RF exposure evaluation: 2.1093 Portable devices / KDB 447498/ RSS-102 2.5.1

Date	Temperature	Humidity
2014-02-27	22 °C ± 3 °C	33 % ± 5 %

Procedure

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1093 this device has been defined as a portable device to be used within 20 centimetres of the body of the user.

Results

The following formula was used to calculate the RF exposure SAR exclusion threshold,
Thld=[Pout /r] x [√f]

where,
Thld= SAR exclusion threshold
Pout = Peak output power, in mW
r = minimum test separation distance, in mm
f=frequency, in GHz

Frequency f, (GHz)	Peak output power Pout, (mW)	Distance r, (mm)	Exclusion threshold Thld	Limit Threshold 1-g SAR	Limit Threshold 10-g SAR
2.440	0.22	5	0.068	< 3	< 7.5

The maximum conducted peak output power from Appendix 4 was used for calculation.

Limits

FCC- 2.1093 / KDB 447498 (ver 5 rev 2) 4.3.1:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] x [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

• f(GHz) is the RF channel transmit frequency in GHz
• Power and distance are rounded to the nearest mW and mm before calculation
• The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following,
a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm) x (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm) x 10] mW at > 1500 MHz and ≤ 6 GHz

RSS-102 2.5.1 Exemption from Routine Evaluation Limits – SAR Evaluation

SAR evaluation is required if the separation distance between the user and the radiating element of the device is less than or equal to 20 cm, except when the device operates as follows:

above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20 mW for general public use and 100 mW for controlled use;

Complies?	Yes