RF TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

WS7300 series modules

ISSUED TO
Zhejiang Lierda Internet of Things Technology Co., Ltd

Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov.

Tested by: Yu Yingyuan
Yu Yingyuan
Date: Nov. 29, 2021

Approved by:
Wei Yanquan
(Chief Engineer)
Date: Nov. 29, 2021

Report No.:	BL-SZ21A0447-601
EUT Name:	WS7300 series modules
Model Name:	WS7300-P915 (refer section 2.4)
Brand Name:	lierda
Test Standard:	47 CFR Part 15 Subpart C (refer section 3.1)
FCC ID:	2AOFDWS7300-P915
Test Conclusion:	Pass
Test Date:	Oct. 26, 2021 ~ Nov. 09, 2021
Date of Issue:	Nov. 29, 2021

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Nov. 22, 2021	Initial Issue
Rev. 02	Nov. 29, 2021	1. Page 16, the description of the antenna anti-replacement method has been updated. 2. Page 8, updated the modulation type.

TABLE OF CONTENTS

1 ADMINISTRATIVE DATA (GENERAL INFORMATION) 5

1.1 Identification of the Testing Laboratory 5

1.2 Identification of the Responsible Testing Location 5

1.3 Laboratory Condition 5

1.4 Announce 5

2 PRODUCT INFORMATION 6

2.1 Applicant Information 6

2.2 Manufacturer Information 6

2.3 Factory Information 6

2.4 General Description for Equipment under Test (EUT) 6

2.5 Technical Information 7

2.6 Additional Instructions 9

3 SUMMARY OF TEST RESULTS 10

3.1 Test Standards 10

3.2 Verdict 10

4 GENERAL TEST CONFIGURATIONS 11

4.1 Test Environments 11

4.2 Test Equipment List 11

4.3 Measurement Uncertainty 11

4.4 Description of Test Setup 12

4.4.1 For Antenna Port Test 12

4.4.2 For AC Power Supply Port Test 12

4.4.3 For Radiated Test (Below 30 MHz) 13

4.4.4 For Radiated Test (30 MHz-1 GHz) 13

4.4.5 For Radiated Test (Above 1 GHz) 14

4.5 Measurement Results Explanation Example 15
4.5.1 For conducted test items: 15
5 TEST ITEMS 16
5.1 Antenna Requirements 16
5.1.1 Relevant Standards 16
5.1.2 Antenna Anti-Replacement Construction 16
5.1.3 Antenna Gain 16
5.2 Number of Hopping Frequencies 17
5.2.1 Limit 17
5.2.2 Test Procedure 17
5.2.3 Test Result 17
5.3 Peak Output Power 18
5.3.1 Test Limit 18
5.3.2 Test Setup 18
5.3.3 Test Procedure 18
5.3.4 Test Result 18
5.4 Occupied Bandwidth 19
5.4.1 Limit 19
5.4.2 Test Setup 19
5.4.3 Test Procedure 19
5.4.4 Test Result 19
5.5 Carrier Frequency Separation 20
5.5.1 Limit 20
5.5.2 Test Setup 20
5.5.3 Test Procedure 20
5.5.4 Test Result 20
5.6 Time of Occupancy (Dwell time) 21
5.6.1 Limit 21
5.6.2 Test Setup 21
5.6.3 Test Procedure 21
5.6.4 Test Result 21
5.7 Conducted Spurious Emission & Authorized-band band-edge 22

5.7.1 Limit 22
5.7.2 Test Setup 22
5.7.3 Test Procedure 22
5.7.4 Test Result 22
5.8 Conducted Emission 23
5.8.1 Limit 23
5.8.2 Test Setup 23
5.8.3 Test Procedure 23
5.8.4 Test Result 23
5.9 Radiated Spurious Emission 24
5.9.1 Limit 24
5.9.2 Test Setup 24
5.9.3 Test Procedure 24
5.9.4 Test Result 25
5.10 Band Edge (Restricted-band band-edge) 26
5.10.1 Limit 26
5.10.2 Test Setup 26
5.10.3 Test Procedure 26
5.10.4 Test Result 26
ANNEX A TEST RESULT 27
A.1 Number of Hopping Frequency 27
A.2 Peak Output Power 28
A.3 20 dB and 99% bandwidth 29
A.4 Hopping Frequency Separation 31
A.5 Average Time of Occupancy 32
A.6 Conducted Spurious Emissions & Authorized-band band-edge 33
A.7 Conducted Emissions 37
A.8 Radiated Spurious Emission 39
A.9 Band Edge (Restricted-band band-edge) 48
ANNEX B TEST SETUP PHOTOS 50
ANNEX C EUT EXTERNAL PHOTOS 50
ANNEX D EUT INTERNAL PHOTOS 50

1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20℃ to 25℃
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

(1) The test report reference to the report template version v2.2.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Zhejiang Lierda Internet of Things Technology Co., Ltd
Address	Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov.

2.2 Manufacturer Information

Manufacturer	Zhejiang Lierda Internet of Things Technology Co., Ltd
Address	Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov.

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Type	WS7300 series modules
Model Name Under Test	WS7300-P915
Series Model Name	LSD4RF-3V930RN0
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only different on model name.
Hardware Version	01
Software Version	01
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Technical Information

Network and Wireless connectivity	Wi-SUN

The requirement for the following technical information of the EUT was tested in this report:

Modulation Technology	Frequency hopping system
Modulation Type	GFSK
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Frequency Range	The frequency range used is 902 MHz to 928 MHz.
Number of channel	129
Tested Channel	1 (902.2 MHz), 65 (915.0 MHz), 129 (927.8 MHz)
Antenna Type	Dipole Antenna
Antenna Gain	2.0 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)
Antenna System(MIMO Smart Antenna)	N/A

All channel was listed on the following table:

Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)
1	**902.2**	39	909.8	77	917.4	115	925.0
2	902.4	40	910.0	78	917.6	116	925.2
3	902.6	41	910.2	79	917.8	117	925.4
4	902.8	42	910.4	80	918.0	118	925.6
5	903.0	43	910.6	81	918.2	119	925.8
6	903.2	44	910.8	82	918.4	120	926.0
7	903.4	45	911.0	83	918.6	121	926.2
8	903.6	46	911.2	84	918.8	122	926.4
9	903.8	47	911.4	85	919.0	123	926.6
10	904.0	48	911.6	86	919.2	124	926.8
11	904.2	49	911.8	87	919.4	125	927.0
12	904.4	50	912.0	88	919.6	126	927.2
13	904.6	51	912.2	89	919.8	127	927.4
14	904.8	52	912.4	90	920.0	128	927.6
15	905.0	53	912.6	91	920.2	**129**	**927.8**
16	905.2	54	912.8	92	920.4	--	--
17	905.4	55	913.0	93	920.6	--	--
18	905.6	56	913.2	94	920.8	--	--
19	905.8	57	913.4	95	921.0	--	--
20	906.0	58	913.6	96	921.2	--	--
21	906.2	59	913.8	97	921.4	--	--
22	906.4	60	914.0	98	921.6	--	--
23	906.6	61	914.2	99	921.8	--	--
24	906.8	62	914.4	100	922.0	--	--
25	907.0	63	914.6	101	922.2	--	--
26	907.2	64	914.8	102	922.4	--	--
27	907.4	**65**	**915.0**	103	922.6	--	--
28	907.6	66	915.2	104	922.8	--	--
29	907.8	67	915.4	105	923.0	--	--
30	908.0	68	915.6	106	923.2	--	--
31	908.2	69	915.8	107	923.4	--	--
32	908.4	70	916.0	108	923.6	--	--
33	908.6	71	916.2	109	923.8	--	--
34	908.8	72	916.4	110	924.0	--	--
35	909.0	73	916.6	111	924.2	--	--
36	909.2	74	916.8	112	924.4	--	--
37	909.4	75	917.0	113	924.6	--	--
38	909.6	76	917.2	114	924.8	--	--

2.6 Additional Instructions

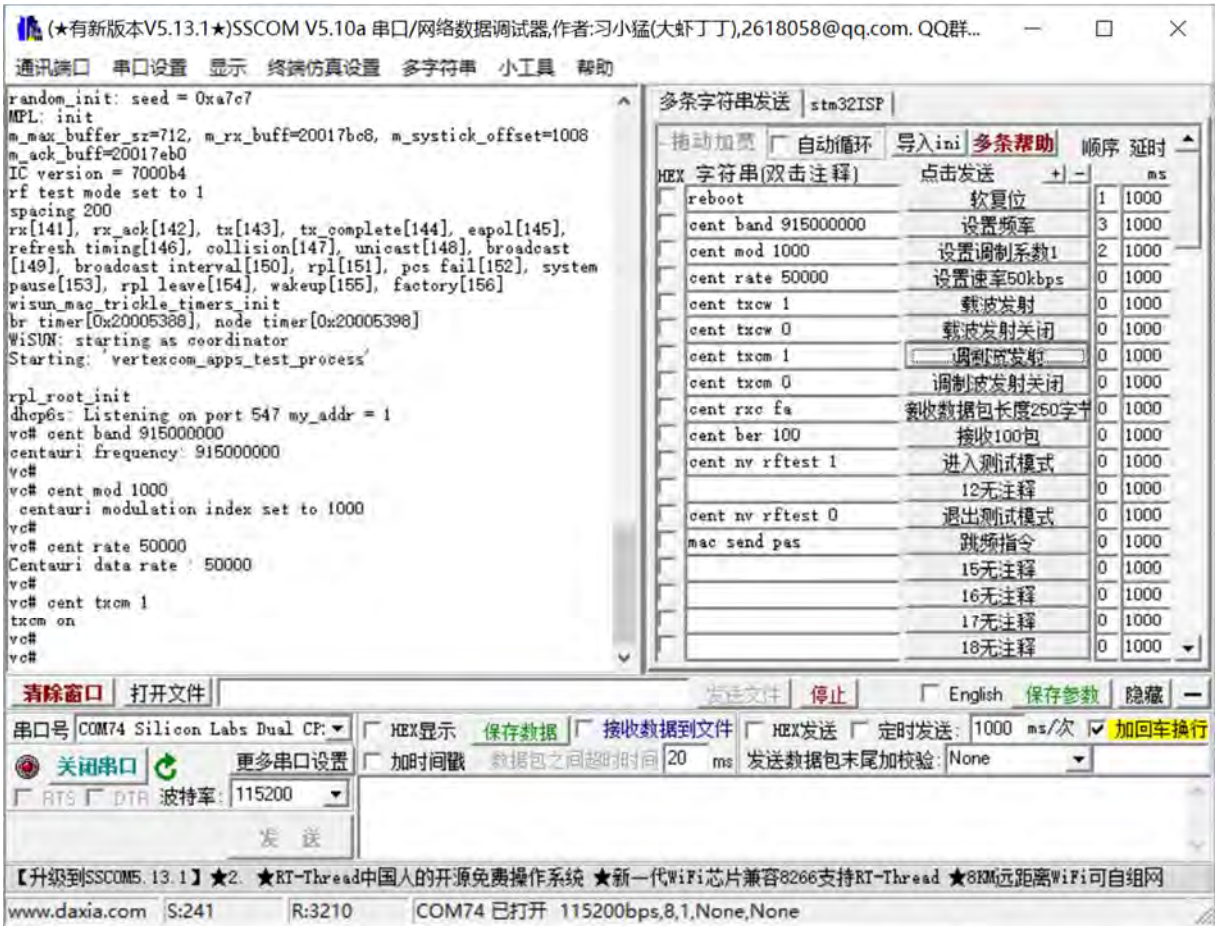
EUT Software Settings:

Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power level setup in software			
Test Software Version	SSCOM V5.10a		
Support Units (Software installation media)	Description	Manufacturer	Model
	Notebook	HP	N/A
Mode	Channel	Frequency (MHz)	Soft Set
Wi-SUN	CH1	902.2	TX LEVEL is built-in set parameters and cannot be changed and selected.
	CH65	915.0	
	CH129	927.8	

Run Software



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Miscellaneous Wireless Communications Services
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

3.2 Verdict

No.	Description	FCC Part No.	Modulation Technology	Channel	Test Result	Verdict	Remark
1	Antenna Requirement	15.203	N/A	N/A	--	Pass	Note [1]
2	Number of Hopping Frequencies	15.247(a)	Frequency hopping system	Hopping Mode	ANNEX A.1	Pass	
3	Peak Output Power	15.247(b)	Frequency hopping system	Low/Middle/High	ANNEX A.2	Pass	
4	Occupied Bandwidth	15.247(a)	Frequency hopping system	Low/Middle/High	ANNEX A.3	Pass	
5	Carrier Frequency Separation	15.247(a)	Frequency hopping system	Hopping Mode	ANNEX A.4	Pass	
6	Time of Occupancy (Dwell time)	15.247(a)	Frequency hopping system	Hopping Mode	ANNEX A.5	Pass	
7	Conducted Spurious Emission & Authorized-band band-edge	15.247(d)	Frequency hopping system	Low/Middle/High, Hopping Mode	ANNEX A.6	Pass	
8	Conducted Emission	15.207	Frequency hopping system	Low/Middle/High	ANNEX A.7	Pass	
9	Radiated Spurious Emission	15.209 15.247(d)	Frequency hopping system	Low/Middle/High	ANNEX A.8	Pass	
10	Band Edge(Restricted-band band-edge)	15.209 15.247(d)	Frequency hopping system	Low/Middle/High	ANNEX A.9	Pass	
Note [1]: Please refer to section 5.1							

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	45% to 55%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22℃ to +25℃
Working Voltage of the EUT	NV (Normal Voltage)	5 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2021.04.01	2022.03.31
Bluetooth Signaling Unit	ROHDE&SCHWARZ	CMW500	142028	2021.06.01	2022.05.31
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2021.06.01	2022.05.31
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2021.06.01	2022.05.31
LISN	SCHWARZBECK	NSLK 8127	8127-687	2021.06.01	2022.05.31
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2021.04.16	2024.04.15
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2021.08.20	2024.08.19
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2022.07.01
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2021.07.02	2023.07.01
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2019.08.08	2022.08.07
Shielded Enclosure	ChangNing	CN-130701	130703	--	--

4.3 Measurement Uncertainty

The following measurement 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.

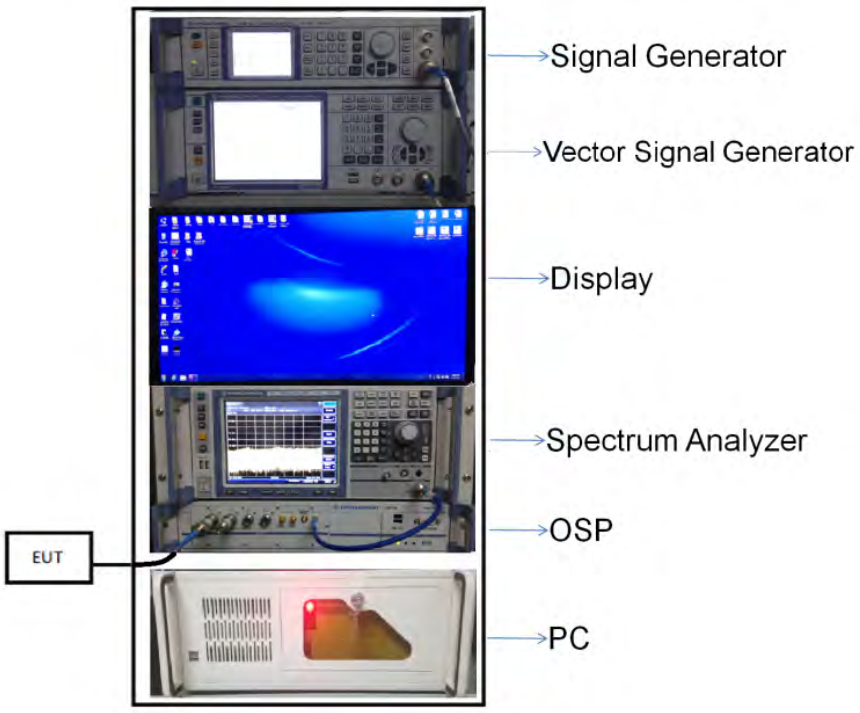
Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.82°C
Humidity	4.1%

4.4 Description of Test Setup

4.4.1 For Antenna Port Test

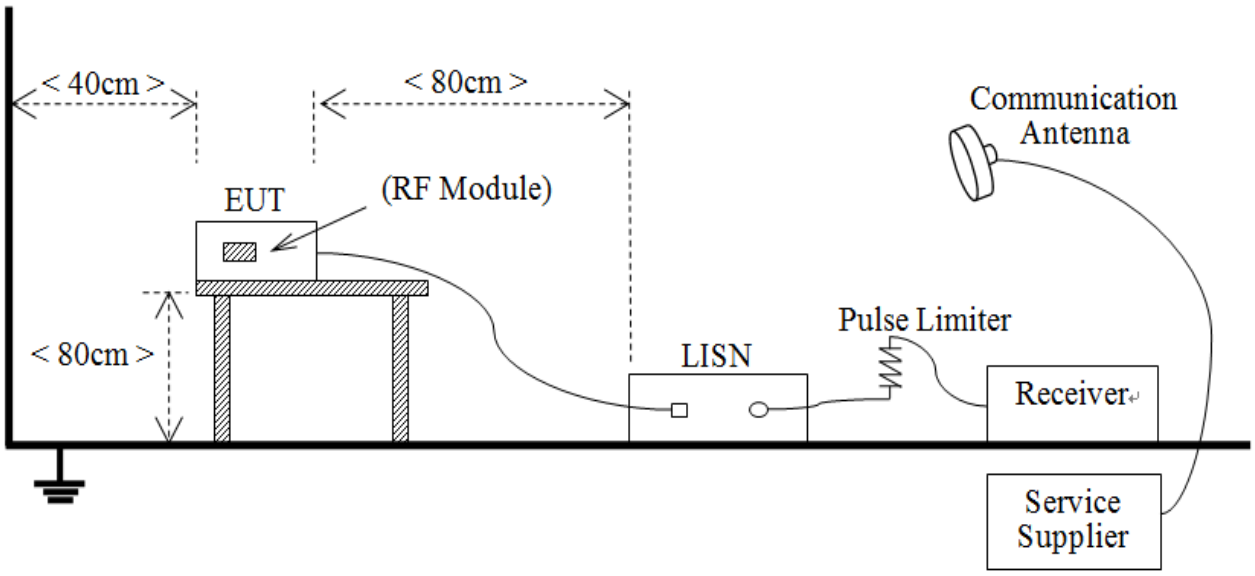
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:
Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



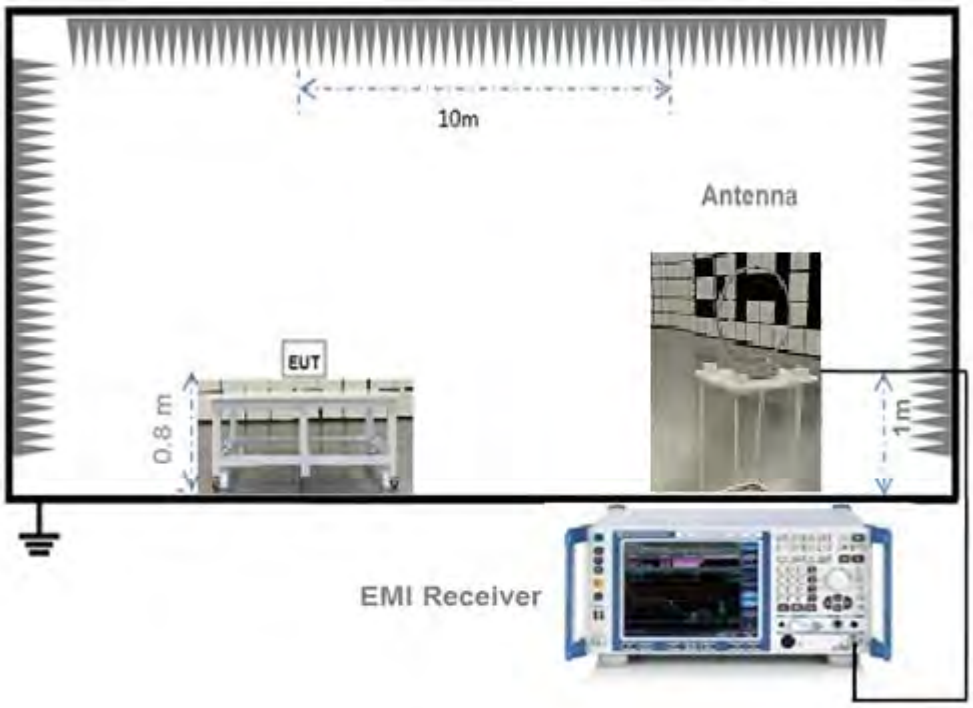
(Diagram 1)

4.4.2 For AC Power Supply Port Test



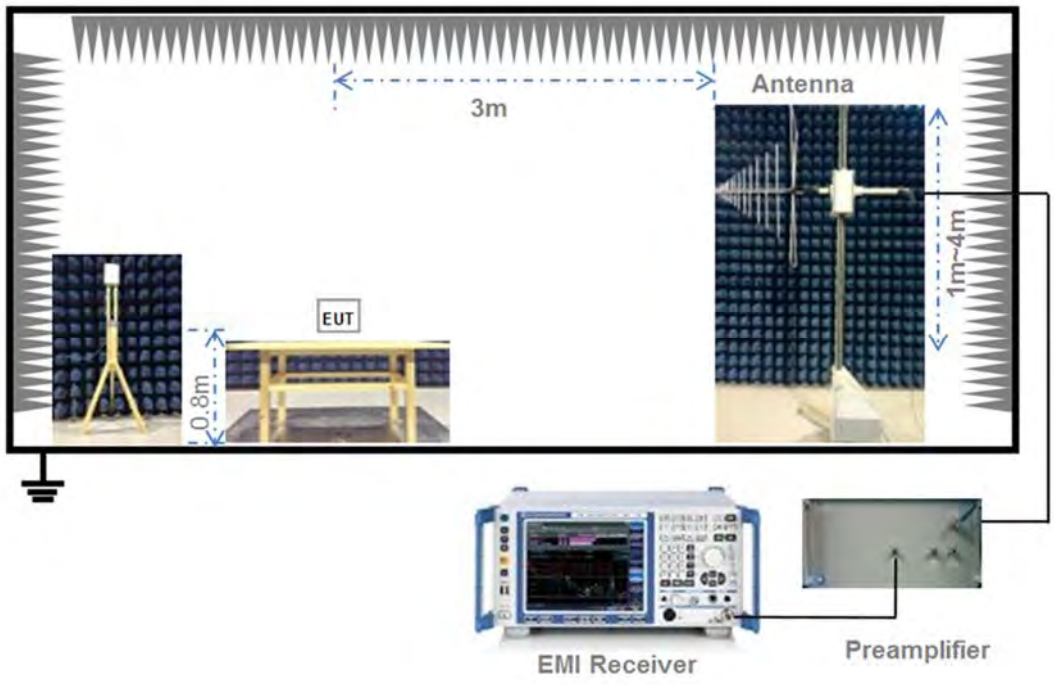
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



