



**FCC PART 15C
TEST REPORT
No. I16N00359-RLAN02**

for

OnePlus Technology(Shenzhen) Co., Ltd.

Mobile Phone

Model Name: ONEPLUS A3000

With

Hardware Version: 16

Software Version: Qxygen OS 3.1.0

FCC ID: 2ABZ2-A3000

Issued Date: May 16th, 2016

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 CTTL.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I16N00359- RLAN02	Rev.0	1st edition	2016-05-16



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1. TEST LATORATORY

1.1. Testing Location

Location : CTTL(South Branch)

Address: No.12, ShangSha Innovation and Technology Park, Futian District,
Shenzhen, Guangdong, P. R. China518048

1.2. Testing Environment

Normal Temperature: 15-35°C

Extreme Temperature: -20/+55°C

Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2016-04-06

Testing End Date: 2016-05-13

1.4. Signature

Xu Ye

(Prepared this test report)

Tang Weisheng

(Reviewed this test report)

Zhang Bojun

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: OnePlus Technology(Shenzhen) Co., Ltd.
Address /Post: 18/F, Tower C, Tai Ran Building, No.8 Tai Ran Road, Shenzhen, China
Contact Person: /
Telephone: 0755 61898696 EXT 7023
Fax: /

2.2. Manufacturer Information

Company Name: OnePlus Technology(Shenzhen) Co., Ltd.
Address /Post: 18/F, Tower C, Tai Ran Building, No.8 Tai Ran Road, Shenzhen, China
Contact Person: /
Telephone: 0755 61898696 EXT 7023
Fax: /

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model name	ONEPLUS A3000
FCC ID	2ABZ2-A3000
WLAN Frequency Range	ISM Band: 5725MHz~5850MHz
Type of modulation	OFDM
Voltage	3.8V DC by Battery

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	Receive Date
EUT1	860046030164299	16	Qxygen OS 3.1.0	2016-04-06

*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	Power Supply Unit	HK0504	/

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



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;	Nov,2015
	Subpart E—Unlicensed National Information Infrastructure Devices	
	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	
ANSI C63.10		Jun,2013

5. SUMMARY OF TEST RESULTS

5.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Verdict
Maximum Peak Output Power	15.407 (a)	P
Peak Power Spectral Density	15.407 (a)	P
Occupied 6dB Bandwidth	15.407(e)	P
Band Edges Compliance	15.407 (b)	P
Transmitter Spurious Emission - Conducted	15.407,15.205	P

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

5.2. Statements

CTTL has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2

5.3. Terms used in the result table

Terms used in Verdict column

P	Pass
NA	Not Available
F	Fail

Abbreviations

AC	Alternating Current
AFH	Adaptive Frequency Hopping
BW	Band Width
E.I.R.P.	equivalent isotropical radiated power
ISM	Industrial, Scientific and Medical
R&TTE	Radio and Telecommunications Terminal Equipment
RF	Radio Frequency
Tx	Transmitter



6. TEST EQUIPMENTS UTILIZED

Conducted test system

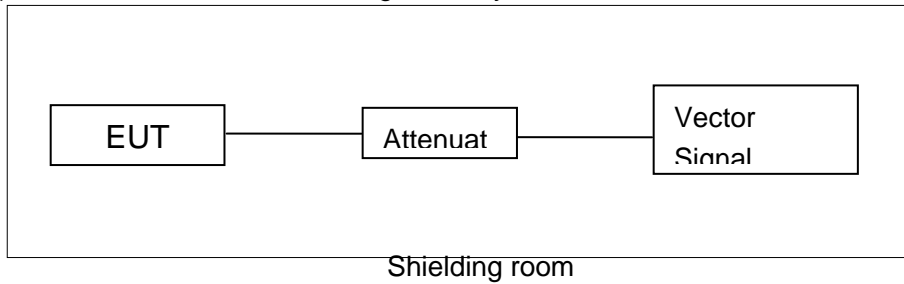
No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2017-03-21	1 year

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.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30

A.2.1 Antenna Gain

Antenna gain is -3.5 dBi and the value is supplied by the applicant or manufacturer.

A.2.2. 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	12.89	12.74	12.79
	9	12.86	/	/
	12	12.74	/	/
	18	12.78	/	/
	24	12.55	/	/
	36	11.89	/	/
	48	11.27	/	/
	54	11.15	/	/

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

802.11n-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11n (20MHz)	MCS0	11.67	11.74	11.35
	MCS1	/	11.73	/
	MCS2	/	11.66	/
	MCS3	/	11.59	/
	MCS4	/	11.25	/
	MCS5	/	11.17	/
	MCS6	/	11.74	/
	MCS7	/	11.43	/

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

802.11n-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11n (40MHz)	MCS0	12.31	12.11
	MCS1	12.27	/
	MCS2	11.94	/
	MCS3	11.66	/
	MCS4	11.43	/
	MCS5	11.38	/
	MCS6	11.22	/
	MCS7	11.02	/

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

802.11ac-HT20 mode

Mode	Data Rate (Index)	Test Result (dBm)		
		5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11ac (20MHz)	MCS0	10.07	10.23	10.17
	MCS1	/	10.21	/
	MCS2	/	10.14	/
	MCS3	/	10.01	/
	MCS4	/	9.77	/
	MCS5	/	9.54	/
	MCS6	/	9.48	/
	MCS7	/	9.25	/

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

802.11ac-HT40 mode

Mode	Data Rate (Index)	Test Result (dBm)	
		5755MHz (Ch151)	5795MHz (Ch159)
802.11ac (40MHz)	MCS0	10.47	10.51
	MCS1	/	10.48
	MCS2	/	10.35
	MCS3	/	10.27
	MCS4	/	10.21
	MCS5	/	10.07
	MCS6	/	9.84
	MCS7	/	9.32

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

802.11ac-HT80 mode

Mode	Data Rate (Index)	Test Result (dBm)
		5775MHz (Ch155)
802.11ac (80MHz)	MCS0	8.36
	MCS1	8.25
	MCS2	8.17
	MCS3	8.09
	MCS4	7.98
	MCS5	7.88
	MCS6	7.46
	MCS7	7.24

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

Conclusion: PASS

A.2.3. Maximum Average Output Power-Conducted

Method of Measurement: See ANSI C63.10-clause 12.3.2.2 Method SA-1

802.11a mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
802.11a	6.91	6.87	6.84

802.11n-HT20 mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz(Ch165)
802.11n(20MHz)	5.99	6.01	5.96

802.11n-HT40 mode

Mode	Test Result (dBm)	
	5755MHz (Ch151)	5795MHz(Ch159)
802.11n(40MHz)	5.42	5.54

802.11ac-HT20 mode

Mode	Test Result (dBm)		
	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz(Ch165)
802.11ac(20MHz)	5.72	5.85	5.66

802.11ac-HT40 mode

Mode	Test Result (dBm)	
	5755MHz (Ch151)	5795MHz(Ch159)
802.11ac(40MHz)	5.69	5.63

802.11ac-HT80 mode

Mode	Test Result (dBm)
	5775MHz (Ch155)
802.11ac(80MHz)	4.72

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 KDB789033 D02

Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	-1.45	P
	157	-1.81	P
	165	-1.33	P
802.11n HT20	149	-2.83	P
	157	-3.25	P
	165	-3.15	P
802.11n HT40	151	-6.27	P
	159	-5.81	P
802.11ac HT20	149	-3.83	P
	157	-4.41	P
	165	-4.60	P
802.11ac HT40	151	-6.75	P
	159	-7.01	P
802.11ac HT80	155	-9.81	P

Conclusion: PASS

A.4. Occupied 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.407(e)	≥ 500

The measurement is made according to KDB789033 D02 .

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (kHz)		conclusion
802.11a	149	Fig.1	15850	P
	157	Fig.2	16000	P

	165	Fig.3	16050	P
802.11n HT20	149	Fig.4	17000	P
	157	Fig.5	16950	P
	165	Fig.6	17000	P
802.11n HT40	151	Fig.7	35840	P
	159	Fig.8	35680	P
802.11ac HT20	149	Fig.9	16950	P
	157	Fig.10	16950	P
	165	Fig.11	16750	P
802.11ac HT40	151	Fig.12	35920	P
	159	Fig.13	35760	P
802.11ac HT80	155	Fig.14	74720	P

Conclusion: PASS

Test graphs as below:

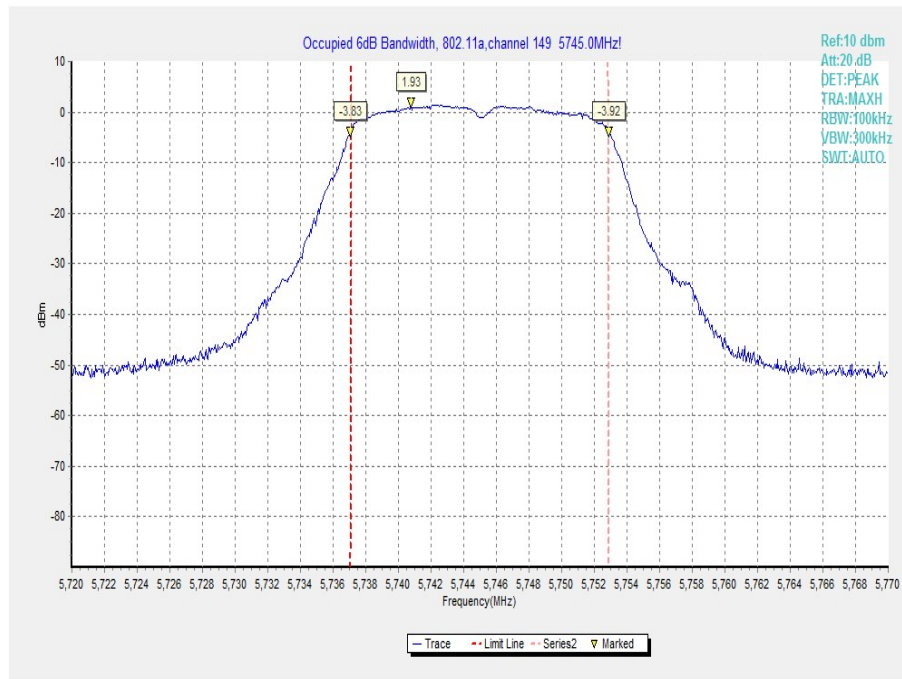


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

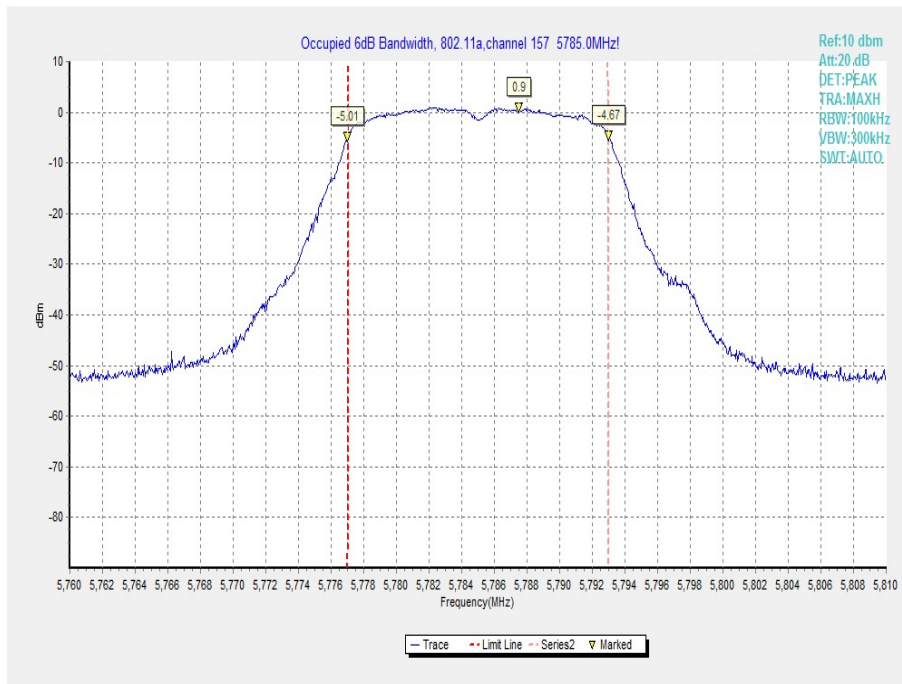


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)

