Radio Test Report

FCC ID:2BKII-F-700B

Report No.	:	TBR-C-202408-0122-2
Applicant	:	Guangdong Fengshang Electronics Co.,Ltd.
Equipment Under Test (EUT)		
EUT Name	:	Universal Remote Control
Model No.	:	F-700B
Series Model No.	:	Please Refer To Page 5
Brand Name	:	----
Sample ID	:	HC-C-202408-0122-01-01#
Receipt Date	:	2024-08-19
Test Date	:	2024-08-19 to 2024-09-12
Issue Date	:	2024-09-12
Standards	:	FCC Part 15, Subpart C (15.231(a))
Test Method	:	ANSI C63.10:2013
Conclusions	:	**PASS**
		In the configuration tested, the EUT complied with the standards specified above.
Tested By	:	Zkn Zhou
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.

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Contents

CONTENTS....2
1. GENERAL INFORMATION ABOUT EUT....5
1.1 Client Information....5
1.2 General Description of EUT (Equipment Under Test)....5
1.3 Block Diagram Showing the Configuration of System Tested....7
1.4 Description of Support Units....7
1.6 Description of Test Software Setting....9
1.7 Measurement Uncertainty....9
1.8 Test Facility....10
2. TEST SUMMARY....11
3. TEST SOFTWARE....11
4. TEST EQUIPMENT AND TEST SITE....12
5. CONDUCTED EMISSION....14
5.1 Test Standard and Limit....14
5.2 Test Setup....14
5.3 Test Procedure....14
5.4 Deviation From Test Standard....15
5.5 EUT Operating Mode....15
5.6 Test Data....15
6. RADIATED EMISSION TEST....16
6.1 Test Standard and Limit....16
6.2 Test Setup....17
6.3 Test Procedure....18
6.4 Deviation From Test Standard....19
6.5 EUT Operating Mode....19
6.6 Test Data....19
7. BANDWIDTH....20
7.1 Test Standard and Limit....20
7.2 Test Setup....20
7.3 Test Procedure....20
7.4 Deviation From Test Standard....20
7.5 EUT Operating Mode....20

7.6 Test Data 20
8. RELEASE TIME MEASUREMENT 21
8.1 Test Standard and Limit 21
8.2 Test Setup 21
8.3 Test Procedure 21
8.4 Deviation From Test Standard 21
8.5 EUT Operating Mode 21
8.6 Test Data 21
9. DUTY CYCLE 22
9.1 Test Standard and Limit 22
9.2 Test Setup 22
9.3 Test Procedure 22
9.4 Deviation From Test Standard 22
9.5 EUT Operating Mode 22
9.6 Test Data 22
10. ANTENNA REQUIREMENT 23
11.1 Test Standard and Limit 23
11.2 Deviation From Test Standard 23
11.3 Antenna Connected Construction 23
11.4 Test Data 23
ATTACHMENT A--UNWANTED EMISSIONS DATA 24
ATTACHMENT B--BANDWIDTH DATA 30
ATTACHMENT C-- RELEASE TIME MEASUREMENT DATA 31
ATTACHMENT D--DUTY CYCLE DATA 32

Revision History

Report No.	Version	Description	Issued Date
TBR-C-202408-0122-2	Rev.01	Initial issue of report	2024-09-12

1. General Information about EUT

1.1 Client Information

Applicant	:	Guangdong Fengshang Electronics Co.,Ltd.
Address	:	Room 201, Block 8, Yi 'an Scientific Innovation Park, No.23, Gangkou Road, Guicheng Street, Nanhai District, Foshan City, Guangdong Province, China
Manufacturer	:	Guangdong Fengshang Electronics Co.,Ltd.
Address	:	Room 201, Block 8, Yi 'an Scientific Innovation Park, No.23, Gangkou Road, Guicheng Street, Nanhai District, Foshan City, Guangdong Province, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Universal Remote Control	
Models No.	:	F-700B, F-608, F-612, F-618, F-632, F-639, F-650, F-550A, F-550B, F-700A, F-800A, F-800B, F-800C, LS-CM029, F-662, F-663G, F-663H, F-663I, F-800D	
Model Different	:	All PCB boards and circuit diagrams are the same, the only difference is that model name.	
Product Description	:	Operation Frequency:	433.92 MHz
		Max Out Power:	67.57 dBuV/m (PK Max.) 56.97 dBuV/m (AV Max.)
		Antenna Gain:	3dBi PCB Antenna
		Modulation Type:	ASK
Power Rating	:	DC 3.0V by button cell	
Software Version	:	-----	
Hardware Version	:	-----	

Note:

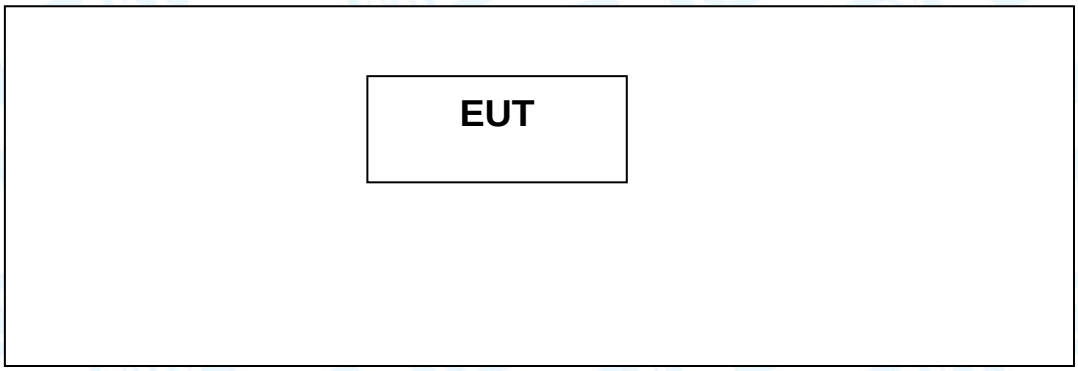
(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Antenna description

Antenna	Brand	Model Name	Type	Antenna Gain(dBi)
1	N/A	N/A	PCB Ant.	3

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

The EUT has been test as an independent unit.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

Test Items	Note
Conducted Emission	N/A
Radiated Emission	Continuously transmitting
Bandwidth	Continuously transmitting
Duty Cycle	Continuously transmitting
Release Time	Normal Mode

Note:

(1) During the testing procedure, the continuously transmitting mode was programmed by the customer.

