

FCC REPORT

Product Name : SNOO POWER HUB
Trade mark : HAPPIEST BABY
Model No. : SPHUB01
FCC ID : 2AH7YSPHUB01
Report Number : BLA-EMC-202001-A12-03
Date of sample receipt : January 07, 2020
Date of Test : January 07, 2020–April 17, 2020
Date of Issue : December 23, 2020
Test standard : FCC CFR Title 47 Part 15 Subpart E
Section 15.407
Test result : PASS

Prepared for:

Happiest Baby, Inc.

3115 S. La Cienega Blvd, Los Angeles, CA 90016

Prepared by:

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2 Version

Version No.	Date	Description
00	December 23, 2020	Original

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.407 (g)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.407 (a)	Pass
26dB Occupied Bandwidth	15.407 (a)	Pass
6dB Emission Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407 (a)	Pass
Band Edge	15.407(b)	Pass
Spurious Emission	15.205/15.209	Pass
Frequency Stability	15.407(g)	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Happiest Baby, Inc.
Address of Applicant:	3115 S. La Cienega Blvd, Los Angeles, CA 90016
Manufacturer:	Happiest Baby, Inc.
Address of Manufacturer:	3115 S. La Cienega Blvd, Los Angeles, CA 90016

5.2 General Description of E.U.T.

Product Name:	SNOO POWER HUB
Model No.:	SPHUB01
Test Model No.:	SPHUB01
Operation Frequency:	Band 1 : 5180MHz-5240MHz; Band 2:5260MHz~5320MHz Band 3: 5500MHz~5700MHz; Band 4 : 5745MHz-5825MHz
Operation mode:	Indoor used
Channel numbers:	Band 1: 802.11a/802.11n(HT20)/802.11ac(HT20): 4, 802.11n(HT40)/802.11ac(HT40):2, 802.11ac(HT80): 1
	Band 2: 802.11a/802.11n(HT20)/802.11ac(HT20): 4, 802.11n(HT40)/802.11ac(HT40):2, 802.11ac(HT80): 1
	Band 3: 802.11a/802.11n(HT20)/802.11ac(HT20): 11, 802.11n(HT40)/802.11ac(HT40):5, 802.11ac(HT80): 3
	Band 4: 802.11a/802.11(HT20)/802.11ac(HT20): 5, 802.11n(HT40)/802.11ac(HT40): 2, 802.11ac(HT80): 1
Channel separation:	802.11a/n/ac(HT2): 20MHz, 802.11n/ac(HT40): 40MHz, 802.11ac(HT80): 80MHz
Modulation technology: (IEEE 802.11a/n/ac)	BPSK, QPSK,16-QAM, 64-QAM, 256-QAM
Data speed(IEEE 802.11a)	6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps,36Mbps,48Mbps, 54Mbps
Data speed (IEEE 802.11n/ac):	Up to 433Mbps
Antenna Type:	Chip antenna
Antenna gain:	5.2dBi
Power supply:	DC5V
Remark:The Antenna Gain is supplied by the customer	

Operation Frequency each of channel

Band 1: 5150-5250MHz					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz	42	5210MHz
40	5200MHz	46	5230MHz		
44	5220MHz				
48	5240MHz				
Band 2: 5250-5350MHz					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260MHz	54	5270MHz	58	5290MHz
56	5280MHz	62	5310MHz		
64	5320MHz				
Band 3: 5470-5725MHz					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
100	5500MHz	102	5510MHz	106	5530MHz
104	5520MHz	110	5550MHz	122	5610MHz
108	5540MHz	114	5570MHz		
112	5560MHz	118	5590MHz		
116	5580MHz	126	5630MHz		
120	5600MHz	134	5670MHz		
124	5620MHz				
128	5640MHz				
132	5660MHz				
136	5680MHz				
140	5700MHz				
Band 4					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	155	5775MHz
153	5765MHz	159	5795MHz		
157	5785MHz				
161	5805MHz				
165	5825MHz				

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Band 1					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
The lowest channel	5180MHz	The lowest channel	5190MHz	The middle channel	5210MHz
The middle channel	5200MHz	The highest channel	5230MHz		
The highest channel	5240MHz				
Band 2					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
The lowest channel	5260MHz	The lowest channel	5270MHz	The middle channel	5290MHz
The middle channel	5280MHz	The highest channel	5310MHz		
The highest channel	5320MHz				
Band 3					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
The lowest channel	5500MHz	The lowest channel	5510MHz	The lowest channel	5530MHz
The middle channel	5600MHz	The middle channel	5590MHz	The middle channel	5610MHz
The highest channel	5700MHz	The highest channel	5670MHz	The highest channel	5690MHz
Band 4					
802.11a/802.11n20		802.11n40		802.11ac	
Channel	Frequency	Channel	Frequency	Channel	Frequency
The lowest channel	5745MHz	The lowest channel	5755MHz	The middle channel	5775MHz
The middle channel	5785MHz	The highest channel	5795MHz		
The highest channel	5825MHz				

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a	6Mbps
802.11n(HT20)	6.5Mbps
802.11n(HT40)	13Mbps
802.11ac(HT20)	6.5Mbps
802.11ac(HT40)	13.5Mbps
802.11ac(HT80)	29.3Mbps

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 6 Mbps for 802.11a, 6.5 Mbps for 802.11n20 and 13 Mbps for 802.11n40. All test items for 802.11a and 802.11n were performed with duty cycle above 98%, meet the requirements of KDB789033.

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number
Lenovo	Notebook computer	E470C	PF-10FB5C

5.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- FCC — Designation No.: CN1252

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Designation CN1252.

- ISED — CAB identifier No.: CN0028

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028

5.6 Laboratory Location

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyao Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

5.7 Test Instruments list

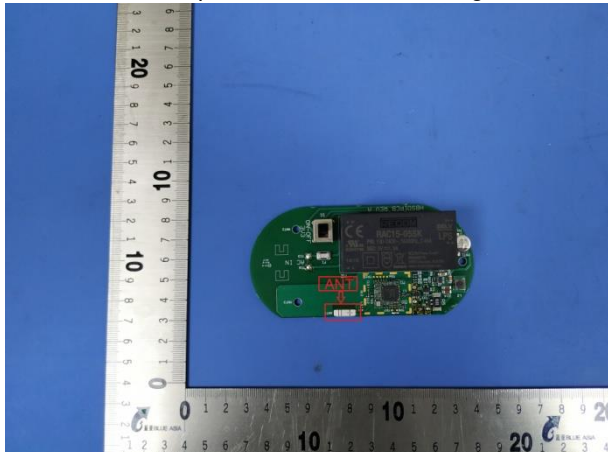
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m SAC	SKET	9m*6m*6m	966	06-10-2018	06-09-2023
2	Broadband Antenna	SCHWARZBECK	VULB9168	00836 P:00227	07-14-2019	07-13-2020
3	Horn Antenna	SCHWARZBECK	9120D	01892 P:00331	07-14-2019	07-13-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Pre-amplifier	SKET	N/A	N/A	07-14-2019	07-13-2020
6	Spectrum analyzer	Rohde & Schwarz	FSP40	100817	05-24-2019	05-23-2020
7	EMI Test Receiver	Rohde & Schwarz	ESR7	101199	03-21-2019	03-20-2020
8	Controller	SKET	N/A	N/A	N/A	N/A
9	Vector Signal Generator	Agilent	E4438C	MY45092582	05-24-2019	05-23-2020
10	Signal Generator	Agilent	E8257D	MY44320250	05-24-2019	05-23-2020

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde & Schwarz	ESPI3	101082	06-10-2019	06-09-2020
2	LISN	CHASE	MN2050D	1447	12-18-2019	12-17-2020
3	LISN	Rohde & Schwarz	ENV216	3560.6550.15	07-14-2019	07-13-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Temperature Humidity Chamber	Mingle	TH101B	N/A	07-14-2019	07-13-2020

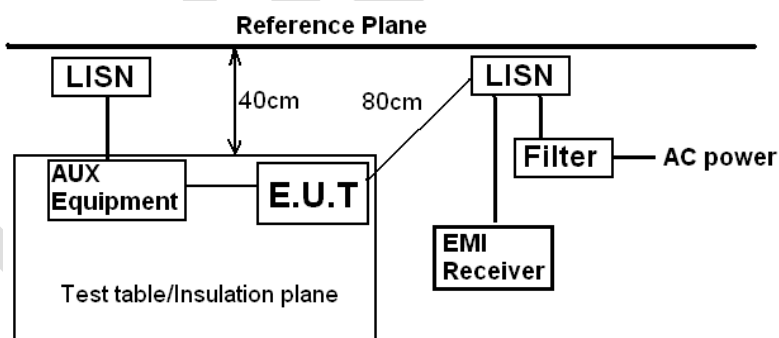
RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Spectrum Analyzer	Agilent	N9030A	MY50510123	05-24-2019	05-23-2020
2	Spectrum analyzer	Rohde & Schwarz	FSP40	100817	05-24-2019	05-23-2020
3	Vector Signal Generator	Agilent	E4438C	MY45092582	05-24-2019	05-23-2020
4	Signal Generator	Agilent	E8257D	MY44320250	05-24-2019	05-23-2020
5	Power Sensor	D.A.R.E	RPR3006W	17I00015SNO27	05-24-2019	05-23-2020
6	DC Power Supply	LODESTAR	LP305DE	N/A	07-14-2019	07-13-2020
7	Temperature Humidity Chamber	Mingle	TH101B	N/A	07-14-2019	07-13-2020

6 Test results and Measurement Data

6.1 Antenna requirement

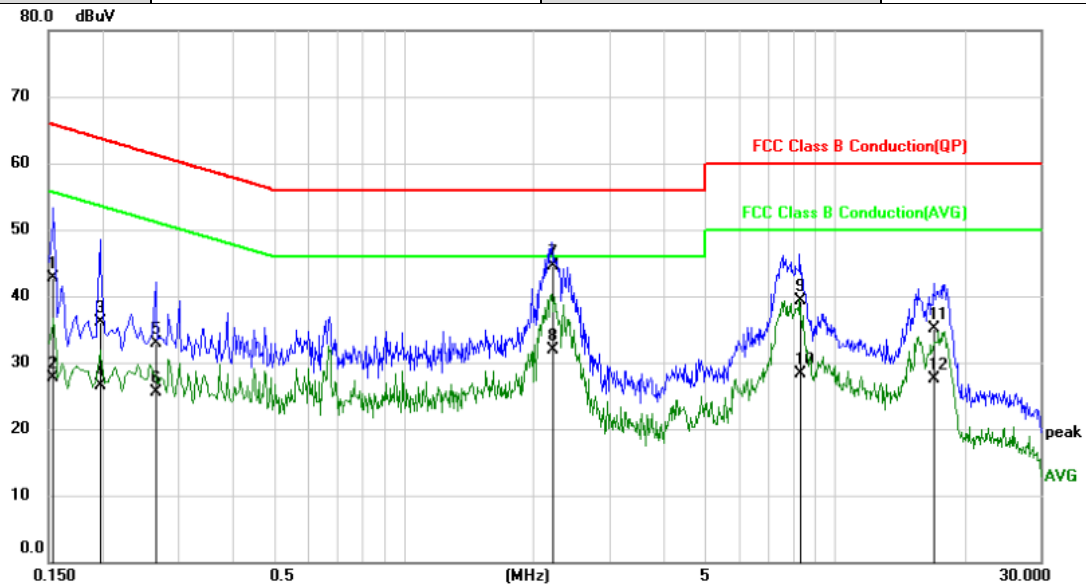
Standard requirement:	FCC Part15 E Section 15.203 /407(a)
15.203 requirement: <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i> <i>This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</i>	
E.U.T Antenna:	
The antenna is Chip Antenna, the best case gain of the antenna is 5.2dBi 	

6.2 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2014 on conducted measurement.		
Test setup:	 <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test Instruments:	Refer to section 5.7 for details		
Test mode:	Refer to section 5.3 for details.		
Test results:	Pass		

Measurement Data:

EUT:	SNOO POWER HUB	Model:	SPHUB01
Test By:	Eason	Test mode:	Wifi mode
Power Source:	AC120V/60Hz	Temp./Hum.(%H):	26°C/60%RH
Test Frequency:	150kHz to 30MHz	Phase:	Line



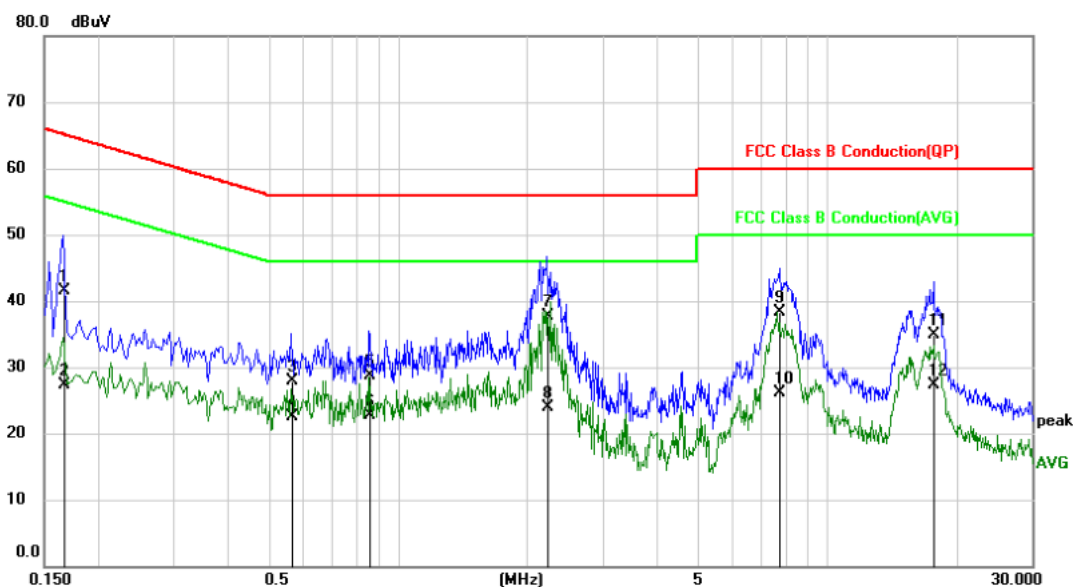
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	32.79	9.88	42.67	65.79	-23.12	QP
2		0.1539	17.84	9.88	27.72	55.79	-28.07	AVG
3		0.1980	26.22	9.87	36.09	63.69	-27.60	QP
4		0.1980	16.71	9.87	26.58	53.69	-27.11	AVG
5		0.2660	23.04	9.89	32.93	61.24	-28.31	QP
6		0.2660	15.55	9.89	25.44	51.24	-25.80	AVG
7	*	2.2060	34.61	9.82	44.43	56.00	-11.57	QP
8		2.2060	22.03	9.82	31.85	46.00	-14.15	AVG
9		8.3020	29.39	9.88	39.27	60.00	-20.73	QP
10		8.3020	18.45	9.88	28.33	50.00	-21.67	AVG
11		16.9980	25.16	10.00	35.16	60.00	-24.84	QP
12		16.9980	17.48	10.00	27.48	50.00	-22.52	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss.

EUT:	SNOO POWER HUB	Model:	SPHUB01
Test By:	Eason	Test mode:	Wifi mode

Power Source:	AC120V/60Hz	Temp./Hum.(%H):	26°C/60%RH
Test Frequency:	150kHz to 30MHz	Phase:	Neutral

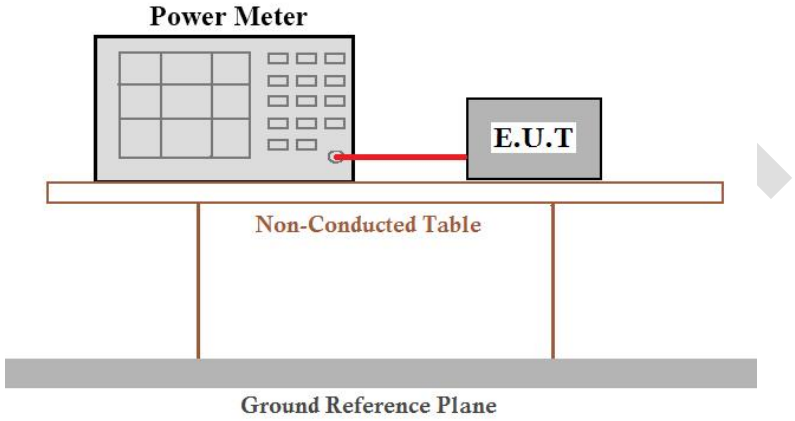


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1660	31.56	9.87	41.43	65.16	-23.73	QP
2		0.1660	17.45	9.87	27.32	55.16	-27.84	AVG
3		0.5660	18.14	9.73	27.87	56.00	-28.13	QP
4		0.5660	12.77	9.73	22.50	46.00	-23.50	AVG
5		0.8580	18.88	9.75	28.63	56.00	-27.37	QP
6		0.8580	12.90	9.75	22.65	46.00	-23.35	AVG
7	*	2.2340	27.88	9.86	37.74	56.00	-18.26	QP
8		2.2340	14.10	9.86	23.96	46.00	-22.04	AVG
9		7.7300	28.45	9.86	38.31	60.00	-21.69	QP
10		7.7300	16.22	9.86	26.08	50.00	-23.92	AVG
11		17.7020	24.80	10.06	34.86	60.00	-25.14	QP
12		17.7020	17.18	10.06	27.24	50.00	-22.76	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss.

6.3 Conducted Output Power

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) (2)& (a) (3)
Test Method:	ANSI C63.10: 2013, KDB 789033
Limit:	Band 1: 250mW Band 2: 250mW Band 3: 250mW Band 4: 1W.
Test setup:	 The diagram illustrates the test setup. A 'Power Meter' is connected to an 'E.U.T.' (Equipment Under Test) by a red cable. Both the Power Meter and the E.U.T. are placed on a 'Non-Conducted Table'. This table is supported by a 'Ground Reference Plane'.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Band 1

Mode	Test CH	Conducted Output power(dBm)	Limit (dBm)	Result
802.11a	Lowest	13.37	24.00	Pass
	Middle	13.30	24.00	Pass
	Highest	13.12	24.00	Pass
802.11n(HT20)	Lowest	13.38	24.00	Pass
	Middle	13.28	24.00	Pass
	Highest	13.27	24.00	Pass
802.11n(HT40)	Lowest	12.29	24.00	Pass
	Highest	12.19	24.00	Pass
802.11ac(HT20)	Lowest	13.34	24.00	Pass
	Middle	13.20	24.00	Pass
	Highest	13.14	24.00	Pass
802.11ac(HT40)	Lowest	12.07	24.00	Pass
	Highest	11.95	24.00	Pass
802.11ac(HT80)	Lowest	10.15	24.00	Pass

Band 2

Mode	Test CH	Conducted Output power(dBm)	Limit (dBm)	Result
802.11a	Lowest	12.42	24.00	Pass
	Middle	12.73	24.00	Pass
	Highest	12.60	24.00	Pass
802.11n(HT20)	Lowest	12.93	24.00	Pass
	Middle	12.98	24.00	Pass
	Highest	12.89	24.00	Pass
802.11n(HT40)	Lowest	12.66	24.00	Pass
	Highest	12.27	24.00	Pass

802.11ac(HT20)	Lowest	12.89	24.00	Pass
	Middle	12.81	24.00	Pass
	Highest	12.98	24.00	Pass
802.11ac(HT40)	Lowest	12.19	24.00	Pass
	Highest	12.43	24.00	Pass
802.11ac(HT80)	Lowest	9.54	24.00	Pass

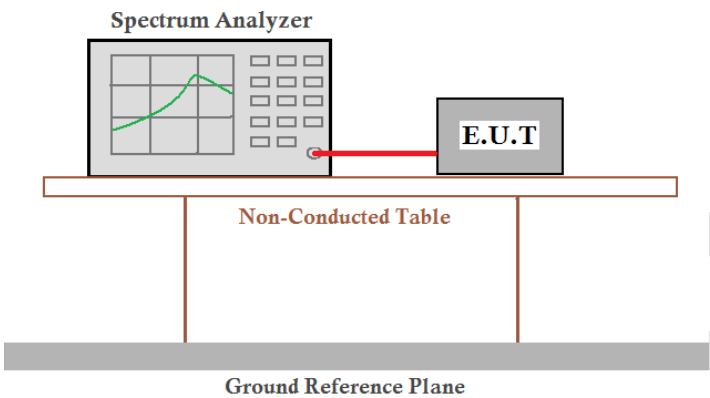
Band 3

Mode	Test CH	Conducted Output power(dBm)	Limit (dBm)	Result
802.11a	Lowest	11.39	24.00	Pass
	Middle	11.43	24.00	Pass
	Highest	11.81	24.00	Pass
802.11n(HT20)	Lowest	11.55	24.00	Pass
	Middle	11.76	24.00	Pass
	Highest	12.36	24.00	Pass
802.11n(HT40)	Lowest	11.09	24.00	Pass
	Middle	11.41	24.00	Pass
	Highest	11.84	24.00	Pass
802.11ac(HT20)	Lowest	12.41	24.00	Pass
	Middle	12.70	24.00	Pass
	Highest	12.82	24.00	Pass
802.11ac(HT40)	Lowest	11.55	24.00	Pass
	Middle	11.72	24.00	Pass
	Highest	11.93	24.00	Pass
802.11ac(HT80)	Lowest	9.82	24.00	Pass
	Middle	9.54	24.00	Pass
	Highest	9.53	24.00	Pass

Band 4

Mode	Test CH	Conducted Output power(dBm)	Limit (dBm)	Result
802.11a	Lowest	12.64	30.00	Pass
	Middle	11.46	30.00	Pass
	Highest	11.11	30.00	Pass
802.11n(HT20)	Lowest	12.95	30.00	Pass
	Middle	12.05	30.00	Pass
	Highest	11.88	30.00	Pass
802.11n(HT40)	Lowest	10.10	30.00	Pass
	Highest	9.98	30.00	Pass
802.11ac(HT20)	Lowest	13.04	30.00	Pass
	Middle	11.96	30.00	Pass
	Highest	11.61	30.00	Pass
802.11ac(HT40)	Lowest	10.67	30.00	Pass
	Highest	10.09	30.00	Pass
802.11ac(HT80)	Lowest	9.46	30.00	Pass

6.4 Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407 (a) (5) and Section 15.407 (e)
Test Method:	ANSI C63.10:2013 and KDB 789033
Limit:	Band 1: N/A(26dB Emission Bandwidth and 99% Occupy Bandwidth) Band 4: >500kHz(6dB Bandwidth)
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane. The Spectrum Analyzer screen shows a frequency spectrum with a peak.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Band 1:

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Emission Bandwidth (MHz)		
		802.11a	802.11n(HT 20)	802.11ac(H T20)	802.11a	802.11n(HT 20)	802.11ac(H T20)
36	5180.00	16.96	17.92	18.08	21.52	21.36	22.16
40	5200.00	16.88	18.00	18.16	21.52	21.20	22.16
48	5240.00	16.88	17.92	18.08	21.52	21.20	22.16

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Emission Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
38	5190.00	36.16	36.48	40.96	40.32
46	5230.00	36.32	36.48	40.80	40.32

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Emission Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
42	5210.00	75.84	80.96

Band 2:

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Emission Bandwidth (MHz)		
		802.11a	802.11n(HT 20)	802.11ac(H T20)	802.11a	802.11n(HT 20)	802.11ac(H T20)
52	5260.000	16.80	17.76	17.84	20.72	20.96	21.20
56	5280.00	16.80	17.76	17.84	20.72	21.04	21.28
64	5320.00	16.80	17.76	17.84	20.72	21.04	21.28

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Emission Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
54	5270.00	36.16	36.16	40.96	40.96
62	5310.00	36.16	36.16	40.96	40.93

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Emission Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
58	5290.00	75.52	79.36

Band 3:

