



TEST REPORT

Report Number: C21T00027-SRD05-V01

Applicant	Cipia Vision Ltd
Product Name	Cipia-FS10
Model Name	FS10-LOC / FS10-LOC-ADS
Brand Name	Cipia
FCC ID	2AZIQFS10L
IC	27633-FS10L

Industrial Internet Innovation Center (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC Part15, ANSI 63.10, KDB 789033, KDB 905462, RSS-Gen Issue 5, RSS-247 Issue 2.

Prepared by	范宇航	Reviewed by	陈曼飞
Approved by	范宇航	Issue Date	2021-09-30

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

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Test Laboratory:

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

Add: Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China

Tel: +86 21 68866880

Revision Version

Report Number	Revision	Date	Memo
C21T00027-SRD05-V00	00	2021-08-30	Initial creation of test report
C21T00027-SRD05-V01	01	2021-09-30	1.Update the calibration information. 2.Add block diagram to all items. 3.ADD requirement at clause4.2. 4.Modify the IC ID.

CONTENTS

1. TEST LABORATORY.....	6
1.1. TESTING LOCATION.....	6
1.2. TESTING ENVIRONMENT.....	6
1.3. PROJECT INFORMATION.....	6
2. CLIENT INFORMATION.....	7
2.1. APPLICANT INFORMATION.....	7
2.2. MANUFACTURER INFORMATION.....	7
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE).....	8
3.1. ABOUT EUT.....	8
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST.....	8
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....	8
4. REFERENCE DOCUMENTS.....	9
4.1. REFERENCE DOCUMENTS FOR TESTING.....	9
4.2. REFERENCE INFORMATION FROM CLIENT.....	9
5. TEST SUMMARY.....	10
5.1. SUMMARY OF TEST RESULTS.....	10
5.2. STATEMENTS.....	11
6. MEASUREMENT RESULTS.....	12
6.1. MAXIMUM AVERAGE OUTPUT POWER.....	13
6.1.1. Measurement Limit and Method.....	13
6.1.2. Method of Measurement: See ANSI C63.10-clause 12.3.2.2 Method SA-1.....	13
6.1.3 Test Setup.....	13
6.2. PEAK POWER SPECTRAL DENSITY.....	19
6.2.1. Measurement Limit.....	19
6.2.2. The measurement is made according to ANSI C63.10 and KDB789033 D02.....	19
6.2.3 Test Setup.....	19

6.3. 6DB OCCUPIED BANDWIDTH.....	25
6.3.1. Measurement Limit.....	25
6.3.2. The measurement is made according to KDB 789033.....	25
6.3.3 Test Setup.....	25
6.4. 99% OCCUPIED BANDWIDTH.....	29
6.4.1. Measurement Limit.....	29
6.4.2. The measurement is made according to KDB 789033.....	29
6.4.3 Test Setup.....	29
6.5. FREQUENCY STABILITY.....	34
6.6. TRANSMITTER SPURIOUS EMISSION.....	34
6.6.1. Transmitter Spurious Emission - Conducted.....	34
6.6.2. Transmitter Spurious Emission - Radiated.....	41
6.7. BAND EDGES COMPLIANCE.....	62
6.7.1 Measurement Limit.....	62
6.7.2. Set the spectrum analyzer in the following.....	64
7. TEST EQUIPMENT LIST.....	69
7.1. CONDUCTED TEST SYSTEM.....	69
7.2. RADIATED EMISSION TEST SYSTEM.....	69
ANNEX A: MEASUREMENT UNCERTAINTY.....	70
ANNEX B: ACCREDITATION CERTIFICATE.....	71

1. Test Laboratory

1.1. Testing Location

Primary Lab:

Company Name	Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Address	Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
FCC Registration No.	958356
FCC Designation No.	CN1177
IC designation No.	CN0067

Subcontracting Lab #1:

Company Name	N/A
Address	N/A

1.2. Testing Environment

Normal Temperature	15°C~35°C
Relative Humidity	30%RH~60%RH
Supply Voltage	230V/60Hz

1.3. Project Information

Project Leader	Chen Minfei
Testing Start Date	2021-03-23
Testing End Date	2021-08-05



2. Client Information

2.1. Applicant Information

Company Name	Cipia Vision Ltd
Address	Maskit 8th st. Hertzelia, Israel
Telephone	+972-77-5047760

2.2. Manufacturer Information

Company Name	Cipia Vision Ltd
Address	Maskit 8th st. Hertzelia, Israel
Telephone	+972-77-5047760

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

3.1. About EUT

Product Name	Cipia-FS10
Model name	FS10-LOC / FS10-LOC-ADS
WLAN(5.8G)	802.11 a/n20/n40/ac20/ac40/ac80
Supported Radio Technology and Bands	BT5.0 WLAN 802.11b,g,n WLAN 802.11a,n,ac
Hardware Version	Revision D
Software Version	0.0.0.19B
FCC ID	2AZIQFS10L
IC	27633-FS10L

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of Receipt
N01	N/A	Revision D	0.0.0.19B	2021-03-15
N02	N/A	Revision D	0.0.0.19B	2021-04-14
N22	N/A	Revision D	0.0.0.19B	2021-07-20

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN/Remark
AE1	RF Cable	N/A	N/A

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

*The AE is provided by the client.

4. Reference Documents

4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	2018-10-01
ANSI 63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
KDB 789033	Information Infrastructure (U-NII) Devices - Part 15, Subpart E	2017
KDB 905462	COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION	2016
RSS-247 Issue 2	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices	2017
RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus	2019

4.2. Reference Information from client

Antenna gain Information of the test sample provided by Shanghai Sunmi Technology Co., Ltd.

Maximum of Antenna Gain: -2.98 dBi

Note: The product FS10-LOC / FS10-LOC-ADS use a PIFA antenna and doesn't allow Manufacturer change the design.

5. Test Summary

5.1. Summary of Test Results

Measurement Items	Sub-clause of Part15	Sub-clause of IC	Verdict
Maximum Output Power	15.407(a)	RSS-247 6.2	Pass
Power Spectral Density	15.407(a)	RSS-247 6.2	Pass
6dB Occupied Bandwidth	15.407(e)	RSS-247 6.2	Pass
99% Occupied Bandwidth	N/A	RSS-GEN 6.7	Pass
Band edge compliance	15.407(b)	RSS-247 6.2	Pass
Transmitter Spurious Emission-Conducted	15.407	RSS-247 6.2	Pass
Transmitter Spurious Emission - Radiated	15.407,15.205,15.209	RSS-247 6.2 RSS-Gen 8.9,8.10	Pass

Test Conditions

Tnom	Normal Temperature
Tmin	Low Temperature
Tmax	High Temperature
Vnom	Normal Voltage
Vmin	Low Voltage
Vmax	High Voltage
Hnom	Norm Humidity
Anom	Norm Air Pressure

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

Temperature	Tnom	25°C
Voltage	Vnom	24 V
Humidity	Hnom	48%
Air Pressure	Anom	1010hPa

Note:

- All the test data for each data were verified, but only the worst case was reported.
- The DC and low frequency voltages' measurement uncertainty is $\pm 2\%$.

5.2. Statements

The FS10-LOC / FS10-LOC-ADS manufactured by Cipia Vision Ltd, Incorporated are new products for testing.

This project have two sets of configured sample N01(N02)/N22, and we mainly tested sample N01(N02), the main difference is as below:

Mainly Supply	FS10-LOC	(N01/N02)
Secondary Supply	FS10-LOC-ADS	Add ADAS(N22)

Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Measurement Results

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

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Ground system resistance	< 0.5
Temperature	Min. = 15 °C, Max. = 35 °C

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 k
Ground system resistance	< 0.5

Fully-anechoic chamber1 (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 25 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 k
Ground system resistance	< 0.5
VSWR	Between 0 and 6 dB, from 1GHz to 18GHz
Site Attenuation Deviation	Between -4 and 4 dB, 30MHz to 1GHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

6.1. Maximum Average Output Power

6.1.1. Measurement Limit and Method

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30
RSS-247 6.2.4.1	< 30

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

Set the spectrum analyzer in the following:

Detector: RMS.

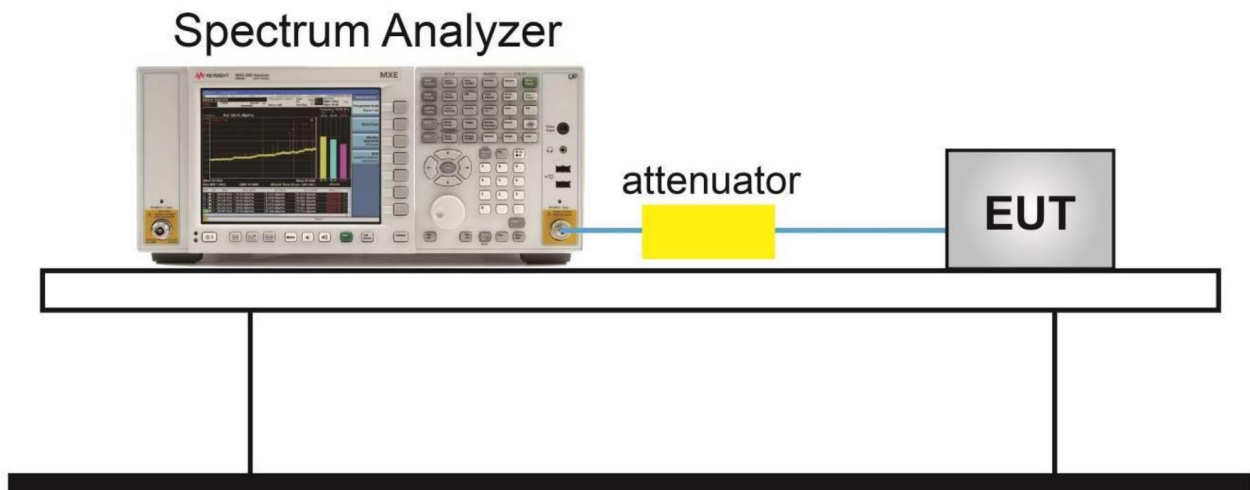
RBW=1MHz.

