

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

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FEDERAL COMMUNICATIONS COMMISSION  
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In the Matter of )  
 )  
Amendment of Parts 74, 78, and 101 )  
of the Commission's Rules to )  
Adopt More Flexible Standards for )  
Directional Microwave Antennas )

ET Docket No. 96-35

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To: The Commission

COMMENTS

In the above-captioned Notice of Proposed Rule Making ("NPRM"), the Commission proposes modifying its fixed point-to-point microwave service rules.<sup>1</sup> Pursuant to Section 1.415 of the Commission's Rules,<sup>2</sup> Alcatel Network Systems, Inc. ("ANS"),<sup>3</sup> by its attorney, hereby comments on the NPRM.

The Commission currently limits the beamwidth of fixed point-to-point links in a given area "by specifying mandatory minimum acceptable antenna gain requirements."<sup>4</sup> Compliance with these requirements is difficult for users employing directional antennas incorporating new design technologies

<sup>1</sup>NPRM at para. 1.

<sup>2</sup>47 C.F.R. Section 1.415 (1996).

<sup>3</sup>ANS is a wholly-owned subsidiary of Alcatel Alsthom ("Alcatel"), one of the world's largest corporations (with annual sales in excess of \$30 billion) and the world's largest manufacturer and supplier of telecommunications equipment. In particular, Alcatel is the world's largest independent manufacturer and supplier of microwave radios. Formerly Collins Radio and Rockwell International, ANS, with over \$750 million in annual sales, is a world leader in manufacturing microwave and light wave transmission systems. ANS' equipment is used for a wide range of services, including short, medium and long-haul voice, video and data transmission. Its microwave customers include all the Bell Operating Companies, most major independent telephone companies, cellular operators, power and other utility companies, oil companies, railroads, industrial companies, and state and local government agencies.

<sup>4</sup>NPRM at para. 2.

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(e.g., planar arrays) even though these antennas "can achieve sufficiently narrow beamwidths to comply with the intent" of the rules.<sup>5</sup>

To accommodate these new antenna designs, the Commission, in the NPRM, proposes amending its rules to:

allow directional antennas to comply with requirements for either minimum antenna gain or maximum beamwidth. We do not propose to change any of the existing requirements with respect to sidelobe suppression because we believe that these requirements, which are designed to reduce potential interference, can readily be met by both conventional and new antenna technologies. We propose to convert the present antenna gain requirements to the comparable requirements for antenna beamwidths based on two assumptions: (1) a parabolic ("dish") antenna with an efficiency of 55% is used as a reference; and (2) the illumination function taper value is 70.<sup>6</sup>

#### **ANS SUPPORTS THE PROPOSED RULES UNDER CERTAIN CONDITIONS**

The Commission's proposed rules generally are appropriate to accommodate emerging technologies. Nevertheless, as detailed herein, certain conditions must be met to ensure that these rules serve the public interest. First, existing sidelobe suppression criteria must be maintained. Second, rules must be adopted to maintain the requirement that applicants provide antenna specific information, including radiation patterns where required, in prior coordination notices ("PCNs") and applications. Third, the Commission must change its specifications for 10 GHz band antennas to accommodate PCS and other emerging wireless network requirements.

##### **A. Sidelobe Suppression Specifications.**

In its comments to be filed contemporaneously herewith, the Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association ("TIA"), generally supports adoption of the rules in the NPRM. However, TIA also asserts that the Commission must

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<sup>5</sup>NPRM at para. 4.

<sup>6</sup>NPRM at para. 6 (footnotes omitted). These values are depicted in Table I of the NPRM.

maintain sidelobe suppression specifications at their current level to ensure that manufacturers and existing users would not be required to change their operations. ANS concurs with TIA that the current sidelobe suppression requirements must not be changed.

**B. Antenna Specific Information.**

In the NPRM, the Commission recognizes that some new antenna designs, such as planar arrays, may have beam shapes that vary from conventional antennas. It proposes a requirement that frequency coordinators treat every antenna as if its radiation mask were identical to a "conventional" parabolic dish antenna.<sup>7</sup>

The National Spectrum Managers Association ("NSMA"), in its comments on the NPRM, opposes this Commission proposal to use a "default" antenna pattern. Instead, NSMA urges the Commission not to deviate from its current rules, which require that applicants always provide proper reference to actual radiation pattern information in PCNs and applications. NSMA asserts that these requirements should be maintained for all types of antennas proposed with respect to a given deployment.

