirety.

aerospace and defense contractors. Boeing operates two major divisions, Boeing Commercial Airplanes and Boeing Defense, Space & Security. Both business units must be able to routinely conduct flight test operations as a critical element of their businesses.

Boeing appreciates the Commission's recognition of the important public safety concerns that require the protection of adjacent flight test spectrum in the WCS Order while at the same time making additional spectrum available for mobile broadband services. As a member of AFTRCC and the operator of more non-federal AMT receive sites than any other entity, Boeing stands ready to cooperate and actively participate in coordination discussions with WCS licensees. The goal of the parties should be to provide as much operational flexibility to WCS services as possible while still adequately protecting critical safety-of-life AMT communications. This can be accomplished using the existing rules as adopted by the Commission in its WCS Order rather than muddling the rules with unneeded modifications.

II. THE COMMISSION APPROPRIATELY ACCEPTED NTIA'S INCLUSION IN SECTION 27.73(a) OF RECOMMENDATION ITU-R M.1459 AS THE STANDARD FOR PROTECTION OF AMT RECEIVERS

In the WCS Order, the Commission accepted and endorsed the compromise agreed to by the WCS Coalition and NTIA regarding out of band emission ("OOBE") limits, and the coordination requirement proposed by NTIA, which included specific reference to the ITU-R Recommendation. The Commission should not permit the WCS Coalition to now take advantage of the compromise OOBE limits, while rejecting the ITU-R Recommendation as the necessary standard for protection of AMT receivers.

During the course of this rulemaking, the WCS Coalition argued in favor of less stringent OOBE limits and AFTRCC argued for tighter OOBE attenuation. NTIA and

the WCS Coalition eventually participated in negotiations to develop a mutually acceptable compromise. The WCS Coalition accepted the compromise OOB limits in an *ex parte* submitted on April 30, 2010.⁴ NTIA submitted a letter to the record the following week containing its compromise recommendation that respected the “importance of making spectrum available in the near-term for the development of wireless broadband systems,” but set forth some conditions “necessary to avoid causing interference to AMT...receivers.”⁵

The NTIA letter recommended OOB limits for the 2360-2390 MHz band and a coordination process with a coordination distance of 45 km or radio line-of-sight from the AMT receive site, whichever is greater, both of which the Commission accepted and included in its WCS rules. NTIA also recommended, and the Commission accepted, an addition to the language in proposed Section 27.73(a) stating that, “[t]his coordination is necessary to protect AMT receive systems consistent with Recommendation ITU-R M.1459.”⁶ These requirements, NTIA concluded, were “necessary” to protect flight test operations in light of significant concerns of interference to AMT receive sites raised by the Federal Aviation Administration and the Department of Defense.⁷

The Commission included NTIA’s proposed language verbatim in Section 27.73(a) of the WCS rules. The Commission should not now reverse itself on that

⁴ See WCS Coalition *Ex Parte* dated Apr. 30, 2010.

⁵ Letter from Karl Nebbia, Associate Administrator, Office of Spectrum Management, NTIA to Julius Knapp, Chief, Office of Engineering and Technology, FCC dated May 4, 2010 (“NTIA Letter”).

⁶ See *id.*, Enclosure 3.

⁷ See *id.*, Enclosures 1 and 2.

important compromise by retaining those portions of the NTIA recommendation that the WCS Coalition likes, while eliminating portions that the Coalition dislikes.

The NTIA letter and proposed additions to Section 27.73(a) clearly asserted the ITU-R Recommendation as the standard for interference to AMT receivers. The NTIA letter, however, also discussed factors that both WCS licensees and AMT operators could use to facilitate coordination of individual sites. For example, the NTIA letter referenced such factors to be considered to reduce interference to AMT receivers as the operational area used for flight testing, and the actual operating parameters of AMT receivers, such as antenna height and gain, minimum elevation angle, and terrain shielding.⁸ In this way, the NTIA compromise envisioned the ITU-R Recommendation as the guideline for assessing potential interference to AMT receivers, but recognized that local conditions and specific operating circumstances would be relevant for purposes of coordination.

