

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

In the Matter of)	
)	
Unlicensed Operation in the Band 3650 – 3700 MHz)	ET Docket No. 04-151
)	
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
)	

**COMMENTS OF PART-15.ORG RESPONSIVE TO VARIOUS PETITIONS FOR
RECONSIDERATION**

The PART-15 Organization (PART-15.ORG), by its membership and pursuant to the Commission’s *Public Notice* released April 27, 2005, hereby submits its comments in response and opposition to the Petitions for Reconsideration currently filed under these proceedings.

As the Commission is aware, the PART-15.ORG is a worldwide organization of Wireless Internet Service Providers (“WISPs”) and equipment vendors who provide technical support and training in the provisioning of broadband service via license-exempt spectrum in the 902-928 MHz, 2.4 GHz and 5 GHz bands. The PART-15.ORG is also active in a number of Commission proceedings that directly or indirectly pertain to the license-exempt industry. The PART-15.ORG submits on our own behalf the following.

Because there is no regulatory requirement for identification – we have evidence to support there are approximately 8000 small WISPs nationwide. We further believe that by the end of this year, more than 2.5 Million customers will be served by the small WISPs use of the unlicensed spectrums.

As our organization is comprised largely of operators using the license-exempt spectrums, the views stated in this document are those of the general operator membership and

may not be reflective of all PART-15.ORG members. Therefore, we will limit our response to those operational issues associated with the unlicensed use of the 3650-3700 bands only.

PART-15.ORG concurs with the Commissions initial conclusion that permitting unlicensed operation in the 3650 MHz band would foster the introduction of new and advanced services to the American public, especially in rural areas. As previously illustrated by this organization on many occasions, it is the licensed exempt WISP that is providing the majority of broadband connectivity to rural America.

The 3650-3700 MHZ band is particularly well suited to respond to the needs of today's License Exempt WISP. Again, we reiterate the implicitly of how license exempt WISPs are providing the services to rural America where little or no attention from larger broadband providers have deployed. This band appears particularly well suited to respond to the needs of entrepreneurial wireless internet service providers (WISPs) who are today bringing broadband services to consumers in rural areas of the United States who have few or no other choices for such services unlike those consumers in more populated areas.

The WISPs use of this additional spectrum for unlicensed uses will provide both backhaul service opportunities and broadband service directly to their customers. The incumbents -- FSS earth stations that are limited to international intercontinental traffic -- are concentrated primarily on the coasts, leaving available the rural areas targeted by these providers. In addition, unlicensed use in this band would complement existing unlicensed operations in the 900 MHz band, the 2.4 GHz band and the 5 GHz band by enabling an "uncongested" band segment.

This organization supports Navini and other commentary who point out in their comments the un-licensing the 3650 MHZ band will attract the most competition and diversity of service offerings. However, none of their other points bare any merit by the Commission. PART-15.ORG rejects Navini's additional commentary as ill-advised and poorly enlightened on the License Exempt Wireless Internet Service Providers Industry and the services offered by those providers.

Navini and others point out that the benefits of offering the 3650 MHZ band to the unlicensed bands will come at a cost. It is this organizations belief the only cost to be noted is the cost of CPE being lowered due to market demands and fair competition. The Commission must not allow the unlicensed use of the 3650 MHZ band to become a commodity to be plagiarized by the licensed manufacturers.

Some commenters pointed out that there will be no frequency coordination in the proposed unlicensed 3650 MHZ band. License Exempt WISPs have known this issue since the beginning of wide spread deployments almost ten years ago. It is a decision each and every license exempt WISP undertakes when he/she decides to become a License Exempt WISP. It is a basic fundamental of our industry and nothing new. License Exempt WISPs have never sought licensed protection from interference. Moreover Navini points to "Interference must be tolerated". As with the use of any unlicensed spectrum, interference must be tolerated. It's License Exempt.