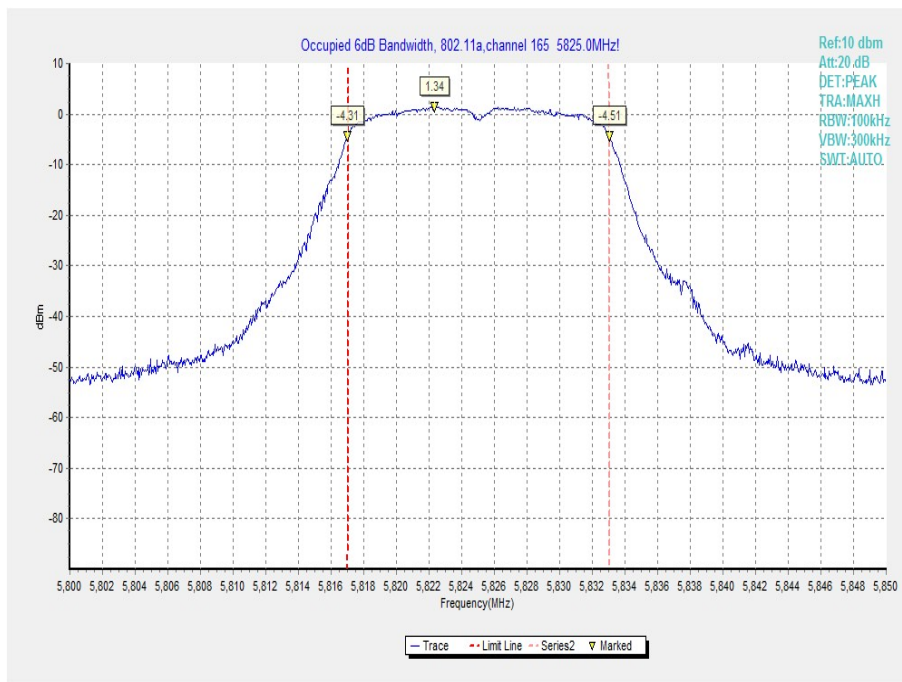


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

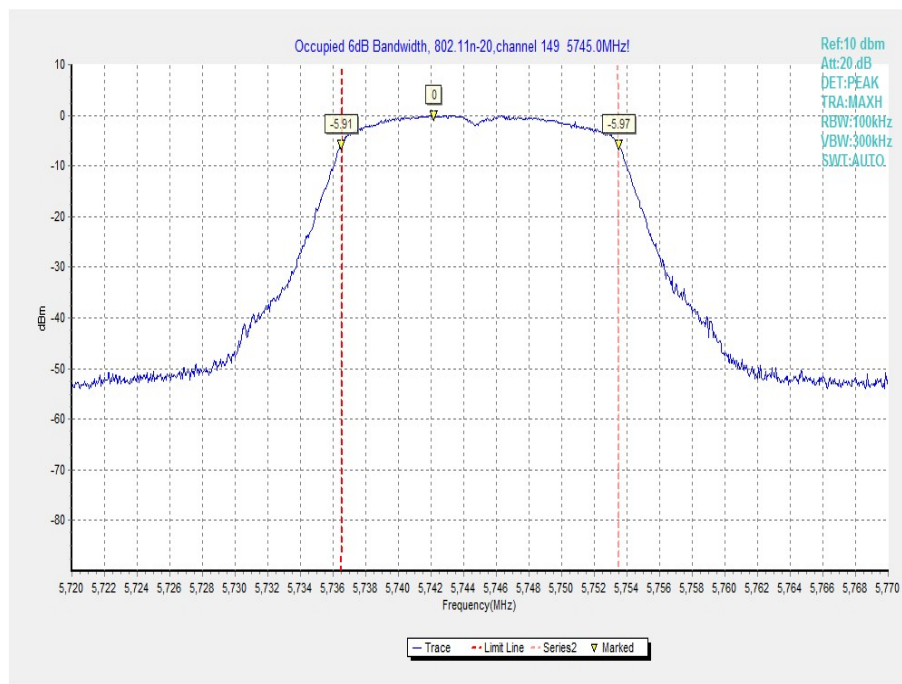


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)

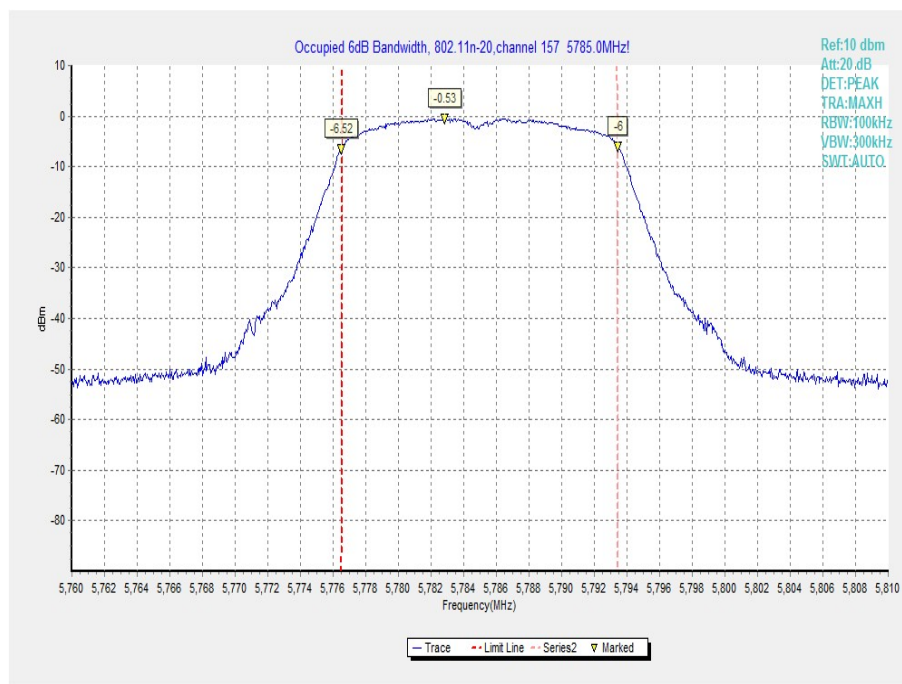


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)

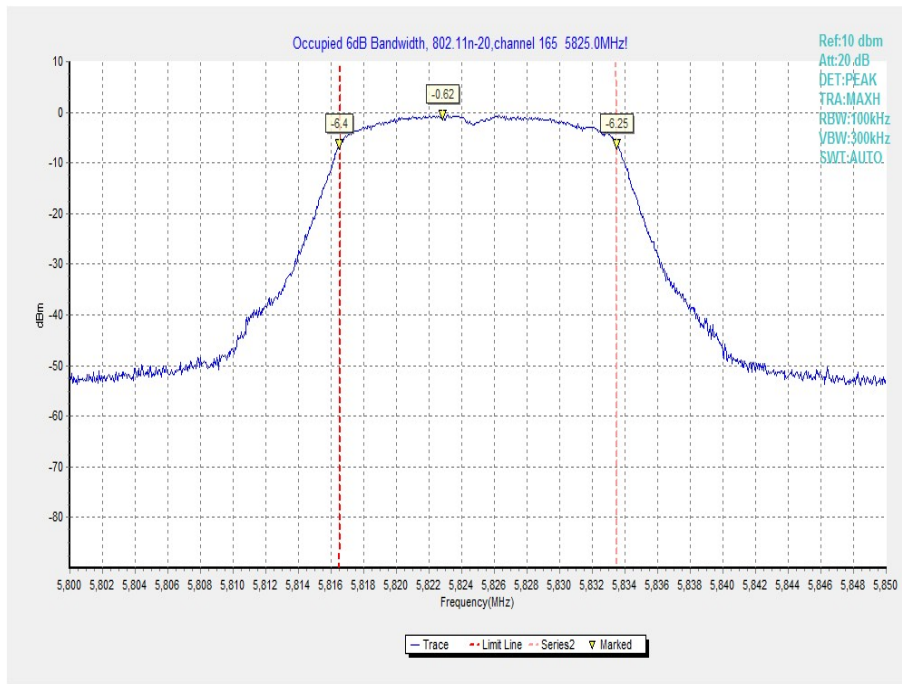


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)

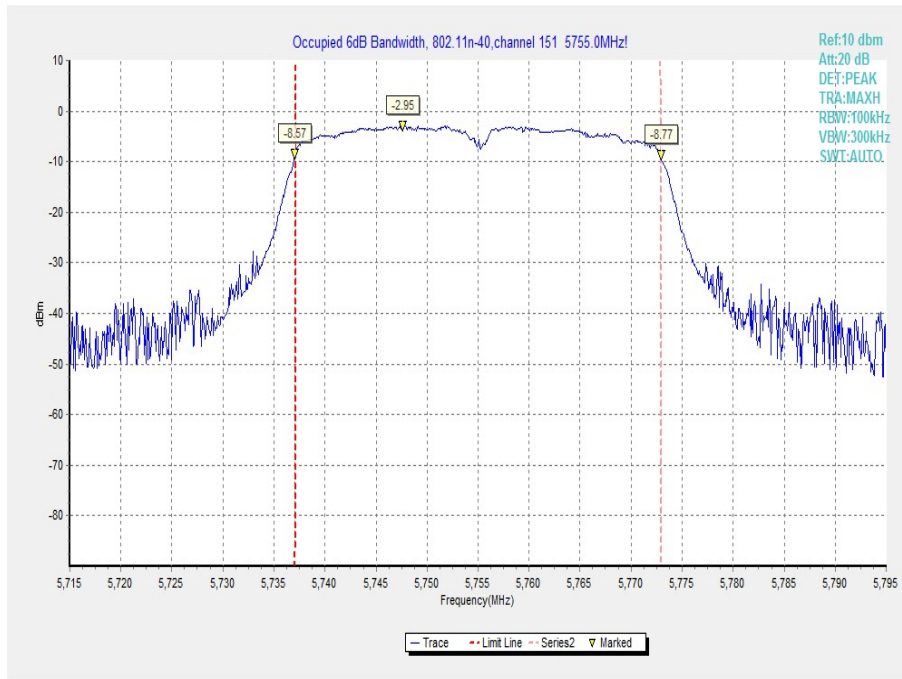


Fig. 7 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)

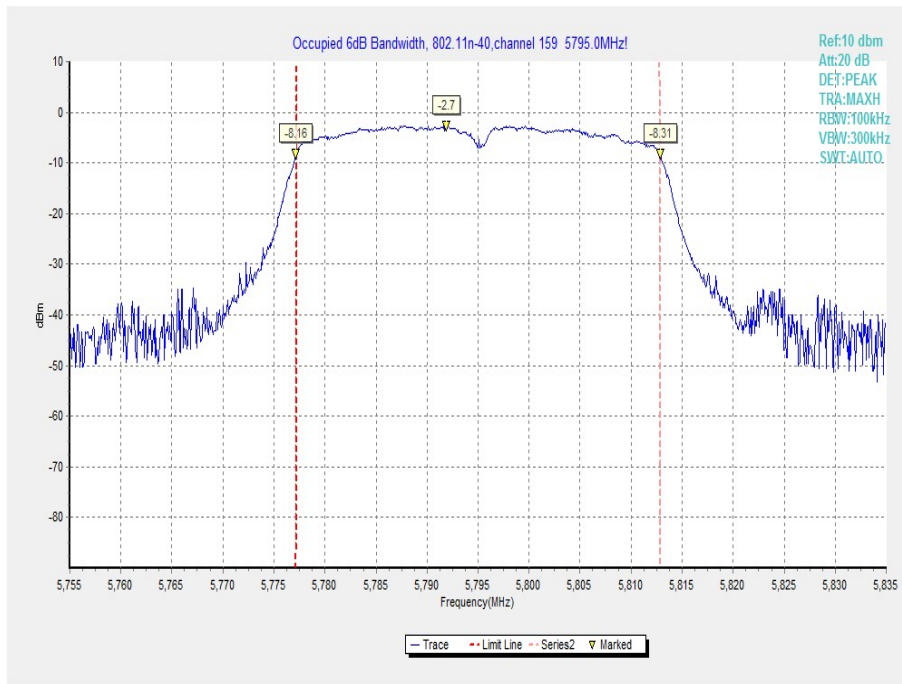


Fig. 8 Occupied 6dB Bandwidth (802.11n-HT40, Ch 159)

