

RF Exposure Evaluation

FCC ID: 2AJ5B-BT23

1. Client Information

| | | |
|---------------------|---|---|
| Applicant | : | SAGE HUMAN ELECTRONICS INTERNATIONAL CO.,LTD. |
| Address | : | 4F.,A Building,Rongli Industrial Park,No.2 Guiyuan Rd.Guihua Community,Guanlan Town,Longhua New Dist. Shenzhen, China |
| Manufacturer | : | SAGE HUMAN ELECTRONICS INTERNATIONAL CO.,LTD. |
| Address | : | 4F.,A Building,Rongli Industrial Park,No.2 Guiyuan Rd.Guihua Community,Guanlan Town,Longhua New Dist. Shenzhen, China |

2. General Description of EUT

| | | | |
|-------------------------------|---|--|-------------------------------|
| EUT Name | : | Bluetooth FM Transmitter for Car | |
| Models No. | : | BT23 | |
| Model Difference | : | N/A | |
| Product Description | : | Operation Frequency: | Bluetooth V5.0: 2402~2480 MHz |
| | : | Antenna Gain: | -0.68dBi PCB Antenna |
| Power Rating | : | Input: DC 12V-24V. Output: 5V/2.4A + 5V/3A | |
| Software Version | : | CGBT1854_ATS2819_(shijie_BT23)_2020-08-17_bypass_V0.0.6_[CGF] | |
| Hardware Version | : | BT23_2819_8027_V1.0 | |
| 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.

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:

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 3.0 \text{ for 1-g SAR}}$$

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 7.5.0 \text{ for 10-g SAR}}$$

2. Calculation:

| Test separation: 5mm | | | | | | |
|-----------------------|-----------------------|------------------------------|--------------------------------------|-------------------------------------|-------------------|-----------------|
| Bluetooth 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 | 0.123 | 0±1 | 1.0 | 1.2589 | 0.390 | 3.0 |
| 2.441 | 0.165 | 0±1 | 1.0 | 1.2589 | 0.393 | 3.0 |
| 2.480 | -0.202 | 0±1 | 1.0 | 1.2589 | 0.315 | 3.0 |

| Test separation: 5mm | | | | | | |
|----------------------------|-----------------------|------------------------------|--------------------------------------|-------------------------------------|-------------------|-----------------|
| Bluetooth Mode (π/4-DQPSK) | | | | | | |
| 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 | -0.388 | 0±1 | 1.0 | 1.2589 | 0.390 | 3.0 |
| 2.441 | -0.342 | 0±1 | 1.0 | 1.2589 | 0.393 | 3.0 |
| 2.480 | -0.777 | 0±1 | 1.0 | 1.2589 | 0.315 | 3.0 |

| Test separation: 5mm | | | | | | |
|-------------------------|-----------------------|------------------------------|--------------------------------------|-------------------------------------|-------------------|-----------------|
| Bluetooth Mode (8-DPSK) | | | | | | |
| 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 | -3.185 | -3±1 | -2.0 | 0.6310 | 0.196 | 3.0 |
| 2.441 | -1.017 | -1±1 | 0 | 1.0000 | 0.312 | 3.0 |
| 2.480 | -1.387 | -1±1 | 0 | 1.0000 | 0.315 | 3.0 |

So the worst RF Exposure Evaluation is calculated as **0.393 < limit 3.0**.

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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