



TEST REPORT

REPORT NUMBER: I21W00017-WLAN_Rev1

ON

Type of Equipment: Tracker
Model Name: PA32
Manufacturer: Micron Electronics LLC.

ACCORDING TO

FCC Part 15, Subpart C, 2019:

15.205 Restricted bands of operation,

15.209 Radiated emission limits; general requirements,

15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz

ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Chongqing Academy of Information and Communications Technology

Month date, year

Aug, 13, 2021

Signature



Xiang Luoyong

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.

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Revision Version

Report Number	Revision	Date	Memo
I21W00017-WLAN	V0.0	2021-08-02	--
I21W00017-WLAN_Rev1	V0.0	2021-08-13	--

Chongqing Academy of Information and Communication Technology

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Report No.:I21W00017-WLAN_Rev1**FCC ID:** ZKQ-CM911B**Report Date:** 2021-08-13**Test Firm Name:** Chongqing Academy of Information and Communications Technology**FCC Registration Number:** CN1239**Statement**

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC Parts 15, subpart C. The sample tested was found to comply with the requirements defined in the applied rules.

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1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC Parts 15, subpart C and ANSI C63.10-2013 .

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex B.

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1.2 Testers

Name: Zhang qinghao
Position: Engineer
Department: Department of RF test
Date: 2021-06-18 to 2021-08-13

Signature:



Editor of this test report:

Name: Chen Wen
Position: Engineer
Department: Department of RF test
Date: 2021-08-13

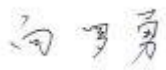
Signature:



Technical responsibility for area of testing:

Name: Xiang Luoyong
Position: Manager
Department: Director of the laboratory
Date: 2021-08-13

Signature:



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1.3 Testing Laboratory information

1.3.1 Location

Name: Chongqing Academy of Information and Communications Technology

Address: Building B, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China, 401336

Tel: +86-23-88069965

Fax: +86-23-88608777

Email: liqiao@caict.ac.cn

1.3.2 Test location, where different from section 1.3.1

Name: -----

Street: -----

City: -----

Country: -----

Telephone: -----

Fax: -----

Postcode: -----

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1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name: Micron Electronics LLC.
Address: 1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA
Country: USA
Telephone: +18885383489
Fax: --
Contact: Ping Cheng
Email: pcheng@micron-electronics.com

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name: --
Address: --
Country: --
Telephone: --
Fax: --
Contact: --
Email: --

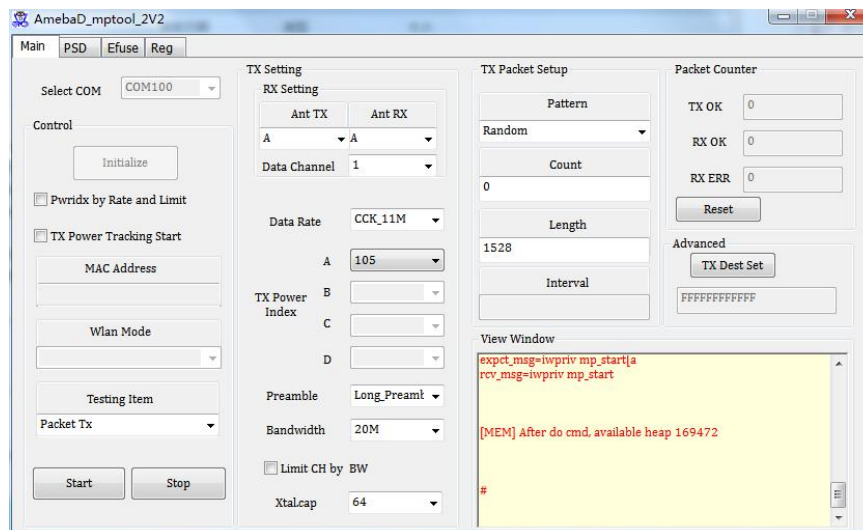
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2 Test Item

2.1 General Information

Manufacturer:	Micron Electronics LLC.
Type of Equipment:	Tracker
Model Name:	PA32
Production Status:	Product
Hardware Version:	A108_V2_PCB
Software Version:	PA32V02.01B06.I01
Antenna description:	Built in FPC antenna
Antenna Gain:	0.5dBi
Test SW Version:	5.2.2.80
frequency range:	2412-2462MHz
Normal Voltages	3.80 V
High Voltages	4.20V
Low Voltages	3.50V
Receipt date of test item:	2021-06-18

EUT uses tool to control emission measurement,Change power level, channel, rate and bandwidth.11b transmitter power level set to 105,11g/n transmitter power level set to 95.



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Report No.:I21W00017-WLAN_Rev1**2.2 Outline of Equipment under Test**

The PA32, referred to as “EUT” hereafter, is a multi-Band wireless modem operating on the GSM/CAT-M1/Wi-Fi/BLUETOOTH 5.0 networks. The table below shows the supported bands for the EUT.

Technology	Freq.(MHz)	Note
2.4G WLAN	2402-2480	--

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Modules	Micron Electronics LLC.	Tracker	866884045658218	--
B	Modules	Micron Electronics LLC.	Tracker	866884045658127	--
C	data line	--	--	--	--
D	Adapter	--	--	50714	--

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2.5 ANTENNA REQUIREMENT

Standard Applicable

For intentional device , according to FCC 47 FR Section 15.203 , an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device .

Refer to statement below for compliance .

The manufacturer may design the unit so that the user can replace a broken antenna , but the use of a standard antenna jack or electrical connector is prohibited . Further , this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is a Internal Antenna. It conforms to the standard requirements . The directional gains of antenna used for transmitting is 0.5dBi

2.6 Other Information

--

3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

Name of Test	Result
Maximum Peak Output Power	Pass
Peak Power Spectral Density	Pass
6dB Occupied Bandwidth	Pass
99% Occupied Bandwidth	--
Band Edges Compliance	Pass
Transmitter Spurious Emission-Conducted	Pass
Transmitter Spurious Emission-Radiated	Pass
Power line Conducted Emissions	Pass
Note:--	

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4 Test Equipments and Ancillaries Used For Tests

The test equipments and ancillaries used are as follows.

No.	Equipment	Model	SN	Manufacture	Cal. Date	Cal. Due Date
1	EMI Test Receiver	ESU26	100367	R&S	2021-05-12	2022-06-11
2	Trilog super broad band test antenna	VULB 9163	00995	R&S	2021-03-04	2023-04-03
3	Double-Ridged Horn Antenna	HF907	100357	R&S	2019-07-21	2021-08-20
4	Double Ridged Guide Antenna	DATE 1152	LM7127	ETS	2020-07-15	2021-08-16
5	Double Ridged Guide Antenna	DATE 1012	LM5945	ETS	2020-07-15	2021-08-16
6	Fully-Anechoic Chamber	11.8m×6.5m×6.3m	--	ETS	2020-12-23	2024-01-22
7	Spectrum analyzer	FSQ 26	201137/026	R&S	2021-05-12	2022-06-11
8	Spectrum analyzer	N9020A	MY50200376	Agilent	2021-05-12	2022-06-11
9	DC Power Supply	N6705B	MY50000919	Agilent	2021-05-12	2022-06-11
10	Artificial Power Network	ENV 216	101128	R&S	2021-05-12	2022-06-11
11	Test Receiver	ESCI 9KHz-3GHZ	101214	R&S	2021-05-12	2022-06-11

Test software Used:

No.	Test item	Test software name	Manufacturer	Version:
1	Radiated Emission	EMC32	R/S	V8.51.0
2	Conducted Emission	EMC32	R/S	V8.51.0

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5 Test Results

5.1 Maximum Peak Output Power

Specifications:	FCC Part 15.247(b)
DUT Serial Number:	866884045658218
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For systems using digital modulation in the bands of 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Uncertainty:

Measurement Uncertainty	$\pm 1.0\text{dB}$
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Test Method1:

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set the RBW $\geq$ DTS bandwidth
4. Set VBW $\geq [3 \times \text{RBW}]$.
5. Set span $\geq [3 \times \text{RBW}]$.
6. Sweep time = auto couple.
7. Detector = peak.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use peak marker function to determine the peak amplitude level.

Test Method2:

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set the RBW = 1 MHz.
4. Set the VBW $\geq [3 \times \text{RBW}]$.

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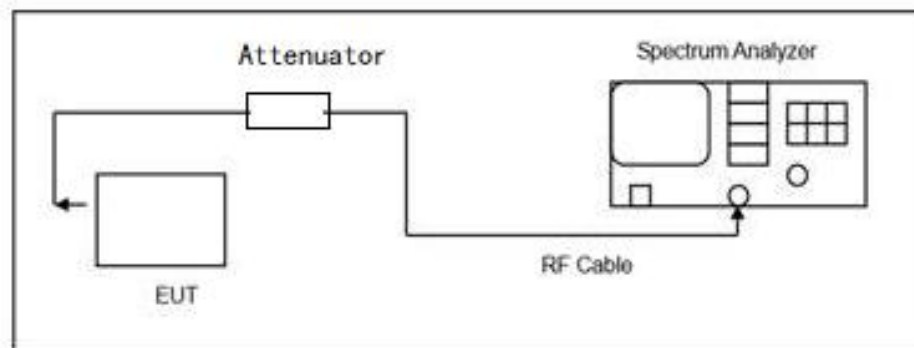
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5. Set the span $\geq [1.5 \times \text{DTS bandwidth}]$.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select the peak detector). If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS channel bandwidth.

Note: Method 2 for 11n (40m).

Test block diagram:



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Measurement Results:

802.11b/g mode

Mode	Data Rate(Mbps)	Test Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11b	1	21.19	21.09	21.92	Pass
	2	20.40	21.31	21.34	Pass
	5.5	20.47	21.17	21.50	Pass
	11	20.96	21.08	21.44	Pass
802.11g	6	25.01	21.71	23.88	Pass
	9	23.68	23.69	24.25	Pass
	12	23.84	23.47	23.45	Pass
	18	24.15	21.21	24.64	Pass
	24	23.74	24.29	24.17	Pass
	36	22.81	23.40	23.57	Pass
	48	24.69	23.86	24.00	Pass
	54	23.07	23.95	24.05	Pass

802.11n mode

Mode	Data Rate(Mbps)	Test Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11n (20MHz)	MCS0	23.92	24.79	23.77	Pass
	MCS1	23.70	24.39	23.84	Pass
	MCS2	23.13	23.71	22.92	Pass
	MCS3	23.22	23.37	23.50	Pass
	MCS4	23.63	23.77	24.34	Pass
	MCS5	23.96	23.09	23.15	Pass
	MCS6	22.86	22.50	23.34	Pass
	MCS7	23.36	23.67	22.97	Pass

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Mode	Data Rate(Mbps)	Test Result(dBm)			Conclusion
		Ch3	Ch7	Ch9	
802.11n (40MHz)	MCS0	25.83	23.90	23.89	Pass
	MCS1	23.50	23..53	23.48	Pass
	MCS2	23.19	23.46	23.42	Pass
	MCS3	23.74	24.03	23.78	Pass
	MCS4	13.39	23.64	23.41	Pass
	MCS5	25.84	23.44	23.28	Pass
	MCS6	25.59	23.40	23.44	Pass
	MCS7	25.42	23.40	23.46	Pass

EIRP Measurement Results:

802.11b/g mode

Mode	Data Rate(Mbps)	EIRP Test Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11b	1	21.69	21.59	22.42	Pass
	2	20.90	21.81	21.84	Pass
	5.5	20.97	21.67	22.00	Pass
	11	21.46	21.58	21.94	Pass
802.11g	6	25.51	22.21	24.38	Pass
	9	24.18	24.19	24.75	Pass
	12	24.34	23.97	23.95	Pass
	18	24.65	21.71	25.14	Pass
	24	24.24	24.79	24.67	Pass
	36	23.31	23.90	24.07	Pass
	48	25.19	24.36	24.50	Pass
	54	23.57	24.45	24.55	Pass

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802.11n mode

Mode	Data Rate(Mbps)	EIRP Test Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11n (20MHz)	MCS0	24.42	25.29	24.27	Pass
	MCS1	24.20	24.89	24.34	Pass
	MCS2	23.63	24.21	23.42	Pass
	MCS3	23.72	23.87	24.00	Pass
	MCS4	24.13	24.27	24.84	Pass
	MCS5	24.46	23.59	23.65	Pass
	MCS6	23.36	23.00	23.84	Pass
	MCS7	23.86	24.17	23.47	Pass

Mode	Data Rate(Mbps)	EIRP Test Result(dBm)			Conclusion
		Ch3	Ch7	Ch9	
802.11n (40MHz)	MCS0	26.33	24.40	24.39	Pass
	MCS1	24.00	24.03	23.98	Pass
	MCS2	23.69	23.96	23.92	Pass
	MCS3	24.24	24.53	24.28	Pass
	MCS4	13.89	24.14	23.91	Pass
	MCS5	26.34	23.94	23.78	Pass
	MCS6	26.09	23.90	23.94	Pass
	MCS7	25.92	23.90	23.96	Pass

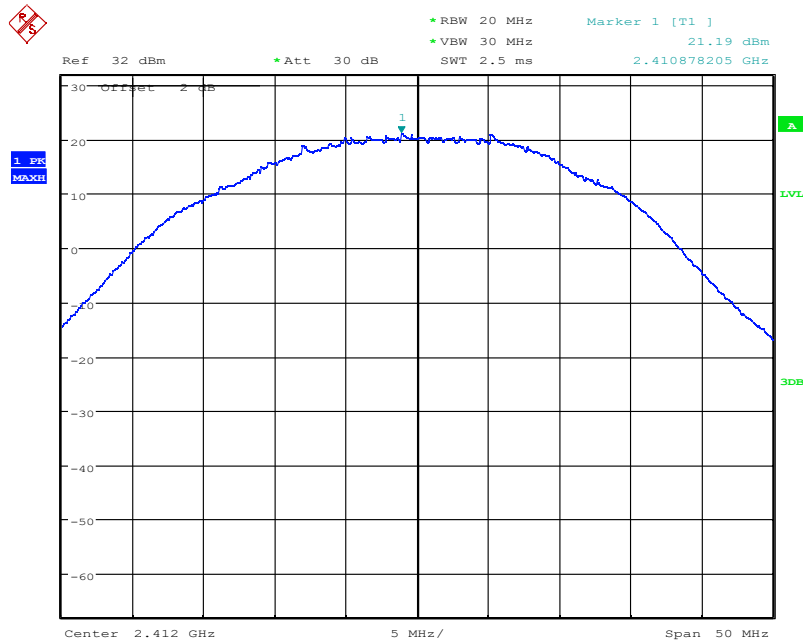
Conclusion: PASS

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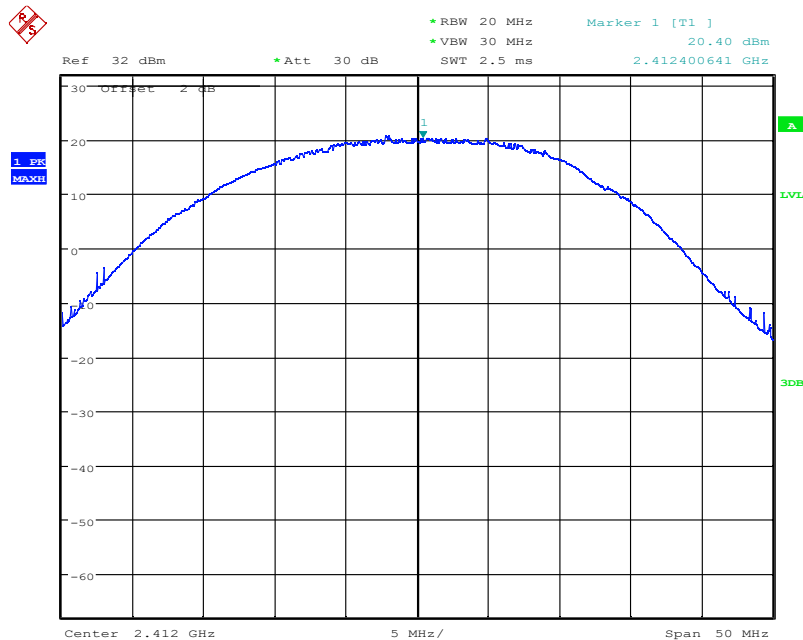
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Test figure as below:



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Fig.1 Peak Conducted Output Power CH1, 11b, Rate1



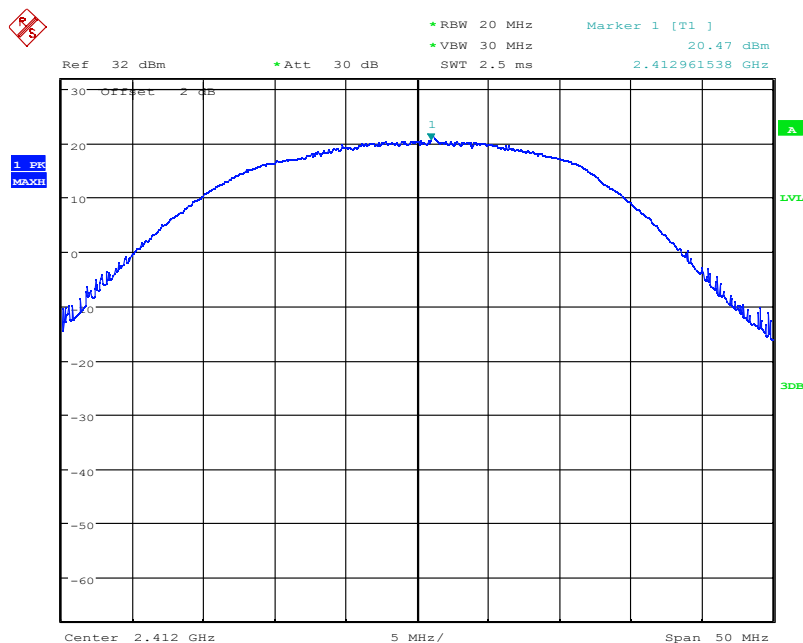
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Fig.2 Peak Conducted Output Power CH1, 11b, Rate2

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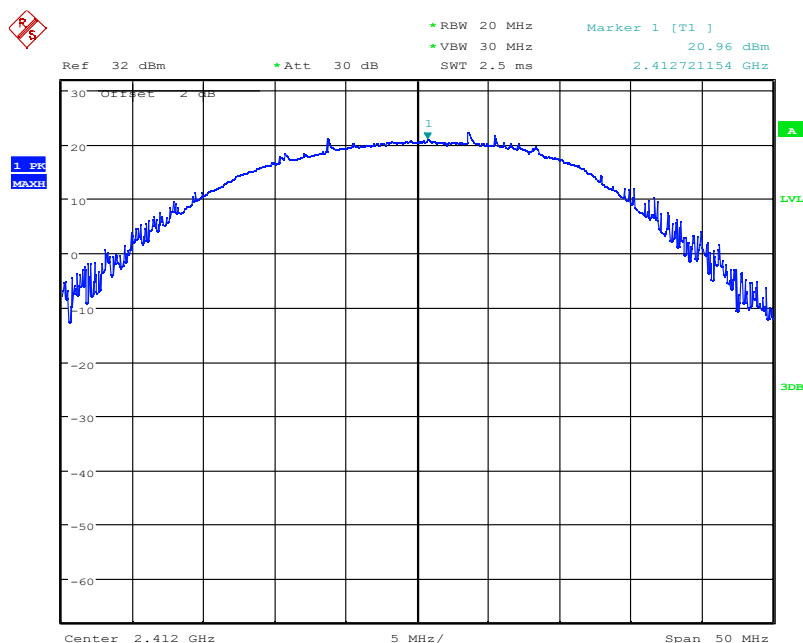
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Fig.3 Peak Conducted Output Power CH1, 11b, Rate5.5



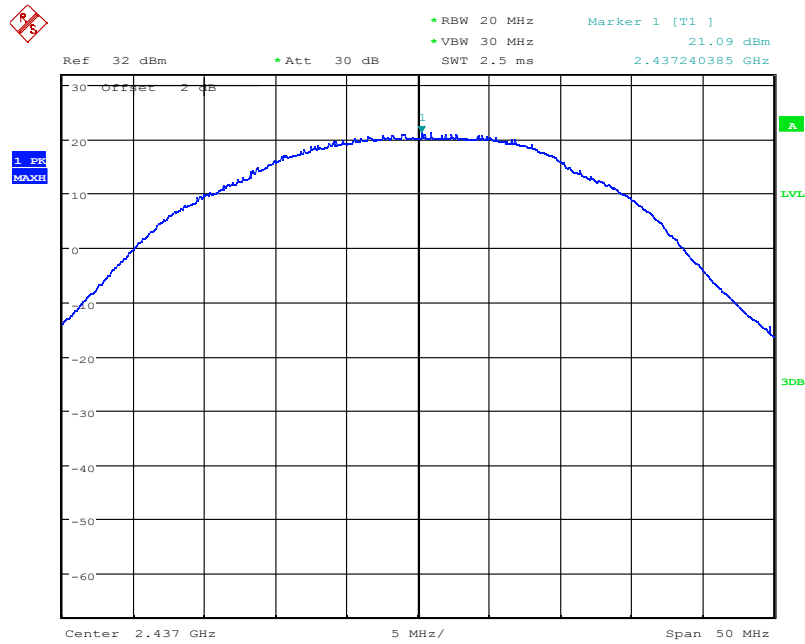
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Fig.4 Peak Conducted Output Power CH1, 11b, Rate11

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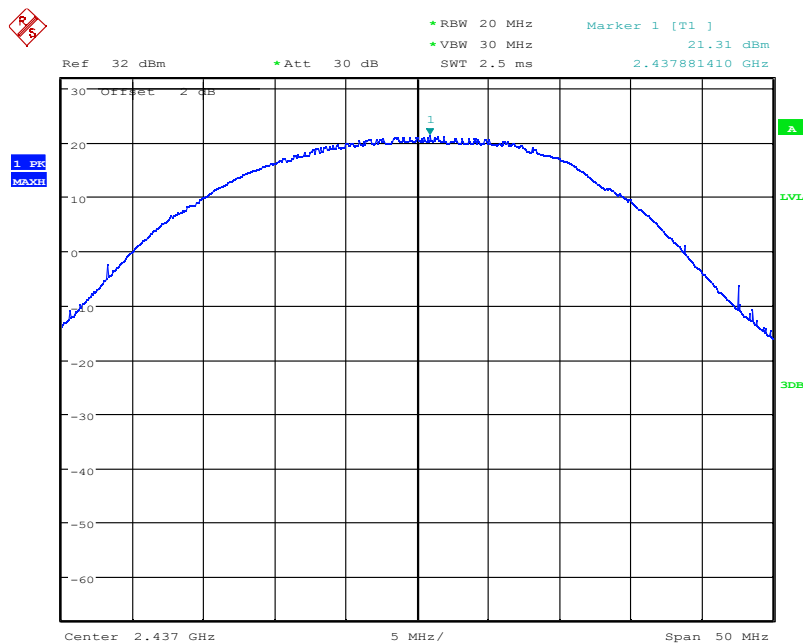
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Fig.5 Peak Conducted Output Power CH6, 11b, Rate1



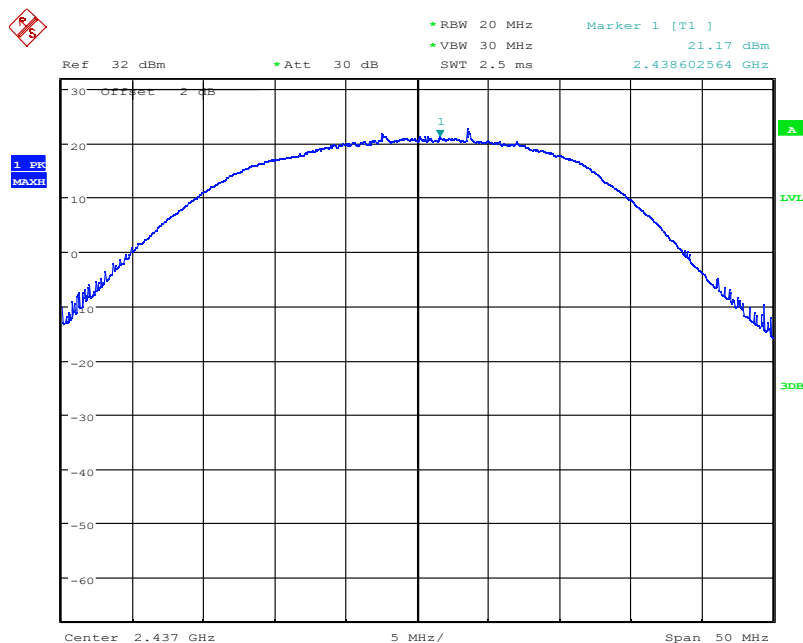
Date: 23.JUN.2021 09:22:05

Fig.6 Peak Conducted Output Power CH6, 11b, Rate2

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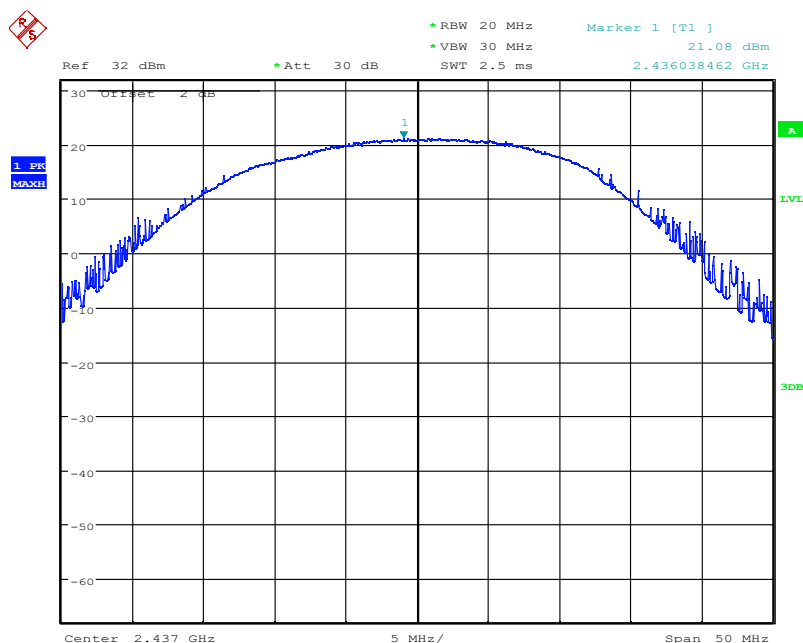
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Fig.7 Peak Conducted Output Power CH6, 11b, Rate5.5



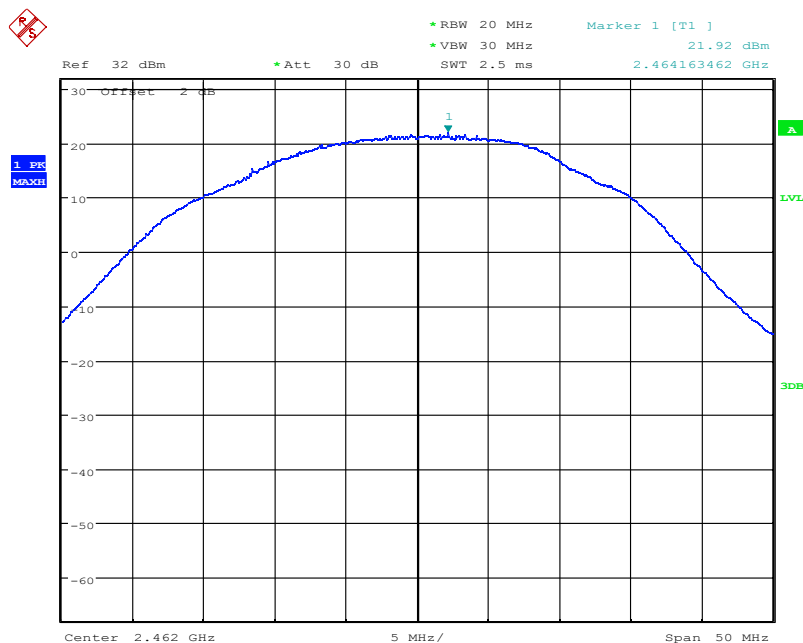
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Fig.8 Peak Conducted Output Power CH6, 11b, Rate11

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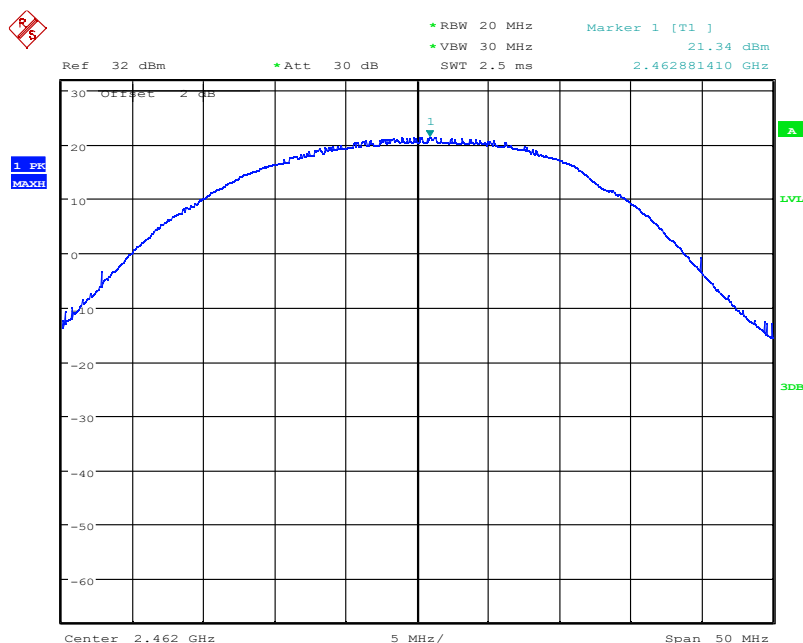
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Fig.9 Peak Conducted Output Power CH11, 11b, Rate1



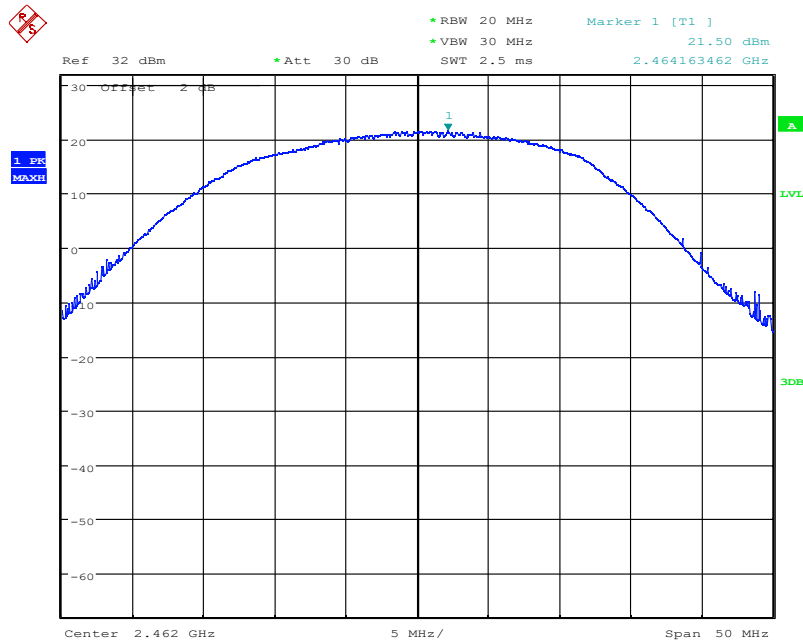
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Fig.10 Peak Conducted Output Power CH11, 11b, Rate2

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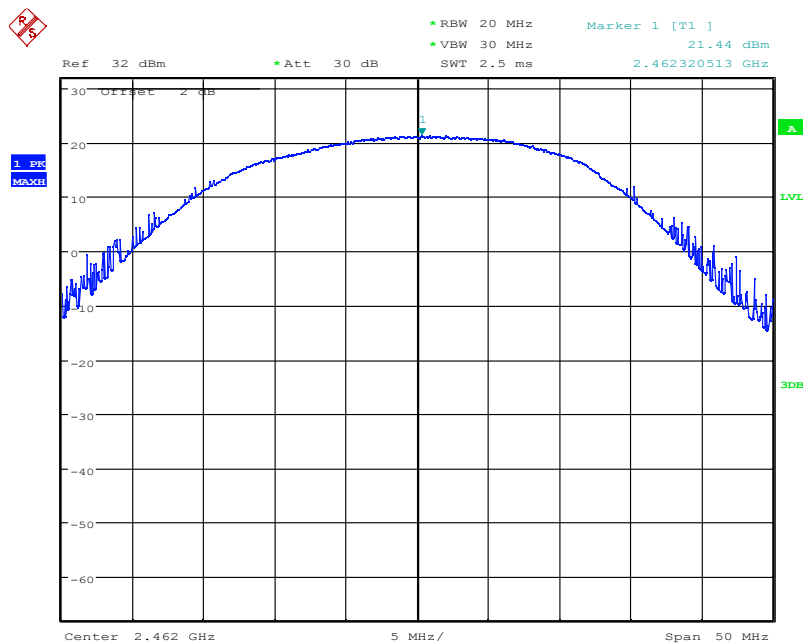
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Fig.11 Peak Conducted Output Power CH11, 11b, Rate5.5



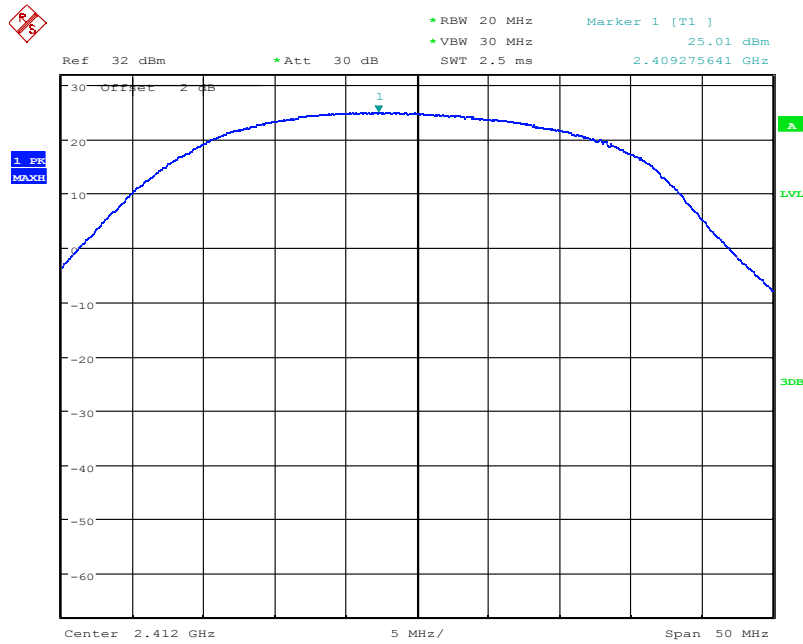
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Fig.12 Peak Conducted Output Power CH11, 11b, Rate11

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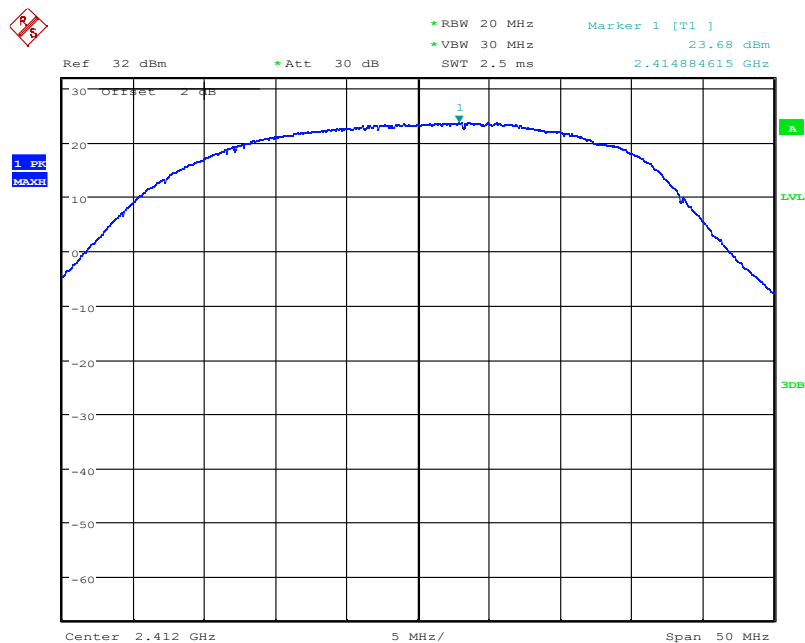
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:26:55

