Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Comments of IEEE 802.16 Working Group on Proposed P802.22.1 PAR**
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Re:	Proposed P802.22.1 PAR (IEEE 802.22-05/087r0) and Five Criteria (IEEE 802.22-05/088r0)
Abstract	Comments and questions on proposed P802.22.1 PAR.
Purpose	The IEEE 802.16 WG is submitting these comments to be addressed by the IEEE 802.22 WG
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Comments of IEEE 802.16 Working Group on Proposed P802.22.1 PAR

Having reviewed the P802.22.1 PAR and Five Criteria and observed the corresponding Monday night tutorial, we have a number of fundamental questions on the proposed project. While we have many concerns about the detailed language, we are not submitting specific change requests at this time because we believe that too many basic issues remain undecided. Until the PAR and Five Criteria are modified to indicate that these basic questions have been thoroughly considered, we do not believe it is worthwhile to draft the details.

It is our current view that the appropriate venue for addressing these questions is a Study Group. However, we may review this opinion based on 802.22 responses to our questions.

Is a new PAR necessary? Why?

The current 802.22 PAR is entitled "Cognitive Wireless RAN MAC and PHY specifications: Policies and procedures for operation in the TV Bands." To our understanding, the proposed PAR work would fall within the context of the language "policies and procedures for operation in the TV bands." The scope ("… the air interface... of fixed point-to-multipoint wireless regional area networks operating in the VHF/UHF TV broadcast bands ...") also seems wide enough to accommodate the work. Moreover, the purpose statement of the 802.22 PAR talks about "preventing harmful interference to incumbent licensed services in the TV broadcast bands." During drafting of the 802.22 PAR, the existence of the incumbent licensed status of Part 74 devices was well known. Therefore, it seems apparent to us that the 802.22 PAR already addresses the issue of preventing harmful interference to Part 74 devices. It appears that the scope of the proposed 802.22.1 PAR is wholly within the scope of the 802.22 PAR. We think it is bad policy for IEEE to maintain two projects covering the same material, even if both are drafted by the same Working Group. Eventually, the work would need to progress to Sponsor Ballot, where two different ballot groups could lead to two different results.

We would like to understand why the 802.22 WG would propose a new PAR rather than conducting its work within its current project.

We understand that a Working Group may sometimes find it necessary to split work under a single PAR. In this case, the appropriate solution is to split the PAR. This would require modification of the original PAR to remove the split material from the scope.

Why is the proposal for a Standard rather than a Recommended Practice?

The scope of the proposed PAR is: "This project will create a standard which specifies methods to provide enhanced protection to protected devices." The word "methods" is not defined in the PAR. As we understand the term, "methods" as such are not standardized in IEEE 802. The IEEE 802 standards address network layers 1 and 2. It seems to us that a project in 802 specifying "methods" ought to be a Recommended Practice.

We would like to understand why the 802.22 WG has selected to identify the project as a Standard instead of a Recommended Practice.

Would this project, if split from the 802.22 PAR, be better placed outside of the 802.22 WG?

The Five Criteria document states that: "It is believed that these methods will, by extension be usable by, or readily adaptable to, other 802 and non-802 license-exempt devices that may be allowed access to the TV bands by the FCC and other regulatory agencies around the world in the future." If the methods developed are to be applicable to 802 devices other than 802.22 devices, then it would appear that other Working Groups would have a direct interest in the project. It seems that the best venue might be in another WG or TAG, or in a new WG or

TAG. We are not sure if the appropriate placement of this work, if split off from the 802.22 project, has been considered.

Is the intent to specify modifications of unlicensed devices so that they more easily detect licensed Part 74 devices, or is it to specify modifications of licensed Part 74 devices to make them more easily detectable by unlicensed devices?

In the PAR and Five Criteria, we cannot find an answer to this fundamental question. Unless this question can be answered, we would suggest that the thinking behind the project is not sufficiently mature.

If the intent is to specify modifications of Part 74 devices, does this work belong in IEEE 802?

If the purpose is to enhance the operation of (non-802) Part 74 devices to make them more detectable, the work would appear to lie entirely outside the scope of IEEE 802. In this case, how do you justify placing the work in IEEE 802 rather than elsewhere?

If the intent is to specify modifications of Part 74 devices, how do you establish that the Part 74 community is willing to undertake such modifications?

It appears that the methods developed in the new project may, to be useful, require operators and manufacturers of Part 74 devices to develop, purchase, and deploy additional equipment to protect the operation of their devices. The "Part 74 beacon" suggested in the Five Criteria is a good example, and no other examples are provided of techniques that do not rely on such cooperative transmissions. It is not apparent from the Five Criteria why an operator or manufacturer of Part 74 devices would take such measures while, even without that extra expense, the regulatory onus is already on the WRAN operators to protect those devices.

Have the potential implications of active protection methods been fully considered? What is the danger of their misuse?

Although the proposed PAR does not specify that beacons are the only solution, no other ideas are suggested, so we surmise that beacons are the primary candidate technology. The idea of beacons opens the door to the introduction of actively transmitting devices that by themselves can cause harmful interference to other users of the spectrum. Such devices could be used (legally by Part 74 users or illegally by rogue parties) to instigate on-going and insurmountable denial-of-service attacks on WRAN service throughout a given area. Have the implications of active methods been thoroughly considered? What measures can be taken against such misuse?

Why were this PAR and Five Criteria developed without a Study Group?

We consider this problem to be complex from a technical, marketing, and placement point of view. It appears that the PAR and Five Criteria have substantial ambiguity and believe that a Study Group would have improved the quality and clarity of the PAR. Why was this step bypassed?

Suggested remedy

We look forward to answers to these questions. For the time being, we suggest that the IEEE 802.22 Working Group consider withdrawing this PAR proposal and instead propose the initiation of an appropriate Study Group.