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RF Exposure Evaluation

FCC ID: 2AWAA-RS7

According to KDB447498 D01 General RF Exposure Guidance v06

EUT Specification

Product Name:	Thermal Imager
Trade Mark:	/
Model/Type reference:	RS750-640
Listed Model(s):	RS735-384, RS735-640, RS750-384
Model Different:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is optical lenses.
Frequency band (Operating):	2412MHz ~ 2462MHz
Device category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> Fixed (>30mm separation) <input type="checkbox"/> Others ____
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> TX diversity <input type="checkbox"/> RX diversity <input type="checkbox"/> TX/RX diversity
Antenna gain (Max)	4.97dBi
Evaluation applied	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> SAR Evaluation

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**Limit:**

According to the 4.3 General SAR Test Exclusion Guidelines of KDB 447489 D01

a) 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:

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

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

-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 ≤ 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):

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 ≤ 6 GHz

Product Description:

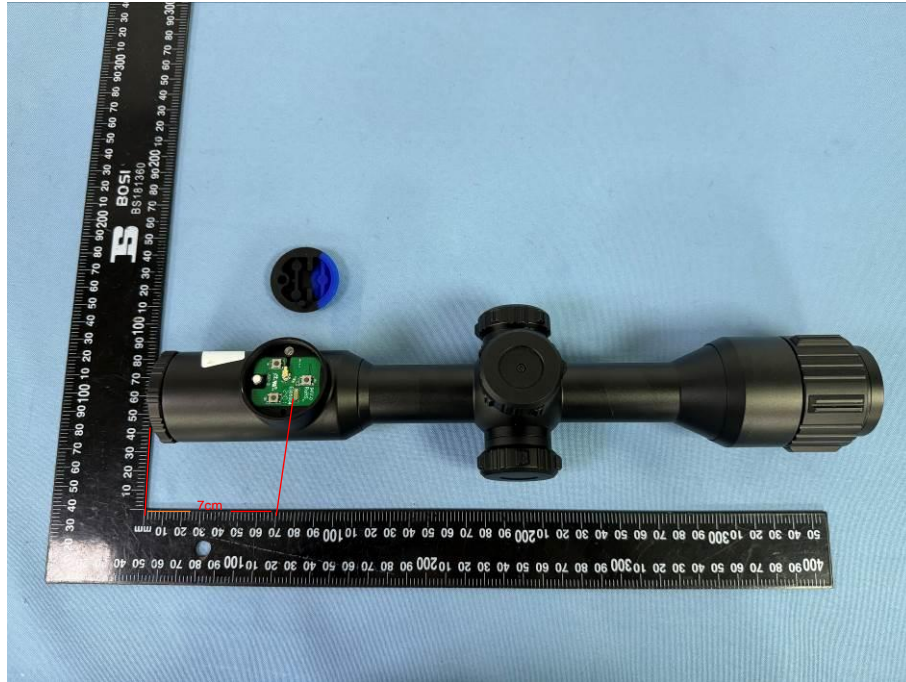
The product is evaluated in the manual, it can be mounted on the rifle and has two modes of use.

Mode 1: The product is mounted on the rifle and carried on the back. The product is in sleep mode.

