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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Redesignation of the 17.7-19.7 GHz Frequency	)	IB Docket No. 98-172
Band, Blanket Licensing of Satellite	)	RM-9005
Earth Stations in the 17.7-20.2 GHz and	)	RM-9118
27.5-30.0 GHz Frequency Bands,	)	
And the Allocation of Additional Spectrum	)	
in the 17.3-17.8 GHz and 24.75-25.25 GHz	)	
Frequency Bands for Broadcast	)	
Satellite Service Use	)	

Comments of Teligent, Inc.

Teligent, Inc. ("Teligent"), by its attorneys, hereby submits these comments in response to the Notice of Proposed Rulemaking ("NPRM") released by the Federal Communications Commission ("Commission") on September 18, 1998 in the above-captioned proceeding. In the NPRM, the Commission proposes, *inter alia,* to allocate the 24.75-25.25 GHz band to fixed satellite service ("FSS") for Broadcast Satellite Service ("BSS") feederlink use. Teligent opposes the 25.05-25.25 GHz portion of the proposed allocation for BSS feederlink use because that proposed BSS allocation is unnecessary, premature and may cause harmful interference to authorized digital electronic message service ("DEMS") systems operating in the 25.05-25.25 GHz Band.[1]

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[1] Teligent submits these comments only in response to the RM-9118 proceeding regarding the allocation of the DEMS band for BSS feederlink use. Teligent (continued...)

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Teligent is a full-service integrated competitive telecommunications company that provides low cost, high quality, and high-speed communications services to small- and medium-sized businesses using digital point-to-point and point-to-multipoint technology pursuant to DEMS licenses granted by the Commission. Teligent offers, or is authorized to offer, state-of-the-art local, long distance, high-speed data and dedicated Internet services over its digital wireless networks in more than 70 major markets.[2] By providing cost-effective, flexible and consumer-responsive service, Teligent has begun to alleviate the "last mile bottleneck" and satisfy increased business demand for technologically advanced, high bandwidth, digital telecommunications services.

Teligent is licensed to construct and operate its DEMS systems in the 24.25-24.45 GHz and 25.05-25.25 GHz bands (collectively "the 24 GHz DEMS Band"). Pursuant to a Commission order, DEMS licensees were involuntarily relocated to the 24 GHz DEMS Band from the 18 GHz band to satisfy certain national security requirements.[3] In ordering the relocation, the Commission

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[1](...continued)
offers no comment on the other proceedings consolidated within the NPRM.

2 See Teligent Press Release, dated Nov. 11, 1998 "Teligent reports third quarter financial results and completes launch of first 15 markets," announcing that it is providing full range telecommunications services in 15 markets. Teligent had previously announced that it is providing Internet access service in 31 markets. See Teligent Press Release, dated Jan. 28, 1998 "Teligent Announces First Ten Cities for Commercial Launch in 1998."

2 See Amendment of Commission's Rules to Relocate DEMS from the 18 GHz band to the 24 GHz band, ET Docket No. 97-99, Order, 12 FCC Rcd 3471 (rel. March 14, 1997)("Relocation Order"); Amendment of Commission's
(continued...)

specifically found that moving DEMS licensees to the 24 DEMS GHz Band served the public interest by "facilitating the provision of DEMS on a nationwide basis, promoting competition in the point-to-multipoint telecommunications market and protecting national security interests."[3] In compliance with the Relocation Order, Teligent immediately began migrating its then-existing 18 GHz DEMS operations to the 24GHz DEMS Band and also commenced construction of dozens of new DEMS systems in the 24 GHz DEMS Band.[4] Despite this abrupt move, Teligent has continued providing service to its existing customers without undue interruption of service and has already commenced service to hundreds of new customers.

In the last two years, Teligent has been a strong proponent of the procompetitive and deregulatory policies that prompted the Telecommunications Act of 1996 ("1996 Act"). Congress passed the 1996 Act "to promote competition and reduce regulation to secure lower prices and higher quality service for American telecommunications consumers."[5] Indeed, the Commission's efforts to facilitate the provision of new service offerings and to promote competition pursuant to Congress's

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(...continued)

Rules to Relocate DEMS from the 18 GHz band to the 24 GHz band, ET Docket No. 97-99, Memorandum Opinion and Order, 12 Comm. Reg. (P&F) 1126 (rel. July 17, 1998) ("MO&O").

3 MO&O at ¶ 3.

4 In two of its licensed markets (*i.e.*, Denver and Washington D.C.), Teligent was required immediately to cease its 18 GHz operations upon the effective date of the Commission's Relocation Order. See Relocation Order at ¶ 20.