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26dB Emission Bandwidth (MHz)		
		802.11a	802.11n(HT 20)	802.11ac(H T20)	802.11a	802.11n(HT 20)	802.11ac(H T20)
100	5500.00	16.80	17.84	17.84	20.80	20.96	21.28
120	5600.00	16.80	17.84	17.92	20.80	20.96	21.28
140	5700.00	16.80	17.76	17.84	20.80	21.04	21.20

CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Emission Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(HT40)	802.11n(HT40)	802.11ac(HT40)
102	5510.00	36.16	36.16	40.96	40.96
118	5590.00	36.16	36.16	40.80	41.12
134	5670.00	36.16	36.32	40.80	40.80

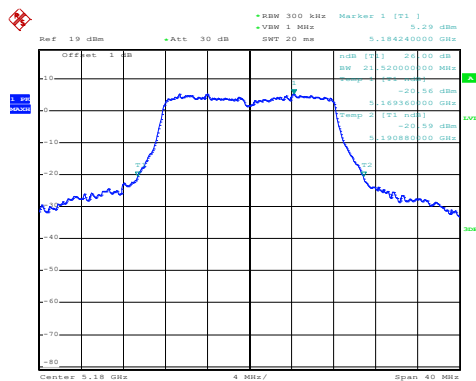
CH. No.	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Emission Bandwidth (MHz)
		802.11ac(HT80)	802.11ac(HT80)
106	5530.00	75.52	79.36
122	5610.00	75.52	79.36
138	5690.00	75.52	79.36

Band 4:

Test CH	6dB Emission Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n(H T20)	802.11ac(HT20)	802.11n(H T40)	802.11ac(HT40)	802.11ac(HT80)		
Lowest	16.48	17.68	17.44	35.68	36.80	---	>500	Pass
Middle	16.40	17.60	17.44	---	---	75.84		
Highest	16.40	17.68	17.44	35.68	36.80	---		

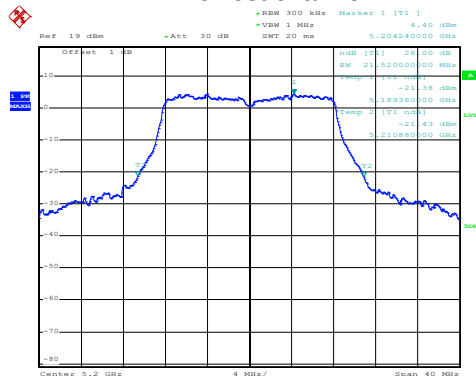
Band 1:

26 dB EBW - 802.11a



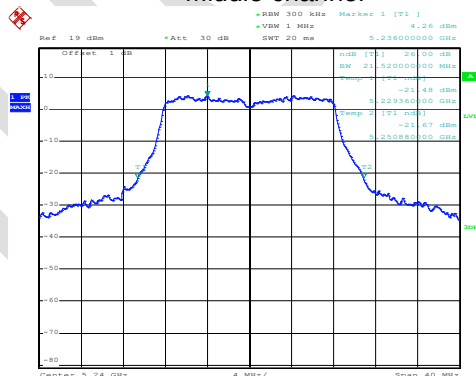
Date: 19.MAR.2020 15:28:19

Lowest channel



Date: 19.MAR.2020 15:30:06

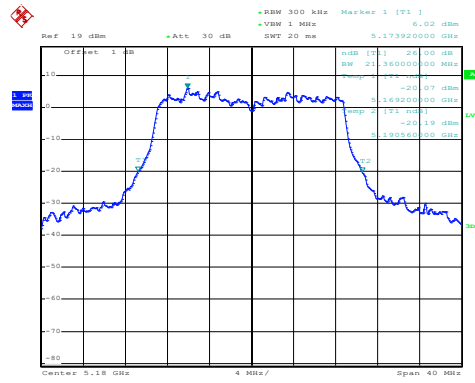
Middle channel



Date: 19.MAR.2020 15:32:23

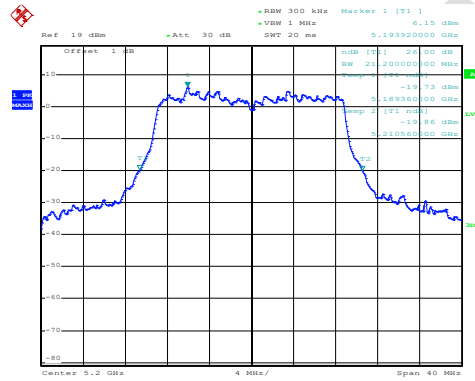
Highest channel

802.11n(HT20)



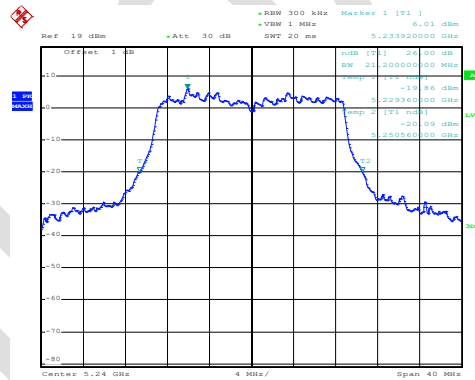
Date: 19.MAR.2020 15:37:32

Lowest channel



Date: 19.MAR.2020 15:35:42

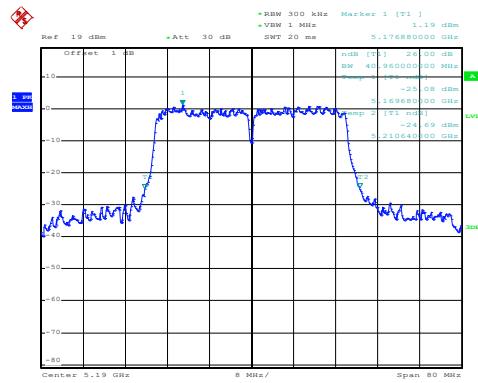
Middle channel



Date: 19.MAR.2020 15:34:19

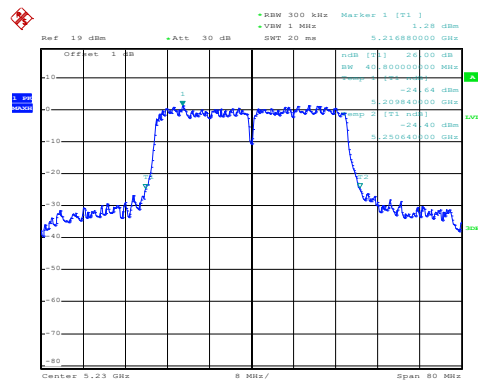
Highest channel

802.11n(HT40)



Date: 19.MAR.2020 15:44:26

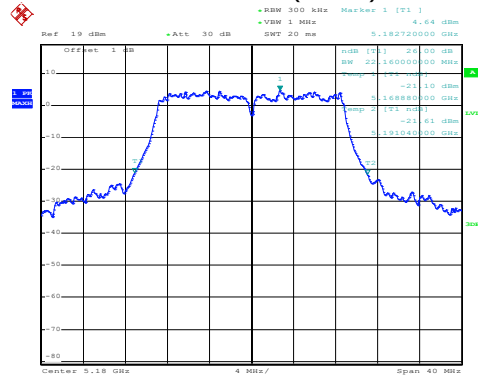
Lowest channel



Date: 19.MAR.2020 15:49:49

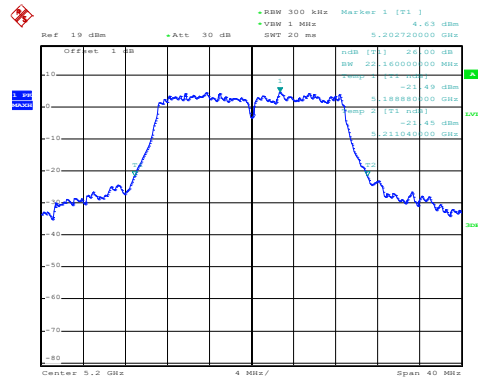
Highest channel

802.11ac(HT20)



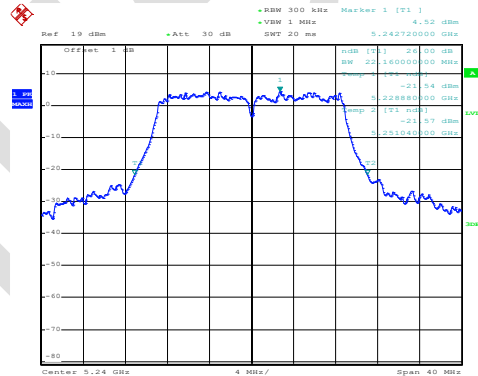
Date: 19.MAR.2020 15:39:11

Lowest channel



Date: 19.MAR.2020 15:40:12

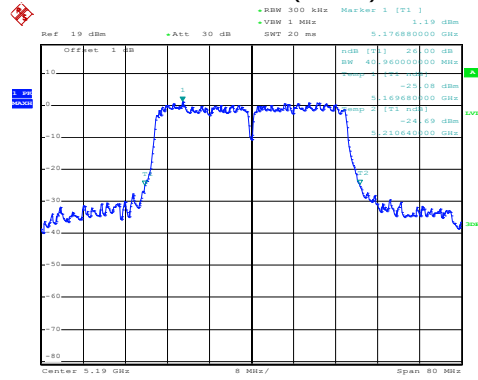
Middle channel



Date: 19.MAR.2020 15:41:48

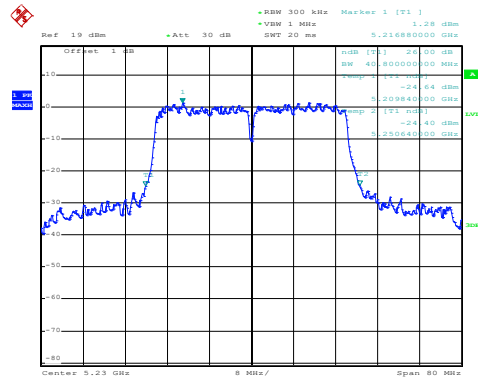
Highest channel

802.11ac(HT40)



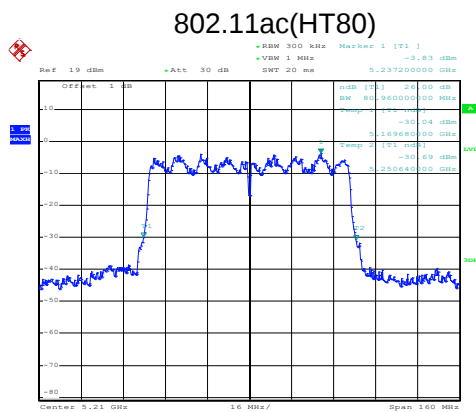
Date: 19.MAR.2020 15:44:26

Lowest channel



Date: 19.MAR.2020 15:49:49

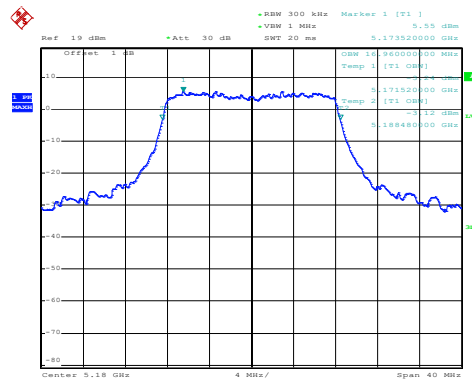
Highest channel



Date: 19.MAR.2020 15:54:30

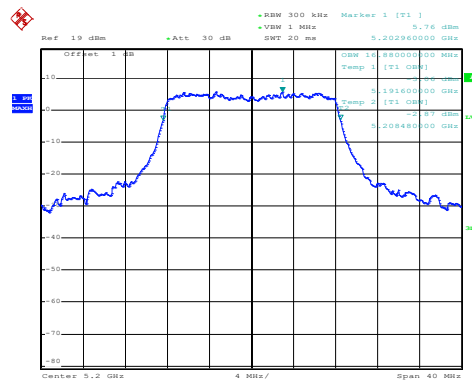
Middle channel

99% OBW - 802.11a



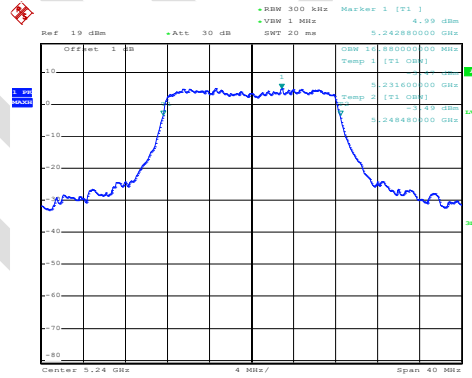
Date: 19.MAR.2020 10:11:16

Lowest channel



Date: 19.MAR.2020 10:13:30

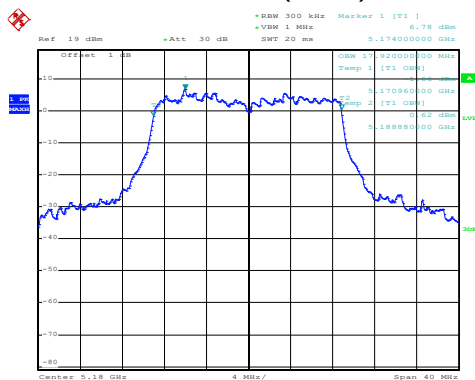
Middle channel



Date: 19.MAR.2020 10:15:16

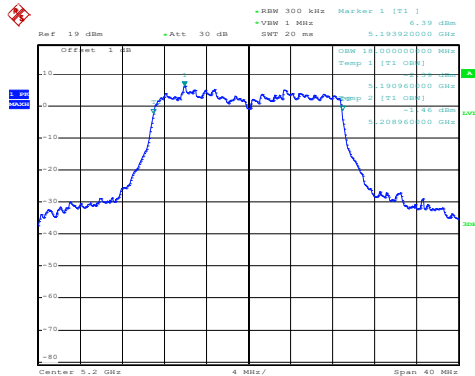
Highest channel

802.11n(HT20)



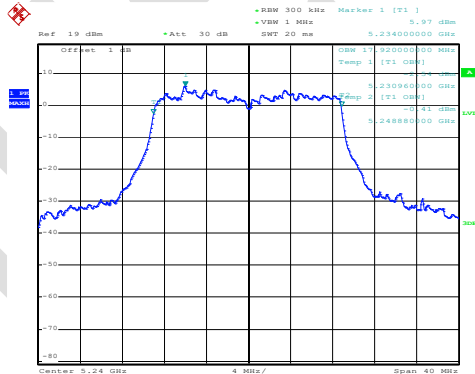
Date: 19.MAR.2020 10:36:11

Lowest channel



Date: 19.MAR.2020 10:37:33

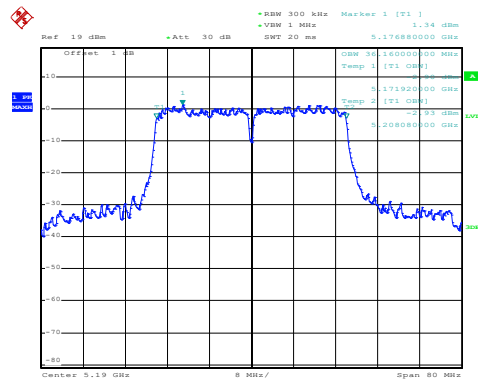
Middle channel



Date: 19.MAR.2020 10:40:55

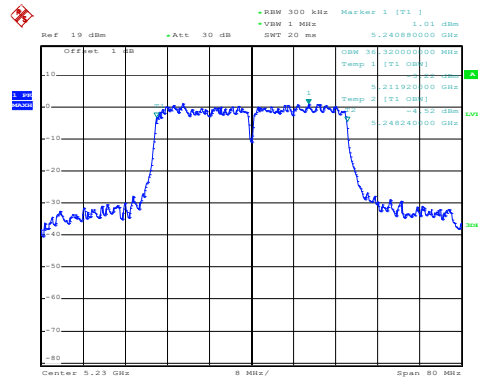
Highest channel

802.11n(HT40)



Date: 19.MAR.2020 11:30:25

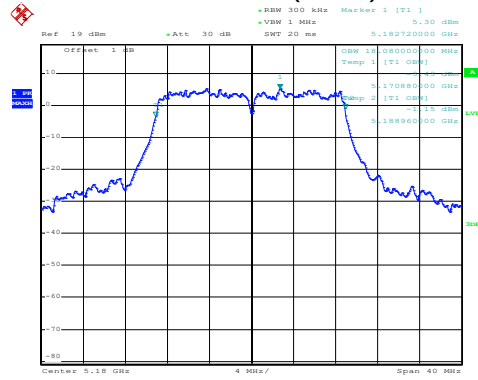
Lowest channel



Date: 19.MAR.2020 11:31:49

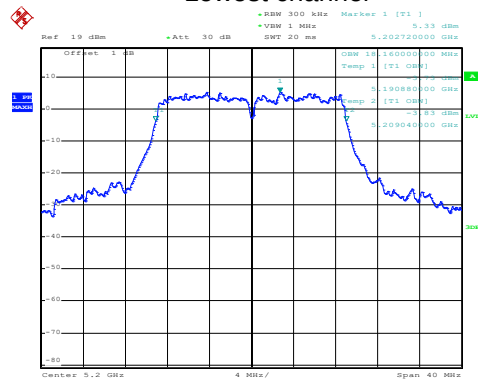
Highest channel

802.11ac(HT20)



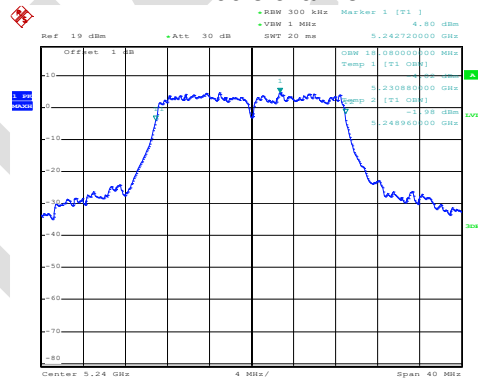
Date: 19.MAR.2020 10:57:30

Lowest channel



Date: 19.MAR.2020 10:52:39

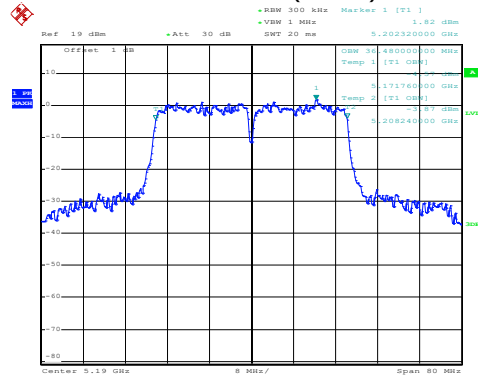
Middle channel



Date: 19.MAR.2020 10:42:13

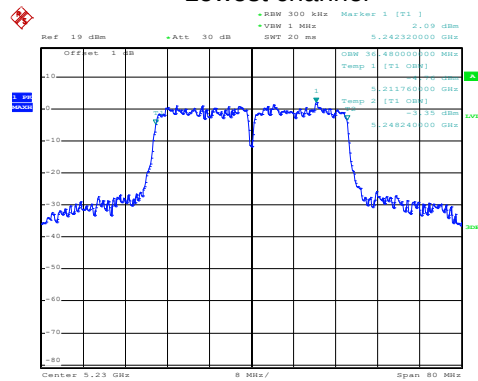
Highest channel

802.11ac(HT40)



Date: 19.MAR.2020 11:36:56

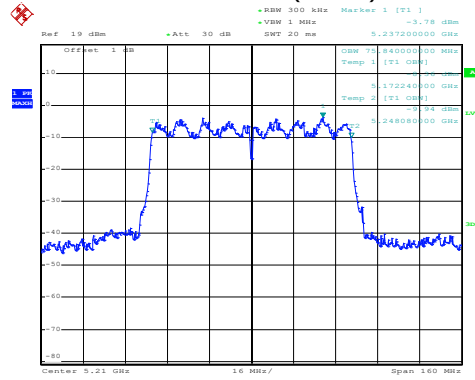
Lowest channel



Date: 19.MAR.2020 11:35:52

Highest channel

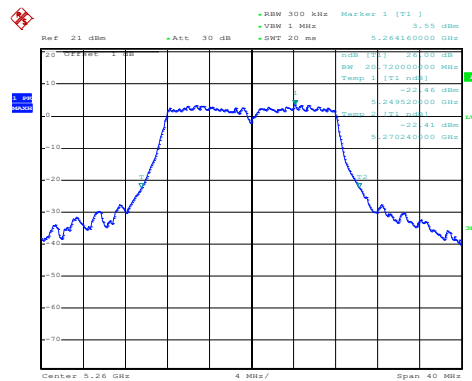
802.11ac(HT80)



Date: 19.MAR.2020 11:38:58

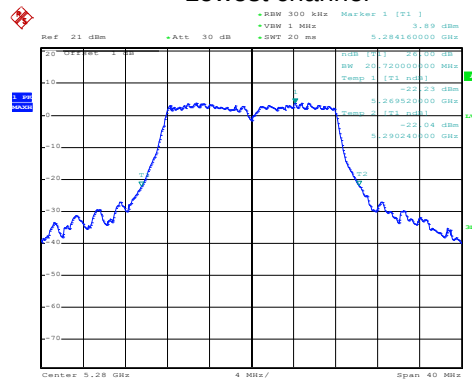
Middle channel

26 dB EBW - 802.11a



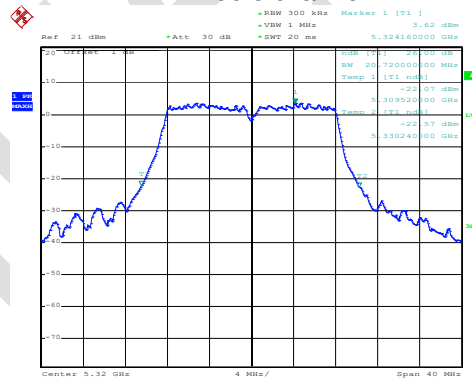
Date: 15.APR.2020 18:19:36

Lowest channel



Date: 15.APR.2020 18:20:23

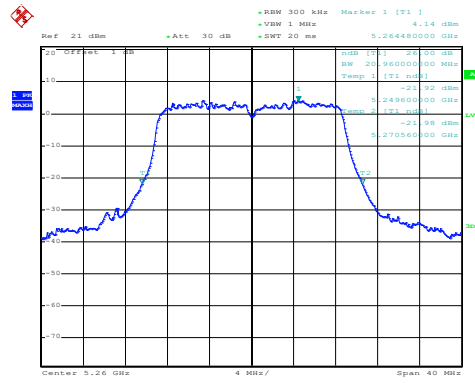
Middle channel



Date: 15.APR.2020 18:21:08

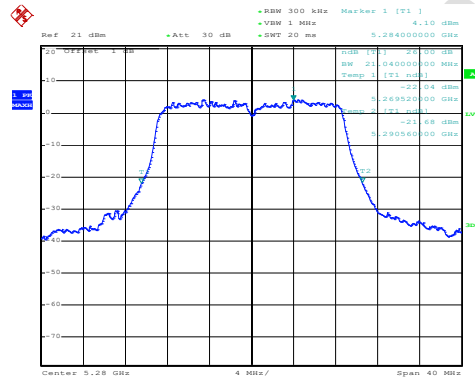
Highest channel

802.11n(HT20)



