FCC PART 15
TEST REPORT
No. 2013WLN0647

for

Sony Mobile Communications (China) Co. Ltd

GSM/UMTS/LTE mobile phone

Type: PM-0350-BV

With

FCC ID: PY7PM-0350

Hardware Version: A

Software Version: 12.0.A.1.18

Issued Date: 2013-05-02

Test Laboratory:

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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:	008610623046332561
Fax:	008610623046332504

1.2. Testing Environment

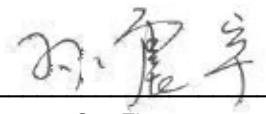
Normal Temperature:	15-30℃
Extreme Temperature:	-20/+55℃
Relative Humidity:	30-60%
Air Pressure	990hPa-1040hPa

Note:The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

1.3. Project data

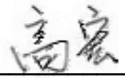
Project Leader:	SunZhenyu
Testing Start Date:	2013-01-28
Testing End Date:	2013-04-27

1.4. Signature



Sun Zhenyu

(Prepared this test report)



Gao Hong

(Reviewed this test report)

Xiao Li

Deputy Director of the laboratory

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

Company Name:	Sony Mobile Communications (China) Co. Ltd
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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	GSM 850/900/1800/1900, GPRS, EDGE, WCDMA FDD Band 1/5/8, HSDPA, HSUPA, LTE FDD Band 1/3/5/7/8/20, Bluetooth EDR & BLE, WLAN (802.11 a/b/g/n), FM, NFC, GPS receiver mobile phone
Type	PM-0350-BV
FCC ID	PY7PM-0350
WLAN Frequency Range	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Number of Channels	Band1:4 Band2:4 Band3:11
GSM Frequency Band	GSM 850/900/1800/1900
UMTS Frequency Band	FDD Band 1 / FDD Band 5 / FDD Band 8
LTE Frequency Band	FDD Band 1 / FDD Band 3 / FDD Band 5 / FDD Band 7 / FDD Band 8 / FDD Band 20
Antenna	Integral Antenna
MAX Radiated Power	8.01dBm(OFDM)
MAX Conducted Power	13.08dBm(OFDM)
Extreme Temperature	-20/+55°C
Normal Voltage	3.7V
Extreme Low Voltage	3.5V
Extreme High Voltage	4.1V

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	S/N	IMEI	HW Version	SW Version
EUT1	CB5123BT7P	004402450767920	A	12.0.A.1.18
EUT2	CB51238N0Y	004402450616044	A	12.0.A.1.18

*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	Travel Charger	AC-0400-EU	/
AE2	USB Cable	AI-0401	/

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

3.4. General Description

The Equipment Under Test (EUT) is a model of GSM/UMTS/LTE mobile phone with integrated antenna and inbuilt Li-Polymer battery.

The EUT supports GSM 850/900/1800/1900MHz bands, WCDMA FDD bands 1/5/8 and LTE FDD bands 1/3/5/7/8/20. It also supports GPRS service with multi-slots class 33 and EGPRS service with multi-slots class 33 too. The HSDPA and HSUPA features are also supported.

It has MP3, camera, FM radio, USB memory, GPS receiver, NFC, Mobile High-Definition Link (MHL), Bluetooth (EDR and Bluetooth 4.0), WLAN (802.11 a/b/g/n) and Wi-Fi hotspot functions.

It consists of normal options: Inbuilt li-Polymer battery and USB cable.

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, 2012
UNII: KDB 789033	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E	2012-09

5. LABORATORY ENVIRONMENT

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

Semi-anechoic chamber (10 meters×6.7meters×6.15meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 M ohm
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	**< ±**3.5 dB, 3 m distance
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Shielding Room2 (7.30 meters×4.00 meters×3.80 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	**P**
Power Spectral Density	15.407	/	**P**
Occupied 26dB Bandwidth	15.403	/	**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**
Peak Excursion	15.407	/	**P**
Frequency Stability	15.407	/	**NA**
Transmit Power Control	15.407	/	**NA**

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

The measurement is made according to KDB 789033.

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/manufacturer 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 5GHz WLAN functions among the features described in section 3, and the EUT met all requirements of reference documents.

Test Conditions

T nom	Normal Temperature
T min	Low Temperature
T max	High Temperature
V nom	Normal Voltage
V min	Low Voltage
V max	High Voltage
H nom	Norm Humidity
A nom	Norm Air Pressure

For this report, all the test case listed above is tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

Temperature	T nom	26℃
Voltage	V nom	3.7V(By battery)
Humidity	H nom	44%
Air Pressure	A nom	1010hPa

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2013-07-19
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-10-30
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2013-08-13

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2014-02-12
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2013-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2014-06-30

Anechoic chamber

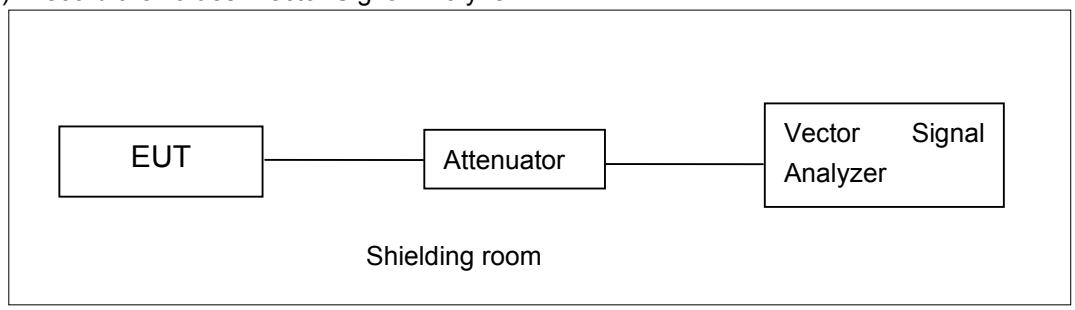
Fully anechoic chamber by Frankonia German.

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

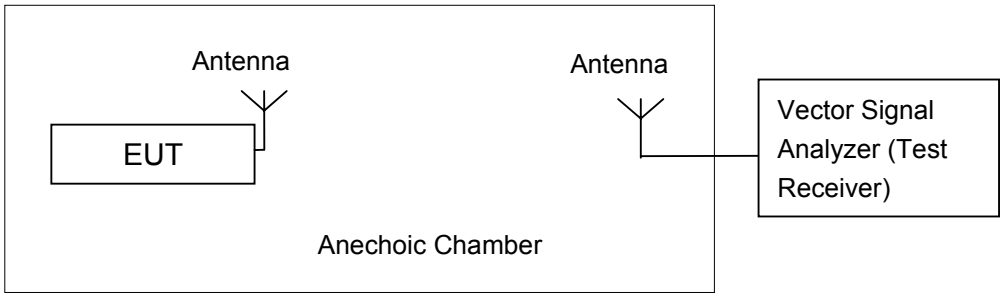
A.1.1. Conducted Measurements

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

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)	12.35	12.31	12.42	12.30	12.31	12.28	12.21	12.22

OFDM/n-HT20 mode	Maximum Conducted Power (dBm)							
data rate (Mbps)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
36 (5180 MHz)	12.71.	12.64	12.58	12.55	12.58	12.42	12.47	12.84

OFDM/n-HT40 mode	Maximum Conducted Power (dBm)							
data rate (Index)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
38 (5190 MHz)	9.39	9.12	8.92	8.88	8.78	8.79	8.70	8.66

Selected data rate for all measurement:

OFDM /a-mode: 12Mbps

OFDM /n-HT20 mode: MCS7

OFDM /n-HT40 mode: MCS0

A.2.2. Antenna Gain

The antenna gain of the complete system is calculated by the difference of radiated power and the conducted power of the EUT.

Band 5150MHz to 5350MHz,

Test	Channel			
Tnom,Vnom	Low(5180MHz)	High(5240MHz)	Low(5260MHz)	High(5320MHz)
Conducted Power(dBm)	15.90	15.75	15.63	16.19
Radiated Power(dBm)	7.43	6.89	6.46	8.21
Gain(dBi)	-8.47	-8.86	-9.17	-7.98

Band 5470MHz to 5725MHz,

Test	Channel		
Tnom,Vnom	Low(5500MHz)	Middle(5600MHz)	High(5700MHz)
Conducted Power(dBm)	16.10	16.11	16.60
Radiated Power(dBm)	10.57	11.59	11.53
Gain(dBi)	-5.53	-4.52	-5.07

Antenna Gain = Radiated value (with radiated sample) - Conducted values (with conducted samples)

A.2.3. Maximum Output Power

Measurement Results:

802.11a mode

Type	Test Result			
	5180MHz (Ch36)	5240MHz (Ch48)	5260MHz (Ch52)	5320 MHz (Ch64)
Conducted(dBm)	12.42	11.93	12.05	12.12
radiated(dBm)	3.95	3.07	2.88	4.14
Margin(dB)	13.05	13.93	21.12	19.86

Type	Test Result		
	5500MHz (Ch100)	5600MHz (Ch120)	5700MHz (Ch140)
conducted(dBm)	12.90	12.01	12.92
radiated(dBm)	7.37	7.49	7.85
Margin(dB)	16.63	16.51	16.15

802.11n-HT20 mode

Type	Test Result			
	5180MHz (Ch36)	5240MHz (Ch48)	5260MHz (Ch52)	5320 MHz (Ch64)
conducted(dBm)	12.71	12.44	12.99	12.68
radiated(dBm)	4.24	3.58	3.82	4.70
Margin(dB)	12.76	13.42	20.18	19.30

Type	Test Result		
	5500MHz (Ch100)	5600MHz (Ch120)	5700MHz (Ch140)
conducted(dBm)	12.93	11.98	13.08
radiated(dBm)	7.40	7.46	8.01
Margin(dB)	16.60	16.54	15.99

802.11n-HT40 mode

Type	Test Result			
	5190MHz (Ch38)	5230MHz (Ch46)	5270MHz (Ch55)	5310 MHz (Ch63)
conducted(dBm)	9.39	9.75	9.73	9.50
radiated(dBm)	0.92	0.89	0.56	1.52
Margin(dB)	16.08	16.11	23.44	22.48

Type	Test Result		
	5510MHz (Ch102)	**5590MHz (Ch118)**	**5670MHz (Ch134)**
conducted(dBm)	10.09	10.51	10.48
radiated(dBm)	4.56	5.99	5.41
Margin(dB)	19.44	18.01	18.59

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
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

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

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	-4.48	P
	5240 MHz	-5.03	P
	5260 MHz	-5.40	P
	5320 MHz	-5.25	P
	5500 MHz	-5.16	P
	5600 MHz	-6.29	P
	5700 MHz	-5.00	P
802.11n HT20	5180 MHz	-5.16	P
	5240 MHz	-5.41	P
	5260 MHz	-6.10	P
	5320 MHz	-3.62	P
	5500 MHz	-6.13	P
	5600 MHz	-6.64	P
	5700 MHz	-5.42	P
802.11n HT40	5190 MHz	-6.19	P
	5230 MHz	-6.65	P
	5270 MHz	-6.50	P
	5310 MHz	-6.08	P
	5510 MHz	-9.85	P
	5590 MHz	-8.59	P
	5670 MHz	-9.42	P

Conclusion: PASS

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

Measurement Result:

Mode	Channel	Occupied 26dB Bandwidth (kHz)		conclusion
802.11a	5180 MHz	Fig.1	21923	P
	5240 MHz	Fig.2	21923	P
	5260 MHz	Fig.3	21282	P
	5320 MHz	Fig.4	21923	P
	5500 MHz	Fig.5	21795	P
	5600 MHz	Fig.6	20769	P
	5700 MHz	Fig.7	21410	P
802.11n HT20	5180 MHz	Fig.8	21410	P
	5240 MHz	Fig.9	21667	P
	5260 MHz	Fig.10	21026	P
	5320 MHz	Fig.11	21795	P
	5500 MHz	Fig.12	21538	P
	5600 MHz	Fig.13	21538	P
	5700 MHz	Fig.14	21282	P
802.11n HT40	5190 MHz	Fig.15	39872	P
	5230 MHz	Fig.16	40000	P
	5270 MHz	Fig.17	39872	P
	5310 MHz	Fig.18	39744	P
	5510 MHz	Fig.19	39744	P
	5590 MHz	Fig.20	39487	P
	5670 MHz	Fig.21	40000	P

Conclusion: PASS

Test graphs as below:

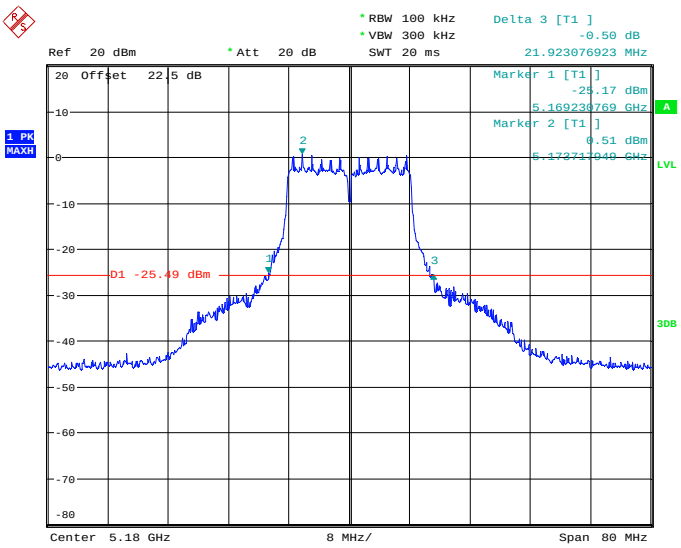


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

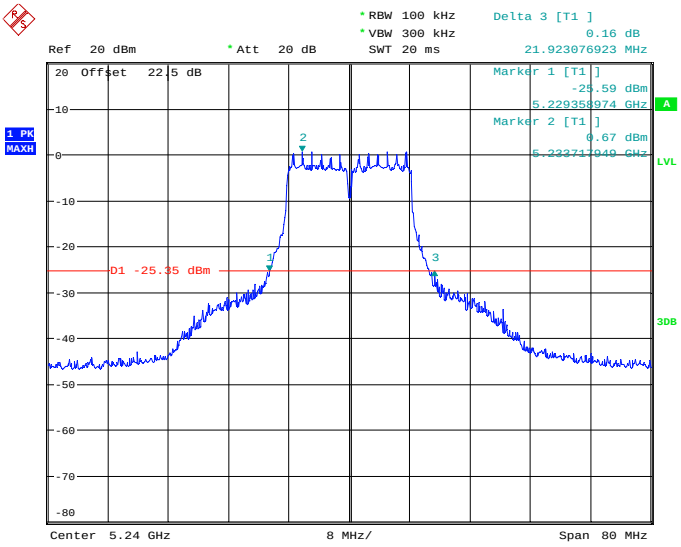


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5240MHz)

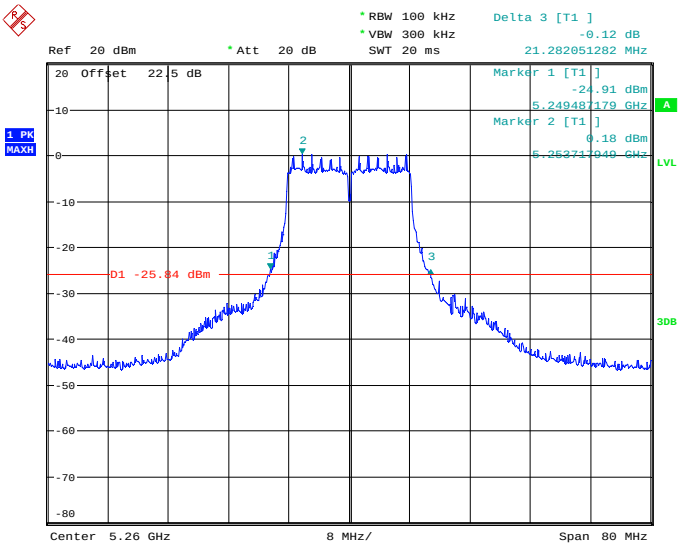


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Fig. 3 Occupied 26dB Bandwidth (802.11a, 5260MHz)

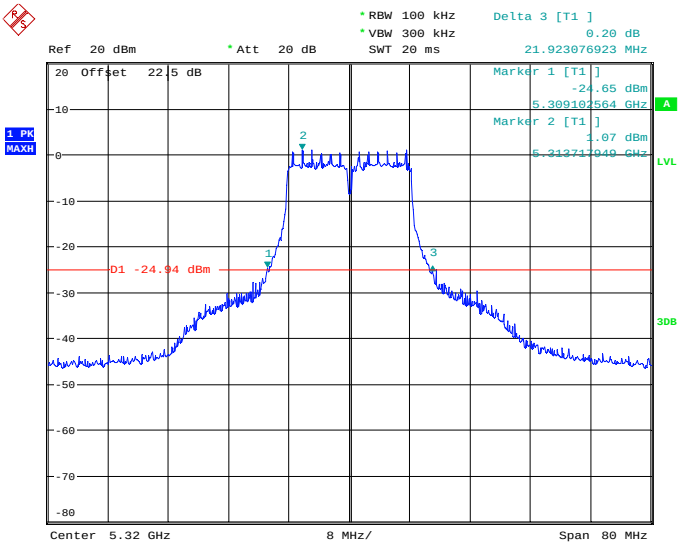

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Fig. 4 Occupied 26dB Bandwidth (802.11a, 5320MHz)

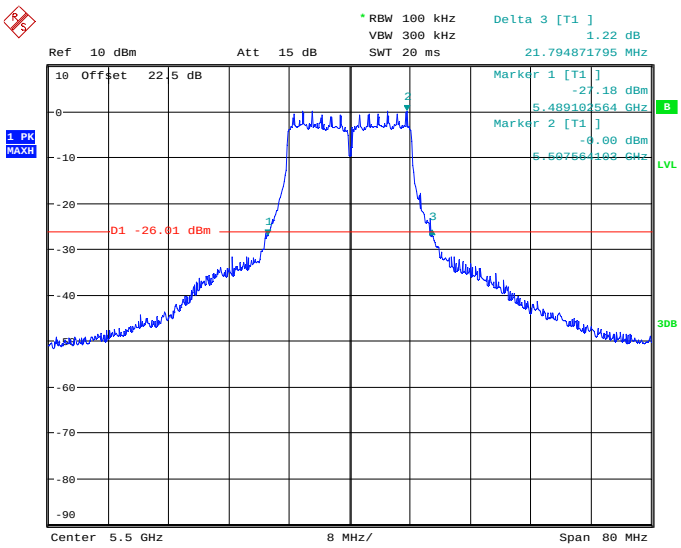

Fig. 5 Occupied 26dB Bandwidth (802.11a, 5500MHz)

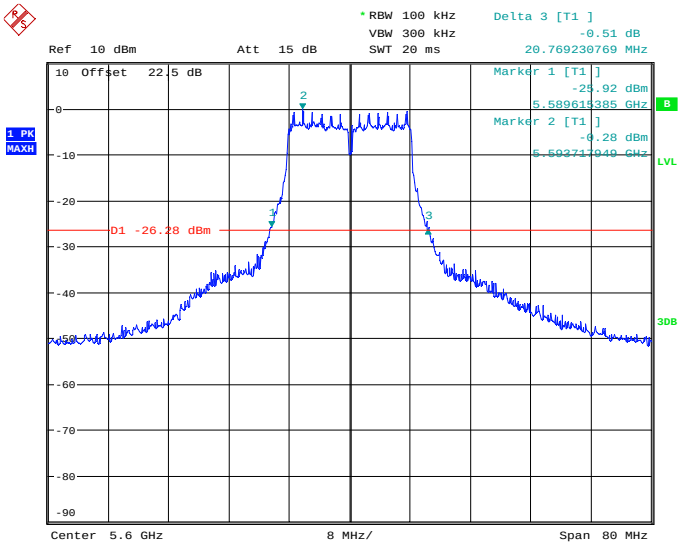

Fig. 6 Occupied 26dB Bandwidth (802.11a, 5600MHz)

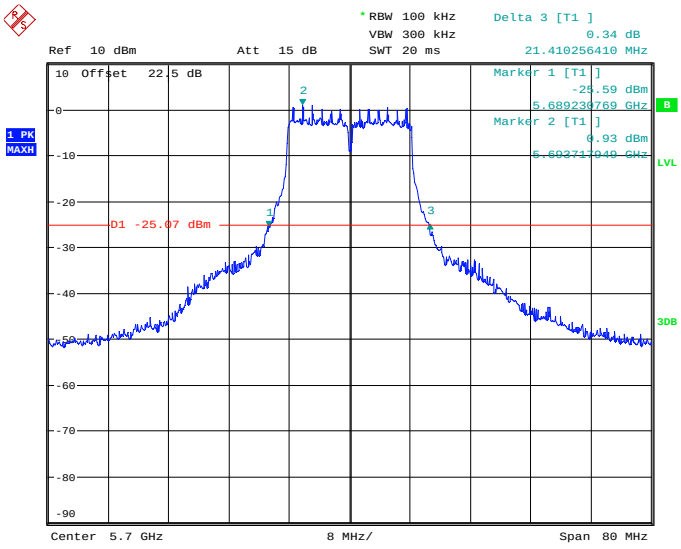

Fig. 7 Occupied 26dB Bandwidth (802.11a, 5700MHz)

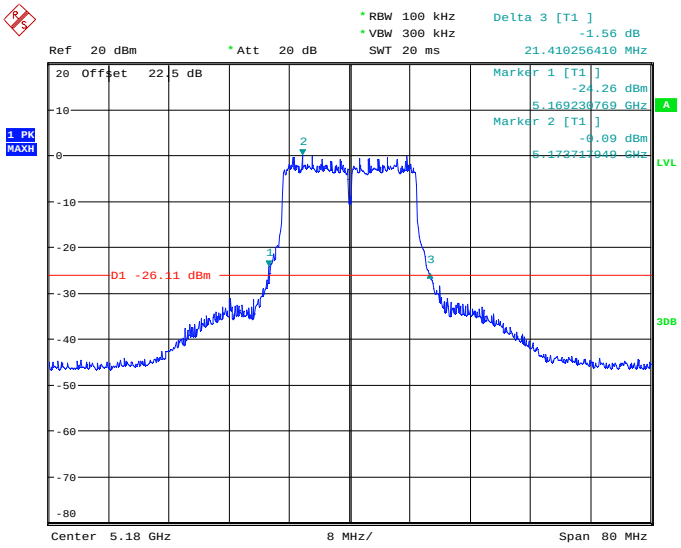

Fig. 8 Occupied 26dB Bandwidth (802.11n-HT20, 5180MHz)

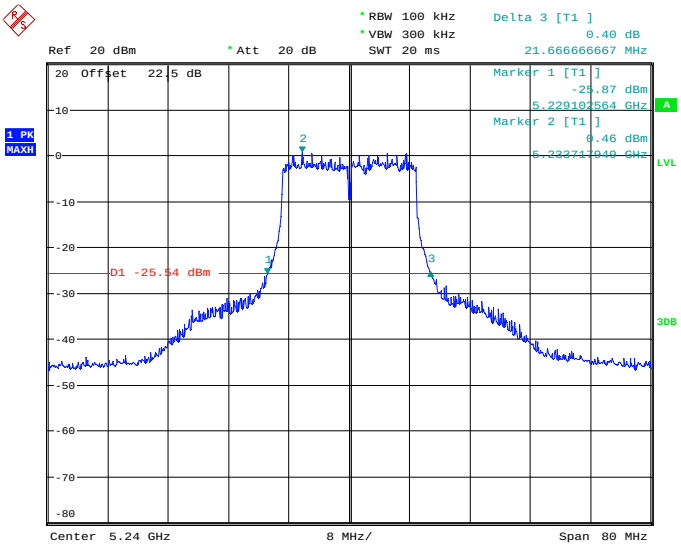

Fig. 9 Occupied 26dB Bandwidth (802.11n-HT20, 5240MHz)

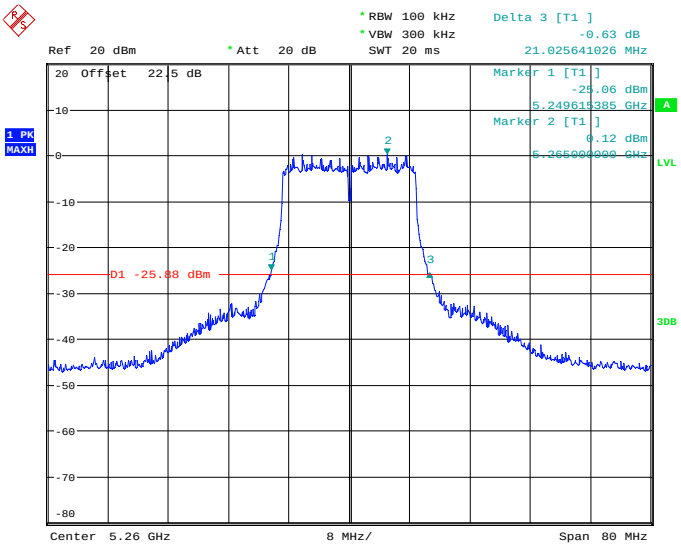

Fig. 10 Occupied 26dB Bandwidth (802.11n-HT20, 5260MHz)

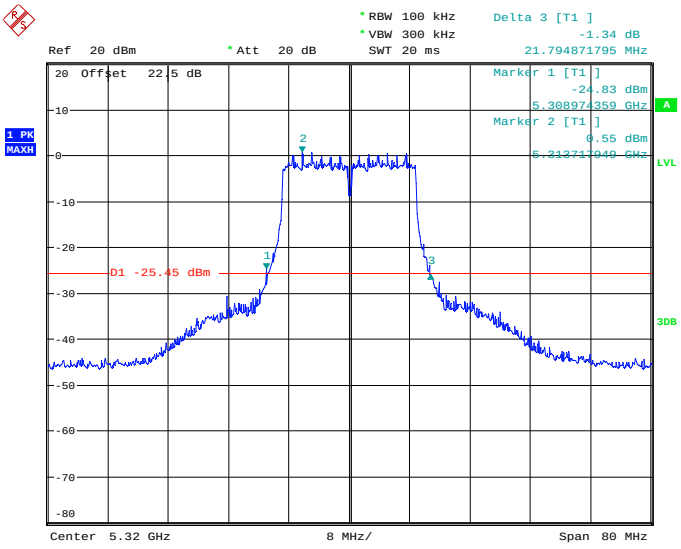

Fig. 11 Occupied 26dB Bandwidth (802.11n-HT20, 5320MHz)

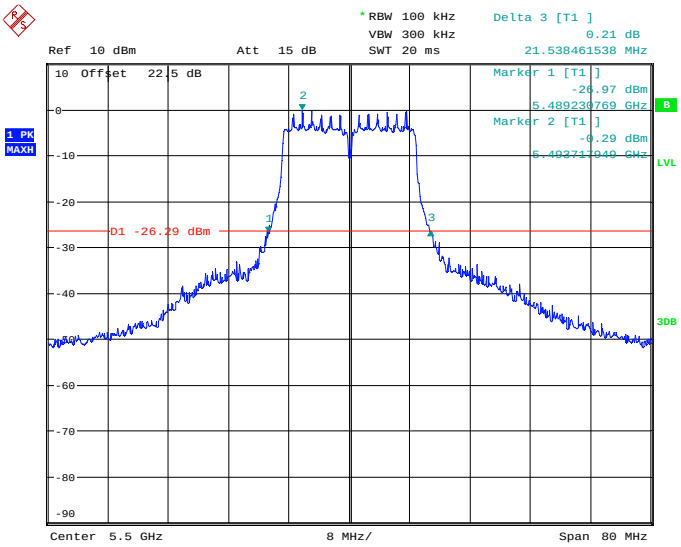

Fig. 12 Occupied 26dB Bandwidth (802. 11n-HT20, 5500MHz)

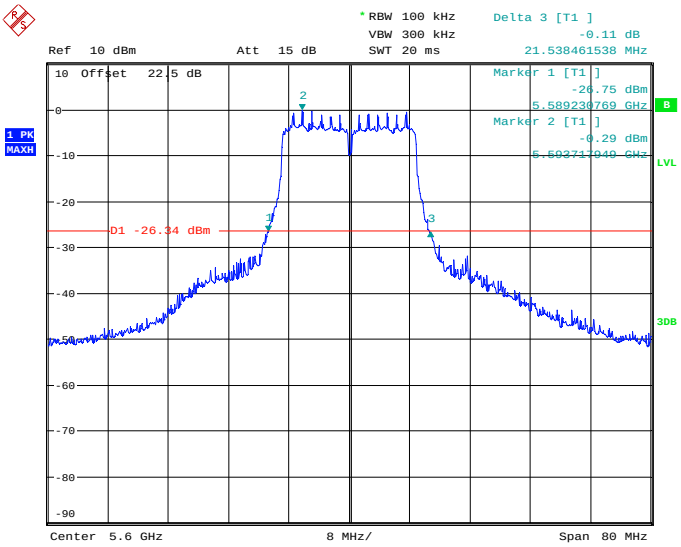

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Fig. 13 Occupied 26dB Bandwidth (802. 11n-HT20, 5600MHz)

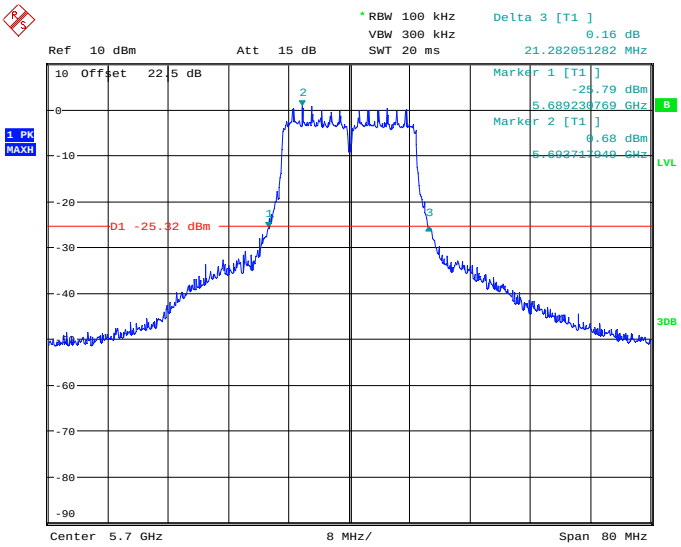

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Fig. 14 Occupied 26dB Bandwidth (802. 11n-HT20, 5700MHz)

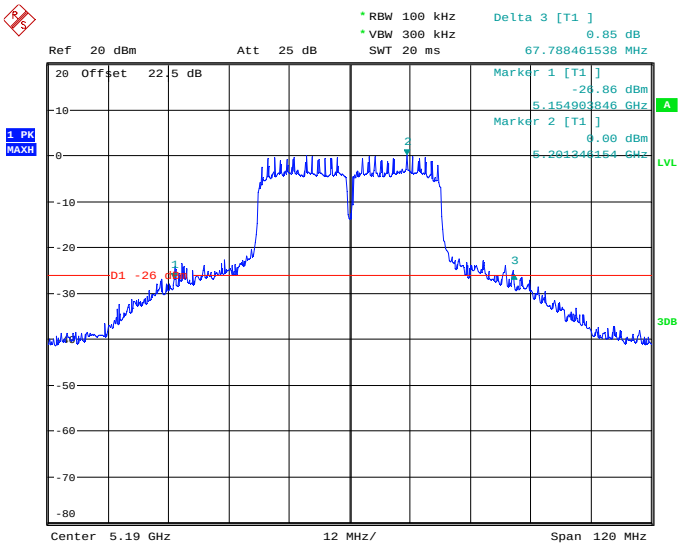


Fig. 15 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

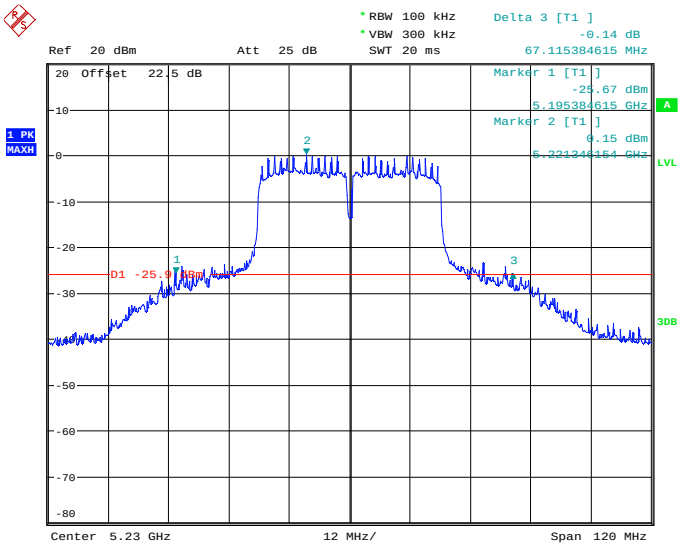


Fig. 16 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

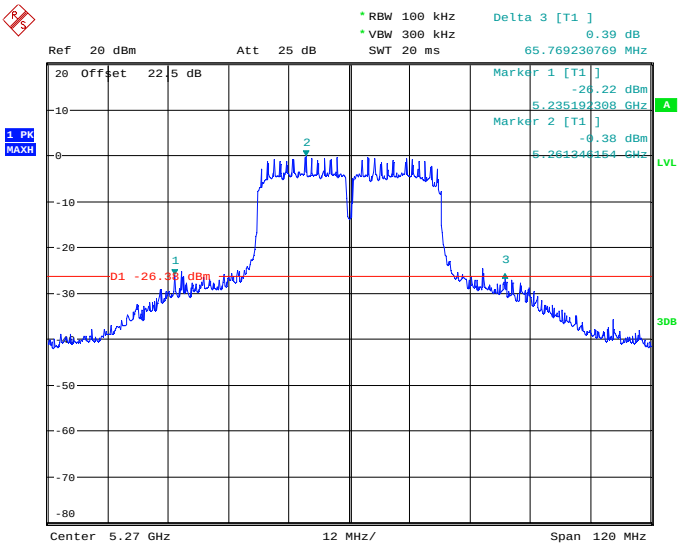


Fig. 17 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

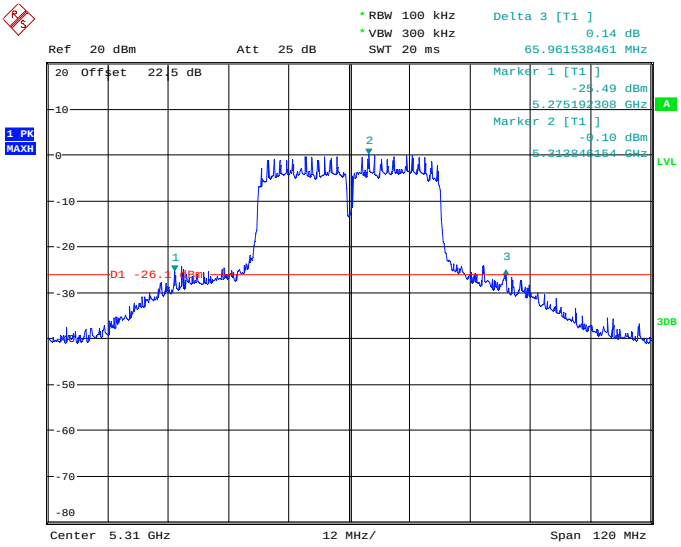
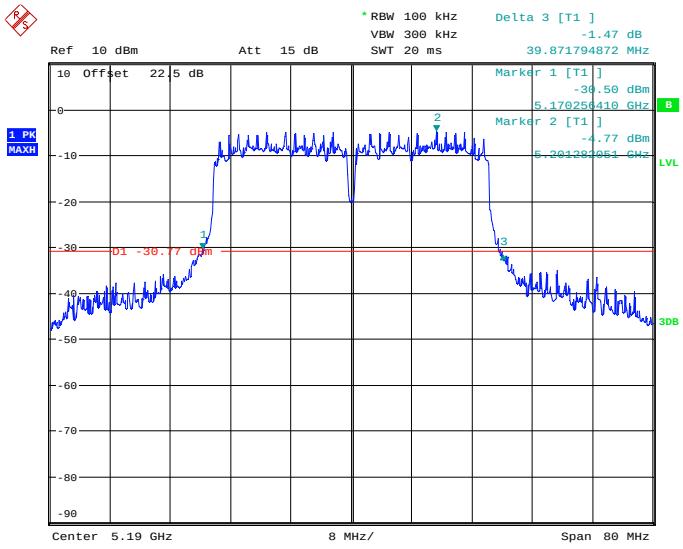
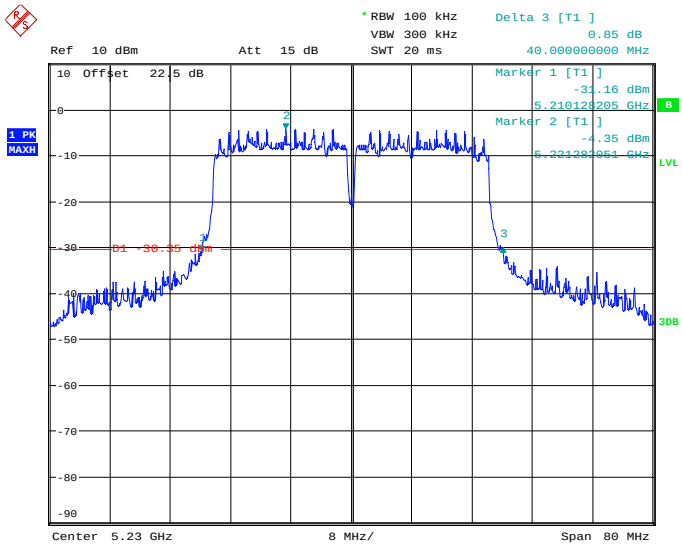


Fig. 18 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)



Date: 13.MAR.2013 16:28:01

Fig. 19 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)



Date: 13.MAR.2013 16:30:03

Fig. 20 Occupied 26dB Bandwidth (802. 11n-HT40, 5590MHz)

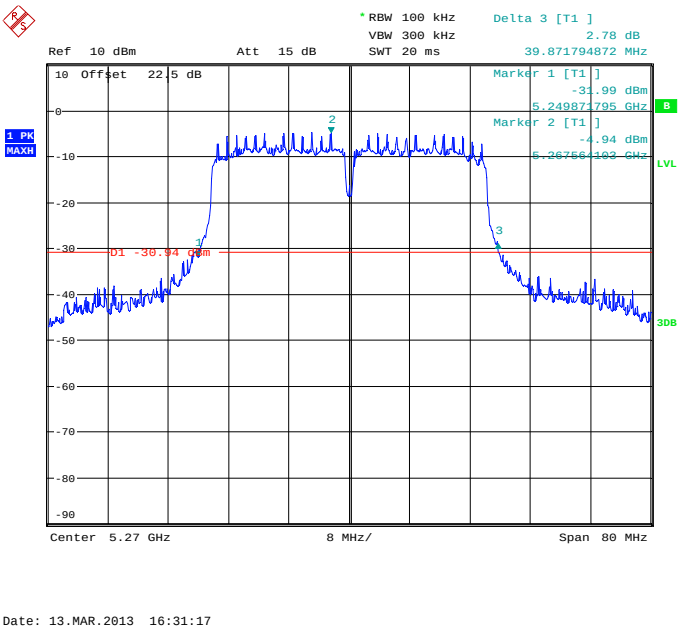


Fig. 21 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

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

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

Measurement Result:

Mode	Channel	Test Results		Conclusion
		Plot	Margin(dB)	
802.11a	5180 MHz	Fig.22	21.89	P
	5320 MHz	Fig.23	21.29	P
	5500 MHz	Fig.24	28.65	P
802.11n HT20	5180 MHz	Fig.25	21.64	P
	5320 MHz	Fig.26	20.32	P
	5500 MHz	Fig.27	28.31	P
802.11n HT40	5190 MHz	Fig.28	12.61	P
	5310 MHz	Fig.29	13.69	P
	5510 MHz	Fig.30	21.55	P

Conclusion: PASS

Test graphs as below:

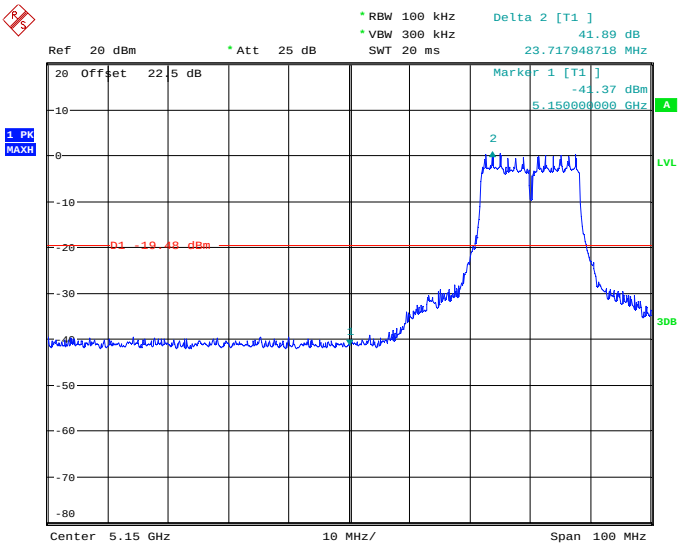


Fig. 22 Band Edges (802.11a, 5180MHz)

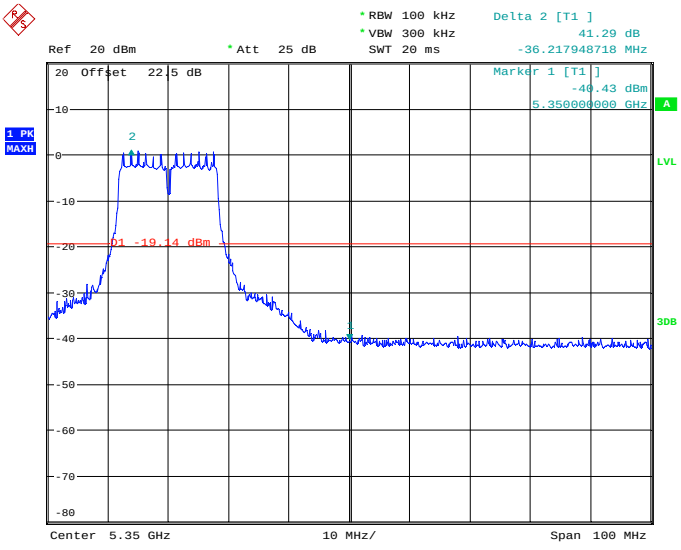


Fig. 23 Band Edges (802.11a, 5320MHz)

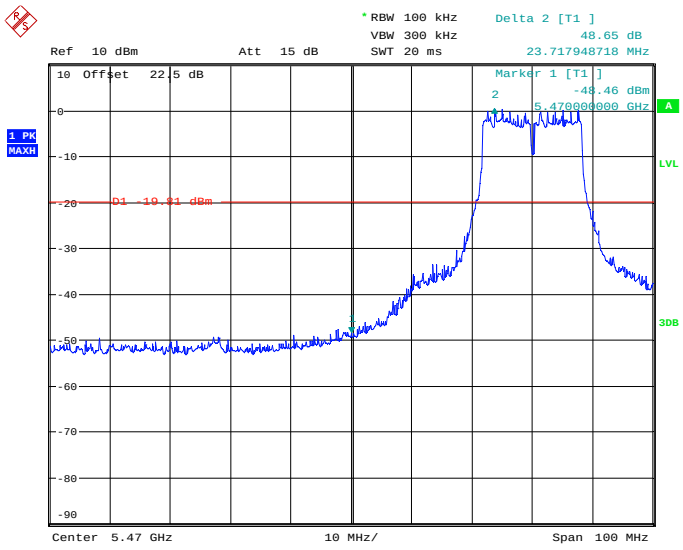


Fig. 24 Band Edges (802.11a, 5500MHz)

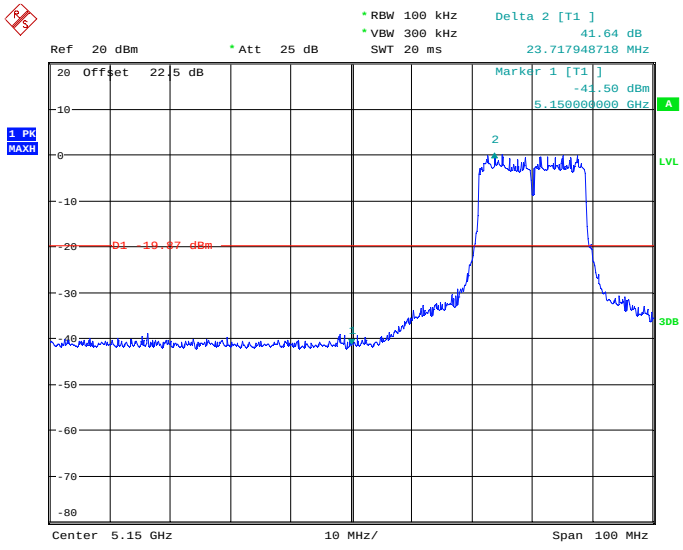


Fig. 25 Band Edges (802.11n-HT20, 5180MHz)

