

MEASUREMENT REPORT

FCC PART 15.407

FCC ID: DD4GLXD2Z3

Applicant: Shure Incorporated

Product: Wireless Handheld Transmitter

Model No.: GLXD2+ Z3

Trademark: 

FCC Classification: Unlicensed National Information Infrastructure (UNII)

FCC Rule Part(s): Part15 Subpart E (Section 15.407)

Test Procedure(s): ANSI C63.10-2013, KDB 789033 D02v02r01

Test Result: Complies

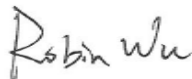
Test Date: July 05 ~ 15, 2021

Reviewed By:



Jame Yuan

Approved By:



Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v02r01. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2106RSU074-U2	Rev. 01	Initial Report	07-23-2021	Valid

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1. General Information

1.1. Applicant

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.2. Manufacturer

Shure Incorporated

5800 West Touhy Avenue, Niles, IL 60714-4608, USA

1.3. Testing Facility

<input checked="" type="checkbox"/>	<p>Test Site - MRT Suzhou Laboratory</p> <hr/> <p>Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China</p> <p>Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China</p> <hr/> <p>Laboratory Accreditations</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">A2LA: 3628.01</td> <td style="width: 50%;">CNAS: L10551</td> </tr> <tr> <td>FCC: CN1166</td> <td>ISED: CN0001</td> </tr> </table> <p>VCCI: R-20025, R-20141, G-20034, G-20134, C-20020, C-20103, T-20020, T-20104</p>	A2LA: 3628.01	CNAS: L10551	FCC: CN1166	ISED: CN0001
A2LA: 3628.01	CNAS: L10551				
FCC: CN1166	ISED: CN0001				
<input type="checkbox"/>	<p>Test Site - MRT Shenzhen Laboratory</p> <hr/> <p>Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</p> <hr/> <p>Laboratory Accreditations</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">A2LA: 3628.02</td> <td style="width: 50%;">CNAS: L10551</td> </tr> <tr> <td>FCC: CN1284</td> <td>ISED: CN0105</td> </tr> </table>	A2LA: 3628.02	CNAS: L10551	FCC: CN1284	ISED: CN0105
A2LA: 3628.02	CNAS: L10551				
FCC: CN1284	ISED: CN0105				
<input type="checkbox"/>	<p>Test Site - MRT Taiwan Laboratory</p> <hr/> <p>Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</p> <hr/> <p>Laboratory Accreditations</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">TAF: L3261-190725</td> <td style="width: 50%;"></td> </tr> <tr> <td>FCC: 291082, TW3261</td> <td>ISED: TW3261</td> </tr> </table>	TAF: L3261-190725		FCC: 291082, TW3261	ISED: TW3261
TAF: L3261-190725					
FCC: 291082, TW3261	ISED: TW3261				

1.4. Equipment Description

Product Name	Wireless Handheld Transmitter
Model No.	GLXD2+ Z3
Serial No.	3AD15443973
Radio Specification	2.4GHz & 5.8GHz
Antenna Specification	Refer to clause 1.7
Operating Temperature	0 ~ 45 °C
Power Type	AC/DC Adapter or Rechargeable Li-ion Battery Input
Accessories	
AC/DC Adapter	Model No.: SBC10-USB15WSUSTWJ Input: 100 ~ 240V, 50/60Hz, 0.6A Output: 5.0V=3.0A, 15.0W Max
Rechargeable Li-ion Battery	Model No.: SB904 Capacitance: 2420mAh/8.71Wh Rated Voltage: 3.6V

Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

1.5. Radio Specification under Test

Frequency Range	5729 ~ 5846MHz
Bandwidth Mode	Full and Half
Channel Number	55
Channel Spacing	1MHz
Type of Modulation	2-level CPM with Gaussian shaping (basically GFSK)

1.6. Test Frequencies

Operating Bands (MHz)	Test Frequency (MHz)		
	Lowest	Middle	Highest
5729 ~ 5846	5729	5788	5846

Note: Detail working frequencies refer to operation description.

1.7. Antennas Details

Antenna Type	Frequency Band (MHz)	Max Peak Gain (dBi)
Monopole Antenna	5729	1.23
	5788	2.32
	5846	3.53

1.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

1.9. Test Environment Condition

Ambient Temperature	15 ~ 35 °C
Relative Humidity	20 ~ 75 %RH

2. Test Configuration

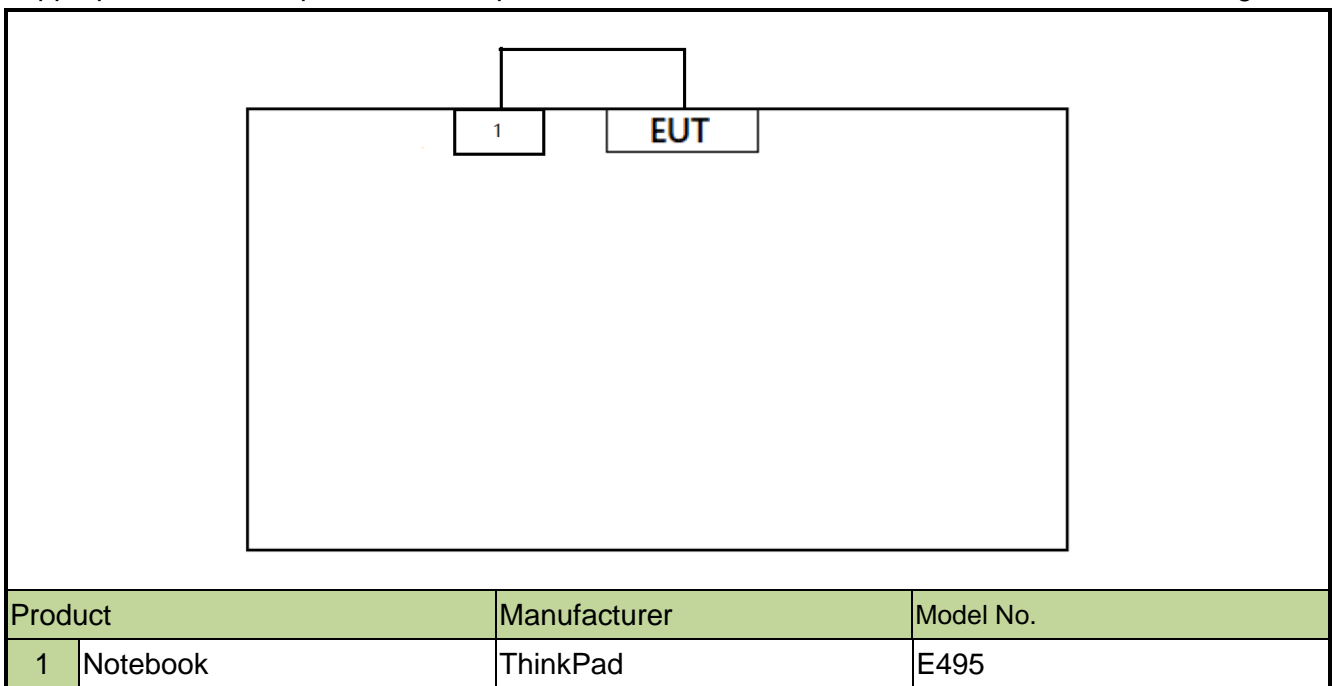
2.1. Test Mode

Test Mode	Mode 1: Transmit by Full BW
	Mode 2: Transmit by Half BW

Note: Bandwidth abbreviation is BW.

2.2. Test Setup and Software

The device was tested per the guidance ANSI C63.10: 2013 that was used to reference the appropriate EUT setup for radiated spurious emissions and AC line conducted emission testing.



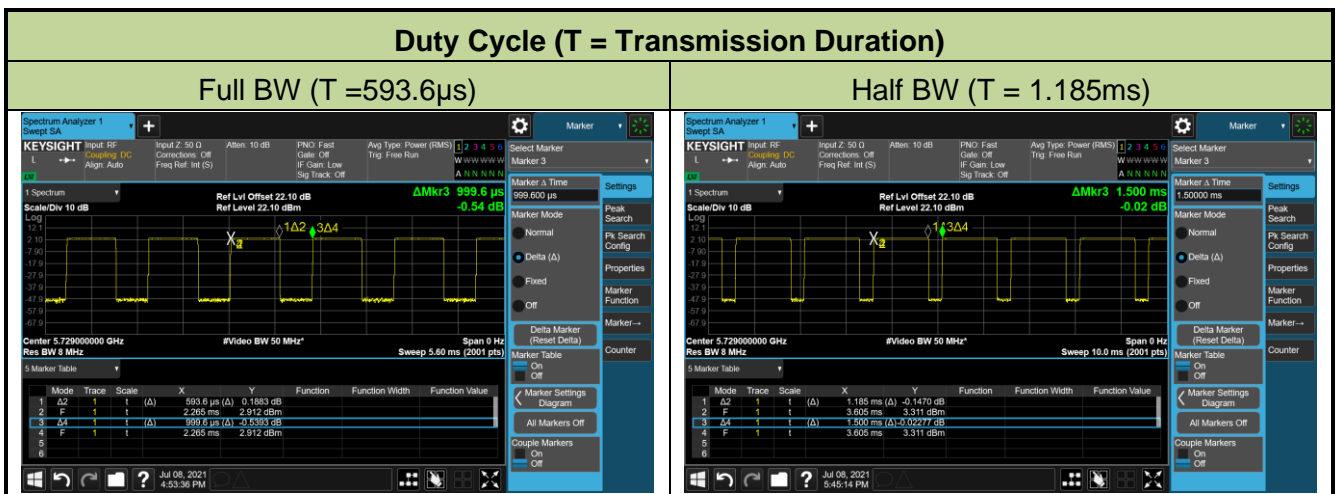
Note 1: The test utility software used during testing was “ttermpro.exe”, and the version was 4.78.

Note 2: Detail power setting refer to operation description.

2.3. Duty Cycle

The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
Full BW	59.38%
Half BW	79%



3. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06909	1 year	2021/11/22
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2022/06/08
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2022/06/28
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Conducted Emission (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2022/06/08
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/08/08
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2022/06/28
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2022/05/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Radiated Emission (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/03/09
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/09
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/06/24
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/03/09
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/09
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/12
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Radiated Emission (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/09
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2022/06/24
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/06/24
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06598	1 year	2021/11/26
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/14
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

Conducted Test Equipment (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/06
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2022/06/08
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2022/06/08
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2022/06/08
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2022/06/28

Conducted Test Equipment (SIP-TR1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTSUE06603	1 year	2021/11/23
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
USB wideband power sensor	Agilent	U2021XA	MRTSUE06595	1 year	2021/09/26
USB wideband power sensor	Agilent	U2021XA	MRTSUE06596	1 year	2021/09/26
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23
Thermal Hygrometer	testo	608-H1	MRTSUE11022	1 year	2021/11/25

Software	Version	Function
EMI Software	V3	EMI Test Software

5. MEASUREMENT UNCERTAINTY

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

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.28%

6. TEST RESULT

6.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	N/A	Section 6.2
15.407(e)	6dB Bandwidth	$\geq 500\text{kHz}$		Pass	Section 6.3
15.407(a) (3)	Maximum Conducted Output Power	$\leq 1\text{W}$		Pass	Section 6.4
15.407(a) (3)	Power Spectral Density	$\leq 30\text{dBm}/500\text{kHz}$		Pass	Section 6.5
15.407(g)	Frequency Stability	N/A		N/A	Section 6.6
15.407(b) (4)(i)	Undesirable Emissions	$\leq -27\text{dBm}/\text{MHz}$ EIRP Detail see section 6.8	Radiated	Pass	Section 6.7 Section 6.8
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength (Restricted Bands and Radiated Emission)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		Pass	
15.207	AC Conducted Emissions 150kHz-30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 6.9

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) "N/A" means that the test item is not applicable, and the details refer to relevant section.