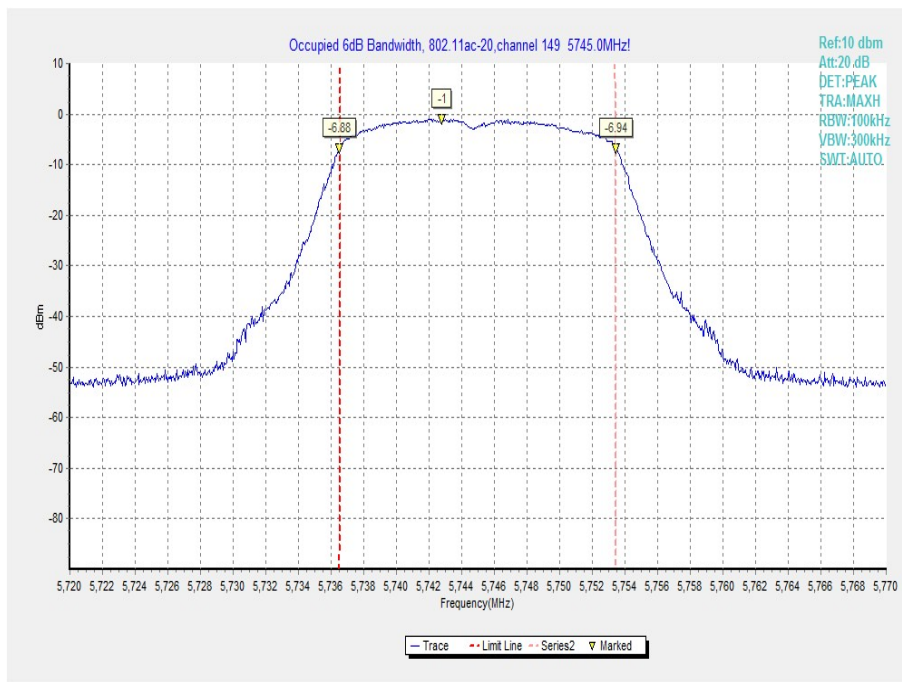


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 149)

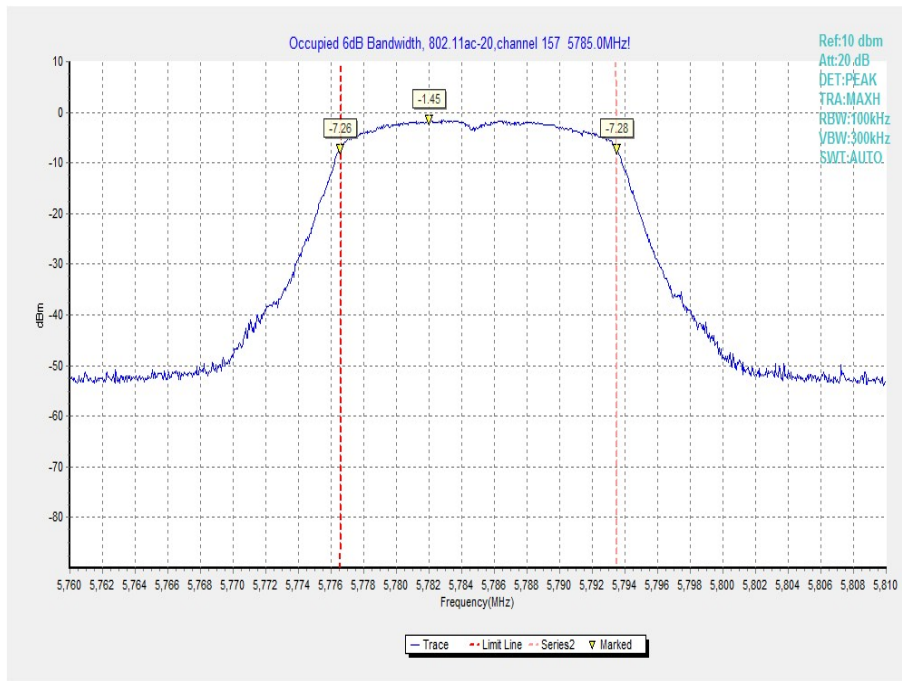


Fig. 10 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 157)

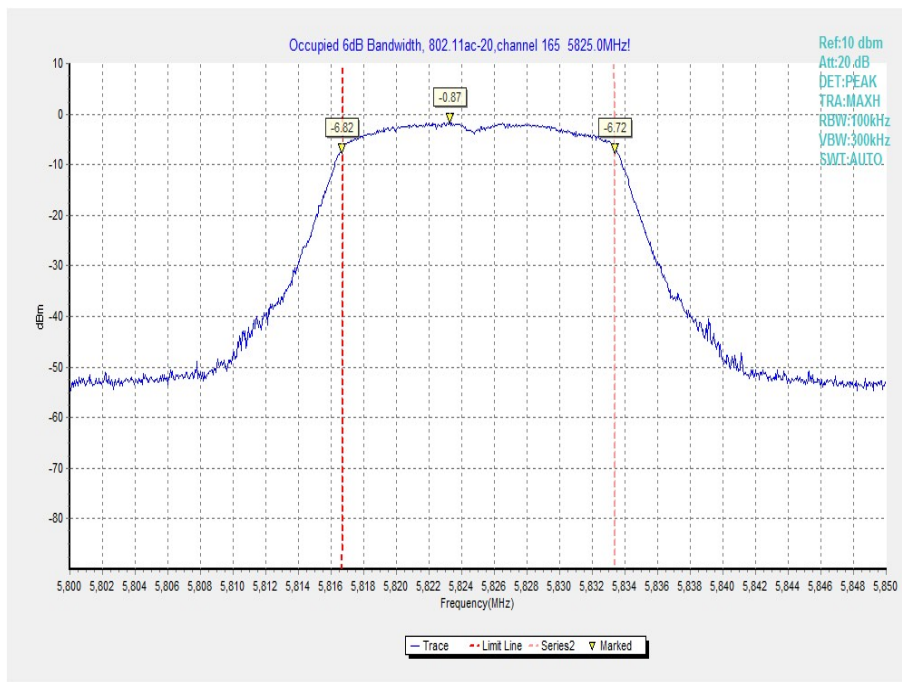


Fig. 11 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 165)

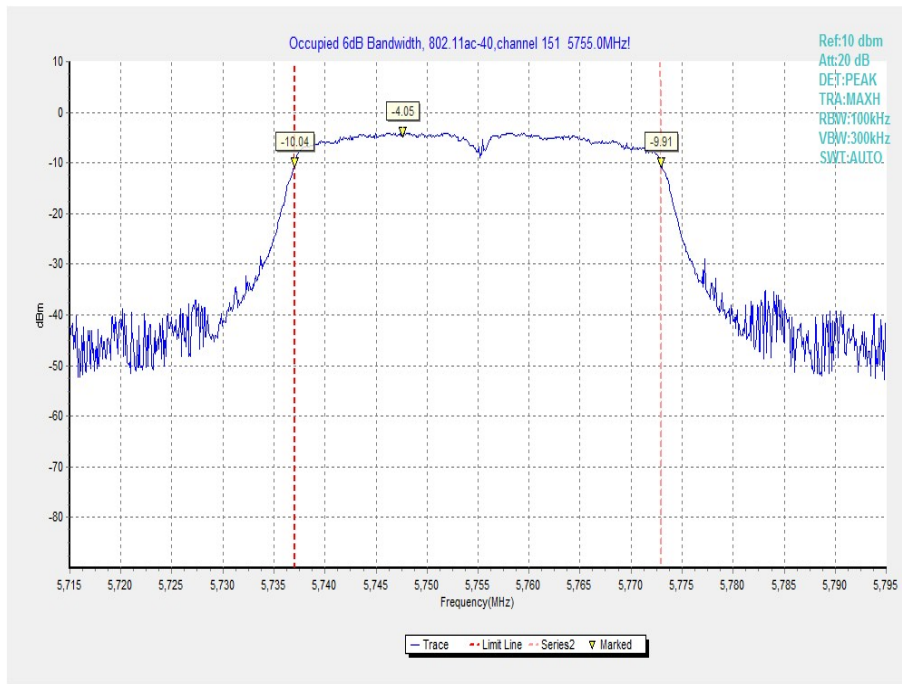


Fig. 12 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 151)

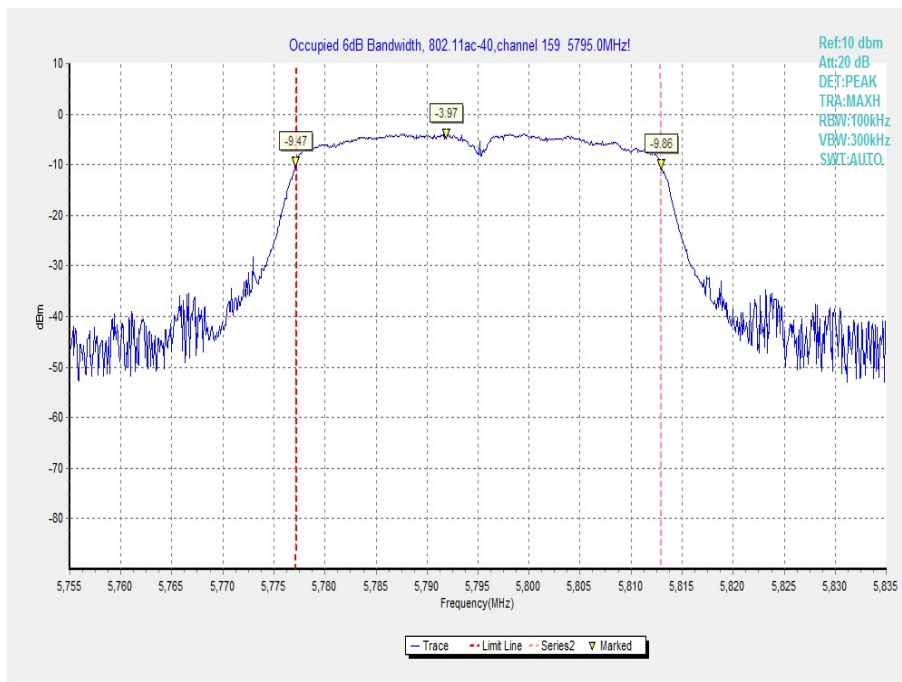


Fig. 13 Occupied 6dB Bandwidth (802.11ac-HT40, Ch 159)

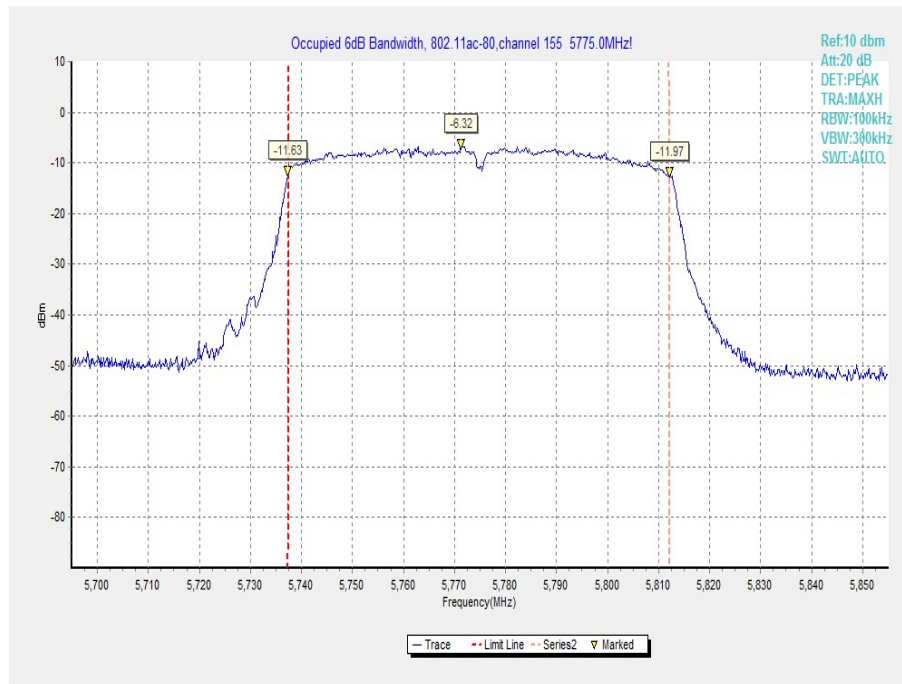


Fig. 14 Occupied 6dB Bandwidth (802.11ac-HT80, Ch 155)

