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Filed Electronically

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: ***Ex Parte Submission of Covad Communications Group, Inc.:*** Wireless Operations in the 3650-3700 MHz Band, ET Docket No. 04-151; Rules for Wireless Broadband Services in the 3650-3700 MHz Band, WT Docket No. 05-96; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, ET Docket No. 02-380; Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band, ET Docket No. 98-237

Dear Ms. Dortch:

Covad Communications Group, Inc. ("Covad"), pursuant to the provisions of Section 1.1206(b) of the rules and regulations of the Federal Communications Commission ("Commission"), submits the following *ex parte* communication regarding the Commission's proceeding designed to permit the use of the 3650-3700 MHz Band (the "3.65 GHz Band"). Covad is a wireline competitive local exchange carrier and also provides wireless broadband services to over 3000 primarily small- and medium-sized businesses. We therefore have a first-hand appreciation of the benefits of competition in the communications marketplace and believe that the availability of unlicensed spectrum will help further that goal.^{1/} Based upon our review of the record in this proceeding, Covad has fashioned a proposal which we believe combines the best features of the proposals in the record, established spectrum management techniques, and generally accepted engineering practice. Covad respectfully submits that this proposal will best allow the Commission to proceed with the use of the 3.65 GHz Band and facilitate the rapid proliferation of competitively-provided business-class wireless broadband services in the United States.^{2/}

^{1/} Covad, through its NextWeb, Inc. ("NextWeb") subsidiary, delivers business-class wireless broadband service primarily to small and medium-sized businesses at speeds up to 100 Mbps. NextWeb complements Covad's existing portfolio of wireline data solutions. NextWeb currently provides service to more than 3,000 business customers in California and Nevada. To date, NextWeb has provided services to the public via unlicensed spectrum in the 5 GHz band. NextWeb also provides certain backhaul services through the use of spectrum licensed under Part 101 of the Commission's rules. NextWeb has received experimental authorization to test 3.65 GHz Band equipment in five markets in preparation for operations in this band and expects to commence testing as soon as equipment meeting its performance criteria is available.

^{2/} This *ex parte* communication relates principally to the question of whether the 3.65 GHz Band should be employed on a licensed or unlicensed basis. Covad recognizes that there have been other matters raised in petitions for reconsideration of the Commission's decisions in this proceeding, such as

I. Background -- Licensed vs. Unlicensed Spectrum

The record in the 3.65 GHz Band proceedings highlights fundamental tensions and challenges that arise from the Commission's historical spectrum management policies. Commission spectrum management policy has, most recently, generally taken two forms. The first, the "open access" or unlicensed model, makes spectrum available to all users who observe certain minimum technical requirements. No user enjoys superior rights to interference protection. The second, the "exclusive use" or licensed model, has generally entailed auction of spectrum to the highest bidder, who thereafter enjoys exclusive use of the spectrum.^{3/} In this submission, Covad proposes a "hybrid" approach, based on actual system deployment, which will help ensure rapid introduction of broadband services to the public under a regime that also supports long-term investment by new entrants.

While the two principal spectrum use models have their virtues, they also have certain drawbacks. For instance, spectrum set aside for unlicensed use has supported relatively rapid deployment and heavy usage, as well as the introduction of many innovative applications and devices. This is largely because users of unlicensed spectrum do not face protracted regulatory processes prior to initiating service or confront the significant challenges related to financing spectrum acquisition in addition to the substantial costs associated with building the actual facilities necessary to provide service. The drawback to the use of unlicensed spectrum, however, is a heightened need to take measures that ensure the quality of services provided to businesses and consumers; the sheer variety of uses and the changeable RF environment in unlicensed bands makes management of the spectrum by individual service providers difficult and unpredictable.^{4/} Commercial broadband services in these bands have typically been

the appropriate level of protection that should be afforded satellite earth station operators. Except as otherwise covered by this *ex parte* letter, Covad generally supports the positions taken by the Wireless Communications Association, Inc. ("WCA") on those other issues.