6.2. Emission Bandwidth Measurement

6.2.1. Test Limit

N/A

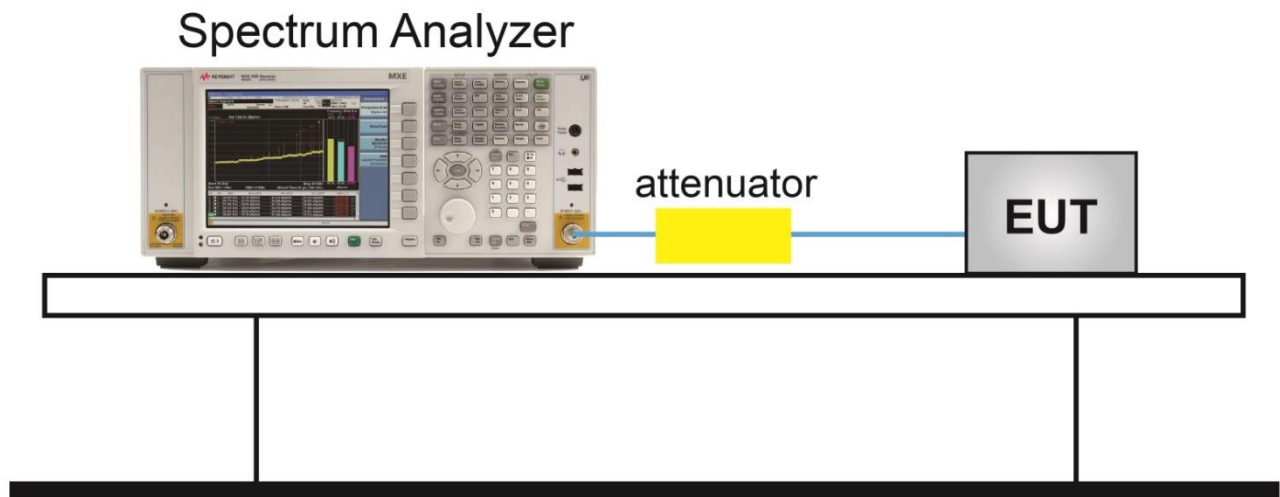
6.2.2. Test Procedure Used

KDB 789033 D02v02r01 -Section C.1

6.2.3. Test Setting

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.2.4. Test Setup



6.2.5. Test Result

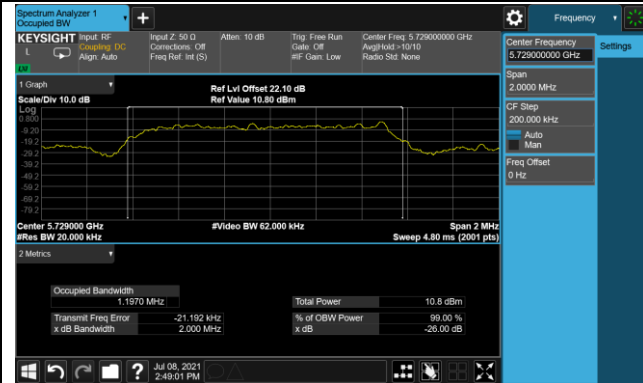
Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2021/07/08		

Test Mode	Frequency (MHz)	26dB Bandwidth (MHz)
Full BW	5729	4.00
Full BW	5788	4.00
Full BW	5846	4.00
Half BW	5729	2.00
Half BW	5788	2.00
Half BW	5846	2.00



Half BW 26dB Bandwidth

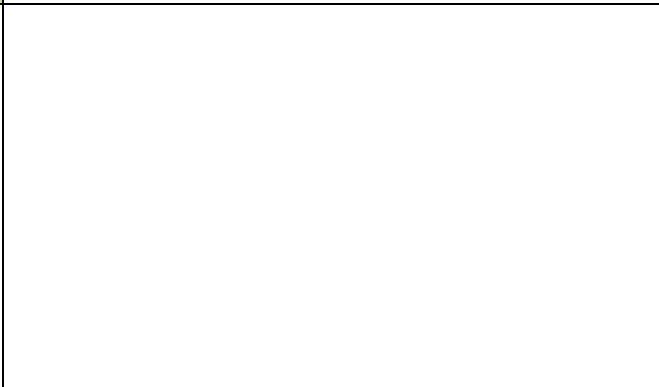
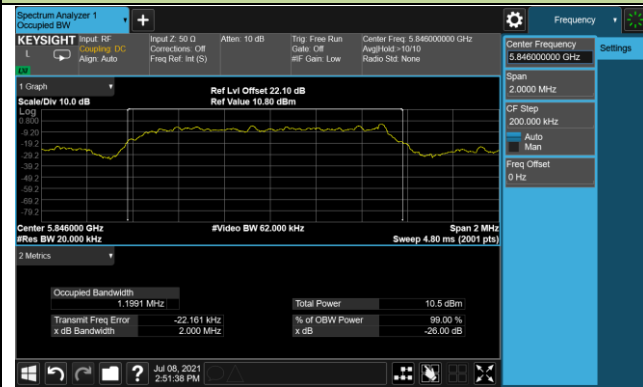
5729MHz



5788MHz



5846MHz



6.3. 6dB Bandwidth Measurement

6.3.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

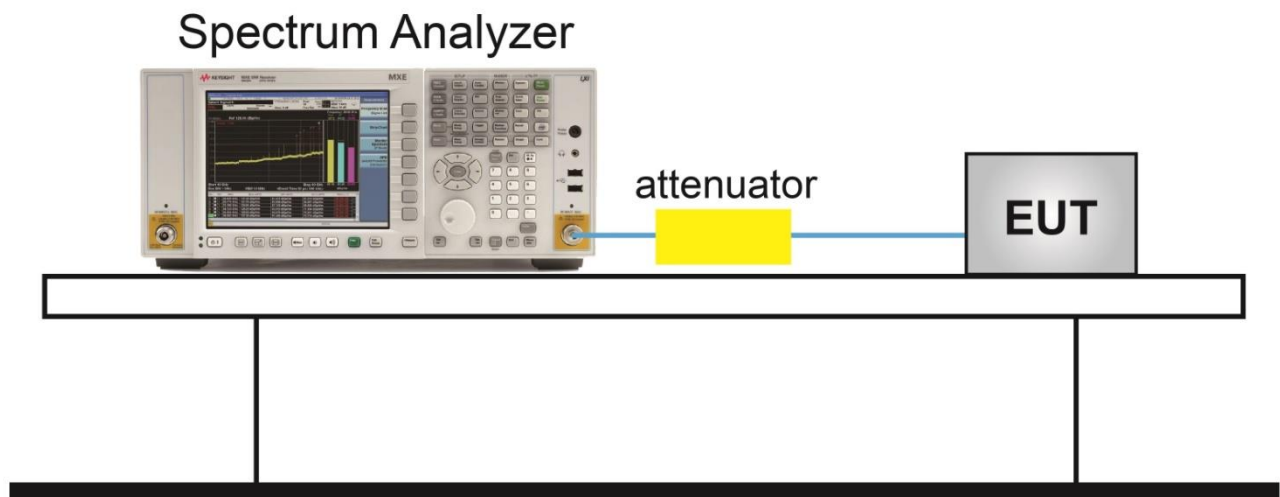
6.3.2. Test Procedure Used

KDB 789033 D02v02r01 - Section C.2

6.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = Max hold.
6. Sweep = Auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3.4. Test Setup



6.3.5. Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2021/07/08		

Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
Full BW	5729	2.026	≥ 0.5	Pass
Full BW	5788	2.053	≥ 0.5	Pass
Full BW	5846	2.042	≥ 0.5	Pass
Half BW	5729	1.028	≥ 0.5	Pass
Half BW	5788	1.028	≥ 0.5	Pass
Half BW	5846	1.025	≥ 0.5	Pass





6.4. Output Power Measurement

6.4.1. Test Limit

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

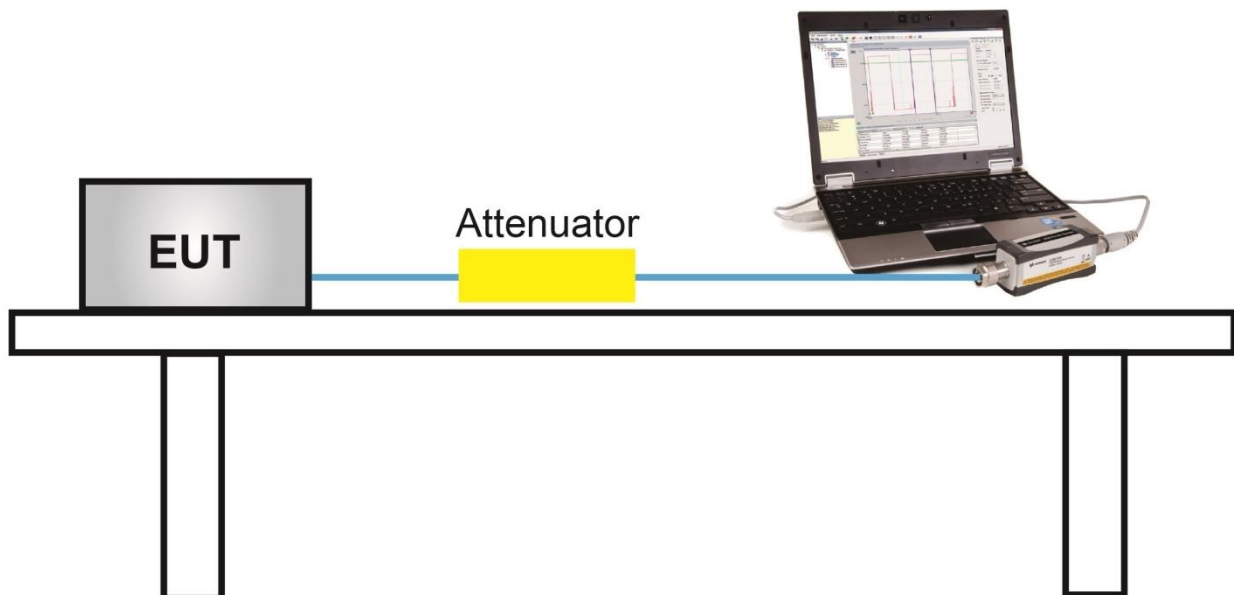
6.4.2. Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

