

FCC 15.247 2.4GHz Test Report

for

Elitegroup Computer Systems Co., Ltd.

No. 239, Sec. 2., TiDing Blvd., Taipei, Taiwan 11493

Product Name : Computer
Model Name : LIVA M300-WXXXX
(X=A to Z,a-z,0-9 or blank)
Brand : LIVA
FCC ID : WL6LIVAM300-W

Prepared by: : AUDIX Technology Corporation,
EMC Department



The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

TABLE OF CONTENTS

Description	Page
TEST REPORT.....	4
1. REVISION RECORD OF TEST REPORT	5
2. SUMMARY OF TEST RESULTS	6
3. GENERAL INFORMATION	7
3.1. Description of Application	7
3.2. Description of EUT	7
3.3. Reference Test Guidance.....	8
3.4. Antenna Information	8
3.5. EUT Specifications Assessed in Current Report.....	8
3.6. Descriptions of Key Components.....	9
3.7. Test Configuration.....	10
3.8. Output Power Setting	12
3.9. Tested Supporting System List.....	13
3.10. Setup Configuration.....	13
3.11. Operating Condition of EUT	13
3.12. Description of Test Facility	14
3.13. Measurement Uncertainty	15
4. MEASUREMENT EQUIPMENTLIST.....	16
4.1. Conducted Emission Measurement	16
4.2. Radiated Emission Measurement	16
4.3. RF Conducted Measurement	17
5. CONDUCTED EMISSION.....	18
5.1. Block Diagram of Test Setup	18
5.2. Conducted Emission Limit	18
5.3. Test Procedure	18
5.4. Test Results	18
6. RADIATED EMISSION	19
6.1. Block Diagram of Test Setup	19
6.2. Radiated Emission Limits.....	21
6.3. Test Procedure	22
6.4. Measurement Result Explanation.....	23
6.5. Test Results	23
7. 6dB/OCCUPIED BANDWIDTH.....	24
7.1. Block Diagram of Test Setup	24
7.2. Specification Limits.....	24
7.3. Test Procedure	24
7.4. Test Results	24
8. MAXIMUM PEAK OUTPUT POWER	25
8.1. Block Diagram of Test Setup	25
8.2. Specification Limits.....	25
8.3. Test Procedure	26
8.4. Test Results	26
9. EMISSION LIMITATIONS	27
9.1. Block Diagram of Test Setup	27



Audix Technology Corp.
No. 491, Zhongfu Rd., Linkou Dist.,
New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

9.2. Specification Limits.....	27
9.3. Test Procedure	27
9.4. Test Results	28
10. POWER SPECTRAL DENSITY	29
10.1. Block Diagram of Test Setup	29
10.2. Specification Limits.....	29
10.3. Test Procedure	29
10.4. Test Results	29
11. DEVIATION TO TEST SPECIFICATIONS	30

APPENDIX A TEST DATA AND PLOTS
APPENDIX B TESTPHOTOGRAPHS

TEST REPORT

Applicant : Elitegroup Computer Systems Co., Ltd.
EUT Description
(1) Product : Computer
(2) Model : LIVA M300-WXXXX (X=A to Z,a-z,0-9 or blank)
(3) Brand : LIVA
(4) Power Supply : DC 12V, 4.17A

Applicable Standards:

Title 47 CFR FCC Part 15 Subpart C
ANSI C63.10:2013

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2021. 03. 29

Reviewed by:

Sabrina Wang

(Sabrina Wang/Administrator)

Approved by:

Johnny Hsueh

(Johnny Hsueh/Section Manager)

1. REVISION RECORD OF TEST REPORT

Edition No	Issued Date	Revision Summary	Report Number
0	2021. 03. 29	Original Report	EM-F210077

2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	PASS
15.247(d)/ 15.205	Radiated Band Edge and Radiated Spurious Emission	PASS
15.247(a)(2)	6dB/Occupied Bandwidth	PASS
15.247(b)(3)	Maximum Peak Output Power	PASS
15.247(d)	Conducted Band Edges and Conducted Spurious Emission	PASS
15.247 (e)	Peak Power Spectral Density	PASS
15.203	Antenna Requirement	Compliance
Note: The uncertainties value is not used in determining the result.		

3. GENERAL INFORMATION

3.1. Description of Application

Applicant	Elitegroup Computer Systems Co., Ltd. No. 239, Sec. 2., TiDing Blvd., Taipei, Taiwan 11493
Product	Computer
Brand	LIVA
Model	LIVA M300-WXXXX (X=A to Z,a-z,0-9 or blank) for marketing.

3.2. Description of EUT

Test Model	LIVA M300-W		
Serial Number	N/A		
Power Rating	DC 12V, 4.17A (Refer to AC adapter rating)		
RF Features	WLAN:802.11 b/g/n Bluetooth: BT and BLE (BT 5.2)		
Transmit Type	2.4 GHz		
	802.11b	1T1R	
	802.11g	1T1R	
	802.11n-HT20	1T1R	
	BT/BLE	1T1R	
Test Sample	Sample No.	Test Item	Firmware
	03	AC Conduction, RSE, Output Power	N/A
Sample Status	Mass production		
Date of Receipt	2021. 01. 28		
Date of Test	2021. 02. 17 ~ 03. 08		
Interface Ports of EUT	<ul style="list-style-type: none"> • Three USB 2.0 Ports • One USB 3.0 Ports • One HDMI Port • One DP Port • One COM (RS232/422/485) Port • One Audio Out Port • One MIC In Port • One LAN Port • One DC IN Port • One Antenna fixture 		
Accessories Supplied	<ul style="list-style-type: none"> • AC Adapter • VESA Mount • Dipole Antenna 		

3.3. Reference Test Guidance

None

3.4. Antenna Information

Antenna Part Number	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)
EGM30APDI01+A	WELL GREEN Technology Co., LTD	Dipole Type	2400~2500	2.75

3.5. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (Mbps)
802.11b	2412-2462	11	DSSS(DBPSK/DQPSK/CCK)	Up to 11
802.11g		11	OFDMBPSK/QPSK/16QAM/64QAM)	Up to 54
802.11n-HT20				Up to 72.2
BLE	2402-2480	40	GFSK	Up to 1

Channel List							
802.11 b/g/n-HT20							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452		

Channel List							
BLE							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
37	2402	09	2422	18	2442	28	2462
00	2404	10	2424	19	2444	29	2464
01	2406	38	2426	20	2446	30	2466
02	2408	11	2428	21	2448	31	2468
03	2410	12	2430	22	2450	32	2470
04	2412	13	2432	23	2452	33	2472
05	2414	14	2434	24	2454	34	2474
06	2416	15	2436	25	2456	35	2476
07	2418	16	2438	26	2458	36	2478
08	2420	17	2440	27	2460	39	2480

3.6. Descriptions of Key Components

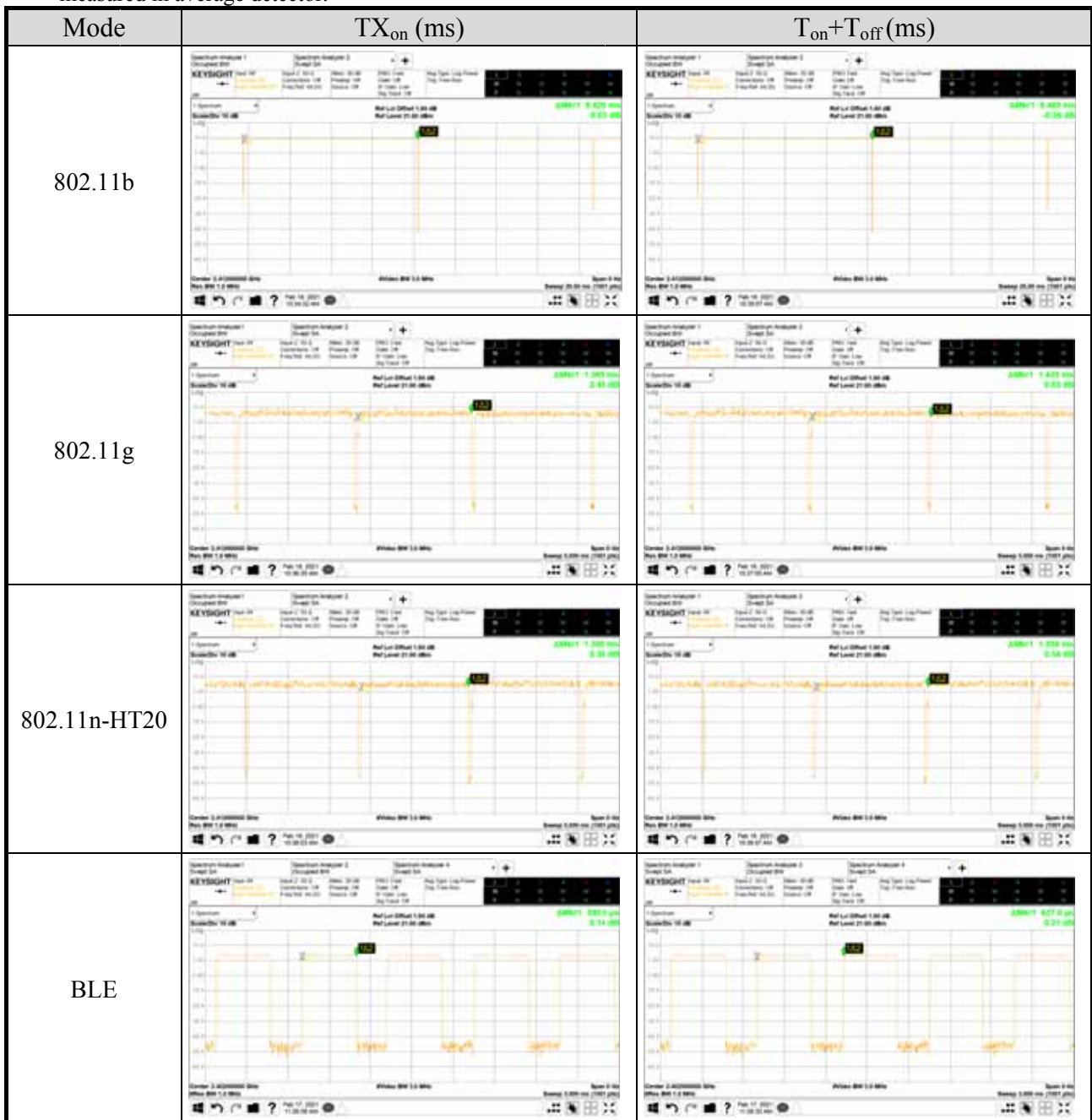
Item	Supplier	Model / Type	Character
Main board	ECS	AR3399-NI	w/RK3399KSoC, 2GB DDR3L, 32GB eMMC, DP/HDMI/GbE, USB, WLAN+BT
CPU	Rockchip	RK3399K	2.0GHz (CPU socket: FCBGA 828P)
eMMC (Storage)	Kingston	EMMC32G-TA28	32GB
DRAM	Kingston	D2516ECMDXGJD1	2GB, DDR3L 1600MHz
WLAN Combo Card	AMPAK	AP6236	802.11 b/g/n+BT 5.2 +BLE
Antenna	WELL GREEN Technology Co., LTD	EGM30APDI01+A	Dipole Antenna
AC Adapter	FSP	FSP050-DHAN3	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 12Vdc, 4.17A, 50.0W BSMI: R43001
	DC Power Cord: Non-Shielded, Undetached, 1.2m, Bonded a ferrite core AC Power Cord: Non-Shielded, Detached, 1.8m (3C)		

Remark: For more detailed features description, please refer to the manufacturer's specifications or the user manual.

3.7. Test Configuration

Mode	TX _{on} (ms)	1/ TX _{on} (kHz)	Duty Cycle (x)	Duty Cycle Factor [10log(1/x)] (dB)
802.11b	8.420	0.119	0.995	N/A
802.11g	1.385	0.722	0.965	0.15
802.11n-HT20	1.300	0.769	0.963	0.16
BLE	0.390	2.564	---	---

Note: When duty cycle is less than 98% (0.98) that duty cycle factor 10log(1/x) is needed to add in conducted test items measured in average detector.



AC Conduction
Normal operation

Item	Mode	Data Rate	Test Channel
Radiated Test Case	Radiated Band Edge	802.11b	1Mbps 1/2/10/11
		802.11g	6Mbps 1/2/10/11
		802.11n-HT20	MCS8 1/2/10/11
		BLE	1Mbps 37/39
	Radiated Spurious Emission	802.11b	1Mbps 7
		802.11g	6Mbps 7
		802.11n-HT20	MCS8 7
		BLE	1Mbps 37/17/39
Conducted Test Case	6dB/Occupied Bandwidth	802.11b	1Mbps 1/7/11
		802.11g	6Mbps 1/7/11
		802.11n-HT20	MCS8 1/7/11
		BLE	1Mbps 37/17/39
	Band Edge	802.11b	1Mbps 1/11
		802.11g	6Mbps 1/11
		802.11n-HT20	MCS8 1/11
		BLE	1Mbps 37/39
	Spurious Emission	802.11b	1Mbps 1/7/11
		802.11g	6Mbps 1/7/11
		802.11n-HT20	MCS8 1/7/11
		BLE	1Mbps 37/17/39
	Peak Power Spectral Density	802.11b	1Mbps 1/7/11
		802.11g	6Mbps 1/7/11
		802.11n-HT20	MCS8 1/7/11
		BLE	1Mbps 37/17/39

Note 1: Mobile Device
 Portable Device, and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow: Lie Side Stand

Note 2: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

3.8. Output Power Setting

Mode	Centre Frequency (MHz)	Power Setting
802.11b	2412	None
	2437	None
	2462	None
Mode	Centre Frequency (MHz)	Power Setting
802.11g	2412	None
	2437	None
	2462	None
Mode	Centre Frequency (MHz)	Power Setting
802.11n-HT20	2412	None
	2437	None
	2462	None
Mode	Centre Frequency (MHz)	Power Setting
BLE	2402	None
	2440	None
	2480	None

3.9. Tested Supporting System List

3.9.1. Support Peripheral Unit

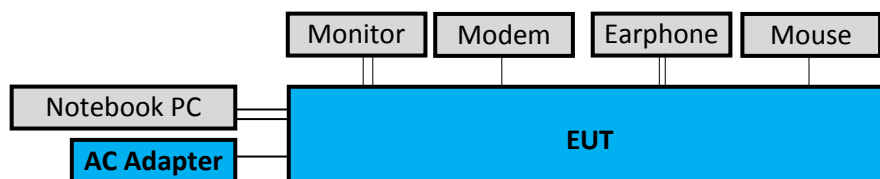
No.	Product	Brand	Model No.	Serial No.	Approval
1.	LCD Monitor	DELL	U2718Qb	N/A	FCC By DoC
2.	USB Mouse	Lenovo	45J4886	N/A	FCC By DoC
3.	Earphone (Emission Test Used)	APPLE	N/A	N/A	N/A
4.	Modem (Emission Test Used)	ACEEX	DM-1414	980034395	FCC ID: IFAXDM1414
5.	Notebook PC	ASUS	E403SA	N/A	FCC By DoC

3.9.2. Cable Lists

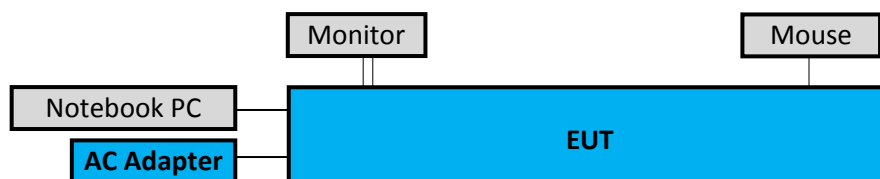
No.	Cable Description Of The Above Support Units
1.	HDMI Cable: Shielded, Detachable, 1.8m DP Cable: Shielded, Detachable, 1.8m AC Power Cord: Unshielded, Detachable, 1.8m
2.	USB Cable: Unshielded, Undetachable, 1.8m
3.	Earphone Cable: Unshielded, Undetachable, 0.9mx2
4.	RS-232 Cable: Shielded, Detachable, 1.8m AC Power Cord: Unshielded, Detachable, 1.8m
5.	USB Cable: Shielded, Detachable, 1.8m LAN Cable: Shielded, Detachable, 1.8m (Emission Test Used) AC adapter(Wall-mounted 2C): ASUS, M/N AD890526 DC Power Cord: Unshielded, Detachable, 2.0m

3.10. Setup Configuration

3.10.1. EUT Configuration for Power Line & Radiated Emission



3.10.2. EUT Configuration for RF Conducted Test Items



3.11. Operating Condition of EUT

Test program “RF Test Tool” is used for enabling EUT BLE or WLAN function under continues transmitting and choosing data rate/ channel.

3.12. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	FCC OET Designation Number under APEC MRA by NCC is : TW1724 ISED CAB Identifier Number under APEC TEL MRA by NCC is TW1724 (1) No.8 Shielded Room (2) No.1 3m Semi Anechoic Chamber (3) Fully Anechoic Chamber

3.13. Measurement Uncertainty

Test Items/Facilities		Frequency Range	Uncertainty
Conduction Test		9kHz-150kHz	±3.7dB
		150kHz-30MHz	±3.4dB
Radiation Test	<input checked="" type="checkbox"/> No.1 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.8dB
		200MHz-1000MHz, 3m, Horizontal	±4.1dB
		30MHz-200MHz, 3m, Vertical	±4.5dB
		200MHz-1000MHz, 3m, Vertical	±4.5dB
		1GHz-6GHz, 3m	±4.7dB
		6GHz-18GHz, 3m	±4.1dB
	<input type="checkbox"/> No.3 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.9dB
		200MHz-1000MHz, 3m, Horizontal	±4.2dB
		30MHz-200MHz, 3m, Vertical	±4.3dB
		200MHz-1000MHz, 3m, Vertical	±4.5dB
	<input type="checkbox"/> No.4 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.1dB
		200MHz-1000MHz, 3m, Horizontal	±4.5dB
		30MHz-200MHz, 3m, Vertical	±4.4dB
		200MHz-1000MHz, 3m, Vertical	±4.8dB
		1GHz-6GHz, 3m	±5.0dB
		6GHz-18GHz, 3m	±4.7dB
	<input type="checkbox"/> No.5 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.2dB
		200MHz-1000MHz, 3m, Horizontal	±4.3dB
		30MHz-200MHz, 3m, Vertical	±4.3dB
		200MHz-1000MHz, 3m, Vertical	±4.7dB
1GHz-6GHz, 3m		±4.8dB	
6GHz-18GHz, 3m		±4.5dB	
<input checked="" type="checkbox"/> Fully Anechoic Chamber	30MHz~1000MHz	±4.6dB	
	1GHz~18GHz	±5.4dB	
	18GHz~40GHz	±3.52dB	
	40GHz~260GHz	±3.56dB	

Remark : Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dB
Power spectral density	± 0.13dB
Conducted Emission Limitations	± 0.13dB

4. MEASUREMENT EQUIPMENT LIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESR3	101774	2021.02.02	1 Year
2.	A.M.N.	R&S	ENV432	101567	2020.04.20	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-855-9	2020.12.10	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	100354	2021.01.04	1 Year
5.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.8 S/R	2020.04.17	1 Year
6.	Coaxial Cable	Yeida	RG/58AU	CE-08	2020.09.19	1 Year
7.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.

4.2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2020.09.16	1 Year
2.	Spectrum Analyzer	Keysight	N9010B-544	MY55460198	2020.04.29	1 Year
3.	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2021.01.14	1 Year
4.	Test Receiver	R&S	ESCS30	100039	2020.06.05	1 Year
5.	Amplifier	HP	8447D	2944A07178	2020.04.29	1 Year
6.	Microwave Preamplifier	HP	8449B	3008A01284	2020.05.26	1 Year
7.	Microwave Amplifier	Keysight	83051A	MY53010042	2020.08.05	1 Year
8.	Microwave Amplifier	Agilent	8449B	3008A02678	2021.02.27	1 Year
9.	Loop Antenna	R&S	HFH2-Z2	891847/27	2019.12.26	2 Years
10.	Bilog Antenna	TESEQ	CBL6112D	33821	2021.01.15	1 Year
11.	Horn Antenna	ETS-Lindgren	3117	00135902	2020.03.10	1 Year
12.	Horn Antenna	COM-POWER	AH-840	101092	2020.05.08	1 Year
13.	2.4GHz Notch Filter	K&L Microwave	7NSL10-2441.5 /E130.5-O/O	1	2020.07.24	1 Year
14.	3GHz Notch Filter	Microwave	H3G018G1	484796	2020.08.20	1 Year
15.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2021.01.29	1 Year
16.	Coaxial Cable	HUBER+ SUHNER	SUCOFLEX 104	RE-29	2020.09.19	1 Year
17.	Coaxial Cable	HUBER+ SUHNER	SUCOFLEX 102	RE-30	2020.09.19	1 Year
18.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2020.04.17	1 Year
19.	Digital Thermo-Hygro Meter	EVERY DAY	E-512	RF-02	2020.04.17	1 Year
20.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.
21.	Test Software	Audix	e3	V6.110601	N.C.R.	N.C.R.

4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9020B-544	MY57120357	2021.01.06	1 Year
2.	Power Meter	Anritsu	ML2487A	6K00005406	2020.04.29	1 Year
3.	Power Sensor	Anritsu	MA2491A	030873	2020.04.29	1 Year
4.	Digital Thermo-Hygro Meter	Shenzhen Datromm Electronics	KT-905	RF	2020.04.17	1 Year

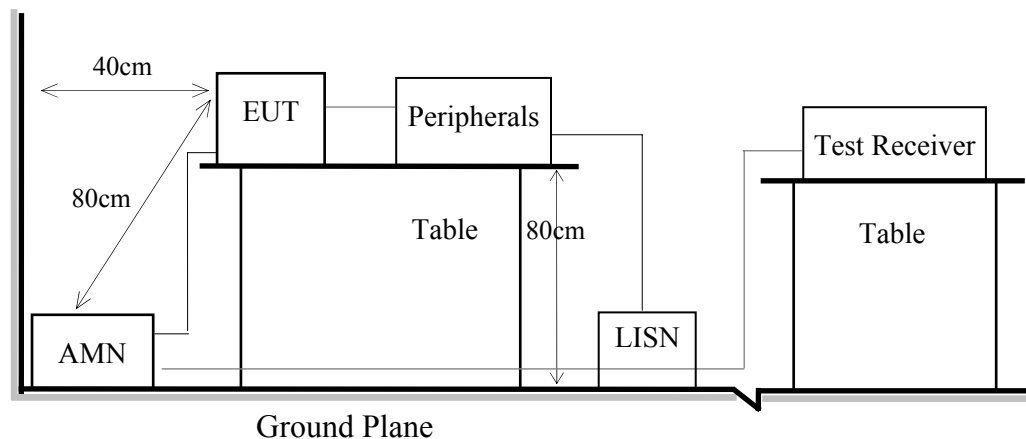
5. CONDUCTED EMISSION

5.1. Block Diagram of Test Setup

5.1.1. Block Diagram of EUT

Indicated as section 3.10

5.1.2. Shielded Room Setup Diagram



5.2. Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.

2.: The lower limit applies to the band edges.

5.3. Test Procedure

- 5.3.1. To set up the EUT as indicated in ANSI C63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.
- 5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).
- 5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)
- 5.3.4. Checking frequency range from 150kHz to 30 MHz and record the emission which does not have 20 dB below limit.

5.4. Test Results

Please refer to Appendix A.

