



FCC PART 15C TEST REPORT No. I14Z46912-SRD13

for

TCT Mobile Limited

Wi-Fi dual-band tablet

Model name: D819

With

FCC ID: RAD494

Hardware Version: PIO

Software Version: vJ58

Issued Date: 2014-09-23

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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Postal Code: 100191
Telephone: +86-10-62304633-2561
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1.2. Project data

Testing Start Date: 2014-06-30
Testing End Date: 2014-07-22

1.3. Signature



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(Prepared this test report)



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(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

Company Name: TCT Mobile Limited
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Pudong Area Shanghai, P.R. China. 201203
Contact Person: Gong Zhizhou
Telephone: 0086-21-51798260
Fax: 0086-21-61460602

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY

EQUIPMENT(AE)

3.1. About EUT

Description	Wi-Fi dual-band tablet
Model name	D819
FCC ID	RAD494
WLAN Frequency Range	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
MAX Conducted Power	24.05dBm(CCK)
Extreme Temperature	-20/+55°C
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)

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*	IMEI	HW Version	SW Version
EUT1	/	PIO	vJ58
EUT2	/	PIO	vJ58

*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	CAC4060002C2	/
AE2	Dummy battery	/	/

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

3.4. General Description

Equipment Under Test (EUT) is a Wi-Fi dual-band tablet with integrated antenna. It consists of normal options: Battery and Charger.

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

Samples undergoing test were selected by the Client.

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;	2014
	15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
KDB558074 D01	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	V03r02
KDB789033 D02	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E	2014

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407 (a)	/	P
Peak Power Spectral Density	15.407 (a)	/	P
Occupied 6dB Bandwidth	15.247 (a)	/	P
Band Edges Compliance	15.209 (b)	/	P
Transmitter Spurious Emission - Conducted	15.407	/	P
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	P
AC Powerline Conducted Emission	15.107, 15.207	/	P
99% Occupied Bandwidth	/	/	P
Transmitter Spurious Emission - Radiated < 30MHz	15.247, 15.209	/	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
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2014-07-08	2015-07-07
2	Test Receiver	ESS	847151/015	Rohde & Schwarz	2013-11-29	2014-11-28
3	LISN	ESH2-Z5	829991/012	Rohde & Schwarz	2014-4-15	2015-4-14
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

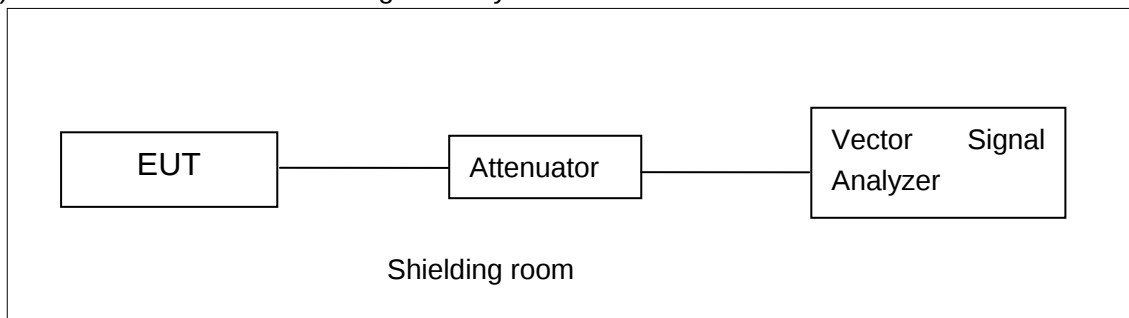
No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Test Receiver	ESU26	100376	Rohde & Schwarz	2013-11-6	2014-11-5
2	BiLog Antenna	VULB9163	9163-514	Schwarzbeck	2011-11-11	2014-11-10
3	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS-Lindgren	2012-4-20	2015-4-19
4	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2012-7-1	2015-06-30
5	Loop antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2011-12-21	2014-12-20
6	Semi-anechoic chamber	/	CT000332-1074	Frankonia German	/	/

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

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

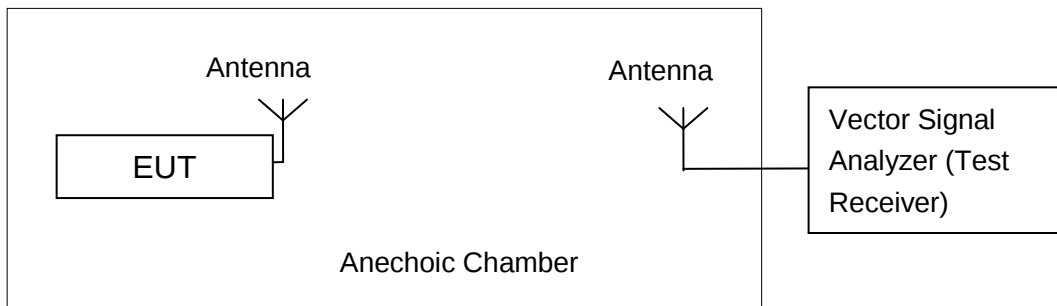


A.1.2. Radiated Emission Measurements

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

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

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



The measurement is made according to ANSI C63.10 and KDB558074 D01

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 15.407(a)	< 30

The measurement is made according to ANSI C63.10 .

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	23.02	/	/
	9	23.53	/	/
	12	23.05	/	/
	18	23.53	/	/
	24	23.11	/	/
	36	23.56	/	/
	48	23.31	/	/
	54	24.05	23.35	23.81

The data rate 54Mbps 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	23.48		
	MCS1	22.68	/	/
	MCS2	23.19	/	/
	MCS3	23.09	/	/
	MCS4	23.51	/	/
	MCS5	23.26	/	/
	MCS6	23.92	23.81	23.72
	MCS7	23.75	/	/

The data rate MCS6 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	23.66	23.61
	MCS1	22.64	/
	MCS2	23.10	/
	MCS3	22.95	/
	MCS4	22.94	/
	MCS5	23.44	/
	MCS6	23.43	/
	MCS7	23.44	/

The data rate MCS0 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	14.45	14.43	14.29

802.11n-HT20 mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	14.59	14.51	14.35

802.11n-HT40 mode

Mode	Test Result (dBm)	
	5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	14.09	13.95

Conclusion: PASS

A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz

The measurement is made according to ANSI C63.10 and KDB558074 D01

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	0.01	P
	157	0.23	P
	165	3.72	P
802.11n HT20	149	-1.60	P
	157	-1.35	P
	165	1.70	P
802.11n HT40	151	-3.72	P
	159	-0.63	P

Conclusion: PASS

A.4. Occupied 6dB Bandwidth

Measurement Limit:

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

The measurement is made according to KDB558074 D01 .

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11a	149	Fig.1	16400	P
	157	Fig.2	16300	P
	165	Fig.3	16400	P
802.11n HT20	149	Fig.4	17500	P
	157	Fig.5	17500	P
	165	Fig.6	17500	P
802.11n HT40	151	Fig.7	35120	P
	159	Fig.8	35040	P

Conclusion: PASS

Test graphs as below:

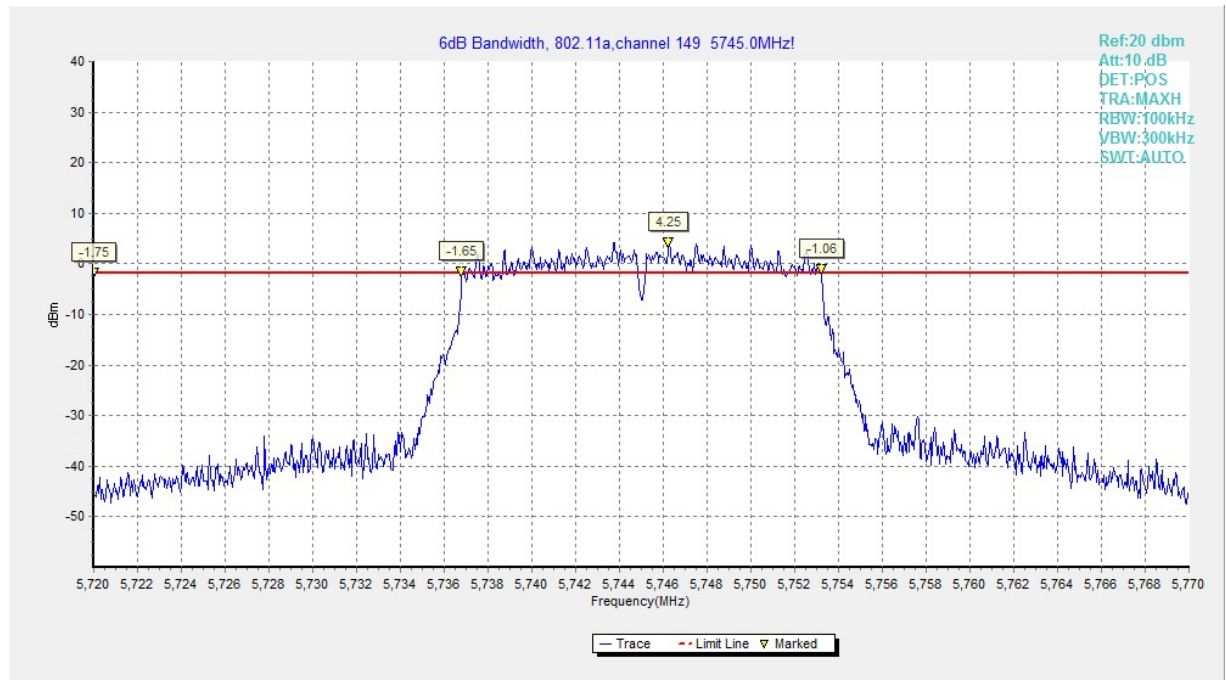


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

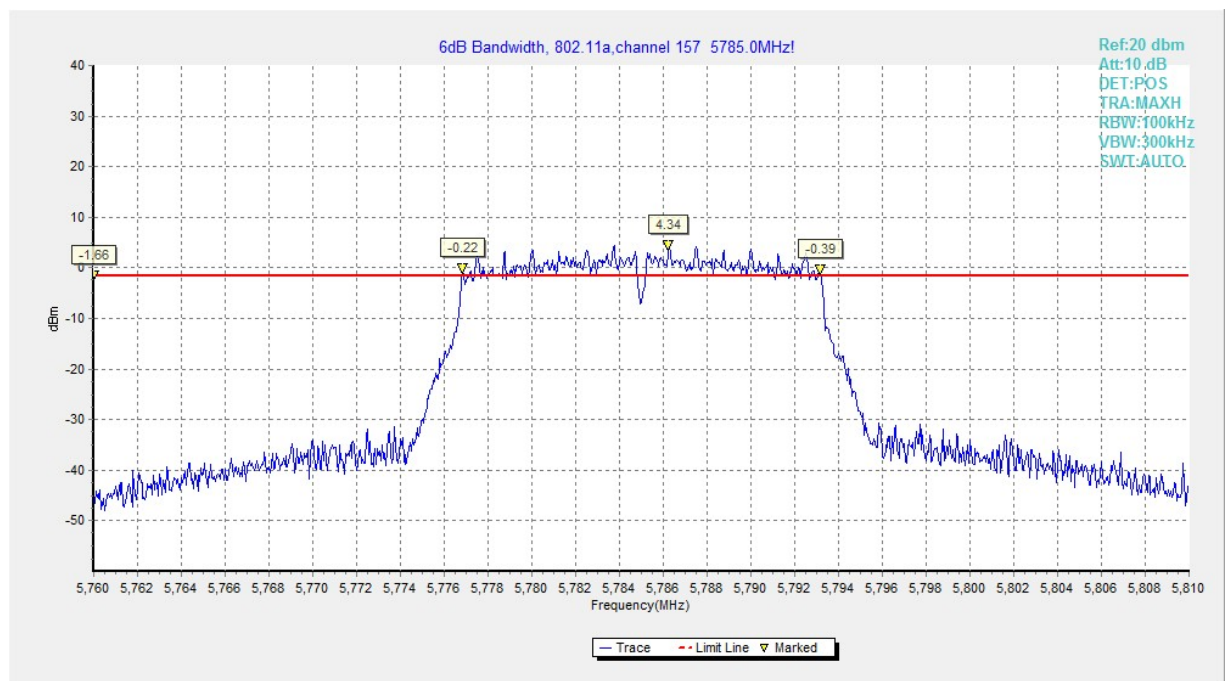


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

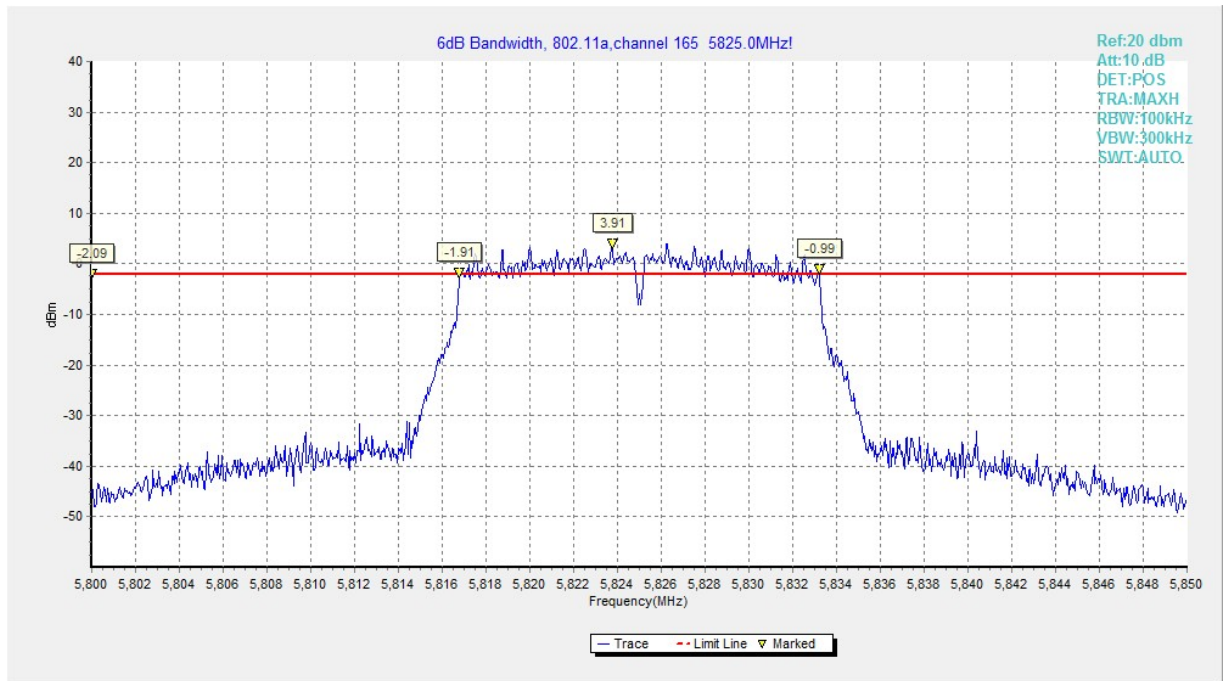


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

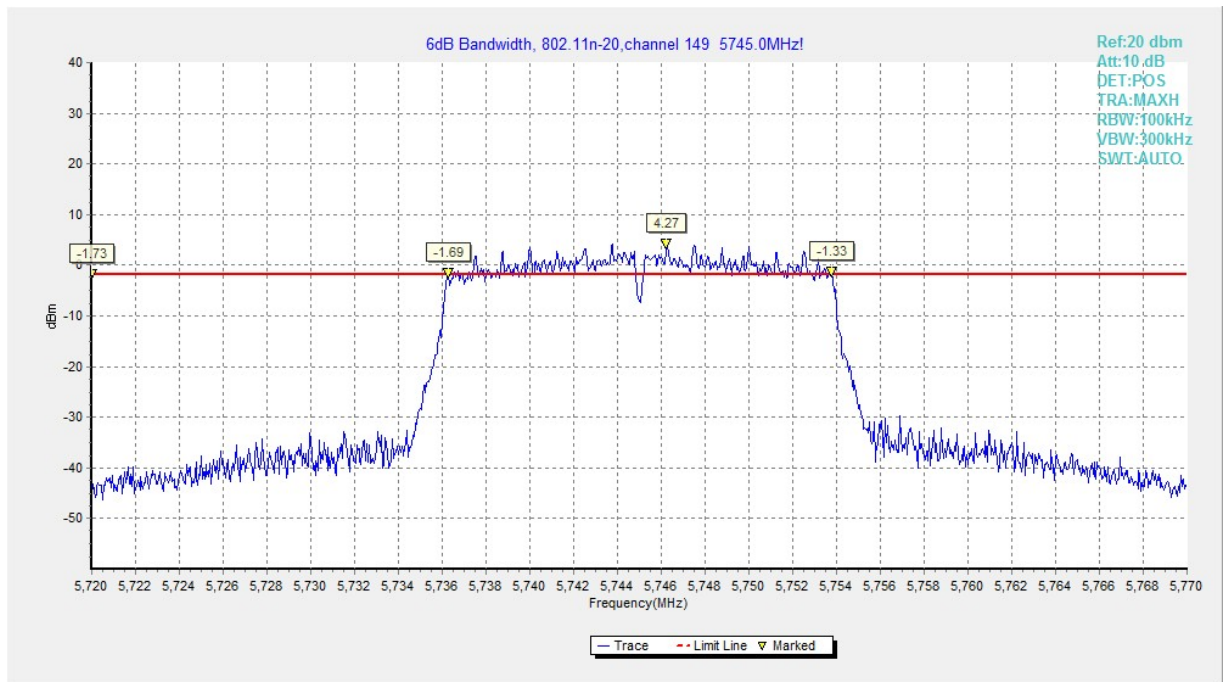


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)

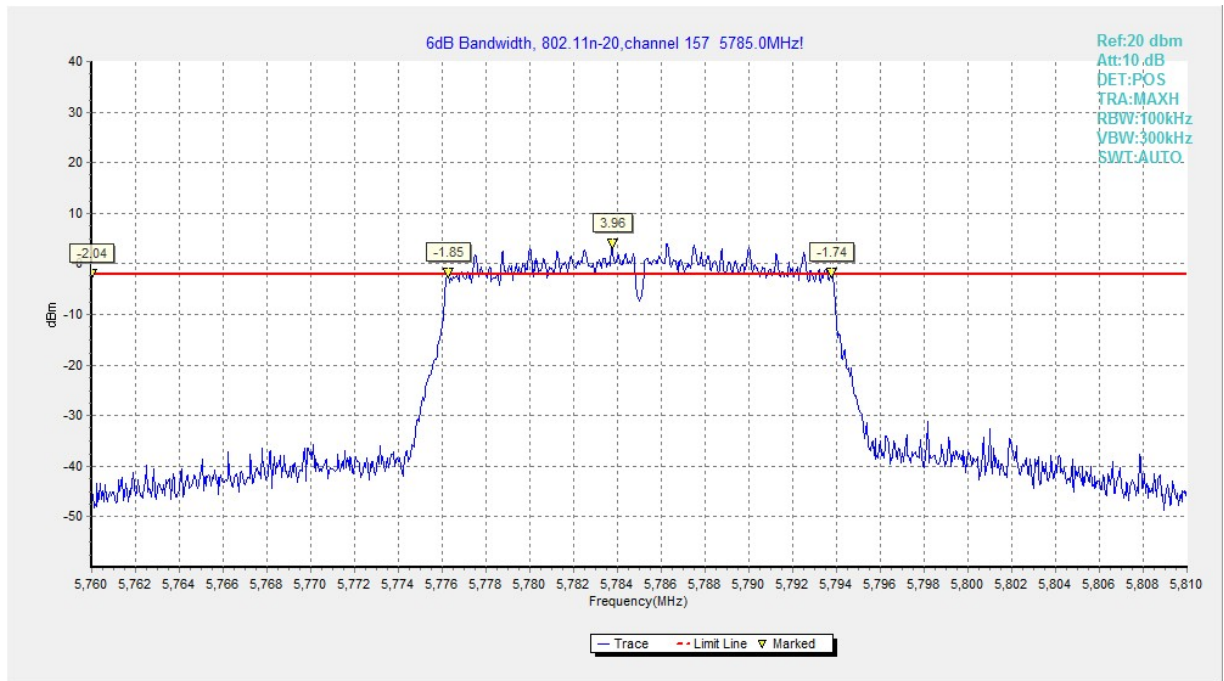


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)

