

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

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DEC 28 1998

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
)  
Amendment of Parts 21 and 74 To Enable ) MM Docket No. 97-217  
Multipoint Distribution Service and )  
Instructional Fixed Television Fixed ) File No. RM-9060  
Service Licensees To Engage In Fixed )  
Two-Way Transmissions )

**PETITION FOR RECONSIDERATION**

QUALCOMM Incorporated  
2000 K Street, N.W., Suite 375  
Washington, DC 20006  
(202) 530-3920

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## TABLE OF CONTENTS

I.	INTRODUCTION. ....	1
II.	DISCUSSION. ....	4
	A. The Commission Should Modify The Rules Designed To Protect Against Block Downconverter Overload To Reflect The Minuscule Risk Of Overload From A Response Station Operating With An Omnidirectional Antenna And An EIRP Of -6 dBW. ....	7
	B. The Commission Should Eliminate Obsolete Requirements That MDS Reception Antennas And ITFS Transmission Antennas Be Directional. .....	12
	1. The Commission Should Repeal The Obsolete 1974 Requirement That MDS Reception Antennas Be Directional. .	14
	2. The Commission Should Amend Section 74.937(b) To Eliminate Any Question Regarding The Propriety Of Non-Directive Response Station Transmission Antennas. ....	18
III.	CONCLUSION. ....	19

## EXECUTIVE SUMMARY

QUALCOMM recently demonstrated a new, high data rate ("HDR") wireless technology that performed wireless data transmission over a cdmaOne™ wireless system at rates in excess of 1.5 Mbps. Although this new HDR wireless technology has been designed specifically to work with existing cdmaOne™ networks, it can easily be adopted to a wide variety of networks such as those used by MDS/ITFS service providers. Because an HDR-capable subscriber unit leverages the same components as a voice phone, its cost will reflect the economies of scale of the millions of CDMA phones that have been shipped to date.

QUALCOMM believes that the MDS/ITFS spectrum is ideally suited for the provision of high-speed data services using HDR technology. However, if the promise of high-speed data services over MDS/ITFS spectrum is to be fully met, the Commission must revise certain rules adopted in the Order, as well as a few obsolete rules of older vintage. These rules prevent the retail distribution of low-power response stations with integrated non-directive antennas that could be purchased and installed by consumers without unnecessary regulatory burden or delay. Specifically, the Commission should: (a) modify the rules designed to protect against block downconverter overload to reflect the minuscule risk of overload from a response station operating with an omnidirectional antenna and an EIRP of -6 dBW; and (b)

eliminate obsolete requirements that MDS reception antennas and ITFS transmission antennas be directional.

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**PETITION FOR RECONSIDERATION**

QUALCOMM Incorporated ("QUALCOMM") hereby petitions the Commission pursuant to Section 1.429(a) of the Rules to reconsider the September 25, 1998 Report and Order (the "Order") in this proceeding.<sup>1/</sup> Specifically, QUALCOMM urges the Commission to revise certain of the rules adopted in the Order relating to Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") response stations, as well as a few tangentially related rules. These revisions will permit the retail distribution of low-power response stations that can be purchased and installed by consumers without unnecessary regulatory burden or delay.

**I. INTRODUCTION.**

Headquartered in San Diego, California, QUALCOMM develops, manufactures, markets, licenses and operates advanced communication systems and products based

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<sup>1/</sup> Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service And Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, FCC 98-231, MM Docket No. 97-217 (rel. Sept. 25, 1998) [hereinafter cited as "Order"].

on its proprietary digital wireless technologies. The Company's primary product areas are the OmniTRACS<sup>®</sup> system (a geostationary satellite based, mobile communications system providing two-way data and position reporting services), CDMA wireless communications systems and products and, in conjunction with others, the development of Globalstar<sup>™</sup> low-earth-orbit (LEO) satellite communications system. Other Company products include the Eudora Pro<sup>®</sup> electronic mail software, ASIC products, and communications equipment and systems for government and commercial users worldwide.

