

US Tech Test Report:  
FCC ID:  
IC:  
Test Report Number:  
Issue Date:  
Model:

FCC Part 15 Certification/ RSS 247  
P2SBELTCLIPT3  
4171B-BELTCLIPT3  
22-0206  
July 28, 2022  
BCT3

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# RF Exposure Exhibit

**FCC ID: P2SBELTCLIPT3  
IC: 4171B-BELTCLIPT3**

**FCC Rule Part: 47 CFR Part 2.1093  
ISED, RSS-102, 2.5.2**

**Project Number: 22-0206**

Manufacturer: Neptune Technology Group  
Model: BCT3

**General Information:**

Applicant: Neptune Technology Group Inc.  
Environment: General Population/Uncontrolled Exposure  
Exposure Conditions: Portable

The EUT contains a 900 MHz radio and Bluetooth radio; both of which can operate simultaneously.

*900 MHz Radio -*

Minimum Test Separation Distance: **5 mm**  
Highest Operating Frequency: 911.0815 MHz  
Antenna Type: Partially Folded Dipole  
Antenna Gain: -2 dBi  
Maximum Transmitter Conducted Power: 18.31 dBm, 67.76 mW  
Maximum Transmitter EIRP: 16.31 dBm, 42.76 mW  
Duty Factor: 2.73% (See Duty Factor Determination below)  
Source-based Time-averaged Maximum Conducted Power: **2.67 dBm, 1.85 mW**

*Bluetooth Radio -*

Minimum Test Separation Distance: See Figure A1 below. 0.972 inches = 24.69 mm (**25 mm**)  
Highest Operating Frequency: 2480 MHz  
Antenna Type: Chip Antenna  
Antenna Gain: +2.0 dBi  
Maximum Transmitter Conducted Power: **8.0 dBm, 6.30 mW**  
Maximum Transmitter EIRP: +10.0 dBm, +10.0 mW

**Justification for SAR Test Exclusion:**

**Standalone SAR Test Exclusion:**

Per KDB 447498 D01 General RF Exposure Guidance v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

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

*900 MHz Radio -*

$$= (1.85 / 5) \cdot (\sqrt{0.9110815})$$
$$= 0.37 \cdot 0.955$$
$$= 0.353$$

**0.353 < 3.0**

*Bluetooth Radio -*

$$= (6.30 / 25) \cdot (\sqrt{2.480})$$
$$= 0.252 \cdot 1.575$$
$$= 0.397$$

**0.397 < 3.0**

Based on the results above, the unit meets SAR test exclusion requirements.

### **Duty Factor Determination**

For purposes of determining specific absorption rate (SAR) of RF to the human user, the BCT3's R900 Transmitter produces an intermittent transmission. The R900 Transmitter is activated by the user pushing a button on the user's computer or tablet or phone, which is tethered to the BCT3 via Bluetooth, either Bluetooth Classic or Bluetooth Low Energy, but never both simultaneously. The R900 Transmitter cannot self-activate, and cannot be activated by any buttons on the BCT device itself.

For human specific absorption rate (SAR) and maximum permissible RF exposure (MPE) purposes, the transmitter is active for 0.546114 seconds (on both channels) out of a possible 20-second software-enforced time period, yielding a duty cycle of 0.0273057, or 2.73%.

### **Simultaneous Transmission SAR Test Exclusion:**

When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to determine simultaneous transmission SAR test exclusion:

*(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;  
where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.*

900MHz *Radio* -  
= (1.85 mW / 5 mm) \* [( √0.9110815 GHz)/ 7.5] = 0.047 W/kg

Bluetooth *Radio* -  
= (6.30 mW / 25 mm) \* [( √2.480 GHz)/ 7.5] = 0.053 W/kg

**Sum of 1-g Estimated SAR = 0.10 W/kg < 1.6 W/kg**

Simultaneous transmission SAR test exclusion is applied.

### **RSS-102, 2.5.2 Compliance:**

At or above 300 MHz and below 6 GHz and the source based time averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  in Watts (adjusted for tune-up tolerance where applicable), where  $f$  = frequency in MHz.

