more local service competition to the market. The ILECs are the sole entities that do not similarly face this hurdle. If the Commission really intends to promote local service competition through the award of additional 24 GHz licenses, and if it allows the ILECs to bid on these licenses, it must level the playing field, at a minimum affording all local exchange service providers equal access to buildings.

Presently, the 24 GHz band represents a growing and sophisticated fixed wireless alternative to the ILEC's wireline local exchange monopoly. Because of their history and continued dominant position in the local services market, ILECs will have the incentive and ability to obtain building access, particularly rooftop access for their fixed wireless antennas, while simultaneously influencing building owners to deny other fixed wireless competitors rooftop and other building facility access for their own equipment. This fact only emphasizes the critical importance of securing nondiscriminatory telecommunications carrier access to multi-tenant buildings in the Commission's Competitive Networks rulemaking so that this strategy cannot be successfully accomplished.

The ILEC incentive for hindering competitive carriers' access to rooftops through their current relationship with building owners (see discussion below) is self-evident: while operating in the 24 GHz band (or any other fixed wireless band), ILECs can simultaneously prevent or delay implementation of competing wireless local loop strategies by raising the costs in time and money of competitive carriers' access to the necessary rooftop and other building facilities. ILECs alone possess the pervasive ability to act on these incentives successfully under today's current building access regime, where they enjoy a wireline presence, at minimum, in virtually every multi-tenant building in their regions.

In the Competitive Networks rulemaking, real estate interests described in detail the manner in which ILECs wield market power to dictate the terms of building access to building owners. One coalition of real estate interests explained that:

> ILECs demand access to buildings, but refuse to sign agreements with building owners, pay license fees, or otherwise accept the terms and conditions the building owner has set for access by *all* TSPs, often threatening to withhold service from tenants. Given the tremendous market power of the ILECs and the tenant demand for their service, an owner can do little in these circumstances but give in to their demands.[46]

Another real estate commenter explained that "most owners would be willing to propose restrictions on the incumbent LEC immediately. However, we fear that taking this course of action would risk the incumbent LEC pitting the building tenants against the owner."[47] The Real Access Alliance also noted the absence of a property owner's negotiating leverage vis-à-vis the ILEC.[48] A real estate industry coalition stated that

> [b]uilding owners' attempts to treat all TSPs equally in today's competitive world by requiring agreements or fees from the ILECs are complicated and often thwarted by the ILECs' abuse of their significant market power.[49]

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46 Promotion of Competitive Networks in Local Telecommunications Markets, WT Docket No. 99-217, *Joint Comments of Cornerstone Properties, et al.*, at 13 (filed Aug. 27, 1999) (emphasis added).

47 Promotion of Competitive Networks in Local Telecommunications Markets, WT Docket No. 99-217, *Comments of Apex Site Management, Inc.*, at 8 (filed Aug. 27, 1999).

48 Promotion of Competitive Networks in Local Telecommunications Markets, WT Docket No. 99-217, *Comments of The Real Access Alliance*, at 32-33 (filed Sep. 27, 1999).

49 Promotion of Competitive Networks in Local Telecommunications Markets, WT Docket No. 99-217, *Reply Comments of Cornerstone Properties, et al.*, at 5 (filed Sep. 27, 1999).

These comments strongly suggest that ILECs possess the ability to dictate the terms of their presence in the building to the building owner and could demand rooftop access in their regions at far more favorable conditions than other fixed wireless local service competitors. Most importantly, in the context of the 24 GHz band, these comments demonstrate that ILECs could exert their market power over building owners by persuading the building owner not to permit competing fixed wireless carriers from installing rooftop antennas on the building.

A requirement that all telecommunications carriers receive nondiscriminatory access to multi-tenant buildings would effectively prevent ILECs from successfully implementing these strategies. Consequently, the Commission should recognize that the 24 GHz auction, and other wireless auctions in which ILECs participate, only increase the need for a nondiscriminatory access requirement. Through this measure, the Commission can at least ensure that the ILECs will not exercise market power with respect to building access.

Similarly, to prevent anticipatory strategies designed to hinder the widespread construction of competing fixed wireless networks or other types of competing networks -- and again, as considered in the Competitive Networks rulemaking -- the Commission must prohibit any telecommunications carrier -- whether that carrier is an ILEC or CLEC -- from entering into or maintaining a contract with a building owner or manager that provides for that carrier's exclusive access to a multi-tenant building. In this manner, the Commission can ensure that telecommunications carriers do not engage in strategies designed to lock-up buildings from competitors and can maximize the abilities of fixed wireless and other competitors to make full use of their licenses through rapid and widespread network construction. This rule will promote not only the development of local exchange telephone competition from 24 GHz licensees -- the

primary objective of this proceeding -- but also the statutory objective of allowing the rapid deployment of new technologies and services.[50]

C. The Commission Should Extend Its Current Foreign Ownership Rules To 24 GHz Licensees.

The Commission's proposal to extend its current Part 101 foreign ownership requirements, derived from Section 310 of the Act, to 24 GHz licensees is consistent with the application of Section 310 to other Title III licensees,[51] as well as the World Trade Organization Basic Telecommunications Agreements. Thus, in accordance with the Commission's current rules, all 24 GHz licensees would appropriately be required to comply with the Part 101 obligations prohibiting foreign governments and their representatives from holding any license and prohibiting carriers who elect to provide common carrier services from holding a license without meeting the citizenship requirements found in section 101.7(b).[52]

The Commission's proposal to require licensees to comply with only minimal reporting obligations concerning a carrier's foreign ownership status reflected in the initial filing and periodic updates, as necessary, of the appropriate FCC form is all that is necessary for the

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50 47 U.S.C. § 309(j)(3)(A).

51 Notice at ¶¶ 23-25.

52 In that regard, Teligent notes that with respect to section 101.7(b)(4), the Commission has made a public interest determination that Teligent's license-holding subsidiaries may be indirectly owned by entities with a combined WTO foreign-ownership up to 49.9%. See 47 C.F.R. § 101.7. Teligent also agrees with the Commission's proposal that if a licensee elects dual common and private carrier status, it must meet the citizenship requirements in section 101.7. See Public Notice, File No. ISP-ISP-19980818-00008, 13 FCC Rcd 22516 (1998).