Some commented on the high cost associated with deploying license exempt 3650 MHZ equipment. As we pointed out earlier in this response, market demands and fair competition always have the end result of lower pricing. I personally remember paying \$167 from a limited number of vendors available at the time for an 802.11b radio (in 1997) that now can be purchased for \$39 at the local technology store. It is a simple matter of economics, that competition brings prices lower.

Some commented that receiver selectivity and antenna directivity remain the strongest tools for interference avoidance, and that these tools are most effective in a licensed arena. However, those that make such statements fail to support their claims with fact or real world data. On the other hand, this organization supports “some” of their position in that receiver selectivity and antenna directivity are very strong tools for interference avoidance and PART-15.ORG proposes that the license exempt WISPs are believed to be more astute to interference avoidance than many licensed users simply because the License Exempt WISPs must deal with interference issues as a routine business and deployment concern.

The Commission proposes that Geographical limitations would be an acceptable control to limit interference issues with FSS earth stations. This organization fully supports this Commission finding.

As the Commission notes, permitting unlicensed use of the 3650-3700 MHZ bands will address many of the issues the license exempt WISP must deal with on a daily basis. Furthermore, license exempt WISPs are somewhat stifled without the additional 3650-3700 bands as the noise floor in the currently used unlicensed bands continue to rise. In as much, this organization does not support the ‘splitting’ of any of the available 50 MHz of this spectrum, into smaller use bands such as those proposed in a few of the Petitions for Reconsideration.

Permitting the use of the 3650-3700 MHZ will also provide an additional device to provide much needed Voice Over IP technologies that are currently hampered in many areas due to RF congestion in other license exempt bands. In fact, this additional spectrum will foster the growth of technological advances such as VoIP in areas that still do not have digital phone services and require old fashion rotary telephones.

PART-15.ORG endorses the Commissions first approach, which would apply to fixed unlicensed devices, requiring professional installation of each device to ensure that certain criteria are met so that operation at a particular location and power would not result in

interference to any FSS earth station. The Commissions second approach, (also endorsed by this Organization) which would apply to non-fixed unlicensed devices, requires such devices to be capable of automatically adjusting the EIRP based upon detection of the presence and strength of RF transmissions from operating FSS earth stations. This approach is already in use by the licensed exempt WISP in the 5 GHz spectrum.

With slight reservation as to how to accomplish the identification, this Organization endorses the Commissions proposal that both fixed and non-fixed unlicensed devices be required to transmit a device identification signal to facilitate determining the source of any interference that might be caused by the operation of these devices.

The frequency and means of such an informational transmission is questionable to ensure proper maintenance for security purposes. An alternative approach would be the user database as proposed by the Commission which includes FCC ID number and transmitter serial number matched to operator information located in the database. We suggest the Commission require registration prior to use.

PART-15.ORG strongly encourages the Commissions order for mandatory Professional Installation to ensure that fixed unlicensed devices operating in the 3650-3700 MHZ bands are established and operated in a manner that will avoid causing interference to FSS earth stations

PART-15.ORG recommends the Commission consider completion of an industry-based certification program as sufficient means of identification of professionalism and the Commission should not participate in regulating industry standards. The professional installer would be held responsible to account for the presence of all FSS earth stations and Federal Government operations in the vicinity of the unlicensed device.

Additionally, Professional Installer Certification databases, such as those at PART-15.ORG can be made readily available and open to the public, much like the databases currently used by the Commission for HAM radio operators.

The Commissions International Bureau Filing System (IBFS) database of satellites and associated earth stations is available on the FCC's website in much the same availability as the Commissions License Exempt Certified Systems database. PART-15.ORG's Professional Certification course makes it mandatory for applicants to display a working knowledge on the use of the Commission's Certified Systems Database to ensure proper compliance with FCC rules. Therefore, adding the additional requirement of a working knowledge of the IBFS database could be easily accomplished by all testing firms.