(2) The EUT is considered a fixed unit, and it was pre-tested on the positioned of each 3 axis: X axis, Y axis and Z axis. The worst case was found positioned on Z-plane. There for only the test data of this Z-plane were used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of transmitting mode.

RF Power Setting in Test SW:	DEF

1.7 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 (U_{Lab})**
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

1.8 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. Test Summary

	FCC Part 15 Subpart (15.231(a))			
Standard Section	Test Item	Test Sample(s)	Judgment	Remark
FCC				
15.203	Antenna Requirement	HC-C-202408-0122-01-01#	PASS	**N/A**
15.207	Conducted Emission	/	/	**N/A**
15.231	Release Time	HC-C-202408-0122-01-01#	PASS	**N/A**
	Radiation Emission	HC-C-202408-0122-01-01#	PASS	**N/A**
	20 dB Bandwidth	HC-C-202408-0122-01-01#	PASS	**N/A**
	Duty Cycle	HC-C-202408-0122-01-01#	PASS	**N/A**
	Note: N/A is an abbreviation for Not Applicable.			

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFtest	V2.0.0.0
RF Test System	JS1120	Tonscend	V2.6.88.0336

4. Test Equipment and Test Site

Test Site				
No.	**Test Site**	**Manufacturer**	**Specification**	**Used**
TB-EMCSR001	Shielding Chamber #1	YIHENG	7.5*4.0*3.0 (m)	√
TB-EMCSR002	Shielding Chamber #2	YIHENG	8.0*4.0*3.0 (m)	√
TB-EMCCA001	3m Anechoic Chamber #A	ETS	9.0*6.0*6.0 (m)	X
TB-EMCCB002	3m Anechoic Chamber #B	YIHENG	9.0*6.0*6.0 (m)	√

Radiation Emission Test (B Site)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 29, 2024	Aug. 28, 2025
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 17, 2024	Jun. 16, 2025
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 23, 2024	Feb.22, 2025
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Nov. 13, 2023	Nov. 12, 2025
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 27, 2024	Feb.26, 2026
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 29, 2024	Aug. 28, 2025
Highpass Filter	CD	HPM-6.4/18G	---	N/A	N/A
Highpass Filter	CD	HPM-2.8/18G	---	N/A	N/A
Highpass Filter	XINBO	XBLBQ-HTA67(8-25G)	22052702-1	N/A	N/A
Antenna Conducted Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 17, 2024	Jun. 16, 2025
MXA Signal Analyzer	KEYSIGHT	N9020B	MY60110172	Aug. 29, 2024	Aug. 28, 2025
MXA Signal Analyzer	Agilent	N9020A	MY47380425	Aug. 29, 2024	Aug. 28, 2025
Vector Signal Generator	Agilent	N5182A	MY50141294	Aug. 29, 2024	Aug. 28, 2025
Analog Signal Generator	Agilent	N5181A	MY48180463	Aug. 29, 2024	Aug. 28, 2025
Vector Signal Generator	KEYSIGHT	N5182B	MY59101429	Aug. 29, 2024	Aug. 28, 2025
Analog Signal Generator	KEYSIGHT	N5173B	MY61252685	Aug. 29, 2024	Aug. 28, 2025
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Aug. 29, 2024	Aug. 28, 2025
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Aug. 29, 2024	Aug. 28, 2025
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Aug. 29, 2024	Aug. 28, 2025

	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Aug. 29, 2024	Aug. 28, 2025
RF Control Unit	Tonsced	JS0806-1	21C8060380	N/A	N/A
RF Control Unit	Tonsced	JS0806-2	21F8060439	Aug. 29, 2024	Aug. 28, 2025
Power Control Box	Tonsced	JS0806-4ADC	21C8060387	N/A	N/A
Wideband Radio Comunication Tester	Rohde & Schwarz	CMW500	144382	Aug. 29, 2024	Aug. 28, 2025
Universal Radio Communication Tester	Rohde&Schwarz	CMW500	168796	Feb. 23, 2024	Feb.22, 2025
Temperature and Humidity Chamber	ZhengHang	ZH-QTH-1500	ZH2107264	Jun. 14, 2024	Jun. 13, 2026

Radiation Emission Test (B Site)					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 28, 2023	Aug. 29, 2024
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 28, 2023	Aug. 29, 2024
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 28, 2023	Aug. 29, 2024
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 28, 2023	Aug. 29, 2024
Antenna Conducted Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
MXA Signal Analyzer	KEYSIGHT	N9020B	MY60110172	Aug. 28, 2023	Aug. 29, 2024
MXA Signal Analyzer	Agilent	N9020A	MY47380425	Aug. 28, 2023	Aug. 29, 2024
Vector Signal Generator	Agilent	N5182A	MY50141294	Aug. 28, 2023	Aug. 29, 2024
Analog Signal Generator	Agilent	N5181A	MY48180463	Aug. 28, 2023	Aug. 29, 2024
Vector Signal Generator	KEYSIGHT	N5182B	MY59101429	Aug. 28, 2023	Aug. 29, 2024
Analog Signal Generator	KEYSIGHT	N5173B	MY61252685	Aug. 28, 2023	Aug. 29, 2024
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Aug. 28, 2023	Aug. 29, 2024
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Aug. 28, 2023	Aug. 29, 2024
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Aug. 28, 2023	Aug. 29, 2024
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Aug. 28, 2023	Aug. 29, 2024
RF Control Unit	Tonsced	JS0806-2	21F8060439	Aug. 28, 2023	Aug. 29, 2024
Wideband Radio Comunication Tester	Rohde & Schwarz	CMW500	144382	Aug. 28, 2023	Aug. 29, 2024

