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FCC WILL ACCEPT GTEM MEASUREMENT DATA UNDER LIMITED CONDITIONS

The Authorization and Evaluation Division of the Office of the Chief Engineer has recently begun to receive requests from equipment manufacturers asking that radiated emissions data collected using a Gigahertz Transverse Electromagnetic (GTEM) cell be accepted for equipment authorization purposes in lieu of measurements made on an open-area test site.

Section 15.31(a)(6) of the FCC Rules requires that, after May 1, 1994, applicants for equipment authorization for digital devices must use the measurement procedures detailed in American National Standards Institute (ANSI) C63.4-1992. Applicants for equipment authorization for intentional and other unintentional radiators also must use this measurement procedure after June 1, 1995. The Commission also encourages the use of this standard prior to these dates. Section 5.4 of ANSI C63.4-1992, which describes radiated emissions test site requirements for measurements between 30 MHz and 1 GHz, contains the following provision for alternate test sites:

5.4.2 Alternate Test Sites. Measurements can be made at a location other than an open area test site, such as a weather-protected site, and absorber-lined room, a dedicated laboratory, or a factory site provided the alternate site meets the site attenuation requirements of 5.4.3 over the volume occupied by the EUT (see 5.4.6.5) and the conducting ground plane requirements of 5.4.3.... Measurements can also be made where the requirements of 5.4.6 are not met but it can be demonstrated to the relevant authority that the results achieved are equivalent to those obtained at an open area test site over the frequency range at which measurements are made. In cases of disagreement, final radiated emissions tests performed at an open area site meeting the requirements of 5.4.1 and 5.4.6 take precedence.

Further, the FCC Laboratory has been conducting an ongoing-evaluation of the capabilities and limitations of GTEM technology in cooperation with Subcommittee 1 of the ANSI C63 Committee. While this work is not yet complete, data collected so far has indicated good correlation with open area test site results for a variety of equipment under test, including intentional as well as unintentional radiators.

In consideration of the above, the Commission has determined that it will accept for compliance demonstration purposes radiated emission measurements taken using a GTEM cell under the following conditions:

1. Acceptable comparison measurement data must be filed with the Sampling and Measurements Branch accompanied by an appropriate analysis that demonstrates equivalence with an open area test site which has been listed as complying with the requirements of C63.4-1992. Comparison data must be provided for each general type of equipment under test (equipment of similar functionality and physical configuration, e.g. handheld transmitter, laptop computer, etc.) for which future acceptance of GTEM data is sought. Validity of calculated correlation coefficients must be supported by statistical analysis. Additional details concerning acceptable correlation data may be obtained from Thomas Phillips (ext. 218) or Phillip Inglis (ext. 212) at (301) 725-1585.
2. Acceptance of GTEM data for demonstration of compliance with radiated emission limits will be limited to the general type of equipment under test for which equivalence to open area testing has previously been demonstrated. Any cabling, either external or interconnecting, must be arrayed and terminated identically to the previously submitted equivalence demonstration.
3. In cases of disagreement, final radiated emissions tests performed at an open area test site meeting the requirements of Sections 5.4.1 and 5.4.6 of ANSI C63.4-1992 take precedence.