6.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.4.4. Test Setup



6.4.5. Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2021/07/05		

Test Mode	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)	Result
Full BW	5729	3.93	≤ 30.00	Pass
Full BW	5788	4.13	≤ 30.00	Pass
Full BW	5846	3.69	≤ 30.00	Pass
Half BW	5729	3.32	≤ 30.00	Pass
Half BW	5788	3.70	≤ 30.00	Pass
Half BW	5846	3.11	≤ 30.00	Pass

6.5. Power Spectral Density Measurement

6.5.1. Test Limit

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

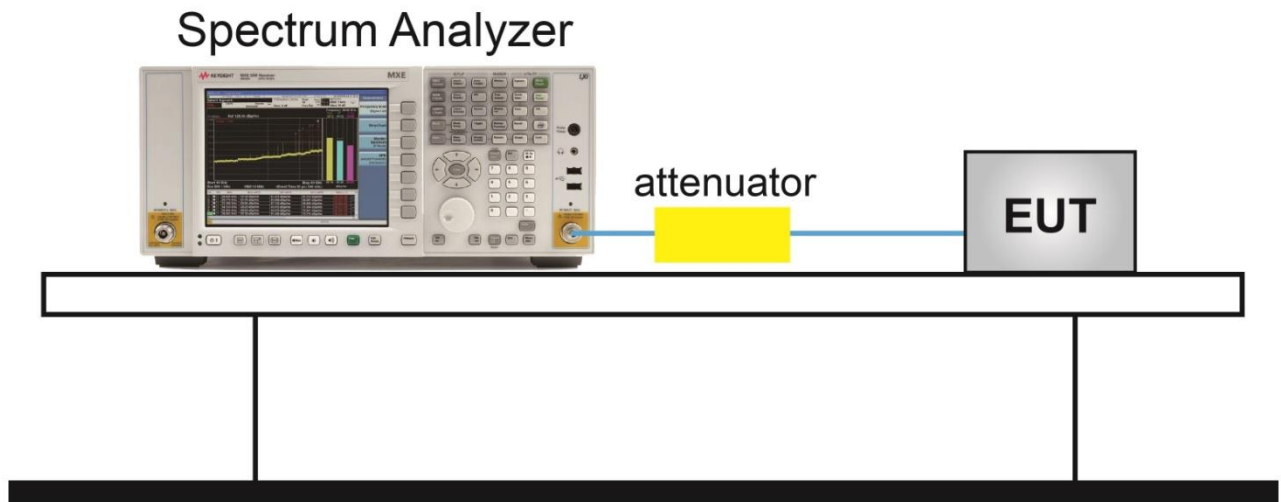
6.5.2. Test Procedure Used

KDB 789033 D02v02r01 - Section F

6.5.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
RBW = 510kHz
VBW = 1.5MHz
3. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
4. Detector = Power averaging (Average)
5. Trace average at least 100 traces in power averaging (rms) mode
6. Sweep time = Auto
7. Trigger = Free run
8. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
9. Add $10 \cdot \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \cdot \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

6.5.4. Test Setup



6.5.5. Test Result

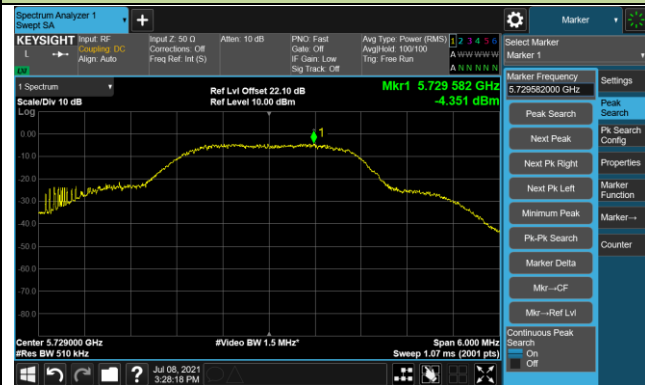
Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2021/07/08		

Test Mode	Freq. (MHz)	Duty Cycle (%)	PSD (dBm/500kHz)	Final PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Full BW	5729	59.38	-4.35	-2.09	≤ 30.00	Pass
Full BW	5788	59.38	-3.21	-0.95	≤ 30.00	Pass
Full BW	5846	59.38	-4.08	-1.82	≤ 30.00	Pass
Half BW	5729	79.00	-0.53	0.49	≤ 30.00	Pass
Half BW	5788	79.00	-0.45	0.57	≤ 30.00	Pass
Half BW	5846	79.00	-0.62	0.40	≤ 30.00	Pass

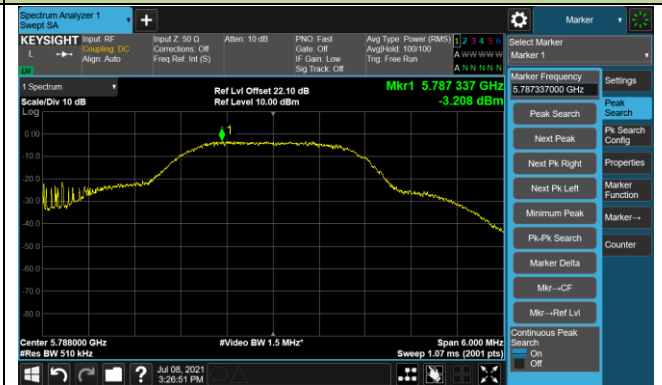
Note: When EUT duty cycle < 98%, Final PSD (dBm / 500kHz) = PSD (dBm / 500kHz) + 10*log(1/Duty cycle)

Full BW Power Spectral Density

5729MHz



5788MHz



5846MHz

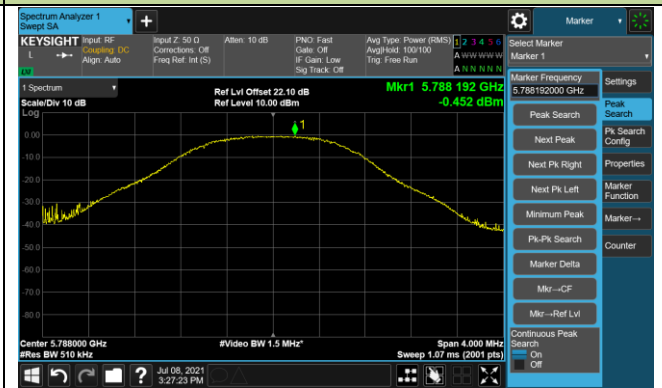


Half BW Power Spectral Density

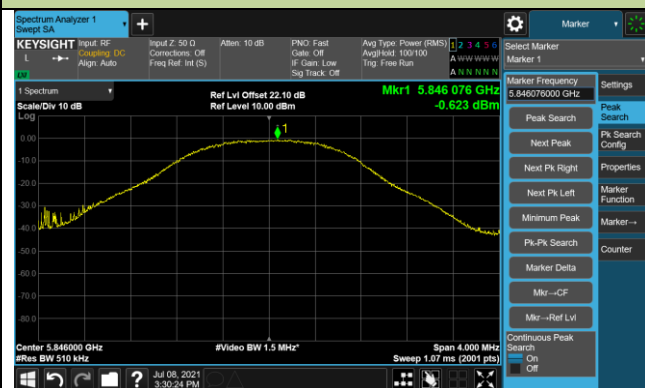
5729MHz



5788MHz



5846MHz



6.6. Frequency Stability Measurement

6.6.1. Test Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

6.6.2. Test Procedure Used

Frequency Stability Under Temperature Variations:

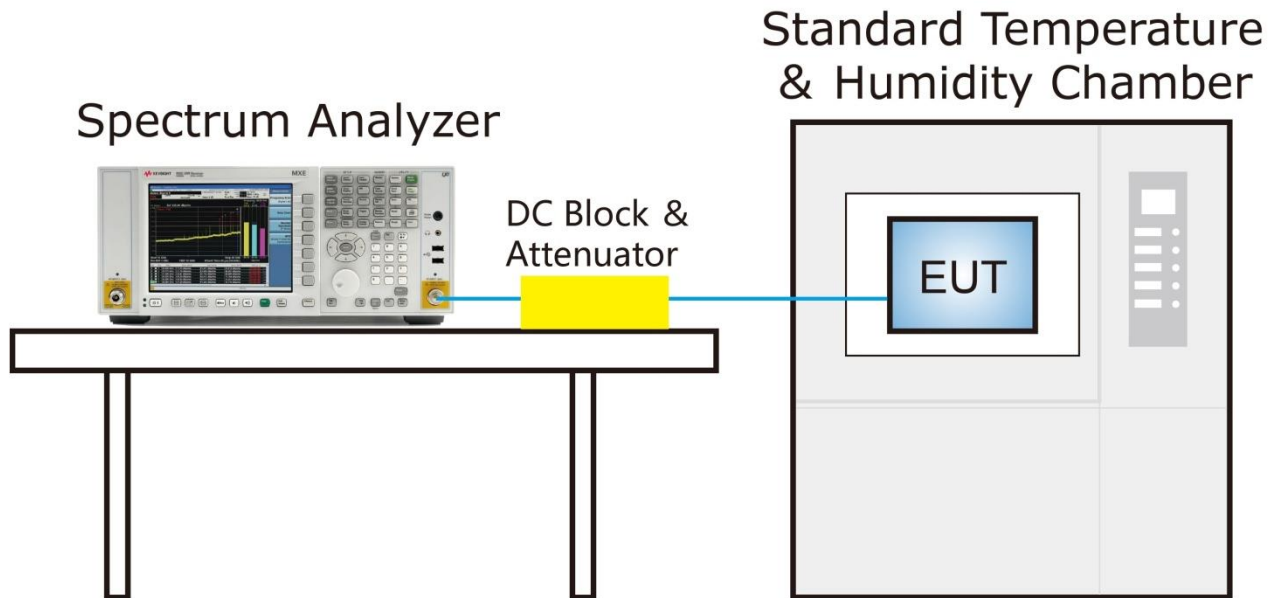
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change. For hand-carried battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

6.6.3. Test Setup



6.6.4. Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2021/07/10	Test Channel	5729MHz (Carrier Mode)

Voltage (%)	Power (V _{DC})	Temp (°C)	Frequency Tolerance (ppm)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	3.60	- 30	2.21	3.75	3.16	4.71
		- 20	5.32	5.98	6.21	6.91
		- 10	6.80	6.14	5.83	5.97
		0	6.17	6.25	5.71	6.27
		+ 10	7.17	7.31	6.56	6.13
		+ 20	5.16	4.50	4.27	4.30
		+ 30	3.79	3.29	3.75	3.81
		+ 40	8.25	6.74	6.07	7.82
		+ 50	7.15	9.40	9.51	7.98
Battery Endpoint	3.06	+ 20	3.51	5.65	4.19	4.52

Note 1: Frequency Tolerance (ppm) = {[Measured Frequency (MHz) - Declared Frequency (MHz)] / Declared Frequency (MHz)} * 10⁶.

