

RSS-GEN ISSUE 5, MARCH 2019  
RSS-247, ISSUE 2, FEBRUARY 2017  
**TEST REPORT**

For

**Tomorrow systems s.r.o**

Karlstejska 323,Orech

**IC: 26861-DR900VX**

<b>Report Type:</b> Amended Report	<b>Product Type:</b> Dual Band 11AC Wireless Module
<b>Project Engineer:</b> <u>Stone Zhang</u>	
<b>Report Number:</b> <u>RKSA210401001-08B</u>	
<b>Report Date:</b> <u>2021-04-06</u>	
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## **TABLE OF CONTENTS**

<b>DOCUMENT REVISION HISTORY .....</b>	<b>4</b>
<b>GENERAL INFORMATION.....</b>	<b>5</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	5
OBJECTIVE .....	5
RELATED SUBMITTAL(S)/GRANT(S).....	5
TEST METHODOLOGY .....	6
MEASUREMENT UNCERTAINTY .....	6
TEST FACILITY .....	6
<b>SYSTEM TEST CONFIGURATION .....</b>	<b>7</b>
DESCRIPTION OF TEST CONFIGURATION .....	7
EUT EXERCISE SOFTWARE .....	8
EQUIPMENT MODIFICATIONS .....	27
SUPPORT EQUIPMENT LIST AND DETAILS .....	27
EXTERNAL I/O CABLE.....	27
BLOCK DIAGRAM OF TEST SETUP .....	28
<b>SUMMARY OF TEST RESULTS .....</b>	<b>30</b>
<b>TEST EQUIPMENT LIST .....</b>	<b>31</b>
<b>RSS-GEN ISSUE 5 Clause 6.8 - TRANSMITTER ANTENNA .....</b>	<b>33</b>
APPLICABLE STANDARD .....	33
ANTENNA CONNECTOR CONSTRUCTION .....	33
<b>RSS-102 ISSUE5 Clause 2.5.2 – EXEMPTION FROM ROUTINE EVALUATION LIMITS - RF EXPOSURE EVALUATION .....</b>	<b>34</b>
APPLICABLE STANDARD .....	34
TEST RESULT .....	34
TEST RESULT .....	35
<b>RSS-GEN ISSUE5 Clause 8.8 – AC POWER-LINE CONDUCTED EMISSIONS LIMITS .....</b>	<b>36</b>
APPLICABLE STANDARD .....	36
EUT SETUP .....	36
EMI TEST RECEIVER SETUP.....	37
TEST PROCEDURE .....	37
CORRECTED FACTOR & OVER LIMIT CALCULATION.....	37
TEST RESULTS SUMMARY .....	37
TEST DATA .....	38
<b>RSS-247 ISSUE2 6.2.1.2&amp; 6.2.4.2 &amp; RSS-GEN ISSUE5 Clause 6.13&amp;8.10 - UNWANTED EMISSIONS &amp; RESTRICTED FREQUENCY BANDS.....</b>	<b>40</b>
APPLICABLE STANDARD .....	40
EUT SETUP .....	41
EMI TEST RECEIVER SETUP.....	42
TEST PROCEDURE .....	42
FACTOR & OVER LIMIT CALCULATION – FOR BELOW 1GHZ .....	42
CORRECTED AMPLITUDE & MARGIN CALCULATION – FOR ABOVE 1GHZ.....	43
TEST RESULTS SUMMARY .....	43
TEST DATA .....	43
<b>RSS-247 ISSUE 2 Clause 6.2.4.1 – 6 DB EMISSION BANDWIDTH.....</b>	<b>96</b>
APPLICABLE STANDARD .....	96
TEST PROCEDURE .....	96
TEST DATA .....	96
<b>RSS-GEN ISSUE 5 Clause 6.7 – OCCUPIED BANDWIDTH&amp;26 DB EMISSION BANDWIDTH .....</b>	<b>119</b>



APPLICABLE STANDARD .....	119
TEST PROCEDURE .....	119
TEST DATA .....	120
<b>RSS-247 ISSUE 2 Clause 6.2.1.1&amp;Clause 6.2.4.1 – CONDUCTED TRANSMITTER OUTPUT POWER .....</b>	<b>164</b>
APPLICABLE STANDARD .....	164
TEST PROCEDURE .....	164
TEST DATA .....	165
<b>RSS-247 ISSUE 2 Clause 6.2.1.1&amp;Clause 6.2.4.1 - POWER SPECTRAL DENSITY .....</b>	<b>167</b>
APPLICABLE STANDARD .....	167
TEST PROCEDURE .....	167
TEST DATA .....	168
<b>RSS-247 Clause 6.4- Additional requirements .....</b>	<b>212</b>
APPLICABLE STANDARD .....	212



**DOCUMENT REVISION HISTORY**

Revision Number	Report Number	Description of Revision	Date of Issue
1	RKSA210121001-08B	Original Report	2021-03-03
2	RKSA210401001-08B	Amended Report	2021-04-06

**Note:**

This is an amended report application based on RKSA210121001-08B, the details as below:

1. Change the manufacturer from “Wallys Communications Technologies Co.,Ltd” to “Tomorrow systems s.r.o”.
2. Change the address from “Room 2723,Le Jia building,Jia Rui Xiang No.8,Suzhoun Industrial Park,Suzhou, P.R” to “Karlstejska 323,Orech”.
3. Change the model name from “DR900VX,DR600VX” to “524WiFi 900VX, 524WiFi 600VX”.

The above changes will affect nothing, all test data and photos were referred to the original report RKSA210121001-08B that issued on 2021-03-03 by BACL (Kunshan).



## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Applicant:	Tomorrow systems s.r.o
Test Model:	524WiFi 900VX
Series Model:	524WiFi 600VX
Product Type:	Dual Band 11AC Wireless Module
Power Supply:	DC 3.3V
RF Function:	5G Wi-Fi
Operating Band/Frequency:	5G Wi-Fi B1: 5150-5250 MHz, B4: 5725-5850 MHz
Channel Number:	5G Wi-Fi B1: 7, B4: 8
Channel Separation:	802.11a/802.11ac20/n20: 20 MHz; 802.11n40/802.11ac40:40 MHz, 802.11ac80: 80 MHz
Modulation Type:	OFDM
Antenna Type:	Omni antenna
*Maximum Antenna Gain:	2.0 dBi
Maximum Conducted Power:	B1: 16.31dBm(802.11a), 16.52dBm(802.11ac20),16.70dBm(n20), 17.01dBm(802.11ac40),16.57dBm(802.11n40), 15.39dBm(802.11ac80) B4: 20.17dBm(802.11a), 23.64dBm(802.11ac20),23.61dBm(n20), 22.98dBm(802.11ac40),22.98dBm(802.11n40),22.98dBm(802.11ac80)

*Note\*: The Maximum Antenna Gain was declared by applicant.*

*All measurement (except Band 1 and Occupied Bandwidth of band 4) the test data in this report was gathered from production sample serial number: 20191022001 (Assigned by the BACL. The EUT supplied by the applicant was received on 2019-10-22).*

*The test data of band 1 and Occupied Bandwidth of band 4 in this report was gathered from production sample serial number: RKSA210121001-1.(Assigned by the BACL. The EUT supplied by the applicant was received on 2021-01-21.)*

### Objective

This type approval report is prepared on behalf of *Tomorrow systems s.r.o* in accordance with RSS-247 Issue 2, February 2017 and RSS-GEN Issue 5, MARCH 2019 of the Innovation, Science and Economic Development Canada.

### Related Submittal(s)/Grant(s)

RSS-247 submission with IC: 26861-DR900VX.



## Test Methodology

All tests and measurements indicated in this document were performed in accordance with RSS-247 Issue 2, February 2017 of the Innovation, Science and Economic Development Canada & RSS-GEN Issue 5, March 2019: General Requirements for Compliance of Radio Apparatus & ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

## Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	4.88dB
Occupied Bandwidth		0.5kHz
Temperature		1.0°C
Humidity		6%

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01), the FCC designation No. CN1185 under the FCC KDB 974614 D01 and CAB identifier CN0004 under the ISED requirement. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0004.



## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

For **5150~5250 MHz** band, test channel list is as below,

802.11a/802.11ac20/n20 mode Channel 36, 40, 48 were tested.

802.11n40/802.11ac40 mode Channel 38, 46 were tested.

802.11ac80 mode Channel 42 was tested

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For **5725~5850 MHz** band,

802.11a/802.11ac20/n20 mode Channel 149, 157, 165 were tested.

802.11n40/802.11ac40 mode Channel 151, 159 were tested.

802.11ac80 mode Channel 155 was tested.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	159	5795
151	5755	161	5805
153	5765	165	5825
155	5775	/	/
157	5785	/	/

For Conducted Test:

802.11a: each transmit chain was tested

802.11ac: each transmit chain was tested

802.11n: each transmit chain was tested

For Radiated Test:

For 802.11a: SISO for each transmit chain

For 802.11ac: MIMO for three transmit chains

For 802.11n: MIMO for three transmit chains



**EUT Exercise Software**

RF test tool: Cart.exe

The worst case was performed under:

Mode	Data rate	Power Setting					
		5150-5250 Band			5725-5850 Band		
		ANT 1	ANT 2	ANT 3	ANT 1	ANT 2	ANT 3
802.11a	6 Mbps	16	16	16	18	18	18
802.11ac20	MCS0	12	12	12	17	17	17
802.11n-HT20	MCS0	12	12	12	17	17	17
802.11ac40	MCS0	12	12	12	13	13	13
802.11n-HT40	MCS0	12	12	12	13	13	13
802.11ac80	MCS0	11	11	11	11	11	11