The Commission expressly endorsed NTIA's observations regarding flexible coordination options, stating:

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.⁹

Ironically, the WCS Coalition is now attempting to use the Commission's endorsement of the flexible coordination approach described in NTIA's letter as the basis for claiming that a critical portion of NTIA's recommendation should be rejected.

⁸ See *id.* at 3; see also WCS Order, ¶ 180.

⁹ WCS Order, ¶ 184.

Specifically, the WCS Coalition argues in its Petition that the above quoted language from the WCS Order is in conflict with the specific provision in Section 27.73(a) that the NTIA saw as necessary to insert.

Far from being in conflict, the additional sentence in Section 27.73(a) provides the critical guideline for WCS licensees and AMT operators to use when implementing the flexible coordination regime that the NTIA described in its letter and the Commission endorsed in its Order. Read together, the text of the rule and the language in the Order both merely require protection of AMT receive sites consistent with the standards set forth in the ITU-R Recommendation, but taking into account local conditions and the relevant operating characteristics of both systems.

Even if the two provisions were seen as in conflict, the appropriate resolution would be to modify the explanatory statement in paragraph 184 of the Order, rather than modify the very language that the NTIA saw as necessary to be included in Section 27.73(a) to ensure the adequate protection of critical flight test operations.

The WCS Coalition further argues that leaving Section 27.73(a) as it is written will result in an “overly aggressive application of ITU-R M.1459” by AFTRCC.¹⁰ This assertion completely ignores the explicit language of Section 27.73(a), the FCC’s acknowledgement of AFTRCC’s lengthy “experience as a frequency coordinator,”¹¹ and the repeated assurances of AFTRCC and its members that they will continue to act as responsible and cooperative users of valuable public spectrum resources.

¹⁰ Petition for Partial Reconsideration of the WCS Coalition, WT Docket No. 07-293, p. 16 (filed Sept. 1, 2010) (“*WCS Coalition Petition*”).

¹¹ *WCS Order*, ¶ 183.

Section 27.73(a) clearly identifies the ITU-R Recommendation as a guideline not to be “slavishly” applied under all circumstances, but as a useful interference standard to be referenced for coordination purposes. AFTRCC has consistently held that the ITU-R Recommendation is a necessary standard by which to evaluate potential interference to AMT receive systems.¹² The Commission has also recognized the ITU-R Recommendation as the applicable standard.¹³ The ITU-R Recommendation, however, makes certain assumptions about the characteristics of a subject AMT receive antenna. If the characteristics of a specific AMT receive antenna that is to be coordinated with WCS transmitters are different, then the protection characteristics for that AMT receive antenna can be extrapolated and still be “consistent” with the ITU-R Recommendation. The same is true if the local conditions or “relevant operating characteristics” are different than those assumed.

In fact, the ITU-R Recommendation provides the flexibility within itself to consider local conditions and “relevant operating characteristics.” Annex 1 of the ITU-R Recommendation provides pfd interference levels for the protection of AMT systems. If that level is met, no coordination is necessary. If that level is not met, however, Annex 2 provides mitigation techniques that can be used to coordinate sharing.

Boeing understands that AFTRCC will use accepted engineering practices and standards, consider local conditions and relevant operating characteristics of WCS

¹² See *id.*, ¶ 178 and AFTRCC Reply Comments, WT Docket No. 07-293, p. 6 (filed Apr. 30, 2010). See also numerous *ex parte* filings referenced in the AFTRCC opposition.

¹³ See 47 C.F.R. § 25.253(f)(2) and *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket No. 01-185, IB Docket No. 02-364, 18 FCC Rcd 1962, 2050, ¶ 179 (2003).

systems and AMT systems, as well as utilize the flexibility built into the ITU-R Recommendation, to coordinate WCS protection of AMT receive systems “consistent with” the protection standard set forth in the ITU-R Recommendation. There is no tension between the language in Section 27.73(a) and the WCS Order, and therefore no reason for the Commission to reconsider the language of the rule. Further, any alteration to Section 27.73(a) would effectively dismantle the important compromise that was negotiated and developed by NTIA, a compromise that was expressly endorsed by the Commission as enabling the provision of a new generation of broadband wireless services, while continuing to protect adequately critical safety-of-life flight test operations.