Note 2: Battery upper voltage is 3.6Vdc, battery endpoint voltage is 3.06Vdc, which are declared by the manufacturer.

6.7. Radiated Spurious Emission Measurement

6.7.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.7.2. Test Procedure Used

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6.7.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

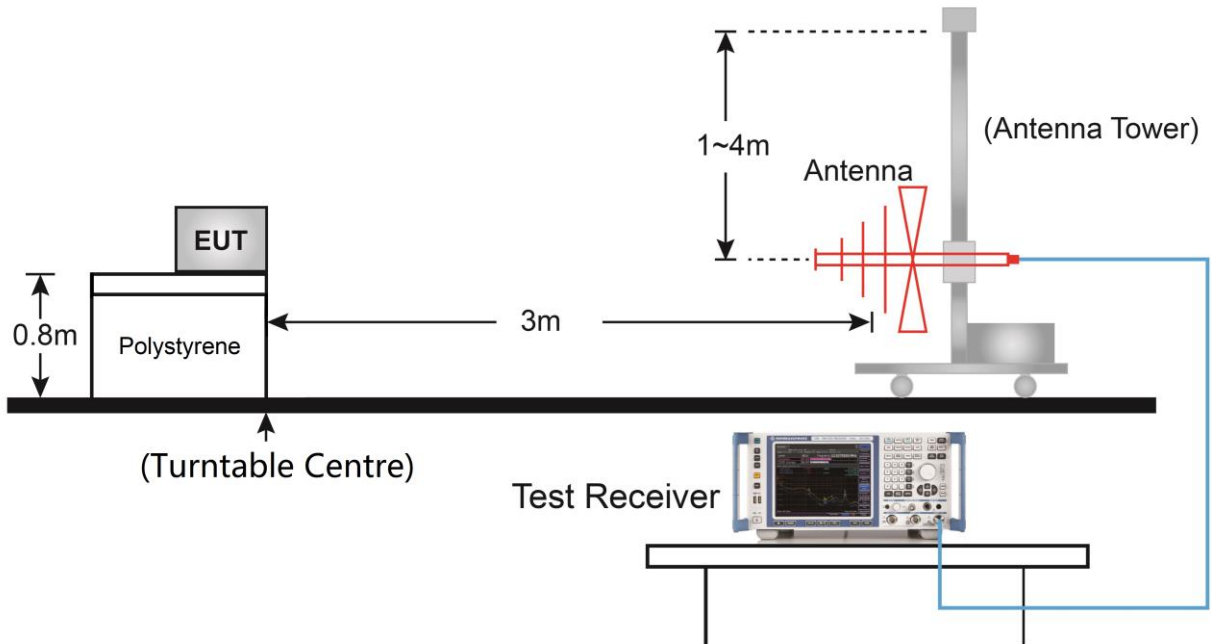
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

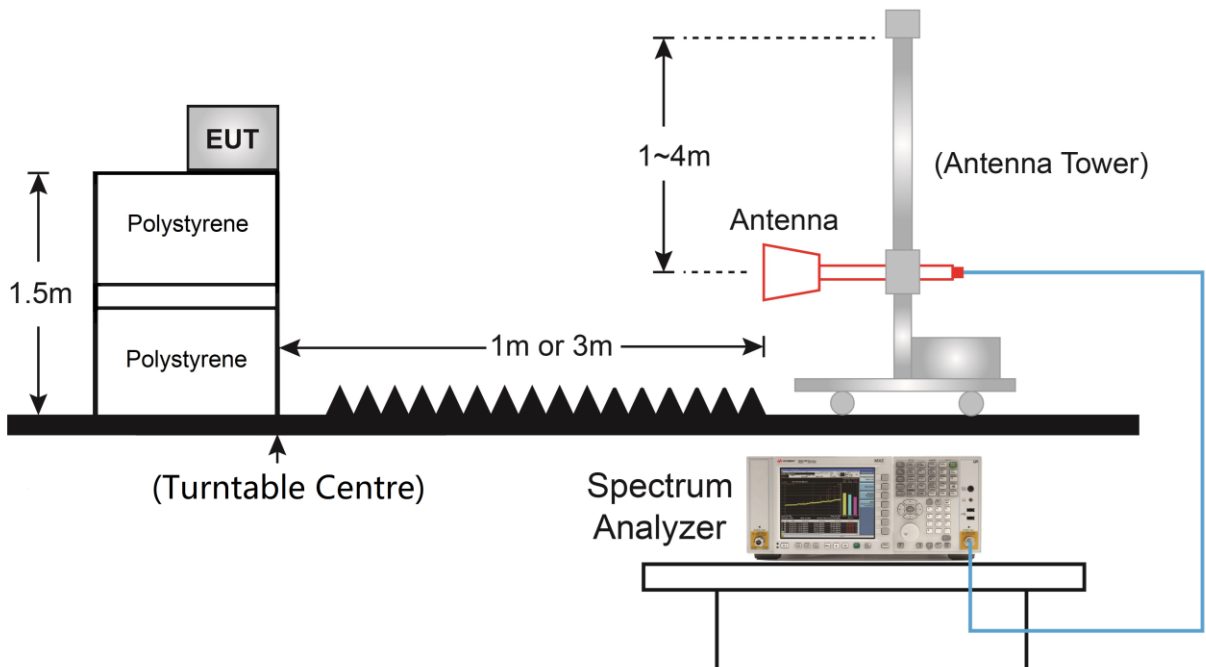
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

6.7.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.7.5. Test Result

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5729MHz
Test Mode	Full BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
	8233.5	50.0	-4.1	45.9	74.0	-28.1	Peak	Horizontal
	12075.5	49.9	-2.3	47.6	74.0	-26.4	Peak	Horizontal
*	15832.5	46.2	4.5	50.7	74.0	-23.3	Peak	Horizontal
	8310.0	50.6	-4.2	46.4	74.0	-27.6	Peak	Vertical
	11897.0	51.2	-2.2	49.0	74.0	-25.0	Peak	Vertical
*	15747.5	47.3	4.3	51.6	74.0	-22.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5788MHz
Test Mode	Full BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
	8344.0	50.9	-4.1	46.8	74.0	-27.2	Peak	Horizontal
	11888.5	50.2	-2.4	47.8	74.0	-26.2	Peak	Horizontal
*	16147.0	47.4	5.2	52.6	74.0	-21.4	Peak	Horizontal
	8140.0	50.8	-4.4	46.4	74.0	-27.6	Peak	Vertical
	11897.0	49.5	-2.2	47.3	74.0	-26.7	Peak	Vertical
*	15433.0	48.0	3.7	51.7	74.0	-22.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5846MHz
Test Mode	Full BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
	8259.0	50.5	-4.1	46.4	74.0	-27.6	Peak	Horizontal
	12305.0	50.4	-1.7	48.7	74.0	-25.3	Peak	Horizontal
*	16147.0	47.9	5.2	53.1	74.0	-20.9	Peak	Horizontal
	8148.5	50.4	-4.3	46.1	74.0	-27.9	Peak	Vertical
	12084.0	50.2	-2.2	48.0	74.0	-26.0	Peak	Vertical
*	15960.0	47.6	4.5	52.1	74.0	-21.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5729MHz
Test Mode	Half BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	8174.0	50.6	-4.3	46.3	74.0	-27.7	Peak	Horizontal
	12143.5	51.2	-2.3	48.9	74.0	-25.1	Peak	Horizontal
*	15960.0	48.1	4.5	52.6	74.0	-21.4	Peak	Horizontal
	8259.0	50.6	-4.1	46.5	74.0	-27.5	Peak	Vertical
	11718.5	50.7	-2.7	48.0	74.0	-26.0	Peak	Vertical
*	15883.5	48.4	4.0	52.4	74.0	-21.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5788MHz
Test Mode	Half BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
	8310.0	50.5	-4.2	46.3	74.0	-27.7	Peak	Horizontal
	11786.5	50.4	-2.6	47.8	74.0	-26.2	Peak	Horizontal
*	16121.5	48.0	4.0	52.0	74.0	-22.0	Peak	Horizontal
	8225.0	50.5	-4.1	46.4	74.0	-27.6	Peak	Vertical
	10962.0	50.1	-3.0	47.1	74.0	-26.9	Peak	Vertical
*	15662.5	47.8	3.4	51.2	74.0	-22.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC3	Test Engineer	Mero Zhou
Test Date	2021/07/14	Test Frequency	5846MHz
Test Mode	Half BW		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
	8318.5	50.6	-4.1	46.5	74.0	-27.5	Peak	Horizontal
	12101.0	50.4	-2.0	48.4	74.0	-25.6	Peak	Horizontal
*	15756.0	47.0	4.4	51.4	74.0	-22.6	Peak	Horizontal
	8267.5	49.9	-4.1	45.8	74.0	-28.2	Peak	Vertical
	12041.5	50.8	-2.5	48.3	74.0	-25.7	Peak	Vertical
*	16062.0	46.2	5.2	51.4	74.0	-22.6	Peak	Vertical

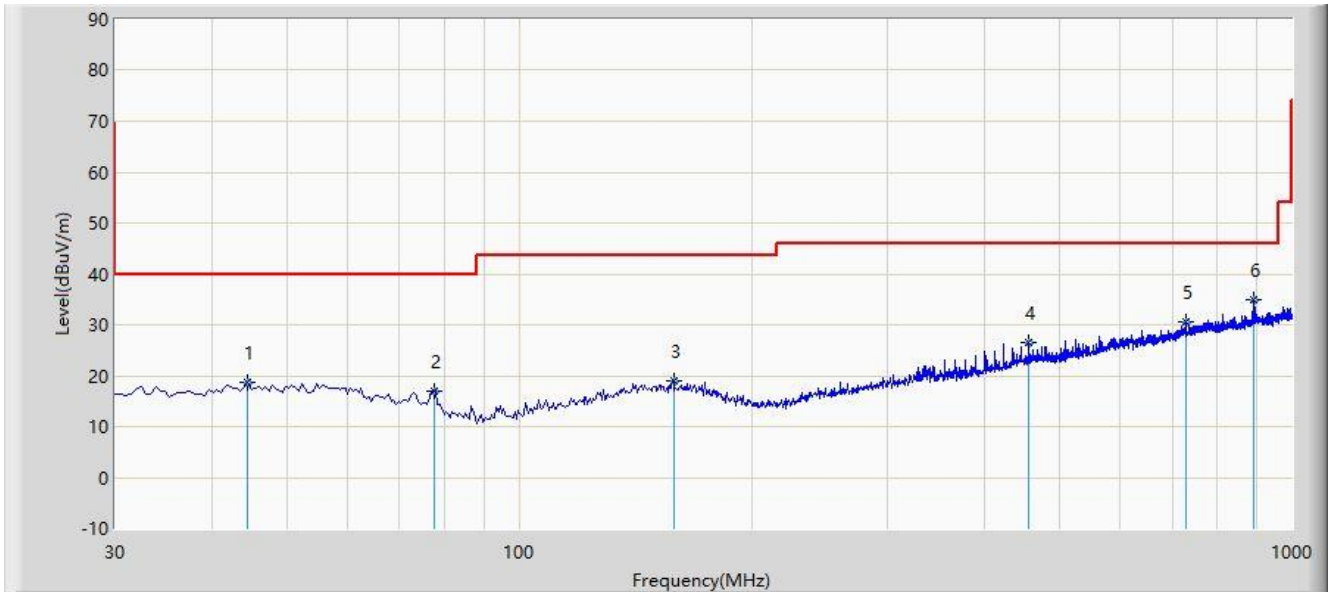
Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Worst Case of Radiated Emission below 1GHz:

Site: SIP-AC2	Time: 2021/07/15 - 10:15
Limit: FCC_Part15.209_RSE(3m)	Engineer: Edward Zhang
Probe: SIP-AC2_VULB 9168 _30-1000MHz	Polarity: Horizontal
EUT: Wireless Handheld Transmitter	Power: By Battery
Worst Case Mode: Transmit by Full mode bandwidth at channel 5788MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			44.550	18.732	0.184	-21.268	40.000	18.548	QP
2			77.530	16.906	2.066	-23.094	40.000	14.840	QP
3			158.525	19.068	0.389	-24.432	43.500	18.679	QP
4			457.285	26.404	3.406	-19.596	46.000	22.998	QP
5			729.370	30.638	2.706	-15.362	46.000	27.932	QP
6		*	890.390	35.010	5.088	-10.990	46.000	29.922	QP

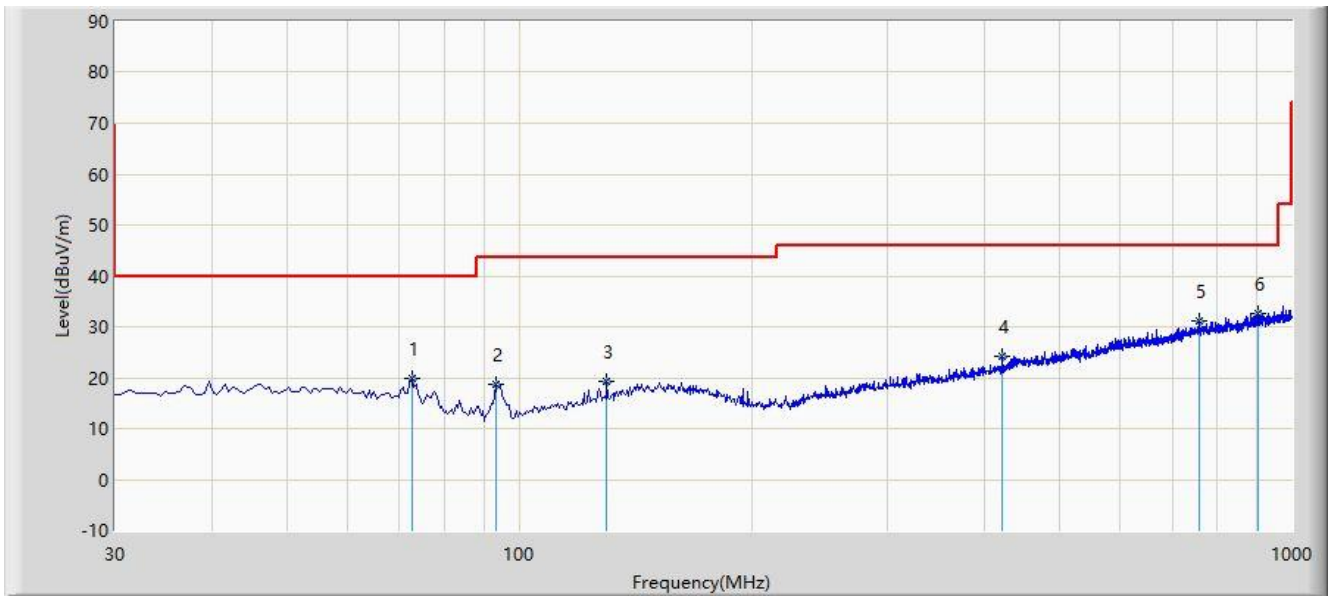
Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Site: SIP-AC2	Time: 2021/07/15 - 10:19
Limit: FCC_Part15.209_RSE(3m)	Engineer: Edward Zhang
Probe: SIP-AC2_VULB 9168 _30-1000MHz	Polarity: Vertical
EUT: Wireless Handheld Transmitter	Power: By Battery
Worst Case Mode: Transmit by Full mode bandwidth at channel 5788MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			72.680	19.806	3.957	-20.194	40.000	15.849	QP
2			93.535	18.610	5.819	-24.890	43.500	12.791	QP
3			129.910	19.312	2.195	-24.188	43.500	17.117	QP
4			421.395	24.264	2.299	-21.736	46.000	21.965	QP
5			757.500	31.210	2.503	-14.790	46.000	28.707	QP
6		*	902.515	32.704	2.486	-13.296	46.000	30.218	QP

Note 1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

6.8. Radiated Restricted Band Edge Measurement

6.8.1. Test Limit

For 15.205 Requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (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	--	--	--

For 15.407(b) Requirement:

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

Refer to KDB 789033 D02v02r01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with

both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (μV/m)	Measured Distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.8.2. Test Procedure Used

KDB 789033 D02v02r01- Section G

6.8.3. Test Setting

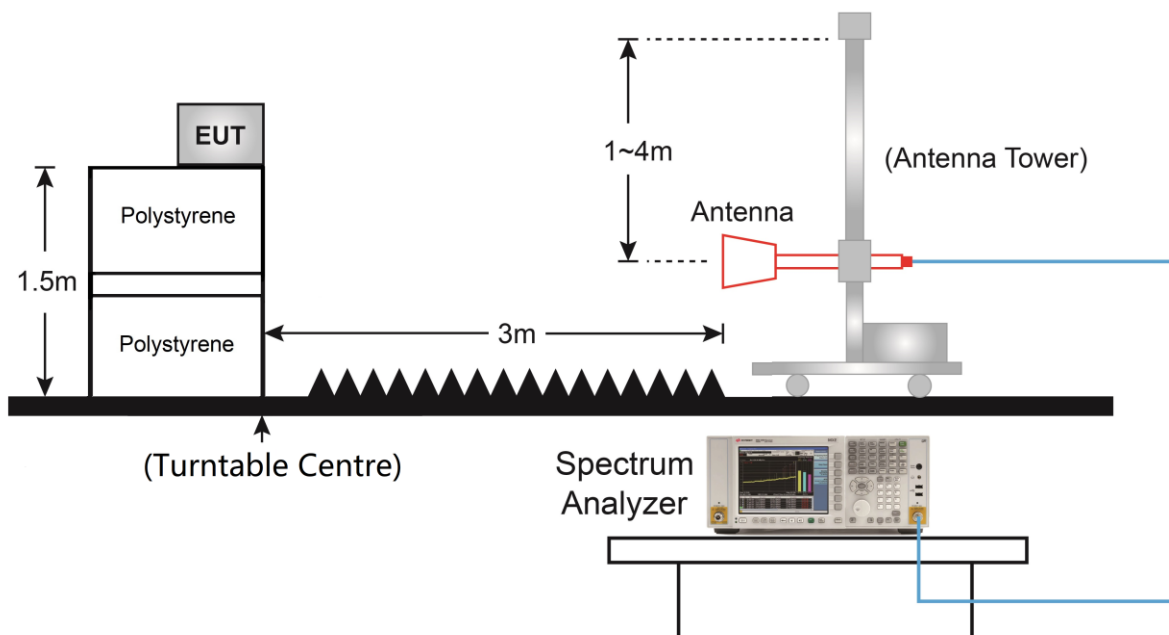
Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

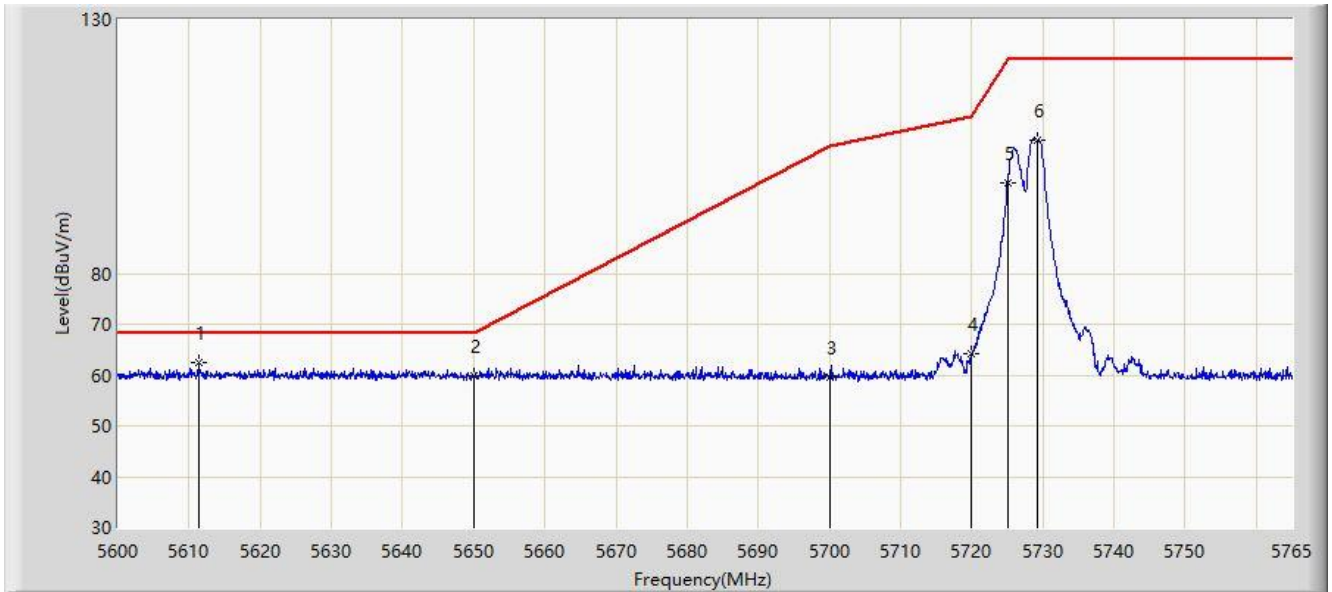
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10Hz
4. If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

6.8.4. Test Setup



6.8.5. Test Result

Site: SIP-AC3	Time: 2021/07/14 - 14:23
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Horizontal
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Full Bandwidth at Channel 5729MHz	