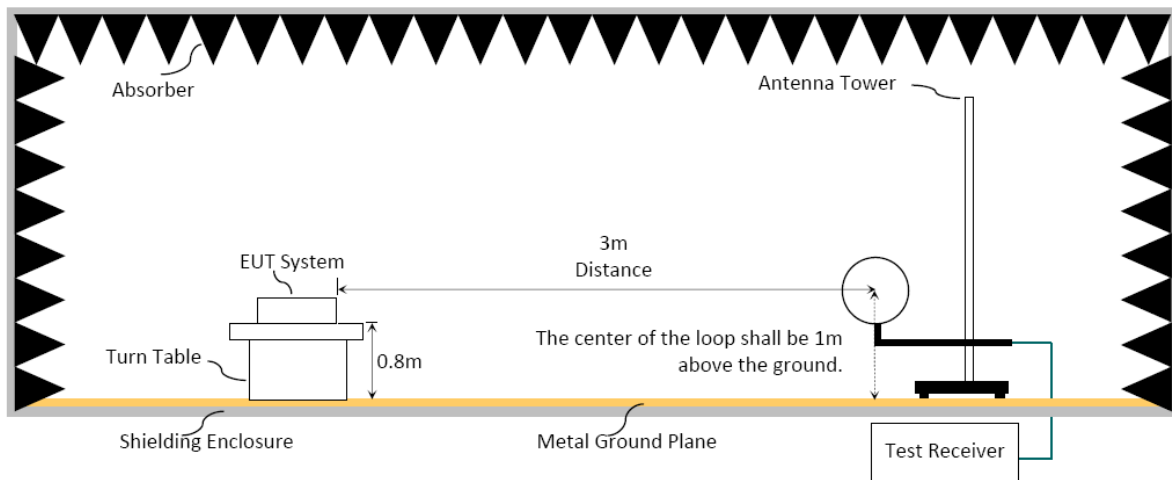
6. RADIATED EMISSION

6.1. Block Diagram of Test Setup

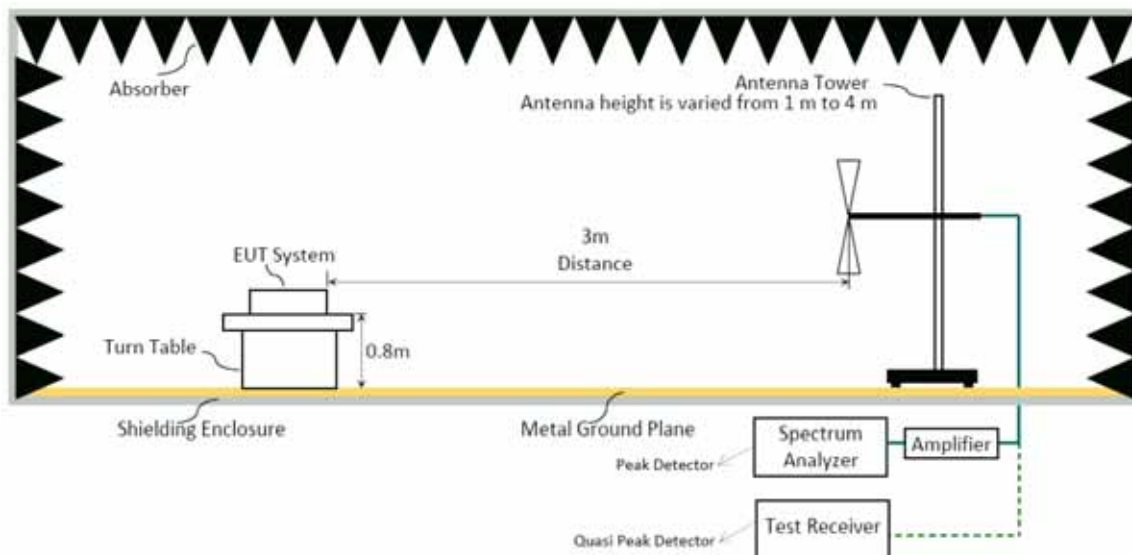
6.1.1. Block Diagram of EUT

Indicated as section 3.10

6.1.2. Setup Diagram for 9kHz-30MHz

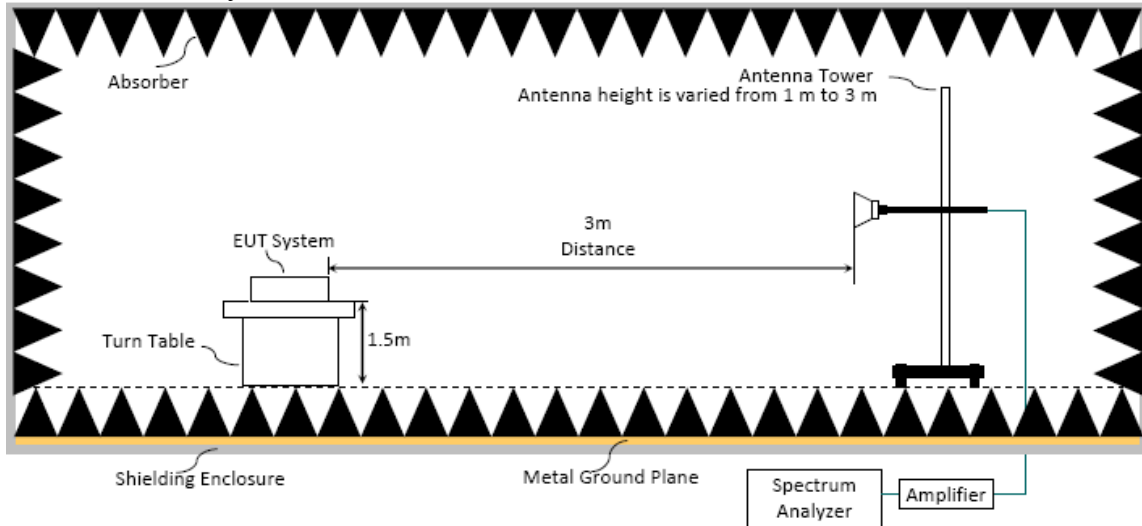


6.1.3. Setup Diagram for 30-1000MHz

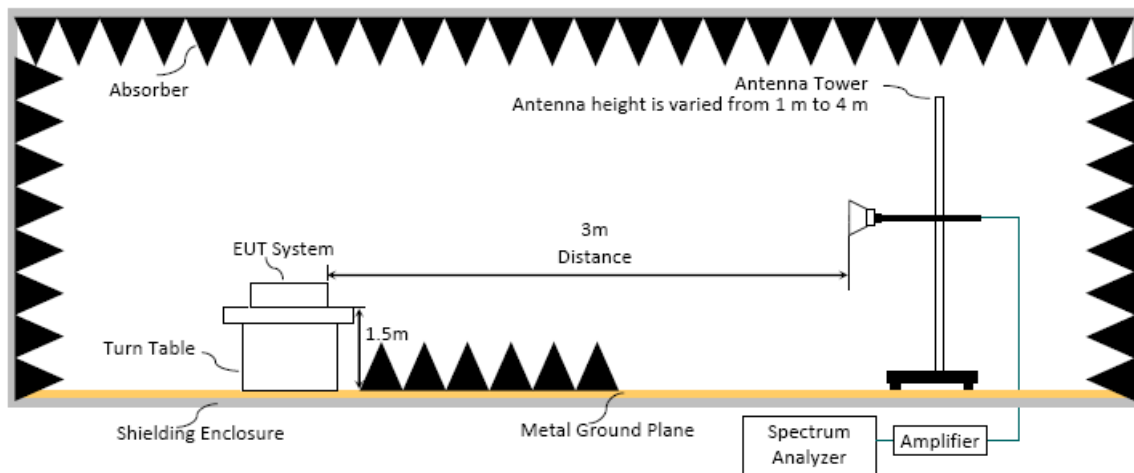


6.1.4. Setup Diagram for above 1GHz

Fully Anechoic Chamber



Semi Anechoic Chamber



6.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205 Section 8.10 table 6, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance(m)	Limits	
		dB μ V/m	μ V/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)	

Remark : (1) dB μ V/m = 20 log (μ V/m)

- (2) The tighter limit applies to the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- (4) Fundamental and emission fall within operation band are exempted from this section.
- (5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

6.3. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

- (1) RBW = 9kHz with peak and average detector.
- (2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 25GHz:

The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m (for 30-1000MHz) and from 1m to 3m (for above 1GHz at fully Anechoic Chamber) or from 1 m to 4 m (for above 1GHz at Semi Anechoic Chamber) to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

Frequency below 1GHz:

Spectrum Analyzer is used for pre-testing with following setting:

- (1) RBW = 120KHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note 1: When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Note 2: When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Frequency above 1GHz to 10th harmonic (up to 25 GHz):

Peak Detector:

- (1) RBW = 1MHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note: When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

Average Detector:

Option 1:

- (1) RBW = 1MHz
- (2) VBW \geq 1/ T.

Modulation Type	T (ms)	1/ T (kHz)	VBW Setting
802.11b	8.420	0.119	1.00kHz
802.11g	1.385	0.722	0.75kHz
802.11n-HT20	1.300	0.769	0.82kHz
BLE	0.390	2.564	2.70kHz

N/A: 1/ T is not implemented when duty cycle presented in section 3.6 is \geq 98%.

- (1) Detector = Peak.
- (2) Sweep time = auto.
- (3) Trace mode = max hold.
- (4) Allow sweeps to continue until the trace stabilizes.

Option 2:

Average Emission Level = Peak Emission Level + D.C.C.F.

6.4. Measurement Result Explanation

Peak Emission Level = Antenna Factor + Cable Loss + Meter Reading (including Preamp factor if test used)

Average Emission Level = Antenna Factor + Cable Loss + Meter Reading (including Preamp factor if test used)

Average Emission Level = Peak Emission Level + DCCF

Duty Cycle Correction Factor (DCCF) = $20\log(TX_{on}/TX_{on+off})$ presented in section 3.7

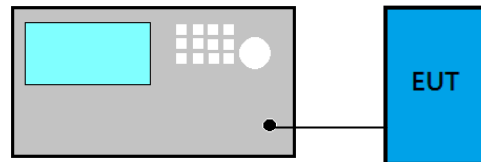
ERP = Peak Emission Level - 95.2dB - 2.14dB

6.5. Test Results

Please refer to Appendix A.

7. 6dB/OCCUPIED BANDWIDTH

7.1. Block Diagram of Test Setup



7.2. Specification Limits

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

7.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

For 6dB Bandwidth

- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x to -6dB power to record the final bandwidth..

For 99% Occupied Bandwidth

- (1) Set Span range 1.5~5 times the OBW
- (2) Set RBW close to 1% to 5% of OBW.
- (3) Set VBW $\geq 3 \times$ RBW.
- (4) Detector = Peak.
- (5) Trace mode = Max hold
- (6) Sweep = Auto couple.
- (7) Allow the trace to stabilize.

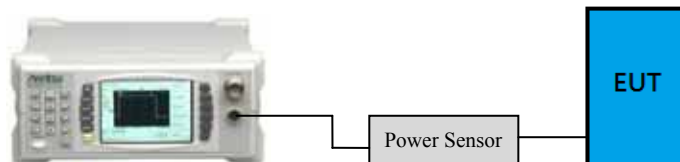
7.4. Test Results

Please refer to Appendix A

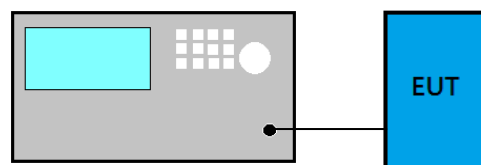
8. MAXIMUM PEAK OUTPUT POWER

8.1. Block Diagram of Test Setup

- For WLAN Function



- For BLE Function



8.2. Specification Limits

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm), and E.I.R.P.: 4Watt (36dBm)

8.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

PKPM1 Peak power meter method:

EUT is connected to power sensor and record the maximum output power.

Maximum peak conducted output power method:

- (1) Set the RBW \geq DTS bandwidth
- (2) Set VBW $\geq 3 \times$ RBW
- (3) Set span $\geq 3 \times$ RBW.
- (4) Sweep time = auto couple
- (5) Detector = peak.
- (6) Trace mode = max hold.
- (7) Allow trace to fully stabilize.
- (8) Use peak marker function to determine the peak amplitude level.

Method AVGPM (Measurement using an RF average power meter):

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.7 is $< 98\%$.

Method AVGSA-2 (Spectrum channel power)

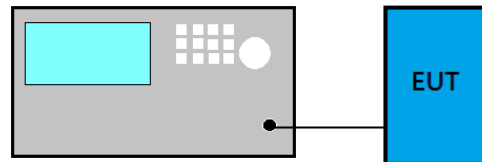
- (1) Set span to at least 1.5 times the OBW
- (2) Set RBW = 1 -5% of OBW
- (3) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (4) Detector = RMS.
- (5) Trace mode = trace average at least 100 traces
- (6) Sweep = auto couple.
- (7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
- (8) Duty cycle factor is added when duty cycle presented in section 3.7 is $< 98\%$.

8.4. Test Results

Please refer to Appendix A

9. EMISSION LIMITATIONS

9.1. Block Diagram of Test Setup



9.2. Specification Limits

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, that the required attenuation shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in Section 15.209(a) Section 8.9 table 4 is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a) Section 8.10 table 6, must also comply with the radiated emission limits specified in Section 15.209(a) Section 8.9 table 4 (See Section 15.205(c)).

9.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

Reference Level

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max PSD as reference level.

Emission Level Measurement

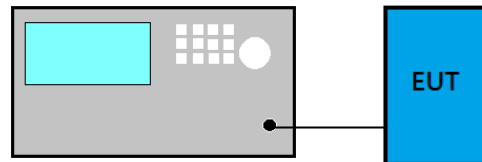
- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max level.

9.4. Test Results

Please refer to Appendix A

10. POWER SPECTRAL DENSITY

10.1. Block Diagram of Test Setup



10.2. Specification Limits

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

10.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

Method PKPSD (peak PSD)

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- (4) Set the VBW $\geq 3 \times \text{RBW}$.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize.
- (9) Use the peak marker function to determine the maximum amplitude level.
- (10) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Method AVGPSD-2

- (1) Using peak PSD procedure step 1 to step 4.
- (2) Detector = RMS detector
- (3) Sweep time = auto couple
- (4) Trace mode = trace averaging over a minimum of 100 traces
- (5) Use the peak marker function to determine the maximum amplitude level.
- (6) Duty cycle factor is added when duty cycle presented in section 3.7 < 98%.
- (7) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

10.4. Test Results

Please refer to Appendix A

11. DEVIATION TO TEST SPECIFICATIONS

【NONE】



APPDNDIX A

TEST DATA AND PLOTS

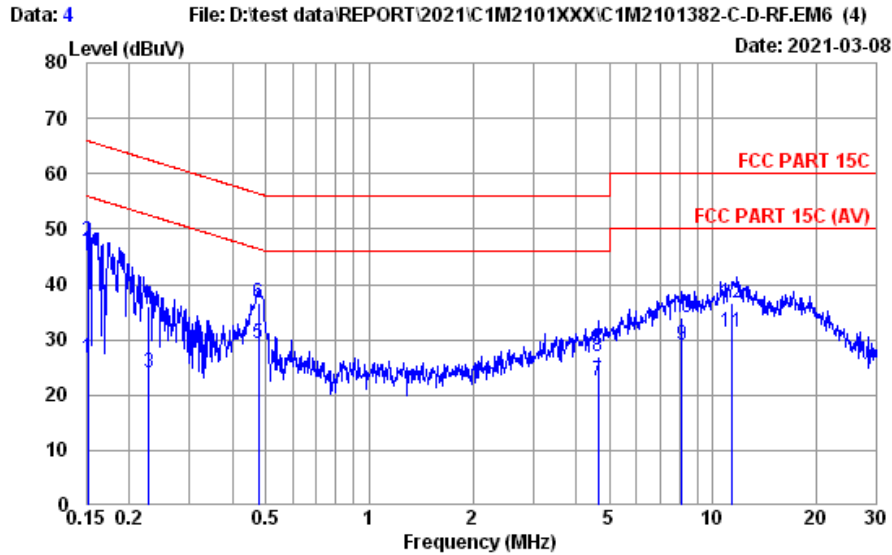
(Model: LIVA M300-W)

TABLE OF CONTENTS

A.1 CONDUCTED EMISSION	2
A.2 RADIATED EMISSION	4
A.2.1 Emissions within Restricted Frequency Bands.....	4
A.2.2 Emissions outside the frequency band:.....	22
A.2.3 Emissions in Non-restricted Frequency Bands:.....	23
A.3 6dB/OCCUPIED BANDWIDTH	24
A.3.1 Emission Bandwidth Result.....	24
A.3.2 Measurement Plots	25
A.4 MAXIMUM PEAK OUTPUT POWER	27
A.4.1 Peak Output Power	27
A.4.2 Average Output Power (Reporting only).....	28
A.4.3 Measurement Plots	29
A.5 EMISSION LIMITATIONS	30
A.6 POWER SPECTRAL DENSITY	42
A.6.1 Power Spectral Density Result	42
A.6.2 Measurement Plots	43

A.1 CONDUCTED EMISSION

Test Date	2021/03/08	Temp./Hum.	20°C/72%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Tested By	Chucky Chiu

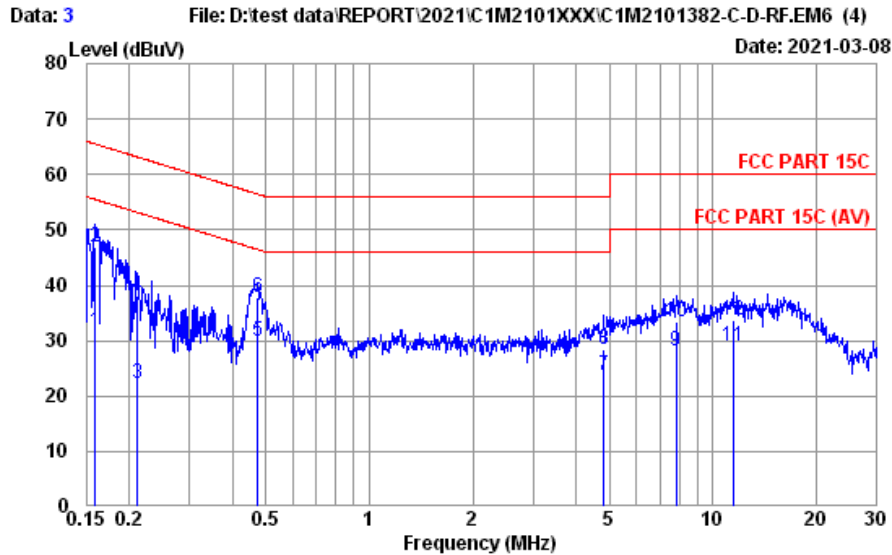


Site No. : No.8 Shielded Room Data No. : 4
 Instrument 1 : Receiver ESR3(774)
 Instrument 2 : EIV432 (567)(A)|CE-08|ESH3-Z2 (354)
 Limit : FCC PART 15C Phase : NEUTRAL
 Environment : 20°C / 72% Engineer : Chucky Chiu
 EUT Model : LIVA M300-W Test Rating : 120Vac/60Hz
 Test Mode : Operating

	Freq. (MHz)	AMI Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.152	10.20	0.03	9.85	6.71	26.79	55.91	29.12	Average
2	0.152	10.20	0.03	9.85	27.65	47.73	65.91	18.18	QP
3	0.228	10.20	0.03	9.85	4.07	24.15	52.52	28.37	Average
4	0.228	10.20	0.03	9.85	16.06	36.14	62.52	26.38	QP
5	0.476	10.20	0.03	9.85	9.08	29.16	46.41	17.25	Average
6	0.476	10.20	0.03	9.85	16.45	36.53	56.41	19.88	QP
7	4.622	10.30	0.10	9.87	2.19	22.46	46.00	23.54	Average
8	4.622	10.30	0.10	9.87	6.75	27.02	56.00	28.98	QP
9	8.105	10.44	0.12	9.88	8.69	29.13	50.00	20.87	Average
10	8.105	10.44	0.12	9.88	13.52	33.96	60.00	26.04	QP
11	11.377	10.56	0.15	9.90	10.70	31.31	50.00	18.69	Average
12	11.377	10.56	0.15	9.90	15.89	36.50	60.00	23.50	QP

Remarks: 1. Emission Level= AMI Factor + Cable Loss + Pulse Att. + Reading.

Test Date	2021/03/08	Temp./Hum.	20°C/72%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Tested By	Chucky Chiu



Site No.	: No.8 Shielded Room	Data No.	: 3
Instrument 1	: Receiver ESR3(774)		
Instrument 2	: EHV432 (567)(A) CE-08 ESH3-Z2 (354)		
Limit	: FCC PART 15C	Phase	: LINE
Environment	: 20°C / 72%	Engineer	: Chucky Chiu
EUT Model	: LIVA M300-W	Test Rating	: 120Vac/60Hz
Test Mode	: Operating		

	Freq. (MHz)	AMI Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.159	10.20	0.03	9.85	11.43	31.51	55.52	24.01	Average
2	0.159	10.20	0.03	9.85	26.78	46.86	65.52	18.66	QP
3	0.212	10.20	0.03	9.85	2.07	22.15	53.14	30.99	Average
4	0.212	10.20	0.03	9.85	17.89	37.97	63.14	25.17	QP
5	0.474	10.20	0.03	9.85	9.77	29.85	46.45	16.60	Average
6	0.474	10.20	0.03	9.85	17.61	37.69	56.45	18.76	QP
7	4.822	10.30	0.10	9.87	3.52	23.79	46.00	22.21	Average
8	4.822	10.30	0.10	9.87	8.22	28.49	56.00	27.51	QP
9	7.810	10.33	0.12	9.88	7.95	28.28	50.00	21.72	Average
10	7.810	10.33	0.12	9.88	12.95	33.28	60.00	26.72	QP
11	11.438	10.43	0.15	9.90	8.58	29.06	50.00	20.94	Average
12	11.438	10.43	0.15	9.90	13.23	33.71	60.00	26.29	QP

Remarks: 1. Emission Level= AMI Factor + Cable Loss + Pulse Att. + Reading.

A.2 RADIATED EMISSION

Test Date	2021/02/26~03/02	Temp./Hum.	20~23°C/58~64%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Tested By	Hua Wu

A.2.1 Emissions within Restricted Frequency Bands

A.2.1.1 Frequency 9kHz~30MHz

The emissions (9kHz~30MHz) not reported for there is no emission be found.

