



**FCC PART 15
TEST REPORT
No. 2013WLN0820**

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone

mobile phone

Model name: HERO

Marketing Name: ONE TOUCH 8020A

With

FCC ID: RAD398

Hardware Version: PIO

Software Version: vBAM

Issued Date: 2014-01-20



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.

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1. TEST LATORATORY

1.1. Testing Location

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1.2. Project data

Testing Start Date: 2013-12-15
Testing End Date: 2014-01-20

1.3. Signature



Xu Zhongfei

(Prepared this test report)



Jiang Afang

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory

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2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

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3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone
Model name	HERO
Marketing name	ONE TOUCH 8020A
FCC ID	RAD398
WLAN Frequency Range	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
MAX Conducted Power	10.73dBm(OFDM) (average)
GPRS Class	Class 12
GPRS operation mode	Class B
Normal Voltage	3.8V

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	013802001000144	PIO	vBAM
EUT2	013802001012107	PIO	vBAM

*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	CAC3380001C2	/

*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 HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone with integrated antenna. It consists of normal options: Battery and Charger.

It has functions of Camera/MP3/Bluetooth and GPS.

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

Samples undergoing test were selected by the Client.

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
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 Fully-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.

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	3.8V (By battery)
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

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

Radiated emission test system

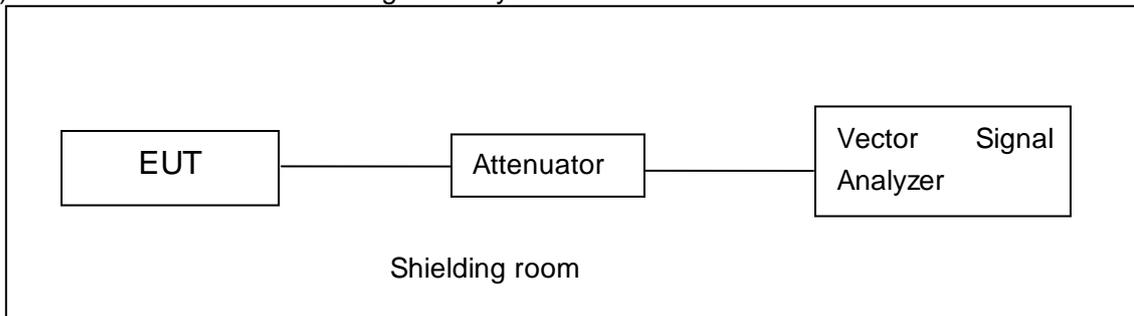
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2014-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2014-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2014-06-30
5	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

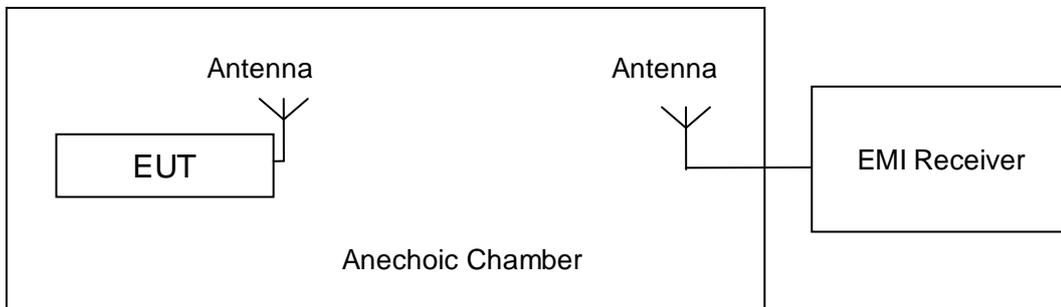


A.1.2. Radiated Emission Measurements

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 output Power

Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	17dBm or 4+10logB
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

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

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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A.2.1. Output Power Verification

This test is only for mode verification, and the selected mode will be used for the future measurement.

Measurement Results:

OFDM/a mode	Maximum Conducted Power (dBm)							
data rate (Mbps)	6	9	12	18	24	36	48	54
36 (5180 MHz)	10.73	10.72	10.66	10.70	10.62	10.57	10.61	10.58

OFDM/n-HT20 mode	Maximum Conducted Power (dBm)							
data rate (Mbps)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
36 (5180 MHz)	9.58	9.56	9.57	9.56	9.55	9.54	9.55	9.52

OFDM/n-HT40 mode	Maximum Conducted Power (dBm)							
data rate (Index)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
38 (5190 MHz)	9.90	9.92	9.86	9.84	9.86	9.81	9.85	9.81

Selected data rate for all measurement:

OFDM /a-mode: 6Mbps

OFDM /n-HT20 mode: MCS0

OFDM /n-HT40 mode: MCS1

A.2.2. Maximum Average Output Power-conducted

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 is made according to KDB 789033

802.11a mode

Mode	Test Result (dBm)		
	5180MHz (Ch36)	5200MHz (Ch40)	5240MHz(Ch48)
802.11a	10.64	10.77	11.90

Mode	Test Result (dBm)		
	5260MHz (Ch52)	5280MHz (Ch56)	5320MHz(Ch64)
802.11a	10.55	11.57	10.66

Mode	Test Result (dBm)		
	5500MHz (Ch100)	5580MHz (Ch116)	5700MHz(Ch140)
802.11a	10.59	10.67	11.19

802.11n-HT20 mode

Mode	Test Result (dBm)		
	5180MHz (Ch36)	5200MHz (Ch40)	5240MHz(Ch48)
802.11n (20MHz)	9.79	9.91	10.94

Mode	Test Result (dBm)		
	5260MHz (Ch52)	5280MHz (Ch56)	5320MHz(Ch64)
802.11n (20MHz)	8.81	9.18	8.67

Mode	Test Result (dBm)		
	5500MHz (Ch100)	5580MHz (Ch116)	5700MHz(Ch140)
802.11n (20MHz)	8.08	9.05	9.96

802.11n-HT40 mode

Mode	Test Result (dBm)			
	5190MHz (Ch38)	5230MHz(Ch46)	5270MHz(Ch54)	5310MHz(Ch63)
802.11n (40MHz)	10.12	10.98	9.34	9.08

Mode	Test Result (dBm)		
	5510MHz(Ch102)	5580MHz(Ch118)	5670MHz(Ch134)
802.11n (40MHz)	10.22	10.36	10.08

Conclusion: PASS

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	-0.1	P
	5200 MHz	0.34	P
	5240 MHz	1.79	P
	5260 MHz	0.08	P
	5280 MHz	0.95	P
	5320 MHz	0.26	P
	5500 MHz	-0.16	P
	5580 MHz	0.52	P
802.11n HT20	5180 MHz	-0.83	P
	5200 MHz	-0.85	P
	5240 MHz	0.34	P
	5260 MHz	-1.98	P
	5280 MHz	-1.39	P
	5320 MHz	-2.05	P
	5500 MHz	-2.89	P
	5580 MHz	-0.59	P
802.11n HT40	5190 MHz	-3.48	P
	5230 MHz	-2.43	P
	5270 MHz	-4.05	P
	5310 MHz	-4.65	P
	5510 MHz	-5.02	P
	5590 MHz	-3.50	P
	5670 MHz	-3.78	P

Conclusion: PASS

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:

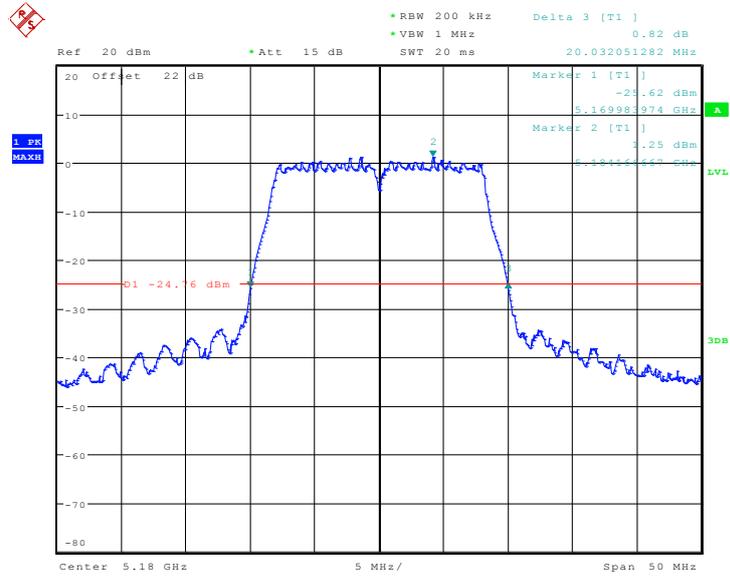
Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth (kHz)		conclusion
802.11a	5180 MHz	Fig.1	20032.05	P
	5200 MHz	Fig.2	20192.31	P
	5240 MHz	Fig.3	20032.05	P
	5260 MHz	Fig.4	20272.44	P
	5280 MHz	Fig.5	20112.18	P
	5320 MHz	Fig.6	20192.31	P
	5500 MHz	Fig.7	20032.05	P
	5580 MHz	Fig.8	20272.44	P
	5700 MHz	Fig.9	20032.05	P
802.11n HT20	5180 MHz	Fig.10	20272.44	P
	5200 MHz	Fig.11	20192.31	P
	5240 MHz	Fig.12	20272.44	P
	5260 MHz	Fig.13	20352.56	P
	5280 MHz	Fig.14	20272.44	P
	5320 MHz	Fig.15	20272.44	P
	5500 MHz	Fig.16	20192.31	P
	5580 MHz	Fig.17	20272.44	P
	5700 MHz	Fig.18	20272.44	P
802.11n HT40	5190 MHz	Fig.19	40512.82	P
	5230 MHz	Fig.20	40897.44	P
	5270 MHz	Fig.21	40897.44	P
	5310 MHz	Fig.22	40641.03	P
	5510 MHz	Fig.23	40641.03	P
	5590 MHz	Fig.24	40641.03	P
	5670 MHz	Fig.25	40769.23	P

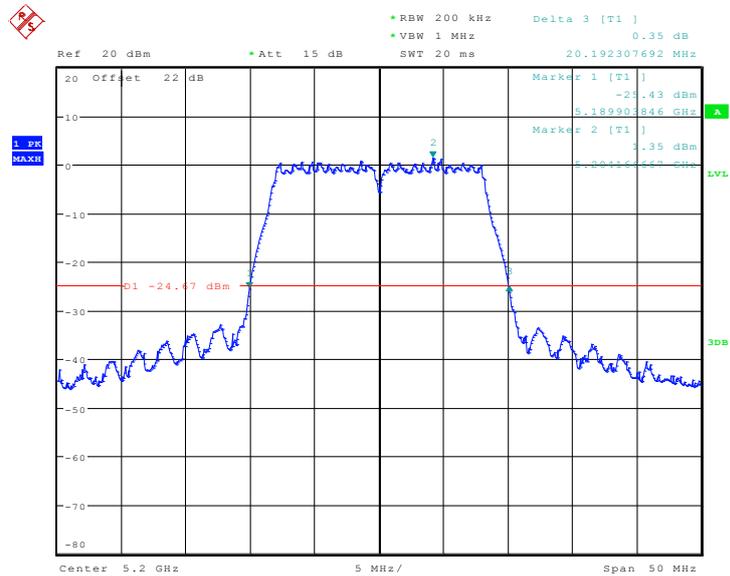
Conclusion: PASS

Test graphs as below:



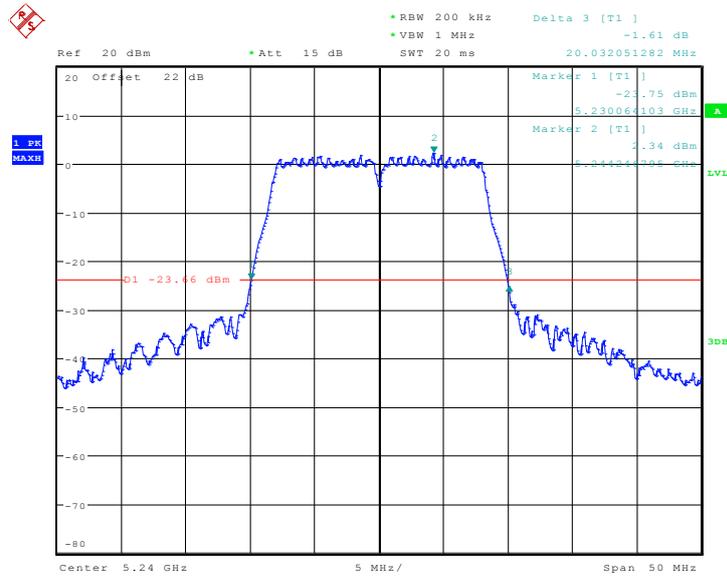
Date: 25.DEC.2013 13:42:24

Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)



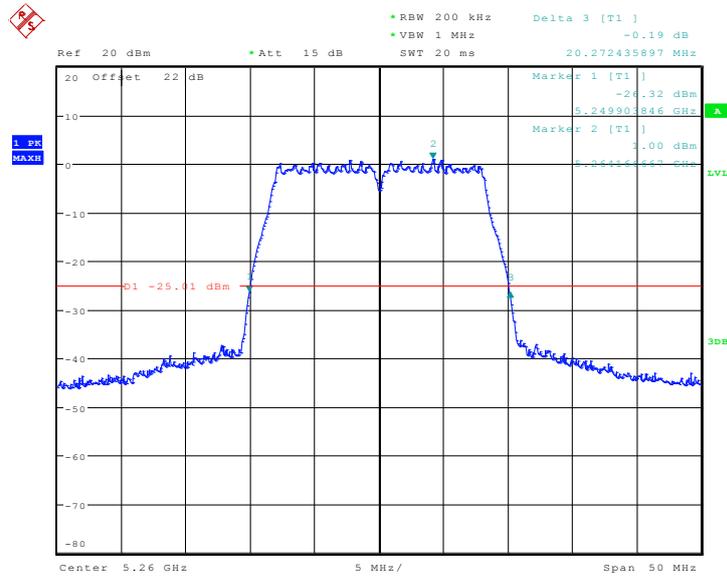
Date: 25.DEC.2013 13:43:32

Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)



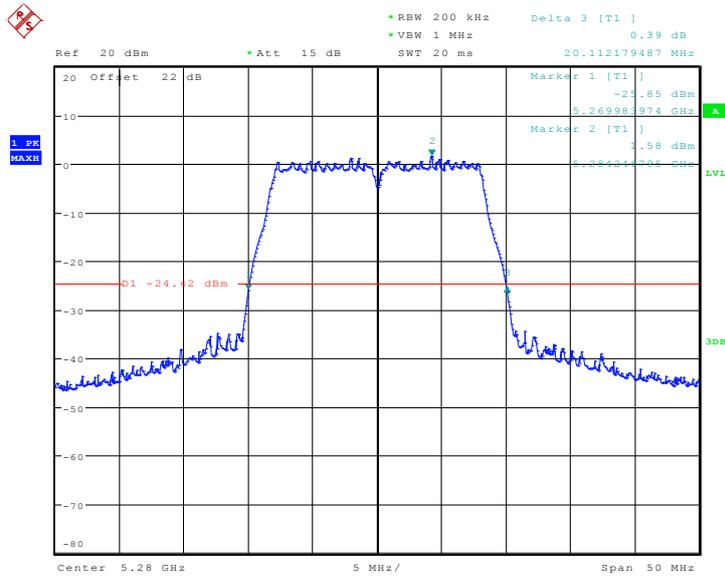
Date: 25.DEC.2013 13:44:38

Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)



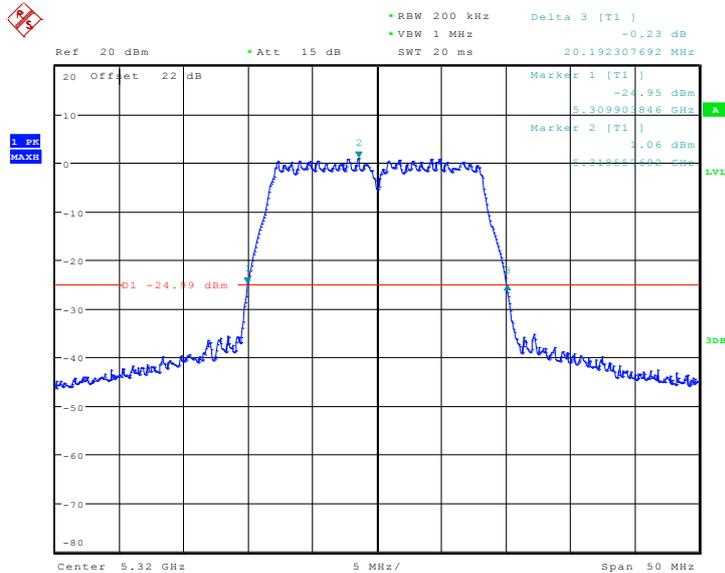
Date: 25.DEC.2013 13:46:07

Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)



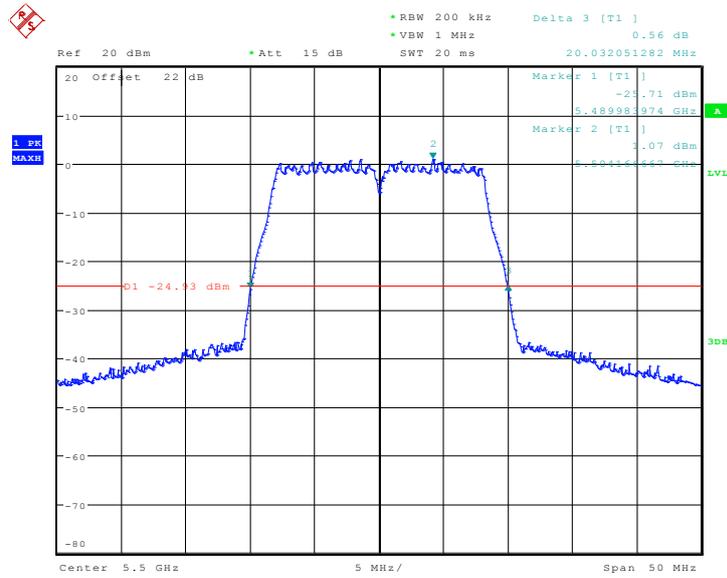
Date: 25.DEC.2013 13:47:02

Fig. 5 Occupied 26dB Bandwidth (802.11a, 5280MHz)



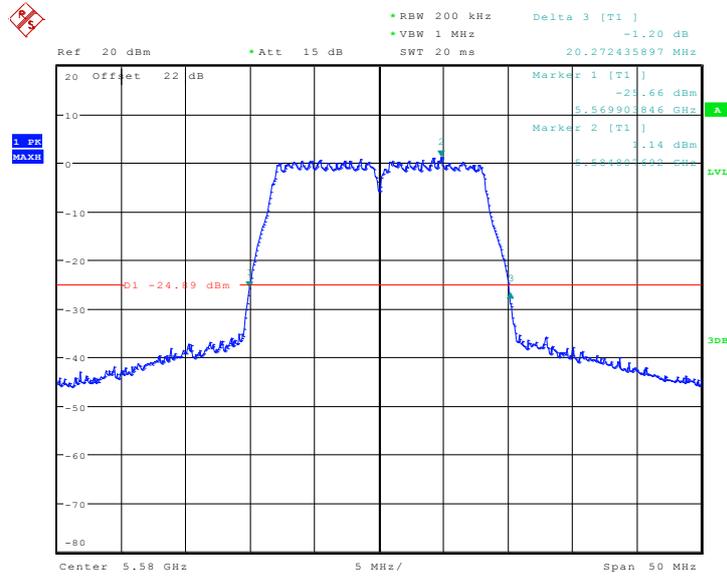
Date: 25.DEC.2013 13:48:09

Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)



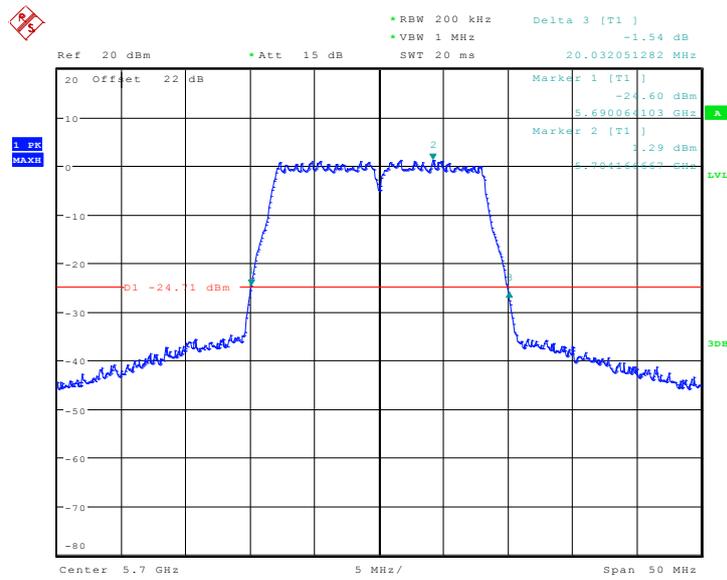
Date: 25.DEC.2013 13:49:53

Fig. 7 Occupied 26dB Bandwidth (802.11a, 5500MHz)



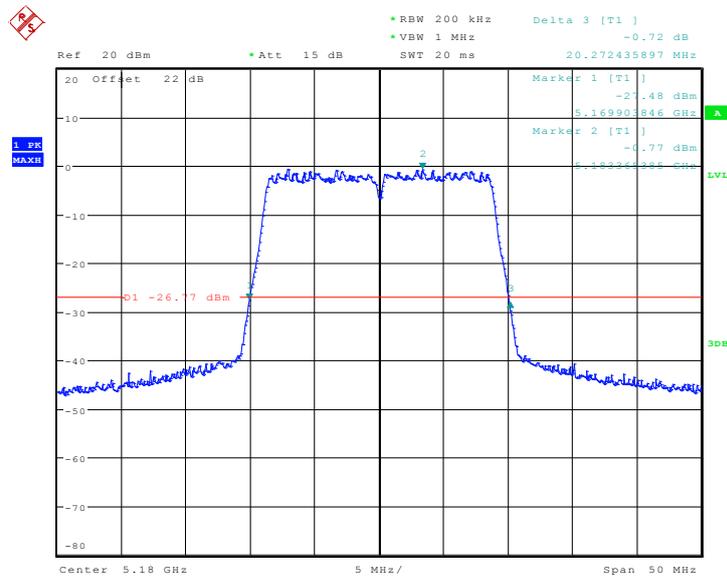
Date: 25.DEC.2013 13:51:01

Fig. 8 Occupied 26dB Bandwidth (802.11a, 5580MHz)



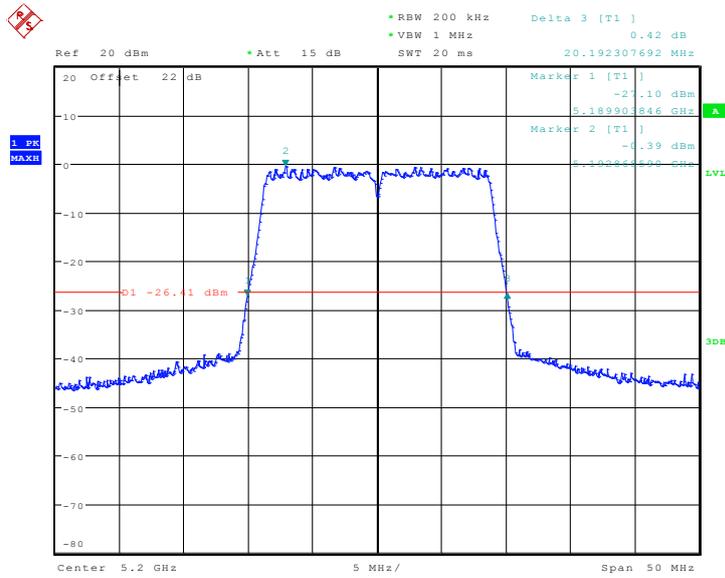
Date: 25.DEC.2013 13:52:34

Fig. 9 Occupied 26dB Bandwidth (802.11a, 5700MHz)



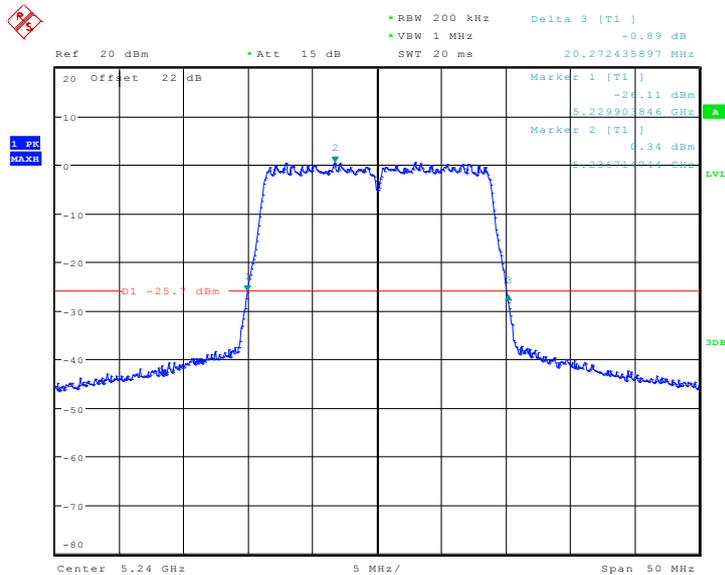
Date: 25.DEC.2013 13:56:10

Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)



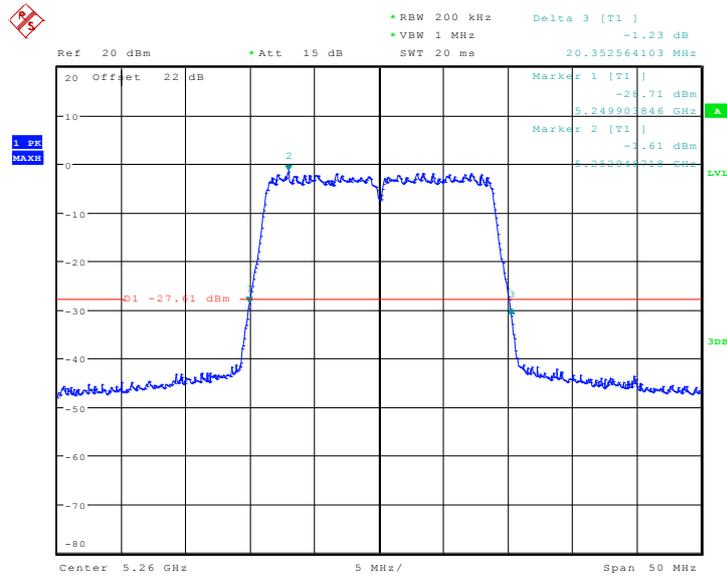
Date: 25.DEC.2013 13:57:36

Fig. 11 Occupied 26dB Bandwidth (802.11 n-HT20, 5200MHz)



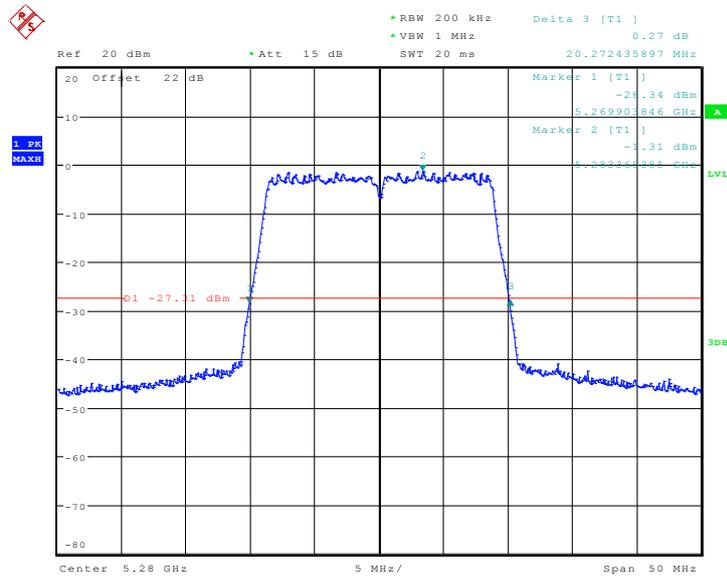
Date: 25.DEC.2013 14:03:39

Fig. 12 Occupied 26dB Bandwidth (802.11 n-HT20, 5240MHz)



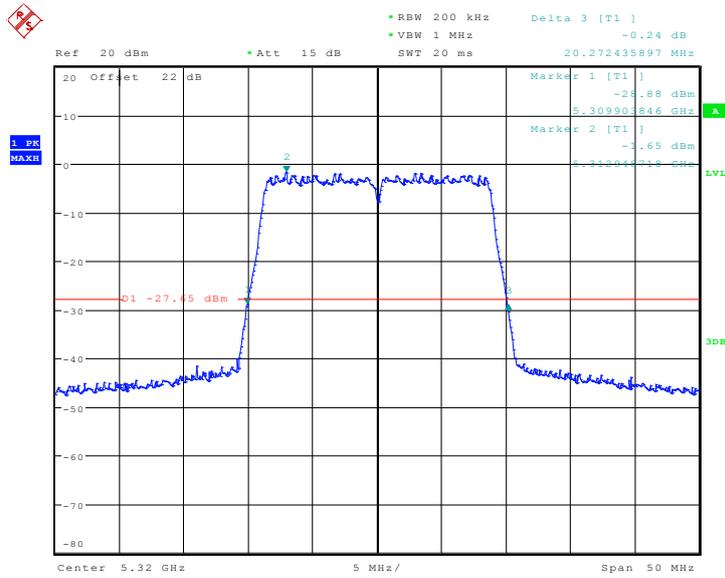
Date: 25.DEC.2013 14:05:57

Fig. 13 Occupied 26dB Bandwidth (802.11 n-HT20, 5260MHz)



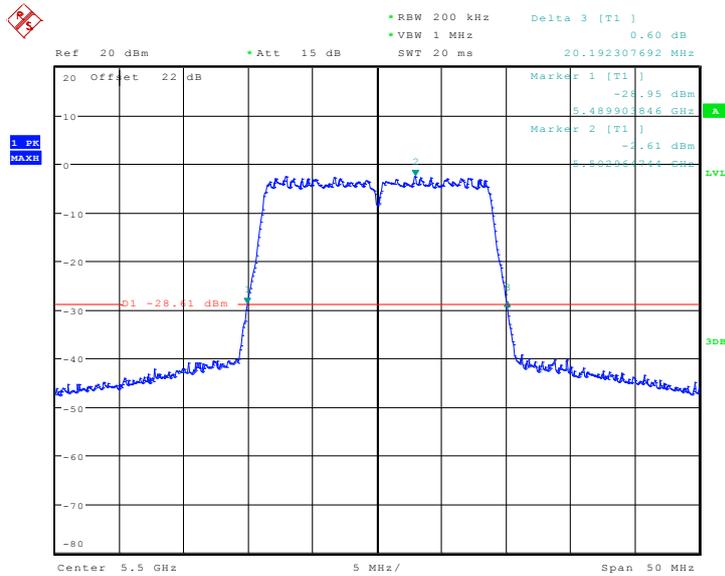
Date: 25.DEC.2013 14:08:02

Fig. 14 Occupied 26dB Bandwidth (802.11 n-HT20, 5280MHz)



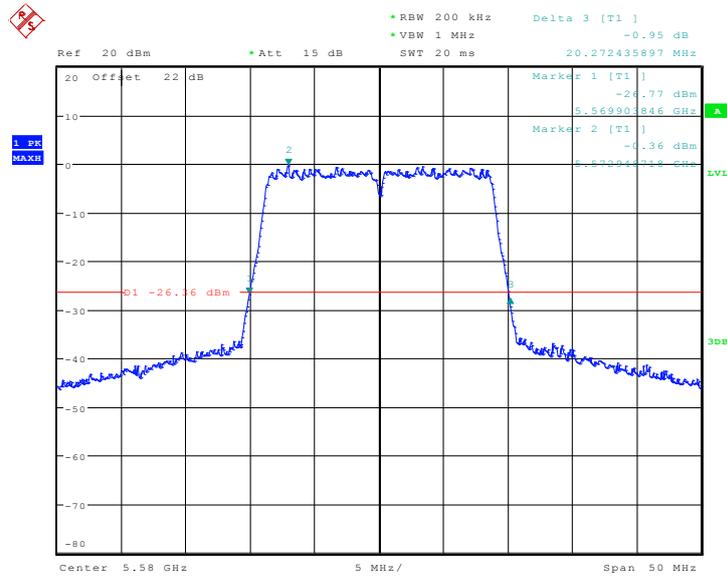
Date: 25.DEC.2013 14:09:16

Fig. 15 Occupied 26dB Bandwidth (802.11 n-HT20, 5320MHz)



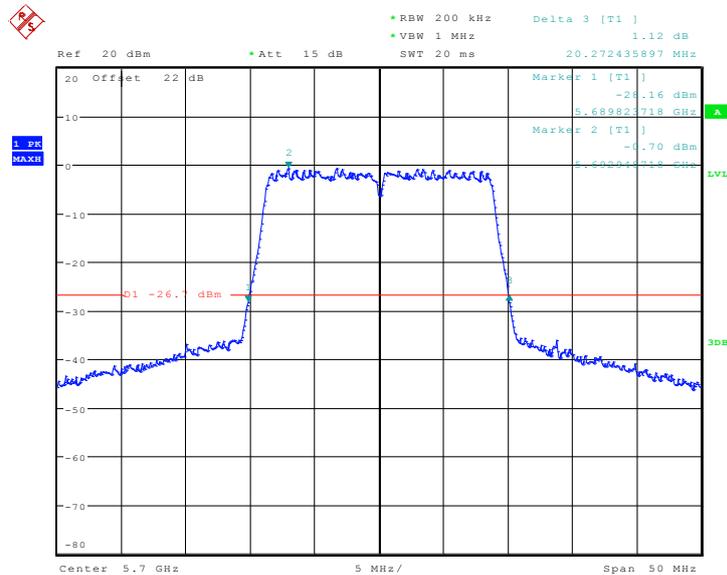
Date: 25.DEC.2013 14:11:00

Fig. 16 Occupied 26dB Bandwidth (802.11 n-HT20, 5500MHz)



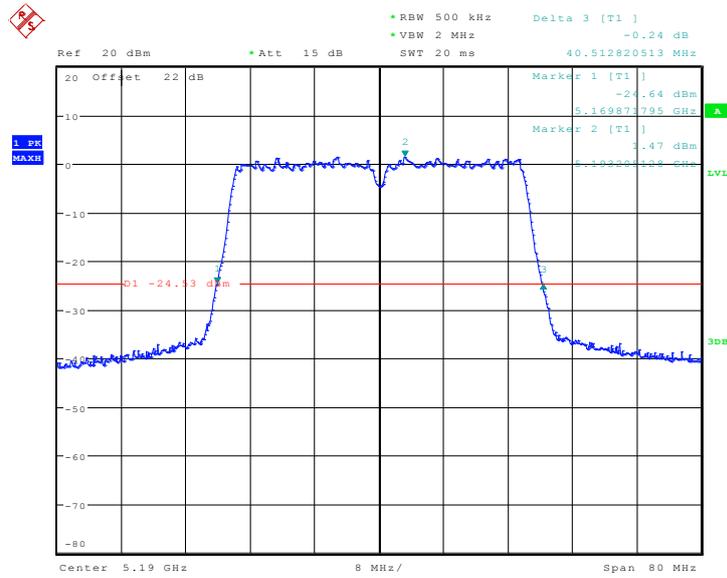
Date: 25.DEC.2013 14:12:24

Fig. 17 Occupied 26dB Bandwidth (802.11 n-HT20, 5580MHz)



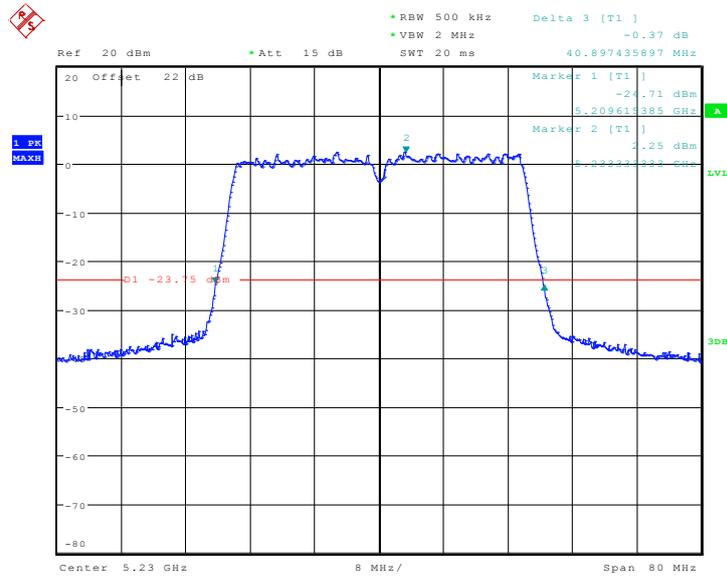
Date: 25.DEC.2013 14:13:49

Fig. 18 Occupied 26dB Bandwidth (802.11 n-HT20, 5700MHz)



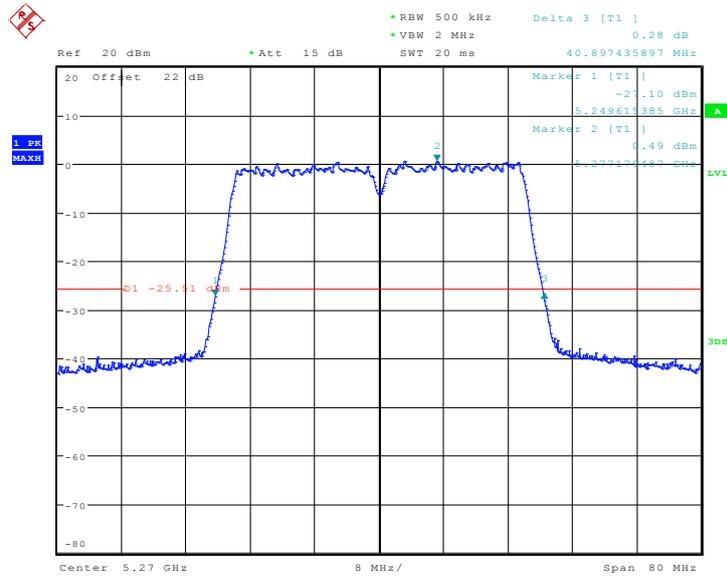
Date: 25.DEC.2013 14:17:01

Fig. 19 Occupied 26dB Bandwidth (802.11 n-HT40, 5190MHz)



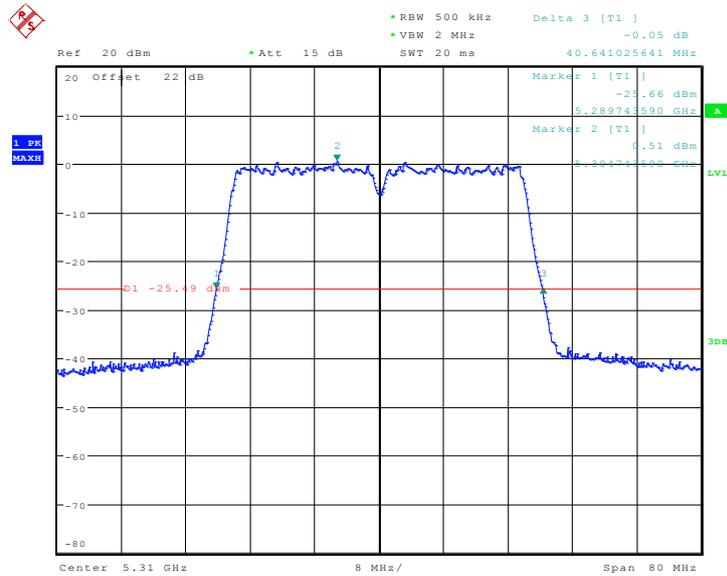
Date: 25.DEC.2013 14:18:23

Fig. 20 Occupied 26dB Bandwidth (802.11 n- HT40, 5230MHz)



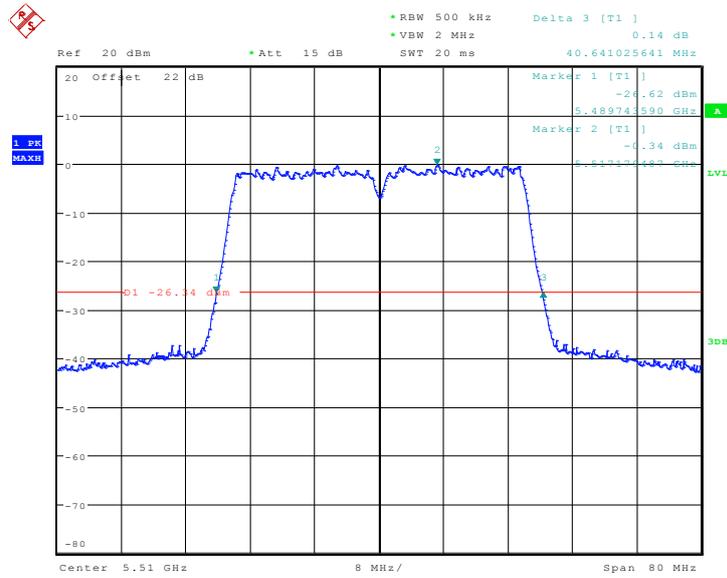
Date: 25.DEC.2013 14:24:57

Fig. 21 Occupied 26dB Bandwidth (802.11 n- HT40, 5270MHz)



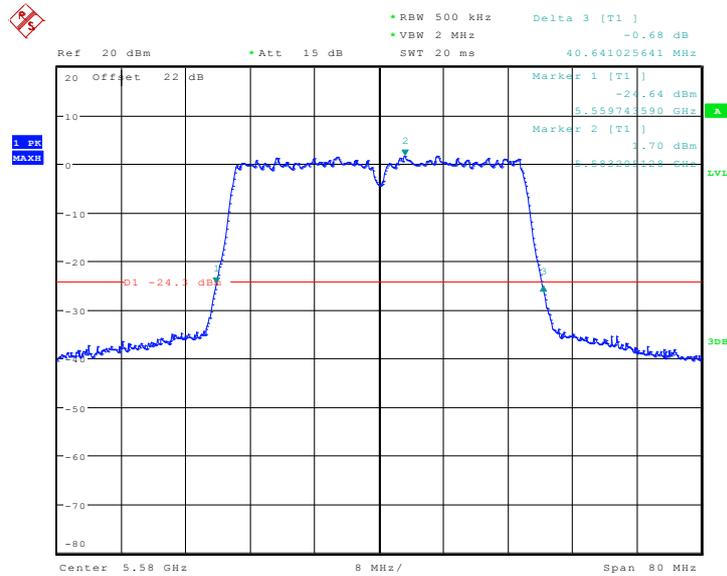
Date: 25.DEC.2013 14:26:12

Fig. 22 Occupied 26dB Bandwidth (802.11 n- HT40, 5310MHz)



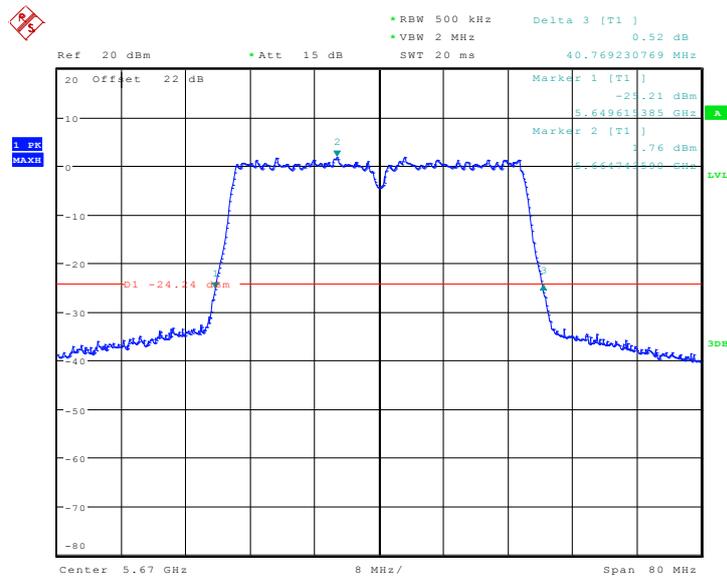
Date: 25.DEC.2013 14:27:22

Fig. 23 Occupied 26dB Bandwidth (802.11 n- HT40, 5510MHz)



Date: 25.DEC.2013 14:29:07

Fig. 24 Occupied 26dB Bandwidth (802.11 n- HT40, 5590MHz)



Date: 25.DEC.2013 14:30:46

Fig. 25 Occupied 26dB Bandwidth (802.11 n- HT40, 5670MHz)

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:

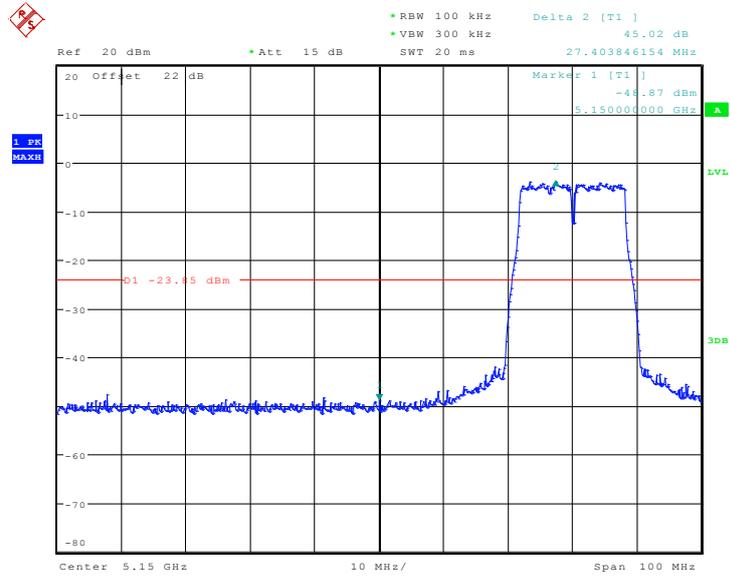
Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.26	P
	5320 MHz	Fig.27	P
	5500 MHz	Fig.28	P
802.11n HT20	5180 MHz	Fig.29	P
	5320 MHz	Fig.30	P
	5500 MHz	Fig.31	P
802.11n HT40	5190 MHz	Fig.32	P
	5310 MHz	Fig.33	P
	5510 MHz	Fig.34	P

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.