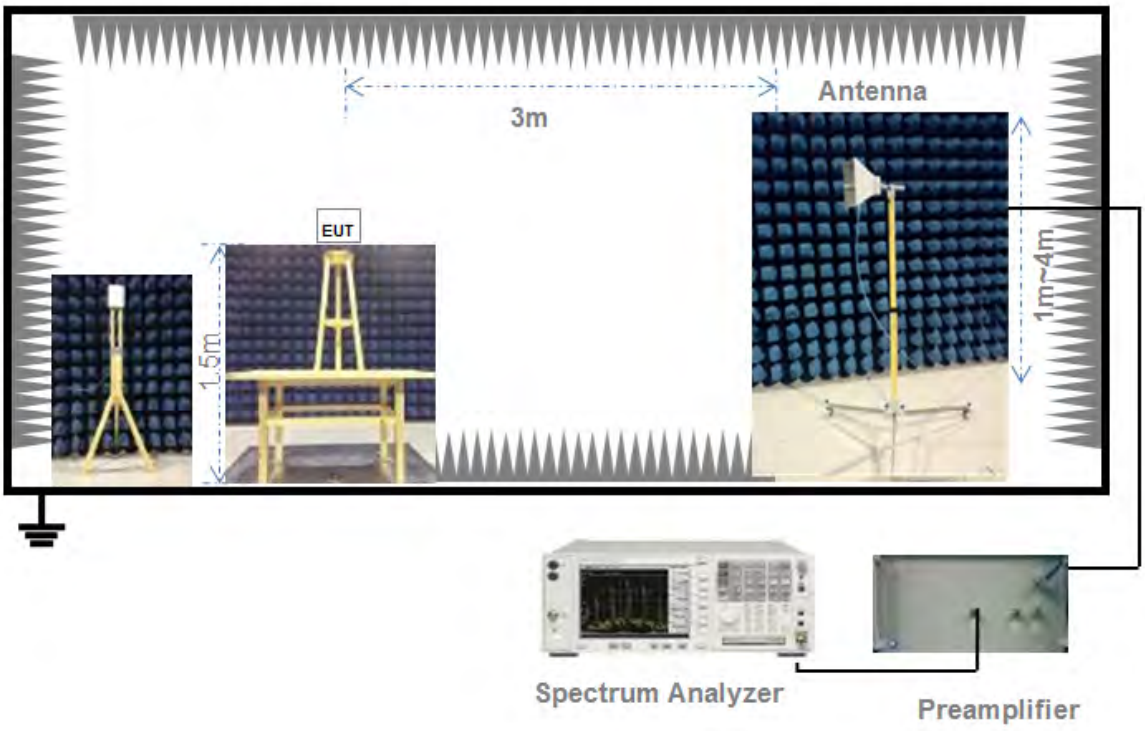
(Diagram 3)

4.4.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.4.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.5 Measurement Results Explanation Example

4.5.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203; RSS-247, 5.4 (d)

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.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is unique coupling to the intentional radiator	The antenna is unique coupling to the intentional radiator, can't be replaced by the consumer

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Number of Hopping Frequencies

5.2.1 Limit

FCC §15.247(a); RSS-247, 5.1 (c)

For FHSs in the band 902-928 MHz: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20-second period. If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 10-second period. The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.

Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.2 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW ≥ 1% of the span

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

5.2.3 Test Result

Please refer to ANNEX A.1.

5.3 Peak Output Power

5.3.1 Test Limit

FCC § 15.247(b); RSS-247, 5.4 (a)

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

RSS-247, 5.4 (2)

For FHSs operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W and the e.i.r.p. shall not exceed 4 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W and the e.i.r.p. shall not exceed 0.5 W if the hopset uses less than 75 hopping channels (see Section 5.4(5) for exceptions).

5.3.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

The Module operates at hopping-off test mode. The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

RBW > the 20 dB bandwidth of the emission being measured

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Occupied Bandwidth

5.4.1 Limit

FCC §15.247(a); RSS-247, 5.1 (a)

5.4.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW = in the range of 1% to 5% of the OBW

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate, Allow the trace to stabilize.

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Carrier Frequency Separation

5.5.1 Limit

FCC §15.247(a); RSS-247, 5.1 (b)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.5.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = wide enough to capture the peaks of two adjacent channels

Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span

Video (or Average) Bandwidth (VBW) ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

5.5.4 Test Result

Please refer to ANNEX A.4.

5.6 Time of Occupancy (Dwell time)

5.6.1 Limit

FCC §15.247(a); RSS-247, 5.1 (c)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

5.6.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

The lowest, middle and highest channels are selected to perform testing to record the dwell time of each occupation measured in this channel, which is called Pulse Time here.

5.6.4 Test Result

Please refer to ANNEX A.5

5.7 Conducted Spurious Emission & Authorized-band band-edge

5.7.1 Limit

FCC §15.247(d); RSS-247, 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.7.2 Test Setup

See section 4.4.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize

5.7.4 Test Result

Please refer to ANNEX A.6 and A.7

5.8 Conducted Emission

5.8.1 Limit

FCC §15.207; RSS-GEN, 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.8.2 Test Setup

See section 4.4.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Radiated Spurious Emission

5.9.1 Limit

FCC §15.209&15.247(d); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), 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 (μV/m)	Measurement Distance (m)
0.009 - 0.490	902/F(kHz)	300
0.490 - 1.705	9020/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note:

1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.
3. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
4. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.9.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW

Sweep = auto
Detector function = peak
Trace = max hold
For measurement below 1GHz, 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 detector and reported.

5.9.4 Test Result

Please refer to ANNEX A.8.

5.10 Band Edge (Restricted-band band-edge)

5.10.1 Limit

FCC §15.209&15.247(d); RSS-247, 5.5

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.10.2 Test Setup

See section 4.4.3 to 4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.10.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

For measurement below 1GHz, 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 detector and reported.

5.10.4 Test Result

Please refer to ANNEX A.9.

ANNEX A TEST RESULT

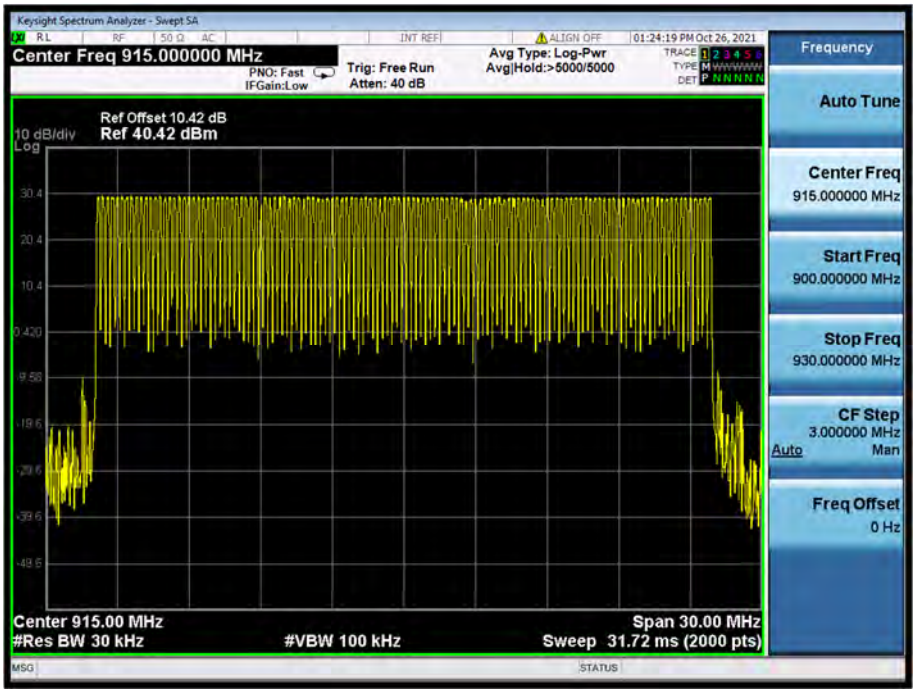
A.1 Number of Hopping Frequency

Test Data

Test Mode	Frequency Block (MHz)	Measured Channel Numbers	Min. Limit	Verdict
Wi-SUN	902-928	129	50	Pass

Test plots

Wi-SUN



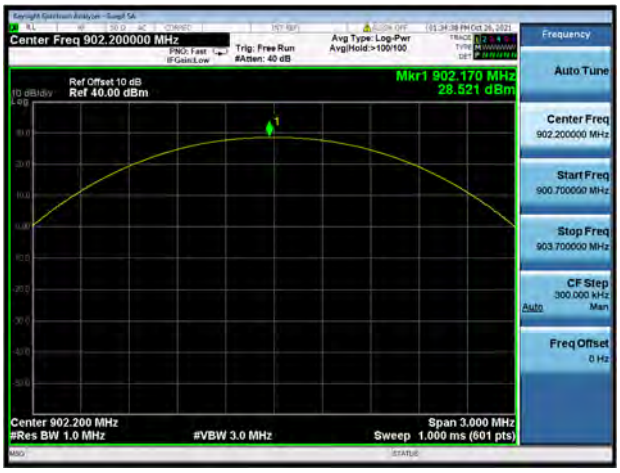
A.2 Peak Output Power

Peak Power Test Data

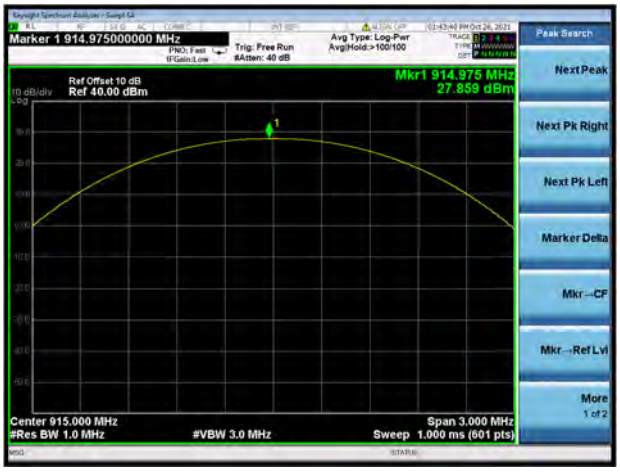
Channel	Measured Output Peak Power		Limit		Verdict
	Wi-SUN		dBm	mW	
	dBm	mW			
Low	28.52	711.38	30	1000	Pass
Middle	27.86	610.80			Pass
High	27.58	572.14			Pass

Test plots

LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL

A.3 20 dB and 99% bandwidth

Test Data

Wi-SUN			
Channel	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Verdict
Low	0.100000	0.093170	Pass
Middle	0.099400	0.092514	Pass
High	0.102000	0.091144	Pass

Test plots (20 dB Bandwidth)

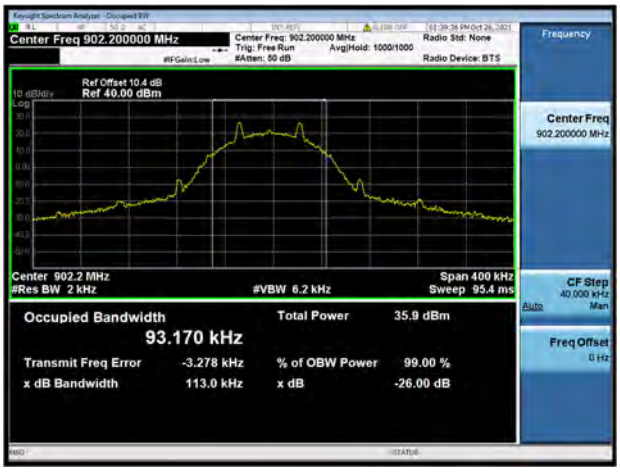
LOW CHANNEL

MIDDLE CHANNEL

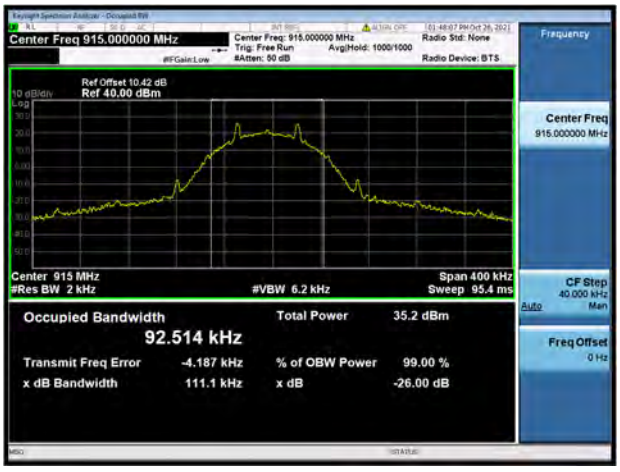
HIGH CHANNEL

Test plots (99% Bandwidth)