Commission to execute its duties under the Communications Act of 1934, as amended, while not imposing time-consuming and costly filing requirements on the licensee.[53]

D. The Commission Should Permit Aggregation/Disaggregation And Partitioning For All 24 GHz Licensees.

Previous Commission decisions, such as those modeled after the PCS service rules, permit carriers to aggregate, disaggregate and partition their licenses. This model has been quite successful in promoting free license transferability and overcoming entry barriers for smaller entities. Liberal transfer rules are a reasonable extension of the Commission's auction policy of awarding spectrum licenses to the party that most values the spectrum.[54] They also provide tangible opportunities to small business and rural carriers to provide competitive service offerings. For these reasons, Teligent supports the Commission's proposal to extend the aggregation/disaggregation and partitioning rules to 24 GHz licensees.[55] Because partitioning and aggregation/disaggregation may involve an underlying change in license ownership, it is appropriate for the Commission to require licensees to file license assignment applications beforehand for non-*pro forma* transfers. This approach has worked well for PCS licensees[56] and

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53 Notice at ¶ 25.

54 See Rosston & Steinberg at 99 ("In order for competition to bring consumers the highest valued services in the most efficient manner, we believe competing users of spectrum need flexibility to respond to market forces and demands. This flexibility includes the freedom to determine how they will use spectrum, how much spectrum they need, and the geographic area in which they will provide service.").

55 Notice at ¶¶ 26-28.

56 See id. at ¶ 27. Under section 24.714 of the Commission's Rules, PCS licensees must file license transfer applications before engaging in disaggregation or partitioning.

is consistent with the Commission's statutory obligations to approve license transfer applications.[57]

E. A Substantial License Term And Quantifiable Renewal Expectancy Is Necessary For Regulatory Stability At 24 GHz.

Teligent supports the Commission's proposal to apply a 10-year license term coupled with a renewal expectancy.[58] A license term longer than the standard 10-year period may unnecessarily lead to certain entities, in effect, "warehousing" spectrum which would preclude this spectrum from being used for the public good. In other words, the longer the license term, the less frequently the Commission would review a licensee's service offering to determine whether the carrier is indeed providing "substantial service." While marketplace incentives should lead carriers to efficiently deploy service and easily satisfy the substantial service requirement, a review of a carrier's service every 10 years to determine whether substantial service is being provided is in the public interest. Finally, as telecommunications consumers become more sophisticated and knowledgeable, they too inquire as to the term of a service provider's license. Unless a license-term is sufficiently long, certain consumers may register concerns as to the licensee's ability to provide service on a long-term basis. Fiber-based or other carriers that do not rely on radio licenses to offer their service, should not enjoy greater success in the market or access to capitol merely because consumers may falsely believe that the lack of a finite license term means they will necessarily enjoy greater longevity in the market.

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[57] 47 U.S.C. § 310(d).

[58] Notice at ¶¶ 29-31.

A substantial license holding period, coupled with a reasonable renewal expectancy policy based on quantifiable criteria encourage, among other things, a licensee's investment in new, innovative technologies and network upgrades.[59] In addition, it provides the type of stability required by investors who may seek to fund these services. Such action will generate overall consumer welfare benefits for the public by facilitating a more stable regulatory environment. As described in more detail below, once a 24 GHz licensee has met the specified performance criteria applicable to those licenses at the time they are granted, a demonstration that the licensee has met these requirements should be sufficient to guarantee a renewal. This assumes, of course, that the licensee remains otherwise in good standing and is not subject to forfeiture or cancellation of the license for some other violation of the rules or statute. To that end, Teligent's existing licenses to provide DEMS service are currently subject to an 18 month build-out requirement. Teligent has met all of these construction obligations and therefore, at the time these licenses are up for renewal in January, 2001, these licenses should be renewed without regard to any new rules the Commission adopts in this proceeding applicable to criteria for license renewal.

The Commission's proposal, however, to establish construction benchmarks in addition to the existing "substantial" service requirement for renewal expectancy is both an unnecessary redundancy and incompatible with the regulatory obligations of similarly situated fixed wireless

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59 See, e.g., Amendment of the Commission's Rules to Establish New Narrowband Personal Communications Services, GEN Docket No. 90-314; et al., *First Report and Order*, 8 FCC Rcd 7162, at ¶ 35 (1993) (without ten year term and renewal expectancy, narrowband PCS licensees might be reluctant to invest in their systems); Amendment of the Commission's Rules to Establish New Narrowband Personal Communications Services, GEN Docket No. 90-314; et al., *Second Report and Order*, 8 FCC Rcd 7700, at ¶ 131 (1993) (ten year term and renewal expectancy are conducive to investment).

service providers. In sections 101.527 and 101.529 the Commission effectively proposes two different service requirements. As a "safe harbor" it proposes to require 24 GHz licensees to meet certain coverage requirements within five and ten years. It then proceeds to adopt an additional standard for renewal expectancy, namely "substantial service." As an initial matter, the Commission fails to explain how these two requirements are to be understood and whether meeting one standard effectively satisfies the other. More importantly, the proposed construction benchmark would be uniquely applicable to 24 GHz licensees. Fixed wireless service providers operating in LMDS and 39 GHz are not subject to such build-out requirements. The Commission has also refrained from imposing such requirements on licensees in the 700 MHz band that may be offering service in competition with existing fixed wireless providers.[60] Rather, all of these licensees are entitled to renewal expectancy if they have provided "substantial service,"[61] while the construction safe harbors are just that, not mandatory regulations. Uniform treatment among fixed wireless services is essential unless there is a reason for differentiation. No basis has been proffered in this proceeding for the proposed distinction. Teligent submits that the standards for renewal should be the same for all fixed wireless service providers, and that the proposed construction benchmarks in section 101.527 be eliminated.

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60 See 700 MHz Order at ¶ 70 (implementing a "substantial service" requirement along with "safe harbor" suggestions, as opposed to specific construction requirements, that advise that "the construction of four permanent links per one million people in its licensed service area at the license-renewal mark would constitute substantial service.").

