



FCC PART 15 TEST REPORT No. 2013WLN0852

for

TCT Mobile Limited

HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 5 bands

mobile phone

Model name: Diablo HD LTE EMEA 1.2GHz

Marketing Name: ONE TOUCH 6034R

With

FCC ID: RAD468

Hardware Version: P10

Software Version: v1B28

Issued Date: 2014-01-17



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 TMC Beijing.

Test Laboratory:

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Documents revision history

Revision	Update	Date
2013WLN0852	/	2014-01-14
2013WLN0852-rev1	Revised the A.3 Peak Power Spectral Density (Page 13); Revised the A.4. Occupied 26dB Bandwidth(Page 18); Revised the A5.1 Band Edges-conducted (Page 23).	2014-01-17

1. TEST LATORATORY

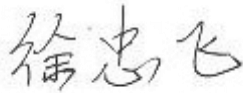
1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52 Hua Yuanbei Road, Haidian District, Beijing, P.R.China
Postal Code: 100191
Telephone: 008610623046332046
Fax: 008610623046332063

1.2. Project data

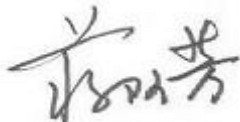
Testing Start Date: 2013-10-08
Testing End Date: 2014-01-16

1.3. Signature



Xu Zhongfei

(Prepared this test report)



Jiang Afang

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory
(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

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Email: zhizhou.gong @jrdcom.com
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT(AE)

3.1. About EUT

Description	HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 5 bands mobile phone
Model name	Diablo HD LTE EMEA 1.2GHz
Marketing name	ONE TOUCH 6034R
FCC ID	RAD468
WLAN Frequency Range	ISM Bands: 5150MHz~5250MHz
Type of modulation	OFDM
Number of Channels	4
Antenna	Integral Antenna
MAX Conducted Power	13.55dBm(OFDM)
GPRS Class	Class 10
GPRS operation mode	Class B
Extreme Temperature	-20/+55°C
Normal Voltage	3.9V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	/	PIO	v1B28
EUT2	/	PIO	v1B28

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	CAC2000005C2	/
AE2	Charger	CBA3000AG0C1	/

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

Equipment Under Test (EUT) is a model of HSDPA/HSUPA/UMTS Tri bands / GSM quad bands/LTE 5 bands mobile phone with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

Normal Accessory setting:

1. A microSD card was being installed in the device during the test;
2. Fully charged battery should be used during the test.

4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	Oct, 2010
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009
UNII: KDB 789033	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E	2011

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407	/	P
Power Spectral Density	15.407	/	P
Occupied 26dB Bandwidth	15.407	/	P
Band edge compliance	15.407	/	P
Transmitter spurious emissions radiated	15.407	/	P
Receiver spurious emissions radiated	15.407	/	P
Spurious emissions radiated < 30 MHz	15.407	/	P
Spurious emissions conducted < 30 MHz	15.407	/	P

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by TMC
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

TMC has evaluated the test cases requested by the client/manufacture as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

This model is a variant product which market name is ONE TOUCH 6034M; all the test result has been derived from test report of ONE TOUCH 6034M.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	3.9V (By battery)
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2013-07-08	2014-07-07
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-12-29	2014-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2013-4-15	2014-08-12
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

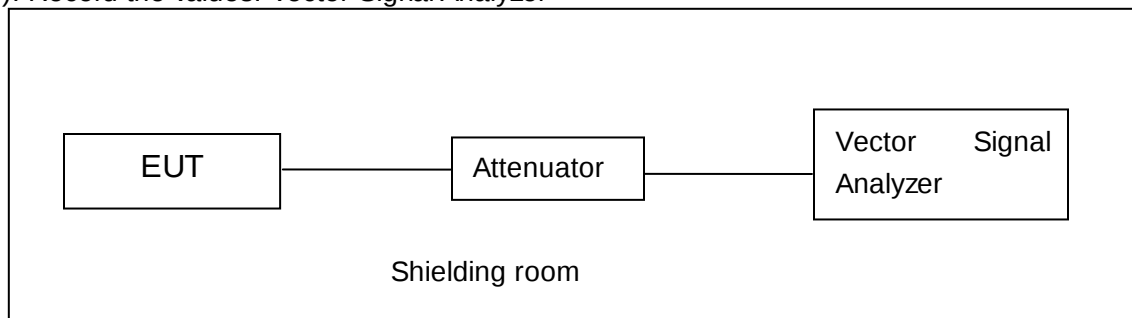
No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Test Receiver	ESU26	100376	Rohde & Schwarz	2013-11-8	2014-11-7
2	BiLog Antenna	VULB9163	9163-514	Schwarzbeck	2011-11-11	2014-11-10
3	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS-Lindgren	2011-2-2	2014-2-1
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2011-7-1	2014-06-30
5	Loop antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2011-12-21	2014-12-20
6	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/	/

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer

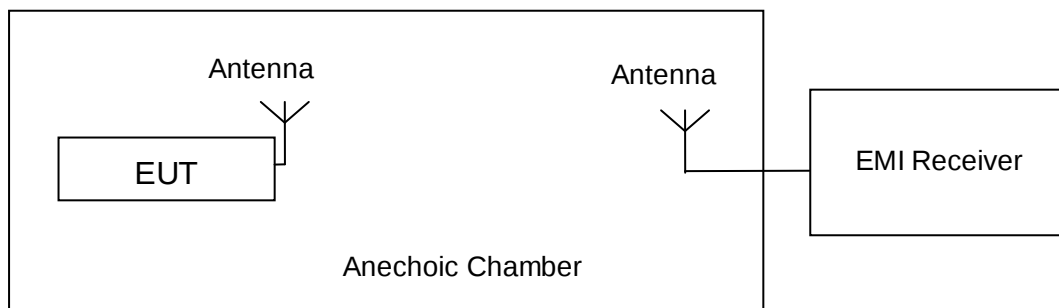


A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to KDB 789033

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

A.2. Maximum Average Output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	17dBm or 4+10logB

Limit use the less value, and B is the 26dB bandwidth.

The measurement method SA-1 is made according to KDB 789033

Measurement Results:

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5180MHz (Ch36)	5200MHz (Ch40)	5240MHz (Ch48)
802.11a	6	13.55	13.26	12.88
	9	13.53	/	/
	12	13.53	/	/
	18	13.52	/	/
	24	13.47	/	/
	36	13.44	/	/
	48	13.41	/	/
	54	13.40	/	/

The data rate 6Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5180MHz (Ch36)	5200MHz (Ch40)	5240MHz (Ch48)
802.11n (20MHz)	MCS0	12.65	12.38	12.01
	MCS1	12.63	/	/
	MCS2	12.62	/	/
	MCS3	12.58	/	/
	MCS4	12.54	/	/
	MCS5	12.51	/	/
	MCS6	12.48	/	/
	MCS7	12.47	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5190MHz (Ch38)	5230MHz (Ch46)
802.11n (40MHz)	MCS0	12.44	12.08
	MCS1	12.43	/
	MCS2	12.41	/
	MCS3	12.36	/
	MCS4	12.33	/
	MCS5	12.32	/
	MCS6	12.30	/
	MCS7	12.31	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
-------------------------	--------

A.3. Peak Power Spectral Density - Conducted
Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	4

The output power measurement method SA-1 is made according to KDB 789033

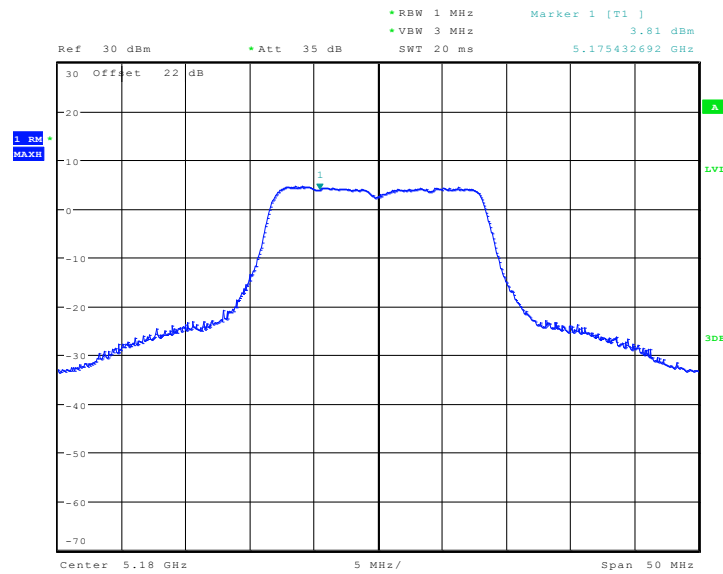
Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

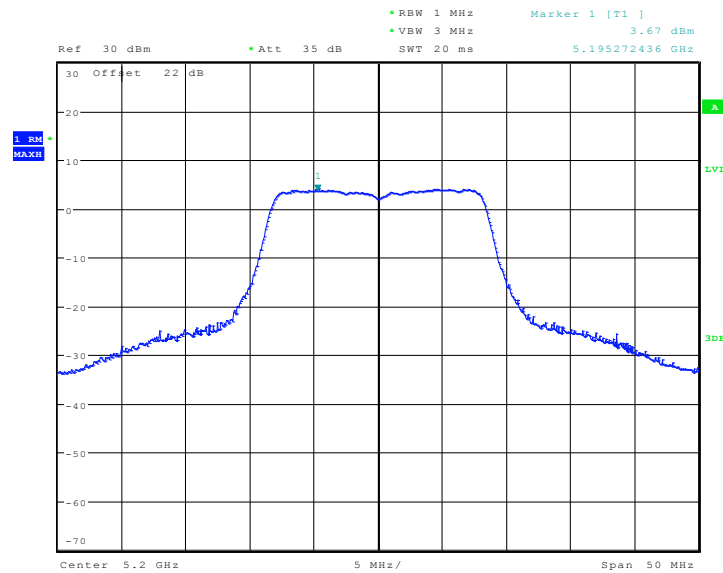
Mode	Channel	Power Spectral Density (dBm/MHz)		Conclusion
802.11a	5180 MHz	Fig.1	3.81	P
	5200 MHz	Fig.2	3.67	P
	5240 MHz	Fig.3	3.54	P
802.11n HT20	5180 MHz	Fig.4	3.34	P
	5200 MHz	Fig.5	2.99	P
	5240 MHz	Fig.6	2.57	P
802.11n HT40	5190 MHz	Fig.7	0.23	P
	5230 MHz	Fig.8	0.25	P

Conclusion: PASS



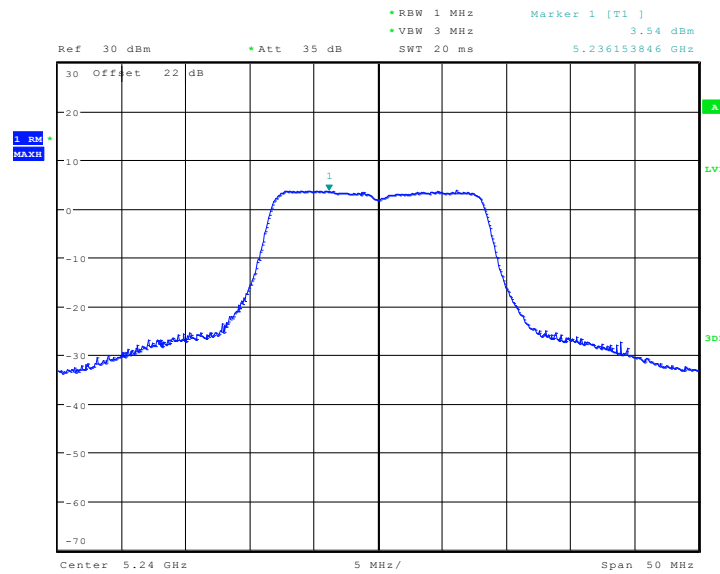
Date: 16.DEC.2013 17:00:13

Fig. 1 Power Spectral Density (802.11a, Ch 36)



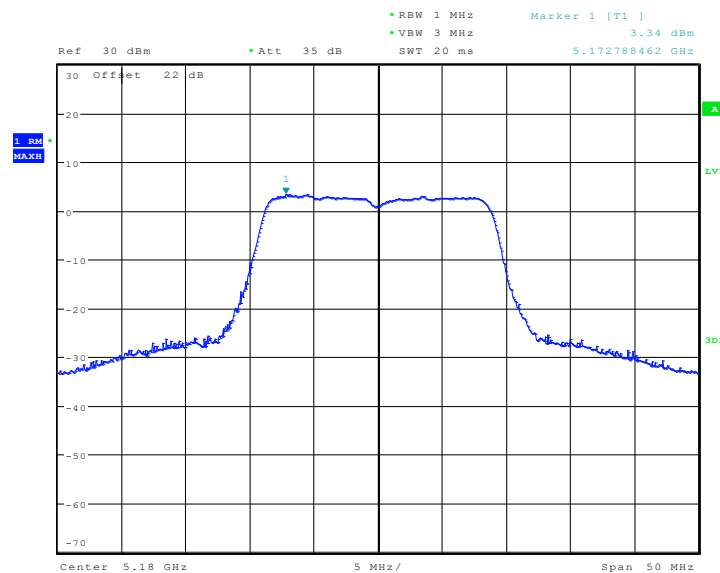
Date: 16.DEC.2013 17:00:41

Fig. 2 Power Spectral Density (802.11a, Ch 40)



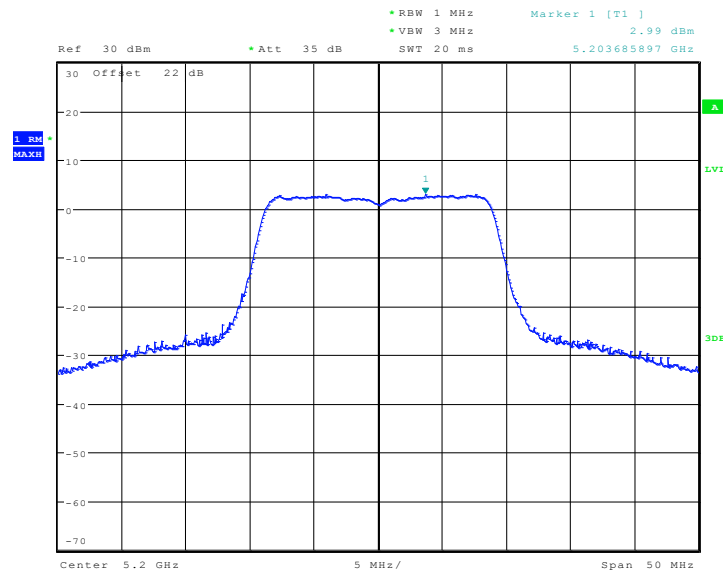
Date: 16.DEC.2013 17:01:06

Fig. 3 Power Spectral Density (802.11a, Ch 48)



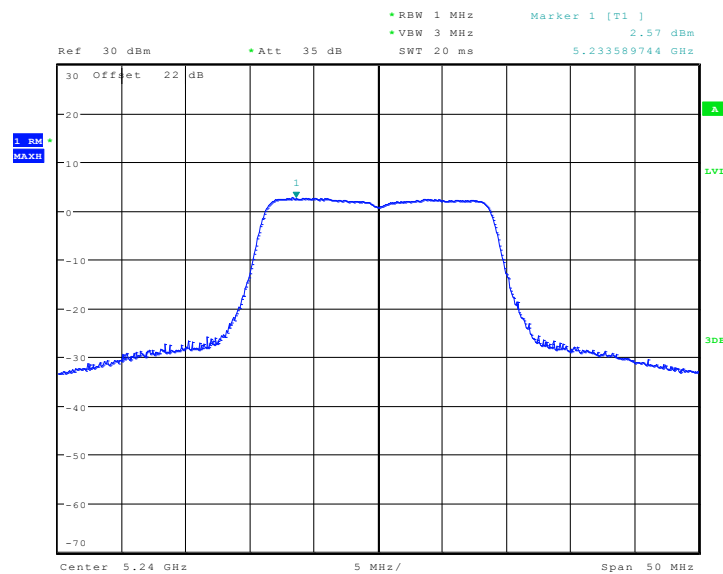
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Fig. 4 Power Spectral Density (802.11n-HT20, Ch 36)



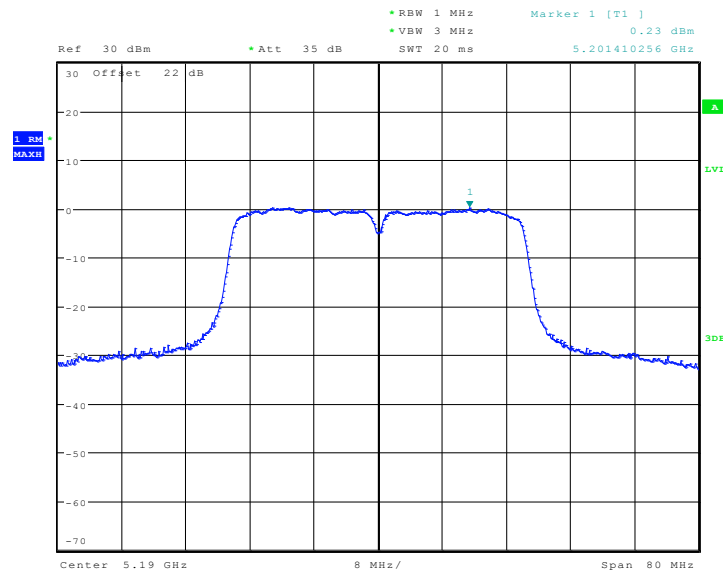
Date: 16.DEC.2013 17:02:15

Fig. 5 Power Spectral Density (802.11n-HT20, Ch 40)



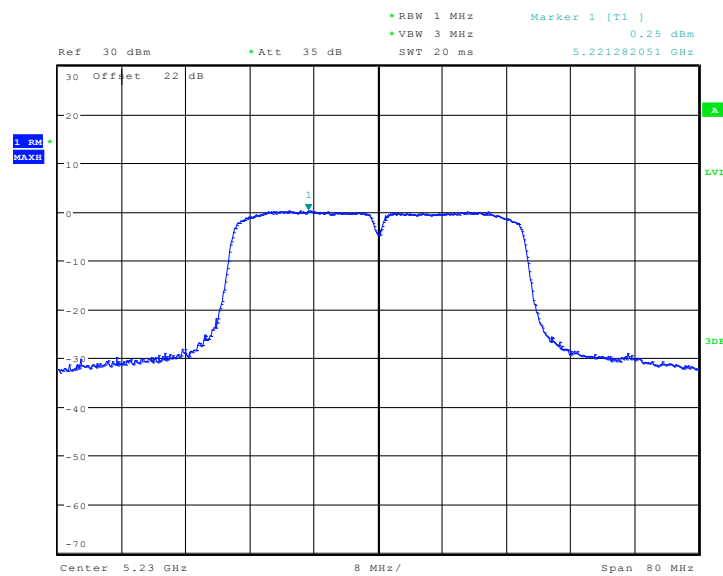
Date: 16.DEC.2013 17:01:45

Fig. 6 Power Spectral Density (802.11n-HT20, Ch 48)



Date: 16.DEC.2013 17:03:20

Fig. 7 Power Spectral Density (802.11n-HT40, Ch 38)



Date: 16.DEC.2013 17:03:41

Fig. 8 Power Spectral Density (802.11n-HT40, Ch 46)

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

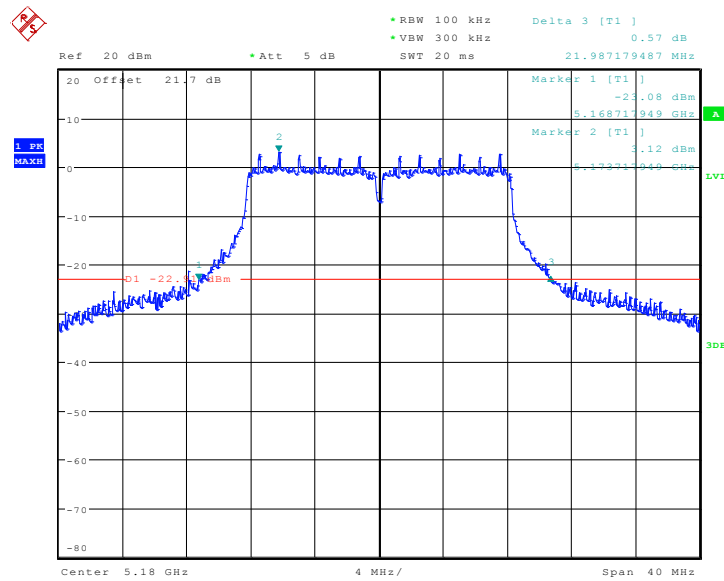
Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth (kHz)		conclusion
802.11a	5180 MHz	Fig.9	21987	P
	5200 MHz	Fig.10	22243	P
	5240 MHz	Fig.11	22628	P
802.11n HT20	5180 MHz	Fig.12	22051	P
	5200 MHz	Fig.13	21987	P
	5240 MHz	Fig.14	21794	P
802.11n HT40	5190 MHz	Fig.15	53365	P
	5230 MHz	Fig.16	55673	P