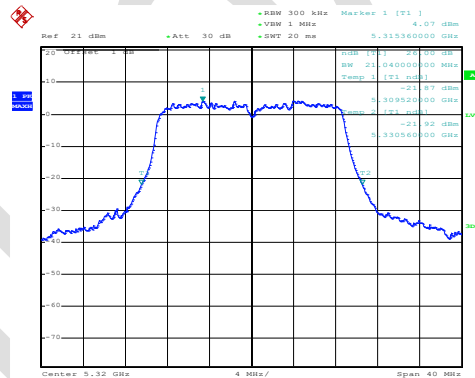
Date: 15.APR.2020 18:23:55

Lowest channel



Date: 15.APR.2020 18:23:22

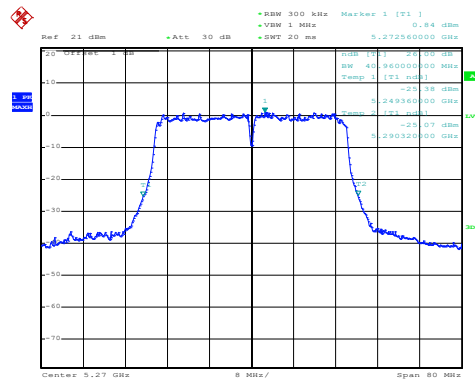
Middle channel



Date: 15.APR.2020 18:22:13

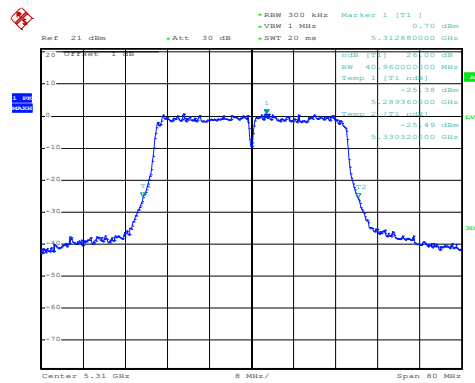
Highest channel

802.11n(HT40)



Date: 15.APR.2020 18:36:08

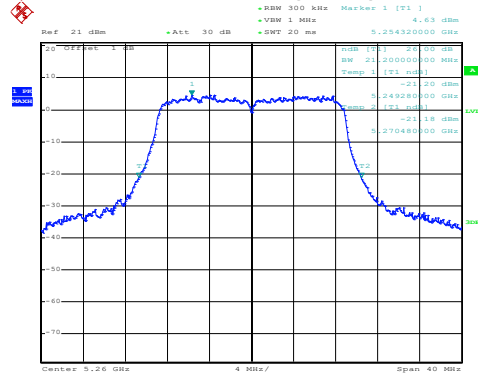
Lowest channel



Date: 15.APR.2020 18:36:43

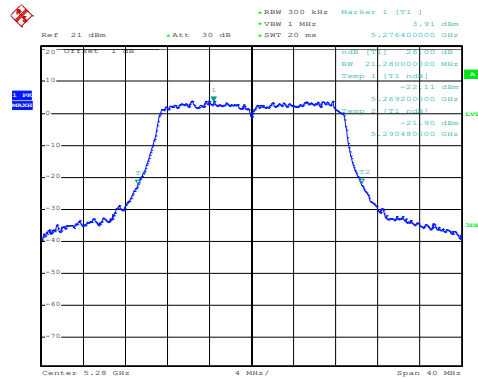
Highest channel

802.11ac(HT20)



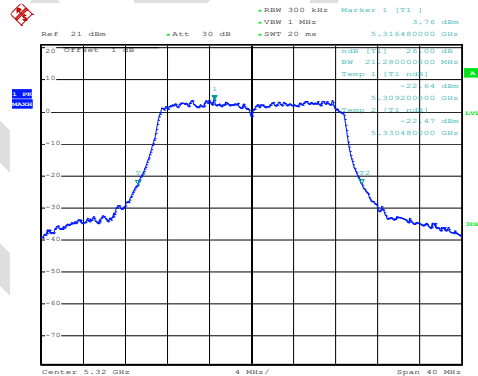
Date: 15.APR.2020 18:24:32

Lowest channel



Date: 15.APR.2020 18:25:08

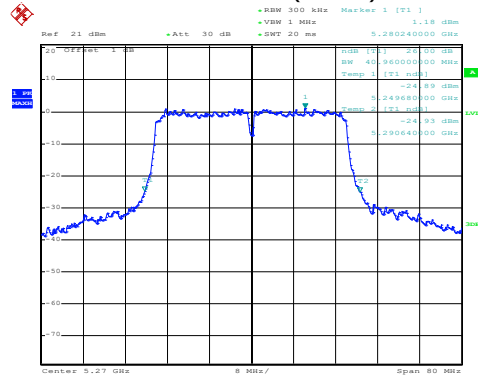
Middle channel



Date: 15.APR.2020 18:26:03

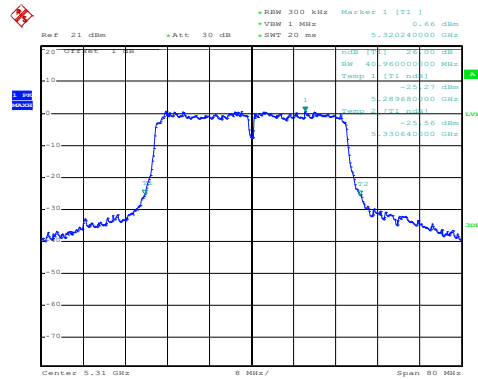
Highest channel

802.11ac(HT40)



Date: 15.APR.2020 18:42:06

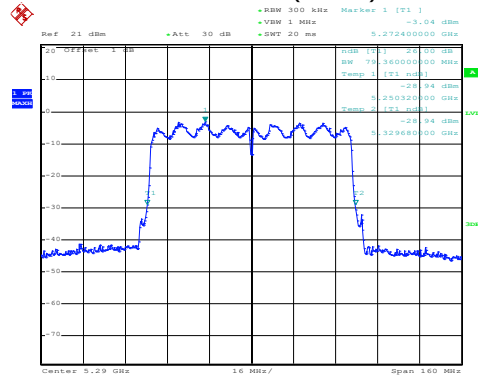
Lowest channel



Date: 15.APR.2020 18:41:35

Highest channel

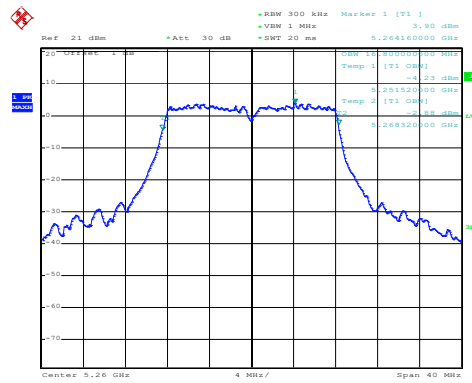
802.11ac(HT80)



Date: 15.APR.2020 18:43:13

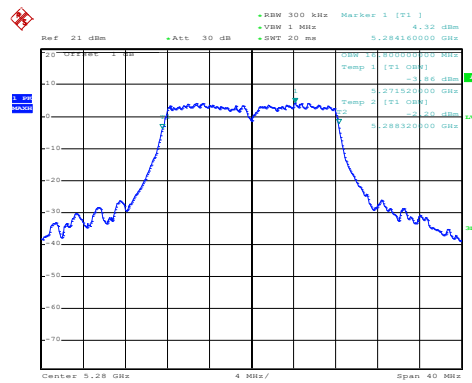
Middle channel

99% OBW - 802.11a



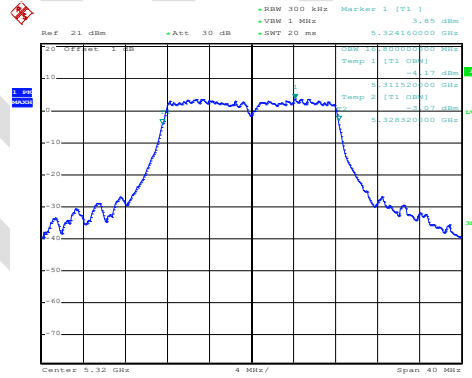
Date: 15.APR.2020 18:59:30

Lowest channel



Date: 15.APR.2020 19:00:29

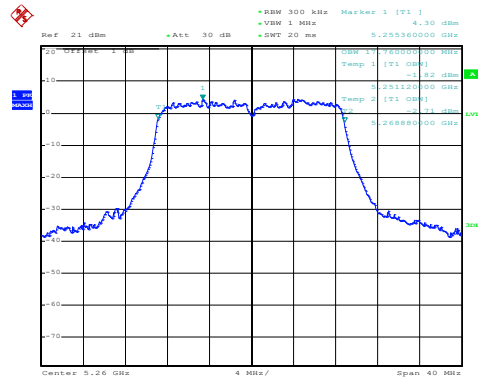
Middle channel



Date: 15.APR.2020 19:01:00

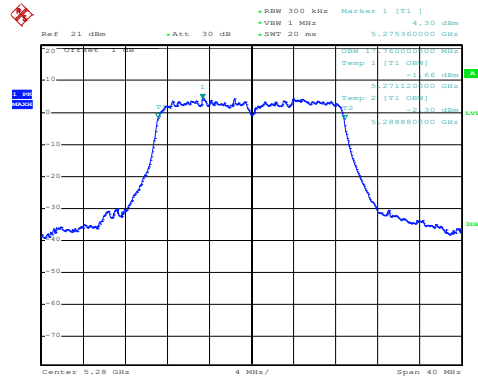
Highest channel

802.11n(HT20)



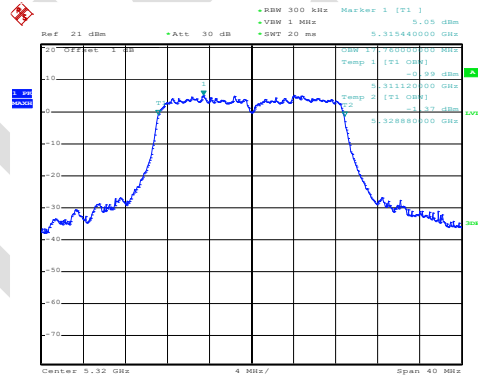
Date: 15.APR.2020 19:02:47

Lowest channel



Date: 15.APR.2020 19:02:18

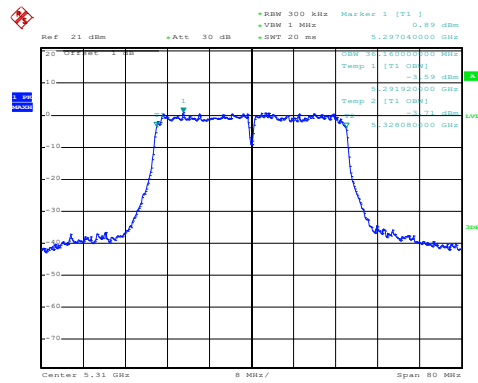
Middle channel



Date: 15.APR.2020 19:01:47

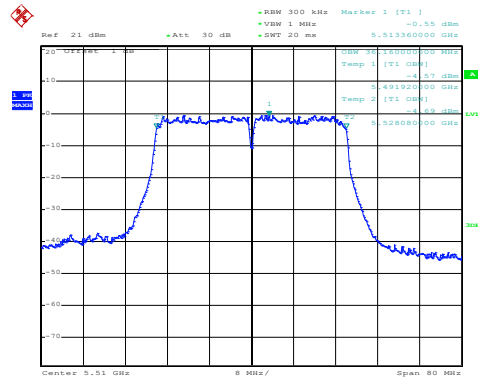
Highest channel

802.11n(HT40)



Date: 15.APR.2020 19:11:58

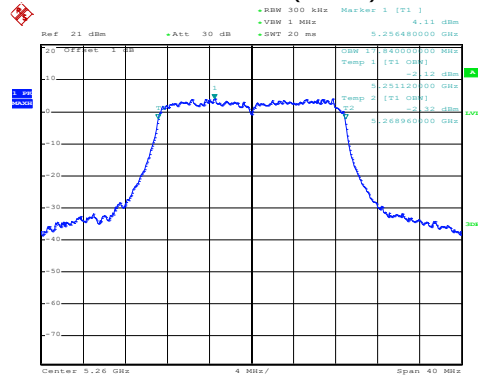
Lowest channel



Date: 15.APR.2020 19:12:54

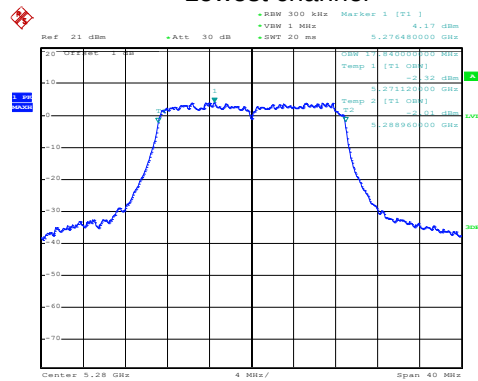
Highest channel

802.11ac(HT20)



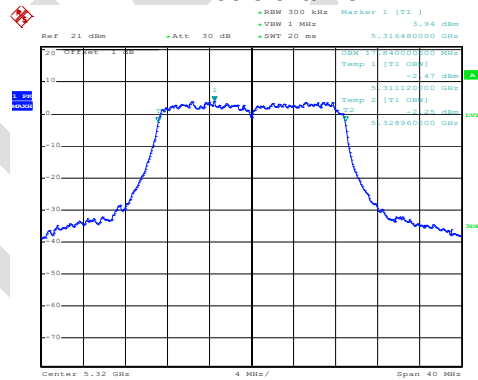
Date: 15.APR.2020 19:03:20

Lowest channel



Date: 15.APR.2020 19:04:00

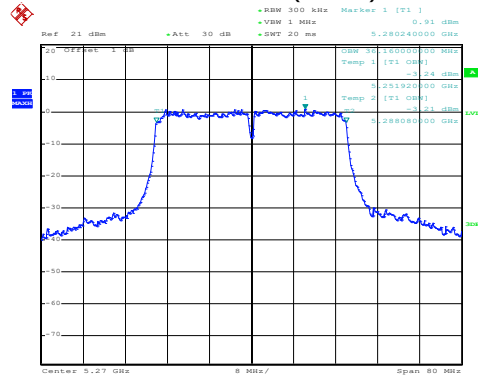
Middle channel



Date: 15.APR.2020 19:04:35

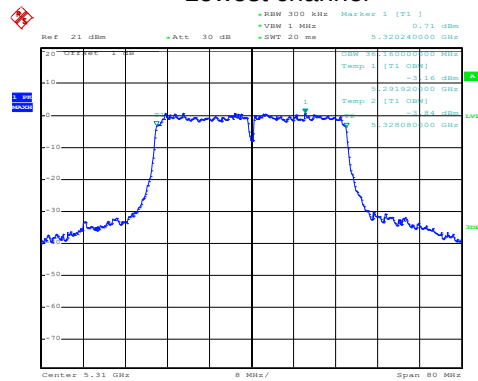
Highest channel

802.11ac(HT40)



Date: 15.APR.2020 19:15:58

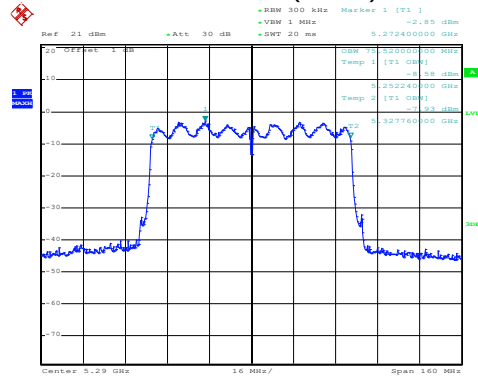
Lowest channel



Date: 15.APR.2020 19:16:33

Highest channel

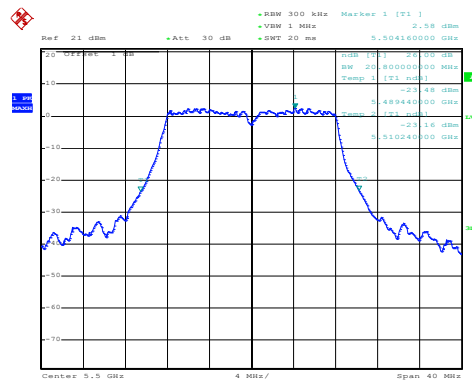
802.11ac(HT80)



Date: 15.APR.2020 19:19:44

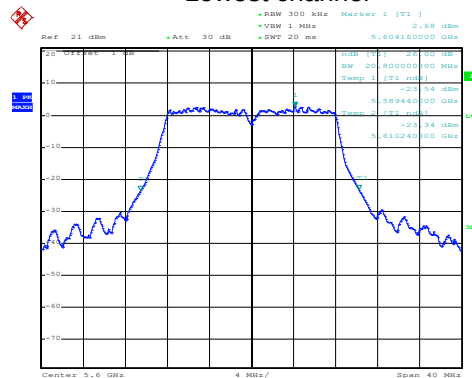
Middle channel

26 dB EBW - 802.11a



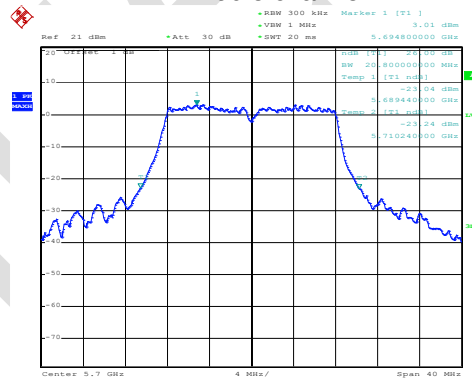
Date: 15.APR.2020 18:33:12

Lowest channel



Date: 15.APR.2020 18:33:36

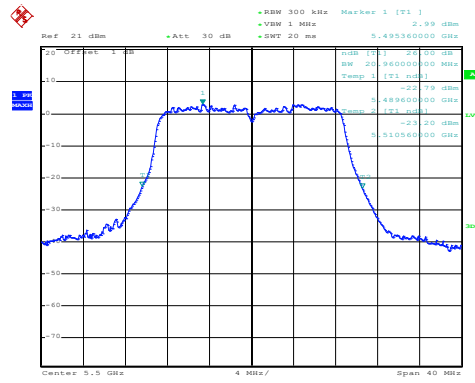
Middle channel



Date: 15.APR.2020 18:34:03

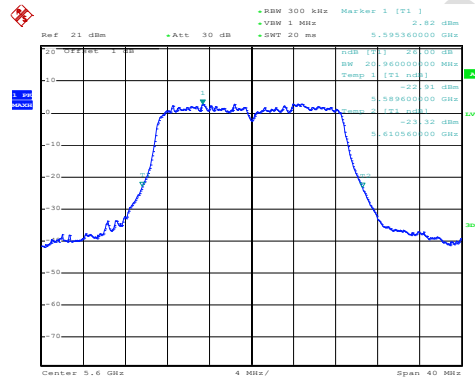
Highest channel

802.11n(HT20)



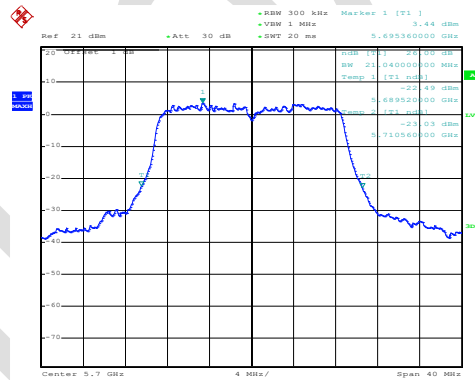
Date: 15.APR.2020 18:32:31

Lowest channel



Date: 15.APR.2020 18:31:15

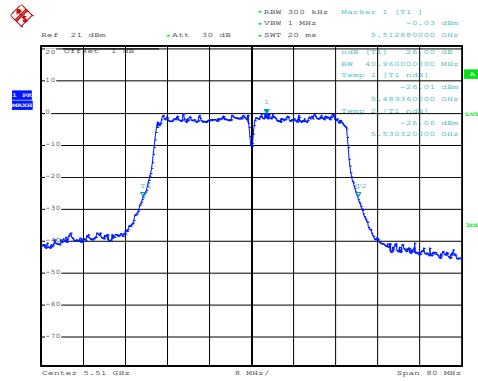
Middle channel



Date: 15.APR.2020 18:32:00

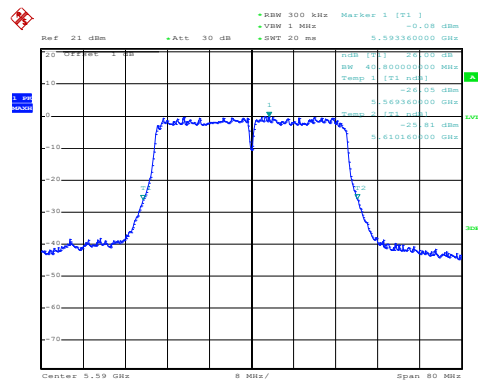
Highest channel

802.11n(HT40)



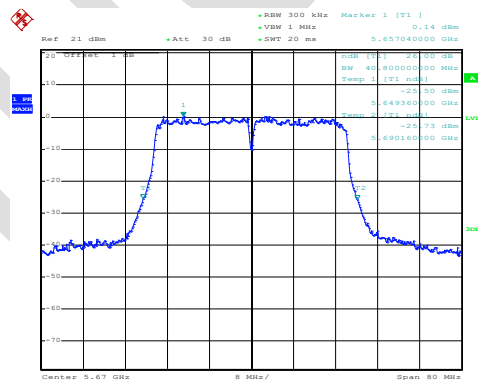
Date: 15.APR.2020 18:37:42

Lowest channel



Date: 15.APR.2020 18:38:19

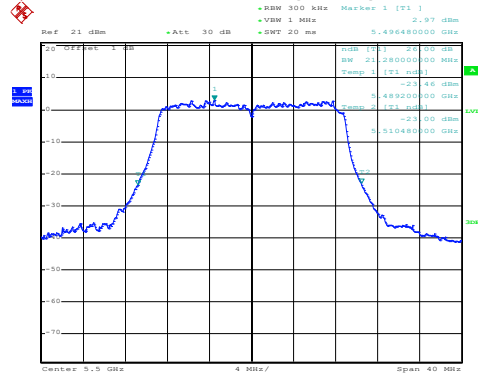
Middle channel



Date: 15.APR.2020 18:38:58

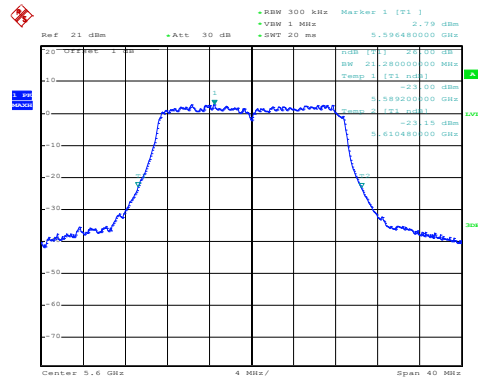
Highest channel

802.11ac(HT20)



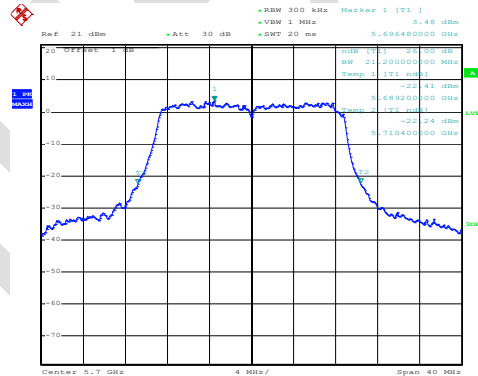
Date: 15.APR.2020 18:27:19

Lowest channel



Date: 15.APR.2020 18:30:19

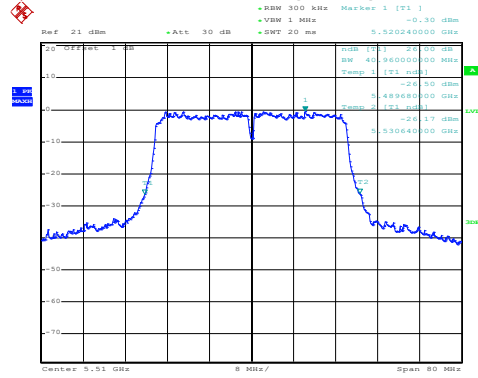
Middle channel



Date: 15.APR.2020 18:29:41

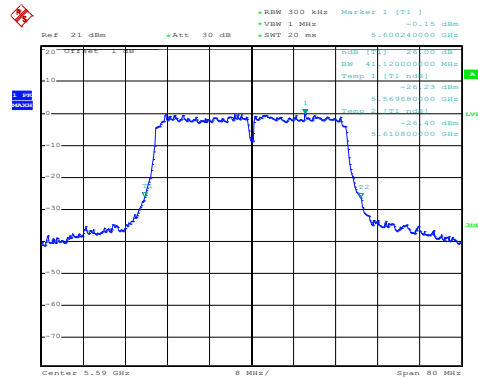
Highest channel

802.11ac(HT40)