5. Conducted Emission

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.207

5.1.2 Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

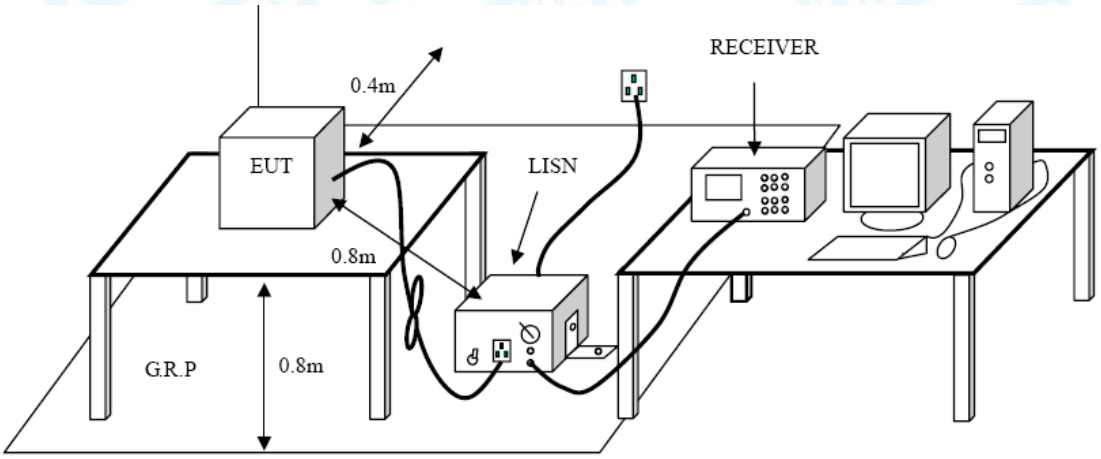
Notes:

(1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

●The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

●Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

●I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

●LISN at least 80 cm from nearest part of EUT chassis.

●The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

The EUT is powered by DC battery, no requirement for this test item.

6. Radiated Emission Test

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC 15.231e

6.1.2 Test Limit

According to FCC 15.231(a) requirement:

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m	Field Strength of Spurious Emissions (microvolt/meter) at 3m
40.66~40.70	2250	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, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

(1) for the band 130~174 MHz, uV/m at 3 meters= 22.7273(F)-2454.5455;

(2) for the band 260~470 MHz, uV/m at 3 meter= 16.6667(F)-2833.3333.

(3) The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in FCC Part15.209.

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3

216~960	200	3
Above 960	500	3

Note:

(1) The tighter limit applies at the band edges.

(2) For above 30MHz:

Emission Level(dBuV/m)=20log Emission Level(uV/m)

For 0.009~0.490MHz:

Emission Level(dBuV/m)=20log Emission Level(uV/m) +40log(300/3)

For 0.049~30MHz:

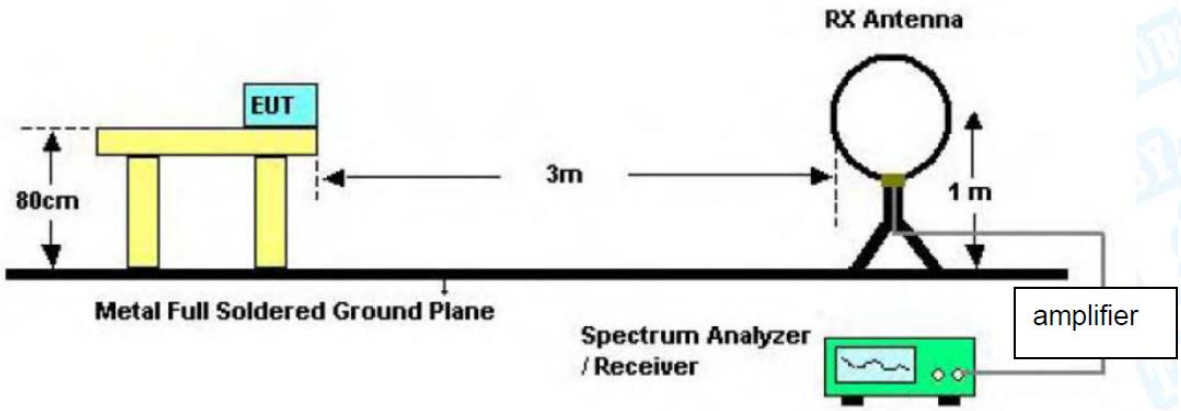
Emission Level(dBuV/m)=20log Emission Level(uV/m) +40log(30/3)

So the field strength of emission limits have been calculated in below table.

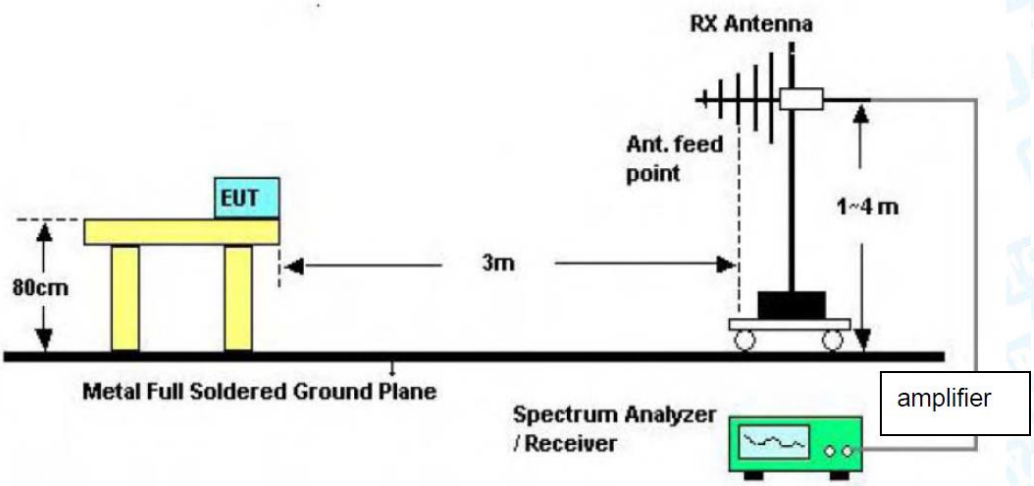
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m
433.92 MHz	80.82 (Average)
433.92 MHz	100.82 (Peak)

