

**From:** **Yuriy Litvinov ITS/ES-Min**  
**Sent:** Friday, July 12, 2002 2:22 PM  
**To:** Norman Shpilsher ITS/ES-Min  
**Subject:** FW: Request for Favorable Interpretation



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-----Original Message-----

From: Rich Fabina [mailto:RFABINA@fcc.gov]  
Sent: Friday, July 12, 2002 2:00 PM  
To: RPhillips@act-solutions.com  
Cc: JBex@act-solutions.com; ylitvinov@etlsemko.com; Tom Phillips  
Subject: Re: Request for Favorable Interpretation

\*\* High Priority \*\*

Russel,

As I understand the issue, you make a light dimmer with a remote control transceiver in it. Any remote control transceiver connected to the AC power lines must also be tested for compliance with the AC line conducted limits in Sections 15.107(a) and 15.207(a) of the FCC Rules. (They are the same limits although one is for the receiver and one is for the transmitter in a transceiver). However, the light dimmer emissions are causing failing emissions in the region below 30 MHz for AC line conducted emissions testing of the transceiver.

Section 15.31(k) permits composite devices in a single enclosure ( a light dimmer and a remote control transceiver) as long as each device complies with its respective limits (see second sentence). It goes on...In no event may the measured emissions from the composite system exceed the highest level permitted for the individual component. Since the light dimmer has no technical standards on it, it automatically complies with the technical standards.

ETL is incorrectly applying the more stringent of the standards by applying the remote control transmitter standards to the light dimmer. The rules state the the highest standard shall be the one applied to all the components in a composite device. All that must be done is test the remote control transceiver for compliance with the AC line conducted emissions limits with the light dimmer turned off.

Tom Phillips' interpretation is correct. You may turn off the light dimmer and measure the remote control transceiver for complaince with the AC line conducted emissions. If the transmitter passes and the receiver passes, the device may be certified by a TCB or the Commision.

Mr. Phillips also has the authority to issue such an interpretation since he is an employee of the Federal Communication Commission. He currently works in the Measurements and Calibration Branch here at the FCC Laboratory where interpretations are coordinated between branches.

Please inform the TCB of this interpretation.

I trust that this has responded to this inquiry.

Rich Fabina

>>> Russell Phillips <RPhillips@act-solutions.com> 07/05/02 06:33PM >>>

Dear Mr. Fabina,

I am an RF engineer with Advanced Control Technologies, Inc. in Indianapolis, Indiana. We are preparing to produce a series of lighting control products for residential use in the USA. These devices occasionally communicate with each other and with a handheld remote control using a single frequency in the 900 MHz ISM band.

The reason I am contacting you is that one of the devices is a lamp dimmer that employs circuitry that is commonly used for the purpose, namely a triac which is turned at each zero crossing for a greater or lesser part of the 60Hz cycle, depending on how bright the lamp is to be. The dimmer circuitry generates a certain amount of noise on the AC power line due to this switching action just like every other dimmer of this type that is on the market.

The difficulty that we have encountered is that by putting a 900 MHz radio transceiver in the same plastic enclosure, we have a situation in which the low frequency (<30 MHz) noise generated by the dimmer circuitry exceeds the maximum limits that are applicable to the radio part of the device.

According to ETL, who is the TCB that we are working with, a strict interpretation of part 15.31k requires that the more stringent of the two standards that apply (one for the dimmer and another for the radio) be applied to the device as a whole. This would require that the dimmer circuitry, which is basically not regulated if it stood alone, be able to comply with the much tougher standard that applies to the radio portion of the product.

The data that has been taken establishes that this noise is generated entirely by the dimmer and not by the radio part of the device. By disabling the radio portion of the device, it can further be shown that this noise is not created by any inter-action between the the dimmer circuitry and the radio part of the device.

About a year ago, Tom Phillips, who at the time was in the FCC's "Test Sites, Documentation and Measurement Procedures" section, said in an email response to Telelaboriet (a Danish testing lab) that, "The emissions from the dimmer circuit are not regulated. Therefore you may disable the dimmer circuit when making emission measurements on the transmitter and receiver to show compliance..."

The test engineer at ETL that we are working with agrees that this is a reasonable approach and has established that the product does comply when tested this way. They also say however, that the rules do not allow them to do that. We are told that we would need a ruling from you on this matter before they could recognize this testing method. According to them, the other gentleman at the FCC does not have the authority to make such a decision, but you do.

Can you assist us in this matter? It seems unlikely to me that the rules were intended to be an obstacle in this case. The dimmer circuitry alone is in compliance, the radio transceiver alone is in compliance, and they do not interact to cause either to be out of compliance if the respective standards are applied. Why then should the device as a whole be considered out of compliance?

If you can help us, please let me know. The engineer at the ITS/ETL Semko is named Yuriy Litvinov. His email address is: [Ylitvinov@etlsemko.com](mailto:Ylitvinov@etlsemko.com). The street address for the facility he works at is: 7250 Hudson Blvd., Suite 100, Oakdale, MN 55128. His phone number is (651) 730-1188. If you would like to call me, I can be reached at (317) 337-0100 or by simply replying to this email. Thank you for considering this matter.

Sincerely,  
Russell A. Phillips  
RF Engineer  
Advanced Control Technologies, Inc./Indpls