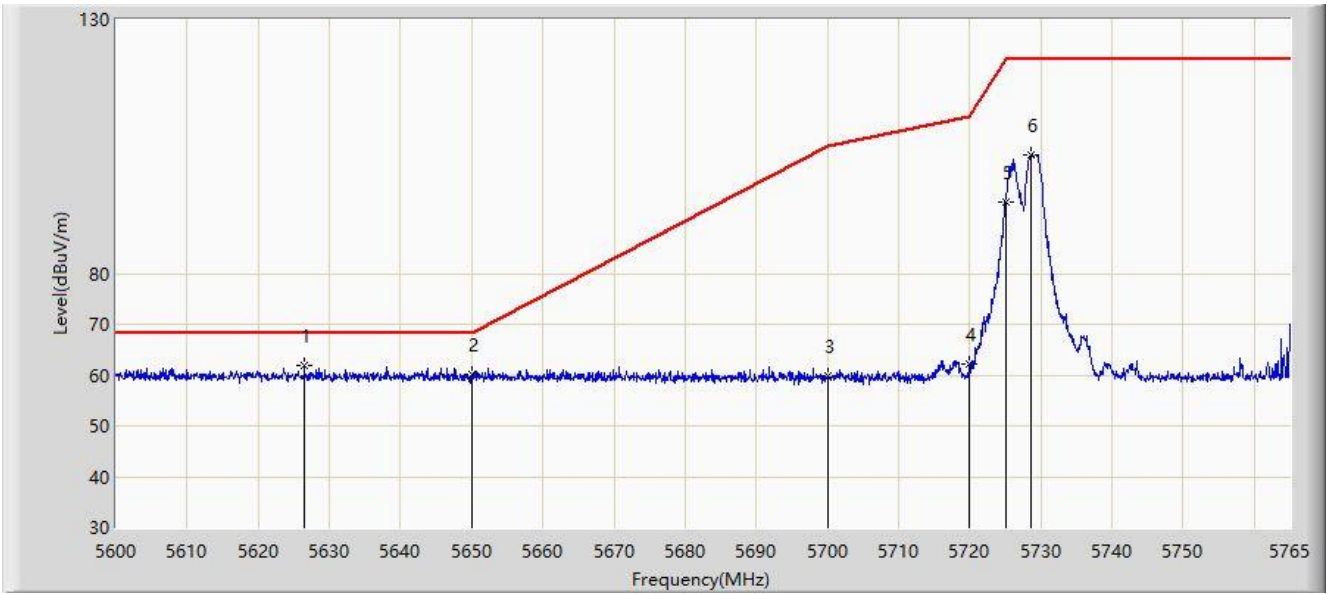


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5611.385	62.425	70.607	-5.775	68.200	-8.182	PK
2			5650.000	59.890	68.099	-8.310	68.200	-8.209	PK
3			5700.000	59.541	67.954	-45.659	105.200	-8.414	PK
4			5720.000	64.210	72.547	-46.590	110.800	-8.336	PK
5			5725.000	97.728	106.040	-24.472	122.200	-8.312	PK
6			5729.277	106.319	114.652	N/A	N/A	-8.332	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 14:31
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Vertical
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Full Bandwidth at Channel 5729MHz	

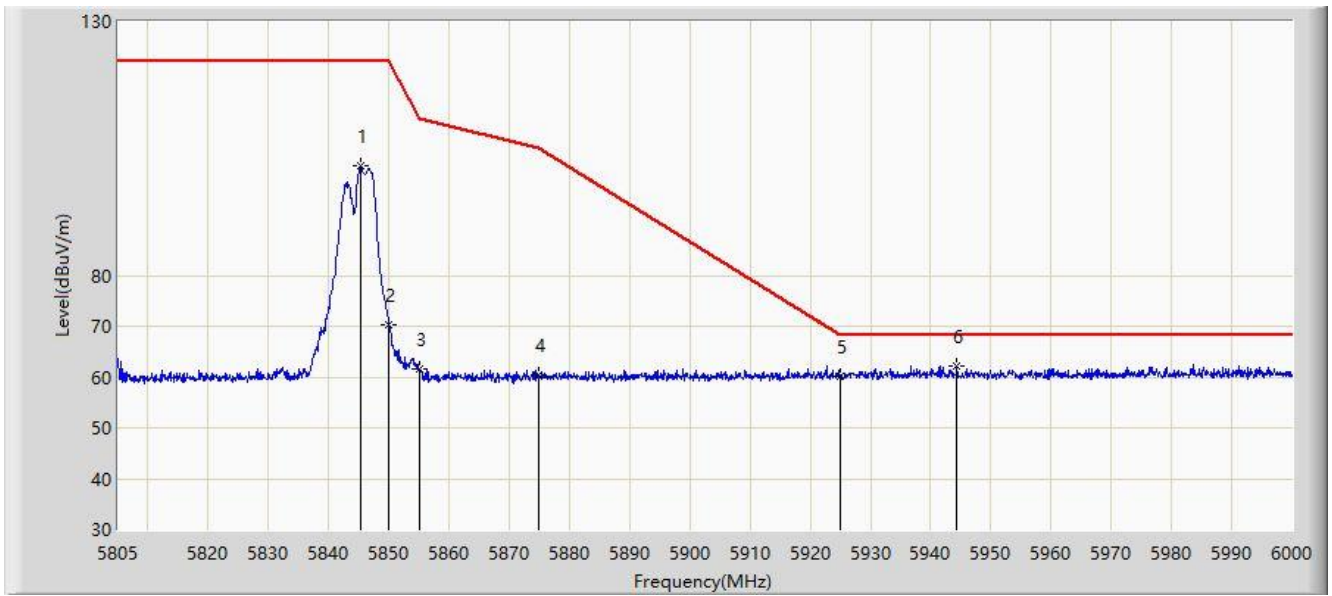


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5626.482	61.933	70.169	-6.267	68.200	-8.236	PK
2			5650.000	60.002	68.211	-8.198	68.200	-8.209	PK
3			5700.000	59.933	68.346	-45.267	105.200	-8.414	PK
4			5720.000	62.084	70.421	-48.716	110.800	-8.336	PK
5			5725.000	93.960	102.272	-28.240	122.200	-8.312	PK
6			5728.535	103.335	111.662	N/A	N/A	-8.327	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 14:35
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Horizontal
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Full Bandwidth at Channel 5846MHz	

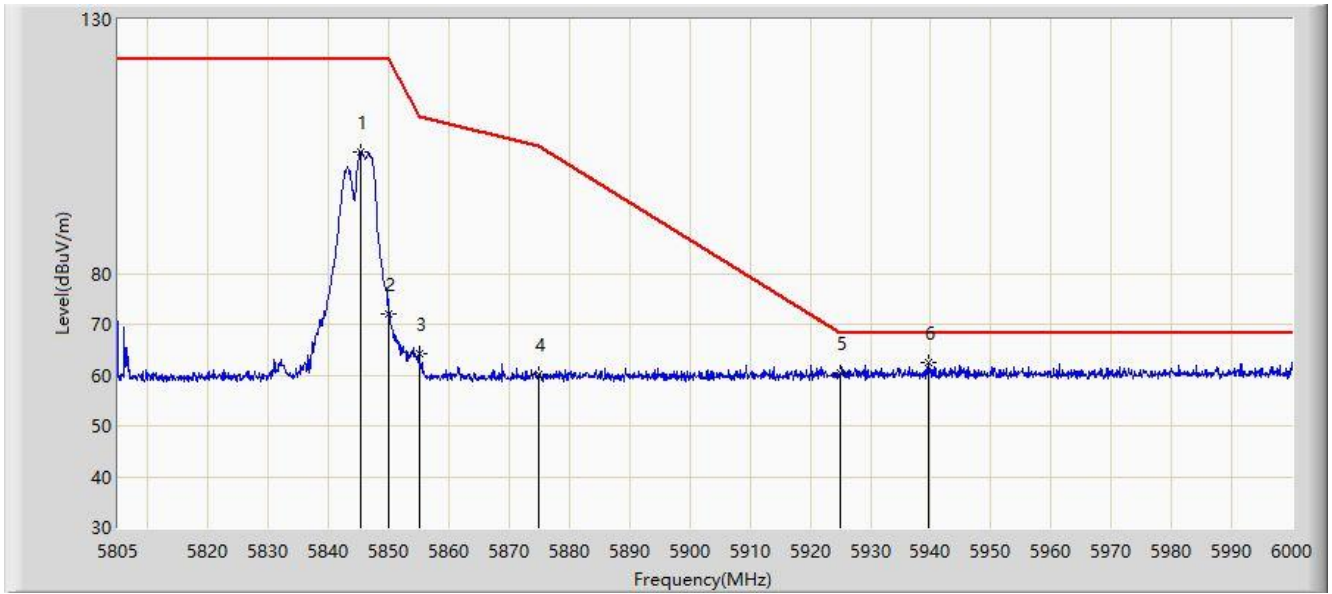


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5845.268	101.479	109.568	N/A	N/A	-8.089	PK
2			5850.000	70.409	78.513	-51.791	122.200	-8.104	PK
3			5855.000	61.619	69.739	-49.181	110.800	-8.119	PK
4			5875.000	60.398	68.391	-44.802	105.200	-7.993	PK
5			5925.000	60.005	67.811	-8.195	68.200	-7.805	PK
6		*	5944.328	62.305	70.051	-5.895	68.200	-7.745	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 14:44
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Vertical
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Full Bandwidth at Channel 5846MHz	

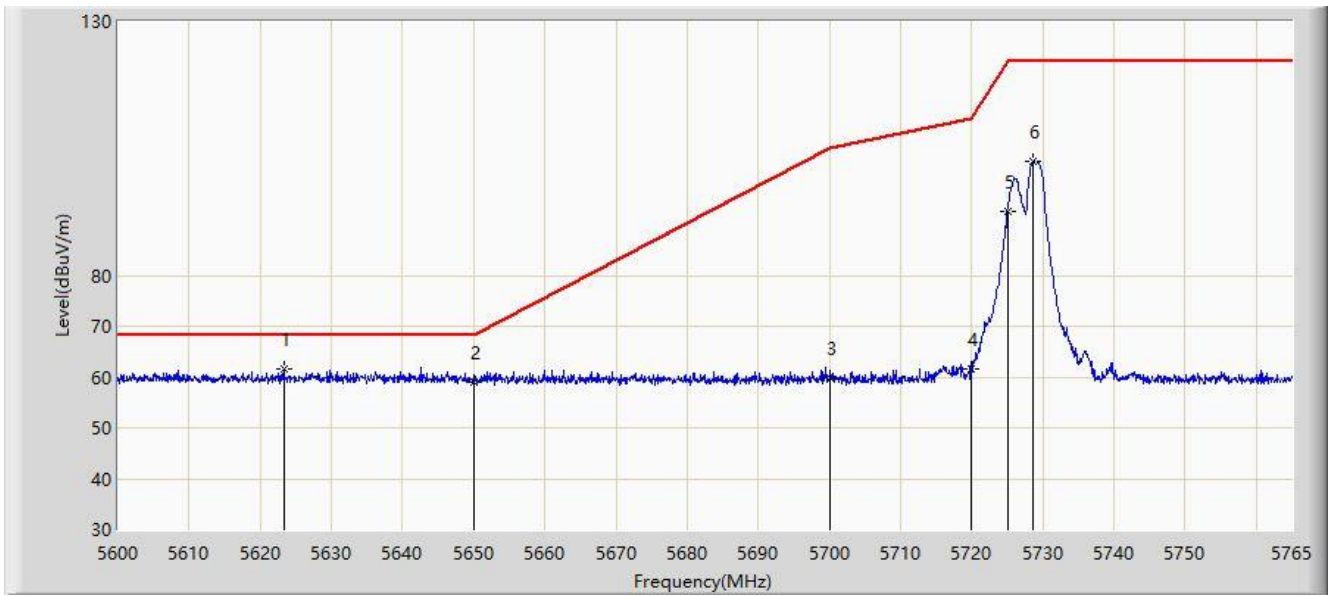


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5845.268	104.011	112.100	N/A	N/A	-8.089	PK
2			5850.000	71.908	80.012	-50.292	122.200	-8.104	PK
3			5855.000	64.306	72.426	-46.494	110.800	-8.119	PK
4			5875.000	60.267	68.260	-44.933	105.200	-7.993	PK
5			5925.000	60.301	68.107	-7.899	68.200	-7.805	PK
6		*	5939.745	62.587	70.328	-5.613	68.200	-7.741	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 14:48
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Horizontal
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Half Bandwidth at Channel 5729MHz	

