WIRELESS INNOVATION FORUM COMMENTS ON THE FCC PUBLIC NOTICE ON AN APPROPRIATE METHOD FOR DETERMINING THE PROTECTED CONTOURS FOR GRANDFATHERED 3650-3700 MHZ BAND LICENSEES

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Before the

Federal Communications Commission

Washington, D.C. 20554

In the matter of	)	
	)	
Amendment of the	)	
Commission's Rules with	)	GN Docket No. 12-354
Regard to Commercial	)	
Operations in the 3550 to	)	
3650 MHz Band	)	

COMMENTS OF THE WIRELESS INNOVATION FORUM ON THE FEDERAL COMMUNICATIONS COMMISSION PUBLIC NOTICE ON AN APPROPRIATE METHOD FOR DETERMINING THE PROTECTED CONTOURS FOR GRANDFATHERED 3650-3700 MHZ BAND LICENSEES

The Wireless Innovation Forum is a U.S.-based international non-profit organization driving technology innovation in commercial, civil, and defense communications around the world. In 2014, the Wireless Innovation Forum created the Spectrum Sharing Committee, which concentrates on shaping and implementing the Commission's regulations for the Citizens Broadband Radio Service (CBRS) in the 3.5 GHz band. The Spectrum Sharing Committee presently has broad participation among a wide range of 3.5 GHz stakeholders, including wireless operators, SAS developers, equipment manufacturers, satellite operators, Wireless Internet Service Providers (WISPs), utilities, the U.S. government, and others.

After the release of the Commission's 3650 MHz Public Notice, the Spectrum Sharing Committee established a Task Group specifically to address the questions raised in the Notice. The Task Group supported discussion among relevant stakeholders in the 3650-3700 MHz

segment, especially the CBRS and WISP communities. The goal of the Task Group was to reach consensus on reasonable protection criteria for incumbent grandfathered operators, while enabling to the greatest extent possible deployments of CBRS devices and associated services. The comments presented here reflect the discussions of the Task Group.

1 General Results

The Task Group's general consensus is that the Commission's proposed two-pronged approach is not sufficiently effective at protecting WISP operations and may block CBRS deployments unnecessarily. This approach does not, for example, explicitly take into account protection of WISP base stations, which are typically mounted at high sites with good visibility to surrounding areas. In this case, the FCC's implicit assumption that the received signal strength at the base station from a CBRS device outside a boundary must be less than the signal strength at the boundary is not necessarily correct. Whether received signal strength at the base station exceeds received signal strength at the proposed boundary will depend on the base station's visibility to the boundary and the technical conditions (antenna height above ground, for example) for which the boundary signal strength limit is defined, which was not discussed in the Notice.

On the other hand, protecting a boundary that is defined solely by the maximum distance to a registered CPE can result in very inefficient use of spectrum. Consider, for example, a case where a base station has omnidirectional coverage, several CPEs within a short distance of the base, and a single CPE located at a considerably larger distance, perhaps on a distant hill with a good view of the base station. The boundary for this base station would then be a circle whose radius is equal to the distance to that single distant CPE, and that boundary must be protected at

all points around the entire circle, even though there is but one CPE at a single point on that circle.

The general consensus of the Task Group was that protecting individual device locations, including the base station, was a more effective method to protect WISP operations, while not blocking CBRS use in areas where such blocking is unnecessary. To implement these protections, we believe that WISP deployments should be registered with SASs through a central third-party database maintained by a multi-stakeholder group, with regular confirmation that such deployments remain in operation. WISPs should be allowed to update the registration data during the grandfathered period to protect new customers, as well as to indicate devices that no longer require protections. Besides allowing maximal flexibility and efficiency in protecting WISP operations, establishing a third-party database will relieve the Commission of expending limited resources on developing new Web services to support modified Part 90 registrations.