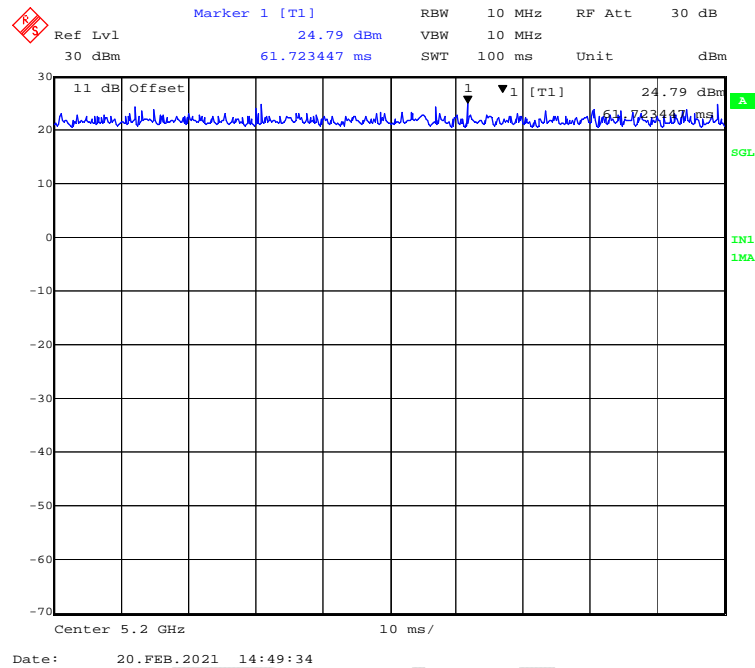


**Duty Cycle:**

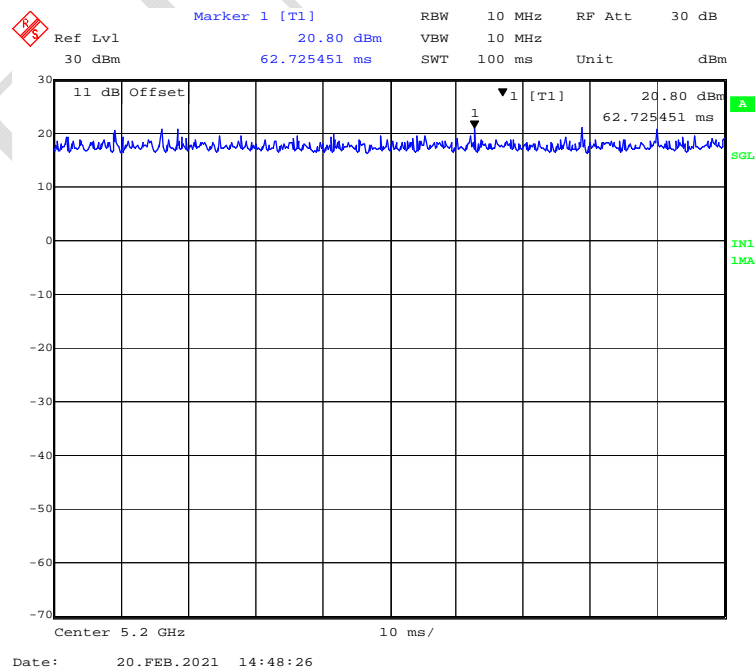
**ANT 1:**

**5150MHz-5250MHz Band:**

**802.11a mode**

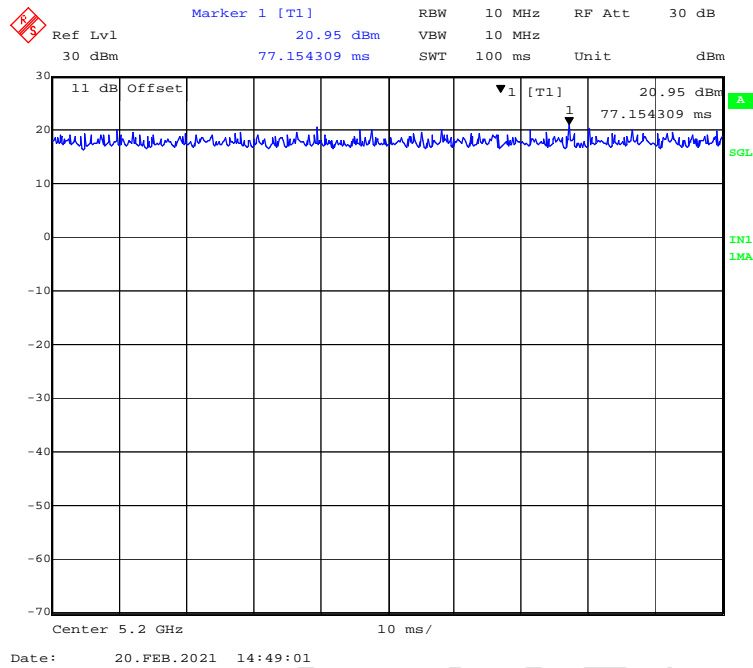


**802.11ac20 mode**

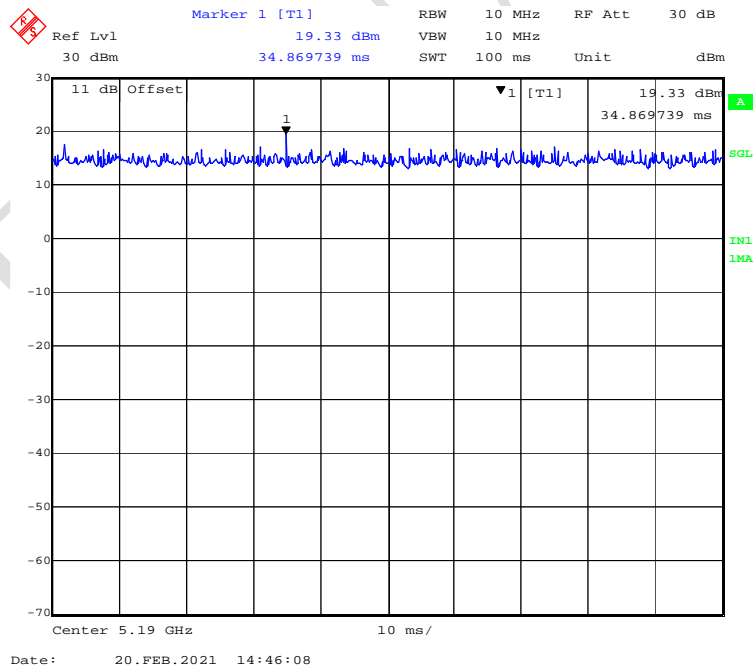




### 802.11n-HT20 mode

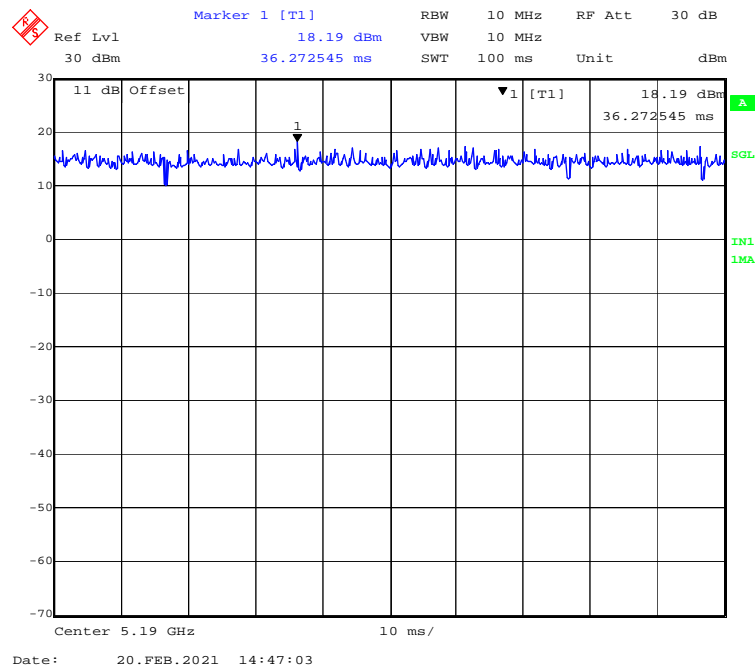


### 802.11ac40 mode

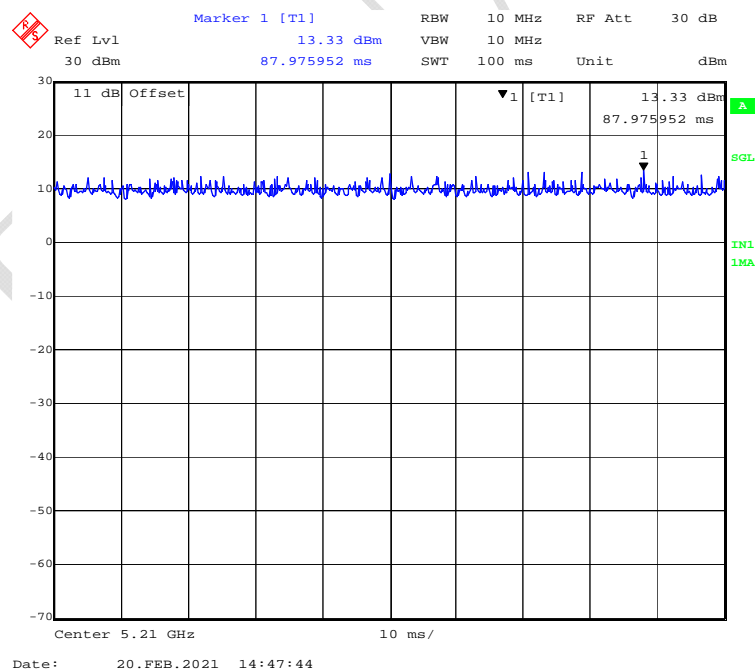




## 802.11n-HT40 mode



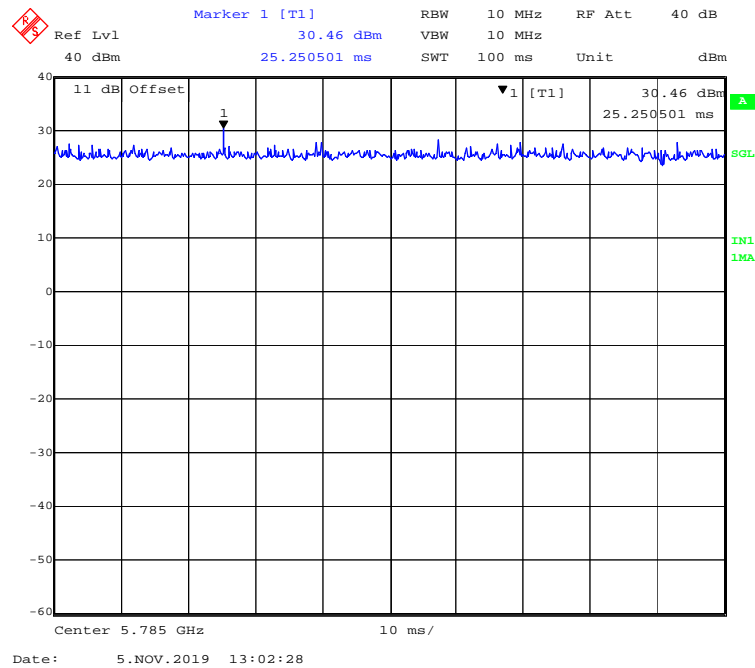
## 802.11ac80 mode



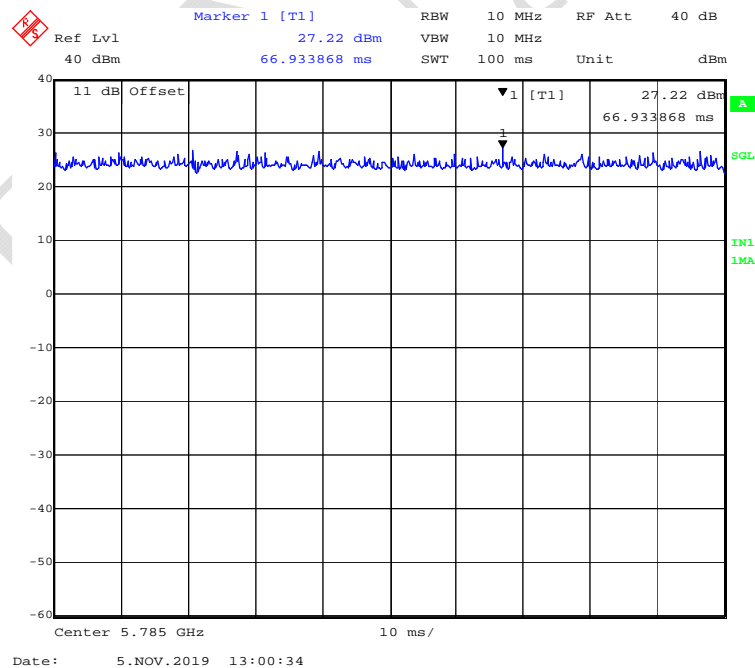


**5725MHz-5850MHz Band:**

**802.11a mode**

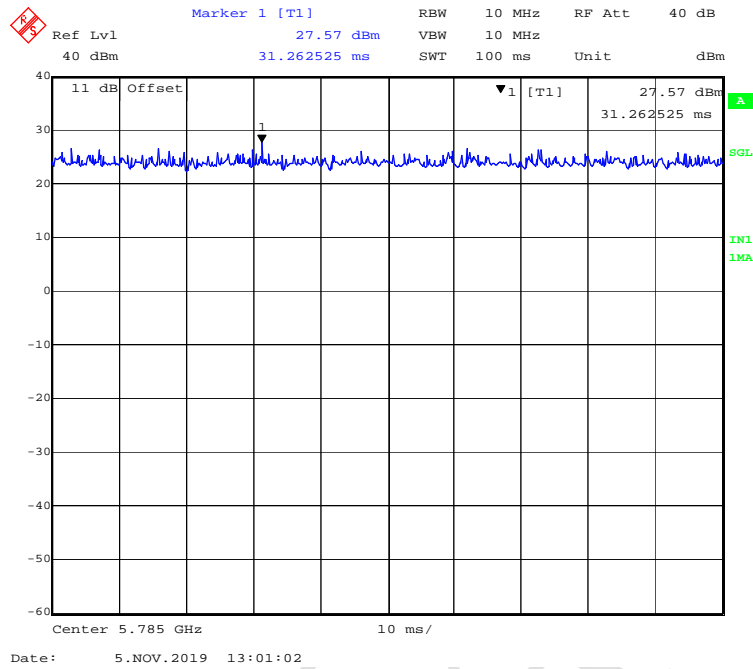


**802.11ac20 mode**

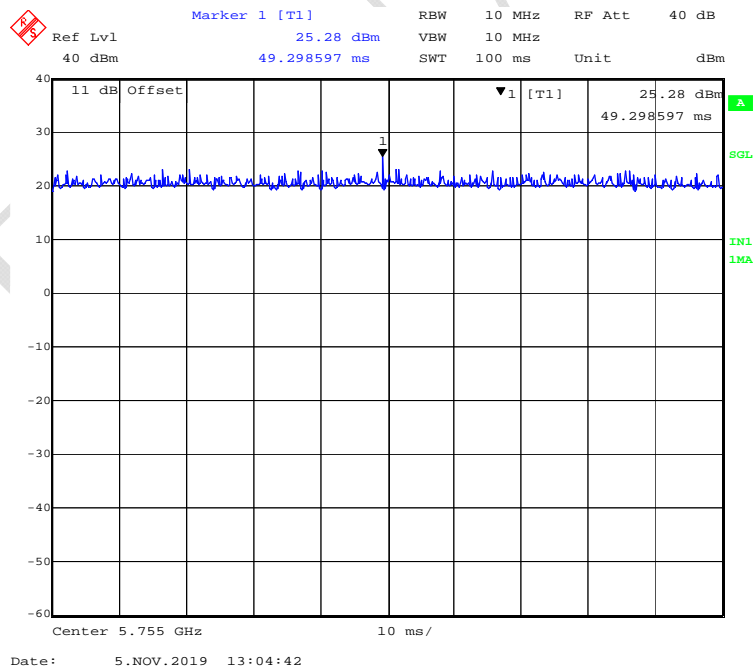




### 802.11n-HT20 mode

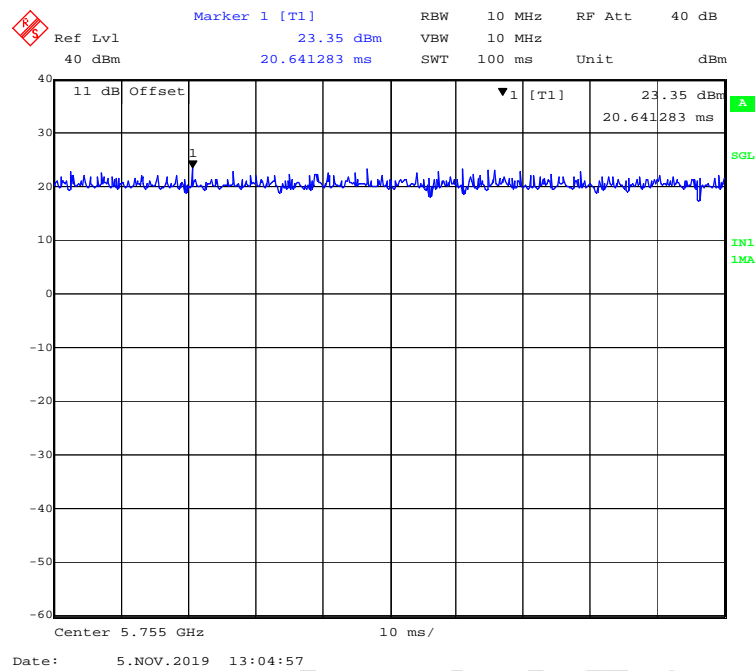


### 802.11ac40 mode

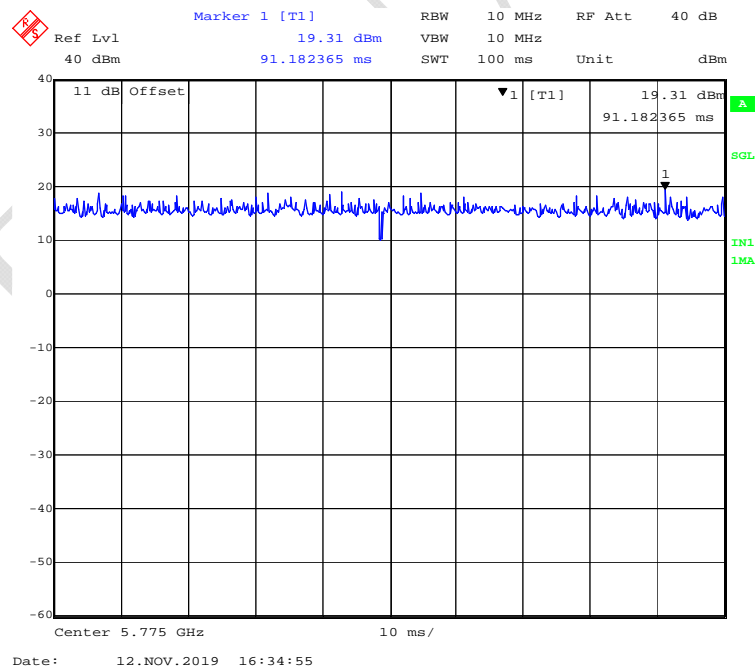




### 802.11n-HT40 mode



### 802.11ac80 mode

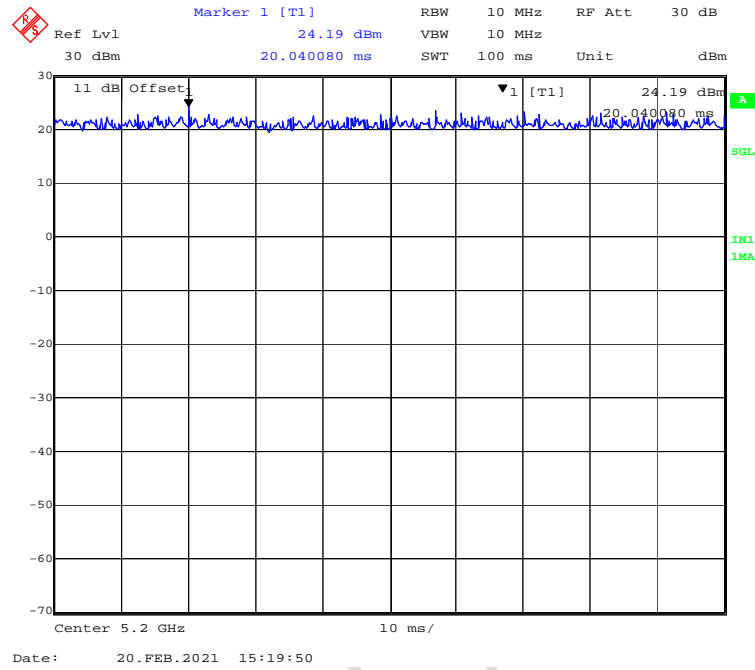




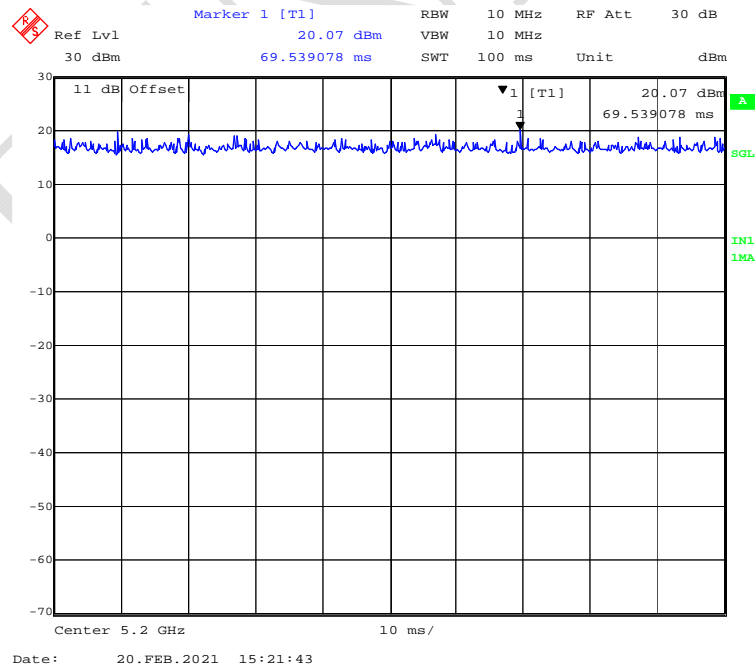
**ANT 2:**

**5150MHz-5250MHz Band:**

**802.11a mode**

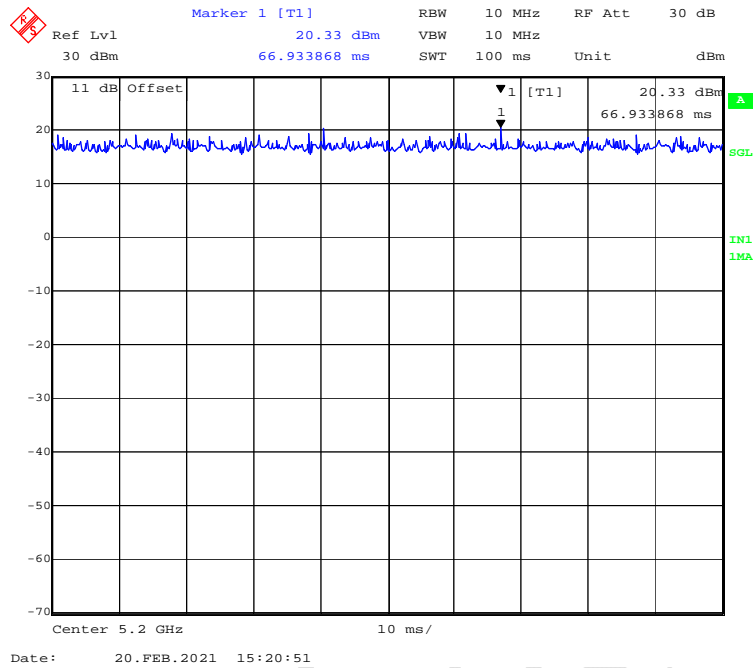


**802.11ac20 mode**

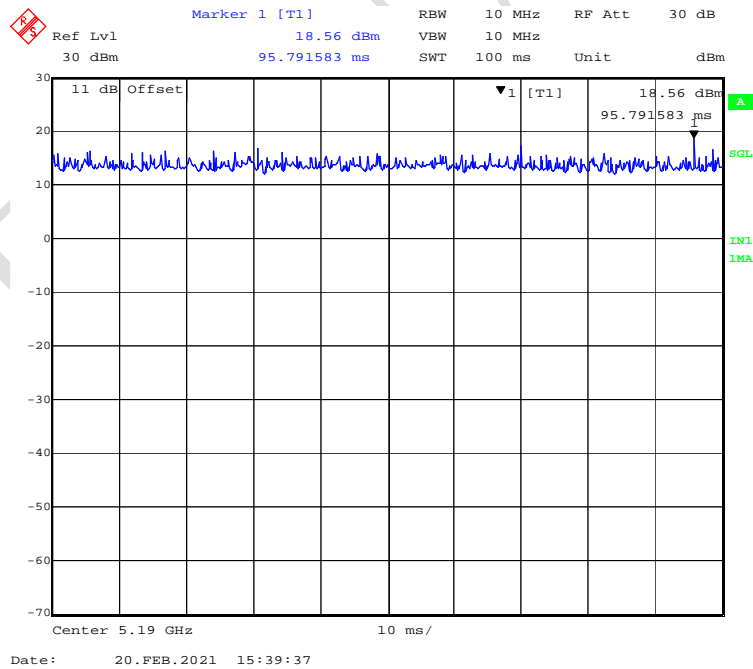




### 802.11n-HT20 mode

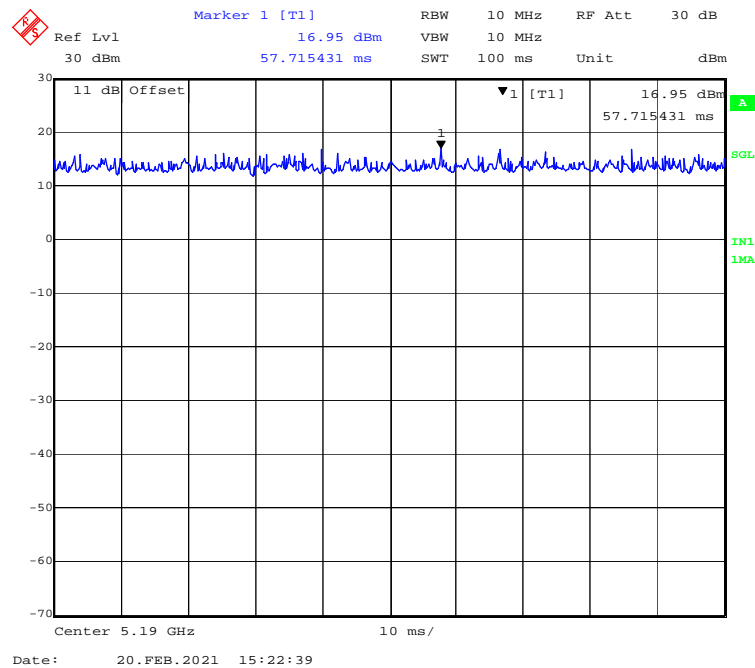


### 802.11ac40 mode

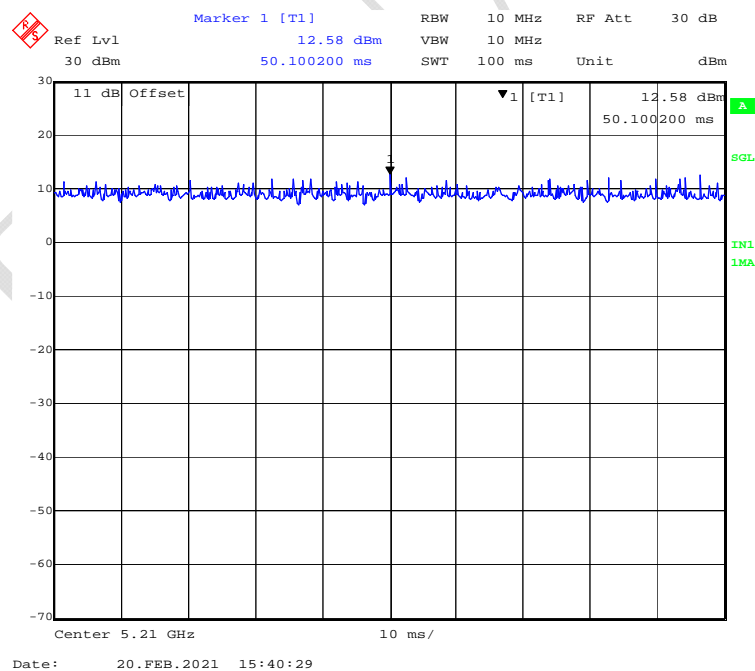




### 802.11n-HT40 mode



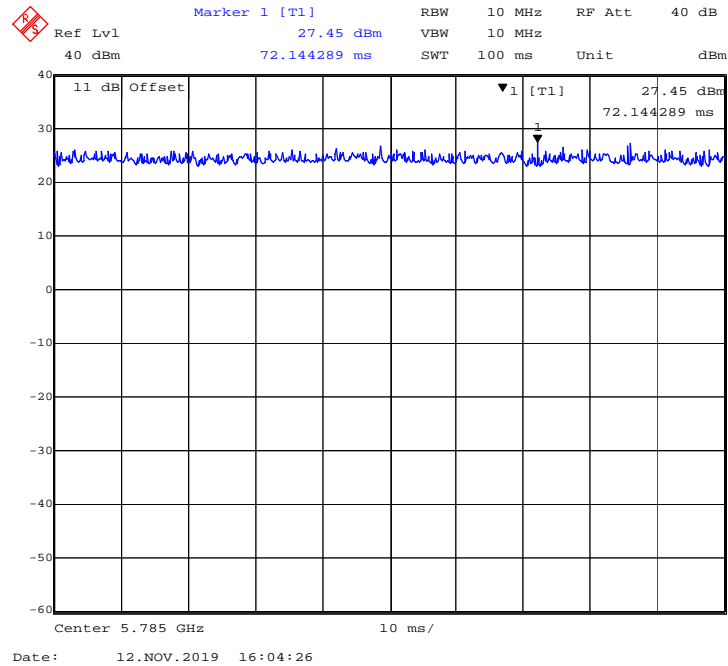
### 802.11ac80 mode



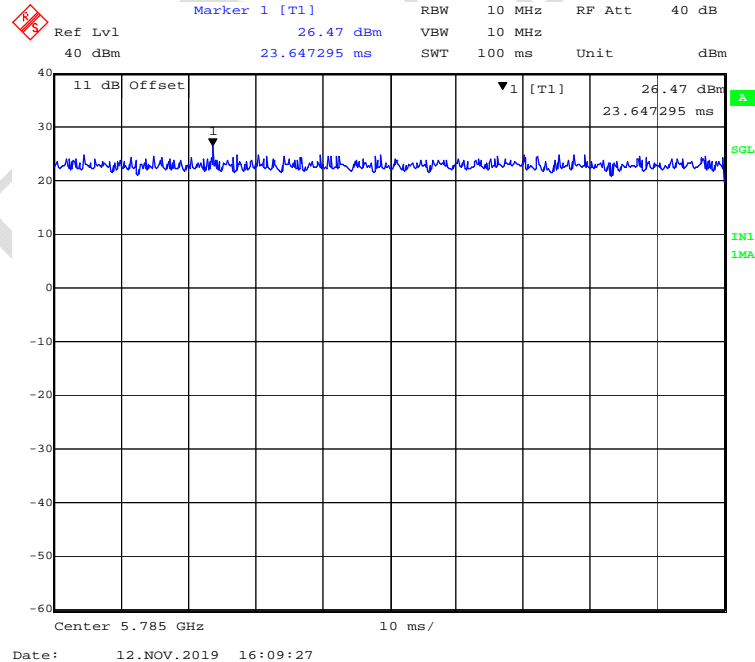


**5725MHz-5850MHz Band:**

**802.11a mode**

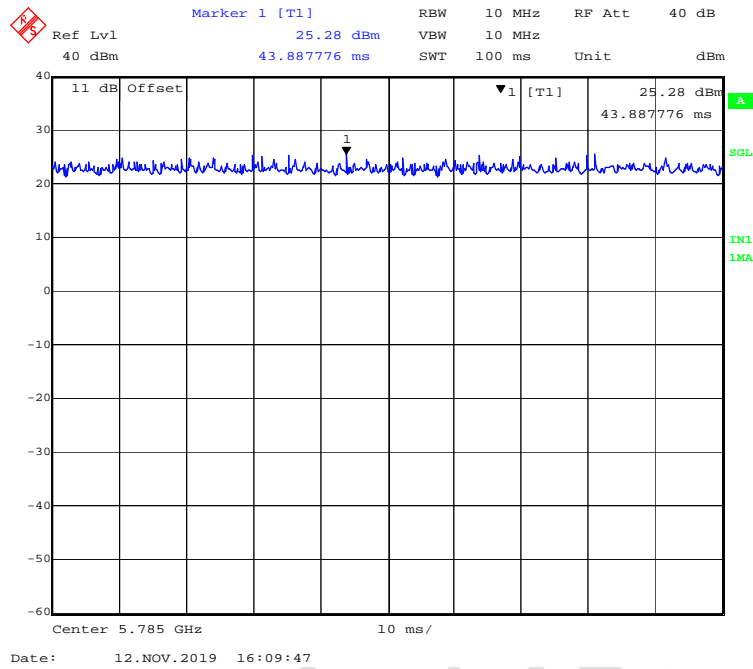


**802.11ac20 mode**

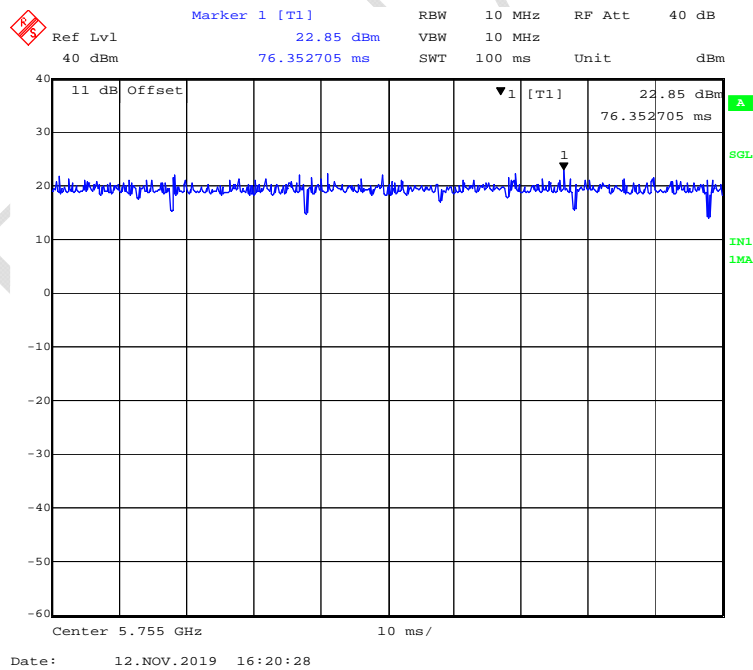




### 802.11n-HT20 mode

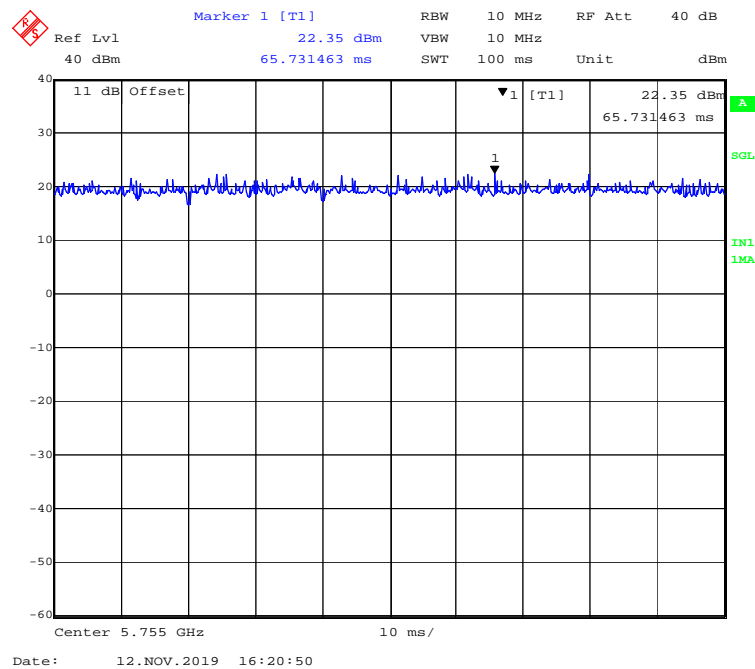


### 802.11ac40 mode

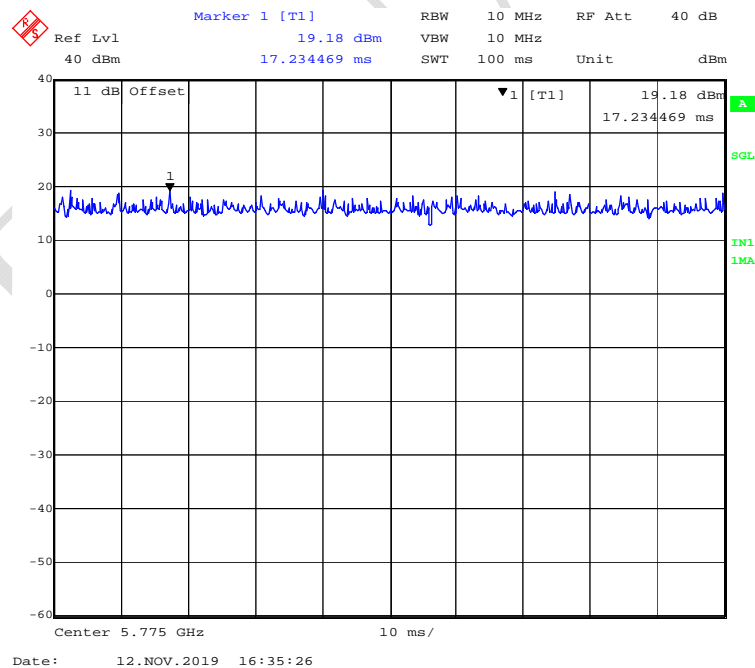




### 802.11n-HT40 mode



### 802.11ac80 mode

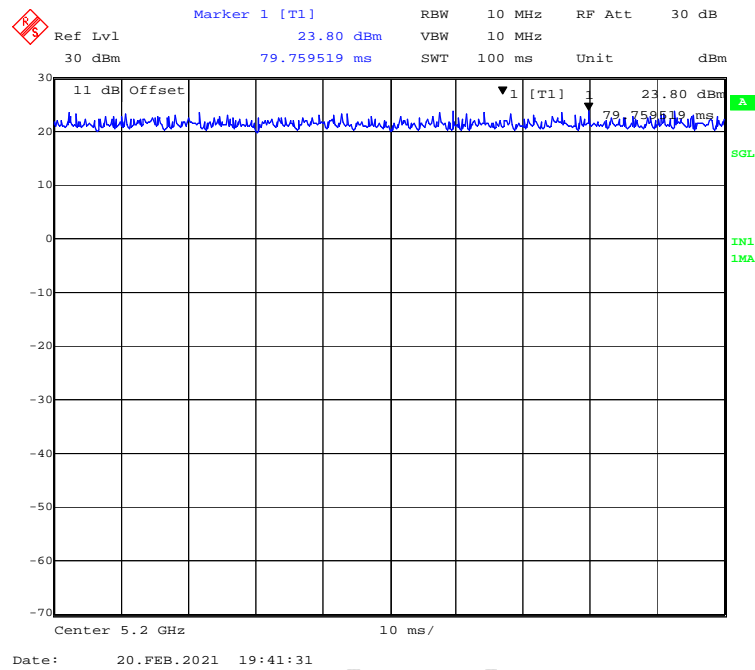




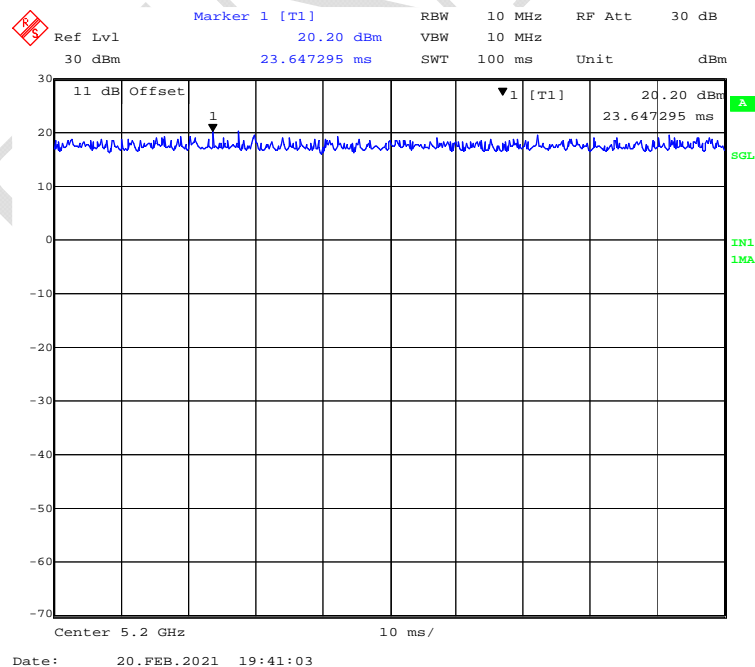
**ANT 3:**

**5150MHz-5250MHz Band:**

**802.11a mode**

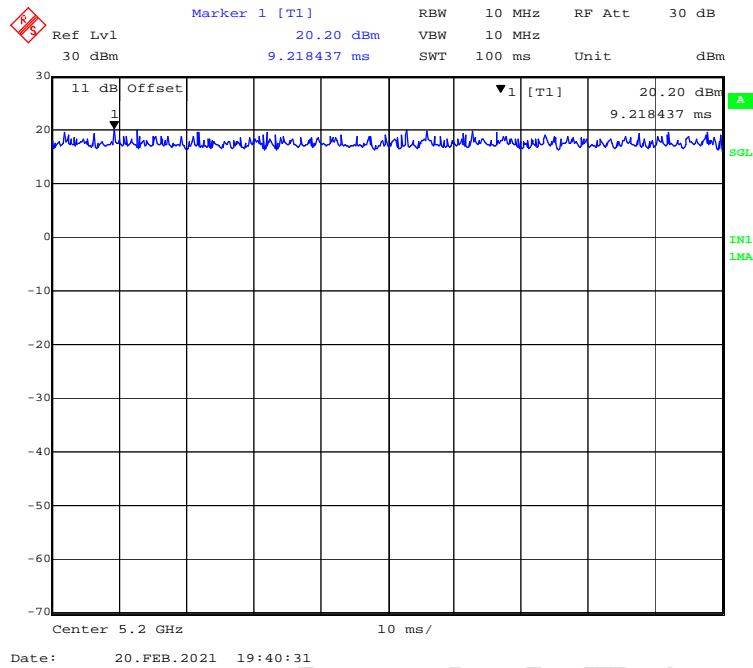


**802.11ac20 mode**

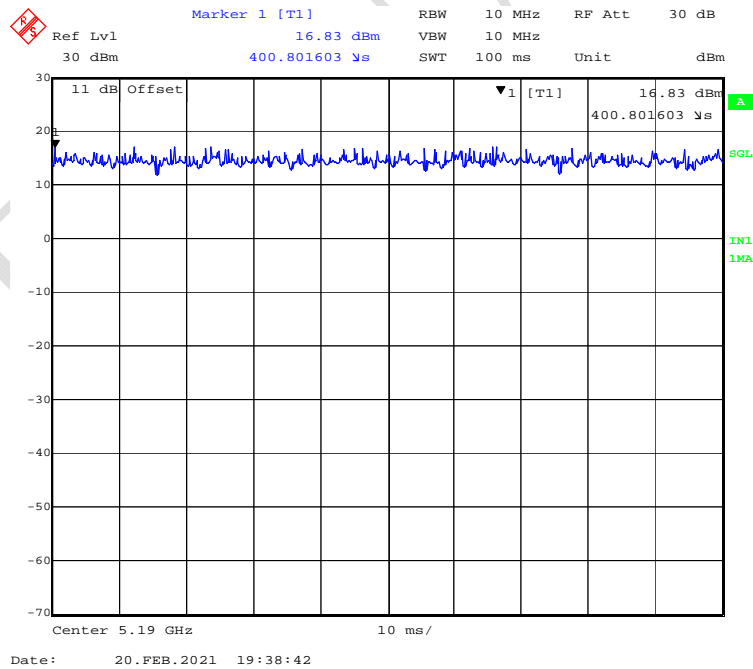




### 802.11n-HT20 mode

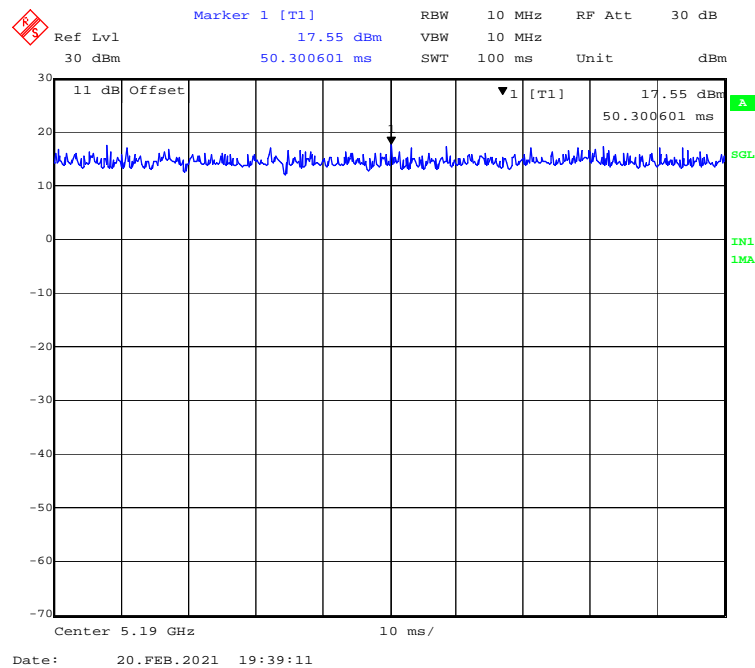


### 802.11ac40 mode

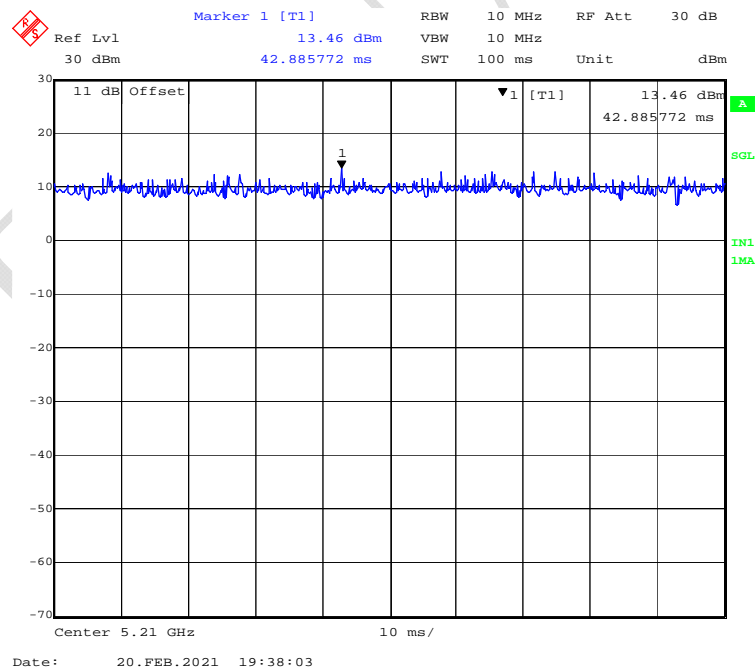




### 802.11n-HT40 mode



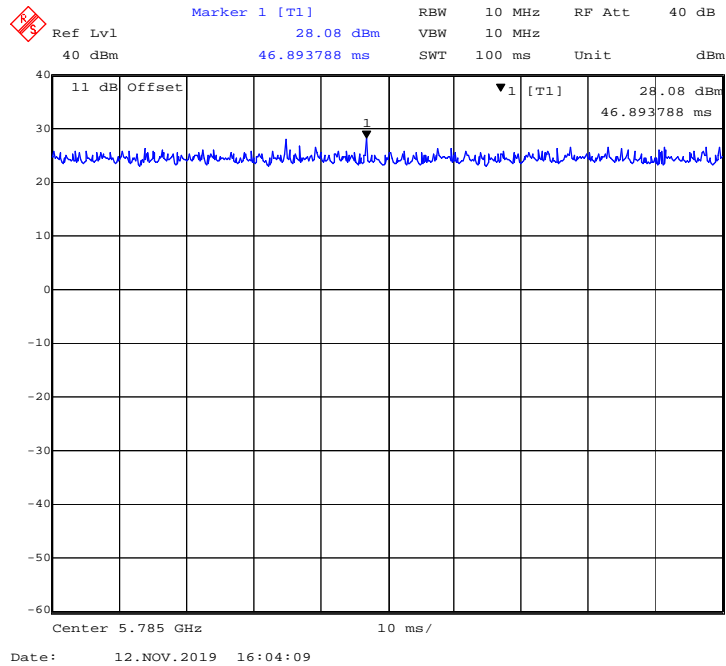
### 802.11ac80 mode



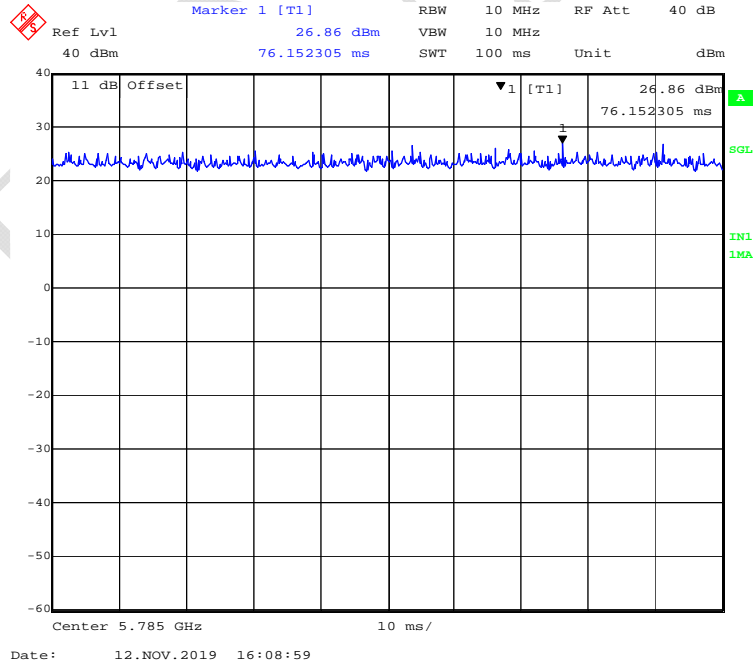


**5725MHz-5850MHz Band:**

**802.11a mode**

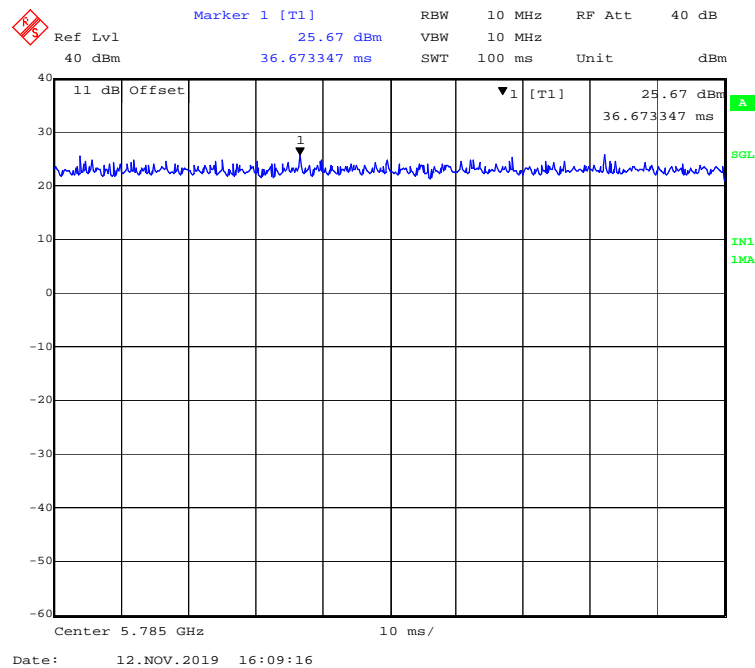


**802.11ac20 mode**

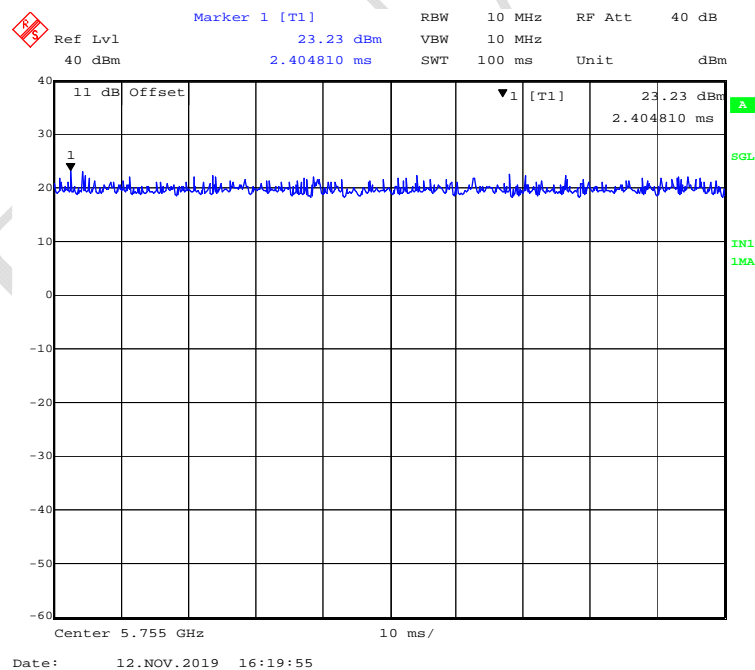




### 802.11n-HT20 mode

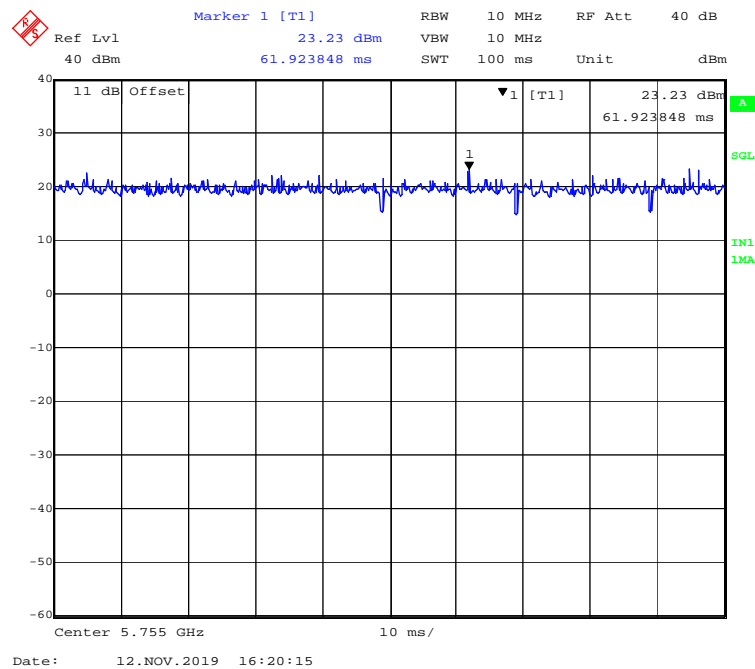


### 802.11ac40 mode

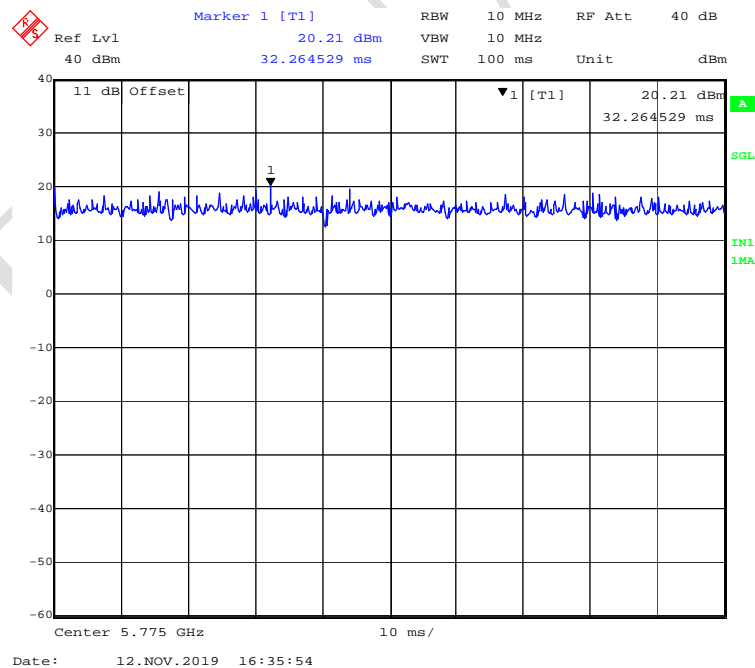




### 802.11n-HT40 mode



### 802.11ac80 mode





Frequency Range (MHz)	Mode	Duty Cycle (%)	T (ms)	1/T (kHz)	10log(1/x)
5150-5250	802.11a	100	/	/	0
	802.11ac20	100	/	/	0
	802.11n-HT20	100	/	/	0
	802.11ac40	100	/	/	0
	802.11n-HT40	100	/	/	0
	802.11ac80	100	/	/	0
5725-5850	802.11a	100	/	/	0
	802.11ac20	100	/	/	0
	802.11n-HT20	100	/	/	0
	802.11ac40	100	/	/	0
	802.11n-HT40	100	/	/	0
	802.11ac80	100	/	/	0

**Note:** “x” means duty cycle.

### Equipment Modifications

No modification was made to the EUT.

### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Wallys	Base plate	DR344-NAS_Ver_MP3A	/
Wallys	POE	GRT-POE15-240100	/
Wallys	Antenna*3	/	/

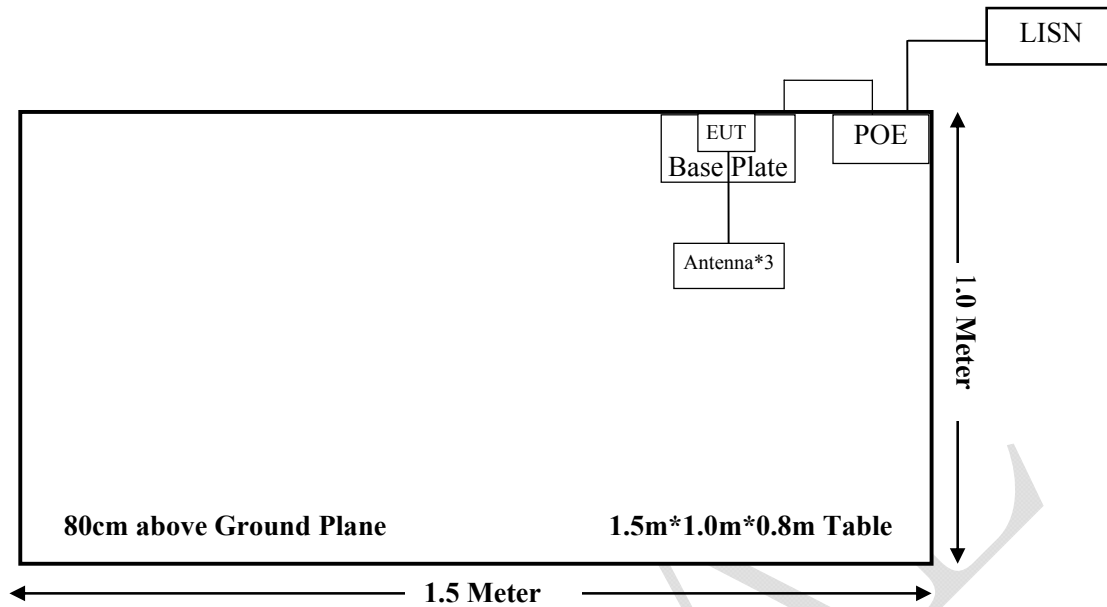
### External I/O Cable

Cable Description	Length (m)	From Port	To
RJ45 Cable	1.0	Base plate	POE
Antenna Cable*3	0.3	EUT	Antenna

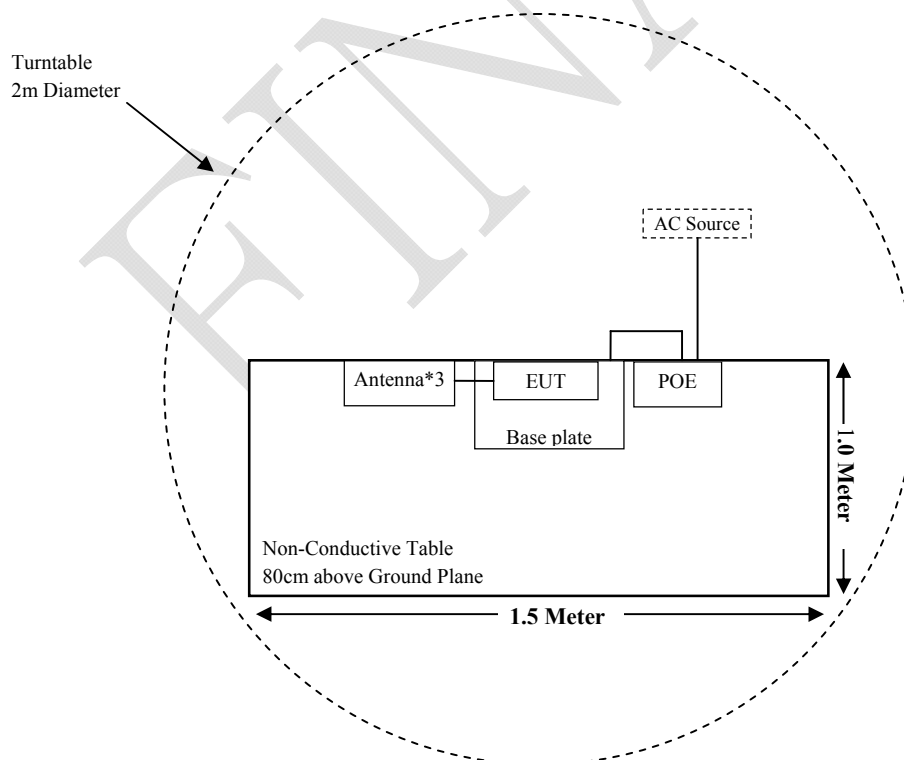


## Block Diagram of Test Setup

For Conducted Emissions:

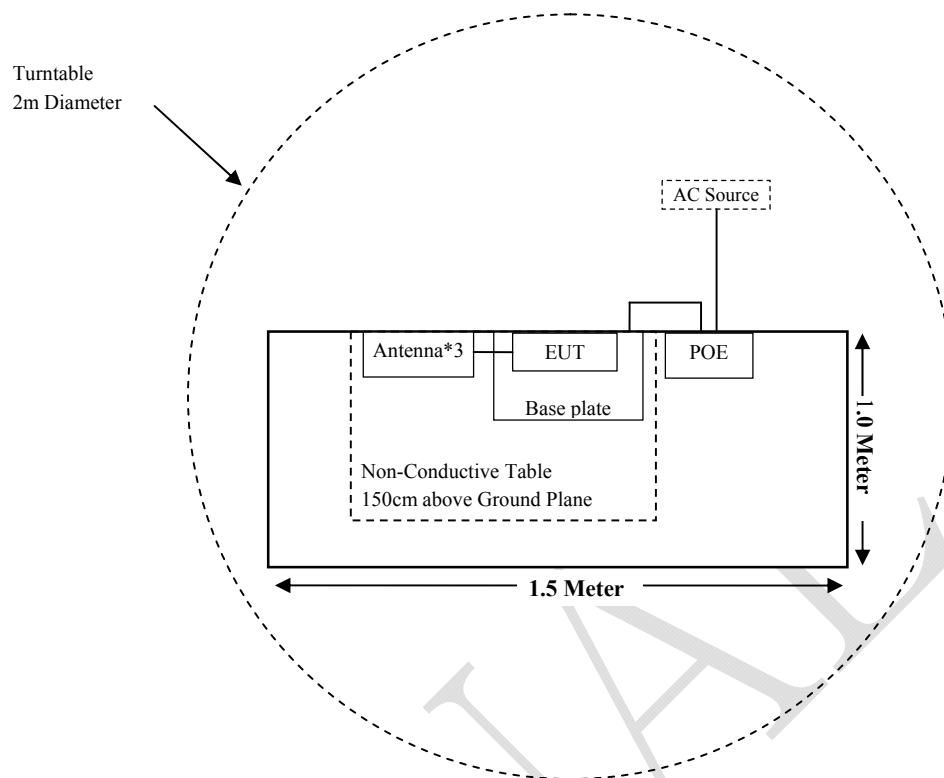


For Radiated Emissions(Below 1GHz):





For Radiated Emissions(Above 1GHz):





**SUMMARY OF TEST RESULTS**

ISED RSS-247 & RSS-Gen Rules	Description of Test	Result
RSS-102 Issue 5 Clause 2.5.2	Exemption From Routine Evaluation Limits - RF Exposure Evaluation	Compliant
RSS-GEN Issue 5 Clause 6.8	Transmit Antenna	Compliant
RSS-GEN Issue 5 Clause 8.8	AC Power Line Conducted Emissions Limits	Compliant
RSS-247 Issue 2 6.2.1.2 & 6.2.4.2 RSS-GEN Issue5 Clause 6.13&8.10	Transmitter Unwanted Emissions	Compliant
RSS-247 Issue 2 Clause 6.2.4.1	6 dB Emission Bandwidth	Compliant
RSS-GEN Issue 5 Clause 6.7	Occupied bandwidth&26 dB Emission Bandwidth	Compliant
RSS-247 Issue 2 Clause 6.2.1.1&Clause 6.2.4.1	Conducted Transmitter Output Power	Compliant
RSS-247 Issue 2 Clause 6.2.1.1&Clause 6.2.4.1	Power Spectral Density	Compliant



**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test (Chamber 1#)</b>					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2019-07-11	2020-07-10
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2020-07-11	2021-07-10
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2019-12-26	2022-12-25
Sonoma Instrument	Pre-amplifier	310N	171205	2019-08-14	2020-08-13
Sonoma Instrument	Pre-amplifier	310N	171205	2020-08-14	2021-08-13
Audix	Test Software	e3	V9	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-8	008	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2020-08-15	2021-08-14
<b>Radiated Emission Test (Chamber 2#)</b>					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2019-08-27	2020-08-26
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2020-08-27	2021-08-26
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2017-07-15	2020-07-14
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2020-07-15	2023-07-14
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-12-12	2019-12-11
ETS-LINDGREN	Horn Antenna	3116	00084159	2019-12-12	2022-12-11
A.H.Systems, inc	Amplifier	2641-1	491	2019-02-20	2020-02-19
A.H.Systems, inc	Amplifier	2641-1	491	2020-02-20	2021-02-19
A.H.Systems, inc	Amplifier	2641-1	491	2021-02-20	2022-02-19
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2019-05-20	2020-05-19
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2020-05-20	2021-05-19
SELECTOR	Amplifier	EM18G40G	060726	2019-03-22	2020-03-21
SELECTOR	Amplifier	EM18G40G	060726	2020-03-22	2021-03-21
MICRO-TRONICS	Band Reject Filter	BRC50703	G094	2019-08-05	2020-08-04
MICRO-TRONICS	Band Reject Filter	BRC50703	G094	2020-08-05	2021-08-04
MICRO-TRONICS	Band Reject Filter	BRC50705	G085	2019-08-05	2020-08-04
MICRO-TRONICS	Band Reject Filter	BRC50705	G085	2020-08-05	2021-08-04
Narda	Attenuator	10dB	010	2019-08-15	2020-08-14
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-08-15	2021-08-14



Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test (Chamber 2#)</b>					
MICRO-COAX	Coaxial Cable	Cable-11	011	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2020-08-15	2021-08-14
<b>RF Conducted Test</b>					
Rohde & Schwarz	EMI Test Receiver	ESIB26	100146	2018-11-30	2019-11-29
Rohde & Schwarz	EMI Test Receiver	ESIB26	100146	2020-11-30	2021-11-29
Agilent	Power Meter	N1912A	MY5000492	2018-11-18	2019-11-17
Agilent	Power Meter	N1912A	MY5000492	2020-11-18	2021-11-17
Agilent	Power Sensor	N1921A	MY54210024	2018-11-18	2019-11-17
Agilent	Power Sensor	N1921A	MY54210024	2020-11-18	2021-11-17
Narda	Attenuator	10dB	010	2019-08-15	2020-08-14
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
BACL	Temperature & Humidity Chamber	BTH-150	30023	2018-12-20	2019-12-19
BACL	Temperature & Humidity Chamber	BTH-150	30023	2020-12-20	2021-12-19
Wallys	RF Cable	Wallys C01	C01	Each Time	N/A
Rohde & Schwarz	EMI Test Receiver	ESIB26	100146	2020-11-27	2021-11-26
Agilent	Power Meter	N1912A	MY5000492	2020-11-18	2021-11-17
Agilent	Power Sensor	N1921A	MY54210024	2020-11-18	2021-11-17
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
Wallys	RF Cable	Wallys C01	C01	Each Time	N/A
<b>Conducted Emission Test</b>					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2019-07-11	2020-07-10
Rohde & Schwarz	LISN	ENV216	3560655016	2018-11-30	2019-11-29
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3-Z2	357.8810.52	2019-08-10	2020-08-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2019-08-15	2020-08-14

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).



## RSS-GEN ISSUE 5 Clause 6.8 - TRANSMITTER ANTENNA

### Applicable Standard

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

*This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.*

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

### Antenna Connector Construction

The EUT has been tested with three omni antennas for 5G Wi-Fi and each antenna gain is 2 dBi with IPEX connector which use a unique type of connector to attach to the EUT, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Max. Antenna Gain	Input impedance
Omni antenna	2dBi	50Ω

**Result:** Compliant.



## **RSS-102 ISSUE5 Clause 2.5.2 – EXEMPTION FROM ROUTINE EVALUATION LIMITS - RF EXPOSURE EVALUATION**

### **Applicable Standard**

According to RSS-102 Issue 5:

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- Below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $22.48/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 * 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

### **Test Result**

RF exposure evaluation exemption:



**Test Result**

RF exposure evaluation at 20 cm distance:

Mode	Frequency Range (MHz)	Tune-up Conducted Power (dBm)	Antenna Gain (dBi)	Tune-up EIRP		Exemption Limit (mW)
				(dBm)	(mW)	
802.11b	2412~2462	25.00	2.0	27.00	501.19	2684.03
802.11g		23.50	2.0	25.50	354.81	2684.03
802.11n-HT20		28.00	2.0	30.00	1000.00	2684.03
802.11n-HT40	2422-2452	24.50	2.0	26.50	446.68	2691.63
802.11a	5150~5250	16.50	2.0	18.50	70.79	4525.27
	5725~5850	20.50	2.0	22.50	177.83	4857.02
802.11ac20	5150~5250	17.00	2.0	19.00	79.43	4525.27
	5725~5850	24.00	2.0	26.00	398.11	4857.02
802.11n20	5150~5250	17.00	2.0	19.00	79.43	4525.27
	5725~5850	24.00	2.0	26.00	398.11	4857.02
802.11ac40	5150~5250	17.50	2.0	19.50	89.13	4531.24
	5725~5850	23.00	2.0	25.00	316.23	4862.80
802.11n40	5150~5250	17.00	2.0	19.00	79.43	4531.24
	5725~5850	23.00	2.0	25.00	316.23	4862.80
802.11ac80	5210	15.50	2.0	17.50	56.23	4543.16
	5775	23.00	2.0	25.00	316.23	4874.34

**Note:** (1) The Tune-up output power was declared by the Manufacturer.  
(2) 2.4G Wi-Fi and 5G Wi-Fi cannot transmit simultaneously.

**Conclusion:** The device meets the exemption requirement.



## RSS-GEN ISSUE5 Clause 8.8 – AC POWER-LINE CONDUCTED EMISSIONS LIMITS

### Applicable Standard

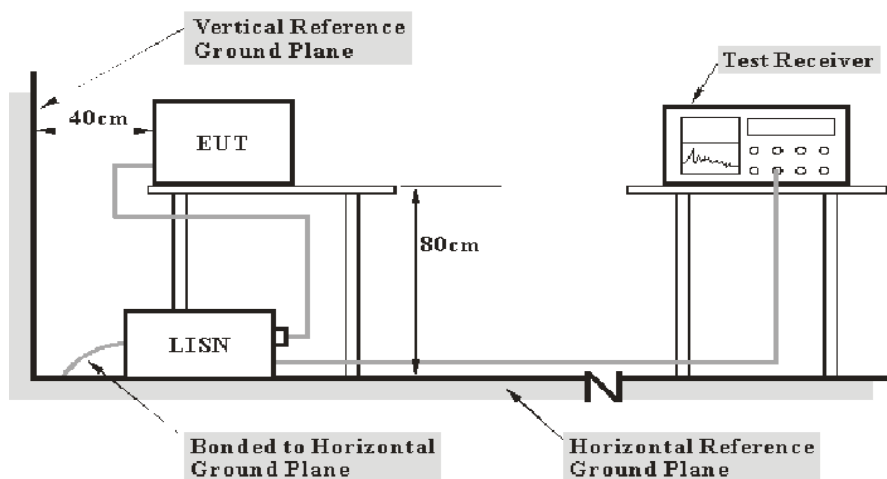
Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50  $\mu$ H / 50  $\Omega$  line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Table 4 - AC Power Line Conducted Emissions Limits		
Frequency range (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 <sup>1</sup>	56 to 46 <sup>1</sup>
0.5 – 5	56	46
5 – 30	60	50

**Note 1:** The level decreases linearly with the logarithm of the frequency.

### EUT Setup



- Note:** 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.



The setup of EUT is according with ANSI C63.10-2013.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

### Corrected Factor & Over Limit Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Factor (dB)} = \text{LISN VDF (dB)} + \text{Cable Loss (dB)} + \text{Transient Limiter Attenuation (dB)}$$

The “**Over Limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit of 7dB means the emission is 7 dB above the limit. The equation for Over Limit calculation is as follows:

$$\text{Over Limit (dB)} = \text{Read level (dB}\mu\text{V)} + \text{Factor (dB)} - \text{Limit (dB}\mu\text{V)}$$

### Test Results Summary

According to the recorded data in following table, the EUT complied with the RSS-GEN Issue 5.

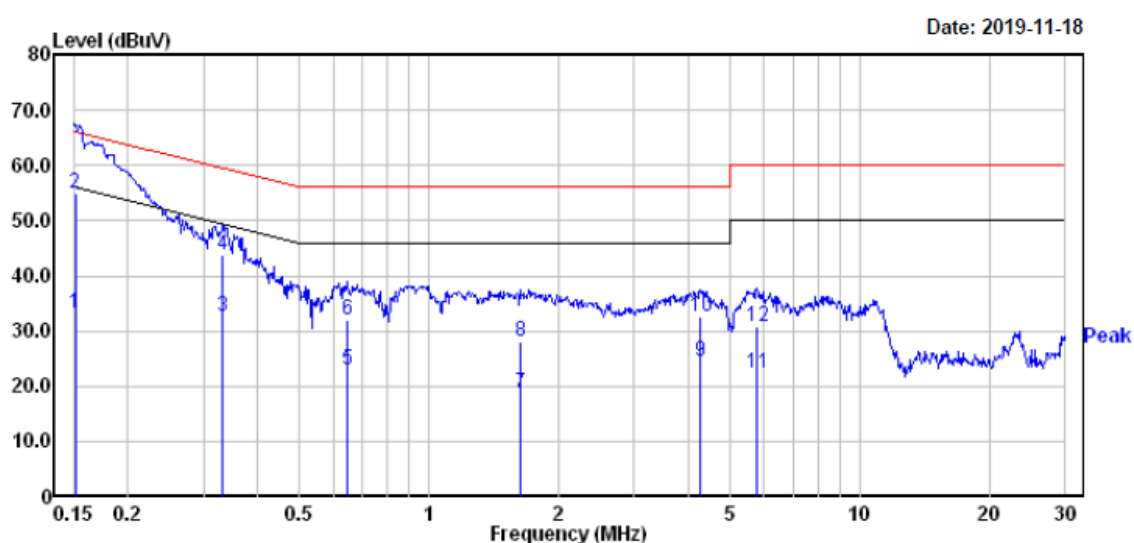


**Test Data****Environmental Conditions**

<b>Temperature:</b>	24.2 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	101.5 kPa

The testing was performed by Carry Cai on 2019-11-18.

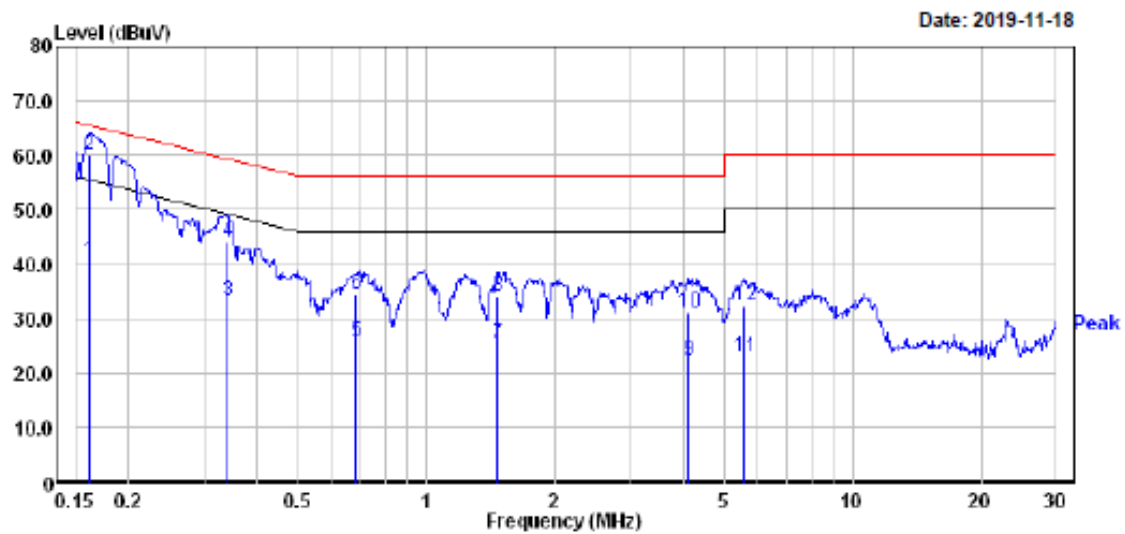
EUT operation mode: Transmitting in 802.11ac20 mode middle channel of 5725-5850MHz (worst case)

**AC 120V/60 Hz, Line**

		Read		Limit	Over	
	Freq	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.151	13.30	19.82	33.12	55.96	-22.84 Average
2	0.151	35.10	19.82	54.92	65.96	-11.04 QP
3	0.332	12.69	19.82	32.51	49.40	-16.89 Average
4	0.332	24.09	19.82	43.91	59.40	-15.49 QP
5	0.644	3.30	19.75	23.05	46.00	-22.95 Average
6	0.644	12.10	19.75	31.85	56.00	-24.15 QP
7	1.628	-1.00	19.84	18.84	46.00	-27.16 Average
8	1.628	8.10	19.84	27.94	56.00	-28.06 QP
9	4.269	5.01	19.47	24.48	46.00	-21.52 Average
10	4.269	13.01	19.47	32.48	56.00	-23.52 QP
11	5.774	2.80	19.50	22.30	50.00	-27.70 Average
12	5.774	11.40	19.50	30.90	60.00	-29.10 QP



## AC 120V/60 Hz, Neutral



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.162	20.70	19.83	40.53	55.38	-14.85	Average
2	0.162	40.30	19.83	60.13	65.38	-5.25	QP
3	0.341	13.50	19.81	33.31	49.18	-15.87	Average
4	0.341	24.20	19.81	44.01	59.18	-15.17	QP
5	0.679	6.00	19.75	25.75	46.00	-20.25	Average
6	0.679	14.80	19.75	34.55	56.00	-21.45	QP
7	1.472	5.40	19.84	25.24	46.00	-20.76	Average
8	1.472	14.40	19.84	34.24	56.00	-21.76	QP
9	4.114	2.80	19.47	22.27	46.00	-23.73	Average
10	4.114	11.70	19.47	31.17	56.00	-24.83	QP
11	5.564	3.40	19.50	22.90	50.00	-27.10	Average
12	5.564	12.80	19.50	32.30	60.00	-27.70	QP

## Note:

1) Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Over Limit (dB) = Read level (dBuV) + Factor (dB) - Limit (dBuV)



## **RSS-247 ISSUE2 6.2.1.2 & 6.2.4.2 & RSS-GEN ISSUE5 Clause 6.13 & 8.10 - UNWANTED EMISSIONS & RESTRICTED FREQUENCY BANDS**

### **Applicable Standard**

According to RSS-247 Issue2 Clause 6.2.1.2

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Emissions outside the band 5470~5600 MHz and 5650~5725 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p. at 5850 MHz instead of 5725 MHz.

According to RSS-247 Issue2 Clause 6.2.4.2

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

- a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

According to RSS-GEN Issue5 Clause 8.10

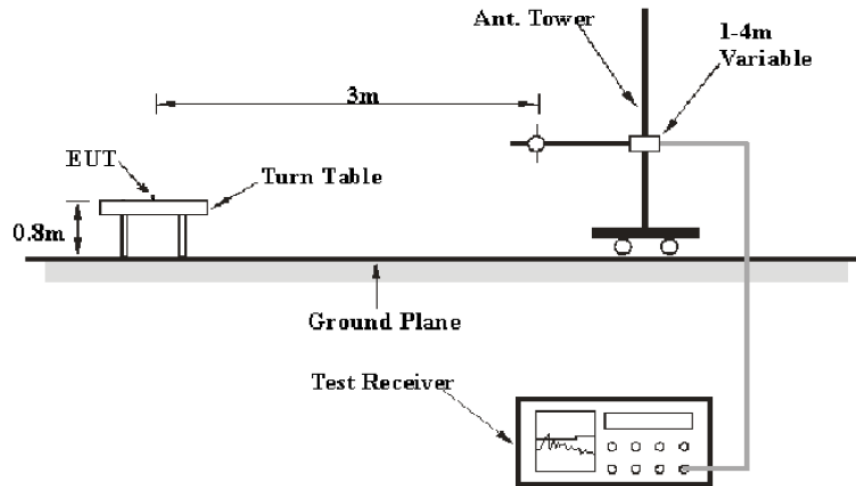
Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- (a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287;
- (b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- (c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

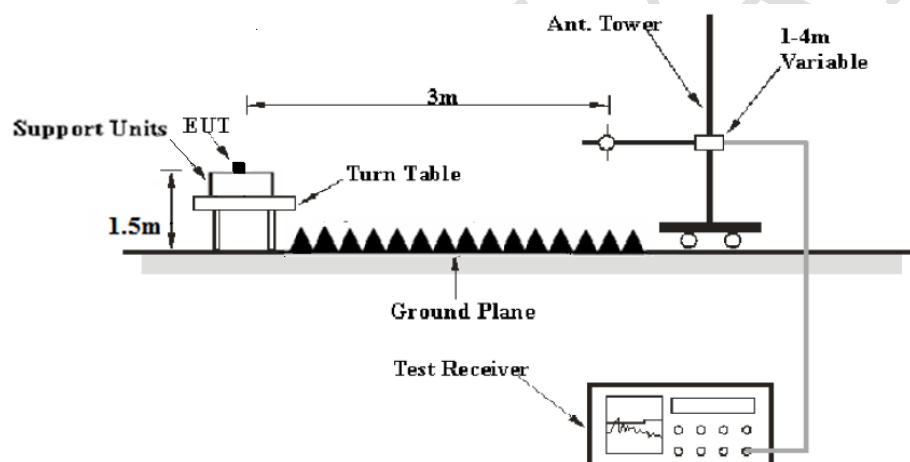


## EUT Setup

### Below 1 GHz:



### 1 GHz-40GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the RSS-247 Issue2 Clause 6.2.1.2 & 6.2.4.2 limits.



## EMI Test Receiver Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	Ave

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and average detection modes for frequencies above 1GHz.

## Factor & Over Limit Calculation – for Below 1GHz

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) - Corrected Amplitude (dBμV/m)

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Factor (dB) = Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The “**Over Limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of 7 dB means the emission is 7 dB above the limit. The equation for over limit calculation is as follows:

Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)



**Corrected Amplitude & Margin Calculation – for Above 1GHz**

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

**Test Results Summary**

According to the recorded data in following table, the EUT complied with the RSS-247 Issue2 Clause 6.2.1.2 & 6.2.4.2.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	20.2-22.3 °C
<b>Relative Humidity:</b>	49-51 %
<b>ATM Pressure:</b>	101.3-101.6 kPa

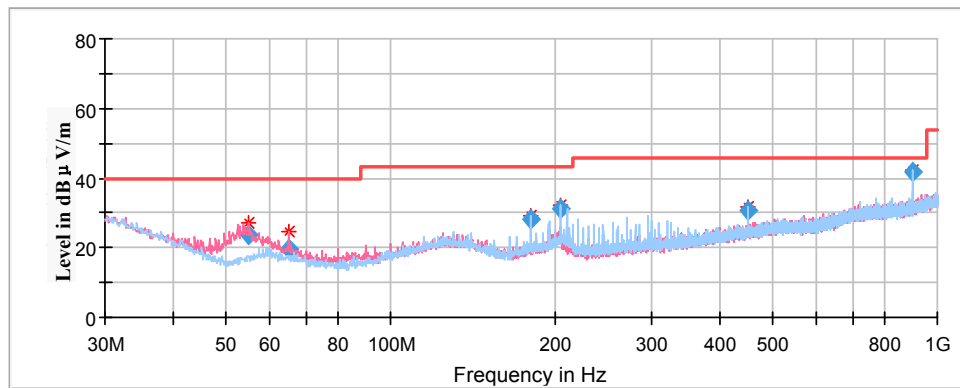
*The testing was performed by Carry Cai from 2019-10-28&2019-11-07 to 2021-02-24.*

*Test Mode: Transmitting*



**Spurious Emission Test:****30MHz-1GHz(5150-5250MHz Band):**

Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11ac20 mode in channel 5200** in Z-axis of orientation was recorded

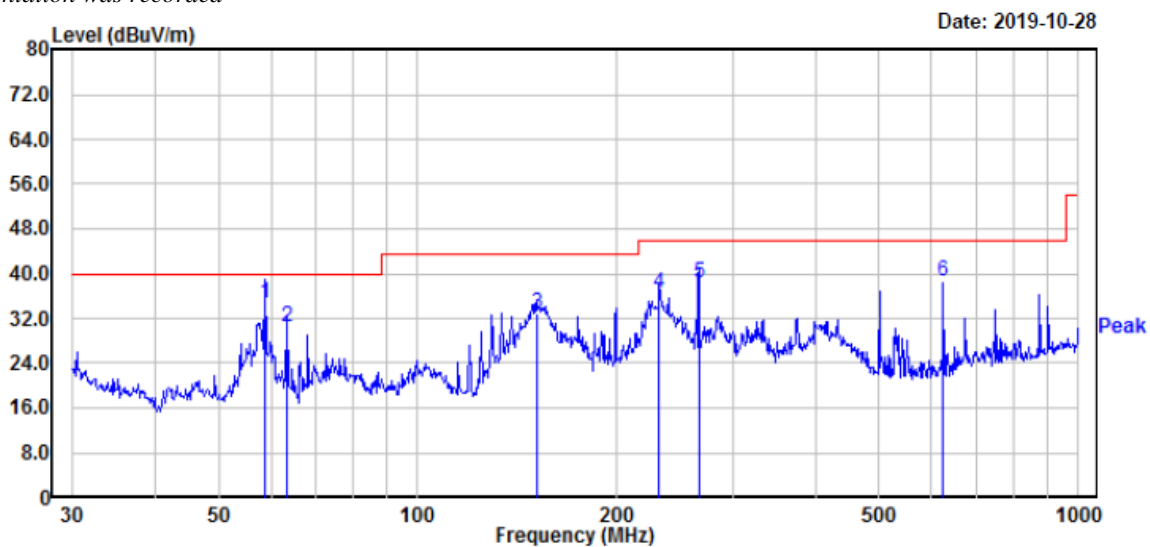


Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	QuasiPeak (dBμV/m)	Height (cm)	Polar (H/V)				
55.012900	23.89	100.0	V	71.0	-15.6	40.00	16.11
64.971650	19.81	100.0	V	9.0	-15.1	40.00	20.19
180.006050	28.20	200.0	H	57.0	-12.3	43.50	15.30
205.015950	31.14	200.0	H	274.0	-11.2	43.50	12.36
449.992300	30.56	200.0	H	39.0	-6.8	46.00	15.44
899.996100	41.59	100.0	H	6.0	0.0	46.00	4.41



**30MHz-1GHz(5725-5850MHz Band):****Horizontal:**

Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11ac20 mode in channel 5785** in Z-axis of orientation was recorded



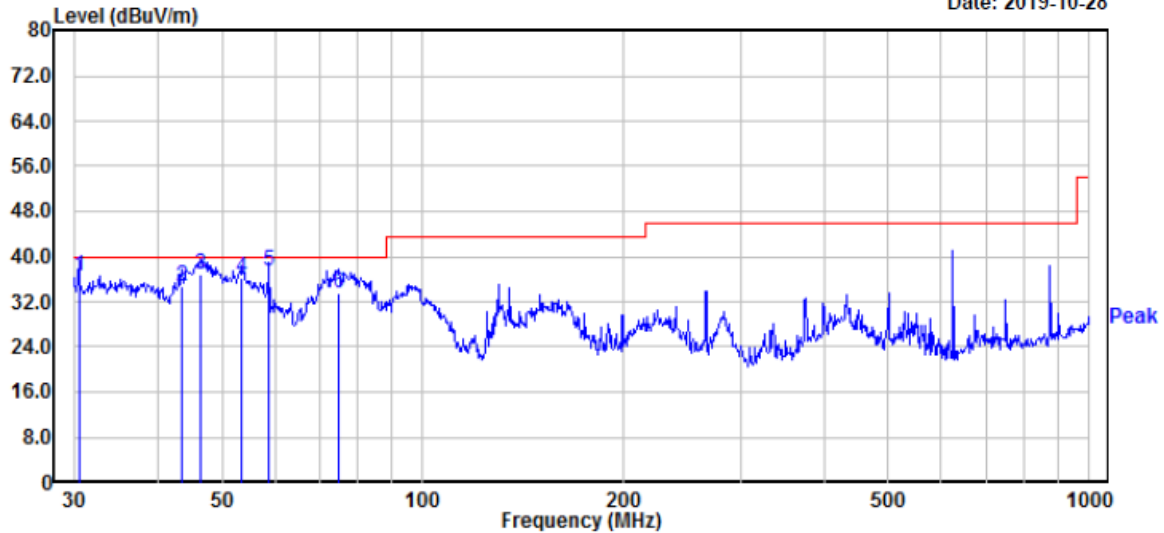
	Freq	Read Level	Level	Limit Line	Over Limit	APos	TPos	Remark	Factor
	MHz	dBuV	dBuV/m	dBuV/m	dB	cm	deg		dB/m
1	58.82	52.10	34.61	40.00	-5.39	200	202	QP	-17.49
2	63.54	47.71	30.38	40.00	-9.62	200	177	QP	-17.33
3	151.60	44.80	32.89	43.50	-10.61	200	239	QP	-11.91
4	232.53	49.69	36.66	46.00	-9.34	100	266	QP	-13.03
5	266.61	49.70	38.42	46.00	-7.58	100	284	QP	-11.28
6	625.08	42.19	38.67	46.00	-7.33	200	295	QP	-3.52



**Vertical:**

Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11ac20 mode in channel 5785** in Z-axis of orientation was recorded

Date: 2019-10-28



	Freq	Read Level	Level	Limit Line	Over Limit	APos	TPos	Remark	Factor
	MHz	dBuV	dBuV/m	dBuV/m	dB	cm	deg		dB/m
1	30.53	40.10	36.53	40.00	-3.47	100	168	QP	-3.57
2	43.51	48.21	34.83	40.00	-5.17	100	363	QP	-13.38
3	46.50	51.70	36.68	40.00	-3.32	100	343	QP	-15.02
4	53.51	53.50	36.34	40.00	-3.66	100	306	QP	-17.16
5	58.82	54.90	37.41	40.00	-2.59	100	6	QP	-17.49
6	74.92	50.61	33.57	40.00	-6.43	100	63	QP	-17.04



**1GHz-18GHz (5150-5250MHz Band):****802.11a Mode (ANT 1):**

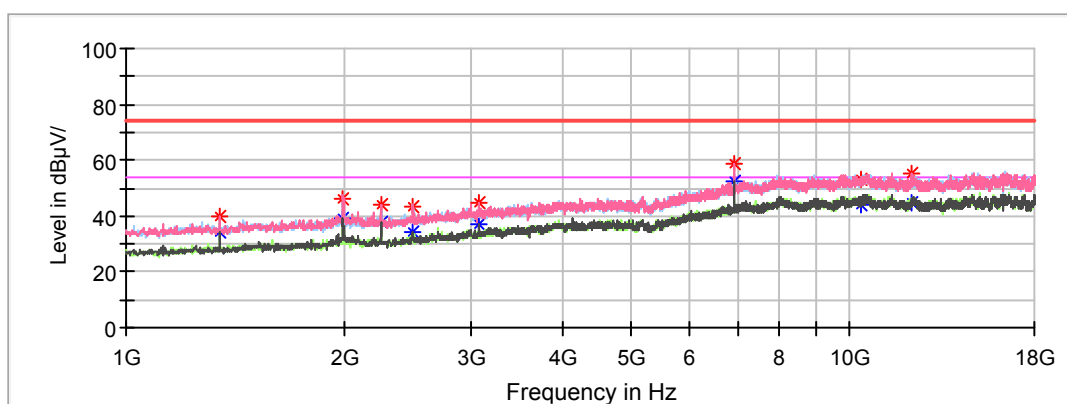
(Pre-scan in the X, Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded.)