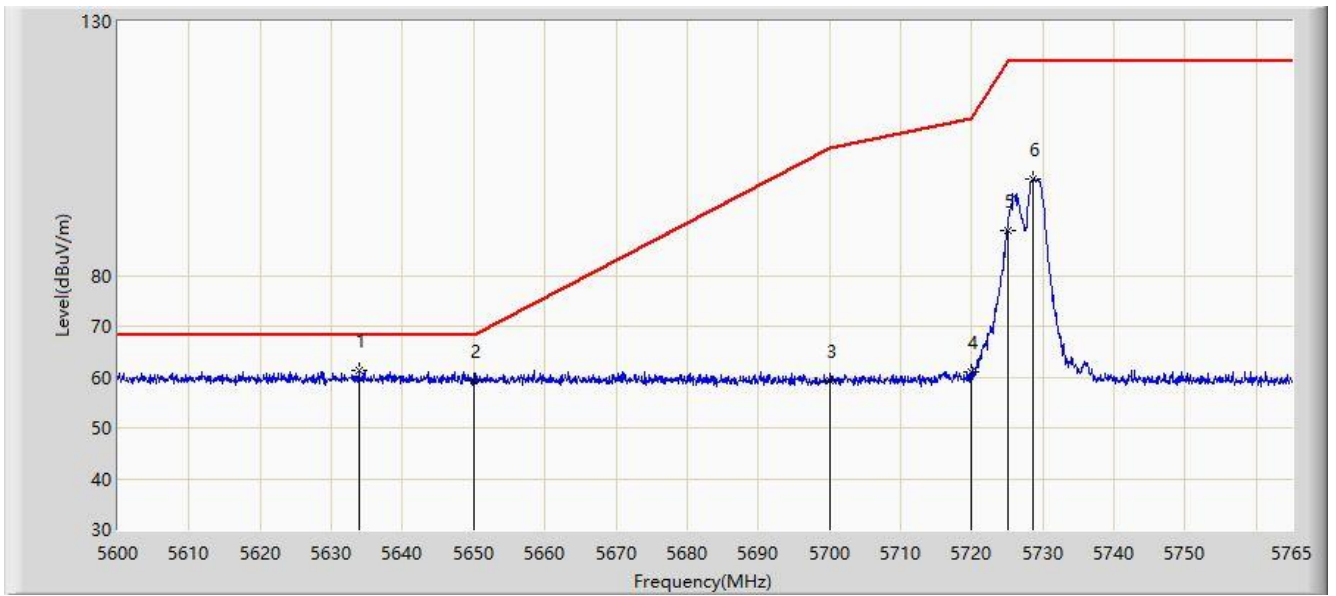


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5623.265	61.596	69.841	-6.604	68.200	-8.244	PK
2			5650.000	58.850	67.059	-9.350	68.200	-8.209	PK
3			5700.000	59.923	68.336	-45.277	105.200	-8.414	PK
4			5720.000	61.669	70.006	-49.131	110.800	-8.336	PK
5			5725.000	92.701	101.013	-29.499	122.200	-8.312	PK
6			5728.535	102.332	110.659	N/A	N/A	-8.327	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 15:09
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Vertical
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Half Bandwidth at Channel 5729MHz	

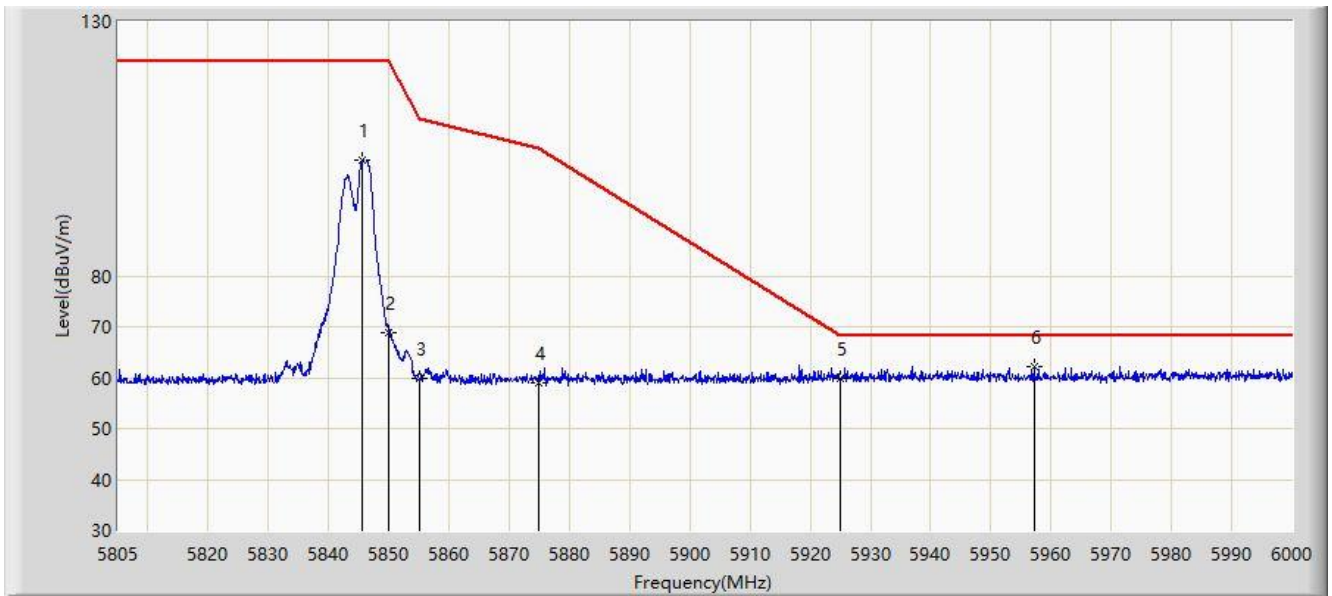


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5633.825	61.285	69.483	-6.915	68.200	-8.197	PK
2			5650.000	59.282	67.491	-8.918	68.200	-8.209	PK
3			5700.000	59.334	67.747	-45.866	105.200	-8.414	PK
4			5720.000	60.875	69.212	-49.925	110.800	-8.336	PK
5			5725.000	88.878	97.190	-33.322	122.200	-8.312	PK
6			5728.618	99.116	107.443	N/A	N/A	-8.327	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 15:13
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Horizontal
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Half Bandwidth at Channel 5846MHz	

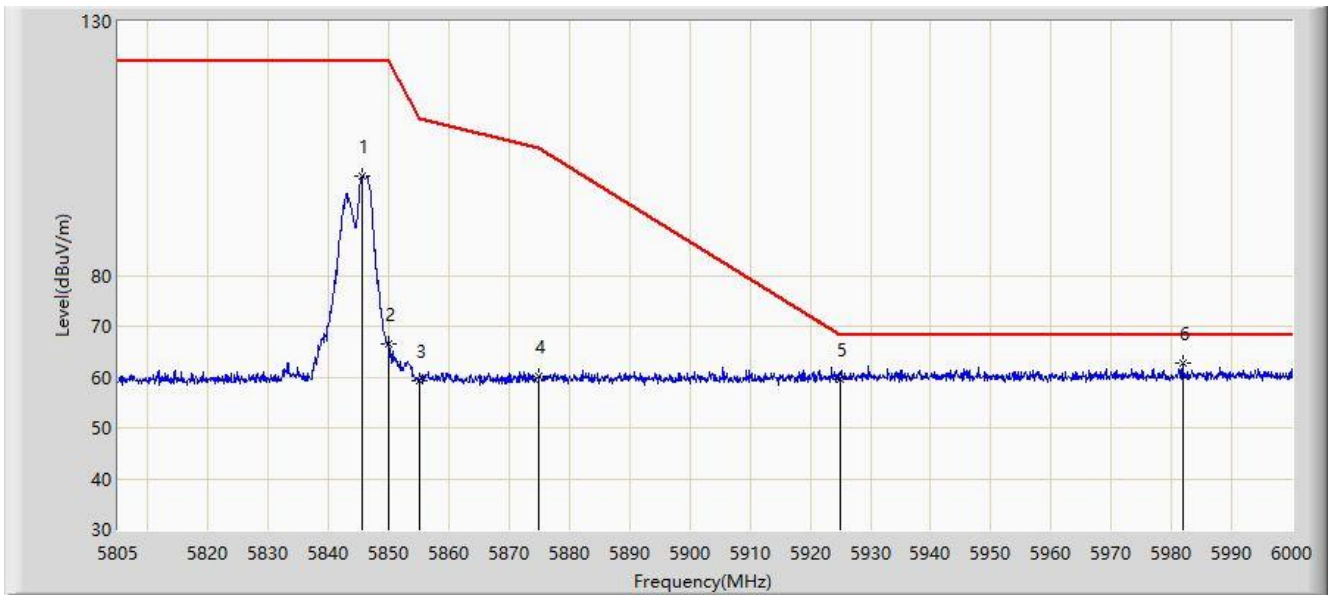


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5845.658	102.835	110.925	N/A	N/A	-8.090	PK
2			5850.000	68.821	76.925	-53.379	122.200	-8.104	PK
3			5855.000	59.883	68.003	-50.917	110.800	-8.119	PK
4			5875.000	59.115	67.108	-46.085	105.200	-7.993	PK
5			5925.000	59.711	67.517	-8.489	68.200	-7.805	PK
6		*	5957.197	62.165	69.990	-6.035	68.200	-7.826	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC3	Time: 2021/07/14 - 15:19
Limit: FCC_Part15.407_RE(3m)	Engineer: Stephen Dong
Probe: SIP-AC3_HF907_102861_1-18GHz	Polarity: Vertical
EUT: Wireless Handheld Transmitter	Power: By Battery
Note: Transmit by Half Bandwidth at Channel 5846MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5845.560	99.591	107.681	N/A	N/A	-8.089	PK
2			5850.000	66.565	74.669	-55.635	122.200	-8.104	PK
3			5855.000	59.249	67.369	-51.551	110.800	-8.119	PK
4			5875.000	60.129	68.122	-45.071	105.200	-7.993	PK
5			5925.000	59.492	67.298	-8.708	68.200	-7.805	PK
6		*	5981.865	62.865	70.592	-5.335	68.200	-7.728	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

