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1.0 Maximum Permissible Exposure Evaluation (Supplements the test report.)

The measured power is considered for the intended use of the device and resulting RF exposure to the user.

1.2 Criteria

Section Reference	Date
447498 D01 General RF Exposure Guidance v06 // RSS-102 Issue 5	2 Oct 2020

1.3 Procedure

Using measurement of peak power and considering the intended application, determine the permissible exposure level, applicability of exclusion, or whether additional exposure tests (SAR) are indicated. When applicable justify conclusion for selected exposure level and separation distance.

1.4 Power to Exposure Calculation

This device is operated typically indoors, either wall-mounted or on a desk. The operating band is 24000-24250 MHz. Power is determined from the measured field strength. The uncontrolled public separation distance is 20 cm.

Table 1.4.1 Power Calculation					
Measured Power Field Strength dBμV/m*	At Distance	EIRP Power dBm	Source Duty Cycle Factor dB	Calculated Average Power dBm	Calculated EIRP mW
107.7	3 m	12.5	0	12.5	17.7

*This is the peak measurement.

1.5 SAR Exemption Calculation – FCC

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Field density is determined at 20 cm as:

$$S = \text{EIRP} / (4 \pi 20^2)$$

$$S = 17.7 \text{ mW} / 5026.55 \text{ cm}^2$$

$$S = 0.0035 \text{ mW/cm}^2$$

Ref. FCC Bulletin OET-65 Equation (4)

$$\text{Therefore } 0.0035 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

This device meets the **OET 65 Limits for General Population/Uncontrolled Exposure**, limit for field density of 1 mW/m^2 criteria in table (B), row 1500-100000 MHz.

1.6 SAR Exemption Calculation – IC

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$
Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

Table 4 line 15000-150000 MHz power density limit:

$$10 \text{ W/m}^2 \text{ or } 1 \text{ mW/cm}^2$$

$$\text{Therefore } 0.0035 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

This device meets the **Table 4 Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)**, row **15000-150000 MHz**, limit for field density of 10 W/m^2 criteria (or restated as 1 mW/cm^2) in RSS-102.

Signed:



Eric Lifsey