61 See 47 C.F.R. § 101.1011 (imposing a substantial service requirement, but no specific construction requirement on LMDS operators); id. § 101.17 (imposing a substantial service requirement, but no specific construction requirement on Fixed Microwave Services, such as 39 GHz operators).

V. LICENSEES IN THE 24 GHz BAND SHOULD BE SUBJECT TO THE SAME LEVEL OF FORBEARANCE AS OTHER NON-DOMINANT COMMON CARRIERS.

In the Notice, the Commission seeks comment on whether it should invoke its authority under section 10, 47 U.S.C. § 160, to forbear from imposing certain Title II obligations on 24 GHz licensees. While Teligent believes that section 10 is a critical tool for the Commission to deregulate in competitive markets, that tool should not be implemented on the basis of the spectrum used to provide Title II services. Rather, under section 10, the Commission is required to undertake an analysis of the market and, if certain market conditions exist, then the Commission is required to forbear. In this instance, as noted above, the relevant market is the local exchange market. To the extent certain market conditions exist in the competitive local exchange market justifying forbearance for non-dominant competitive local exchange carriers like Teligent that provide competitive services and have no market power with respect to any of its services, Teligent fully supports extending forbearance to all such non-dominant carriers, regardless of the technology they employ to provide their services.

VI. TECHNICAL RULES

A. The Appropriate Emission Mask For Operation In The 24 GHz Band Is The Mask Set Forth In Section 101.111(a)(2)(ii).

In the Erratum to the Notice,[62] the Commission proposes the retention of a separate emission mask for 24 GHz DEMS operators in section 101.111(a)(5), suggesting to amend the existing mask as follows:

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62 Amendments to Parts 1, 2, and 101 of the Commission's Rules to License Fixed Services at 24 GHz, WT Docket No. 99-327, *Erratum to Notice of Proposed Rulemaking*, at ¶ 7 (rel. Dec. 23, 1999) ("Erratum").

(i) On any frequency removed from the center frequency of the DEMS channel by more than 50 percent of that channel's bandwidth:

A = 35 + 0.75(F-0.5B) dB (in any 4 KHz channel), or
A = 11 + 0.75(F-0.5B) dB in (any 1 MHz channel),
but in no event greater than 80 decibels.[63]

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63 Teligent notes that even if a separate emission mask for DEMS is ultimately retained, at a minimum, the proposed rule must be corrected to account for the technical inconsistency described below. Specifically, the proposed amendment to section 101.111(a)(5) of the Commission's rules provides:

(i) On any frequency removed from the center frequency of the 24 GHz Service channel by more than 50 percent of that channel's bandwidth:

A = 35 + 0.75(F-0.5B) dB (in any 4 KHz channel), or
A = 11 + 0.75(F-0.5B) dB in (any 1 MHz channel),
but in no event greater than 80 decibels.

See Erratum at ¶ 7. By comparing the point-to-point emission masks in section 101.111(a)(2)(i) and (ii), it appears that the Commission has overlooked an important part of the calculation. Teligent suggests that the correct representation is:

A = 35 + 0.75(F-0.5B) dB (in any 4 KHz channel)
but in no event greater than 80 decibels, or
A = 11 + 0.75(F-0.5B) dB (in any 1 MHz channel),
but in no event greater than 56 decibels.

The mask in section 101.111(a)(2) (i), for frequencies below 15 GHz, uses a measurement bandwidth of 4 KHz and the maximum attenuation is 80 dB. In contrast, the mask in section 101.111(a)(2)(ii), for frequencies above 15 GHz, uses a measurement bandwidth of 1 MHz and the maximum attenuation is 56 dB. In all of these cases, the attenuation A is measured with respect to the mean output power level of the carrier in the entire channel, not (as in some other radio services) the maximum power level in the measurement bandwidth. Thus, the above suggested editorial correction to section 101.111(a)(5), would result in both of the masks increasing suppression from 35 dB to 80 dB or from 11 dB to 56 dB (in each case, a difference of 45 dB), in the frequency range from the channel edge to 24 MHz beyond the channel edge.

Rather than adopting a particular emission standard unique for the 24 GHz service, Teligent believes that the emission mask already in use in section 101.111(a)(2)(ii)[64] and applicable to all other digital licensees operating above 15 GHz should be applicable to service in the 24 GHz band. Specifically, the Commission should adopt the following emission mask rule:

$A = 11 + 0.4(P-50) + 10 \log_{10}B$ dB. (Attenuation greater than 56 dB is not required.)

Qualitatively, the existing mask set forth in section 101.111(a)(2)(ii) is tighter at the channel edge and thus provides better adjacent channel interference protection than the mask proposed by the Commission (as amended and corrected). Because of the likelihood that, after the auction proposed by the Commission, different carriers may be operating adjacent channels in the same frequency band, tighter protection at the channel edge is needed from adjacent channel interference. Quantitatively, the existing mask in section 101.111(a)(2)(ii) is superior to that proposed by the Commission for DEMS. It requires attenuation of 27 dB ($11 + 10 \log_{10}(40) = 11 + 16 = 27$ dB) at the channel edge, while the proposed mask only requires 11 dB of attenuation. The higher attenuation could reduce adjacent channel interference and thereby improve spectral efficiency.

Furthermore, the mask in section 101.111(a)(2) already applies to other point-to-multipoint facilities operating in the 38.6-40.0 GHz band, as well as point-to-point facilities in several other radio services. Manufacturers, therefore, are familiar with its properties, and operational experience suggests that it provides an appropriate level of adjacent channel

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[64] 47 C.F.R. § 101.111(a)(2)(ii).

interference protection.[65] Consequently, the Commission should remove section 101.111(a)(5) entirely and apply the mask set forth in section 101.111(a)(2) to the 24 GHz service.