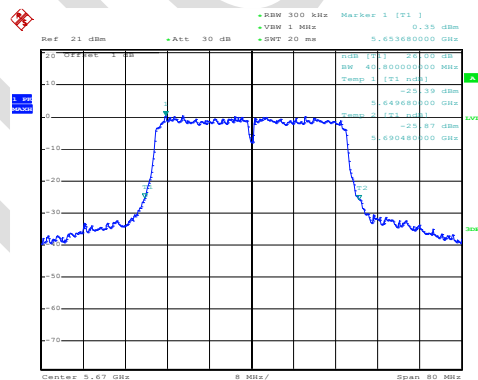
Date: 15.APR.2020 18:41:04

Lowest channel



Date: 15.APR.2020 18:40:29

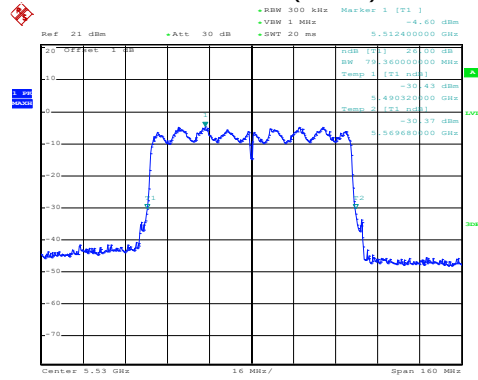
Middle channel



Date: 15.APR.2020 18:39:42

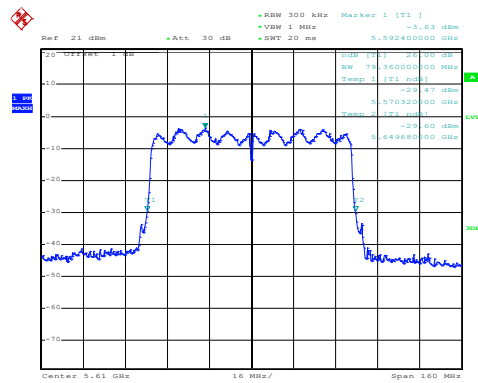
Highest channel

802.11ac(HT80)



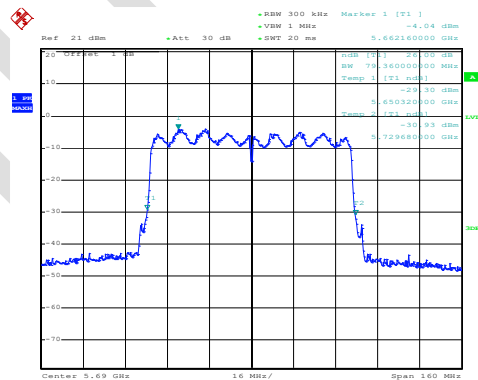
Date: 15.APR.2020 18:43:54

Lowest channel



Date: 15.APR.2020 18:44:32

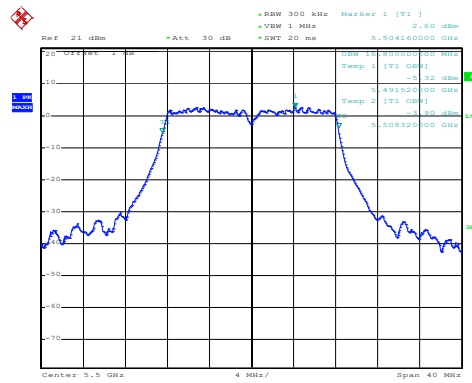
Middle channel



Date: 15.APR.2020 18:45:30

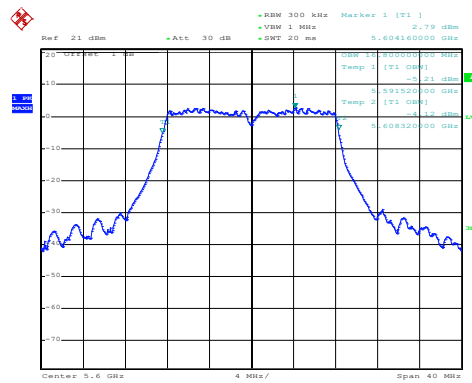
Highest channel

99% OBW - 802.11a



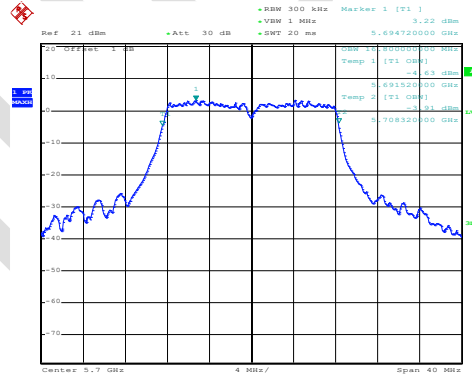
Date: 15.APR.2020 19:08:50

Lowest channel



Date: 15.APR.2020 19:09:16

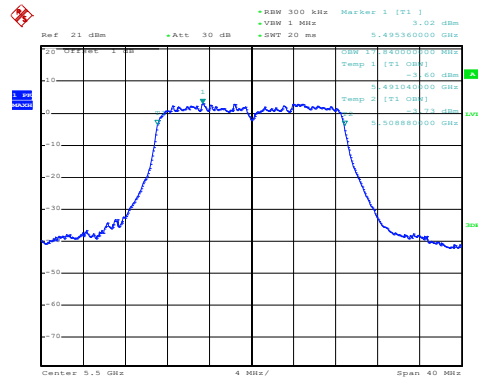
Middle channel



Date: 15.APR.2020 19:09:49

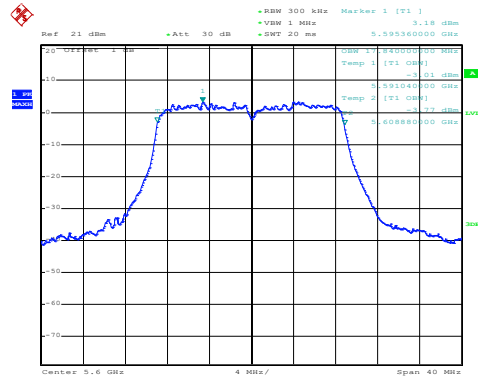
Highest channel

802.11n(HT20)



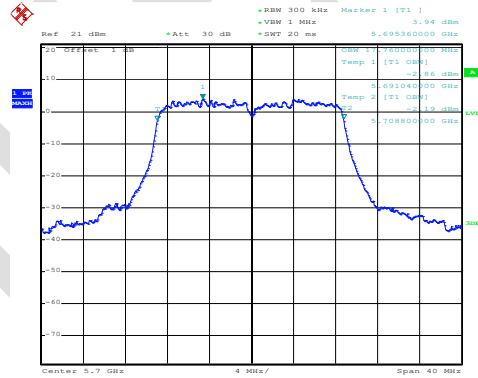
Date: 15.APR.2020 19:08:15

Lowest channel



Date: 15.APR.2020 19:07:49

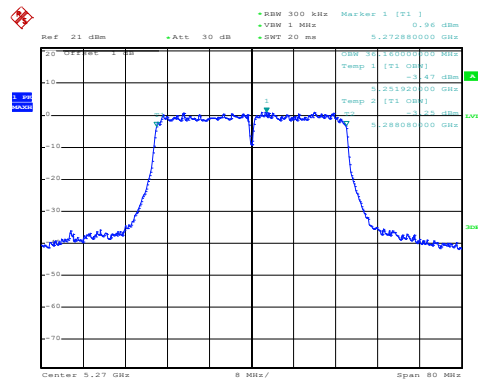
Middle channel



Date: 15.APR.2020 19:07:15

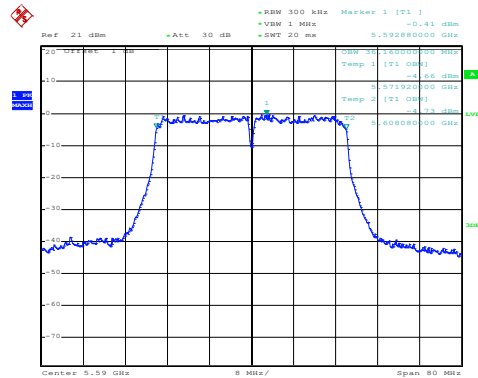
Highest channel

802.11n(HT40)



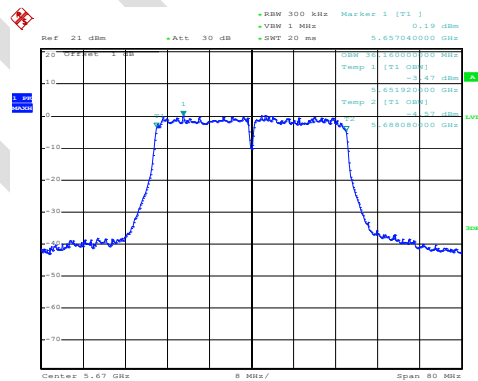
Date: 15.APR.2020 19:11:17

Lowest channel



Date: 15.APR.2020 19:14:01

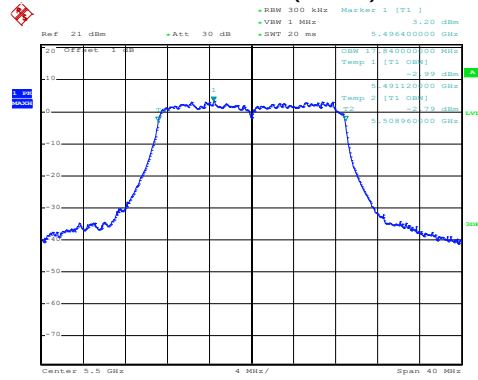
Middle channel



Date: 15.APR.2020 19:14:45

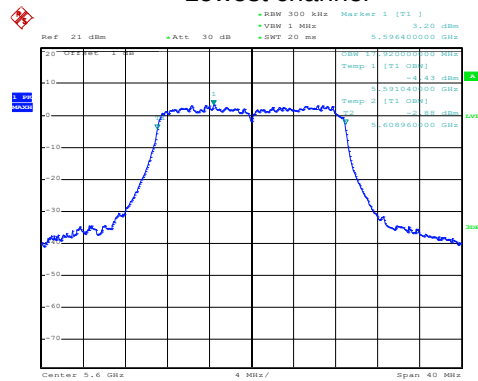
Highest channel

802.11ac(HT20)



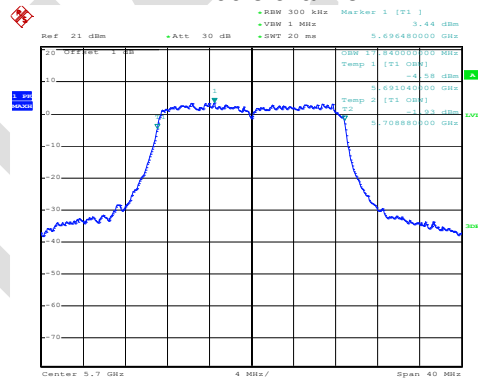
Date: 15.APR.2020 19:05:33

Lowest channel



Date: 15.APR.2020 19:05:58

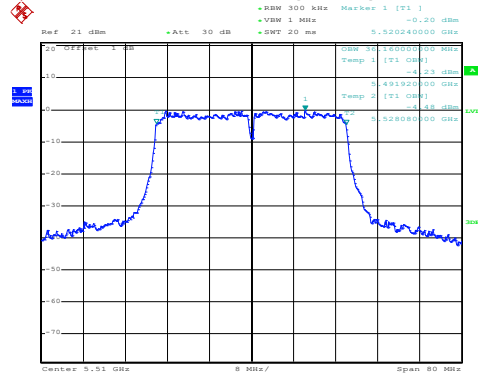
Middle channel



Date: 15.APR.2020 19:06:25

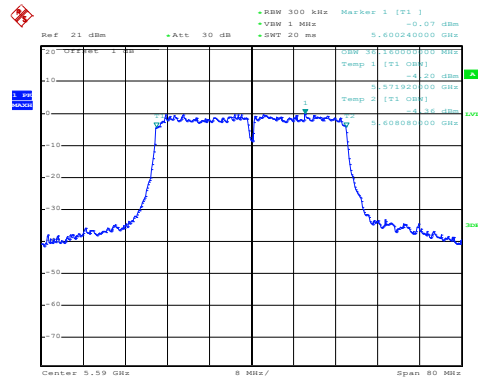
Highest channel

802.11ac(HT40)



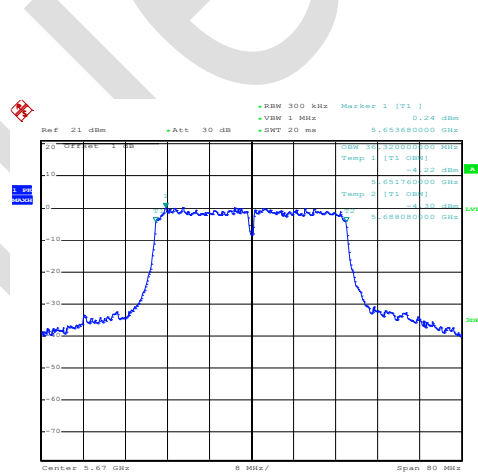
Date: 15.APR.2020 19:17:09

Lowest channel



Date: 15.APR.2020 19:17:43

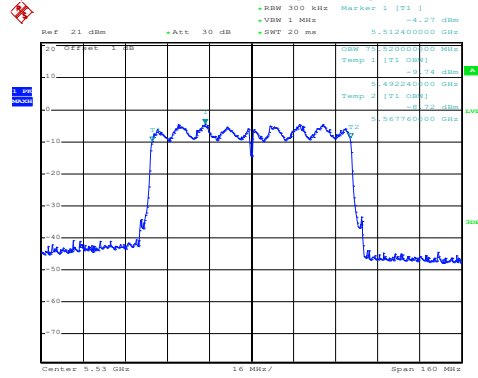
Middle channel



Date: 15.APR.2020 19:18:30

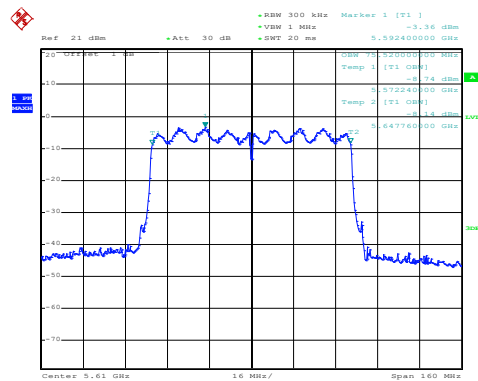
Highest channel

802.11ac(HT80)



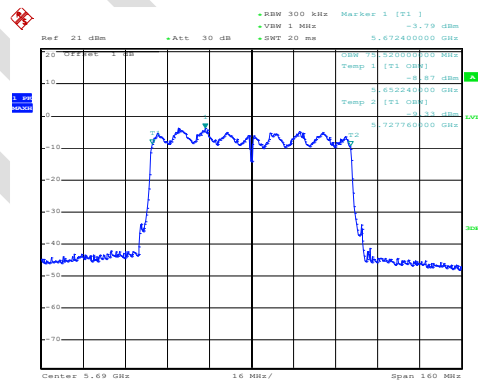
Date: 15.APR.2020 19:20:23

Lowest channel



Date: 15.APR.2020 19:20:56

Middle channel

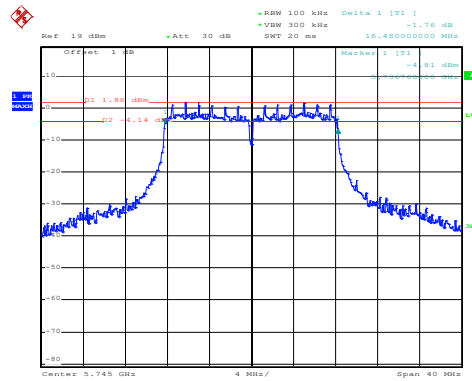


Date: 15.APR.2020 19:22:08

Highest channel

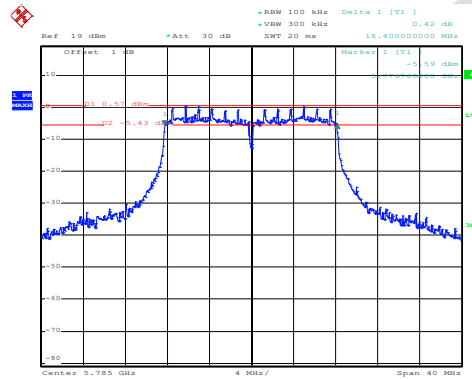
Band 4:

6 dB EBW - 802.11a



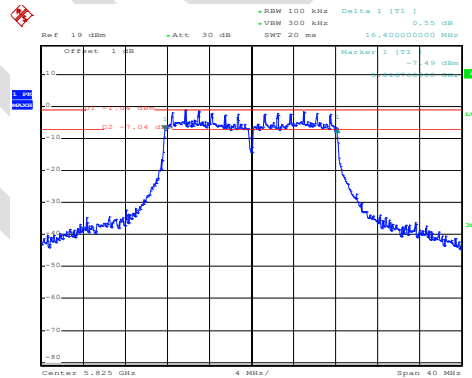
Date: 18.MAR.2020 17:06:53

Lowest channel



Date: 18.MAR.2020 17:20:23

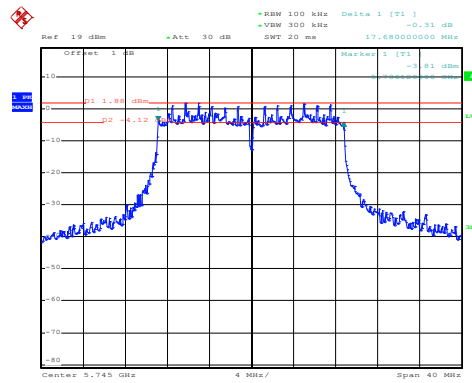
Middle channel



Date: 18.MAR.2020 17:25:00

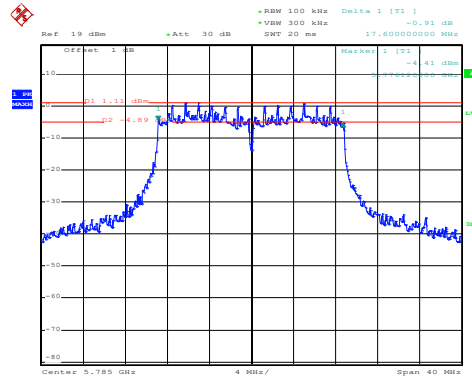
Highest channel

802.11n(HT20)



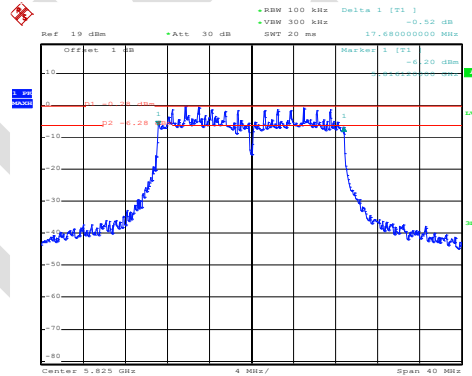
Date: 18.MAR.2020 17:39:23

Lowest channel



Date: 18.MAR.2020 17:35:13

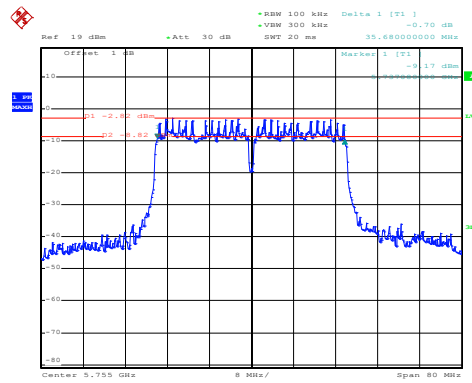
Middle channel



Date: 18.MAR.2020 17:31:09

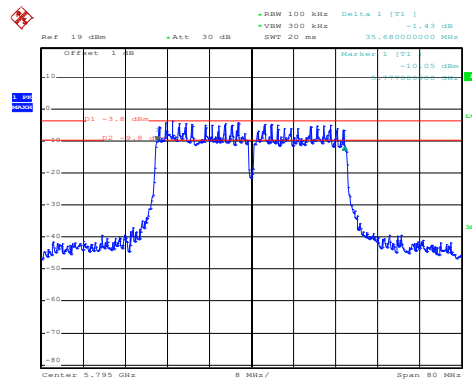
Highest channel

802.11n(HT40)



Date: 18.MAR.2020 18:04:47

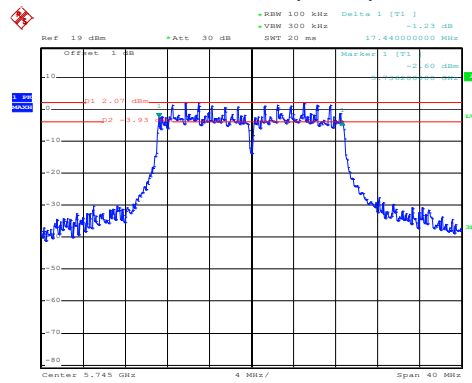
Lowest channel



Date: 18.MAR.2020 18:12:42

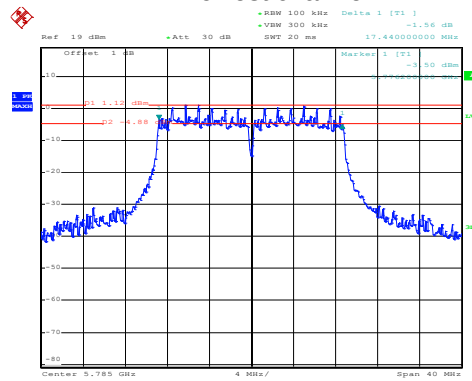
Highest channel

802.11ac(HT20)



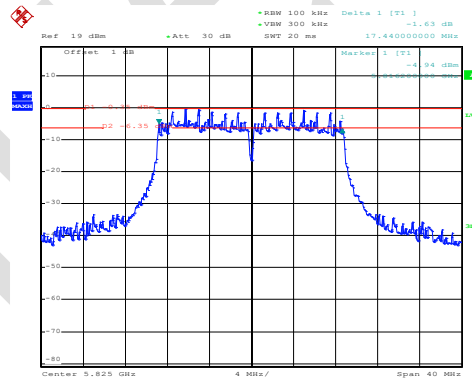
Date: 18.MAR.2020 17:45:17

Lowest channel



Date: 18.MAR.2020 17:50:46

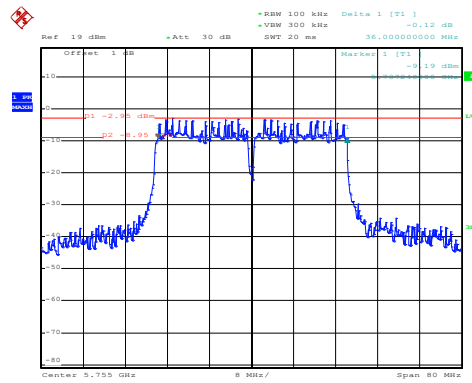
Middle channel



Date: 18.MAR.2020 17:56:46

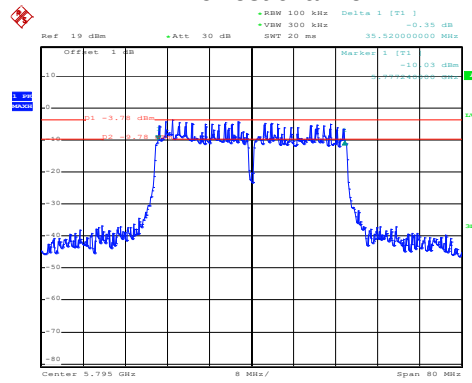
Highest channel

802.11ac(HT40)