A.2.1.2 Frequency Below 1GHz

Mode	802.11g	Frequency	TX 2437MHz
------	---------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	23.89	1.20	28.14	30.72	27.67	40.00	12.33	Peak
101.78	17.43	2.29	28.04	35.44	27.12	43.50	16.38	Peak
114.39	18.36	2.46	27.98	33.02	25.86	43.50	17.64	Peak
174.53	15.95	3.12	27.75	41.59	32.91	43.50	10.59	Peak
237.58	18.06	3.74	27.63	44.11	38.28	46.00	7.72	Peak
299.66	19.71	4.30	27.56	36.52	32.97	46.00	13.03	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
31.94	23.58	1.22	28.14	41.35	38.01	40.00	1.99	Peak
41.64	18.41	1.42	28.13	40.18	31.88	40.00	8.12	Peak
70.74	12.59	1.89	28.09	44.06	30.45	40.00	9.55	Peak
97.90	16.97	2.25	28.05	37.96	29.13	43.50	14.37	Peak
113.42	18.28	2.44	27.98	39.70	32.44	43.50	11.06	Peak
238.55	18.11	3.74	27.63	38.56	32.78	46.00	13.22	Peak

Mode	BLE	Frequency	TX 2480MHz
------	-----	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	23.89	1.20	28.14	30.41	27.36	40.00	12.64	Peak
70.74	12.59	1.89	28.09	36.63	23.02	40.00	16.98	Peak
101.78	17.43	2.29	28.04	36.26	27.94	43.50	15.56	Peak
175.50	15.91	3.13	27.75	41.19	32.48	43.50	11.02	Peak
237.58	18.06	3.74	27.63	44.89	39.06	46.00	6.94	Peak
299.66	19.71	4.30	27.56	37.68	34.13	46.00	11.87	Peak

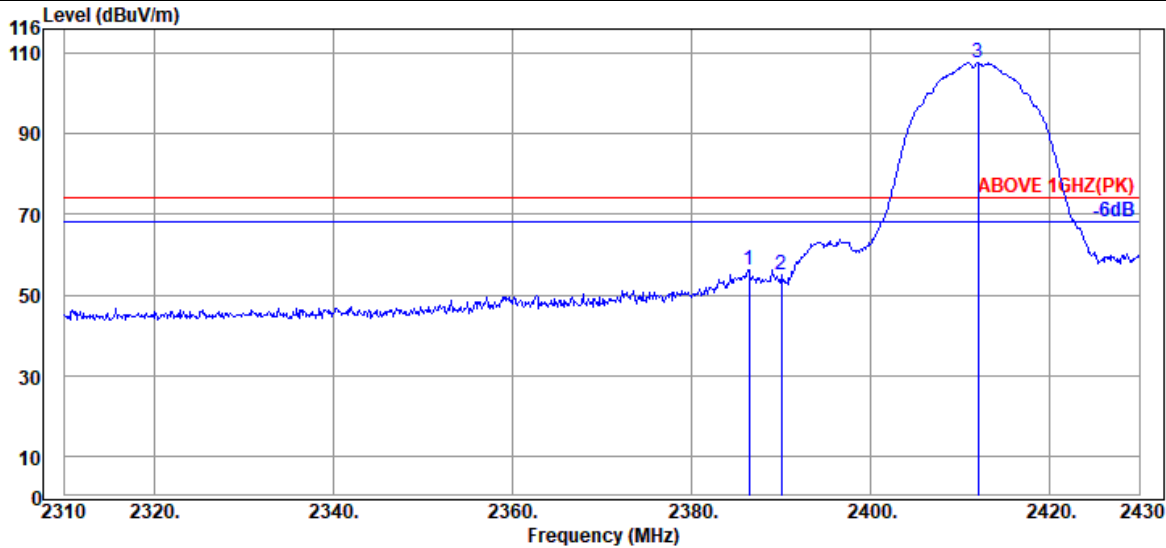
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.97	23.89	1.20	28.14	40.98	37.93	40.00	2.07	Peak
41.64	18.41	1.42	28.13	40.67	32.37	40.00	7.63	Peak
70.74	12.59	1.89	28.09	45.31	31.70	40.00	8.30	Peak
95.96	16.70	2.23	28.05	38.90	29.78	43.50	13.72	Peak
113.42	18.28	2.44	27.98	39.91	32.65	43.50	10.85	Peak
175.50	15.91	3.13	27.75	38.69	29.98	43.50	13.52	Peak

A.2.1.3 Frequency Above 1 GHz to 10th harmonics

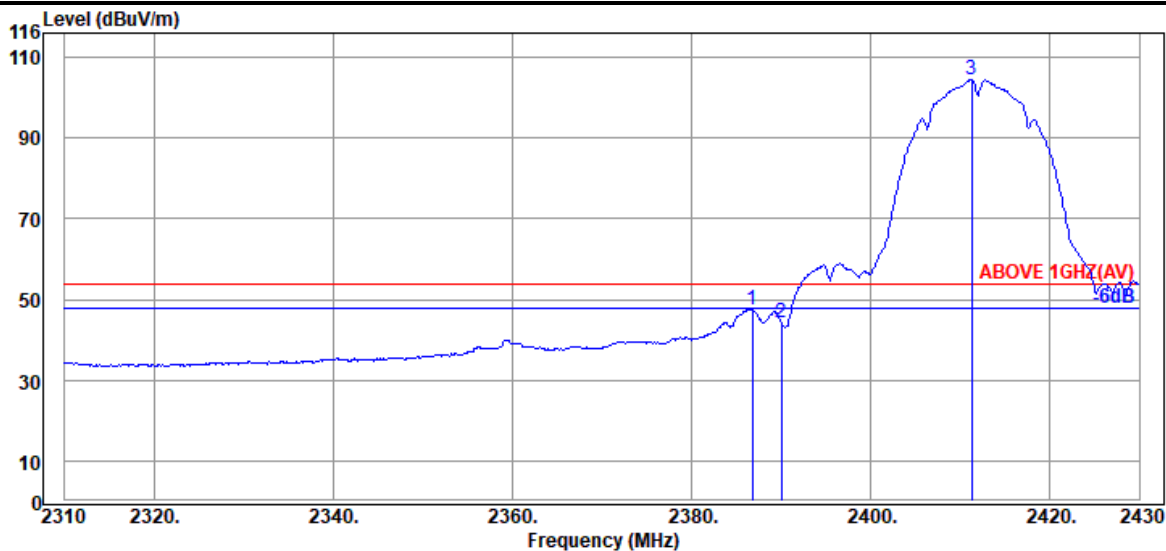
Band Edge:

Mode	802.11b	Frequency	TX 2412MHz
------	---------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.44	32.44	7.95	34.58	50.52	56.33	74.00	17.67	Peak
2390.04	32.44	7.95	34.58	49.18	54.99	74.00	19.01	Peak
@ 2412.00	32.36	7.96	34.59	101.86	107.59	---	---	Peak

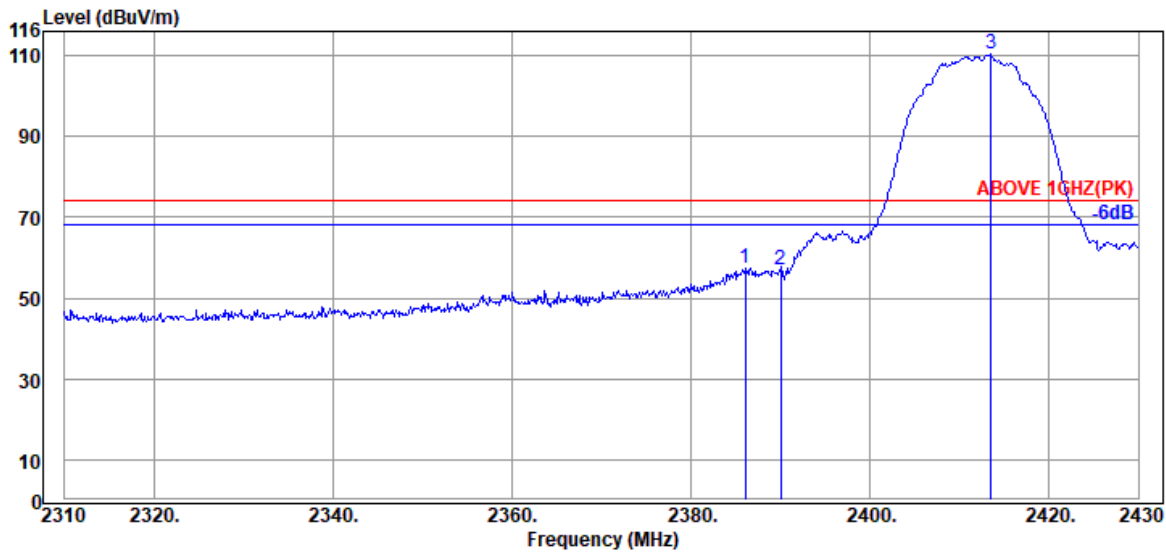


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.80	32.44	7.95	34.58	41.77	47.58	54.00	6.42	Average
2390.04	32.44	7.95	34.58	38.28	44.09	54.00	9.91	Average
@ 2411.28	32.36	7.96	34.59	98.83	104.56	---	---	Average

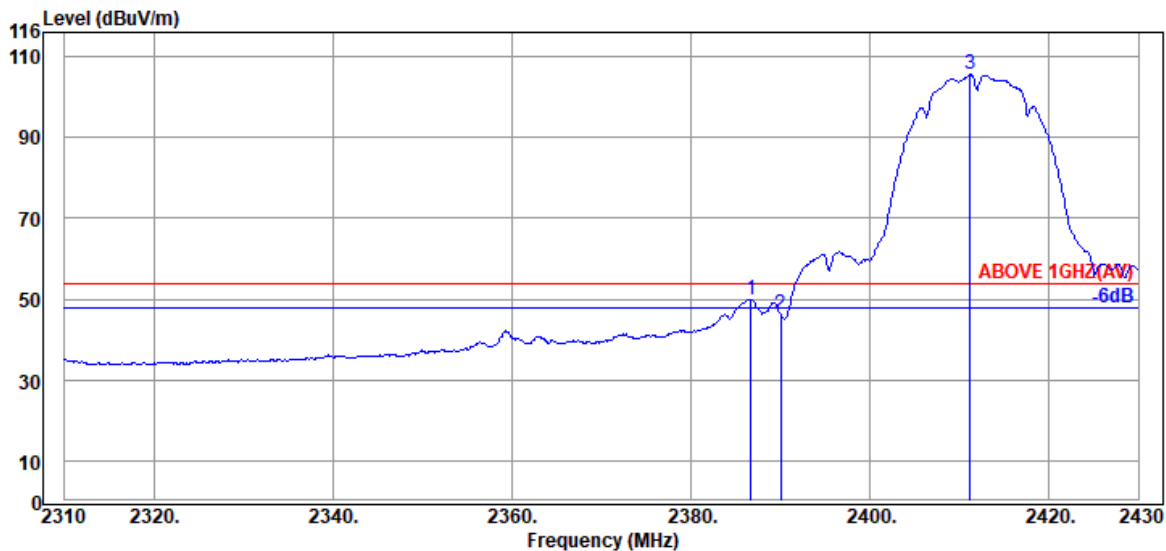
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11b	Frequency	TX 2412MHz
------	---------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.08	32.44	7.95	34.58	51.77	57.58	74.00	16.42	Peak
2390.04	32.44	7.95	34.58	51.11	56.92	74.00	17.08	Peak
@ 2413.56	32.36	7.96	34.59	104.61	110.34	---	---	Peak

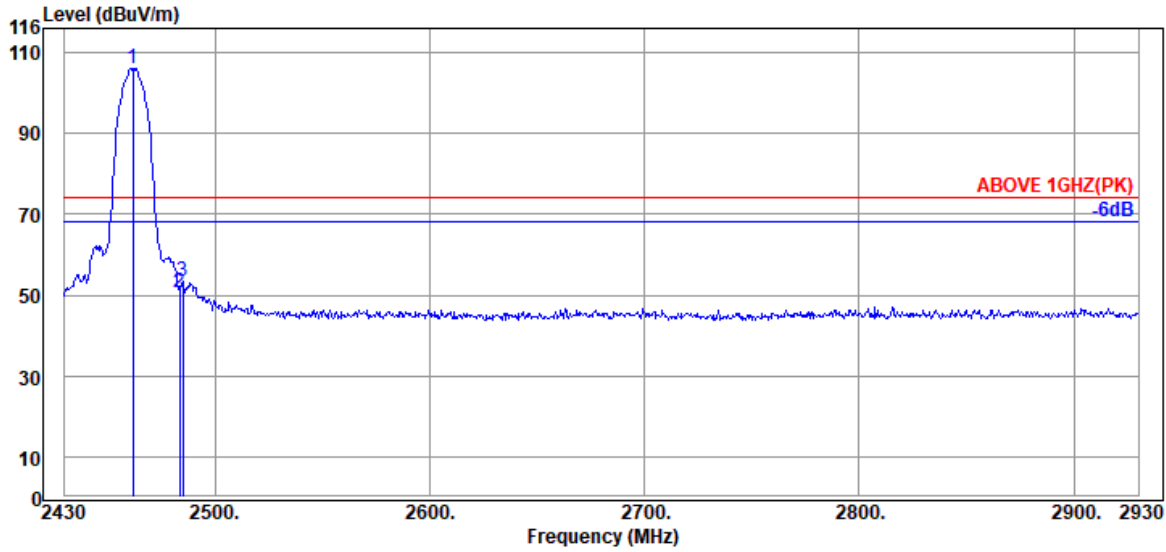


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.68	32.44	7.95	34.58	44.20	50.01	54.00	3.99	Average
2390.04	32.44	7.95	34.58	40.40	46.21	54.00	7.79	Average
@ 2411.16	32.43	7.96	34.59	99.74	105.54	---	---	Average

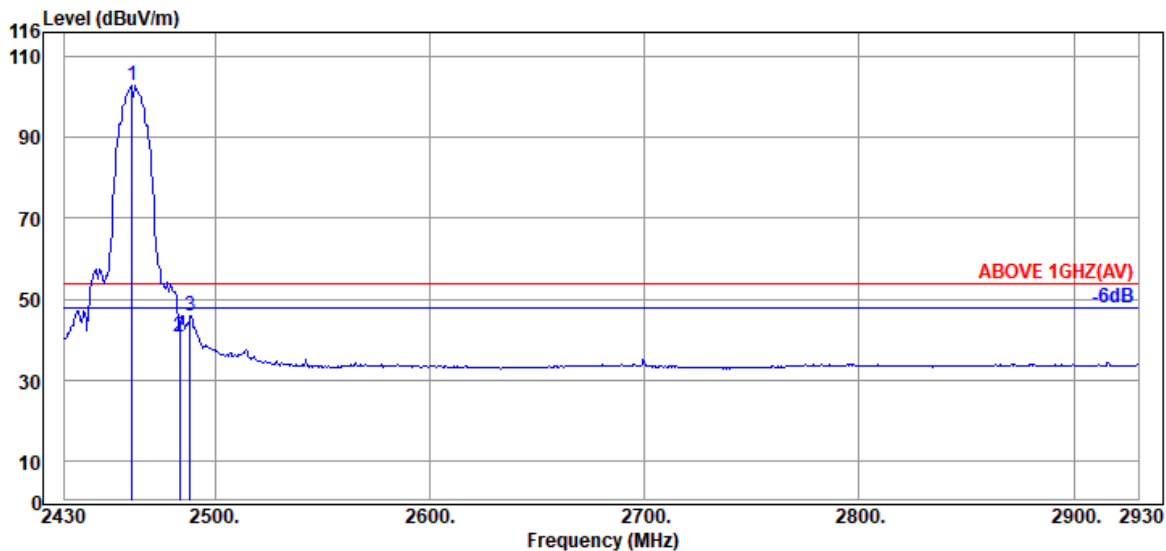
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11b	Frequency	TX 2462MHz
------	---------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2462.00	32.06	7.98	34.60	100.69	106.13	---	---	Peak
2483.50	32.14	7.99	34.61	45.26	50.78	74.00	23.22	Peak
2485.00	32.14	7.99	34.61	47.81	53.33	74.00	20.67	Peak

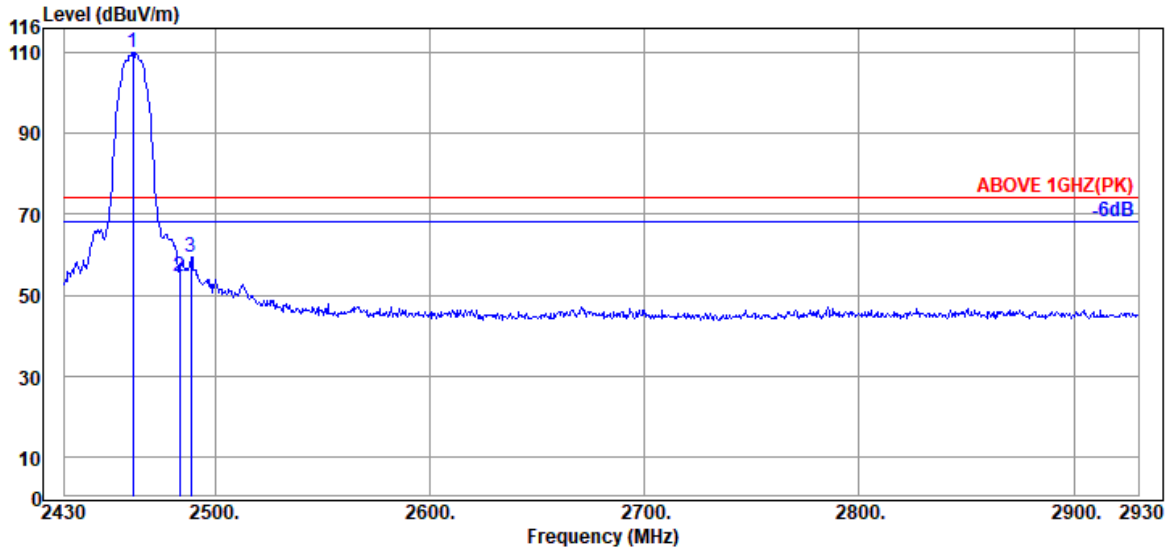


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2461.50	32.06	7.98	34.60	97.56	103.00	---	---	Average
2483.50	32.14	7.99	34.61	35.34	40.86	54.00	13.14	Average
2488.50	32.14	8.00	34.61	40.51	46.04	54.00	7.96	Average

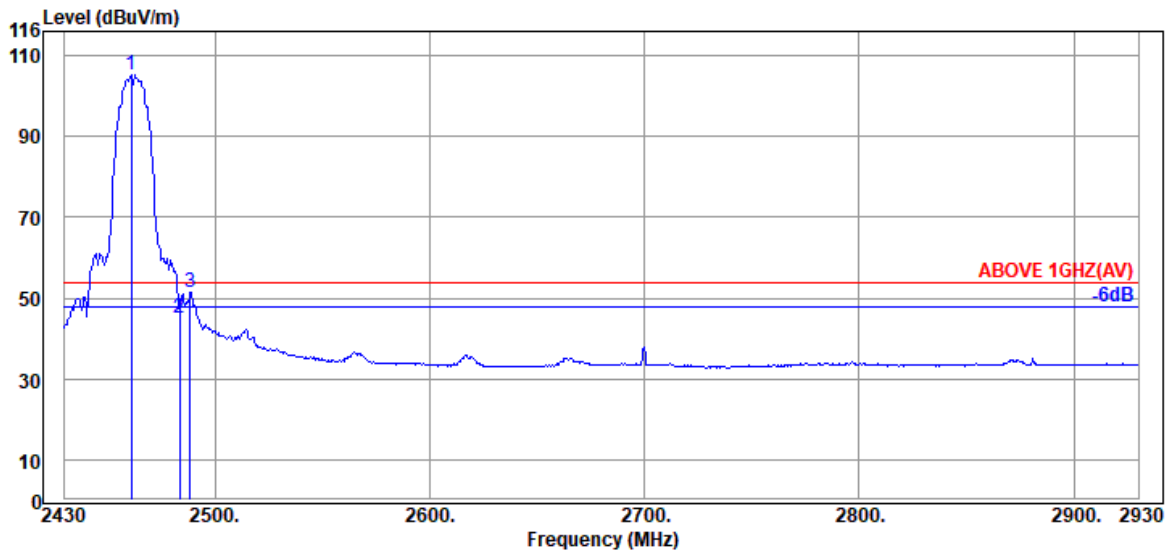
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	802.11b	Frequency	TX 2462MHz
------	---------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2462.00	32.06	7.98	34.60	104.53	109.97	---	---	Peak
2483.50	32.14	7.99	34.61	49.07	54.59	74.00	19.41	Peak
2489.00	32.14	8.00	34.61	53.98	59.51	74.00	14.49	Peak

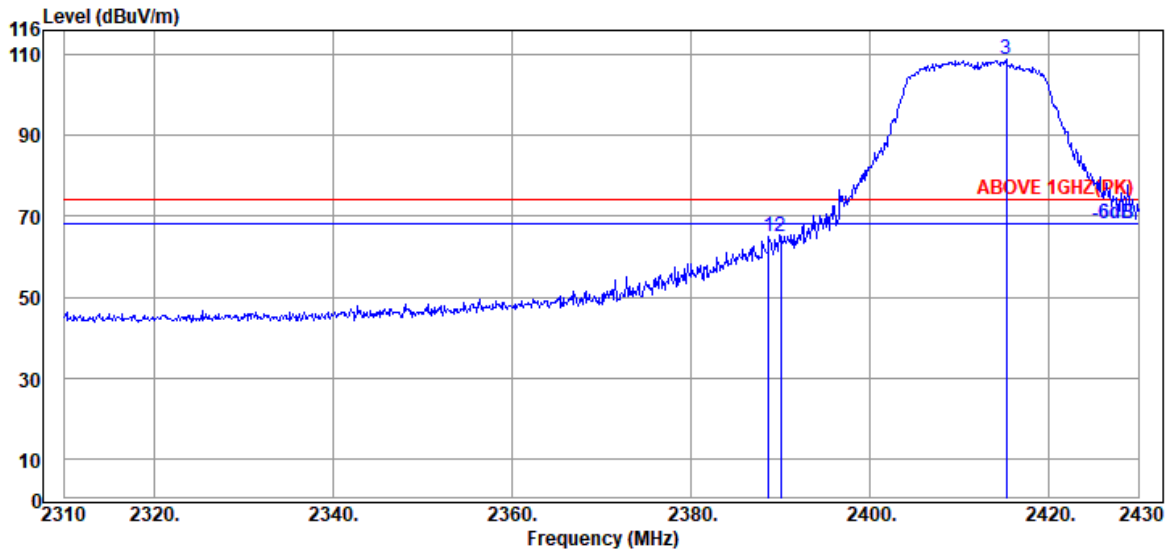


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2461.00	32.06	7.98	34.60	99.88	105.32	---	---	Average
2483.50	32.14	7.99	34.61	39.67	45.19	54.00	8.81	Average
2488.50	32.14	8.00	34.61	45.99	51.52	54.00	2.48	Average

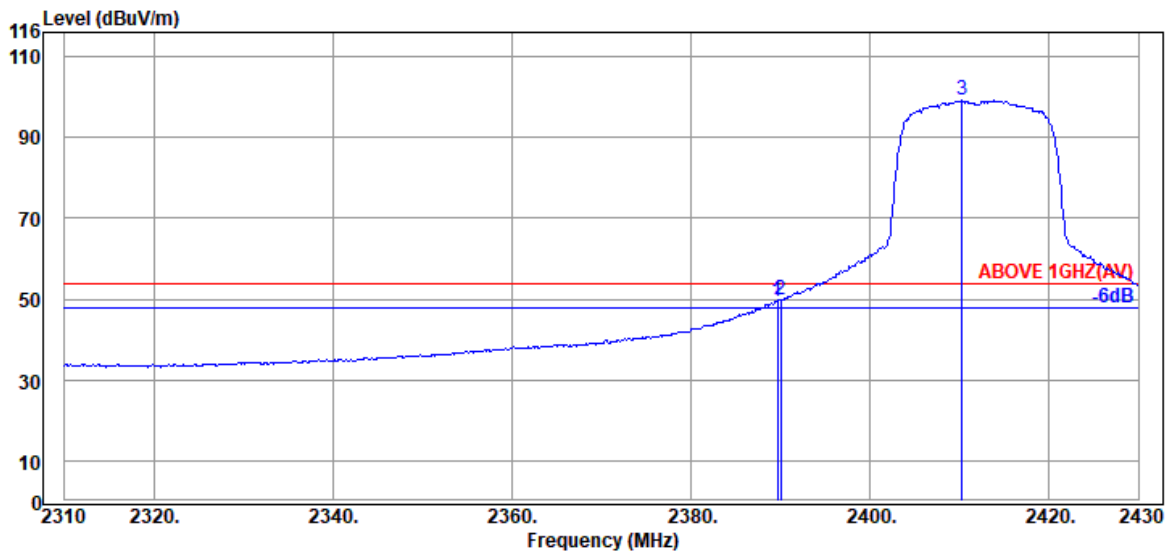
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11g	Frequency	TX 2412MHz
------	---------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2388.72	32.44	7.95	34.58	59.24	65.05	74.00	8.95	Peak
2390.04	32.44	7.95	34.58	59.22	65.03	74.00	8.97	Peak
@ 2415.24	32.36	7.96	34.59	102.90	108.63	---	---	Peak

