CFR 47 FCC PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

Wireless Remote Control

MODEL NUMBER: BRRC143B, BRRC143A

FCC ID: 2AMK8BRRC143

REPORT NUMBER: 4789882954-2

ISSUE DATE: April 19, 2021

Prepared for

DongGuan Honwell Electronic Industrial Co., Ltd.
No.4, Xiaolong Road,Yuanshanbei Village, Changping Town,Dongguan,Guangdong

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	4/19/2021	Initial Issue	

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Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	Transmitter Timeout	CFR 47 FCC §15.231 (a) (1)	Pass
2	20 dB Bandwidth and	CFR 47 FCC §15.231 (c)	Pass
3	Radiated Emission	CFR 47 FCC §15.231 (b)(e) CFR 47 FCC §15.205 and §15.209	Pass
4	Antenna Requirement	CFR 47 FCC §15.203	Pass
Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China. Note 2: The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C > when <Accuracy Method> decision rule is applied.			

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	DongGuan Honwell Electronic Industrial Co., Ltd.
Address:	No.4, Xiaolong Road,Yuanshanbei Village, Changping Town,Dongguan,Guangdong

Manufacturer Information

Company Name:	DongGuan Honwell Electronic Industrial Co., Ltd.
Address:	No.4, Xiaolong Road,Yuanshanbei Village, Changping Town,Dongguan,Guangdong

EUT Description

EUT Name:	Wireless Remote Control
Model:	BRRC143B
Series Model:	BRRC143A
Model difference:	Please refer to section 5.1
Sample Status:	Normal
Sample ID:	3782962
Sample Received Date:	April 6, 2021
Date of Tested:	April 6 ~ 19, 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	PASS

Prepared By:

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Project Engineer

Check By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15 and KDB414788 D01 Radiated Test Site v01.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name:	Wireless Remote Control
Model:	BRRC143A
Series Model:	BRRC143B
Model difference:	BRRC143B have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with BRRC143A. The difference lies only model number and different silkscreen on the front. all these changes do not degrade the unwanted emissions of the certified product.
Note:	Both models have been considered, only the worst-case model BRRC143A test data record in this report.
Operation Frequency	433.92MHz
Modulation Type	ASK
Rated Input	3 Vdc

5.2. TEST CHANNEL CONFIGURATION

Modulation Type	Frequency
ASK	433.92MHz

5.3. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage :	VL	N/A
	VN	DC 3 V
	VH	N/A

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage, DC 3V via Battery
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	N/A	N/A	N/A	N/A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	N/A	N/A	N/A	N/A	N/A

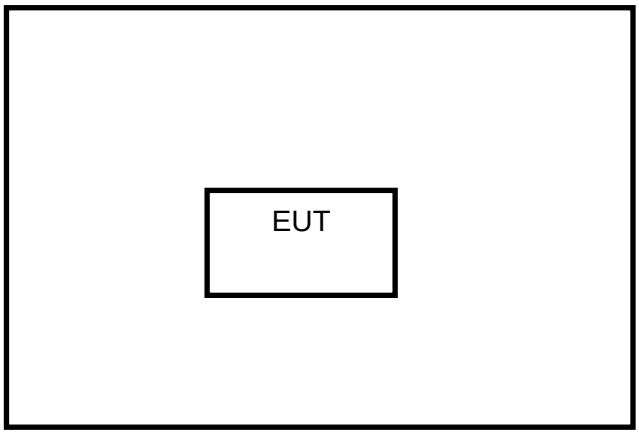
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	N/A	N/A	N/A	N/A

TEST SETUP

1. A fully charged battery was used for all tests.
2. The test sample can be into a transmission mode through the power on.

SETUP DIAGRAM FOR TEST



5.5. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Nov. 12, 2020	Nov. 11, 2021
Two-Line V-Network	R&S	ENV216	101983	Nov. 12, 2020	Nov. 11, 2021
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 10, 2021
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	TDK	PA-02-3	TRS-308-00002	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Nov. 20, 2020	Nov. 19, 2021
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

6. ANTENNA PORT TEST RESULTS

6.1. ON TIME AND DUTY CYCLE

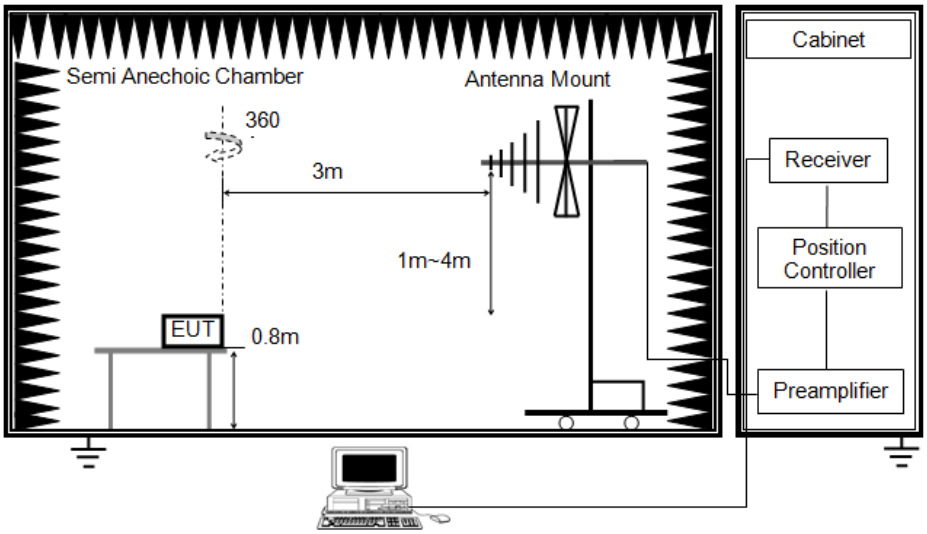
LIMITS

None; for reporting purposes only

PROCEDURE

FCC Reference:	CFR 47 Part 15.35(c)
Test Method Used:	ANSI C63.10 Section 7.5

TEST SETUP



The setting of the spectrum analyser:

RBW	100 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak
Trace	Single

d. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
e. Measure the maximum time duration of one single pulse.

TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULTS

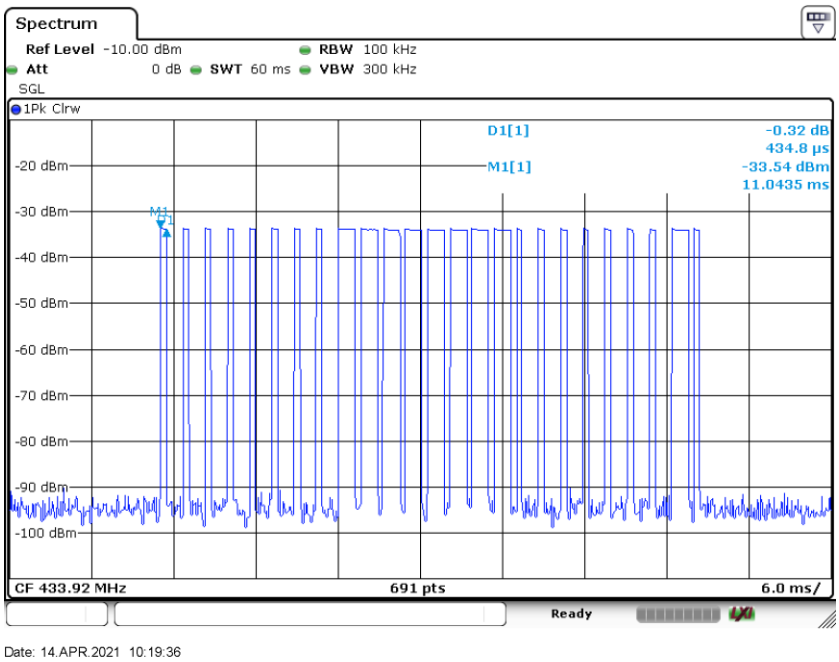
	On Time (ms)	Times	Ton (ms)	Total Ton times (ms)
Ton1	0.435	16	6.96	17.922
Ton2	1.218	9	10.96	

Note: Total Ton times= Ton1*9+Ton2*16

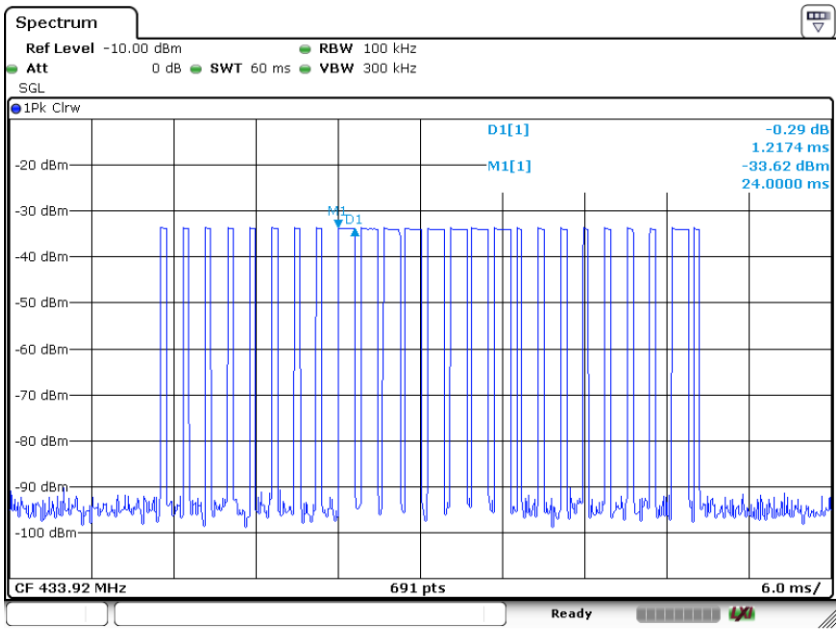
Total Ton times (ms)	Period (ms)	Duty Cycle (Linear)	Duty Cycle Correction Factor
17.922	51.362	0.349	-9.15

Note: Duty Cycle Correction Factor=20log(x).
Where: x is Duty Cycle

Ton 1



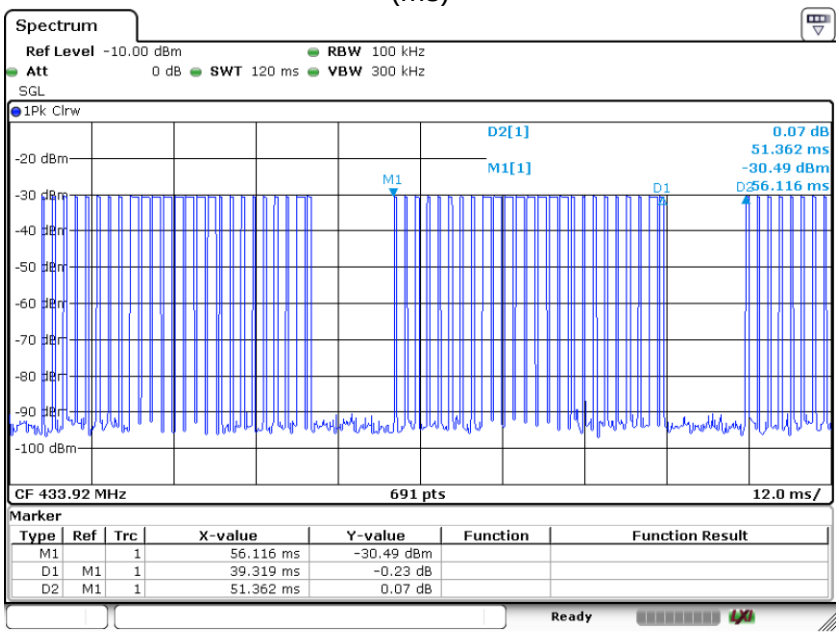
Ton 2



Date: 14.APR.2021 10:20:11

Period

(ms)



Date: 14.APR.2021 10:16:49

6.2. TRANSMITTER TIMEOUT

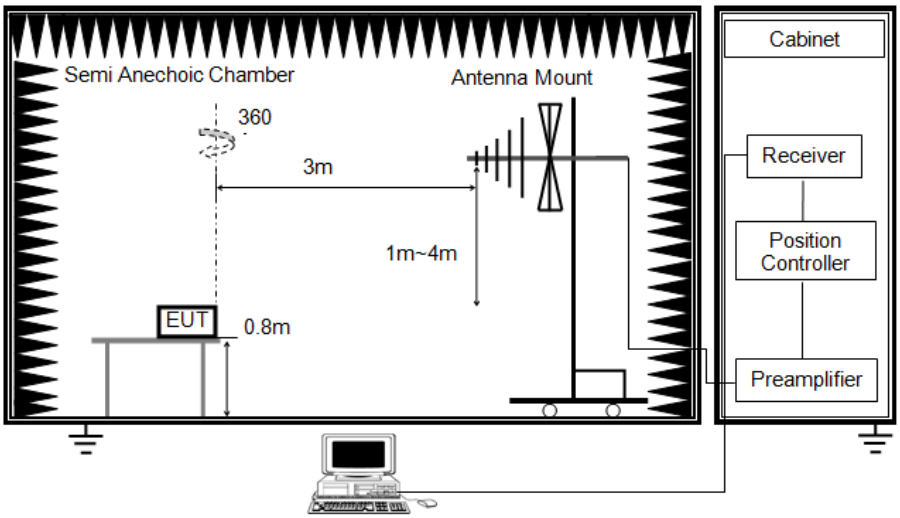
LIMITS

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

TEST PROCEDURE

FCC Reference:	CFR 47 Part 15.231(a)
Test Method Used:	The EUT transmitter was activated and monitored using a spectrum analyser for a period of 10 seconds.

TEST SETUP



The setting of the spectrum analyser:

RBW	100 kHz
VBW	300 kHz
Sweep	10 S
Detector	Peak
Trace	Single

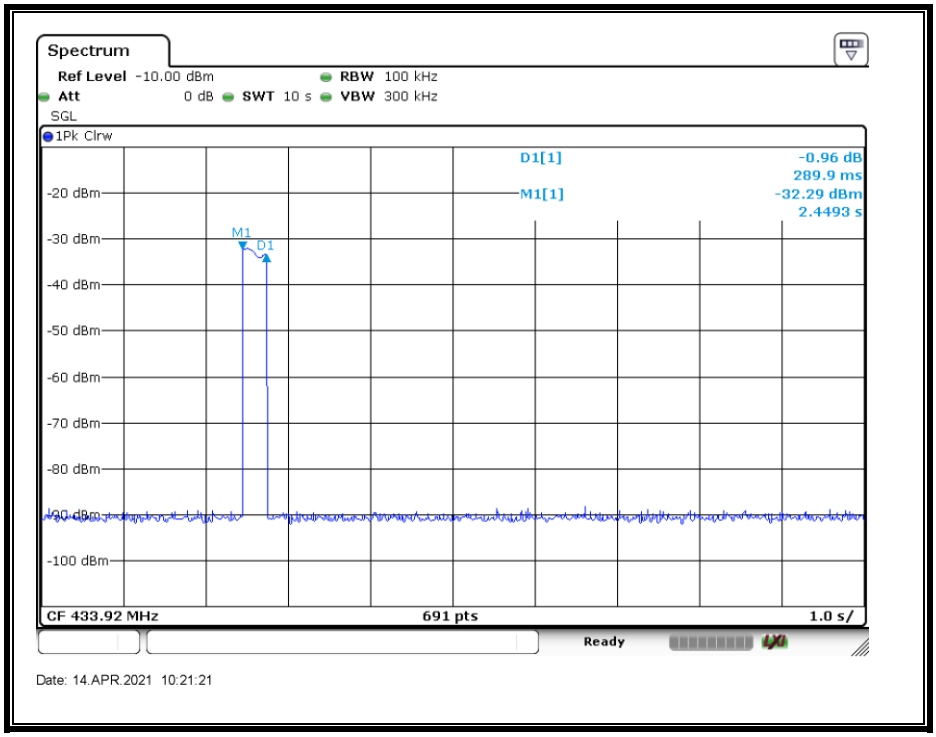
b. Use a video trigger with the trigger level set to enable triggering only on full pulses.
c. Sew Sweep Time to 10 s.
d. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
e. Measure the maximum time duration of one single pulse.

TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULTS

Deactivation Time (seconds)	Limit (seconds)	Result
0.2899	5.000	PASS



6.3. 20dB BANDWIDTH

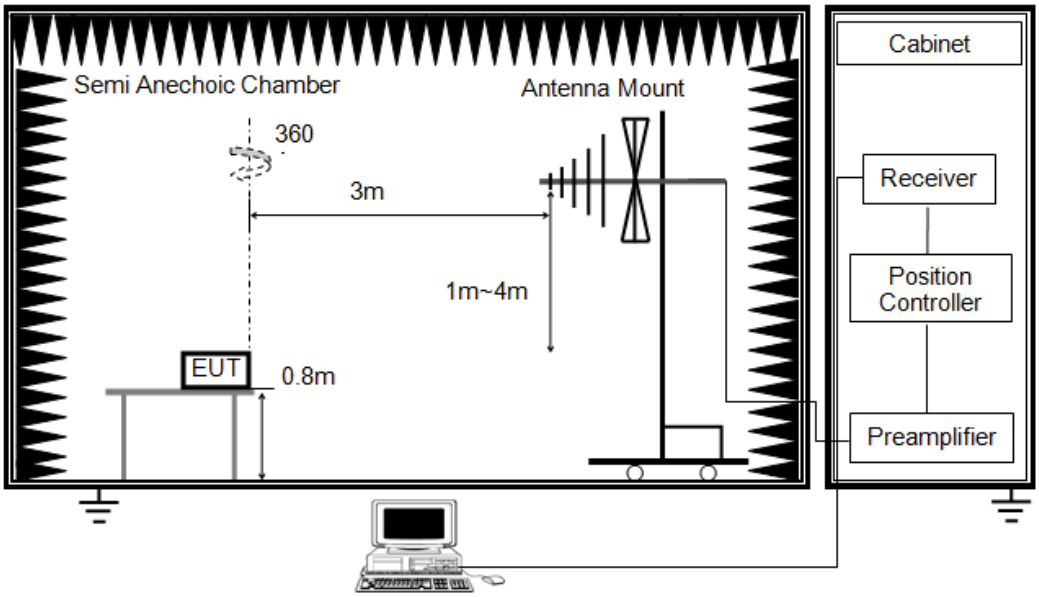
LIMITS

1. 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.
2. The limit has been calculated as: 0.0025 * 433.92 MHz = 1.0848 MHz

TEST PROCEDURE

FCC Reference:	CFR 47 Part 15.231(c)
Test Method Used:	ANSI C63.10 Section 6.9.2

TEST SETUP



1. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.

2. The EUT was placed on a turntable with 0.8 meter above ground.

3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower
4. Set the spectrum analyzer in the following setting as:

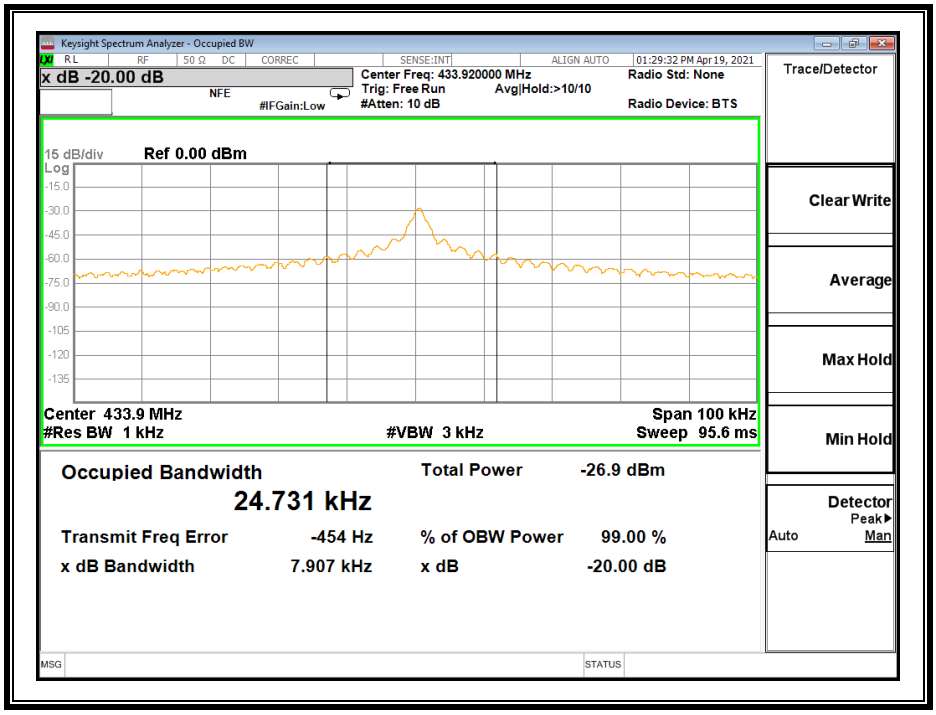
RBW	1 kHz
VBW	3 kHz
Sweep	10 S
Detector	Peak
Trace	Single

TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

RESULTS

Transmitter 20 dB Bandwidth (MHz)	Limit (MHz)	Result
0.007907	1.0848	Complied



6.4. RADIATED EMISSION

LIMITS

1. In addition to the provisions of §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 (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	[1]1,250 to 3,750	[1]125 to 375
174-260	3,750	375
260-470	[1]3,750 to 12,500	[1]375 to 1,250
Above 470	12,500	1,250

Note:
1. To obtain the average limit at the test frequency the values given in the table of FCC part 15.231(b) have to be linear interpolated and then converted to dBµV/m. The limit at 260 MHz is 3750 µV/m and at 470 MHz it is 12500 µV/m. Limit at 433.92 MHz is calculated as shown in ANSI C63.10 Section 7.6.2:

Limit [µV/m] = Limlower + ΔF [(Limupper – Limlower) / ($f$upper – $f$lower)]
where ΔF = fc – $f$lower = 433.92 – 260 = 173.92

Limit = 3750 + 173.92 * [(12500 – 3750) / (470 -260)]
= 3750 + 173.92 * [8750 / 210]
= 10996.7 µV/m

dBµV/m = 20 * log (µV/m)
= 20 * log (10996.7)

Average Limit at 433.92 MHz = 80.8 dBµV/m

2. If the average limit is specified for the EUT, the peak limit is 20 dB above the average limit as specified in FCC 15.35 (b)

2. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/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

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permItted under other sections of this part, e.g., §§15.231 and 15.241.

3. Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

Frequency (MHz)	Field Strength (microvolts/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
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

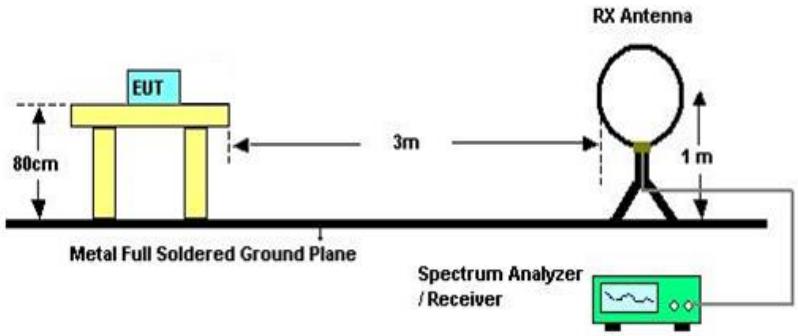
Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

TEST PROCEDURE

FCC Reference:	CFR 47 Parts 15.231(b) / 15.209
Test Method Used:	ANSI C63.10 Sections 6.3 and 6.5

TEST SETUP

Below 30MHz



The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

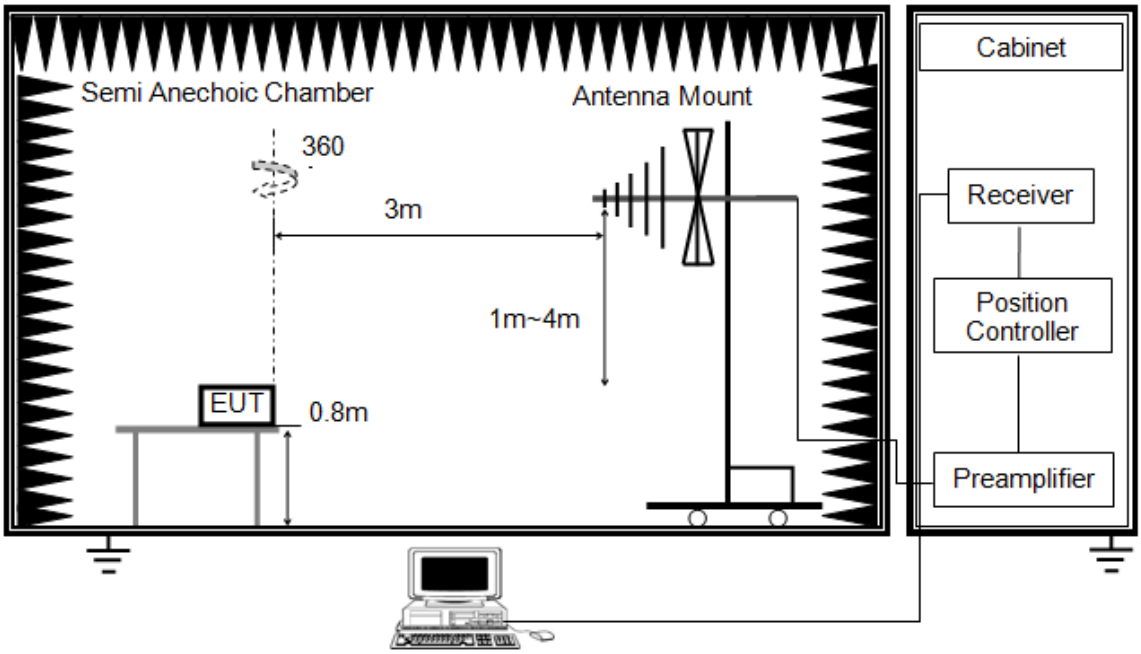
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1GHz, 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 and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Below 1G



The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

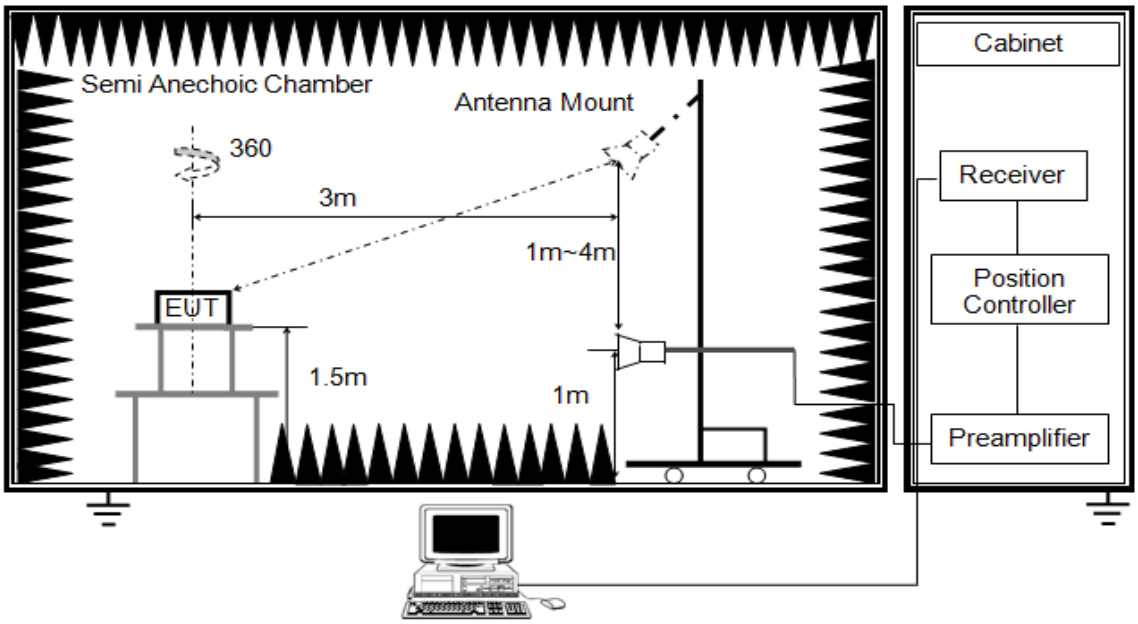
1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower

ABOVE 1G



RBW	1 MHz
VBW	3MHz
Sweep	Auto
Detector	Peak For Average see note 6
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

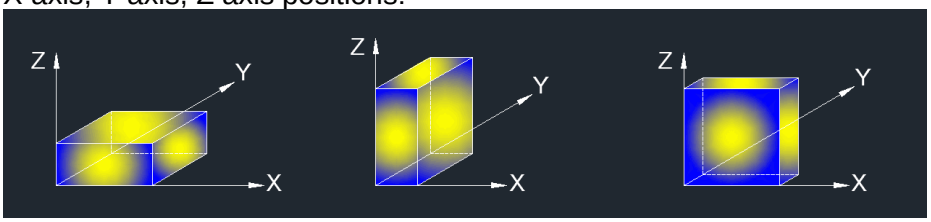
6. For average value=peak average+Duty Correction Factor

For the Duty Cycle and Correction Factor please refer to clause 7.1.ON TIME AND DUTY CYCLE.

8. For the actual test configuration, please refer to the related item in this test report. (Photographs of the Test Configuration)

RESULTS

X axis, Y axis, Z axis positions:



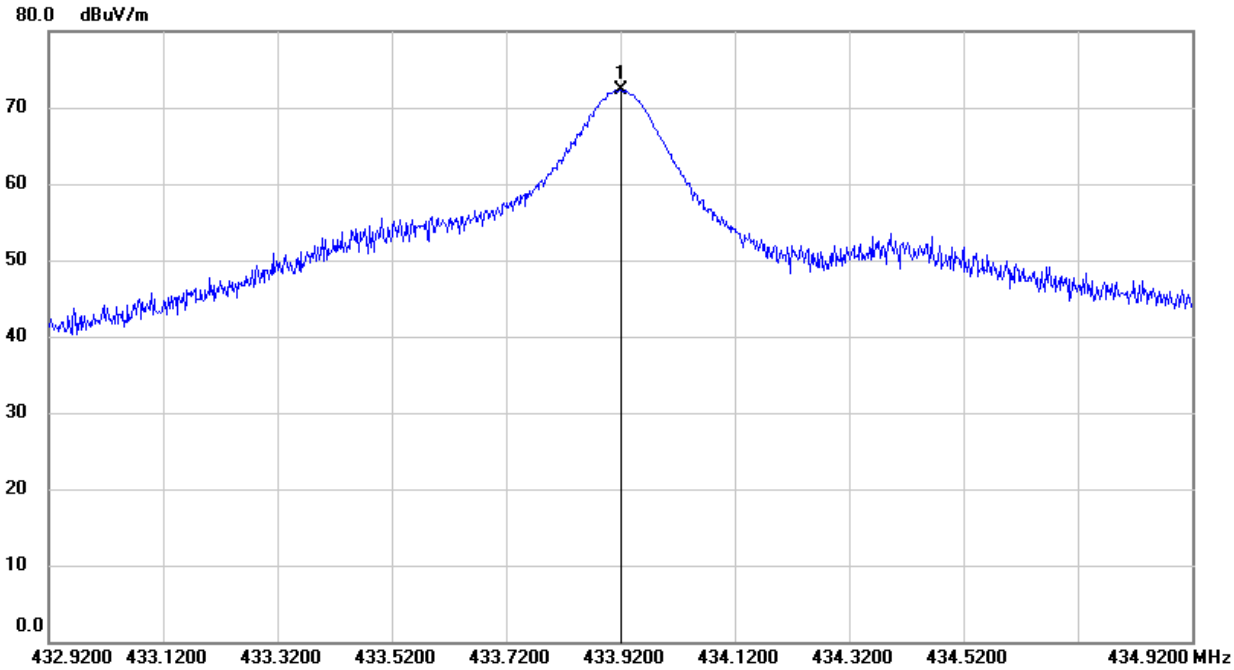
Note: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST ENVIRONMENT

Temperature	24.5°C	Relative Humidity	42%
Atmosphere Pressure	101kPa	Test Voltage	DC 3V

6.4.1. FUNDAMENTAL FIELD STRENGTH

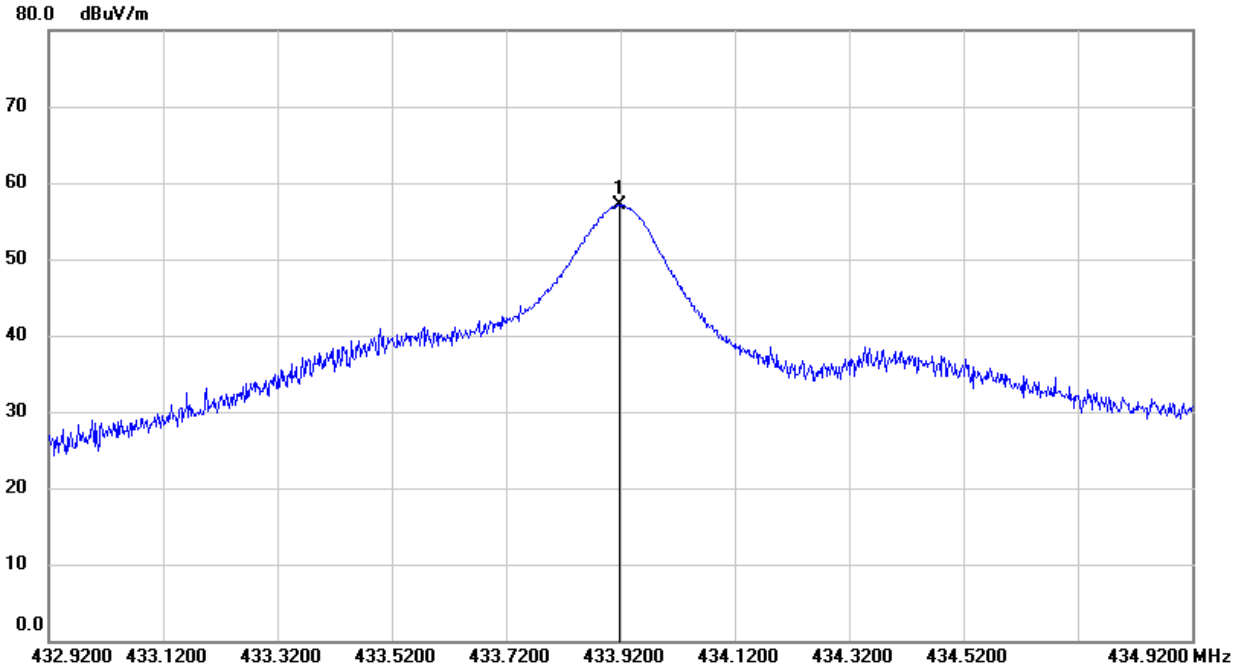
HORIZONTAL



Frequency	Reading	Correct	Peak Result	Average Result	Limit	Margin	Remark
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
433.9200	85.03	-12.67	72.36	/	100.8	-28.44	peak
	/	/	/	63.21	80.8	-17.59	Average

Note: 1. Peak Result = Reading+ Duty Correction Factor
2. Average Result= Peak Result+ Correct Factor
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

VERTICAL

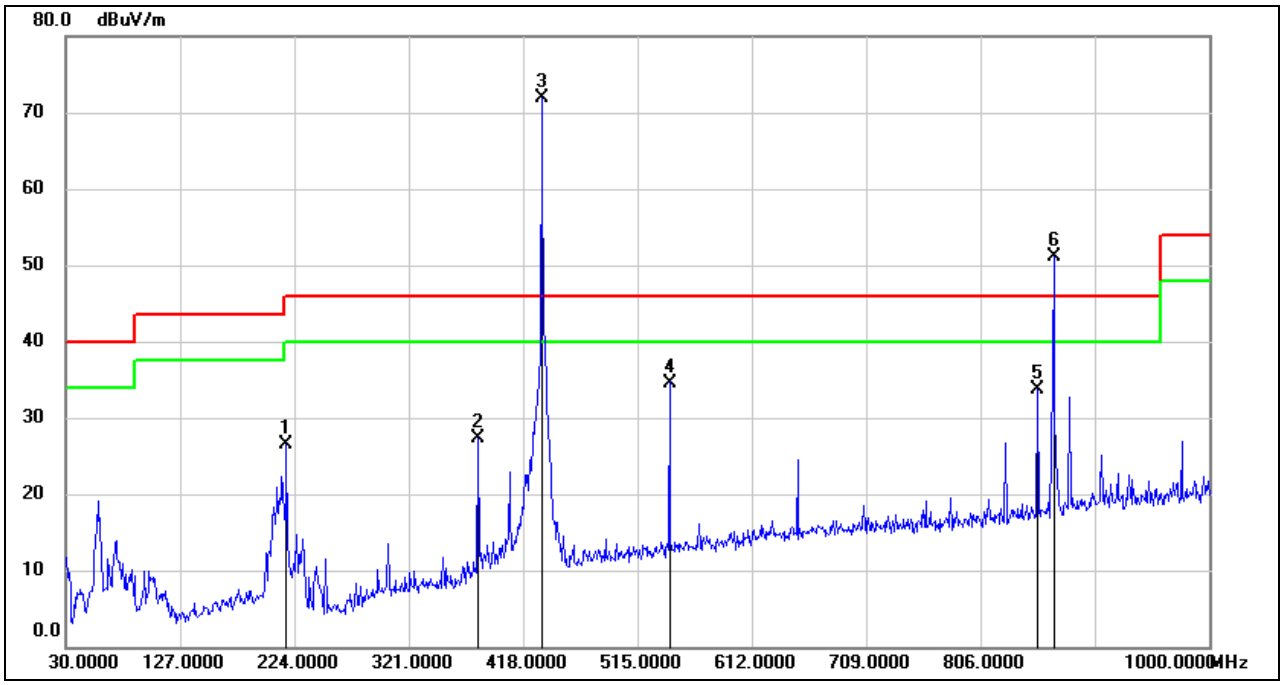


Frequency	Reading	Correct	Peak Result	Average Result	Limit	Margin	Remark
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
433.920	69.81	-12.67	57.14		100.8	-43.66	peak
				47.99	80.8	-32.81	Average

Note: 1. Peak Result = Reading+ Duty Correction Factor
2. Average Result= Peak Result+ Correct Factor
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

6.4.2. SPURIOUS EMISSIONS BELOW 1G

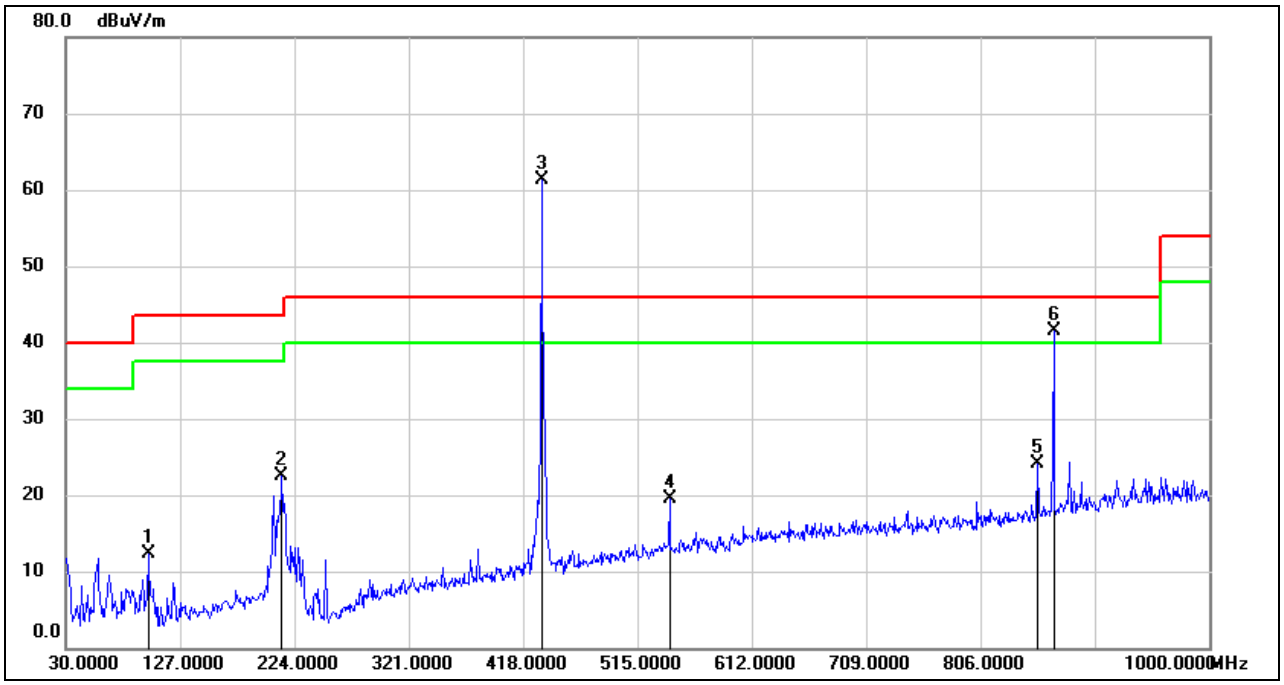
HORIZONTAL



No.	Frequency	Reading	Correct	Peak Result	Average Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	217.2100	44.34	-17.93	26.41	/	46.00	-19.59	peak
2	379.2000	40.99	-13.67	27.32	/	46.00	-18.68	peak
3	433.9200	84.62	-12.67	71.95	/	/	/	Fundamental
4	542.1599	45.09	-10.49	34.60	/	46.00	-11.40	peak
5	854.5000	39.90	-6.14	33.76	/	46.00	-12.24	peak
6 (2th harmonic)	868.0800	56.81	-5.80	51.01	/	80.80	-29.79	peak
	/	/	/	/	41.86	60.80	-18.94	Average

Note: 1. Peak Result = Reading Level + Correct Factor.
2. Average Result = Peak Result + Duty Correction Factor.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

VERTICAL

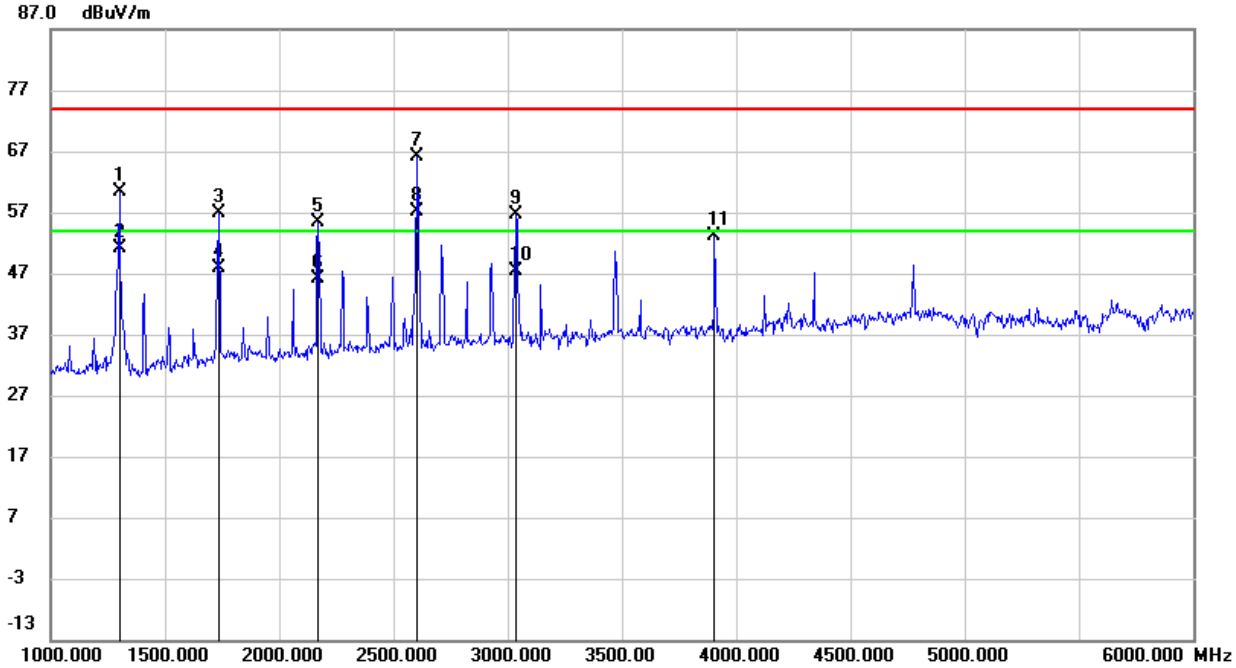


No.	Frequency	Reading	Correct	Peak Result	Average Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	99.8399	33.50	-21.15	12.35	/	43.50	-31.15	peak
2	213.3300	40.06	-17.58	22.48	/	43.50	-21.02	peak
3	433.9200	74.04	-12.67	61.37	/	46.00	15.37	Fundamental
4	542.1599	30.04	-10.49	19.55	/	46.00	-26.45	peak
5	854.5000	30.23	-6.14	24.09	/	46.00	-21.91	peak
6	868.0800	47.39	-5.80	41.59	/	80.80	-39.21	peak
(2th harmonic)	/	/	/	/	32.44	60.80	-28.36	Average

Note: 1. Peak Result = Reading Level + Correct Factor.
2. Average Result = Peak Result + Duty Correction Factor.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

6.4.3. SPURIOUS EMISSIONS ABOVE 1G

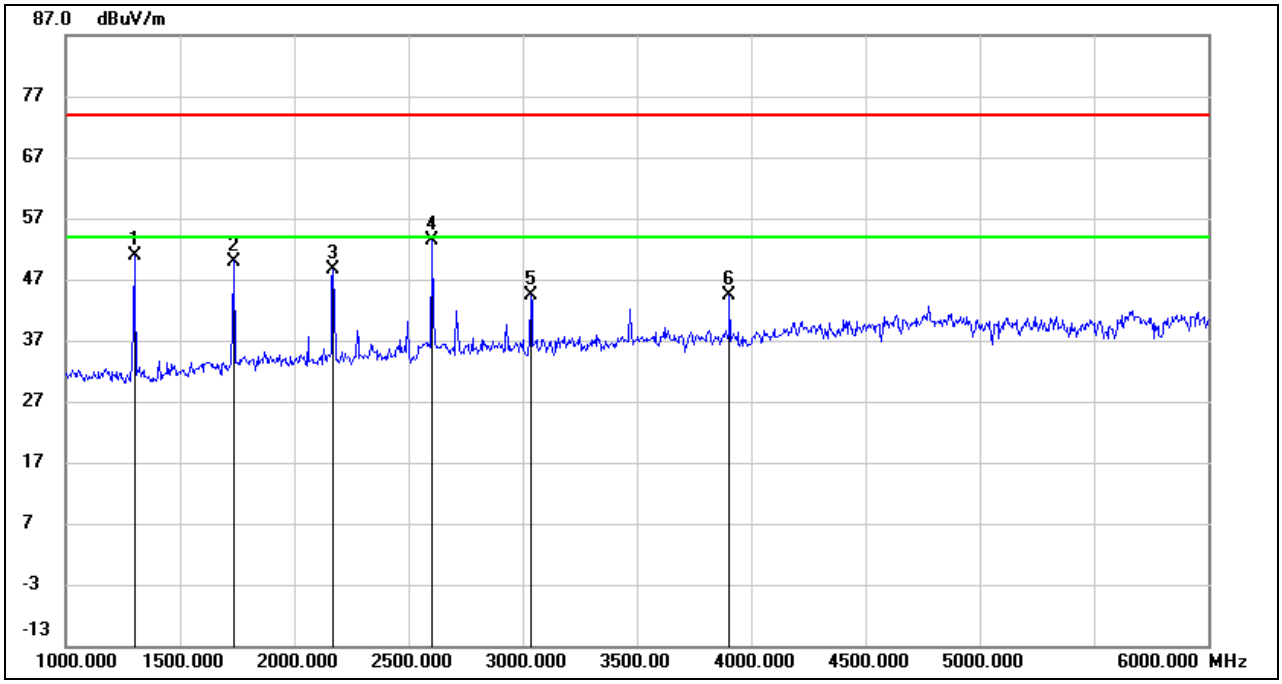
HORIZONTAL



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1300	73.25	-12.85	60.4	74.0	-13.6	peak
2	1300	64.1	-12.85	51.25	54.0	-2.75	AVG
3	1735	67.53	-10.54	56.99	80.8	-23.81	peak
4	1735	58.38	-10.54	47.84	60.8	-12.96	AVG
5	2170	64.57	-9.22	55.35	80.8	-25.45	peak
6	2170	55.42	-9.22	46.2	60.8	-14.6	AVG
7	2605	74.05	-7.83	66.22	80.8	-14.58	peak
8	2605	64.9	-7.83	57.07	60.8	-3.73	AVG
9	3035	62.05	-5.53	56.52	80.8	-24.28	peak
10	3035	52.9	-5.53	47.37	60.8	-13.43	AVG
11	3905	56.47	-3.44	53.03	74	-20.97	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. Average Result = Peak Result + Duty Correction Factor.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

VERTICAL



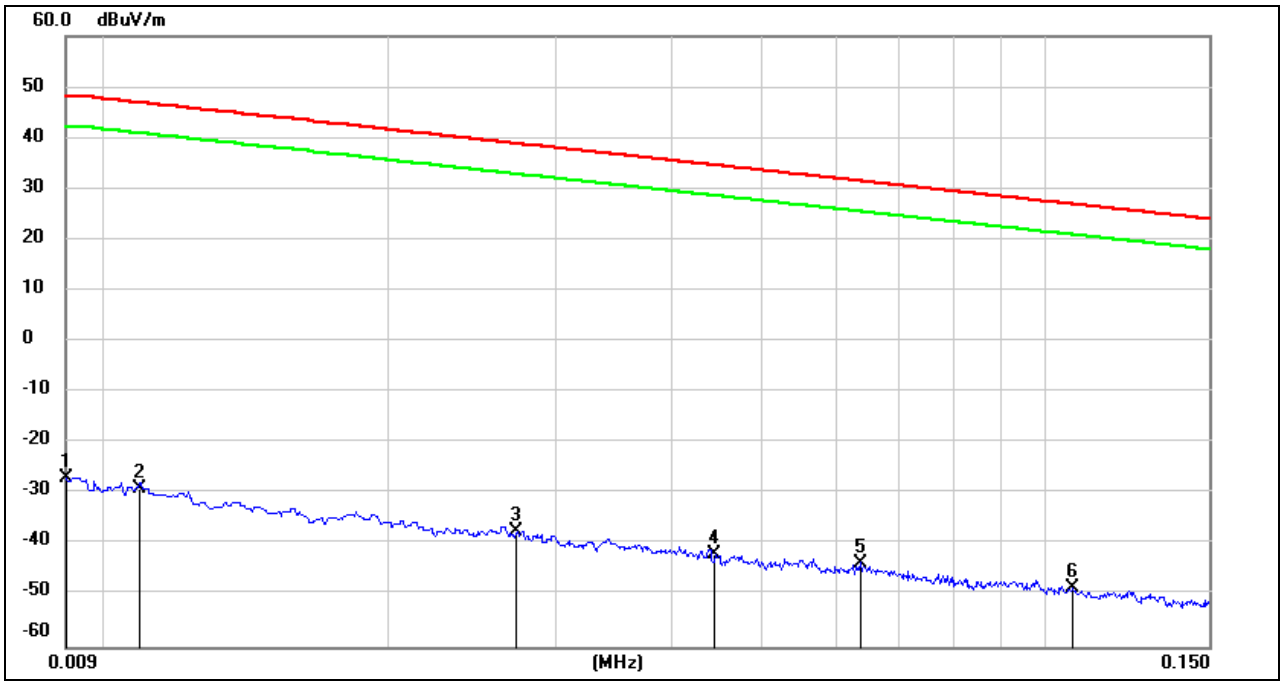
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1300	63.61	-12.85	50.76	74.0	-23.24	peak
2	1735	59.2	-10.54	48.66	80.8	-32.14	peak
3	2170	52.59	-9.22	43.37	80.8	-37.43	peak
4	2605	59.87	-7.83	52.04	80.8	-28.76	peak
5	3035	49.16	-5.53	43.63	80.8	-37.17	peak
6	3905	49.39	-3.44	45.95	74	-28.05	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. Average Result = Peak Result + Duty Correction Factor.
3. Since the peak emissions are less than the average (54 dBuV/m) limit, they also comply with the (60.8 dBuV/m) limit.
4. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

6.4.4. SPURIOUS EMISSIONS BELOW 30M

SPURIOUS EMISSIONS (LOW CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

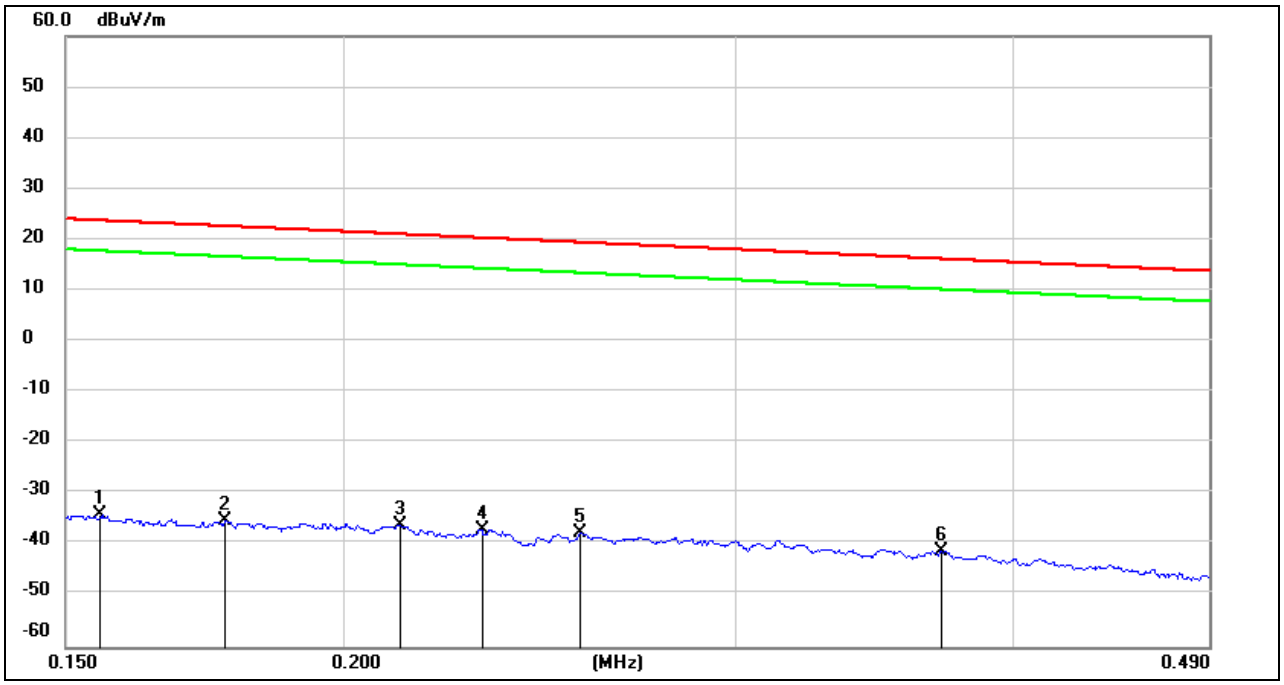
9 kHz~ 150 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0090	74.34	-101.32	-26.98	48.36	-75.34	peak
2	0.0108	72.41	-101.39	-28.98	46.93	-75.91	peak
3	0.0273	64.04	-101.38	-37.34	38.88	-76.22	peak
4	0.0444	59.75	-101.45	-41.70	34.65	-76.35	peak
5	0.0636	58.04	-101.54	-43.50	31.53	-75.03	peak
6	0.1073	53.30	-101.77	-48.47	26.99	-75.46	peak

Note: 1. Measurement = Reading Level + Correct Factor
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. Test setup: RBW: 200 Hz, VBW: 200 Hz, Sweep time: auto.

150 kHz ~ 490 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1556	67.52	-101.65	-34.13	23.76	-57.89	peak
2	0.1768	66.55	-101.68	-35.13	22.66	-57.79	peak
3	0.2121	65.59	-101.73	-36.14	21.07	-57.21	peak
4	0.2308	64.75	-101.77	-37.02	20.34	-57.36	peak
5	0.2555	64.09	-101.80	-37.71	19.45	-57.16	peak
6	0.3714	60.75	-101.93	-41.18	16.20	-57.38	peak

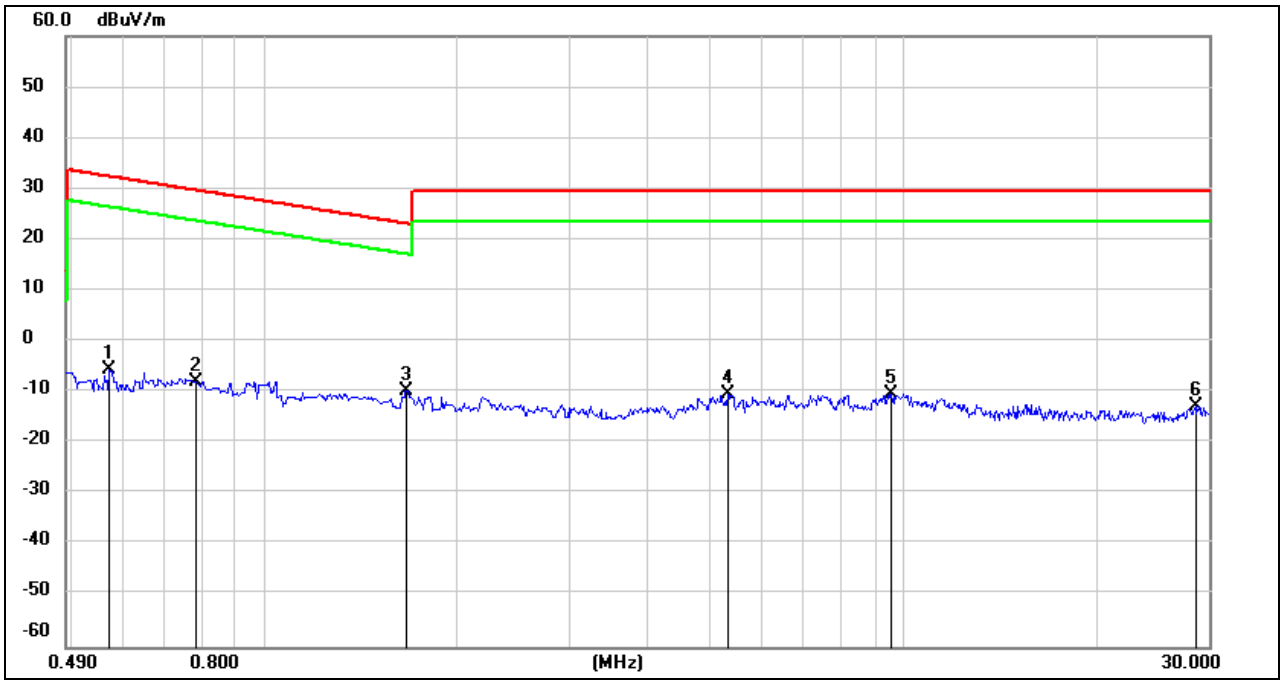
Note: 1. Measurement = Reading Level + Correct Factor

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4. Test setup: RBW: 200 Hz, VBW: 200 Hz, Sweep time: auto.

490 kHz ~ 30 MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5725	56.53	-62.07	-5.54	32.45	-37.99	peak
2	0.7851	54.32	-62.14	-7.82	29.70	-37.52	peak
3	1.6704	52.22	-61.97	-9.75	23.15	-32.90	peak
4	5.3067	51.00	-61.44	-10.44	29.54	-39.98	peak
5	9.5791	50.62	-60.86	-10.24	29.54	-39.78	peak
6	28.6721	47.46	-60.10	-12.64	29.54	-42.18	peak

Note: 1. Measurement = Reading Level + Correct Factor

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4. Test setup: RBW: 200 Hz, VBW: 200 Hz, Sweep time: auto.

7. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203
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.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

END OF REPORT