RF Exposure Calculation

Applicant: Able Systems Ltd
FCC ID: TGZBT001

The antenna shown in this filing must not be co-located or operated in conjunction with any other antenna or transmitter. 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 1.6mW 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 20, 2.5 and 1.5 cm distance.

name			nature value	log value
max conducted power			1,31 mW	1,18 dBm
max Antenna gain dBi			1,58	2,00 dBi
max Antenna gain dBd			0,97	-0,15 dBd
calculated radiated power		EIRP	2,08 mW	3,18 dBm
		ERP	1,27 mW	1,03 dBm
duty cycle factor				
frequency	2440 MHz			
dwell time			76,6 ms	
Time of occupancy/puls-train time			100 ms	
duty cycle factor	10log(dwell time/100 ms)		**76,60%**	-1,16 dB
max source-based time-averaged power				
conducted power			**1,01** mW	0,02 dB
calculated radiated power		EIRP	**1,59** mW	2,02 dB

MPE

$$S = \frac{PG}{4\pi R^2}$$

calculated with max source-based time-averaged power
measured condacted power

r [cm]	20	2,5	1,5	**0,356**
S [mW/cm²]	**0,000**	**0,020**	**0,056**	1
Limit general population	[mW/cm²]	1,000		
Limit occupational population	[mW/cm²]	5,00	for f =	2440 MHz