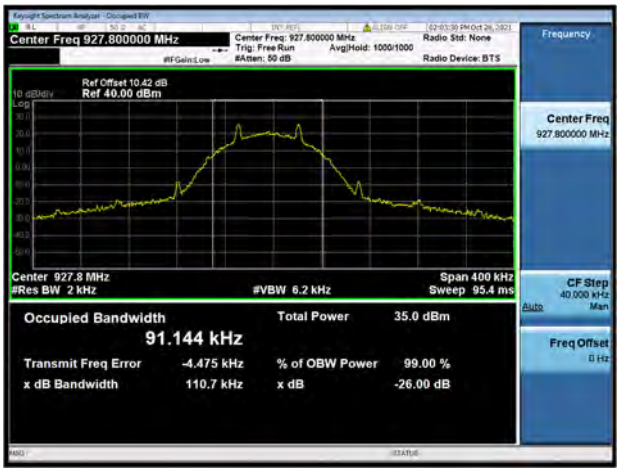
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



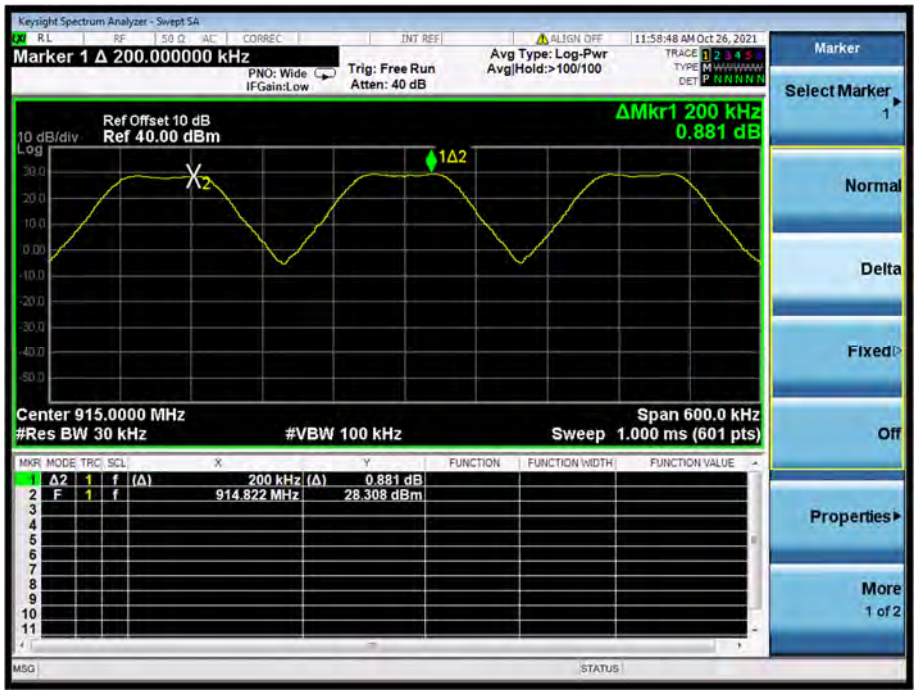
A.4 Hopping Frequency Separation

Test Data

Mode	Frequency separation (MHz)	Max 20 dB Bandwidth (MHz)	Verdict
Wi-SUN	0.200	0.102000	Pass

Test Plots

Wi-SUN



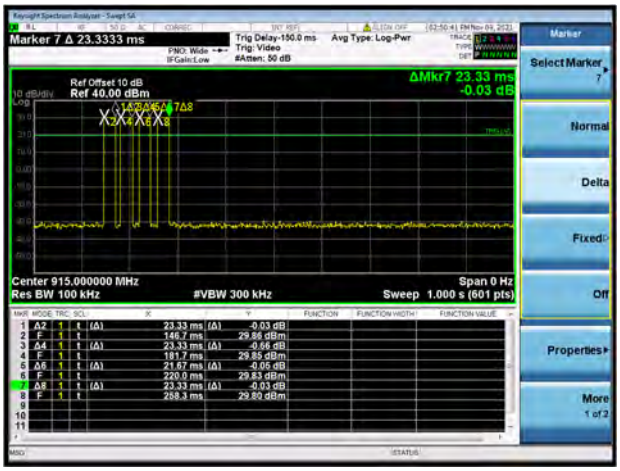
A.5 Average Time of Occupancy

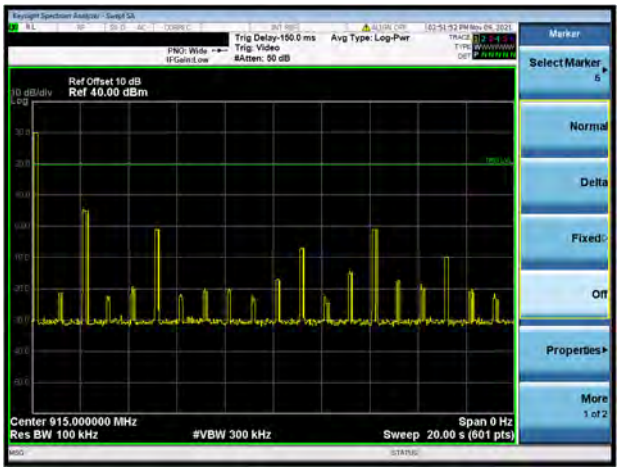
Test Data

Total of Dwell(ms)	Limit (sec)	Verdict
91.66	0.4	Pass

Test plots

1s	20s





A.6 Conducted Spurious Emissions & Authorized-band band-edge

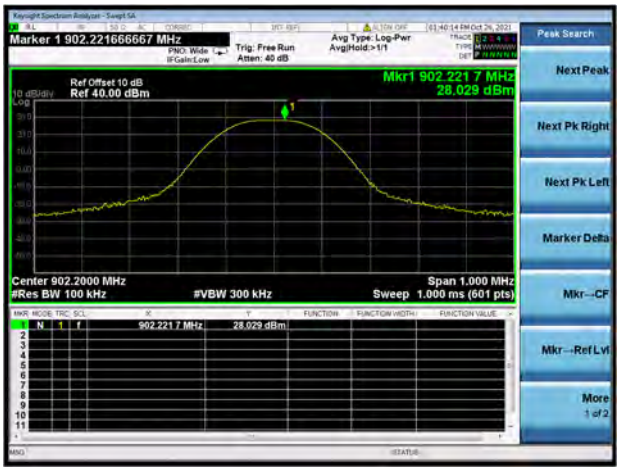
Test Data

Wi-SUN				
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	3.28	28.03	8.03	Pass
Middle	-23.94	27.72	7.72	Pass
High	0.43	27.59	7.59	Pass

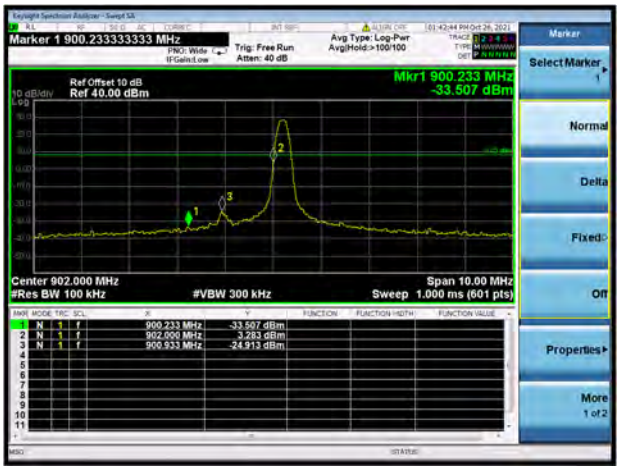
Wi-SUN				
Mode	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Hopping	2.65	29.84	9.84	Pass

