Maximum Permissible Exposure

Purpose

The purpose of this test is to ensure that the RF energy intentionally transmitted, in terms of power density emitted from the EUT at a stated operating distance does not exceed the limits listed below as defined in the applicable test standard, as calculated based upon readings obtained during testing. This helps protect human exposure to excessive RF fields.

Limit(s) and Method

The limits, as defined in FCC 15.247(i) and FCC 1.1310 Table 1 (B) limits for general public exposure was applied. The limit for the frequency range of 1.5 GHz to 100 GHz was applied. This is a limit of 1.0 mW/ cm^2. The distance used for calculations was 20cm, as this is the minimum distance an operator will be from the EUT during normal operation, as stated by the manufacturer.

Results

The EUT passed the requirements. The worst case calculated power density was 0.02 mW/cm^2, this is significantly under the 1.0 mW/cm^2 requirement.

Calculations

Method 1 (conducted power)
Internal antenna

$P_d = (P_t*G) / (4*pi*R^2)$
Where Pt = 19.2 dBm or 83.2 mW as per Peak power conducted output
Where G = 0.5 dBi, or numerically 1.12
Where R = 20 cm

$P_d = (83.2\ mW * 1.12 / (4 * pi * 20cm^2)$
$P_d = 93.2\ mW / 5026\ cm^2$
$P_d = 0.018\ mW/cm^2$

External antenna

$P_d = (P_t * G) / (4 * pi * R^2)$
Where Pt = 12.5 dBm or 17.78 mW as per Peak power conducted output
Where G = 5 dBi, or numerically 3.16
Where R = 20 cm

$P_d = (17.78\ mW * 3.16) / (4 * pi * 20cm^2)$
$P_d = 56.18\ mW / 5026\ cm^2$
$P_d = 0.011\ mW/cm^2$