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
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A.5.1 Transmitter Spurious Emission - Conducted

Measurement Results:

802.11a mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11a	149	30 MHz ~ 1 GHz	Fig.15	P
		1 GHz ~ 12 GHz	Fig.16	P
		12 GHz ~ 25 GHz	Fig.17	P
		25 GHz ~ 40 GHz	Fig.18	P
	157	30 MHz ~ 1 GHz	Fig.19	P
		1 GHz ~ 12 GHz	Fig.20	P
		12 GHz ~ 25 GHz	Fig.21	P
		25 GHz ~ 40 GHz	Fig.22	P
	165	30 MHz ~ 1 GHz	Fig.23	P
		1 GHz ~ 12 GHz	Fig.24	P
		12 GHz ~ 25 GHz	Fig.25	P
		25 GHz ~ 40 GHz	Fig.26	P

802.11n-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	149	30 MHz ~ 1 GHz	Fig.27	P
		1 GHz ~ 12 GHz	Fig.28	P
		12 GHz ~ 25 GHz	Fig.29	P
		25 GHz ~ 40 GHz	Fig.30	P
	157	30 MHz ~ 1 GHz	Fig.31	P
		1 GHz ~ 12 GHz	Fig.32	P
		12 GHz ~ 25 GHz	Fig.33	P
		25 GHz ~ 40 GHz	Fig.34	P
	165	30 MHz ~ 1 GHz	Fig.35	P
		1 GHz ~ 12 GHz	Fig.36	P
		12 GHz ~ 25 GHz	Fig.37	P
		25 GHz ~ 40 GHz	Fig.38	P

802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	151	30 MHz ~ 1 GHz	Fig.39	P
		1 GHz ~ 12 GHz	Fig.40	P
		12 GHz ~ 25 GHz	Fig.41	P
		25 GHz ~ 40 GHz	Fig.42	P
	159	30 MHz ~ 1 GHz	Fig.43	P
		1 GHz ~ 12 GHz	Fig.44	P

		12 GHz ~ 25 GHz	Fig.45	P
		25 GHz ~ 40 GHz	Fig.46	P

802.11ac-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11ac HT20	149	30 MHz ~ 1 GHz	Fig.47	P
		1 GHz ~ 12 GHz	Fig.48	P
		12 GHz ~ 25 GHz	Fig.49	P
		25 GHz ~ 40 GHz	Fig.50	P
	157	30 MHz ~ 1 GHz	Fig.51	P
		1 GHz ~ 12 GHz	Fig.52	P
		12 GHz ~ 25 GHz	Fig.53	P
		25 GHz ~ 40 GHz	Fig.54	P
	165	30 MHz ~ 1 GHz	Fig.55	P
		1 GHz ~ 12 GHz	Fig.56	P
		12 GHz ~ 25 GHz	Fig.57	P
		25 GHz ~ 40 GHz	Fig.58	P

802.11ac-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11ac HT40	151	30 MHz ~ 1 GHz	Fig.59	P
		1 GHz ~ 12 GHz	Fig.60	P
		12 GHz ~ 25 GHz	Fig.61	P
		25 GHz ~ 40 GHz	Fig.62	P
	159	30 MHz ~ 1 GHz	Fig.63	P
		1 GHz ~ 12 GHz	Fig.64	P
		12 GHz ~ 25 GHz	Fig.65	P
		25 GHz ~ 40 GHz	Fig.66	P

802.11ac-HT80 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11ac HT80	155	30 MHz ~ 1 GHz	Fig.67	P
		1 GHz ~ 12 GHz	Fig.68	P
		12 GHz ~ 25 GHz	Fig.69	P
		25 GHz ~ 40 GHz	Fig.70	P

Conclusion: PASS

Test graphs as below:

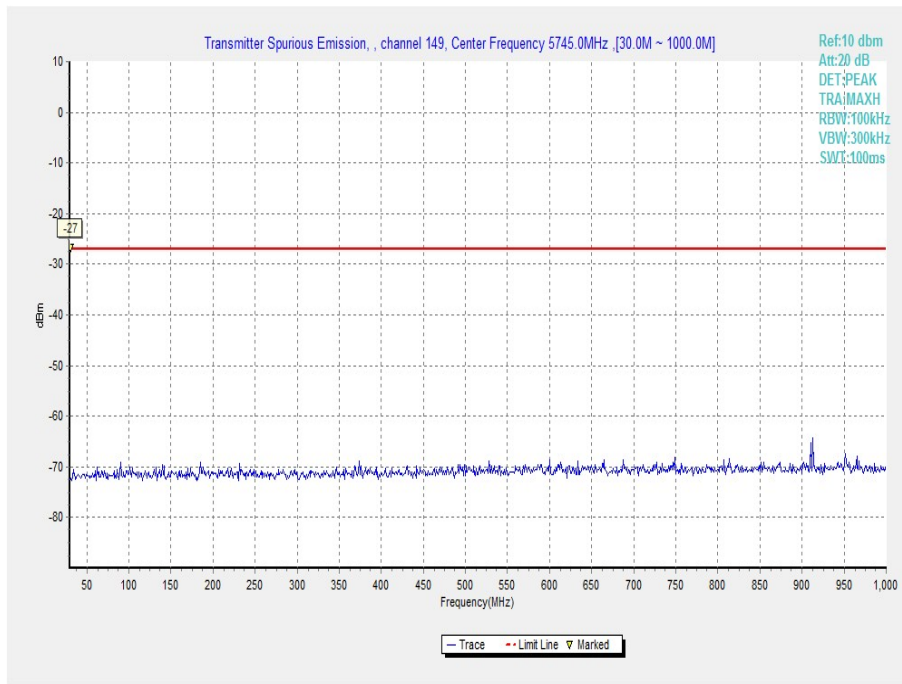


Fig. 15 Conducted Spurious Emission (802.11a, Ch149, 30 MHz-1 GHz)

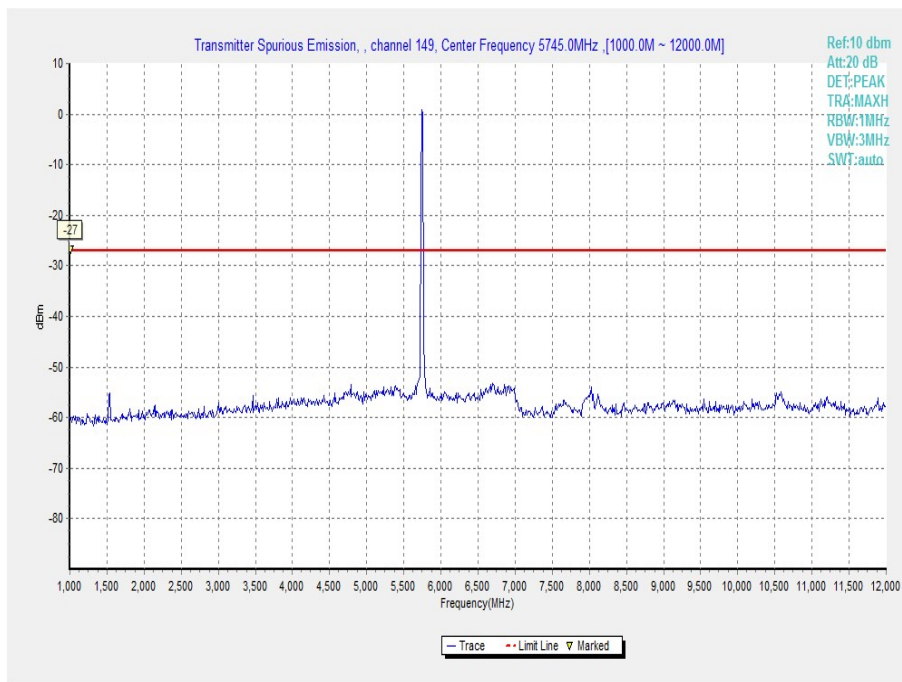


Fig. 16 Conducted Spurious Emission (802.11a, Ch149, 1 GHz -12 GHz)

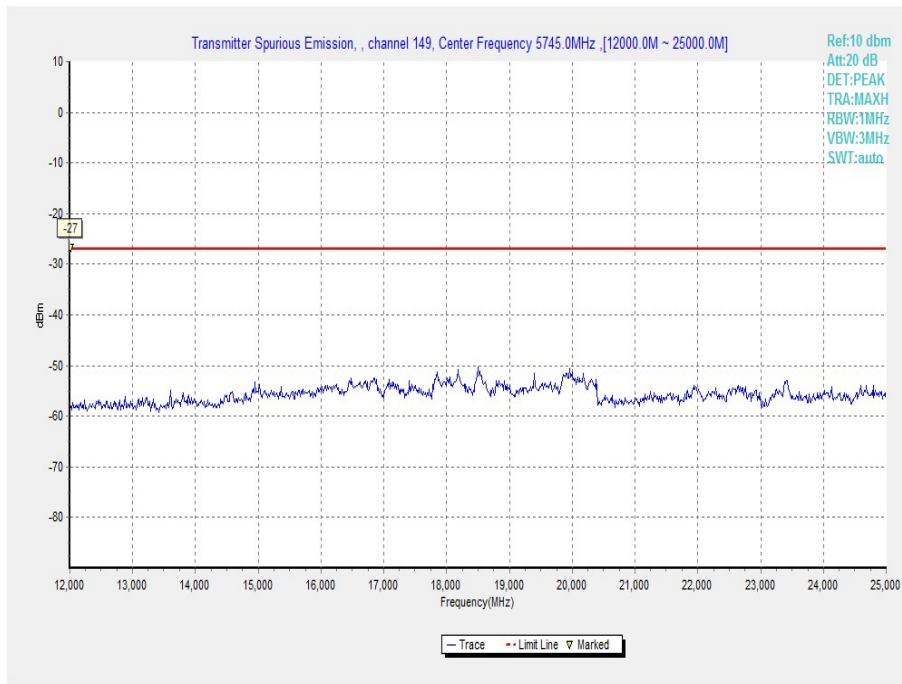


Fig. 17 Conducted Spurious Emission (802.11a, Ch149, 12 GHz-25 GHz)