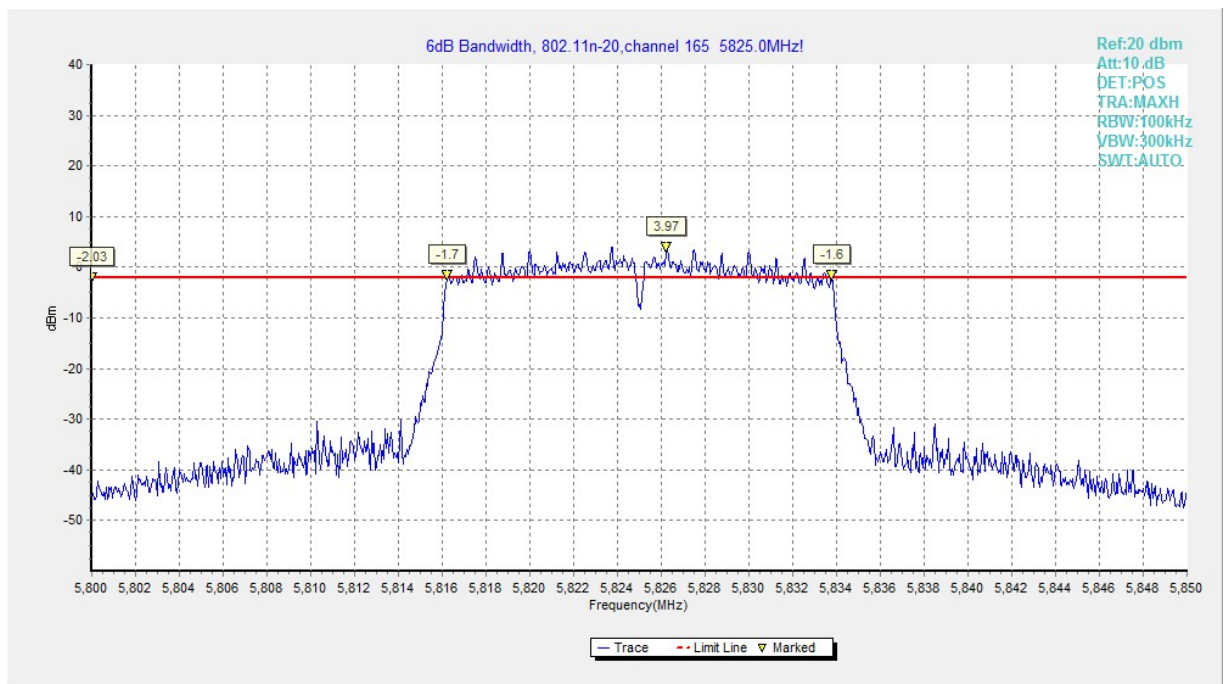


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)

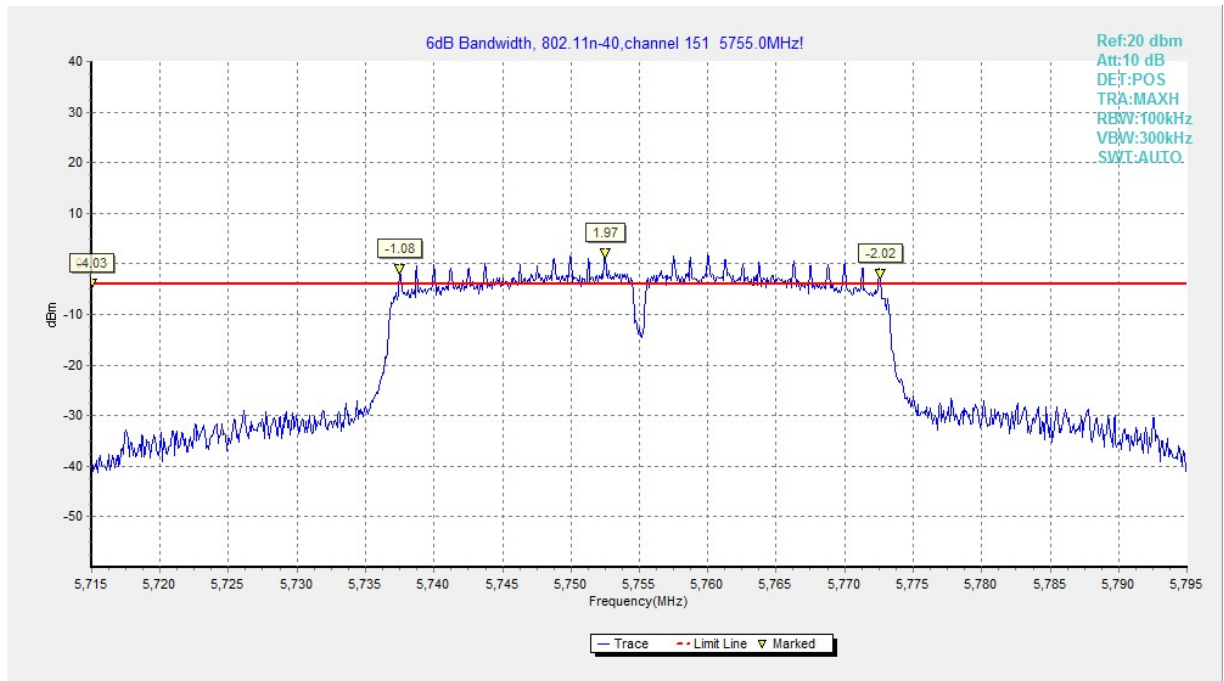


Fig. 7 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)

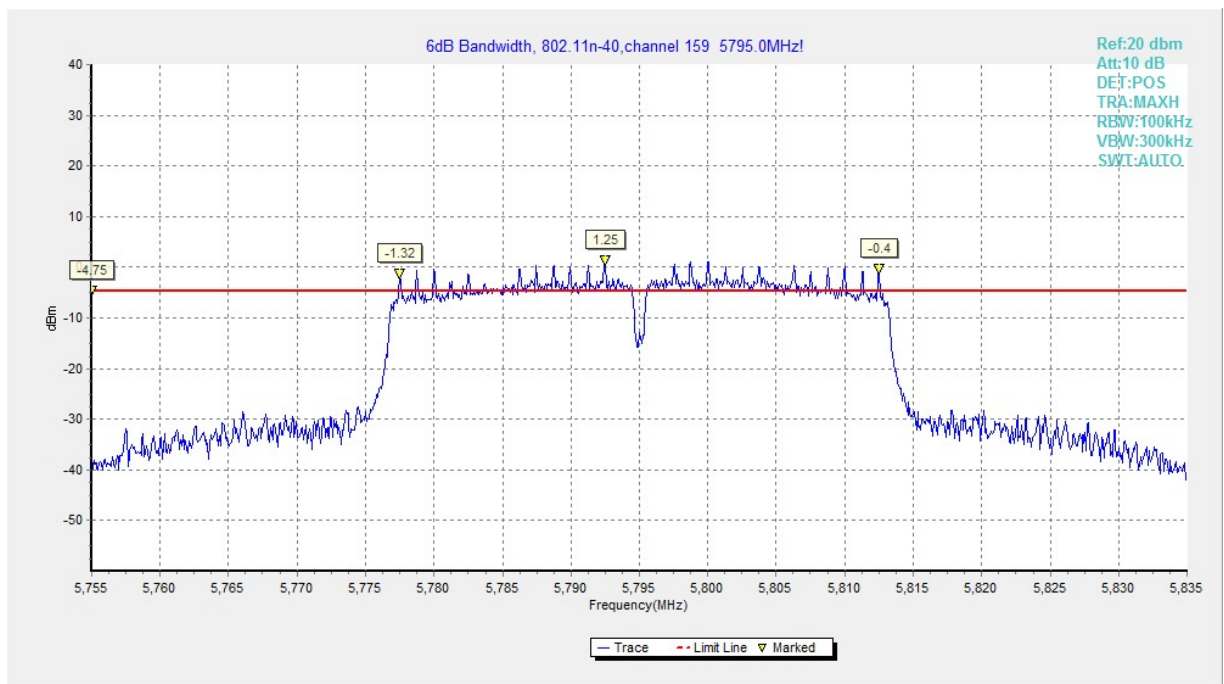


Fig. 8 Occupied 6dB Bandwidth (802.11n-HT40, Ch 159)

A.5. Transmitter Spurious Emission

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	5725MHz~5850MHz	< -27

The measurement is made according to ANSI C63.10 .

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(dB)
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.5.1 Transmitter Spurious Emission - Conducted

Measurement Results:

802.11a mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	5.745 GHz	Fig.9	P
		30 MHz ~ 12 GHz	Fig.10	P
		12 GHz ~ 25 GHz	Fig.11	P
		25 GHz ~ 40 GHz	Fig.12	P
	157	5.785 GHz	Fig.13	P
		30 MHz ~ 12 GHz	Fig.14	P
		12 GHz ~ 25 GHz	Fig.15	P
		25 GHz ~ 40 GHz	Fig.16	P
	165	5.825 GHz	Fig.17	P
		30 MHz ~ 12 GHz	Fig.18	P
		12 GHz ~ 25 GHz	Fig.19	P
		25 GHz ~ 40 GHz	Fig.20	P

802.11n-HT20 mode

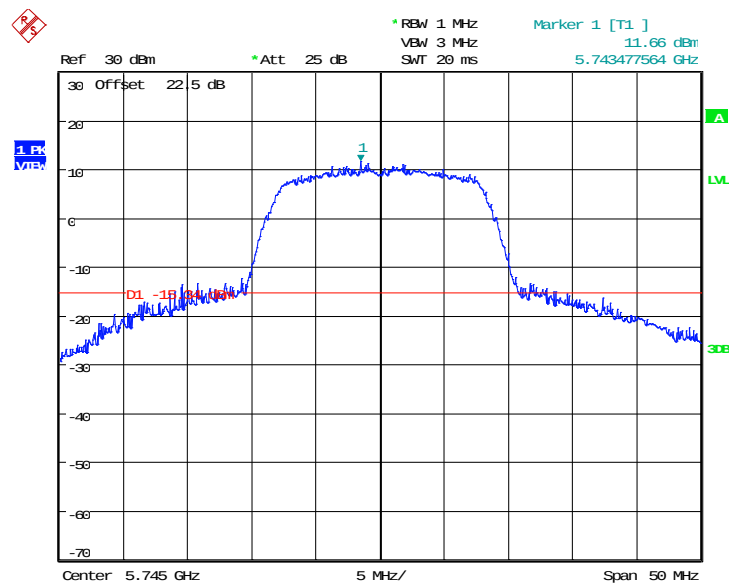
MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	149	5.745 GHz	Fig.21	P
		30 MHz ~ 12 GHz	Fig.22	P
		12 GHz ~ 25 GHz	Fig.23	P
		25 GHz ~ 40 GHz	Fig.24	P
	157	5.785 GHz	Fig.25	P
		30 MHz ~ 12 GHz	Fig.26	P
		12 GHz ~ 25 GHz	Fig.27	P
		25 GHz ~ 40 GHz	Fig.28	P
	165	5.825 GHz	Fig.29	P
		30 MHz ~ 12 GHz	Fig.30	P
		12 GHz ~ 25 GHz	Fig.31	P
		25 GHz ~ 40 GHz	Fig.32	P

802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	151	5.755 GHz	Fig.33	P
		30 MHz ~ 12 GHz	Fig.34	P
		12 GHz ~ 25 GHz	Fig.35	P
		25 GHz ~ 40 GHz	Fig.36	P
	159	5.795 GHz	Fig.37	P
		30 MHz ~ 12 GHz	Fig.38	P
		12 GHz ~ 25 GHz	Fig.39	P
		25 GHz ~ 40 GHz	Fig.40	P

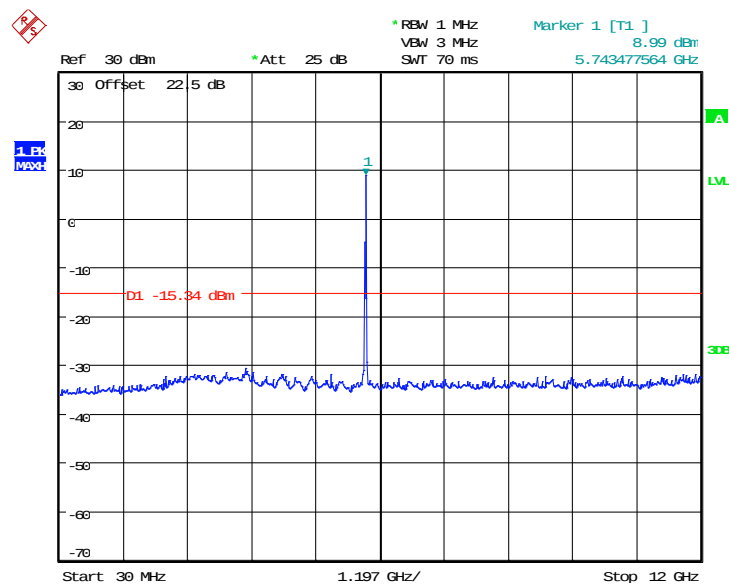
Conclusion: PASS

Test graphs as below:



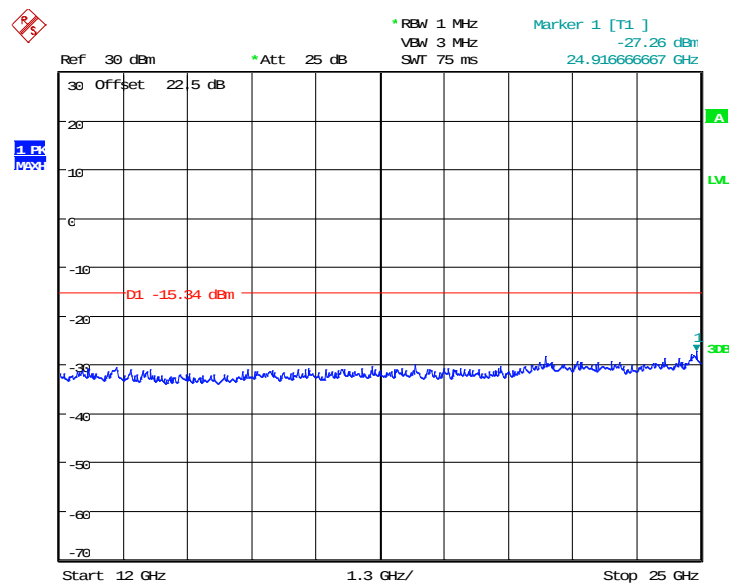
Date: 23.SEP.2014 15:46:46

Fig. 9 Conducted Spurious Emission (802.11a, Ch149, Center Frequency)



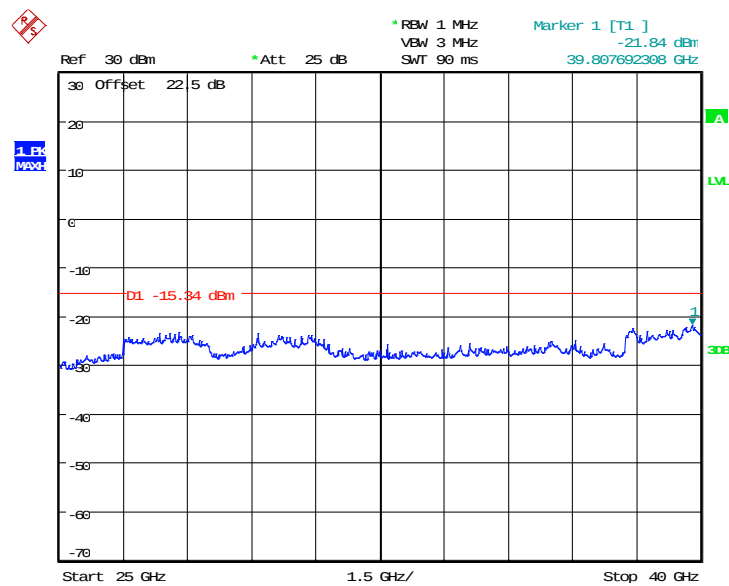
Date: 23.SEP.2014 15:47:53

Fig. 10 Conducted Spurious Emission (802.11a, Ch149, 30 MHz-12 GHz)



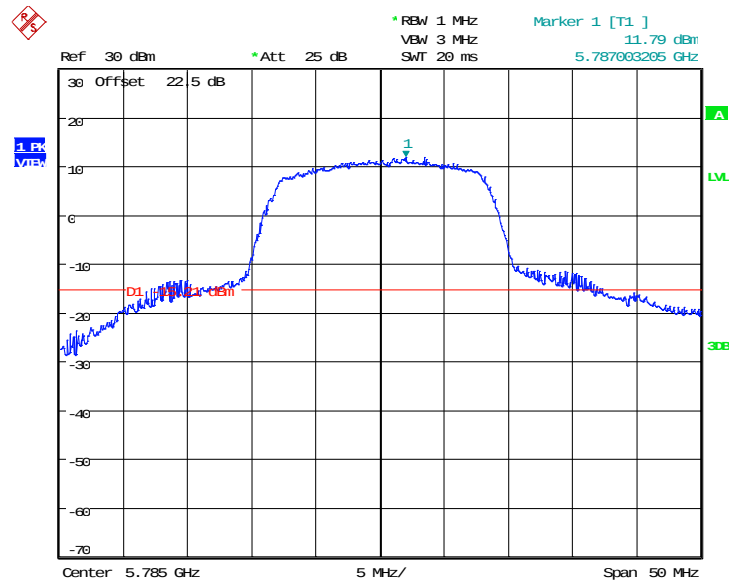
Date: 23.SEP.2014 15:48:37

Fig. 11 Conducted Spurious Emission (802.11a, Ch149, 12 GHz-25 GHz)



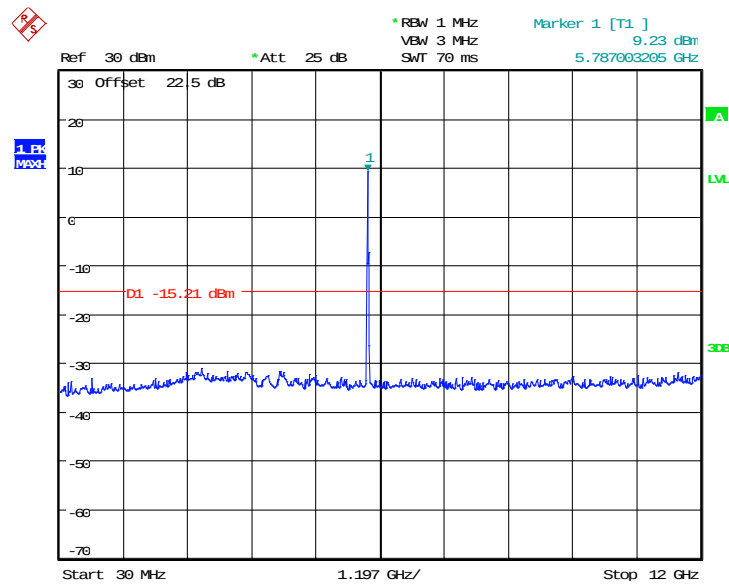
Date: 23.SEP.2014 15:49:24

Fig. 12 Conducted Spurious Emission (802.11a, Ch149, 25 GHz-40 GHz)



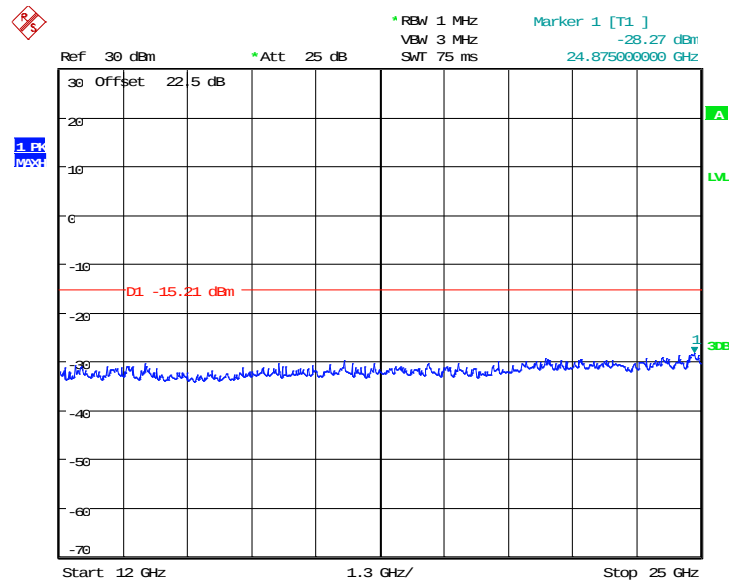
Date: 23.SEP.2014 15:56:44

Fig. 13 Conducted Spurious Emission (802.11a, Ch157, Center Frequency)



