TEST REPORT

REPORT NUMBER: B16X50165-WLAN_Rev1

ON

Type of Equipment:	Pad
Model Name:	Ilium Pad T7X
Manufacturer:	Amer Mobile Ltd.,com

ACCORDING TO

FCC Part 15, Subpart C, 2015:
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

China Telecommunication Technology Labs.

Month date, year
Jun, 08, 2016
Signature

He Guili
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 China Telecommunication Technology Labs.

FCC ID:	ZC4T7X
Report Date:	2016-06-08
Test Firm Name:	China Telecommunication Technology Labs
FCC Registration Number:	840587

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.

CONTENTS

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 and FCC DA 00-705.

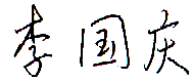
The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

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

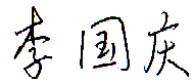
China Telecommunication Technology Labs.(CTTL) authorizes the applicant or manufacturer (see section 1.4) to reproduce this report provided, and the test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of director of CTTL Mr. He Guili.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. CTTL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

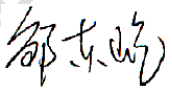
1.2 Testers

Name:	Li Guoqing
Position:	Engineer
Department:	Department of RF test
Date:	2016-05-03 to 2016-06-08
Signature:	

Editor of this test report:

Name:	Li Guoqing
Position:	Engineer
Department:	Department of RF test
Date:	2016-06-08
Signature:	

Technical responsibility for area of testing:

Name:	Zou Dongyi
Position:	Manager
Department:	Director of the laboratory
Date:	2016-06-08
Signature:	

1.3 Testing Laboratory information

1.3.1 Location

Name:	China Telecommunication Technology Labs.
Address:	No. 11, Yue Tan Nan Jie, Xi Cheng District BEIJING P. R. CHINA, 100083
Tel:	+86 10 68094053
Fax:	+86 10 68011404
Email:	emc@chinattl.com

1.3.2 Details of accreditation status

Accredited by:	China National Accreditation Service for Conformity Assessment (CNAS)
Registration number:	CNAS Registration No. CNAS L0570
Standard:	ISO/IEC 17025:2005

1.3.3 Test location, where different from section 1.3.1

Name:	------
Street:	------
City:	------
Country:	------
Telephone:	------
Fax:	------
Postcode:	------

1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name:	Corporativo Lanix S.A.de C.V.
Address:	Carretera Internacional Hermosillo - Nogales Km 8.5 Hermosillo, Sonora, México
Country:	México
Telephone:	0052 16621090811
Fax:	--
Contact:	Oscar Guzman
Email:	oguzman@lanix.com

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name:	Amer Mobile Ltd.,com
Address:	17/F, Tower B, Huihai Sqr, Chuangye Rd, Longhua Dist, Shenzhen, China
Country:	China
Telephone:	86 13421844861
Fax:	--
Contact:	Windy.Chen
Email:	chengang841230@163.com

2 Test Item

2.1 General Information

Manufacturer:	Amer Mobile Ltd.,com
Type of Equipment:	Pad
Model Name:	Ilium Pad T7X
Serial Number:	S4/10: 358066070000145 S8/10: 358066070000665
Production Status:	Product
Receipt date of test item:	2016-05-03

2.2 Outline of Equipment under Test

The Ilium Pad T7X, referred to as "EUT" hereafter, is a multi-band wireless modem operating on the GSM/UMTS networks. The table below shows the supported bands for the EUT.

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
GSM	GSM850	824 - 849	869 – 894	--
	PCS1900	1850 - 1910	1930 - 1990	--
WCDMA	B2	1850 – 1910	1930 – 1990	--
	B5	824 – 849	869 – 894	--

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	Modem	Amer Mobile Ltd.,com	Ilium Pad T7X	S4/10: 358066070000145 S8/10: 358066070000665	None
B	Adaptor	None	None	--	None

2.5 Other Information

--

3 Summary of Test Results

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

FCC Rules	Name of Test	Result
15.247(b)	Maximum Peak Output Power	Pass
15.247(e)	Peak Power Spectral Density	Pass
15.247(a)	6dB Occupied Bandwidth	Pass
15.247(d)	Band Edges Compliance	Pass
15.247 (d)	Transmitter Spurious Emission-Conducted	Pass
15.247, 15.205, 15.209	Transmitter Spurious Emission-Radiated	Pass
ANSI C63.4 voltage mains test	Power line Conducted Emissions	Pass

4 Test Equipments and Ancillaries Used For Tests

The test equipments and ancillaries used are as follows.

No.	Equipment	Model	SN	Manufacture	Cal. Due Date
1	EMI Test Receiver	ESU26	100367	R&S	2017-03-04
2	Trilog super broadband test antenna	VULB 9163	9163-544	R&S	2017-01-05
3	Double-Ridged Horn Antenna	HF907	100356	R&S	2016-12-12
4	Fully-Anechoic Chamber	11.8m×6.5 m×6.3m	--	ETS	2017-08-19
5	Universal Radio Communication Tester	CMW500	128181	R&S	2017-03-04
6	Signal Generator	SMU200A	104517	R&S	2017-03-04
7	spectrum analyzer	FSQ 26	201137/026	R&S	2017-03-04
8	Climate chamber	SH-241	92010759	ESPEC	2017-03-04
9	DC Power Supply	N6705B	MY50000919	Agilent	2017-12-06

5 Test Results

5.1 Maximum Peak Output Power

Specifications:	FCC Part 15.247(b)
DUT Serial Number:	S4/10: 358066070000145
Test conditions:	Ambient Temperature:15℃-35℃ 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.

Test Method:

The measurement is according to ANSI C63.10 clause 11.2

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 ≥ OBW, Set the appropriate VBW
4. Detector : Peak.
5. Trace mode: Max Hold

Note: --

Measurement Results:

802.11b/g mode

Mode	Data Rate(Mbps)	Teat Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11b	1	13.18	13.40	13.76	Pass
	2	13.32	13.37	13.63	Pass
	5.5	12.88	12.87	13.17	Pass
	11	13.01	13.12	13.34	Pass
802.11g	6	12.69	12.50	13.11	Pass
	9	13.02	12.85	13.43	Pass
	12	12.91	13.01	13.43	Pass
	18	12.67	12.70	13.35	Pass
	24	12.81	12.54	13.22	Pass
	36	12.69	12.59	13.16	Pass
	48	12.60	12.54	13.05	Pass
	54	12.82	12.60	12.98	Pass

802.11n mode

Mode	Data Rate(Mbps)	Teat Result(dBm)			Conclusion
		Ch1	Ch6	Ch11	
802.11n (20MHz)	MCS0	12.66	12.69	12.83	Pass
	MCS1	12.85	12.53	12.92	Pass
	MCS2	12.38	12.23	12.98	Pass
	MCS3	12.47	12.27	12.94	Pass
	MCS4	12.62	12.34	12.71	Pass
	MCS5	12.85	12.77	13.09	Pass
	MCS6	13.06	12.85	13.35	Pass
	MCS7	12.78	12.59	13.58	Pass
802.11n (40MHz)	MCS0	11.23	11.46	10.88	Pass
	MCS1	11.10	10.86	10.65	Pass
	MCS2	11.14	11.23	10.61	Pass
	MCS3	11.27	11.64	11.16	Pass
	MCS4	11.37	11.52	10.67	Pass
	MCS5	11.02	11.63	11.04	Pass
	MCS6	11.37	11.55	11.21	Pass
	MCS7	11.48	11.13	10.88	Pass

Conclusion: PASS

Test figure as below:

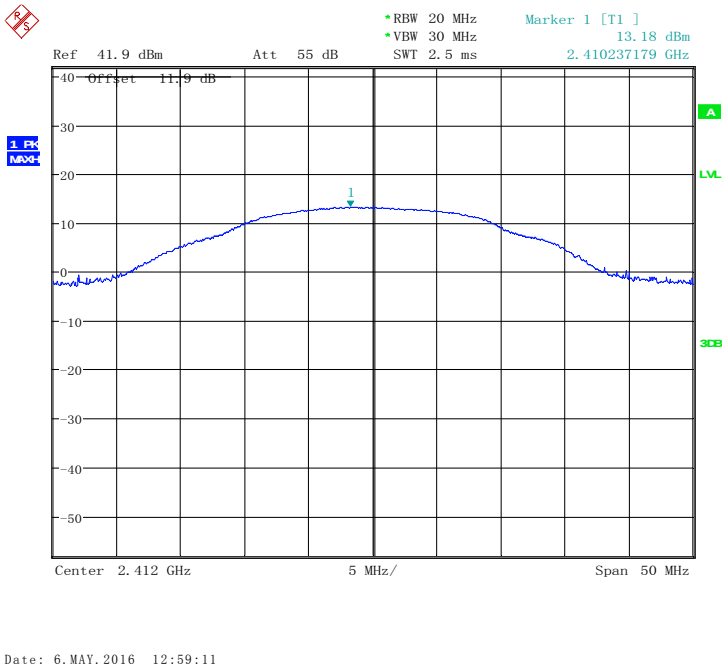


Fig.1 Peak Conducted Output Power CH1, 11b, Rate1

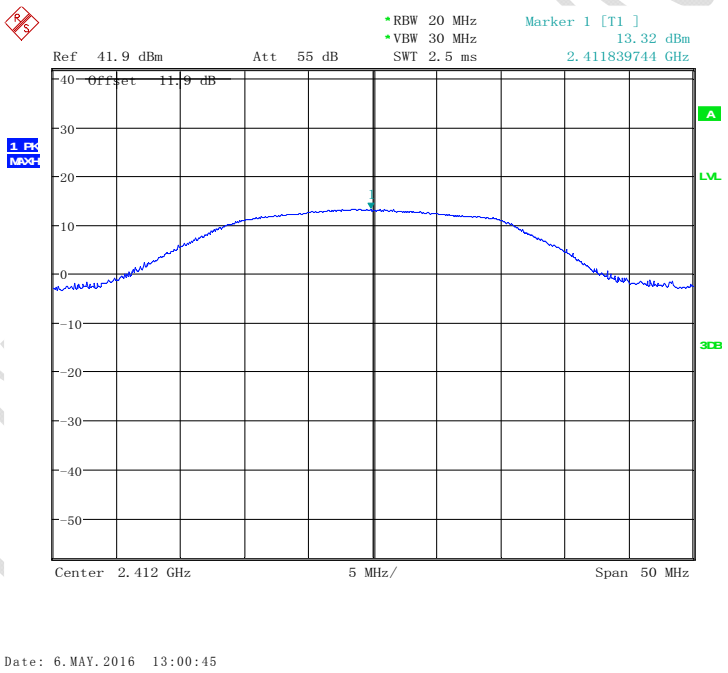


Fig.2 Peak Conducted Output Power CH1, 11b, Rate2

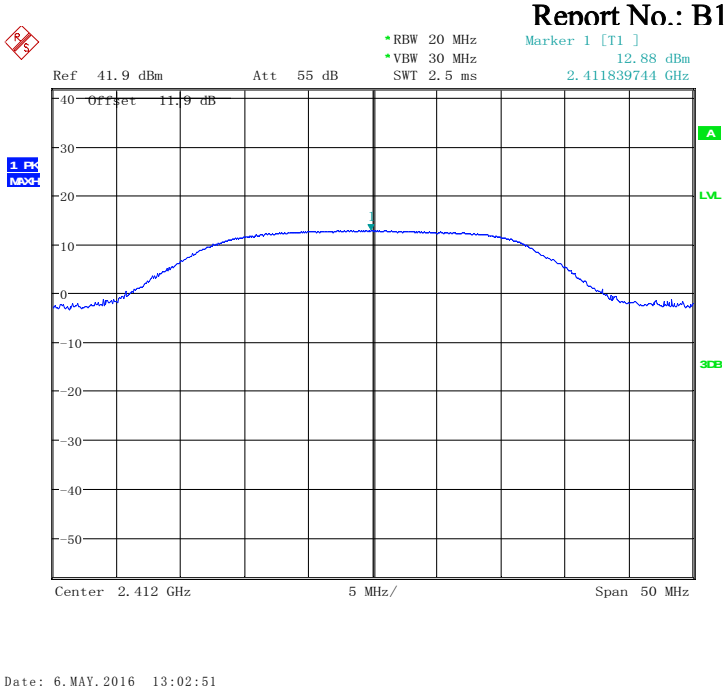


Fig.3 Peak Conducted Output Power CH1, 11b, Rate5.5

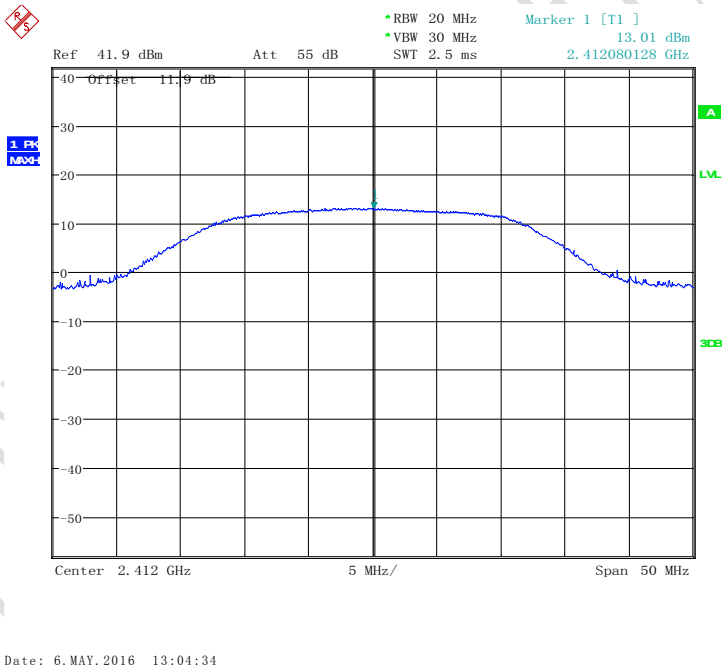


Fig.4 Peak Conducted Output Power CH1, 11b, Rate11

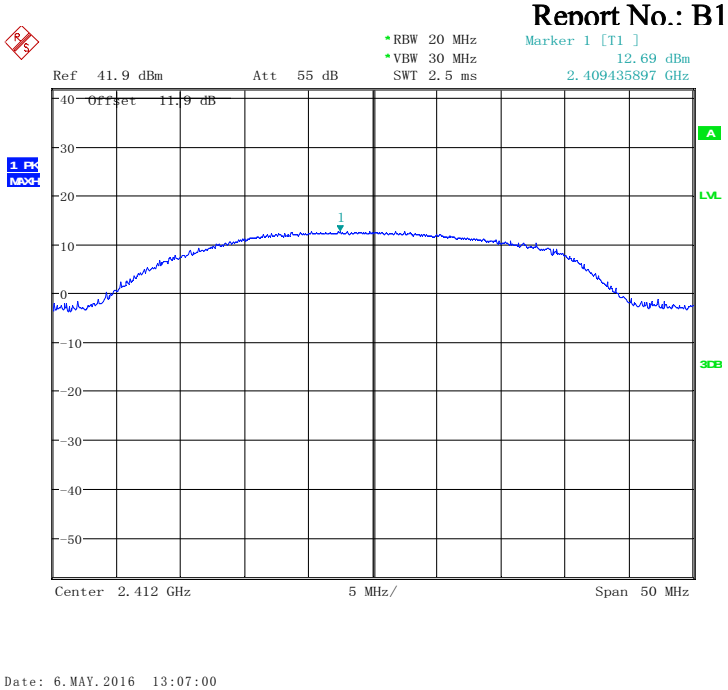


Fig.5 Peak Conducted Output Power CH1, 11g, Rate6

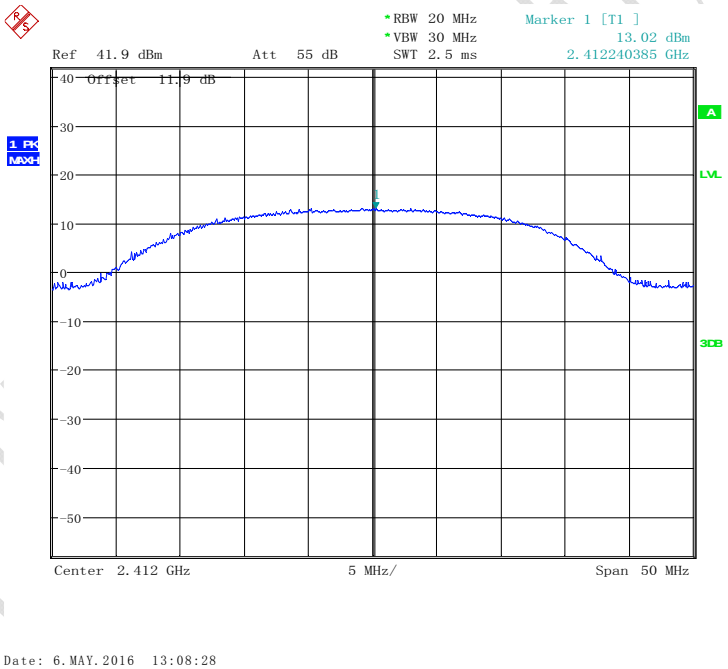


Fig.6 Peak Conducted Output Power CH1, 11g, Rate9

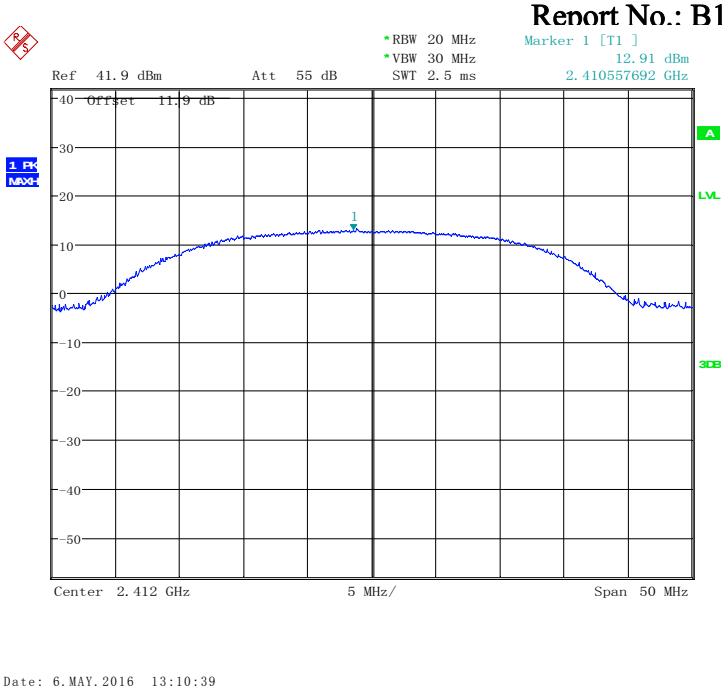


Fig.7 Peak Conducted Output Power CH1, 11g, Rate12

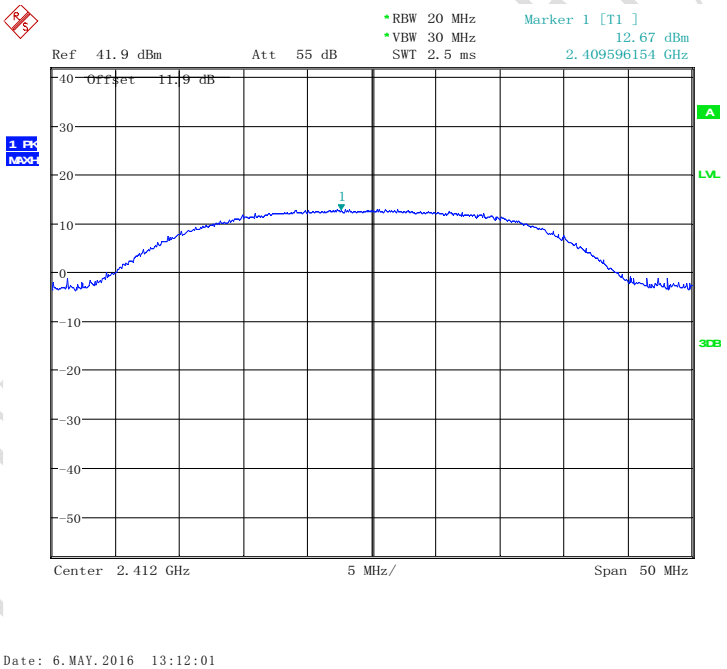


Fig.8 Peak Conducted Output Power CH1, 11g, Rate18

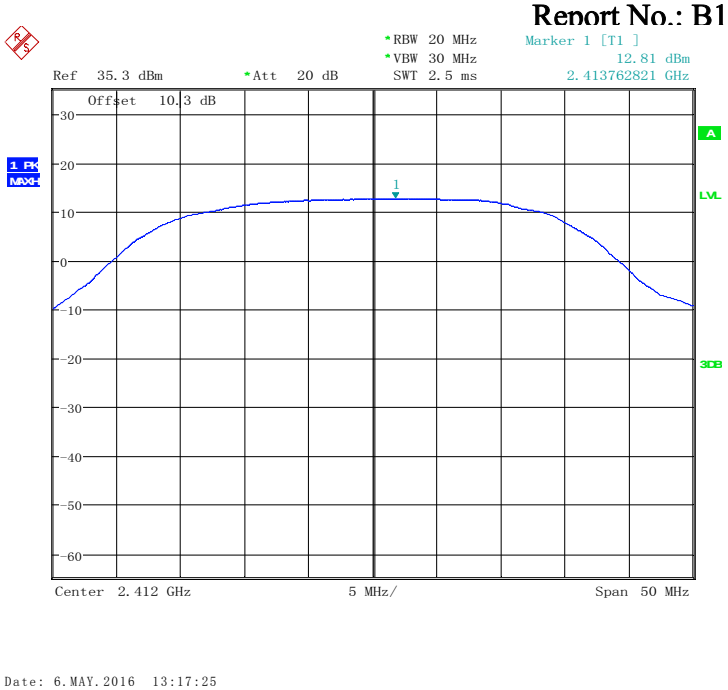


Fig.9 Peak Conducted Output Power CH1, 11g, Rate24

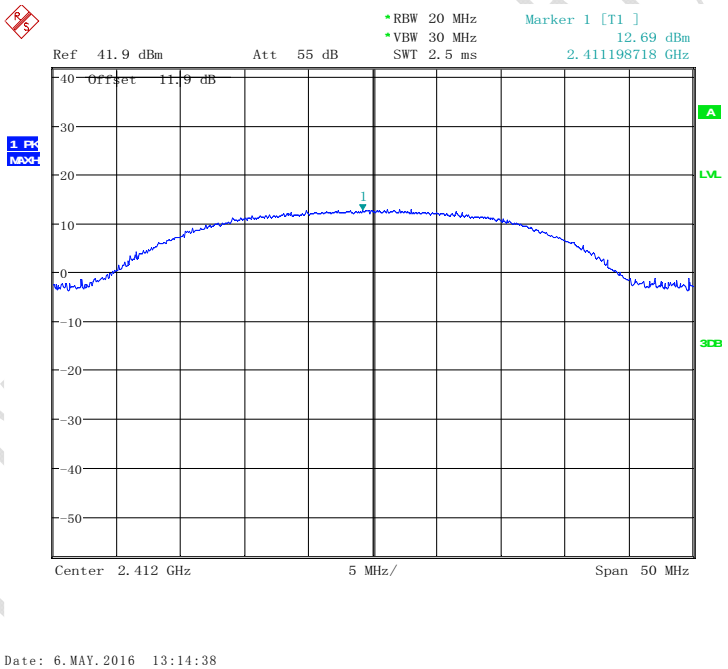


Fig.10 Peak Conducted Output Power CH1, 11g, Rate36

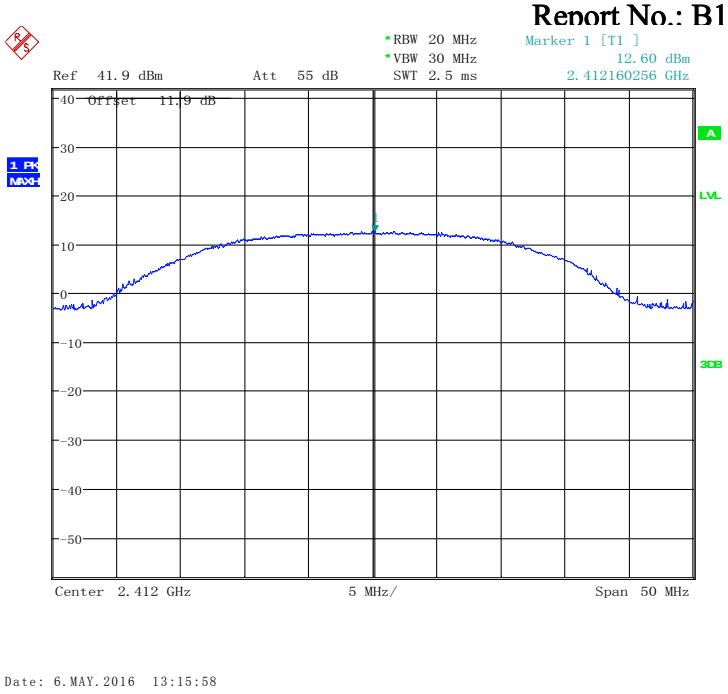


Fig.11 Peak Conducted Output Power CH1, 11g, Rate48

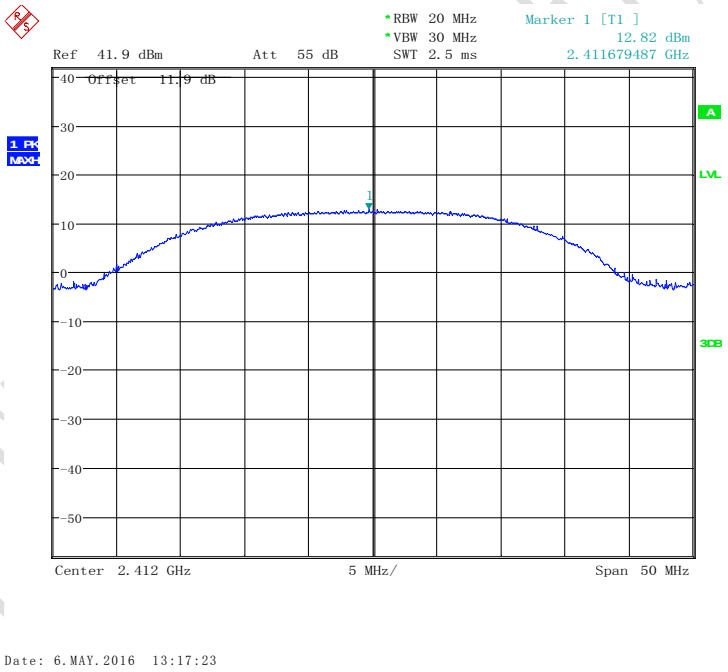


Fig.12 Peak Conducted Output Power CH1, 11g, Rate54

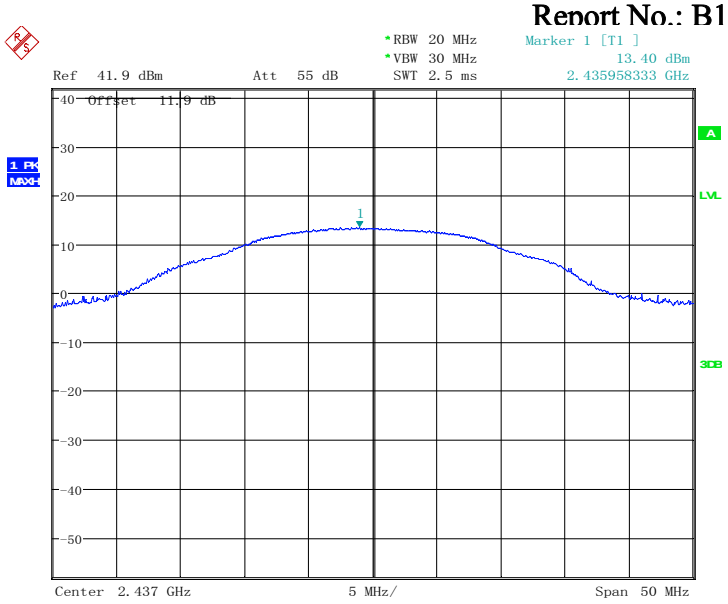


Fig.13 Peak Conducted Output Power CH6, 11b, Rate1

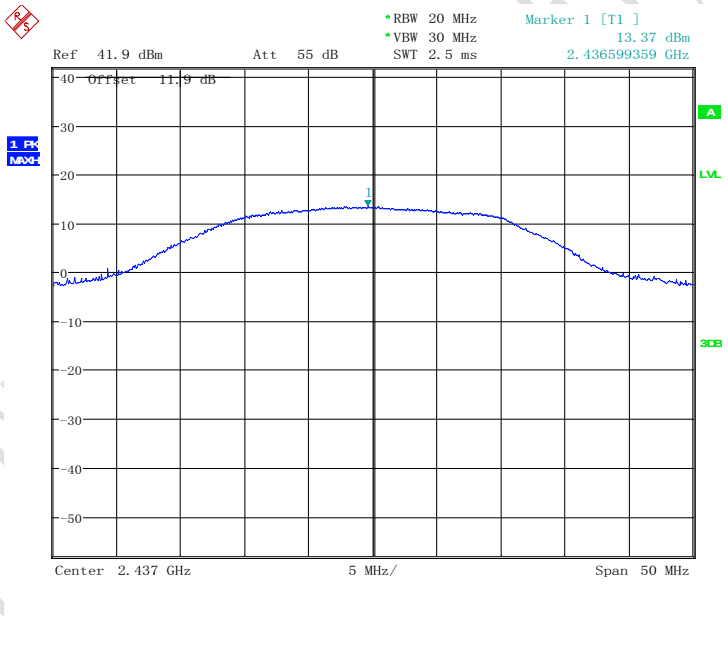


Fig.14 Peak Conducted Output Power CH6, 11b, Rate2

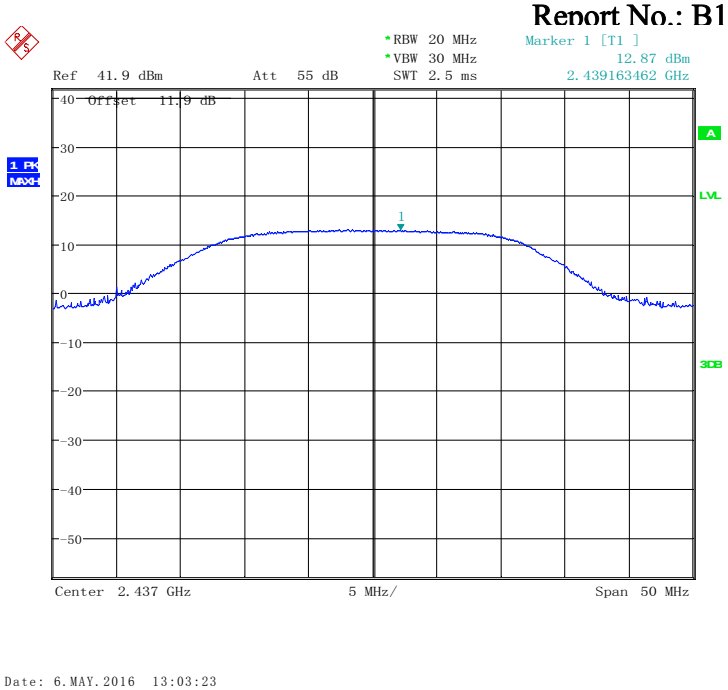


Fig.15 Peak Conducted Output Power CH6, 11b, Rate5.5

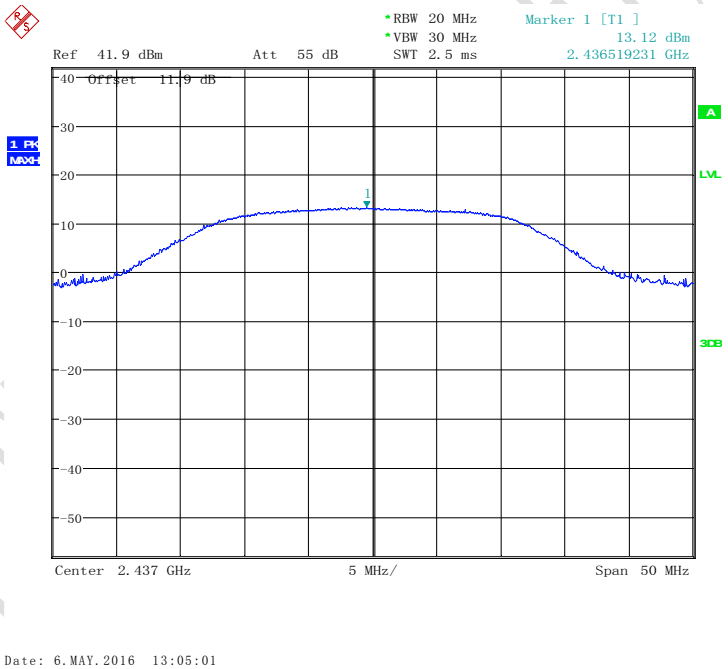


Fig.16 Peak Conducted Output Power CH6, 11b, Rate11

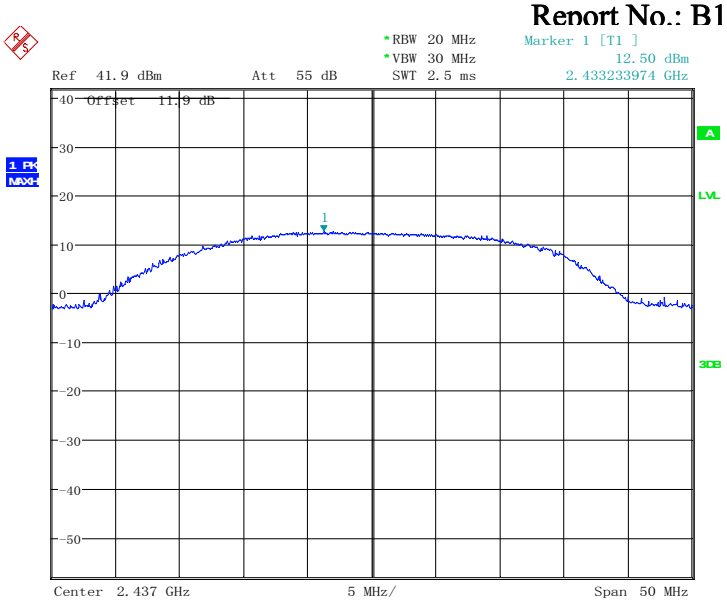


Fig.17 Peak Conducted Output Power CH6, 11g, Rate6

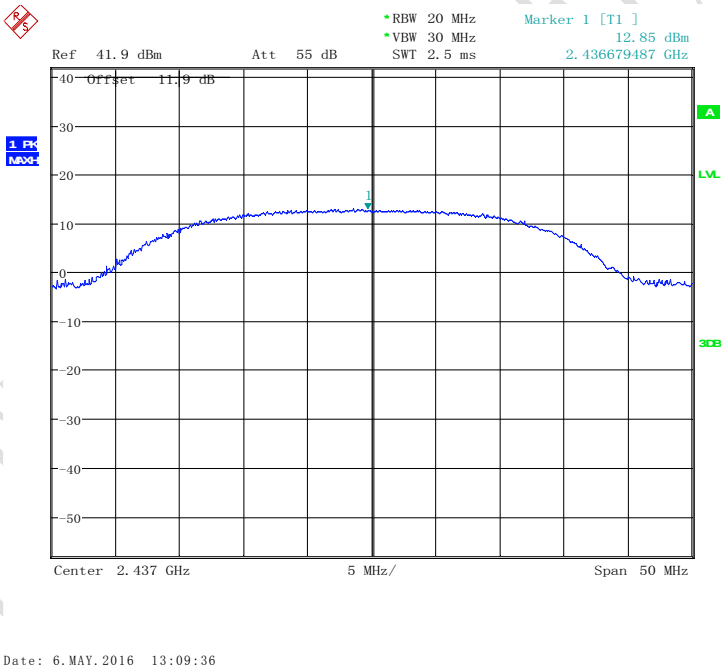


Fig.18 Conducted Output Power CH6, 11g, Rate9

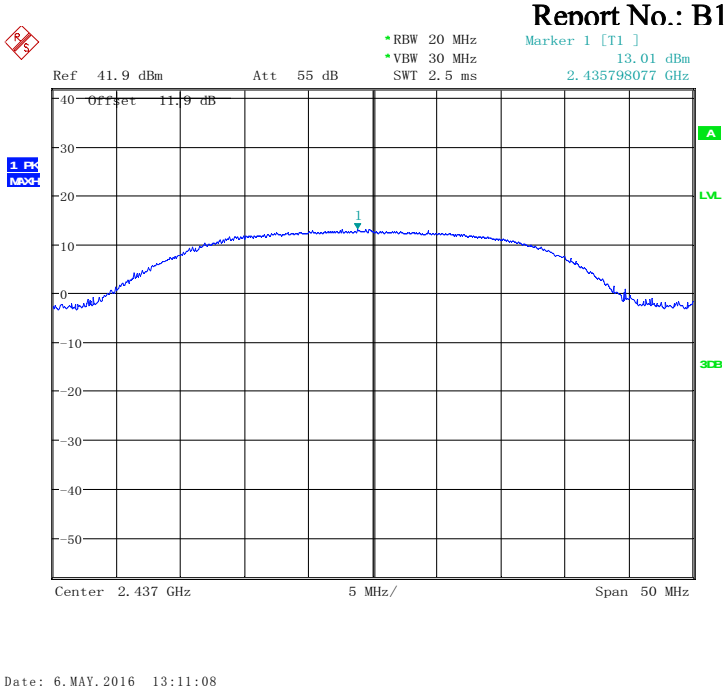


Fig.19 Conducted Output Power CH6, 11g, Rate12

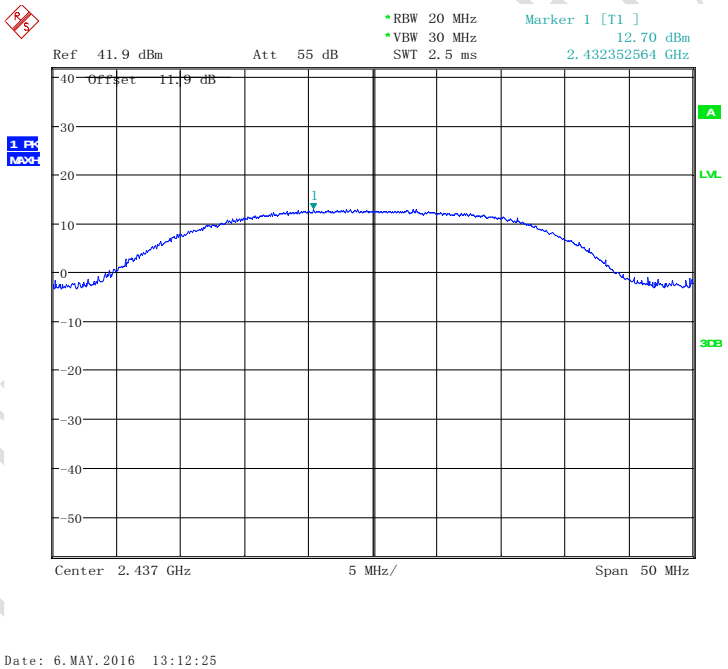


Fig.20 Conducted Output Power CH6, 11g, Rate18

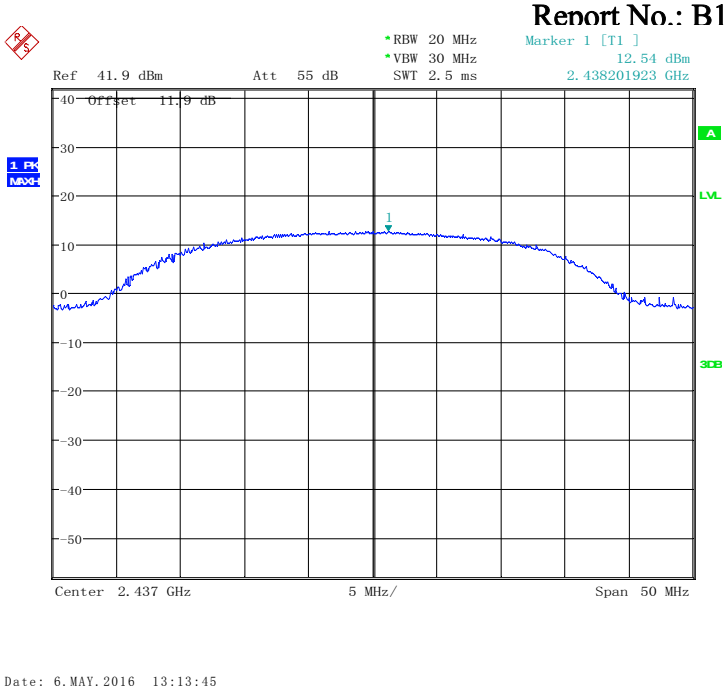


Fig.21 Conducted Output Power CH6, 11g, Rate24

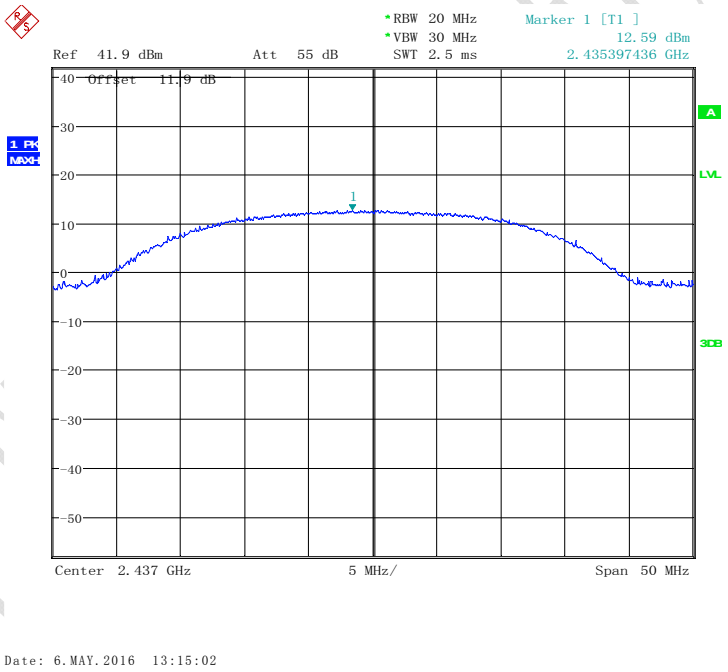


Fig.22 Conducted Output Power CH6, 11g, Rate36

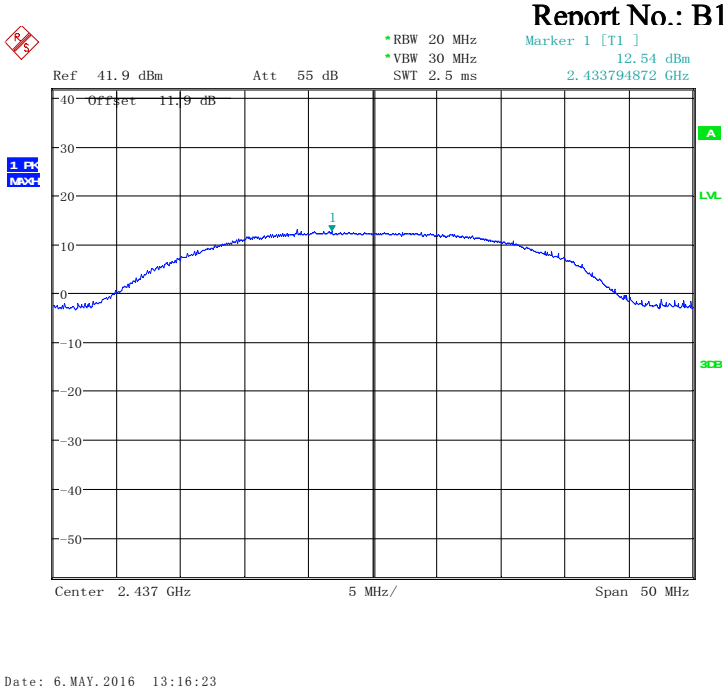


Fig.23 Conducted Output Power CH6, 11g, Rate48

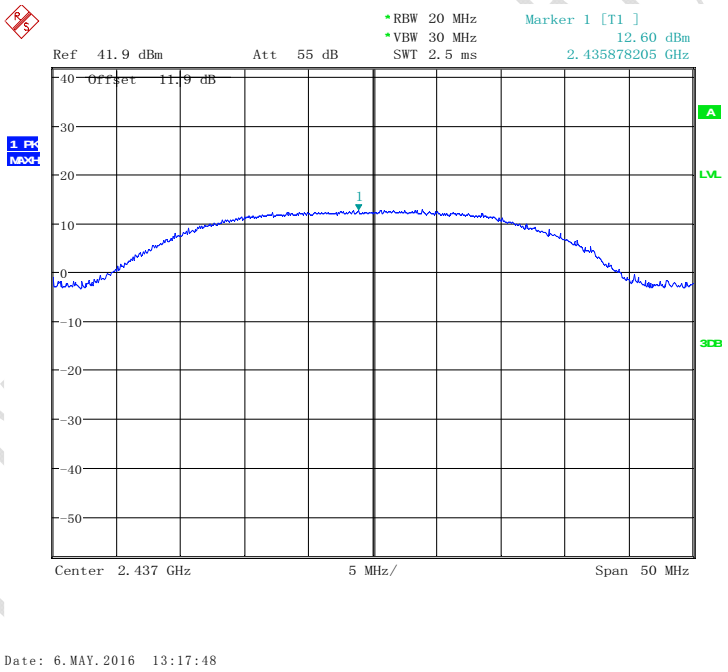


Fig.24 Conducted Output Power CH6, 11g, Rate54

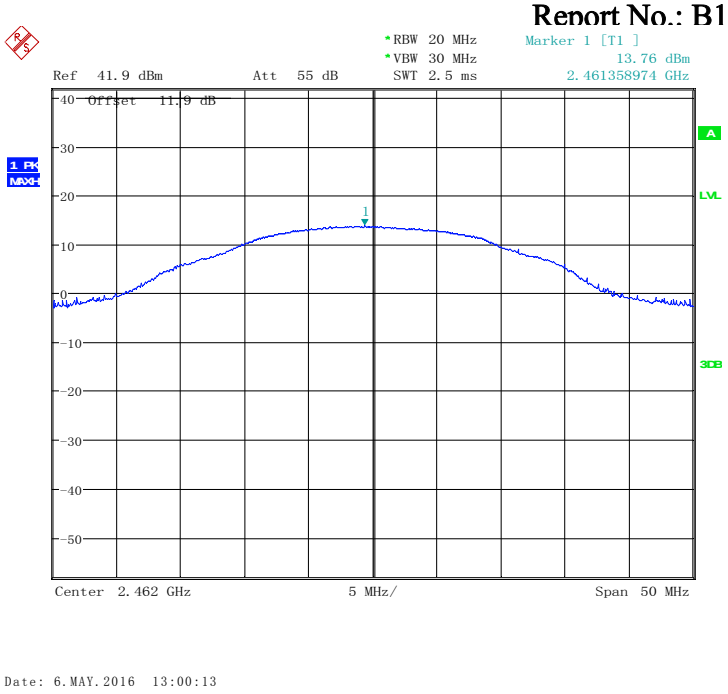


Fig.25 Conducted Output Power CH11, 11b, Rate1

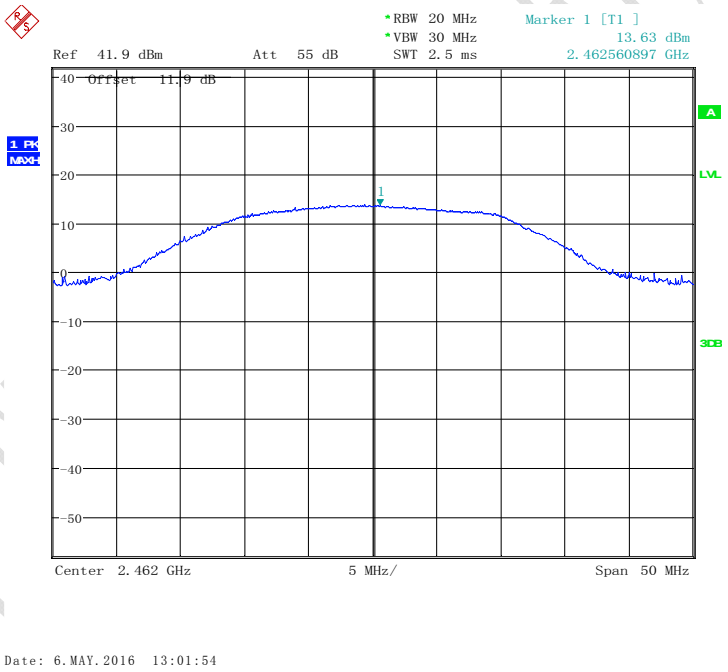


Fig.26 Conducted Output Power CH11, 11b, Rate2

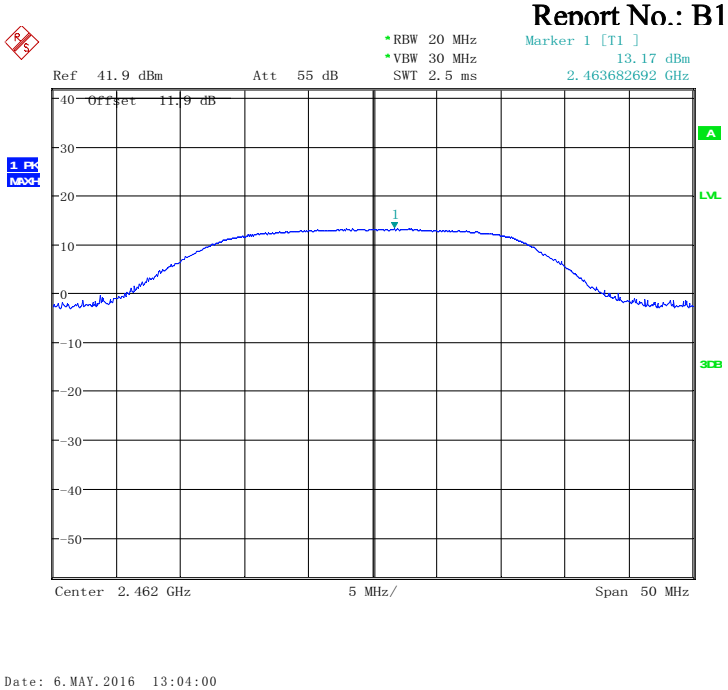


Fig.27 Conducted Output Power CH11, 11b, Rate5.5

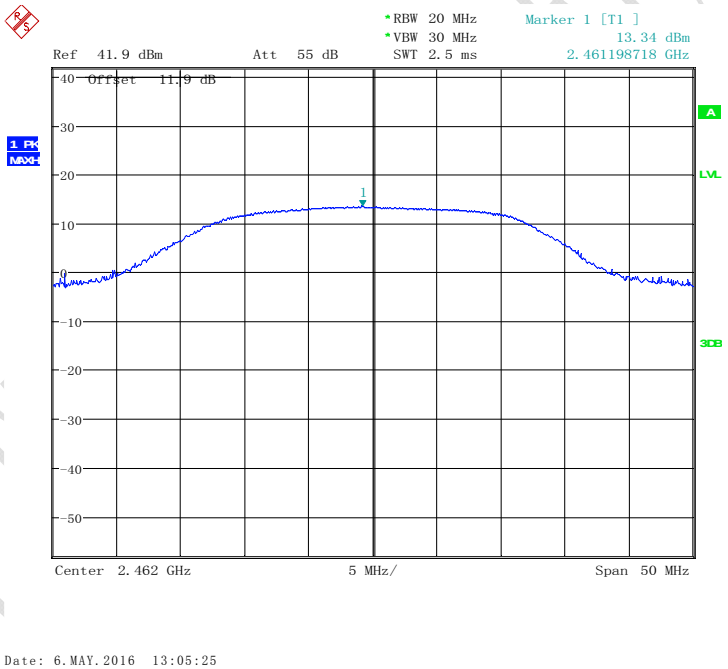


Fig.28 Conducted Output Power CH11, 11b, Rate11

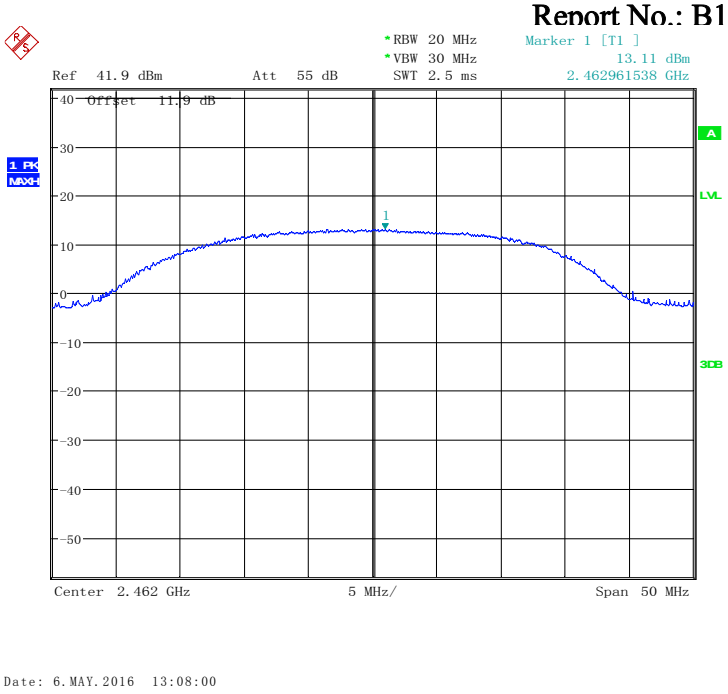


Fig.29 Conducted Output Power CH11, 11g, Rate6

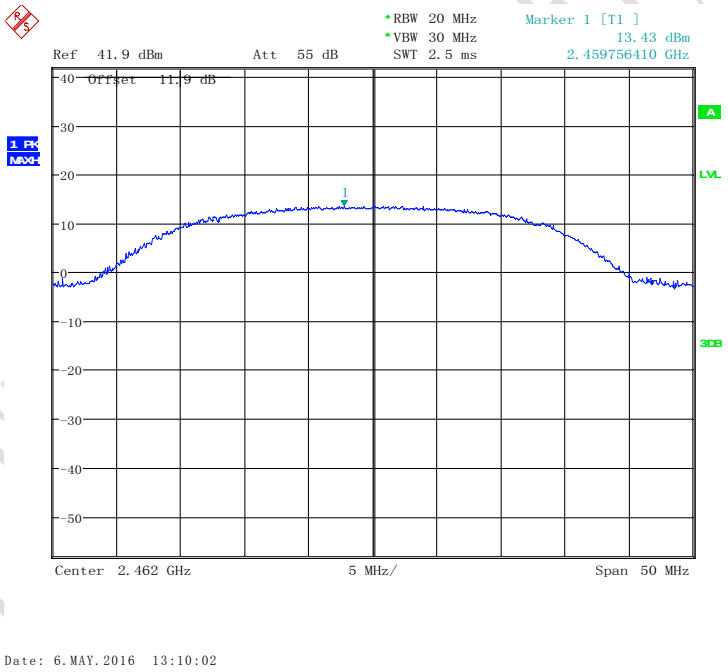


Fig.30 Conducted Output Power CH11, 11g, Rate9

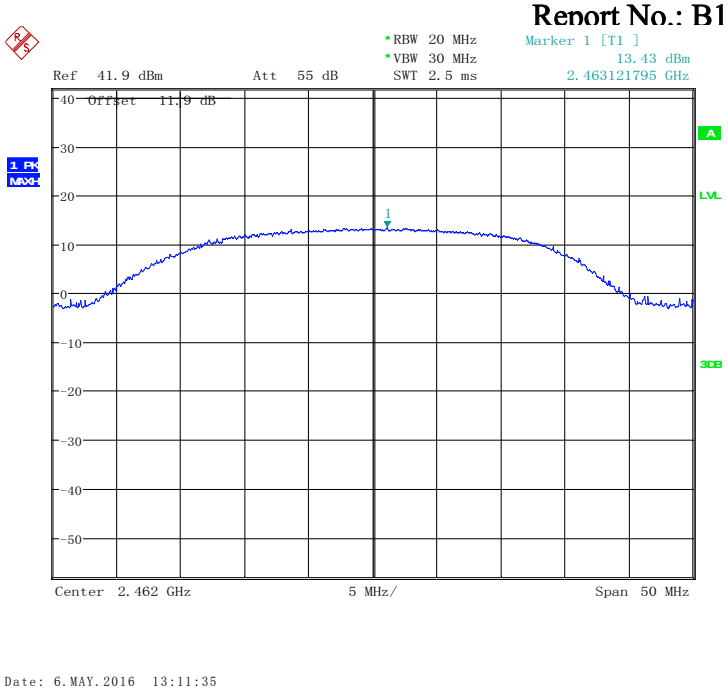


Fig.31 Conducted Output Power CH11, 11g, Rate12

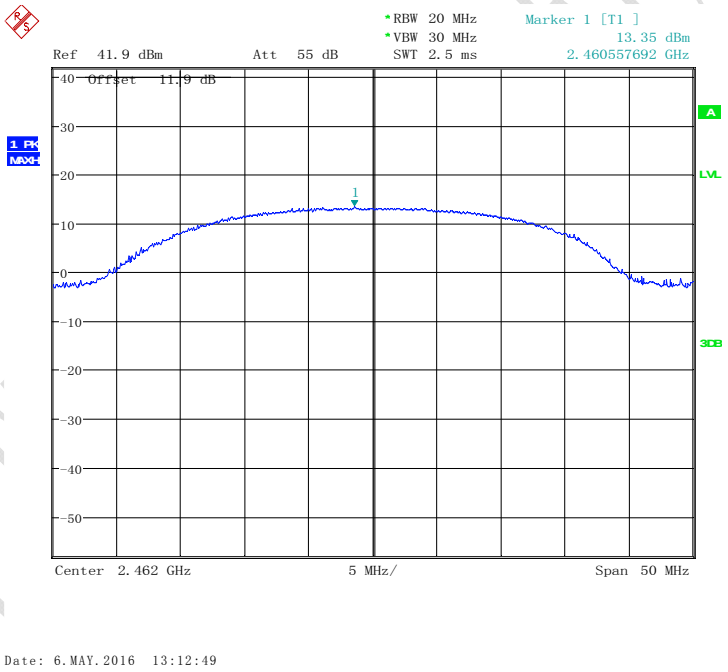


Fig.32 Conducted Output Power CH11, 11g, Rate18