Test Plots

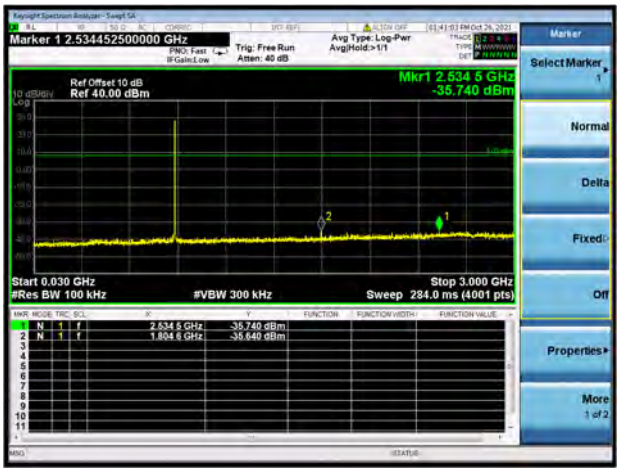
LOW CHANNEL, CARRIER LEVEL



LOW CHANNEL, Band Edge

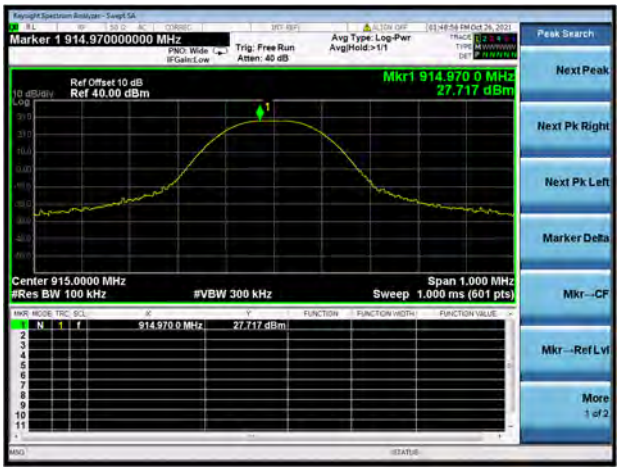


LOW CHANNEL , SPURIOUS 30 MHz ~ 3 GHz

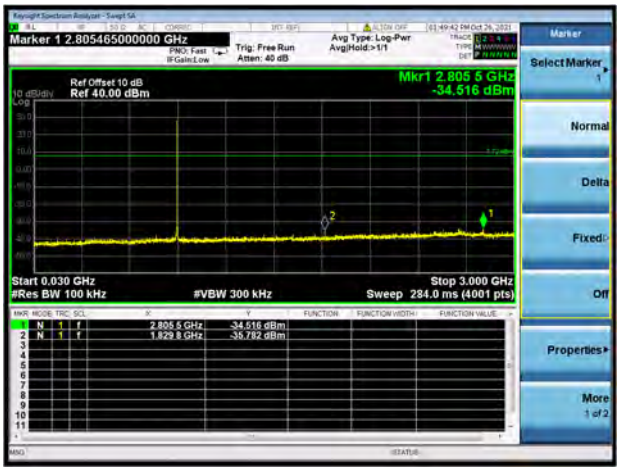


LOW CHANNEL , SPURIOUS 3 GHz ~ 25 GHz

MIDDLE CHANNEL, CARRIER LEVEL

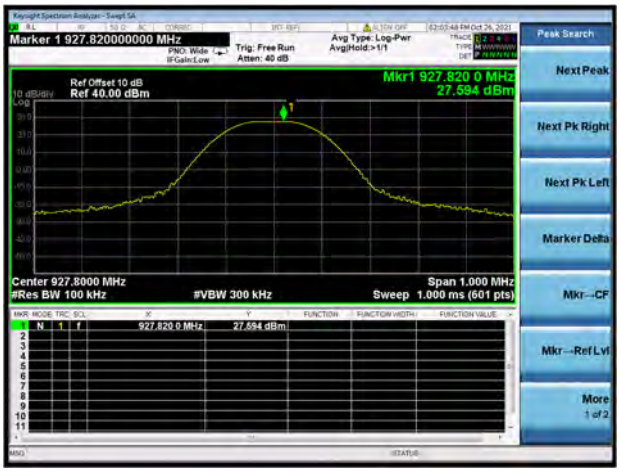


MIDDLE CHANNEL , SPURIOUS 30 MHz ~ 3 GHz

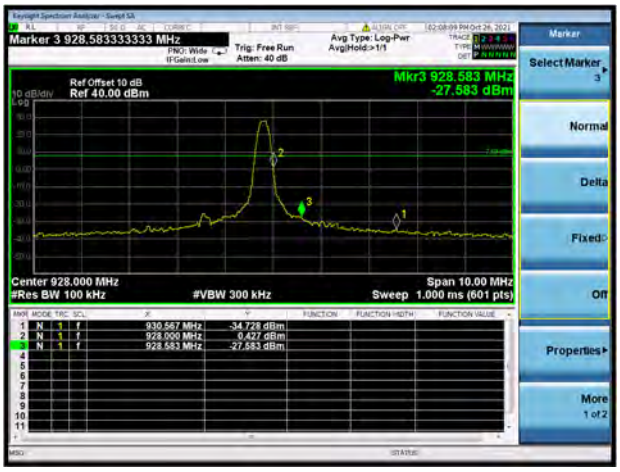


MIDDLE CHANNEL , SPURIOUS 3 GHz ~ 25 GHz

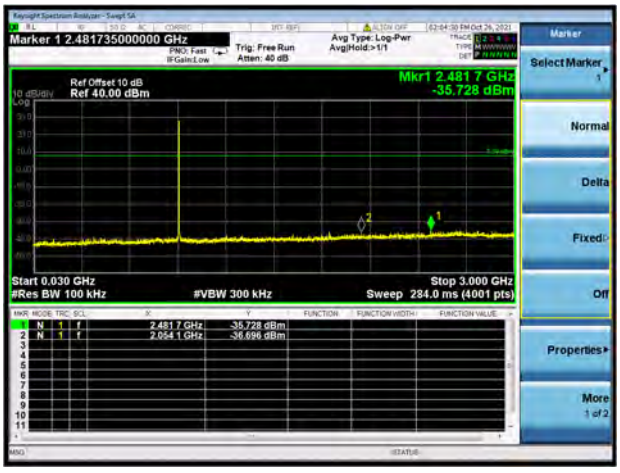
HIGH CHANNEL, CARRIER LEVEL



HIGH CHANNEL , BAND EDGE

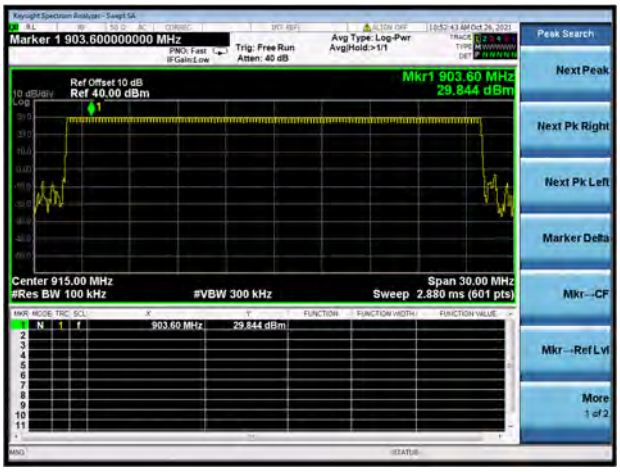


HIGH CHANNEL , SPURIOUS 30 MHz ~ 3 GHz

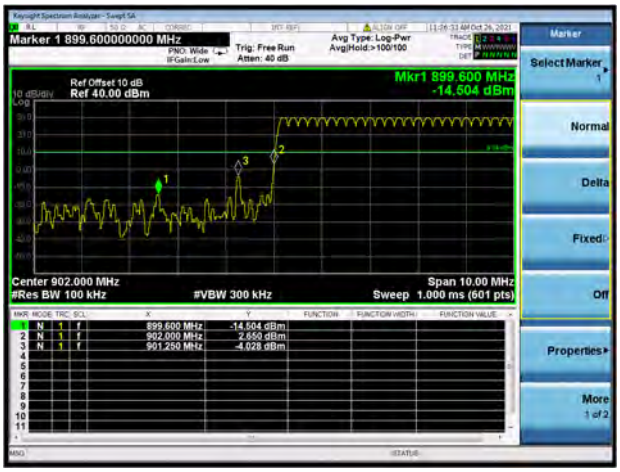


HIGH CHANNEL , SPURIOUS 3 GHz ~ 25 GHz

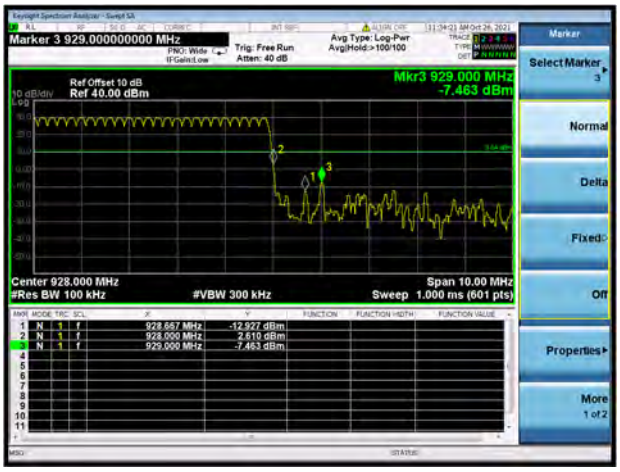
HOPPING, CARRIER LEVEL



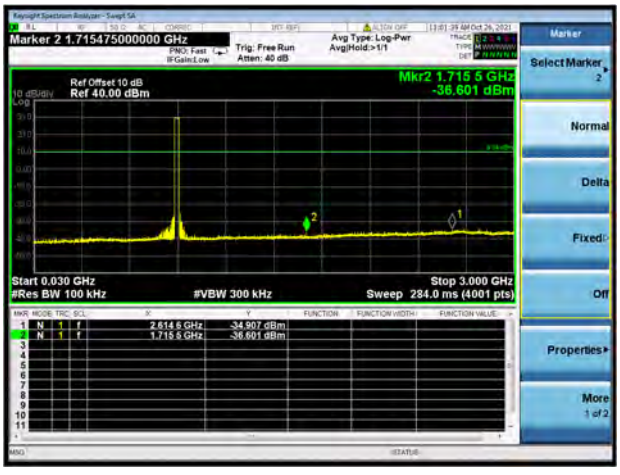
Hopping BAND EDGE (LOW)



Hopping BAND EDGE (HIGH)



Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



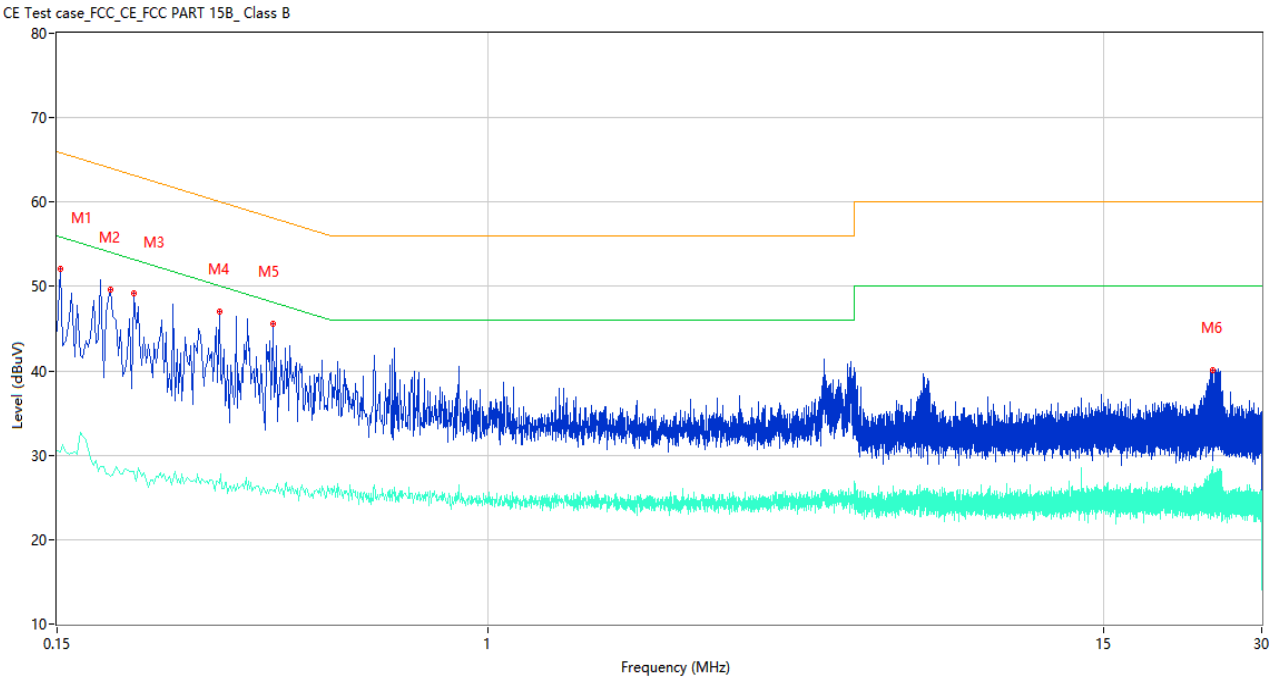
Hopping Mode, SPURIOUS 3 GHz ~ 25 GHz

A.7 Conducted Emissions

Note [1]: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.
Note [2]: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