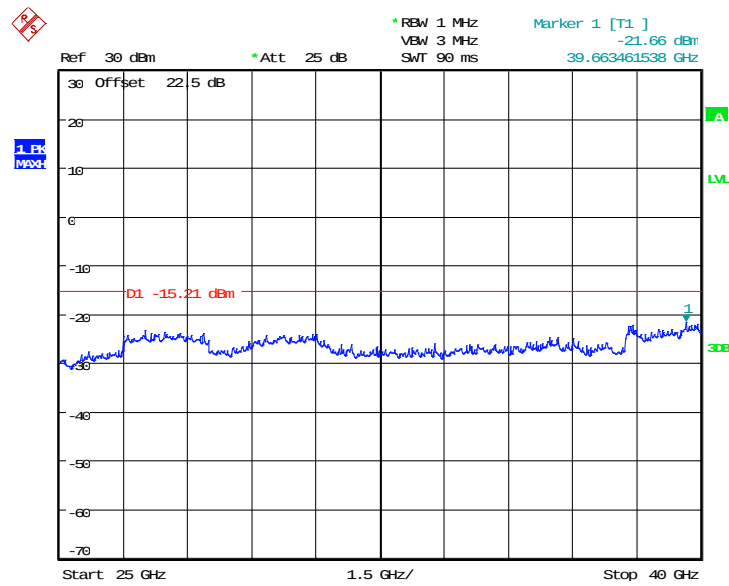
Date: 23.SEP.2014 15:57:22

Fig. 14 Conducted Spurious Emission (802.11a, Ch157, 30 MHz-12 GHz)



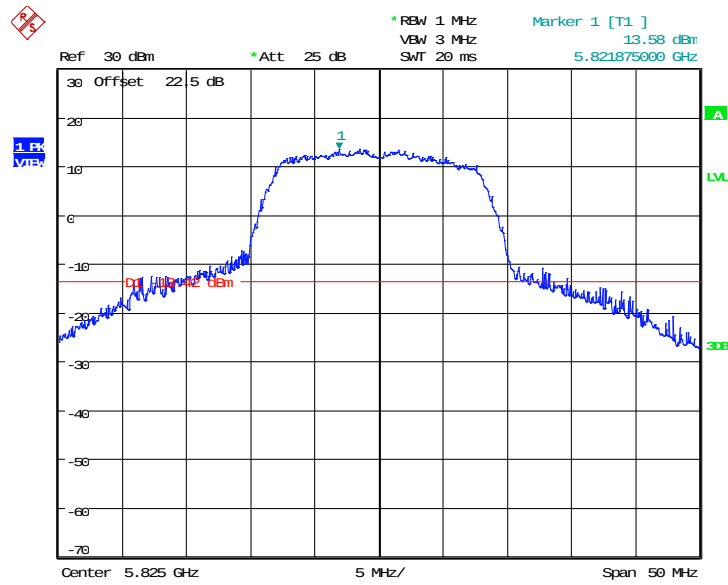
Date: 23.SEP.2014 15:58:02

Fig. 15 Conducted Spurious Emission (802.11a, Ch157, 12 GHz-25 GHz)



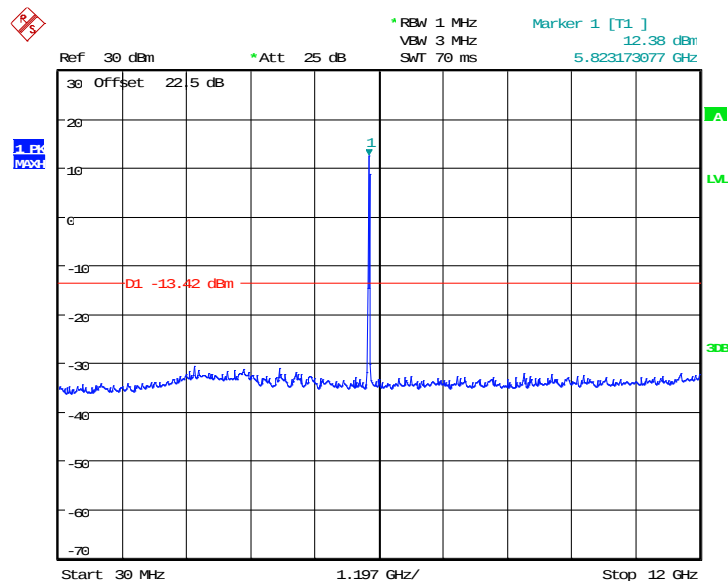
Date: 23.SEP.2014 15:58:42

Fig. 16 Conducted Spurious Emission (802.11a, Ch157, 25 GHz-40 GHz)



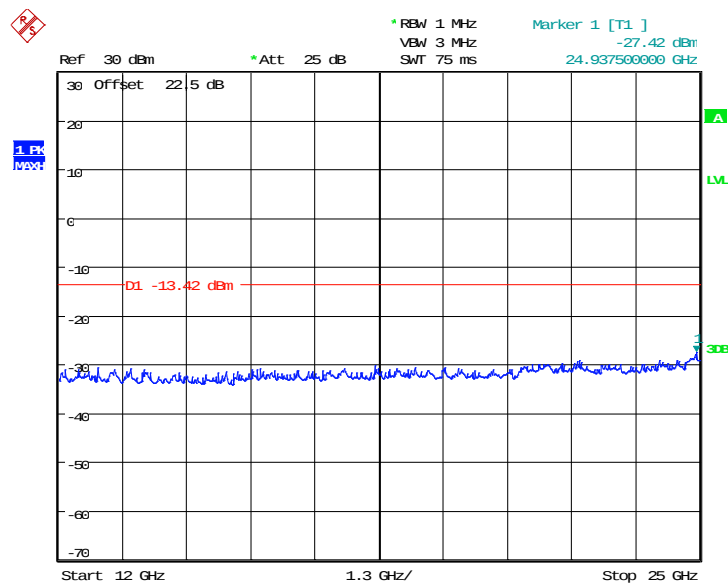
Date: 23.SEP.2014 16:00:21

Fig. 17 Conducted Spurious Emission (802.11a, Ch165, Center Frequency)



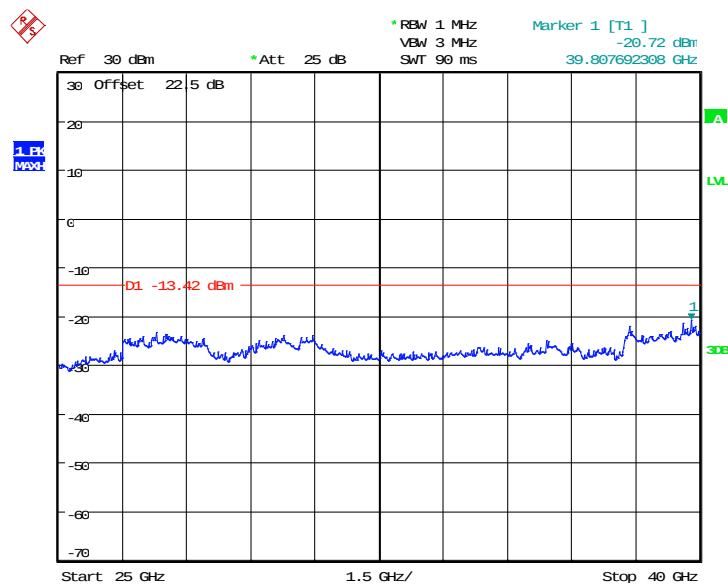
Date: 23.SEP.2014 16:00:59

Fig. 18 Conducted Spurious Emission (802.11a, Ch165, 30 MHz-12 GHz)



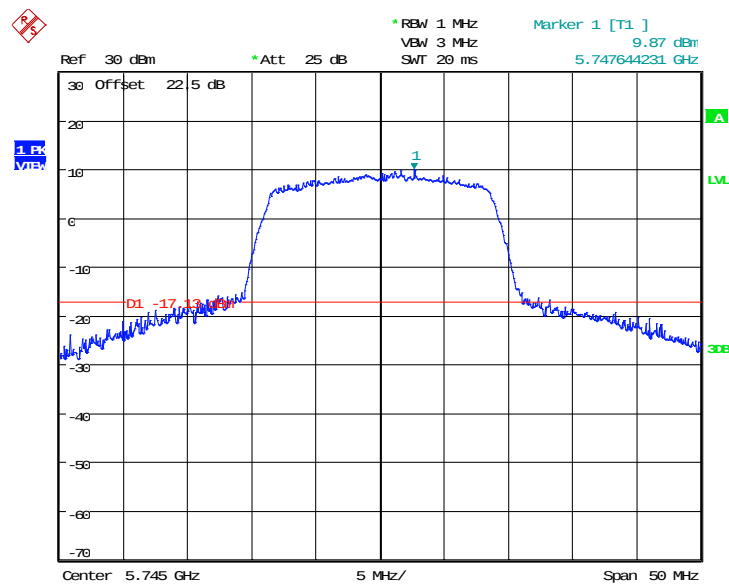
Date: 23.SEP.2014 16:01:24

Fig. 19 Conducted Spurious Emission (802.11a, Ch165, 12 GHz-25 GHz)



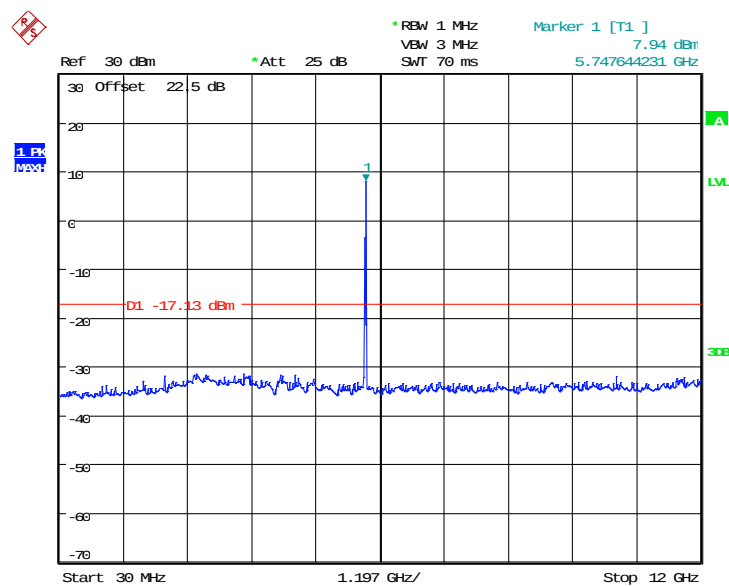
Date: 23.SEP.2014 16:01:50

Fig. 20 Conducted Spurious Emission (802.11a, Ch165, 25 GHz-40 GHz)



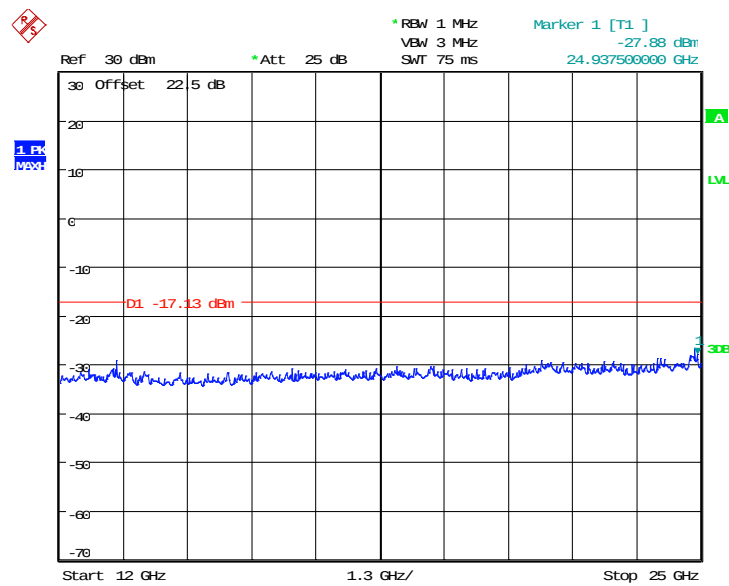
Date: 23.SEP.2014 16:03:42

Fig. 21 Conducted Spurious Emission (802.11n-HT20, Ch149, Center Frequency)



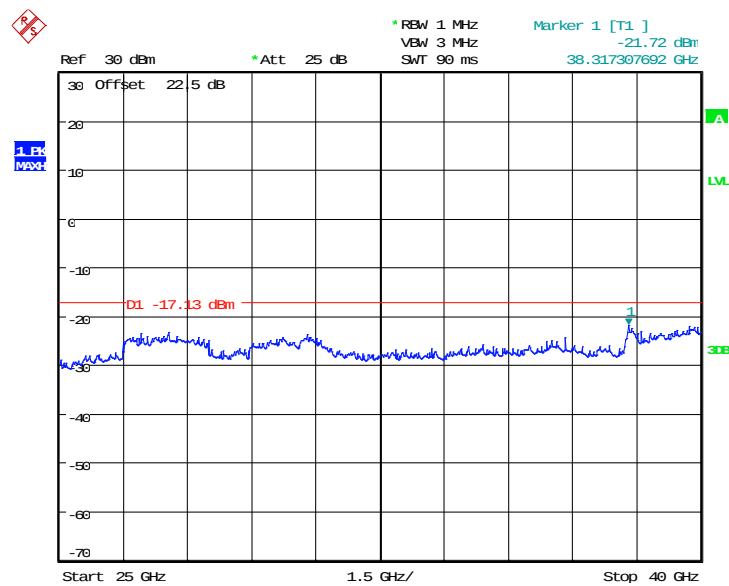
Date: 23.SEP.2014 16:04:19

Fig. 22 Conducted Spurious Emission (802.11n-HT20, Ch149, 30 MHz-12 GHz)



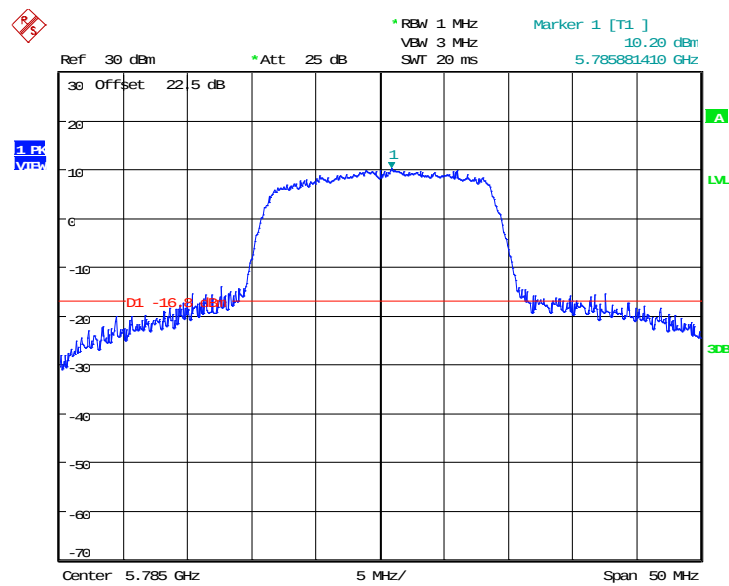
Date: 23.SEP.2014 16:04:47

Fig. 23 Conducted Spurious Emission (802.11n-HT20, Ch149, 12 GHz-25 GHz)



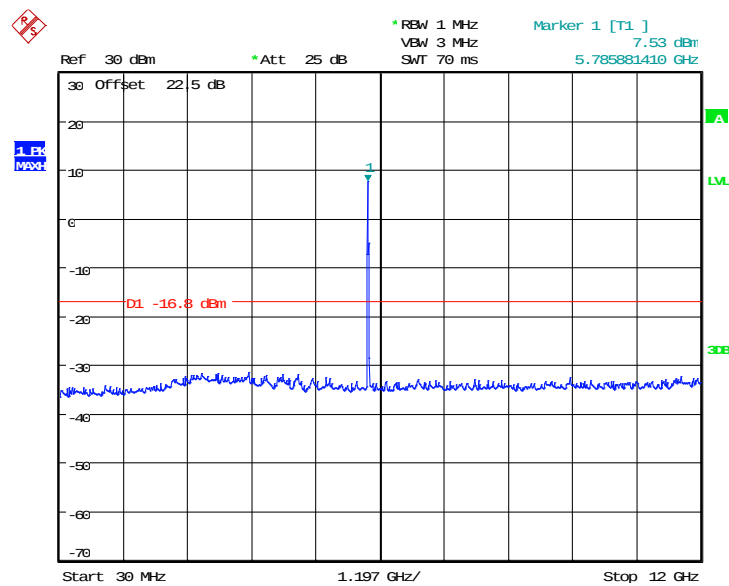
Date: 23.SEP.2014 16:05:18

Fig. 24 Conducted Spurious Emission (802.11n-HT20, Ch149, 25 GHz-40 GHz)



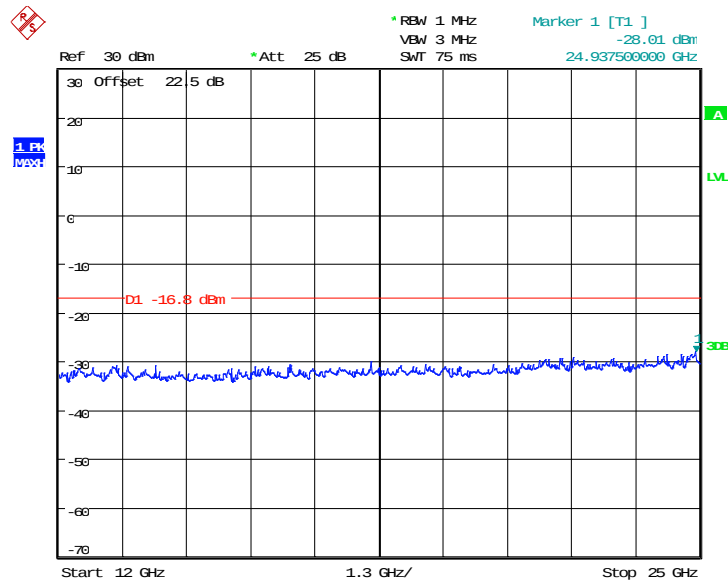
Date: 23.SEP.2014 16:07:05

Fig. 25 Conducted Spurious Emission (802.11n-HT20, Ch157, Center Frequency)



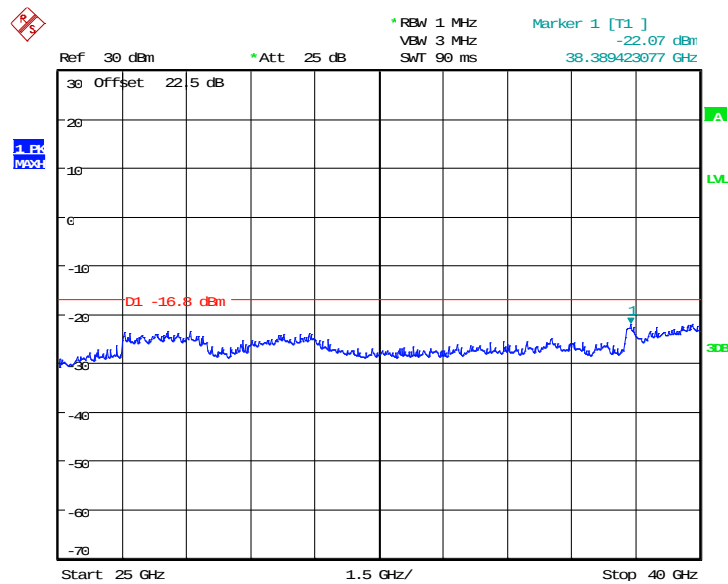
Date: 23.SEP.2014 16:07:45

Fig. 26 Conducted Spurious Emission (802.11n-HT20, Ch157, 30 MHz-12 GHz)