^{3/} The Commission has also employed a "command and control" licensing approach with very particular eligibility and other use restrictions. Most spectrum recently made available for commercial operations has not been subject to the command and control approach.

^{4/} The FCC has attempted to craft rules for the use of unlicensed spectrum that are designed to overcome these deficiencies. For instance, the Commission has examined the use of cognitive radios and other "smart" technology designed to promote more intense spectrum use. *See, e.g. Facilitating Opportunities for Flexible, Efficient and Reliable Spectrum Use Employing Cognitive Radio Technologies*, Report and Order, 20 FCC Rcd 5486 (2005). It also authorized the use of ultra wideband ("UWB") technologies on an unlicensed basis. *See, Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, Second Report and Order and Second Memorandum Opinion and Order, 19 FCC Rcd. 24558 (2004). Recently, the Commission finalized rules governing Unlicensed National Information Infrastructure ("U-NII") devices in the 5 GHz band. *See, Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure ("U-NII") Devices in the 5 GHz band*, Memorandum Opinion and Order __ FCC Rcd __ (2006), ET Docket 03-122, Rel. June 30, 2006. In that case, because of the presence of other operations in segments of the U-NII 5 GHz band (in particular, the 5.25 - 5.35 and 5.47 - 5.725 GHz segments), the Commission requires equipment in that spectrum to employ dynamic frequency selection ("DFS") and automatic

provided, by small, nimble entrepreneurs who have been successful in confronting these formidable challenges. But widespread deployment has been limited due to a lack of investor confidence in the sustainability of these efforts over time as unlicensed bands become more heavily utilized.^{5/}

On the other hand, the exclusive use/auction model of spectrum allocation has been a clear success in achieving certain objectives, but has not consistently produced intensive spectrum use and service deployment. A key virtue of the auction model is that the spectrum rights are awarded to those placing the highest economic value on the spectrum. Auctions also ensure that the public receives compensation in exchange for the licensee's right to use a scarce public good. However, auctions have often been dominated by large, well financed, incumbent service providers, who may accumulate spectrum for possible future use, or for strategic purposes (such as limiting competitive entry), rather than immediate deployment of services to the public. As a result, following an auction, spectrum may lie fallow for years, and the opportunity to facilitate new entry by smaller competitors is not realized. The Commission has struggled to address this fundamental challenge by various regulatory means, such as its designated entity rules, with limited success.

II. Spectrum Use in the 3.65 GHz Band

The spectrum rights approach initially adopted by the Commission for the 3.65 GHz Band attempted to address the challenges posed by the unlicensed model by requiring the use of new, but largely unproven and undefined, contention based technologies.^{6/} Several parties submitted petitions for reconsideration of the Commission's decision, asserting, among other things, that the use of contention-based technologies, at least as currently described by the Commission and as that technology exists today, is insufficient to permit multiple entities to use the same spectrum in the same market. Those entities contend that multiple users employing the same spectrum will result in the provision of an unacceptably low quality of service to customers and that contention based technologies are not yet ready to support rapid and intensive use of the 3.65 GHz Band, particularly in urban areas.^{7/}

transmit power control technologies. Covad's approach represents another method by which the Commission can make unlicensed spectrum available for highly reliable commercial and residential applications.

^{5/} Covad recognizes that some unlicensed bands (such as the 900 MHz band) have been inappropriate for carrier use in any case, because they only support narrowband services. The above discussion relates principally to those bands, like the 5 GHz band, which are generally considered capable of supporting broadband commercial services.

^{6/} *In the Matter of Wireless Operations in the 3650-3700 MHz Band*, Report and Order and Memorandum Opinion and Order, 20 FCC Rcd 6502, 6508 (2005).

^{7/} Petition for Reconsideration of Wireless Communications Association International, Inc. at 5-9. Petition for Reconsideration of WiMax Forum at 10; Petition for Reconsideration of Intel Corp., Redline Communications, Inc. and Alvarion, Inc. at 10.

