

dresden elektronik ingenieurtechnik gmbh • Enno-Heidebroek-Str. 12 • D-01237 Dresden

Federal Communications Commission Equipment Authorization Branch 7435 Oakland Mills Rd Columbia MD 21046-1609

Dresden, 15 February 2010

RF Exposure Calculation

dresden elektronik ingenieurtechnik gmbh FCC ID: XVV-MEGA22A00 FCC Part 15 Certification

Dear Sir or Madam,

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 2.85 mW is below the low threshold of 24 mW for distance < 2.5 cm.

Section 15.203: Antenna requirement

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 distance < 2.5cm.

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	name	value		log value	
calculated radiated power 2.85 mW 4.55 dBm duty cycle factor 2400 MHz 4.55 dBm frequency 2400 MHz 2400 MHz dwell time 100 ms 100 ms duty cycle factor 100% 0.00 dB maxium source-based time-averaged power 0.81 mW -0.93 dB calculated radiated power 2.85 mW 4.55 dB Specific powercalculated with max source-based time-averaged powermeasured condacted power 2.85 mW 4.55 dB $S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ $0.0002 0.0139 0.0385 1.0 0.29 0.0002 0.0139 0.0385 1.0 0.0002 0.0139 0.0385 1.0 0.0002 0.000$	maximum conducted power		0.81 mW	-0.93 dBm	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			1.35	1.30 dBi	
	calculated radiated power		2.85 mW	4.55 dBm	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	duty cycle factor				
time of occupacy / pulse-train time duty cycle factor 100 ms 0.00 dB 0.0	frequency		2400 MHz		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	dwell time		100 ms		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	time of occupacy / pulse-train time		100 ms		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	duty cycle factor		100 %	0.00 dB	
calculated radiated power	maxium source-based time-averaged	power			
Specific power calculated with max source-based time-averaged power measured condacted power $S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] 20.00 2.50 1.50 0.29 S [mW/cm²] 0.0002 0.0139 0.0385 1.0 limit general population [mW/cm²] 1.0 limit occupational population [mW/cm²] 5.0 calculated with max source-based time-averaged power measured radiated power $S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] 20.00 2.50 1.50 n.a.	conducted power		0.81 mW	-0.93 dB	
calculated with max source-based time-averaged power measured condacted power $S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ $r \text{ [cm]} \qquad \qquad 20.00 \qquad 2.50 \qquad 1.50 \qquad 0.29$ $S \text{ [mW/cm²]} \qquad \qquad 0.0002 \qquad 0.0139 \qquad 0.0385 1.0$ $limit general population [mW/cm²] \qquad 1.0 \qquad \qquad$	calculated radiated power		2.85 mW	4.55 dB	
measured condacted power $S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm]	Specific power				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$S = \frac{P \cdot G}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$				
limit general population [mW/cm²] 1.0 limit occupational population [mW/cm²] 5.0 calculated with max source-based time-averaged power measured radiated power $S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] 20.00 2.50 1.50 n.a.	r [cm]	20.00	2.50	1.50	0.29
limit occupational population [mW/cm²] 5.0 calculated with max source-based time-averaged power measured radiated power $S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] 20.00 2.50 1.50 n.a.	S [mW/cm²]	0.0002	0.0139	0.0385	1.0
calculated with max source-based time-averaged power measured radiated power $S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] $20.00 2.50 1.50 \text{n.a.}$	limit general population [mW/cm²]	1.0	le.		
measured radiated power $S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$ r [cm] $20.00 2.50 1.50 \text{n.a.}$	limit occupational population [mW/cm²]	5.0			
r [cm] 20.00 2.50 1.50 n.a.	calculated with max source-based time-a measured radiated power	averaged p	ower		N.S.
	$S = \frac{EIRP}{4 \cdot \pi \cdot r^2} \left[\frac{mW}{cm^2} \right]$				
S [mW/cm²] n.a. n.a. n.a. 1.0	r [cm]	20.00	2.50	1.50	n.a.
	S [mW/cm²]	n.a.	n.a.	n.a.	1.0

Sincerely,

Signature

Name Andreas Palm

Title Development Engineer

Company dresden elektronik ingenieurtechnik gmbh

2010-02-15