




Exhibit: RF Exposure – FCC

FCC ID: QIQCSST1

Report File #: 7169002547-000

Client	Rehabtronics Inc.	
Product	StimRay	
Standard(s)	FCC Part 15 Subpart 15.247:2015 FCC KDB 447498:2015	

RF Exposure – FCC

The device is intended for use on extremities (wrists) and the minimum separation distance from the radiating structure to any part of the body or extremity of a user is $6\text{mm} \pm 1\text{mm}$ as stated by the manufacturer during normal operation.

The EUT contains a 2400 – 2483.5 MHz DTS transmitter. The firmware guarantees simultaneous operation will not occur and therefore antenna co-location testing is not applicable.

General SAR test exclusion guidance:

As per FCC KDB 447498 Section 4.3.1 a), the 10-g extremity SAR Test Exclusion Threshold for 100 MHz to 6 GHz at test separation distances $\leq 50\text{ mm}$ is determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] [\sqrt{f_{(\text{GHz})}}] \leq 7.5$$

Where:


$f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz

SAR Calculations: 2402 – 2480 MHz DTS transmitter

Peak conducted power was measured to be 0.63 mW. At a separation distance of 5mm, this results to:

$$[0.63\text{ mW} / 5\text{ mm}] * [\sqrt{2.480\text{ GHz}}] = 0.31 \leq 7.5$$

SAR Exclusion Threshold condition is met with peak conducted power.

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Radiofrequency Radiation Exposure Evaluation: Portable Devices

Portable devices shall be evaluated for RF radiation exposure according to the provisions of FCC §2.1093 and the MPE guidelines identified in FCC §1.1310.

As per FCC §1.1310 Table 1(B), the limit for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields for General Population/Uncontrolled Exposure in the frequency range of 300 MHz to 1.5 GHz is $f/1500 \text{ mW/cm}^2$ and in the frequency range of 1.5GHz to 100GHz is 1.0 mW/cm^2 . Where f = frequency in MHz.

The power density formula is given by:

$$P_d = (P_{out} * G) / (4 * \pi * R^2)$$

Where,

P_d = Power density in mW/cm^2

P_{out} = Conducted output power to antenna in mW

G = Numeric Antenna Gain

π = 3.1416

R = Separation distance in cm

MPE Calculation: 2412 – 2462 MHz DTS transmitter

The DTS transmitter has a maximum conducted output power of -1.99dBm or 0.63mW and an antenna gain of 5.3dBi or 3.39 numerically.

For a distance of 20cm, the power density is:

$$P_d = (0.63\text{mW} * 5.3) / (4 * 3.1416 * (0.2\text{m})^2)$$

$$P_d = 0.68 \text{ mW/cm}^2$$

The device passes the requirement. The calculated power density of 0.68 mW/cm^2 is below the 1.0 mW/cm^2 limit.