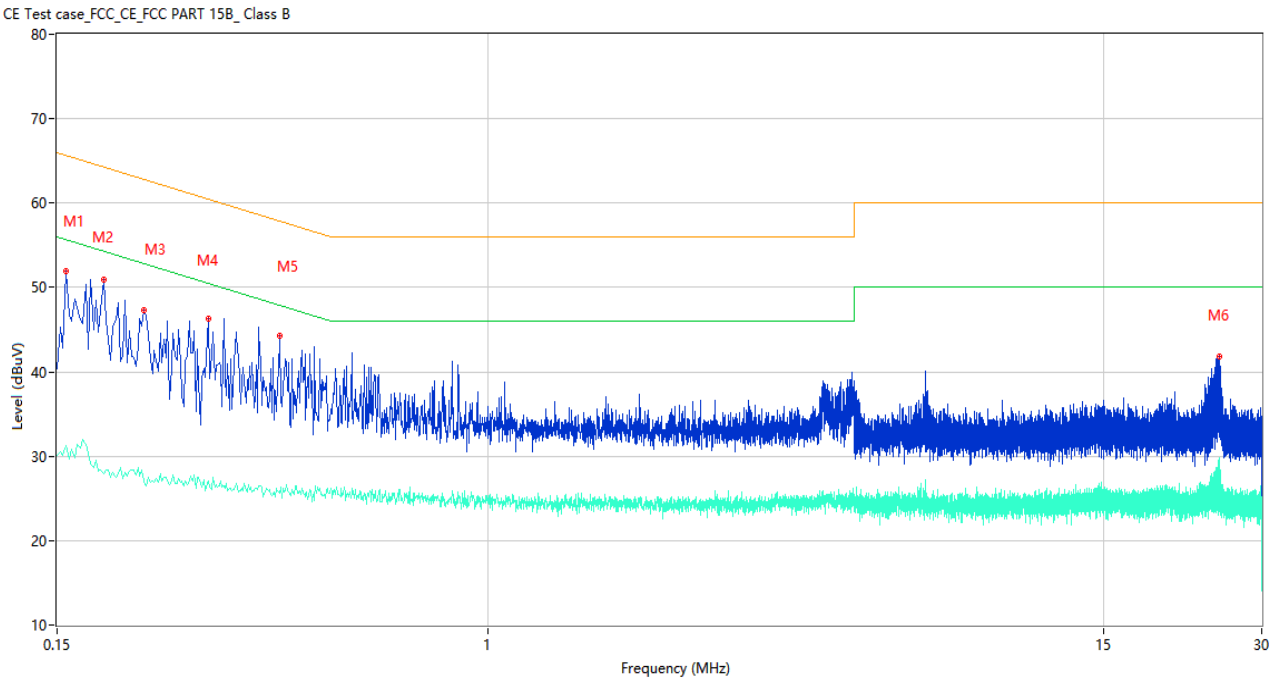
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.152	52.05	10.99	65.89	-13.84	Peak	L	Pass
1**	0.152	30.46	10.99	55.89	-25.43	AV	L	Pass
2	0.190	49.66	10.96	64.04	-14.38	Peak	L	Pass
2**	0.190	27.57	10.96	54.04	-26.47	AV	L	Pass
3	0.210	49.25	10.95	63.21	-13.96	Peak	L	Pass
3**	0.210	28.10	10.95	53.21	-25.11	AV	L	Pass
4	0.306	47.07	10.88	60.08	-13.01	Peak	L	Pass
4**	0.306	26.58	10.88	50.08	-23.50	AV	L	Pass
5	0.388	45.63	10.90	58.11	-12.48	Peak	L	Pass
5**	0.388	25.70	10.90	48.11	-22.41	AV	L	Pass
6	24.142	40.07	10.53	60.00	-19.93	Peak	L	Pass
6**	24.142	27.10	10.53	50.00	-22.90	AV	L	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.156	52.01	10.99	65.67	-13.66	Peak	N	Pass
1**	0.156	31.33	10.99	55.67	-24.34	AV	N	Pass
2	0.184	50.96	10.97	64.30	-13.34	Peak	N	Pass
2**	0.184	27.94	10.97	54.30	-26.36	AV	N	Pass
3	0.220	47.34	10.94	62.82	-15.48	Peak	N	Pass
3**	0.220	27.09	10.94	52.82	-25.73	AV	N	Pass
4	0.292	46.34	10.89	60.47	-14.13	Peak	N	Pass
4**	0.292	27.08	10.89	50.47	-23.39	AV	N	Pass
5	0.400	44.23	10.90	57.85	-13.62	Peak	N	Pass
5**	0.400	25.62	10.90	47.85	-22.23	AV	N	Pass
6	24.926	41.84	10.49	60.00	-18.16	Peak	N	Pass
6**	24.926	25.01	10.49	50.00	-24.99	AV	N	Pass

A.8 Radiated Spurious Emission

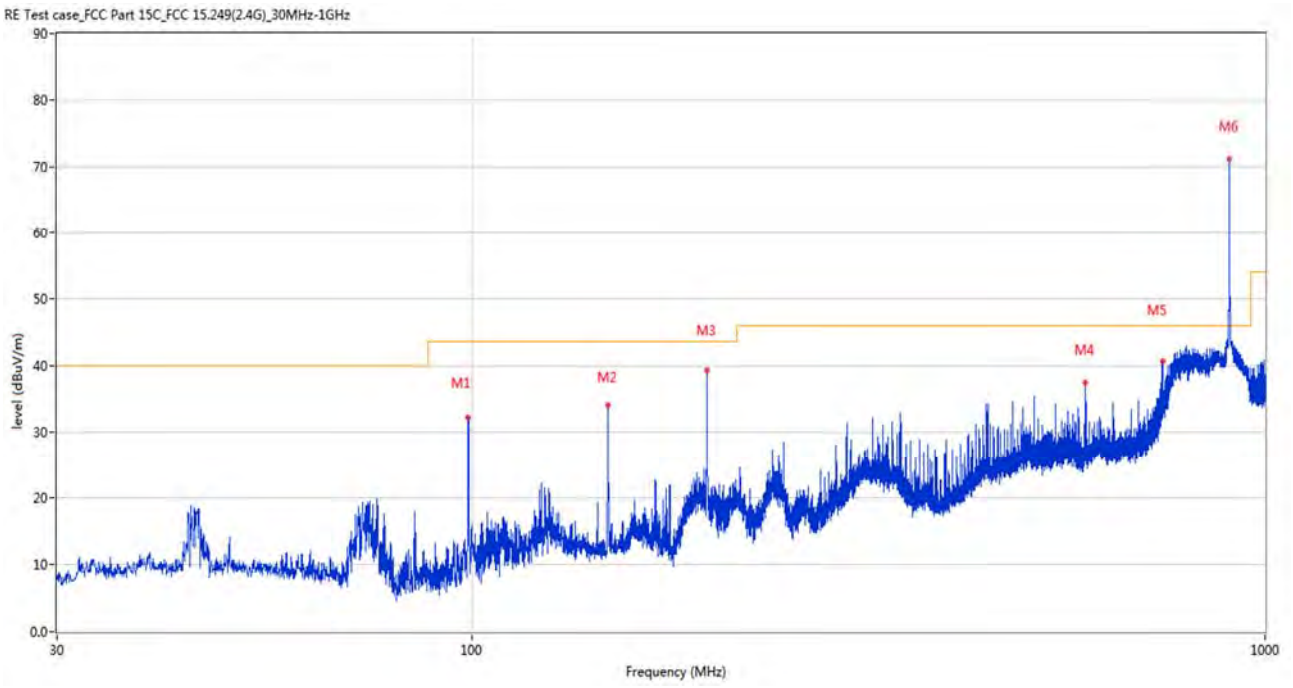
Note [1]: The symbol of "--" in the table which means not application.

Note [2]: For the test data above 1 GHz, according the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note [3]: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

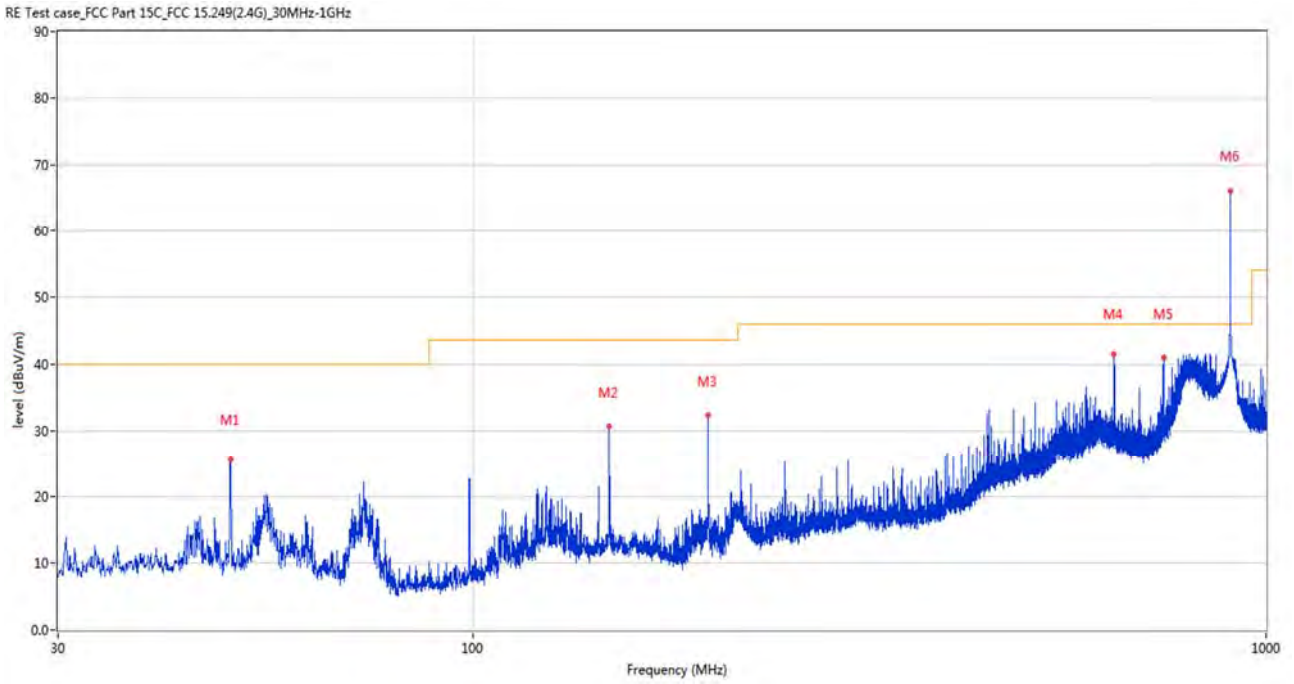
Test Data and Plots

Low Channel, 30 MHz to 1 GHz, ANT H



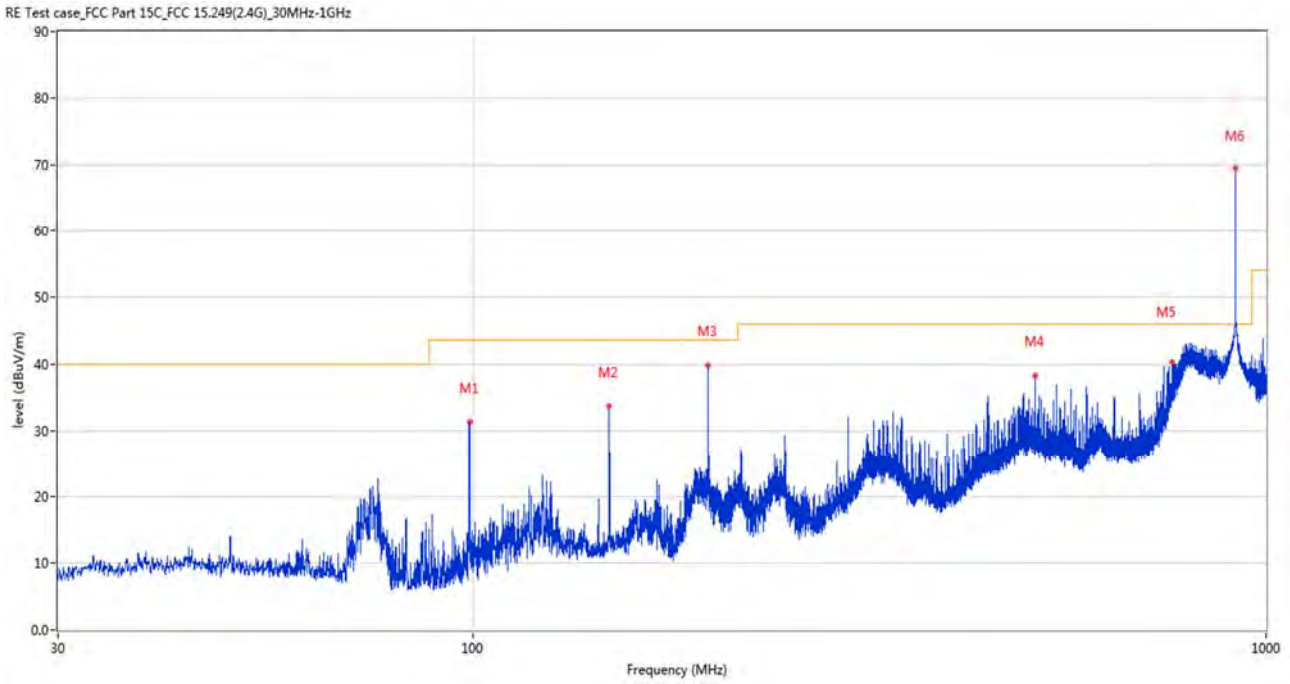
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	98.967	32.19	-28.35	43.5	-11.31	Peak	76.00	200	Horizontal	Pass
2	148.534	34.08	-24.00	43.5	-9.42	Peak	197.00	200	Horizontal	Pass
3	197.956	39.29	-27.21	43.5	-4.21	Peak	274.00	200	Horizontal	Pass
4	593.716	37.39	-13.94	46.0	-8.61	Peak	89.00	100	Horizontal	Pass
5	742.222	40.65	-10.46	46.0	-5.35	Peak	0.00	200	Horizontal	Pass
6	902.611	71.14	-7.43	46.0	25.14	Peak	19.00	200	Horizontal	N/A