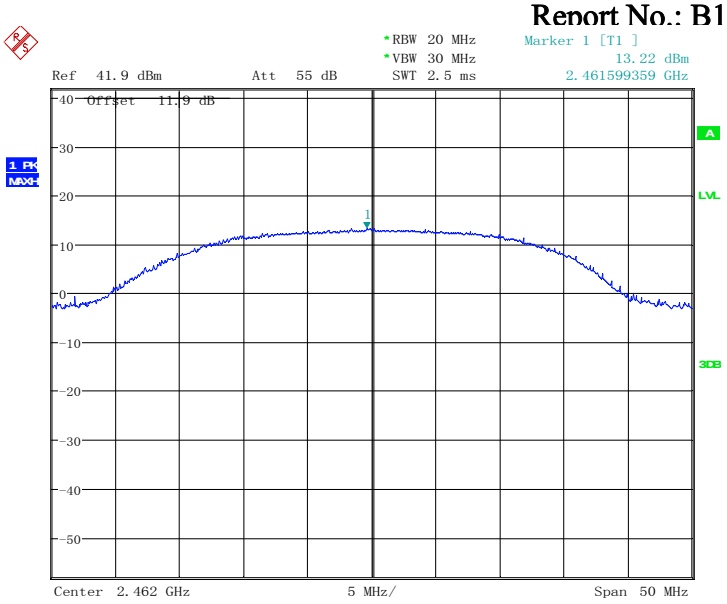


Fig.33 Conducted Output Power CH11, 11g, Rate24

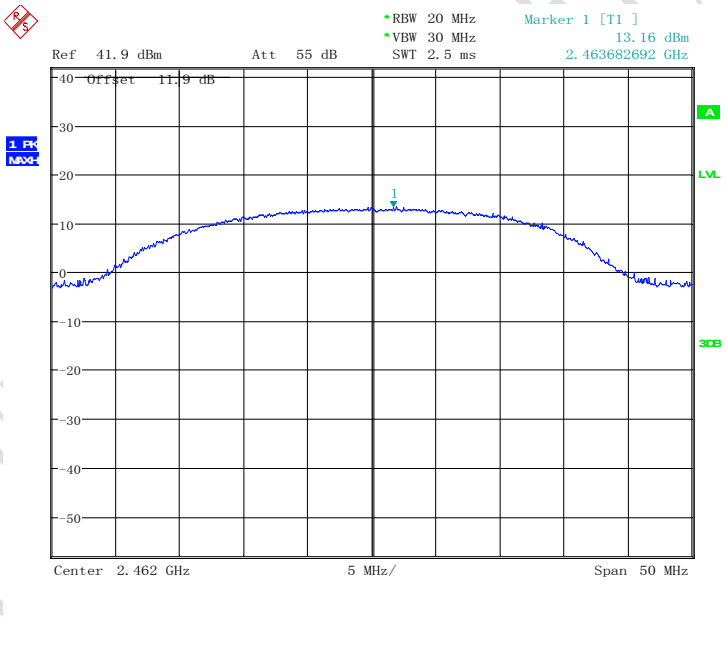


Fig.34 Conducted Output Power CH11, 11g, Rate36

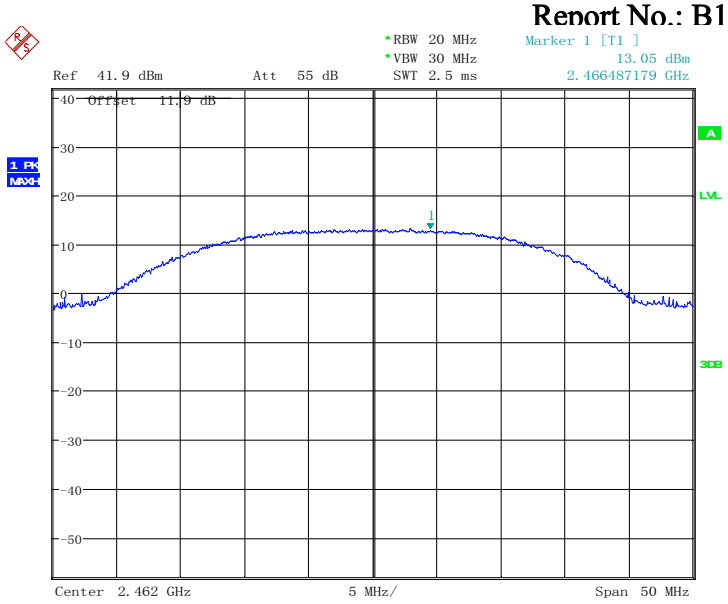


Fig.35 Conducted Output Power CH11, 11g, Rate48

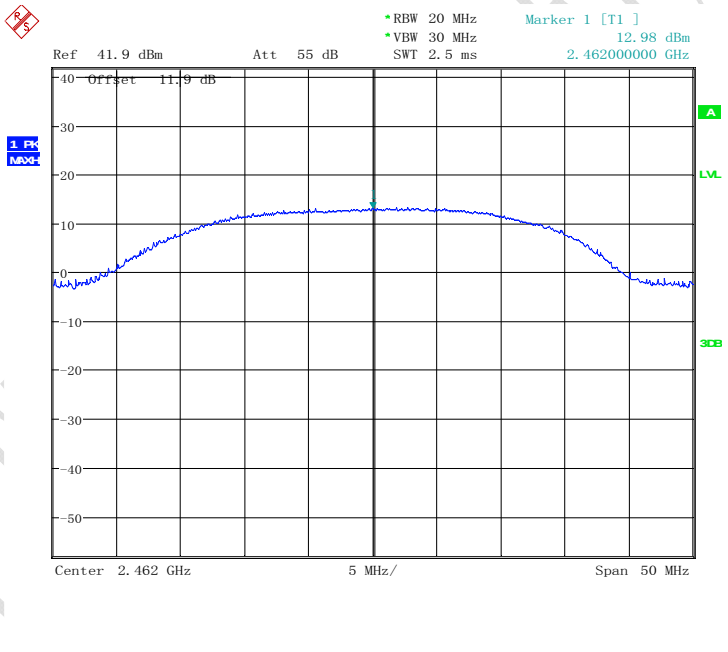


Fig.36 Conducted Output Power CH11, 11g, Rate54

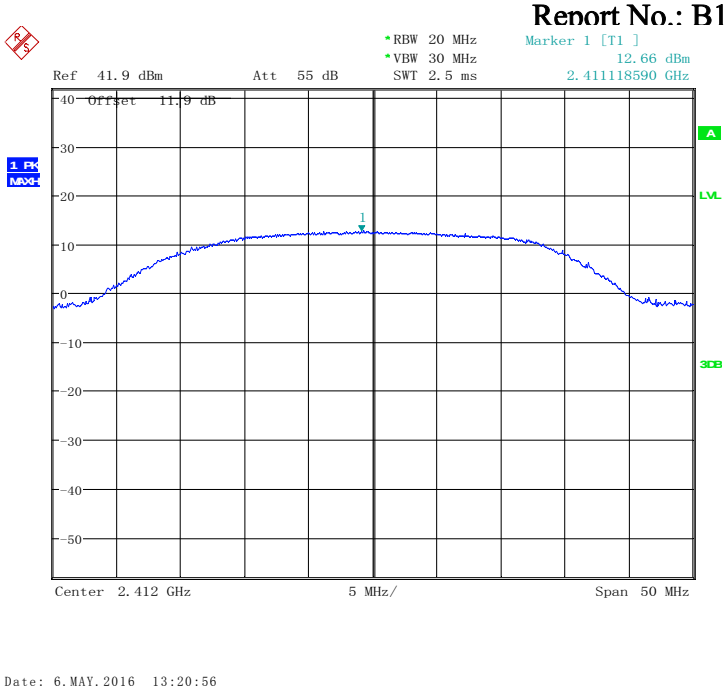


Fig.37 Conducted Output Power CH1, 11n, Rate MCS0

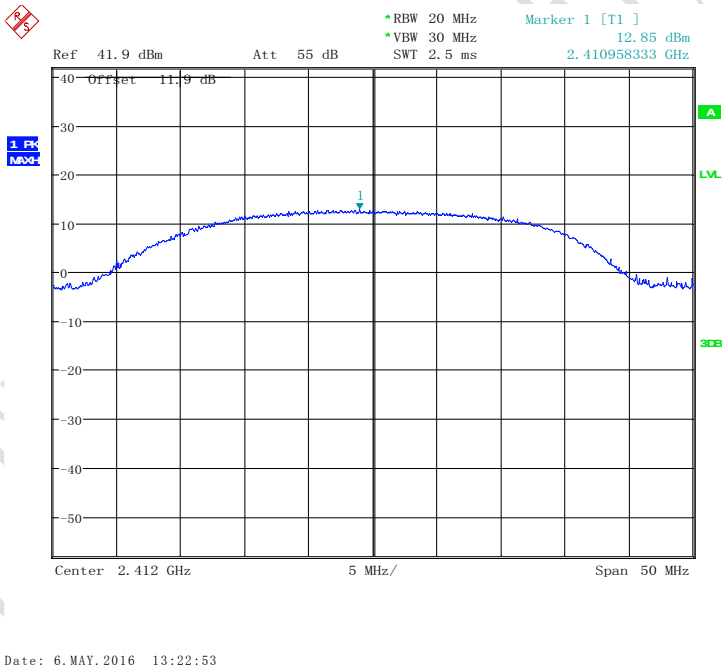


Fig.38 Conducted Output Power CH1, 11n, Rate MCS1

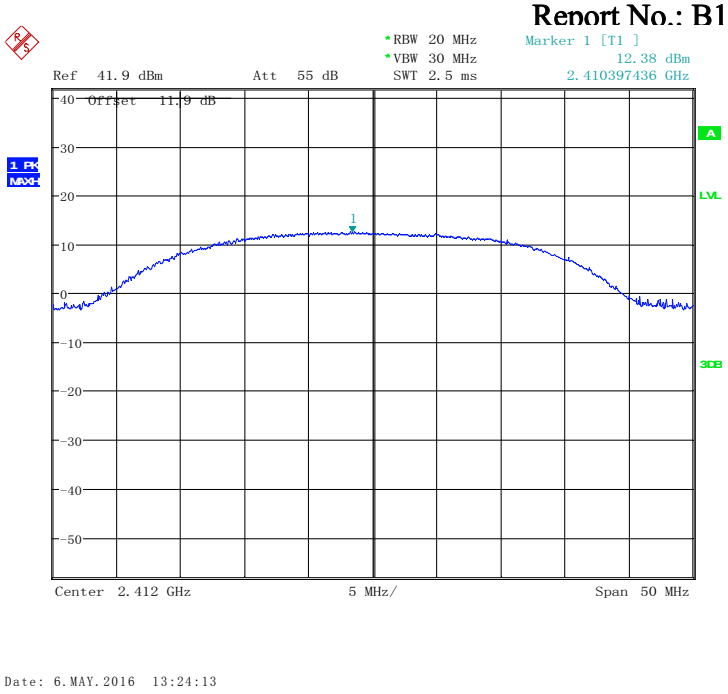


Fig.39 Conducted Output Power CH1, 11n, Rate MCS2

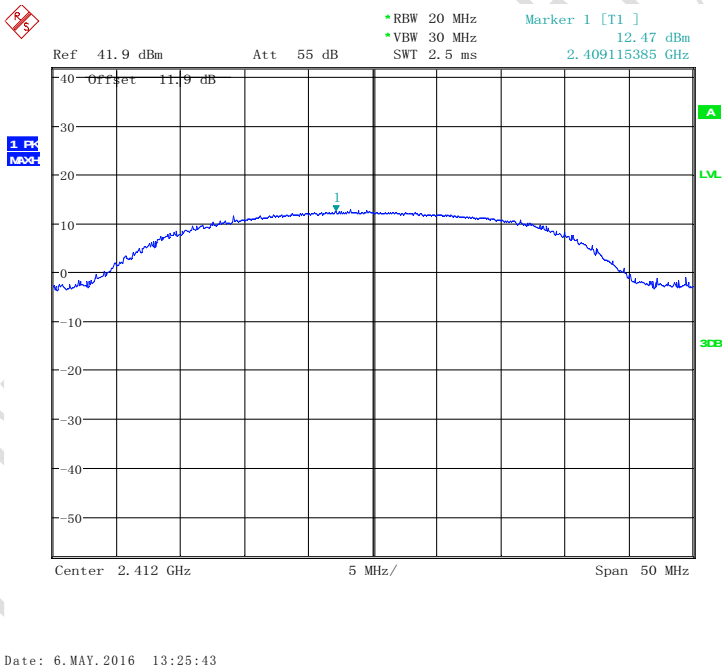


Fig.40 Conducted Output Power CH1, 11n, Rate MCS3

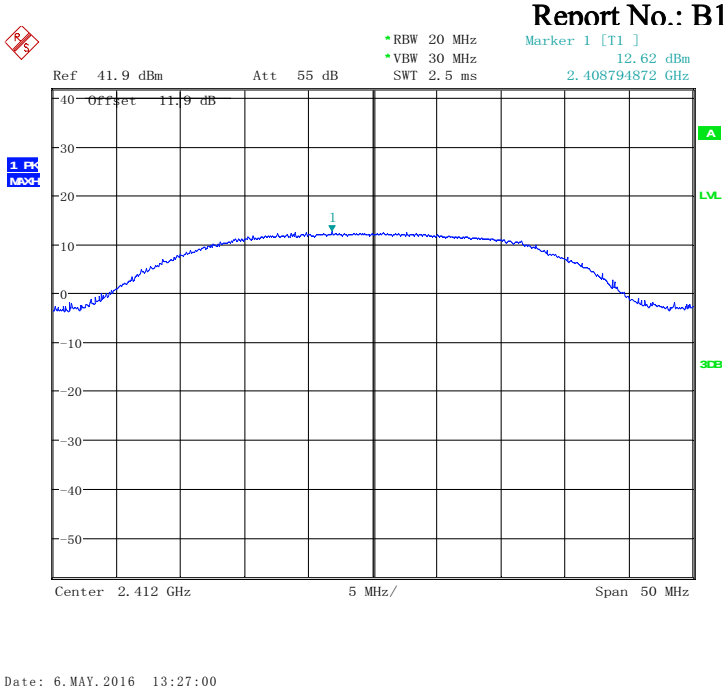


Fig.41 Conducted Output Power CH1, 11n, Rate MCS4

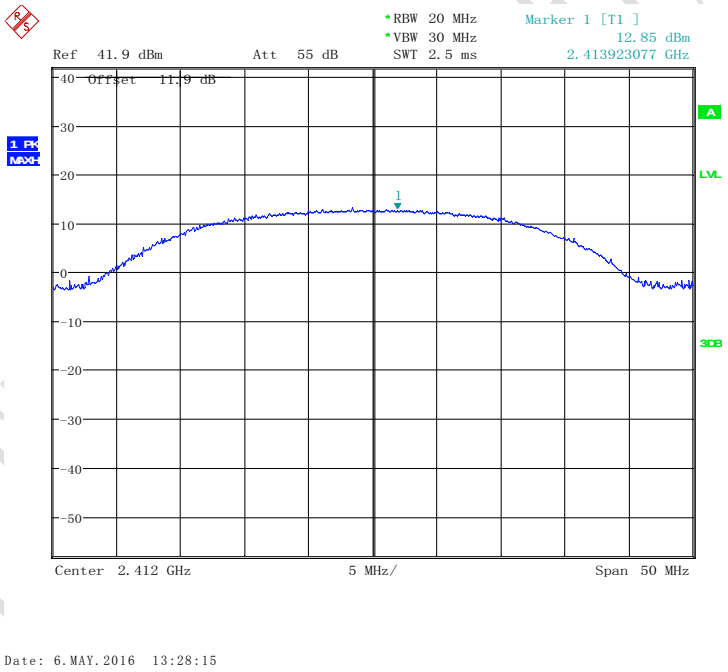


Fig.42 Conducted Output Power CH1, 11n, Rate MCS5

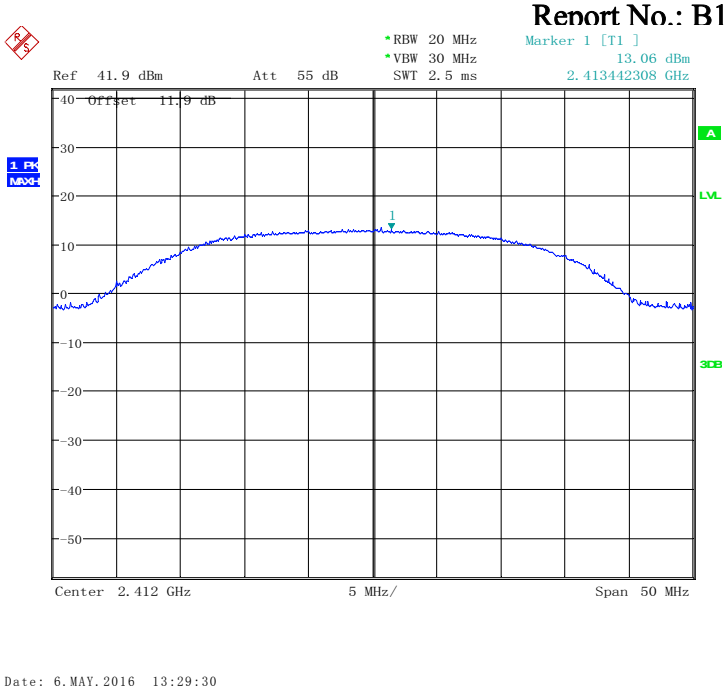


Fig.43 Conducted Output Power CH1, 11n, Rate MCS6

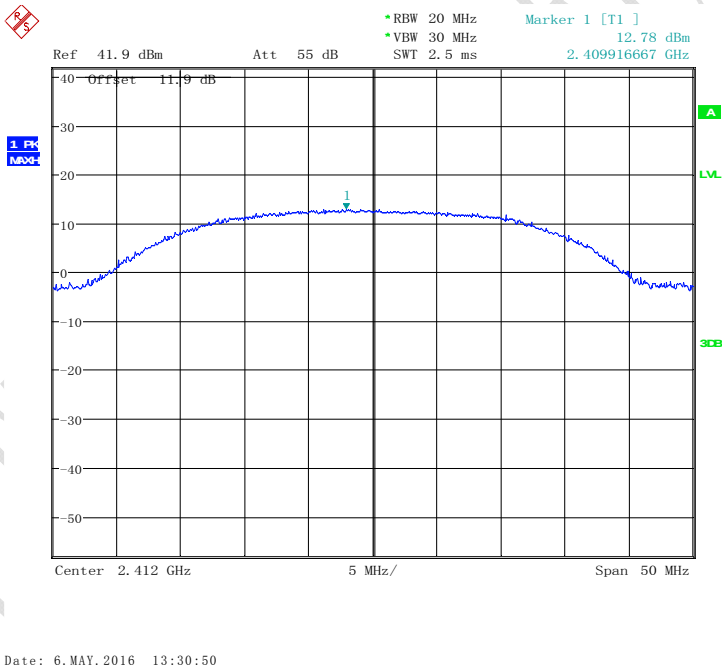


Fig.44 Conducted Output Power CH1, 11n, Rate MCS7

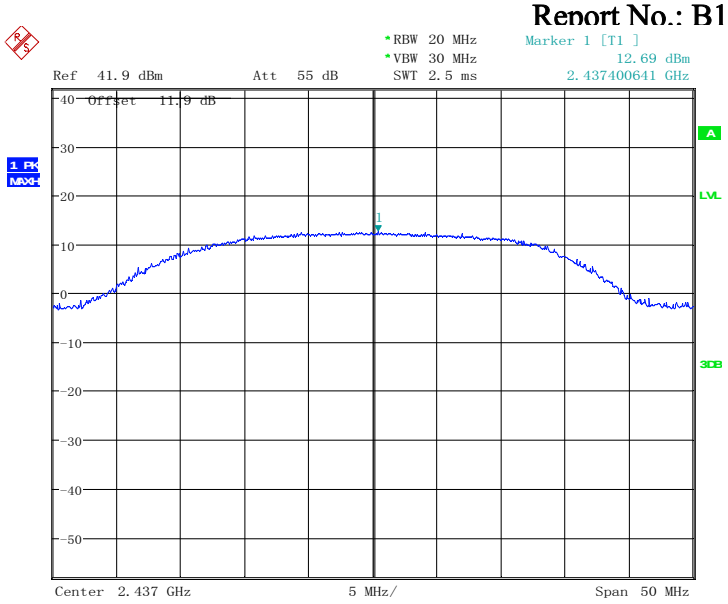


Fig.45 Conducted Output Power CH6, 11n, Rate MCS0

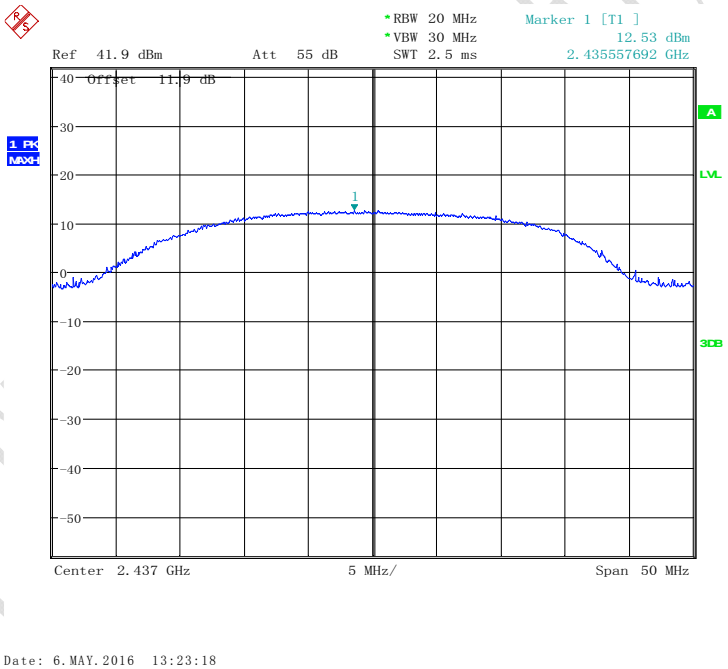


Fig.46 Conducted Output Power CH6, 11n, Rate MCS1

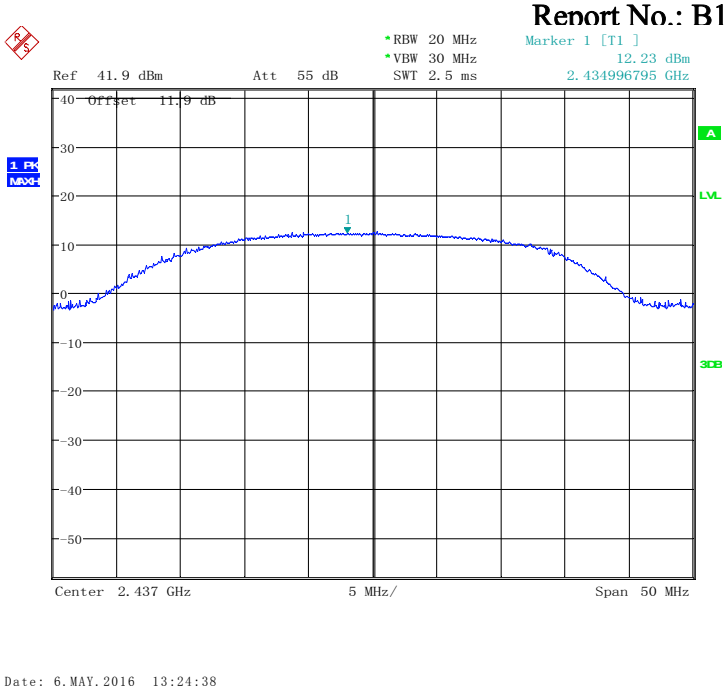


Fig.47 Conducted Output Power CH6, 11n, Rate MCS2

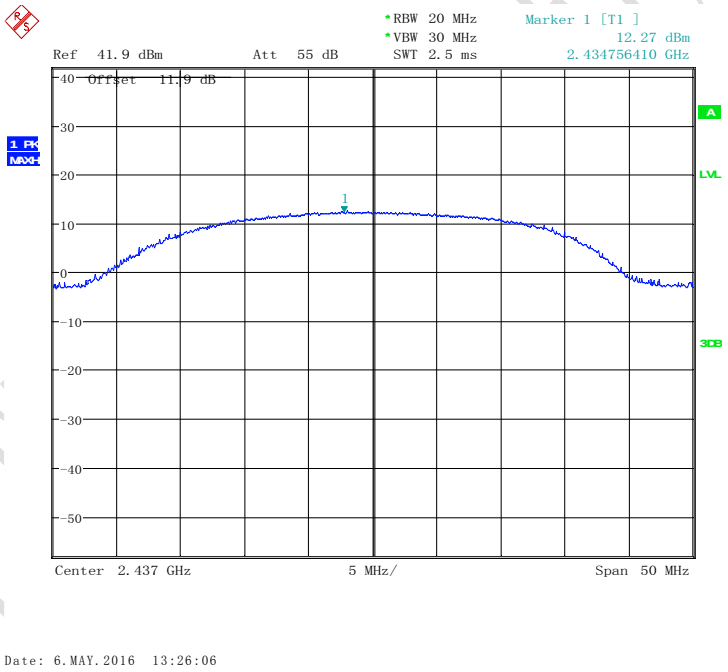


Fig.48 Conducted Output Power CH6, 11n, Rate MCS3

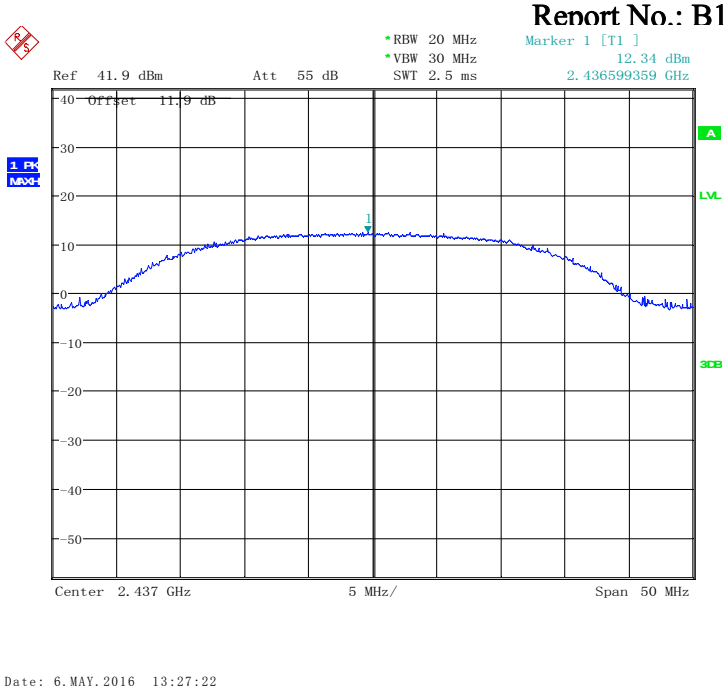


Fig.49 Conducted Output Power CH6, 11n, Rate MCS4

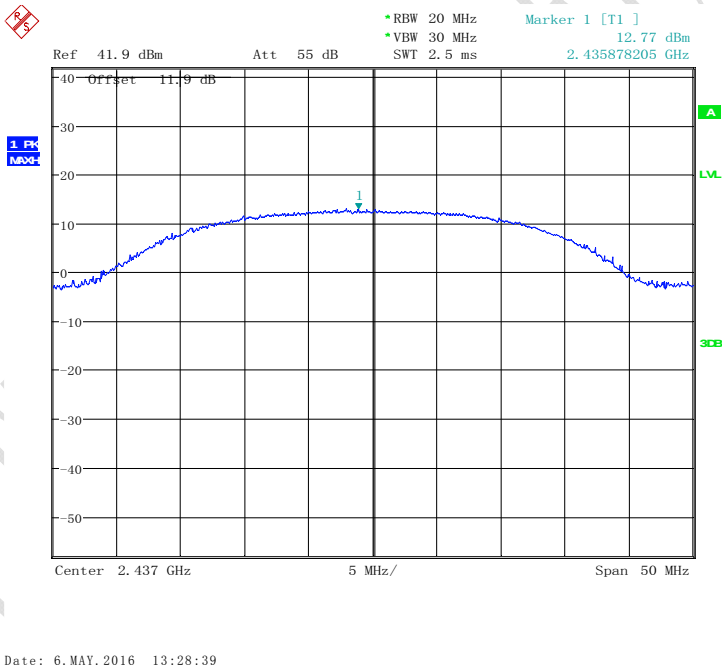


Fig.50 Conducted Output Power CH6, 11n, Rate MCS5

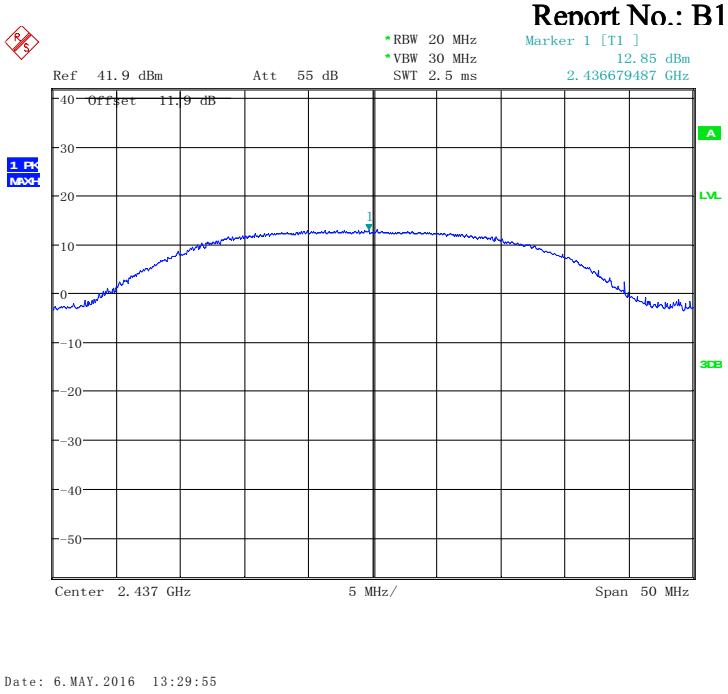


Fig.51 Conducted Output Power CH6, 11n, Rate MCS6

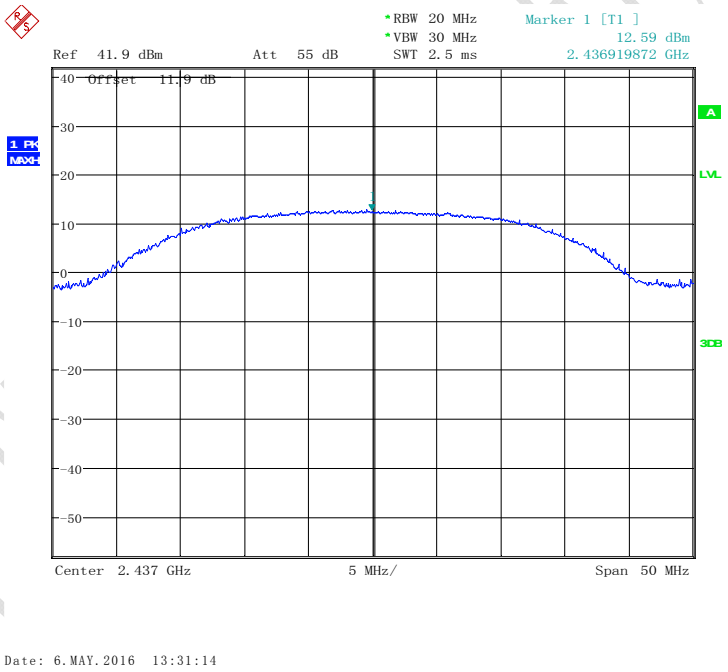


Fig.52 Conducted Output Power CH6, 11n, Rate MCS7

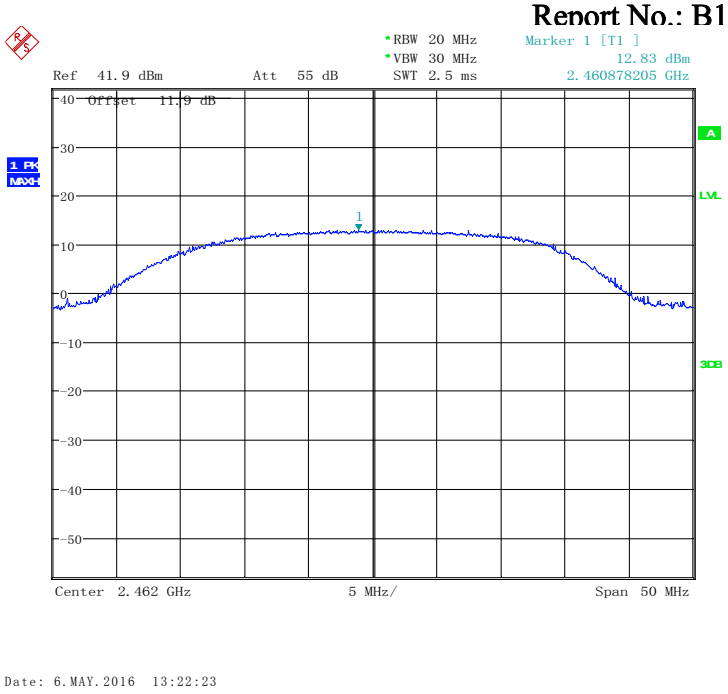


Fig.53 Conducted Output Power CH11, 11n, Rate MCS0

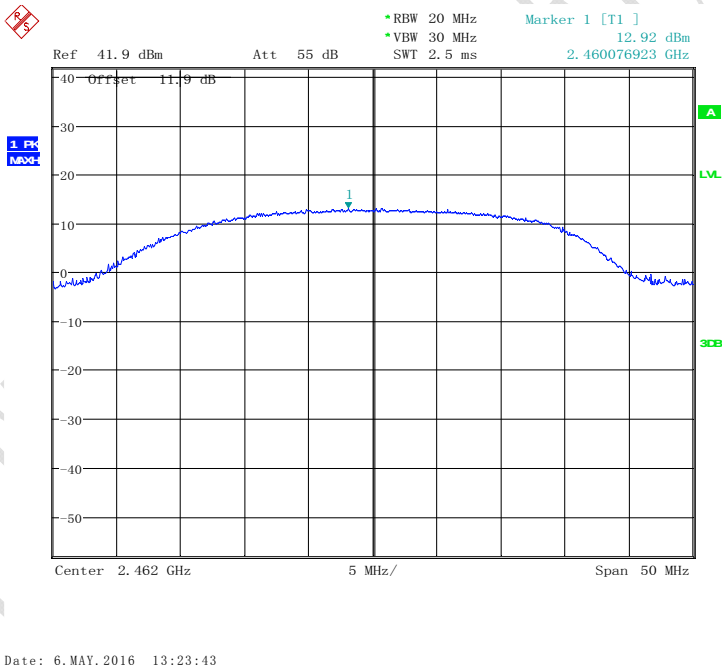


Fig.54 Conducted Output Power CH11, 11n, Rate MCS1

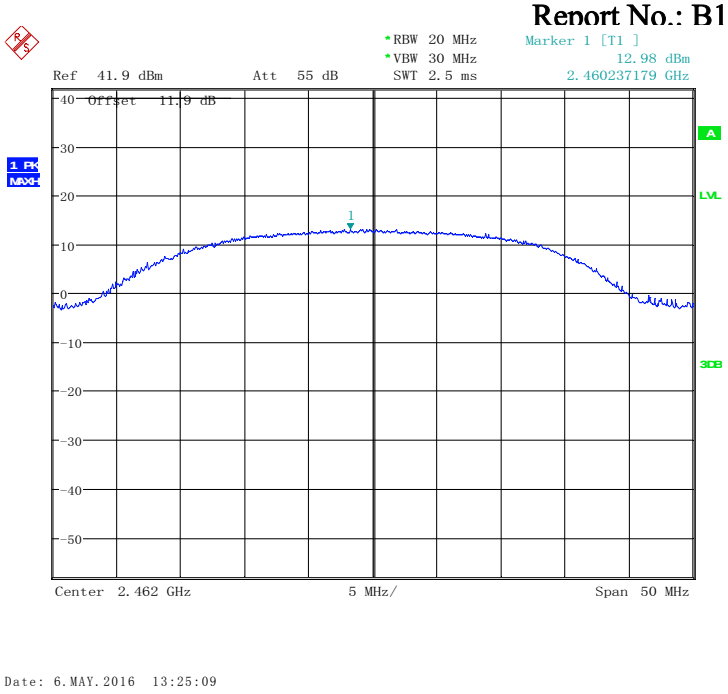


Fig.55 Conducted Output Power CH11, 11n, Rate MCS2

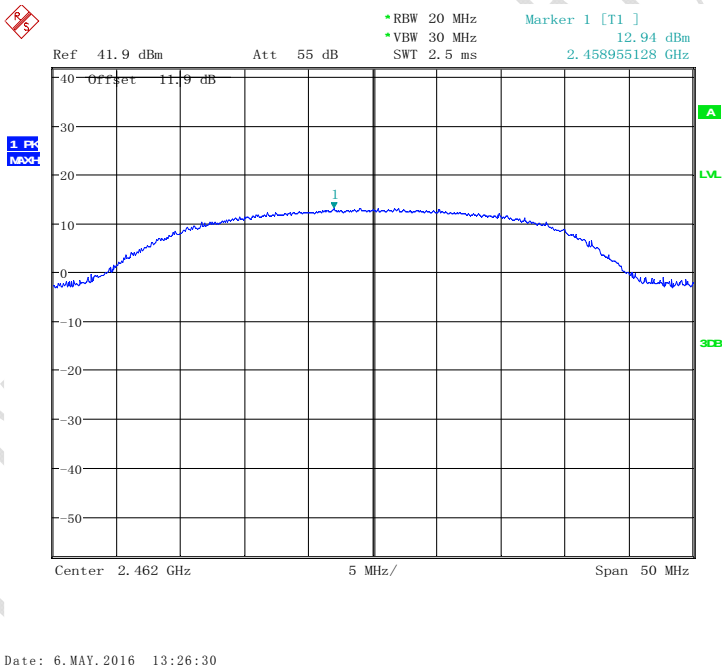


Fig.56 Conducted Output Power CH11, 11n, Rate MCS3

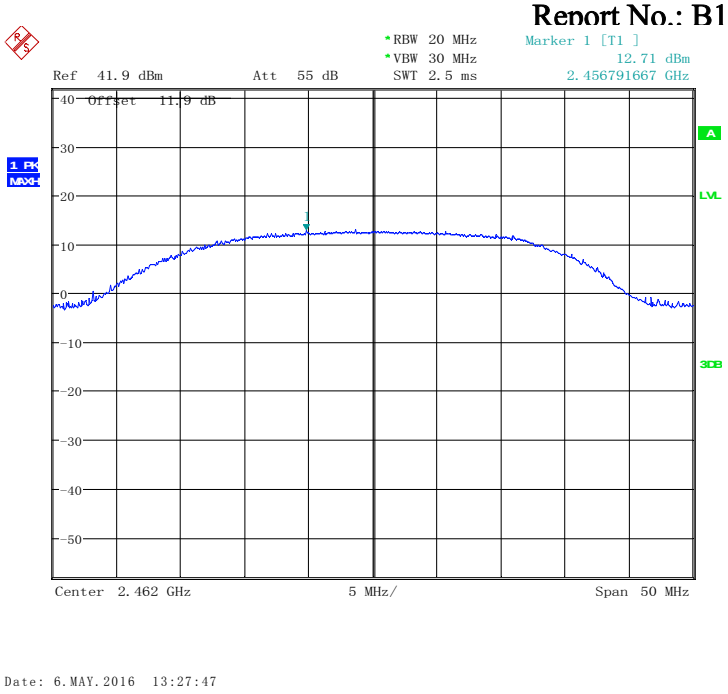


Fig.57 Conducted Output Power CH11, 11n, Rate MCS4

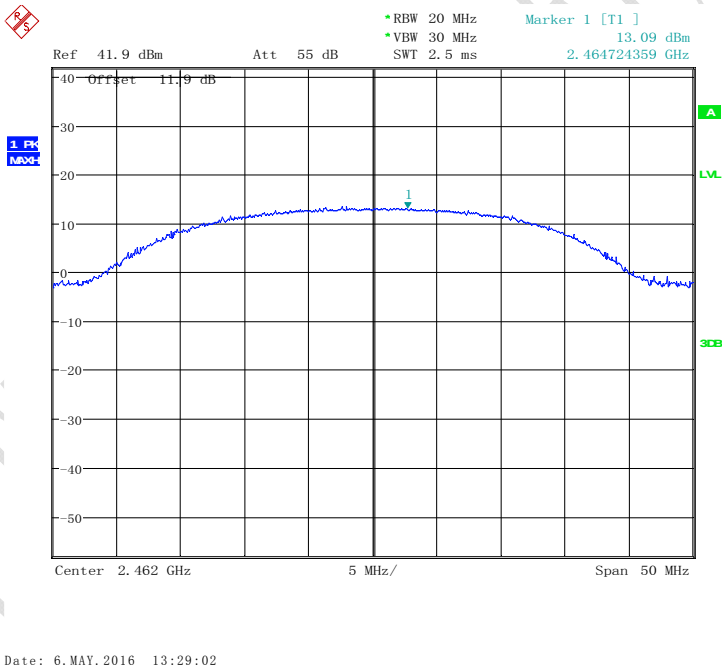


Fig.58 Conducted Output Power CH11, 11n, Rate MCS5

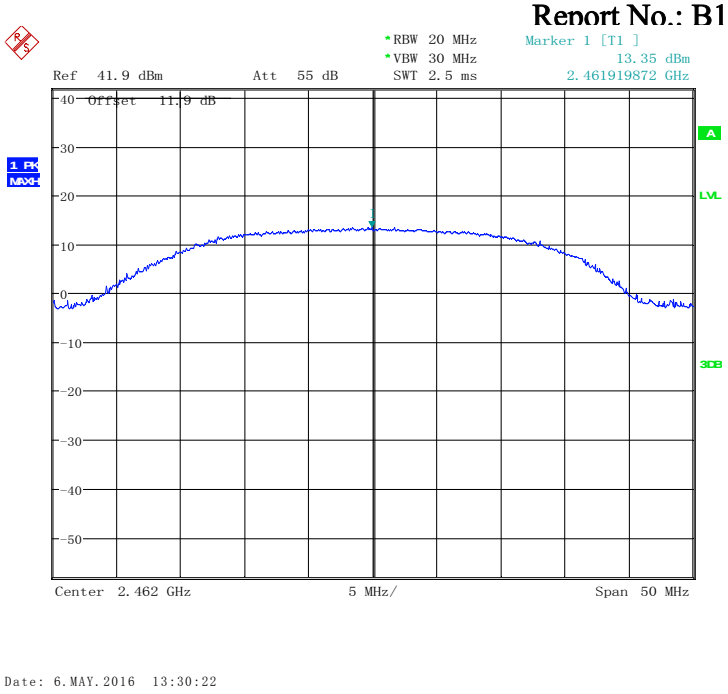


Fig.59 Conducted Output Power CH11, 11n, Rate MCS6

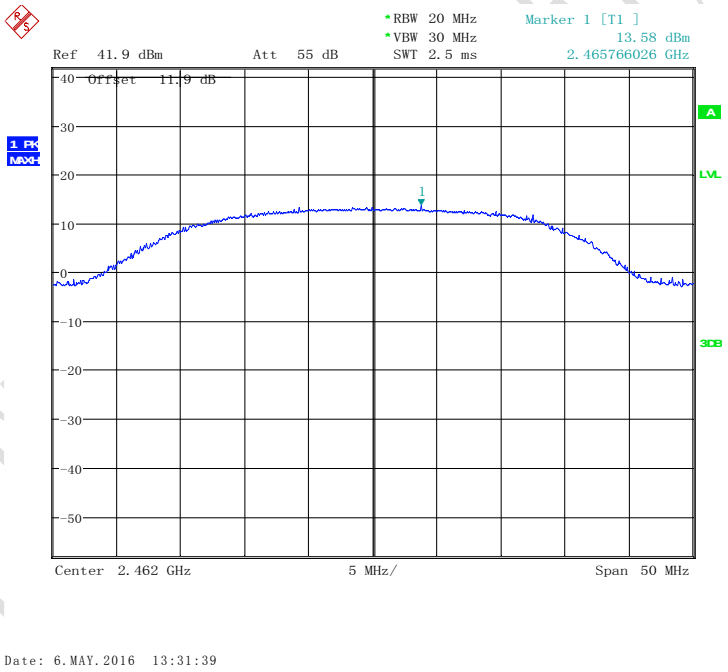


Fig.60 Conducted Output Power CH11, 11n, Rate MCS7

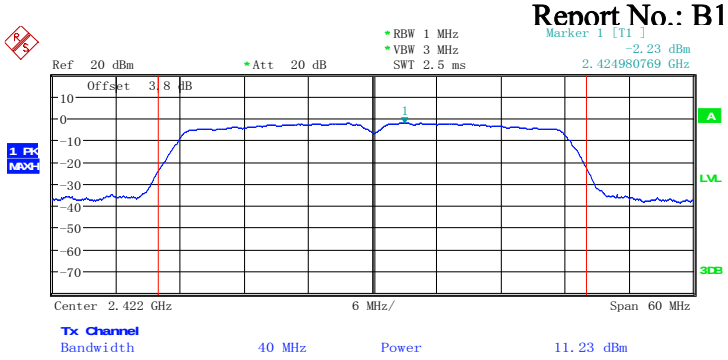


Fig.61 Conducted Output Power CH1, 11n(40M), Rate MCS0

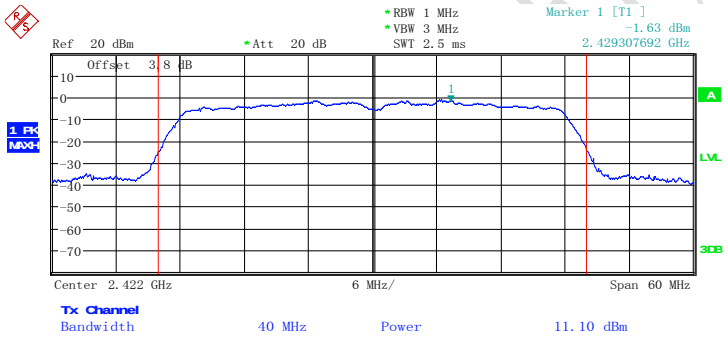


Fig.62 Conducted Output Power CH1, 11n(40M), Rate MCS1

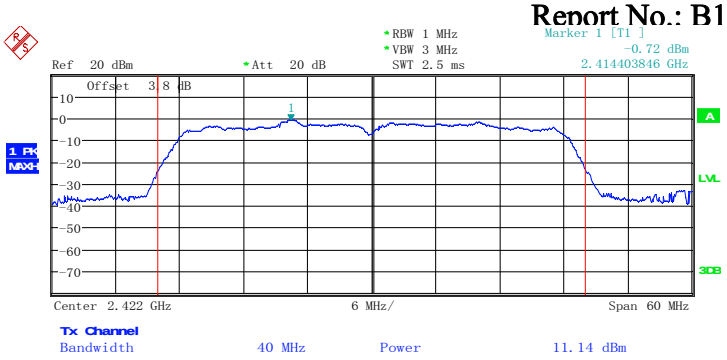


Fig.63 Conducted Output Power CH1, 11n(40M), Rate MCS2