Due to the perceived shortcomings in the use of contention based technologies, and based on a desire to employ the 3.65 GHz Band as quickly as possible, a number of participants in the 3.65 GHz proceedings have now defaulted to supporting auctioning of the 3.65 GHz Band, in some or all areas of the country, in order to provide a more stable and predictable near-term basis for deployment of facilities and the provision of valuable and innovative services to the public.^{8/}

Covad shares these parties' desire to quickly utilize the 3.65 GHz Band for wireless broadband, but believes there is a better, faster and more competitive way to achieve these results. Covad proposes a hybrid spectrum use model for the 3.65 GHz Band which preserves the benefits of an unlicensed model, while at the same time grants reasonable protection against interference to those who actually deploy facilities and provide service to the public -- thereby ensuring that the public interest is served through the availability of high quality wireless broadband services. Like the auction/exclusive use model, there is a price to be paid for the enhanced interference rights that would be available under our proposal -- the price is investing capital to deploy facilities and provide service. Similarly, there is a clear benefit to the public from granting these interference rights, since they are granted *only when a service provider actually provides service to the public*.

III. Covad's Deployment-Based Hybrid Spectrum Use Alternative

Covad proposes to remedy the current inadequacies in the use of contention-based technologies with a set of rules that: (1) impose certain minimum spectral efficiency requirements and engineering standards on a technology neutral basis; and (2) require prior coordination with and protection of existing registered operations.

With respect to spectrum efficiency requirements, Covad proposes the adoption of regulations that require the following frequency use parameters for operations:

- The 3.65 GHz Band should be subdivided for registration purposes into seven 7 MHz sub-bands. Only registrations of base stations specifying the use of these 7 MHz blocks would be permitted. No initial site registration would be permitted to specify more than three 7 MHz blocks. While this would be the maximum limit for initial site registrations, applicants would also be prohibited from registering for more channel blocks than they will actually be using at a base station as deployed and certified, as discussed further below. This channelization plan would create uniformity in spectrum usage and thus facilitate coordination among registrants. Because the WIMAX standard contemplates 3.5 MHz and 7 MHz channels, the proposed channelization scheme would accommodate this technology^{9/} Such a channelization

^{8/} Petition for Reconsideration of Wireless Communications Association International, Inc., pp.12-14; *Ex parte* Comments of WiMAX Forum.

^{9/} 802.16E-2005 IEEE Standard for Local and Metropolitan Area Networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands.

plan is also similar to the channelization scheme adopted for the 2496-2690 MHz band, which will be employed on a licensed basis in the Broadband Radio Service and Educational Broadband Service following transition of this band under the Commission's rules. Since the 2496-2500 MHz band is also expected to be utilized for the provision of broadband wireless services, the adoption of a similar channelization scheme should promote the availability of compatible equipment options for 3.65 GHz Band registrants.

- For larger markets, only sectorized antennas should be permitted for use in the 3.65 GHz Band and the use of omnidirectional antennas should be prohibited. The benefit of this requirement is that later registrants will be afforded greater flexibility in deploying additional facilities using non-interfering frequency use patterns, even with the same blocks of frequencies utilized by prior registrants. This in turn will facilitate more intensive use of spectrum and a greater number of service providers in a particular area. Covad proposes that the prohibition of omnidirectional antennas apply to the top 200 markets in the United States. Allowing omnidirectional antennas in smaller markets would support more cost effective deployment in less dense areas.
- The rules would specify minimum spectrum efficiency requirements for registered sites. The best available benchmark given the expected usage of this band can be found in the performance standards set forth in the WIMAX Extended Usage Model for 802.16e -2005 OFDMA V 1.0., *Section 9.1.1* specification, which specifies spectral efficiency requirements for the Basic Feature Set.^{10/} Those spectral efficiency requirements are based on distance from the base station to the subscriber unit and change based on distance. Consistent with those performance standards, Covad proposes a requirement of 1.0bps/sec/Hz/Sector in the downlink and .5bps/sec/Hz/Sector in the uplink. Specification of technology neutral minimum spectral efficiency requirements will ensure that registrants do not utilize more spectrum than necessary or construct systems utilizing inefficient technologies, thus providing for more intensive use of the available spectrum in the 3.65 GHz Band.

