



**FCC PART 15C
TEST REPORT
No. 2013WLN0821**

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone

mobile phone

Model name: HERO

Marketing Name: ONE TOUCH 8020A

With

FCC ID: RAD398

Hardware Version: PIO

Software Version: vBAM

Issued Date: 2014-01-20



Note: The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

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1. TEST LATORATORY

1.1. Testing Location

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Telephone: +86-10-62304633-2561
Fax: +86-10-62304633-2504

1.2. Project data

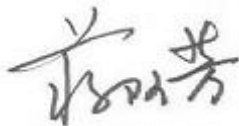
Testing Start Date: 2013-12-18
Testing End Date: 2014-01-20

1.3. Signature



Xu Zhongfei

(Prepared this test report)



Jiang Afang

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory

(Approved this test report)

2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

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Telephone: 0086-21-61460890
Fax: 0086-21-61460602

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	HSUPA/HSDPA/UMTS Triband / GSM quadband mobile phone
Model name	HERO
Marketing name	ONE TOUCH 8020A
FCC ID	RAD398
WLAN Frequency Range	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Number of Channels	a/n-HT20 mode: 5 n-HT40 mode: 2
Antenna	Integral Antenna
MAX Conducted Power	20.00dBm(OFDM)
GPRS Class	Class 12
GPRS operation mode	Class B
Normal Voltage	3.8VDC

3.2. Internal Identification of EUT used during the test

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

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	CAC3380001C2	/

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

3.4. General Description

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

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

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

Samples undergoing test were selected by the Client.

4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

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

4.2. Reference Documents for testing

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

	FCC CFR 47, Part 15, Subpart C:	
	15.205 Restricted bands of operation;	
FCC Part15	15.209 Radiated emission limits, general requirements;	Oct,
	15.247 Operation within the bands 902–928MHz,	2010
	2400–2483.5 MHz, and 5725–5850 MHz.	
	Methods of Measurement of Radio-Noise Emissions from	
ANSI C63.4	Low-Voltage Electrical and Electronic Equipment in the	2009
	Range of 9 kHz to 40 GHz	
	Guidance for Performing Compliance Measurements on	
KDB558074	Digital Transmission Systems (DTS) Operating Under	2012
	§15.247	

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Fully-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (a)	/	P
Peak Power Spectral Density	15.247 (d)	/	P
Occupied 6dB Bandwidth	15.247 (d)	/	P
Band Edges Compliance	15.247 (b)	/	P
Transmitter Spurious Emission - Conducted	15.247	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.209, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P

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

Terms used in Verdict column

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

6.2. Statements

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

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

6.3. Test Conditions

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

Temperature	26°C
Voltage	3.8V (By battery)
Humidity	43%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

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

Radiated emission test system

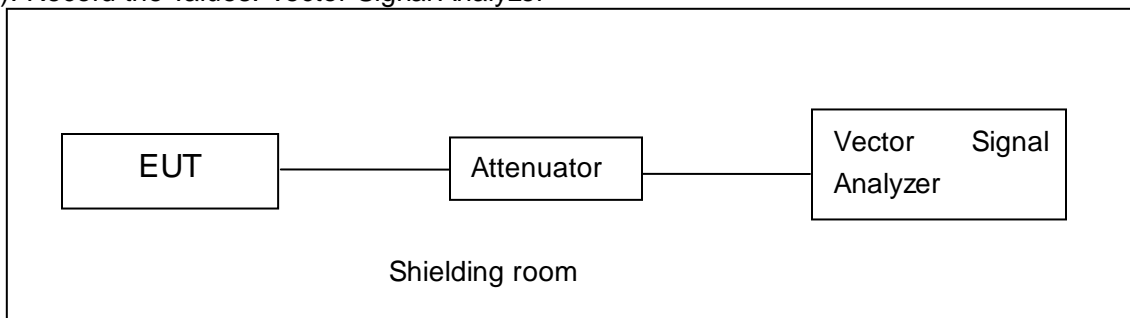
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2014-08-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2014-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2014-12-25
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2014-06-30
5	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

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

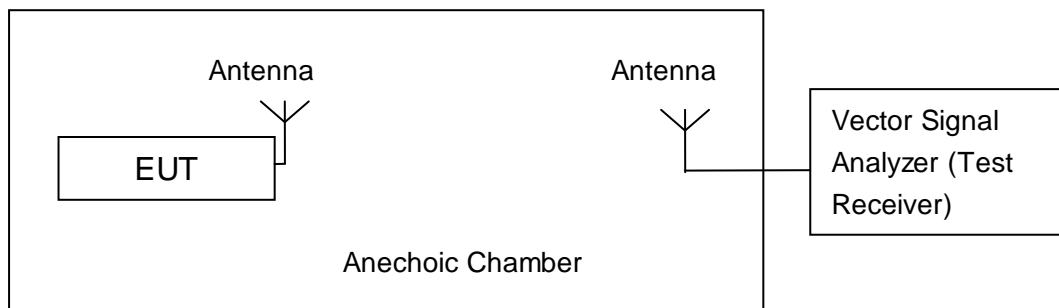


A.1.2. Radiated Emission Measurements

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

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

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



The measurement is made according to ANSI C63.4 and KDB558074

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 Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.247(b)	< 30

The measurement is made according to ANSI C63.4 and KDB558074, and option 1 is used for peak power measurement.

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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A.2.1. Maximum Peak Output Power-conducted

Measurement Results:

802.11a mode

Mode	Data Rate (Mbps)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6	19.29	/	/
	9	19.44	/	/
	12	19.34	/	/
	18	19.45	/	/
	24	20.00	19.55	20.55
	36	19.53	/	/
	48	19.54	/	/
	54	19.72	/	/

The data rate 48Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	MCS0	18.40	/	/
	MCS1	18.22	/	/
	MCS2	18.57	/	/
	MCS3	18.34	/	/
	MCS4	18.40	/	/
	MCS5	18.45	18.03	19.15
	MCS6	18.55	/	/
	MCS7	18.32	/	/

The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	MCS0	18.41	/
	MCS1	18.23	/
	MCS2	18.27	/
	MCS3	18.48	/
	MCS4	19.05	19.24
	MCS5	18.95	/
	MCS6	18.82	/
	MCS7	18.49	/

The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

Conclusion: PASS

A.2.2. Maximum Average Output Power-conducted

802.11a mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	11.26	11.12	11.27

802.11n-HT20 mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	10.28	10.13	10.35

802.11n-HT40 mode

Mode	Test Result (dBm)	
	5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	10.24	10.48

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(d)	< 8 dBm/3 kHz

The measurement is made according to ANSI C63.4 and KDB558074

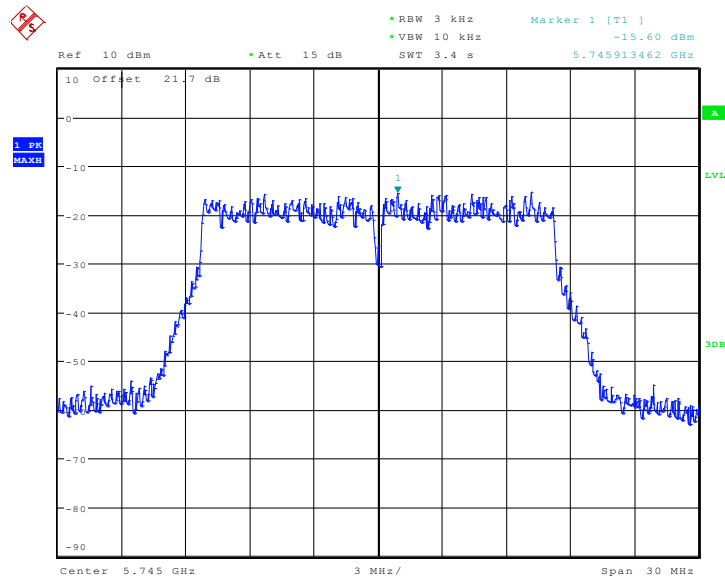
Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

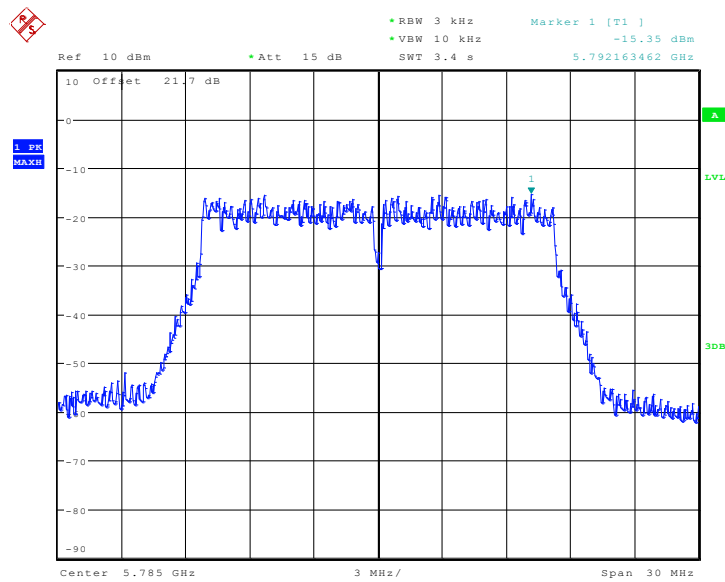
Mode	Channel	Power Spectral Density (dBm/3 kHz)		Conclusion
		Fig.	Value	
802.11a	149	Fig.1	-15.60	P
	157	Fig.2	-15.35	P
	165	Fig.3	-14.96	P
802.11n HT20	149	Fig.4	-18.23	P
	157	Fig.5	-18.70	P
	165	Fig.6	-17.92	P
802.11n HT40	151	Fig.7	-19.08	P
	159	Fig.8	-18.52	P

Conclusion: PASS



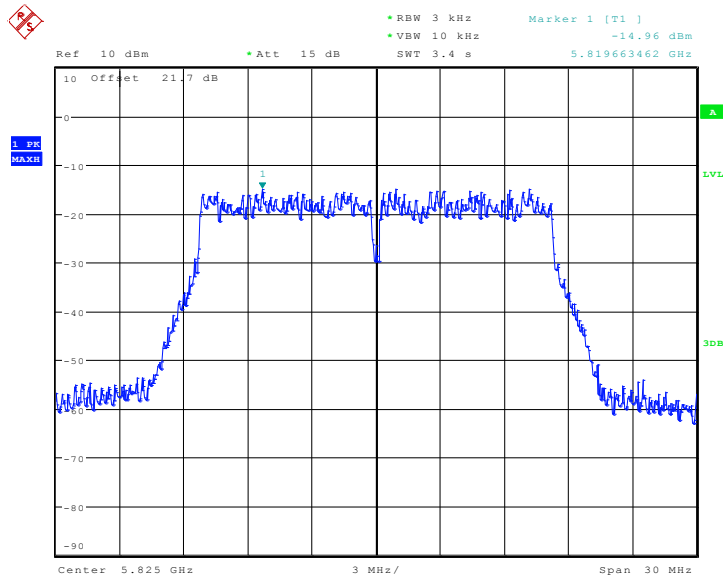
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Fig. 1 Power Spectral Density (802.11a, Ch 149)



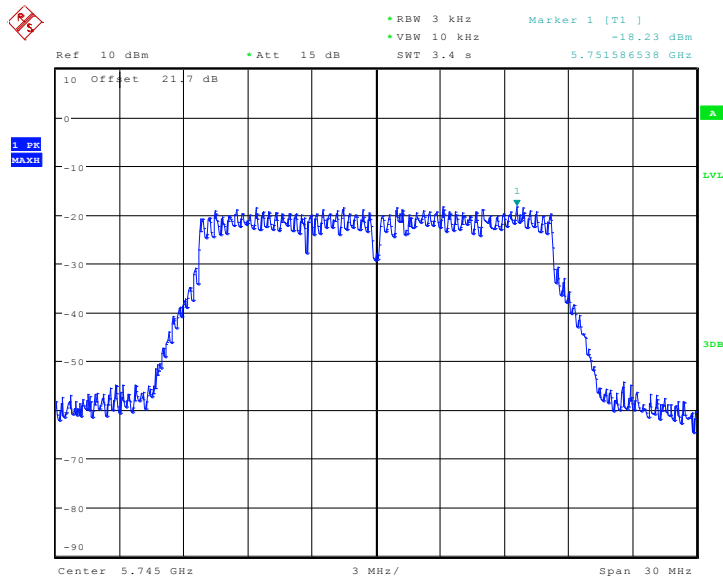
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Fig. 2 Power Spectral Density (802.11a, Ch 157)



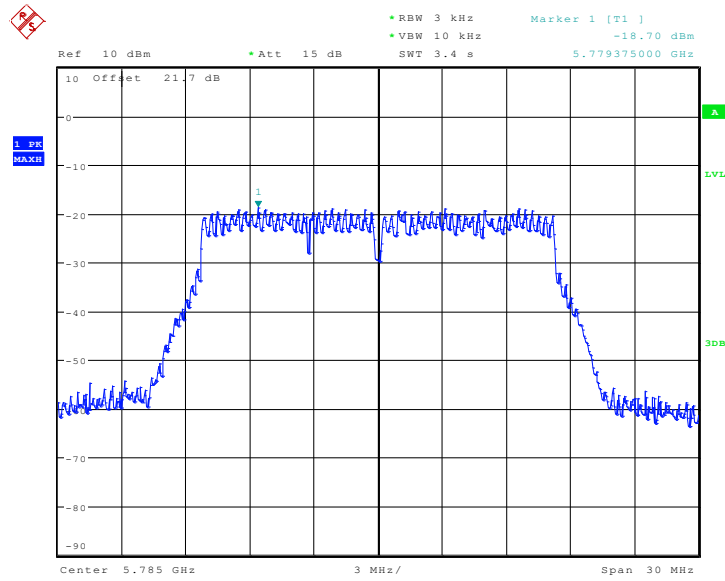
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Fig. 3 Power Spectral Density (802.11a, Ch 165)



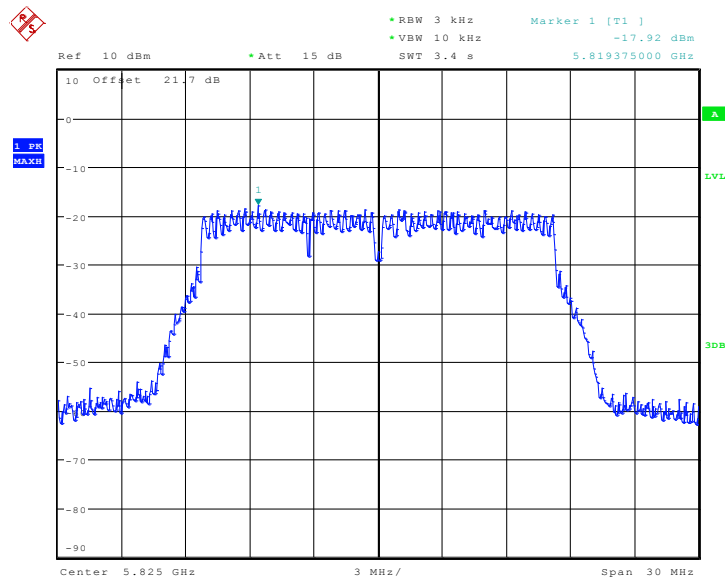
Date: 25.DEC.2013 09:40:33

Fig. 4 Power Spectral Density (802.11n-HT20, Ch 149)



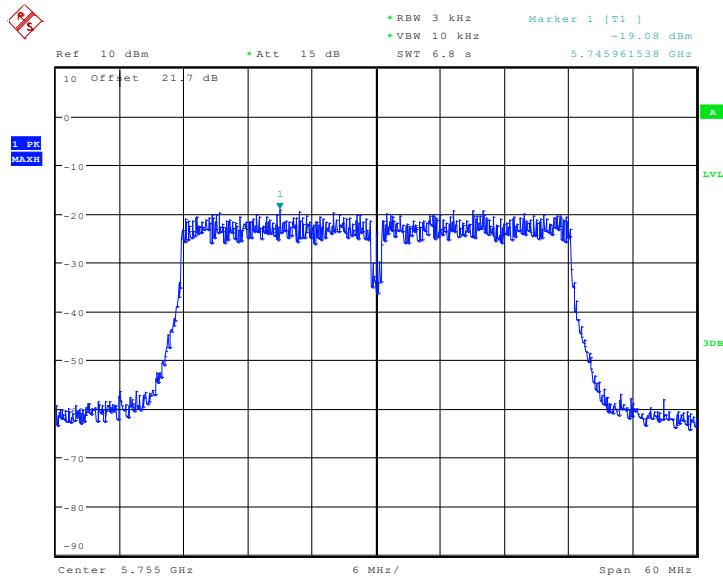
Date: 25.DEC.2013 09:41:07

Fig. 5 Power Spectral Density (802.11n-HT20, Ch 157)



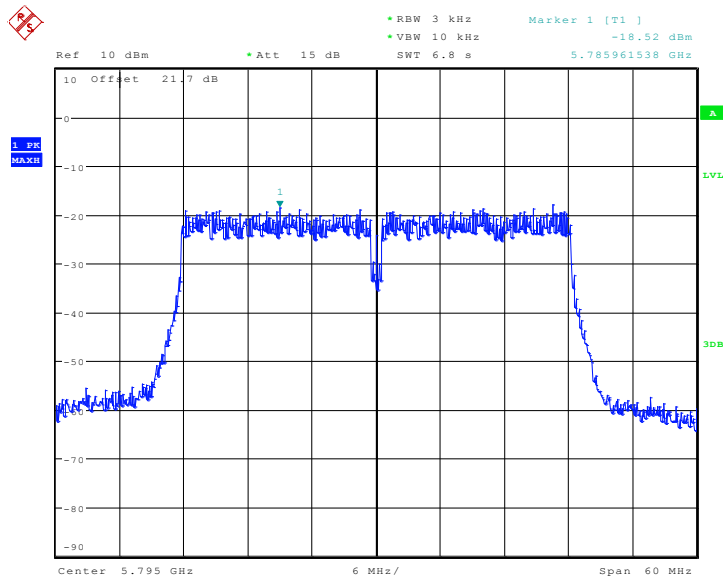
Date: 25.DEC.2013 09:42:21

Fig. 6 Power Spectral Density (802.11n-HT20, Ch 165)



Date: 25.DEC.2013 09:37:57

Fig. 7 Power Spectral Density (802.11n-HT40, Ch 151)



Date: 25.DEC.2013 09:37:20

Fig. 8 Power Spectral Density (802.11n-HT40, Ch 159)

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

The measurement is made according to ANSI C63.4 and KDB558074

Measurement Uncertainty:

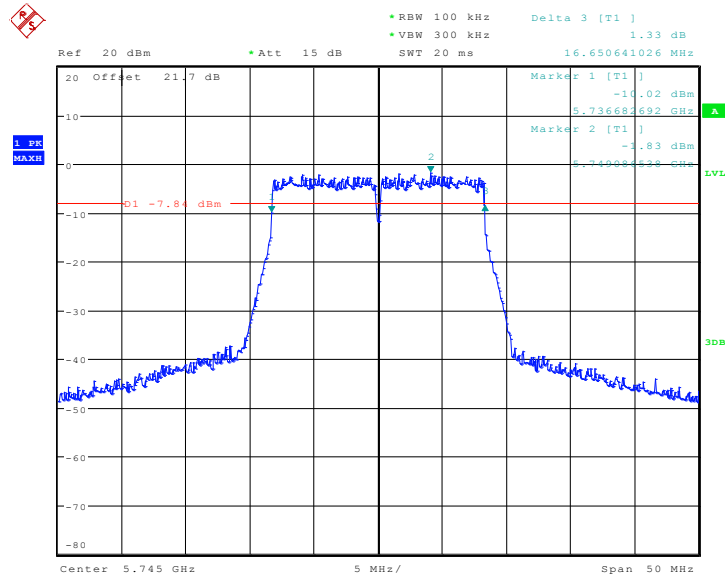
Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
		Fig.	Value	
802.11a	149	Fig.9	16650.64	P
	157	Fig.10	16666.67	P
	165	Fig.11	16666.67	P
802.11n HT20	149	Fig.12	16764.79	P
	157	Fig.13	16764.79	P
	165	Fig.14	16764.79	P
802.11n HT40	151	Fig.15	36858.97	P
	159	Fig.16	36858.97	P

