Calculation and sample for Confirmation

Dear Reviewer,

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

The RF Exposure level is calculated using the general equation:

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

$$R=[PG/(4\pi S)]^{0.5}$$

where:

S = power density (in appropriate units, e.g. mW/ cm2)

P = power input to the antenna (in appropriate units, e.g., mW)

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 (appropriate units, e.g., cm)

Calculated Results:

a) Calculated For WLAN:

G=3.0dBi

R=20cm

Frequency(MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm2)
2412	11.25	13.33521	3.0	2.0	20	**0.005293**
2437	10.96	12.47384	3.0	2.0	20	**0.004951**
2462	11.04	12.70574	3.0	2.0	20	**0.005043**

So, the power density is kept.

b) Calculated For BGAN:

G=10.5dBi

Frequency(MHz)	dBm	mW	G(dBi)	Numeric	Limit(mW/cm2)	R(cm)
1626.595	35.44	3499.45	10.5	11.2	1	**54.074089**
1643.5	35.81	3810.66	10.5	11.2	1	**56.427292**
1660.2	35.7	3715.35	10.5	11.2	1	**55.717191**

So the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 56.42 cm from all persons.

c) Calculated For BGAN(for 2M distance):

G=10.5dBi

R=200cm

Frequency(MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm2)
1626.595	35.44	3499.45	10.5	11.2	200	**0.078114**
1643.5	35.81	3810.66	10.5	11.2	200	**0.0850607**
1660.2	35.7	3715.35	10.5	11.2	200	**0.0829312**

So, the power density is kept.

Please contact us if you have any additional questions.

Best Regards

Morlab

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