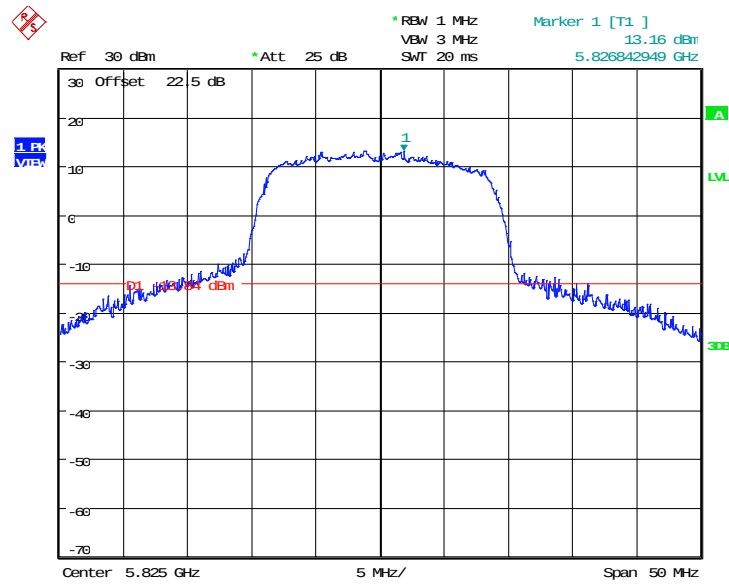
Date: 23.SEP.2014 16:08:12

Fig. 27 Conducted Spurious Emission (802.11n-HT20, Ch157, 12 GHz-25 GHz)



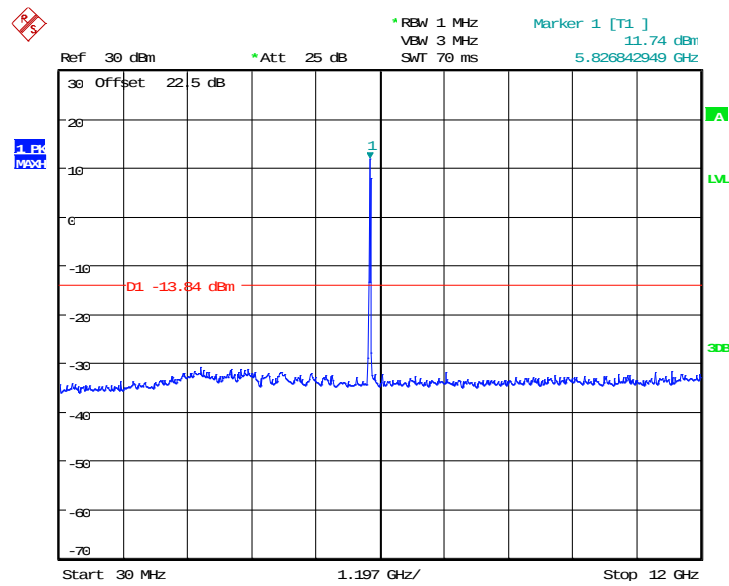
Date: 23.SEP.2014 16:08:44

Fig. 28 Conducted Spurious Emission (802.11n-HT20, Ch157, 25 GHz-40 GHz)



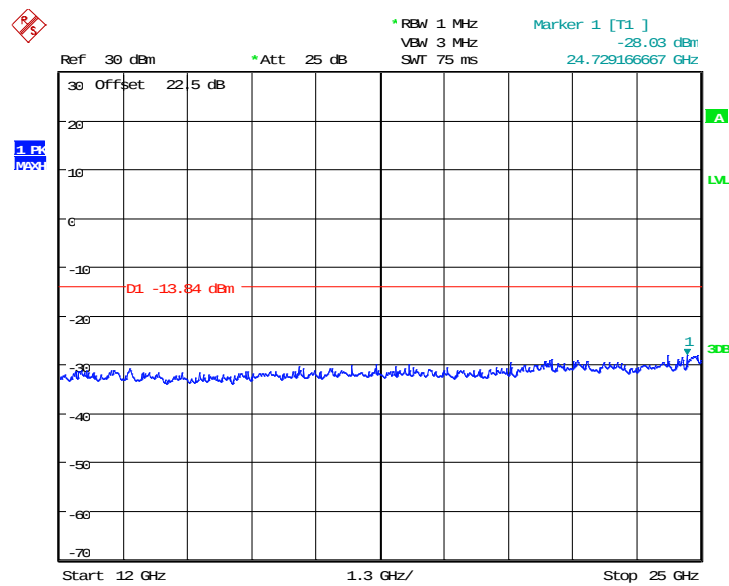
Date: 23.SEP.2014 16:10:23

Fig. 29 Conducted Spurious Emission (802.11n-HT20, Ch165, Center Frequency)



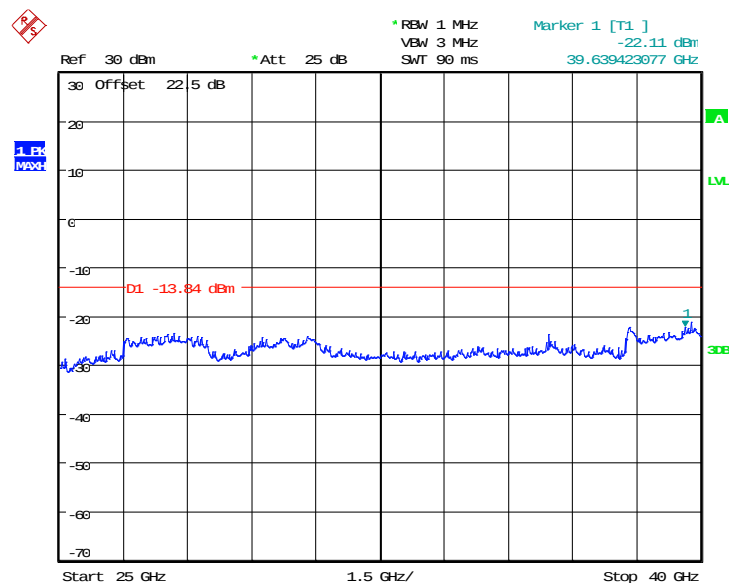
Date: 23.SEP.2014 16:11:12

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



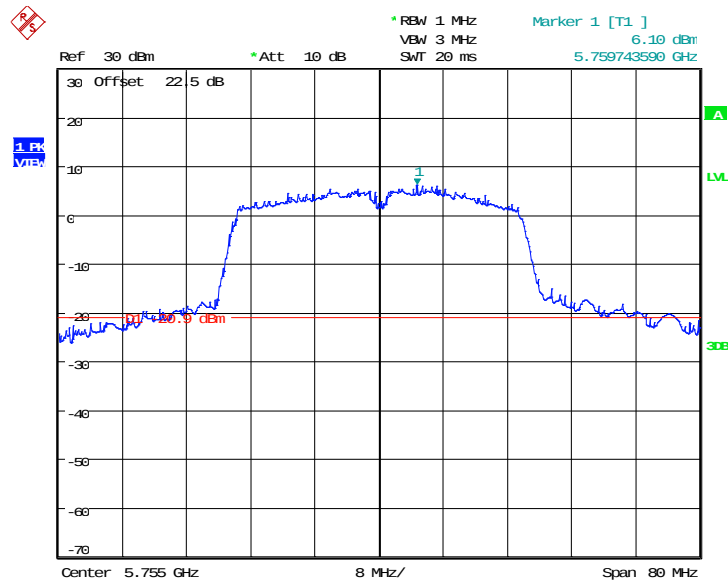
Date: 23.SEP.2014 16:11:53

Fig. 31 Conducted Spurious Emission (802.11n-HT20, Ch165, 12 GHz-25 GHz)



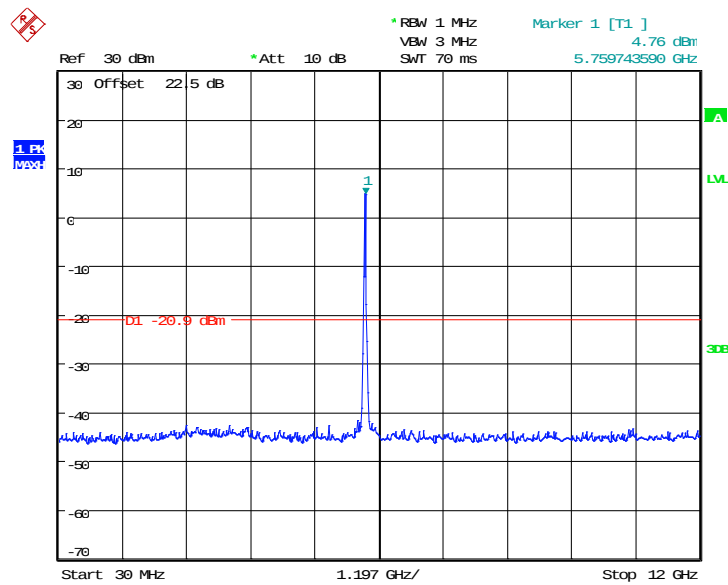
Date: 23.SEP.2014 16:12:21

Fig. 32 Conducted Spurious Emission (802.11n-HT20, Ch165, 25 GHz-40 GHz)



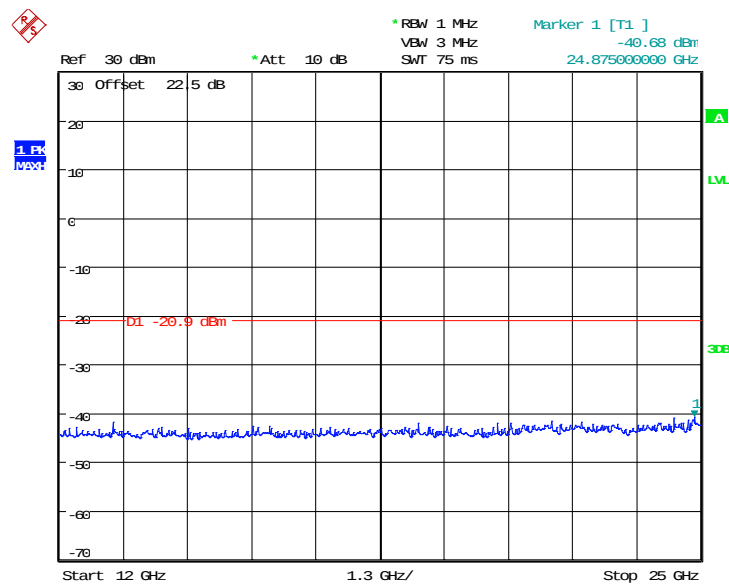
Date: 23.SEP.2014 16:43:22

Fig. 33 Conducted Spurious Emission (802.11n-HT40, Ch151, Center Frequency)



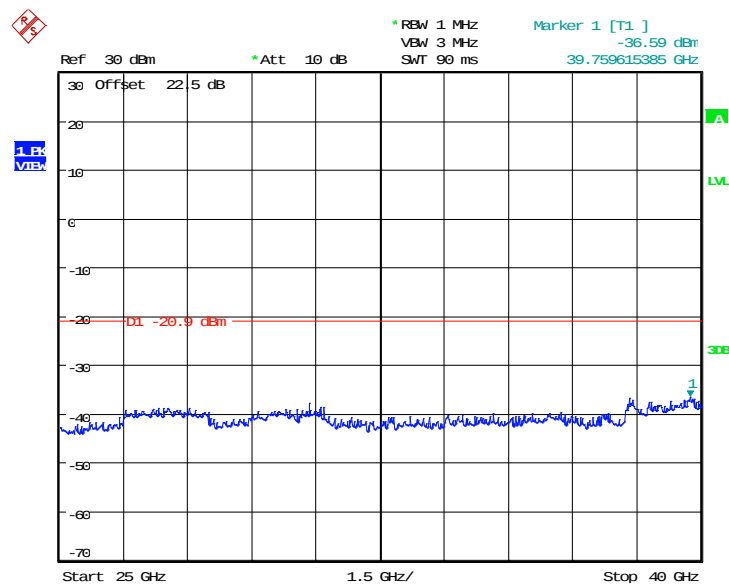
Date: 23.SEP.2014 16:43:45

Fig. 34 Conducted Spurious Emission (802.11n-HT40, Ch151, 30 MHz-12 GHz)



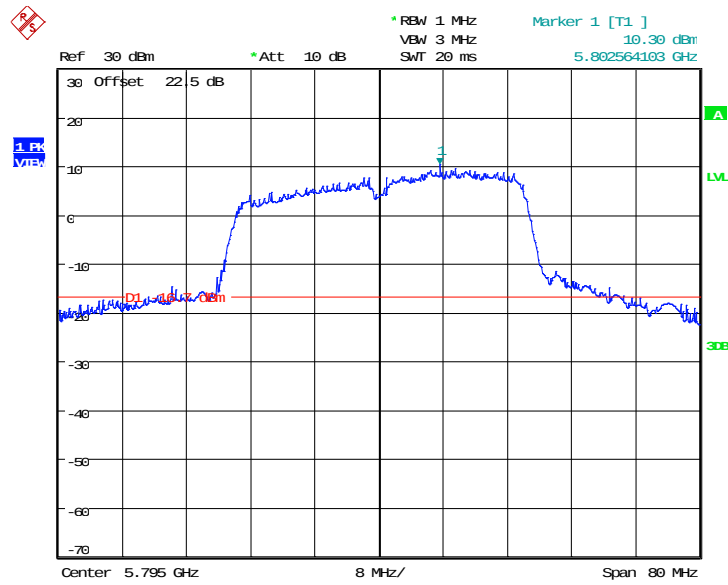
Date: 23.SEP.2014 16:44:12

Fig. 35 Conducted Spurious Emission (802.11n-HT40, Ch151, 12 GHz-25 GHz)



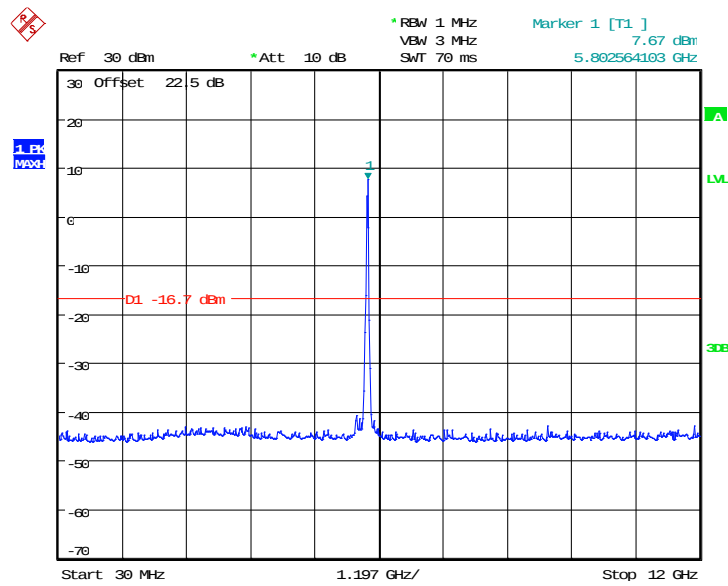
Date: 23.SEP.2014 16:44:35

Fig. 36 Conducted Spurious Emission (802.11n-HT40, Ch151, 25 GHz-40 GHz)



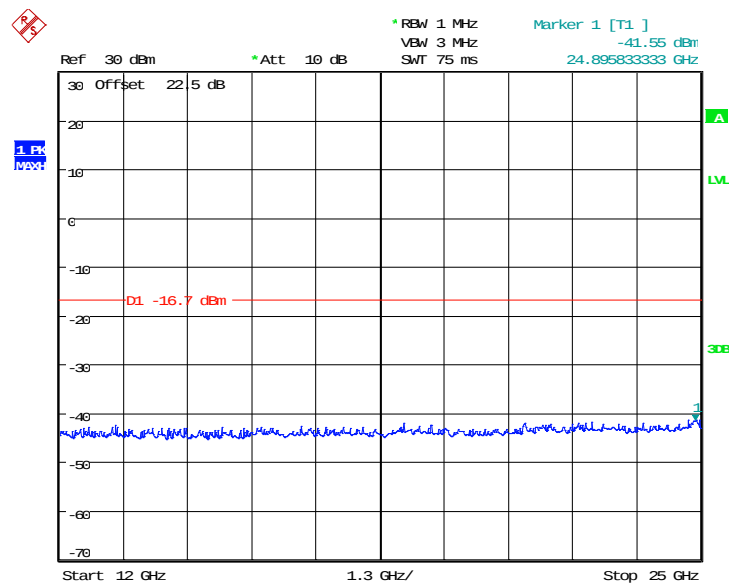
Date: 23.SEP.2014 16:45:56

Fig. 37 Conducted Spurious Emission (802.11n-HT40, Ch159, Center Frequency)



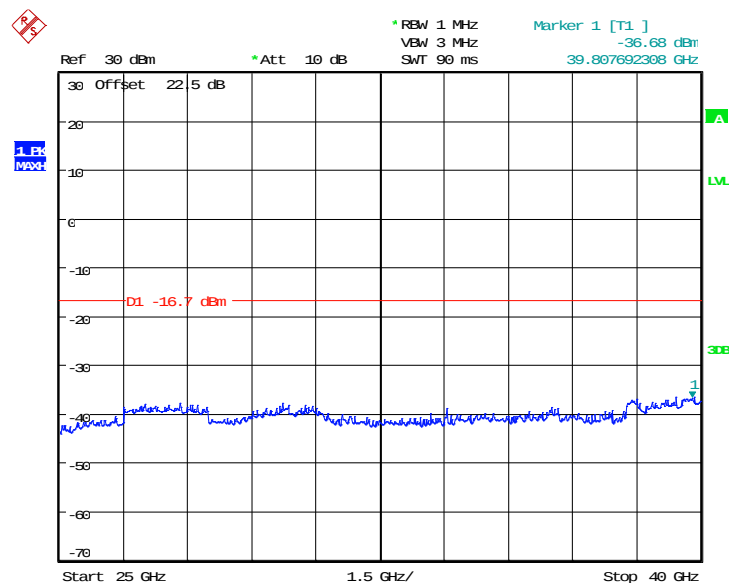
Date: 23.SEP.2014 16:46:18

Fig. 38 Conducted Spurious Emission (802.11n-HT40, Ch159, 30 MHz-12 GHz)



Date: 23.SEP.2014 16:46:42

Fig. 39 Conducted Spurious Emission (802.11n-HT40, Ch159, 12 GHz-25 GHz)



Date: 23.SEP.2014 16:47:05

Fig. 40 Conducted Spurious Emission (802.11n-HT40, Ch159, 25 GHz-40 GHz)

A.5.2 Transmitter Spurious Emission - Radiated

Measurement Uncertainty:

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

Measurement Results:

802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	1 GHz ~ 6 GHz	Fig.41	P
		6 GHz ~ 18 GHz	Fig.42	P
	157	30 MHz ~1 GHz	Fig.43	P
		1 GHz ~ 6 GHz	Fig.44	P
		6 GHz ~ 18 GHz	Fig.45	P
		18 GHz ~ 26.5 GHz	Fig.46	P
		26.5 GHz~ 40 GHz	Fig.47	P
	165	1 GHz ~ 6 GHz	Fig.48	P
		6 GHz ~ 18 GHz	Fig.49	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	149	1 GHz ~ 6 GHz	Fig.50	P
		6 GHz ~ 18 GHz	Fig.51	P
	157	30 MHz ~1 GHz	Fig.52	P
		1 GHz ~ 6 GHz	Fig.53	P
		6 GHz ~ 18 GHz	Fig.54	P
		18 GHz ~ 26.5 GHz	Fig.55	P
		26.5 GHz~ 40 GHz	Fig.56	P
	165	1 GHz ~ 6 GHz	Fig.57	P
		6 GHz ~ 18 GHz	Fig.58	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	151	30 MHz ~1 GHz	Fig.59	P
		1 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
	159	1 GHz ~ 6 GHz	Fig.64	P
		6 GHz ~ 18 GHz	Fig.65	P

Conclusion: PASS

Note:

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

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

802.11a
Ch149

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17955.000	56.4	-17.7	45.6	28.500	H
17866.500	55.4	-18.5	45.6	28.300	V
17781.000	55.4	-18.5	45.6	28.300	V
17991.000	55.2	-17.7	45.6	27.300	V
17932.500	55.1	-17.7	45.6	27.200	V
17994.000	55.1	-17.7	45.6	27.200	V

Ch157

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17974.500	56.0	-17.7	45.6	28.100	H
17983.500	55.8	-17.7	45.6	27.900	V
17986.500	55.7	-17.7	45.6	27.800	V
17944.500	55.7	-17.7	45.6	27.800	H
17997.000	55.6	-17.7	45.6	27.700	V
17998.500	55.6	-17.7	45.6	27.700	V

