1601 North A.W. Grimes Blvd., Suite B
Round Rock, TX 78665
e-mail: info@ptitest.com
(512) 244-3371   Fax: (512) 244-1846

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

The results of power measurement and intended use/proximity are compared against the requirements for safety of RF exposure.

1.2 Criteria

Section Reference	Date
KDB 447498 D01 Mobile Portable RF Exposure v05r01 // RSS-102 Issue 5, Notice 2013 DRS0911	31 Jul 2017

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 Exemption Calculation

This device is composed of two identical radios that operate independently. So exposure is assumed to be twice the highest measured power worse-case. The distance applicable for this device is 20 cm as it is not worn or carried. Colocation summing of exposure is performed as the antenna placement may be under 20 cm.

Table 1.4.1 Power Calculation for Exposure; Highest frequency 0.475 GHz				
Measured Peak Power dBm	Source Duty Cycle Factor dB	Antenna Gain dBi	Calculated EIRP dBm	EIRP Restated In Linear Terms mW
11.4	-3.8 (42%)	6	13.6	22.9

1.5 FCC, SAR Exemption – Appendix A Criteria

Calculation (max power including tune up tolerance = 22.9 mW):

$$[(22.9 \text{ mW})/(200 \text{ mm})] \cdot [\sqrt{0.475}(\text{GHz})] = 0.08$$

$$0.08 \leq 3.0 \text{ (Using 2.7 \% of 3.0 limit.)}$$

Composite total % exposure for two identical transmitters = 2 * 2.7% = 5.4% of maximum 3.0 allowed.

Therefore, the device meets the applicable FCC SAR exemption requirements.

1.6   IC, SAR Exemption – Clause 2.5.1 Criteria

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Interpolated exemption limit for 5 mm and 475.000 MHz (between 450 and 835 MHz entries): 49.7 mW

Composite total determined by simple multiplication = 2 * 22.9 mW = 45.8 mW

45.8 mW < 49.7 mW

This device meets the SAR Evaluation Exemption criteria in RSS-102 Clause 2.5.1, Table 1, based on interpolated limit determined above.

Signed:

Eric Lifsey

***