B. Principles Of Regulatory Symmetry Warrant Consistent Application Of The Emission Mask To Aggregated Channels

Teligent requests the Commission grant the same regulatory treatment for the 24 GHz service that was accorded to 39 GHz licensees regarding the applicability of emission limits for aggregated channel blocks. In a number of markets, Teligent is licensed to operate on several adjacent 24 GHz DEMS channels -- similar to 39 GHz band licensees. While it is appropriate for the Commission's emission mask rules to protect against adjacent channel interference between different licensees, there is no need for such regulatory protection when the adjacent channels are licensed to the same entity. Moreover, a licensee of two adjacent channels should be allowed to locate a transmitter as close to the channel boundary as is technically sensible. Applying the emission mask limits to the channel boundaries of such same-licensed adjacent channels would prohibit this needed flexibility unnecessarily.

In its rules governing the 39 GHz spectrum band, the Commission adopted the following language as note 7 to the table in section 101.109 of the Commission's Rules:

> For channel block assignments in the 38,600-40,000 MHz band, the authorized bandwidth is equivalent to an unpaired channel block assignment or to either half of a symmetrical paired channel block assignment. <u>When adjacent channels are</u>

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[65] It should be noted that Canada is in the process of adopting essentially the same emission mask for the 24, 28 and 39 GHz bands. <u>See</u> Industry Canada, <u>Radio Standards Specification For Local Multi Point Communication Systems In The 28 GHz Band; Point-To-Point And Point-To-Multipoint Broadband Communication Systems In The 24 GHz And 38 GHz Bands, RSS-191</u>, Issue 1, Provisional Draft K8 (Dec. 2, 1999). Using the same mask in the United States would promote international harmonization of equipment standards and make it easier for equipment manufacturers to roll out equipment that benefits from commonality among the various fixed wireless bands.

aggregated, equipment is permitted to operate over the full channel block aggregation without restriction. NOTE—Unwanted emissions shall be suppressed at the aggregate channel block edges based on the same roll-off rate as is specified for a single channel block in paragraphs 101.111(a)(ii) and (iii) of this chapter.[66]

Teligent urges the Commission to accord the same treatment to carriers operating in the 24 GHz service. Teligent suggests that note 7 be modified to add the 24 GHz service to the 39 GHz band. In addition, an appropriate amendment should also be made to add the emission mask citation within note 7 to include 101.111(a)(5)(i) and (ii) for 24 GHz service.

C. The Emission Mask Should Not Be Made Applicable To Subchannels

Teligent seeks clarification that the proposed emission mask applies only at the edge of each channel, but not to subchannels established by licensees. While the proposed rules adopt spectrum blocks of two 40 MHz channels they also permit licensees to subchannelize the 40 MHz and use radios with narrower bandwidth.[67] For example, a licensee might decide to subchannelize its 40 MHz channel into four subchannels, each about 10 MHz wide. The final emission mask adopted by the Commission should exempt subchannel boundaries that fall within the 40 MHz and apply only to the channel edges for the same reasons it is not necessary to apply the emission mask requirements to the channel boundaries for adjacent channels licensed to the same operator.

Moreover, Teligent seeks clarification that the emission mask can be satisfied by locating the carrier frequencies of the subchannel radios sufficiently far from the channel edges so that the emission levels of the mask are satisfied. This is the approach that the Commission has applied to LMDS transmitters in the 27.5-28.35 GHz band. For example, a Bosch Telecom transmitter with

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66 47 C.F.R. § 101.109, n.7 (emphasis added).

67 Notice at ¶¶ 16, 27.

FCC ID# NNS3214823 is authorized to transmit in the 27,520-28,100 MHz range, rather than the full 27,500-28,350 MHz band. The emission mask is satisfied by preventing the subchannel transmitters from operating too close to the channel edges. Similarly, a number of PCS transmitters are authorized to operate within the PCS band but not up to the band edges. Teligent seeks equivalent treatment for 24 GHz transmitters.

Finally, Teligent seeks clarification that the emission mask be interpreted such that the value B is the 40 MHz bandwidth of the licensed channel, even in the case where narrower subchannels are used. Relatedly, Teligent seeks clarification that, in the case of subchannel use, the mean output power to be used in emission mask calculations is the sum of the output power levels of a fully populated channel. Thus, for example, in a 40 MHz channel that can be occupied by four 10 MHz radios each with 2 watts output power, the emission mask for such radio in this channel would be based on a mean output power of 8 watts. The proposals and clarifications Teligent has suggested herein will maximize the Commission's goal of adopting flexible rules that encourage efficient and innovative use of the 24 GHz spectrum.

D. Frequency Coordination Among Licensees Is A Critical Requirement To Maintaining Orderly Use Of The 24 GHz Spectrum Band.

Teligent supports the twin goals of spectral efficiency and licensee flexibility, so long as these goals can be accomplished without harmful interference. Frequency coordination between and among operators is the best way to achieve these goals, as evidenced by the language proposed in the Notice for section 101.509.[68] Teligent believes, however, that certain

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[68] 47 C.F.R. § 101.509; Notice at B-8.

modifications to the language proposed for new section 101.509 is warranted in order to better accomplish these goals.

Section 101.509(b) requires responsible system engineering and cooperation between and among licensees to resolve and/or preclude interference. Teligent supports this language and believes that it promotes the basic philosophy that should underlie frequency coordination in this service. As such, the Commission should consider reorganizing the order of subparagraphs (a) and (b) to emphasize and prioritize this requirement.

Section 101.509(a) is a similar but somewhat more detailed statement of a licensee's obligation to avoid interference. However, use of the phrase "blocking of adjacent channel use" raises an important concern that may warrant its removal from the final rule.[69] The Commission should recognize that adjacent channel interference is likely to be highly dependent upon the relative siting of transmitters and receivers rather than an intentional or careless disregard of the required operating rules. When a "victim" receiver is too close to an unwanted transmitter operating on an adjacent channel to the wanted transmitter, adjacent channel interference may occur. This is the well-known "near-far" problem. Thus, adjacent channel interference can occur as a result of the normal channel assignment and station siting that is done in laying out a network, and should not be viewed as the result of an intentional or even conscious act.