In September, 1998, at the PCS '98 trade show in Orlando, Florida, QUALCOMM successfully demonstrated a new, high data rate ("HDR") wireless technology that performed wireless data transmission over a cdmaOne<sup>™</sup> wireless system at rates in excess of 1.5 megabits per second ("Mbps"). Although this new HDR wireless technology has been designed specifically to work with existing cdmaOne<sup>™</sup> networks, it can easily be adopted to a wide variety of networks such as those used by MDS/ITFS service providers. HDR technology will enable service providers worldwide to offer evolved, high-speed data services, with peak data rates greater than 1.5 Mbps, enhancing their investment in current networks.

Because an HDR-capable subscriber unit leverages the same components as a voice phone, its cost will reflect the economies of scale of the millions of CDMA phones that have been shipped to date. Operating within standard spectrum allocations, HDR provides wireless operators the ability to deploy cost-effective, high-

speed wireless Internet access. The HDR initiative is part of QUALCOMM's overall strategy to provide the market with a variety of innovative solutions that will continue to advance the capabilities of rapidly growing wireless systems worldwide.

HDR technology is approximately five to six times more spectrally efficient for data than cdmaOne, today's most spectrally efficient wireless technology. HDR delivers more efficient Internet access, email, data transfers, and messaging applications while handling multimedia applications such as audio and video file transfers that require high data transfer speeds.

QUALCOMM believes that the MDS/ITFS spectrum is ideally suited for the provision of high-speed data services into residential areas. As the Commission is well aware, there is growing demand among residential consumers for higher speed access than that provided by dial-up modem services (with their maximum rate of 56 kbps). As was recognized in the Office of Plans & Policies seminal working paper, Digital Tornado: The Internet and Telecommunications Policy, "[t]he Internet is only useful to people if they are able to access it, and the value of the Internet is, to an increasing extent, dependent on the level of bandwidth available to end users."<sup>2/</sup> The Order has it absolutely correct when it concludes that the new rules adopted by the Commission hold the promise of "significant benefits to consumers" because "[a] new, competitive

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<sup>2/</sup> Werbach, "Digital Tornado: The Internet and Telecommunications Policy," OPP Working Paper 29, at 73 (March 1997).

group of players will now enter the market for high speed two-way communications service."<sup>3/</sup>

If the promise of high-speed data services over MDS and ITFS is to be fully met, however, the Commission must revise certain rules adopted in the Order, as well as a few obsolete rules of older vintage. As will be discussed below, these rules prevent the retail distribution of low-power response stations with integrated non-directive antennas that could be purchased and installed by consumers without unnecessary regulatory burden or delay. The rule changes QUALCOMM seeks can be implemented without undermining the policy objectives underlying the specific rules at issue.

## II. DISCUSSION.

As the Commission considers this filing, it must not forget that those who will utilize the MDS and ITFS spectrum to provide commercial services to the public will not be operating in a vacuum. Indeed, the Order specifically recognizes that:

MDS operators also face challenges posed by the convergence of different information delivery systems. For example, the cable operators with which MDS operators compete previously operated as providers of one-way video programming, but now are increasingly providing a variety of two-way services, including Internet access. As has been discussed in the press and as we noted in the *1997 Competition Report*, other services, including direct broadcast satellite ("DBS") . . . are also moving toward the provision of Internet services. The MDS industry will need to be able to offer comparable, competitively-priced services to compete against these players.<sup>4/</sup>

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<sup>3/</sup> Order, at Par. 9.

<sup>4/</sup> Order, at Par. 8 (emphasis added).

The underscored language is most certainly correct – and that is why the relief being requested by QUALCOMM must be granted.

As the Commission is aware, the DBS industry has long made its equipment available through retail outlets in a manner that permits the consumer to purchase that equipment, take it home, install it, and begin enjoying service within a matter of hours.<sup>5/</sup> That distribution model not only provides consumers instant access to the myriad of video options available from DBS operators, but also is used to provide DirecTV's high-speed Internet access service, DirecPC.<sup>6/</sup> Indeed, the DBS retail distribution model has proven so successful it is being cloned by the cable industry for the distribution of the cable modems required for consumers to secure high-speed Internet access services from their cable operators. Already, subscribers to some cable systems are able to purchase cable modems at Best Buy, Circuit City and other retail outlets, bring them home and connect them to their cable system for instant access to high-speed data

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<sup>5/</sup> Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, 13 FCC Rcd 1034, 1075 (1997)[hereinafter cited as "1997 Video Competition Report"]