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5180MHz**

Full Spectrum

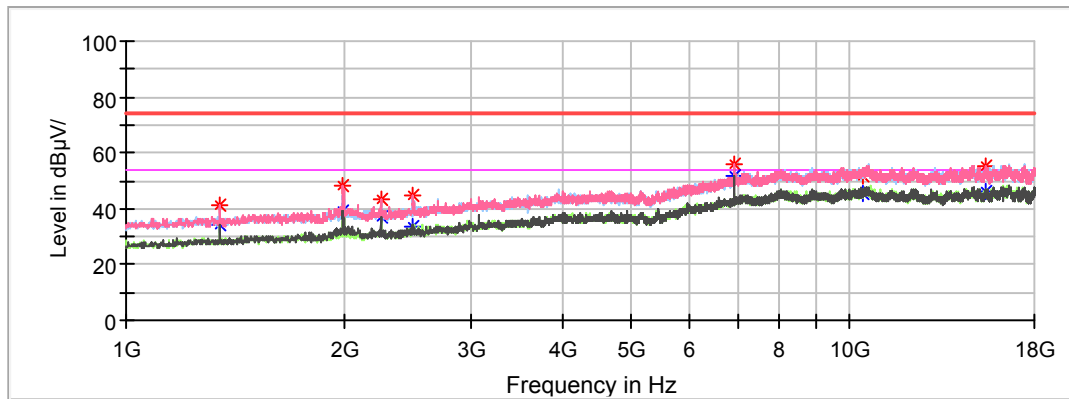


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.49	200	V	15.0	-10.3	54.00	19.51
1348.50	40.18	---	200	V	15.0	-10.3	74.00	33.82
1991.10	46.43	---	150	V	336.0	-7.7	68.20	21.77
2249.50	---	37.57	200	V	216.0	-6.7	54.00	16.43
2249.50	44.25	---	200	V	216.0	-6.7	74.00	29.75
2487.50	---	34.23	150	V	158.0	-5.9	54.00	19.77
2487.50	43.59	---	150	V	158.0	-5.9	74.00	30.41
3070.60	44.86	---	150	V	336.0	-3.0	68.20	23.34
6905.80	58.44	---	200	V	216.0	8.5	68.20	9.76
10358.50	52.98	---	150	H	160.0	12.7	68.20	15.22
12184.30	---	44.7	150	H	348.0	11.6	54.00	9.30
12184.30	55.28	---	150	H	348.0	11.6	74.00	18.72



**Middle Channel: 5200MHz**

Full Spectrum

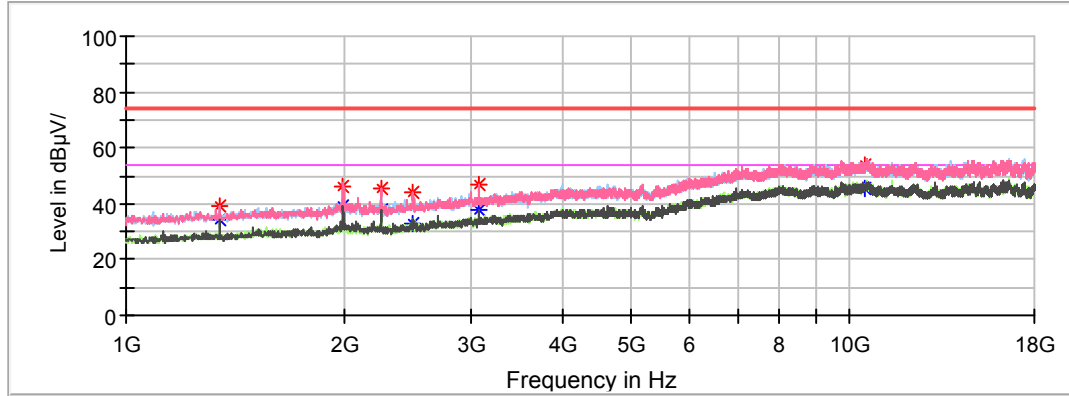


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.38	200	V	0.0	-10.3	54.00	19.62
1348.50	40.98	---	200	V	0.0	-10.3	74.00	33.02
1994.50	47.98	---	200	V	171.0	-7.7	68.20	20.22
2249.50	---	37.4	150	V	3.0	-6.7	54.00	16.60
2249.50	43.11	---	150	V	3.0	-6.7	74.00	30.89
2494.30	---	33.27	150	V	165.0	-5.8	54.00	20.73
2494.30	44.45	---	150	V	165.0	-5.8	74.00	29.55
6933.00	56.23	---	200	V	198.0	8.6	68.20	11.97
10399.30	51.66	---	200	H	289.0	12.8	74.00	22.34
10399.30	---	45.8	200	H	289.0	12.8	54.00	8.20
15448.30	---	46.3	150	V	58.0	11	54.00	7.70
15448.30	55.30	---	150	V	58.0	11	74.00	18.70



**High Channel: 5240MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.29	150	H	259.0	-10.3	54.00	19.71
1348.50	39.37	---	150	H	259.0	-10.3	74.00	34.63
1991.10	46.49	---	150	V	190.0	-7.7	68.20	21.71
2249.50	45.12	---	150	V	8.0	-6.7	74.00	28.88
2249.50	---	38.1	150	V	8.0	-6.7	54.00	15.90
2492.60	44.29	---	150	V	177.0	-5.8	74.00	29.71
2492.60	---	32.53	150	V	177.0	-5.8	54.00	21.47
3070.60	46.54	---	200	V	175.0	-3.0	68.20	21.66
10479.20	53.78	---	150	V	0.0	13.0	68.20	14.42



**802.11a Mode (ANT 2):**

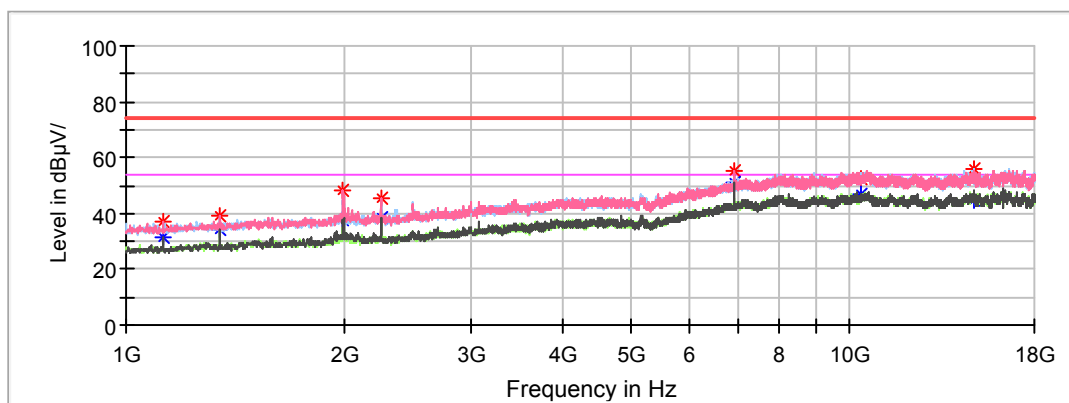
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5180MHz**

Full Spectrum

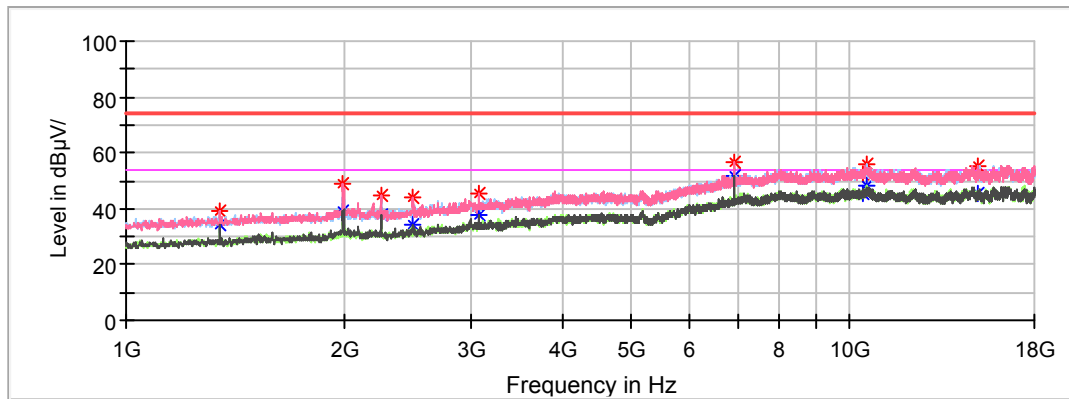


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1124.10	36.71	---	150	V	356.0	-11.7	74.00	37.29
1124.10	---	31.67	150	V	356.0	-11.7	54.00	22.33
1348.50	---	34.3	150	V	8.0	-10.3	54.00	19.7
1348.50	39.29	---	150	V	8.0	-10.3	74.00	34.71
1991.10	48.19	---	200	V	179.0	-7.7	68.20	20.01
2249.50	45.15	---	150	V	339.0	-6.7	74.00	28.85
2249.50	---	38.18	150	V	339.0	-6.7	54.00	15.82
6905.80	55.24	---	150	V	174.0	8.5	68.20	12.96
10360.20	52.18	---	150	V	263.0	12.7	68.20	16.02
14885.60	55.91	---	200	H	226.0	12	68.20	12.29



**Middle Channel: 5200MHz**

Full Spectrum

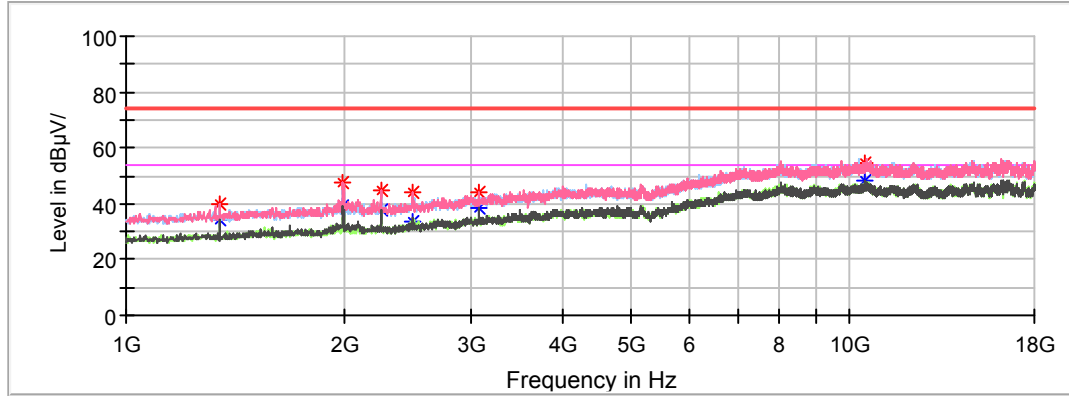


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.57	150	H	252.0	-10.3	54.00	19.43
1348.50	39.19	---	150	H	252.0	-10.3	74.00	34.81
1991.10	48.67	---	150	V	346.0	-7.7	68.20	19.53
2249.50	---	37.77	150	V	207.0	-6.7	54.00	16.23
2249.50	44.42	---	150	V	207.0	-6.7	74.00	29.58
2496.00	---	34.09	200	V	173.0	-5.8	54.00	19.91
2496.00	44.25	---	200	V	173.0	-5.8	74.00	29.75
3070.60	45.13	---	200	V	186.0	-3.0	68.20	23.07
6933.00	56.76	---	200	V	186.0	8.6	68.20	11.44
10399.30	52.11	---	150	V	308.0	12.8	68.20	16.09
10567.60	55.95	---	150	H	122.0	12.8	68.20	12.25
15069.20	55.24	---	200	V	33.0	12.0	68.20	12.96



**High Channel: 5240MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.3	150	V	15.0	-10.3	54.00	19.7
1348.50	40.12	---	150	V	15.0	-10.3	74.00	33.88
1989.40	47.21	---	200	V	160.0	-7.7	68.20	20.99
2249.50	---	37.43	150	V	0.0	-6.7	54.00	16.57
2249.50	44.57	---	150	V	0.0	-6.7	74.00	29.43
2487.50	---	33.59	150	V	173.0	-5.9	54.00	20.41
2487.50	44.23	---	150	V	173.0	-5.9	74.00	29.77
3070.60	44	---	200	V	186.0	-3.0	68.20	24.20
10482.60	54.35	---	200	V	199.0	13.0	68.20	13.85



**802.11a Mode (ANT 3):**

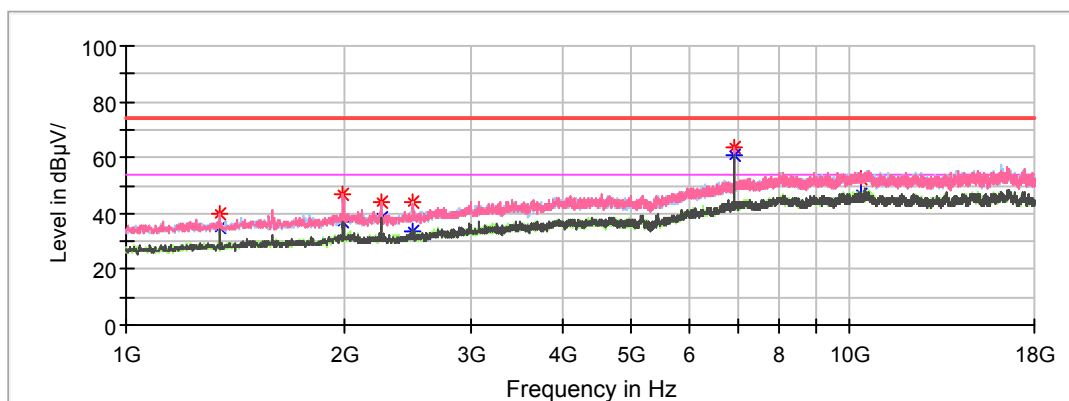
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5180MHz**

Full Spectrum

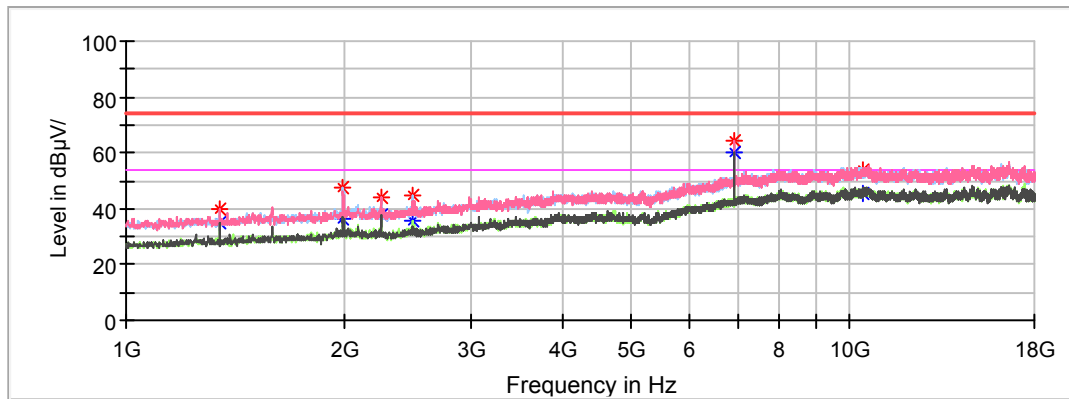


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	40.08	---	150	H	103.0	-10.3	74.00	33.92
1348.50	---	34.88	200	H	103.0	-10.3	54.00	19.12
1996.20	46.9	---	150	H	247.0	-7.7	68.20	21.30
2249.50	44.22	---	150	V	273.0	-6.7	74.00	29.78
2249.50	---	38.49	150	V	273.0	-6.7	54.00	15.51
2494.30	44.16	---	150	H	206.0	-5.8	74.00	29.84
2494.30	---	33.6	200	H	206.0	-5.8	54.00	20.40
6905.80	63.43	---	150	V	166.0	8.5	68.20	4.77
10360.20	52.29	---	200	V	1.0	12.7	68.20	15.91



**Middle Channel: 5200MHz**

Full Spectrum

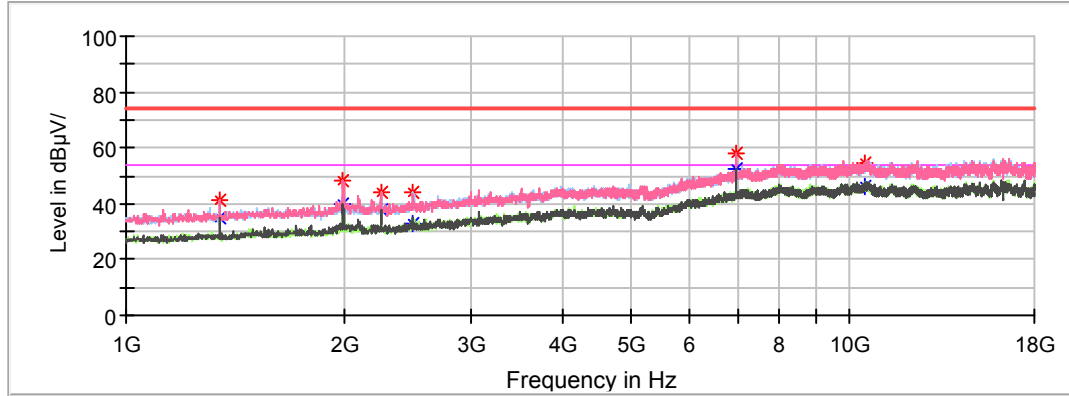


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	35.14	200	V	116.0	-10.3	54.00	18.86
1348.50	40.03	---	200	V	116.0	-10.3	74.00	33.97
1994.50	47.38	---	150	H	247.0	-7.7	68.20	20.82
2249.50	---	37.47	200	V	314.0	-6.7	54.00	16.53
2249.50	44.26	---	200	V	314.0	-6.7	74.00	29.74
2489.20	---	35.66	150	H	231.0	-5.9	54.00	18.34
2489.20	44.7	---	150	H	231.0	-5.9	74.00	29.30
6933.00	64.43	---	150	V	273.0	8.6	68.20	3.77
10399.30	53.68	---	150	V	304.0	12.8	68.20	14.52



**High Channel: 5240MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.97	150	H	264.0	-10.3	54.00	19.03
1348.50	40.99	---	150	H	264.0	-10.3	74.00	33.01
1989.40	48.39	---	150	V	342.0	-7.7	68.20	19.81
2249.50	---	37.85	150	V	212.0	-6.7	54.00	16.15
2249.50	44.34	---	150	V	212.0	-6.7	74.00	29.66
2492.60	---	33.13	200	H	165.0	-5.8	54.00	20.87
2492.60	44.38	---	200	H	165.0	-5.8	74.00	29.62
6985.70	57.77	---	150	V	199.0	8.8	68.20	10.43
10477.50	54.25	---	200	H	230.0	13	68.20	13.95



**802.11ac20 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

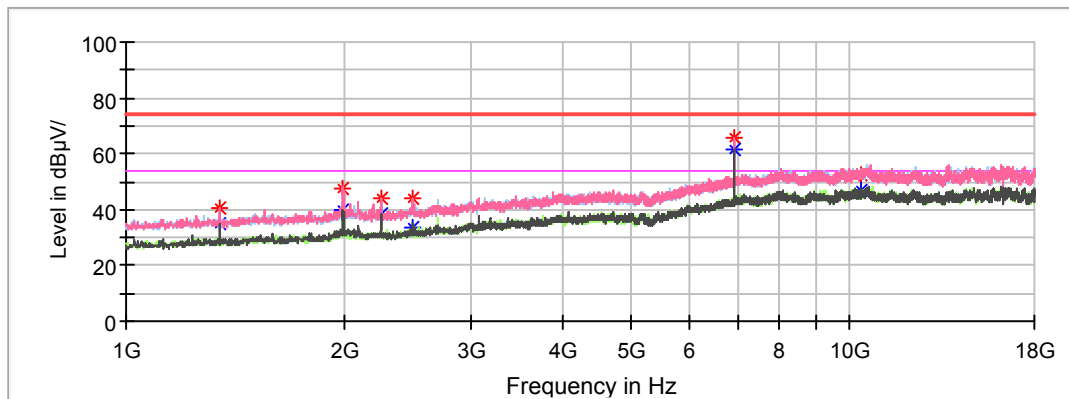
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5180MHz**

Full Spectrum

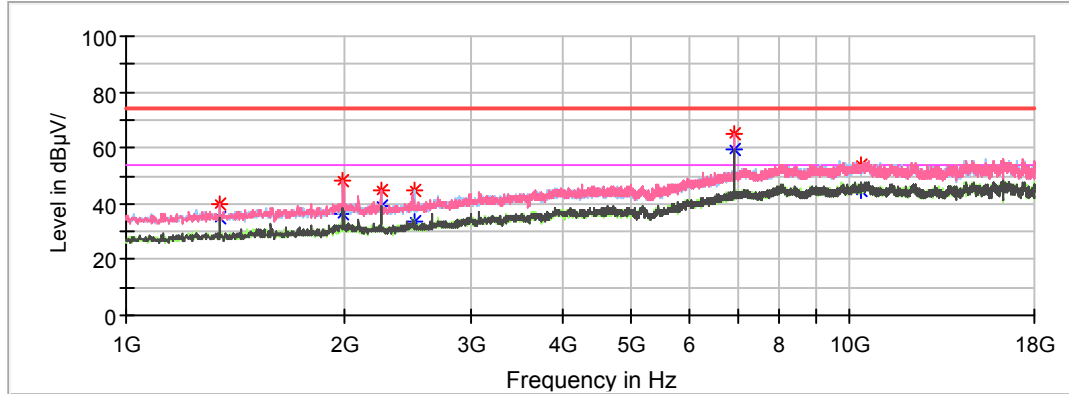


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.78	200	V	32.0	-10.3	54.00	19.22
1348.50	40.85	---	200	V	32.0	-10.3	74.00	33.15
1989.40	47.64	---	150	V	172.0	-7.7	68.20	20.56
2249.50	---	38.22	150	V	0.0	-6.7	54.00	15.78
2249.50	44.23	---	150	V	0.0	-6.7	74.00	29.77
2492.60	44.04	---	200	V	159.0	-5.8	74.00	29.96
2492.60	---	33.68	200	V	159.0	-5.8	54.00	20.32
6905.80	65.86	---	200	V	208.0	8.5	68.20	2.34
10360.20	52.41	---	150	V	3.0	12.7	68.20	15.79



**Middle Channel: 5200MHz**

Full Spectrum

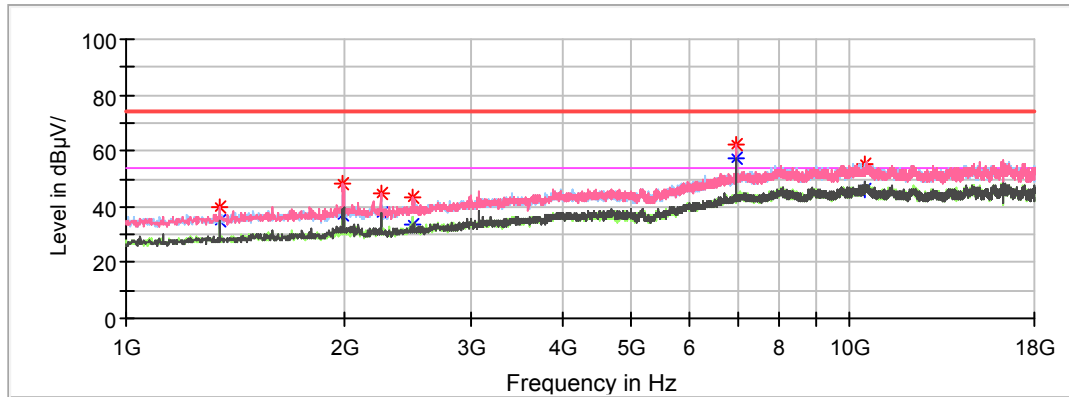


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.88	150	V	26.0	-10.3	54.00	19.12
1348.50	39.66	---	150	V	26.0	-10.3	74.00	34.34
1992.80	48.06	---	200	V	0.0	-7.7	68.20	20.14
2249.50	---	38.92	150	V	0.0	-6.7	54.00	15.08
2249.50	44.52	---	150	V	0.0	-6.7	74.00	29.48
2499.40	---	33.37	200	H	217.0	-5.8	54.00	20.63
2499.40	44.62	---	200	H	217.0	-5.8	74.00	29.38
6933.00	64.72	---	200	V	213.0	8.6	68.20	3.48
10392.50	54.11	---	150	V	6.0	12.8	68.20	14.09



**High Channel: 5240MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.73	150	V	10.0	-10.3	54.00	19.27
1348.50	40.18	---	150	V	10.0	-10.3	74.00	33.82
1994.50	48.28	---	200	V	350.0	-7.7	68.20	19.92
2249.50	---	37.9	150	V	0.0	-6.7	54.00	16.1
2249.50	44.53	---	150	V	0.0	-6.7	74.00	29.47
2494.30	---	33.74	150	H	160.0	-5.8	54.00	20.26
2494.30	43.42	---	150	H	160.0	-5.8	74.00	30.58
6985.70	62.51	---	200	V	207.0	8.8	68.20	5.69
10482.60	55.01	---	150	H	224.0	13	68.20	13.19



**802.11n-HT20 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

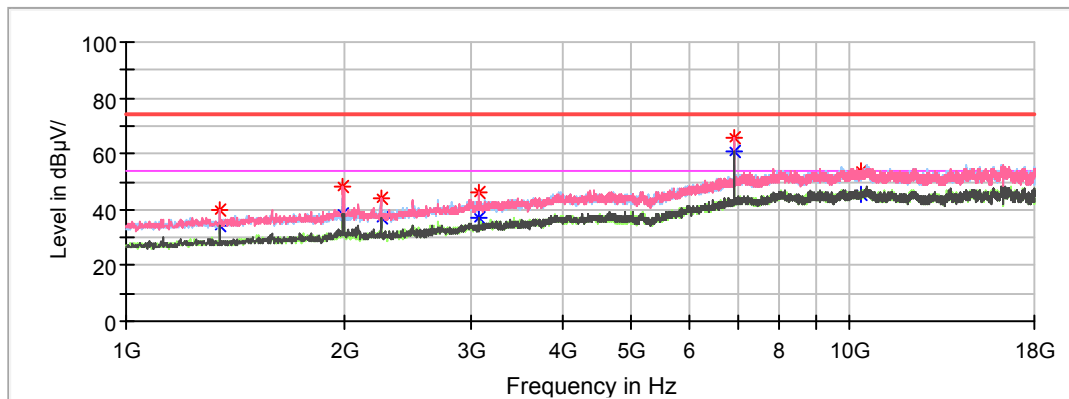
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5180MHz**

Full Spectrum

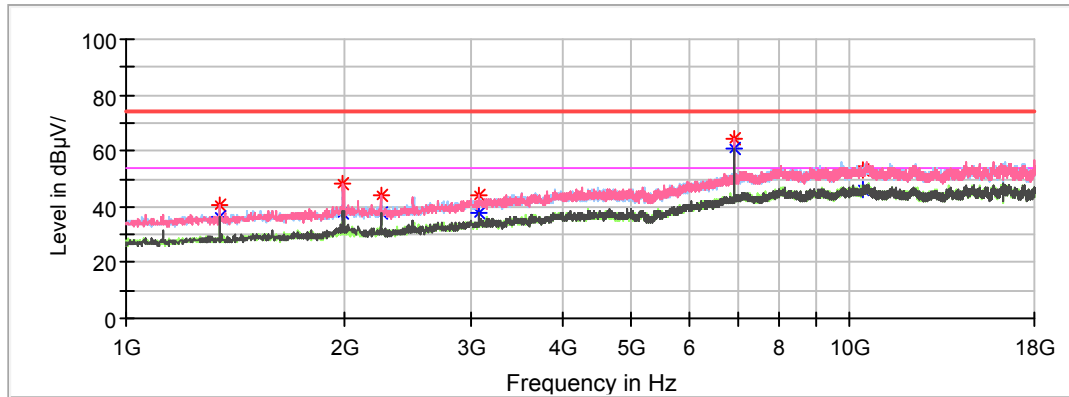


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.53	150	V	34.0	-10.3	54.00	19.47
1348.50	40.14	---	150	V	34.0	-10.3	74.00	33.86
1991.10	48.38	---	200	V	0.0	-7.7	68.20	19.82
2249.50	---	37.17	200	V	207.0	-6.7	54.00	16.83
2249.50	43.98	---	200	V	207.0	-6.7	74.00	30.02
3070.60	---	37.32	150	V	187.0	-3.0	54.00	16.68
3070.60	46.40	---	150	V	187.0	-3.0	74.00	27.60
6905.80	65.63	---	200	V	207.0	8.5	68.20	2.57
10365.30	53.85	---	200	V	309.0	12.7	68.20	14.35



**Middle Channel: 5200MHz**

Full Spectrum

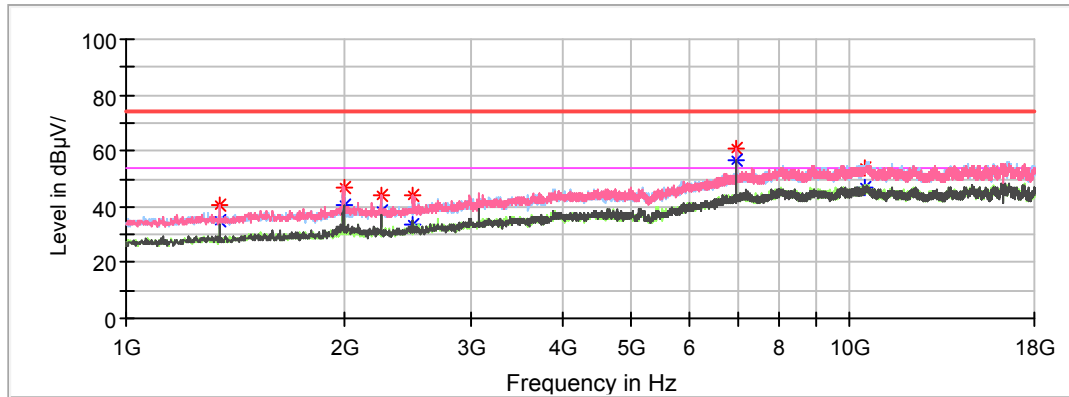


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	36.14	200.0	V	22.0	-10.3	54.00	17.86
1348.50	40.88	---	200.0	V	22.0	-10.3	74.00	33.12
1994.50	48.34	---	150.0	V	174.0	-7.7	68.20	19.86
2249.50	---	37.52	150.0	V	226.0	-6.7	54.00	16.48
2249.50	43.97	---	150.0	V	226.0	-6.7	74.00	30.03
3070.60	---	37.68	200.0	V	233.0	-3.0	54.00	16.32
3070.60	44.21	---	200.0	V	233.0	-3.0	74.00	29.79
6933.00	64.62	---	200.0	V	208.0	8.6	68.20	3.58
10399.30	52.87	---	150.0	H	64.0	12.8	68.20	15.33



**High Channel: 5240MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.70	150	H	270.0	-10.3	54.00	19.3
1348.50	40.41	---	150	H	270.0	-10.3	74.00	33.59
1997.90	47.03	---	150	V	353.0	-7.7	68.20	21.17
2249.50	---	38.18	150	H	232.0	-6.7	54.00	15.82
2249.50	44.07	---	150	H	232.0	-6.7	74.00	29.93
2496.00	---	33.39	150	H	194.0	-5.8	54.00	20.61
2496.00	44.11	---	150	H	194.0	-5.8	74.00	29.89
6985.70	61.04	---	200	V	211.0	8.8	68.20	7.16
10482.60	53.77	---	200	H	60.0	13.0	68.20	14.43



**802.11ac40 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

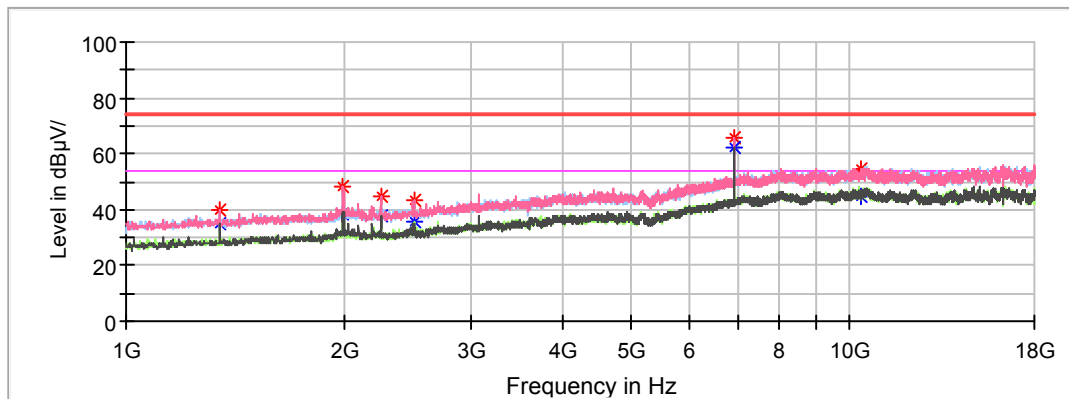
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5190MHz**

Full Spectrum

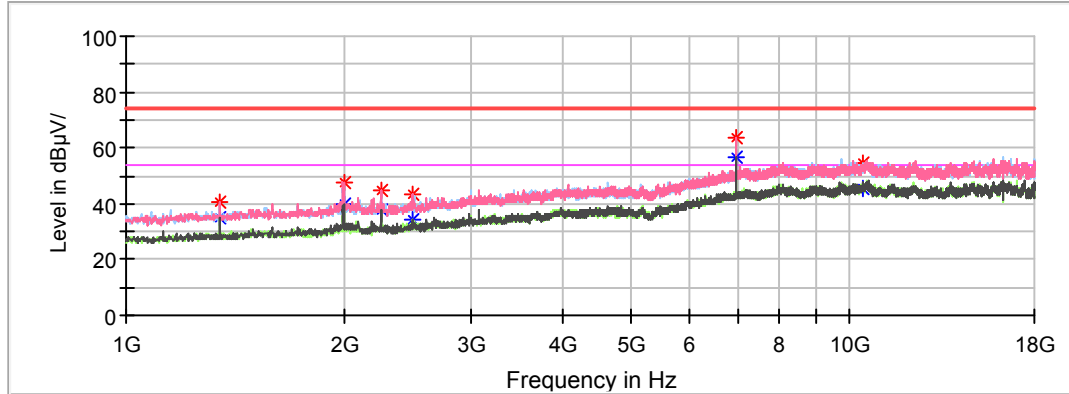


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	35.14	150	V	21.0	-10.3	54.00	18.86
1348.50	39.8	---	150	V	21.0	-10.3	74.00	34.20
1992.80	48.12	---	200	V	0.0	-7.7	68.20	20.08
2249.50	---	38.07	200	V	208.0	-6.7	54.00	15.93
2249.50	44.79	---	150	V	208.0	-6.7	74.00	29.21
2497.70	---	35.54	200	H	200.0	-5.8	54.00	18.46
2497.70	43.38	---	200	H	200.0	-5.8	74.00	30.62
6919.40	65.96	---	200	V	208.0	8.6	68.20	2.24
10377.20	54.23	---	200	V	271.0	12.7	68.20	13.97



**High Channel: 5230MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.98	200	V	357.0	-10.3	54.00	19.02
1348.50	40.34	---	200	V	357.0	-10.3	74.00	33.66
1997.90	47.80	---	200	V	170.0	-7.7	68.20	20.4
2249.50	---	37.87	150	V	0.0	-6.7	54.00	16.13
2249.50	44.96	---	150	V	0.0	-6.7	74.00	29.04
2487.50	---	34.18	150	H	224.0	-5.9	54.00	19.82
2487.50	43.49	---	150	H	224.0	-5.9	74.00	30.51
6972.10	63.71	---	200	V	208.0	8.8	68.20	4.49
10460.50	54.81	---	200	H	153.0	12.9	68.20	13.39



**802.11n-HT40 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

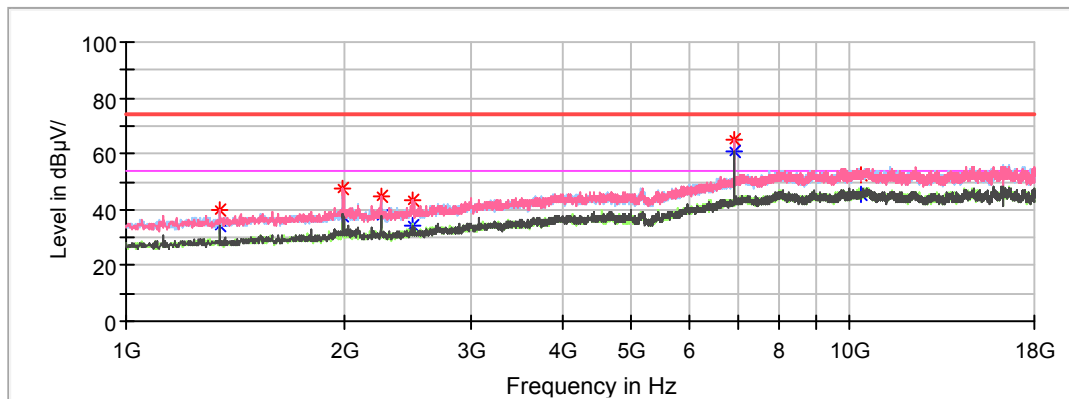
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5190MHz**

Full Spectrum

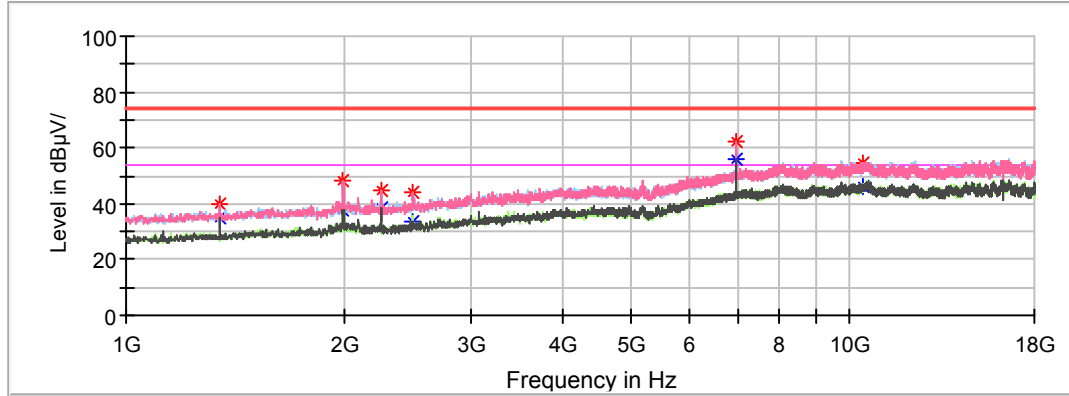


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.12	200	V	350.0	-10.3	54.00	19.88
1348.50	39.65	---	200	V	350.0	-10.3	74.00	34.35
1992.80	47.83	---	200	V	162.0	-7.7	68.20	20.37
2249.50	---	37.81	150	V	0.0	-6.7	54.00	16.19
2249.50	44.41	---	150	V	0.0	-6.7	74.00	29.59
2492.60	---	34.04	150	H	195.0	-5.8	54.00	19.96
2492.60	43.22	---	150	H	195.0	-5.8	74.00	30.78
6919.40	64.88	---	200	V	200.0	8.6	68.20	3.32
10380.60	52.39	---	150	H	309.0	12.7	68.20	15.81



**High Channel: 5230MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1348.50	---	34.8	200	H	238.0	-10.3	54.00	19.20
1348.50	39.75	---	200	H	238.0	-10.3	74.00	34.25
1996.20	48.46	---	200	V	169.0	-7.7	68.20	19.74
2249.50	---	38.27	150	V	345.0	-6.7	54.00	15.73
2249.50	44.56	---	150	V	345.0	-6.7	74.00	29.44
2489.20	---	33.53	150	H	187.0	-5.9	54.00	20.47
2489.20	44.28	---	150	H	187.0	-5.9	74.00	29.72
6972.10	62.5	---	200	V	207.0	8.8	68.20	5.70
10436.70	54.44	---	150	H	263.0	12.9	68.20	13.76



**802.11ac80 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

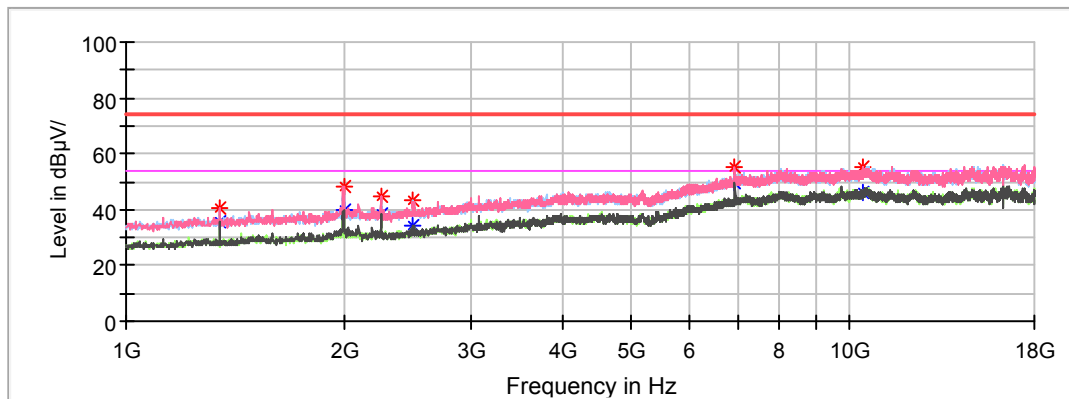
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5150-5250MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5210MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1348.50	---	35.77	150	V	21.0	-10.3	54.00	18.23
1348.50	40.58	---	150	V	21.0	-10.3	74.00	33.42
1997.90	48.17	---	150	V	179.0	-7.7	68.20	20.03
2249.50	---	38.26	150	V	0.0	-6.7	54.00	15.74
2249.50	44.79	---	150	V	0.0	-6.7	74.00	29.21
2496.00	---	34.18	150	H	166.0	-5.8	54.00	19.82
2496.00	43.6	---	150	H	166.0	-5.8	74.00	30.40
6946.60	55.21	---	200	V	199.0	8.7	68.20	12.99
10414.60	55.59	---	200	V	148.0	12.8	68.20	12.61



**1GHz-18GHz (5725-5850MHz Band):****802.11a Mode (ANT 1):**

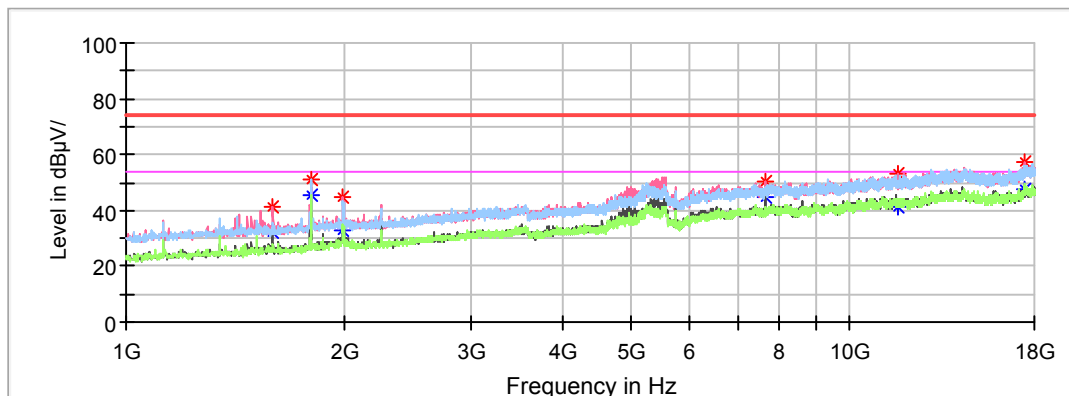
(Pre-scan in the X, Y and Z axes of orientation, the worst case **Z-axis of orientation** was recorded.)

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5745MHz**

Full Spectrum

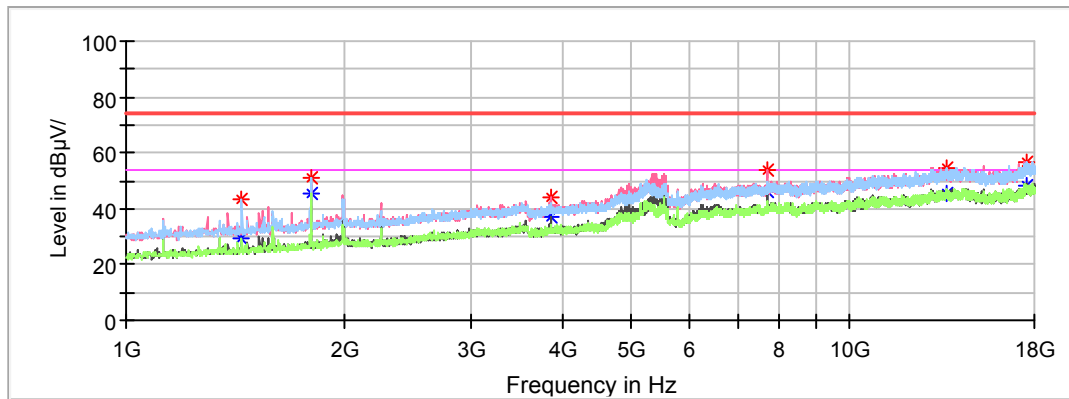


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1595.00	---	32.04	200	V	58.0	-9.6	54.00	21.96
1595.00	41.07	---	200	V	58.0	-9.6	74.00	32.93
1799.00	51.29	---	150	H	45.0	-8.9	68.20	16.91
1992.80	44.60	---	200	V	351.0	-8.3	68.20	23.60
7658.90	---	44.63	150	V	100.0	6.4	54.00	9.37
7658.90	50.70	---	150	V	100.0	6.4	74.00	23.30
11636.90	---	41.44	200	V	295.0	9.9	54.00	12.56
11636.90	52.84	---	200	V	295.0	9.9	74.00	21.16
17503.60	57.03	---	200	V	279.0	14.3	68.20	11.17



**Middle Channel: 5785MHz**

Full Spectrum

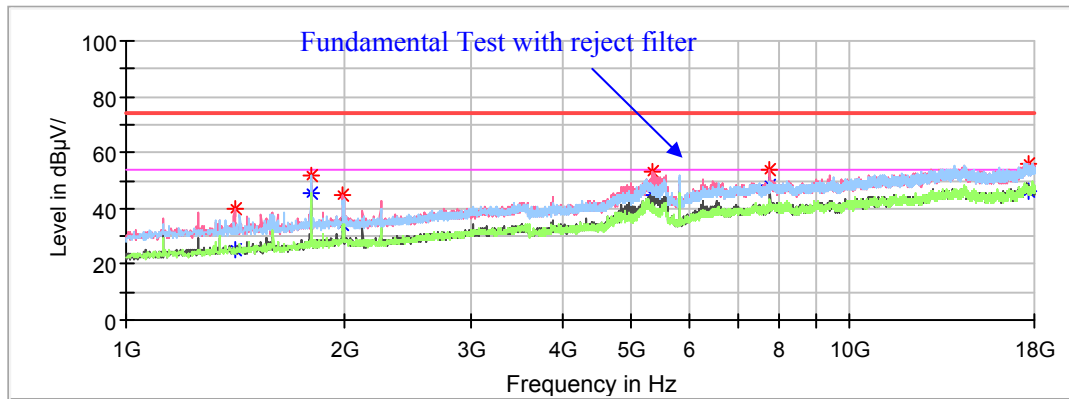


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1445.40	---	29.47	200	H	2.0	-10.2	54.00	24.53
1445.40	43.24	---	200	H	2.0	-10.2	74.00	30.76
1799.00	51.08	---	150	H	51.0	-8.9	68.20	17.12
3856.00	---	36.85	150	V	272.0	-2.3	54.00	17.15
3856.00	44.20	---	150	V	272.0	-2.3	74.00	29.80
7713.30	---	45.86	200	V	246.0	6.5	54.00	8.14
7713.30	53.50	---	200	V	246.0	6.5	74.00	20.50
13619.10	54.62	---	150	H	296.0	12.1	68.20	13.58
17529.10	56.77	---	200	H	354.0	14.2	68.20	11.43



**High Channel: 5825MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1411.40	---	25.23	200	V	39.0	-10.4	54.00	28.77
1411.40	39.72	---	200	V	39.0	-10.4	74.00	34.28
1799.00	51.57	---	150	H	42.0	-8.9	68.20	16.63
1996.20	44.60	---	200	V	12.0	-8.3	68.20	23.60
5340.10	53.30	---	200	V	279.0	0.9	68.20	14.90
7766.00	54.10	---	150	V	250.0	6.6	68.20	14.10
17699.10	56.09	---	150	V	146.0	14.0	68.20	12.11



**802.11a Mode (ANT 2):**

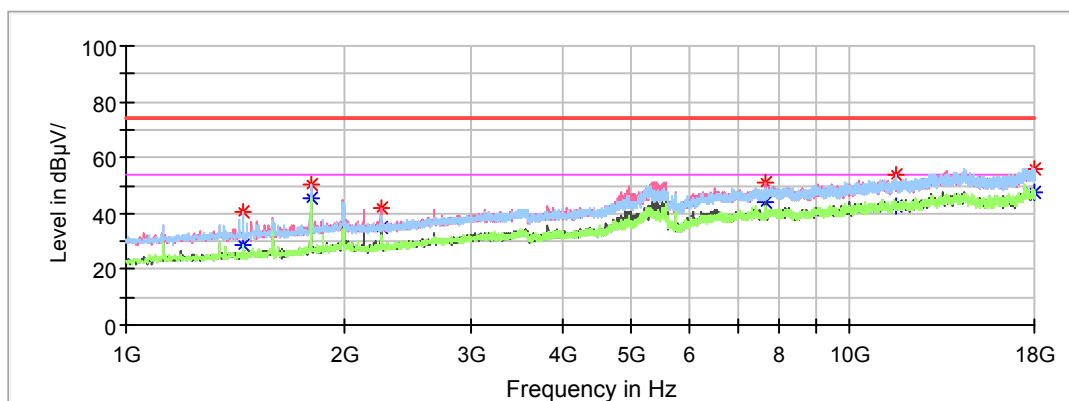
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5745MHz**

Full Spectrum

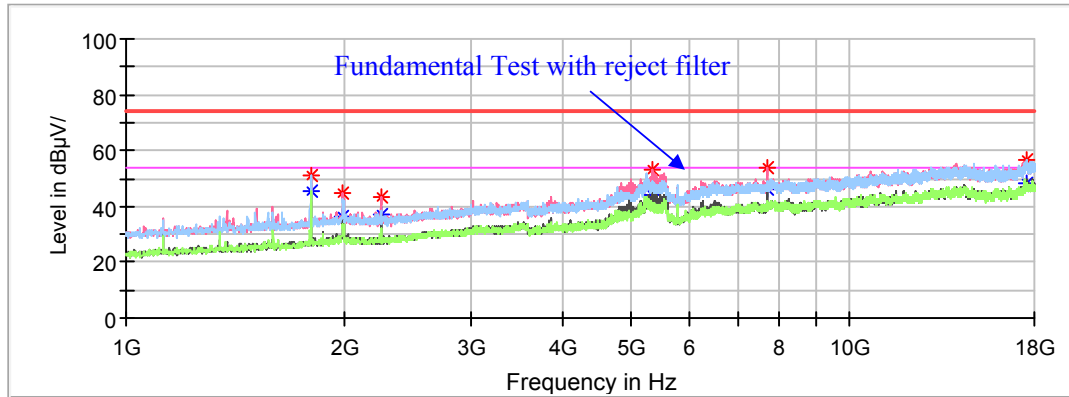


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1448.80	---	28.98	200	H	344.0	-10.2	54.00	25.02
1448.80	40.48	---	200	H	344.0	-10.2	74.00	33.52
1799.00	50.67	---	150	H	54.0	-8.9	68.20	17.53
2249.50	---	35.23	200	V	22.0	-7.6	54.00	18.77
2249.50	41.92	---	200	V	22.0	-7.6	74.00	32.08
7658.90	---	44.02	150	V	111.0	6.4	54.00	9.98
7658.90	51.16	---	150	V	111.0	6.4	74.00	22.84
11572.30	---	42.32	150	H	25.0	9.8	54.00	11.68
11572.30	53.67	---	150	H	25.0	9.8	74.00	20.33
17957.50	---	47.35	150	H	231.0	13.5	54.00	6.65
17957.50	56.21	---	150	H	231.0	13.5	74.00	17.79



**Middle Channel: 5785MHz**

Full Spectrum

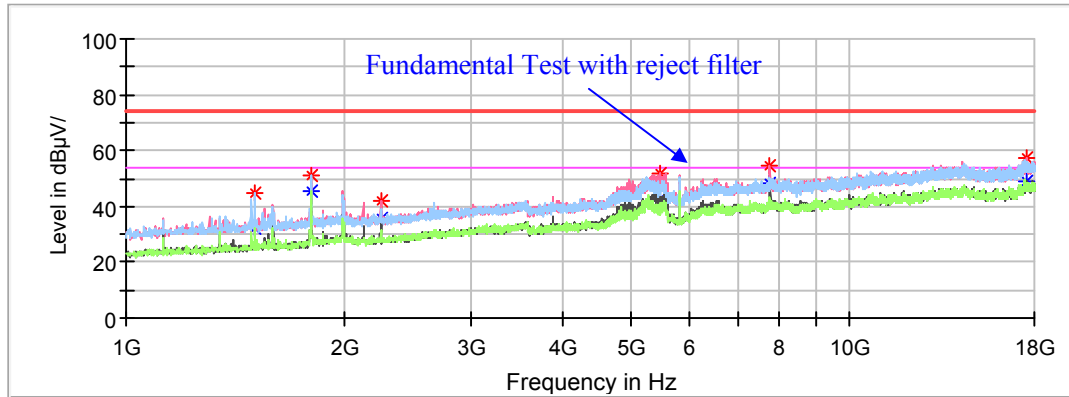


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1799.00	50.71	---	150	H	43.0	-8.9	68.20	17.49
1991.10	45.08	---	200	V	0.0	-8.3	68.20	23.12
2249.50	---	36.73	150	V	31.0	-7.6	54.00	17.27
2249.50	43.30	---	150	V	31.0	-7.6	74.00	30.70
5341.80	53.24	---	200	V	232.0	0.9	68.20	14.96
7713.30	---	46.18	200	V	232.0	6.5	54.00	7.82
7713.30	54.15	---	200	V	232.0	6.5	74.00	19.85
17534.20	56.43	---	200	H	162.0	14.2	68.20	11.77