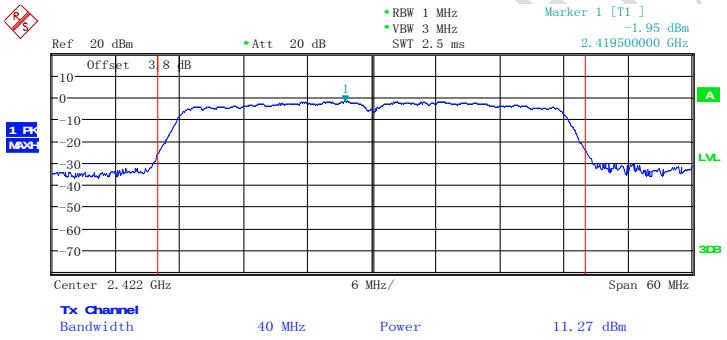
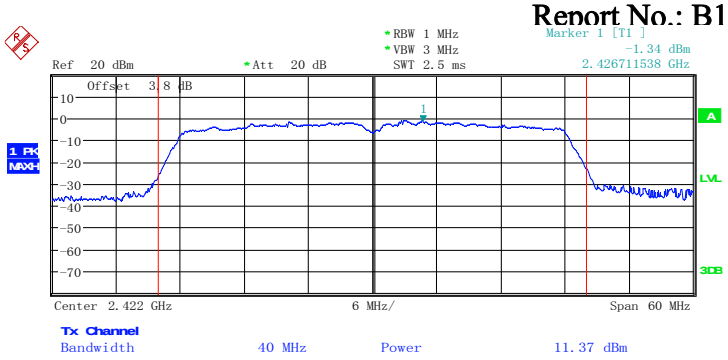
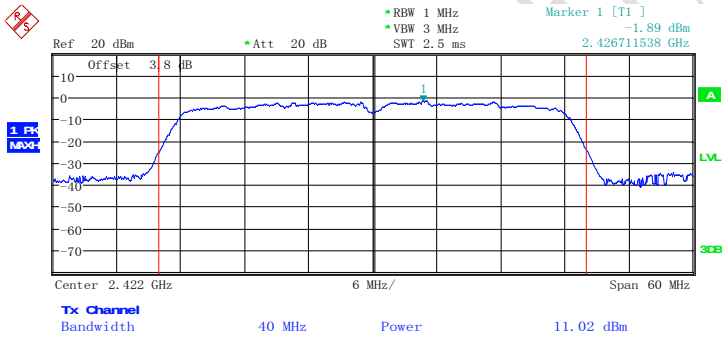


Fig.64 Conducted Output Power CH1, 11n(40M), Rate MCS3



Date: 8.JUN.2016 18:18:13

Fig.65 Conducted Output Power CH1, 11n(40M), Rate MCS4



Date: 8.JUN.2016 18:18:29

Fig.66 Conducted Output Power CH1, 11n(40M), Rate MCS5

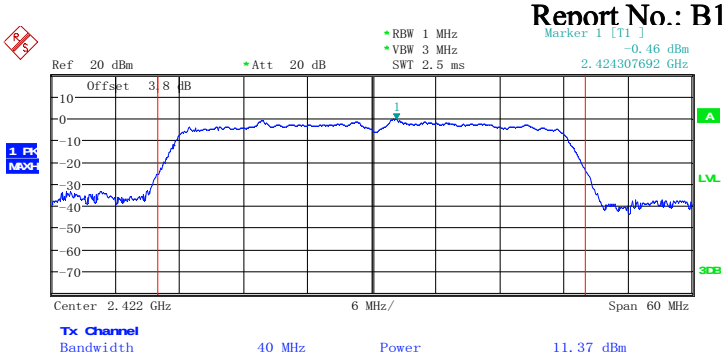


Fig.67 Conducted Output Power CH1, 11n(40M), Rate MCS6

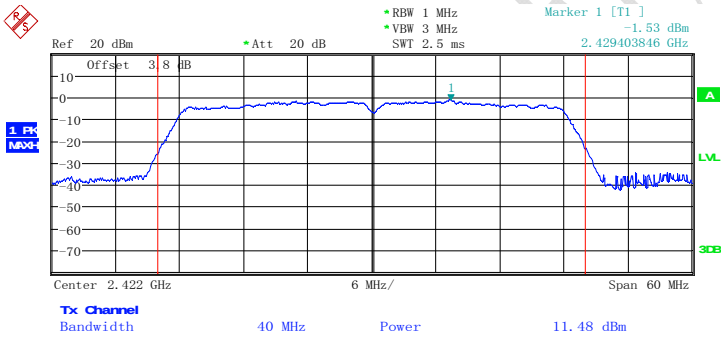


Fig.68 Conducted Output Power CH1, 11n(40M), Rate MCS7

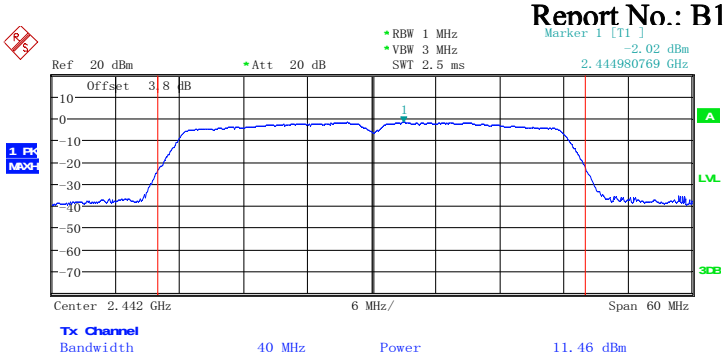


Fig.69 Conducted Output Power CH6, 11n(40M), Rate MCS0

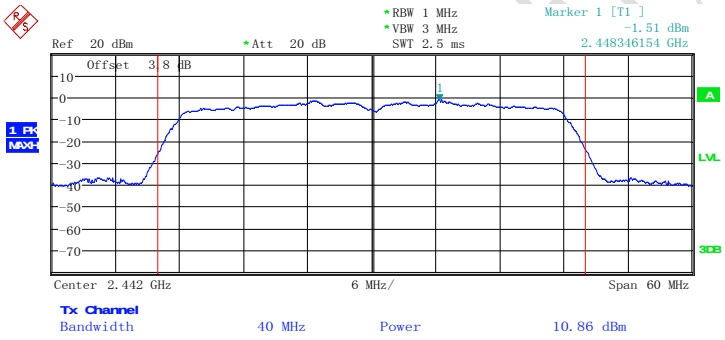


Fig.70 Conducted Output Power CH6, 11n(40M), Rate MCS1

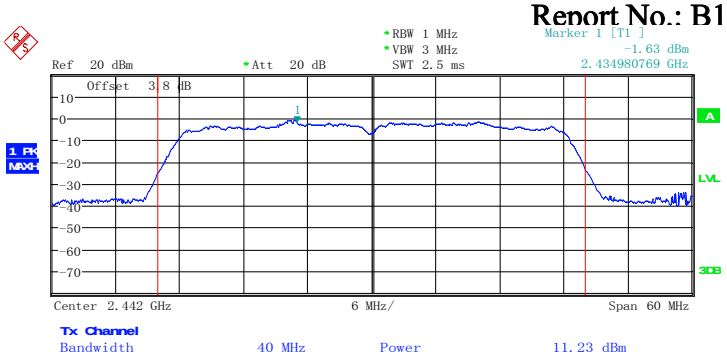


Fig.71 Conducted Output Power CH6, 11n(40M), Rate MCS2

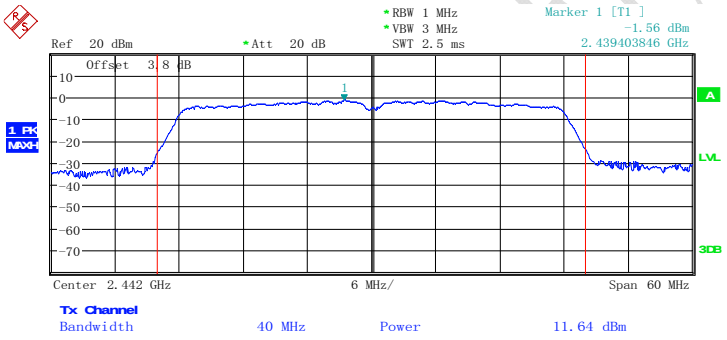


Fig.72 Conducted Output Power CH6, 11n(40M), Rate MCS3

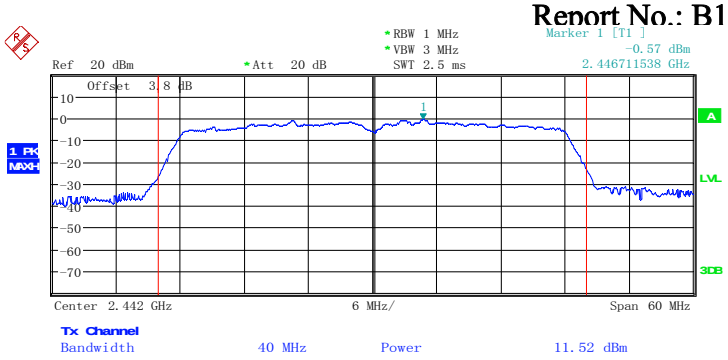


Fig.73 Conducted Output Power CH6, 11n(40M), Rate MCS4

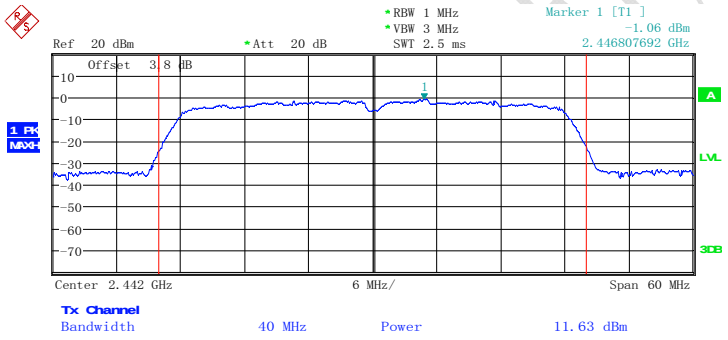


Fig.74 Conducted Output Power CH6, 11n(40M), Rate MCS5

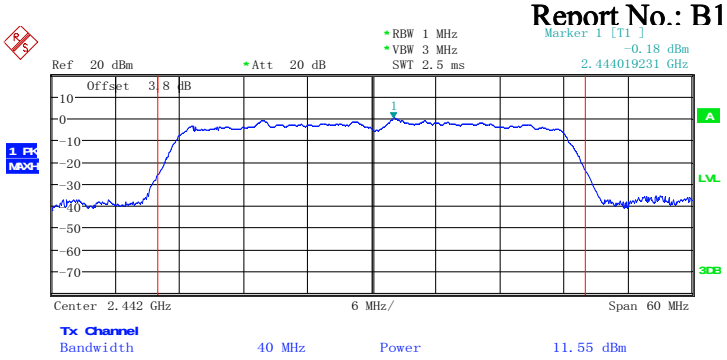


Fig.75 Conducted Output Power CH6, 11n(40M), Rate MCS6

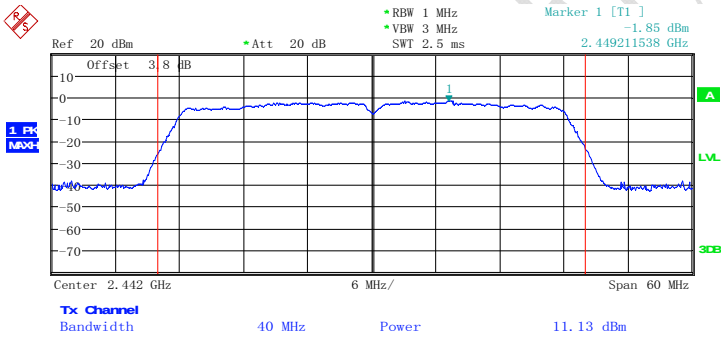


Fig.76 Conducted Output Power CH6, 11n(40M), Rate MCS7

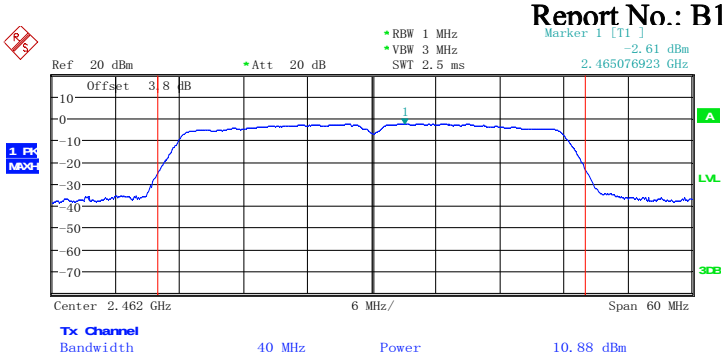


Fig.77 Conducted Output Power CH11, 11n(40M), Rate MCS0

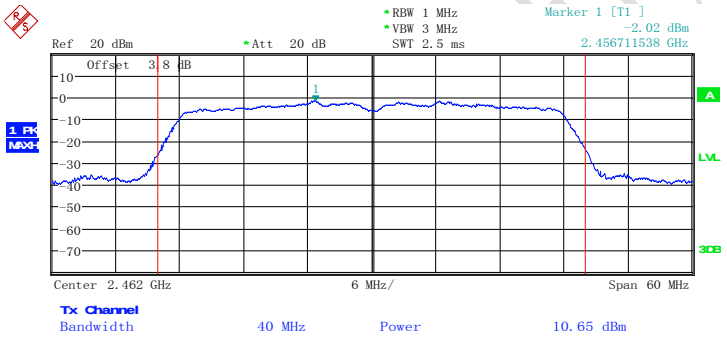


Fig.78 Conducted Output Power CH11, 11n(40M), Rate MCS1

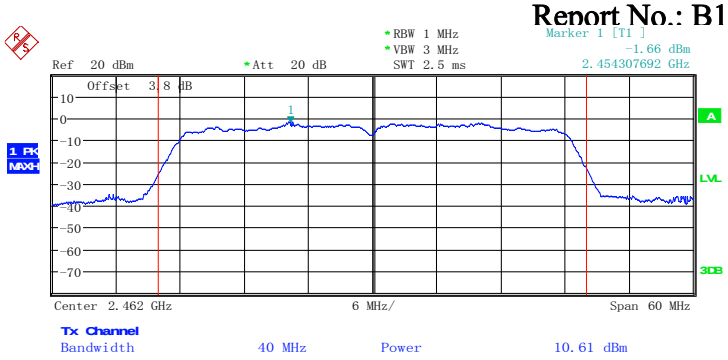


Fig.79 Conducted Output Power CH11, 11n(40M), Rate MCS2

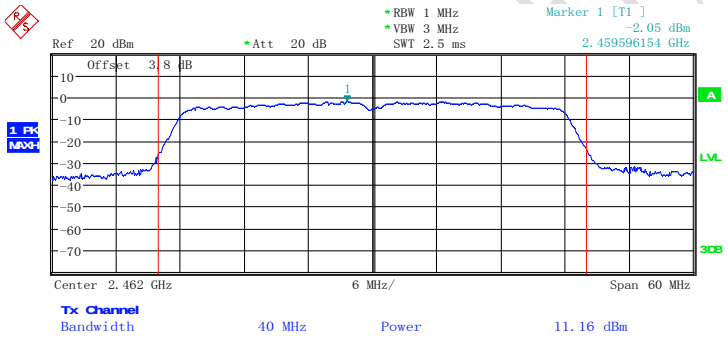


Fig.80 Conducted Output Power CH11, 11n(40M), Rate MCS3

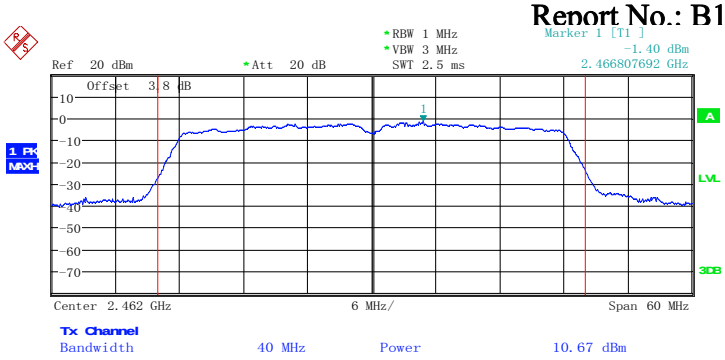


Fig.81 Conducted Output Power CH11, 11n(40M), Rate MCS4

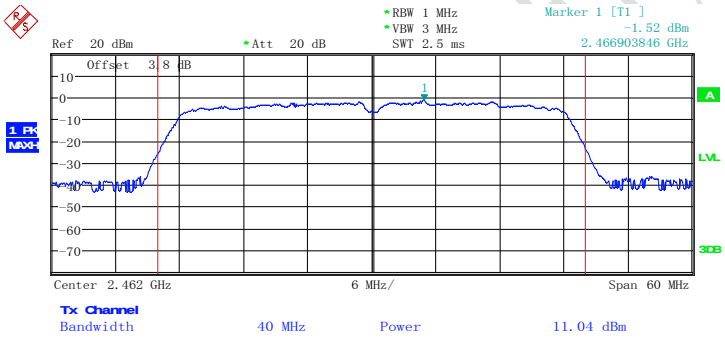
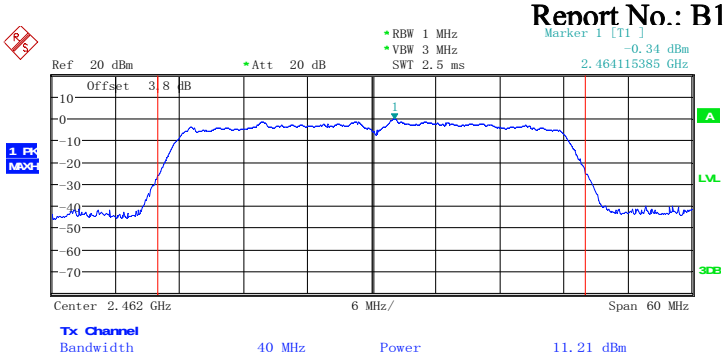
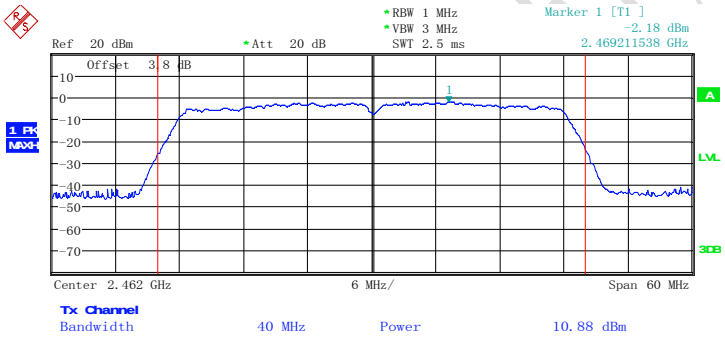


Fig.82 Conducted Output Power CH11, 11n(40M), Rate MCS5



Date: 8.JUN.2016 18:23:55

Fig.83 Conducted Output Power CH11, 11n(40M), Rate MCS6



Date: 8.JUN.2016 18:24:12

Fig.84 Conducted Output Power CH11, 11n(40M), Rate MCS7

5.2 Peak Power Spectral Density

Specifications:	FCC CFR Part 15.247(e)
DUT Serial Number:	S4/10: 358066070000145
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Limit Level Construction:

Standard	Limit
FCC CFR Part 15.247(e)	< 8dBm/3 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 kHz ≤ RBW ≤ 100 kHz.
6. Set the VBW ≥ [3 × 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: --

Test Results:

802.11b/g mode

Mode	Power Spectral Density(dBm/3kHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11b	-18.80	-18.98	-18.66	Pass
802.11g	-20.74	-20.57	-19.98	Pass

802.11n mode

Mode	Power Spectral Density(dBm/3kHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11n(20MHz)	-19.19	-19.35	-18.99	Pass
802.11n(40MHz)	-21.94	-21.26	-22.44	Pass

Test figure as below:

