RF Exposure evaluation

Model: **Q1049**

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/cm²)*
300 – 1,500	f/1500
1,500 – 100,000	1.0

Limits specified per RSS-102, Issue 5.

Frequency range (MHz)	*Power density (W/m²)*	*Power density (mW/cm²)*
300 – 6000	$0.02619\ f^{0.6834}$	*mW/cm² = W/m² * 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)	Output Power -conducted- (mW)	IC Limit (mW/cm²)	FCC Limit (mW/cm²)	Power Density value (mW/cm²)	Margin to FCC Limit (mW/cm²)	Margin to IC Limit (mW/cm²)
UNII Subband 1 (20 MHz)	5220	2	1.5849	10.40	10.96	0.9095	1.00	**0.0035**	**0.9965**	**0.9060**
UNII Subband 1 (40 MHz)	5190	2	1.5849	14.20	26.30	0.9059	1.00	**0.0083**	**0.9917**	**0.8976**
UNII Subband 2A (20 MHz)	5320	2	1.5849	10.90	12.30	0.9213	1.00	**0.0039**	**0.9961**	**0.9175**
UNII Subband 2A (40 MHz)	5310	2	1.5849	14.50	28.18	0.9202	1.00	**0.0089**	**0.9911**	**0.9113**
UNII Subband 2C (20 MHz)	5500	2	1.5849	11.10	12.88	0.9425	1.00	**0.0041**	**0.9959**	**0.9385**
UNII Subband 2C (40 MHz)	5510	2	1.5849	14.30	26.92	0.9437	1.00	**0.01**	**0.9915**	**0.9352**
UNII Subband 3 (20 MHz)	5785	2	1.5849	11.30	13.49	0.9756	1.00	**0.0043**	**0.9957**	**0.9714**
UNII Subband 3 (40 MHz)	5755	2	1.5849	14.60	28.84	0.9722	1.00	0.0091	**0.9909**	**0.9631**

*conducted power values include +1dBm tune up. Tune up information based on manufacturer statement.

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.

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

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.

Yours sincerely,

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