RF Exposure Evaluation

FCC ID: 2ABXLT4001 IC: 11858A-T4001

The device is used portable RF exposure configuration – at a distance less than 20 cm from human's body. For this configuration SAR evaluation is required.

The RF Power is low; therefore the SAR test exclusion threshold is calculated.

SAR test exclusion threshold formula according to FCC KDB 447898 D01 v06 is

[(max. power of channel, including tune-up tolerance, mW) / (min.test separation distance, mm] -[√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10 -g extremity SAR, where•f(GHz) is the RF channel transmit frequency in GHz.

Where: P is maximum RF conducted power of a channel or EIRP, including tune-up tolerance, mW; f is operating frequency in GHz; d is the minimum test separation distance, mm; the minimum distance is 5 mm.

Peak Conducted power: 11.87dBm or 15.38mWatts

The device has maximum ON time of 4.8ms in 100ms. i.e 4.42% duty cycle (-13.35dB)

The device has maximum duty cycle 4.42% to refer the theory of Operation of the device exhibit. This duty cycle is source based limit for the device.

Conducted Power for RF Exposure calculation 11.87- 13.35= -1.38dBm

The EIRP calculated is -1.38 (RF Conducted Power) + 1.55 dBi (Antenna Gain) = 0.17 dBm or 0.001W.

As per KDB 447498 Section 4.3 SAR test exclusion threshold at 5mm distance is calculated as:

$$1 \times \sqrt{2.480} \div 5 = 0.314 < 3.$$

Therefore, SAR testing is not required as the SAR Test Exclusion Threshold condition is satisfied.

For IC: SAR Exemption limit according to IC RSS-102 Issue 5, at 5 mm separation distance = 4 mWatts.

 Average Conducted power (with duty cycle applied) = -1.38dBm

The EIRP calculated = 0.17dBm or 1mW.

SAR evaluation is not required since the higher of the maximum conducted or equivalent isotopically radiated power (e.i.r.p.) source-based, time averaged output power is below the exemption limit.