

FCC §15.247 (i), §2.1091 – RF Exposure

# FCC ID: 2ADXX-SG2

## Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

## Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: f is frequency in MHz

\* = Power density limit is applicable at frequencies greater than 100 MHz

## Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz

\* = Plane-wave equivalent power density

## MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

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

R = distance to the center of radiation of the antenna

## TEST RESULTS

## WIFI

Test Channel	Frequency	Maximum Peak Conducted Output Power (PK)	Maximum Peak Conducted Output Power (AV)	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
<b>TX 802.11b Mode</b>				
CH01	2412	12.69	9.47	30
CH06	2437	12.71	9.49	30
CH11	2462	12.73	9.51	30
<b>TX 802.11g Mode</b>				
CH01	2412	13.05	9.22	30
CH06	2437	13.07	9.34	30
CH11	2462	12.96	9.23	30
<b>TX 802.11n-HT20 Mode</b>				
CH01	2412	12.14	8.91	30
CH06	2437	12.17	8.94	30
CH11	2462	12.09	8.86	30
<b>TX 802.11n-HT40 Mode</b>				
CH03	2422	11.69	7.27	30
CH06	2437	11.77	7.35	30
CH09	2452	11.75	7.33	30

## GMS 850

Mode	Frequency (MHz)	Maximum Burst-Average Output Power
GSM850	824.2	32.51
	836.6	32.32
	848.8	32.34
GPRS850 (1 Slot)	824.2	32.62
	836.6	32.35
	848.8	32.31
GPRS850 (2 Slot)	824.2	31.78
	836.6	31.64
	848.8	31.58
GPRS850 (3 Slot)	824.2	30.17
	836.6	29.82
	848.8	29.75
GPRS850 (4 Slot)	824.2	29.02
	836.6	28.69
	848.8	28.45

## PCS 1900

Mode	Frequency (MHz)	Maximum Burst-Average Output Power
GSM1900	1850.2	29.45
	1880	29.21
	1909.8	29.11
GPRS1900 (1 Slot)	1850.2	29.46
	1880	29.25
	1909.8	29.24
GPRS1900 (2 Slot)	1850.2	28.71
	1880	28.56
	1909.8	28.51
GPRS1900 (3 Slot)	1850.2	27.04
	1880	26.98
	1909.8	27.04
GPRS1900 (4 Slot)	1850.2	25.97
	1880	25.96
	1909.8	26.14

Mode	Range	Maximum peak output power (dBm)	Output power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Limit of Power Density (S) (mW/ cm <sup>2</sup> )	Result
802.11b	11~13	13	19.95	1(1.26)	0.0050	1	Pass
802.11g	12~14	14	25.12	1(1.26)	0.0063	1	Pass
802.11n-HT20	11~13	13	19.95	1(1.26)	0.0050	1	Pass
802.11n-HT40	10~12	12	15.85	1(1.26)	0.0040	1	Pass
GSM850	31~33	33	1995.26	1(1.26)	0.5001	0.549	Pass
GPRS850 (1 Slot)	31~33	33	1995.26	1(1.26)	0.5001	0.549	Pass
GPRS850 (2 Slot)	30~32	32	1584.89	1(1.26)	0.3973	0.549	Pass
GPRS850 (3 Slot)	29~31	31	1258.93	1(1.26)	0.3156	0.549	Pass
GPRS850 (4 Slot)	28~30	30	1000.00	1(1.26)	0.2507	0.549	Pass
GSM1900	28~30	30	1000.00	1(1.26)	0.2507	1	Pass
GPRS1900 (1 Slot)	28~30	30	1000.00	1(1.26)	0.2507	1	Pass
GPRS1900 (2 Slot)	27~29	29	794.33	1(1.26)	0.1991	1	Pass
GPRS1900 (3 Slot)	26~28	28	630.96	1(1.26)	0.1582	1	Pass
GPRS1900 (4 Slot)	25~27	27	501.19	1(1.26)	0.1256	1	Pass

Note: WiFi and GSM can't transmit at the same time.