In conjunction with these spectrum usage rules, Covad recommends a prior coordination process that would be governed by the following key features:

- Advance initial registration would be required for all base stations that a service provider intends to construct. As part of the base station registration process that the current rules envision, users would be required to provide basic technical parameters such as equipment manufacturer, effective radiated power, bandwidth (channels) employed, antenna height, antenna azimuth and beamwidth and other parameters that would be used to establish a registrant's expected service contour for coordination

^{10/}

Id.

purposes.^{11/} Base station registration would occur overnight in the FCC's Universal Licensing System ("ULS") database.

- Following initial registration, the service provider would have a brief window (Covad recommends 90 days) in which to complete construction and commence service to the public.
- Once a service provider has completed construction and initiated service to the public it would be required to certify that it is offering service to the public (a "Certification").^{12/} If no Certification were submitted within 90 days, the registration would be automatically deleted from the ULS database and the registrant or any affiliate would be prohibited from seeking registration within the coverage contour of the abandoned registration for 180 days. This Certification would be subject to enforcement action by the Commission. If a Certification was submitted, then potential future users would be required to take that base station into consideration in proposing future facilities.
- After submitting the Certification, a service provider would thereafter enjoy interference protection rights relative to providers seeking to construct facilities on the frequencies utilized by and in the geographic area covered by the initial provider's facilities and who submitted a base station registration after the protected service provider.
- Prior coordination would generally be required with any registrant that had placed its facility in operation and submitted a Certification that had a predicted contour that overlapped the proposed system's contour. Therefore, a base station registration request would require a certification that: 1) no coordination is required based on the absence of stations with overlapping predicted contours; or 2) the proposed registrant has successfully coordinated its operations with entities that have overlapping contours.
- Service providers enjoying interference protection would be required to file annual certifications that they are providing service to the public. Such certifications would be subject to Commission audit. Failure to file an annual certification would result in the loss of interference protection. Service providers would be required to submit regulatory fees equal to the number of active certifications they have on file as of December 31 of each year.

^{11/} The area within which a user would enjoy interference protection would be based on a contour derived from a user's effective radiated power, antenna height and other common factors used in the Commission's calculation of contours in other services. *See, e.g.*, 47 C.F.R. 90.621(b)(4)(2005).

^{12/} In the context of the 3.65 GHz Band, service to the public should be defined as the transmission of signals from the base or hub station, under the parameters contained in the registration. In addition, upon request by the Commission, a registrant would be required to demonstrate that is offering commercial service to the public within the service contour.

- If a 3.65 GHz service provider enjoying interference protection rights fails to use registered facilities to serve the public for 120 consecutive days, the service provider would be required to withdraw its registration at the Commission and make the spectrum available for others to register for the interference protection rights.
- If disputes occur within the prior coordination context,^{13/} the parties would be required to submit their dispute to a streamlined mediation process conducted by a recognized frequency coordination service prior to the submission of a base station registration to the Commission. The mediator's report would be required to accompany any request for base station registration where a later applicant is unable to demonstrate either a lack of overlap or successful coordination as a result of a dispute with an earlier registrant. The Commission would process these applications separately from undisputed registrations, and disputed registrations would not be effective until approved by the Commission.

IV. The Public Interest Favors Covad's Hybrid Deployment-Based Spectrum Use Model

While Covad's proposed deployment-based hybrid approach represents a new combination of spectrum management techniques for the 3.65 GHz Band, the Commission would by no means be writing on a blank slate, or starting over. The key features of the plan are derived from established coordination processes and standards which the Commission has carefully developed and refined in proceedings dealing with other spectrum bands. Other parties to this proceeding have noted that the FCC has used similar procedures successfully in the past, in urging the FCC to adopt approaches employing coordination in the 3.65 GHz Band.^{14/} The virtue of Covad's proposed approach is that, while it is similar to plans advanced by others, it is carefully tailored to directly reward the actual deployment of facilities and provision of broadband wireless service to the public. In this way, it directly serves one of the most important policy objectives of the Commission.