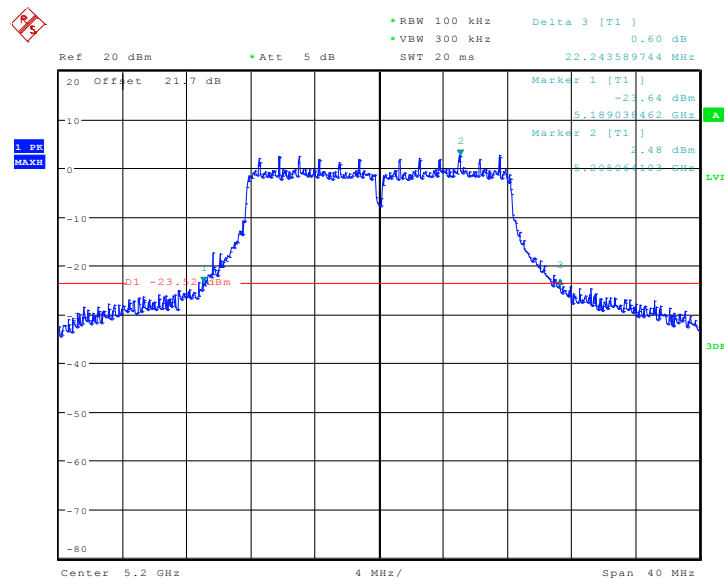
Conclusion: PASS

Test graphs as below:



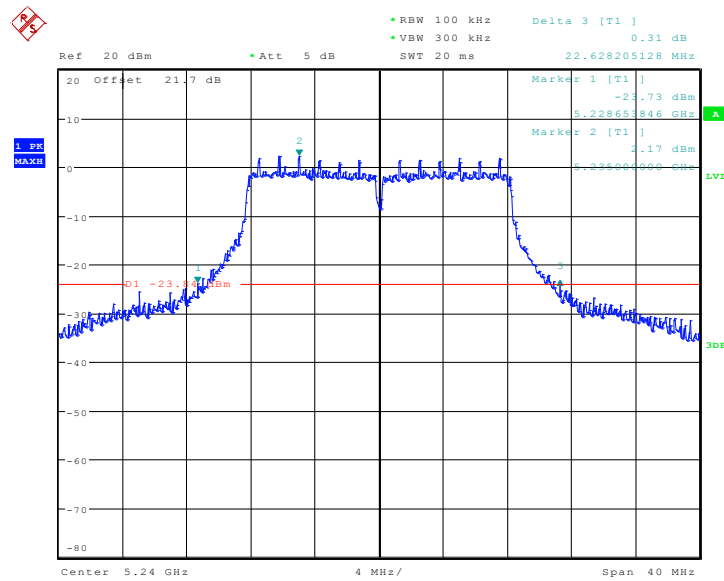
Date: 12.OCT.2013 18:04:02

Fig. 9 Occupied 26dB Bandwidth (802.11a, 5180MHz)



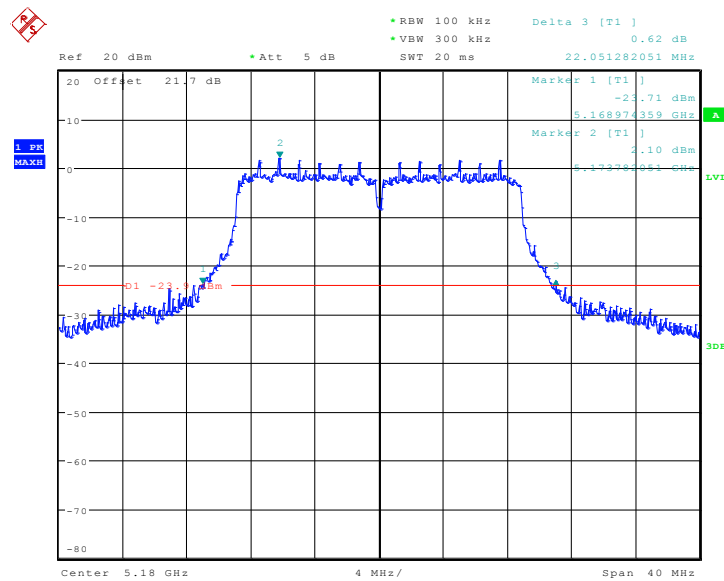
Date: 12.OCT.2013 18:05:54

Fig. 10 Occupied 26dB Bandwidth (802.11a, 5200MHz)



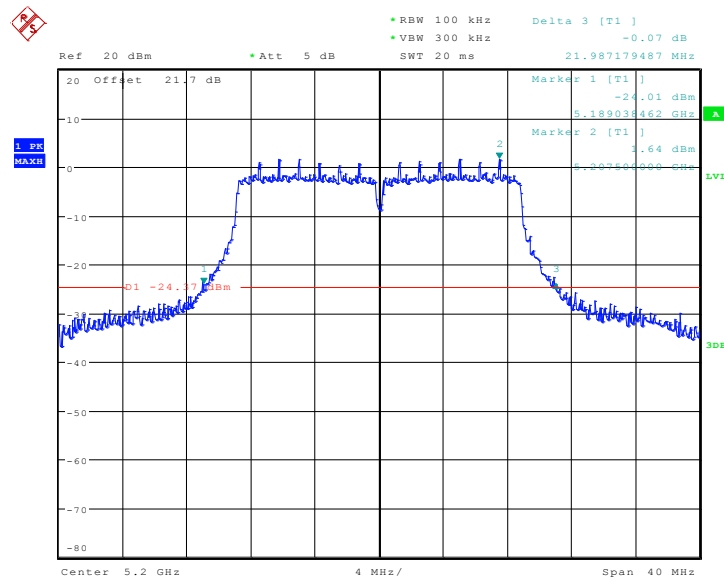
Date: 12.OCT.2013 18:07:45

Fig. 11 Occupied 26dB Bandwidth (802.11a, 5240MHz)



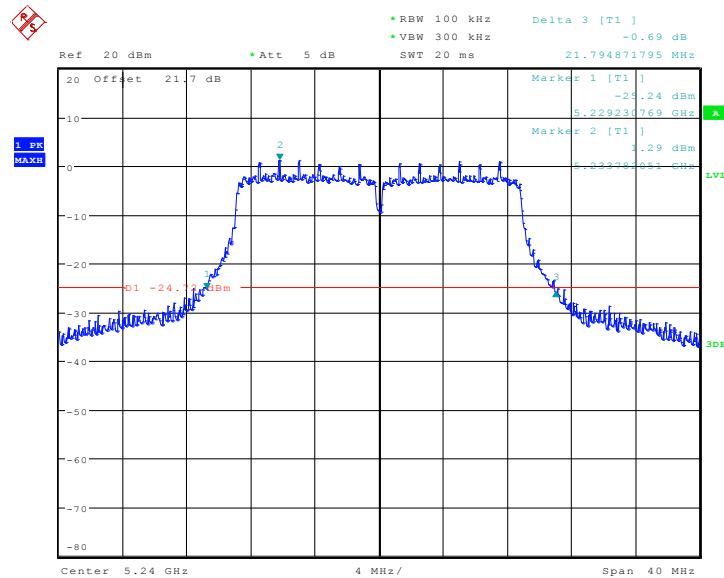
Date: 12.OCT.2013 18:10:19

Fig. 12 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)



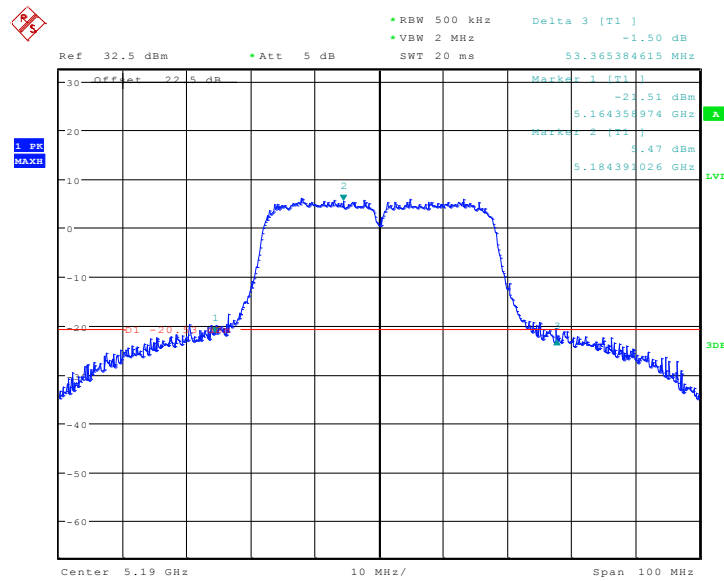
Date: 12.OCT.2013 18:12:02

Fig. 13 Occupied 26dB Bandwidth (802.11n-HT20, 5200MHz)



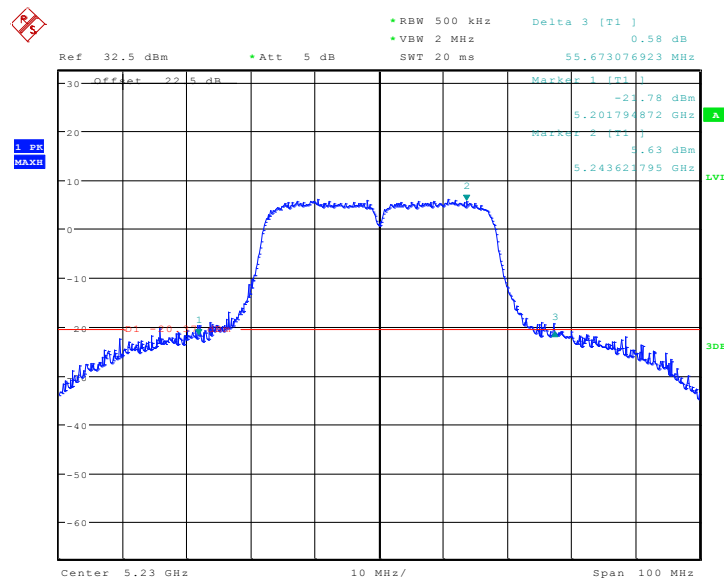
Date: 12.OCT.2013 18:14:04

Fig. 14 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)



Date: 13.DEC.2013 17:38:21

Fig. 15 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)



Date: 13.DEC.2013 17:36:59

Fig. 16 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - conducted

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.407	> 20

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Result:

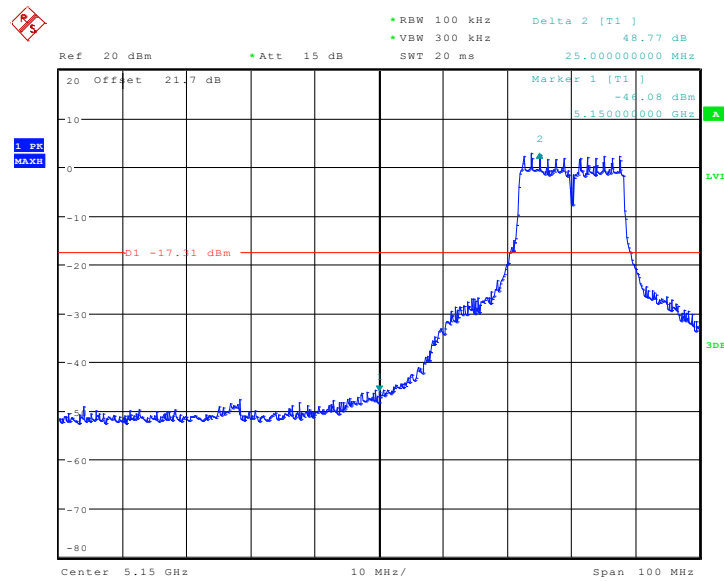
Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.17	P
	5240 MHz	Fig.18	P
802.11n-HT20	5180 MHz	Fig.19	P
	5240 MHz	Fig.20	P
802.11n-HT40	5190 MHz	Fig.21	P
	5230 MHz	Fig.22	P

Note:

- 1) A/N-HT20 mode: the highest supported frequency (center frequency: 5240MHz, bandwidth: 20MHz), is far away from the high band edge (5350MHz), so it meet the requirement.
- 2) N-HT40 mode: the highest supported frequency (center frequency: 5230MHz, bandwidth: 30MHz), is far away from the high band edge (5350MHz), so it meet the requirement.

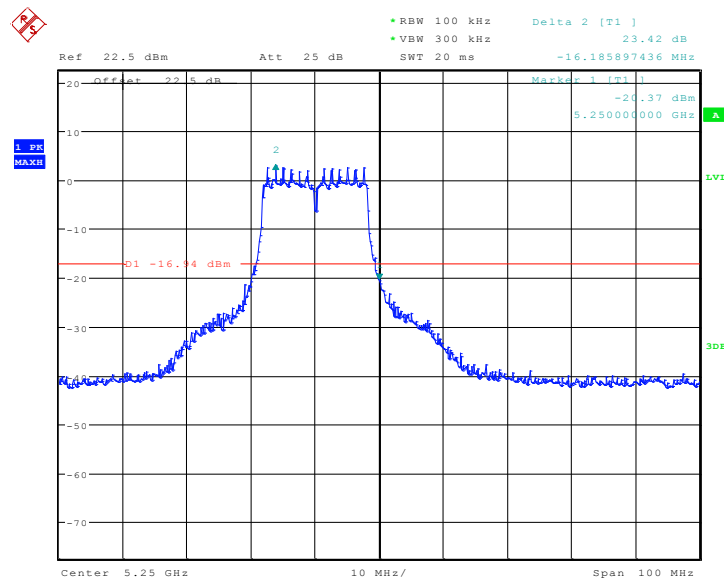
Conclusion: PASS

Test graphs as below:



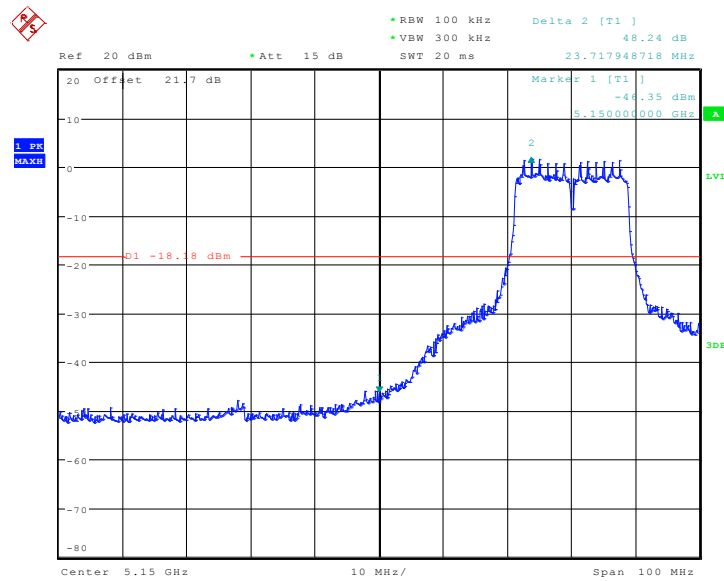
Date: 12.OCT.2013 18:24:53

Fig. 17 Band Edges (802.11a, 5180MHz)



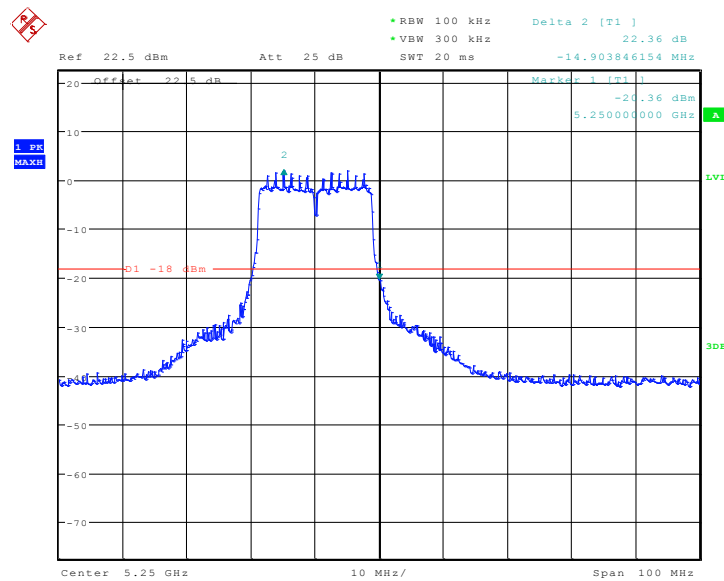
Date: 13.DEC.2013 17:44:39

Fig. 18 Band Edges (802.11a, 5240MHz)



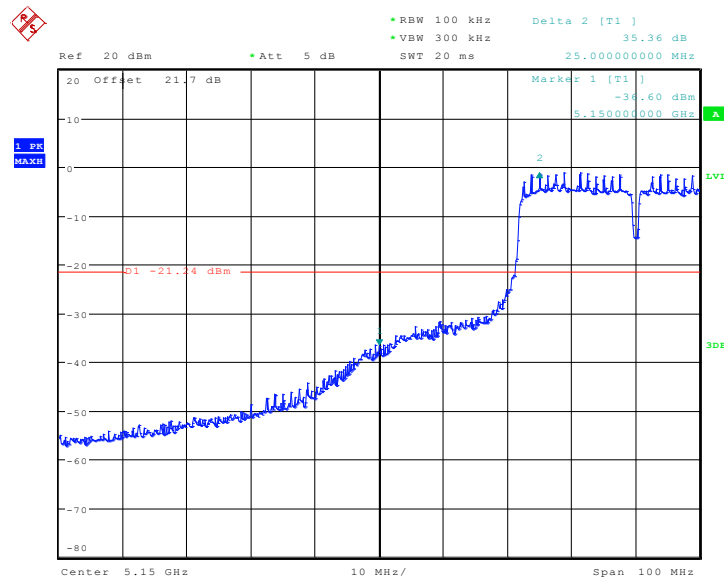
Date: 12.OCT.2013 18:27:53

Fig. 19 Band Edges (802.11n-HT20, 5180MHz)



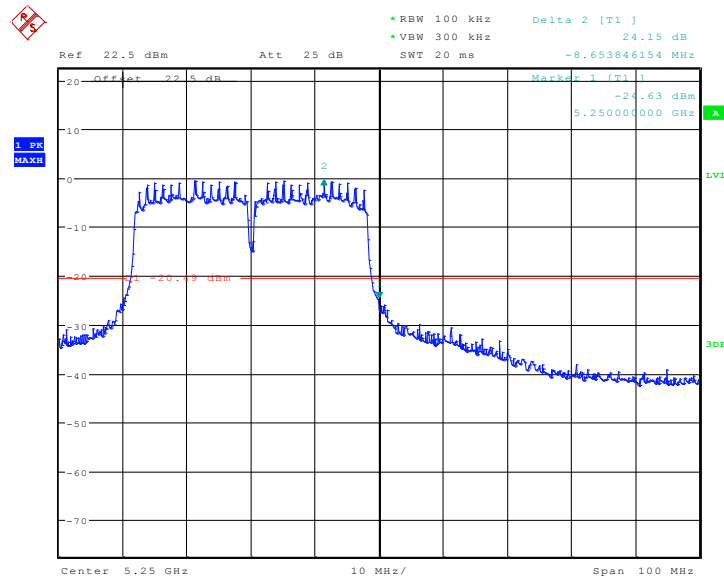
Date: 13.DEC.2013 17:45:48

Fig. 20 Band Edges (802.11n-HT20, 5240MHz)



Date: 12.OCT.2013 18:21:49

Fig. 21 Band Edges (802.11n-HT40, 5190MHz)



Date: 13.DEC.2013 17:47:08

Fig. 22 Band Edges (802.11n-HT40, 5230MHz)

A5.2 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.407	> 20

The measurement is made according to KDB 789033

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:

Measurement Uncertainty	0.75dB
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Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.23	P
802.11n HT20	5180 MHz	Fig.24	P
802.11n HT40	5190 MHz	Fig.25	P

Note:

- 1) A/N-HT20 mode: the highest supported frequency (center frequency: 5240MHz, bandwidth: 20MHz), is far away from the high band edge (5350MHz), so it meet the requirement.
- 2) N-HT40 mode: the highest supported frequency (center frequency: 5230MHz, bandwidth: 30MHz), is far away from the high band edge (5350MHz), so it meet the requirement.

