

Prediction of MPE Limit

1. Description of EUT

- FCC ID : STESPAPP030M
- Model No. : RSP-APP-030M
- Freq. Range :
 - Downlink: 1930 ~ 1990MHz
 - Uplink: 1850 ~ 1910MHz
- Power Rating : AC110V, 50/60Hz
- EUT Type : RF Repeater(CDMA), 1900MHz PCS Block A ~ F

2. Friis Formula

Friis transmission formula : $S = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

$$R = \sqrt{\frac{PG}{4 \pi S}}$$

S = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1mW/cm^2 . If we know the maximum Gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

3. EUT Operating condition

The software provided by Manufacturer enabled the EUT to Maximum Output Power with downlink and uplink mode.

4. Test Results

4.1 Antenna Gain

The maximum Gain measured in Fully Anechoic Chamber is 12dBi or 15.849 (numeric).

4.2 Output Power into Antenna & Distance at RF Exposure value(1mW/cm²) :

MODE: Downlink

Channel	Channel Frequency (MHz)	Maximum Output Power to Antenna (mW)	R (cm)
600	1960.00	31.842	6.337

MODE: Uplink

Channel	Channel Frequency (MHz)	Maximum Output Power to Antenna (mW)	R (cm)
600	1880.00	32.063	6.359