VBW=3MHz.

Sweep time = AUTO.

Span: 30MHz (for 20MHz); 50MHz (for 40MHz).

6.1.3 Test Setup



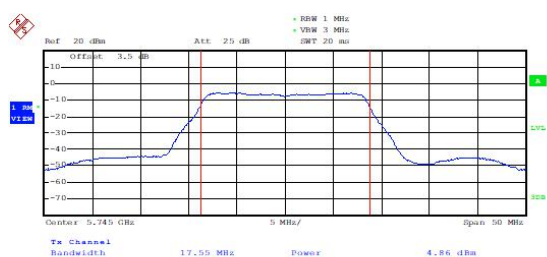
Measurement Results:
U-NII-3

Mode	Channel	Conducted (dBm)	E. I.R.P(dBm)	Duty cycle factor (dB)
802.11a	5745	5.16	2.18	0.3
	5785	5.05	2.07	0.3
	5825	5.05	2.07	0.3
802.11n(20MHz)	5745	4.86	1.88	0.61
	5785	4.71	1.73	0.61
	5825	4.65	1.67	0.61
802.11n(40MHz)	5755	6.14	3.16	1.6
	5795	5.93	2.95	1.6
802.11ac	5745	4.95	1.97	0.59
	5785	4.64	1.66	0.59
	5825	4.68	1.7	0.59
802.11ac(40)	5755	6.08	3.1	1.58
	5795	3.08	0.1	1.58
802.11ac(80)	5755	10.96	7.98	6.81

Conclusion: PASS

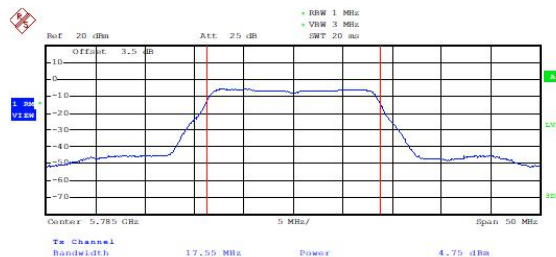
TEST PLOTS:

Output Power-Conducted (802.11a, Ch149)



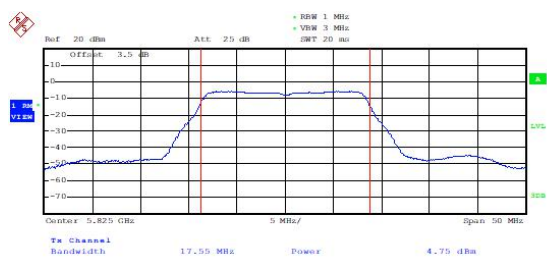
Date: 26.APR.2021 17:35:58

Output Power-Conducted (802.11a, Ch157)



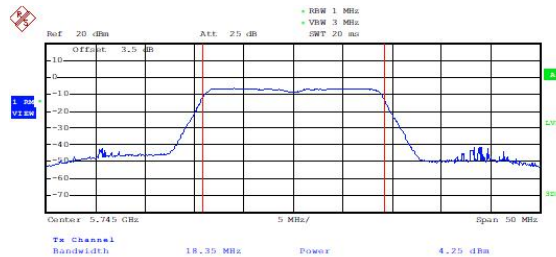
Date: 26.APR.2021 17:37:02

Output Power-Conducted (802.11a, Ch165)



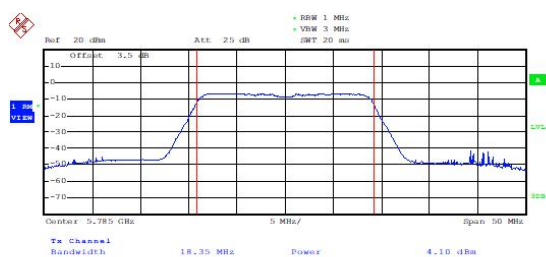
Date: 26.APR.2021 17:37:51

Output Power-Conducted (802.11n-HT20, Ch149)



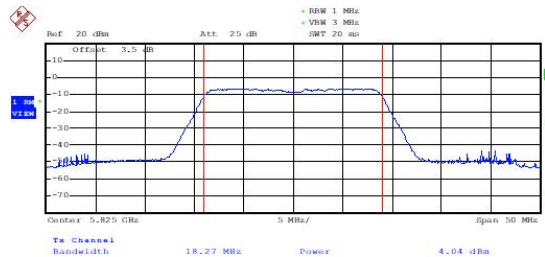
Date: 26.APR.2021 17:39:02

Output Power-Conducted (802.11n-HT20, Ch157)



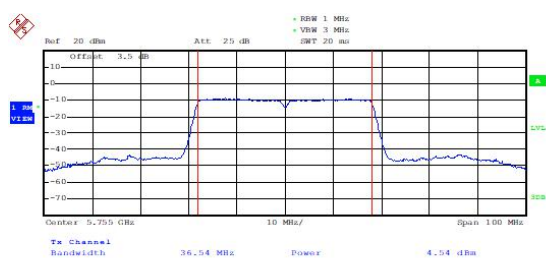
Date: 26.APR.2021 17:40:01

Output Power-Conducted (802.11n-HT20, Ch165)



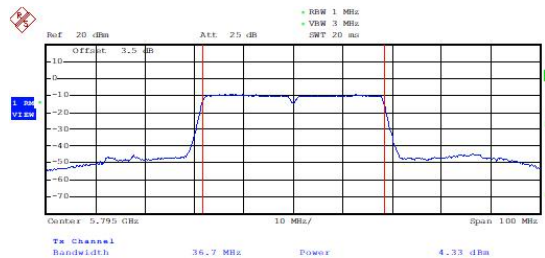
Date: 26.APR.2021 17:41:02

Output Power-Conducted (802.11n-HT40, Ch151)



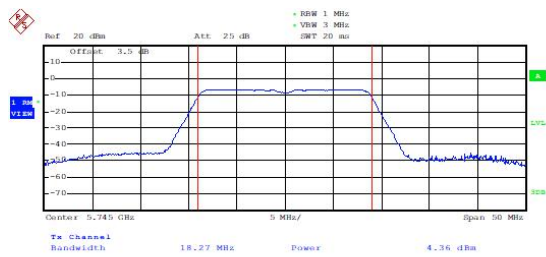
Date: 26.APR.2021 17:42:00

Output Power-Conducted (802.11n-HT40, Ch159)



Date: 26.APR.2021 17:42:01

Output Power-Conducted (802.11ac-VHT20, Ch149)



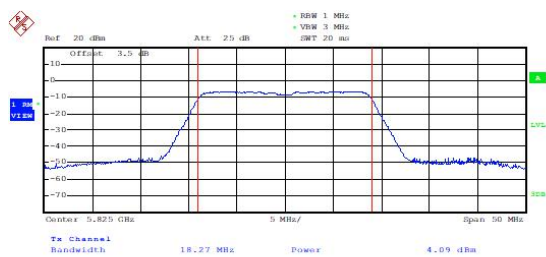
Date: 26.APR.2021 17:44:55

Output Power-Conducted (802.11ac-VHT20, Ch157)



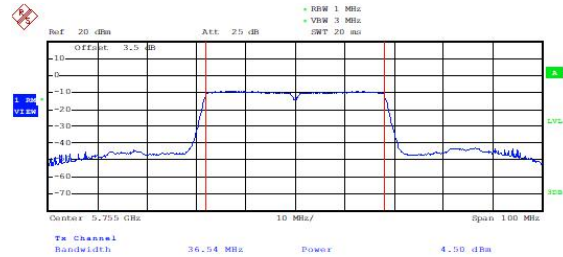
Date: 26.APR.2021 17:46:11

Output Power-Conducted (802.11ac-VHT20, Ch165)



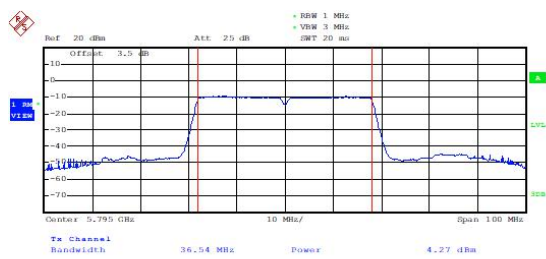
Date: 26.APR.2021 17:47:05

Output Power-Conducted (802.11ac-VHT40, Ch151)



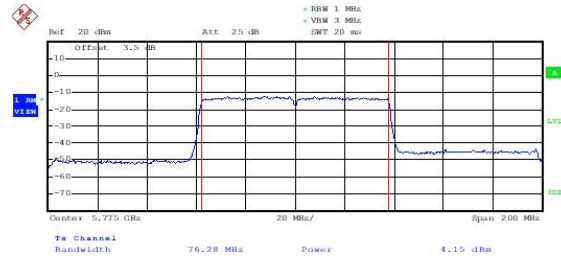
Date: 26.APR.2021 17:48:19

Output Power-Conducted (802.11ac-VHT40, Ch159)



Date: 26.APR.2021 17:49:36

Output Power-Conducted (802.11ac-VHT80, Ch155)



