

Subject: KQ9903 request for information
Date: Tue, 09 Jul 2002 12:15:33 -0700
From: Dennis Ward <dennis@yosemite.net>
Organization: dt Associates
To: Nicole Golden <info@ptitest.com>

> Hi Nicole

I got a file from Brad Rehm on the above ID. He asked for a reference to TIA603-1 in CFR 47. I do not have brad's email address, so I would appreciate it if you could forward the following response on his question about antenna substitution measurements.

Hi Brad

There is no direct reference to TIA/EIA603 in the CFR. However, what you do find in 2.947 (Measurement procedure) is:

(a) The Commission will accept data which have been measured in accordance with the following standards or measurement procedures:

(1) Those set forth in bulletins or reports prepared by the Commission's Office of Engineering and Technology. These will be issued as required, and specified in the particular part of the rules where applicable.

(2) Those acceptable to the Commission and published by national engineering societies such as the Electronic Industries Association, the Institute of Electrical and Electronics Engineers, Inc., and the American National Standards Institute.

(3) Any measurement procedure acceptable to the Commission may be used to prepare data demonstrating compliance with the requirements of this chapter.

(b) Information submitted pursuant to paragraph (a) of this section shall completely identify the specific standard or measurement procedure used.

(c) In the case of equipment requiring measurement procedures not specified in the references set forth in paragraphs (a)(1) and (2) of this section, the applicant shall submit a detailed description of the measurement procedures actually used.

(d) A listing of the test equipment used shall be submitted.

(e) If deemed necessary, the Commission may require additional information concerning the measurement procedures employed in obtaining the data submitted for equipment authorization purposes.

The Office of Engineering and Technology has interpreted the above to mean that if a manufacturer uses a test method that is not known or readily accepted by the OET, that manufacturer must completely and fully explain how the measurements were made. If the manufacturer does not want to provide a full and detailed explanation, then they must use test methodologies that are accepted by the OET. These test methods being those produced by the recognized agencies (i.e. IEEE, ANSI, EIA, etc.)

When the test methodology deals with a specific type of measurement (i.e. a specified ERP or EIRP measurements), the FCC does not accept other than the type measurements specified (i.e. ERP or EIRP) unless it can be shown by solid evidence that the levels are greater than 20 dB below the cited level. In the case of Part 90 and other licensed devices, both the FCC and TIA agree on how ERP or EIRP measurements are to be made.

The OET has issued bulletins and other documentation (interpretations database) which provide guidance on what is an already acceptable test

procedures for the various rule parts. In the FCC interpretation data base, the FCC states that the substitution method ALWAYS takes precedence over field strength measurements. It goes on to say that FOR CONSISTENCY, WE WANT EVERYONE TO USE THE SUBSTITUTION METHOD.

The reason the request spoke to the substitution method is that the report in question presents a single measured value and states that all other readings are more than 20dB below the cited level yet gives no evidence that this is the actual case. It states that spectrum analyzer plots of the spurious emissions is provided in figures 1, 2 and 3 in the appendix. However, no such appendix was provided, thus drawing question how verification of the statement is possible. Therefore, because no plots were provided as indicated, and because the substitution method always takes precedence, the request as stated in the document was made. In this case, even if antenna substitution is not used because levels are more than 20dB below the limit, it is good practice to show more than one reading as 'evidence' of compliance.

Hope this helps.