PART-15.ORG encourages the Commissions proposal to permit a maximum EIRP of 25 Watts (14 dBW) in the 3650-3700 MHz and the use of any combination of transmitter output power/antenna. We concur with the Commissions findings that this approach will more directly reflect the potential for interference. We suggest to the Commission that compliance to this requirement can be measured in numerous ways, e.g. authorized radio/antenna database.

We concur with the Commissions finding that an unlicensed device located outside the earth station's main beam could operate with relatively higher power and at closer separation distances without causing interference and support the Commissions proposal for defined protection zones around each FSS earth station.

PART-15.ORG supports the Commission's proposal to provide sufficient protection to Canadian and Mexican stations operating in the 3650-3700 MHz band that are located near the U.S. borders, in requiring fixed devices be located at least 8 kilometers from the U.S./Canada or U.S./Mexico border if the antenna of the device looks within the 160° sector away from the border and be located at least 56 kilometers from each border if the device looks within the 200° sector towards the border.

Alternative #1 - P15 recommends the Commission take a "controlled approach" to the unlicensed use of the 3650-3700 MHz bands. Site by site registration of license exempt would fulfill this approach. We recommend to the Commission to not limit ourselves to past or outdated

approaches. For years it has been licensed and unlicensed. PART-15.ORG proposes a new approach which adds a third opportunity: Licensed, Moderated, and Unlicensed.

We prefer a “moderated” use of 3650-3700 MHZ. Not licensed, but more of a registered use on an area-by-area (or site-by-site) allocation. This could be the test-bed for the future of unlicensed wireless. PART-15.ORG would support a registration of “site-by-site” or better yet, a geographic area registration. Competitive bidding (as allowed under licensed use) should not be allowed. First come, first served registrations with use or lose clause could be easily established.

Additionally, and with specific reference to the Commissions requirement for ‘Contention Based’ protocols, this organization would support a “rewording” by eliminating the term “Contention Based” protocols to a term more technology-neutral, such as “interference mitigating” protocols. The current Order as written eliminates WiMAX and this Organization fully supports the WiMAX efforts and believes WiMAX does facilitate “interference mitigation”.

In response more directly to comments made in Motorola’s Request for Reconsideration:

(a) “To enable the rapid and successful deployment of broadband wireless services, the Commission should issue exclusive licenses. The 50 MHz band should be allocated in two 25 MHz blocks, and the adjacent licensees should be required to incorporate measures to control interference between licensees. Since these licenses would be auctioned, Motorola also requests that the rules be placed in Part 27 with like Wireless Communications Services and that the license areas be based on recent population information to accurately reflect market sizes.”

Motorola’s approach does not reflect the best interests of the License Exempt wireless operators. In fact, Motorola’s approach stifles the growth of broadband to rural America by making the spectrum cost prohibitive to the average WISP operator. The majority of the 8,000 WISP Operators nationwide simply can not afford licensed spectrum. That is the single most fundamental factor in determining a WISP operators business model. PART-15.ORG points out

once again that the majority of broadband to rural America is being provided by License Exempt Wireless Internet Service Providers. The License Exempt WISPS are estimated to provide wireless broadband to over 2 million subscribers. Licensed spectrum owners have had sufficient spectrum for years, yet a majority of America, specifically rural America, is still without broadband. Over 10 years of history dictates that to enable rapid and successful deployment of this band, this spectrum should remain as the Commission intended – Unlicensed, but moderated.

(b) “Exclusive licensed allocations would provide certainty of spectrum access for licensees and provide a valuable degree of harmonization with spectrum allocations in other countries.”

Once again, history provides the opposite in that exclusive licensed allocations would not provide any certainty that the spectrum would be used as intended by the Commission to foster the growth of broadband to rural America. In fact, history details how the ‘licensed’ approach to broadband only serves the areas where the large, better funded incumbents elect to deploy solely based on economics of return and not as a public service.

