



the instant proceeding to open new spectrum for future use by the public. However, Video/Phone vehemently opposes self-serving, technically flawed attempts in comments filed by certain satellite concerns to advocate the relocation of LMDS from the 28 GHz band to the 40.5 - 42.5 GHz band (the "41 GHz band"). Accordingly, the Commission should disregard attempts to mischaracterize the Commission's proposal in the Above 40 GHz Notice to establish LMWS in the 40.5 - 42.5 GHz band, move forward in the LMDS rulemaking with finalizing the establishment of service rules for LMDS in the 28 GHz band, and work in the instant proceeding towards the timely establishment of service rules for future millimeter wave services in bands above 40 GHz.

#### I. Background

Video/Phone has been instrumental in the development of the service concept and underlying technology that will shortly enable the marketplace introduction of a full range of 27.5 - 29.5 GHz ("28 GHz") band one- and two-way fixed wireless video, voice, and data services commonly referred to as LMDS. In its capacity as a leading proponent of the LMDS concept, and a developer of wireless broadband technologies and services in general, Video/Phone has a substantial interest in the outcome of the instant rulemaking, as well as the outcome of the LMDS rulemaking.

The 28 GHz band was selected early on in the development of LMDS because of the optimal characteristics of the band for the near-term marketplace introduction of cost-competitive wireless broadband fixed services. Video/Phone evaluated other bands higher in the spectrum as candidates for LMDS implementation and determined that no other available portion of the spectrum above 28 GHz would deliver the combination of system performance and deployment cost efficiency within the critical near-term timeframe envisioned for the marketplace introduction of LMDS. Accordingly, Video/Phone has focussed substantial time and investment over the last five years in developing LMDS in the 28 GHz band.

Video/Phone recognized from the beginning of its LMDS development efforts the important public interest objectives of achieving technical compatibility that will result in co-primary sharing in the 28 GHz band between the LMDS and propose future Fixed Satellite Service ("FSS") system operations. Taking these important interservice sharing concerns into account, Video/Phone designed its LMDS system architecture to facilitate shared co-primary co-frequency LMDS/FSS operations, while also accommodating all current and projected LMDS service requirements.

Video/Phone has also spearheaded from the beginning efforts to develop a viable regulatory framework for co-primary co-

channel use of the 28 GHz band by LMDS and FSS systems.<sup>3/</sup> In this regard, Video/Phone proposed the formation of the LMDS/FSS 28 GHz Band Negotiated Rulemaking Committee (the "28 GHz NRMC") in CC Docket No. 92-297 and worked diligently to bring its proposal to fruition. Id. Due in large part to time restrictions imposed by the 28 GHz NRMC charter, the committee failed to reach a consensus on technical approaches to co-primary LMDS/FSS sharing. Despite the fact that the 28 GHz NRMC ultimately failed to reach consensus on the major issues before it, Video/Phone continues to be confident that the technical means exist to support the formulation of a service rule structure that will allow LMDS and proposed FSS networks co-frequency co-primary access to the entire 28 GHz band. This includes "ubiquitous deployment" FSS systems, such as those proposed by Teledesic Corporation ("Teledesic") and Hughes Communications Galaxy, Inc. ("Hughes").<sup>4/</sup>

As Video/Phone explained in detail during the 28 GHz NRMC, a viable LMDS/FSS co-primary service rule structure can be

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<sup>3/</sup> See, e.g., Reply Comments of Video/Phone Systems, Inc., CC Docket No. 92-297 (filed April 15, 1993).

<sup>4/</sup> Analyses conducted by the 28 GHz NRMC demonstrated that co-frequency sharing between LMDS and certain low-Earth orbit mobile satellite service ("MSS") feederlink systems operating small numbers of gateway earth stations is feasible, given certain mutually acceptable operating parameters and geographic separation. Unfortunately, time did not permit the Committee to finalize consensus rule provision reflecting this conclusion. See Addendum of Video Phone Systems, Inc. to the Final Report of the 28 GHz NRMC, CC Docket No. 92-297 (September 23, 1994).

facilitated by the selective use of dynamic frequency division, time division and code division techniques by LMDS and FSS operators. In fact, much of the technology needed to support the types of dynamic spectrum sharing proposed by Video/Phone has already been designated for use in 28 GHz FSS systems proposed by Teledesic and Hughes, and in the LMDS network architecture proposed by Video/Phone. Most importantly, none of the satellite concerns participating in the 28 GHz NRMC have ever specifically ruled out Video/Phone's technical approach to LMDS/FSS 28 GHz band sharing.<sup>5/</sup>

## II. Discussion

Several of the parties submitting initial comments in the instant rulemaking proceeding, including Teledesic, Hughes, TRW, Inc. ("TRW"), and the National Aeronautics and Space Administration ("NASA") claim that operating conditions and deployment costs in the 28 GHz and 41 GHz bands are somehow virtually the same.<sup>6/</sup> Based on this spurious assertion, these commentators then incorrectly contend that LMDS can be relocated

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<sup>5/</sup> It would be difficult for these parties to do so, since their own system designs already incorporate TDMA capabilities quite similar to those that could be employed for dynamic interservice LMDS/FSS sharing.