6.2 Test Setup

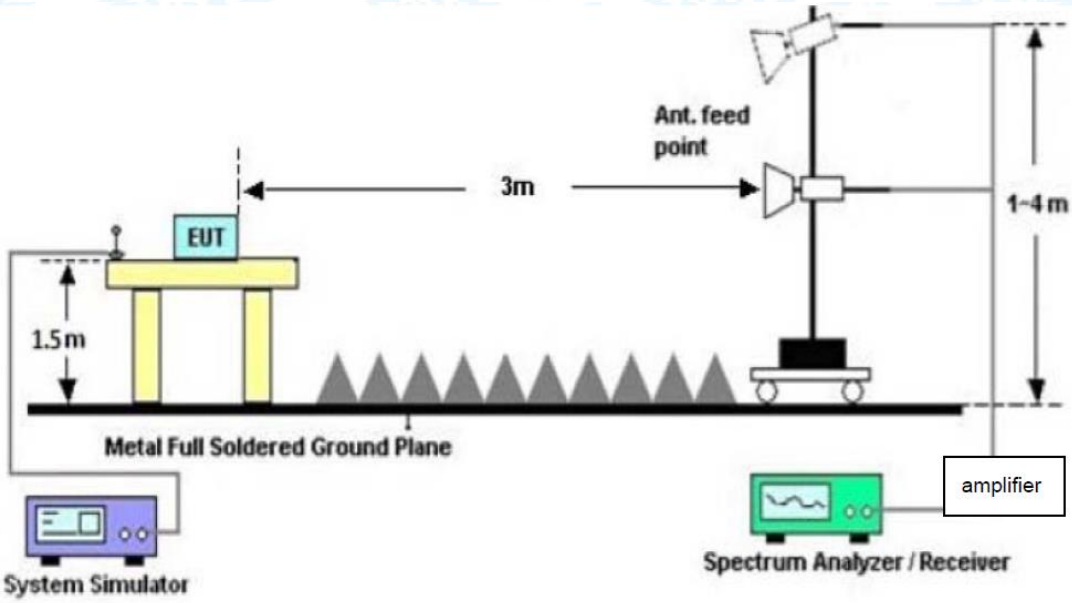
Radiated measurement



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

6.3 Test Procedure

---Radiated measurement

●The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

● Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

● The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

●The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

●If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

●Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.

●Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

●For the actual test configuration, please see the test setup photo.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Mode

Please refer to the description of test mode.

6.6 Test Data

Radiated measurement please refer to the Attachment A inside test report.

7. Bandwidth

7.1 Test Standard and Limit

7.1.1 Test Standard

FCC 15.231

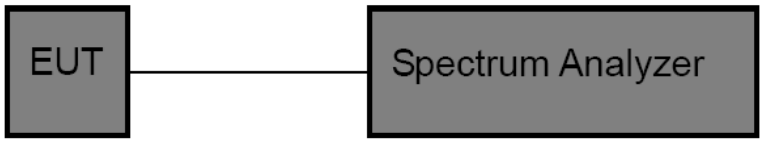
7.1.2 Test Limit

The 99%bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calculated in below table.

Fundamental Frequency	20 dB Bandwidth Limits (MHz)
433.92MHz	1.0848

7.2 Test Setup

Conducted measurement



7.3 Test Procedure

(1) Set Spectrum Analyzer Center Frequency= Fundamental Frequency, RBW=10 kHz, VBW= 30 kHz, Span= 1 MHz.

(2) Measured the spectrum width with power higher than 20 dB below carrier.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Mode

Please refer to the description of test mode.

7.6 Test Data

Please refer to the Attachment B.

8. Release Time Measurement

8.1 Test Standard and Limit

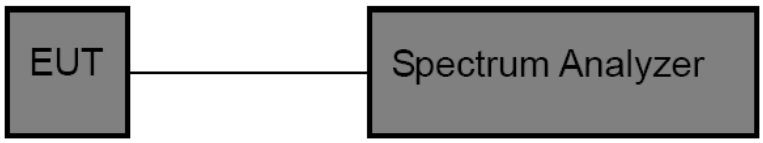
8.1.1 Test Standard

FCC 15.231

8.1.2 Test Limit

According to FCC 15.231a, A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

8.2 Test Setup



8.3 Test Procedure

(1) Setup the EUT as show in the block diagram above.

(2) Set Spectrum Analyzer Centre Frequency= Fundamental Frequency, RBW=100 kHz, VBW= 300 kHz, Span= 0 Hz. Sweep Time= 5 Seconds.

(3) Setup the EUT as normal operation and press Transmitter button.

(4) Set Spectrum Analyzer View, Delta Mark time.

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Mode

Please refer to the description of test mode.

8.6 Test Data

Please refer to the Appendix C.

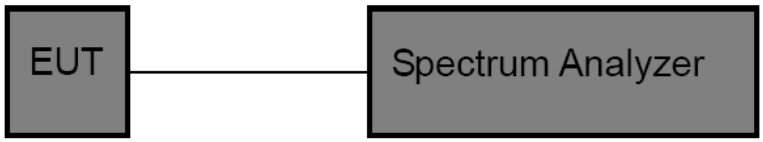
9. Duty Cycle

9.1 Test Standard and Limit

9.1.1 Test Standard

FCC 15.231

9.2 Test Setup



9.3 Test Procedure

(1) The EUT was placed on a turntable which is 0.8m above ground plane.

(2) Set EUT operating in continuous transmitting mode.

(3) Set the Spectrum Analyzer to the transmitter carrier frequency, and set the spectrum analyzer resolution bandwidth (RBW) to 100 kHz and video bandwidth (VBW) to 300 kHz, Span was set to 0 Hz.

(4) The Duty Cycle was measured and recorded.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Mode

Please refer to the description of test mode.

9.6 Test Data

Please refer to the Appendix D.

10. Antenna Requirement

11.1 Test Standard and Limit

11.1.1 Test Standard

FCC Part 15.203

11.1.2 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 shall be considered sufficient to comply with the provisions of this Section. 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.