While Motorola’s views and the views of the WISP operators may indeed differ regarding licensing or unlicensing of the spectrum, PART-15.ORG remains hopeful that a working solution that would be satisfactory to all parties will emerge. PART-15.ORG WISP Operators are open to alternative (licensed) solutions that would not present a cost prohibitive environment for this band to the small to medium entrepreneurs.

(c) Contention-based protocols work best in small areas. Indeed, Wi-Fi technology, which implements a contention-based protocol, works well because it enables wireless connectivity in areas the size of a large conference room.

On the contrary, contention-based protocols have worked extremely successful in outdoor long-distant areas. Prior to the arrival of off-the-shelf Wi-Fi products at the local electronic stores, Wi-Fi links of 18 to 25 miles were possible with excellent throughput capabilities and a

very high Quality of Service levels.

In response more directly to comments made in the WCA's Request for Reconsideration:

(a) ... "Unfortunately, WCA fears that the regulatory regime adopted for the 3650-3700 MHz band will have the unintended consequence of deterring the investment necessary for wireless broadband offerings to thrive in this band. In particular, the interference protection components at the heart of the Commission's new non-exclusive licensing regime – the "contention-based protocol" requirement and mandatory registration of fixed and base stations with an obligation to avoid interference to new entrants – cannot assure operators they will be able to provide consumers with the quality of service ("QoS") necessary to meet the needs of emerging broadband applications such as Voice over IP ("VoIP").

There is no evidence to support the WCA's assertion that unintended negative consequences will occur. Although it is unknown as to whether investment in licensed wireless broadband is on the decline, remaining constant or increasing, investments in license exempt broadband is continuing to gain momentum at astounding rates and most likely at a greater speed than licensed investments. Further, QoS in other bands such as 900 MHz, 2.4GHz (including Wi-Fi), 5.3 GHz and 5.8 GHz working over large distances have an established history of working well for years with emerging broadband technologies such as VoIP.

(b) "...WCA urges the Commission to explore on reconsideration altering the rules to spur investment, such as providing for exclusive licensing of some of the 3650-3700 MHz band."

Here, the WCA is seeking the Commission to alter the rules to *spur investment*. Although it may be unintentional, but what this transcends to mean is to spur investment to the Licensed WISPs and thereby hampering recent increases in growth and investments in the License Exempt WISP industry.

Once again, exclusive licensing has historically not produced the intended outcome and therefore should not be considered for this spectrum.

(c) “...WCA recognizes that reasonable people can disagree as to the best approach to utilizing exclusive licensing in the 3650-3700 MHz band, but suggests that auctioning a 25 MHz block on a Metropolitan Statistical Area (“MSA”)/Rural Service Area (“RSA”) basis could be the most efficient and effective way of meeting the growing demand for high QoS, while at the same time providing 25 MHz of spectrum that can readily be accessed by those willing to accept the risks associated with non-exclusive operations.”

PART-15.ORG operators do not agree with the auctioning of any of the small but extremely useful 50 MHz afforded in this spectrum. Nor do the operator members of this organization believe the any splitting of the 50 MHz should be entertained by the Commission. History also shows that a small amount of unlicensed spectrum such as the 902-928 only allows for a limited number of non-overlapping channels to be utilized by the WISPs. Further, the splitting of the 50 MHz presently available in the Report and Order in any fashion will result in technically unusable spectrum. QoS, maximum Bandwidth throughput and other issues will be severely reduced to the point that the spectrum could be non-useable for purposes intended by the Commission.

PART-15.ORG License Exempt Operators are living proof that to bring broadband to every American it will take the combination of licensed and unlicensed spectrum. The older, outdated Commission rules are why we are where we are today. PART-15.ORG applauds the Commission for their Report and Order opening up this newly available spectrum in the manner in which they did – Non-exclusive Licensing.

(d) “...In the end, however, no matter how the Commission defines the obligation, WCA cannot agree that “the use of contention-based technologies will allow efficient use of this spectrum by multiple users without significant degradation of service.”

While the WCA “cannot agree that “the use of contention-based technologies will allow efficient use of this spectrum by multiple users without significant degradation of service.”