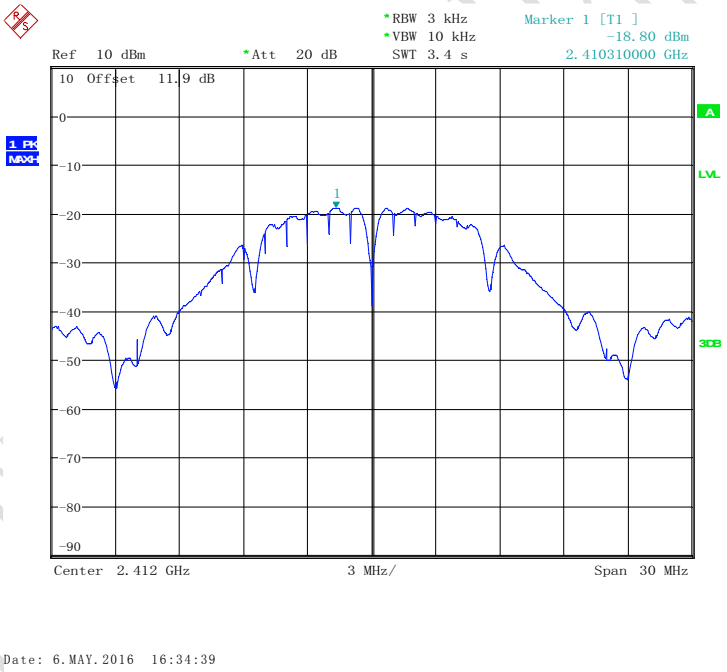


Fig.85 Power spectral density: CH1,11b

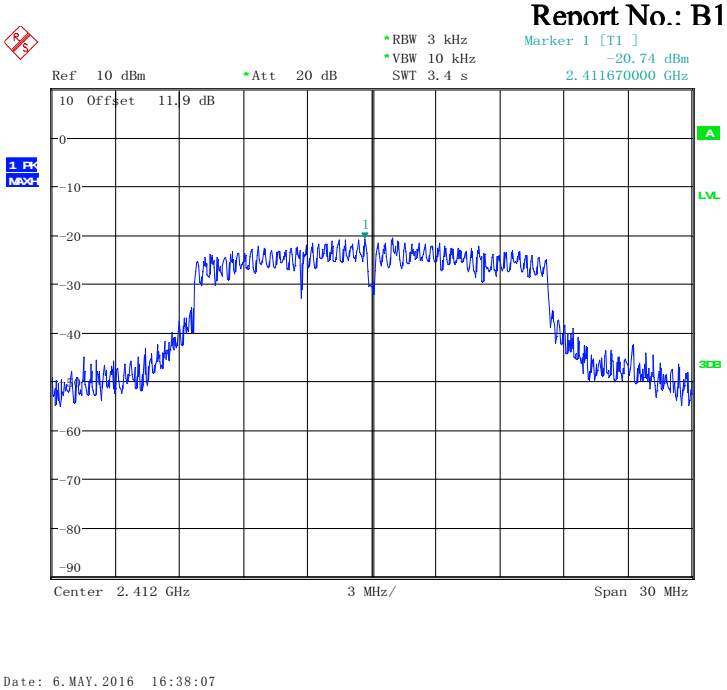


Fig.86 Power spectral density: CH1,11g

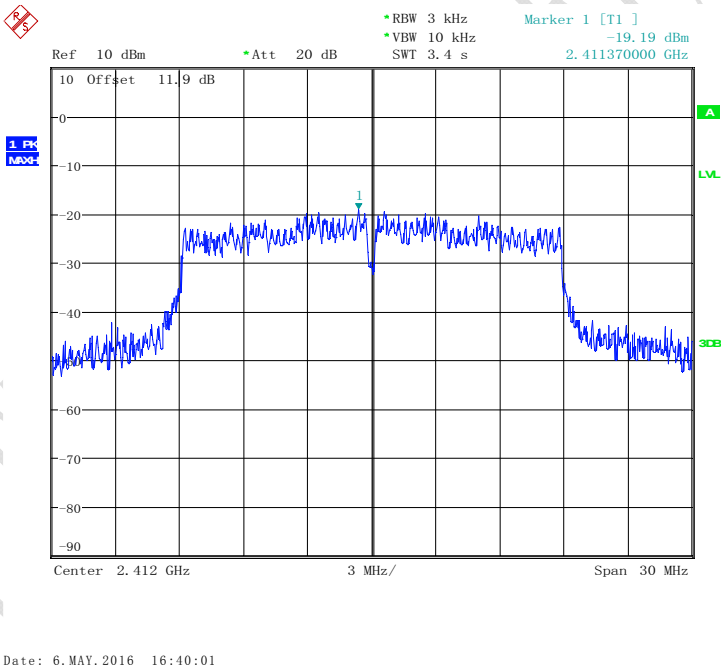


Fig.87 Power spectral density: CH1,11n

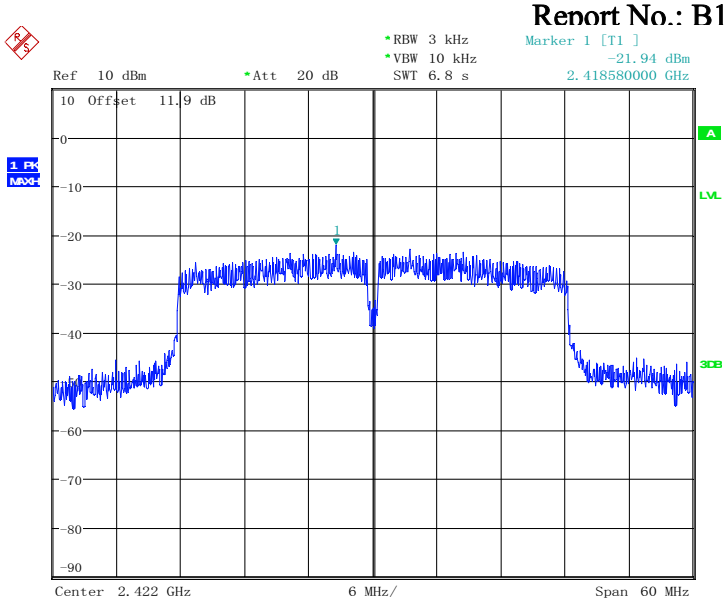


Fig.88 Power spectral density: CH1,11n(40M)

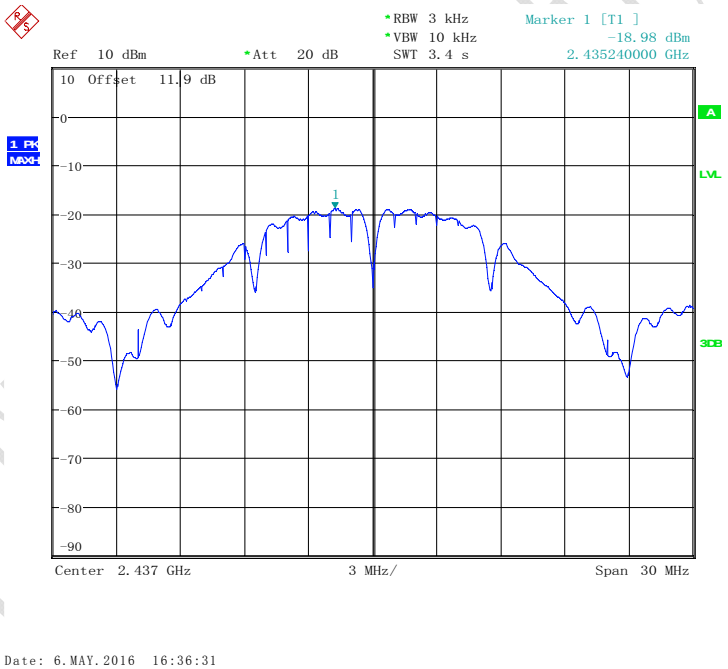


Fig.89 Power spectral density: CH6,11b

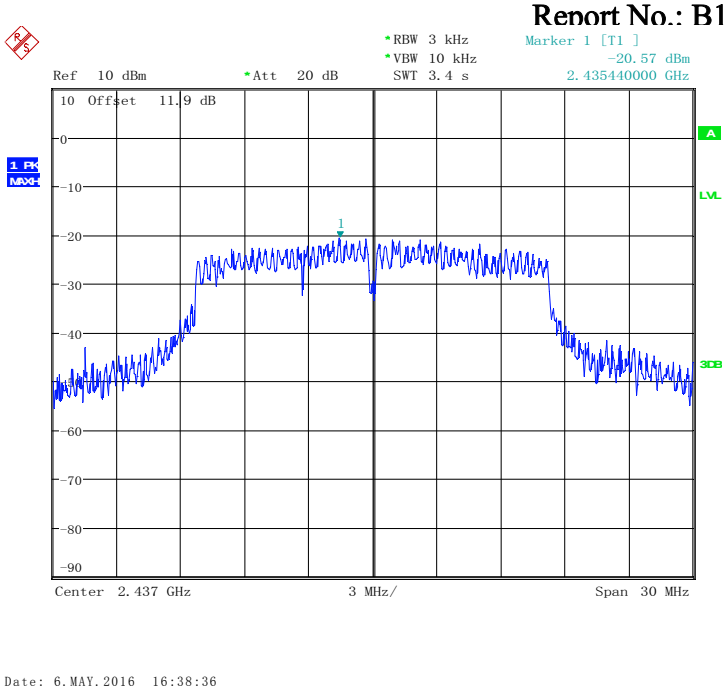


Fig.90 Fig.66 Power spectral density: CH6,11g

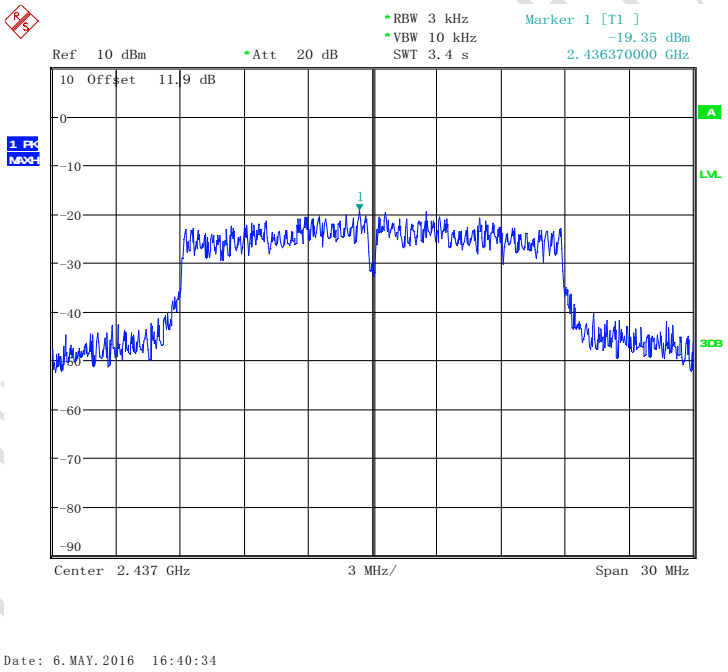


Fig.91 Power spectral density: CH6,11n

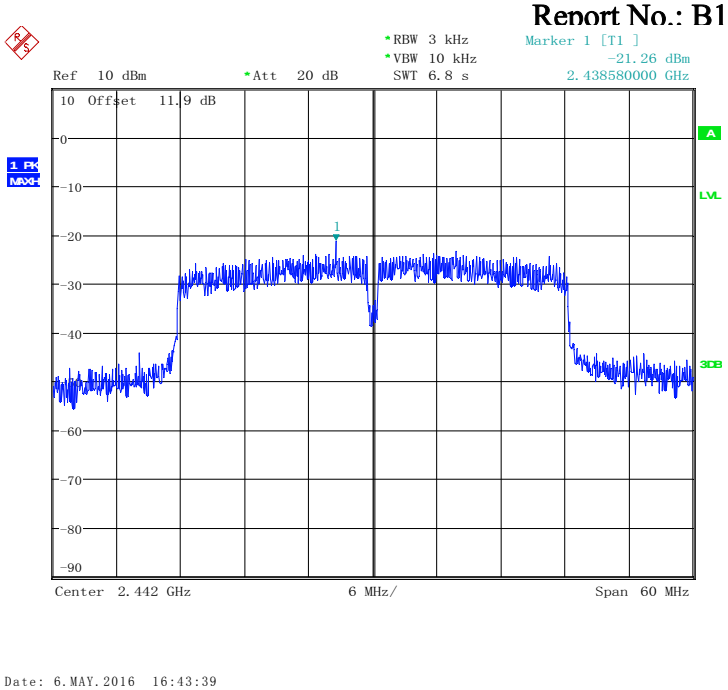


Fig.92 Power spectral density: CH6,11n(40M)

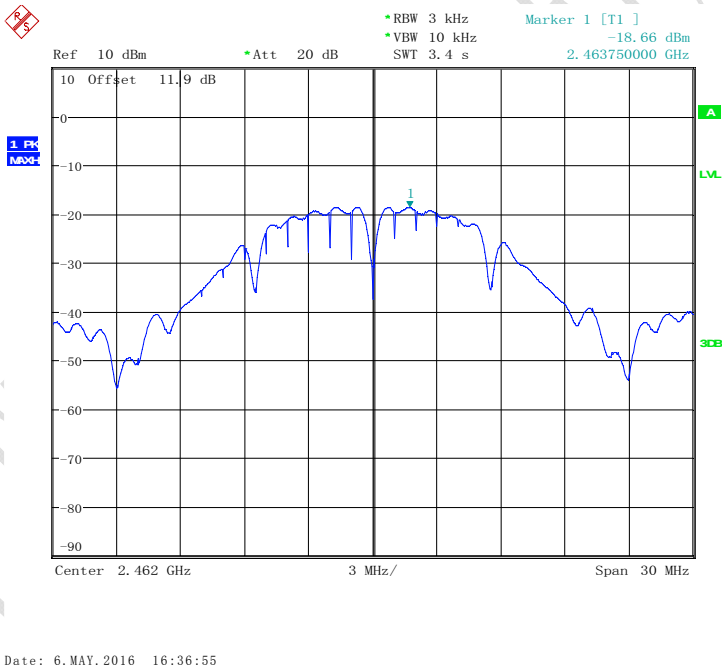


Fig.93 Power spectral density: CH11,11b

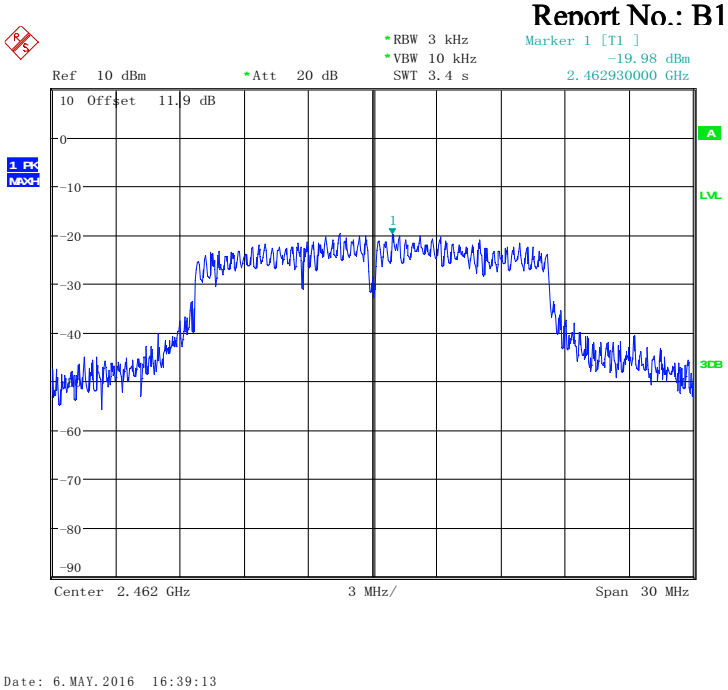


Fig.94 Power spectral density: CH11,11g

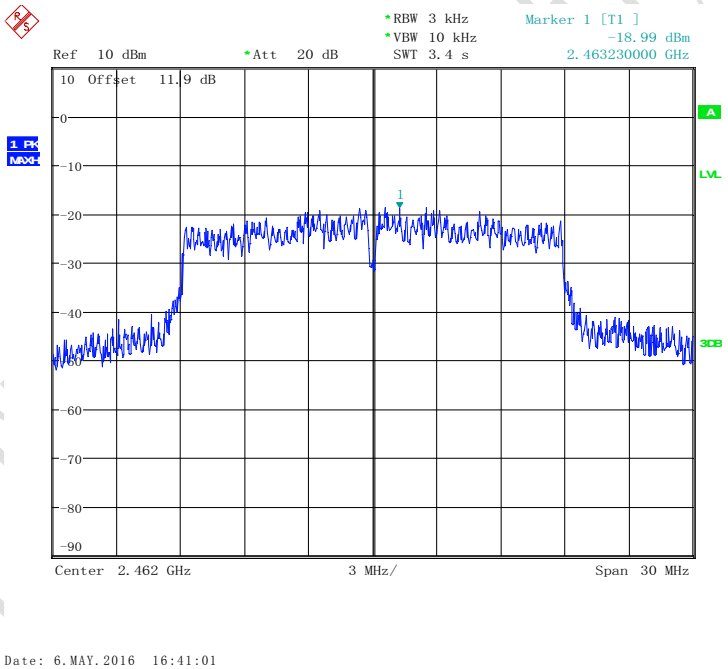


Fig.95 Power spectral density: CH11,11n

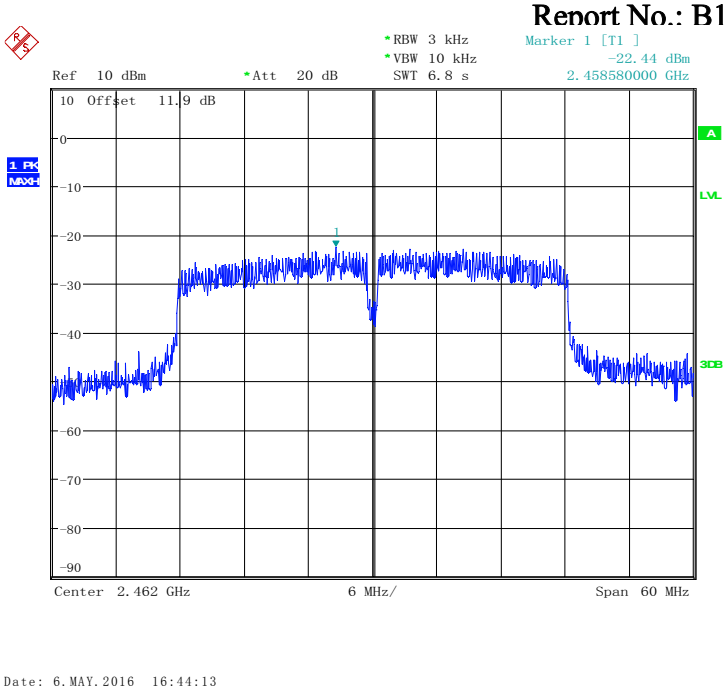


Fig.96 Power spectral density: CH11,11n(40M)

5.3 6dB Occupied Bandwidth

Specifications:	FCC 47 CFR Part 15.247(a)
DUT Serial Number:	S4/10: 358066070000145
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Limit Level Construction:

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

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 ≥ [3 × 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: --

Test Result:

802.11b/g mode

Mode	Occupied 6dB Bandwidth(MHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11b	10.175	9.433	10.154	Pass
802.11g	16.506	16.506	16.506	Pass

802.11n mode

Mode	Occupied 6dB Bandwidth(MHz)			Conclusion
	Ch1	Ch6	Ch11	
802.11n(20MHz)	17.788	17.788	17.788	Pass
802.11n(40MHz)	36.538	36.538	36.538	Pass

Conclusion: PASS

Test figure as below:

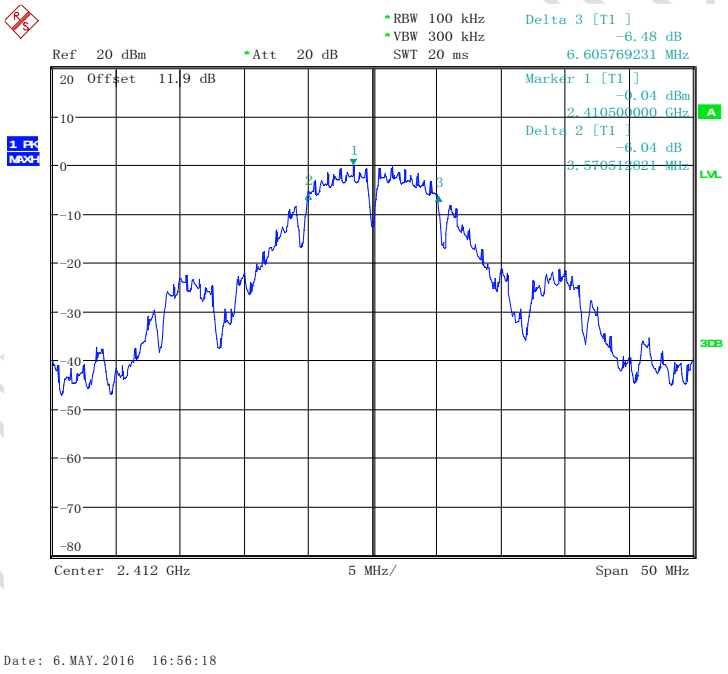


Fig.97 6dB Bandwidth: Ch1,11b

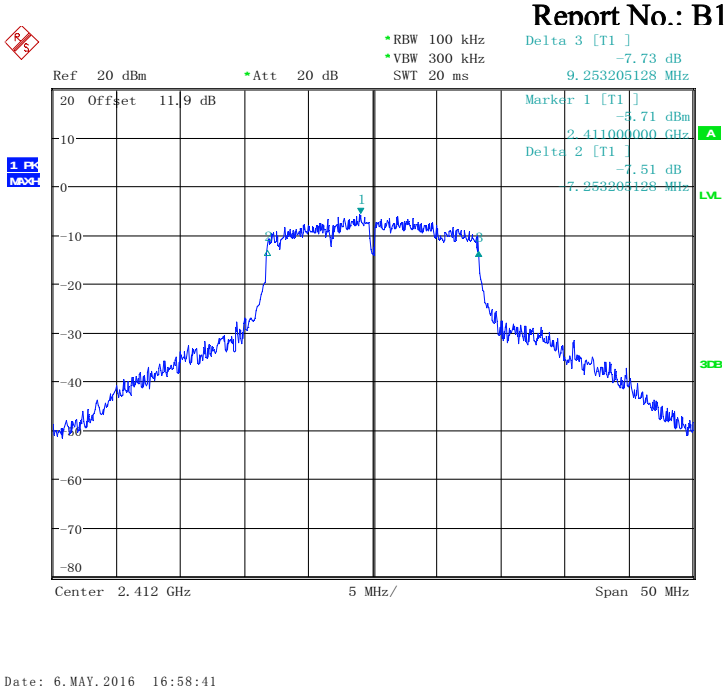


Fig.98 6dB Bandwidth: Ch1,11g

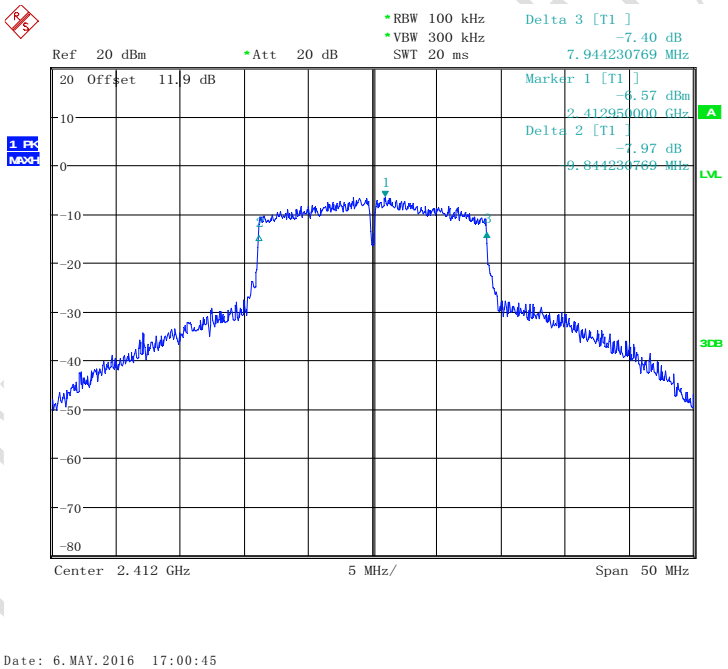


Fig.99 6dB Bandwidth: Ch1,11n

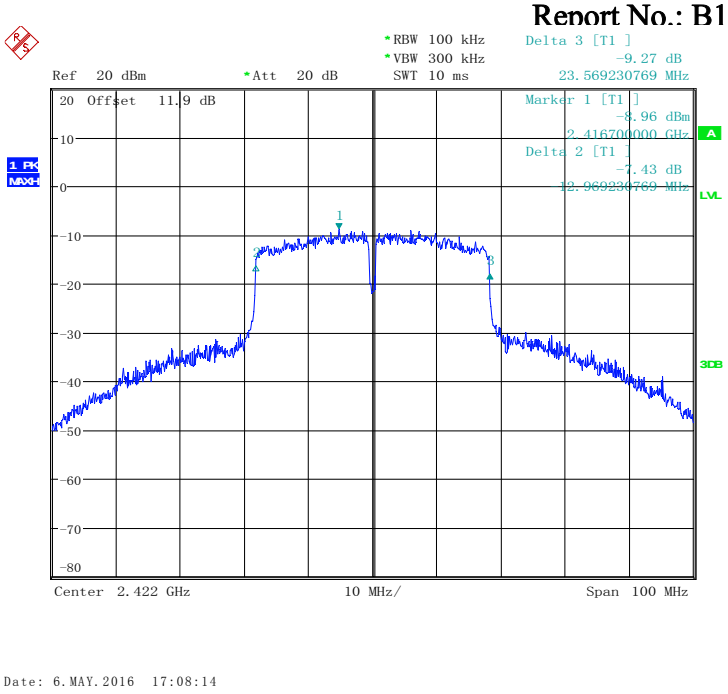


Fig.100 6dB Bandwidth: Ch1,11n(40M)

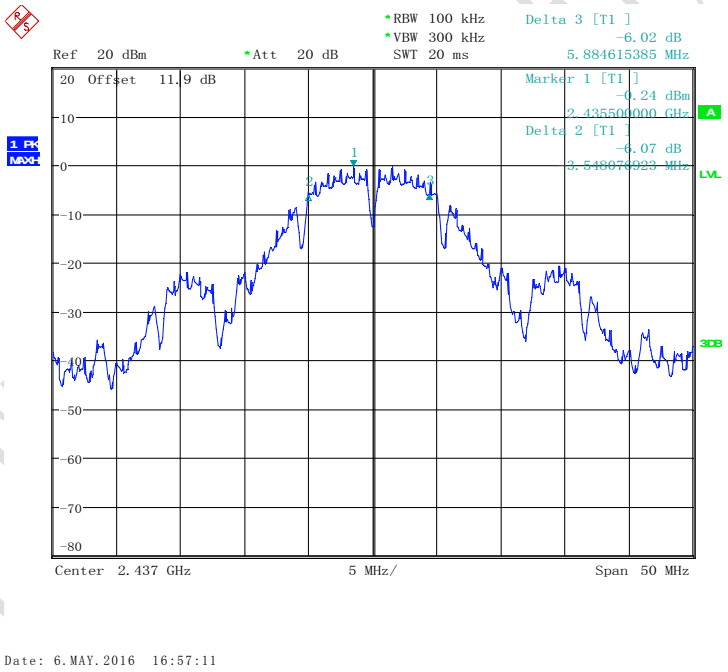


Fig.101 6dB Bandwidth: Ch6,11b

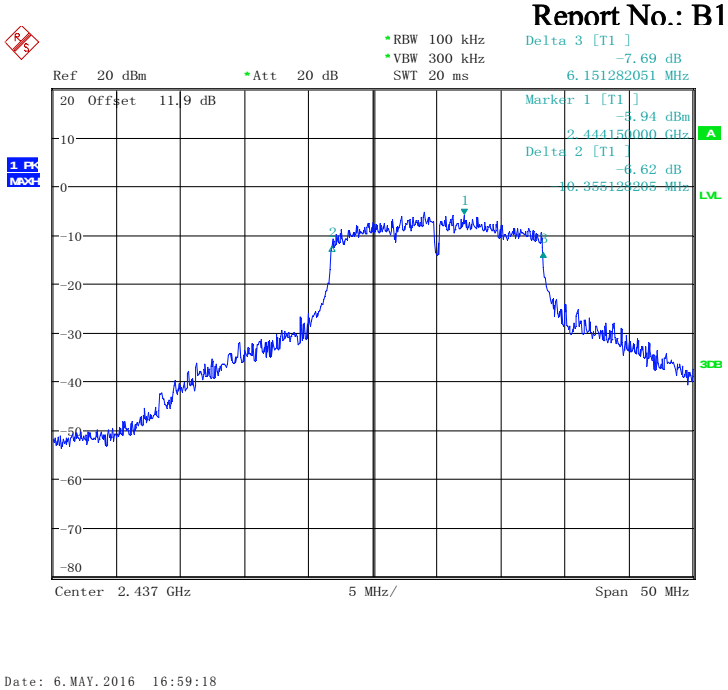


Fig.102 6dB Bandwidth: Ch6,11g

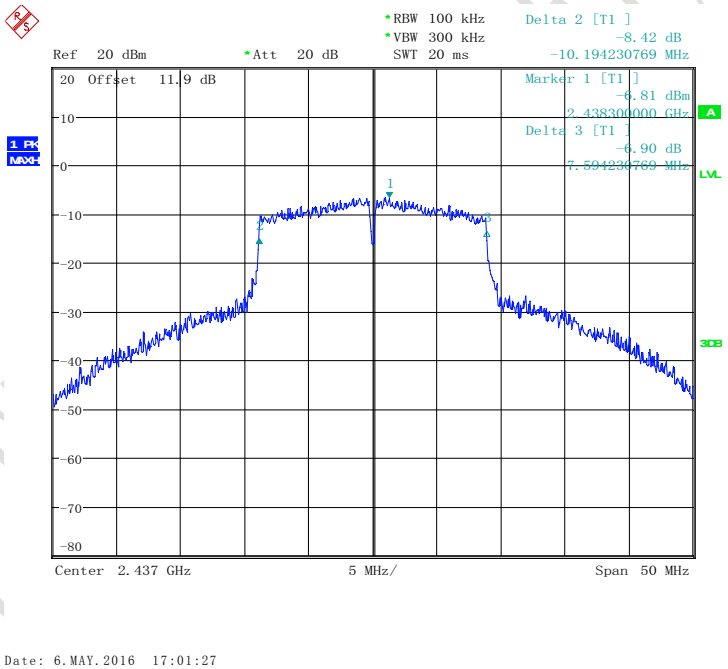


Fig.103 6dB Bandwidth: Ch6,11n

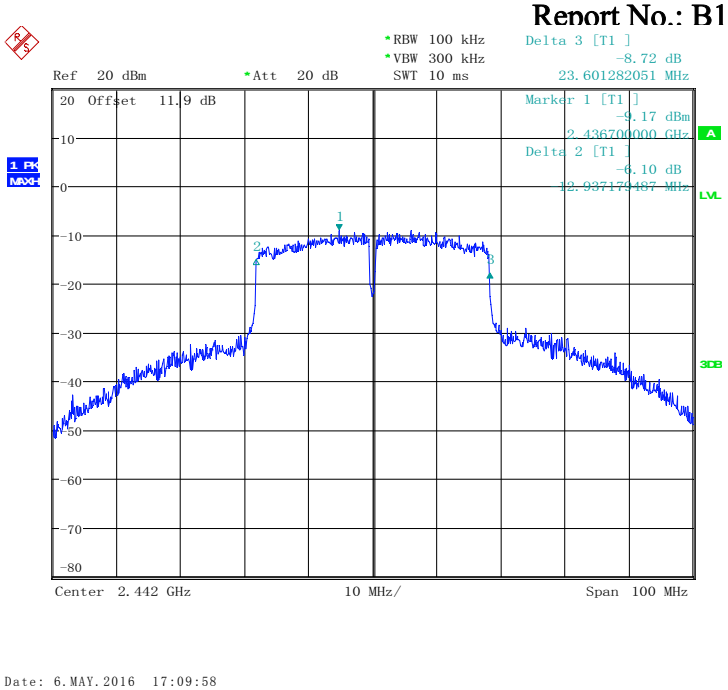


Fig.104 6dB Bandwidth: Ch6,11n(40M)