**High Channel: 5825MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1508.30	---	32.34	150	H	340.0	-9.9	54.00	21.66
1508.30	44.86	---	150	H	340.0	-9.9	74.00	29.14
1799.00	50.87	---	150	H	50.0	-8.9	68.20	17.33
2249.50	---	35.55	200	V	34.0	-7.6	54.00	18.45
2249.50	42.12	---	200	V	34.0	-7.6	74.00	31.88
5479.50	51.71	---	200	V	226.0	1.3	68.20	16.49
7766.00	54.34	---	200	V	273.0	6.6	68.20	13.86
17549.50	57.10	---	200	V	322.0	14.2	68.20	11.10



**802.11a Mode (ANT 3):**

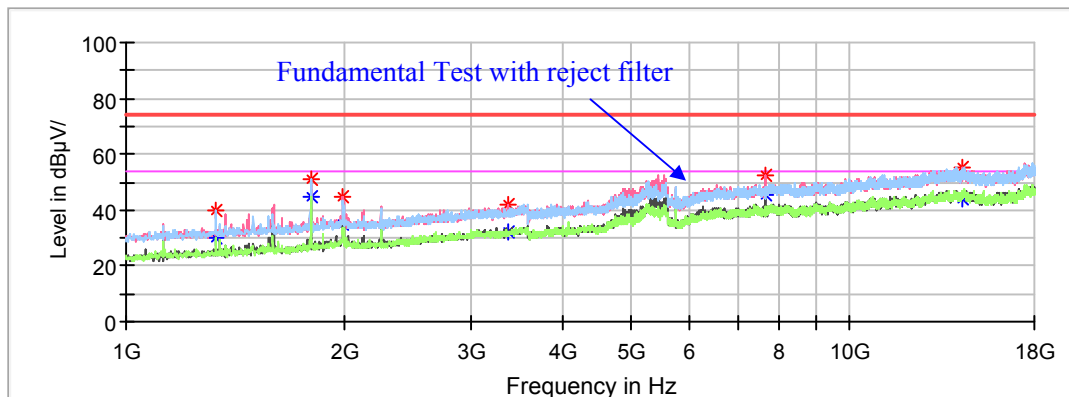
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5745MHz**

Full Spectrum

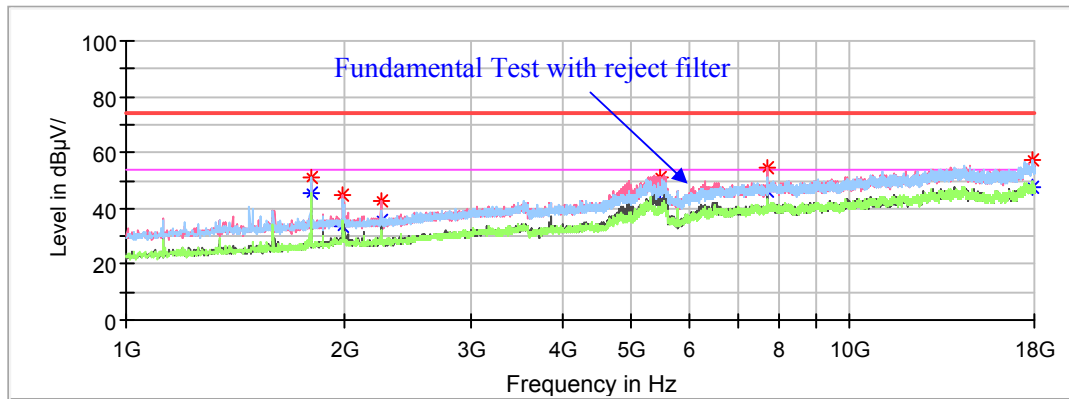


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1329.80	---	30.23	200	H	344.0	-10.9	54.00	23.77
1329.80	39.66	---	200	H	344.0	-10.9	74.00	34.34
1799.00	51.01	---	150	H	38.0	-8.9	68.20	17.19
1996.20	44.60	---	200	V	10.0	-8.3	68.20	23.60
3363.00	41.63	---	200	V	143.0	-3.8	68.20	26.57
7658.90	---	45.17	150	V	79.0	6.4	54.00	8.83
7658.90	52.36	---	150	V	79.0	6.4	74.00	21.64
14268.50	55.52	---	200	V	94.0	12.6	68.20	12.68



**Middle Channel: 5785MHz**

Full Spectrum

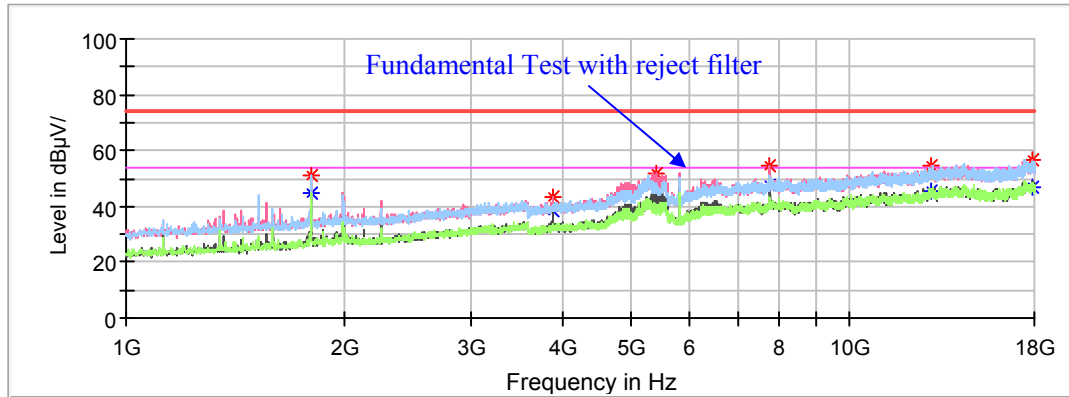


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	50.90	---	150	H	42.0	-8.9	68.20	17.30
1991.10	44.72	---	200	V	14.0	-8.3	68.20	23.48
2249.50	---	35.92	150	V	37.0	-7.6	54.00	18.08
2249.50	42.39	---	150	V	37.0	-7.6	74.00	31.61
5467.60	51.34	---	150	V	236.0	1.3	68.20	16.86
7713.30	---	46.29	200	V	246.0	6.5	54.00	7.71
7713.30	54.67	---	200	V	246.0	6.5	74.00	19.33
17933.70	---	47.43	150	H	1.0	13.6	54.00	6.57
17933.70	57.06	---	150	H	1.0	13.6	74.00	16.94



**High Channel: 5825MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	51.28	---	150	H	50.0	-8.9	68.20	16.92
3881.50	---	38.72	150	V	236.0	-2.3	54.00	15.28
3881.50	43.05	---	150	V	236.0	-2.3	74.00	30.95
5420.00	---	42.78	200	V	226.0	1.1	54.00	11.22
5420.00	51.78	---	200	V	226.0	1.1	74.00	22.22
7766.00	54.31	---	150	V	266.0	6.6	68.20	13.89
12991.80	54.77	---	200	V	226.0	12.0	68.20	13.43
17933.70	---	47.04	150	V	310.0	13.6	54.00	6.96
17933.70	56.62	---	150	V	310.0	13.6	74.00	17.38



**802.11ac20 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

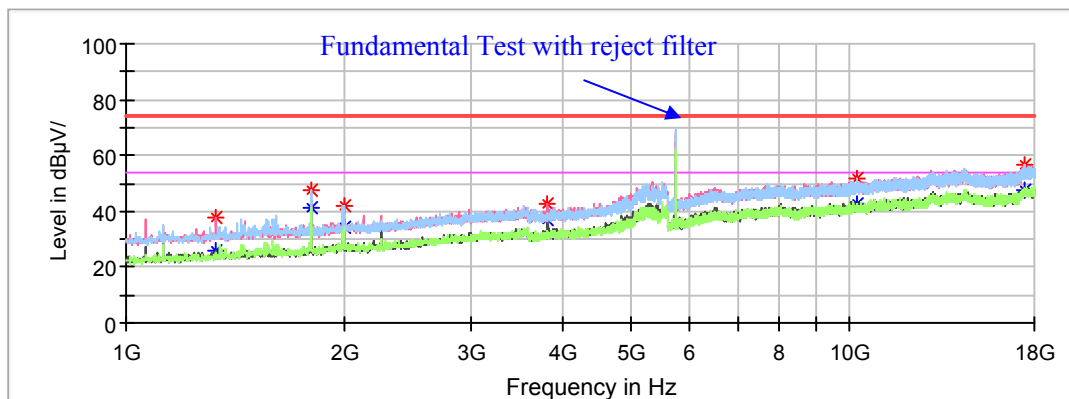
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5745MHz**

Full Spectrum

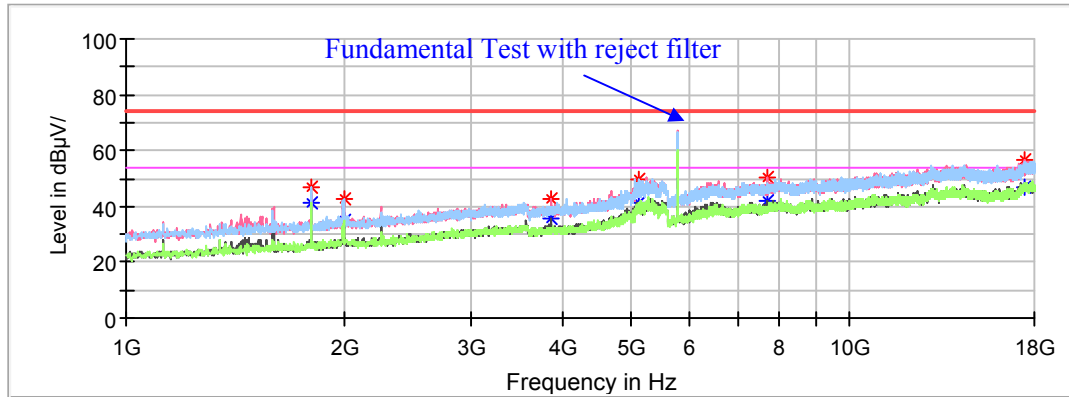


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1329.80	---	25.65	100	V	96.0	-10.9	54.00	28.35
1329.80	37.87	---	100	V	96.0	-10.9	74.00	36.13
1799.00	47.23	---	150	H	0.0	-8.9	68.20	20.97
1997.90	41.77	---	150	H	297.0	-8.2	68.20	26.43
3828.80	---	37.09	200	V	292.0	-2.4	54.00	16.91
3828.80	42.79	---	200	V	292.0	-2.4	74.00	31.21
10225.90	52.10	---	150	H	132.0	8.6	68.20	16.10
17432.20	56.57	---	150	H	312.0	13.9	68.20	11.63



**Middle Channel: 5785MHz**

Full Spectrum

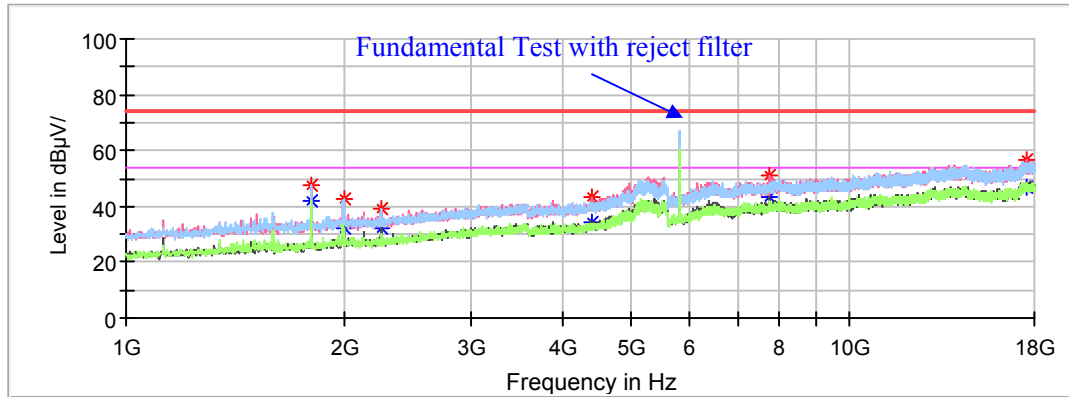


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	46.95	---	150	H	2.0	-8.9	68.20	21.25
1997.90	42.48	---	250	H	327.0	-8.2	68.20	25.72
3856.00	---	35.70	200	V	359.0	-2.3	54.00	18.30
3856.00	42.48	---	200	V	359.0	-2.3	74.00	31.52
5108.90	---	41.04	100	H	27.0	0.1	54.00	12.96
5108.90	49.95	---	100	H	27.0	0.1	74.00	24.05
7713.30	---	42.28	200	V	124.0	6.5	54.00	11.72
7713.30	50.00	---	200	V	124.0	6.5	74.00	24.00
17425.40	56.36	---	100	V	330.0	13.9	68.20	11.84



**High Channel: 5825MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	47.39	---	100	H	0.0	-8.9	68.20	20.81
1997.90	42.41	---	150	H	341.0	-8.2	68.20	25.79
2249.50	---	32.38	200	V	33.0	-7.6	54.00	21.62
2249.50	39.04	---	200	V	33.0	-7.6	74.00	34.96
4391.50	---	34.14	150	V	65.0	-1.2	54.00	19.86
4391.50	43.70	---	150	V	65.0	-1.2	74.00	30.30
7766.00	50.83	---	100	V	266.0	6.6	68.20	17.37
17575.00	56.92	---	100	V	266.0	14.2	68.20	11.28



**802.11n-HT20 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

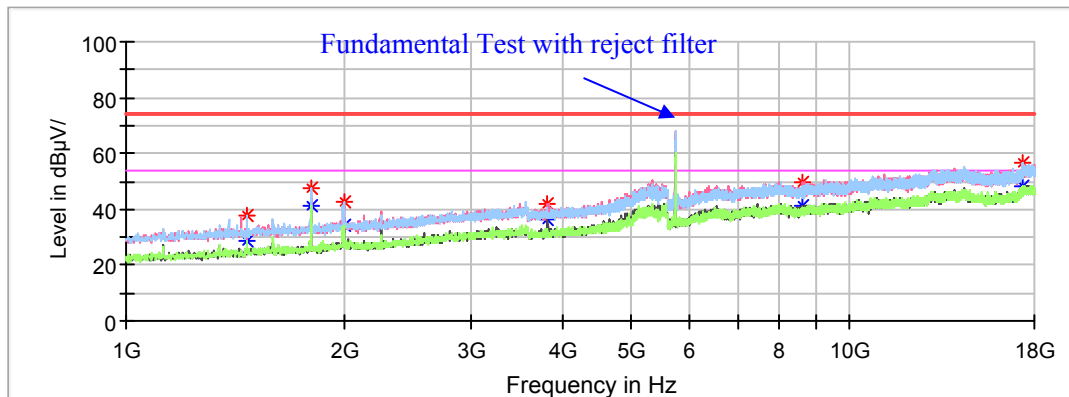
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5745MHz**

Full Spectrum

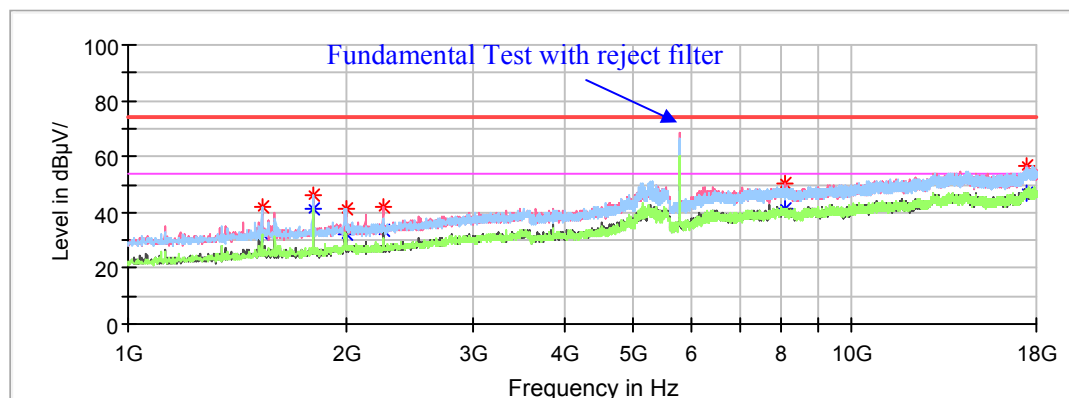


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1469.20	37.94	---	200	H	41.0	-10.1	74.00	36.06
1469.20	---	28.45	200	H	41.0	-10.1	54.00	25.55
1799.00	47.23	---	150	H	0.0	-8.9	68.20	20.97
1997.90	42.80	---	100	H	340.0	-8.2	68.20	25.40
3828.80	42.27	---	150	V	237.0	-2.4	68.20	25.93
8593.90	49.55	---	150	V	237.0	6.5	68.20	18.65
17391.40	56.47	---	150	H	70.0	13.7	68.20	11.73



**Middle Channel: 5785MHz**

Full Spectrum

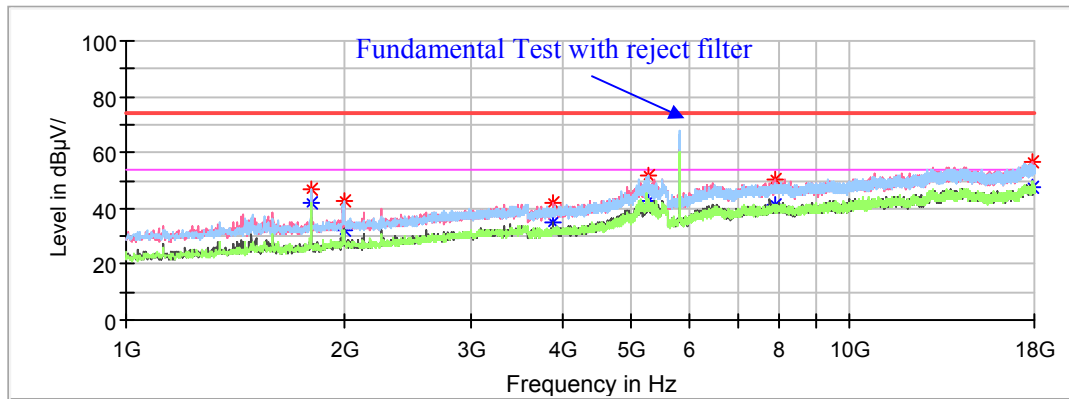


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)				
1530.40	---	32.07	200	H	11.0	-9.8	54.00	21.93
1530.40	41.93	---	200	H	11.0	-9.8	74.00	32.07
1799.00	46.48	---	150	H	0.0	-8.9	68.20	21.72
1997.90	41.40	---	250	V	0.0	-8.2	68.20	26.80
2249.50	42.03	---	250	V	0.0	-7.6	74.00	31.97
2249.50	---	33.70	250	V	0.0	-7.6	54.00	20.30
8106.00	---	41.16	150	V	264.0	6.9	54.00	12.84
8106.00	50.09	---	150	V	264.0	6.9	74.00	23.91
17461.10	56.58	---	100	V	145.0	14.1	68.20	11.62



**High Channel: 5825MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	46.97	---	100	H	0.0	-8.9	68.20	21.23
1997.90	42.90	---	150	H	298.0	-8.2	68.20	25.30
3883.20	---	34.62	150	V	275.0	-2.3	54.00	19.38
3883.20	41.69	---	150	V	275.0	-2.3	74.00	32.31
5256.80	51.72	---	100	H	26.0	0.6	68.20	16.48
7910.50	50.37	---	150	V	260.0	6.9	68.20	17.83
17928.60	---	47.86	200	V	246.0	13.6	54.00	6.14
17928.60	56.40	---	200	V	246.0	13.6	74.00	17.60



**802.11ac40 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

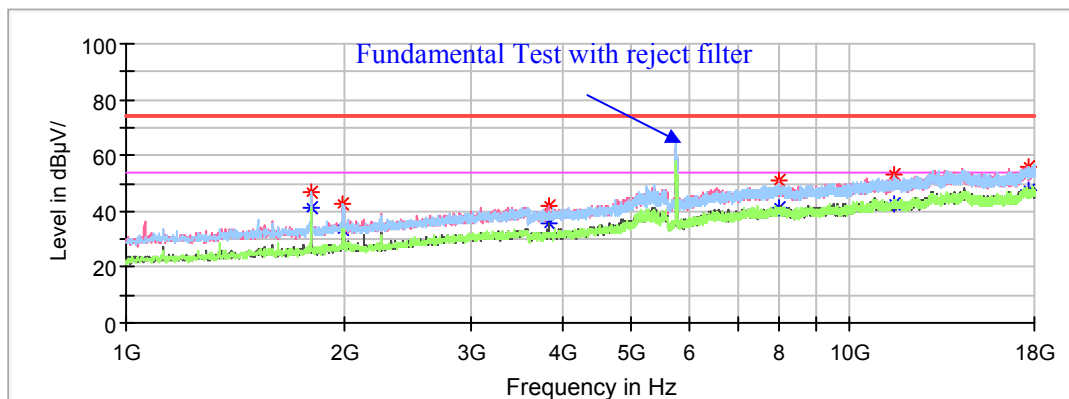
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5755MHz**

Full Spectrum

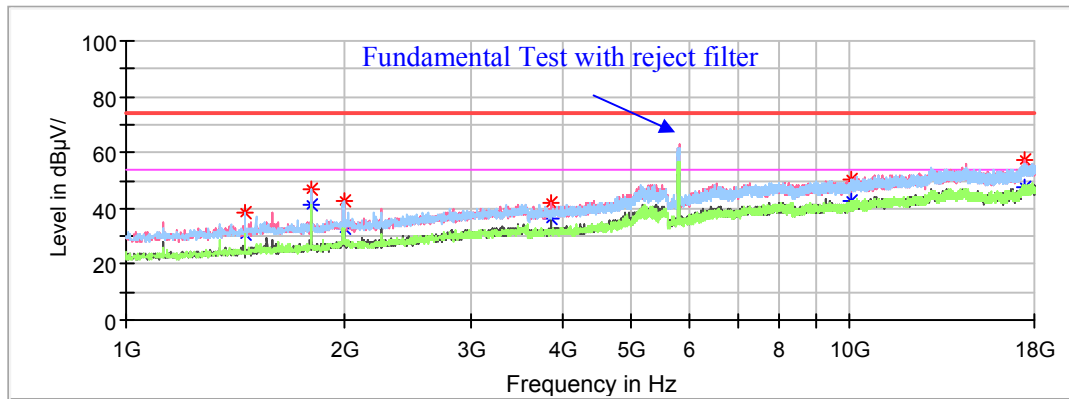


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1799.00	46.68	---	200	H	0.0	-8.9	68.20	21.52
1992.80	42.43	---	200	H	297.0	-8.3	68.20	25.77
3835.60	---	35.52	100	V	231.0	-2.4	54.00	18.48
3835.60	41.73	---	100	V	231.0	-2.4	74.00	32.27
8005.70	50.73	---	150	V	350.0	7.1	68.20	17.47
11528.10	---	42.55	250	H	82.0	9.8	54.00	11.45
11528.10	52.96	---	250	H	82.0	9.8	74.00	21.04
17626.00	55.77	---	250	H	39.0	14.1	68.20	12.43



**High Channel: 5795MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1457.30	---	30.73	100	H	33.0	-10.2	54.00	23.27
1457.30	38.67	---	100	H	33.0	-10.2	74.00	35.33
1799.00	46.80	---	150	H	0.0	-8.9	68.20	21.40
1997.90	42.73	---	150	H	296.0	-8.2	68.20	25.47
3862.80	42.23	---	200	V	357.0	-2.3	74.00	31.77
3862.80	---	36.03	200	V	357.0	-2.3	54.00	17.97
10040.60	50.62	---	100	H	7.0	8.3	68.20	17.58
17442.40	57.00	---	200	V	216.0	14.0	68.20	11.20



**802.11n-HT40 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

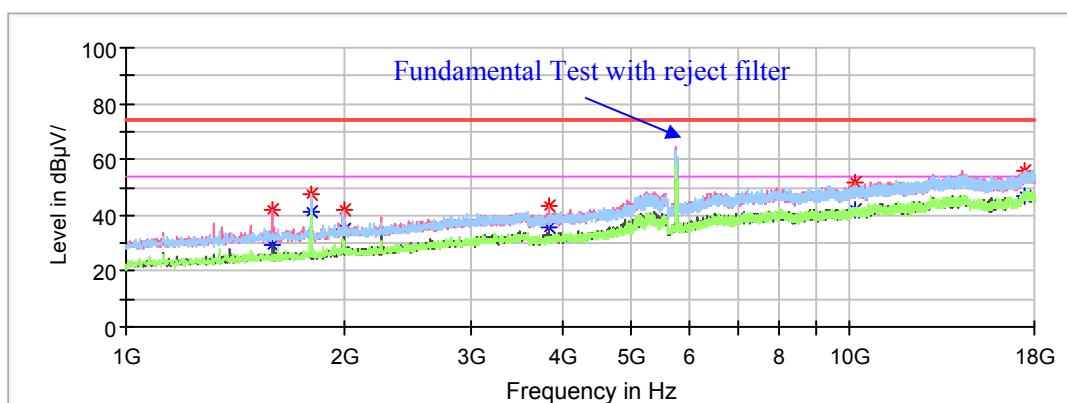
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5755MHz**

Full Spectrum

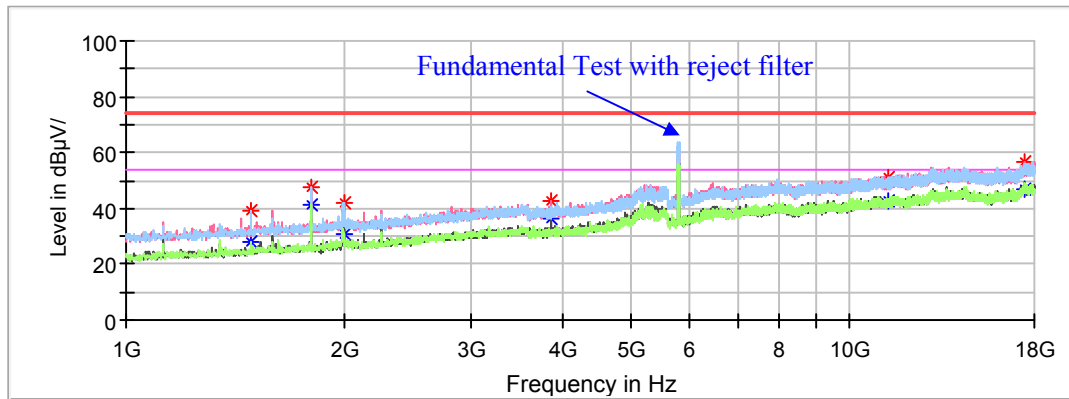


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1595.00	---	29.41	200	V	49.0	-9.6	54.00	24.59
1595.00	41.76	---	200	V	49.0	-9.6	74.00	32.24
1799.00	47.47	---	150	H	0.0	-8.9	68.20	20.73
1997.90	41.70	---	150	V	0.0	-8.2	68.20	26.50
3835.60	---	35.51	200	V	260.0	-2.4	54.00	18.49
3835.60	43.13	---	200	V	260.0	-2.4	74.00	30.87
10190.20	51.97	---	150	V	350.0	8.5	68.20	16.23
17466.20	56.13	---	150	H	265.0	14.1	68.20	12.07



**High Channel: 5795MHz**

Full Spectrum



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1489.60	---	28.10	150	H	34.0	-10.0	54.00	25.90
1489.60	39.31	---	150	H	34.0	-10.0	74.00	34.69
1799.00	47.55	---	100	H	358.0	-8.9	68.20	20.65
1997.90	41.98	---	150	H	242.0	-8.2	68.20	26.22
3862.80	---	36.21	200	V	296.0	-2.3	54.00	17.79
3862.80	42.56	---	200	V	296.0	-2.3	74.00	31.44
11300.30	---	42.57	250	H	0.0	9.8	54.00	11.43
11300.30	51.35	---	250	H	0.0	9.8	74.00	22.65
17385.00	56.45	---	150	V	338.0	13.8	68.20	11.75



**802.11ac80 Mode(ANT 1&ANT 2&ANT 3 transmitting simultaneously):**

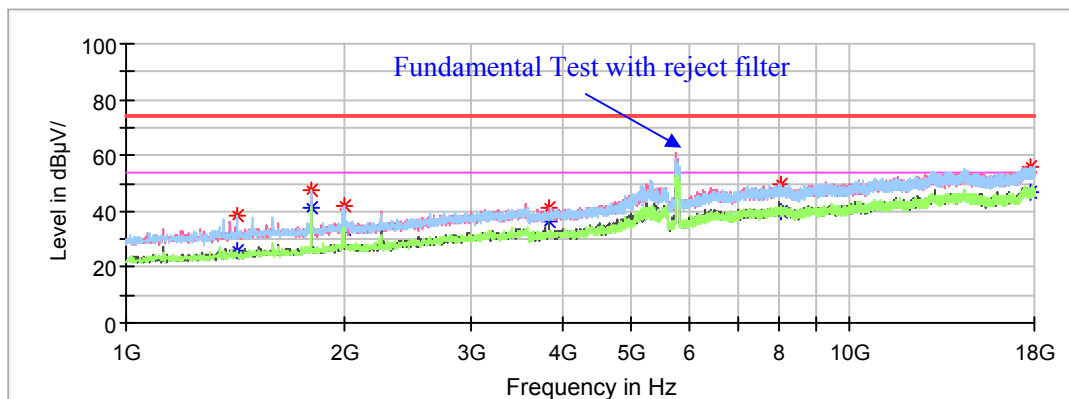
*Pre-scan with X,Y and Z axes of orientation, the worst case Z-axis of orientation was recorded*

Note:

1. This test was performed with the 5725-5850MHz band reject filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor  
Corrected Amplitude = Corrected Factor + Reading  
Margin = Limit - Corrected. Amplitude

**Low Channel: 5775MHz**

Full Spectrum



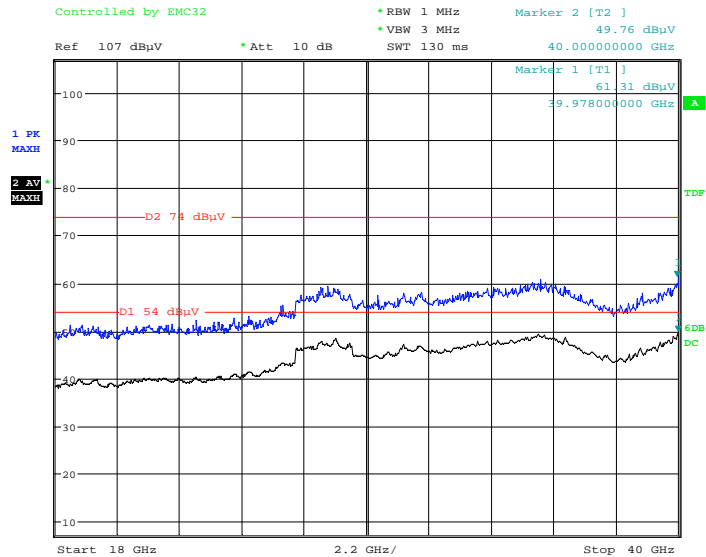
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
1426.70	---	26.10	100	H	25.0	-10.3	54.00	27.90
1426.70	38.71	---	100	H	25.0	-10.3	74.00	35.29
1799.00	47.64	---	150	H	3.0	-8.9	68.20	20.56
1997.90	42.00	---	100	V	0.0	-8.2	68.20	26.20
3849.20	---	36.35	200	V	266.0	-2.4	54.00	17.65
3849.20	41.22	---	200	V	266.0	-2.4	74.00	32.78
8012.50	49.79	---	250	V	350.0	7.0	68.20	18.41
17760.30	56.04	---	150	V	112.0	13.9	68.20	12.16



# 18GHz-40GHz (5150-5250MHz Band):

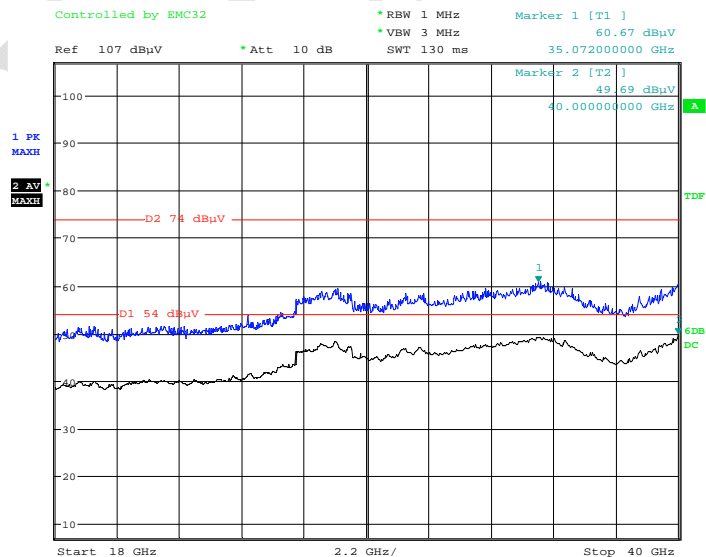
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11ac20 mode in channel 5200** in Z-axis of orientation was recorded

## Horizontal



Date: 24.FEB.2021 12:13:02

## Vertical



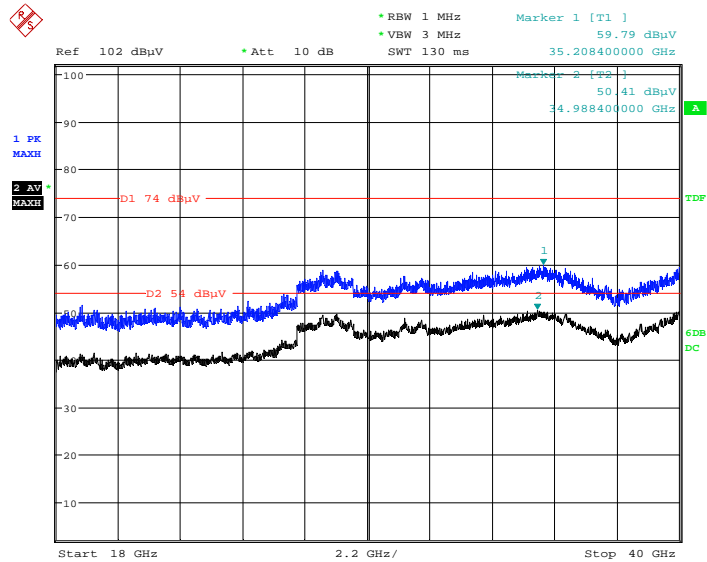
Date: 24.FEB.2021 12:14:02



# 18GHz-40GHz (5725-5850 Band):

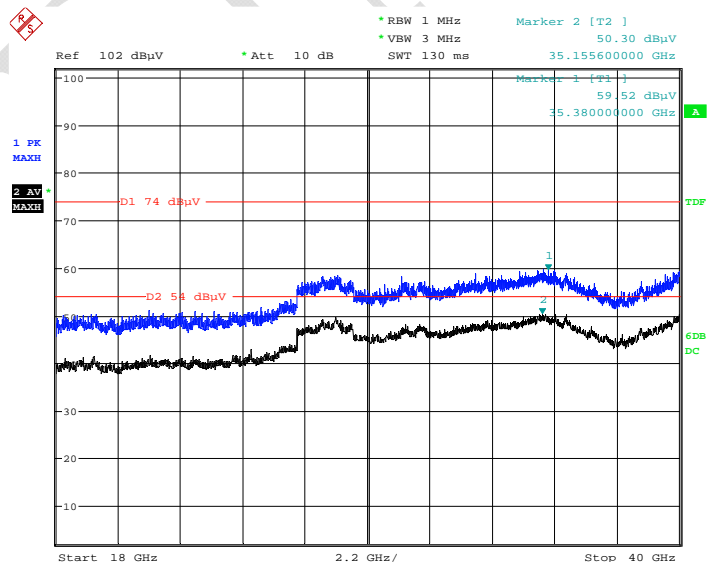
Pre-scan with 802.11a, 802.11ac20, 802.11n-HT20, 802.11ac40, 802.11n-HT40 and 802.11ac80 modes of operation in the X,Y and Z axes of orientation, the worst case **802.11ac20 mode in channel 5785** in Z-axis of orientation was recorded

## Horizontal



Date: 7.NOV.2019 13:56:06

## Vertical



Date: 7.NOV.2019 13:41:35



**Restricted Bands Emissions Test (5150-5250MHz Band):**

Note:

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

Margin = Limit - Corrected. Amplitude

**802.11a Mode (ANT 1):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	61.06	---	150	H	357	11.4	74	12.94
5150.00	---	52.94	150	H	357	11.4	54	1.06
High Channel: 5240MHz								
5350.00	59.27	---	150	H	8	11.8	74	14.73
5350.00	---	52.36	150	H	8	11.8	54	1.64

**802.11a Mode (ANT 2):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	60.26	---	200	H	222	11.4	74	13.74
5150.00	---	53.01	150	H	222	11.4	54	0.99
High Channel: 5240MHz								
5350.00	57.35	---	200	V	219	11.8	74	16.65
5350.00	---	52.08	150	V	219	11.8	54	1.92

**802.11a Mode (ANT 3):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	57.90	---	200	H	120	11.4	74	16.10
5150.00	---	52.88	150	H	120	11.4	54	1.12
High Channel: 5240MHz								
5350.00	58.67	---	200	V	359	11.8	74	15.33
5350.00	---	52.48	150	V	359	11.8	54	1.52



**802.11ac20 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	59.1	---	150	H	236	11.4	74	14.9
5150.00	---	52.74	150	H	236	11.4	54	1.26
High Channel: 5240MHz								
5350.00	57.86	---	150	H	8	11.8	74	16.14
5350.00	---	52.68	150	H	8	11.8	54	1.32

**802.11n-HT20 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5180MHz								
5150.00	59.47	---	150	H	180	11.4	74	14.53
5150.00	---	52.13	150	H	180	11.4	54	1.87
High Channel: 5240MHz								
5350.00	57.97	---	150	H	196	11.8	74	16.03
5350.00	---	52.32	150	H	196	11.8	54	1.68

**802.11ac40 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5190MHz								
5150.00	59.63	---	150	H	226	11.4	74	14.37
5150.00	---	52.3	150	H	226	11.4	54	1.70
Middle Channel: 5230MHz								
5350.00	57.15	---	150	H	231	11.8	74	16.85
5350.00	---	52.96	150	H	231	11.8	54	1.04



**802.11n-HT40 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5190MHz								
5150.00	59.83	---	150	H	178	11.4	74	14.17
5150.00	---	52.67	150	H	178	11.4	54	1.33
Middle Channel: 5230MHz								
5350.00	57.66	---	150	H	358	11.8	74	16.34
5350.00	---	52.36	150	H	358	11.8	54	1.64

**802.11ac80 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Channel: 5210MHz								
5150.00	59.43	---	150	H	189	11.4	74	14.57
5150.00	---	52.48	150	H	189	11.4	54	1.52
5350.00	57.05	---	150	H	172	11.8	74	16.95
5350.00	---	52.22	150	H	172	11.8	54	1.78



**Restricted Bands Emissions Test (5725-5850MHz band):**

Note:

1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
2. Corrected Amplitude = Corrected Factor + Reading
3. Margin = Limit - Corrected. Amplitude

**802.11a Mode (ANT 1):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	57.88	---	150	V	128.0	11.7	68.20	10.32
5700.00	59.15	---	250	V	350.0	11.8	105.20	46.05
5720.00	78.51	---	200	V	71.0	11.8	110.80	32.29
5725.00	85.36	---	200	V	98.0	11.8	122.20	36.84
High Channel: 5825MHz								
5850.00	69.69	---	200	V	241.0	12.0	122.20	52.51
5855.00	61.43	---	100	V	206.0	12.0	110.80	49.37
5875.00	54.41	---	150	V	304.0	12.1	105.20	50.79
5925.00	55.51	---	250	V	34.0	12.2	68.20	12.69

**802.11a Mode (ANT 2):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	57.75	---	100	V	283.0	11.7	68.20	10.45
5700.00	59.14	---	200	V	282.0	11.8	105.20	46.06
5720.00	78.46	---	100	V	37.0	11.8	110.80	32.34
5725.00	85.39	---	100	V	153.0	11.8	122.20	36.81
High Channel: 5825MHz								
5850.00	69.54	---	150	V	200.0	12.0	122.20	52.66
5855.00	61.41	---	200	V	176.0	12.0	110.80	49.39
5875.00	54.39	---	200	V	205.0	12.1	105.20	50.81
5925.00	54.81	---	150	V	332.0	12.2	68.20	13.39



**802.11a Mode (ANT 3):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	57.76	---	200	V	227.0	11.7	68.20	10.44
5700.00	59.23	---	100	V	220.0	11.8	105.20	45.97
5720.00	78.52	---	250	V	224.0	11.8	110.80	32.28
5725.00	85.43	---	250	V	295.0	11.8	122.20	36.77
High Channel: 5825MHz								
5850.00	69.48	---	150	V	278.0	12.0	122.20	52.72
5855.00	61.33	---	200	V	351.0	12.0	110.80	49.47
5875.00	54.28	---	250	V	107.0	12.1	105.20	50.92
5925.00	54.75	---	200	V	4.0	12.2	68.20	13.45

**802.11ac20 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	58.21	---	150	V	43.0	11.7	68.20	9.99
5700.00	59.24	---	250	V	276.0	11.8	105.20	45.96
5720.00	78.52	---	200	V	328.0	11.8	110.80	32.28
5725.00	85.45	---	200	V	181.0	11.8	122.20	36.75
High Channel: 5825MHz								
5850.00	69.8	---	200	V	43.0	12.0	122.20	52.4
5855.00	61.44	---	100	V	305.0	12.0	110.80	49.36
5875.00	54.27	---	150	V	64.0	12.1	105.20	50.93
5925.00	52.43	---	250	V	100.0	12.2	68.20	15.77



**802.11n-HT20 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5745MHz								
5650.00	58.25	---	150	V	329.0	11.7	68.20	9.95
5700.00	59.29	---	150	V	244.0	11.8	105.20	45.91
5720.00	78.61	---	100	V	17.0	11.8	110.80	32.19
5725.00	85.55	---	200	V	155.0	11.8	122.20	36.65
High Channel: 5825MHz								
5850.00	69.77	---	200	V	112.0	12.0	122.20	52.43
5855.00	61.42	---	100	V	1.0	12.0	110.80	49.38
5875.00	54.32	---	150	V	306.0	12.1	105.20	50.88
5925.00	52.53	---	200	V	206.0	12.2	68.20	15.67

**802.11ac40 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5650.00	5650	54.83	---	150	V	311.0	68.20	13.37
5700.00	5700	61.6	---	200	V	164.0	105.20	43.6
5720.00	5720	79.24	---	250	V	324.0	110.80	31.56
5725.00	5725	78.46	---	150	V	346.0	122.20	43.74
High Channel: 5795MHz								
5850.00	58.61	---	100	V	314.0	12.0	122.20	63.59
5855.00	59.23	---	200	V	84.0	12.0	110.80	51.57
5875.00	56.49	---	250	V	114.0	12.1	105.20	48.71
5925.00	54.4	---	150	V	138.0	12.2	68.20	13.8



**802.11n-HT40 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5755MHz								
5650.00	54.79	---	200	V	93.0	11.7	68.20	13.41
5700.00	61.58	---	100	V	241.0	11.8	105.20	43.62
5720.00	79.25	---	150	V	106.0	11.8	110.80	31.55
5725.00	78.33	---	150	V	316.0	11.8	122.20	43.87
High Channel: 5795MHz								
5850.00	58.65	---	250	V	251.0	12.0	122.20	63.55
5855.00	59.3	---	200	V	196.0	12.0	110.80	51.50
5875.00	56.42	---	200	V	140.0	12.1	105.20	48.78
5925.00	54.27	---	150	V	318.0	12.2	68.20	13.93

**802.11ac80 Mode (ANT 1&ANT 2&ANT 3 transmitting simultaneously):** (Pre-scan in the X, Y and Z axes of orientation, the worst case in Z-axis of orientation was recorded)

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Correct Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)				
Low Channel: 5775MHz								
5650.00	57.43	---	100	V	183.0	11.7	68.20	10.77
5700.00	74.23	---	150	V	103.0	11.8	105.20	30.97
5720.00	81.56	---	200	V	294.0	11.8	110.80	29.24
5725.00	79.54	---	200	V	45.0	11.8	122.20	42.66
5850.00	74.4	---	100	V	9.0	12.0	122.20	47.80
5855.00	76.96	---	100	V	92.0	12.0	110.80	33.84
5875.00	71.39	---	250	V	203.0	12.1	105.20	33.81
5925.00	54.55	---	200	V	151.0	12.2	68.20	13.65



**RSS-247 ISSUE 2 Clause 6.2.4.1 – 6 DB EMISSION BANDWIDTH****Applicable Standard**

As per ISSED RSS-247 Clause 6.2.4

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

**Test Procedure****Minimum Emission Bandwidth for the band 5.725-5.85 GHz**

The minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	23.5 °C~24.5 °C
<b>Relative Humidity:</b>	50 %~52 %
<b>ATM Pressure:</b>	101.2 kPa~101.4 kPa

*The testing was performed by Carry Cai from 2019-11-04 to 2019-11-05.*

**Test Result:** Compliant



5725-5850MHz:

Test mode	Frequency (MHz)	6dB Bandwidth (MHz)		
		ANT 1	ANT 2	ANT 3
802.11a	5745	16.513	16.513	16.513
	5785	16.513	16.513	16.513
	5825	16.593	16.513	16.433
802.11ac20	5745	17.796	17.715	17.796
	5785	17.715	17.715	17.715
	5825	17.796	17.796	17.715
802.11n-HT20	5745	17.715	17.796	17.715
	5785	17.715	17.796	17.715
	5825	17.715	17.635	17.635
802.11ac40	5755	36.713	36.713	36.553
	5795	36.513	36.353	36.192
802.11n-HT40	5755	36.393	36.713	36.553
	5795	36.513	36.513	36.673
802.11ac80	5775	75.671	75.351	75.671

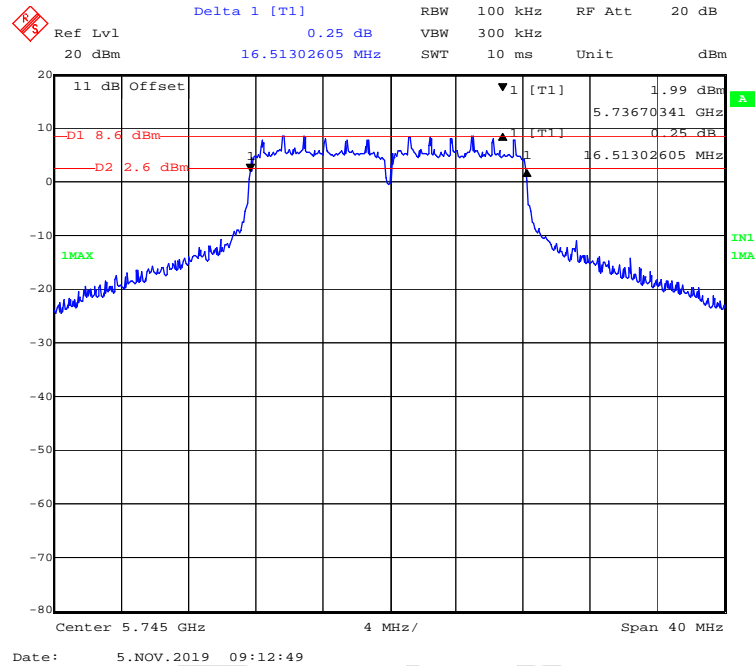


5725-5850 MHz Band:

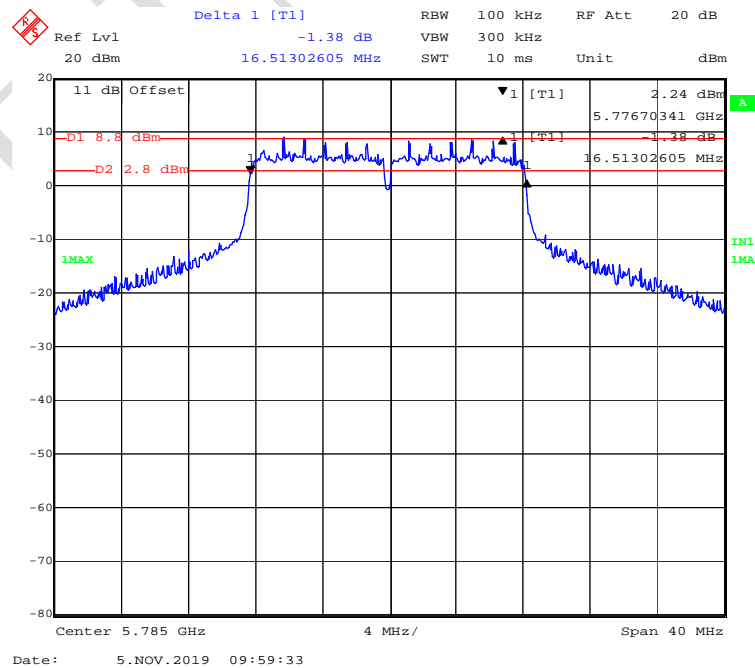
ANT 1:

