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 902MHz to 908MHz was applied. This is a limit of 0.601 mW/ cm^2 (worst case in frequency range). The distance used for calculations was 25cm, as this is the minimum distance an operator will be from the EUT during normal operation, as stated by the manufacturer.

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

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.

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Calculations

The Peak power conducted output is 29.8dBm, antenna gain is 2.14dBi. As per manufacture , However, the target is 1W, which is used for the purpose of calculation.

Time-averaged maximum E.I.R.P= 30+2.14=32.14dBm (1637 mW)

At 20 cm(worst case), power density P_d = 1637mw/ (4*pi*(20^2)) =0.33 mW/cm^2.

This is under the 0.6 mW/cm^2 limit.