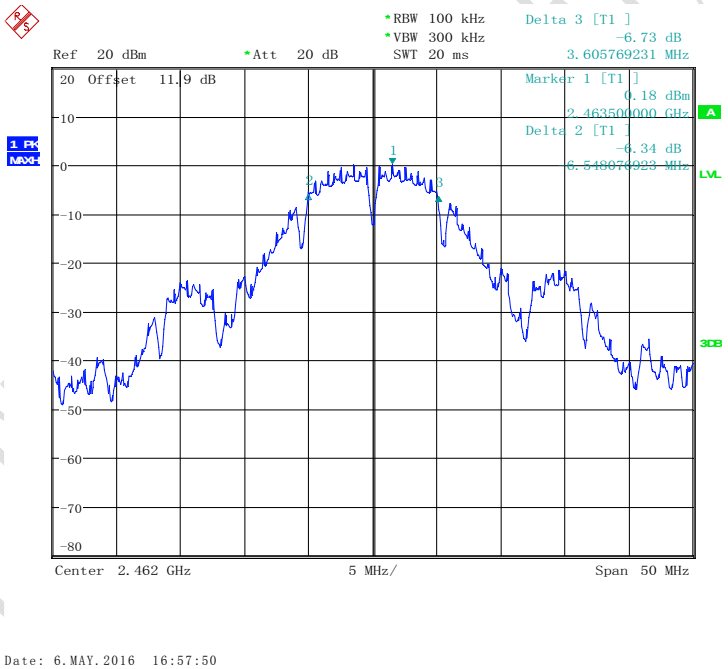


Fig.105 6dB Bandwidth: Ch11,11b

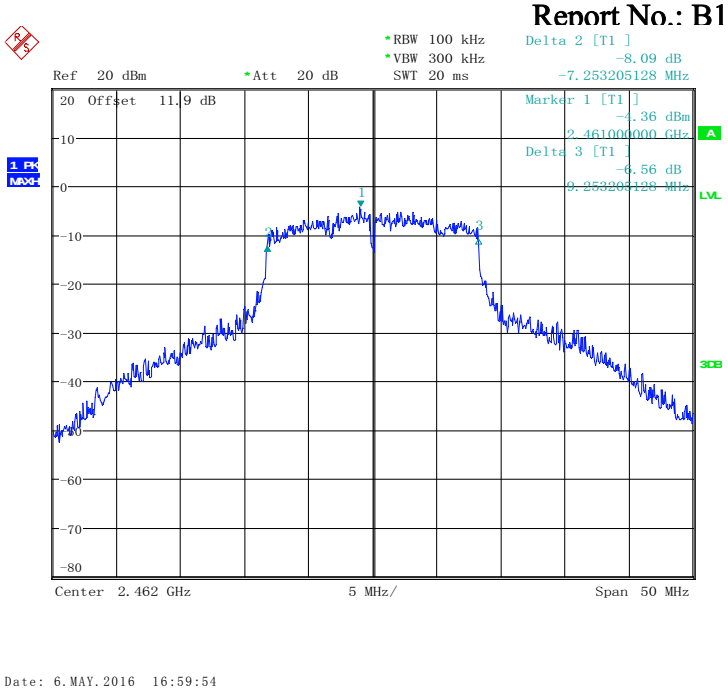


Fig.106 6dB Bandwidth: Ch11,11g

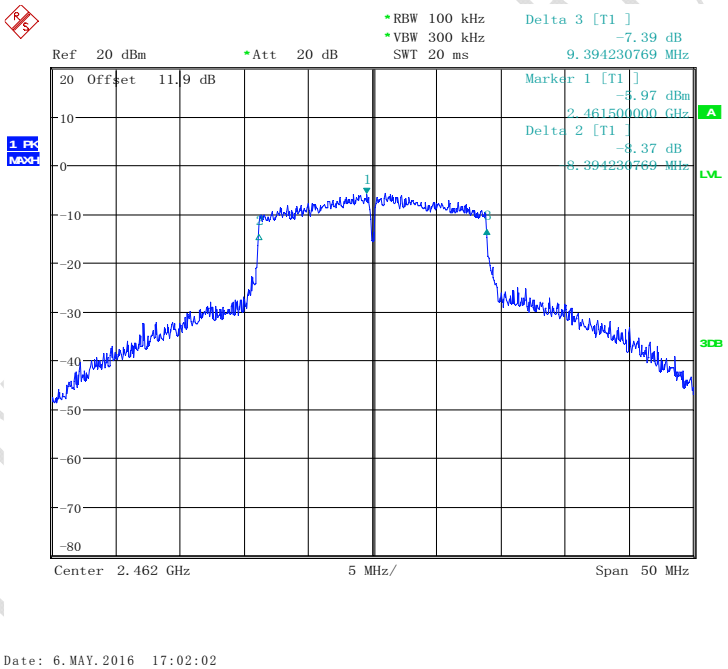


Fig.107 6dB Bandwidth: Ch11,11n

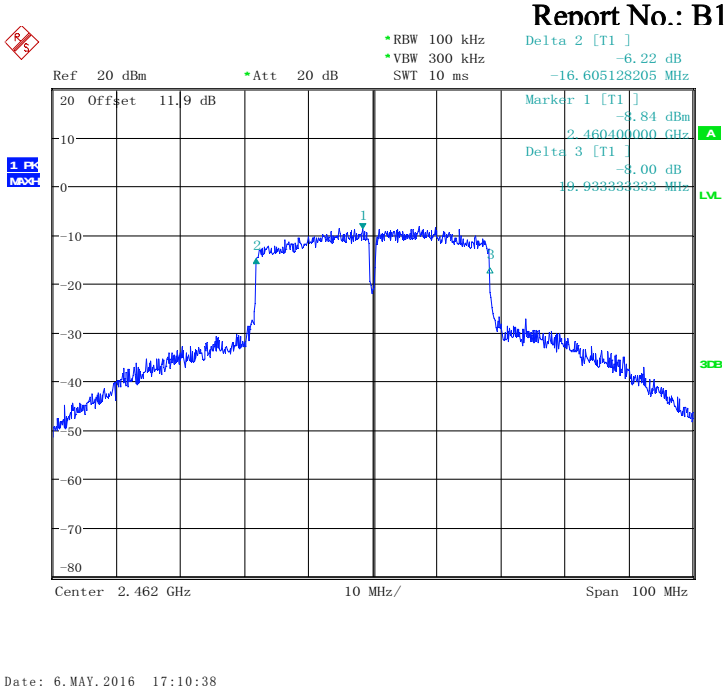


Fig.108 6dB Bandwidth: Ch11,11n(40M)

5.4 Band Edges Compliance

Specifications:	FCC 47 CFR Part 15.247(d)
DUT Serial Number:	S8/10: 358066070000665
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Limit Level Construction:

Standard	**Limited**(dBuV/m)	
FCC 47 CFR Part 15.247(d)	Peak	74
	Average	54

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 thefield 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×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: --

Test Result:

802.11b/g mode

mode	Channel	Test Results(dBuV/m)			Conclusion
802.11b	1	Peak	2390.000MHz	41.974	Pass
		Average	2390.000MHz	32.626	
		Fig.109			
	11	Peak	2483.500MHz	51.579	Pass
		Average	2483.500MHz	42.388	
		Fig.110			
802.11g	1	Peak	2390.000MHz	47.493	Pass
		Average	2390.000MHz	35.522	
		Fig.111			
	11	Peak	2483.500MHz	58.914	Pass
		Average	2483.500MHz	45.401	
		Fig.112			

802.11n mode

mode	Channel	Test Results(dBuV/m)			Conclusion
802.11n (20MHz)	1	Peak	2390.000MHz	66.665	Pass
		Average	2390.000MHz	49.858	
		Fig.113			
	11	Peak	2483.500MHz	62.634	Pass
		Average	2483.500MHz	48.986	
		Fig.114			
802.11n (40MHz)	3	Peak	2389.980MHz	66.377	Pass
		Average	2390.000MHz	52.990	
		Fig.115			
	9	Peak	2483.040MHz	70.491	Pass
		Average	2482.965MHz	53.501	
		Fig.116			

Conclusion: PASS

Test figure as below:

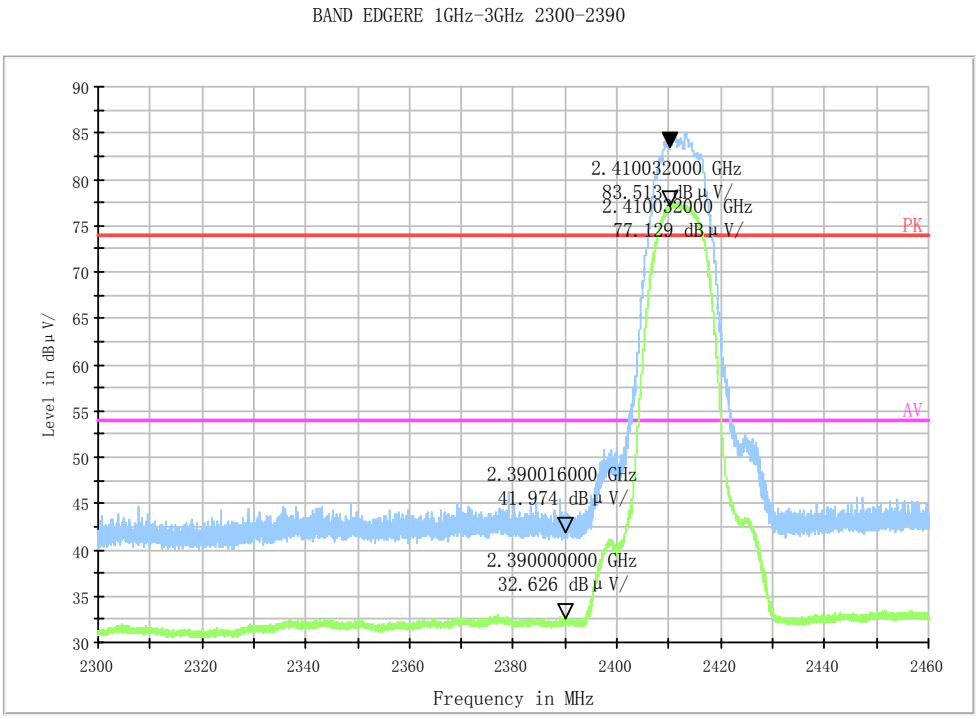


Fig.109 Frequency Band Edge: Ch1,11b

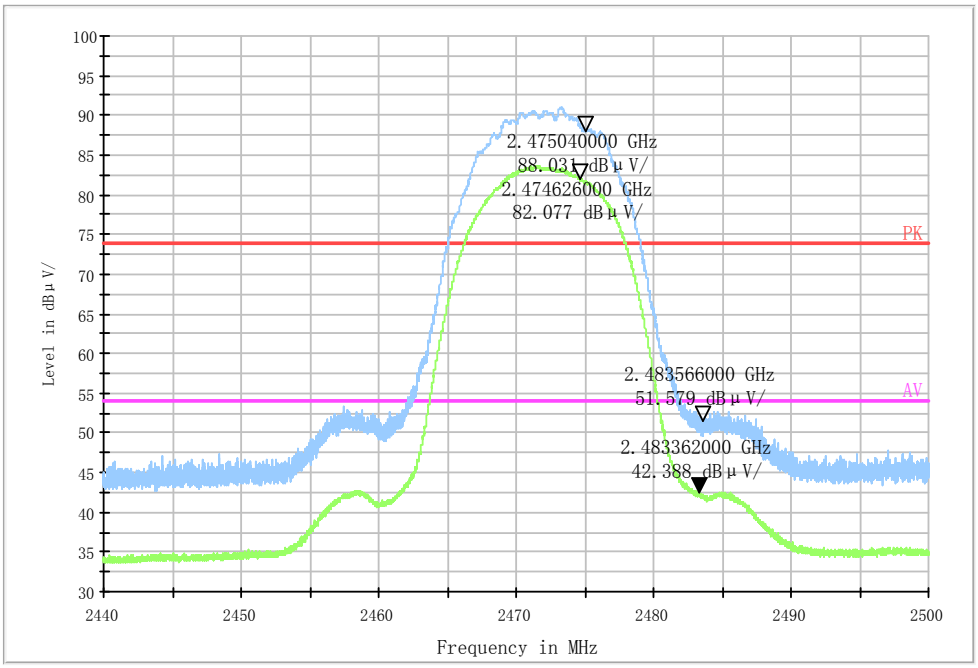


Fig.110 Frequency Band Edge: Ch11,11b

BAND EDGERE 1GHz-3GHz 2300-2390

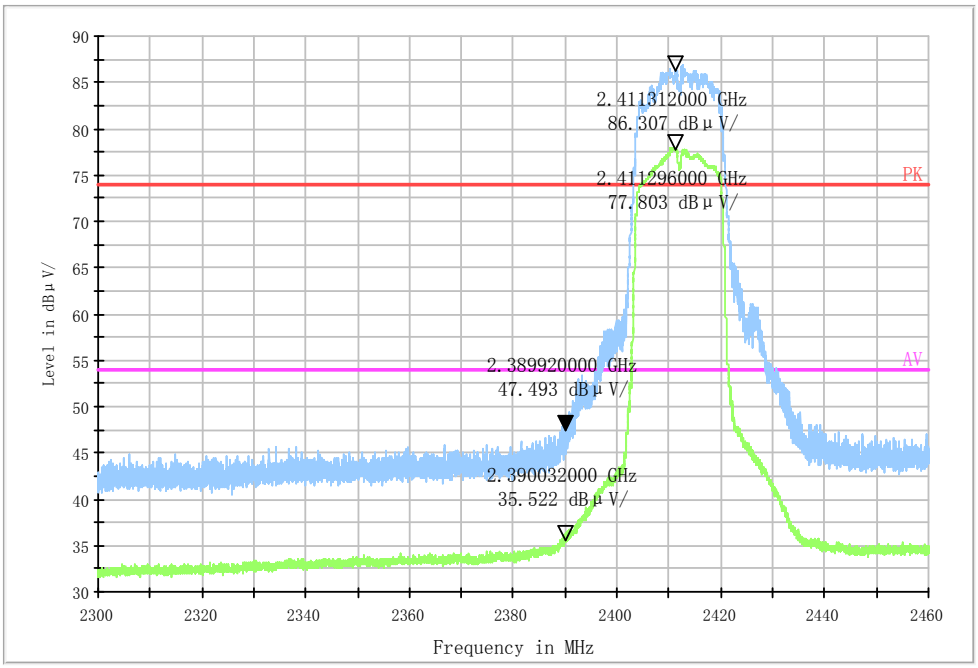


Fig.111 Frequency Band Edge: Ch1,11g

BAND EDGERE 1GHz-3GHz 2483.5-2500

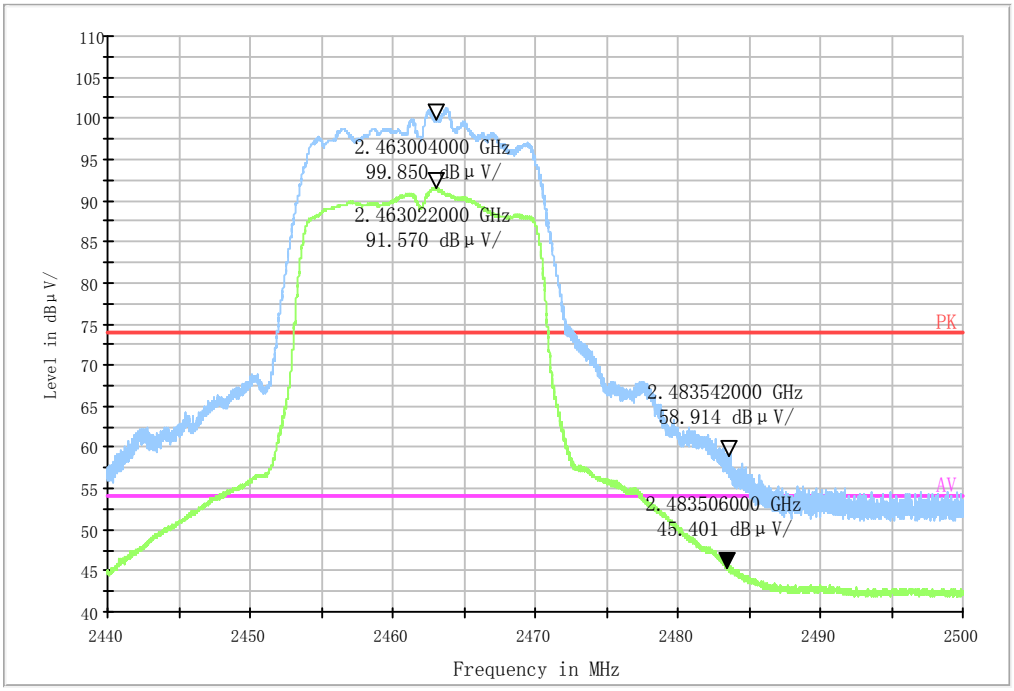


Fig.112 Frequency Band Edge: Ch11,11g

BAND EDGERE 1GHz-3GHz 2300-2390

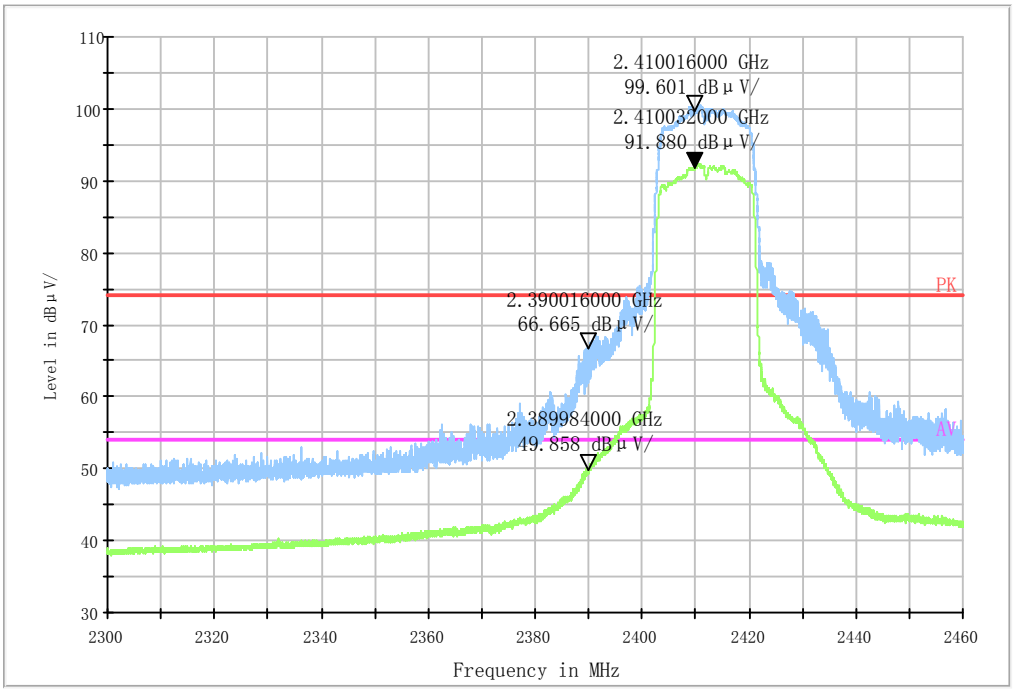


Fig.113 Frequency Band Edge: Ch3,11n(20MHz)

BAND EDGERE 1GHz-3GHz 2483.5-2500

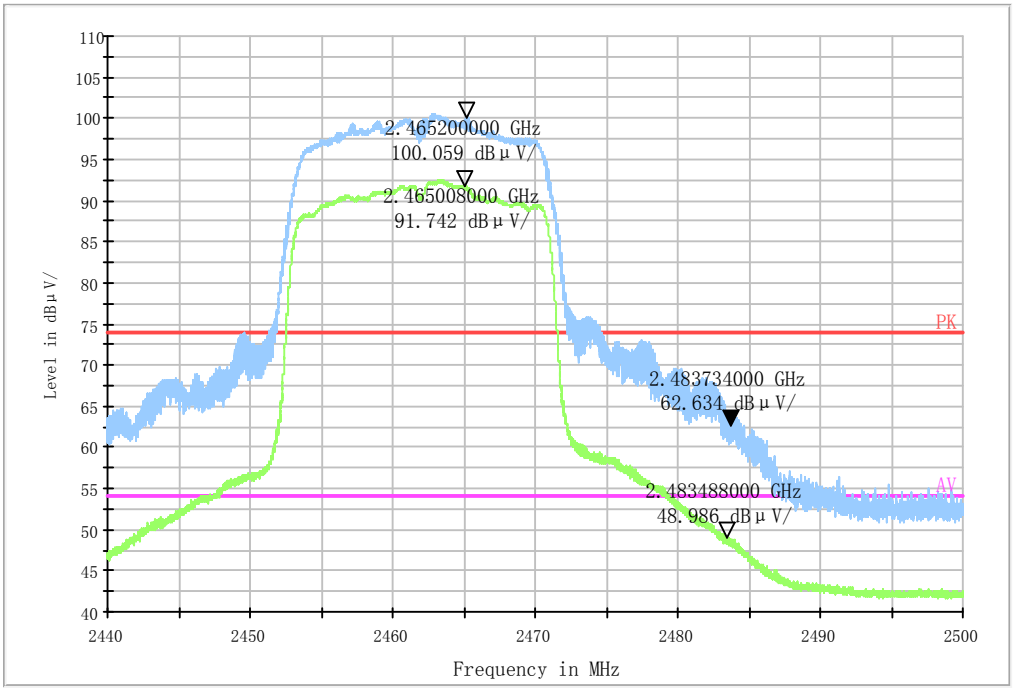


Fig.114 Frequency Band Edge: Ch11,11n(20MHz)

BAND EDGERE 1GHz-3GHz 2300-2390

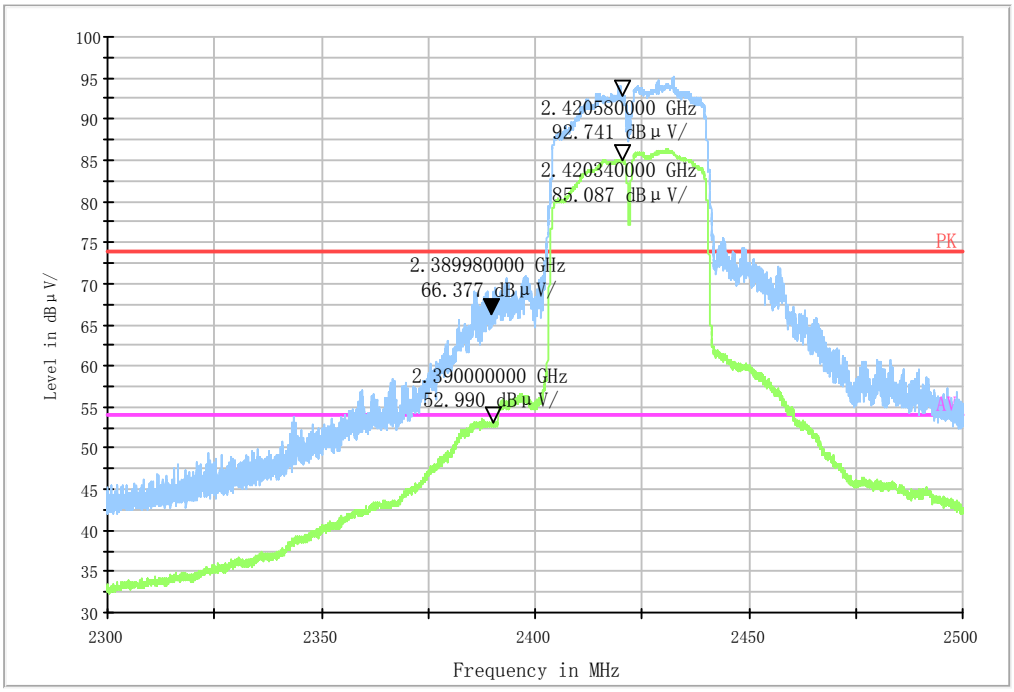


Fig.115 Frequency Band Edge: Ch3,11n(40M)

BAND EDGERE 1GHz-3GHz 2483.5-2500

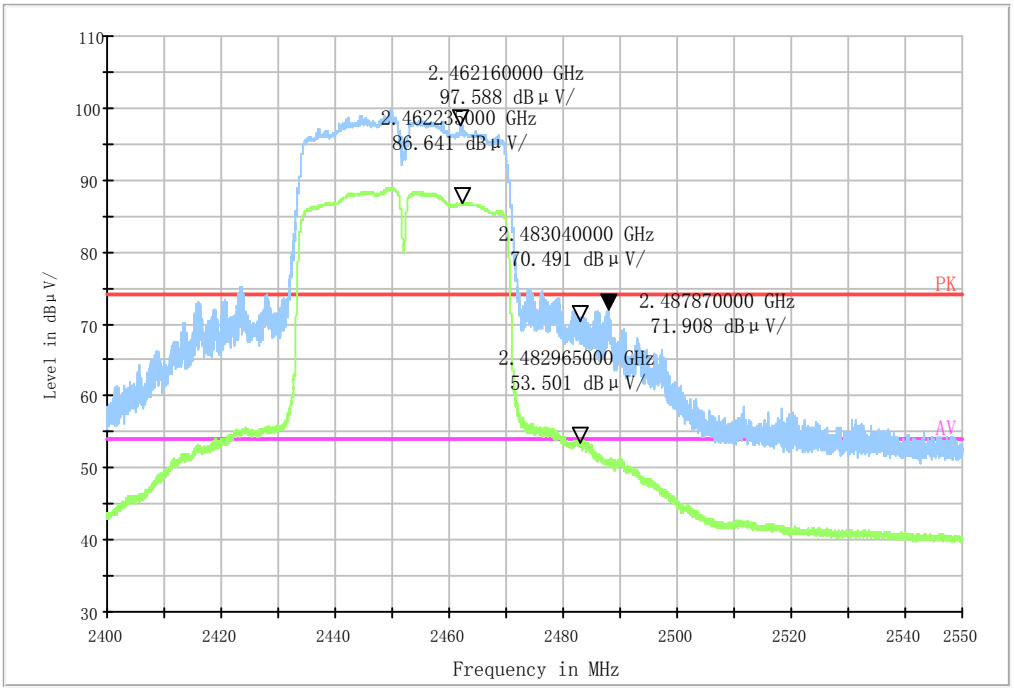


Fig.116 Frequency Band Edge: Ch9,11n(40M)

5.5 Transmitter Spurious Emission-Conducted

Specifications:	FCC 47 CFR Part15.247 (d)
DUT Serial Number:	S4/10: 358066070000145
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Limit

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

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 ≥ [3 × 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 ≥ [3 × 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.

Test Result:

802.11b/g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.412GHz	Fig.117	Pass
		30MHz~26GHz	Fig.118	Pass
	6	2.437GHz	Fig.119	Pass
		30MHz~26GHz	Fig.120	Pass
	11	2.462GHz	Fig.121	Pass
		30MHz~26GHz	Fig.122	Pass
802.11g	1	2.412GHz	Fig.123	Pass
		30MHz~26GHz	Fig.124	Pass
	6	2.437GHz	Fig.125	Pass
		30MHz~26GHz	Fig.126	Pass
	11	2.462GHz	Fig.127	Pass
		30MHz~26GHz	Fig.128	Pass

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n(20MHz)	1	2.412GHz	Fig.129	Pass
		30MHz~26GHz	Fig.130	Pass
	6	2.437GHz	Fig.131	Pass
		30MHz~26GHz	Fig.132	Pass
	11	2.462GHz	Fig.133	Pass
		30MHz~26GHz	Fig.134	Pass
802.11n(40MHz)	1	2.422GHz	Fig.135	Pass
		30MHz~26GHz	Fig.136	Pass
	6	2.442GHz	Fig.137	Pass
		30MHz~26GHz	Fig.138	Pass
	11	2.462GHz	Fig.139	Pass
		30MHz~26GHz	Fig.140	Pass

Conclusion: PASS

Test figure as below:

