

TEST REPORT

Product Name: Remote dog training collar(cat training collar)

FCC ID: 2AY3EGB808

Trademark: N/A

Model Number: GB808, GG808C

Prepared For: TIZE INTERNATIONAL CO.,LIMITED

Address: 3/F, Building 1, TianKou Industrial Area, Huang Tian, Xixiang, BaoAn

District, ShenZhen, GuangDong Province, China 518128

Report No.: CTB210223008RFX

Manufacturer: ShenZhen TIZE Technology Co., Ltd

Address: 3/F, Building 1, TianKou Industrial Area, Huang Tian, Xixiang , BaoAn

District, ShenZhen, GuangDong Province, China 518128

Prepared By: Shenzhen CTB Testing Technology Co., Ltd.

Address: Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan

District, Shenzhen China

Sample Received Date: Feb. 22, 2021

Sample tested Date: Feb. 22, 2021 to Feb. 25, 2021

Issue Date: Feb. 25, 2021

Report No.: CTB210223008RFX

Test Standards FCC Part15.231 ANSI C63.10:2013

Test Results PASS

Remark: This is 433MHz radio test report.

Compiled by: Reviewed by: Approved by:

Arren 270 Bin Mei

Arron Liu Bin Mei Rita Xiao / Director

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

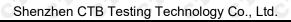
Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 1 of 31



TABLE OF CONTENT

Test	Report Declaration	Page
1.	VERSION	4
2.	TEST SUMMARY	5
3.	MEASUREMENT UNCERTAINTY	6
4.	PRODUCT INFORMATION AND TEST SETUP	
4.1	Product Information	7
4.2	Test Setup Configuration	7
4.3	Support Equipment	7
4.4	Test Mode	8
4.5	Test Environment	8
5.	TEST FACILITY AND TEST INSTRUMENT USED	9
5.1	Test Facility	9
5.2	Test Instrument Used	9 بئىغ
6.	AC POWER LINE CONDUCTED EMISSION	11
6.1	Block Diagram Of Test Setup	11
6.2	Limit	11
6.3	Test procedure	11
6.4	Test Result	
7.	RADIATED EMISSION	
7.1	Block Diagram Of Test Setup	15
7.2	Limit	15
7.3	Test procedure	16
7.4	Test Result	17
8.	DWELL TIME	24
8.1	Block Diagram Of Test Setup	24
8.2	Limit	24
8.3	Test procedure	24
8.4	Test Result	25
9.	OCCUPIED BANDWIDTH	26
9.1	Block Diagram Of Test Setup	26
9.2	Limit	26

Report No.: CTB210223008RFX





9.3	Test procedure	26
9.4	Test Result	27
10.	ANTENNA REQUIREMENT	28
11.	EUT PHOTOGRAPHS	29
12.	EUT TEST SETUP PHOTOGRAPHS	30

(Note: N/A means not applicable)

Report No.: CTB210223008RFX



1. VERSION

Report No.	Issue Date	Description	Approved	
CTB210223008RFX	Feb. 25, 2021	Original	Valid	

Report No.: CTB210223008RFX

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 4 of 31





2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Radiated Emission	47 CFR Part 15 Subpart C Section 15.209; 15.231(b)	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15 Subpart C Section 15.231 (a)	ANSI C63.10-2013	PASS
Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.231(c)	ANSI C63.10-2013	PASS
Antenna requirement	47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013	PASS

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 5 of 31



3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

rtainty
4.3Hz
.0dB
.9dB
.0dB
.8dB
4Hz
.3dB
.5dB
.3%
.59°C
%

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 6 of 31



4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s): GB808, GG808C

All model's the function, software and electric circuit are the same,

Report No.: CTB210223008RFX

Model Description: only with the product size and model named different. Test

sample model: GB808

Hardware Version: V1.0

Software Version: V1.0

Operation Frequency: 433MHz

Type of Modulation: ASK

Antenna installation: Internal antenna

Antenna Gain: 1.0dBi

Ratings: DC 5V charging from adapter

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

	No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
4	1.	h 45 45	75	40 4	b 4 45	40	& & &

