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RF Exposure Exhibit

EUT Name: USB Wireless Audio Transmitter

EUT Model: ROCCAT SYN Pro Air TX (ROC-15-152)

PMN: ROCCAT SYN Pro Air TX

HVIN: SYN Pro Air TX

CFR47 Part 2.1093, RSS-102 Iss. 5 March 2015

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1.1 Maximum Permissible Exposure

1.1.1 Test Methodology

In this section, we try to prove the safety of radiation harmfulness to the human body for our product. The KDB 447498 D01v06 General RF Exposure Guidance is followed. The Gain of the antenna used in this calculation is declared by the manufacturer, and the maximum average power input to the antenna is measured. Using the general SAR test exclusion guidance in Section 4.3 of KDB 447498, we show the device meeting the SAR exclusion threshold found in Appendix A of KDB 447498 D01v06 and SAR exemption limits found in Table 1 of RSS-102 Issue 5.

ISED accepts the KDB 447498 D01 Procedure.

1.1.2 FCC KDB 447498 D01 – General SAR Test Exclusion Guidance

The SAR exclusion threshold conditions are listed:

- 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:

$$\text{Exclusion Threshold} = [P / d] * [\sqrt{f}]$$

Where

P = max power of channel (including tune-up tolerance) in mW

d = min. test separation distance in mm

f = 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

Limit: ≤ 3.0 of 1-g SAR ≤ 7.5 of 10-g extremity SAR

The test exclusions are applicable only when the minimum test separation distance is < 50 mm 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 exclusion.

1.1.3 EUT Operating Condition

The software provided by Manufacturer enabled the EUT to transmit data at lowest, middle and highest channel individually.

1.1.4 Classification

The antenna of the product, under normal use condition, is at least than 20 mm away from the body of the user. This device is classified as a **Portable Device**.

1.1.5 Antenna Gain

The antenna gain used is -2.2 dBi / 0.60 (numeric).

1.1.6 SAR Test Exclusion Threshold

SAR Exclusion Threshold Calculation

Mode	Frequency (GHz)	Max. Power (dBm)	Max. Power (mW)	Ant. Gain (dbi)	Min. Distance (mm)	Cal. Excl. Threshold	1-g SAR Limit	10-g extremity SAR Limit	Result
Modulated	2.402	4.96	3.13	-2.2	5	0.479	≤3.0	≤7.5	Exempted *
Note: 1. Since EUT can operate at a distance less than 50 mm, the minimum distance, 5 mm, was used for calculation per condition #1 of SAR Exclusion Threshold. 2. The maximum output power was taken from Table 2 of "Turtle Beach ROCCAT SYN Pro Air TX - FCC 15.247 Report US21BKL7.001". 3. (*) The calculated threshold is less than 3.0; therefore, EUT is SAR exempted for head and body usage.									

RSS-102 SAR Exclusion Threshold Calculation

Mode	Frequency (GHz)	Min. Distance (mm)	Max. Power (dBm)	Ant. Gain (dbi)	EIRP (mW)	SAR Exemption Limit (mW)	Result
Modulated	2.402	≤ 5	4.96	-2.2	1.89	≤ 4	Exempted *
Note: 1. The maximum output power was taken from Table 2 of "Turtle Beach ROCCAT SYN Pro Air TX - FCC 15.247 Report US21BKL7.001". 2. (*) The eirp power in mW is less than the limit of 4mW at distance ≤ 5 mm distance per RSS 102 Table 1; therefore, EUT is SAR exempted for head and body usage. 3. Nerve stimulation exposure does not apply since EUT operates at 2.4 GHz band.							