Fig.13 Peak Conducted Output Power CH1, 11g, Rate6



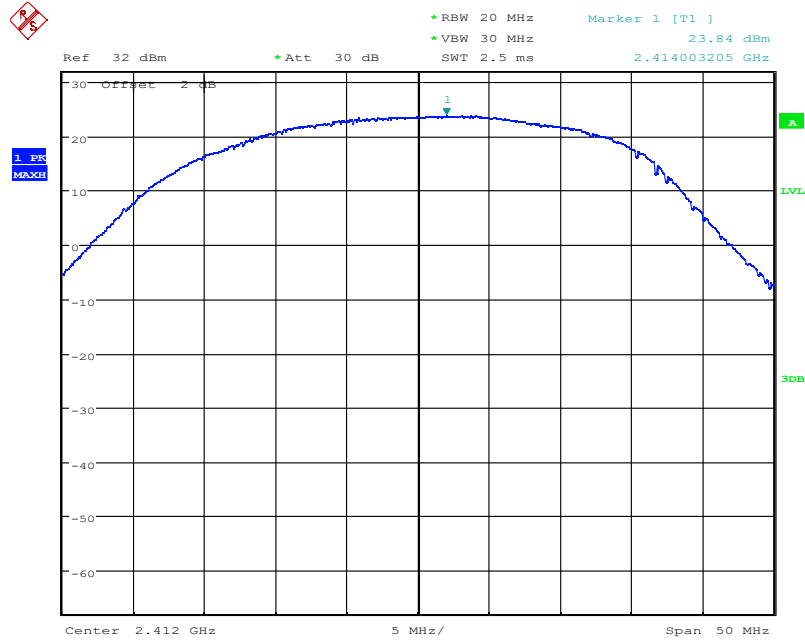
Date: 23.JUN.2021 09:27:28

Fig.14 Peak Conducted Output Power CH1, 11g, Rate9

Chongqing Academy of Information and Communication Technology

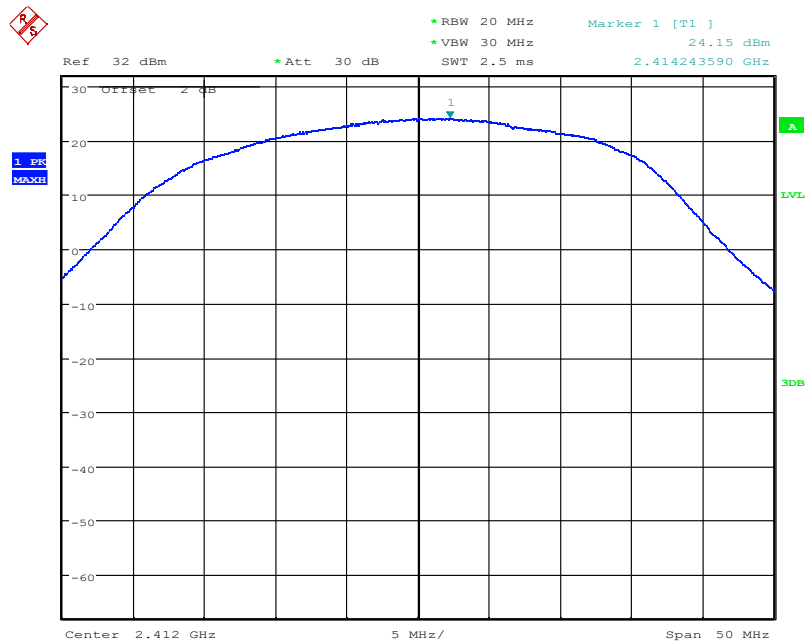
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
 Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:27:50

Fig.15 Peak Conducted Output Power CH1, 11g, Rate12



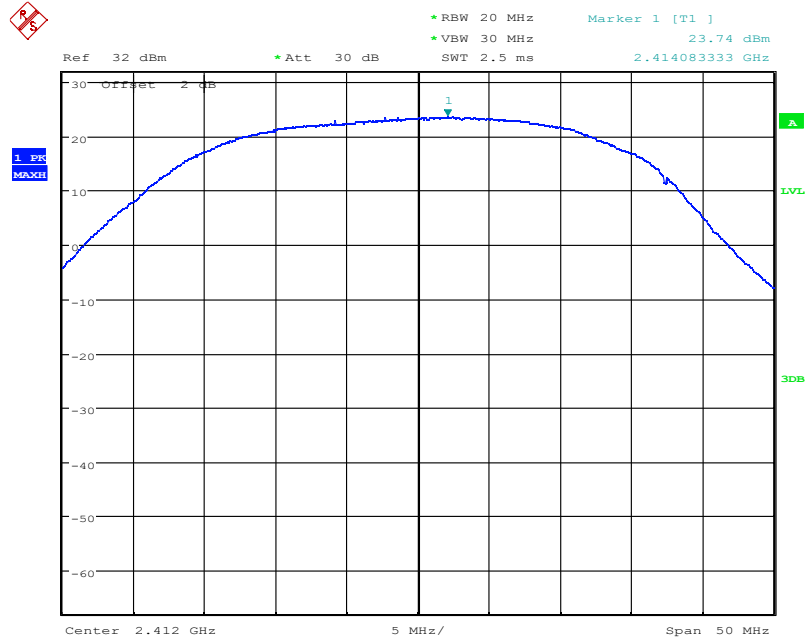
Date: 23.JUN.2021 09:28:29

Fig.16 Peak Conducted Output Power CH1, 11g, Rate18

Chongqing Academy of Information and Communication Technology

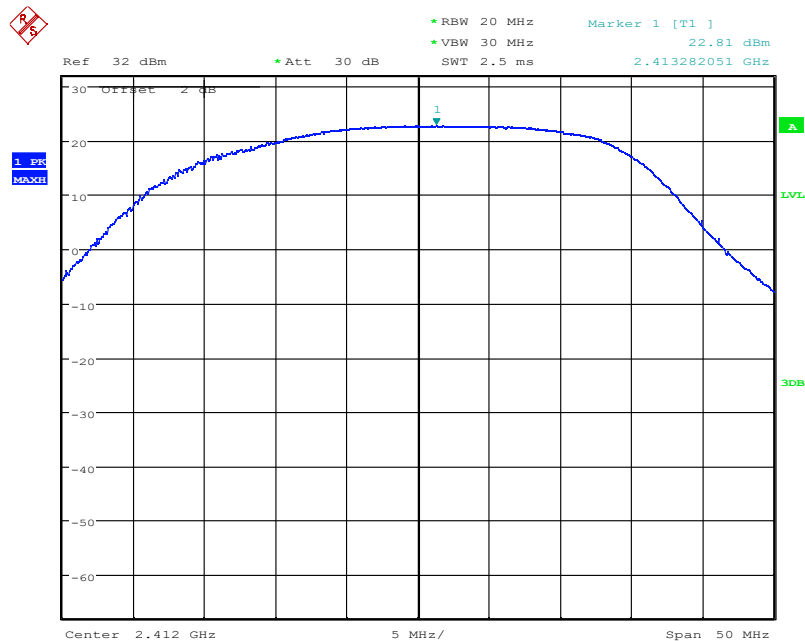
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:28:52

Fig.17 Peak Conducted Output Power CH1, 11g, Rate24



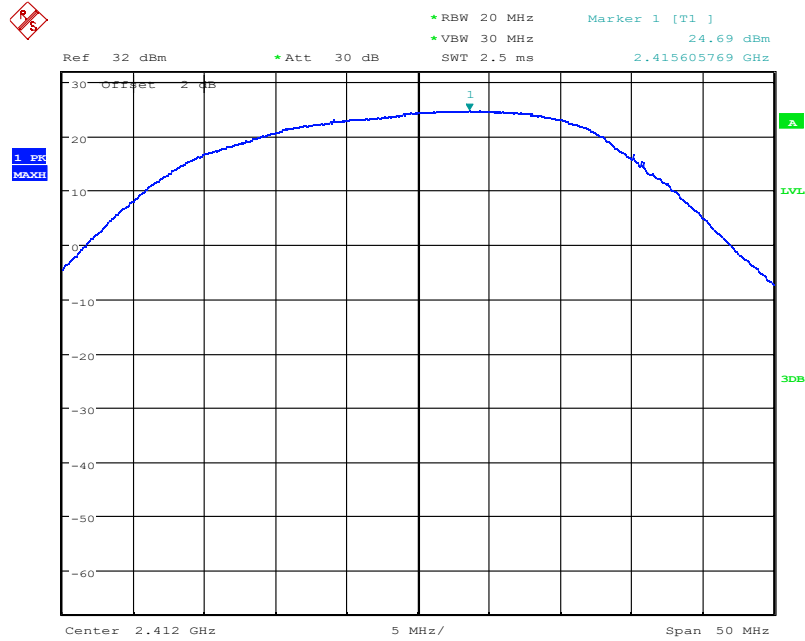
Date: 23.JUN.2021 09:29:14

Fig.18 Peak Conducted Output Power CH1, 11g, Rate36

Chongqing Academy of Information and Communication Technology

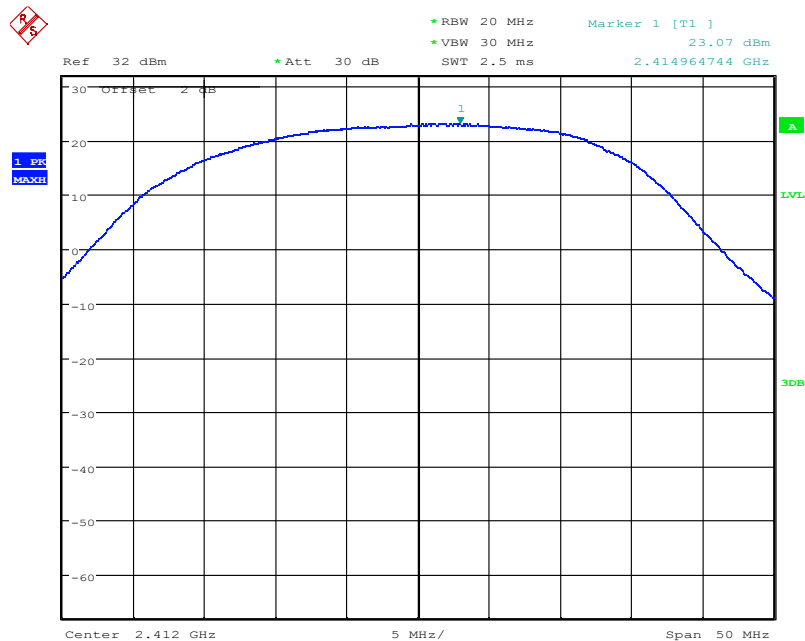
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:29:39

Fig.19 Peak Conducted Output Power CH1, 11g, Rate48



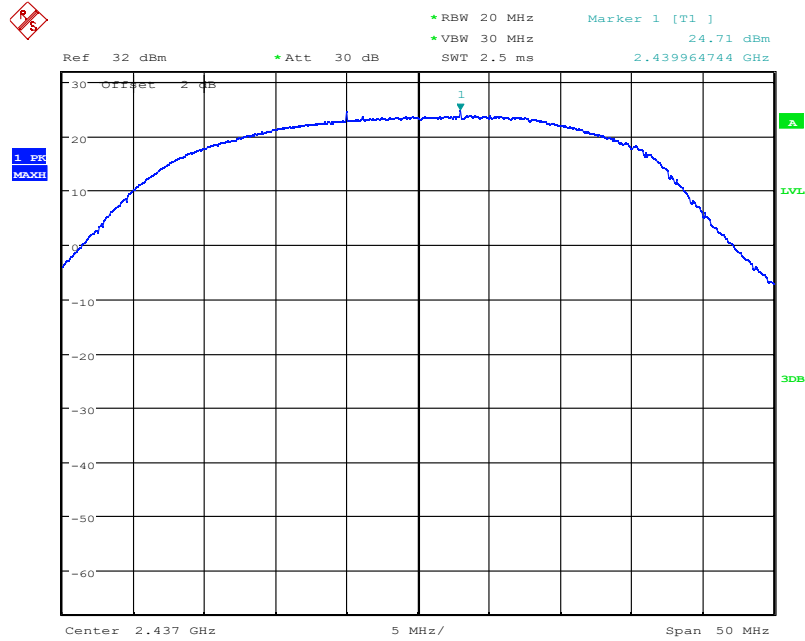
Date: 23.JUN.2021 09:30:06

Fig.20 Peak Conducted Output Power CH1, 11g, Rate54

Chongqing Academy of Information and Communication Technology

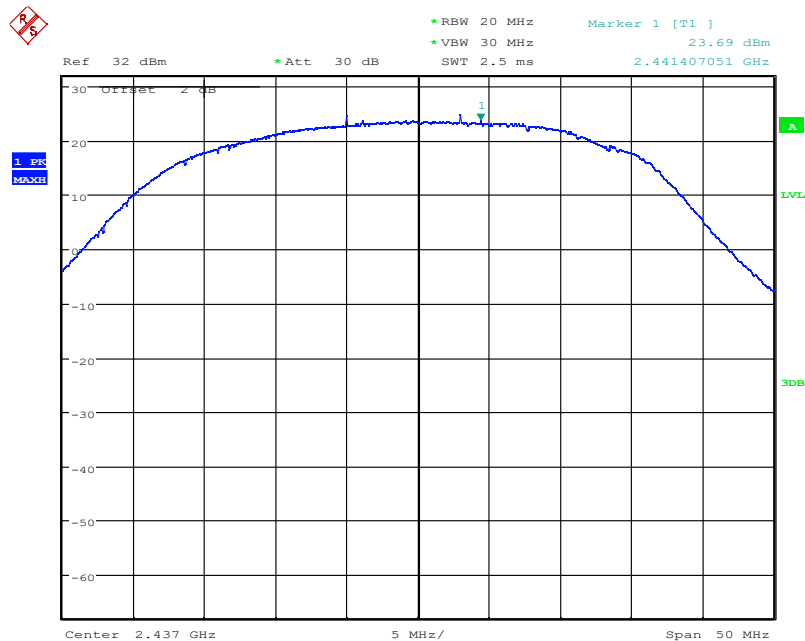
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:33:21

Fig.21 Peak Conducted Output Power CH6, 11g, Rate6



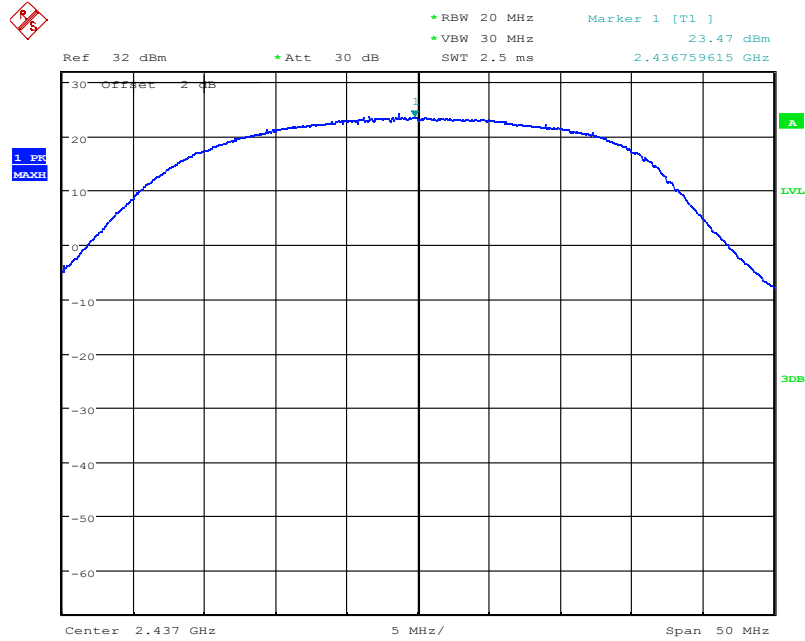
Date: 23.JUN.2021 09:33:01

Fig.22 Peak Conducted Output Power CH6, 11g, Rate9

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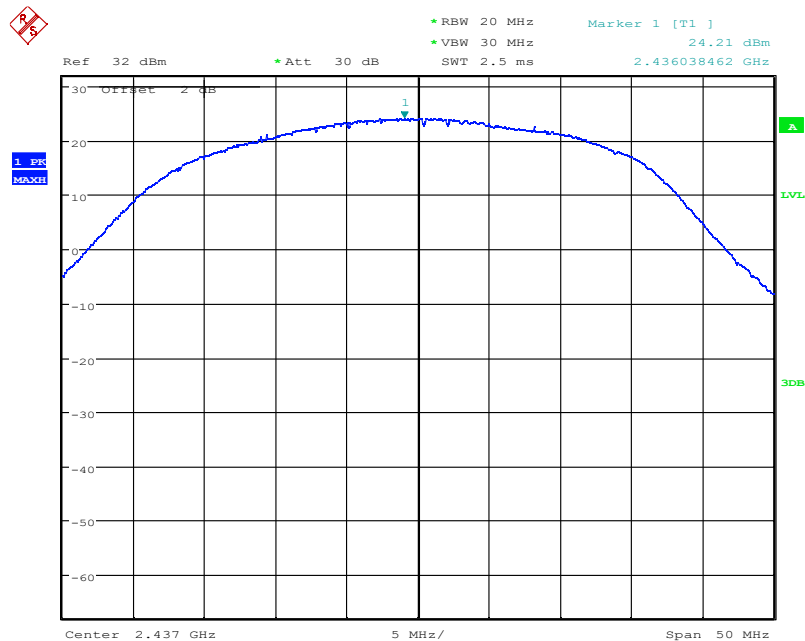
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:32:39

Fig.23 Peak Conducted Output Power CH6, 11g, Rate12



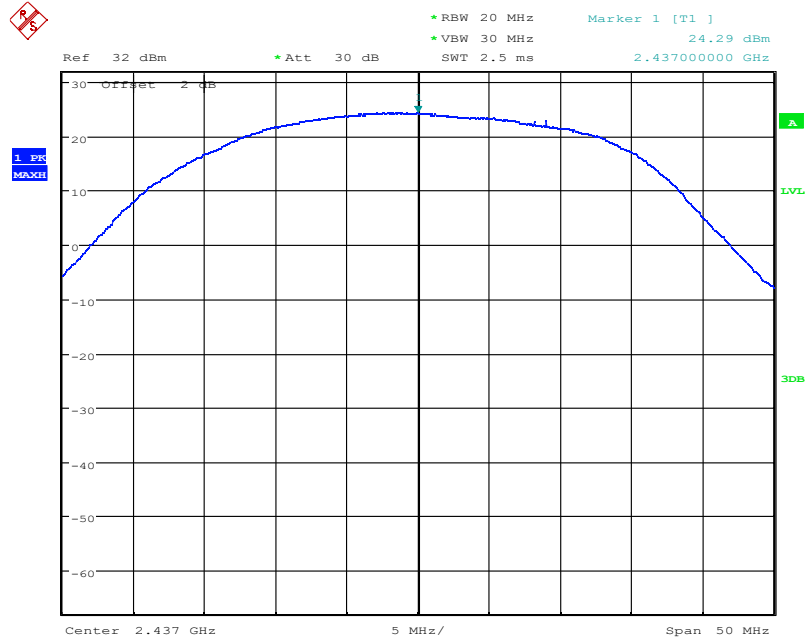
Date: 23.JUN.2021 09:31:59

Fig.24 Peak Conducted Output Power CH6, 11g, Rate18

Chongqing Academy of Information and Communication Technology

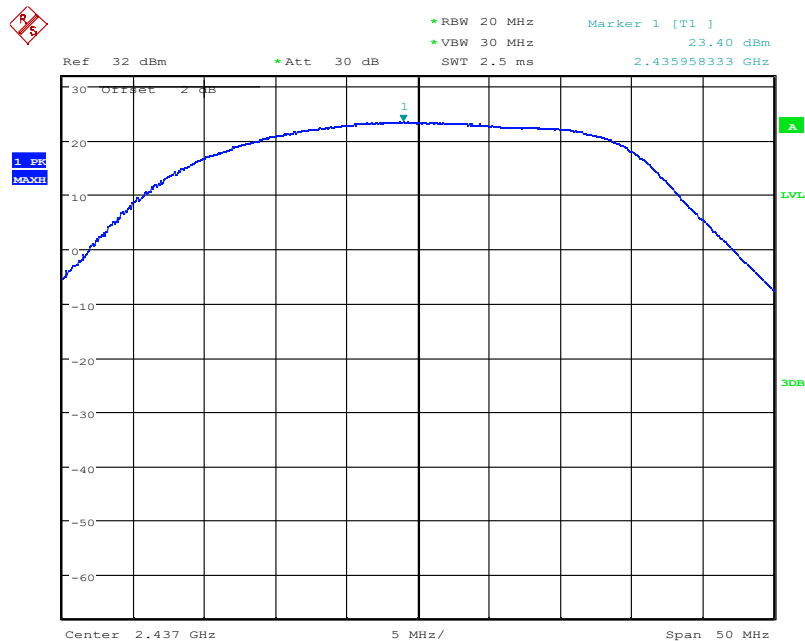
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:31:39

Fig.25 Peak Conducted Output Power CH6, 11g, Rate24



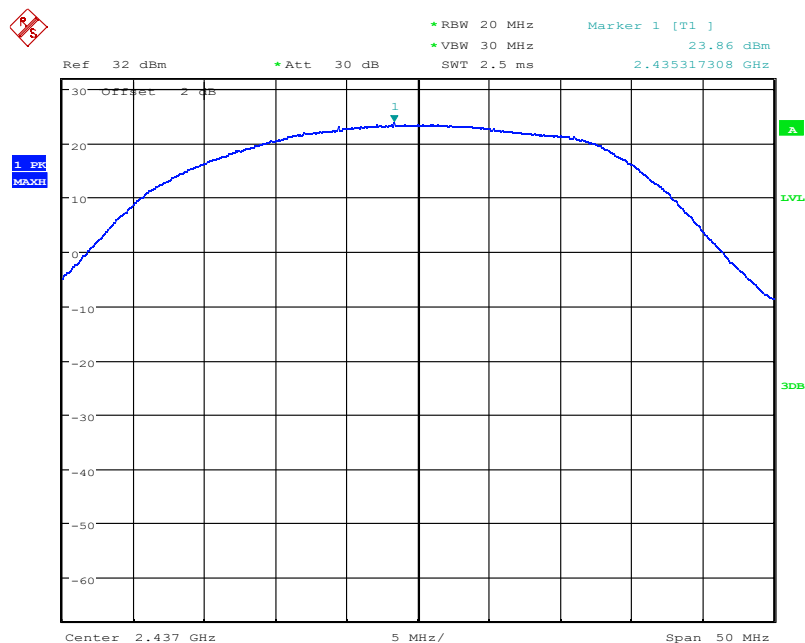
Date: 23.JUN.2021 09:31:14

Fig.26 Peak Conducted Output Power CH6, 11g, Rate36

Chongqing Academy of Information and Communication Technology

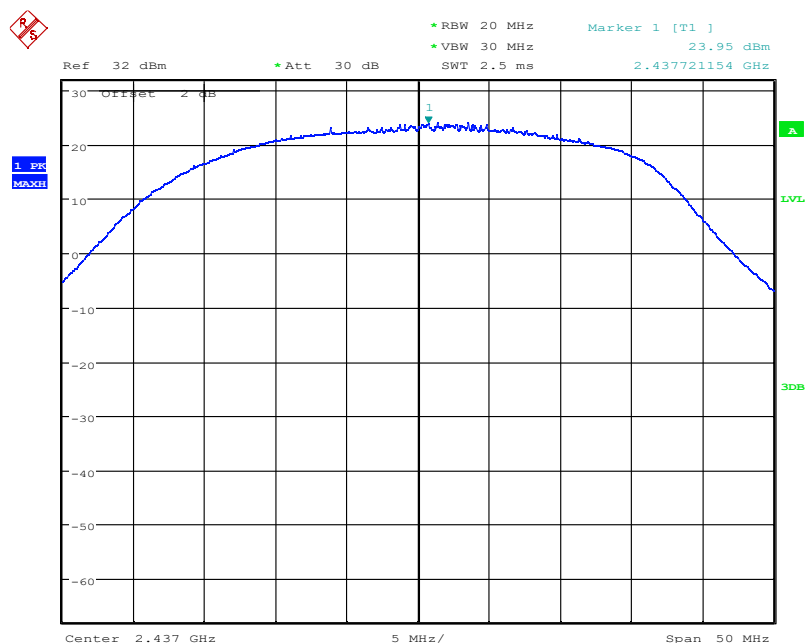
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Fig.27 Peak Conducted Output Power CH6, 11g, Rate48



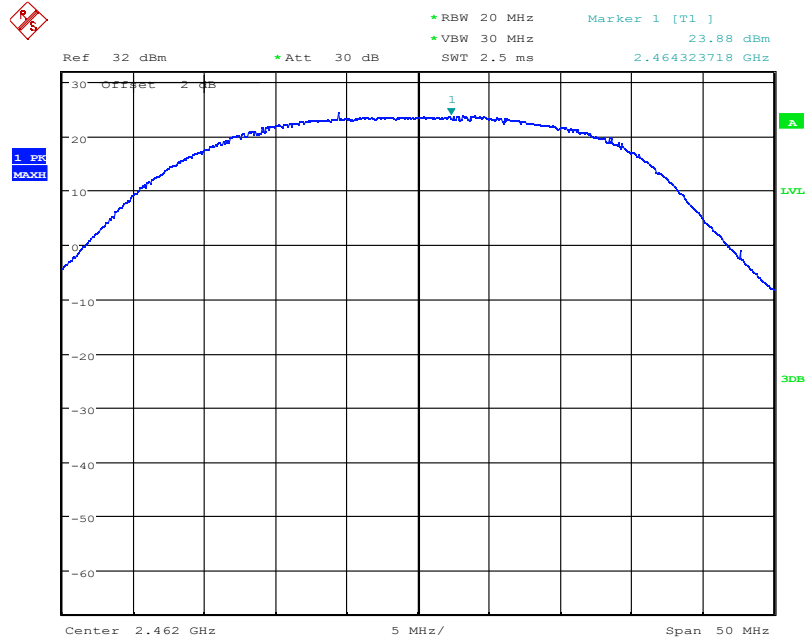
Date: 23.JUN.2021 09:30:33

Fig.28 Peak Conducted Output Power CH6, 11g, Rate54

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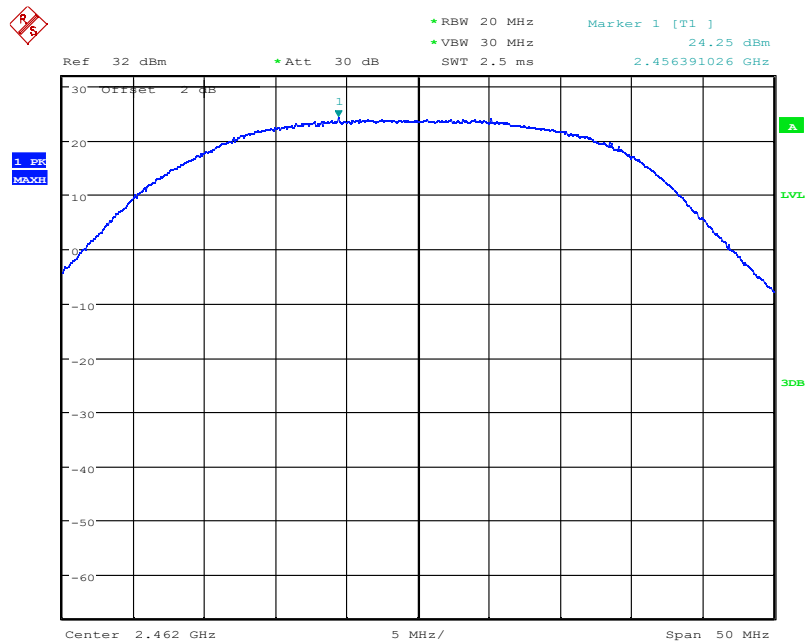
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:33:43

Fig.29 Peak Conducted Output Power CH11, 11g, Rate6



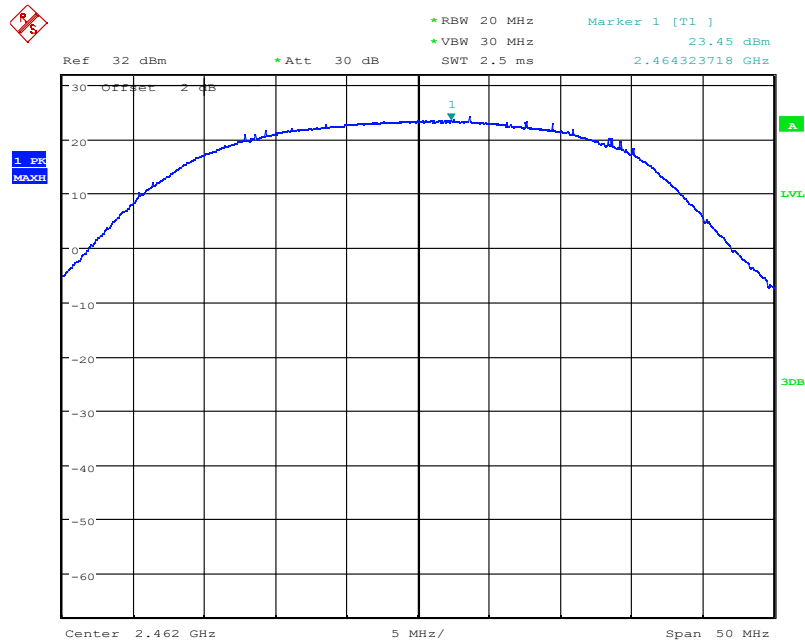
Date: 23.JUN.2021 09:34:01

Fig.30 Peak Conducted Output Power CH11, 11g, Rate9

Chongqing Academy of Information and Communication Technology

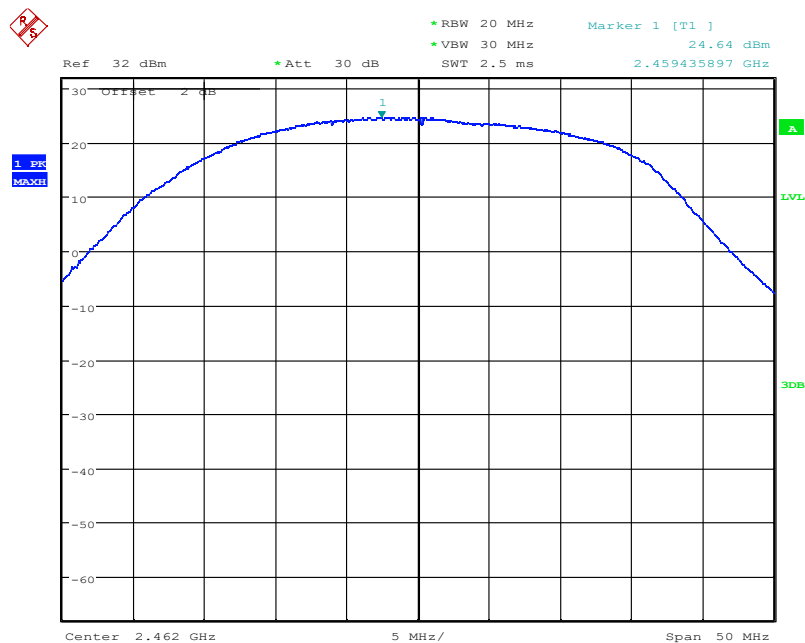
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:34:22

Fig.31 Peak Conducted Output Power CH11, 11g, Rate12



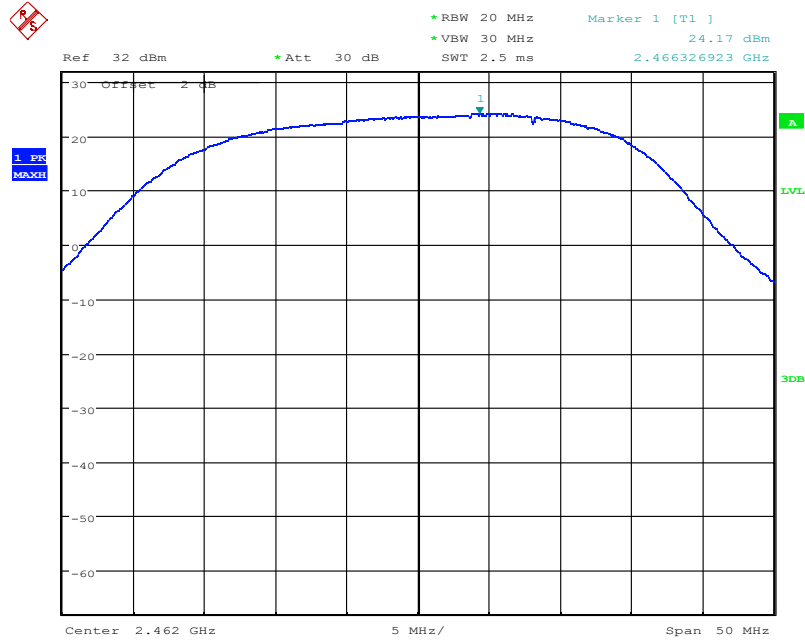
Date: 23.JUN.2021 09:35:01

Fig.32 Peak Conducted Output Power CH11, 11g, Rate18

Chongqing Academy of Information and Communication Technology

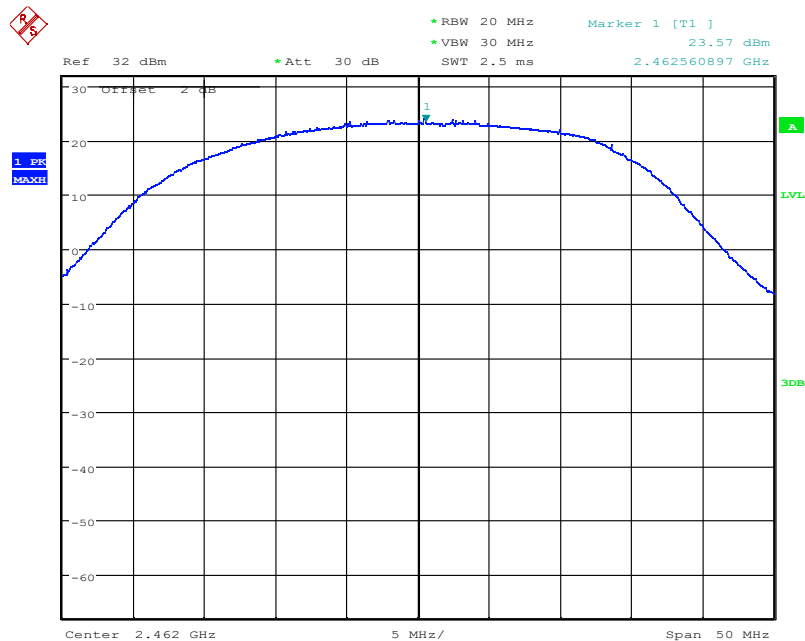
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:35:22

Fig.33 Peak Conducted Output Power CH11, 11g, Rate24



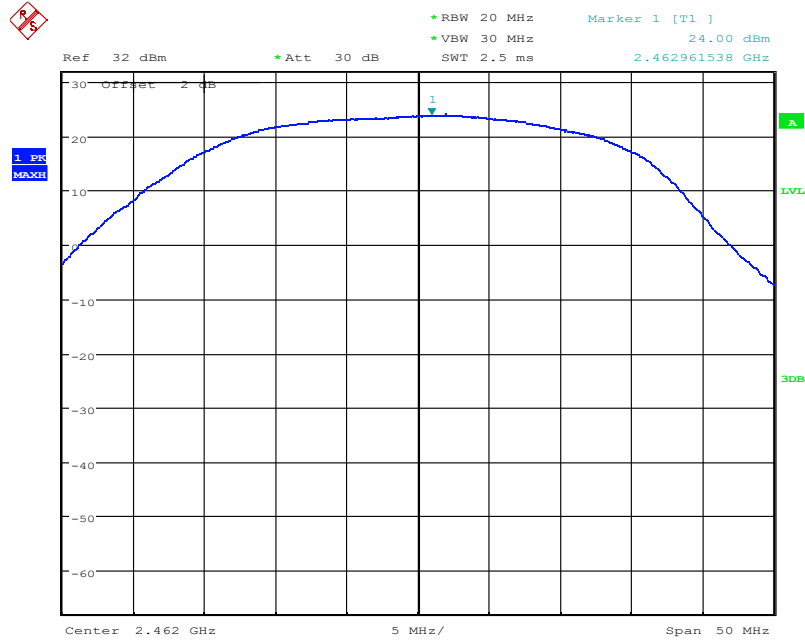
Date: 23.JUN.2021 09:35:46

Fig.34 Peak Conducted Output Power CH11, 11g, Rate36

Chongqing Academy of Information and Communication Technology

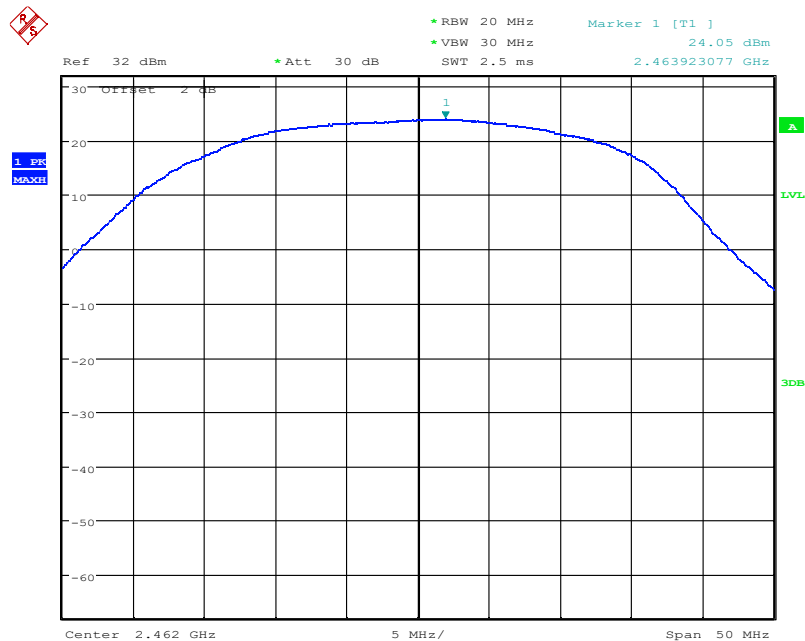
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:36:10