Notes:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 7 of 31



4.4 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Report No.: CTB210223008RFX

Test mode	
Keep the EUT in transmitting mode with modulation.	0

4.5 Test Environment

Humidity(%):	55 0 0 0 0 0
Atmospheric Pressure(kPa):	101.1
Normal Voltage(DC):	3.7
Normal Temperature(°C)	25

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 8 of 31



5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
10	Spectrum Analyzer	Agilent	N9020A	MY52090073	Sep. 28, 2020	Sep. 28, 2021
2	Power Sensor	Agilent	U2021XA	MY56120032	Sep. 28, 2020	Sep. 28, 2021
3	Power Sensor	Agilent	U2021XA	MY56120034	Sep. 28, 2020	Sep. 28, 2021
4	Communication test set	R&S	CMW500	108058	Sep. 28, 2020	Sep. 28, 2021
5	Spectrum Analyzer	R&S	FSP40	100550	Sep. 28, 2020	Sep. 28, 2021
6	Signal Generator	Agilent	N5181A	MY49060920	Sep. 28, 2020	Sep. 28, 2021
7	Signal Generator	Agilent	N5182A	MY47420195	Sep. 28, 2020	Sep. 28, 2021
8	Communication test set	Agilent	E5515C	MY50102567	Oct. 10, 2020	Oct. 10, 2021
9	band rejection filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	Sep. 28, 2020	Sep. 28, 2021
10	band rejection filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	Sep. 28, 2020	Sep. 28, 2021
11	band rejection filter	Xingbo	XBLBQ-DZA 120	190821-1-1	Sep. 28, 2020	Sep. 28, 2021
12	BT&WI-FI Automatic test software	Micowave	MTS8310	Ver. 2.0.0.0		
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	Sep. 28, 2020	Sep. 28, 2021
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	Sep. 28, 2020	Sep. 28, 2021
15	234G Automatic test software	Micowave	MTS8200	Ver. 2.0.0.0	CAL CAL	C. F. C.
16	966 chamber	C.R.T.	966 Room	966	Nov. 9, 2019	Nov. 08, 2022

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 9 of 31



17	Receiver	R&S	ESPI	100362	Sep. 28, 2020	Sep. 28, 2021
18	Amplifier	HP	8447E	2945A02747	Sep. 28, 2020	Sep. 28, 2021
19	Amplifier	Agilent	8449B	3008A01838	Sep. 28, 2020	Sep. 28, 2021
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	Nov. 02, 2020	Nov. 01, 2021
21	Horn Antenna	Schwarzbeck	BBHA9120D	1911	Nov. 02, 2020	Nov. 01, 2021
22	Software	Fala	EZ-EMC	FA-03A2 RE	6 4 6	(A) (A)
23	3-Loop Antenna	Daze	ZN30401	17014	Sep. 28, 2020	Sep. 28, 2021
24	loop antenna	ZHINAN	ZN30900A	4 14	Sep. 28, 2020	Sep. 28, 2021
25	Horn antenna	A/H/System	SAS-574	588	Sep. 28, 2020	Sep. 28, 2021
26	Amplifier	AEROFLEX	A 1/4	S/N/ 097	Sep. 28, 2020	Sep. 28, 2021