<sup>6/</sup> Id. ("DIRECTV's affiliate, is retailing the DIRECPC's Internet service through consumer electronics stores to compete with the cable industry's deployment of high speed cable modems"); In the Matter of Implementation of Section 207 of the Telecommunications Act of 1996; Restrictions on Over-the-Air Reception Devices: Television Broadcast Service and Multichannel Multipoint Distribution Service, CS Docket No. 96-83, FCC 98-214, 13 Comm. Reg. (P & F) 732, at n.145 (rel. Sept. 25, 1998). See also "From Hype to Reality," Remarks of FCC Commissioner Susan Ness before the Wall Street Journal Technology Summit (New York, NY, October 15, 1997).

services.<sup>7/</sup> Indeed, it has been reported that Cablevision's purchase of the Nobody Beats The Wiz consumer electronics chain for approximately \$100 million was largely driven by its desire to promote the sale of cable modems to its cable subscribers in the New York tri-state area.<sup>8/</sup>

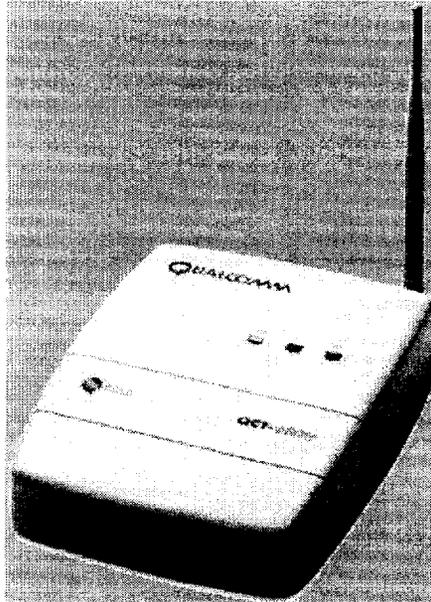
In the Commission's own words – “[t]he MDS industry will need to be able to offer comparable . . . services to compete against these players.” There is no reason, other than the Commission rules which are the subject of this filing, that MDS and ITFS spectrum cannot be employed to offer high speed data services comparable to those offered by DBS and cable system operators. For that to occur, however, MDS/ITFS service providers must be able to take advantage of retail distribution channels in the same markets as their competitors. To this end, QUALCOMM is developing a relatively small device that the consumer will be able to purchase at retail outlets and connect to his or her computer, much as the consumer would connect a modem, to secure instant wireless access to the Internet. This device will include an integrated non-directional antenna, rather than the directive roof-top antenna traditionally used at MDS/ITFS

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<sup>7/</sup> Indeed, in its recent Report and Order in CS Docket No. 97-80, the Commission essentially mandated such a distribution channel when it ruled that cable modems are navigation devices under Section 304 of the Telecommunications Act of 1996. Thus cable operators cannot restrict the retail sale of such devices or their connection to the cable system unless the network would be harmed. See Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, CS Docket No. 97-80, FCC 98-116, at Par. 25 (rel. June 24, 1998).

<sup>8/</sup> See Weinschenk, “Coming Soon: Megastores for Megamodems,” at [http://www.teledotcom.com/0398/headend/tdc0398headend\\_retail.html](http://www.teledotcom.com/0398/headend/tdc0398headend_retail.html).

subscriber locations, and will transmit with an EIRP of no more than -6 dBW. A prototype of the proposed HDR equipment is illustrated below:



This device will be designed specifically so that it can be sold at retail establishments like CompUSA, Best Buy, Circuit City, Wal-Mart or Radio Shack right alongside DirecPC satellite dishes and cable modems, and installed by the consumer, providing instant access to high-speed data services. But that cannot occur until certain of the Commission's rules are revised.

