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RF Exposure - FCC

EUT Name: Braava

EUT Model: 240jet, 240

FCC ID: UFE-ALT240ROB

FCC Title 47, Part 15C, ANSI C63.10:2009

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1   RF Exposure

1.1   Exposure Requirements – FCC

1.1.1   Test Procedure

If the antenna is located > 20cm from the user, then an MPE calculation is acceptable.

If the antenna is located < 20cm (portable / mobile / hand-held device) from the user, then SAR evaluation is required.

1.1.2   Evaluation

The EUT will be used as a portable device where the antenna could be located less than 20cm from the user, therefore a SAR evaluation is required.

1.1.2.1   SAR Evaluation for FCC

FCC KDB # 447498 DO1 V05r02 - Mobile and Portable Device RF Exposure and Procedures and Equipment, Appendix A shows that the SAR Test Exclusion Threshold for a device with a separation distance of 5 mm at 2450 MHz is 10 mW.

The minimum power that requires SAR testing with a separation distance of 5mm at 2.445 GHz is 10 mW.

The maximum EiRP peak power output of the EUT is: 0.323 mW (See calculation next page).

The 0.323 mW EiRP of the EUT is well below the 10 mW power level that requires SAR Testing.

1.1.3 Conclusion

The EUT is within the SAR Test Exclusion Threshold. SAR testing is not required for FCC.
   Note: The 0.323 mW eirp peak power level includes the 100% Duty Cycle factor.
       This is considered to be the absolute worst case.

1.1.4   Calculated EiRP Level

Notes: The EUT does not have a means to make direct measurements.

This EiRP calculation was made using the maximum Peak value in section 4.1.5.1 of the test report (Page 11) which is 90.32 dBµV/m at 3m. (Duty Cycle was set at 100% for testing)

Per the equation in section 1.3.1 of FCC Document # 412172 D01 Determining ERP and EiRP v01;

$$EiRP = p_t \times g_t = (E \times d)^2 / 30,$$

where:

p_t = transmitter output power in watts,

g_t = Numeric gain of transmitting antenna (unit-less) = 1,

E = electric field strength in V/m; $E = 10^{(90.32 dB\mu V / 20)} / 10^6 = 0.0328$ V/m,

d = measurement distance in meters; d = 3m,

$$EiRP = (0.0328 \times 3)^2 / 30 = 0.000323 \text{ Watts or } \underline{0.323 \text{ mW or -4.91 dBm}}$$

1.1.1 Antenna Gain:

For this equation, the antenna was set to a gain of 0 dBi or numeric gain of 1 (unity gain) in order to take into account the transmitter output power and gain for eirp equivalence.

Based on this equation, the stated Maximum peak EiRP of the EUT is 0.323 mW or -4.91 dBm, using 100% Duty Cycle.