Conclusion: PASS

Test graphs as below:

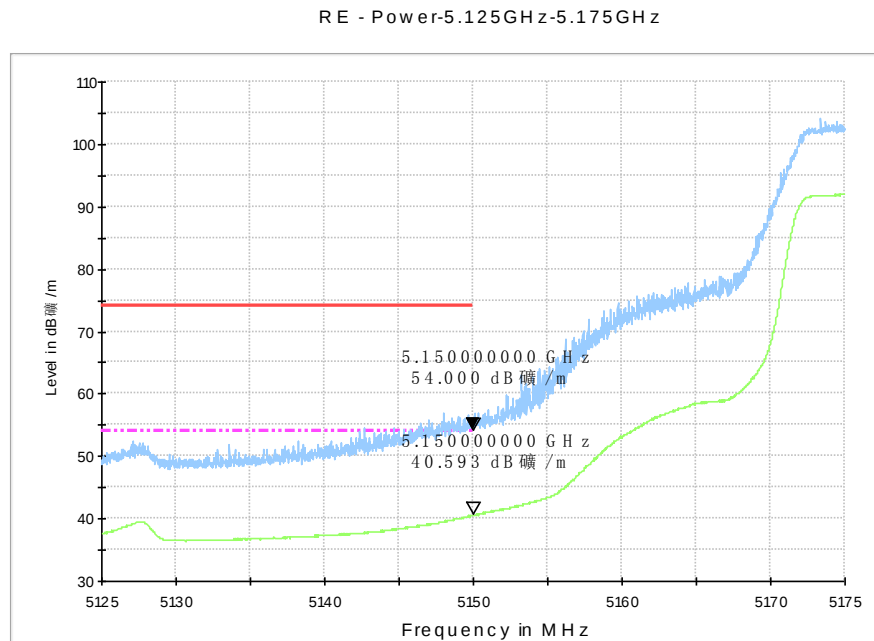


Fig. 23 Band Edges (802.11a, 5180MHz)

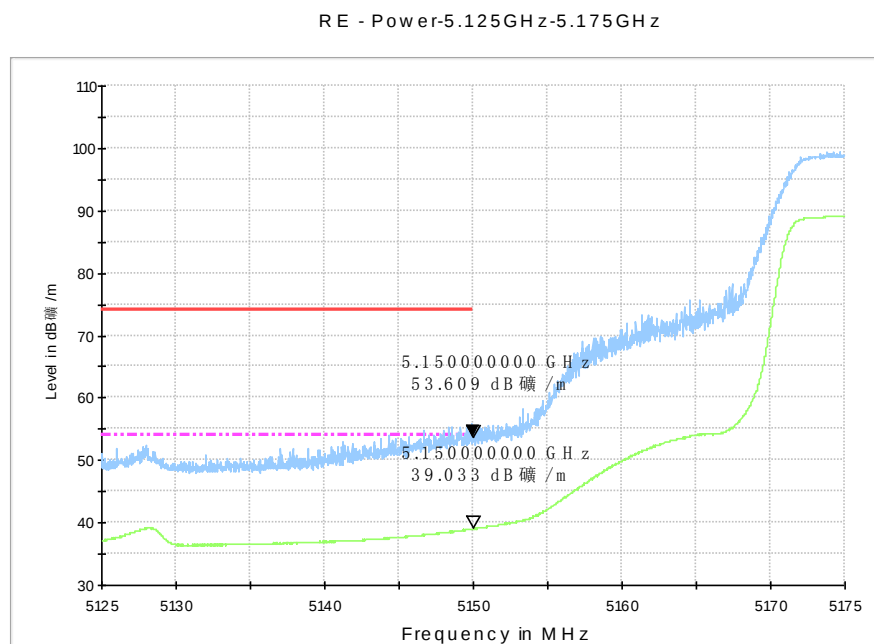


Fig. 24 Band Edges (802.11n-HT20, 5180MHz)

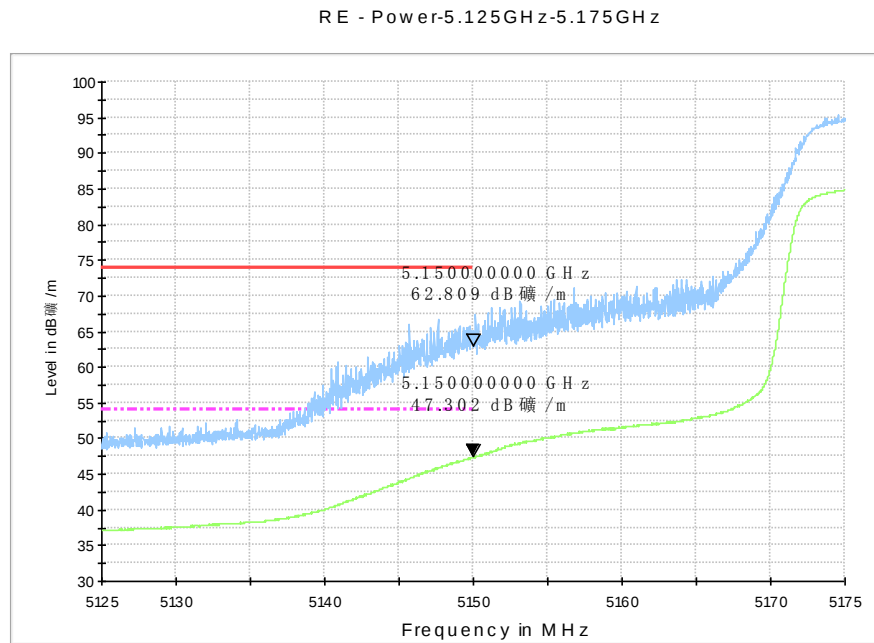


Fig. 25 Band Edges (802.11n-HT40, 5190MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

The measurement is made according to KDB 789033

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(dBμV/m)	Measurement distance(m)
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
$f \leq 1\text{GHz}$	3.9
$f > 1\text{GHz}$	4.3

Measurement Results:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.26	P
		1 GHz ~ 3 GHz	Fig.27	P
		3 GHz ~ 6 GHz	Fig.28	P
		6 GHz ~ 18 GHz	Fig.29	P
		18 GHz ~ 26.5 GHz	Fig.30	P
		26.5 GHz ~ 40 GHz	Fig.31	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.32	P
		1 GHz ~ 3 GHz	Fig.33	P
		3 GHz ~ 6 GHz	Fig.34	P
		6 GHz ~ 18 GHz	Fig.35	P
		18 GHz ~ 26.5 GHz	Fig.36	P
		26.5 GHz ~ 40 GHz	Fig.37	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.38	P
		1 GHz ~ 3 GHz	Fig.39	P
		3 GHz ~ 6 GHz	Fig.40	P
		6 GHz ~ 18 GHz	Fig.41	P
		18 GHz ~ 26.5 GHz	Fig.42	P
		26.5 GHz ~ 40 GHz	Fig.43	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	36(5180MHz)	30 MHz ~1 GHz	Fig.44	P
		1 GHz ~ 3 GHz	Fig.45	P
		3 GHz ~ 6 GHz	Fig.46	P
		6 GHz ~ 18 GHz	Fig.47	P
		18 GHz ~ 26.5 GHz	Fig.48	P
		26.5 GHz ~ 40 GHz	Fig.49	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.50	P
		1 GHz ~ 3 GHz	Fig.51	P
		3 GHz ~ 6 GHz	Fig.52	P
		6 GHz ~ 18 GHz	Fig.53	P
		18 GHz ~ 26.5 GHz	Fig.54	P
		26.5 GHz ~ 40 GHz	Fig.55	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.56	P
		1 GHz ~ 3 GHz	Fig.57	P
		3 GHz ~ 6 GHz	Fig.58	P
		6 GHz ~ 18 GHz	Fig.59	P
		18 GHz ~ 26.5 GHz	Fig.60	P
		26.5 GHz ~ 40 GHz	Fig.61	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	Fig.62	P
		1 GHz ~ 3 GHz	Fig.63	P
		3 GHz ~ 6 GHz	Fig.64	P
		6 GHz ~ 18 GHz	Fig.65	P
		18 GHz ~ 26.5 GHz	Fig.66	P
		26.5 GHz ~ 40 GHz	Fig.67	P
	46(5230MHz)	30 MHz ~1 GHz	Fig.68	P
		1 GHz ~ 3 GHz	Fig.69	P
		3 GHz ~ 6 GHz	Fig.70	P
		6 GHz ~ 18 GHz	Fig.71	P
		18 GHz ~ 26.5 GHz	Fig.72	P
		26.5 GHz ~ 40 GHz	Fig.73	P

Conclusion: PASS

Test graphs as below:

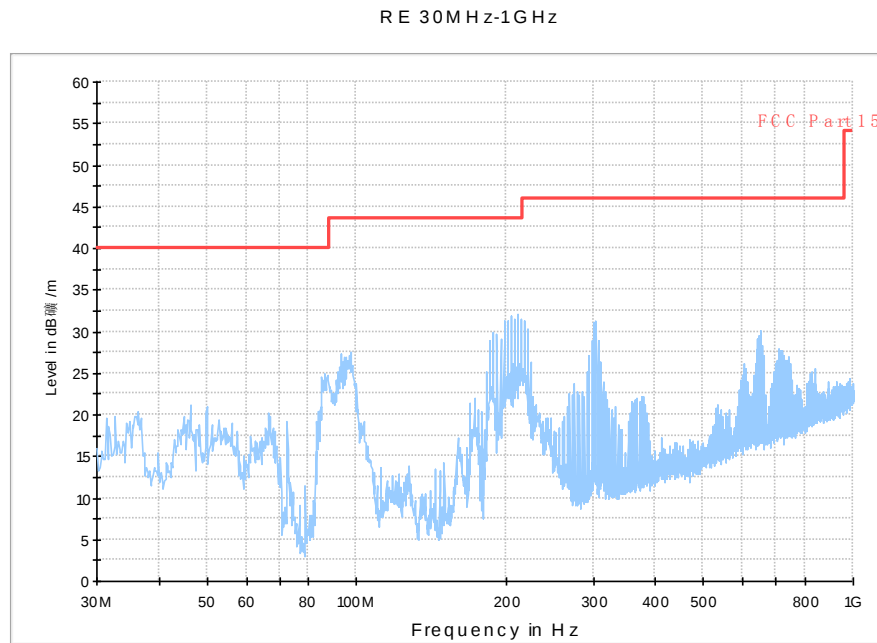


Fig. 26 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)

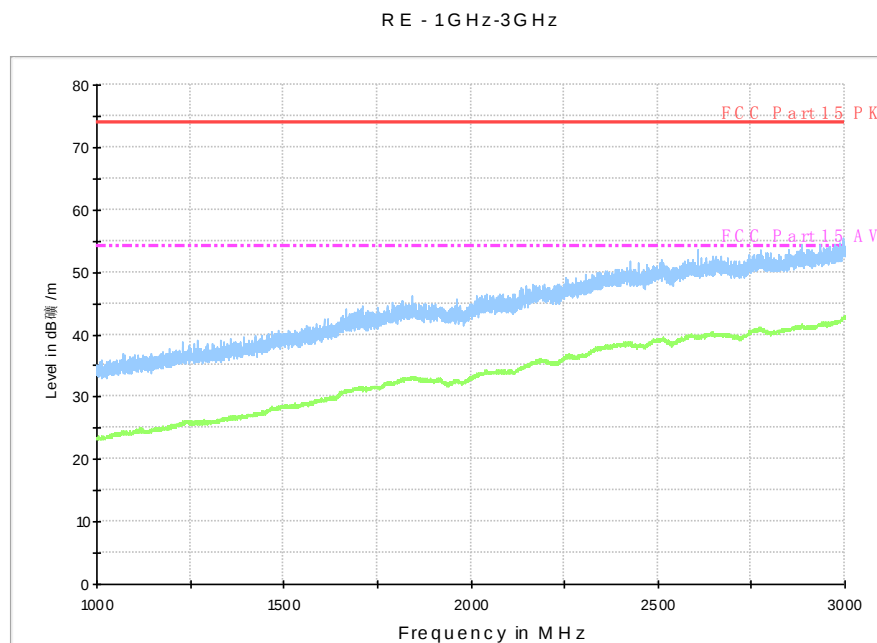


Fig. 27 Radiated Spurious Emission (802.11a, ch36, 1 GHz-3 GHz)

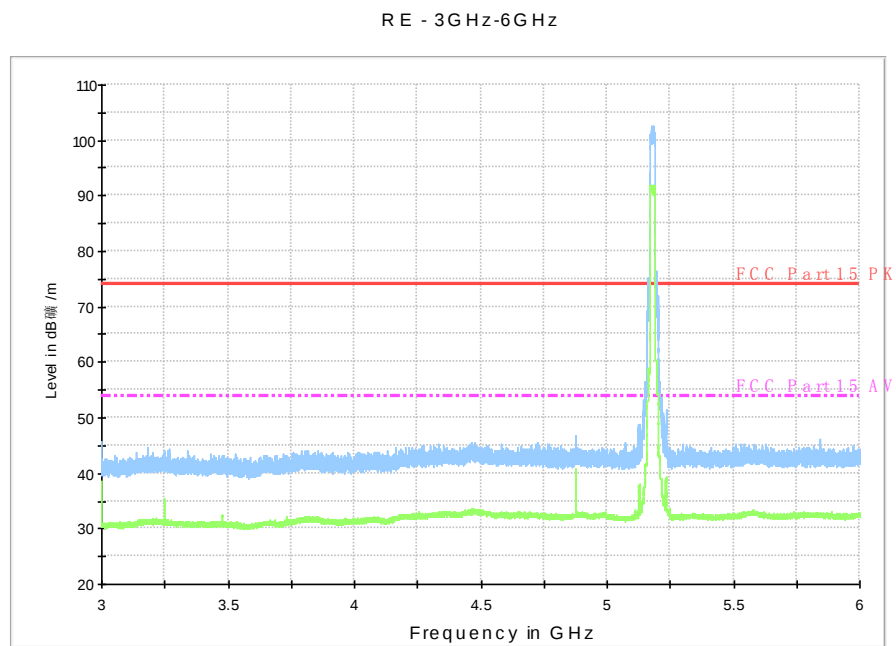


Fig. 28 Radiated Spurious Emission (802.11a, ch36, 3 GHz-6 GHz)

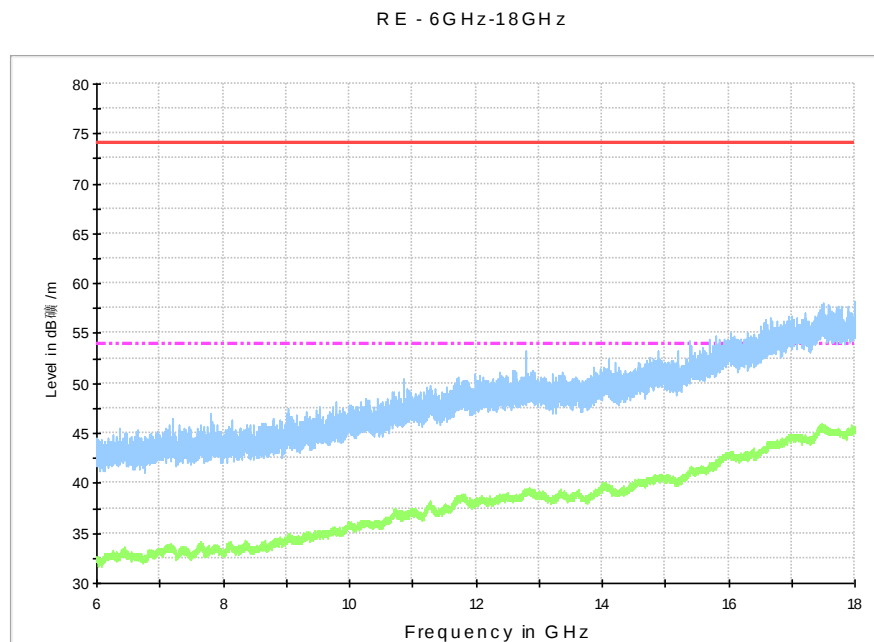


Fig. 29 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)

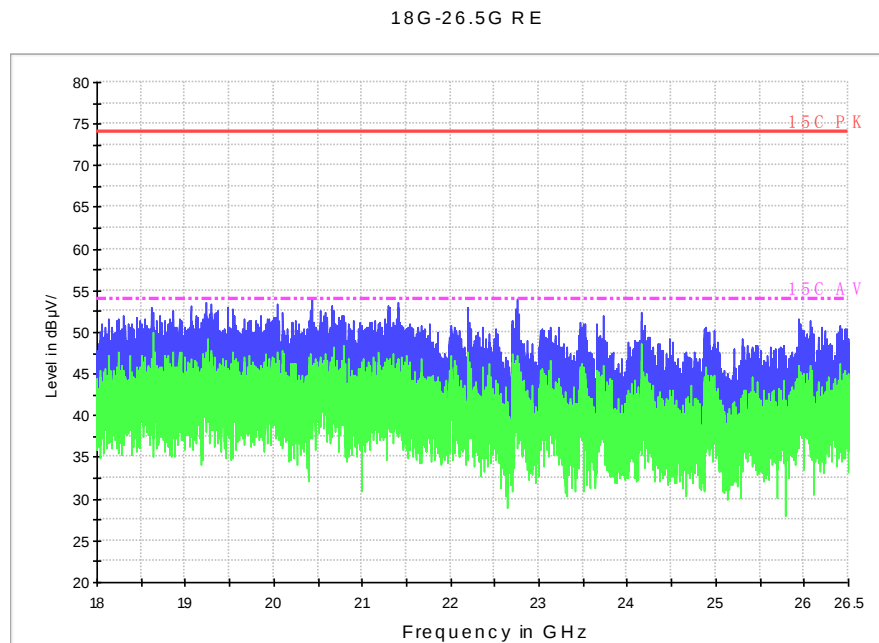


Fig. 30 Radiated Spurious Emission (802.11a, ch36, 18 GHz-26.5 GHz)

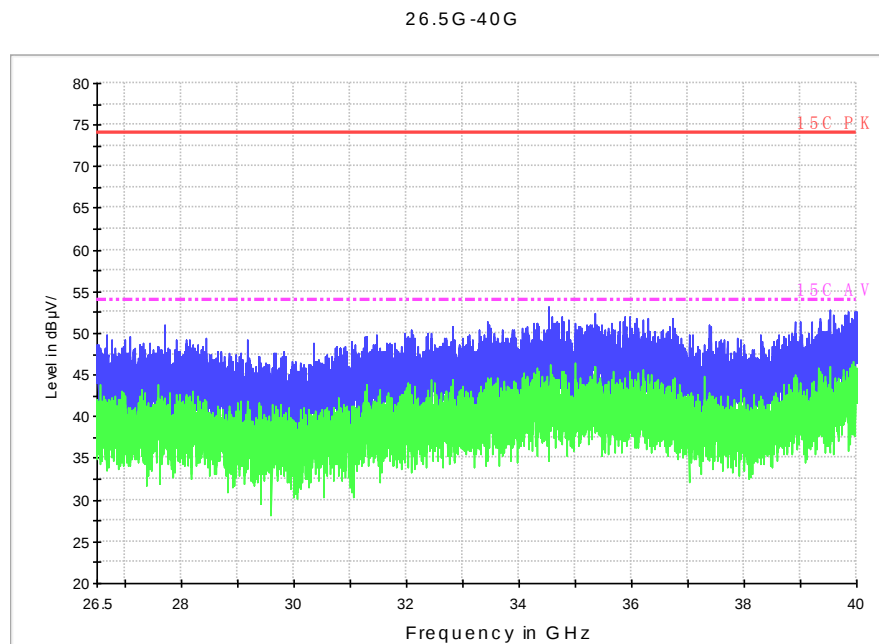


Fig. 31 Radiated Spurious Emission (802.11a, ch36, 26.5 GHz-40 GHz)

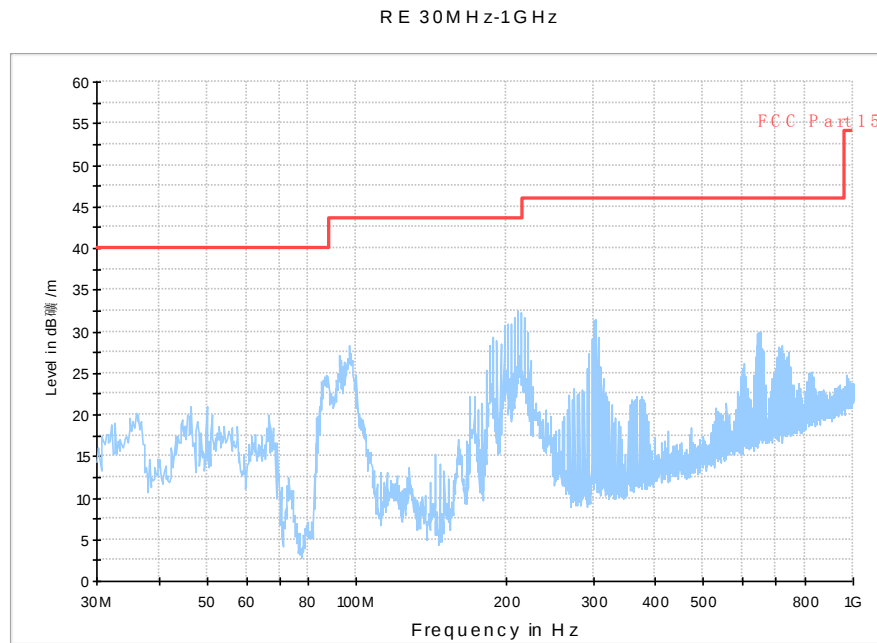


Fig. 32 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)

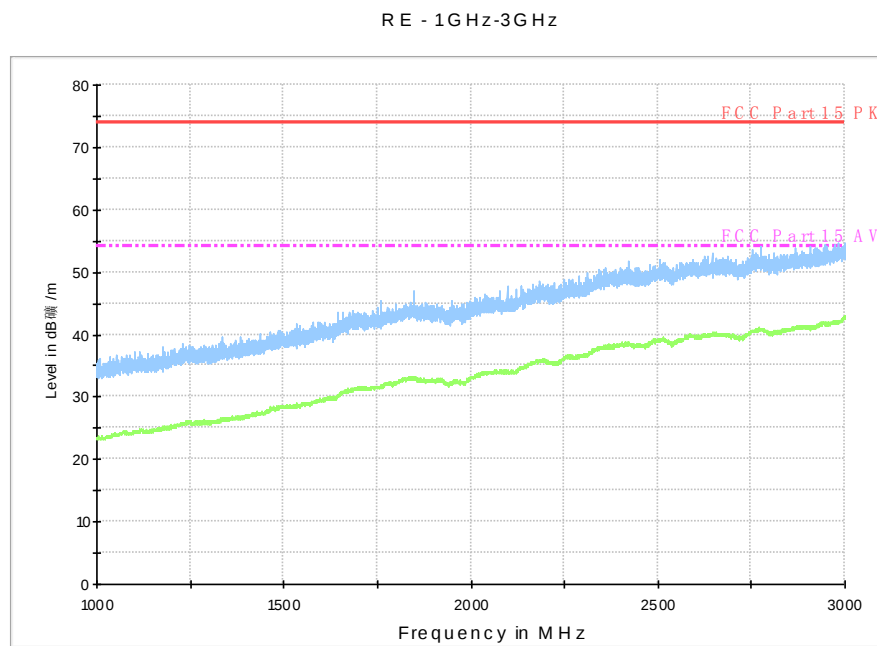


Fig. 33 Radiated Spurious Emission (802.11a, ch40, 1 GHz-3 GHz)

