

# Prediction of MPE Limit

## 1. Description of EUT

- FCC ID : STESPAPP200M
- Model No. : RSP-APP-200M
- Freq. Range :
  - Downlink: 1930 ~ 1970MHz
  - Uplink: 1850 ~ 1890MHz
- Power Rating : AC110V, 50/60Hz
- EUT Type : RF Repeater(CDMA), 1900MHz PCS Block A, B, D, E

## 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  $\text{mW/cm}^2$

$P_{out}$  = output power to antenna in  $\text{mW}$

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in  $\text{cm}$

$P_d$  is the limit of MPE,  $1\text{mW/cm}^2$ . 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.

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## 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/cm<sup>2</sup>) :

MODE: Downlink

Channel	Channel Frequency (MHz)	Maximum Output Power to Antenna (mW)	R (cm)
425	1951.25	201.837	15.955

MODE: Uplink

Channel	Channel Frequency (MHz)	Maximum Output Power to Antenna (mW)	R (cm)
25	1851.25	200.909	15.918

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