5 Joint Explanatory Statement of the Committee of Conference, S. Conf. Rep. No. 230, 104th Cong., 2d Sess. 113 (1996).

vision has helped advance the diversity of telecommunications service offerings in the U.S. The Commission's recent proposed BSS allocation, however, would overlap with portions of the 24 GHz DEMS Band and would expose DEMS operations to harmful interference from BSS feederlinks that could result in service disruptions to end-users.[6] Consequently, Teligent and other DEMS licensees could be seriously disadvantaged and the goals of the 1996 Act would be compromised.

Moreover, the proposed BSS allocation at this time is wholly unnecessary for a number of reasons. First, BSS licensees do not require a full 500 MHz allocation at 24.75-25.25 GHz for feederlink spectrum. There are a number of technical alternatives that exist for reducing the amount of spectrum needed, so that as little as half of the requested amount of spectrum will suffice. Second, BSS licensees have failed to demonstrate sufficient consumer demand for DBS to warrant an additional allocation of BSS spectrum at this time. Finally, it is too early for the Commission summarily to allocate the 24.75-25.25 GHz band to FSS for BSS feederlink use more than eight years before possible implementation.

I. BSS Licensees Do Not Need an Entire 500 MHz.

By reserving 500 MHz of spectrum for BSS use more than eight years before such spectrum could be used, the Commission would summarily curtail the

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[6] Teligent filed comments in response to the Petition of Rulemaking of DIRECTV Enterprises, Inc. ("DIRECTV") raising these issues. See Joint Opposition to Petition for Rulemaking of DIRECTV, RM No. 9118 (filed July 31, 1997) ("Joint Opposition"); Joint Reply, RM No. 9118 (filed Aug. 15, 1997). Similarly, SkyBridge L.L.C. echoed Teligent's interference concerns for the 17 GHz band. See Comments of SkyBridge, L.L.C. at 5, 7.

development of new services in that portion of the band. Such actions directly contravene the Commission's mandate and policies to facilitate provision of new service offerings to promote market entry of new competitors and competitive market conditions, and to reduce administrative burdens on carriers. Indeed, a premature BSS feederlink allocation at 25.05-25.25 GHz may adversely impact future DEMS licensing because of perceived technical and operational impacts on DEMS systems that such an allocation may have. This is particularly troubling given that there are several viable alternatives by which BSS feederlink capacity could be deployed without using the 200 MHz of spectrum already allocated for, and assigned to, DEMS.

As Teligent stated in its Joint Opposition, by employing frequency reuse, BSS licensees would need only 250-300 MHz of spectrum rather than the proposed 500 MHz.[7] Frequency reuse by means of spot beam antennae is commonly used with international satellites and has been adopted for use with new Ka-band GSO FSS systems.[8] This approach can be applied to BSS feederlinks to decrease spectrum demands. Specifically, feederlink frequencies can be reused by placing two separate feederlink receive antennae on the satellite, whereupon only 250 MHz of

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[7] Joint Opposition at 23.

[8] See In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, Third Report and Order, 12 FCC Rcd 22310, ¶¶ 28-29 (1997) ("Ka-band Order"); see also 47 C.F.R. § 25.210 (d)-(g).

feederlink spectrum would be required to support a 500 MHz downlink. Alternatively, if the Commission were to allocate a total of 300 MHz to BSS feederlinks (*e.g.*, the 24.75-25.05 GHz band portion that does not overlap into the DEMS band), BSS licensees could use 200 MHz by means of a spot beam antenna, thereby supporting a 400 MHz downlink. The remaining 100 MHz could be utilized as a CONUS coverage beam. Thus, BSS licensees need only the 300 MHz of spectrum adjacent to the DEMS band for their feederlinks and not the entire 24.75-25.25 GHz band.[9]

Similar to frequency reuse, the use of more spectrally efficient modulation techniques for BSS feederlinks would also reduce the feederlink bandwidth requirement. As Teligent explained in its Joint Opposition, currently more spectrally efficient modulation techniques such as 16-QAM and 64-QAM can be transcoded with the common BSS downlink modulation scheme, QPSK. The 16-QAM modulation would reduce the frequency bandwidth requirement of QPSK by half. The 64-QAM modulation would further reduce the bandwidth requirement by another 50% (*i.e.*, for the same amount of data throughout, 64-QAM only needs one-third of the bandwidth of QPSK). Since the proposed BSS feederlink will not be implemented for several years, with the advancement in the technology it is very likely that even more spectral efficient modulation techniques will be available.

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[9] Teligent does not oppose the allocation of the 300 MHz that lies outside of the 24 GHz DEMS Band, provided that such an allocation would have appropriate interference protections for out-of-band emissions from BSS stations.