Fig.35 Peak Conducted Output Power CH11, 11g, Rate48



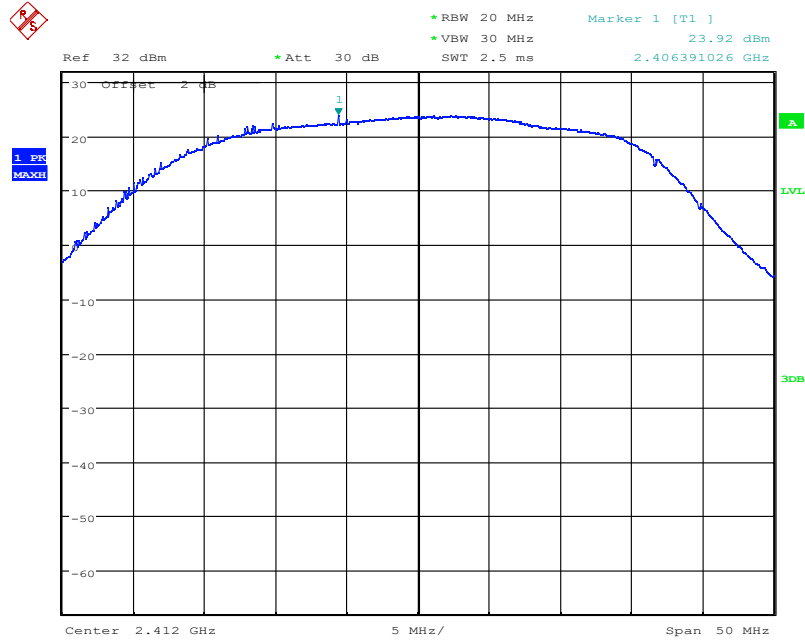
Date: 23.JUN.2021 09:36:34

Fig.36 Peak Conducted Output Power CH11, 11g, Rate54

Chongqing Academy of Information and Communication Technology

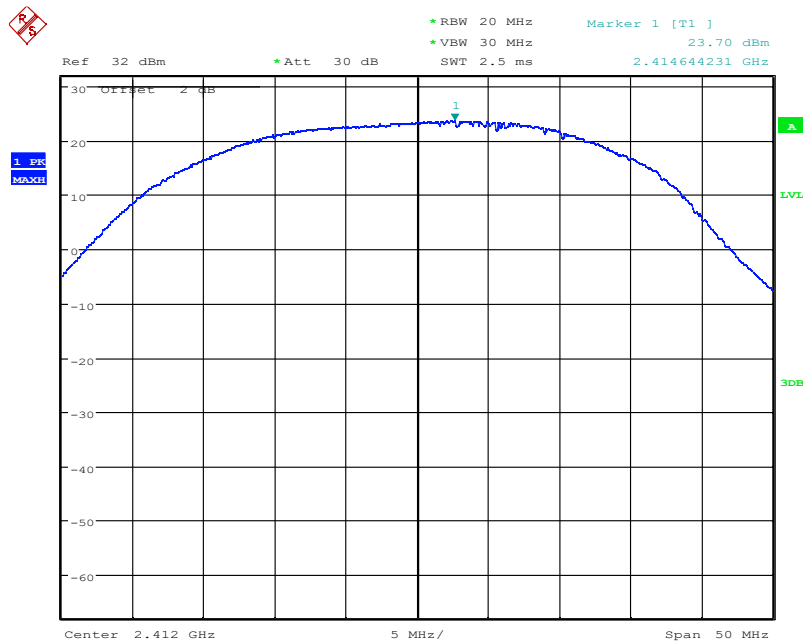
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:37:41

Fig.37 Peak Conducted Output Power CH1, 11n, MCS0



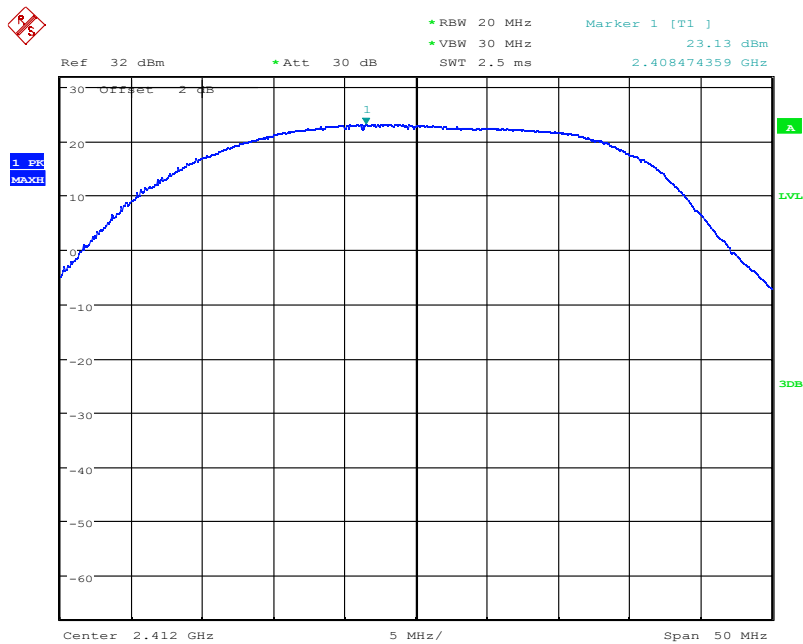
Date: 23.JUN.2021 09:38:11

Fig.38 Peak Conducted Output Power CH1, 11n, MCS1

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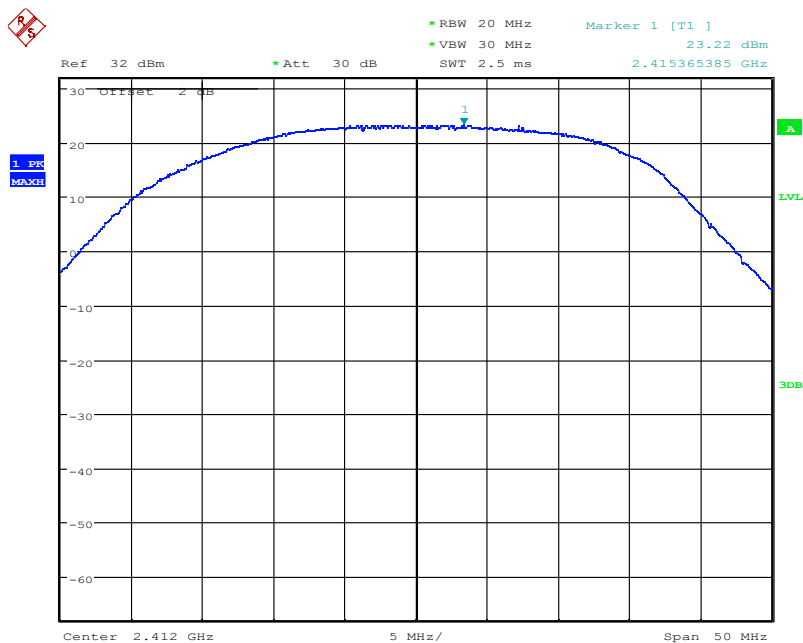
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:38:33

Fig.39 Peak Conducted Output Power CH1, 11n, MCS2



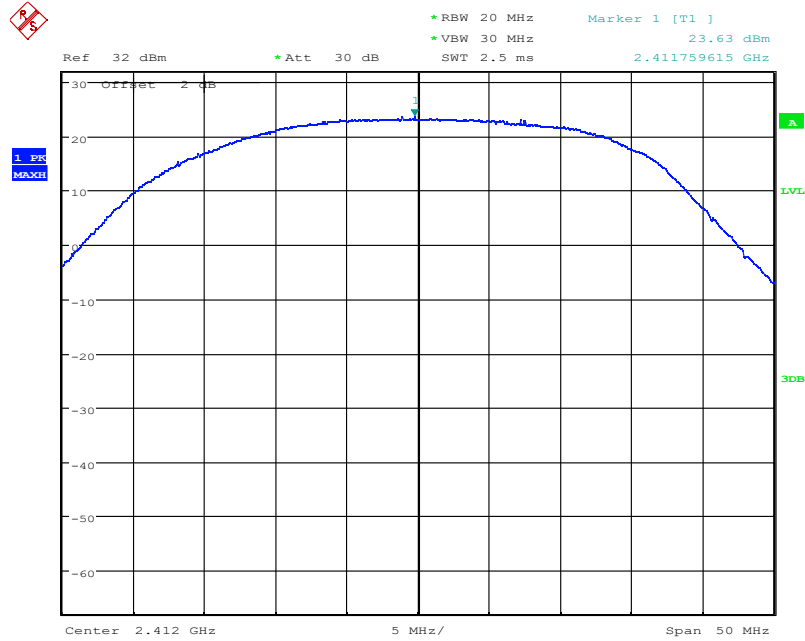
Date: 23.JUN.2021 09:38:51

Fig.40 Peak Conducted Output Power CH1, 11n, MCS3

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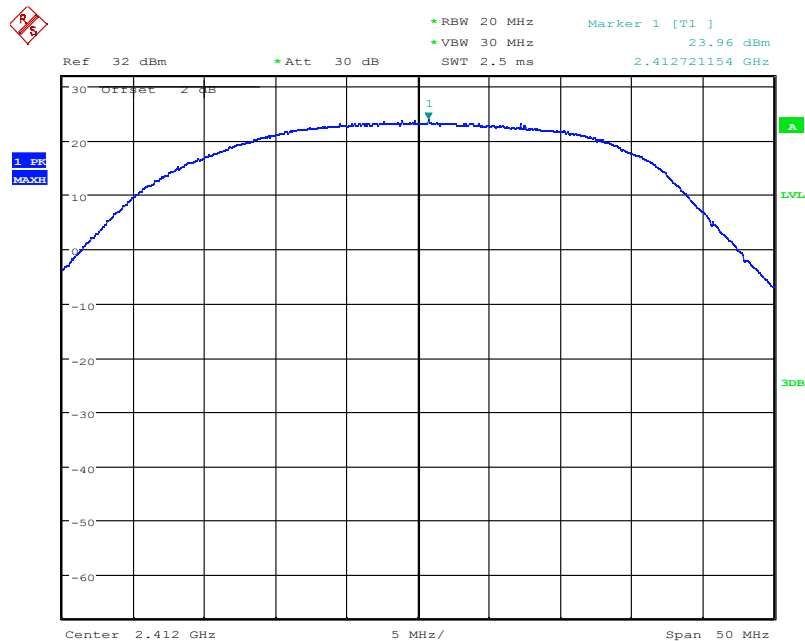
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:39:10

Fig.41 Peak Conducted Output Power CH1, 11n, MCS4



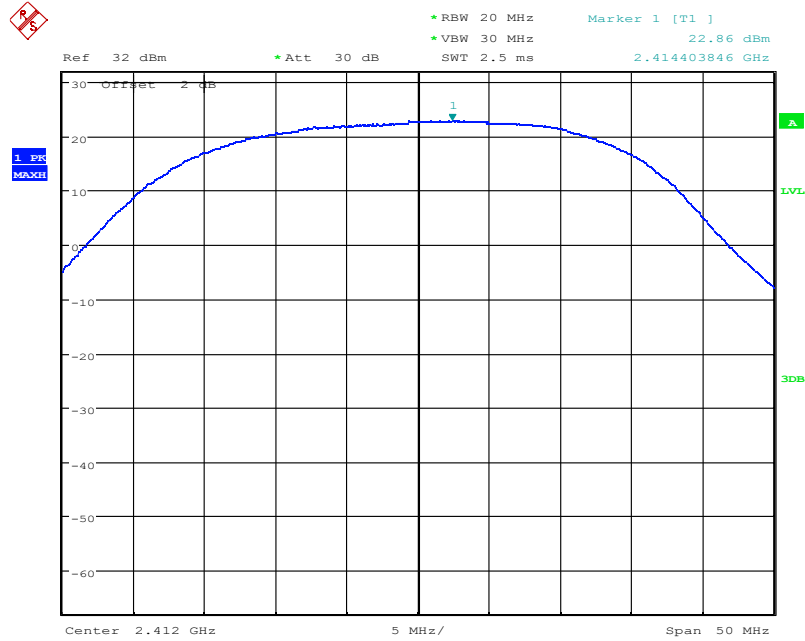
Date: 23.JUN.2021 09:39:30

Fig.42 Peak Conducted Output Power CH1, 11n, MCS5

Chongqing Academy of Information and Communication Technology

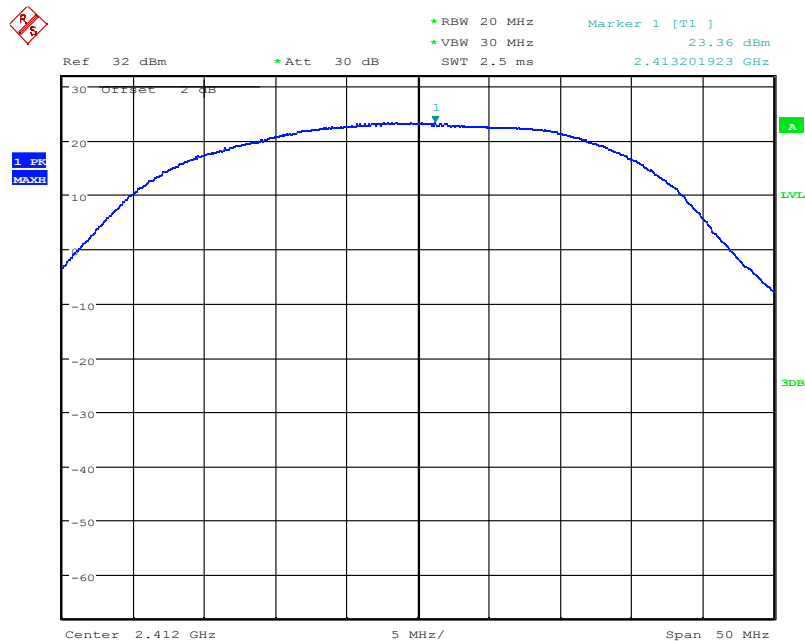
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:42:45

Fig.43 Peak Conducted Output Power CH1, 11n, MCS6



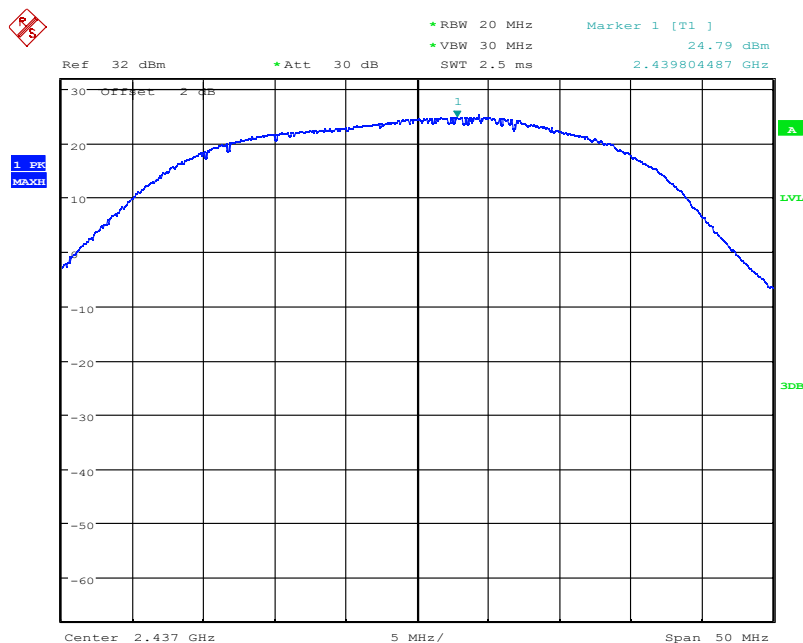
Date: 23.JUN.2021 09:43:05

Fig.44 Peak Conducted Output Power CH1, 11n, MCS7

Chongqing Academy of Information and Communication Technology

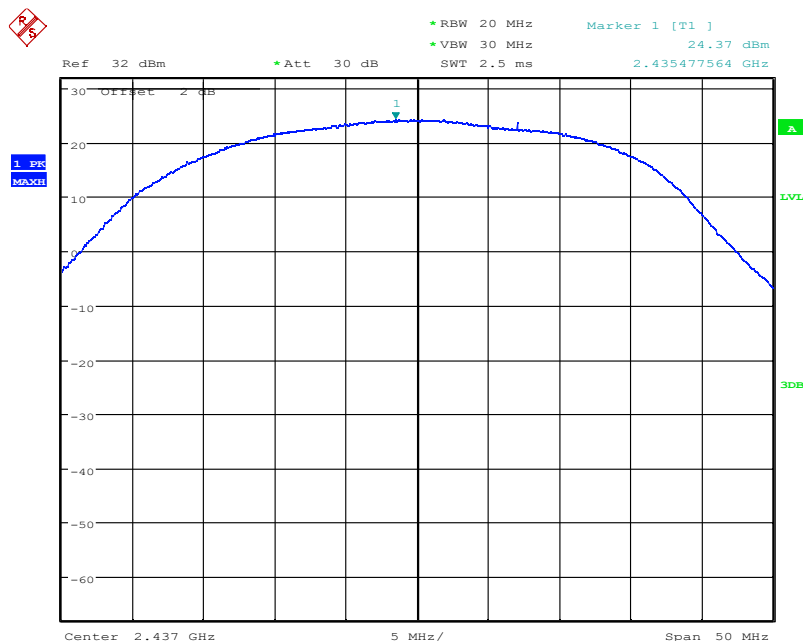
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:46:09

Fig.45 Peak Conducted Output Power CH6, 11n, MCS0



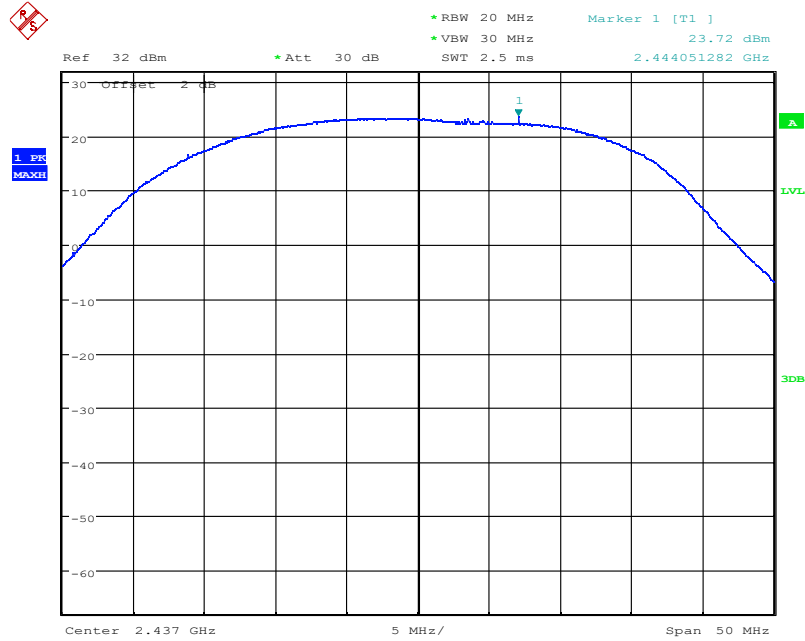
Date: 23.JUN.2021 09:45:43

Fig.46 Peak Conducted Output Power CH6, 11n, MCS1

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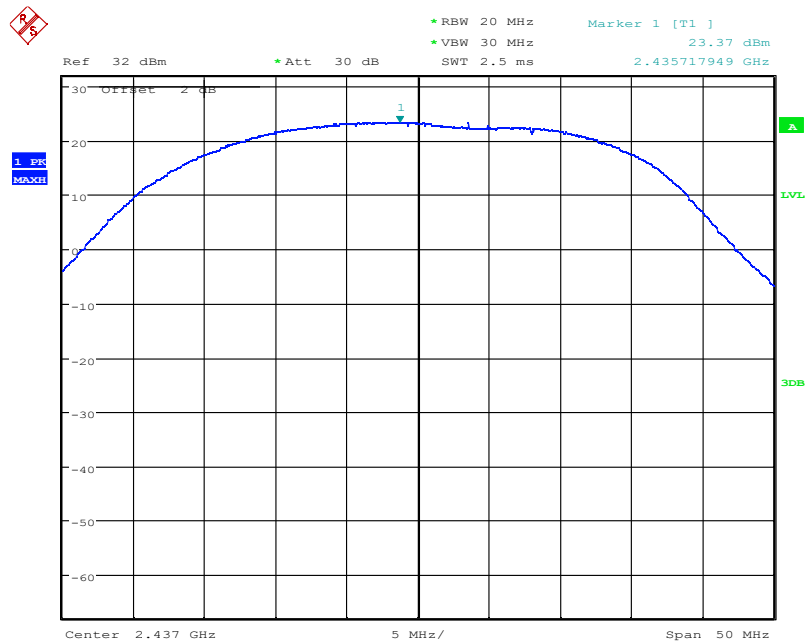
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:45:23

Fig.47 Peak Conducted Output Power CH6, 11n, MCS2



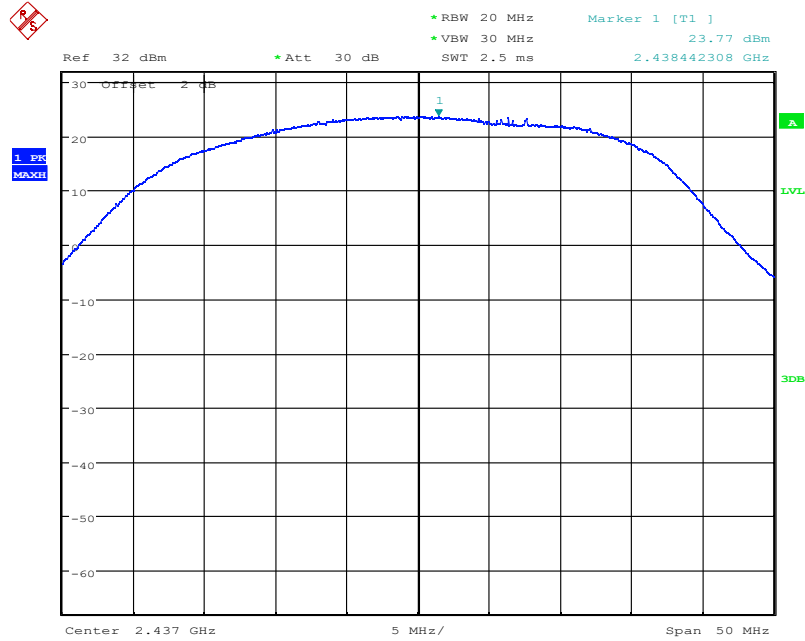
Date: 23.JUN.2021 09:45:05

Fig.48 Peak Conducted Output Power CH6, 11n, MCS3

Chongqing Academy of Information and Communication Technology

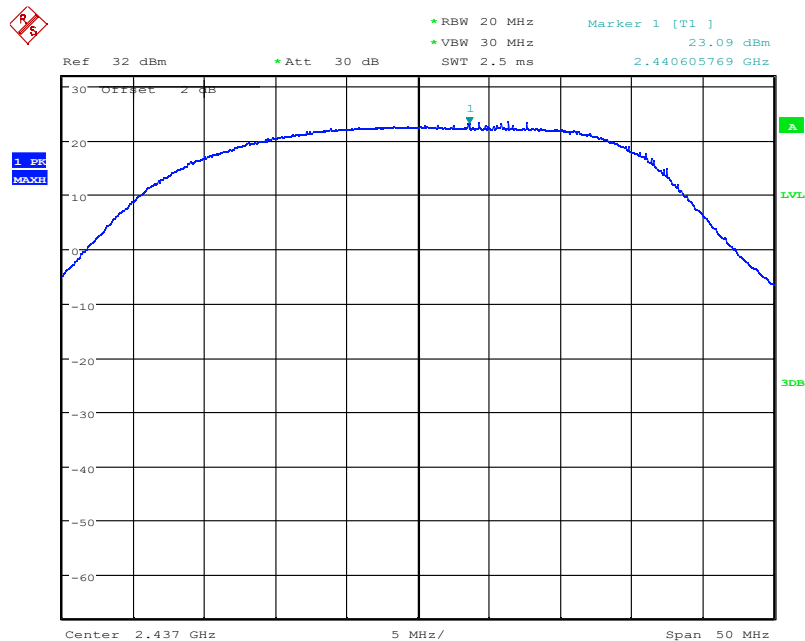
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:44:46

Fig.49 Peak Conducted Output Power CH6, 11n, MCS4



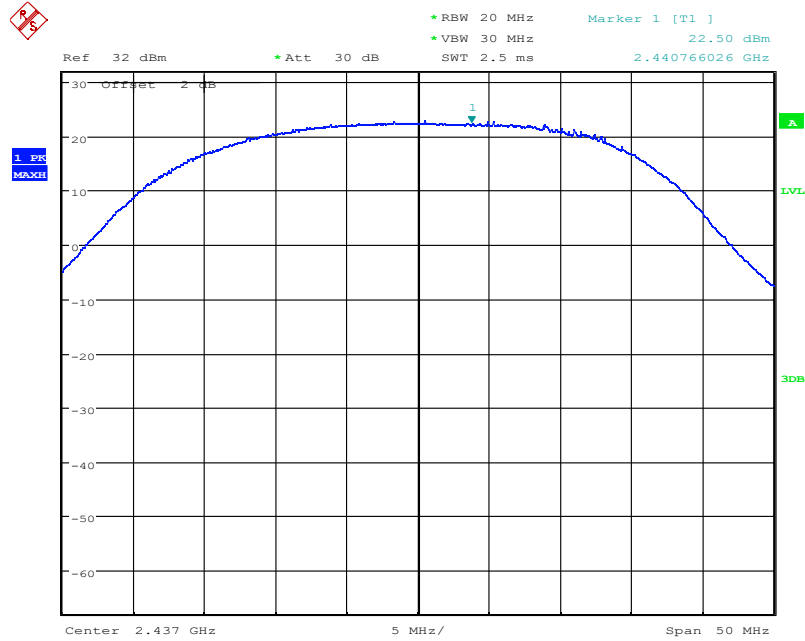
Date: 23.JUN.2021 09:44:26

Fig.50 Peak Conducted Output Power CH6, 11n, MCS5

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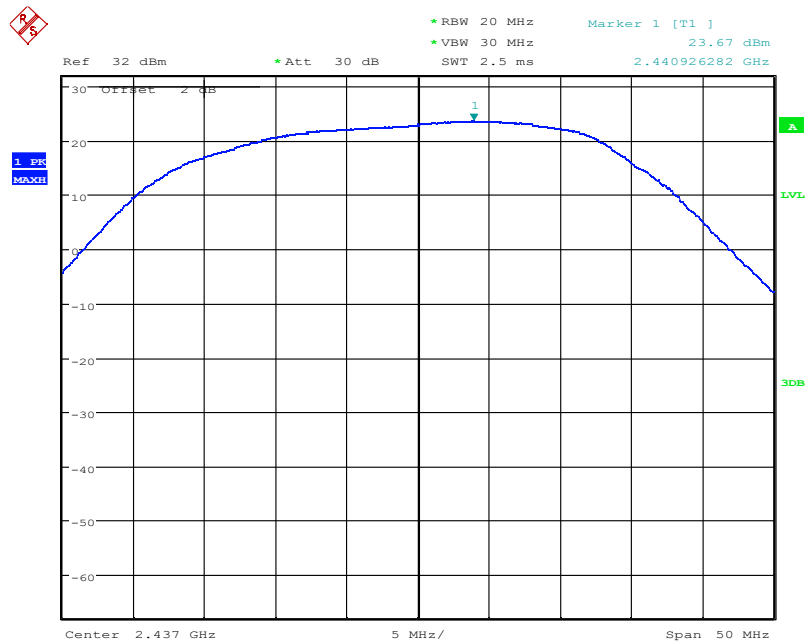
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:44:05

Fig.51 Peak Conducted Output Power CH6, 11n, MCS6



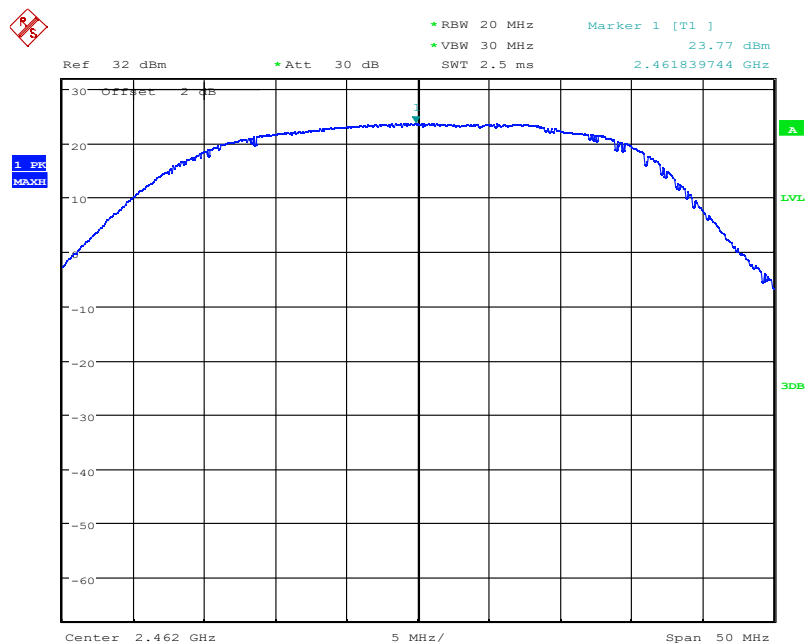
Date: 23.JUN.2021 09:43:39

Fig.52 Peak Conducted Output Power CH6, 11n, MCS7

Chongqing Academy of Information and Communication Technology

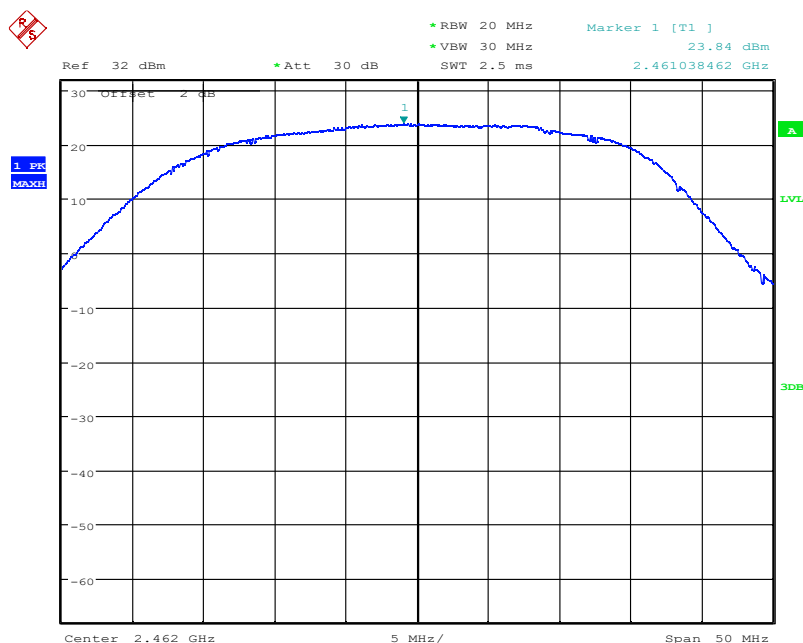
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:46:45

Fig.53 Peak Conducted Output Power CH11, 11n, MCS0



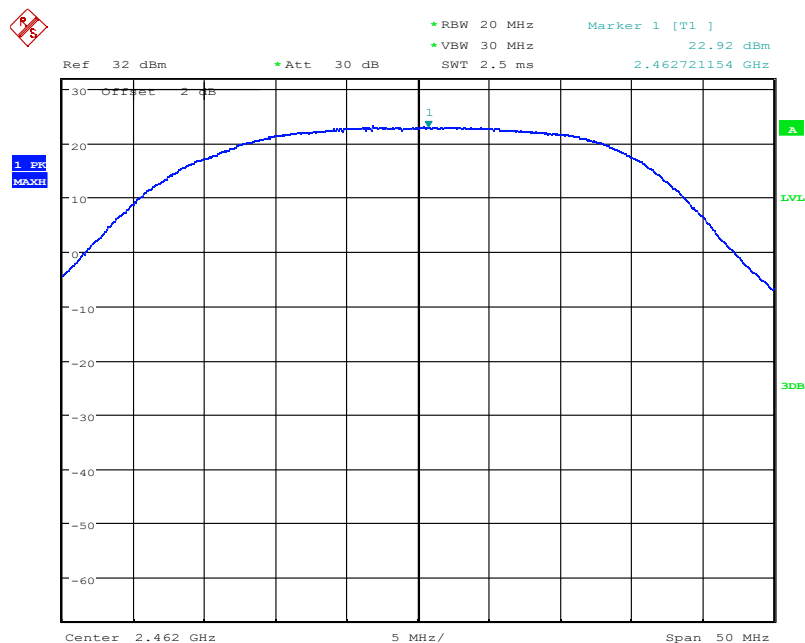
Date: 23.JUN.2021 09:47:06

Fig.54 Peak Conducted Output Power CH11, 11n, MCS1

Chongqing Academy of Information and Communication Technology

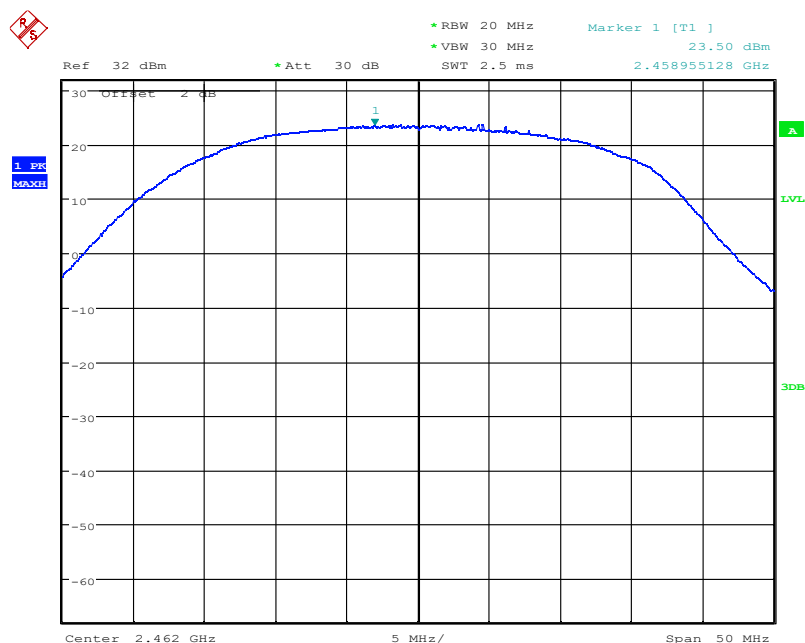
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:48:40

Fig.55 Peak Conducted Output Power CH11, 11n, MCS2



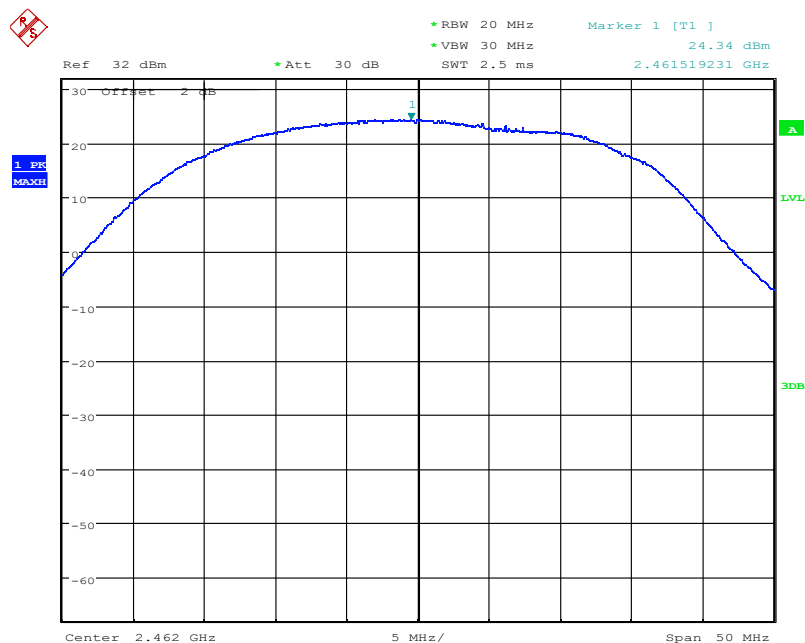
Date: 23.JUN.2021 09:49:08

Fig.56 Peak Conducted Output Power CH11, 11n, MCS3

Chongqing Academy of Information and Communication Technology

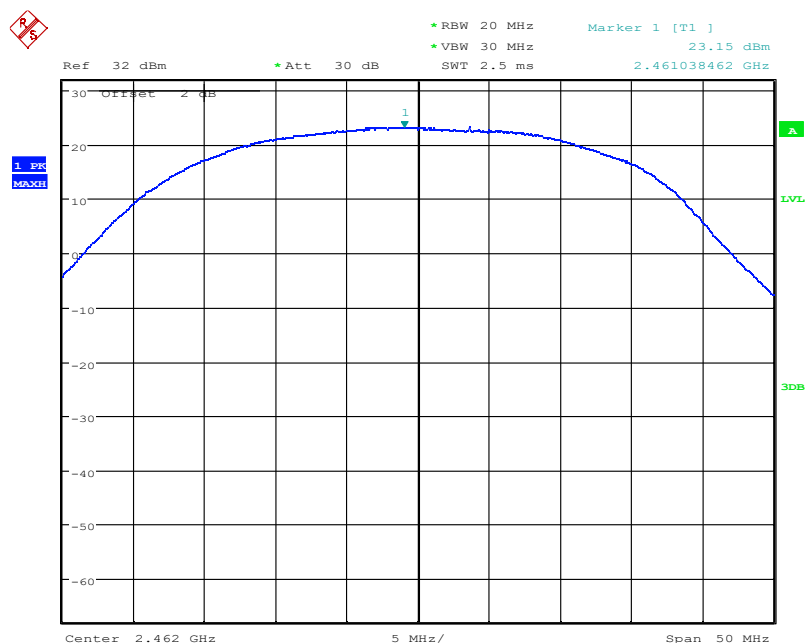
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1