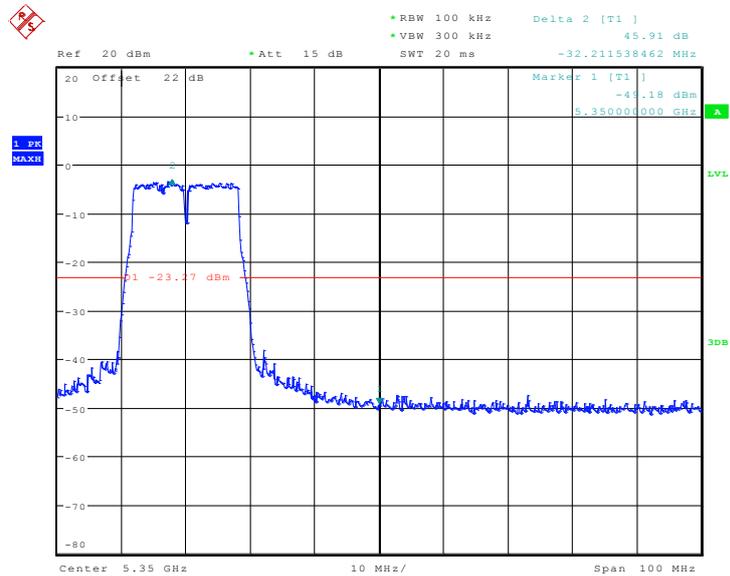
Conclusion: PASS

Test graphs as below:



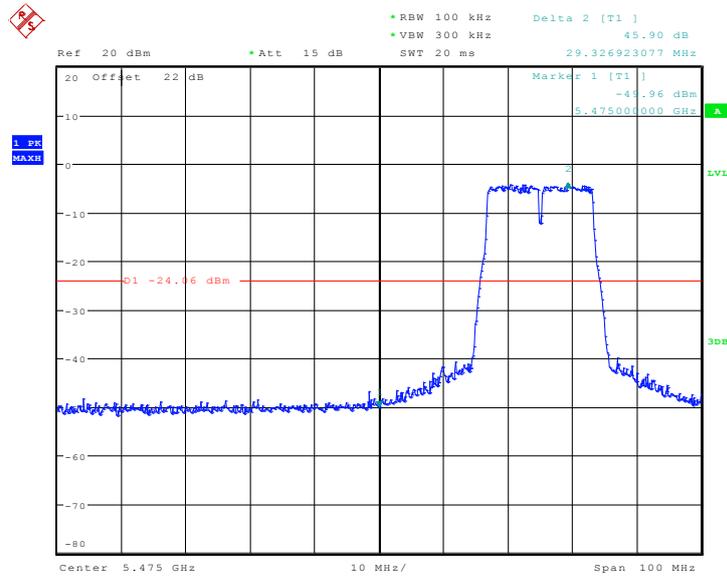
Date: 25.DEC.2013 14:37:11

Fig. 26 Band Edges (802.11a, 5180MHz)



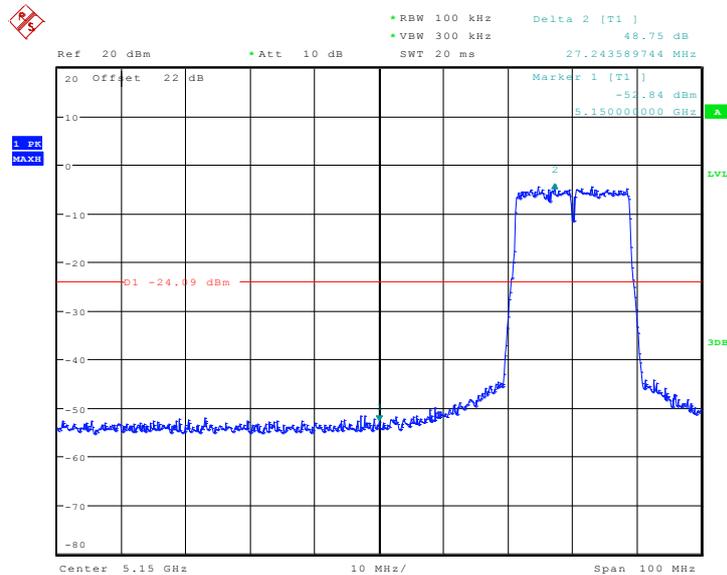
Date: 25.DEC.2013 14:38:47

Fig. 27 Band Edges (802.11a, 5320MHz)



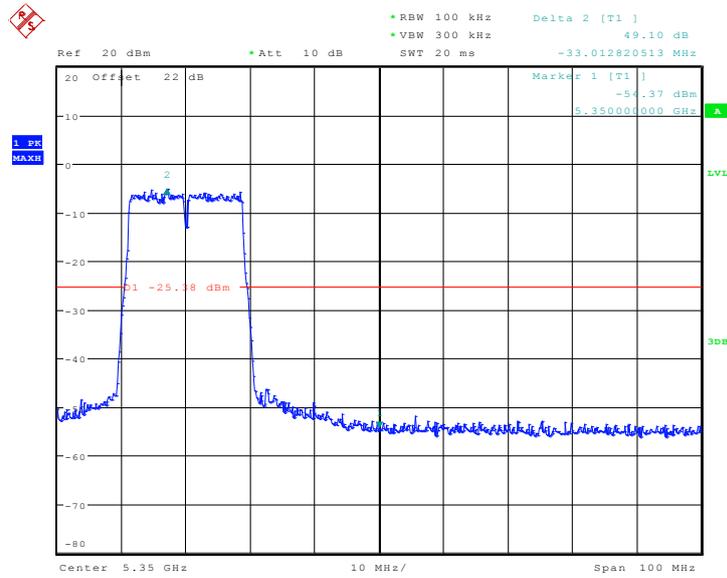
Date: 25.DEC.2013 14:39:39

Fig. 28 Band Edges (802.11a, 5500MHz)



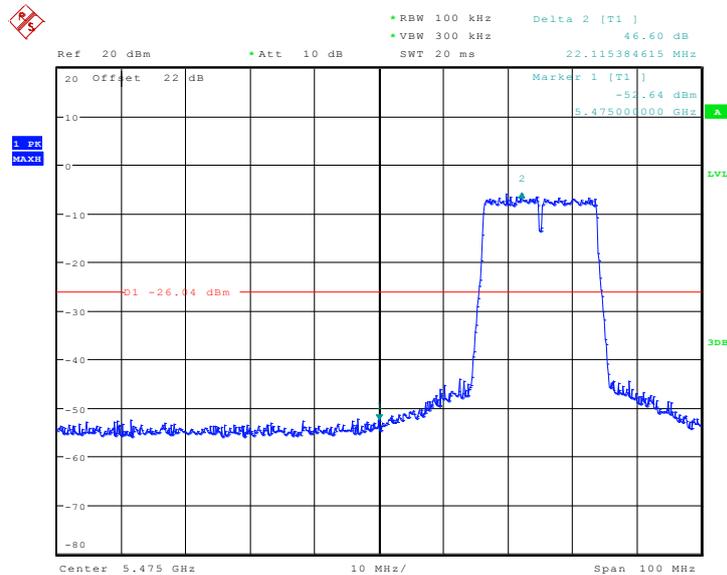
Date: 25.DEC.2013 14:41:27

Fig. 29 Band Edges (802.11n-HT20, 5180MHz)



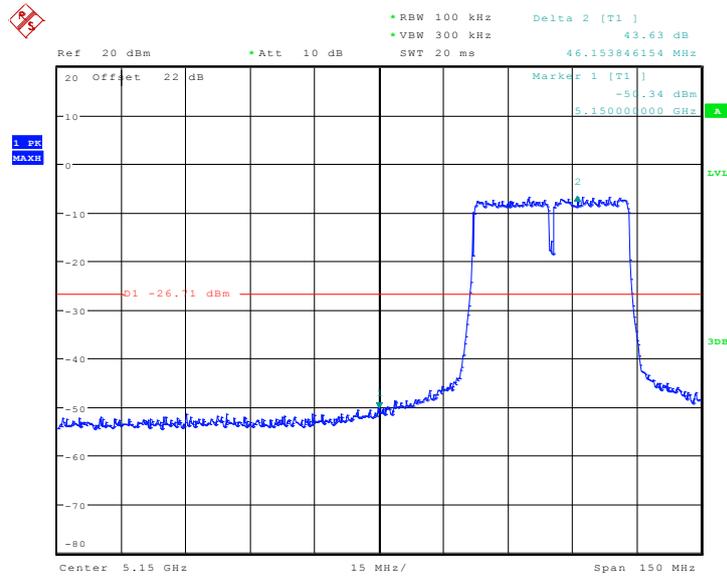
Date: 25.DEC.2013 14:42:09

Fig. 30 Band Edges (802.11n-HT20, 5320MHz)



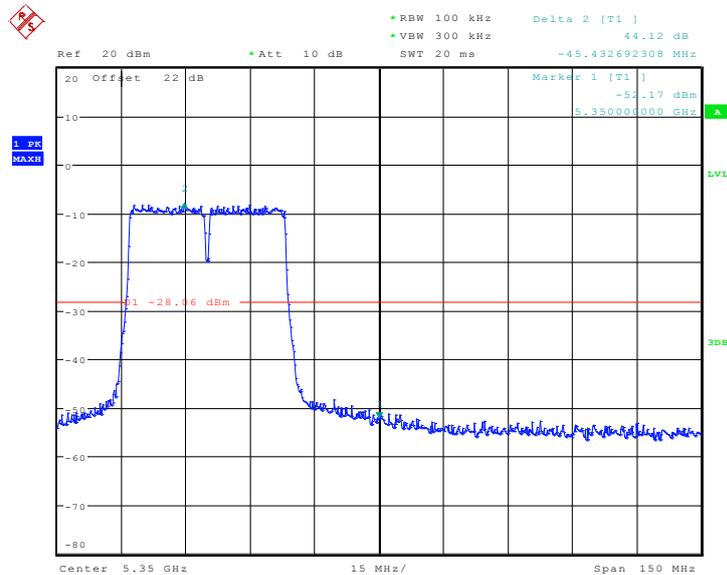
Date: 25.DEC.2013 14:42:52

Fig. 31 Band Edges (802.11n-HT20, 5500MHz)



Date: 25.DEC.2013 14:45:05

Fig. 32 Band Edges (802.11n-HT40, 5190MHz)



Date: 25.DEC.2013 14:45:49

Fig. 33 Band Edges (802.11n-HT40, 5310MHz)

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-Cable charging:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.35	P
802.11n-HT20	5180 MHz	Fig.36	P
802.11n-HT40	5190 MHz	Fig.37	P

Measurement Result-Wireless charging:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.38	P
802.11n-HT20	5180 MHz	Fig.39	P
802.11n-HT40	5190 MHz	Fig.40	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:

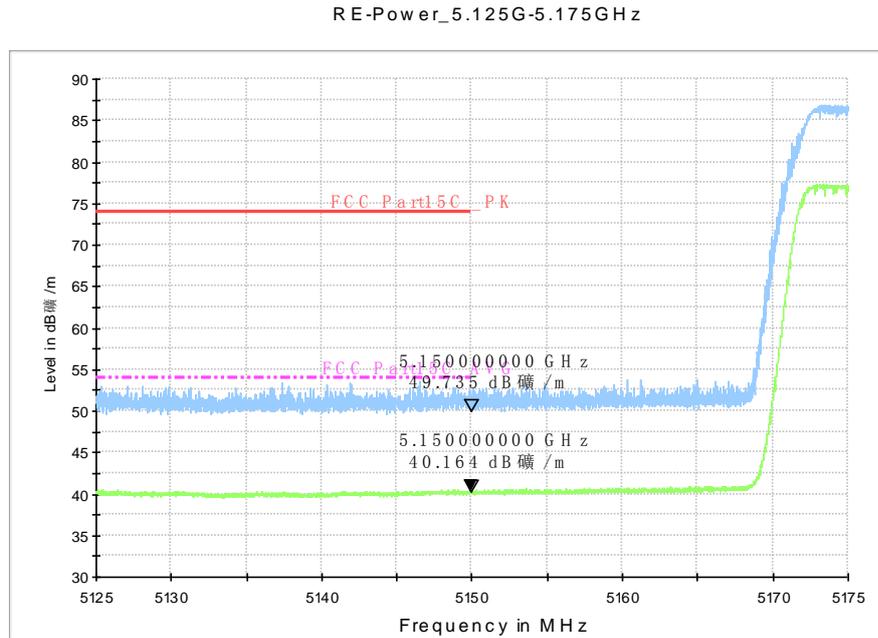


Fig. 35 Band Edges (802.11a, 5180MHz)

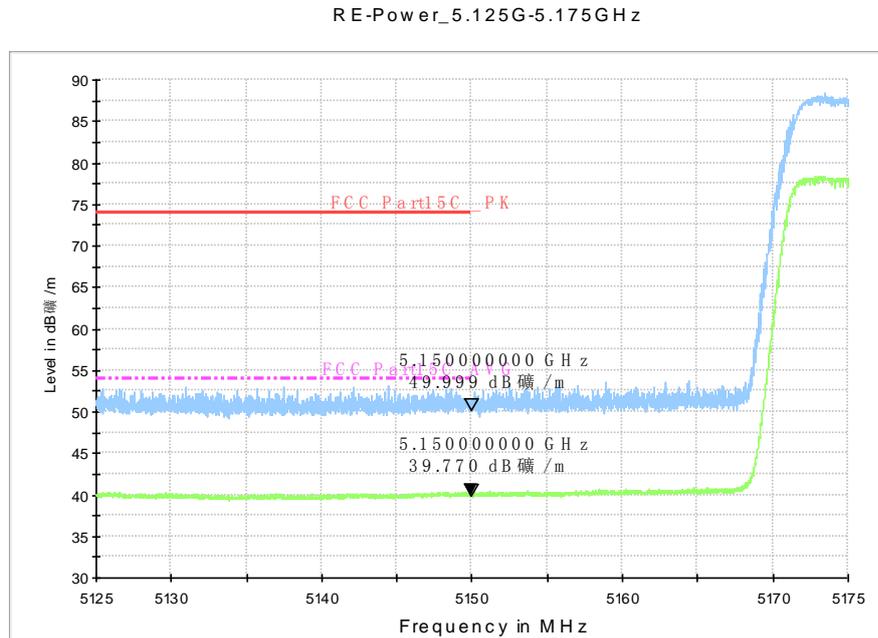


Fig. 36 Band Edges (802.11n-HT20, 5180MHz)

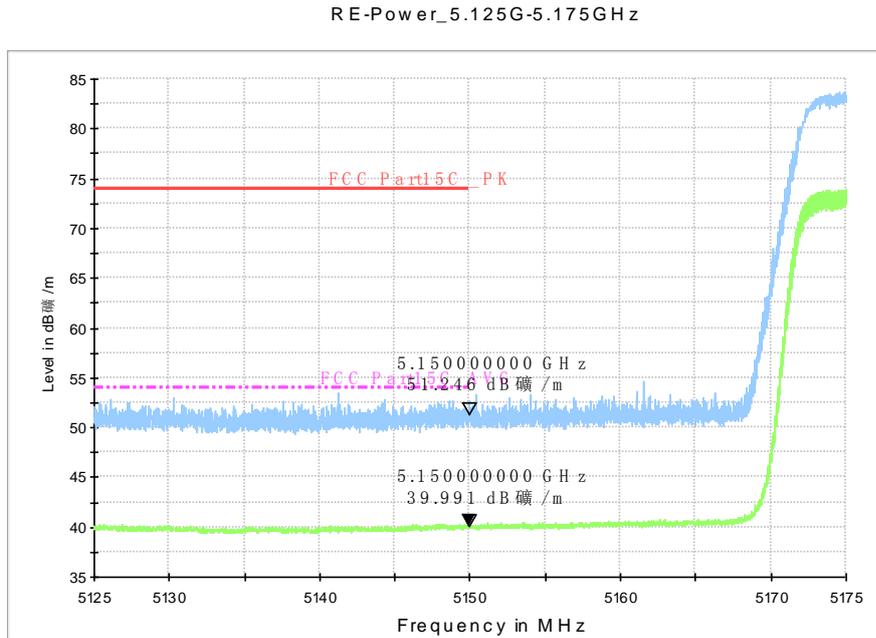


Fig. 37 Band Edges (802.11n-HT40, 5190MHz)

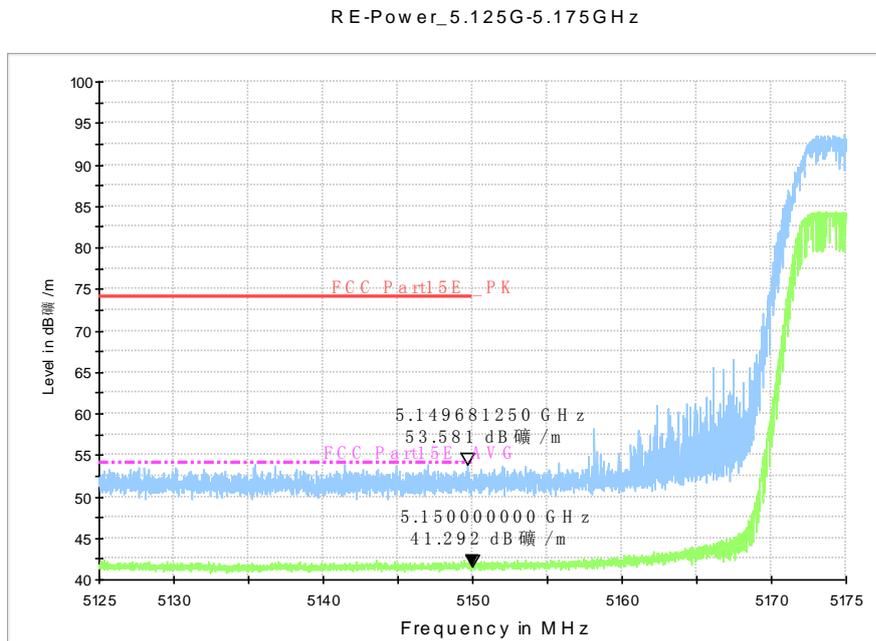


Fig. 38 Band Edges (802.11a, 5180MHz)

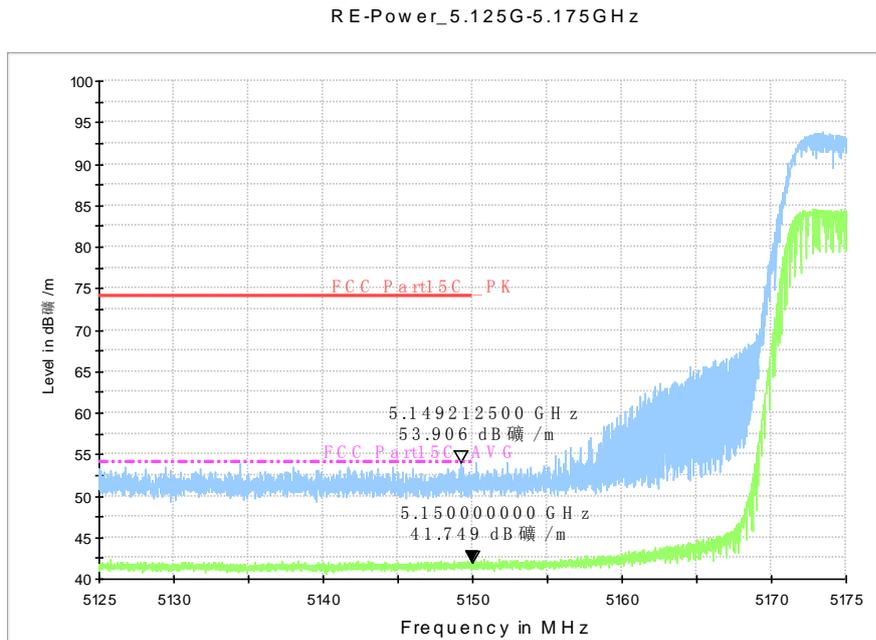


Fig. 39 Band Edges (802.11n-HT20, 5180MHz)

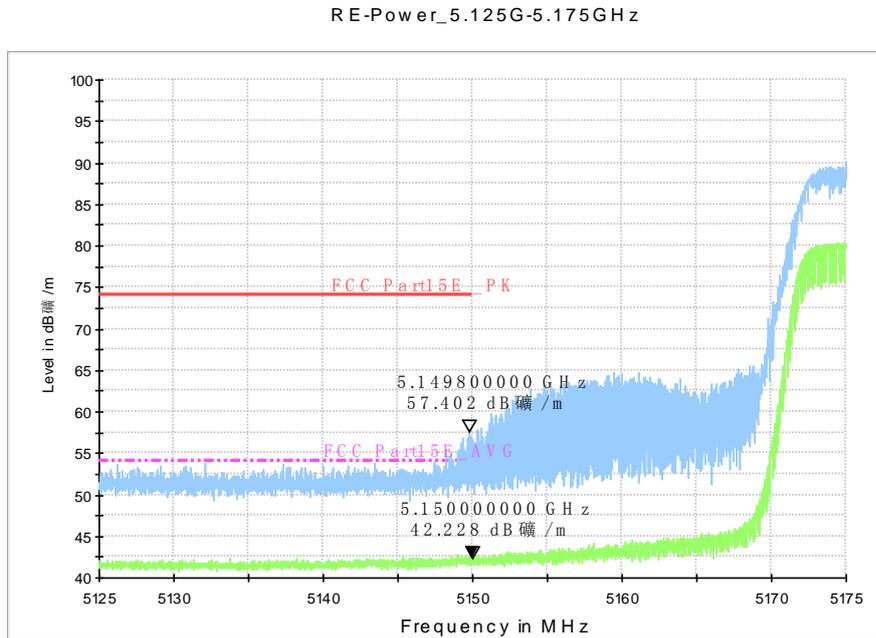


Fig. 40 Band Edges (802.11n-HT40, 5190MHz)

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

Note: for frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m

Measurement uncertainty:

Expanded measurement uncertainty for this test item is U =3.9 dB, k=2.

Measurement Results-Cable charging:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.41	P
		1 GHz ~ 6 GHz	Fig.42	P
		6 GHz ~ 18 GHz	Fig.43	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.44	P
		1 GHz ~ 6 GHz	Fig.45	P
		6 GHz ~ 18 GHz	Fig.46	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.47	P
		1 GHz ~ 6 GHz	Fig.48	P
		6 GHz ~ 18 GHz	Fig.49	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.50	P
		26.5 GHz ~ 40 GHz	Fig.51	P
	52(5260MHz)	30 MHz ~1 GHz	Fig.52	P
		1 GHz ~ 6 GHz	Fig.53	P
		6 GHz ~ 18 GHz	Fig.54	P
	56(5280MHz)	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 6 GHz	Fig.56	P
		6 GHz ~ 18 GHz	Fig.57	P
	64(5320MHz)	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 6 GHz	Fig.59	P
		6 GHz ~ 18 GHz	Fig.60	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.61	P
26.5 GHz ~ 40 GHz		Fig.62	P	

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	100(5500MHz)	30 MHz ~1 GHz	Fig.63	P
		1 GHz ~ 6 GHz	Fig.64	P
		6 GHz ~ 18 GHz	Fig.65	P
	140(5700MHz)	30 MHz ~1 GHz	Fig.66	P
		1 GHz ~ 6 GHz	Fig.67	P
		6 GHz ~ 18 GHz	Fig.68	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.69	P
		26.5 GHz ~ 40 GHz	Fig.70	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.71	P
		1 GHz ~ 6 GHz	Fig.72	P
		6 GHz ~ 18 GHz	Fig.73	P
	40(5200MHz)	30 MHz ~1 GHz	Fig.74	P
		1 GHz ~ 6 GHz	Fig.75	P
		6 GHz ~ 18 GHz	Fig.76	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.77	P
		1 GHz ~ 6 GHz	Fig.78	P
		6 GHz ~ 18 GHz	Fig.79	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.80	P
		26.5 GHz ~ 40 GHz	Fig.81	P
	52(5260MHz)	30 MHz ~1 GHz	Fig.82	P
		1 GHz ~ 6 GHz	Fig.83	P
		6 GHz ~ 18 GHz	Fig.84	P
	56(5280MHz)	30 MHz ~1 GHz	Fig.85	P
		1 GHz ~ 6 GHz	Fig.86	P
		6 GHz ~ 18 GHz	Fig.87	P
	64(5320MHz)	30 MHz ~1 GHz	Fig.88	P
		1 GHz ~ 6 GHz	Fig.89	P
		6 GHz ~ 18 GHz	Fig.90	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.91	P
26.5 GHz ~ 40 GHz		Fig.92	P	

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	100(5500MHz)	30 MHz ~1 GHz	Fig.93	P
		1 GHz ~ 6 GHz	Fig.94	P
		6 GHz ~ 18 GHz	Fig.95	P
	140(5700MHz)	30 MHz ~1 GHz	Fig.96	P
		1 GHz ~ 6 GHz	Fig.97	P
		6 GHz ~ 18 GHz	Fig.98	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.99	P
		26.5 GHz ~ 40 GHz	Fig.100	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	Fig.101	P
		1 GHz ~ 6 GHz	Fig.102	P
		6 GHz ~ 18 GHz	Fig.103	P
	46(5230MHz)	30 MHz ~1 GHz	Fig.104	P
		1 GHz ~ 6 GHz	Fig.105	P
		6 GHz ~ 18 GHz	Fig.106	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.107	P
		26.5 GHz ~ 40 GHz	Fig.108	P
	54(5270MHz)	30 MHz ~1 GHz	Fig.109	P
		1 GHz ~ 6 GHz	Fig.110	P
		6 GHz ~ 18 GHz	Fig.111	P
	62(5310MHz)	30 MHz ~1 GHz	Fig.112	P
		1 GHz ~ 6 GHz	Fig.113	P
		6 GHz ~ 18 GHz	Fig.114	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.115	P
		26.5 GHz ~ 40 GHz	Fig.116	P

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	102(5510MHz)	30 MHz ~1 GHz	Fig.117	P
		1 GHz ~ 6 GHz	Fig.118	P
		6 GHz ~ 18 GHz	Fig.119	P
	134(5670MHz)	30 MHz ~1 GHz	Fig.120	P
		1 GHz ~ 6 GHz	Fig.121	P
		6 GHz ~ 18 GHz	Fig.122	P
	All Channels	18 GHz ~ 26.5 GHz	Fig.123	P
		26.5 GHz ~ 40 GHz	Fig.124	P

Conclusion: PASS

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

$$\text{Result} = P_{Mea} + A_{Rpl} = P_{Mea} + \text{Cable Loss} + \text{Antenna Factor}$$

802.11a

The worse case is measured in channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17670.000	54.1	-18.9	45.6	27.400	VERTICAL
17487.600	53.0	-19.2	41.5	30.700	VERTICAL
17778.000	53.0	-18.5	45.6	25.900	VERTICAL
17852.400	52.1	-18.5	45.6	25.000	HORIZONTAL
17924.400	51.8	-17.7	45.6	23.900	HORIZONTAL
17668.800	51.7	-18.9	45.6	25.000	VERTICAL

802.11n-HT20

The worse case is measured in channel 48

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17960.400	52.2	-17.7	45.6	24.300	VERTICAL
17839.200	52.2	-18.5	45.6	25.100	VERTICAL
17728.800	52.1	-18.9	45.6	25.400	HORIZONTAL
17858.400	52.1	-18.5	45.6	25.000	VERTICAL
17758.800	51.9	-18.5	45.6	24.800	VERTICAL
17727.600	51.8	-18.9	45.6	25.100	HORIZONTAL

802.11n-HT40

The worse case is measured in channel 46

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17785.200	52.8	-18.5	45.6	25.700	HORIZONTAL
17764.800	52.2	-18.5	45.6	25.100	VERTICAL
17810.400	52.1	-18.5	45.6	25.000	VERTICAL
17901.600	51.9	-18.5	45.6	24.800	VERTICAL
17797.200	51.7	-18.5	45.6	24.600	VERTICAL
17497.200	51.6	-19.2	41.5	29.300	HORIZONTAL

Test graphs as below:

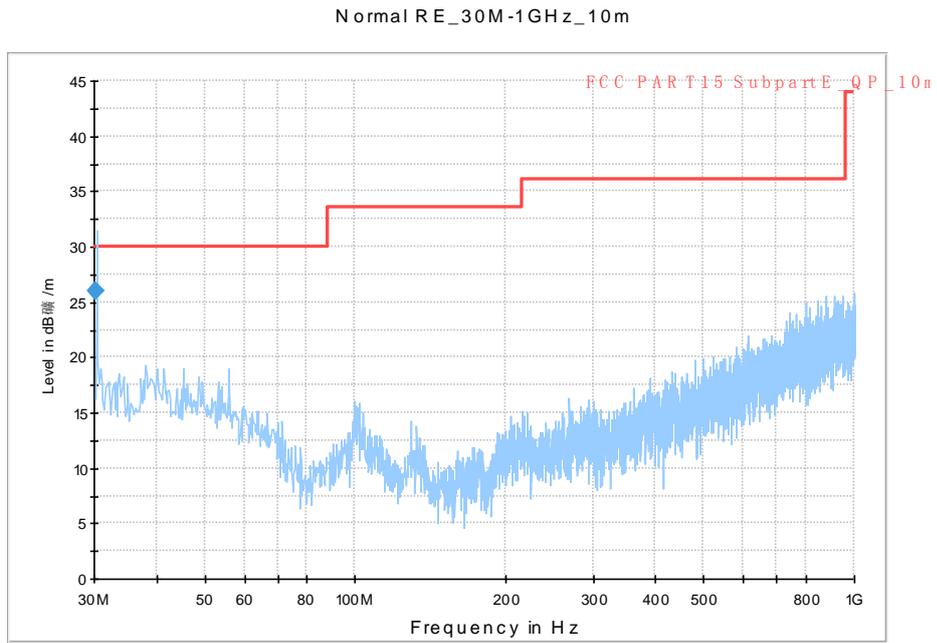


Fig. 41 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)

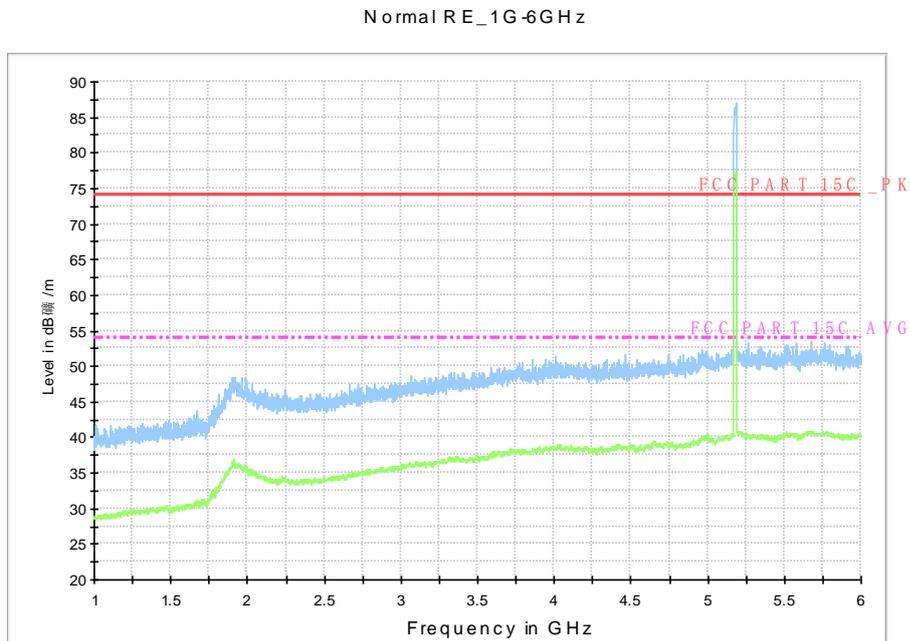


Fig. 42 Radiated Spurious Emission (802.11a, ch36, 1 GHz-6 GHz)

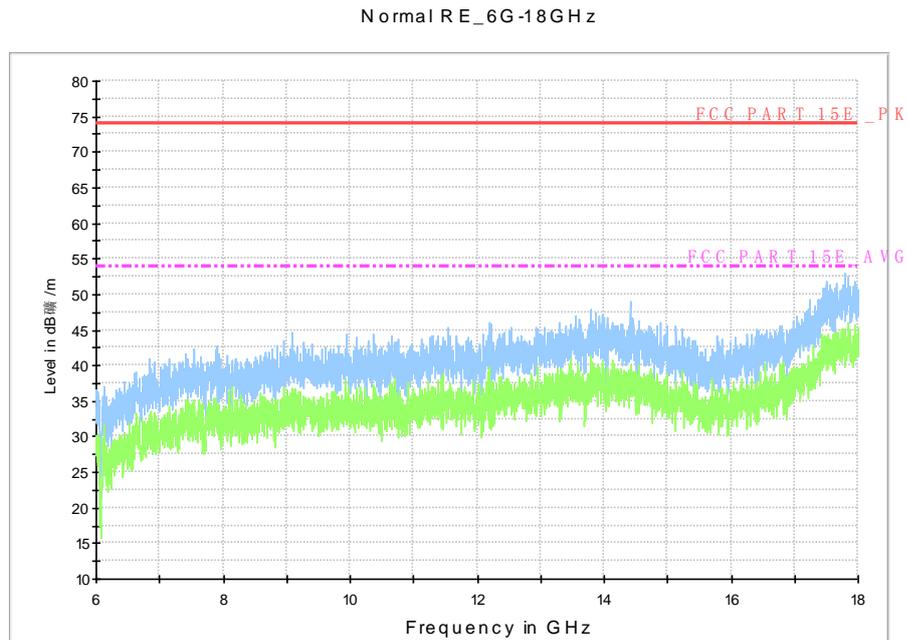


Fig. 43 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)

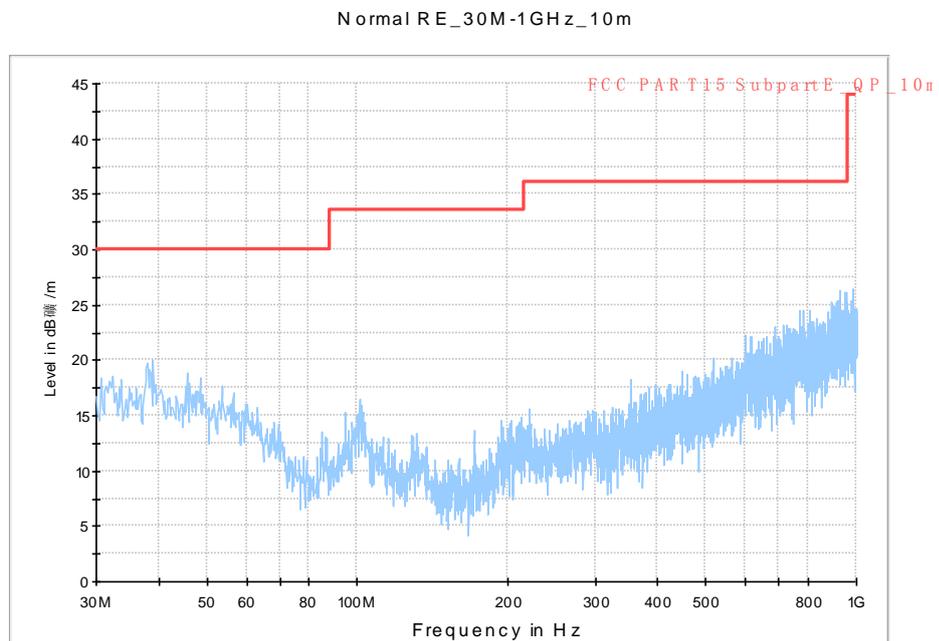


Fig. 44 Radiated Spurious Emission (802.11a, ch40, 30 MHz-1 GHz)

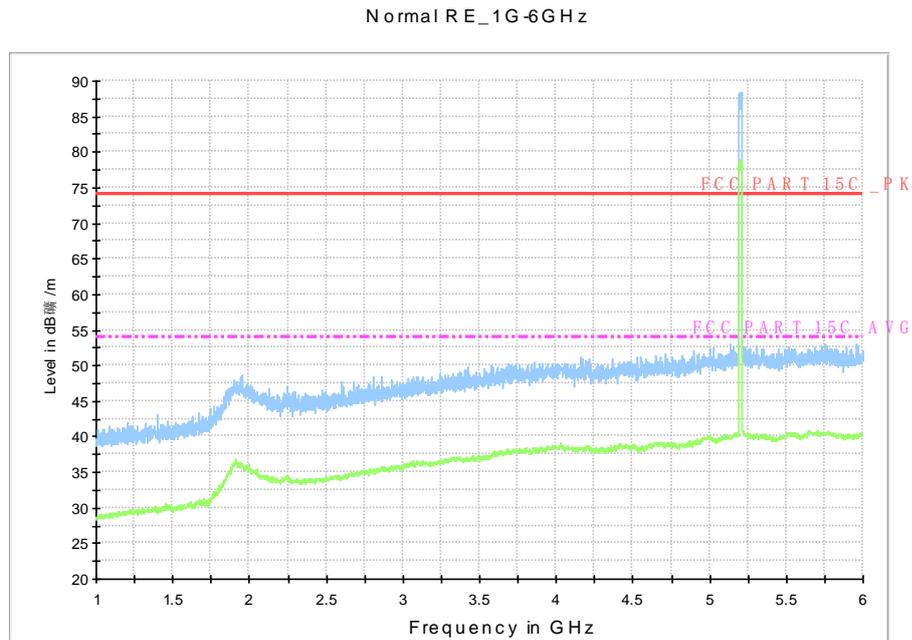


Fig. 45 Radiated Spurious Emission (802.11a, ch40, 1 GHz-6 GHz)

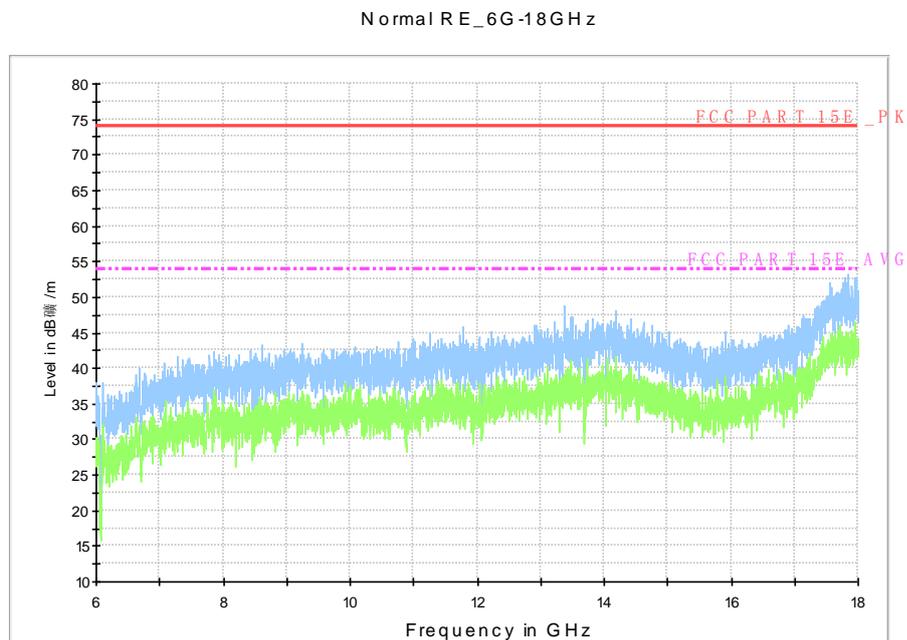


Fig. 46 Radiated Spurious Emission (802.11a, ch40, 6 GHz-18 GHz)

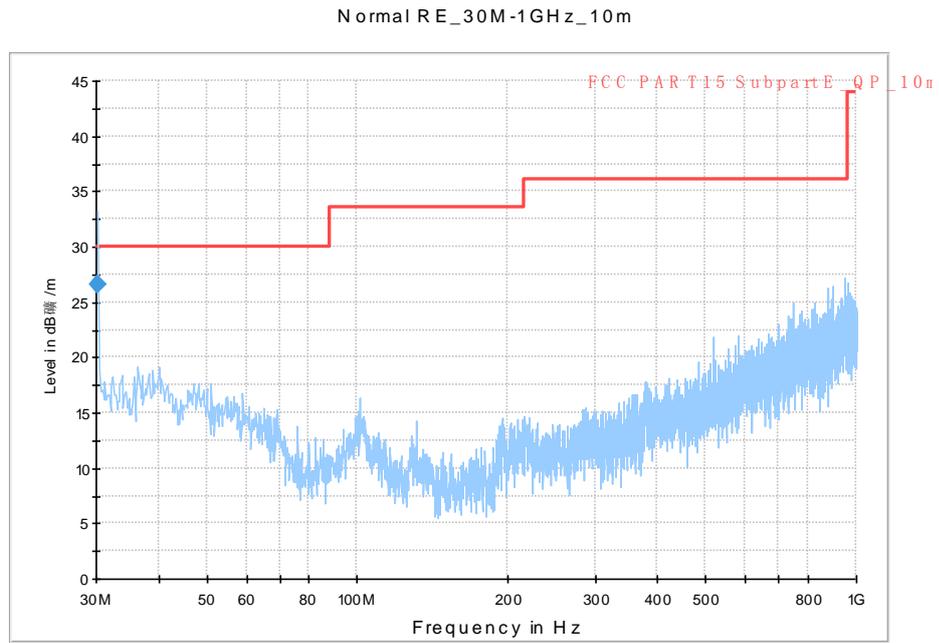


Fig. 47 Radiated Spurious Emission (802.11a, ch48, 30 MHz-1 GHz)