For 902-928MHz band

$$1.31 \times 10^{-2} \times 915^{0.6834} = 1.39 \text{ W}$$

$$\text{EUT max EIRP} = 16.31 \text{ dBm} = 0.043 \text{ Watts} \ll 1.39 \text{ Watts}$$

For 2.4 GHz band

$$1.31 \times 10^{-2} \times 2440^{0.6834} = 2.71 \text{ W}$$

$$\text{EUT max EIRP} = 10.00 \text{ dBm} = 0.010 \text{ Watts} \ll 2.71 \text{ Watts}$$

Simultaneous Evaluation Percentage=

$$[\text{Max EIRP (BT)} / \text{Limit in Watts} \times 100] + [\text{Max EIRP (900 MHz)} / \text{Limit in Watts} \times 100] \ll 100\%$$

$$[(0.010/2.71) \times 100] + [(0.043/1.39) \times 100] = 3.45 \% \ll 100 \%$$

## Appendix A

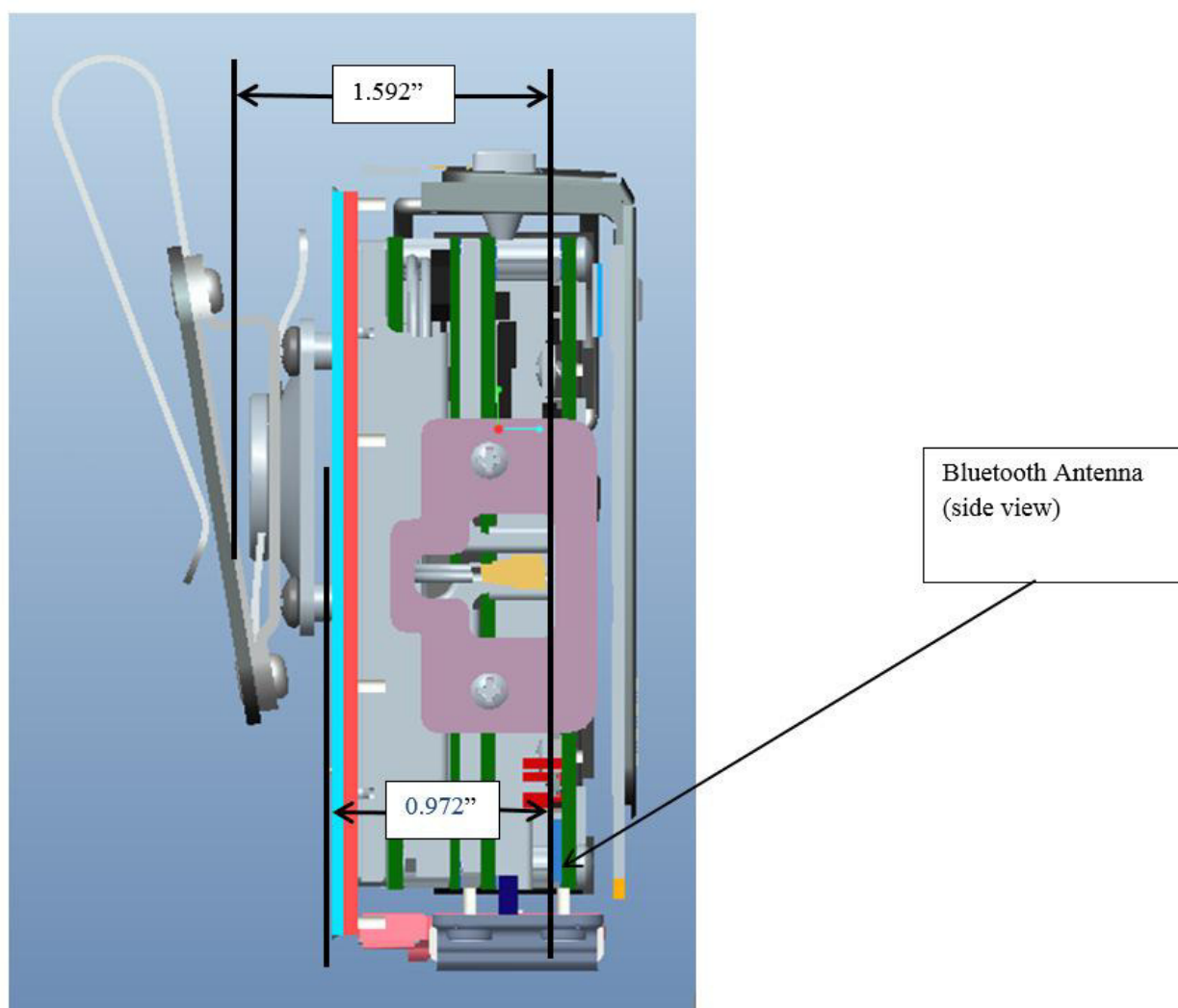


Figure A1: Location of Bluetooth antenna with respect to user