Date: 26.APR.2021 17:51:11

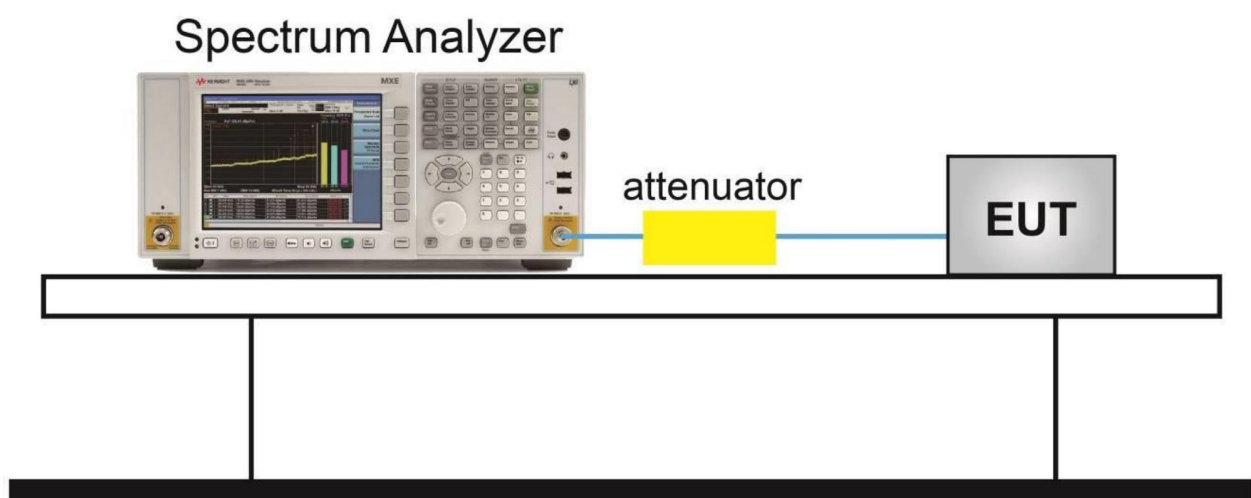
6.2. Peak Power Spectral Density

6.2.1. Measurement Limit

Standard	Limit
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz
RSS-247 6.2.4.1	< 30 dBm/500 kHz

6.2.2. The measurement is made according to ANSI C63.10 and KDB789033 D02

6.2.3 Test Setup



Measurement Results

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	149	-4.308	P
	157	-4.445	P
	165	-4.861	P
802.11n HT20	149	-5.315	P
	157	-5.353	P
	165	-5.507	P
802.11n HT40	151	-7.248	P
	159	-6.738	P
802.11ac HT20	149	-5.306	P
	157	-5.460	P
	165	-5.543	P
802.11ac HT40	151	-6.912	P
	159	-6.215	P
802.11ac HT80	155	-4.654	P

Test graphs as below

Power Spectral Density(dBm/500kHz) (802.11a, 5745MHz)	-4.308	Power Spectral Density(dBm/500kHz) (802.11a, 5785MHz)	-4.445
Power Spectral Density (dBm/500kHz) (802.11a, 5825MHz)	-4.861	Power Spectral Density(dBm/500kHz) (802.11n-HT20), 5745MHz)	-5.315

Power Spectral Density (dBm/500kHz) (802.11n-HT20, 5785MHz)	-5.353	Power Spectral Density(dBm/500kHz) (802.11n-HT20), 5825MHz)	-5.507
Date: 26.APR.2021 18:02:00		Date: 26.APR.2021 18:04:18	
Power Spectral Density (dBm/500kHz) (802.11n-HT40, 5755MHz)	-7.248	Power Spectral Density(dBm/500kHz) (802.11n-HT40), 5795MHz)	-6.738
Date: 26.APR.2021 18:06:28		Date: 26.APR.2021 18:07:37	

Power Spectral Density(dBm/500kHz) (802.11ac-HT20, 5745MHz)	-5.306	Power Spectral Density(dBm/500kHz) (802.11ac-HT20, 5785MHz)	-5.460
Date: 26.APR.2021 18:08:39		Date: 26.APR.2021 17:56:48	
Power Spectral Density (dBm/500kHz) (802.11ac-HT20, 5825MHz)	-5.543	Power Spectral Density (dBm/500kHz) (802.11ac-HT40, 5755MHz)	-6.912
Date: 26.APR.2021 17:57:46		Date: 26.APR.2021 17:58:29	

Power Spectral Density (dBm/500kHz) (802.11ac-HT40, 5795MHz)	-6.215	Power Spectral Density (dBm/500kHz) (802.11ac-HT80, 5775MHz)	-4.654

6.3. 6dB Occupied Bandwidth

6.3.1. Measurement Limit

Measurement Limit

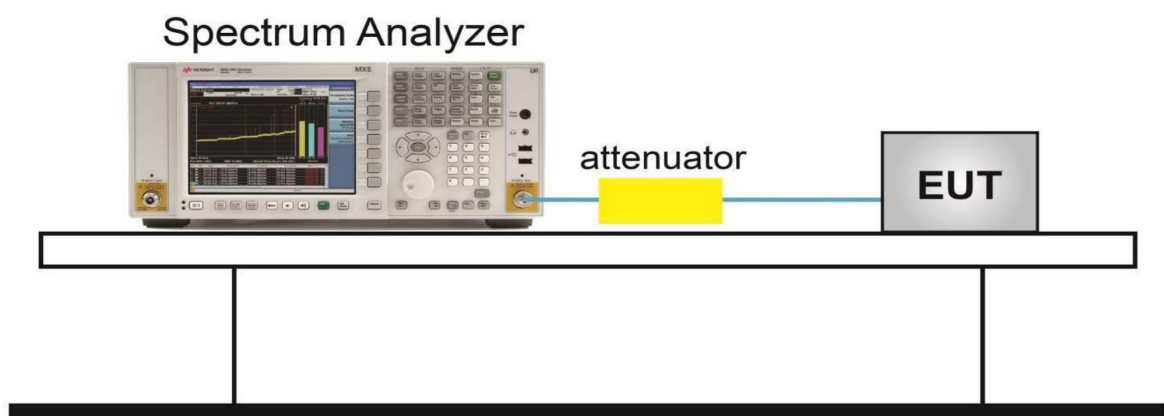
Standard	Limit (kHz)
FCC 47 CFR Part 15.407 (e)	≥500
RSS-247 6.2.4.1	≥500

6.3.2. The measurement is made according to KDB 789033

Measurement Result

Mode	Channel	Occupied 6dB Bandwidth (MHz)	Conclusion
802.11a	149	16.43	P
	157	16.43	P
	165	16.43	P
802.11n HT20	149	17.71	P
	157	17.71	P
	165	17.71	P
802.11n HT40	151	36.54	P
	159	36.54	P
802.11ac HT20	149	17.71	P
	157	17.71	P
	165	17.71	P
802.11ac HT40	151	36.54	P
	159	36.54	P
802.11ac HT80	155	76.28	P

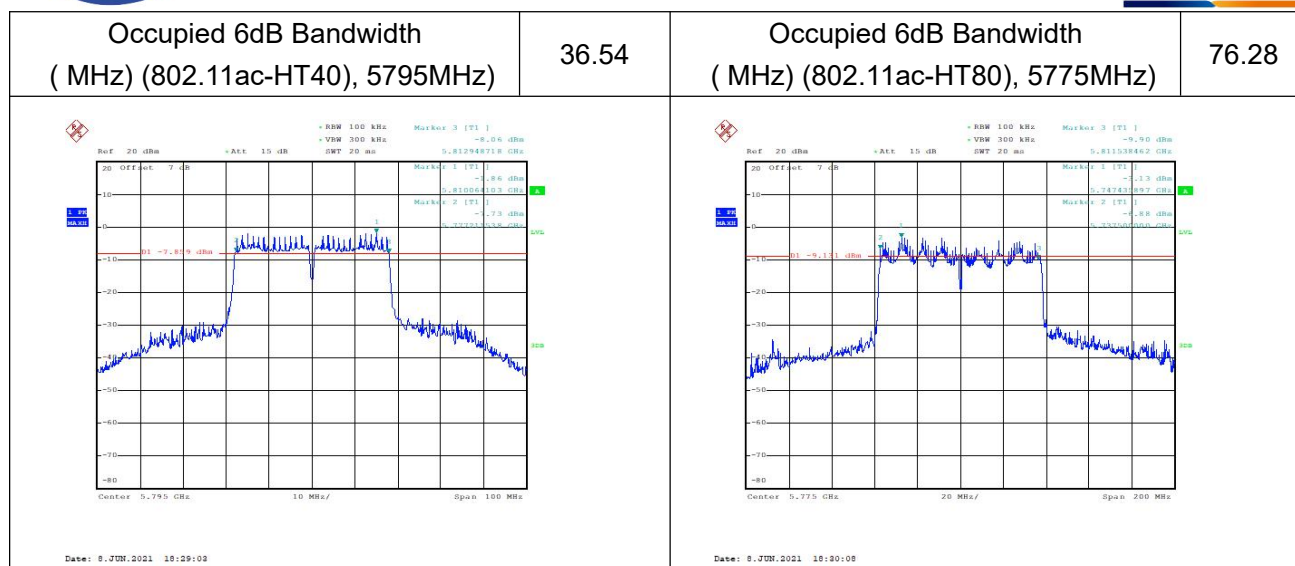
6.3.3 Test Setup



Test graphs as below

Occupied 6dB Bandwidth (MHz) (802.11a, 5745MHz)	16.43	Occupied 6dB Bandwidth (MHz) (802.11a, 5785MHz)	16.43
Date: 8.JUN.2021 18:15:50		Date: 8.JUN.2021 18:16:51	
Occupied 6dB Bandwidth (MHz) (802.11a, 5825MHz)	16.43	Occupied 6dB Bandwidth (MHz) (802.11n-HT20, 5745MHz)	17.71
Date: 8.JUN.2021 18:18:00		Date: 8.JUN.2021 18:19:12	
Occupied 6dB Bandwidth (MHz) (802.11n-HT20, 5785MHz)	17.71	Occupied 6dB Bandwidth (MHz) (802.11n-HT20, 5825MHz)	17.71
Date: 8.JUN.2021 18:20:08		Date: 8.JUN.2021 18:21:16	

