

RF Exposure Evaluation

Limits

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz

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

Where

P_d = power density in mW/cm², **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 did the limit of MPE, 1mW/cm². 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 where the MPE limit is reached.

Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

TestResult of RFExposureEvaluation**BTEDRmode**

Channel	Outputpower toantenna(dBm)	Outputpower toantenna(mW)	PowerDensity atR=20cm (mW/cm2)	Limit (mW/cm2)	Result
2480MHz	-4.96	0.319	0.00011	1.0	PASS

BLEmode

Channel	Outputpower toantenna(dBm)	Outputpower toantenna(mW)	PowerDensity atR=20cm (mW/cm2)	Limit (mW/cm2)	Result
2480MHz	-4.623	0.345	0.00012	1.0	PASS

Remark: antenna gain=2.4dBi

The max power density is less than MPE exempt limit, so it is compliance.