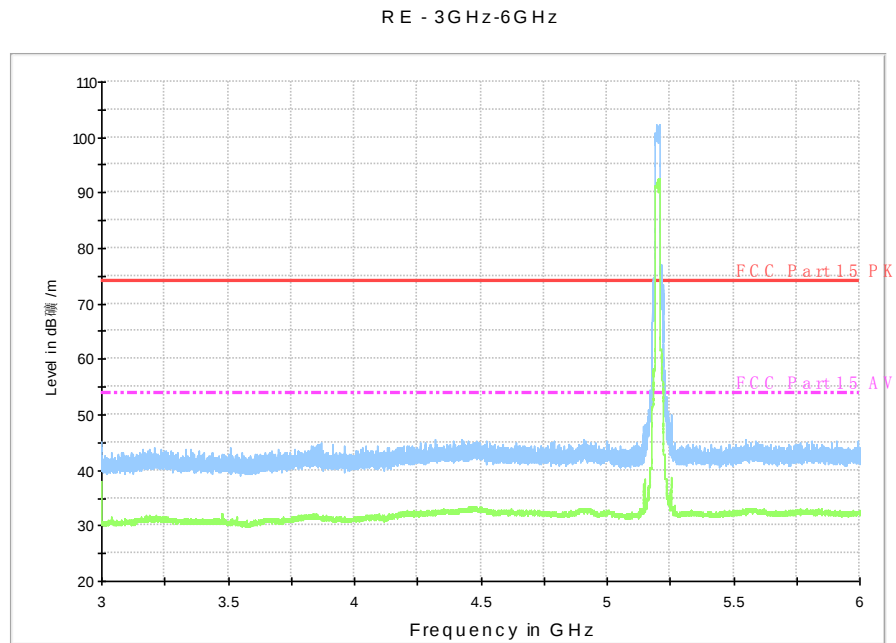


Fig. 34 Radiated Spurious Emission (802.11a, ch40, 3 GHz-6 GHz)

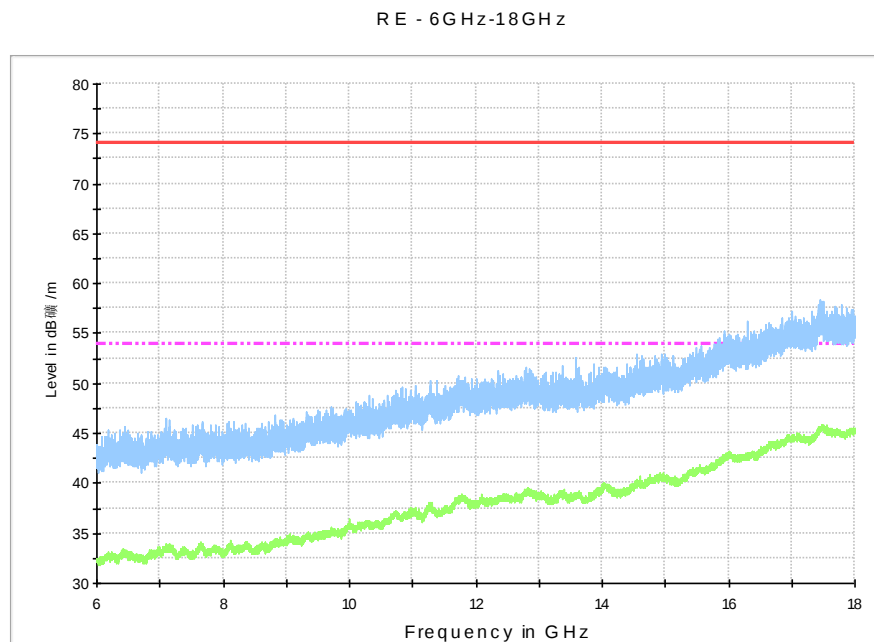


Fig. 35 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)

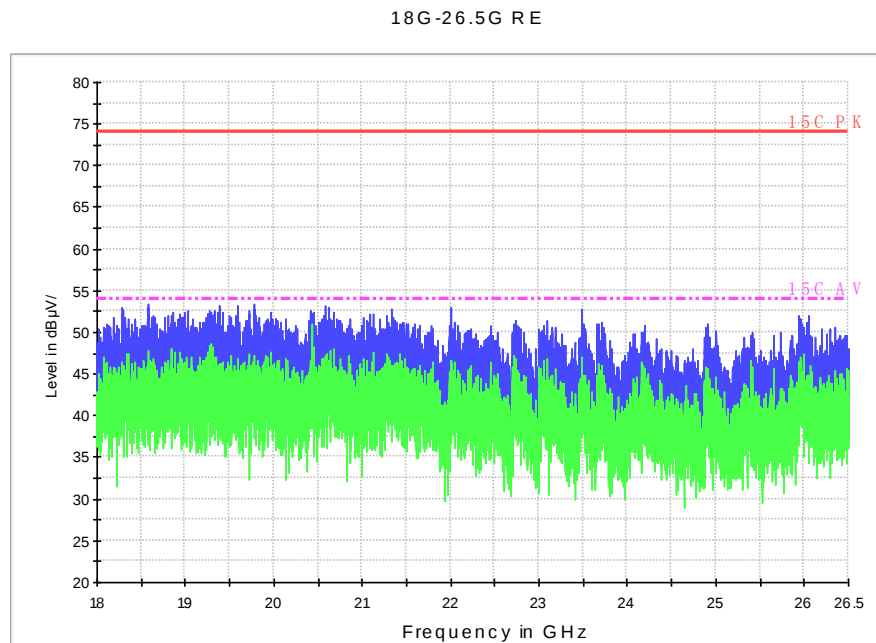


Fig. 36 Radiated Spurious Emission (802.11a, ch40, 18 GHz-26.5 GHz)

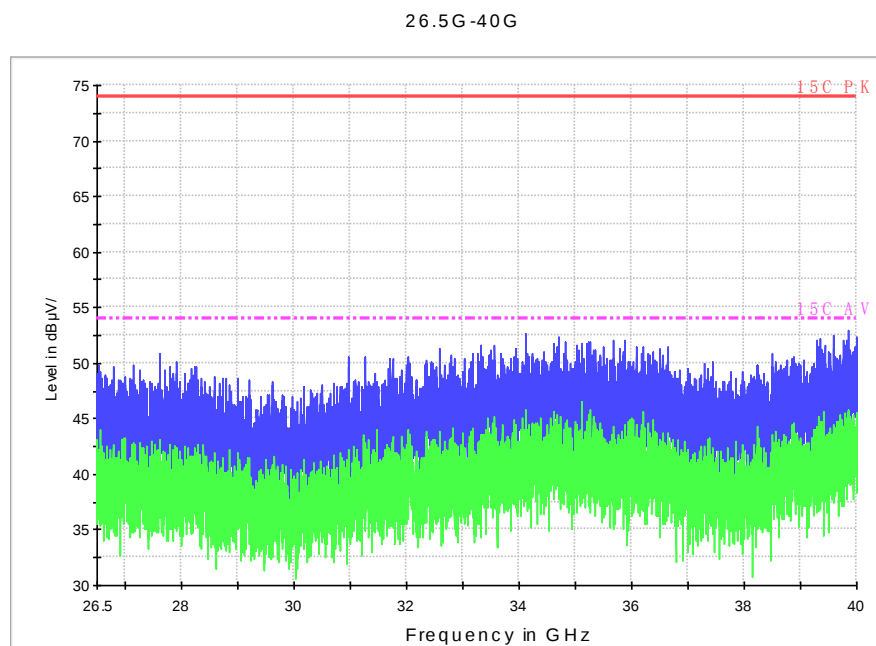


Fig. 37 Radiated Spurious Emission (802.11a, ch40, 26.5 GHz-40 GHz)

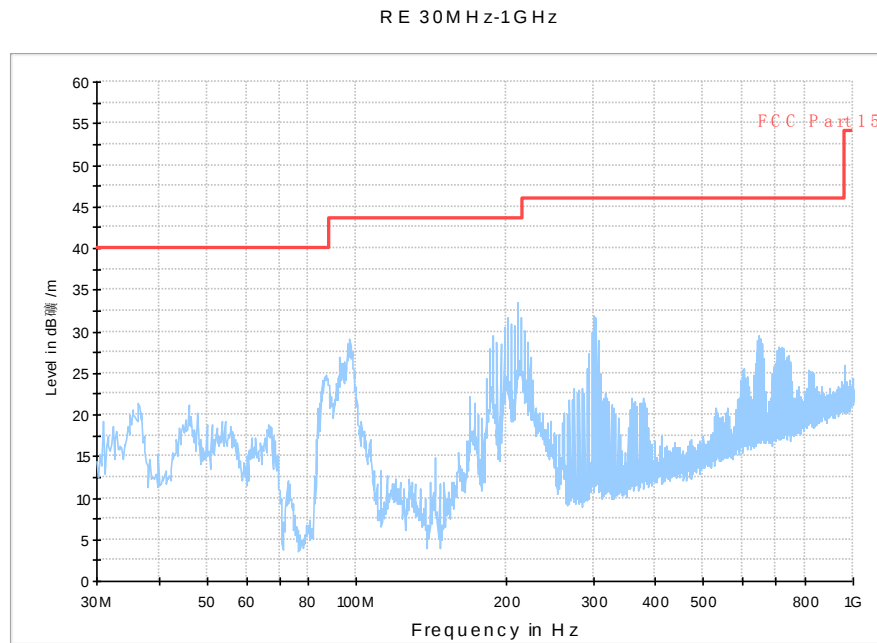


Fig. 38 Radiated Spurious Emission (802.11a, ch48, 30 MHz-1 GHz)

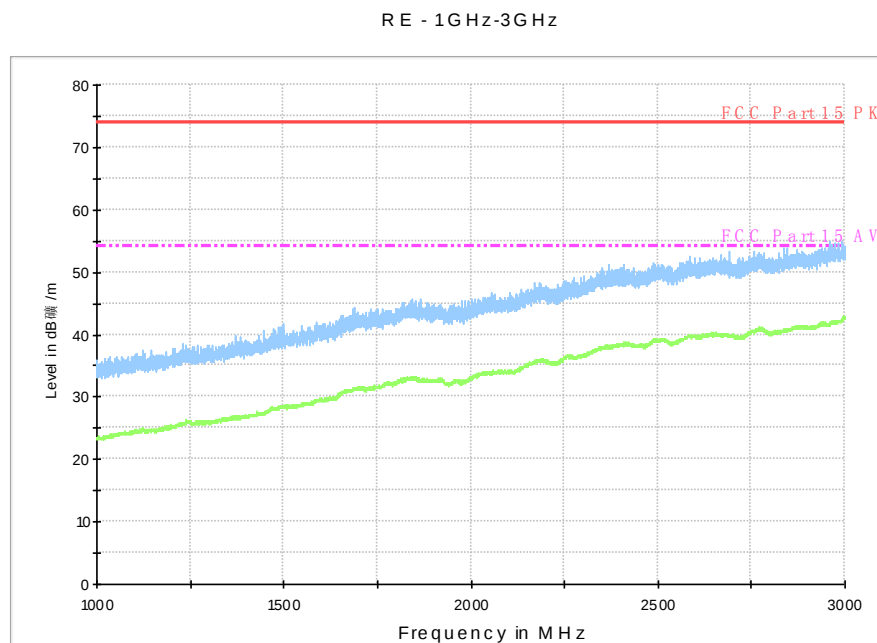


Fig. 39 Radiated Spurious Emission (802.11a, ch48, 1 GHz-3 GHz)

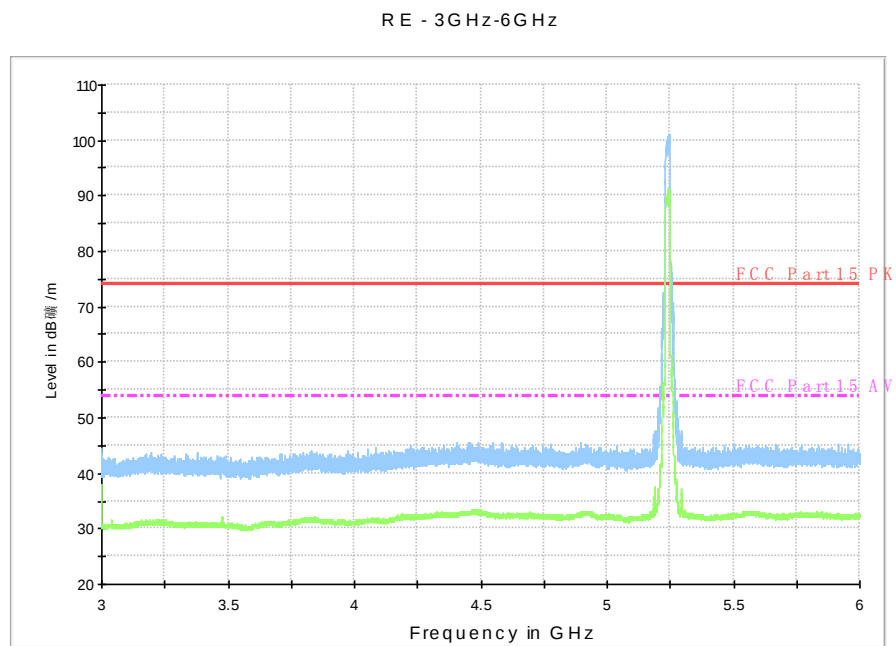


Fig. 40 Radiated Spurious Emission (802.11a, ch48, 3 GHz-6 GHz)

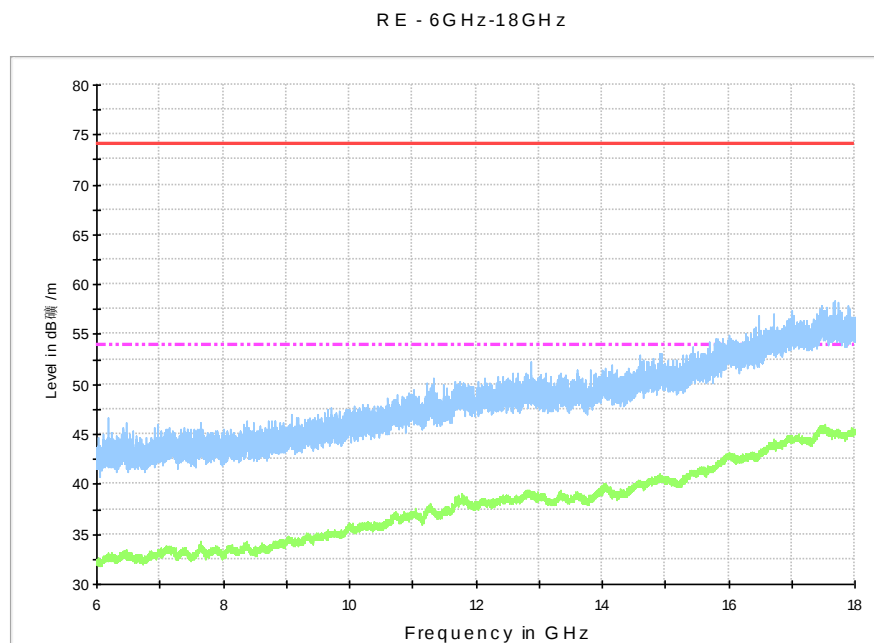


Fig. 41 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)

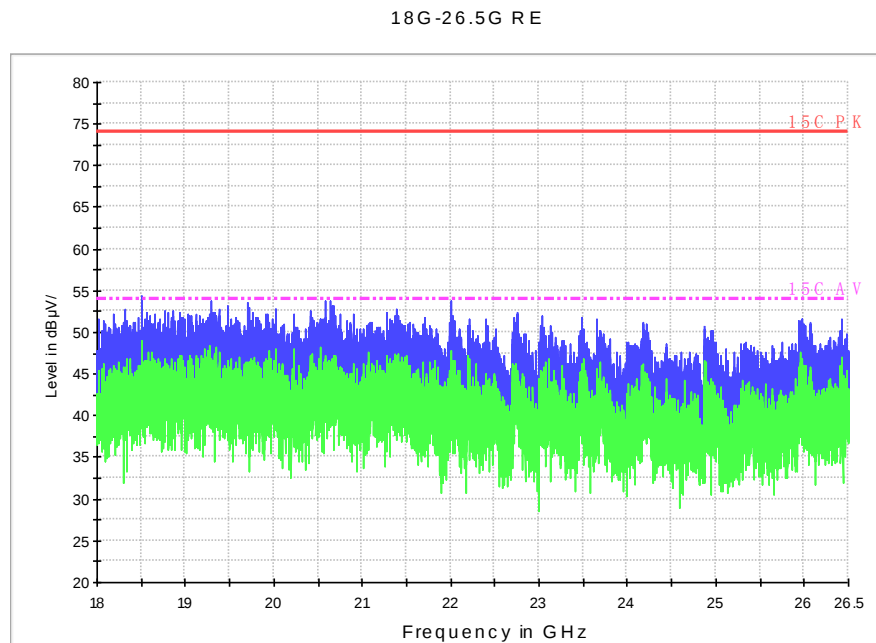


Fig. 42 Radiated Spurious Emission (802.11a, ch48, 18 GHz-26.5 GHz)

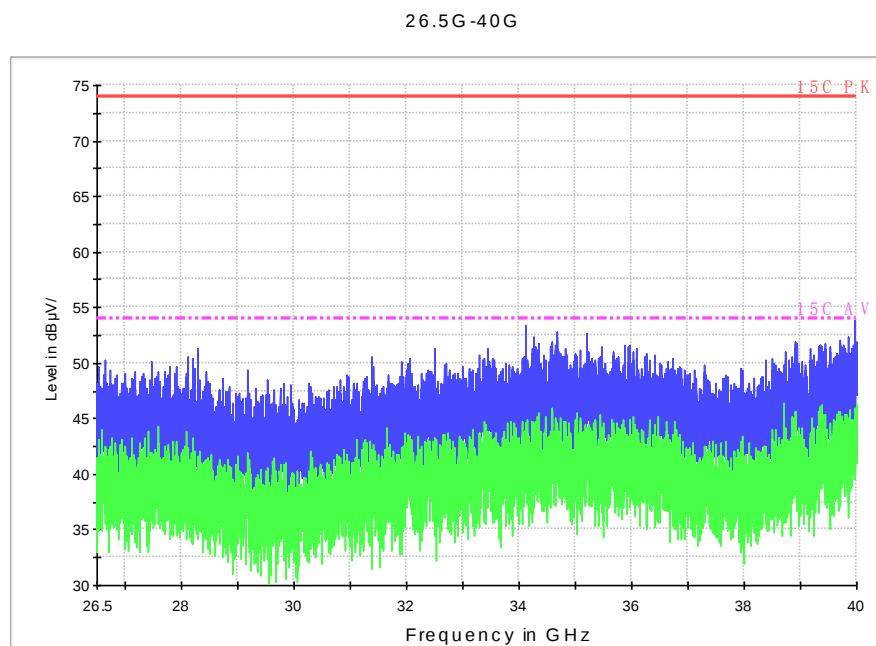


Fig. 43 Radiated Spurious Emission (802.11a, ch48, 26.5 GHz-40 GHz)

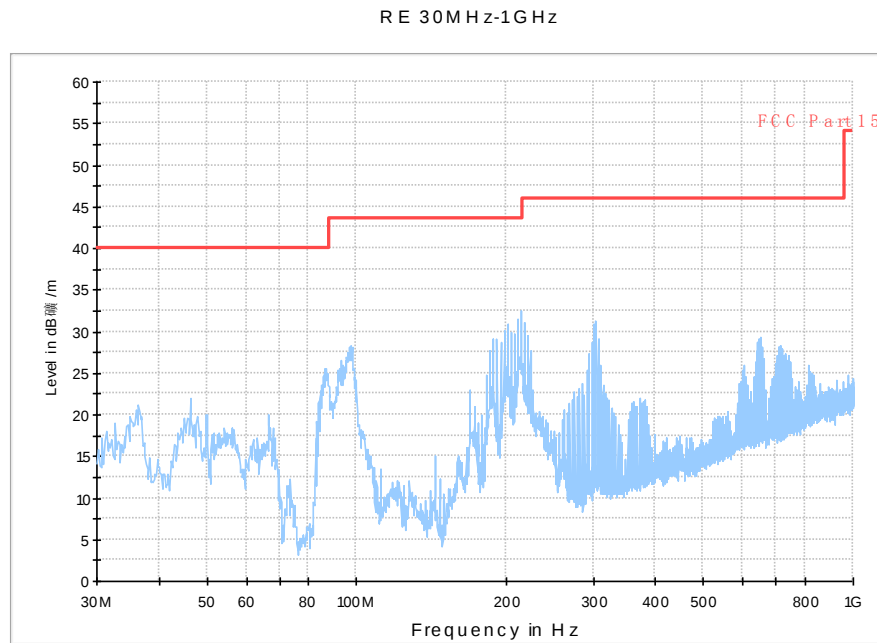


Fig. 44 Radiated Spurious Emission (802.11n-HT20, ch36, 30 MHz-1 GHz)