In any case, because it is likely that equipment vendors will produce radios with bandwidths narrower than the 40 MHz licensed channel, licensees will likely subchannelize their

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69 Although "blocking" is not a term that is normally employed in the fixed microwave services, Teligent presumes that it implies some intentional creation of adjacent channel interference in an attempt to disadvantage an adjacent channel licensee.

spectrum allocation. Thus, any adjacent channel interference would generally affect only the subchannel nearest to the channel edge. In this way, any adjacent channel interference that occurs due to the normal engineering of a network would affect only a discrete subchannel within the adjacent channel, not the entire channel. Moreover, the term "blocking" is not well defined and is not normally employed in the fixed microwave services. For these reasons, the phrase "blocking of adjacent channel use" should be removed from the rule or modified to include the word "intentional" which is how Teligent interprets the Commission's intention.

Frequency coordination should take into account all potential modes of interference, including: nodal station to user station, user station to nodal station, nodal station to nodal station, and user station to user station. In a frequency division duplex design, the first two modes would apply, while in a time division duplex design, all four might apply. Because neither nodal stations nor user stations would be individually licensed under the new rules, a proposal Teligent strongly supports, their locations would not appear in FCC licensee data bases.[70] Instead, licensees and other interested parties, working through industry organizations such as the National Spectrum Managers Association (NSMA), will have to develop methods for sharing user station location information among affected parties because that information is not required to be filed within 30 days. Teligent, therefore, supports proposed section 101.509(c) because it places the burden directly on carriers to avoid interference and coordinate their operations without the imposition of FCC rules or mandatory third party participation (of course, the industry should maintain the flexibility to utilize third parties as it deems necessary).

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[70] See Notice at ¶ 39.

Relatedly, the Commission should clarify that the proposed section 101.525(b) is only applicable to stations licensed under subparagraph (a)(1) and antenna structures registered under subparagraph (a)(2) of that section (as opposed to all stations constructed and operated under paragraph (a), which would create substantial burdens for licensees and the Commission). This interpretation is supported by the fact that the Commission has proposed deleting section 101.5(b) which required DEMS operators to register nodal stations with the Commission. Accordingly, Teligent concurs with the Commission's proposal to remove all notification requirements for nodal stations and user stations except in the limited circumstances provided for in section 101.525(a).

Section 101.509(c) proposes to require frequency coordination between facilities with line-of-sight paths to other facilities.[71] While Teligent agrees that the 80 km coordination distance is too large, the proposed line-of-sight coordination requirement may be similarly inappropriate as the decisional criterion because of the high degree of building blockage in urban areas and the resulting uncertainty over whether a potential "victim" receiver has a line of sight path to a proposed transmitter site. Use of a coordination distance is clearer, and more consistent with operations in other frequency bands. Teligent believes that the appropriate coordination distance should ultimately be developed by industry bodies such as NSMA, based on experience with actual operational licensees.[72] Until such determination can be made, however, the Commission's

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71 See id.

72 Setting coordination distances between nodal stations will necessarily include user stations in the coordination process. Coordination would typically consider the relative signal strengths of the wanted nodal station signal and the unwanted nodal station signal, as they both impinge on a user station receiver. All user stations associated with the wanted nodal station must be protected against interference from the unwanted station. So coordination would take place between the unwanted (or newly applied for) nodal station and all user

rules should reflect a shorter distance than 80 km as a temporary coordination distance. Teligent believes that 40 km would be a better interim coordination distance and will protect any potential operator while not unduly burdening licensees to coordinate unnecessarily.

In general, Teligent supports the development of coordination guidelines for 24 GHz by industry organizations such as NSMA, rather than embodying specific procedures in a formal Commission rule. Flexible guidelines will provide the greatest benefits with the least accompanying costs to carriers.[73] That is, voluntary guidelines or policy statements maximize flexibility to communications providers, equipment manufacturers, and consumers and ensure that communications providers can tailor their service offerings more closely with consumer demand. Were the Commission to set rules in this area, in effect establishing standards, that decision would risk freezing technology and innovation,[74] thereby creating a static service and equipment market. The rules the Commission ultimately adopts in this proceeding should reflect this underlying philosophy. Proposed section 101.509, with the improvements suggested above, is consistent with this approach.

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stations associated with previously-built nodal stations within 40 km (or other such distance ultimately adopted) of the newly applied for nodal station.

[73] See Rosston & Steinberg at 100 ("technical flexibility means that users should have broad freedom to choose the technologies and equipment that they will use to provide services. Technical flexibility gives spectrum users the ability and incentive to develop and implement innovative, spectrum-efficient, low-cost, and consumer-responsive technologies for delivering their services without unnecessary delay or regulatory interference.") (citation omitted).

[74] See Anton and Yao, "Standard-Setting Consortia, Antitrust and High Technology Industries," 64 Antitrust L.J. 247, 249-251 (1995).

E. The Commission's User Station Antenna Directivity Requirement In Section 101.115 Should Be Eliminated.

Section 101.115 of the Commission's Rules currently imposes a Standard B antenna pattern plus a minimum gain of 34 dBi on DEMS user stations.[75] Antenna directivity requirements, however, are not necessary for this service because of its area-wide licensing scheme. While antenna directivity requirements can result in improved spectral efficiency for individually licensed point-to-point links in a geographic area, such a regulatory requirement is contrary to the underlying principle of area-wide licensing where a single carrier has exclusive use of the frequency within a service area. With area-wide licensing, the licensee already has the incentive to make the most spectrally and economically efficient use of the licensed spectrum without additional, unnecessary technical rules being imposed by the Commission.

Moreover, restrictions on user station antenna directivity could act as a barrier to future network designs and configurations.[76] For example, while a directive user station antenna is consistent with point-to-multipoint networks, it is not consistent with a multipoint-to-multipoint network configuration. It may be anticipated that, in the future, some of the modulation methods and media access protocols that have heretofore been employed only in mobile networks might migrate to the fixed network environment. Retaining a user station antenna directionality requirement would stifle such an evolution.

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[75] 47 C.F.R. § 101.115(c), n.10 to the table corresponding to that section.

[76] But see Amendments to Parts 1, 2, and 101 of the Commission's Rules to License Fixed Services at 24 GHz, WT Docket No. 99-327, *Comments of Comsearch,* at 6-7 (filed Dec. 10, 1999)

In a market-based approach to spectrum allocation, the licensee is best suited to analyze the technical and economic tradeoffs related to technical issues such as antenna directivity. In general, higher directivity means a larger and more expensive antenna. To the extent that lower directivity results in increased interference into other links within the licensee's own system, it is the licensee that can best analyze the tradeoffs and determine whether a more expensive antenna should be used. The Commission recently employed this principle in its rules governing operation in the 38.6-40 GHz band. There, the Commission completely eliminated the antenna directivity requirement.[77] This same flexible deregulatory approach should apply equally to 24 GHz operations.