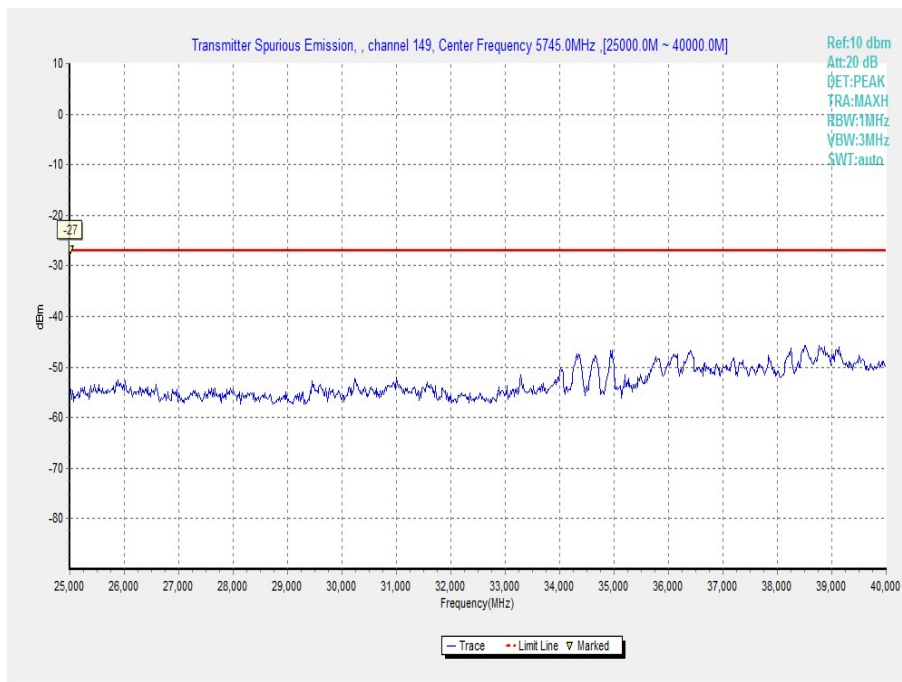


Fig. 18 Conducted Spurious Emission (802.11a, Ch149, 25 GHz-40 GHz)

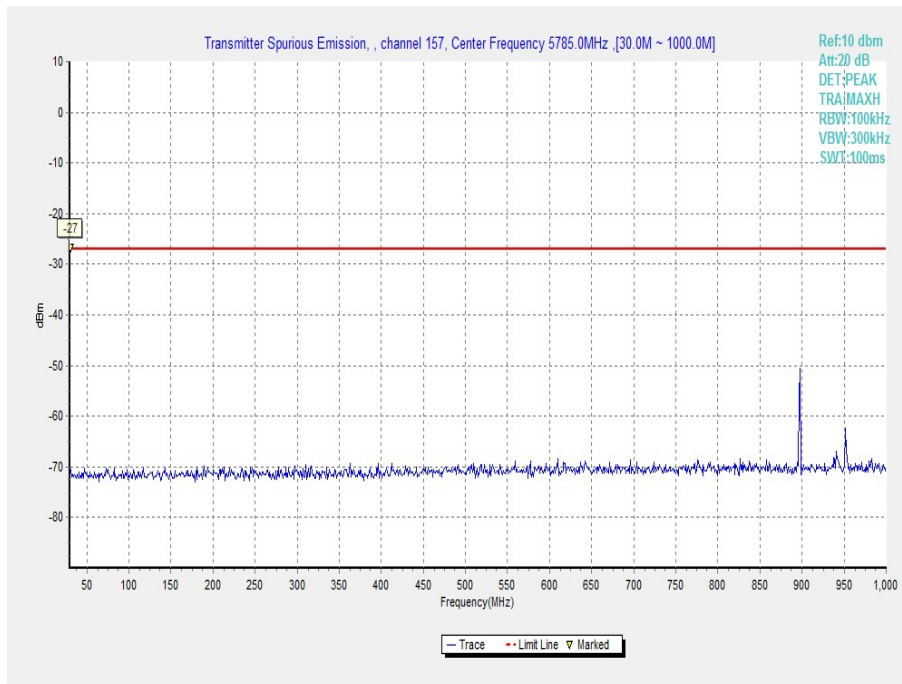


Fig. 19 Conducted Spurious Emission (802.11a, Ch157, 30 MHz-1 GHz)

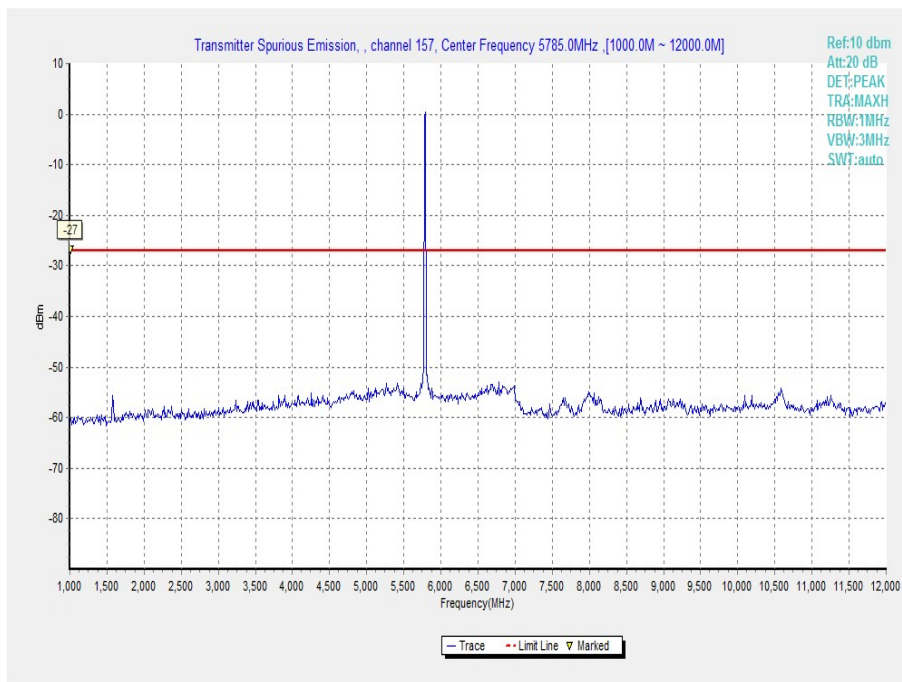


Fig. 20 Conducted Spurious Emission (802.11a, Ch157, 1 GHz -12 GHz)

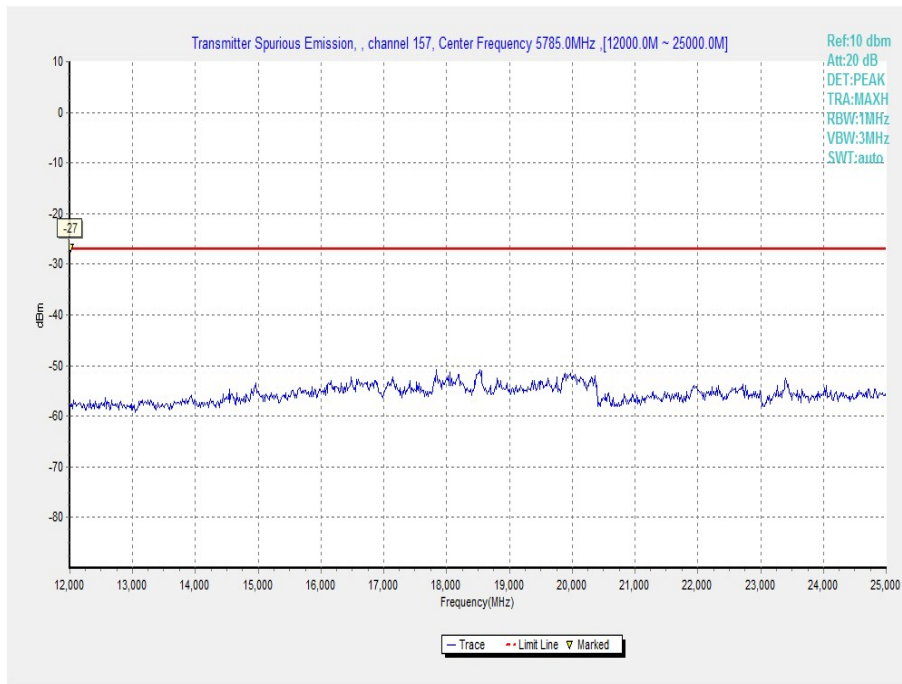


Fig. 21 Conducted Spurious Emission (802.11a, Ch157, 12 GHz-25 GHz)

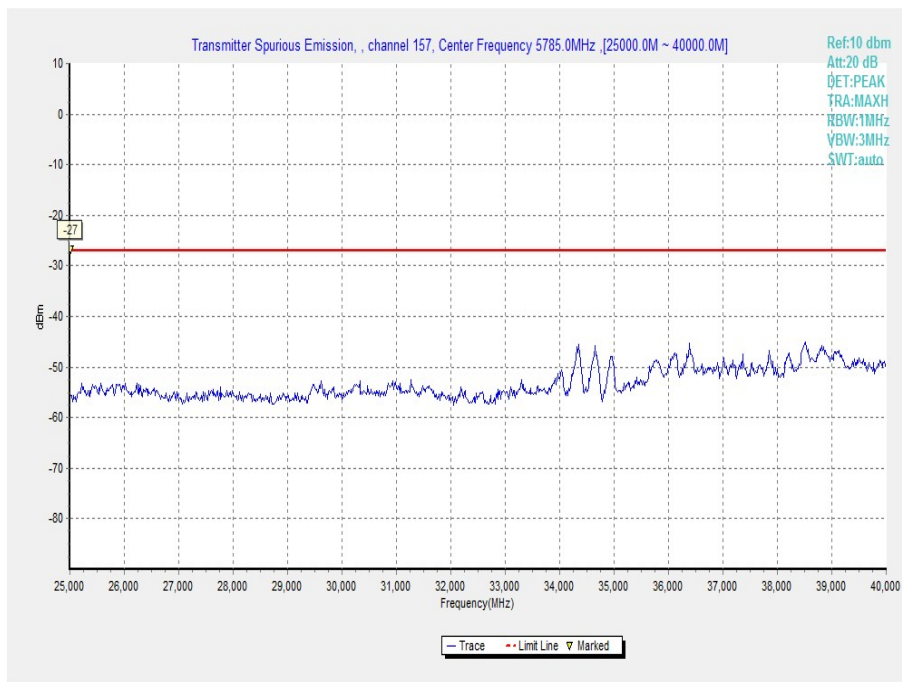


Fig. 22 Conducted Spurious Emission (802.11a, Ch157, 25 GHz-40 GHz)

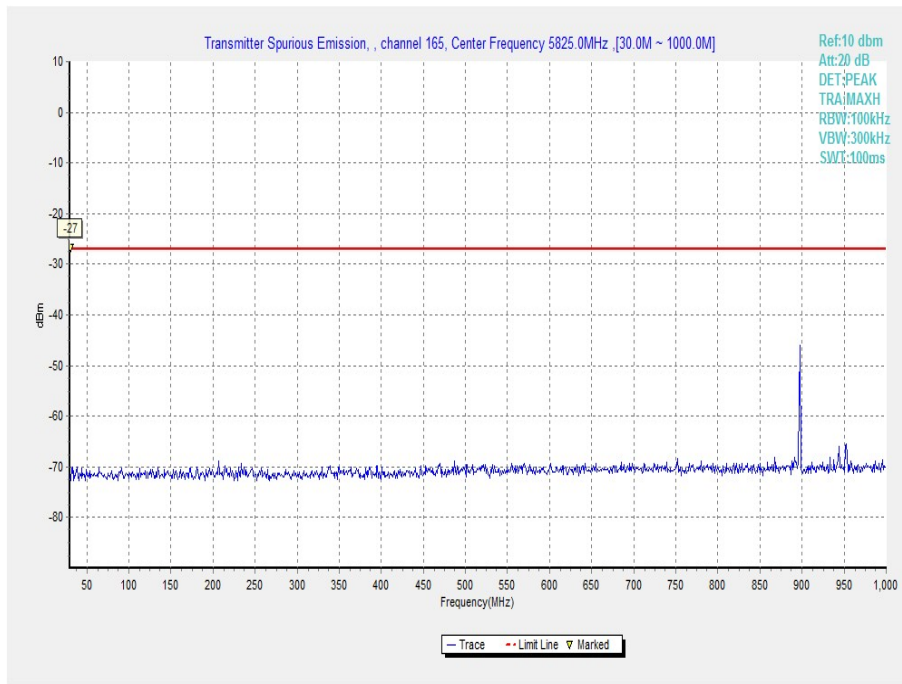


Fig. 23 Conducted Spurious Emission (802.11a, Ch165, 30 MHz-1 GHz)