PART-15.ORG agrees with the WCA, however, they failed to state any technical reasons for any speculated degradation of service. As expressed elsewhere in this document, contention based protocols have worked well in the field, and over long distances.

PART-15.ORG Operators fully support some form of interference mitigating protocols so long as those protocols are not based on a single technology. What will work the best in this new spectrum has yet to be determined or even defined. PART-15.ORG Operators can not support any new protocol requirements that would delay the use of the spectrum.

PART-15.ORG Operators do support a flexible Commission policy pertaining to rule updating as necessary in the future to accommodate newly developed or enhanced protocols.

(e) “...Even a single protocol cannot assure that all users will be able to access the spectrum with the level of QoS required for a viable broadband service offering capable of carrying evolving applications like VoIP that require high bandwidth and/or low latency. The Commission itself has recognized that “listen before talk” protocols such as those used by Wi-Fi devices “incorporate unpredictable delay as the transmitter waits until the channel is idle” and thus are “often not the best choice for time sensitive applications such as voice communications.”

PART-15.ORG believes that the WCA has not differentiated in their Request for Reconsideration, between the “unpredictable delay” in Wi-Fi’s “listen before talk” and the “unpredictable delay” of other standards based protocols such 802.16 during its “timed to talk” or other proprietary protocols currently available in the industry. Therefore these comments are without merit.

(f) “...WCA appreciates that reasonable people can disagree as to how much spectrum should be made available for exclusive use licensing, but suggests that the most effective

approach may be to establish a 25 MHz block licensed through auction on an MSA/RSA basis and retain the non-exclusive licensing approach for the other 25 MHz block, regulated under the current rules (subject to the clarifications and revisions suggested by WCA herein)."

The licensed operators have had enough spectrum to cover America more than 10 fold and still they have failed to provide the services the spectrum was intended for and specifically to rural America. Also, as mentioned elsewhere in this response, PART-15.ORG Operators adamantly recommend the commission not split the 50 MHz of 3650-3700.

(g)"... As discussed above, the non-exclusive licensing regime adopted in the Report and Order does not assure that licensees can provide the QoS that the marketplace is increasingly demanding of broadband service providers."

The WCA's statement fails to provide technical reasoning's on any perceived shortcomings. Further, WCA has not shown evidence to the contrary that splitting the spectrum would also "assure that licensees can provide the QoS that the marketplace is increasingly demanding".

(h) "This concern over QoS is nothing new to this proceeding. Indeed, the Report and Order acknowledges that "a number of parties, including WISPs, express concern about the risk that intense use of spectrum by a variety of devices under a traditional unlicensed approach could result in mutual interference, thereby reducing the utility of this band."

PART-15.ORG believes that those License Exempt Operators (WISPs) who have expressed concerns were specifically addressing traditional, off-the-shelf technology (Wi-Fi) and the interference that off-the-shelf product brings. Having non-exclusive, registered licensing and the non-availability of products in local stores, will not present the atmosphere the WISPs were referring to.

In conclusion, many of the statements submitted in the Petitions for Reconsideration before the Commission are without merit, tend to mislead the Commission to a more regulatory

licensed approach for the use of this spectrum which defeats the Commissions original intent. Further the proposals submitted offering support for those Petitions for Reconsideration would not facilitate the rapid deployment of advanced telecommunications services and technologies to all Americans, especially in rural areas of the United States, thus not promoting the Presidents and the Commissions objectives. PART-15.ORG Operators support the Commissions original Report and Order, and recommends that the Commission not reconsider and or modify it with the single exception of rewording the “contention based protocol” requirement to a more technology-neutral term such as “interference mitigating protocol”. The views expressed in this document are the views of the License Exempt WISP Operators and may not be reflective of all PART-15.ORG membership.

Respectfully Submitted

Michael R. Anderson
Chairman
PART-15.ORG
P.O. Box 157
North Aurora, IL 60542
630-466-9090