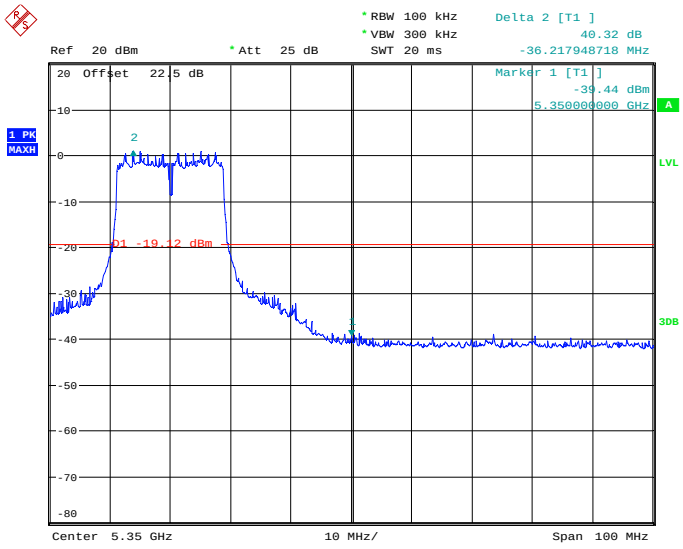


Fig. 26 Band Edges (802.11n-HT20, 5320MHz)

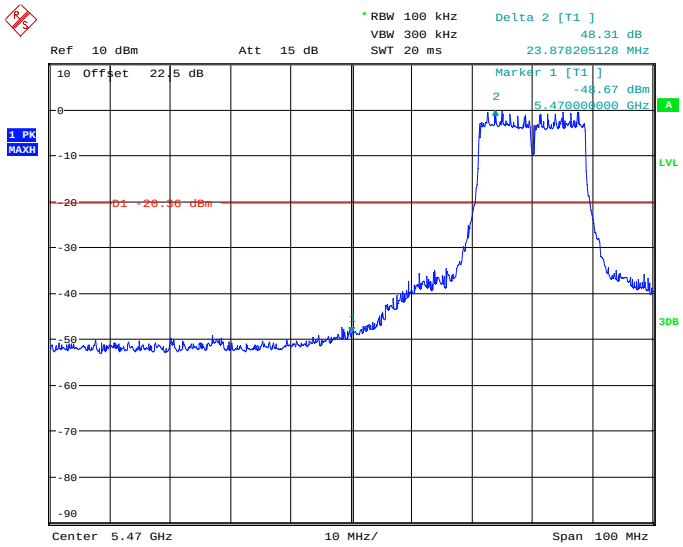


Fig. 27 Band Edges (802.11n-HT20, 5500MHz)

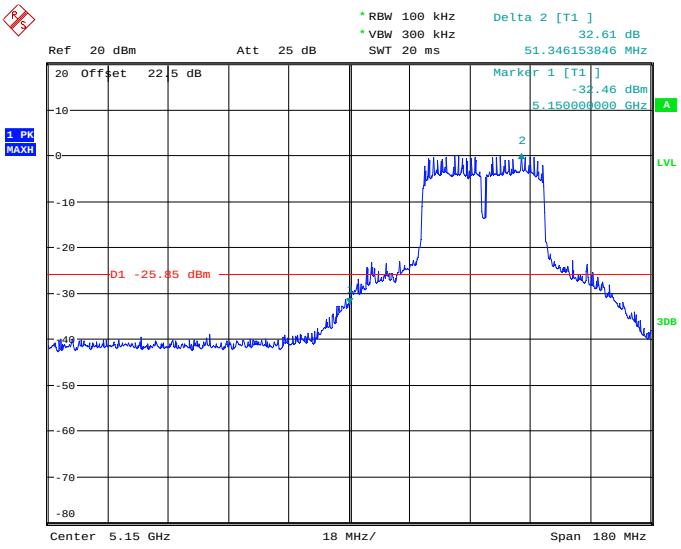


Fig. 28 Band Edges (802.11n-HT40, 5190MHz)

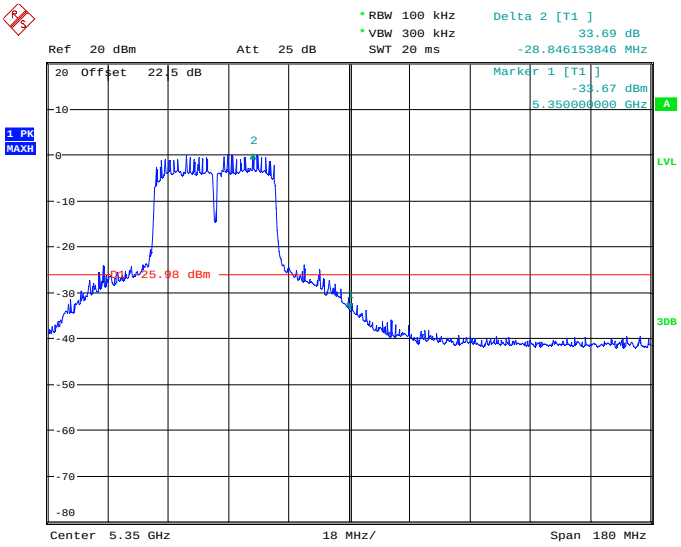


Fig. 29 Band Edges (802.11n-HT40, 5310MHz)

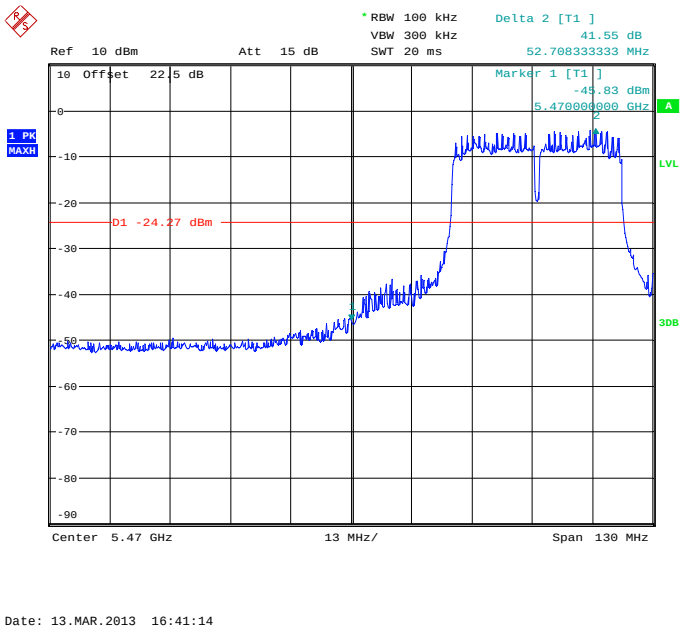


Fig. 30 Band Edges (802.11n-HT40, 5510MHz)

A5.1 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

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

Measurement Result:

Mode	Channel	Test Results		Conclusion
		Plot	Margin(dB)	
802.11a	5180 MHz	Fig.31	26.54	P
	5320 MHz	Fig.32	23.73	P
	5500 MHz	Fig.33	31.68	P
802.11n HT20	5180 MHz	Fig.34	26.44	P
	5320 MHz	Fig.35	20.65	P
	5500 MHz	Fig.36	30.45	P
802.11n HT40	5190 MHz	Fig.37	13.93	P
	5310 MHz	Fig.38	17.70	P
	5510 MHz	Fig.39	15.69	P

Conclusion: PASS

Test graphs as below:

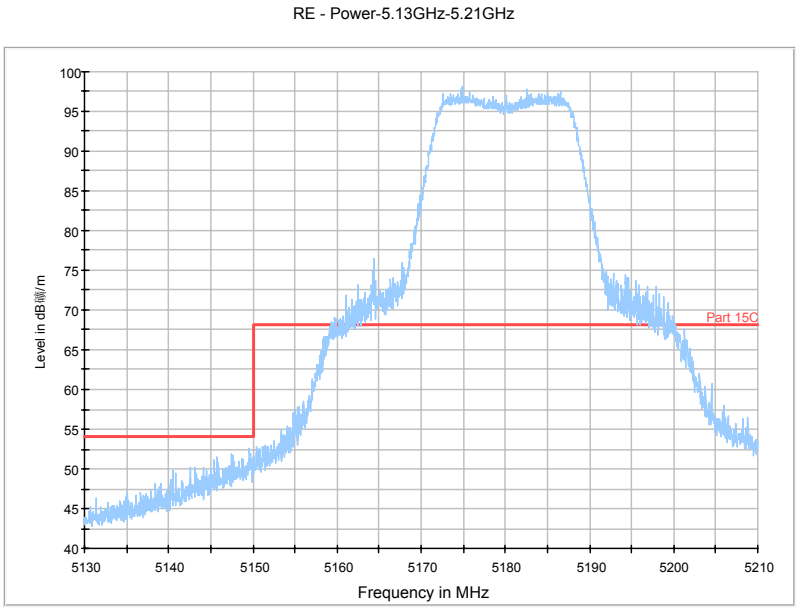


Fig. 31 Band Edges (802.11a, 5180MHz)

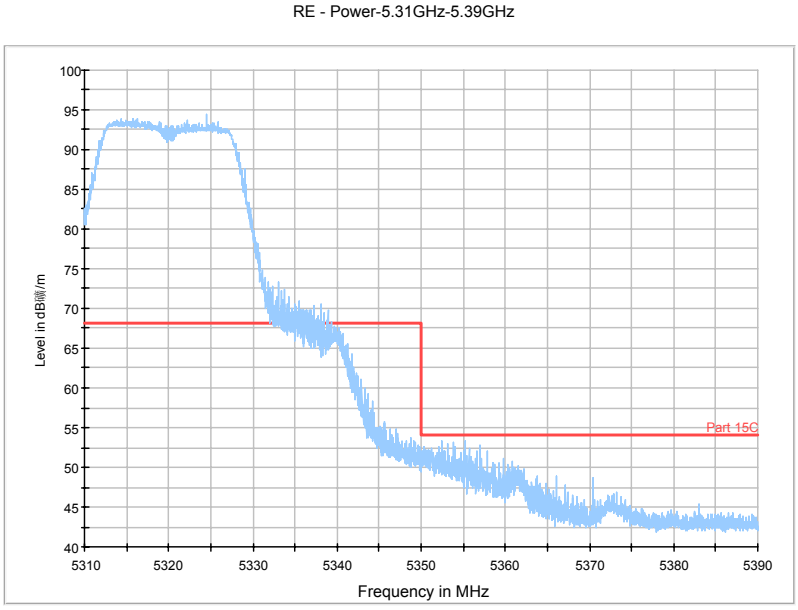


Fig. 32 Band Edges (802.11a, 5320MHz)

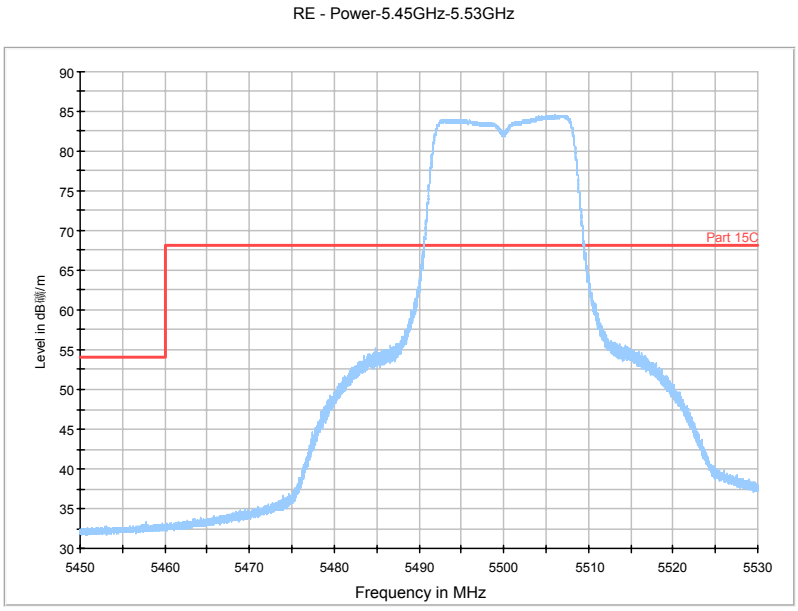


Fig. 33 Band Edges (802.11a, 5550MHz)

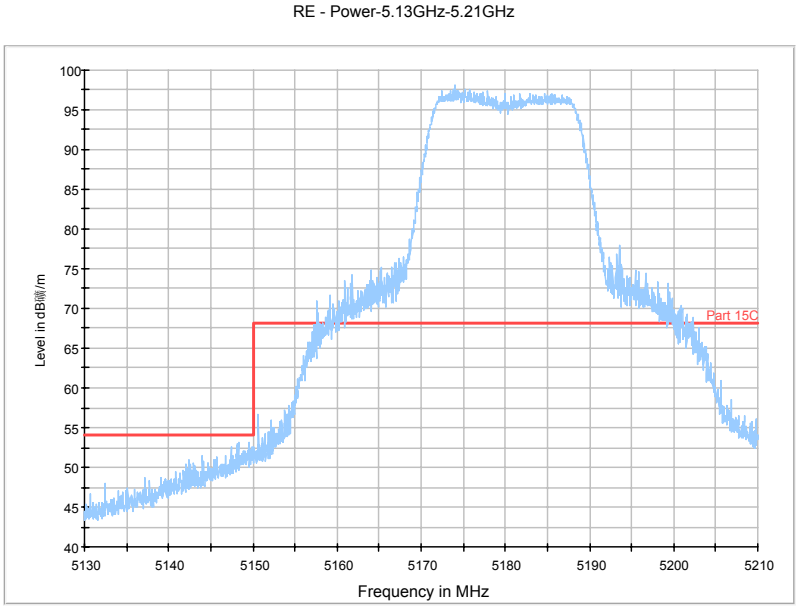


Fig. 34 Band Edges (802.11n-HT20, 5180MHz)

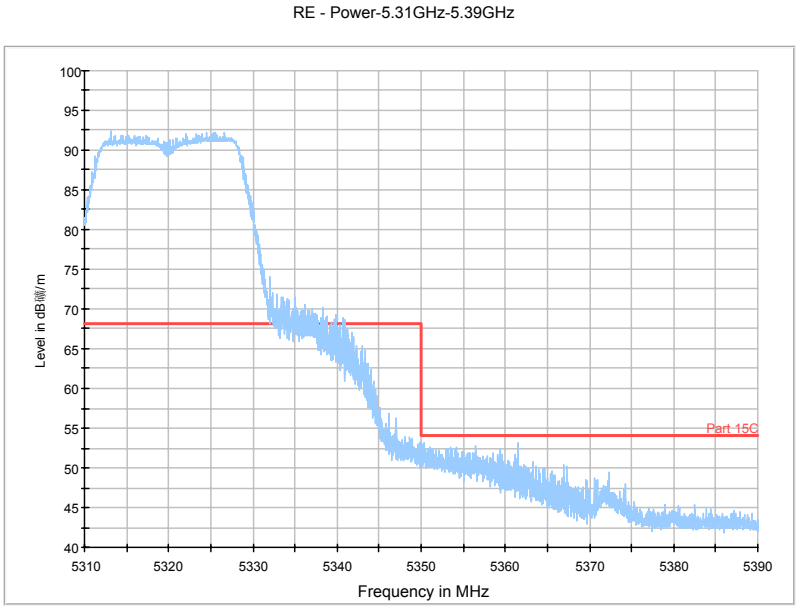


Fig. 35 Band Edges (802.11n-HT20, 5320MHz)

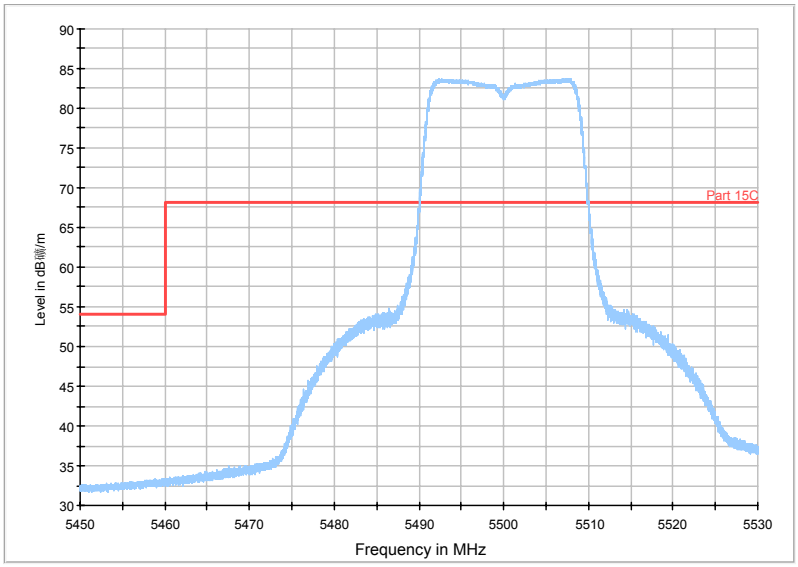


Fig. 36 Band Edges (802.11n-HT20, 5550MHz)

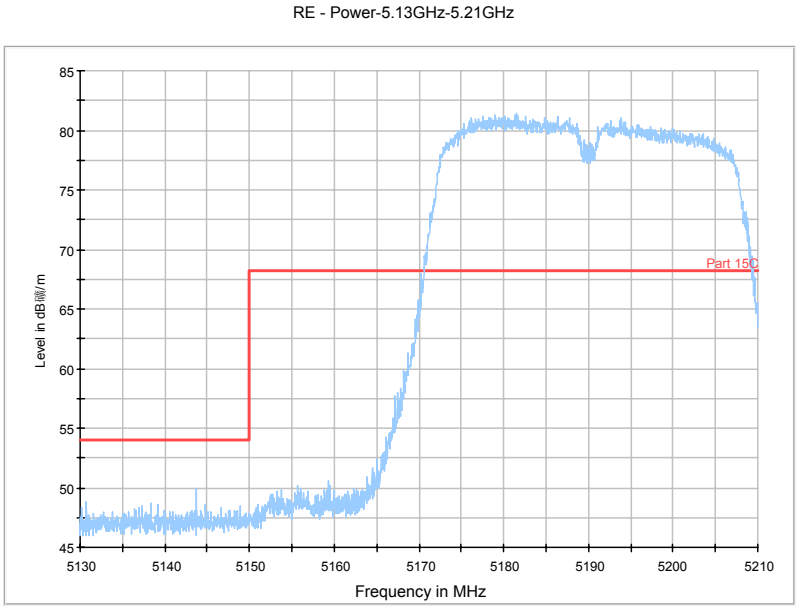


Fig. 37 Band Edges (802.11n-HT40, 5190MHz)

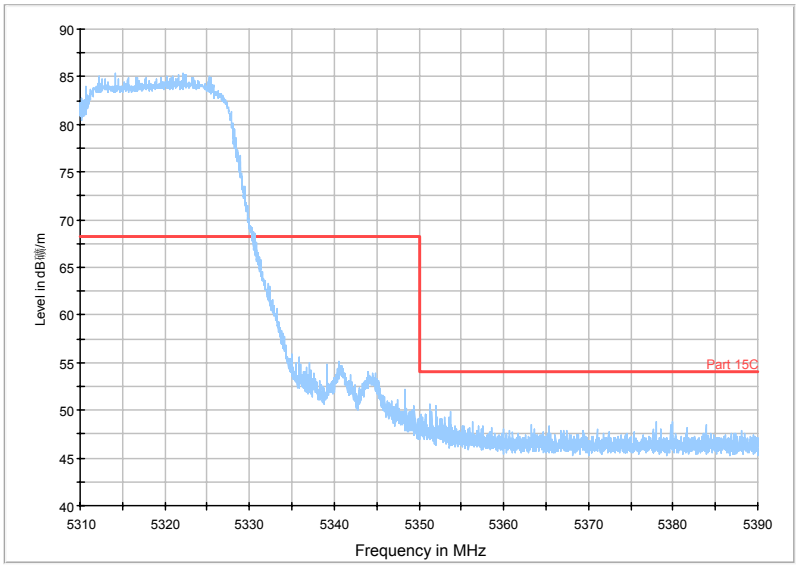


Fig. 38 Band Edges (802.11n-HT40, 5310MHz)

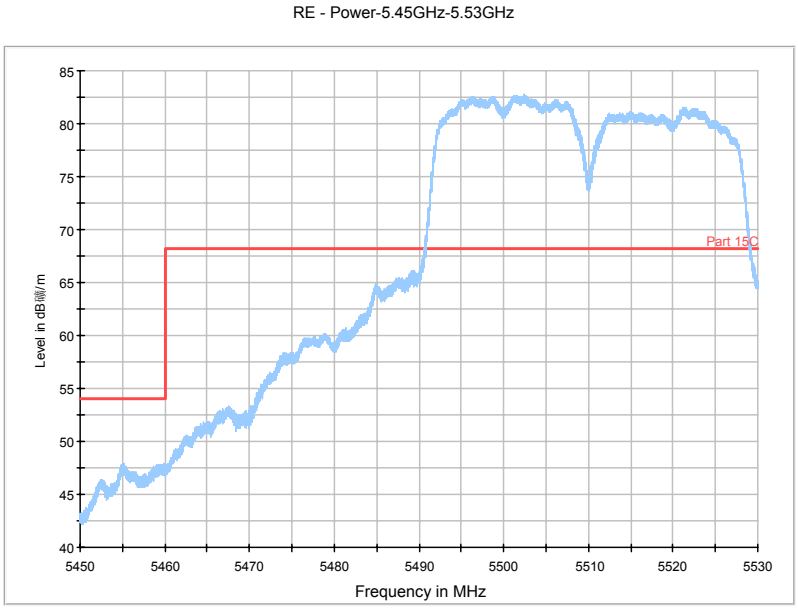


Fig. 39 Band Edges (802.11n-HT40, 5510MHz)

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

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:

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

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

Measurement Results:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	30 MHz ~1 GHz	Fig.40	P
		1 GHz ~ 3 GHz	Fig.41	P
		3 GHz ~ 6 GHz	Fig.42	P
		6 GHz ~ 18 GHz	Fig.43	P
		18 GHz ~ 26.5 GHz	Fig.44	P
		26.5 GHz ~ 40 GHz	Fig.45	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.46	P
		1 GHz ~ 3 GHz	Fig.47	P
		3 GHz ~ 6 GHz	Fig.48	P
		6 GHz ~ 18 GHz	Fig.49	P

		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 ~ 3 GHz	Fig.53	P
		3 GHz ~ 6 GHz	Fig.54	P
		6 GHz ~ 18 GHz	Fig.55	P
		18 GHz ~ 26.5 GHz	Fig.56	P
		26.5 GHz ~ 40 GHz	Fig.57	P
	64(5320MHz)	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 3 GHz	Fig.59	P
		3 GHz ~ 6 GHz	Fig.60	P
		6 GHz ~ 18 GHz	Fig.61	P
		18 GHz ~ 26.5 GHz	Fig.62	P
		26.5 GHz ~ 40 GHz	Fig.63	P

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	100(5500MHz)	30 MHz ~1 GHz	Fig.64	P
		1 GHz ~ 3 GHz	Fig.65	P
		3 GHz ~ 6 GHz	Fig.66	P
		6 GHz ~ 18 GHz	Fig.67	P
		18 GHz ~ 26.5 GHz	Fig.68	P
		26.5 GHz ~ 40 GHz	Fig.69	P
	120(5600MHz)	30 MHz ~1 GHz	Fig.70	P
		1 GHz ~ 3 GHz	Fig.71	P
		3 GHz ~ 6 GHz	Fig.72	P
		6 GHz ~ 18 GHz	Fig.73	P
		18 GHz ~ 26.5 GHz	Fig.74	P
		26.5 GHz ~ 40 GHz	Fig.75	P
	140(5700MHz)	30 MHz ~1 GHz	Fig.76	P
		1 GHz ~ 3 GHz	Fig.77	P
		3 GHz ~ 6 GHz	Fig.78	P
		6 GHz ~ 18 GHz	Fig.79	P
		18 GHz ~ 26.5 GHz	Fig.80	P
		26.5 GHz ~ 40 GHz	Fig.81	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	36(5180MHz)	30 MHz ~1 GHz	Fig.82	P
		1 GHz ~ 3 GHz	Fig.83	P
		3 GHz ~ 6 GHz	Fig.84	P
		6 GHz ~ 18 GHz	Fig.85	P
		18 GHz ~ 26.5 GHz	Fig.86	P
		26.5 GHz ~ 40 GHz	Fig.87	P
	48(5240MHz)	30 MHz ~1 GHz	Fig.88	P
		1 GHz ~ 3 GHz	Fig.89	P
		3 GHz ~ 6 GHz	Fig.90	P
		6 GHz ~ 18 GHz	Fig.91	P
		18 GHz ~ 26.5 GHz	Fig.92	P
		26.5 GHz ~ 40 GHz	Fig.93	P
	52(5260MHz)	30 MHz ~1 GHz	Fig.94	P
		1 GHz ~ 3 GHz	Fig.95	P
		3 GHz ~ 6 GHz	Fig.96	P
		6 GHz ~ 18 GHz	Fig.97	P
		18 GHz ~ 26.5 GHz	Fig.98	P
		26.5 GHz ~ 40 GHz	Fig.99	P
	64(5320MHz)	30 MHz ~1 GHz	Fig.100	P
		1 GHz ~ 3 GHz	Fig.101	P
		3 GHz ~ 6 GHz	Fig.102	P
		6 GHz ~ 18 GHz	Fig.103	P
		18 GHz ~ 26.5 GHz	Fig.104	P
		26.5 GHz ~ 40 GHz	Fig.105	P

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	100(5500MHz)	30 MHz ~1 GHz	Fig.106	P
		1 GHz ~ 3 GHz	Fig.107	P
		3 GHz ~ 6 GHz	Fig.108	P
		6 GHz ~ 18 GHz	Fig.109	P
		18 GHz ~ 26.5 GHz	Fig.110	P
		26.5 GHz ~ 40 GHz	Fig.111	P
	120(5600MHz)	30 MHz ~1 GHz	Fig.112	P
		1 GHz ~ 3 GHz	Fig.113	P
		3 GHz ~ 6 GHz	Fig.114	P
		6 GHz ~ 18 GHz	Fig.115	P
		18 GHz ~ 26.5 GHz	Fig.116	P
		26.5 GHz ~ 40 GHz	Fig.117	P
	140(5700MHz)	30 MHz ~1 GHz	Fig.118	P
		1 GHz ~ 3 GHz	Fig.119	P
		3 GHz ~ 6 GHz	Fig.120	P
		6 GHz ~ 18 GHz	Fig.121	P
		18 GHz ~ 26.5 GHz	Fig.122	P
		26.5 GHz ~ 40 GHz	Fig.123	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	Fig.124	P
		1 GHz ~ 3 GHz	Fig.125	P
		3 GHz ~ 6 GHz	Fig.126	P
		6 GHz ~ 18 GHz	Fig.127	P
		18 GHz ~ 26.5 GHz	Fig.128	P
	46(5230MHz)	30 MHz ~1 GHz	Fig.129	P
		1 GHz ~ 3 GHz	Fig.130	P
		3 GHz ~ 6 GHz	Fig.131	P
		6 GHz ~ 18 GHz	Fig.132	P
		18 GHz ~ 26.5 GHz	Fig.133	P
	55(5270MHz)	30 MHz ~1 GHz	Fig.134	P
		1 GHz ~ 3 GHz	Fig.135	P
		3 GHz ~ 6 GHz	Fig.136	P
		6 GHz ~ 18 GHz	Fig.137	P
		18 GHz ~ 26.5 GHz	Fig.138	P
	62(5310MHz)	30 MHz ~1 GHz	Fig.139	P
		1 GHz ~ 3 GHz	Fig.140	P
		3 GHz ~ 6 GHz	Fig.141	P
		6 GHz ~ 18 GHz	Fig.142	P
		18 GHz ~ 26.5 GHz	Fig.143	P

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	102(5510MHz)	30 MHz ~1 GHz	Fig.144	P
		1 GHz ~ 3 GHz	Fig.145	P
		3 GHz ~ 6 GHz	Fig.146	P
		6 GHz ~ 18 GHz	Fig.147	P
		18 GHz ~ 26.5 GHz	Fig.148	P
	118(5590MHz)	30 MHz ~1 GHz	Fig.149	P
		1 GHz ~ 3 GHz	Fig.150	P
		3 GHz ~ 6 GHz	Fig.151	P
		6 GHz ~ 18 GHz	Fig.152	P
		18 GHz ~ 26.5 GHz	Fig.153	P
	134(5670MHz)	30 MHz ~1 GHz	Fig.154	P
		1 GHz ~ 3 GHz	Fig.155	P
		3 GHz ~ 6 GHz	Fig.156	P
		6 GHz ~ 18 GHz	Fig.157	P
		18 GHz ~ 26.5 GHz	Fig.158	P
	All channels	26.5 GHz ~ 40 GHz	Fig.159	P

Conclusion: PASS

Test graphs as below:

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:

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

802.11a

The worse case is measured in channel 140

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
34147.295	50.6	-20.1	49.7	21.000	HORIZONTAL
34103.206	50.3	-20.1	49.7	20.700	HORIZONTAL
34063.126	50.2	-20.1	49.7	20.600	HORIZONTAL
34131.263	50.1	-20.1	49.7	20.500	VERTICAL
34087.174	50.1	-20.1	49.7	20.500	VERTICAL
34115.230	50.0	-20.1	49.7	20.400	VERTICAL

802.11n-HT20

The worse case is measured in channel 64

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
34059.118	50.1	-20.1	49.7	20.500	HORIZONTAL
34167.335	49.9	-20.1	49.7	20.300	VERTICAL
34095.190	49.9	-20.1	49.7	20.300	HORIZONTAL
34115.230	49.9	-20.1	49.7	20.300	HORIZONTAL
34143.287	49.9	-20.1	49.7	20.300	HORIZONTAL
34067.134	49.9	-20.1	49.7	20.300	VERTICAL

802.11n-HT40

The worse case is measured in channel 38

Frequency(MHz)	Result (dBuV/m)	Cable Loss	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
34063.126	50.3	-20.1	49.7	20.700	HORIZONTAL
34123.246	50.2	-20.1	49.7	20.600	VERTICAL
34171.343	50.1	-20.1	49.7	20.500	VERTICAL
34095.190	50.1	-20.1	49.7	20.500	VERTICAL
34067.134	50.0	-20.1	49.7	20.400	HORIZONTAL
34167.335	50.0	-20.1	49.7	20.400	HORIZONTAL

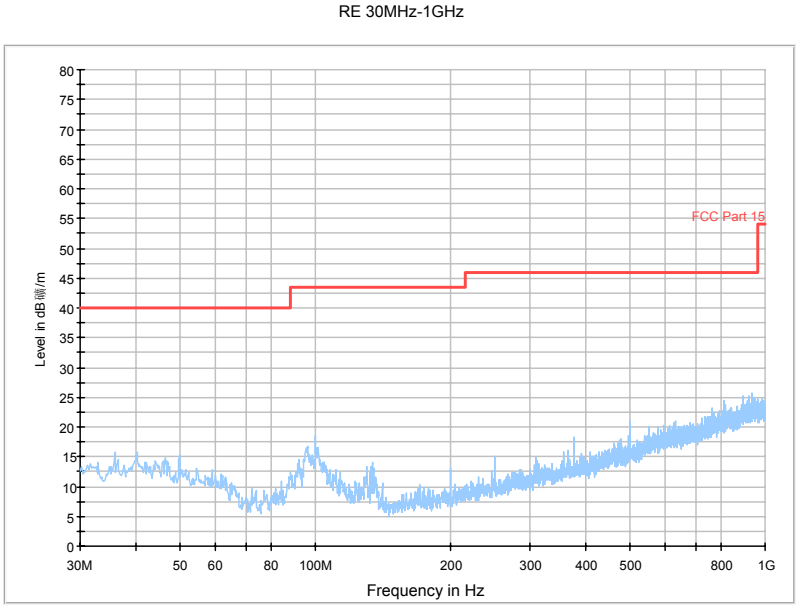


Fig. 40 Radiated Spurious Emission (802.11a, ch36, 30 MHz-1 GHz)

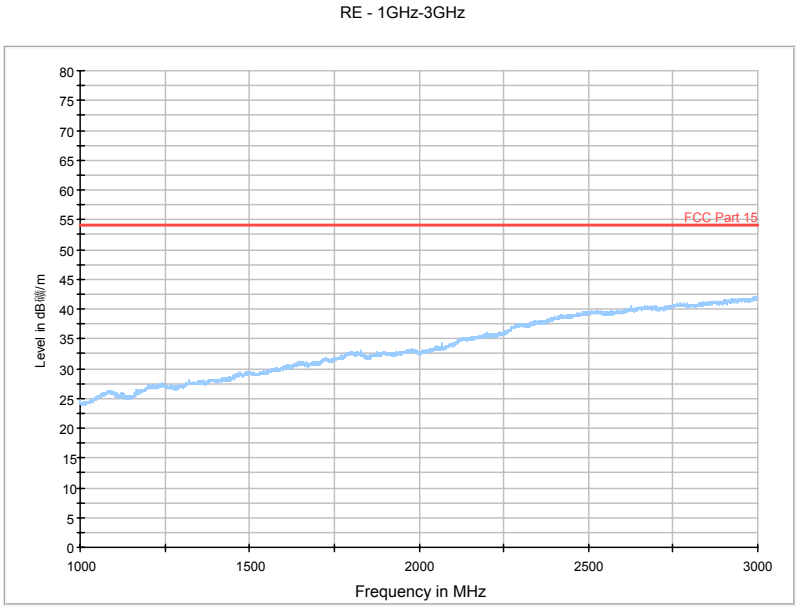


Fig. 41 Radiated Spurious Emission (802.11a, ch36, 1 GHz-3 GHz)

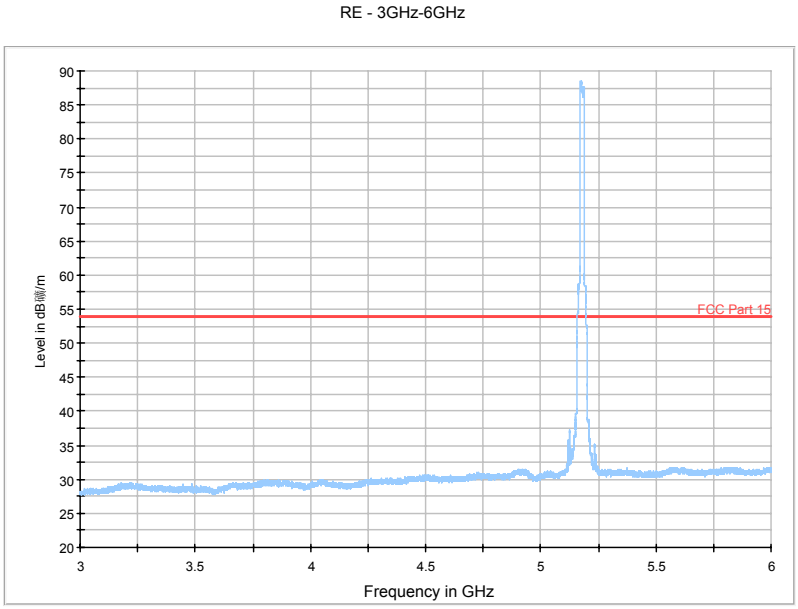


Fig. 42 Radiated Spurious Emission (802.11a, ch36, 3 GHz-6 GHz)

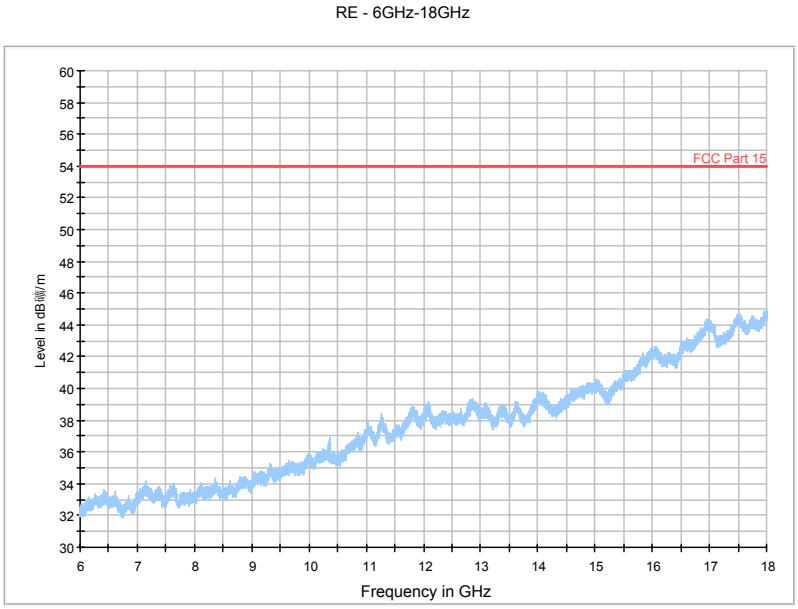


Fig. 43 Radiated Spurious Emission (802.11a, ch36, 6 GHz-18 GHz)

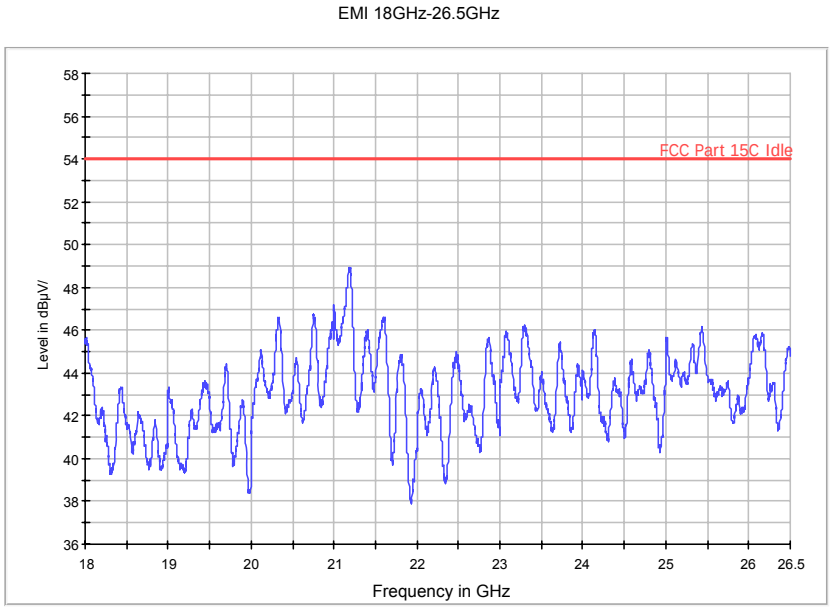


Fig. 44 Radiated Spurious Emission (802.11a, ch36, 18 GHz-26.5 GHz)

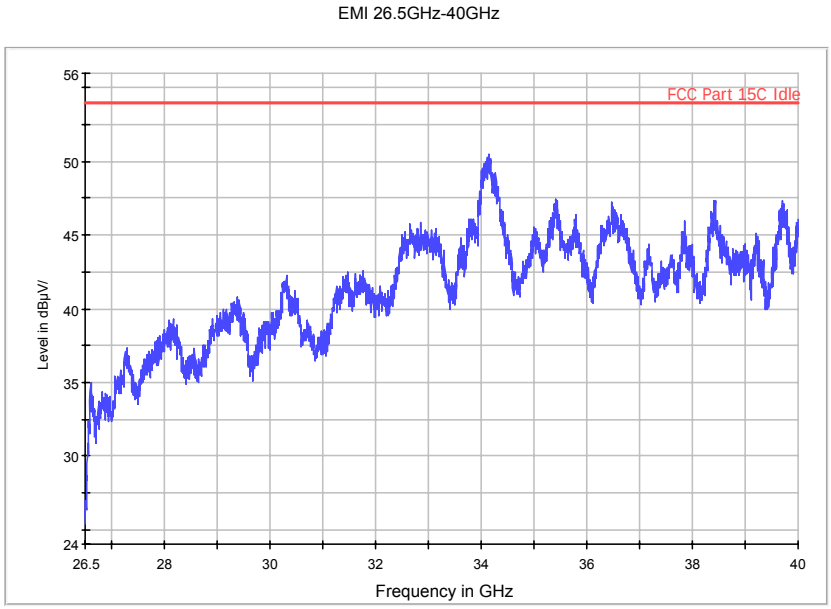


Fig. 45 Radiated Spurious Emission (802.11a, ch36, 26.5 GHz-40 GHz)

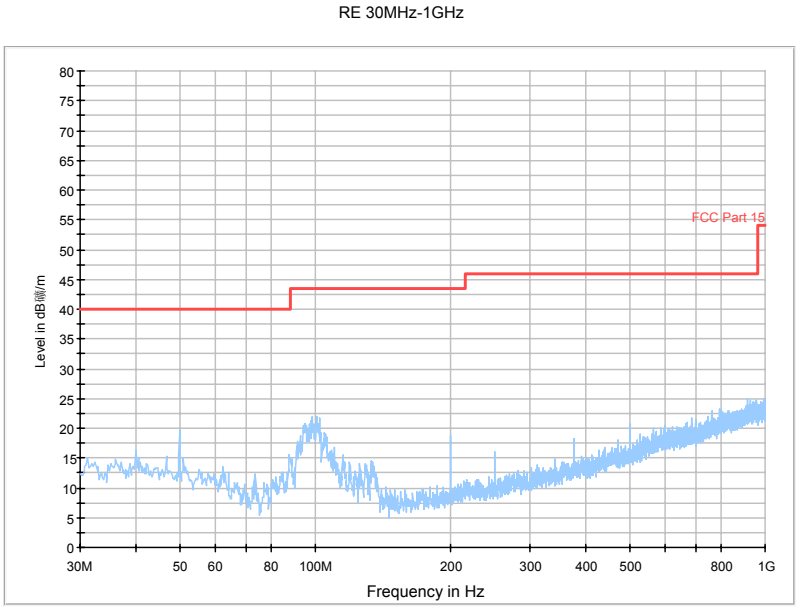


Fig. 46 Radiated Spurious Emission (802.11a, ch48, 30 MHz-1 GHz)

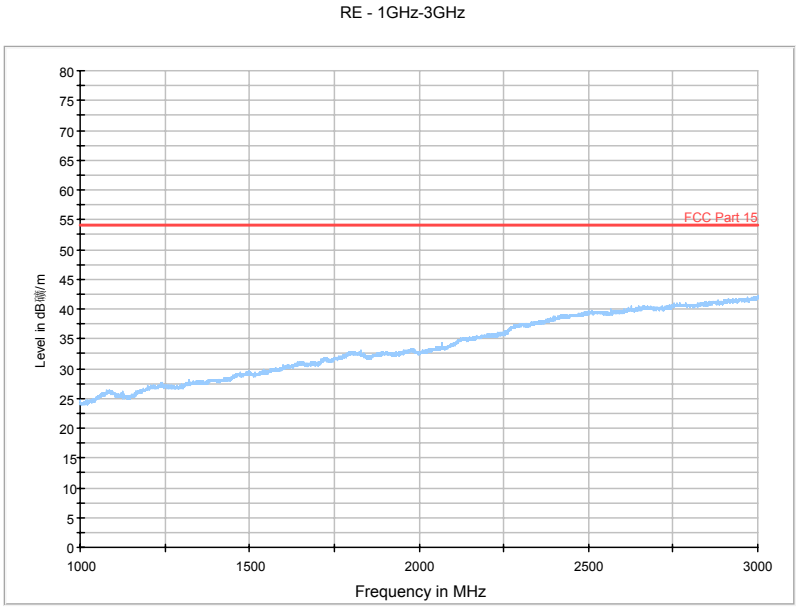


Fig. 47 Radiated Spurious Emission (802.11a, ch48, 1 GHz-3 GHz)