6 Bandwidth

802.11a mode, 5745MHz

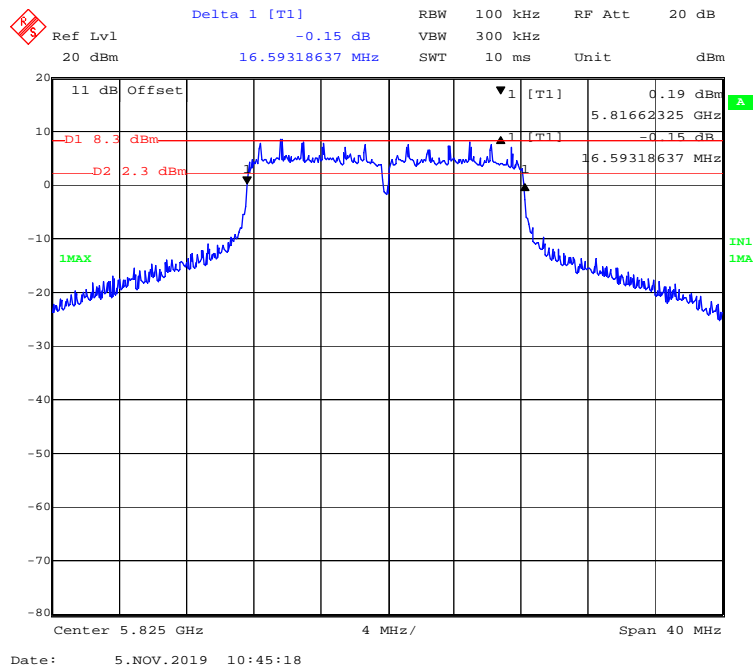


802.11a mode, 5785MHz

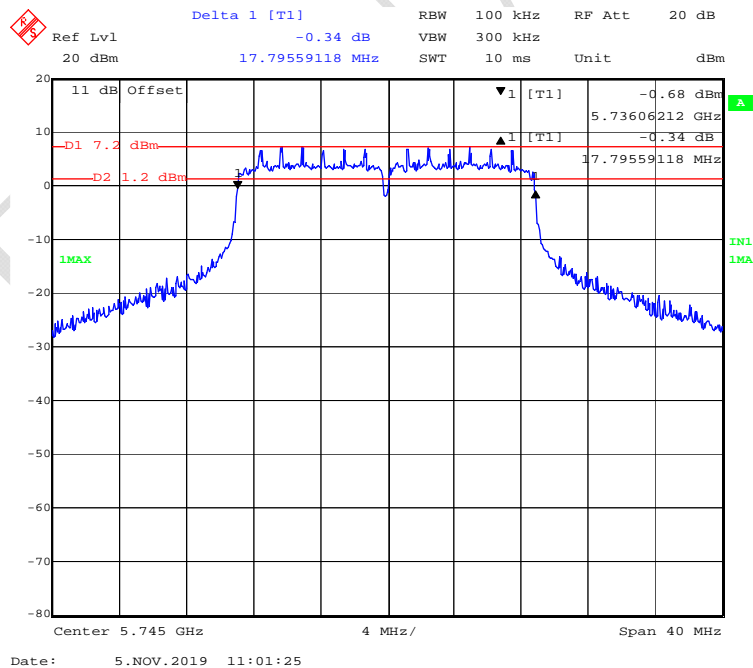




### 802.11a mode, 5825MHz

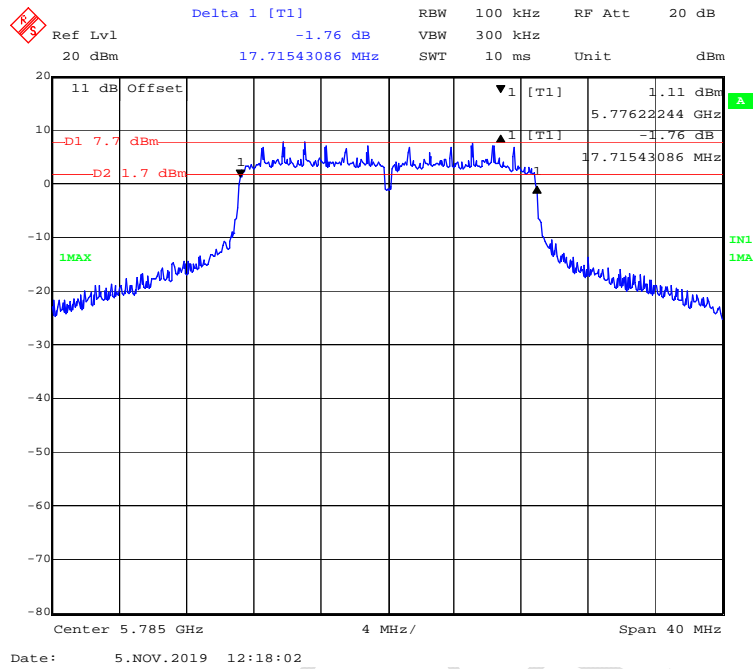


### 802.11ac20 mode, 5745MHz

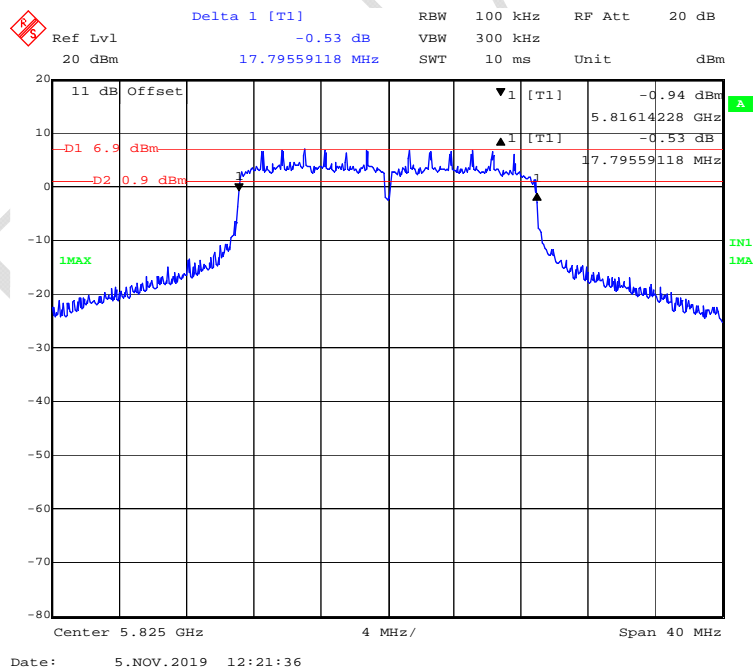




### 802.11ac20 mode, 5785MHz

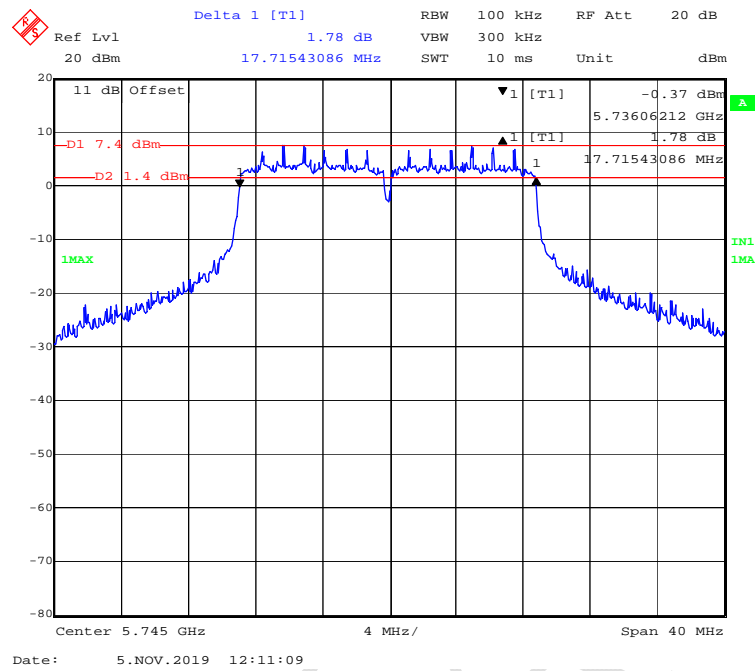


### 802.11ac20 mode, 5825MHz

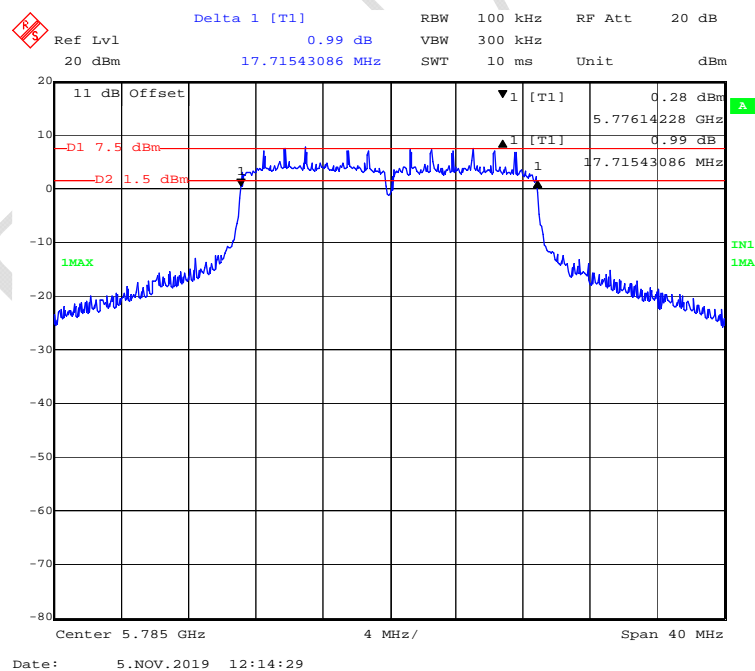




## 802.11n-HT20 mode, 5745MHz

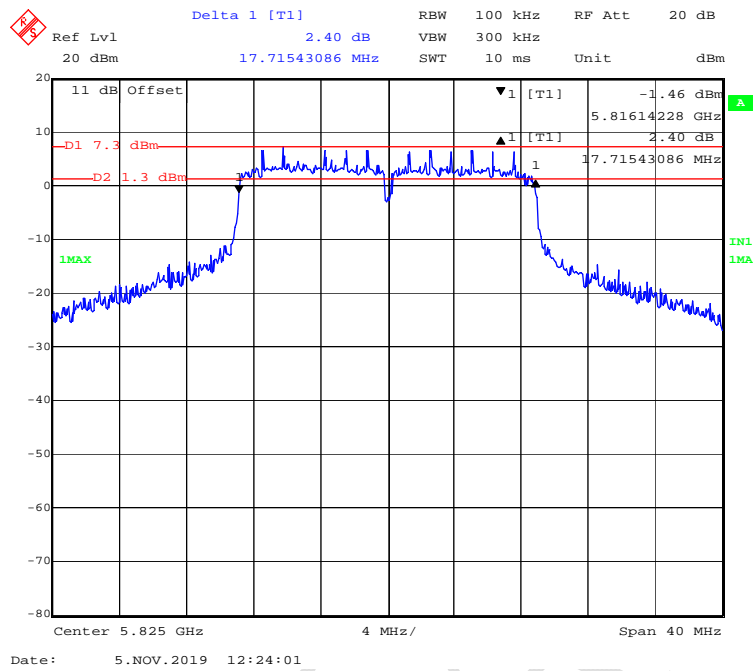


## 802.11n-HT20 mode, 5785MHz

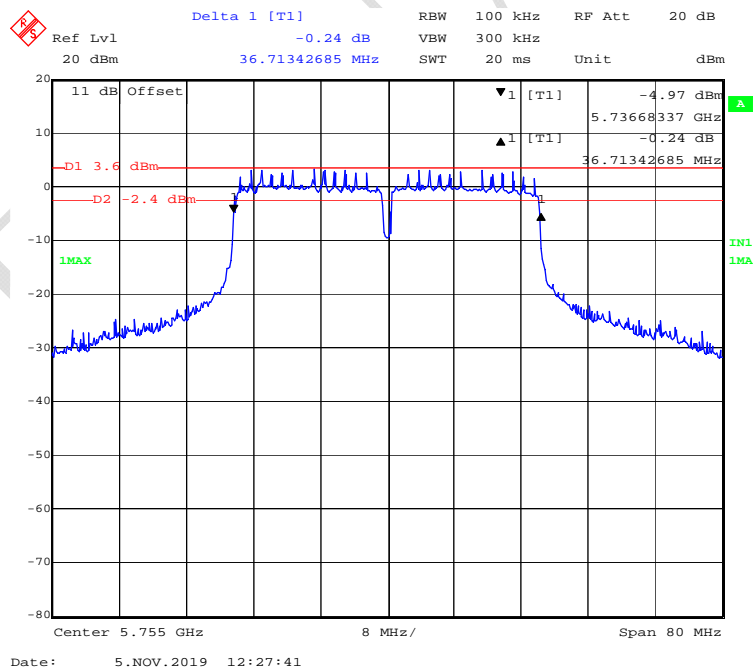




### 802.11n-HT20 mode, 5825MHz

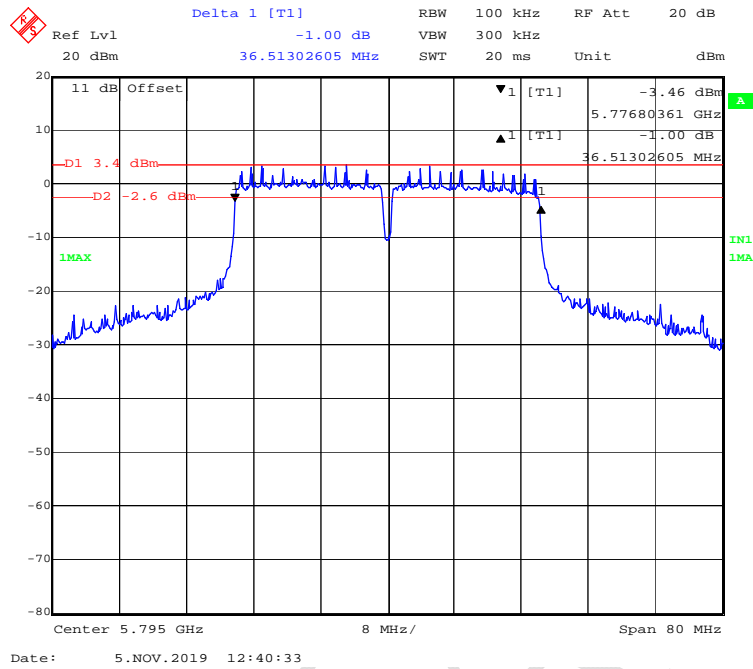


### 802.11ac40 mode, 5755MHz

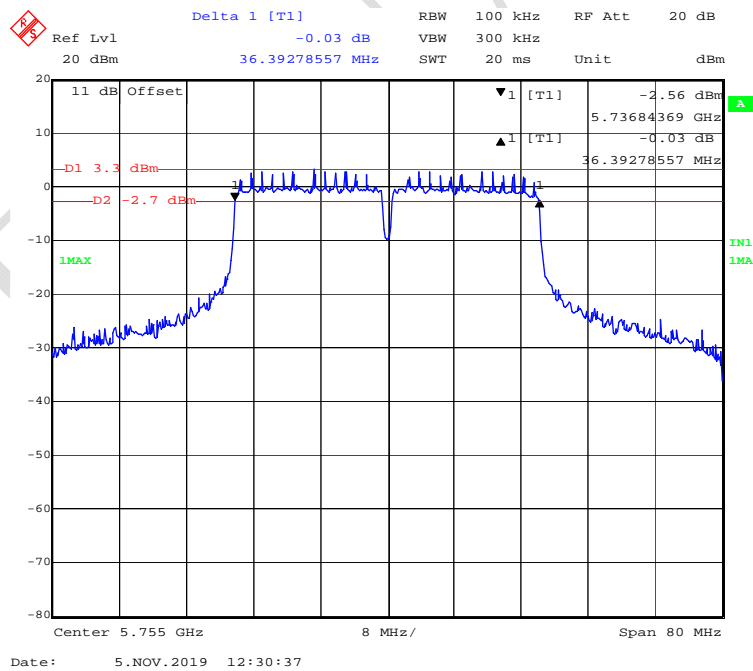




### 802.11ac40 mode, 5795MHz

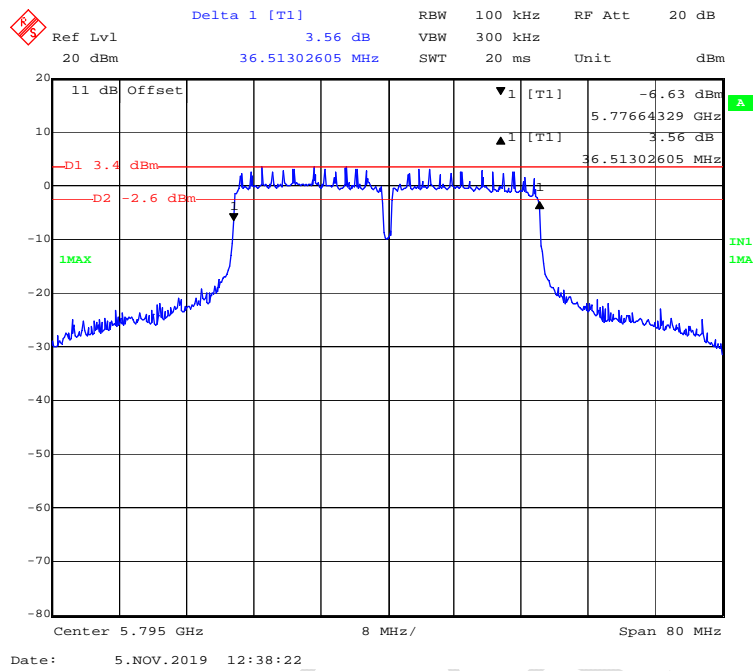


### 802.11n-HT40 mode, 5755MHz

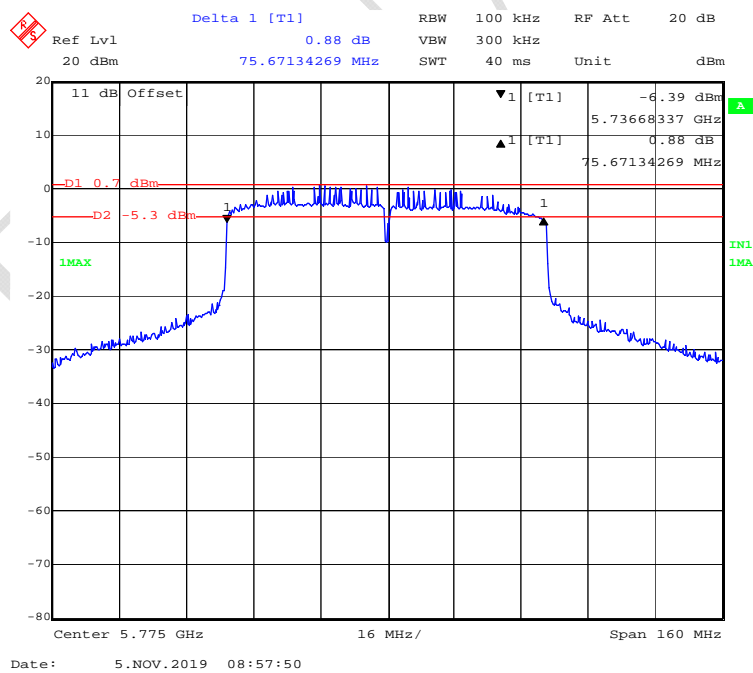




## 802.11n-HT40 mode, 5795MHz



## 802.11ac80 mode, 5775MHz



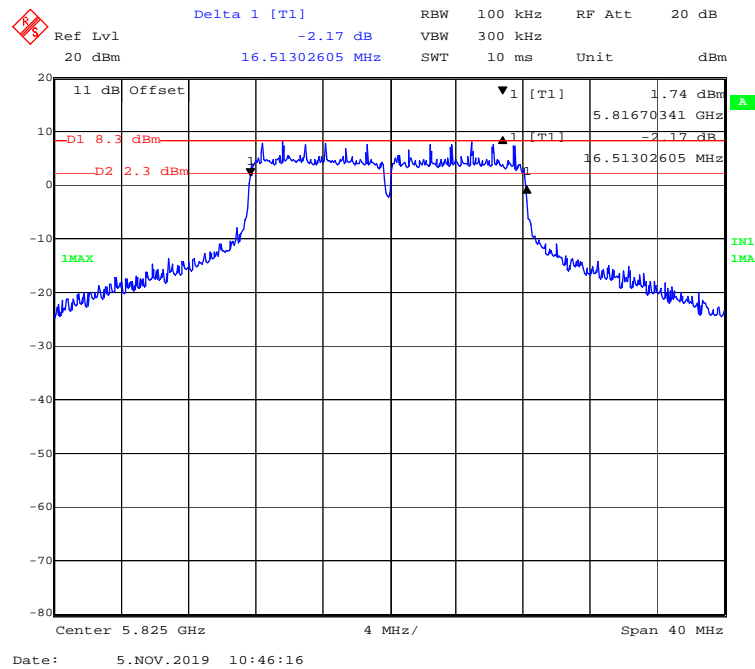


**802.11a mode, 5745MHz**

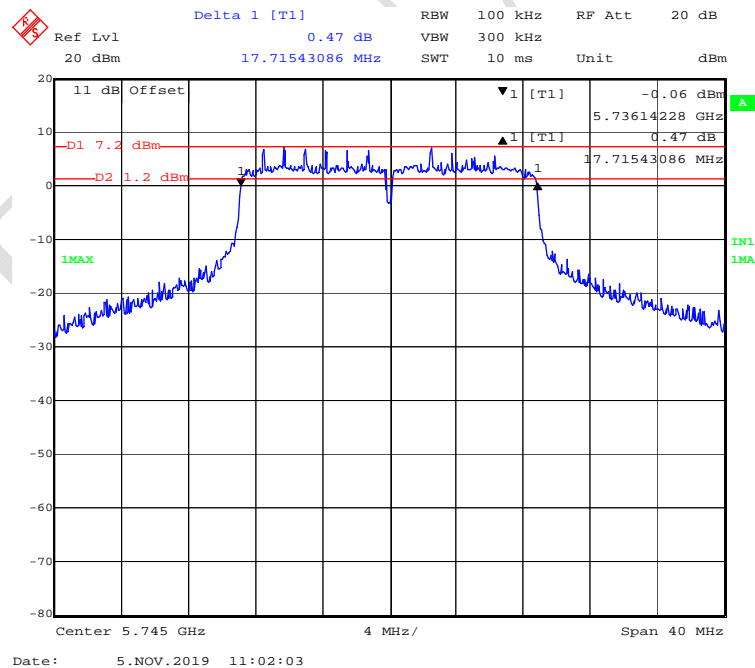




### 802.11a mode, 5825MHz

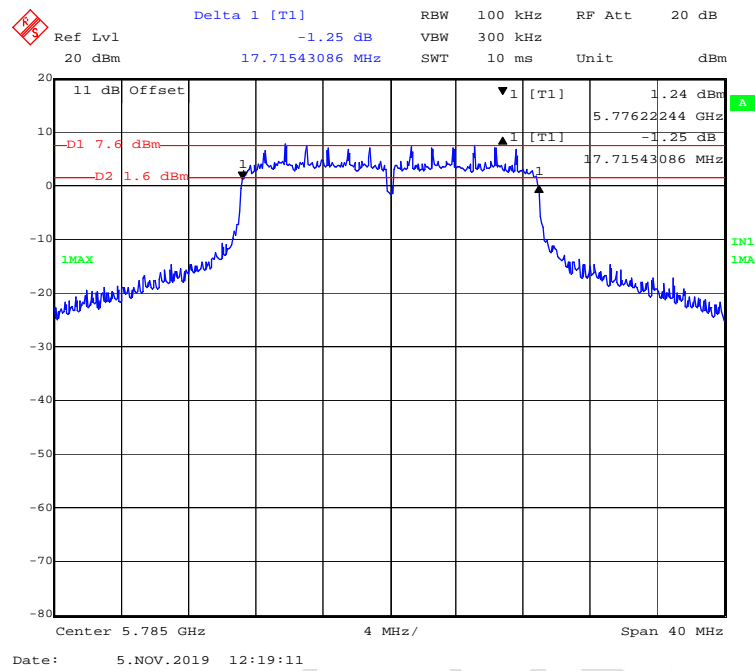


### 802.11ac20 mode, 5745MHz

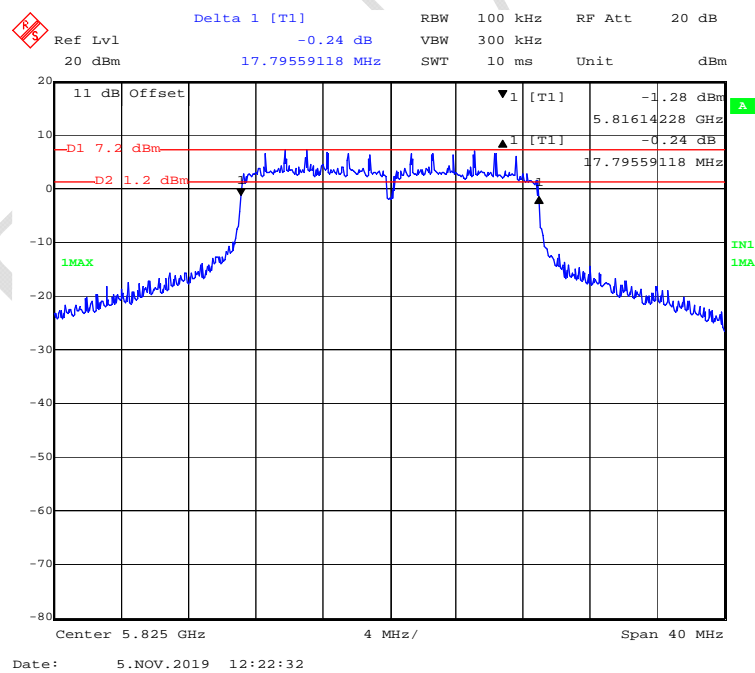




## 802.11ac20 mode, 5785MHz

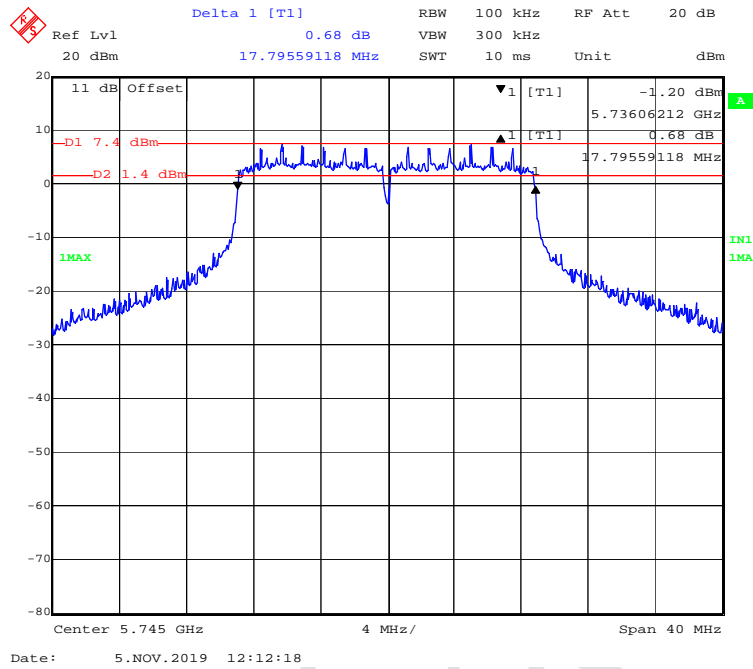


## 802.11ac20 mode, 5825MHz

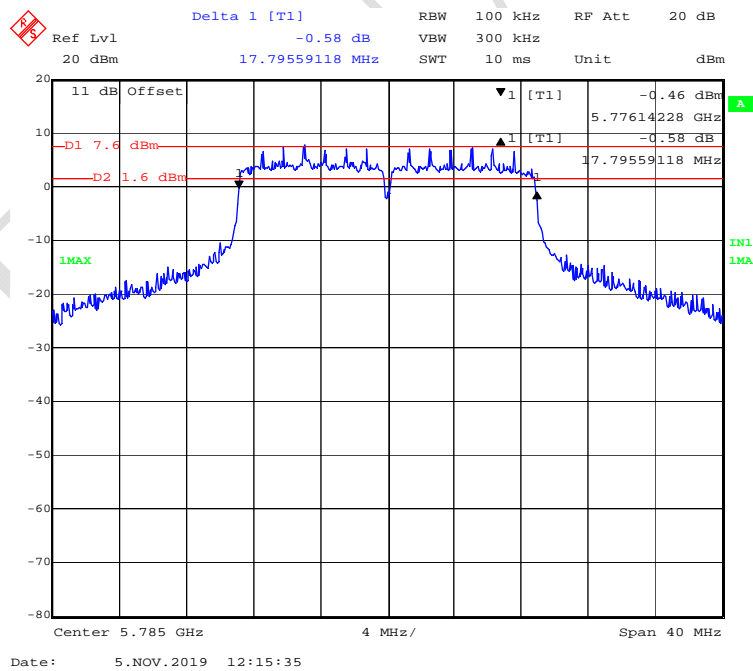




### 802.11n-HT20 mode, 5745MHz

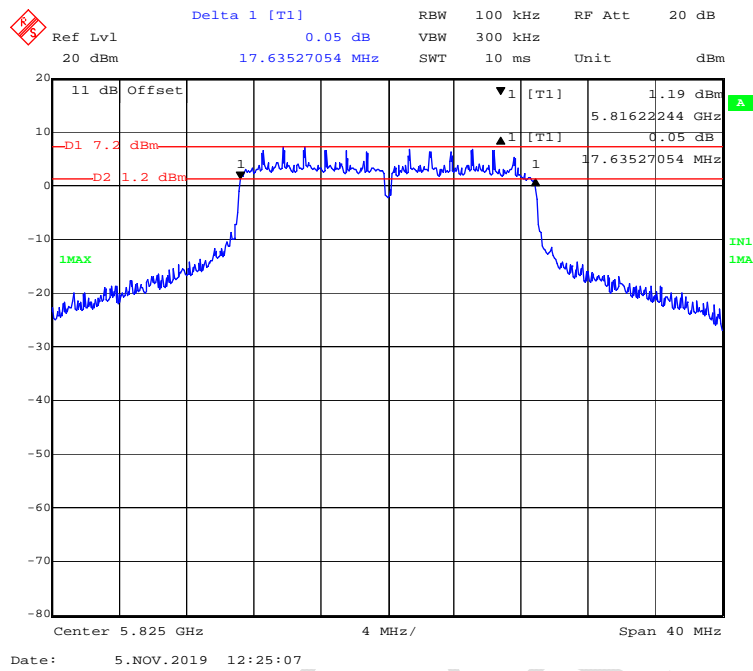


### 802.11n-HT20 mode, 5785MHz

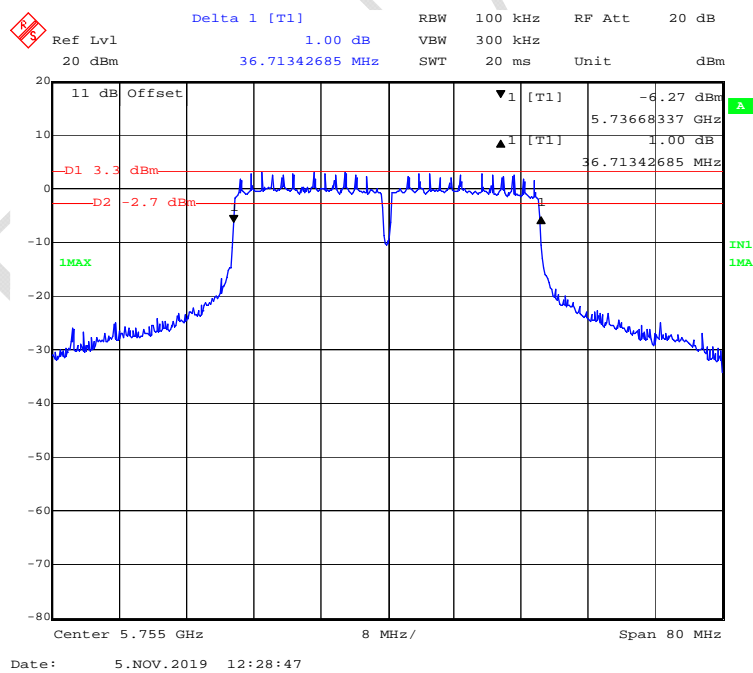




## 802.11n-HT20 mode, 5825MHz

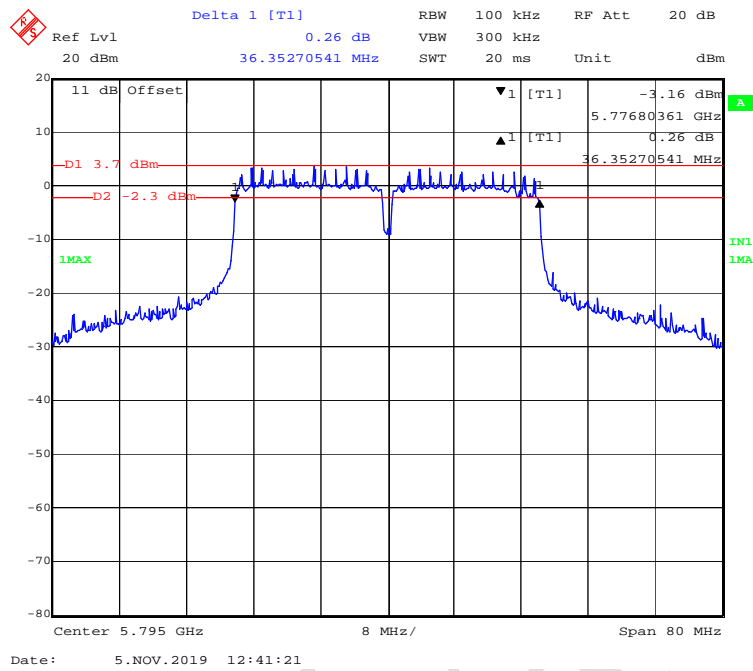


## 802.11ac40 mode, 5755MHz

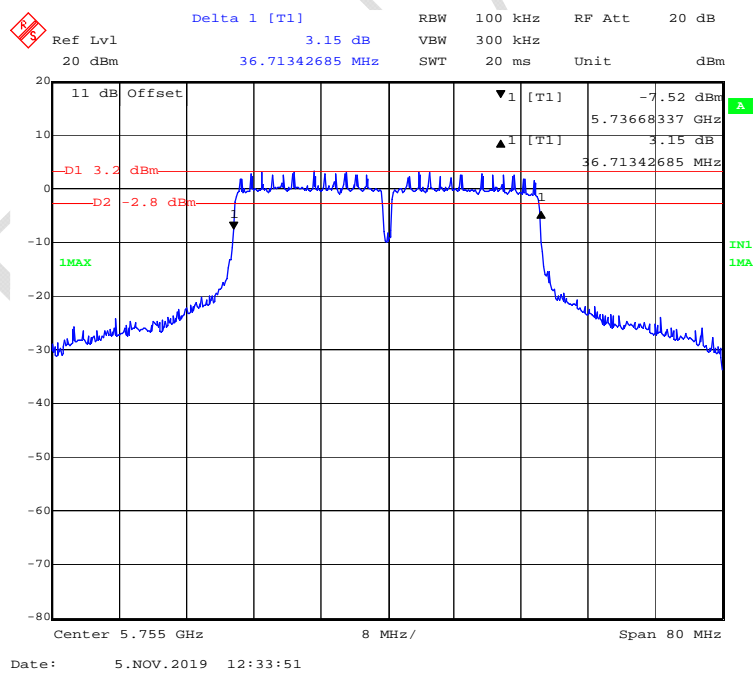




### 802.11ac40 mode, 5795MHz

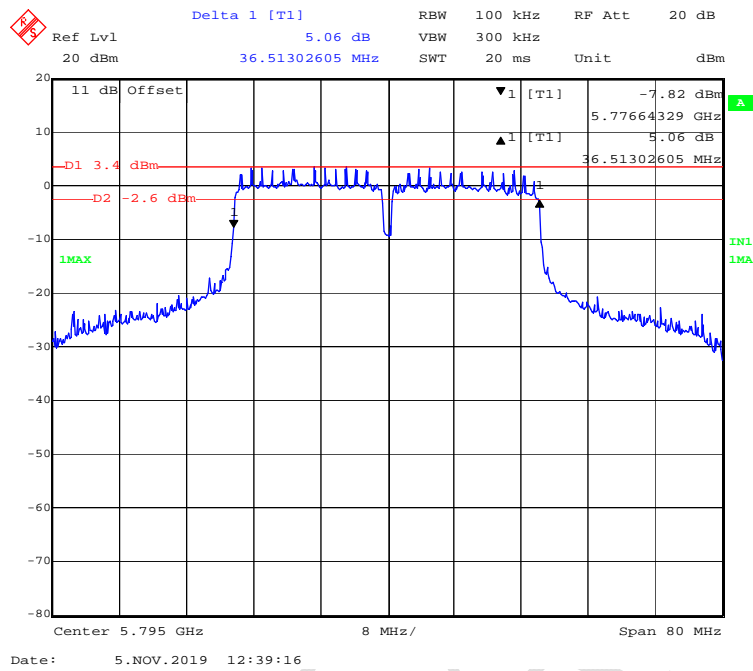


### 802.11n-HT40 mode, 5755MHz

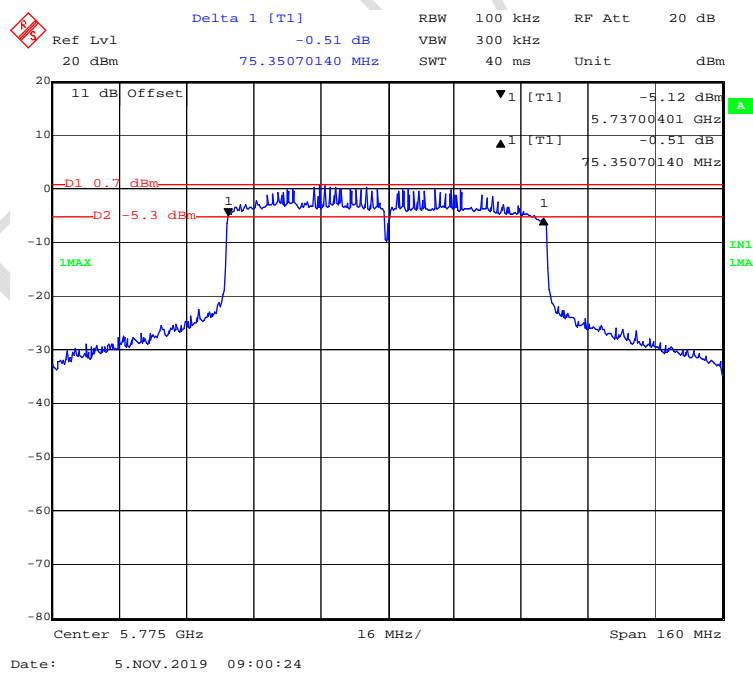




## 802.11n-HT40 mode, 5795MHz



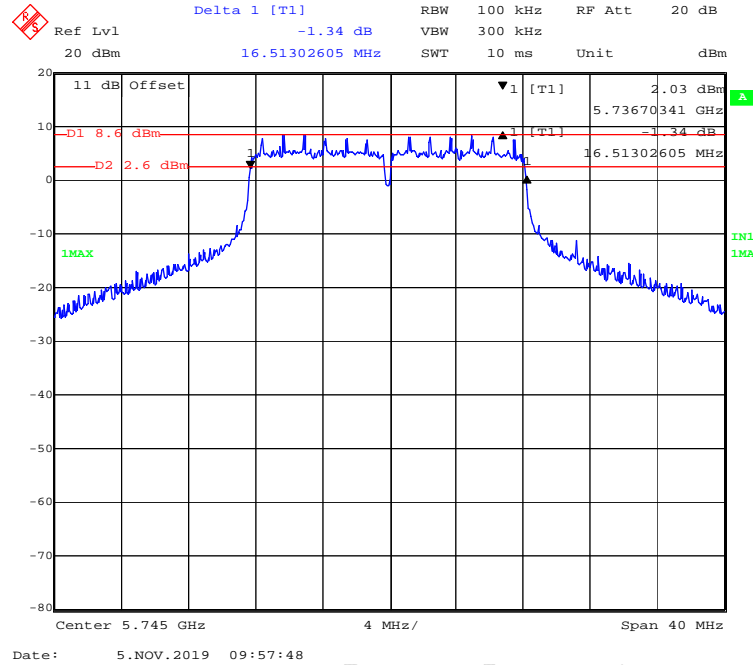
## 802.11ac80 mode, 5775MHz



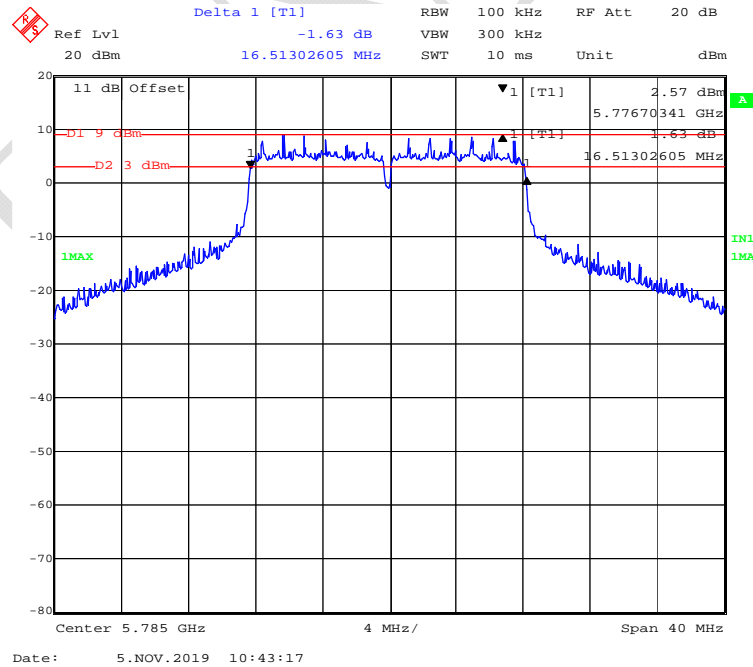


**ANT 3:**  
**6 Bandwidth**

**802.11a mode, 5745MHz**

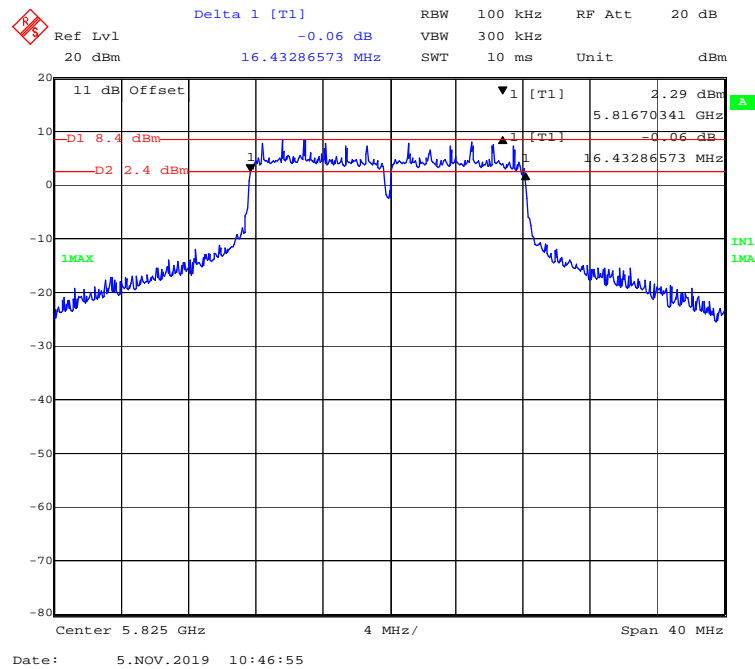


**802.11a mode, 5785MHz**

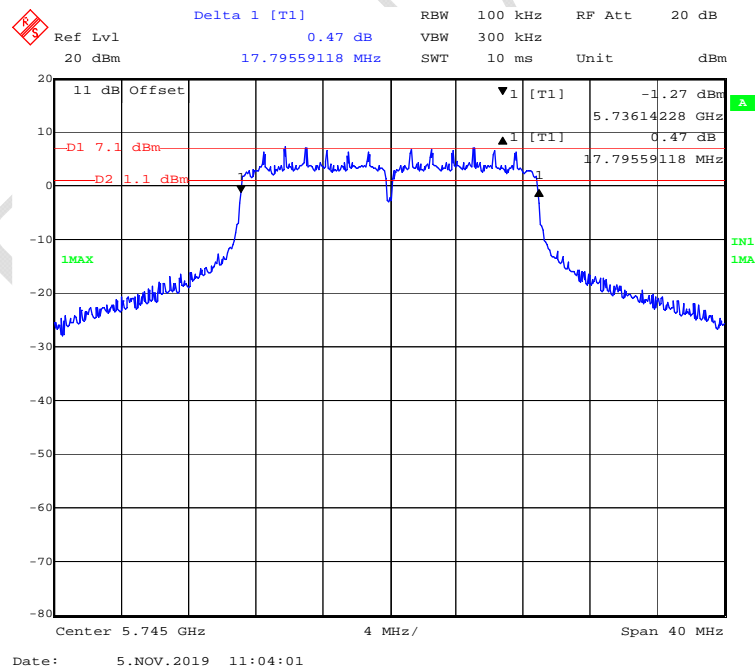




### 802.11a mode, 5825MHz

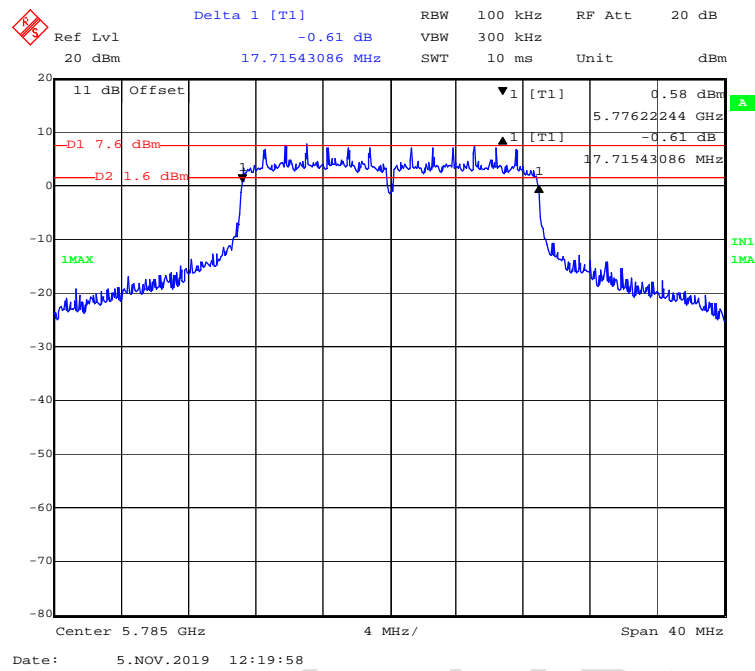


### 802.11ac20 mode, 5745MHz

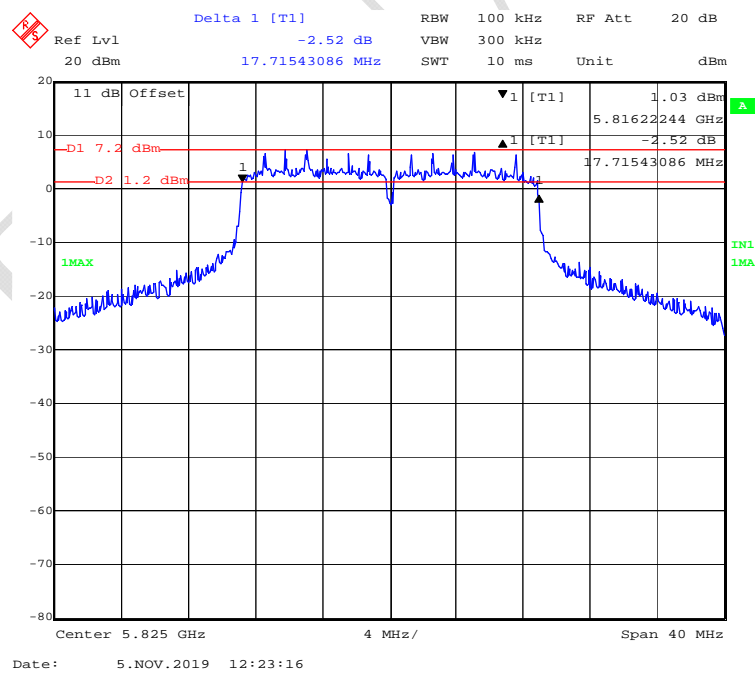




### 802.11ac20 mode, 5785MHz

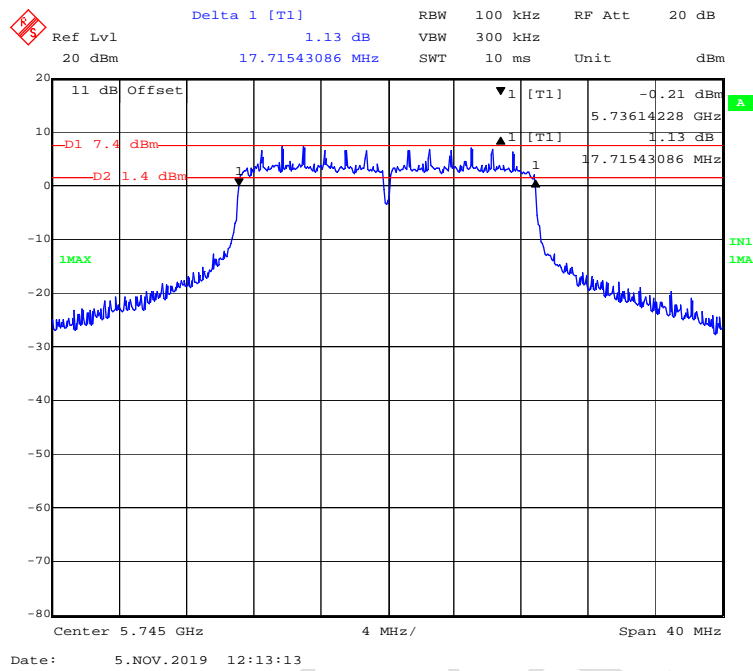


### 802.11ac20 mode, 5825MHz

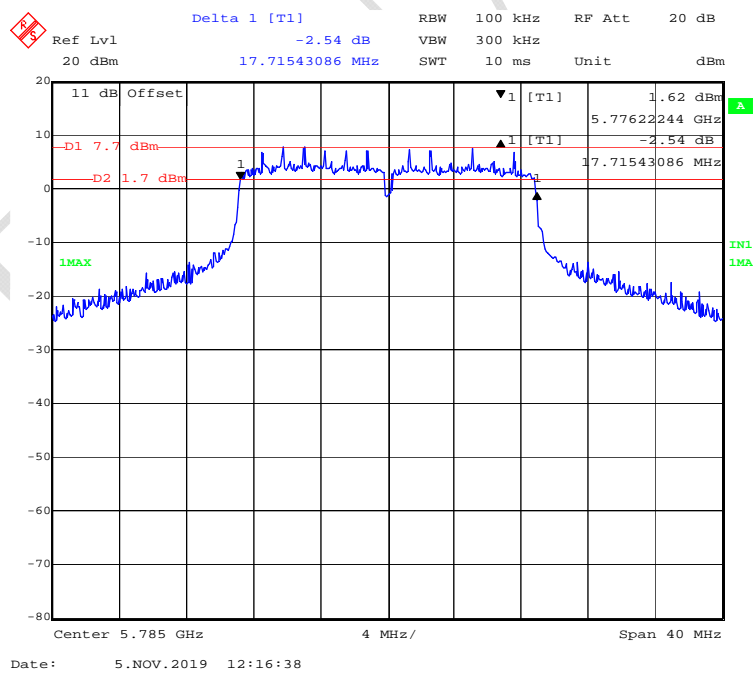




### 802.11n-HT20 mode, 5745MHz

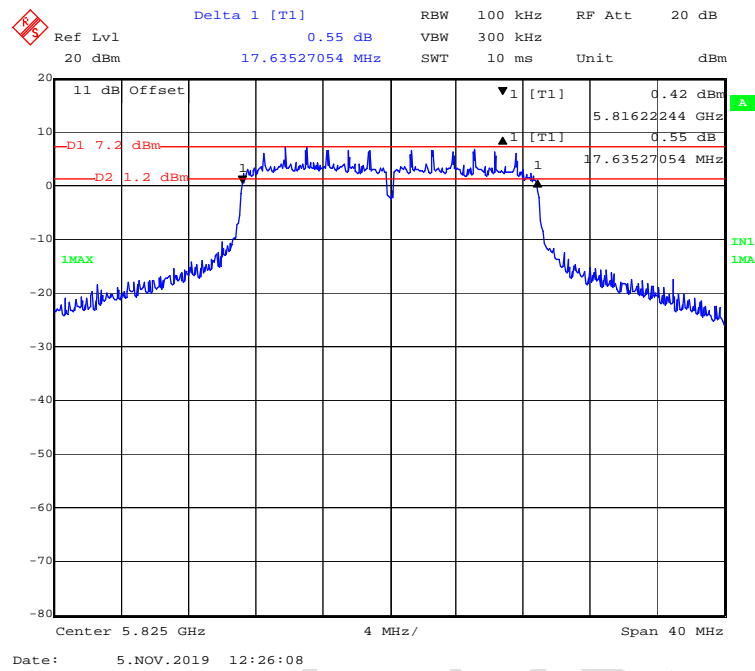


### 802.11n-HT20 mode, 5785MHz

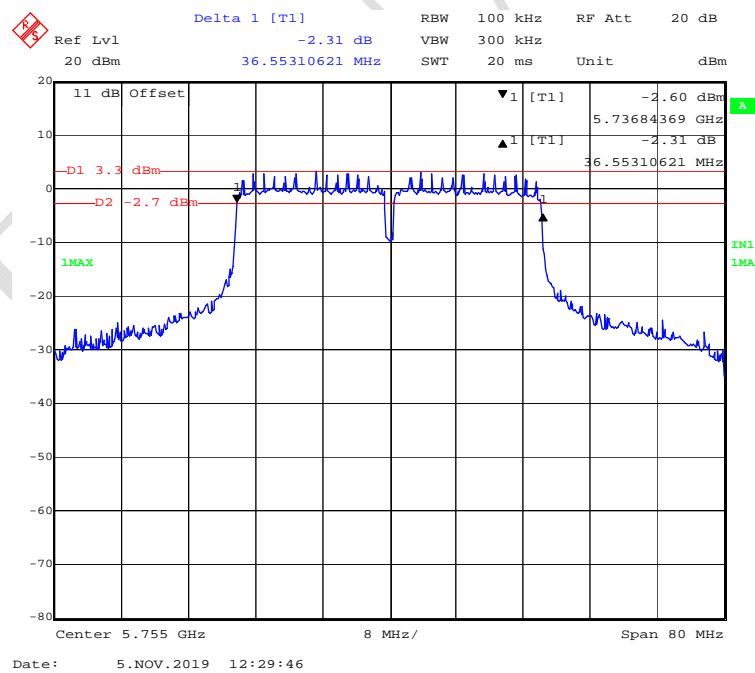




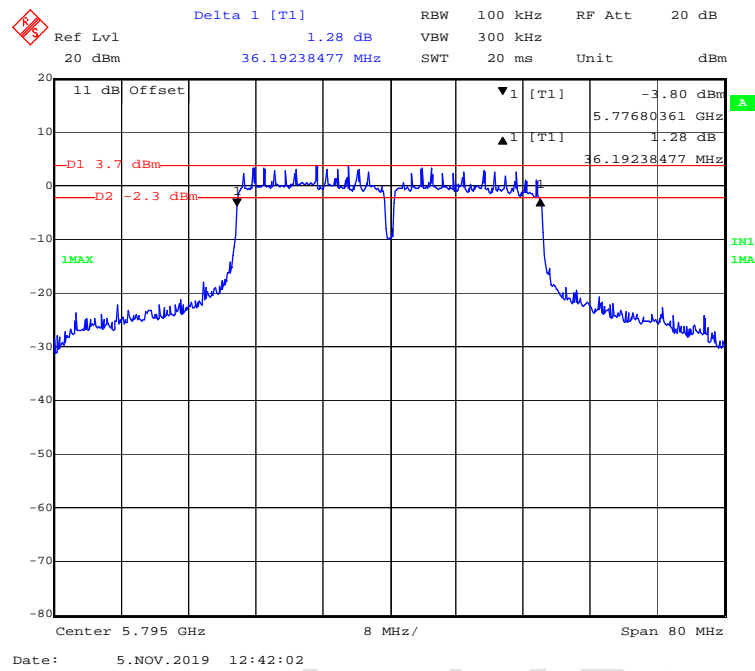
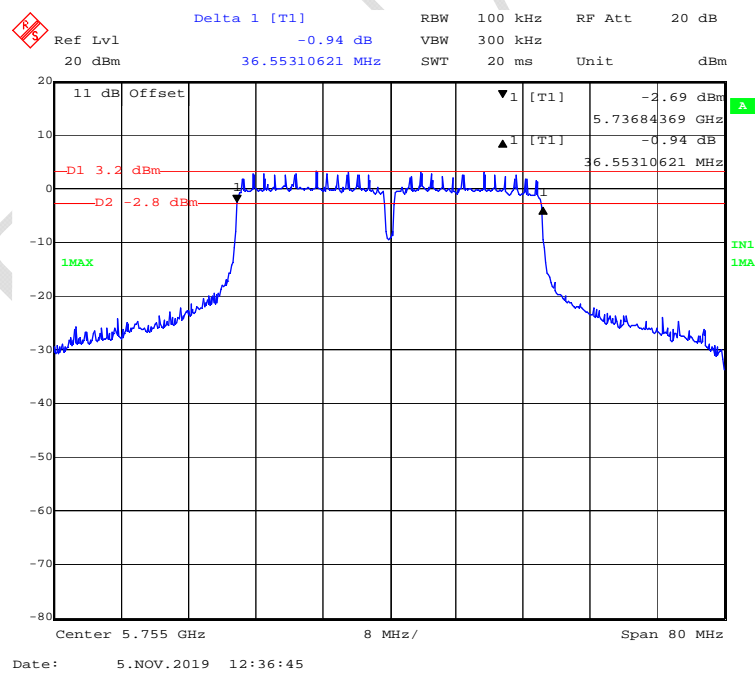
## 802.11n-HT20 mode, 5825MHz



## 802.11ac40 mode, 5755MHz

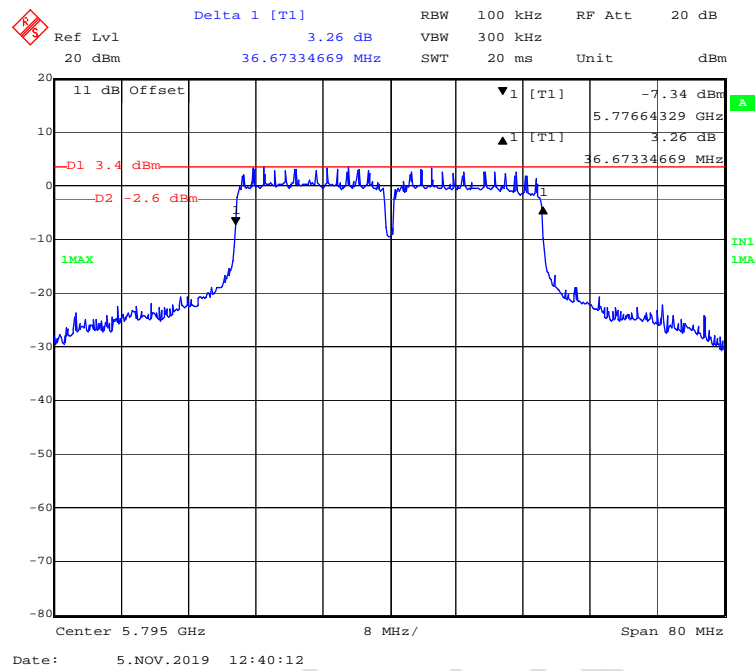




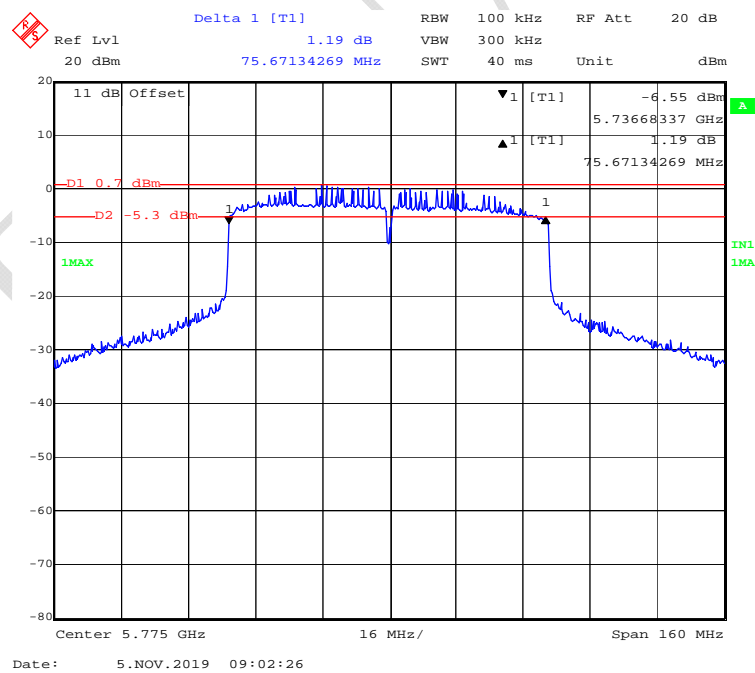
**802.11ac40 mode, 5795MHz****802.11n-HT40 mode, 5755MHz**



## 802.11n-HT40 mode, 5795MHz



## 802.11ac80 mode, 5775MHz





## **RSS-GEN ISSUE 5 Clause 6.7 – OCCUPIED BANDWIDTH&26 DB EMISSION BANDWIDTH**

### **Applicable Standard**

According to RSS-GEN Issue 5 Clause 6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the “x dB bandwidth” is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

### **Test Procedure**

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

1. The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
2. The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
3. The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



**Test Data****Environmental Conditions**

<b>Temperature:</b>	23.5 °C~24.5 °C
<b>Relative Humidity:</b>	50 %~52 %
<b>ATM Pressure:</b>	101.2 kPa~101.4 kPa

The testing was performed by Carry Cai from 2019-11-04 to 2021-02-20.