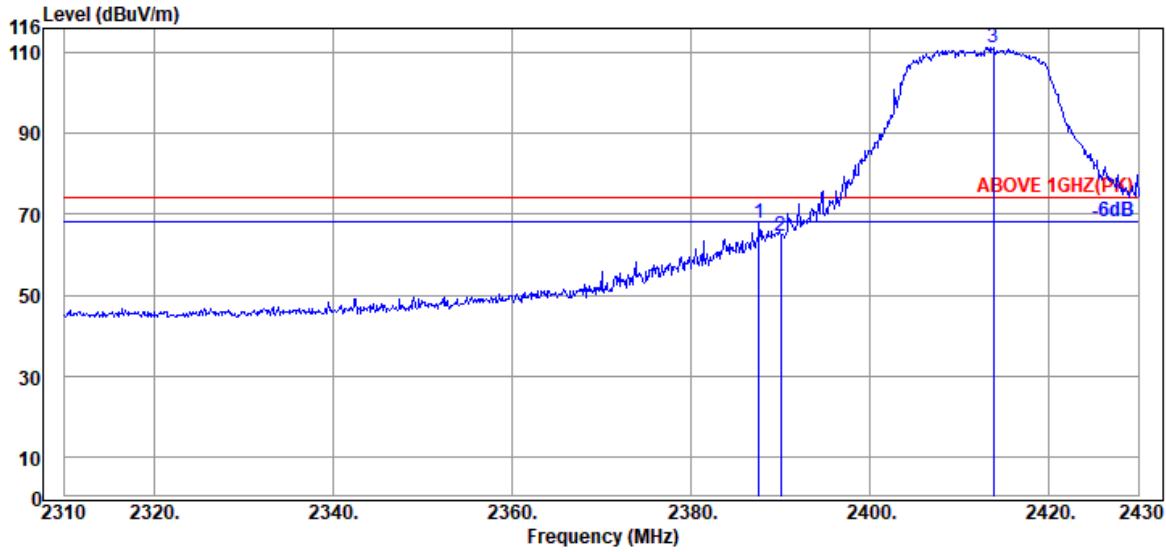


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.68	32.44	7.95	34.58	43.70	49.51	54.00	4.49	Average
2390.04	32.44	7.95	34.58	43.85	49.66	54.00	4.34	Average
@ 2410.32	32.43	7.96	34.59	93.30	99.10	---	---	Average

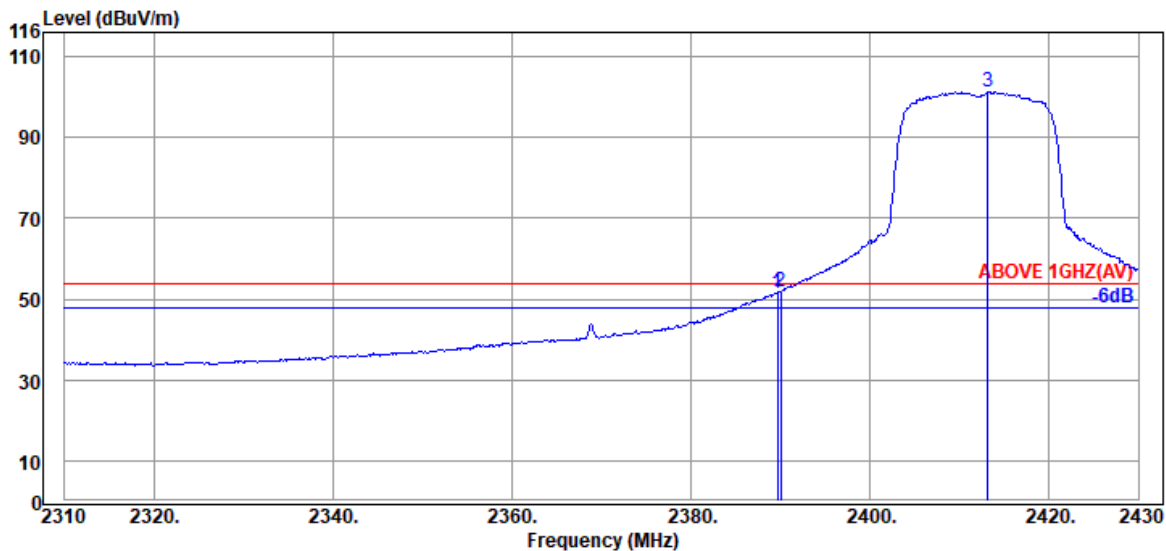
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11g	Frequency	TX 2412MHz
------	---------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2387.64	32.44	7.95	34.58	61.96	67.77	74.00	6.23	Peak
2390.04	32.44	7.95	34.58	58.91	64.72	74.00	9.28	Peak
@ 2413.80	32.36	7.96	34.59	105.68	111.41	---	---	Peak

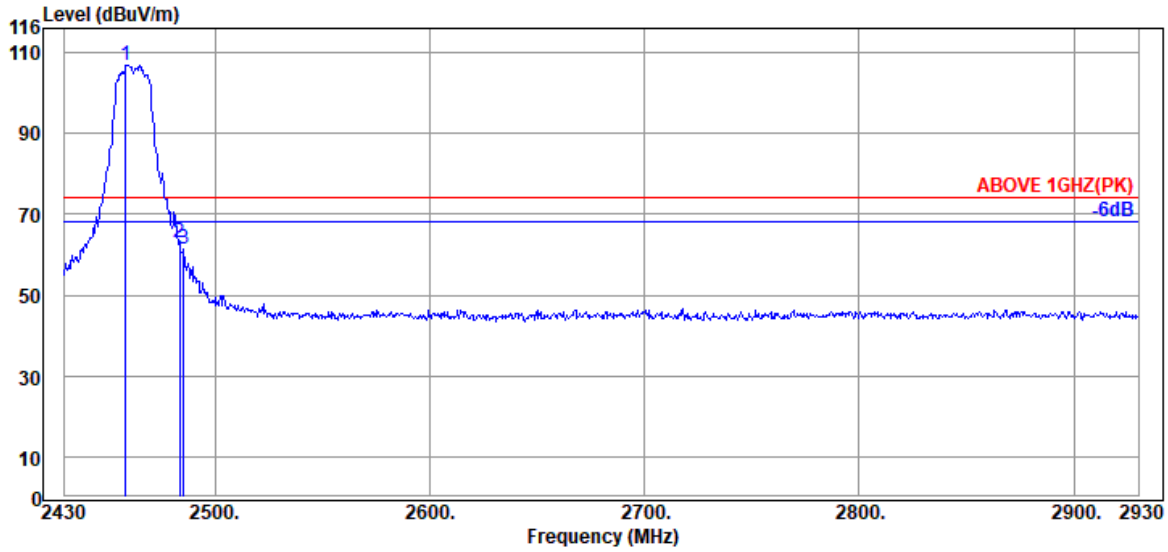


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.68	32.44	7.95	34.58	45.79	51.60	54.00	2.40	Average
2390.04	32.44	7.95	34.58	45.89	51.70	54.00	2.30	Average
@ 2413.20	32.36	7.96	34.59	95.60	101.33	---	---	Average

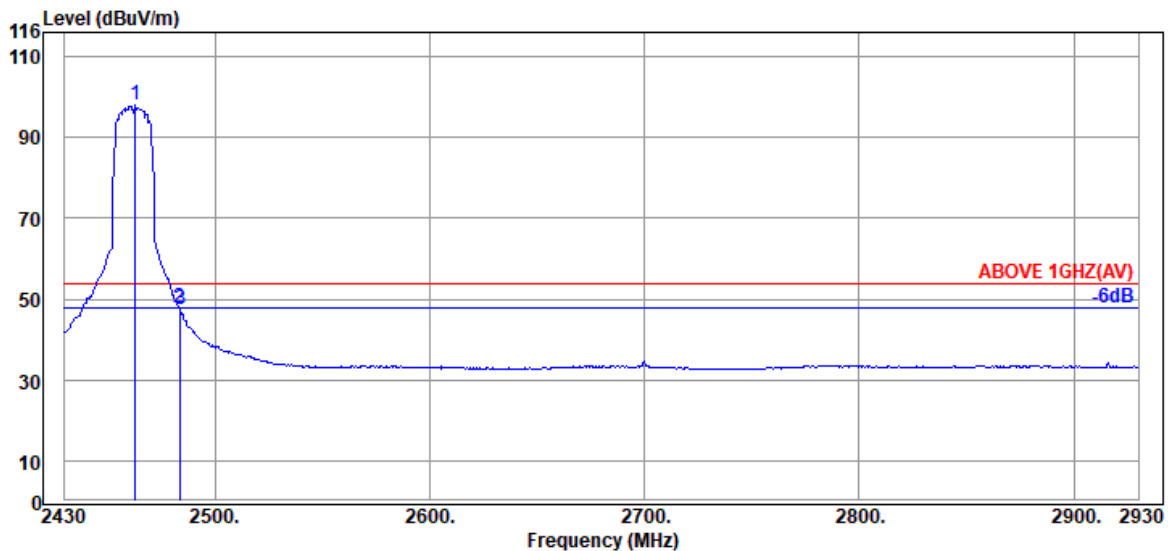
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	802.11g	Frequency	TX 2462MHz
------	---------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2458.50	32.03	7.98	34.60	101.35	106.76	---	---	Peak
2483.50	32.14	7.99	34.61	57.33	62.85	74.00	11.15	Peak
2485.50	32.14	7.99	34.61	55.78	61.30	74.00	12.70	Peak

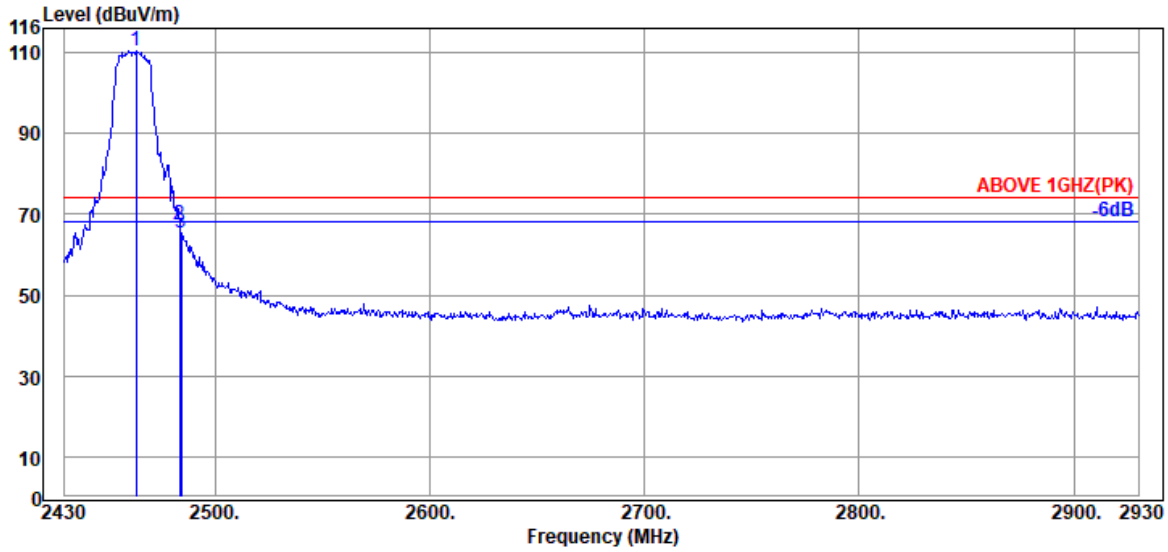


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2463.00	32.06	7.98	34.60	92.43	97.87	---	---	Average
2483.50	32.14	7.99	34.61	42.49	48.01	54.00	5.99	Average
2484.00	32.14	7.99	34.61	41.82	47.34	54.00	6.66	Average

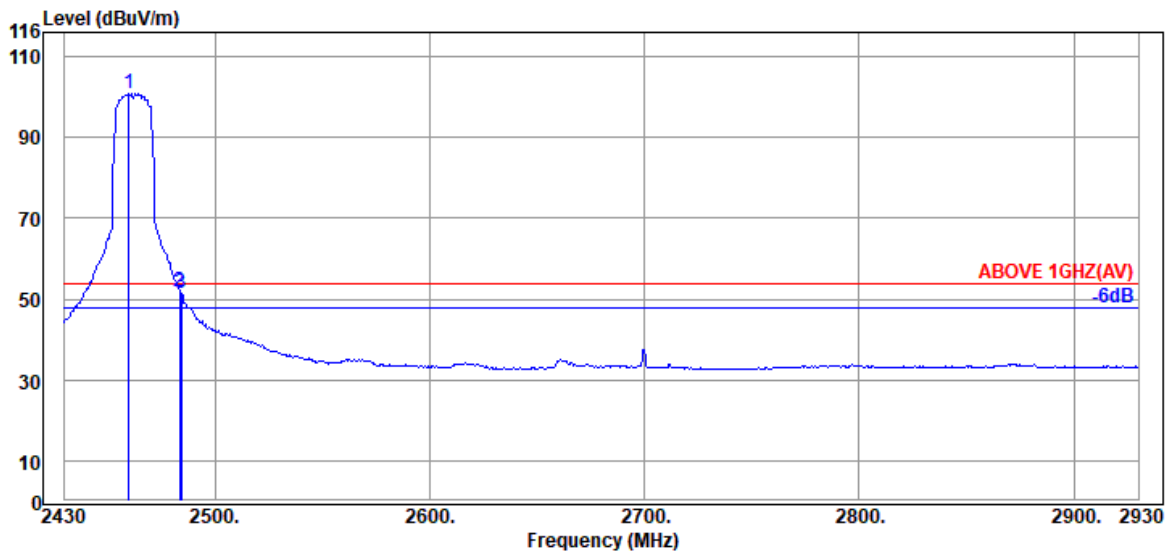
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11g	Frequency	TX 2462MHz
------	---------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2463.50	32.06	7.98	34.60	105.06	110.50	---	---	Peak
2483.50	32.14	7.99	34.61	61.73	67.25	74.00	6.75	Peak
2484.50	32.14	7.99	34.61	59.82	65.34	74.00	8.66	Peak

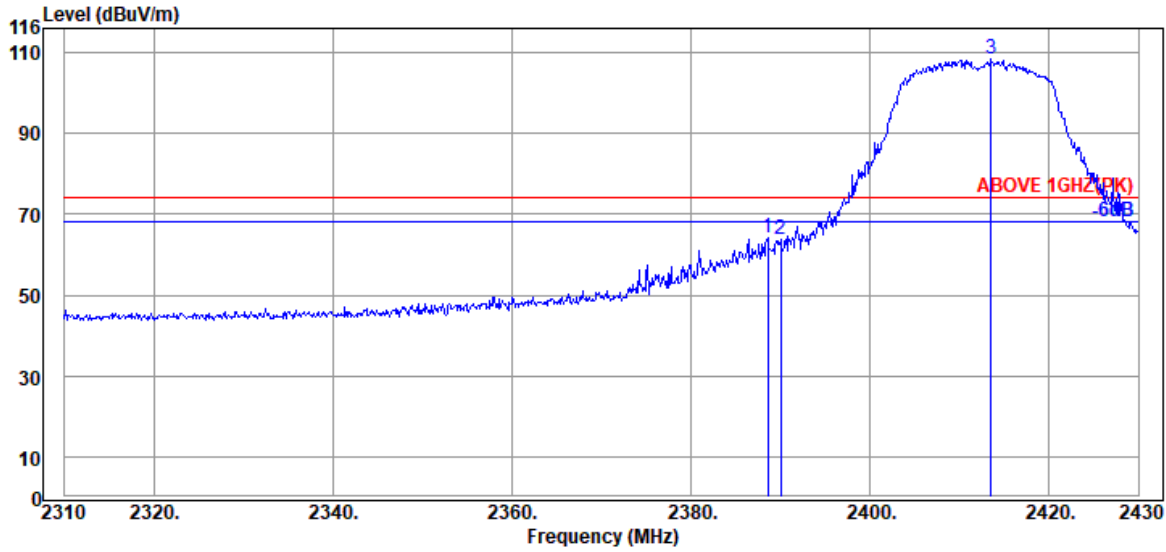


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2460.00	32.03	7.98	34.60	95.59	101.00	---	---	Average
2483.50	32.14	7.99	34.61	46.22	51.74	54.00	2.26	Average
2484.50	32.14	7.99	34.61	45.81	51.33	54.00	2.67	Average

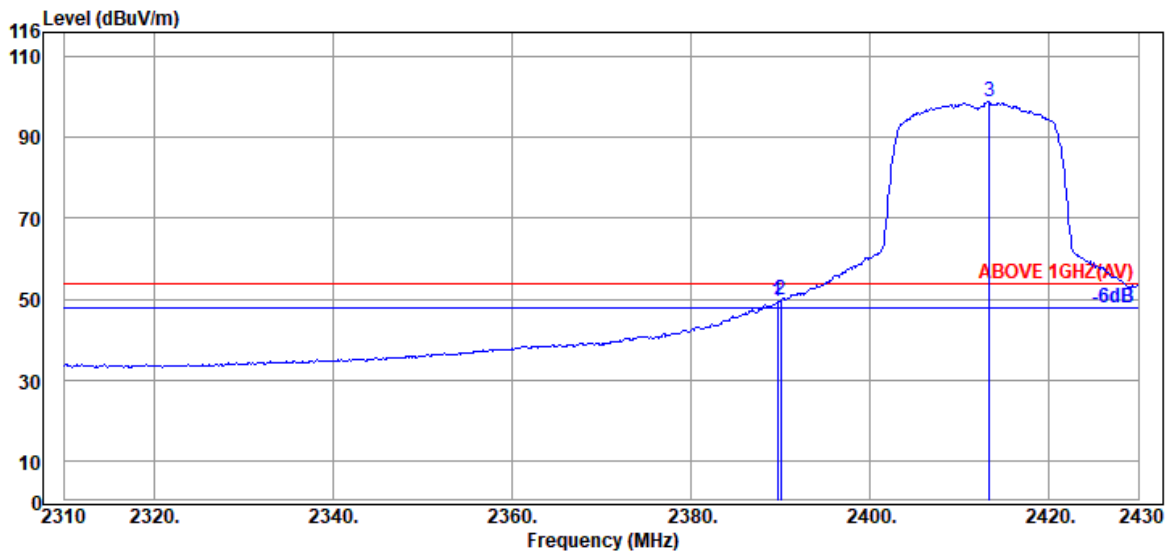
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	802.11n-HT20	Frequency	TX 2412MHz
------	--------------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2388.60	32.44	7.95	34.58	58.18	63.99	74.00	10.01	Peak
2390.04	32.44	7.95	34.58	57.95	63.76	74.00	10.24	Peak
@ 2413.56	32.36	7.96	34.59	102.56	108.29	---	---	Peak

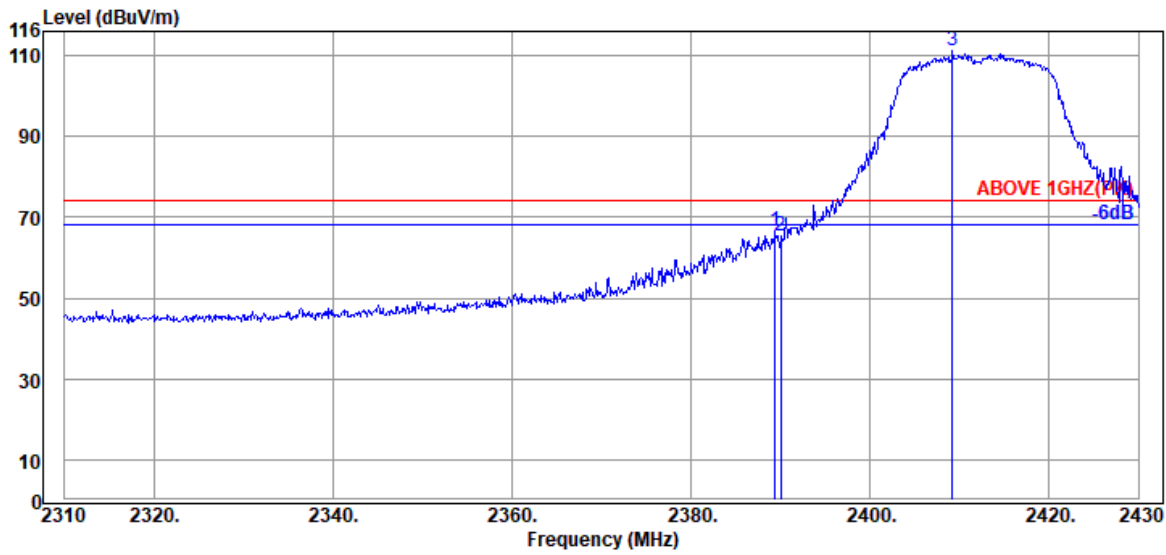


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.68	32.44	7.95	34.58	43.77	49.58	54.00	4.42	Average
2390.04	32.44	7.95	34.58	44.11	49.92	54.00	4.08	Average
@ 2413.32	32.36	7.96	34.59	93.20	98.93	---	---	Average

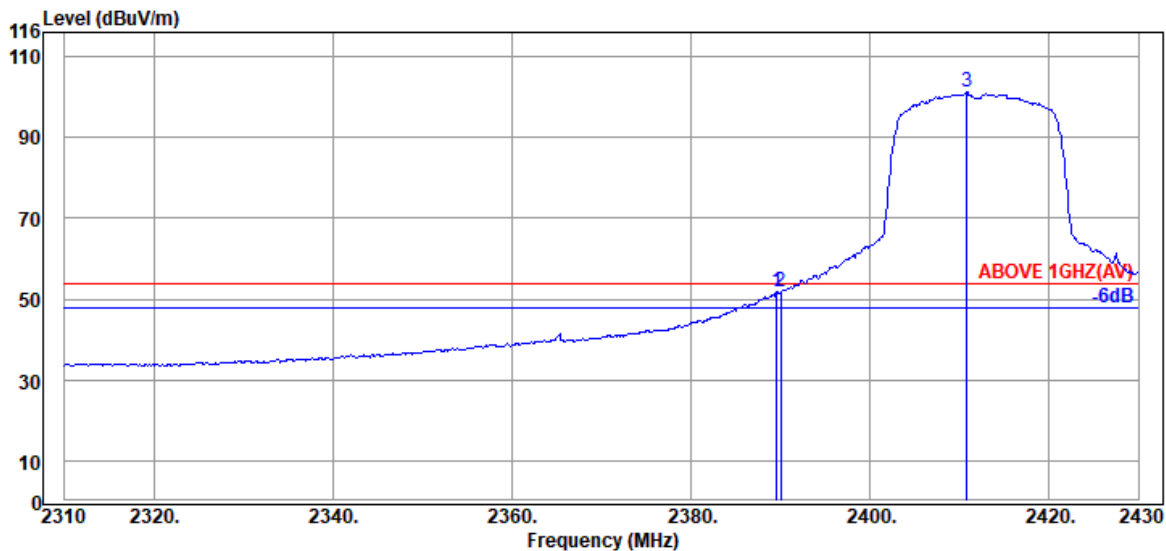
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11n-HT20	Frequency	TX 2412MHz
------	--------------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.44	32.44	7.95	34.58	60.75	66.56	74.00	7.44	Peak
2390.04	32.44	7.95	34.58	59.41	65.22	74.00	8.78	Peak
@ 2409.24	32.43	7.96	34.59	105.53	111.33	---	---	Peak