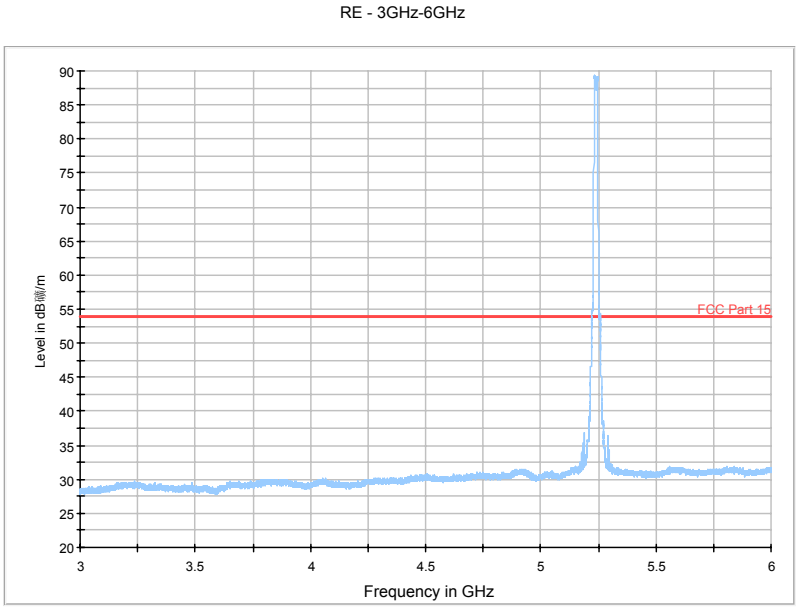


Fig. 48 Radiated Spurious Emission (802.11a, ch48, 3 GHz-6 GHz)

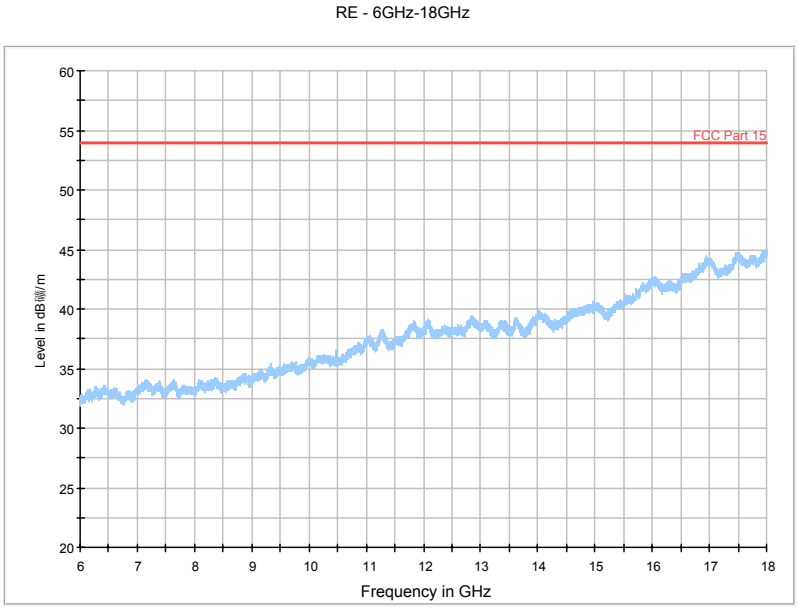


Fig. 49 Radiated Spurious Emission (802.11a, ch48, 6 GHz-18 GHz)

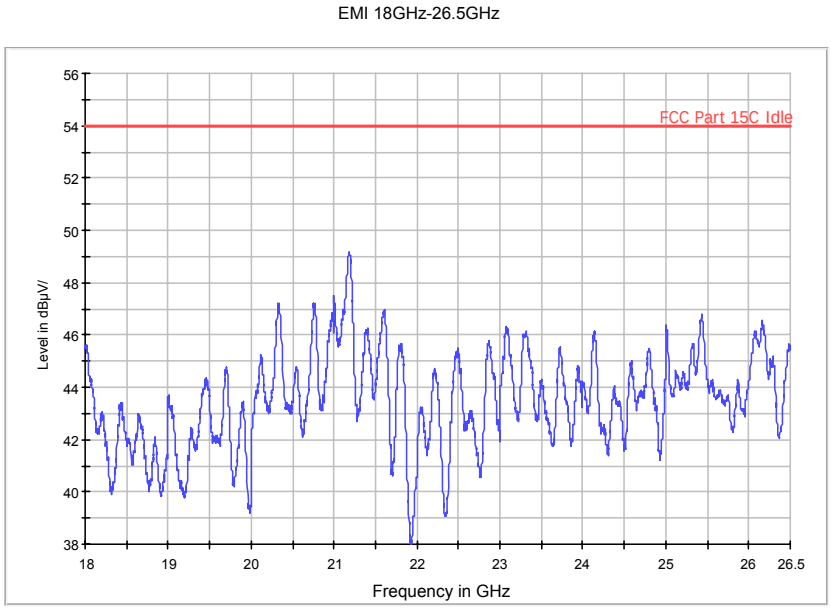


Fig. 50 Radiated Spurious Emission (802.11a, ch48, 18 GHz-26.5 GHz)

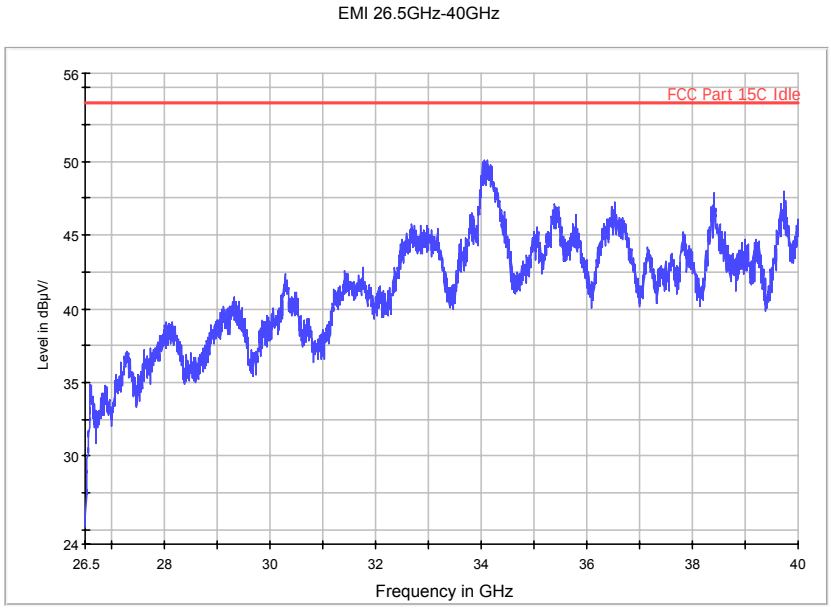


Fig. 51 Radiated Spurious Emission (802.11a, ch48, 26.5 GHz-40 GHz)

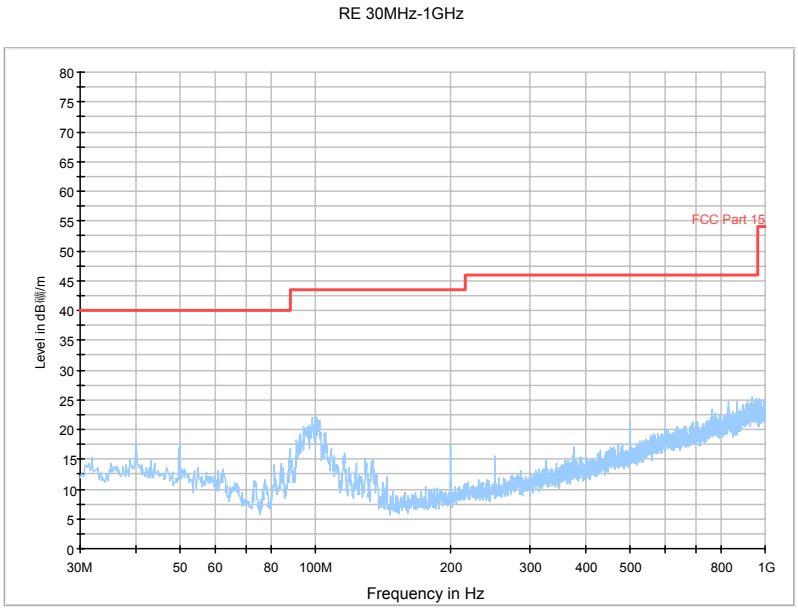


Fig. 52 Radiated Spurious Emission (802.11a, ch52, 30 MHz-1 GHz)

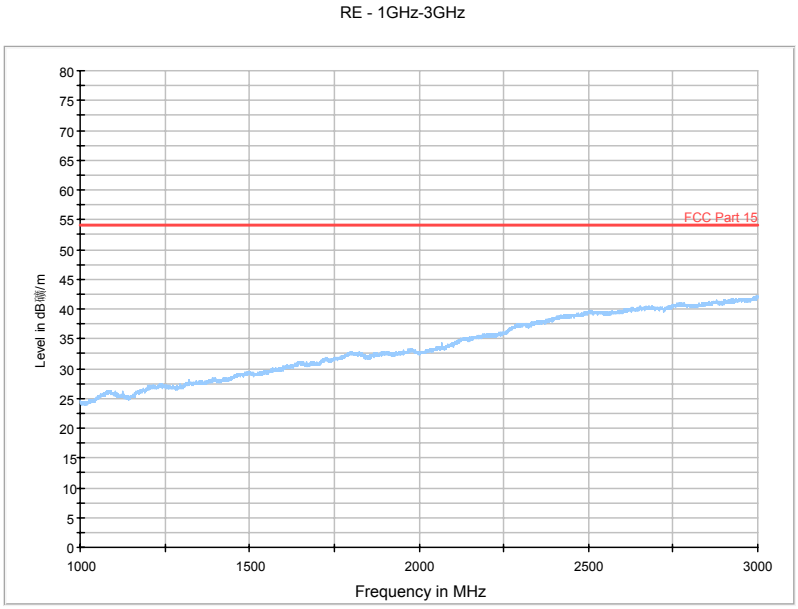


Fig. 53 Radiated Spurious Emission (802.11a, ch52, 1 GHz-3 GHz)

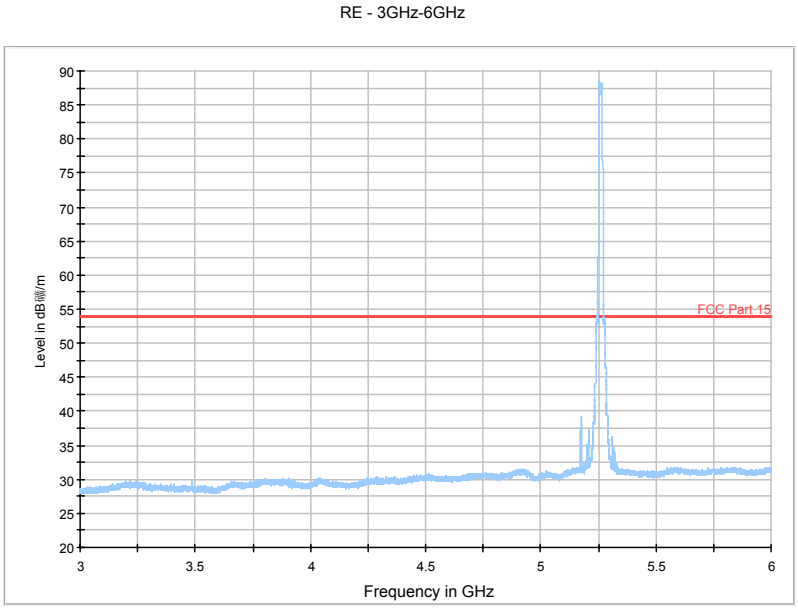


Fig. 54 Radiated Spurious Emission (802.11a, ch52, 3 GHz-6 GHz)

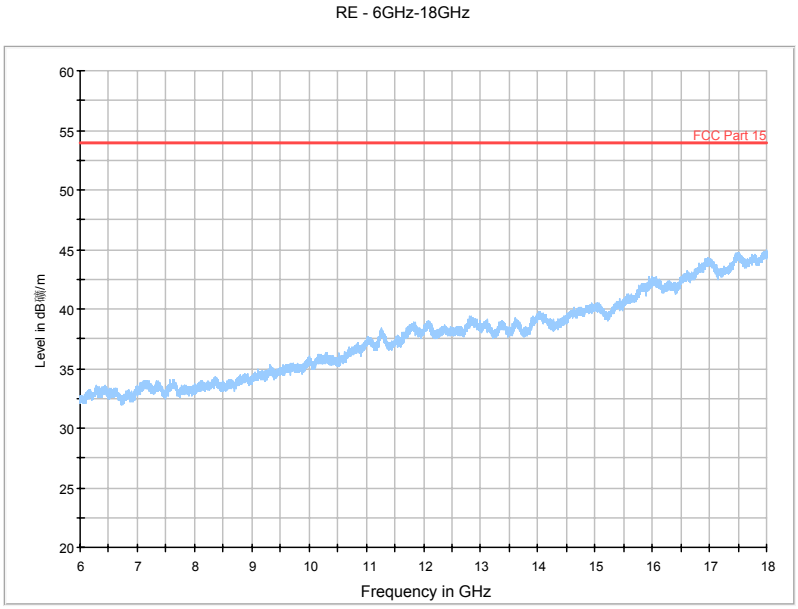


Fig. 55 Radiated Spurious Emission (802.11a, ch52, 6 GHz-18 GHz)

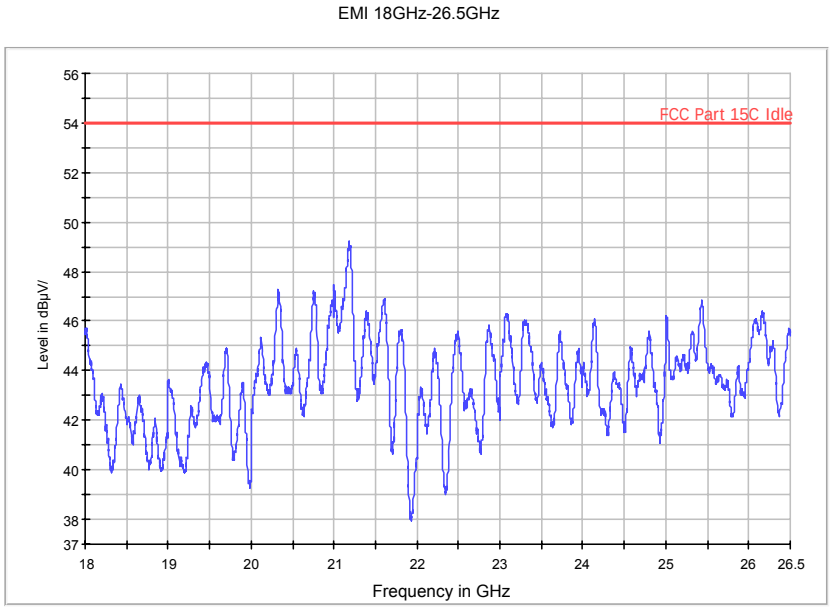


Fig. 56 Radiated Spurious Emission (802.11a, ch52, 18 GHz-26.5 GHz)

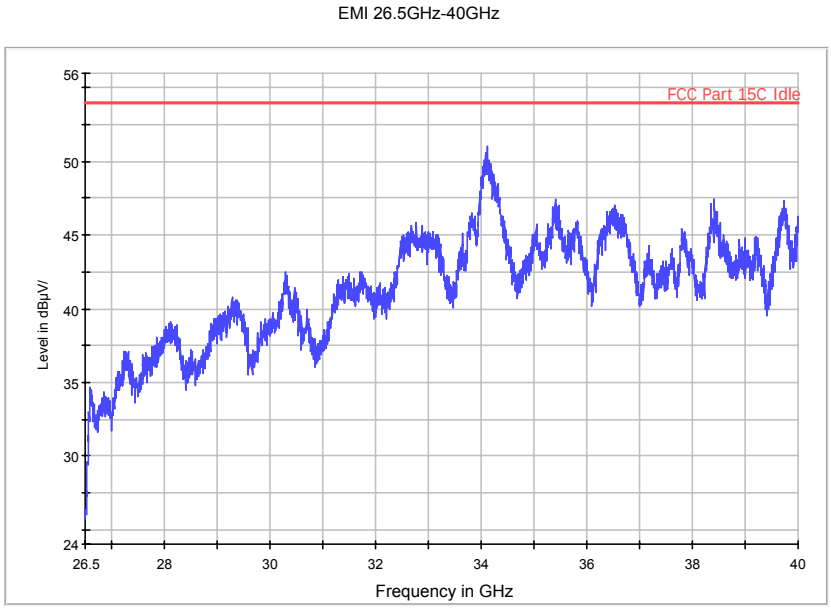


Fig. 57 Radiated Spurious Emission (802.11a, ch52, 26.5 GHz-40 GHz)

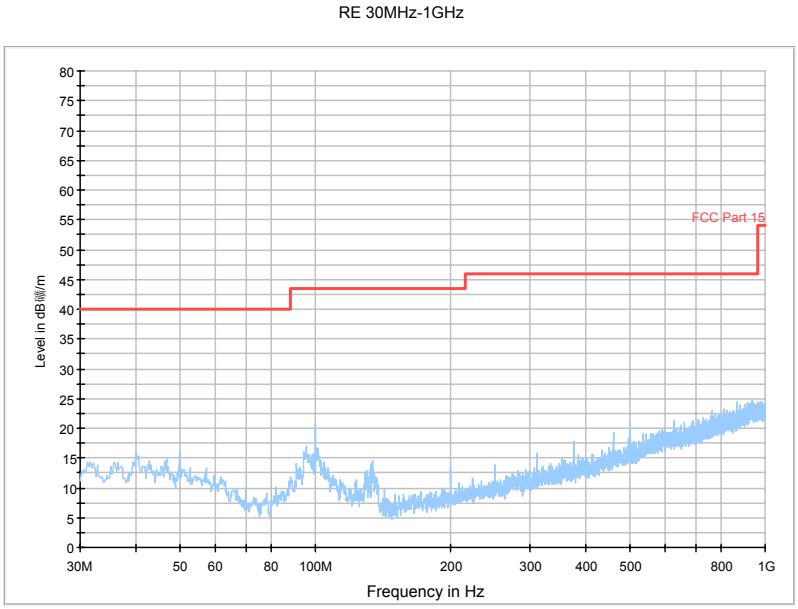


Fig. 58 Radiated Spurious Emission (802.11a, ch64, 30 MHz-1 GHz)

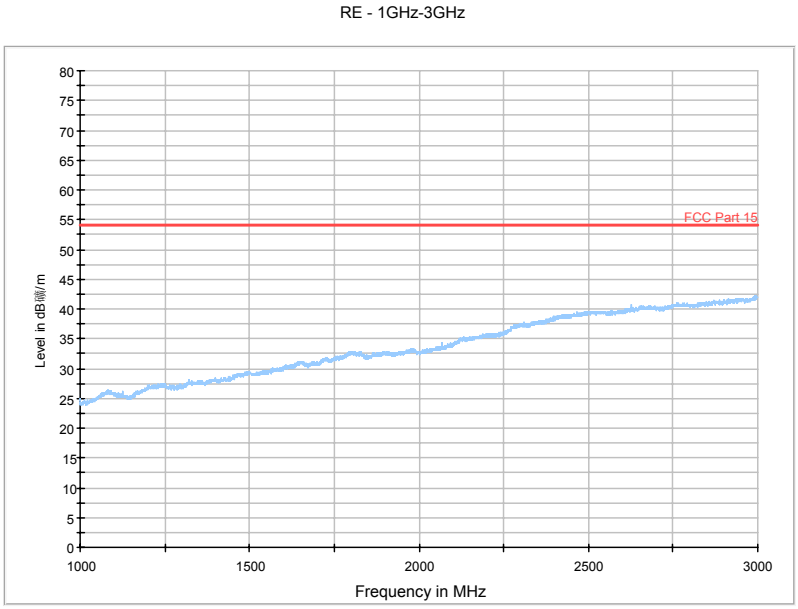


Fig. 59 Radiated Spurious Emission (802.11a, ch64, 1 GHz-3 GHz)

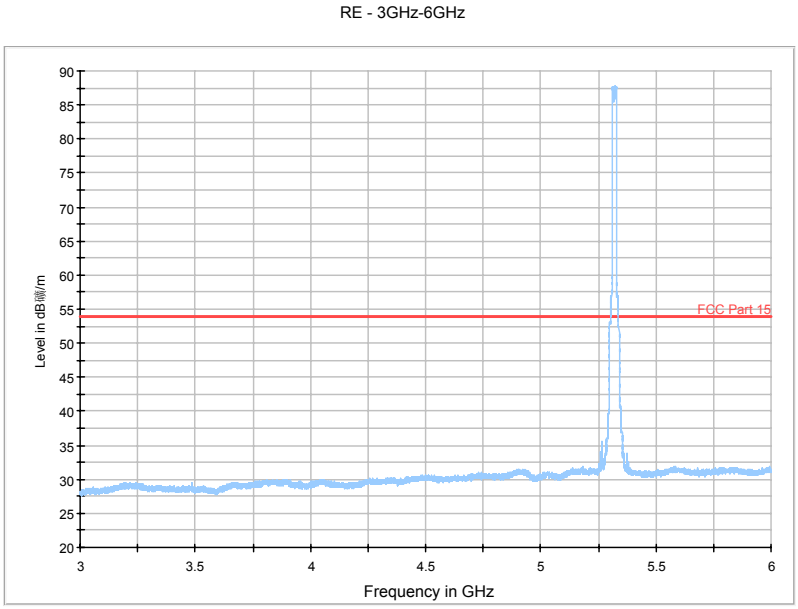


Fig. 60 Radiated Spurious Emission (802.11a, ch64, 3 GHz-6 GHz)

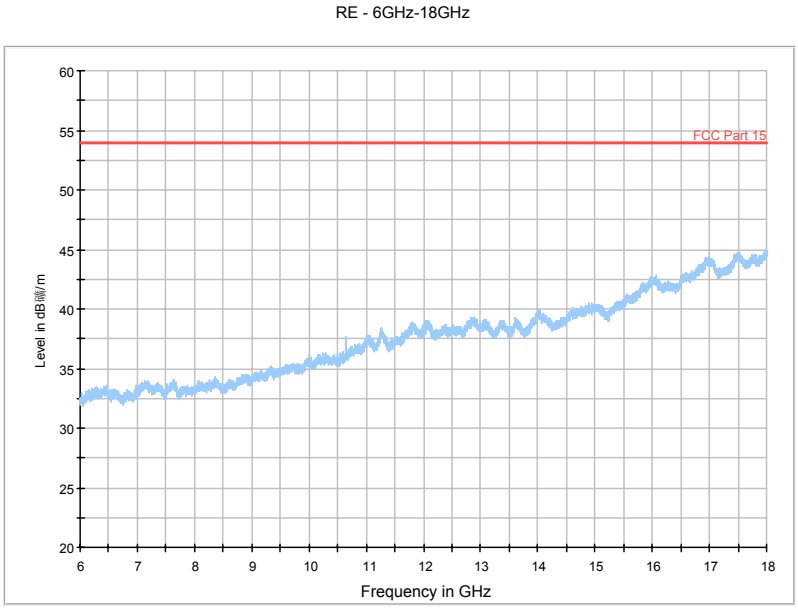


Fig. 61 Radiated Spurious Emission (802.11a, ch64, 6 GHz-18 GHz)

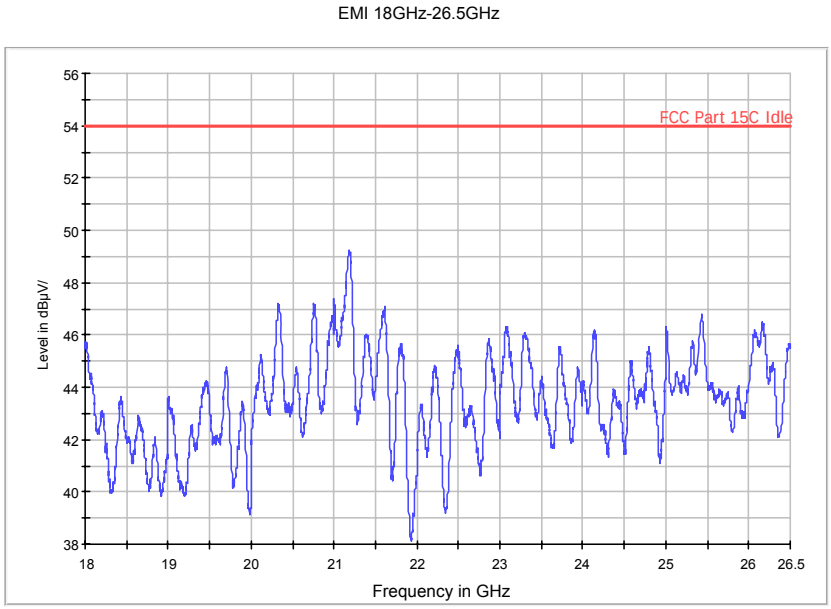


Fig. 62 Radiated Spurious Emission (802.11a, ch64, 18 GHz-26.5 GHz)

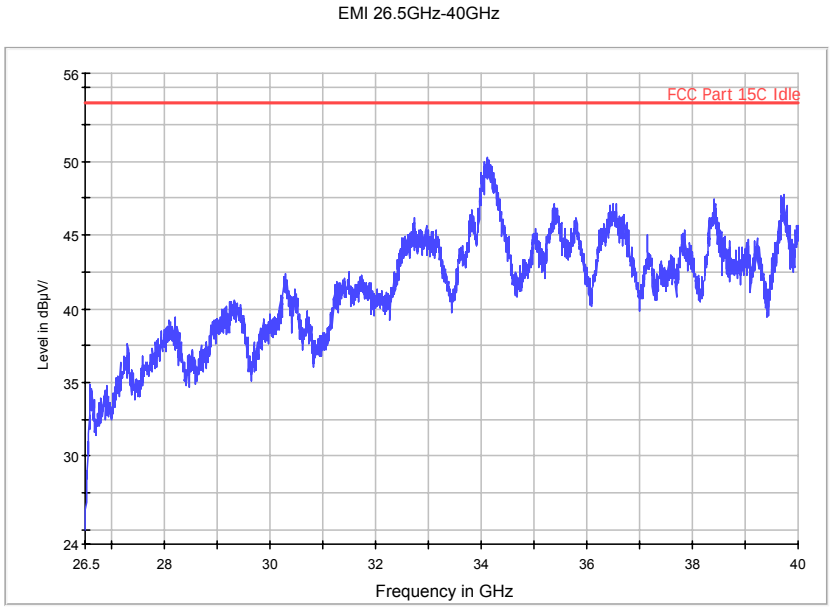


Fig. 63 Radiated Spurious Emission (802.11a, ch64, 26.5 GHz-40 GHz)

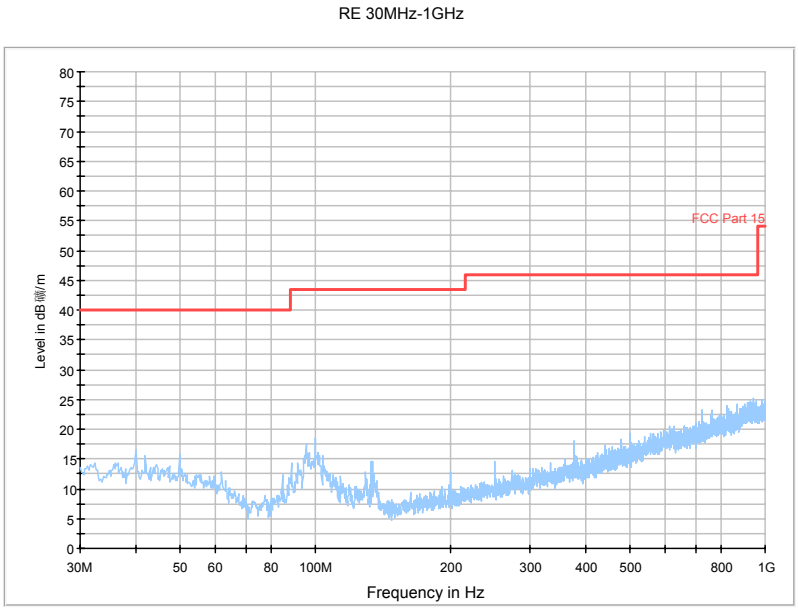


Fig. 64 Radiated Spurious Emission (802.11a, ch100, 30 MHz-1 GHz)

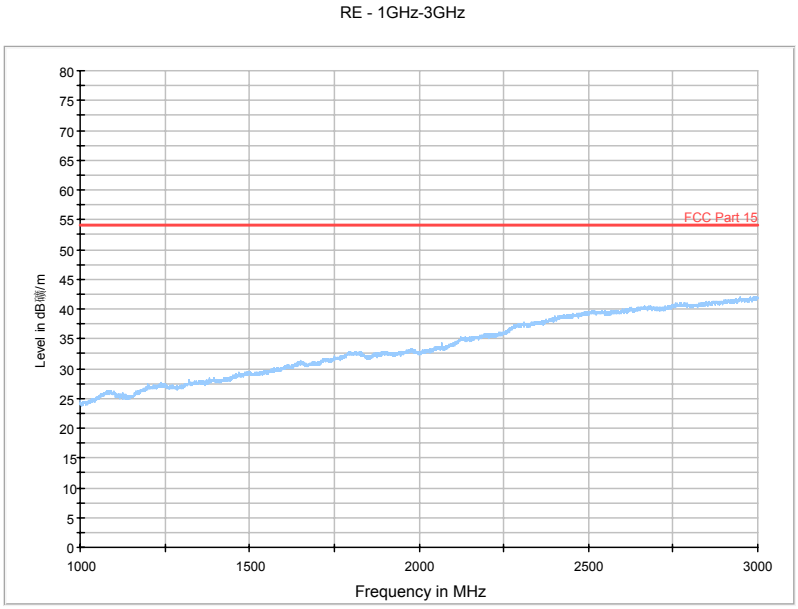


Fig. 65 Radiated Spurious Emission (802.11a, ch100, 1 GHz-3 GHz)

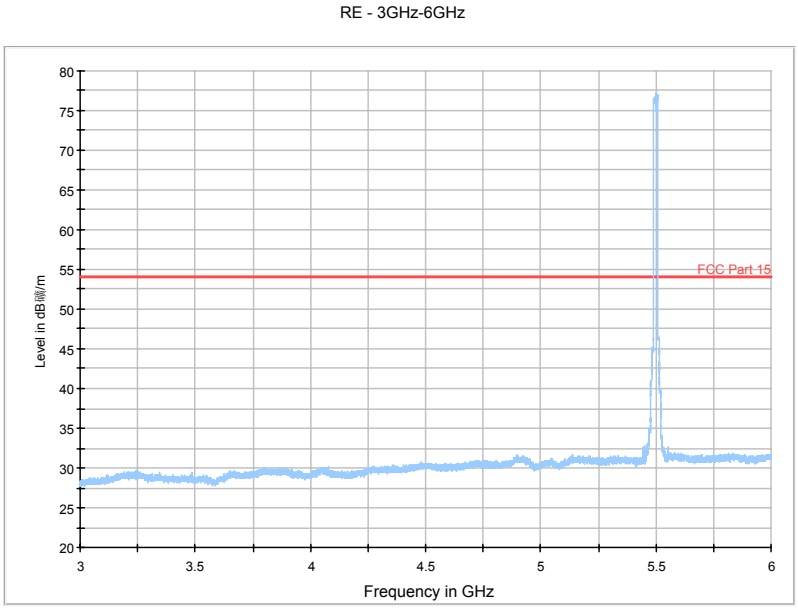


Fig. 66 Radiated Spurious Emission (802.11a, ch100, 3 GHz-6 GHz)

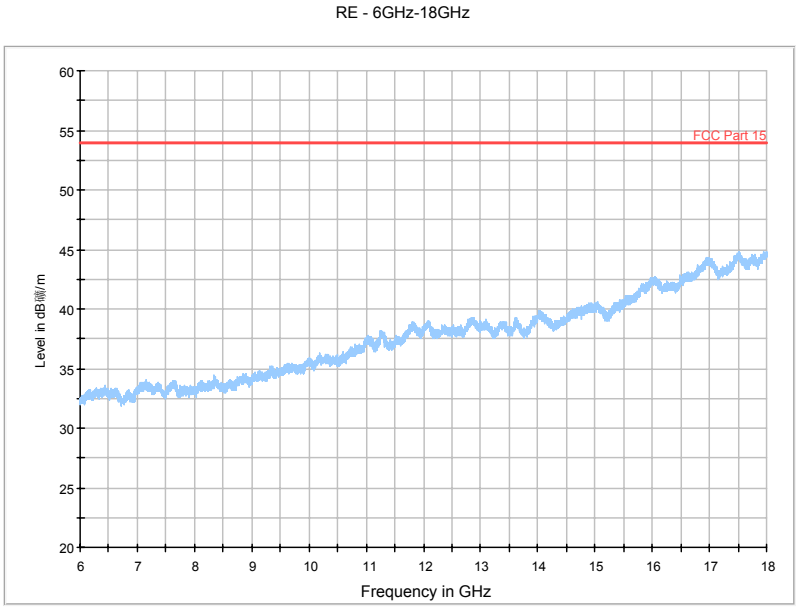


Fig. 67 Radiated Spurious Emission (802.11a, ch100, 6 GHz-18 GHz)

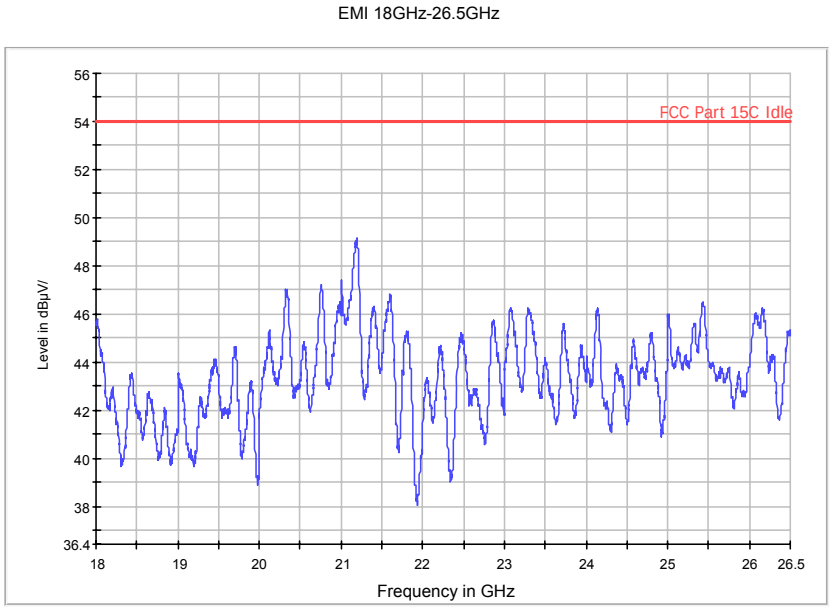


Fig. 68 Radiated Spurious Emission (802.11a, ch100, 18 GHz-26.5 GHz)

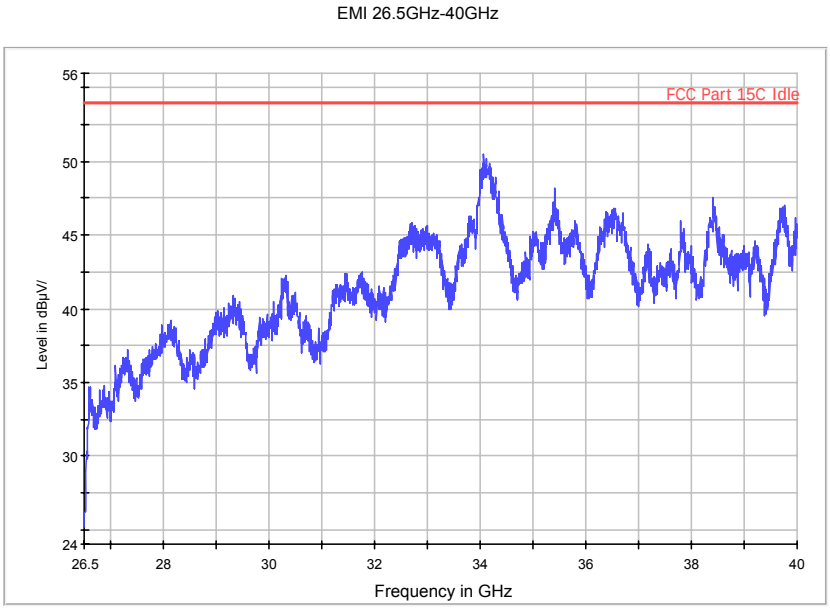


Fig. 69 Radiated Spurious Emission (802.11a, ch100, 26.5 GHz-40 GHz)

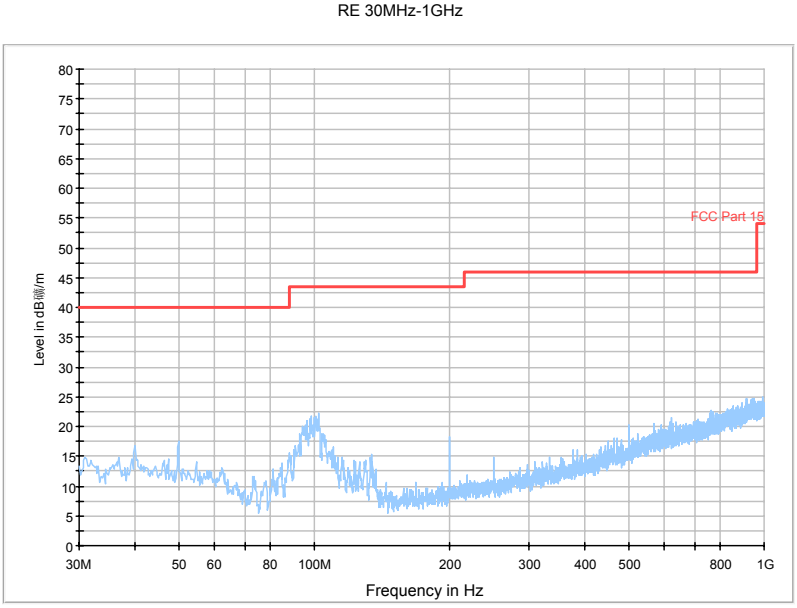


Fig. 70 Radiated Spurious Emission (802.11a, ch120, 30 MHz-1 GHz)

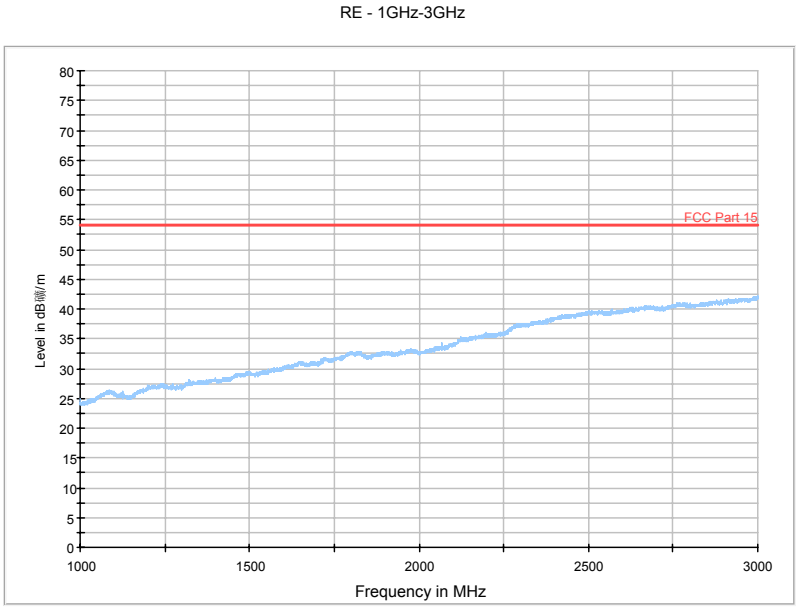


Fig. 71 Radiated Spurious Emission (802.11a, ch120, 1 GHz-3 GHz)

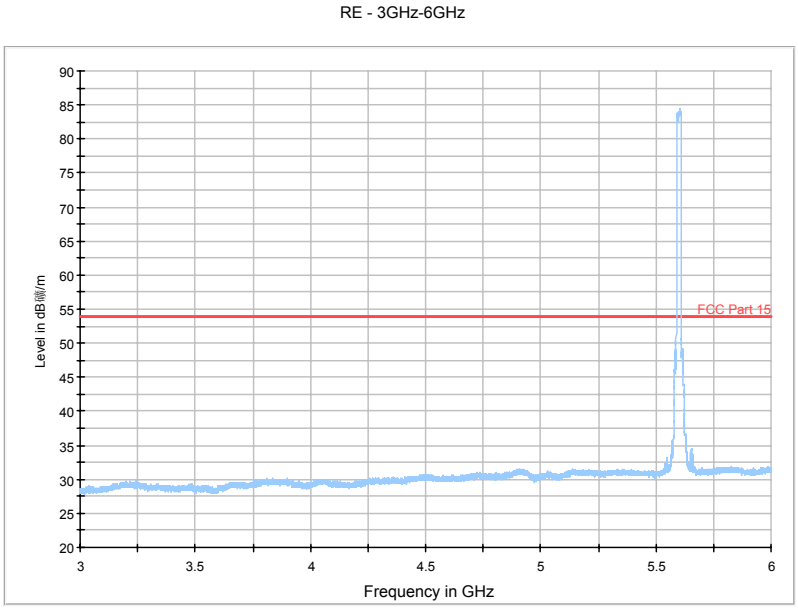


Fig. 72 Radiated Spurious Emission (802.11a, ch120, 3 GHz-6 GHz)

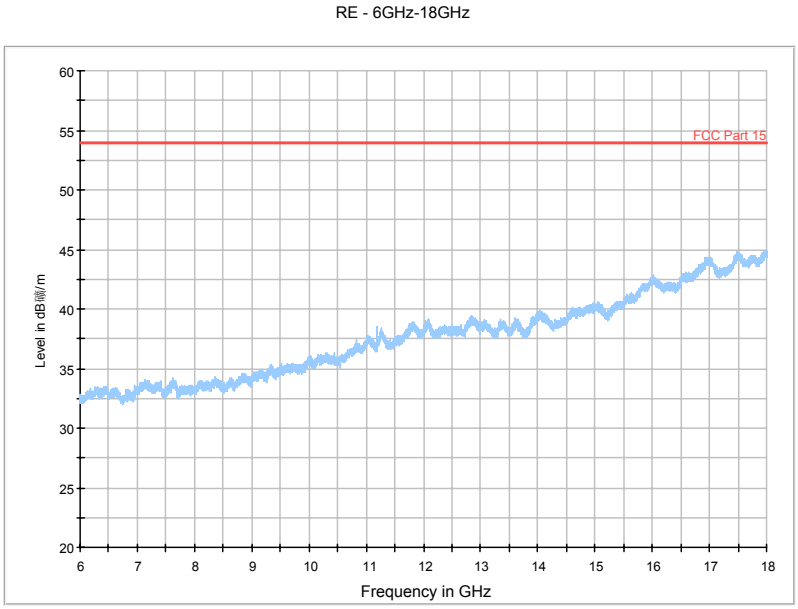


Fig. 73 Radiated Spurious Emission (802.11a, ch120, 6 GHz-18 GHz)

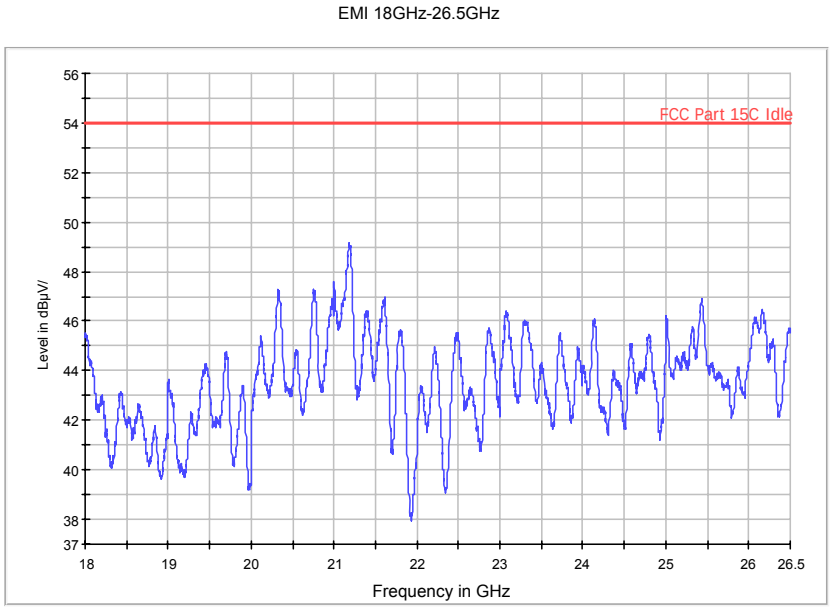


Fig. 74 Radiated Spurious Emission (802.11a, ch120, 18 GHz-26.5 GHz)