F. The Commission Should Amend The Current Channel Plan To Permit Time Division Duplex Technology.

Section 101.147(r)(9), of the Commission's Rules[78] which establishes one set of channels for nodal station transmitters and another set for user station transmitters, should be amended to eliminate this distinction. While the different channel specifications are based on the more traditional Frequency Division Duplex (FDD) technology, this rule now serves as a barrier to the provision of service using other available transmission technologies such as Time Division Duplex (TDD).

In a traditional FDD environment, the frequencies are separated between the transmit and receive channels. This was essential for analog full-duplex systems because both the transmit and receive channels needed to be active at all times. In digital full-duplex systems, however, this is

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[77] See 47 C.F.R. § 101.115(c), n.13 to the table in the corresponding section; see also 39 GHz Order at ¶ 65.

[78] 47 C.F.R. § 101.147(r)(9).

no longer the case. Digital systems employ compression techniques that allow full duplex operation without needing a constant channel available in real time. Digital systems that employ TDD can use a channel in one direction part of the time and in the other direction the rest of the time. Thus, the frequencies that are solely for nodal station use in section 101.147(r)(9) should be freed to be used for both nodal stations and user stations by carriers that deploy TDD technology.

TDD offers particular advantages for advanced digital services such as Internet access. Unlike FDD, TDD allows a channel to be used asymmetrically in time. In other words, a larger amount of time can be allocated in the nodal-to-user direction, meeting the larger consumer demand for downloading data and web pages. Rather than inefficiently utilizing channel capacity in the user-to-nodal direction, as would likely be the case with FDD, carriers employing TDD could balance their traffic loading to make full use of the channel in both directions. Thus, section 101.147(r)(9) should be amended to allow for more efficient use of the spectrum allocated in the 24 GHz band.

G. Equipment Manufactured For Service In The 24 GHz Band Should Be Subject To The Commission's Verification Procedures, Rather Than Its Certification Requirements.

DEMS 24 GHz transmitters should be subject to verification rather than certification as the applicable equipment authorization procedure. Currently, under section 101.139 of the Commission's Rules, DEMS transmitters are subject to equipment certification procedures while point-to-point transmitters at 23 GHz and point-to-multipoint transmitters in the 39 GHz band are subject to verification. Certification requires the manufacturer to submit full test measurement data to the Commission, and requires the Commission to affirmatively issue a grant of equipment authorization, before the manufacturer can begin selling the product. Verification, on the other hand, allows the manufacturer to begin selling the equipment as soon as the compliance testing

has been completed by the manufacturer. This can result in a time difference of up to several months, depending on the application processing backlog at the FCC Labs.

When the Commission recently changed the equipment authorization rules, it found that Part 101 Subparts H and I microwave transmitters have compiled an excellent record of compliance, and because they are operated under the terms of a license, interference can be resolved by the licensee.[79] However, essentially the same type of radio technology is employed in the 24 GHz DEMS band as the 23 GHz and 39 GHz point-to-point microwave bands. Moreover, it is equally true that 24 GHz DEMS licensees are responsible for resolving interference problems. Consequently, while the faster time to market of verification compared with certification would provide public interest benefits by allowing the faster roll-out of new technology, there appear to be no potential harms. For this reason, verification rather than certification should apply as the equipment authorization procedure to 24 GHz DEMS transmitters.

VII. ADOPTION OF COMPETITIVE BIDDING PROCEDURES FOR THE ALLOCATION OF SPECTRUM FOR MUTUALLY EXCLUSIVE APPLICATIONS IS CONSISTENT WITH STATUTORY REQUIREMENTS AND WILL LEAD TO THE RAPID DEPLOYMENT OF SERVICE IN THE 24 GHz BAND.

A. Section 309 Requires The Use of Auctions For Mutually Exclusive Applications.

As more and more carriers are developing innovative ways to provide new and more advanced services, the demand for additional spectrum is increasing. As a result, the Commission must strive to license additional 24 GHz fixed wireless spectrum as quickly and as efficiently as

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79 See Amendments of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment, ET Docket No. 97-94, *Report and Order,* 13 FCC Rcd 11415, at ¶ 25 (1998).

possible. Based on the Commission's significant experience with spectrum auctions and the current legal framework, Teligent believes that competitive bidding represents the best means in this current regulatory environment by which to achieve this goal at this time.[80] Accordingly, Teligent supports the Commission's tentative conclusion that mutually exclusive initial applications for the 24 GHz band should be resolved through competitive bidding.[81]

The use of competitive bidding to award 24 GHz licenses, as compared with other licensing methods that previously have been utilized by the Commission, will speed the further development and deployment of this technology to the public with minimal administrative or judicial delay, and will encourage the efficient use of the spectrum as required by Sections 309(j)(3)(A) and 309(j)(3)(D).[82] As a licensing methodology, auctions ensure that licenses are assigned to those who value them most highly. From this, it generally follows that such licensees can be expected to make the most efficient and intensive use of the spectrum. Moreover, the use of auctions appears to meet the objectives of Section 309(j)(3)(B) by fostering economic

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80 Teligent notes that auctions may not represent the optimal method of awarding licenses in all cases.