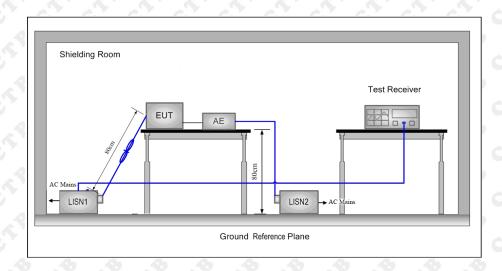
Conducted emissions Test						
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.	
AMN	ROHDE&SCH WARZ	ESH3-Z5	100318	Sep. 28, 2020	Sep. 28, 2021	
Pulse limiter	ROHDE&SCH WARZ	ESH3Z2	357881052	Sep. 28, 2020	Sep. 28, 2021	
EMI TEST RECEIVER	ROHDE&SCH WARZ	ESCS30	834115/006	Sep. 28, 2020	Sep. 28, 2021	
Coaxial cable	ZDECL	Z302S	18091804	Sep. 28, 2020	Sep. 28, 2021	
ISN	TESEQ	NTFM81 58	183	Sep. 28, 2020	Sep. 28, 2021	
EMI TEST RECEIVER	ROHDE&SCH WARZ	ESCI	100428/003	Sep. 28, 2020	Sep. 28, 2021	
Software	Fala	EZ-EMC	EMC-CON 3A1.1	La Ka	* 5° 5°	

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 10 of 31



6. AC POWER LINE CONDUCTED EMISSION

6.1 Block Diagram Of Test Setup



6.2 Limit

	Maximum RF Line Voltage (dΒμV)				
Frequency (MHz)	CLAS	CLASS A CLASS B		CLASS B	
(111112)	Q.P.	Ave.	Q.P.	Ave.	
0.15 - 0.50	79	66	66-56*	56-46*	
0.50 - 5.00	73	60	56	46	
5.00 - 30.0	73	60	60	50	

^{*} Decreasing linearly with the logarithm of the frequency

6.3 Test procedure

- The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 11 of 31



between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

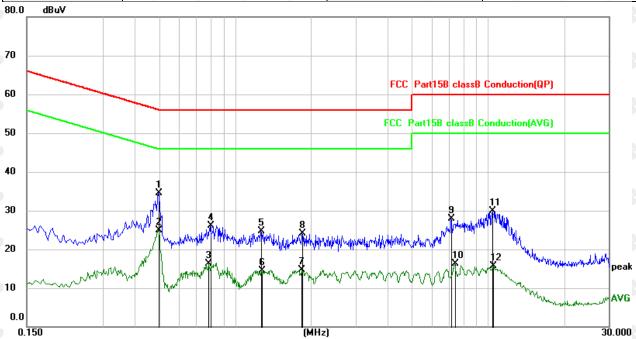
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 12 of 31



6.4 Test Result

	Temperature:	25.6℃	Relative Humidity:	57.8%
8	Pressure:	101.6kPa	Phase :	P P P P
	Test Mode	1(the worst data)	Remark:	N/A



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∨	dВ	dBu∨	dBu∨	dΒ	Detector	Comment
1	0.4980	24.20	10.23	34.43	56.03	-21.60	QP	
2 *	0.4980	14.60	10.23	24.83	46.03	-21.20	AVG	
3	0.7860	6.17	10.22	16.39	46.00	-29.61	AVG	
4	0.7980	15.95	10.21	26.16	56.00	-29.84	QP	
5	1.2660	14.50	10.15	24.65	56.00	-31.35	QP	
6	1.2740	4.45	10.15	14.60	46.00	-31.40	AVG	
7	1.8300	4.49	10.13	14.62	46.00	-31.38	AVG	
8	1.8460	13.99	10.13	24.12	56.00	-31.88	QP	
9	7.1700	17.35	10.56	27.91	60.00	-32.09	QP	
10	7.3820	5.68	10.57	16.25	50.00	-33.75	AVG	
11	10.4500	19.21	10.64	29.85	60.00	-30.15	QP	
12	10.4980	5.10	10.64	15.74	50.00	-34.26	AVG	