Date: 18.MAR.2020 18:20:02

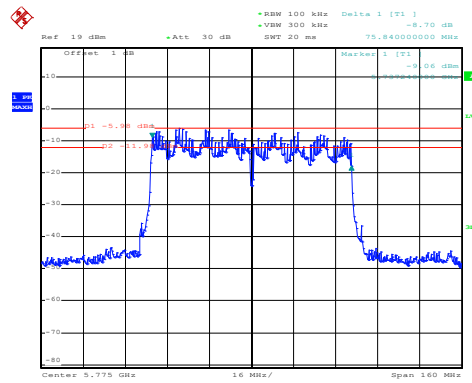
Lowest channel



Date: 18.MAR.2020 18:15:58

Highest channel

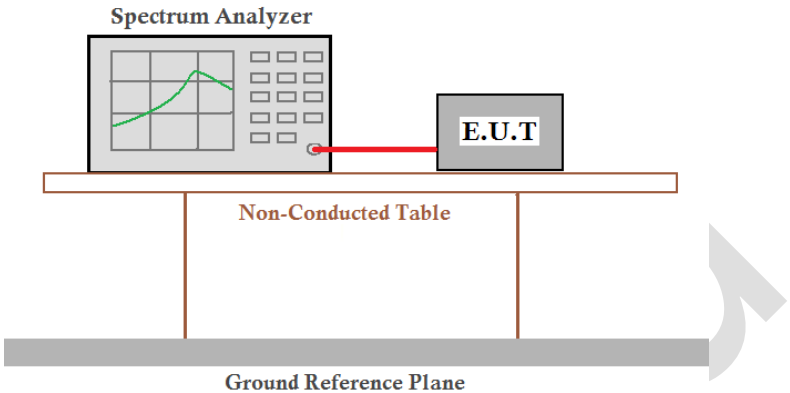
802.11ac(HT80)



Date: 18.MAR.2020 18:24:13

Middle channel

6.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (ii) (2)& (a) (3)
Test Method:	ANSI C63.10:2013, KDB 789033
Limit:	Band 1: 11 dBm/MHz Band 2: 11dBm/MHz Band 3: 11dBm/MHz Band 4: 30dBm/500kHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Band 1

Mode	Test CH	PSD(dBm)		Total (dBm)	Limit (dBm)	Result
		ANT1	ANT2			
802.11a	Lowest	2.37	/	/	11.00	Pass
	Middle	2.20	/	/	11.00	Pass
	Highest	1.91	/	/	11.00	Pass
802.11n(HT20)	Lowest	2.56	/	/	11.00	Pass
	Middle	2.51	/	/	11.00	Pass
	Highest	2.40	/	/	11.00	Pass
802.11n(HT40)	Lowest	-1.61	/	/	11.00	Pass
	Highest	-1.37	/	/	11.00	Pass
802.11ac(HT20)	Lowest	2.34	/	/	11.00	Pass
	Middle	2.27	/	/	11.00	Pass
	Highest	2.15	/	/	11.00	Pass
802.11ac(HT40)	Lowest	-1.42	/	/	11.00	Pass
	Highest	-1.63	/	/	11.00	Pass
802.11ac(HT80)	Middle	-6.01	/	/	11.00	Pass

Band 2

Mode	Test CH	PSD(dBm)		Total (dBm)	Limit (dBm)	Result
		ANT1	ANT2			
802.11a	Lowest	1.62	/	/	11.00	Pass
	Middle	1.90	/	/	11.00	Pass
	Highest	1.68	/	/	11.00	Pass
802.11n(HT20)	Lowest	1.77	/	/	11.00	Pass
	Middle	1.92	/	/	11.00	Pass
	Highest	2.05	/	/	11.00	Pass
802.11n(HT40)	Lowest	-2.20	/	/	11.00	Pass
	Highest	-2.28	/	/	11.00	Pass
802.11ac(HT20)	Lowest	1.65	/	/	11.00	Pass
	Middle	1.75	/	/	11.00	Pass

	Highest	1.88	/	/	11.00	Pass
802.11ac(HT40)	Lowest	-1.88	/	/	11.00	Pass
	Highest	-1.87	/	/	11.00	Pass
802.11ac(HT80)	Middle	-5.86	/	/	11.00	Pass

Band 3

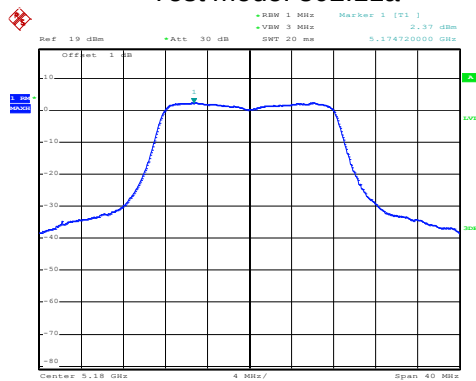
Mode	Test CH	PSD(dBm)		Total (dBm)	Limit (dBm)	Result
		ANT1	ANT2			
802.11a	Lowest	0.56	/	/	11.00	Pass
	Middle	0.37	/	/	11.00	Pass
	Highest	0.57	/	/	11.00	Pass
802.11n(HT20)	Lowest	0.34	/	/	11.00	Pass
	Middle	0.20	/	/	11.00	Pass
	Highest	0.65	/	/	11.00	Pass
802.11n(HT40)	Lowest	-2.92	/	/	11.00	Pass
	Middle	-2.83	/	/	11.00	Pass
	Highest	-2.47	/	/	11.00	Pass
802.11ac(HT20)	Lowest	-0.00	/	/	11.00	Pass
	Middle	-0.10	/	/	11.00	Pass
	Highest	0.46	/	/	11.00	Pass
802.11ac(HT40)	Lowest	-3.13	/	/	11.00	Pass
	Middle	-3.12	/	/	11.00	Pass
	Highest	-2.35	/	/	11.00	Pass
802.11ac(HT80)	Lowest	-6.89	/	/	11.00	Pass
	Middle	-5.91	/	/	11.00	Pass
	Highest	-6.41	/	/	11.00	Pass

Band 4

Mode	Test CH	PSD(dBm)		Total (dBm)	Limit (dBm)	Result
		ANT1	ANT2			
802.11a	Lowest	7.29	/	/	30.00	Pass
	Middle	6.89	/	/	30.00	Pass
	Highest	6.12	/	/	3.000	Pass
802.11n(HT20)	Lowest	9.19	/	/	30.00	Pass
	Middle	7.43	/	/	30.00	Pass
	Highest	7.73	/	/	30.00	Pass
802.11n(HT40)	Lowest	2.94	/	/	30.00	Pass
	Highest	2.21	/	/	30.00	Pass
802.11ac(HT20)	Lowest	7.79	/	/	3.000	Pass
	Middle	7.15	/	/	30.00	Pass
	Highest	6.36	/	/	30.00	Pass
802.11ac(HT40)	Lowest	4.20	/	/	30.00	Pass
	Highest	3.14	/	/	30.00	Pass
802.11ac(HT80)	Middle	-1.57	/	/	30.00	Pass

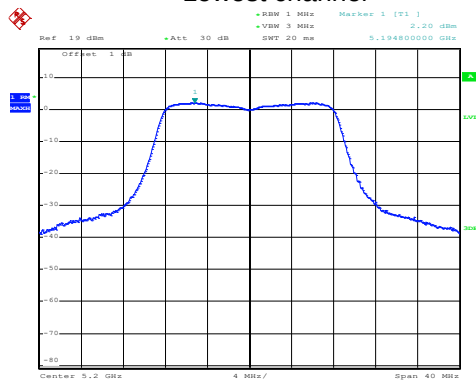
Band 1:

Test mode: 802.11a



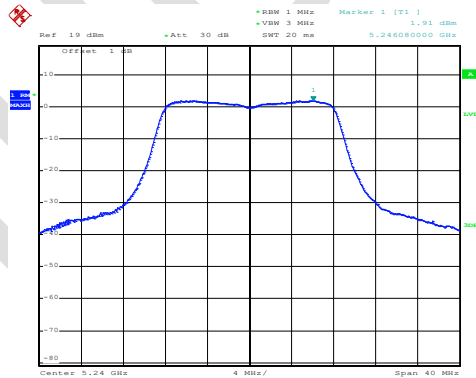
Date: 18.MAR.2020 16:13:20

Lowest channel



Date: 18.MAR.2020 16:15:00

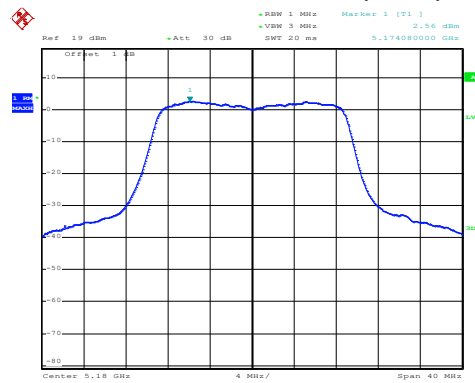
Middle channel



Date: 18.MAR.2020 16:16:05

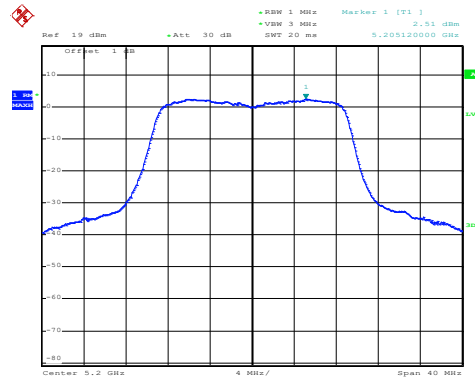
Highest channel

Test mode: 802.11n(HT20)



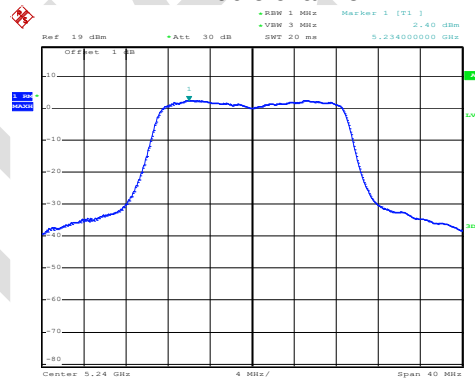
Date: 18.MAR.2020 16:19:14

Lowest channel



Date: 18.MAR.2020 16:18:24

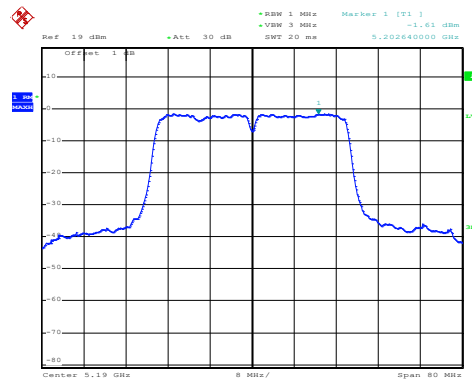
Middle channel



Date: 18.MAR.2020 16:17:26

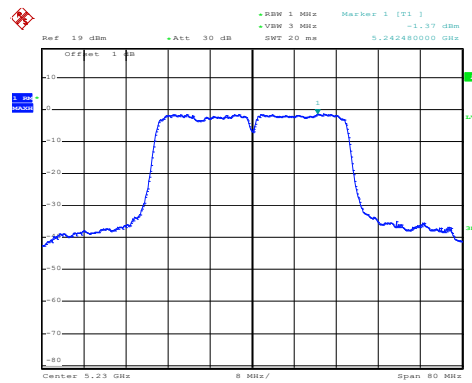
Highest channel

Test mode: 802.11n(HT40)



Date: 18.MAR.2020 16:23:53

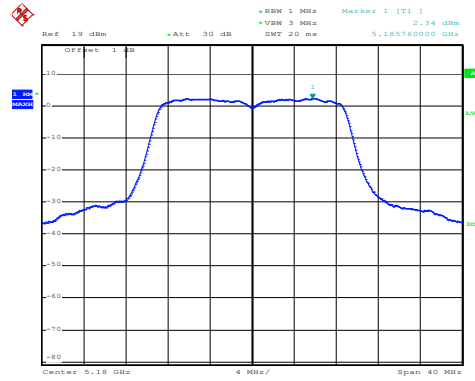
Lowest channel



Date: 18.MAR.2020 16:27:59

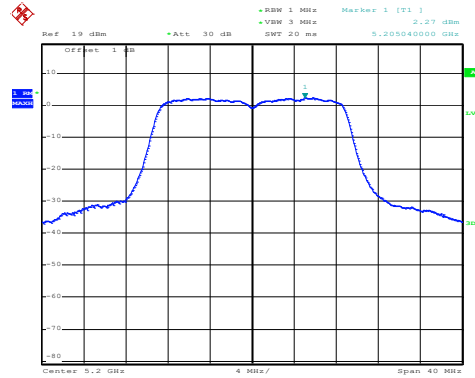
Highest channel

Test mode: 802.11ac(HT20)



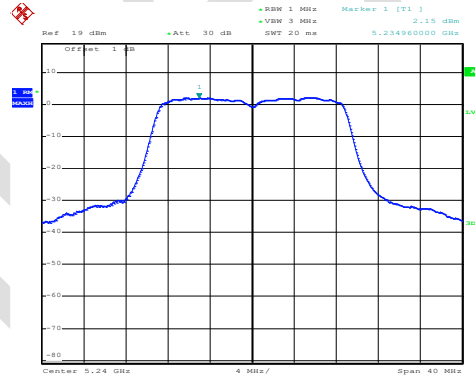
Date: 18.MAR.2020 16:20:04

Lowest channel



Date: 18.MAR.2020 16:20:59

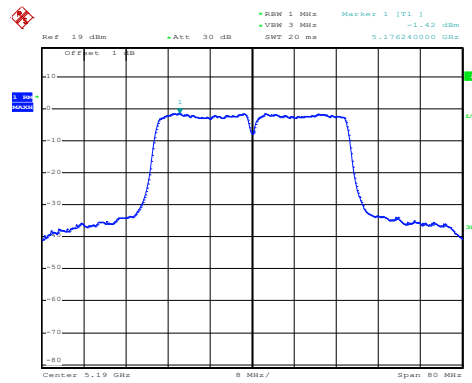
Middle channel



Date: 18.MAR.2020 16:22:25

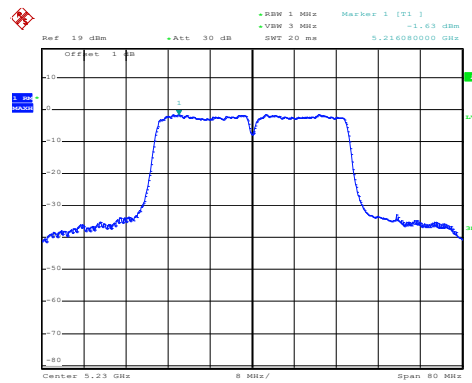
Highest channel

Test mode: 802.11ac(HT40)



Date: 18.MAR.2020 16:25:28

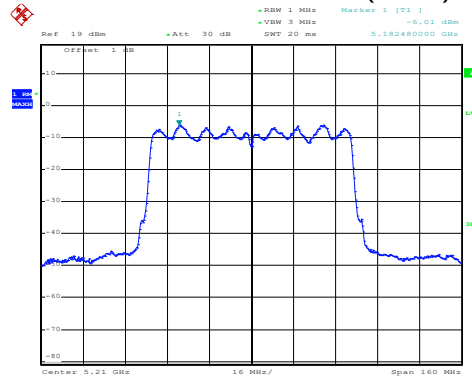
Lowest channel



Date: 18.MAR.2020 16:27:00

Highest channel

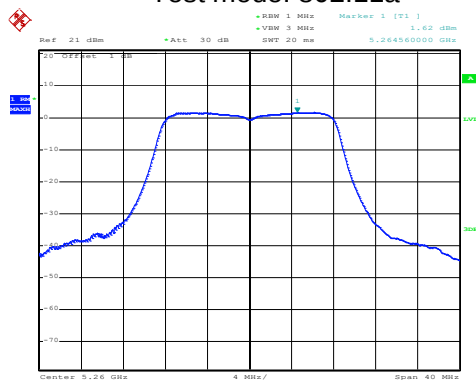
Test mode: 802.11ac(HT80)



Date: 18.MAR.2020 16:29:24

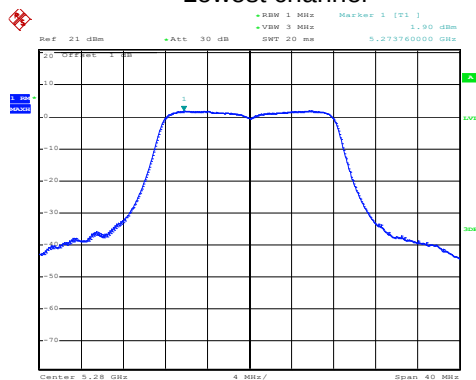
Middle channel

Test mode: 802.11a



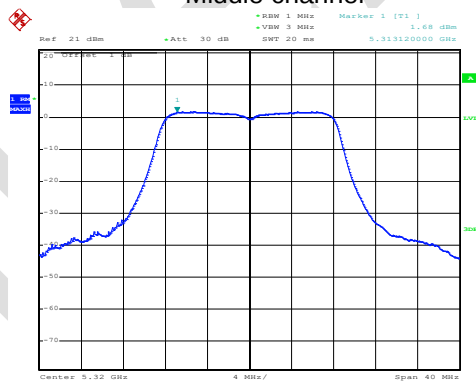
Date: 15.APR.2020 17:15:53

Lowest channel



Date: 15.APR.2020 17:21:38

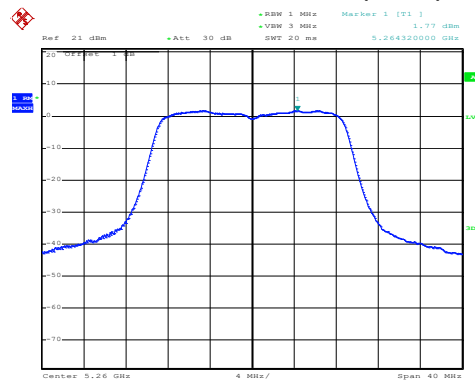
Middle channel



Date: 15.APR.2020 17:22:13

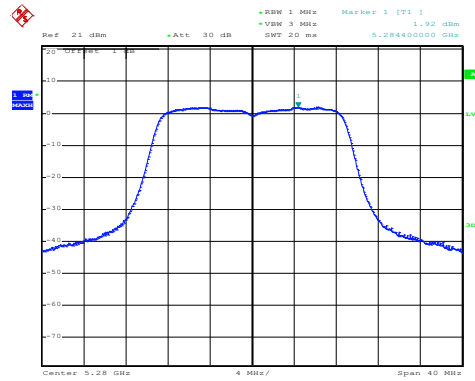
Highest channel

Test mode: 802.11n(HT20)



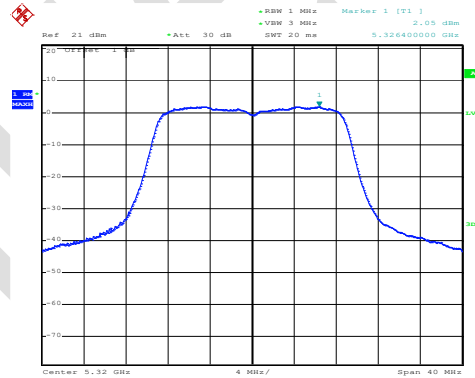
Date: 15.APR.2020 17:25:01

Lowest channel



Date: 15.APR.2020 17:24:21

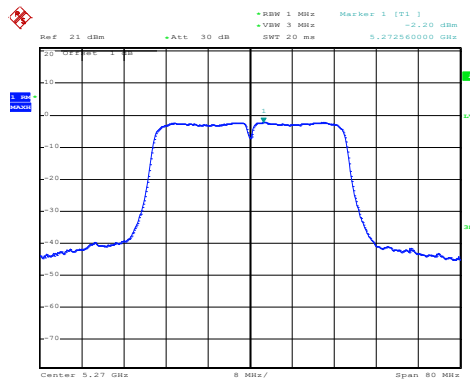
Middle channel



Date: 15.APR.2020 17:23:21

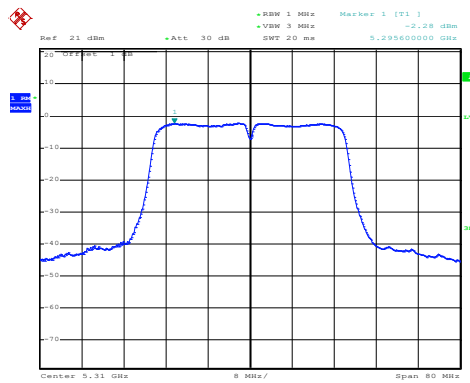
Highest channel

Test mode: 802.11n(HT40)



Date: 15.APR.2020 17:46:37

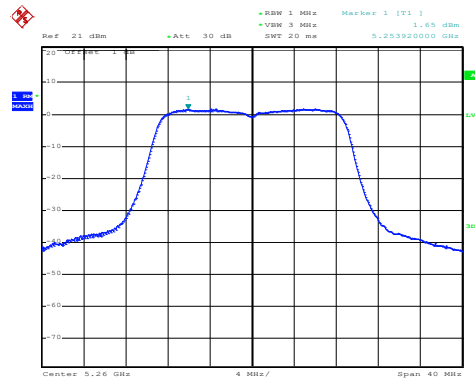
Lowest channel



Date: 15.APR.2020 17:47:16

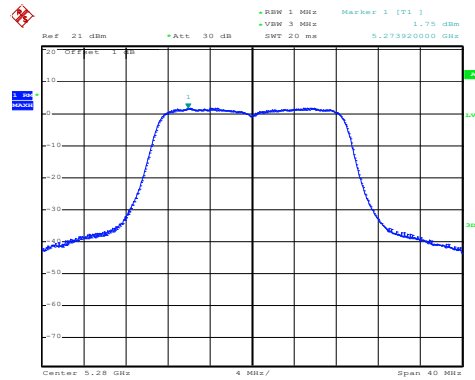
Highest channel

Test mode: 802.11ac(HT20)



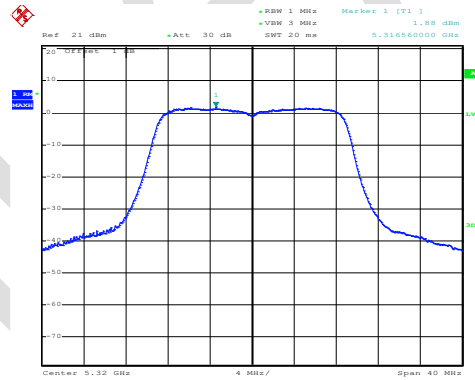
Date: 15.APR.2020 17:25:37

Lowest channel



Date: 15.APR.2020 17:26:13

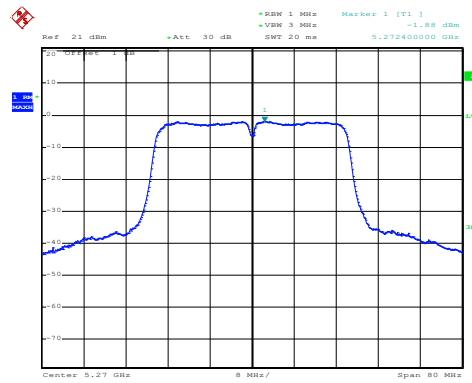
Middle channel



Date: 15.APR.2020 17:29:58

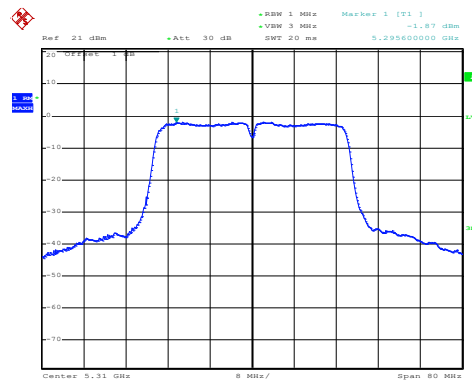
Highest channel

Test mode: 802.11ac(HT40)