Occupied 6dB Bandwidth (MHz) (802.11n-HT40, 5755MHz)	36.54	Occupied 6dB Bandwidth (MHz) (802.11n-HT40), 5795MHz)	36.54
Occupied 6dB Bandwidth (MHz) (802.11ac-HT20, 5745MHz)	17.71	Occupied 6dB Bandwidth (MHz) (802.11ac-HT20, 5785MHz)	17.71
Occupied 6dB Bandwidth (MHz) (802.11ac-HT20, 5825MHz)	17.71	Occupied 6dB Bandwidth (MHz) (802.11ac-HT40), 5775MHz)	36.54



6.4. 99% Occupied Bandwidth

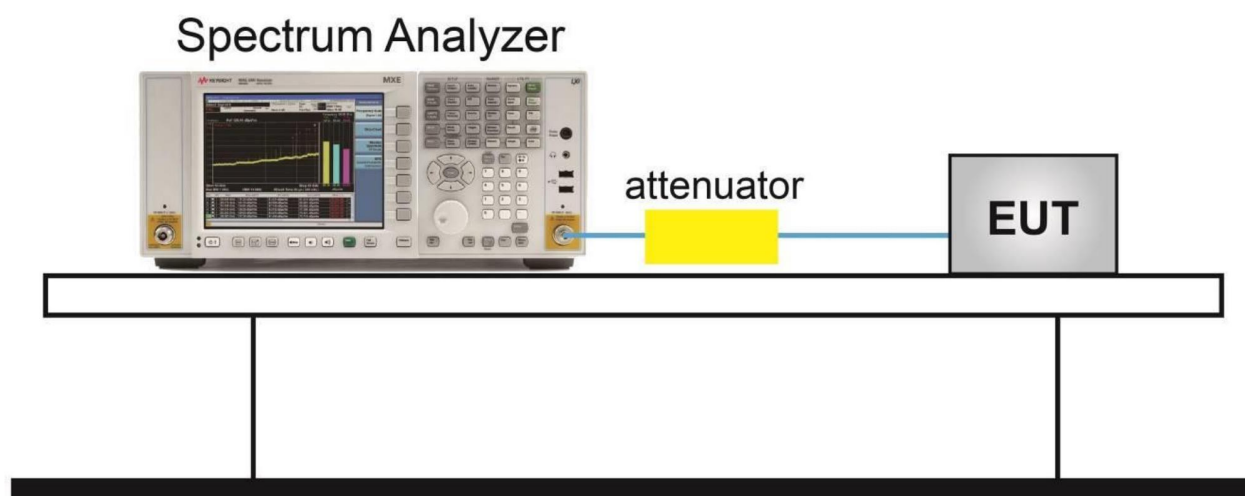
6.4.1. Measurement Limit

Measurement Limit

Standard	Limit (kHz)
RSS-GEN 6.7	N/A

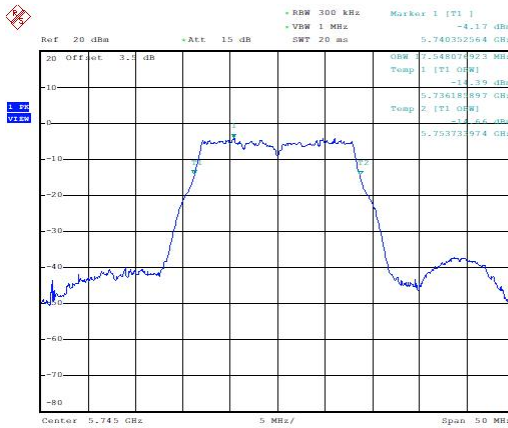
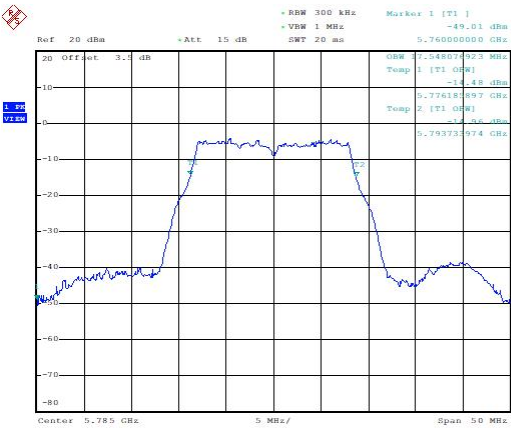
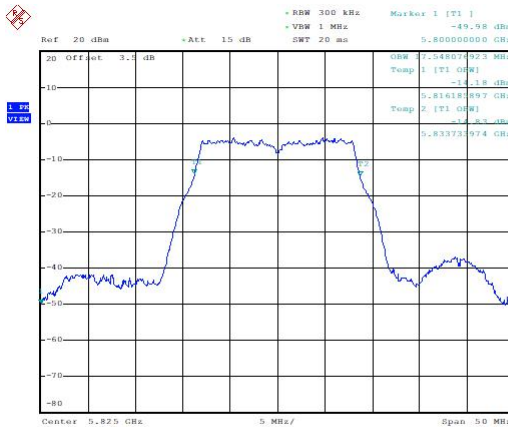
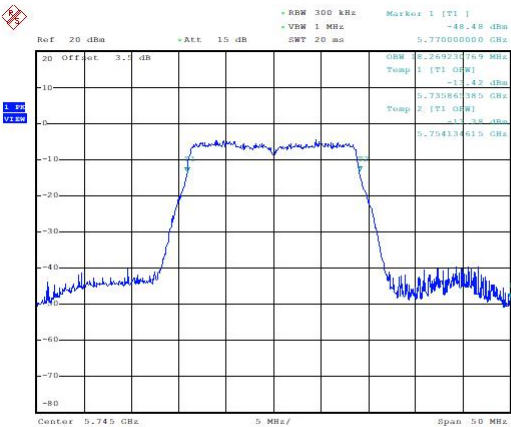
6.4.2. The measurement is made according to KDB 789033

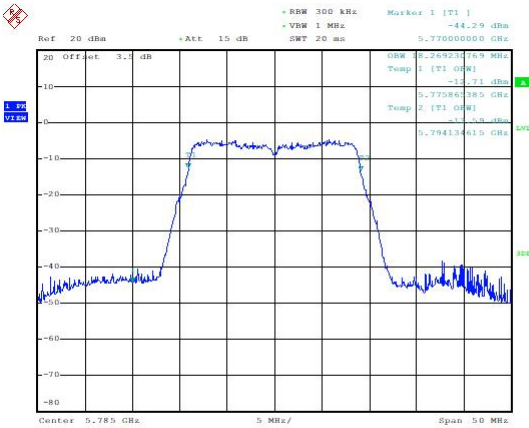
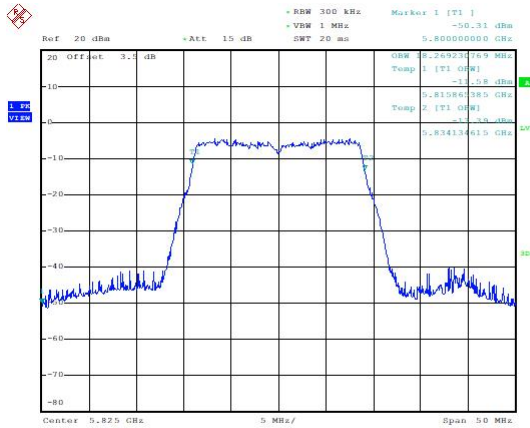
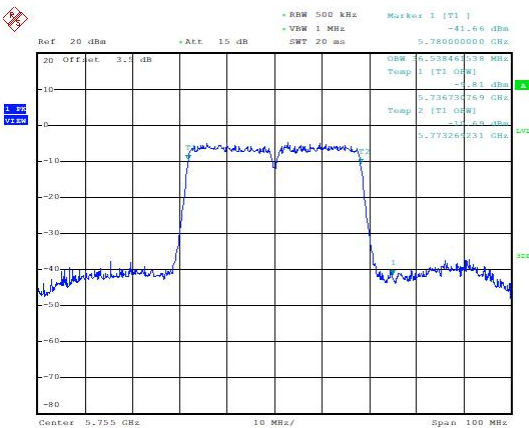
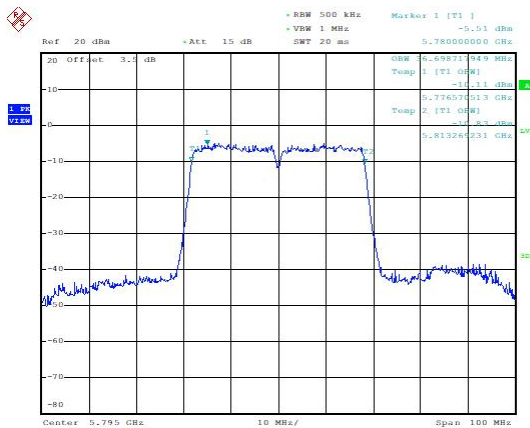
6.4.3 Test Setup



Measurement Result

Mode	Channel	99% Occupied Bandwidth (MHz)	Conclusion
802.11a	149	17.548	P
	157	17.548	P
	165	17.548	P
802.11n HT20	149	18.349	P
	157	18.349	P
	165	18.269	P
802.11n HT40	151	36.538	P
	159	36.699	P
802.11ac HT20	149	18.189	P
	157	18.269	P
	165	18.109	P
802.11ac HT40	151	36.699	P
	159	37.019	P
802.11ac HT80	155	75.962	P

99% Occupied Bandwidth (MHz) (802.11a, 5745MHz)	17.548	99% Occupied Bandwidth (MHz) (802.11a, 5785MHz)	17.548
 Date: 26.APR.2021 16:57:59		 Date: 26.APR.2021 16:59:09	
99% Occupied Bandwidth (MHz) (802.11a, 5825MHz)	17.548	99% Occupied Bandwidth (MHz) (802.11n-HT20), 5745MHz)	18.349
 Date: 26.APR.2021 17:01:02		 Date: 26.APR.2021 17:12:40	