ANS supports NSMA's position. It is essential that frequency coordinators have actual antenna radiation mask data available to ensure accuracy in interference computations and to maximize spectral efficiency. If PCNs specify a "default" antenna pattern(s) based on the antenna performance standards set forth in the Commission's rules, as proposed in the NPRM, less accurate computations and inefficient use of scarce spectrum would result.

**C. Specifications for 10 GHz Band Antennas.**

Under the current antenna standards for the 10 GHz band, 2 foot Category A and Category B antennas are permitted. These antennas must have a minimum 3 dB beamwidth of 3.4 degrees and a minimum antenna gain of 34 dB.

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<sup>7</sup>NPRM at para. 8.

Pursuant to the new Part 101 antenna standards, which take effect on June 1, 1997, 2 foot antennas no longer will be permitted. The minimum antenna size that can meet the new standard will be 4 feet.

Many PCS providers have plans to use the 10 GHz band for cell site interconnects in urban areas. They want to use small antennas to reduce the physical loading on the antenna structure and to minimize the visual appearance of the antennas. The path lengths are short (typically less than 3 miles) and the higher antenna gain of a 4 foot antenna is not required to meet path reliability requirements.

To accommodate these PCS user needs, ANS recommends different standards for 10 GHz band antennas.<sup>8</sup> Under ANS' proposed standard for the 10 GHz band, 2 foot antennas would be permitted under Category B and 2.5 foot antennas would be permitted under Category A. One antenna manufacturer currently makes a 2.5 foot antenna that meets the proposed Category A standard. The proposed standard would encourage other manufacturers to design similar antennas.

Furthermore, ANS' proposed antenna standard also would be an incentive to use the 10 GHz band, instead of the 11 GHz, for low capacity systems. Under the new Part 101 regulations, microwave operators will be able to start operating immediately after filing for a license in the 11 GHz band, but not in the 10 GHz band. As a result, microwave operators, which want to start operating as quickly as possible, will tend to prefer the 11 GHz band. However, the 11 GHz band is primarily used for high capacity microwave systems carrying 1, 2, or 3 DS3s of traffic, which should not normally be used for low capacity systems. ANS' proposed antenna standards for the 10 GHz band would make it more attractive for low capacity systems, like PCS cell interconnects.

#### CONCLUSION

ANS applauds the Commission's ongoing efforts to ensure that its rules keep pace with emerging technologies. It generally supports adoption of the rules proposed in the NPRM.

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<sup>8</sup>See Attachment A.

Nevertheless, ANS herein requests that the Commission take certain steps to accommodate frequency coordinators and point-to-point microwave manufacturers and users. Existing sidelobe suppression criteria must be maintained. All PCNs and applications must include antenna-specific, instead of default, technical information. Specifications for 10 GHz antennas must be revised to conform with PCS user needs.

Respectfully submitted,

ALCATEL NETWORK SYSTEMS, INC.

A handwritten signature in black ink, appearing to read 'R.J. Miller', written over a horizontal line.

Robert J. Miller  
Gardere & Wynne, L.L.P.  
1601 Elm Street, Suite 3000  
Dallas, Texas 75201  
(214) 999-3000

April 25, 1996

Its Attorney

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## ATTACHMENT A

ANS recommends that the following changes be made to the antenna standards in new Section 101.115(c):

<b>Current standard: (effective June 1, 1997)</b>			
Frequency (MHz)	Category	Maximum Beamwidth in degrees	Minimum Antenna Gain (dBi)
10.550 to 10.680 (4)(5)	A	n/a	38
	B	n/a	38
<b>Proposed standard: (effective June 1, 1997)</b>			
Frequency (MHz)	Category	Maximum Beamwidth in degrees	Minimum Antenna Gain (dBi)
10.550 to 10.680 (4)(5)	A	2.7	36
	B	3.4	34