

RF TEST REPORT

Report Reference No...... : **MAX25050231P01-R04RF**

FCC ID..... : 2BL3Q-HN103

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Applicant's name..... : **SHENZHEN MINGSHIDA COMMUNICATION TECHNOLOGY CO.,LTD**

Address..... : Building D, No. 4 Longshan Industrial Zone, Nanwan Street, Longgang District, Shenzhen

Test specification..... :

Standard..... : FCC Part 15.231
KDB 447498 D01 V06
ANSI C95.1- 2019
FCC §1.1310

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Test item description..... : **Car keys**

Trade Mark..... : N/A

Manufacturer..... : SHENZHEN MINGSHIDA COMMUNICATION TECHNOLOGY CO.,LTD

Model/Type reference..... : 2BL3Q-HN103

Listed Models : N/A

Ratings..... : DC 3V From Battery

Modulation : ASK

Frequency..... : 433.92MHz

Result..... : **PASS**

RF Exposure Evaluation

1. The corresponding SAR Exclusion Threshold condition, listed below:

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [f(\text{GHz})] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, 16 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

The test exclusions are applicable only when the minimum test separation distance is ≤ 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.

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:

a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) : ($f(\text{MHz})/1500$)] mW, at 100 MHz to 1500 MHz

b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) - 10] mW at > 1500 MHz and ≤ 6 GHz

3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.

a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm.

b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $/2$ for test separation distances ≤ 50 mm.

c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

2. CLASSIFICATION

The antenna of this product, under normal use condition, is at less than 20cm away from the body of the user. So, this device is classified as Portable Device.

EUT Specification

Antenna type:	PCB antenna
Antenna gain (Max)	2.1 dBi
Evaluation applied	☐ MPE Evaluation ☒ SAR Evaluation

3. SAR TEST EXCLUSION THRESHOLDS

The measured conducted PK Power

Mode	Frequency(MHz)	Field strength(dBuV/m@3)	EIRP (dBm)
TX	433.92	67.72	-32.24

Note:

$$EIRP = E_{Meas} + 20 \log(d_{Meas}) - 109.5$$

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBuV/m

d_{Meas} is the measurement distance, in m

$$EIRP = E + 20 \log(d) - 109.5$$

The tuned conducted PK Power (declared by client)

Mode	Frequency(MHz)	Target Power (dBm)	Tolerance $\pm$ (dBm)
TX	433.92	-32	1

Frequency (MHz)	Minimum Separation distance (mm)	RF Output power		Result	Limit for 1-g SAR	Verdict
		(dBm)	(mW)			
433.92	5	-31	0.00079	0.000105	3.0	Exempt from SAR

Remark:

1. Output power including tune up tolerance;

2. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to f) in section 4.1 is applied to determine SAR test exclusion.

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:

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

The test Result is less than 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

Conclusion

Therefore this device complies with FCC's RF radiation exposure limits for general population without SAR evaluation.