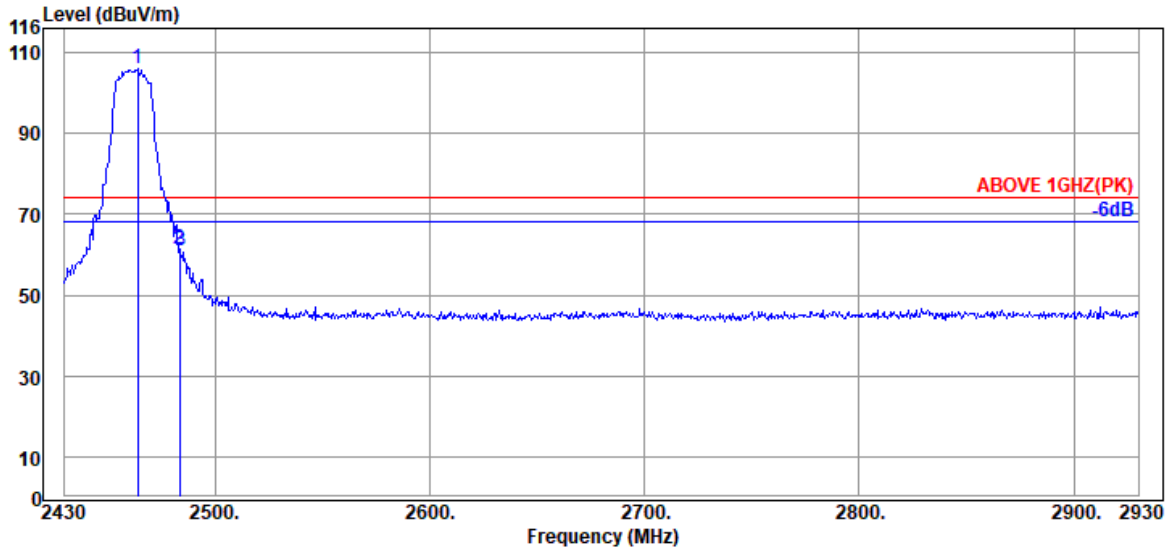


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.56	32.44	7.95	34.58	45.95	51.76	54.00	2.24	Average
2390.04	32.44	7.95	34.58	45.83	51.64	54.00	2.36	Average
@ 2410.80	32.43	7.96	34.59	95.32	101.12	---	---	Average

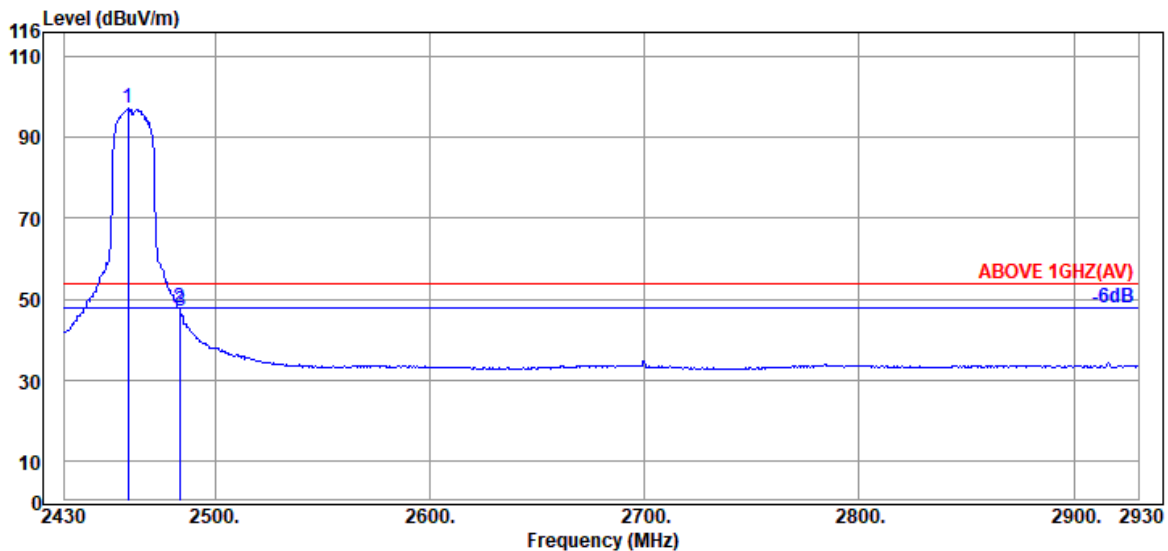
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	802.11n-HT20	Frequency	TX 2462MHz
------	--------------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2464.00	32.06	7.98	34.60	100.48	105.92	---	---	Peak
2483.50	32.14	7.99	34.61	55.86	61.38	74.00	12.62	Peak
2484.00	32.14	7.99	34.61	55.56	61.08	74.00	12.92	Peak

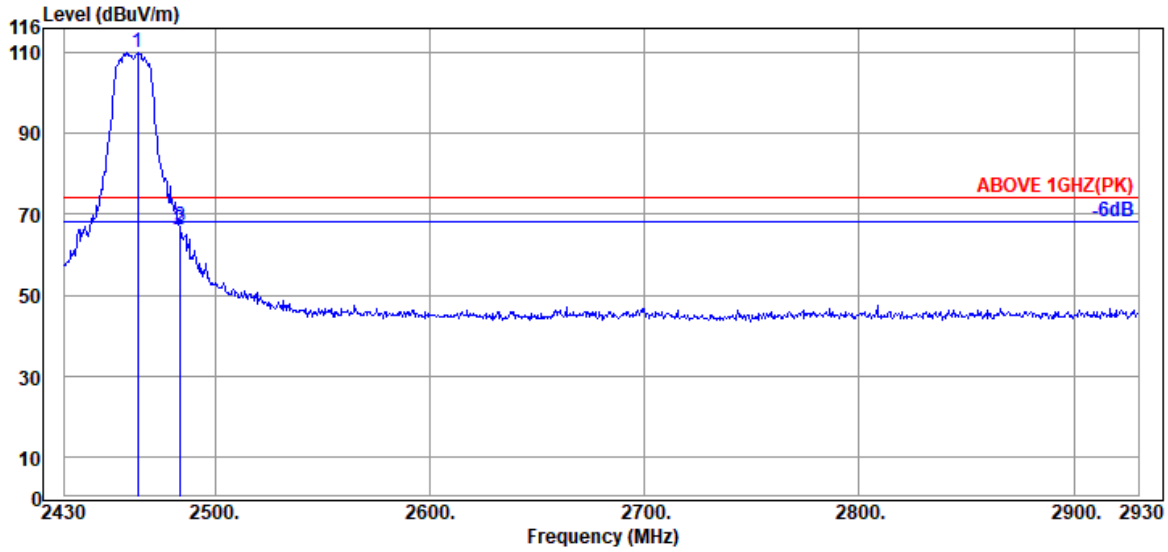


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2459.50	32.03	7.98	34.60	91.91	97.32	---	---	Average
2483.50	32.14	7.99	34.61	42.30	47.82	54.00	6.18	Average
2484.00	32.14	7.99	34.61	41.65	47.17	54.00	6.83	Average

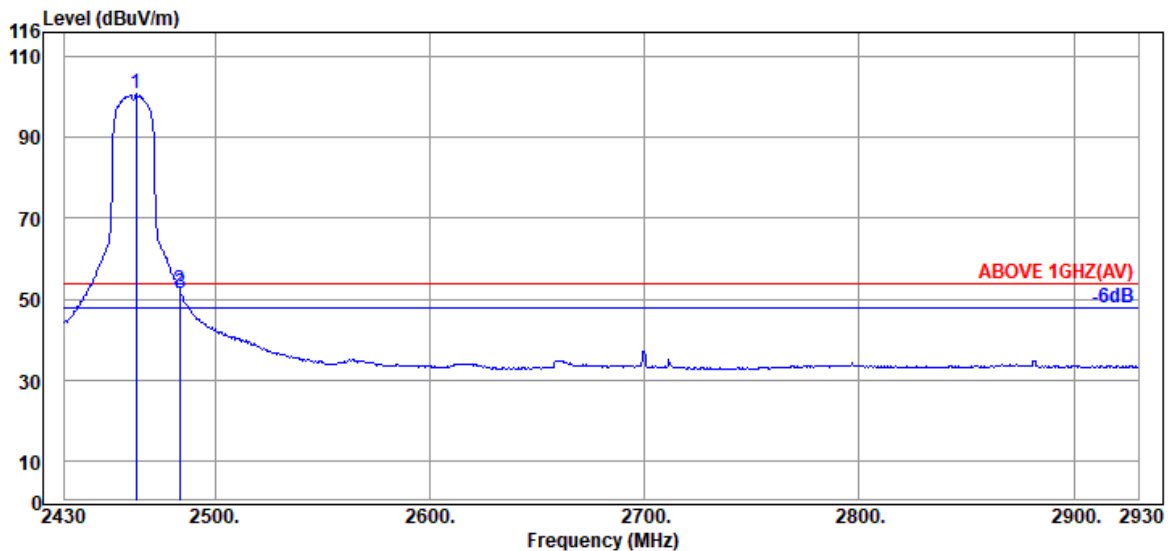
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	802.11n-HT20	Frequency	TX 2462MHz
------	--------------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2464.00	32.06	7.98	34.60	104.66	110.10	---	---	Peak
2483.50	32.14	7.99	34.61	60.80	66.32	74.00	7.68	Peak
2484.00	32.14	7.99	34.61	61.31	66.83	74.00	7.17	Peak

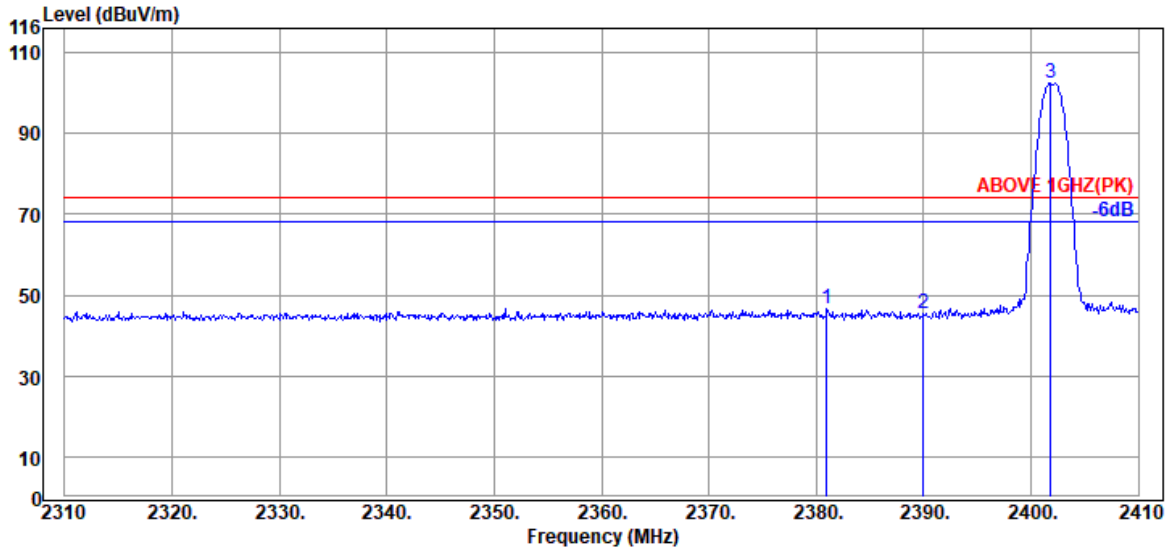


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2463.50	32.06	7.98	34.60	95.31	100.75	---	---	Average
2483.50	32.14	7.99	34.61	46.52	52.04	54.00	1.96	Average
2484.00	32.14	7.99	34.61	46.09	51.61	54.00	2.39	Average

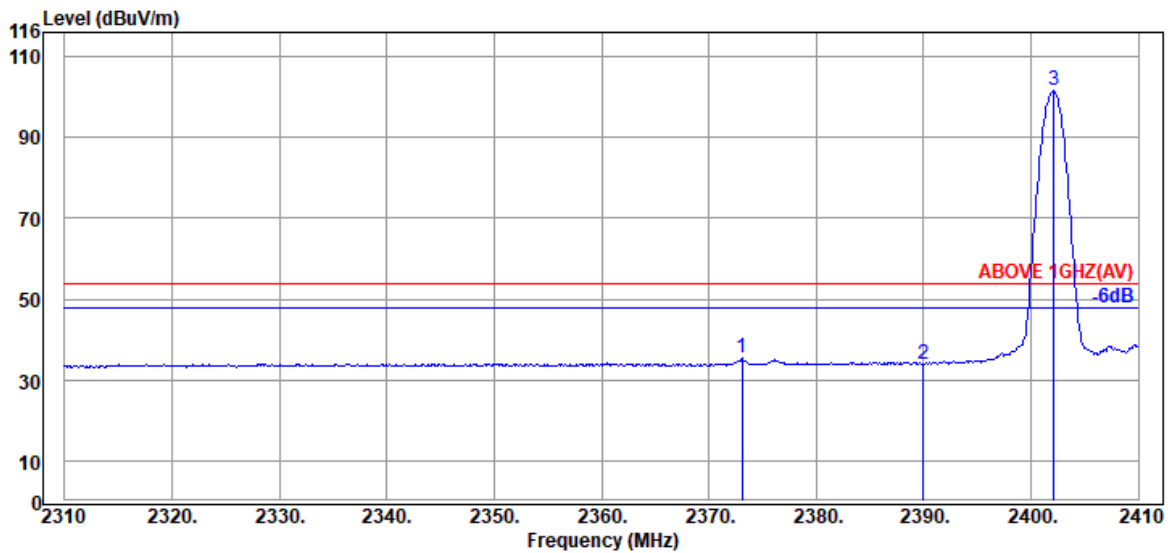
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	BLE	Frequency	TX 2402MHz
------	-----	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2381.00	32.41	7.95	34.58	40.95	46.73	74.00	27.27	Peak
2390.00	32.44	7.95	34.58	39.83	45.64	74.00	28.36	Peak
@ 2401.80	32.50	7.95	34.59	96.43	102.29	---	---	Peak

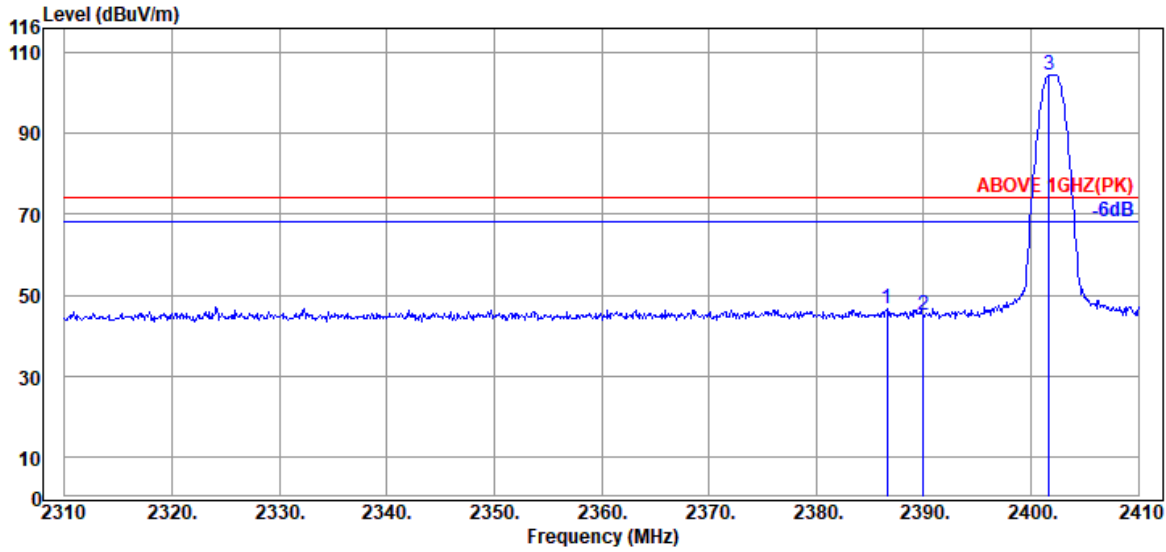


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2373.10	32.39	7.94	34.58	29.53	35.28	54.00	18.72	Average
2390.00	32.44	7.95	34.58	28.03	33.84	54.00	20.16	Average
@ 2402.10	32.50	7.95	34.59	95.63	101.49	---	---	Average

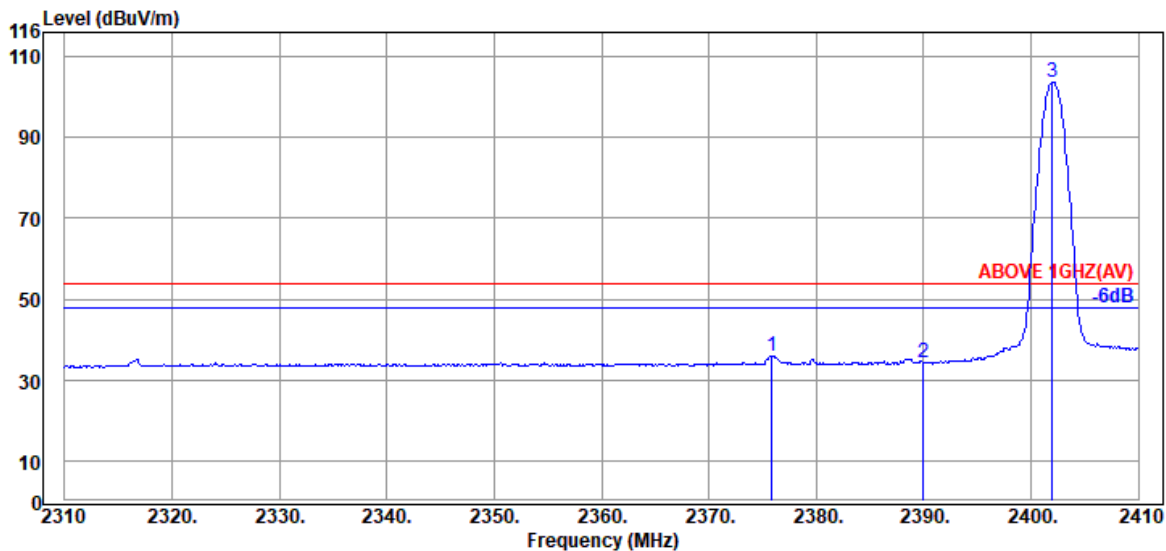
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	BLE	Frequency	TX 2402MHz
------	-----	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.60	32.44	7.95	34.58	40.75	46.56	74.00	27.44	Peak
2390.00	32.44	7.95	34.58	39.07	44.88	74.00	29.12	Peak
@ 2401.70	32.50	7.95	34.59	98.77	104.63	---	---	Peak

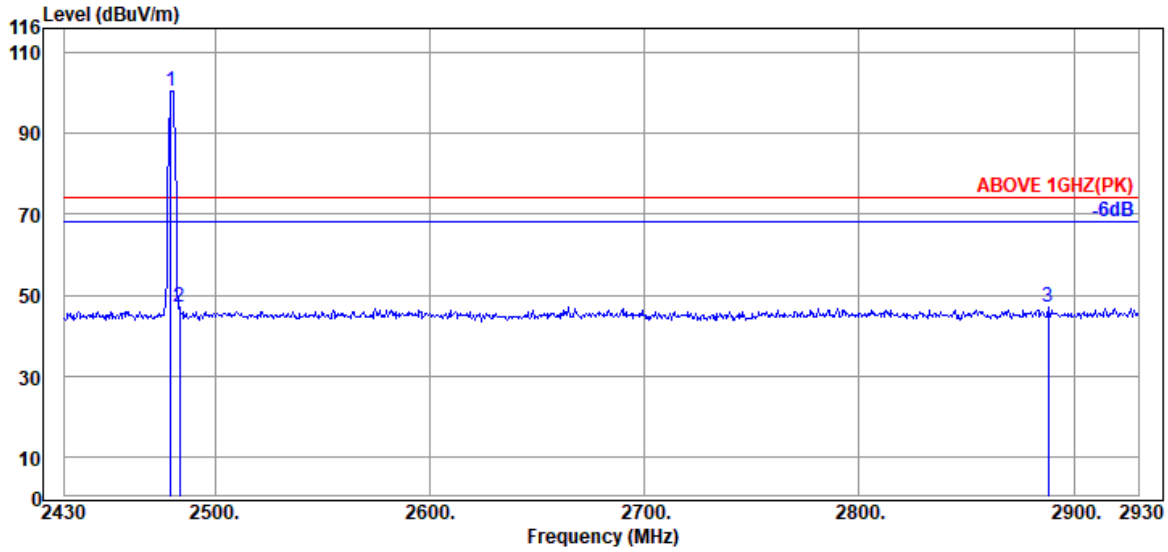


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2375.90	32.39	7.94	34.58	30.26	36.01	54.00	17.99	Average
2390.00	32.44	7.95	34.58	28.52	34.33	54.00	19.67	Average
@ 2402.00	32.50	7.95	34.59	97.91	103.77	---	---	Average

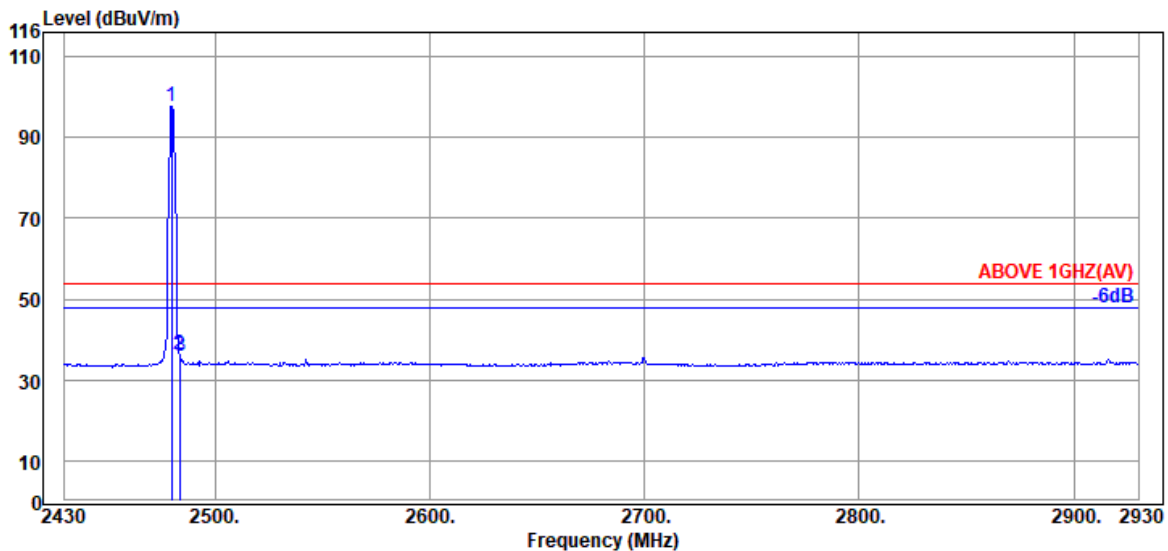
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	BLE	Frequency	TX 2480MHz
------	-----	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2479.50	32.11	7.99	34.60	95.09	100.59	---	---	Peak
2483.50	32.14	7.99	34.61	41.37	46.89	74.00	27.11	Peak
2888.00	32.85	8.17	34.68	40.67	47.01	74.00	26.99	Peak

