



RF Exposure Evaluation

FCCID: ZW5008

Recon Instruments, Inc.

Date: July 24, 2013

Labs: 19473 Fraser Way, Pitt Meadows, BC, Canada V3Y 2V4

A handwritten signature in black ink, appearing to read "Andrei", with a horizontal line underneath.

Andrei Moldavanov
EMC Engineer

RF Exposure Evaluation

Test Standard

FCC KDB447498

FCC CFR 47, Part 1.1307, 1310

FCC CFR 47, Part 2, Subpart J 1091

MINIMUM STANDARD: KDB447498, sec. 4.3.1: Unless specifically required by the *published RF exposure KDB procedures*, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding *SAR Test Exclusion Threshold* condition, listed below, is satisfied ...

...test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum *test separation distance* required for the exposure conditions.²² The minimum *test separation distance* is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander...

TEST LIMIT: As per Appendix A “SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm” the limit is 29 mW/mm.

EUT DESIGN PARAMETERS:

Minimum separation distance – 14.5 mm;

WiFi maximum transmit power: +4.43 dBm;

Bluetooth maximum transmit power: -2.53 dBm;

Antenna gain: -1.25 dBi.

EVALUATION PROCEDURE:

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,²⁴

where

- f_{GHz} is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation²⁵
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

RATIONALE: Taking the EUT parameters referenced above, we have 1-g SAR in worst case (Bluetooth) is 0.045 mW/mm, which is less than limit of 29 mW/mm.

RESULT: The EUT is satisfied to SAR Test Exclusion Threshold.