81 See Notice at ¶¶ 43-45.

82 See 47 U.S.C. § 309(j)(3)(A) and (D). Section 309(j) of the Communications Act of 1934, as amended, gives the Commission auction authority over services where mutually exclusive applications for initial licenses or construction permits are accepted for filing and requires that the principal use of the spectrum to be auctioned will involve or is reasonably likely to involve the provision of subscription-based communications services. Spectrum in the 24 GHz band satisfies these requirements. See also Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 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 Service, CC Docket No. 92-297, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 12545, at ¶¶ 302-303 (1997) (concluding the same with respect to LMDS spectrum).

opportunity and the distribution of licenses among a wide variety of applicants, including small businesses.[83]

B. Incorporation Of The Standardized Auction Procedures Should Lead To The Rapid Allocation Of The 24 GHz Band.

The Commission proposes to conduct the 24 GHz auction in conformance with Part 1, subpart Q of the Commission's Rules "governing designated entities, application issues, payment issues, competitive bidding design, procedure and timing issues, and anti-collusion" requirements.[84] These rules largely mirror those rules governing competitive bidding procedures that have been employed in previous Commission auctions, including the LMDS auctions. Moreover, the Commission has adopted the standardized auction rules for use in the upcoming 39 GHz auction.[85] Teligent supports the proposal to adopt the Commission's standardized auction rules for the 24 GHz auction because they will enable the auction to occur sooner than would be the case in the event of the adoption of the modified rules.

The speed with which the Commission is able to complete the administrative procedures necessary to begin auctioning 24 GHz spectrum will be critical to the future competitiveness of the broadband fixed wireless market. LMDS spectrum already has been auctioned. The 39 GHz auction has been scheduled and is poised to begin. Given the burgeoning demand for broadband fixed wireless services across all frequency bands, nearly all incumbent LMDS, 39 GHz and 24 GHz licensees, including Teligent, are seeking additional bandwidth to satisfy this existing

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83 See 47 U.S.C. § 309(j)(3)(B).

84 Notice at ¶ 46.

85 See 39 GHz Order at ¶108.

demand, let alone the future demand. These circumstances, combined with the fact that the LMDS, 39 GHz and 24 GHz services currently being offered by licensees are essentially substitutable, require the Commission to conduct the 24 GHz auction as closely in time as possible to the 39 GHz auction. If the 24 GHz auction is delayed significantly beyond the start of the 39 GHz auction, 39 GHz licensees could gain a significant headstart and the existing competitive parity between the services will be skewed. Armed with additional spectrum, 39 GHz licensees will be well-positioned to gain a competitive advantage over 24 GHz licensees awaiting Commission auction of the spectrum. By endeavoring to expedite the start of the 24 GHz auction to follow closely the 39 GHz auction, the Commission can minimize this potentially adverse competitive effect.

Accordingly, the Commission's actions in this proceeding need to be taken with a view toward promoting the rapid assignment of 24 GHz licenses, and any steps that could delay, or tend to delay, the auction should be avoided. As the Commission notes, however, the Part 1 rules are currently the subject of *a Second Further Notice of Proposed Rule Making* in WT Docket No. 97-82[86] which will potentially modify the rules regarding designated entities and attribution rules, among others. Teligent submits that the Commission should not delay the start of the 24 GHz auction pending the adoption of new auction rules in that proceeding. The Commission did not find it necessary to delay the start of the 39 GHz auction or the 700 MHz auction to

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86 See Amendment of Part 1 of the Commission's Rules -- Competitive Bidding Procedures, Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, 4660-4685 MHz, WT Docket No. 97-82; ET Docket No. 94-32, *Third Report and Order and Second Further Notice of Proposed Rule Making*, 13 FCC Rcd 374, at ¶¶ 170-194 (1998) ("Competitive Bidding Procedures Third Report and Order").

accommodate these potential changes. Moreover, the issuance of new rules in the 39 GHz auction could significantly alter the rules by which the 24 GHz auction will be conducted, thereby potentially rendering moot that portion of the instant proceeding concerning auction procedures and necessitating a further round of comments. As noted above, the delay associated with any such additional administrative procedures would be contrary to the need for competitive parity with the 39 GHz band and to the public interest that will be served by the rapid assignment of additional 24 GHz spectrum.

With respect to the specific question of whether any of the standard Part 1 auction rules would be inappropriate in an auction of 24 GHz licenses, it appears at this time that the current rules are appropriate. Moreover, Teligent submits that in the interest of parity with other similar services, the Commission should adopt the same auction rules for the 24 GHz band as it has for the upcoming 39 GHz auction. Specifically, among the options set forth in Part 1 for competitive bidding designs,[87] the Commission should choose to use simultaneous multiple-round auctions. The Commission has used this form of auction in the vast majority of the auctions thus far "because it provides bidders with valuable information regarding the value others place on licenses and allows bidders to pursue backup strategies as more information becomes available during the auction."[88] Both the Commission and potential bidders are comfortable with simultaneous multiple-round auction procedures and there is nothing unique about the 24 GHz band that merits the use of a different design.

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87 See 47 C.F.R. § 1.2103.

88 See Amendment of Part 1 of the Commission's Rules -- Competitive Bidding Proceeding, WT Docket No. 97-82, *Order, Memorandum Opinion and Order, and Notice of Proposed Rule Making*, 12 FCC Rcd 5686, at ¶ 79 (1997).

Teligent notes that in the Competitive Bidding Procedures Third Report and Order, the Commission allowed for the adoption of "real time" bidding as an alternate design methodology for use in simultaneous multiple-round auctions in order to allow auctions to proceed more rapidly.[89] In real time bidding, bidding occurs on an open and continuous basis within each bidding period as opposed to the current method which prevents bidders from seeing and reacting to the bids of other bidders until the close of each bidding period.[90] Due to the competitive imperative associated with minimizing the time it takes to initiate the 24 GHz auction, Teligent believes that the 24 GHz auction is not the appropriate place to introduce real-time bidding. The Commission will need to complete the development and testing of the software necessary to implement real time bidding and will need to permit potential bidders to experiment and become familiar with the new procedures prior to the auction. Unless the software revisions are nearing completion, Teligent is concerned that real time bidding could unnecessarily delay the start of the auction and submits that the introduction of real time bidding should be postponed until a subsequent auction.

In the interest of facilitating the rapid deployment of 24 GHz services, the Commission should adopt the shortest periods set forth in Part 1 for filing petitions to deny against long form applications.[91] The use of five-day filing periods is consistent with Congress' directive in the

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89 Competitive Bidding Procedures Third Report and Order at ¶ 128.

90 Id. at 127.

91 See 47 C.F.R. § 1.2108 (providing for the filing of petitions to deny no earlier than 5 days following public notice of the acceptance for filing of long form applications and similar 5 day periods for the filing of oppositions and replies).