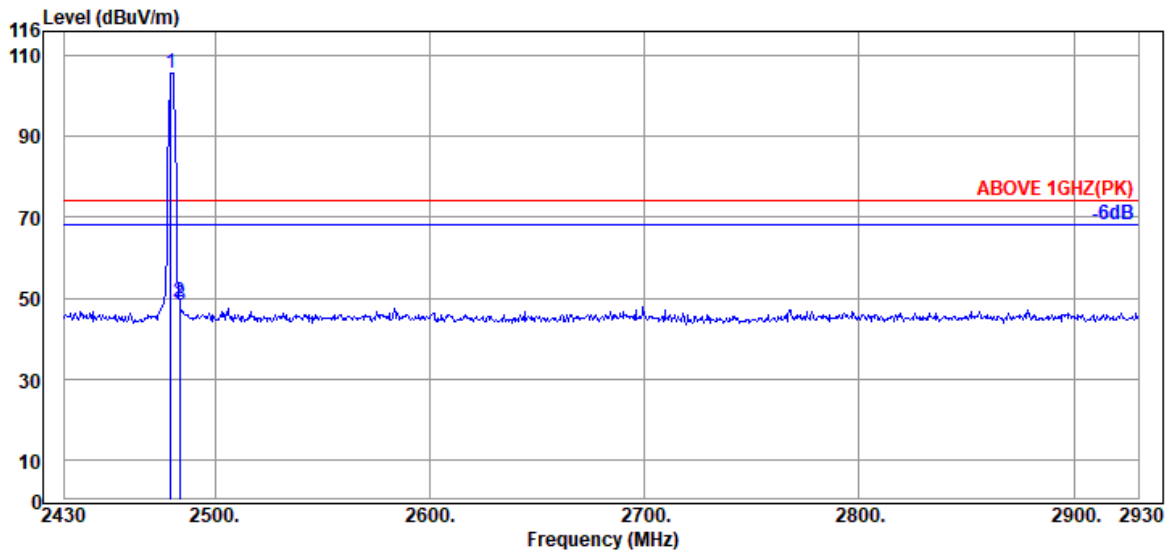


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2480.00	32.11	7.99	34.60	92.28	97.78	---	---	Average
2483.50	32.14	7.99	34.61	30.90	36.42	54.00	17.58	Average
2484.00	32.14	7.99	34.61	30.22	35.74	54.00	18.26	Average

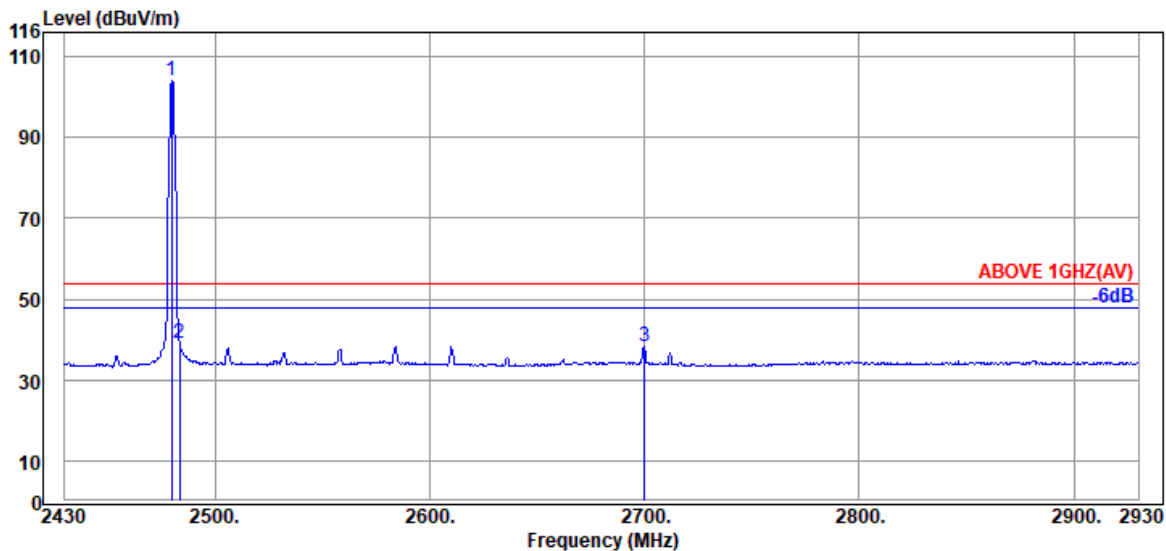
Remark: The "@" means fundamental frequency, it is ignored in this section.

Mode	BLE	Frequency	TX 2480MHz
------	-----	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2479.50	32.11	7.99	34.60	100.17	105.67	---	---	Peak
2483.50	32.14	7.99	34.61	43.50	49.02	74.00	24.98	Peak
2484.00	32.14	7.99	34.61	42.61	48.13	74.00	25.87	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2480.00	32.11	7.99	34.60	98.44	103.94	---	---	Average
2483.50	32.14	7.99	34.61	33.35	38.87	54.00	15.13	Average
2700.00	32.40	8.09	34.65	32.61	38.45	54.00	15.55	Average

Remark: The "@" means fundamental frequency, it is ignored in this section.

A.2.2 Emissions outside the frequency band:

The emissions (up to 25GHz) not reported for there is no emission be found.

Mode	802.11b	Frequency	TX 2462MHz
------	---------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4924.00	34.07	10.56	34.45	32.05	42.23	54.00	11.77	Peak
7385.00	35.70	12.34	34.74	29.89	43.19	54.00	10.81	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4924.00	34.07	10.56	34.45	34.01	44.19	54.00	9.81	Peak
7385.00	35.70	12.34	34.74	30.25	43.55	54.00	10.45	Peak

Mode	802.11g	Frequency	TX 2437MHz
------	---------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.00	34.05	10.54	34.46	32.70	42.83	54.00	11.17	Peak
7310.00	35.60	12.29	34.68	30.03	43.24	54.00	10.76	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.00	34.05	10.54	34.46	31.31	41.44	54.00	12.56	Peak
7310.00	35.60	12.29	34.68	30.05	43.26	54.00	10.74	Peak

Mode	802.11n-HT20	Frequency	TX 2437MHz
------	--------------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.00	34.05	10.54	34.46	31.98	42.11	54.00	11.89	Peak
7310.00	35.60	12.29	34.68	30.25	43.46	54.00	10.54	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.00	34.05	10.54	34.46	33.26	43.39	54.00	10.61	Peak
7310.00	35.60	12.29	34.68	30.12	43.33	54.00	10.67	Peak

Mode		BLE			Frequency		TX 2402MHz	
------	--	-----	--	--	-----------	--	------------	--

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.10	10.49	34.47	32.25	42.37	54.00	11.63	Peak
7205.00	35.60	12.25	34.60	29.73	42.98	54.00	11.02	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4804.00	34.10	10.49	34.47	37.88	48.00	54.00	6.00	Peak
7205.00	35.60	12.25	34.60	29.24	42.49	54.00	11.51	Peak

Mode		BLE			Frequency		TX 2440MHz	
------	--	-----	--	--	-----------	--	------------	--

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4880.00	34.05	10.54	34.45	32.33	42.47	54.00	11.53	Peak
7319.00	35.60	12.29	34.68	29.29	42.50	54.00	11.50	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4880.00	34.05	10.54	34.45	37.09	47.23	54.00	6.77	Peak
7319.00	35.60	12.29	34.68	30.03	43.24	54.00	10.76	Peak

Mode		BLE			Frequency		TX 2480MHz	
------	--	-----	--	--	-----------	--	------------	--

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	34.10	10.60	34.44	30.62	40.88	54.00	13.12	Peak
7439.00	35.63	12.36	34.78	29.95	43.16	54.00	10.84	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	34.10	10.60	34.44	37.53	47.79	54.00	6.21	Peak
7439.00	35.63	12.36	34.78	30.49	43.70	54.00	10.30	Peak

A.2.3 Emissions in Non-restricted Frequency Bands:

Pursuant to ANSI C63.10:2013 that emission levels below the FCC 15.209(a) Section 8.9table 4 general radiated emissions limits is not required.

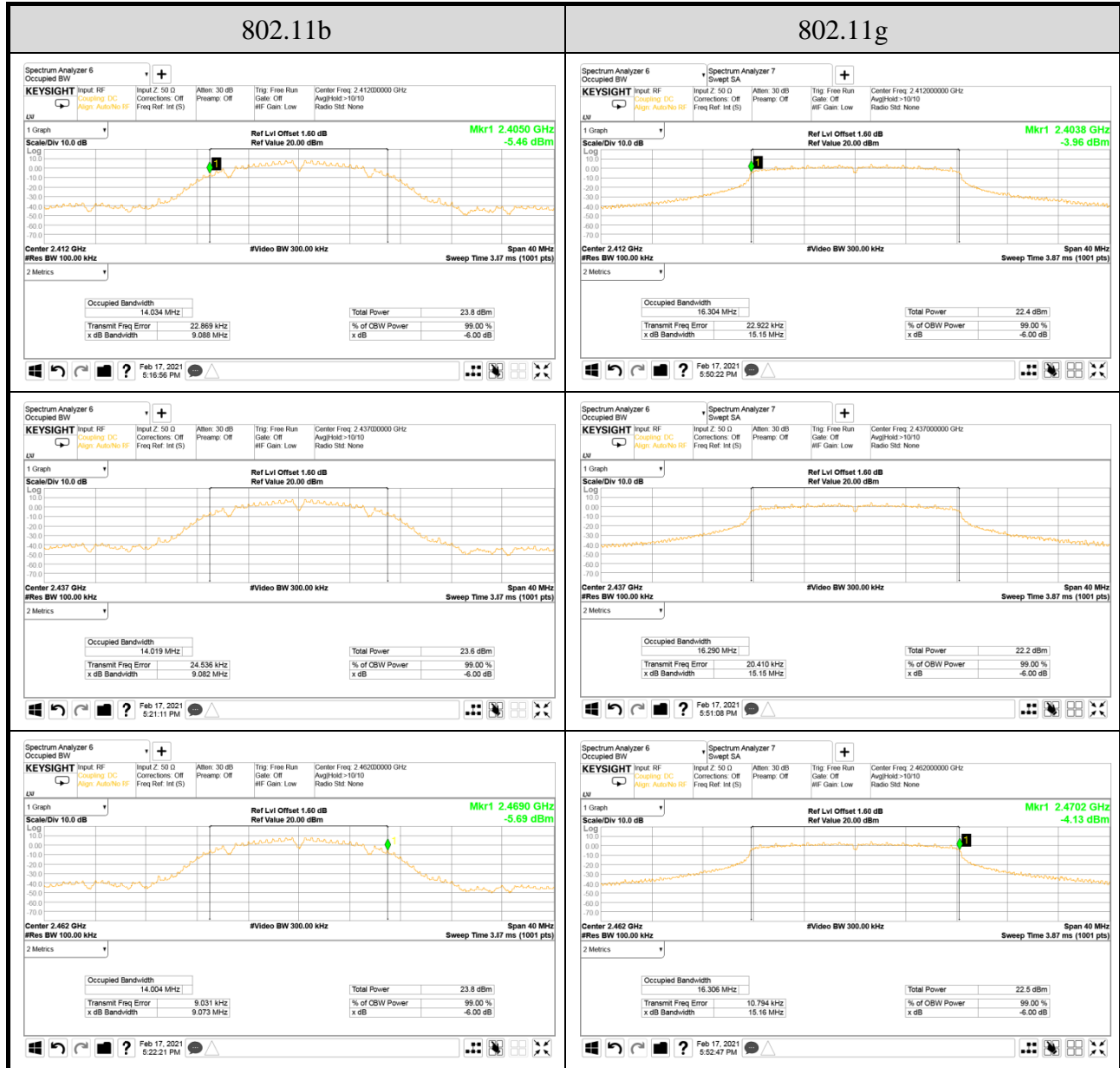
A.3 6dB/OCCUPIED BANDWIDTH

Test Date	2021/02/17~18	Temp./Hum.	18~19°C/55~57%
Cable Loss	1.6dB	Tested By	Hua Wu
Test Voltage	AC 120V, 60Hz (via AC Adapter)		

A.3.1 Emission Bandwidth Result

Mode	Centre Frequency (MHz)	6 dB Bandwidth (MHz)	Occupied (99%) Bandwidth (MHz)	Limit
802.11b	2412	9.088	14.034	>500kHz
	2437	9.082	14.019	
	2462	9.073	14.004	
802.11g	2412	15.15	16.304	
	2437	15.15	16.290	
	2462	15.16	16.306	
802.11n-HT20	2412	15.15	17.462	
	2437	15.15	17.443	
	2462	15.16	17.441	
BLE	2402	0.7229	1.0785	
	2440	0.7182	1.0770	
	2480	0.7177	1.0767	

A.3.2 Measurement Plots



Note: All results have been included cable loss and Simultaneous Factor.



Note: All results have been included cable loss and Simultaneous Factor.

A.4 MAXIMUM PEAK OUTPUT POWER

Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.6dB	Tested By	Hua Wu
Test Voltage	AC 120V, 60Hz (via AC Adapter)		
Duty Cycle	802.11b: 0.995	802.11g: 0.965	802.11n-HT20: 0.963

A.4.1 Peak Output Power

Mode	Centre Frequency (MHz)	Peak Output Power		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
802.11b	2412	19.06	0.081	2.75	21.81	0.152	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	18.97	0.079		21.72	0.149	
	2462	19.20	0.083		21.95	0.157	

Mode	Centre Frequency (MHz)	Peak Output Power		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
802.11g	2412	24.38	0.274	2.75	27.13	0.516	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	24.48	0.281		27.23	0.528	
	2462	24.41	0.276		27.16	0.520	

Mode	Centre Frequency (MHz)	Peak Output Power		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
802.11n-HT20	2412	24.09	0.256	2.75	26.84	0.483	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	24.12	0.258		26.87	0.486	
	2462	24.11	0.258		26.86	0.485	

Mode	Centre Frequency (MHz)	Peak Output Power		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
BLE	2402	3.79	0.002	2.75	6.54	0.005	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2440	3.18	0.002		5.93	0.004	
	2480	3.99	0.003		6.74	0.005	

Note: The results have been included cable loss.

A.4.2 Average Output Power (Reporting only)

Mode	Centre Frequency (MHz)	Average Output Power (dBm)	10log (1/X)	Max. Average Output Power		Antenna Gain (dBi)	Average Output Power (E.I.R.P.)		Limit
				(dBm)	(W)		(dBm)	(W)	
802.11b	2412	16.63	0	16.63	0.046	2.75	19.38	0.087	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	16.67		16.67	0.046		19.42	0.087	
	2462	16.70		16.70	0.047		19.45	0.088	

Mode	Centre Frequency (MHz)	Average Output Power (dBm)	10log (1/X)	Max. Average Output Power		Antenna Gain (dBi)	Average Output Power (E.I.R.P.)		Limit
				(dBm)	(W)		(dBm)	(W)	
802.11g	2412	15.41	0.15	15.56	0.036	2.75	18.31	0.068	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	15.47		15.62	0.036		18.37	0.069	
	2462	15.44		15.59	0.036		18.34	0.068	

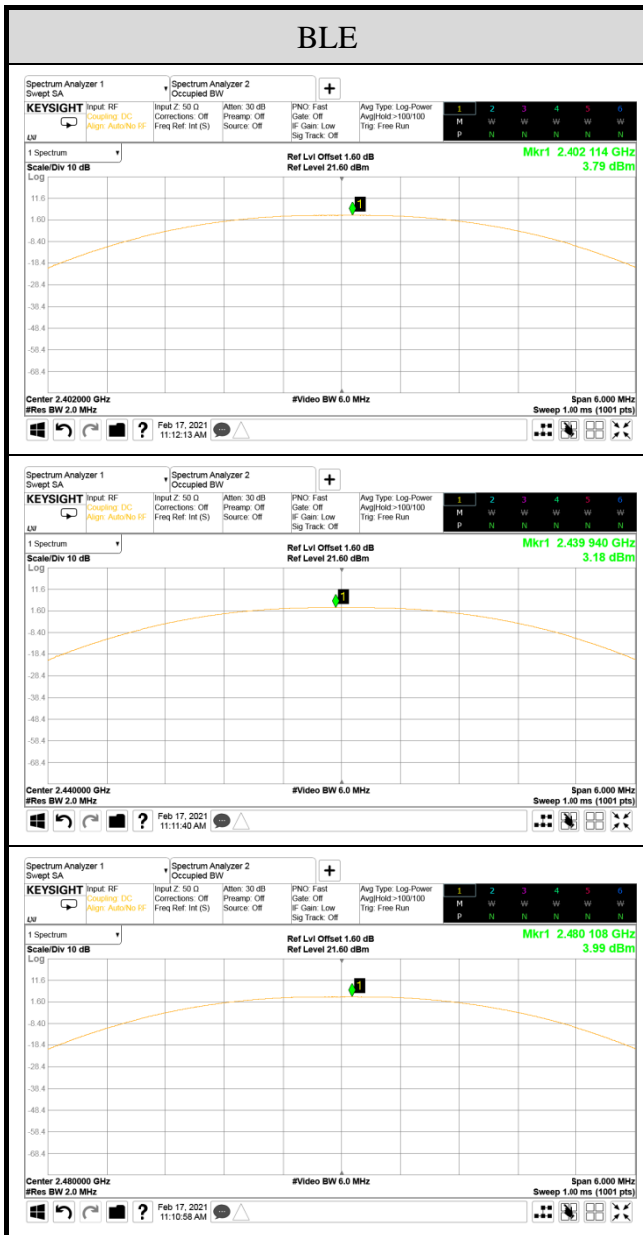
Mode	Centre Frequency (MHz)	Average Output Power (dBm)	10log (1/X)	Max. Average Output Power		Antenna Gain (dBi)	Average Output Power (E.I.R.P.)		Limit
				(dBm)	(W)		(dBm)	(W)	
802.11n-HT20	2412	14.77	0.16	14.93	0.031	2.75	17.68	0.059	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2437	14.87		15.03	0.032		17.78	0.060	
	2462	14.80		14.96	0.031		17.71	0.059	

Note: The results have been included cable loss.

Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

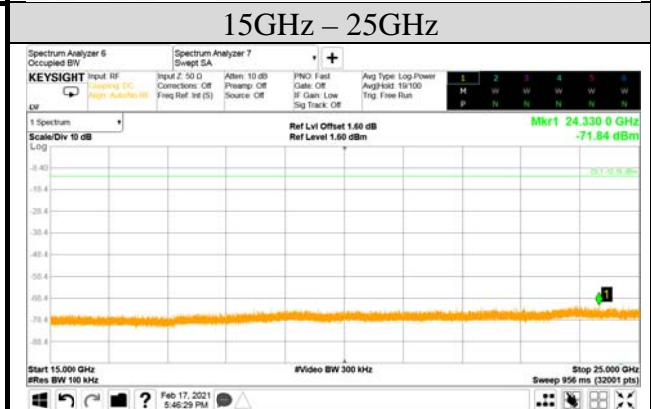
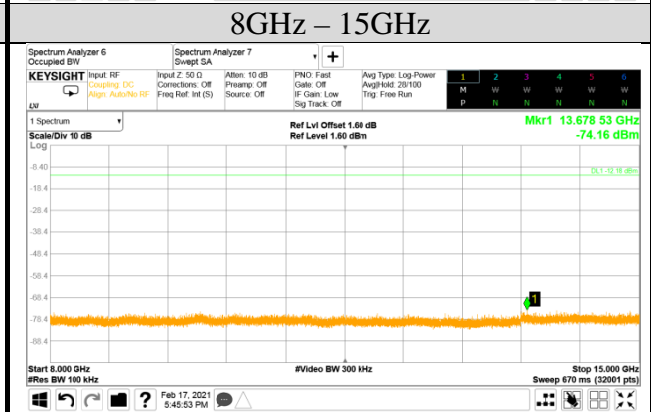
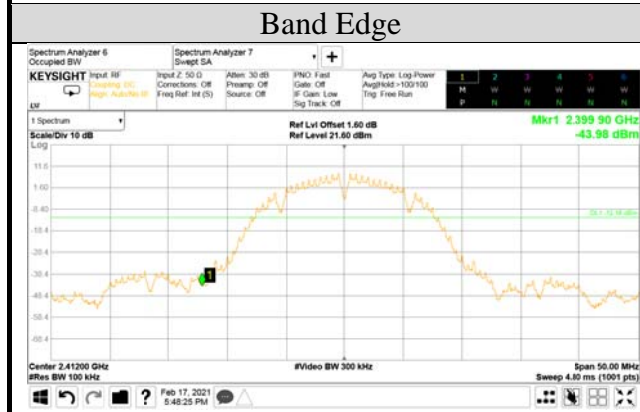
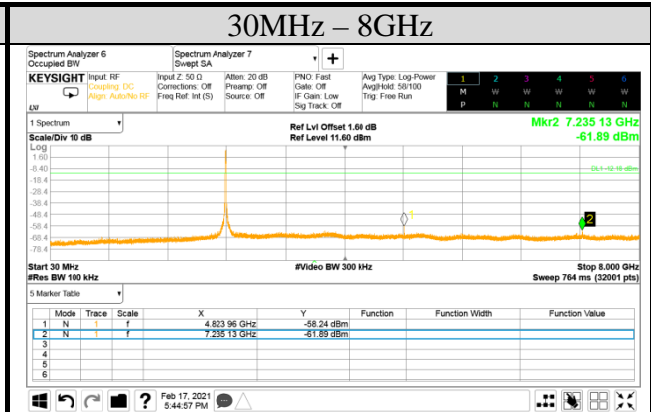
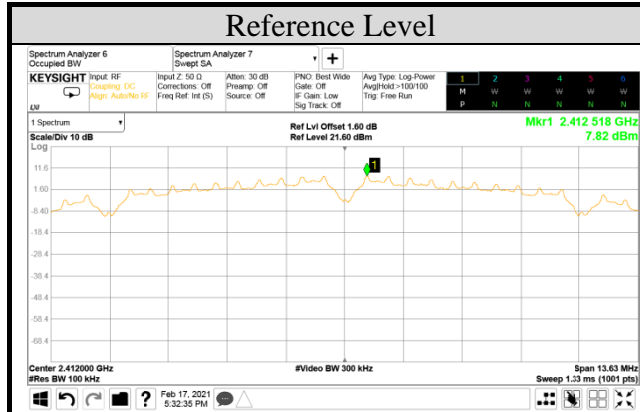
Tel: +886 2 26099301
Fax: +886 2 26099303

A.4.3 Measurement Plots



A.5 EMISSION LIMITATIONS

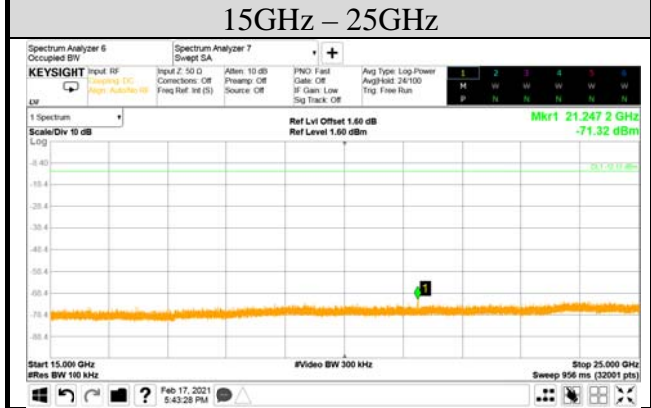
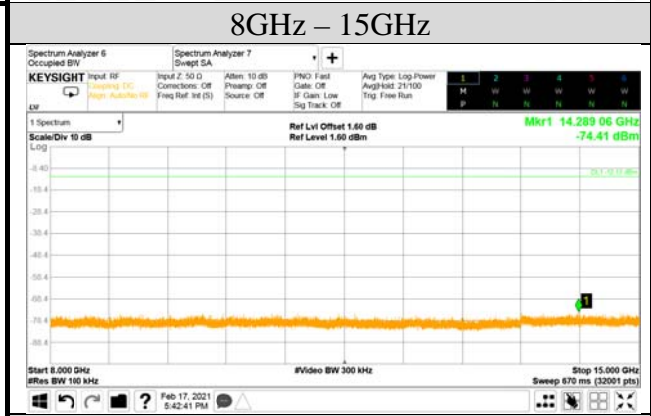
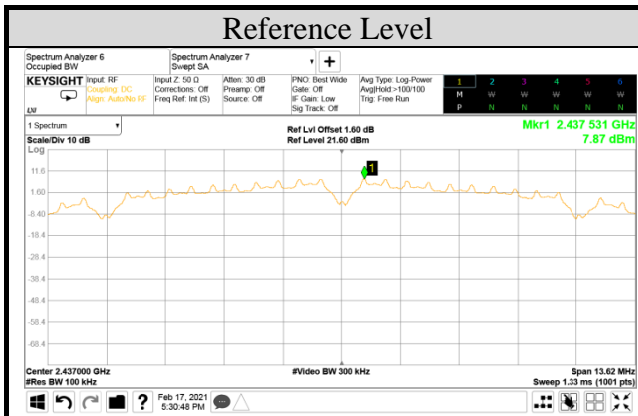
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11b	Tested By	Hua Wu
Frequency	TX 2412MHz		
Simultaneous Factor10 log(n) (Note: “n” is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