99% Occupied Bandwidth (MHz) (802.11n-HT20, 5785MHz)	18.349	99% Occupied Bandwidth (MHz) (802.11n-HT20), 5825MHz)	18.269
 Date: 26.APR.2021 17:14:09		 Date: 26.APR.2021 17:15:22	
99% Occupied Bandwidth (MHz) (802.11n-HT40, 5755MHz)	36.538	99% Occupied Bandwidth (MHz) (802.11n-HT40), 5795MHz)	36.699
 Date: 26.APR.2021 17:09:24		 Date: 26.APR.2021 17:10:54	

99% Occupied Bandwidth (MHz) (802.11ac-HT20, 5745MHz)	18.269	99% Occupied Bandwidth (MHz) (802.11ac-HT20, 5785MHz)	18.269
Date: 26.APR.2021 17:02:34		Date: 26.APR.2021 17:04:46	
99% Occupied Bandwidth (MHz) (802.11ac-HT20, 5825MHz)	18.269	99% Occupied Bandwidth (MHz) (802.11ac-HT40, 5775MHz)	36.538
Date: 26.APR.2021 17:07:31		Date: 26.APR.2021 17:17:16	

99% Occupied Bandwidth (MHz) (802.11ac-HT40), 5795MHz)	36.538	99% Occupied Bandwidth (MHz) (802.11ac-HT80), 5775MHz)	76.282
Ref: 20 dBm, Offset: 3.1 dB, Att: 15 dB, SWP: 20 MHz, RBW: 500 kHz, VSW: 1 MHz, Marker 1 [T1]: -6.37 dBm, Temp 1 [T1]: 0.726735769 GHz, Temp 2 [T1]: 0.813264231 GHz, 99%. Center: 5.795 GHz, Span: 100 MHz, Date: 06.APR.2021 17:18:31		Ref: 20 dBm, Offset: 3.1 dB, Att: 15 dB, SWP: 20 MHz, RBW: 1 MHz, VSW: 2 MHz, Marker 1 [T1]: -6.66 dBm, Temp 1 [T1]: 0.7262051282 MHz, Temp 2 [T1]: 0.7337948718 MHz, 99%. Center: 5.775 GHz, Span: 200 MHz, Date: 06.APR.2021 17:20:26	

6.5. Frequency Stability

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

6.6. Transmitter Spurious Emission

Measurement Limit

Standard	Limit
FCC 47 Part 15.407, 15.205, 15.209	< -27
RSS-247 6.2.4.2 RSS-Gen 8.9, 8.10	< -27

The measurement is made according to ANSI C63.10.

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009-0.490	2400/F(kHz)	/
0.490-1.705	24000/F(kHz)	/
1.705-30	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

6.6.1. Transmitter Spurious Emission – Conducted

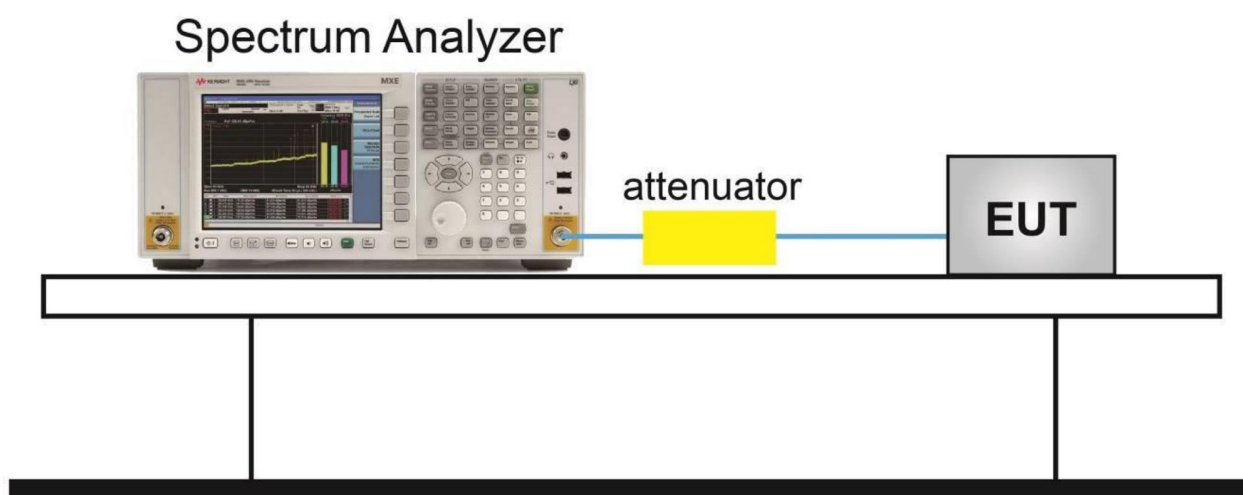
Modulation type and data rate tested (Only worst case result is given below):

Mode	Data rate	Channel
802.11a	6Mbps	149
802.11n-HT20	6Mbps	149
802.11n-HT40	MCS0	151
802.11ac-HT20	6Mbps	149
802.11ac-HT40	MCS0	151
802.11ac-HT80	MCS0	155

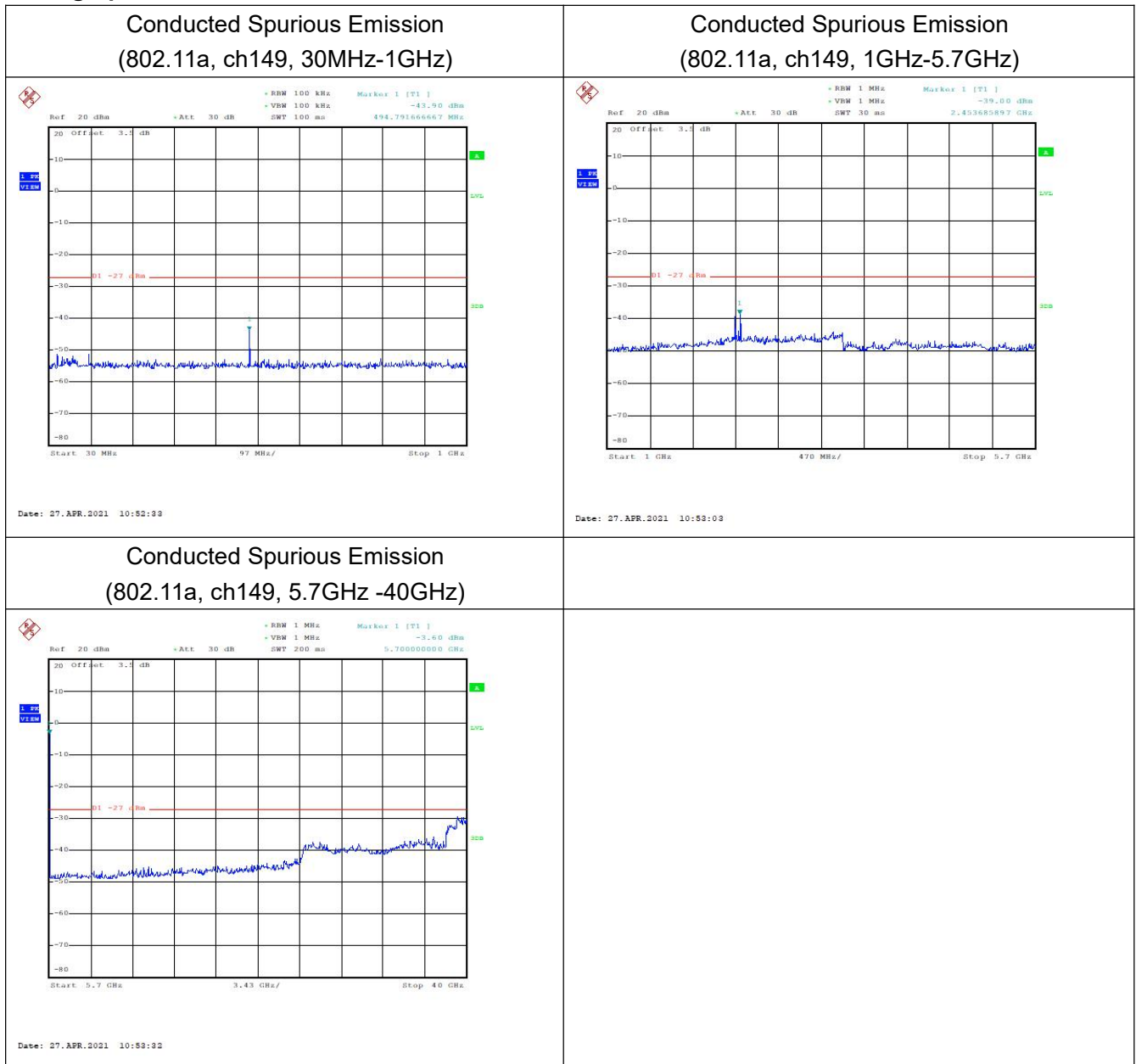
Measurement Results

MODE	Channel	Frequency Range	Conclusion
802.11a	149(5745MHz)	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P
802.11n-HT20	149	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P
802.11n-HT40	151(5755MHz)	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P
802.11ac-HT20	149	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P
802.11ac-HT40	151(5755MHz)	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P
802.11ac-HT80	155(5775MHz)	30 MHz ~ 1 GHz	P
		1 GHz ~ 5.7 GHz	P
		5.9 GHz ~ 40 GHz	P