11.2 Deviation From Test Standard

No deviation

11.3 Antenna Connected Construction

The gains of the antenna used for transmitting is 3dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

11.4 Test Data

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type
☒Permanent attached antenna
☐Unique connector antenna
☐Professional installation antenna

Attachment A--Unwanted Emissions Data

---Radiated Unwanted Emissions

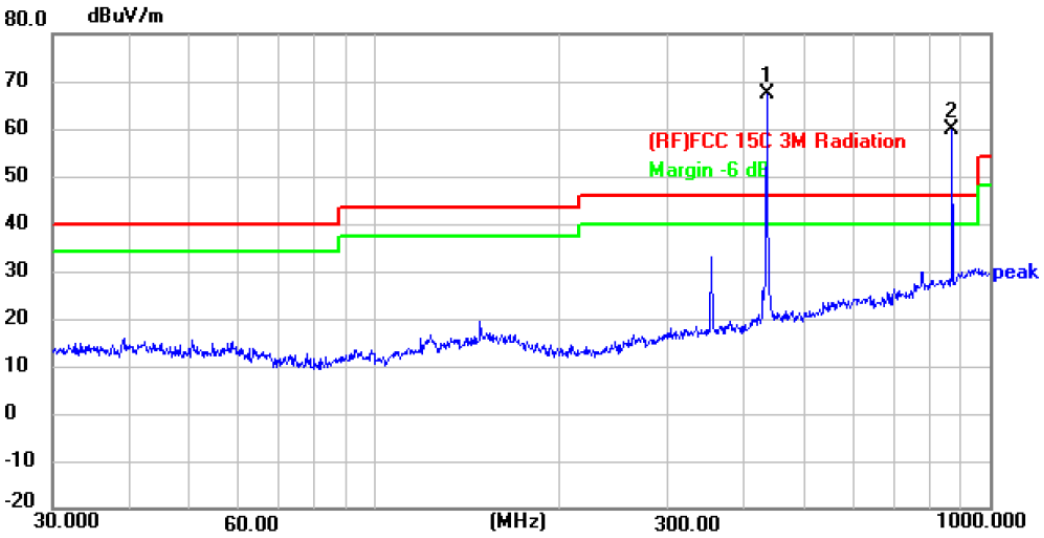
9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB Below the permissible value has no need to be reported.

30MHz~1GHz

Test Voltage:	DC 3V
Ant. Pol.	Horizontal
Test Mode:	Mode 1
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



Temperature: 23.8 ℃ Humidity: 47 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	434.0651	84.81	-17.38	67.43	46.00	21.43	peak
2 X	869.1302	69.26	-9.34	59.92	46.00	13.92	peak

*:Maximum data x:Over limit !:over margin

Remark:

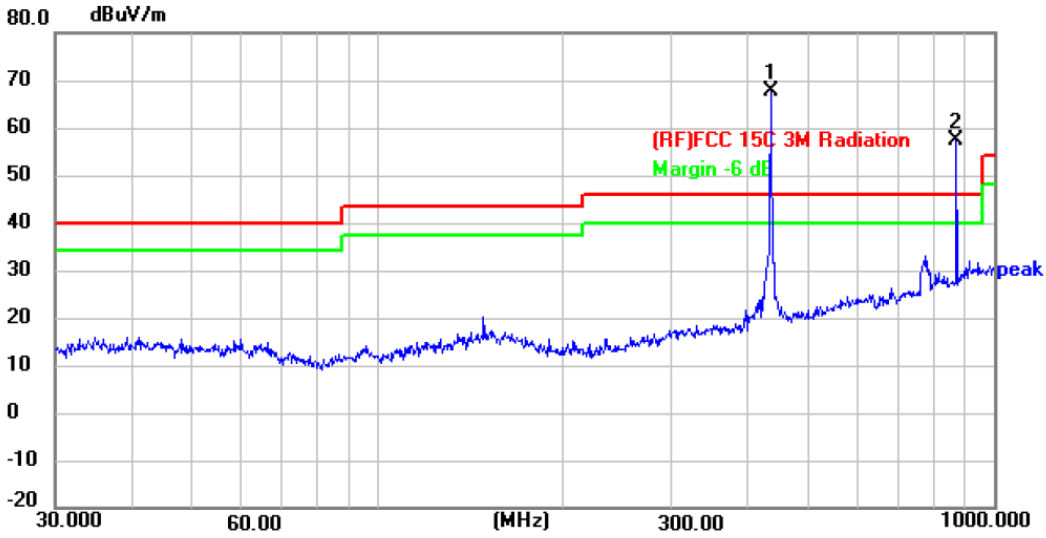
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)

2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = QuasiPeak (dBμV/m)-Limit QPK(dBμV/m)

Fundamental and Harmonics Result						
Freq(MHz)	Peak Level (dBμV/m)	AV Factor(dBμV/m) (see Attachment D)	Average Level (dBμV/m)	Limit(dBμV/m) (average)	Limit(dBμV/m) (Peak)	Conclusion
434.0651	67.43	-10.6	56.83	80.80	100.80	PASS
869.1302	59.92	-10.6	49.32	60.80	80.80	PASS

Test Voltage:	DC 3V
Ant. Pol.	Vertical
Test Mode:	Mode 1
Remark:	No report for the emission which more than 10 dB below the prescribed limit.



Temperature: 23.8 ℃ Humidity: 47 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	434.0651	84.95	-17.38	67.57	46.00	21.57	peak
2 X	869.1302	66.69	-9.34	57.35	46.00	11.35	peak

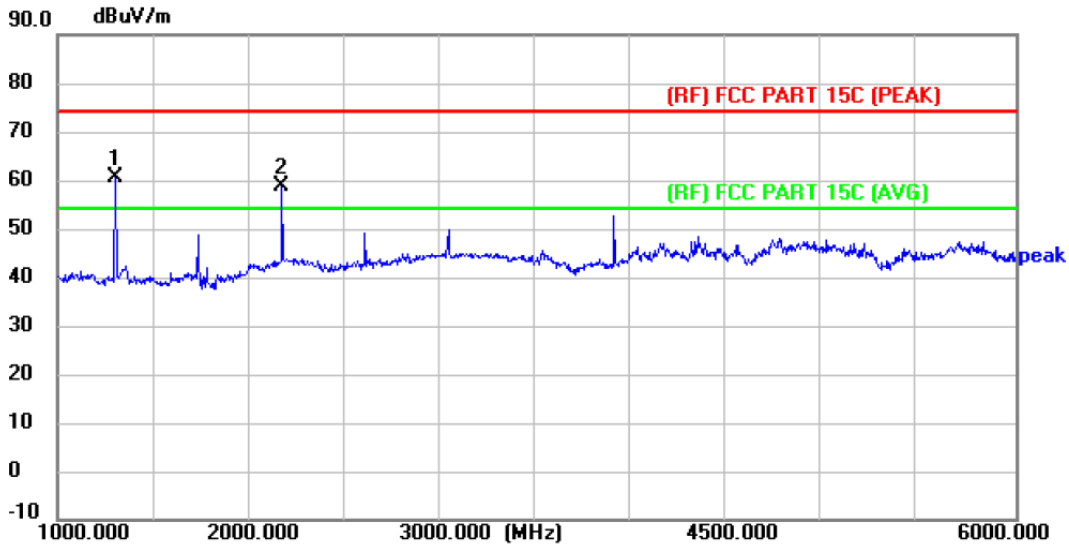
*:Maximum data x:Over limit !:over margin