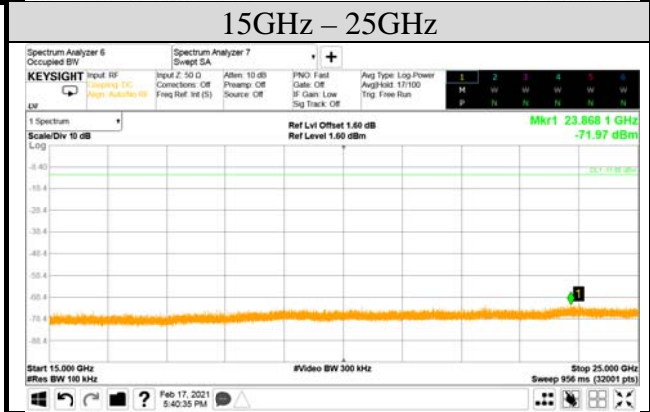
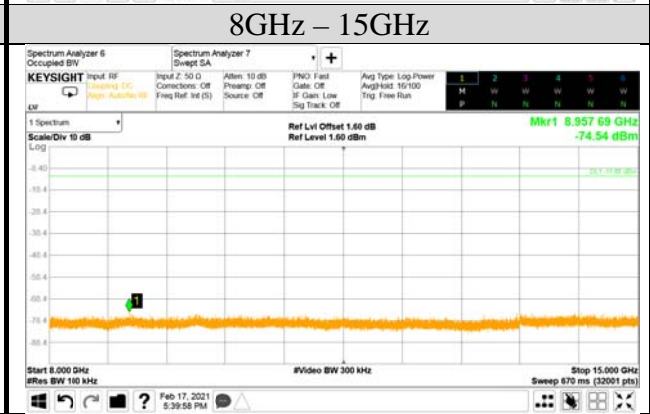
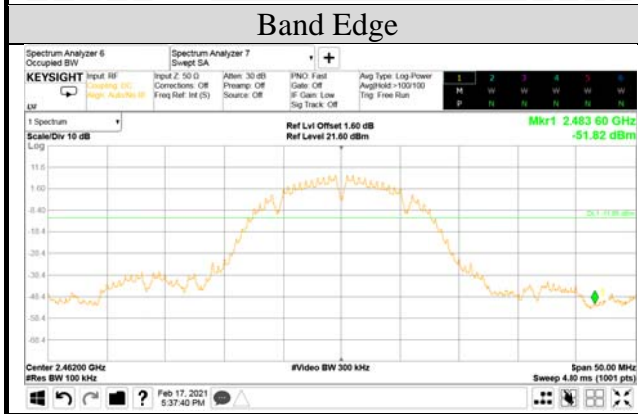
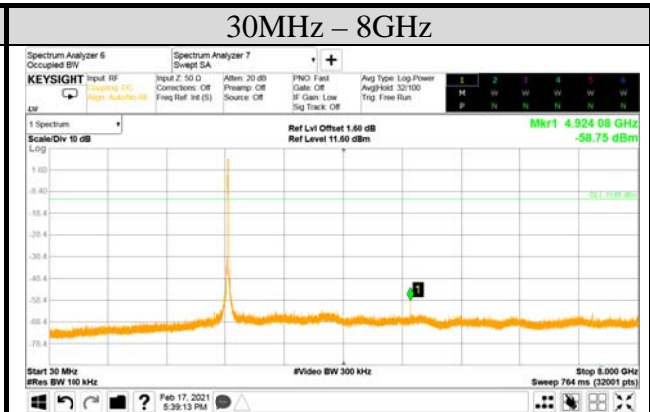
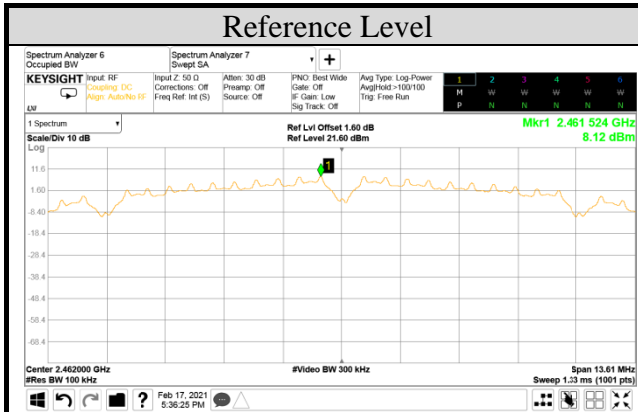
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11b	Tested By	Hua Wu
Frequency	TX 2437MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

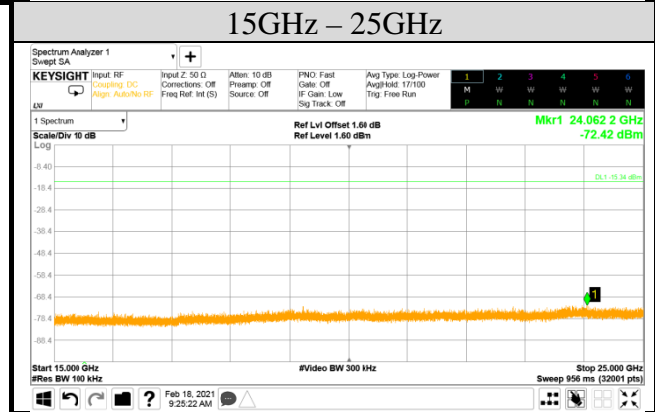
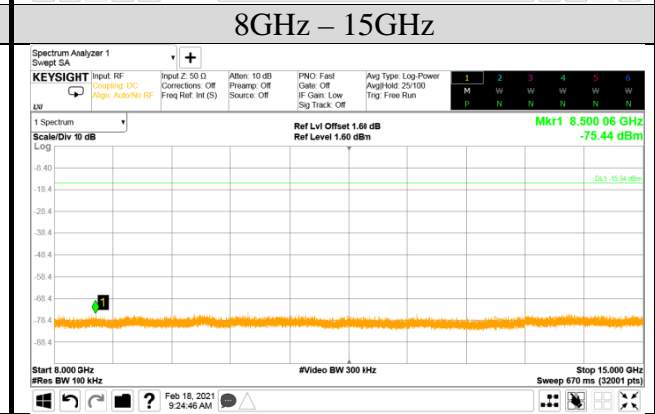
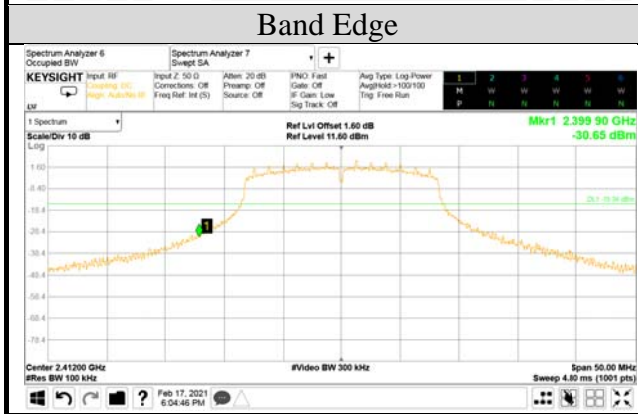
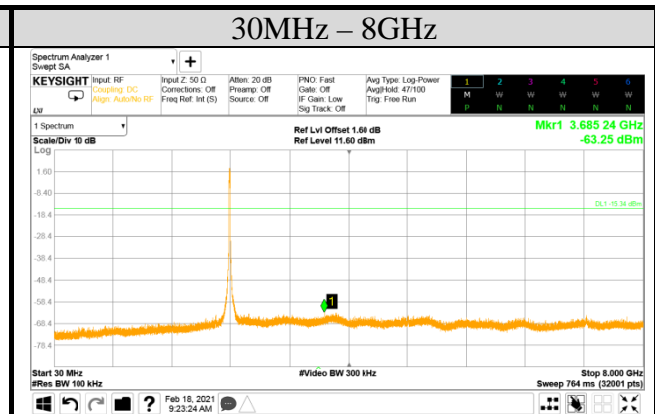
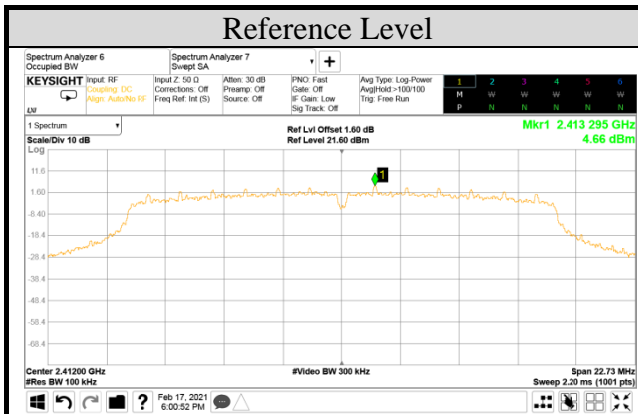
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11b	Tested By	Hua Wu
Frequency	TX 2462MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

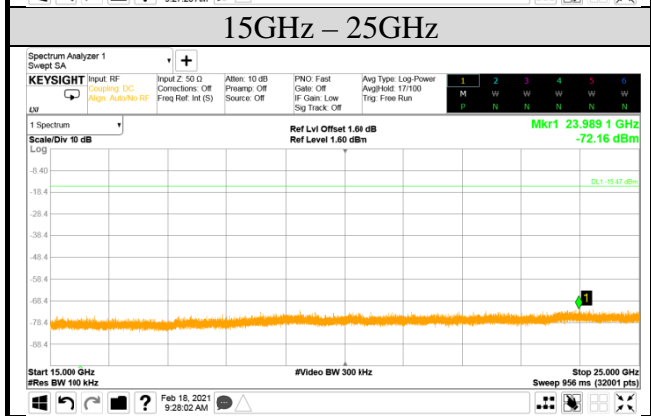
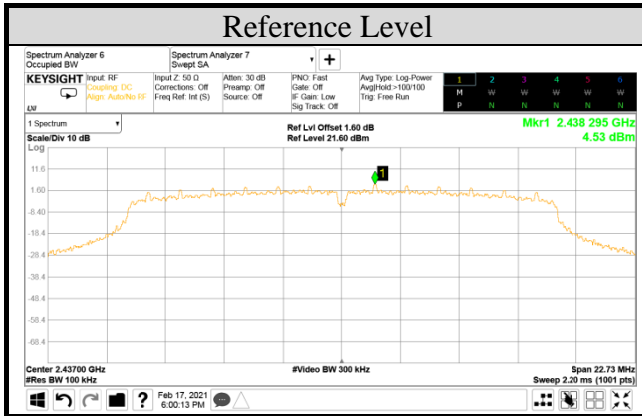
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11g	Tested By	Hua Wu
Frequency	TX 2412MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

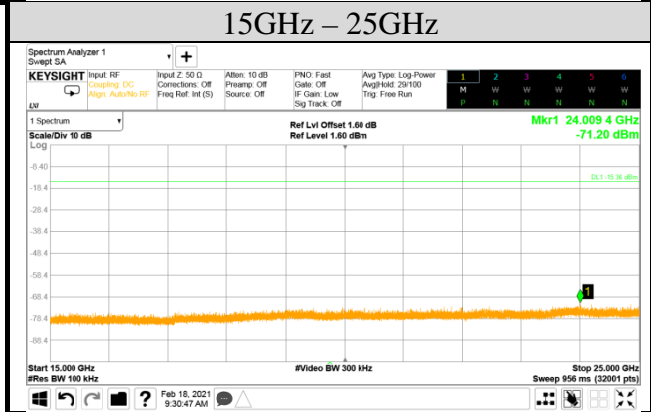
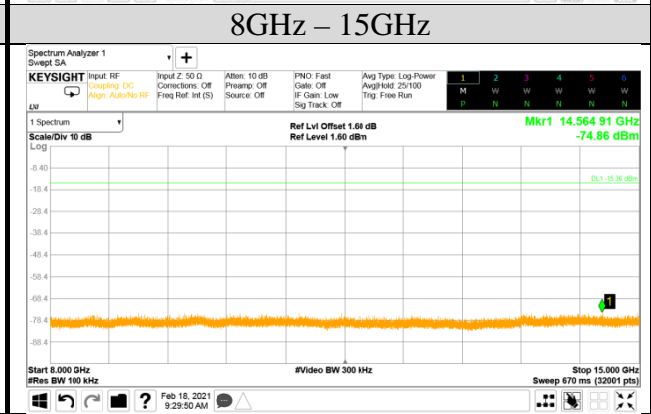
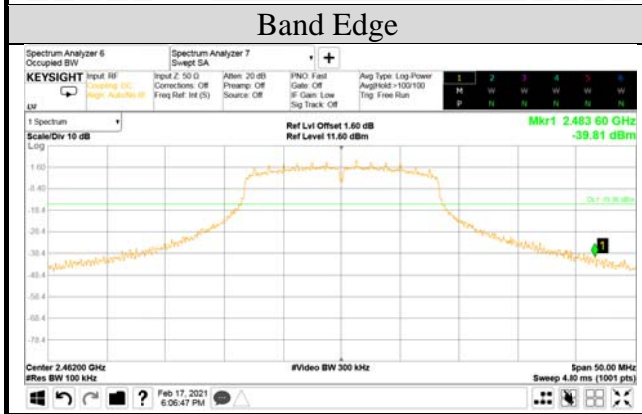
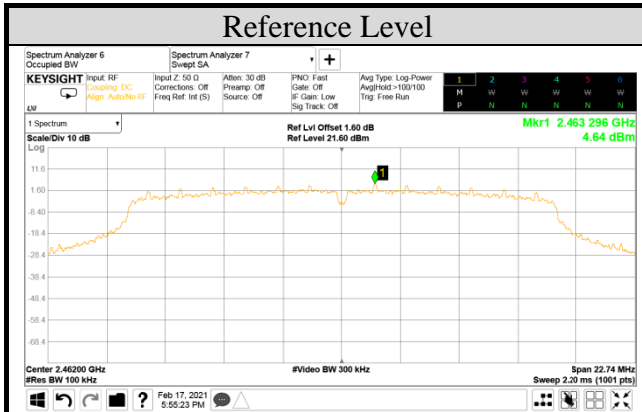
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11g	Tested By	Hua Wu
Frequency	TX 2437MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

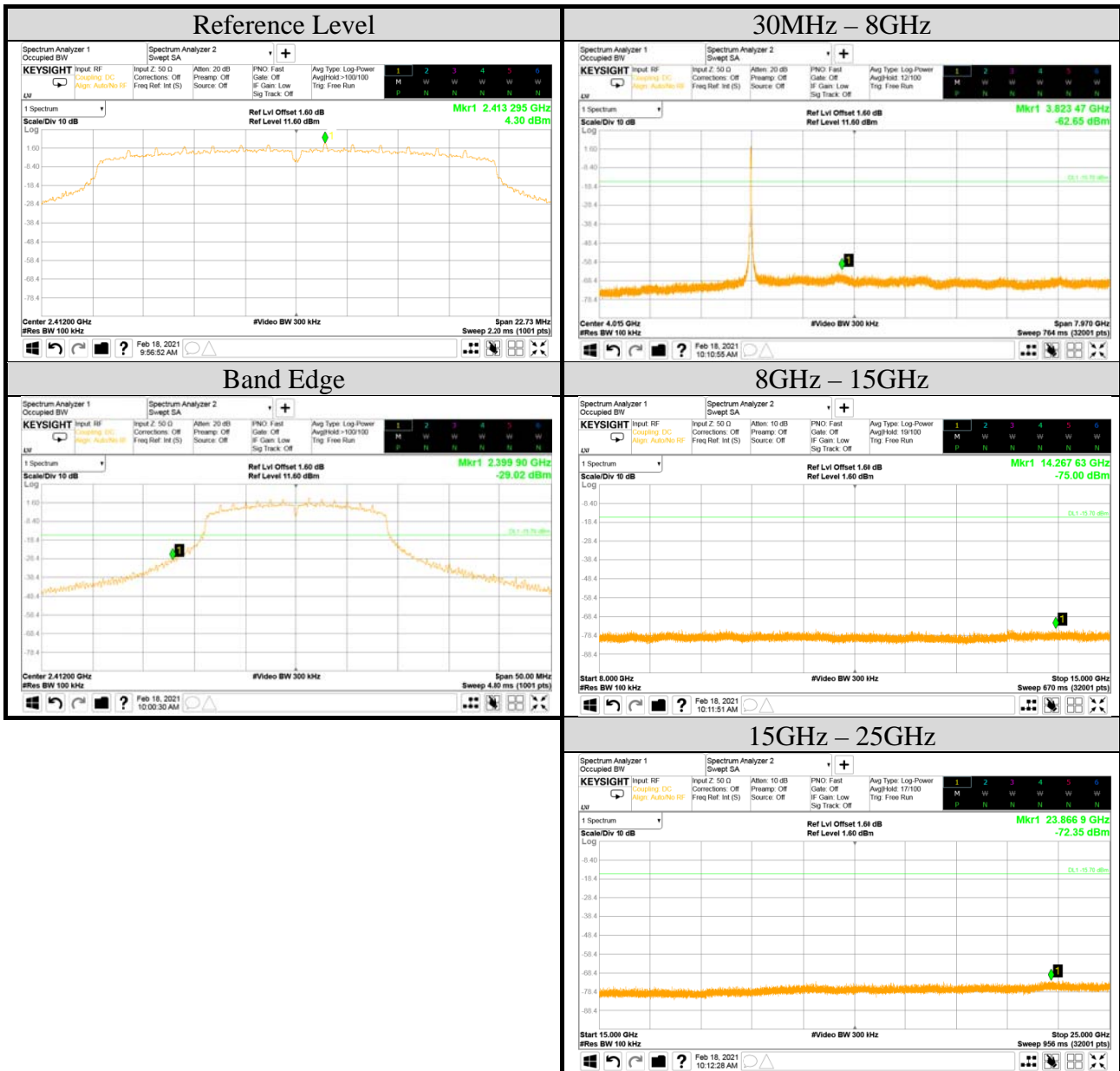
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11g	Tested By	Hua Wu
Frequency	TX 2462MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

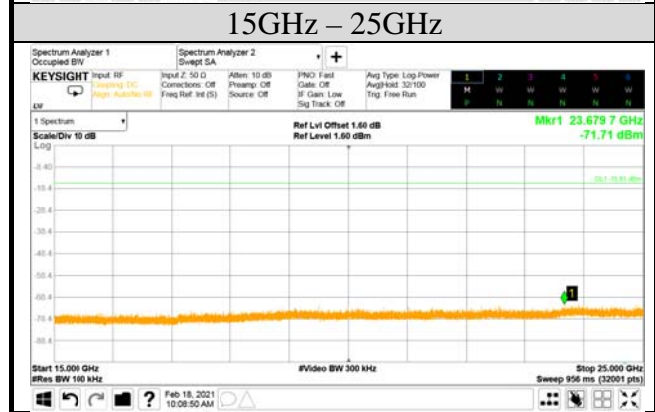
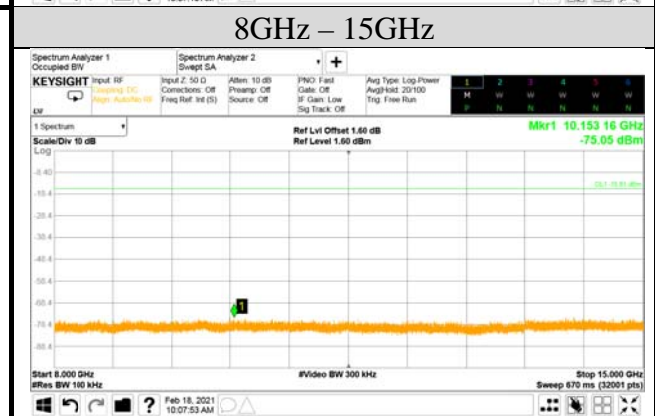
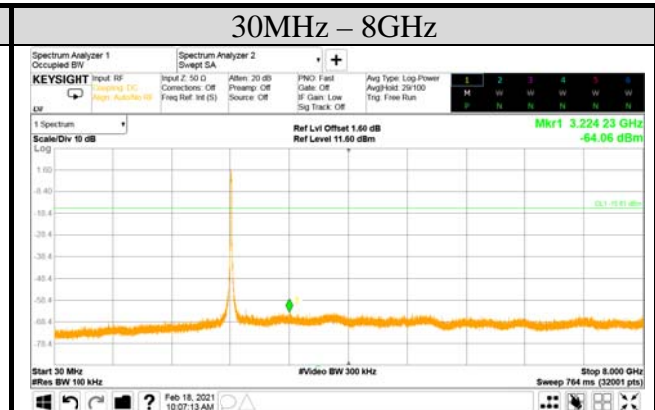
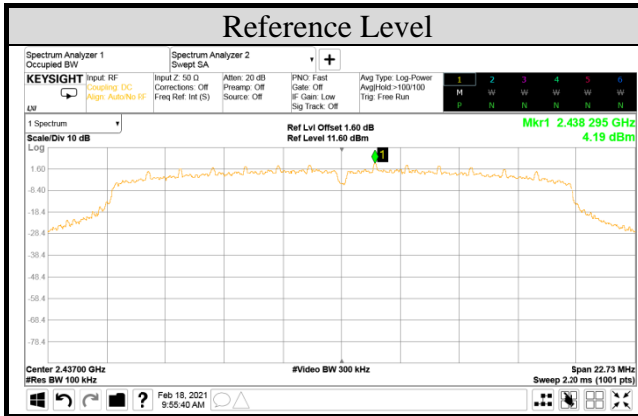
Test Date	2021/02/18	Temp./Hum.	18°C/55%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11n-HT20	Tested By	Hua Wu
Frequency	TX 2412MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
 Fax: +886 2 26099303