While Covad's approach builds on existing prior coordination procedures, it is superior because only systems that have been placed in operation will merit prior coordination protection. Moreover, it will provide incentives for prompt notification to the FCC of system construction. In most wireless services, licensees are permitted to notify the Commission of construction well beyond the date of actual construction -- so long as the construction notification date is before

^{13/} However, because the Commission's rules would contain parameter of when coordination was necessary (*i.e.*, a definition of a protection contour), there should be no question of *when* prior coordination is required.

^{14/} See Comments of American Petroleum Institute at 6-7; Petition for Reconsideration of the Enterprise Wireless Alliance at 8; Opposition of XO Communications Inc. to Petitions for Reconsideration at 9-18.

the end of the construction period.^{15/} Therefore, in many wireless services, the FCC's database does not accurately reflect whether stations are in operation. However, by requiring prior coordination with registrants that have demonstrated that they have constructed their facilities the Commission will create an incentive for registrants to more quickly notify the Commission of construction, thereby promoting greater accuracy in the FCC's database.^{16/}

Moreover, Covad's proposal would not result in the exclusion of subsequent users in an area where an initial user has submitted a Certification. Instead, subsequent entities would merely be required to demonstrate that: (1) the contour of their proposed operations do not overlap those of already deployed systems,^{17/} or (2) prior coordination with entities that complete the Certification process. Such prior coordination would require demonstration by the subsequent user that, despite a contour overlap, it will not cause harmful interference to the existing registrant. The use of contention based technology compatible with already operating entities would be one -- but not the exclusive -- means to demonstrate that the new user would not cause harmful interference to current operators. As contention based technology matures, it is possible that the use of a subsequent system that shares the same contention based protocol (a fact that should be discernable from the FCC's database) would be all that is necessary for an additional user in the same geographic area to coordinate its operations with an existing system. While existing operators should not be required to modify their operations to accommodate proposed new systems, through the coordination process an entity that wishes to construct a base station within the contour of an existing system would be permitted to demonstrate that any anticipated interference to an existing operator could be eliminated by that operator making minimal changes to its system, consistent with sound engineering practices.

This alternate proposal is faithful to the essential nature of the Commission's rules governing the 3.65 GHz Band -- that the band be available for shared use. However, this proposal improves on the Commission's structure because it recognizes that contention based technologies may be insufficient to preserve the investment of an operator. By requiring avoidance of contour overlap or prior coordination with an entity already in operation, a new entrant can avoid the use of the same spectrum as an existing user, use the same spectrum but choose to employ the same

^{15/} Section 1.946(d) of the Commission's rules requires most licensees in the wireless services to notify the Commission of completion of construction within 15 days of the end of the licensee's construction deadline. 47 C.F.R. 1.946(d) (2005).

^{16/} This arrangement will work most efficiently when one entity applies for a registration and submits a construction certification prior to another entity seeking a registration in the same area. In cases where multiple entities obtain registrations for the same area prior to the time that either one of them submits a Certification, Covad proposes that the submission of the initial registration determine the entity with whom prior coordination must occur. Covad notes that XO Communications, Inc. recommends that, in order to secure a site registration, an entity should be required to demonstrate that, among other things, it has rights to the requested site and that it has ordered equipment for the site. Covad agrees with this recommendation, which will reduce the likelihood of a second entity seeking a site registration before an initial entity submits a notification of construction. Opposition of XO Communications Inc. to Petitions for Reconsideration at 9-18.

^{17/} See n.10, *supra*.

contention based system -- which could allow the technology to manage multiple users in the same area, or work with the existing user to determine another method by which multiple entities can share the spectrum in the same area.^{18/}

The Commission has acted appropriately in making the 3.65 GHz Band available for use on an unlicensed basis. In order to enhance the Commission's regulatory scheme in a manner that will prevent the "tragedy of the commons" without creating the entry barriers associated with auctions; the Commission should modify its rules as proposed here.

