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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
KDB 447498 D01 Mobile Portable RF Exposure v05r01 // RSS-102 Issue 5 March 2015, Notice 2013 DRS0911	21 Mar 2016

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

For 2.4 GHz radio power in each case was determined by radiated field measurement. This device has two independently transmitting 2.4 GHz radios. Worse-case exposure will be the user foot placed at edge of platform nearest the OMNI circuit board. This measured as 8 cm. This position will have combined exposure to the limb of OMNI (2 radios) and POD (1 radio) as worn on the shoe lace area at 5 mm distance. For sake of clarity all three radios will be assumed transmitting at the same time as the power levels are far below limits.

Table 1.4.1 Power Calculation for Exposure 2.4 GHz Radio (Highest frequency 2.481 GHz), Radio 1 (OMNI Gazell)					
Measured Radiated Power mW	Calculated Peak EIRP dBm	Source Duty Cycle Factor dB	Antenna Gain dBi	Calculated EIRP dBm	EIRP In Linear Terms mW
2.12	3.27	-9.7	0*	-6.43	0.23

*Effect of antenna gain included in the field strength measurement.

Table 1.4.2 Power Calculation for Exposure 2.4 GHz Radio (Highest frequency 2.480 GHz), Radio 2 (OMNI Bluetooth)					
Measured Radiated Power mW	Calculated Peak EIRP dBm	Source Duty Cycle Factor dB	Antenna Gain dBi	Calculated EIRP dBm	EIRP In Linear Terms mW
0.05	-13.0	Assumed zero**	0*	-13.0	0.05

*Effect of antenna gain included in the field strength measurement. **Assumed zero due to low power.

Table 1.4.3 Power Calculation for Exposure 2.4 GHz Radio (Highest frequency 2.481 GHz) (POD)					
Measured Radiated Power mW	**Calculated Peak EIRP dBm**	**Source Duty Cycle Factor dB**	**Antenna Gain dBi**	**Calculated EIRP dBm**	**EIRP In Linear Terms mW**
2.74	4.37	0.0	0*	4.37	2.74

*Effect of antenna gain included in the field strength measurement.

1.5   SAR Exemption Calculation – FCC per KDB 447498 Clause 4.3.1 Section 1

1.5.1   Radio 1, Maximum Power with Tune-Up Tolerance 0.23 mW

$[(0.23 \text{ mW})/(80 \text{ mm})] \cdot [\sqrt{2.481} \text{ (GHz)}] = 0.005$
$0.005 \leq 3.0$ Percentage of limit: $0.005 / 3.0 = 0.2 \%$

1.5.2   Radio 2, Maximum Power with Tune-Up Tolerance 0.05 mW

$[(0.05 \text{ mW})/(80 \text{ mm})] \cdot [\sqrt{2.480} \text{ (GHz)}] = 0.001$
$0.001 \leq 3.0$ Percentage of limit: $0.001 / 3.0 = 0.03 \%$

1.5.3   Radio 3, Maximum Power with Tune-Up Tolerance 2.74 mW

$[(2.74 \text{ mW})/(5 \text{ mm})] \cdot [\sqrt{2.481} \text{ (GHz)}] = 0.86$
$0.86 \leq 3.0$ Percentage of limit: $0.86 / 3.0 = 28.7 \%$

Total power factor contributed to exposure is: $(0.2 \% + 0.03 \% + 28.7 \%) = 28.93 \%$

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

1.6   SAR Exemption Calculation – IC

This device meets the clause **2.5 Exemption Limits for Routine Evaluation – SAR Evaluation** criteria in RSS-102 Clause 2.5.1, Table 1, for frequency row 2450 MHz. This is based on a simple total of output power of 3.02 mW being less than 4 mW at the conservatively selected exposure distance of ≤5 mm in Table 1.

Signed:

Eric Lifsey

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