Remark: Result=Reading +Factor

Over Limit=Result -Limit

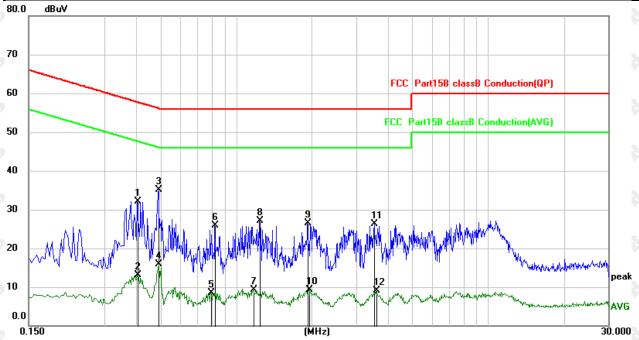
Report

Tel: 4008-707-283

Web: http://www.ctb-lab.net

Shenzhen	CTB	Testing	Technology	Co	I td
OHCHZHCH	\circ	i County	1 Contrology	OO.,	Ltu.

Temperature:	25.6 ℃	Relative Humidity:	57.8%
Pressure:	101.6kPa	Phase :	No so so
Test Mode	1(the worst data)	Remark:	N/A



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∨	dΒ	dBu∨	dBu∨	dΒ	Detector	Comment
1	0.4060	22.10	10.10	32.20	57.73	-25.53	QP	
2	0.4060	2.91	10.10	13.01	47.73	-34.72	AVG	
3 *	0.4940	25.07	10.05	35.12	56.10	-20.98	QP	
4	0.4940	5.88	10.05	15.93	46.10	-30.17	AVG	
5	0.7940	-1.57	10.13	8.56	46.00	-37.44	AVG	
6	0.8260	15.67	10.15	25.82	56.00	-30.18	QP	
7	1.1740	-1.00	10.23	9.23	46.00	-36.77	AVG	
8	1.2420	16.78	10.23	27.01	56.00	-28.99	QP	
9	1.9260	16.28	10.23	26.51	56.00	-29.49	QP	
10	1.9500	-0.89	10.23	9.34	46.00	-36.66	AVG	
11	3.5460	15.91	10.32	26.23	56.00	-29.77	QP	
12	3.5940	-1.15	10.32	9.17	46.00	-36.83	AVG	

Remark: Result=Reading +Factor Over Limit=Result -Limit

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net



7. RADIATED EMISSION

Block Diagram Of Test Setup

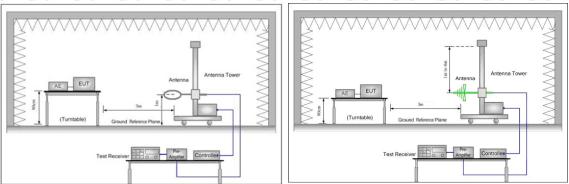


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

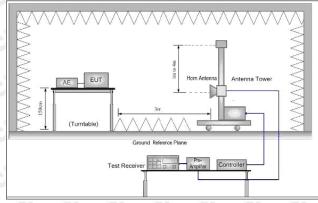


Figure 3. Above 1GHz

7.2 Limit

Spurious Emissions:

Frequency	Field strength (dBµV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	20log 2400/F (kHz) + 80	40 -40	3
0.490MHz-1.705MHz	20log 24000/F (kHz) + 40		3
1.705MHz-30MHz	20log 30 + 40	40 -40	3
30MHz-88MHz	40.0	Quasi-peak	3
88MHz-216MHz	43.5	Quasi-peak	3
216MHz-960MHz	46.0	Quasi-peak	3
960MHz-1GHz	54.0	Quasi-peak	3
Above 1GHz	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Web: http://www.ctb-lab.net Tel: 4008-707-283



Field Strength of Fundamental Limit:

Fundamental and	Field strength of	Field strength of spurious
harmonics emission	Fundamental((microvolts/meter)	emissions(microvolts/meter)
limits Frequency(MHz)		C' C' C' C'
40.66-40.70	2280	225
70-130	1250	125
130-174	1250 to 3750**	125 to 375**
174-260	3750	375
260-470	3750 to 12500**	375 to 1250**
Above 470	12500	1250

^{**} linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μ V/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, μ V/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

Frequency	Limit (dBµV/m @3m)	Remark
433MHz	80.8	Average Value
433IVITZ	100.8	Peak Value

7.3 Test procedure

Below 1GHz test procedure as below:

- a.The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f.If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g.Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter (Above 18GHz the distance is 1 meter and table is 1.5 meter). h.Test the EUT in the lowest channel ,the middle channel ,the Highest channel

j.Repeat above procedures until all frequencies measured was complete.