Balanced Budget Act[92] to reduce these filing periods and with the Commission's action with respect to the GWCS auction rules and procedures.[93] Five-day periods provide sufficient time for interested parties to prepare their pleadings, while longer periods for filing petitions to deny merely serve to delay the provision of service.

After issuing an order adopting final rules in this proceeding, and in accordance with the Balanced Budget Act, the only remaining administrative step that the Commission would need to take prior to the actual auction would be to issue a public notice scheduling the start date of the auction. In addition to identifying the commencement date, such notice would describe and seek comment on the specific mechanisms related to the day-to-day conduct of the auction, including "the structure of bidding rounds and stages, establishment of minimum opening bids or reserve prices, minimum accepted bids, initial maximum eligibility for each bidder, activity requirements for each stage of the auction, activity rule waivers, criteria for determining reductions in eligibility, information regarding bid withdrawal and bid removal, stopping rules, and information relating to auction delay, suspension or cancellation," among others.[94] This same procedure was used by the Commission with respect to the 39 GHz auction and should be adopted here.[95]

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92 See Balanced Budget Act of 1997, Section 3008, Pub. L. No. 105-33, 111 Stat. 251 (1997).

93 See Competitive Bidding Procedures Third Report and Order at ¶ 194; see also 700 MHz Order at ¶ 80 (adopting a "seven-day notice requirement for initial applications and the five day deadline for petitions to deny.").

94 Id. at ¶ 125 (directing the Wireless Bureau to seek comment on specific mechanisms related to day-to-day auction conduct).

95 See Public Notice, Report No. AUC-99-30-A (Auction No. 30), DA 99-2624 (Nov. 23, 1999).

C. Bidding Credits For Certain Entities That Are Consistent With Other Credits Made Available In Other Auctions Would Promote Economic Opportunity For Certain Disadvantaged Applicants.

In the Notice, the Commission tentatively concludes that with respect to the 24 GHz auction it will adopt the same definitions for "small" and "very small" businesses that it used for broadband PCS, 2.3 GHz, and 39 GHz applicants.[96] "Small business" will be defined as "any firm with average annual gross revenues for the three preceding years not in excess of $40 million, and "very small business" will be defined as any firm with average annual gross revenues for the three preceding years not in excess of $15 million"[97]

Teligent concurs with the Commission's general conclusion that affording small and very small businesses bidding credits serves to promote economic opportunity for a wide variety of applicants while preserving the advantages of competitive open bidding. Teligent also agrees with the Commission's conclusion that the capital requirements of 24 GHz licensees and applicants are comparable to those of 39 GHz applicants. Accordingly, Teligent supports definitions of small and very small business that parallel the definitions used by the Commission in that auction.

However, Teligent is concerned about the amounts of the proposed bidding credits associated with those definitions because they vary significantly between 39 GHz applicants and 24 GHz applicants, even though the size of the license areas (EAs) are identical, the bandwidth of the licenses (100 MHz at 39 GHz and 80 MHz at 24 GHz) is similar, the services that can be offered using the frequencies (broadband fixed access) are substitutable, and Teligent currently is competing head-to-head with incumbent 39 GHz licensees. Despite these similarities, the

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96 Notice at ¶ 48.

97 Id. at ¶¶ 48-49.

Commission inexplicably has adopted for the 39 GHz auction bidding credits for small and very small businesses of 25% and 35%, respectively, while proposing bidding credits for these entities in the 24 GHz auction of only 15% and 25%, respectively.

Teligent submits that such a disparity between the amount of the bidding credits in the 39 GHz auction and the 24 GHz auction will place small business applicants in the 24 GHz auction at a significant disadvantage vis-à-vis 39 GHz applicants. As an initial matter, the difference will likely skew applicants' access to the capital markets. Specifically, small business applicants in the 39 GHz auction will likely have better access to capital because they will be in a better position to succeed in that auction. Moreover, the unequal bidding credits will create an uneven playing field between the 39 GHz auction winners (with lower costs) and the 24 GHz auction winners (with higher costs), improperly skewing the workings of the marketplace. Ultimately, the Commission proffers no justification for proposing different bidding credits in the 39 GHz and 24 GHz auctions. Nor could Congress have intended such a result when it implemented section 309 and sought special consideration for designated entities. As Teligent has noted, the geographic areas and the bandwidth represented by the licenses, as well as the services offered by the licensees, are essentially identical. There is no reasonable justification for treating designated entities in the 39 GHz auction differently from designated entities in the 24 GHz auction, for purposes of bidding credits, and to do so would be not only discriminatory but also anticompetitive.

In order to reconcile the competitive disadvantage that the different bidding credit structures place on 24 GHz applicants relative to 39 GHz applicants, it is imperative that the Commission harmonize the bidding credits for the 24 GHz auction to match those offered at 39 GHz. Teligent submits that given the imminent start of the 39 GHz auction, the public interest

will be better served by increasing the proposed bidding credits in the 24 GHz auction to 25% and 35% for small and very small businesses, respectively.

VIII. CONCLUSION

For the foregoing reasons, Teligent respectfully requests the Commission adopt a market based approach to licensing the spectrum; a flexible deregulatory approach to managing carriers' operation in the 24 GHz band; and an expeditious conclusion to this proceeding paving the way for a 24 GHz spectrum auction as soon after the 39 GHz auction as possible.

Respectfully submitted,

TELIGENT, INC.

By: _____

Philip L. Verveer
Gunnar D. Halley
David M. Don

WILLKIE FARR & GALLAGHER
Three Lafayette Centre
1155 21st Street, N.W.
Washington, D.C. 20036
(202) 328-8000

Douglas L. Povich
Robert B. Kelly

SQUIRE, SANDERS & DEMPSEY, L.L.P.
1201 Pennsylvania Avenue, N.W.
P.O. Box 407
Washington, D.C. 20044-0407

Attorneys for TELIGENT, INC.

Laurence E. Harris
David S. Turetsky
Terri B. Natoli

TELIGENT, INC.
Suite 400
8065 Leesburg Pike
Vienna, VA 22182
(703) 762-5100

Dated: January 19, 2000