Date: 23.JUN.2021 09:49:23

Fig.57 Peak Conducted Output Power CH11, 11n, MCS4



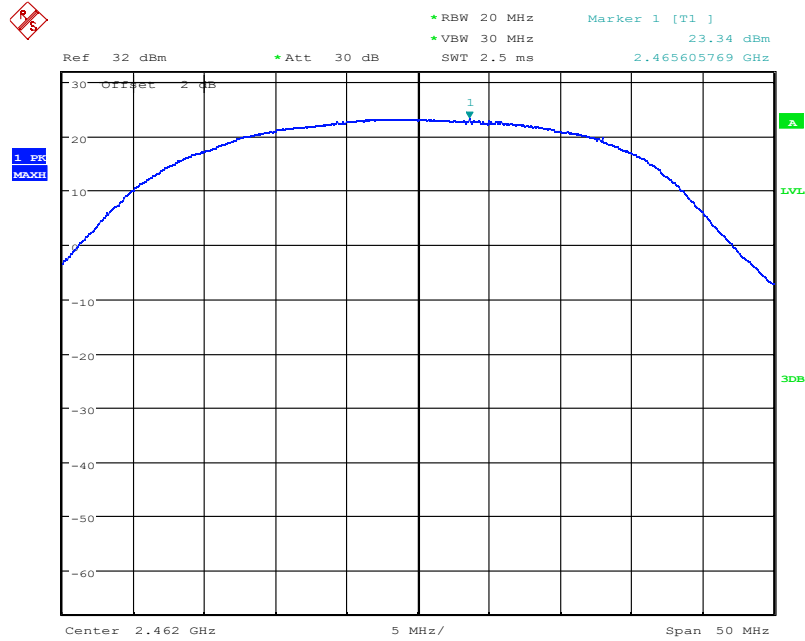
Date: 23.JUN.2021 09:49:42

Fig.58 Peak Conducted Output Power CH11, 11n, MCS5

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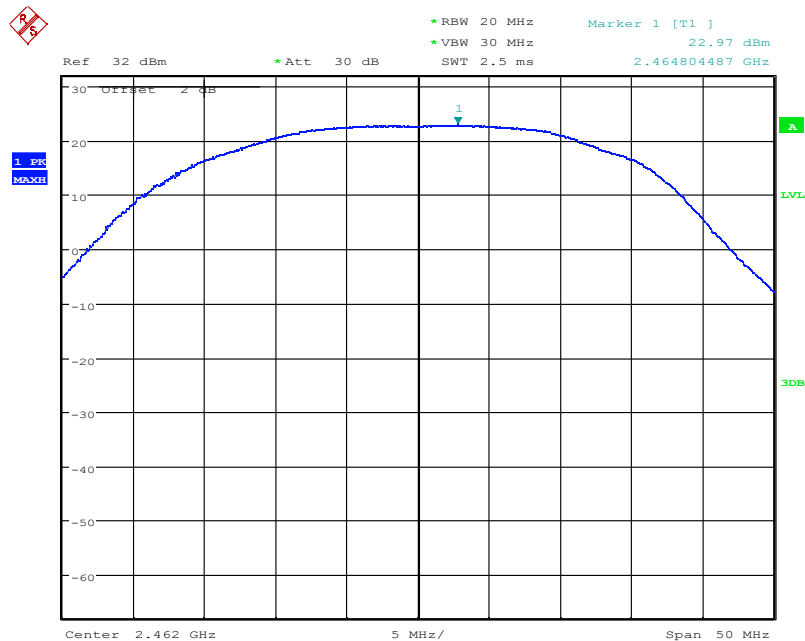
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 09:49:59

Fig.59 Peak Conducted Output Power CH11, 11n, MCS6



Date: 23.JUN.2021 09:50:34

Fig.60 Peak Conducted Output Power CH11, 11n, MCS7

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 Tel: 0086-23-88069965 FAX:0086-23-88608777

Report No.:I21W00017-WLAN_Rev1**5.2 Peak Power Spectral Density**

Specifications:	FCC CFR Part 15.247(e)
DUT Serial Number:	866884045658218
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC CFR Part 15.247(e)	< 8dBm/3 KHz

Measurement Uncertainty:

Measurement Uncertainty	±0.82dBm/KHz
-------------------------	--------------

Test procedure:

The measurement is according to ANSI C63.10 clause 11.10.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set analyzer center frequency to DTS channel center frequency.
4. Set the span to 1.5 times the DTS bandwidth.
5. Set the RBW to $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum amplitude level within the RBW.
12. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

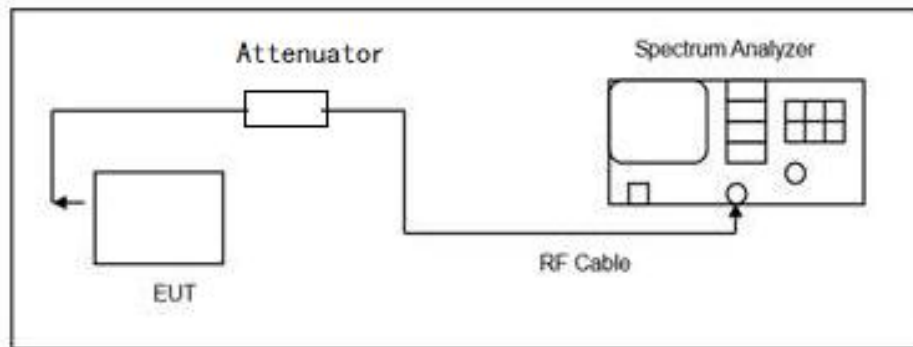
Note: --

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Test block diagram:



Test Results:

802.11b/g/n mode

Mode	Power Spectral Density(dBm/3kHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11b	-6.75	-6.29	-4.34	Pass
802.11g	-10.18	-8.63	-9.31	Pass
802.11n(20MHz)	-9.34	-10.22	-11.72	Pass

Mode	Power Spectral Density(dBm/3kHz)			Conclusion
	Ch3	Ch7	Ch9	
802.11n(40MHz)	-13.68	-13.88	-14.21	Pass

Conclusion: PASS

Test figure as below:

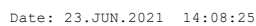


Fig.61 Power spectral density: CH1,11b

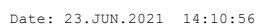
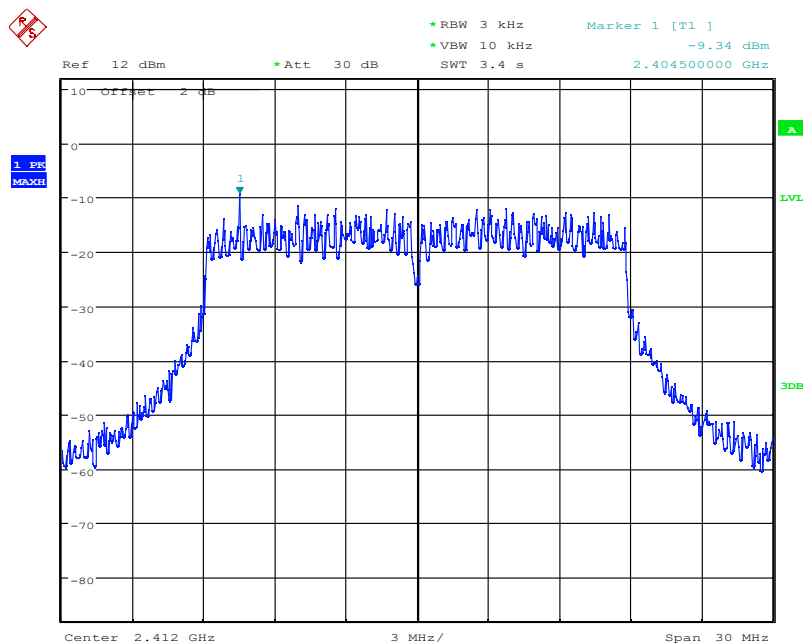


Fig.62 Power spectral density: CH1,11g

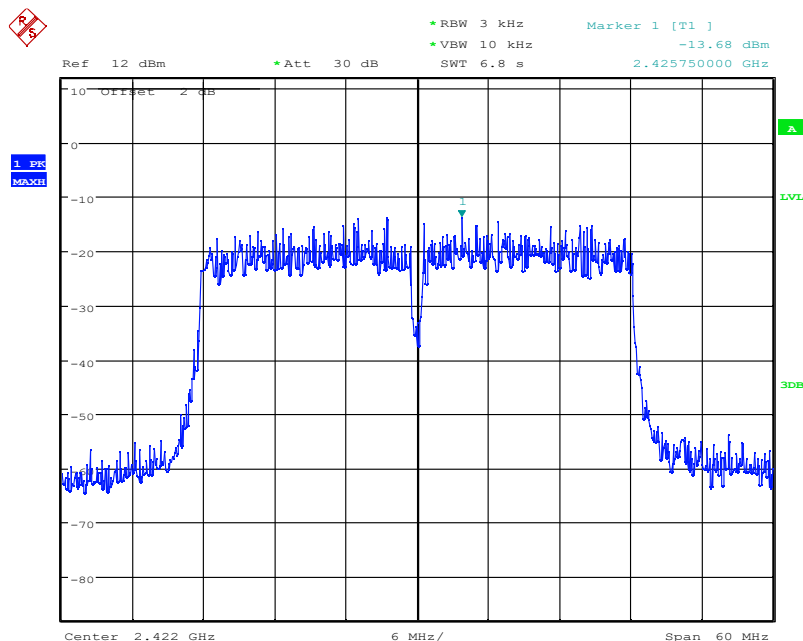
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Fig.63 Power spectral density: CH1,11n



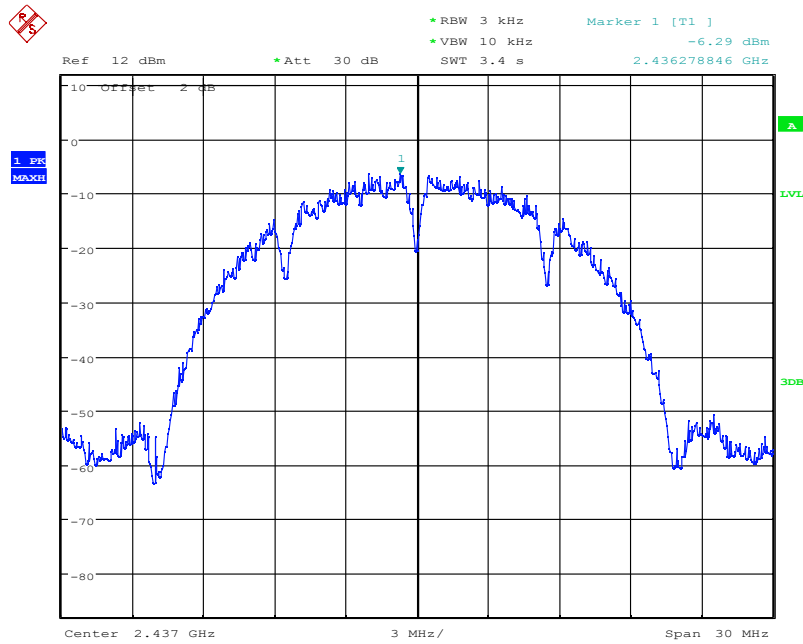
Date: 23.JUN.2021 14:13:25

Fig.64 Power spectral density: CH3,11n(40M)

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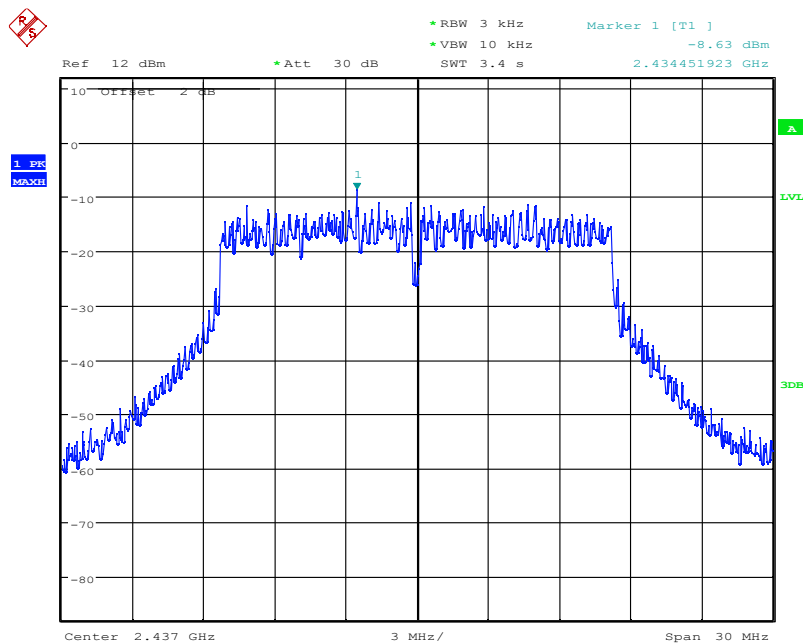
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Fig.65 Power spectral density: CH6,11b



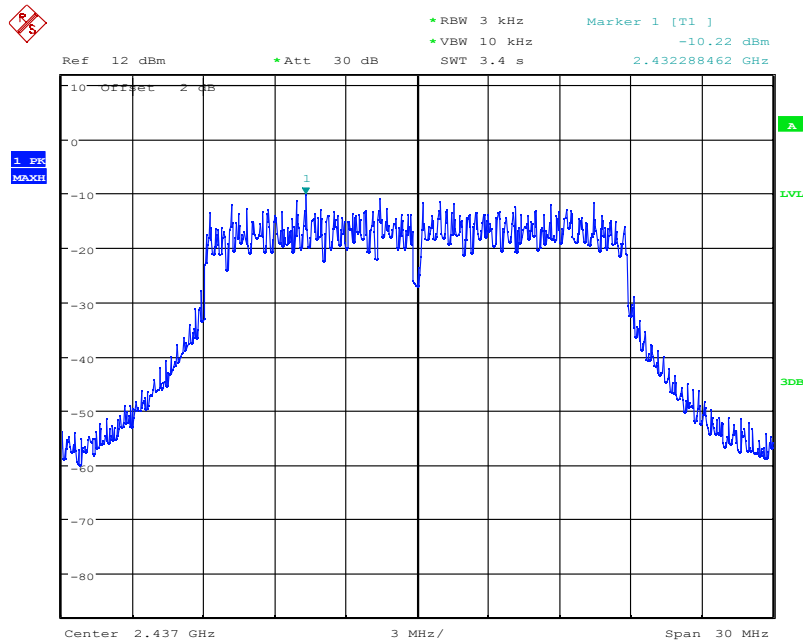
Date: 23.JUN.2021 14:10:33

Fig.66 Fig.66 Power spectral density: CH6,11g

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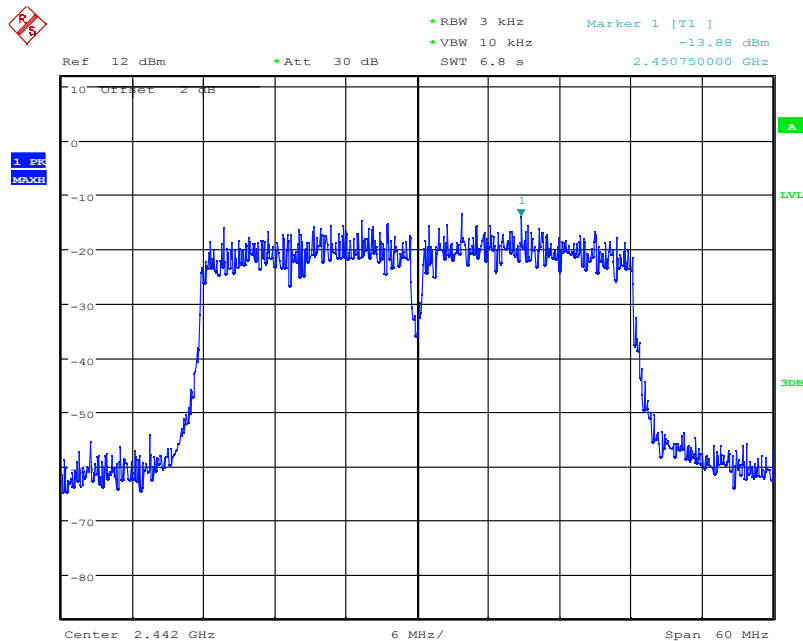
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Date: 23.JUN.2021 14:11:48

Fig.67 Power spectral density: CH6,11n



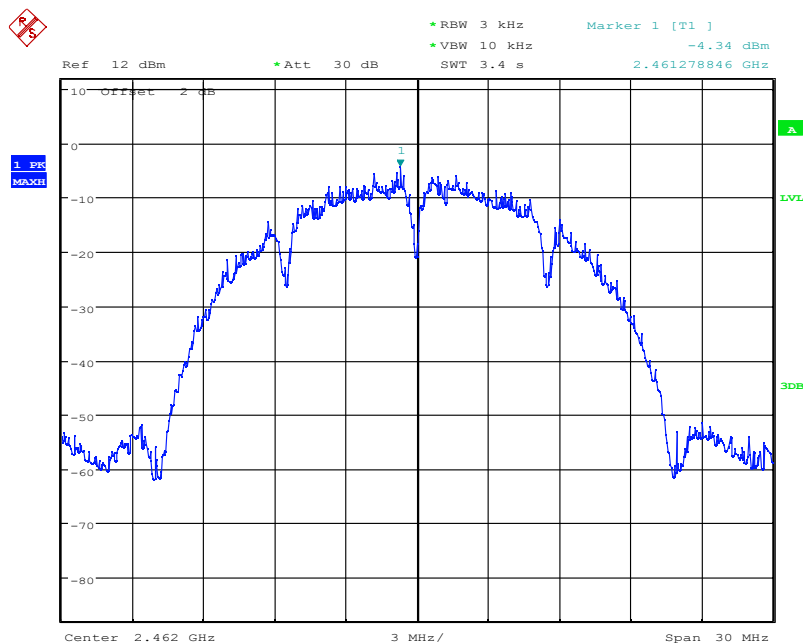
Date: 23.JUN.2021 14:13:56

Fig.68 Power spectral density: CH7,11n(40M)

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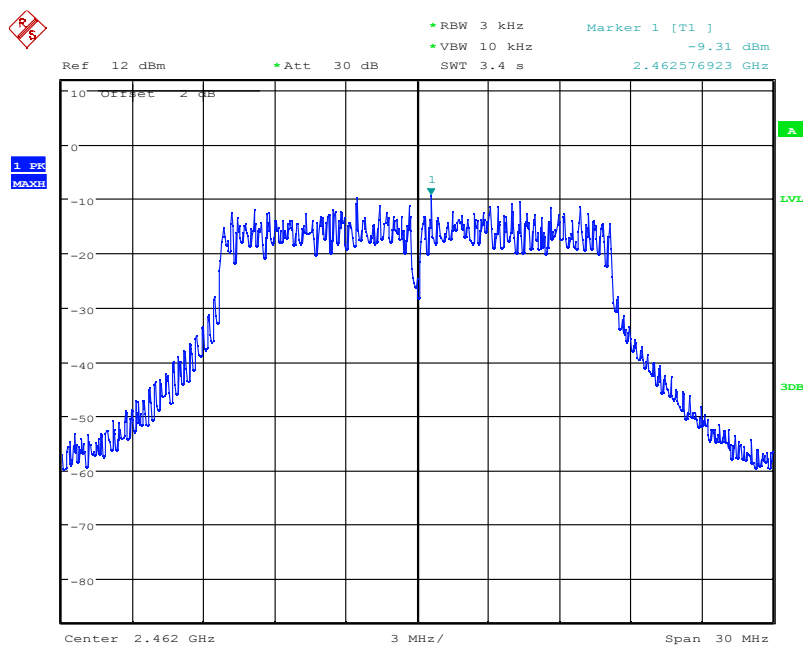
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Date: 23.JUN.2021 14:09:16

Fig.69 Power spectral density: CH11,11b



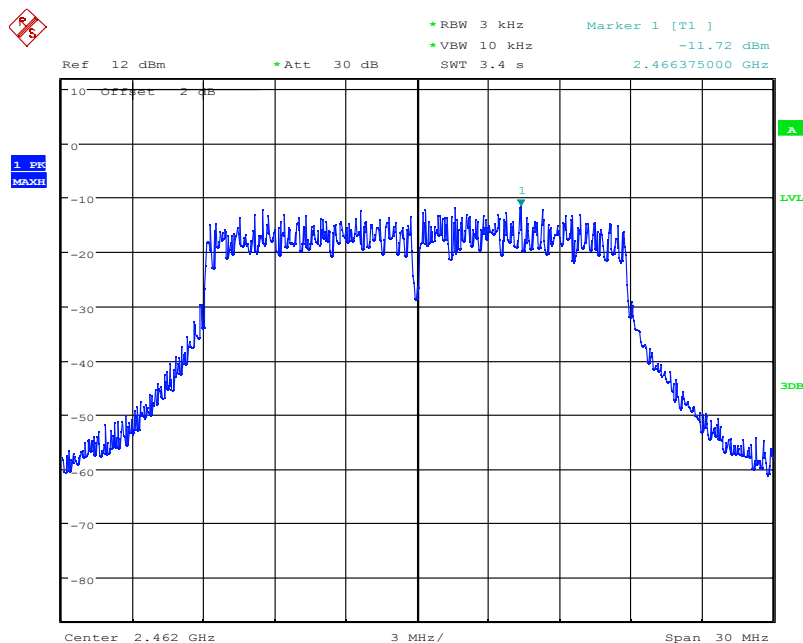
Date: 23.JUN.2021 14:10:06

Fig.70 Power spectral density: CH11,11g

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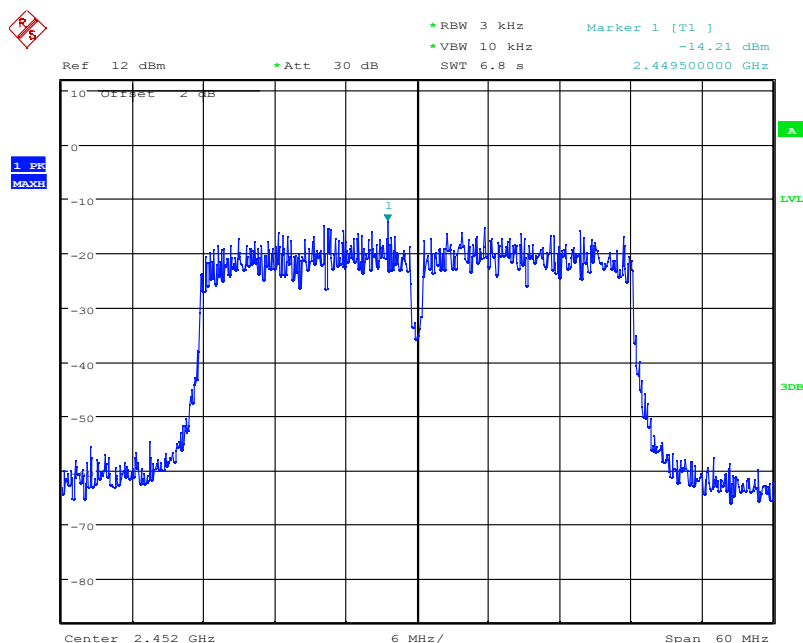
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Fig.71 Power spectral density: CH11,11n



Date: 23.JUN.2021 14:14:21

Fig.72 Power spectral density: CH9,11n(40M)

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Report No.:I21W00017-WLAN_Rev1**5.3 6dB Occupied Bandwidth**

Specifications:	FCC 47 CFR Part 15.247(a)
DUT Serial Number:	866884045658218
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit(KHz)
FCC 47 CFR Part 15.247(a)	≥500

Measurement Uncertainty:

Measurement Uncertainty	±1.1KHz
-------------------------	---------

Test Procedure

The measurement is according to ANSI C63.10 clause 11.8.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set RBW = 100 kHz.
4. Set the VBW $\geq [3 \times \text{RBW}]$.
5. Detector = peak.
6. Trace mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize.
9. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

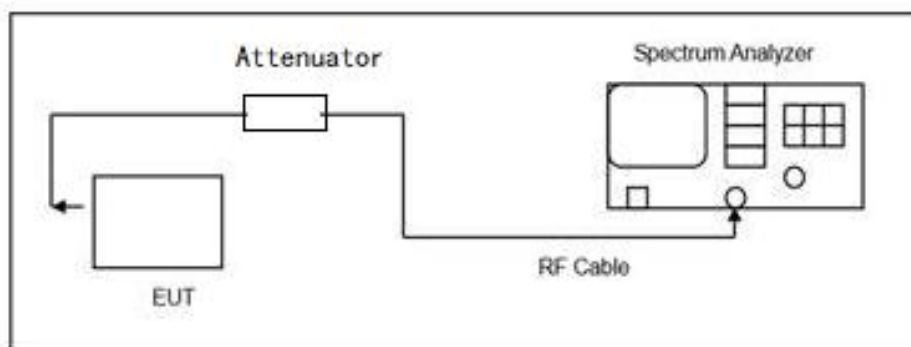
Note: --

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Test block diagram:



Test Result:

802.11b/g/n mode

Mode	Occupied 6dB Bandwidth(MHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11b	10.04	9.43	9.61	Pass
802.11g	16.46	16.48	16.48	Pass
802.11n(20MHz)	17.71	17.67	17.68	Pass

Mode	Occupied 6dB Bandwidth(MHz)			Conclusion
	Ch3	Ch7	Ch9	
802.11n(40MHz)	36.34	36.31	36.36	Pass

Conclusion: PASS

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Test figure as below:

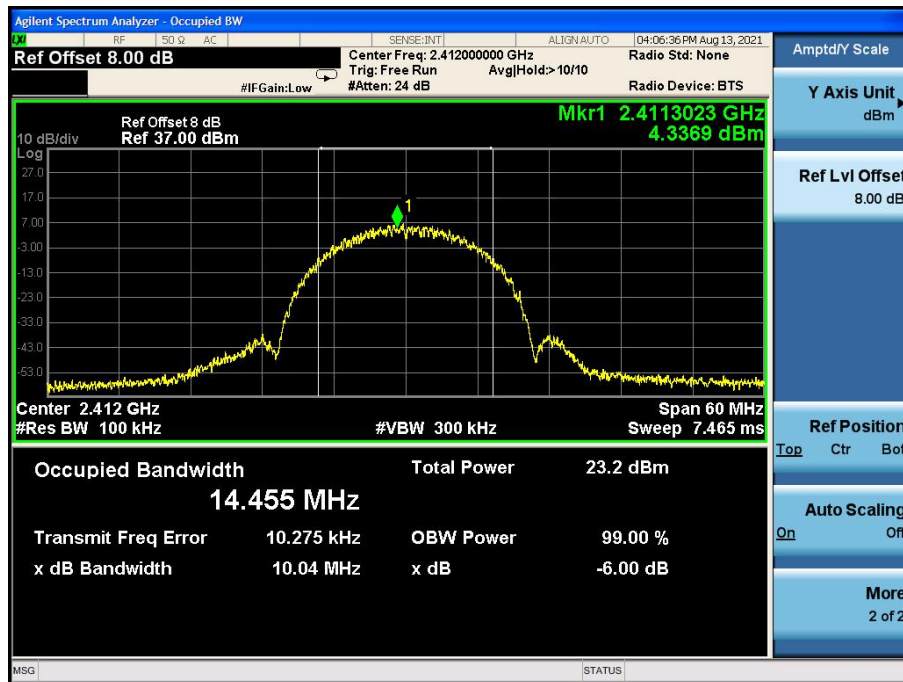


Fig.73 6dB Bandwidth: Ch1,11b

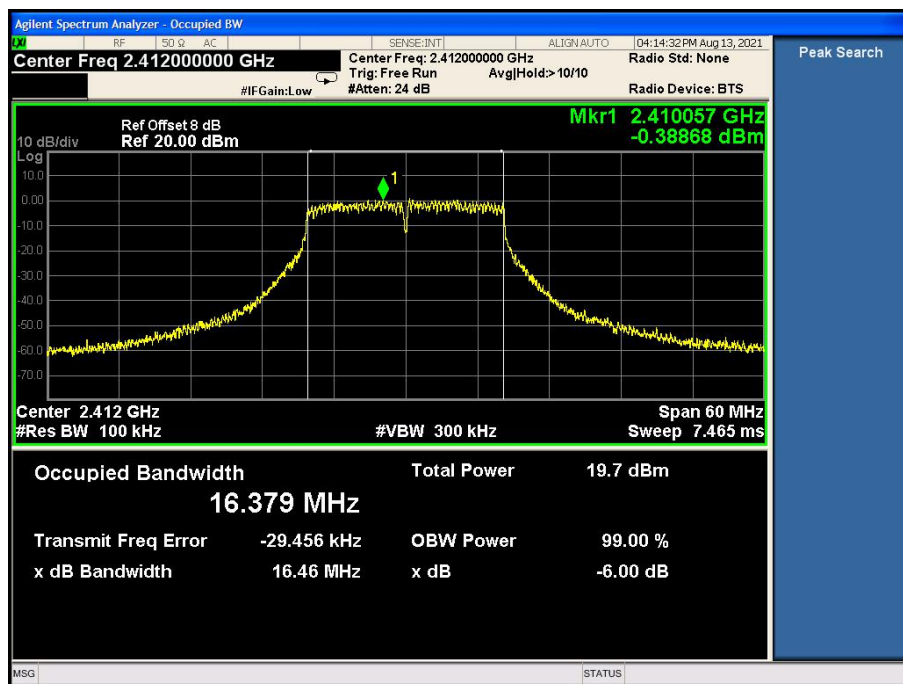


Fig.74 6dB Bandwidth: Ch1,11g

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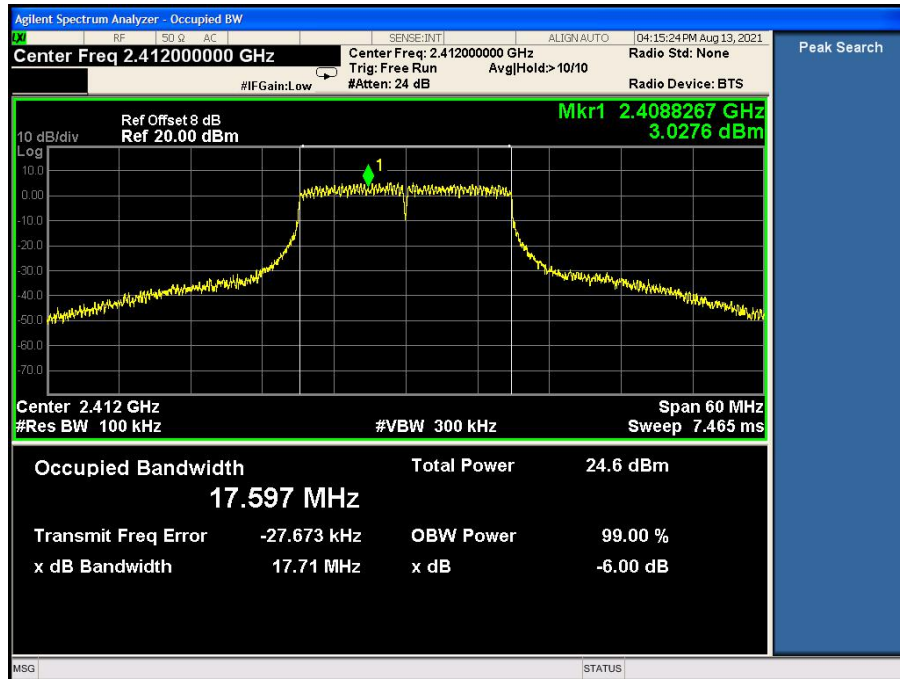


Fig.75 6dB Bandwidth: Ch1,11n

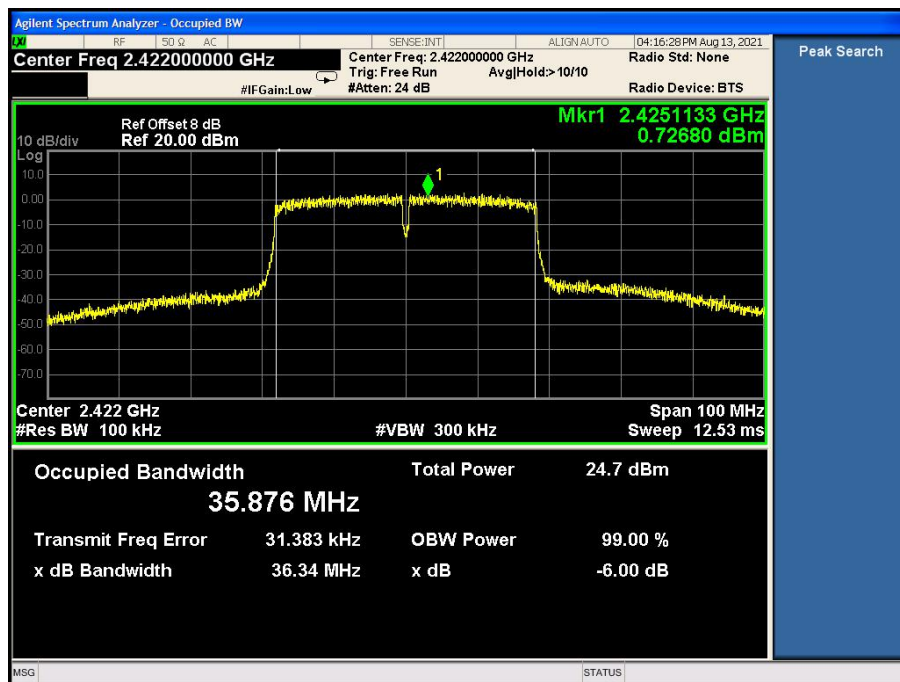


Fig.76 6dB Bandwidth: Ch3,11n(40M)

Report No.:I21W00017-WLAN_Rev1

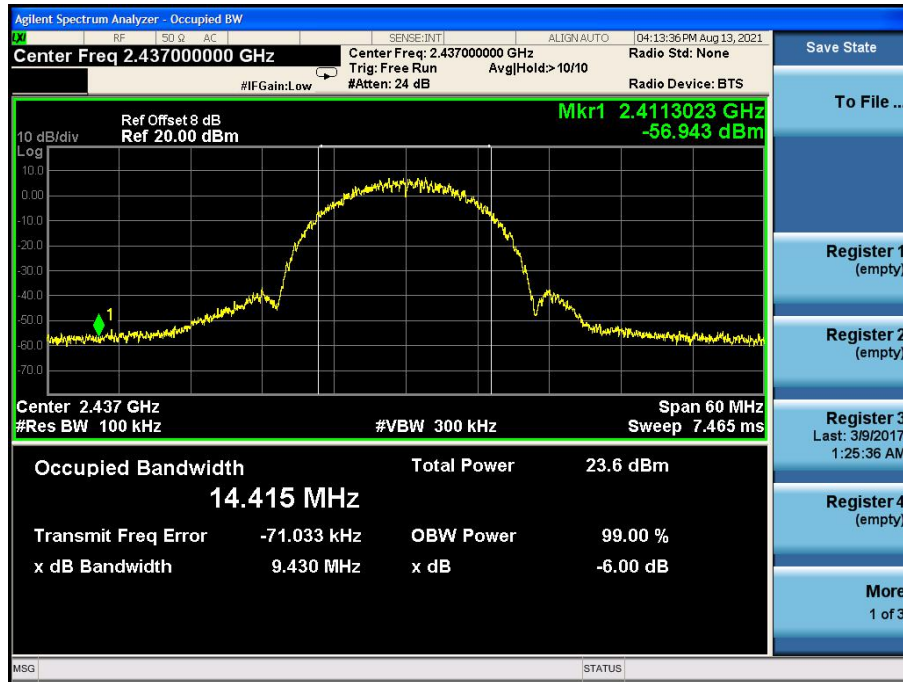


Fig.77 6dB Bandwidth: Ch6,11b

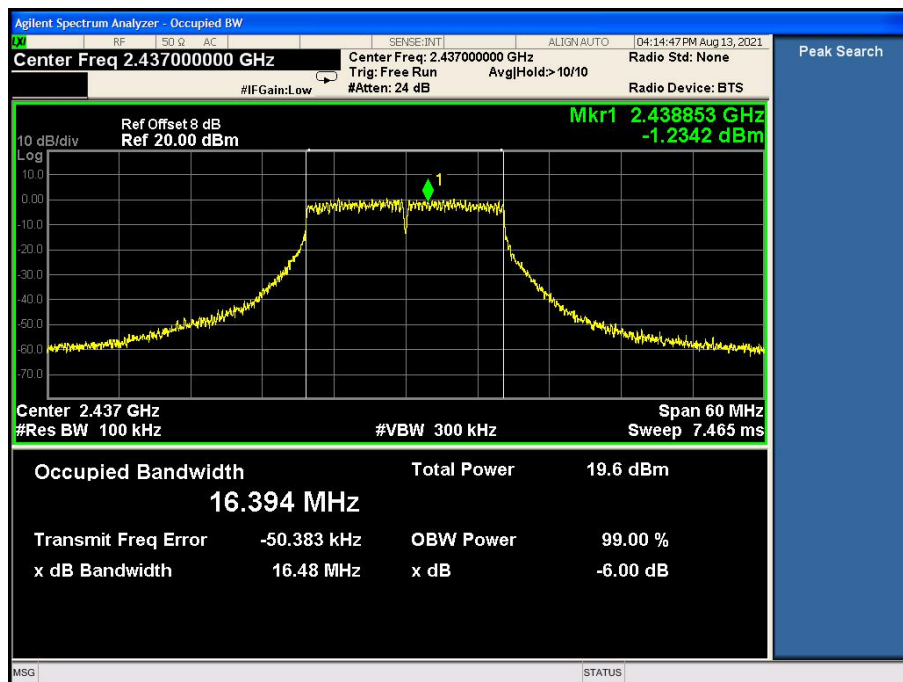


Fig.78 6dB Bandwidth: Ch6,11g

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Fig.79 6dB Bandwidth: Ch6,11n

