

RF Exposure Calculation

Applicant: LuxLabs Ltd. dba MeshNetics
FCC ID: U6T ZIGBIT-A2

End users may not be provided with the module installation instructions. OEM integrators and end users must be provided with transmitter operating conditions for satisfying RF exposure compliance..

For portable applications OEM integrators need no SAR evaluation. The max source-based time-averaged output of 3.92mW is below the low threshold of 24mW for $d < 2.5$ cm.

integral Antenna requirement § 15.203).

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. The Following calculation is the reference data for $<2,5$ cm distance.

name		nature value	log value
max conducted power		2,42 mW	3,83 dBm
max Antenna gain dBi		1,62	2,10 dBi
calculated radiated power	EIRP	3,9174 mW	5,93 dBm
duty cycle factor			
frequency		2400 MHz	
dwel time		100,00 ms	
Time of occupancy/puls-train time		100,00 ms	
duty cycle factor	$10\log(\text{dwel time}/100 \text{ ms})$	100,00%	0,00 dB
max source-based time-averaged power			
conducted power		2,42 mW	3,83 dB
calculated radiated power	EIRP	3,92 mW	5,93 dB
M P E			
$S = \frac{PG}{4\pi R^2}$		calculated with max source-based time-averaged power	
		measured conducted power	
r [cm]		20	2,5
S [mW/cm²]		0,0008	0,050
Limit general population		[mW/cm²]	1,0
Limit occupational population		[mW/cm²]	5,0
$S = \frac{EIRP}{4\pi R^2} = \frac{1.64 ERP}{4\pi R^2} = \frac{0.41 ERP}{\pi R^2}$		calculated with max source-based time-averaged power	
		measured radiated power	
r [cm]		20	2,5
S [mW/cm²]		n.a.	n.a.
			1,0