



RF Exposure evaluation

Model: 6.5inchCluster

Standards
OET Bulletin 65 Edition 97-01 August 1997
FCC 47 CFR §1.1307
FCC 47 CFR §1.1310
RSS-102 Issue 5 – March 2015

Test limits

As specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure.

Frequency range (MHz)	Power density (mW/cm ²)
300 – 1,500	f/1500
1,500 – 100,000	1.0

Limits specified per RSS-102, Issue 5.

Frequency range (MHz)	Power density (W/m ²)	Power density (mW/cm ²)
300 – 6000	$0.02619 f^{0.6834}$	$mW/cm^2 = W/m^2 * 0.1$

Equation OET bulletin 65, page 18, edition 97-01: $S = \frac{PG}{4\pi R^2} = \frac{EIRP}{4\pi R^2}$

Where:

S = power density

P = power input to the 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 = 20cm



Operational Bands	Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain -numeric- (mW/cm ²)	Output Power -conducted- (dBm)	Output Power -conducted- (mW)	Output Power (EIRP) (mW)	IC Limit (mW/cm ²)	FCC Limit (mW/cm ²)	Power Density value (mW/cm ²)	Margin to FCC Limit (mW/cm ²)	Margin to IC Limit (mW/cm ²)
Bluetooth (BT Smartphone)	2480	1	1.2589	1.50	1.41	1.78	0.5469	1.00	0.0004	0.9996	0.5465
Bluetooth (BT Headset)	2480	3	1.9953	0.70	1.17	2.34	0.5469	1.00	0.0005	0.9995	0.5464
WLAN 2.4 GHz	2437	2.1	1.6218	13.50	22.39	36.31	0.5404	1.00	0.0072	0.9928	0.5332

Co-Location Considerations

The calculation below is used to consider situations in which simultaneous exposure to fields of different frequencies occur. The calculation is performed by the sum of each relative exposure for each equipment according to the following criteria.

$$\sum_{1}^N \frac{S_{eqn}}{S_{Limn}} = \frac{S_{eq1}}{S_{Lim1}} + \frac{S_{eq2}}{S_{Lim2}} + \dots + \frac{S_{eqN}}{S_{LimN}} \leq 1$$

Where:

S_{eq} is the power density of the electromagnetic field at a given distance by a specific transmitter and a defined frequency.

S_{lim} is the MPE limit for the frequency being evaluated.



Assessment of Co-Location transmission for FCC

	BT Classic (BT Smartphone)	BT Classic (BT Headset)	WLAN 2.4
(S_{eq} / S_{Lim})	0.0004	0.0005	0.0072
Sum of (S_{eqn} / S_{Limn})	0.0081		
Limit	1		
Assessment	passed		

Assessment of Co-Location transmission for IC

	BT Classic (BT Smartphone)	BT Classic (BT Headset)	WLAN 2.4
(S_{eq} / S_{Lim})	0.0007	0.0009	0.0133
Sum of (S_{eqn} / S_{Limn})	0.0149		
Limit	1		
Assessment	passed		

Yours sincerely,

A handwritten signature in blue ink that reads 'T. S. Sunar'.

Teoman Soner Sunar