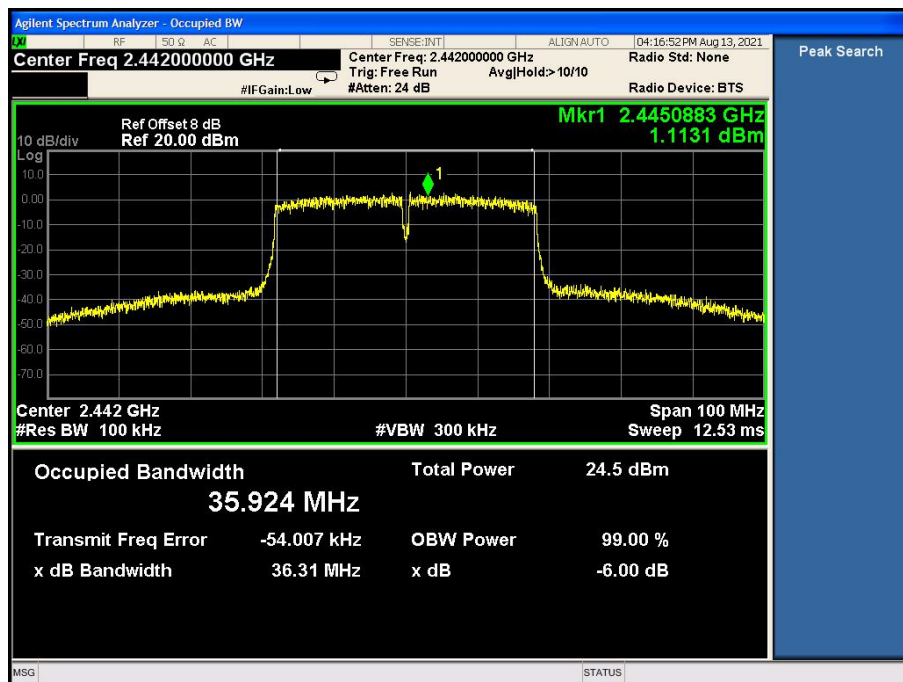


Fig.80 6dB Bandwidth: Ch7,11n(40M)

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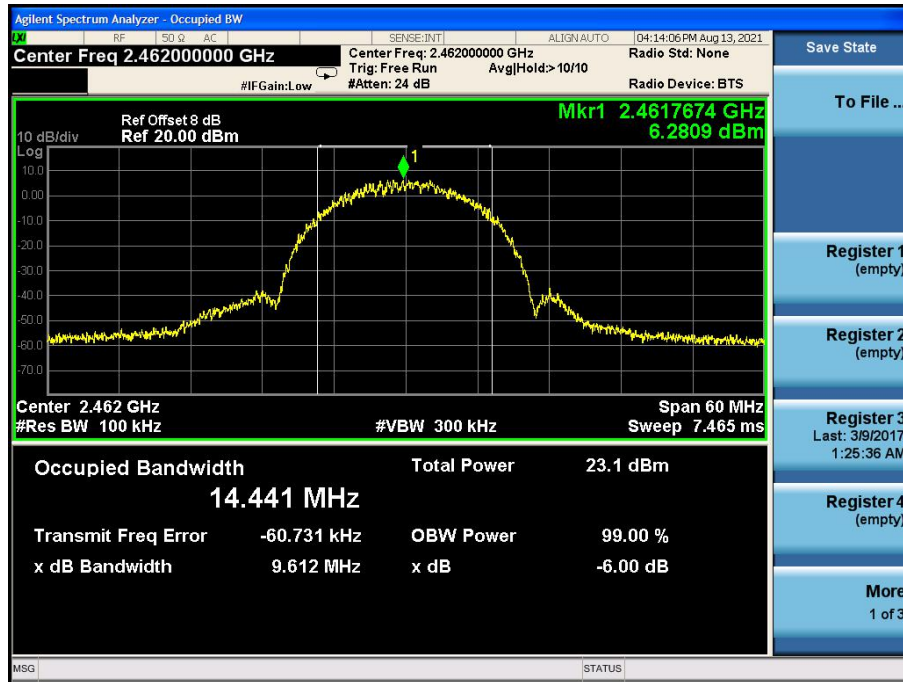


Fig.81 6dB Bandwidth: Ch11,11b

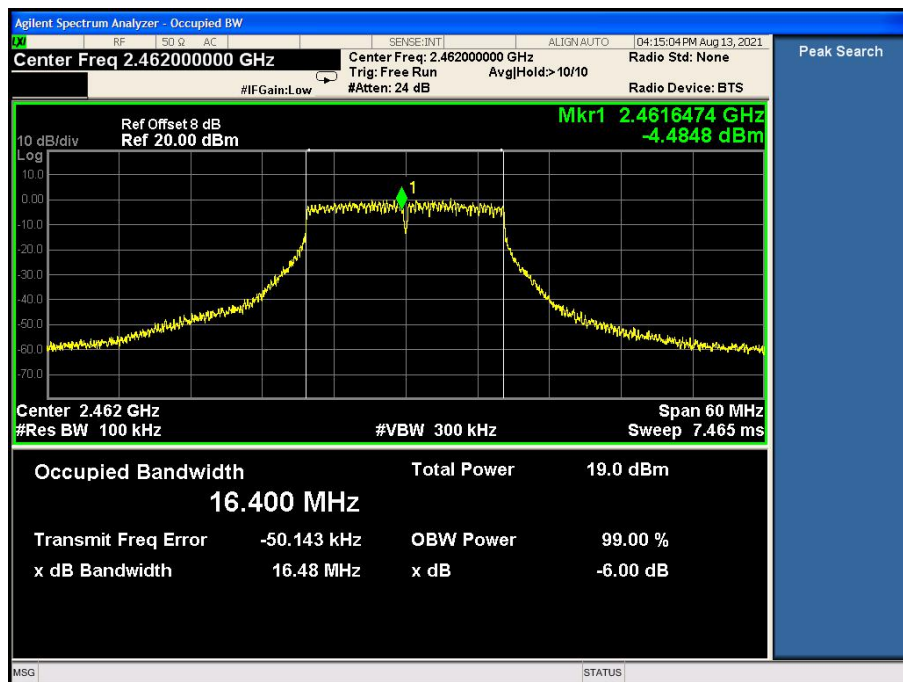


Fig.82 6dB Bandwidth: Ch11,11g

Report No.:I21W00017-WLAN_Rev1

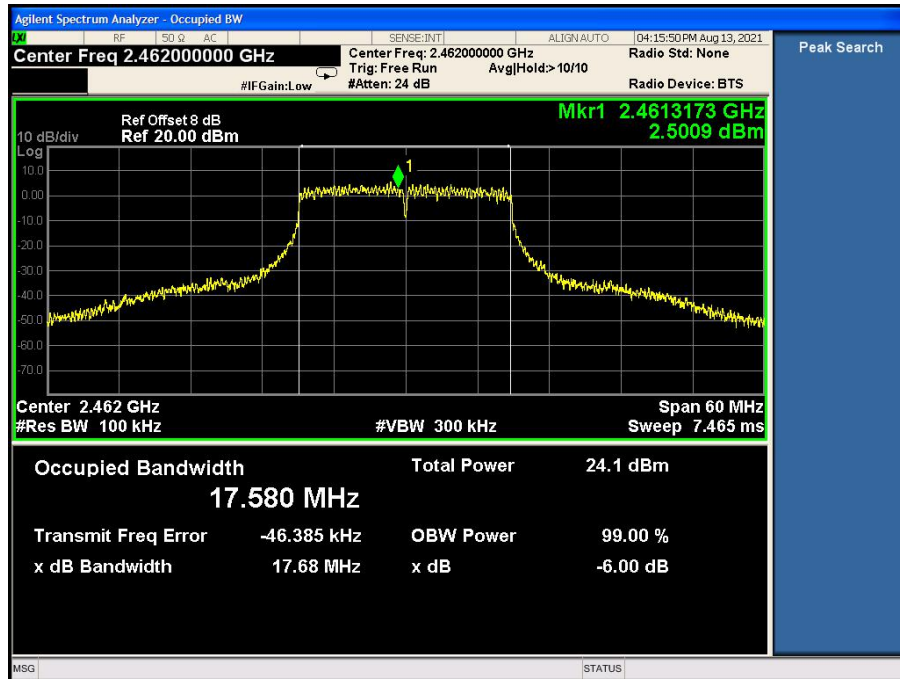


Fig.83 6dB Bandwidth: Ch11,11n

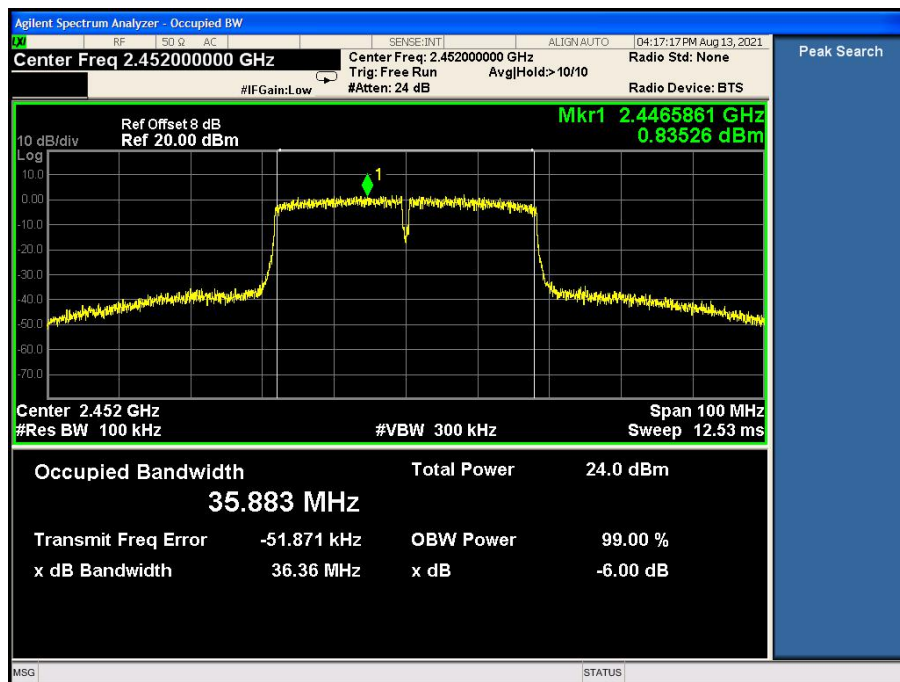


Fig.84 6dB Bandwidth: Ch9,11n(40M)

Report No.:I21W00017-WLAN_Rev1

5.5 Band Edges Compliance

Specifications:	FCC 47 CFR Part 15.205
DUT Serial Number:	866884045658127
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limited(dBuV/m)	
FCC 47 CFR Part 15.205	Peak	74
	Average	54

Measurement Uncertainty:

Frequency Range	Uncertainty
1 GHz to 6 GHz	4.84

Test Procedure

The measurement is according to ANSI C63.10 clause11.13.

1. Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.
2. Reference level offset: Corrected for gains and losses of test antenna factor, preamp gain and cable loss, so as to indicate field strength, in units of dBμV/m at 3 m, directly on the instrument display. Alternatively, the reference level offset may be set to zero and calculations shall be provided showing the conversion of raw measured data to the field strength in dBμV/m at 3 m.
3. Reference level: As required to keep the signal from exceeding the maximum spectrum analyzer input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2..
4. Attenuation: Auto (at least 10 dB preferred).
5. Sweep time: Coupled.
6. Resolution bandwidth: Above 1 GHz: 1 MHz
7. Video bandwidth: VBW for Peak, Quasi-peak, or Average Detector Function: $3 \times RBW$
8. Detector (unless specified otherwise): Peak and average above 1 GHz
9. Trace: Max hold for final measurement; a combination of two traces, clear-write and max hold, is recommended for maximizing the emission.

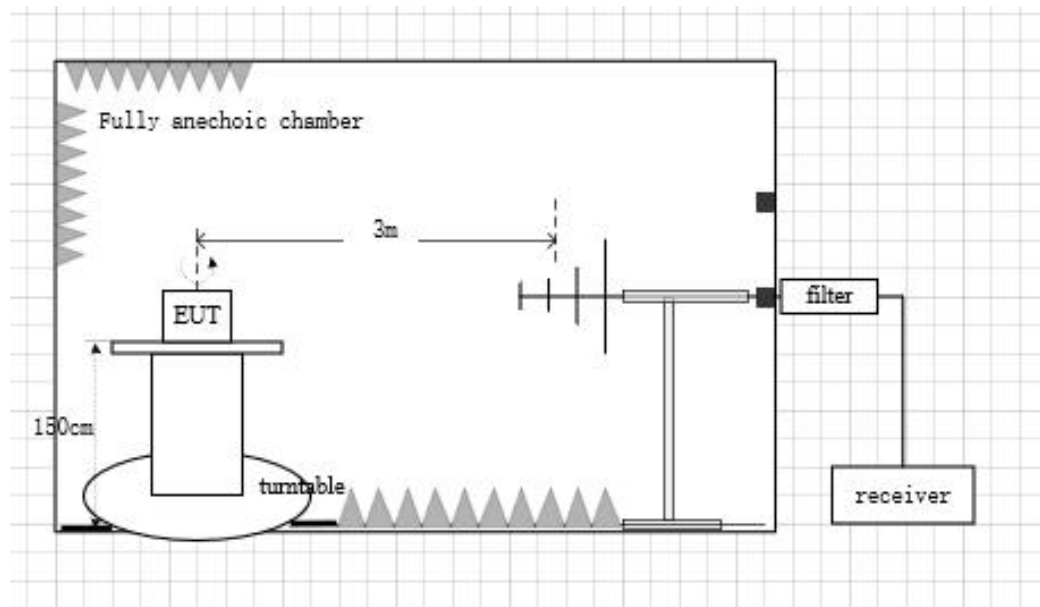
Note: The curve represents V polarization.

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Test block diagram:



Test Result:

802.11b/g mode

mode	Channel	Test Results(dBuV/m)	Conclusion
802.11b	1	Fig.85	Pass
	11	Fig.86	Pass
802.11g	1	Fig.87	Pass
	11	Fig.88	Pass

802.11n mode

mode	Channel	Test Results(dBuV/m)	Conclusion
802.11n (20MHz)	1	Fig.89	Pass
	11	Fig.90	Pass
802.11n (40MHz)	3	Fig.91	Pass

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	9	Fig.92	Pass
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Conclusion: PASS

Test figure as below:

BAND EDGERE 1GHz-3GHz 2380-2450

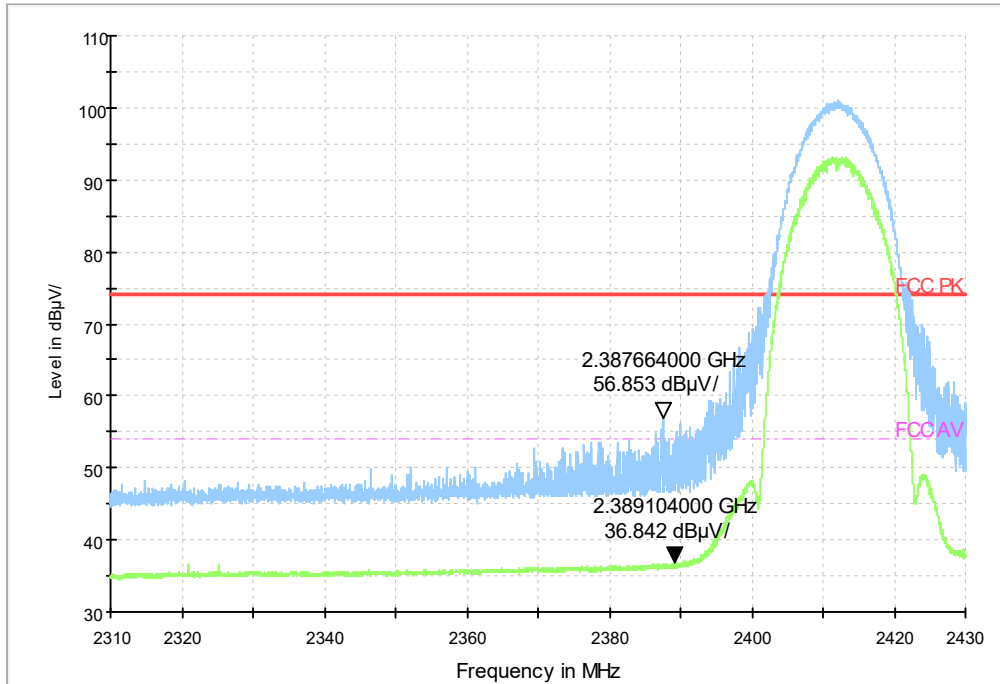


Fig.85 Frequency Band Edge: Ch1,11b

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BAND EDGERE 1GHz-3GHz 2483.5-2500

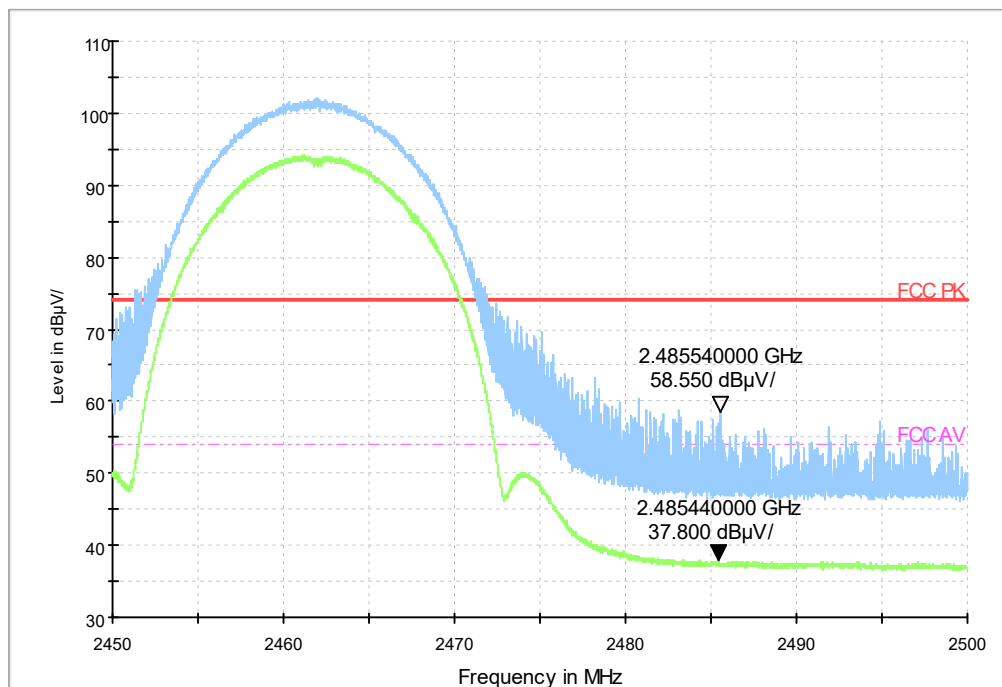


Fig.86 Frequency Band Edge: Ch11,11b

BAND EDGERE 1GHz-3GHz 2.31-2.43G

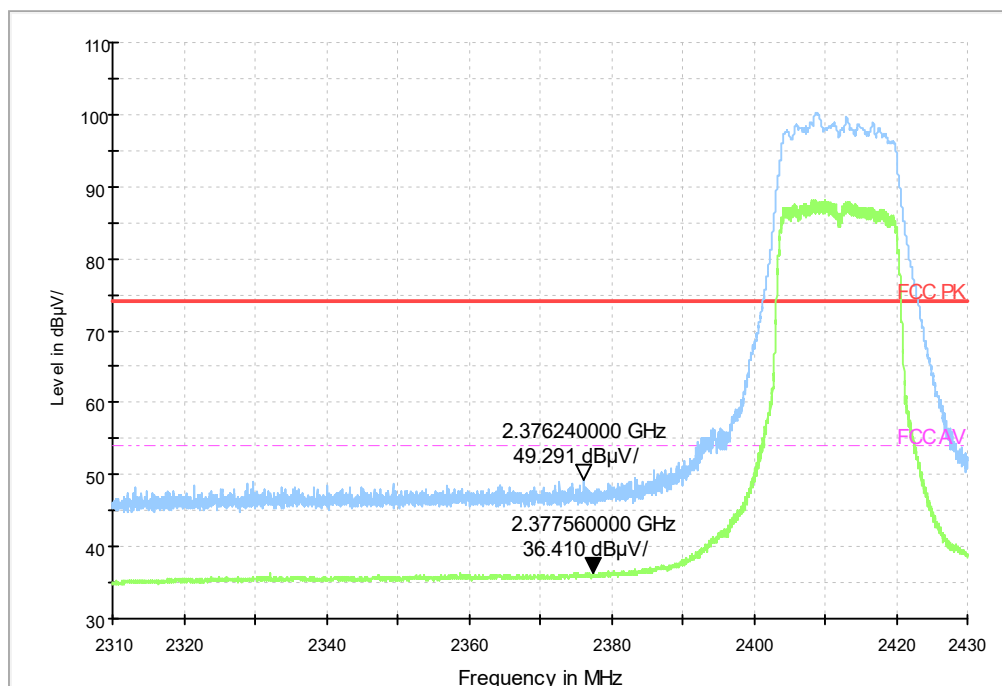


Fig.87 Frequency Band Edge: Ch1,11g

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BAND EDGERE 1GHz-3GHz 2.45-2.5G

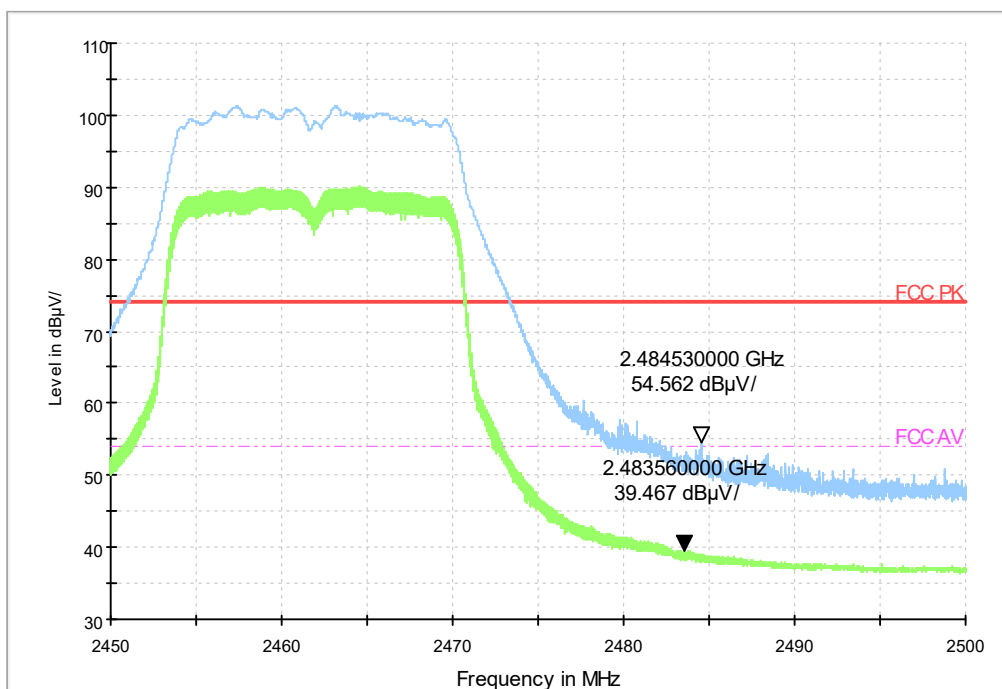


Fig.88 Frequency Band Edge: Ch11,11g

BAND EDGERE 1GHz-3GHz 2.31-2.43G

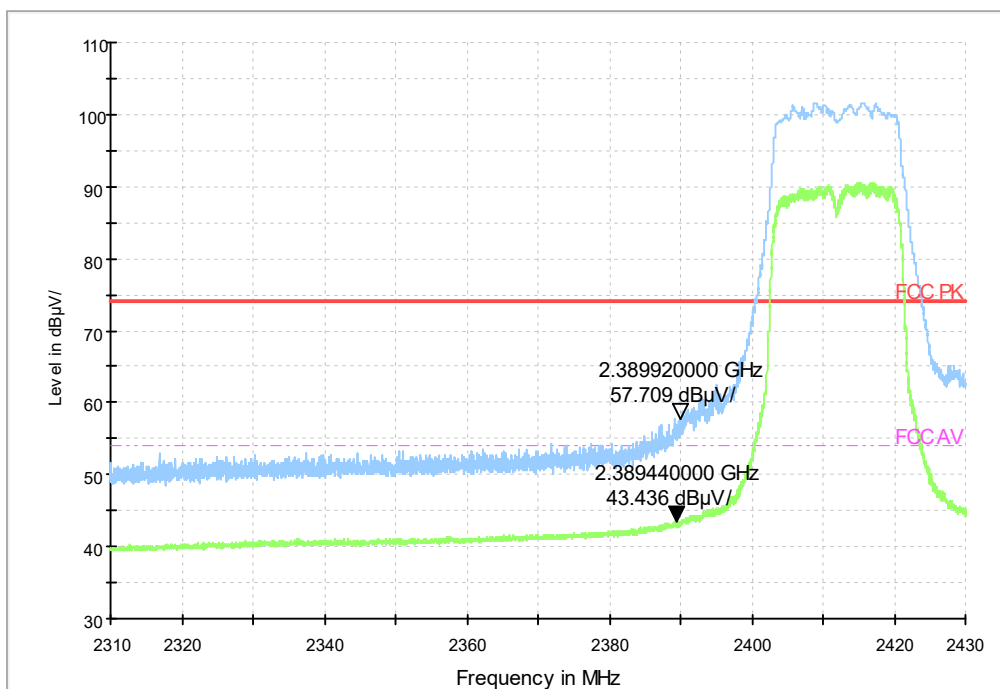


Fig.89 Frequency Band Edge: Ch1,11n(20M)

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BAND EDGERE 1GHz-3GHz 2.45-2.5G

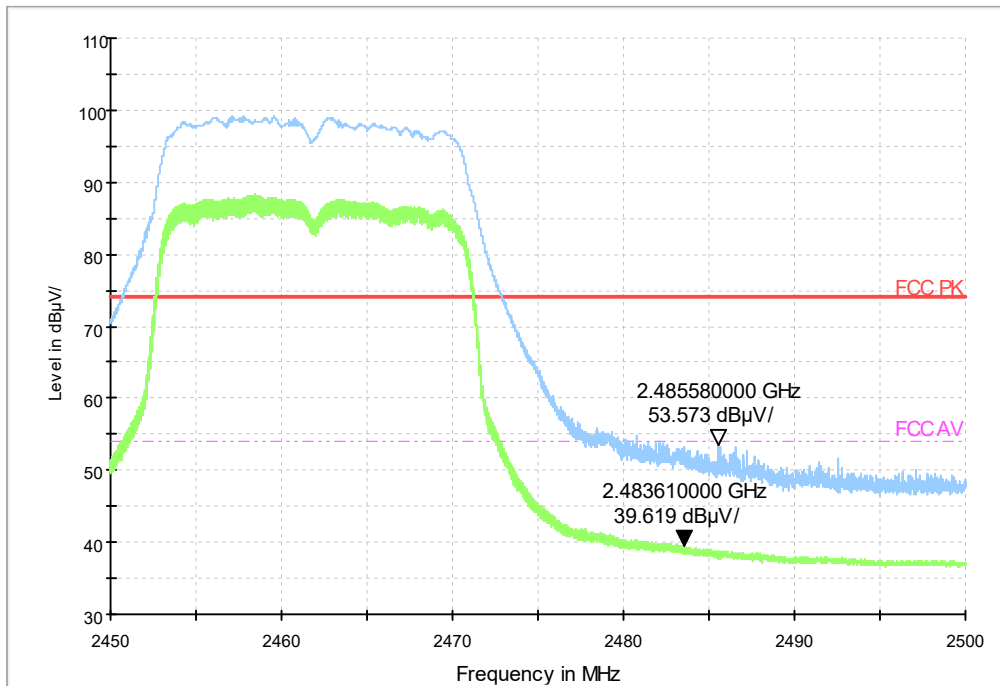


Fig.90 Frequency Band Edge: Ch11,11n(20M)

BAND EDGERE 1GHz-3GHz 2.31-2.43G

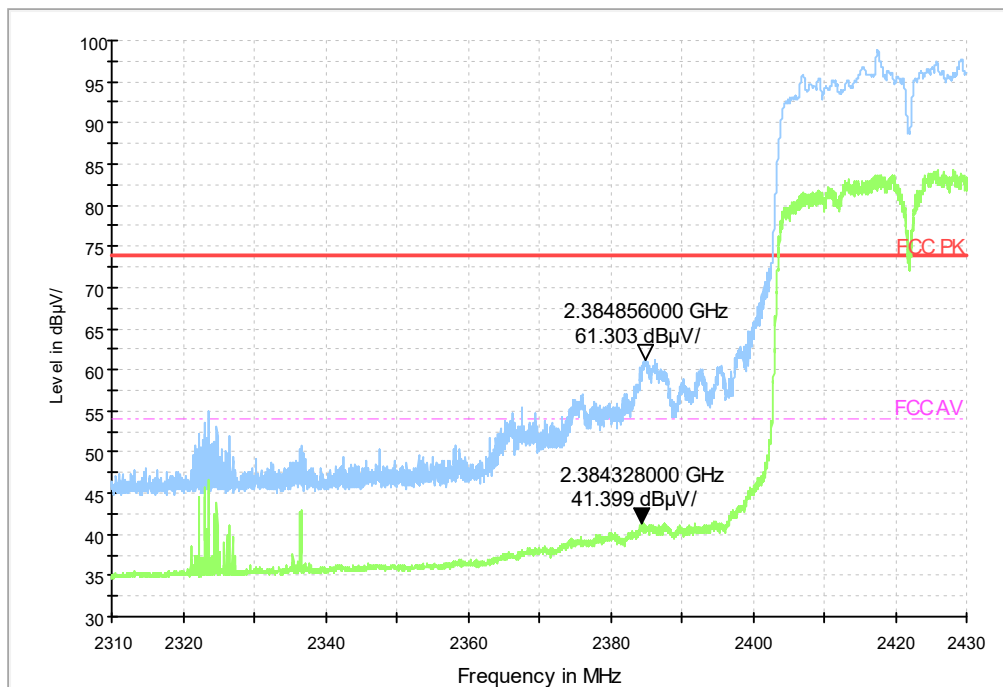


Fig.91 Frequency Band Edge: Ch3,11n(40M)

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BAND EDGERE 1GHz-3GHz 2.45-2.5G

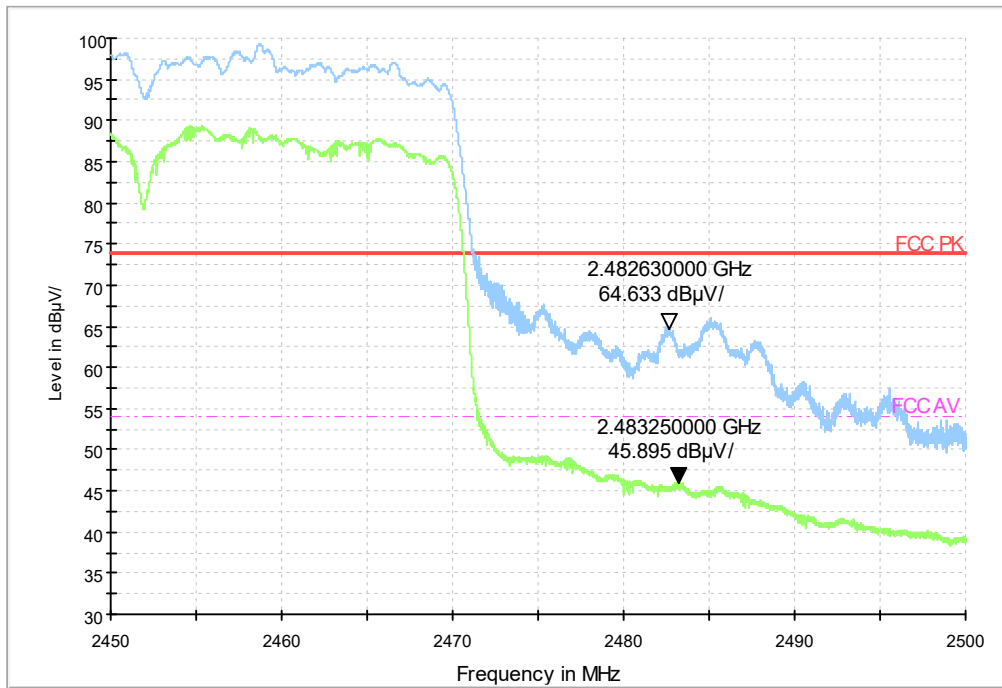


Fig.92 Frequency Band Edge: Ch9,11n(40M)

Report No.:I21W00017-WLAN_Rev1

5.6 Transmitter Spurious Emission-Conducted

Specifications:	FCC 47 CFR Part15.247 (d)
DUT Serial Number:	866884045658218
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit

Standard	Limit
FCC 47 CFR Part15.247 (d)	20dB below peak output power in 100KHz bandwidth

Measurement Uncertainty:

Frequency Range	Uncertainty
$30\text{MHz} \leq f \leq 26\text{GHz}$	± 2.7

Test Procedure

This measurement is according to ANSI C63.10 clause 11.11.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.

Reference level measurement

3. Set instrument center frequency to DTS channel center frequency.
4. Set the span to ≥ 1.5 times the DTS bandwidth.
5. Set the RBW = 100 kHz.
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum PSD level.

Emission level measurement

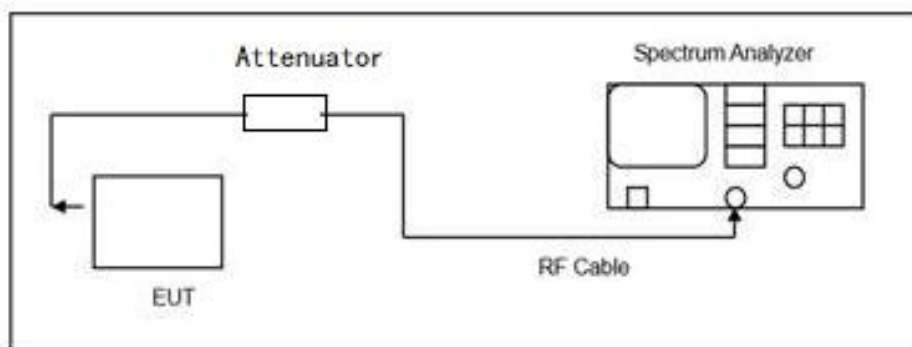
12. Set the center frequency and span to encompass frequency range to be measured.
13. Set the RBW = 100 kHz.
14. Set the VBW $\geq [3 \times \text{RBW}]$.
15. Detector = peak.
16. Sweep time = auto couple.
17. Trace mode = max hold.
18. Allow trace to fully stabilize.
19. Use the peak marker function to determine the maximum amplitude level.