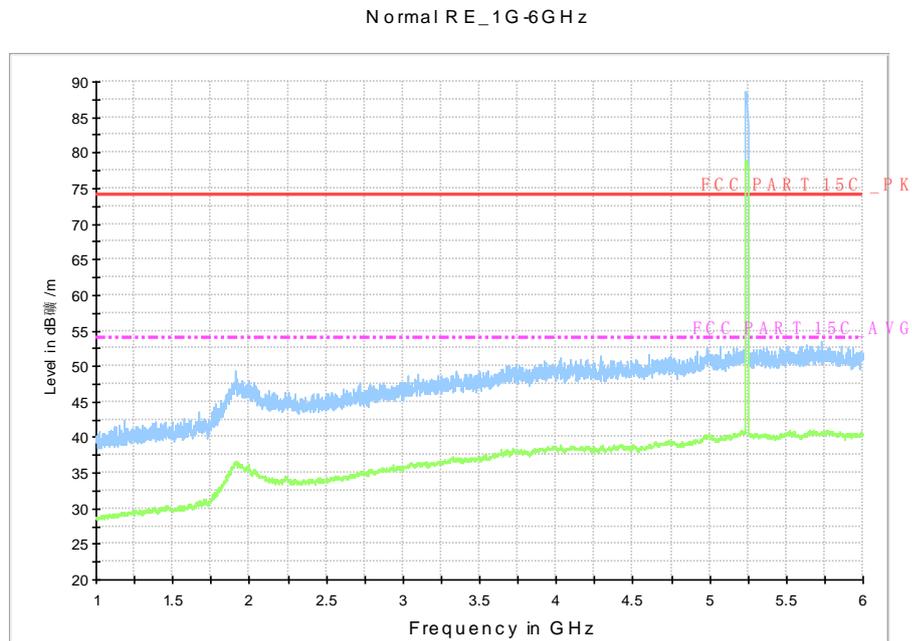


Fig. 48 Radiated Spurious Emission (802.11a, ch48, 1 GHz-6 GHz)

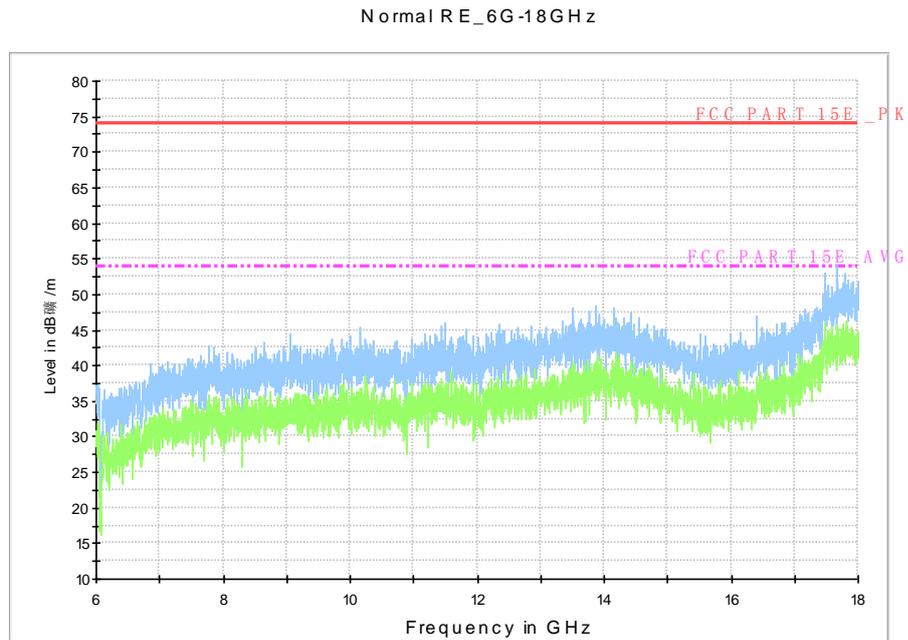


Fig. 49 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)

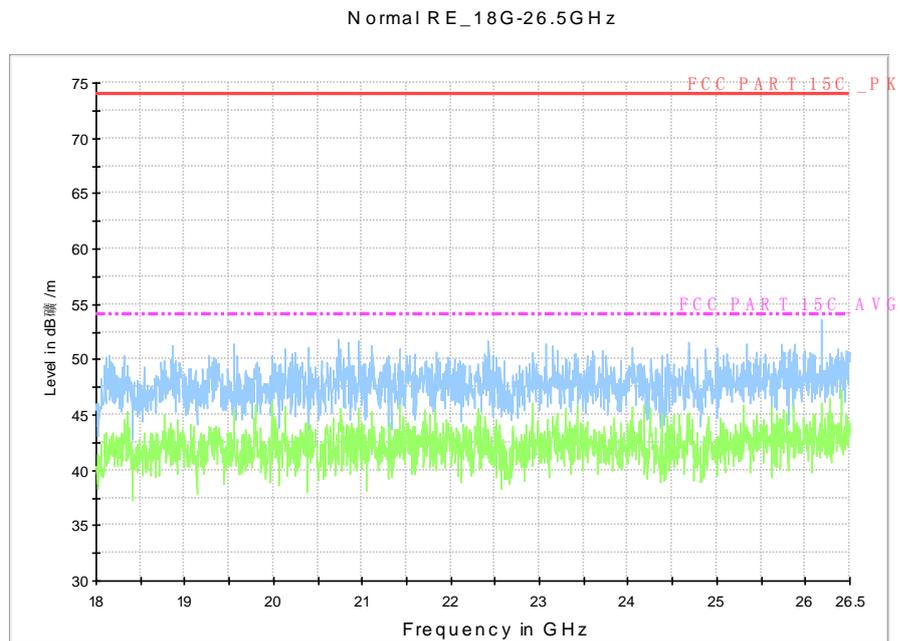


Fig. 50 Radiated Spurious Emission (802.11a, U-NII 1, 18 GHz-26.5 GHz)

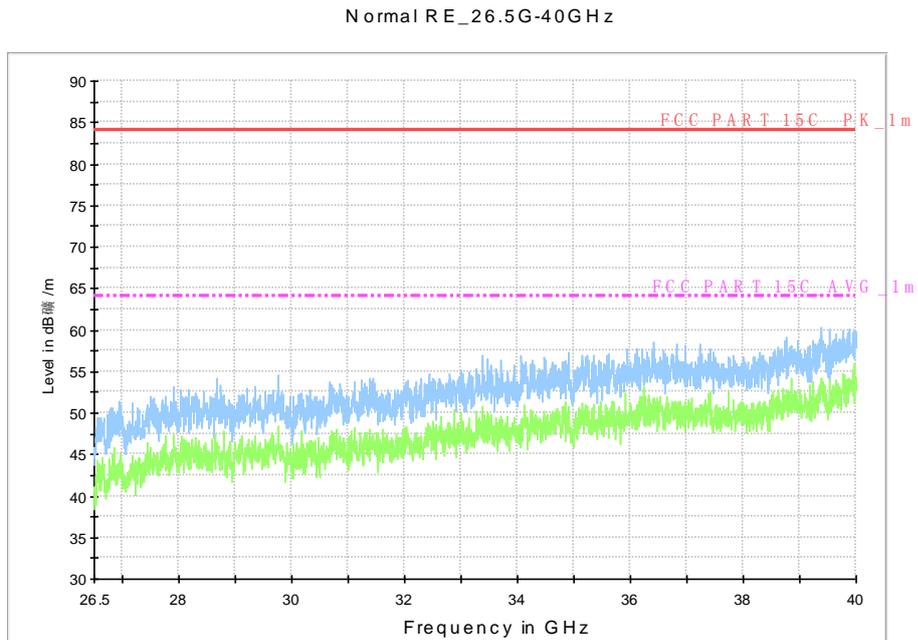


Fig. 51 Radiated Spurious Emission (802.11a, U-NII 1, 26.5 GHz-40 GHz)

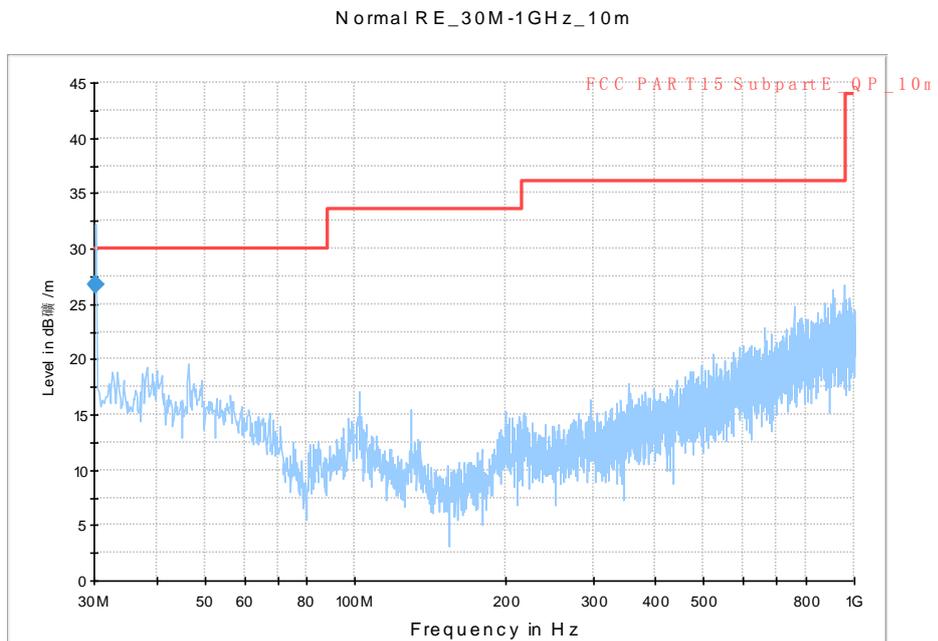


Fig. 52 Radiated Spurious Emission (802.11a, ch52, 30 MHz-1 GHz)

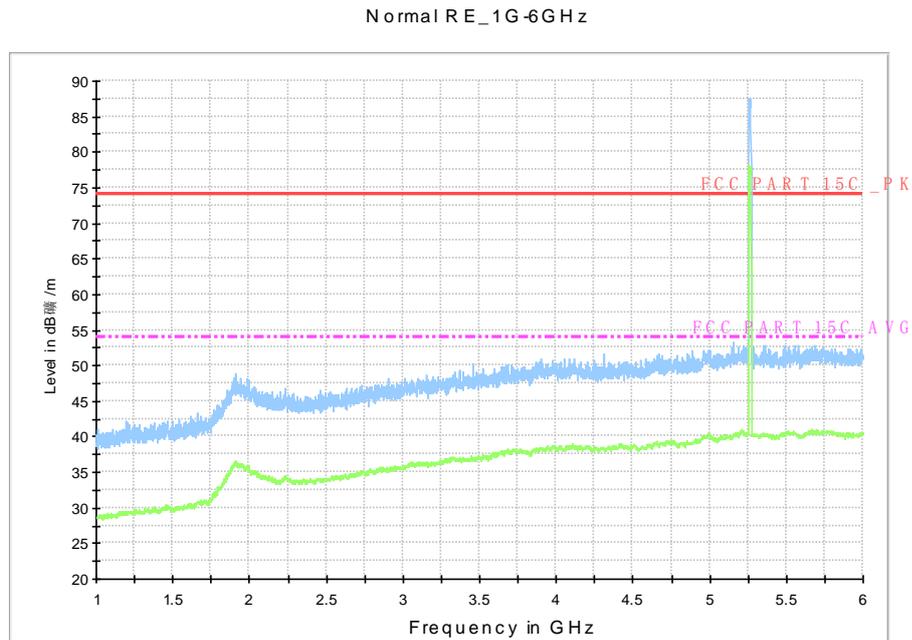


Fig. 53 Radiated Spurious Emission (802.11a, ch52, 1 GHz-6 GHz)

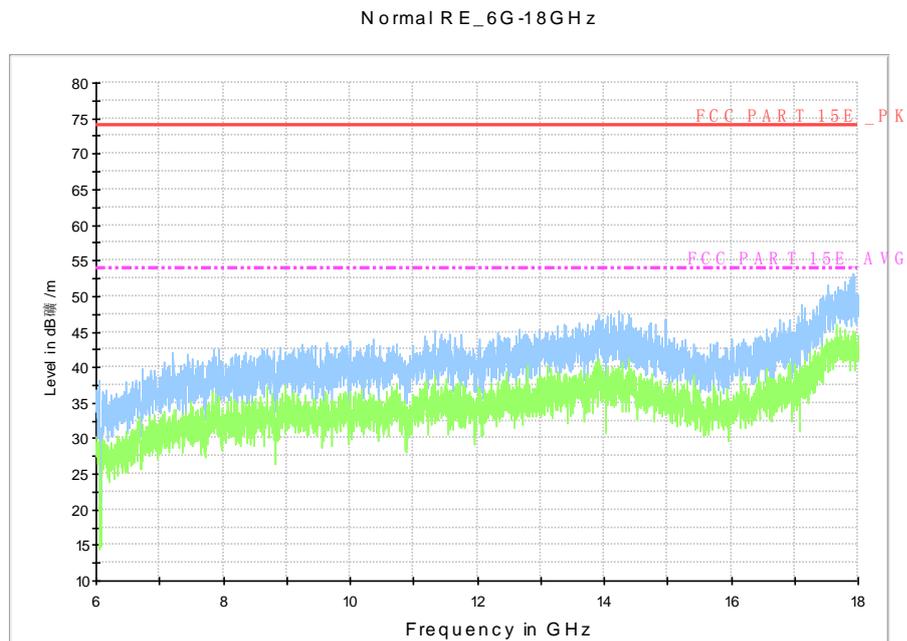


Fig. 54 Radiated Spurious Emission (802.11a, ch52, 6 GHz-18 GHz)

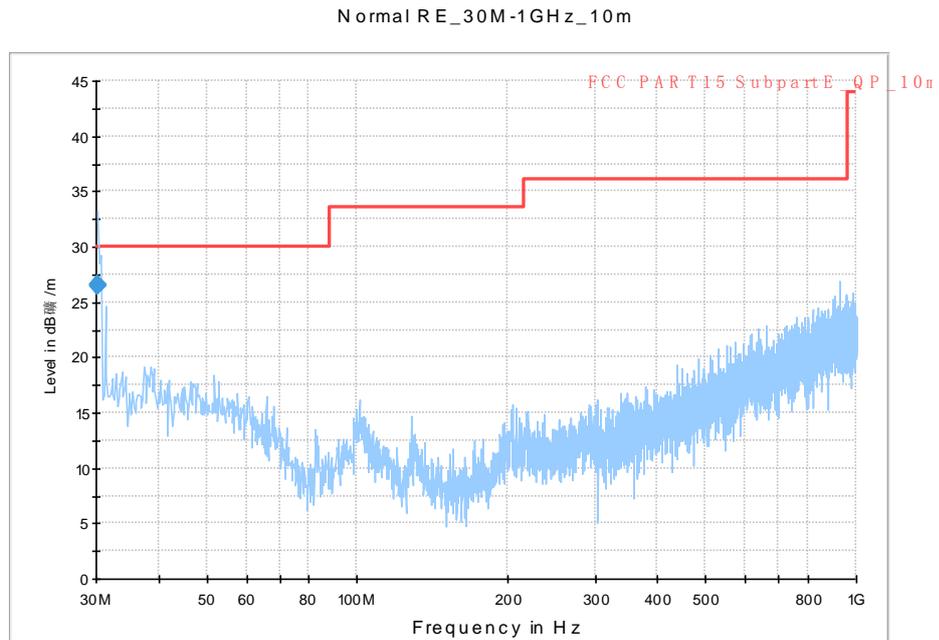


Fig. 55 Radiated Spurious Emission (802.11a, ch56, 30 MHz-1 GHz)

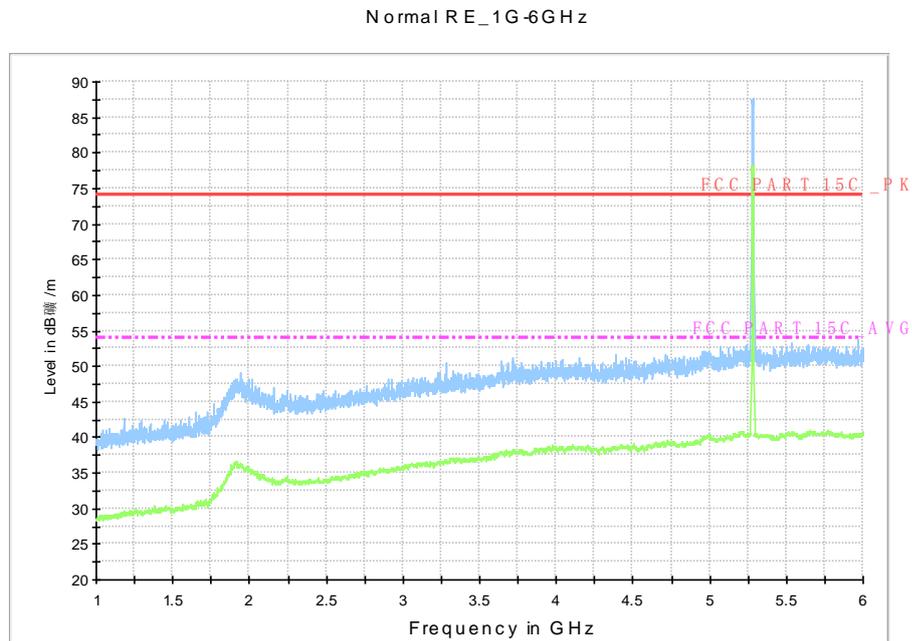


Fig. 56 Radiated Spurious Emission (802.11a, ch56, 1 GHz-6 GHz)

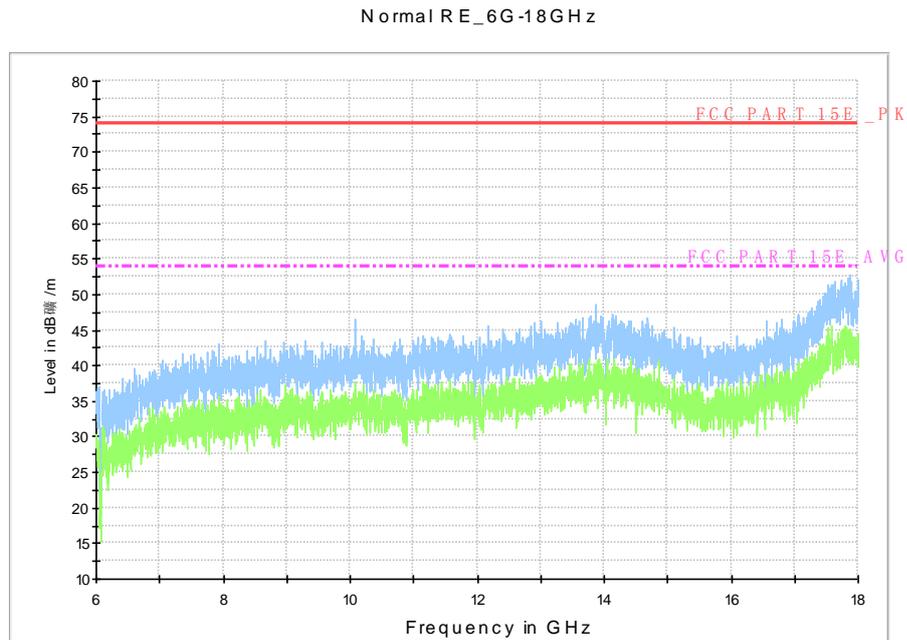


Fig. 57 Radiated Spurious Emission (802.11a, ch56, 6 GHz-18 GHz)

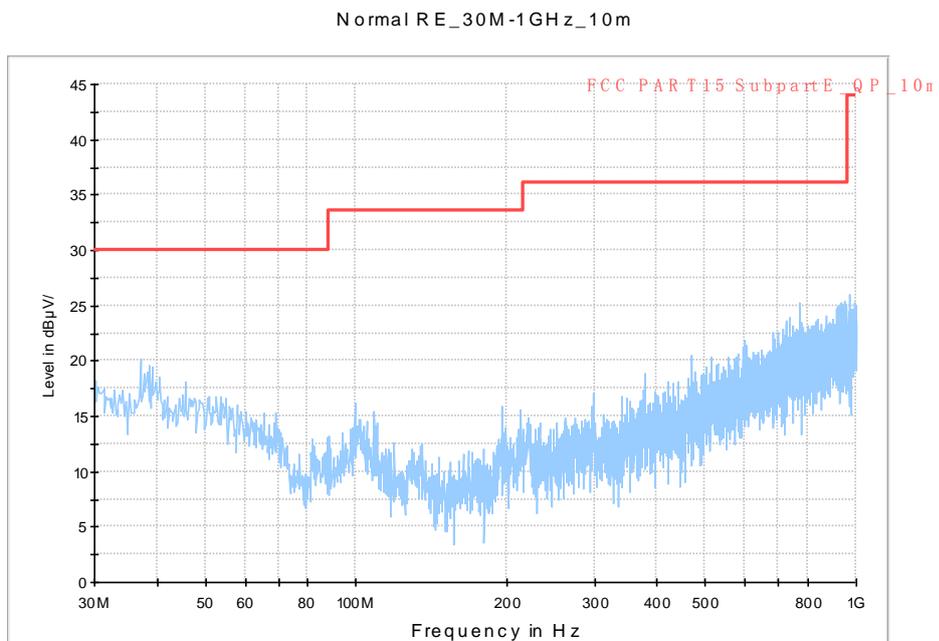


Fig. 58 Radiated Spurious Emission (802.11a, ch64, 30 MHz-1 GHz)

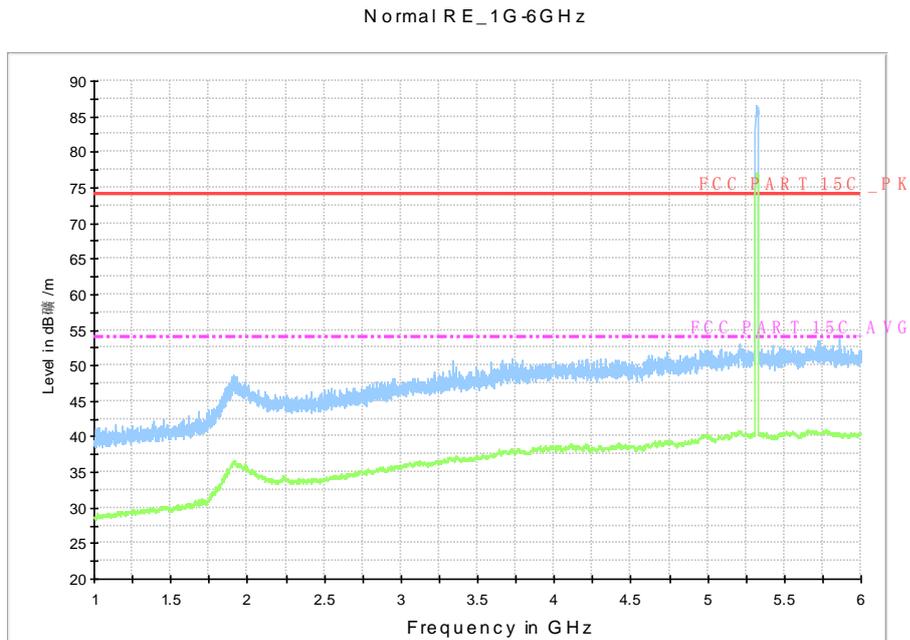


Fig. 59 Radiated Spurious Emission (802.11a, ch64, 1 GHz-6 GHz)

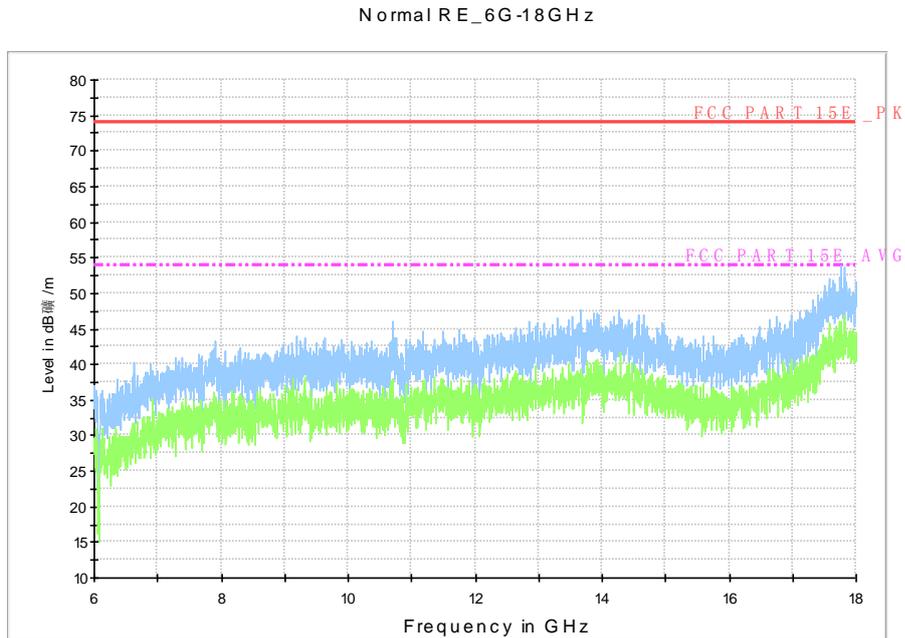


Fig. 60 Radiated Spurious Emission (802.11a, ch64, 6 GHz-18 GHz)

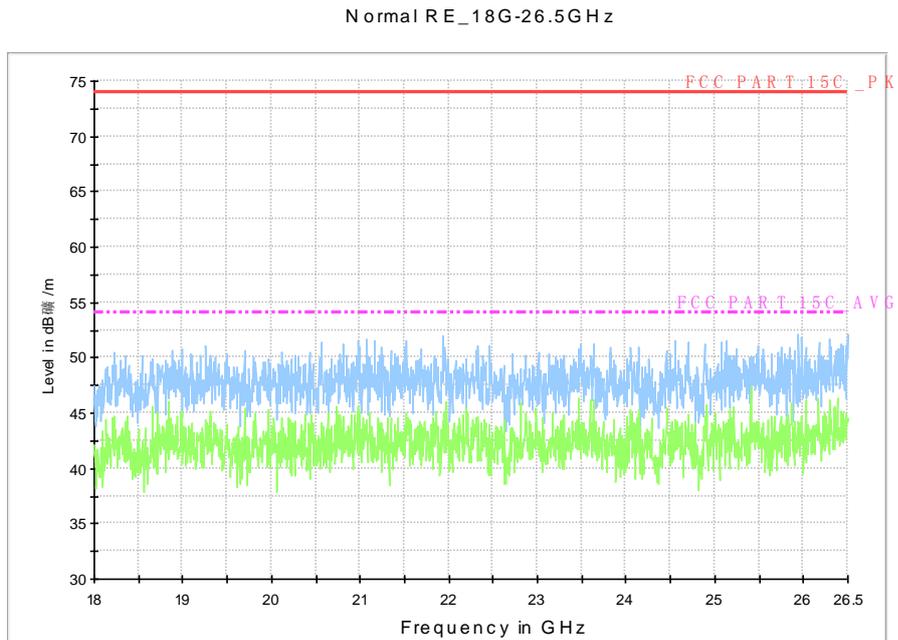


Fig. 61 Radiated Spurious Emission (802.11a, U-NII 2, 18 GHz-26.5 GHz)

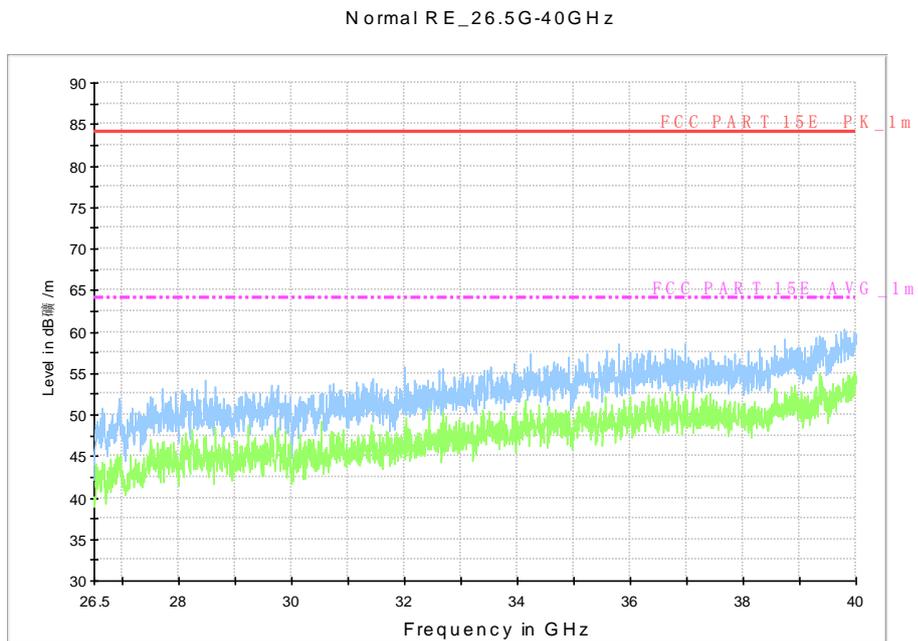


Fig. 62 Radiated Spurious Emission (802.11a, U-NII 2, 26.5 GHz-40 GHz)

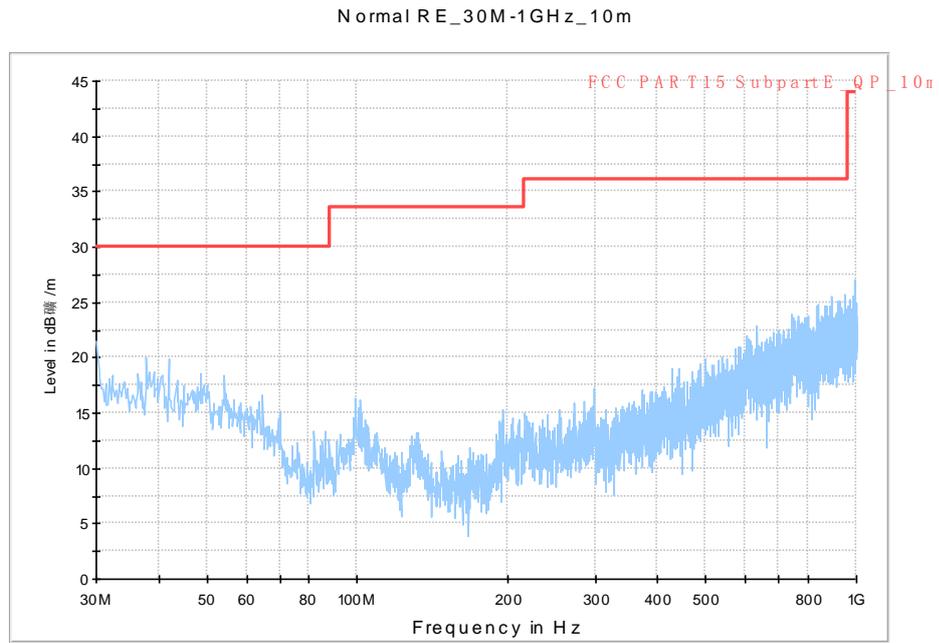


Fig. 63 Radiated Spurious Emission (802.11a, ch100, 30 MHz-1 GHz)

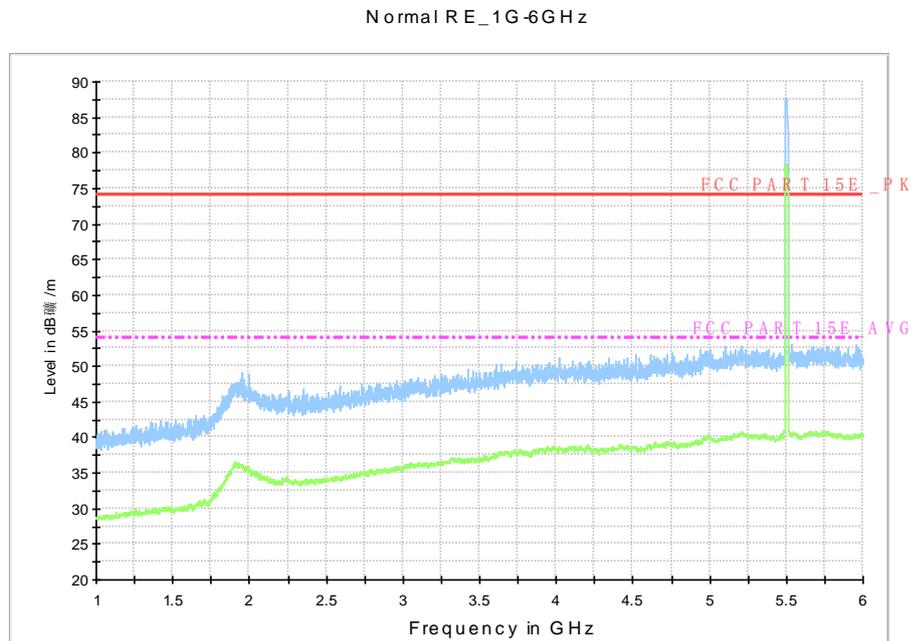


Fig. 64 Radiated Spurious Emission (802.11a, ch100, 1 GHz-6 GHz)

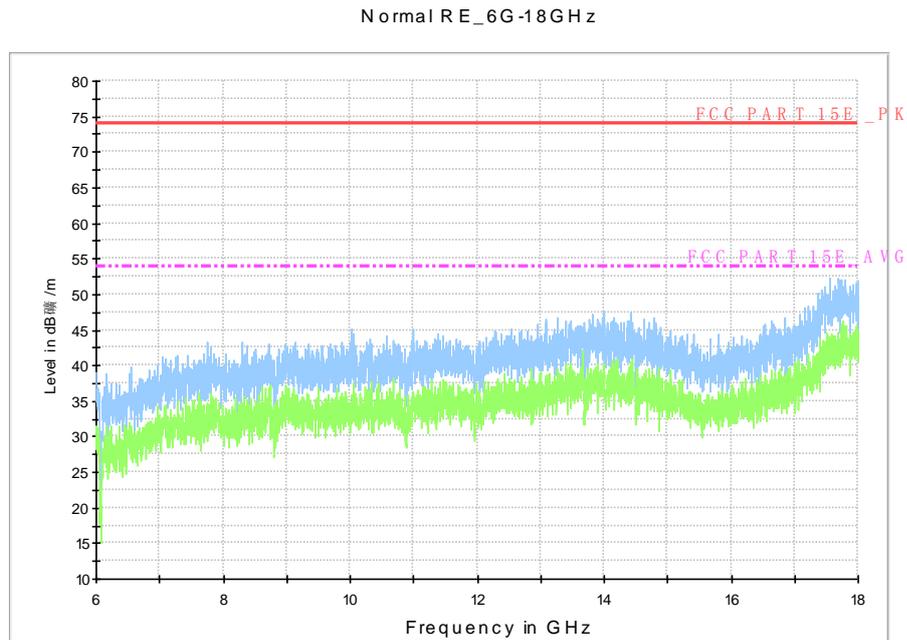


Fig. 65 Radiated Spurious Emission (802.11a, ch100, 6 GHz-18 GHz)

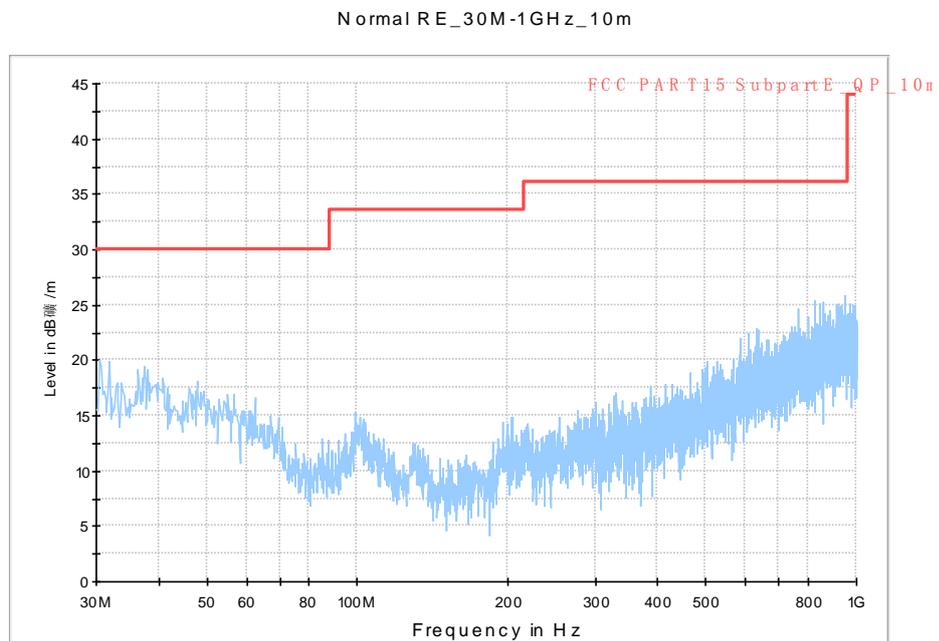


Fig. 66 Radiated Spurious Emission (802.11a, ch140, 30 MHz-1 GHz)

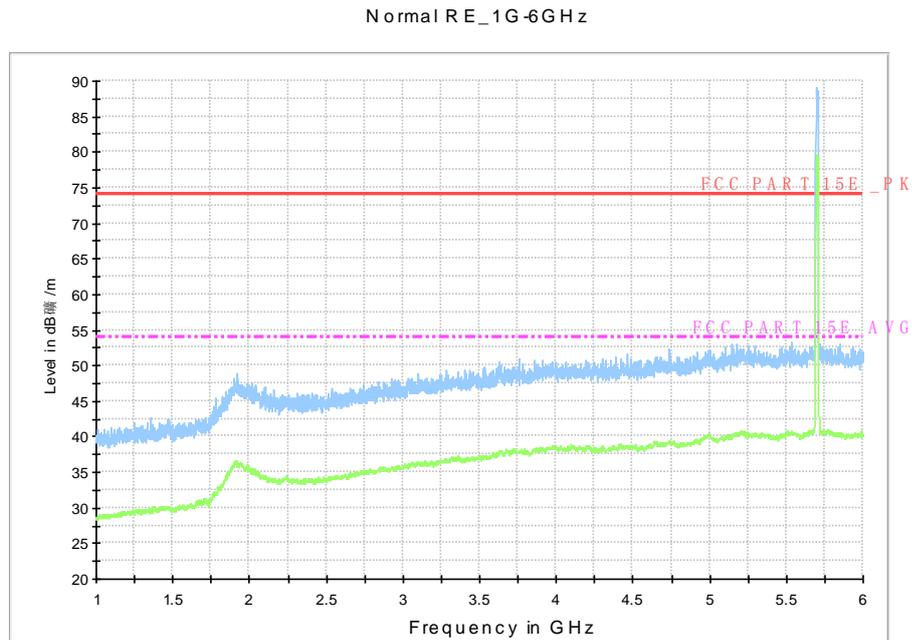


Fig. 67 Radiated Spurious Emission (802.11a, ch140, 1 GHz-6 GHz)

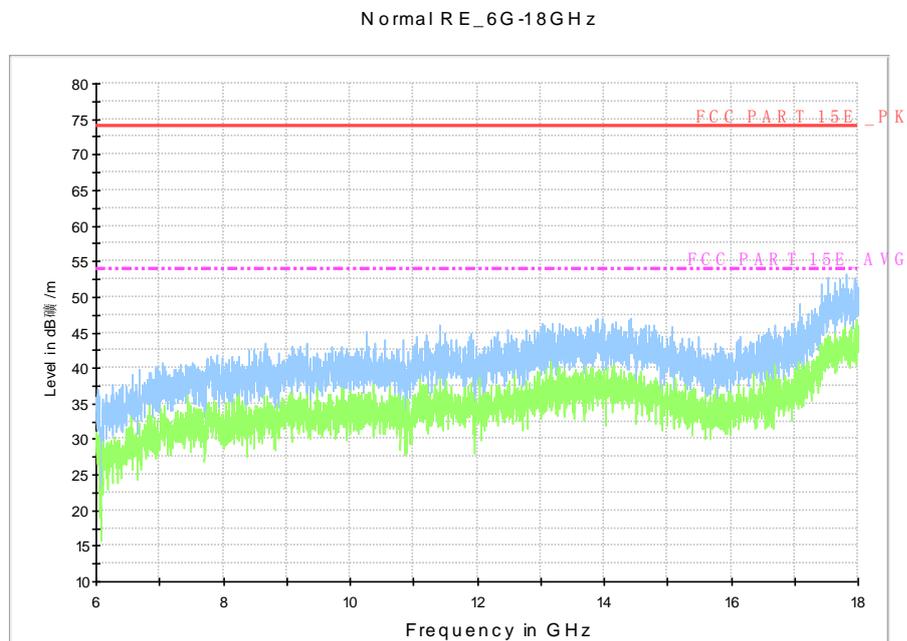


Fig. 68 Radiated Spurious Emission (802.11a, ch140, 6 GHz-18 GHz)

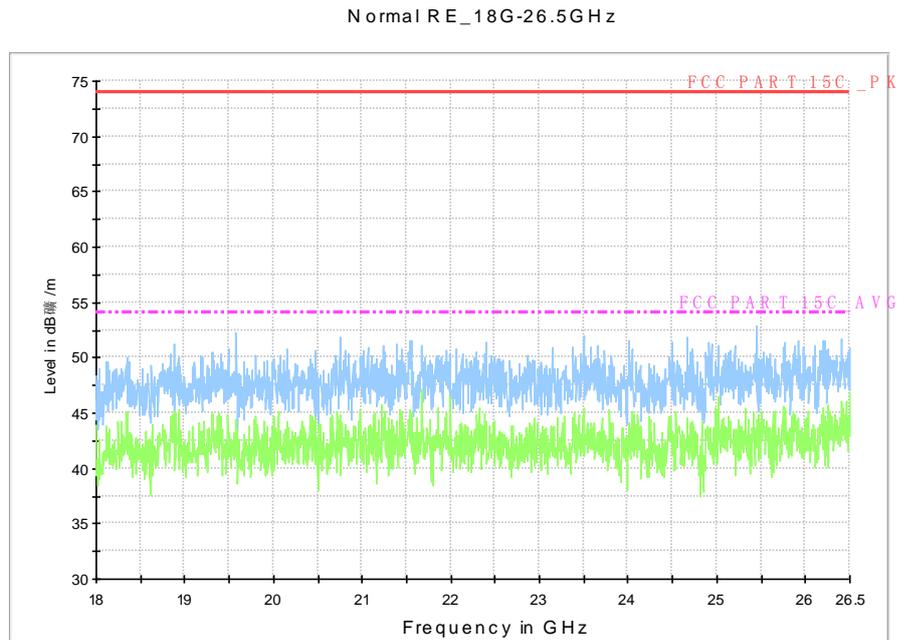


Fig. 69 Radiated Spurious Emission (802.11a, U-NII 3, 18 GHz-26.5 GHz)

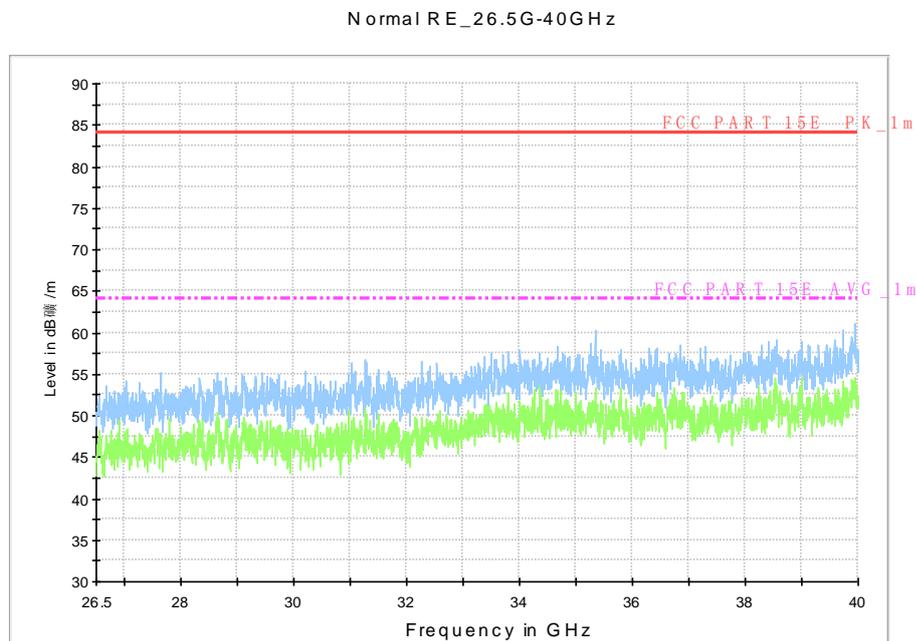


Fig. 70 Radiated Spurious Emission (802.11a, U-NII 3, 26.5 GHz-40 GHz)