Low Channel, 30 MHz to 1 GHz, ANT V



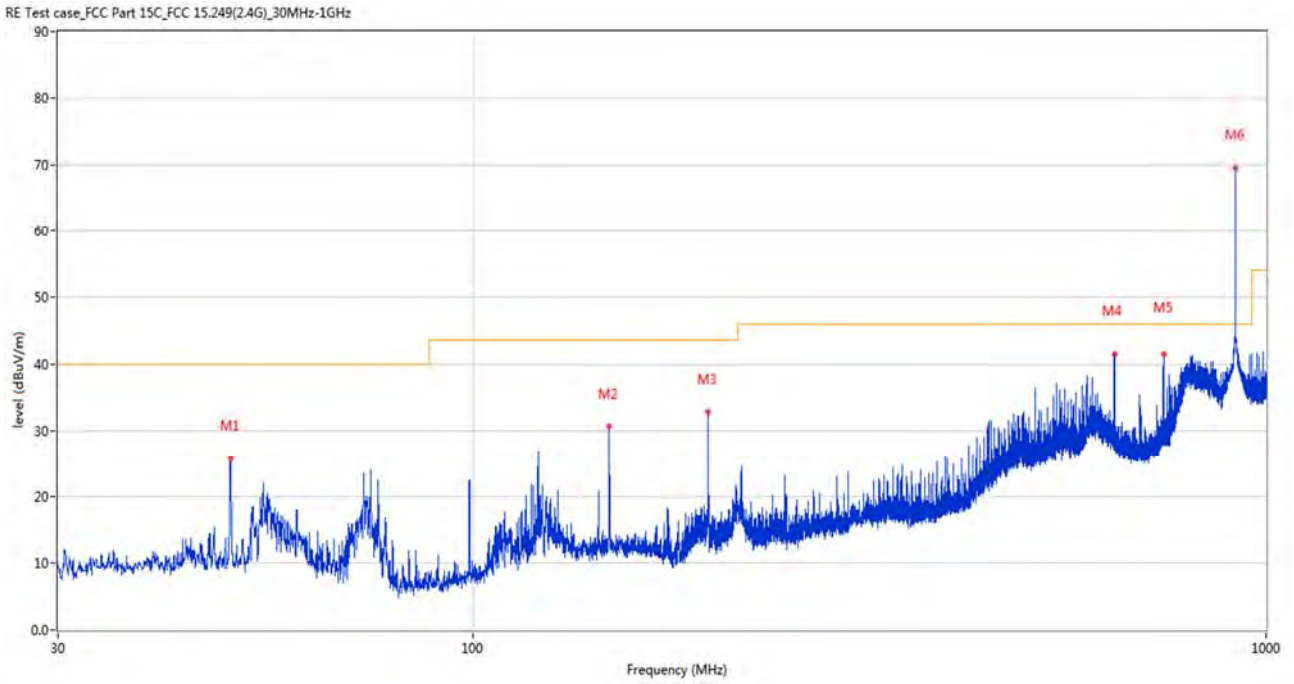
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.497	25.58	-26.13	40.0	-14.42	Peak	246.00	100	Vertical	Pass
2	148.437	30.65	-23.99	43.5	-12.85	Peak	44.00	100	Vertical	Pass
3	197.956	32.34	-27.21	43.5	-11.16	Peak	221.00	100	Vertical	Pass
4	643.234	41.58	-12.15	46.0	-4.42	Peak	180.00	100	Vertical	Pass
5	742.465	41.03	-10.41	46.0	-4.97	Peak	360.00	200	Vertical	Pass
6	902.563	66.05	-7.48	46.0	20.05	Peak	243.00	200	Vertical	N/A

Middle Channel, 30 MHz to 1 GHz, ANT H



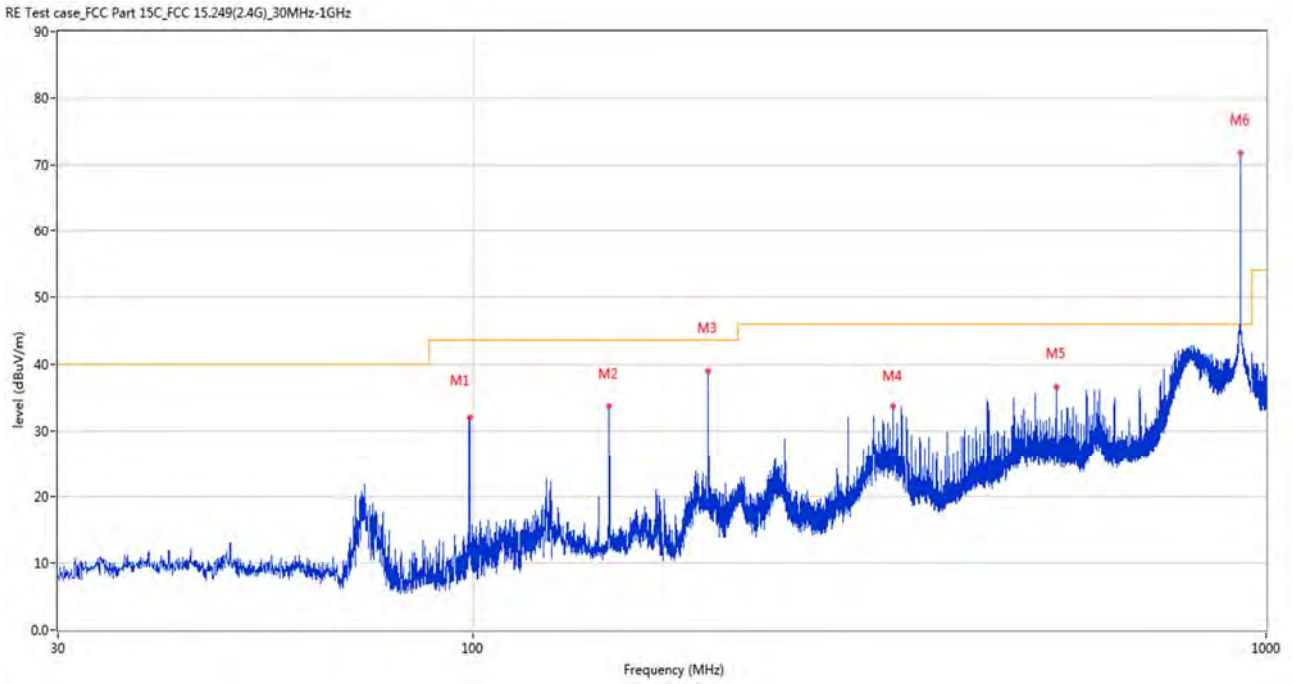
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	99.016	31.37	-28.35	43.5	-12.13	Peak	84.00	200	Horizontal	Pass
2	148.486	33.73	-23.99	43.5	-9.77	Peak	179.00	200	Horizontal	Pass
3	198.004	39.86	-27.21	43.5	-3.64	Peak	244.00	200	Horizontal	Pass
4	511.993	38.30	-16.02	46.0	-7.70	Peak	29.00	200	Horizontal	Pass
5	760.847	40.41	-10.15	46.0	-5.59	Peak	360.00	200	Horizontal	Pass
6	914.640	69.41	-7.16	46.0	23.41	Peak	321.00	100	Horizontal	N/A

Middle Channel, 30 MHz to 1 GHz, ANT V



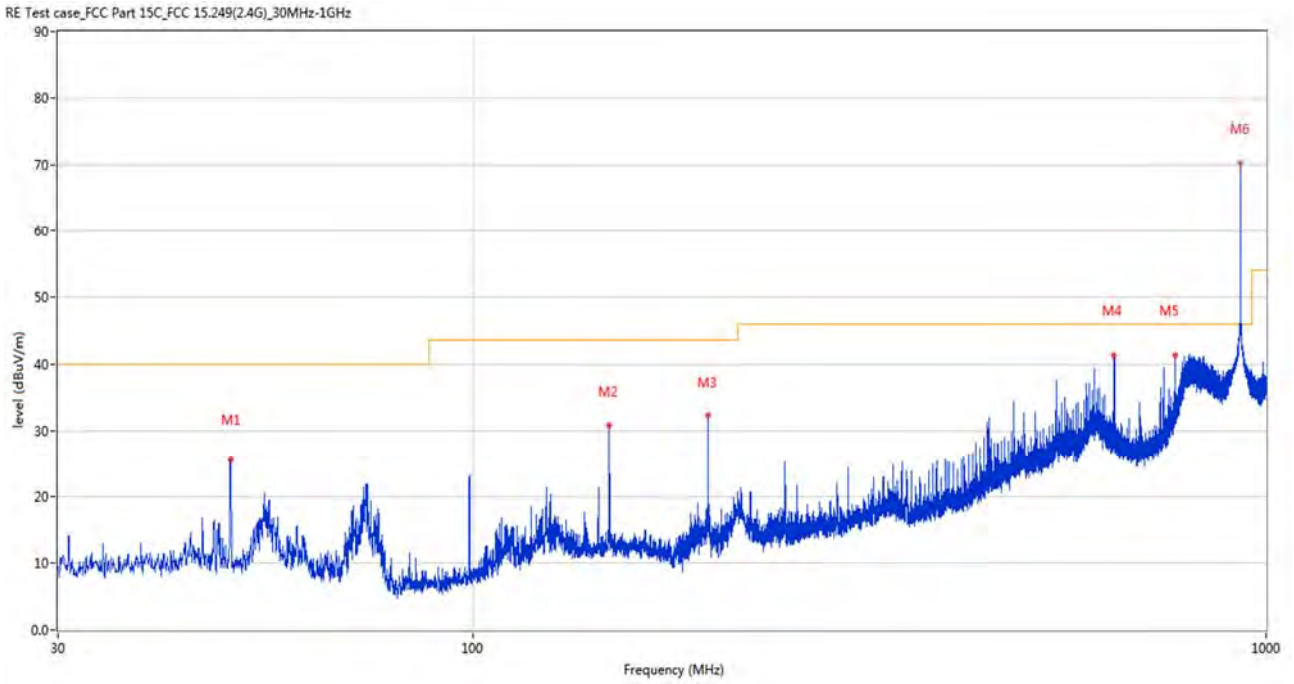
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.497	25.78	-26.13	40.0	-14.22	Peak	193.00	100	Vertical	Pass
2	148.534	30.67	-24.00	43.5	-12.83	Peak	0.00	100	Vertical	Pass
3	198.004	32.85	-27.21	43.5	-10.65	Peak	215.00	100	Vertical	Pass
4	643.767	41.45	-12.16	46.0	-4.55	Peak	179.00	100	Vertical	Pass
5	742.465	41.54	-10.41	46.0	-4.46	Peak	360.00	200	Vertical	Pass
6	915.271	69.46	-7.15	46.0	23.46	Peak	341.00	200	Vertical	N/A