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Test block diagram:



Test Result:

802.11b/g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412GHz	Fig.93	Pass
		30MHz~26GHz	Fig.94	Pass
	6	2.437GHz	Fig.95	Pass
		30MHz~26GHz	Fig.96	Pass
	11	2.462GHz	Fig.97	Pass
		30MHz~26GHz	Fig.98	Pass
802.11g	1	2.412GHz	Fig.99	Pass
		30MHz~26GHz	Fig.100	Pass
	6	2.437GHz	Fig.101	Pass
		30MHz~26GHz	Fig.102	Pass
	11	2.462GHz	Fig.103	Pass
		30MHz~26GHz	Fig.104	Pass

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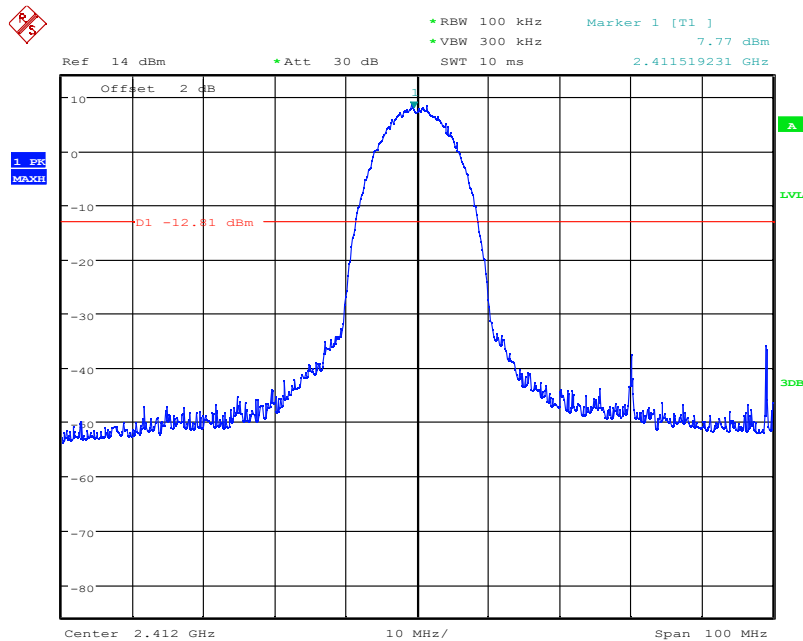
802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	2.412GHz	Fig.105	Pass
		30MHz~26GHz	Fig.106	Pass
	6	2.437GHz	Fig.107	Pass
		30MHz~26GHz	Fig.108	Pass
	11	2.462GHz	Fig.109	Pass
		30MHz~26GHz	Fig.110	Pass
802.11n (40MHz)	3	2.422GHz	Fig.111	Pass
		30MHz~26GHz	Fig.112	Pass
	7	2.442GHz	Fig.113	Pass
		30MHz~26GHz	Fig.114	Pass
	9	2.462GHz	Fig.115	Pass
		30MHz~26GHz	Fig.116	Pass

Conclusion: PASS

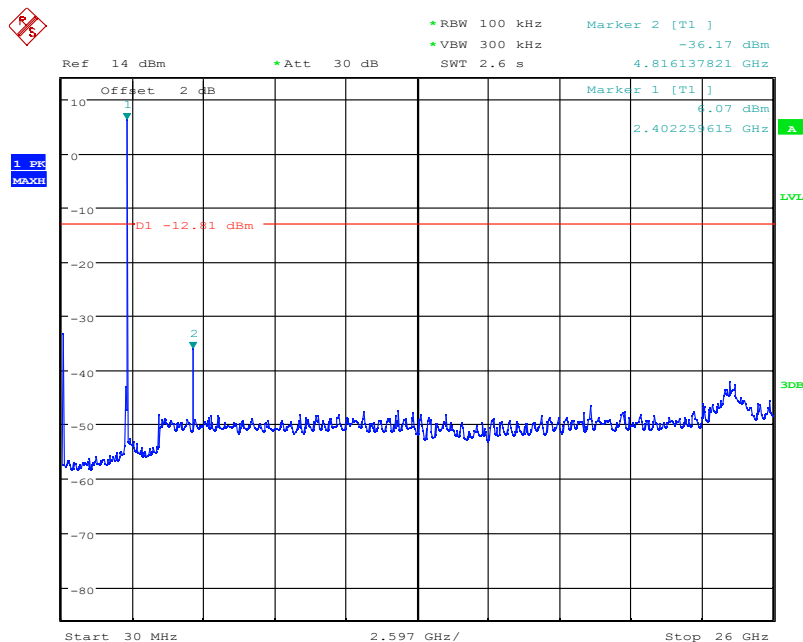
Report No.:I21W00017-WLAN_Rev1

Test figure as below:



Date: 23.JUN.2021 14:36:12

Fig.93 Conducted spurious emission: Ch1,11b,2412MHz



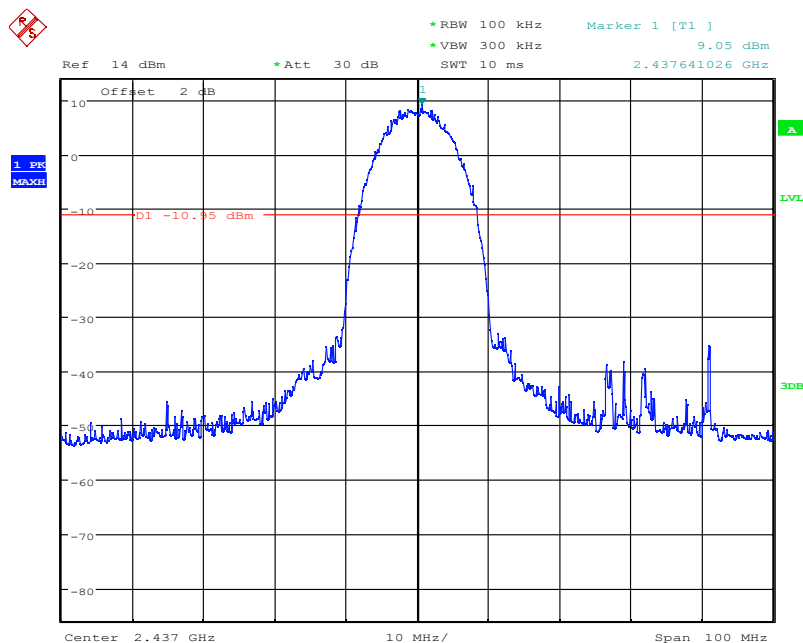
Date: 23.JUN.2021 14:36:45

Fig.94 Conducted spurious emission: Ch1,11b,30MHz~26GHz

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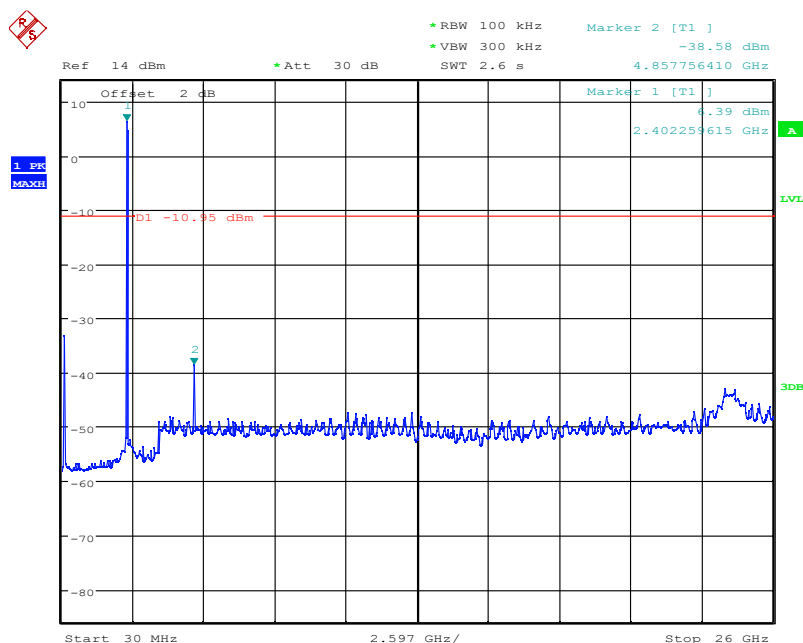
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Tel: 0086-23-88069965 FAX:0086-23-88608777

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Date: 23.JUN.2021 14:37:53

Fig.95 Conducted spurious emission: Ch6,11b,2437MHz



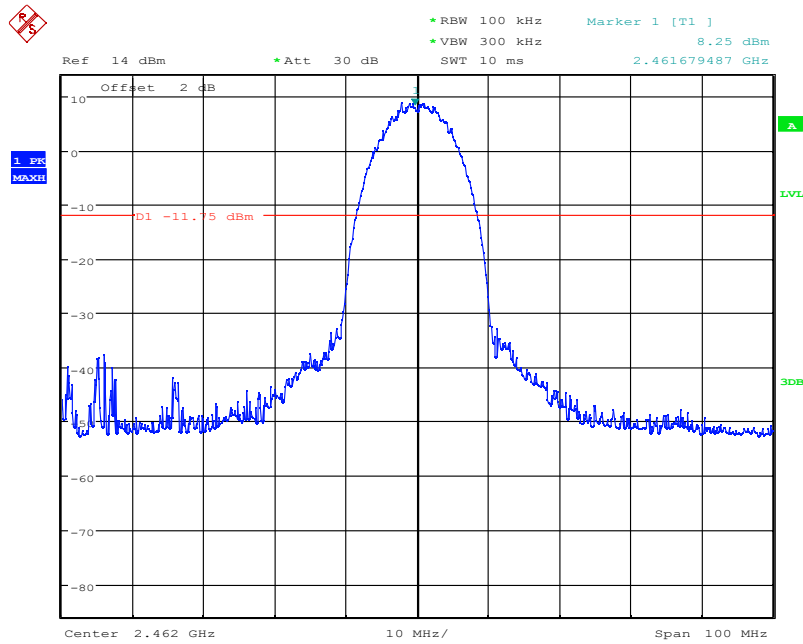
Date: 23.JUN.2021 14:38:12

Fig.96 Conducted spurious emission: Ch6,11b,30MHz~26GHz

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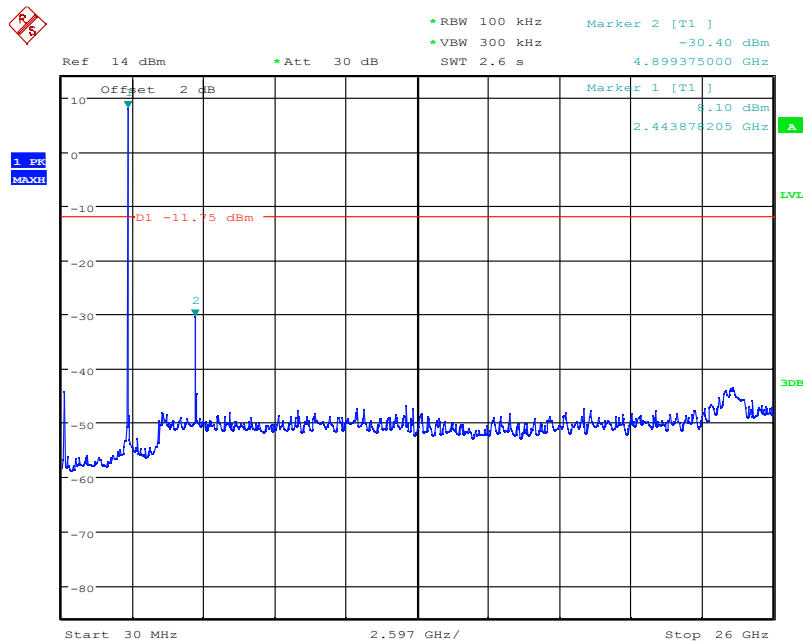
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Date: 23.JUN.2021 14:39:02

Fig.97 Conducted spurious emission: Ch11,11b,2462MHz



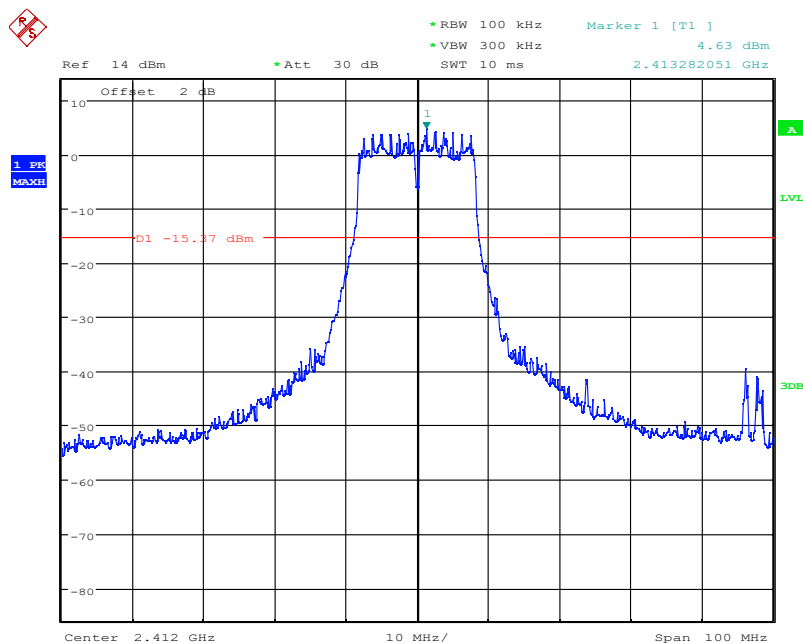
Date: 23.JUN.2021 14:39:19

Fig.98 Conducted spurious emission: Ch11,11b,30MHz~26GHz

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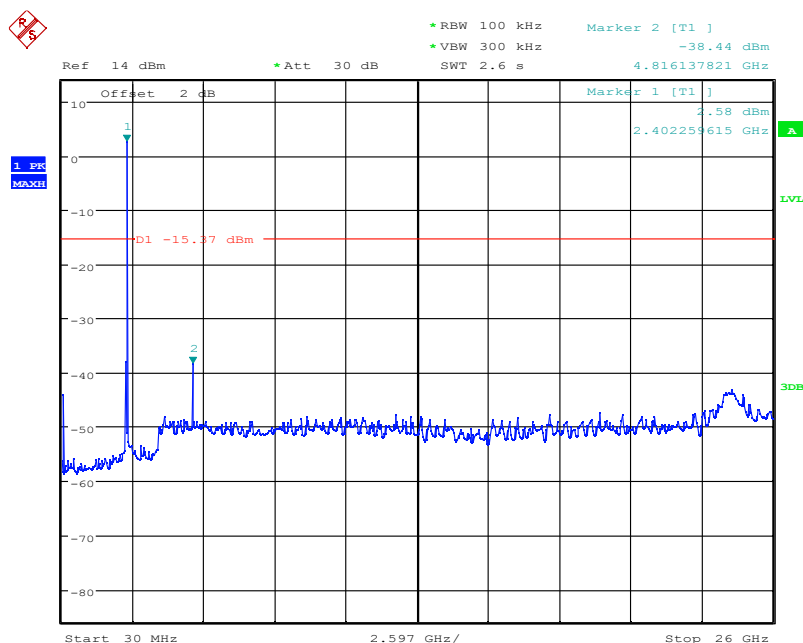
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Date: 23.JUN.2021 14:42:24

Fig.99 Conducted spurious emission: Ch1,11g,2412MHz



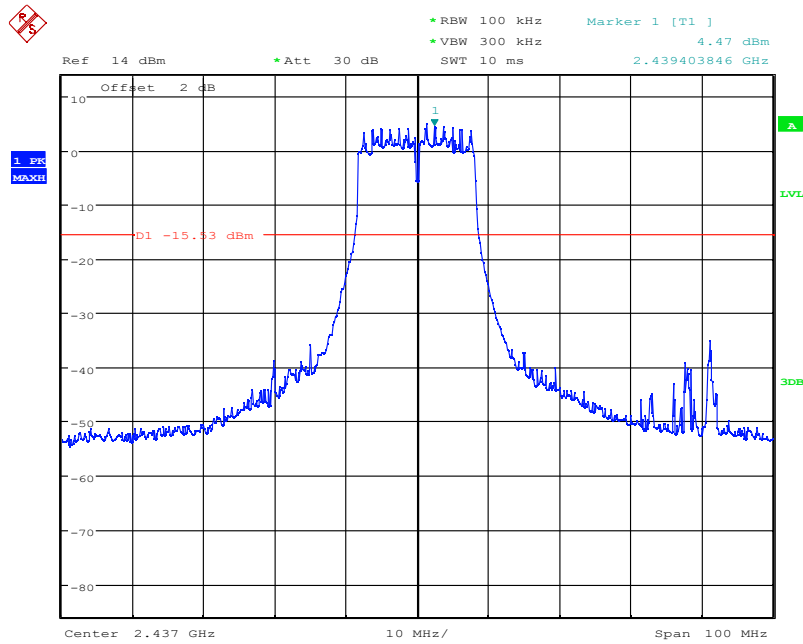
Date: 23.JUN.2021 14:42:47

Fig.100 Conducted spurious emission: Ch1,11g,30MHz~26GHz

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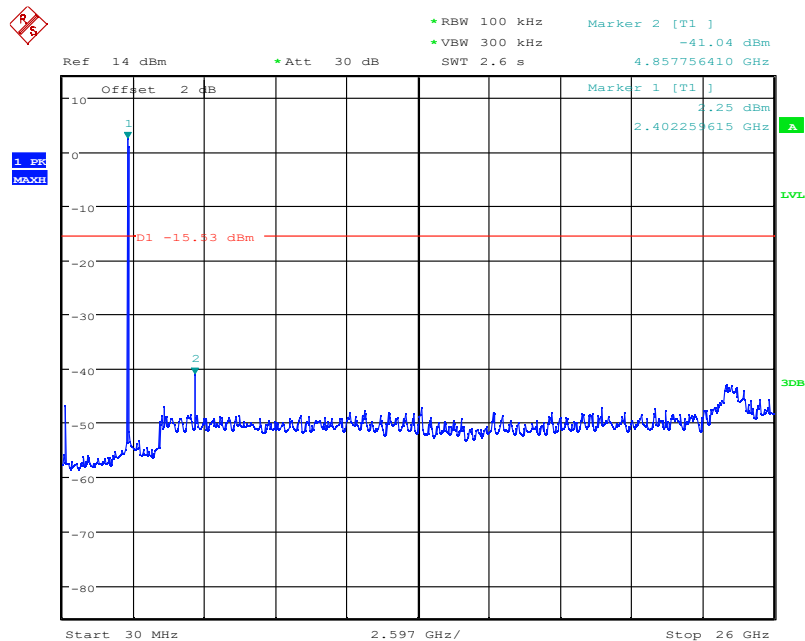
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Date: 23.JUN.2021 14:41:29

Fig.101 Conducted spurious emission: Ch6,11g,2437MHz



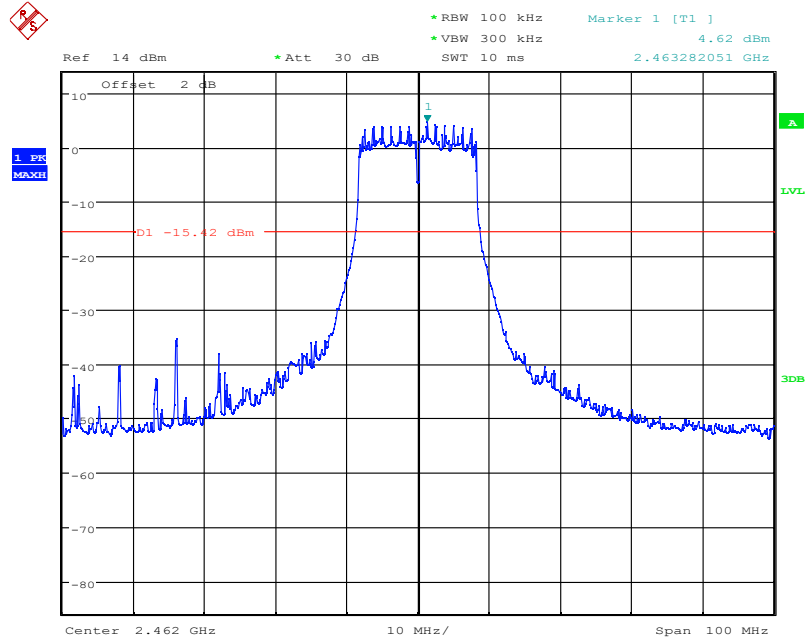
Date: 23.JUN.2021 14:41:47

Fig.102 Conducted spurious emission: Ch6,11g,30MHz~26GHz

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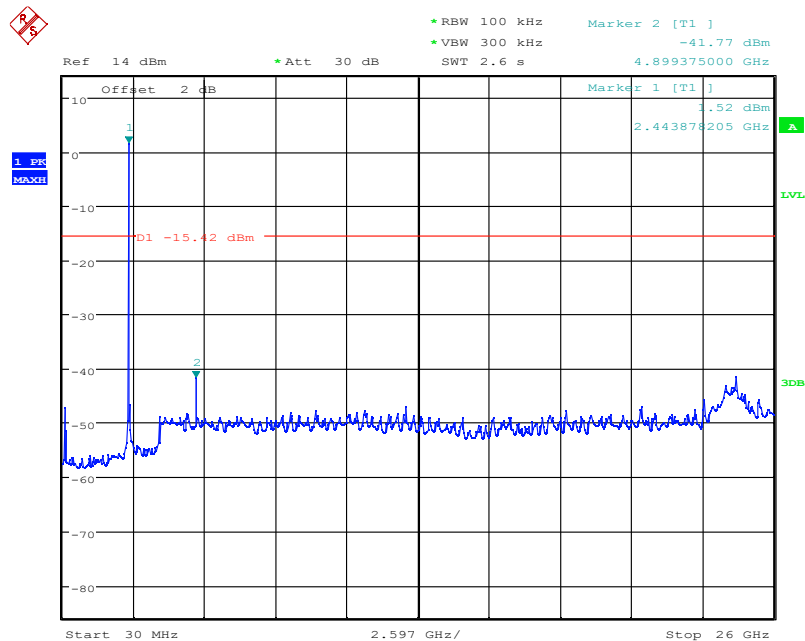
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Date: 23.JUN.2021 14:40:25

Fig.103 Conducted spurious emission: Ch11,11g,2462MHz



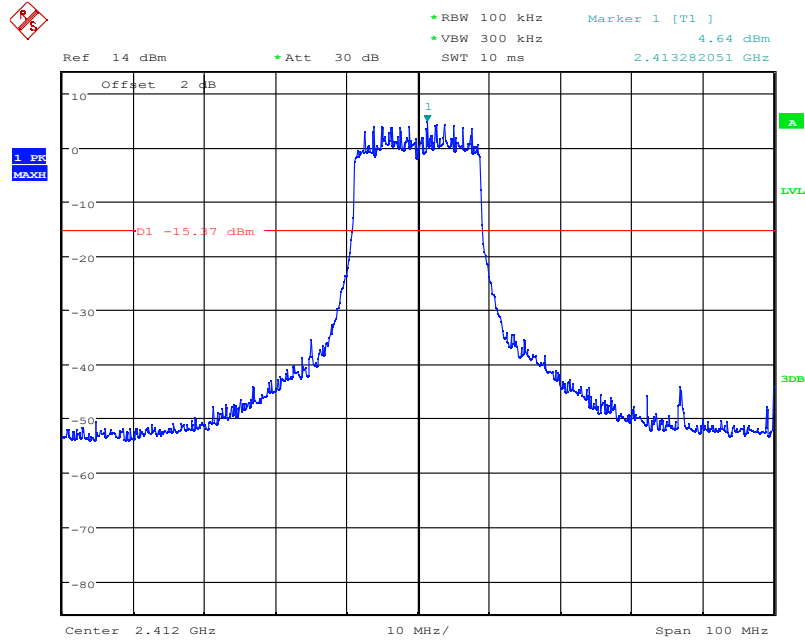
Date: 23.JUN.2021 14:40:48

Fig.104 Conducted spurious emission: Ch11,11g,30MHz~26GHz

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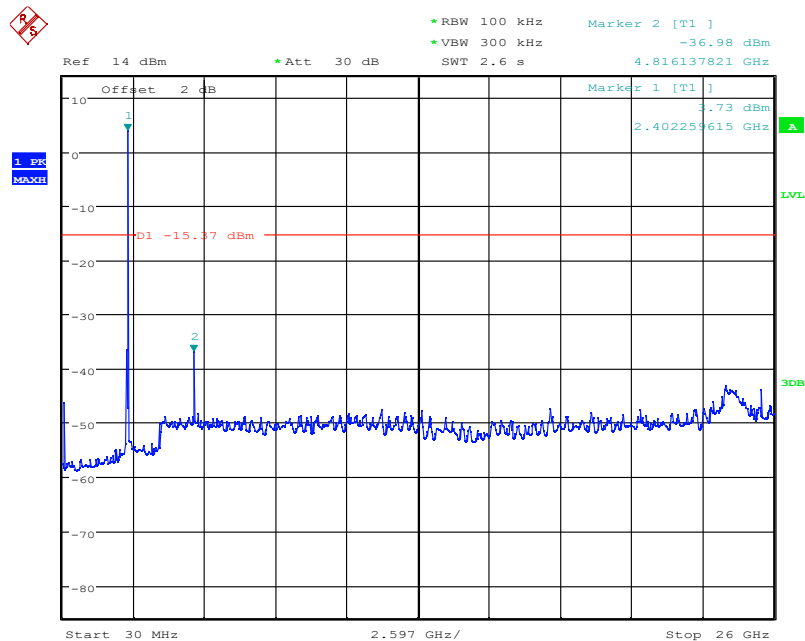
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Fig.105 Conducted spurious emission: Ch1,11n,2412MHz



Date: 23.JUN.2021 14:43:46

Fig.106 Conducted spurious emission: Ch1,11n,30MHz~26GHz

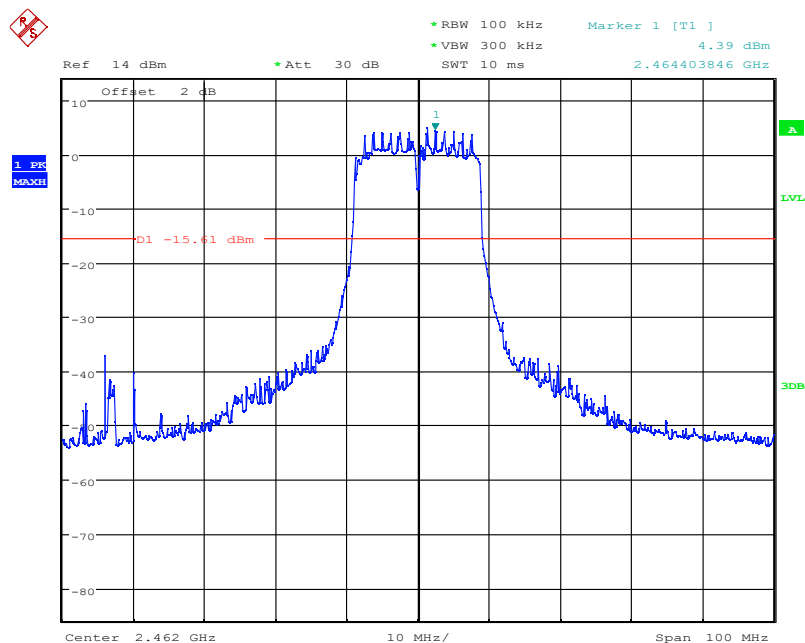
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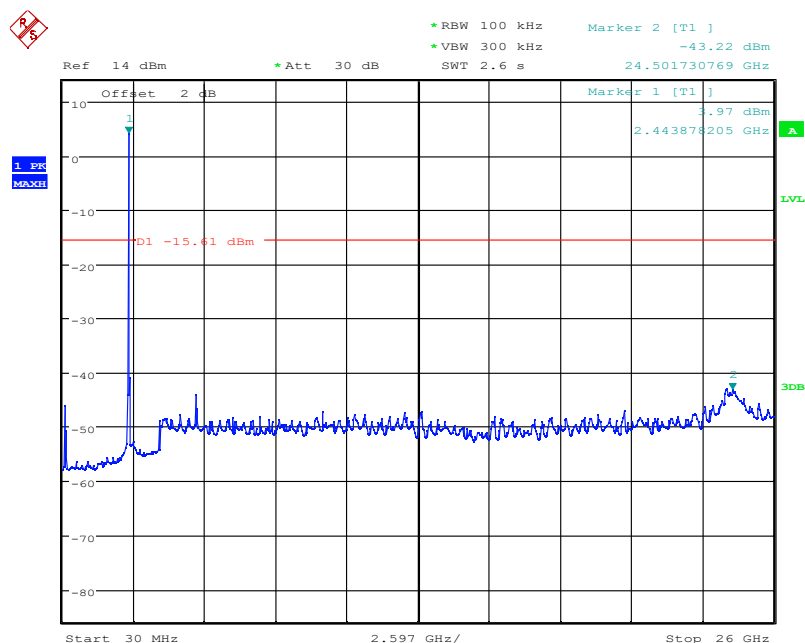
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Date: 23.JUN.2021 14:45:10

Fig.109 Conducted spurious emission: Ch11,11n,2462MHz



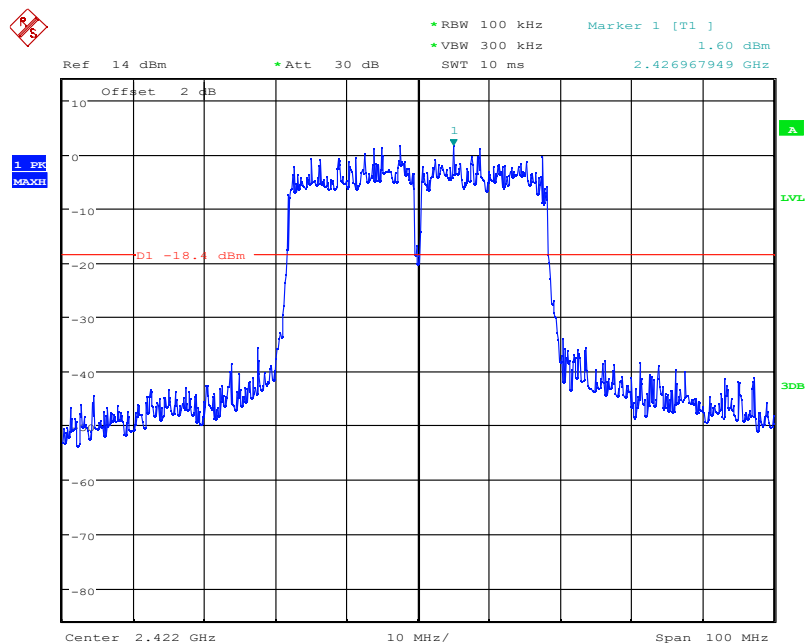
Date: 23.JUN.2021 14:45:44

Fig.110 Conducted spurious emission: Ch11,11n,30MHz~26GHz

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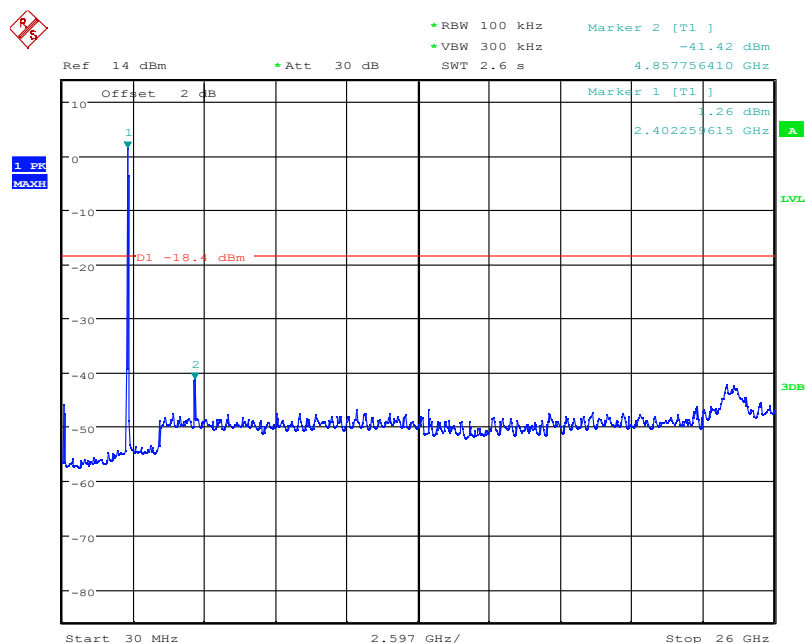
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Date: 23.JUN.2021 14:47:11

Fig.111 Conducted spurious emission: Ch3,11n(40M),2422MHz



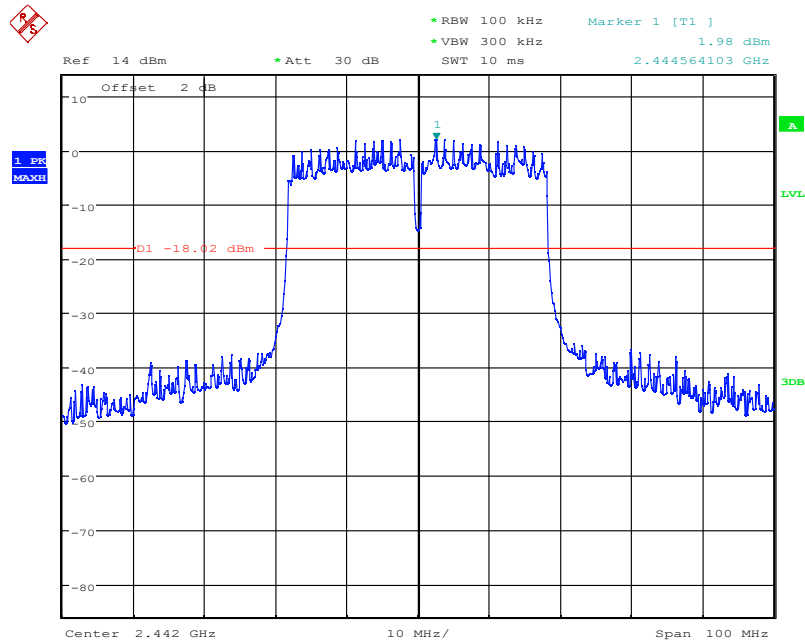
Date: 23.JUN.2021 14:48:37

Fig.112 Conducted spurious emission: Ch3,11n(40M),30MHz~26GHz

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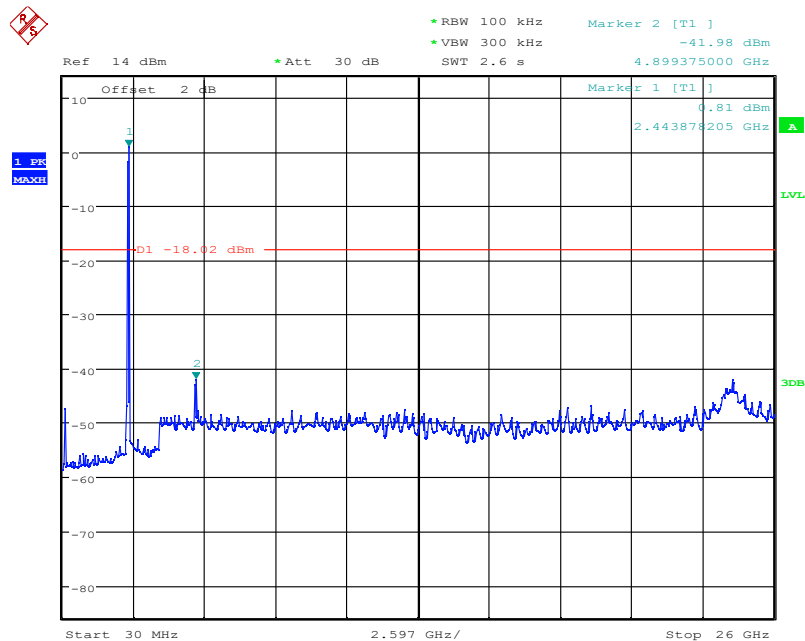
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Date: 23.JUN.2021 14:49:19

Fig.113 Conducted spurious emission: Ch7,11n(40M),2442MHz



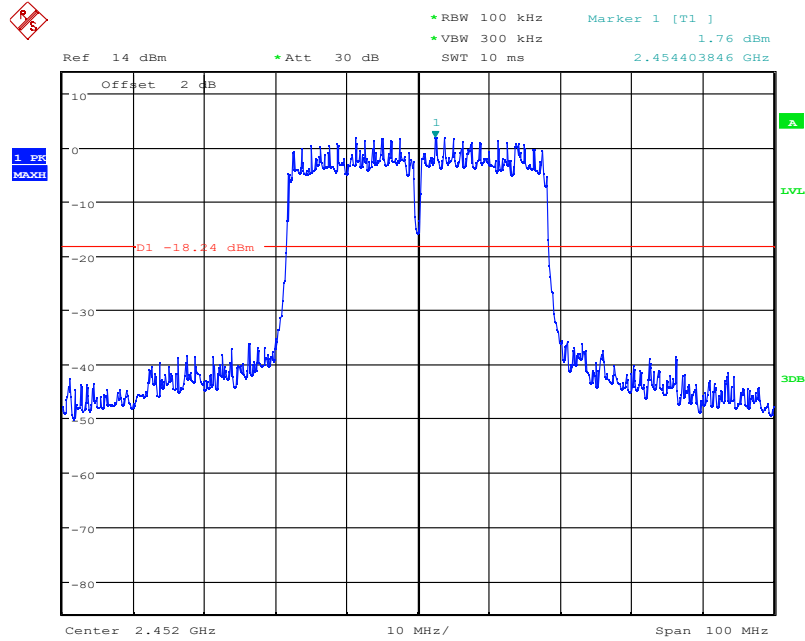
Date: 23.JUN.2021 14:49:37

Fig.114 Conducted spurious emission: Ch7,11n(40M),30MHz~26GHz

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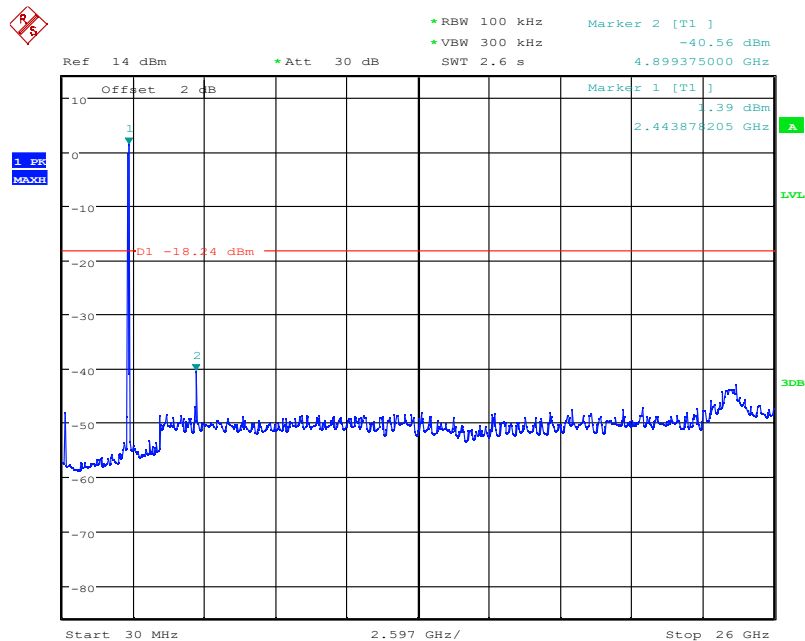
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Fig.115 Conducted spurious emission: Ch9,11n(40M),2452MHz



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Fig.116 Conducted spurious emission: Ch9,11n(40M),30MHz~26GHz

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5.7 Transmitter Spurious Emission-Radiated

Specifications:	FCC 47 CFR Part 15.247, 15.205, 15.209
DUT Serial Number:	866884045658127
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see 15.205(c)).