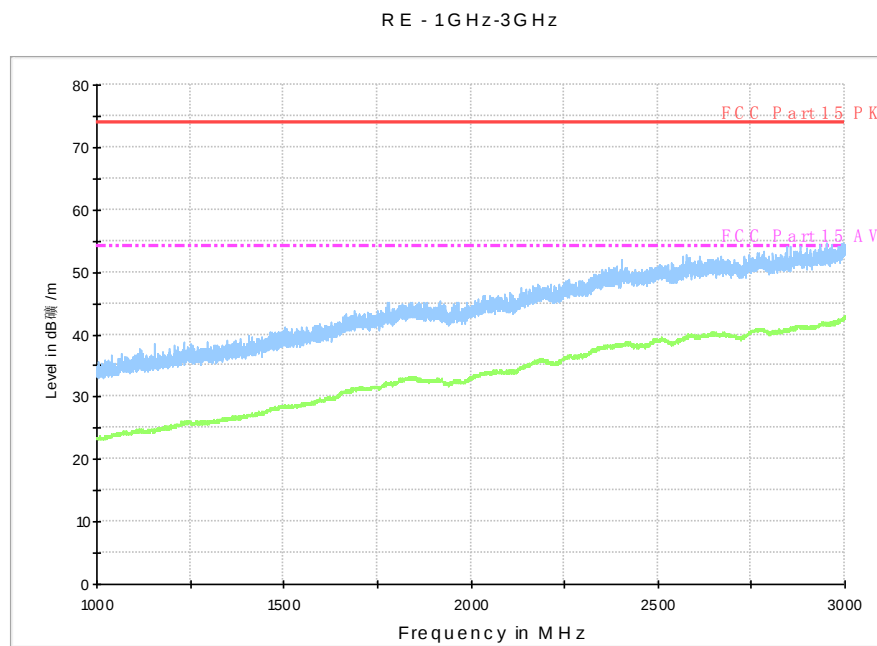


Fig. 45 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-3 GHz)

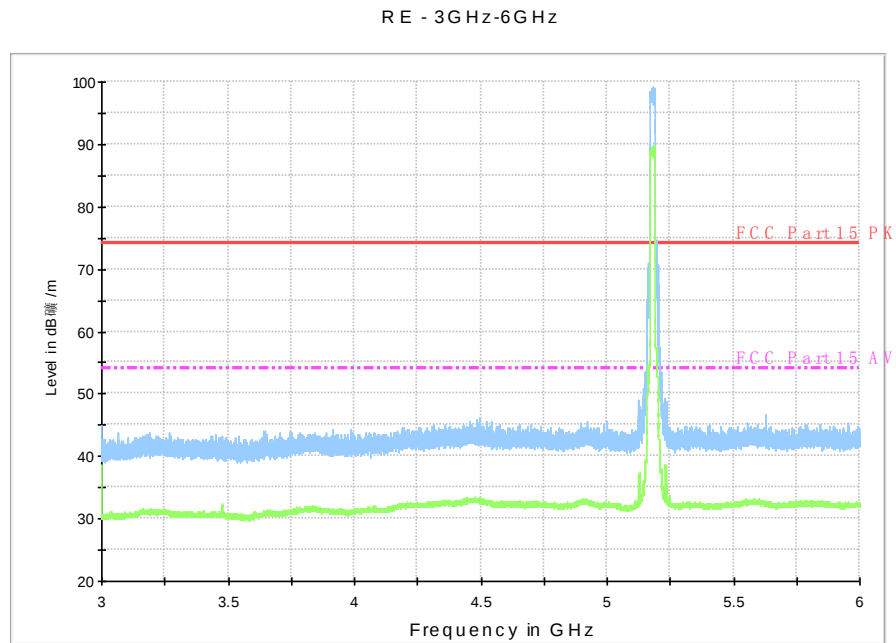


Fig. 46 Radiated Spurious Emission (802.11n-HT20, ch36, 3 GHz-6 GHz)

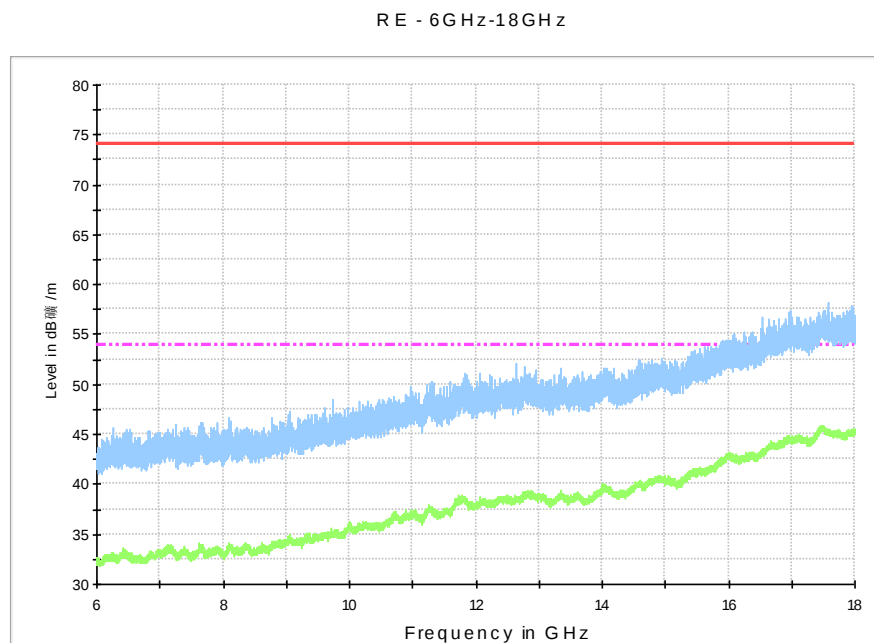


Fig. 47 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)

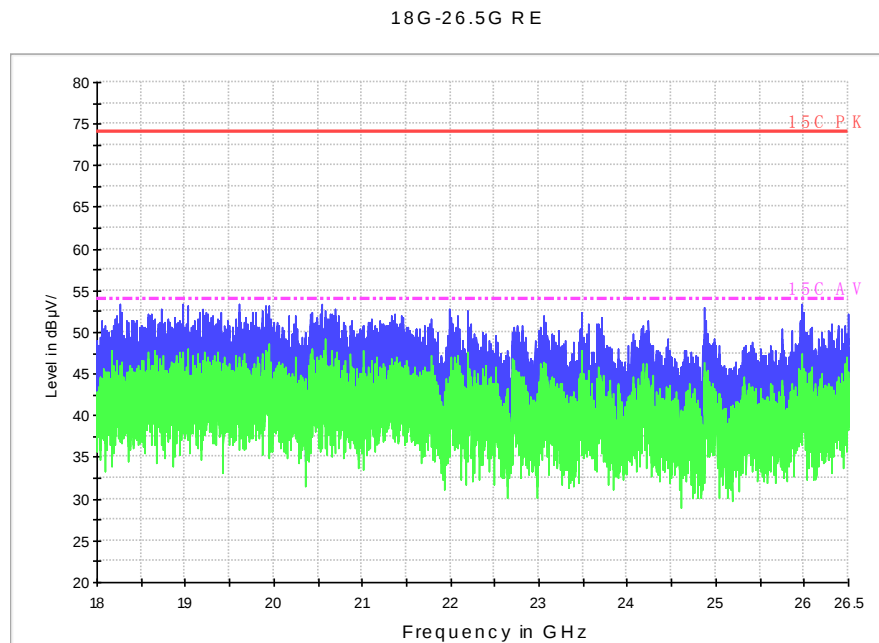


Fig. 48 Radiated Spurious Emission (802.11n-HT20, ch36, 18 GHz-26.5 GHz)

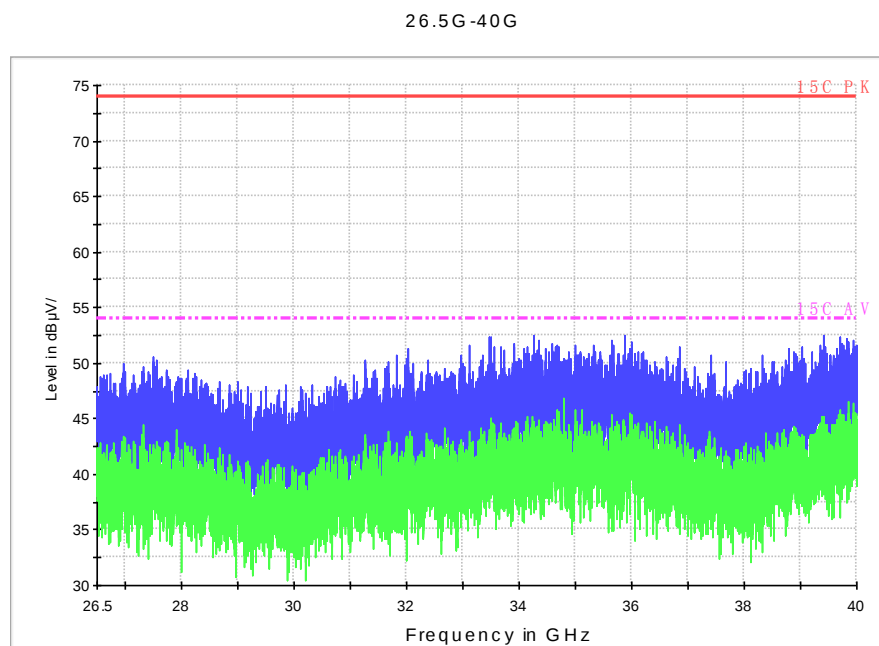


Fig. 49 Radiated Spurious Emission (802.11n-HT20, ch36, 26.5 GHz-40 GHz)

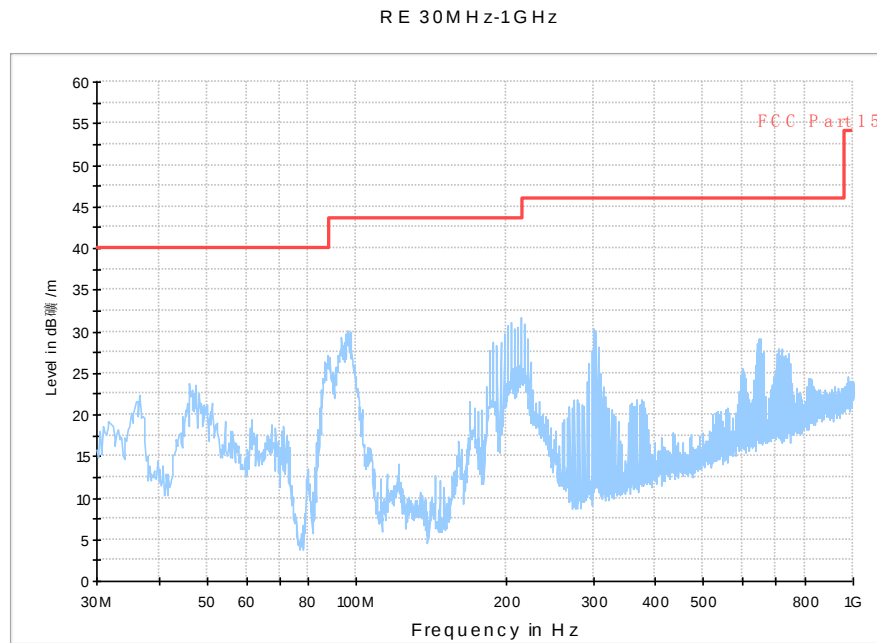


Fig. 50 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)

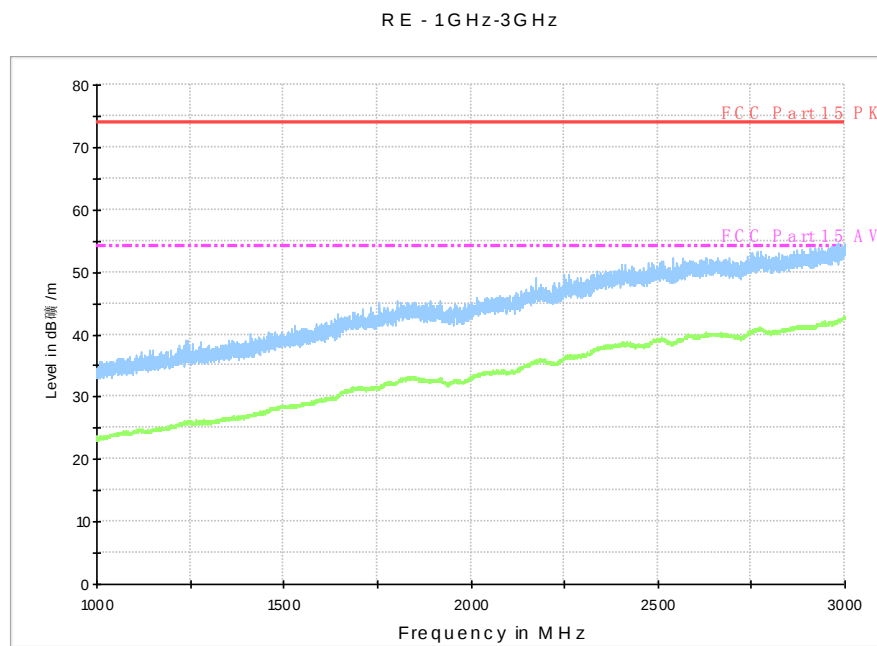


Fig. 51 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-3 GHz)

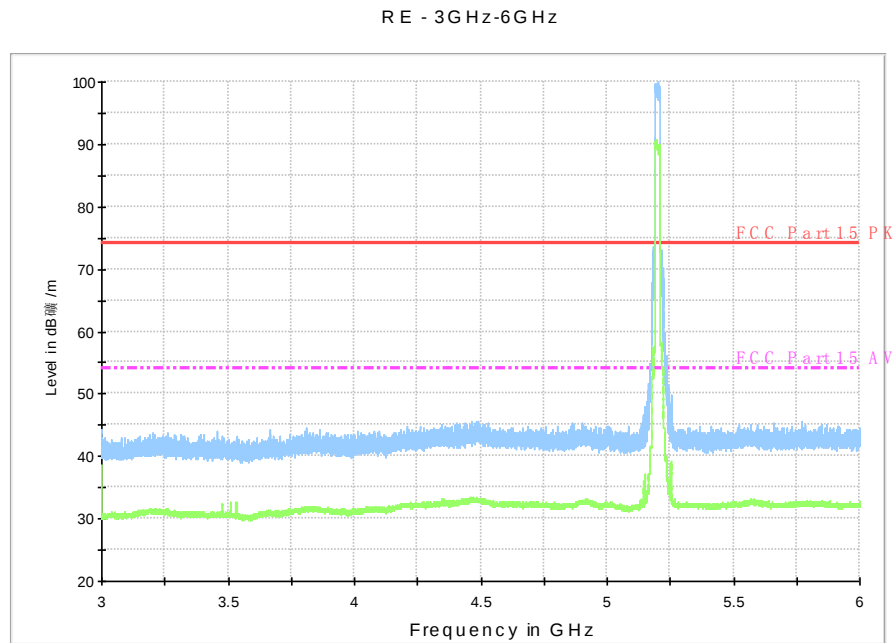


Fig. 52 Radiated Spurious Emission (802.11n-HT20, ch40, 3 GHz-6 GHz)

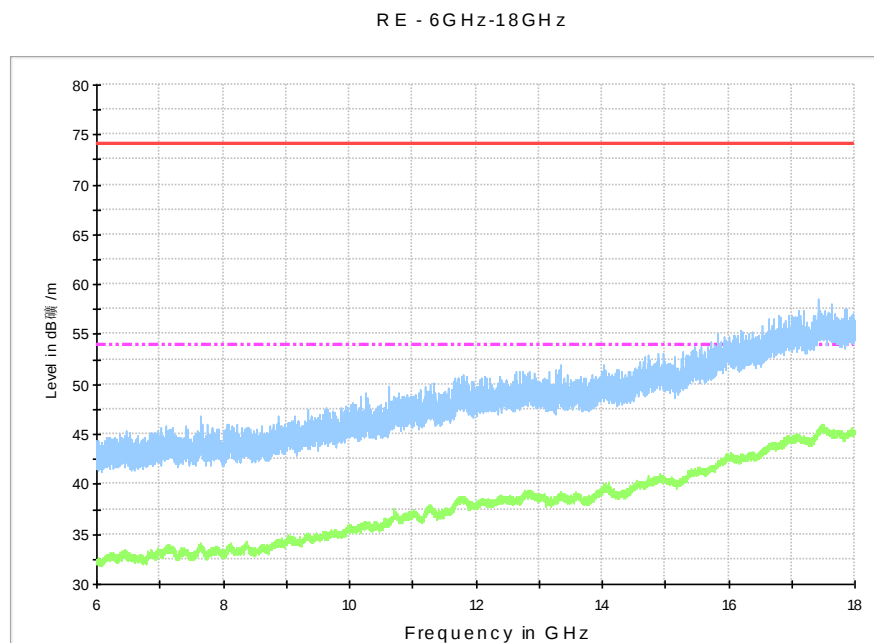


Fig. 53 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)

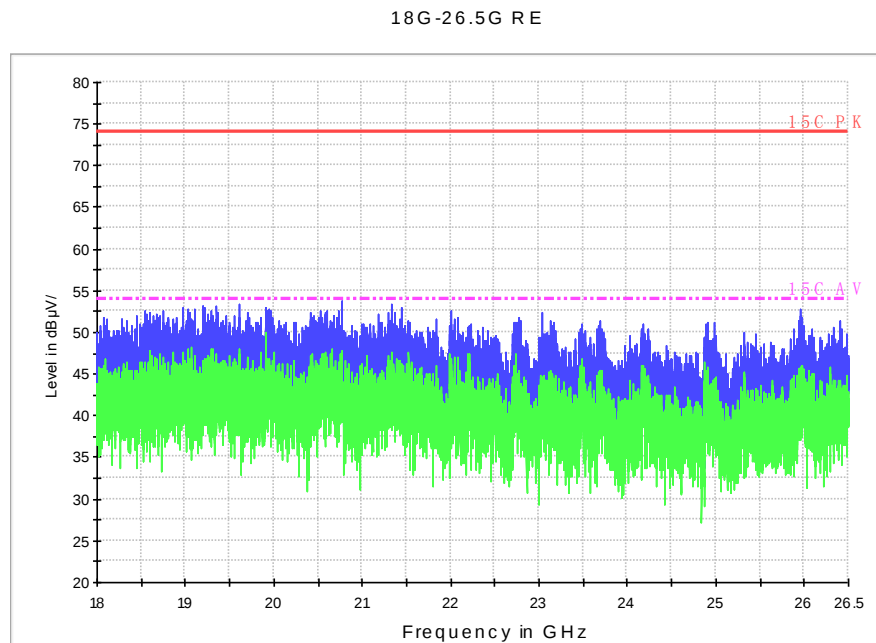


Fig. 54 Radiated Spurious Emission (802.11n-HT20, ch40, 18 GHz-26.5 GHz)

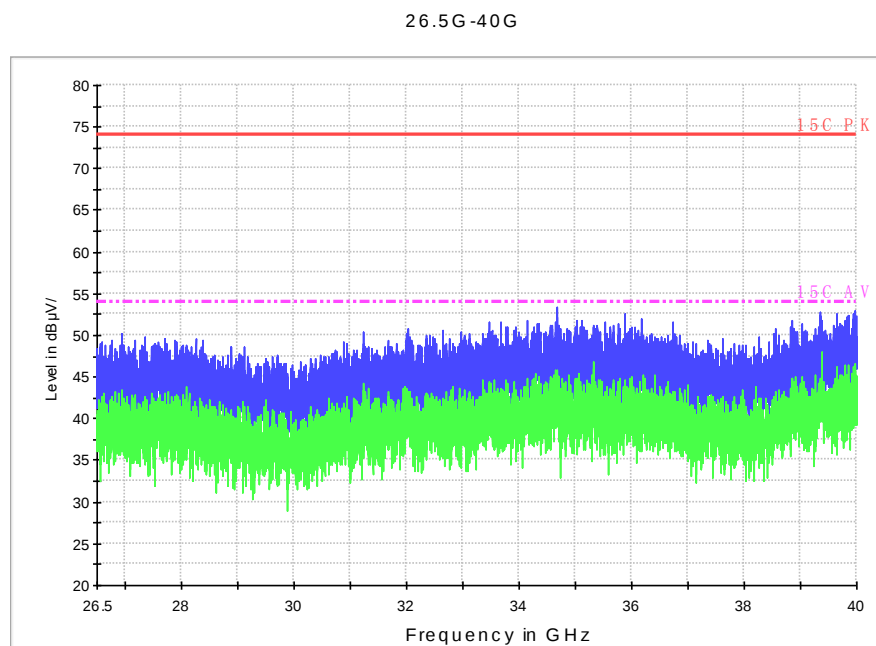


Fig. 55 Radiated Spurious Emission (802.11n-HT20, ch40, 26.5 GHz-40 GHz)