6.9. AC Conducted Emissions Measurement

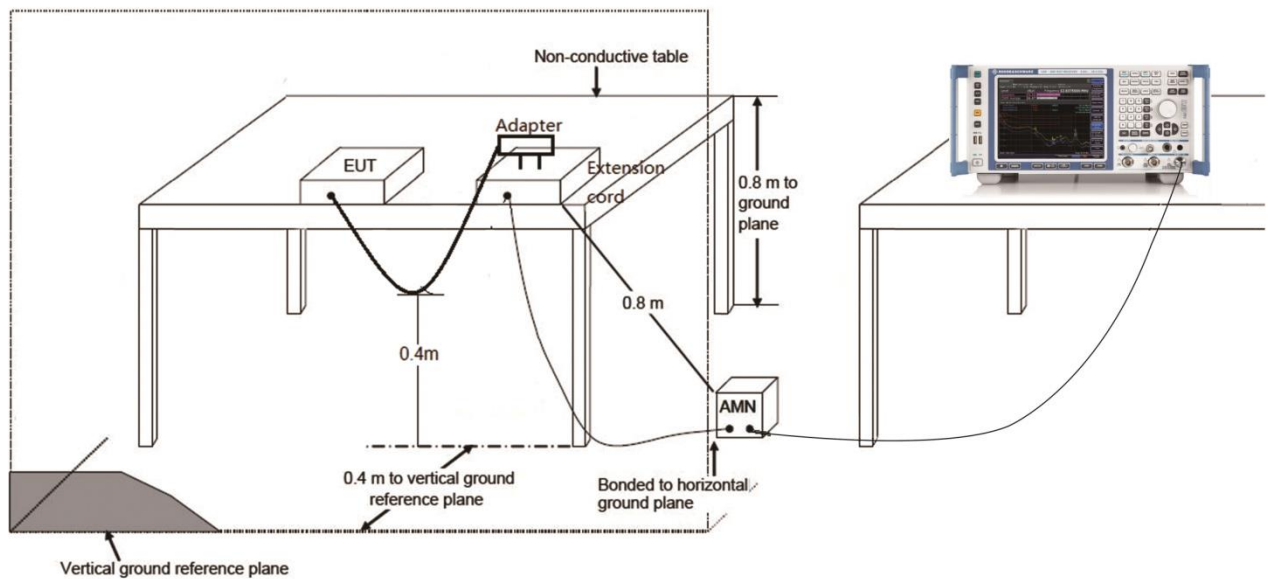
6.9.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

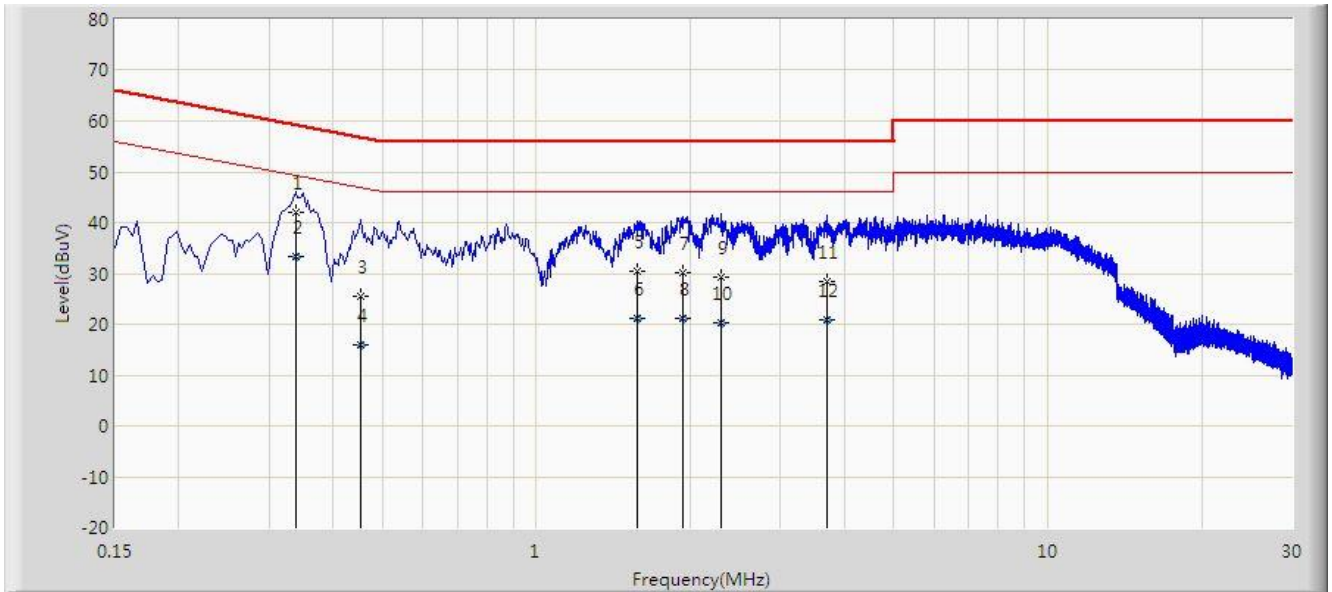
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.9.2. Test Setup



6.9.3. Test Result

Site: SIP-SR2	Time: 2021/07/10 - 15:54
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Kyrie Xie
Probe: SIP-SR2-ENV216_101684_With Connector	Polarity: Line
EUT: Wireless Handheld Transmitter	Power: AC 120V/60Hz
Note: Charging	

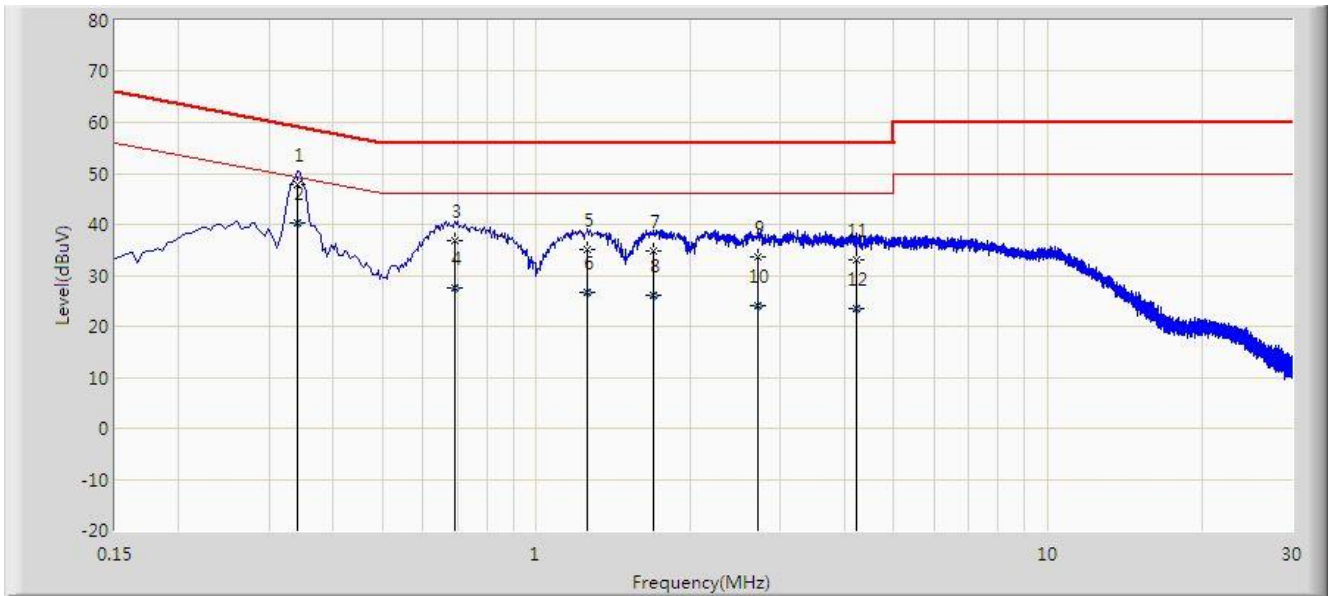


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.338	41.914	32.368	-17.338	59.252	9.546	QP
2		*	0.338	33.385	23.839	-15.867	49.252	9.546	AV
3			0.454	25.537	15.981	-31.264	56.802	9.557	QP
4			0.454	15.887	6.330	-30.915	46.802	9.557	AV
5			1.578	30.391	20.821	-25.609	56.000	9.570	QP
6			1.578	21.227	11.657	-24.773	46.000	9.570	AV
7			1.930	30.267	20.697	-25.733	56.000	9.570	QP
8			1.930	21.289	11.719	-24.711	46.000	9.570	AV
9			2.298	29.386	19.796	-26.614	56.000	9.590	QP
10			2.298	20.329	10.738	-25.671	46.000	9.590	AV
11			3.702	28.383	18.696	-27.617	56.000	9.687	QP
12			3.702	20.842	11.154	-25.158	46.000	9.687	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Time: 2021/07/10 - 16:01
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Kyrie Xie
Probe: SIP-SR2-ENV216_101684_With Connector	Polarity: Neutral
EUT: Wireless Handheld Transmitter	Power: AC 120V/60Hz
Note: Charging	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.342	47.968	38.443	-11.186	59.155	9.525	QP
2		*	0.342	40.338	30.813	-8.817	49.155	9.525	AV
3			0.694	36.678	27.138	-19.322	56.000	9.540	QP
4			0.694	27.675	18.135	-18.325	46.000	9.540	AV
5			1.258	35.147	25.604	-20.853	56.000	9.543	QP
6			1.258	26.651	17.108	-19.349	46.000	9.543	AV
7			1.690	34.796	25.239	-21.204	56.000	9.557	QP
8			1.690	26.143	16.586	-19.857	46.000	9.557	AV
9			2.718	33.515	23.938	-22.485	56.000	9.577	QP
10			2.718	24.048	14.471	-21.952	46.000	9.577	AV
11			4.234	32.965	23.293	-23.035	56.000	9.672	QP
12			4.234	23.615	13.943	-22.385	46.000	9.672	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

7. CONCLUSION

The data collected relate only the item(s) tested and show that the device is compliance with Part 15E of the FCC rules.

_____ The End _____

Appendix A - Test Setup Photograph

Refer to "2106RSU074-UT" file.

Appendix B - EUT Photograph

Refer to "2106RSU074-UE" file.