- A. The Commission Should Modify The Rules Designed To Protect Against Block Downconverter Overload To Reflect The Minuscule Risk Of Overload From A Response Station Operating With An Omnidirectional Antenna And An EIRP Of -6 dBW.**

The new rules adopted in the Order placed two significant impediments in the path to retail distribution of low power MDS/ITFS response stations such as those

contemplated by QUALCOMM. First are the parallel provisions of newly-adopted Sections 21.909(k), and 74.939(m), which require that MDS and ITFS response stations be installed by the licensee of the associated response station hub, its employees or its agents, and that the hub licensee maintain detailed records regarding the installation. These provisions directly preclude a retail distribution model that relies upon consumer installation of the response station and thus prevents MDS/ITFS system operators from providing service on a basis comparable to those high-speed Internet access services offered by DBS and cable.<sup>9/</sup>

Second are the parallel provisions of Sections 21.909(n) and 74.939(p), which mandate that no MDS or ITFS response station can be installed within 1960 feet of a registered ITFS receive site until the hub licensee has given written notice by certified mail to the licensee of that ITFS receive site of the technical details of the proposed installation, and 20 days have passed. As a practical matter, this requirement effectively precludes a retail distribution strategy, for consumers who can secure expedited access to DirecPC, cable modem service or other alternatives are unlikely to accept the delays in securing MDS/ITFS service inherent in these rules.<sup>10/</sup> While

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<sup>9/</sup> In addition, the requirement that hub licensees maintain such detailed information as the antenna height of each response station is inconsistent with the retail model QUALCOMM contemplates. While the licensee of the hub will be able to determine where the response station is located, and will know the maximum EIRP, emission, bandwidth, antenna pattern, orientation and polarization at which it will be operating, it is unrealistic to expect consumers to know.

<sup>10/</sup> Moreover, it is unlikely that a consumer who was willing to accept the 20 day delay could give the service provider the information necessary to provide the requisite

QUALCOMM can appreciate the regulatory purposes behind these rules where response stations operating on the order of +33 dBW (or 2000 watts) EIRP are being installed, the rules are unnecessary where response stations are operating with omnidirectional transmission antennas and power levels of -6 dBw EIRP or less.

Under the Commission's rules, a response station may operate with an EIRP as high as +33 dBW.<sup>11/</sup> However, the Commission itself has acknowledged that "[a]s a practical matter, we do not expect that all, or even most, response stations will use the maximum power permitted."<sup>12/</sup> The problem, however, is that the rules which effectively preclude the retail distribution and customer installation of low power response stations with omnidirectional antennas were all designed to address the potential for interference from response stations operating at or near maximum power with directional antennas.

The Commission explained its finding that response stations should not be installed by consumers as follows: "[g]iven the interference environment in which response stations will operate, we do not believe it would be prudent to permit them to be installed by nonprofessionals with no knowledge of the protection requirements for

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notice to the ITFS licensee. Thus, the service provider would be required to send a technician to the customer's location to determine the information necessary to provide the notice, an added cost which defeats one of the purposes of retail distribution.

<sup>11/</sup> See Order at Par. 53.

<sup>12/</sup> Id.

nearby ITFS receive sites.”<sup>13/</sup> The special interference protection requirements applicable to ITFS receive sites are Sections 21.909(n) and 74.939(p), which mandate that no MDS or ITFS response station can be installed within 1960 feet of a registered ITFS receive site until the hub licensee has given written notice by certified mail to the licensee of that ITFS receive site of the technical details of the proposed installation, and 20 days has passed.

Those rules were designed to address concerns that had been raised during the proceeding by the Catholic Television Network (“CTN”) regarding the possibility that, under rare circumstances, a response station located near an ITFS receive site operating at high power levels might overload the front end of a nearby ITFS downconverter and cause interference. Whatever the merit of the rules designed to control the potential for overload when applied to a response station transmitting at or near the maximum permissible EIRP level of +33 dBW,<sup>14/</sup> those requirements are

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<sup>13/</sup> Id. at Par. 52.

<sup>14/</sup> It is worth noting that most of the ITFS licensees that commented on the Petitioners’ proposed rules for addressing block downconverter overload (which did not include the provisions QUALCOMM seeks to have altered) favored those rules over the more draconian proposals presented by CTN. See Comments of the University of North Carolina, at 2 (filed July 2, 1998)(“The Petitioners’ proposal is highly protective against interference, and the burdensome proposal of CTN will impose costs far greater than the minuscule benefits of additional protection.”); Comments of George Mason University Instructional Foundation, Inc., at 5 (filed July 2, 1998)(“having reviewed the Petitioners’ proposals, we believe that they fully protect our educational objectives and adequately address the legitimate concerns raised by educators.”); Comments of NJN Public Television and Radio, at 1 (filed July 2, 1998)(“the interference protection rules and policies proposed by the Petitioners in their ex parte filings fully protect our interests”); Comments of Valley Lutheran High School, at 2 (filed July 2, 1998)(“We

excessive when the response station will be operating with a maximum EIRP of -6 dBW.<sup>15/</sup>

