

June 16, 2010

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band (WT Docket No. 07-293)*

Dear Ms. Dortch:

I am writing on behalf of the WCS Coalition to request that the Commission clarify an ambiguity that has arisen because the specific rules adopted by the *Report and Order* released on May 20, 2010 in the above-referenced proceeding can be read in a manner inconsistent with the text of the *Report and Order*.¹ Specifically, the WCS Coalition asks that the Commission clarify the role that Recommendation ITU-R M.1459 (the "Recommendation") is to play as Wireless Communications Service ("WCS") licensees coordinate deployment of proposed base stations with the Aeronautical Mobile Telemetry ("AMT") representative, Aerospace and Flight Test Radio Coordinating Council ("AFTRCC"), as required by newly-adopted Section 27.73(a) of the Commission's Rules.

Paragraph 184 of the *Report and Order* states 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.*" (emphasis added). However, newly adopted Section 27.73(a) states that the coordination process with AFTRCC "is necessary to protect AMT receive systems consistent with Recommendation ITU-R M.1459." The result has been confusion as to whether WCS operations can be precluded where the Recommendation's power flux density ("PFD") benchmark of $-180 \text{ dBW/m}^2/4\text{kHz}$ is exceeded, even in those cases where the WCS licensee can show that the AMT facility nonetheless will be protected from harmful interference.

¹ Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band, *Report and Order and Second Report and Order*, FCC 10-82 (rel. May 20, 2010) ("*Report and Order*").

Marlene H. Dortch

June 16, 2010

Page 2

The problem, as the discussion preceding Paragraph 184 of the *Report and Order* establishes, is that a rote application of the Recommendation can result in the preclusion of WCS base stations that, in actuality, pose no threat of harmful interference. Two examples illustrate the problem.

First, the *Report and Order* recognizes that the Recommendation “provides the framework for conducting sharing studies between mobile aeronautical test service and the mobile satellite service.”² It was not intended for the evaluation of terrestrial interference into AMT receivers. Given that it is intended for the evaluation of interference coming from space, rather than from terrestrial sources, it is not surprising that the Recommendation fails to fully consider, among other things, the directional nature of AMT receive antennas and the critical role of the direction in which the AMT directional antenna is pointing.

Yet, the fact that AMT receivers employ a directional antenna with a limited field of view (“FOV”) is essential to any analysis of potential terrestrial interference from WCS base stations. A WCS deployment will likely consist of more than one base station with line of sight to an AMT facility. Assume, for example, a situation where there are two WCS base stations, one due east and one due 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. As illustrated by Figure 1 below, because the AMT receiver FOV will be limited (the exact FOV size being dependent upon the antenna design), the two base stations likely can be deployed without causing harmful interference since as the AMT antenna sweeps the test range, only one of the base stations will be in the AMT receiver FOV at one time. The discussion in Paragraph 184 of the *Report and Order* suggests that the directional nature of the AMT receive antenna should be considered during the coordination process so as to not unnecessarily preclude WCS deployments that are not a threat of interference. Thus, the Commission should clarify that newly-adopted Section 27.73(a) does not permit the directional nature of the AMT receive antenna to be ignored during the coordination process.

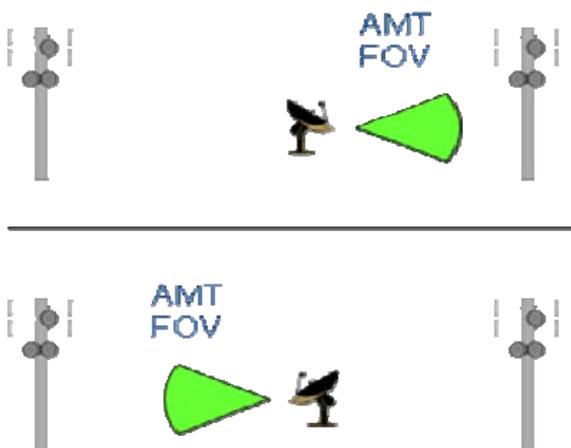


Figure 1: The AMT receiver field of view (FOV) should allow operation of multiple transmitters that are distributed in azimuth

² *Report and Order* at ¶ 184 n.458.