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = QuasiPeak (dBμV/m)-Limit QPK(dBμV/m)

Fundamental and Harmonics Result						
Freq(MHz)	Peak Level (dBμV/m)	AV Factor(dBμV/m) (see Attachment D)	Average Level (dBμV/m)	Limit(dBμV/m) (average)	Limit(dBμV/m) (Peak)	Conclusion
434.0651	67.57	-10.6	56.97	80.80	100.80	PASS
869.1302	57.35	-10.6	46.75	60.80	80.80	PASS

Above 1GHz

Test Voltage:	DC 3V
Ant. Pol.	Horizontal
Test Mode:	TX Mode



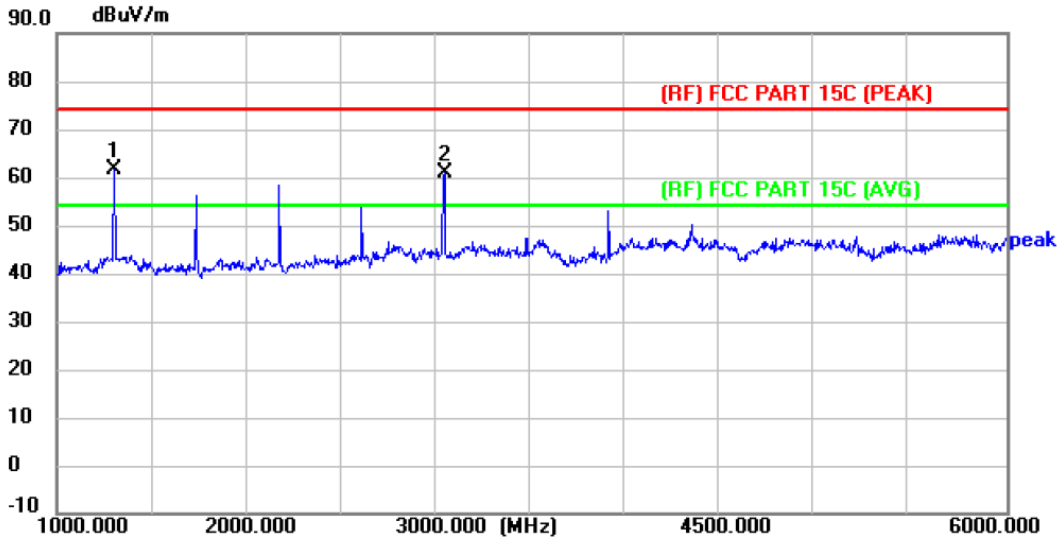
Temperature: 24.6 ℃ Humidity: 53 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	1300.000	74.26	-13.70	60.56	74.00	-13.44	peak
2	2170.000	69.36	-10.44	58.92	74.00	-15.08	peak

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Peak/AVG (dBµV/m)-Limit PK/AVG(dBµV/m)
4. The tests evaluated1-26.5GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
5. No report for the emission which more than 20dB below the prescribed limit.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Value						
Frequency (MHz)	Peak Level (dBuV/m)	AV Factor(dBµV/m) (see Attachment D)	Average value (dBuV/m)	Limit Line (dBuV/m)	Over limit (dB)	Conclusion
1300.000	60.56	-10.6	49.96	54.00	-4.04	PASS
2170.000	58.92	-10.6	48.32	54.00	-5.68	PASS

Test Voltage:	DC 3V
Ant. Pol.	Vertical
Test Mode:	TX Mode



Temperature: 24.6 ℃ Humidity: 53 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	1300.000	75.22	-13.70	61.52	74.00	-12.48	peak
2	3040.000	70.02	-9.02	61.00	74.00	-13.00	peak

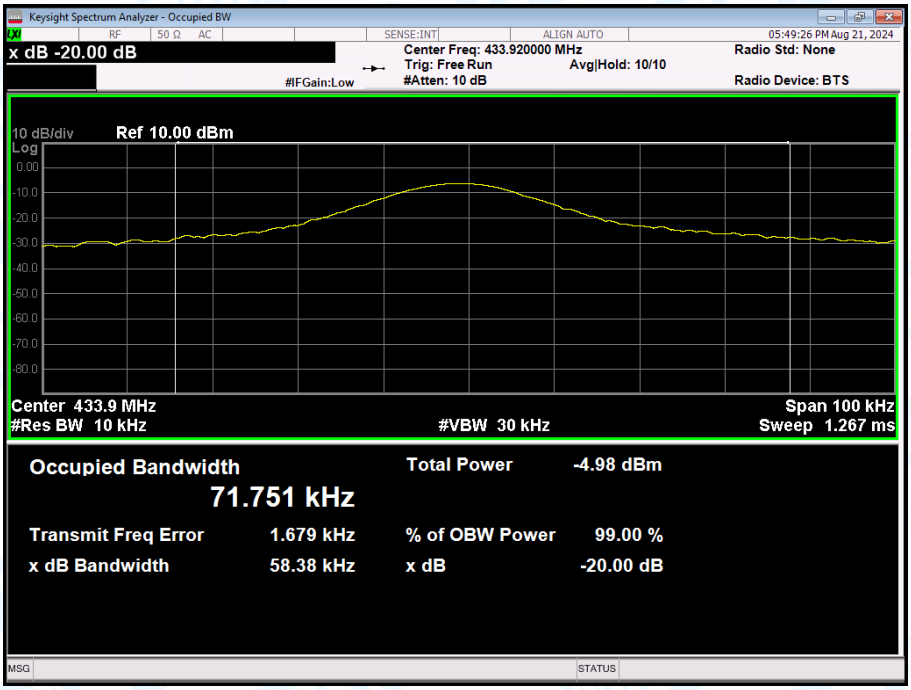
Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Peak/AVG (dBµV/m)-Limit PK/AVG(dBµV/m)
4. The tests evaluated1-26.5GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
5. No report for the emission which more than 20dB below the prescribed limit.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Average Value						
Frequency (MHz)	Peak Level (dBuV/m)	AV Factor(dBµV/m) (see Attachment D)	Average value (dBuV/m)	Limit Line (dBuV/m)	Over limit (dB)	Conclusion
1300.000	61.52	-10.6	50.92	54.00	-3.08	PASS
2170.000	61.00	-10.6	50.40	54.00	-3.60	PASS