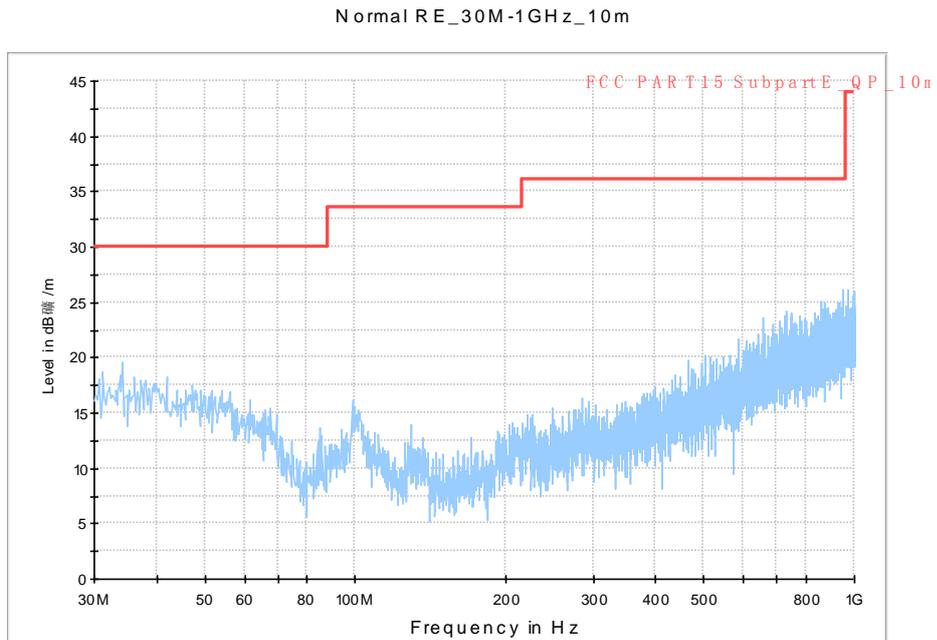


Fig. 71 Radiated Spurious Emission (802.11n-HT20, ch36, 30 MHz-1 GHz)

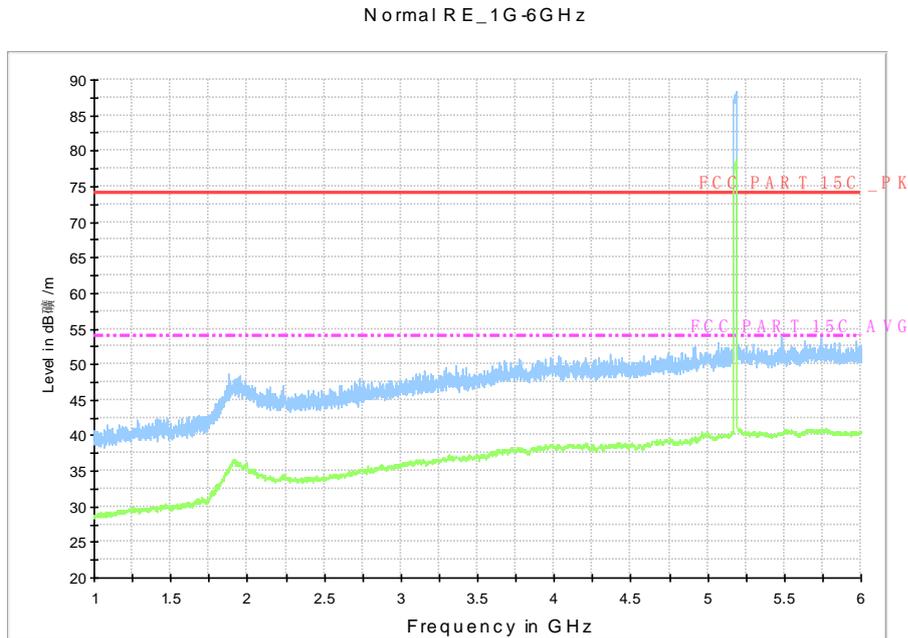


Fig. 72 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-6 GHz)

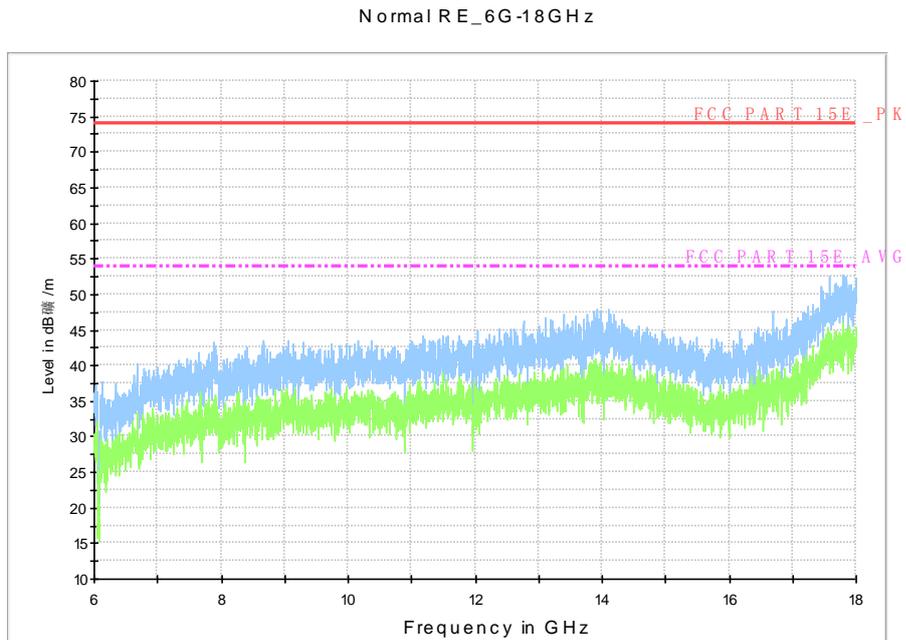


Fig. 73 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)

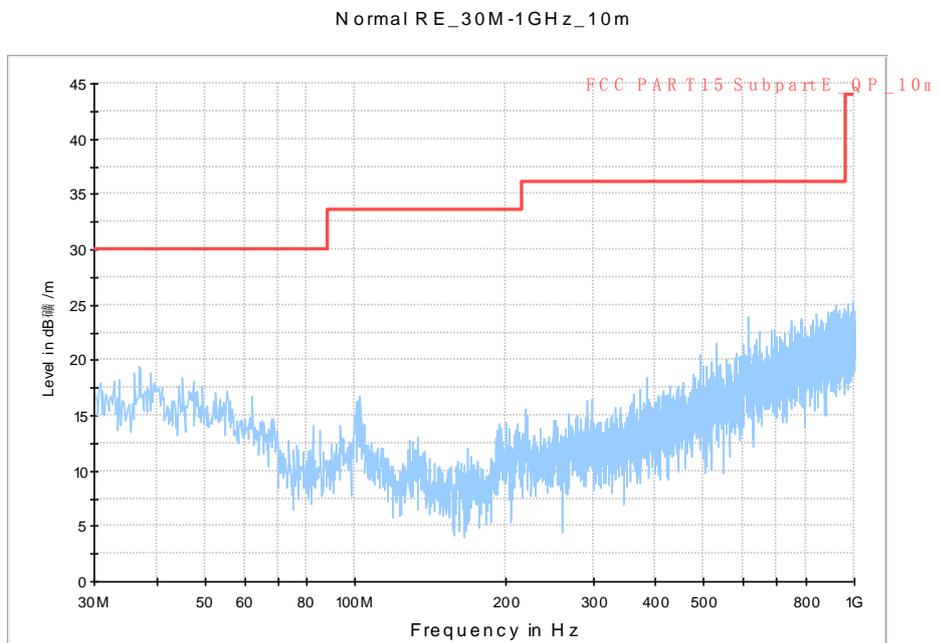


Fig. 74 Radiated Spurious Emission (802.11n-HT20, ch40, 30 MHz-1 GHz)

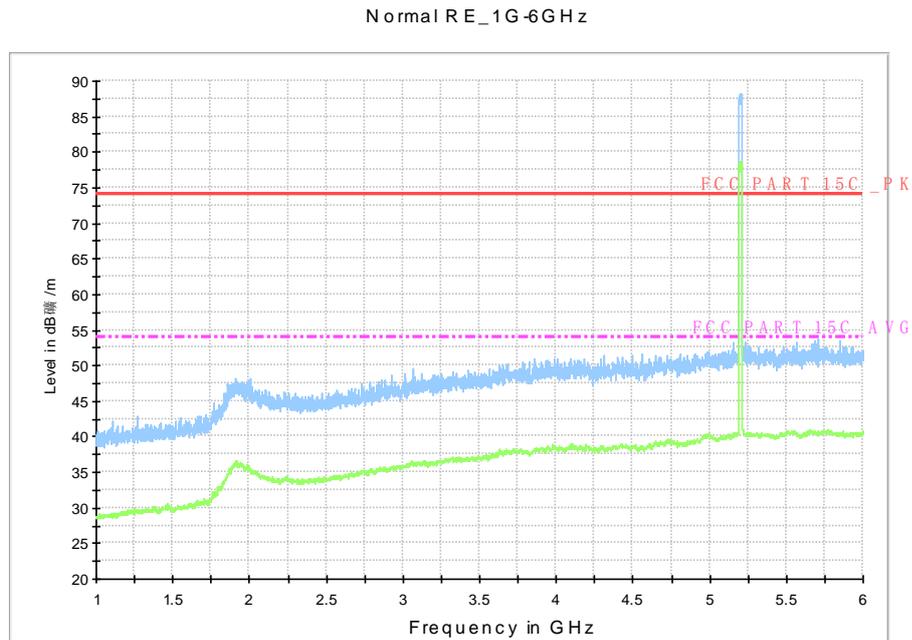


Fig. 75 Radiated Spurious Emission (802.11n-HT20, ch40, 1 GHz-6 GHz)

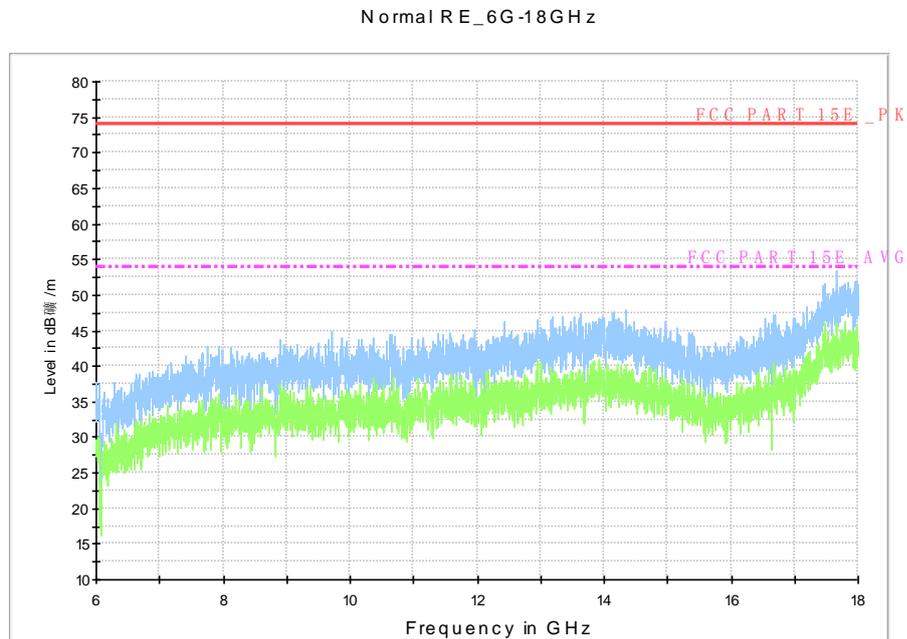


Fig. 76 Radiated Spurious Emission (802.11n-HT20, ch40, 6 GHz-18 GHz)

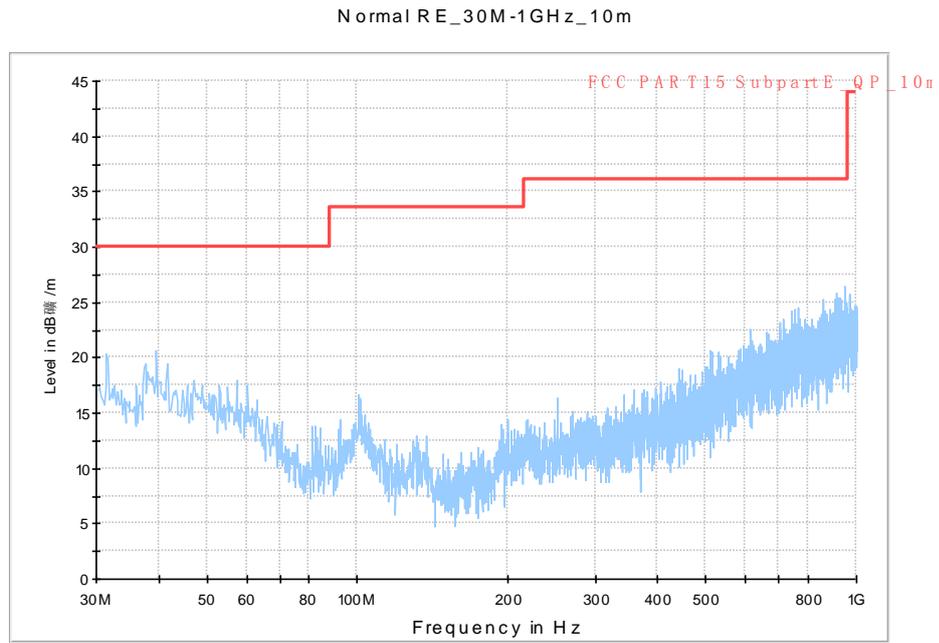


Fig. 77 Radiated Spurious Emission (802.11n-HT20, ch48, 30 MHz-1 GHz)

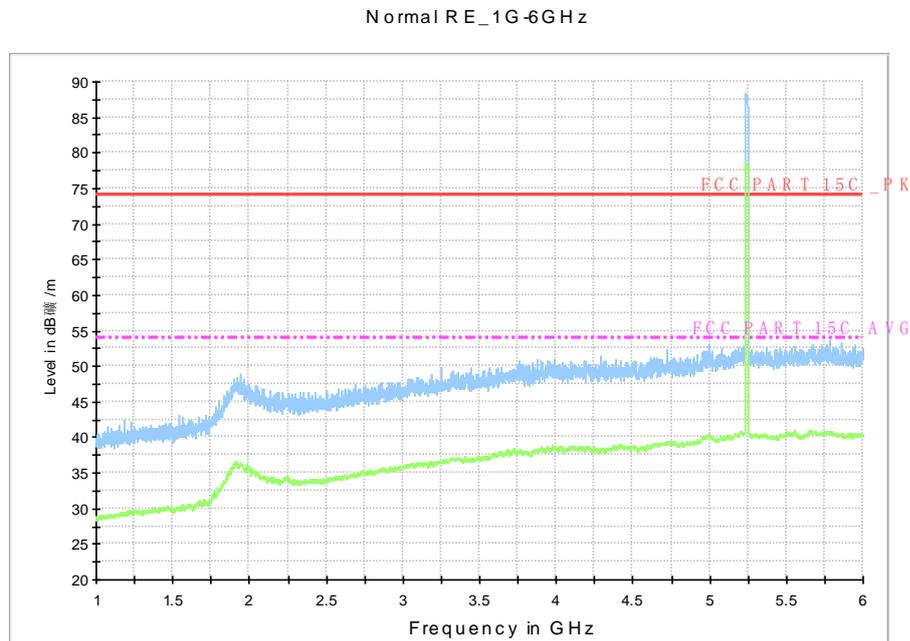


Fig. 78 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-6 GHz)

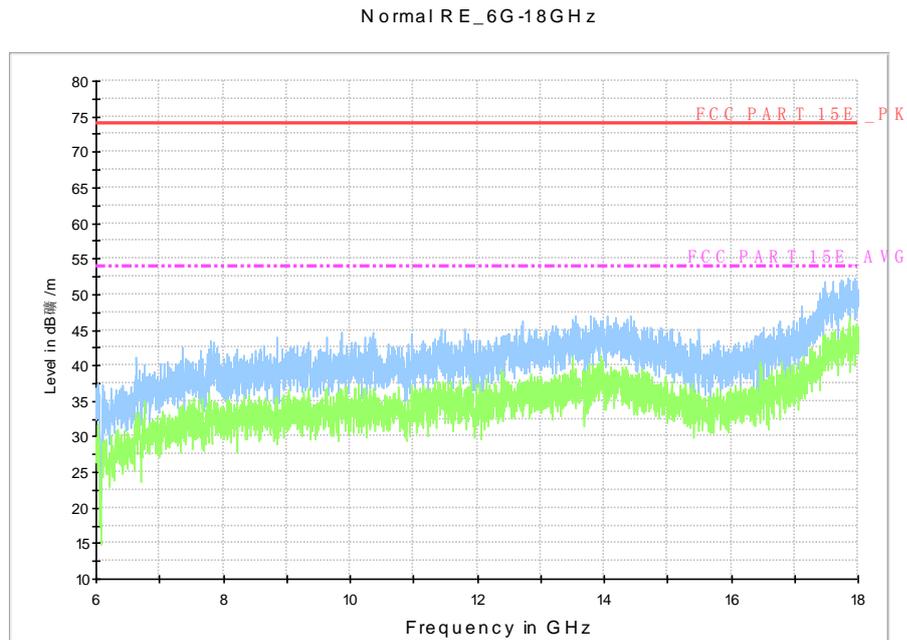


Fig. 79 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)

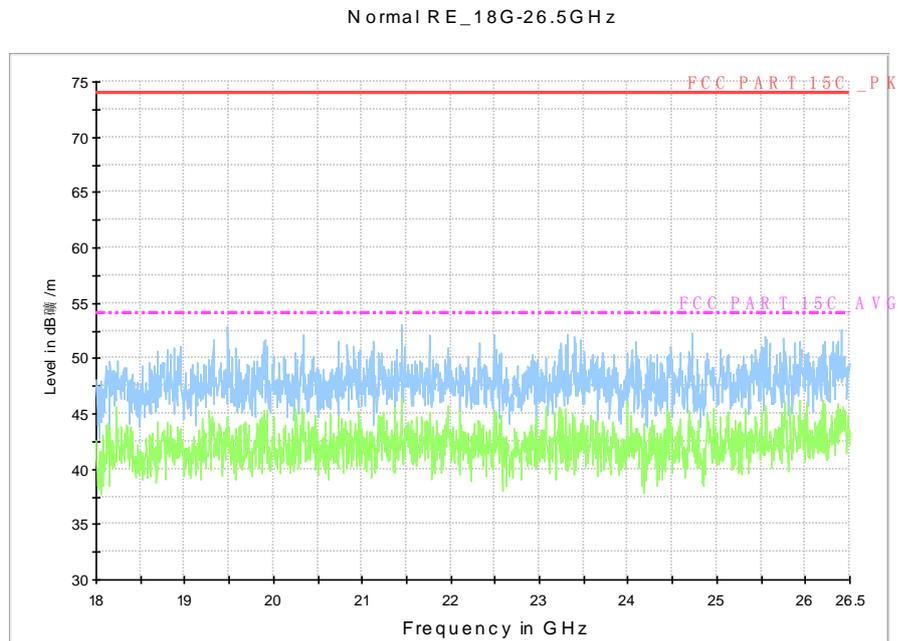


Fig. 80 Radiated Spurious Emission (802.11n-HT20, U-NII 1, 18 GHz-26.5 GHz)

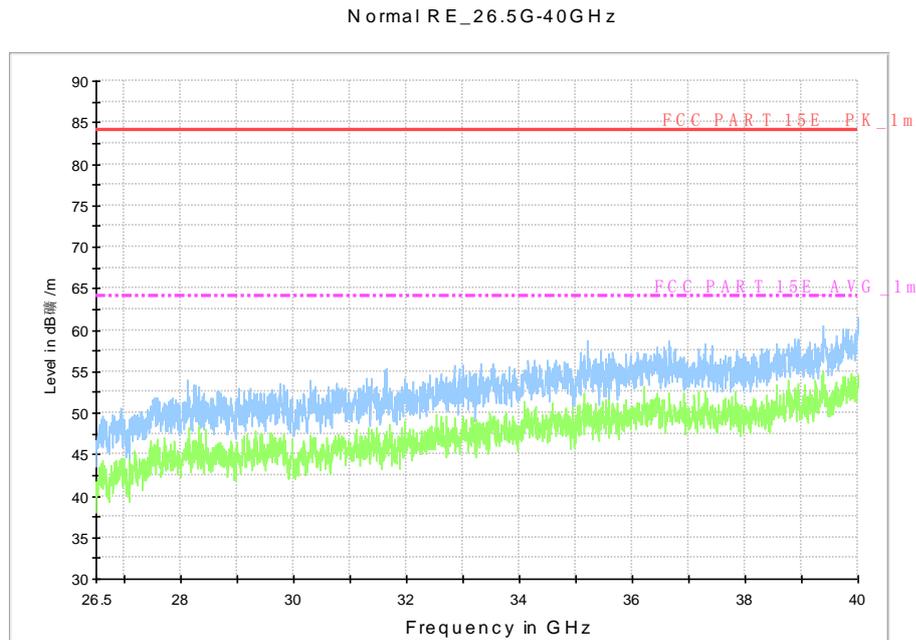


Fig. 81 Radiated Spurious Emission (802.11n-HT20, U-NII 1, 26.5 GHz-40 GHz)

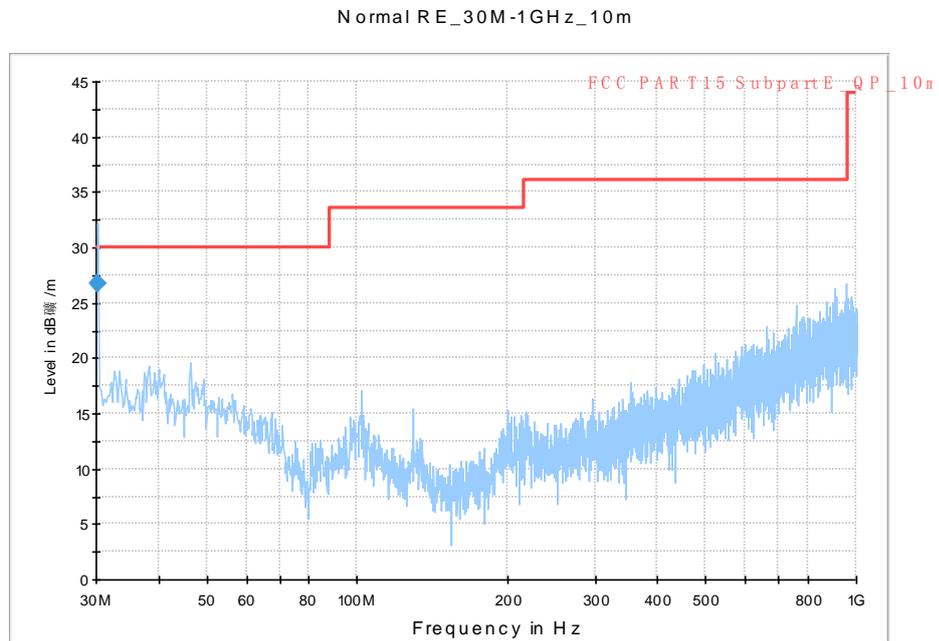


Fig. 82 Radiated Spurious Emission (802.11n-HT20, ch52, 30 MHz-1 GHz)

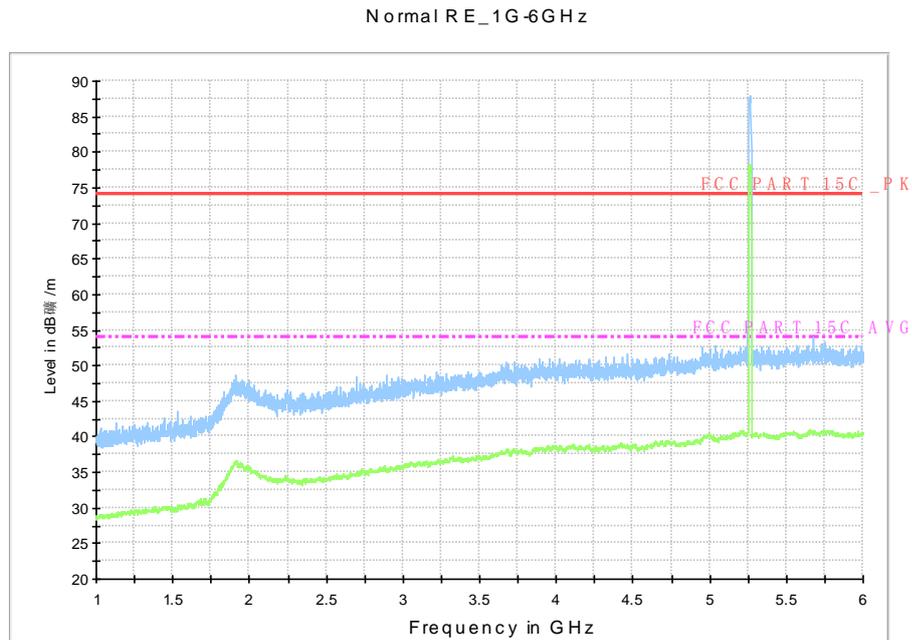


Fig. 83 Radiated Spurious Emission (802.11n-HT20, ch52, 1 GHz-6 GHz)

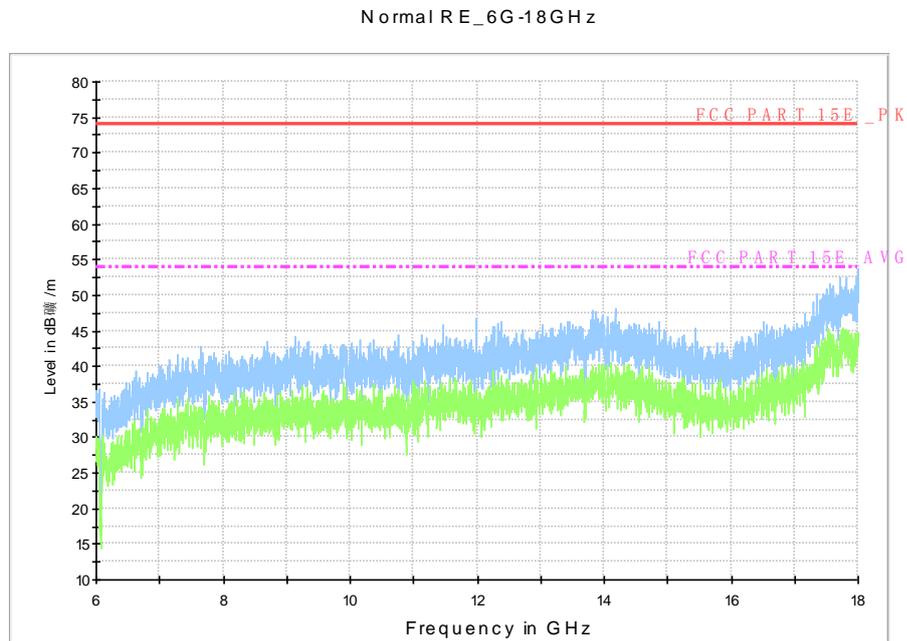


Fig. 84 Radiated Spurious Emission (802.11n-HT20, ch52, 6 GHz-18 GHz)

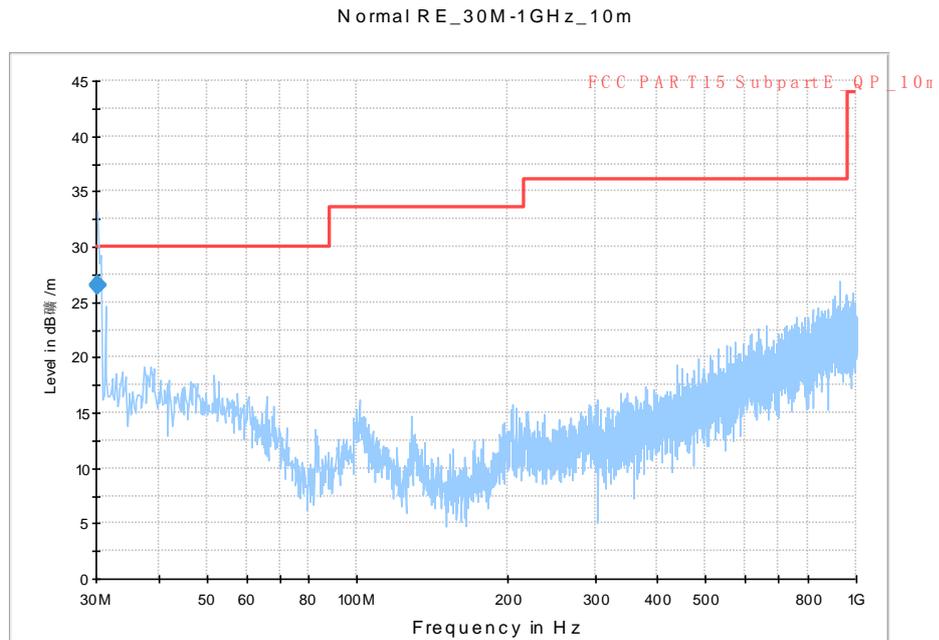


Fig. 85 Radiated Spurious Emission (802.11n-HT20 ch56, 30 MHz-1 GHz)

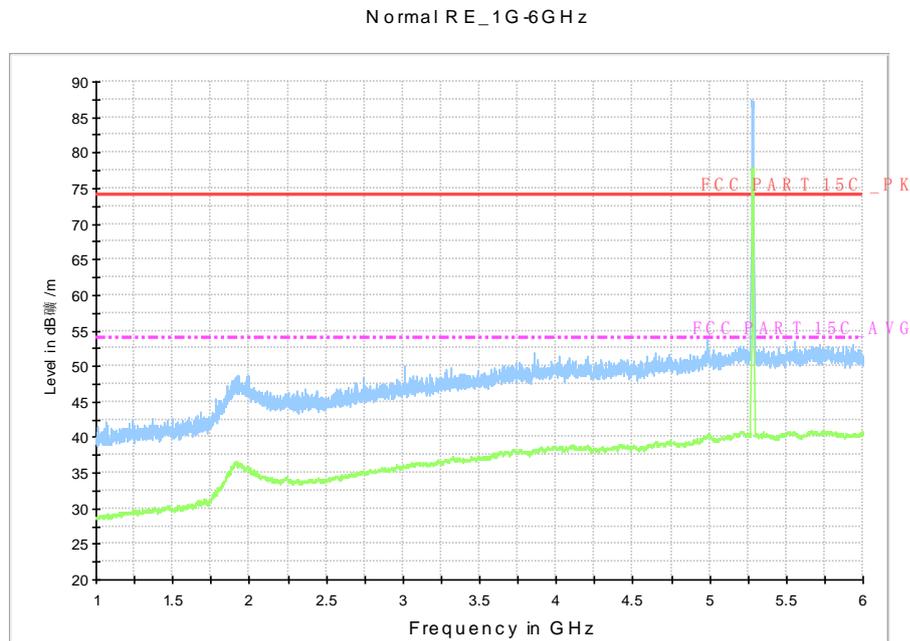


Fig. 86 Radiated Spurious Emission (802.11n-HT20, ch56, 1 GHz-6 GHz)

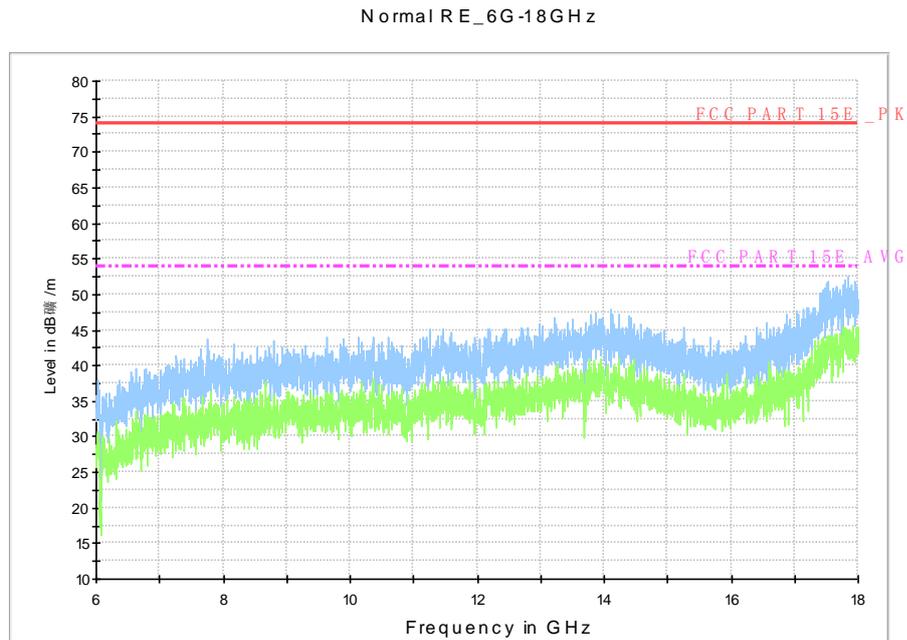


Fig. 87 Radiated Spurious Emission (802.11n-HT20, ch56, 6 GHz-18 GHz)

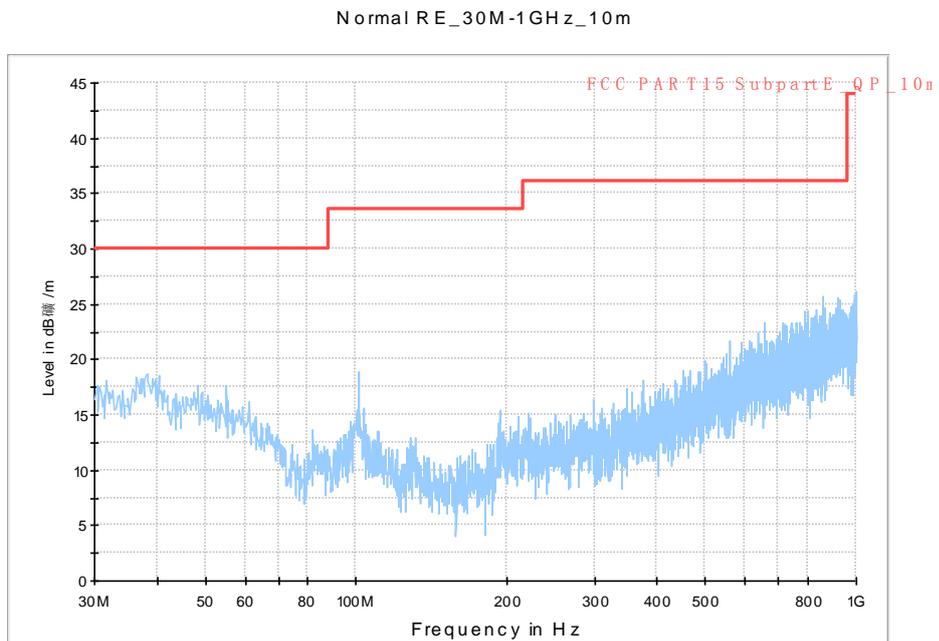


Fig. 88 Radiated Spurious Emission (802.11n-HT20, ch64, 30 MHz-1 GHz)

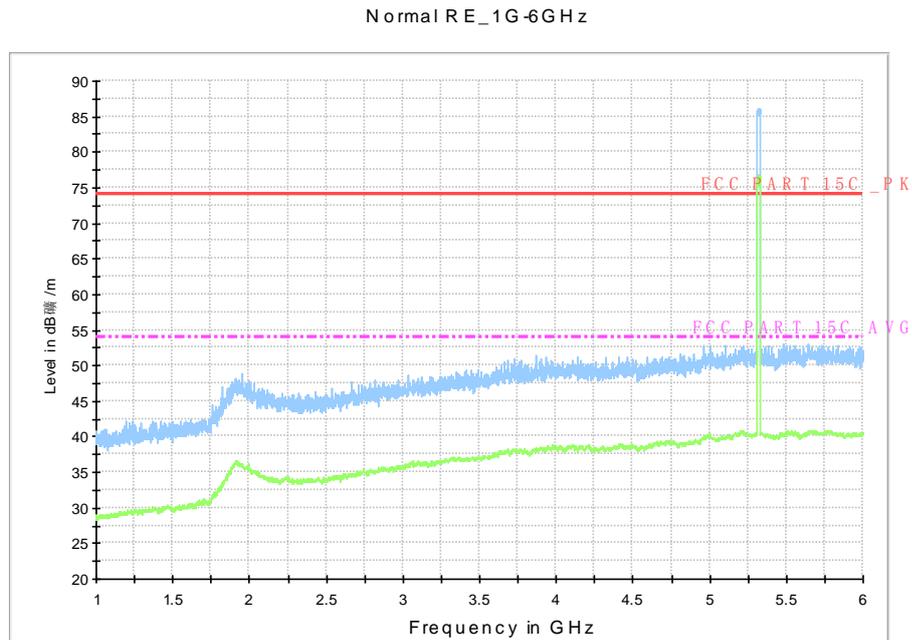


Fig. 89 Radiated Spurious Emission (802.11n-HT20, ch64, 1 GHz-6 GHz)

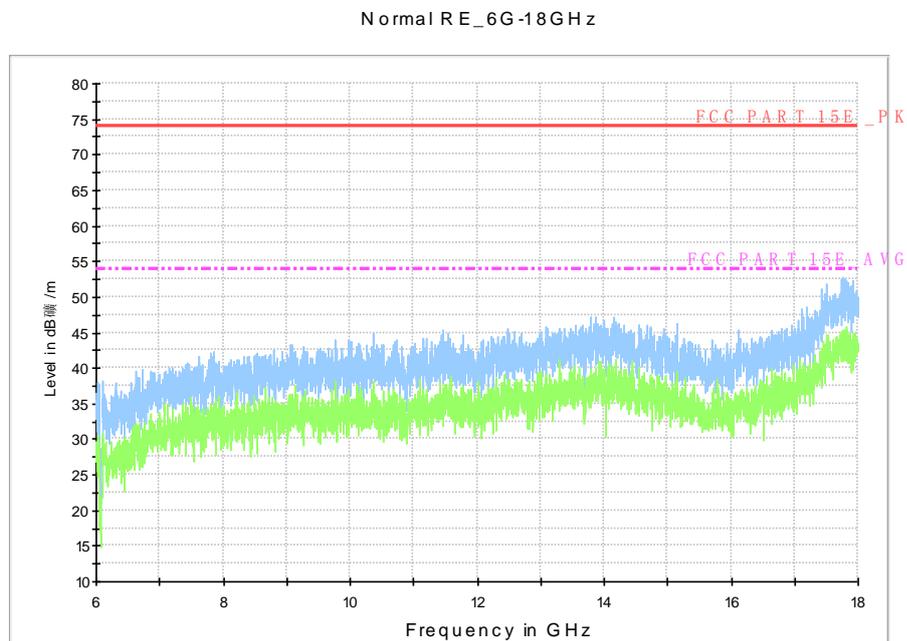


Fig. 90 Radiated Spurious Emission (802.11n-HT20, ch64, 6 GHz-18 GHz)

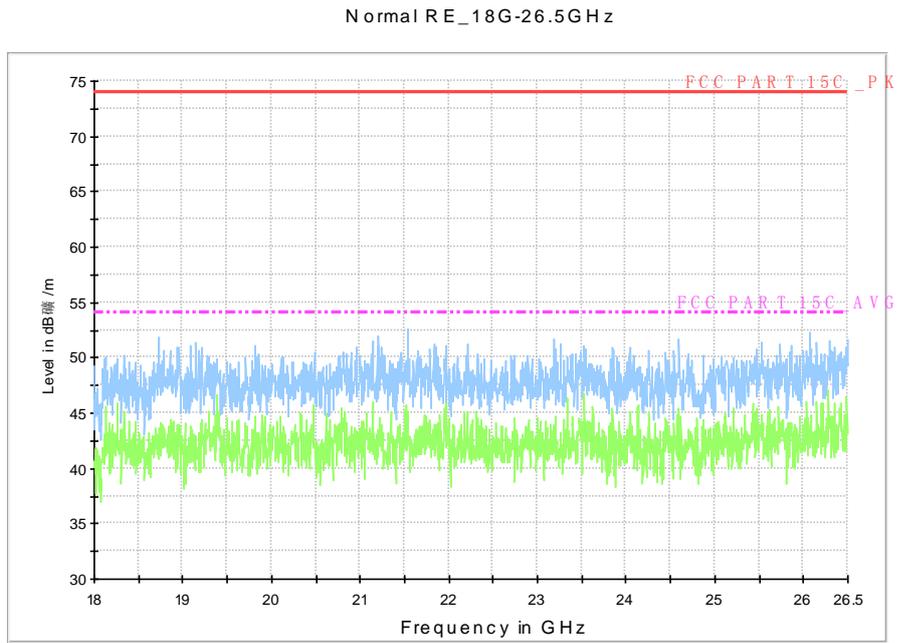


Fig. 91 Radiated Spurious Emission (802.11n-HT20, U-NII 2, 18 GHz-26.5 GHz)

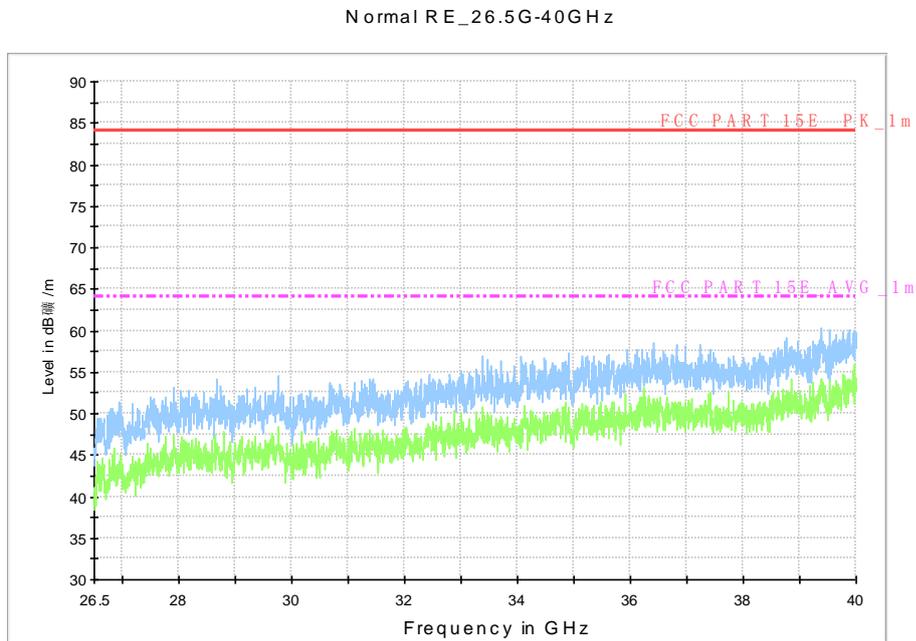


Fig. 92 Radiated Spurious Emission (802.11n-HT20, U-NII 2, 26.5 GHz-40 GHz)

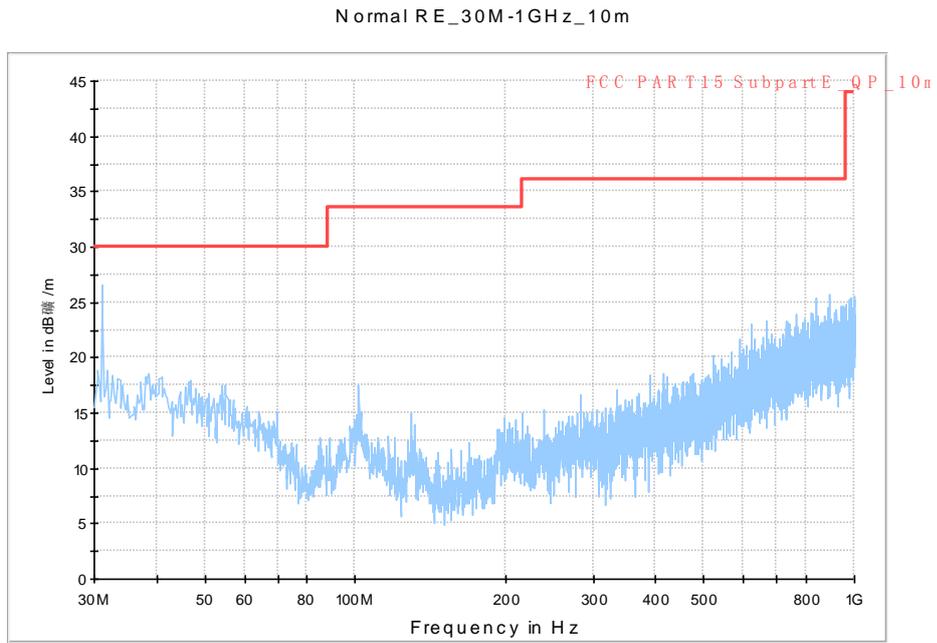


Fig. 93 Radiated Spurious Emission (802.11n-HT20, ch100, 30 MHz-1 GHz)