Ch165

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
17992.500	55.7	-17.7	45.6	27.800	V
17763.000	55.6	-18.5	45.6	28.500	V
17842.500	55.6	-18.5	45.6	28.500	H
17976.000	55.1	-17.7	45.6	27.200	V
17991.000	55.0	-17.7	45.6	27.100	V
17994.000	55.0	-17.7	45.6	27.100	V

802.11n-HT20

Ch149

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17967.000	56.2	-17.7	45.6	28.300	H
17988.000	56.1	-17.7	45.6	28.200	V
17989.500	56.0	-17.7	45.6	28.100	V
17959.500	55.2	-17.7	45.6	27.300	V
17985.000	55.1	-17.7	45.6	27.200	V
18000.000	55.0	-17.7	44.5	28.200	V

Ch157

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17986.500	55.6	-17.7	45.6	27.700	V
17988.000	55.5	-17.7	45.6	27.600	V
17967.000	55.4	-17.7	45.6	27.500	V
17962.500	55.4	-17.7	45.6	27.500	V
17953.500	55.3	-17.7	45.6	27.400	H
17998.500	55.3	-17.7	45.6	27.400	V

Ch165

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17956.500	56.3	-17.7	45.6	28.400	V
17992.500	56.1	-17.7	45.6	28.200	V
17977.500	55.8	-17.7	45.6	27.900	V
17998.500	55.7	-17.7	45.6	27.800	V
17913.000	55.6	-18.5	45.6	28.500	V
17971.500	55.5	-17.7	45.6	27.600	V

802.11n-HT40

Ch151

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17980.500	56.0	-17.7	45.6	28.100	V
17982.000	55.9	-17.7	45.6	28.000	H
17991.000	55.5	-17.7	45.6	27.600	V
17992.500	55.5	-17.7	45.6	27.600	V
17953.500	55.4	-17.7	45.6	27.500	V
17974.500	55.3	-17.7	45.6	27.400	V

Ch159

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P _{Mea} (dBuV/m)	Polarization
17950.500	55.6	-17.7	45.6	27.700	H
17997.000	55.5	-17.7	45.6	27.600	V
17958.000	55.4	-17.7	45.6	27.500	V
17817.000	55.4	-18.5	45.6	28.300	V
17989.500	55.3	-17.7	45.6	27.400	V
17986.500	55.2	-17.7	45.6	27.300	H

Test graphs as below:

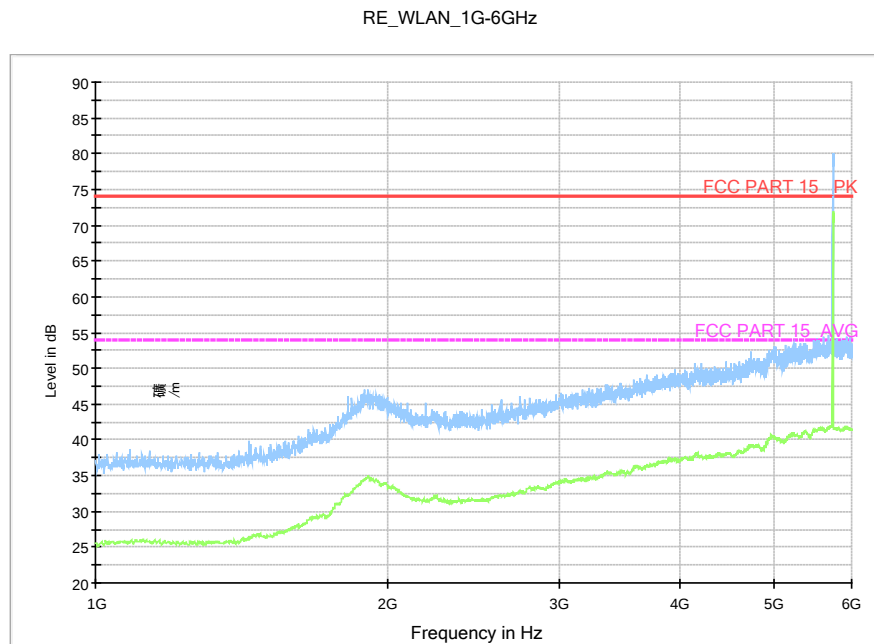


Fig. 41 Radiated Spurious Emission (802.11a, Ch149, 1 GHz-6 GHz)

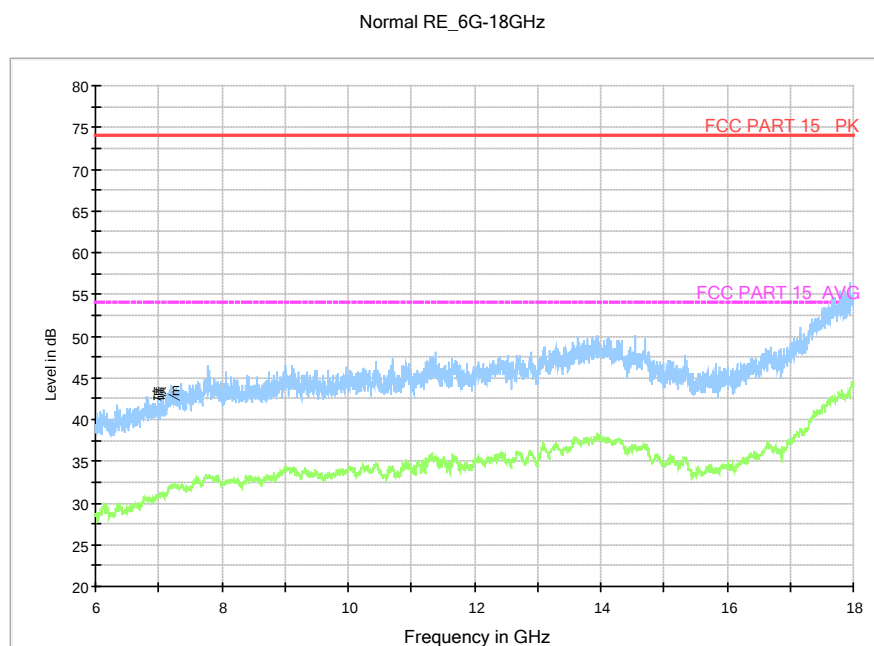


Fig. 42 Radiated Spurious Emission (802.11a, Ch149, 6 GHz-18 GHz)

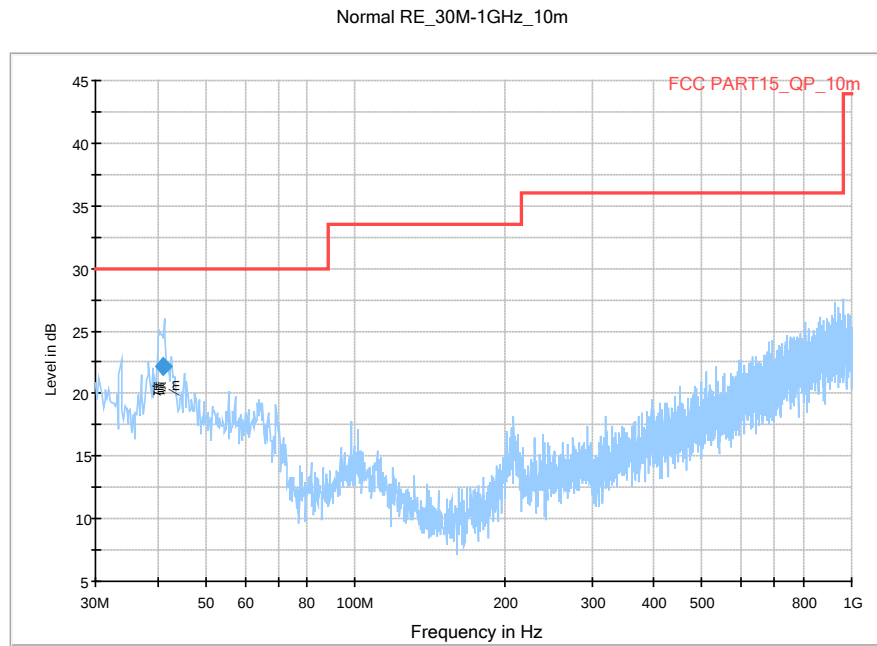


Fig. 43 Radiated Spurious Emission (802.11a, Ch157, 30 MHz-1 GHz)

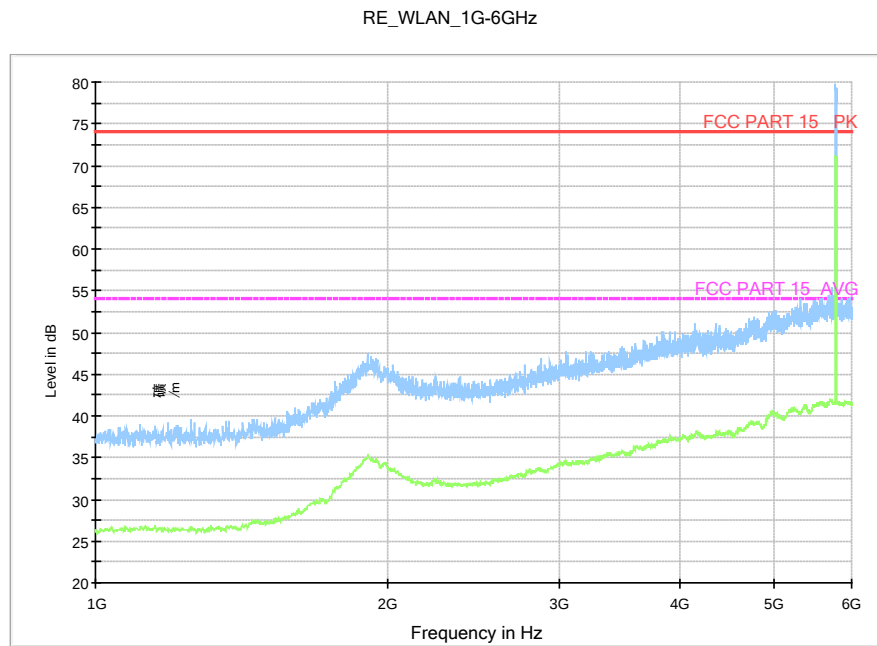


Fig. 44 Radiated Spurious Emission (802.11a, Ch157, 1 GHz-6 GHz)

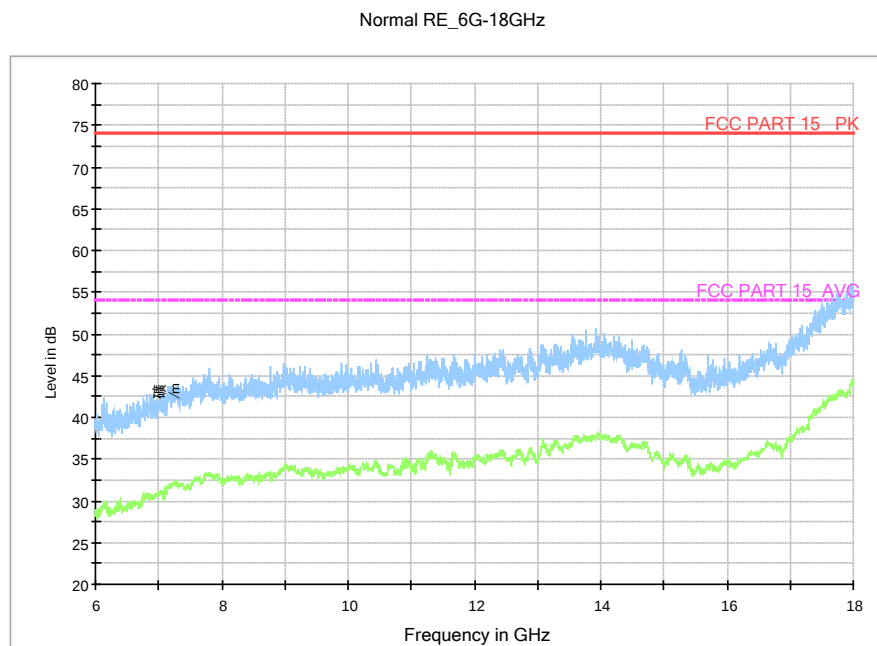


Fig. 45 Radiated Spurious Emission (802.11a, Ch157, 6 GHz-18 GHz)

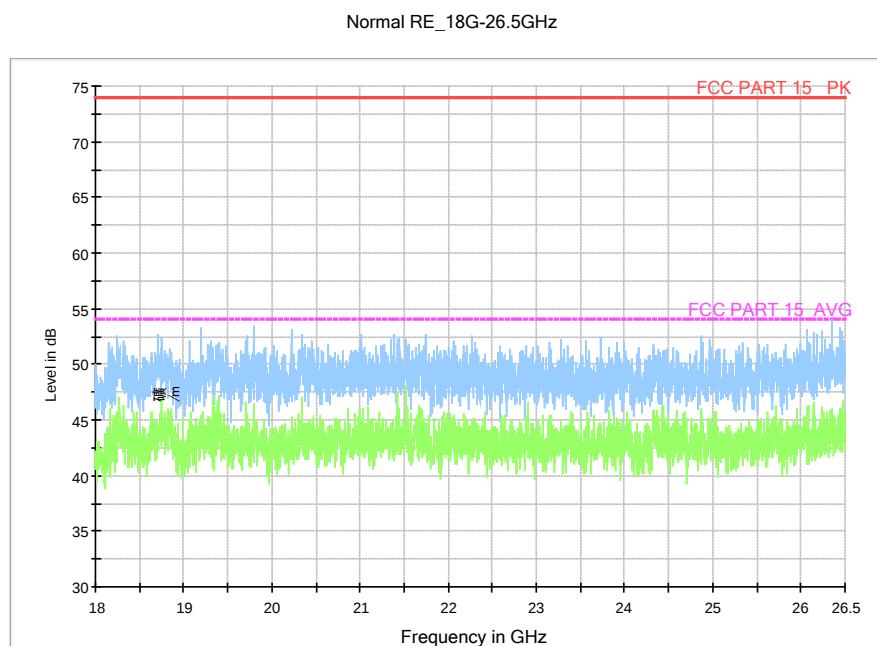


Fig. 46 Radiated Spurious Emission (802.11a, Ch157, 18 GHz-26.5 GHz)

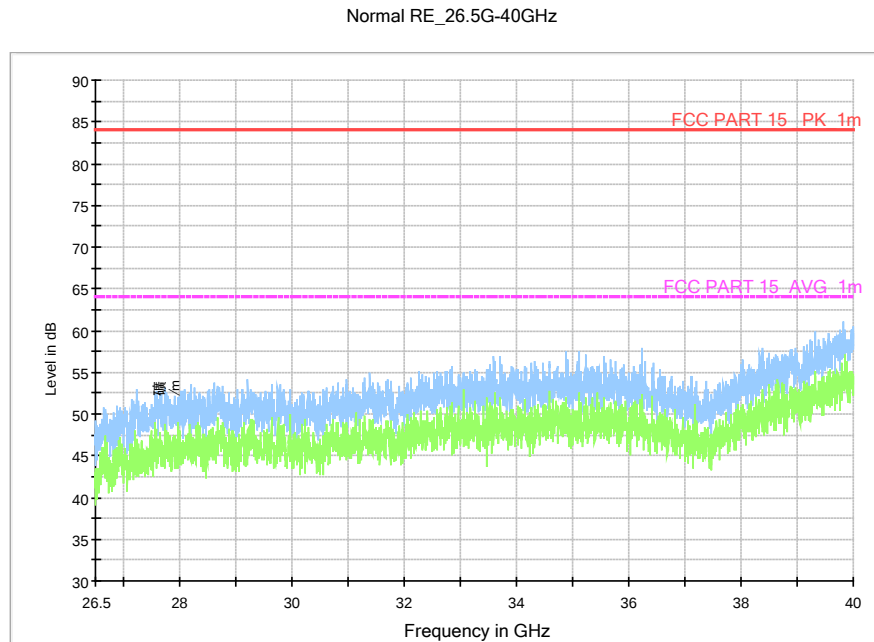


Fig. 47 Radiated emission: 802.11n, (802.11a, Ch157, 26.5 GHz - 40 GHz)

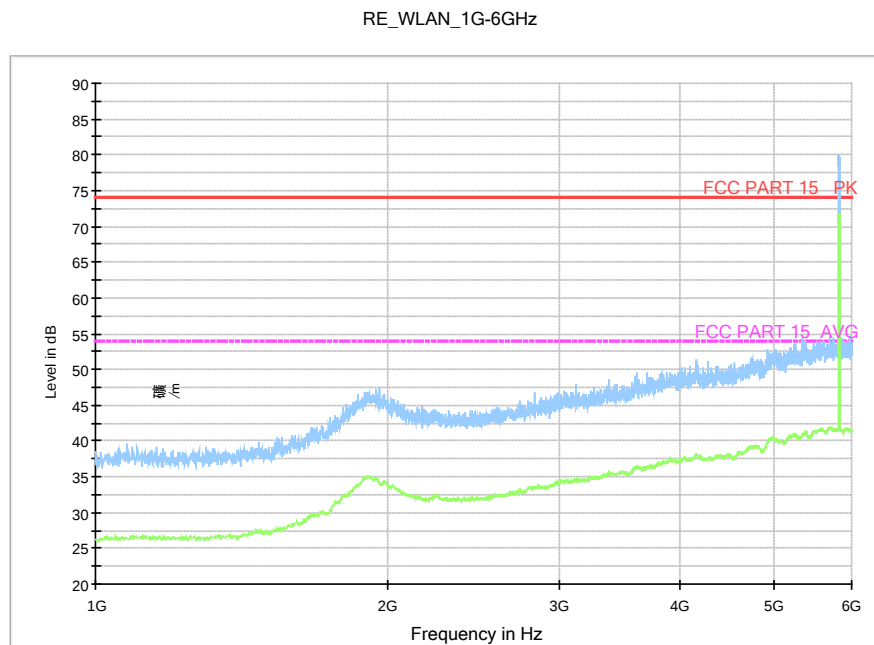


Fig. 48 Radiated Spurious Emission (802.11a, Ch165, 1 GHz-6 GHz)

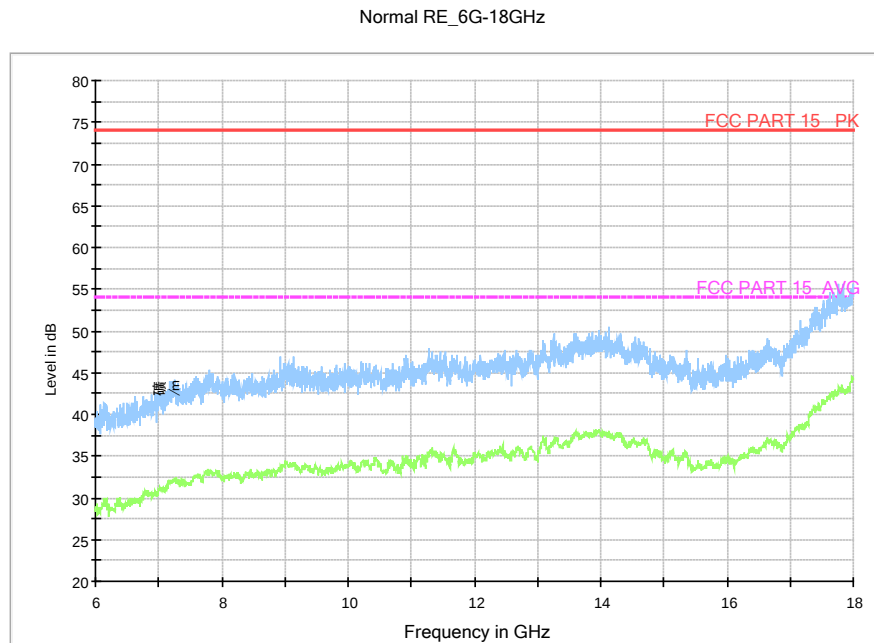


Fig. 49 Radiated Spurious Emission (802.11a, Ch165, 6 GHz-18 GHz)