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believe that the Petitioners' proposed interference protection rules and policies provide adequate protection of the ITFS interests and urge adoption of the proposals."); Wilson Technical Community College, at 1 (filed July 2, 1998)("Wilson believes that the Petitioners are to be applauded for crafting a regulatory approach that deftly balances the pressing need for expedited processing of applications and the deployment of new services against the requirement for reasonable protection against interference"); Comments of Pitt Community College, at 1 (filed July 2, 1998)("Pitt believes that the Petitioners' proposed interference protection rules and policies are fully protective of our interests, and we support their adoption."); Comments of Vance-Granville Community College, at 1-2 (filed July 2, 1998); Comments of Humanities Instructional TV Educational Center, Inc., at 1 (filed July 2, 1998)("We urge the Commission's adoption of Petitioner's proposals."); Comments of Indiana Higher Education Telecommunication System, at 1 (filed July 2, 1998)("Since the Petitioners' proposed interference protection rules and policies provide adequate protection of the ITFS interests, adoption of the proposals would serve the public interest."); Comments of UT/TV Houston, at 1 (filed July 2, 1998)("the Petitioners' proposed interference protection rules and policies provide adequate protection of the ITFS interests."); Comments of Region IV Education Service Center, at 3 (filed July 2, 1998)("the Petitioners' proposal fully protect our educational objectives and adequately address the legitimate concerns raised by educators.").

<sup>15/</sup> It does not appear that the Commission intended for the professional installation requirement to also guard against possible consumer misalignment of the response station antenna, since the group of over 110 parties who filed the petition for rulemaking that commenced this proceeding effectively demonstrated that a response station cannot operate when misaligned. See Reply Comments of Petitioners, at 53 n.133 (filed Feb. 9, 1998). Moreover, that concern is totally inapplicable when it comes to omnidirectional response station antennas, since by definition they cannot be misaligned. Of course, in applying for a response station hub that will communicate with response stations that transmit omnidirectionally the applicant will have to demonstrate that the omnidirectional transmissions from all simultaneously operating response stations will not cause interference. Furthermore, it should be noted that if QUALCOMM's proposal is adopted, an applicant for a response station hub who contemplates supporting retail distribution of response stations will have to designate the height of the tallest building in the response service area as the maximum height at which a response station will be installed for that class of response stations, and perform its interference calculations accordingly under the methodology set forth as

This can be illustrated by simply calculating the potential for ITFS downconverter overload when a response station transmits at -6 dBW EIRP. For purposes of this analysis, QUALCOMM has assumed a worst case scenario -- that the response station and the registered ITFS receive site are co-polarized, that the antennas of the two facilities are mounted at the same height, and that there is free space between the two antennas (i.e., that there are no walls, foliage, terrain, or other obstructions limiting the strength of the response station signal).

For comparative purposes, examine the potential for overload of a California Amplifier ("CalAmp") Model 130001 32 dB gain 31-channel downconverter -- the model that CTN employed in its analyses.<sup>16/</sup> Attached hereto is a letter from CalAmp confirming that the maximum input level for that downconverter is at least -24 dBm for a combination of 30 NTSC and/or digital signals. CalAmp confirms that where a response station transmits at -6 dBW (24 dBm) utilizing an entire 6 MHz channel, the receive carrier level of the response station signal will be -26 dBm at a distance of just 100 feet (24 dBm EIRP - 70 dB free space path loss + 20 dBi receive antenna gain). That level is 2dB below the allowable maximum input level of the downconverter.

As a result, the rule provisions designed to protect registered ITFS receive sites from overload are clearly unnecessary when a response station operates with an EIRP

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Appendix D to the Report and Order.