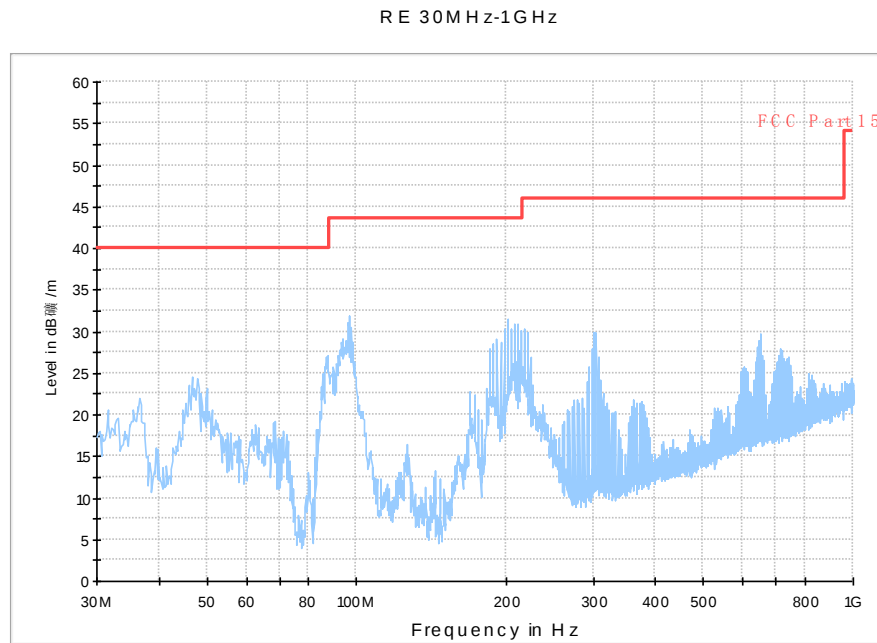


Fig. 56 Radiated Spurious Emission (802.11n-HT20, ch48, 30 MHz-1 GHz)

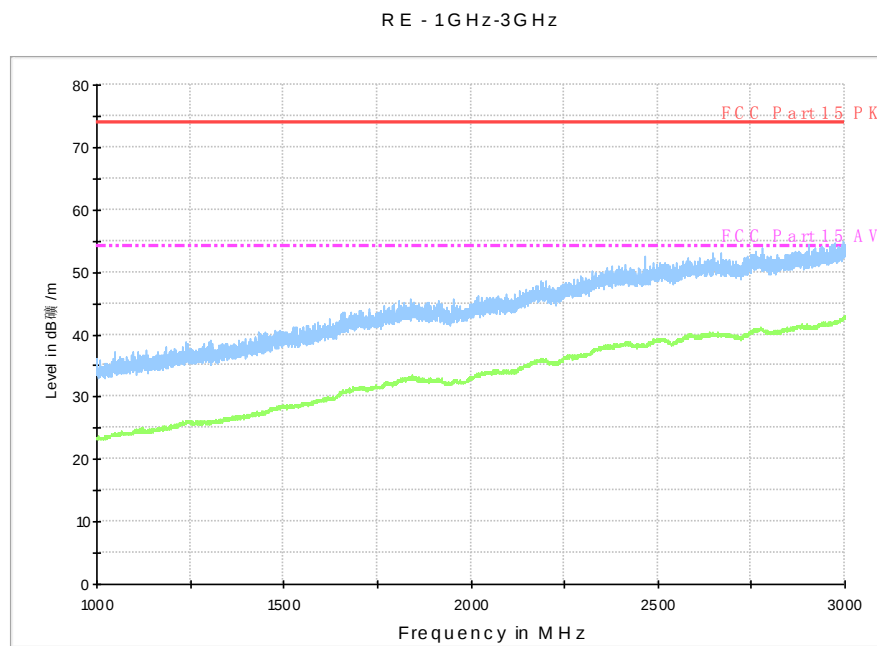


Fig. 57 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-3 GHz)

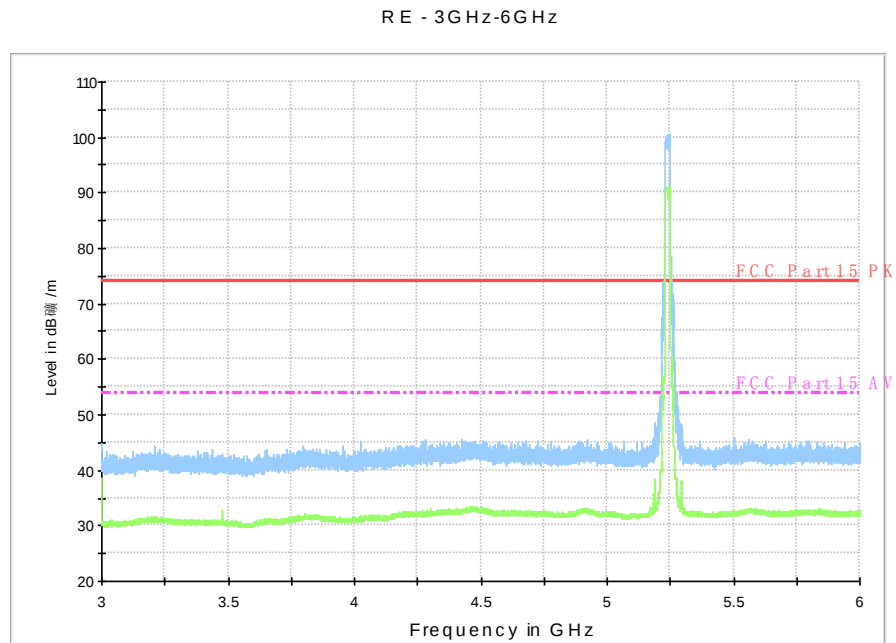


Fig. 58 Radiated Spurious Emission (802.11n-HT20, ch48, 3 GHz-6 GHz)

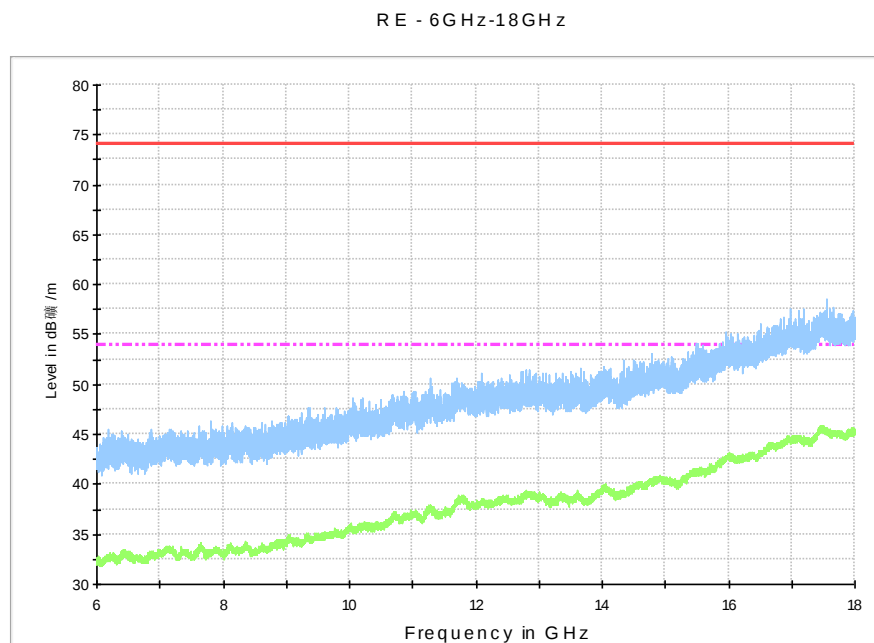


Fig. 59 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)

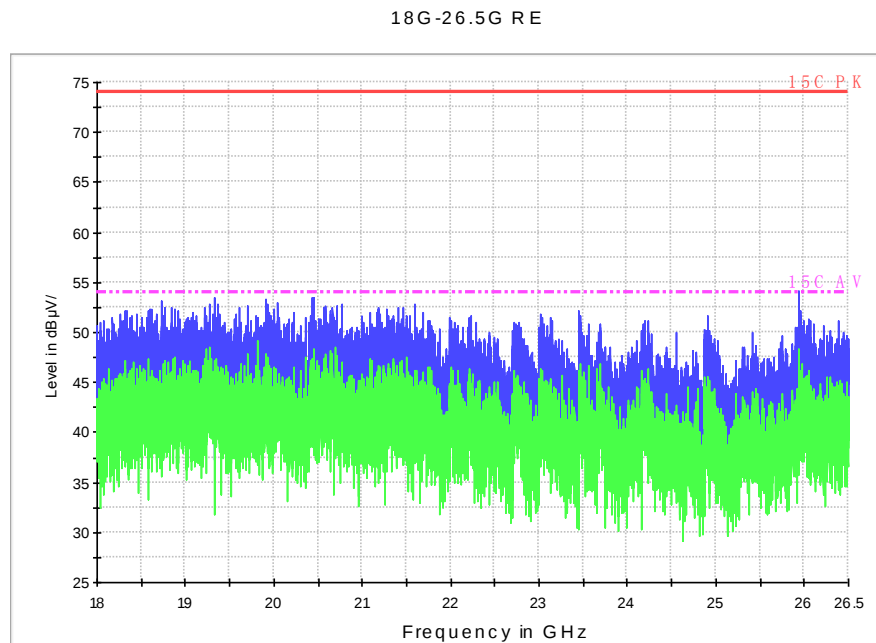


Fig. 60 Radiated Spurious Emission (802.11n-HT20, ch48, 18 GHz-26.5 GHz)

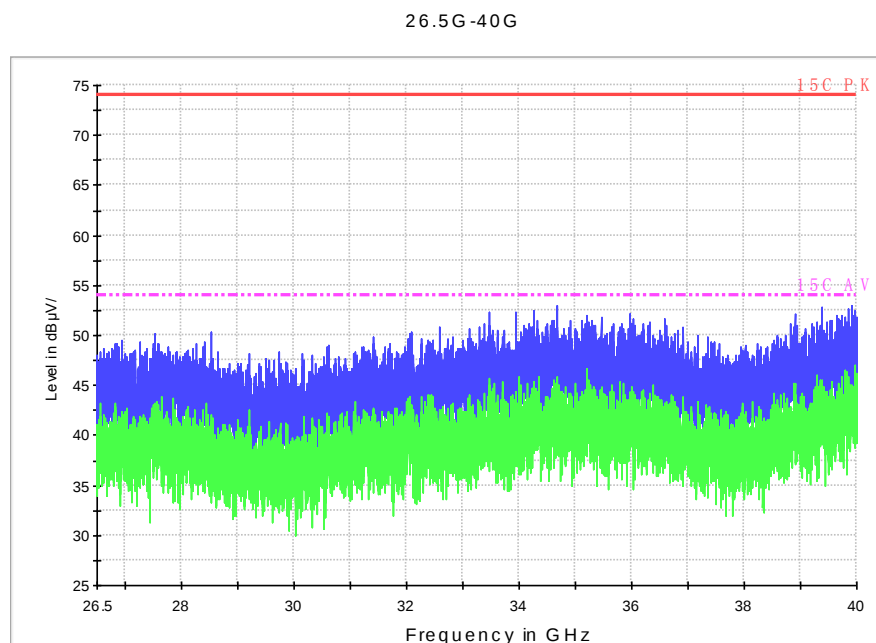


Fig. 61 Radiated Spurious Emission (802.11n-HT20, ch48, 26.5 GHz-40 GHz)

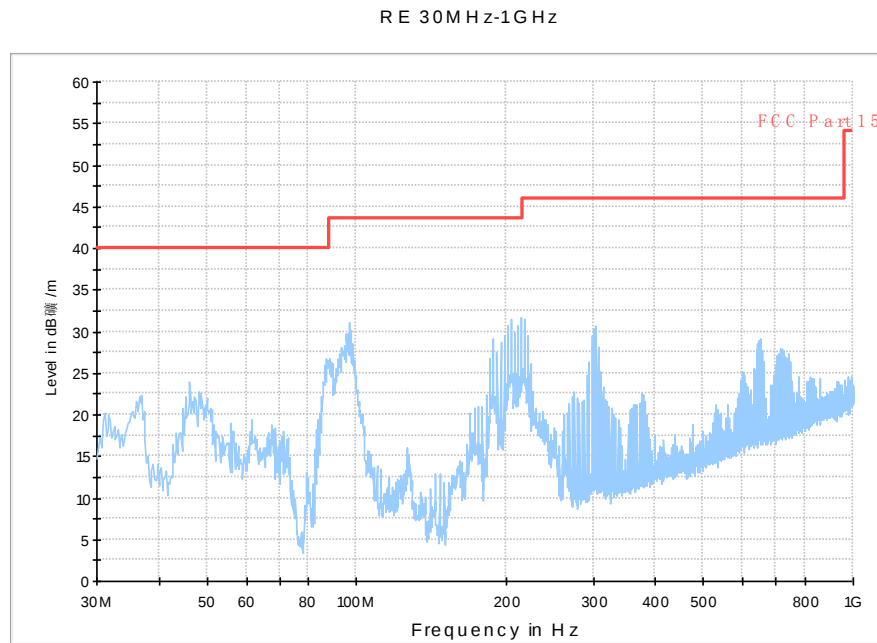


Fig. 62 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)

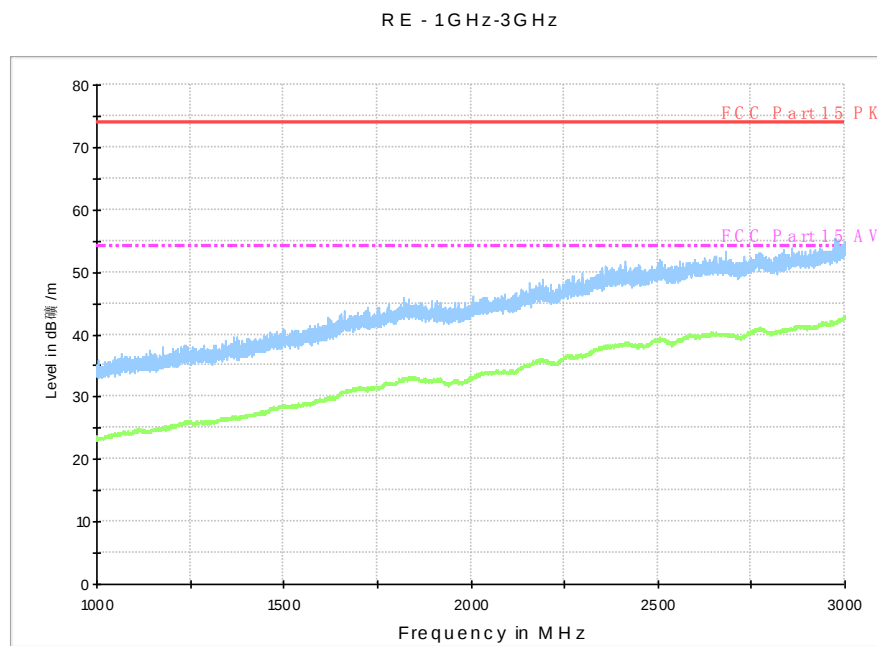


Fig. 63 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-3 GHz)

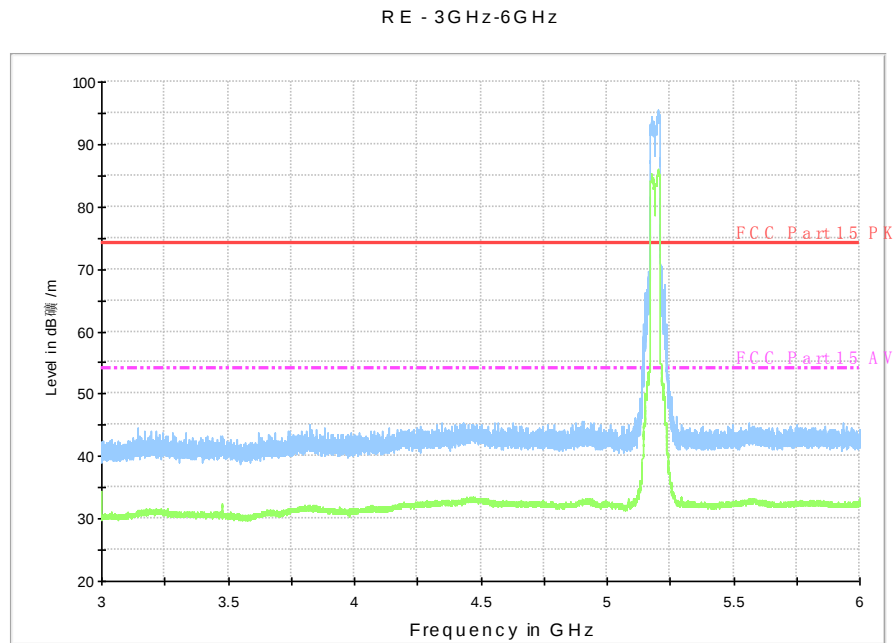


Fig. 64 Radiated Spurious Emission (802.11n-HT40, ch38, 3 GHz-6 GHz)

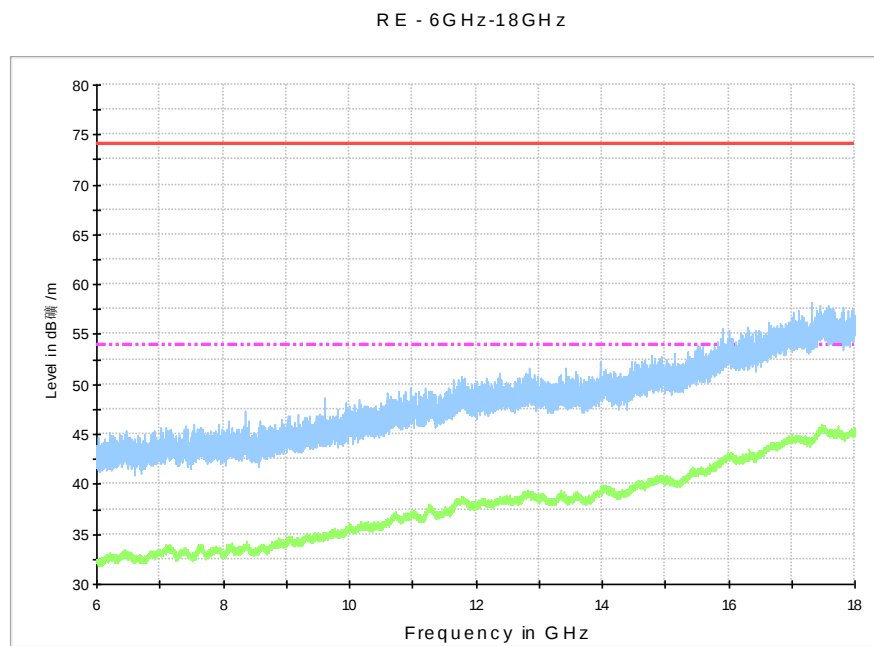


Fig. 65 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)

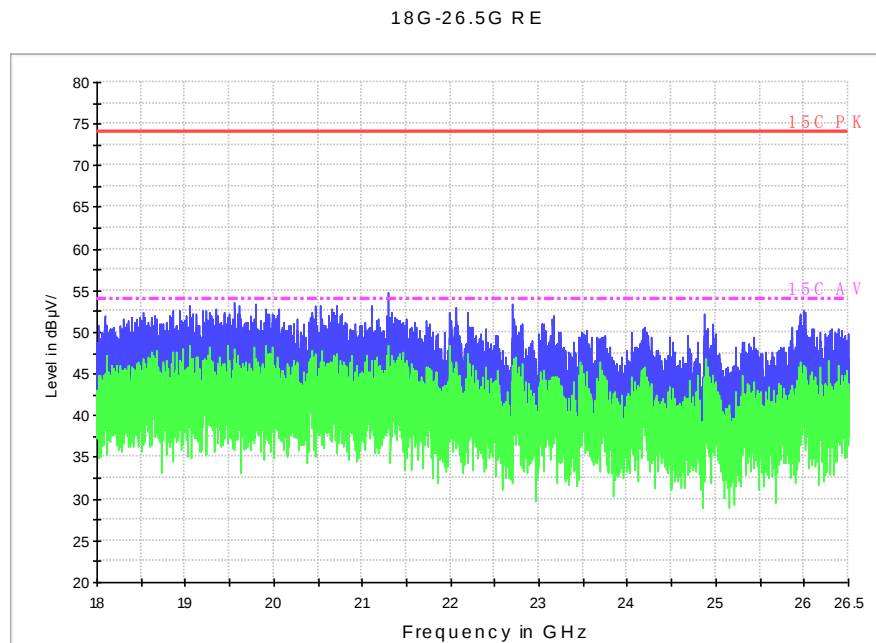


Fig. 66 Radiated Spurious Emission (802.11n-HT40, ch38, 18 GHz-26.5 GHz)

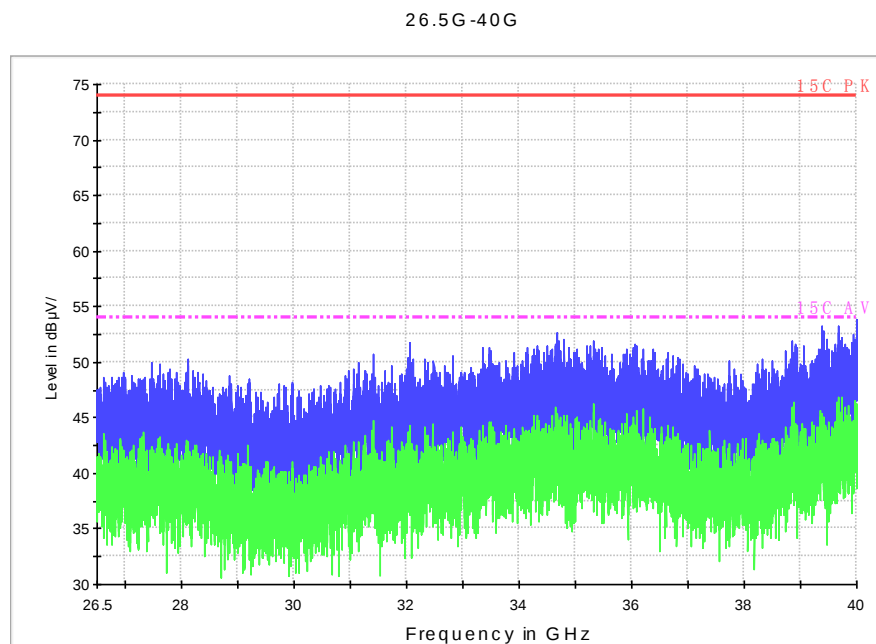


Fig. 67 Radiated Spurious Emission (802.11n-HT40, ch38, 26.5 GHz-40 GHz)