<sup>6/</sup> See, e.g., Comments of Teledesic, at 12; Comments of Hughes, at 3, Comments of TRW, at 7; Comments of NASA, at 5. See, also, Comments of Martin Marietta Space Group; Comments of GE American Communications.

from the 28 GHz band to the 41 GHz band with no appreciable impact on LMDS operators. Id.

Teledesic, Hughes, and NASA offer what they purport to be technical analysis demonstrating their self-serving conclusion that moving LMDS to the 41 GHz band is a "win/win solution" to the implementation of LMDS and future 28 GHz FSS systems. In fact, the so-called solution forwarded by the satellite parties is a thinly-veiled attempt to scuttle the sincere efforts of Video/Phone and others to come to a reasonable and technically viable solution to co-primary LMDS/FSS sharing in the 28 GHz band, and foreclose or delay the implementation of LMDS.

Each of the analyses submitted in the comments of the satellite parties conveniently ignores the simple undisputable fact that there is a substantial increase (3.3 dB) in path loss at 41 GHz as opposed to 28 GHz. Assuming that all other operating parameters remain constant, this 3.3 dB in added path loss at 41 GHz equates to a resulting reduction in LMDS cell radius of approximately 30%. Of course, changes in an LMDS system design, such as decreasing cell radius by 30% or increasing transmitter EIRP by more than twofold, could compensate for the substantial path loss increase at 41 GHz. Given the current state of the art, however, any of the potential changes in system design to compensate for the move to the 41 GHz band would result in a substantial increase in the cost of LMDS

deployments.<sup>2/</sup> Furthermore, the deployment cost increases resulting from the additional 3.3 dB of path loss would be additive to cost increases that would clearly be associated with the so-called "minor" LMDS system deployment modifications that would be necessary to compensate for increased rain attenuation in the 41 GHz band (as opposed to the 28 GHz band). In sum, contrary to the self-serving assertions of the satellite concerns, the operating conditions for an LMDS-type service in the 41 GHz band are substantially more onerous than those at 28 GHz, and the implementation costs would be commensurately higher, even with the employment of the latest state-of-the-art technology.

Video/Phone applauds the Commission's foresight in taking the initiative in the Above 40 GHz Notice to proposed opening new spectrum for future wireless broadband services. However, preparing for the future implementation of LMWS in bands above 40 GHz should not be confused with the need to move forward now with the implementation of LMDS in the 28 GHz band.

The Above 40 GHz Notice clearly does not propose to relocate LMDS from the 28 GHz band to the 41 GHz band. In fact, the Commission has explicitly rejected proposals to move LMDS to the 41 GHz band.<sup>3/</sup> The Commission should not permit Satellite

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<sup>2/</sup> An extremely conservative estimate of the resulting cost increase is 250%.

<sup>3/</sup> See Second Notice of Proposed Rulemaking, CC Docket No. 92-297, 9 FCC Rcd 1394 (1994), at Note 15.

concerns, such as Teledesic, Hughes, TRW and NASA to mischaracterize Commission proposals in the Above 40 GHz Notice, or divert attention from the need to continue the process in the LMDS rulemaking of formulating a technical and regulatory structure for co-primary LMDS/FSS sharing in the 28 GHz band.

Video/Phone continues to believe that there is a sound technical basis for a viable regulatory solution to co-frequency co-primary sharing between LMDS and FSS in the 28 GHz band. Video/Phone urges the Commission to immediately continue the process of developing a rule structure for co-frequency co-primary LMDS/FSS sharing in the 28 GHz band that was prematurely cut short by the expiration of the 28 GHz NRMC charter.

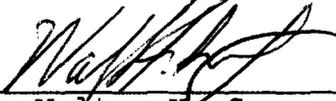
#### Conclusion

For the foregoing reasons, the Commission should disregard attempts to mischaracterize its proposals for the establishment of the LMWS in the instant rulemaking, move forward in the LMDS rulemaking with finalizing the establishment of service rules for LMDS in the 28 GHz band, and work in the instant proceeding

towards the timely establishment of service rules for future millimeter wave services in bands above 40 GHz.

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March 3, 1995

CERTIFICATE OF SERVICE

I, Zita Michelle Holly, a secretary in the offices of Walter Sonnenfeldt & Associates, hereby certify that on the 3rd day of March, 1995, a true copy of the foregoing "REPLY COMMENTS OF VIDEO/PHONE SYSTEMS, INC." in ET Docket No. 94-124 was mailed, first-class postage prepaid, to the following:

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