MAXIMUM PERMISSIBLE EXPOSURE CALCULATIONS

Test Procedure for Maximum Permissable Exposure: Using the values of the maximum radiated electric field measurements previously reported and assuming a $1/r^2$ rolloff of the electric field, the distance from the EUT where the electric field equals the maximum allowed in the FCC Rules is calculated.

Per §1.1310 of the FCC Rules, the limit for the category of general population/uncontrolled exposure in the frequency range of 1.34 – 30 MHz is:

$$E_{\lim it} = \frac{824}{f_{MHz}} V/m$$

Assuming a $1/r^2$ (40 dB/decade) rolloff of the electric field, the equation describing the electric field at any distance r relative to the field value E_{10m} measured at a 10 meter distance (36.67 dB(µV/m)) is the following:

$$E = E_{10m} + 20\log\left(\left(\frac{10}{r}\right)^2\right)$$

Setting the value of the electric field equal to the limit yields the following equation:

$$E_{\lim it} = E_{10m} + 20\log\left(\left(\frac{10}{r}\right)^2\right)$$

where the value of the distance r can be determined so that the equation is satisfied. The value of r that satisfies this equation is found to be 1.1 cm.

It is expected that due to the nature of the EUT and how it will be installed, the user will be located at least 20 cm from the EUT.

Criteria for Maximum Permissable Exposure: Per §1.1310 of the FCC Rules, the limit of radiation exposure for a device operating at a frequency of 13.56 MHz under the Limits for General Population/Uncontrolled Exposure is 155.67 dB(µV/m). The electric field radiated by the EUT was below this value for separation distances of 20 cm or greater.