**Test Result:** Compliant

**5150-5250 MHz:**

Test mode	Frequency (MHz)	26dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		ANT 1	ANT 2	ANT 3	ANT 1	ANT 2	ANT 3
802.11a	5180	26.052	24.609	27.515	17.234	17.074	17.315
	5200	24.609	24.770	25.852	17.074	17.074	17.194
	5240	23.888	24.208	23.447	16.994	17.074	17.074
802.11ac20	5180	23.487	24.128	23.567	18.036	18.036	18.036
	5200	23.808	24.128	24.048	18.036	18.036	18.036
	5240	23.808	23.968	23.567	18.036	18.036	18.036
802.11n-HT20	5180	23.808	23.407	23.567	18.036	18.036	18.036
	5200	23.327	23.727	23.727	18.036	18.036	18.036
	5240	23.888	23.567	23.868	18.036	18.036	18.036
802.11ac40	5190	46.012	46.653	45.852	36.713	36.874	36.713
	5230	46.333	45.691	45.210	36.553	36.713	36.713
802.11n-HT40	5190	45.531	46.653	46.172	36.713	36.874	36.713
	5230	44.890	44.409	46.493	36.713	36.713	36.713
802.11ac80	5210	90.100	88.176	90.421	76.313	76.313	76.633



**5725-5850 MHz:**

Test mode	Frequency (MHz)	99% Bandwidth (MHz)		
		ANT 1	ANT 2	ANT 3
802.11a	5745	17.475	17.315	17.315
	5785	17.715	17.796	17.635
	5825	17.715	17.796	17.715
802.11ac20	5745	18.196	18.277	18.357
	5785	18.677	18.677	18.998
	5825	18.677	18.597	18.758
802.11n-HT20	5745	18.357	18.357	18.437
	5785	18.677	18.597	18.677
	5825	18.838	18.838	18.918
802.11ac40	5755	36.874	36.874	36.874
	5795	37.194	37.194	37.034
802.11n-HT40	5755	36.713	36.874	37.034
	5795	37.034	37.034	37.034
802.11ac80	5775	76.954	76.633	76.633

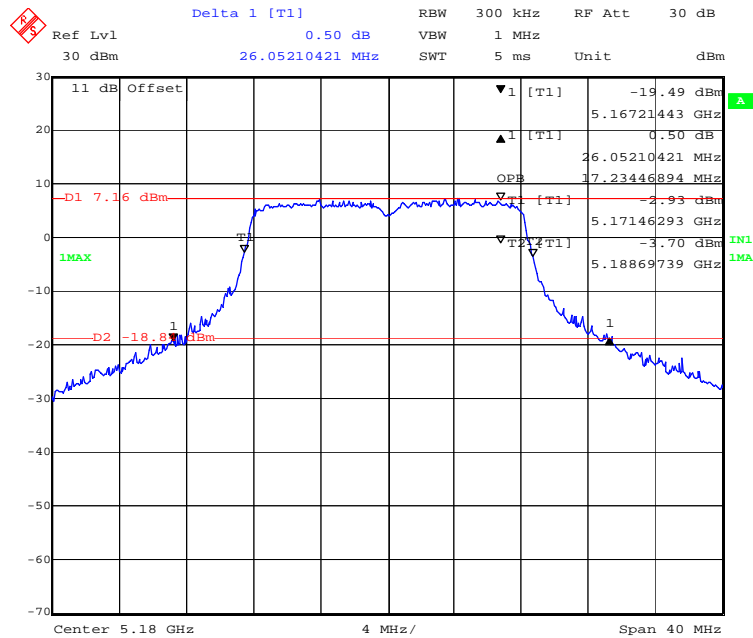


**5150-5250 MHz Band:**

**ANT 1:**

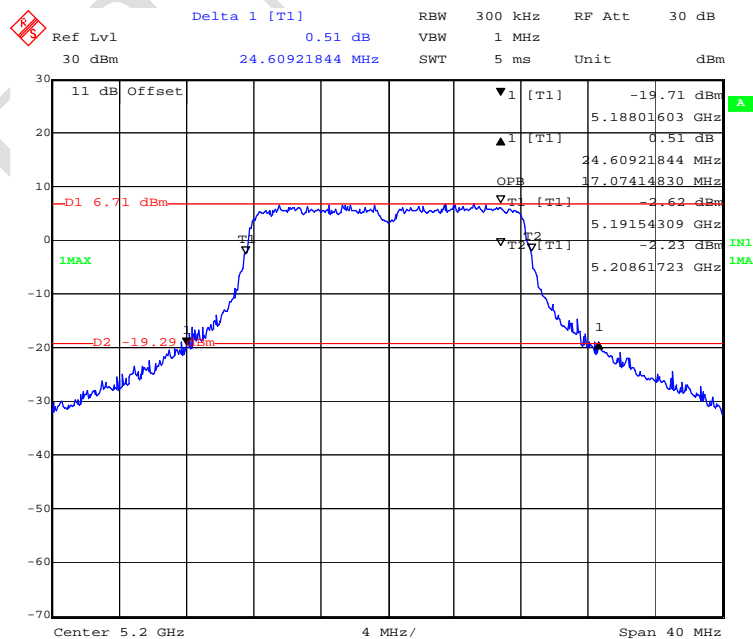
**26 Bandwidth&99% Bandwidth**

**802.11a mode, 5180MHz**



Date: 20.FEB.2021 14:25:51

**802.11a mode, 5200MHz**



Date: 20.FEB.2021 14:23:55



Delta 1 [T1] -0.18 dB

Ref Lvl 30 dBm

RBW 300 kHz RF Att 30 dB

VBW 1 MHz

SWT 5 ms Unit dBm

23.88777555 MHz

11 dB Offset

1MAX

Center 5.24 GHz

Span 40 MHz

4 MHz/

▼ 1 [T1] -19.72 dBm

▲ 1 [T1] -0.18 dB

OPB 23.88777555 MHz

▼ T1 [T1] -2.63 dBm

T2 5.23154309 GHz

▼ T2V [T1] -1.61 dBm

1 5.24853707 GHz

D1 6.55 dBm

D2 -19.45 dBm

1

1MA

Delta 1 [T1]

Ref Lvl 0.22 dB

20 dBm 23.48697395 MHz

RBW 300 kHz RF Att 20 dB

VBW 1 MHz

SWT 5 ms Unit dBm

11 dB Offset

D1 2.96 dBm

1MAX

T1

T2

T1 [T1]

T2 [T1]

-23.01 dBm

5.16857715 GHz

0.22 dB

23.48697395 MHz

78.03607214 MHz

-5.51 dBm

5.17106212 GHz

-5.40 dBm

5.18909820 GHz

D2 -23.04 dBm

Center 5.18 GHz

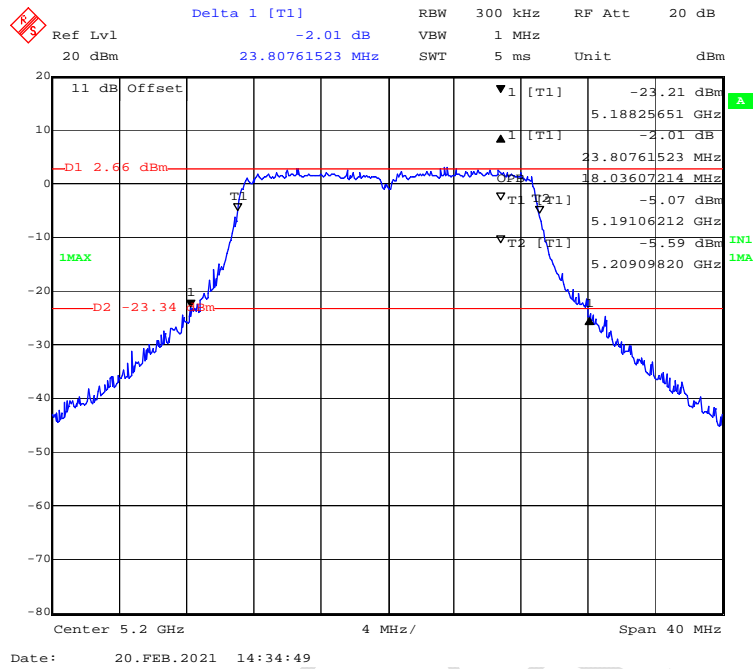
4 MHz/

Span 40 MHz

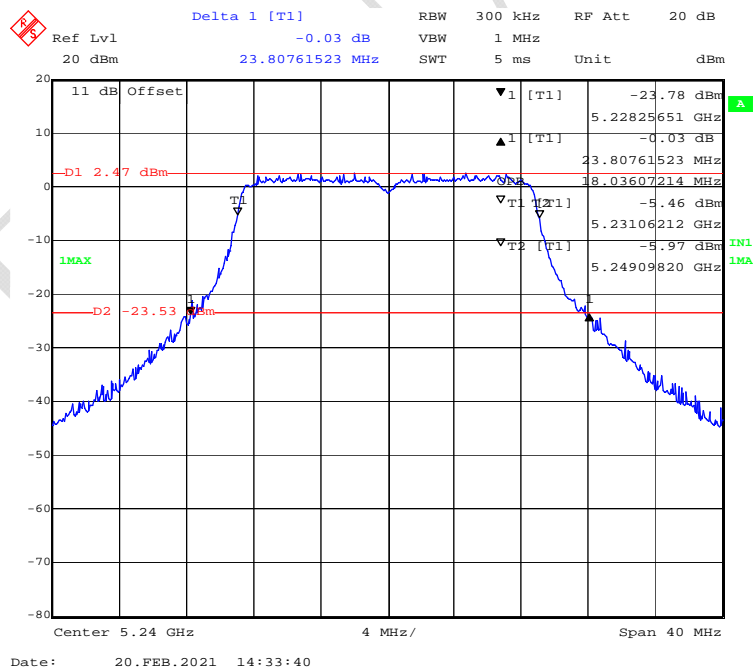
Date: 20.FEB.2021 14:36:13



### 802.11ac20 mode, 5200MHz

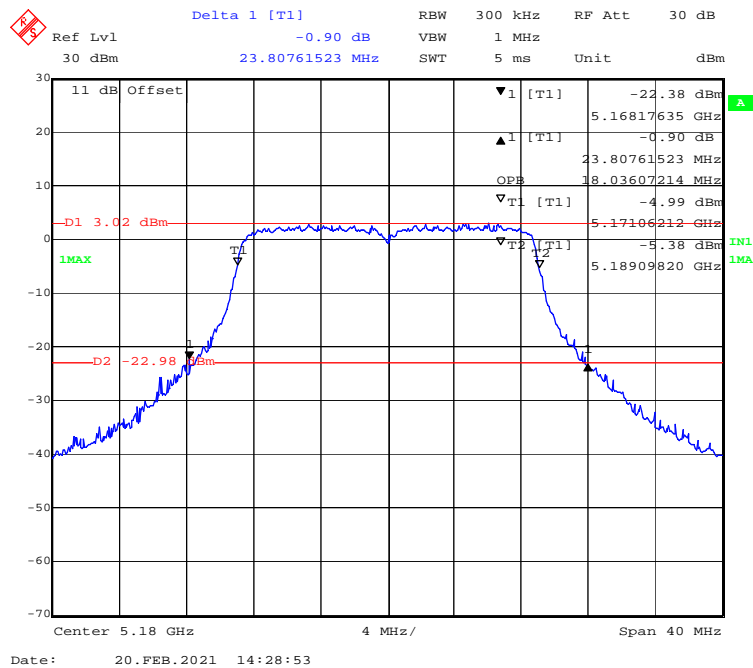


### 802.11ac20 mode, 5240MHz

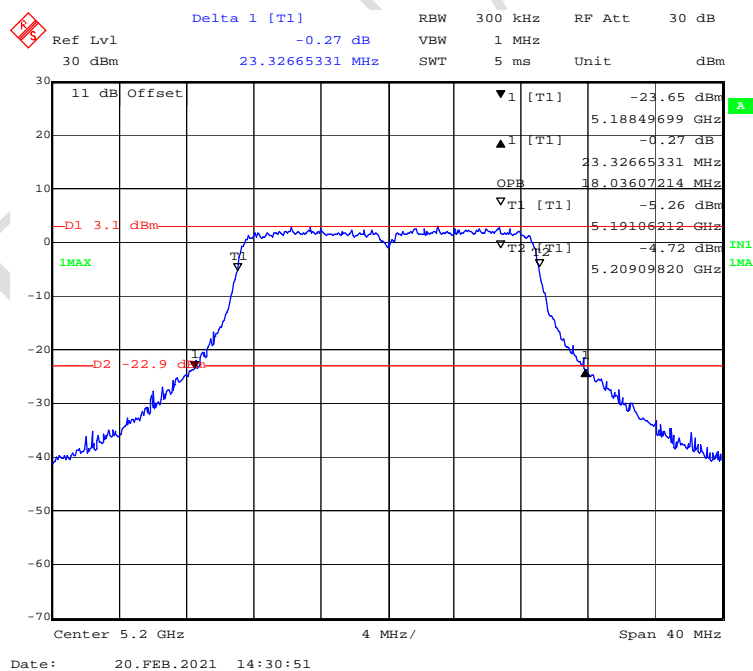




## 802.11n-HT20 mode, 5180MHz

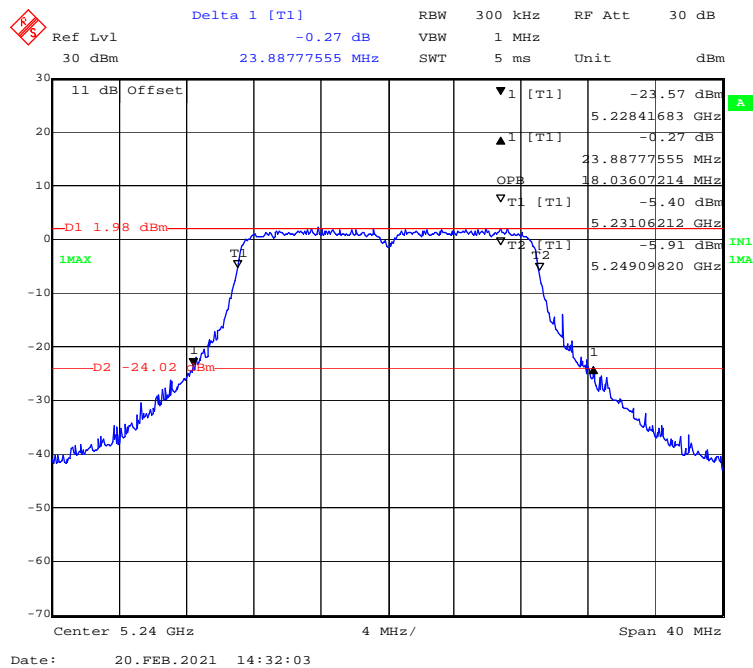


## 802.11n-HT20 mode, 5200MHz

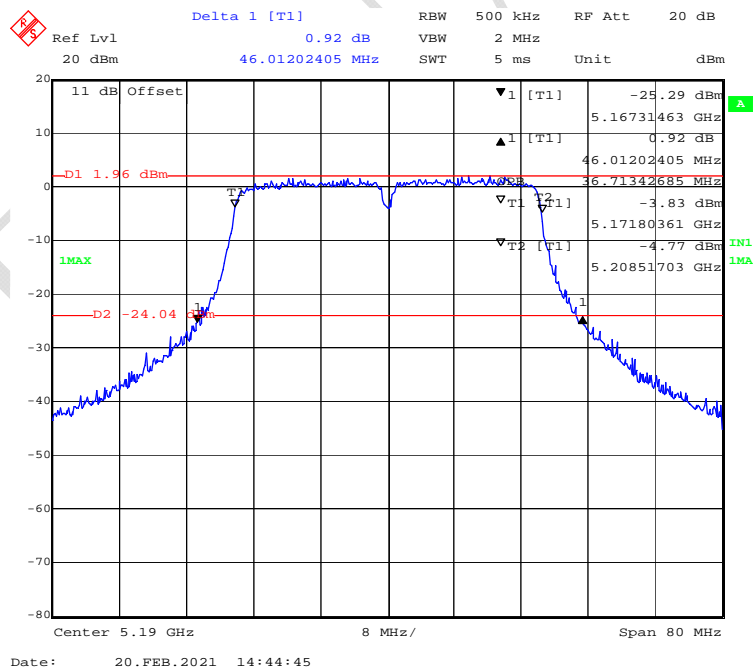




## 802.11n-HT20 mode, 5240MHz

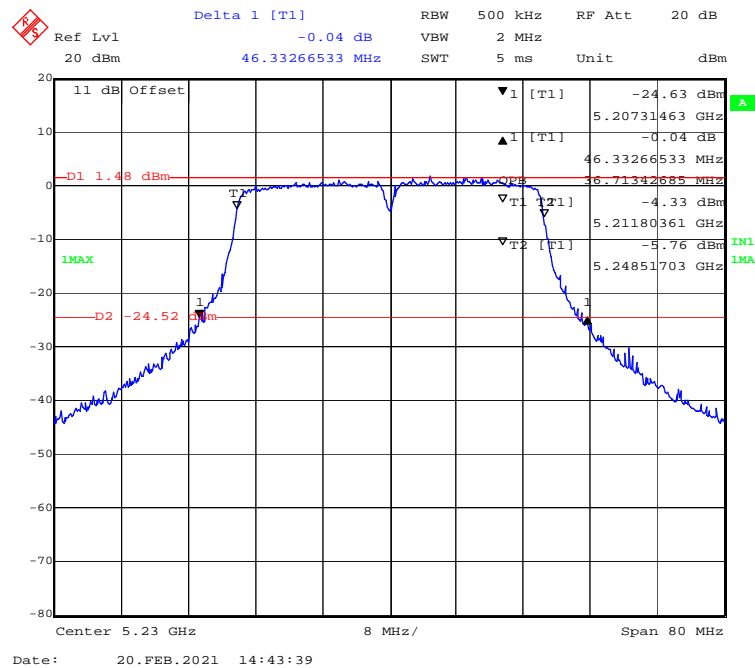


## 802.11ac40 mode, 5190MHz

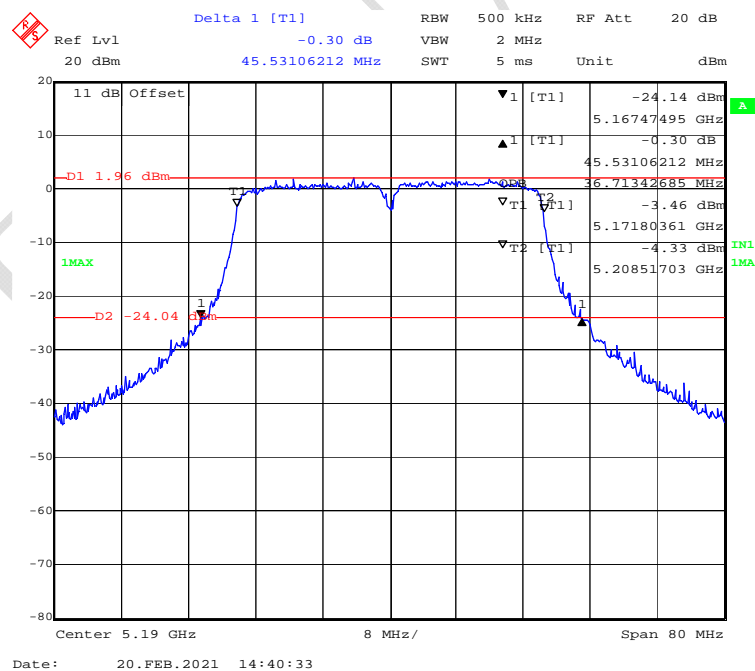




## 802.11ac40 mode, 5230MHz

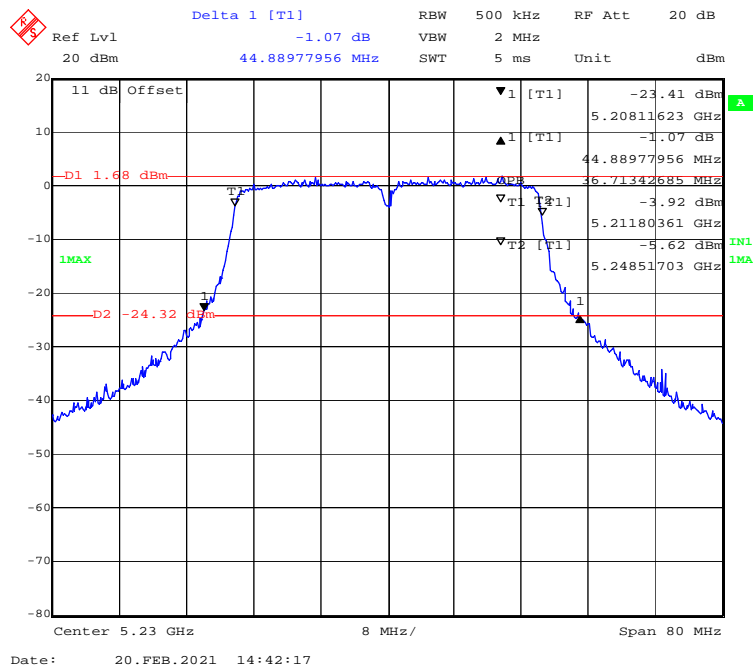


## 802.11n-HT40 mode, 5190MHz

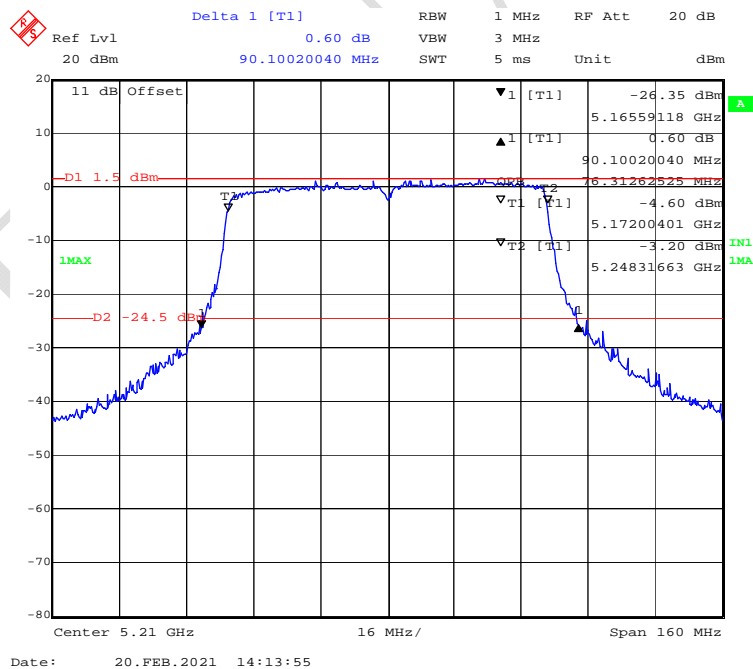




## 802.11n-HT40 mode, 5230MHz



## 802.11ac80 mode, 5210MHz





## 26 Bandwidth&99% Bandwidth

Delta 1 [T1]

Ref Lvl 0.45 dB

30 dBm

24.60921844 MHz

RBW 300 kHz

RF Att 30 dB

SWT 5 ms

Unit dBm

11 dB Offset

▼1 [T1] -20.18 dBm

▲1 [T1] 0.45 dB

OPB 24.60921844 MHz

▽T1 [T1] -3.31 dBm

D1 6.18 dBm

1MAX

▽T2 [T1] -4.36 dBm

1

D7 -19.82 dBm

5.18861723 GHz

Center 5.18 GHz

4 MHz/

Span 40 MHz

Date: 20.FEB.2021 17:17:51

Delta 1 [T1] -0.04 dB

RBW 300 kHz RF Att 30 dB

Ref Lvl 30 dBm

VBW 1 MHz

SWT 5 ms

Unit dBm

11 dB Offset

D1 6.21 dBm

1MAX

D2 -19.79 dBm

1

T1

T2

1

▼1 [T1] -20.12 dBm

5.18793587 GHz

▲1 [T1] -0.04 dB

24.76953908 MHz

OPB 17.07414830 MHz

▼T1 [T1] -1.92 dBm

5.19154309 GHz

▼T2 [T1] -2.36 dBm

5.20861723 GHz

Center 5.2 GHz

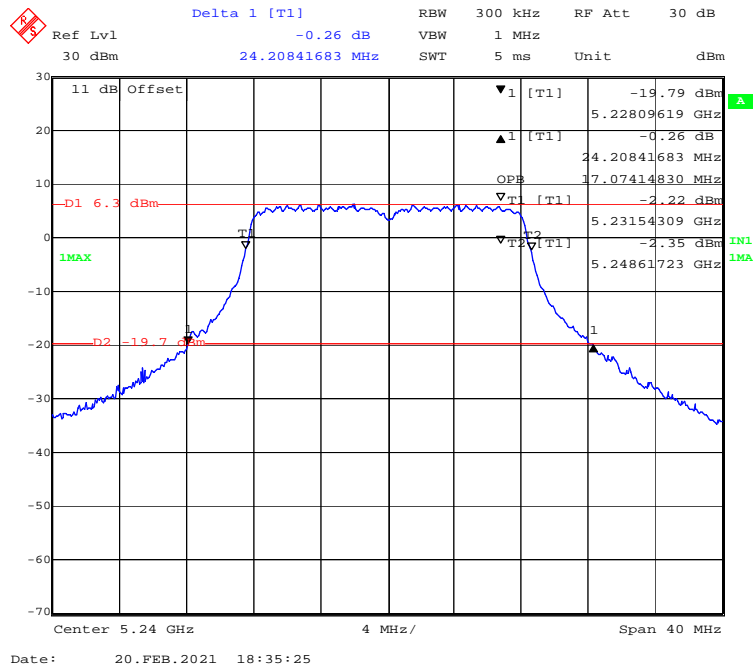
4 MHz/

Span 40 MHz

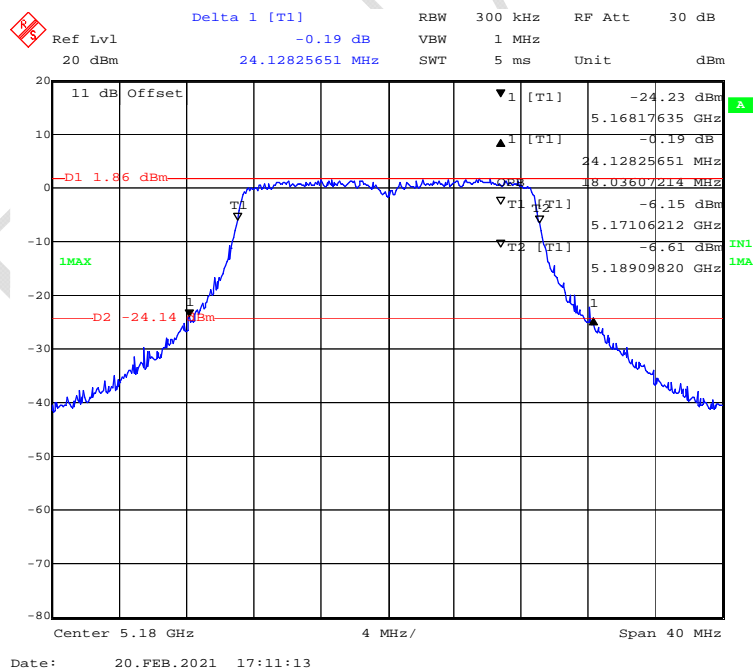
Date: 20.FEB.2021 17:23:29



## 802.11a mode, 5240MHz

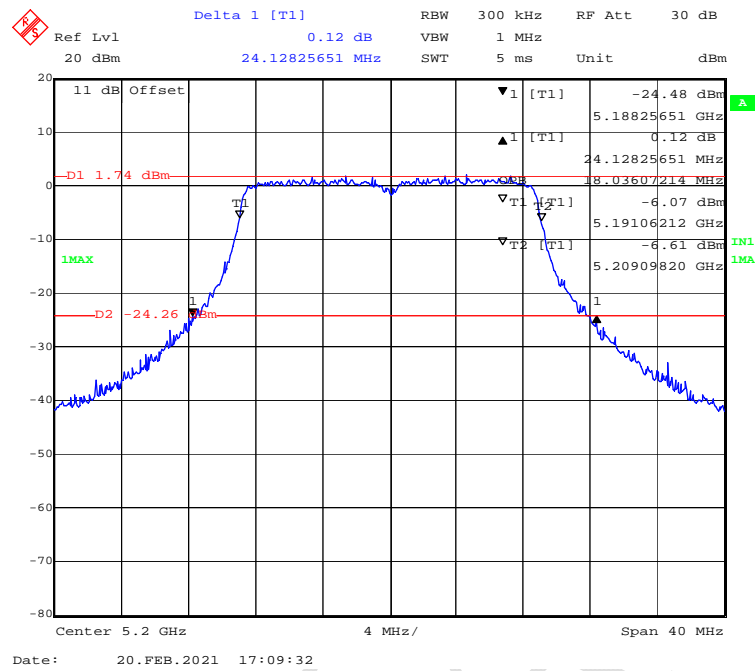


## 802.11ac20 mode, 5180MHz

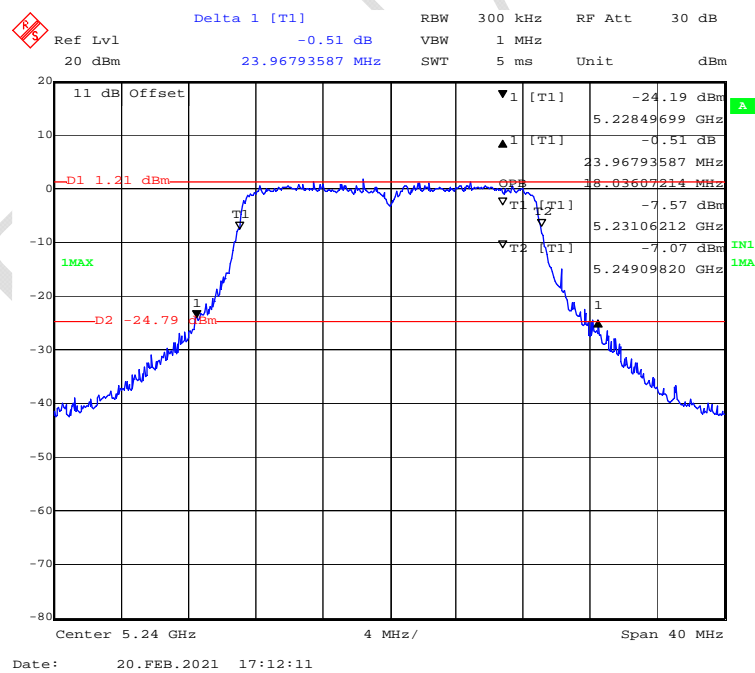




### 802.11ac20 mode, 5200MHz

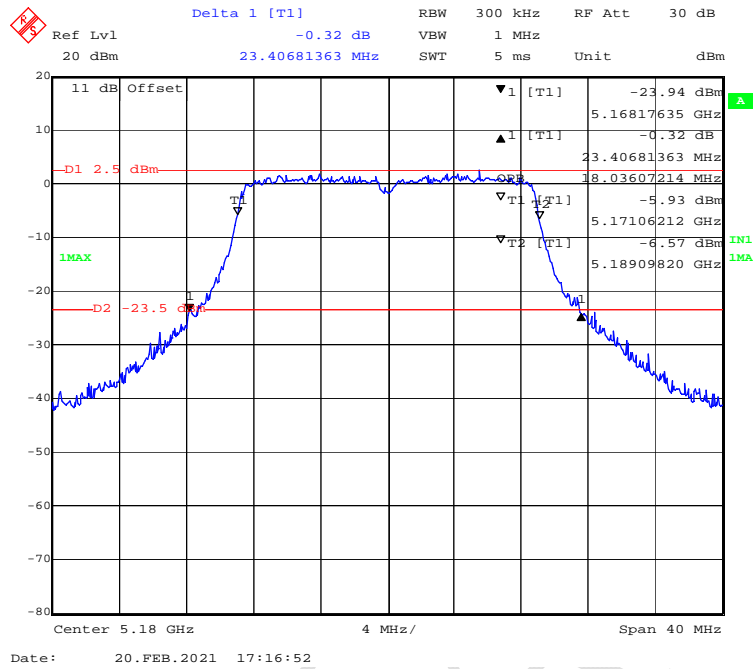


### 802.11ac20 mode, 5240MHz

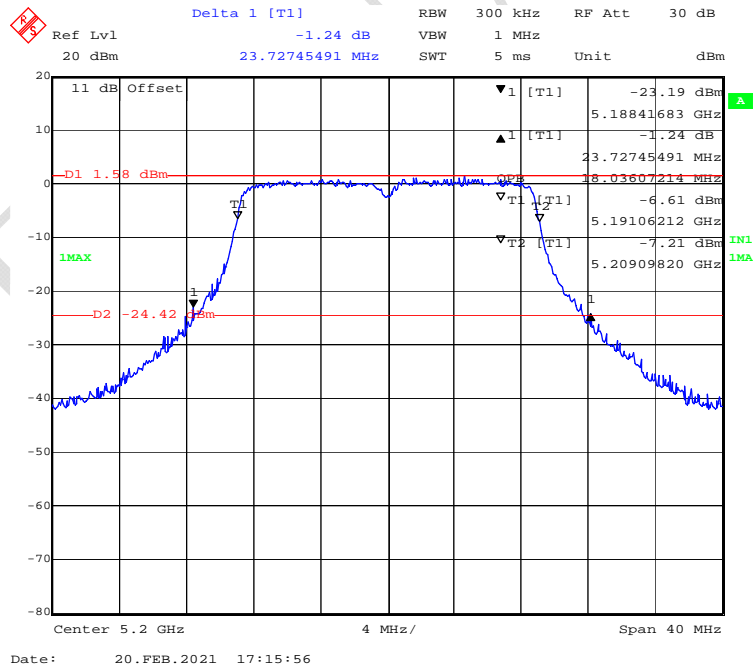




### 802.11n-HT20 mode, 5180MHz



### 802.11n-HT20 mode, 5200MHz





Delta 1 [T1]

Ref Lvl -1.26 dB

20 dBm 23.56713427 MHz

RBW 300 kHz RF Att 30 dB

SWT 5 ms Unit dBm

11 dB Offset

D1 2.11 dBm

1MAX

D2 -23.89 dBm

T1

T1 [T1] -23.57 dBm 5.22841683 GHz

T1 [T1] -1.26 dB 23.56713427 MHz

T1 [T2] -6.39 dBm 5.23106212 GHz

T2 [T1] -6.97 dBm 5.24909820 GHz

Center 5.24 GHz 4 MHz/ Span 40 MHz

Date: 20.FEB.2021 17:14:03

Delta 1 [T1] -1.62 dB  
 RBW 500 kHz RF Att 30 dB  
 Ref Lvl 30 dBm VBW 2 MHz  
 30 dBm SWT 5 ms Unit dBm

11 dB Offset  
 D1 1.66 dBm  
 1MAX  
 D2 -24.34 dBm  
 Center 5.19 GHz 8 MHz/ Span 80 MHz

▼1 [T1] -24.71 dBm  
 5.16731463 GHz  
 ▲1 [T1] -1.62 dB  
 46.65330661 MHz  
 OPB 36.87374749 MHz  
 ▽T1 [T1] -5.16 dBm  
 5.17164329 GHz  
 ▽T2 [T1] -5.11 dBm  
 5.20851703 GHz

IN1  
 1MA

Date: 20.FEB.2021 18:48:43



[illegible]

Delta 1 [T1] -1.73 dB  
 RBW 500 kHz RF Att 30 dB  
 Ref Lvl 30 dBm VBW 2 MHz  
 46.65330661 MHz SWT 5 ms Unit dBm

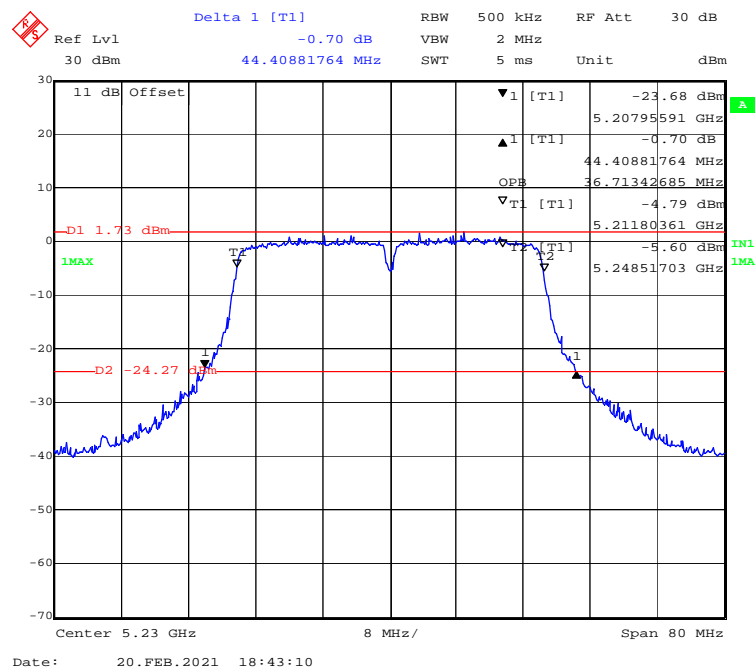
11 dB Offset  
 1MAX  
 D1 1.46 dBm  
 D2 -24.54 dBm  
 T1 [T1] -4.83 dBm  
 T2 [T1] -5.47 dBm  
 T3 [T1] -5.17164329 GHz  
 T4 [T1] -5.20851703 GHz

Center 5.19 GHz 8 MHz/  
 Span 80 MHz

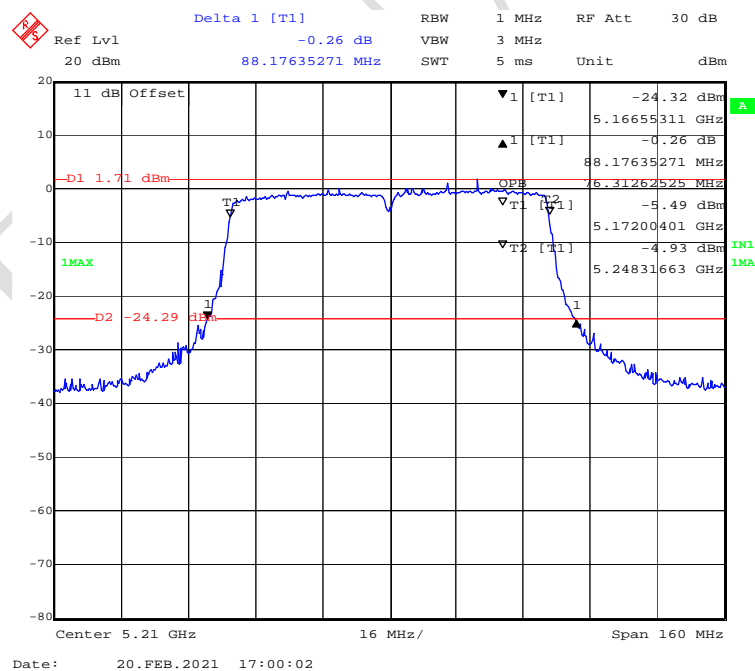
Date: 20.FEB.2021 18:42:03



### 802.11n-HT40 mode, 5230MHz



**802.11ac80 mode, 5210MHz**





## 26 Bandwidth&99% Bandwidth

Delta 1 [T1]      RBW 300 kHz      RF Att 30 dB  
 Ref Lvl -0.29 dB      VBW 1 MHz  
 30 dBm      27.51503006 MHz      SWT 5 ms      Unit dBm

11 dB Offset  
 D1 7.19 dBm  
 1MAX  
 T1  
 T2  
 1

1 [T1] -18.85 dBm  
 1 [T1] -0.29 dBm  
 27.51503006 MHz  
 OPB 27.31462926 MHz  
 T1 [T1] -2.47 dBm  
 5.17152305 GHz  
 T2 [T1] -3.92 dBm  
 5.18883768 GHz

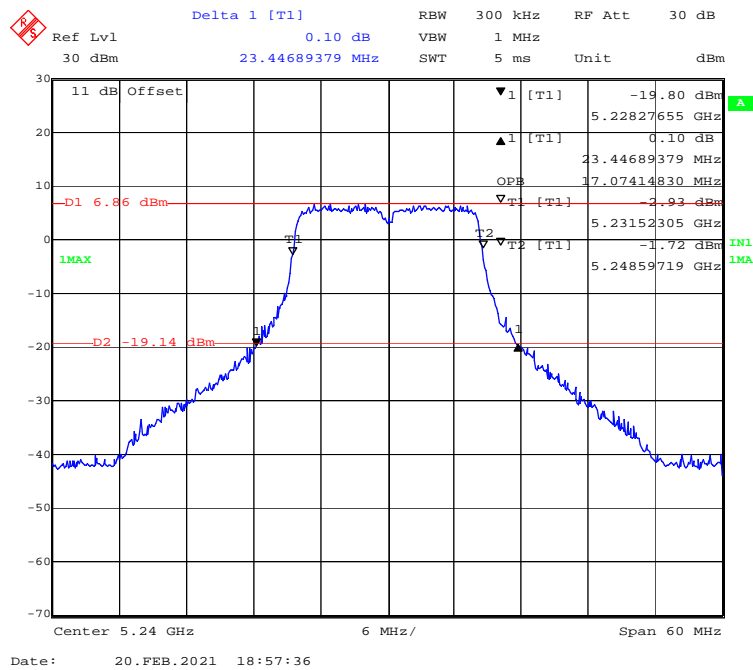
Center 5.18 GHz      6 MHz/      Span 60 MHz

Date: 20.FEB.2021 18:55:07

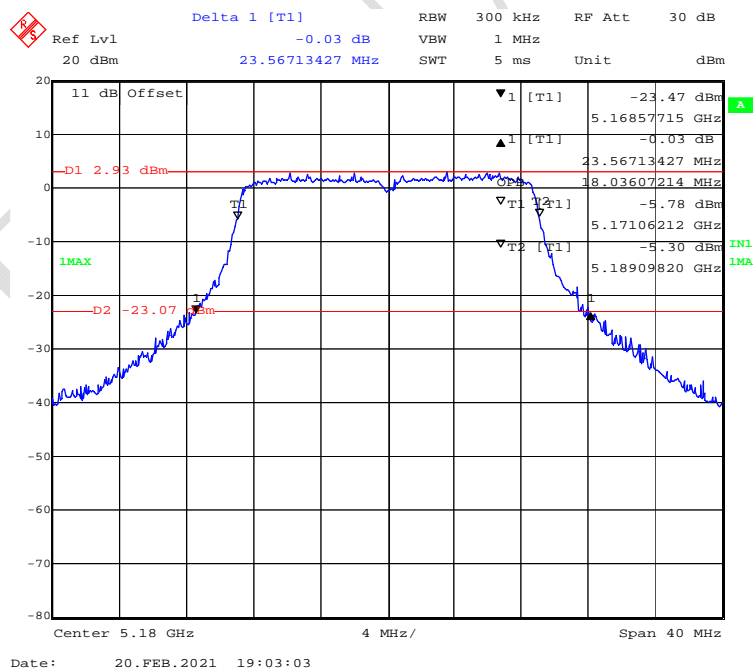
[illegible]