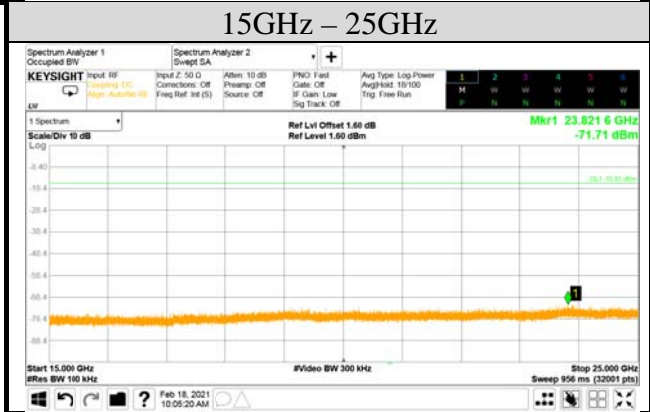
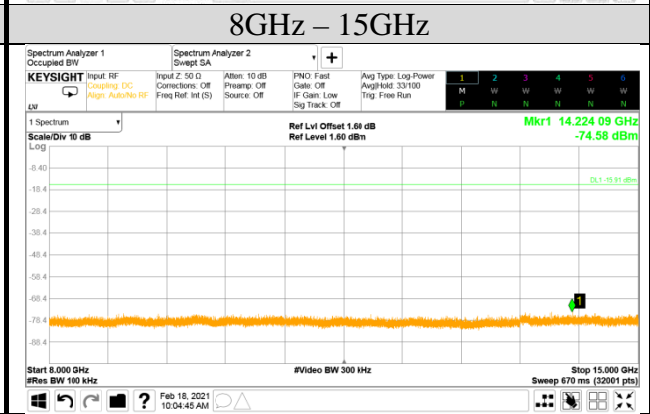
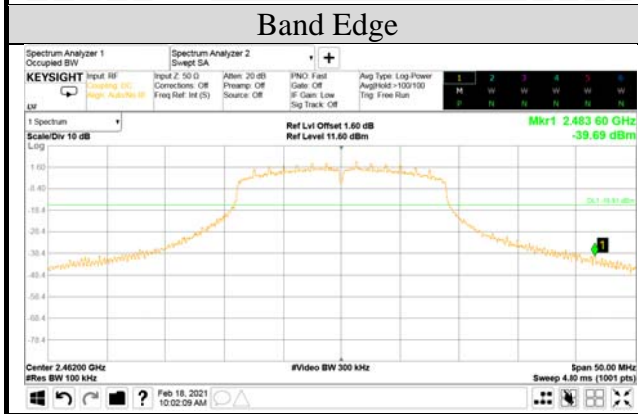
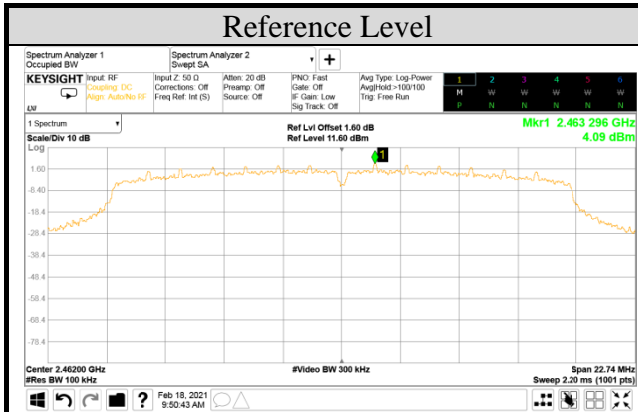
Test Date	2021/02/18	Temp./Hum.	18°C/55%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11n-HT20	Tested By	Hua Wu
Frequency	TX 2437MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



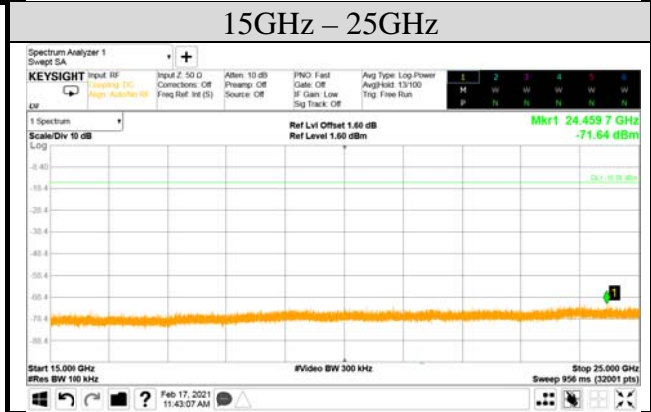
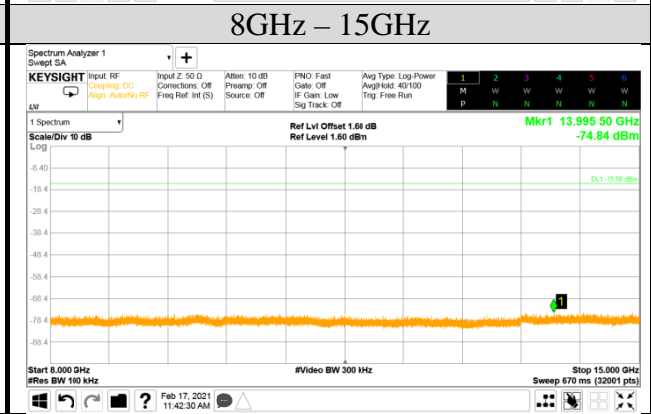
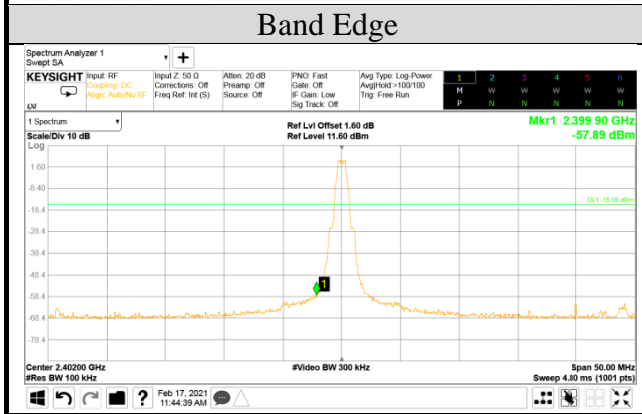
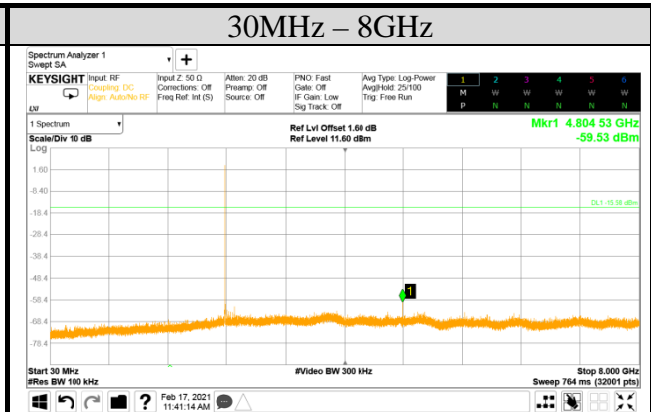
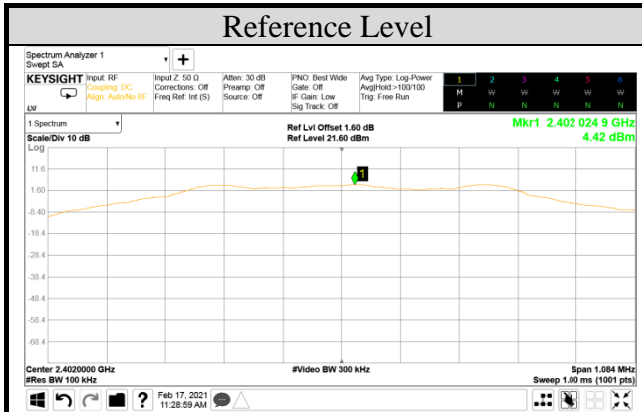
Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

Test Date	2021/02/18	Temp./Hum.	18°C/55%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	802.11n-HT20	Tested By	Hua Wu
Frequency	TX 2462MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



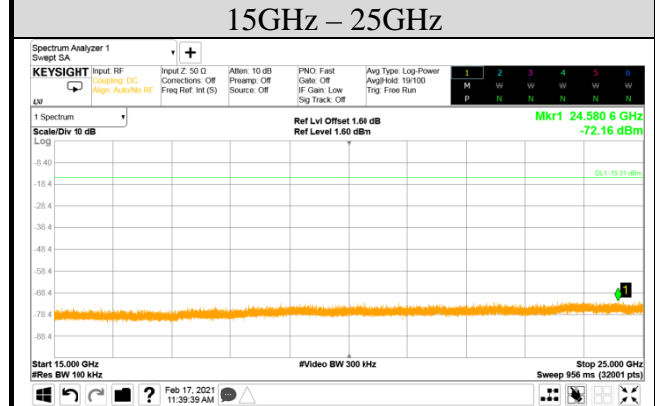
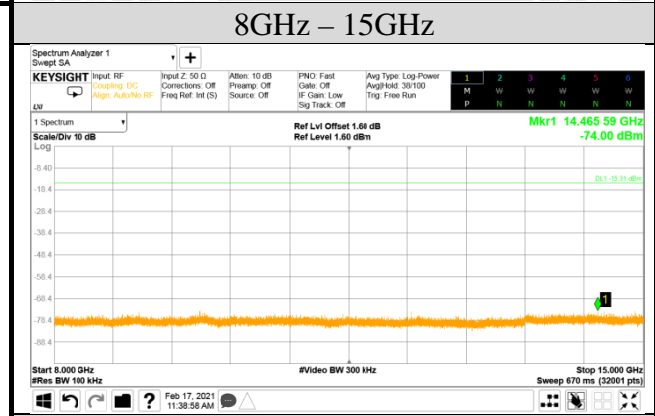
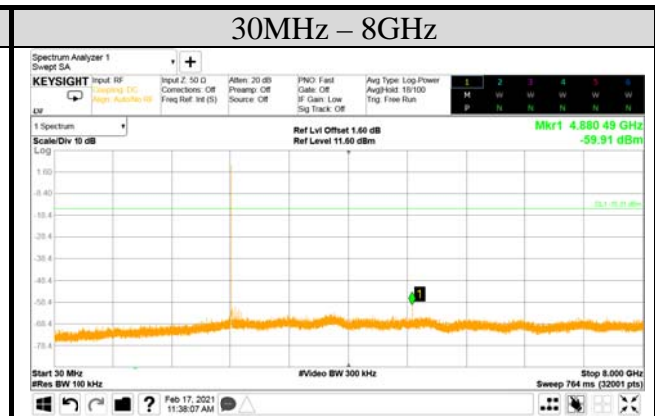
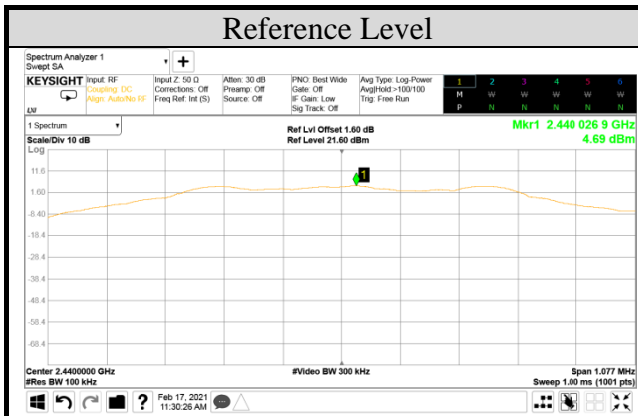
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	BLE	Tested By	Hua Wu
Frequency	TX 2402MHz		
Simultaneous Factor10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

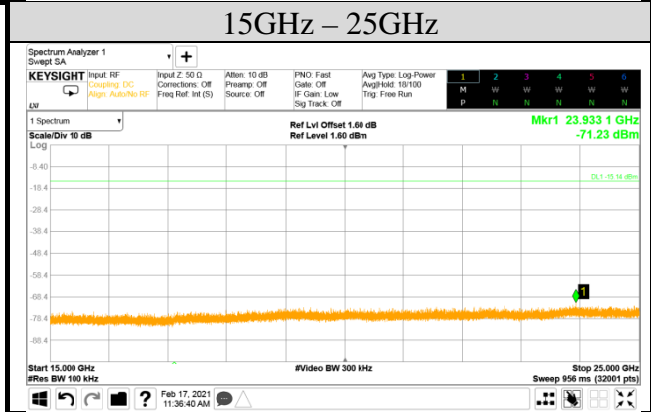
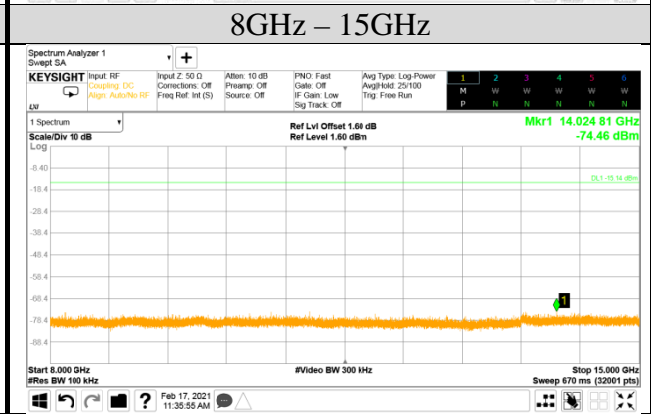
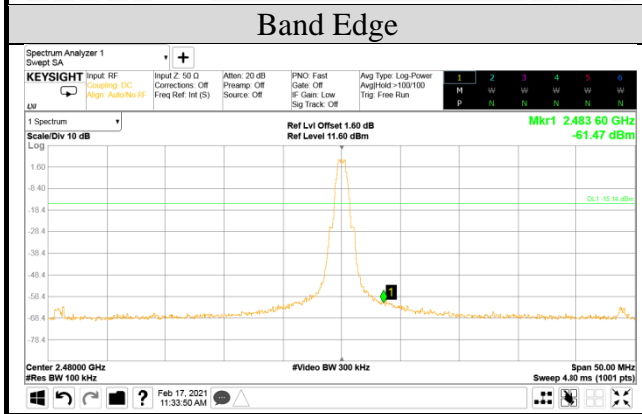
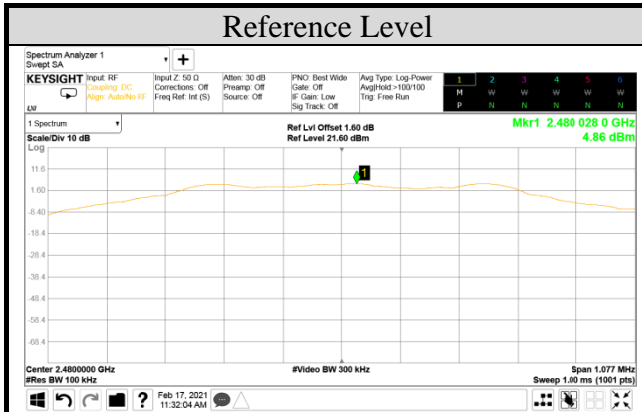
Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	BLE	Tested By	Hua Wu
Frequency	TX 2440MHz		
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0dB



Audix Technology Corp.
 No. 491, Zhongfu Rd., Linkou Dist.,
 New Taipei City 244, Taiwan

Tel: +886 2 26099301
Fax: +886 2 26099303

Test Date	2021/02/17	Temp./Hum.	19°C/57%
Cable Loss	1.60dB	Test Voltage	AC 120V, 60Hz (via AC Adapter)
Mode	BLE	Tested By	Hua Wu
Frequency	TX 2480MHz		
Simultaneous Factor10 log(n) (Note: "n" is antenna number)			0dB



A.6 POWER SPECTRAL DENSITY

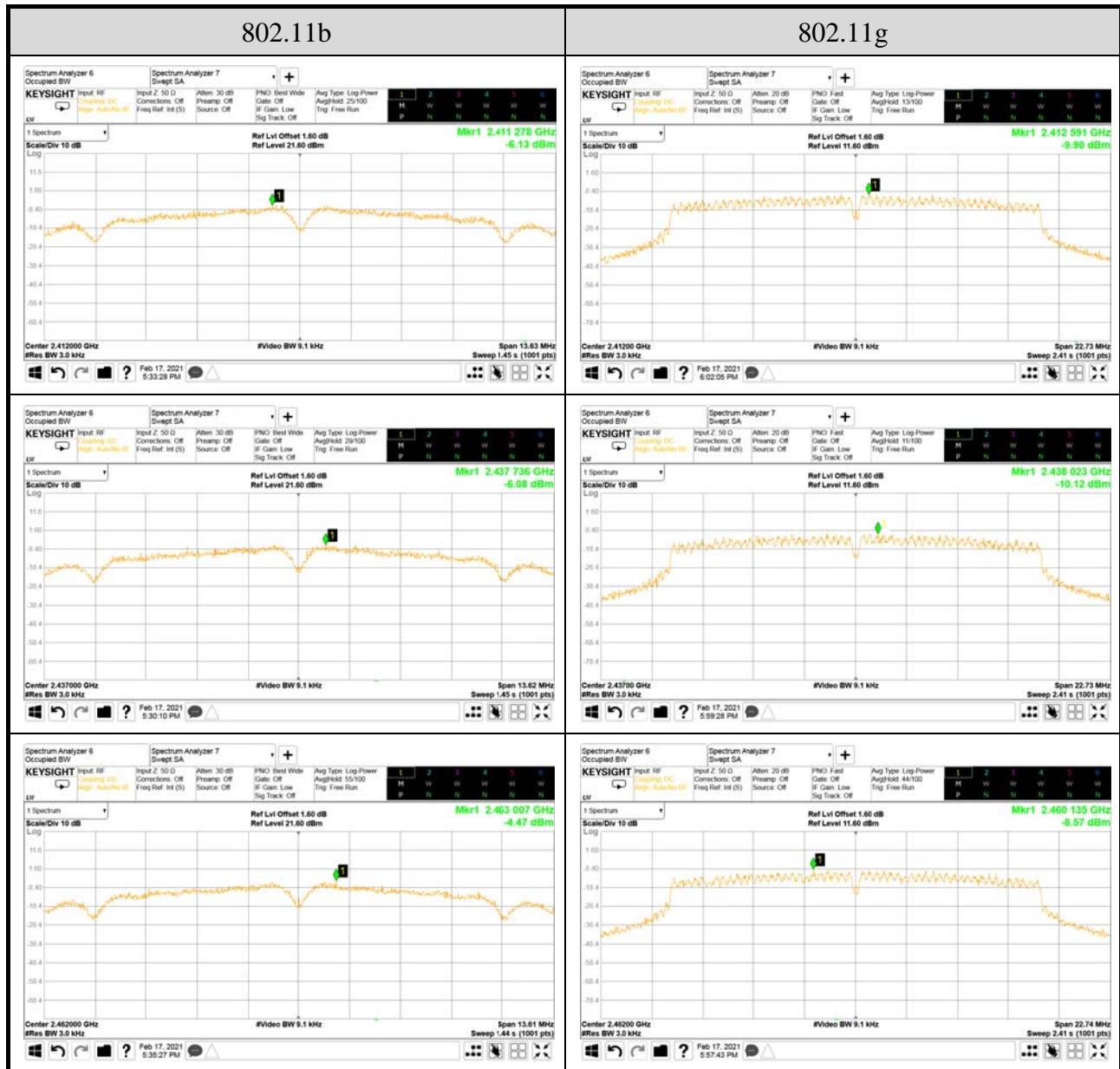
Test Date	2021/02/17~18	Temp./Hum.	18~19°C/55~57%
Cable Loss	1.60dB	Tested By	Hua Wu
Test Voltage	AC 120V, 60Hz (via AC Adapter)		
Simultaneous Factor	10 log(n) (Note: "n" is antenna number)		0dB

A.6.1 Power Spectral Density Result

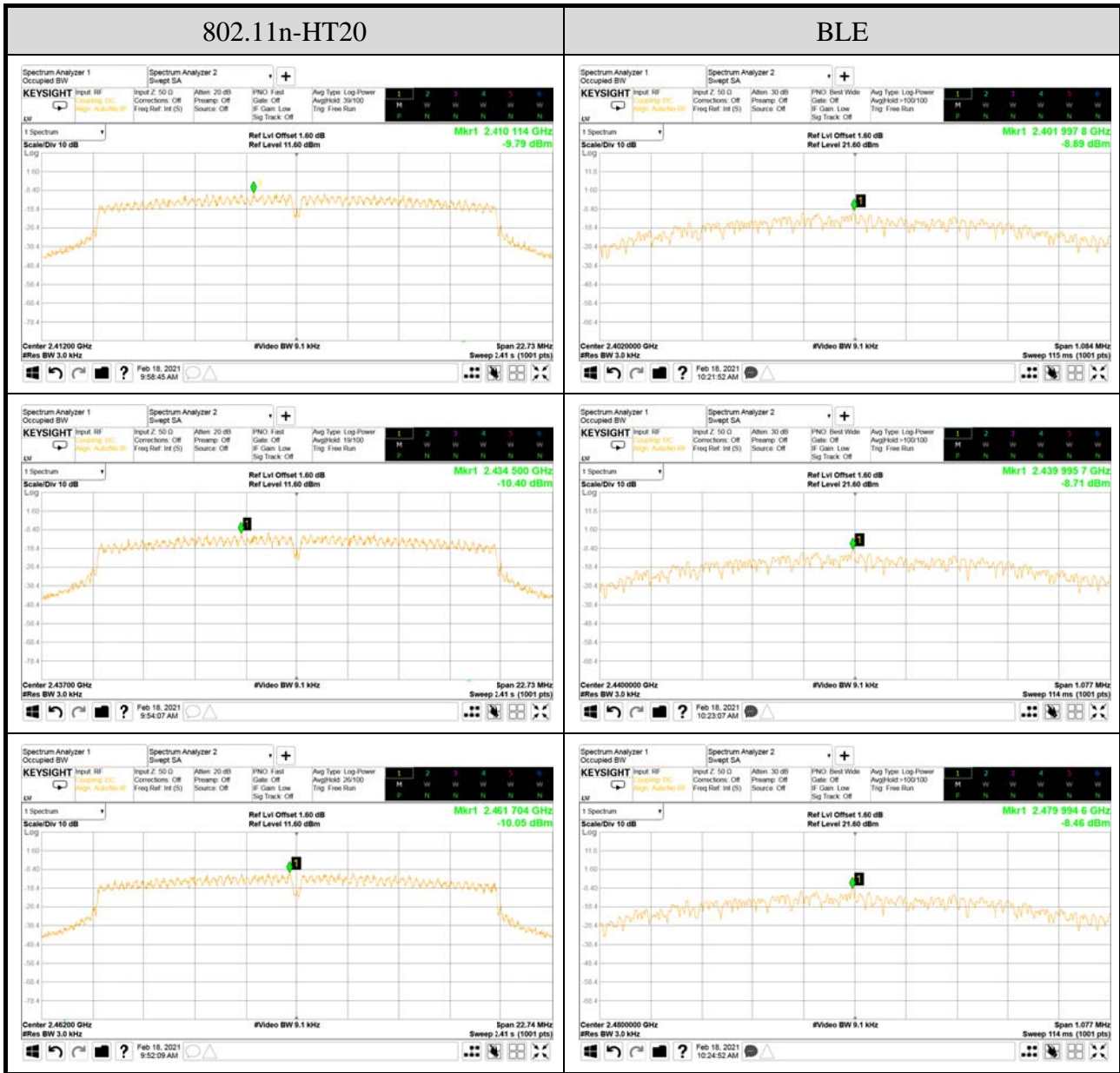
Mode	Centre Frequency (MHz)	Power Spectral Density (dBm)	Limit
802.11b	2412	-6.13	<8 dBm/3kHz
	2437	-6.08	
	2462	-4.47	
802.11g	2412	-9.90	
	2437	-10.12	
	2462	-8.57	
802.11n-HT20	2412	-9.79	
	2437	-10.40	
	2462	-10.05	
BLE	2402	-8.89	
	2440	-8.71	
	2480	-8.46	

Note: All results have been included cable loss and Simultaneous Factor.

A.6.2 Measurement Plots



Note: All results have been included cable loss and Simultaneous Factor.



Note: All results have been included cable loss and Simultaneous Factor.