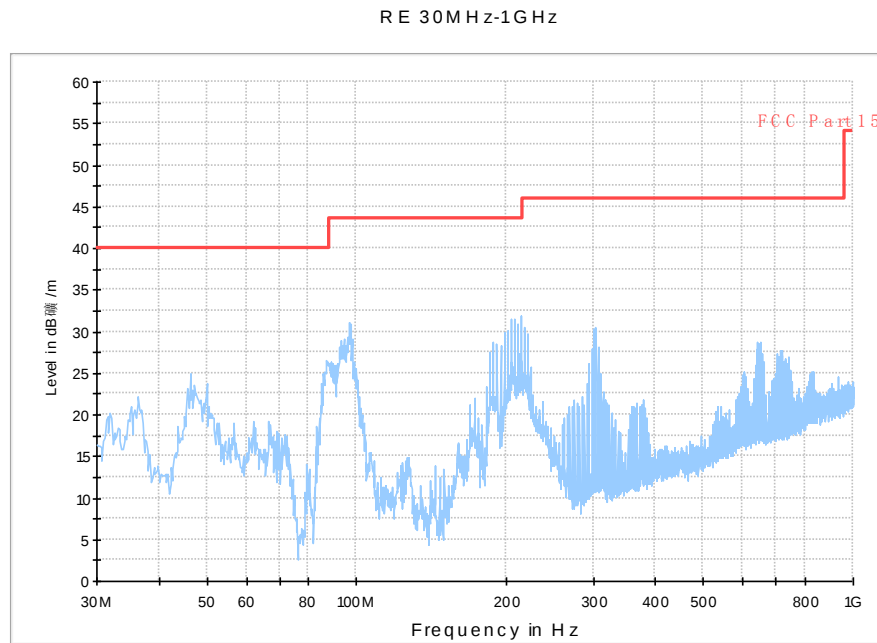


Fig. 68 Radiated Spurious Emission (802.11n-HT40, ch46, 30 MHz-1 GHz)

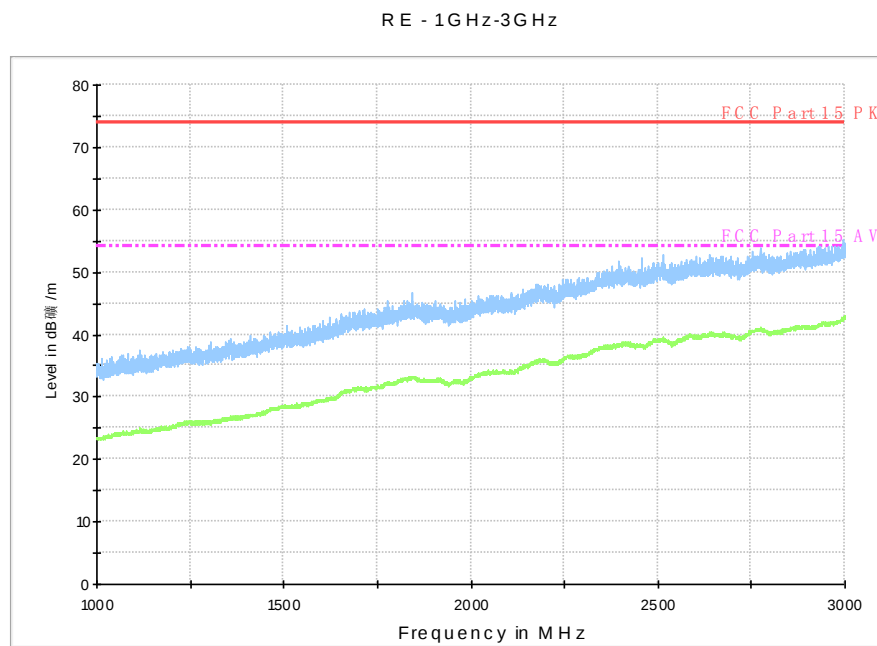


Fig. 69 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-3 GHz)

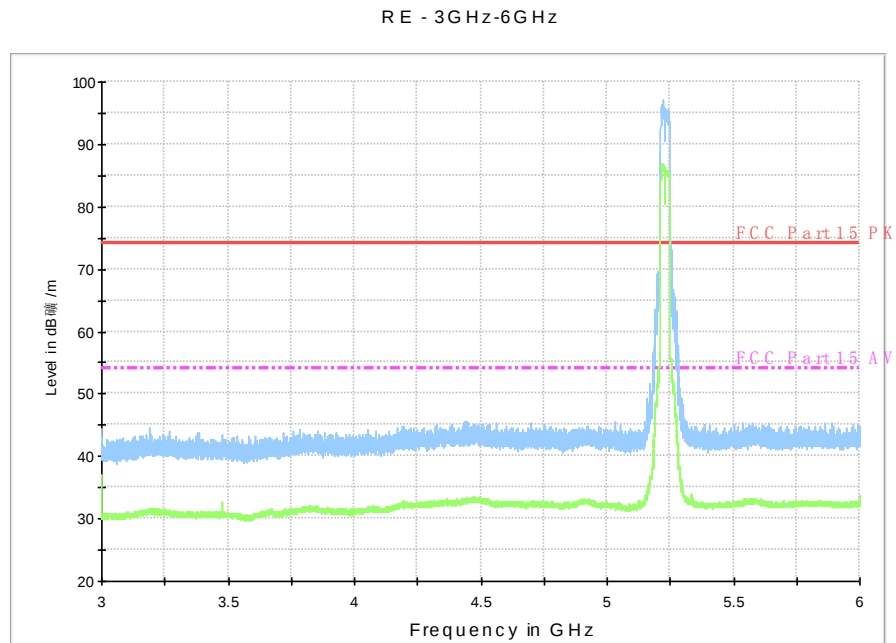


Fig. 70 Radiated Spurious Emission (802.11n-HT40, ch46, 3 GHz-6 GHz)

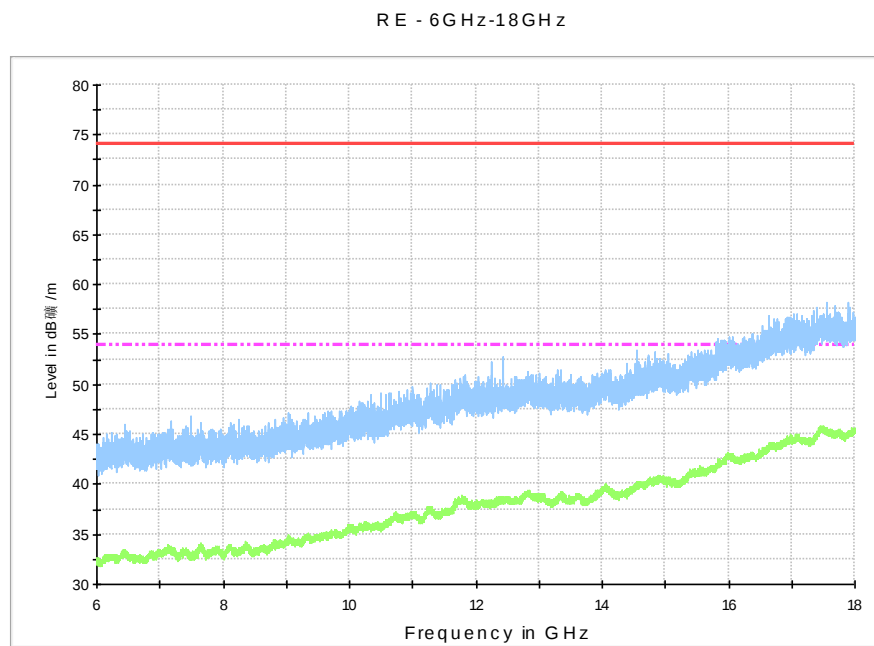


Fig. 71 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

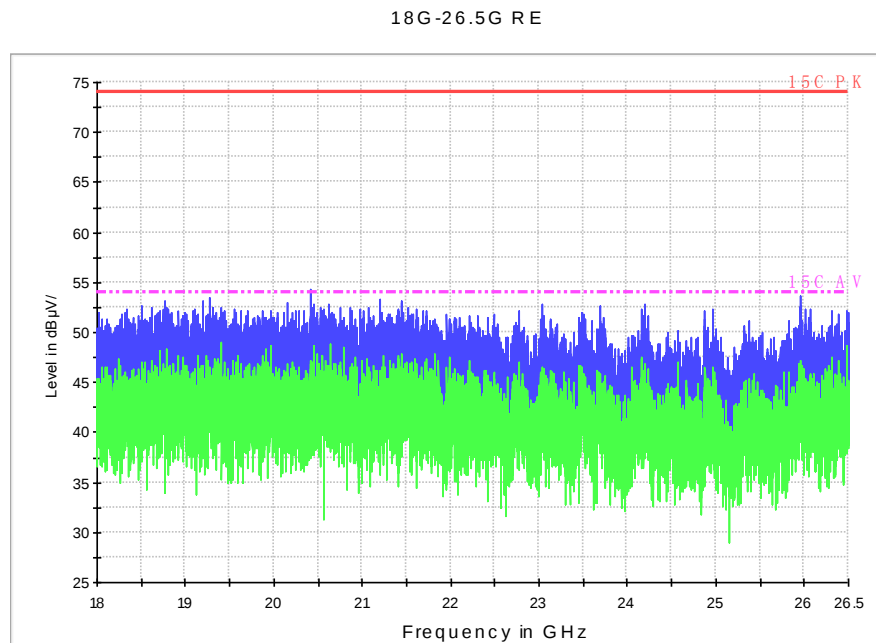


Fig. 72 Radiated Spurious Emission (802.11n-HT40, ch46, 18 GHz-26.5 GHz)

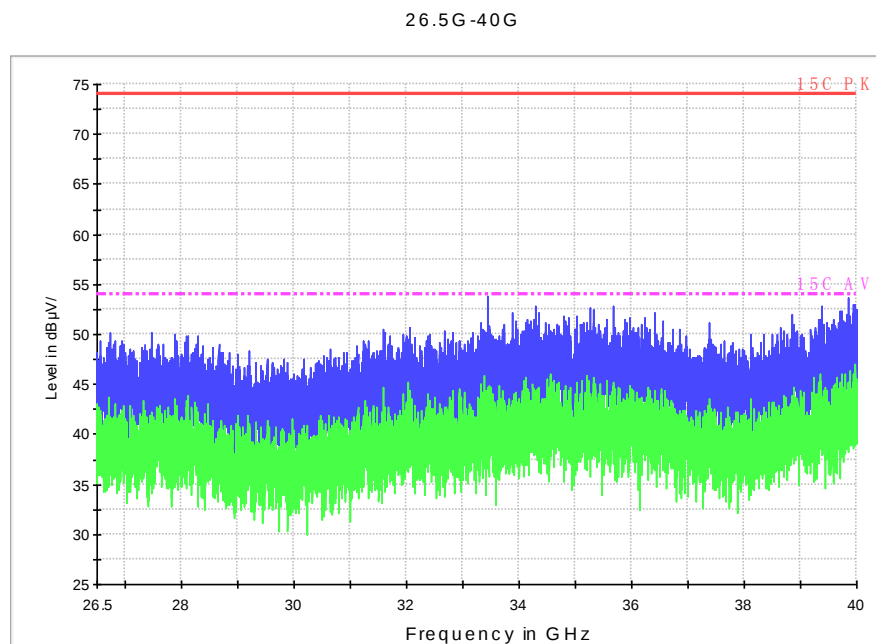


Fig. 73 Radiated Spurious Emission (802.11n-HT40, ch46, 26.5 GHz-40 GHz)

A.7. Spurious Emission Conducted < 30MHz

Test Condition:

Voltage (V)	Frequency (Hz)
110	60

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.2dB, k=2.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 71	Fig. 72	P
0.5 to 5	56			
5 to 30	60			

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

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.74	Fig.75	P
0.5 to 5	46			
5 to 30	50			

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

The measurement is made according to KDB 789033

Conclusion: PASS

Test graphs as below:

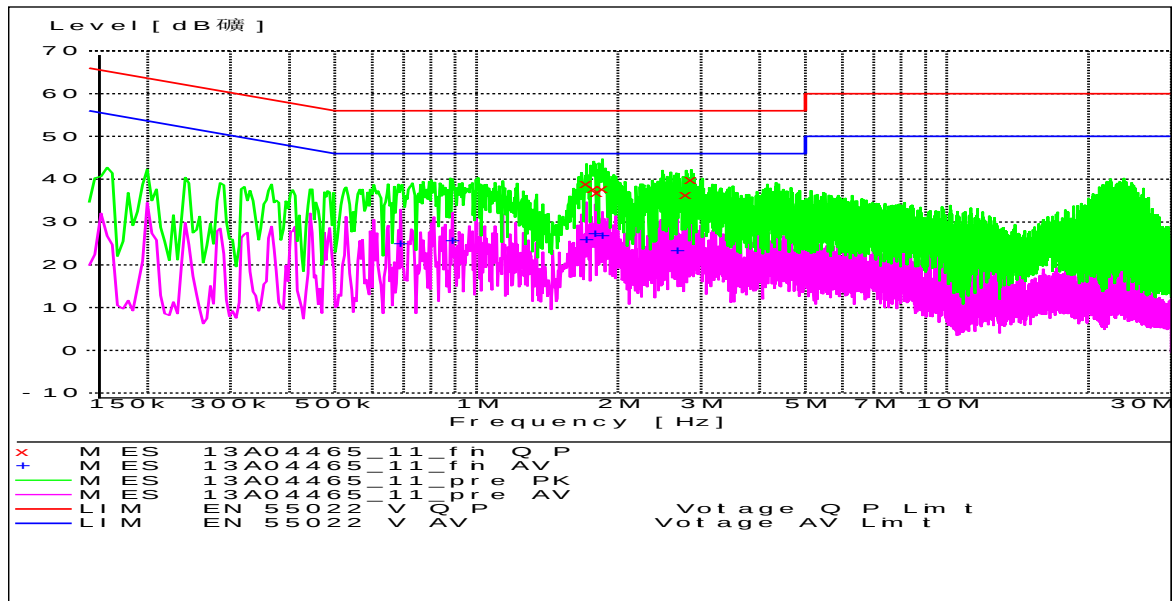


Fig. 74 Conducted Spurious Emission(802.11a, TX)

Measurement Result:

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
1.716000	38.90	9.7	56	17.1	L1	GND
1.774500	37.70	9.7	56	18.3	N	GND
1.806000	36.90	9.7	56	19.1	L1	GND
1.855500	37.70	9.7	56	18.3	N	GND
2.792000	36.40	9.7	56	19.6	N	GND
2.864000	39.80	9.7	56	16.2	L1	GND

Measurement Result:

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
0.690000	25.00	9.8	46	21.0	L1	GND
0.888000	25.70	9.8	46	20.3	L1	GND
1.716000	25.80	9.7	46	20.2	N	GND
1.792500	27.20	9.7	46	18.8	N	GND
1.855500	26.90	9.7	46	19.1	L1	GND
2.675000	23.30	9.7	46	22.7	L1	GND

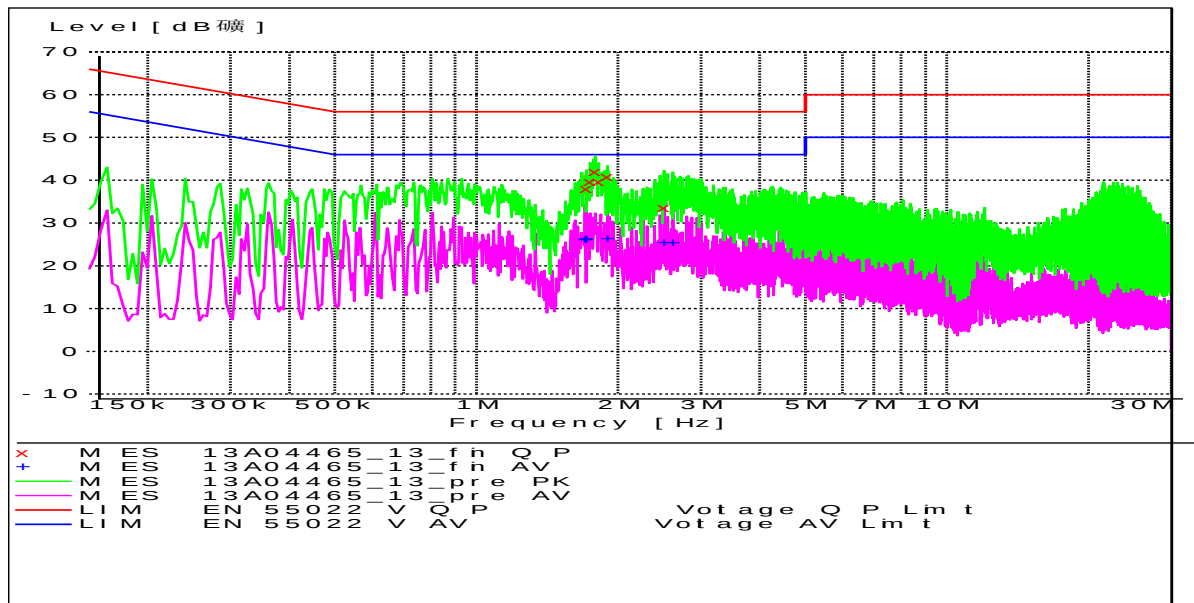


Fig. 75 Conducted Spurious Emission(802.11a, IDLE)

Measurement Result:

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
1.716000	38.00	9.7	56	18.0	L1	GND
1.743000	39.70	9.7	56	16.3	N	GND
1.788000	42.00	9.7	56	14.0	L1	GND
1.819500	39.60	9.7	56	16.4	N	GND
1.896000	40.70	9.7	56	15.3	L1	GND
2.504000	33.60	9.7	56	22.4	N	GND

Measurement Result:

Frequency (MHz)	Level (dBμV)	Transd (dB)	Limit (dBμV)	Margin (dB)	Line	PE
1.698000	26.10	9.7	46	19.9	L1	GND
1.707000	26.40	9.7	46	19.6	N	GND
1.716000	26.00	9.7	46	20.0	N	GND
1.896000	26.40	9.7	46	19.6	L1	GND
2.504000	25.30	9.7	46	20.7	L1	GND
2.621000	25.40	9.7	46	20.6	L1	GND

A.8. Peak Excursion

Measurement Limit:

Standard	Limit (dB)
FCC 47 CFR Part 15.407	13

The measurement is made according to KDB 789033, the method SA-1 is used for PPSP measurement.