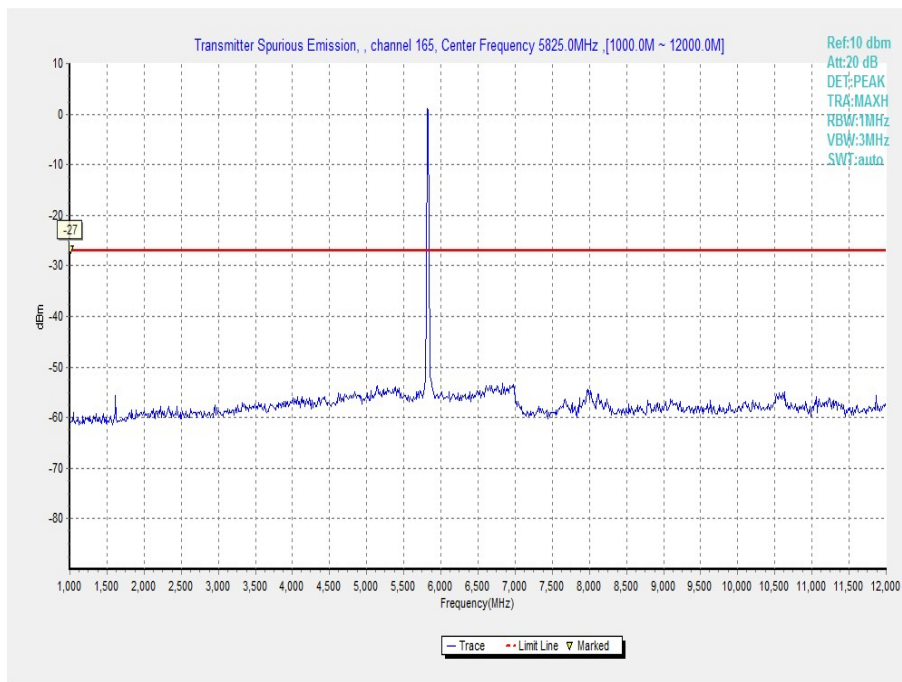


Fig. 24 Conducted Spurious Emission (802.11a, Ch165, 1 GHz -12 GHz)

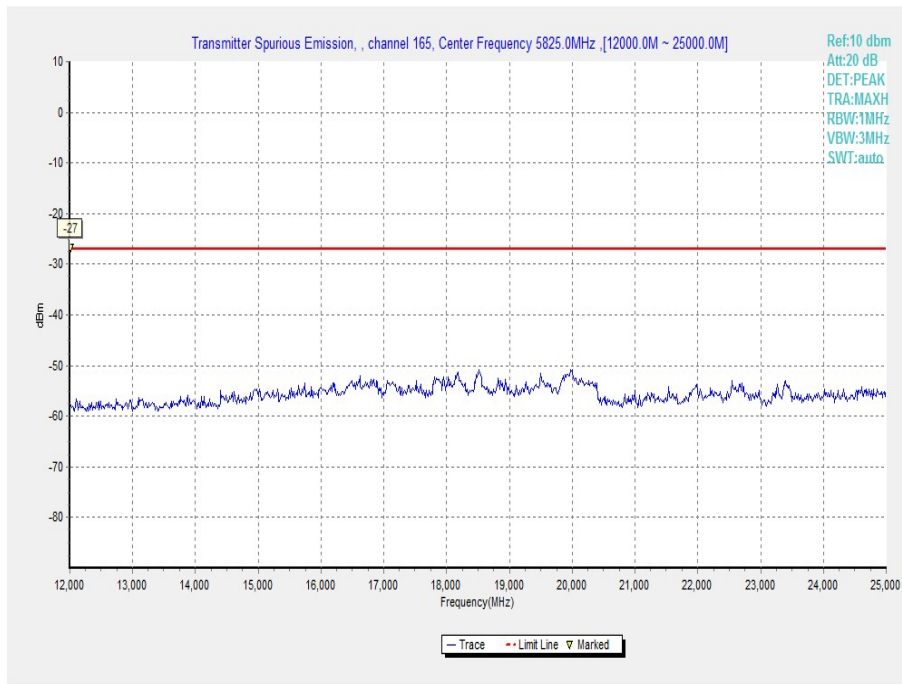


Fig. 25 Conducted Spurious Emission (802.11a, Ch165, 12 GHz-25 GHz)

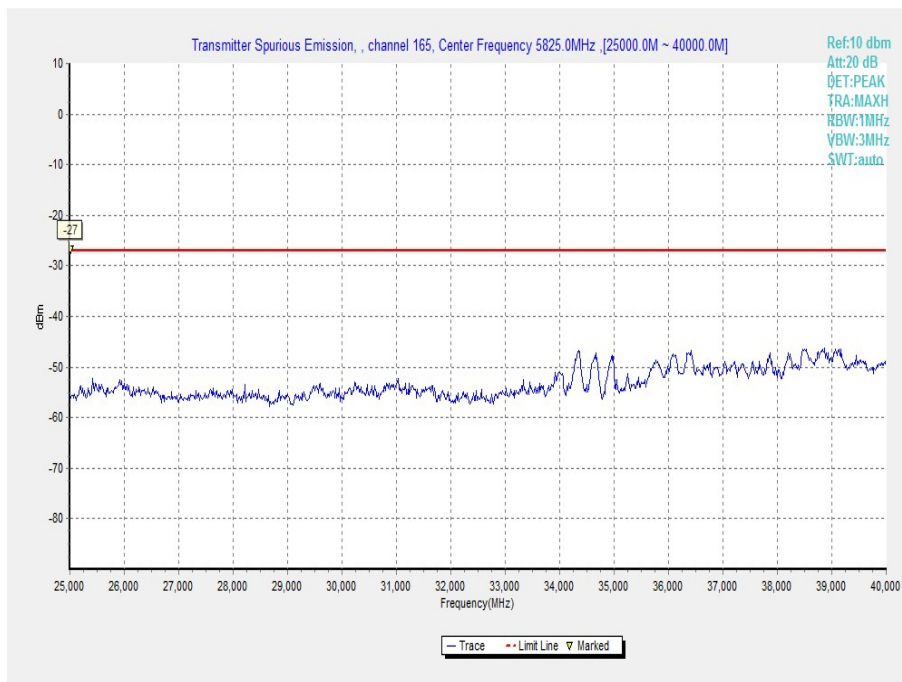


Fig. 26 Conducted Spurious Emission (802.11a, Ch165, 25 GHz-40 GHz)

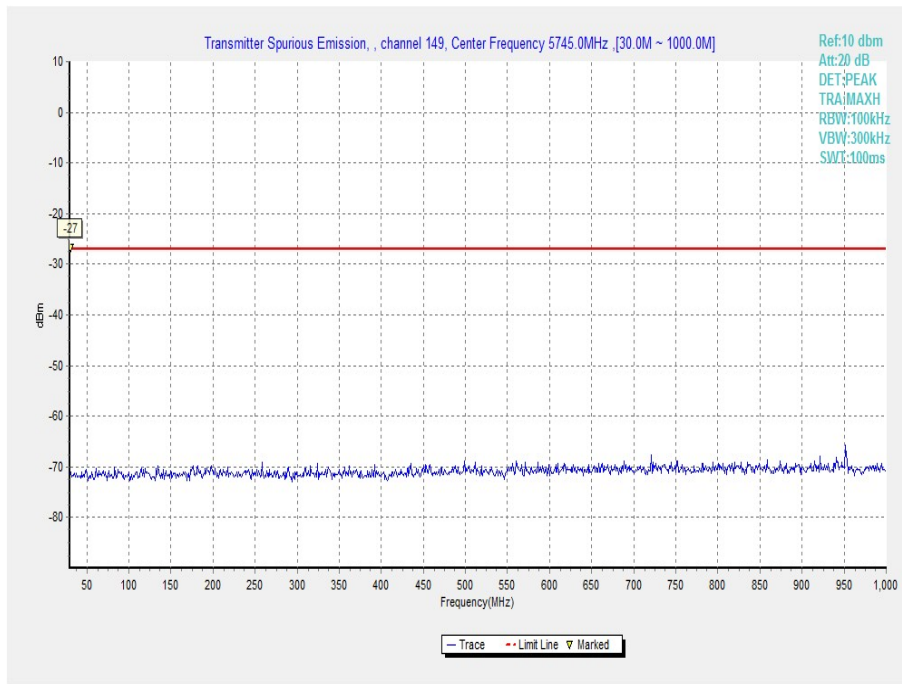


Fig. 27 Conducted Spurious Emission (802.11n-HT20, Ch149, 30 MHz-1 GHz)

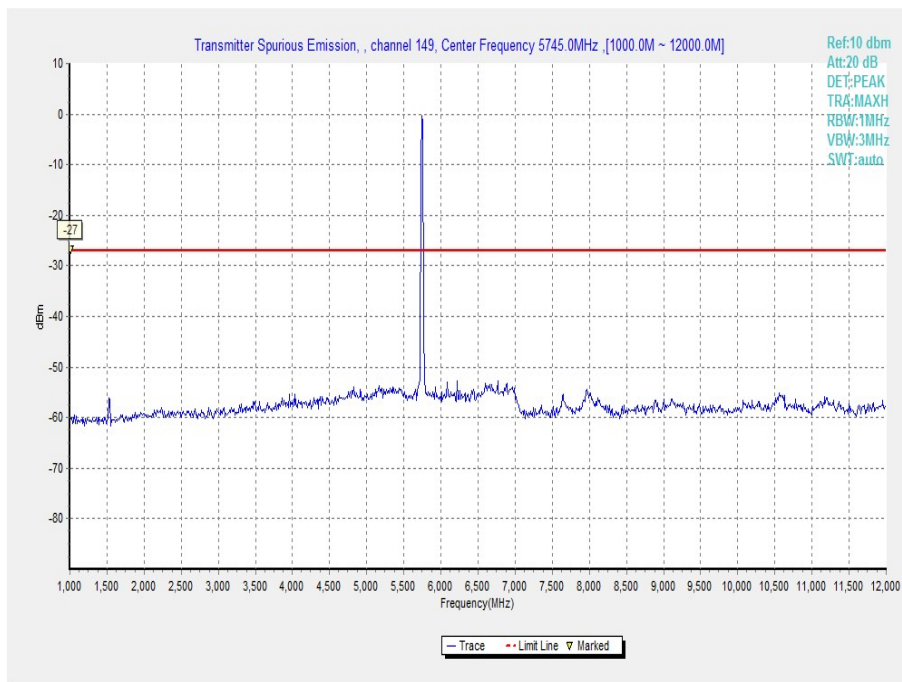


Fig. 28 Conducted Spurious Emission (802.11n-HT20, Ch149, 1 GHz -12 GHz)

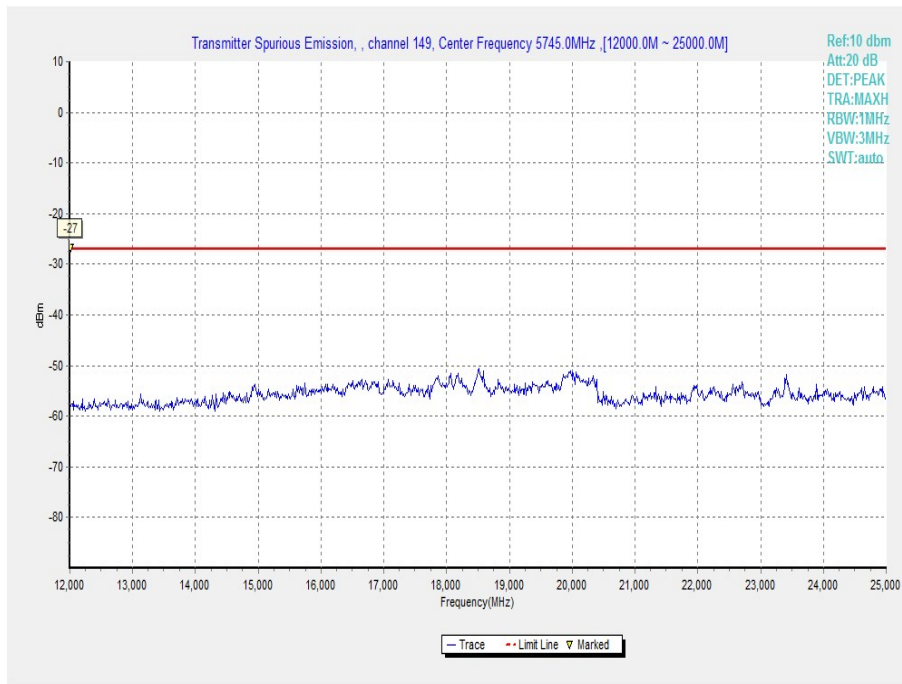


Fig. 29 Conducted Spurious Emission (802.11n-HT20, Ch149, 12 GHz-25 GHz)

