# RF Exposure Evaluation
# FCC ID: 2AGUT-NRF52810

## 1. Client Information

| | | |
|---|---|---|
| **Applicant** | : | SHENZHEN RADIOLAND TECHNOLOGY CO.,LTD |
| **Address** | : | 5F, Block A2, ChenTian Hangcheng Industry Zone, XiXiang Town, Bao'an district, Shenzhen, China |
| **Manufacturer** | : | SHENZHEN RADIOLAND TECHNOLOGY CO.,LTD |
| **Address** | : | 5F, Block A2, ChenTian Hangcheng Industry Zone, XiXiang Town, Bao'an district, Shenzhen, China |

## 2. General Description of EUT

| | | | |
|---|---|---|---|
| **EUT Name** | : | NRF52180 BLE Tag | |
| **Models No.** | : | NRF52810B3, B1, B2, B3, X1, X2, X4, C1, C2, A1, S1 | |
| **Model Different** | : | All these models are the same PCB, layout and electrical circuit, the only difference is Size and battery | |
| **Product Description** | : | Operation Frequency: | Bluetooth V4.2: 2402MHz~2480MHz |
| | | RF Output Power: | BLE:4.169dBm (Max) |
| | | Antenna Gain: | 2.5dBi PCB Antenna |
| **Power Rating** | : | DC 3V 220mAh by button cell | |
| **Software Version** | : | V1.1 | |
| **Hardware Version** | : | V1.1 | |
| **Connecting I/O Port(S)** | : | Please refer to the User's Manual | |
| **Remark** | | The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab. | |

**Note:** More test information about the EUT please refer the RF Test Report.



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# SAR Test Exclusion Calculations

1. **FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.**
   **(1) Clause 4.3: General SAR test reduction and exclusion guidance**
   **Sub clause 4.31: Standalone SAR test exclusion considerations**
   **1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance≤5 mm are determined by:**
   **[(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[ $\sqrt{f_{(GHz)}}$ ] ≤3.0 for 1-g SAR**
   **[(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[ $\sqrt{f_{(GHz)}}$ ] ≤7.5.0 for 10-g SAR**

## 2. Calculation:

| Test separation: 5mm | | | | | | |
|---|---|---|---|---|---|---|
| BLE Mode (GFSK) | | | | | | |
| Frequency (GHz) | Conducted Power (dBm) | Turn-up Power Tolerance (dB) | Max power of tune up tolerance (dBm) | Max power of tune up tolerance (mw) | Calculation Value | Threshold Value |
| 2.402 | 4.169 | 4±1 | 5 | 3.162 | 0.980 | **3.0** |
| 2.442 | 3.929 | 4±1 | 5 | 3.162 | 0.988 | **3.0** |
| 2.480 | 4.031 | 4±1 | 5 | 3.162 | 0.996 | **3.0** |

**So standalone SAR measurements are not required.**

**-----END OF REPORT-----**