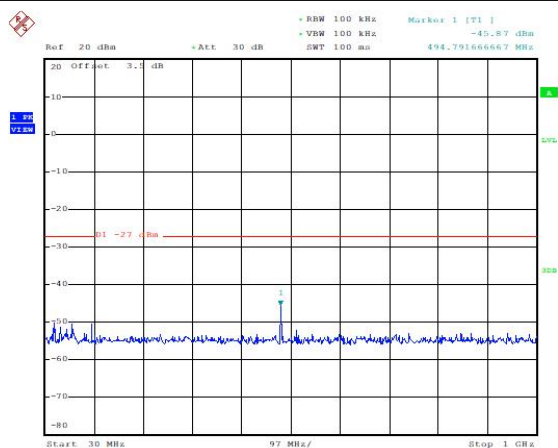
Test Setup



Test graphs as below

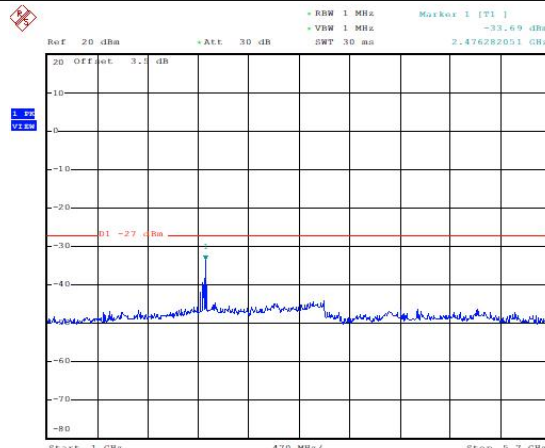


Conducted Spurious Emission (802.11n-HT20, ch149, 30MHz-1GHz)



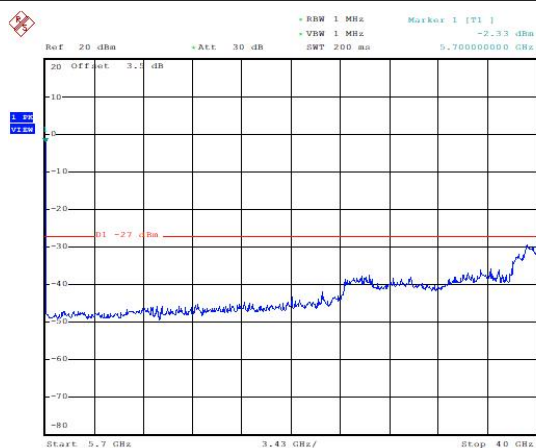
Date: 27.APR.2021 11:02:04

Conducted Spurious Emission (802.11n-HT20, ch149, 1GHz-5.7GHz)



Date: 27.APR.2021 11:02:33

Conducted Spurious Emission (802.11n-HT20, ch149, 5.7GHz -40GHz)

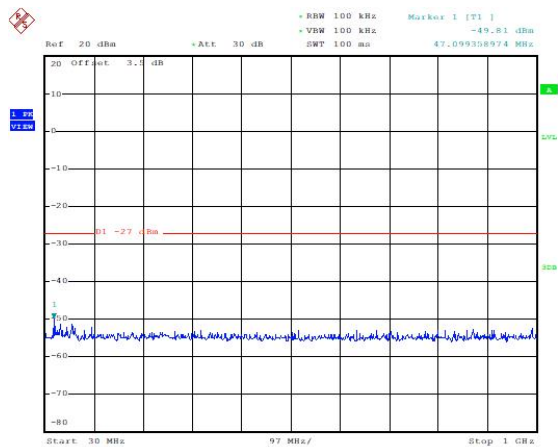


Date: 27.APR.2021 11:03:03

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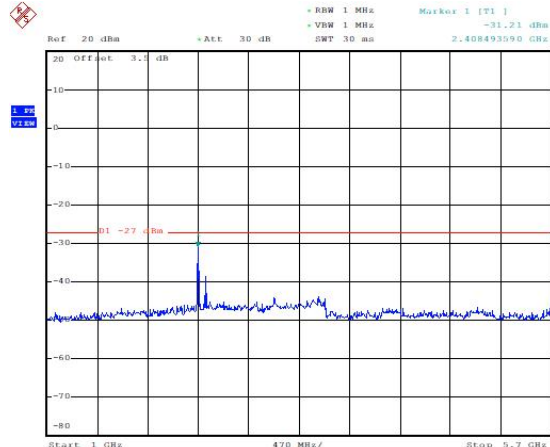
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Conducted Spurious Emission (802.11n-HT40, ch151, 30MHz-1GHz)



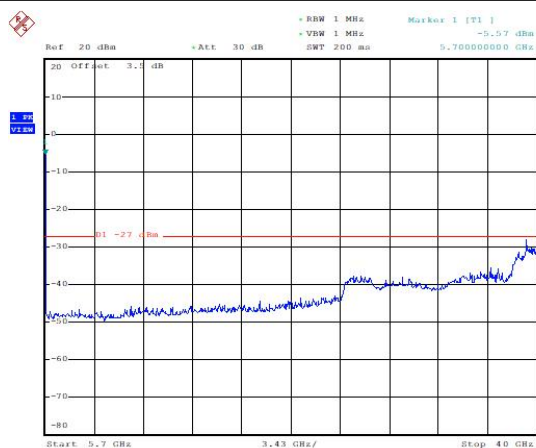
Date: 27.APR.2021 11:12:00

Conducted Spurious Emission (802.11n-HT40, ch151, 1GHz-5.7GHz)



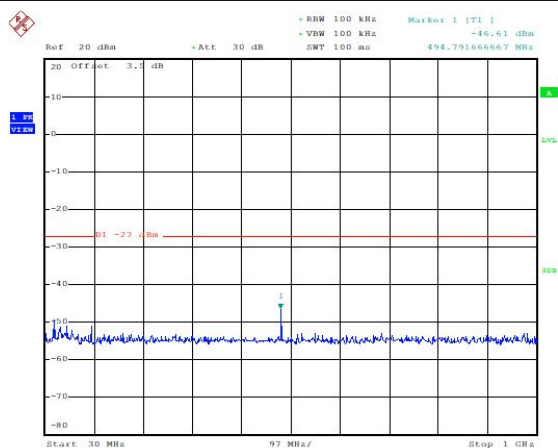
Date: 27.APR.2021 11:12:30

Conducted Spurious Emission (802.11n-HT40, ch151, 5.7GHz -40GHz)



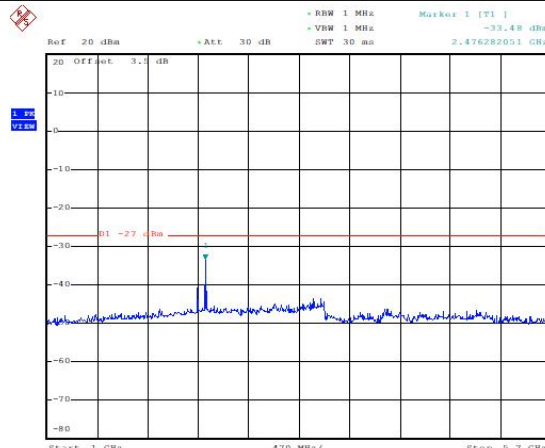
Date: 27.APR.2021 11:12:59

Conducted Spurious Emission (802.11ac-HT20, ch149, 30MHz-1GHz)



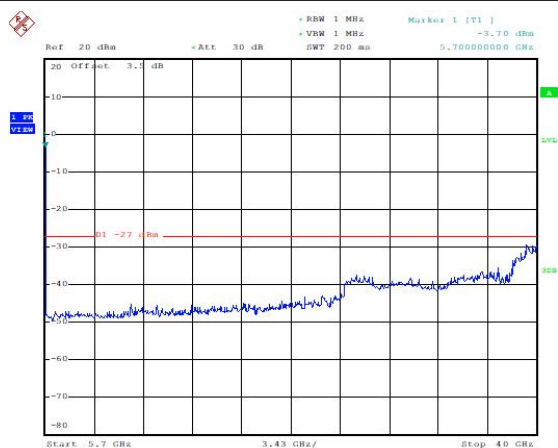
Date: 27.APR.2021 11:25:16

Conducted Spurious Emission (802.11ac-HT20, ch149, 1GHz-5.7GHz)



Date: 27.APR.2021 11:25:45

Conducted Spurious Emission (802.11ac-HT20, ch149, 5.7GHz -40GHz)

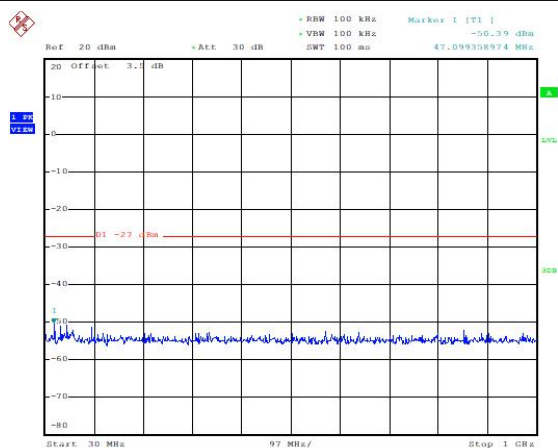


Date: 27.APR.2021 11:26:14

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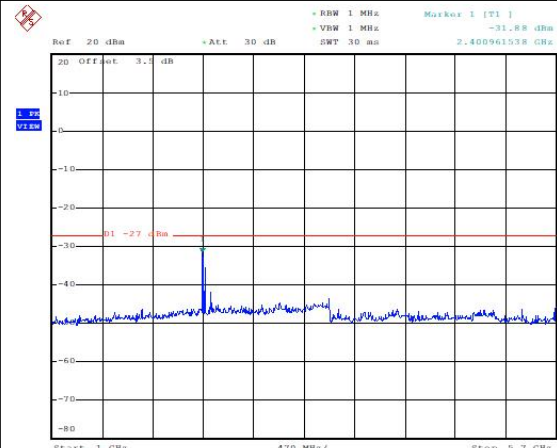
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Conducted Spurious Emission (802.11ac-HT40, ch151, 30MHz-1GHz)