<sup>16/</sup> See, e.g. Comments of Catholic Television Network, Joint Engineering Statement, at Par. 4 (filed Jan. 8, 1998).

of -6 dBW or lower. QUALCOMM must stress that it does not suggest that response hub licensees utilizing low power response stations be excused from their obligations under Sections 21.909(g)(8) and 74.939(g)(8) to cure interference caused by downconverter overload. However, given the remote risk of such interference from a low power response station, QUALCOMM urges the Commission: (i) to define a new class of response station called "low power response station" which would apply to any response station operating with an omnidirectional antenna and transmitting with an EIRP of no more than -6 dBW; (ii) to modify Sections 21.909(k) and 74.939(m) to eliminate the requirement that a low power response station be professionally installed and subject to detailed record-keeping requirements; and (iii) to modify Sections 21.909(n) and 74.939(p) to eliminate the requirement that the licensee of a registered ITFS receive site located within 1960 feet must be given 20 days advance notice before the installation of a low power response station.

**B. The Commission Should Eliminate Obsolete Requirements That MDS Reception Antennas And ITFS Transmission Antennas Be Directional.**

As the Commission has no doubt gathered, a critical component of the low power response station QUALCOMM contemplates is the integrated non-directional antenna. This is so for several reasons. First, QUALCOMM believes that in order to gain widespread consumer acceptance, an MDS/ITFS-delivered high-speed Internet access service must avoid requiring consumers to install an antenna outside their home. Although wireless cable operators have made substantial progress in improving the

aesthetics of their outdoor antennas, there is still consumer resistance to the installation of outside antennas. Moreover, consumers lacking the confidence or skills to mount an outdoor antenna will gravitate towards cable modem service if MDS/ITFS service requires outdoor antennas. Second, in order to be installed indoors, the device must be small and unobtrusive on the desktop, with a size and shape on the order of a cordless telephone. In order to achieve that design goal, the integrated antenna must be non-directive; a directive antenna would necessarily be larger. Third, a directional antenna integrated to a desktop device would be difficult to maintain in alignment with the response station, for it would be subject to the normal jostling and movement of any object on an active desktop.

Unfortunately, there are several Commission rules that, as presently written, appear to preclude the use of non-directive response station antennas, despite the fact that such antennas are accommodated under the rules specifically adopted in the Order. The only restriction adopted in the Order on the directivity of the antenna of a response station associated with a response station hub license is that it must be no less directional than the worst case outer envelope pattern specified in the application for the response station hub for the regional class of characteristics with which the response station is associated.<sup>17/</sup> Each of those rules is discussed below.

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<sup>17/</sup> See 47 C.F.R. §21.909(g)(4); 47 C.F.R. §74.939(g)(4). By contrast, when a response station is individually licensed on a point-to-point basis pursuant to Section 21.940 or Section 74.940, a directive transmission antenna is required. See 47 C.F.R. § 21.940(e); §74.940(e).

1. *The Commission Should Repeal The Obsolete 1974 Requirement That MDS Reception Antennas Be Directional.*

To permit low power response stations of the type QUALCOMM contemplates, the Commission must eliminate an ancient rule, Section 21.906(d), which requires that MDS receive antennas be directional.<sup>18/</sup> At the outset, this rule cannot be squared with Section 21.906(a), which indicates a preference for the use of omnidirectional transmission antennas in the MDS, or Section 21.909(g)(4).<sup>19/</sup> Since response stations generally will utilize a common antenna for transmissions and reception,<sup>20/</sup> continued retention of the directional reception antenna requirement will, for all practical purposes,

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<sup>18/</sup> The ITFS parallel rule, Section 74.937(a), recommends the use of directional receive antennas, but does not require their use. As the Commission recognized when it adopted the language of Section 74.937(a) in 1963:

Directive receiving antennas are a most effective tool in reducing interference because they may be designed and installed so as to enhance a wanted signal and discriminate against an unwanted interfering signal. While the rules adopted herein do not require the use of directive receiving antennas our efforts to provide interference-free reception to licensees will assume that full use is made of directional receiving antennas where necessary. Users who are unwilling to install good directive receiving antennas must accept interference which results from the use of a less effective receiving antenna.

Amendment of Parts 2 and 4 of the Commission Rules and Regulations to Establish a New Class of Educational Television Service for the Transmission of Instructional and Cultural Material to Multiple Receiving Locations on Channels in the 1990-2110 Mc/s or 2500-2690 Mc/s Frequency Band, 39 F.C.C. 846, 856 (1963).