## 802.11a mode, 5240MHz

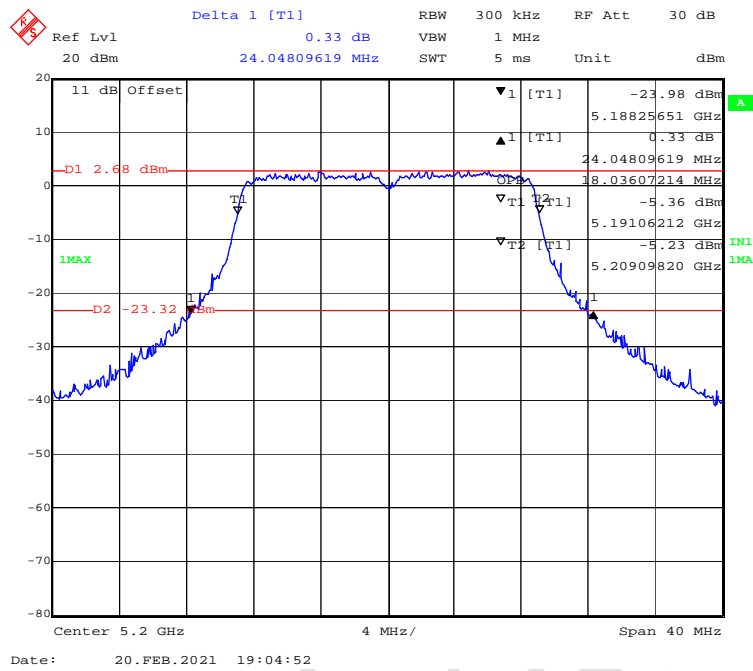


## 802.11ac20 mode, 5180MHz

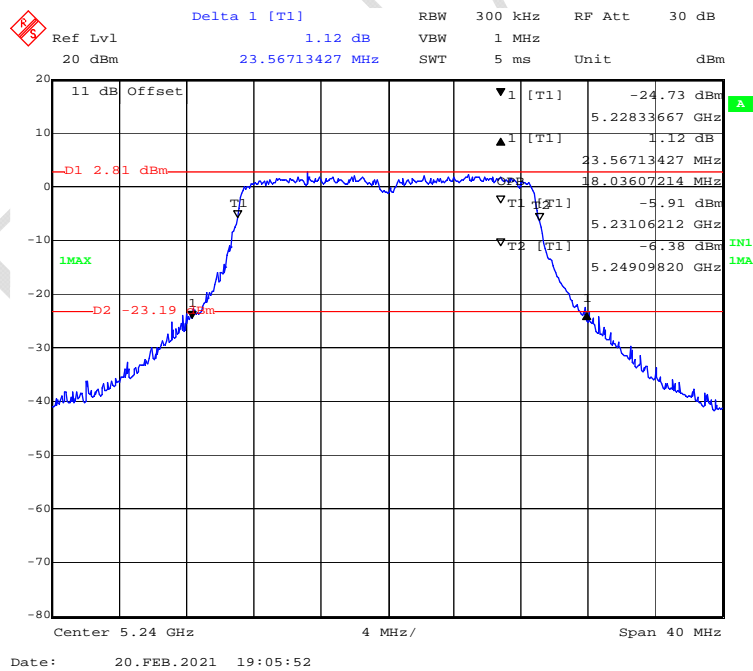




## 802.11ac20 mode, 5200MHz

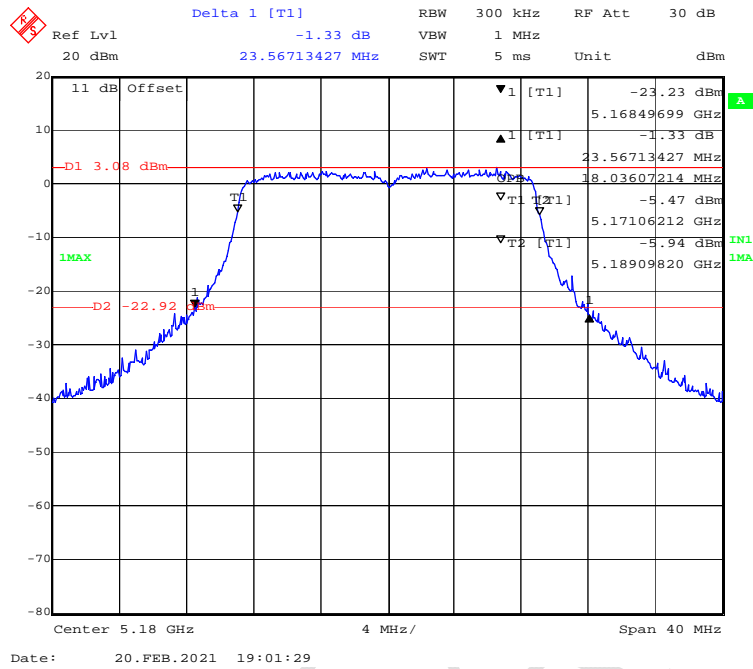


## 802.11ac20 mode, 5240MHz

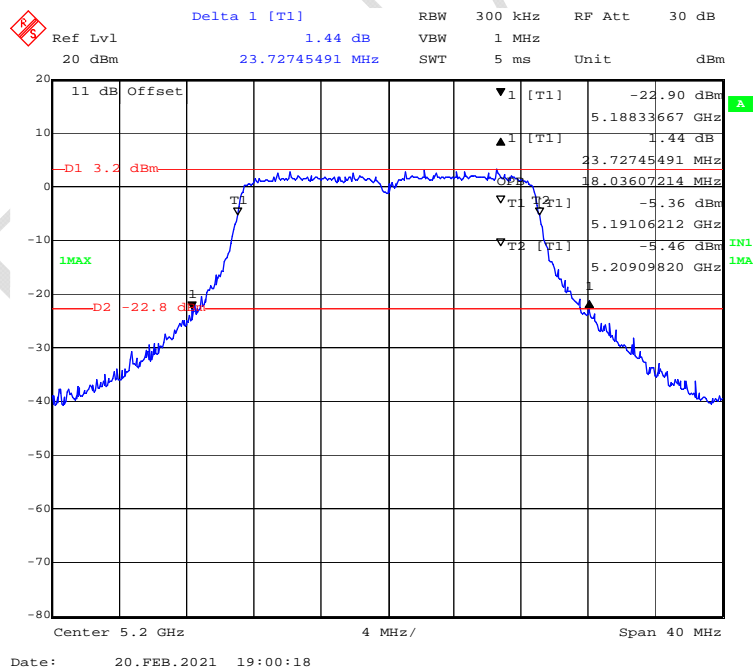




### 802.11n-HT20 mode, 5180MHz



### 802.11n-HT20 mode, 5200MHz





Delta 1 [T1]

Ref Lvl 0.31 dB

20 dBm 23.86773547 MHz

RBW 300 kHz RF Att 30 dB

SWT 1 MHz

Unit dBm

11 dB Offset

-D1 2.58 dBm

1MAX

T1

▼1 [T1] -23.83 dBm

▲1 [T1] 0.31 dB

23.86773547 MHz

▼T1 [T1] -5.72 dBm

▼T2 [T1] -5.94 dBm

5.22849699 GHz

5.23106212 GHz

5.24909820 GHz

IN1

1MA

Center 5.24 GHz

4 MHz/

Span 40 MHz

Date: 20.FEB.2021 18:58:51

Ref Lvl 20 dBm  
 Delta 1 [T1] 0.51 dB  
 RBW 500 kHz  
 RF Att 30 dB  
 VBW 2 MHz  
 Unit dBm  
 45.85170341 MHz

11 dB Offset  
 -24.25 dBm  
 -1.75 dBm  
 1  
 T1  
 T1  
 T1  
 T2 [F1]  
 1  
 1

-24.68 dBm  
 5.16747495 GHz  
 0.51 dB  
 45.85170341 MHz  
 36.71342685 MHz  
 -4.32 dBm  
 5.17180361 GHz  
 -5.62 dBm  
 5.20851703 GHz

1MAX  
 1MAX  
 1MAX

Center 5.19 GHz  
 8 MHz/  
 Span 80 MHz

Date: 20.FEB.2021 19:11:11



Ref Lvl 20 dBm Delta 1 [T1] -1.54 dB RBW 500 kHz RF Att 30 dB  
 20 dBm 45.21042084 MHz SWT 5 ms Unit dBm

11 dB Offset

▼1 [T1] -23.32 dBm  
 5.20763527 GHz

▲1 [T1] -1.54 dB  
 45.21042084 MHz

▽T1 [T1] -4.49 dBm  
 5.21180361 GHz

▽T2 [T1] -5.74 dBm  
 5.24851703 GHz

1MAX

D1 1.59 dBm

D2 -24.41 dBm

Center 5.23 GHz 8 MHz/ Span 80 MHz

Date: 20.FEB.2021 19:09:46

Delta 1 [T1]

Ref Lvl -0.41 dB

20 dBm 46.17234469 MHz

RBW 500 kHz RF Att 30 dB

VBW 2 MHz

SWT 5 ms Unit dBm

11 dB Offset

D1 1.19 dBm

1MAX

D2 -24.81 dBm

▼1 [T1] -25.16 dBm

▲1 [T1] -0.41 dB

46.17234469 MHz

▼T1 [T1] -4.83 dBm

▼T2 [T1] -5.52 dBm

5.16779559 GHz

5.17180361 GHz

5.20851703 GHz

Center 5.19 GHz

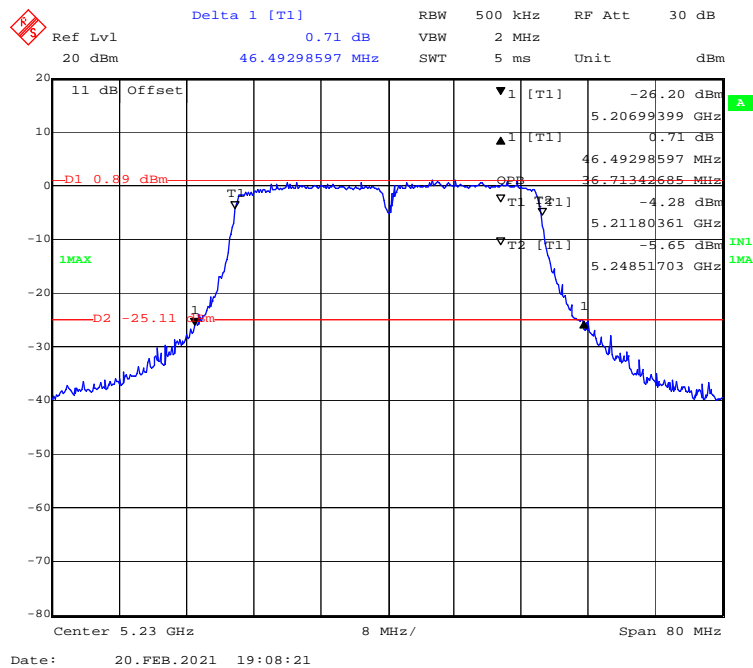
8 MHz/

Span 80 MHz

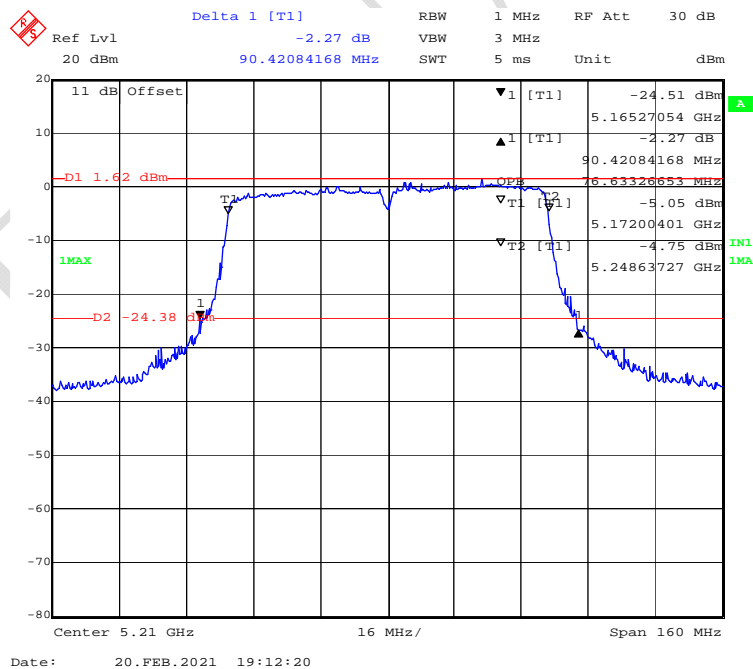
Date: 20.FEB.2021 19:07:00



## 802.11n-HT40 mode, 5230MHz



## 802.11ac80 mode, 5210MHz



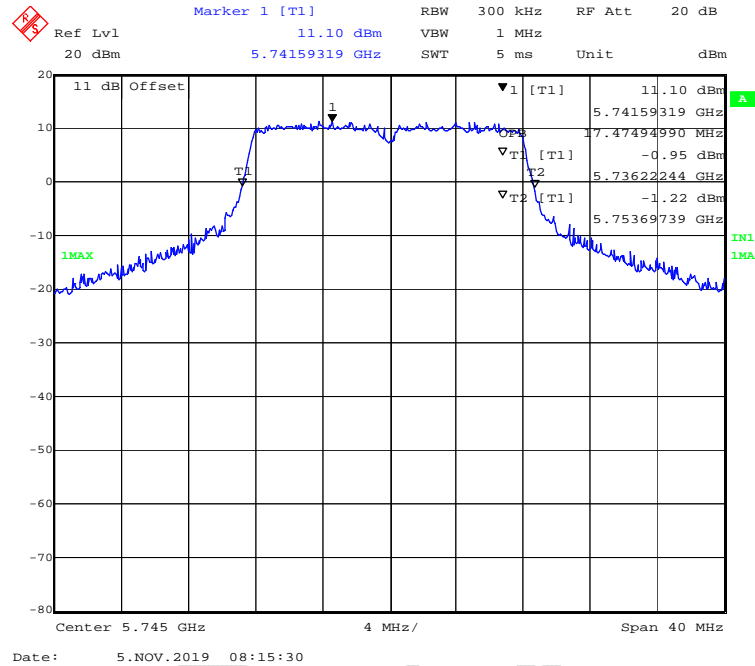


5725-5850 MHz Band:

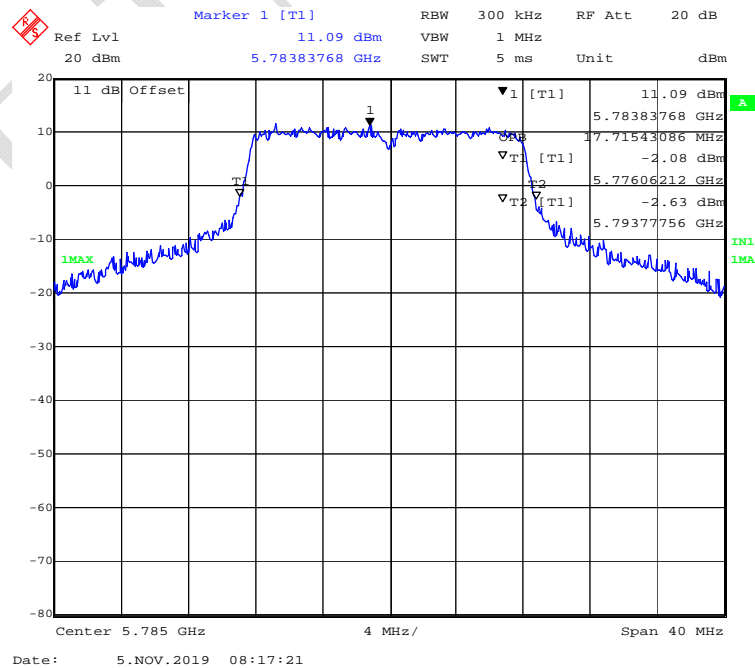
ANT 1:

99% Occupied Bandwidth

802.11a mode, 5745MHz

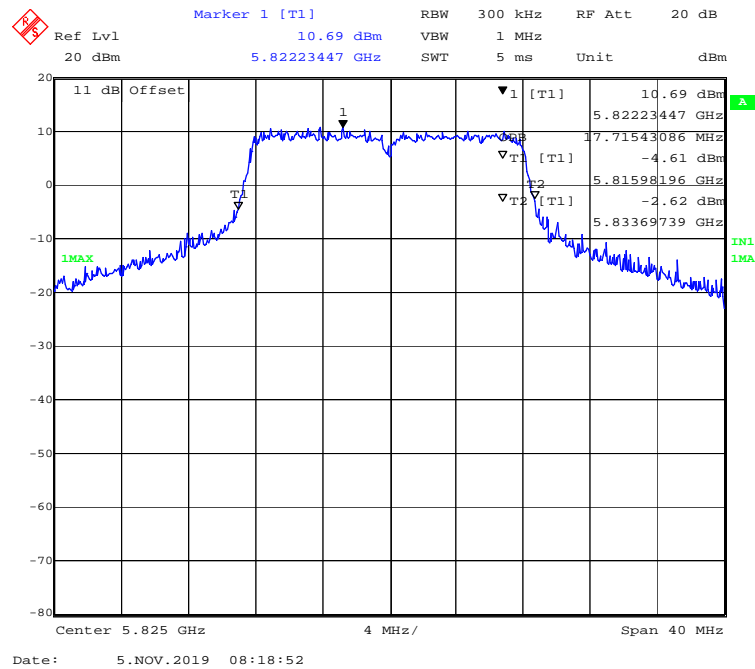


802.11a mode, 5785MHz

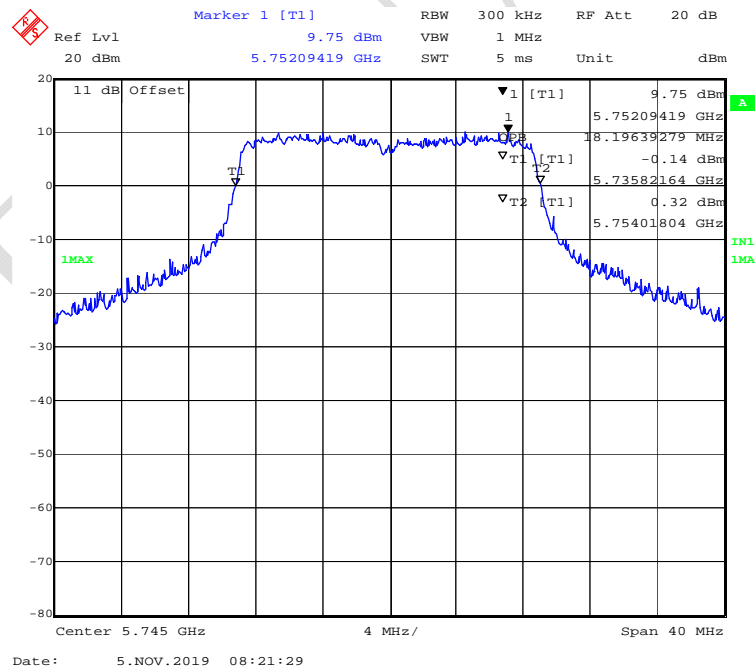




### 802.11a mode, 5825MHz

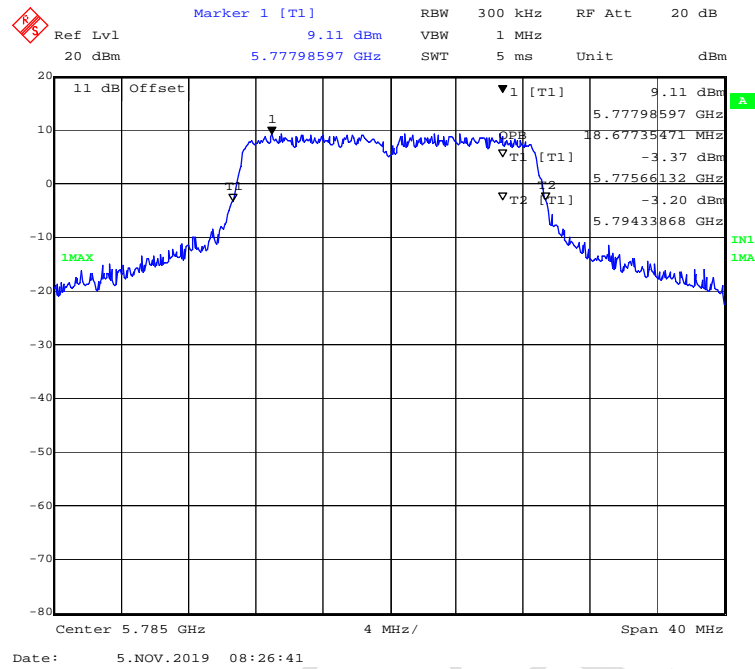


### 802.11ac20 mode, 5745MHz

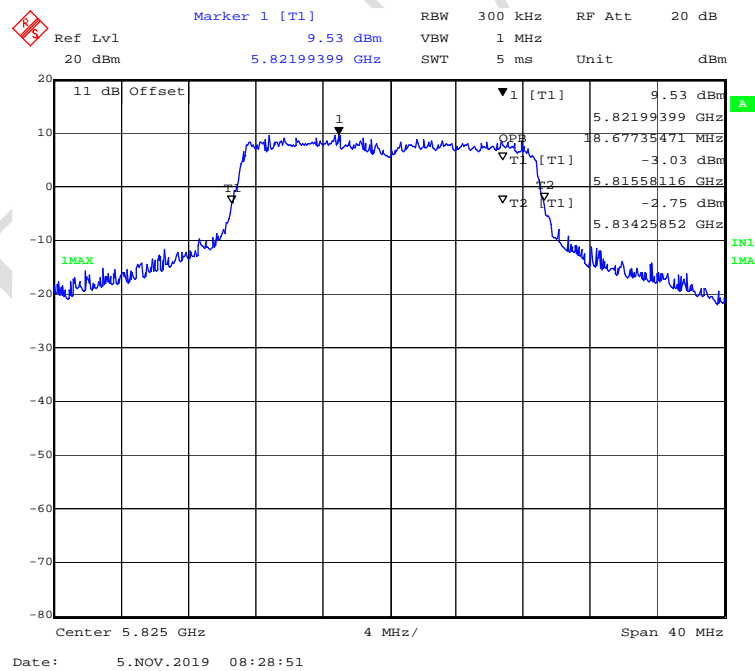




### 802.11ac20 mode, 5785MHz

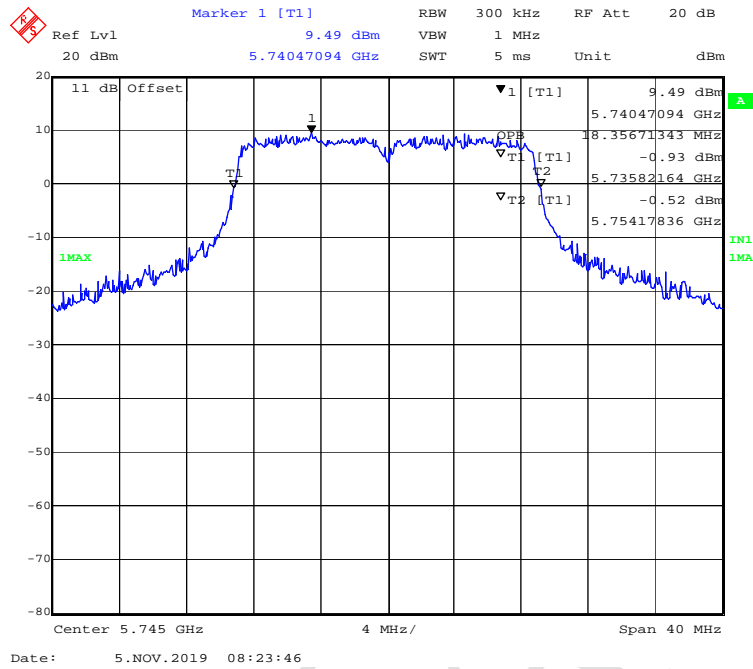


### 802.11ac20 mode, 5825MHz

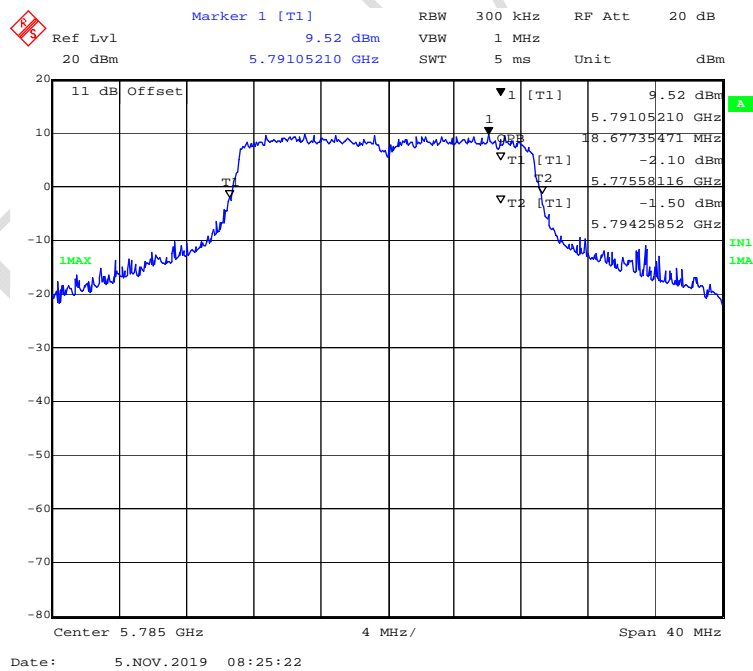




### 802.11n-HT20 mode, 5745MHz

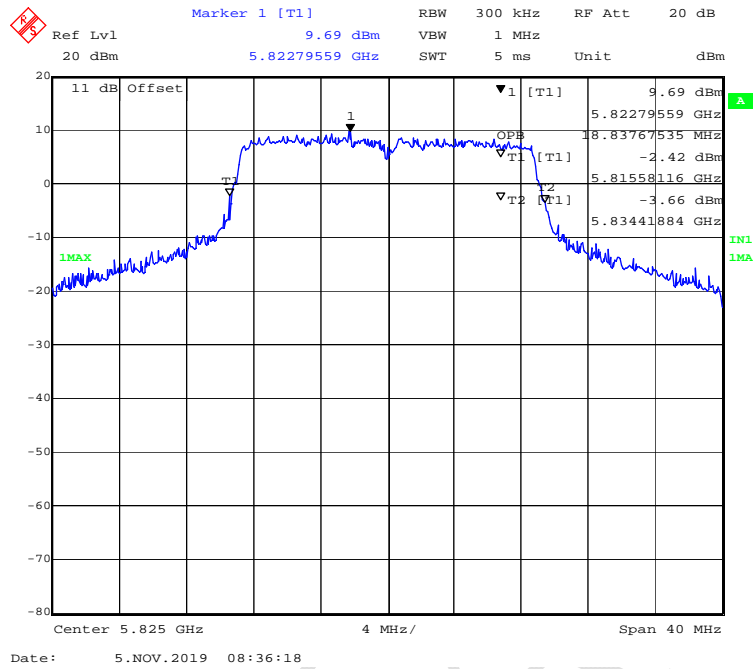


### 802.11n-HT20 mode, 5785MHz

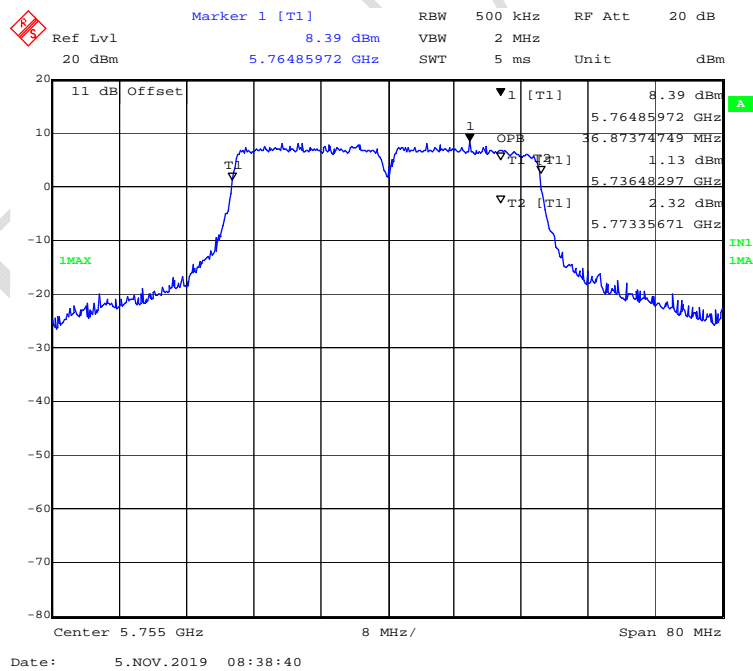




## 802.11n-HT20 mode, 5825MHz

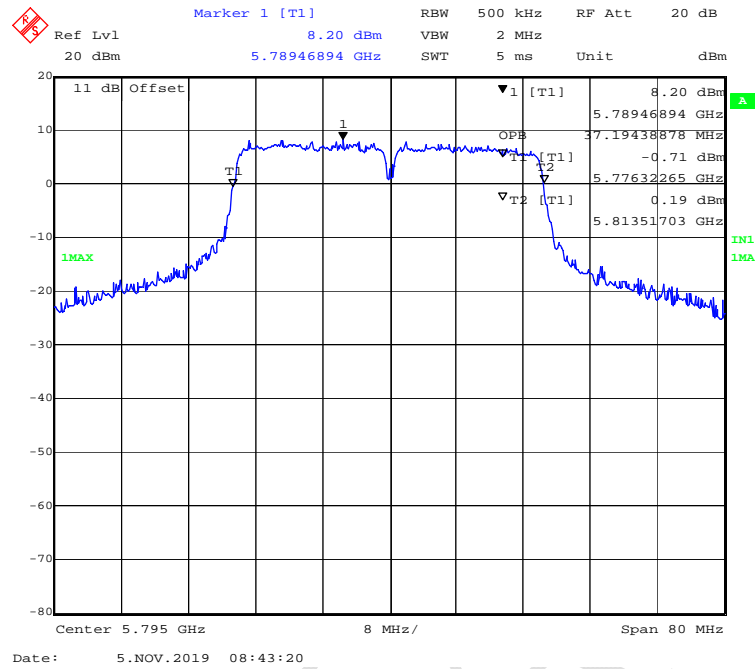


## 802.11ac40 mode, 5755MHz

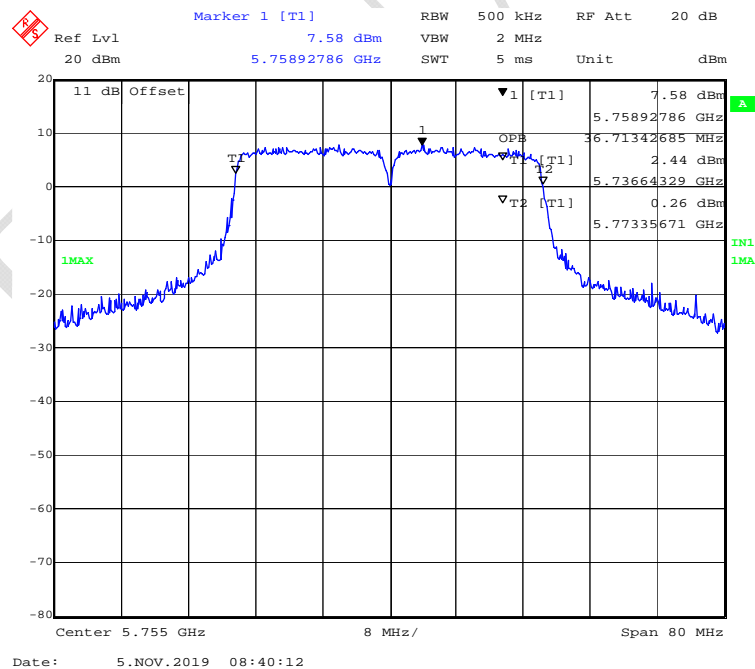




### 802.11ac40 mode, 5795MHz

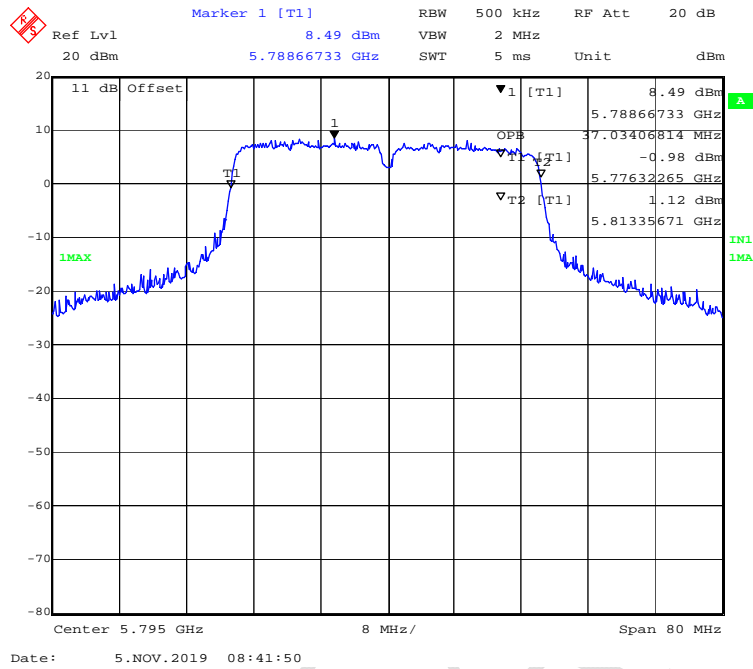


### 802.11n-HT40 mode, 5755MHz

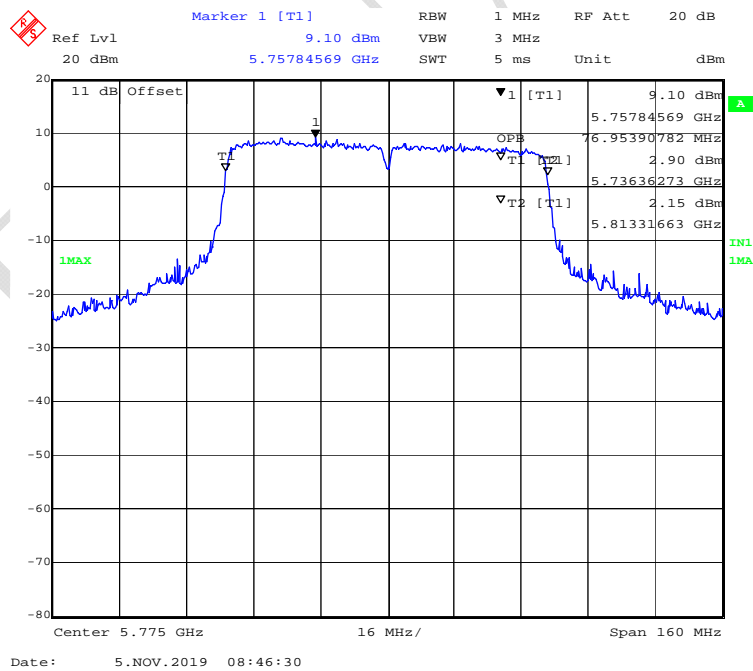




### 802.11n-HT40 mode, 5795MHz



### 802.11ac80 mode, 5775MHz

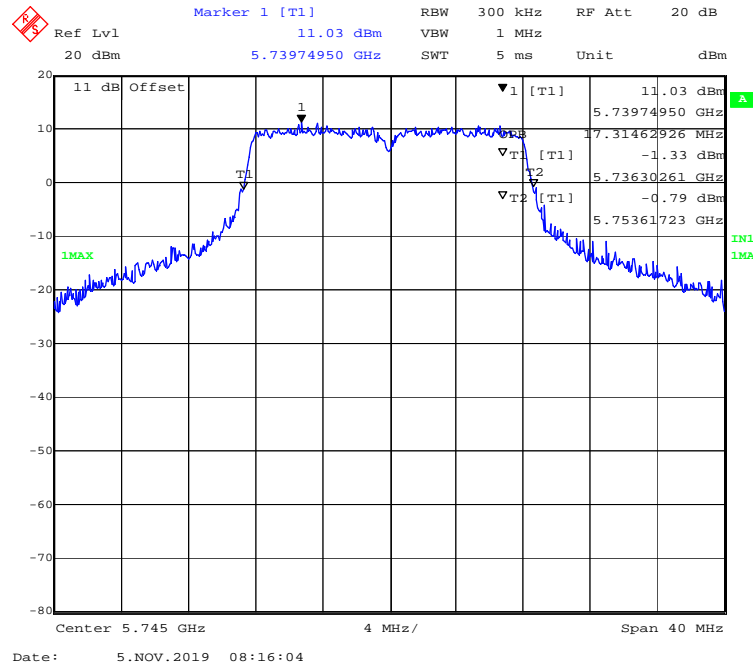




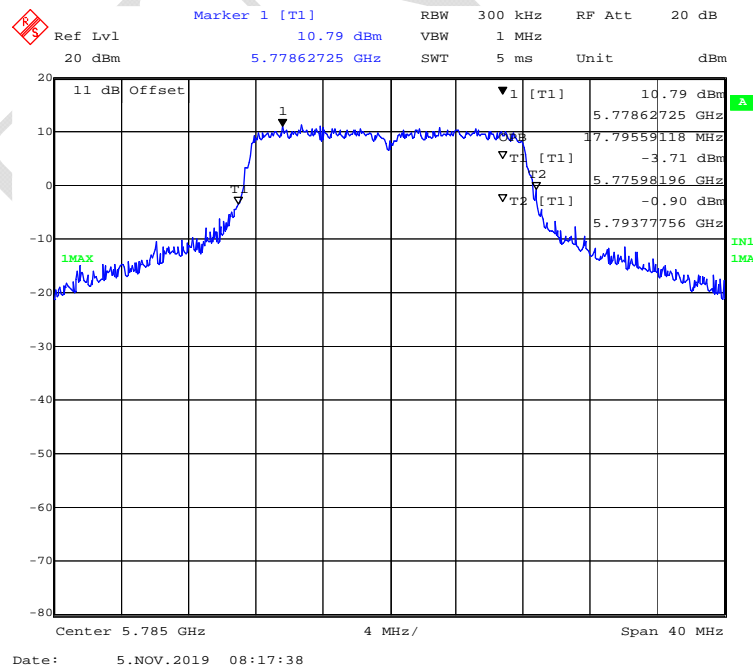
ANT 2:

99% Occupied Bandwidth

802.11a mode, 5745MHz

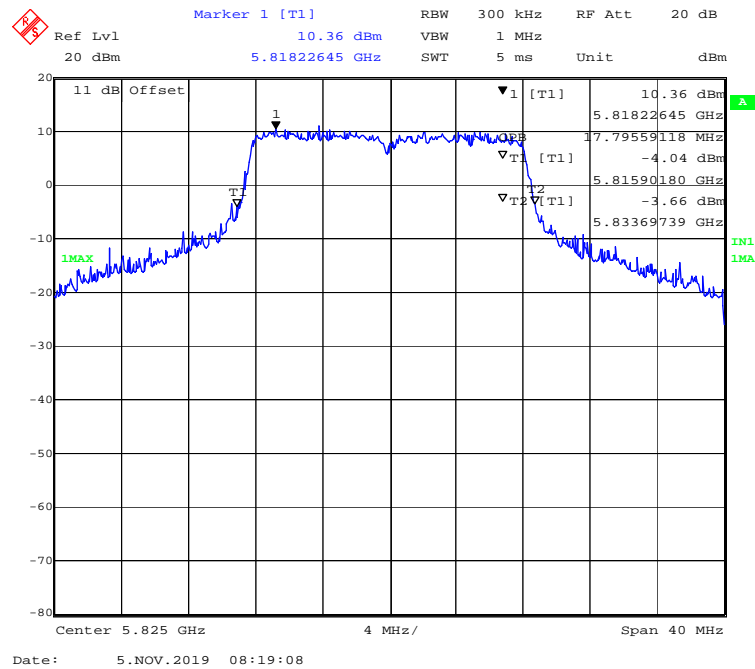


802.11a mode, 5785MHz

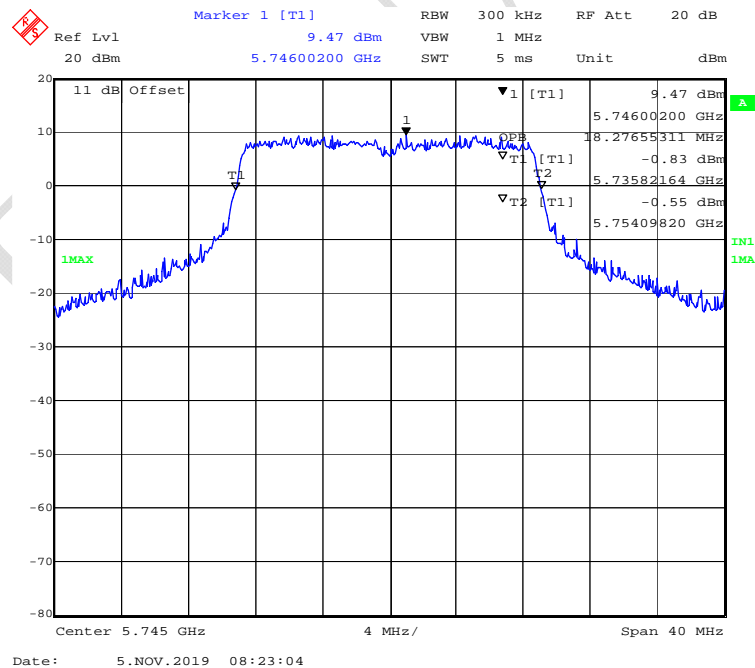




### 802.11a mode, 5825MHz

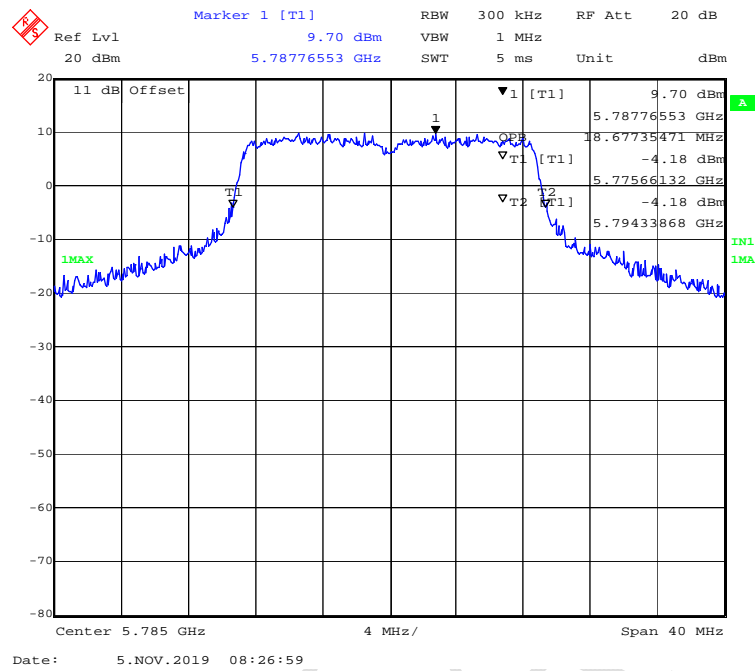


### 802.11ac20 mode, 5745MHz

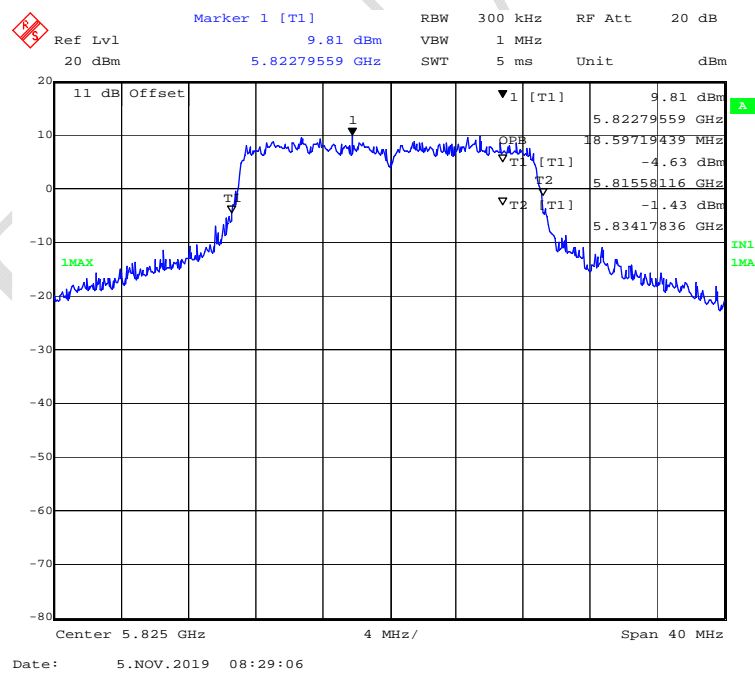




## 802.11ac20 mode, 5785MHz

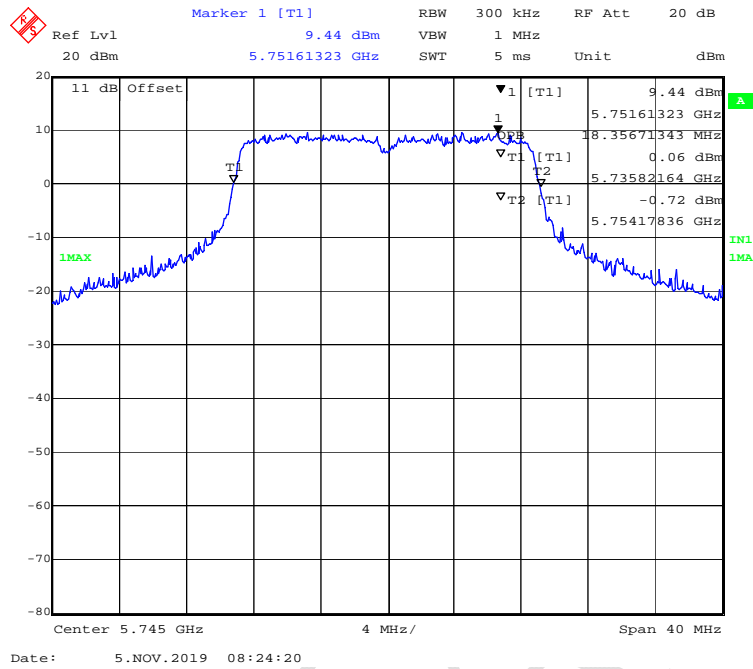


## 802.11ac20 mode, 5825MHz

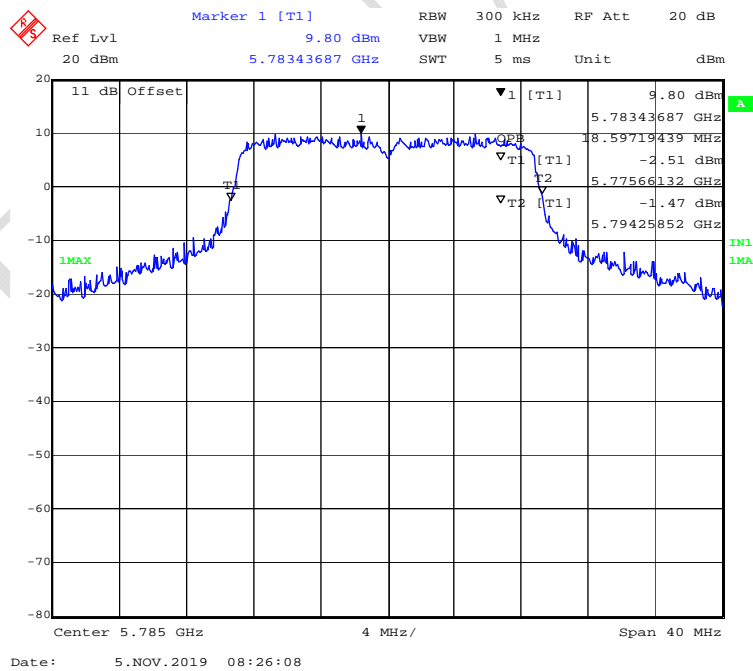




### 802.11n-HT20 mode, 5745MHz



### 802.11n-HT20 mode, 5785MHz





Marker 1 [T1] 9.05 dBm RBW 300 kHz RF Att 20 dB

Ref Lvl 20 dBm 20 dBm Unit dBm

11 dB Offset

1

▼1 [T1] 9.05 dBm

5.81910822 GHz

OPB

▼T1 [T1] 8.83767535 MHz

-4.68 dBm

5.81550100 GHz

▼T2 [T1] -3.32 dBm

5.83433868 GHz

1MAX

IN1

1MA

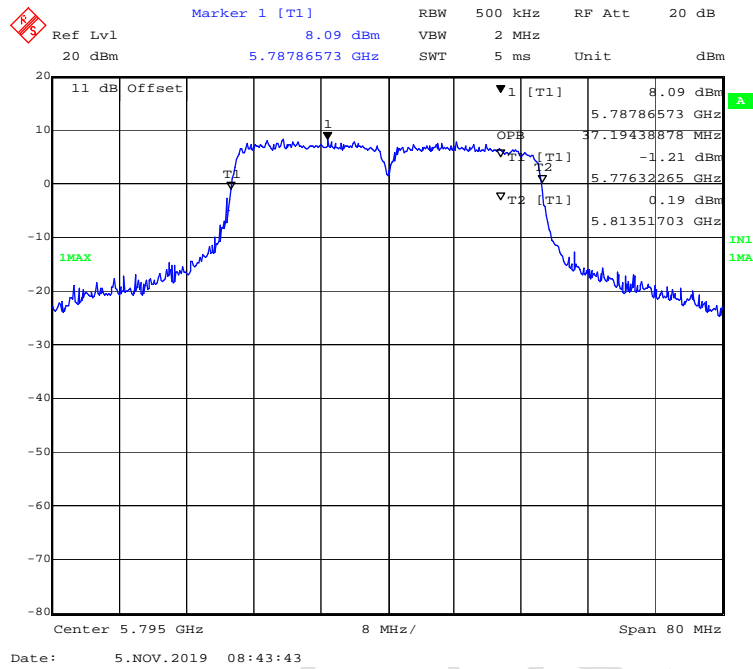
Center 5.825 GHz 4 MHz/ Span 40 MHz

Date: 5.NOV.2019 08:36:38

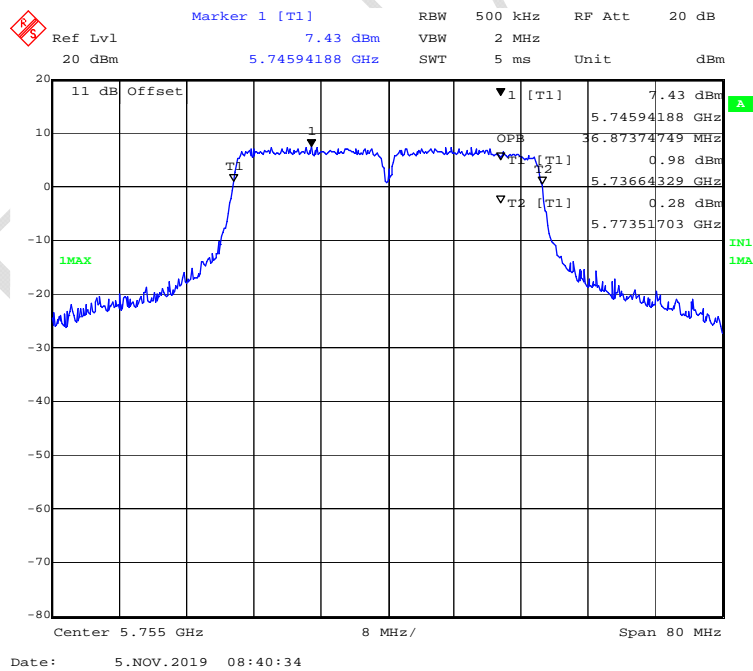
[illegible]