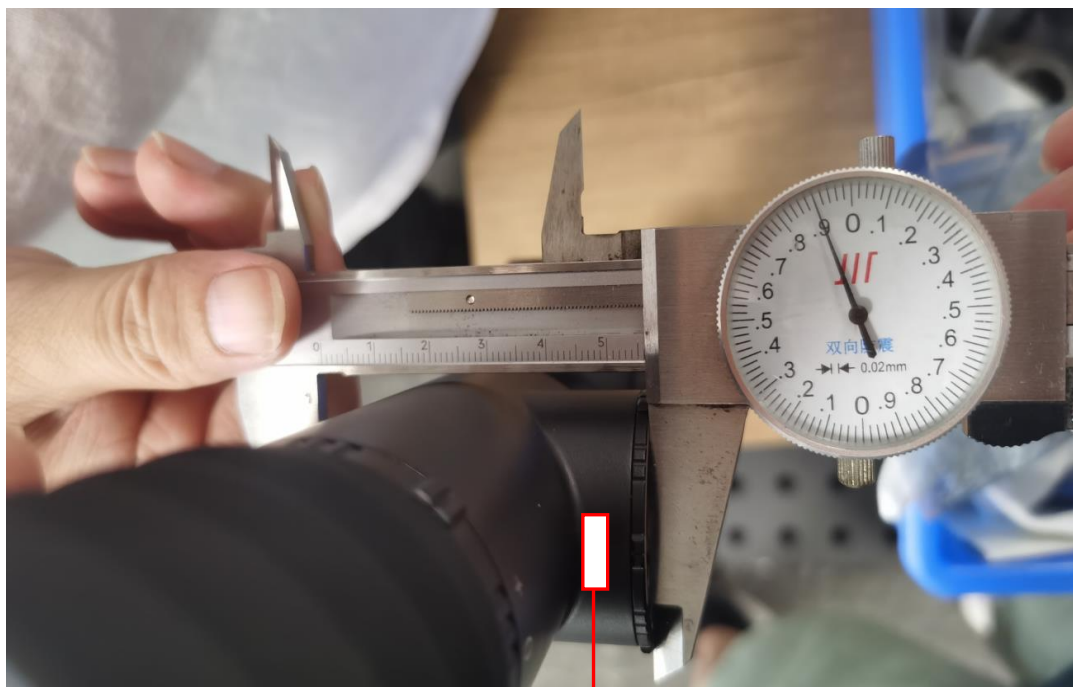
Mode 2: When the product is sighted in, the wireless function of the product is turned on. The minimum distance from the head to the radiation element is 70mm. When the product is in use, the limb holds the rifle. The minimum distance from the extremity to the radiation element is 30mm.

Therefore, the product is in Mode 2 and Mode 3 when RF exposure is evaluated and calculated.

The following figure shows the shortest distance from the antenna to the head when the wireless function is on.



The following figure shows the shortest distance from the antenna to the extremity when the wireless function is on.



Antenna position

**Measurement Result**

Extremity exposure @ 30mm								
Worst Mode	Frequency (GHz)	Maximum Power (dBm)	Max. Tune up Power (dBm)	EIRP (dBm)	EIRP (mW)	Calculation result	Limit (for 10-g SAR exclusion thresholds)	Verdict
802.11b	2.437	15.50	16.00	20.97	125.03	6.5	7.5	Complies

Head exposure @ 70mm								
Worst Mode	Frequency (GHz)	Maximum Power (dBm)	Max. Tune up Power (dBm)	EIRP (dBm)	EIRP (mW)	Power allowed threshold for 50 mm (mW)	Limit (for 1-g SAR exclusion thresholds) (mW)	Verdict
802.11b	2.437	15.50	16.00	20.97	125.03	96	296	Complies

Calculation:

Power allowed at numeric threshold for 50 mm in step a: $3.0 * (\text{min. test separation distance, mm}) / \sqrt{f_{\text{(GHz)}}} = [3.0 * 50] / \sqrt{2.437} = 96 \text{ mW}$

10-g SAR test exclusion thresholds: $\{[\text{Power allowed at numeric threshold for 50 mm in step a}] + [(\text{test separation distance} - 50 \text{ mm}) * 10]\} \text{ mW} = 96 \text{ mW} + [(70 - 50) * 10 \text{ mW}] = 296 \text{ mW}$

EIRP (mW) ≤ for 1-g SAR exclusion thresholds (mW)

125.03 ≤ 296

Calculation result: Complies

Note:

1. Calculate by Worst-case mode.
2. Max. Tune up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. The extremity is calculated at a distance of 55.9mm, the head is calculated at a distance of 70mm (by the manufacturer).
4. For a more detailed features description, please refer to the RF Test Report.

*****THE END*****