Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Service Rules For The Point-to-Point	)	RM-10288
Use Of The 71.0-76.0 GHz	)	
and 81.0-86.0 GHz bands	)	

To: The Commission

REPLY COMMENTS OF
LOEA COMMUNICATIONS CORPORATION

Pursuant to Section 1.405(b) of the Commission's Rules,[1] Loea Communications Corporation ("Loea") hereby submits these comments in reply to comments filed in response to the above-captioned Petition for Rulemaking.[2]

I. Introduction

In its Petition, Loea proposed that the Commission issue service rules to make the upper millimeter wavebands, *i.e.*, the 71-76 GHz and 81-86 GHz bands, available for fixed, point-to-point services. This is an important and unique opportunity because, with only limited modification to Part 101 of the Commission's Rules, *wireless gigabit-per-second* capabilities could be brought *immediately and inexpensively* to the public. More specifically, wireless broadband services could be brought to that portion of the public that does not, and will not in the near future, have access to fiber optic transmission services, including homes and businesses in rural areas.

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1 47 C.F.R. § 1.405(b).

2 On September 10, 2001, Loea filed a Petition for Rulemaking ("Petition") with the Federal Communications Commission ("FCC" or "Commission"). By Public Notice, Report No. 2504, released on September 27, 2001, the Consumer Information Bureau of the FCC sought comment on the Petition.

In addition, because of the narrow "pencil-beam" propagation characteristics of the spectrum, any number of providers could be authorized to use the spectrum in the same area. Because the beams will not be mutually exclusive to each other, new providers could enter the market today or at *any* time in the future. For the public, this will result in less expensive applications and services and will also allow providers to rapidly deploy new applications and services when the marketplace (i.e. the public) dictates.

Another unique and significant aspect of the spectrum is that its point-to-point use will not preclude other services from utilizing it in the same geographic area. Simply put, other services will be able to co-exist in the same area and on the same bandwidth without causing harmful interference to the fixed, point-to-point operations and services. Today or years from now, new non-fixed services could be deployed on this spectrum without harmful interference from or to the fixed services proposed by the Petition.

For these reasons, and the additional reasons stated in the comments and the Petition, *all of the Commenters, without exception*, strongly support the establishment of fixed, point-to-point use of the 71-76 GHz and 81-86 GHz bands.[3] In addition, the Commenters asked that the Commission act quickly to allow the use of this spectrum as soon as possible.[4]

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[3] *See e.g.*, Boeing Satellite Systems, Inc. Comments at 1 ("Boeing"); Fixed Wireless Communications Coalition Comments at 1 ("FWCC"); Personal Communications Industry Association, Inc. Comments at 2 ("PCIA"); Pacific LightNet Comments at 1 ("Pacific"); DMX Comments at 1 ("DMCSN"); and Endwave Corporation Comments at 5 ("Endwave").

[4] *See, e.g.,* FWCC at 3; Pacific at 1; DMCSN at 1; Endwave at 5.

II. The Commission Should Initiate A Rulemaking To Create Service Rules For The Use Of The 71-76 GHz And 81-86 GHz Bands For Fixed, Point-To-Point Services

A. The 71-76 GHz And 81-86 GHz Bands Can Be Used For Broadband Wireless Services and Applications

In its Petition, Loea set forth a new paradigm for delivering wireless gigabit-per-second broadband services virtually anywhere in America by using upper millimeter wave spectrum. The use of upper millimeter wave spectrum as proposed by Loea and supported by the Commenters is nothing short of finding water in a desert because it will allow the dynamic and flexible use of spectrum previously considered to be unusable.[5] Not only can this barren spectrum be utilized to provide wireless broadband services to the public, but with the appropriate operational parameters, the use of this spectrum today does not diminish the ability of another provider to use the spectrum in the future because, without the threat of harmful interference, a nearly infinite number of providers, or even other services, may simultaneously utilize the spectrum.

The Commenters agree with Loea that these upper millimeter wave bands are capable of providing high-speed, high-throughput, gigabit-per-second access. In supporting the Petition, the FWCC stated "these bands are capable of delivering high-speed data over several kilometers at relatively low cost."[6] In addition, in its comments, DMCSN noted that Loea's initial experiments have "demonstrated a great potential to provide gigabit-per-second broadband access using wireless technology."[7]

The Commenters also agree that the upper millimeter wave spectrum can be utilized to "offer fiber optic-like speeds and throughput to a broad range of subscribers in rural, suburban,

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5 *See e.g.*, Pacific at 2.