Attachment B--Bandwidth Data

Temperature	:	25℃
Relative Humidity	:	65 %
Pressure	:	1010 hPa
Test Power	:	DC 3V

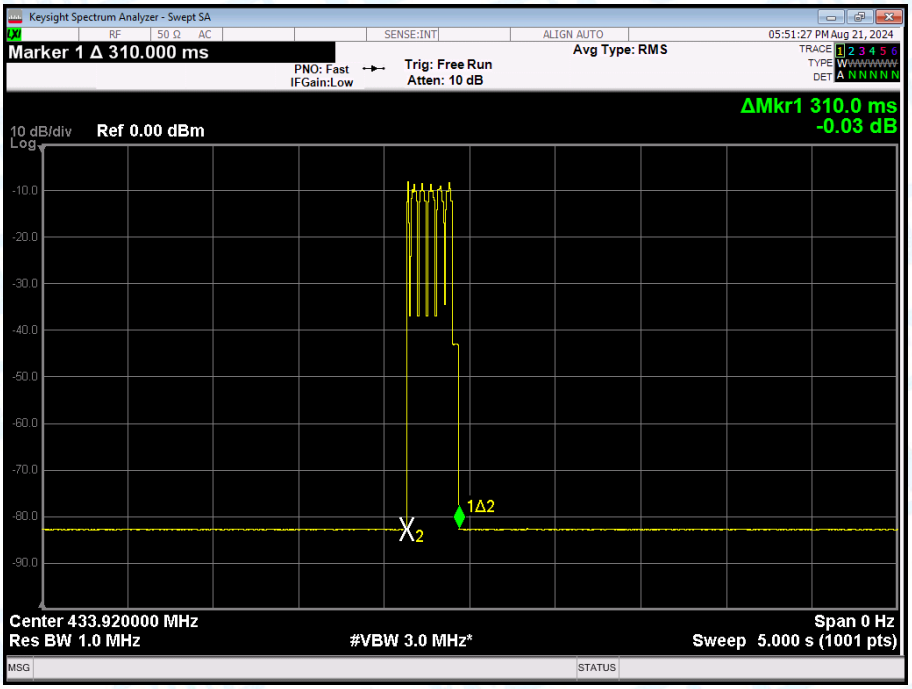
Frequency (MHz)	20 dBc Bandwidth (kHz)	Limit (kHz)	Result
433.92	58.38	1084.8	PASS



Attachment C-- Release Time Measurement Data

Temperature	:	25 ℃
Relative Humidity	:	65 %
Pressure	:	1010 hPa
Test Power	:	DC 3V

Release Time(s)	Limit (s)	Result
310	5	PASS



Attachment D--Duty Cycle Data

Please refer the following pages:

Plot 1: transmit once in 100ms, and each cycle is 50.60ms there are two kinds of pulse in each cycle, the large pulses total 6, the small pulses total 19.

Plot 2: one large pulse in a time period of 1.22 ms

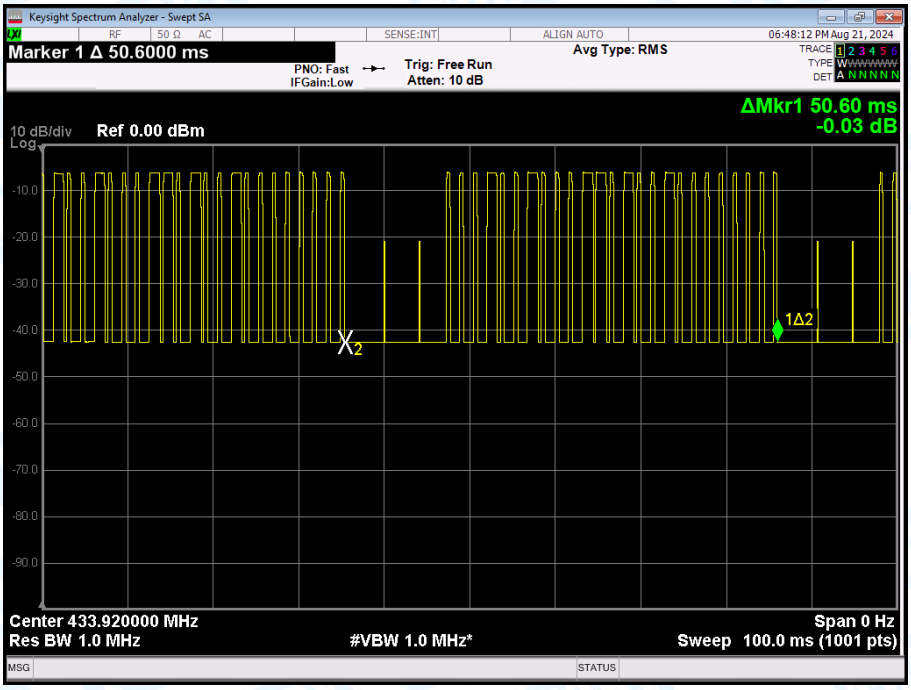
Plot 3: one small pulse in a time period of 0.4 ms