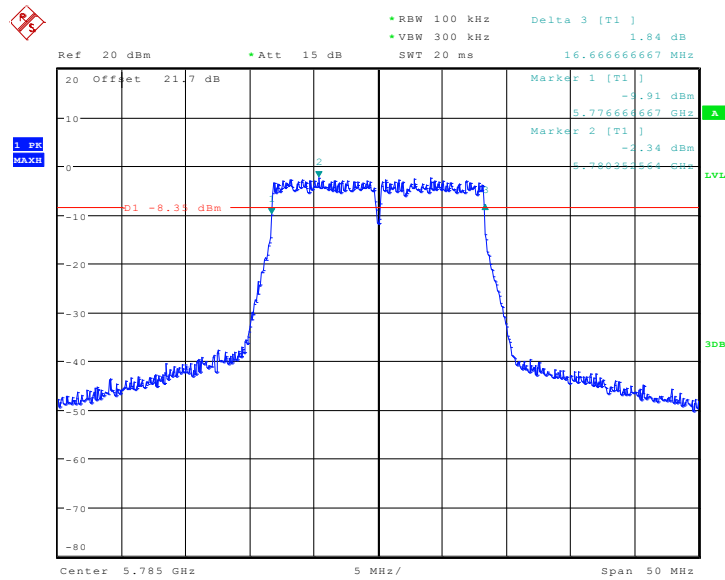
Conclusion: PASS

Test graphs as below:



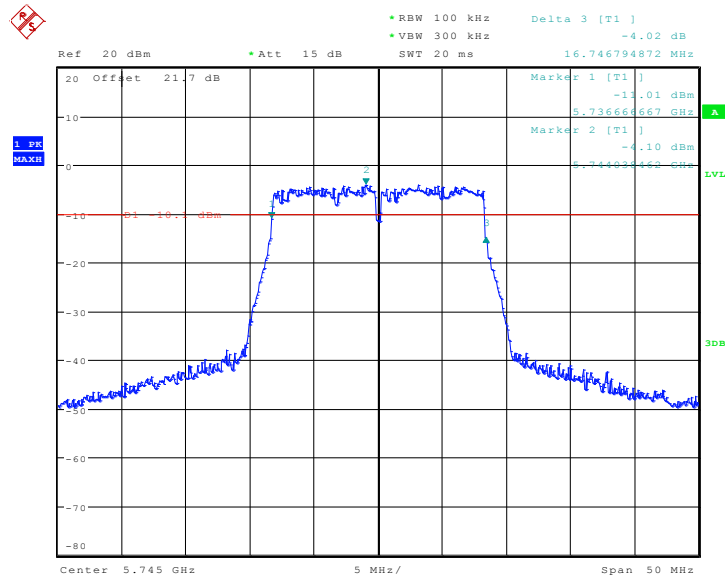
Date: 25.DEC.2013 09:45:29

Fig. 9 Occupied 6dB Bandwidth (802.11a, Ch 149)



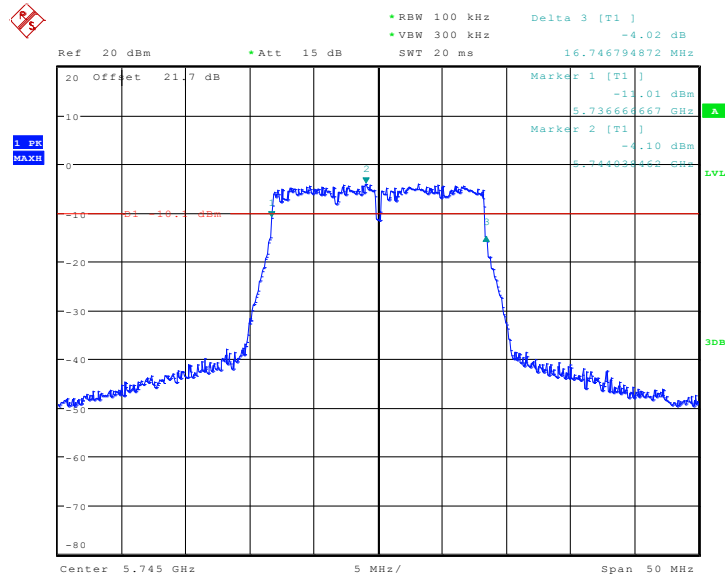
Date: 25.DEC.2013 09:46:19

Fig. 10 Occupied 6dB Bandwidth (802.11a, Ch 157)



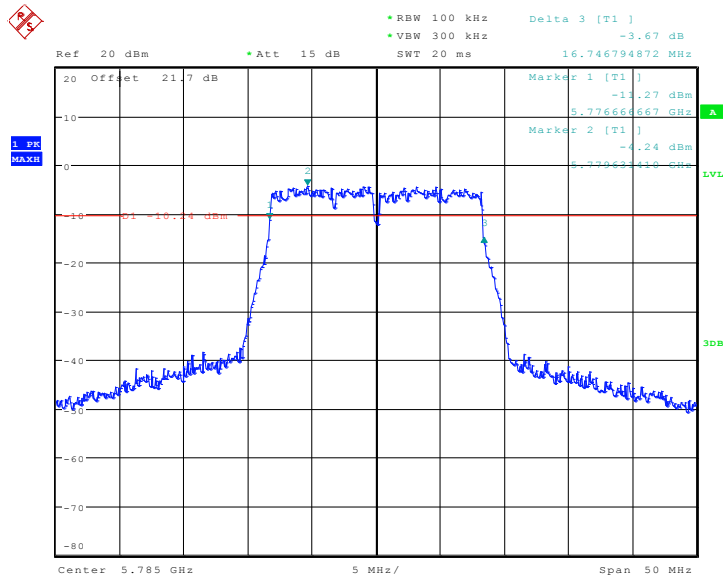
Date: 25.DEC.2013 09:48:31

Fig. 11 Occupied 6dB Bandwidth (802.11a, Ch 165)



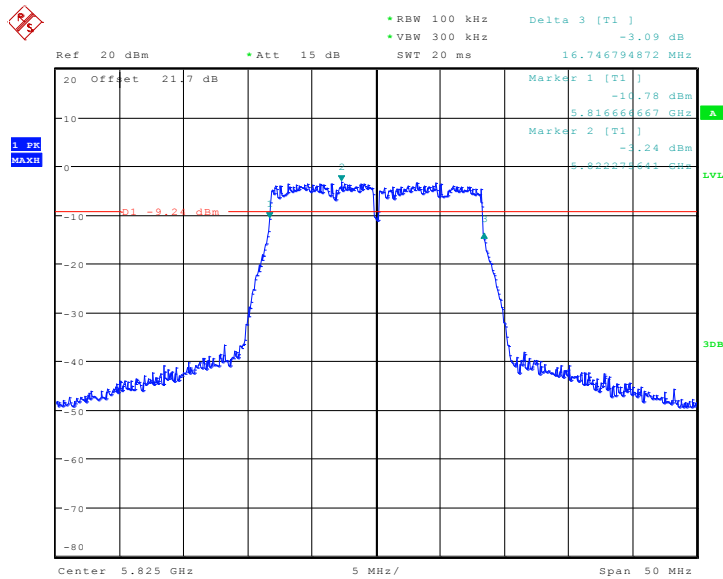
Date: 25.DEC.2013 09:48:31

Fig. 12 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)



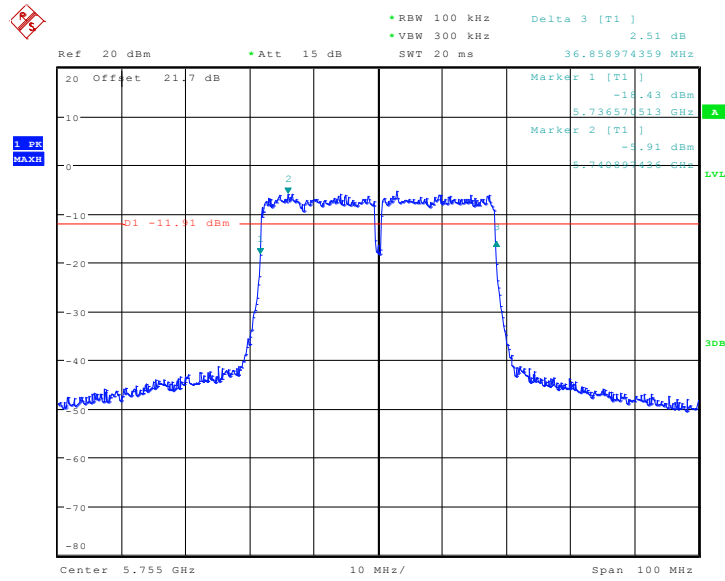
Date: 25.DEC.2013 09:49:27

Fig. 13 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)



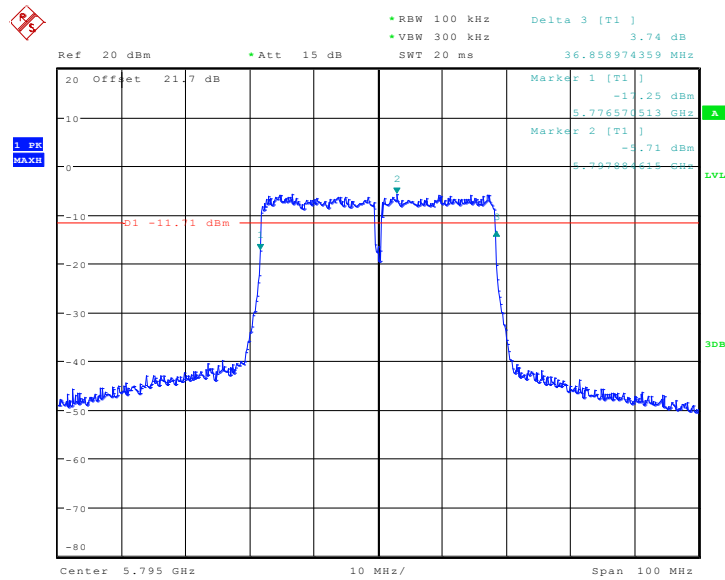
Date: 25.DEC.2013 09:50:42

Fig. 14 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)



Date: 25.DEC.2013 09:52:27

Fig. 15 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)



Date: 25.DEC.2013 09:53:53

Fig. 16 Occupied 6dB Bandwidth (802.11n-HT40, Ch 157)

A.5. Band Edges Compliance

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

The measurement is made according to KDB558074.

Measurement Result:

802.11a mode

Mode	Channel	Test Results	Conclusion
802.11a	149	Fig.17	P
	165	Fig.18	P

802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n (HT20)	149	Fig.19	P
	165	Fig.20	P

802.11n-HT40 mode

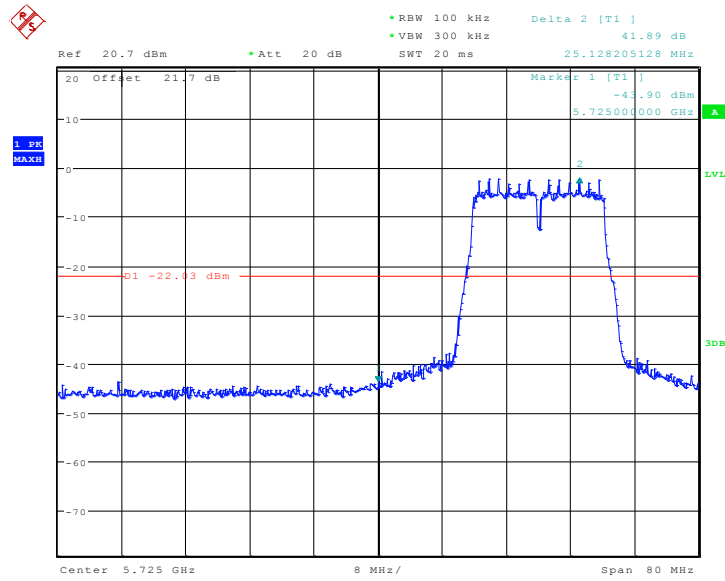
Mode	Channel	Test Results	Conclusion
802.11n (HT40)	151	Fig.21	P
	159	Fig.22	P

Conclusion: Pass

Measurement Uncertainty:

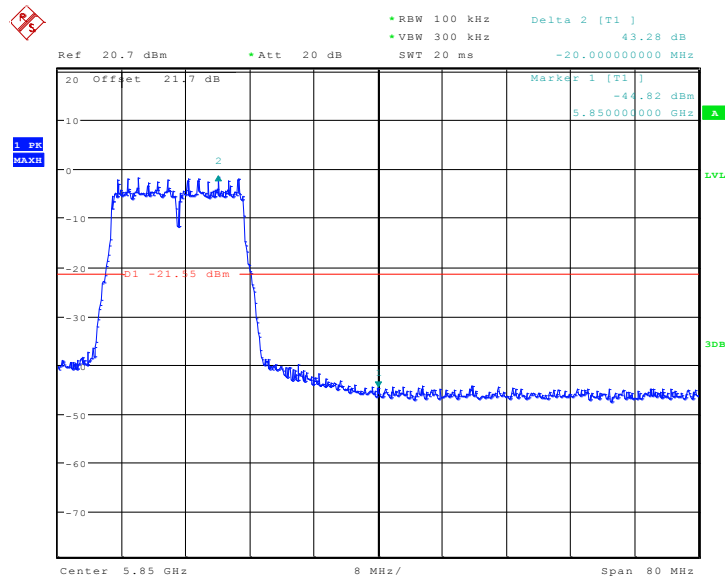
Measurement Uncertainty	0.75dB
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Test graphs as below:



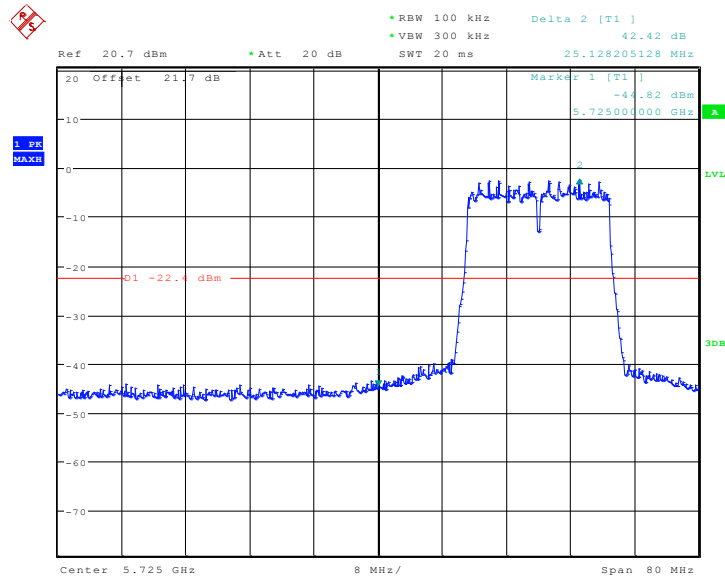
Date: 14.JAN.2014 10:45:30

Fig. 17 Band Edges (802.11a, Ch 149)



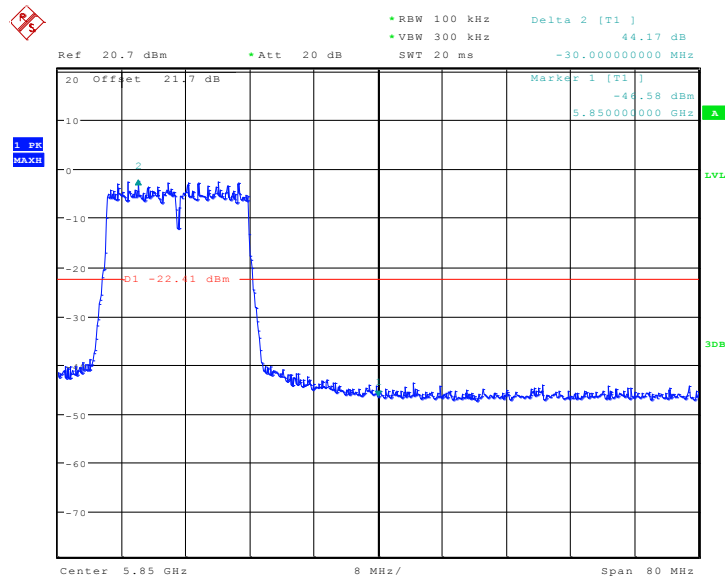
Date: 14.JAN.2014 10:47:26

Fig. 18 Band Edges (802.11a, Ch 165)



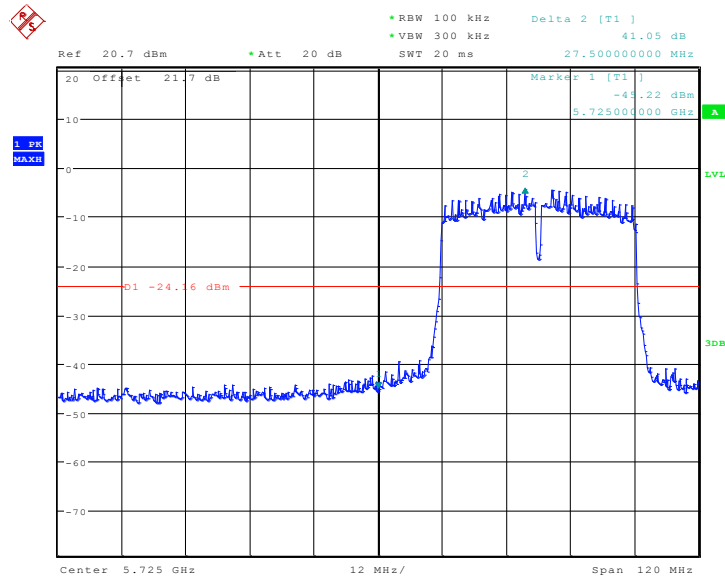
Date: 14.JAN.2014 10:48:22

Fig. 19 Band Edges (802.11n-HT20, Ch 149)



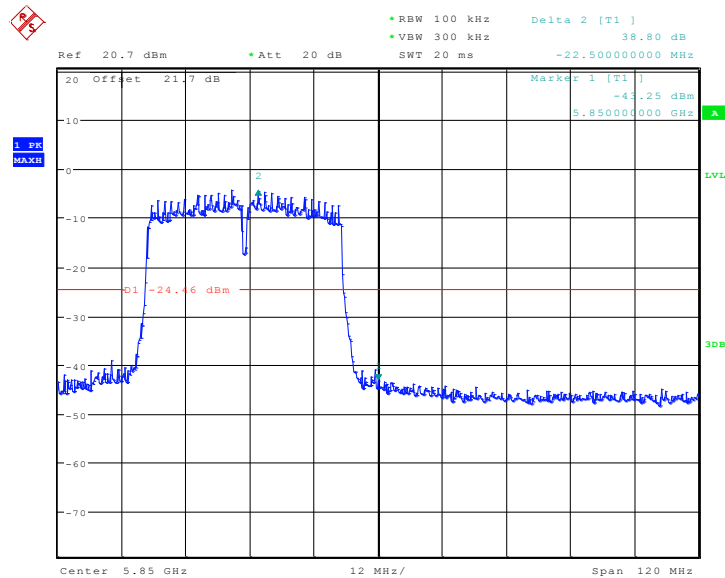
Date: 14.JAN.2014 10:49:02

Fig. 20 Band Edges (802.11n-HT20, Ch 165)



Date: 14.JAN.2014 10:50:07

Fig. 21 Band Edges (802.11n-HT40, Ch 151)



Date: 14.JAN.2014 10:50:35

Fig. 22 Band Edges (802.11n- HT40, Ch 159)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

The measurement is made according to ANSI C63.4 and KDB558074

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)).

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

Measurement Uncertainty:

Frequency Range	Uncertainty
30MHz ≤ f ≤ 2GHz	0.63
2GHz ≤ f ≤ 3.6GHz	0.82
3.6GHz ≤ f ≤ 8GHz	1.55
8GHz ≤ f ≤ 20GHz	1.86
20GHz ≤ f ≤ 22GHz	1.90
22GHz ≤ f ≤ 26GHz	2.20

A.6.1 Transmitter Spurious Emission - Conducted

Measurement Results:

802.11a mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	5.745 GHz	Fig.23	P
		30 MHz ~ 12 GHz	Fig.24	P
		12 GHz ~ 25 GHz	Fig.25	P
		25 GHz ~ 40 GHz	Fig.26	P
	157	5.785 GHz	Fig.27	P
		30 MHz ~ 12 GHz	Fig.28	P
		12 GHz ~ 25 GHz	Fig.29	P
		25 GHz ~ 40 GHz	Fig.30	P
	165	5.825 GHz	Fig.31	P
		30 MHz ~ 12 GHz	Fig.32	P
		12 GHz ~ 25 GHz	Fig.33	P
		25 GHz ~ 40 GHz	Fig.34	P

802.11n-HT20 mode

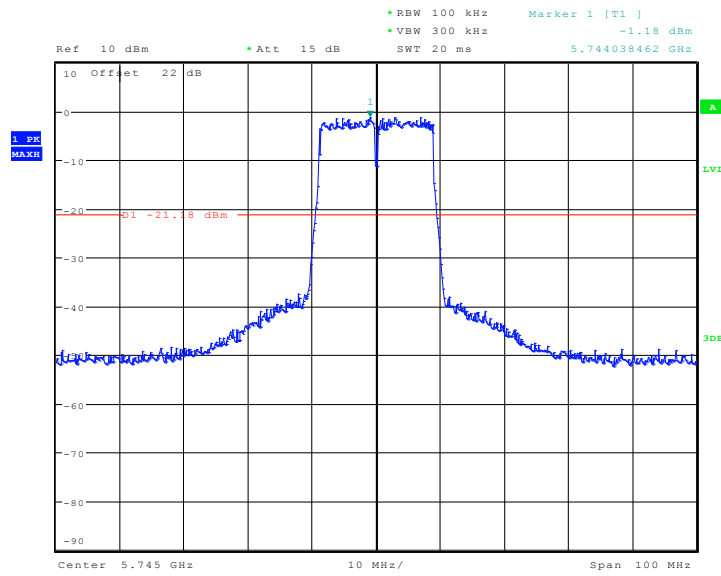
MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	149	5.745 GHz	Fig.35	P
		30 MHz ~ 12 GHz	Fig.36	P
		12 GHz ~ 25 GHz	Fig.37	P
		25 GHz ~ 40 GHz	Fig.38	P
	157	5.785 GHz	Fig.39	P
		30 MHz ~ 12 GHz	Fig.40	P
		12 GHz ~ 25 GHz	Fig.41	P
		25 GHz ~ 40 GHz	Fig.42	P
	165	5.825 GHz	Fig.43	P
		30 MHz ~ 12 GHz	Fig.44	P
		12 GHz ~ 25 GHz	Fig.45	P
		25 GHz ~ 40 GHz	Fig.46	P

802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n (40MHz)	151	5.755 GHz	Fig.47	P
		30 MHz ~ 12 GHz	Fig.48	P
		12 GHz ~ 25 GHz	Fig.49	P
		25 GHz ~ 40 GHz	Fig.50	P
	159	5.795 GHz	Fig.51	P
		30 MHz ~ 12 GHz	Fig.52	P
		12 GHz ~ 25 GHz	Fig.53	P
		25 GHz ~ 40 GHz	Fig.54	P

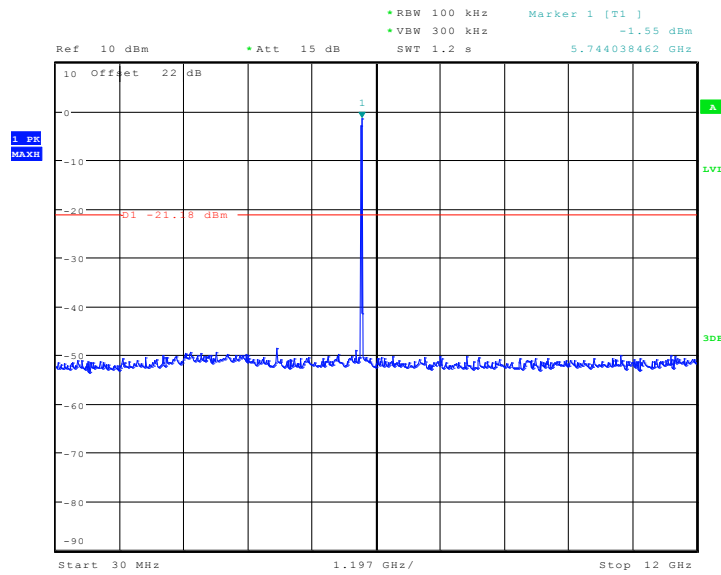
Conclusion: PASS

Test graphs as below:



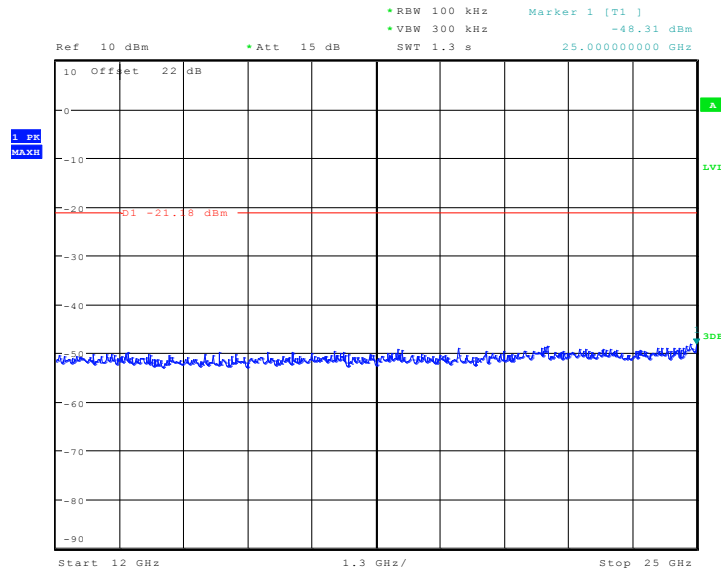
Date: 25.DEC.2013 14:57:31

Fig. 23 Conducted Spurious Emission (802.11a, Ch149, Center Frequency)



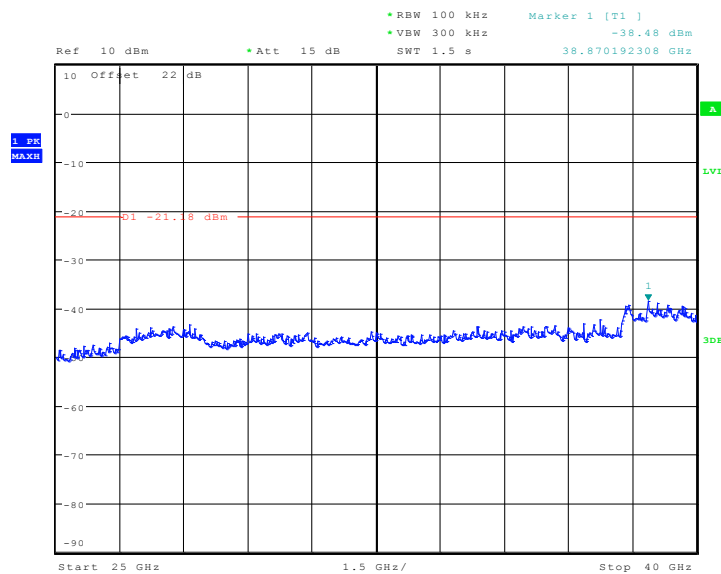
Date: 25.DEC.2013 14:58:02

Fig. 24 Conducted Spurious Emission (802.11a, Ch149, 30 MHz-12 GHz)



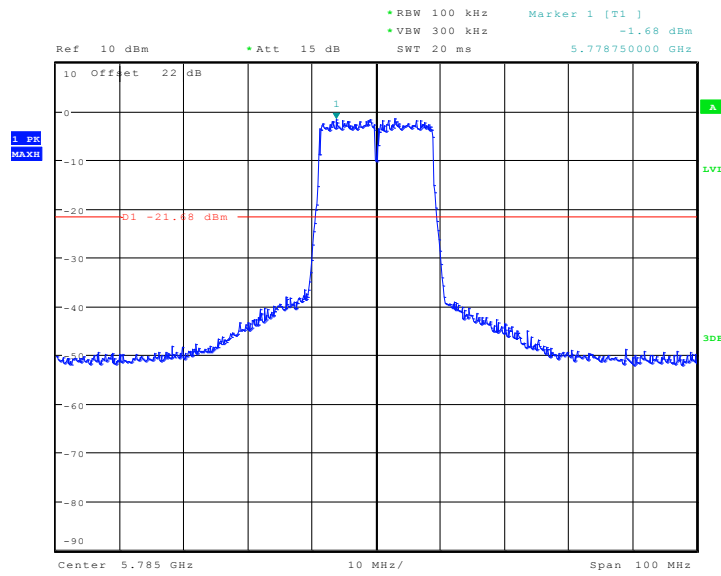
Date: 25.DEC.2013 14:58:28

Fig. 25 Conducted Spurious Emission (802.11a, Ch149, 12 GHz-25 GHz)



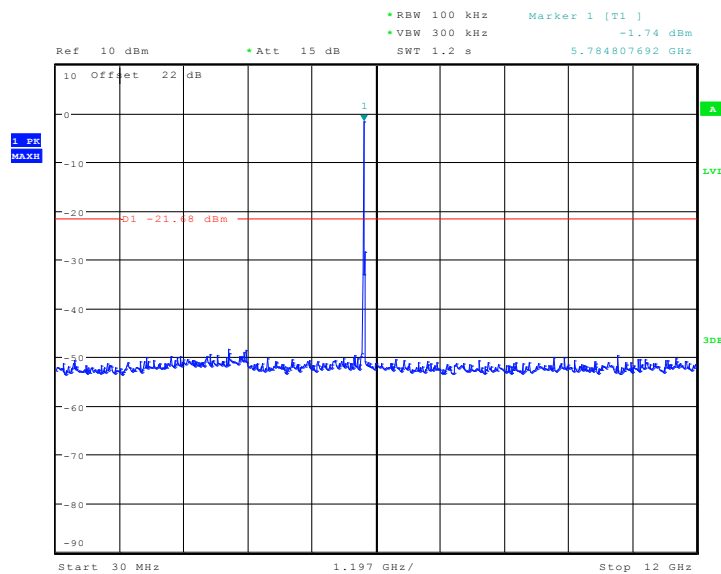
Date: 25.DEC.2013 14:58:47

Fig. 26 Conducted Spurious Emission (802.11a, Ch149, 25 GHz-40 GHz)



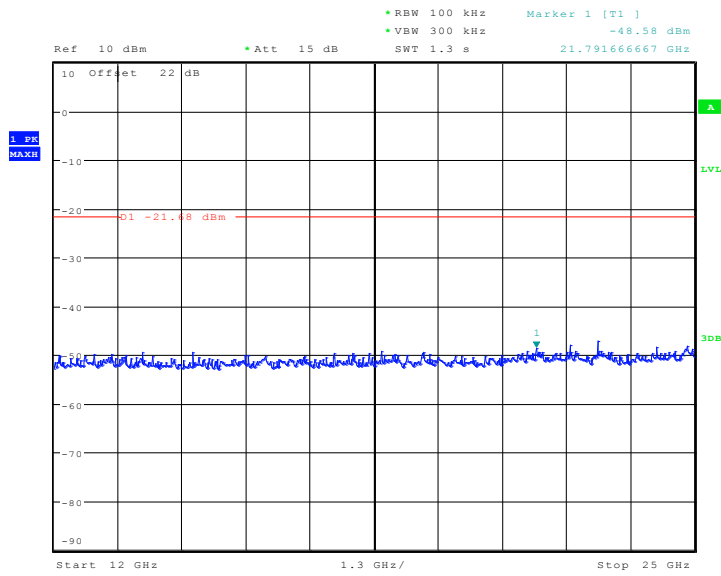
Date: 25.DEC.2013 14:59:43

Fig. 27 Conducted Spurious Emission (802.11a, Ch157, Center Frequency)



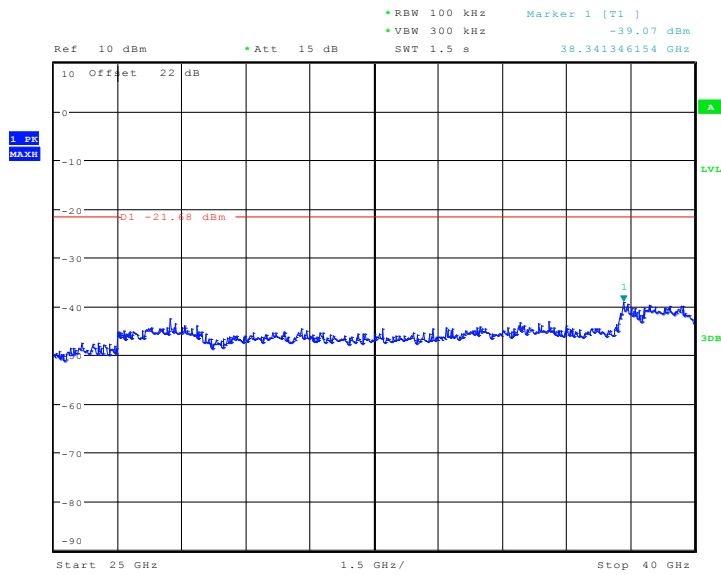
Date: 25.DEC.2013 15:00:01

Fig. 28 Conducted Spurious Emission (802.11a, Ch157, 30 MHz-12 GHz)



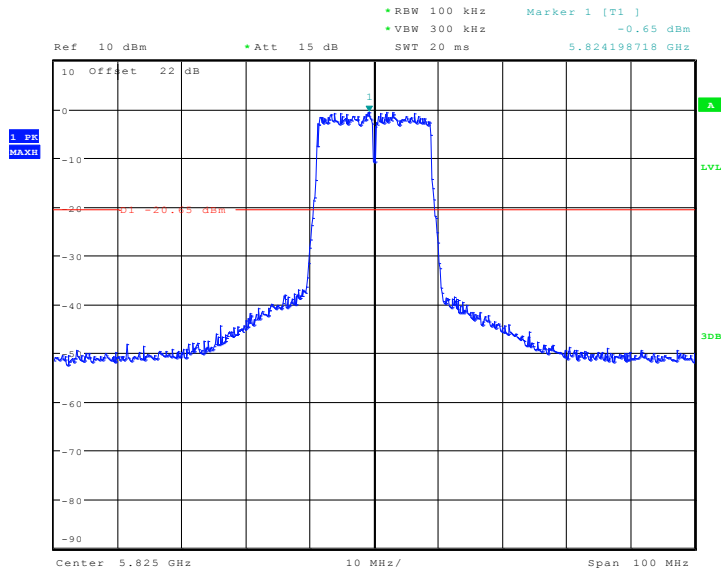
Date: 25.DEC.2013 15:00:17

Fig. 29 Conducted Spurious Emission (802.11a, Ch157, 12 GHz-25 GHz)



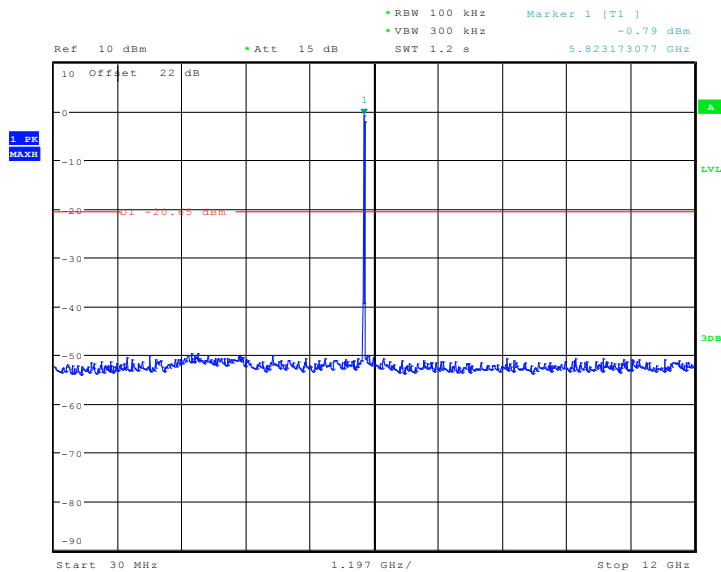
Date: 25.DEC.2013 15:00:32

Fig. 30 Conducted Spurious Emission (802.11a, Ch157, 25 GHz-40 GHz)



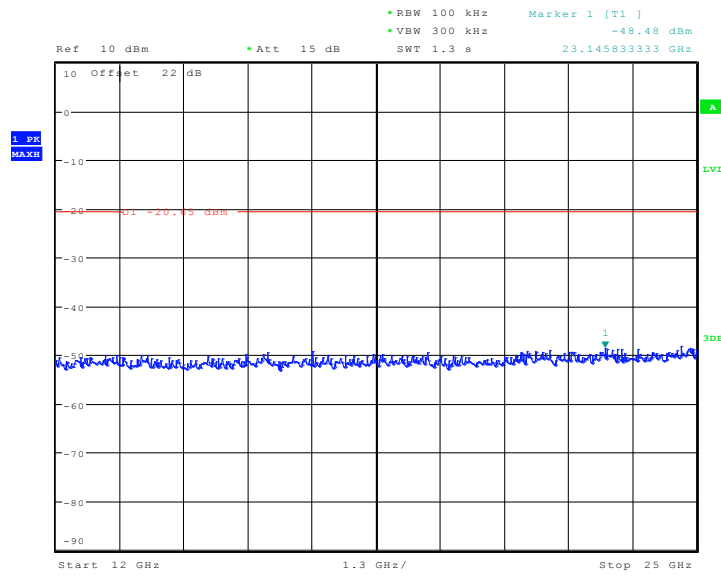
Date: 25.DEC.2013 15:01:10

Fig. 31 Conducted Spurious Emission (802.11a, Ch165, Center Frequency)



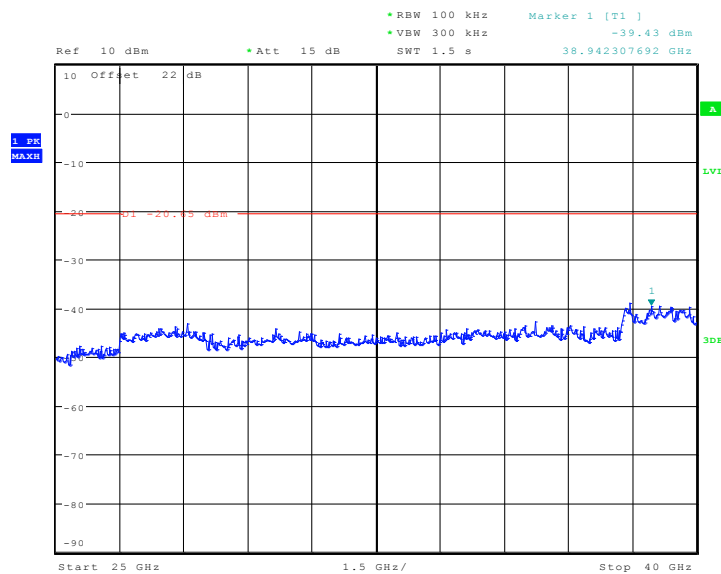
Date: 25.DEC.2013 15:01:24

Fig. 32 Conducted Spurious Emission (802.11a, Ch165, 30 MHz-12 GHz)



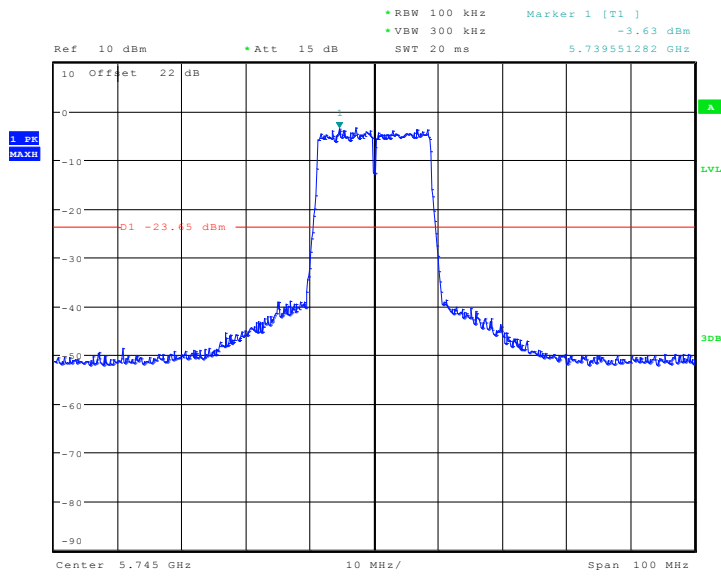
Date: 25.DEC.2013 15:01:38

Fig. 33 Conducted Spurious Emission (802.11a, Ch165, 12 GHz-25 GHz)



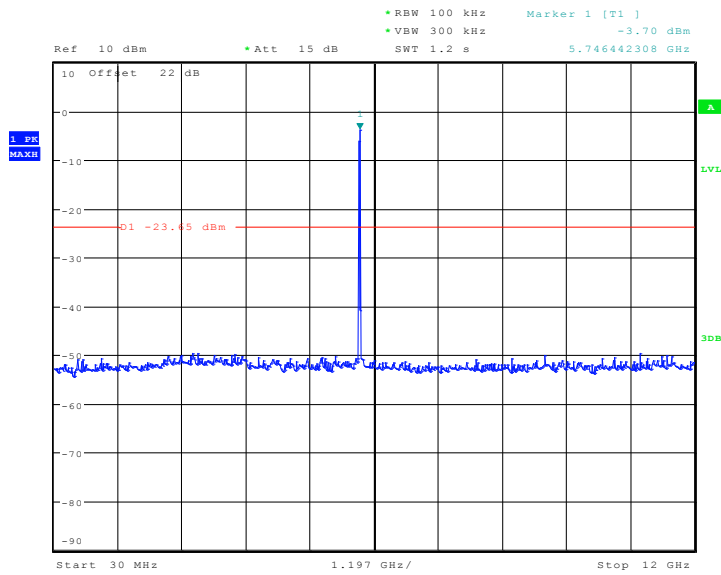
Date: 25.DEC.2013 15:01:53

Fig. 34 Conducted Spurious Emission (802.11a, Ch165, 25 GHz-40 GHz)



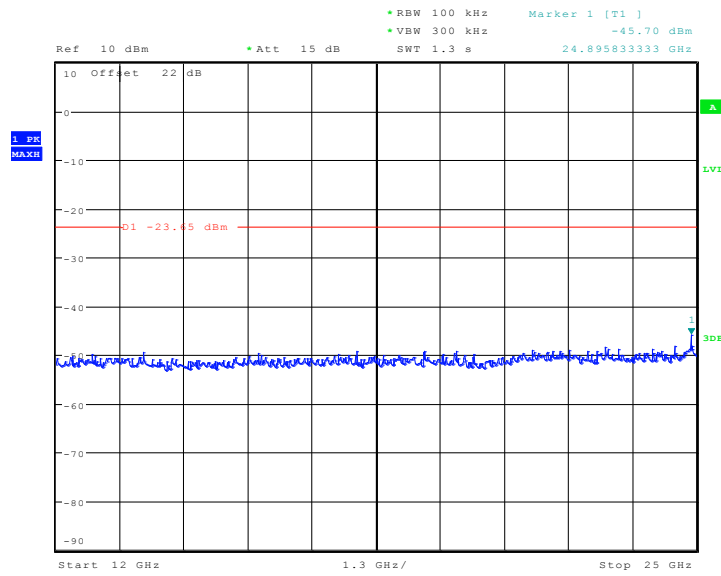
Date: 25.DEC.2013 14:52:52

Fig. 35 Conducted Spurious Emission (802.11n-HT20, Ch149, Center Frequency)



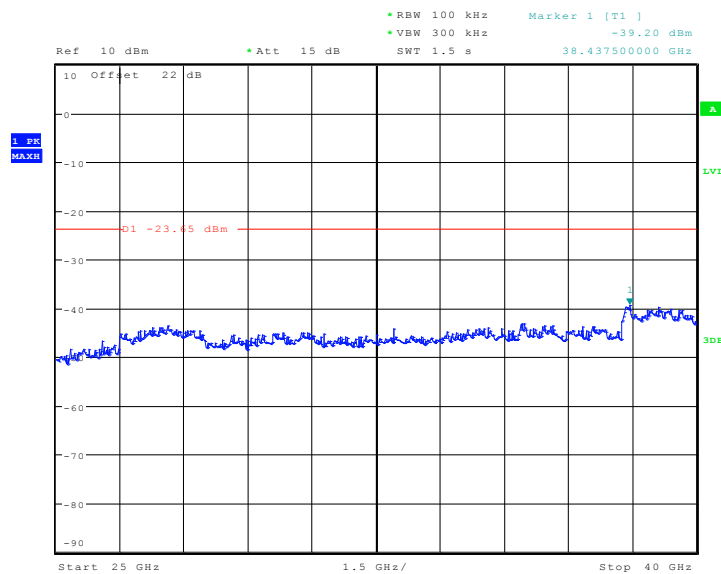
Date: 25.DEC.2013 14:53:06

Fig. 36 Conducted Spurious Emission (802.11n-HT20, Ch149, 30 MHz-12 GHz)



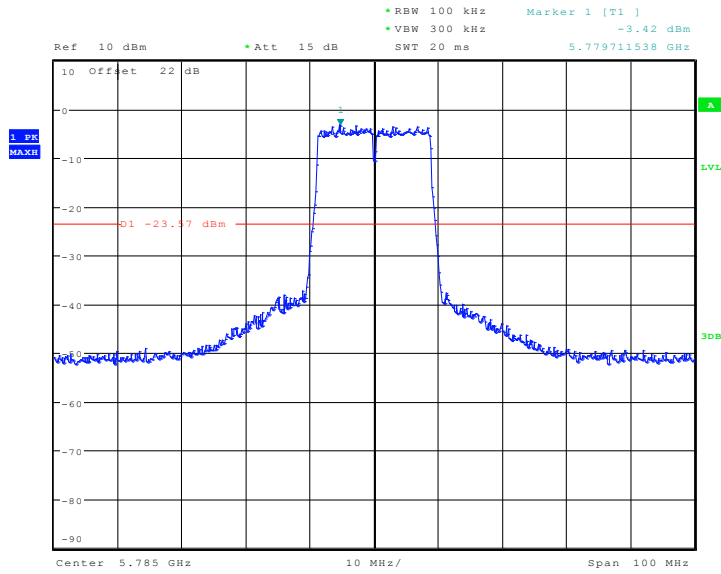
Date: 25.DEC.2013 14:53:23

Fig. 37 Conducted Spurious Emission (802.11n-HT20, Ch149, 12 GHz-25 GHz)



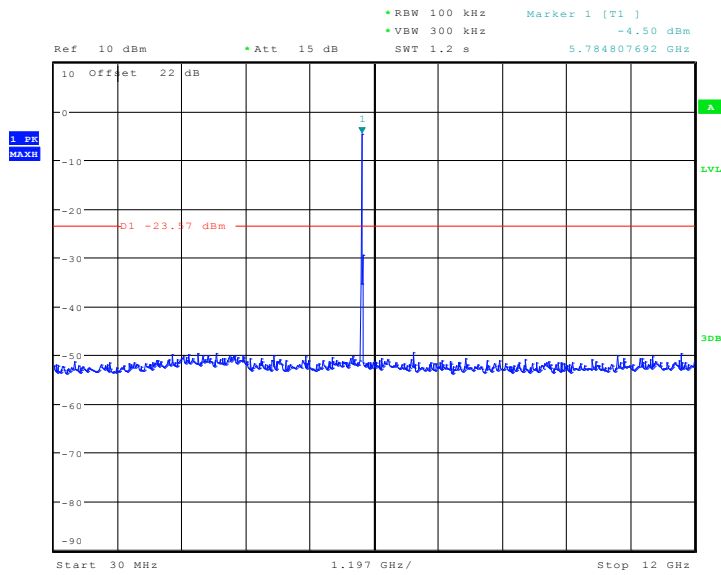
Date: 25.DEC.2013 14:53:38

Fig. 38 Conducted Spurious Emission (802.11n-HT20, Ch149, 25 GHz-40 GHz)



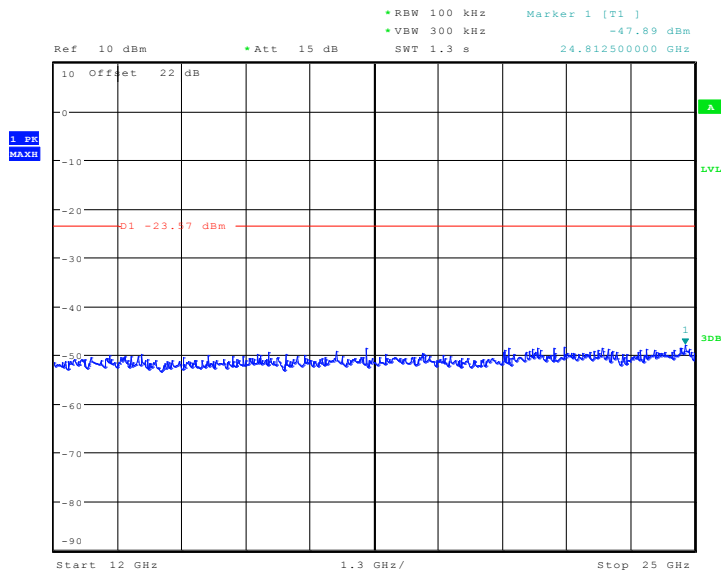
Date: 25.DEC.2013 14:54:17

Fig. 39 Conducted Spurious Emission (802.11n-HT20, Ch157, Center Frequency)



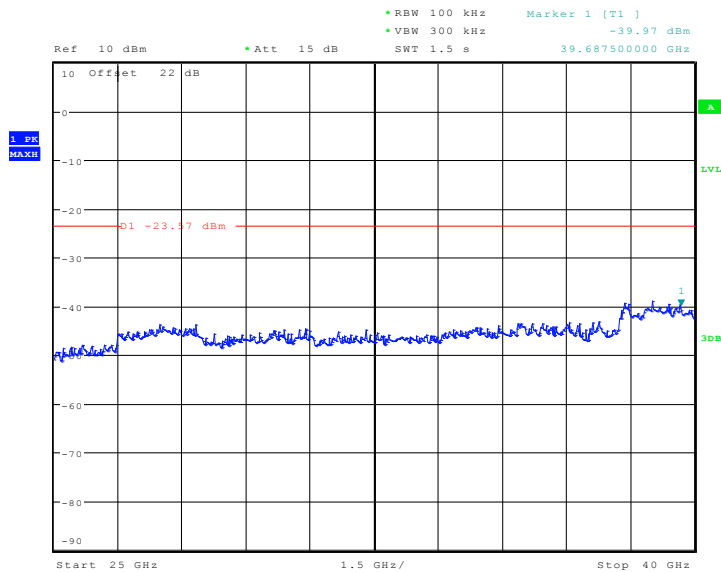
Date: 25.DEC.2013 14:54:31

Fig. 40 Conducted Spurious Emission (802.11n-HT20, Ch157, 30 MHz-12 GHz)



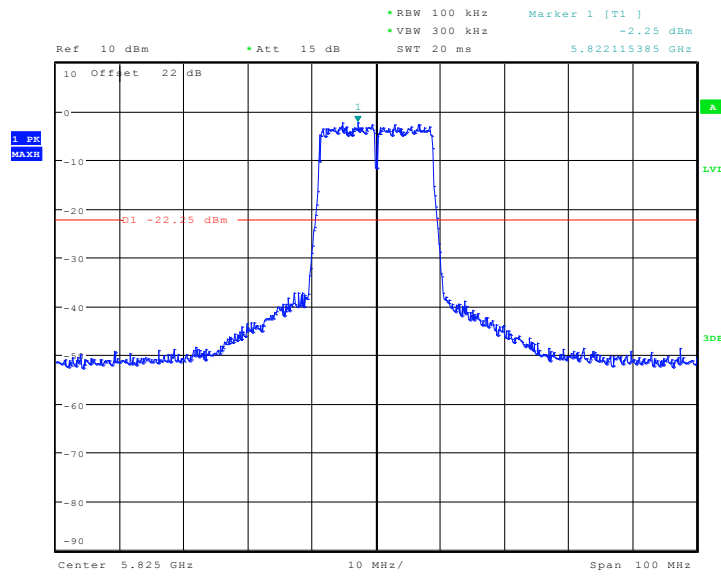
Date: 25.DEC.2013 14:54:46

Fig. 41 Conducted Spurious Emission (802.11n-HT20, Ch157, 12 GHz-25 GHz)



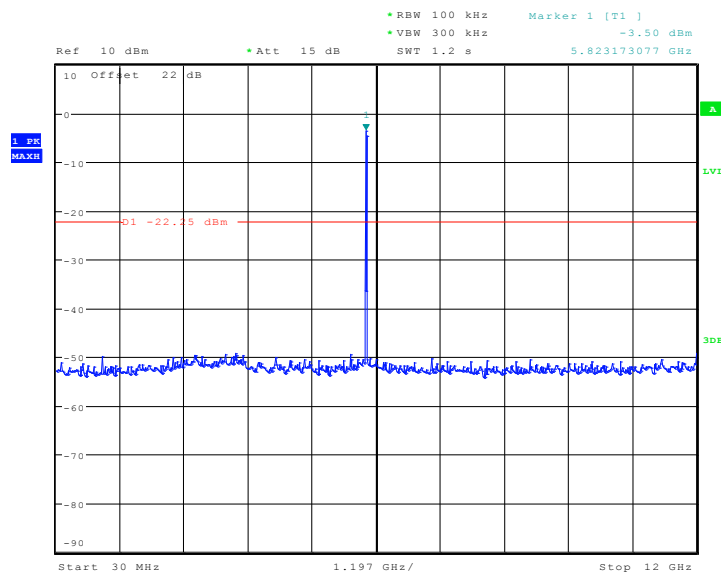
Date: 25.DEC.2013 14:55:01

Fig. 42 Conducted Spurious Emission (802.11n-HT20, Ch157, 25 GHz-40 GHz)



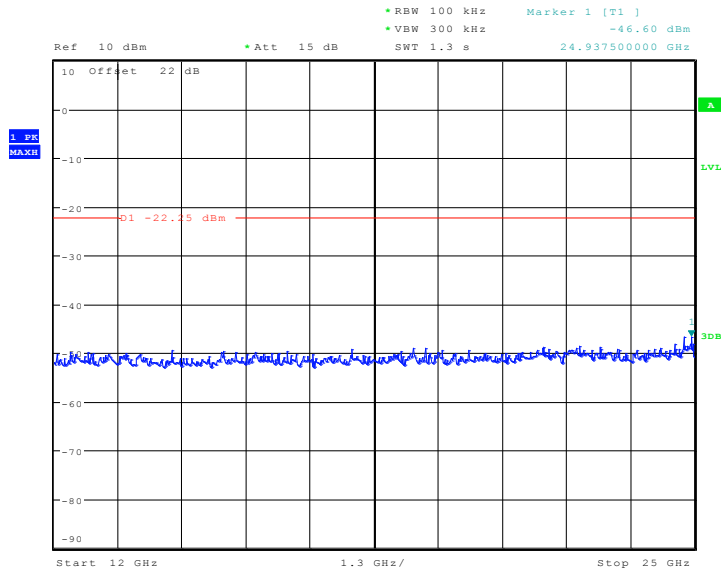
Date: 25.DEC.2013 14:55:35

Fig. 43 Conducted Spurious Emission (802.11n-HT20, Ch165, Center Frequency)



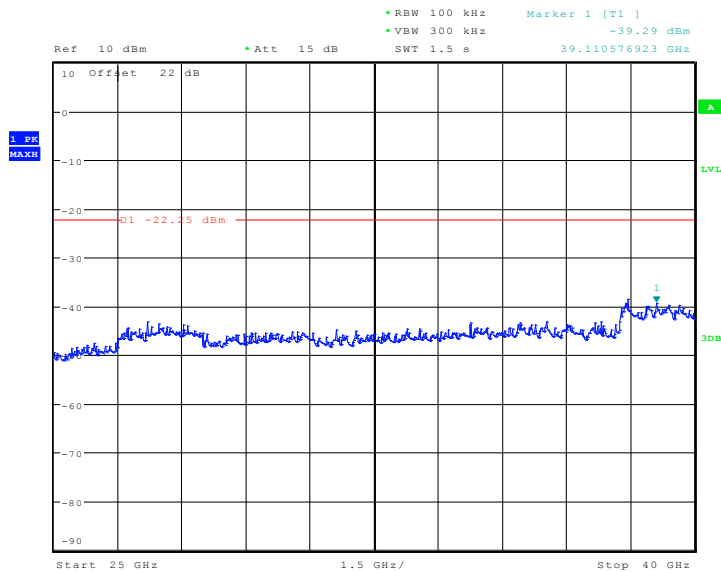
Date: 25.DEC.2013 14:55:48

Fig. 44 Conducted Spurious Emission (802.11n-HT20, Ch165, 30 MHz-12 GHz)



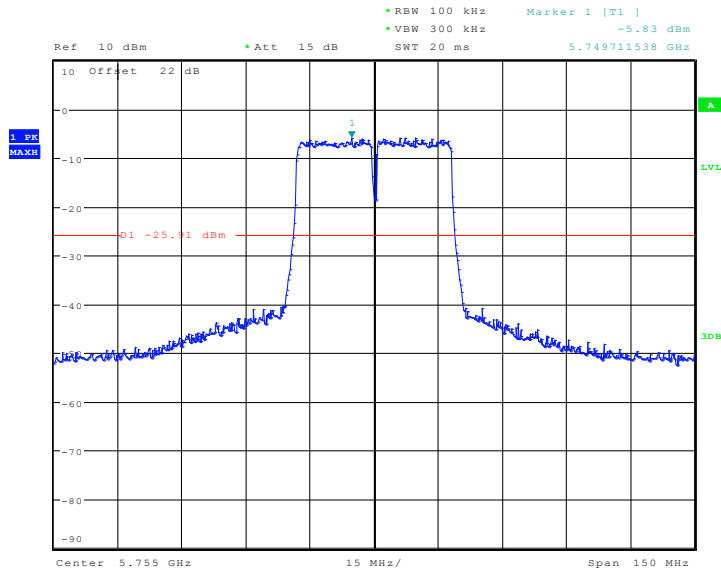
Date: 25.DEC.2013 14:56:03

Fig. 45 Conducted Spurious Emission (802.11n-HT20, Ch165, 12 GHz-25 GHz)



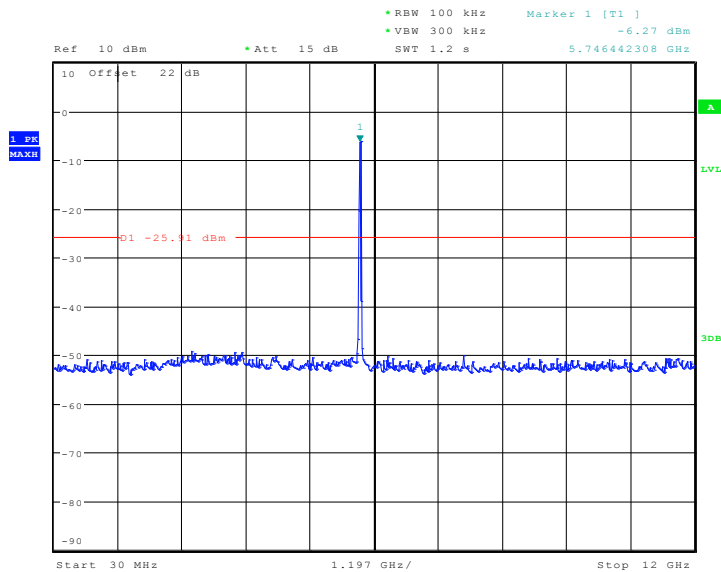
Date: 25.DEC.2013 14:56:18

Fig. 46 Conducted Spurious Emission (802.11n-HT20, Ch165, 25 GHz-40 GHz)



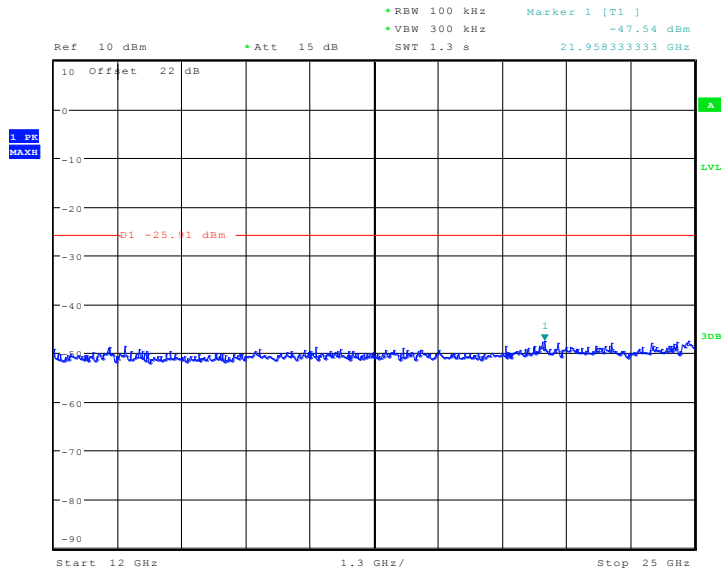
Date: 25.DEC.2013 15:03:26

Fig. 47 Conducted Spurious Emission (802.11n-HT40, Ch151, Center Frequency)



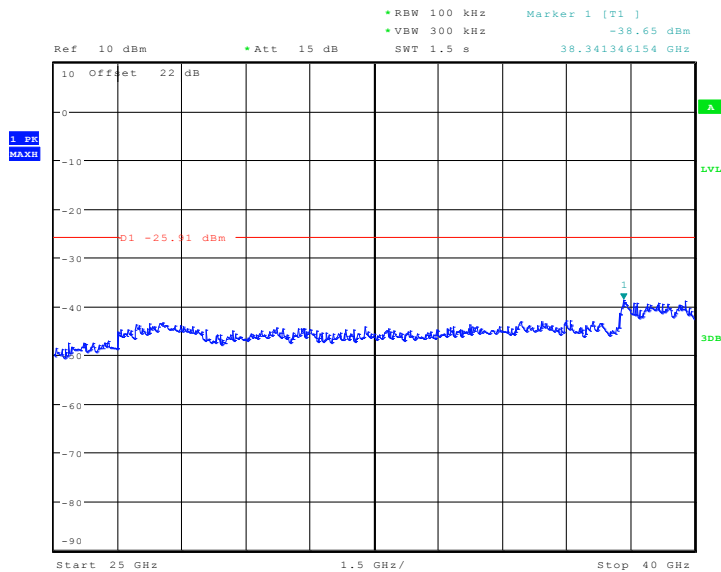
Date: 25.DEC.2013 15:03:42

Fig. 48 Conducted Spurious Emission (802.11n-HT40, Ch151, 30 MHz-12 GHz)



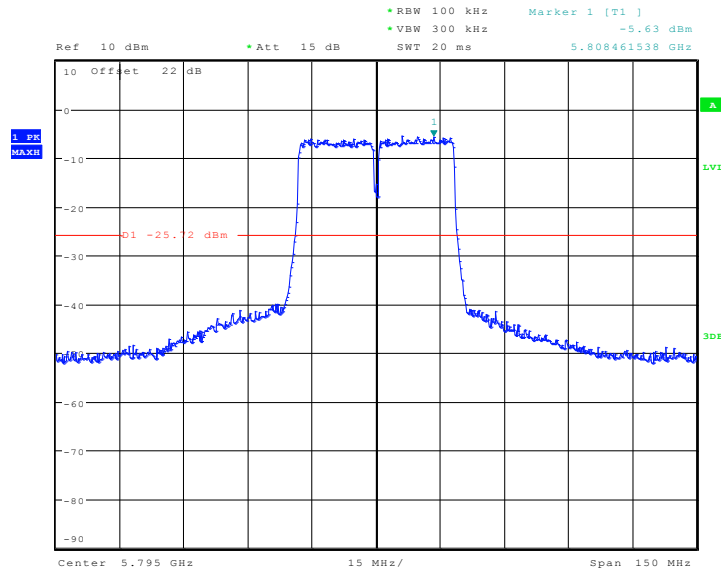
Date: 25.DEC.2013 15:04:40

Fig. 49 Conducted Spurious Emission (802.11n-HT40, Ch151, 12 GHz-25 GHz)



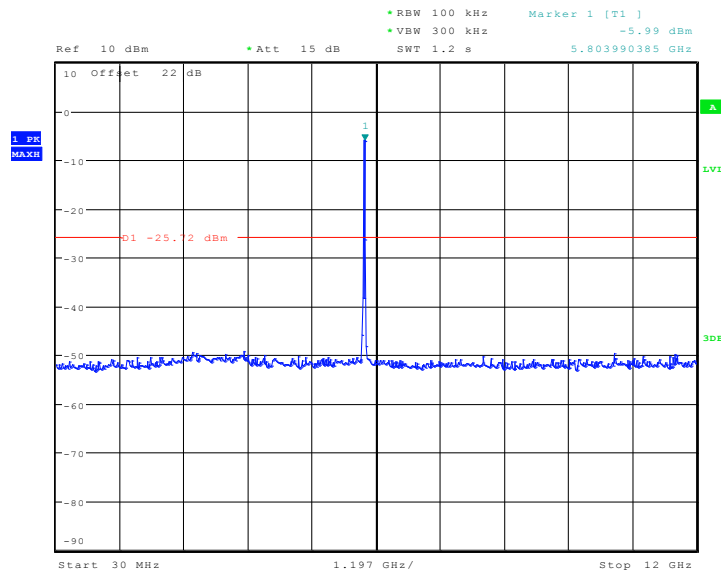
Date: 25.DEC.2013 15:05:10

Fig. 50 Conducted Spurious Emission (802.11n-HT40, Ch151, 25 GHz-40 GHz)



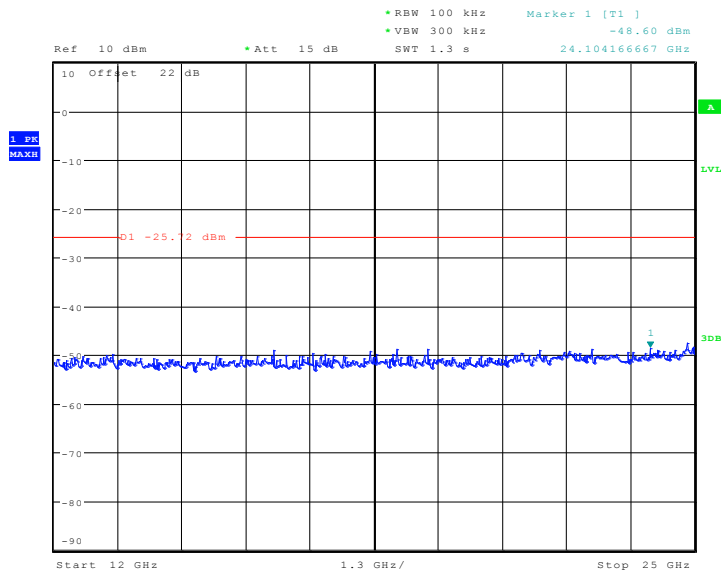
Date: 25.DEC.2013 15:09:22

Fig. 51 Conducted Spurious Emission (802.11n-HT40, Ch159, Center Frequency)



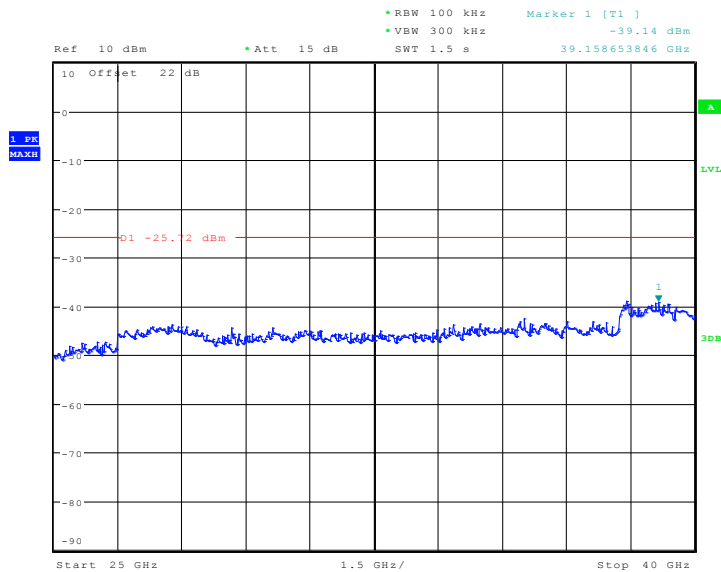
Date: 25.DEC.2013 15:09:52

Fig. 52 Conducted Spurious Emission (802.11n-HT40, Ch159, 30 MHz-12 GHz)



Date: 25.DEC.2013 15:10:07

Fig. 53 Conducted Spurious Emission (802.11n-HT40, Ch159, 12 GHz-25 GHz)



Date: 25.DEC.2013 15:10:28

Fig. 54 Conducted Spurious Emission (802.11n-HT40, Ch151, 25 GHz-40 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Limit in restricted band:

Measurement Results- Cable charging:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	30 MHz ~1 GHz	Fig.55	P
		1 GHz ~ 6 GHz	Fig.56	P
		6 GHz ~ 18 GHz	Fig.57	P
	157	30 MHz ~1 GHz	Fig.58	P
		1 GHz ~ 6 GHz	Fig.59	P
		6 GHz ~ 18 GHz	Fig.60	P
	165	30 MHz ~1 GHz	Fig.61	P
		1 GHz ~ 6 GHz	Fig.62	P
		6 GHz ~ 18 GHz	Fig.63	P
	All channel	18 GHz ~ 26.5 GHz	Fig.64	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	149	30 MHz ~1 GHz	Fig.65	P
		1 GHz ~ 6 GHz	Fig.66	P
		6 GHz ~ 18 GHz	Fig.67	P
	157	30 MHz ~1 GHz	Fig.68	P
		1 GHz ~ 6 GHz	Fig.69	P
		6 GHz ~ 18 GHz	Fig.70	P
	165	30 MHz ~1 GHz	Fig.71	P
		1 GHz ~ 6 GHz	Fig.72	P
		6 GHz ~ 18 GHz	Fig.73	P
	All channel	18 GHz ~ 26.5 GHz	Fig.74	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	151	30 MHz ~1 GHz	Fig.75	P
		1 GHz ~ 6 GHz	Fig.76	P
		6 GHz ~ 18 GHz	Fig.77	P
	159	30 MHz ~1 GHz	Fig.78	P
		1 GHz ~ 6 GHz	Fig.79	P
		6 GHz ~ 18 GHz	Fig.80	P
	All channel	18 GHz ~ 26.5 GHz	Fig.81	P

Conclusion: PASS

Test graphs as below:

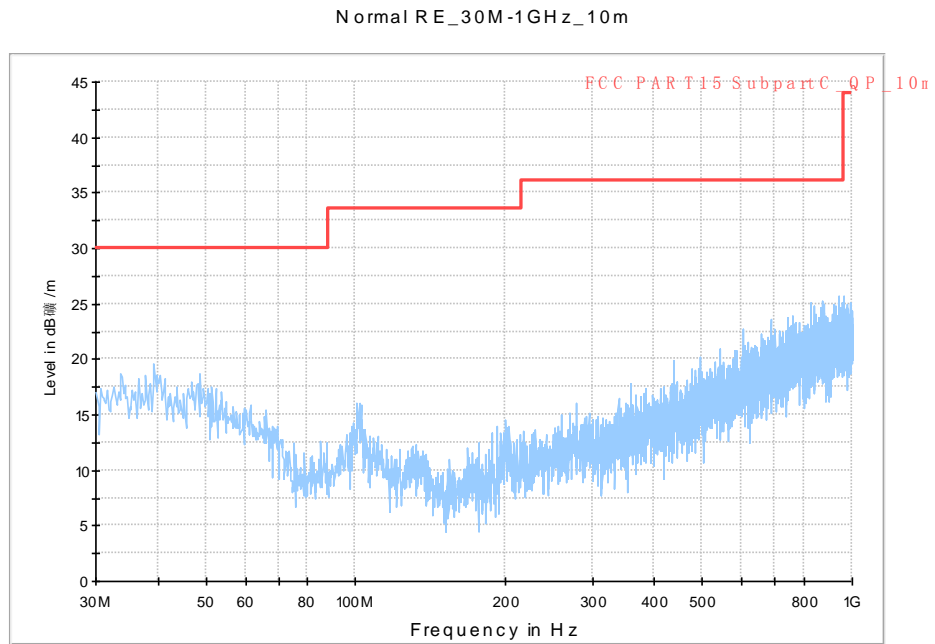


Fig. 55 Radiated Spurious Emission (802.11a, Ch149, 30 MHz-1 GHz)

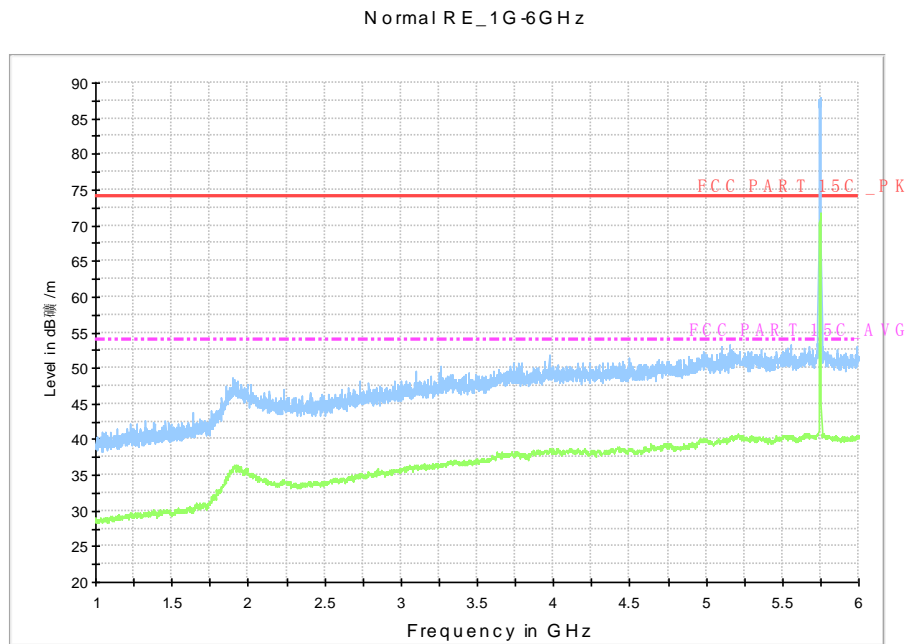


Fig. 56 Radiated Spurious Emission (802.11a, Ch149, 1 GHz-6 GHz)

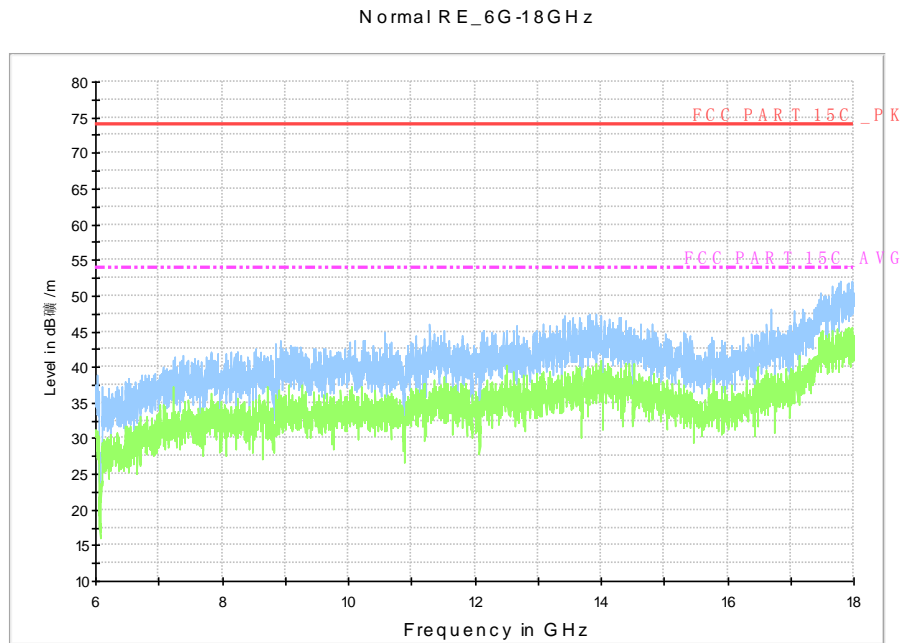


Fig. 57 Radiated Spurious Emission (802.11a, Ch149, 6 GHz-18 GHz)

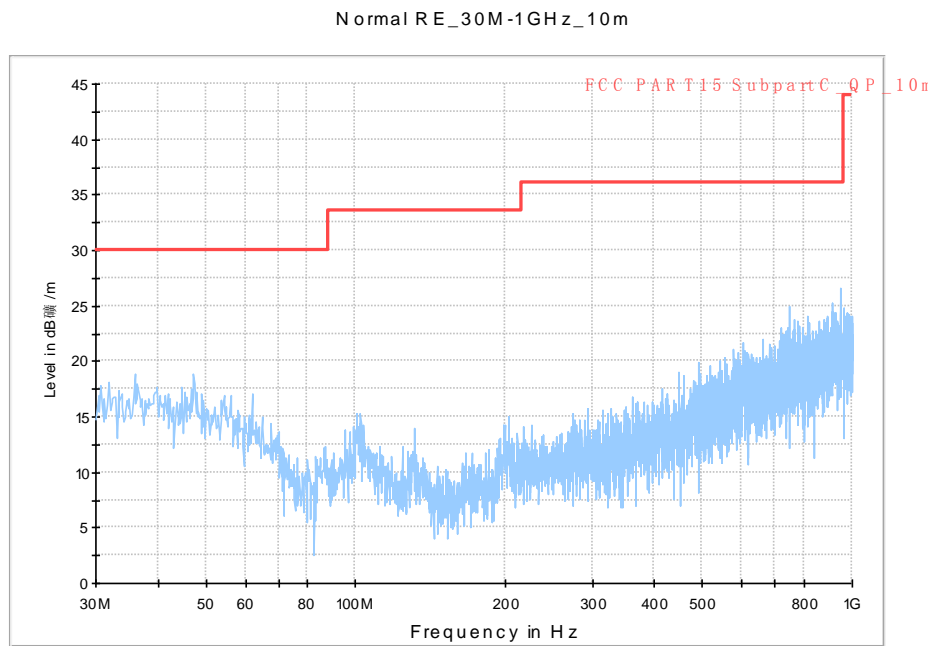


Fig. 58 Radiated Spurious Emission (802.11a, Ch157, 30 MHz-1 GHz)

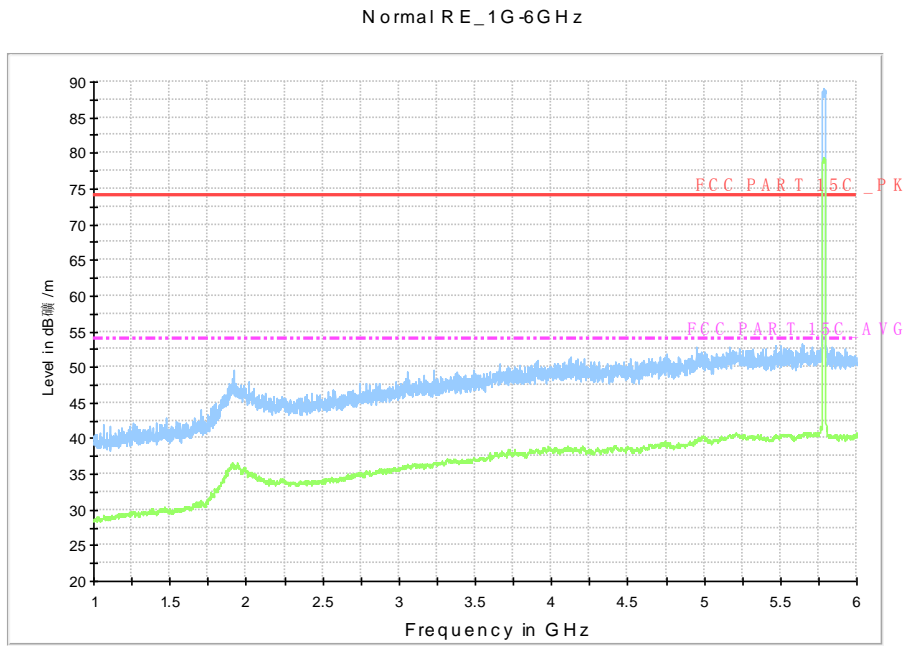


Fig. 59 Radiated Spurious Emission (802.11a, Ch157, 1 GHz-6 GHz)

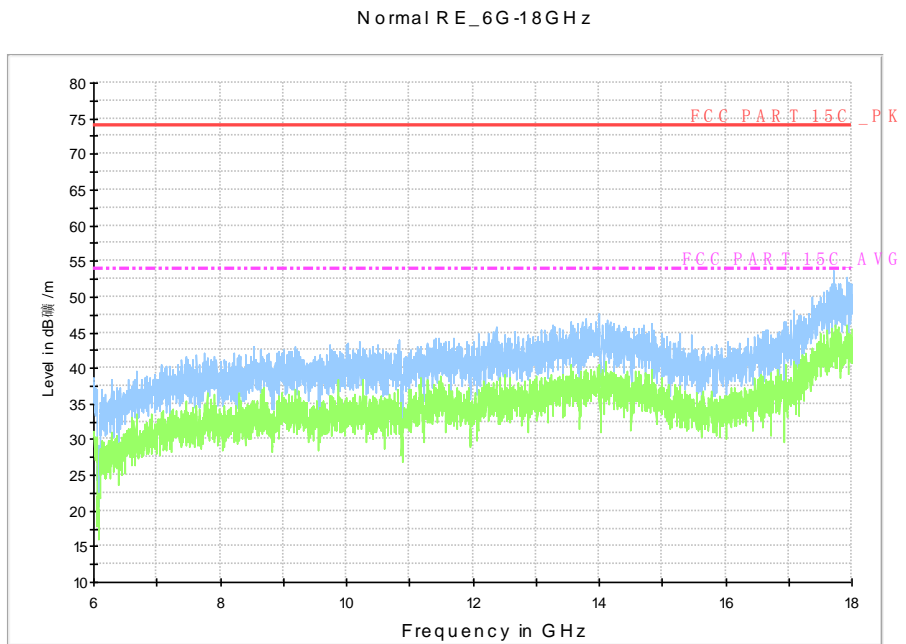


Fig. 60 Radiated Spurious Emission (802.11a, Ch157, 6 GHz-18 GHz)

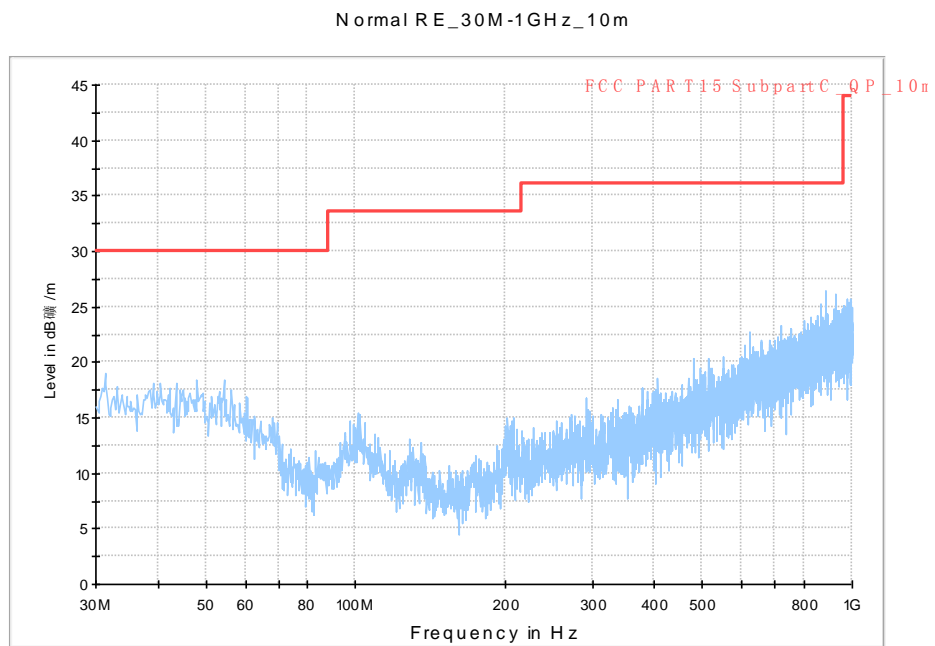


Fig. 61 Radiated Spurious Emission (802.11a, Ch165, 30 MHz-1 GHz)

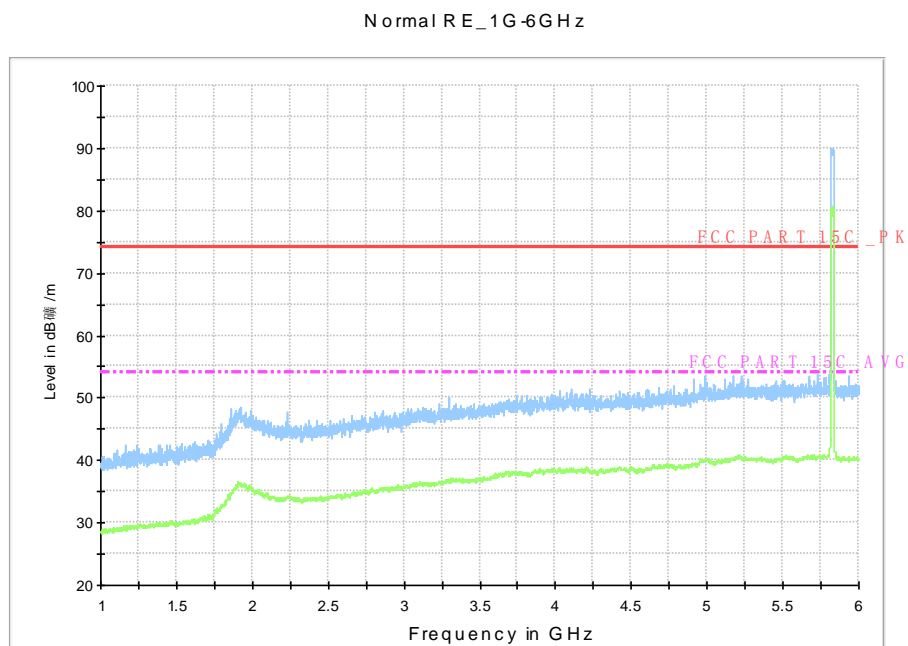


Fig. 62 Radiated Spurious Emission (802.11a, Ch165, 1 GHz-6 GHz)

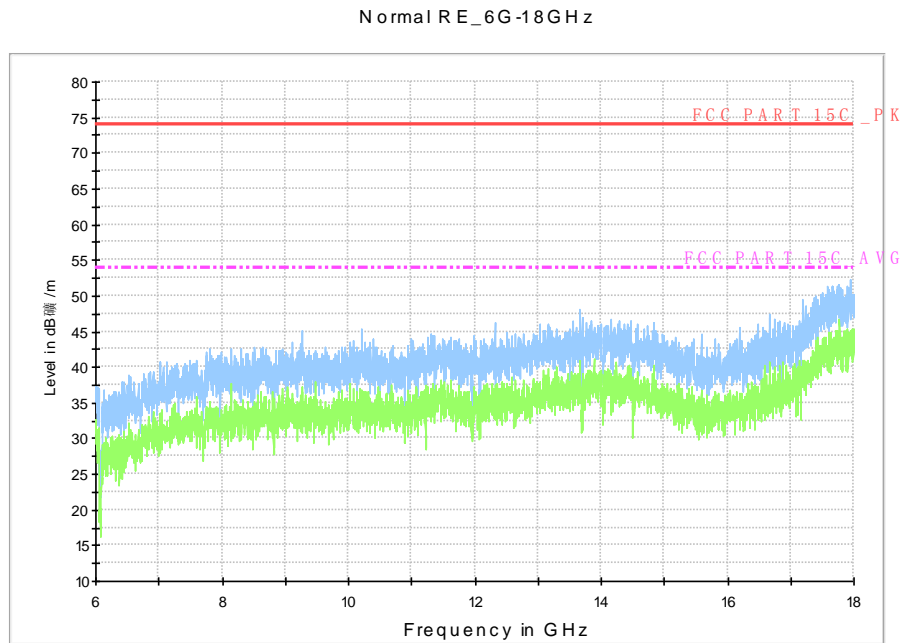


Fig. 63 Radiated Spurious Emission (802.11a, Ch165, 6 GHz-18 GHz)

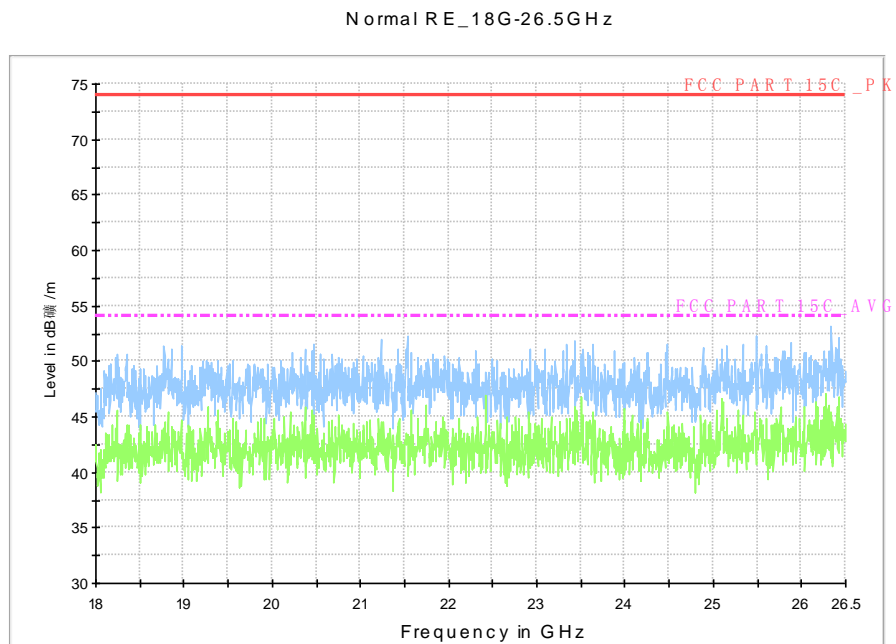


Fig. 64 Radiated Spurious Emission (802.11a, 18 GHz-26.5 GHz)

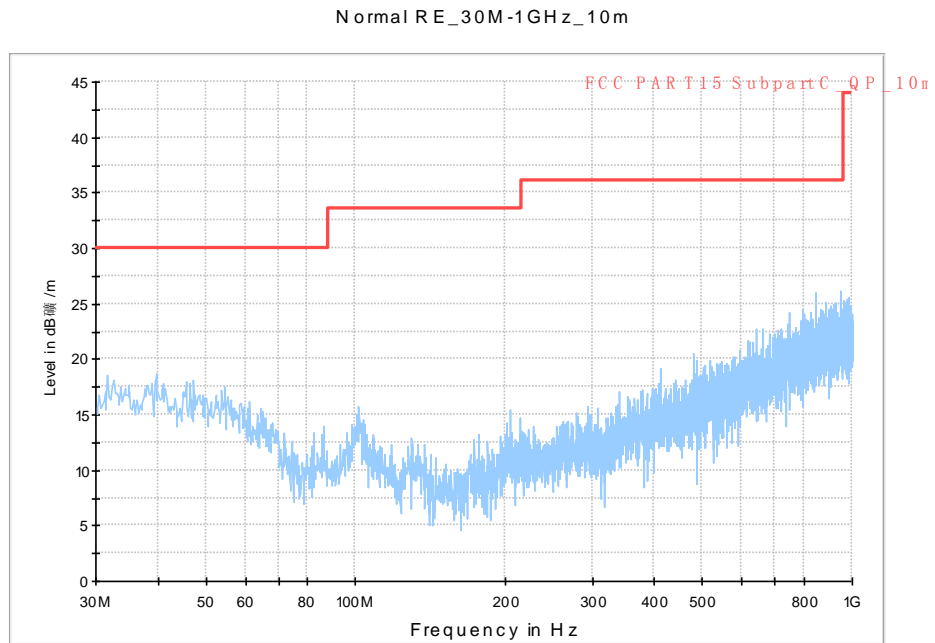


Fig. 65 Radiated Spurious Emission (802.11n-HT20, Ch149, 30 MHz-1 GHz)

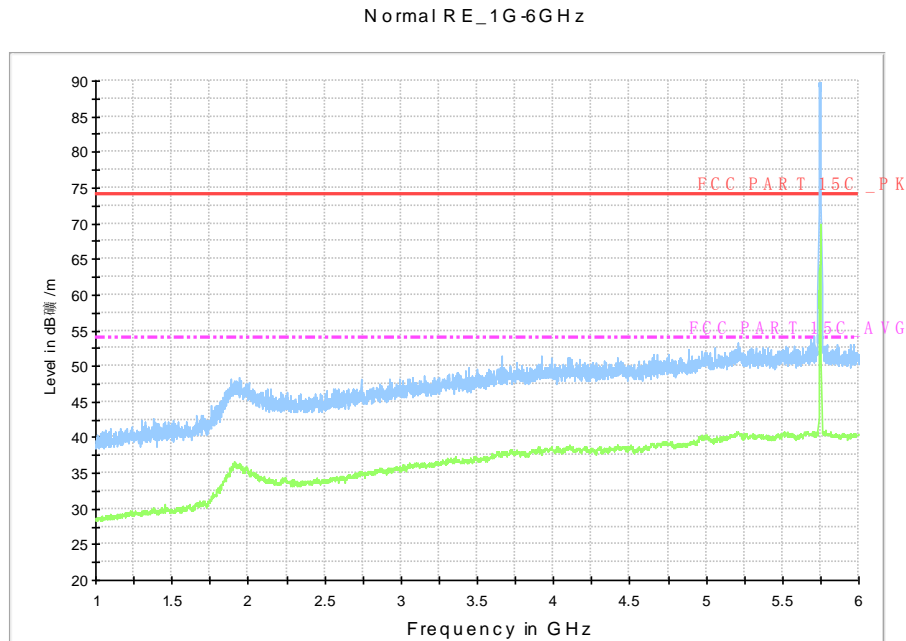


Fig. 66 Radiated Spurious Emission (802.11n-HT20, Ch149, 1 GHz-6 GHz)

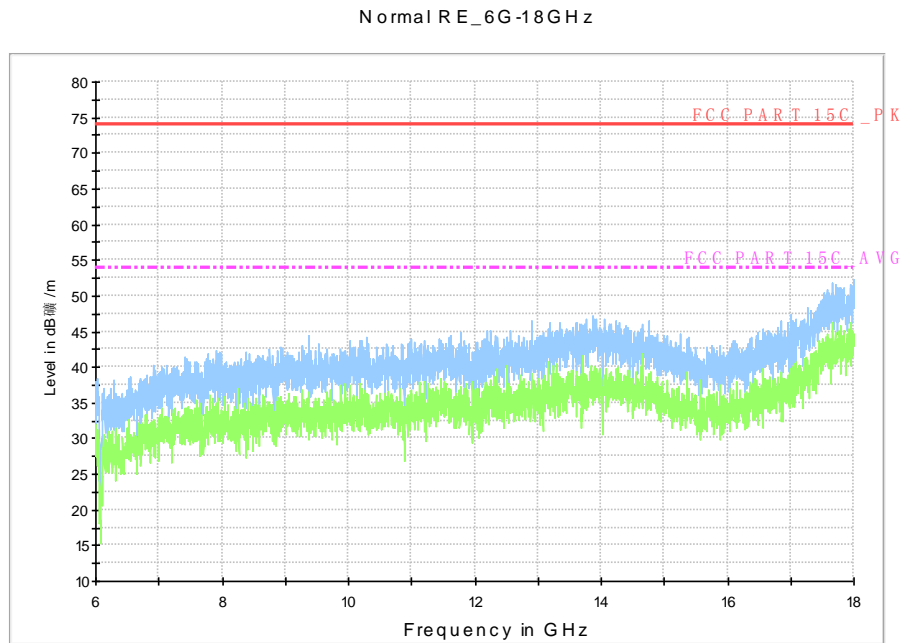


Fig. 67 Radiated Spurious Emission (802.11n-HT20, Ch149, 6 GHz-18 GHz)

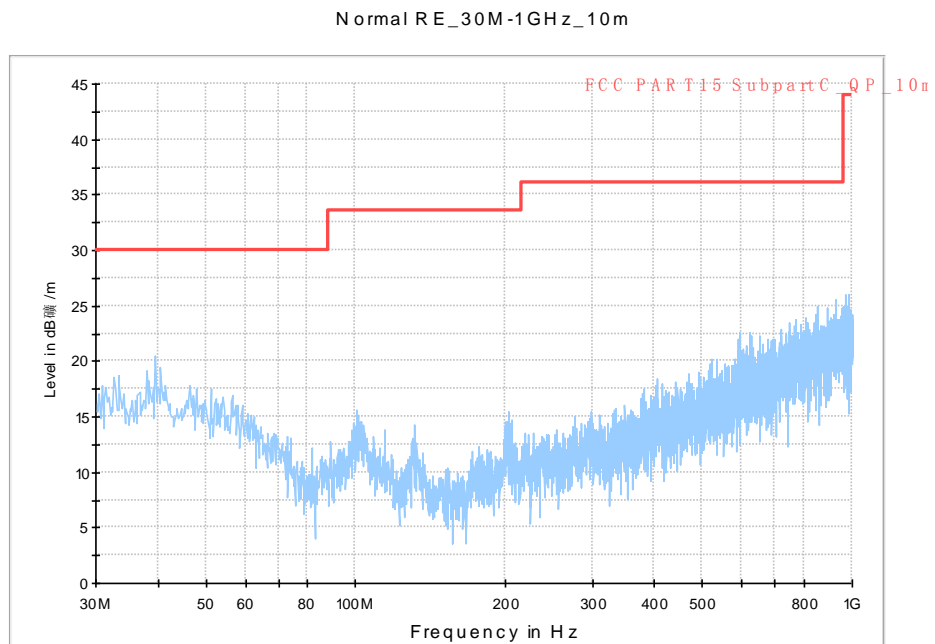


Fig. 68 Radiated Spurious Emission (802.11n-HT20, Ch157, 30 MHz-1 GHz)

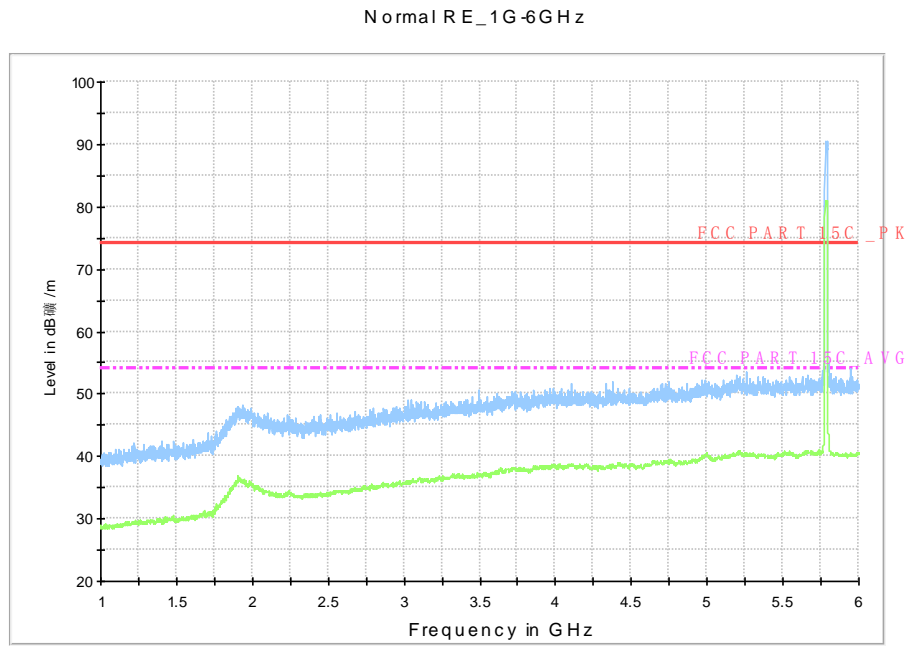


Fig. 69 Radiated Spurious Emission (802.11n-HT20, Ch157, 1 GHz-6 GHz)

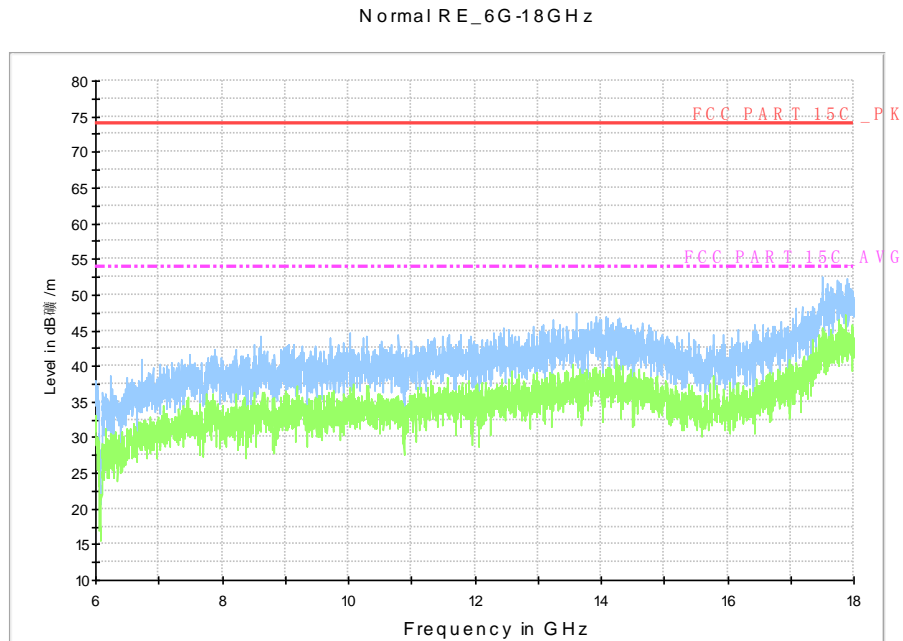


Fig. 70 Radiated Spurious Emission (802.11n-HT20, Ch157, 6 GHz-18 GHz)

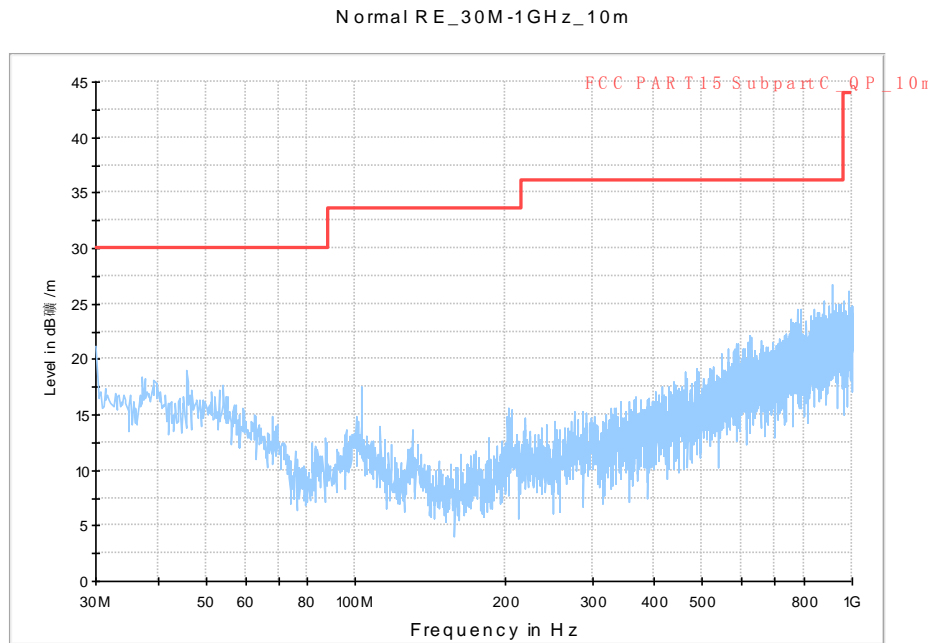


Fig. 71 Radiated Spurious Emission (802.11n-HT20, Ch165, 30 MHz-1 GHz)

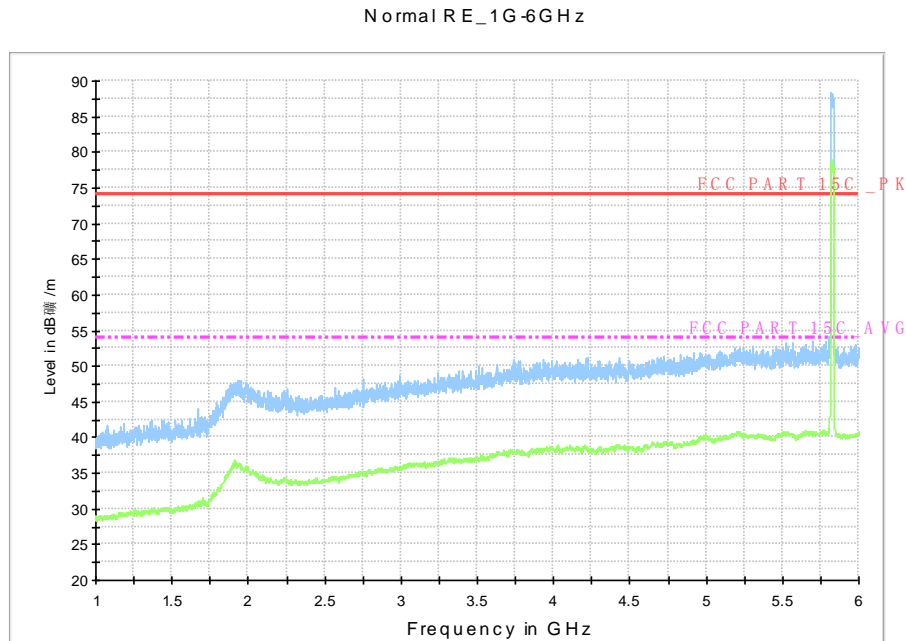


Fig. 72 Radiated Spurious Emission (802.11n-HT20, Ch165, 1 GHz-6 GHz)

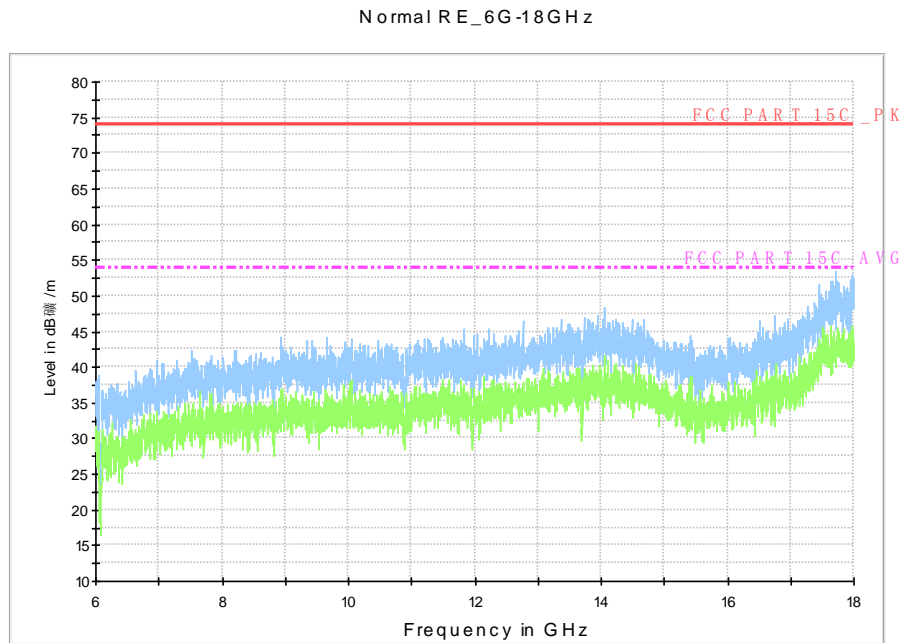


Fig. 73 Radiated Spurious Emission (802.11n-HT20, Ch165, 6 GHz-18 GHz)

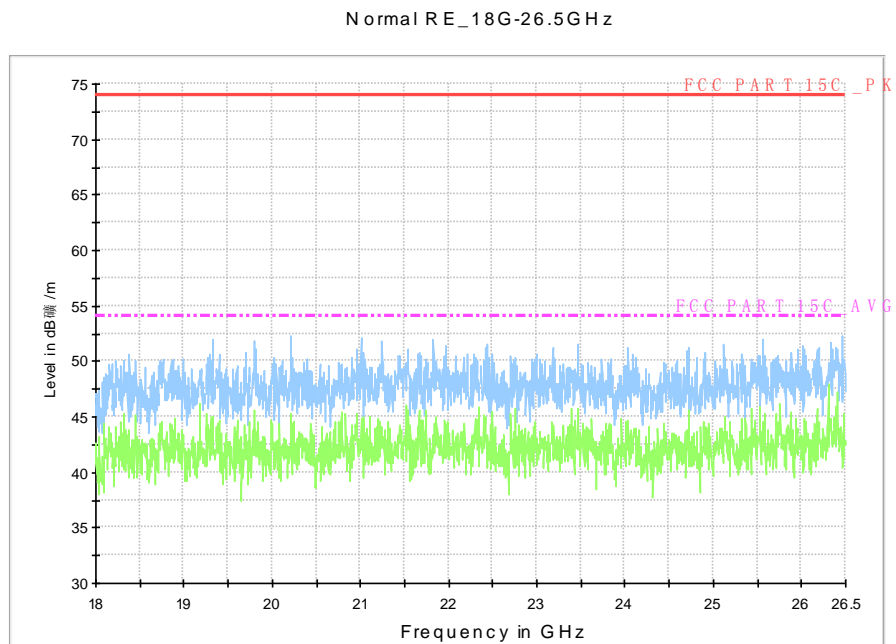


Fig. 74 Radiated Spurious Emission (802.11n-HT20, Ch157, 18 GHz-26.5 GHz)

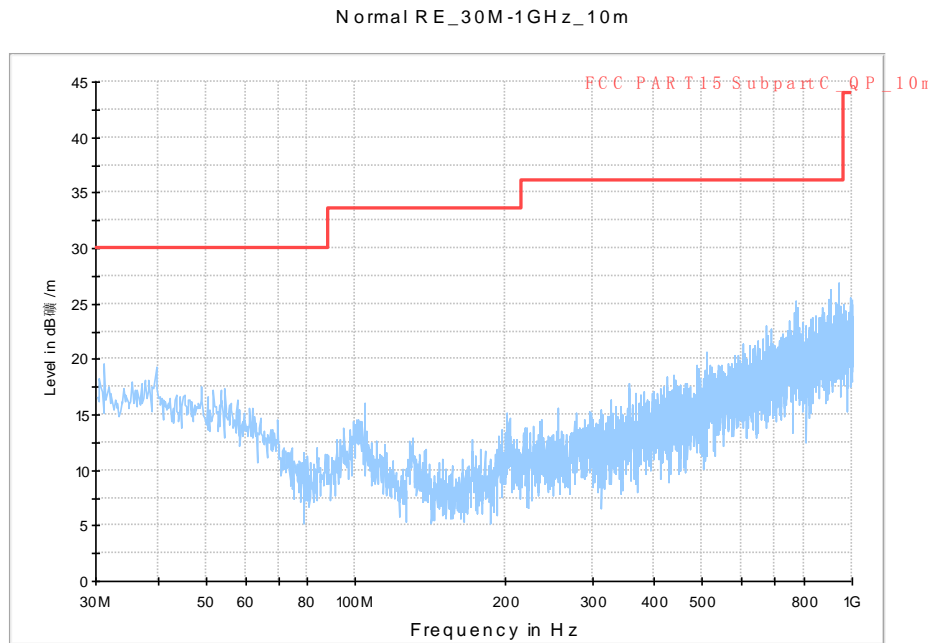


Fig. 75 Radiated Spurious Emission (802.11n-HT40, Ch151, 30 MHz-1 GHz)

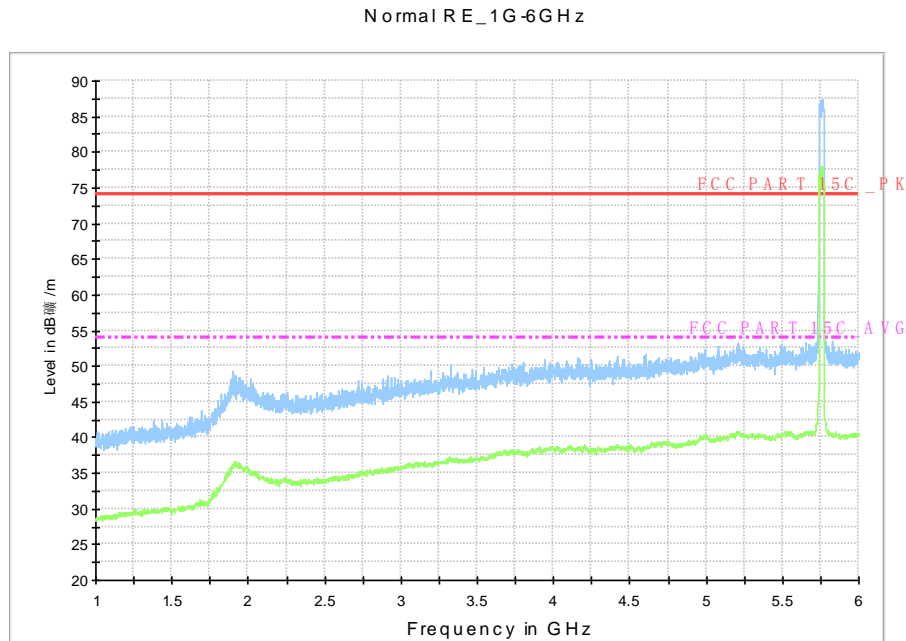


Fig. 76 Radiated Spurious Emission (802.11n-HT40, Ch151, 1 GHz-6 GHz)

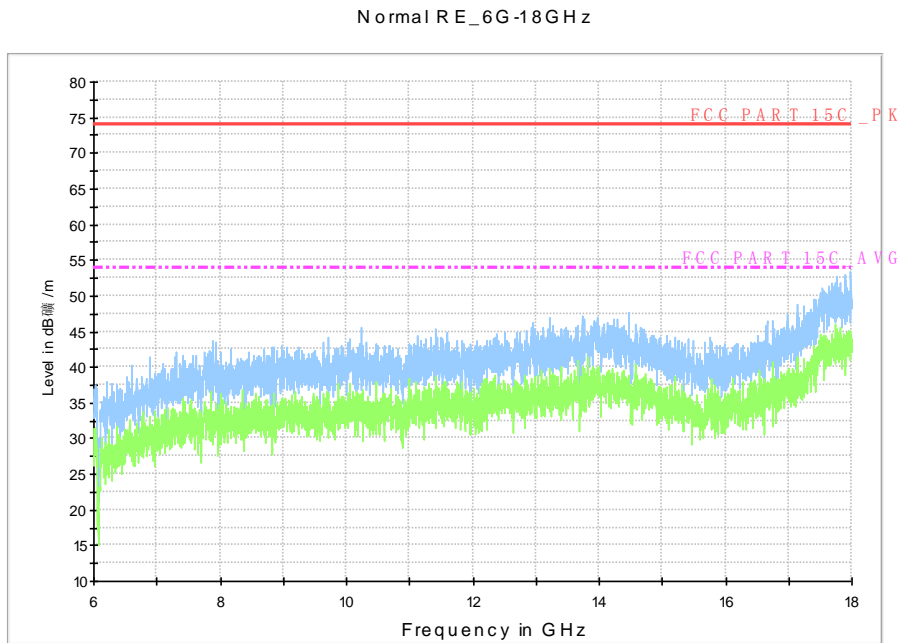


Fig. 77 Radiated Spurious Emission (802.11n-HT40, Ch151, 6 GHz-18 GHz)

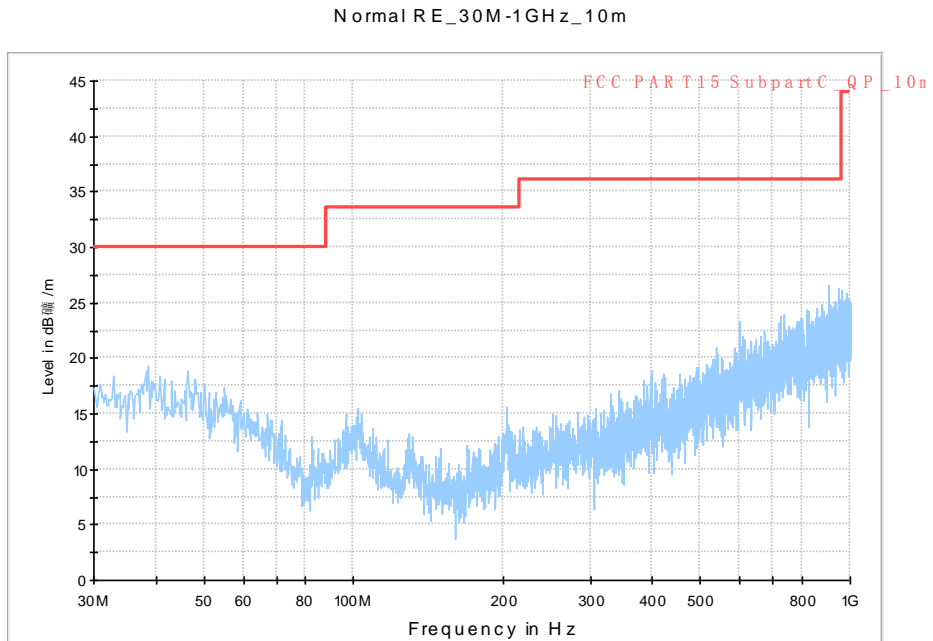


Fig. 78 Radiated Spurious Emission (802.11n-HT40, Ch159, 30 MHz-1 GHz)

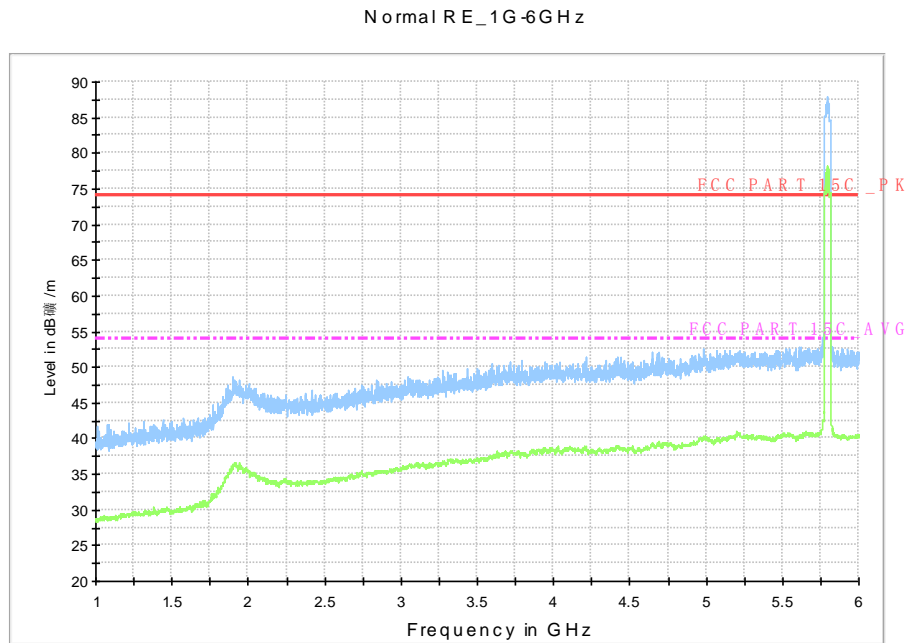


Fig. 79 Radiated Spurious Emission (802.11n-HT40, Ch159, 1 GHz-6 GHz)

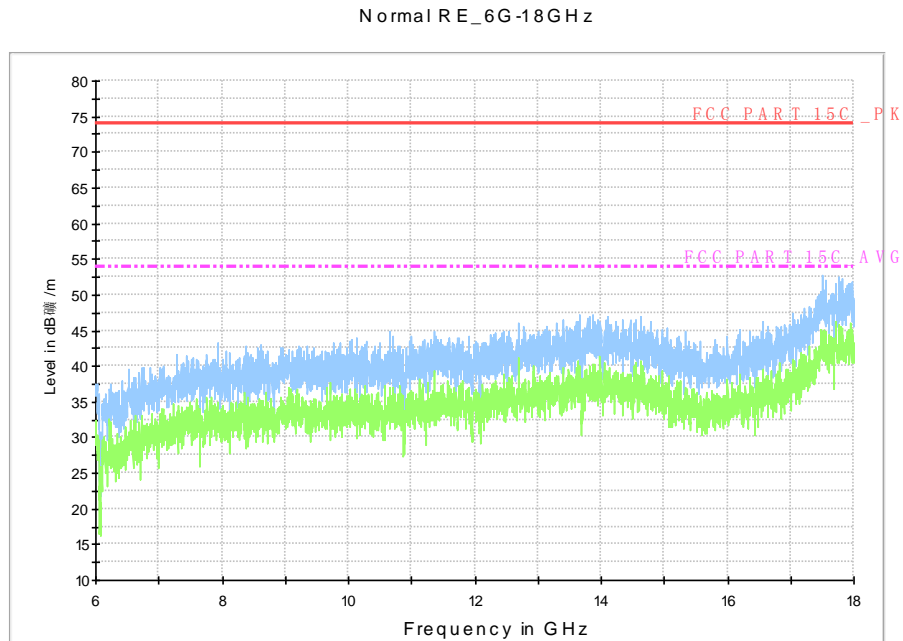


Fig. 80 Radiated Spurious Emission (802.11n-HT40, Ch159, 6 GHz-18 GHz)

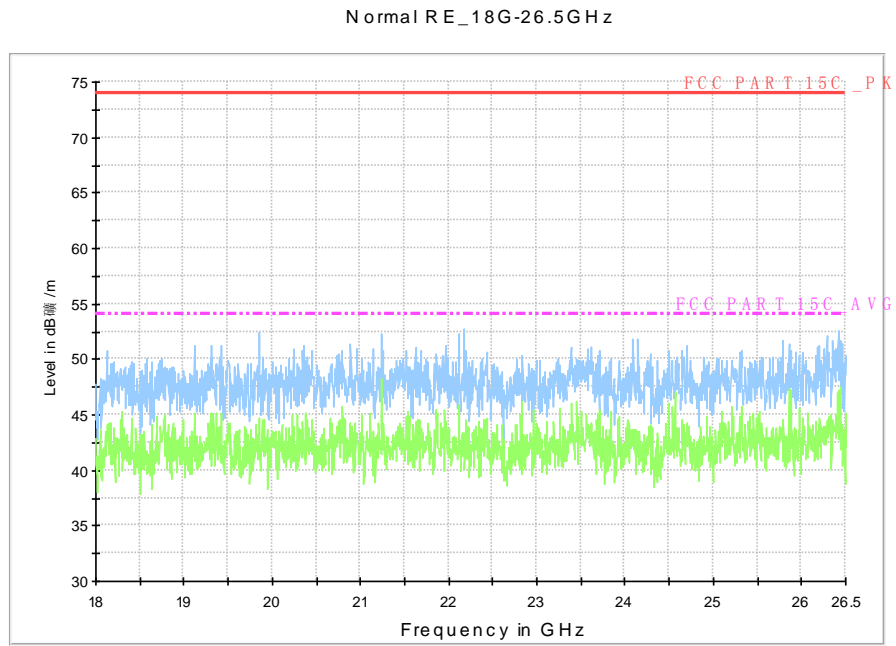


Fig. 81 Radiated Spurious Emission (802.11n-HT40, Ch151, 18 GHz-26.5 GHz)

Measurement Results- Wireless charging:

The data rate 24Mbps is worse condition, and the Transmitter Spurious Emission are performed with only this condition.

802.11a mode

Mode	Frequency Range	Test Results	Conclusion
802.11a	30 MHz ~1 GHz	Fig.82	P
	1 GHz ~ 6 GHz	Fig.83	P
	6 GHz ~ 18 GHz	Fig.84	P
	18 GHz ~ 26.5 GHz	Fig.85	P

Normal RE_30M-1GHz_10m

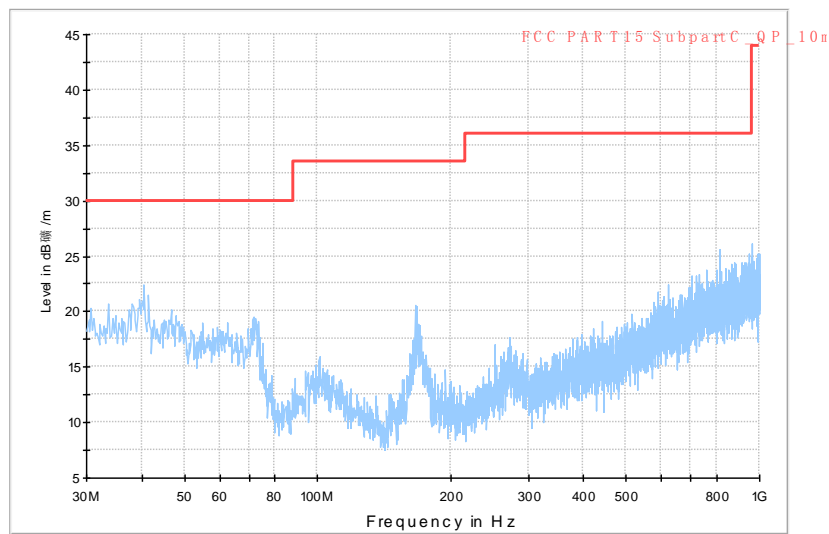


Fig. 82 Radiated Spurious Emission (802.11a, 30 MHz-1 GHz)

Normal RE_1G-6GHz

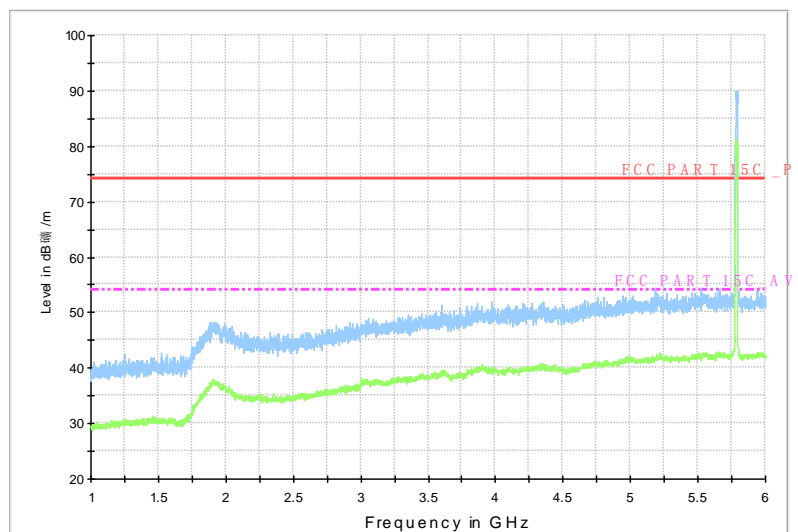


Fig. 83 Radiated Spurious Emission (802.11a, 1 GHz-6 GHz)

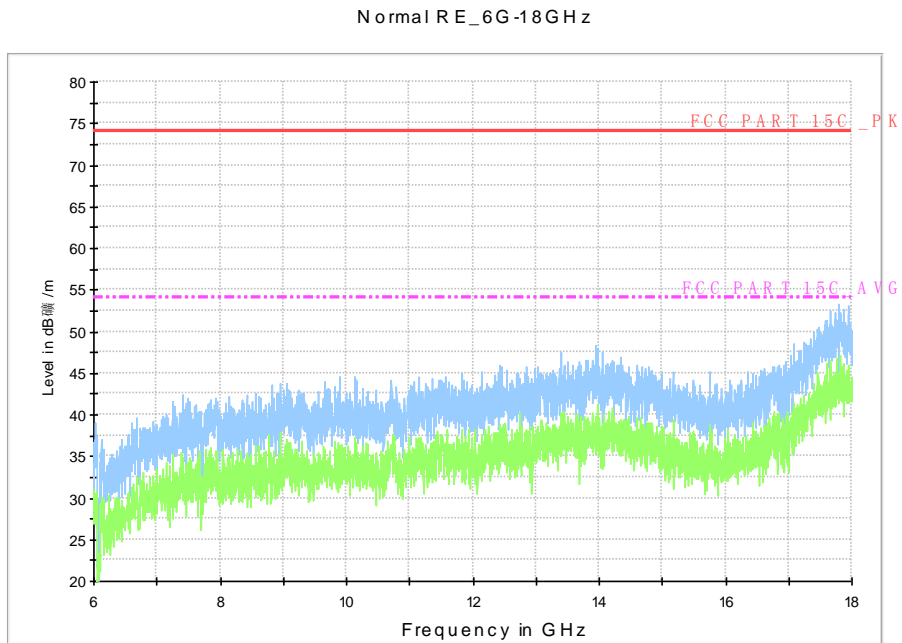


Fig. 84 Radiated Spurious Emission (802.11a, 6 GHz-18 GHz)

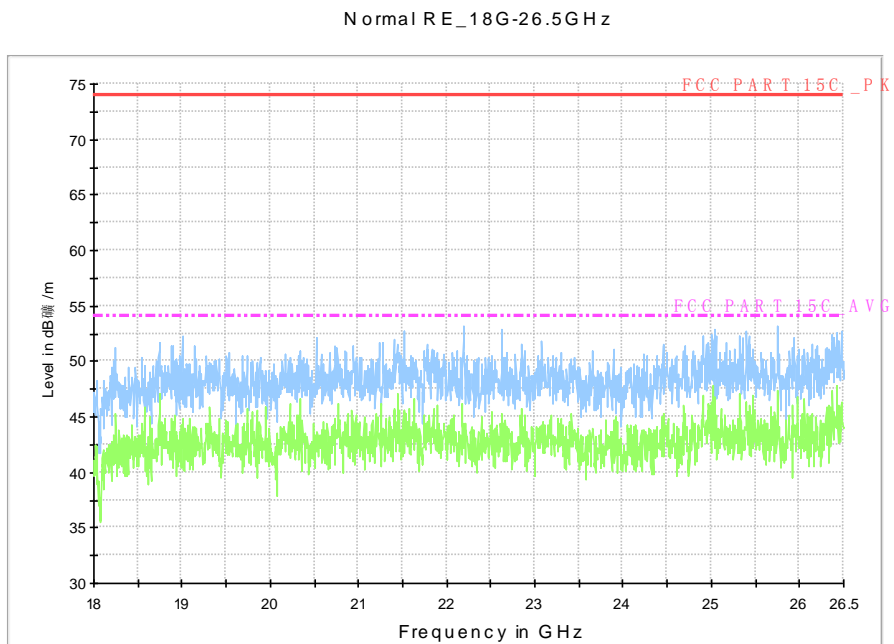


Fig. 85 Radiated Spurious Emission (802.11a, 18 GHz-26.5 GHz)

A.7. AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
110	60

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig. 86	Fig. 87	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 (dB μ V)	Result (dB μ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig. 86	Fig. 87	P
0.5 to 5	46			
5 to 30	50			

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

The measurement is made according to ANSI C63.4 and KDB558074

Conclusion: PASS

Test graphs as below:

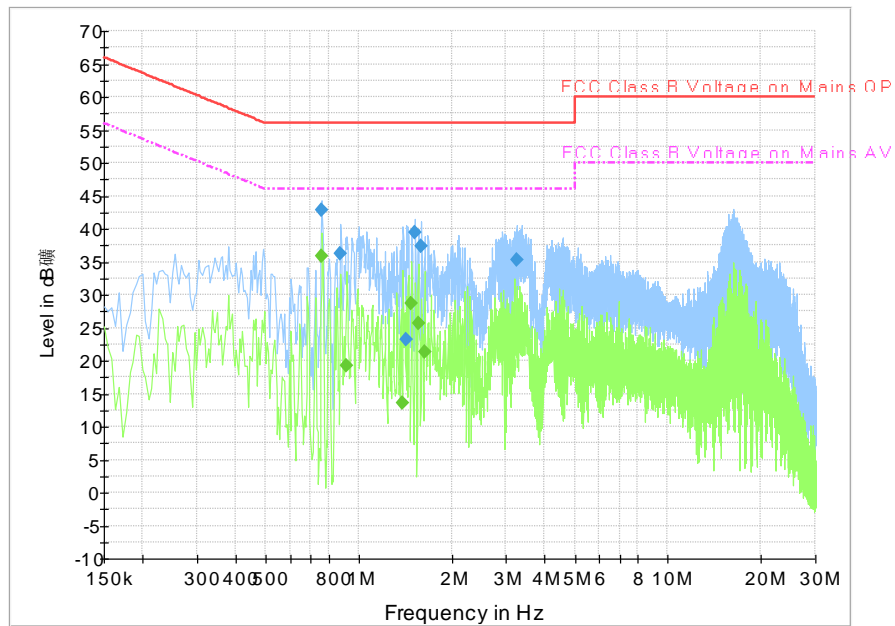


Fig. 88 AC Powerline Conducted Emission-802.11a mode

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.757500	42.8	GND	L1	9.8	13.2	56.0
0.874500	36.2	GND	L1	9.7	19.8	56.0
1.428000	23.3	GND	L1	9.7	32.7	56.0
1.518000	39.4	GND	L1	9.7	16.6	56.0
1.594500	37.3	GND	L1	9.7	18.7	56.0
3.237000	35.3	GND	L1	9.7	20.7	56.0

Final Result 2

Frequency (MHz)	C Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.762000	35.9	GND	N	9.8	10.1	46.0
0.915000	19.2	GND	L1	9.7	26.8	46.0
1.387500	13.6	GND	L1	9.7	32.4	46.0
1.482000	28.7	GND	L1	9.7	17.3	46.0
1.558500	25.8	GND	L1	9.7	20.2	46.0
1.635000	21.3	GND	L1	9.7	24.7	46.0

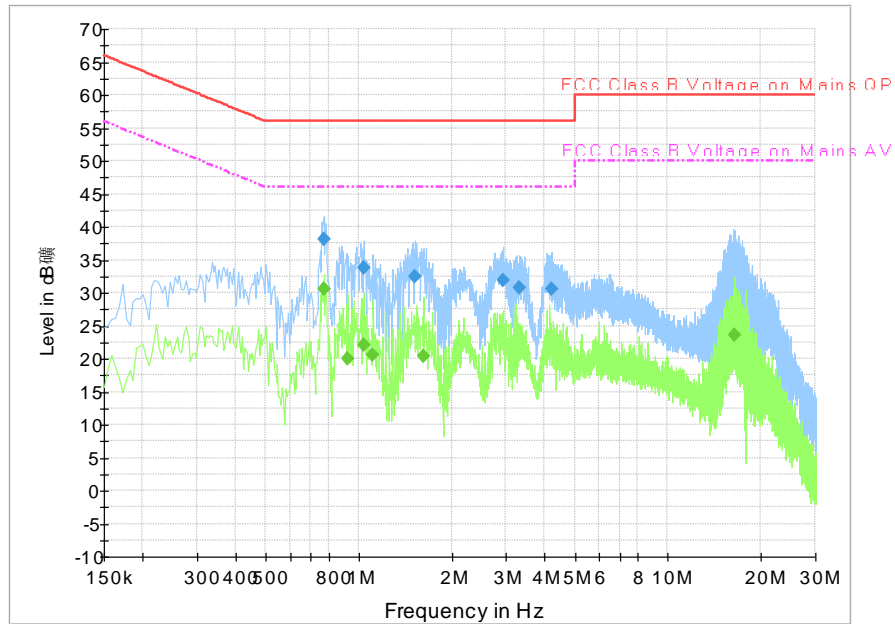


Fig. 89 AC Powerline Conducted Emission-Idle

Final Result1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.771000	38.1	GND	L1	9.8	17.9	56.0
1.036500	33.8	GND	L1	9.7	22.2	56.0
1.522500	32.5	GND	L1	9.7	23.5	56.0
2.922000	32.0	GND	L1	9.7	24.0	56.0
3.313500	30.8	GND	L1	9.7	25.2	56.0
4.200000	30.6	GND	L1	9.7	25.4	56.0

Final Result2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.771000	30.5	GND	N	9.8	15.5	46.0
0.919500	20.0	GND	L1	9.7	26.0	46.0
1.036500	22.1	GND	L1	9.7	23.9	46.0
1.113000	20.7	GND	L1	9.7	25.3	46.0
1.617000	20.4	GND	L1	9.7	25.6	46.0
16.471500	23.6	GND	L1	9.4	26.4	50.0

*** END OF REPORT BODY ***