SAR Evaluation for extremity conditions

1. Extremity exposure conditions

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1-g body and 10-g extremity *SAR Test Exclusion Thresholds* should be applied to determine SAR test requirements.

2. Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

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

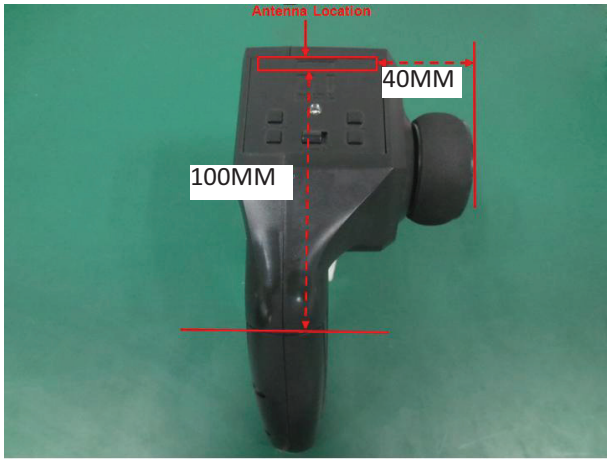
- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum *test separation distance* ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz

2) At 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following, and as illustrated in Appendix B of KDB 447498 D01 v06

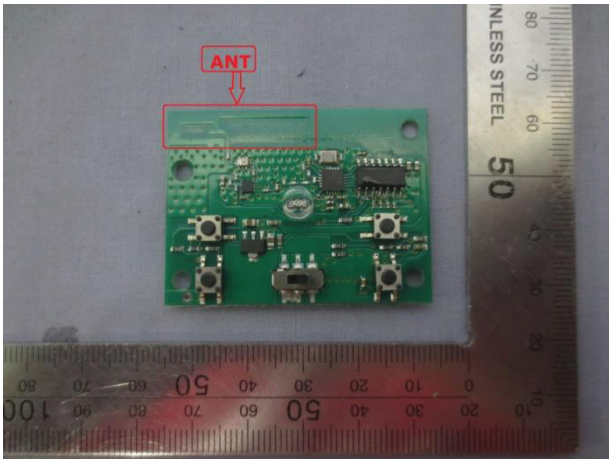
- [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
- [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance – 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

3. EUT Description

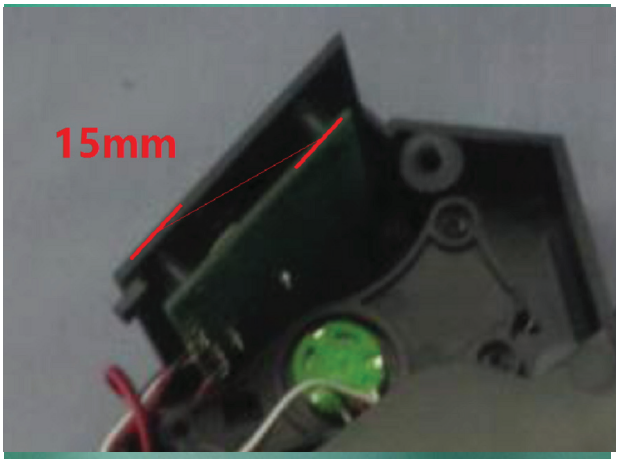


Hand hold positions

Hand hold positions



Antenna Location



Antenna Location

4. Extremity SAR test exclusion calculation

Worse case：

18.49dBm@2480MHz ： 70.632mW

(70.632X√2.48)/15mm=7.44<7.5 for 10-g SAR

5. Conclusion

SAR test for 10-g extremity is exclusion.