Maximum Permissible Exposure Evaluation

FCC ID: 2BMVK-CR39AKG1220

Report No.	:	TBR-C-202412-0040-7
Applicant	:	Shenzhen Chaoran Technology Corp.
Equipment Under Test (EUT)		
EUT Name	:	Remote Control
Model No.	:	CR-39A-KG-1220
Series Model No.	:	CR-39A-KG-0720, CR-39A-KG-1320
Brand Name	:	Chaoran
Sample ID	:	HC-C-202412-0040-01-01-1#&HC-C-202412-0040-01-01-2#
Receipt Date	:	2024-12-20
Test Date	:	2024-12-20 to 2025-01-03
Issue Date	:	2025-01-03
Standards	:	FCC Part 2.1093
Test Method	:	KDB 447498 D01 General RF Exposure Guidance v06
Conclusions	:	**PASS**
		In the configuration tested, the EUT complied with the standards specified above.

Test By	:	Rick. chen	Rick. chen
Reviewed By	:	Wade. Lv	Wade. Lv
Approved By	:	IVAN SU	Ivan Su

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202412-0040-7	Rev.01	Initial issue of report	2025-01-03

1. General Information about EUT

1.1 Client Information

Applicant	:	Shenzhen Chaoran Technology Corp.
Address	:	No.20, Tongfuyu Indsutrial Zone, Longtian Street, Pingshan District, Shenzhen, China
Manufacturer	:	Shenzhen Chaoran Technology Corp.
Address	:	No.20, Tongfuyu Indsutrial Zone, Longtian Street, Pingshan District, Shenzhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Remote Control	
Models No.	:	CR-39A-KG-1220, CR-39A-KG-0720, CR-39A-KG-1320	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name.	
Product Description	:	Operation Frequency:	Bluetooth 5.0(BLE): 2402MHz~2480MHz
		Modulation Type:	GFSK
		Antenna Gain:	1.5dBi PCB Antenna
Power Rating	:	DC 3V	
Software Version	:	v1.0	
Hardware Version	:	CR-39A-KG01	
Remark: The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.			

2. Measurement Uncertainty

The reported uncertainty of measurement y±U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (ULab)
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB
Temperature	/	±0.6℃
Humidity	/	±4%
Supply voltages	/	±2%
Time	/	±4%

3. SAR Test Exclusion Calculations

3.1 FCC: According to KDB447498 D01 v06 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)]*[√$f_{(GHz)}$] ≤3.0 for 1-g SAR

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

3.2 Summary simultaneous transmission for SAR Exclusion

The SAR exemption limits outlined in clause 4.3.2(b) of KDB 447498 have been derived based on an approximate SAR value of 0.4 W/kg using half-wave dipole antennas Footnote 1. As such, when simultaneous transmitter SAR evaluations include transmitters that have been exempt from routine SAR evaluation, the SAR must be estimating based on the ratio between the maximum tune-up tolerance limit of the transmitter that has been exempt and the exemption limit at the specific distance and frequency for that transmitter. This ratio must be multiplied by 0.4 W/kg (2.0 W/kg for controlled use and 1.0 W/kg for limb worn devices) in order to calculate the estimated SAR level.

The estimate SAR value is calculated based the following equation:

(maximum power level including tune-up tolerance for transmitter A / maximum power level of exemption at the same frequency and distance) * 0.4W/kg

1) [(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)]·[$\sqrt{f_{(GHz)}}/x$] W/kg, for *test separation distances* ≤ 50 mm;
   where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.
2) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distance* is > 50 mm.[37]

The [∑ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg] + [∑ of MPE ratios] is ⩽ 1.0.
The SAR to peak location separation ratios of all simultaneously transmitting antenna pairs operating in portable device exposure conditions are all ⩽ 0.04, and the [∑ of MPE ratios] is ⩽ 1.0.

3.3 Calculation:

Test separation: 5mm						
Bluetooth LE 1M						
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	5.473	5±1	6	3.981	1.234	**3.0**
2.440	5.397	5±1	6	3.981	1.244	**3.0**
2.480	5.182	5±1	6	3.981	1.254	**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 KDB447498 D01 v06.

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