Prediction of MPE at a given distance

1. Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

2. Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

3. Test Facility

Shenzhen Alpha Product Testing Co., Ltd

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103,

Shenzhen, Guangdong, China

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Registration Number: 293961

4. Result

Mode	Frequency (MHz)	Prediction distance (cm)	Peak RF power output		MPE (mW/cm^2)	Limit (mW/cm^2)	SAR Test Exclusion
			dBm	mW			
UHF	440	50	33.843	2422.7020	0.19371	0.2933	Yes
EDR	2402-2480	50	7	5.0119	0.00018	1	Yes
2.4GWIFI	2412-2462	50	27	501.1872	0.01798	1	Yes
GSM	824.2	50	25.81	381.0658	0.02055	0.5495	Yes

Use distance is 50cm, Maximum Simultaneous transmission MPE Ratios for UHF+EDR+2.4GWIFI+GSM:

Max MPE ratio $_{UHFI}$/Limit	Max MPE ratio $_{EDR}$/Limit	Max MPE ratio $_{WIFI}$/Limit	Max MPE ratio $_{GSM}$/Limit	∑MPE ratios	Limit	Result
0.66045	0.00018	0.01798	0.03740	0.71601	1	PASS

UHF Antenna Gain:

Whip antenna, max gain 4dBi, 2.51(numeric)

EDR Antenna Gain:

Max gain 0.52dBi, 1.13(numeric)

2.4GWIFI Antenna Gain:

Max gain 0.52dBi, 1.13(numeric)

GSM Antenna Gain:

Max gain 2.29dBi, 1.69(numeric)

Meet MPE requirements, RF Exposure evaluation is not required.