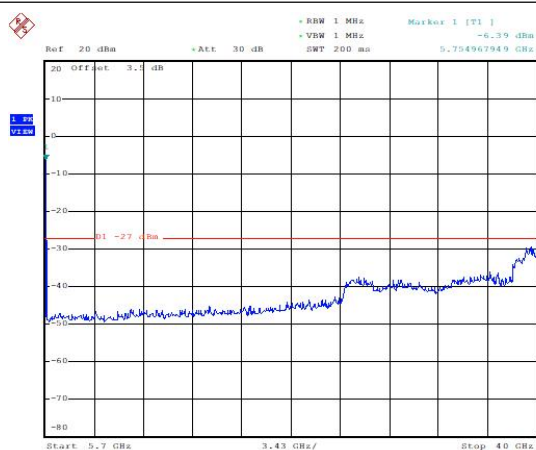
Date: 27.APR.2021 11:35:20

Conducted Spurious Emission (802.11ac-HT40, ch151, 1GHz-5.7GHz)

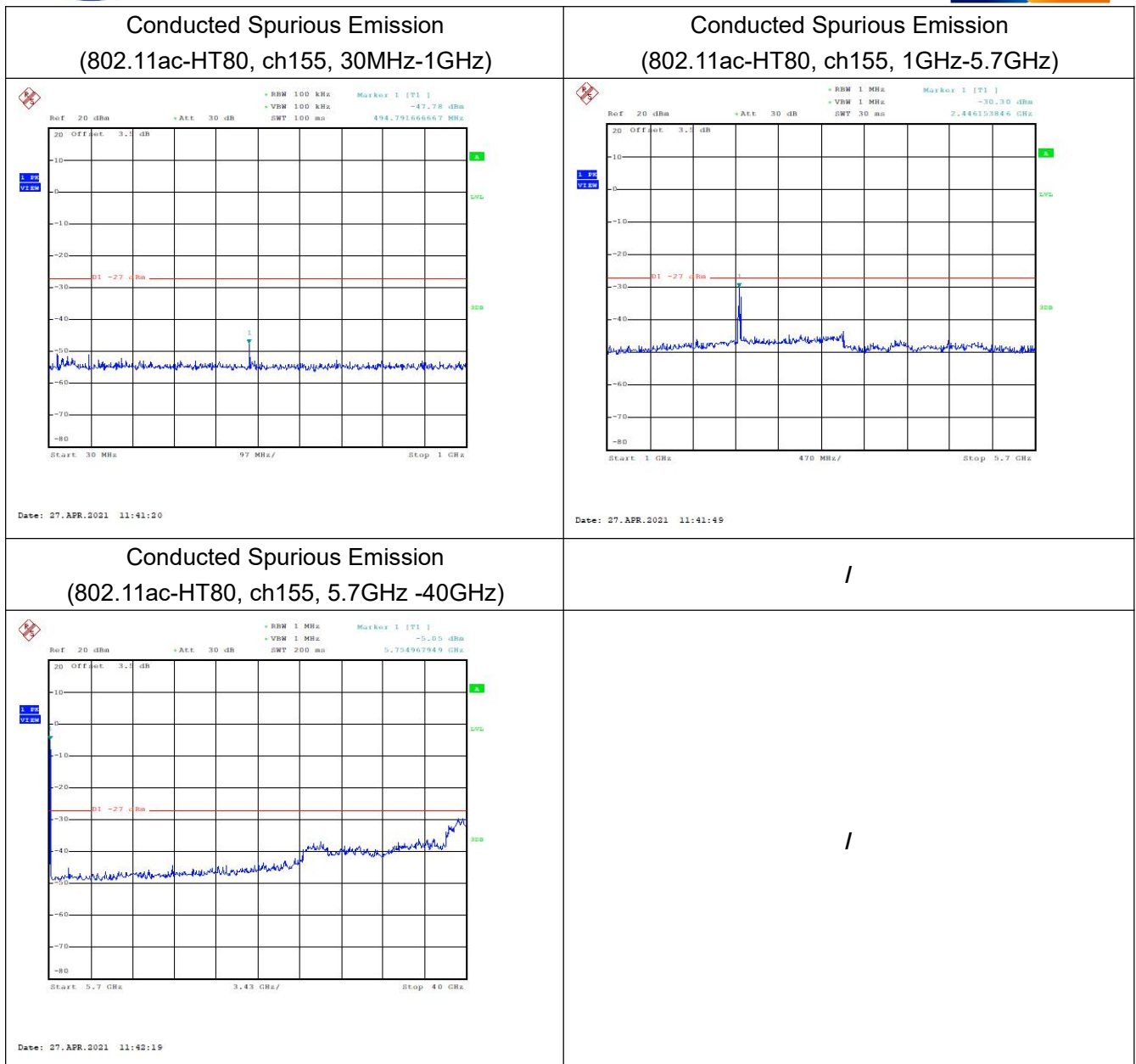


Date: 27.APR.2021 11:35:49

Conducted Spurious Emission (802.11ac-HT40, ch151, 5.7GHz -40GHz)



Date: 27.APR.2021 11:36:19



6.6.2. Transmitter Spurious Emission - Radiated

Modulation type and data rate tested (Only worst case result is given below):

Mainly Supply-12V		
Mode	Data rate	Channel
802.11a	6Mbps	149(5745MHz)
802.11n-HT20	MCS0	165(58255MHz)
802.11n-HT40	MCS0	159(5795MHz)
802.11ac-HT20	MCS0	157(5785MHz)
802.11ac-HT40	MCS0	159(5795MHz)
802.11ac-HT80	MCS0	155(5775MHz)

Mainly Supply-24V

Mode	Data rate	Channel
802.11ac-HT40	MCS0	159 (5795MHz)

Measurement Results

Mainly Supply-12V

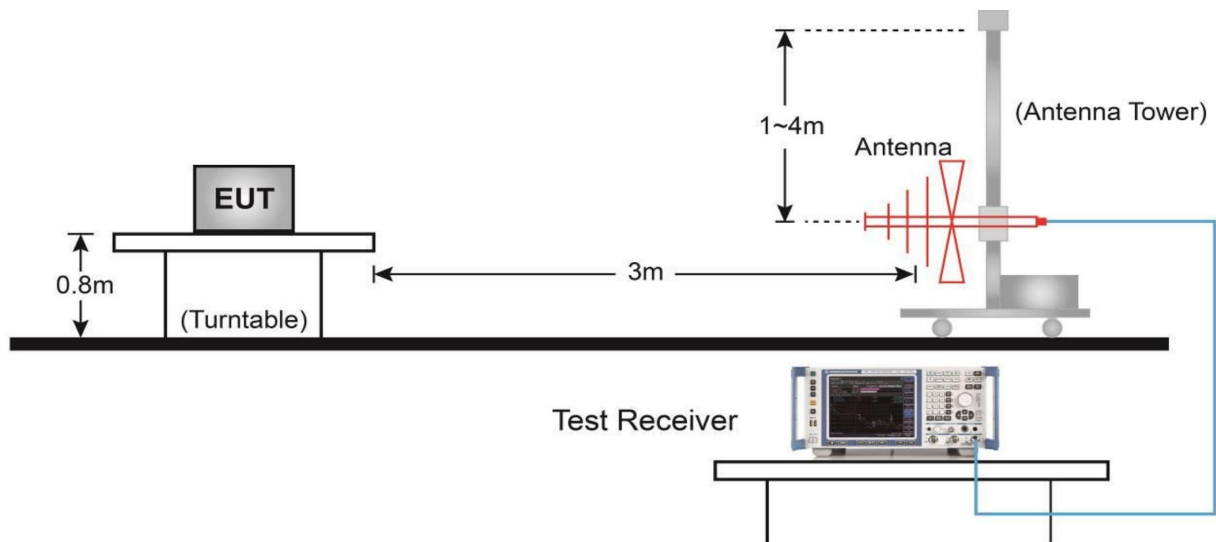
Mode	Channel	Frequency Range	Conclusion
802.11a	149(5745MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P
802.11n-HT20	165(58255MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P
802.11n-HT40	159(5795MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P
802.11ac-HT20	157(5785MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P
802.11ac-HT40	159(5795MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P
802.11ac-HT80	155(5775MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P

Mainly Supply-24V

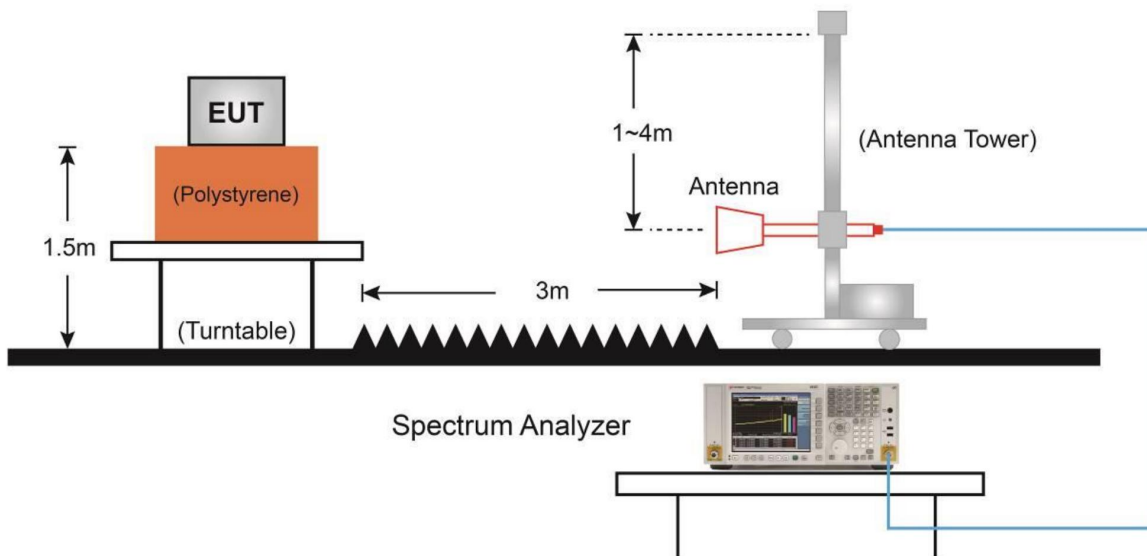
Mode	Channel	Frequency Range	Conclusion
802.11ac-HT40	159 (5795MHz)	30 MHz ~1 GHz	P
		1 GHz ~ 8 GHz	P
		8 GHz ~ 18 GHz	P
		18 GHz ~ 26.5 GHz	P
		26.5 GHz~ 40 GHz	P