<sup>19/</sup> See supra note 17.

<sup>20/</sup> See Reply Comments of Petitioners, at 88 (filed Feb. 9, 1998).

override the Commission's recent decision to permit MDS response stations to employ omnidirectional transmission antenna.

Moreover, the rule requiring MDS licensees to employ directional reception antennas has outlived its regulatory usefulness. Section 21.906(d) dates back to the Commission's 1974 Report and Order in Docket No. 19493 – the proceeding in which MDS was first created.<sup>21/</sup> Unfortunately, it is difficult to determine with precision the intent of Section 21.906(d), while the language of the rule itself requires the use of directive reception antennas, the text of the Report and Order specifically rejects proposals to impose minimum directivity requirements and instead holds that that “minimum receiving antenna standards are not necessary for all carriers.”<sup>22/</sup> Instead, the text of the Report and Order warns MDS licensees that some may be required to utilize higher performance antennas in order to avoid receiving interference from other stations.<sup>23/</sup> Thus, the text of the Report and Order reads as if the Commission's intention for MDS was to adopt a rule similar to that adopted a decade earlier for ITFS – the licensee can use non-directive reception antennas, but does so at its own risk of suffering interference.<sup>24/</sup>

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<sup>21/</sup> See Amendment of Parts 1, 2, 21, and 43 of the Commission's Rules and Regulations to Provide for Licensing and Regulation of Common Carrier Radio Stations in the Multipoint Distribution Service, 45 F.C.C.2d 616, 634 (1974).

<sup>22/</sup> Id. at 624-25.

<sup>23/</sup> See id.

<sup>24/</sup> See supra at note 18.

For present purposes, QUALCOMM will assume that the language of the rule was not an inadvertent error, but instead was intended to mandate some measure of directivity in MDS reception antennas. One can speculate that the rule was intended to prevent MDS licensees from deploying omnidirectional reception antennas that would be unduly prone to interference in order prevent the licensing of cochannel stations in nearby markets. In 1974, the Commission had not yet adopted any cochannel interference protection standards – an applicant for a new MDS facility was required to demonstrate non-interference to cochannel licensees, but what constituted cochannel interference was judged on a case-by-case basis utilizing the actual facilities (including reception antennas) deployed.<sup>25/</sup> Thus, the Commission could have had a legitimate fear that, absent some restriction, omnidirectional reception antennas might have a preclusive effect on cochannel deployments because they are more prone to interference.

That fear, however, was rendered moot by the adoption of a new interference protection scheme for MDS in the 1984 First Report and Order in Gen. Docket No. 80-113. By 1980, the Commission had recognized that its “lack of definition as to what constitutes harmful interference and what degree of protection a licensee will be

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<sup>25/</sup> The closest the Commission came to an interference protection rule was its statement that “[u]nder normal application processing policies, and absent other positive information to the contrary, it is presumed that a proposed station within 25 miles of another station would create harmful interference but that two stations located 50 miles or more apart would not.” Id. at 620 n.9.

afforded [had] made it difficult to deal with allegations of harmful interference in a uniform matter.”<sup>26/</sup> Thus, the Commission commenced Gen. Docket No. 80-113 to develop interference protection standards. In its 1984 First Report and Order in that docket, the Commission adopted a new approach, which continues in effect today, under which the interference protection an MDS licensee receives is no longer based on the actual antennas deployed in the field. Instead interference protection is based on the regulatory assumption that all receive sites within a protected service area employ the “reference antenna” defined at Section 21.902(f)(3) of the rules.<sup>27/</sup> While MDS licensees are free to use less directive antennas, those choosing to do so are at risk, since interference protection is calculated based on the directive reference antenna.<sup>28/</sup>

Note that QUALCOMM is not requesting any change in the Commission’s long-standing approach to awarding MDS licensees protection against interference; while

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<sup>26/</sup> Amendment of Parts 2, 21, 74 and 94 of the Commission Rules and Regulations With Regard to Technical Requirements Applicable to the Multipoint Distribution Service, the Instructional Television Fixed Service and the Private Operational-Fixed Service (OFS), 45 Fed. Reg. 29,350, 29,351 (May 2, 1980)[hereinafter cited as “Gen. Docket No. 80-113 NPRM”].

