Maximum Permissible Exposure

Square Inc. S6 FCC ID: 2AF3K-1SQHW

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 1.1310 Table 1 (B) limits for general public exposure was applied. The limit for the frequency range of 1.34 MHz to 30 MHz is $180/f^2$ mW/cm^2, and the limit for the frequency range of 1.5 GHz to 100 GHz is 1.0 mW/cm^2.

Therefore, the limits for this device are as follows:

MPE Limits	
Frequency	**Limit**
13.56 MHz	0.97 mW/cm^2
2.4 – 2.4835 GHz	1.0 mW/cm^2

The distance used for calculations was 20cm, as this is the minimum distance a user will be from the EUT during normal operation.

Prediction methods from OET Bulletin 65, Edition 97-01 are applied.
SAR test exclusion for simultaneous transmissions from FCC KDB447498 is applied.

Radiated data was measured at a distance of 3m.

Results

The EUT passed the requirements. The worst case calculated power densities of all transmitters are under limits, and the sum of the MPE ratios meet the MPE test exclusion requirement for simultaneous transmissions.

Calculations for 15.247 device

$P_d = (EIRP / (4*pi*R^2)$
Where:
EIRP = Equivalent Isotropic Radiated Power = E(dBuV) – 95.2
E(dBuV) = 92.2 dBuV
EIRP = 92.2 dBuV – 95.2 = -3.0 dBm = 0.5012 mW
R = 20cm

P_d = (0.5012 mW) / (4 * pi * 20^2 cm^2)
P_d = 0.000099711 mW/cm^2

Calculations for 15.225 device

P_d = (EIRP / (4*pi*R^2)
Where:
EIRP = Equivalent Isotropic Radiated Power = E(dBuV) – 95.2
E(dBuV) = 77.0 dBuV
EIRP = 77.0 dBuV – 95.2 = -18.2 dBm = 0.01514 mW
R = 20cm

P_d = (0.01514 mW) / (4 * pi * 20^2 cm^2)
P_d = 0.000003011 mW/cm^2

Calculations for simultaneous transmission device

As per FCC KDB447498 7.2:

> *Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.*

MPE ratio = Ratio of power density to MPE limit, at the test frequency = P_d / (MPE limit)

MPE ratio for 15.247 device = 0.000099711 mW/cm^2 / 1.0 mW/cm^2 = 0.000099711
MPE ratio for 15.225 device = 0.000003011 mW/cm^2 / 0.97 mW/cm^2 = 0.0000031043

0.000099711 + 0.0000031043 = 0.000102815 < 1.0

MPE test exclusion applies for simultaneous transmission.