



RF Exposure evaluation

Model: **TBTBMF30B0**

Contains FCC ID: **XMR201905AG35NA**

Contains IC: **10224A-2019AG35NA**

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/cm²)	Output Power -conducted- (dBm)	Duty Cycle correction factor	Max. mean output power (dBm)	Output Power -conducted- (mW)	Output Power (EIRP) (mW)	IC Limit (mW/cm²)	FCC Limit (mW/cm²)	Power Density value (mW/cm²)
GSM 850	824.2	0	1.0000	34.00	-9.03	24.97	314.05	2511.89	0.2576	0.55	0.0625
GSM 1900	1850.2	0	1.0000	30.50	-9.03	21.47	140.28	1122.02	0.4477	1.00	0.0279
FDDII	1852.4	0	1.0000	24.50	0	24.50	281.84	281.84	0.4480	1.00	0.06
FDDIV	1712.4	0	1.0000	24.50	0	24.50	281.84	281.84	0.4246	1.00	0.06
FDDV	826.4	0	1.0000	24.50	0	24.50	281.84	281.84	0.2581	0.55	0.06
eFDD2	1850	0	1.0000	24.00	0	24.00	251.19	251.19	0.4476	1.00	0.05
eFDD4	1710.7	0	1.0000	24.50	0	24.50	281.84	281.84	0.4243	1.00	0.0561
eFDD5	824.7	0	1.0000	24.50	0	24.50	281.84	281.84	0.2577	0.55	0.0561
eFDD7	2502.5	0	1.0000	24.00	0	24.00	251.19	251.19	0.5503	1.00	0.0500
eFDD12	699.7	0	1.0000	24.00	0	24.00	251.19	251.19	0.2303	0.47	0.0500
eFDD13	779.5	0	1.0000	24.00	0	24.00	251.19	251.19	0.2480	0.52	0.0500
eFDD17	706.5	0	1.0000	24.00	0	24.00	251.19	251.19	0.2319	0.47	0.0500
WLAN 2.4 GHz	2437	1	1.2589	8.00	0	8.00	6.31	7.94	0.5404	1.00	0.0016
WLAN 5 GHz	5745	1	1.2589	14.90	0	14.90	30.90	38.90	0.9710	1.00	0.0077

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

	GSM850	WLAN 5 GHz
(S_{eq} / S_{Lim})	0.11364	0.0077
Sum of (S_{eqn} / S_{Limn})	0.12134	
Limit	1	
Assessment	passed	

Assessment of Co-Location transmission for IC

	GSM850	WLAN 5 GHz
(S_{eq} / S_{Lim})	0.24262	0.00793
Sum of (S_{eqn} / S_{Limn})	0.25055	
Limit	1	
Assessment	passed	

Yours sincerely,

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

Teoman Soner Sunar