Date: 15.APR.2020 17:53:50

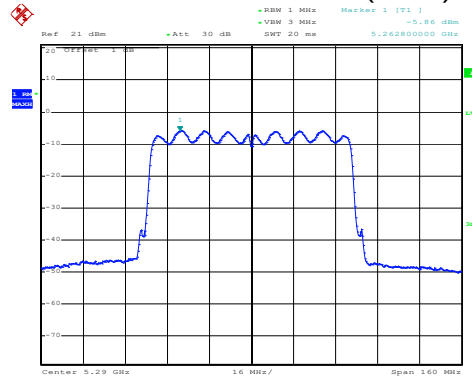
Lowest channel



Date: 15.APR.2020 17:52:54

Highest channel

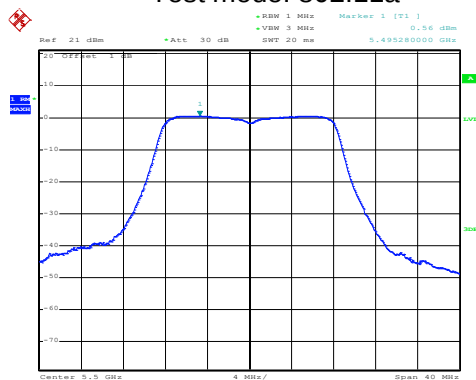
Test mode: 802.11ac(HT80)



Date: 15.APR.2020 17:55:48

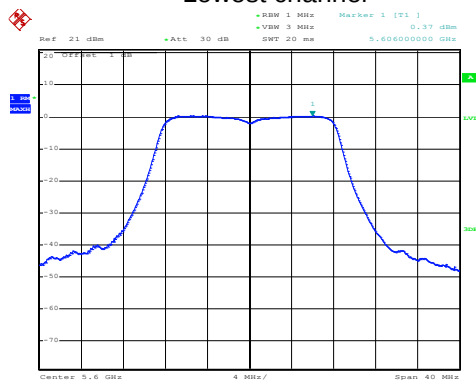
Middle channel

Test mode: 802.11a



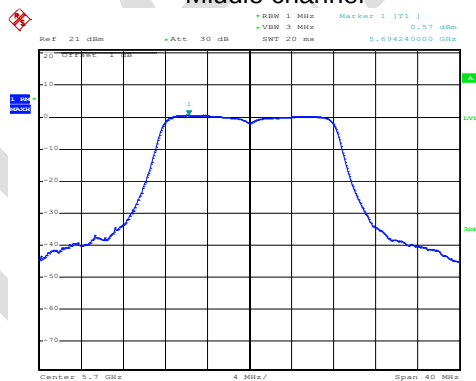
Date: 15.APR.2020 17:43:06

Lowest channel



Date: 15.APR.2020 17:43:53

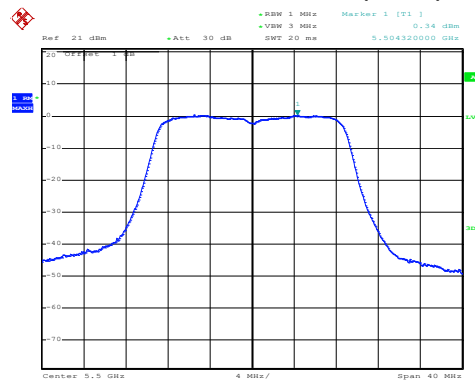
Middle channel



Date: 15.APR.2020 17:44:28

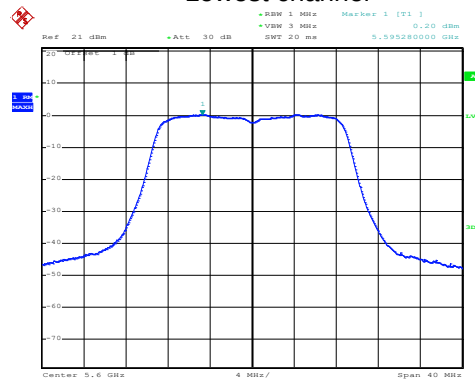
Highest channel

Test mode: 802.11n(HT20)



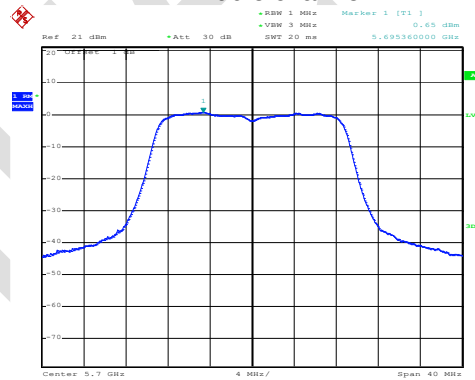
Date: 15.APR.2020 17:41:12

Lowest channel



Date: 15.APR.2020 17:40:31

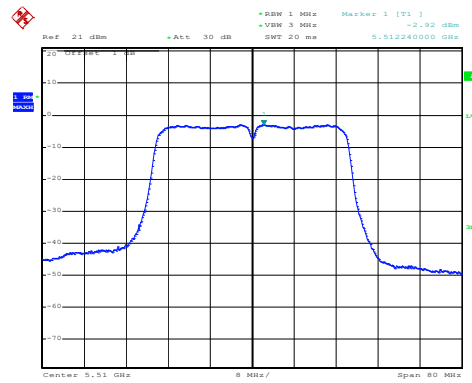
Middle channel



Date: 15.APR.2020 17:39:40

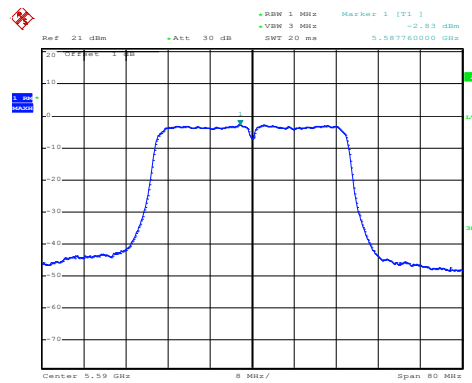
Highest channel

Test mode: 802.11n(HT40)



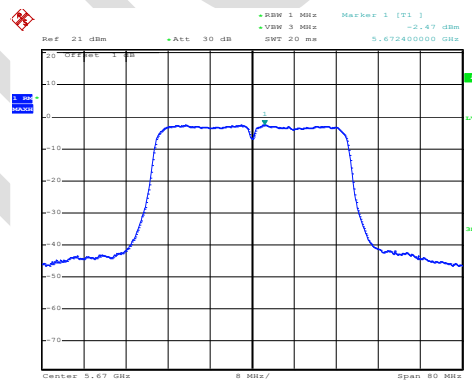
Date: 15.APR.2020 17:48:57

Lowest channel



Date: 15.APR.2020 17:49:33

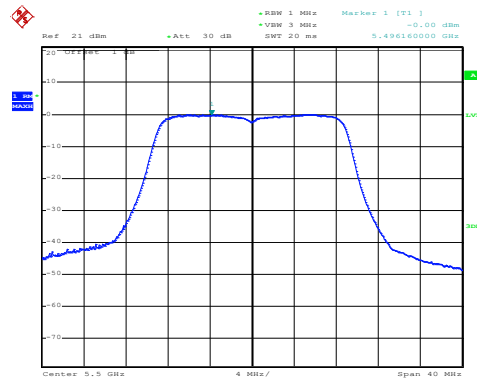
Middle channel



Date: 15.APR.2020 17:50:08

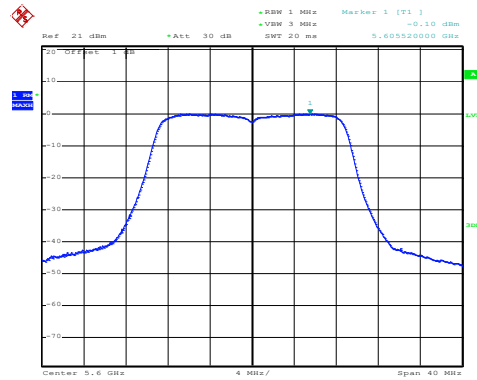
Highest channel

Test mode: 802.11ac(HT20)



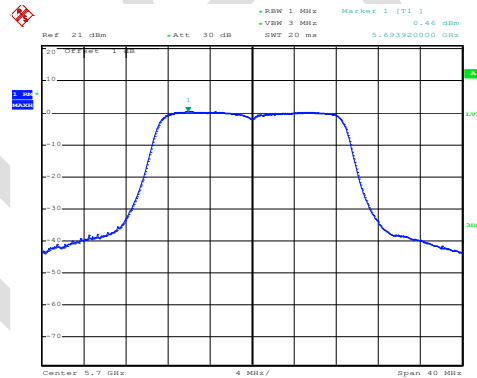
Date: 15.APR.2020 17:37:52

Lowest channel



Date: 15.APR.2020 17:38:23

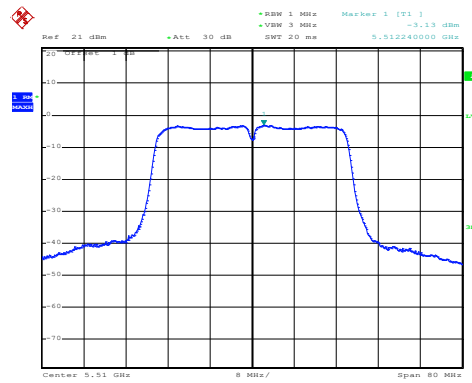
Middle channel



Date: 15.APR.2020 17:39:00

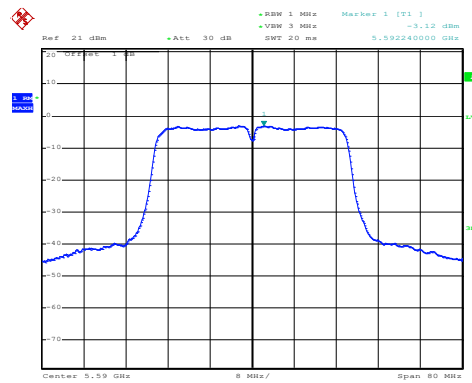
Highest channel

Test mode: 802.11ac(HT40)



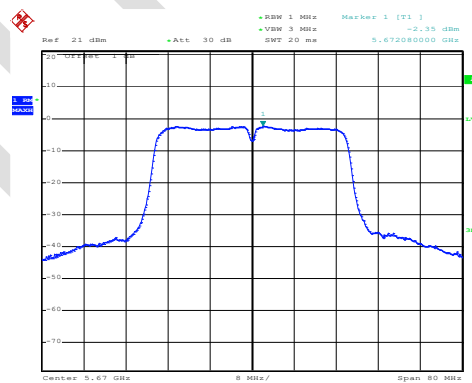
Date: 15.APR.2020 17:52:14

Lowest channel



Date: 15.APR.2020 17:51:45

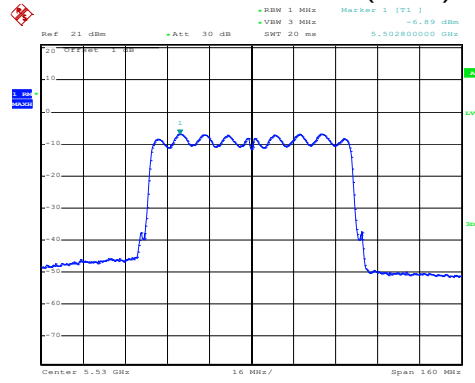
Middle channel



Date: 15.APR.2020 17:50:53

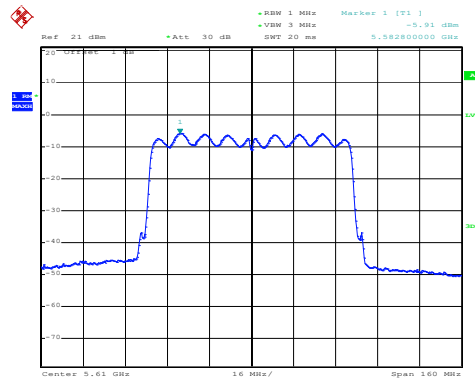
Highest channel

Test mode: 802.11ac(HT80)



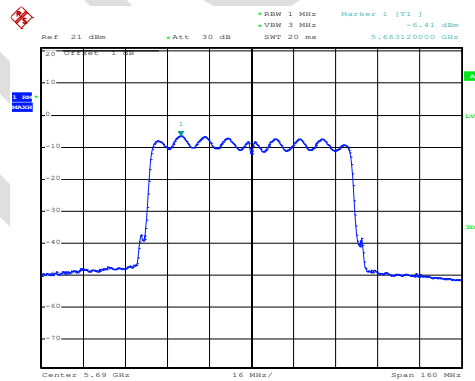
Date: 15.APR.2020 17:56:30

Lowest channel



Date: 15.APR.2020 17:57:23

Middle channel

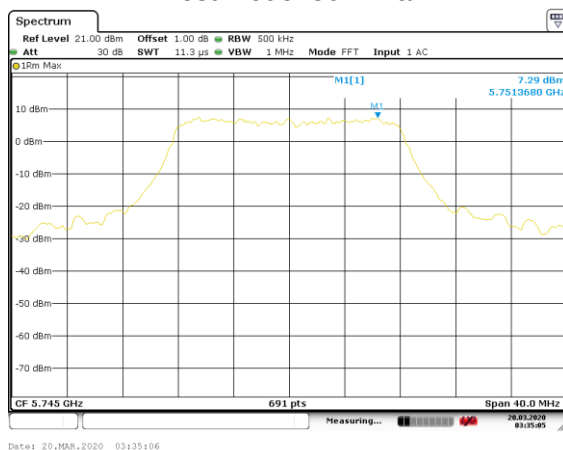


Date: 15.APR.2020 17:58:00

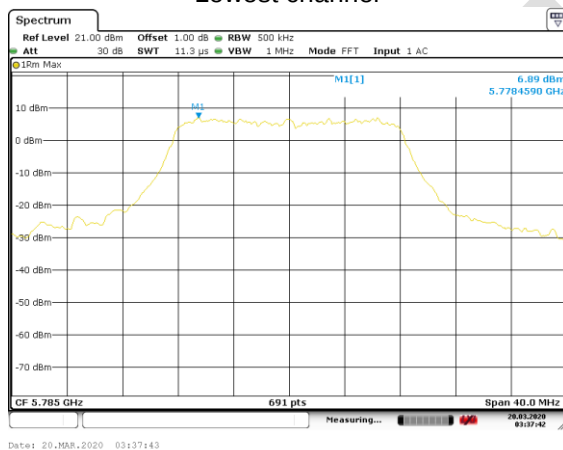
Highest channel

Band 4 :

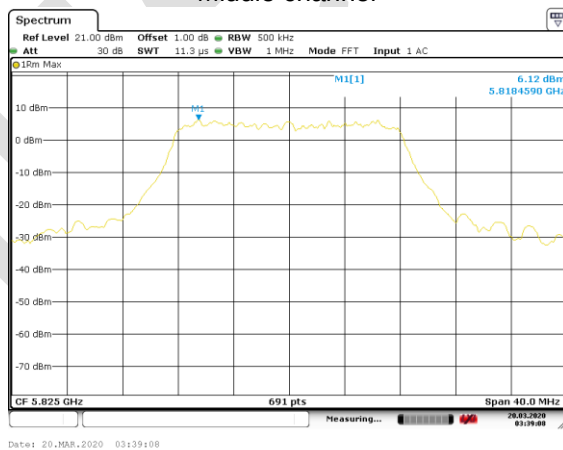
Test mode: 802.11a



Lowest channel

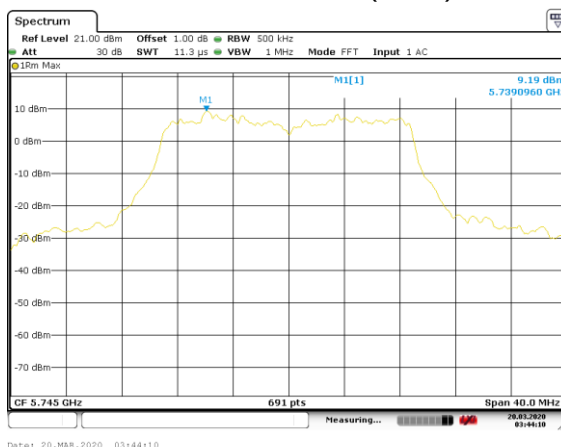


Middle channel

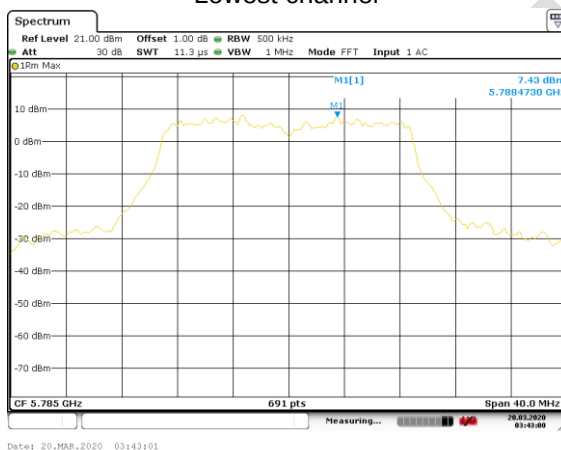


Highest channel

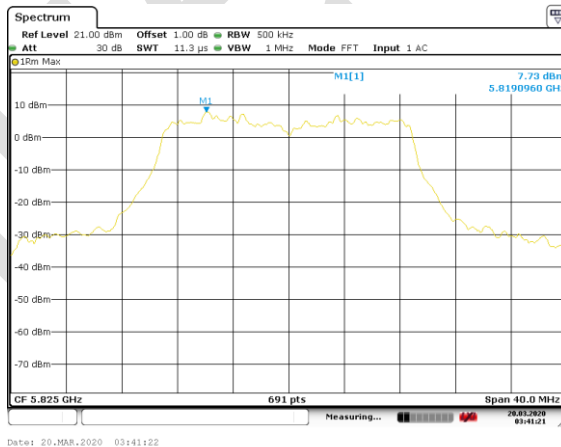
Test mode: 802.11n(HT20)



Lowest channel

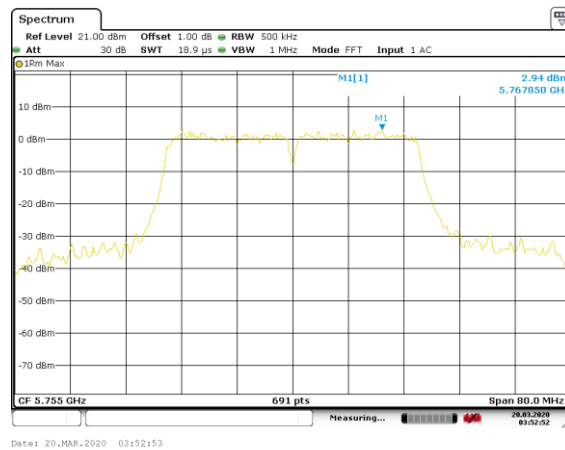


Middle channel

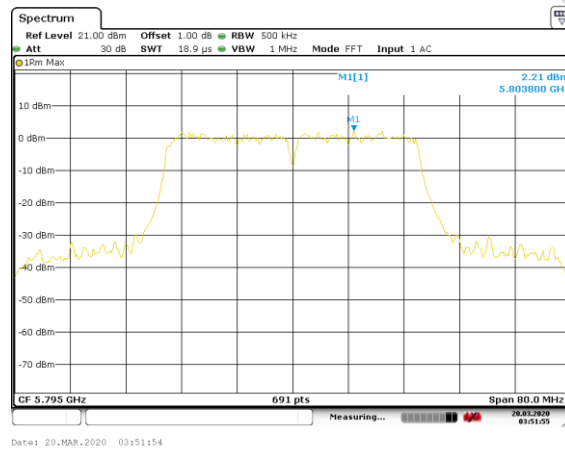


Highest channel

Test mode: 802.11n(HT40)

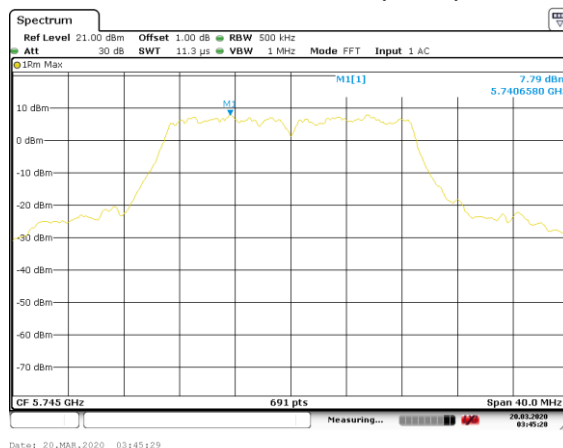


Lowest channel

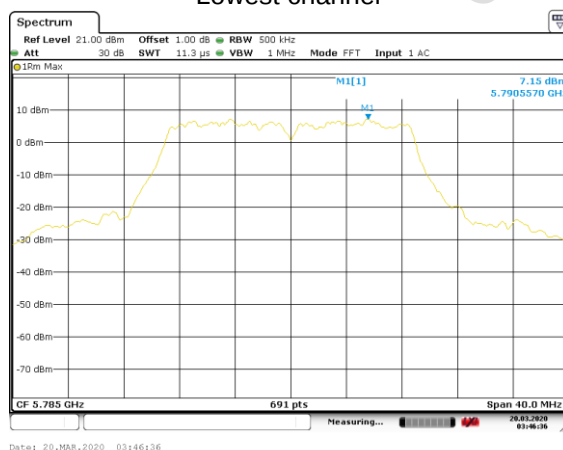


Highest channel

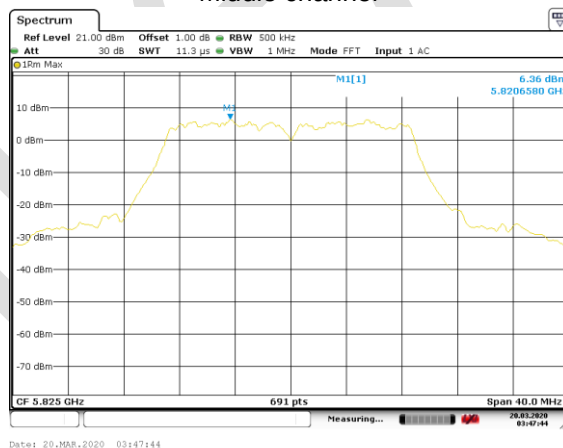
Test mode: 802.11ac(HT20)



Lowest channel

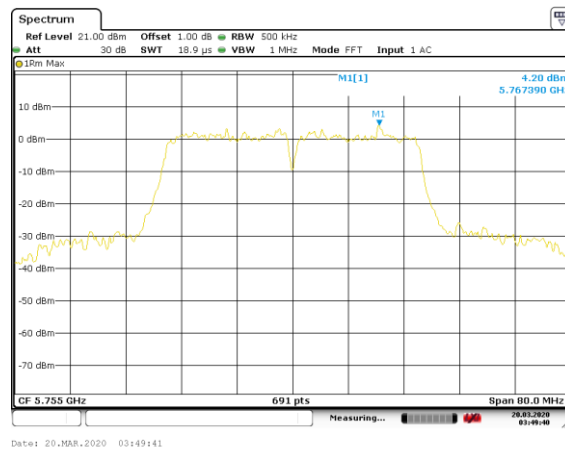


Middle channel

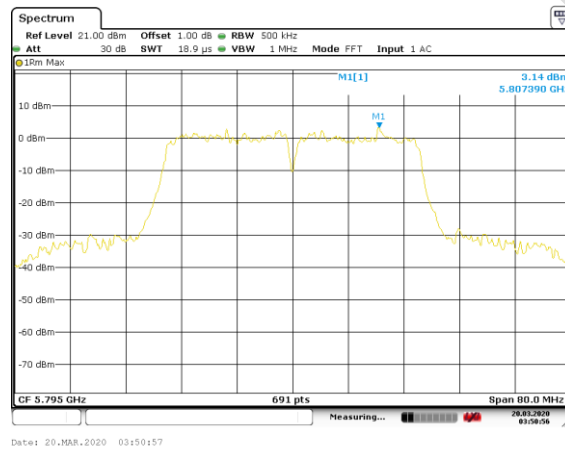


Highest channel

Test mode: 802.11ac(HT40)