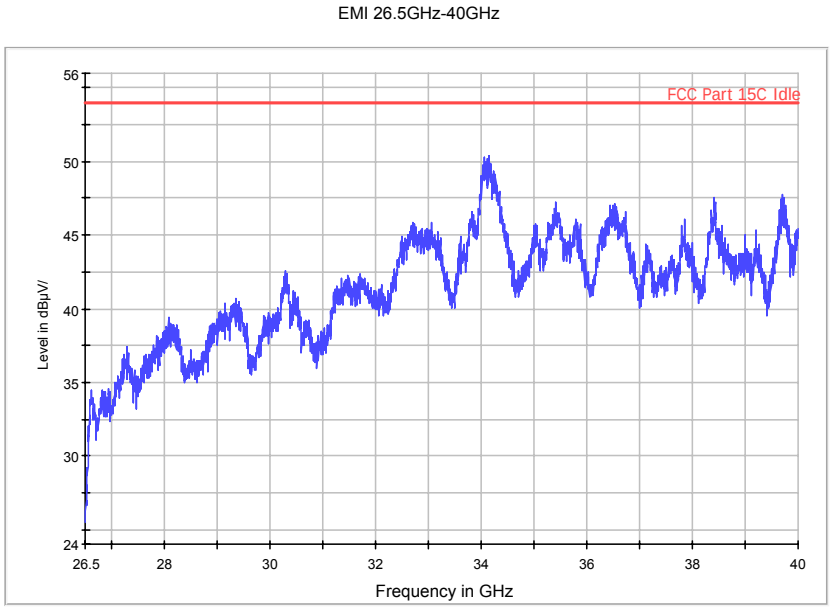


Fig. 75 Radiated Spurious Emission (802.11a, ch120, 26.5 GHz-40 GHz)

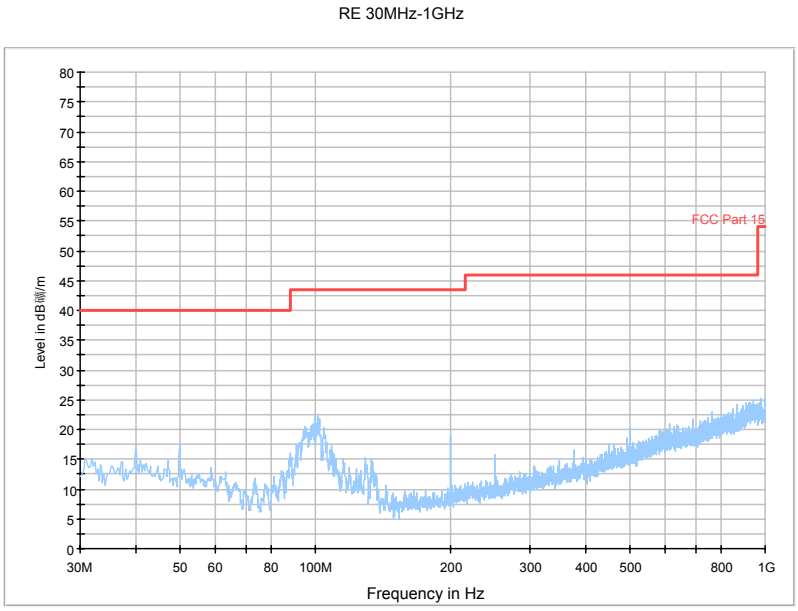


Fig. 76 Radiated Spurious Emission (802.11a, ch140, 30 MHz-1 GHz)

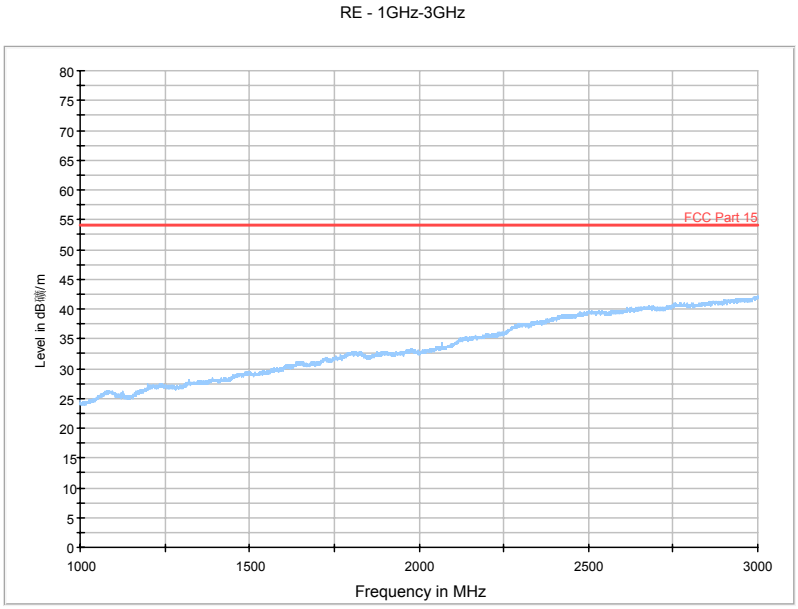


Fig. 77 Radiated Spurious Emission (802.11a, ch140, 1 GHz-3 GHz)

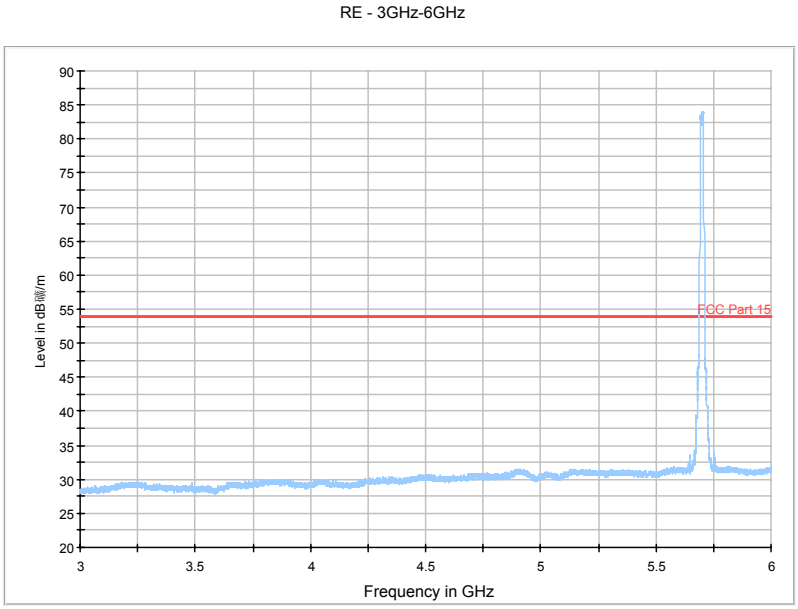


Fig. 78 Radiated Spurious Emission (802.11a, ch140, 3 GHz-6 GHz)

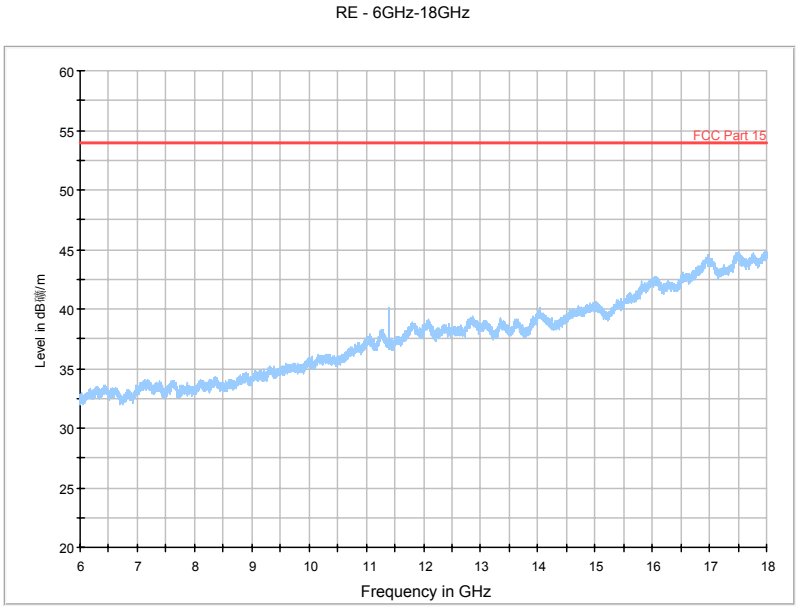


Fig. 79 Radiated Spurious Emission (802.11a, ch140, 6 GHz-18 GHz)

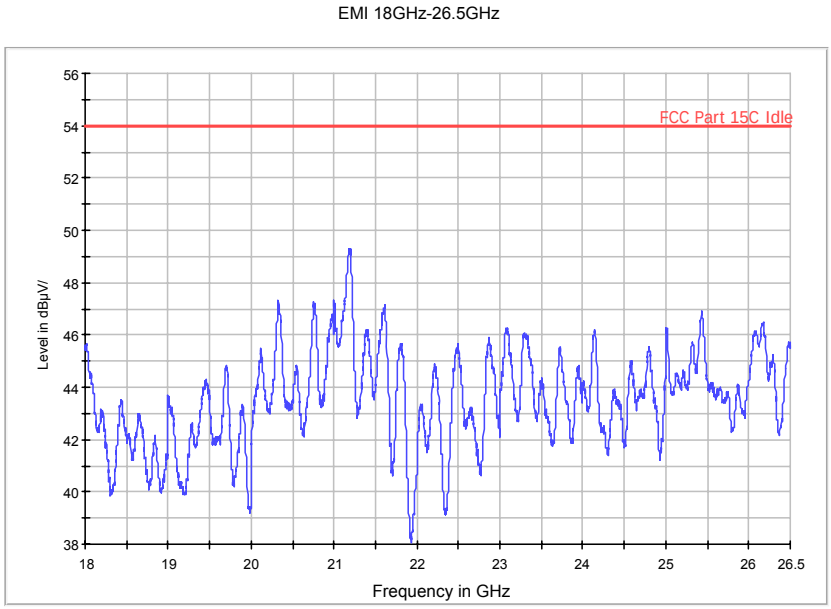


Fig. 80 Radiated Spurious Emission (802.11a, ch140, 18 GHz-26.5 GHz)

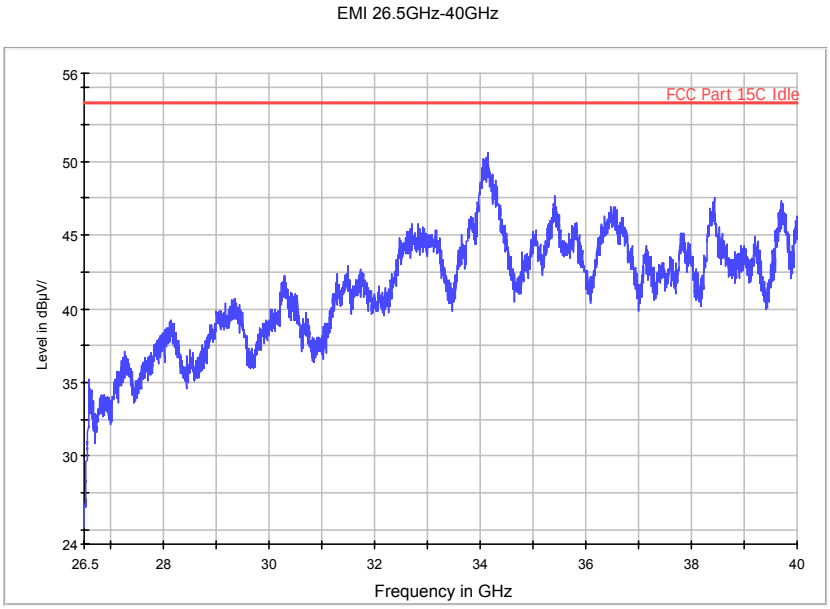


Fig. 81 Radiated Spurious Emission (802.11a, ch140, 26.5 GHz-40 GHz)

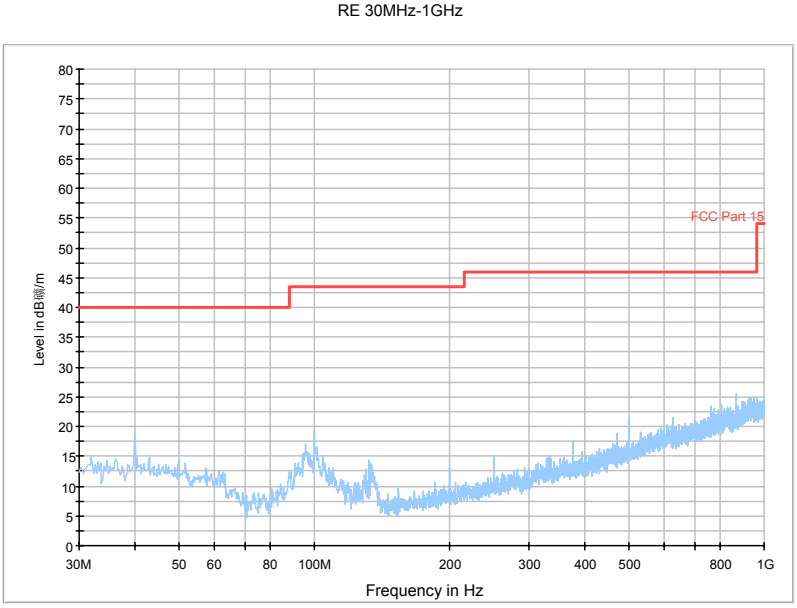


Fig. 82 Radiated Spurious Emission (802.11n-HT20, ch36, 30 MHz-1 GHz)

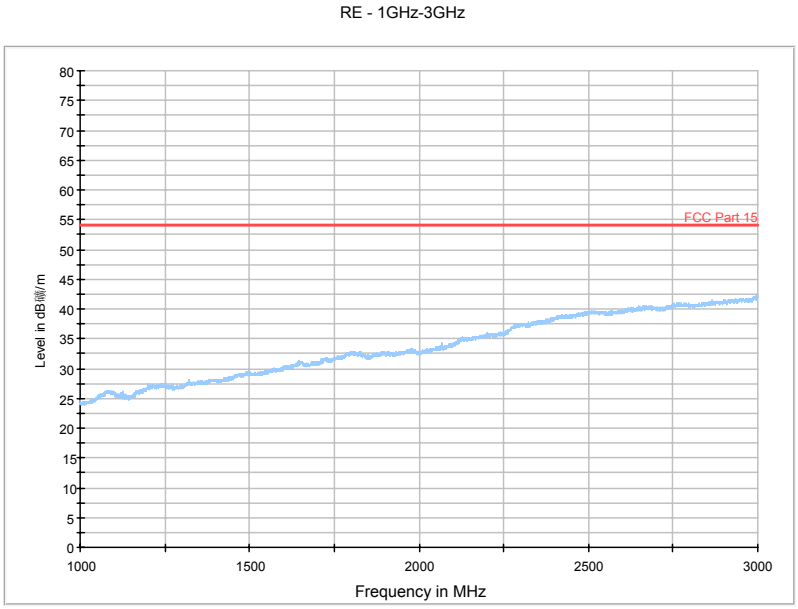


Fig. 83 Radiated Spurious Emission (802.11n-HT20, ch36, 1 GHz-3 GHz)

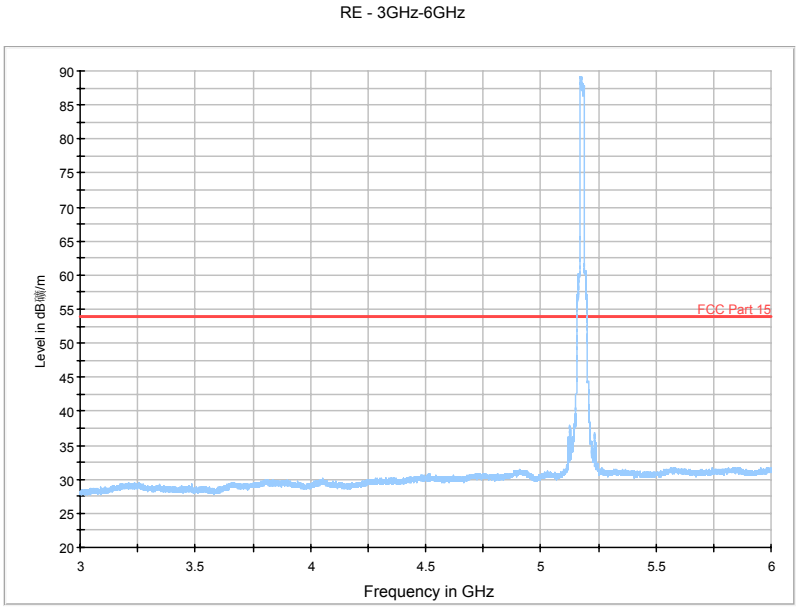


Fig. 84 Radiated Spurious Emission (802.11n-HT20, ch36, 3 GHz-6 GHz)

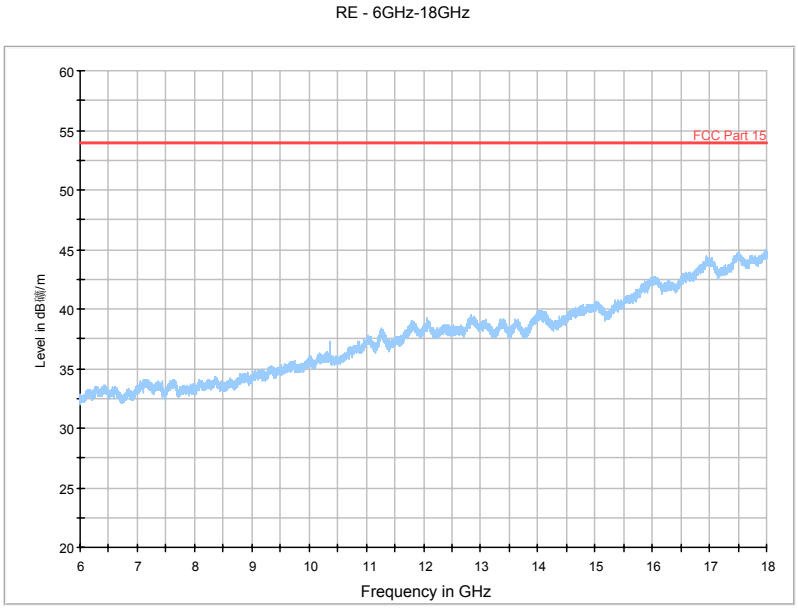


Fig. 85 Radiated Spurious Emission (802.11n-HT20, ch36, 6 GHz-18 GHz)

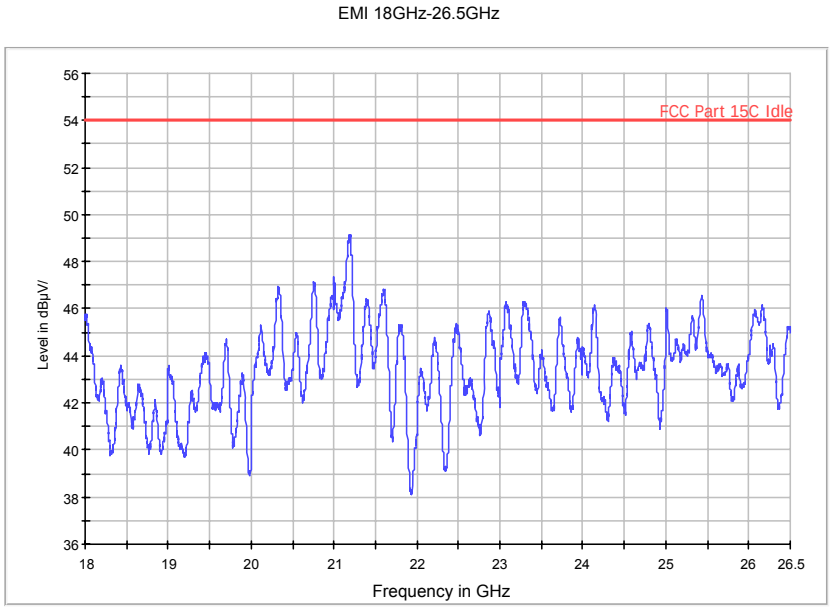


Fig. 86 Radiated Spurious Emission (802.11n-HT20, ch36, 18 GHz-26.5 GHz)

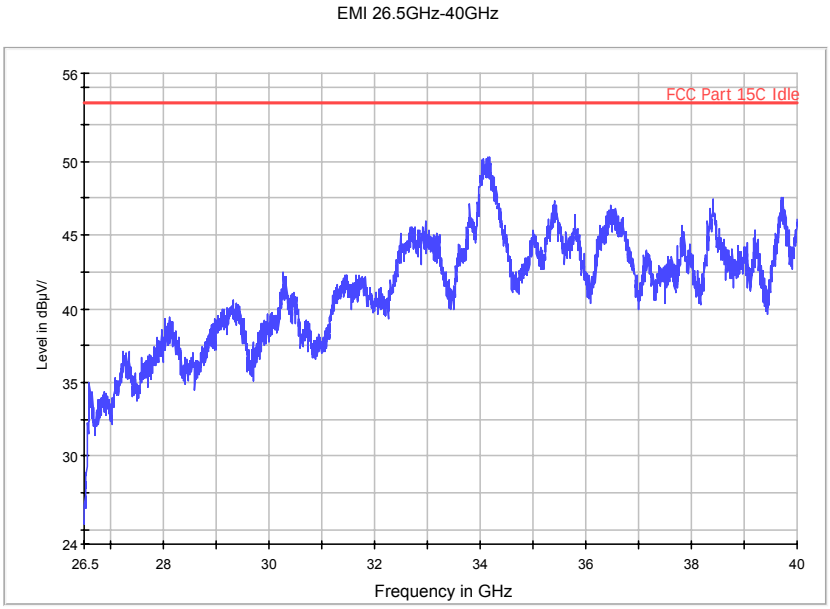


Fig. 87 Radiated Spurious Emission (802.11n-HT20, ch36, 26.5 GHz-40 GHz)

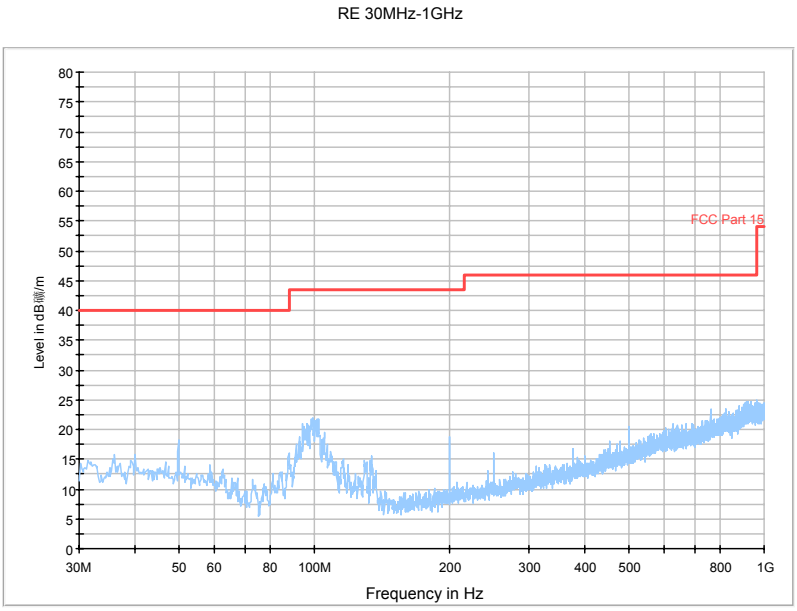


Fig. 88 Radiated Spurious Emission (802.11n-HT20, ch48, 30 MHz-1 GHz)

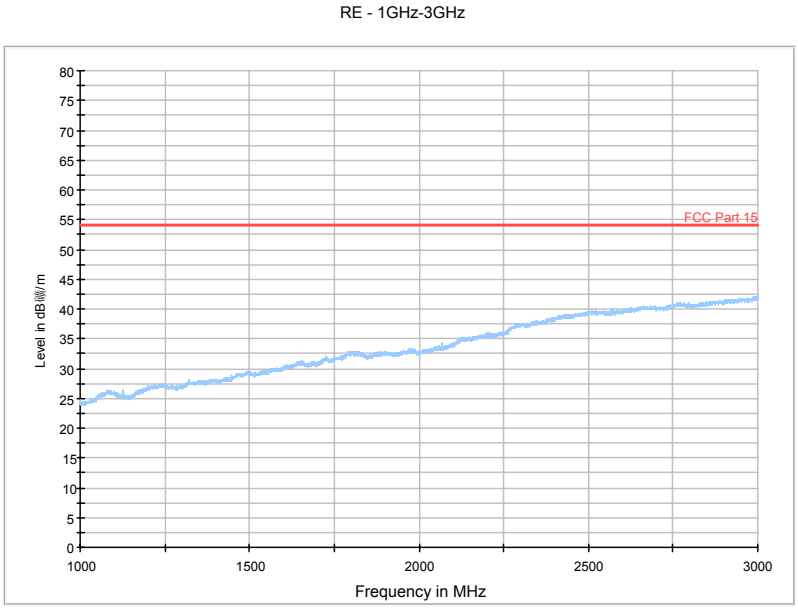


Fig. 89 Radiated Spurious Emission (802.11n-HT20, ch48, 1 GHz-3 GHz)

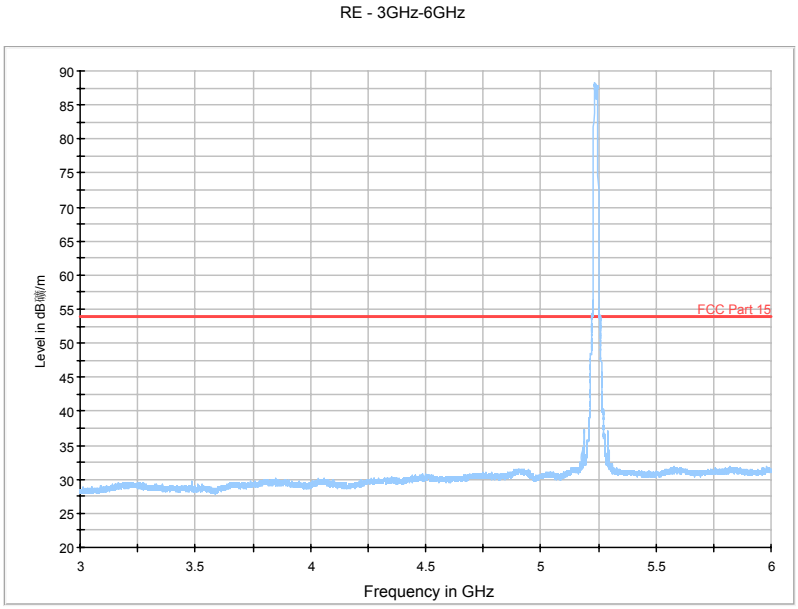


Fig. 90 Radiated Spurious Emission (802.11n-HT20, ch48, 3 GHz-6 GHz)

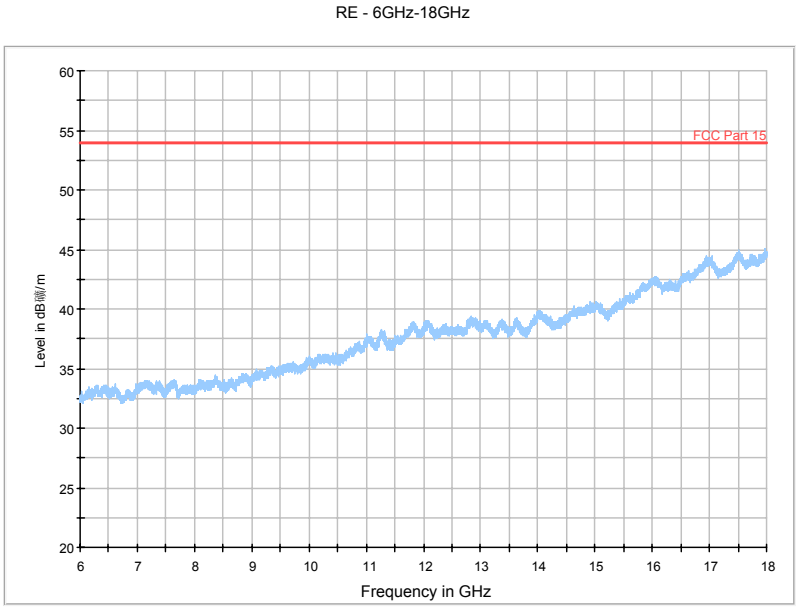


Fig. 91 Radiated Spurious Emission (802.11n-HT20, ch48, 6 GHz-18 GHz)

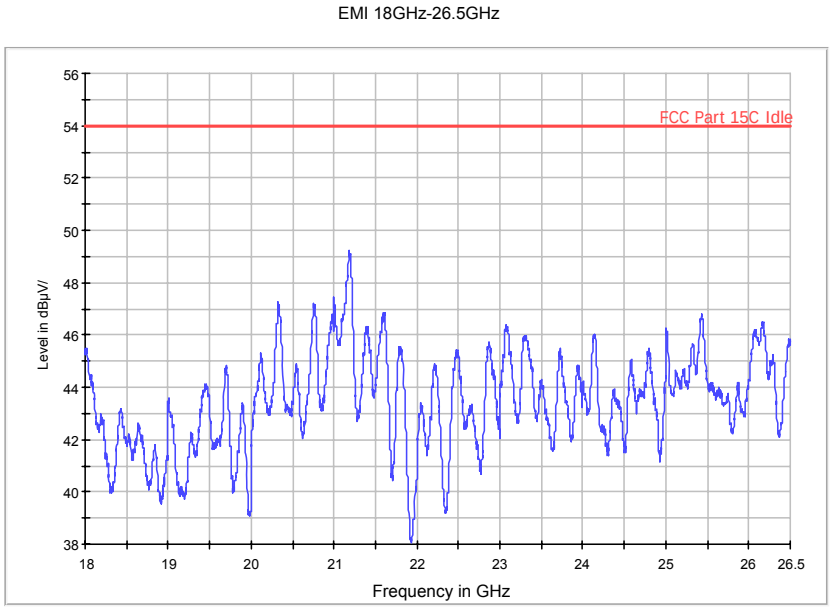


Fig. 92 Radiated Spurious Emission (802.11n-HT20, ch48, 18 GHz-26.5 GHz)

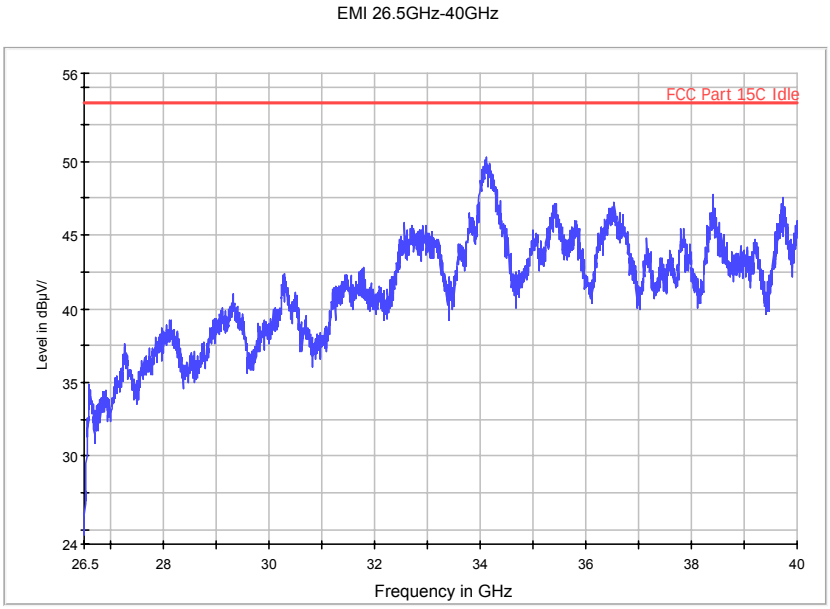


Fig. 93 Radiated Spurious Emission (802.11n-HT20, ch48, 26.5 GHz-40 GHz)

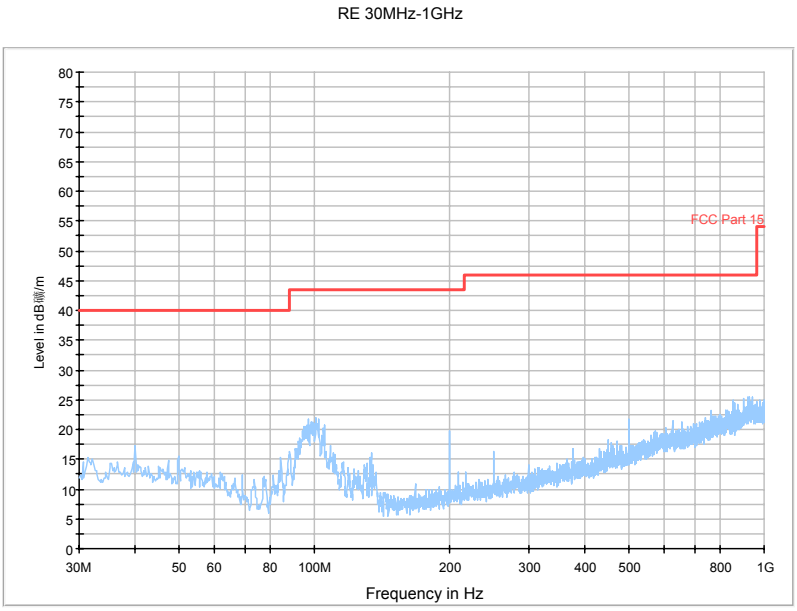


Fig. 94 Radiated Spurious Emission (802.11n-HT20, ch52, 30 MHz-1 GHz)

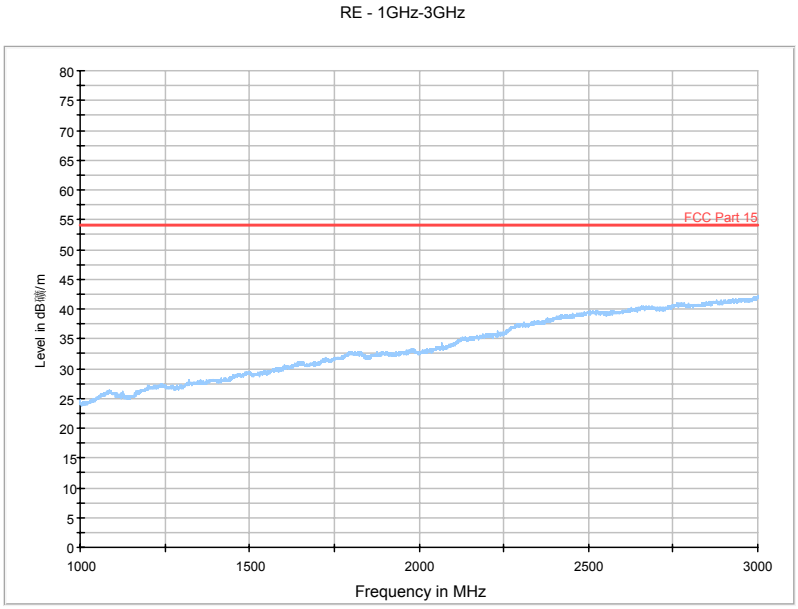


Fig. 95 Radiated Spurious Emission (802.11n-HT20, ch52, 1 GHz-3 GHz)

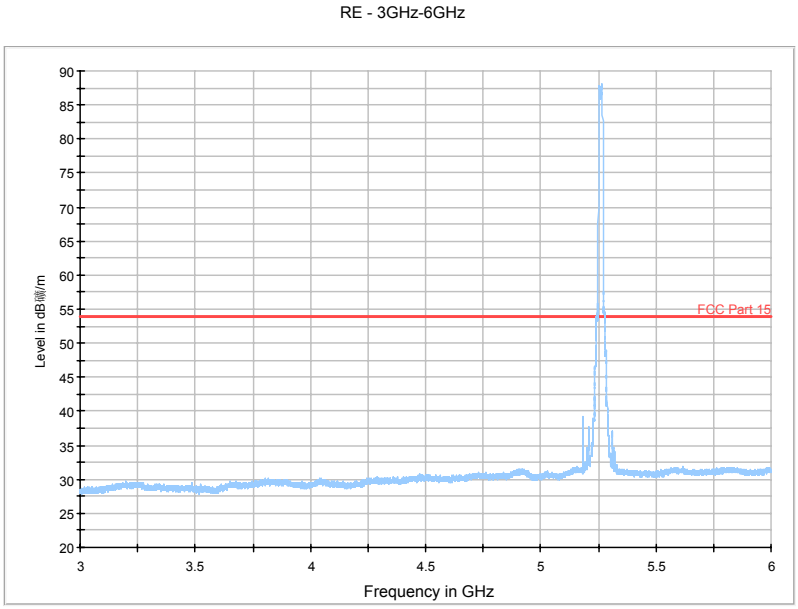


Fig. 96 Radiated Spurious Emission (802.11n-HT20, ch52, 3 GHz-6 GHz)

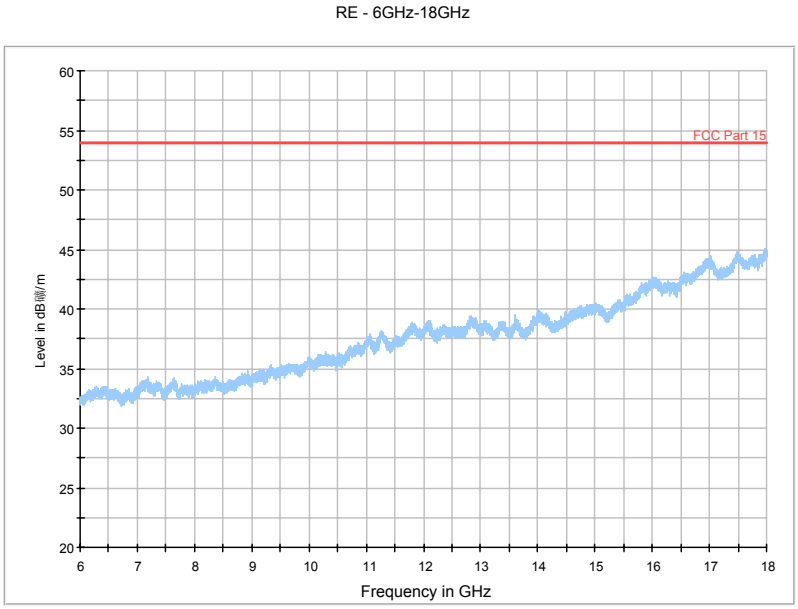


Fig. 97 Radiated Spurious Emission (802.11n-HT20, ch52, 6 GHz-18 GHz)

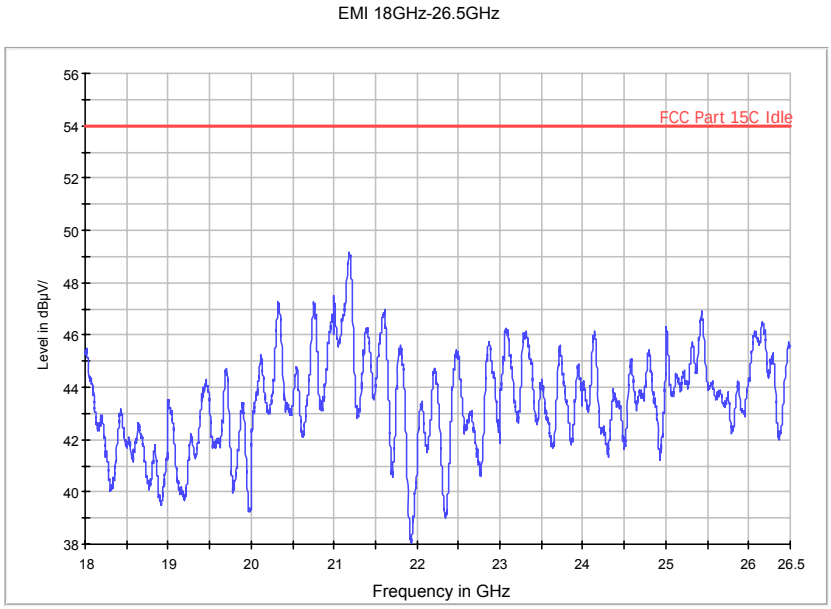


Fig. 98 Radiated Spurious Emission (802.11n-HT20, ch52, 18 GHz-26.5 GHz)

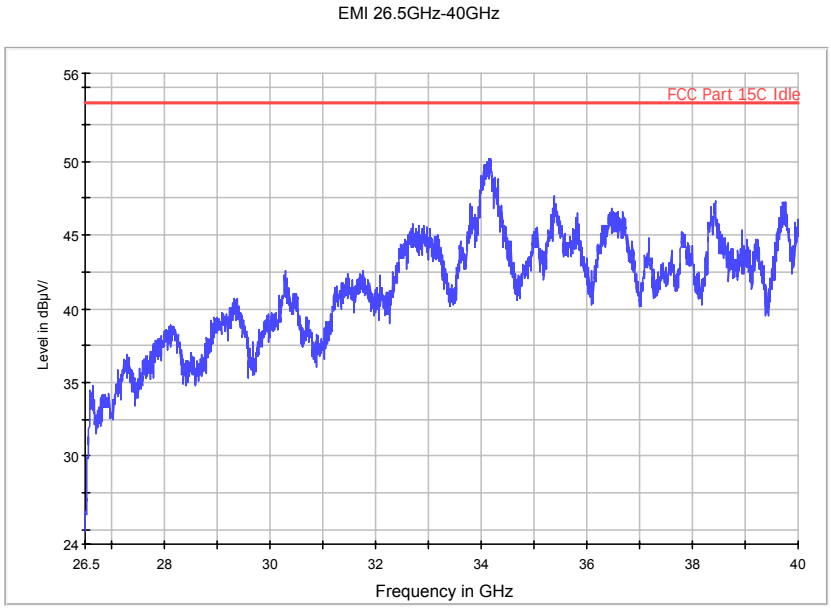


Fig. 99 Radiated Spurious Emission (802.11n-HT20, ch52, 26.5 GHz-40 GHz)

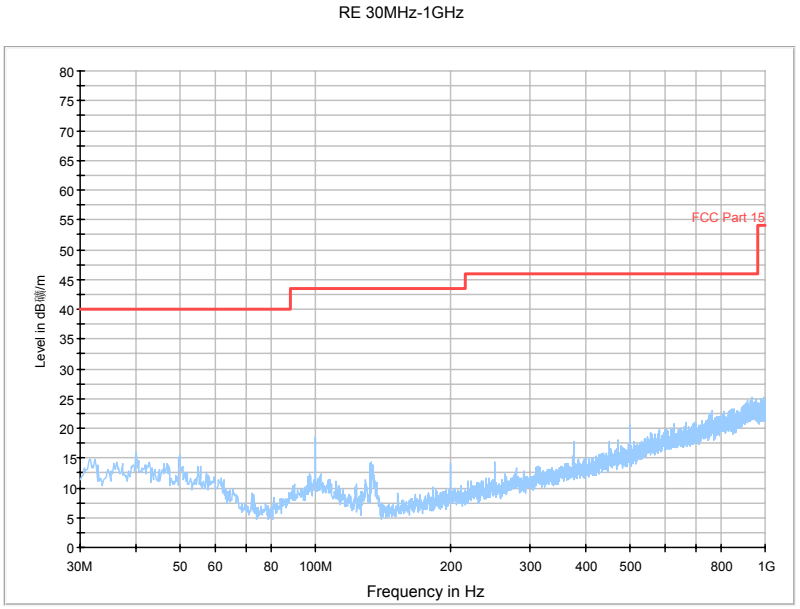


Fig. 100 Radiated Spurious Emission (802.11n-HT20, ch64, 30 MHz-1 GHz)

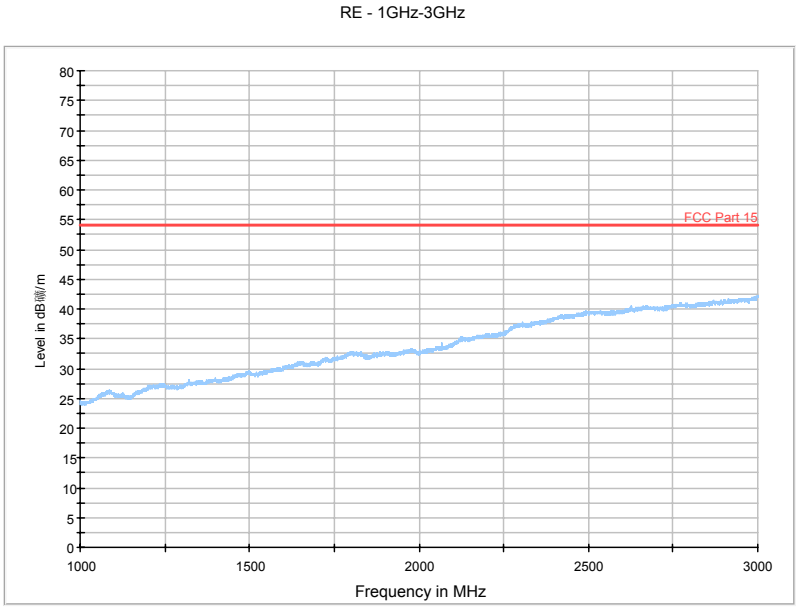


Fig. 101 Radiated Spurious Emission (802.11n-HT20, ch64, 1 GHz-3 GHz)

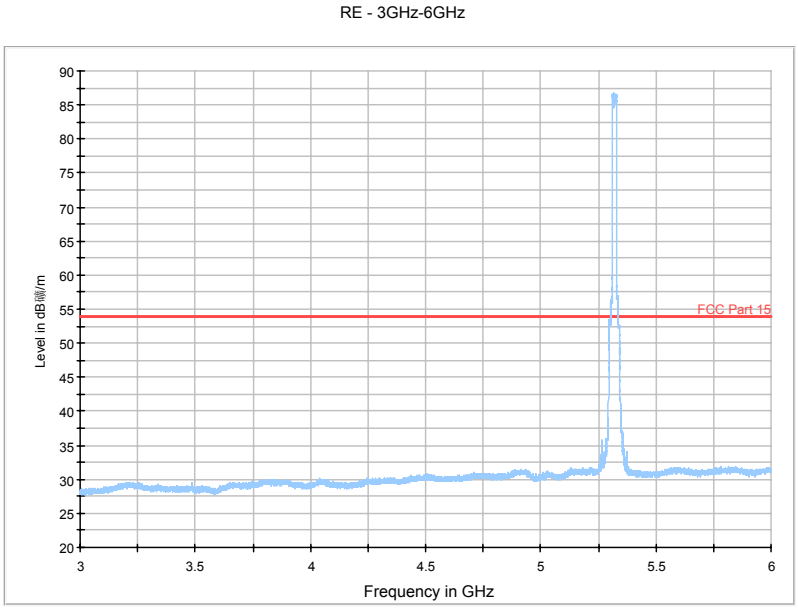


Fig. 102 Radiated Spurious Emission (802.11n-HT20, ch64, 3 GHz-6 GHz)

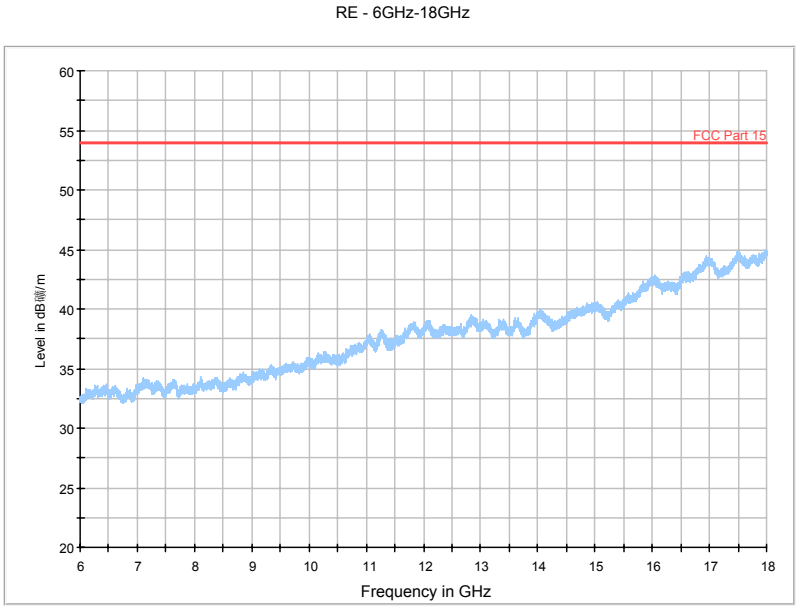


Fig. 103 Radiated Spurious Emission (802.11n-HT20, ch64, 6 GHz-18 GHz)

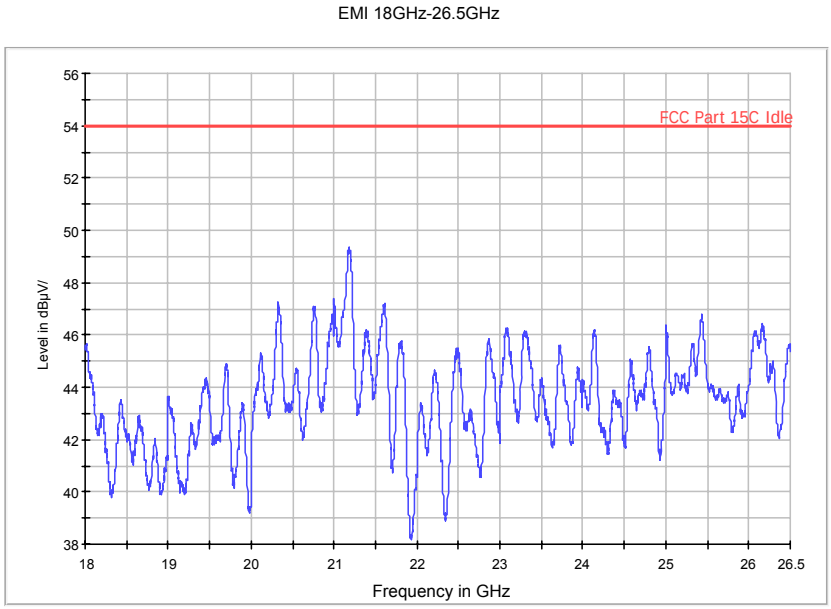


Fig. 104 Radiated Spurious Emission (802.11n-HT20, ch64, 18 GHz-26.5 GHz)

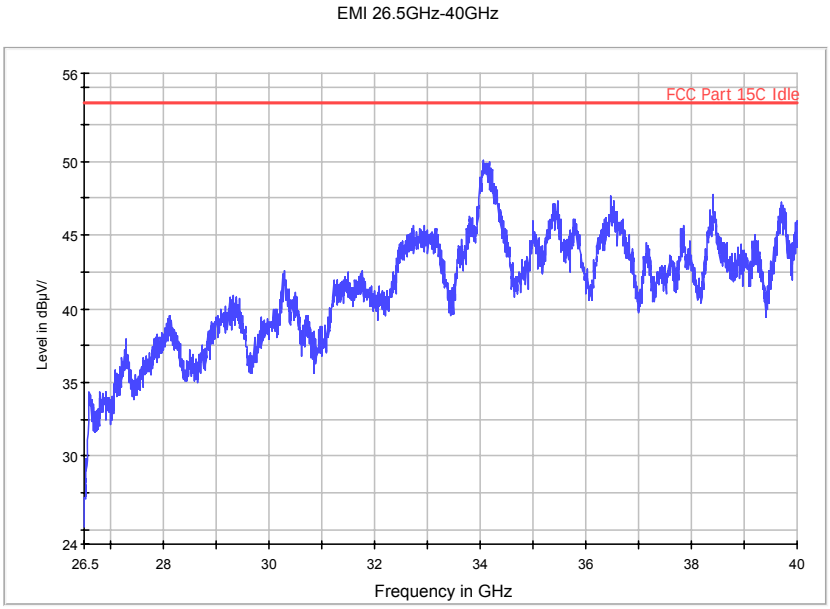


Fig. 105 Radiated Spurious Emission (802.11n-HT20, ch64, 26.5 GHz-40 GHz)

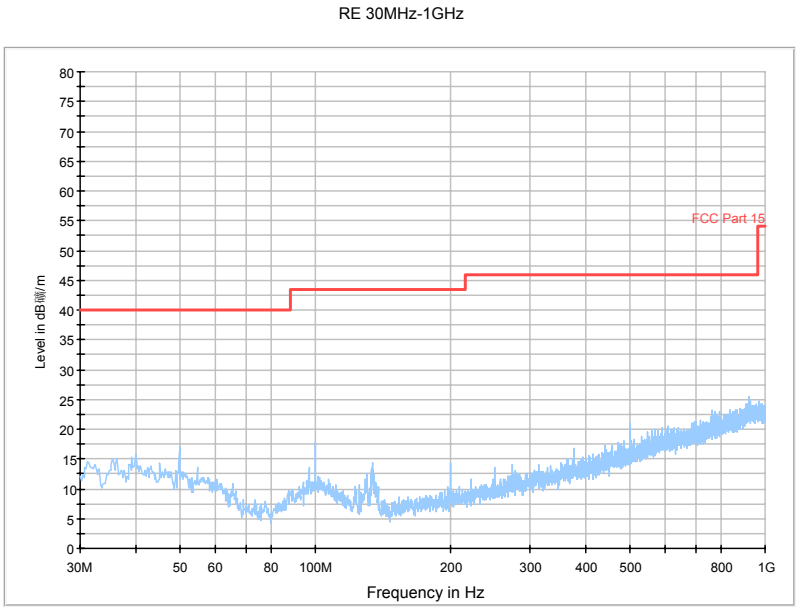


Fig. 106 Radiated Spurious Emission (802.11n-HT20, ch100, 30 MHz-1 GHz)

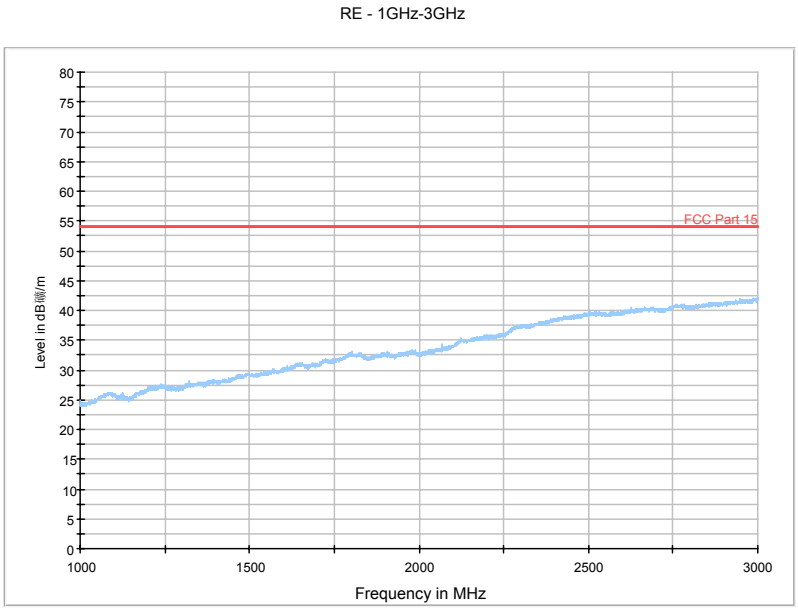


Fig. 107 Radiated Spurious Emission (802.11n-HT20, ch100, 1 GHz-3 GHz)

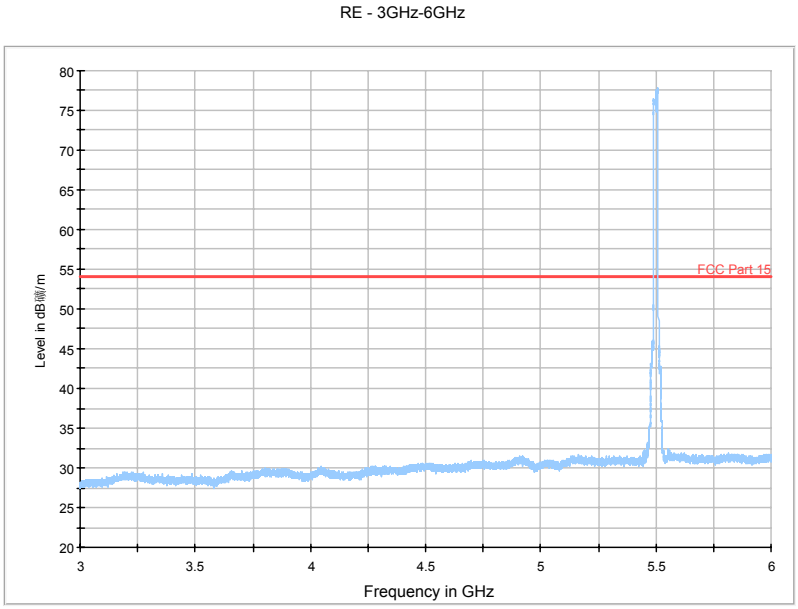


Fig. 108 Radiated Spurious Emission (802.11n-HT20, ch100, 3 GHz-6 GHz)

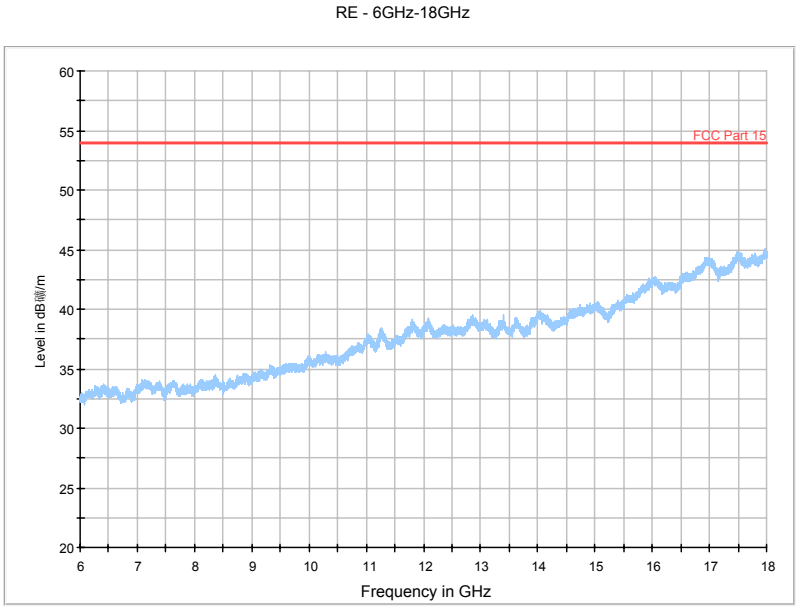


Fig. 109 Radiated Spurious Emission (802.11n-HT20, ch100, 6 GHz-18 GHz)

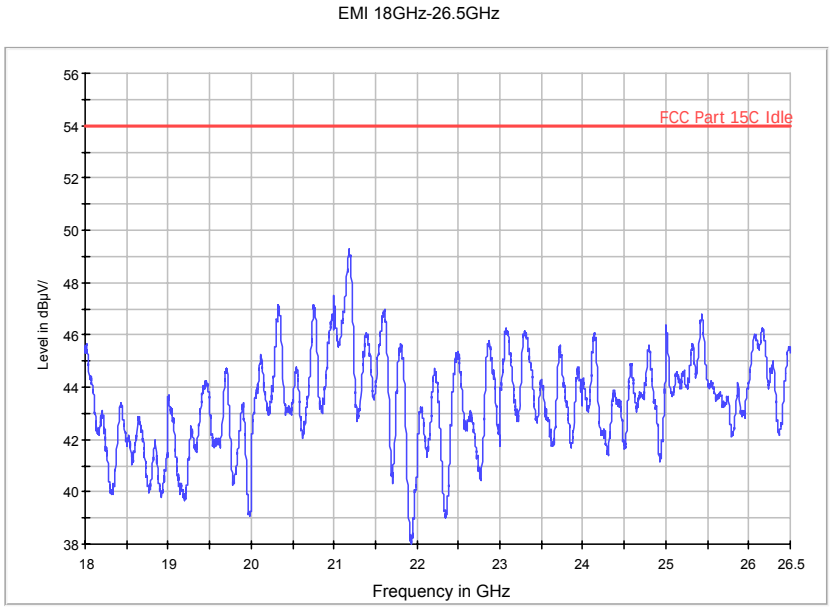


Fig. 110 Radiated Spurious Emission (802.11n-HT20, ch100, 18 GHz-26.5 GHz)

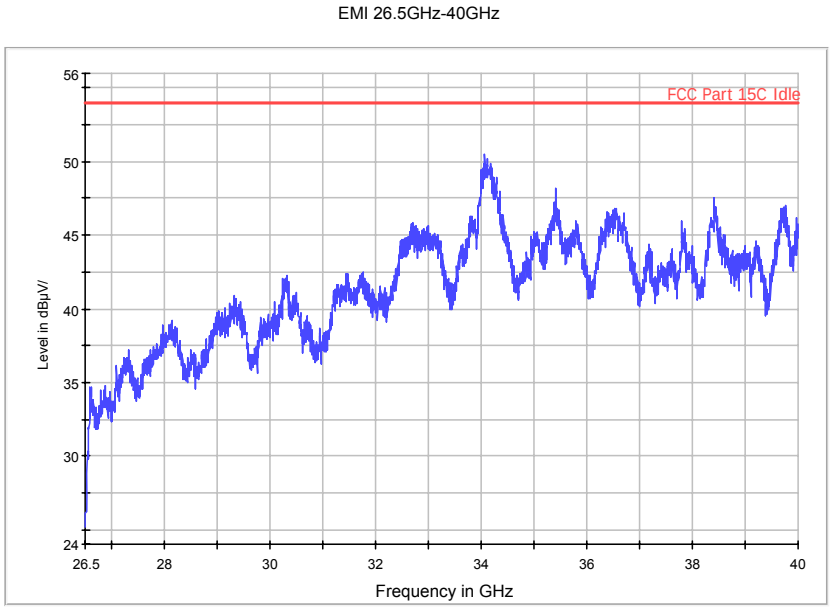


Fig. 111 Radiated Spurious Emission (802.11n-HT20, ch100, 26.5 GHz-40 GHz)

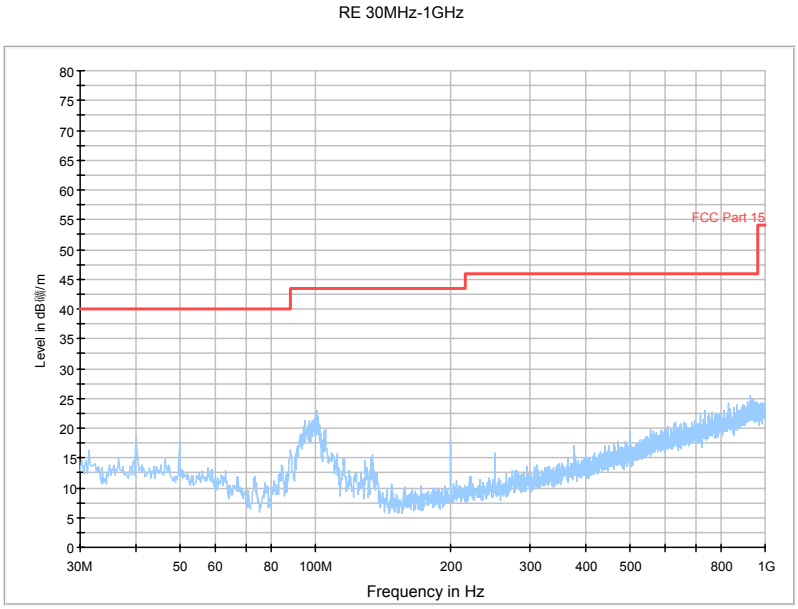


Fig. 112 Radiated Spurious Emission (802.11n-HT20, ch120, 30 MHz-1 GHz)

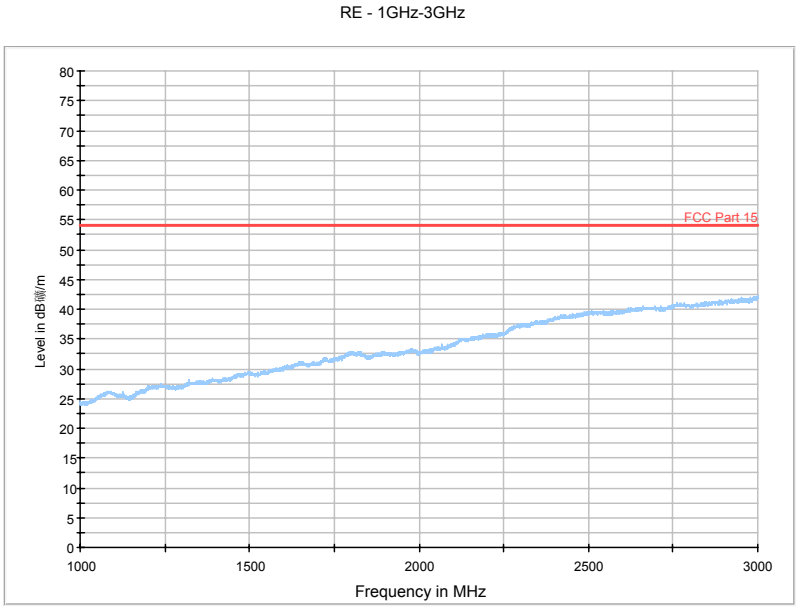


Fig. 113 Radiated Spurious Emission (802.11n-HT20, ch120, 1 GHz-3 GHz)

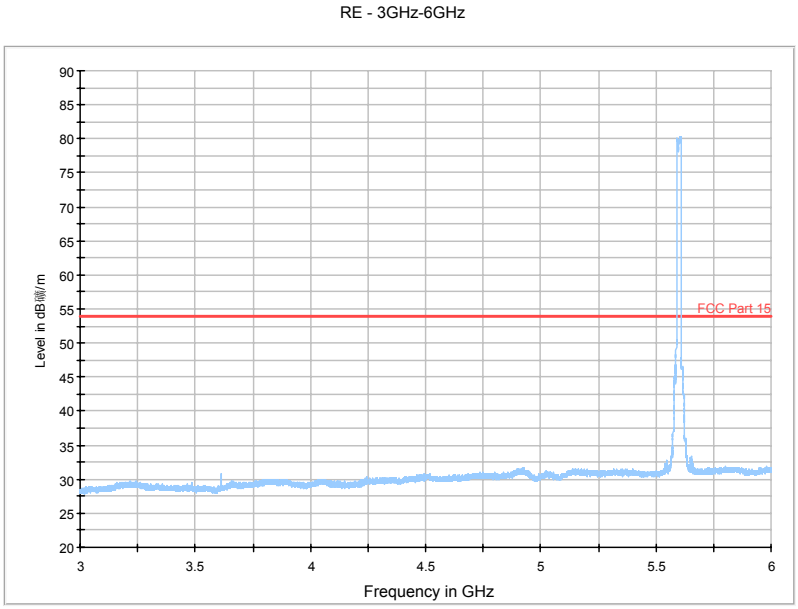


Fig. 114 Radiated Spurious Emission (802.11n-HT20, ch120, 3 GHz-6 GHz)

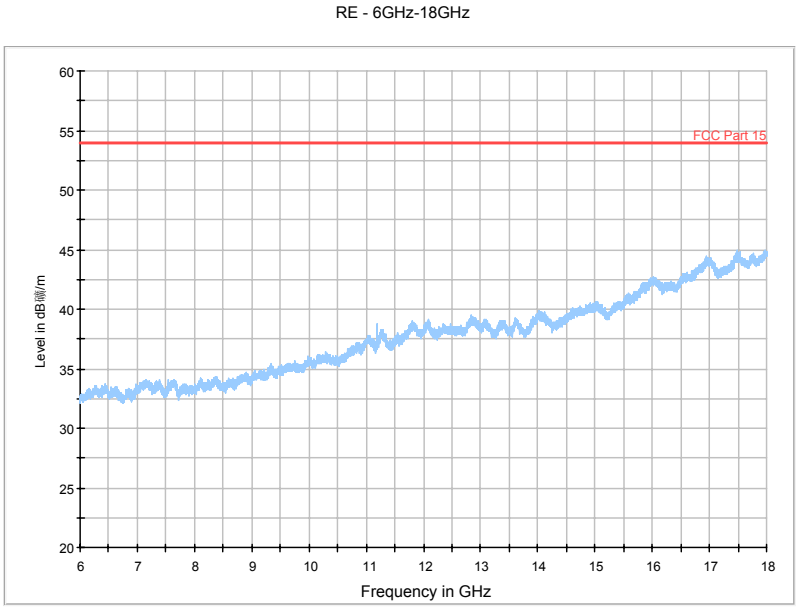


Fig. 115 Radiated Spurious Emission (802.11n-HT20, ch120, 6 GHz-18 GHz)

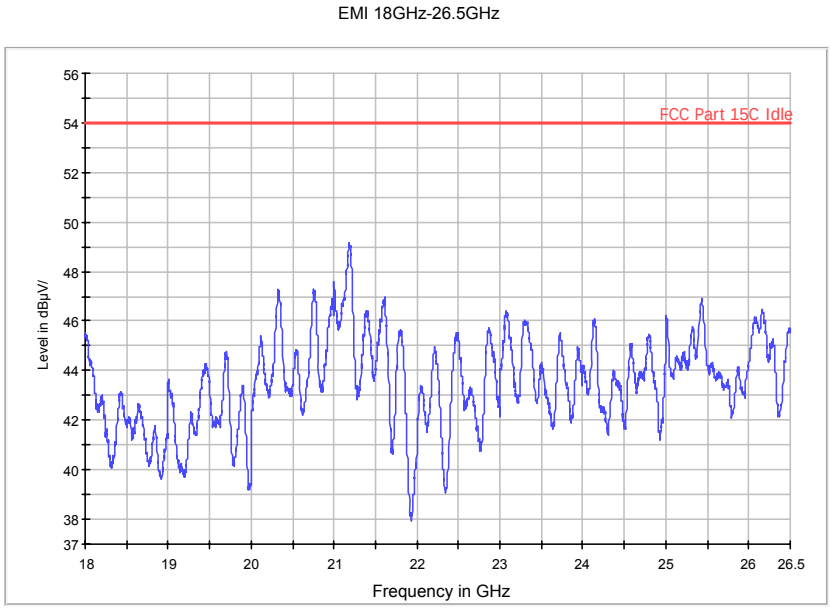


Fig. 116 Radiated Spurious Emission (802.11n-HT20, ch120, 18 GHz-26.5 GHz)

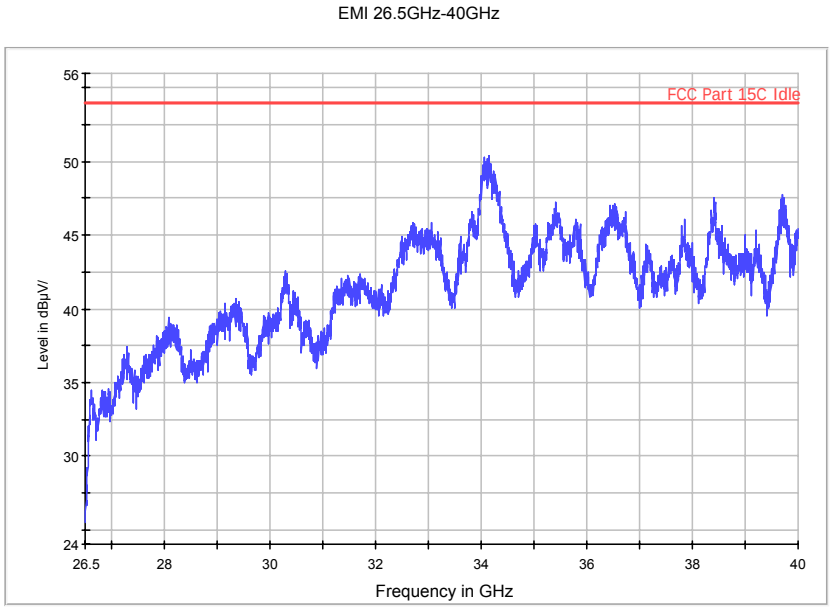


Fig. 117 Radiated Spurious Emission (802.11n-HT20, ch120, 26.5 GHz-40 GHz)

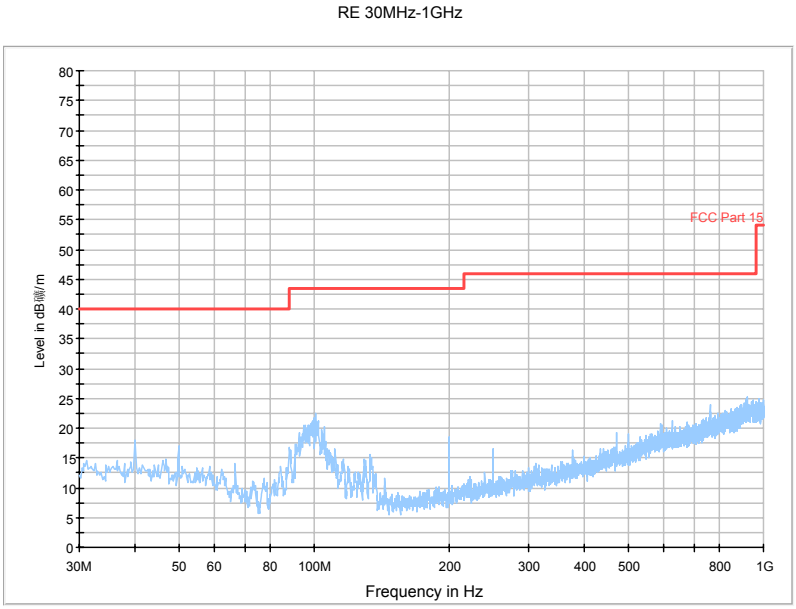


Fig. 118 Radiated Spurious Emission (802.11n-HT20, ch140, 30 MHz-1 GHz)

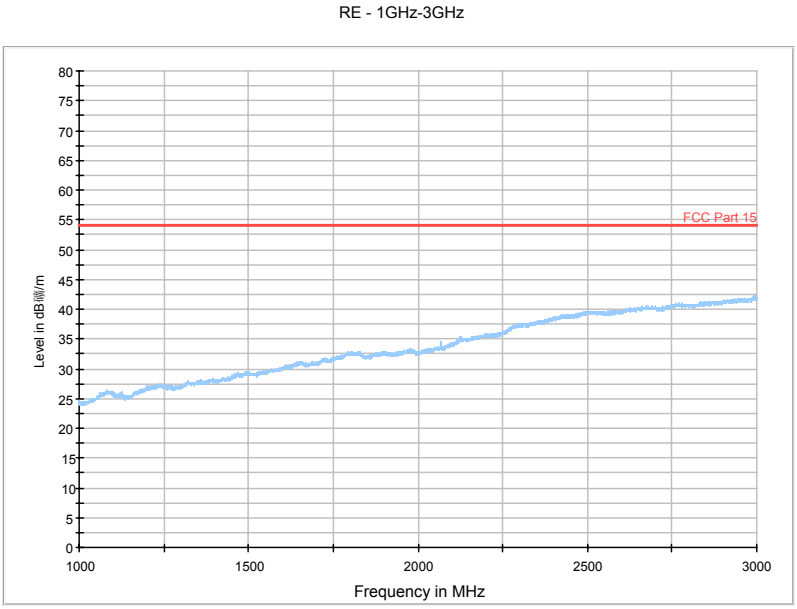


Fig. 119 Radiated Spurious Emission (802.11n-HT20, ch140, 1 GHz-3 GHz)

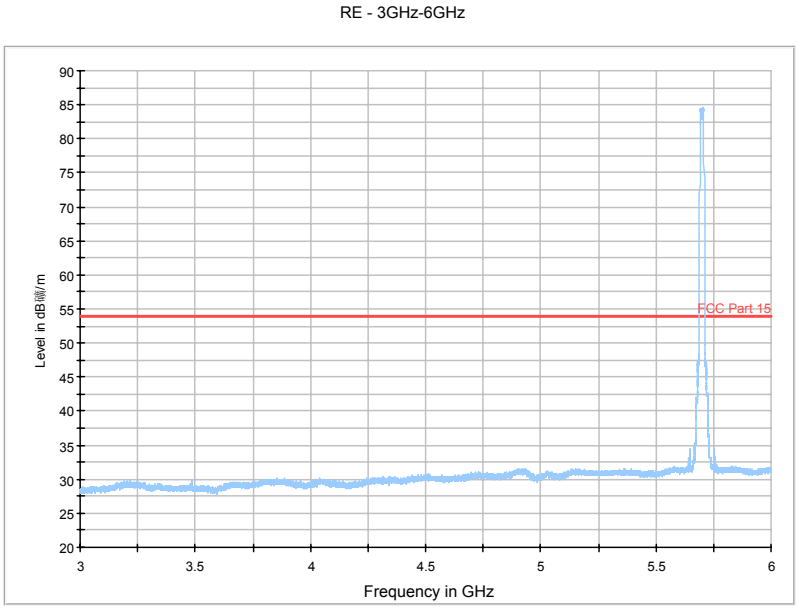


Fig. 120 Radiated Spurious Emission (802.11n-HT20, ch140, 3 GHz-6 GHz)

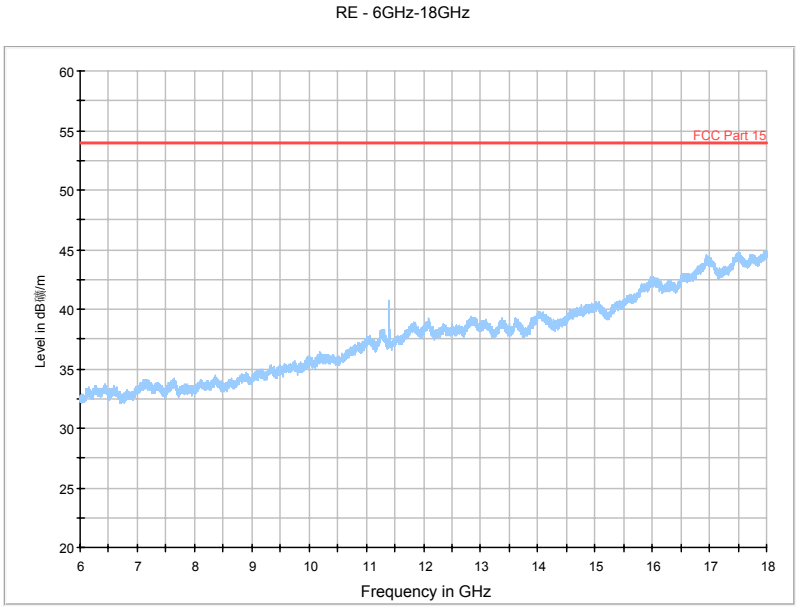


Fig. 121 Radiated Spurious Emission (802.11n-HT20, ch140, 6 GHz-18 GHz)

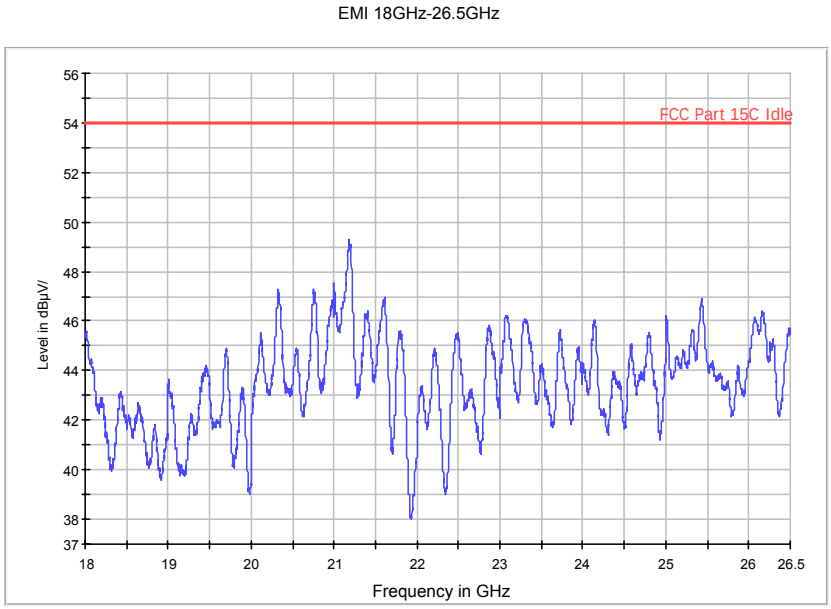


Fig. 122 Radiated Spurious Emission (802.11n-HT20, ch140, 18 GHz-26.5 GHz)

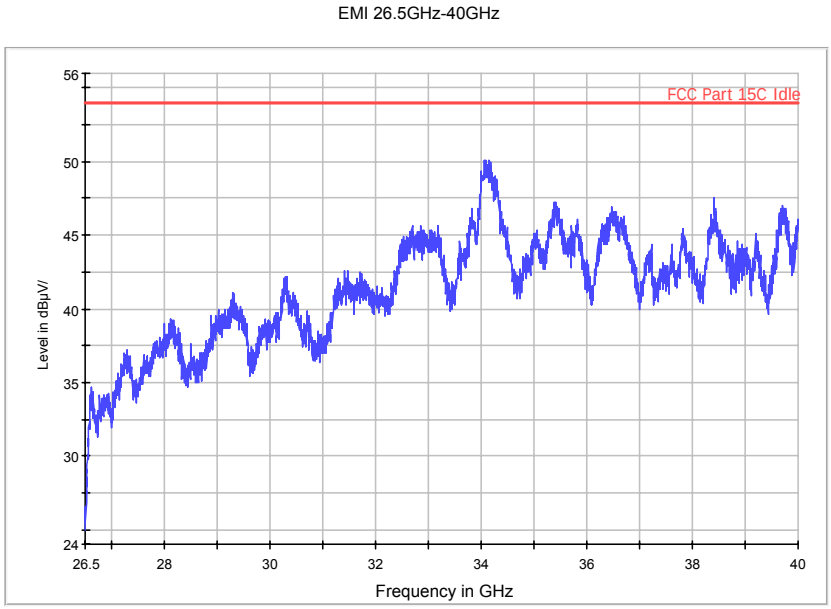


Fig. 123 Radiated Spurious Emission (802.11n-HT20, ch140, 26.5 GHz-40 GHz)

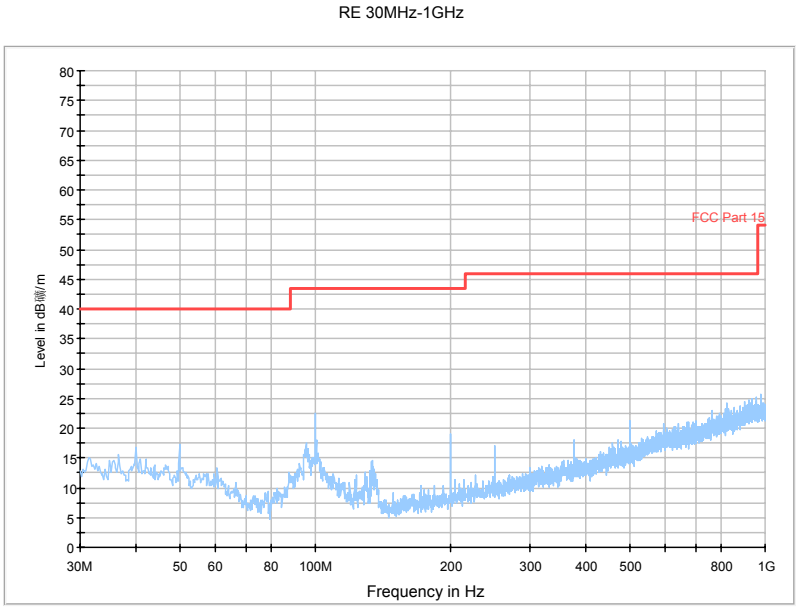


Fig. 124 Radiated Spurious Emission (802.11n-HT40, ch38, 30 MHz-1 GHz)

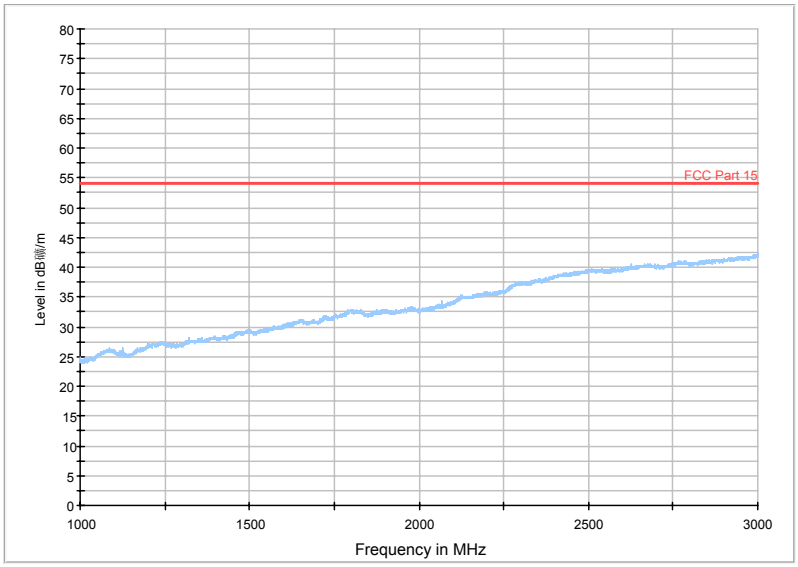


Fig. 125 Radiated Spurious Emission (802.11n-HT40, ch38, 1 GHz-3 GHz)

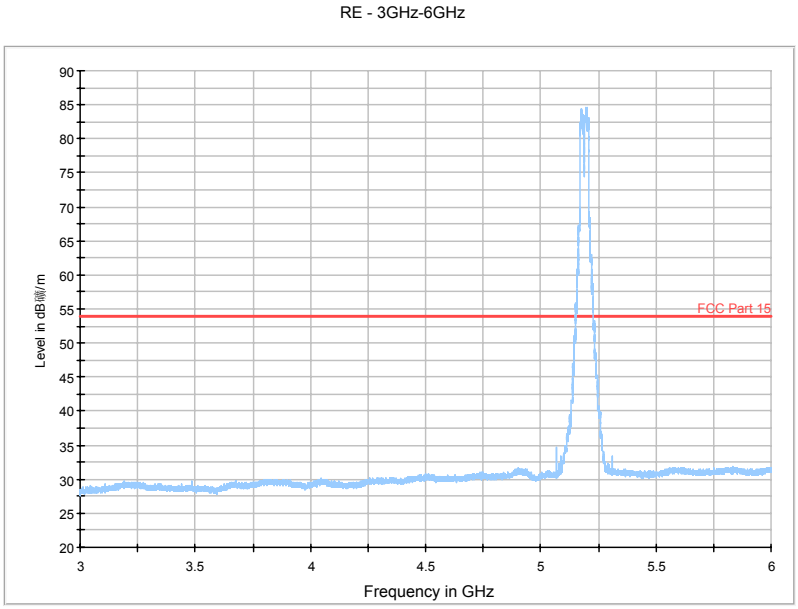


Fig. 126 Radiated Spurious Emission (802.11n-HT40, ch38, 3 GHz-6 GHz)

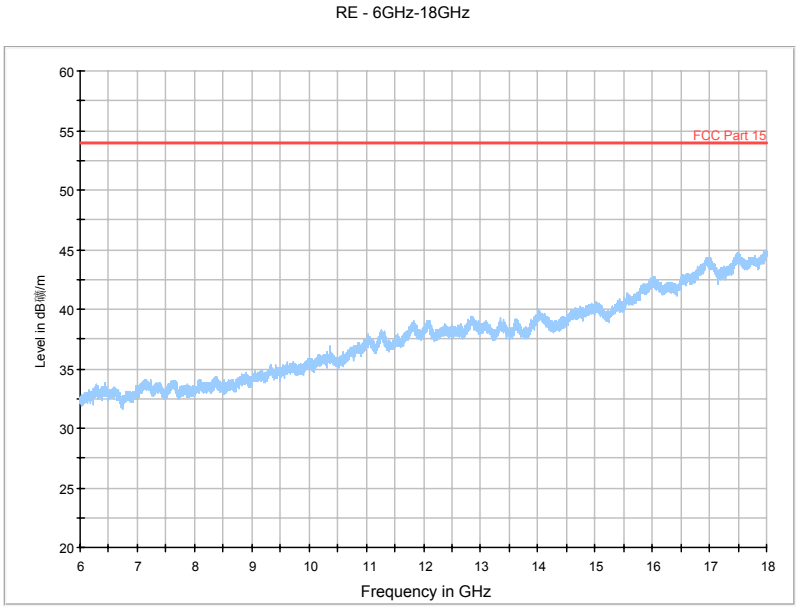


Fig. 127 Radiated Spurious Emission (802.11n-HT40, ch38, 6 GHz-18 GHz)

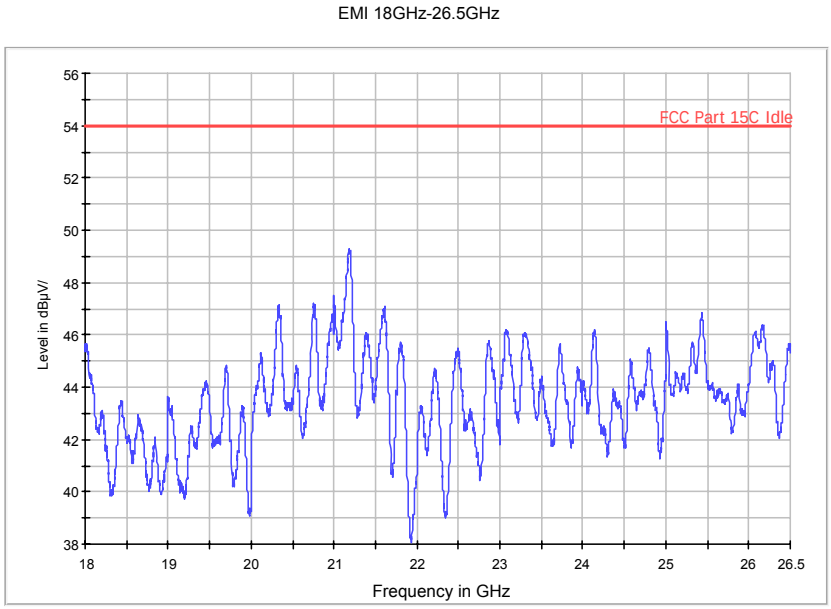


Fig. 128 Radiated Spurious Emission (802.11n-HT40, ch38, 18 GHz-26.5 GHz)

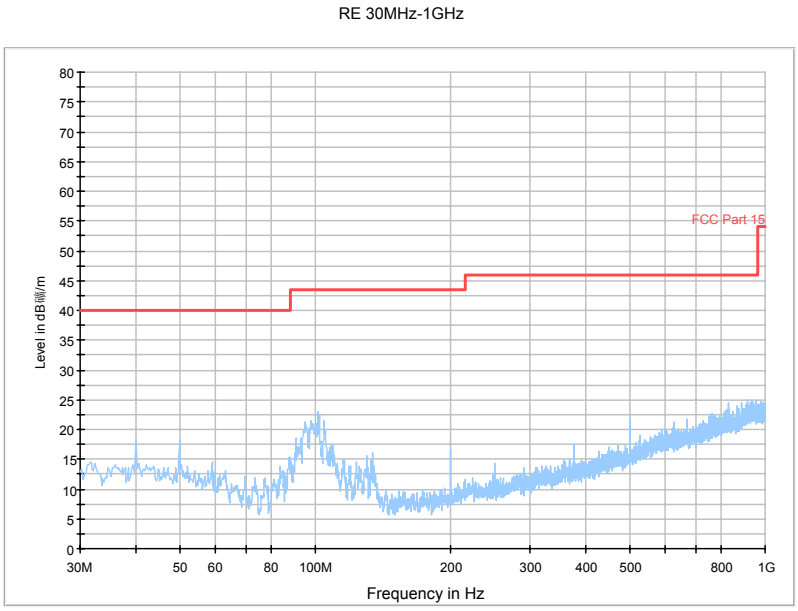


Fig. 129 Radiated Spurious Emission (802.11n-HT40, ch46, 30 MHz-1 GHz)

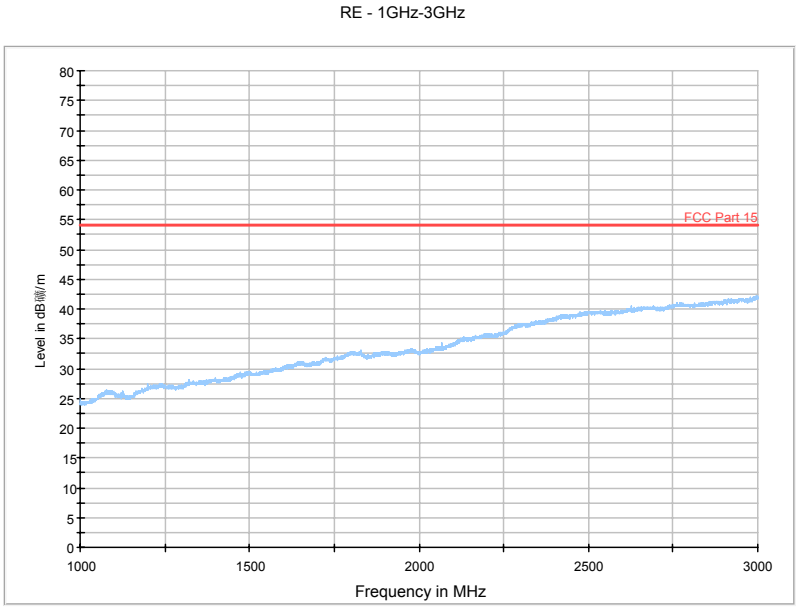


Fig. 130 Radiated Spurious Emission (802.11n-HT40, ch46, 1 GHz-3 GHz)

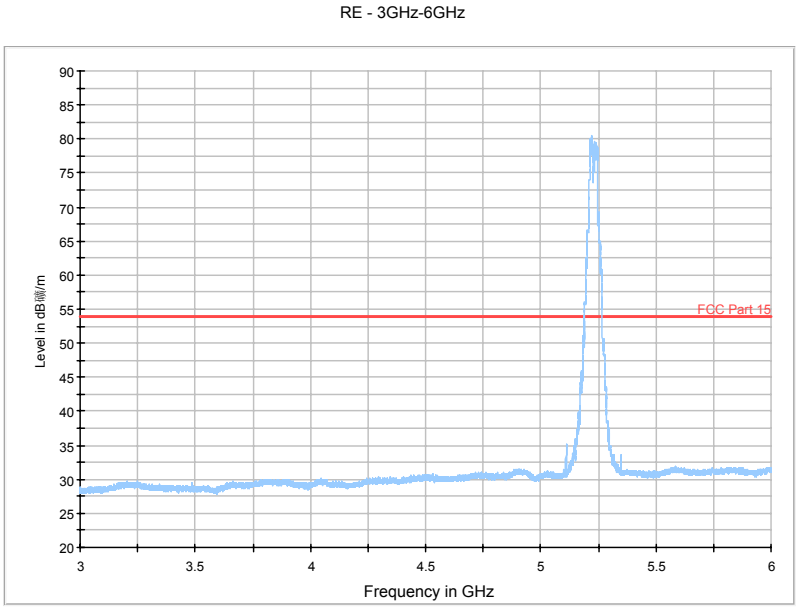


Fig. 131 Radiated Spurious Emission (802.11n-HT40, ch46, 3 GHz-6 GHz)

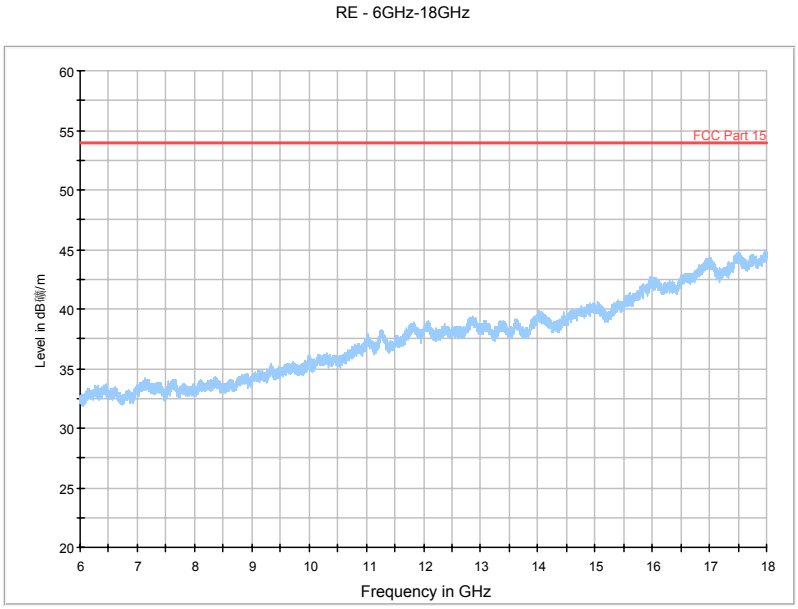


Fig. 132 Radiated Spurious Emission (802.11n-HT40, ch46, 6 GHz-18 GHz)

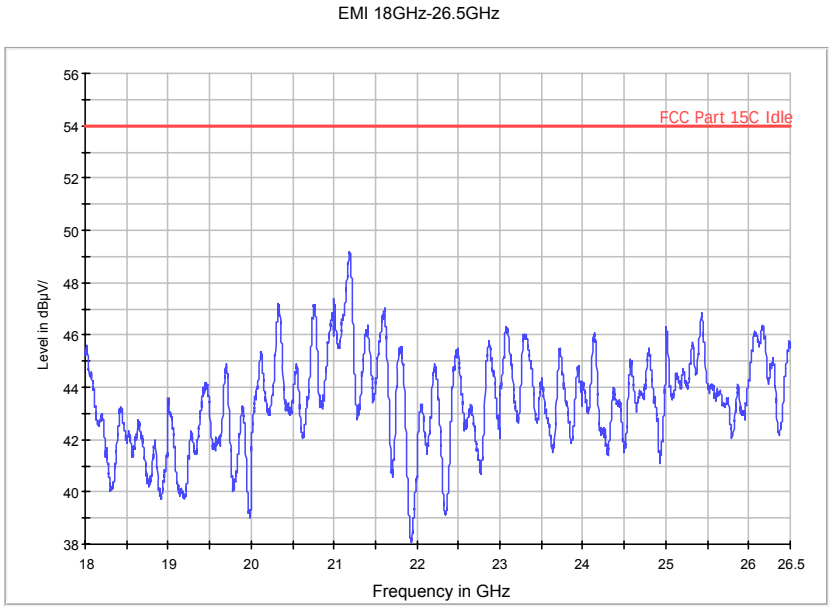


Fig. 133 Radiated Spurious Emission (802.11n-HT40, ch46, 18 GHz-26.5 GHz)

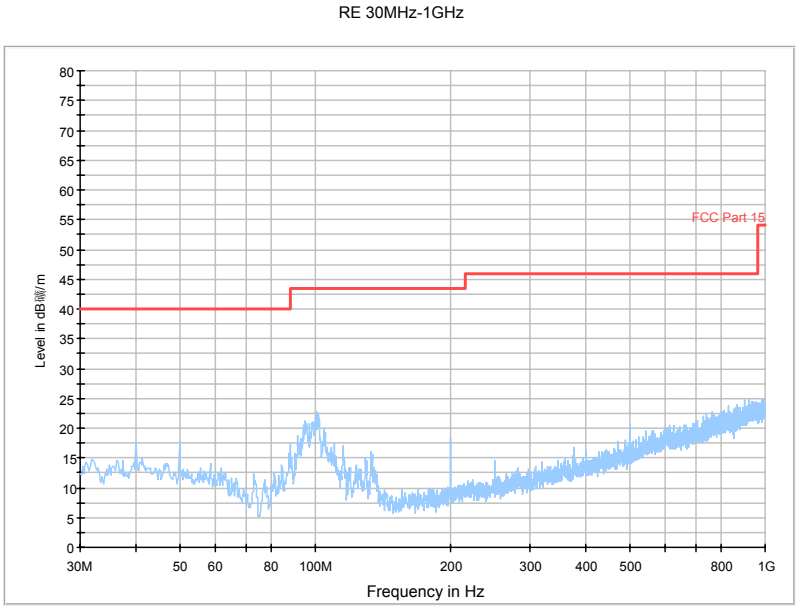


Fig. 134 Radiated Spurious Emission (802.11n-HT40, ch54, 30 MHz-1 GHz)

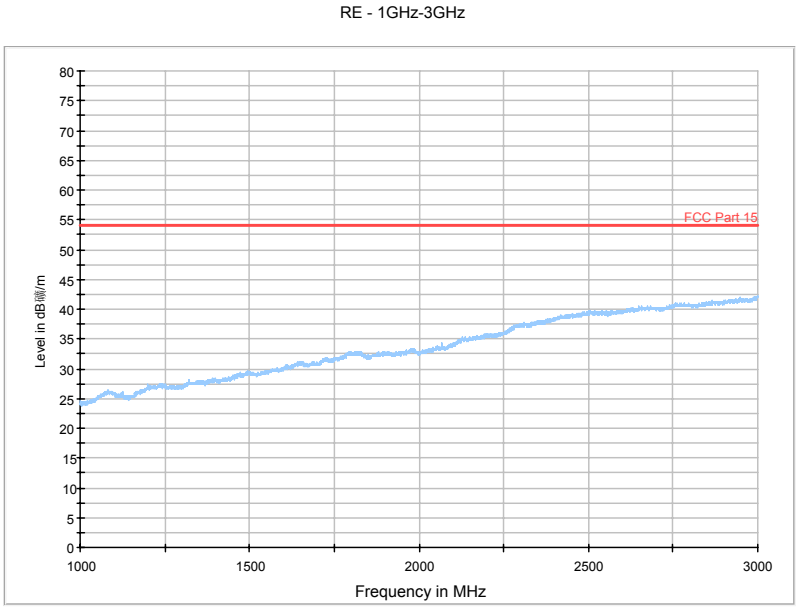


Fig. 135 Radiated Spurious Emission (802.11n-HT40, ch54, 1 GHz-3 GHz)

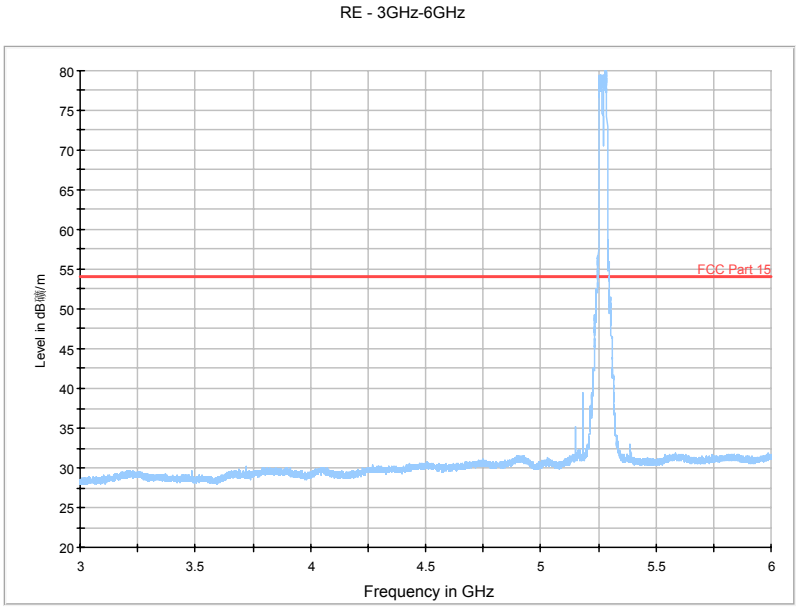


Fig. 136 Radiated Spurious Emission (802.11n-HT40, ch54, 3 GHz-6 GHz)

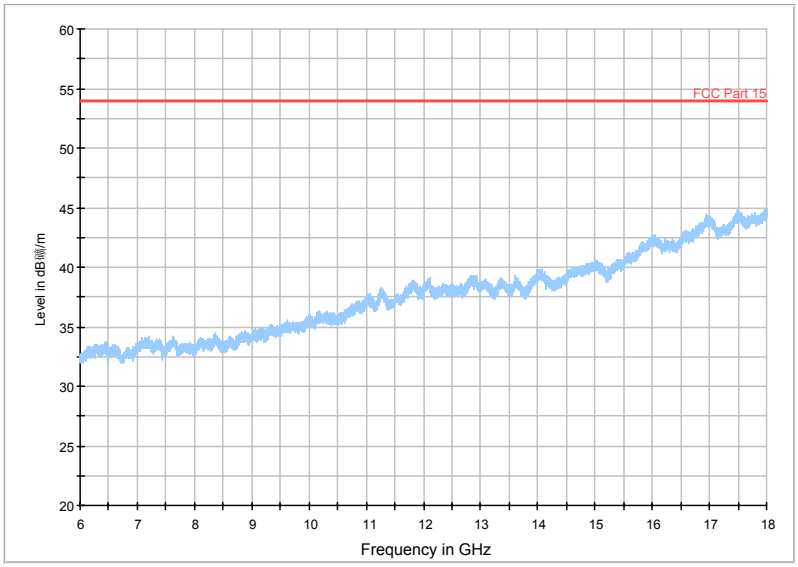


Fig. 137 Radiated Spurious Emission (802.11n-HT40, ch54, 6 GHz-18 GHz)

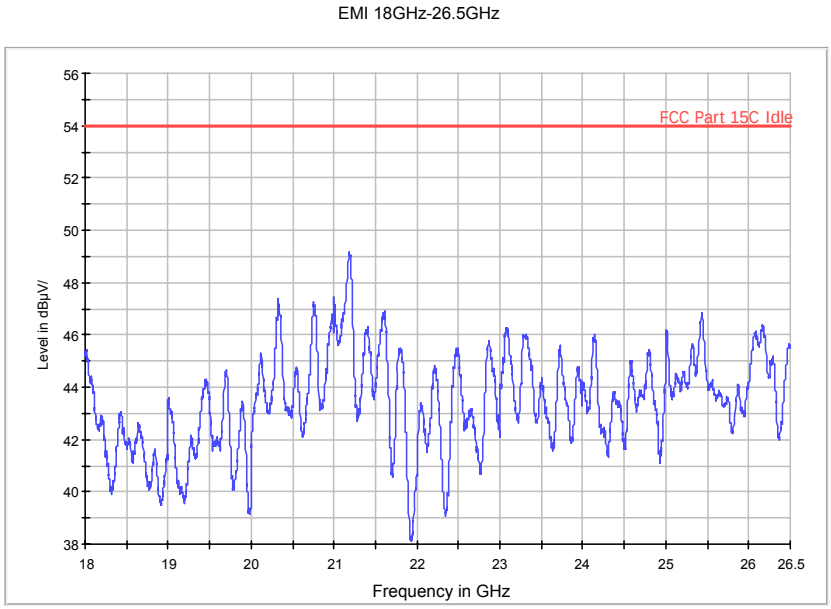


Fig. 138 Radiated Spurious Emission (802.11n-HT40, ch54, 18 GHz-26.5 GHz)

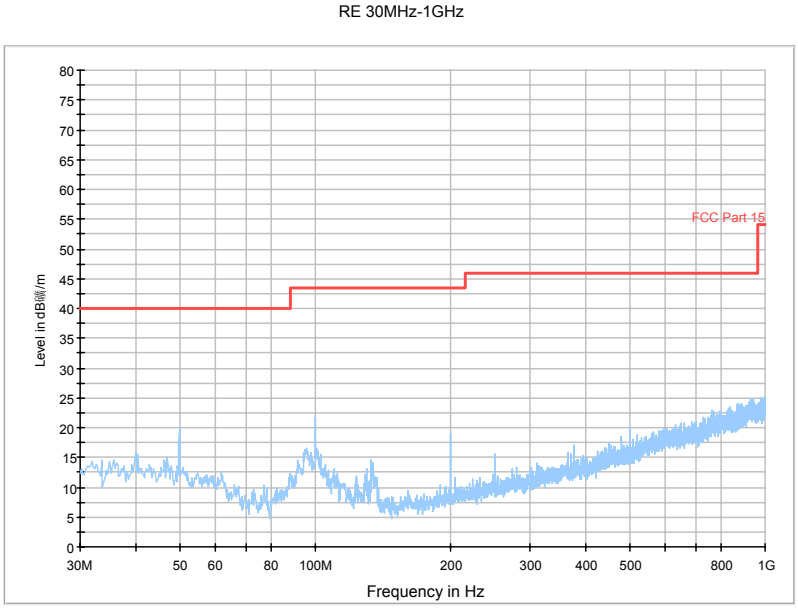


Fig. 139 Radiated Spurious Emission (802.11n-HT40, ch62, 30 MHz-1 GHz)

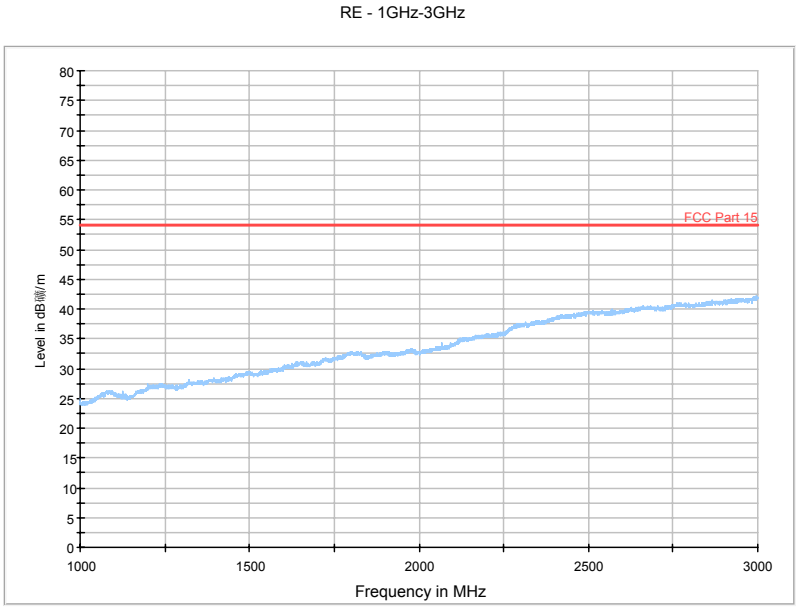


Fig. 140 Radiated Spurious Emission (802.11n-HT40, ch62, 1 GHz-3 GHz)

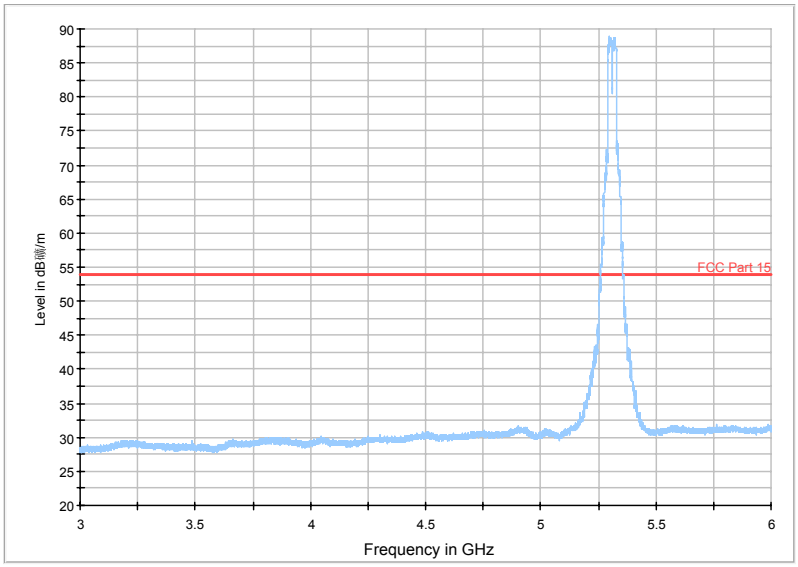


Fig. 141 Radiated Spurious Emission (802.11n-HT40, ch62, 3 GHz-6 GHz)

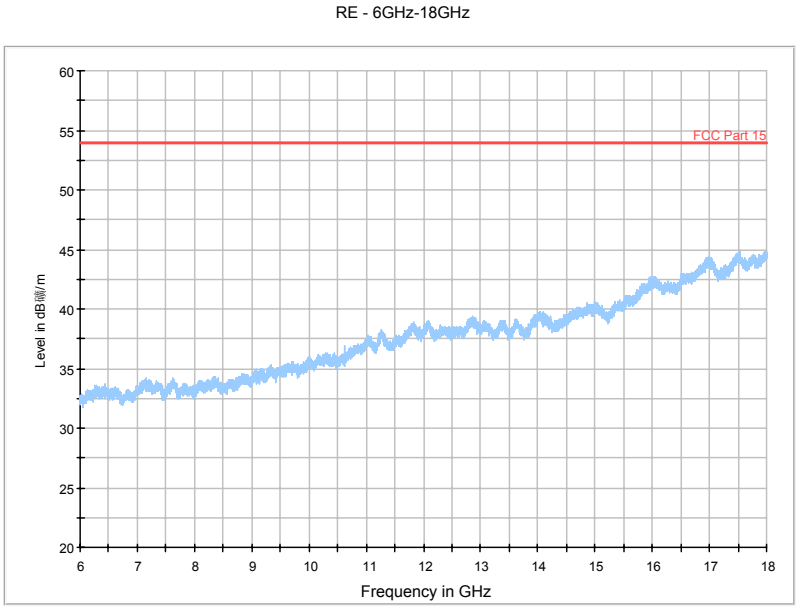


Fig. 142 Radiated Spurious Emission (802.11n-HT40, ch62, 6 GHz-18 GHz)

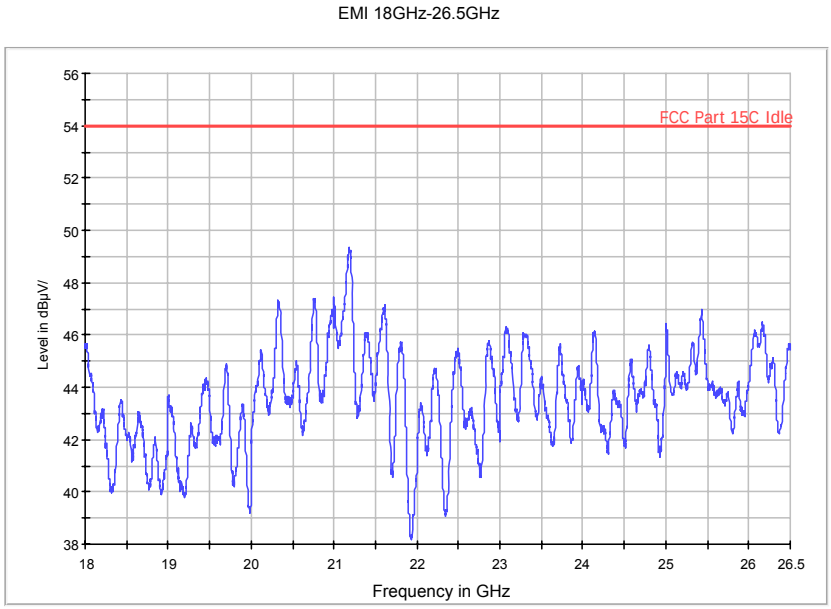


Fig. 143 Radiated Spurious Emission (802.11n-HT40, ch62, 18 GHz-26.5 GHz)

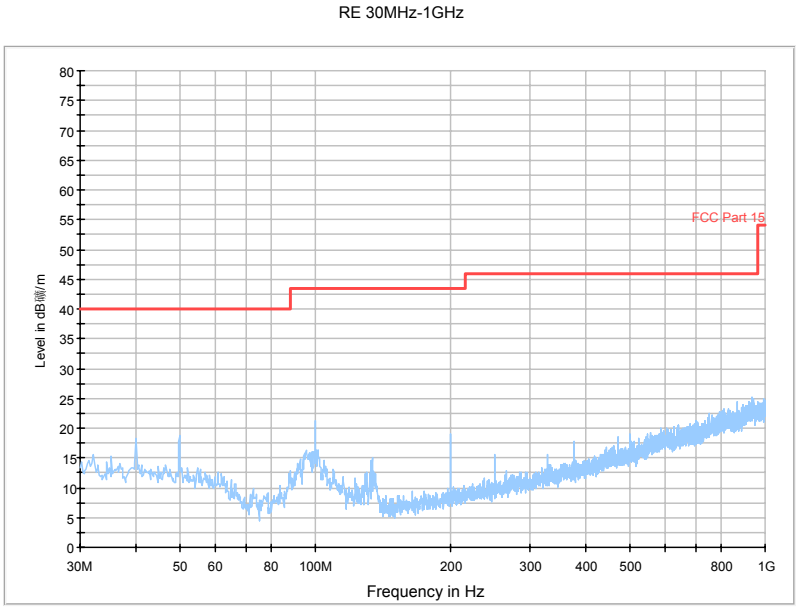


Fig. 144 Radiated Spurious Emission (802.11n-HT40, ch102, 30 MHz-1 GHz)

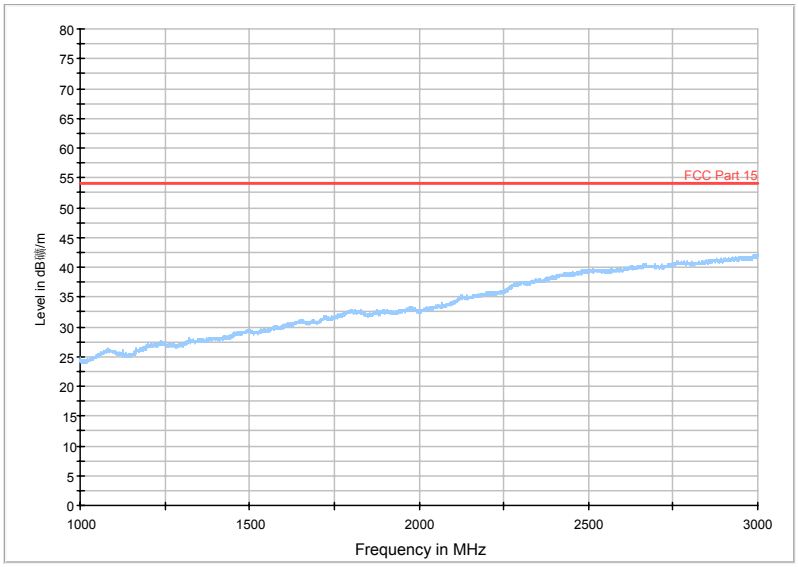


Fig. 145 Radiated Spurious Emission (802.11n-HT40, ch102, 1 GHz-3 GHz)

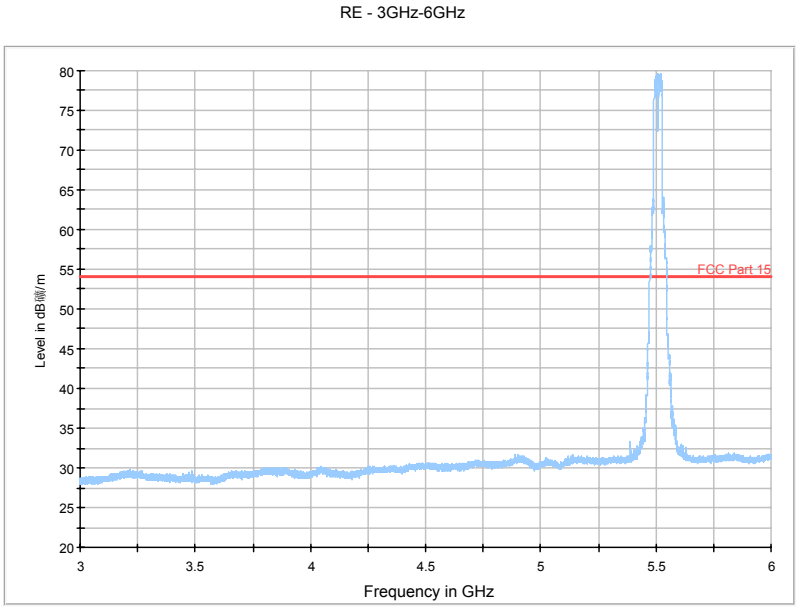


Fig. 146 Radiated Spurious Emission (802.11n-HT40, ch102, 3 GHz-6 GHz)

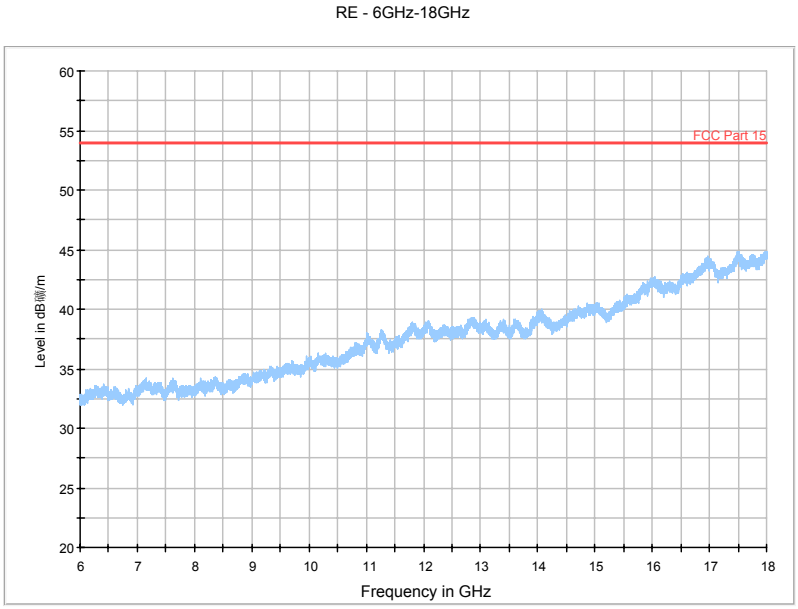


Fig. 147 Radiated Spurious Emission (802.11n-HT40, ch102, 6 GHz-18 GHz)

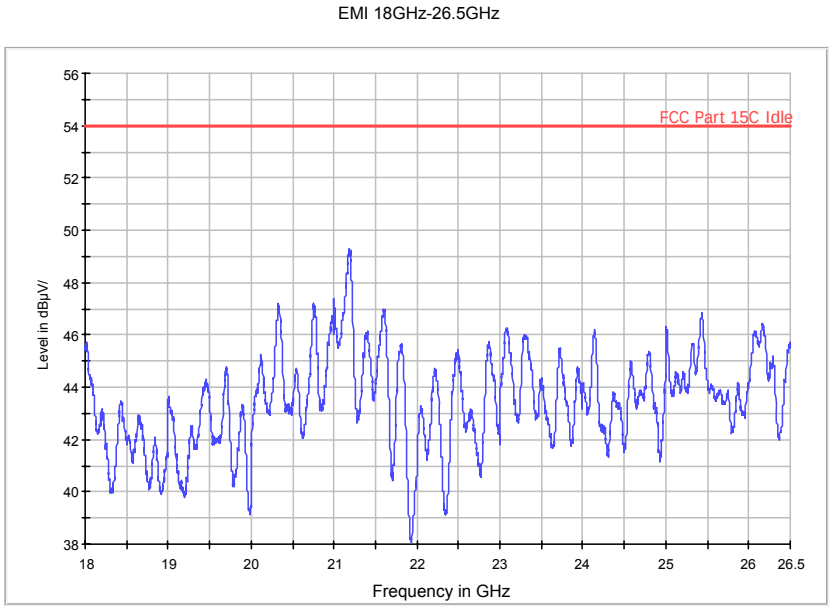


Fig. 148 Radiated Spurious Emission (802.11n-HT40, ch102, 18 GHz-26.5 GHz)

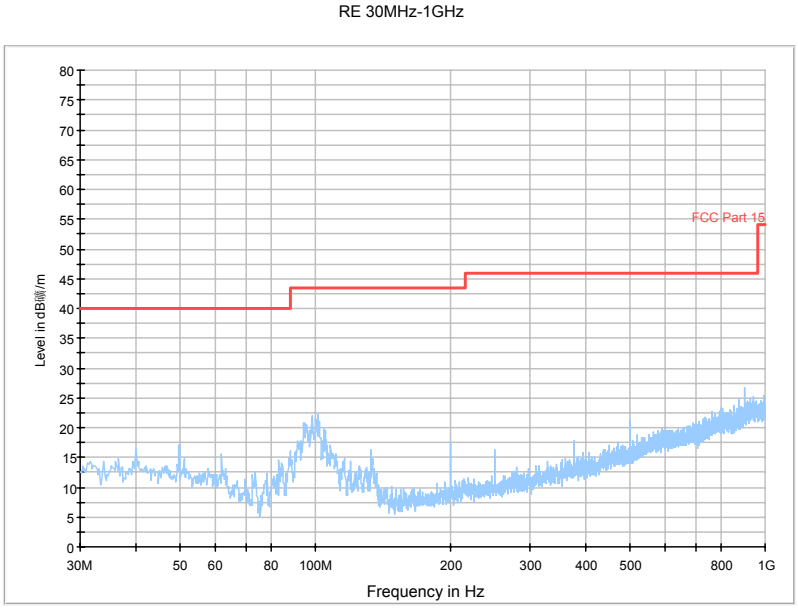


Fig. 149 Radiated Spurious Emission (802.11n-HT40, ch118, 30 MHz-1 GHz)

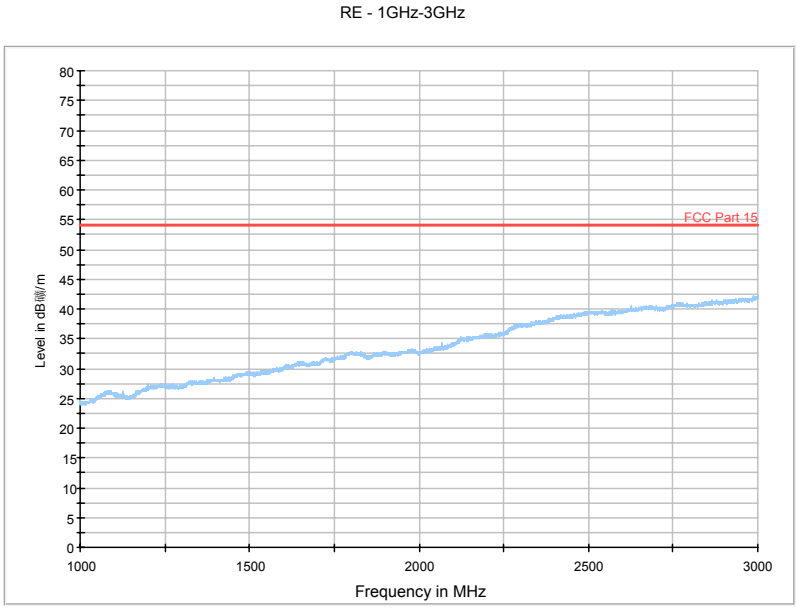


Fig. 150 Radiated Spurious Emission (802.11n-HT40, ch118, 1 GHz-3 GHz)

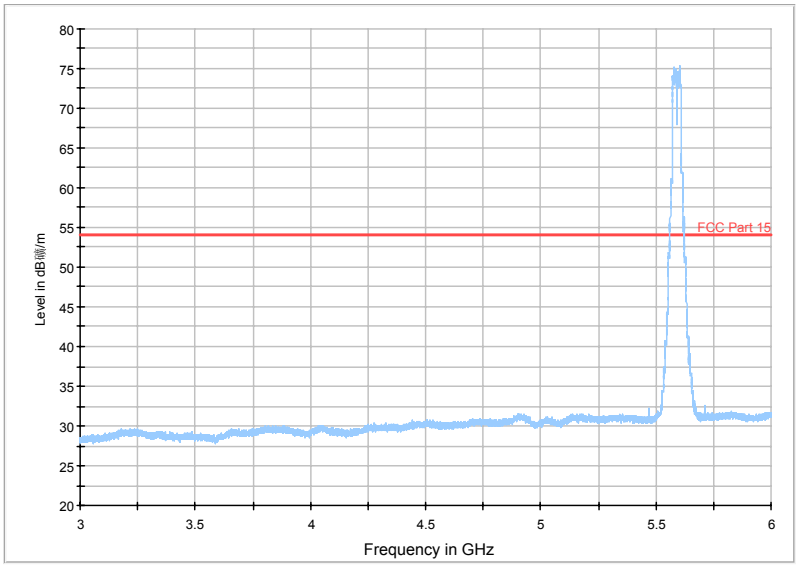


Fig. 151 Radiated Spurious Emission (802.11n-HT40, ch118, 3 GHz-6 GHz)

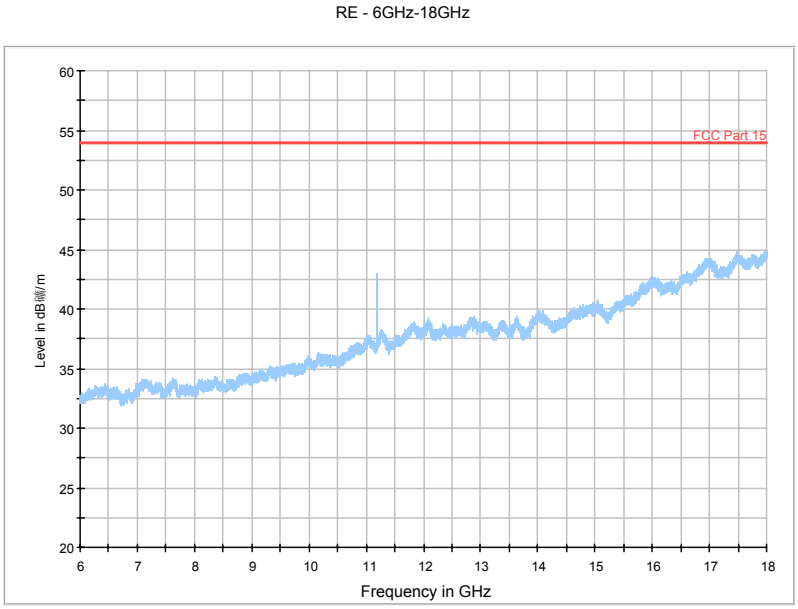


Fig. 152 Radiated Spurious Emission (802.11n-HT40, ch118, 6 GHz-18 GHz)

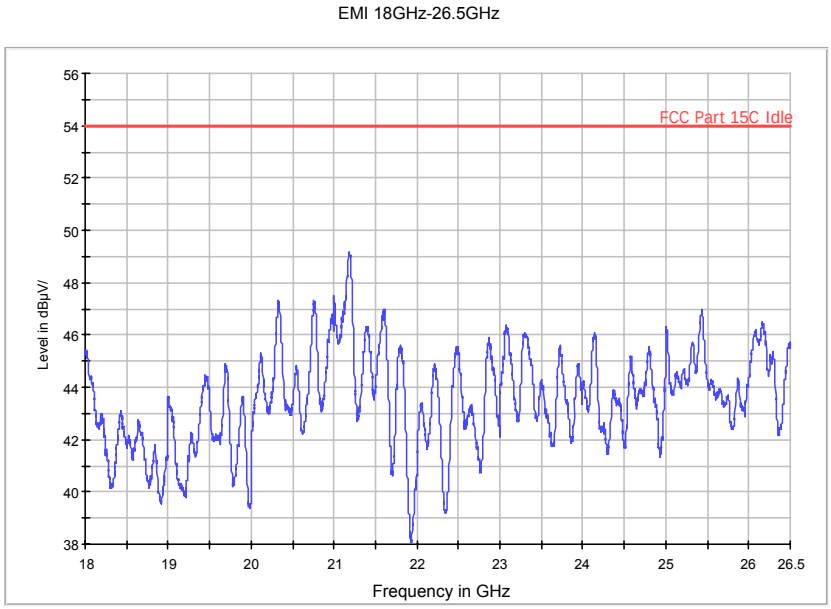


Fig. 153 Radiated Spurious Emission (802.11n-HT40, ch118, 18 GHz-26.5 GHz)

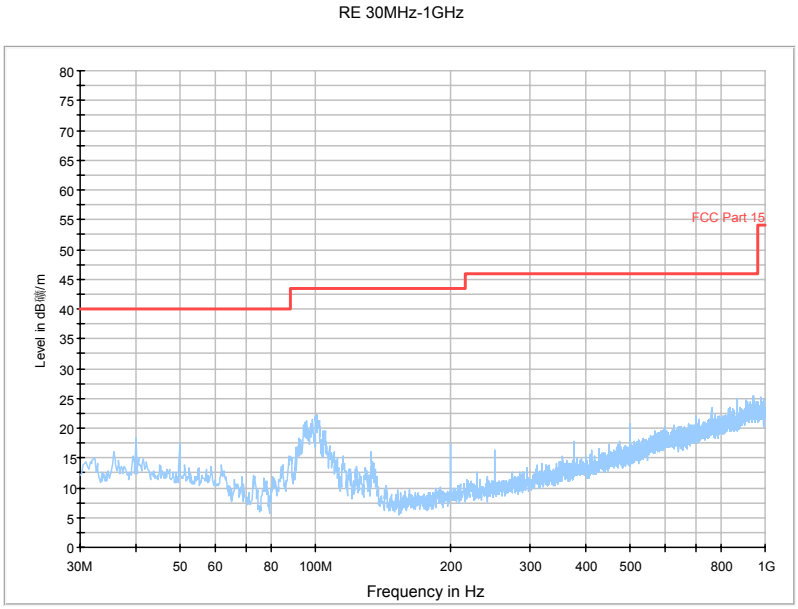


Fig. 154 Radiated Spurious Emission (802.11n-HT40, ch134, 30 MHz-1 GHz)

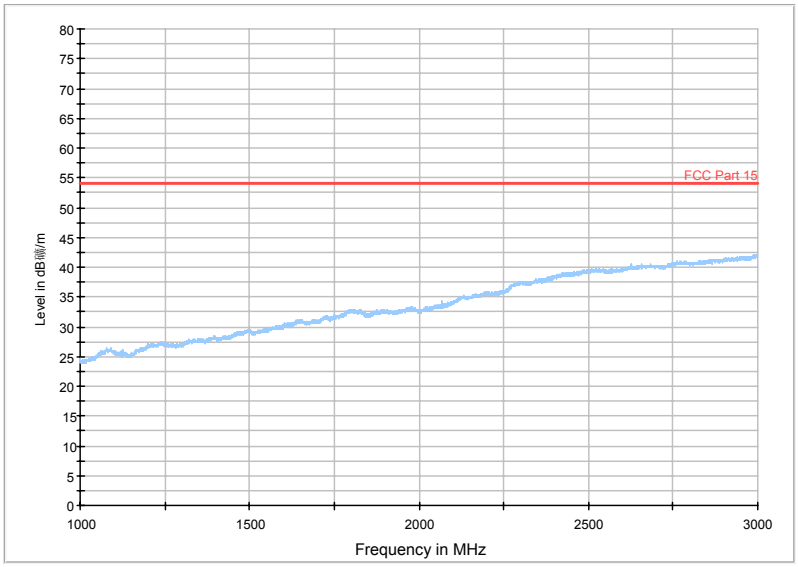


Fig. 155 Radiated Spurious Emission (802.11n-HT40, ch134, 1 GHz-3 GHz)

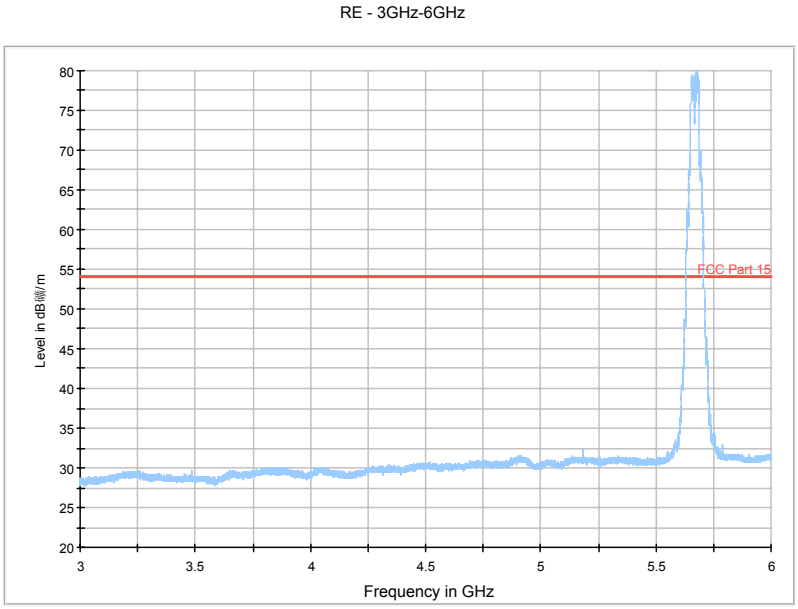


Fig. 156 Radiated Spurious Emission (802.11n-HT40, ch134, 3 GHz-6 GHz)

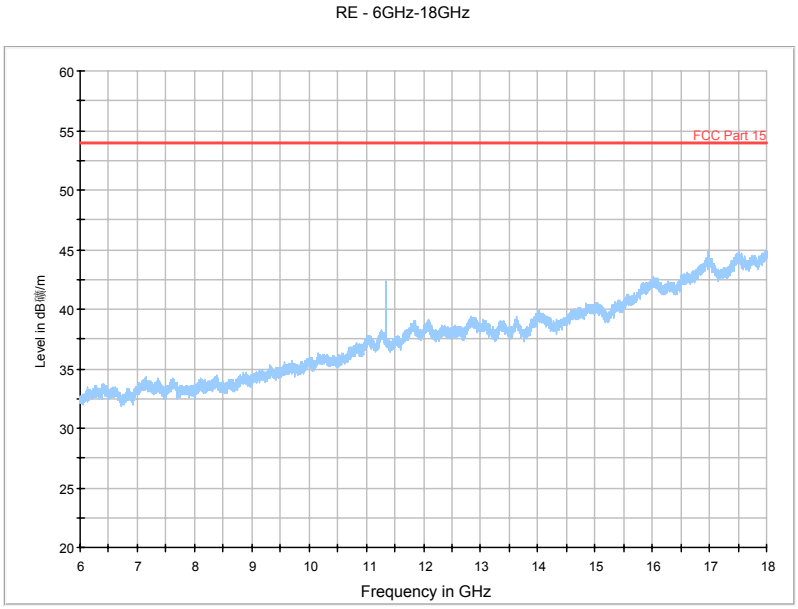


Fig. 157 Radiated Spurious Emission (802.11n-HT40, ch134, 6 GHz-18 GHz)

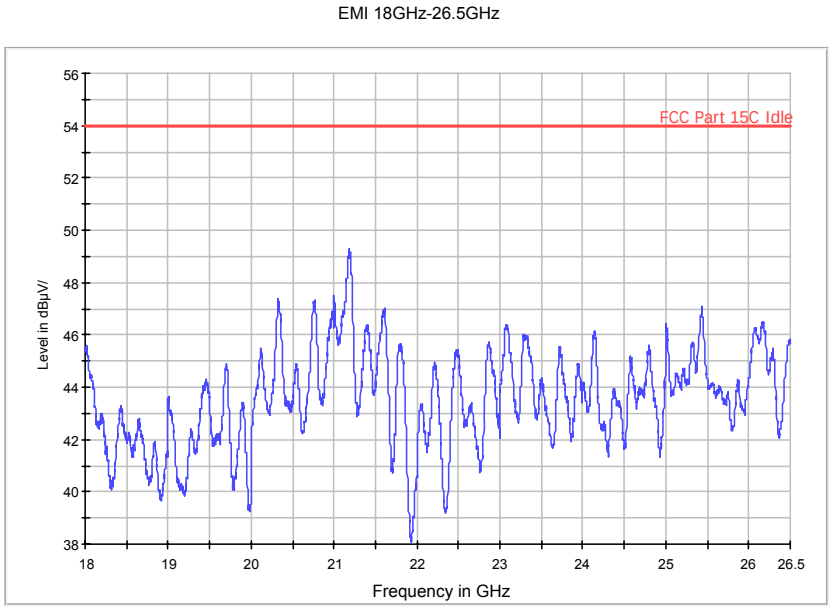


Fig. 158 Radiated Spurious Emission (802.11n-HT40, ch134, 18 GHz-26.5 GHz)

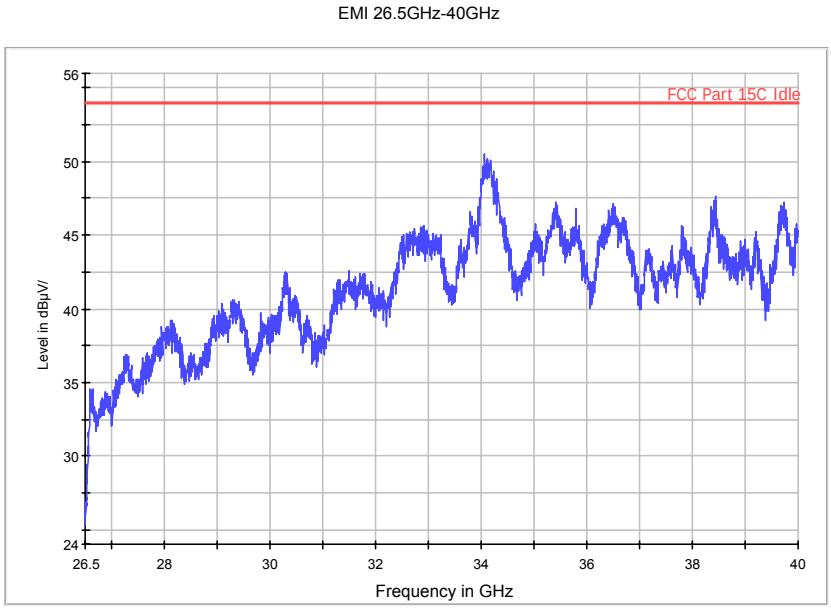


Fig. 159 Radiated Spurious Emission (802.11n-HT40, all channels, 26.5 GHz-40 GHz)

A.7. RX Spurious Emissions Radiated < 30MHz

Measurement Limit:

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

Frequency (MHz)	Field strength(μV/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

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 =2.6dB, k=2.

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
IDLE	64(5320MHz)	9 kHz ~30 MHz	Fig.160	P

Conclusion: PASS
Test graphs as below:

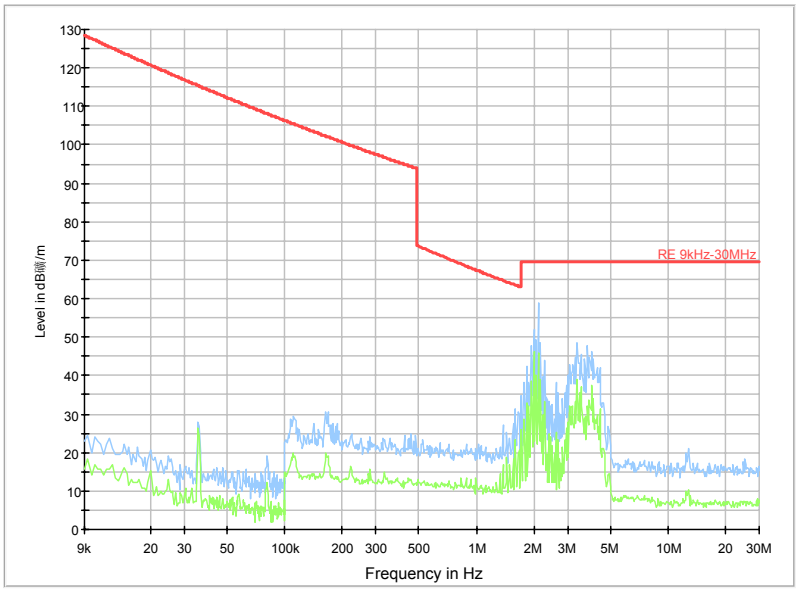


Fig. 160 RX Radiated Spurious Emission

A.8. Spurious Emissions Radiated < 30MHz

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

Frequency (MHz)	Field strength(μV/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 =2.6dB, k=2.

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	64(5320MHz)	9 kHz ~30 MHz	Fig.161	P
802.11n-HT20	64(5320MHz)	9 kHz ~30 MHz	Fig.162	P
802.11n-HT40	62(5310MHz)	9 kHz ~30 MHz	Fig.163	P

Conclusion: PASS
Test graphs as below:

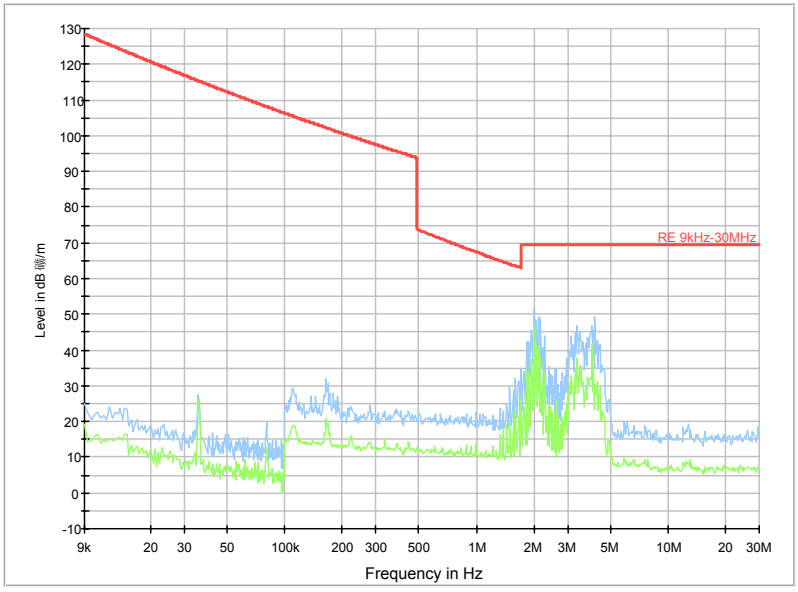


Fig. 161 Radiated Spurious Emission (802.11a, ch64, 9 kHz ~30 MHz)

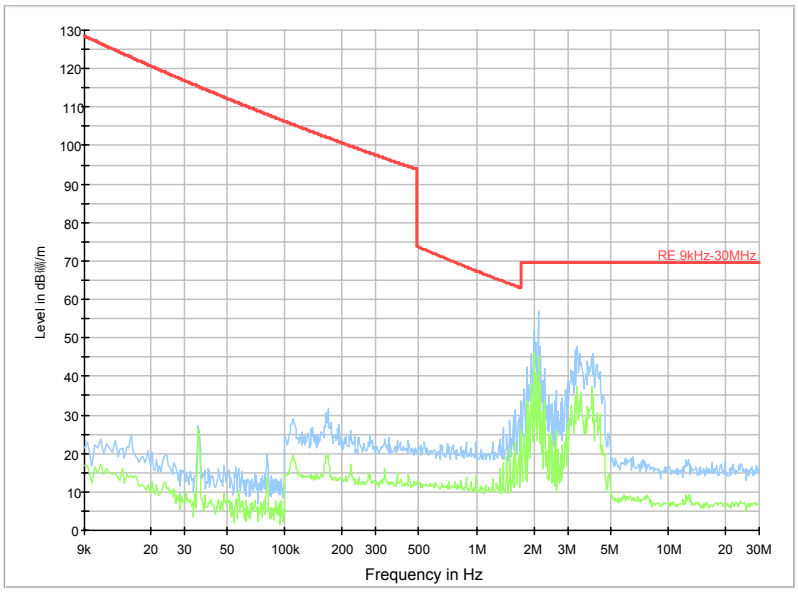


Fig. 162 Radiated Spurious Emission (802.11n-HT20, ch64, 9 kHz ~30 MHz)

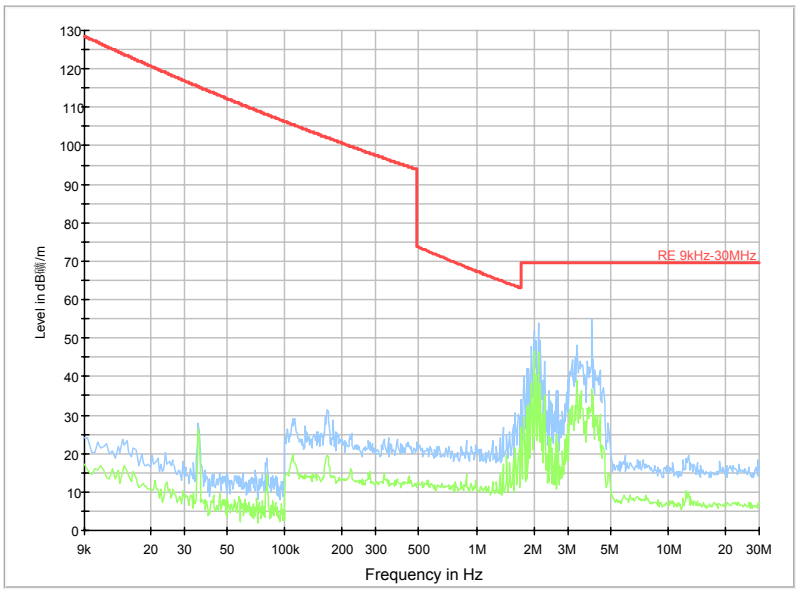


Fig. 163 Radiated Spurious Emission (802.11n-HT40, ch62, 9 kHz ~30 MHz)

A.9. Conducted Emission (150kHz- 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. 164	Fig. 165	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.164	Fig.165	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.				

Conclusion: PASS
Test graphs as below:

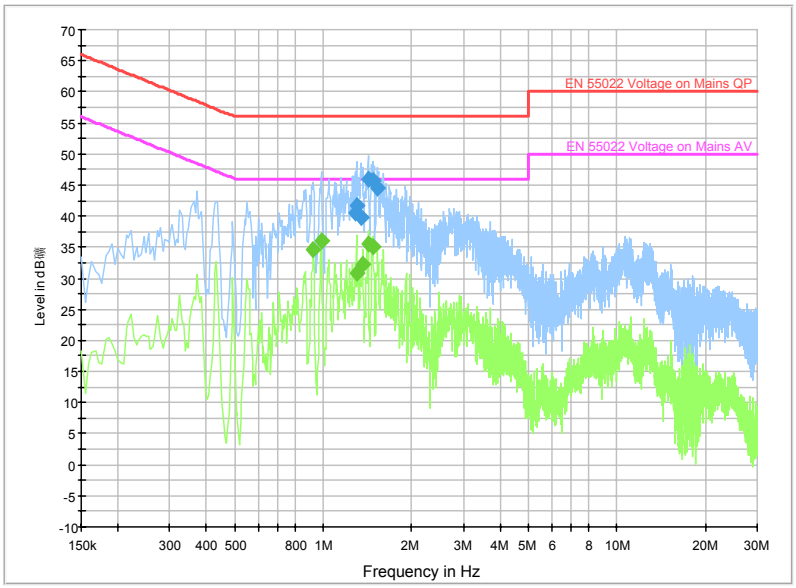


Fig. 164 Conducted Emission(802.11a, ch64, TX)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.279500	40.6	GND	L1	10.0	15.4	56.0
1.297500	41.7	GND	L1	10.0	14.3	56.0
1.342500	39.9	GND	N	10.0	16.1	56.0
1.419000	45.9	GND	L1	10.0	10.1	56.0
1.477500	45.8	GND	L1	10.0	10.2	56.0
1.531500	44.6	GND	L1	10.0	11.4	56.0

Measurement Result:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.924000	34.6	GND	L1	10.0	11.4	46.0
0.982500	36.1	GND	L1	10.0	9.9	46.0
1.297500	30.9	GND	L1	10.0	15.1	46.0
1.365000	32.3	GND	L1	10.0	13.7	46.0
1.419000	35.7	GND	L1	10.0	10.3	46.0
1.477500	35.2	GND	L1	10.0	10.8	46.0

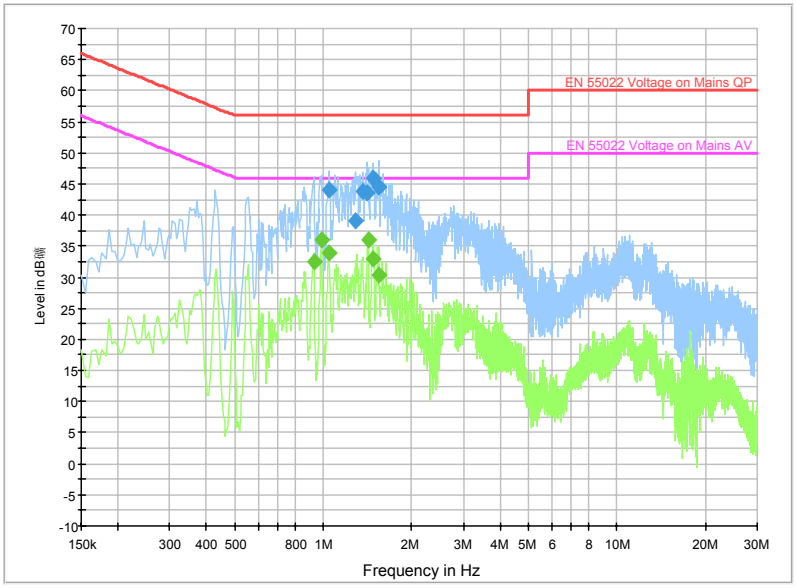


Fig. 165 Conducted Emission(802.11a, ch64, IDLE)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.050000	44.0	GND	L1	10.0	12.0	56.0
1.288500	39.1	GND	N	10.0	16.9	56.0
1.365000	43.9	GND	L1	10.0	12.1	56.0
1.405500	43.7	GND	N	10.0	12.3	56.0
1.473000	46.0	GND	L1	10.0	10.0	56.0
1.545000	44.5	GND	L1	10.0	11.5	56.0

Measurement Result:

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.928500	32.6	GND	L1	10.0	13.4	46.0
0.982500	36.0	GND	L1	10.0	10.0	46.0
1.041000	33.9	GND	L1	10.0	12.1	46.0
1.419000	36.1	GND	L1	10.0	9.9	46.0
1.482000	32.9	GND	L1	10.0	13.1	46.0
1.545000	30.4	GND	L1	10.0	15.6	46.0

A.10.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 PPSD measurement.

Measurement Uncertainty:

Measurement Uncertainty	0.75 dB

Note: Configuration information to be tested as follows:

Modulation type and data rate:

802.11a	802.11n-HT20	802.11n-HT40
12Mbps(OFDM)	MCS7(OFDM)	MCS0(OFDM)

This Configuration information is worse case, please refer to A.2.1

Measurement Result:

11a mode

Type	Peak Excursion							
	5180MHz (Ch36)		5240MHz (Ch48)		5260MHz (Ch52)		5320 MHz (Ch64)	
Peak (dBm)	Fig.166	10.95	Fig.167	9.93	Fig.168	9.88	Fig.169	10.35
Average(dBm)	Fig.170	2.03	Fig.171	1.38	Fig.172	0.83	Fig.173	1.93
Result (dB)	8.92		8.55		9.05		8.42	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5600MHz (Ch120)		5700MHz (Ch140)	
Peak (dBm)	Fig.174	10.55	Fig.175	9.54	Fig.176	10.31
Average(dBm)	Fig.177	1.63	Fig.178	1.10	Fig.179	1.54
Result (dB)	8.92		8.44		8.77	

11n-HT20 mode

Type	Peak Excursion							
	5180MHz (Ch36)		5240MHz (Ch48)		5260MHz (Ch52)		5320 MHz (Ch64)	
Peak (dBm)	Fig.180	10.09	Fig.181	10.31	Fig.182	9.62	Fig.183	10.21
Average(dBm)	Fig.184	1.42	Fig.185	1.38	Fig.186	0.82	Fig.187	1.82
Result (dB)	8.67		8.93		8.80		8.39	

Type	Test Result (dBm)					
	5500MHz (Ch100)		5600MHz (Ch120)		5700MHz (Ch140)	
Peak (dBm)	Fig.188	9.63	Fig.189	9.07	Fig.190	10.01
Average(dBm)	Fig.191	0.74	Fig.192	0.52	Fig.193	0.97
Result (dB)	8.89		8.55		9.04	

11n-HT40 mode

Type	Peak Excursion							
	5190MHz (Ch38)		5230MHz (Ch46)		5270MHz (Ch55)		5310 MHz (Ch63)	
Peak (dBm)	Fig.194	6.08	Fig.195	6.33	Fig.196	5.77	Fig.197	5.49
Average(dBm)	Fig.198	-2.46	Fig.199	-2.10	Fig.200	-2.73	Fig.201	-2.57
Result (dB)	8.54		8.43		8.50		8.06	

Type	Test Result (dBm)					
	5510MHz (Ch102)		5590MHz (Ch118)		5670MHz (Ch134)	
Peak (dBm)	Fig.202	4.55	Fig.203	5.28	Fig.204	6.04
Average(dBm)	Fig.205	-3.26	Fig.206	-2.76	Fig.207	-2.19
Result (dB)	7.81		8.04		8.23	

Conclusion: PASS

Test graphs as below:

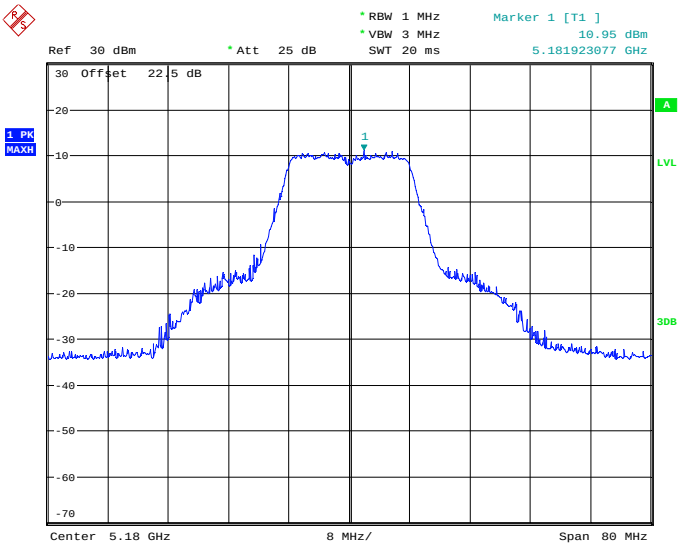


Fig. 166 Peak Excursions (802.11a, ch36, peak)

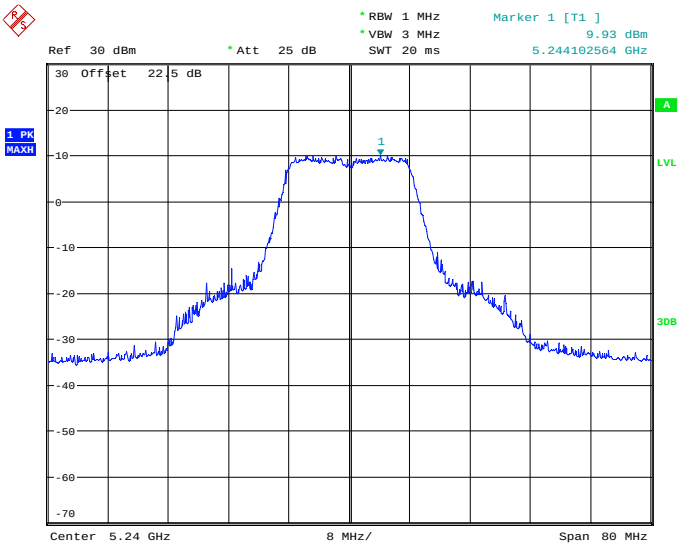


Fig. 167 Peak Excursions (802.11a, ch48, peak)

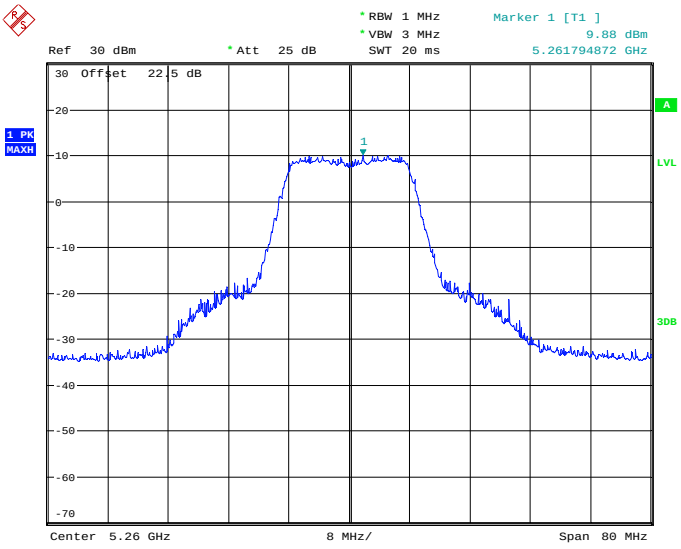


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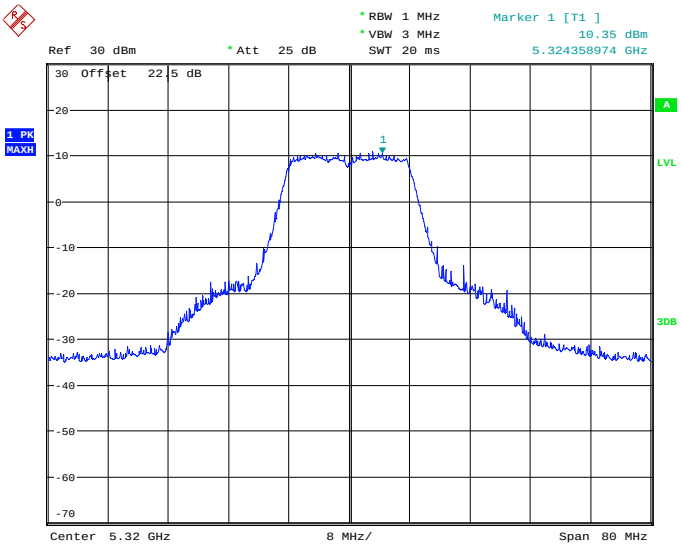
Fig. 168 Peak Excursions (802.11a, ch52, peak)



Date: 27.APR.2013 12:57:52

Fig. 169 Peak Excursions (802.11a, ch64, peak)

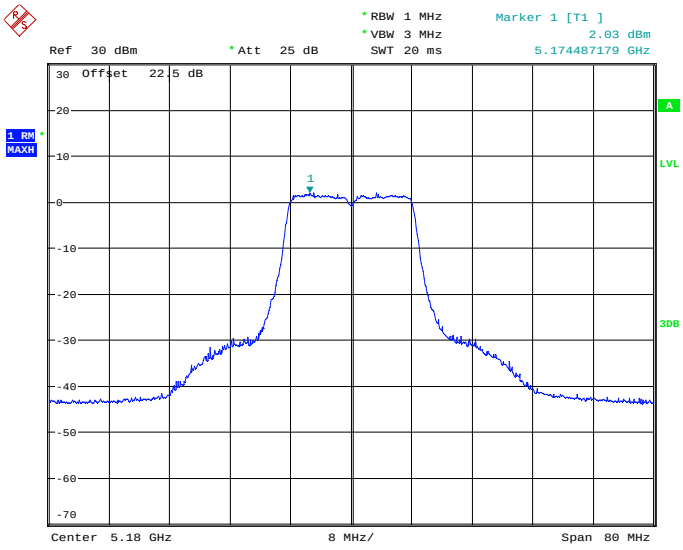


Fig. 170 Peak Excursions (802.11a, ch36, average)

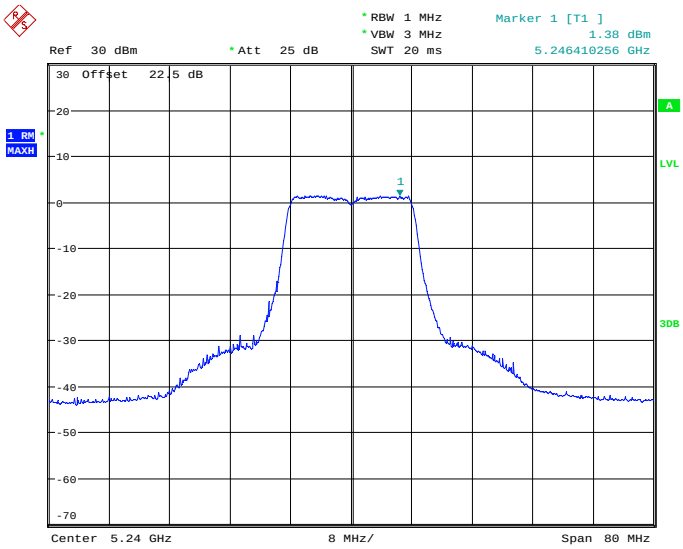


Fig. 171 Peak Excursions (802.11a, ch48, average)

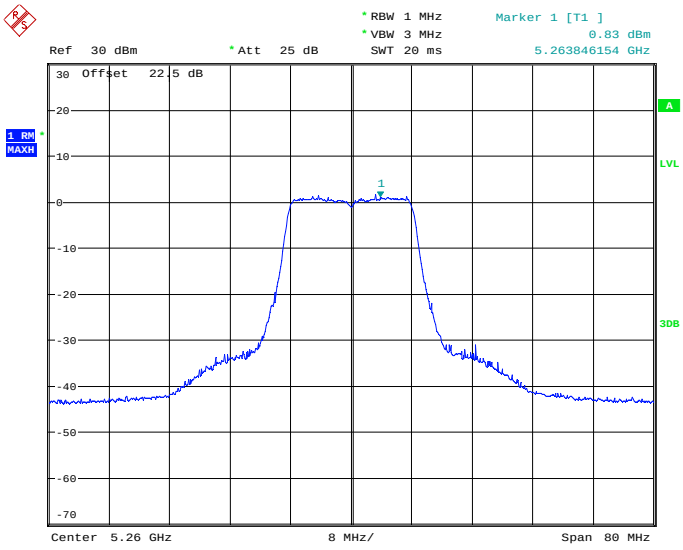


Fig. 172 Peak Excursions (802.11a, ch52, average)

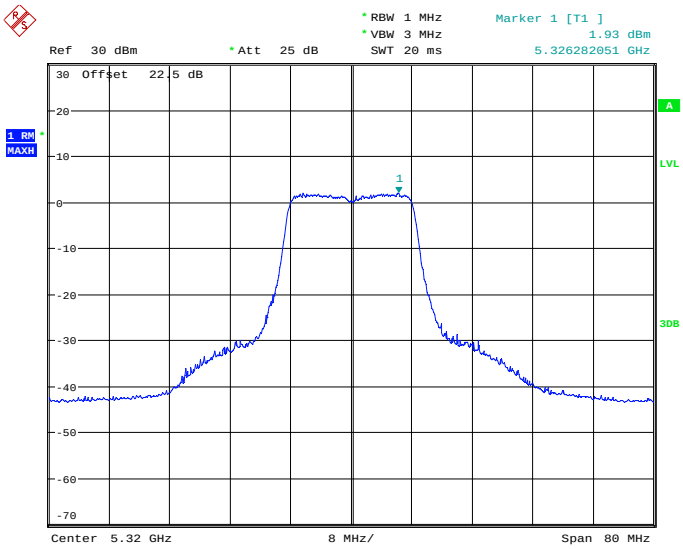
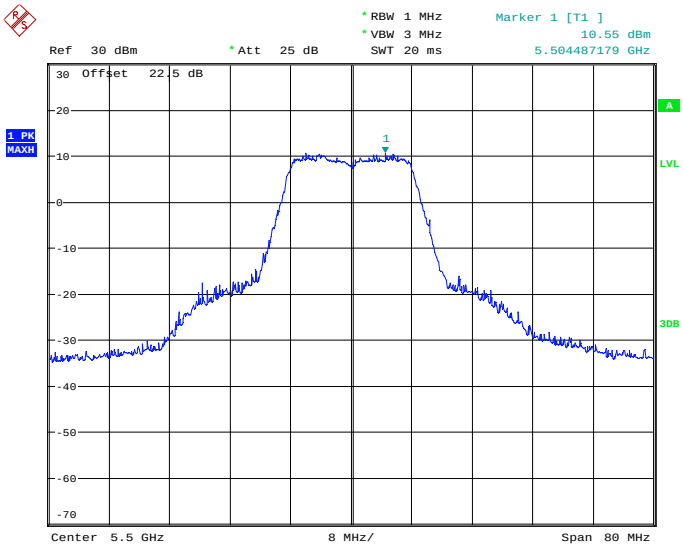
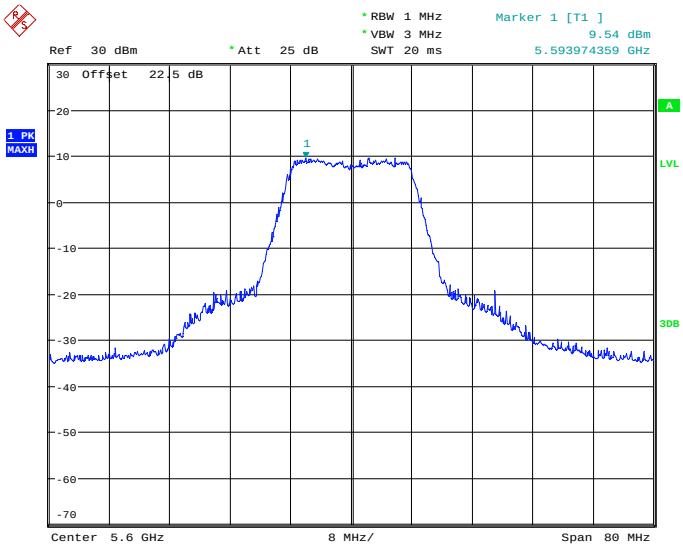


Fig. 173 Peak Excursions (802.11a, ch64, average)



Date: 27.APR.2013 12:58:46

Fig. 174 Peak Excursions (802.11a, ch100, peak)



Date: 27.APR.2013 13:00:05

Fig. 175 Peak Excursions (802.11a, ch120, peak)

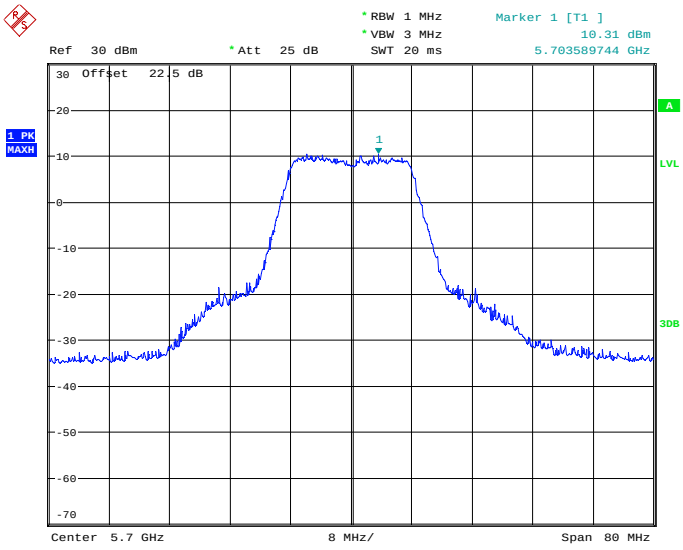


Fig. 176 Peak Excursions (802.11a, ch140, peak)

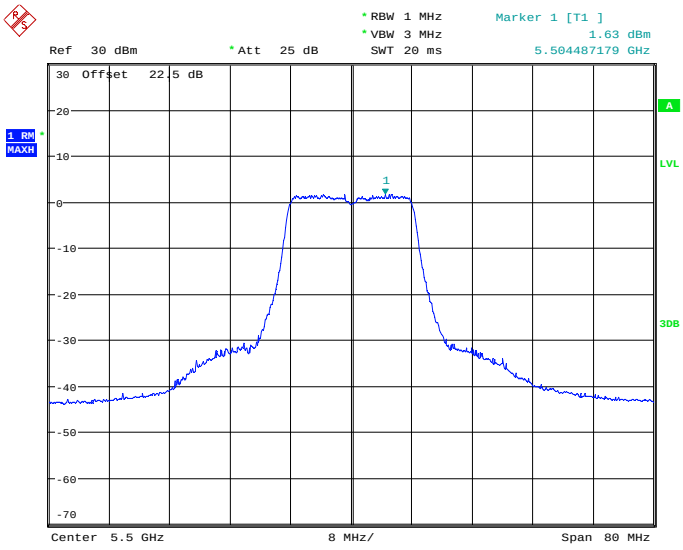


Fig. 177 Peak Excursions (802.11a, ch100, average)

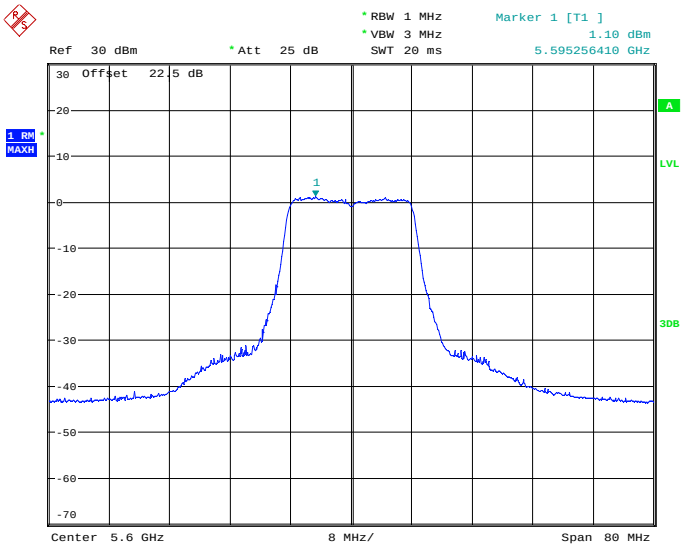


Fig. 178 Peak Excursions (802.11a, ch120, average)

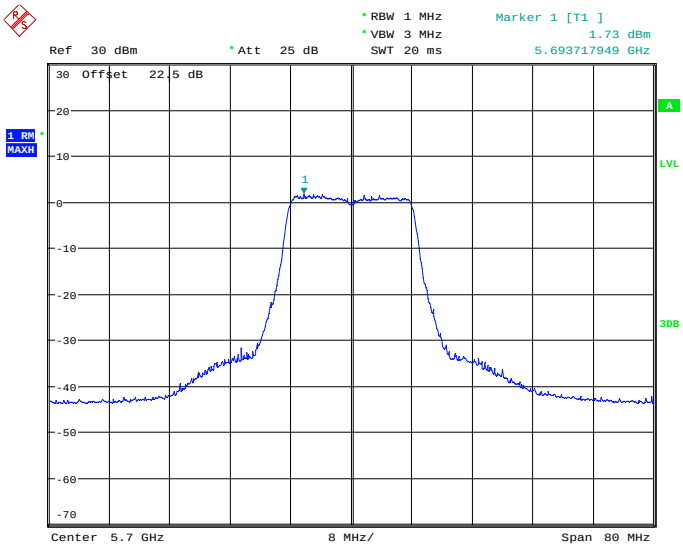
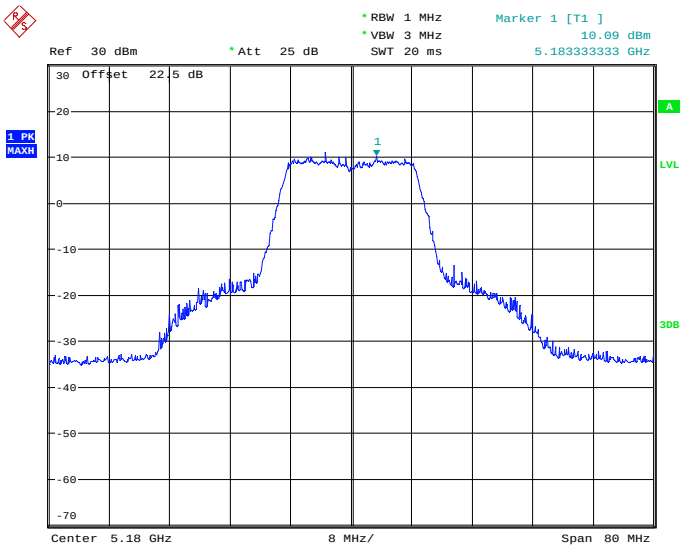
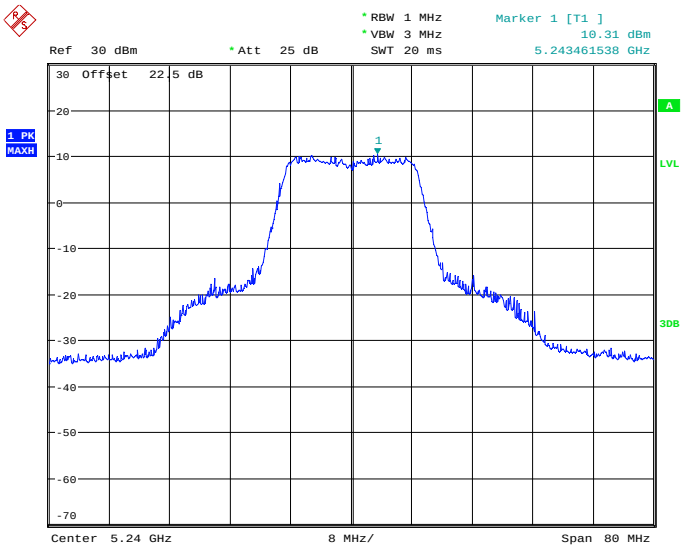


Fig. 179 Peak Excursions (802.11a, ch140, average)



Date: 27.APR.2013 13:06:25

Fig. 180 Peak Excursions (802.11n-HT20, ch36, peak)



Date: 27.APR.2013 13:07:06

Fig. 181 Peak Excursions (802.11n-HT20, ch48, peak)

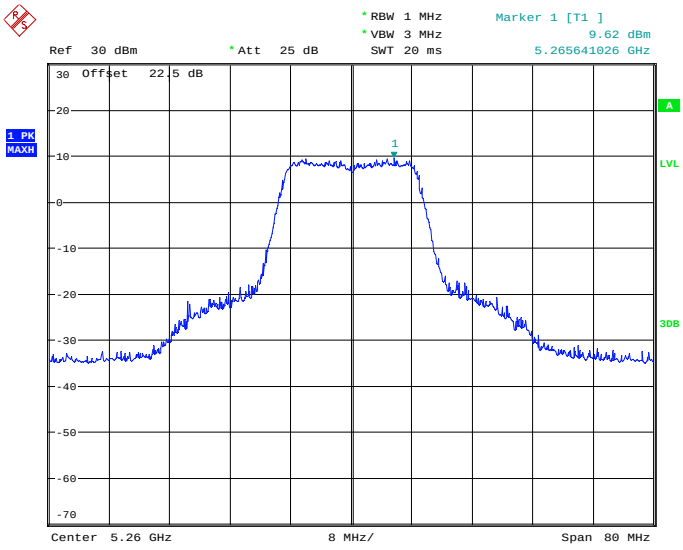


Fig. 182 Peak Excursions (802.11n-HT20, ch52, peak)

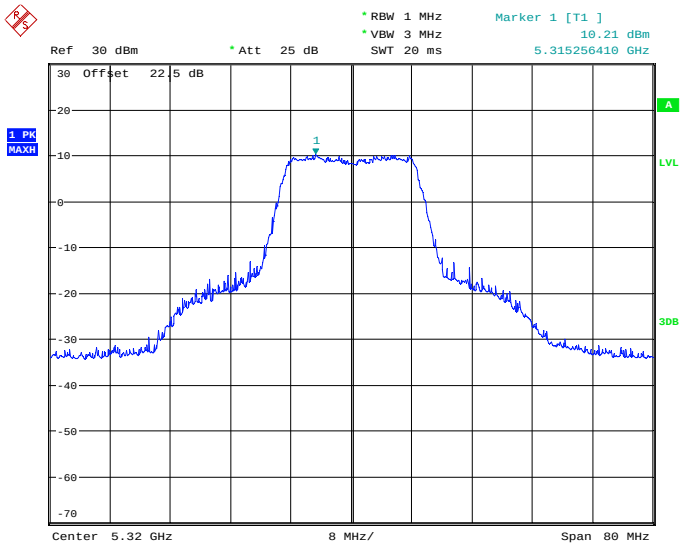


Fig. 183 Peak Excursions (802.11n-HT20, ch64, peak)

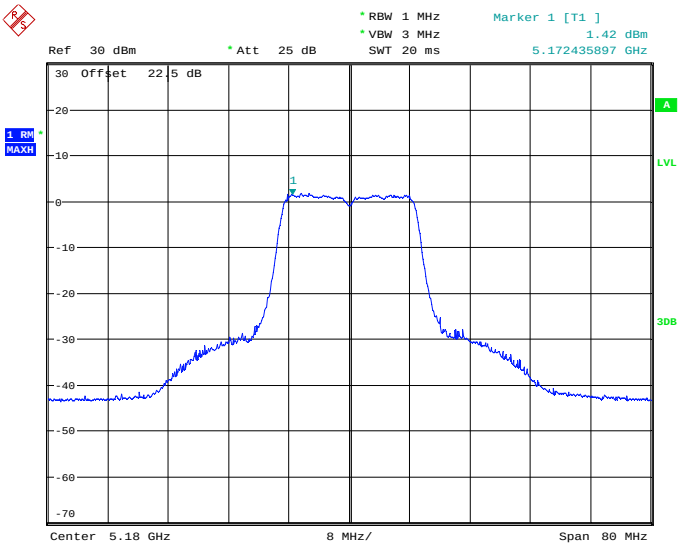


Fig. 184 Peak Excursions (802.11n-HT20, ch36, average)

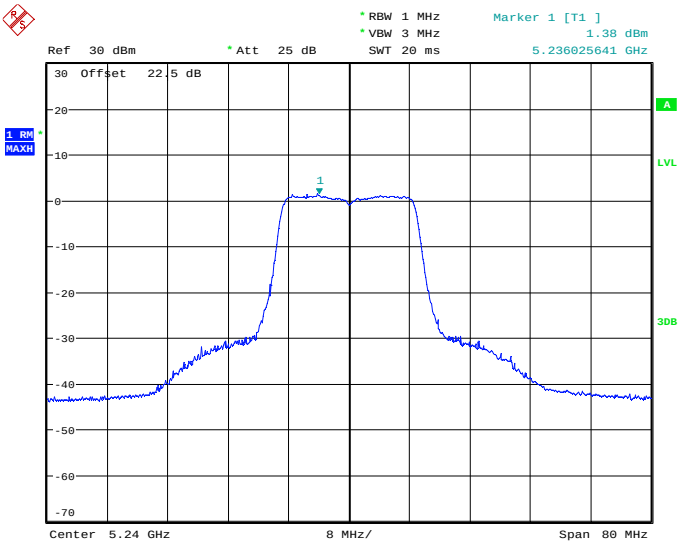


Fig. 185 Peak Excursions (802.11n-HT20, ch48, average)

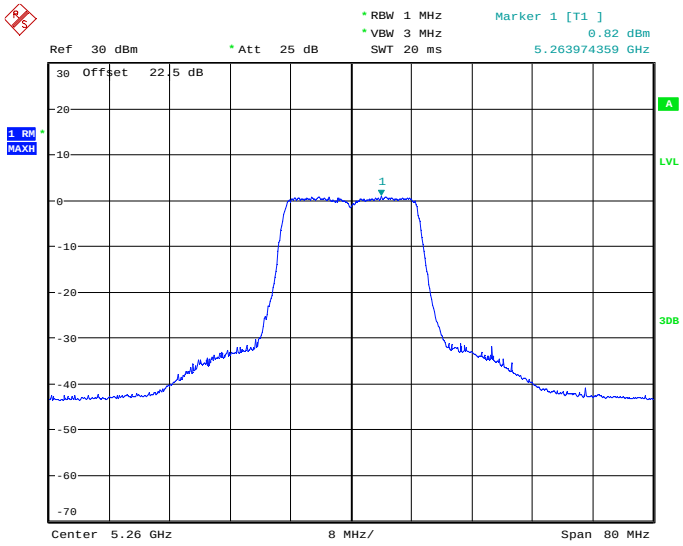


Fig. 186 Peak Excursions (802.11n-HT20, ch52, average)

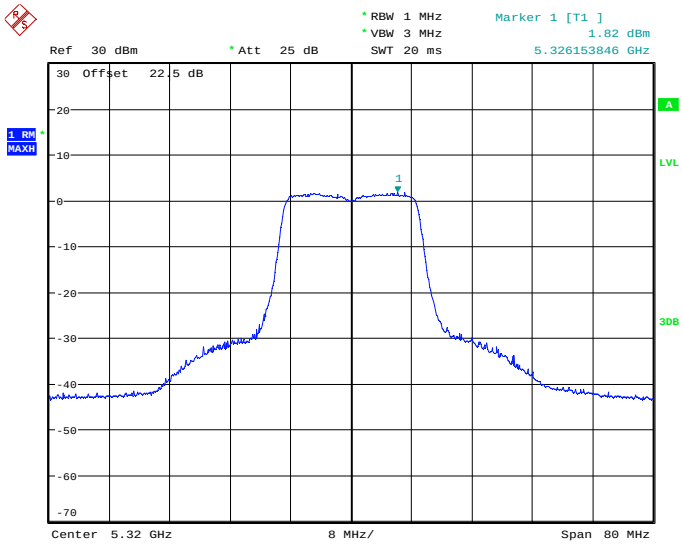


Fig. 187 Peak Excursions (802.11n-HT20, ch64, average)

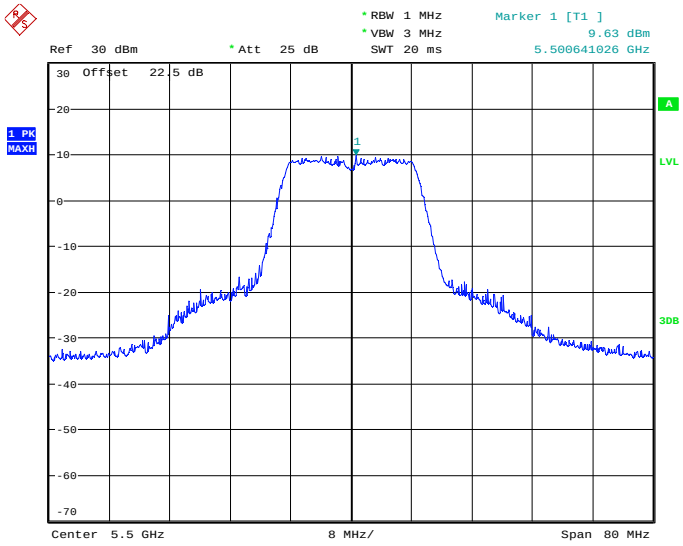


Fig. 188 Peak Excursions (802.11n-HT20, ch100, peak)

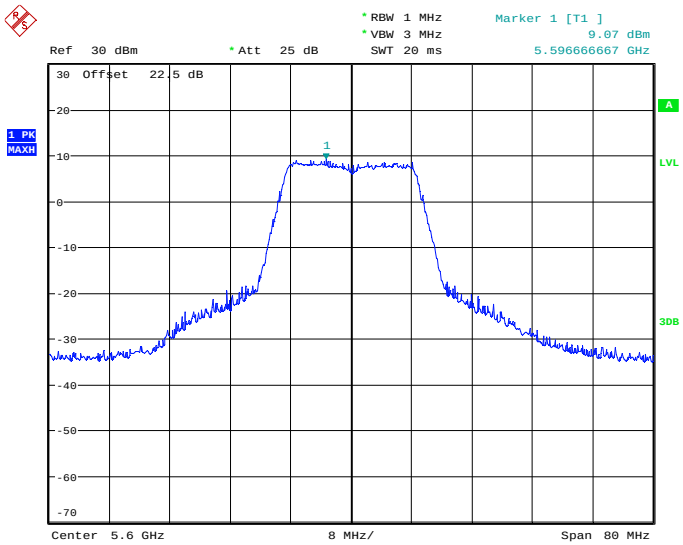


Fig. 189 Peak Excursions (802.11n-HT20, ch120, peak)

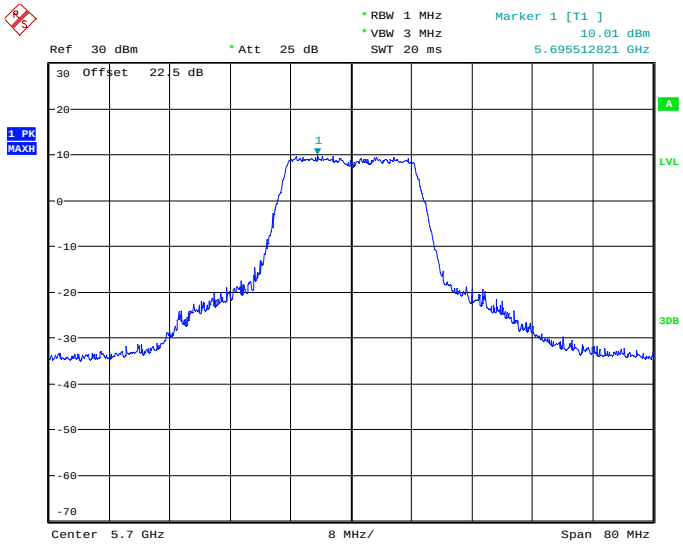


Fig. 190 Peak Excursions (802.11n-HT20, ch140, peak)

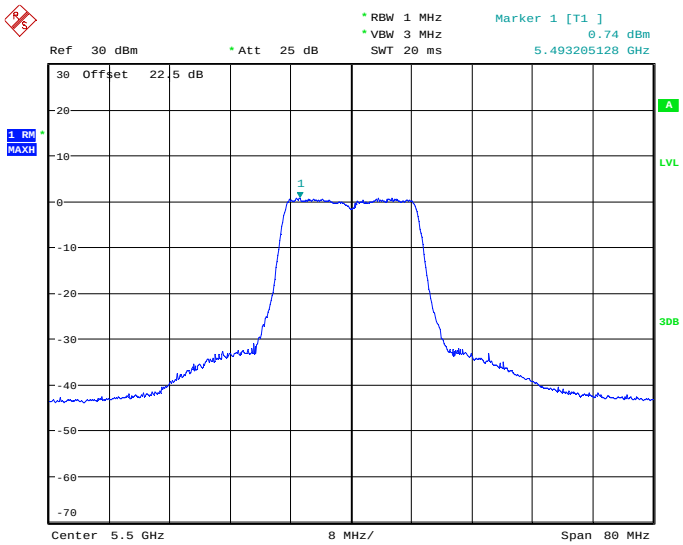


Fig. 191 Peak Excursions (802.11n-HT20, ch100, average)

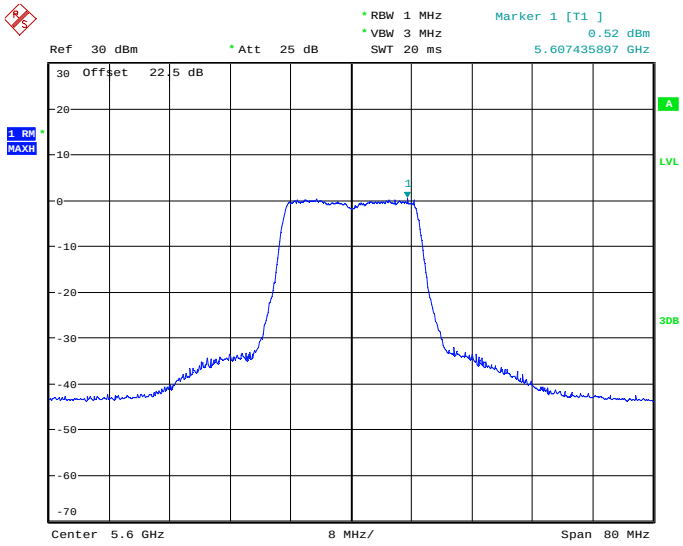


Fig. 192 Peak Excursions (802.11n-HT20, ch120, average)

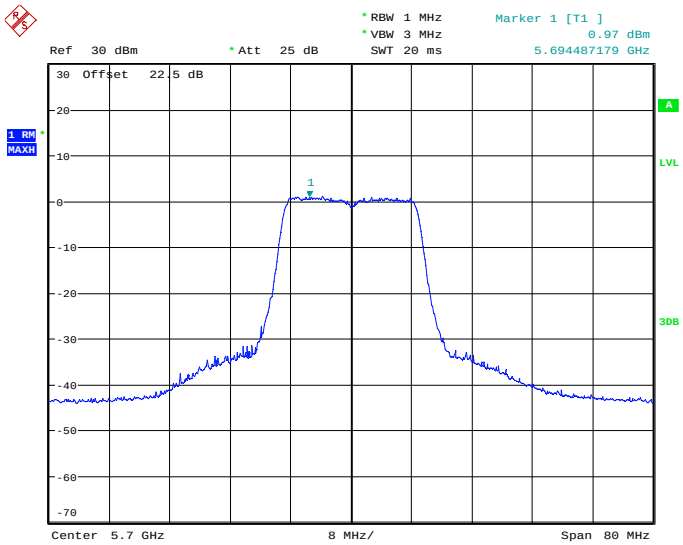


Fig. 193 Peak Excursions (802.11n-HT20, ch140, average)

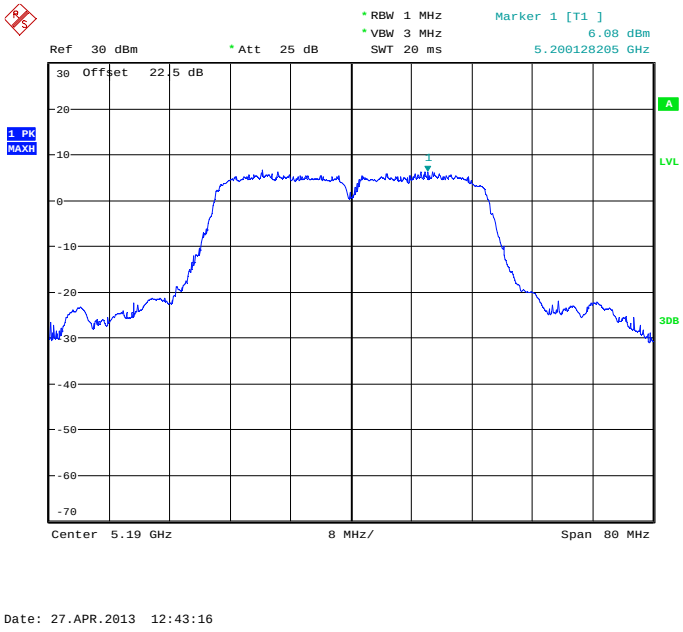


Fig. 194 Peak Excursions (802.11n-HT40, ch36, peak)

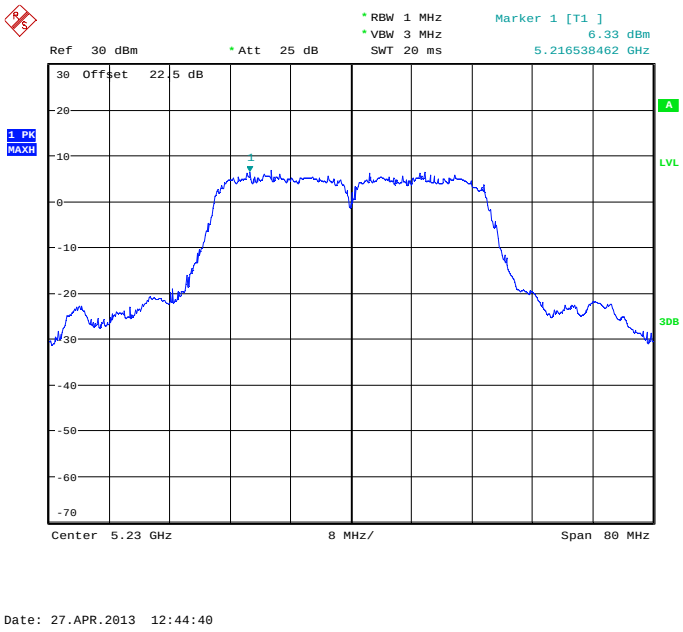


Fig. 195 Peak Excursions (802.11n-HT40, ch48, peak)

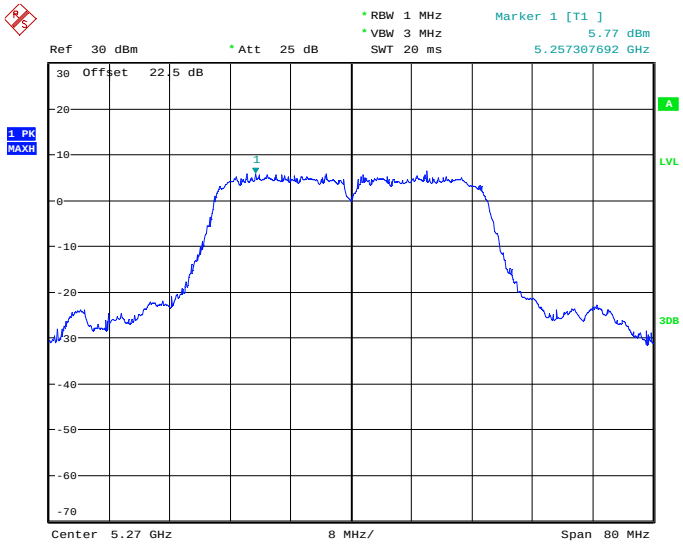


Fig. 196 Peak Excursions (802.11n-HT40, ch52, peak)

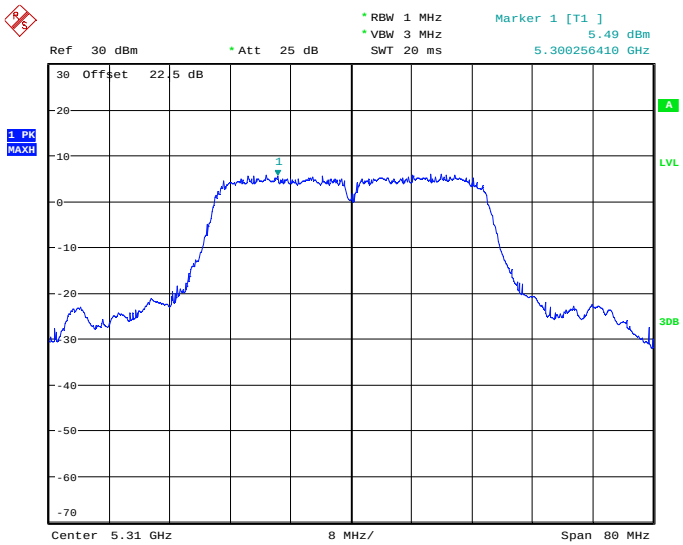


Fig. 197 Peak Excursions (802.11n-HT40, ch64, peak)

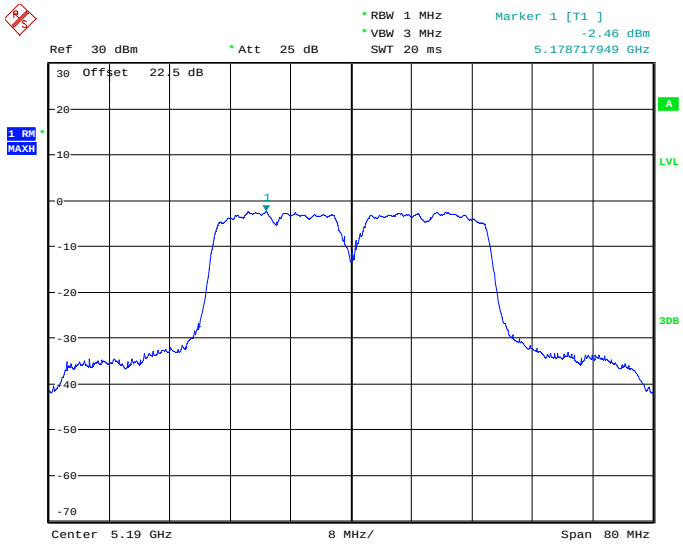


Fig. 198 Peak Excursions (802.11n-HT40, ch36, average)

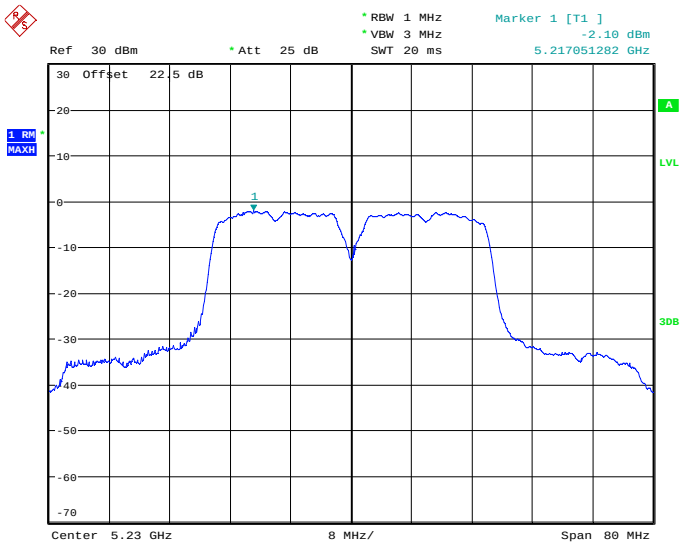


Fig. 199 Peak Excursions (802.11n-HT40, ch48, average)

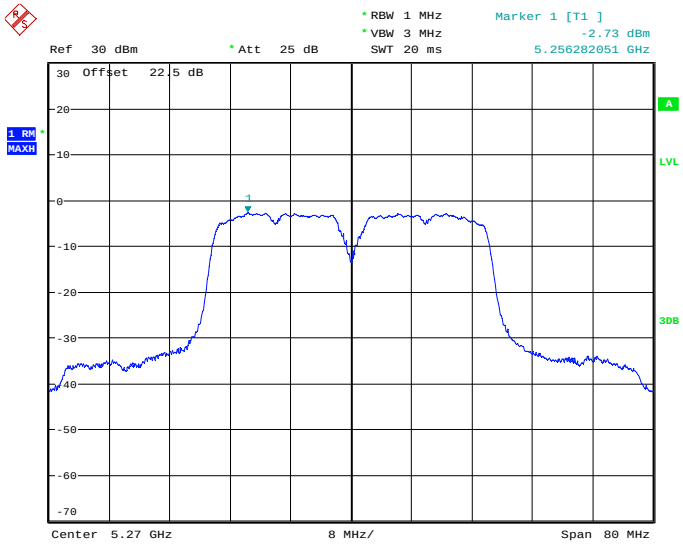


Fig. 200 Peak Excursions (802.11n-HT40, ch52, average)

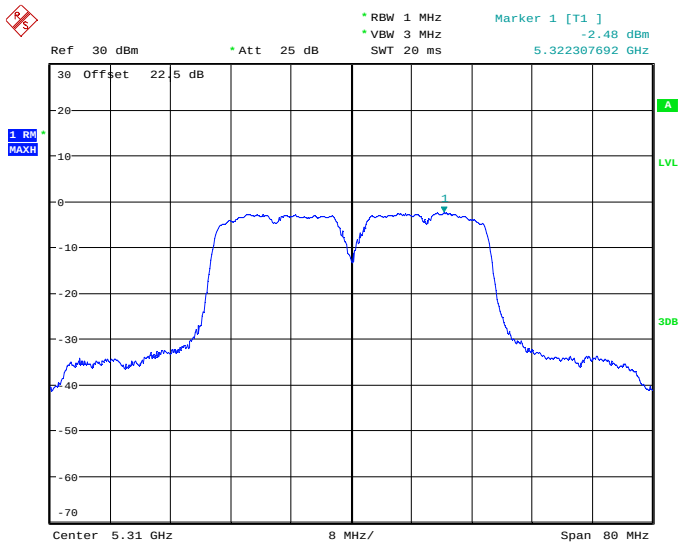


Fig. 201 Peak Excursions (802.11n-HT40, ch64, average)

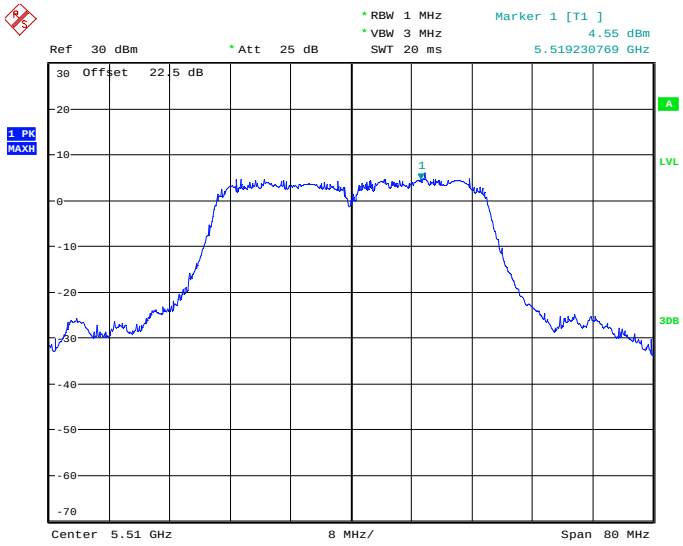


Fig. 202 Peak Excursions (802.11n-HT40, ch100, peak)

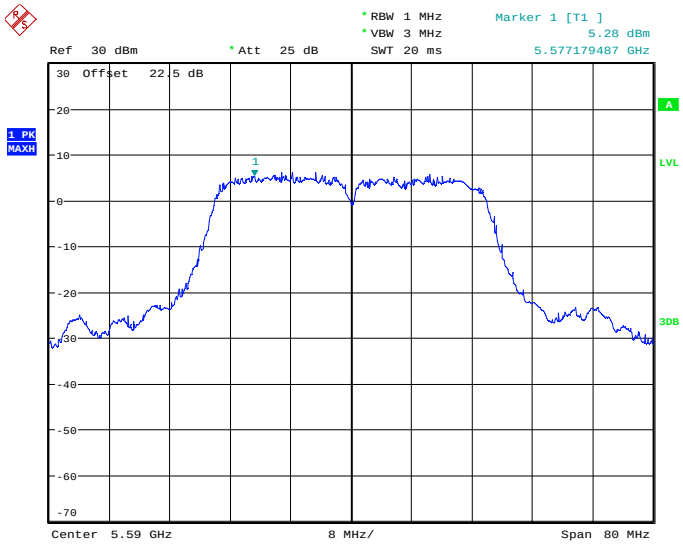


Fig. 203 Peak Excursions (802.11n-HT40, ch120, peak)

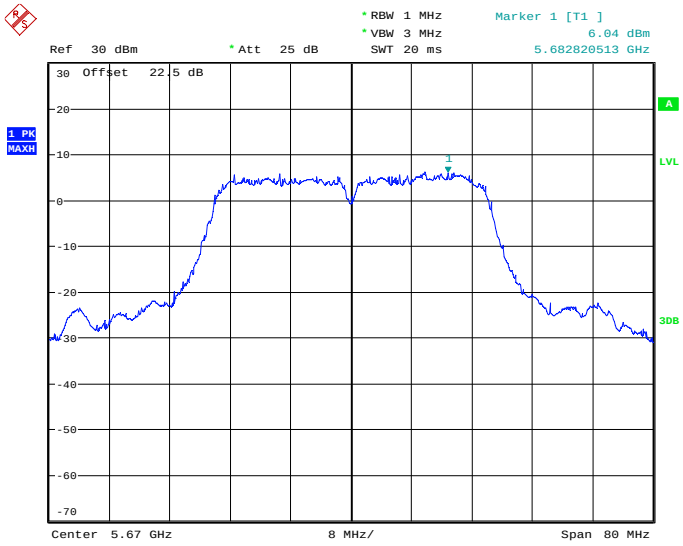


Fig. 204 Peak Excursions (802.11n-HT40, ch140, peak)

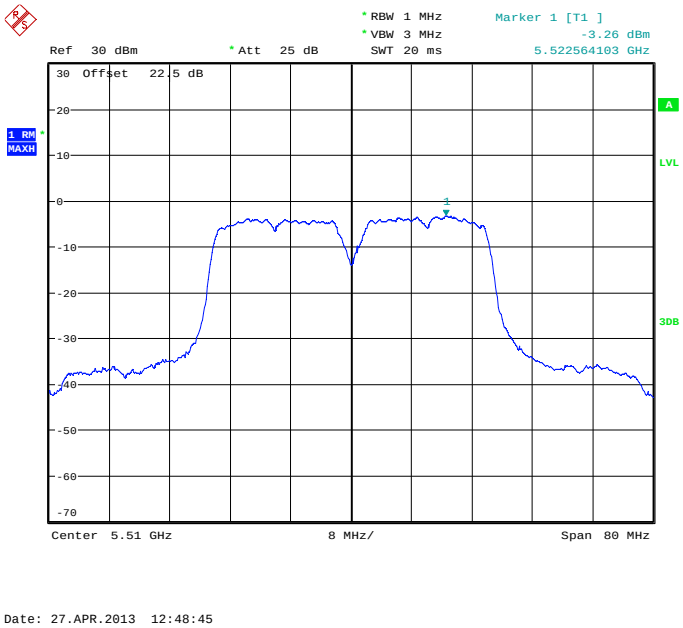


Fig. 205 Peak Excursions (802.11n-HT40, ch100, average)

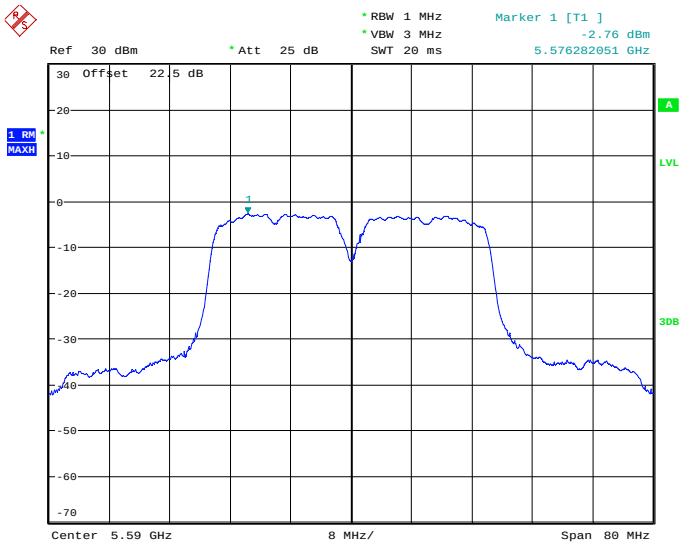


Fig. 206 Peak Excursions (802.11n-HT40, ch120, average)

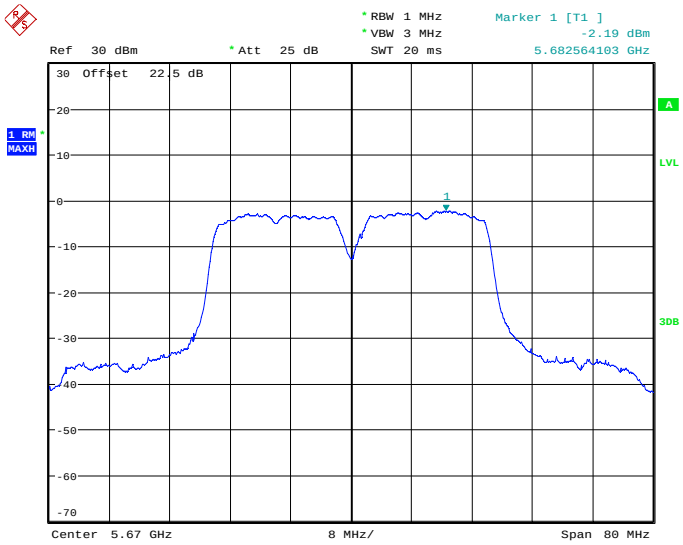


Fig. 207 Peak Excursions (802.11n-HT40, ch140, average)

A.11. Frequency Stability

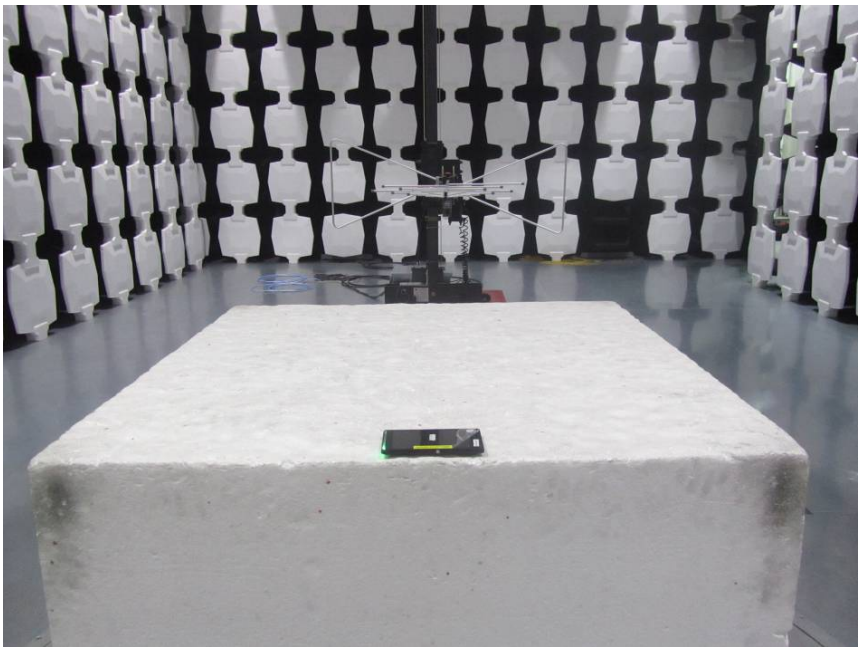
Manufacturers ensured the EUT meet the requirement of frequency stability, such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

A.12. Power control

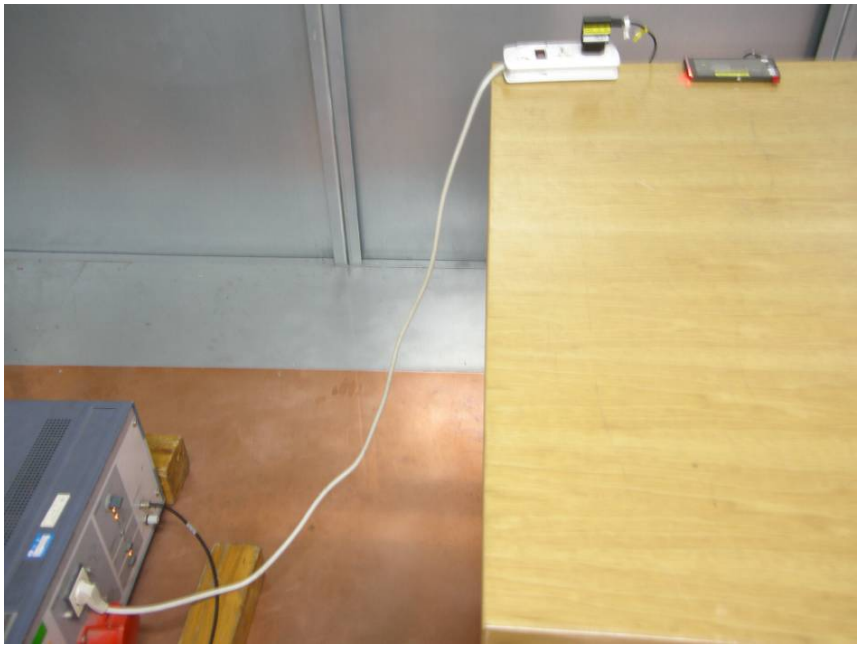
A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

ANNEX B: PHOTOGRAPHS OF THE TEST SET-UP

Layout of Radiated Spurious Emission Test



Layout of AC Powerline Conducted Emission

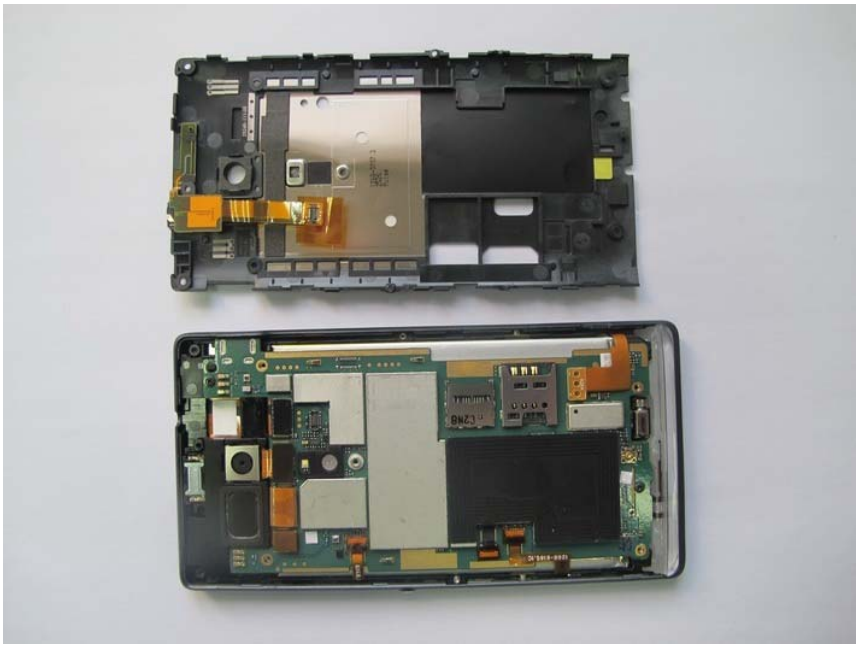


ANNEX C: PHOTOGRAPHS OF THE EUT

EUT Photo

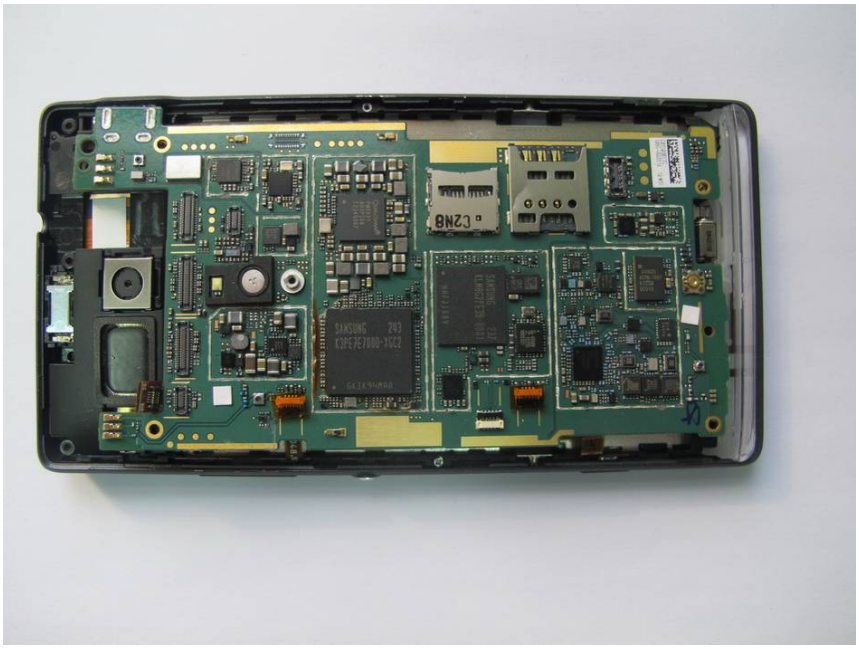
EUT Photo

Label of Mobile Phone



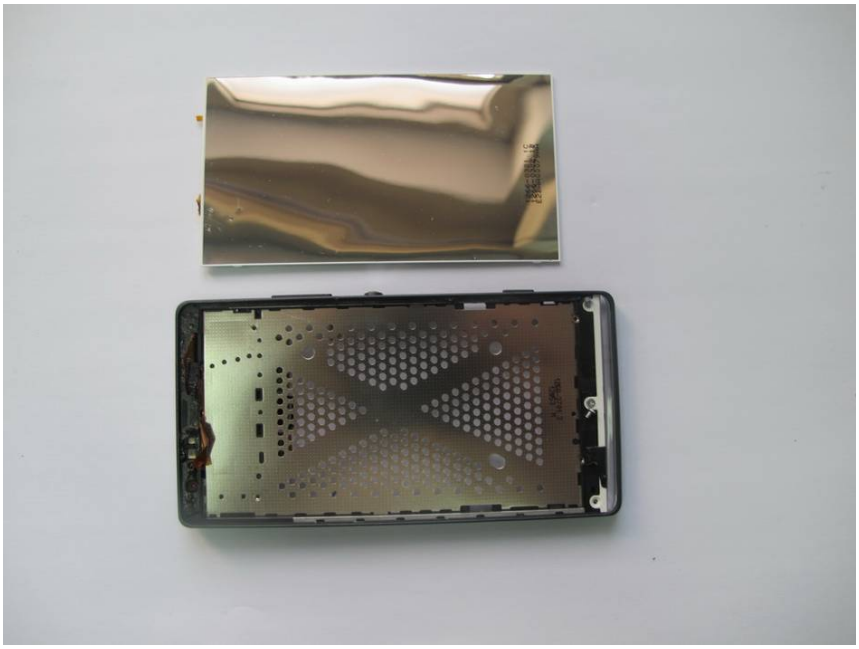
Mobile Phone Disassembly

Mobile Phone Disassembly



Mobile Phone Disassembly

Mobile Phone Disassembly



Mobile Phone Disassembly

Inbuilt Li-Polymer Battery

USB Cable

***** END OF REPORT BODY *****