Receiver set:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30KHz	Average

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 16 of 31



0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
Above IGHZ	Peak	1MHz	10Hz	Average

7.4 Test Result

7.4.1 Calculation of average factor

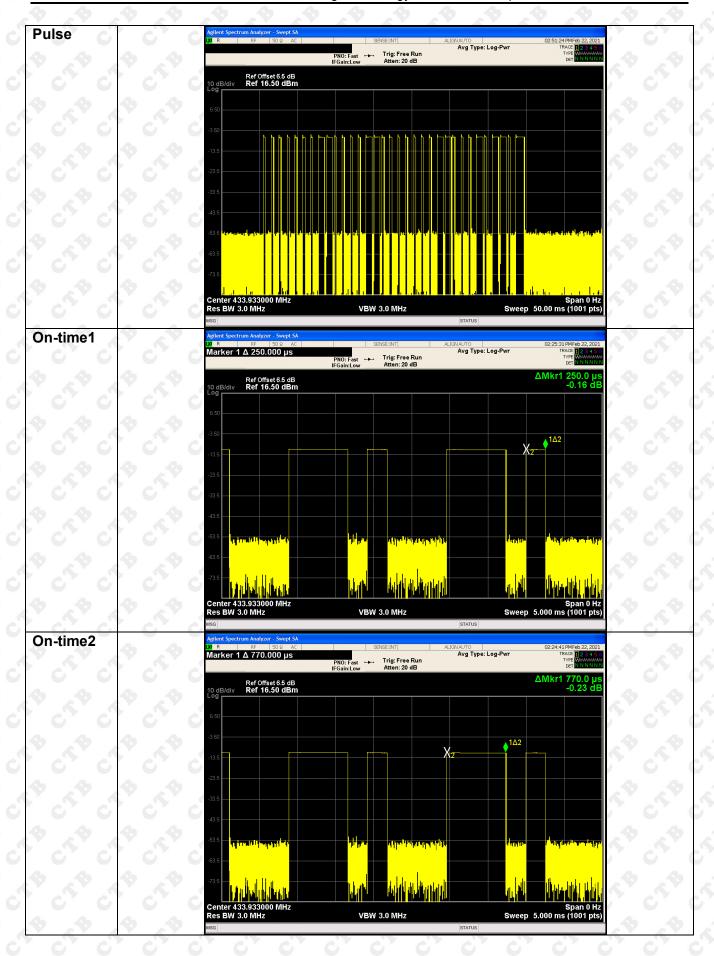
The output field strengths of specification in accordance with the FCC rules specify measurements with an average detector. During the test, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The duty cycle is measured in 100 ms or the repetition cycle period, whichever is a shorter time frame. The duty cycle is measured by placing the spectrum analyzer to set zero span at 100kHz resolution bandwidth.



Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 17 of 31







Average factor:	
2, 2, 2,	Average value=Peak value + PDCF
Calculate Formula:	PDCF=20 log(Duty cycle)
0 0 0	Duty cycle = T on time / T period
Calculated average	Ton time = 0.250×23+0.770×10=13.45(ms); T period =47.80(ms)
factor:	PDCF = 20 log(13.45/47.80)= -11.01dB

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 19 of 31



7.4.2 Radiated Spurious Emission

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)
1 4 1 4 - 4 1 4 4 4 4 4 4 4 4 4 4 4 4 4	4 4 4 4 4	4 4 4 - 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	0'0'-0'0'	
40 40 40 40	80 80 80 80 80	40 40 40 40

Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

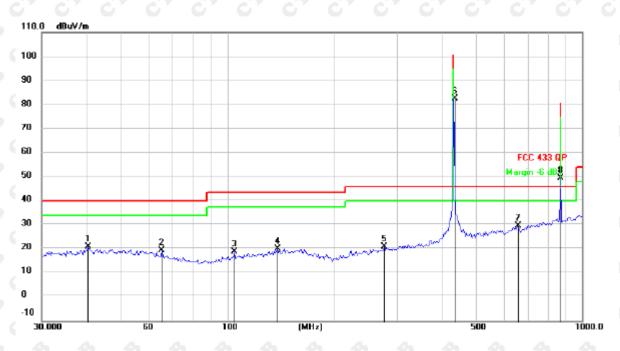
Report No.: CTB210223008RFX

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 20 of 31



About 30MHz-1GHz Test Results:

Antenna polarity: H

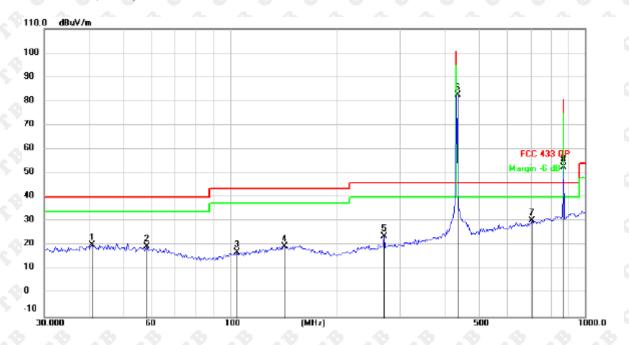


Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	_ Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Deletie: Type
40.8667	25.99	-5.6	20.39	40	-19.61	QP
65.1850	25.08	-6.18	18.90	40	-21.10	QP
104.4932	26.86	-8.88	17.98	43.5	-25.52	QP
139.1167	27.27	-7.72	19.55	43.5	-23.95	QP
278.5357	26.77	-6.7	20.07	46	-25.93	QP
434.0687	86.16	-4.73	81.43	100.8	-19.37	QP
658.6984	32.74	-4.41	28.33	46	-17.67	QP
869.1369	57.65	-8.61	49.04	80.8	-31.76	QP

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 21 of 31



Antenna polarity: V



Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	4 4 4
42.8782	26.12	-7.39	18.73	40	-21.27	QP
58.5241	24.56	-6.39	18.17	40	-21.83	QP
106.6880	25.47	-9.53	15.94	43.5	-27.56	QP
144.1330	27.18	-9.51	17.67	43.5	-25.83	QP
273.1575	29.03	-6.34	22.69	46	-23.31	QP
434.0674	84.93	-3.3	81.63	100.8	-19.17	QP
709.1832	31.94	-2.34	29.60	46	-16.40	QPQ*
869.1315	57.34	-5.52	51.82	80.8	-28.98	QP

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net



For average Emission

Frequency MHz	Peak Level dBuV/m	Duty cycle factor	AverageLev el dBuV/m	Limit AV	Margin	Polarization
433.93	81.43	-11.01	70.42	80.8	-10.38	Horizontal
867.86	49.04	-11.01	38.03	60.8	-22.77	Horizontal
433.93	81.63	-11.01	70.62	80.8	-10.18	Vertical
867.86	51.82	-11.01	40.81	60.8	-19.99	Vertical