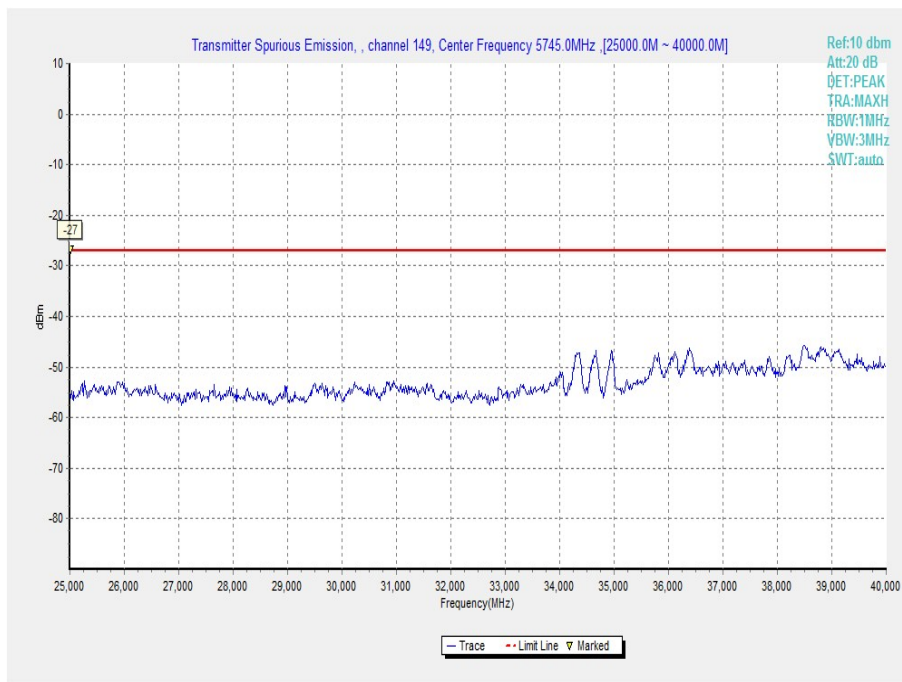


Fig. 30 Conducted Spurious Emission (802.11n-HT20, Ch149, 25 GHz-40 GHz)

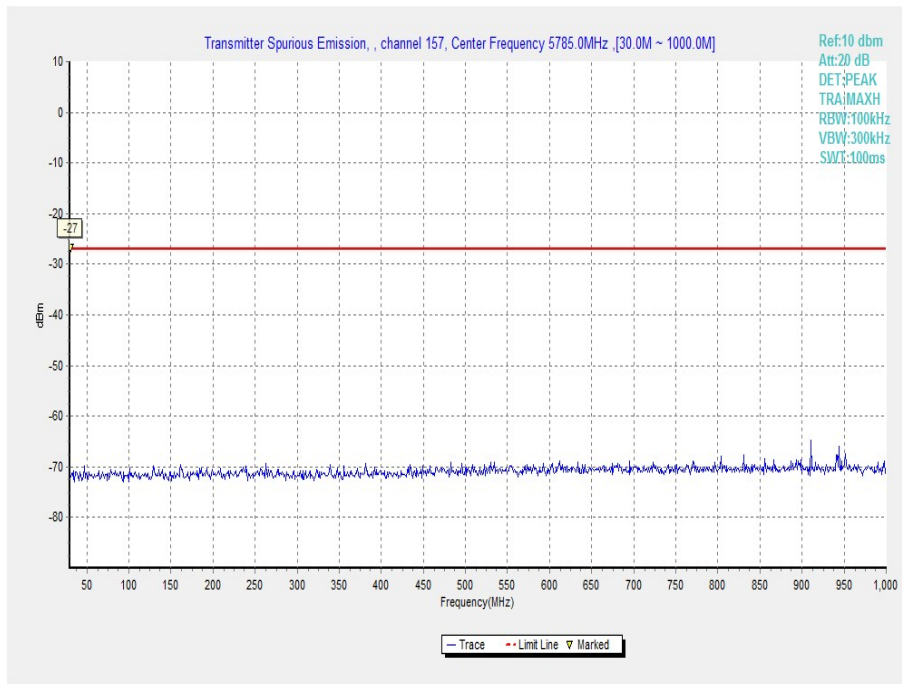


Fig. 31 Conducted Spurious Emission (802.11n-HT20, Ch157, 30 MHz-1 GHz)

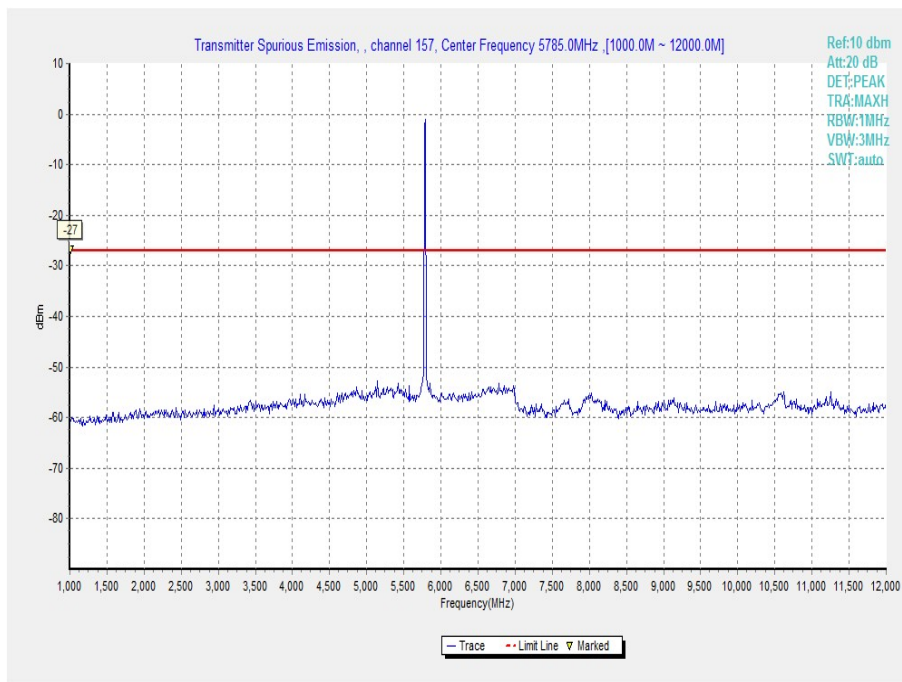


Fig. 32 Conducted Spurious Emission (802.11n-HT20, Ch157, 1 GHz -12 GHz)

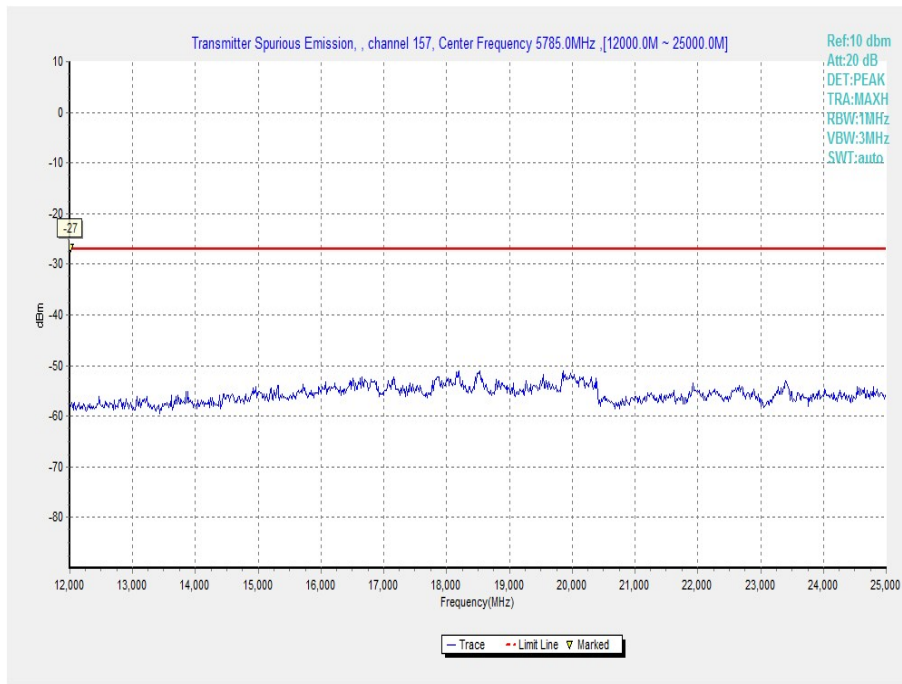


Fig. 33 Conducted Spurious Emission (802.11n-HT20, Ch157, 12 GHz-25 GHz)

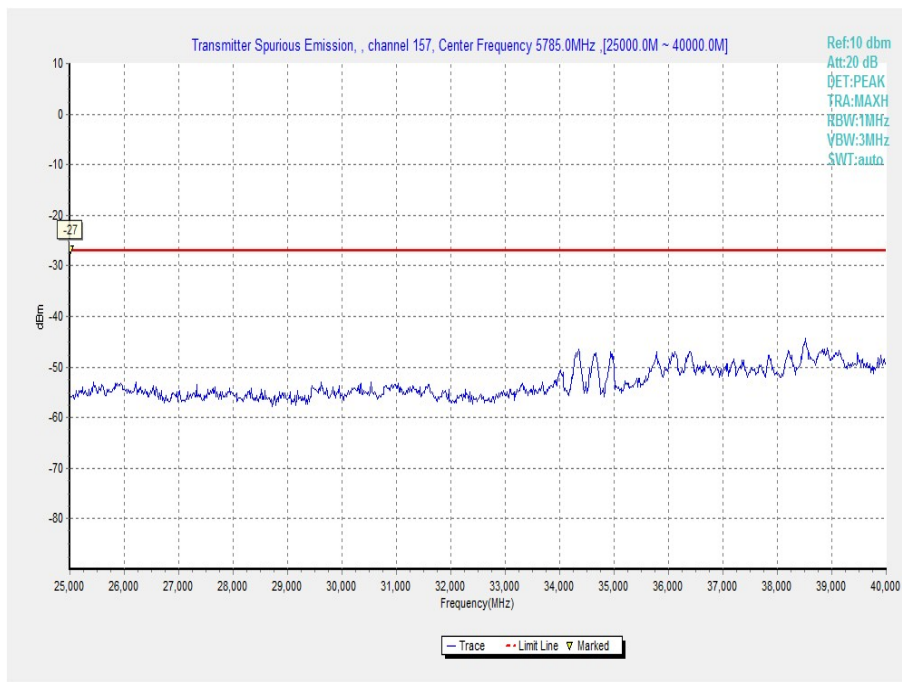


Fig. 34 Conducted Spurious Emission (802.11n-HT20, Ch157, 25 GHz-40 GHz)