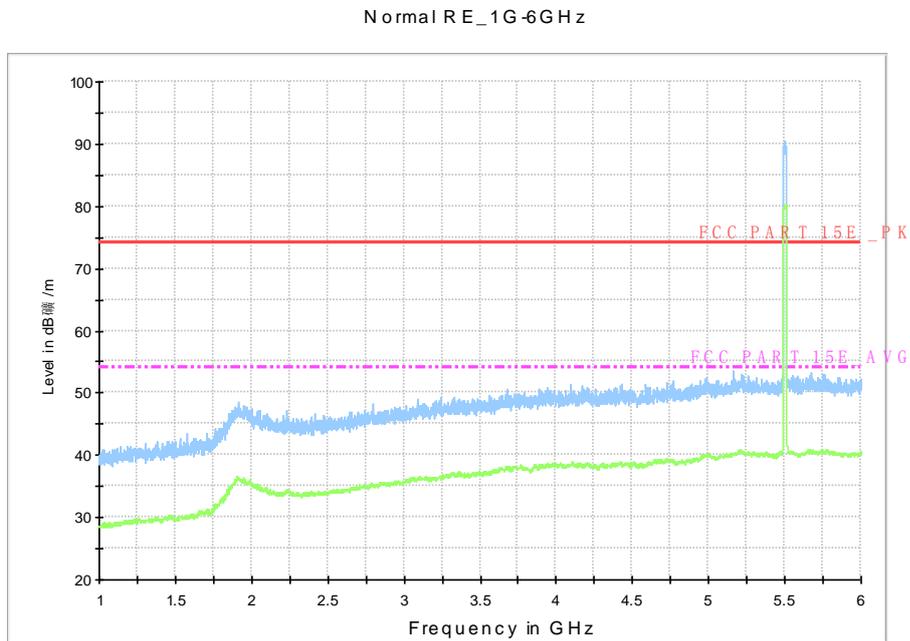


Fig. 94 Radiated Spurious Emission (802.11n-HT20, ch100, 1 GHz-6 GHz)

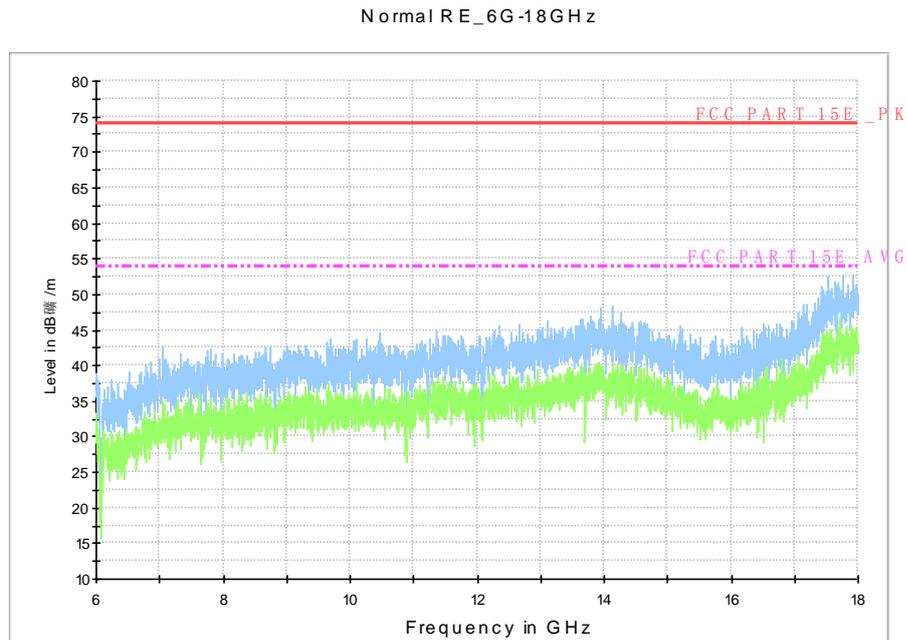


Fig. 95 Radiated Spurious Emission (802.11n-HT20, ch100, 6 GHz-18 GHz)

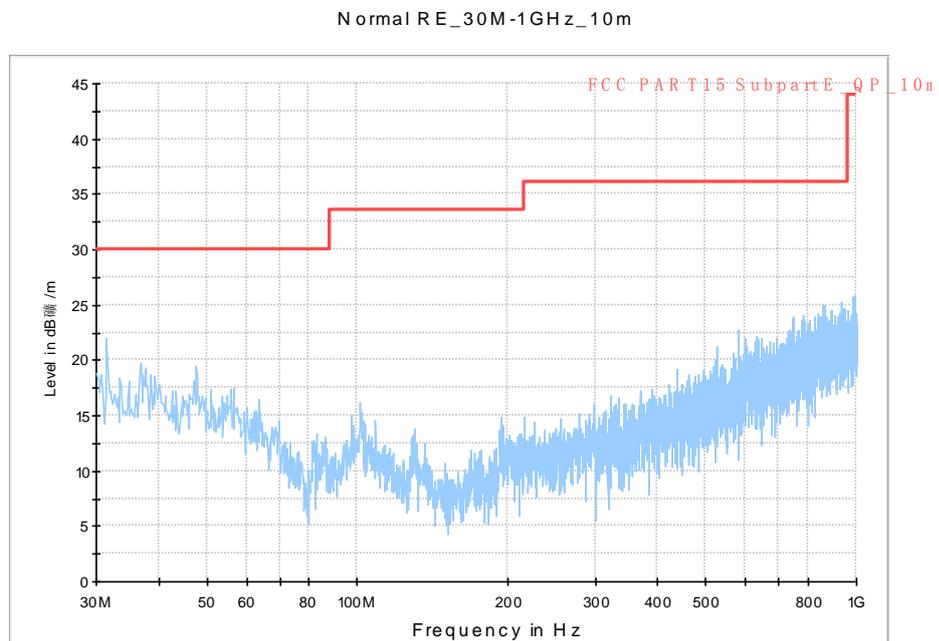


Fig. 96 Radiated Spurious Emission (802.11n-HT20, ch140, 30 MHz-1 GHz)

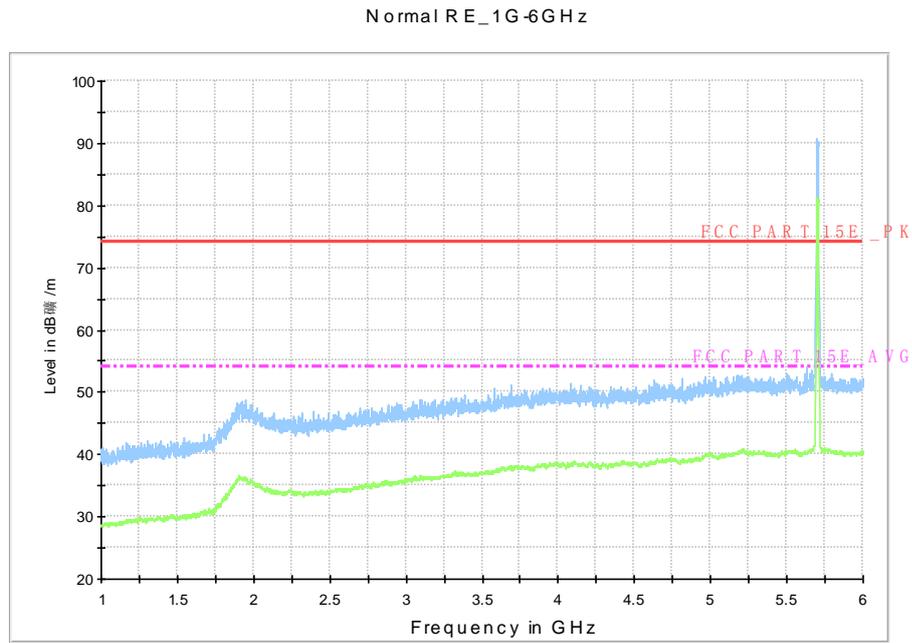


Fig. 97 Radiated Spurious Emission (802.11n-HT20, ch140, 1 GHz-6 GHz)

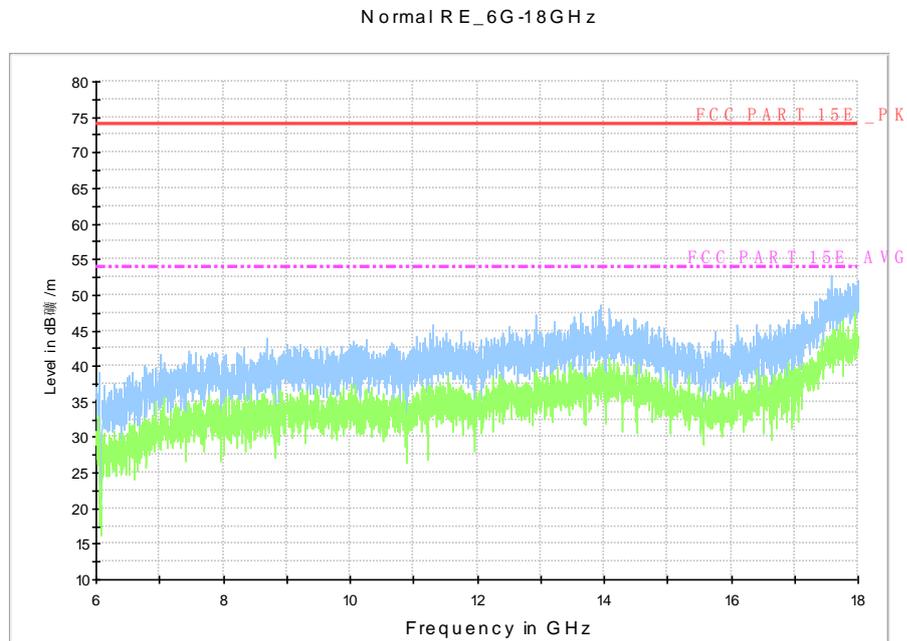


Fig. 98 Radiated Spurious Emission (802.11n-HT20, ch140, 6 GHz-18 GHz)

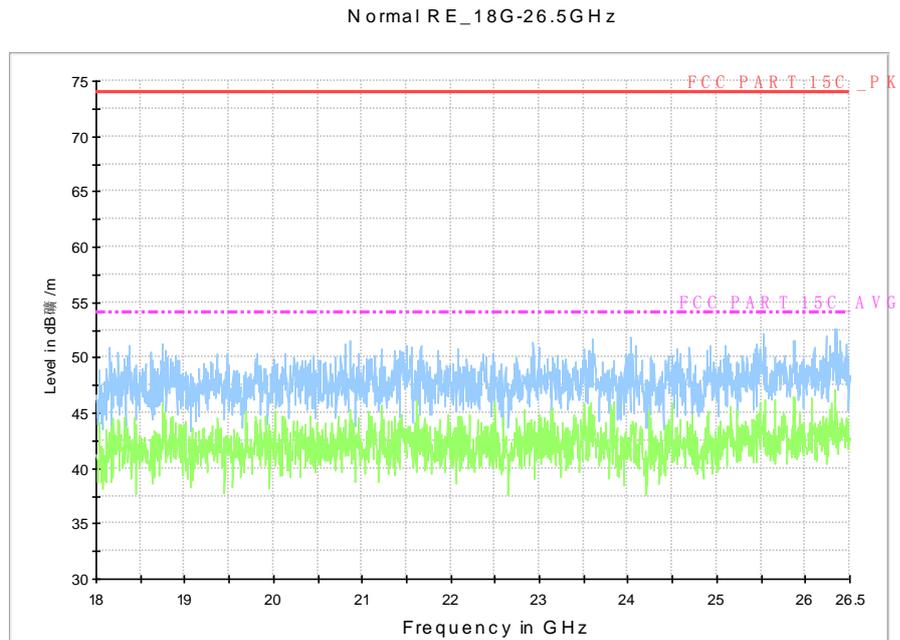


Fig. 99 Radiated Spurious Emission (802.11n-HT20, U-NII 3, 18 GHz-26.5 GHz)

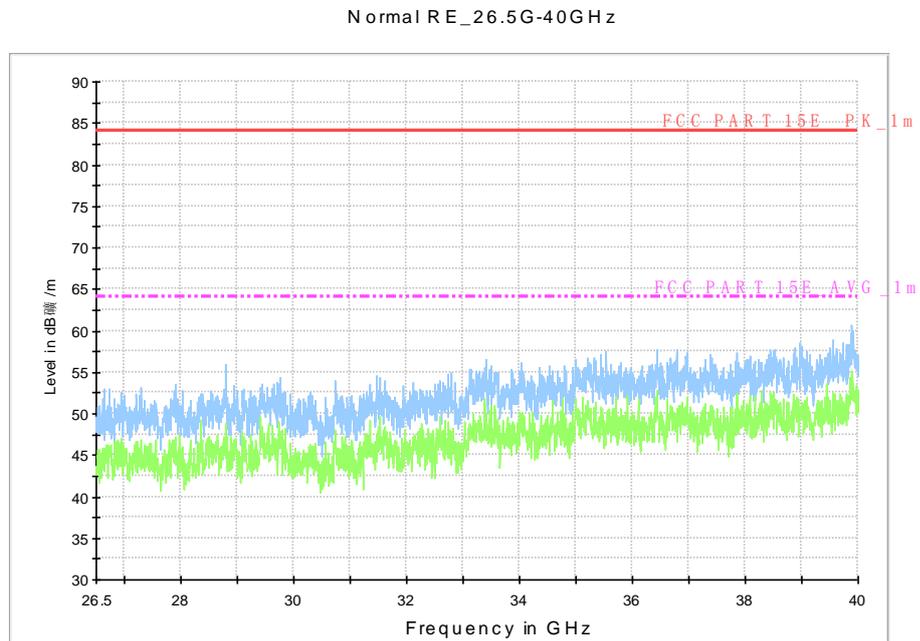


Fig. 100 Radiated Spurious Emission (802.11n-HT20, U-NII 3, 26.5 GHz-40 GHz)

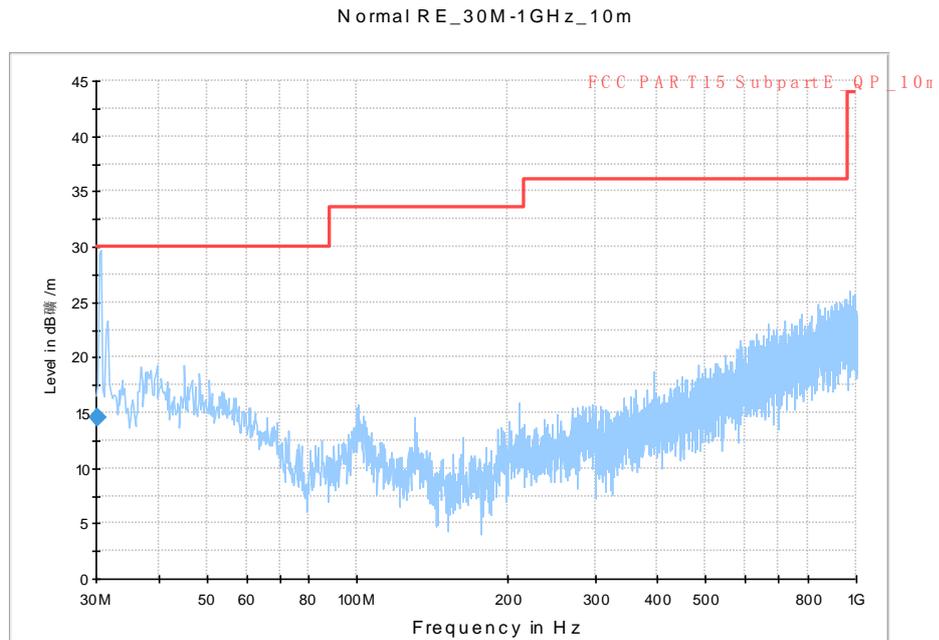


Fig. 101 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)

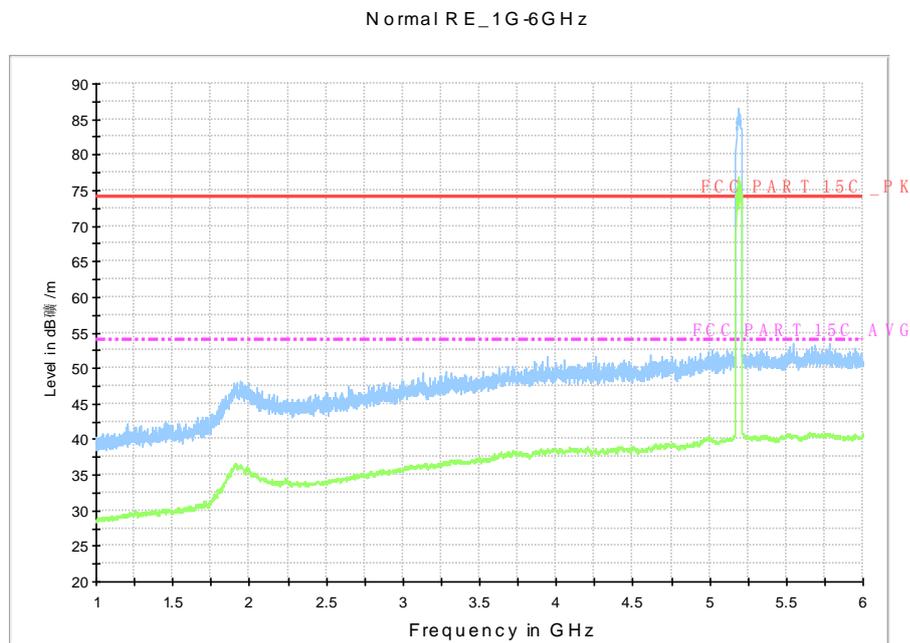


Fig. 102 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-6 GHz)

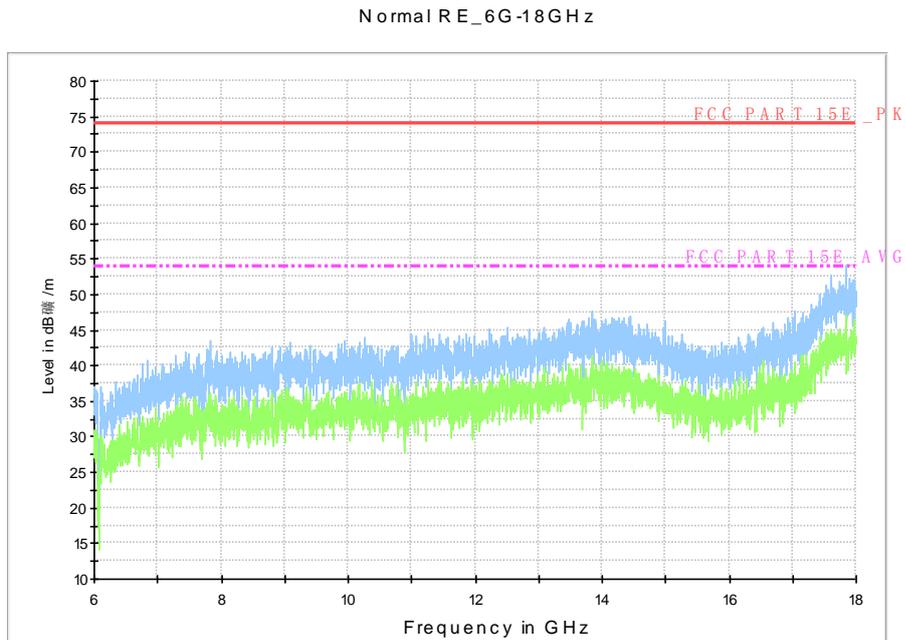


Fig. 103 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)

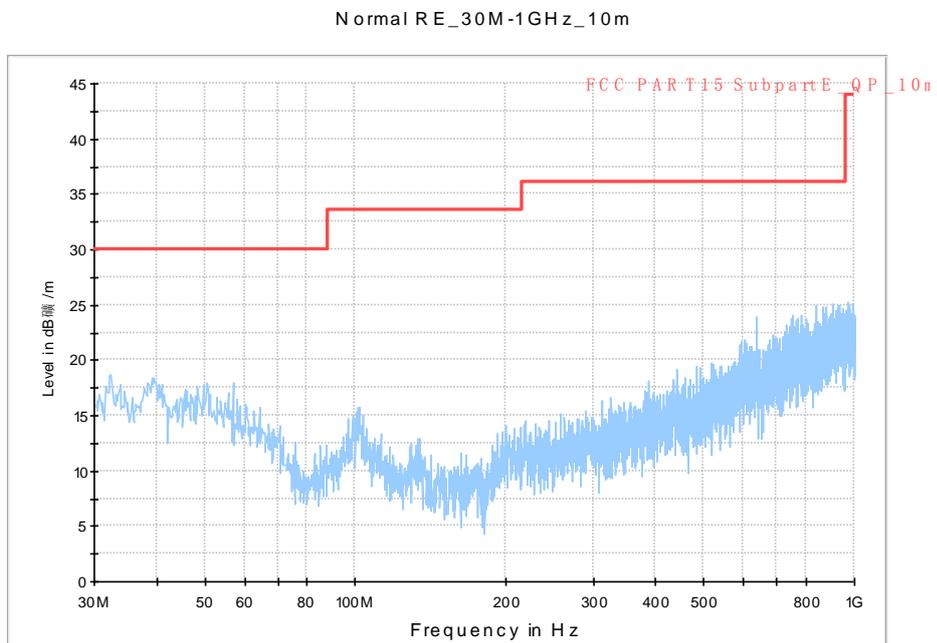


Fig. 104 Radiated Spurious Emission (802.11n-HT40, ch46, 30 MHz-1 GHz)

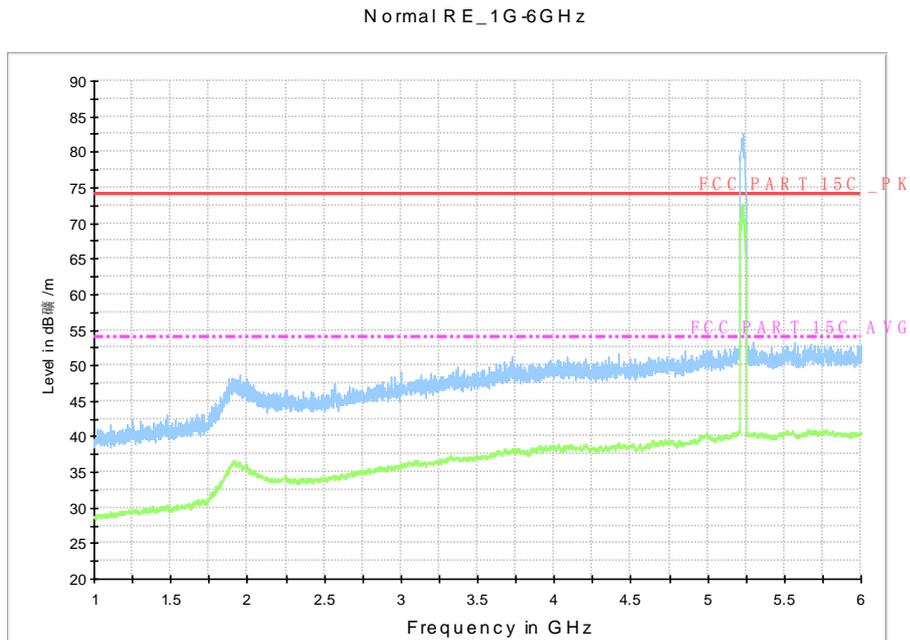


Fig. 105 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-6 GHz)

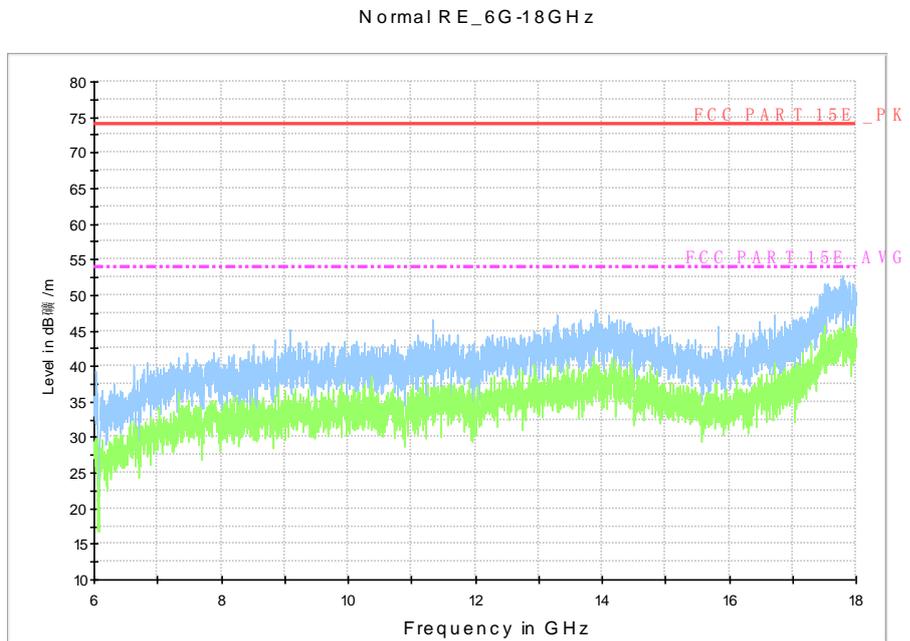


Fig. 106 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

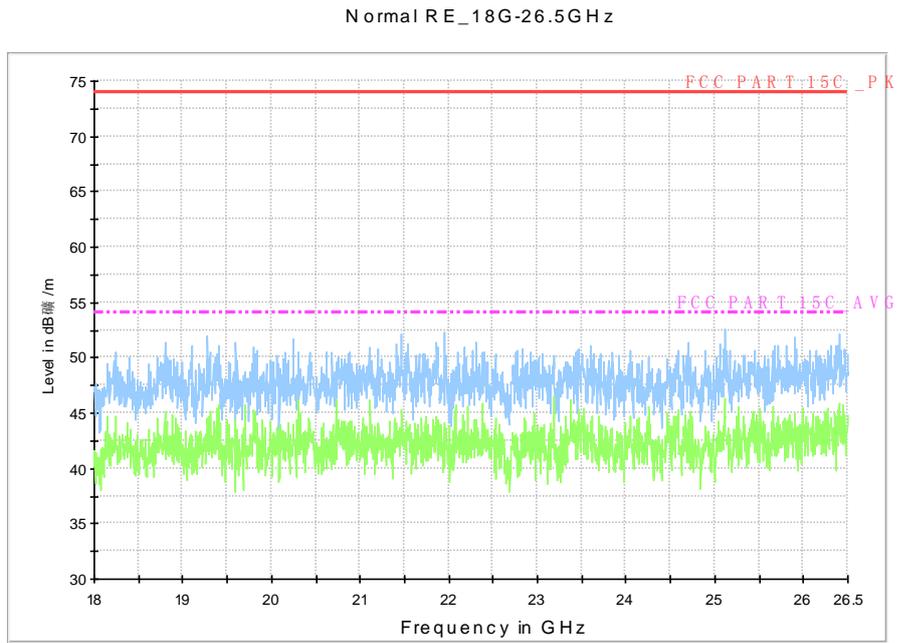


Fig. 107 Radiated Spurious Emission (802.11n-HT40, U-NII 1, 18 GHz-26.5 GHz)

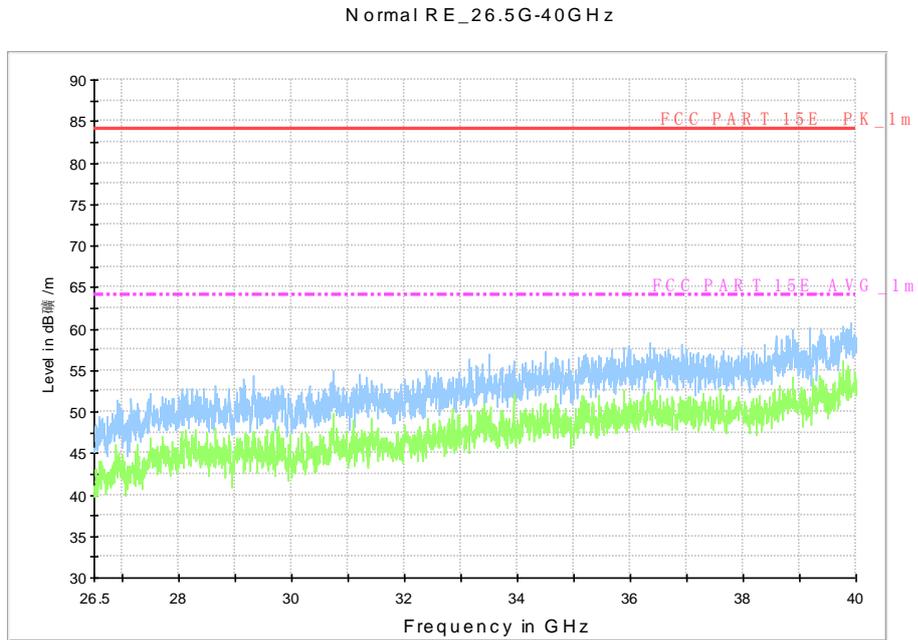


Fig. 108 Radiated Spurious Emission (802.11n-HT40, U-NII 1, 26.5 GHz-40 GHz)

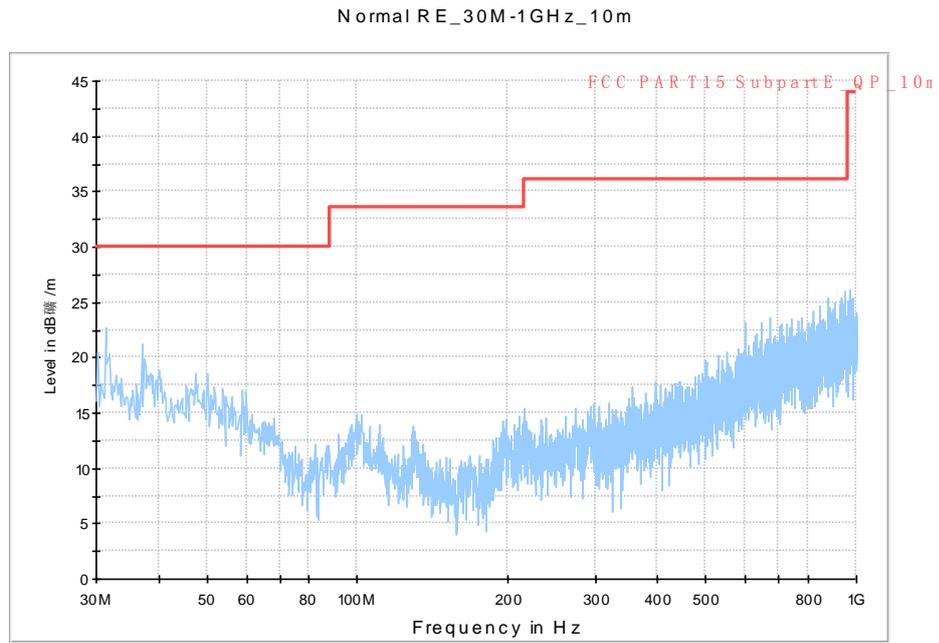


Fig. 109 Radiated Spurious Emission (802.11n-HT40, ch54, 30 MHz-1 GHz)

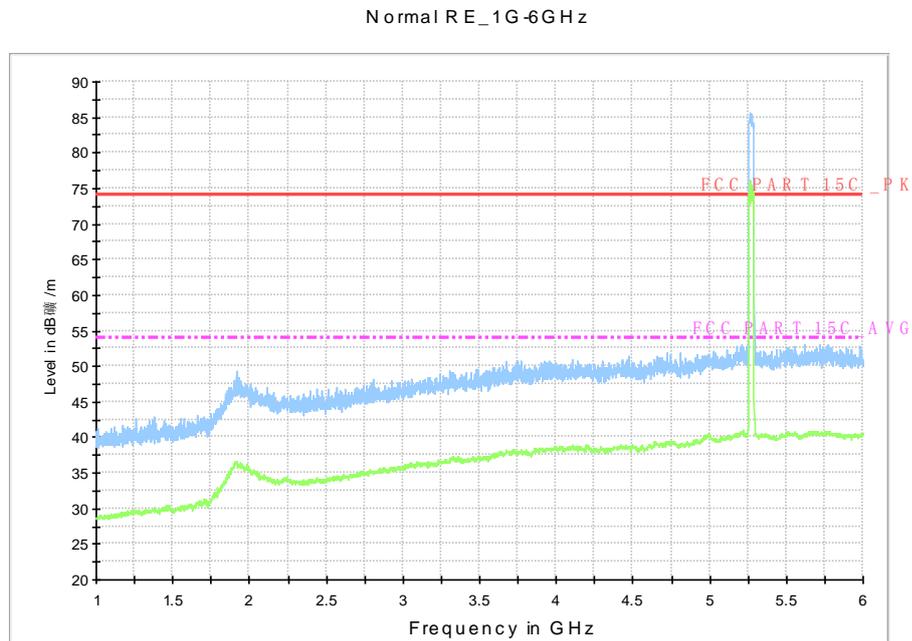


Fig. 110 Radiated Spurious Emission (802.11n-HT40, ch54, 1 GHz-6 GHz)

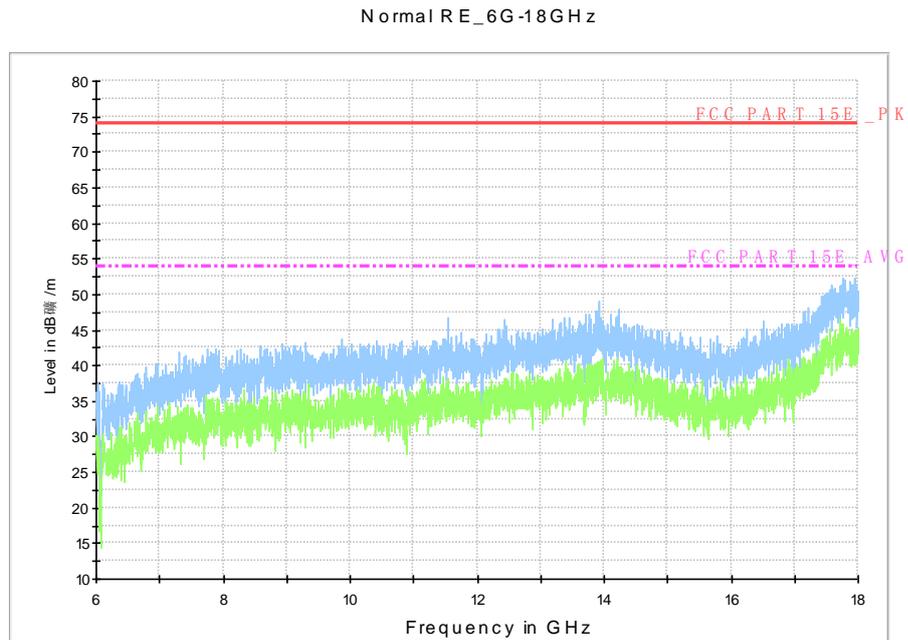


Fig. 111 Radiated Spurious Emission (802.11n-HT40, ch54, 6 GHz-18 GHz)

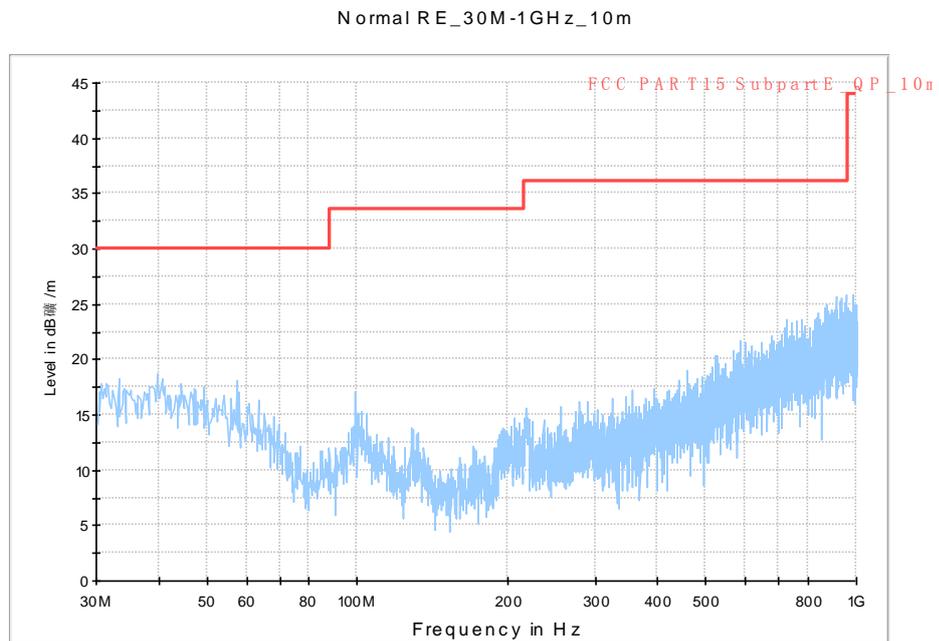


Fig. 112 Radiated Spurious Emission (802.11n-HT40, ch62, 30 MHz-1 GHz)

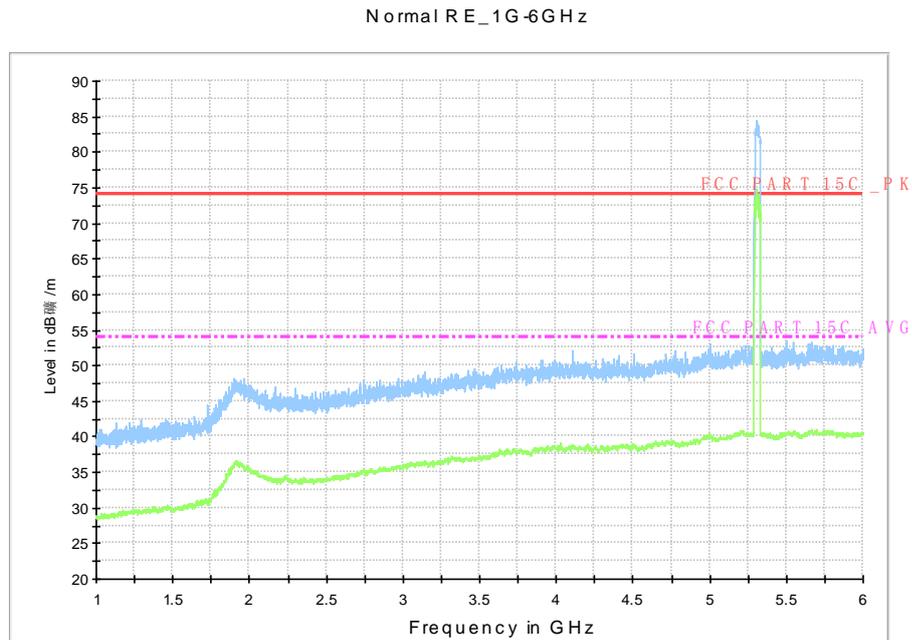


Fig. 113 Radiated Spurious Emission (802.11n-HT40, ch62, 1 GHz-6 GHz)

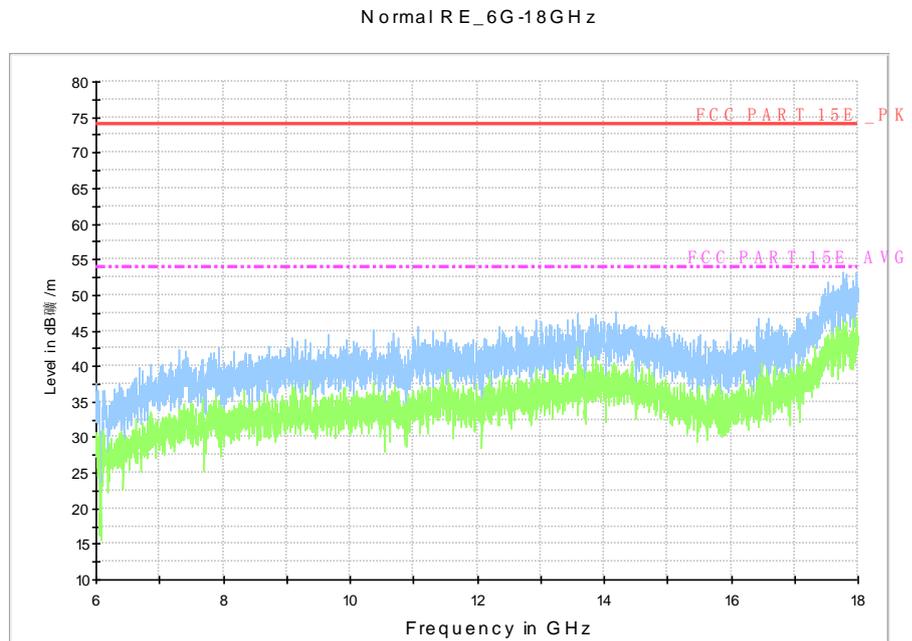


Fig. 114 Radiated Spurious Emission (802.11n-HT40, ch62, 6 GHz-18 GHz)

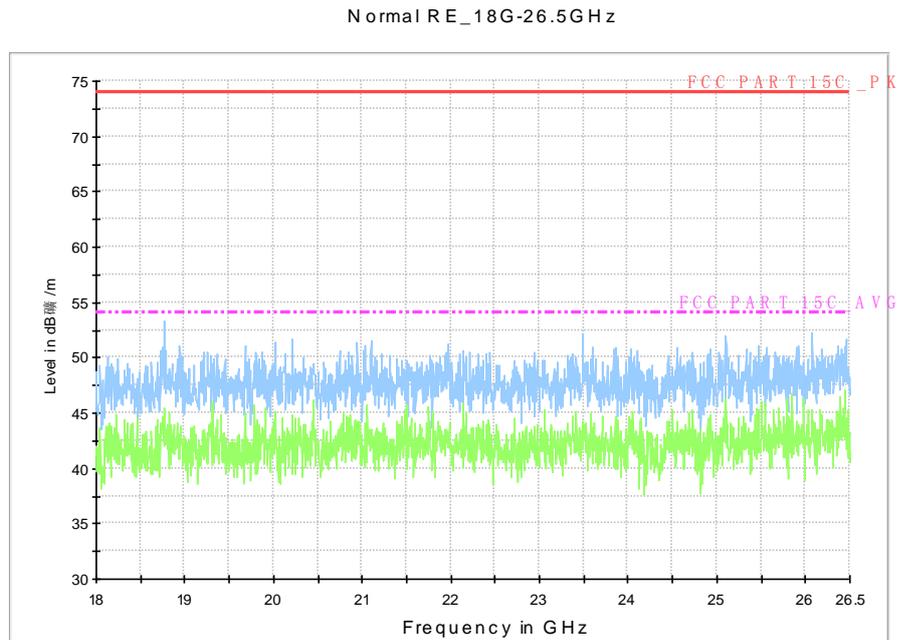


Fig. 115 Radiated Spurious Emission (802.11n-HT40, U-NII 2, 18 GHz-26.5 GHz)

