

## Carl R. Stevenson

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**To:** Shellhammer, Stephen J; paul.nikolich@att.net; STDS-802-SEC@listserv.ieee.org  
**Subject:** RE: [802SEC] +++EC Email Ballot+++Urgent motion to approve 802.18 doc+++

Steve, and EC colleagues,

Again, comments in context below with a .pdf for those whose mail clients may not handle HTML.

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**From:** Shellhammer, Stephen J [mailto:[stephen.j.shellhammer@intel.com](mailto:stephen.j.shellhammer@intel.com)]  
**Sent:** Tuesday, November 23, 2004 9:14 PM  
**To:** wk3c@wk3c.com; paul.nikolich@att.net; STDS-802-SEC@listserv.ieee.org  
**Subject:** RE: [802SEC] +++EC Email Ballot+++Urgent motion to approve 802.18 doc+++

Carl,

Thank you for your detailed response. Let me try to summarize my concerns in this response. They relate to wireless microphones and professional installation.

### Wireless Microphones

I am not trying to question the accuracy of the technical work within 802.18. My concern is that the IEEE is recommending to the FCC that they regulate how industry ensures that Part 15 devices do not interfere with Part 74 devices. Typically the FCC limits power and power spectral density (PSD) of Part 15 devices but does not specify rules for spectrum sharing. They typically leave any spectrum sharing designs to the industry.

That has been their practice in unlicensed vs. unlicensed sharing situations (the ISM bands), but again, unlicensed under licensed is a very different situation, as you note before.

You mention my position as chair of 802.19 Coexistence TAG which is a very good point. By analogy, 802.19 did not regulate in the recent rules change how the wireless working groups should ensure coexistence, we just are requiring that they do coexist, using any design they like, and then show that the new standard coexists with current standards. So 802.19 did not tell the wireless working group how to do their job, just that they need to show that they did do there job.

That is an internal 802 matter, not a question of what regulation may be necessary to assure protection of licensed services. (The latter is the domain/responsibility of the FCC, and we have simply tried to recommend the minimum regulation that our studies and discussions with the incumbent licensees indicate to be appropriate.)

However, I do understand that this band is different than the ISM bands so I appreciate that it may be necessary for the FCC to set additional regulation on industry.

So I will accept your response on the Part 74 devices and will withdraw my recommendation to remove those paragraphs.

Thank you.

### Professional Installation

I do not accept that argument that GPS systems and database systems are always unreliable, and hence the only valid method of installation is a professional. I believe that in many cases GPS

and a database can be made reliable and can be used for installation. In the case that they do not work professional installation is also available. So I believe that both methods of installation should be allowed by the FCC.

The issue is not that "GPS and database systems are \*always\* unreliable." The issue is that GPS can be unreliable in some situations \*and\* that the FCC database of information on licensed facilities (TV stations) contains many omissions and inaccuracies and isn't maintained in a timely fashion due to a lack of resources and other factors. The combination of these factors results in the conclusion that relying on "GPS and database" as a sole means of determining channel availability at any given location/time would be unreliable often enough to present significant interference potential. Since we will have an obligation not to cause interference, we believe that relying on "GPS and database" as a sole means is inappropriate and would result in interference that could/should be avoided (at least at this time, under the current circumstances).

Note that the professional installation recommendation applies \*only\* to the base station in fixed access networks, not to the CPE (user terminals), nor to "personal portable" devices. What this means is that a WISP, for example, will have to have someone capable of doing "due diligence" in terms of locating the base station, predicting its coverage, looking at what channel(s) can be used from that site with the intended technical parameters and coverage, and making initial channel selections that assure that the coverage (interference range) of the base station does not overlap into the "Grade B protected contour" of surrounding TV stations at levels that would violate the required D/U (desired/undesired signal) ratios. (after turn-on, the base station and its associated CPEs would use the sensing mode to verify channel availability and to respond to changes in the RF environment as TV facilities and channel assignments change with time).

Perhaps with time, if the FCC database were to become more accurate and were updated in a very timely manner, the problems associated with the reliability of the "GPS and database" technique will be resolved to the point where sufficient reliability could be obtained. At that time, I am confident that the FCC would entertain a request for a rules change, but at the moment, we believe that we cannot, in good professional conscience, endorse this technique as a sole, "stand-alone" means of determining channel availability and ensuring that interference to the incumbent licensed services does not occur.

Finally, personal portable devices (obviously) cannot be "professionally installed," and there is no suggestion that they should be, as, by definition they are easily moved about/relocated. Clearly, such devices will have to operate autonomously to prevent interference. I would also point out that relatively short-range, relatively low power systems like 802.11x are not treated as fixed systems precisely because of the ease with which they can be relocated. (Note that, under the changes made to the ITU Radio Regulations at WRC-03, the new global, primary allocation to "Wireless Access Systems, including RLANs" (which includes 802.11) was made to the MOBILE service, not to the FIXED service.)

I maintain my recommendation to add text to the document allowing for either professional or GPS/Database types of installation.

In the event that my further explanation on this topic has not changed your view, I can only say that I am not empowered to make such substantive changes to the document. I would also refer you to the following text from the 802.11 technical reflector, submitted by Bob O'Hara in response to some supportive comments there:

--- This message came from the IEEE 802.11 Technical Reflector ---

I would like to echo the position expressed here, this response needs to be filed in a timely fashion and with out any substantive changes.

There has been significant cooperation between the incumbent license holders and the members of the 802 wireless working groups.

Since this NPRM addresses operation in a band relatively far removed from any where existing 802 operate, any devices ultimately designed to operate here will be based on new silicon and new PHY

specifications.

There are no existing 802 device manufacturers to protect. Therefore I think that there is little danger to the extra protection that some see in the response. If this is helpful to getting consensus from all the parties involved in the NPRM, I think that it is not too high a price to pay.

-Bob

Regards,

**Carl R. Stevenson**

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