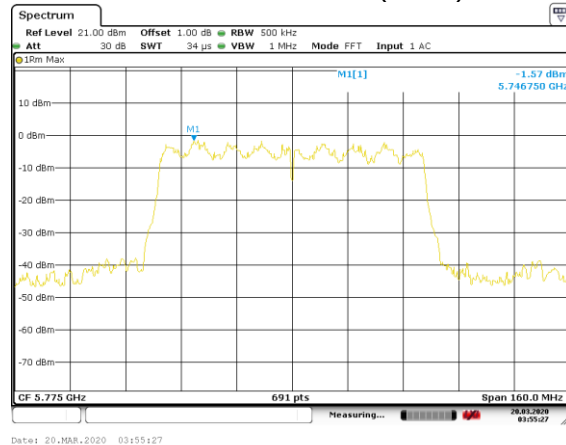


Lowest channel



Highest channel

Test mode: 802.11ac(HT80)

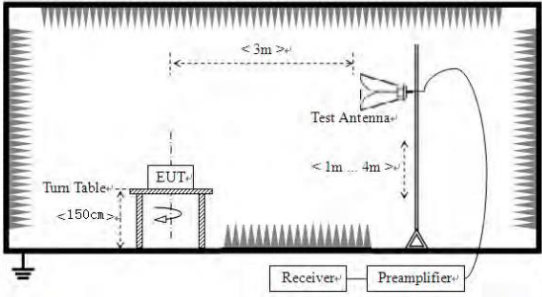


Middle channel

6.6 Spurious Emission

6.6.1 Band Edge and Restricted Band

Test Requirement:	FCC Part15 E Section 15.407 (b)																																	
Test Method:	ANSI C63.10:2013 , KDB 789033																																	
Test Frequency Range:	Band 1: 4.5 GHz to 5.15 GHz and 5.25GHz to 5.46GHz Ban 2: 5.15 GHz to 5.25 GHz and 5.35GHz to 5.46GHz Band 3: 5.35 GHz to 5.46 GHz and 5.47GHz to 5.725GHz Band 4: 5.35 GHz to 5.46 GHz and 5.725GHz to 5.85GHz																																	
Receiver setup:	Band Edge: <table><tr><td>Detector</td><td>RBW</td><td>VBW</td><td colspan="2">Remark</td></tr><tr><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td colspan="2">Quasi-peak Value</td></tr><tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td colspan="2">Average Value</td></tr></table> Restricted Band: <table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr></table>					Detector	RBW	VBW	Remark		Quasi-peak	120kHz	300kHz	Quasi-peak Value		RMS	1MHz	3MHz	Average Value		Frequency	Detector	RBW	VBW	Remark	Above 1GHz	Peak	1MHz	3MHz	Peak Value	RMS	1MHz	3MHz	Average Value
Detector	RBW	VBW	Remark																															
Quasi-peak	120kHz	300kHz	Quasi-peak Value																															
RMS	1MHz	3MHz	Average Value																															
Frequency	Detector	RBW	VBW	Remark																														
Above 1GHz	Peak	1MHz	3MHz	Peak Value																														
	RMS	1MHz	3MHz	Average Value																														
Limit:	Band Edge: <table><tr><td></td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr><tr><td rowspan="4">Band 1/2/3/4</td><td>68.20</td><td>Peak Value</td></tr><tr><td>54.00</td><td>Average Value</td></tr><tr><td>68.20</td><td>Peak Value</td></tr><tr><td>54.00</td><td>Average Value</td></tr></table> Remark: 1. Band 1/2/3/4 limit: $E[dBuV/m] = EIRP[dBm] + 95.2=68.2 \text{ dBuV/m}$, for $EIPR[dBm]=-27dBm$. Restricted Band: <table><tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>74.00</td><td>Peak Value</td></tr><tr><td>54.00</td><td>Average Value</td></tr></table>						Limit (dBuV/m @3m)	Remark	Band 1/2/3/4	68.20	Peak Value	54.00	Average Value	68.20	Peak Value	54.00	Average Value	Frequency	Limit (dBuV/m @3m)	Remark	Above 1GHz	74.00	Peak Value	54.00	Average Value									
	Limit (dBuV/m @3m)	Remark																																
Band 1/2/3/4	68.20	Peak Value																																
	54.00	Average Value																																
	68.20	Peak Value																																
	54.00	Average Value																																
Frequency	Limit (dBuV/m @3m)	Remark																																
Above 1GHz	74.00	Peak Value																																
	54.00	Average Value																																
Remark:	The test methods for Band Edge and Restricted Band are the same. The following tests use the sideband limits as the minimum reference requirements to determine whether the results meet																																	
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet																																	

Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Band 1 :
802.11n20 mode is worst case of the 20MHz OBW:

802.11n20						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	49.65	-8.45	41.20	68.20	-27.00	Horizontal
4500.00	47.81	-8.45	39.36	68.20	-28.84	Vertical
5150.00	48.25	-6.86	41.39	68.20	-26.81	Horizontal
5150.00	48.73	-6.86	41.87	68.20	-26.38	Vertical
802.11n20						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	36.63	-8.45	28.18	54.00	-25.82	Horizontal
4500.00	36.08	-8.45	27.63	54.00	-26.37	Vertical
5150.00	37.36	-6.86	30.50	54.00	-23.50	Horizontal
5150.00	35.19	-6.86	28.33	54.00	-25.67	Vertical
802.11n20						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	49.65	-8.45	41.20	68.20	-27.00	Horizontal
5250.00	47.81	-8.45	39.36	68.20	-28.84	Vertical
5460.00	48.25	-6.86	41.39	68.20	-26.81	Horizontal
5460.00	48.73	-6.86	41.87	68.20	-26.38	Vertical
802.11n20						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	36.69	-6.35	30.34	54.00	-23.50	Horizontal
5250.00	38.45	-6.35	32.10	54.00	-25.67	Vertical
5460.00	36.18	-6.27	29.91	54.00	-24.09	Horizontal
5460.00	36.34	-6.27	30.07	54.00	-23.93	Vertical

802.11n40 mode is worst case of the 40MHz OBW:

802.11n-HT40						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	53.26	-8.45	44.81	68.20	-23.39	Horizontal
4500.00	51.48	-8.45	43.03	68.20	-25.17	Vertical
5150.00	52.01	-6.86	47.15	68.20	-21.05	Horizontal
5150.00	53.26	-6.86	46.40	68.20	-21.80	Vertical
802.11n-HT40						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	36.65	-8.45	28.20	54.00	-25.80	Horizontal
4500.00	37.22	-8.45	28.77	54.00	-25.23	Vertical
5150.00	38.03	-6.86	31.17	54.0	-22.83	Horizontal
5150.00	37.15	-6.86	30.29	54.00	-23.71	Vertical
802.11n-HT40						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	50.48	-6.35	44.13	68.20	-24.07	Horizontal
5250.00	48.76	-6.35	42.41	68.20	-25.79	Vertical

5460.00	49.35	-6.27	43.08	68.20	-25.12	Horizontal
5460.00	50.13	-6.27	43.86	68.20	-24.34	Vertical
802.11n-HT40						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.69	-6.35	31.34	54.00	-22.66	Horizontal
5250.00	38.22	-6.35	31.87	54.00	-22.13	Vertical
5460.00	37.35	-6.27	31.08	54.00	-22.92	Horizontal
5460.00	36.64	-6.27	30.37	54.00	-23.63	Vertical

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac-HT80						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	49.65	-8.45	41.20	68.20	-27.00	Horizontal
4500.00	47.81	-8.45	39.36	68.20	-28.84	Vertical
5150.00	48.25	-6.86	41.39	68.20	-26.81	Horizontal
5150.00	48.73	-6.86	41.87	68.20	-26.38	Vertical
802.11ac-HT80						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	34.47	-8.45	26.02	54.00	-27.98	Horizontal
4500.00	35.52	-8.45	27.07	54.00	-26.98	Vertical
5150.00	36.15	-6.86	29.29	54.00	-24.71	Horizontal
5150.00	35.53	-6.86	28.67	54.00	-25.33	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	48.57	-6.35	42.22	68.20	-25.98	Horizontal
5250.00	48.25	-6.35	41.90	68.20	-26.30	Vertical
5460.00	49.26	-6.27	42.99	68.20	-25.21	Horizontal
5460.00	48.73	-6.27	42.46	68.20	-25.74	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.25	-6.35	30.90	54.00	-23.10	Horizontal
5250.00	38.06	-6.35	31.71	54.00	-22.29	Vertical
5460.00	36.58	-6.27	30.31	54.00	-23.69	Horizontal
5460.00	37.07	-6.27	30.80	54.00	-23.20	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band2:
802.11n20 mode is worst case of the 20MHz OBW:

802.11n20						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	52.48	-8.45	44.03	68.20	-24.17	Horizontal
5150.00	51.26	-8.45	42.81	68.20	-25.39	Vertical

5250.00	53.78	-6.86	46.92	68.20	-21.28	Horizontal
5250.00	52.03	-6.86	45.17	68.20	-23.03	Vertical
802.11n20						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	36.62	-6.86	29.76	54.00	-24.24	Horizontal
5150.00	36.08	-6.86	29.22	54.00	-24.78	Vertical
5250.00	37.19	-6.53	30.66	54.00	-23.34	Horizontal
5250.00	35.43	-6.53	28.90	54.00	-25.10	Vertical
802.11n20						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	50.17	-6.30	43.87	68.20	-24.38	Horizontal
5350.00	48.82	-6.30	42.52	68.20	-25.68	Vertical
5460.00	49.56	-6.27	43.29	68.20	-24.91	Horizontal
5460.00	50.23	-6.27	43.96	68.20	-24.24	Vertical
802.11n20						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	37.41	-6.30	31.11	54.00	-22.89	Horizontal
5350.00	38.03	-6.30	31.73	54.00	-22.27	Vertical
5460.00	37.29	-6.27	31.02	54.00	-22.98	Horizontal
5460.00	37.43	-6.27	31.16	54.00	-22.84	Vertical

802.11n40 mode is worst case of the 40MHz OBW:

802.11n-HT40						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	52.25	-6.86	45.39	68.20	-22.81	Horizontal
5150.00	51.39	-6.86	44.53	68.20	-23.67	Vertical
5250.00	52.07	-6.53	45.54	68.20	-22.66	Horizontal
5250.00	51.43	-6.53	44.90	68.20	-23.30	Vertical
802.11n-HT40						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	37.74	-6.86	30.88	54.00	-23.12	Horizontal
5150.00	38.05	-6.86	31.19	54.00	-22.81	Vertical
5250.00	38.11	-6.53	31.58	54.00	-22.42	Horizontal
5250.00	37.86	-6.53	31.33	54.00	-22.67	Vertical
802.11n-HT40						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	51.05	-6.30	44.75	68.20	-23.45	Horizontal
5350.00	50.23	-6.30	43.93	68.20	-24.27	Vertical
5460.00	51.14	-6.27	44.87	68.20	-23.33	Horizontal
5460.00	50.68	-6.27	44.41	68.20	-23.79	Vertical
802.11n-HT40						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.64	-6.30	30.34	54.00	-23.66	Horizontal
5350.00	37.71	-6.30	31.41	54.00	-22.59	Vertical
5460.00	38.05	-6.27	31.78	54.00	-22.22	Horizontal

5460.00	38.66	-6.27	32.39	54.00	-21.61	Vertical
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BlueAsia

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac-HT80						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	51.59	-6.86	44.73	68.20	-23.47	Horizontal
5150.00	52.26	-6.86	45.40	68.20	-22.80	Vertical
5250.00	53.04	-6.53	46.51	68.20	-21.69	Horizontal
5250.00	52.15	-6.53	45.62	68.20	-22.58	Vertical
802.11ac-HT80						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	33.26	-6.86	26.40	54.00	-27.60	Horizontal
5150.00	35.18	-6.86	28.32	54.00	-25.68	Vertical
5250.00	36.22	-6.53	29.69	54.00	-24.31	Horizontal
5250.00	35.84	-6.53	29.31	54.00	-24.69	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	49.65	-6.30	43.35	68.20	-24.85	Horizontal
5350.00	49.02	-6.30	42.72	68.20	-25.48	Vertical
5460.00	48.84	-6.27	42.57	68.20	-25.63	Horizontal
5460.00	48.62	-6.27	42.35	68.20	-25.85	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	35.35	-6.30	29.05	54.00	-24.95	Horizontal
5350.00	36.69	-6.30	30.39	54.00	-23.61	Vertical
5460.00	37.14	-6.27	30.87	54.00	-23.13	Horizontal
5460.00	36.86	-6.27	30.59	54.00	-23.41	Vertical

Remark:

4. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band 3:
802.11a mode is worst case of the 20MHz OBW:

802.11a						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	47.28	-6.30	40.98	68.20	-27.22	Horizontal
5350.00	48.56	-6.30	42.26	68.20	-25.94	Vertical
5460.00	49.02	-6.27	42.75	68.20	-25.45	Horizontal
5460.00	48.63	-6.27	42.36	68.20	-25.84	Vertical
5470.00	49.36	-5.47	43.89	68.20	-24.31	Horizontal
5470.00	48.51	-5.47	43.04	68.20	-25.16	Vertical
802.11a						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.65	-6.30	30.35	54.00	-23.65	Horizontal
5350.00	37.78	-6.30	31.48	54.00	-22.52	Vertical
5460.00	37.05	-6.27	30.78	54.00	-23.22	Horizontal
5460.00	37.26	-6.27	30.99	54.00	-23.01	Vertical

5470.00	36.69	-5.47	31.22	54.00	-22.78	Horizontal
5470.00	36.82	-5.47	31.35	54.00	-22.65	Vertical
802.11a						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	48.87	-4.83	44.04	68.20	-24.16	Horizontal
5725.00	48.62	-4.83	43.79	68.20	-24.41	Vertical
802.11a						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.63	-4.83	31.80	54.00	-22.20	Horizontal
5725.00	37.12	-4.83	32.29	54.00	-21.71	Vertical

802.11n40 mode is worst case of the 40MHz OBW:

802.11n-HT40						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.11	-6.30	41.81	68.20	-26.39	Horizontal
5350.00	48.35	-6.30	42.05	68.20	-26.15	Vertical
5460.00	49.72	-6.27	43.45	68.20	-24.75	Horizontal
5460.00	48.44	-6.27	42.17	68.20	-26.03	Vertical
5470.00	48.69	-5.47	43.22	68.20	-24.98	Horizontal
5470.00	49.04	-5.47	43.57	68.20	-24.63	Vertical
802.11n-HT40						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.26	-6.30	29.96	54.00	-24.04	Horizontal
5350.00	36.33	-6.30	30.03	54.00	-23.97	Vertical
5460.00	37.04	-6.27	30.77	54.00	-23.23	Horizontal
5460.00	36.85	-6.27	30.58	54.00	-23.42	Vertical
5470.00	37.71	-5.47	32.24	54.00	-21.76	Horizontal
5470.00	37.08	-5.47	31.61	54.00	-22.39	Vertical
802.11n-HT40						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	48.36	-4.83	43.53	68.20	-24.67	Horizontal
5725.00	48.27	-4.83	43.44	68.20	-24.76	Vertical
802.11n-HT40						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.75	-4.83	32.92	54.00	-21.08	Horizontal
5725.00	37.36	-4.83	32.53	54.00	-21.47	Vertical

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac-HT80						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.25	-6.30	41.95	68.20	-26.25	Horizontal
5350.00	48.63	-6.30	42.33	68.20	-25.87	Vertical
5460.00	49.02	-6.27	42.75	68.20	-25.45	Horizontal

5460.00	47.78	-6.27	41.51	68.20	-26.69	Vertical
5470.00	48.16	-5.47	42.69	68.20	-25.51	Horizontal
5470.00	49.33	-5.47	43.86	68.20	-24.34	Vertical
802.11ac-HT80						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.32	-6.30	30.02	54.00	-23.98	Horizontal
5350.00	37.01	-6.30	30.71	54.00	-23.29	Vertical
5460.00	37.24	-6.27	30.97	54.00	-23.03	Horizontal
5460.00	37.36	-6.27	31.09	54.00	-22.91	Vertical
5470.00	37.27	-5.47	31.80	54.00	-22.20	Horizontal
5470.00	37.16	-5.47	31.69	54.00	-22.31	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	49.26	-4.83	44.43	68.20	-23.77	Horizontal
5725.00	48.45	-4.83	43.62	68.20	-24.58	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.05	-4.83	32.22	54.00	-21.78	Horizontal
5725.00	38.16	-4.83	33.33	54.00	-20.67	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band 4:

802.11n20 mode is worst case of the 20MHz OBW:

802.11n20						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.36	-6.30	42.06	68.20	-26.14	Horizontal
5350.00	48.04	-6.30	41.74	68.20	-26.46	Vertical
5460.00	49.18	-6.27	42.91	68.20	-25.29	Horizontal
5460.00	48.36	-6.27	42.09	68.20	-26.11	Vertical
5725.00	49.37	-4.83	44.54	68.20	-23.66	Horizontal
5725.00	48.48	-4.83	43.65	68.20	-24.55	Vertical
802.11n20						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	35.53	-6.30	29.23	54.00	-24.77	Horizontal
5350.00	36.26	-6.30	29.96	54.00	-24.04	Vertical
5460.00	36.17	-6.27	29.90	54.00	-24.10	Horizontal
5460.00	36.55	-6.27	30.28	54.00	-23.72	Vertical
5470.00	36.03	-4.83	31.20	54.00	-22.80	Horizontal
5470.00	36.17	-4.83	31.34	54.00	-22.66	Vertical
802.11n20						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	49.26	-4.35	44.90	68.20	-23.29	Horizontal
5850.00	48.74	-4.35	44.39	68.20	-23.81	Vertical

802.11n20						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	36.27	-4.35	31.92	54.00	-22.08	Horizontal
5850.00	37.04	-4.35	32.69	54.00	-21.31	Vertical

802.11n40 mode is worst case of the 40MHz OBW:

802.11n-HT40						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	50.02	-6.30	43.72	68.20	-24.48	Horizontal
5350.00	48.42	-6.30	42.12	68.20	-26.08	Vertical
5460.00	48.27	-6.27	42.00	68.20	-26.20	Horizontal
5460.00	47.23	-6.27	40.96	68.20	-27.24	Vertical
5725.00	48.37	-4.83	43.54	68.20	-24.66	Horizontal
5725.00	48.16	-4.83	43.33	68.20	-24.87	Vertical
802.11n-HT40						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.61	-6.30	30.31	54.00	-23.69	Horizontal
5350.00	37.22	-6.30	30.92	54.00	-23.08	Vertical
5460.00	37.17	-6.27	30.90	54.00	-23.10	Horizontal
5460.00	37.26	-6.27	30.99	54.00	-23.01	Vertical
5470.00	36.36	-4.83	31.53	54.00	-22.47	Horizontal
5470.00	36.79	-4.83	31.96	54.00	-22.04	Vertical
802.11n-HT40						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	48.25	-4.35	43.90	68.20	-24.30	Horizontal
5850.00	48.71	-4.35	44.36	68.20	-23.84	Vertical
802.11n-HT40						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	36.63	-4.35	32.28	54.00	-21.72	Horizontal
5850.00	37.12	-4.35	32.77	54.00	-21.23	Vertical

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac-HT80						
Test channel		Lowest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	48.14	-6.30	41.84	68.20	-26.36	Horizontal
5350.00	47.85	-6.30	41.55	68.20	-26.65	Vertical
5460.00	48.36	-6.27	42.09	68.20	-26.11	Horizontal
5460.00	47.71	-6.27	41.44	68.20	-26.76	Vertical
5725.00	49.02	-4.83	44.19	68.20	-24.01	Horizontal
5725.00	48.45	-4.83	43.62	68.20	-24.58	Vertical
802.11ac-HT80						
Test channel		Lowest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.36	-6.30	30.06	54.00	-23.94	Horizontal

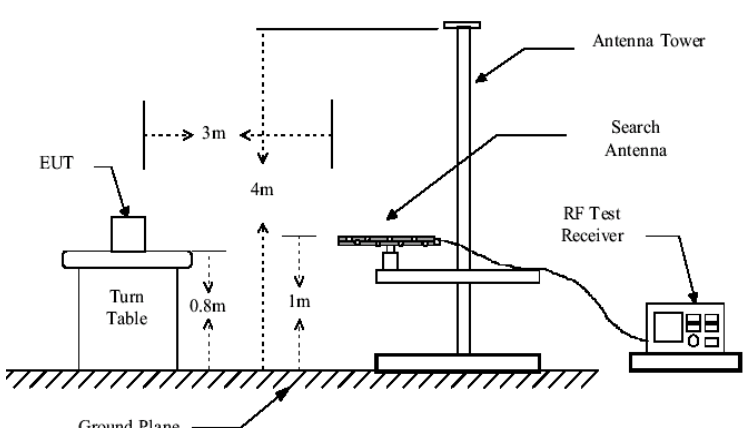
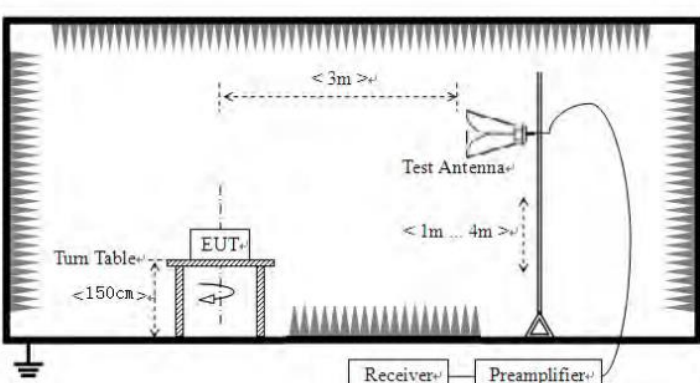
5350.00	37.45	-6.30	31.15	54.00	-22.85	Vertical
5460.00	37.12	-6.27	30.85	54.00	-23.15	Horizontal
5460.00	36.69	-6.27	30.42	54.00	-23.58	Vertical
5470.00	37.02	-4.83	32.19	54.00	-21.81	Horizontal
5470.00	36.87	-4.83	33.39	54.00	-20.61	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	47.36	-4.35	43.01	68.20	-25.19	Horizontal
5850.00	48.09	-4.35	43.74	68.20	-24.46	Vertical
802.11ac-HT80						
Test channel		Highest	Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	36.29	-4.35	31.94	54.00	-22.06	Horizontal
5850.00	36.87	-4.35	32.52	54.00	-21.48	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

