

# Safety Human Exposure

## 1.1 Radio Frequency Exposure Compliance

### 1.1.1 Electromagnetic Fields

#### RESULT:

Pass

Test item	: ROX Pro
Identification / Type No.	: ROX Pro
FCC ID	: 2AUXNROXS2
Test standard	: CFR47 FCC Part 2: Section 2.1093 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06

#### ➤ Product Classification

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

Max 0.00 dB<sub>i</sub>

#### ➤ Radio Frequency Exposure Limit

For FCC:

- a) For 100 MHz to 6 GHz and *test separation distances*  $\leq 50$  mm, the 1-g and 10-g *SAR test exclusion thresholds* are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR,}^{30} \text{ where}$$

- $f_{\text{(GHz)}}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation<sup>31</sup>
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum *test separation distance* is  $\leq 50$  mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is  $< 5$  mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

- b) For 100 MHz to 6 GHz and *test separation distances*  $> 50$  mm, the 1-g and 10-g *SAR test exclusion thresholds* are determined by the following (also illustrated in Appendix B):<sup>32</sup>

- 1)  $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f_{\text{(MHz)}}/150)]\}$  mW, for 100 MHz to 1500 MHz
- 2)  $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$  mW, for  $> 1500$  MHz and  $\leq 6$  GHz

- c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):<sup>33</sup>
- 1) For *test separation distances* > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by  $[1 + \log(100/f_{\text{(MHz)}})]$
  - 2) For *test separation distances* ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½
  - 3) SAR measurement procedures are not established below 100 MHz.

## ➤ EUT RF Exposure Evaluation

### a. Evaluation for Standalone Transmission Operation

Mode	Frequency [MHz]	*Measured RF Output Power [dBm]	Antenna Gain [dBi]	Distance [mm]	Calculate Result [W/kg]	FCC 1g-SAR Limit [W/kg]	FCC 10g-SAR Limit [W/kg]
Bluetooth	2402	-1.74	0.00	5	0.21	3	7.5

Mode	Frequency [MHz]	*Measured Field Strength Level [dBμV/m]	Antenna Gain [dBi]	Distance [mm]	Calculate Result [W/kg]	FCC 1g-SAR Limit [W/kg]	FCC 10g-SAR Limit [W/kg]
Other 2.4G	2450	101.50	0.00	5	1.33	3	7.5

Note:

1. Bluetooth RF Output Power refer to, 2102RSU052-U1
2. Other 2.4G RF Output Power refer to, 2102RSU052-U2
3. RF Output Power [dBm]= Field Strength Level [dBμV/m] @3m – 95.23

### b. Evaluation for Simultaneous Transmission Operation

Mode	Sum Result [W/kg]	Distance [mm]	FCC 1g-SAR Limit [W/kg]	FCC 10g-SAR Limit [W/kg]
Bluetooth + Other 2.4G	1.54	5	3	7.5

## ➤ Conclusion

The maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit.