FCC RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART C

Test Standard	**FCC Part 15.231+ IC RSS-210 Issue 10**
Product name	**Body Controller Module BCM37WBL**
Model No.	**BCM37WBL**
Trade name	**Continental**
Operation Freq.	**433.46MHz, 433.92MHz, 434.36MHz**
Test Result	**Pass**
Statements of Conformity	**Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of SGS Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:

Shawn Wu
Supervisor

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	May 23, 2022	Initial Issue	ALL	Allison Chen

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

FCC Applicant / Manufacturer	Continental Automotive GmbH Siemensstrasse 12 SV C TS RBG EMC - Laboraroty Regensburg, 93055 Germany
IC Applicant / Manufacturer	Continental Automotive GmbH Siemenstrasse 12 Regensburg 93055 Germany (Fedral Republic Of)
Factory	Continental Automotive GmbH Siemenstrasse 12 Regensburg 93055 Germany
Equipment	Body Controller Module BCM37WBL
Model Name	BCM37WBL
Model Discrepancy	N/A
Received Date	March 16, 2022
Date of Test	March 31 ~ May 9, 2022
Periodic operation	☐ (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. ☒ (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation ☐ (3) Periodic transmissions at regular predetermined intervals are not permitted. ☐ (4) Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec.
Power Operation	Power from power supply. (DC 12V)
Operation Frequency	433.46MHz, 433.92MHz, 434.36MHz
H/W Version	H19
S/W Version	C220
EUT Serial Number	01981

Remark:
1. For more details, please refer to the User's manual of the EUT.

1.2 EUT CHANNEL INFORMATION

Frequency Range	433.46MHz, 433.92MHz, 434.36MHz
Modulation Type	2FSK

Remark:
Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☒ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☐ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	PCB Monopole antenna
Antenna Gain	Gain: -1.1 dBi
Antenna Connector	N/A

Remark:
1. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
Radiated Emission_9kHz-30MHz	± 3.814
Radiated Emission_30MHz-200MHz	± 4.272
Radiated Emission_200MHz-1GHz	± 4.619
Radiated Emission_1GHz-6GHz	± 5.522
Radiated Emission_6GHz-18GHz	± 5.228
Radiated Emission_18GHz-26GHz	± 4.089
Radiated Emission_26GHz-40GHz	± 4.019

Remark:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)
CABID: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Tony Chao	-
Conducted	Jack Chen	-

Remark: The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.6 INSTRUMENT CALIBRATION

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
Horn Antenna	ETS LINDGREN	3117	00055165	07/29/2021	07/28/2022
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
Pre-Amplifier	HP	8449B	3008A00965	12/24/2021	12/23/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Loop Probe	LANGER EMV-TECHNIK	RF-R 50-1	02-2644	01/24/2022	01/23/2023
DC Power Supplies	GW Instek	SPS-3610	GPE880163	12/21/2021	12/20/2022
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Software	N/A				

Remark:
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
	N/A				

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC 15.231, IC RSS-210, IC RSS-Gen Rules.

2. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.207	RSS-GEN Sec. 8.8	4.1	AC Power-line Conducted Emission	Not applicable
15.231(c)	RSS-210 A.1.3	4.2	Emission Bandwidth	Pass
15.231(b)	RSS-210 A.1.2	4.3	Fundamental Emission	Pass
15.209(b)	RSS-GEN Sec. 8.9	4.4	Transmitter Radiated Emission	Pass
15.231(a)(2)	RSS-210 A.1.2	4.5	Operation Restriction	Pass
15.203	RSS-GEN Sec. 6.8	4.6	Antenna Requirement	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	TX: 433.92MHz, 434.36MHz
RF Field strength	**TX 433.92MHz** Peak: 98.01 dBuv/m Average: 80.22 dBuv/m **TX 434.36MHz** Peak: 96.18 dBuv/m Average: 78.39 dBuv/m

Remark: Field strength performed Average level at 3m.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Power supply**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☐ **Placed in fixed position at X-Plane (E2-Plane)** ☐ **Placed in fixed position at Y-Plane (E1-Plane)** ☒ **Placed in fixed position at Z-Plane (H-Plane)**

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power supply**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Z-Plane) were recorded in this report

3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

According to FCC 15.231(b), 15.231(e),

(b) 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

[1]Linear interpolations.

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

(e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this section, except the field strength table in paragraph (b) of this section is replaced by the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	1,000	100
70-130	500	50
130-174	500 to 1,500[1]	50 to 150[1]
174-260	1,500	150
260-470	1,500 to 5,000[1]	150 to 500[1]
Above 470	5,000	500

[1]Linear interpolations.

In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

3.4 EUT DUTY CYCLE

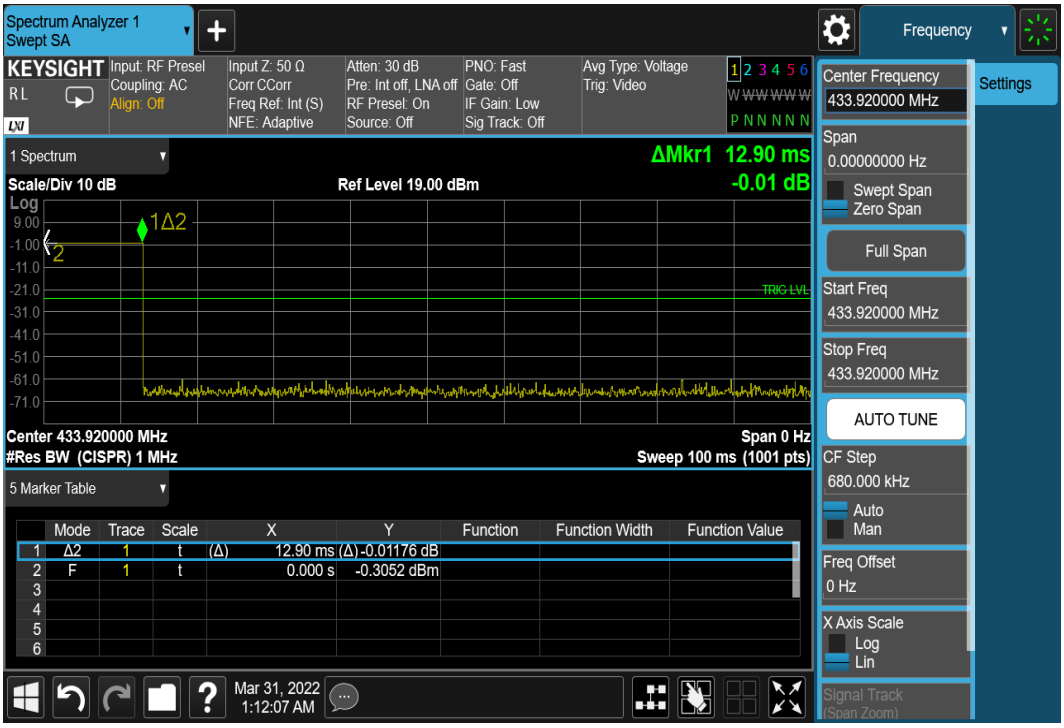
433.92MHz

Temperature: 22.3℃ **Test Date:** March 31, 2022

Humidity: 61% RH **Tested by:** Jack Chen

Duty Cycle			
TX ON (ms)	TX All(ms)	Duty Cycle (%)	Duty Factor(dB)
12.90	100.00	12.90%	-17.79

DUTY CYCLE



Notes:
1. The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by 20 log(Time(on) / Time(all))
2. The EUT transmits for a Time(on) of 100 milliseconds.

20 log (Time(on) / Time(all)).
20 log (12.9/ 100) = -17.79 dB

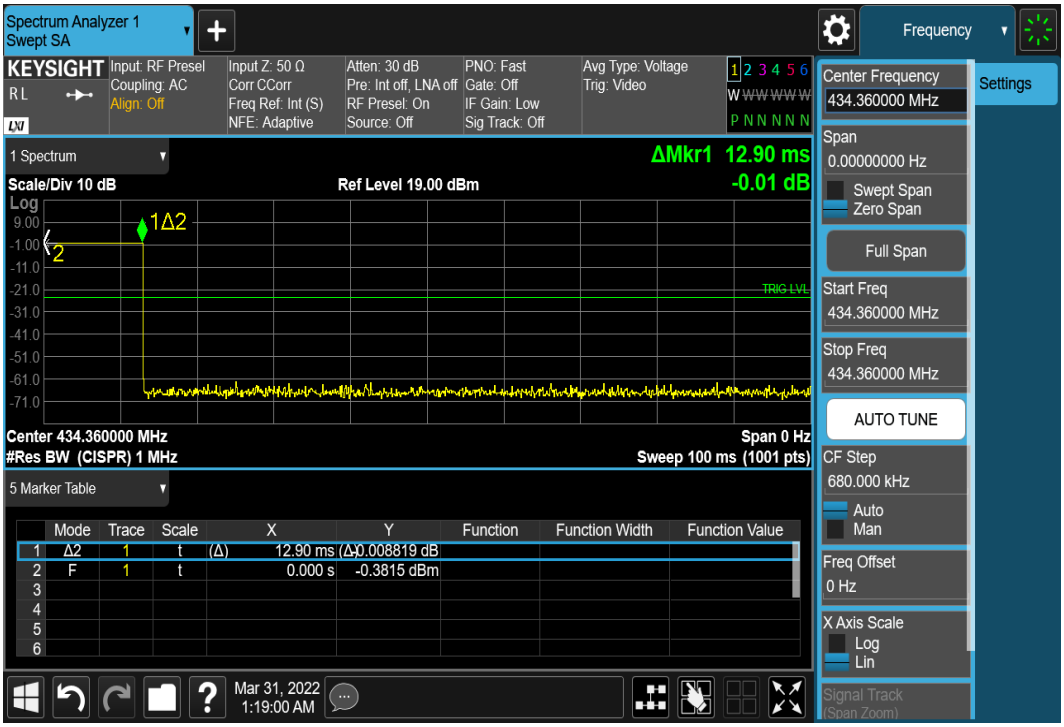
434.36MHz

Temperature: 22.3℃ **Test Date:** March 31, 2022

Humidity: 61% RH **Tested by:** Jack Chen

Duty Cycle			
TX ON (ms)	TX All(ms)	Duty Cycle (%)	Duty Factor(dB)
12.90	100.00	12.90%	-17.79

DUTY CYCLE



Notes:
1. The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by 20 log(Time(on) / Time(all))
2. The EUT transmits for a Time(on) of 100 milliseconds.

20 log (Time(on) / Time(all)).
20 log (12.9/ 100) = -17.79 dB

4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a), RSS-Gen Sec.8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

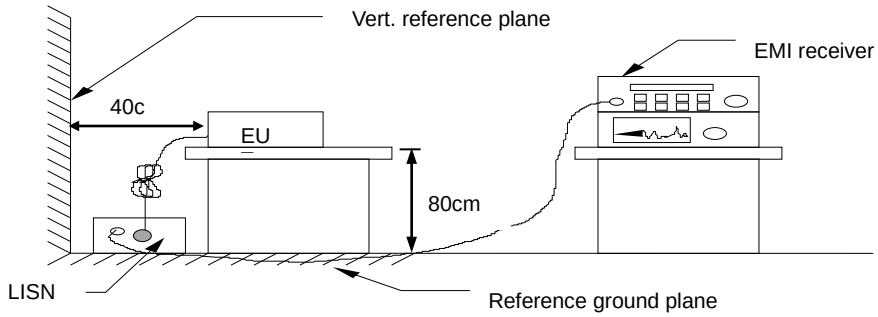
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT doesn’t connect to AC Main Source direct.

4.2 EMISSION BANDWIDTH

4.2.1 Test Limit

According to §15.231(c), RSS-210 A.1.3,

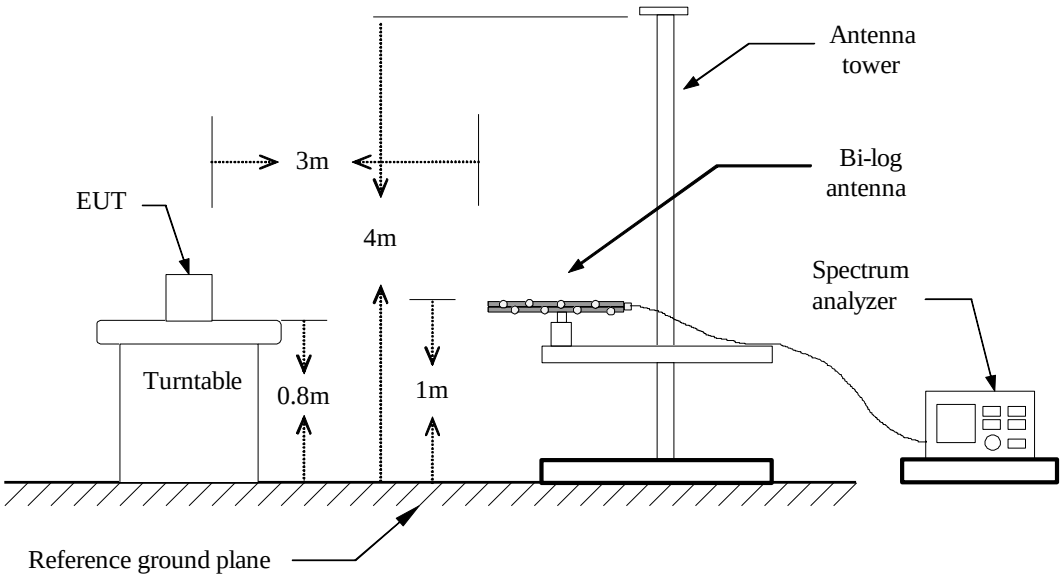
Limit	☒ 70 MHz – 900 MHz : Fc * 0.25 % ☐ Above 900 MHz : Fc * 0. 5 %

4.2.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.9.2,

SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, Trace mode = Max hold, Sweep = Auto. Measure the maximum width of the emission that is constrained by the frequencies associated with the Occupied Bandwidth (99%) and 20dB Bandwidth.

4.2.3 Test Setup



4.2.4 Test Result

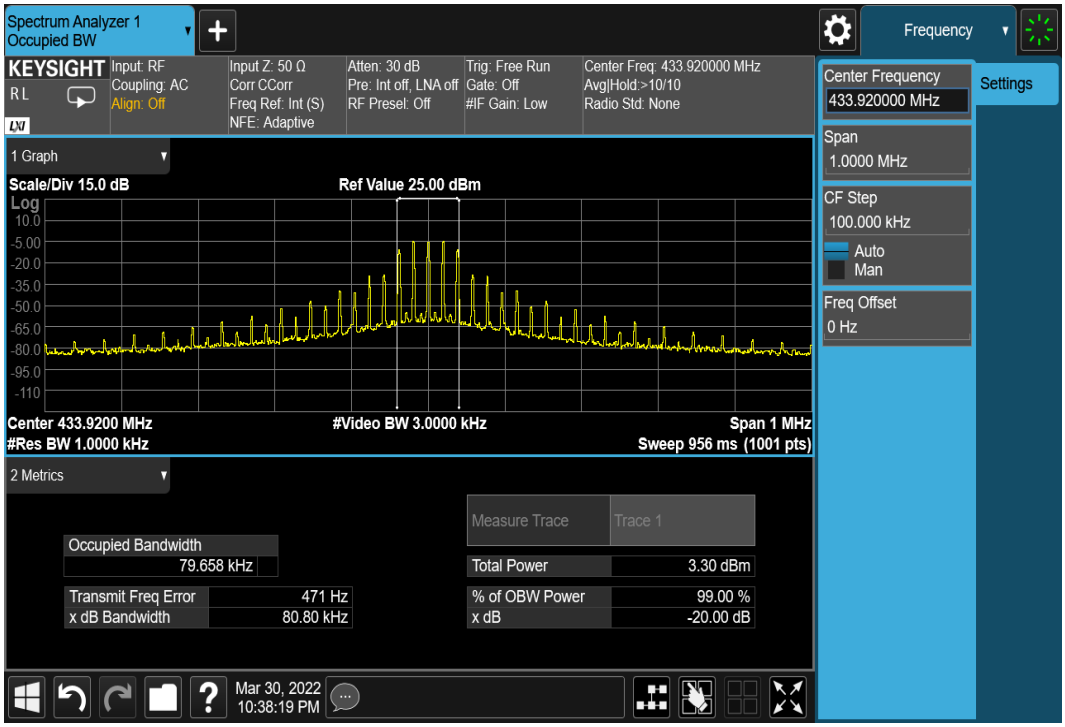
Temperature:	22.3℃	**Test Date:**	March 31, 2022
Humidity:	61% RH	**Tested by:**	Jack Chen

Test Data

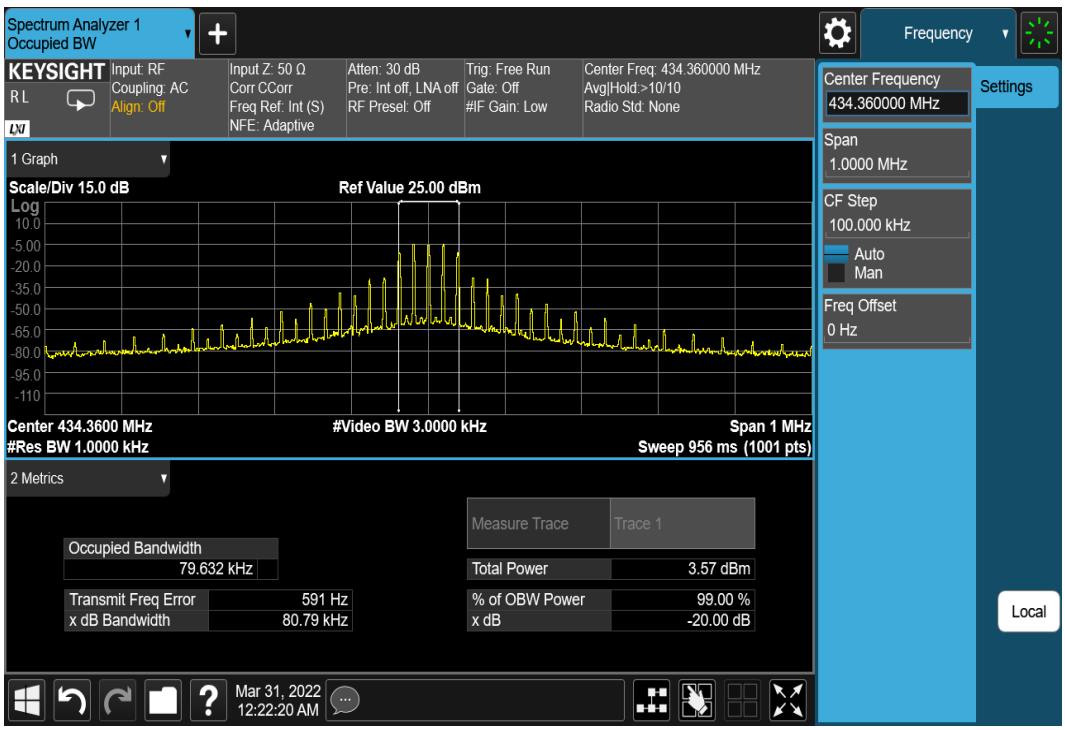
20dB Bandwidth and 99% Occupied BW

Spectrum Bandwidth				
Frequency (MHz)	**20dB Bandwidth (KHz)**	**20dB Bandwidth Limits (MHz)**	**99% Occupied BW (KHz)**	**99% Bandwidth Limits (MHz)**
433.92	80.80	1.0848	79.658	1.0848
434.36	80.79	1.0859	79.632	1.0859

433.92MHz



434.36MHz



4.3 FIELD STRENGTH OF FUNDAMENTAL

4.3.1 Test Limit

According to §15.231(b)

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of fundamental (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

* Linear interpolation with frequency, f, in MHz:
For 130-174 MHz: Field Strength (μV/m) = (56.82 × f)−6136
For 260-470 MHz: Field Strength (μV/m) = (41.67 × f)−7083

According to RSS-210 A.1.2

Table A1— Permissible Field Strength Limits for Momentarily Operated Devices	
Fundamental Frequency (MHz), Excluding Restricted Frequency Bands Specified in RSS-Gen	**Field Strength of the Fundamental Emissions (μV/m at 3 m)**
70-130	1,250
130-174	1,250 to 3,750*
174-260 (Note 1)	3,750
260-470 (Note 1)	3,750 to 12,500*
Above 470	12,500

* Linear interpolation with frequency, f, in MHz:
For 130-174 MHz: Field Strength (μV/m) = (56.82 × f)−6136
For 260-470 MHz: Field Strength (μV/m) = (41.67 × f)−7083

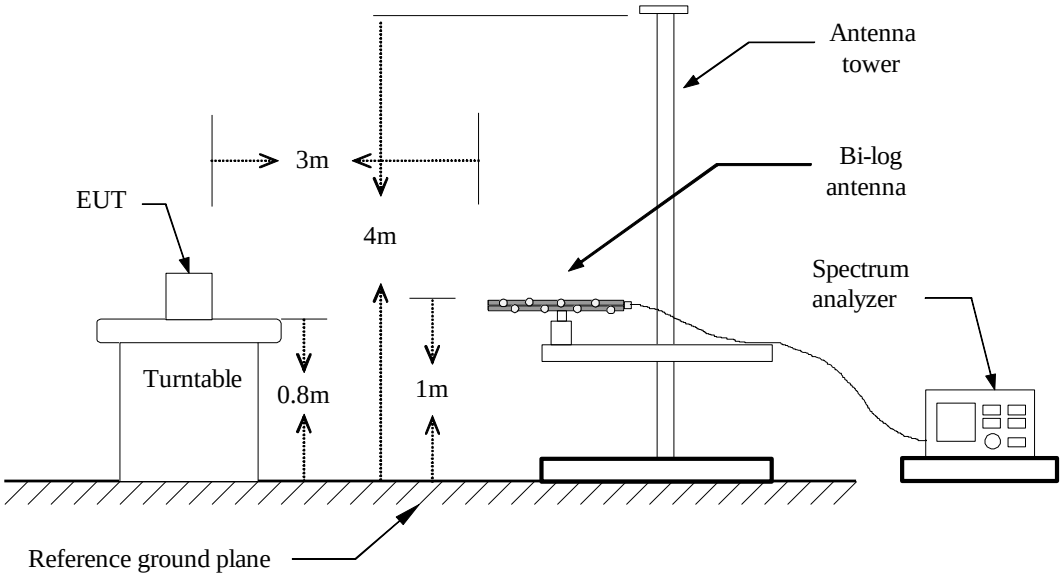
Note 1: Frequency bands 225-328.6 MHz and 335.4-399.9 MHz are designated for the exclusive use of the Government of Canada. Manufacturers should be aware of possible harmful interference and degradation of their licence-exempt radio equipment in these frequency bands.

4.3.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 4.1.4 and clause 6.5

clause 4.1.4	☒ 4.1.4.2.2: Measurement Peak value. ☐ 4.1.4.2.3: Duty cycle ≥ 100%. ☒ 4.1.4.2.4: Measurement Average value.

4.3.3 Test Setup



4.3.4 Test Result

433.92MHz

Field Strength					
Frequency (MHz)	**Fundamental (dBuV/m) at 3m**	**Limit (dBuV/m) at 3m**	**Margin (dB)**	**Axis/Pol.**	**Remark**
433.90	80.22	80.82	-0.61	Z/V	AVG

Remark:

1. Fundamental measured method setting on spectrum, RBW=100 kHz, VBW=100kHz and Detector=Peak.
2. Average result = Peak result + Duty factor = 98.01 dBuV/m – 17.79 = 80.22 dBuV/m
3. 260MHz ~ 470MHz limit is 41.67 * (Frequency, MHz) – 7083
   Limit = 41.67 * (433.90 MHz) – 7083
   =10998.44640 (uV/m)
   dBuv/m = 20 Log (uV/m) = 20 Log (10998.44640 uV/m)= 80.82dBuV/m

434.36MHz

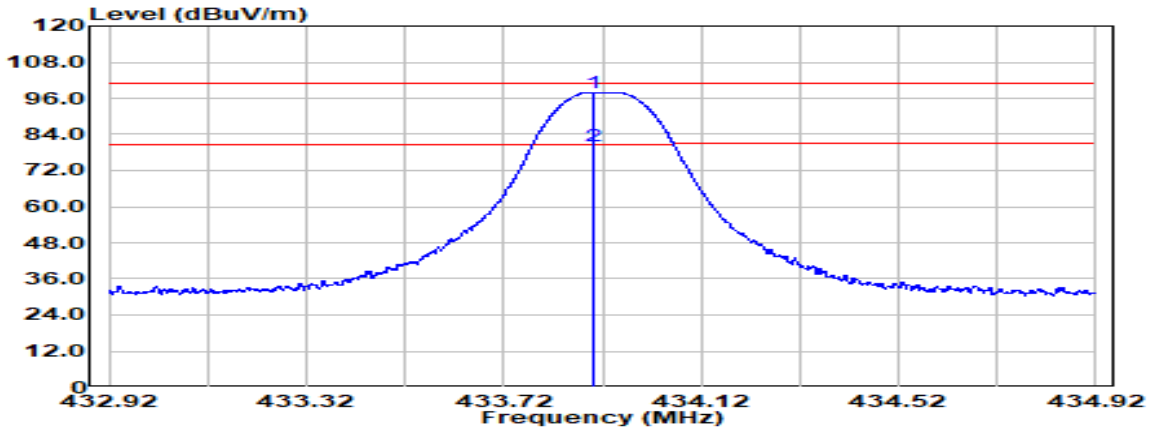
Field Strength					
Frequency (MHz)	**Fundamental (dBuV/m) at 3m**	**Limit (dBuV/m) at 3m**	**Margin (dB)**	**Axis/Pol.**	**Remark**
434.341	78.39	80.84	-2.45	Z/V	AVG

Remark:

1. Fundamental measured method setting on spectrum, RBW=100 kHz, VBW=100kHz and Detector=Peak.
2. Average result = Peak result + Duty factor = 96.18 dBuV/m – 17.79 = 78.39 dBuV/m
3. 260MHz ~ 470MHz limit is 41.67 * (Frequency, MHz) – 7083
   Limit = 41.67 * (434.341 MHz) – 7083
   = 11016.7812 (uV/m)
   dBuv/m = 20 Log (uV/m) = 20 Log (11016.7812 uV/m)= 80.84dBuV/m

Test Data

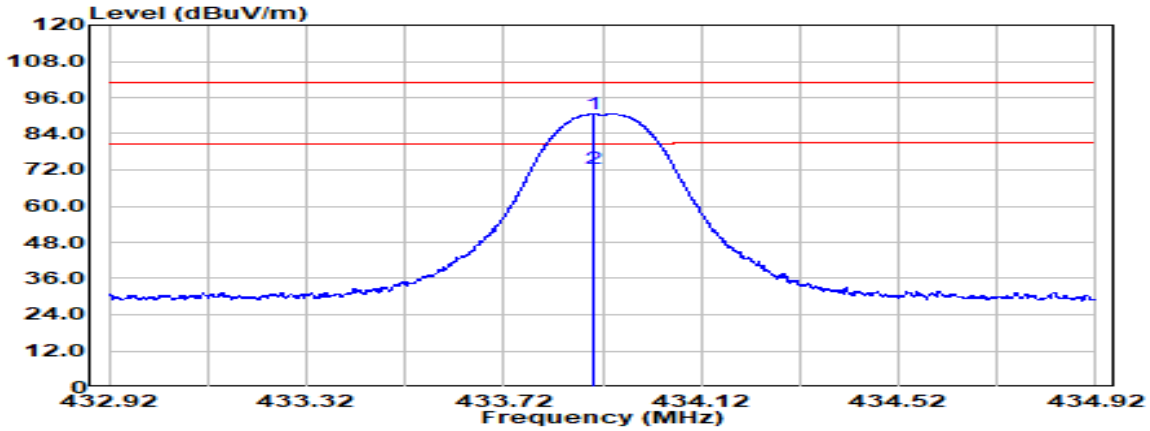
Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Fundamental	Test Date	May 9, 2022
Axis/Polarize	Z-Plane / Ver.	Test Engineer	Tony Chao
Detector	Peak & Average		



No	Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1	433.900	Peak	103.10	-5.09	98.01	100.82	-2.81
2	433.900	Average	-	-17.79	80.22	80.82	-0.61

Note:
Average result = Peak result + Duty factor = 98.01 dBuV/m –17.79= 80.22 dBuV/m

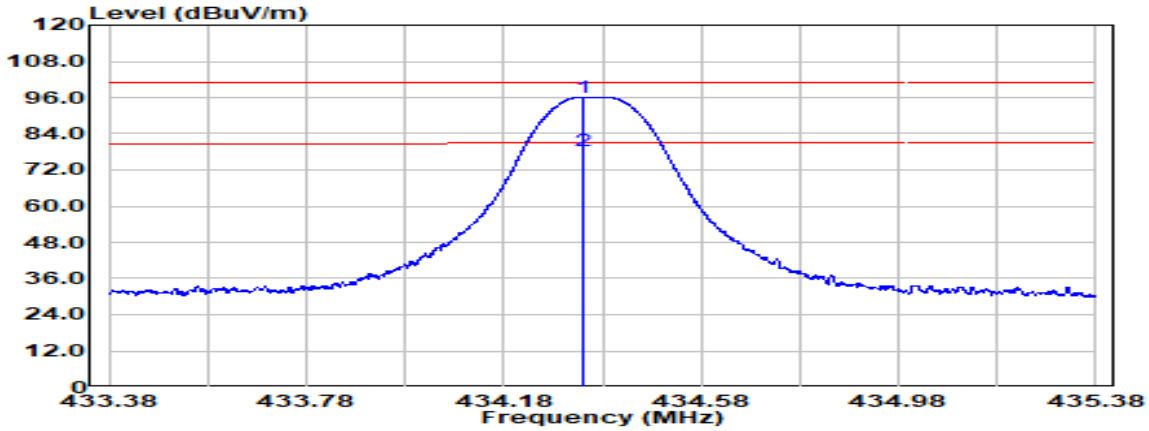
Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Fundamental	Test Date	May 9, 2022
Axis/Polarize	Z-Plane / Hor.	Test Engineer	Tony Chao
Detector	Peak & Average		



No	Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1	433.900	Peak	95.50	-5.09	90.41	100.82	-10.41
2	433.900	Average	-	-17.79	72.62	80.82	-8.21

Note:
Average result = Peak result + Duty factor = 90.41 dBuV/m –17.79= 72.62 dBuV/m

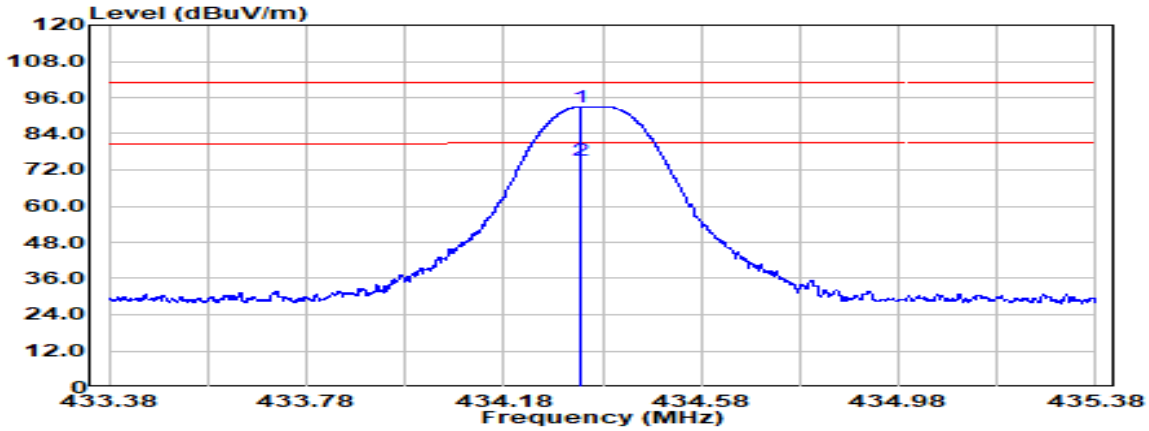
Test Mode:	TX-434.36MHz	Temp/Hum	23.1(℃)/ 63%RH
Test Item	Fundamental	Test Date	May 9, 2022
Axis/Polarize	Z-Plane / Ver.	Test Engineer	Tony Chao
Detector	Peak & Average		



No	Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1	434.341	Peak	101.27	-5.08	96.18	100.84	-4.66
2	434.341	Average	-	-17.79	78.39	80.84	-2.45

Note:
Average result = Peak result + Duty factor = 96.18 dBuV/m –17.79= 78.39 dBuV/m

Test Mode:	TX-433.92MHz	Temp/Hum	23.1(℃)/ 63%RH
Test Item	Fundamental	Test Date	May 9, 2022
Axis/Polarize	Z-Plane / Hor.	Test Engineer	Tony Chao
Detector	Peak & Average		



No	Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1	434.338	Peak	98.08	-5.08	92.99	100.84	-7.85
2	434.338	Average	-	-17.79	75.20	80.84	-5.64

Note:
Average result = Peak result + Duty factor = 92.99 dBuV/m –17.79= 75.20 dBuV/m

4.4 RADIATION UNWANTED EMISSION

4.4.1 Test Limit

According to §15.231(b) and §15.209, §15.205
Unwanted emissions limit follow the table or the FCC Part 15.209, whichever limit permits higher field strength.

According to §15.231(b)

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of fundamental (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

[1]Linear interpolations.

According to RSS-210 A1.2 and RSS-GEN Sec. 8.9
Unwanted emissions shall comply with the general field strength limits specified in RSS-Gen or 10 times below the fundamental emissions field strength limit in table as below, whichever is less stringent.

According to RSS-210 A.1.4(d)

Fundamental frequency (MHz)	Field strength of Spurious emission (uv/m) at 3m	Field strength of Spurious emission (dBuv/m) at 3m
40.66-40.70	225	47
70-130	125	41.9
*130-174	*125-375	41.9-51.5
174-260	375	51.5
*260-470	*375-1250	51.5-61.9
Above 470	1250	61.9

[1]Linear interpolations.

Below 30MHz

Frequency (MHz)	Field Strength				
	(μV/m)	(dBμV/m)	Measurement Distance (meter)	(dBμV/m)	Measurement Distance (meter)
0.009 - 0.490	2400/F(kHz)	48.52 – 13.80	300	128.52–104.84	3
0.490 - 1.705	24000/F(kHz)	33.80 – 22.97	30	73.80– 62.97	3
1.705 – 30.0	30	29.54	30	69.54	3

Above 30MHz

Frequency (MHz)	Field Strength		Measurement Distance (meter)
	(μV/m)	(dBμV/m)	
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

.

4.4.2 Test Procedure

Test method Refer as ANSI 63.10:2013

☒ Unwanted Emission	☒ clause 4.1.4.2.2: Measurement Peak value. ☐ clause 4.1.4.2.3: Duty cycle ≥ 100%. ☒ clause 4.1.4.2.4: Measurement Average value.

☒ Radiated Emission	☒ clause 6.4: below 30 MHz and test distance is 3m. ☒ clause 6.5: below 30 MHz -1 GHz and test distance is 3m. ☒ clause 6.6: Above 30 MHz and test distance is 3m.

1. The EUT is placed on a turntable, which is 0.8m for test below 1GHz and 1.5m for test above 1GHz, above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

   Above 1GHz:

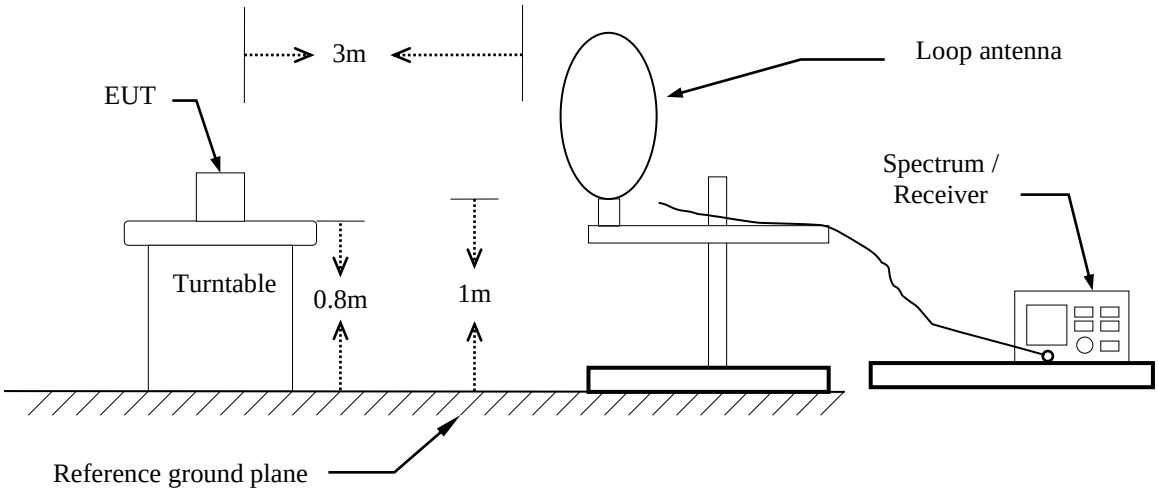
   (a)PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO

   (b)AVERAGE: RBW=1MHz,
7. Repeat above procedures until the measurements for all frequencies are complete.

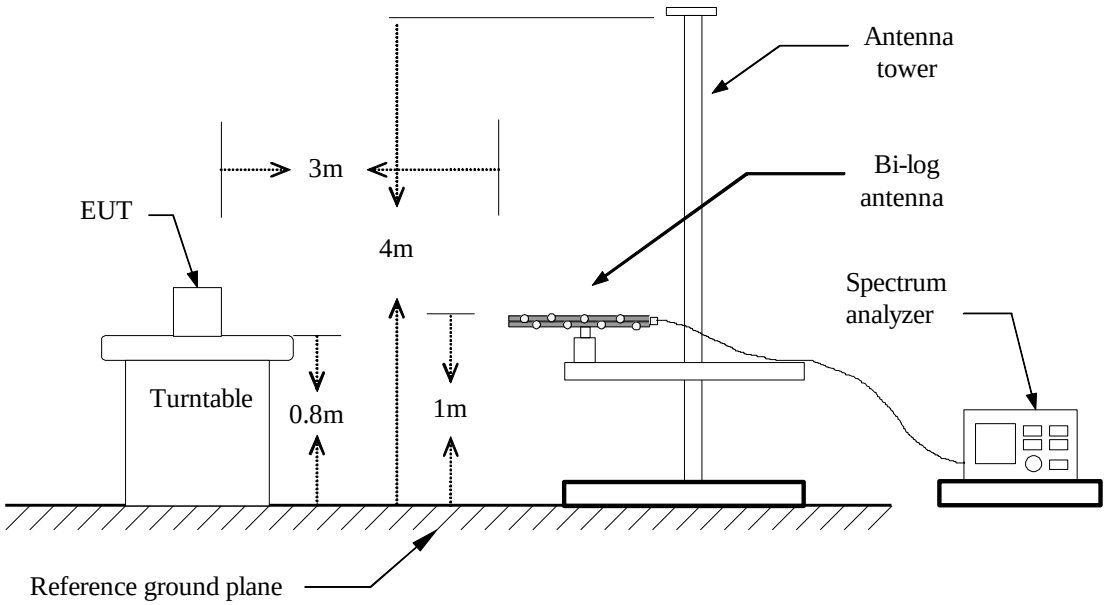
Remark.
1. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

4.4.3 Test Setup

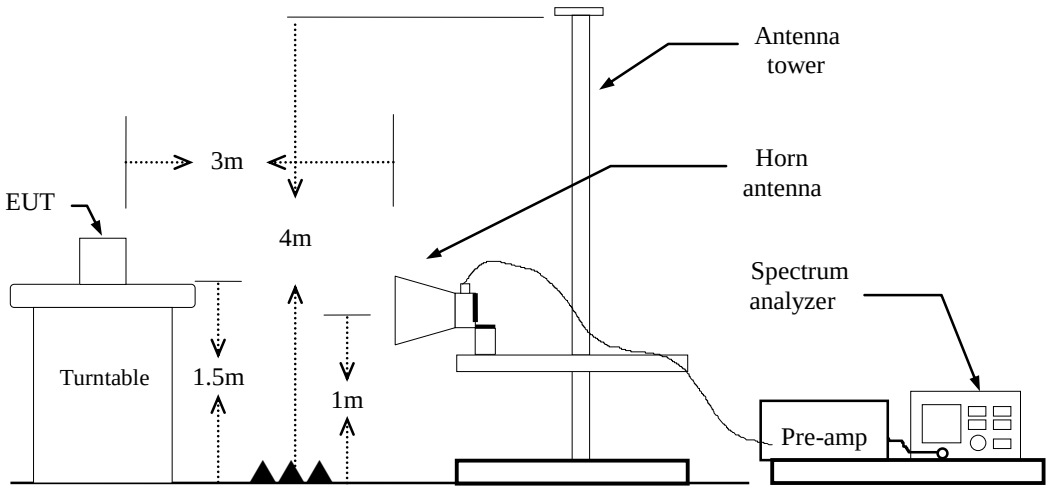
9kHz ~ 30MHz



30MHz ~ 1 GHz



Above 1 GHz

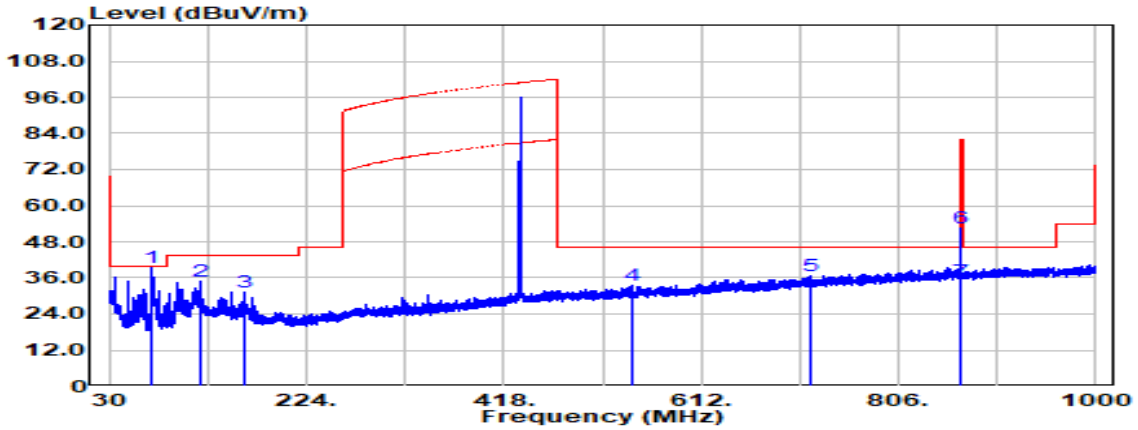


4.4.4 Test Result

Pass.

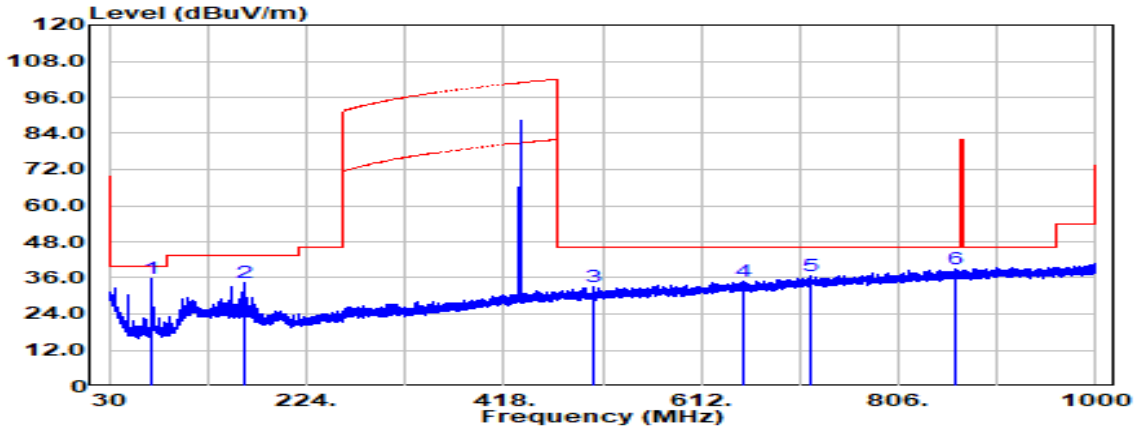
Below 1GHz

Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Below 1GHz	Test Date	May 9, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak & Average		



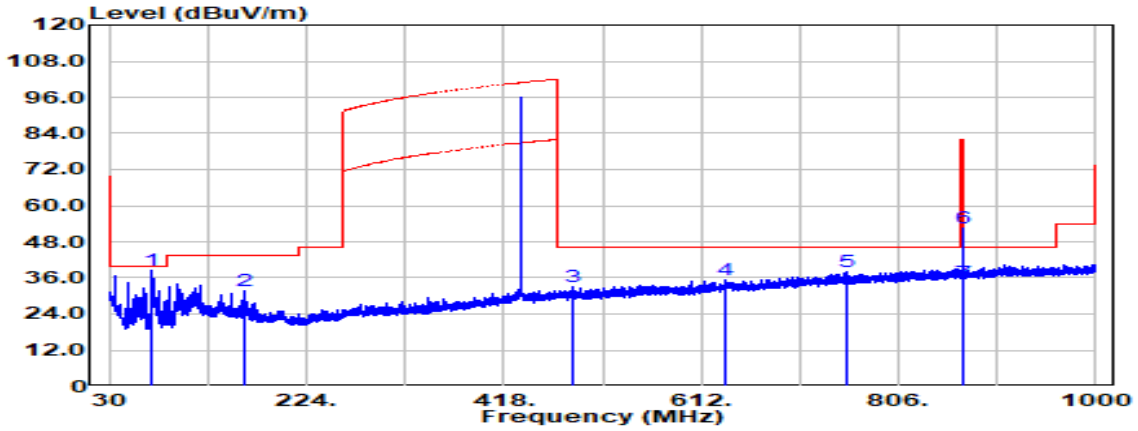
Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
72.195	Peak	54.91	-15.44	39.47	40.00	-0.53
120.210	Peak	44.23	-9.44	34.79	43.50	-8.71
162.284	Peak	42.46	-11.00	31.46	43.50	-12.04
544.221	Peak	36.65	-3.20	33.45	46.00	-12.55
719.064	Peak	36.74	-0.19	36.56	46.00	-9.44
867.838	Peak	50.73	1.90	52.63	81.94	-29.31
867.838	Average	32.94	1.90	34.84	61.94	-27.10

Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Below 1GHz	Test Date	May 9, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak		



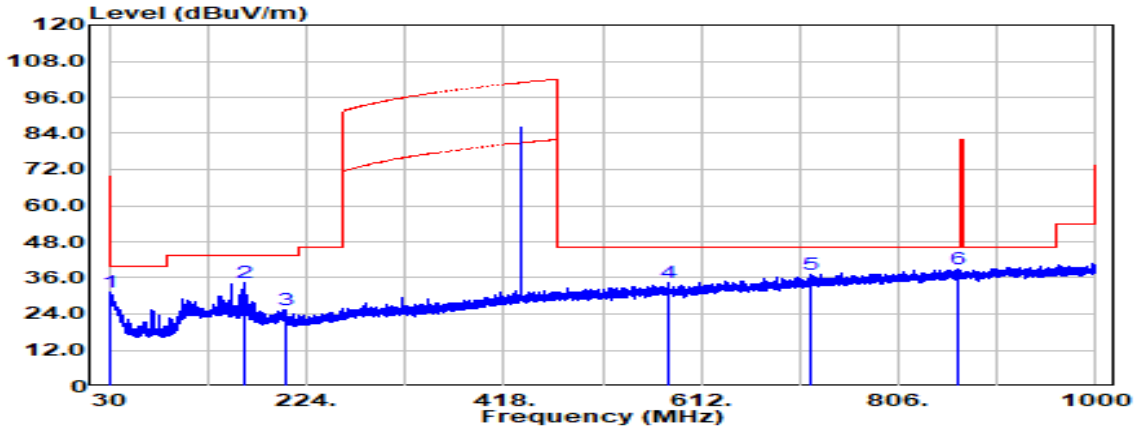
Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
72.195	Peak	51.37	-15.44	35.93	40.00	-4.07
162.405	Peak	45.52	-11.00	34.52	43.50	-8.98
507.240	Peak	36.68	-3.82	32.86	46.00	-13.14
653.468	Peak	35.90	-1.10	34.80	46.00	-11.20
720.519	Peak	36.92	-0.16	36.75	46.00	-9.25
862.381	Peak	36.81	1.92	38.73	46.00	-7.27

Test Mode:	TX-434.36MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Below 1GHz	Test Date	May 9, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
72.195	Peak	53.76	-15.44	38.32	40.00	-1.68
162.284	Peak	42.67	-11.00	31.66	43.50	-11.84
485.536	Peak	36.99	-3.89	33.10	46.00	-12.90
636.735	Peak	36.57	-1.06	35.52	46.00	-10.48
754.348	Peak	37.56	0.33	37.89	46.00	-8.11
868.686	Peak	50.44	1.87	52.31	81.94	-29.63
868.686	Average	32.66	1.87	34.53	61.94	-27.41

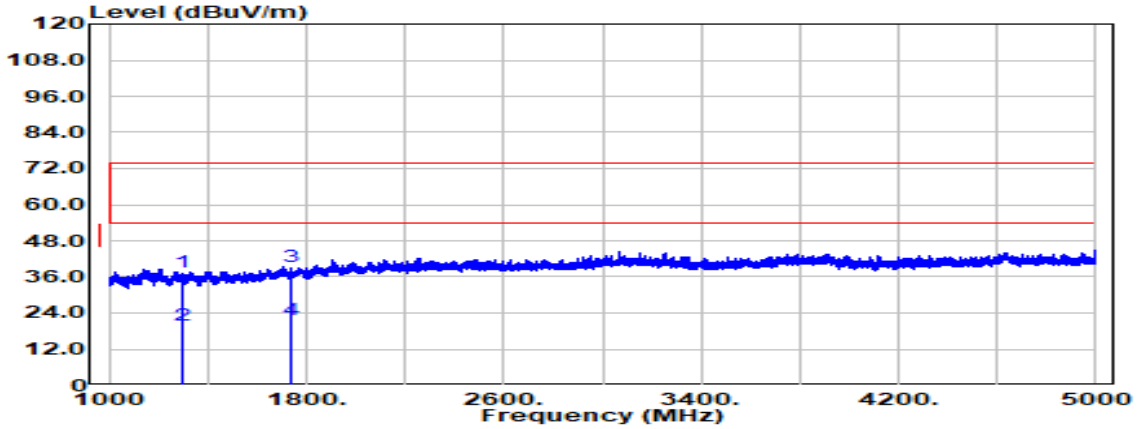
Test Mode:	TX-434.36MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Below 1GHz	Test Date	May 9, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
30.485	Peak	34.37	-3.01	31.36	40.00	-8.64
162.405	Peak	45.25	-11.00	34.25	43.50	-9.25
203.751	Peak	36.72	-11.49	25.22	43.50	-18.28
580.111	Peak	37.24	-2.66	34.58	46.00	-11.42
719.913	Peak	37.34	-0.18	37.16	46.00	-8.84
864.321	Peak	37.13	1.98	39.11	46.00	-6.89

Above 1GHz

Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Above 1GHz	Test Date	May 9, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak & Average		

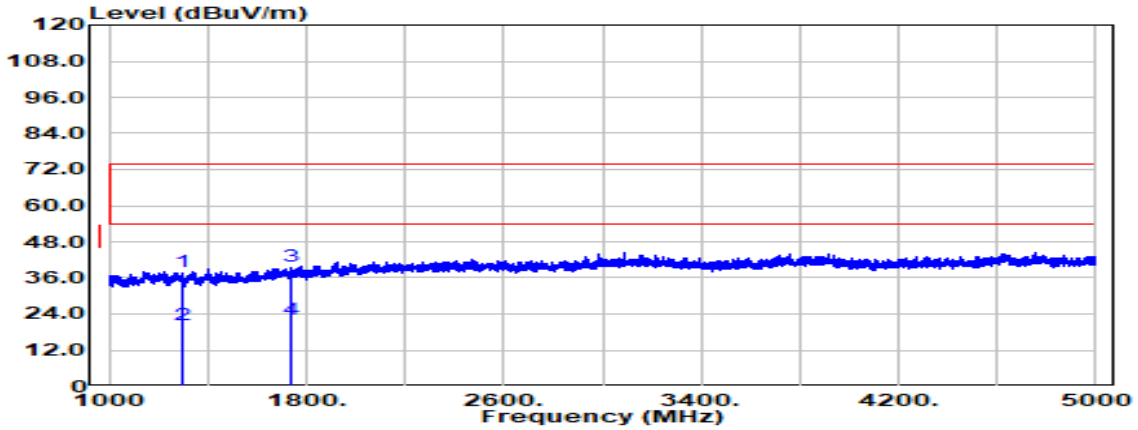


Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1301.760	Peak	40.48	-2.74	37.73	74.00	-36.27
1301.760	Average	22.69	-2.74	19.94	54.00	-34.06
1735.680	Peak	38.98	0.37	39.35	74.00	-34.65
1735.680	Average	21.19	0.37	21.56	54.00	-32.44

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode:	TX-433.92MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Above 1GHz	Test Date	May 9, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak & Average		

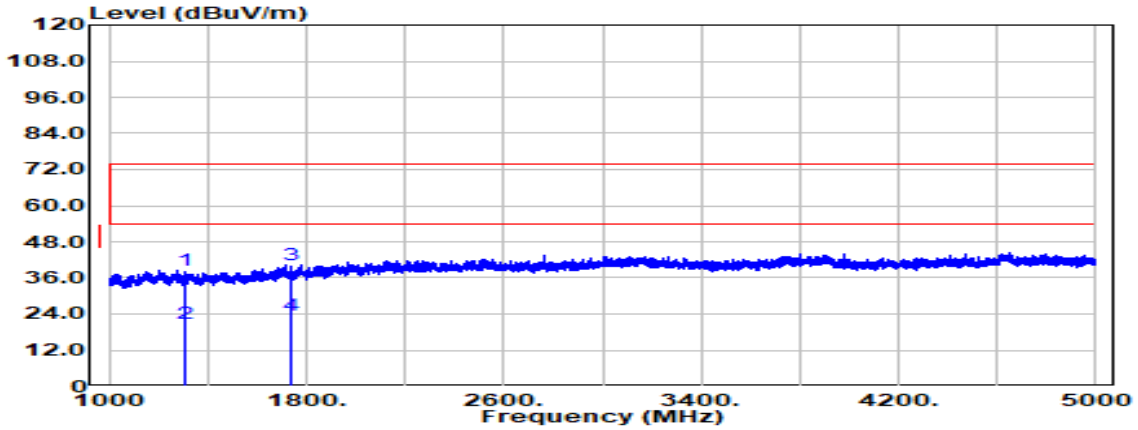


Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1301.760	Peak	40.76	-2.74	38.01	74.00	-35.99
1301.760	Average	22.97	-2.74	20.22	54.00	-33.78
1735.680	Peak	39.67	0.37	40.04	74.00	-33.96
1735.680	Average	21.88	0.37	22.25	54.00	-31.75

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode:	TX-434.36MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Above 1GHz	Test Date	May 9, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak & Average		

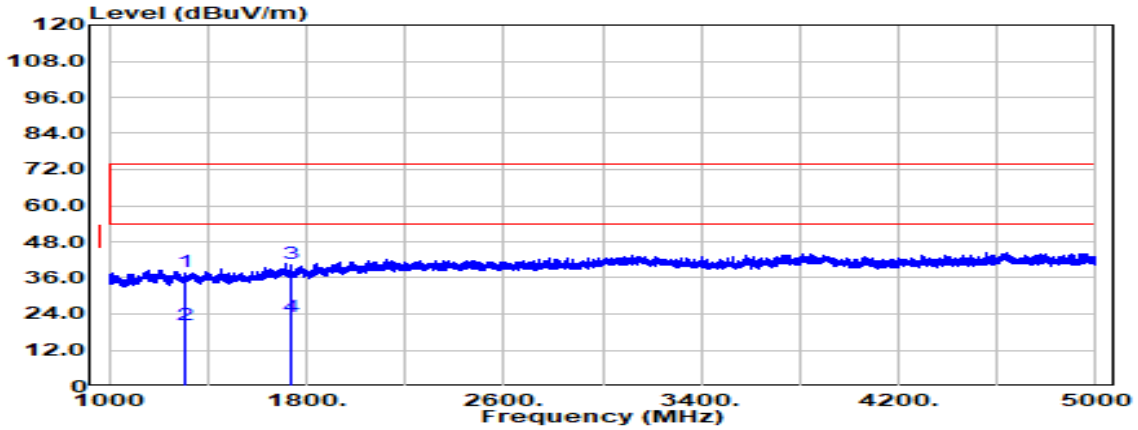


Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1303.080	Peak	41.21	-2.74	38.48	74.00	-35.52
1303.080	Average	23.42	-2.74	20.69	54.00	-33.31
1737.440	Peak	40.07	0.37	40.45	74.00	-33.55
1737.440	Average	23.09	0.37	23.46	54.00	-30.54

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode:	TX-434.36MHz	Temp/Hum	23.5(℃)/ 65%RH
Test Item	Above 1GHz	Test Date	May 9, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak & Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
1303.080	Peak	40.88	-2.74	38.15	74.00	-35.85
1303.080	Average	23.09	-2.74	20.35	54.00	-33.65
1737.440	Peak	40.53	0.37	40.90	74.00	-33.10
1737.440	Average	22.74	0.37	23.11	54.00	-30.89

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

4.5 OPERATION RESTRICTION

4.5.1 Test Limit

15.231(a)(2),
A transmitter activated automatically shall cease transmission within 5 seconds after activation.

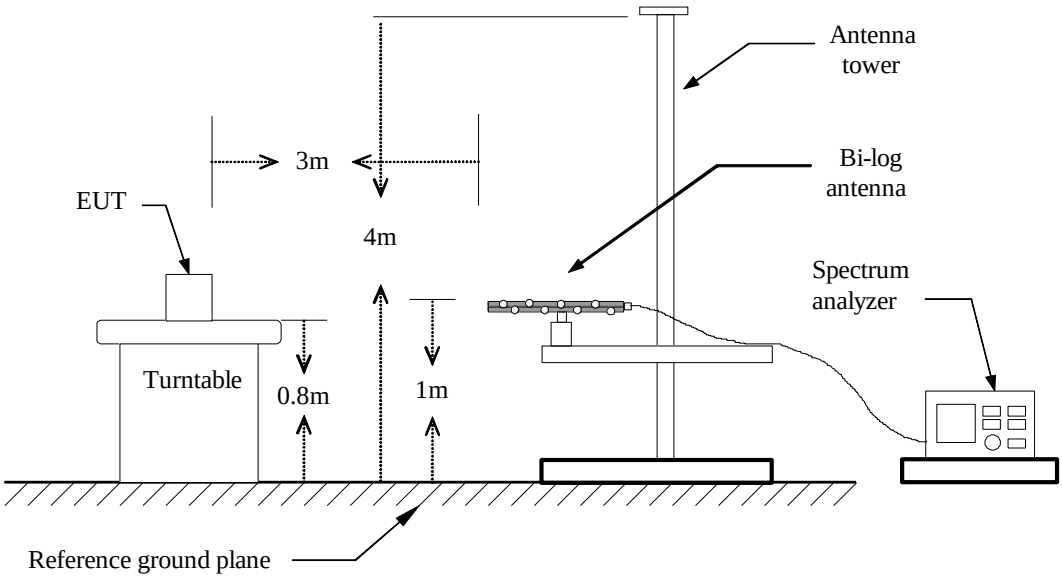
RSS-210 A1.2,
However, devices that are designed for limited use for thepurpose of initial programming, reprogramming or installing, and not forregular operations, may operate for up to 5 seconds, provided such devicesare used only occasionally in connection with each unit being programmed orinstalled.

4.5.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 7.4

Set the RBW=1MHz, VBW=1MHz, Detector = Peak, Trace mode = Max hold, Sweep = 1s. Measure

4.5.3 Test Setup



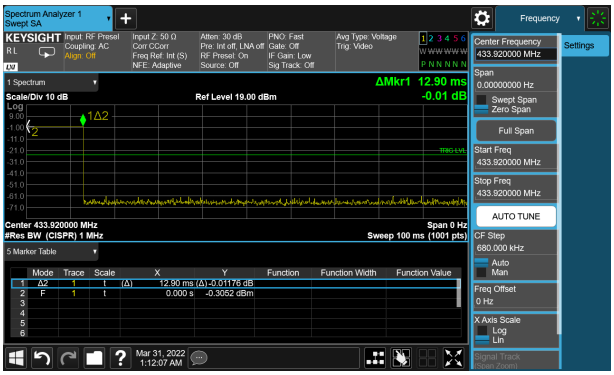
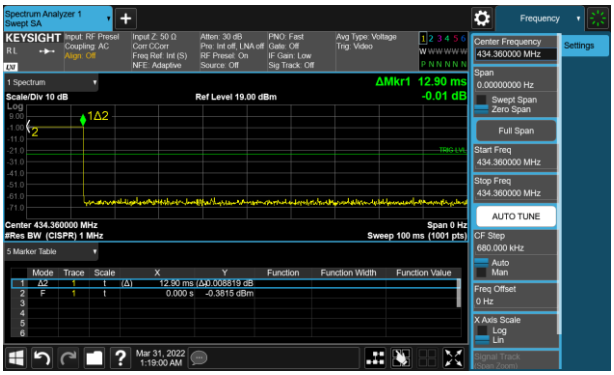
4.5.4 Test Result

Temperature: 22.3℃ **Test Date:** March 31, 2022

Humidity: 61% RH **Tested by:** Jack Chen

Dwell Time			
Operation condition	**Pulse On Time (ms)**	**Limits**	**Result**
433.92 MHz	12.9	5 sec	PASS
434.36 MHz	12.9	5 sec	PASS

Test Data

433.92MHz	434.36MHz
	

4.6 ANTENNA REQUIREMENT

§ 15.203 Antenna 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna Type	☒ PCB Monopole antenna ☐ FPC ☐ Dipole ☐ Coils
Antenna Gain	Gain: -1.1 dBi

Remark:
1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-Gen 6.8.

- End of Test Report -