Maximum Permissible Exposure Evaluation

FCC ID:2BRF3-CZ01A

Original Grant

Report No.	:	TBR-C-202510-0093-6
Applicant	:	Shenzhenshi Weiben Keji Youxian Gong si
Equipment Under Test (EUT)		
EUT Name	:	Remote Control
Model No.	:	CZ01
Series Model No.	:	Please Refer To Page 4
Brand Name	:	----
Sample ID	:	HC-C-202510-0093-02-03# & HC-C-202510-0093-02-04#
Receipt Date	:	2025-11-03
Test Date	:	2025-11-03 to 2025-11-27
Issue Date	:	2025-11-27
Standards	:	FCC Part 2.1093
Test Method	:	KDB 447498 D04 Interim General RF Exposure Guidance v01
Conclusions	:	**PASS**
		In the configuration tested, the EUT complied with the standards specified above.
Test By	:	Lily Zhang
Reviewed By	:	Camille Li
Approved By	:	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.

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202510-0093-6	Rev.01	Initial issue of report	2025-11-27

1. General Information about EUT

1.1 Client Information

Applicant	:	Shenzhenshi Weiben Keji Youxian Gong si
Address	:	Long gang qu Bantian jie dao Ma an tang she qu Xin he jie 8 hao Jin he da sha 101 Shen zhen shi China
Manufacturer	:	Shenzhenshi Weiben Keji Youxian Gong si
Address	:	Long gang qu Bantian jie dao Ma an tang she qu Xin he jie 8 hao Jin he da sha 101 Shen zhen shi China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Remote Control	
Models No.	:	CZ01, CZ01-A, CZ01-B, CZ02, CZ02-A, CZ02-B, CZ03, CZ04, TY01, TY01-A, TY02, TY02-A, TY03, TY03-A, TY04, TY04-A, TY05, TY05-A	
Model Different	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is that appearance color and model name.	
Product Description	:	Operation Frequency:	433.92 MHz
		Antenna Gain:	2dBi Pull rod Antenna
Power Rating	:	DC 12V	
Software Version	:	TP217-TX(V1.4)	
Hardware Version	:	TP217-TX(V1.4)	
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.			

1.3 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%

1.4 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)
The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01
The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025：2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)
The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.

2. SAR Test Exclusion Calculations

FCC: According to KDB 447498 D04 v01.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{\text{th}}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ \text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

Calculations

1. **Antenna Gain:**

Pull rod Antenna: 2dBi.

2. **EUT Operation Condition:**

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. **Exposure Evaluation:**

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density
P: power input to the antenna
G: power gain of the antenna in the direction of interest relative to an isotropic radiator.
R: distance to the center of radiation of the antenna

4. **Test Result:**

$$E = EIRP - 20\log D + 104.8$$

where:

E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.

EIRP=E-104.8+20logD=44.30-104.8+20log3 = -50.96dBm

Frequency (MHz)	Measured Power (dBm)	Tune up Tolerance ± (dB)	Output power (Max. Turn-up Procedure) (mW)	Limit (mW)
433.92	-50.96	-50±1	0.00001	22
Note: At separation distance of ≤5 mm				

5. **Conclusion:**

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure of portable device.

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