<sup>27/</sup> See Amendment of Parts 2, 21, 74 and 94 of the Commission Rules and Regulations With Regard to Technical Requirements Applicable to the Multipoint Distribution Service, the Instructional Television Fixed Service and the Private Operational-Fixed Service (OFS), 98 F.C.C.2d 68, 83 (1984).

<sup>28/</sup> See Gen. Docket No. 80-113 NPRM, 45 Fed. Reg at 29,353 (use of reference antenna “would allow the licensee to use any type of receive antenna desired, but for interference protection purposes, he would be considered to be using a specified reference antenna.”).

QUALCOMM is proposing that a response station be permitted to use a non-directional reception antenna, such a response station would only be entitled to interference protection based on the performance characteristics of the directive reference antenna set forth in Section 21.902(f)(3). Thus, amendment of Section 21.906(d) to eliminate the requirement of directive reception antennas will not have any preclusive impact on the licensing of cochannel stations.

2. *The Commission Should Amend Section 74.937(b) To Eliminate Any Question Regarding The Propriety Of Non-Directive Response Station Transmission Antennas.*

Section 74.937(b) of the Commission's Rules suggests that non-directive ITFS response station transmission antennas may be banned, despite the language of newly-adopted Section 74.939(g) to the effect that a response station can use a non-directive transmission antenna so long as the interference analyses supporting the associated response hub application took that pattern into account. Specifically, Section 74.937(b) provides that "except as set forth in §74.931(e)(7), directive transmitting antennas shall be used whenever feasible so as to minimize interference to other licensees." While Section 74.931(e)(7) permits the use of omnidirectional transmission antennas by licensees engaged in leasing (and thus would permit a non-directional response station antenna where the device is used to provide a commercial service), the Commission can eliminate ambiguity and assure that ITFS licensees who do not engage in leasing can deploy non-directive response station antennas by amending the rule to read "except as set forth in §74.931(e)(7) and §74.939(g)(4),

directive transmitting antennas shall be used whenever feasible so as to minimize interference to other licensees.” (New language in italics).

### III. CONCLUSION.

With the Order, the Commission has taken a significant first step towards making MDS and ITFS spectrum available to meeting the Nation’s ever-increasing demand for high-speed data services. Unfortunately, the Order adopts a “one size fits all” approach to overload interference protection, imposing onerous restrictions designed to protect against +33 dBW EIRP response stations when most response stations will operate at far lower power levels. QUALCOMM submits that the better course is to adopt specific rules applicable to lower power response stations which provide far greater flexibility than is afforded their higher power brethren. Adoption of the rule changes proposed above will spur the deployment of high-speed Internet access services over MDS and

ITFS by allowing consumers to secure rapid access to those new services, while at the same time minimizing any risk of downconverter overload.

Respectfully submitted,

QUALCOMM Incorporated

By: Kevin J. Kelley  
Kevin J. Kelley  
Senior Vice President External Affairs

QUALCOMM Incorporated  
2000 K Street, N.W., Suite 375  
Washington, DC 20006  
(202) 530-3920

December 28, 1998

**ATTACHMENT**

California  Amplifier

460 Calle San Pablo  
Camarillo, CA 93012

12/21/1998

Magalie Roman Salas  
Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

Re: *MM Docket No. 97-217*

Dear Ms. Salas:

I am writing in support of the accompanying petition for reconsideration of the rules recently adopted in this proceeding to address the possibility of downconverter overload by a nearby response station.

California Amplifier has specifically examined the possibility of overload of our Model 130001 downconverter. The maximum input level for this downconverter is at least -24 dBm for a combination of 30 NTSC and/or digital signals. Where a response station transmits at -6 dBW (24 dBm) utilizing an entire 6 MHz channel, the receive carrier level of the response station signal will be -26 dBm at a distance of just 100 feet (24 dBm EIRP - 70 dB free space path loss + 20 dBi receive antenna gain). That level is 2dB below the allowable maximum input level of the downconverter.

Sincerely,  
California Amplifier, Inc.



Nader Barakat  
MMDS Product Line Manager