High Channel, 30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	99.016	32.04	-28.35	43.5	-11.46	Peak	68.00	200	Horizontal	Pass
2	148.486	33.70	-23.99	43.5	-9.80	Peak	182.00	200	Horizontal	Pass
3	198.004	38.98	-27.21	43.5	-4.52	Peak	129.00	200	Horizontal	Pass
4	338.460	33.75	-20.93	46.0	-12.25	Peak	129.00	100	Horizontal	Pass
5	544.003	36.53	-15.16	46.0	-9.47	Peak	50.00	100	Horizontal	Pass
6	927.444	71.80	-7.35	46.0	25.80	Peak	327.00	100	Horizontal	N/A

High Channel, 30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	49.497	25.65	-26.13	40.0	-14.35	Peak	273.00	100	Vertical	Pass
2	148.486	30.85	-23.99	43.5	-12.65	Peak	360.00	200	Vertical	Pass
3	198.004	32.39	-27.21	43.5	-11.11	Peak	239.00	100	Vertical	Pass
4	643.380	41.36	-12.16	46.0	-4.64	Peak	175.00	100	Vertical	Pass
5	767.734	41.38	-10.15	46.0	-4.62	Peak	155.00	100	Vertical	Pass
6	927.074	70.38	-7.43	46.0	24.38	Peak	250.00	200	Vertical	N/A

Low Channel, 1 GHz to 12.75 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1804.500	51.84	-10.66	74.0	-22.16	Peak	18.00	150	Horizontal	Pass
1**	1804.500	50.52	-10.66	54.0	-3.48	AV	18.00	150	Horizontal	Pass
2	2871.800	50.03	-3.35	74.0	-23.97	Peak	6.00	150	Horizontal	Pass
2**	2871.800	37.62	-3.35	54.0	-16.38	AV	6.00	150	Horizontal	Pass
3	4719.400	47.90	-2.39	74.0	-26.10	Peak	267.00	150	Horizontal	Pass
3**	4719.400	38.79	-2.39	54.0	-15.21	AV	267.00	150	Horizontal	Pass
4	6986.000	53.67	4.53	74.0	-20.33	Peak	285.00	150	Horizontal	Pass
4**	6986.000	46.17	4.53	54.0	-7.83	AV	285.00	150	Horizontal	Pass
5	8540.137	47.95	18.22	74.0	-26.05	Peak	190.00	150	Horizontal	Pass
5**	8540.137	37.82	18.22	54.0	-16.18	AV	190.00	150	Horizontal	Pass
6	12089.900	49.98	19.31	74.0	-24.02	Peak	352.00	150	Horizontal	Pass
6**	12089.900	38.43	19.31	54.0	-15.57	AV	352.00	150	Horizontal	Pass

Low Channel, 1 GHz to 12.75 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1804.400	50.93	-10.66	74.0	-23.07	Peak	301.00	150	Vertical	Pass
1**	1804.400	49.50	-10.66	54.0	-4.50	AV	301.00	150	Vertical	Pass
2	2607.600	47.65	-4.03	74.0	-26.35	Peak	14.00	150	Vertical	Pass
2**	2607.600	36.31	-4.03	54.0	-17.69	AV	14.00	150	Vertical	Pass
3	4265.200	48.64	-3.21	74.0	-25.36	Peak	166.00	150	Vertical	Pass
3**	4265.200	37.93	-3.21	54.0	-16.07	AV	166.00	150	Vertical	Pass
4	6918.200	52.58	4.58	74.0	-21.42	Peak	114.00	150	Vertical	Pass
4**	6918.200	44.54	4.58	54.0	-9.46	AV	114.00	150	Vertical	Pass
5	9398.901	48.42	17.37	74.0	-25.58	Peak	0.00	150	Vertical	Pass
5**	9398.901	36.75	17.37	54.0	-17.25	AV	0.00	150	Vertical	Pass
6	12356.412	51.18	19.66	74.0	-22.82	Peak	110.00	150	Vertical	Pass
6**	12356.412	37.58	19.66	54.0	-16.42	AV	110.00	150	Vertical	Pass

Middle Channel, 1 GHz to 12.75 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1830.000	51.50	-10.67	74.0	-22.50	Peak	288.00	150	Horizontal	Pass
1**	1830.000	50.67	-10.67	54.0	-3.33	AV	288.00	150	Horizontal	Pass
2	2997.200	49.08	-2.48	74.0	-24.92	Peak	245.00	150	Horizontal	Pass
2**	2997.200	38.05	-2.48	54.0	-15.95	AV	245.00	150	Horizontal	Pass
3	4423.600	47.50	-2.40	74.0	-26.50	Peak	310.00	150	Horizontal	Pass
3**	4423.600	37.72	-2.40	54.0	-16.28	AV	310.00	150	Horizontal	Pass
4	6993.600	53.93	4.06	74.0	-20.07	Peak	0.00	150	Horizontal	Pass
4**	6993.600	43.90	4.06	54.0	-10.10	AV	0.00	150	Horizontal	Pass
5	8510.525	48.17	17.97	74.0	-25.83	Peak	129.00	150	Horizontal	Pass
5**	8510.525	38.08	17.97	54.0	-15.92	AV	129.00	150	Horizontal	Pass
6	12205.187	50.46	20.44	74.0	-23.54	Peak	340.00	150	Horizontal	Pass
6**	12205.187	38.48	20.44	54.0	-15.52	AV	340.00	150	Horizontal	Pass

Middle Channel, 1 GHz to 12.75 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1043.100	50.04	-10.98	74.0	-23.96	Peak	31.00	150	Vertical	Pass
1**	1043.100	48.22	-10.98	54.0	-5.78	AV	31.00	150	Vertical	Pass
2	1830.000	50.07	-10.67	74.0	-23.93	Peak	297.00	150	Vertical	Pass
2**	1830.000	48.83	-10.67	54.0	-5.17	AV	297.00	150	Vertical	Pass
3	3982.600	45.97	-4.26	74.0	-28.03	Peak	307.00	150	Vertical	Pass
3**	3982.600	36.90	-4.26	54.0	-17.10	AV	307.00	150	Vertical	Pass
4	6433.600	52.30	3.27	74.0	-21.70	Peak	360.00	150	Vertical	Pass
4**	6433.600	42.45	3.27	54.0	-11.55	AV	360.00	150	Vertical	Pass
5	8543.300	49.16	18.25	74.0	-24.84	Peak	351.00	150	Vertical	Pass
5**	8543.300	37.14	18.25	54.0	-16.86	AV	351.00	150	Vertical	Pass
6	11027.875	50.22	18.89	74.0	-23.78	Peak	106.00	150	Vertical	Pass
6**	11027.875	37.36	18.89	54.0	-16.64	AV	106.00	150	Vertical	Pass

High Channel, 1 GHz to 12.75 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1855.800	50.48	-10.12	74.0	-23.52	Peak	291.00	150	Horizontal	Pass
1**	1855.800	50.47	-10.12	54.0	-3.53	AV	291.00	150	Horizontal	Pass
2	2835.700	48.74	-3.49	74.0	-25.26	Peak	162.00	150	Horizontal	Pass
2**	2835.700	36.90	-3.49	54.0	-17.10	AV	162.00	150	Horizontal	Pass
3	4433.200	47.13	-2.15	74.0	-26.87	Peak	39.00	150	Horizontal	Pass
3**	4433.200	37.52	-2.15	54.0	-16.48	AV	39.00	150	Horizontal	Pass
4	6774.600	52.81	3.22	74.0	-21.19	Peak	187.00	150	Horizontal	Pass
4**	6774.600	42.17	3.22	54.0	-11.83	AV	187.00	150	Horizontal	Pass
5	9066.550	48.36	18.20	74.0	-25.64	Peak	272.00	150	Horizontal	Pass
5**	9066.550	36.39	18.20	54.0	-17.61	AV	272.00	150	Horizontal	Pass
6	11761.575	50.22	18.84	74.0	-23.78	Peak	178.00	150	Horizontal	Pass
6**	11761.575	38.08	18.84	54.0	-15.92	AV	178.00	150	Horizontal	Pass

High Channel, 1 GHz to 12.75 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1855.800	50.22	-10.12	74.0	-23.78	Peak	237.00	150	Vertical	Pass
1**	1855.800	49.66	-10.12	54.0	-4.34	AV	237.00	150	Vertical	Pass
2	2878.800	48.17	-3.57	74.0	-25.83	Peak	230.00	150	Vertical	Pass
2**	2878.800	37.00	-3.57	54.0	-17.00	AV	230.00	150	Vertical	Pass
3	4253.200	48.53	-3.14	74.0	-25.47	Peak	193.00	150	Vertical	Pass
3**	4253.200	37.26	-3.14	54.0	-16.74	AV	193.00	150	Vertical	Pass
4	6997.400	53.34	4.07	74.0	-20.66	Peak	32.00	150	Vertical	Pass
4**	6997.400	43.10	4.07	54.0	-10.90	AV	32.00	150	Vertical	Pass
5	8145.400	48.89	17.66	74.0	-25.11	Peak	119.00	150	Vertical	Pass
5**	8145.400	36.26	17.66	54.0	-17.74	AV	119.00	150	Vertical	Pass
6	12140.213	50.37	19.85	74.0	-23.63	Peak	51.00	150	Vertical	Pass
6**	12140.213	38.19	19.85	54.0	-15.81	AV	51.00	150	Vertical	Pass

A.9 Band Edge (Restricted-band band-edge)

Note [1]: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.
Note [2]: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.
Note [3]: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.
Note [4]: The Level (dBuV/m) has been corrected by factor.

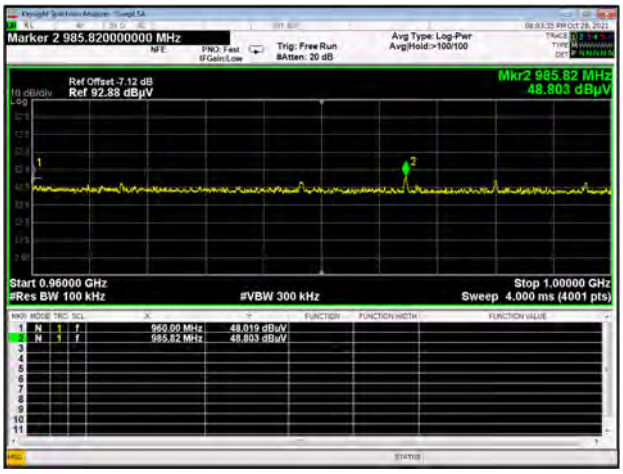
Test Data

Test Mode	Test Channel	Frequency (MHz)	Level (dBuV/m)	Factor (dB)	Limit Line (dBuV/m)	Margin (dB)	Remark	Verdict
Wi-SUN	Low	614	28.506	-13.26	74	45.494	PEAK	Pass
		614	N/A	N/A	54	N/A	AVERAGE	Pass
Wi-SUN	HIGH	960	48.668	-14.83	74	25.332	PEAK	Pass
		960	N/A	N/A	54	N/A	AVERAGE	Pass

Test Plots

LOW CHANNEL

HIGH CHANNEL



HIGH CHANNEL

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ21A0447-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ21A0447-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ21A0447-AI.PDF”.

--END OF REPORT--