Marlene H. Dortch

June 16, 2010

Page 3

Second, the Recommendation is, even by its own admission, a highly conservative approach that does not necessarily reflect the vulnerability of a given AMT receiver to interference. Indeed, the Recommendation states in no uncertain terms that “telemetry stations in the aeronautical mobile service have a wide range of characteristics and some may have less stringent protection criteria values.”³ This is perhaps best illustrated by the fact that not all AMT receivers will employ antennas with a 41 dBi gain, as is assumed by the Recommendation. If, as the Recommendation suggests, a PFD of -181 dBW/m²/4kHz will provide interference protection for an AMT receiver with a 41 dBi gain antenna, then an AMT site that uses a lower-gain 20 dBi antenna may not suffer harmful interference so long as the PFD remains at or below -161 dBW/m²/4kHz. Or, put another way, where lower gain AMT antennas have been deployed, it may be that WCS base stations can exceed a PFD of -180 dBW/m²/4kHz at the AMT receiver site yet not cause harmful interference. This is illustrated by Figure 2 below. Again, Paragraph 184 of the *Report and Order* evidences the Commission’s intention that the actual gain of the AMT antenna be considered in the coordination process, and the Commission should clarify that this is the case notwithstanding that the Recommendation assumes that all AMT antennas have the same gain.

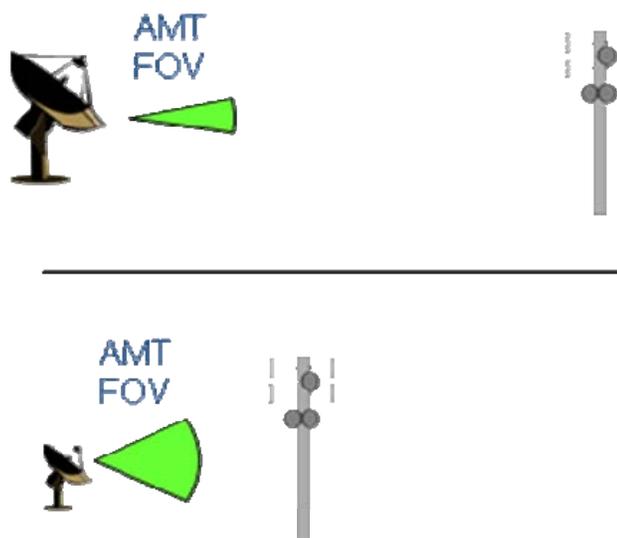


Figure 2: Protection of AMT systems with large apertures will require a lower power flux spectral density than those systems with smaller apertures. The impact will be further stand-off distances for the WCS base stations if the OOB levels of the base stations are the same

³ Recommendation ITU-R M.1459, “Protection Criteria for Telemetry Systems in the Aeronautical Mobile Service and Mitigation Techniques to Facilitate Sharing with Geostationary Broadcasting-Satellite and Mobile-Satellite Services in the Frequency Bands 1452-1525 and 2310-2360 MHz,” (2000).

Marlene H. Dortch
June 16, 2010
Page 4

Issuance of the clarification sought here will provide the WCS and AMT communities with clarity regarding the interplay between Paragraph 184 and newly-adopted Section 27.73, which should facilitate the coordination process that will have to be completed prior to deployment of many WCS base stations.

Pursuant to Sections 1.1206(b)(1) and 1.49(f) of the Commission's Rules, this letter is being filed electronically with the Commission via the Electronic Comment Filing System. Should you have any questions, please contact the undersigned.

Respectfully submitted,

/s/ Paul J. Sinderbrand

Paul J. Sinderbrand
Counsel to the WCS Coalition

cc: Ruth Milkman
Julius Knapp
Mindel De La Torre
Linda Chang
Richard Arsenault
Ronald Repasi
Stephen Duall