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## **Response of IEEE 802.16 to the Comments from IEEE 802.22 on Proposed PAR for IEEE 802.16h “Improved Coexistence Mechanisms for License-Exempt Operation”**

*While 802.22 believes that coexistence is a good thing (in fact, as you know, the scope of our PAR requires coexistence with the primary TV broadcast service and other licensed users in spectrum allocated to the TV broadcast service), 802.22 does have some comments and a request for clarification/modification of the .16h PAR.*

*While the title mentions only unlicensed coexistence, and it was my understanding that the scope was to be limited to unlicensed vs. unlicensed coexistence, the PAR (attached) indicates in its scope:*

*13. Scope of Proposed Project:*

*This amendment specifies improved mechanisms, as policies and medium access control enhancements, to enable coexistence among license-exempt systems based on IEEE Standard 802.16 and to facilitate the coexistence of such systems with primary users.*

*It is unclear to us what primary users in what band(s) are being referred to in the scope.*

Although IEEE Standard 802.16-2004 indicates, in subclause 1.3.3, that LE operation is primarily in the 5-6 GHz band, there are no specific constraints regarding frequency bands below 11 GHz (see subclause 1.3.4. for WirelessHUMAN™ applicability). The radio bands for license-exempt operation may be harmonized, like 2.4 GHz and 5 GHz, or may be allocated on a national/regional basis. Therefore, it is possible that 802.16 and 802.22 may cover some overlapping frequency ranges.

We have in mind primary services that operate in the same bands as IEEE 802.16 based LE systems. Examples of such combined operation are indicated in the *FCC 03-287 Report and Order, clause 2.106 - Table of frequency allocations*. We are not excluding other regional regulations and future possibilities.

*We are concerned that there is an ambiguity in the scope that would potentially create a situation where 802.16 might assert that the scope of this PAR enables it to develop systems designed to operate on an unlicensed basis in the TV bands, which is clearly the scope of the 802.22 PAR and would, in our view, create a situation that would run afoul of "distinct identity" and the principle of not duplicating work.*

The IEEE 802.16h PAR does NOT have as scope to create a new PHY/MAC air interface, but to add messages and policies for coexistence, using the existing 802.16-2004 radio interfaces. The distinct identity will be created by 802.22 that will draft (see same Letter) “*highly integrated into a purpose-built PHY/MAC/air interface system*”.

As noted in “Response of IEEE 802.18/SG1 to the Comments from IEEE 802.16 on “Proposed PAR for IEEE 802.xx Regional Area Network TV Band Specification” (IEEE 802.16-04/42r1),

from July 2004, “Establishing distinct identity does not require distinct spectrum usage as is indicated by the existence of 802.11 and 802.15. E.g., there are currently multiple air interface standards within IEEE 802 in the 2.4 and 5 GHz bands.” We agree.

*One .16 member indicated to me that the reference to "primary users" was intended to refer to radars and other primary users in the 5 GHz unlicensed bands ... if this is the intent, clarification in the scope to that effect would mitigate our concerns.*

See the answer to the first point.

*Additionally, section 16 (16. Are there other documents or projects with a similar scope?) is answered "No" and we believe that a mention of the scope of the 802.22 PAR and a statement that the 802.16h PAR would not conflict with our scope would be appropriate.*

The scope of 802.16h PAR is to:

- Improve coexistence between 802.16 systems
- Improve coexistence between 802.16 systems and primary services.

We do not see any possible overlapping, or need for a “conflict statement,” as 802.22 does not address coexistence issues for 802.16 compatible systems.

Furthermore, there is no need to reference other projects within the same sponsor in this section of the PAR.

In addition, we would like to draw your attention to the opinion expressed by the chair of IEEE 802.19 TAG on Coexistence, Steve Shellhammer, supporting the 802.16h PAR:

“This new PAR is not for the development of a new MAC and PHY so I can't see how it conflicts with 802.22. Clearly, 802.22 is also intended to coexist with primary users in the band but it does not seem like we should prevent 802.16 from being a good citizen also”.

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