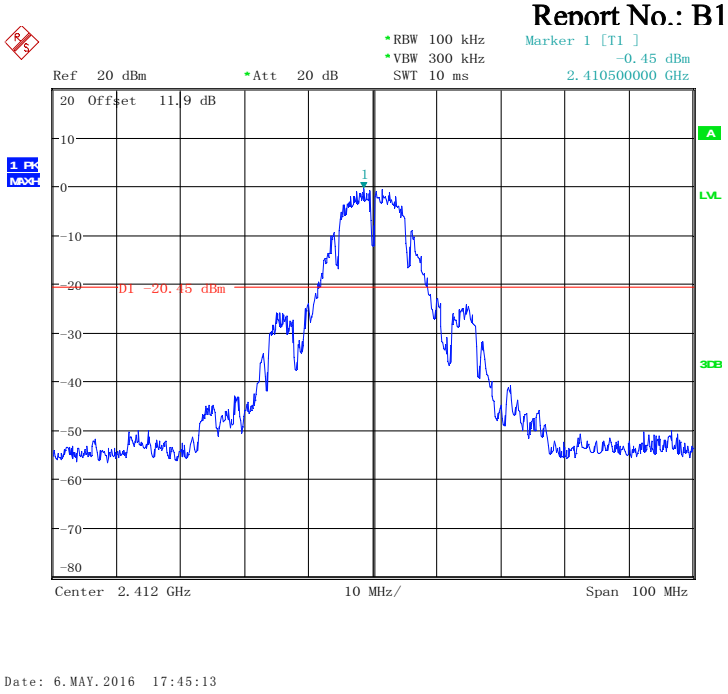


Fig.117 Conducted spurious emission: Ch1,11b,2412MHz

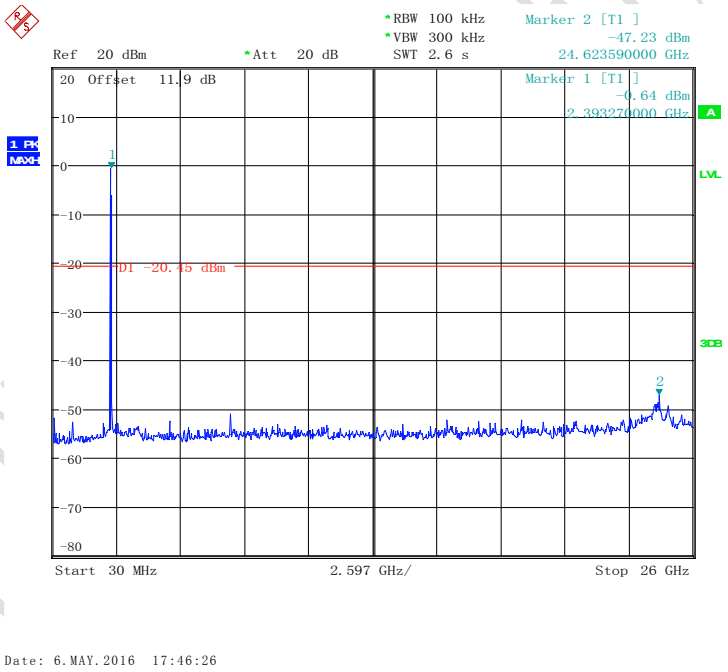


Fig.118 Conducted spurious emission: Ch1,11b,30MHz~26GHz

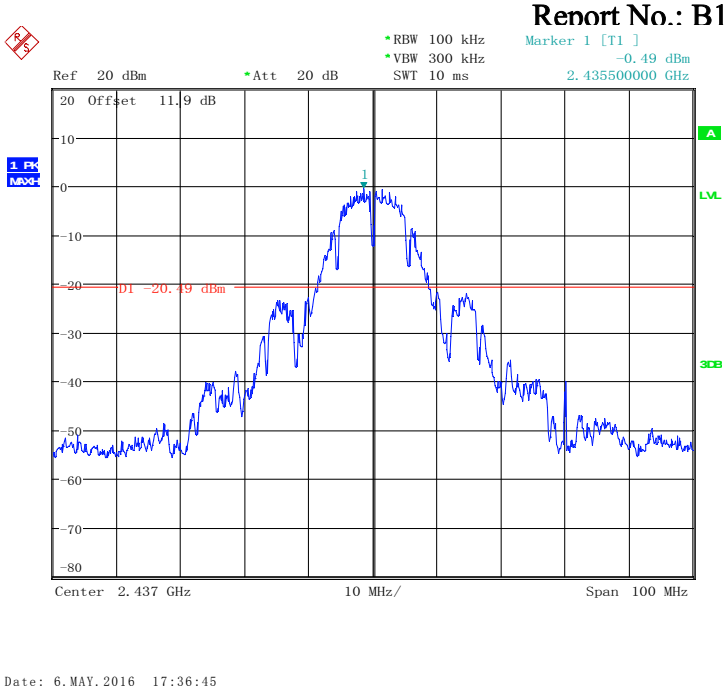


Fig.119 Conducted spurious emission: Ch6,11b,2437MHz

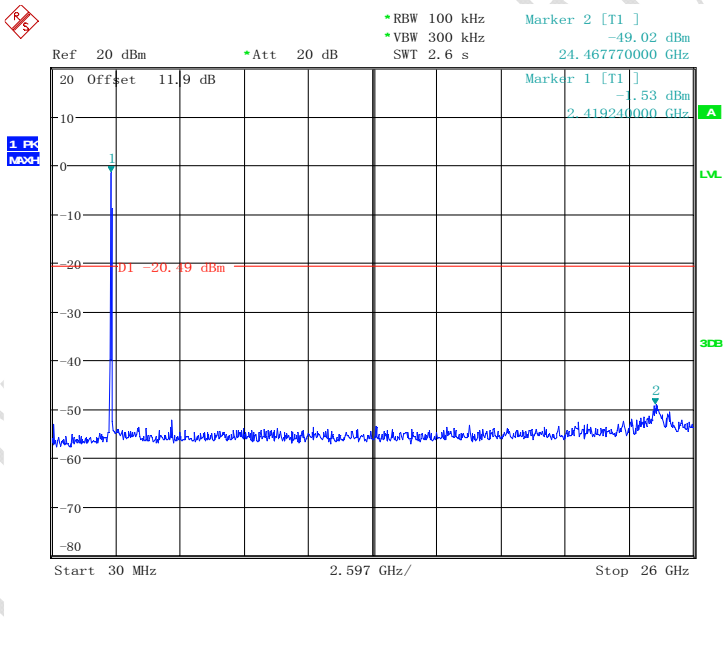


Fig.120 Conducted spurious emission: Ch6,11b,30MHz~26GHz

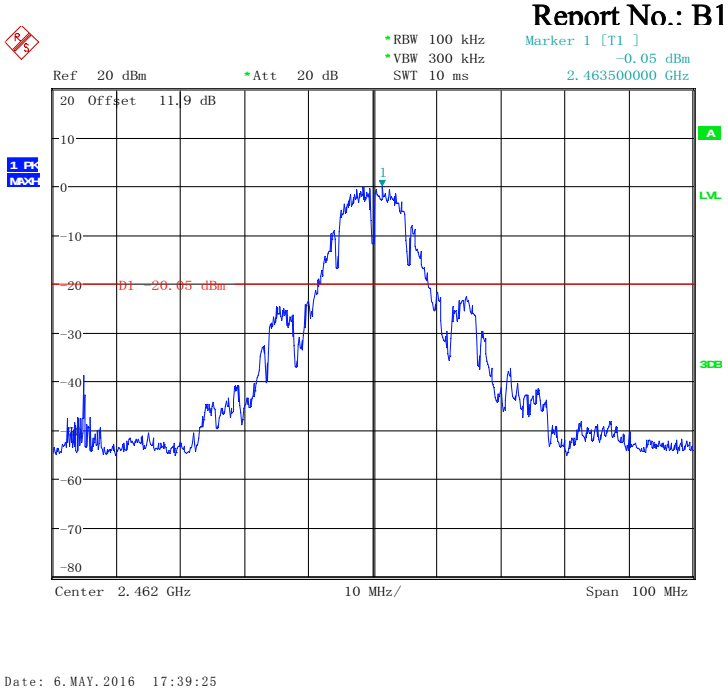


Fig.121 Conducted spurious emission: Ch11,11b,2462MHz

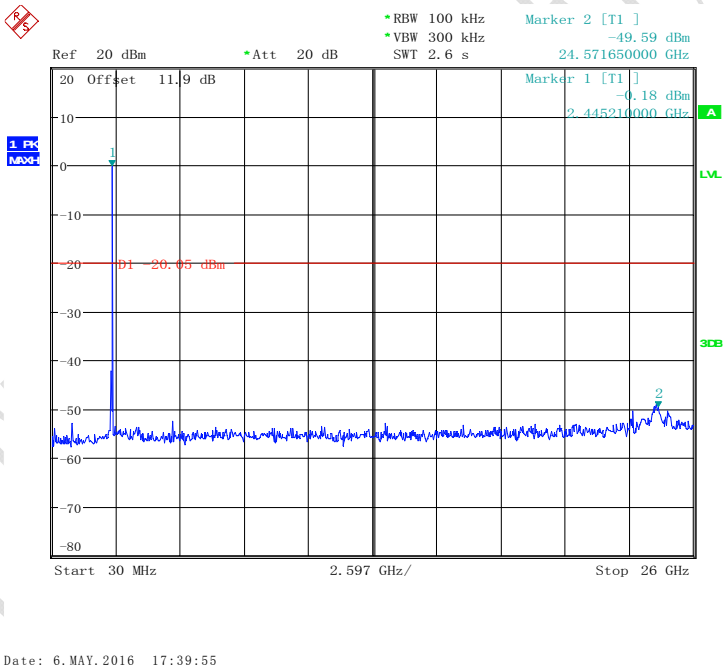


Fig.122 Conducted spurious emission: Ch11,11b,30MHz~26GHz

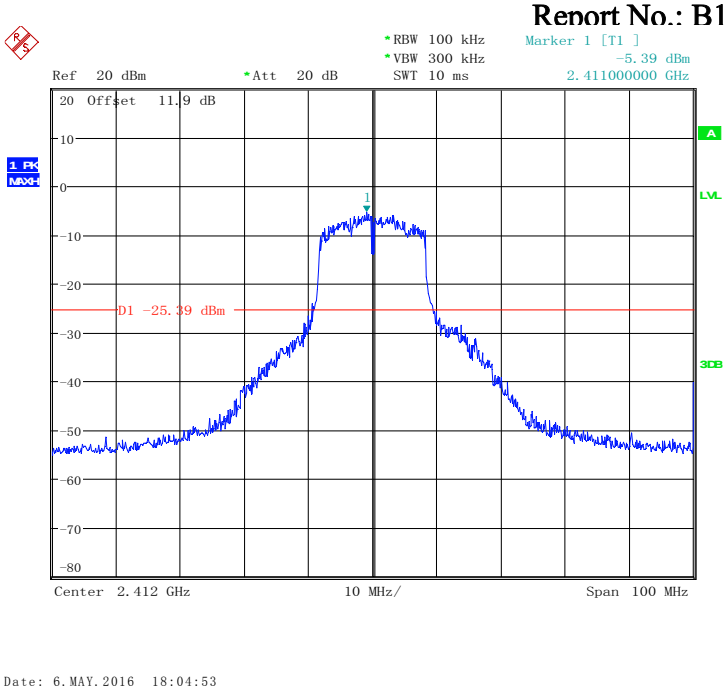


Fig.123 Conducted spurious emission: Ch1,11g,2412MHz

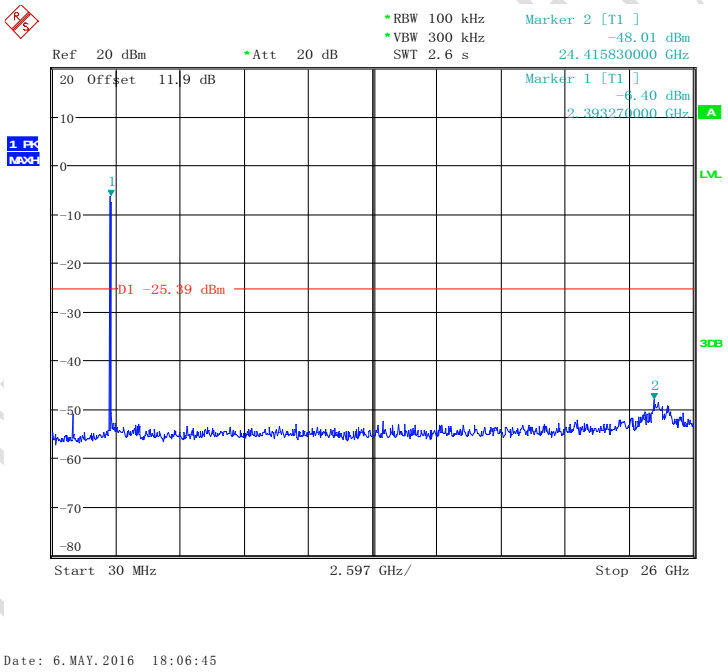


Fig.124 Conducted spurious emission: Ch1,11g,30MHz~26GHz

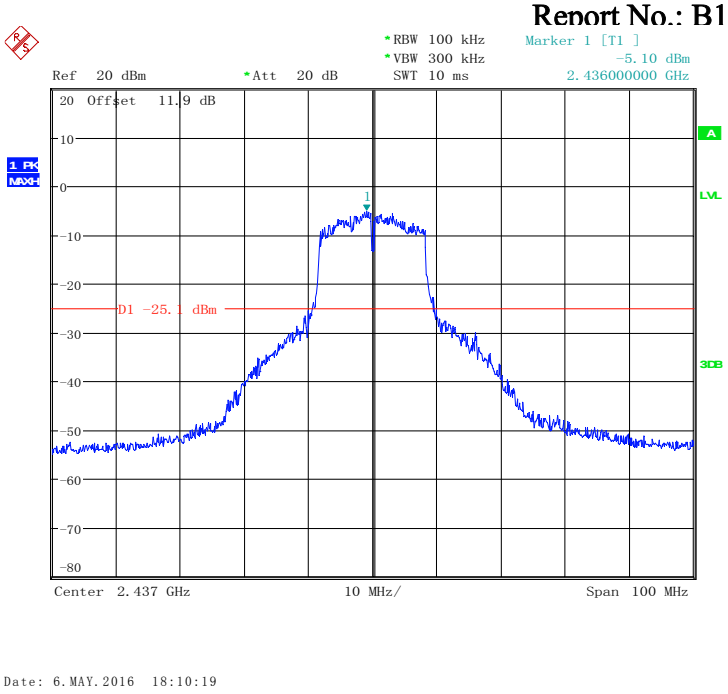


Fig.125 Conducted spurious emission: Ch6,11g,2437MHz

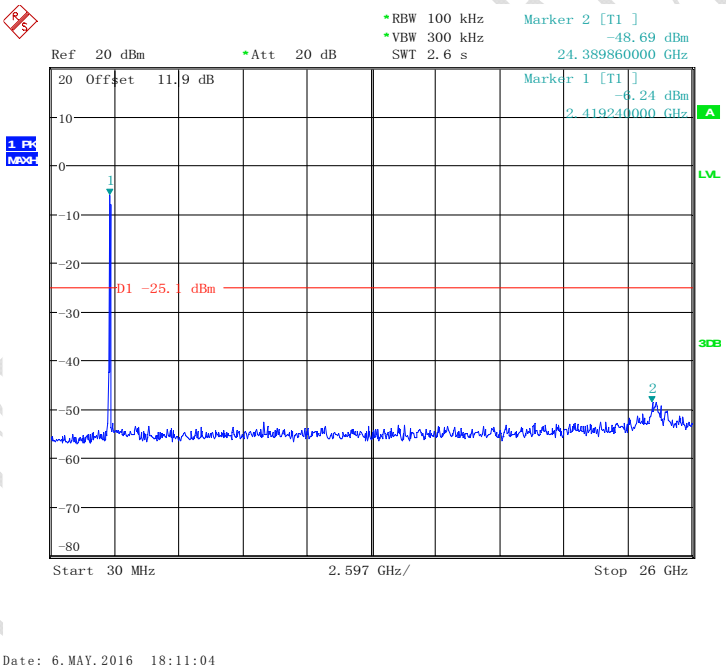


Fig.126 Conducted spurious emission: Ch6,11g,30MHz~26GHz

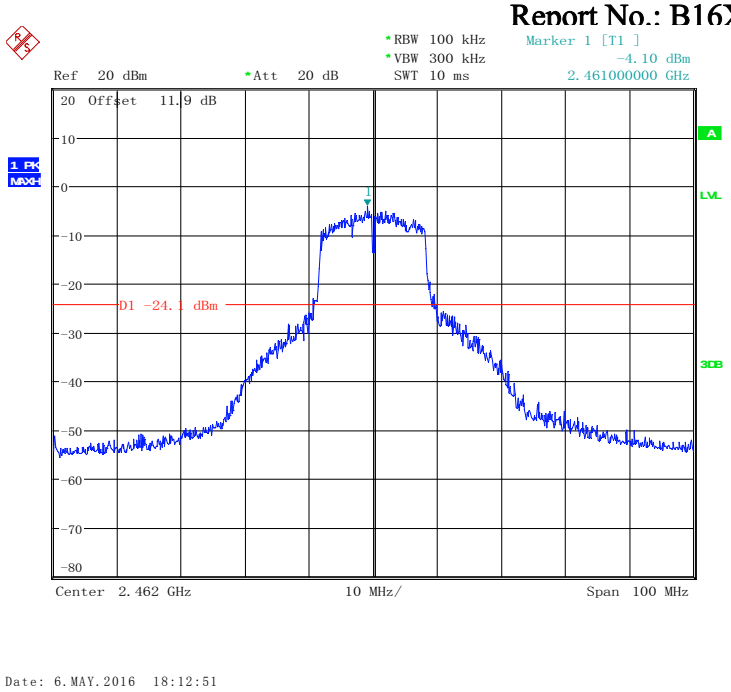


Fig.127 Conducted spurious emission: Ch11,11g,2462MHz

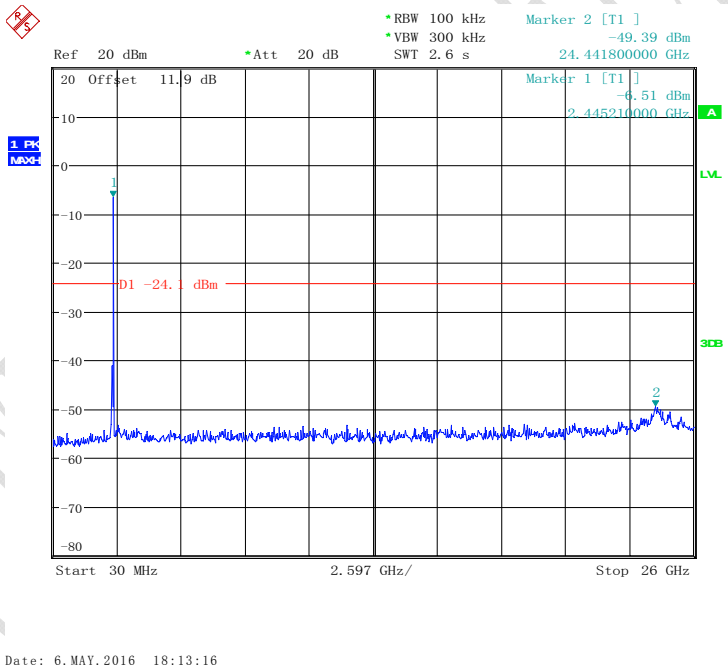


Fig.128 Conducted spurious emission: Ch11,11g,30MHz~26GHz

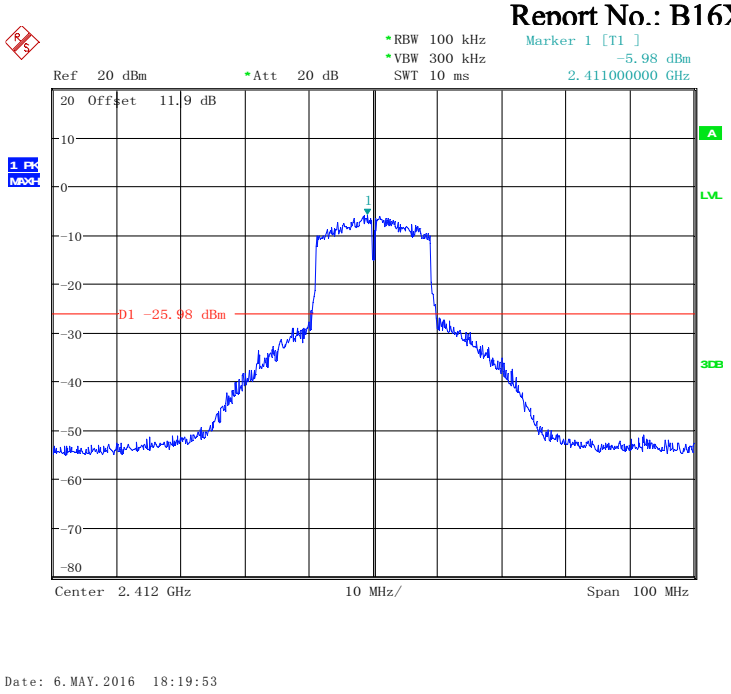


Fig.129 Conducted spurious emission: Ch1,11n,2412MHz

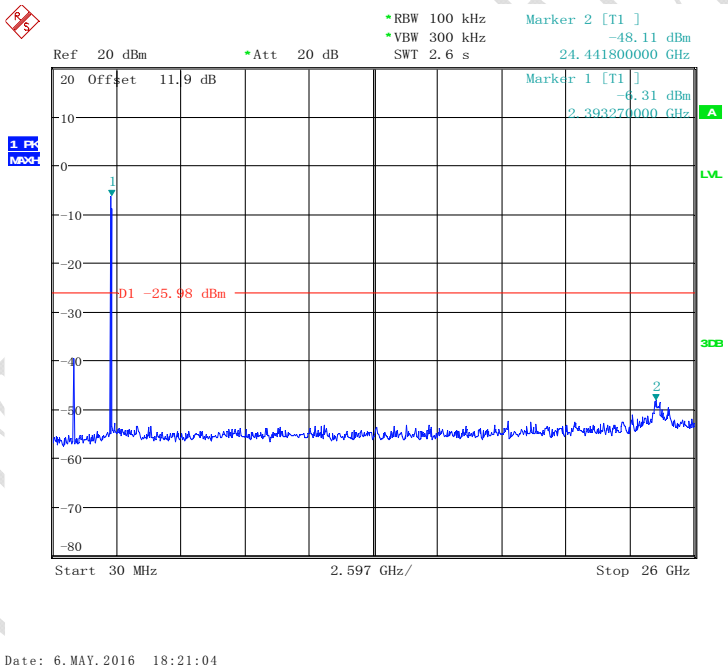


Fig.130 Conducted spurious emission: Ch1,11n,30MHz~26GHz

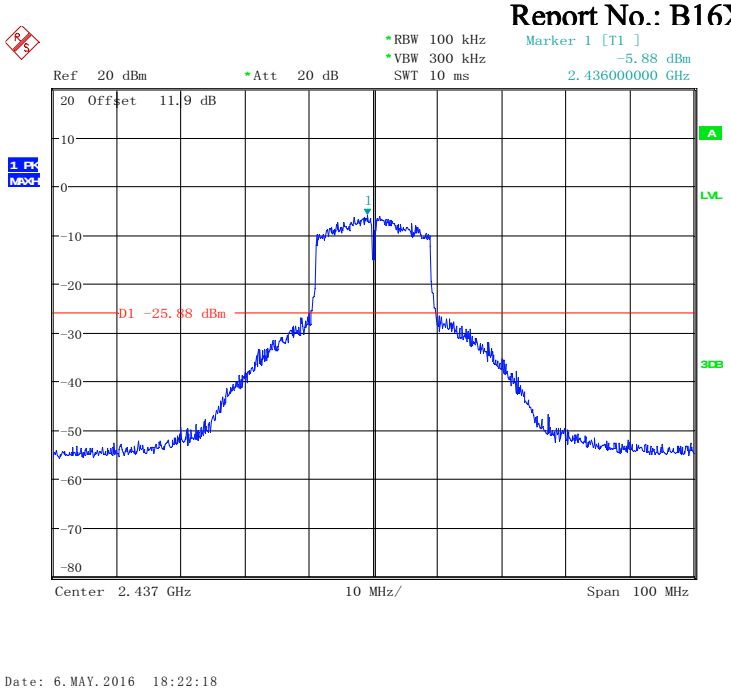


Fig.131 Conducted spurious emission: Ch6,11n,2437MHz

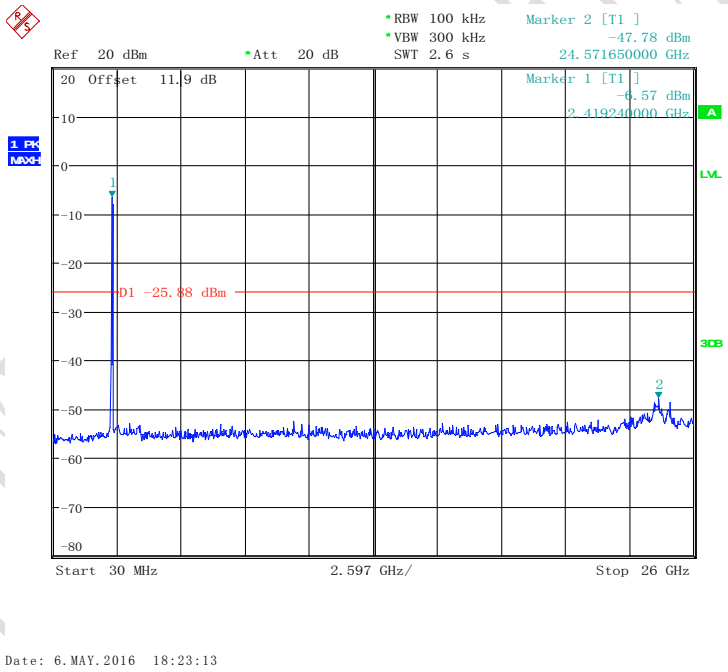


Fig.132 Conducted spurious emission: Ch6,11n,30MHz~26GHz

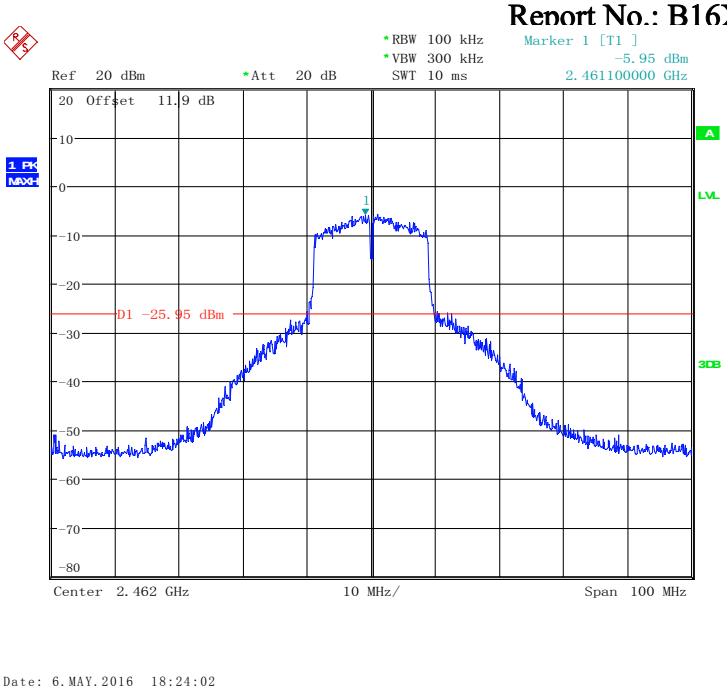


Fig.133 Conducted spurious emission: Ch11,11n,2462MHz

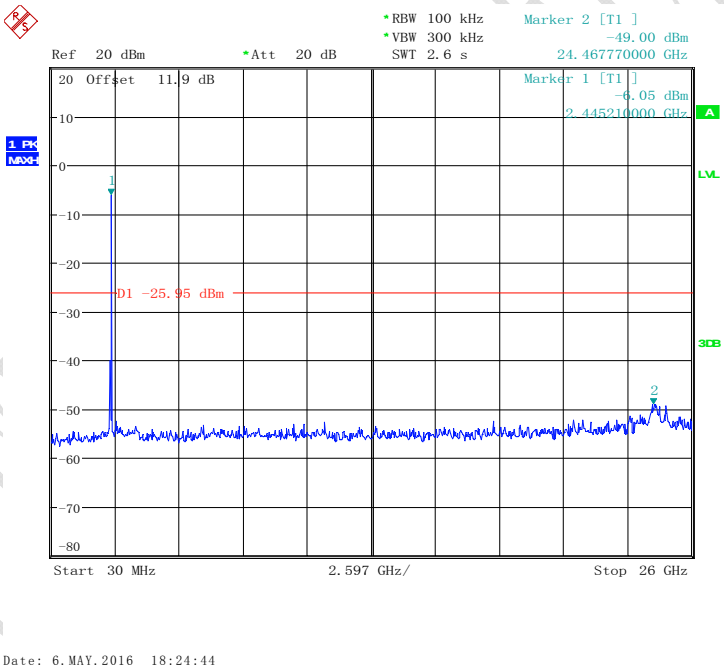


Fig.134 Conducted spurious emission: Ch11,11n,30MHz~26GHz

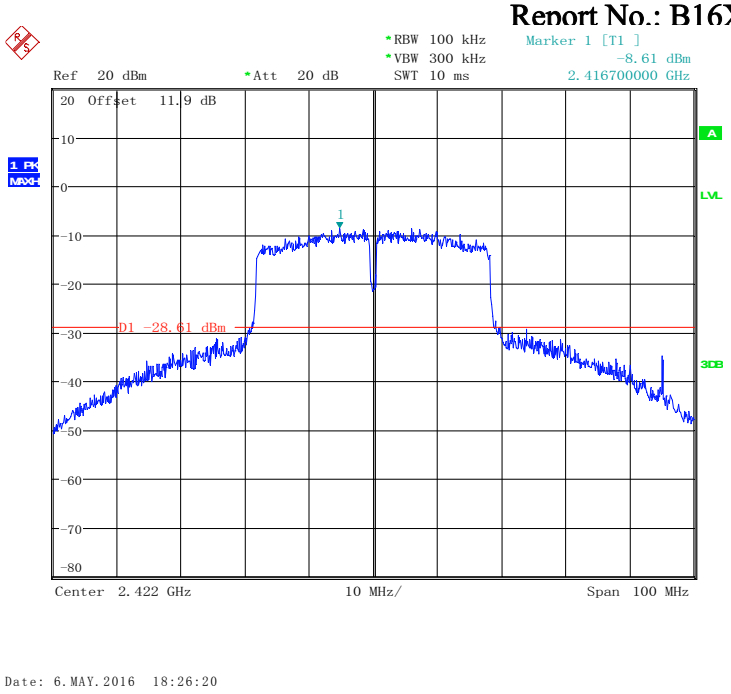


Fig.135 Conducted spurious emission: Ch1,11n(40M),2422MHz

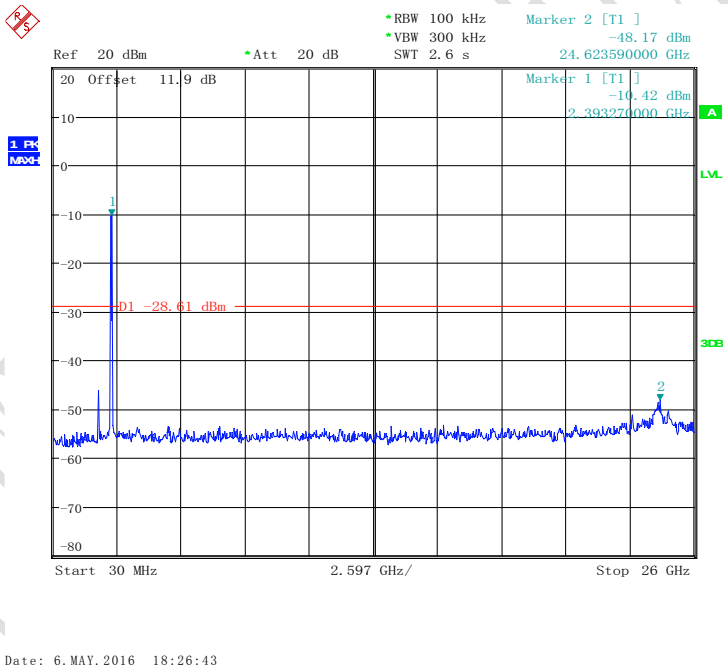


Fig.136 Conducted spurious emission: Ch1,11n(40M),30MHz~26GHz

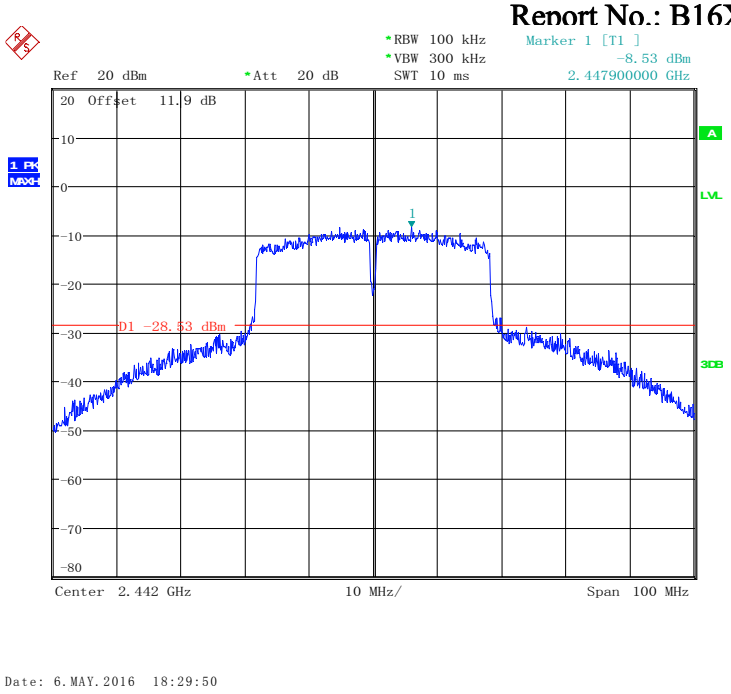


Fig.137 Conducted spurious emission: Ch6,11n(40M),2442MHz

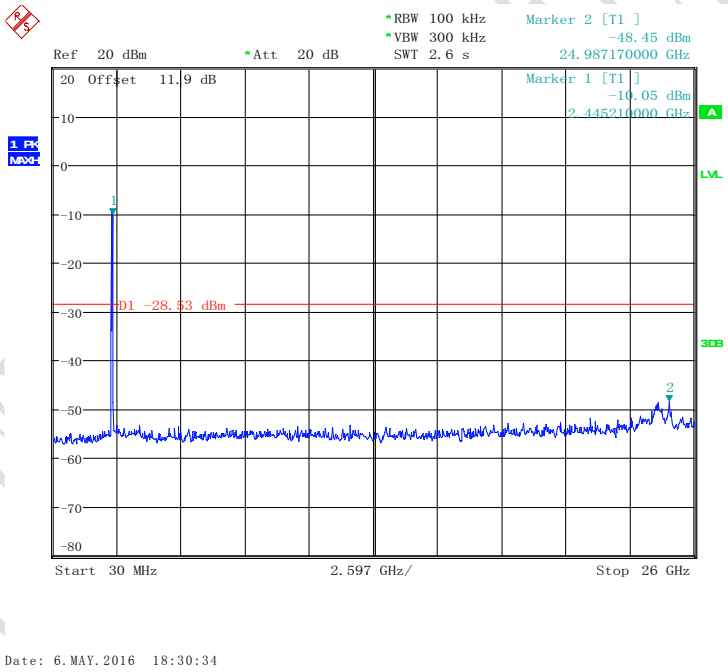


Fig.138 Conducted spurious emission: Ch6,11n(40M),30MHz~26GHz

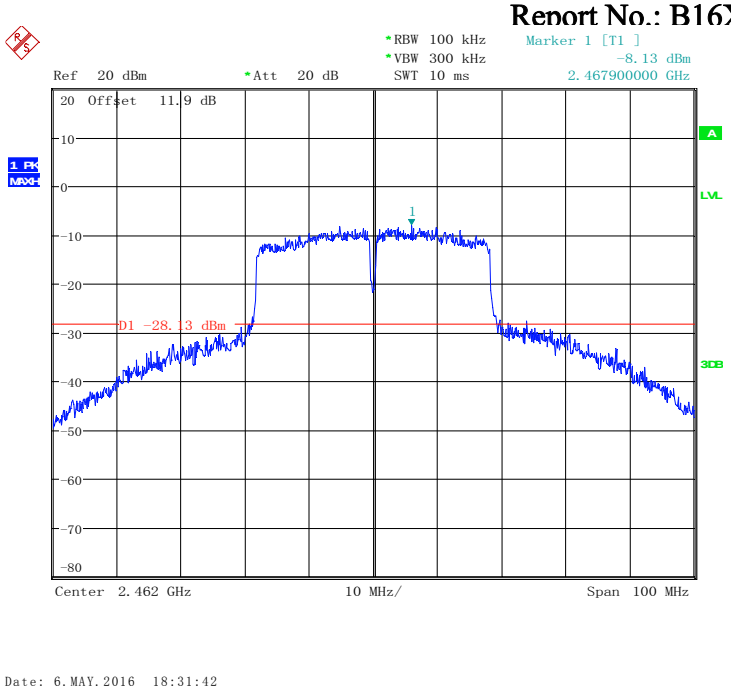


Fig.139 Conducted spurious emission: Ch11,11n(40M),2462MHz

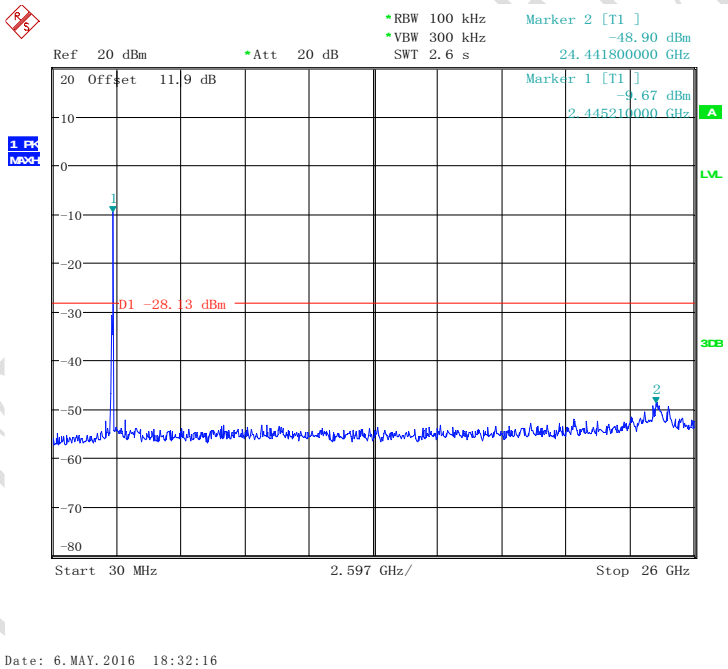


Fig.140 Conducted spurious emission: Ch11,11n(40M),30MHz~26GHz

5.6 Transmitter Spurious Emission-Radiated

Specifications:	FCC 47 CFR Part 15.247, 15.205, 15.209
DUT Serial Number:	S8/10: 358066070000665
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

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)).