Test Setup

Below 1GHz Test Setup

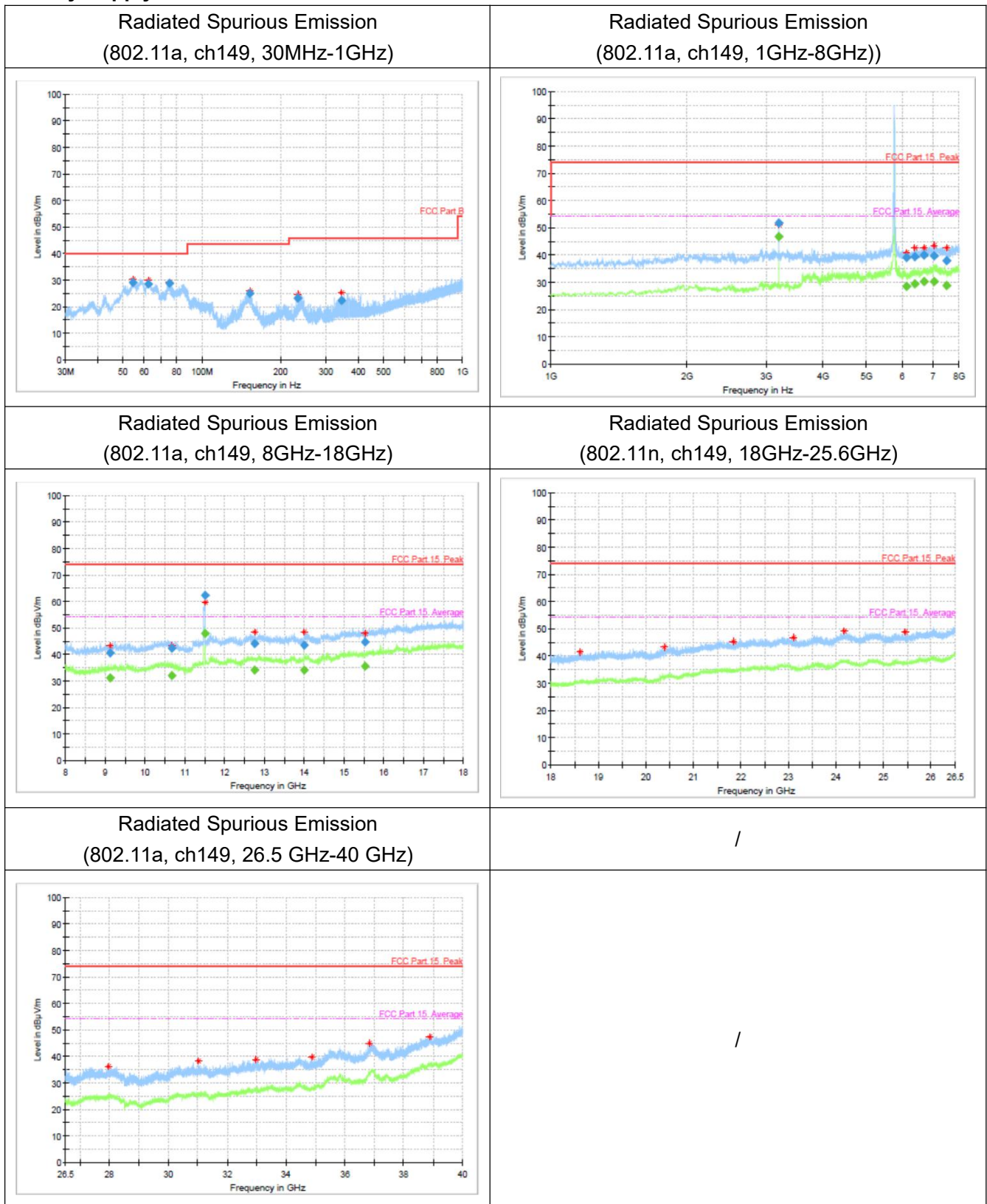


Above 1GHz Test Setup

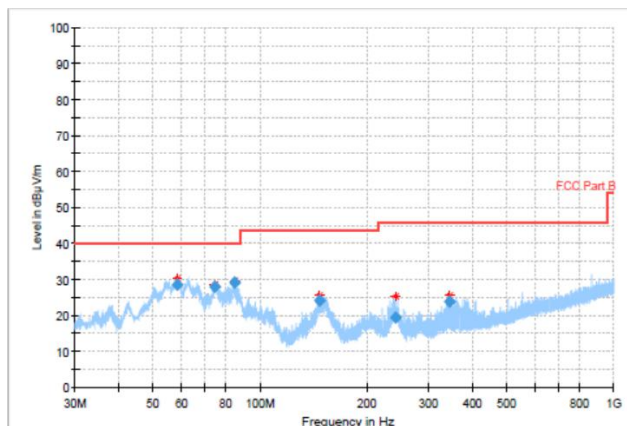


Test graphs as below

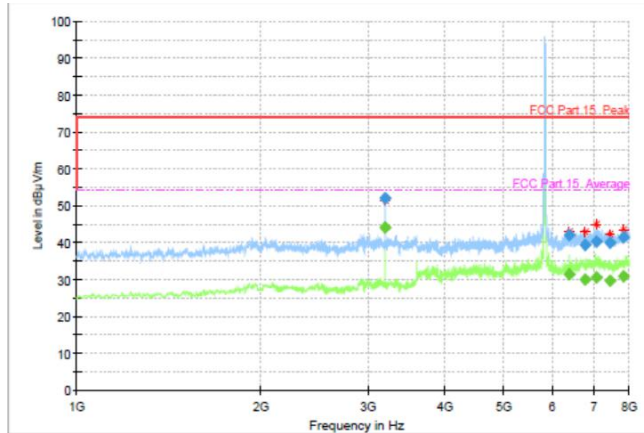
Mainly Supply-12V



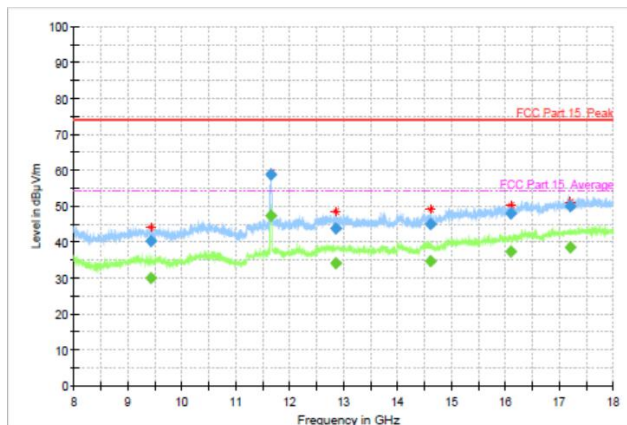
Radiated Spurious Emission
(802.11n-HT20, ch165, 30MHz-1GHz)



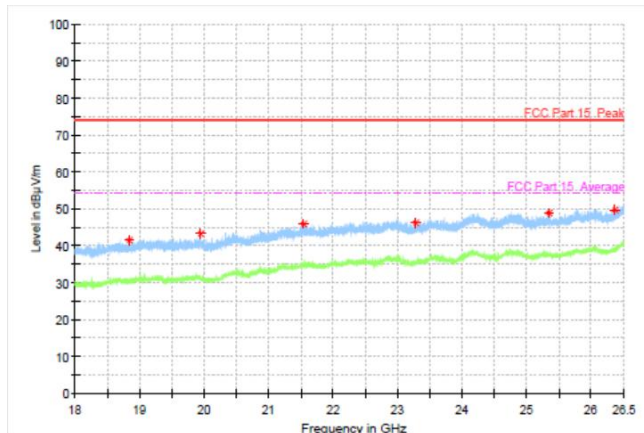
Radiated Spurious Emission
(802.11n-HT20, ch165, 1GHz-8GHz)



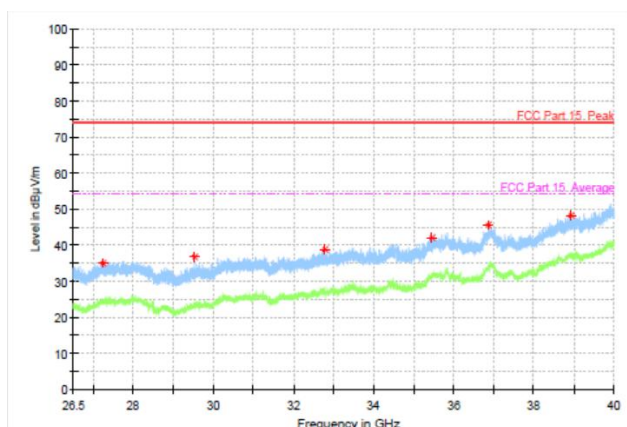
Radiated Spurious Emission
(802.11n-HT20, ch165, 8GHz-18GHz)



Radiated Spurious Emission
(802.11n-HT20, ch165, 18GHz-25.6GHz)



Radiated Spurious Emission
(802.11n-HT20, ch165, 25.6GHz-40GHz)



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