

RF Exposure Calculation

Applicant: Peiker Acoustic GmbH & Co. KG

FCC ID: QWY-BT-PSC

This transmitter is a very low power configurations, approved for use with mobile phones and may operate in conjunction with other mobile and portable transmitters; provided, the other mobile and portable transmitters have satisfied the appropriate RF exposure requirements contained in the FCC rules.

For portable applications installers need no SAR evaluation. The max source-based time-averaged output of 0.89mW 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 0.266cm minimal distance.

BT/WLan					
name			nature value	log value	
max conducted power			1,06 mW	0,27 dBm	
max Antenna gain dBi			1,29	1,10 dBi	
max Antenna gain dBd			0,79	-1,05 dBd	
calculated radiated power		EIRP	1,37 mW	1,37 dBm	
measured radiated power		EIRP	1,95 mW	2,89 dBm	
duty cycle factor					
frequency		2400 MHz			
dwell time			2,9 ms		
Time of occupancy/puls-train time			6,41 ms		
duty cycle factor		10log(dwell time/100 ms)	45,55%	-3,41 dB	
max source-based time-averaged power					
conducted power			0,48 mW	-3,14 dB	
calculated radiated power		EIRP	0,62 mW	-2,04 dB	
measured radiated power		EIRP	0,89 mW	-0,52 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 1,5 0,223	
		S [mW/cm²]	0,0001		1,0
Limit general population		[mW/cm²]	1,0		
Limit occupational population		[mW/cm²]	5,0	for f = 2400 MHz	
$S = \frac{EIRP}{4\pi R^2} = \frac{1.64 ERP}{4\pi R^2} = \frac{0.41 ERP}{\pi R^2}$		calculated with max source-based time-averaged power measured radiated power			
		r [cm]	20	2,5 1,5 0,266	
		S [mW/cm²]	0,0002		1,0

ETS

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