Measurement Uncertainty:

Frequency Range	Uncertainty
30MHz -1GHz	3.51
1GHz - 6GHz	4.84
6GHz - 18GHz	4.52
18GHz – 26.5GHz	6.19

Limit in restricted band:

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

Test Procedure

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see

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also ANSI C63.10-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time
30~1000	100KHz/300KHz	5s
1000~3000	1MHz/3MHz	3s
3000~18000	1MHz/3MHz	7s
18000~26500	1MHz/3MHz	0.5s

Test Result:

A “reference path loss” is established and AR_{pi} is the attenuation of “reference path loss”, and including the gain of receive antenna , the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

AR_{pi}= Cable loss + Antenna Gain-Preamplifier gain

Result=PM_{ea} + AR_{pi}

Mode	Channel	Frequency Range	Test Results	Conclusion
All channels		30MH-1GHz	Fig.117	Pass
802.11b	1	1GHz-3GHz	Fig.118	Pass
		3GHz-18GHz	Fig.119	
	6	1GHz-3GHz	Fig.120	Pass
		3GHz-18GHz	Fig.121	
	11	1GHz-3GHz	Fig.122	Pass
		3GHz-18GHz	Fig.123	
Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	1GHz-3GHz	Fig.124	Pass
		3GHz-18GHz	Fig.125	

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	6	1GHz-3GHz	Fig.126	Pass
		3GHz-18GHz	Fig.127	
	11	1GHz-3GHz	Fig.128	Pass
		3GHz-18GHz	Fig.129	
Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	1	1GHz-3GHz	Fig.130	Pass
		3GHz-18GHz	Fig.131	
	6	1GHz-3GHz	Fig.132	Pass
		3GHz-18GHz	Fig.133	
	11	1GHz-3GHz	Fig.134	Pass
		3GHz-18GHz	Fig.135	
802.11n (40MHz)	3	1GHz-3GHz	Fig.136	Pass
		3GHz-18GHz	Fig.137	
	6	1GHz-3GHz	Fig.138	Pass
		3GHz-18GHz	Fig.139	
	9	1GHz-3GHz	Fig.140	Pass
		3GHz-18GHz	Fig.141	
All channels		18GHz-26GHz	Fig.142	Pass

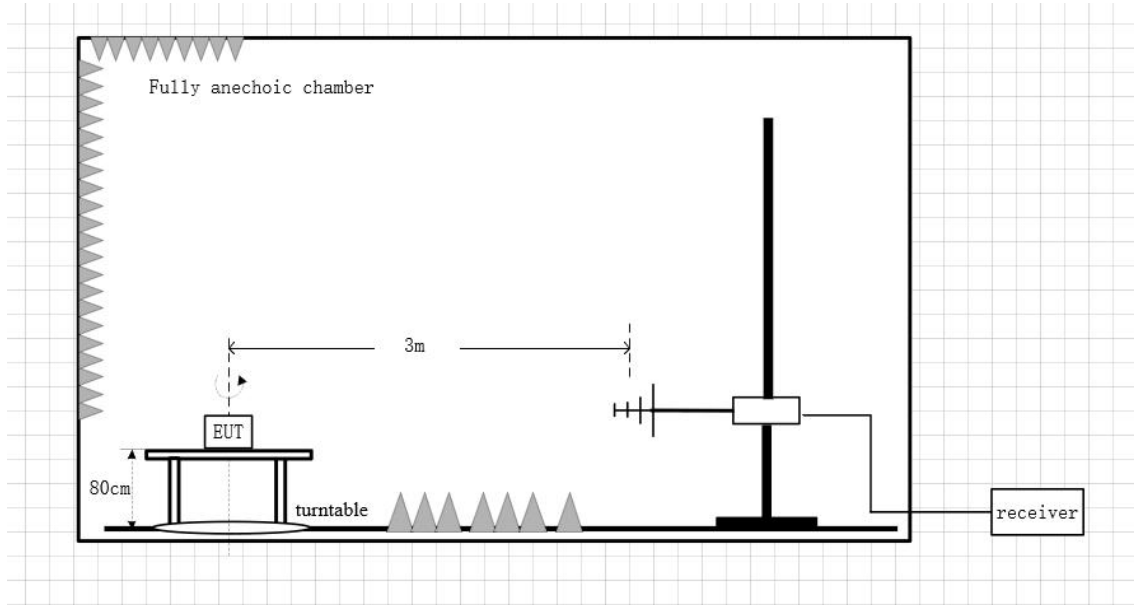
Note: all the test data shown was peak detected.

Test block diagram:

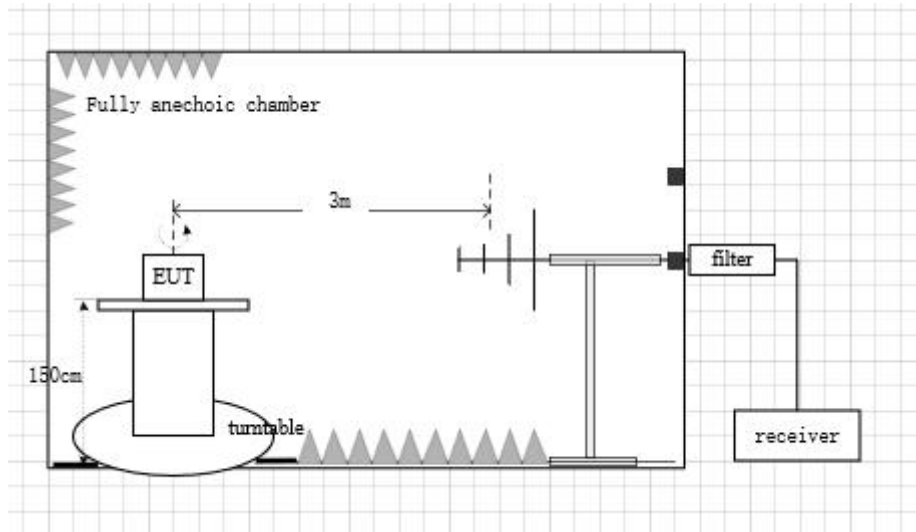
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30MHz-1GHz



Above 1GHz

Note: The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

Transmitter Spurious Emission-Radiated H and V are tested together, The test result is maximum hold. Therefore, the result is only one set of data. Found the emission level are attenuated 20dB below the limits for frequency range 9kHz to 30MHz, so it does not recorded in report.

The 30MHz-1GHz and 18GHz-26.5GHz results were found as the worst case and were shown in this report.

Conclusion: PASS

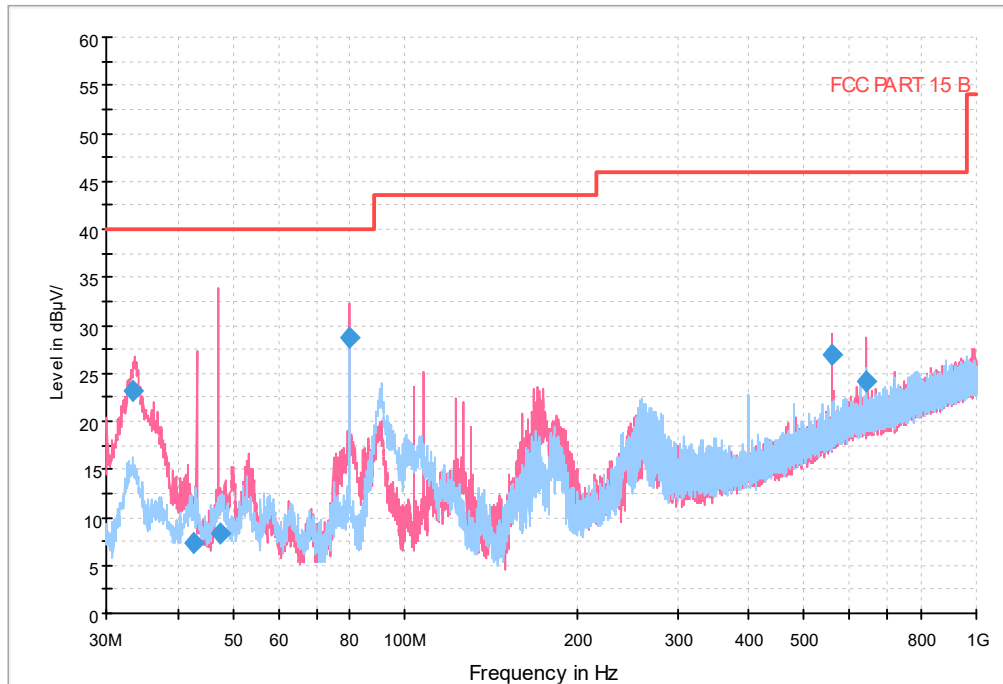
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Test graphs as below:

RE 30MHz-1GHz



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)
33.389000	23.2	5000.0	120.000	102.0	V	80.0	-19.9	16.8
42.592000	7.4	5000.0	120.000	410.0	V	100.0	-18.4	32.6
47.420500	8.3	5000.0	120.000	410.0	V	100.0	-17.8	31.7
79.955000	28.7	5000.0	120.000	117.0	V	280.0	-23.0	11.3
559.717000	26.9	5000.0	120.000	102.0	V	-1.0	-9.1	19.1
639.933000	24.1	5000.0	120.000	102.0	V	10.0	-7.5	21.9

