RF Exposure Calculation

Applicant: Leica Geosystems AG
FCC ID: RFD-PANMOD1

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..

This kind of equipment is below 60/frequency[GHz] mW(TCB Exclusion List).
The Following calculation is the reference data for 20cm – minimum distance.

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.

name			nature value	log value
max conducted power			0,40 mW	-3,98 dBm
max Antenna gain dBi			2,00	3,00 dBi
calculated radiated power		EIRP	0,80 mW	-0,98 dBm
measured radiated power		EIRP	1,53 mW	1,85 dBm
duty cycle factor				
frequency		2400 MHz		
dwell time			76,3926 ms	
Time of occupancy/puls-train time			100 ms	
duty cycle factor	10log(dwell time/100 ms)		**76,39%**	-1,17 dB
max source-based time-averaged power				
conducted power			**0,31** mW	-5,15 dB
calculated radiated power		EIRP	**0,61** mW	-2,15 dB
measured radiated power		EIRP	**1,17** mW	0,68 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	**0,22**
S [mW/cm²]	**0,000**	**0,008**	**0,022**	1
Limit general population	[mW/cm²]	1,000		
Limit occupational population	[mW/cm²]	5,00	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	**0,305**
S [mW/cm²]	**0,000**	**0,015**	**0,041**	1