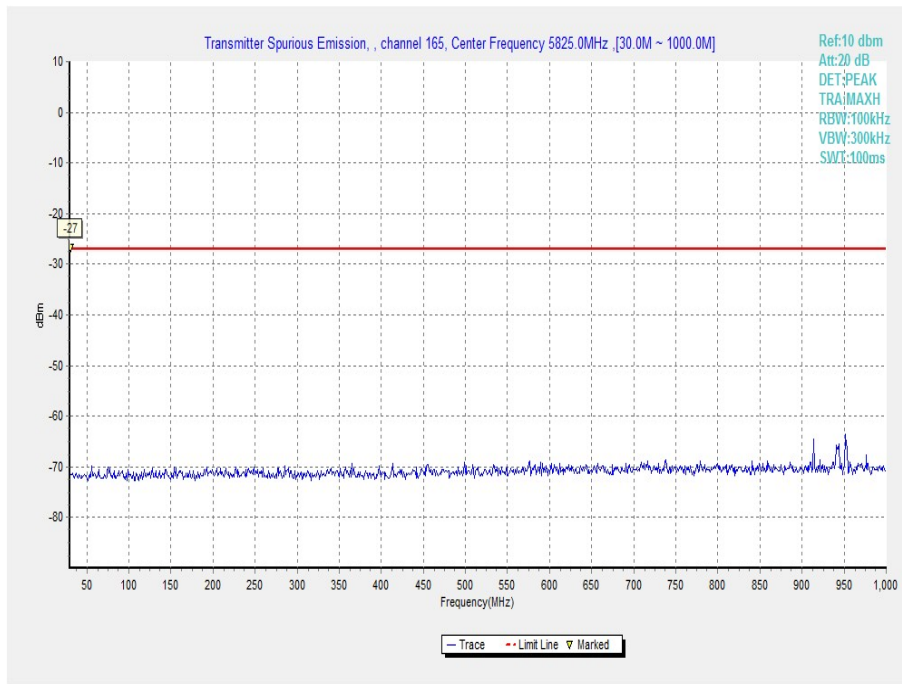


Fig. 35 Conducted Spurious Emission (802.11n-HT20, Ch165, 30 MHz-1 GHz)

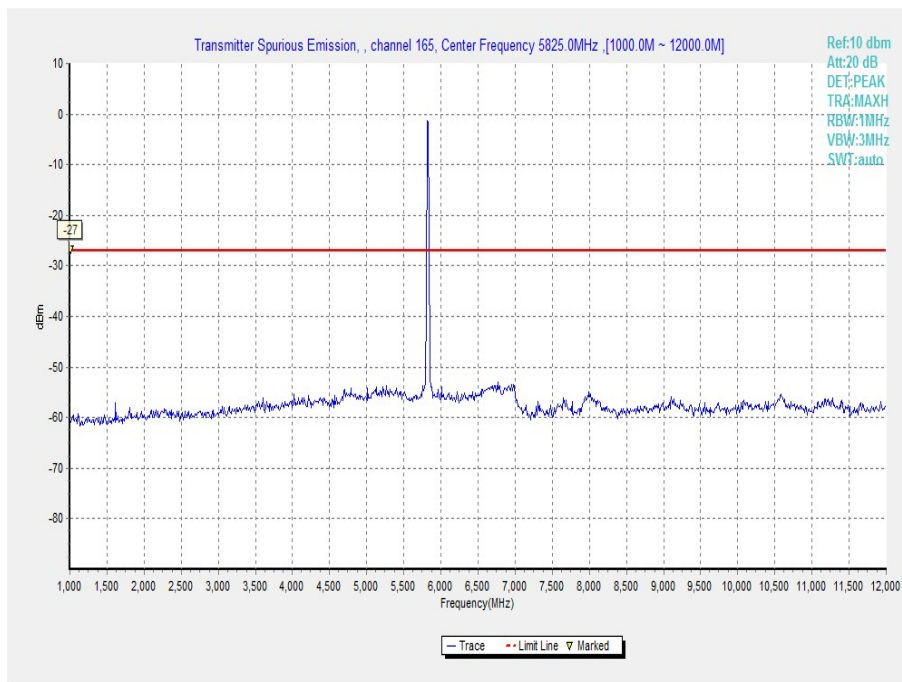


Fig. 36 Conducted Spurious Emission (802.11n-HT20, Ch165, 1 GHz -12 GHz)

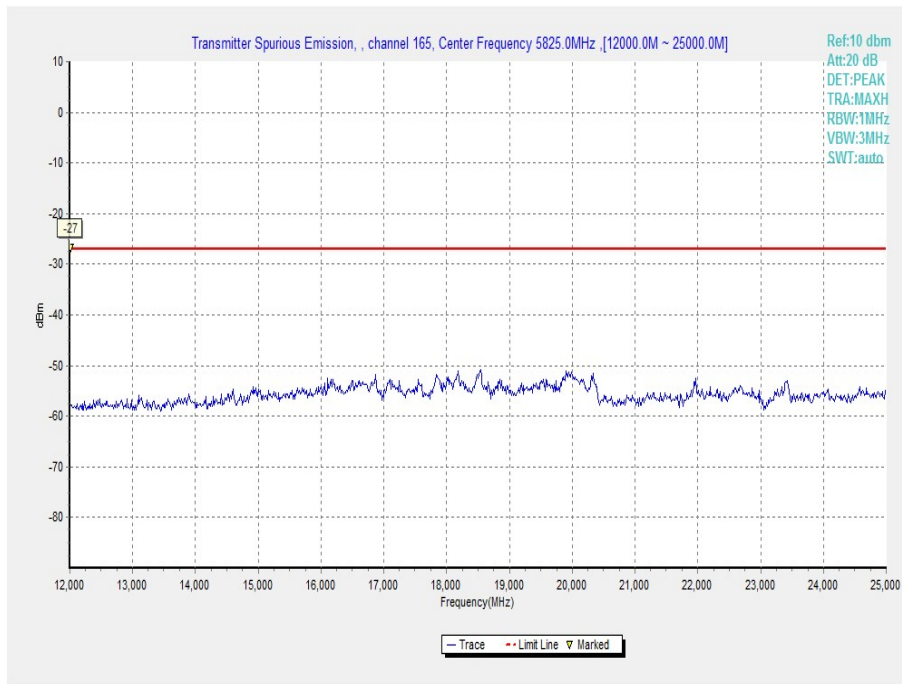


Fig. 37 Conducted Spurious Emission (802.11n-HT20, Ch165, 12 GHz-25 GHz)

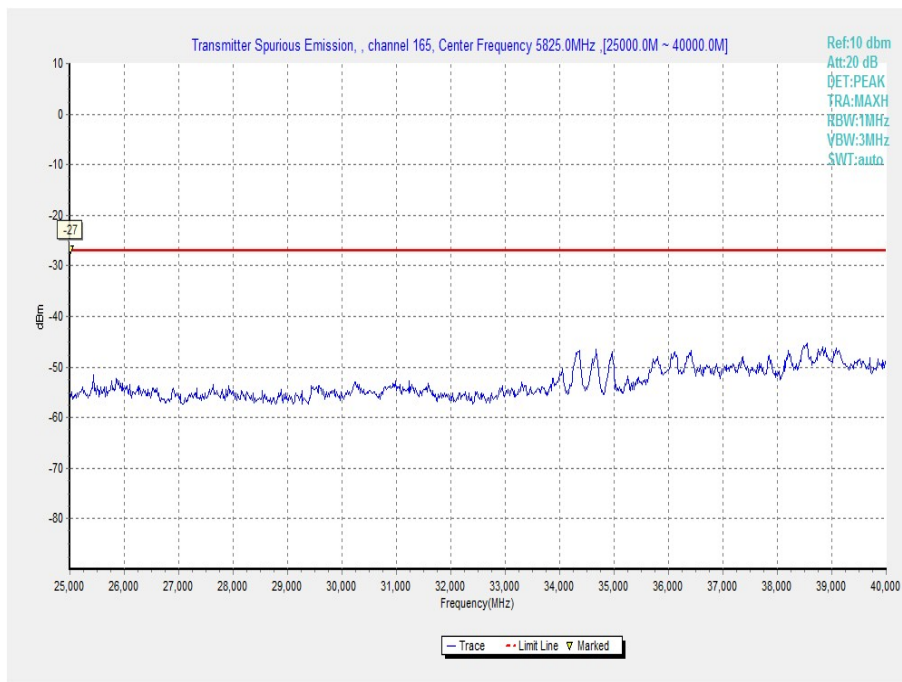


Fig. 38 Conducted Spurious Emission (802.11n-HT20, Ch165, 25 GHz-40 GHz)

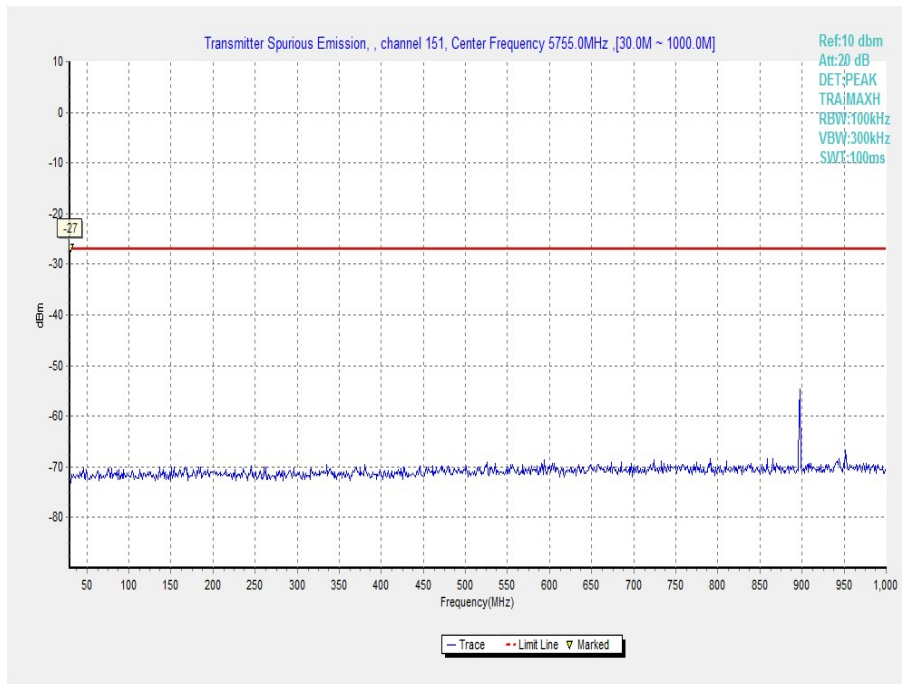


Fig. 39 Conducted Spurious Emission (802.11n-HT40, Ch151, 30 MHz-1 GHz)

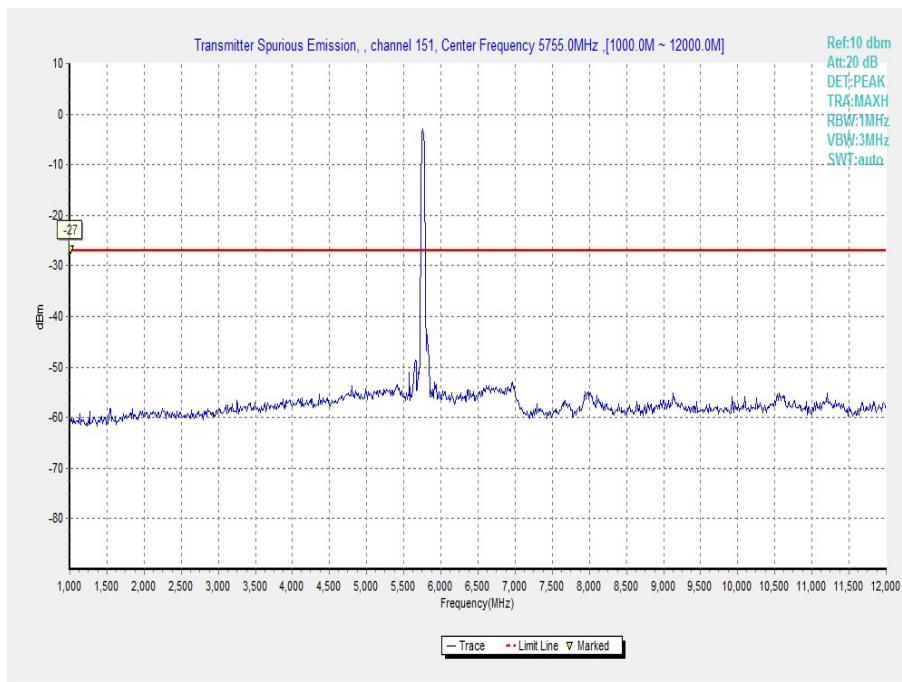


Fig. 40 Conducted Spurious Emission (802.11n-HT40, Ch151, 1 GHz -12 GHz)