

RF exposure evaluation

The WAVE140 PWS includes 2 transmitters operating according to FCC part 15 subpart C section 15.249 and section 15.247 (DTS)

The standard section 15.249 does not contain RF Exposure limits.

The minimum separation distance of 2cm is ensured by the physical dimensions of the case. The closest point to the transmitting antennas, is 2cm from the power supply top surface (the below picture confirming the above statement).

FCC SAR test exclusion threshold is calculated according to 447498D04 Interim General RF Exposure Guidance, equation B.2:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

Maximum BLE measured transmitter power obtained from test report QT-MAYEMC_FCC.49088_TR Rev.2:

Pout ERP		Maximum antenna gain, dBd	Pout conducted	
dBm	mW		dBm	mW
-3.70	0.43	1.15	-4.85	0.32

The MPE exemption condition in terms of ERP at 2480 MHz frequency and 0.02cm separation distance relates is 38.1mW threshold, so BLE is exempt and no evaluation is required.

Based on the above the product can be considered complying with the RF exposure limitations.