6 FWCC at 1.

7 DMCSN at 1.

and urban areas which currently do not have access to such service."[8] Supporting this, the FWCC Comments stated that Loea's proposed use of the upper millimeter wave spectrum was "ideal for broadband delivery in both suburban and rural areas, where population densities may be low to support fiber installation, and also in urban areas, where trenching costs run very high."[9] Endwave believes that the Petition underestimated the benefits to urban areas and points out that these bands could provide important public safety applications because they can be used to provide inexpensive redundant systems to alleviate telecommunications outages, such as those that occurred on September 11, 2001, when the tragedy in Manhattan disrupted phone service in New York City.[10]

B. Commenters Support The Regulation of the 71-76 GHz and 81-86 GHz Bands Under Part 101 of the Commission's Rules

The comments to the Petition support the proposal to regulate the point-to-point use of the 71-76 GHz and 81-86 GHz upper millimeter wave bands under Part 101 of the Commission's Rules.[11] Regulation and licensing of this spectrum is appropriate under Part 101 because the "pencil beam" propagation characteristics of the spectrum would mean that it would be employed on a fixed, point-to-point basis.[12] In addition, Part 101 of the Rules embody the Commission's decades-long experience in point-to-point regulation and licensing. As such, the Commission's existing Part 101 point-to-point microwave licensing framework is streamlined and efficient, would require only minimal modification to accommodate the upper millimeter wave bands and, in conjunction with a path coordinator, could easily be employed to authorize

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8 DMCSN at 1.

9 FWCC at 1-2; *see* Boeing at 5.

10 Endwave at 2-3.

11 DMCSN at 2; Boeing at 6; Pacific at 1-2.

12 DMCSN at 2; Boeing at 6-7; Pacific at 1-2.

the use of the upper millimeter wave spectrum. Utilizing the Part 101 framework, which is familiar to both the Commission and licensees, will result in the swift and inexpensive deployment of broadband wireless services and applications.

C. Commenters Support Loea's Proposed Technical Parameters

In its Petition, Loea proposed several technical parameters necessary to include the 71-76 GHz and 81-86 GHz bands in Part 101 of the Commission's Rules. The overarching principle that Loea used to develop these technical parameters was to open the 71-76 GHz and 81-86 GHz bands so that as many providers as possible could deliver gigabit-per-second broadband services to as many homes and businesses as swiftly as possible and with no significant threat of harmful interference. Loea believes that these objectives would be achieved by its proposed technical parameters because such parameters support the necessary "pencil beam" transmission characteristics. Failure to adhere to these "pencil beam" parameters could limit the current and future usage of these bands.

Commenters generally agree with Loea that the Commission should establish as few regulations as possible for these bands.[13] The Commenters agree that, by using narrow "pencil beams," many different users will be able to share this spectrum.[14] Some Commenters, however, proposed somewhat different technical parameters than those proposed by Loea.[15] For instance, Endwave suggests that the proposed backlobe requirement be changed from 60 dB which it thought was "somewhat high" to 50 dB.[16]

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13 *See e.g.*, DMCSN at 4.

14 Boeing at 7; FWCC at 2; *see* DMCSN at 4.

15 *See* Endwave at 4-5; Boeing at 10.

16 Endwave at 5.

Loea welcomes suggestions for alternative technical parameters so long as they maintain the point-to-point "pencil beam" paradigm that allows for numerous links. Loea plans to meet with the Commenters and any other interested entities to discuss the technical parameters. In addition, Loea also looks forward to working with the Commission to establish appropriate technical standards for this spectrum.