Duty Cycle=ON/Total= (1.22*6+0.4*19)/50.60=29.5%

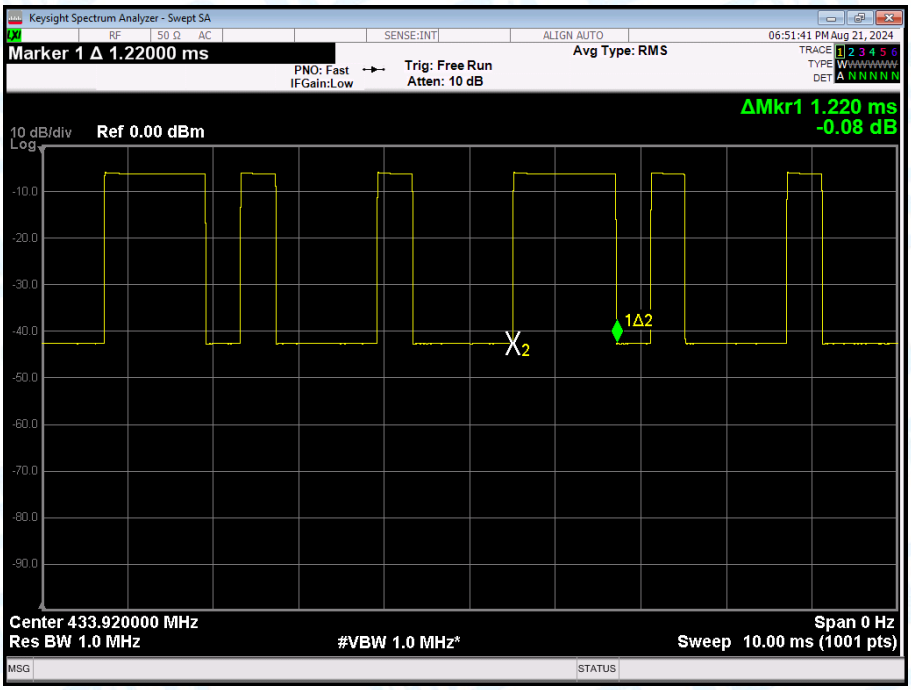
20log (Duty Cycle) =-10.6

Average=Peak Value+ 20log (Duty Cycle), AV=PK-10.6

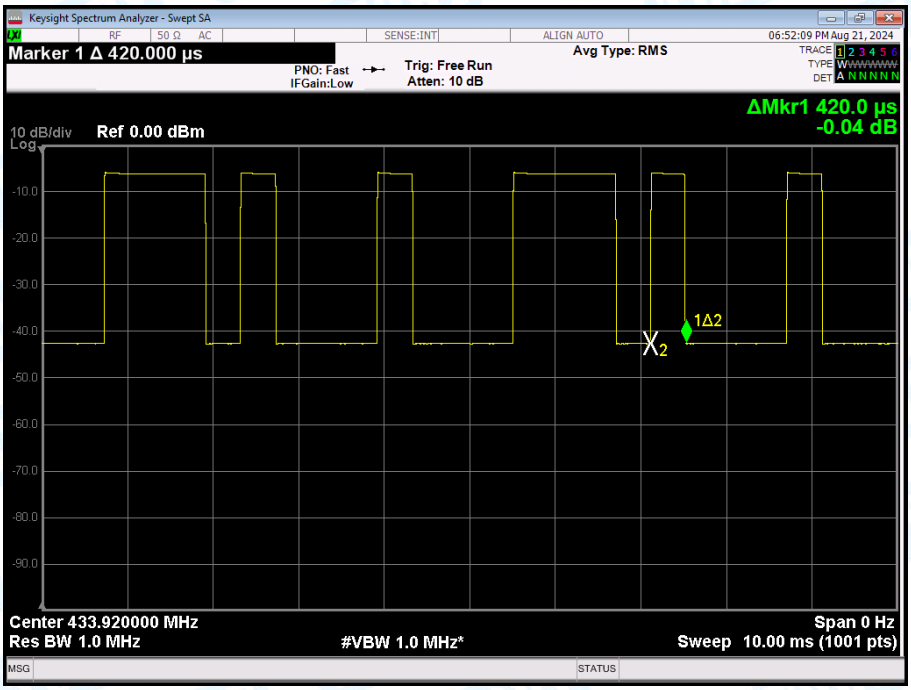
Plot 1

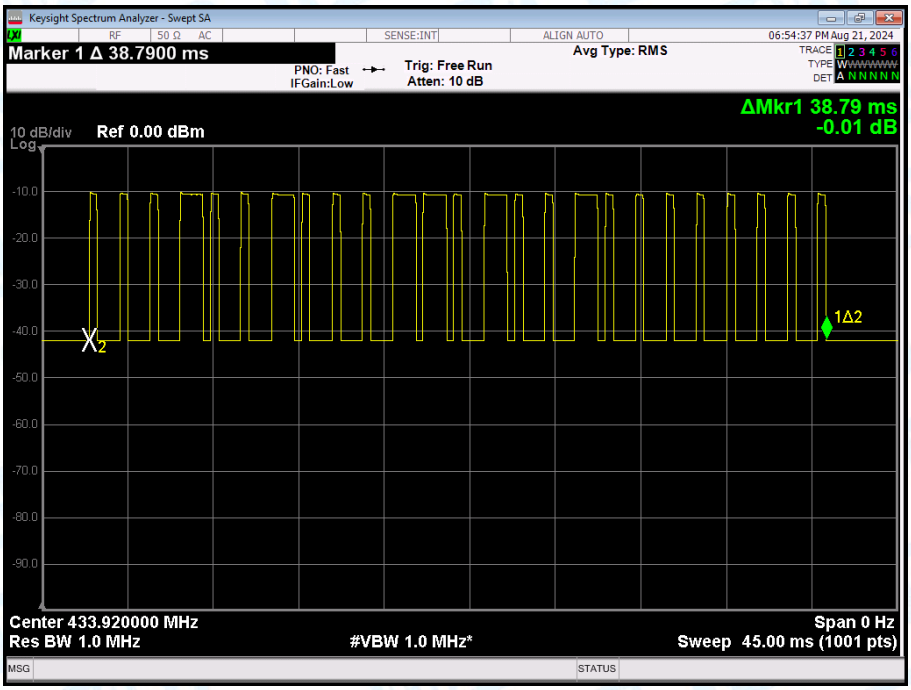


Plot 2


Keysight Spectrum Analyzer - Swept SA
Marker 1 Δ 1.22000 ms
Avg Type: RMS
06:51:41 PM Aug 21, 2024
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
ΔMkr1 1.220 ms
-0.08 dB
10 dB/div
Ref 0.00 dBm
Log
1Δ2
Center 433.920000 MHz
Res BW 1.0 MHz
#VBW 1.0 MHz*
Span 0 Hz
Sweep 10.00 ms (1001 pts)

Plot 3


Keysight Spectrum Analyzer - Swept SA
Marker 1 Δ 420.000 µs
Avg Type: RMS
06:52:09 PM Aug 21, 2024
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
ΔMkr1 420.0 µs
-0.04 dB
10 dB/div
Ref 0.00 dBm
Log
1Δ2
Center 433.920000 MHz
Res BW 1.0 MHz
#VBW 1.0 MHz*
Span 0 Hz
Sweep 10.00 ms (1001 pts)



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