III. THE COMMISSION SHOULD NOT RECONSIDER ITS DECISION TO RESTRICT WCS MOBILES AND PORTABLES USING FDD TECHNOLOGY TO THE 2305-2317.5 MHZ BAND AND BASE STATIONS TO THE 2345-2360 MHZ BAND

WCS mobile and portable transmitters using FDD technology should remain restricted to the 2305-2317.5 MHz band and base stations should be restricted to the 2345-2360 MHz band adjacent to the flight test spectrum. This is necessary to facilitate successful coordination with AMT operations. AT&T has petitioned the Commission for complete freedom to operate mobile, portable and base station transmitters using FDD technology anywhere in the WCS bands.¹⁴ Restricting WCS base station transmissions to the 2345-2360 MHz band, adjacent to the flight testing spectrum band, facilitates coordination between fixed WCS transmitters and fixed (or at least temporarily fixed)

¹⁴ See Petition for Partial Reconsideration of AT&T Inc., pp. 20-21 (filed Sept. 1, 2010) (“AT&T Petition”).

AMT receive antennas. AFTRCC simply cannot coordinate its AMT sites with mobile or portable WCS transmitters.

AT&T argues that because the rules do not impose similar restrictions on transmitters that use time division duplex (“TDD”) technology, the rules unfairly impinge on the ability of WCS licensees to use FDD technology.¹⁵ FDD technology operates by separating the transmitting frequencies from the receiving frequencies by a frequency offset. Therefore, the base stations transmit over frequencies in one portion of the band while the mobiles and portables transmit over frequencies in another portion of the WCS band. TDD technology does not separate the transmitter and receiver frequencies. Therefore, the base stations and mobiles are not spectrally separated.

The industry trend, including as referred by AT&T, is toward the Long Term Evolution (“LTE”) standard, which allows for FDD use. Therefore, although AMT operators would also have difficulty coordinating with mobile and portable transmitters using TDD technology in the 2345-2360 MHz band, it is anticipated that it is far more likely that WCS transmitters will use FDD technology. In that case, critical AMT receive sites can be better protected by: 1) requiring fixed WCS base stations using FDD technology to transmit only in the upper portion of the WCS band where they can be coordinated with AMT receive antenna sites, and 2) requiring mobile and portable transmitters that cannot be coordinated to transmit only on the lower frequencies where they will not interfere with AMT operations. In order to ensure this outcome, the Commission should reject AT&T’s Petition and maintain its WCS rules in their current form.

¹⁵ *Id.* at 21.

IV. CONCLUSION

Boeing appreciates the Commission's efforts in adopting a compromise between WCS and AMT operators to allow use of additional bandwidth for mobile broadband applications while still protecting critical, safety-of-life flight test spectrum. Boeing, as a major participant in AFTRCC, stands ready to engage in a flexible coordination process with WCS licensees. That process will consider local conditions and relevant operating characteristics to permit WCS operational flexibility while still protecting AMT receive operations consistent with Recommendation ITU-R M.1459 as required by the language of Section 27.73(a) and outlined in the language of the WCS Order.

The Commission, however, should not permit the WCS Coalition to eliminate a critical portion of that compromise by deleting the very language in Section 27.73(a) that NTIA viewed as "necessary" to protect safety-of-life flight test operations. Further, the Commission should not reconsider its decision to restrict mobile and portable WCS transmitters that use FDD technology to the lower portion of the WCS band and base station transmissions to the upper portion of the band. The flight test community can

coordinate with fixed WCS base station transmitters, but cannot coordinate with mobile or portable transmitters.

Respectfully submitted,

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October 18, 2010

Certificate of Service

I, Joshua T. Guyan, hereby certify that on this 18th day of October, 2010, I caused a copy of the Opposition of The Boeing Company to the Petitions of The WCS Coalition and AT&T Inc. to be served via U.S. first class mail on the parties listed below.

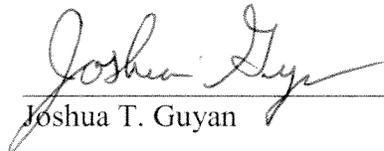
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