2 Specific Protection Framework

We discuss below the specific points agreed to by consensus of the Task Group participants:

1. **Per-device protection.** Instead of providing area or boundary protections, which may both over-protect and under-protect stations in some situations, the SAS will provide per-device interference protections for grandfathered 3650-3700 MHz operations during the grandfathering period at the registered location. Since these stations are fixed, not mobile, device protection based on a fixed location, rather than a zone of potential operation, is appropriate. In this context, the term "device" refers to base stations (also referred to as fixed access points) and CPE.
2. **Protection requires registration.** Protection provided by the SAS for grandfathered protections will be based on registration information: i.e., grandfathered licensees must

register in order to be entitled to protection, and they will be protected based on their registered operational parameters. In this context, registration refers to a third-party process, not registration in the ULS (see below). With regard to low-power unregistered devices, it is the general consensus of the Task Group that such devices will be sufficiently protected by virtue of protection of the associated base station and surrounding registered CPE, but if necessary, such devices could be registered in the third-party database for explicit protection.

3. **Operator-SAS Registration.** A multi-stakeholder group will develop a streamlined process by which incumbent 3650-3700 MHz Part 90 licensees will provide device parameters to the SAS operators for protection. The WinnForum expects that the following high-level principles will be followed in developing such a process:

    a. ULS data may be used as a starting place for data collection, especially in identifying base stations that qualify for grandfathering protection under Part 96. Licensees with grandfathered base stations registered in the ULS as of April 17, 2015, and otherwise compliant with the FCC's grandfathering restrictions will be entitled to protection.

    b. The parties will work together cooperatively to design mechanisms for lightweight reporting of device parameters (i.e., base stations and CPE). We expect that this collected data will largely track the requirements for CBSD data reporting set forth in sections 96.39, 96.43 and 96.45 of the Commission's rules. Reporting requirements will encompass some of the data required during registration in ULS, but will also include additional data. In particular, licensees

will specify whether transmitters are base stations or CPE. For each CPE, licensees will indicate the base station to which the CPE connects.

c. In some situations (e.g. CBSD operating between a base station and CPE with the antenna oriented towards the CPE), a CPE may be vulnerable to interference even if the base station is not. In such cases, a SAS will protect vulnerable CPEs. Since we expect transition to Part 96 to require SAS registration of most CPEs eventually, licensees may seek registration of CPE through the multi-stakeholder process, rather than ULS, and may seek protection of CPEs being served by a qualified grandfathered base station.

d. The final state of 3650-3700 MHz registrations with the SAS at the end of the grandfathering period will be identical to that required by continued authorization under Part 96: full registration of all CBSD-qualifying equipment with SAS.

4. **Alternative arrangements.** 3650-3700 MHz licensees may establish weaker protection levels with respect to CBSD neighbors as long as those arrangements are communicated to the SAS, and the SASs must share such information with other SASs.

5. **Changes to parameters.** Changes to operational parameters must be promptly reported to the third-party database. Grandfathered Part 90 licensees should be required to report facilities taken out of service at the same time as reporting to the FCC pursuant to 90.1307. During the transition period, grandfathered operators will not be permitted to add new base stations entitled to grandfathering protection to their registrations but will be permitted to modify the technical parameters of existing facilities to accurately reflect operations. (Of course, new base stations may be registered as allowed for by Part 90 and Part 96, but they will not be entitled to grandfathering protection.)

6. **Protection level.** The protection level the SAS should enforce is for the received signal interference level at the device itself, and thus must take into account the antenna characteristics known by the SAS. This protection level should be an aggregate protection of -95 dBm/MHz.
7. **SAS data exchange.** All SASs must exchange with other SASs any and all parameter data they gather regarding grandfathered devices which inform the interference protection process.

3 Summary

Based on the work of its multi-stakeholder Task Group, the Wireless Innovation Forum believes that the foregoing methods for protection of grandfathered Part 90 systems in the 3650-3700 MHz band is superior to the two-pronged approach proposed in the Notice. It will provide protections for base stations (which are not explicitly considered in the Notice), while not blocking areas and boundaries that do not require protection. It has the additional benefit of smoothing the assimilation of Part 90 operations into the Part 96 framework.

Respectfully submitted,

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