V. Covad's Deployment Based Hybrid Approach will Promote Commission Goals in the 3.65 GHz Band More Successfully than Auctions

In addition to providing the benefits outlined above, the use of a deployment based approach will put the 3.65 GHz Band to use in a way that auctions will not. In addition to creating a significant financial barrier to entry, the use of auctions to issue exclusive spectrum licenses simply does not assure that spectrum will actually be put to use. In fact, where entities have paid up front for spectrum at auction, the Commission is hard pressed to also require prompt deployment, and as a result has provided for service deployment requirements allowing years before spectrum is actually utilized. Covad's proposal resolves this dilemma by imposing operating requirements as the "price" of interference protection. NextWeb and other WISPs have aggressively used unlicensed spectrum to provide last-mile broadband wireless access and can be expected to deploy even more aggressively if granted interference protection keyed to deployment.

If the Commission nevertheless determines that the use of spectrum efficient technologies and prior coordination techniques are incapable of ensuring that services in the 3.65 GHz Band may be offered with a sufficiently high quality of service and licenses the spectrum on an exclusive basis, the Commission should take all necessary steps to make the spectrum available to new entrants who will compete with incumbents already providing broadband services. The Commission should not, therefore, divide the spectrum into two blocks of 25 MHz each, at least in non-rural areas. Such a plan would nearly guarantee that, particularly in congested areas, the spectrum will be held by larger entities, thwarting the opportunity for new entrants to compete with existing providers.

^{18/} Covad is mindful that the Commission recently considered and rejected a prior coordination approach for the Dedicated Short Range Communications ("DSRC") Service. *See, Amendment of the Commission's Rules Regarding Dedicated Short-Range Communications Services in the 5.850-5.925 GHz Band (5.9 GHz Band)*, ___ FCC Rcd ____ (2006) (FCC 06-110). However, the 3.65 GHz Band is materially different from the DSRC. First, unlike the DSRC, Covad proposes that the FCC adopt a set of technical criteria that would permit the calculation of a protected contour for base station operators. That set of criteria would permit base station registrants to demonstrate whether prior coordination with an already constructed facility is required. The information in the Commission's database -- which would facilitate a determination of whether prior coordination is required -- would also provide the information necessary for potential operators to demonstrate that they will not cause harmful interference to existing users. Moreover, unlike the DSRC, 3.65 GHz systems are not expected to transmit near ground level, producing a considerably wider area of operation.

Therefore, if the Commission issues licenses for the 3.65 GHz Band, it should, in urban areas, create spectrum blocks of 21, 21 and 8 MHz. This represents a 50% increase in the number of potential spectrum winners over the plan proposed by Airspan. Like Covad's proposed channelization plan for registered base stations, the use of 21 MHz channel blocks will allow the use of 7 MHz in a three-sector array, consistent with WIMAX standards. The remaining 8 MHz block will be able to accommodate the 3.5 and 7 MHz channels contemplated by the WIMAX standard.

Moreover, the Commission should impose a spectrum aggregation limit of 21 MHz in any geographic area. Without such a limit, one entity and its affiliates could dominate the provision of service in the 3.65 GHz Band in a market. The spectrum aggregation limit is critical in the Internet access marketplace. As the FCC recently reported, most broadband Internet access is now provided by incumbent operators like ILECs and cable companies.^{19/} In order to ensure that new entrants like Covad are able to meaningfully participate in the provision of services using 3.65 GHz spectrum, the FCC should not permit all of the capacity to be employed by a few existing operators.

Finally, Covad proposes that the Commission use small geographic areas, like Basic Trading Areas, throughout which to issue authorizations. This will help promote localized WISP service, and discourage licensees from securing spectrum throughout a broader geographic area than they are capable or interested in providing service.

If there are any questions regarding this matter, please contact the undersigned directly.

Very truly yours,



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^{19/} *High-Speed Services for Internet Access: Status as of December 31, 2005*, Industry Analysis and Technology Division, Wireline Competition Bureau, July 2006.

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