

## 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*  $\geq$  50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f_{(\text{GHz})}} \leq 3.0 \text{ for}$$

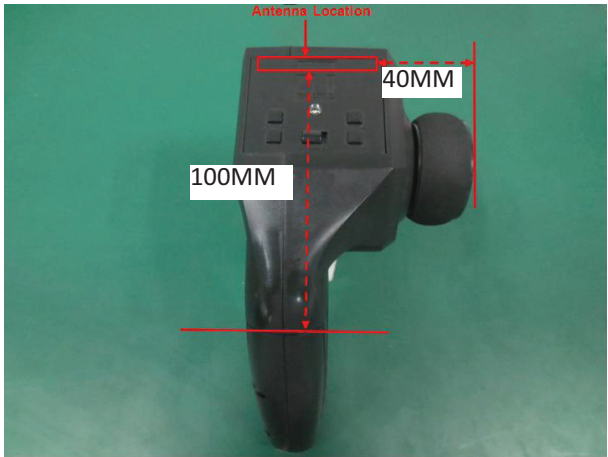
1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f_{(\text{GHz})}$  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
- 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*  $\leq$  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)  $\cdot$  (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)  $\cdot$  10] mW at  $>$  1500 MHz and  $\leq$  6 GHz

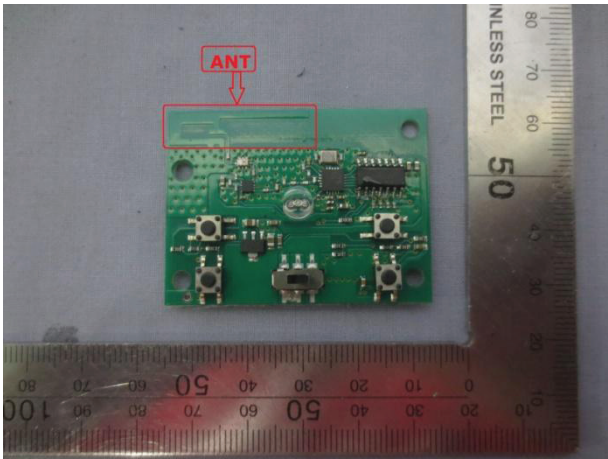
3. EUT Description



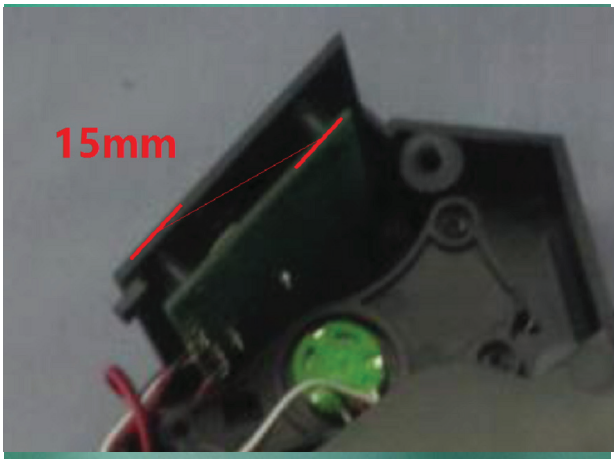
Hand hold positions



Hand hold positions



Antenna Location



Antenna Location

#### **4. Extremity SAR test exclusion calculation**

Worse case :

18.49dBm@2480MHz : 70.632mW

$(70.632 \times \sqrt{2.48}) / 15\text{mm} = 7.44 < 7.5$  for 10-g SAR

#### **5. Conclusion**

SAR test for 10-g extremity is exclusion.