6.6.1 Unwanted Emissions in the Restricted Bands

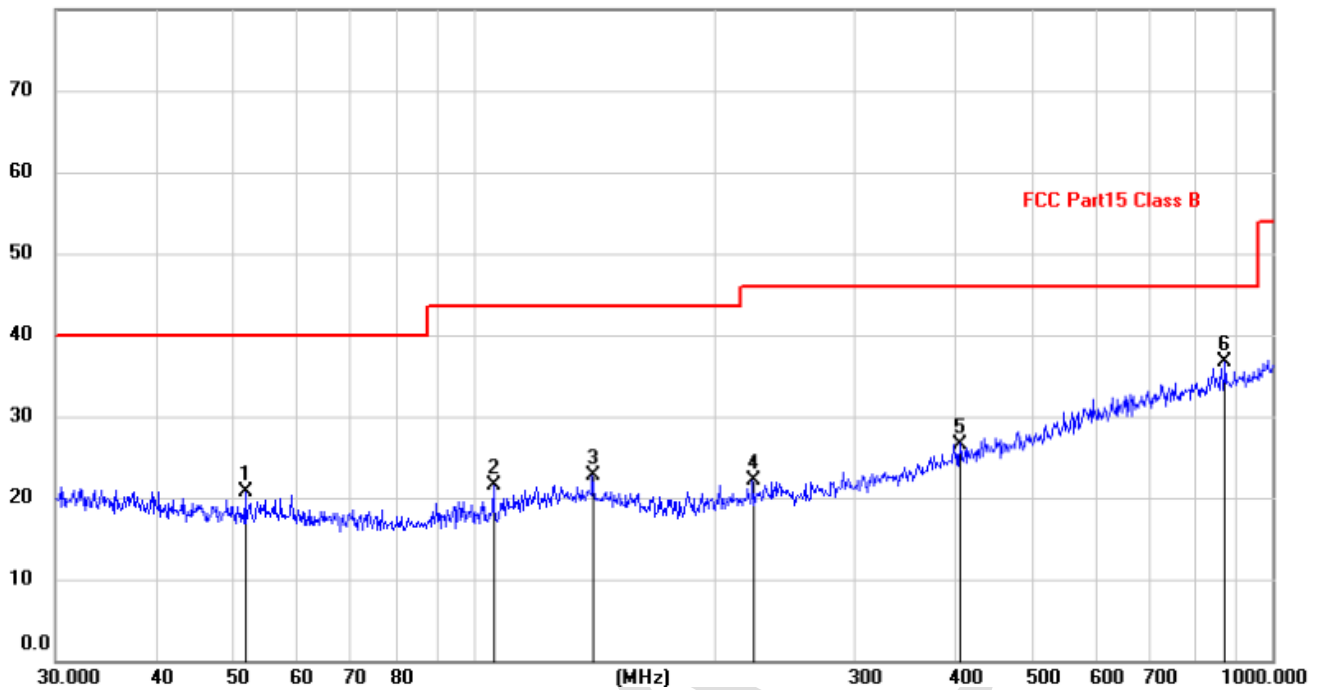
Test Requirement:	FCC Part15 C Section 15.209 and 15.205																											
Test Method:	ANSI C63.10:2013																											
Test Frequency Range:	30MHz to 40GHz																											
Test site:	Measurement Distance: 3m																											
Receiver setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr><tr><td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr></table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value								
Frequency	Detector	RBW	VBW	Remark																								
30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value																								
Above 1GHz	Peak	1MHz	3MHz	Peak Value																								
Limit:	<table><tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr><tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr><tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr><tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr><tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr></table> <table><tr><td>Frequency</td><td>Limit (dBm/MHz)</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>68.20</td><td>Peak Value</td></tr><tr><td>54.00</td><td>Average Value</td></tr></table> Remark: 1. Above 1GHz limit: $E[dB\mu V/m] = EIRP[dBm] + 95.2=68.2 \text{ dBuV/m}$, for $EIPR[dBm]=-27dBm$.					Frequency	Limit (dBuV/m @3m)	Remark	30MHz-88MHz	40.0	Quasi-peak Value	88MHz-216MHz	43.5	Quasi-peak Value	216MHz-960MHz	46.0	Quasi-peak Value	960MHz-1GHz	54.0	Quasi-peak Value	Frequency	Limit (dBm/MHz)	Remark	Above 1GHz	68.20	Peak Value	54.00	Average Value
Frequency	Limit (dBuV/m @3m)	Remark																										
30MHz-88MHz	40.0	Quasi-peak Value																										
88MHz-216MHz	43.5	Quasi-peak Value																										
216MHz-960MHz	46.0	Quasi-peak Value																										
960MHz-1GHz	54.0	Quasi-peak Value																										
Frequency	Limit (dBm/MHz)	Remark																										
Above 1GHz	68.20	Peak Value																										
	54.00	Average Value																										
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.																											

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Below 1GHz

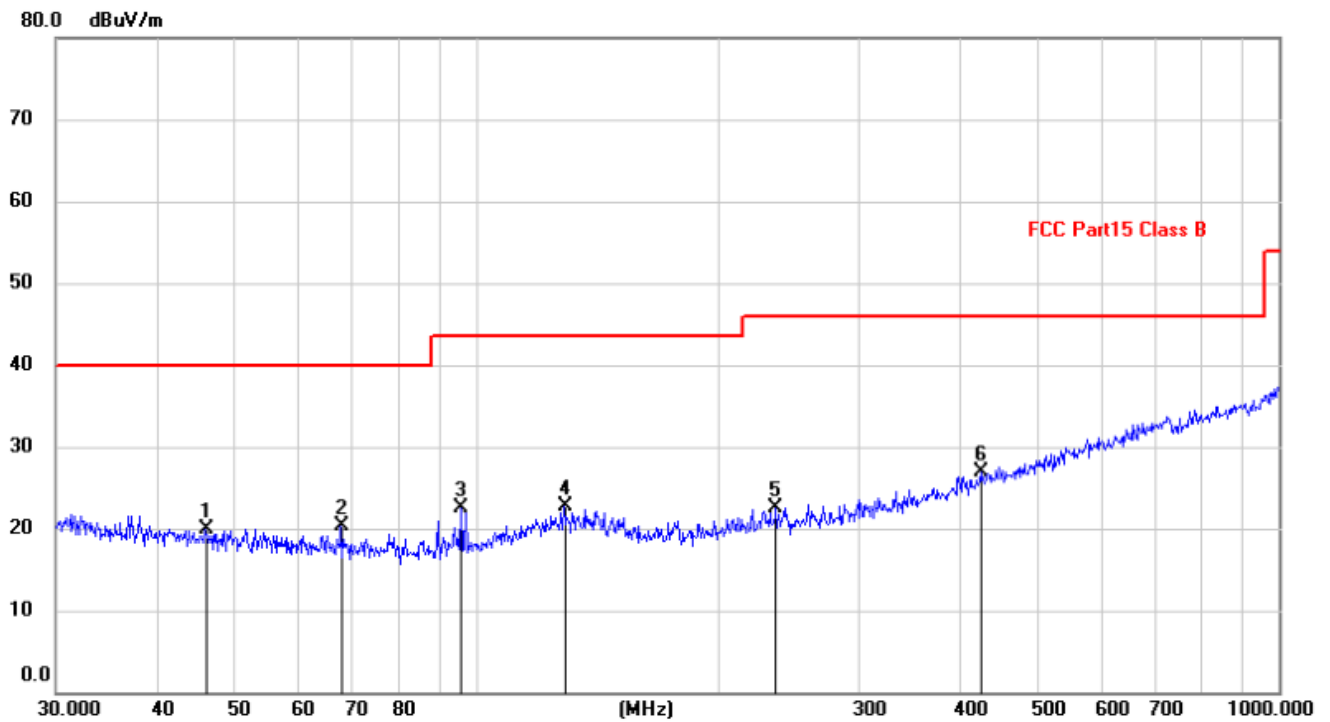
Horizontal:

80.0 dBuV/m



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		51.8430	6.56	14.17	20.73	40.00	-19.27	QP
2		106.0126	10.40	11.17	21.57	43.50	-21.93	QP
3		140.8351	9.44	13.18	22.62	43.50	-20.88	QP
4		223.7334	10.38	11.71	22.09	46.00	-23.91	QP
5		406.0880	9.60	17.00	26.60	46.00	-19.40	QP
6	*	872.1832	11.85	24.82	36.67	46.00	-9.33	QP

Vertical:



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	46.0164	5.61	14.29	19.90	40.00	-20.10	QP
2	67.9129	8.81	11.53	20.34	40.00	-19.66	QP
3	95.7622	12.34	10.10	22.44	43.50	-21.06	QP
4	128.5630	9.89	12.83	22.72	43.50	-20.78	QP
5	236.6447	9.81	12.65	22.46	46.00	-23.54	QP
6 *	425.0280	9.49	17.43	26.92	46.00	-19.08	QP

Band 1:
802.11n20 mode is worst case of the 20MHz OBW:

802.11n20 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	50.23	2.56	52.79	68.20	-15.41	Vertical
10360.00	48.75	2.56	51.31	68.20	-16.89	Horizontal
802.11n20 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	35.54	2.56	38.10	54.00	-15.90	Vertical
10360.00	34.82	2.56	37.38	54.00	-16.62	Horizontal

802.11n20 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	48.68	2.71	51.39	68.20	-16.81	Vertical
10400.00	49.27	2.71	51.98	68.20	-16.22	Horizontal
802.11n20 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	34.21	2.71	36.92	54.00	-17.08	Vertical
10400.00	35.35	2.71	38.06	54.00	-15.94	Horizontal

802.11n20 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	49.67	3.04	52.71	68.20	-15.49	Vertical
10480.00	48.85	3.04	51.89	68.20	-16.31	Horizontal
802.11n20 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	35.26	3.04	38.30	54.00	-15.70	Vertical
10480.00	34.23	3.04	37.37	54.00	-16.73	Horizontal

802.11n40 mode is worst case of the 40MHz OBW:

802.11n40 mode Lowest channel (Peak Value)						
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Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	51.69	2.65	54.34	68.20	-13.86	Vertical
10380.00	51.36	2.65	54.01	68.20	-14.19	Horizontal
802.11n40 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	36.41	2.65	39.06	54.00	-14.94	Vertical
10380.00	35.36	2.65	38.01	54.00	-15.99	Horizontal

802.11n40 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	50.11	2.87	52.98	68.20	-15.22	Vertical
10460.00	48.47	2.87	51.34	68.20	-16.86	Horizontal
802.11n40 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	34.25	2.87	37.12	54.00	-16.88	Vertical
10460.00	33.74	2.87	36.61	54.00	-17.39	Horizontal

802.11ac80 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10420.00	49.55	2.79	52.34	68.20	-15.86	Vertical
10420.00	49.84	2.79	52.63	68.20	-15.57	Horizontal
802.11ac80 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10420.00	35.25	2.79	38.04	54.00	-15.96	Vertical
10420.00	34.47	2.79	37.26	54.00	-16.74	Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band2:

802.11n20 mode is worst case of the 20MHz OBW:

802.11n20 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10520.00	51.74	2.63	54.37	68.20	-13.83	Vertical

10520.00	50.45	2.63	53.08	68.20	-15.12	Horizontal
802.11n20 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10520.00	35.56	2.63	38.19	54.00	-15.81	Vertical
10520.00	36.03	2.63	38.66	54.00	-15.34	Horizontal

802.11n20 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10560.00	48.85	3.11	51.96	68.20	-16.24	Vertical
10560.00	49.21	3.11	52.32	68.20	-15.88	Horizontal
802.11n20 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10560.00	35.03	3.11	38.14	54.00	-15.86	Vertical
10560.00	31.58	3.11	34.69	54.00	-19.31	Horizontal

802.11n20 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10640.00	48.84	3.23	52.07	68.20	-16.13	Vertical
10640.00	48.93	3.23	52.16	68.20	-16.04	Horizontal
802.11n20 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10640.00	36.13	3.23	39.36	54.00	-14.64	Vertical
10640.00	38.45	3.23	41.68	54.00	-12.32	Horizontal

802.11n40 mode is worst case of the 40MHz OBW:

802.11n40 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10540.00	52.03	2.63	54.66	68.20	-13.54	Vertical
10540.00	51.15	2.63	53.78	68.20	-14.42	Horizontal
802.11n40 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization

10540.00	36.36	2.63	38.99	54.00	-15.01	Vertical
10540.00	35.15	2.63	37.78	54.00	-16.22	Horizontal

802.11n40 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10620.00	48.93	3.20	52.13	68.20	-16.07	Vertical
10620.00	48.71	3.20	51.91	68.20	-16.29	Horizontal
802.11n40 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10620.00	36.00	3.20	39.20	54.00	-14.80	Vertical
10620.00	35.74	3.20	38.94	54.00	-15.06	Horizontal

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac80 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10580.00	48.41	3.18	51.59	68.20	-16.61	Vertical
10580.00	48.58	3.18	51.76	68.20	-16.44	Horizontal
802.11ac80 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10580.00	35.03	3.18	38.21	54.00	-15.79	Vertical
10580.00	34.41	3.18	37.59	54.00	-16.41	Horizontal

Remark:

4. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band 3:
802.11a mode is worst case of the 20MHz OBW:

802.11a mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11000.00	48.25	3.85	52.10	68.20	-16.10	Vertical
11000.00	47.75	3.85	51.60	68.20	-16.60	Horizontal
802.11a mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11000.00	35.53	3.85	39.38	54.00	-14.62	Vertical
11000.00	34.45	3.85	38.30	54.00	-15.70	Horizontal

802.11a mode Middle channel (Peak Value)						
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Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11200.00	49.26	3.92	53.18	68.20	-15.02	Vertical
11200.00	48.55	3.92	52.47	68.20	-15.73	Horizontal
802.11a mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11200.00	34.45	3.92	38.37	54.00	-15.63	Vertical
11200.00	34.69	3.92	38.61	54.00	-15.39	Horizontal

802.11a mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11400.00	48.87	3.98	52.85	68.20	-15.35	Vertical
11400.00	46.68	3.98	50.66	68.20	-17.54	Horizontal
802.11a mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11400.00	35.52	3.98	39.50	54.00	-14.50	Vertical
11400.00	36.01	3.98	39.99	54.00	-14.01	Horizontal

802.11n40 mode is worst case of the 40MHz OBW:

802.11n40 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11020.00	48.87	3.88	52.75	68.20	-15.45	Vertical
11020.00	49.03	3.88	52.91	68.20	-15.29	Horizontal
802.11n40 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11020.00	33.52	3.88	37.40	54.00	-16.60	Vertical
11020.00	34.44	3.88	38.32	54.00	-15.68	Horizontal

802.11n40 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11180.00	49.32	3.90	53.22	68.20	-14.98	Vertical
11180.00	48.12	3.90	52.02	68.20	-16.18	Horizontal

802.11n40 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11180.00	34.23	3.90	38.13	54.00	-15.87	Vertical
11180.00	35.02	3.90	38.92	54.00	-15.08	Horizontal

802.11n40 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11340.00	48.55	3.95	52.50	68.20	-15.70	Vertical
11340.00	48.36	3.95	52.31	68.20	-15.89	Horizontal

802.11n40 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11340.00	34.32	3.95	38.27	54.00	-15.73	Vertical
11340.00	33.47	3.95	37.42	54.00	-16.58	Horizontal

802.11ac80 mode is worst case of the 80MHz OBW:

802.11ac80 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11060.00	48.23	3.88	52.11	68.20	-16.09	Vertical
11060.00	47.45	3.88	51.33	68.20	-16.87	Horizontal
802.11ac80 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11060.00	34.23	3.88	52.11	54.00	-16.09	Vertical
11060.00	33.07	3.88	51.33	54.00	-16.87	Horizontal

802.11ac80 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11220.00	47.74	3.92	51.66	68.20	-16.54	Vertical
11220.00	48.03	3.92	51.95	68.20	-16.25	Horizontal
802.11ac80 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11220.00	34.23	3.92	38.15	54.00	-15.85	Vertical
11220.00	35.01	3.92	38.93	54.00	-15.07	Horizontal

802.11ac80 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11380.00	48.03	3.90	51.93	68.20	-16.27	Vertical
11380.00	47.16	3.90	51.06	68.20	-17.14	Horizontal
802.11ac80 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11380.00	35.05	3.98	39.03	54.00	-14.97	Vertical
11380.00	34.17	3.98	38.15	54.00	-15.85	Horizontal

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

Band 4:
802.11n20 mode is worst case of the 20MHz OBW:

802.11n20 mode Lowest channel (Peak Value)						
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Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	47.25	3.84	51.09	68.20	-17.11	Vertical
11490.00	46.32	3.84	50.16	68.20	-18.04	Horizontal
802.11n20 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	33.36	3.84	37.20	54.00	-16.80	Vertical
11490.00	34.01	3.84	37.85	54.00	-16.15	Horizontal

802.11n20 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	46.36	3.91	50.27	68.20	-17.93	Vertical
11570.00	46.41	3.91	50.32	68.20	-17.88	Horizontal
802.11n20 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	34.41	3.91	38.32	54.00	-15.68	Vertical
11570.00	33.58	3.91	37.49	54.00	-16.51	Horizontal

802.11n20 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	46.34	4.23	50.57	68.20	-17.63	Vertical
11650.00	47.49	4.23	51.72	68.20	-16.48	Horizontal
802.11n20 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	32.25	4.23	36.48	54.00	-17.52	Vertical
11650.00	33.69	4.23	37.92	54.00	-16.08	Horizontal

802.11n40 mode is worst case of the 40MHz OBW:

802.11n40 mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11510.00	47.07	3.88	50.95	68.20	-17.25	Vertical
11510.00	46.69	3.88	50.57	68.20	-17.63	Horizontal
802.11n40 mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11510.00	34.42	3.88	38.30	54.00	-15.70	Vertical
11510.00	35.05	3.88	38.93	54.00	-15.07	Horizontal

802.11n40 mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11590.00	47.02	4.02	51.04	68.20	-17.16	Vertical
11590.00	46.77	4.02	50.79	68.20	-17.41	Horizontal
802.11n40 mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11590.00	32.25	4.02	36.27	54.00	-17.73	Vertical
11590.00	32.03	4.02	36.05	54.00	-17.95	Horizontal

802.11ac80 mode is worst case of the 80MHz OBW:

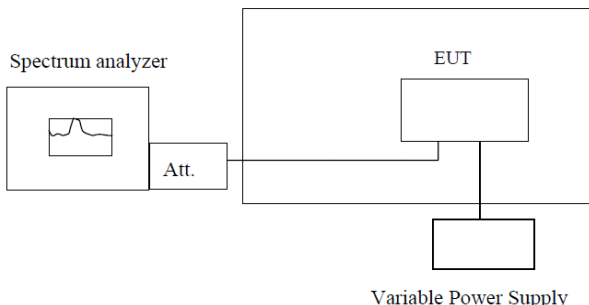
802.11ac80 mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11550.00	46.85	3.89	50.74	68.20	-17.46	Vertical
11550.00	47.01	3.89	50.90	68.20	-17.30	Horizontal
802.11ac80 mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11550.00	32.23	3.89	36.12	54.00	-17.88	Vertical
11550.00	33.31	3.89	37.20	54.00	-16.80	Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor

6.7 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)
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Limit:	Manufacturers of U-NII devices are responsible for ensuring 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.
Test setup:	Temperature Chamber  Variable Power Supply Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The EUT is installed in an environment test chamber with external power source. 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement. 4. When temperature is stabled, measure the frequency stability. 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.
Test results:	Passed

Measurement Data (the worst channel):

Band 1:
Voltage vs. Frequency Stability (Lowest channel=5180MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5179.998582	0.27
	120	5179.996325	0.71
	102	5179.994871	0.99

Temperature vs. Frequency Stability (Lowest channel=5180MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5179.993025	1.35
	-10	5179.991547	1.63
	0	5179.995482	0.87
	10	5179.991256	1.69
	20	5179.998812	0.29
	30	5179.991234	1.69
	40	5179.991254	1.69
	50	5179.995032	0.96

Band 2:
Voltage vs. Frequency Stability (Lowest channel=5260MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5259.993695	1.20
	120	5259.995147	0.92
	102	5259.992028	1.52

Temperature vs. Frequency Stability (Lowest channel=5260MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5259.992587	1.41
	-10	5259.995233	0.91
	0	5259.995036	0.94
	10	5259.997158	0.54
	20	5259.993589	1.22
	30	5259.995417	0.87
	40	5259.992587	1.41
	50	5259.995023	0.95

Band 3:
Voltage vs. Frequency Stability (Lowest channel=5500MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5499.994871	0.93
	120	5499.993654	1.15
	102	5499.994784	0.95

Temperature vs. Frequency Stability (Lowest channel=5500MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5499.996036	0.72
	-10	5499.995147	0.88
	0	5499.995147	0.88
	10	5499.997023	0.54
	20	5499.995457	0.83
	30	5499.997123	0.52
	40	5499.994369	1.02
	50	5499.996147	0.70

Band 4:
Voltage vs. Frequency Stability (Lowest channel=5745MHz)

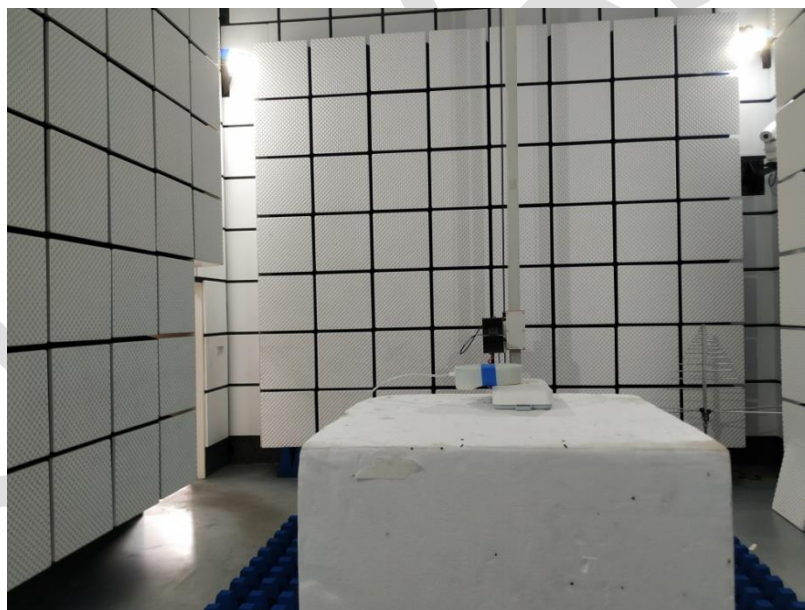
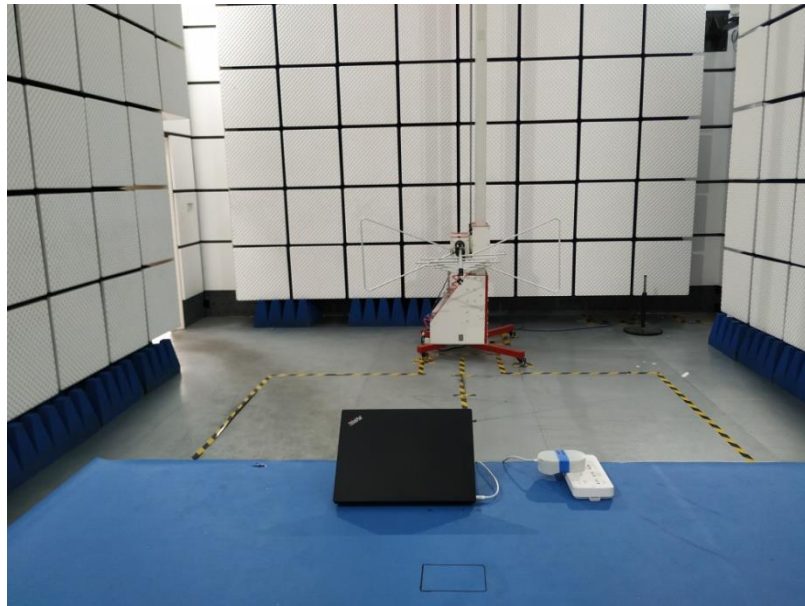
Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5744.992369	1.33
	120	5744.994741	0.92
	102	5744.991369	1.50

Temperature vs. Frequency Stability (Lowest channel=5745MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5744.995874	0.72
	-10	5744.996023	0.69
	0	5744.994571	0.94
	10	5744.990236	1.70
	20	5744.997412	0.45
	30	5744.992544	1.30
	40	5744.99258	1.29
	50	5744.995874	0.72

7 Test Setup Photo

Radiated emission



Conducted Emission



8 EUT Constructional Details

Reference to the test report No. BLA-EMC-202001-A12-01

-----End of report-----

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