

# 1 SAR Evaluation

## 1.1 RF Exposure Compliance Requirement

### 1.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

#### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

### 1.1.2 Limits

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

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 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<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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 is applied to determine SAR test exclusion

### 1.1.3 EUT RF Exposure

For BLE:

#### Measurement Data

GFSK mode	
Test channel	Peak Output Power (dBm)
Lowest	1.75
Middle	-0.25
Highest	-0.94

The Max Conducted Peak Output Power is 1.75dBm in Lowest channel(2.402GHz);

The best case gain of the antenna is 1.0dBi.

$EIRP = 1.75\text{dBm} + 1.0\text{dBi} = 2.75\text{dBm}$

2.75dBm logarithmic terms convert to numeric result is nearly 1.88mW

According to the formula. calculate the EIRP test result:

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})}$$

General RF Exposure =  $(1.88\text{mW} / 5 \text{ mm}) \times \sqrt{2.402\text{GHz}} = 0.583$  ①

SAR requirement:

S= 3.0

② ;

① < ②.

So the SAR report is not required.

Remark: The Max Conducted Peak Output Power data refer to report CQASZ170301317E-01.