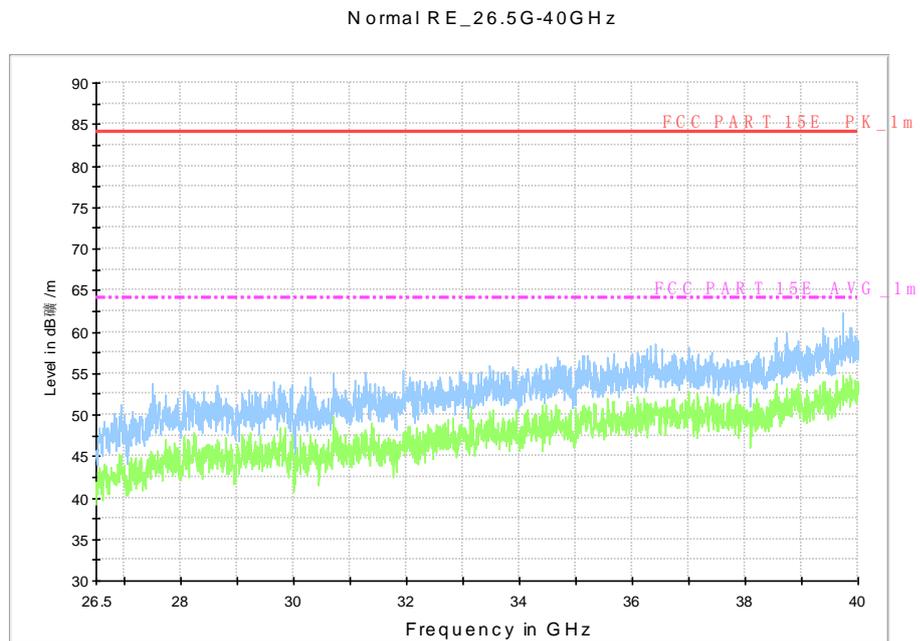


Fig. 116 Radiated Spurious Emission (802.11n-HT40, U-NII 2, 26.5 GHz-40 GHz)

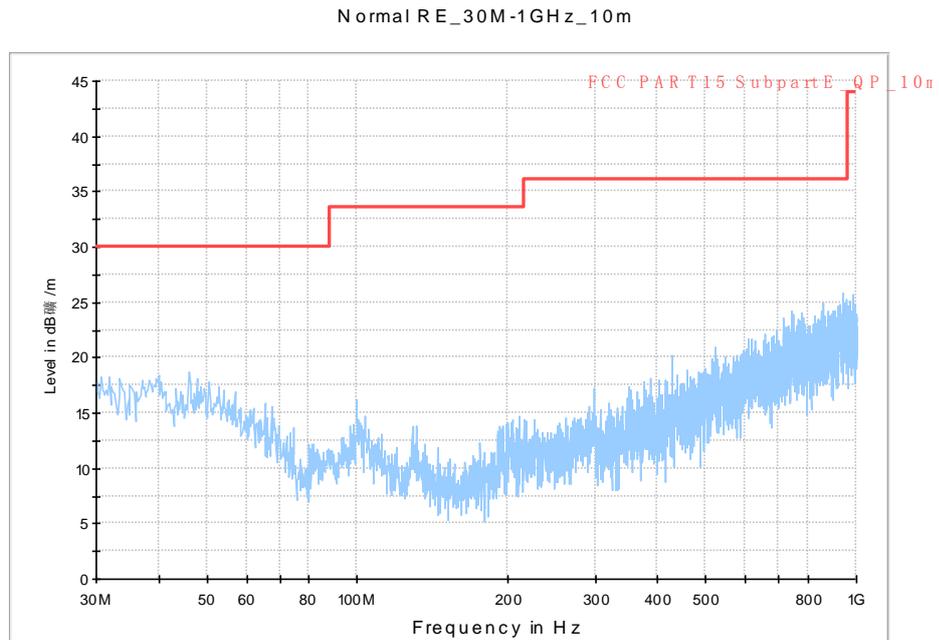


Fig. 117 Radiated Spurious Emission (802.11n-HT40, ch102, 30 MHz-1 GHz)

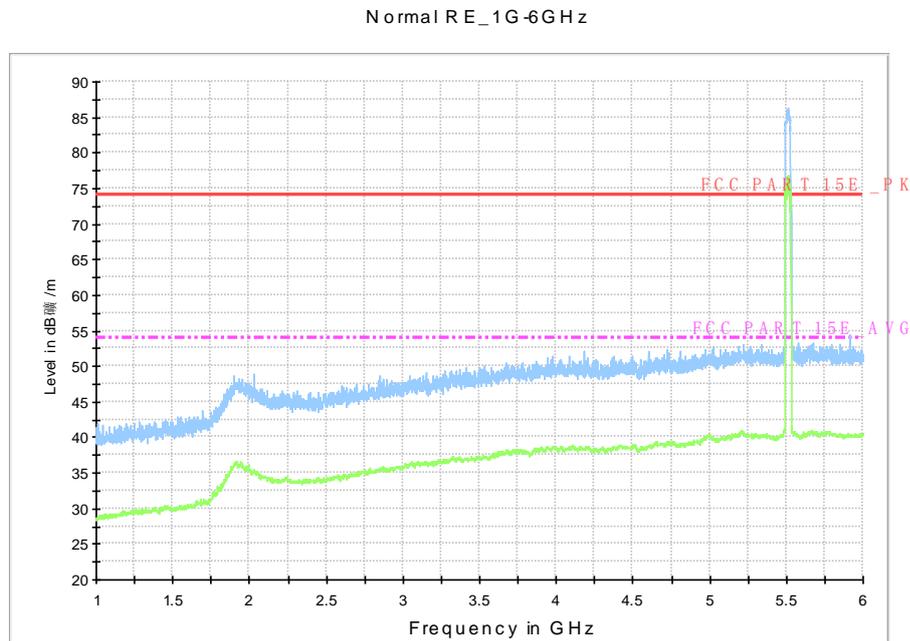


Fig. 118 Radiated Spurious Emission (802.11n-HT40, ch102, 1 GHz-6 GHz)

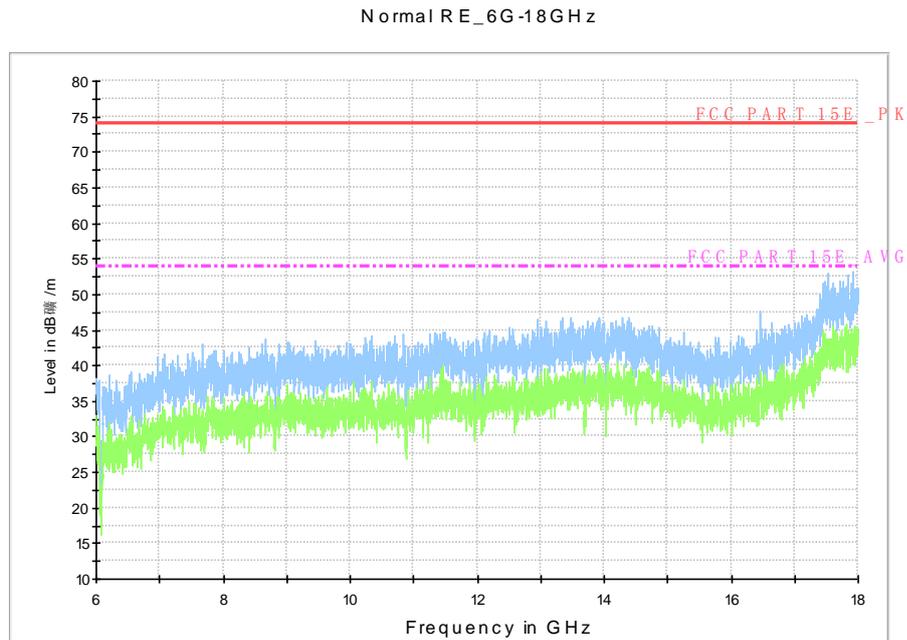


Fig. 119 Radiated Spurious Emission (802.11n-HT40, ch102, 6 GHz-18 GHz)

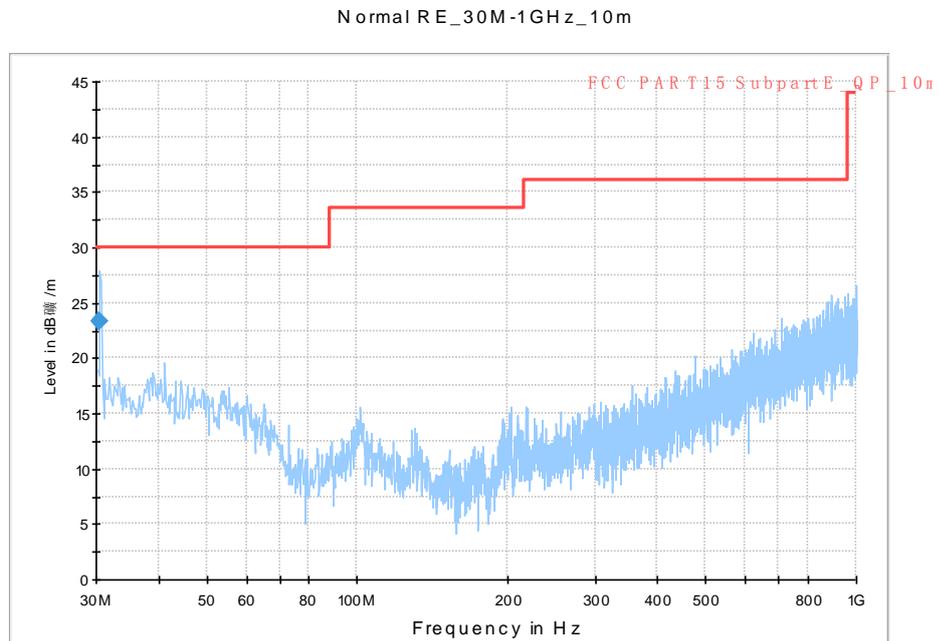


Fig. 120 Radiated Spurious Emission (802.11n-HT40, ch134, 30 MHz-1 GHz)

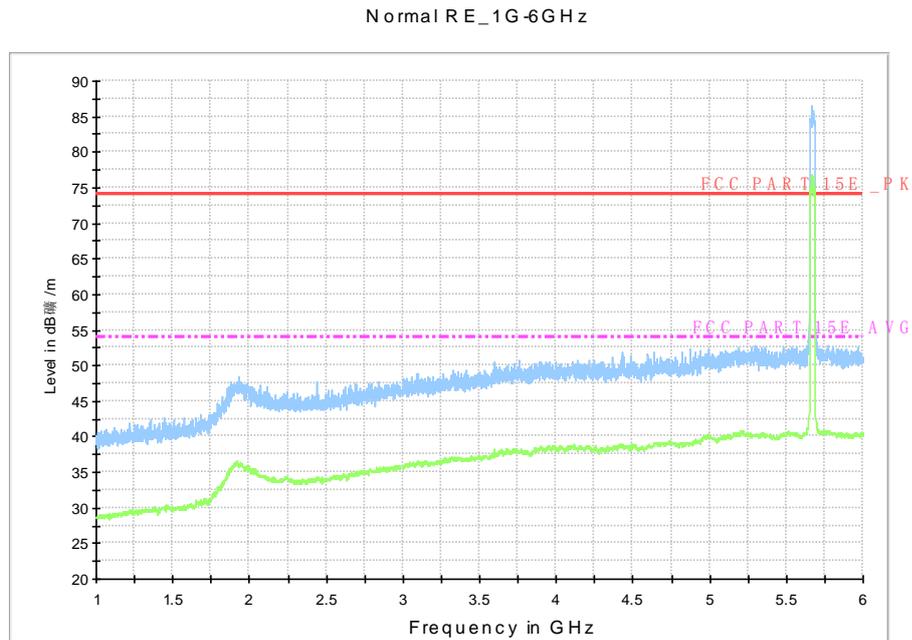


Fig. 121 Radiated Spurious Emission (802.11n-HT40, ch134, 1 GHz-6 GHz)

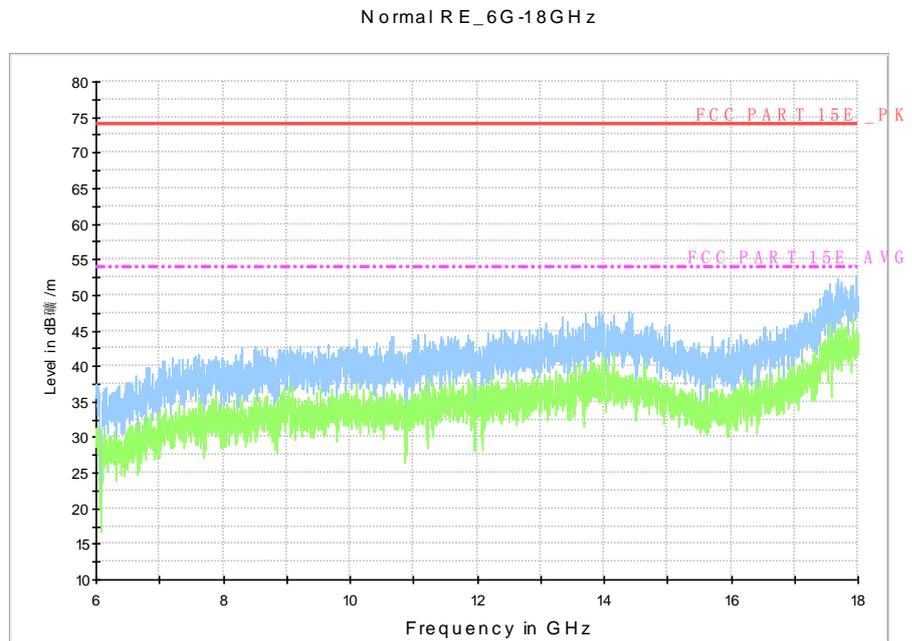


Fig. 122 Radiated Spurious Emission (802.11n-HT40, ch134, 6 GHz-18 GHz)

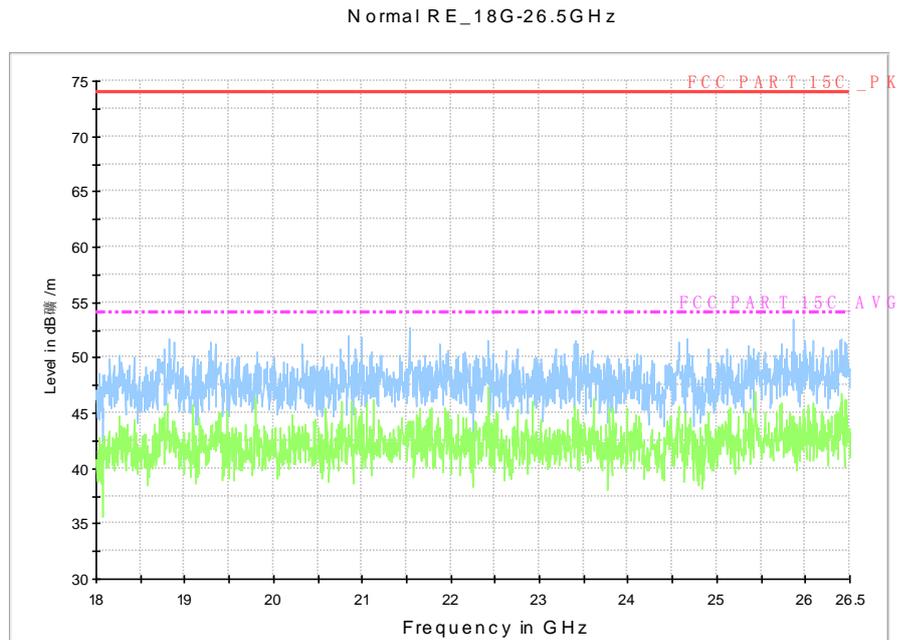


Fig. 123 Radiated Spurious Emission (802.11n-HT40, U-NII 3, 18 GHz-26.5 GHz)

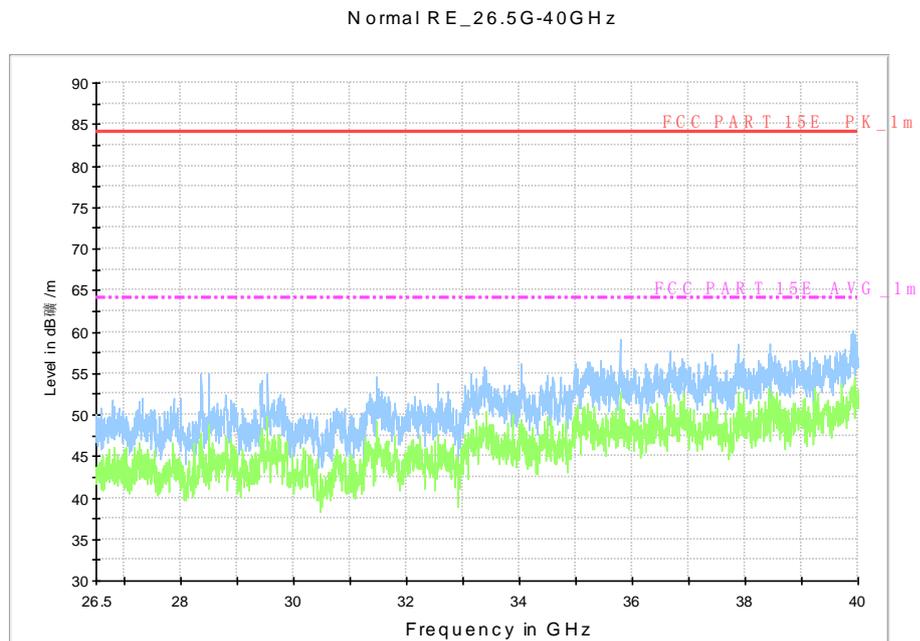


Fig. 124 Radiated Spurious Emission (802.11n-HT40, U-NII 3, 26.5 GHz-40 GHz)

Measurement Results-Wireless charging:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.125	P
		1 GHz ~ 6 GHz	Fig.126	P
		6 GHz ~ 18 GHz	Fig.127	P
		18 GHz ~ 26.5 GHz	Fig.128	P
		26.5 GHz ~ 40 GHz	Fig.129	P
	64(5320MHz)	30 MHz ~1 GHz	Fig.130	P
		1 GHz ~ 6 GHz	Fig.131	P
		6 GHz ~ 18 GHz	Fig.132	P
		18 GHz ~ 26.5 GHz	Fig.133	P
		26.5 GHz ~ 40 GHz	Fig.134	P
	100(5500MHz)	30 MHz ~1 GHz	Fig.135	P
		1 GHz ~ 6 GHz	Fig.136	P
		6 GHz ~ 18 GHz	Fig.137	P
		18 GHz ~ 26.5 GHz	Fig.138	P
		26.5 GHz ~ 40 GHz	Fig.139	P

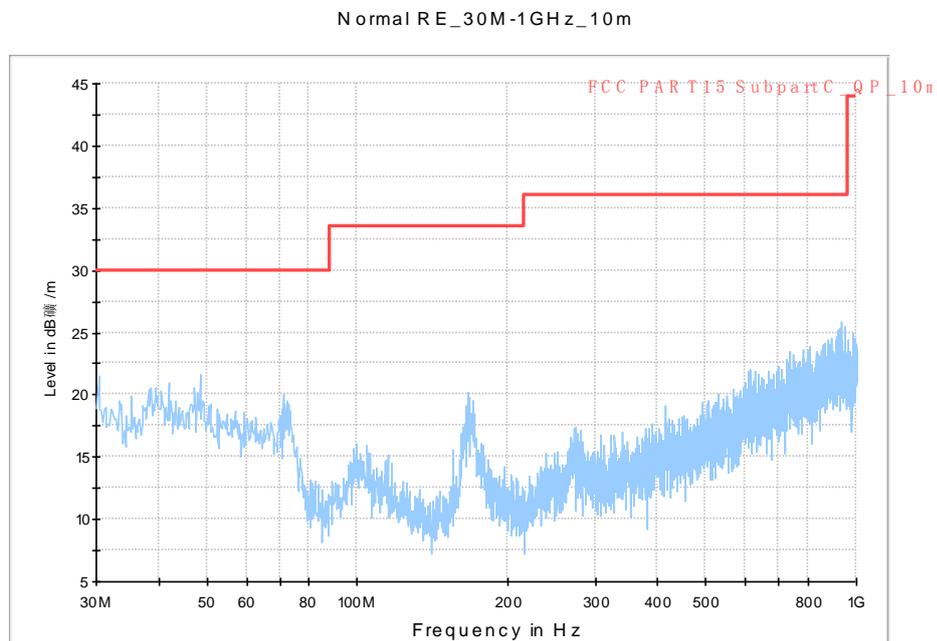


Fig. 125 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)

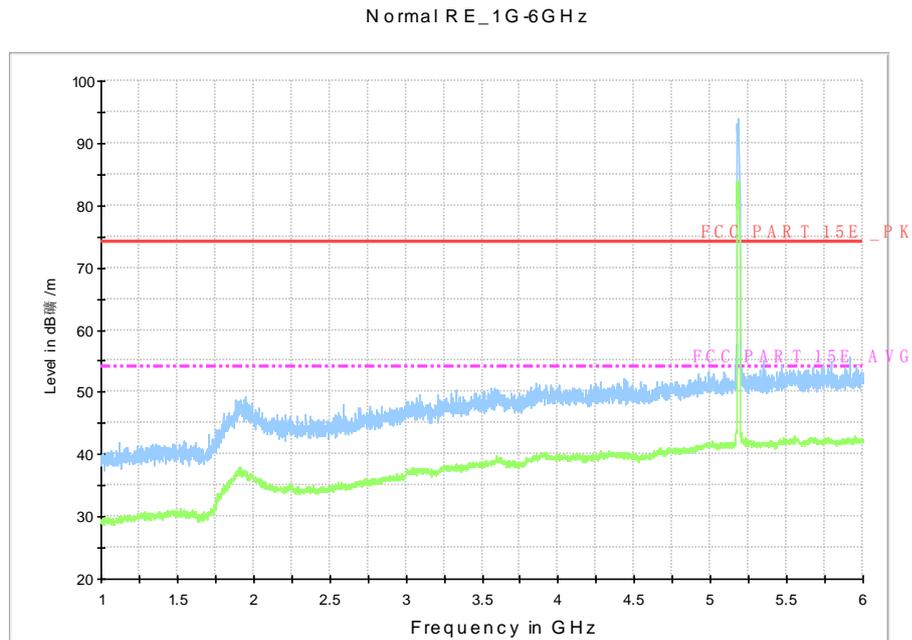


Fig. 126 Radiated Spurious Emission (802.11a, ch36, 1 GHz-6 GHz)

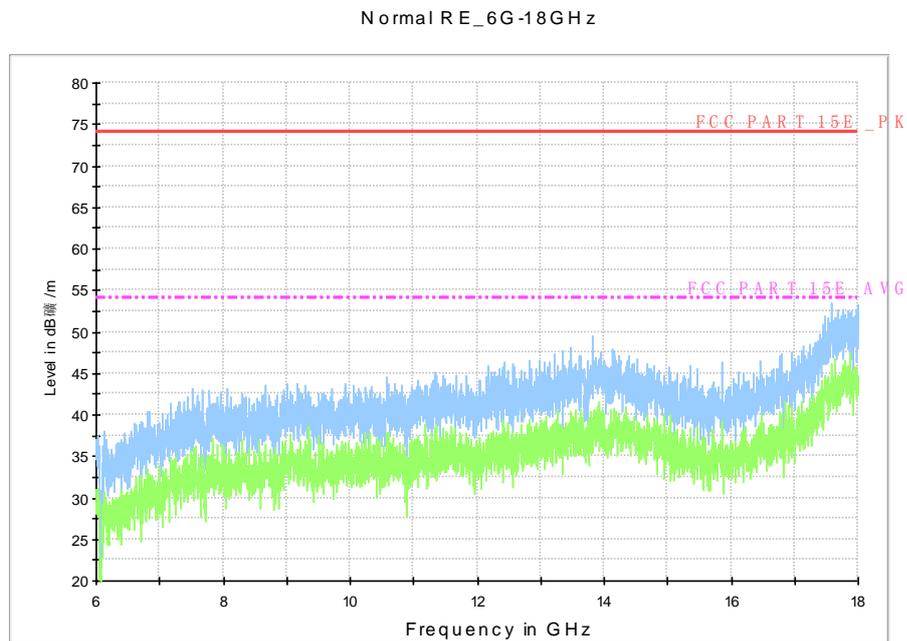


Fig. 127 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)

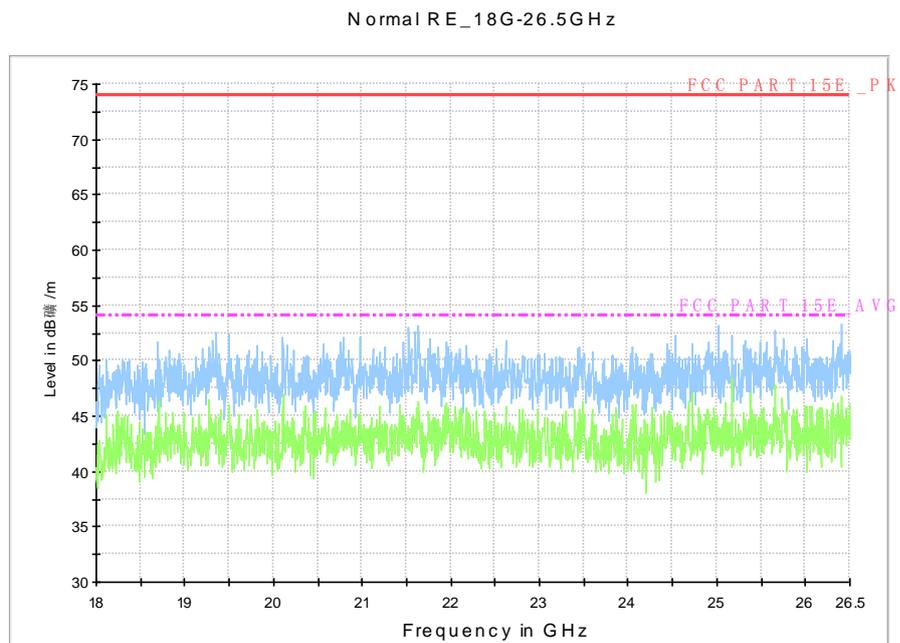


Fig. 128 Radiated Spurious Emission (802.11a, ch36, 18 GHz ~ 26.5 GHz)

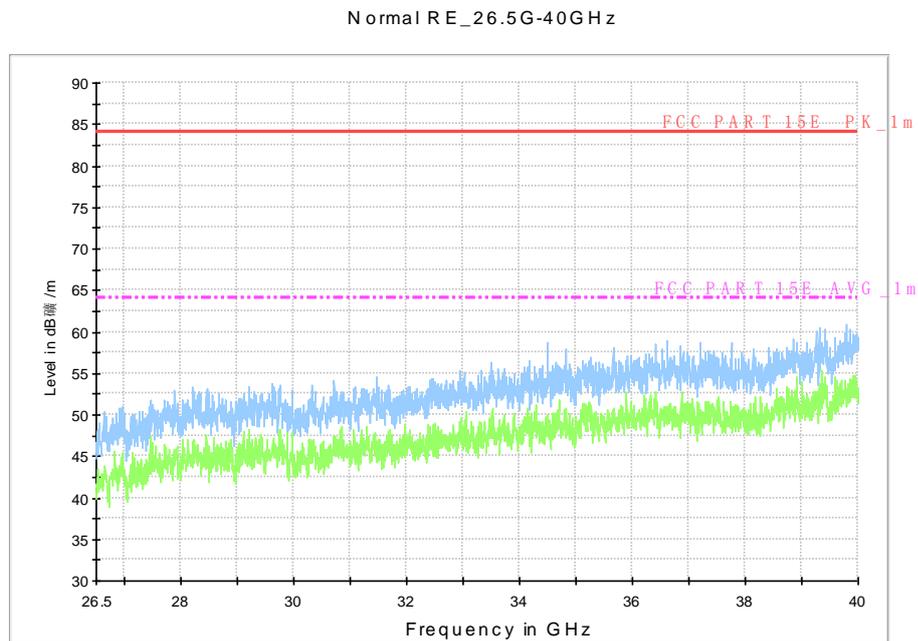


Fig. 129 Radiated Spurious Emission (802.11a, ch36, 26.5 GHz ~ 40 GHz)

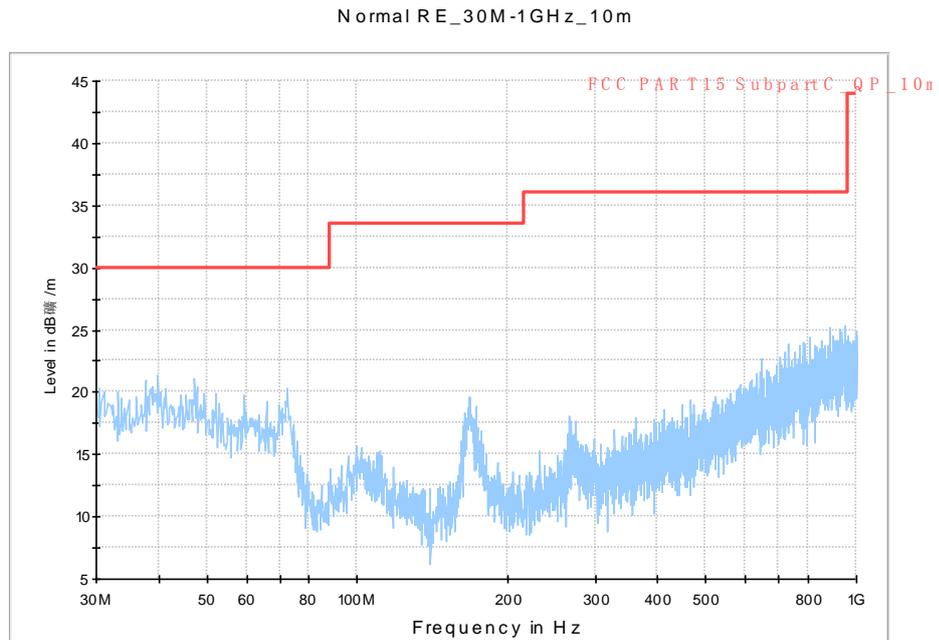


Fig. 130 Radiated Spurious Emission (802.11a, ch64, 30 MHz-1 GHz)

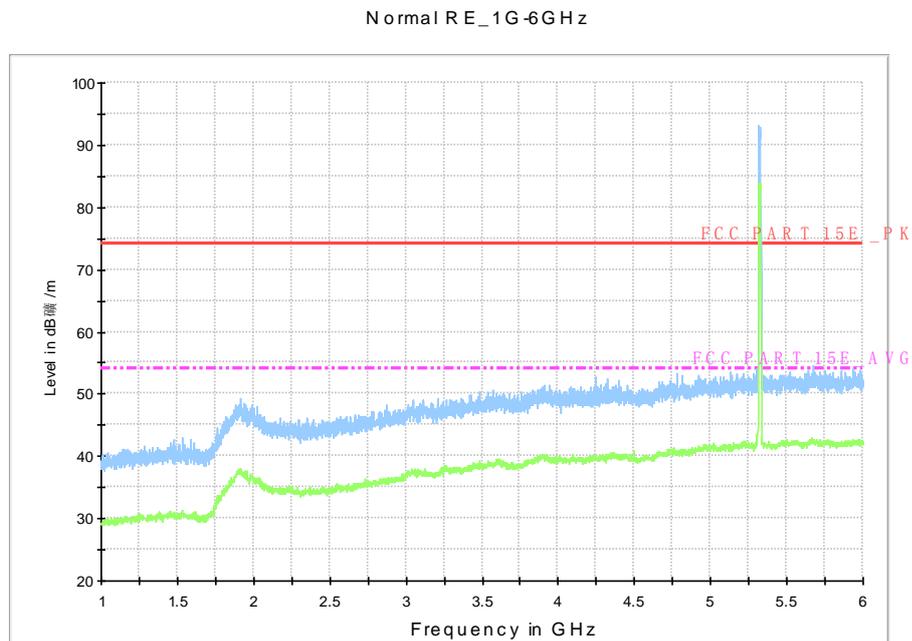


Fig. 131 Radiated Spurious Emission (802.11a, ch64, 1 GHz-6 GHz)

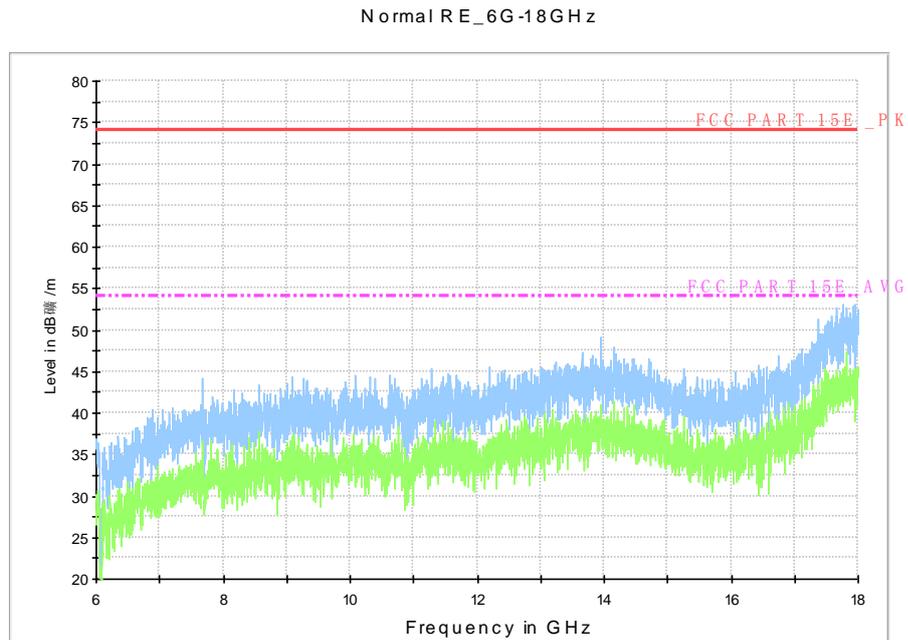


Fig. 132 Radiated Spurious Emission (802.11a, ch64, 6 GHz-18 GHz)

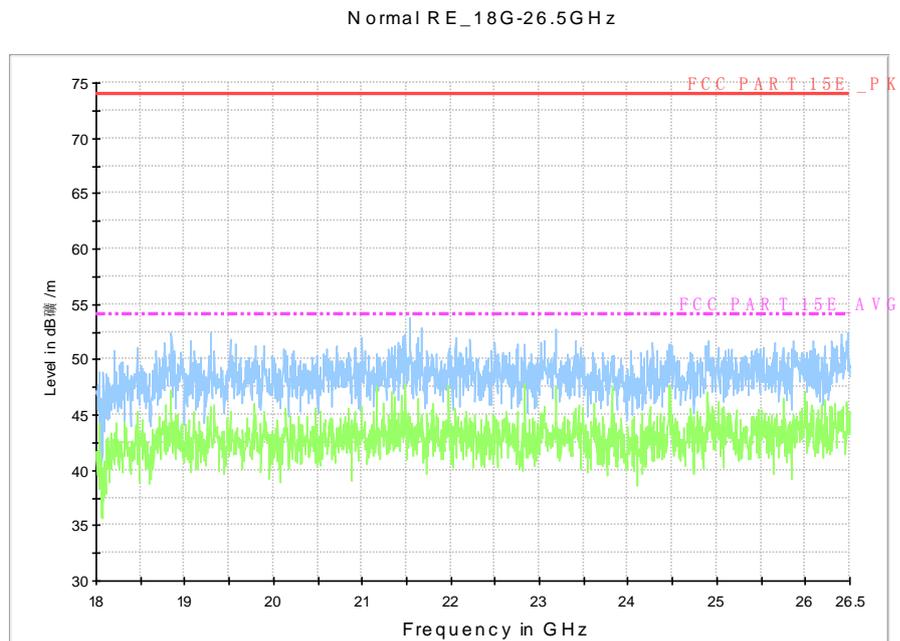


Fig. 133 Radiated Spurious Emission (802.11a, ch64, 18 GHz ~ 26.5 GHz)

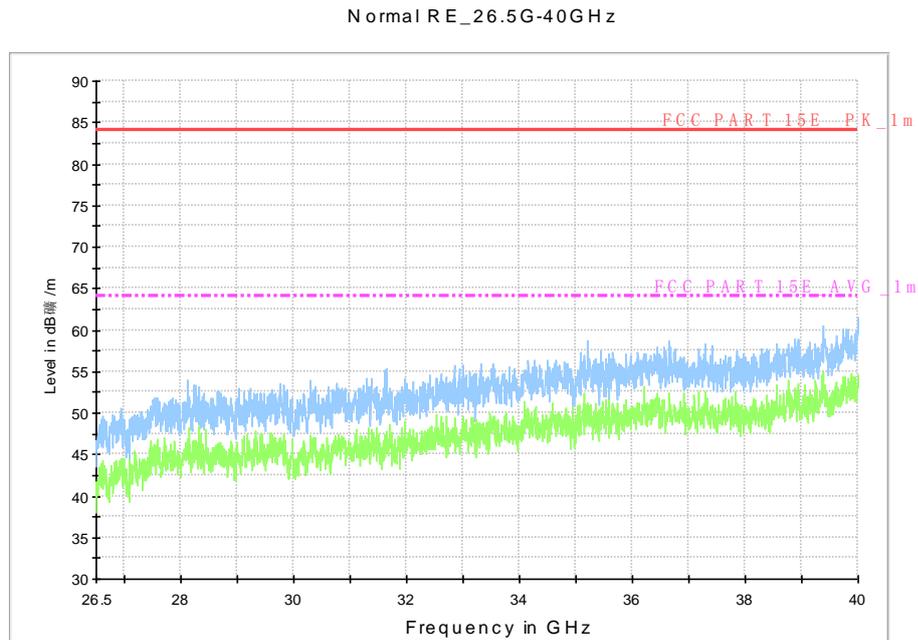


Fig. 134 Radiated Spurious Emission (802.11a, ch64, 26.5 GHz ~ 40 GHz)

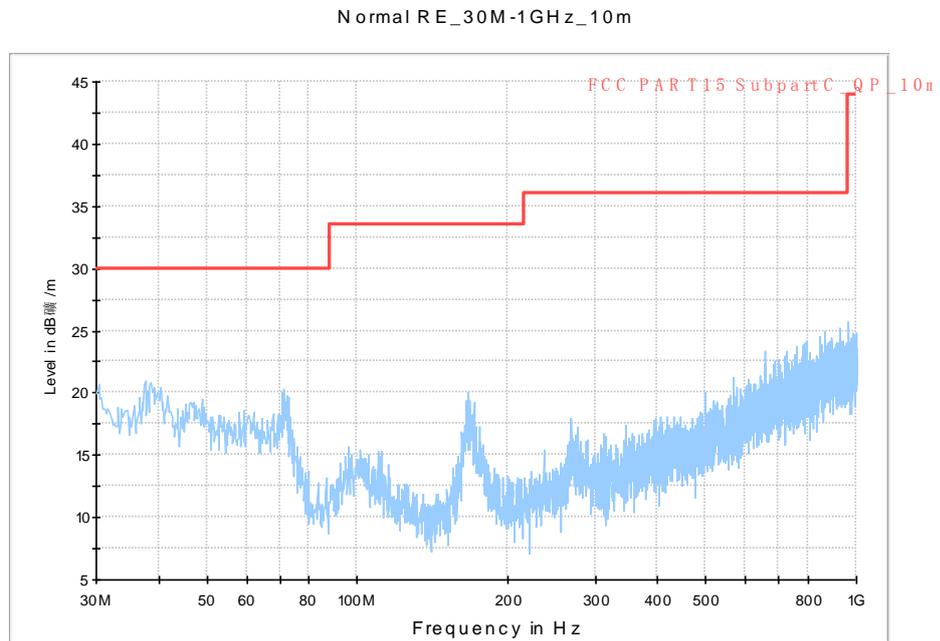


Fig. 135 Radiated Spurious Emission (802.11a, ch100, 30 MHz-1 GHz)

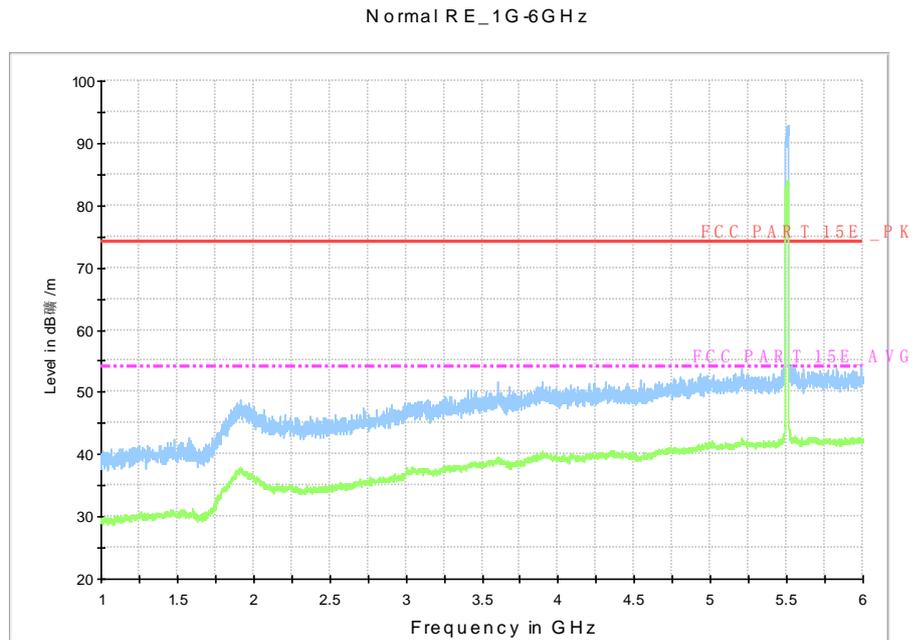


Fig. 136 Radiated Spurious Emission (802.11a, ch100, 1 GHz-6 GHz)

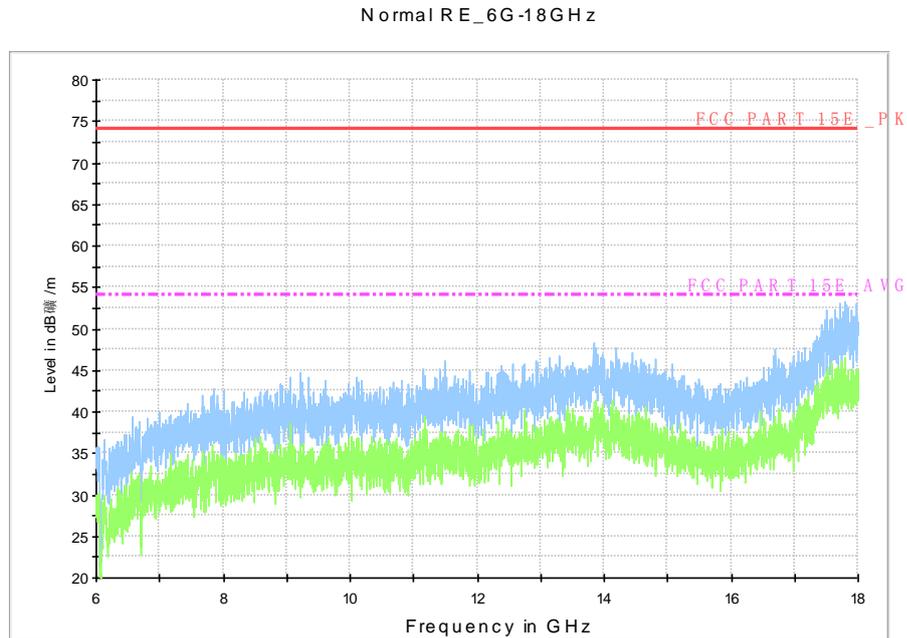


Fig. 137 Radiated Spurious Emission (802.11a, ch100, 6 GHz-18 GHz)

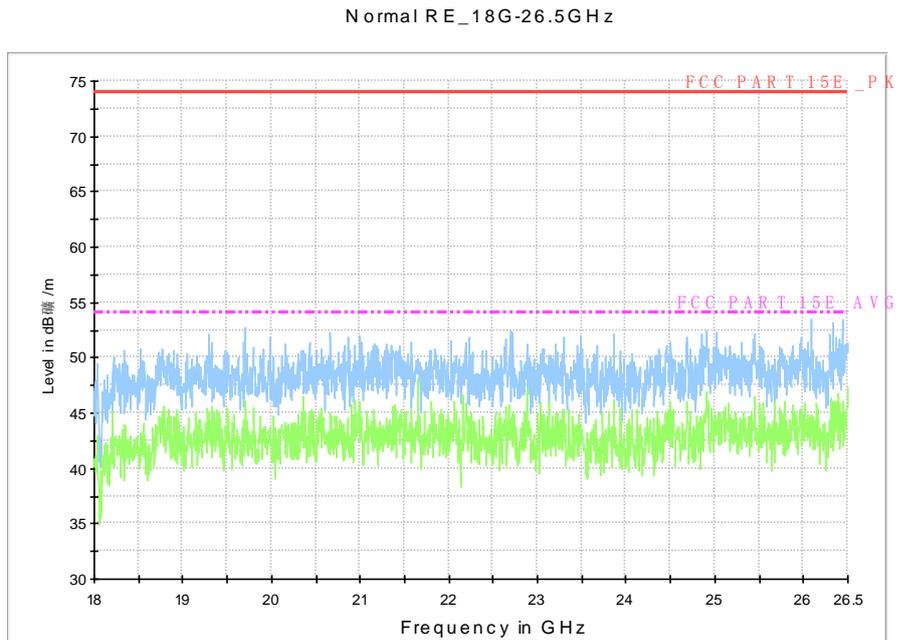


Fig. 138 Radiated Spurious Emission (802.11a, ch100, 18 GHz ~ 26.5 GHz)

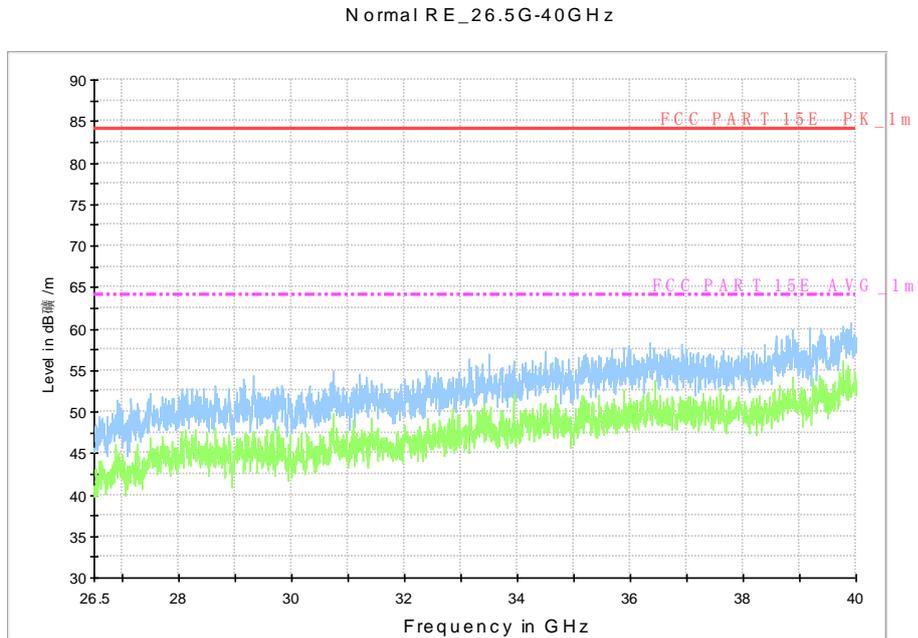


Fig. 139 Radiated Spurious Emission (802.11a, ch100, 26.5 GHz ~ 40 GHz)

A.7. Spurious Emissions Radiated < 30MHz

Measurement Limit(15.209, 9kHz-30MHz):

Frequency (MHz)	Field strength($\mu\text{V/m}$)	Measurement distance(m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

The measurement is made according to KDB 789033

Note: The measurement distance during the test is 3m. The limit used in plots is recalculated based on the extrapolation factor of 40 dB/decade.