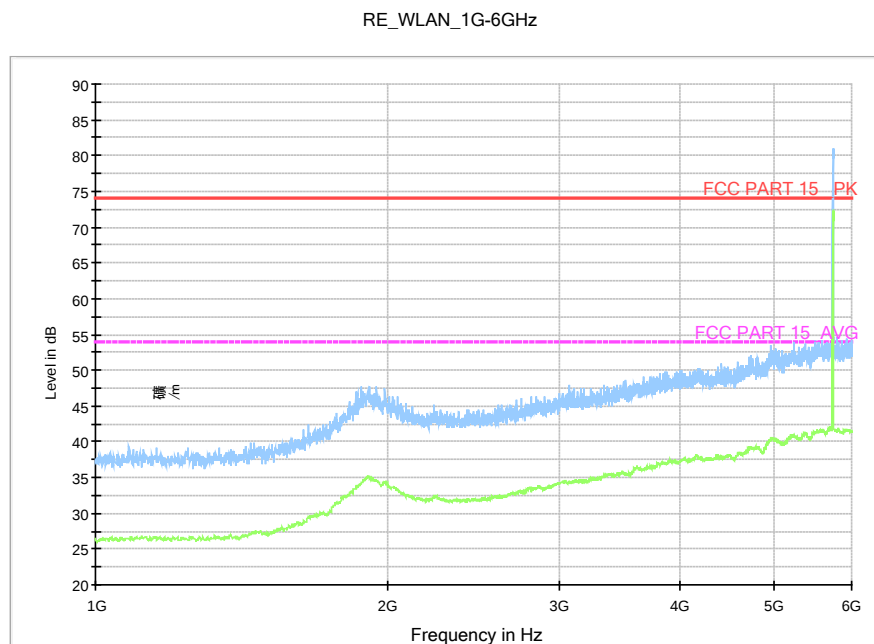


Fig. 50 Radiated Spurious Emission (802.11n-HT20, Ch149, 1 GHz-6 GHz)

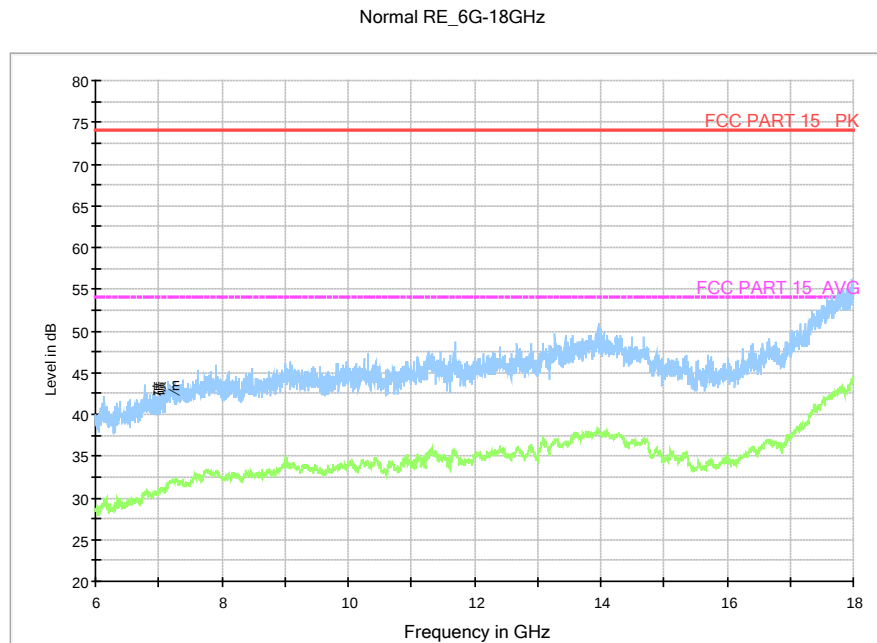


Fig. 51 Radiated Spurious Emission (802.11n-HT20, Ch149, 6 GHz-18 GHz)

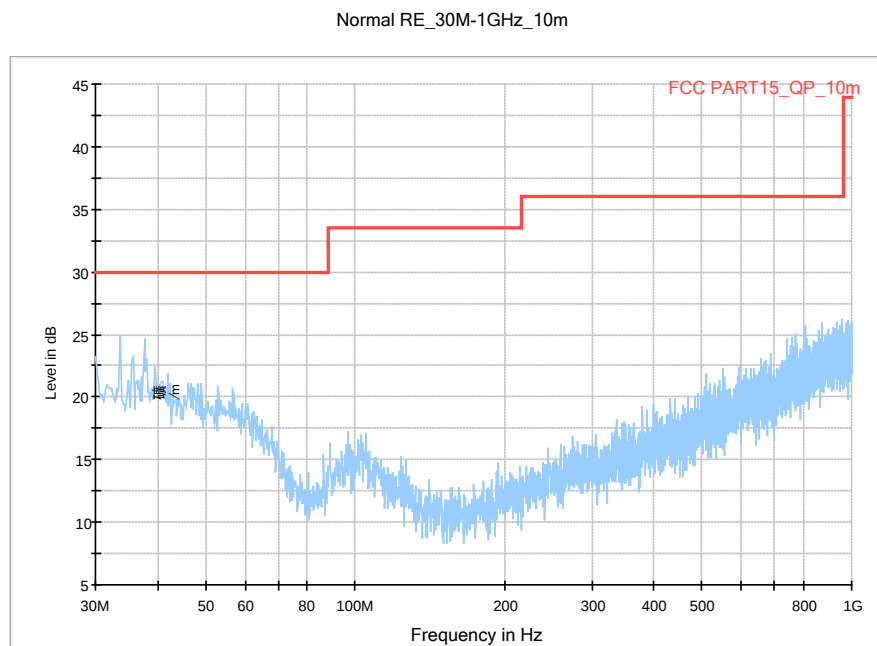


Fig. 52 Radiated Spurious Emission (802.11n-HT20, Ch157, 30 MHz-1 GHz)

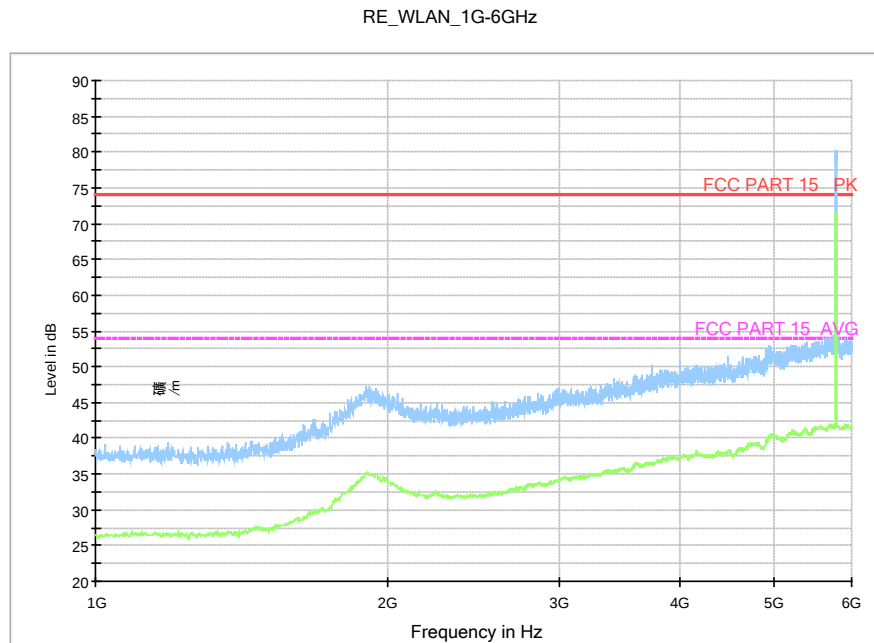


Fig. 53 Radiated Spurious Emission (802.11n-HT20, Ch157, 1 GHz-6 GHz)

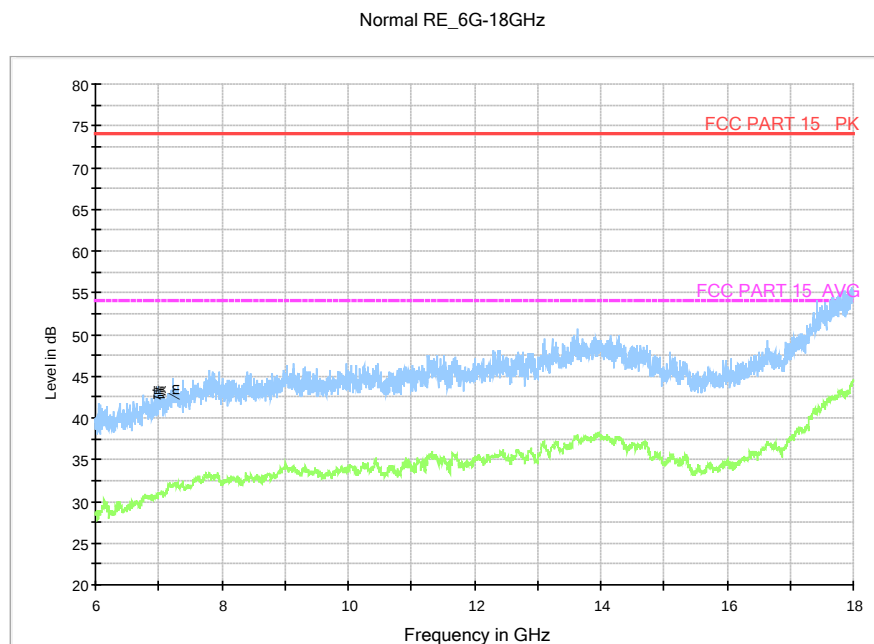


Fig. 54 Radiated Spurious Emission (802.11n-HT20, Ch157, 6 GHz-18 GHz)

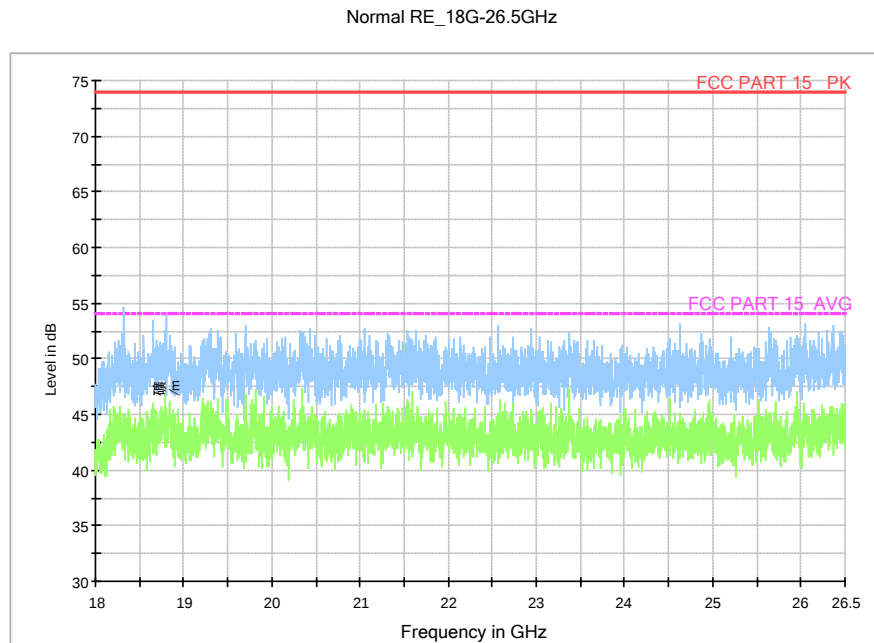


Fig. 55 Radiated Spurious Emission (802.11n-HT20, Ch157, 18 GHz-26.5 GHz)

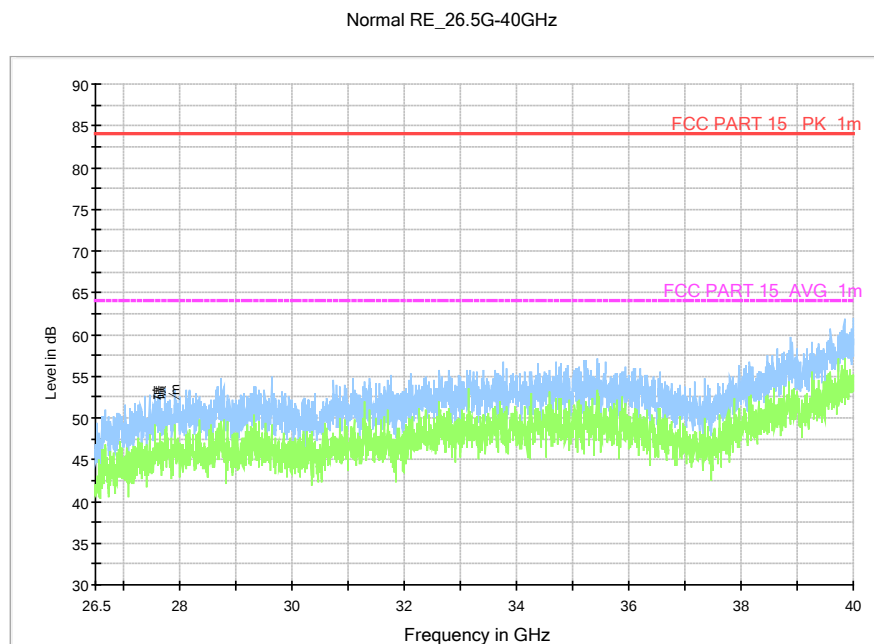


Fig. 56 Radiated emission: 802.11n, (802.11n-HT20, Ch157, 26.5 GHz - 40 GHz)

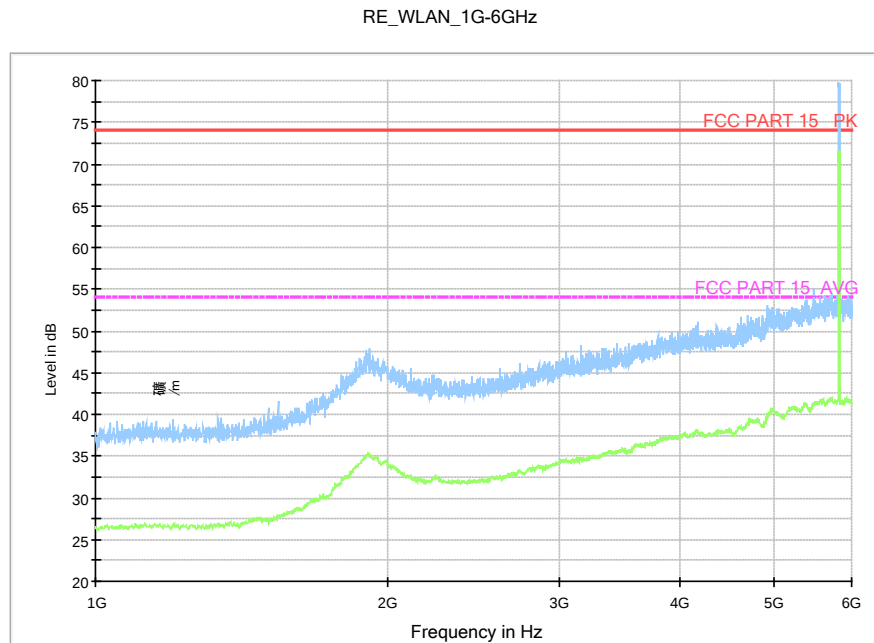


Fig. 57 Radiated Spurious Emission (802.11n-HT20, Ch165, 1 GHz-6 GHz)

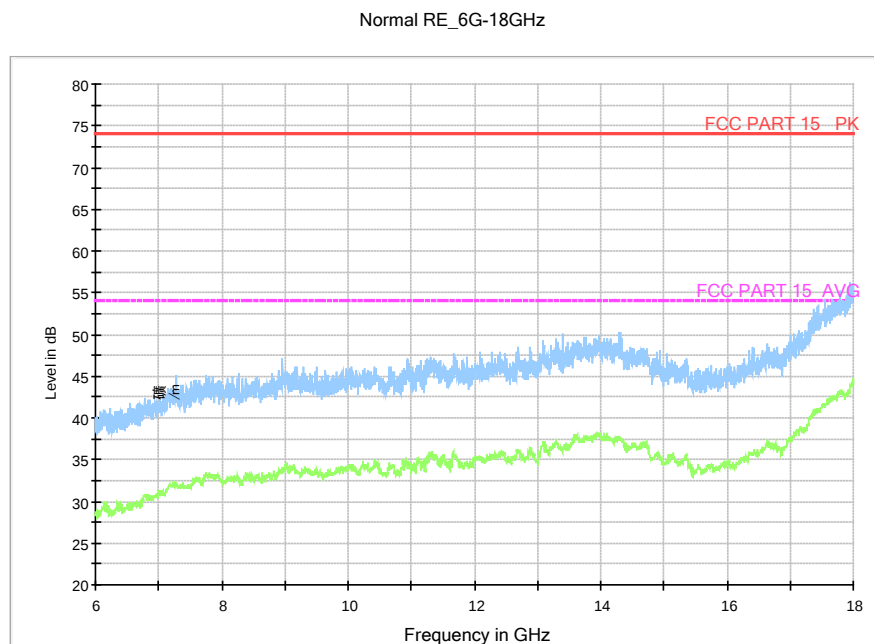


Fig. 58 Radiated Spurious Emission (802.11n-HT20, Ch165, 6 GHz-18 GHz)

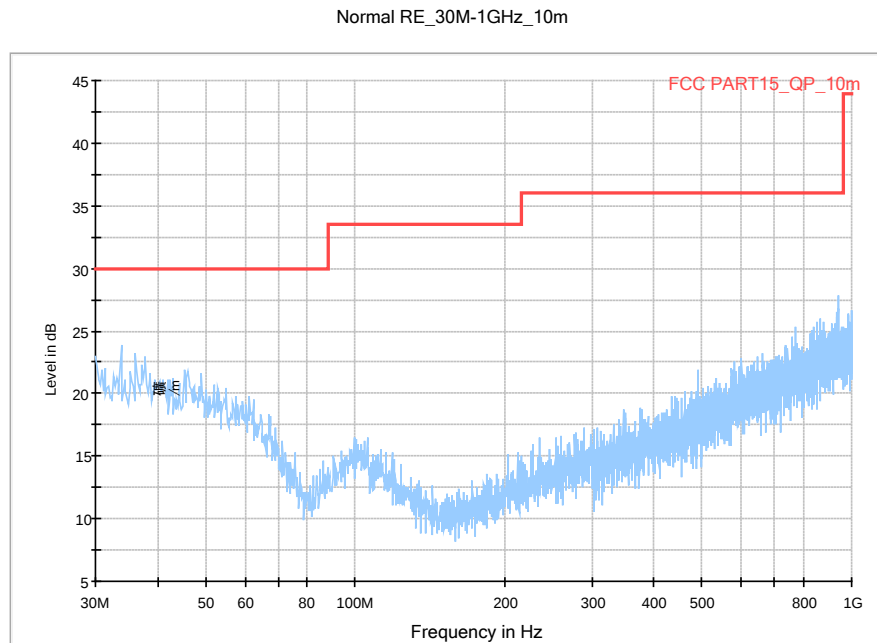


Fig. 59 Radiated Spurious Emission (802.11n-HT40, Ch151, 30 MHz-1 GHz)

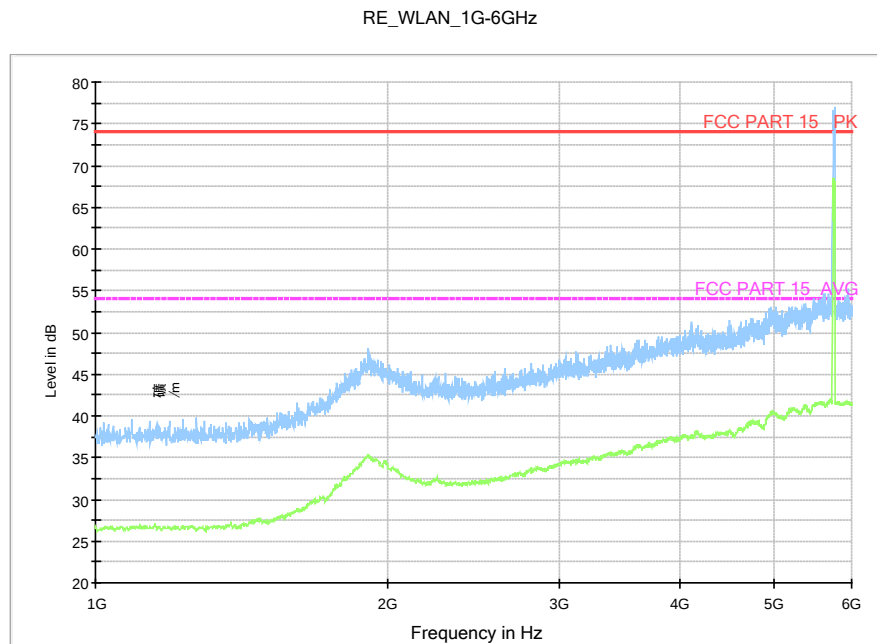


Fig. 60 Radiated Spurious Emission (802.11n-HT40, Ch151, 1 GHz-6 GHz)