Fig.117 Radiated emission: 30MHz-1GHz

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RE 1GHz-3GHz

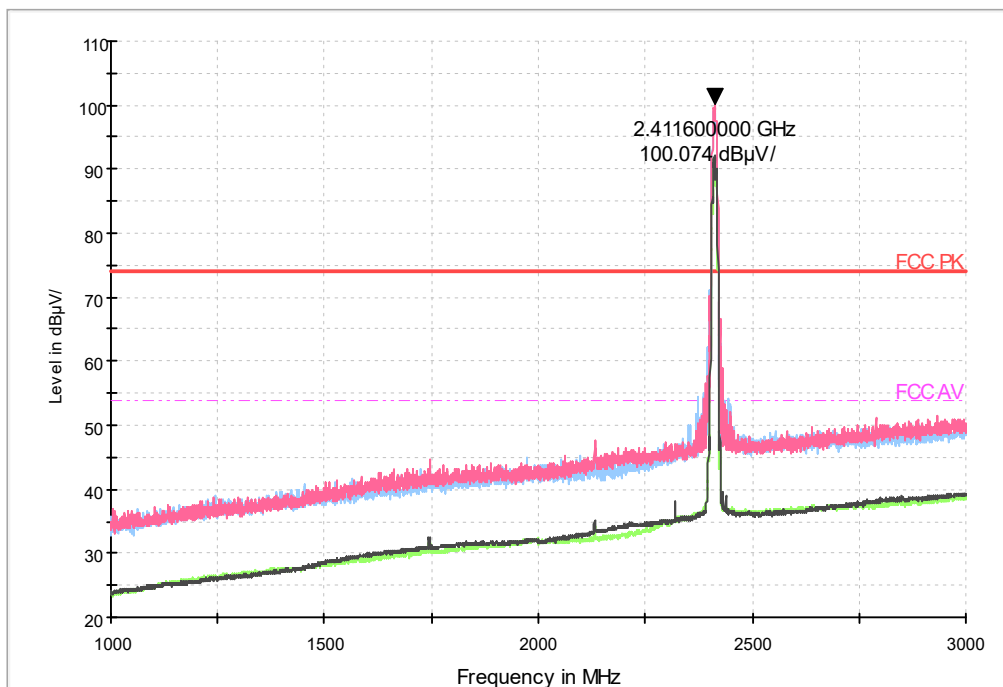


Fig.118 Radiated emission: 802.11b,Ch1, 1GHz-3GHz

RE 3GHz-18GHz

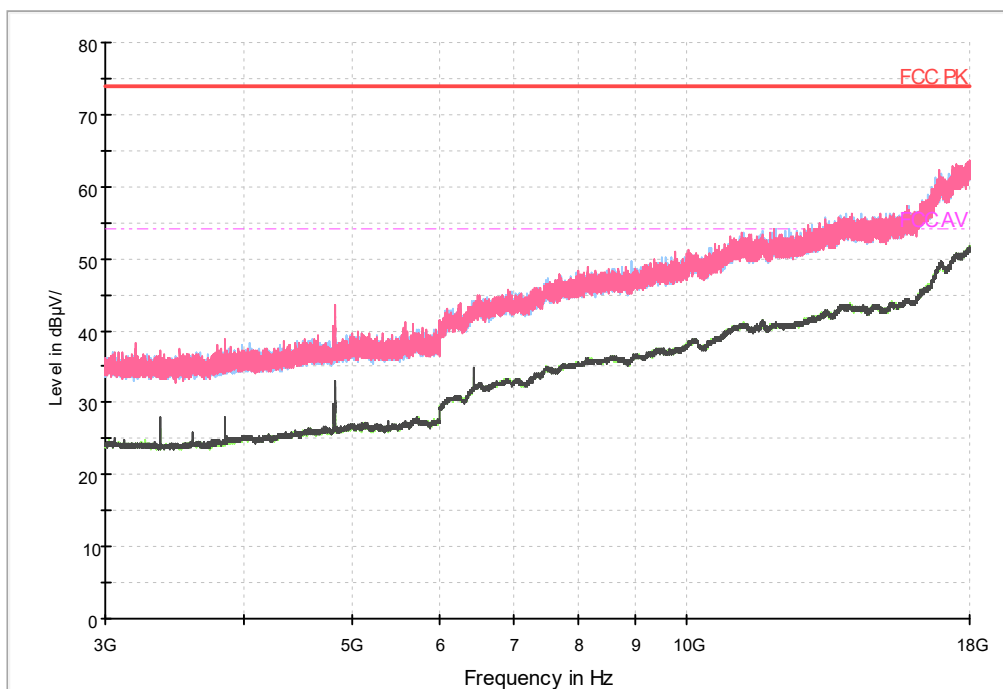


Fig.119 Radiated emission: 802.11b,Ch1, 3GHz-18GHz

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RE 1GHz-3GHz

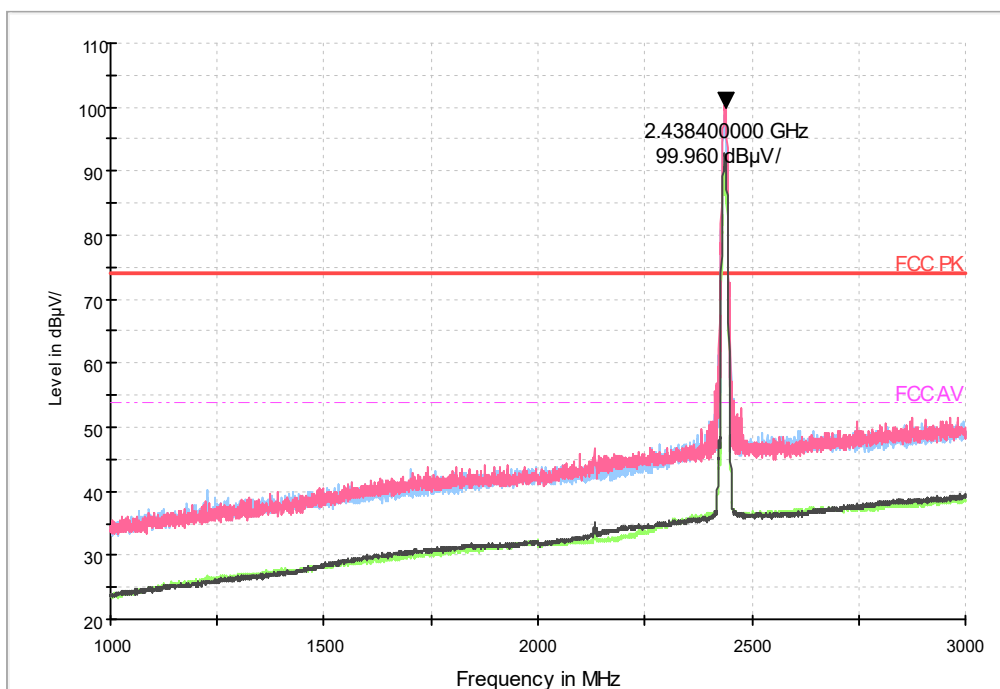


Fig.120 Radiated emission: 802.11b,Ch6, 1GHz-3GHz

RE 3GHz-18GHz

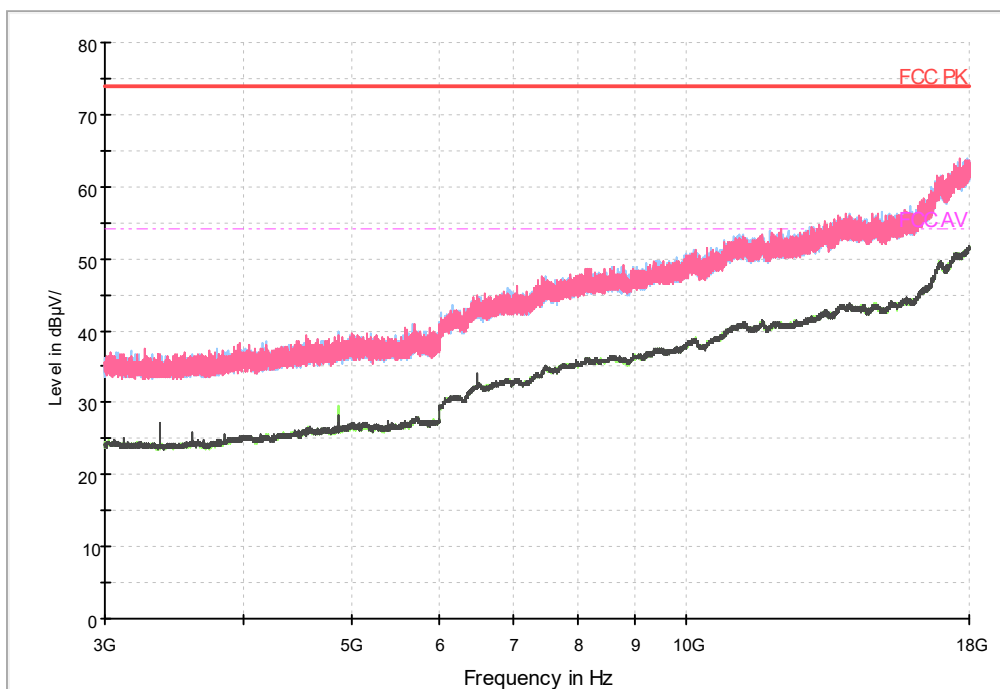


Fig.121 Radiated emission:802.11b, Ch6, 3GHz-18GHz

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RE 1GHz-3GHz

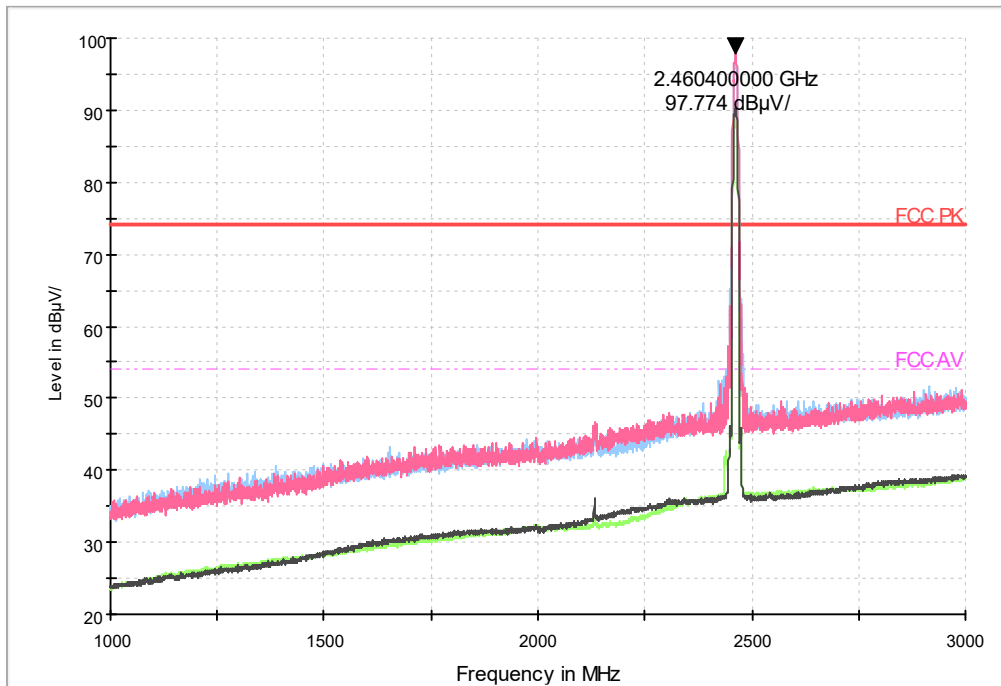


Fig.122 Radiated emission: 802.11b,Ch11, 1GHz-3GHz

RE 3GHz-18GHz

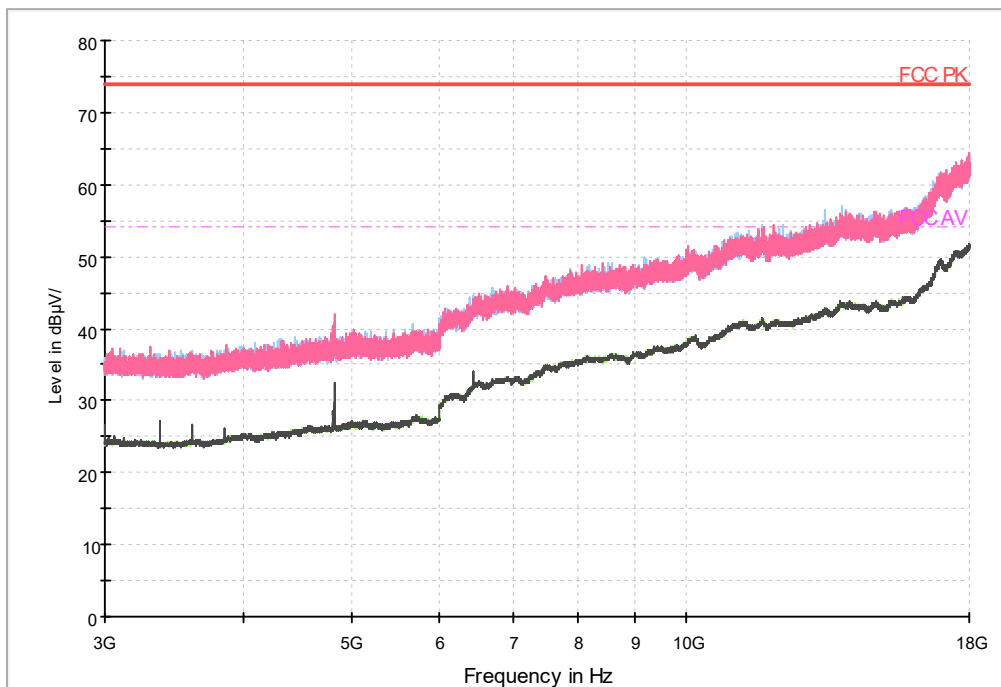


Fig.123 Radiated emission: 802.11b,Ch11, 3GHz-18GHz

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RE 1GHz-3GHz

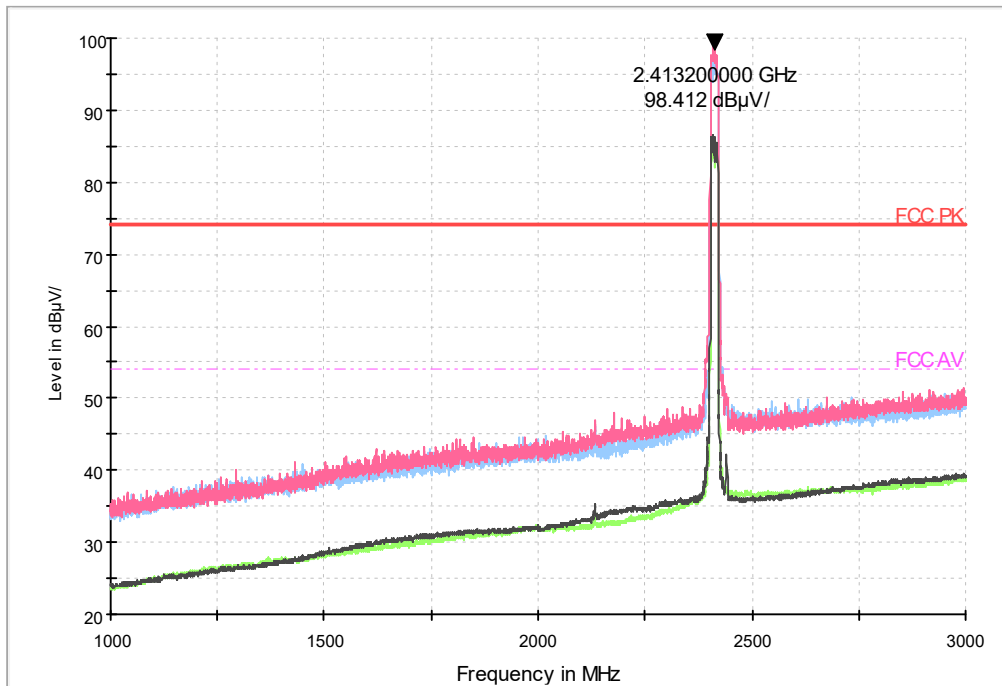


Fig.124 Radiated emission: 802.11g,Ch1, 1GHz-3GHz

RE 3GHz-18GHz

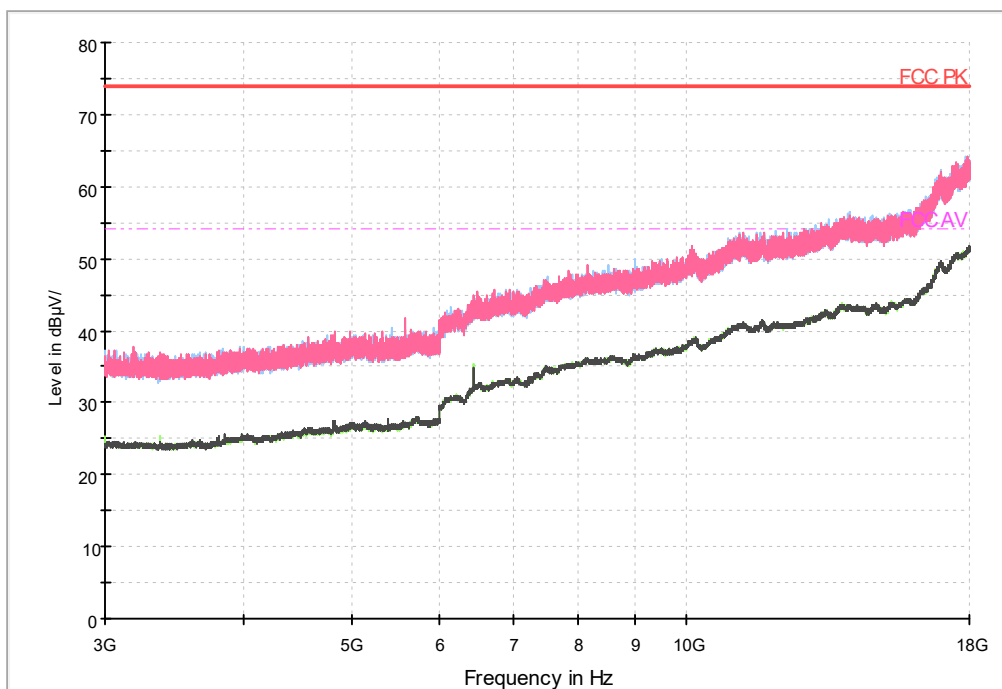


Fig.125 Radiated emission: 802.11g,Ch1, 3GHz-18GHz

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RE 1GHz-3GHz

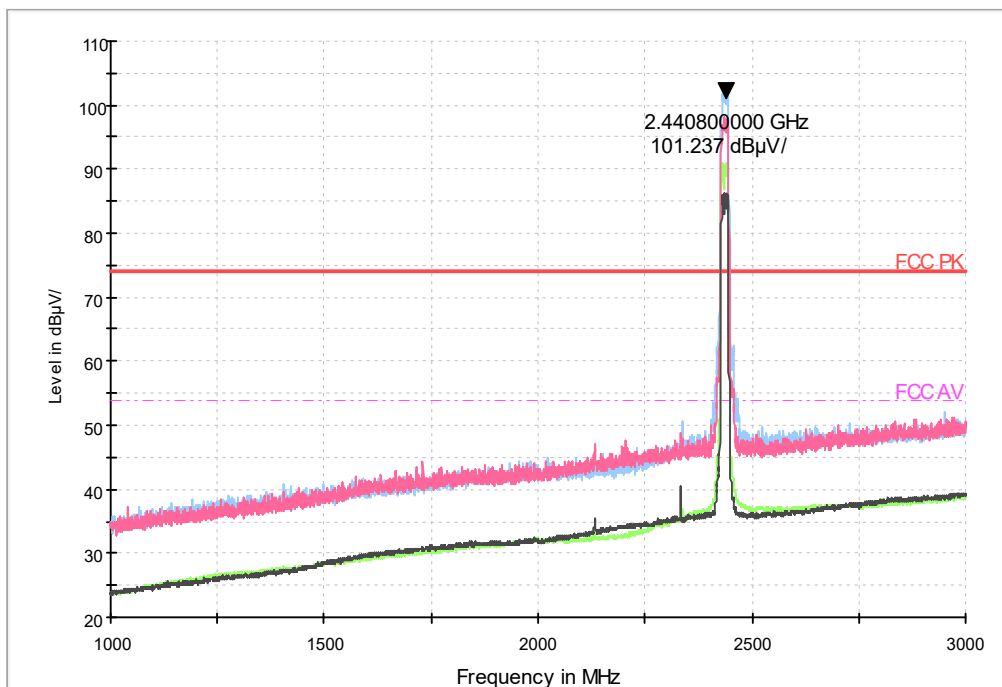


Fig.126 Radiated emission: 802.11g,Ch6, 1GHz-3GHz

RE 3GHz-18GHz

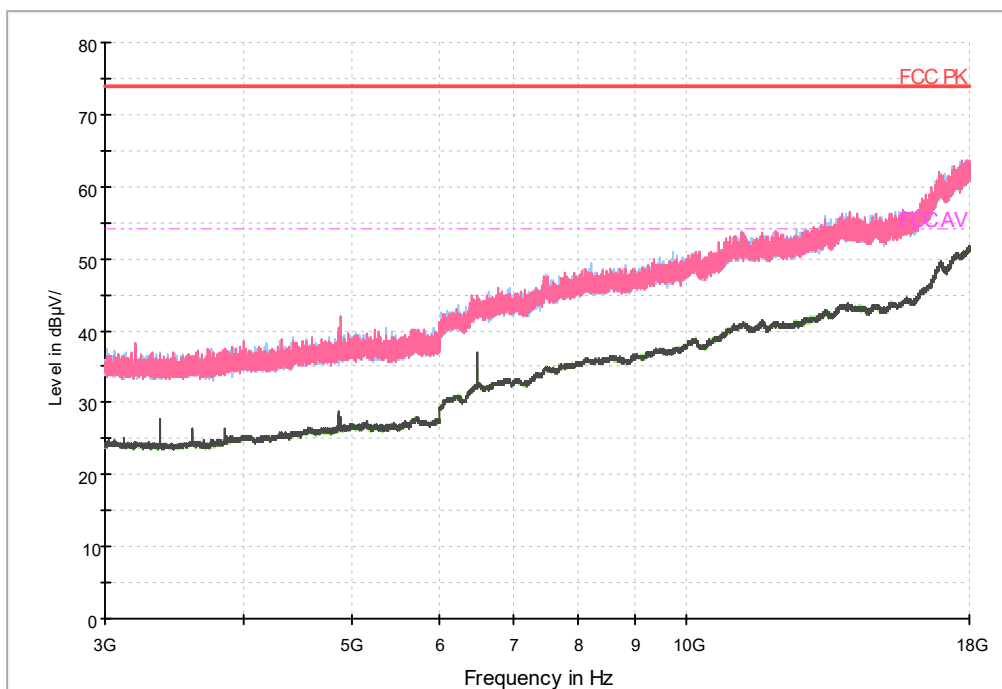


Fig.127 Radiated emission: 802.11g,Ch6, 3GHz-18GHz

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RE 1GHz-3GHz

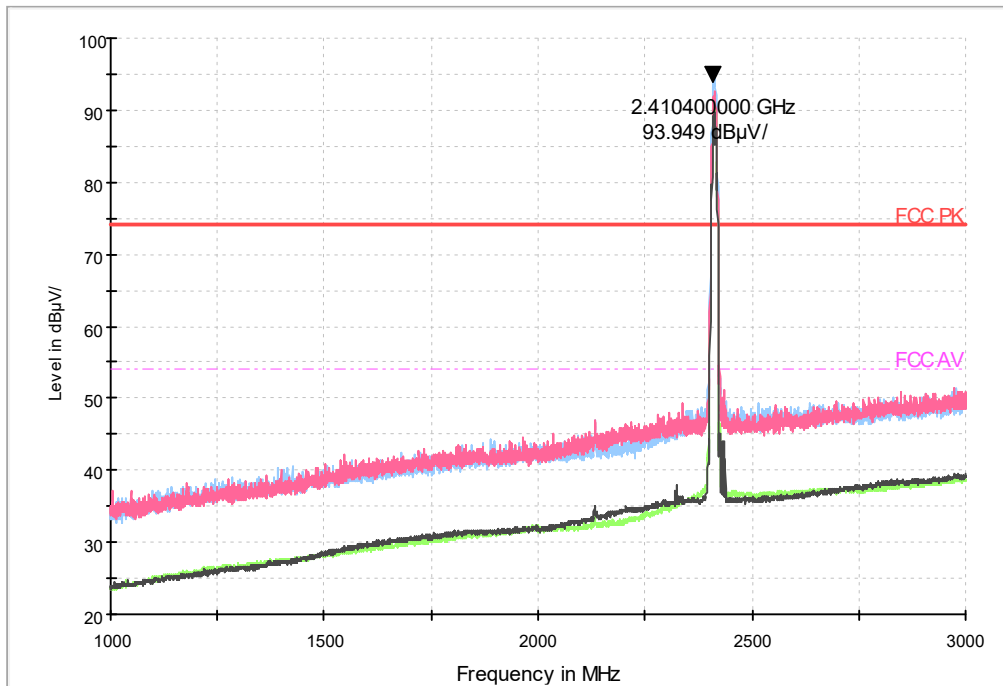


Fig.128 Radiated emission: 802.11g,Ch11, 1GHz-3GHz

RE 3GHz-18GHz

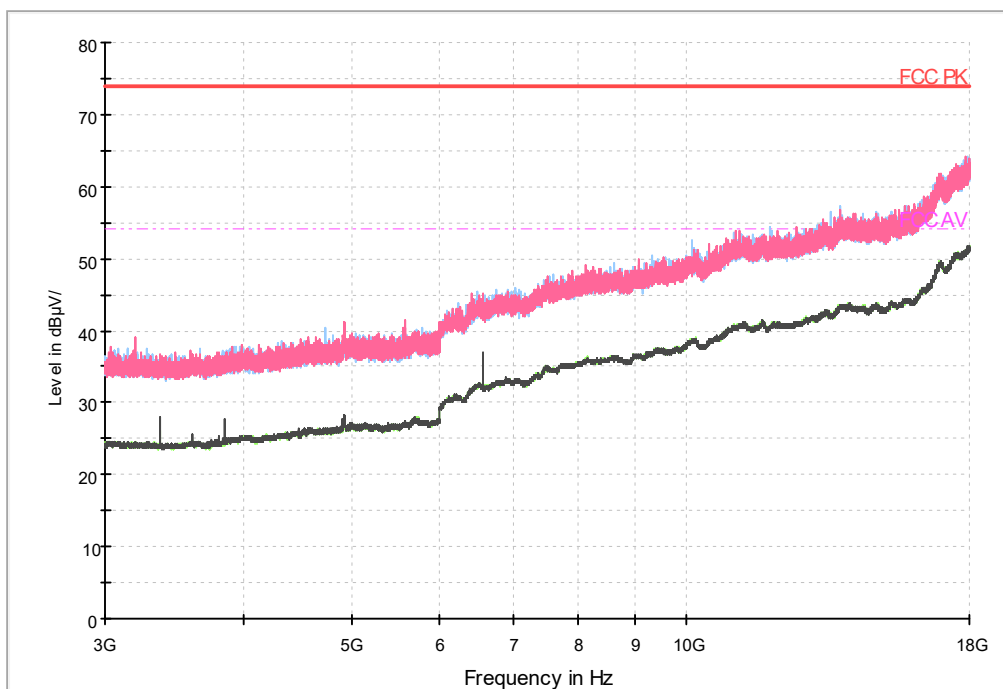


Fig.129 Radiated emission: 802.11g,Ch11, 3GHz-18GHz

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RE 1GHz-3GHz

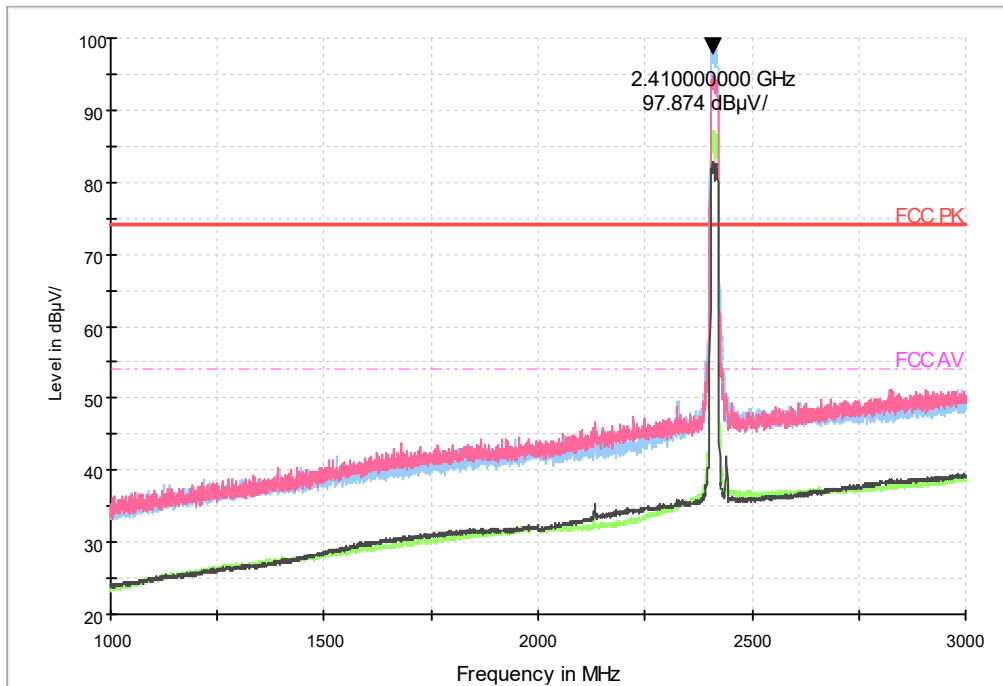


Fig.130 Radiated emission: 802.11n(20MHz),Ch1, 1GHz-3GHz

RE 3GHz-18GHz

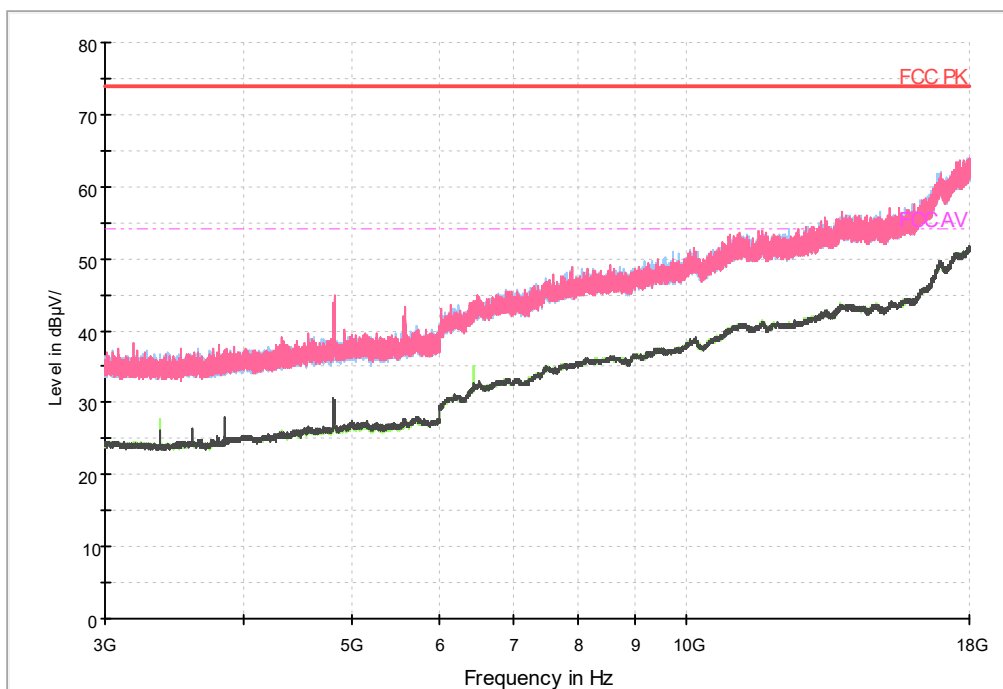


Fig.131 Radiated emission: 802.11 n(20MHz),Ch1, 3GHz-18GHz

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RE 1GHz-3GHz

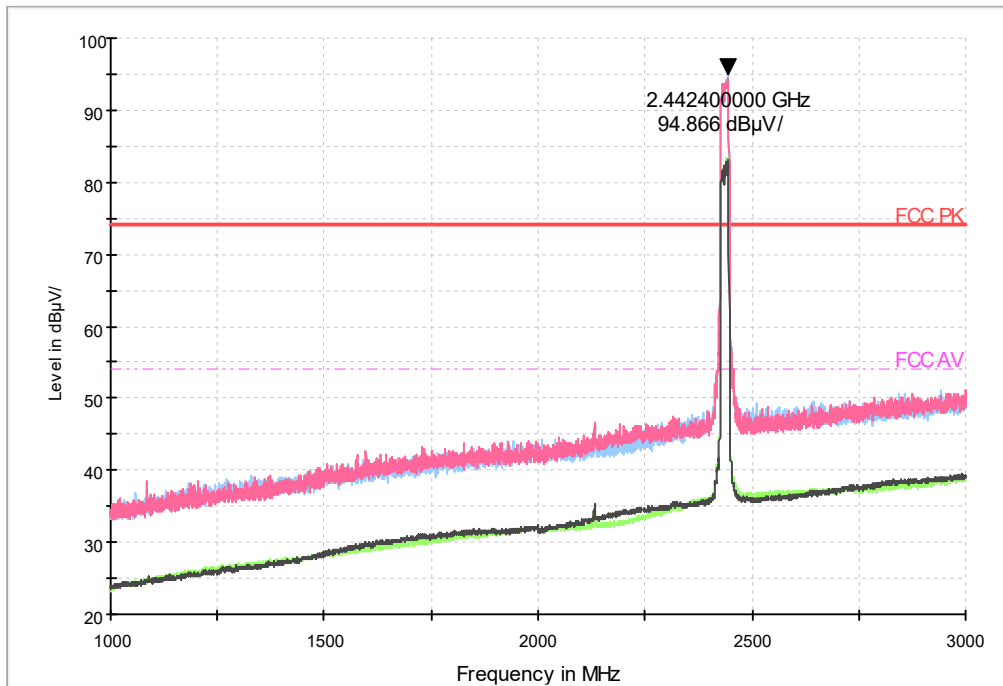


Fig.132 Radiated emission: 802.11 n(20MHz),Ch6, 1GHz-3GHz

RE 3GHz-18GHz

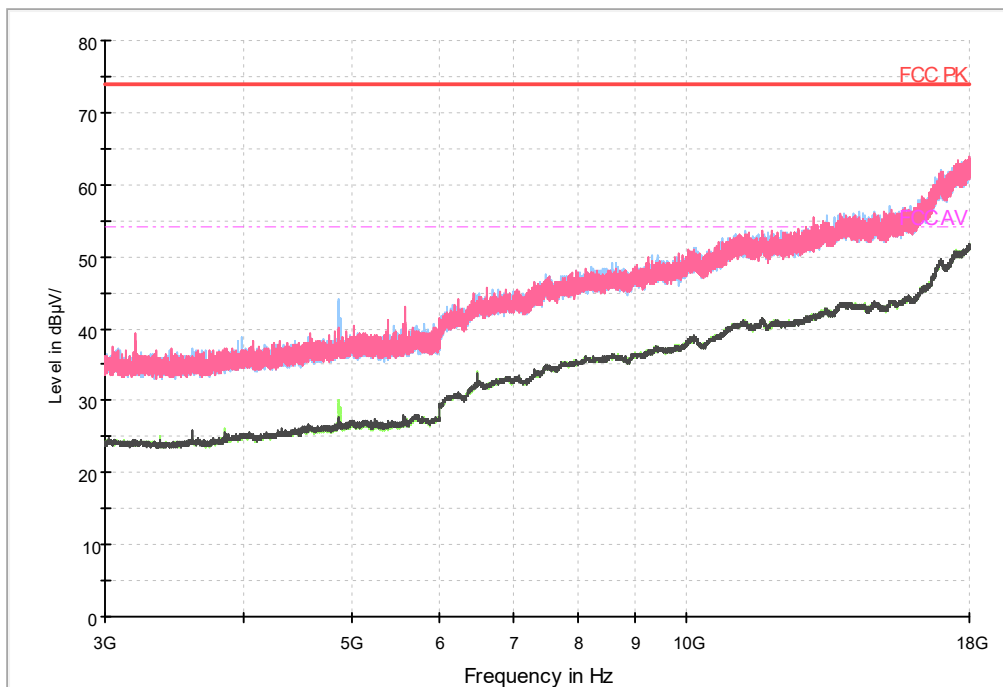


Fig.133 Radiated emission: 802.11 n(20MHz),Ch6, 3GHz-18GHz

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RE 1GHz-3GHz

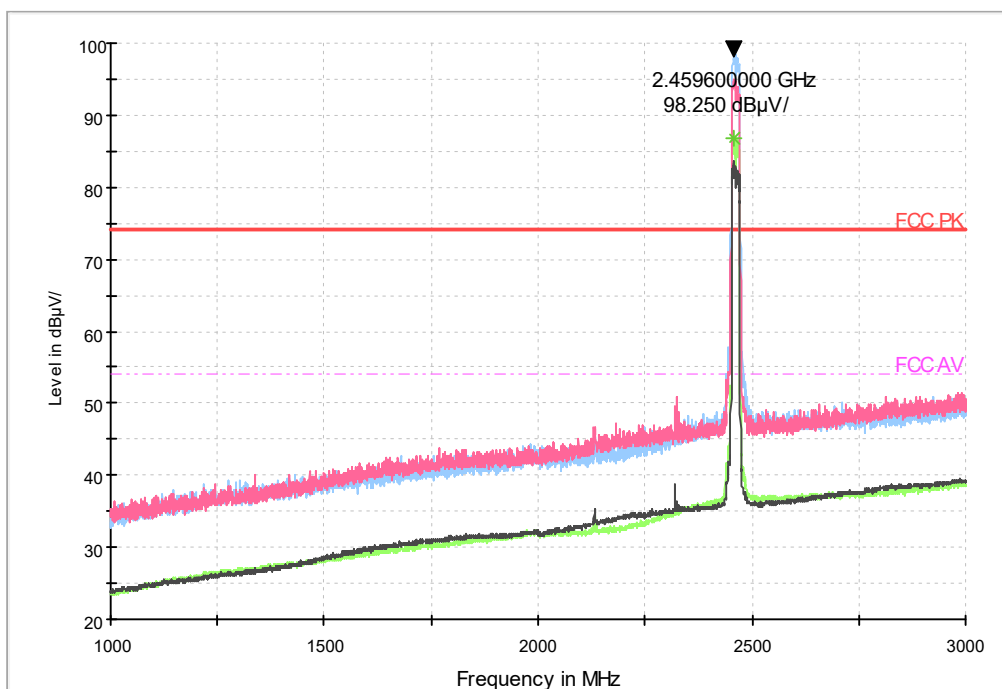


Fig.134 Radiated emission: 802.11 n(20MHz),Ch11, 1GHz-3GHz

RE 3GHz-18GHz

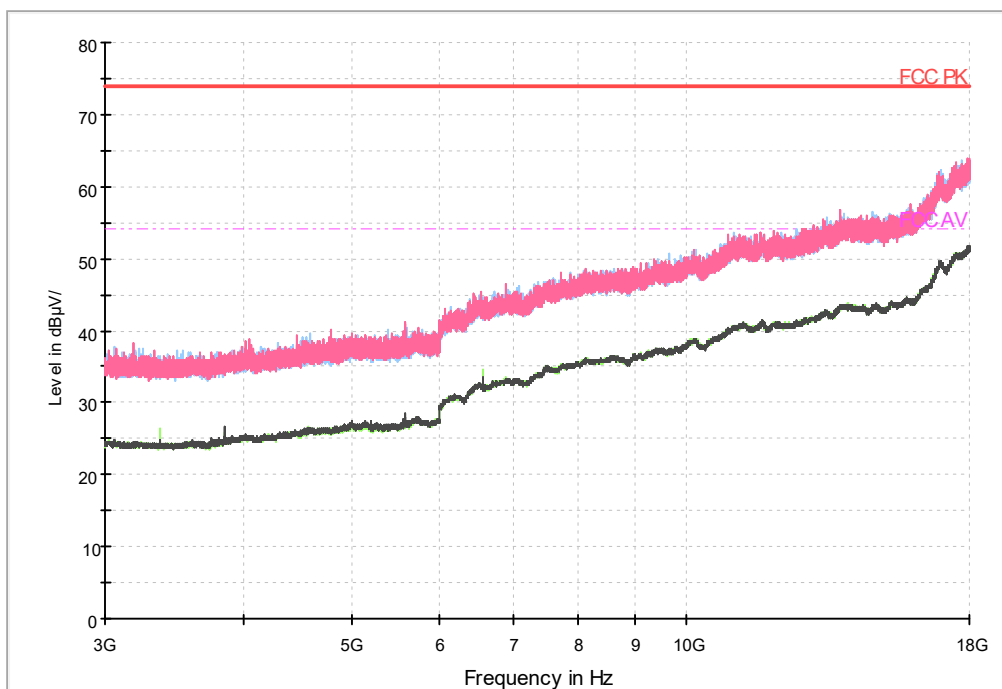


Fig.135 Radiated emission: 802.11 n(20MHz),Ch11, 3GHz-18GHz

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RE 1GHz-3GHz

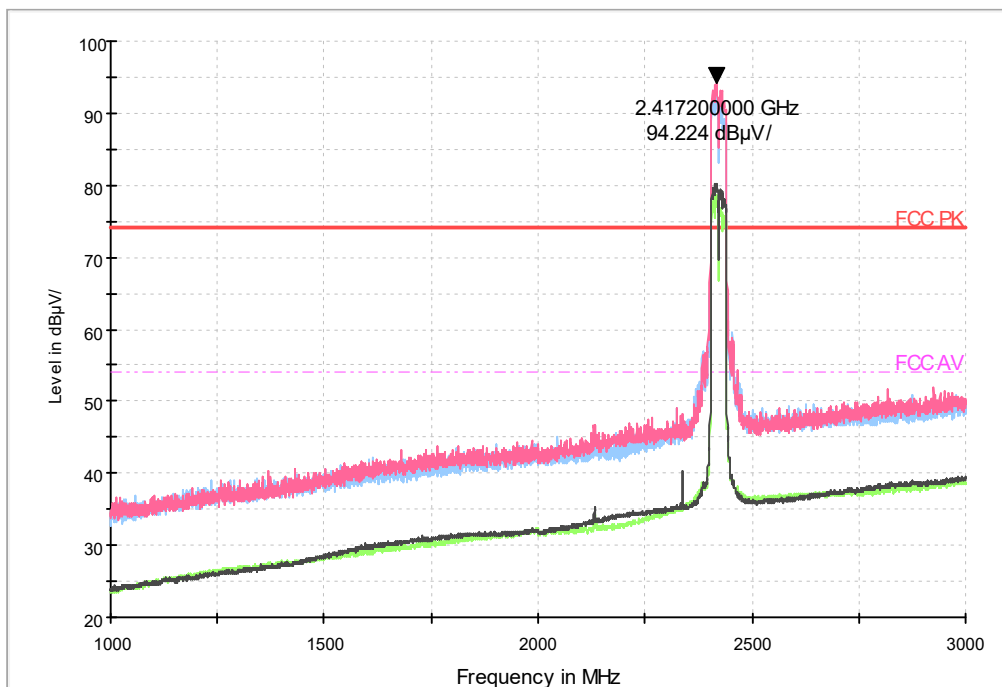


Fig.136 Radiated emission: 802.11 n(40MHz),Ch3, 1GHz-3GHz

RE 3GHz-18GHz

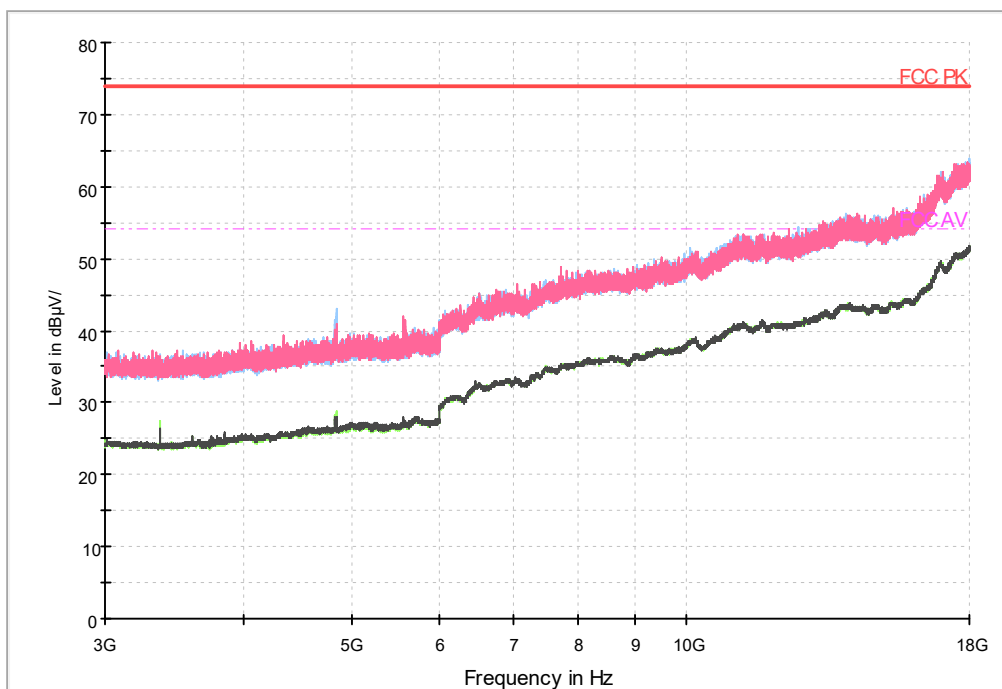


Fig.137 Radiated emission: 802.11 n(40MHz),Ch3, 3GHz-18GHz

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RE 1GHz-3GHz

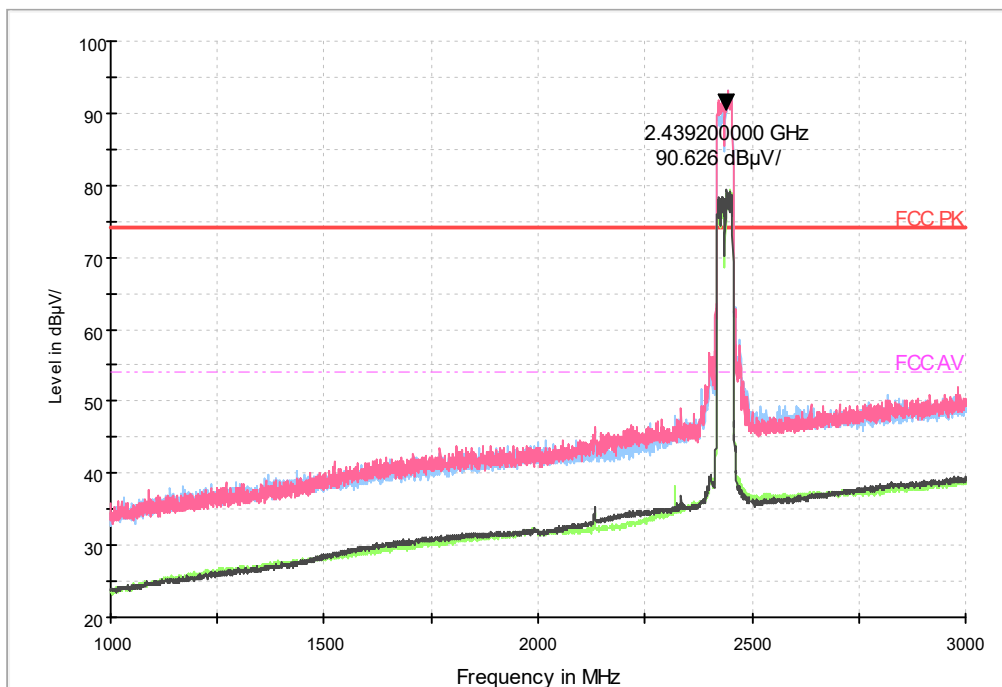


Fig.138 Radiated emission: 802.11 n(40MHz),Ch6, 1GHz-3GHz

RE 3GHz-18GHz

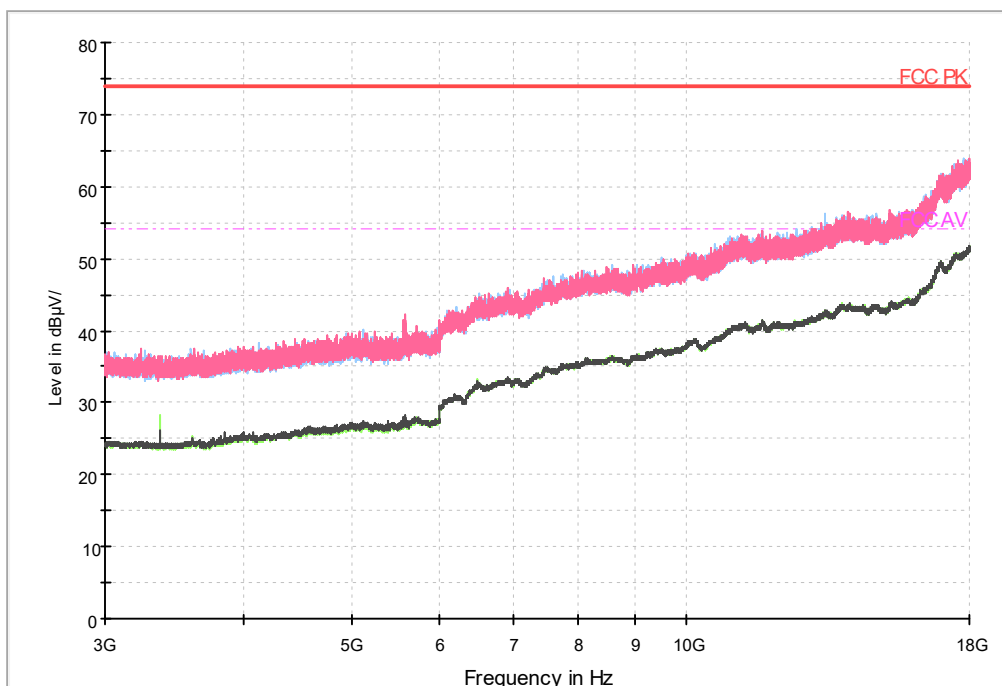


Fig.139 Radiated emission: 802.11 n(40MHz),Ch6, 3GHz-18GHz

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RE 1GHz-3GHz

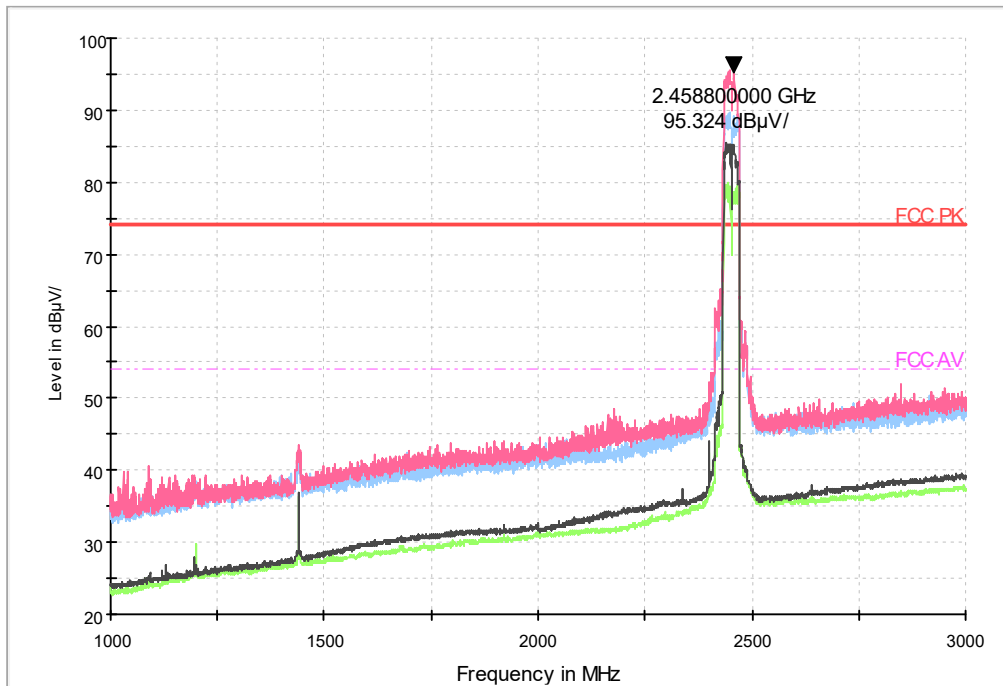


Fig.140 Radiated emission: 802.11 n(40MHz),Ch9, 1GHz-3GHz

RE 3GHz-18GHz

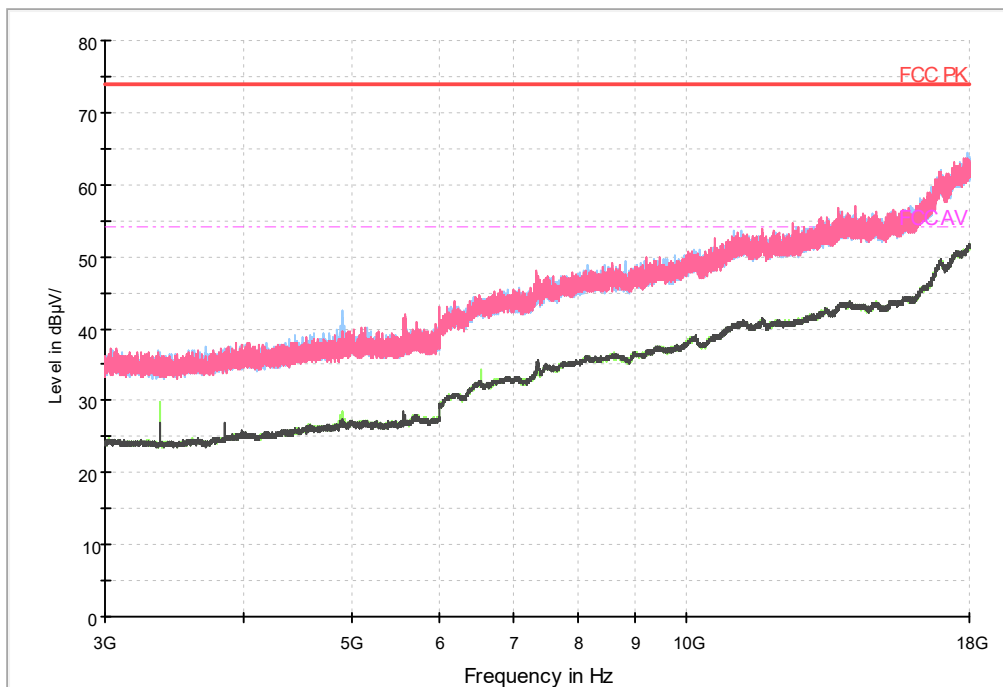


Fig.141 Radiated emission: 802.11 n(40MHz),Ch9, 3GHz-18GHz

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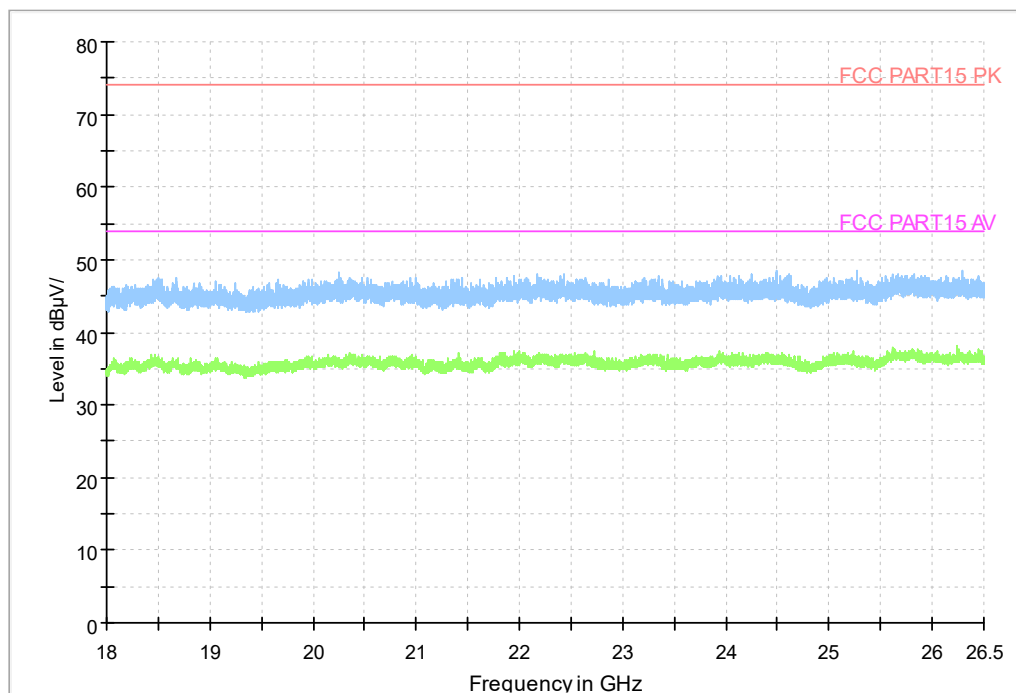


Fig.142 Radiated emission: 18 GHz – 26.5GHz

Test photo

See the Pic1- Pic 2 in document" PA32 _Wifi_BT_Test Setup Photos".

Report No.:I21W00017-WLAN_Rev1**5.8 Power line Conducted Emissions**

Specifications:	part 15.207
DUT Serial Number:	866884045658127
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit

The EUT meets the requirement of having a peak to average ratio of less than 13dB.

For an intentional radiator which 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 or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolt (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

Measurement Uncertainty:

Frequency Range	Uncertainty
150 kHz to 30 MHz	1.83

Limits of the conducted disturbance at the AC mains ports:

Frequency range	Limit(Quasi-peak)	Limit(Average)
0.15 MHz to 0.5 MHz	66 dB μ V – 56 dB μ V	56 dB μ V – 46 dB μ V
>0.5 MHz to 5MHz	56 dB μ V	46 dB μ V
>5 MHz to 30 MHz	60 dB μ V	50 dB μ V
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

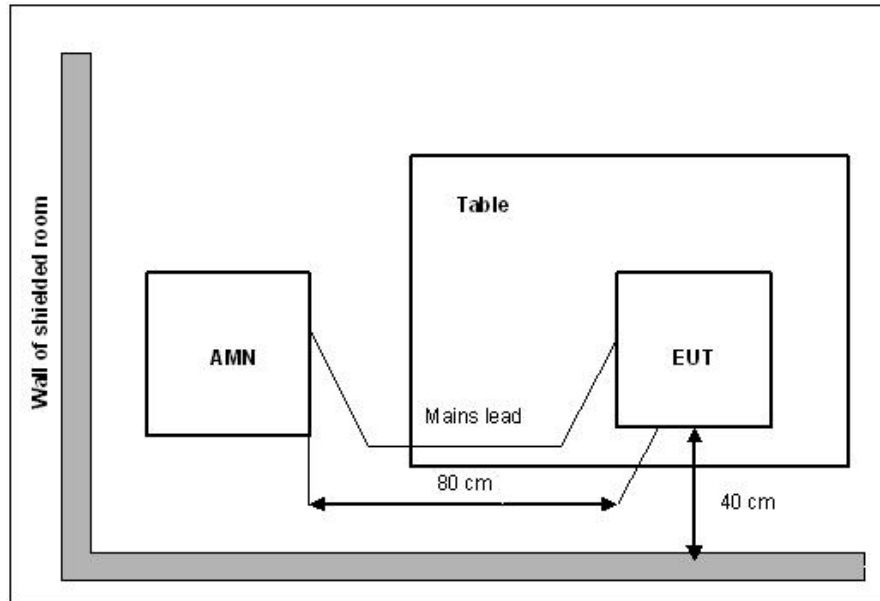
Test Setup

The EUT was placed in a shielding room. The WLAN TESTER was used to set the TX channel and power level. The ac adapter output is connected to Receiver through an AMN (Artificial Mains Network).

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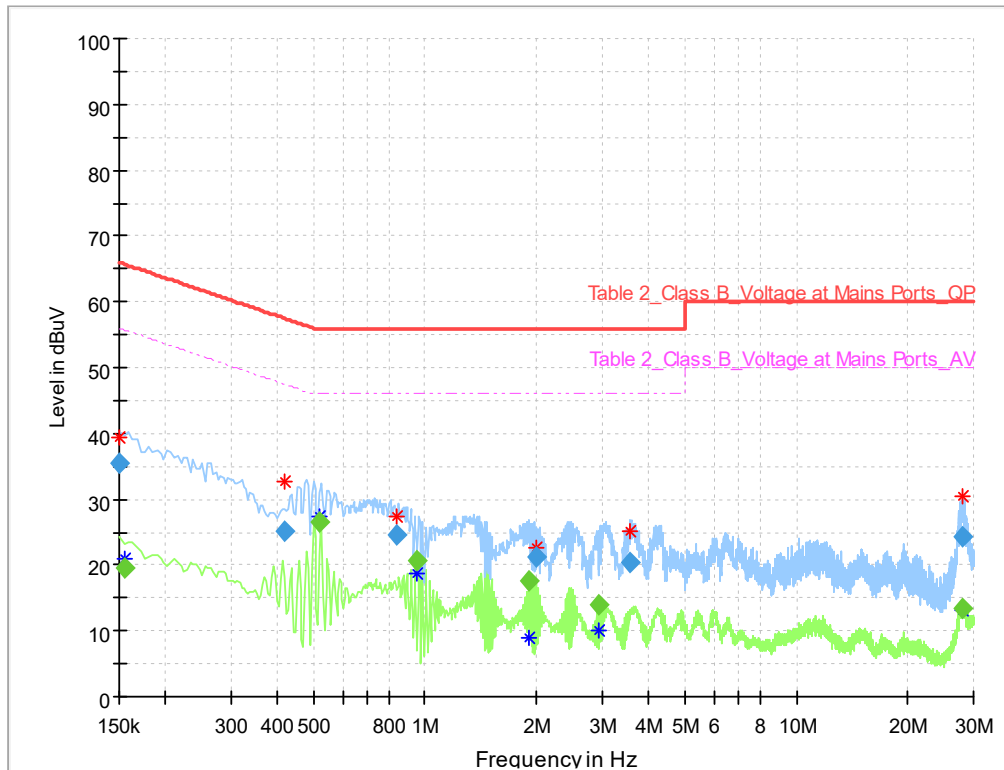
Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.

The measurement is made according to ANSI C63.10-2013.

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Test Result:



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit dBuV	Margin (dB)	Meas. Time (ms)	Line	Filter	Corr. (dB)
0.150000	35.41	---	66.00	30.59	1000.0	N	ON	10.9
0.154500	---	19.67	55.75	36.08	1000.0	N	ON	10.6
0.416228	25.18	---	57.52	32.34	1000.0	L1	ON	10.0
0.518625	---	26.58	46.00	19.42	1000.0	N	ON	10.1
0.841698	24.63	---	56.00	31.37	1000.0	N	ON	9.9
0.952544	---	20.78	46.00	25.22	1000.0	N	ON	9.9
1.904779	---	17.60	46.00	28.40	1000.0	N	ON	9.8
2.003779	21.30	---	56.00	34.70	1000.0	N	ON	9.8
2.941412	---	13.96	46.00	32.04	1000.0	N	ON	9.8
3.556191	20.40	---	56.00	35.60	1000.0	N	ON	9.8
27.989184	24.17	---	60.00	35.83	1000.0	N	ON	10.3
28.012897	---	13.40	50.00	36.60	1000.0	L1	ON	10.2

Test photo

See the Pic3 in document" PA32 _Wifi Test Setup Photos".

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Annex A EUT Photos

See the document'' PA32 -External Photos''.

See the document'' PA32 -Internal Photos''.

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ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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