Measurement Uncertainty:

Measurement Uncertainty	0.75 dB
-------------------------	---------

Measurement Result:

11a mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.76	11.92	Fig.77	11.35	Fig.78	10.92
Average(dBm)	Fig.79	3.44	Fig.80	3.11	Fig.81	2.58
Result (dB)	8.48		8.24		8.34	

11n-HT20 mode

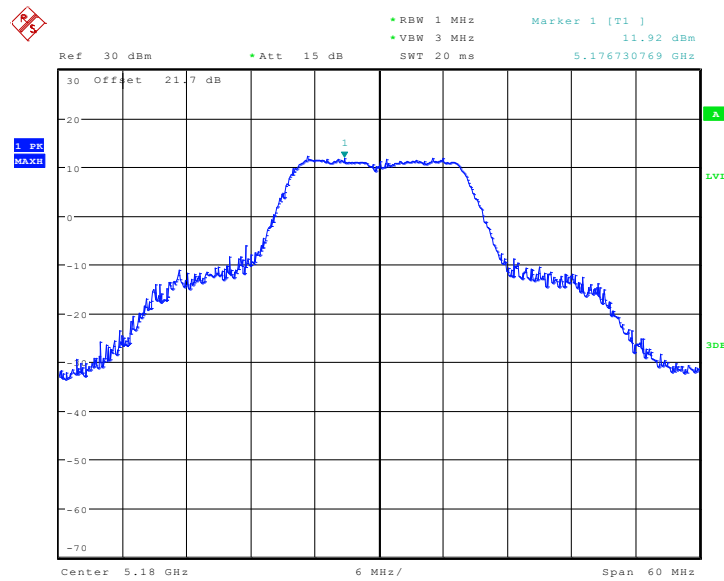
Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig.82	10.75	Fig.83	10.74	Fig.84	10.13
Average(dBm)	Fig.85	2.43	Fig.86	1.93	Fig.87	1.42
Result (dB)	8.32		8.81		8.71	

11n-HT40 mode

Type	Peak Excursion			
	5190MHz (Ch38)		5230MHz (Ch46)	
Peak (dBm)	Fig.88	7.80	Fig.89	7.11
Average(dBm)	Fig.90	-0.55	Fig.91	-1.21
Result (dB)	8.35		8.32	

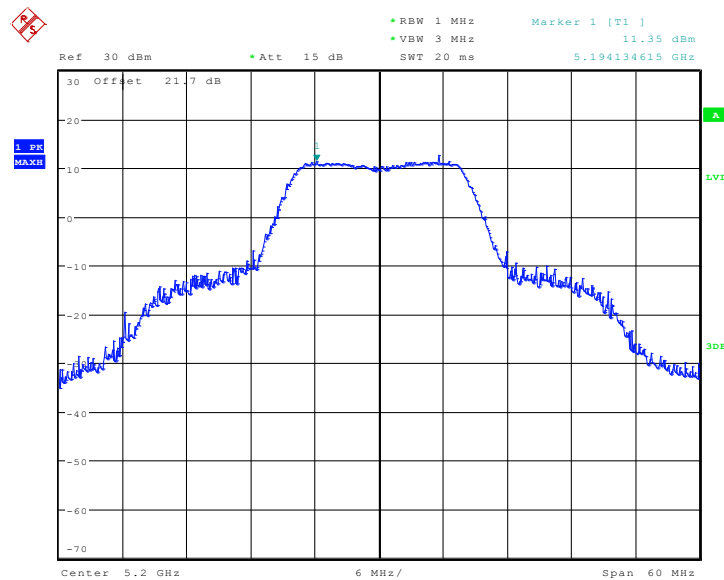
Conclusion: PASS

Test graphs as below:



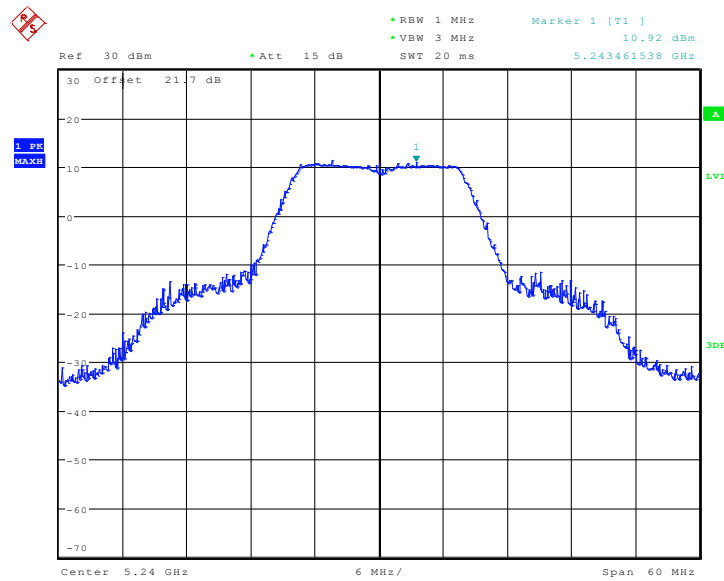
Date: 12.OCT.2013 18:39:18

Fig. 76 Peak Excursions (802.11a, ch36, peak)



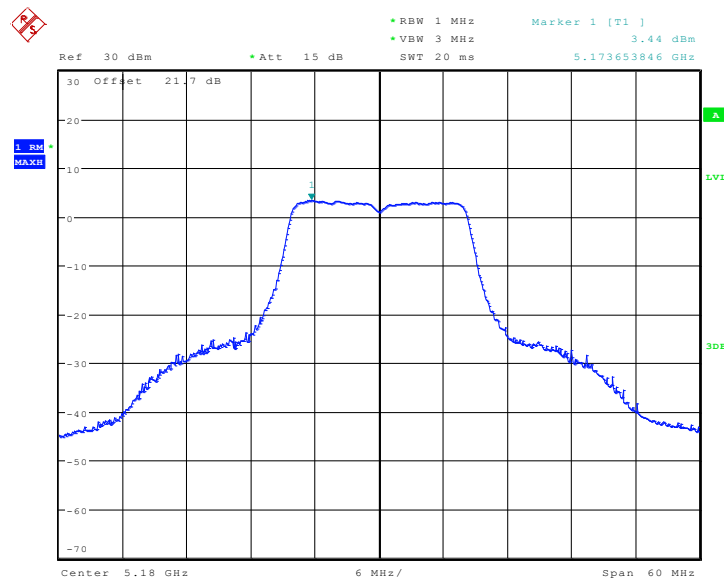
Date: 12.OCT.2013 18:46:02

Fig. 77 Peak Excursions (802.11a, ch40, peak)



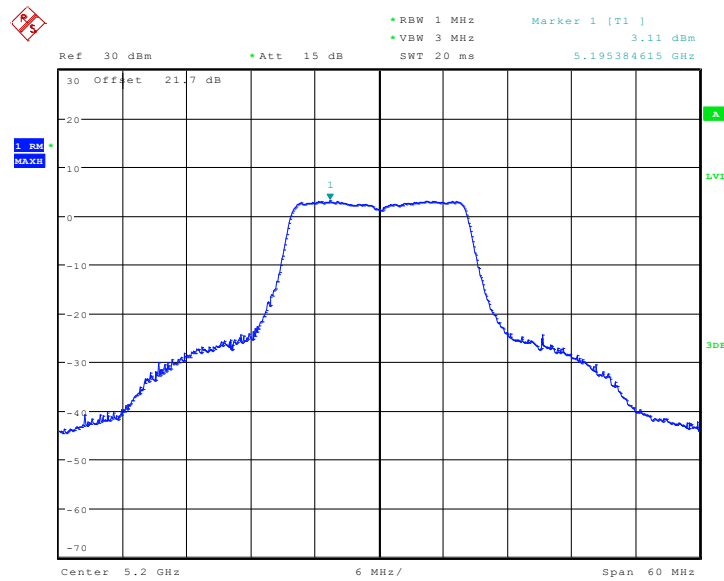
Date: 12.OCT.2013 18:46:33

Fig. 78 Peak Excursions (802.11a, ch48, peak)



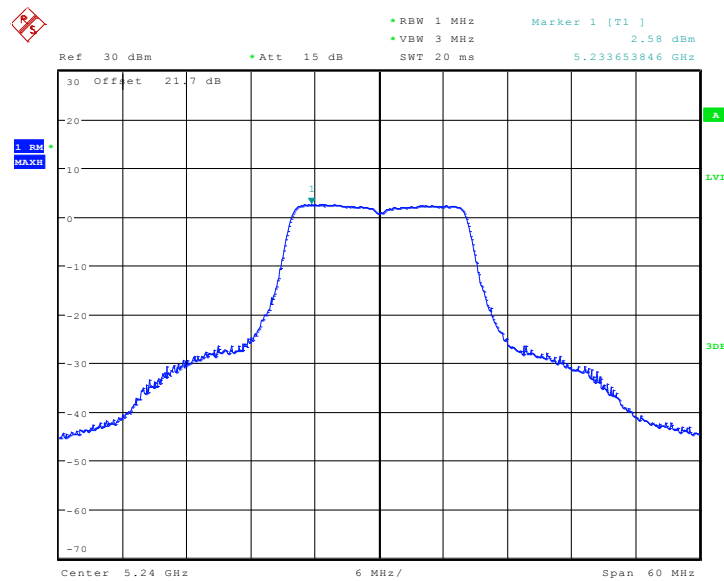
Date: 12.OCT.2013 18:39:52

Fig. 79 Peak Excursions (802.11a, ch36, average)



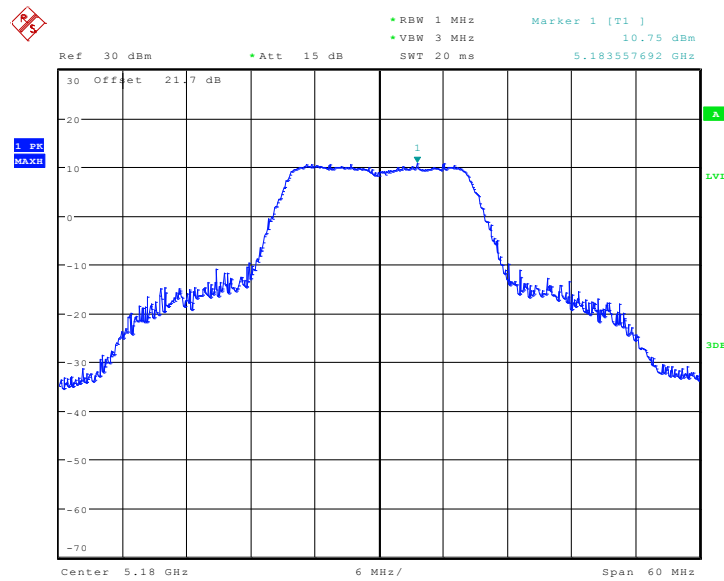
Date: 12.OCT.2013 18:45:19

Fig. 80 Peak Excursions (802.11a, ch40, average)



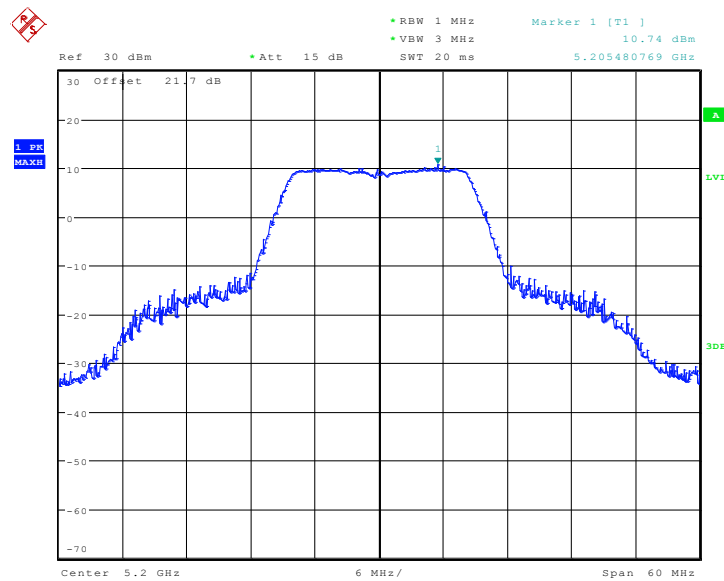
Date: 12.OCT.2013 18:46:52

Fig. 81 Peak Excursions (802.11a, ch48, average)



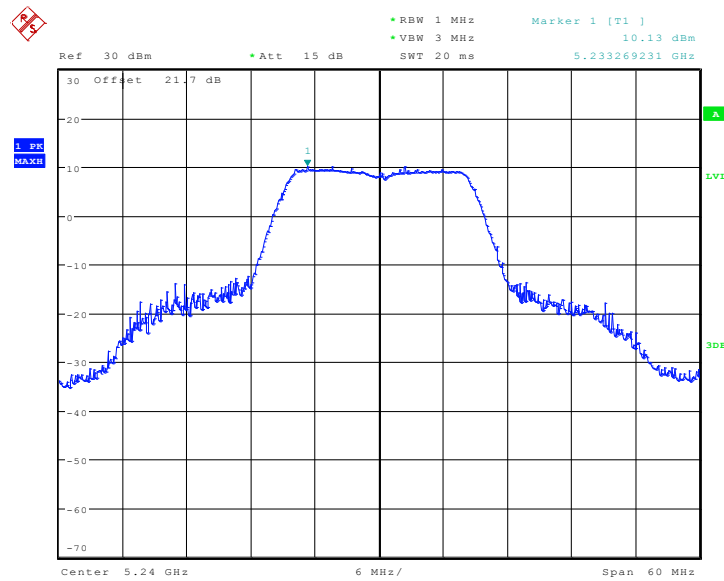
Date: 12.OCT.2013 18:48:49

Fig. 82 Peak Excursions (802.11n-HT20, ch36, peak)



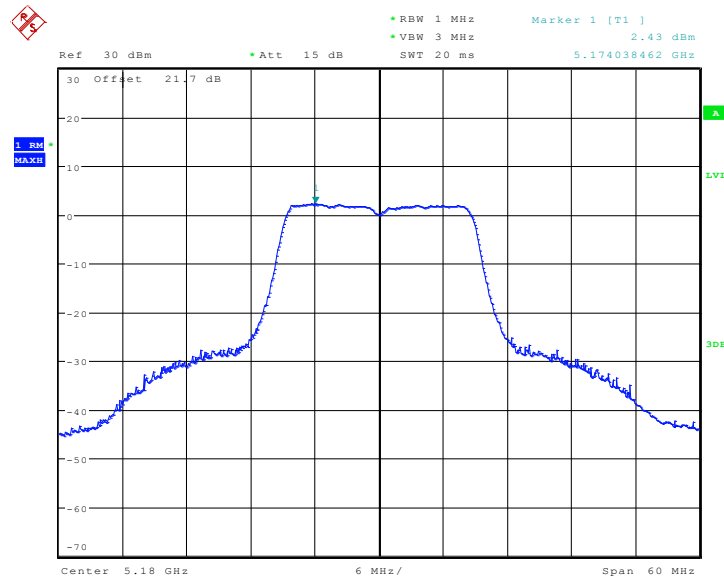
Date: 12.OCT.2013 18:49:26

Fig. 83 Peak Excursions (802.11n-HT20, ch40, peak)



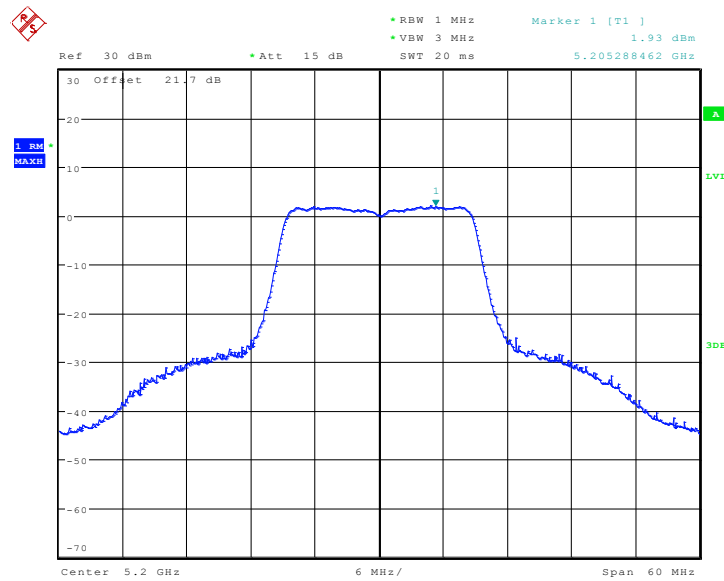
Date: 12.OCT.2013 18:51:05

Fig. 84 Peak Excursions (802.11n-HT20, ch48, peak)



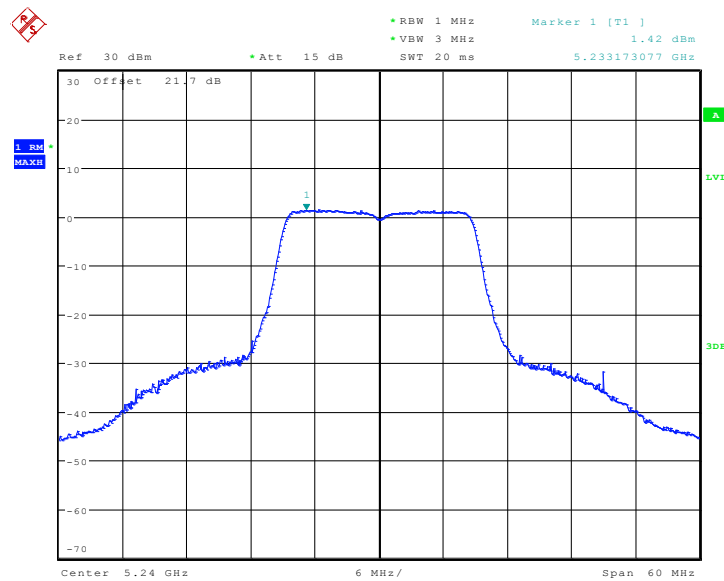
Date: 12.OCT.2013 18:48:24

Fig. 85 Peak Excursions (802.11n-HT20, ch36, average)



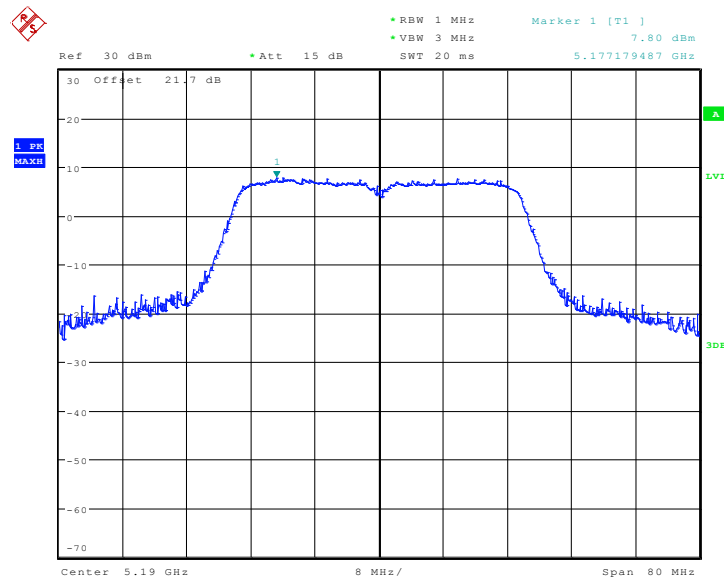
Date: 12.OCT.2013 18:50:04

Fig. 86 Peak Excursions (802.11n-HT20, ch40, average)



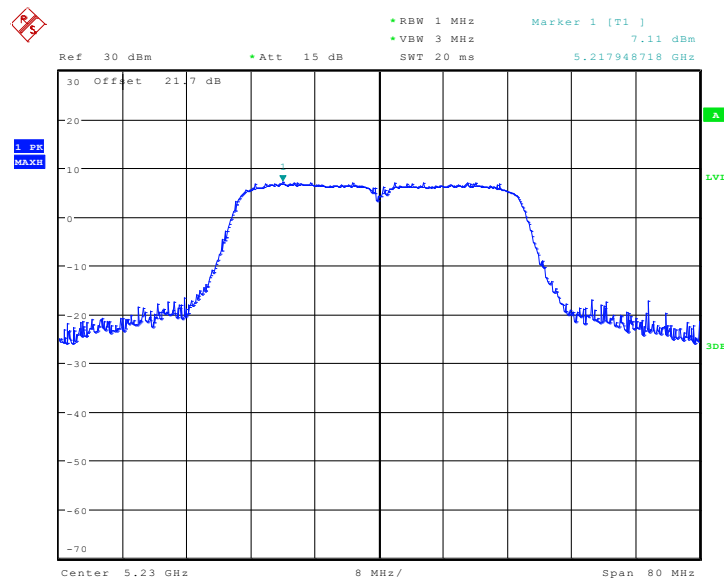
Date: 12.OCT.2013 18:50:31

Fig. 87 Peak Excursions (802.11n-HT20, ch48, average)



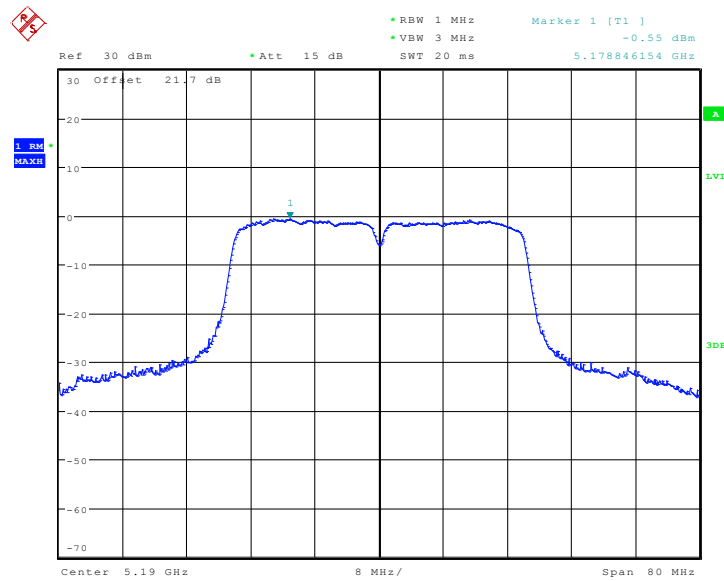
Date: 12.OCT.2013 18:52:16

Fig. 88 Peak Excursions (802.11n-HT40, ch38, peak)



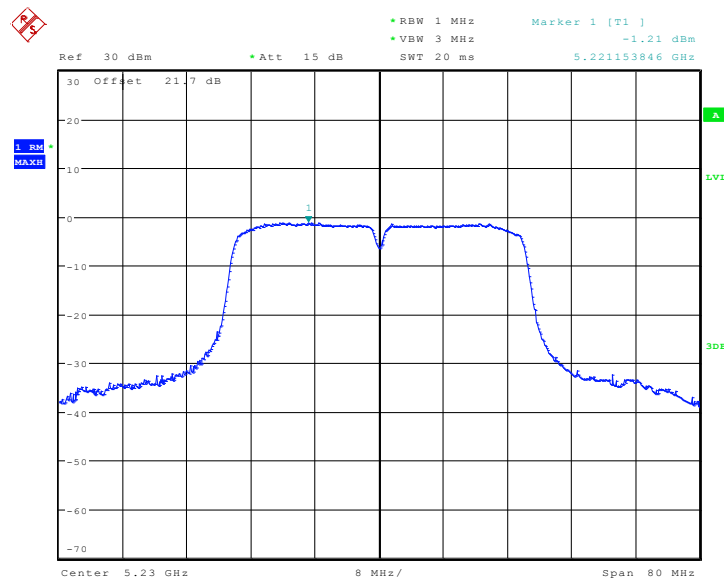
Date: 12.OCT.2013 18:54:01

Fig. 89 Peak Excursions (802.11n-HT40, ch46, peak)



Date: 12.OCT.2013 18:52:43

Fig. 90 Peak Excursions (802.11n-HT40, ch38, average)



Date: 12.OCT.2013 18:53:18

Fig. 91 Peak Excursions (802.11n-HT40, ch46, average)

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