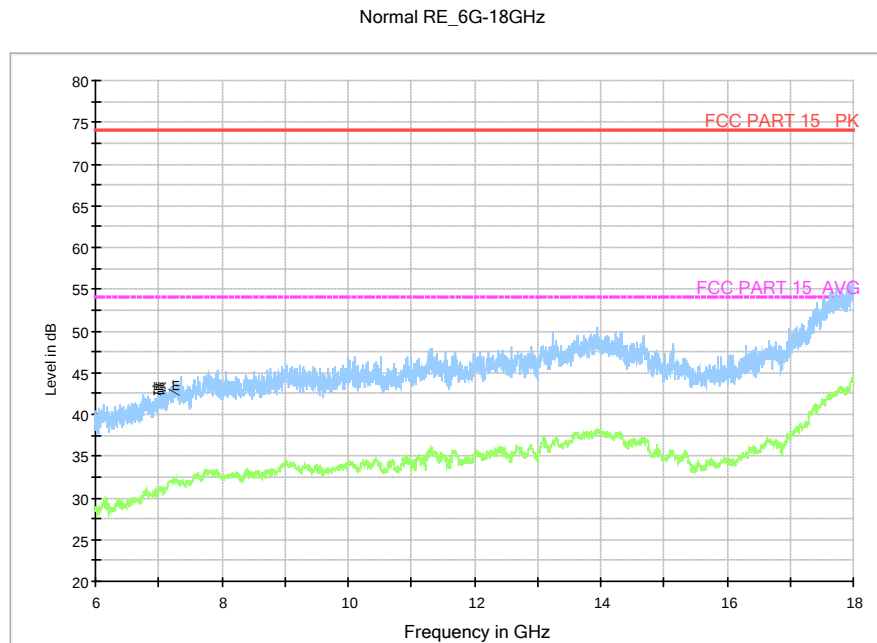


Fig. 61 Radiated Spurious Emission (802.11n-HT40, Ch151, 6 GHz-18 GHz)

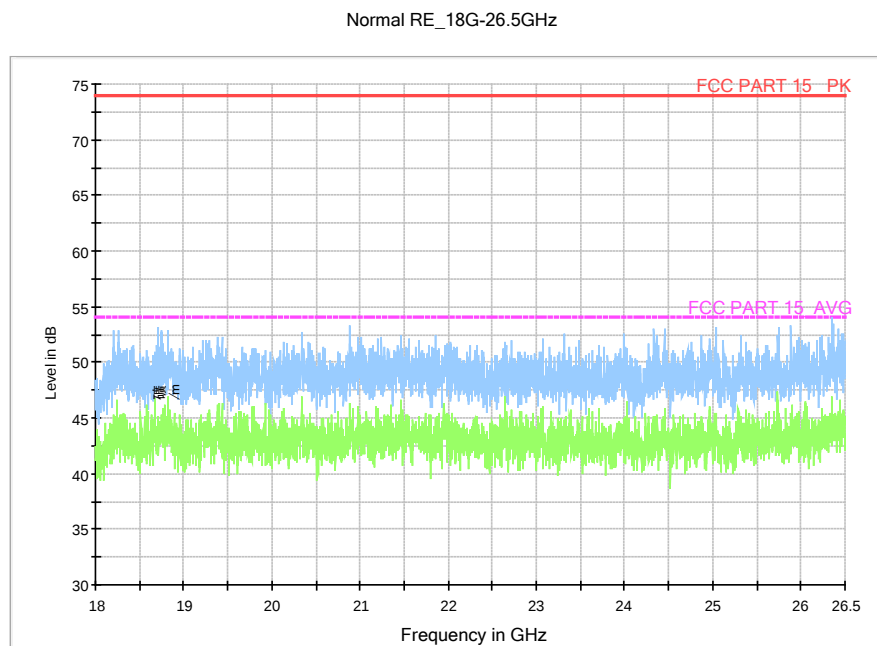


Fig. 62 Radiated Spurious Emission (802.11n-HT40, Ch151, 18 GHz-26.5 GHz)

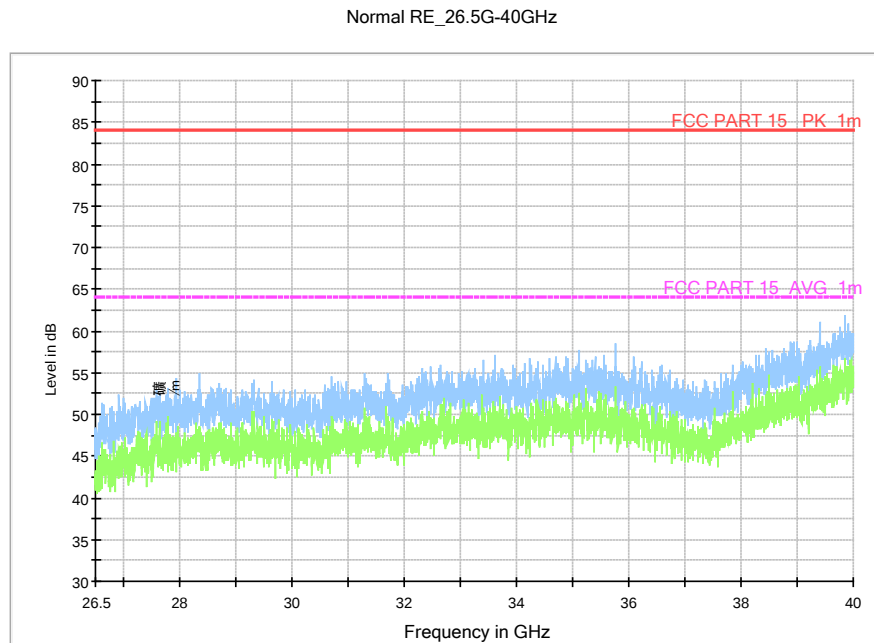


Fig. 63 Radiated emission: 802.11n, (802.11n-HT40, Ch151, 26.5 GHz - 40 GHz)

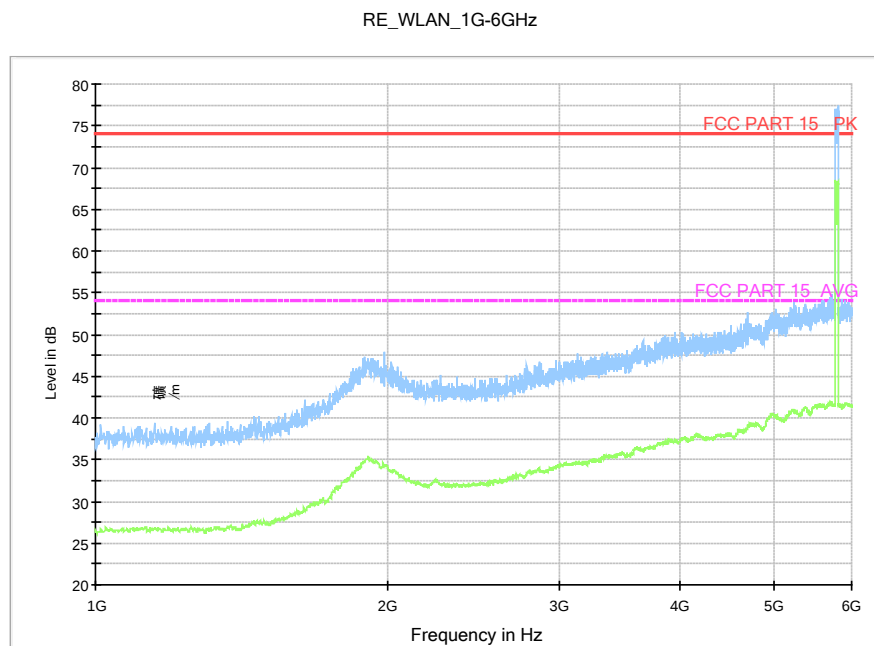


Fig. 64 Radiated Spurious Emission (802.11n-HT40, Ch159 1 GHz-6 GHz)

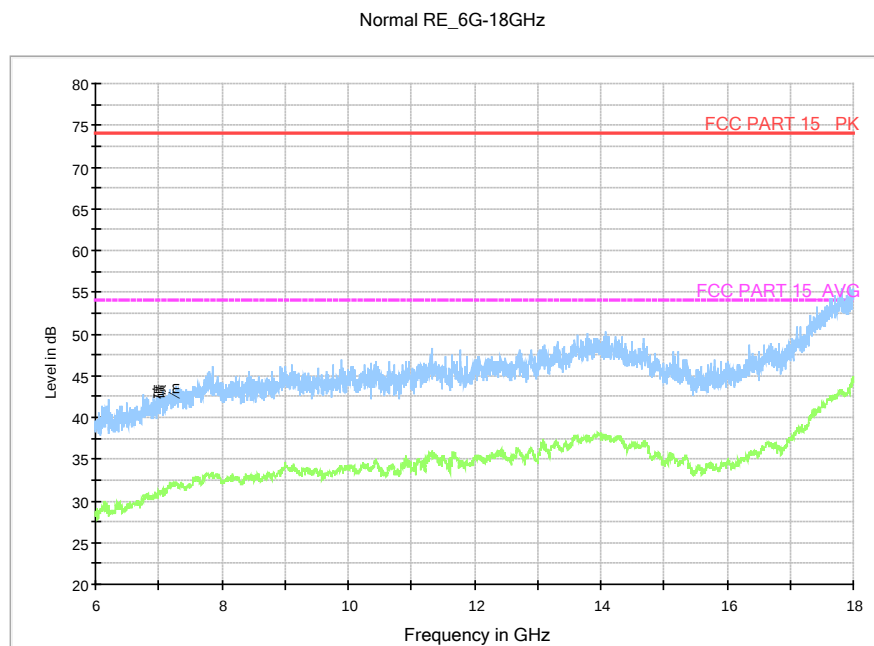


Fig. 65 Radiated Spurious Emission (802.11n-HT40, Ch159, 6 GHz-18 GHz)

A.6. Band Edges Compliance

A6.1 Band Edges - conducted

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	5715MHz~5860MHz	< -17
	Below 5715MHz, Above5860MHz	< -27

The measurement is made according to KDB 789033

Measurement Uncertainty:

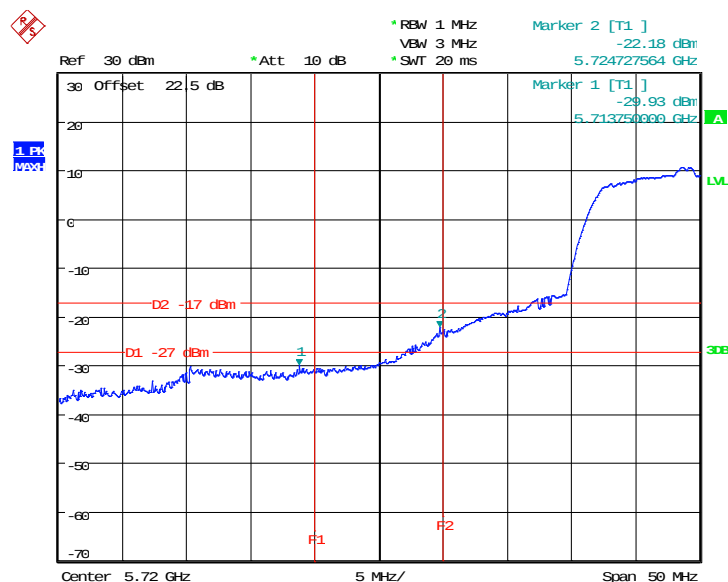
Measurement Uncertainty	0.75dB
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Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.66	P
	5825 MHz	Fig.67	P
802.11n HT20	5745 MHz	Fig.68	P
	5825 MHz	Fig.69	P
802.11n HT40	5755 MHz	Fig.70	P
	5795 MHz	Fig.71	P

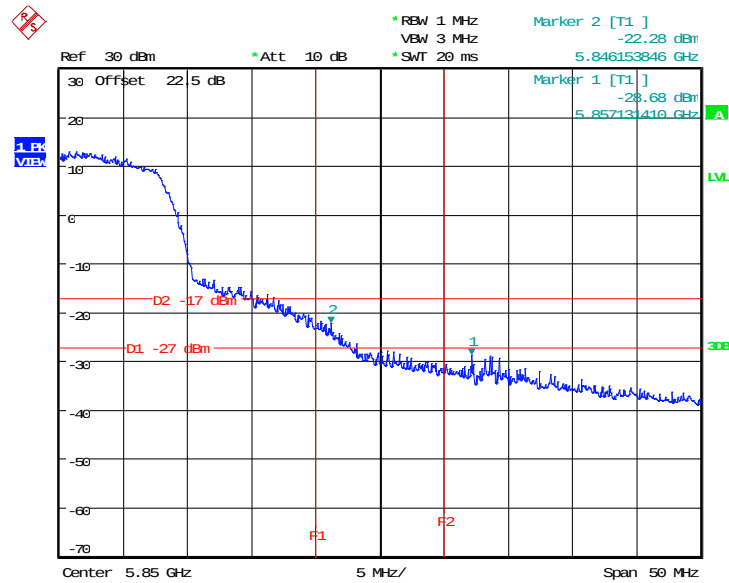
Conclusion: PASS

Test graphs as below:



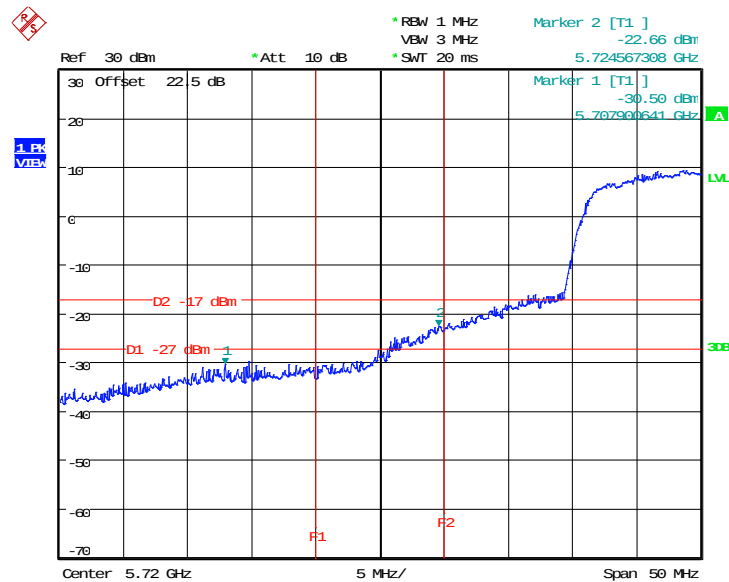
Date: 23.SEP.2014 11:01:23

Fig. 66 Band Edges (802.11a, 5745MHz)



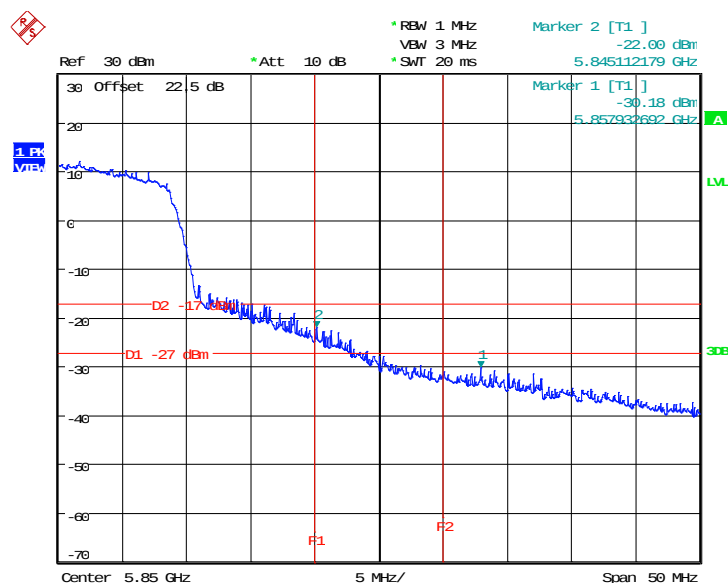
Date: 23.SEP.2014 12:02:06

Fig. 67 Band Edges (802.11a, 5825MHz)



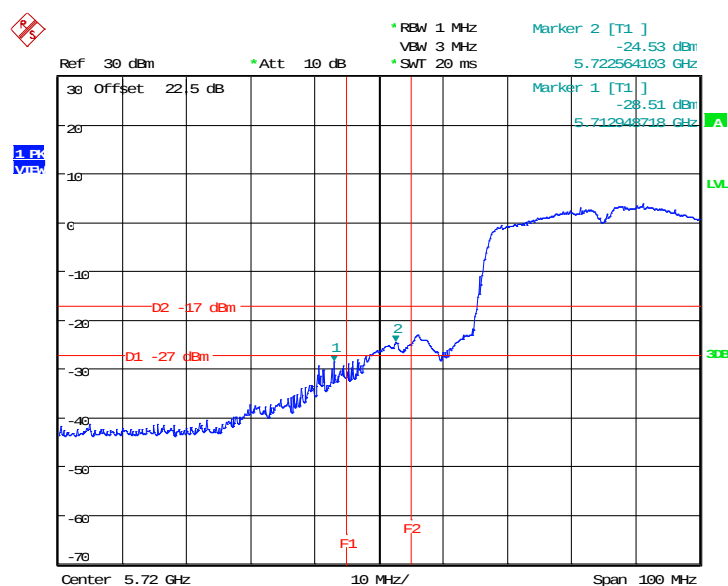
Date: 23.SEP.2014 11:13:25

Fig. 68 Band Edges (802.11n-HT20, 5745MHz)



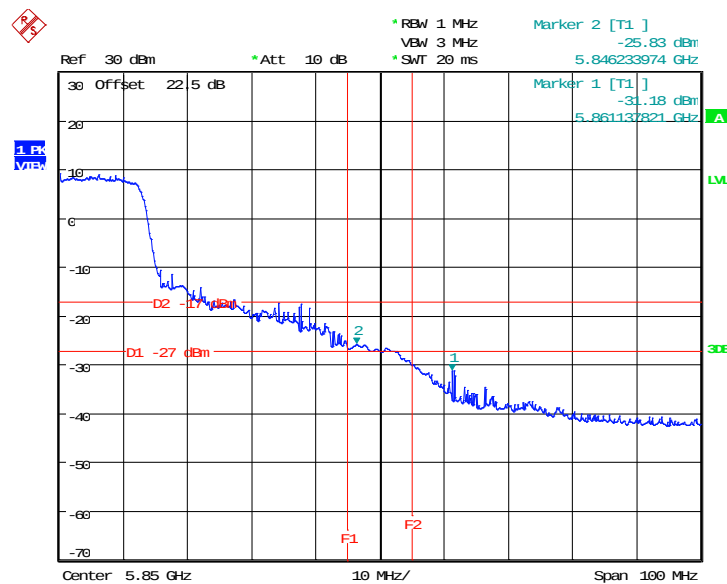
Date: 23.SEP.2014 12:05:57

Fig. 69 Band Edges (802.11n-HT20, 5825MHz)



Date: 23.SEP.2014 12:22:37

Fig. 70 Band Edges (802.11n-HT40, 5755MHz)



Date: 23.SEP.2014 12:17:52

Fig. 71 Band Edges (802.11n-HT40, 5795MHz)

A6.2 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.209	> 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 Result:

Mode	Channel	Test Results	Conclusion
802.11a	5745 MHz	Fig.72	P
	5825 MHz	Fig.73	P
802.11n HT20	5745 MHz	Fig.74	P
	5825 MHz	Fig.75	P
802.11n HT40	5755 MHz	Fig.76	P
	5795 MHz	Fig.77	P

Conclusion: PASS

Test graphs as below:

