SAR evaluation

MPE Calculation Method

$E\ (V/m) = (30*P*G)^{0.5}/d$

Power Density: $Pd\ (W/m2) = E^2/377$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$Pd = (30*P*G) / (377*d^2)$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Calculated Result and Limit (WORSE CASE OF BLE IS AS BELOW)

Field strength =105.85dBμV/m @3m

So EIRP={ [10^(105.85/20)/10^6 x3]^2/30 }x1000 mW = 11.54 Mw

11.54/4X3.14X400=0.0023<1(mW/cm2)

Calculated Result and Limit (WORSE CASE OF BT IS AS BELOW)

Directional AntennaGain (Numeric)	Peak Output Power (mW)	Power Density (S)(mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
1.26（1dBi）	4.822（6.832dBm ）	0.00121	1	Compiles

Calculated Result and Limit (WORSE CASE OF WIFI IS AS BELOW)

Directional AntennaGain (Numeric)	Peak Output Power (mW)	Power Density (S)(mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
2.52 （4.01dBi）	18.98（12.782dBm）	0.00952	1	Compiles

Calculated Result and Limit (WORSE CASE OF UNII IS AS BELOW)

Directional AntennaGain (Numeric)	Peak Output Power (mW)	Power Density (S)(mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
2.52 （4.01dBi）	66.359（18.219dBm）	0.0333	1	Compiles

Result：0.00121+0.00952+0.0333=0.04403<1