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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	2015-04-24

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 Source Duty Cycle Measurement

Duty cycle was measured with the EUT in a diagnostic continuous range test mode (most aggressive automatic transmission mode) with 9.16 seconds of summed transmit time per 20 seconds. Duty cycle is 45.8 % yielding a factor of -3.39 dB. This yields a very conservative result.

1.5 Spacing Measurement

Spacing was determined by direct measurement from antenna surface to nearest keyboard key row (the F1 to F4 keys) as shown below. The result was 105 mm. 90 mm was selected as conservative figure based on unit shape.

Professional Testing (EMI) Inc.
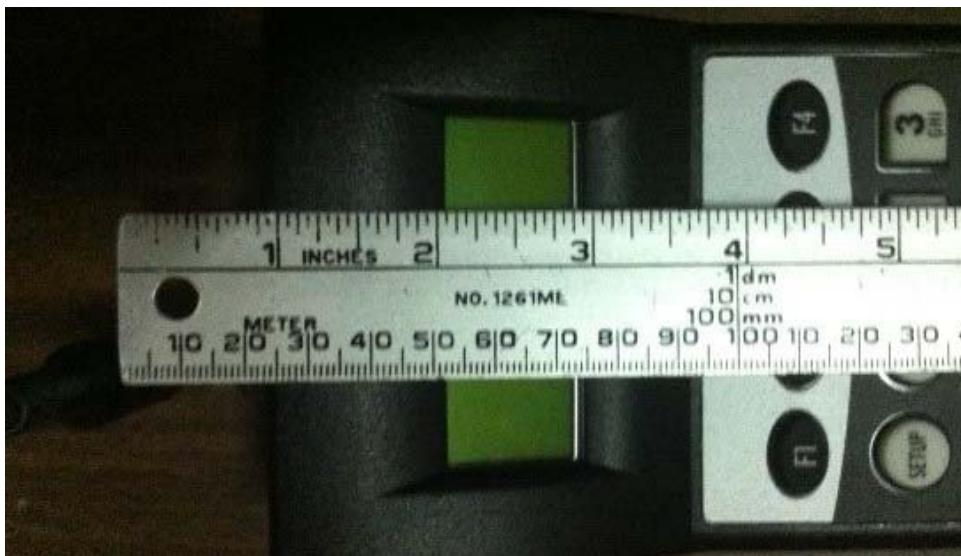
1.6 Power to Exposure Calculation

Radio transmit power was determined by conducted measurement cited in the test report.

Table 1.6.1 Power Calculation for Exposure; Highest frequency 0.46915 GHz*					
Measured Conducted Power mW	Calculated Peak EIRP dBm	Source Duty Cycle Factor dB	Antenna Gain dBi	Calculated EIRP dBm	EIRP In Linear Terms mW
834	29.2	-3.39	0	25.81	381

*Highest power frequency 434.000 MHz.

1.7 SAR Exemption Calculation – FCC 3.0 Criteria

Applicable requirement: KDB 447498 Clause 4.3.1

$[(381 \text{ mW})/(90 \text{ mm})] \cdot [\sqrt{0.46915}_{(GHz)}] = 2.9$ Step 1 (Rounded to nearest tenth.)
$[2.9] + [(90 \text{ mm} - 50 \text{ mm}) \cdot (469.15_{MHz}/150)] \text{ mW} = 128.0 \text{ mW}$ Step 2 "

Appendix B SAR Exclusion Level (90 mm, 450 MHz): 344 mW
Applying Limb Exposure Factor (2.5), 344 mW * 2.5 = 860 mW   Adjusting for Limb Exposure
128.0 mW < 860 mW

1.8 SAR Exemption Calculation – IC Exposure Calculation

The field density limit is determined from Table 1; distance column $\geq$ 50 mm

Interpolating for 434 MHz from 300 to 450 MHz.

At 434 MHz: 227 mW   Ref. RSS-102 Issue 5, Table 1
Limb Adjustment: 227 * 2.5 = 567.5 mW   Ref. RSS-102 Issue 5, 2.5.1
381 mW < 567.5 mW

Field density limit is determined for Table 4; General Public (Uncontrolled Environment):

$S = 0.02619 f^{0.6834} = 0.02619 (469.15)^{0.6834}$
$= 1.8 \text{ W/m}^2$ Ref. RSS-102 Issue 5, Table 4

Field density is determined at 20 cm then compared to field density limit:

$S = \text{EIRP} / (4 \pi 20^2)$
$S = 381 \text{ mW} / 5026.55 \text{ cm}^2 = 0.075 \text{ mW/cm}^2 = 0.75 \text{ W/m}^2$

$0.75 \text{ W/m}^2 < 1.8 \text{ W/m}^2$

1.9 Conclusion

The device meets the exemption requirements for the respective agencies.

Signed:

Eric Lifsey

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