Measurement uncertainty:

Expanded measurement uncertainty for this test item is $U = 2.6\text{dB}$, $k=2$.

Measurement Results-Cable charging:

Mode	Frequency Range	Test Results	Conclusion
802.11a	9 kHz ~30 MHz	Fig.140	P

Measurement Results-Wireless charging:

Mode	Frequency Range	Test Results	Conclusion
802.11a	9 kHz ~30 MHz	Fig.141	P

Conclusion: PASS

Test graphs as below:

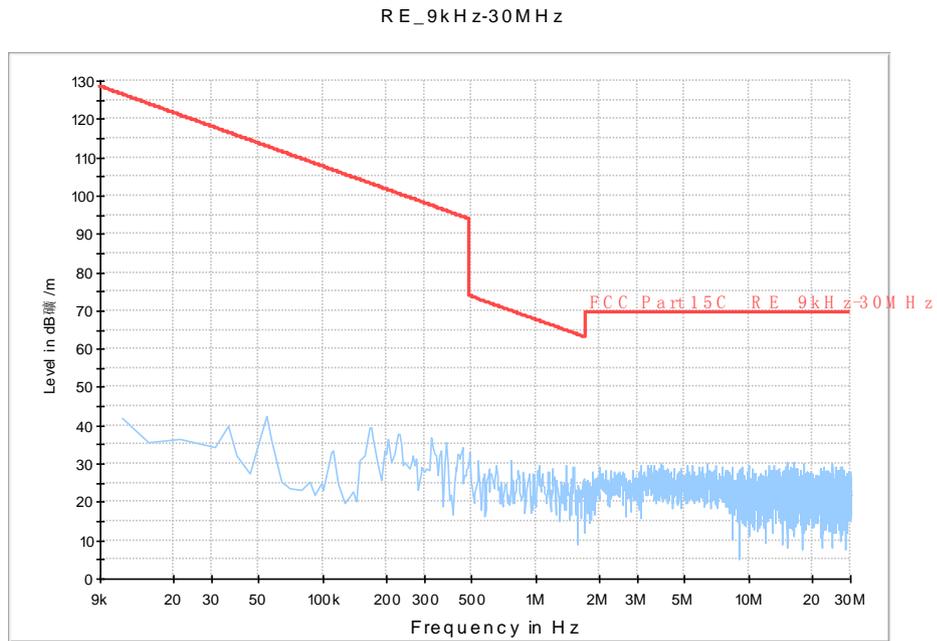


Fig. 140 Radiated Spurious Emission (802.11a, ch40, 9 kHz ~30 MHz)

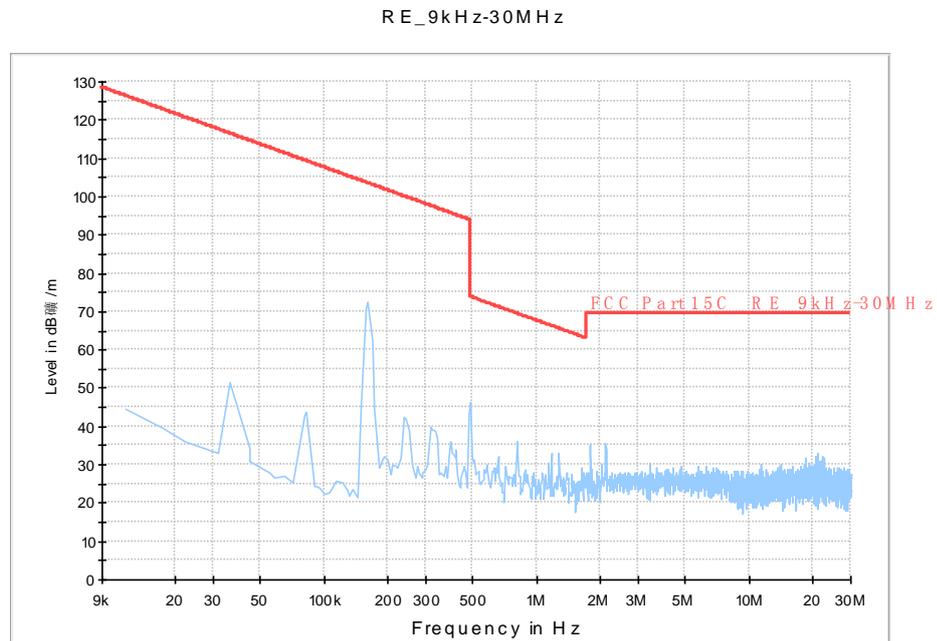


Fig. 141 Radiated Spurious Emission (802.11a, ch40, 9 kHz ~30 MHz)

A.8. Conducted Emission (150kHz- 30MHz)

Test Condition:

Voltage (V)	Frequency (Hz)
110	60

Measurement uncertainty:

Expanded measurement uncertainty for this test item is $U = 3.2\text{dB}$, $k=2$.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 142	Fig. 143	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.

Conclusion: PASS

Test graphs as below:

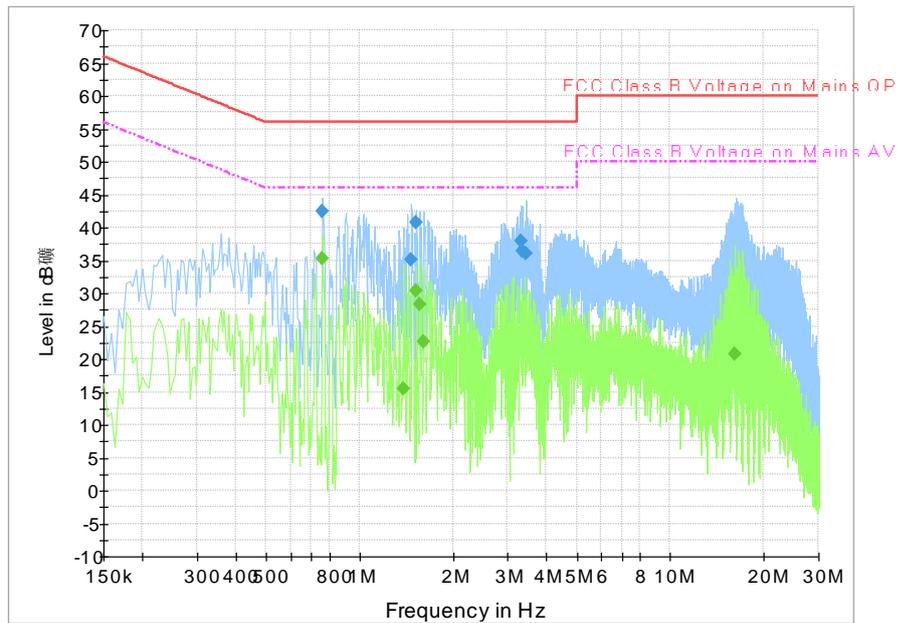


Fig. 142 Conducted Emission(802.11a, Ch40, TX)

Measurement Result:

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.762000	42.4	GND	L1	9.8	13.6	56.0
1.468500	35.1	GND	L1	9.7	20.9	56.0
1.518000	40.8	GND	L1	9.7	15.2	56.0
3.322500	38.0	GND	L1	9.7	18.0	56.0
3.336000	36.5	GND	L1	9.7	19.5	56.0
3.439500	36.0	GND	L1	9.7	20.0	56.0

Measurement Result:

Frequency (MHz)	Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.757500	35.2	GND	N	9.8	10.8	46.0
1.383000	15.6	GND	L1	9.7	30.4	46.0
1.518000	30.4	GND	L1	9.7	15.6	46.0
1.563000	28.2	GND	L1	9.7	17.8	46.0
1.608000	22.6	GND	L1	9.7	23.4	46.0
16.147500	20.8	GND	L1	9.4	29.2	50.0

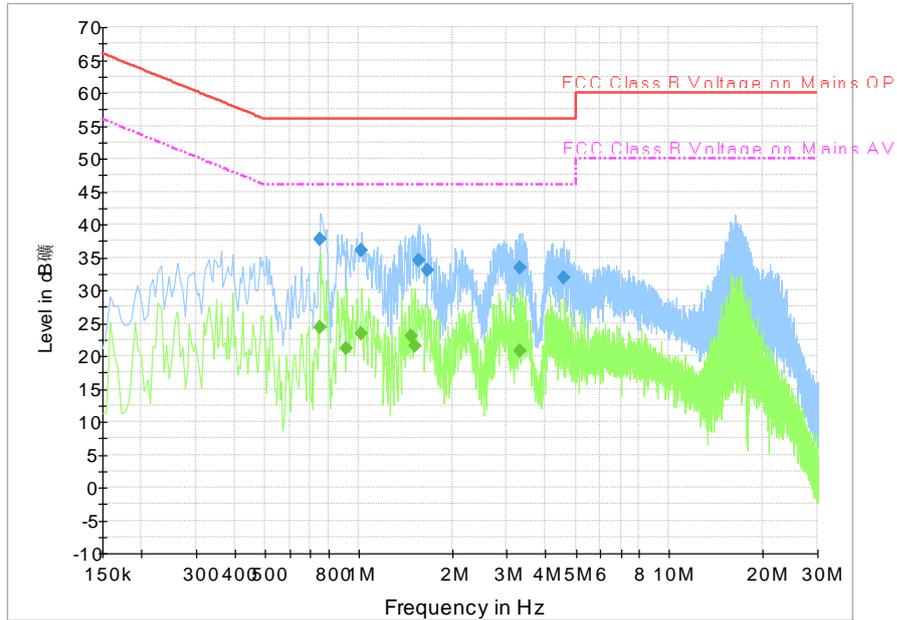


Fig. 143 Conducted Emission(802.11a, IDLE)

Measurement Result:

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.753000	37.7	GND	L1	9.8	18.3	56.0
1.023000	36.0	GND	L1	9.7	20.0	56.0
1.558500	34.6	GND	L1	9.7	21.4	56.0
1.666500	33.0	GND	L1	9.7	23.0	56.0
3.318000	33.4	GND	L1	9.7	22.6	56.0
4.596000	31.9	GND	L1	9.8	24.1	56.0

Measurement Result:

Frequency (MHz)	Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.753000	24.4	GND	L1	9.8	21.6	46.0
0.915000	21.1	GND	L1	9.7	24.9	46.0
1.023000	23.4	GND	L1	9.7	22.6	46.0
1.482000	23.0	GND	L1	9.7	23.0	46.0
1.513500	21.6	GND	L1	9.7	24.4	46.0
3.318000	20.8	GND	L1	9.7	25.2	46.0

A.9. 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
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Measurement Result:

11a mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig. 144	8.24	Fig. 145	8.31	Fig. 146	9.22
Average(dBm)	Fig. 147	0.33	Fig. 148	0.36	Fig. 149	1.47
Result (dB)	7.91		7.95		7.75	

Type	Test Result (dBm)					
	5260MHz (Ch52)		5280 MHz (Ch56)		5320 MHz (Ch64)	
Peak (dBm)	Fig. 150	9.13	Fig. 151	8.57	Fig. 152	8.14
Average(dBm)	Fig. 153	0.10	Fig. 154	0.87	Fig. 155	0.19
Result (dB)	9.03		7.70		7.95	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5580MHz (Ch116)		5700MHz (Ch140)	
Peak (dBm)	Fig. 156	7.53	Fig. 157	8.15	Fig. 158	8.14
Average(dBm)	Fig. 159	-0.25	Fig. 160	0.52	Fig. 161	0.41
Result (dB)	7.78		7.63		7.73	

11n-HT20 mode

Type	Peak Excursion					
	5180MHz (Ch36)		5200MHz (Ch40)		5240MHz (Ch48)	
Peak (dBm)	Fig. 162	6.98	Fig. 163	7.24	Fig. 164	8.35
Average(dBm)	Fig. 165	-0.93	Fig. 166	-0.68	Fig. 167	0.27
Result (dB)	7.91		7.92		8.08	

Type	Test Result (dBm)					
	5260MHz (Ch52)		5280 MHz (Ch56)		5320 MHz (Ch64)	
Peak (dBm)	Fig. 168	5.91	Fig. 169	6.47	Fig. 170	5.88
Average(dBm)	Fig. 171	-1.80	Fig. 172	-1.22	Fig. 173	-2.02
Result (dB)	7.71		7.69		7.90	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5580MHz (Ch116)		5700MHz (Ch140)	
Peak (dBm)	Fig. 174	5.29	Fig. 175	7.28	Fig. 176	7.07
Average(dBm)	Fig. 177	-2.79	Fig. 178	-0.68	Fig. 179	-0.85
Result (dB)	8.08		7.96		7.92	

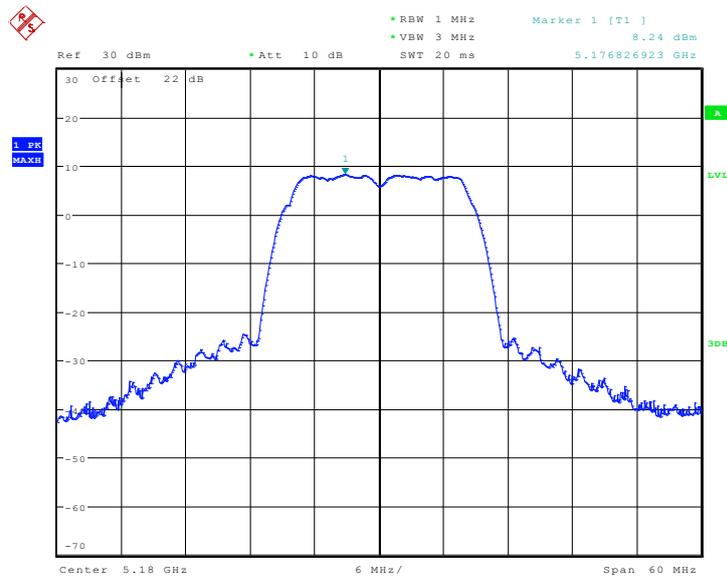
11n-HT40 mode

Type	Peak Excursion							
	5190MHz (Ch38)		5230MHz (Ch46)		5270MHz (Ch54)		5310 MHz (Ch62)	
Peak (dBm)	Fig. 180	5.23	Fig. 181	6.18	Fig. 182	4.46	Fig. 183	3.76
Average(dBm)	Fig. 184	-3.48	Fig. 185	-2.34	Fig. 186	-4.26	Fig. 187	-4.56
Result (dB)	8.71		8.52		8.72		8.32	

Type	Test Result (dBm)					
	5510MHz (Ch102)		5590MHz (Ch118)		5670MHz (Ch134)	
Peak (dBm)	Fig. 188	3.70	Fig. 189	5.17	Fig. 190	5.04
Average(dBm)	Fig. 191	-5.01	Fig. 192	-3.17	Fig. 193	-3.63
Result (dB)	8.71		8.34		8.67	

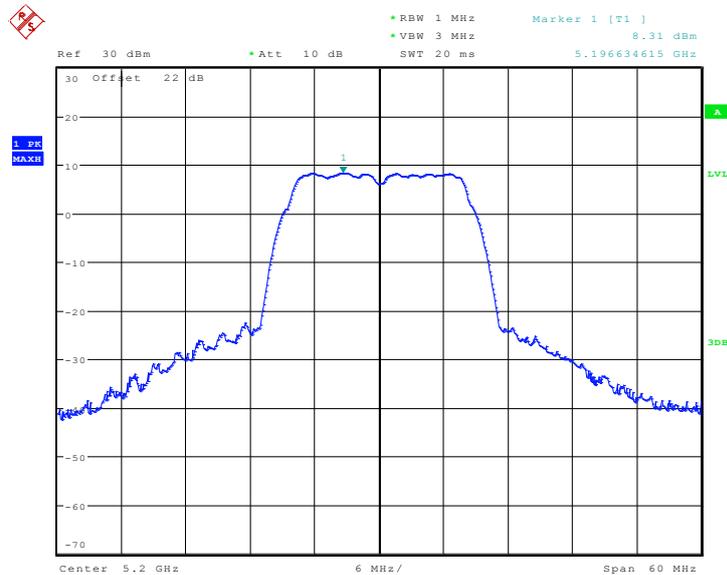
Conclusion: PASS

Test graphs as below:



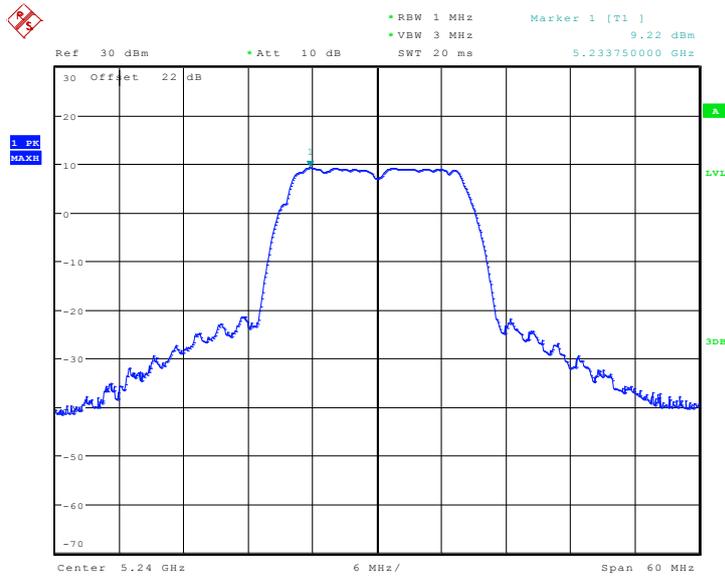
Date: 25.DEC.2013 14:52:39

Fig. 125 Peak Excursions (802.11a, ch36, peak)



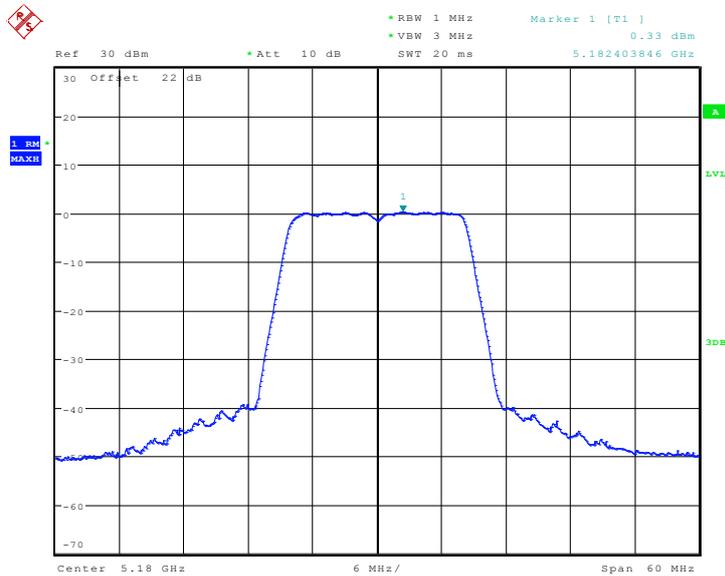
Date: 25.DEC.2013 14:53:42

Fig. 126 Peak Excursions (802.11a, ch40, peak)



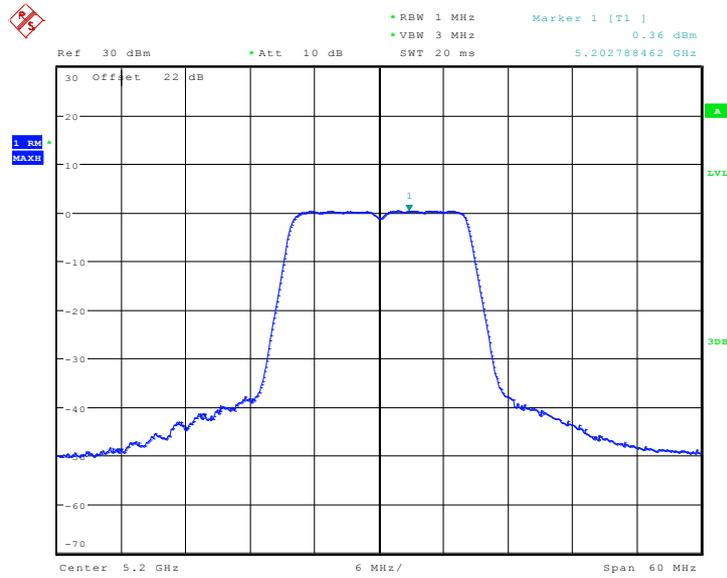
Date: 25.DEC.2013 14:56:16

Fig. 127 Peak Excursions (802.11a, ch48, peak)



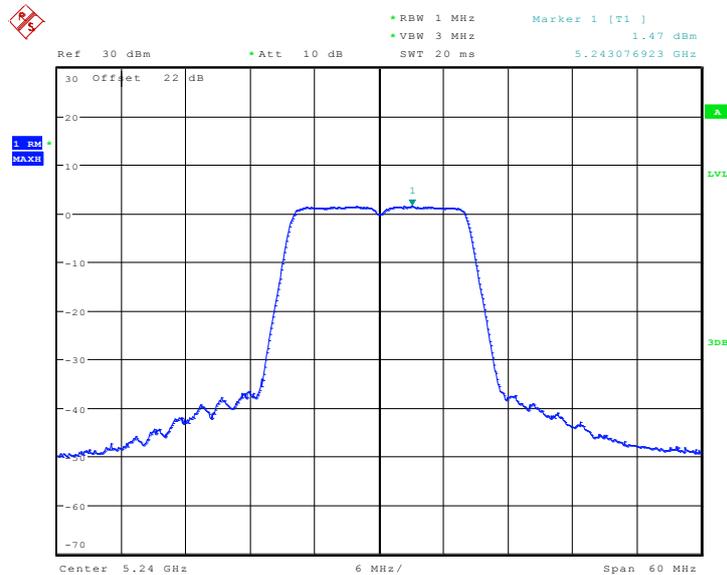
Date: 25.DEC.2013 14:52:51

Fig. 128 Peak Excursions (802.11a, ch36, average)



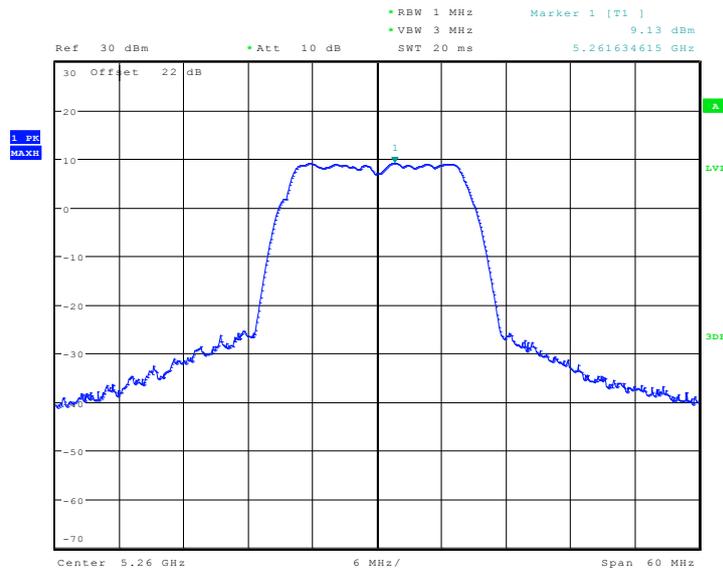
Date: 25.DEC.2013 14:55:57

Fig. 129 Peak Excursions (802.11a, ch40, average)



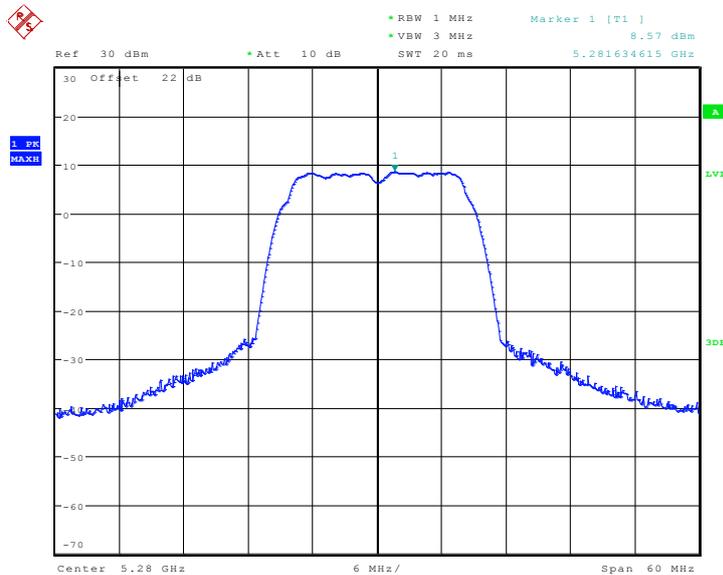
Date: 25.DEC.2013 14:56:27

Fig. 130 Peak Excursions (802.11a, ch48, average)



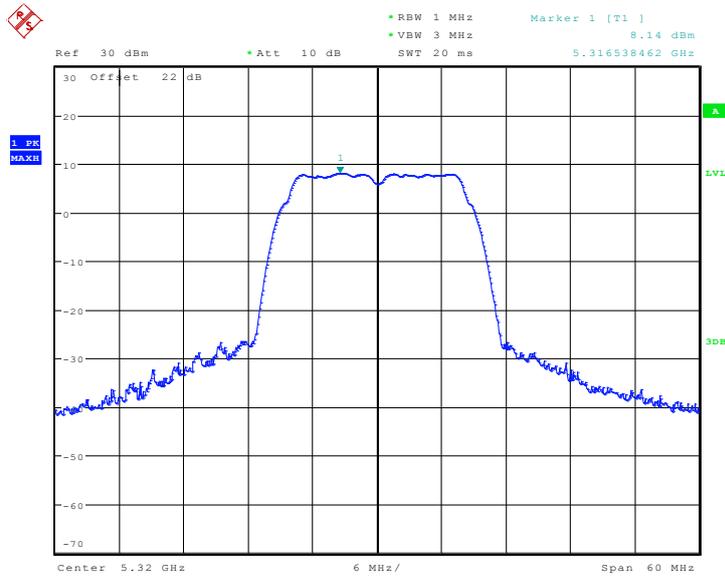
Date: 27.DEC.2013 09:22:49

Fig. 131 Peak Excursions (802.11a, ch52, peak)



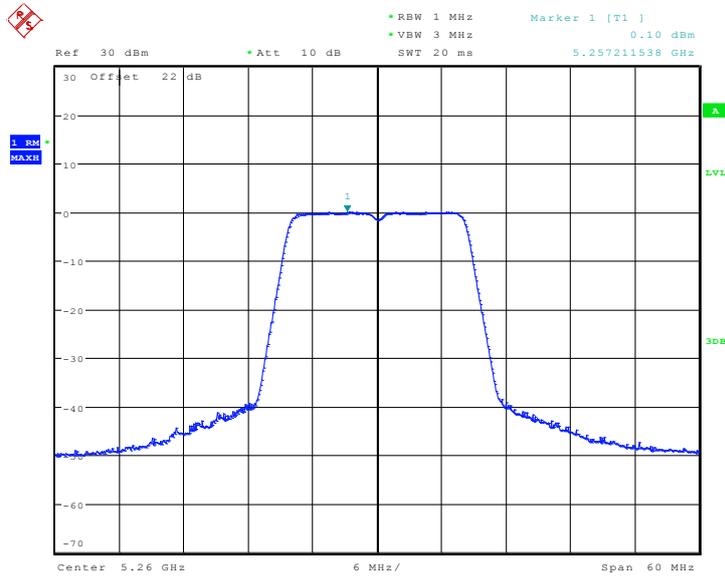
Date: 25.DEC.2013 15:00:58

Fig. 132 Peak Excursions (802.11a, ch56, peak)



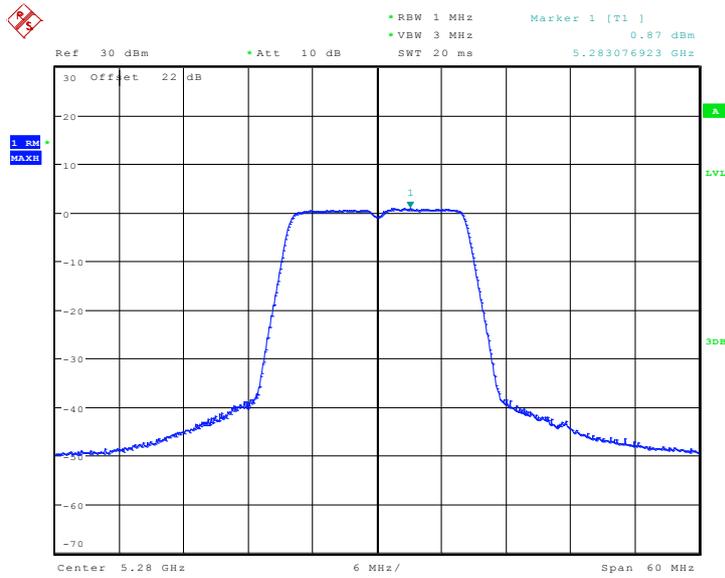
Date: 25.DEC.2013 15:01:26

Fig. 133 Peak Excursions (802.11a, ch64, peak)



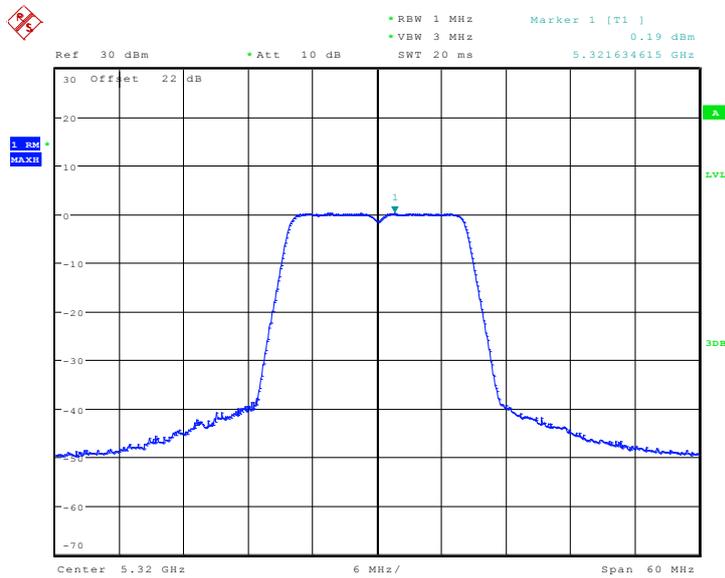
Date: 25.DEC.2013 14:56:48

Fig. 134 Peak Excursions (802.11a, ch52, average)



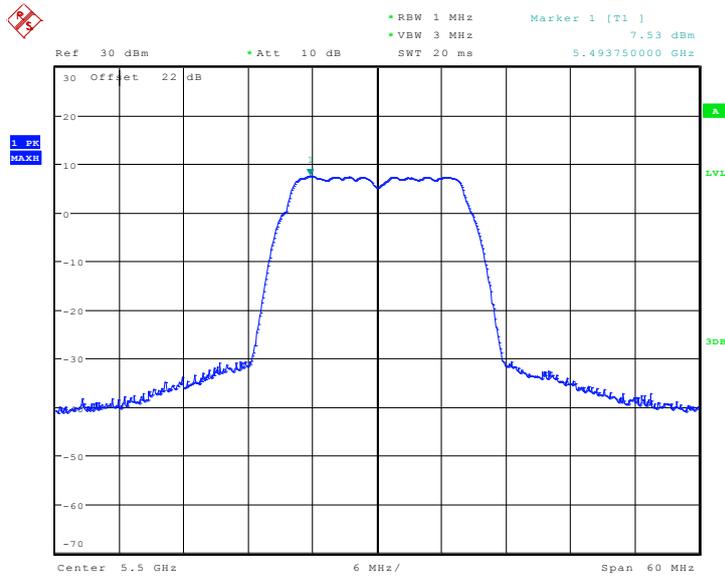
Date: 25.DEC.2013 15:00:45

Fig. 135 Peak Excursions (802.11a, ch56, average)



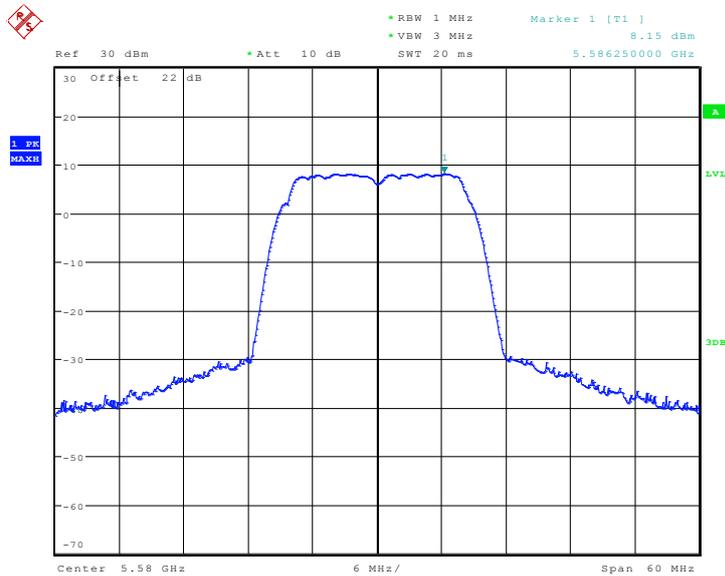
Date: 25.DEC.2013 15:01:37

Fig. 136 Peak Excursions (802.11a, ch64, average)



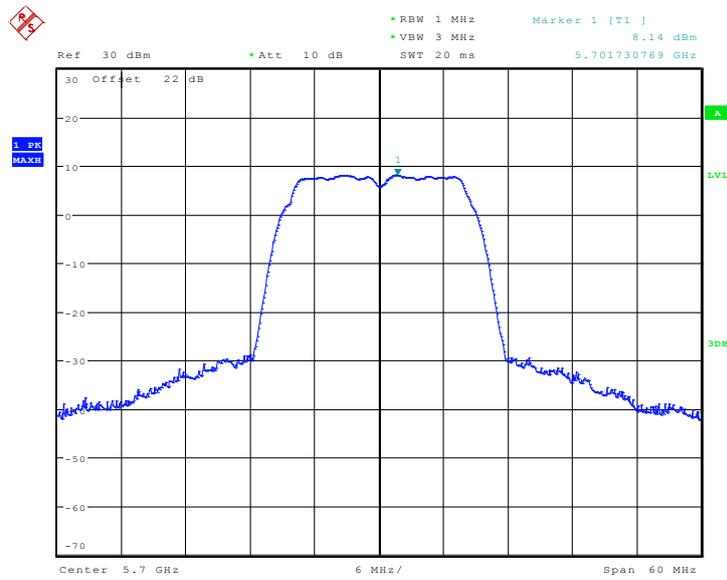
Date: 25.DEC.2013 15:02:13

Fig. 137 Peak Excursions (802.11a, ch100, peak)



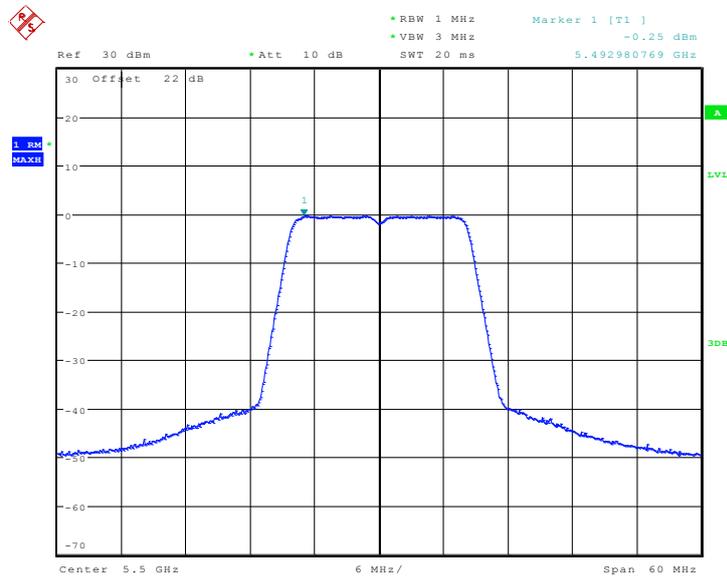
Date: 25.DEC.2013 15:02:55

Fig. 138 Peak Excursions (802.11a, ch116, peak)



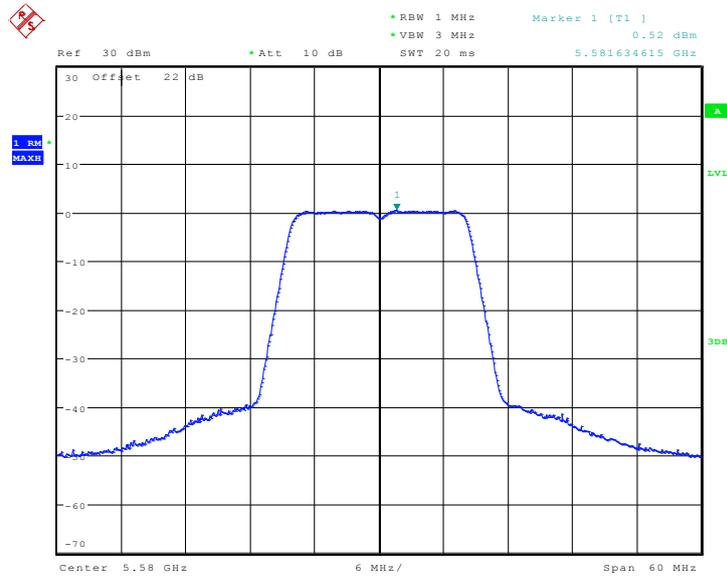
Date: 25.DEC.2013 15:03:48

Fig. 139 Peak Excursions (802.11a, ch140, peak)



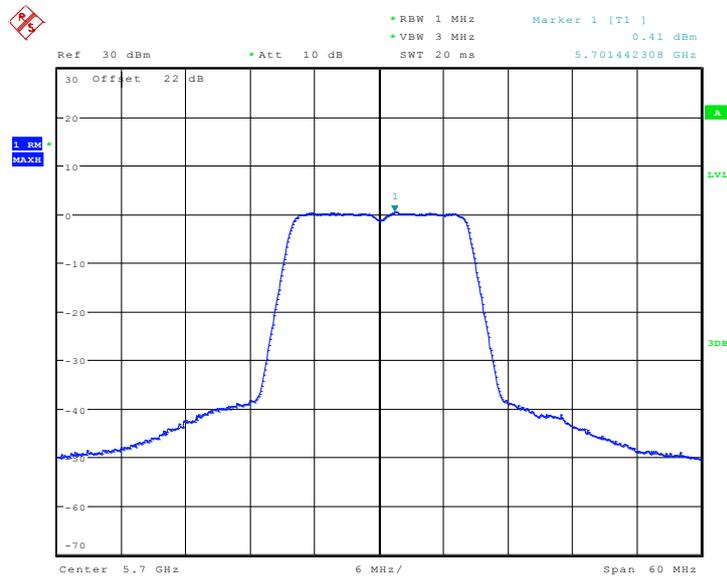
Date: 25.DEC.2013 15:02:00

Fig. 140 Peak Excursions (802.11a, ch100, average)



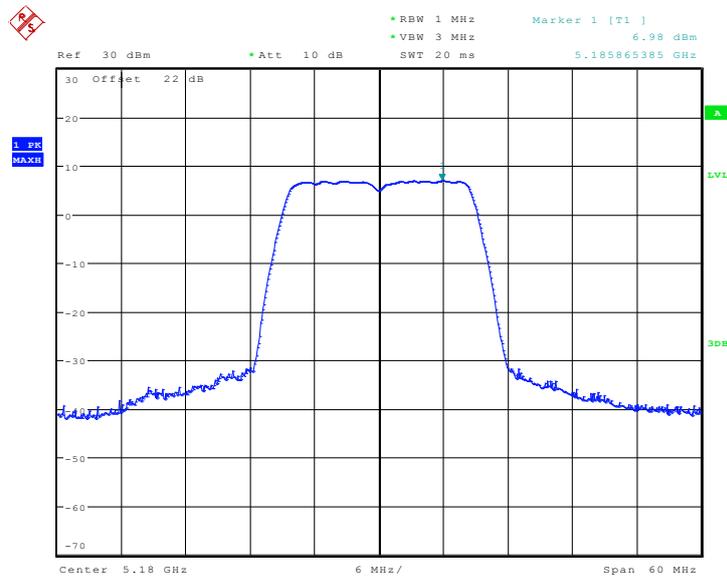
Date: 25.DEC.2013 15:03:05

Fig. 141 Peak Excursions (802.11a, ch116, average)