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 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 (s)
30~1000	100KHz/300KHz	5
1000~4000	1MHz/1MHz	15
4000~18000	1MHz/1MHz	40
18000~26500	1MHz/1MHz	20

Test Result:

A “reference path loss” is established and ARpi 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:

ARpi= Cable loss + Antenna Gain-Preamplifier gain

Result=PMea + ARpi

Channel	Frequency Range	Test Results	Conclusion
Ch1	30MH-1GHz	Fig.141	Pass
	1GHz-3GHz	Fig.142	Pass
	3GHz-18GHz	Fig.143	Pass

Channel	Frequency Range	Test Results	Conclusion
Ch6	30MH-1GHz	Fig.144	Pass
	1GHz-3GHz	Fig.145	Pass
	3GHz-18GHz	Fig.146	Pass

Channel	Frequency Range	Test Results	Conclusion
Ch11	30MH-1GHz	Fig.147	Pass
	1GHz-3GHz	Fig.148	Pass
	3GHz-18GHz	Fig.149	Pass
All channels	18GHz-26GHz	Fig.150	Pass

Note: all the test data shown was peak detected.

Conclusion: PASS

Test graphs as below:

RE 30MHz-1GHz

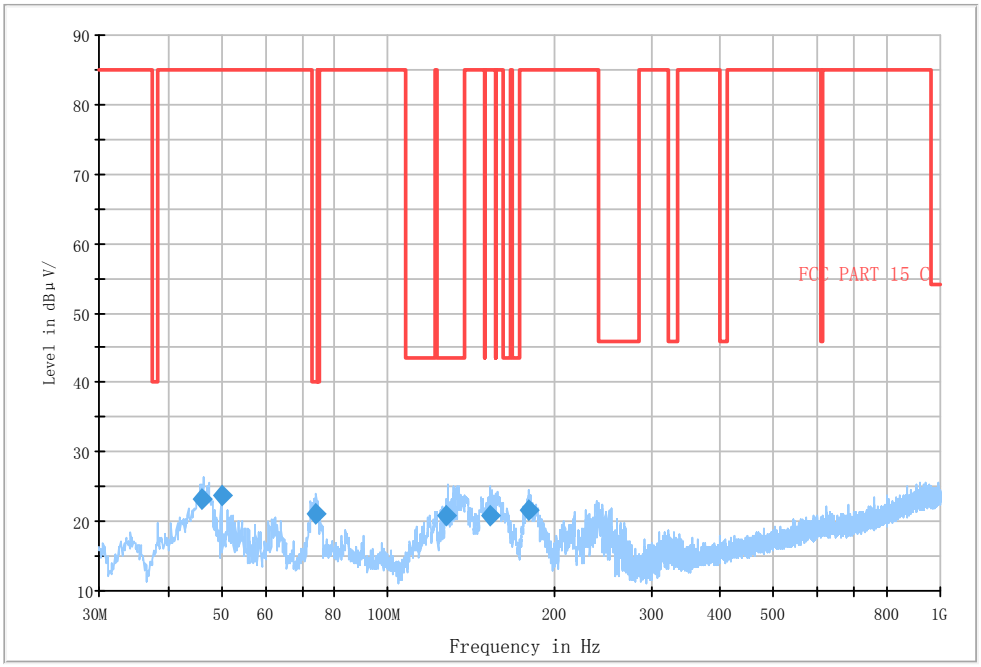


Fig.141 Radiated emission: Ch1, 30MHz-1GHz

RE 1GHz-3GHz

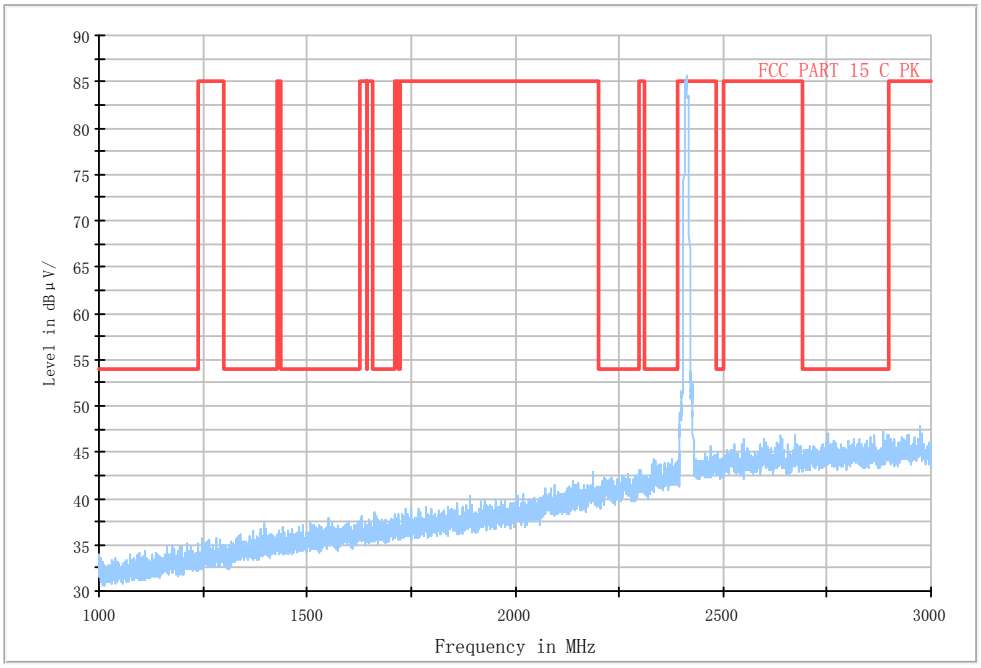


Fig.142 Radiated emission: Ch1, 1GHz-3GHz

RE 3GHz-18GHz

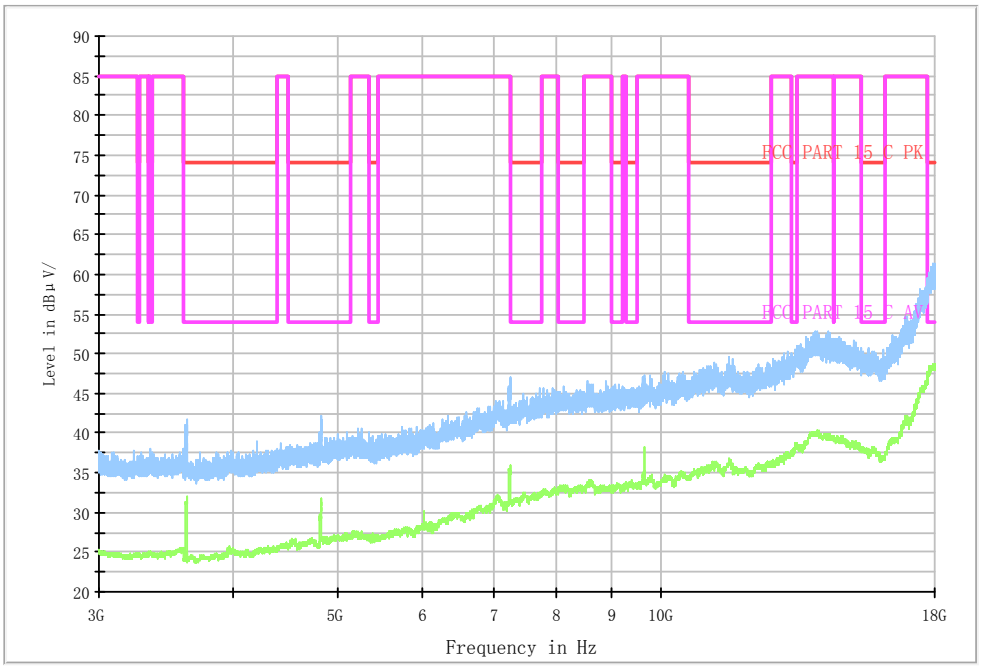


Fig.143 Radiated emission: Ch1, 3GHz-18GHz

RE 30MHz-1GHz

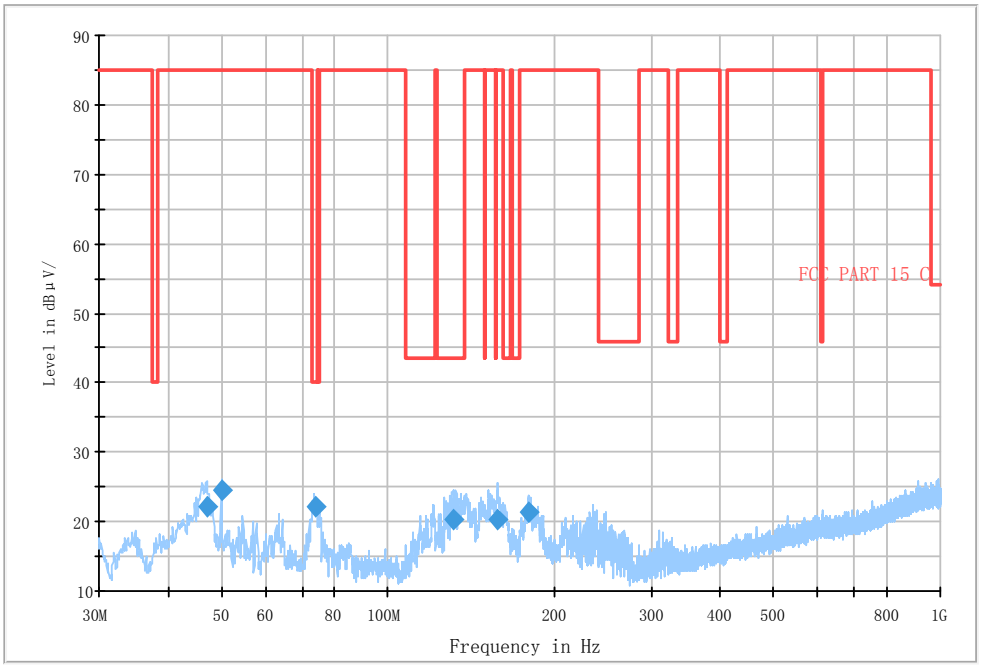


Fig.144 Radiated emission:Ch6, 30MHz-1GHz

RE 1GHz-3GHz

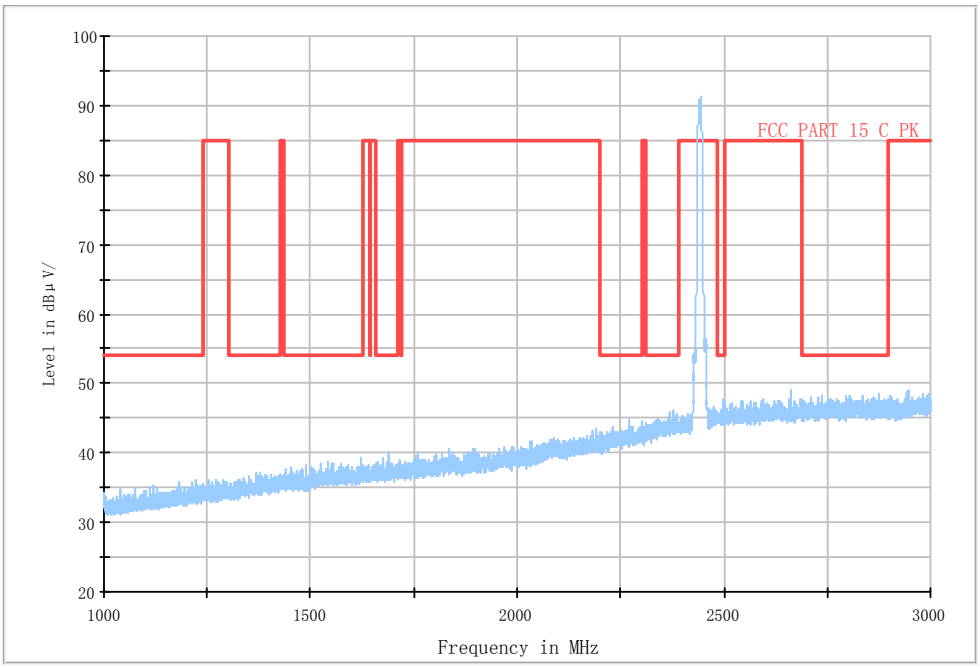


Fig.145 Radiated emission: Ch6, 1GHz-3GHz

RE 3GHz-18GHz

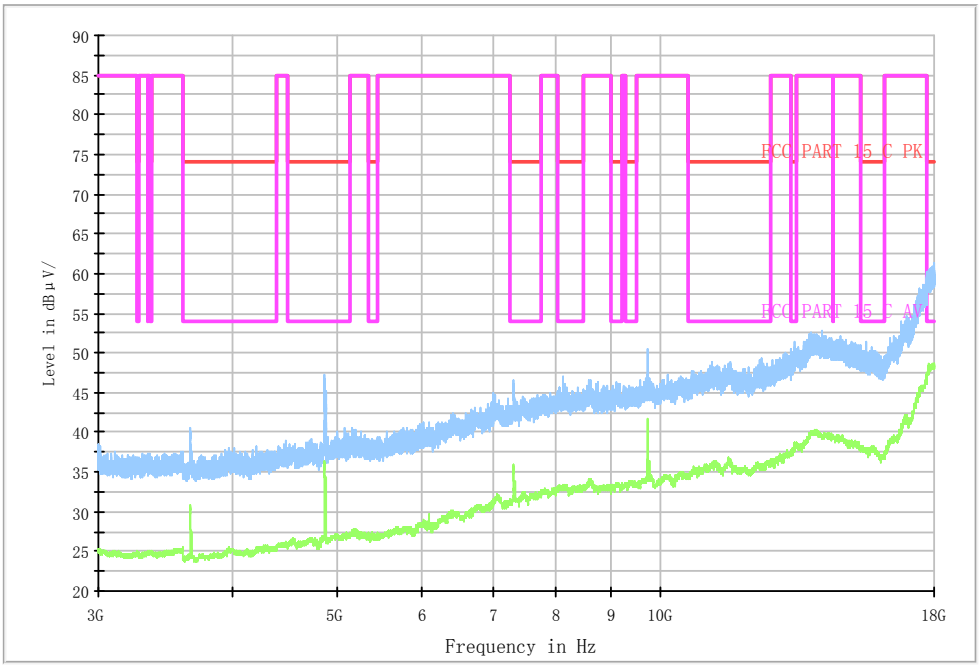


Fig.146 Radiated emission: Ch6, 3GHz-18GHz

RE 30MHz-1GHz

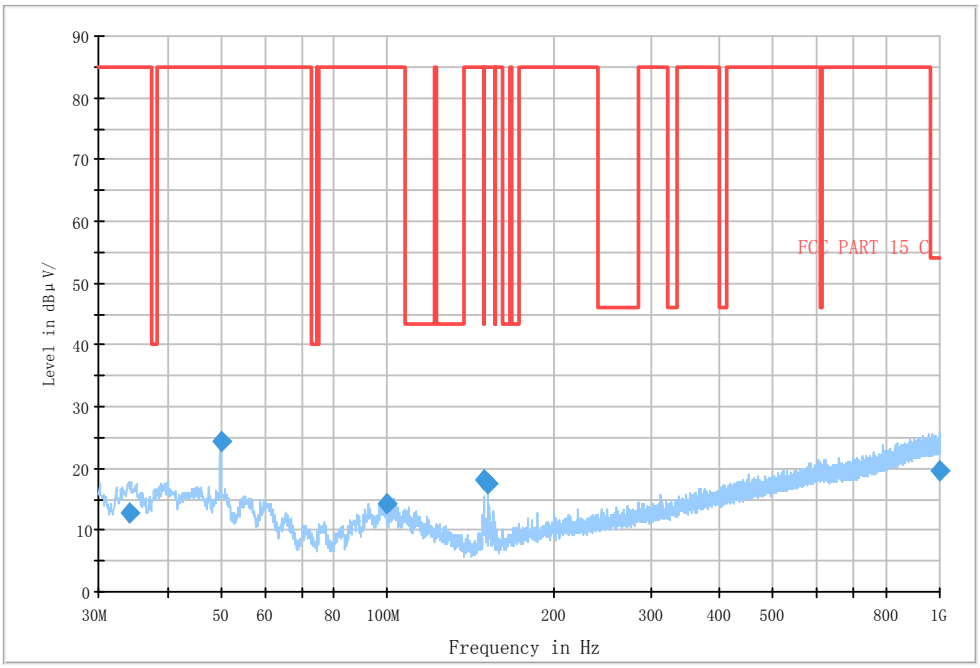


Fig.147 Radiated emission: Ch11, 30MHz-1GHz

RE 1GHz-3GHz

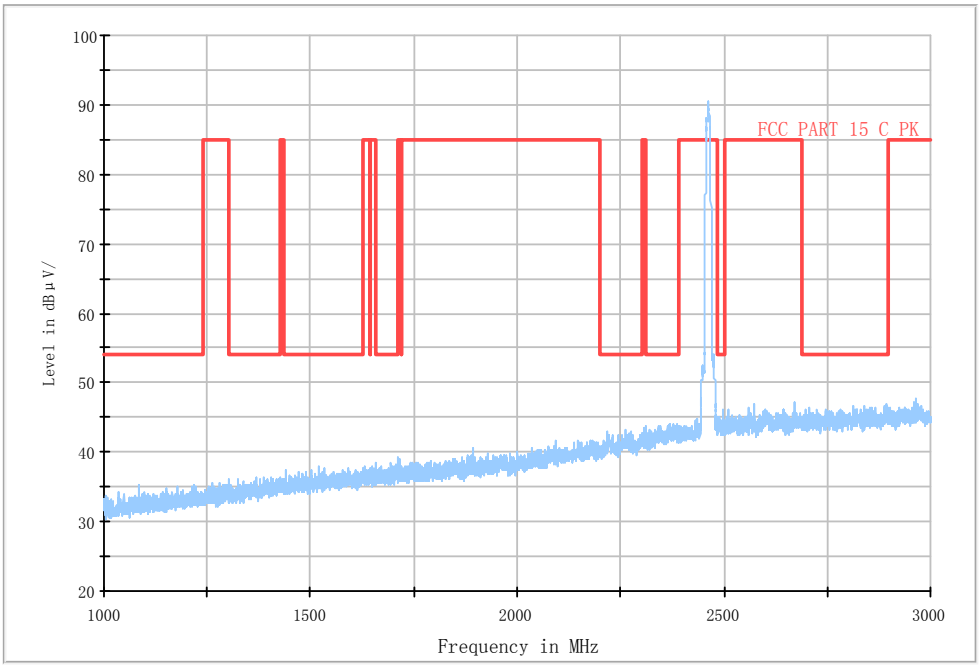


Fig.148 Radiated emission: Ch11, 1GHz-3GHz

RE 3GHz-18GHz

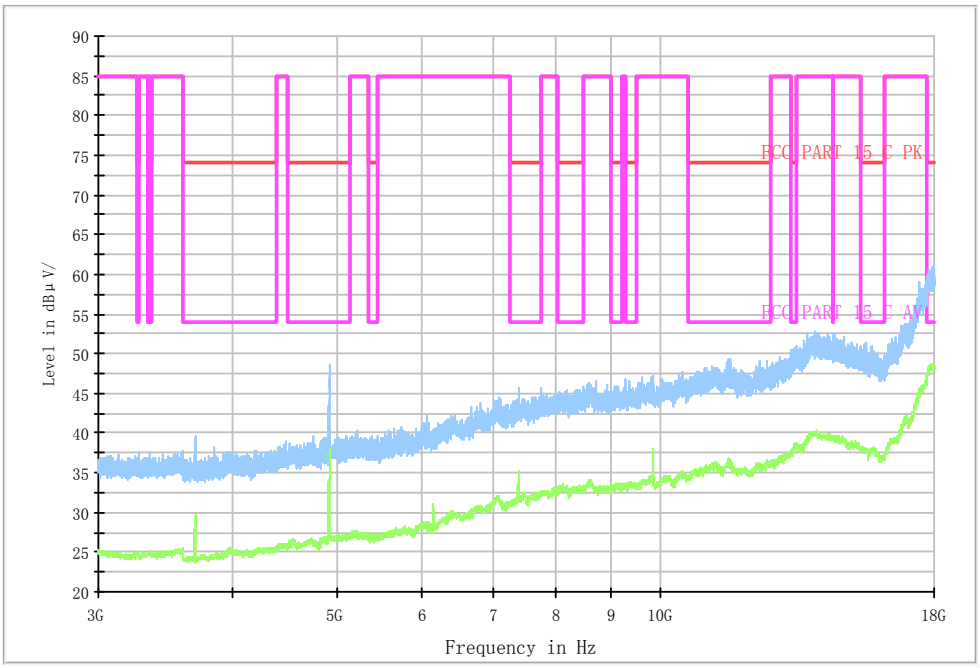


Fig.149 Radiated emission: Ch11, 3GHz-18GHz

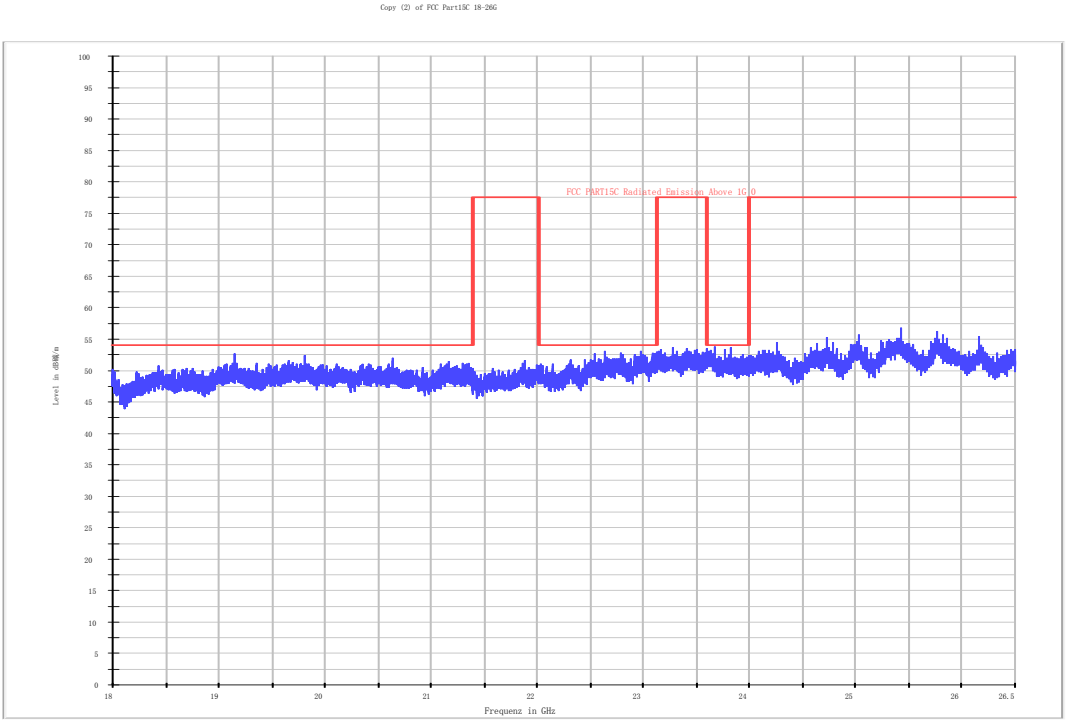


Fig.150 Radiated emission: 18 GHz - 26 GHz

Test photo

See the Pic1- Pic 6 in document" Ilium Pad T7X_Wifi_BT Test Setup Photos_Rev1".

5.7 Power line Conducted Emissions

Specifications:	ANSI C63.4 voltage mains test
DUT Serial Number:	S8/10: 358066070000665
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

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:

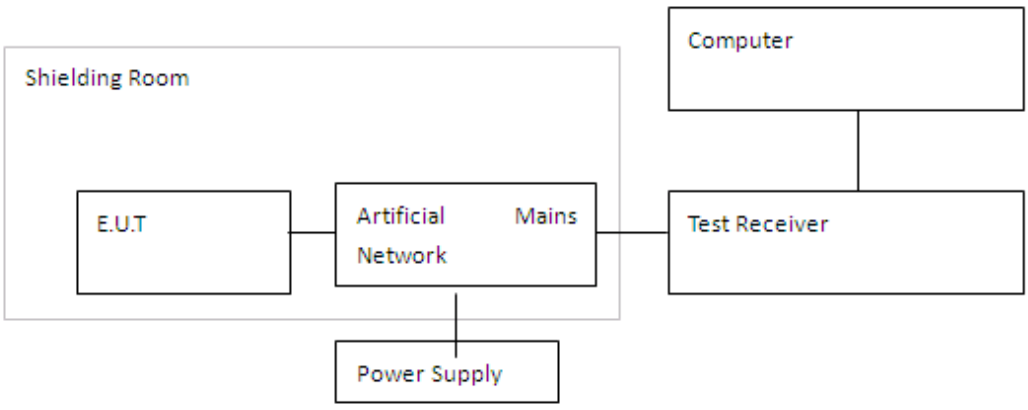
Limits of the conducted disturbance at the AC mains ports:

Frequency range	Limit(Quasi-peak)	Limit(Average)
0.15 MHz to 0.5 MHz	66 dBμV – 56 dBμV	56 dBμV – 46 dBμV
>0.5 MHz to 5MHz	56 dBμV	46 dBμV
>5 MHz to 30 MHz	60 dBμV	50 dBμV
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).



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 Public notice FCC Public Notice DA 00-705, March 2000, and ANSI C63.4-2014.

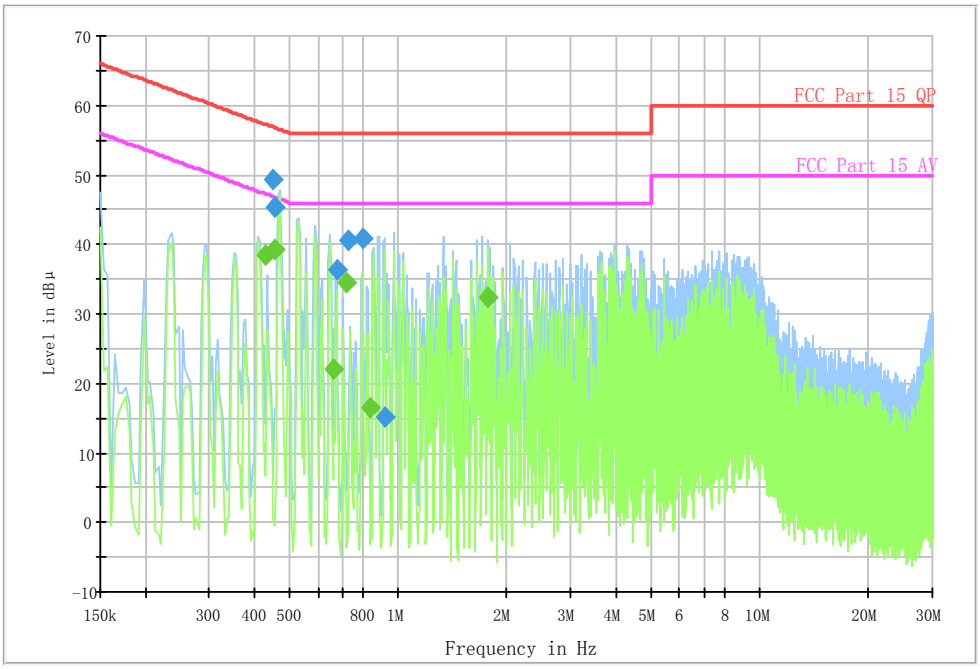
Test Result:

Line L&N					
Detector (QP)	Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Line	PE
QP	0.452588	49.3	56.8	L1	FLO
QP	0.456888	45.5	56.7	L1	FLO
QP	0.680288	36.3	56.0	L1	FLO
QP	0.724256	40.6	56.0	L1	FLO
QP	0.803325	40.8	56.0	L1	FLO
QP	0.916606	15.1	56.0	N	FLO

Line L&N					
Detector (AV)	Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Line	PE
AV	0.428888	38.5	47.3	L1	FLO
AV	0.456588	39.3	46.8	L1	FLO
AV	0.660556	22.1	46.0	L1	FLO
AV	0.720256	34.4	46.0	L1	FLO
AV	0.836906	16.4	46.0	L1	FLO
AV	1.759362	32.4	46.0	L1	FLO

Conclusion: PASS

CISPR N&L1 Voltage 150k to 30MHz-Class B



Line L &Line N

Test photo

See the Pic7 in document" Ilium Pad T7X _Wifi_BT_Test Setup Photos_Rev1".

Annex A EUT Photos

See the document"Ilium Pad T7X-External Photos".
See the document"Ilium Pad T7X-Internal Photos".

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

End Of Report