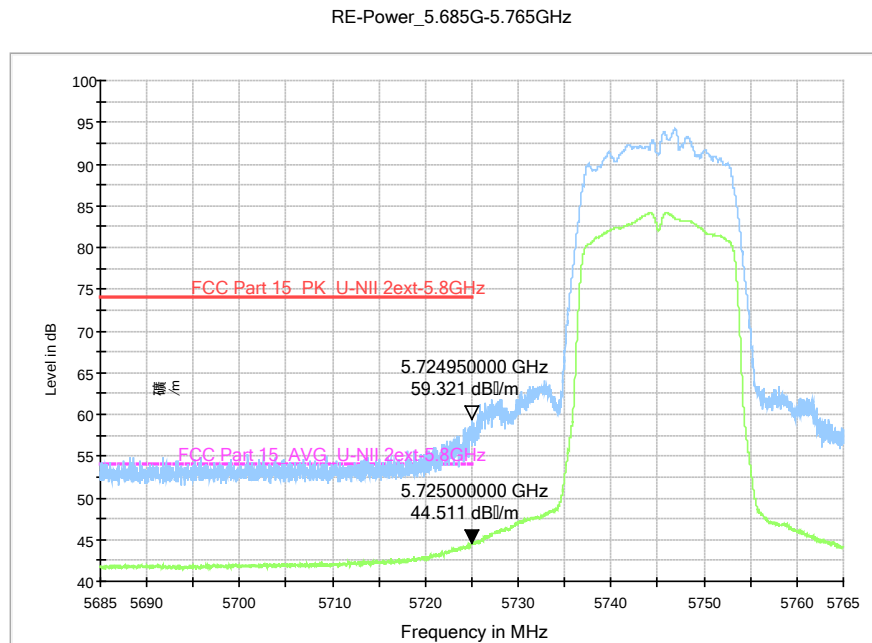


Fig. 72 Band Edges (802.11a, 5745MHz)

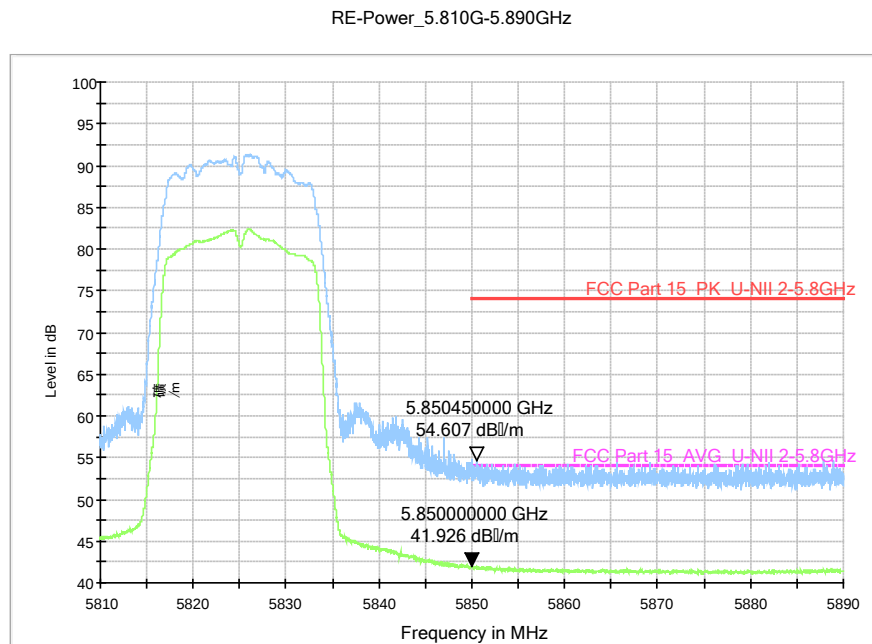


Fig. 73 Band Edges (802.11a, 5825MHz)

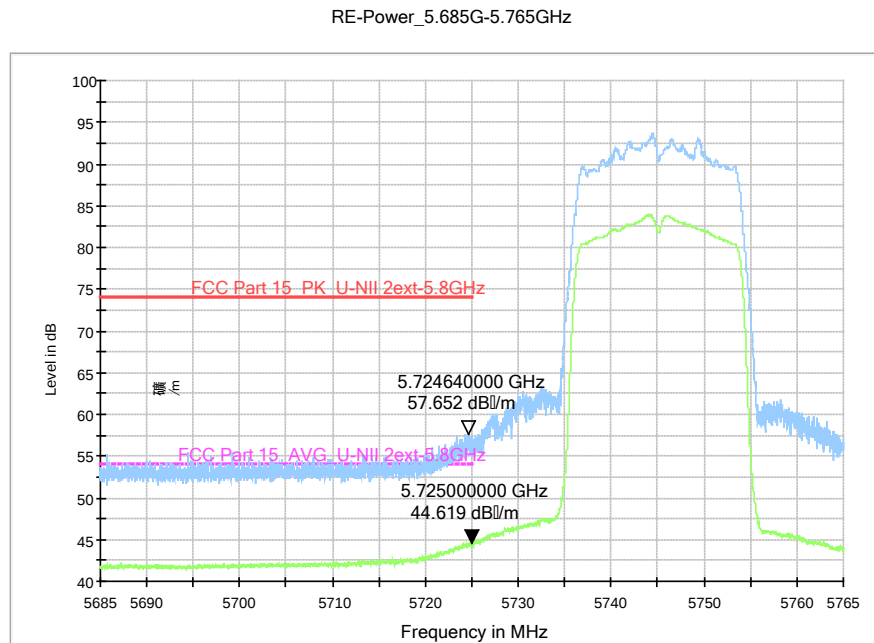


Fig. 74 Band Edges (802.11n-HT20, 5745MHz)

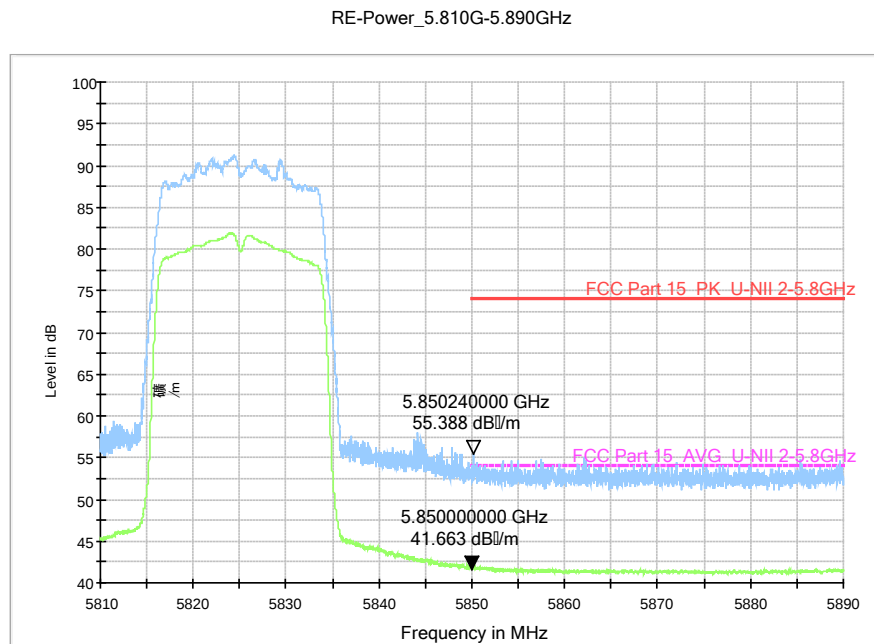


Fig. 75 Band Edges (802.11n-HT20, 5825MHz)

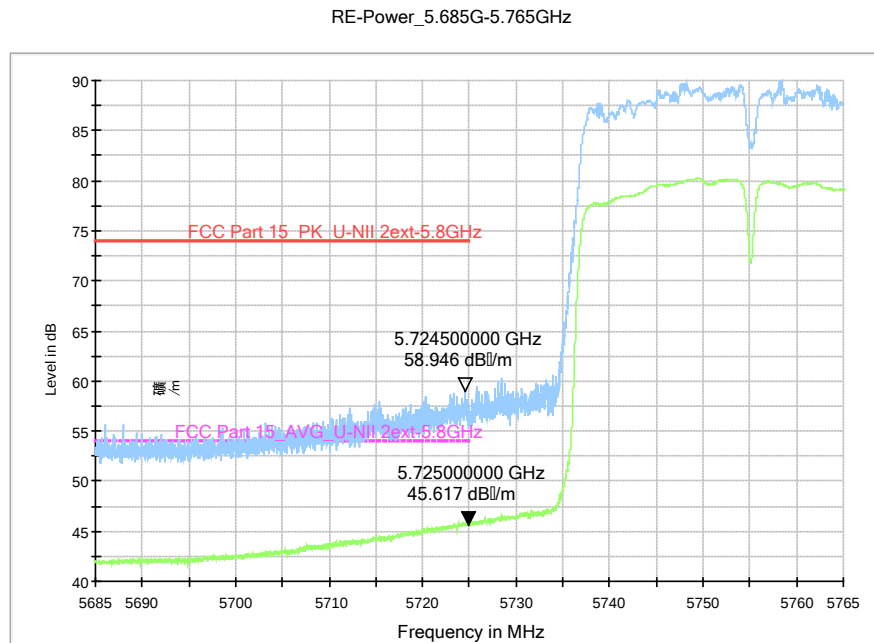


Fig. 76 Band Edges (802.11n-HT40, 5755MHz)

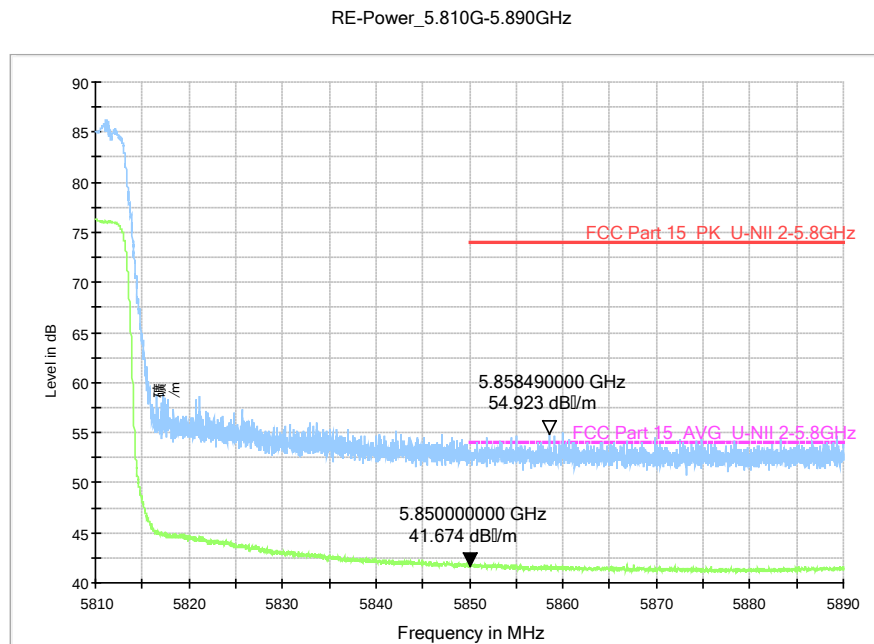


Fig. 77 Band Edges (802.11n-HT40, 5795MHz)

A.7. AC Powerline Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)
110	60

Measurement uncertainty:

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

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11a	Idle	
0.15 to 0.5	66 to 56	Fig.69	Fig.70	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		
		802.11a	Idle	
0.15 to 0.5	56 to 46	Fig.78	Fig.79	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 C63.10 .

Conclusion: PASS

Test graphs as below:

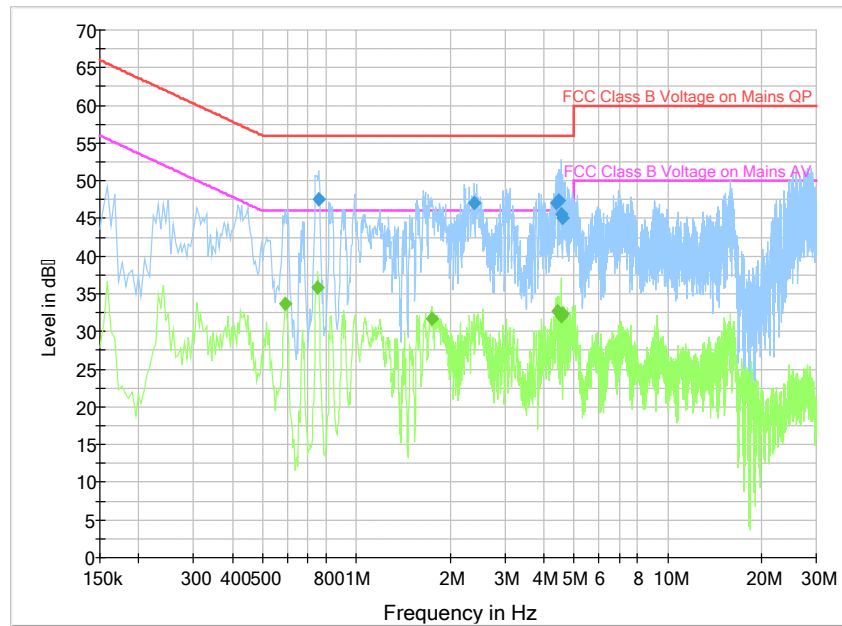


Fig. 78 AC Powerline Conducted Emission-802.11a

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.757500	47.6	GND	L1	9.8	8.4	56.0
2.386500	47.0	GND	L1	9.7	9.0	56.0
4.371000	47.0	GND	L1	9.7	9.0	56.0
4.461000	47.3	GND	L1	9.7	8.7	56.0
4.542000	45.5	GND	L1	9.7	10.5	56.0
4.605000	45.1	GND	L1	9.8	10.9	56.0

Measurement Result 2:

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.591000	33.6	GND	L1	9.8	12.4	46.0
0.753000	35.8	GND	L1	9.8	10.2	46.0
1.743000	31.7	GND	L1	9.7	14.3	46.0
4.443000	32.6	GND	L1	9.7	13.4	46.0
4.542000	32.0	GND	L1	9.7	14.0	46.0
4.614000	32.4	GND	L1	9.8	13.6	46.0

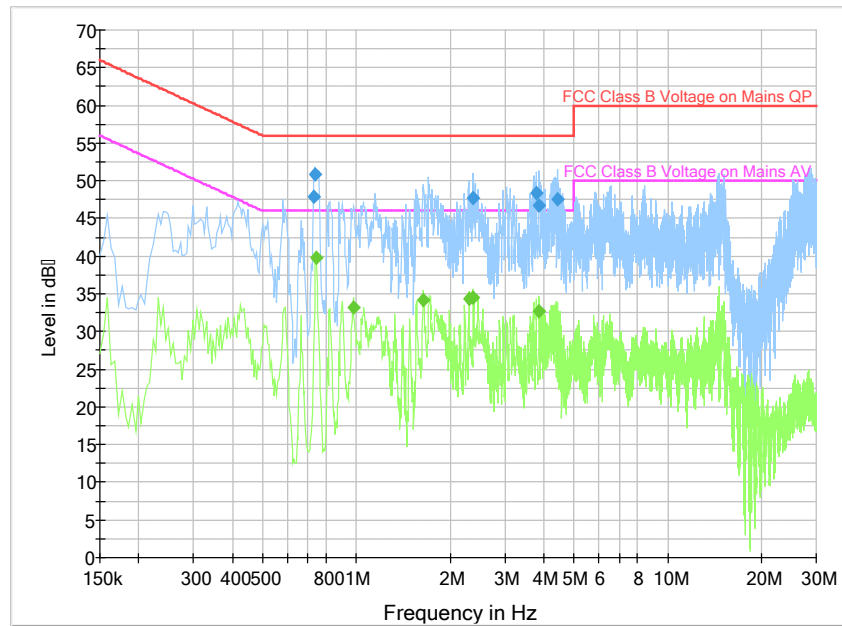


Fig. 79 AC Powerline Conducted Emission-Idle

Measurement Result 1:

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.730500	47.9	GND	L1	9.8	8.1	56.0
0.739500	50.9	GND	L1	9.8	5.1	56.0
2.377500	47.6	GND	L1	9.7	8.4	56.0
3.777000	48.4	GND	L1	9.7	7.6	56.0
3.858000	46.7	GND	L1	9.7	9.3	56.0
4.438500	47.6	GND	L1	9.7	8.4	56.0

Measurement Result 2:

Frequency (MHz)	Average (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.744000	39.7	GND	L1	9.8	6.3	46.0
0.978000	33.3	GND	L1	9.7	12.7	46.0
1.644000	34.1	GND	L1	9.7	11.9	46.0
2.305500	34.3	GND	L1	9.7	11.7	46.0
2.377500	34.5	GND	L1	9.7	11.5	46.0
3.858000	32.6	GND	L1	9.7	13.4	46.0

A.8. Spurious Emissions Radiated < 30MHz

Measurement Limit:

Frequency (MHz)	Field strength(dB μ V/m)	Measurement distance
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

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 Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	157(5785MHz)	9 kHz ~30 MHz	Fig.80	P

Conclusion: PASS

Test graphs as below:

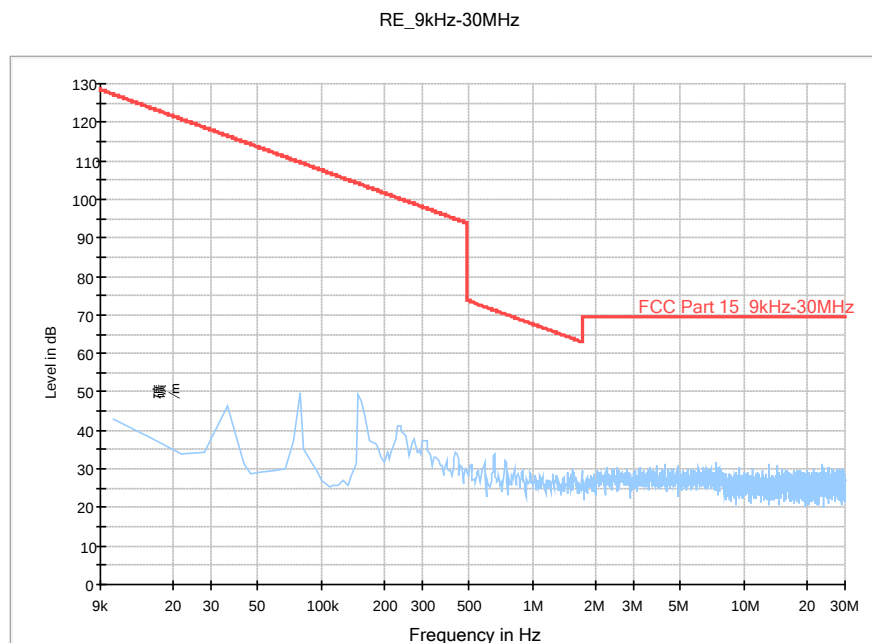
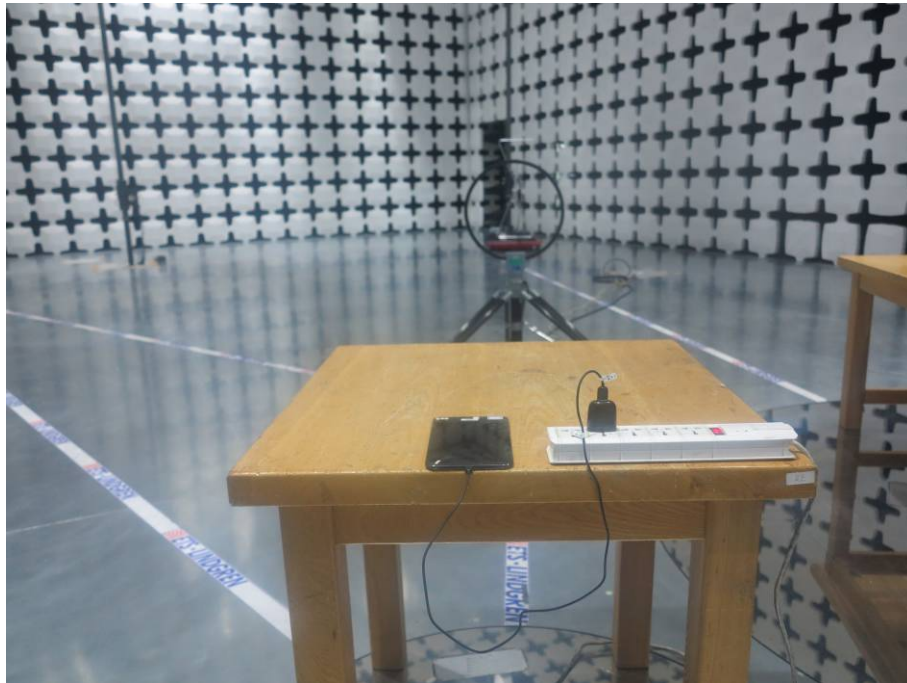


Fig. 80 Radiated Spurious Emission (802.11a, ch157, 9 kHz ~30 MHz)

ANNEX B: PHOTOGRAPHS OF THE TEST SET-UP

Layout of Radiated Spurious Emission Test



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