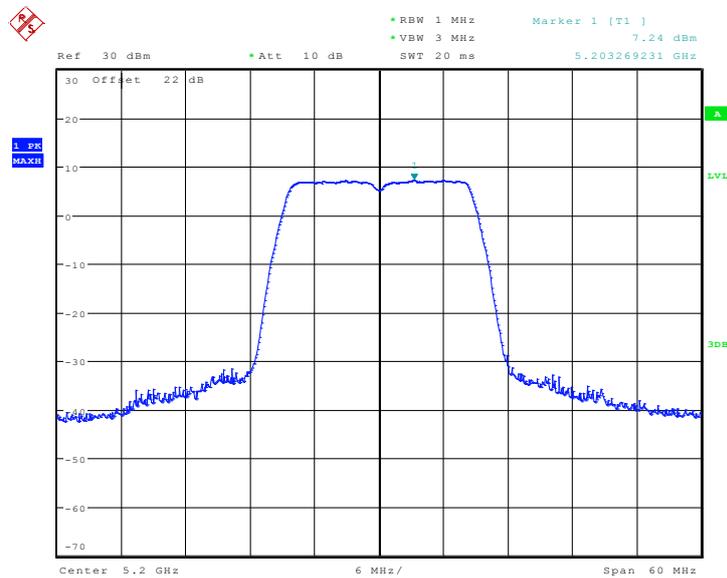
Date: 25.DEC.2013 15:03:35

Fig. 142 Peak Excursions (802.11a, ch140, average)



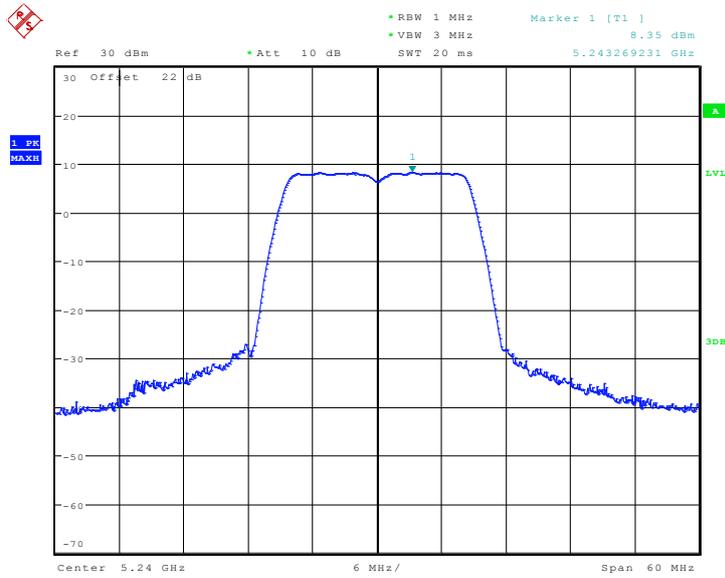
Date: 25.DEC.2013 15:05:31

Fig. 143 Peak Excursions (802.11n-HT20, ch36, peak)



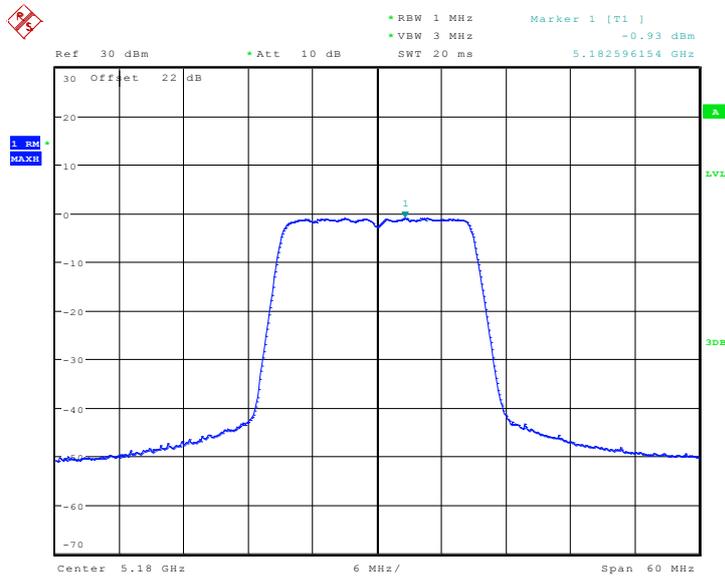
Date: 25.DEC.2013 15:06:30

Fig. 144 Peak Excursions (802.11n-HT20, ch40, peak)



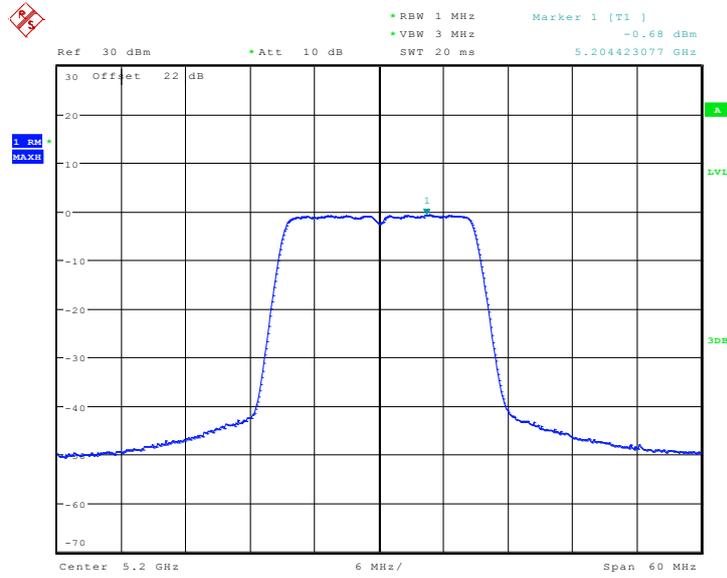
Date: 25.DEC.2013 15:07:15

Fig. 145 Peak Excursions (802.11n-HT20, ch48, peak)



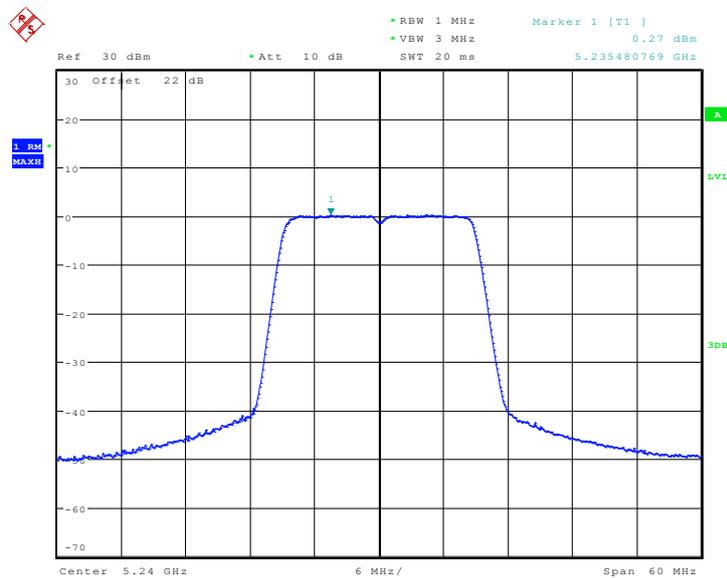
Date: 25.DEC.2013 15:05:44

Fig. 146 Peak Excursions (802.11n-HT20, ch36, average)



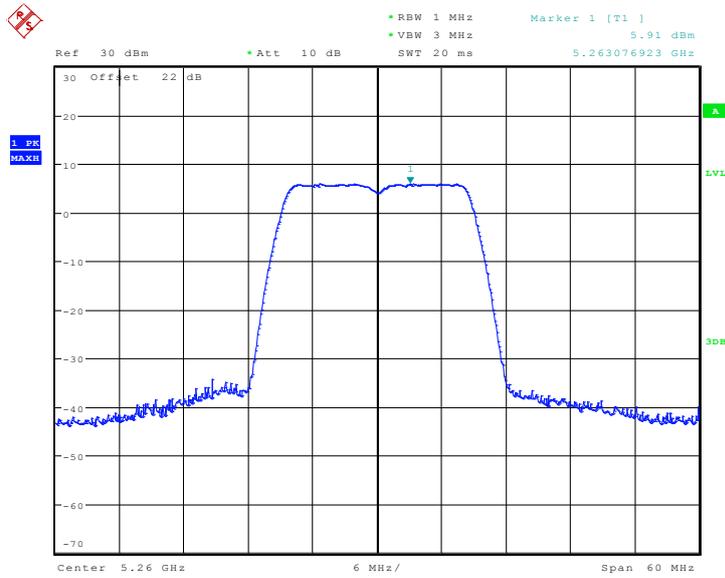
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Fig. 147 Peak Excursions (802.11n-HT20, ch40, average)



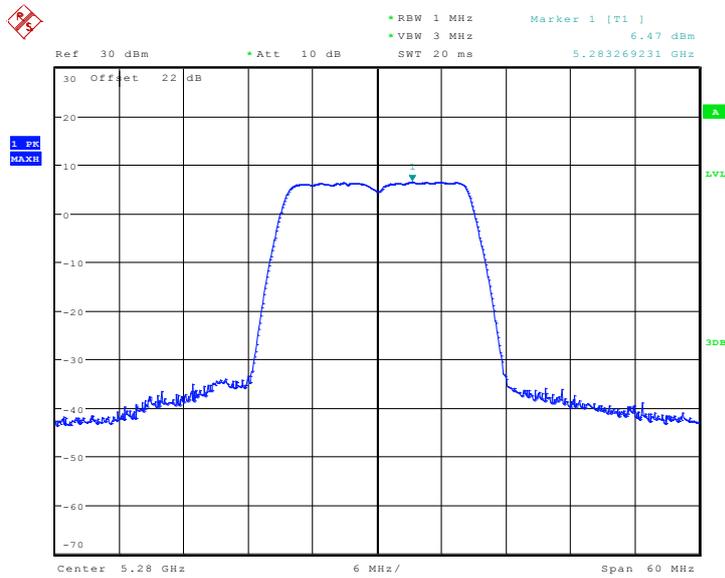
Date: 25.DEC.2013 15:07:28

Fig. 148 Peak Excursions (802.11n-HT20, ch48, average)



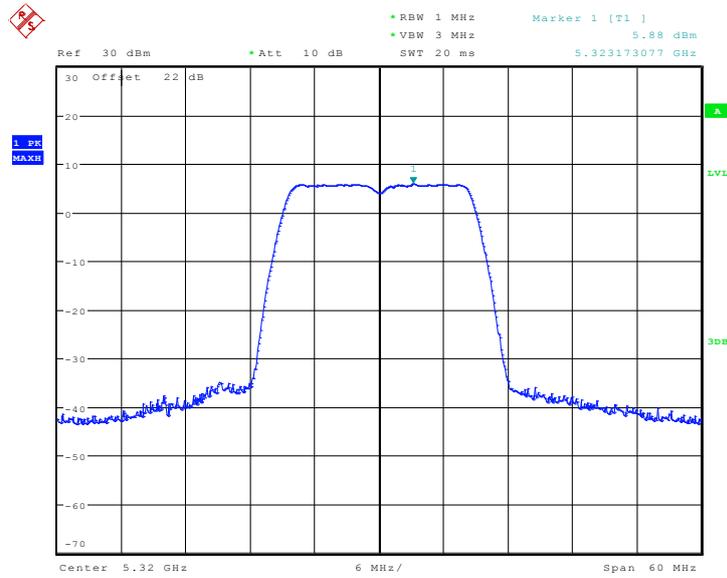
Date: 25.DEC.2013 15:08:10

Fig. 149 Peak Excursions (802.11n-HT20, ch52, peak)



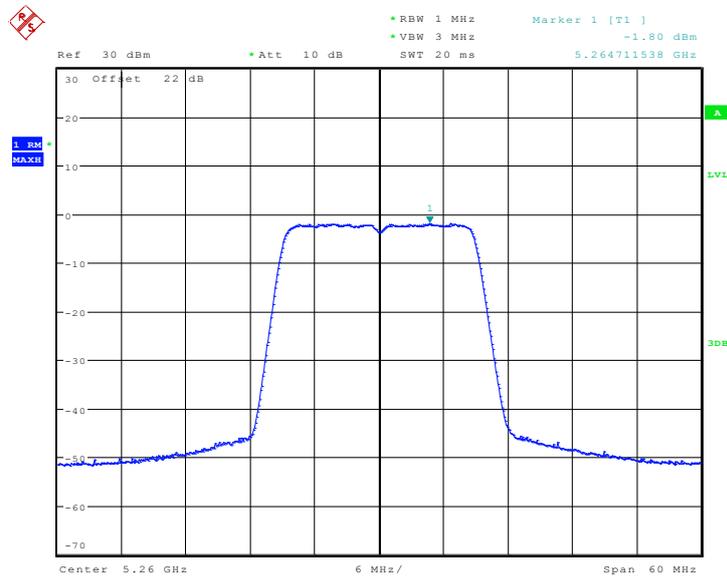
Date: 25.DEC.2013 15:08:44

Fig. 150 Peak Excursions (802.11n-HT20, ch56, peak)



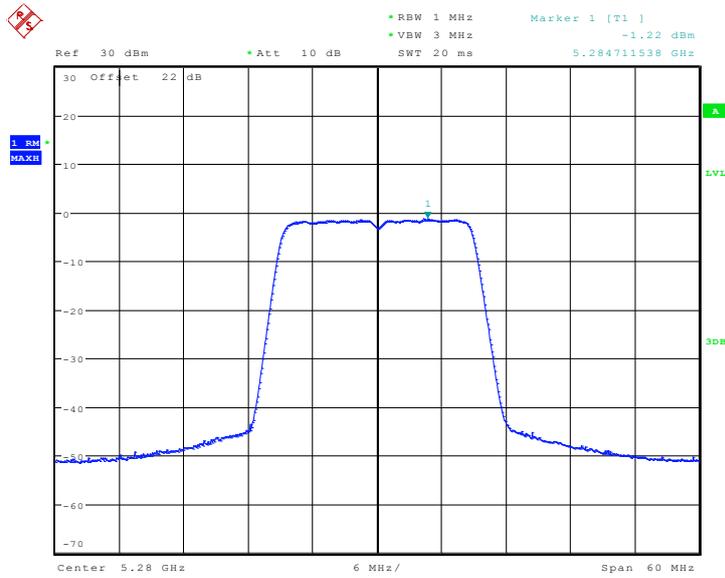
Date: 25.DEC.2013 15:10:05

Fig. 151 Peak Excursions (802.11n-HT20, ch64, peak)



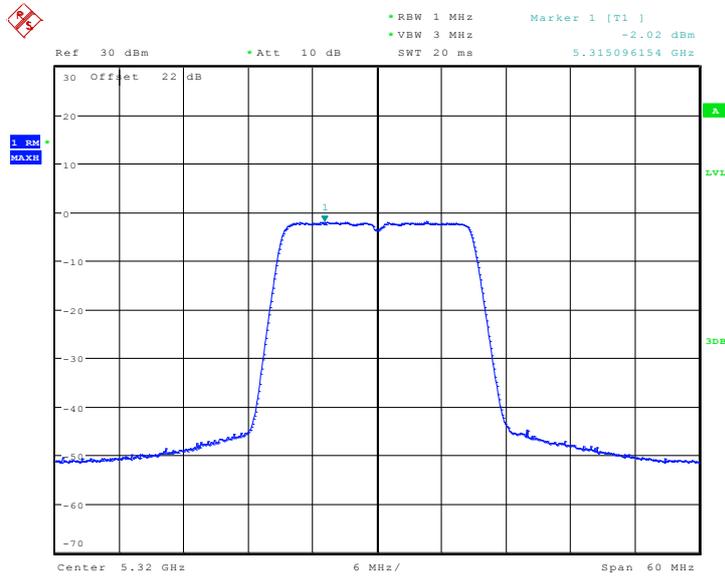
Date: 25.DEC.2013 15:07:59

Fig. 152 Peak Excursions (802.11n-HT20, ch52, average)



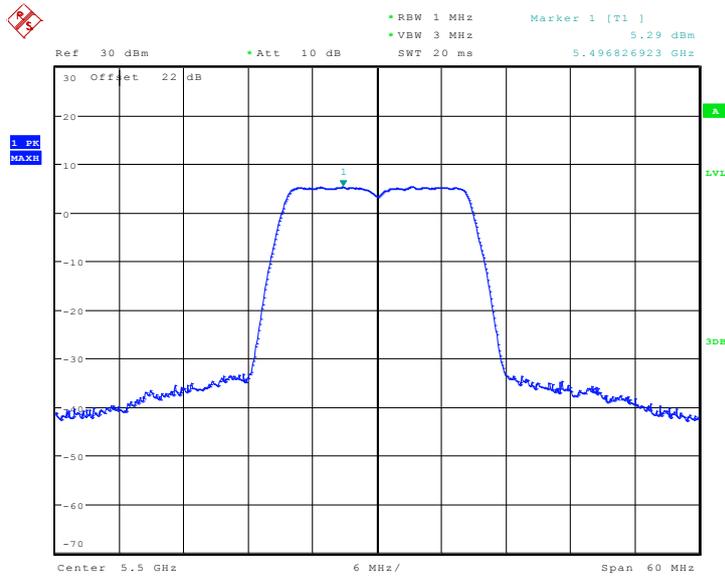
Date: 25.DEC.2013 15:09:23

Fig. 153 Peak Excursions (802.11n-HT20, ch56, average)



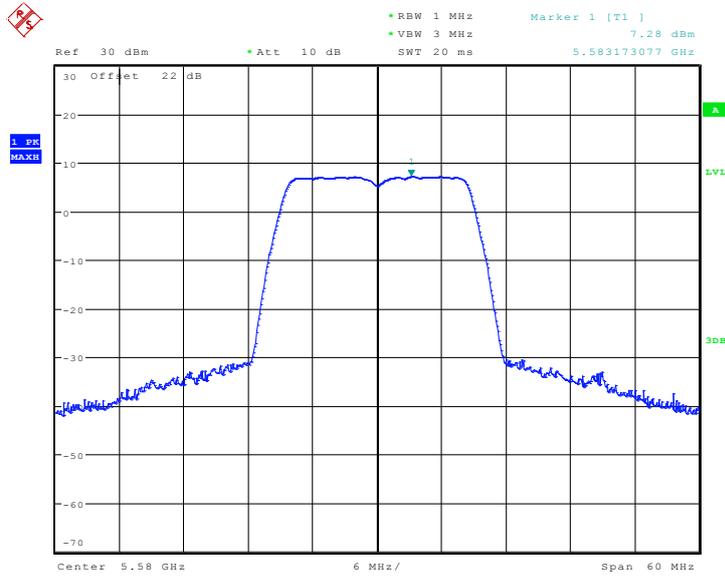
Date: 25.DEC.2013 15:09:54

Fig. 154 Peak Excursions (802.11n-HT20, ch64, average)



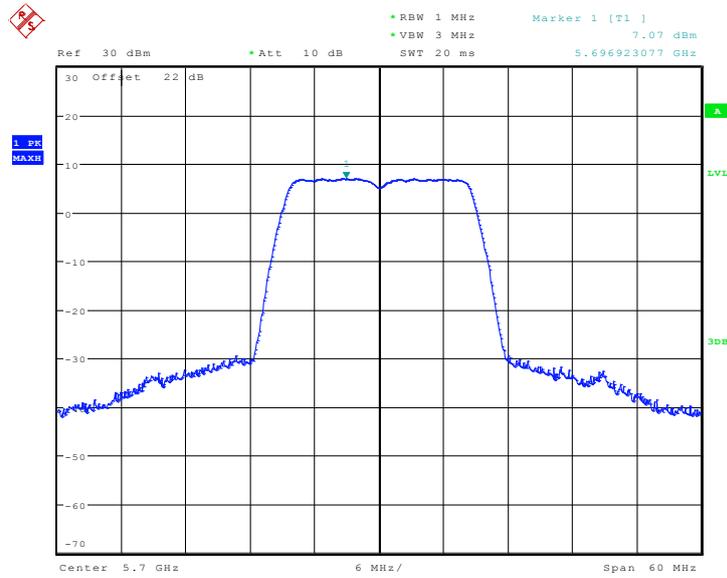
Date: 25.DEC.2013 15:11:20

Fig. 155 Peak Excursions (802.11n-HT20, ch100, peak)



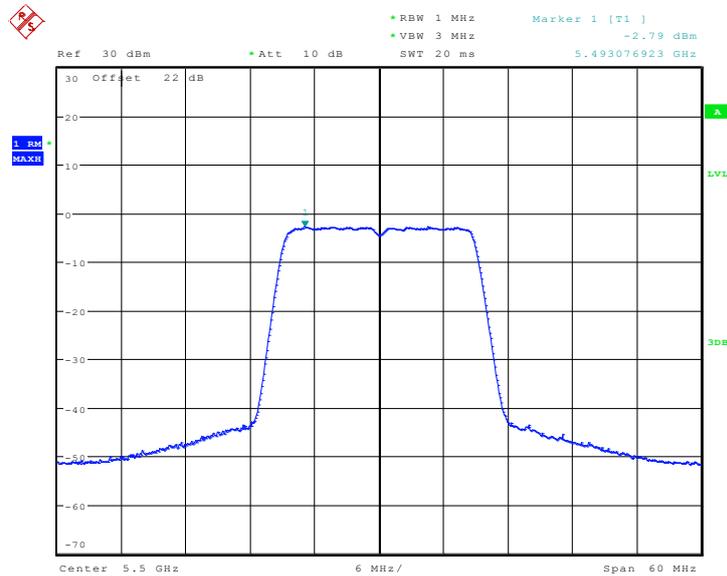
Date: 25.DEC.2013 15:12:43

Fig. 156 Peak Excursions (802.11n-HT20, ch116, peak)



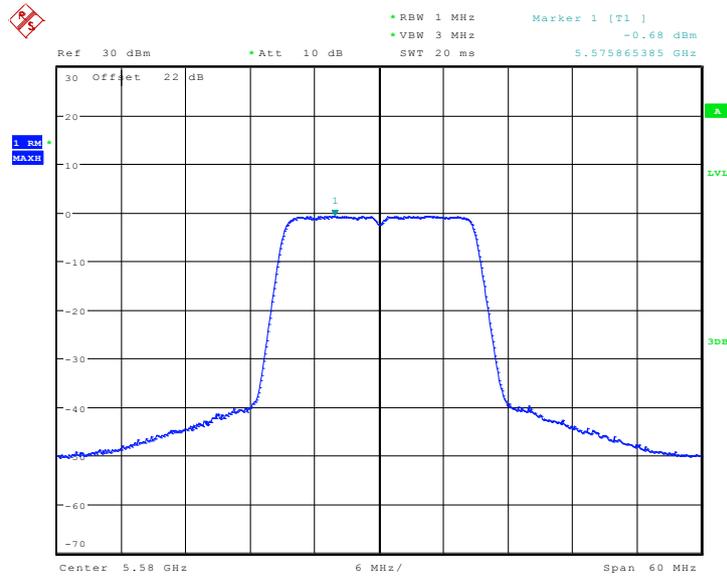
Date: 25.DEC.2013 15:13:09

Fig. 157 Peak Excursions (802.11n-HT20, ch140, peak)



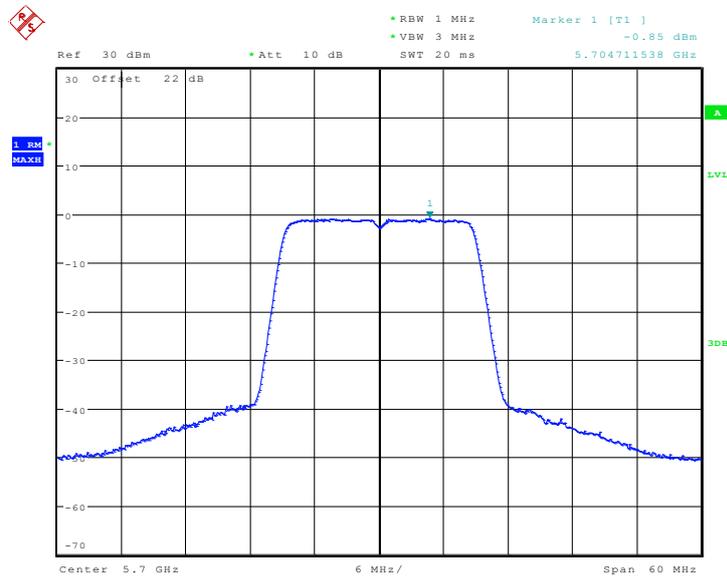
Date: 25.DEC.2013 15:11:32

Fig. 158 Peak Excursions (802.11n-HT20, ch100, average)



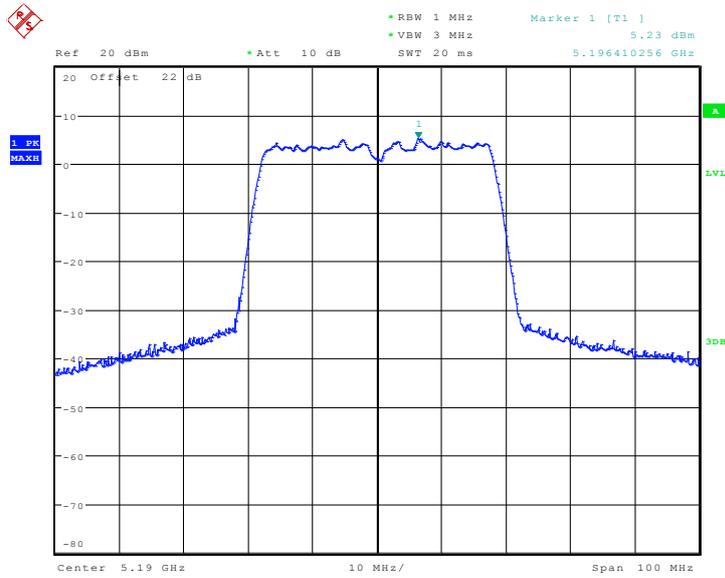
Date: 25.DEC.2013 15:12:26

Fig. 159 Peak Excursions (802.11n-HT20, ch116, average)



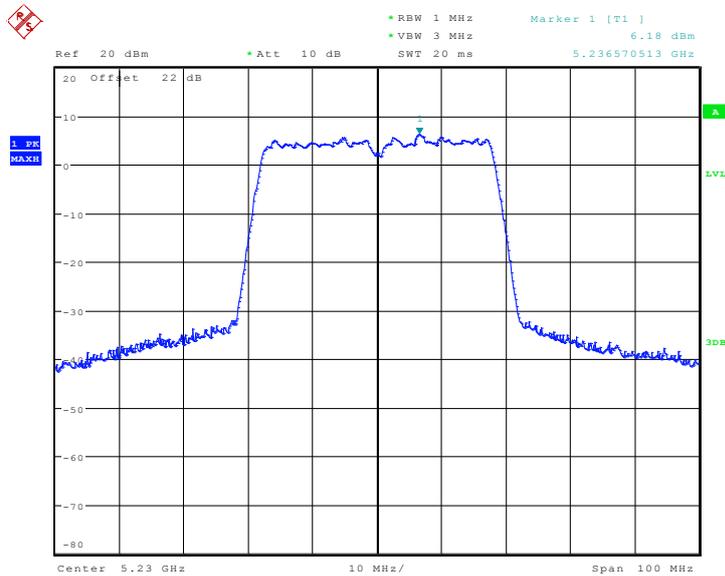
Date: 25.DEC.2013 15:13:23

Fig. 160 Peak Excursions (802.11n-HT20, ch140, average)



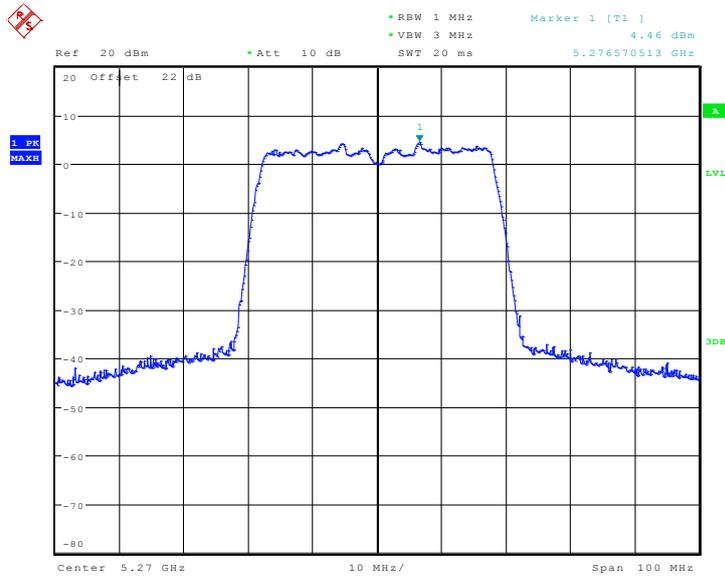
Date: 25.DEC.2013 15:14:53

Fig. 161 Peak Excursions (802.11n-HT40, ch38, peak)



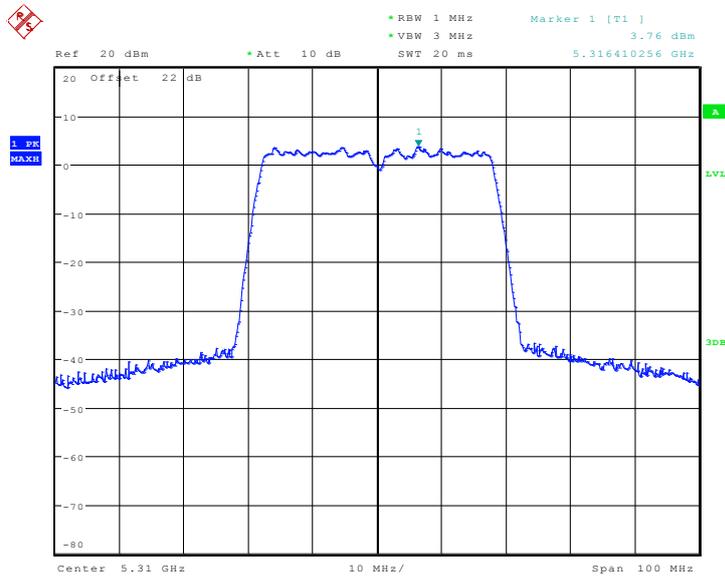
Date: 25.DEC.2013 15:19:54

Fig. 162 Peak Excursions (802.11n-HT40, ch46, peak)



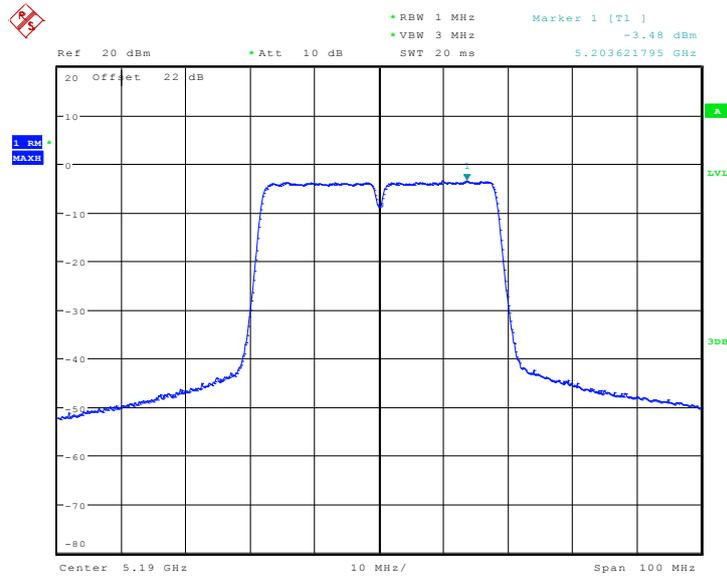
Date: 25.DEC.2013 15:20:25

Fig. 163 Peak Excursions (802.11n-HT40, ch54, peak)



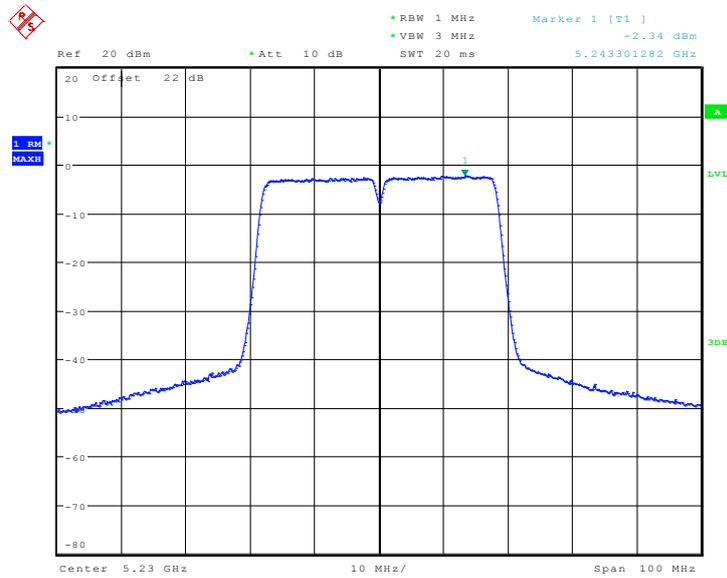
Date: 25.DEC.2013 15:21:15

Fig. 164 Peak Excursions (802.11n-HT40, ch62, peak)



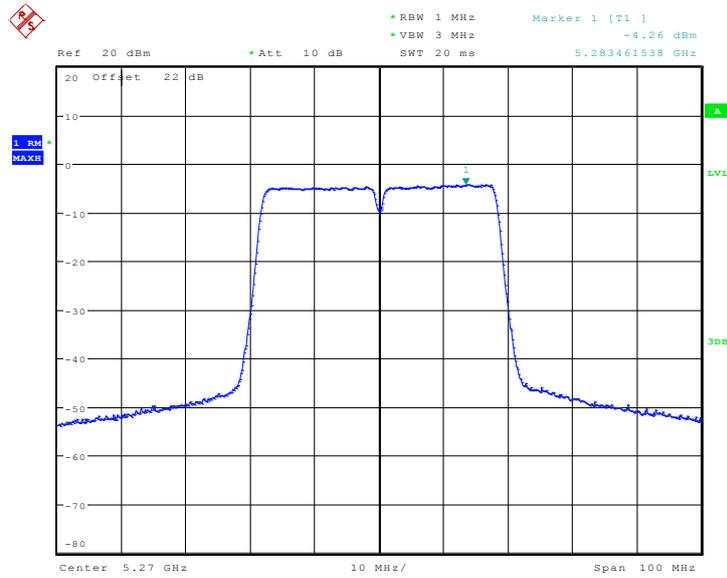
Date: 25.DEC.2013 15:15:09

Fig. 165 Peak Excursions (802.11n-HT40, ch38, average)



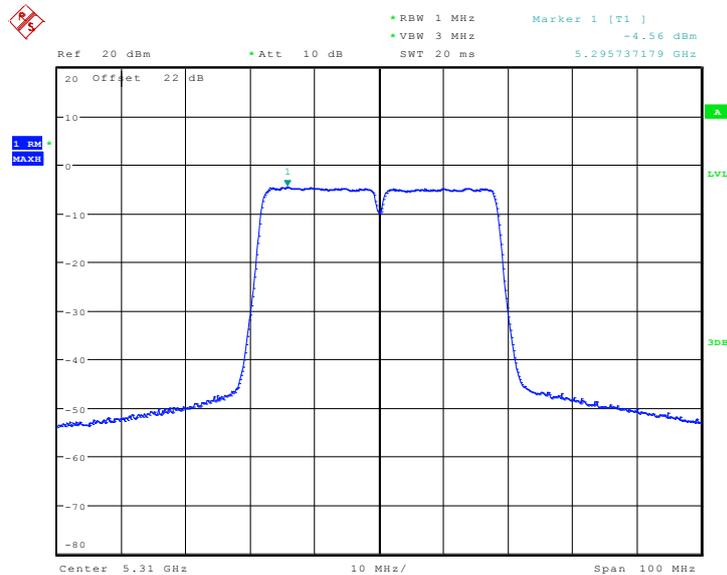
Date: 25.DEC.2013 15:19:40

Fig. 166 Peak Excursions (802.11n-HT40, ch46, average)



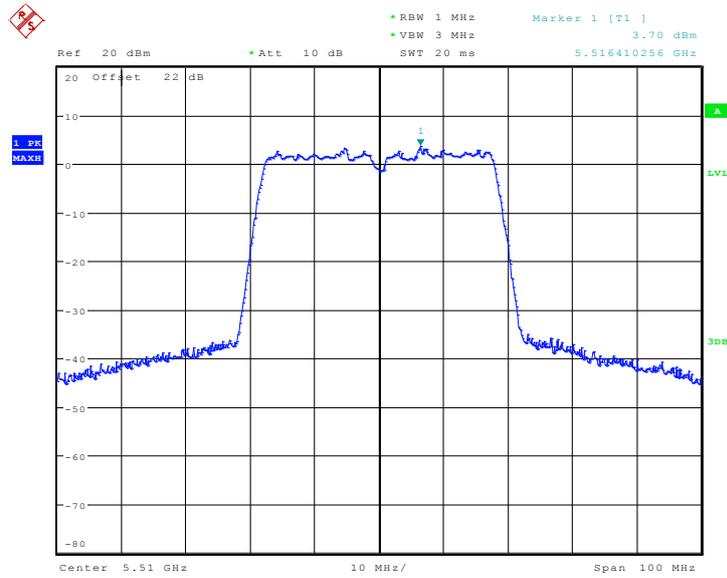
Date: 25.DEC.2013 15:20:37

Fig. 167 Peak Excursions (802.11n-HT40, ch54, average)



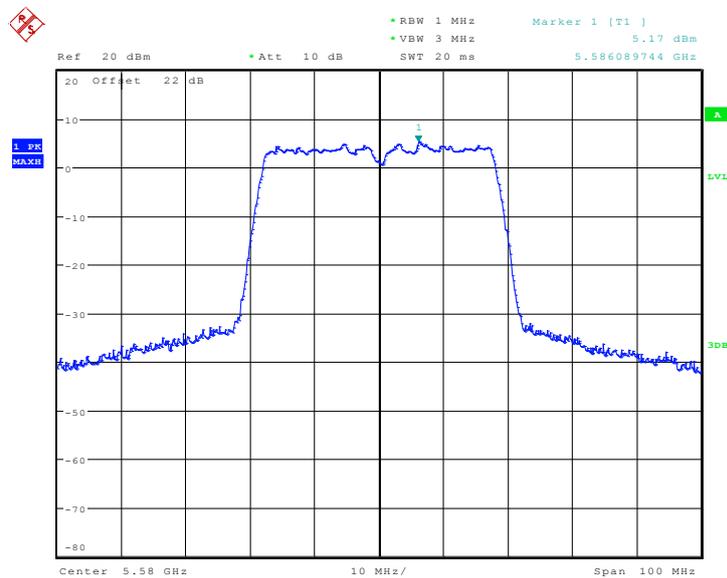
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Fig. 168 Peak Excursions (802.11n-HT40, ch62, average)



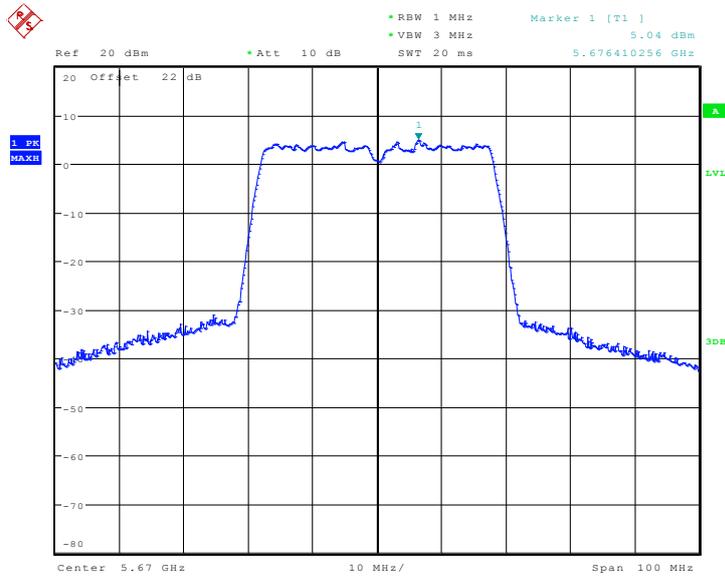
Date: 25.DEC.2013 15:21:40

Fig. 169 Peak Excursions (802.11n-HT40, ch102, peak)



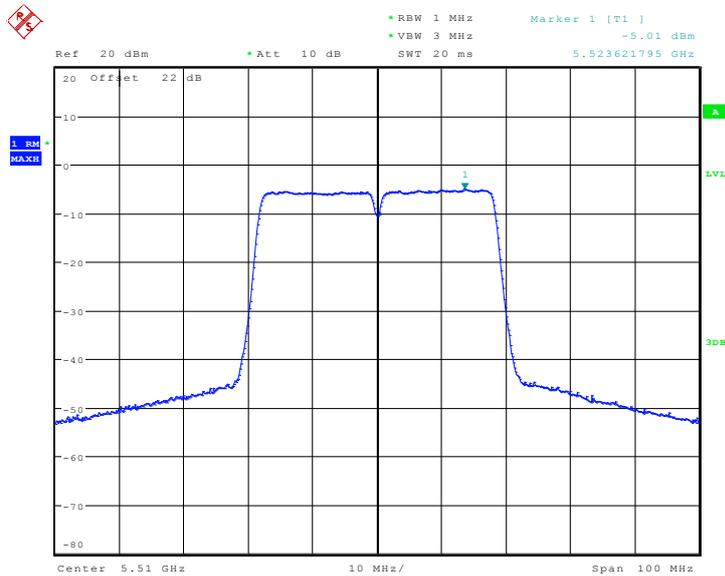
Date: 25.DEC.2013 15:23:59

Fig. 170 Peak Excursions (802.11n-HT40, ch118, peak)



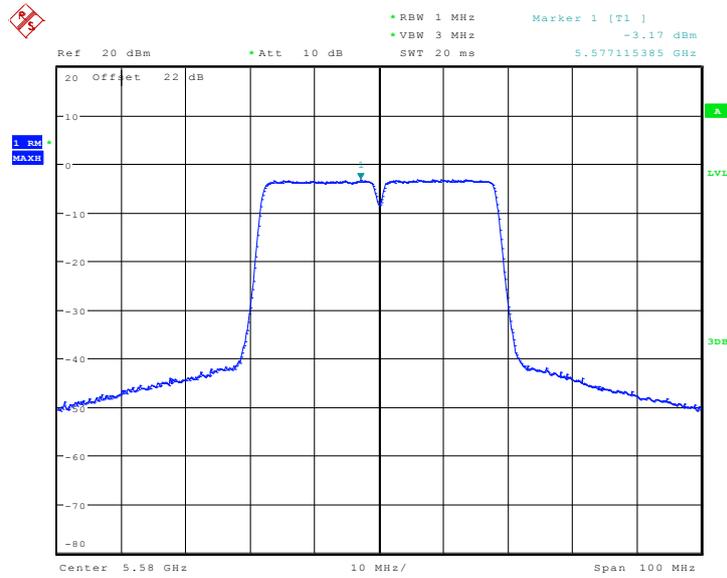
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Fig. 171 Peak Excursions (802.11n-HT40, ch134, peak)



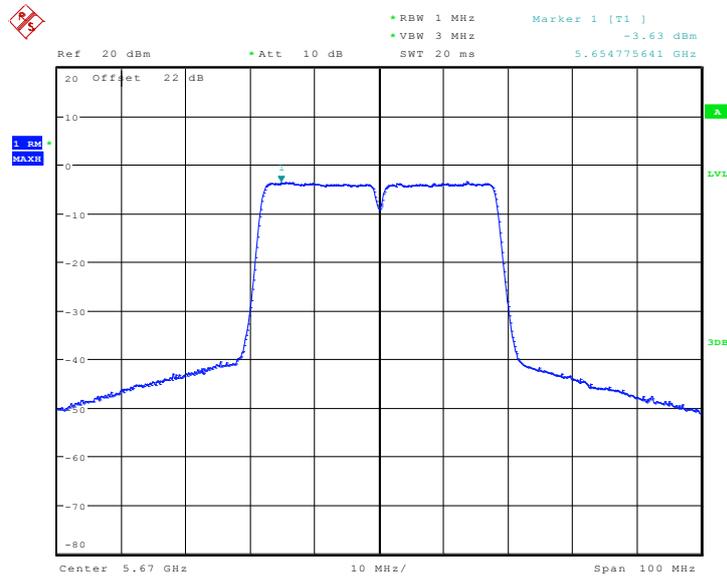
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Fig. 172 Peak Excursions (802.11n-HT40, ch102, average)



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Fig. 173 Peak Excursions (802.11n-HT40, ch118, average)



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Fig. 174 Peak Excursions (802.11n-HT40, ch134, average)

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