Notes: Average emission Level = Peak Level + Duty cycle factor

Above 1GHz Test Results

Frequency	Peak	Duty	Average	Li	mit	Margi	n dB	0 0
MHz	Level dBuV/m	cycle factor	Level dBuV/m	PK	AV	PK	AV	Polarization
1301.71	48.87	-11.01	37.86	80.8	60.8	-31.93	-22.94	Vertical
1735.26	46.33	-11.01	35.32	80.8	60.8	-34.47	-25.48	Vertical
2603.56	43.39	-11.01	32.38	80.8	60.8	-37.41	-28.42	Vertical
3037.43	43.91	-11.01	32.90	80.8	60.8	-36.89	-27.90	Vertical
3471.35	41.35	-11.01	30.34	80.8	60.8	-39.45	-30.46	Vertical
3905.24	41.40	-11.01	30.39	80.8	60.8	-39.40	-30.41	Vertical
1301.71	49.85	-11.01	38.84	80.8	60.8	-30.95	-21.96	Horizontal
1735.26	46.58	-11.01	35.57	80.8	60.8	-34.22	-25.23	Horizontal
2603.56	42.94	-11.01	31.93	80.8	60.8	-37.86	-28.87	Horizontal
3037.43	40.56	-11.01	29.55	80.8	60.8	-40.24	-31.25	Horizontal
3471.35	41.10	-11.01	30.09	80.8	60.8	-39.70	-30.71	Horizontal
3905.24	40.51	-11.01	29.50	80.8	60.8	-40.29	-31.30	Horizontal

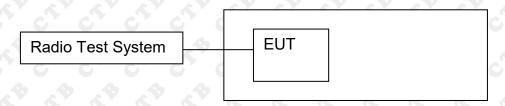
Notes: Average emission Level = Peak Level + Duty cycle factor

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 23 of 31



8. DWELL TIME

8.1 Block Diagram Of Test Setup



8.2 Limit

According to FCC 15.231(a) requirement:

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

8.3 Test procedure

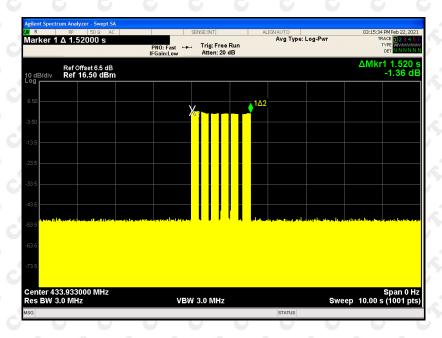
- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 24 of 31



8.4 Test Result

Transmitting time(S)	Limit (S)	Results
1.520	≤5	Pass



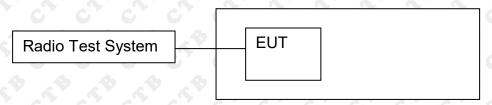
Report

Report No.: CTB210223008RFX



9. OCCUPIED BANDWIDTH

9.1 Block Diagram Of Test Setup



9.2 Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

B.W (20dBc) Limit = 0.25% * f(MHz) = 0.25% * 433.93MHz = 1.0848MHz

9.3 Test procedure

- 1. Set RBW = 10 kHz.
- 2. Set the video bandwidth (VBW) ≥RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 26 of 31



9.4 Test Result

20dB bandwidth (kHz)	Limit (MHz)	Results
6.586	1.0848	Pass



Report



10. ANTENNA REQUIREMENT

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is Internal Antenna and no consideration of replacement. The best case gain of the antenna is 1dBi.

Report Tel: 4008-707-283 Web: http://www.ctb-lab.net Page 28 of 31



11. EUT PHOTOGRAPHS

External Photos EUT Photo 1



EUT Photo 2



Report Tel: 4008-707-283



12. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

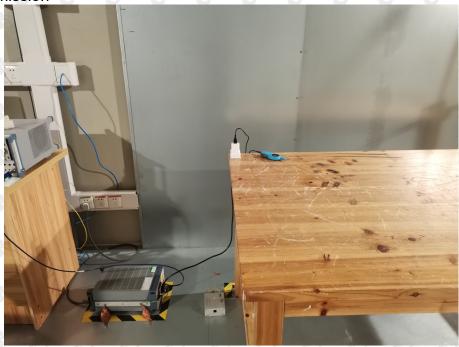




Report Tel: 4008-707-283



Conducted emission



**** END OF REPORT ***

Report Tel: 4008-707-283