D. Commenters Support Loea's Band Plan

In the Petition, Loea proposed that the 71-76 GHz and 81-86 GHz bands should not be subdivided or channelized. With proper coordination prior to licensing, the entire bandwidth can be authorized to any number of providers in the same geographic area. In addition, as noted in the Petition, *channelizing these bands would prevent them from supporting the next generation Ethernet standard, effectively limiting the future usefulness of these bands*.[17]

For these reasons, the Commenters supported Loea's proposal that the bands should not be channelized.[18] One Commenter, Endwave, stated that channelization and geographic licensing are intended to minimize each user's occupied bandwidth and notes that such rules are "premised on the supply of spectrum falling short of the demand."[19] As discussed in the Petition and above, spectrum "scarcity" is not an issue for the 71-76 GHz and 81-86 GHz bands.[20]

E. The Commenters Agree with Loea That Licensing is Appropriate for These Bands and That Auctioning is Not Necessary

The Communications Act requires the Commission to use competitive bidding only in the event of mutually-exclusive licensing situations.[21] As Loea demonstrated in its Petition, and as

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17 Petition at 13.

18 FWCC at 2; Endwave at 3-4; Boeing at 4-6.

19 Endwave at 3.

20 Petition at 13.

21 *See* 47 U.S.C. § 309(j)(1).

reflected in the comments, licensing of these bands by competitive bidding will not be required, and perhaps would be unlawful,[22] because mutual exclusivity will not arise.[23] Moreover, under Section 309(j)(6)(E), the Commission has a statutory obligation to find solutions or use other means to avoid mutual exclusivity in the licensing process.

With respect to mutual exclusivity, the point-to-point transmissions in the 71-76 GHz and 81-86 GHz bands are extremely resilient to interference. In the unlikely event that harmful interference is anticipated, either a slight adjustment in antenna orientation or the creation of a relay point would quickly and inexpensively cure the potential interference. This cure would be effected during the coordination process, which will streamline the Commission's authorization of proposed point-to-point paths.

In addition, it should be emphasized that for years the FCC has utilized frequency coordination to ensure that microwave paths do not interfere with each other and such coordination has been the predicate for conditional, pre-authorization operation of certain microwave paths. As such, with respect to the point-to-point use of the 71-76 GHz and 81-86 GHz bands, the Commission could arguably satisfy its section 309(j)(6)(E) obligations through path coordination.

Finally, Loea is aware that in the appropriate circumstances auctions can be a powerful and efficient tool for choosing licensees and issuing authorizations. However, the circumstances that make auctions a powerful tool are not present in the proposed point-to-point use of the 71-76 GHz and 81-86 GHz band.[24] Accordingly, the most efficient way to authorize point-to-point paths is to use the Commission's existing Part 101 process.

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22 *See* Endwave at n.5.

23 Petition at 17-19.

24 *See* Appendix B to Petition at 11-12.

III. CONCLUSION

The comments to the Petition underscore the enormous opportunity the use of the upper millimeter wave band presents for the benefit of the public. First, the nature of the spectrum permits transmission by "pencil beams" allowing for an almost infinite number of broadband "pipes" to all regions of the country with *de minimis* chance of interference. Second, the use of this spectrum to provide those broadband "pipes" can be delivered almost anywhere; allowing fiber-like speeds and throughput even to those consumers without access to fiber optic networks. Finally, the Petition and comments indicate that the technology to put the upper millimeter wave band to use exists *today*. For these reasons, and other reasons such as quality of life, bridging the digital divide, stimulating the economy, and enhancing public safety, the Commission should act swiftly to allow the American public to benefit from broadband wireless services and applications.

All the Commenters agree that the Commission should take swift action to make the 71-76 GHz and 81-86 GHz bands available for use by fixed, point-to-point services. Opening these bands for this purpose will enable wireless services to compete with and complement services now only available from fiber optic cables. The use of the upper millimeter wave spectrum as proposed in the Petition will increase competition in broadband services as well as make such services available to areas where it is not currently available. Even better, these benefits can all be obtained using spectrum that currently is not used. The Commission now has an enormous opportunity to make these benefits a reality by acting quickly to establish the service rules that will make all of this possible.

In light of the foregoing, the Petition, and the comments to the Petition, Loea respectfully requests that the Commission act promptly to establish service rules for the fixed, point-to-point use of the 71-76 GHz and 81-86 GHz bands.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Courtenay P. Adams, hereby certify that, on this 14th day of November 2001, a copy of the foregoing Reply Comments of Loea Communications Corporation was delivered, by first class U.S. mail, postage prepaid, to the following individuals:

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