If the Commission determines, however, that BSS feederlinks warrant an allocation of more than 250-300 MHz of spectrum to pair with the 500 MHz downlink, the Commission should allocate alternative feederlink spectrum that does not overlap with the 24 GHz DEMS Band (*e.g.*, the available spectrum in the 24.65-24.75 GHz band).

II. BSS Licensees Have Yet to Demonstrate Sufficient Consumer Demand for DBS to Warrant an Additional Allocation of Spectrum for BSS use.

Generally, before allocating spectrum the Commission first determines that such an allocation will serve the public interest.[10] In the instant case, the Commission has yet to make such a determination. Although there is an existing record of comments from interested DBS providers, there is no evidence – and indeed none cited to in the NPRM – that sufficient DBS demand exists, or even is projected to exist by 2007, to warrant additional BSS spectrum. Instead, the Commission merely notes that "additional spectrum may be required for BSS within the next decade."[11] In addition, the Commission asserts that the "international FSS allocation gives priority use to BSS feederlinks."[12] Despite the international allocation, however, the Commission is not obligated to allocate summarily spectrum in the U.S.

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[10] See 47 U.S.C. § 303(c); see also In the Matter of Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use 4660-4685 MHz, ET Docket No. 94-32, Second Report and Order, 11 FCC Rcd 624, 634 (1995).

[11] NPRM at ¶ 79 (emphasis added).

[12] Id. at ¶ 80 (emphasis added).

commercial table that corresponds with the international table.[13] There are *no* compelling public interest reasons to allocate the 25.05-25.25 GHz portion of spectrum to BSS licensees. Similarly, there is *no* demonstrable necessity for such an allocation. Accordingly, the Commission must reject such a request, particularly where it would adversely impact a domestic allocation that is furthering the pro-competitive objectives of the 1996 Act and was made specifically to accommodate national security.

III. It Is Premature for the Commission to Summarily Allocate the 24.75-25.25 GHz Band to FSS for BSS Feederlink Use More than Eight Years Before Possible Implementation.

Assuming an additional BSS allocation is ultimately warranted at some point in the future, the Commission cannot divine the technological growth in the BSS satellite industry or the proliferation of DEMS systems build-out more than eight years from now. Neither can one plausibly devise a reliable and effective proposal to mitigate the risks of interference in real world, worst-case scenarios, nor ascertain whether BSS feederlinks can coexist in the DEMS frequency band without imposing

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[13] See Amendment of Part 2 of the Commission's Rules Regarding Implementation of the Final Acts of the World Administrative Radio Conference, Geneva, 1979, 54 Rad. Reg. 1500, 1503 (1983). There are several examples where the Commission allocation does not correspond to the international allocation for a particular frequency band, including the following: (1) 3600-3700 MHz (government relocation); (2) 2310-2360 MHz (BSS/WCS); (3) 902-928 MHz (government radiolocation and radionavigation); (4) 894-896 MHz (aeronautical mobile); and (5) 420-450 MHz (government radiolocation).

unreasonably cumbersome coordination procedures and restraining the growth and build out of DEMS in the interim.

It is long-standing Commission policy that incumbent licensees in bands allocated on a primary basis are entitled to interference-free operation from secondary services on their authorized frequencies.[14] To date, there has been no definitive showing that the operation of high-powered 24 GHz BSS feederlink transmitters will not interfere with DEMS operations. In fact, under comparable circumstances, the Commission found that high-powered satellite feederlinks could not coexist with terrestrial fixed microwave services in the 29 GHz band.[15] Although the Commission supposes that the April 1, 2007 implementation date provides it with sufficient time to develop a "detailed sharing methodology" for the coexistence of DEMS and BSS feederlinks, such "methodologies" may impose upon incumbent DEMS licensees costly and unreliable interference protection measures. Such new rules could also result in DEMS operations having to move, or adjust power levels, at well-established nodal stations or to jeopardize service quality. Accordingly, the Commission should, at a minimum, defer consideration of that portion of the requested BSS allocation that would overlap with the 24 GHz DEMS Band until

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[14] See 47 C.F.R. §§ 2.104, 2.105(c).

[15] See In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, First Report and Order and Fourth Notice of Proposed Rulemaking, 11 FCC Rcd 19005, ¶¶ 34-37 (1996).

concrete demand for additional BSS feederlink capacity is demonstrated and effective DEMS-BSS sharing methods are developed.

V. Conclusion

For the foregoing reasons Teligent urges the Commission to refrain from allocating the 25.05-25.25 GHz portion of the 24 GHz DEMS Band for BSS feederlink use.

Respectfully submitted,

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Dated: November 19, 1998