### 802.11ac40 mode, 5795MHz

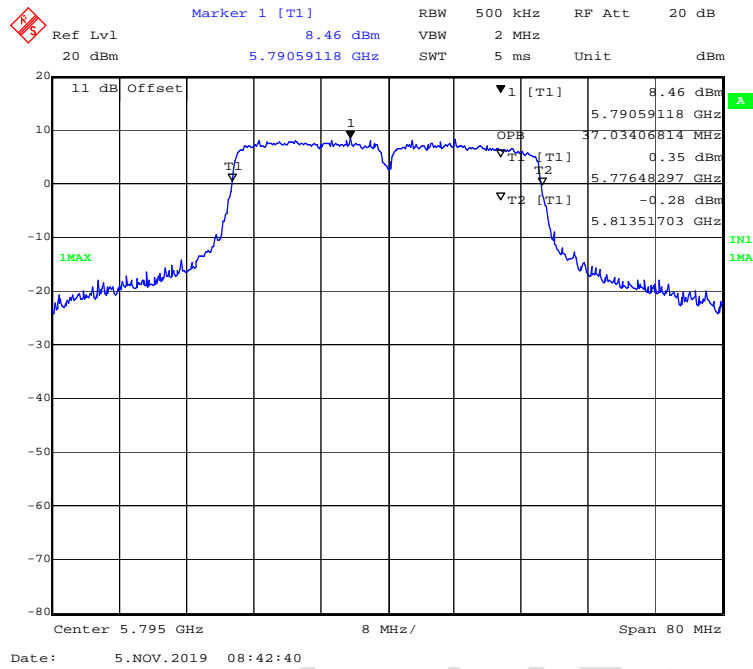


### 802.11n-HT40 mode, 5755MHz

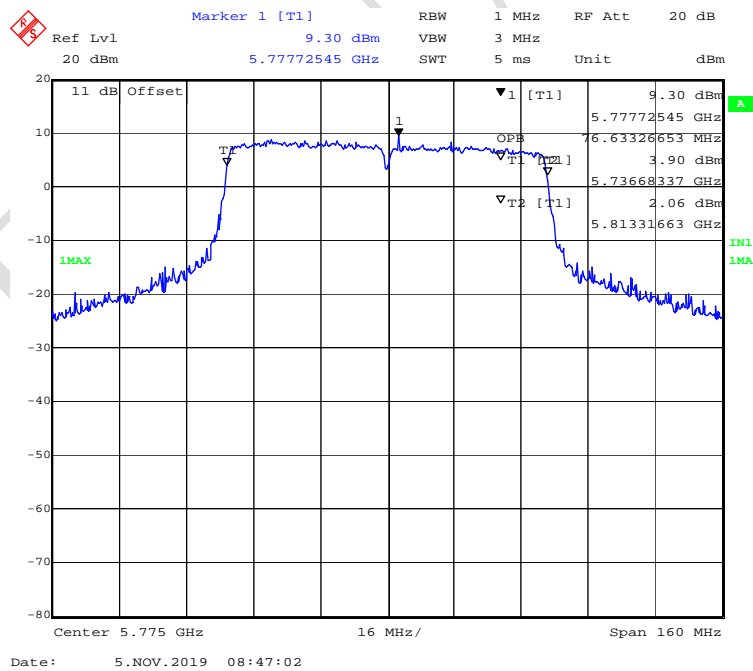




### 802.11n-HT40 mode, 5795MHz



### 802.11ac80 mode, 5775MHz

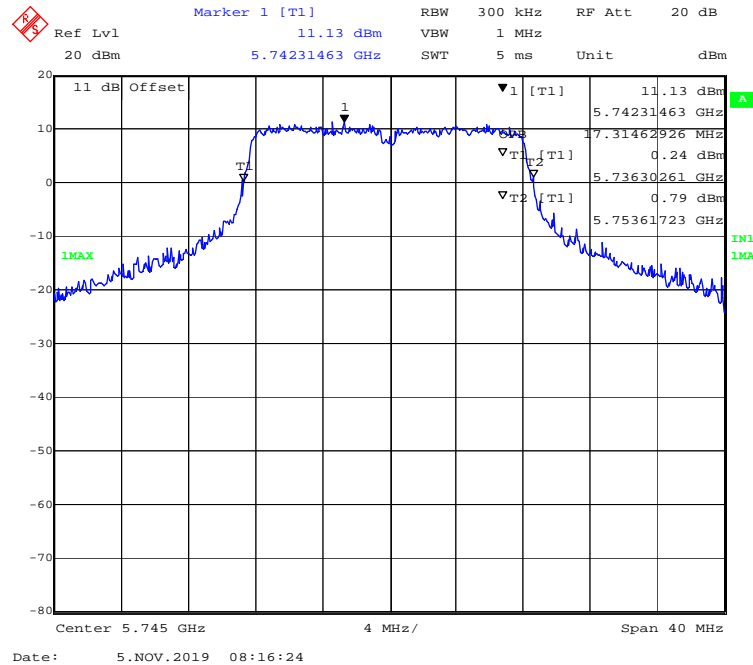




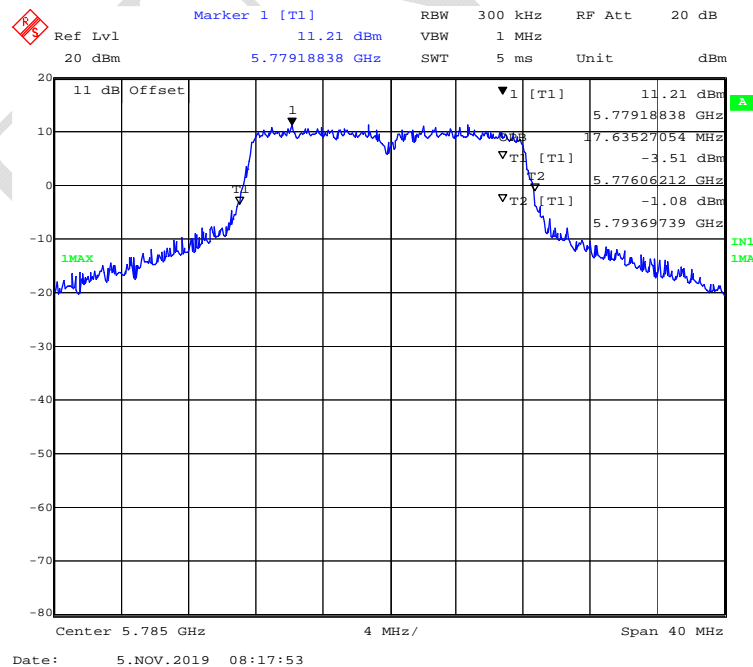
ANT 3:

99% Occupied Bandwidth

802.11a mode, 5745MHz

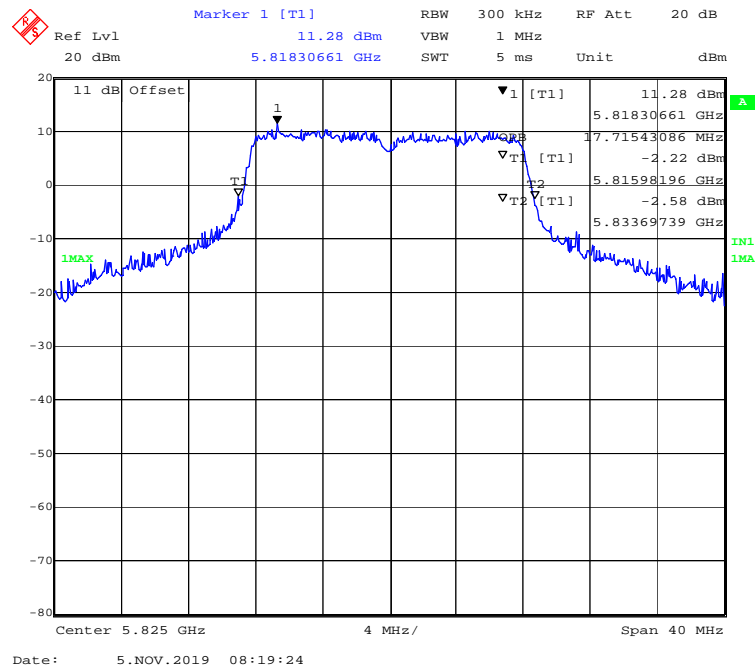


802.11a mode, 5785MHz

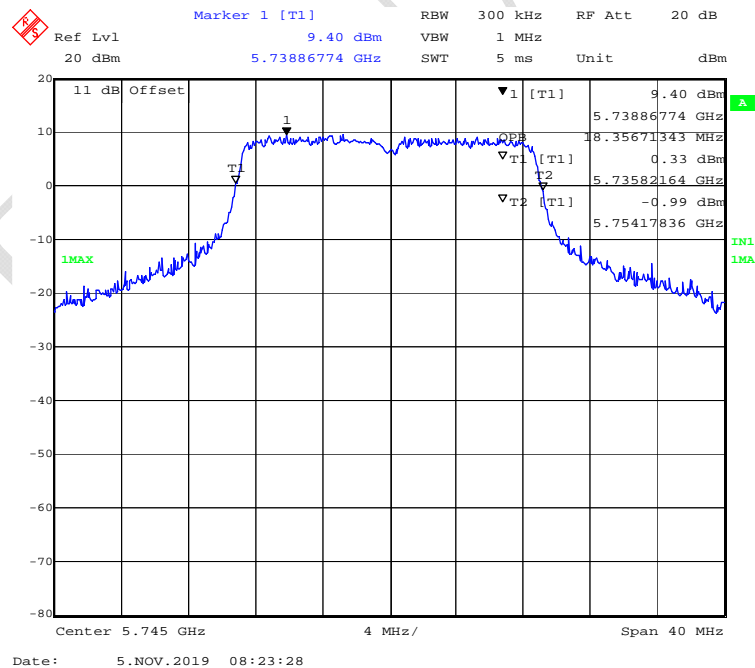




### 802.11a mode, 5825MHz



### 802.11ac20 mode, 5745MHz





Marker 1 [T1]

Ref Lvl 9.93 dBm RBW 300 kHz RF Att 20 dB

20 dBm 5.78423848 GHz SWT 5 ms Unit dBm

11 dB Offset

▼1 [T1] 9.93 dBm

5.78423848 GHz

▼T1 [T1] -4.24 dBm

5.77550100 GHz

▼T2 [T1] -3.63 dBm

5.79449900 GHz

1MAX

IN1

1MA

Center 5.785 GHz 4 MHz/ Span 40 MHz

Date: 5.NOV.2019 08:28:11

[illegible]



Marker 1 [T1]

Ref Lvl	9.64 dBm	RBW	300 kHz	RF Att	20 dB
20 dBm	5.74119238 GHz	SWT	5 ms	Unit	dBm

11 dB Offset

▼1 [T1]

▼T1 [T1]

▼T2 [T1]

1MAX

IN1 1MAX

Center 5.745 GHz

4 MHz/

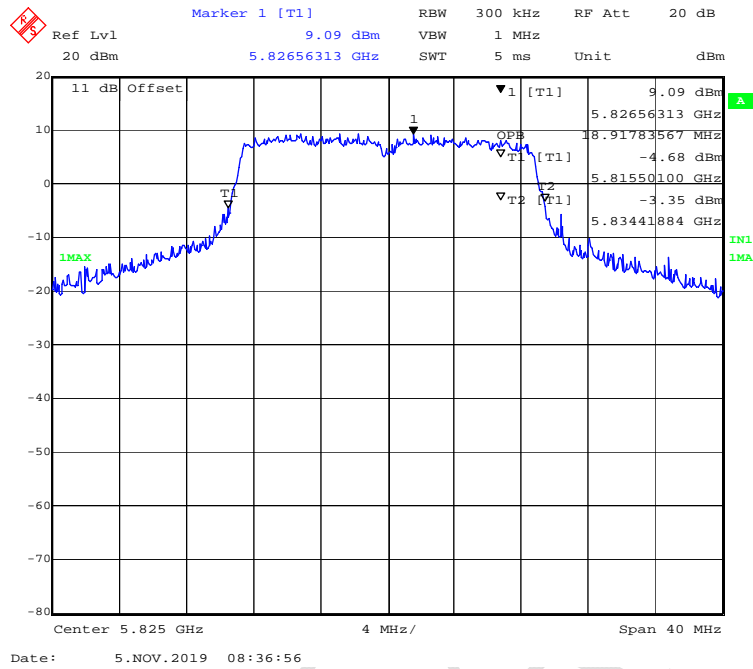
Span 40 MHz

Date: 5.NOV.2019 08:24:44

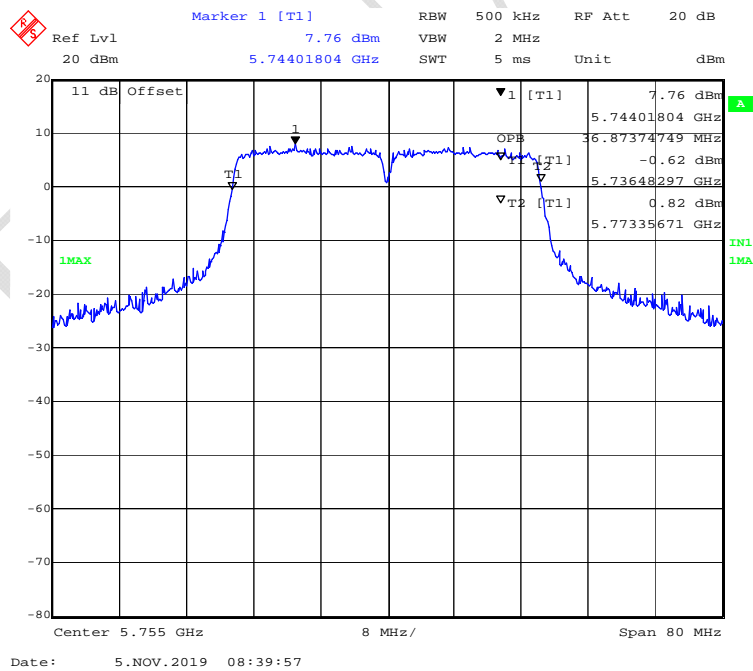
[illegible]



## 802.11n-HT20 mode, 5825MHz

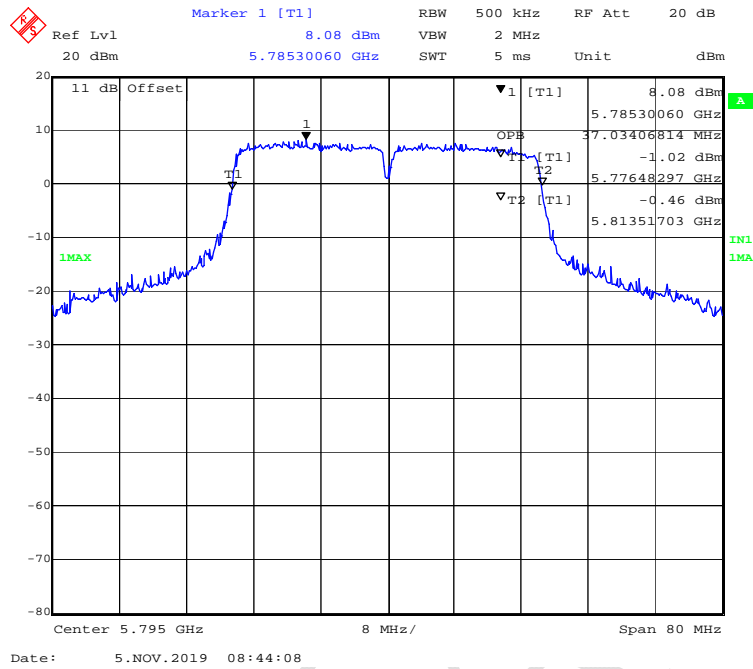


## 802.11ac40 mode, 5755MHz

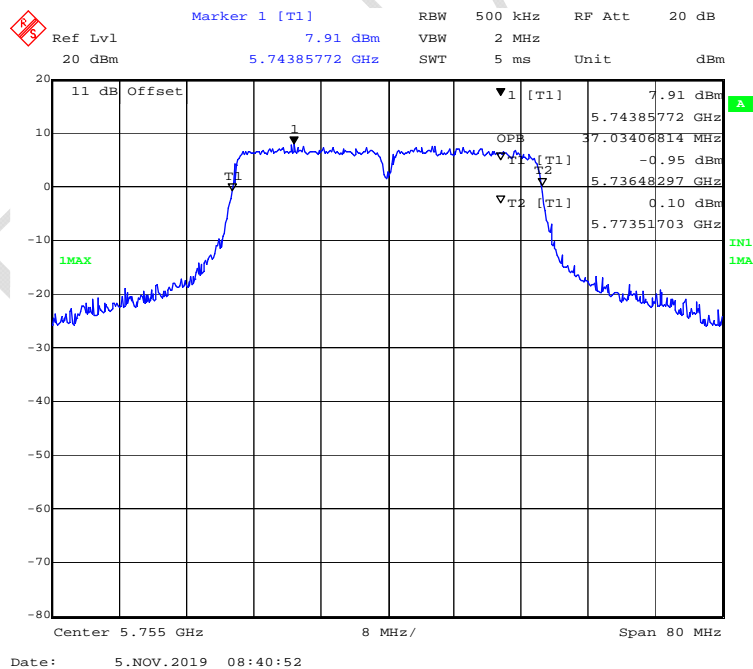




### 802.11ac40 mode, 5795MHz

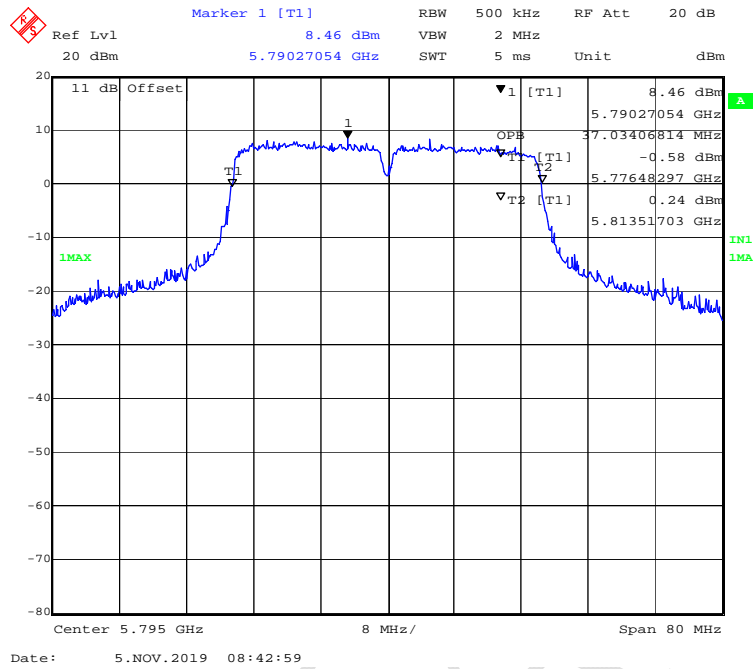


### 802.11n-HT40 mode, 5755MHz

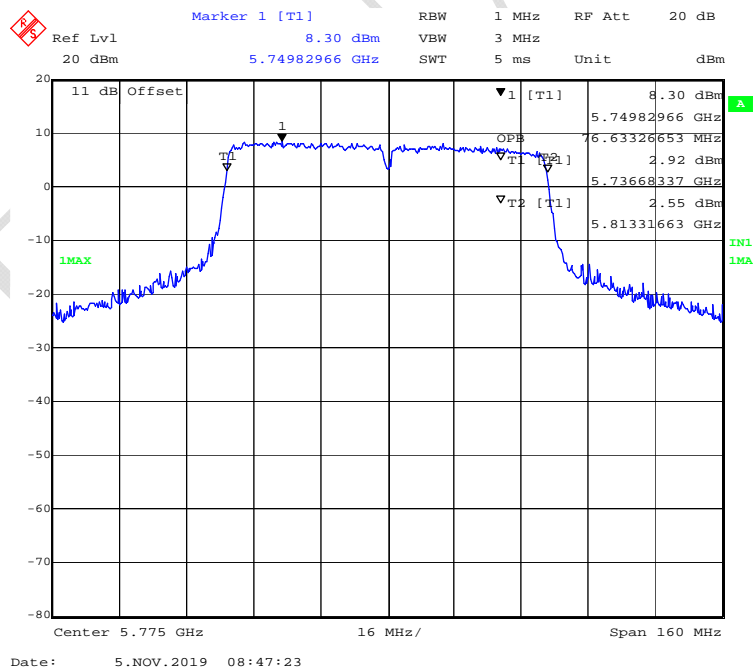




### 802.11n-HT40 mode, 5795MHz



### 802.11ac80 mode, 5775MHz





## **RSS-247 ISSUE 2 Clause 6.2.1.1&Clause 6.2.4.1 – CONDUCTED TRANSMITTER OUTPUT POWER**

### **Applicable Standard**

For the band 5.15-5.25 GHz,

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or  $1.76 + 10\log_{10}B$ , dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

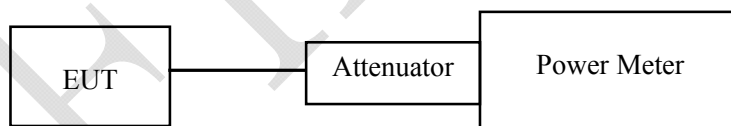
For other devices, the maximum e.i.r.p. shall not exceed 200 mW or  $10 + 10\log_{10}B$ , dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5.725-5.85 GHz,

the maximum conducted output power shall not exceed 1 W. The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipointFootnote 3 systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

### **Test Procedure**

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.





**Test Data****Environmental Conditions**

<b>Temperature:</b>	22.3 °C~24.9 °C
<b>Relative Humidity:</b>	49 %~55 %
<b>ATM Pressure:</b>	101.1 kPa~101.7 kPa

The testing was performed by Stone Zhang from 2019-12-01 to 2021-02-22.

Test Mode: Transmitting

5150-5250 MHz:

Test mode	Frequency (MHz)	Average Conducted Output Power (dBm)				EIRP (dBm)				Limit (dBm)	Result
		ANT 1	ANT 2	ANT 3	Total	ANT 1	ANT 2	ANT 3	Total		
802.11a	5180	16.31	15.33	16.16	/	18.31	17.33	18.16	/	22.38	PASS
	5200	16.20	15.19	15.99	/	18.20	17.19	17.99	/	22.35	PASS
	5240	15.83	15.18	15.54	/	17.83	17.18	17.54	/	22.32	PASS
802.11ac20	5180	12.34	11.27	11.57	16.52	14.34	13.27	13.57	18.52	22.56	PASS
	5200	12.20	11.05	11.69	16.44	14.20	13.05	13.69	18.44	22.56	PASS
	5240	11.88	10.93	11.00	16.06	13.88	12.93	13.00	18.06	22.56	PASS
802.11n-HT20	5180	12.60	11.49	11.32	16.61	14.60	13.49	13.32	18.61	22.56	PASS
	5200	12.35	11.19	12.17	16.70	14.35	13.19	14.17	18.70	22.56	PASS
	5240	11.84	10.96	11.38	16.18	13.84	12.96	13.38	18.18	22.56	PASS
802.11ac40	5190	13.08	11.68	11.82	17.01	15.08	13.68	13.82	19.01	23.01	PASS
	5230	12.51	10.94	11.62	16.51	14.51	12.94	13.62	18.51	23.01	PASS
802.11n-HT40	5190	12.69	10.81	11.70	16.57	14.69	12.81	13.70	18.57	23.01	PASS
	5230	11.69	10.76	10.95	15.92	13.69	12.76	12.95	17.92	23.01	PASS
802.11ac80	5210	10.80	10.31	10.72	15.39	12.80	12.31	12.72	17.39	23.01	PASS

Note 1: The total output power= $10\log_{10}(10^{(ANT\ 1/10)}+10^{(ANT\ 2/10)}+10^{(ANT\ 3/10)})$

Note 2: The maximum antenna gain is 2 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

So: Directional gain =  $G_{ANT} + \text{Array Gain} = 2\text{dBi} < 6\text{dBi}$



**5725-5850 MHz:**

Test mode	Frequency (MHz)	Average Conducted Output Power (dBm)				Limit	Result
		ANT 1	ANT 2	ANT 3	Total		
802.11a	5745	20.02	19.99	19.87	/	30	PASS
	5785	20.17	20.02	20.15	/	30	PASS
	5825	19.87	19.65	19.63	/	30	PASS
802.11n-HT20	5745	18.62	18.66	18.70	23.43	30	PASS
	5785	18.80	18.71	19.00	23.61	30	PASS
	5825	17.99	18.19	18.24	22.91	30	PASS
802.11n-HT40	5755	18.13	18.12	18.16	22.91	30	PASS
	5795	18.28	18.16	18.19	22.98	30	PASS
802.11ac20	5745	18.87	18.67	18.46	23.44	30	PASS
	5785	18.83	18.85	18.93	23.64	30	PASS
	5825	18.27	18.28	18.08	22.98	30	PASS
802.11ac40	5755	18.18	18.01	18.03	22.85	30	PASS
	5795	18.22	18.21	18.19	22.98	30	PASS
802.11ac80	5775	18.42	18.20	18.01	22.98	30	PASS

Note 1: The total output power= $10\log_{10}(10^{(ANT\ 1/10)}+10^{(ANT\ 2/10)}+10^{(ANT\ 3/10)})$

Note 2: The maximum antenna gain is 2 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

So: Directional gain =  $G_{ANT} + \text{Array Gain} = 2\text{dBi} < 6\text{dBi}$



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**RSS-247 ISSUE 2 Clause 6.2.1.1&Clause 6.2.4.1 - POWER SPECTRAL DENSITY**

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**Applicable Standard**

For the band 5.15-5.25 GHz,

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or  $1.76 + 10 \log 10B$ , dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or  $10 + 10 \log 10B$ , dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

In frequency band 5725-5850 MHz:

The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

**Test Procedure**

The measurements are base on FCC KDB 789033 D02 General U-NII Test Procedures New Rules v01r03:Guidelines for Compliance Testing of Unlicensed National Information Infrastructure(U-NII)Devices section F: Maximum power spectral density(PSD)



**Test Data****Environmental Conditions**

<b>Temperature:</b>	22.5 °C~24.5 °C
<b>Relative Humidity:</b>	52 %~55 %
<b>ATM Pressure:</b>	101.3 kPa~101.7 kPa

The testing was performed by Carry Cai from 2019-11-04 to 2021-02-20.

Test Mode: Transmitting

**5150MHz-5250MHz:**

Test mode	Frequency (MHz)	PSD (dBm/MHz)				e.i.r.p. spectral density (dBm/MHz)				Limit (dBm/MHz)	Result
		ANT 1	ANT 2	ANT 3	Total	ANT 1	ANT 2	ANT 3	Total		
802.11a	5180	5.20	4.75	5.04	/	7.2	6.75	7.04	/	10	PASS
	5200	5.45	4.33	4.78	/	7.45	6.33	6.78	/	10	PASS
	5240	4.89	4.23	4.82	/	6.89	6.23	6.82	/	10	PASS
802.11ac20	5180	1.34	0.46	0.79	5.65	3.34	2.46	2.79	7.65	10	PASS
	5200	1.15	0.53	0.66	5.56	3.15	2.53	2.66	7.56	10	PASS
	5240	0.83	-0.19	0.18	5.07	2.83	1.81	2.18	7.07	10	PASS
802.11n-HT20	5180	1.41	0.21	0.19	5.41	3.41	2.21	2.19	7.41	10	PASS
	5200	1.02	0.15	0.59	5.37	3.02	2.15	2.59	7.37	10	PASS
	5240	0.78	-0.23	0.05	4.99	2.78	1.77	2.05	6.99	10	PASS
802.11ac40	5190	-1.88	-3.36	-2.57	2.21	0.12	-1.36	-0.57	4.21	10	PASS
	5230	-2.15	-2.97	-3.06	2.06	-0.15	-0.97	-1.06	4.06	10	PASS
802.11n-HT40	5190	-1.89	-3.20	-2.37	2.32	0.11	-1.2	-0.37	4.32	10	PASS
	5230	-2.36	-3.27	-3.12	1.87	-0.36	-1.27	-1.12	3.87	10	PASS
802.11ac80	5210	-4.72	-5.71	-4.67	-0.24	-2.72	-3.71	-2.67	1.76	10	PASS



**5725MHz-5850MHz:**

Mode	Frequency (MHz)	PSD (dBm/500kHz)				Limit (dBm/500kHz)	Result
		ANT 1	ANT 2	ANT 3	Total		
802.11a	5745	6.92	7.78	8.11	/	30	PASS
	5785	8.20	8.39	7.28	/	30	PASS
	5825	6.45	8.09	6.82	/	30	PASS
802.11ac20	5745	7.04	6.73	6.28	11.47	29.23	PASS
	5785	7.05	5.99	6.26	11.23	29.23	PASS
	5825	5.78	6.27	6.72	11.04	29.23	PASS
802.11n-HT20	5745	6.54	6.91	6.93	11.57	29.23	PASS
	5785	7.07	6.55	6.13	11.37	29.23	PASS
	5825	5.27	6.19	5.83	10.55	29.23	PASS
802.11ac40	5755	3.20	3.27	2.41	7.75	29.23	PASS
	5795	3.41	2.88	3.03	7.88	29.23	PASS
802.11n-HT40	5755	2.58	2.53	3.14	7.53	29.23	PASS
	5795	2.89	2.74	2.90	7.62	29.23	PASS
802.11ac80	5775	0.66	0.44	0.15	5.19	29.23	PASS

Note:

The total PSD=10 Log ( $10^{\text{ANT 1}/10} + 10^{\text{ANT 2}/10} + 10^{\text{ANT 3}/10}$ )

The maximum antenna gain is 2dBi. The device employed Cyclic Delay Diversity (CDD) for 802.11MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

Array Gain =  $10 \log (N_{\text{ANT}}/N_{\text{SS}})$  dB.

So:

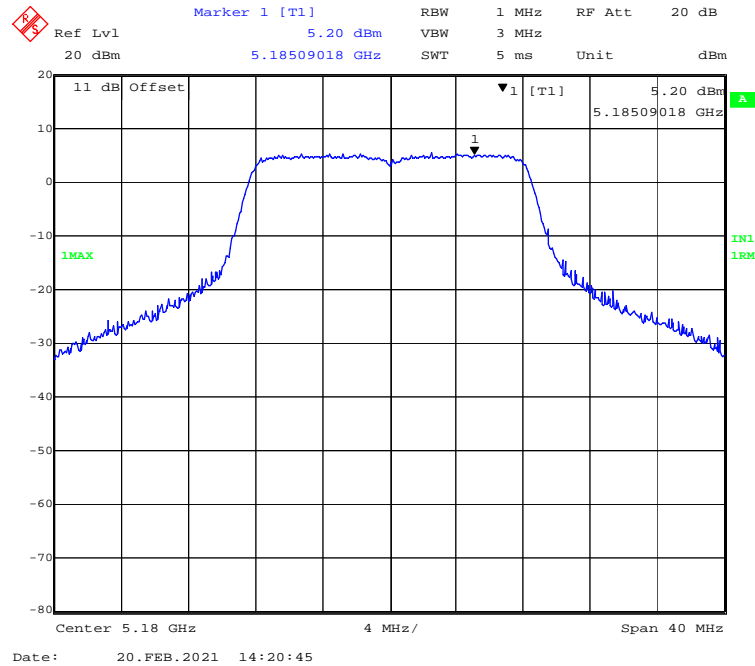
Directional gain = GANT + Array Gain = 2 +  $10 \log (3/1)$  = 6.77dBi, the power spectral density limit was reduced 6.77-6=0.77dB



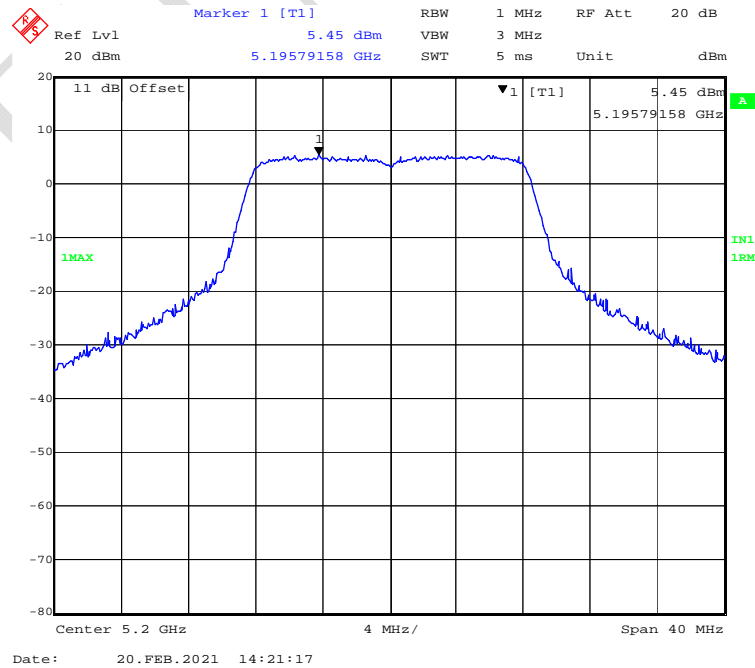
ANT 1:

5150MHz-5250MHz Band :

802.11a mode, Power spectral density-5180MHz

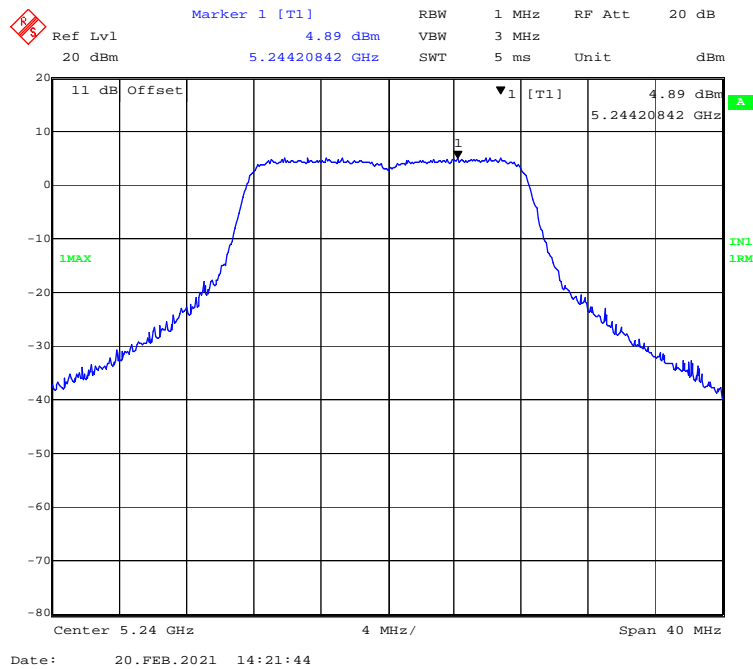


802.11a mode, Power spectral density-5200MHz

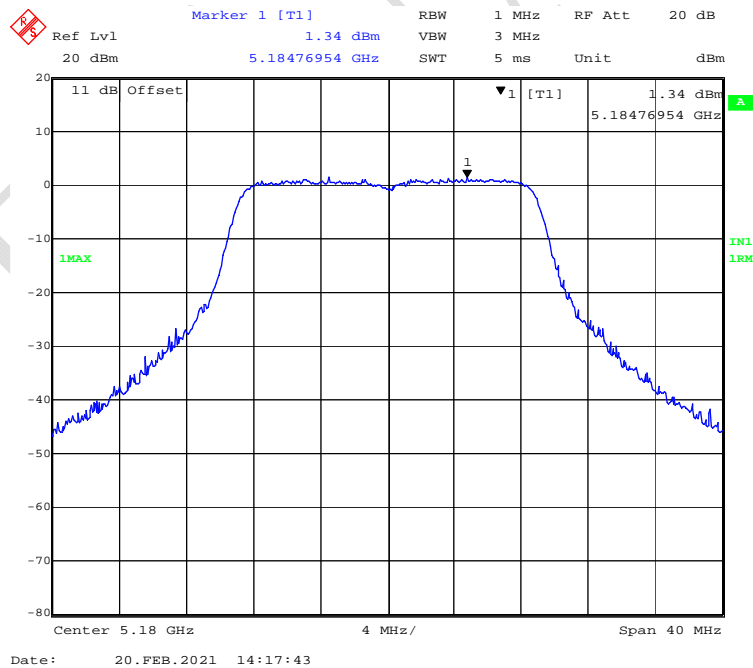




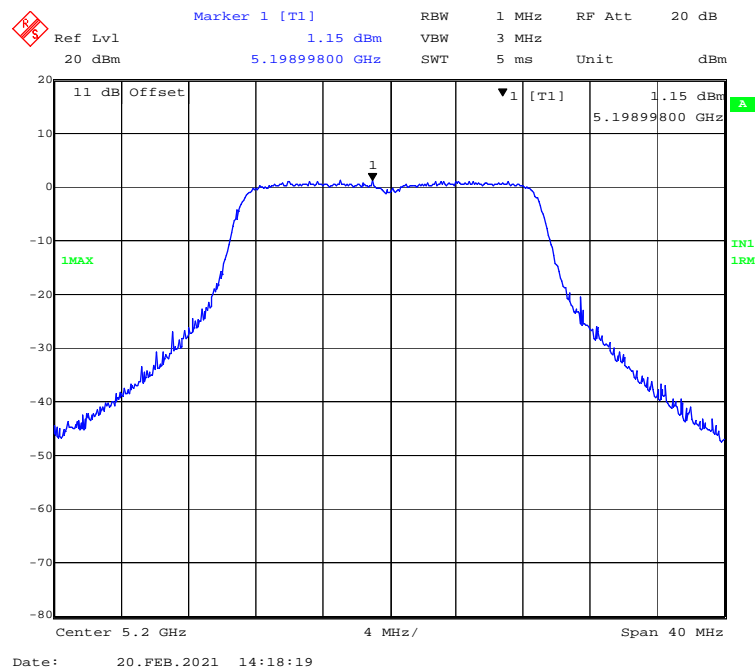
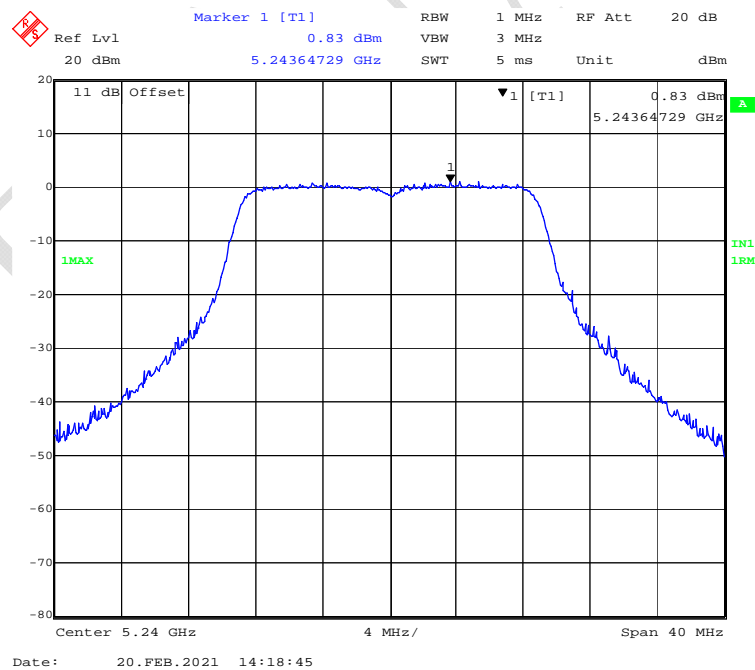
### 802.11a mode, Power spectral density-5240MHz



### 802.11ac20 mode, Power spectral density-5180MHz

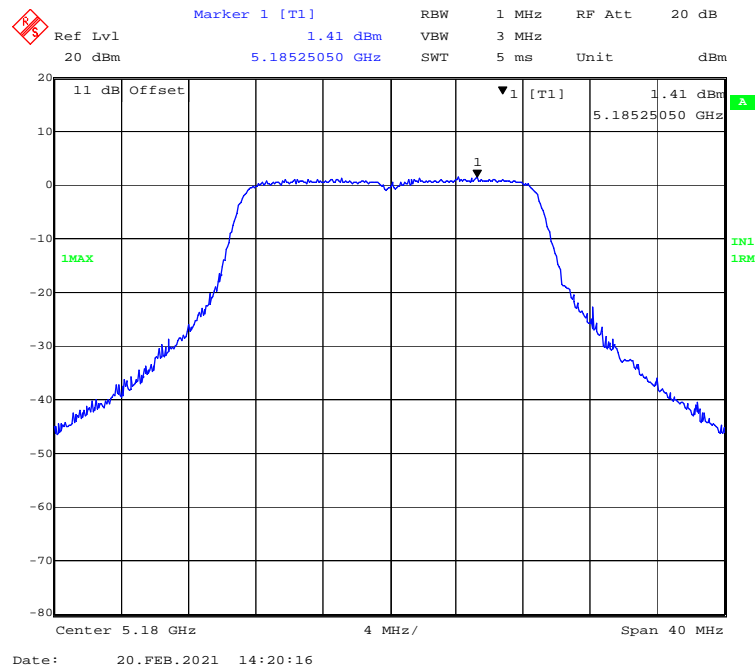




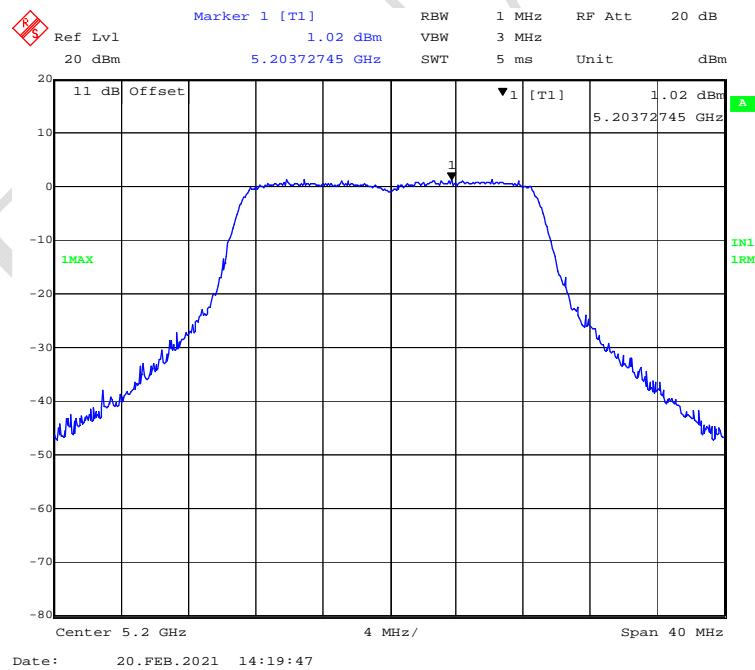
**802.11ac20 mode, Power spectral density-5200MHz****802.11ac20 mode, Power spectral density-5240MHz**



### 802.11n-HT20 mode, Power spectral density-5180MHz

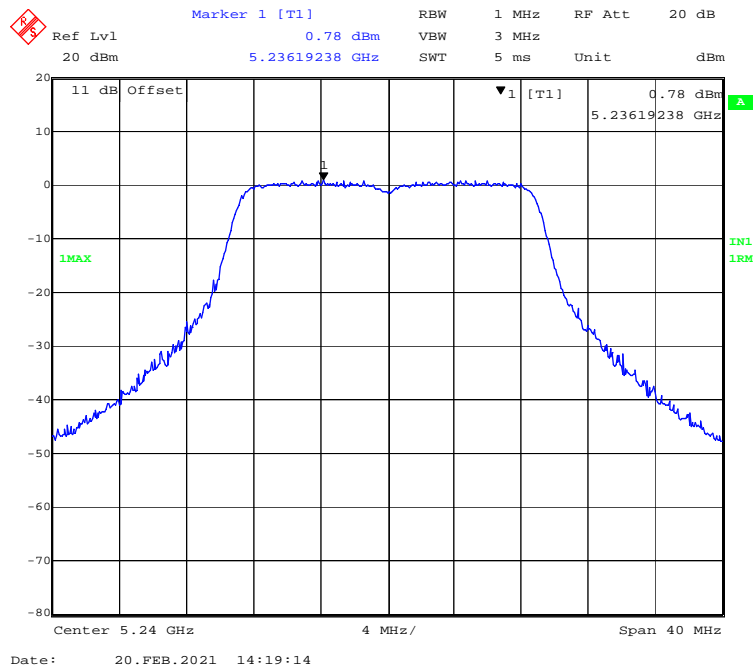


### 802.11n-HT20 mode, Power spectral density-5200MHz

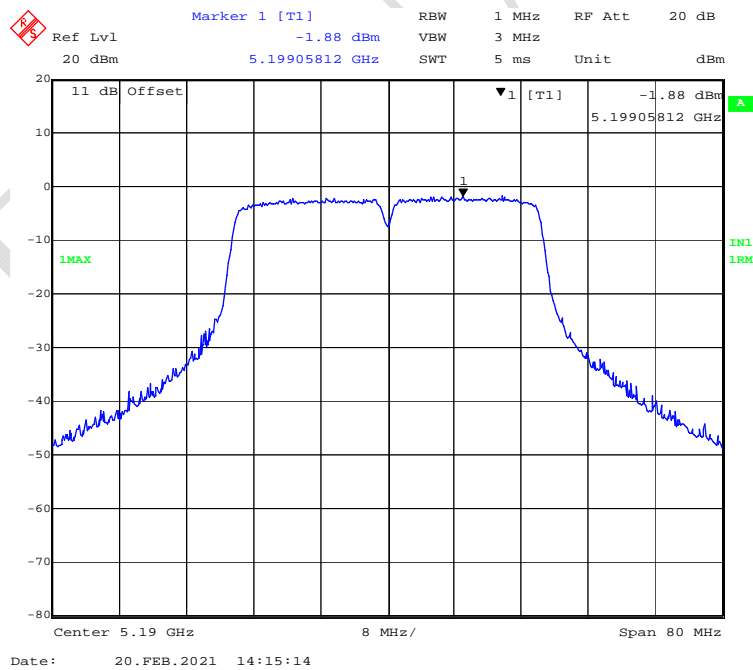




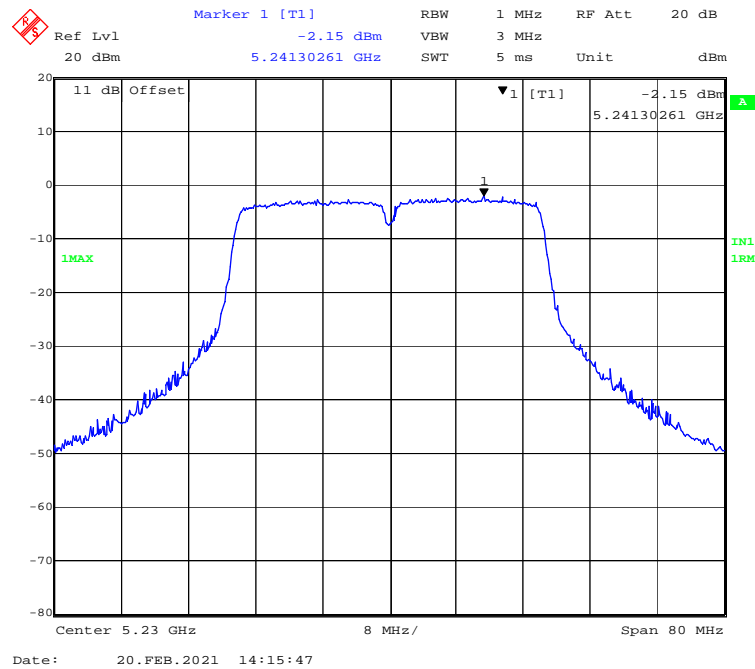
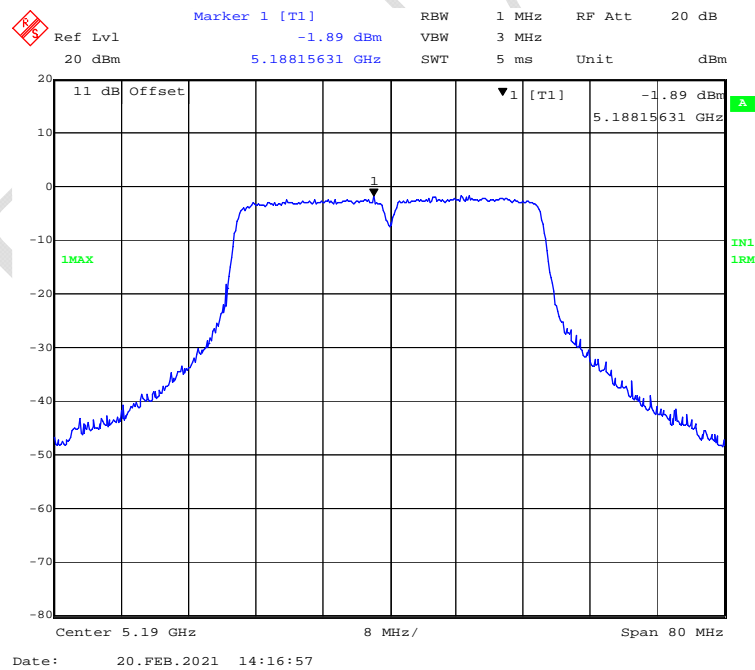
**802.11n-HT20 mode, Power spectral density-5240MHz**



**802.11ac40 mode, Power spectral density-5190MHz**

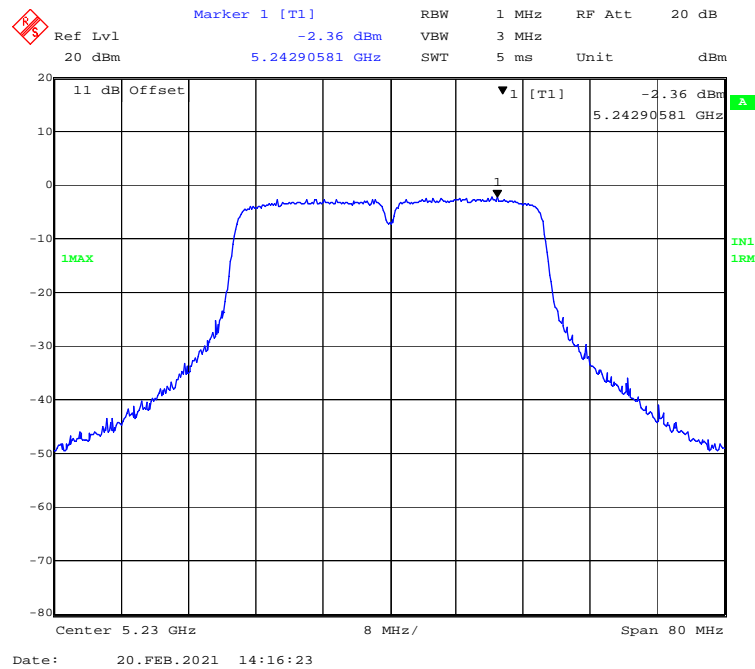




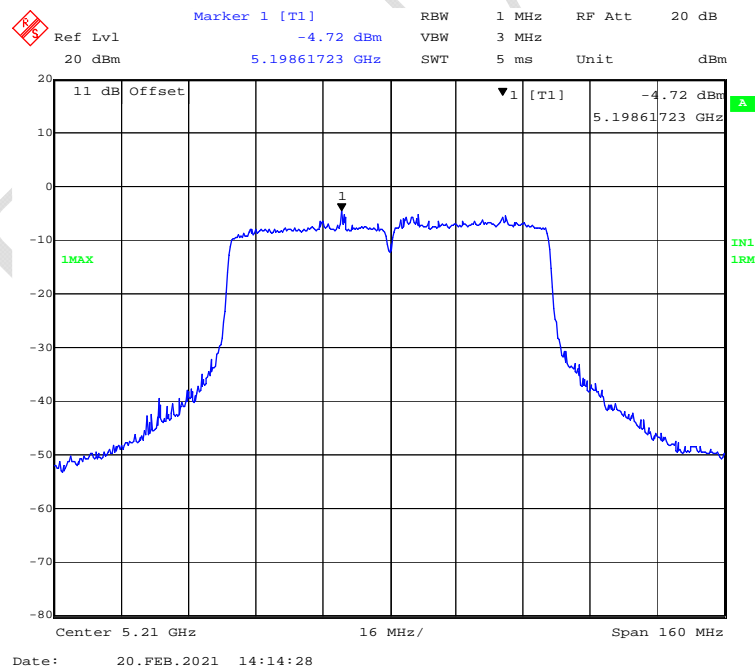
**802.11ac40 mode, Power spectral density-5230MHz****802.11n-HT40 mode, Power spectral density-5190MHz**



**802.11n-HT40 mode, Power spectral density-5230MHz**



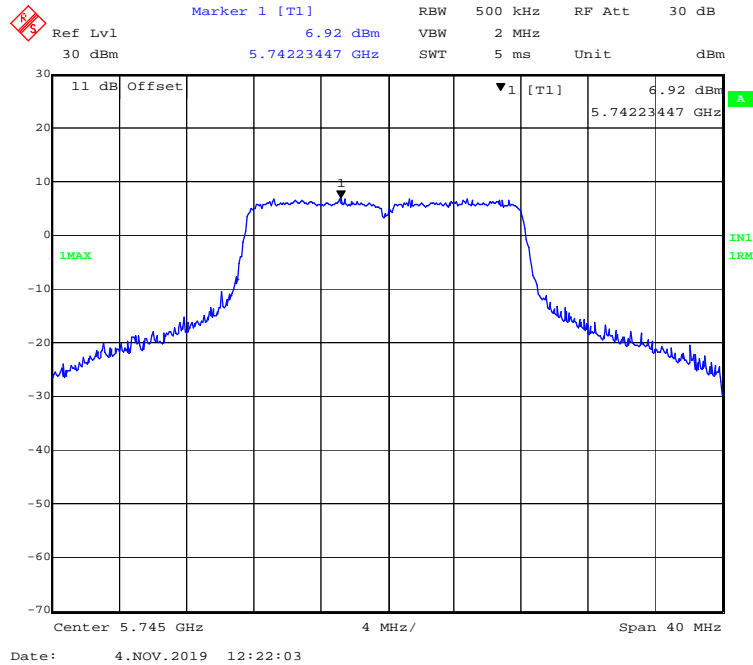
**802.11ac80 mode, Power spectral density-5210MHz**



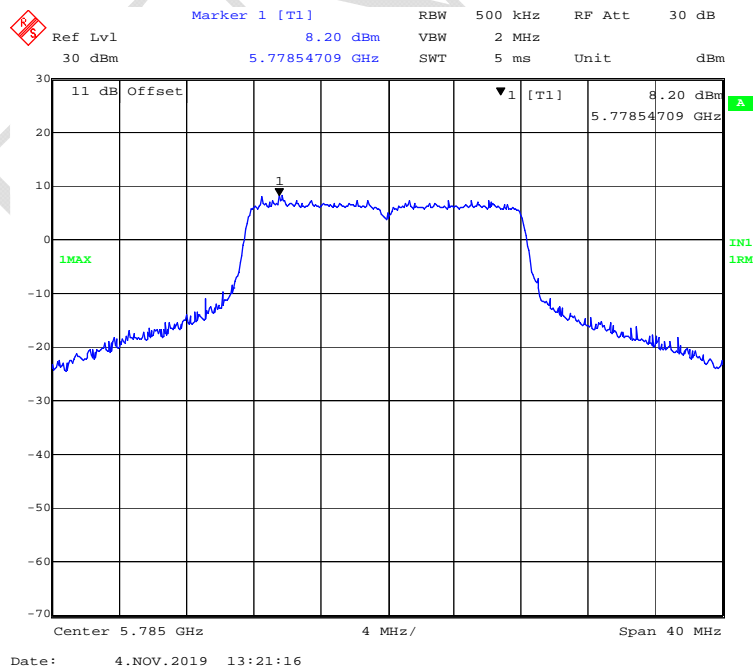


**5725MHz-5850 MHz Band:**

**802.11a mode, Power spectral density-5745MHz**

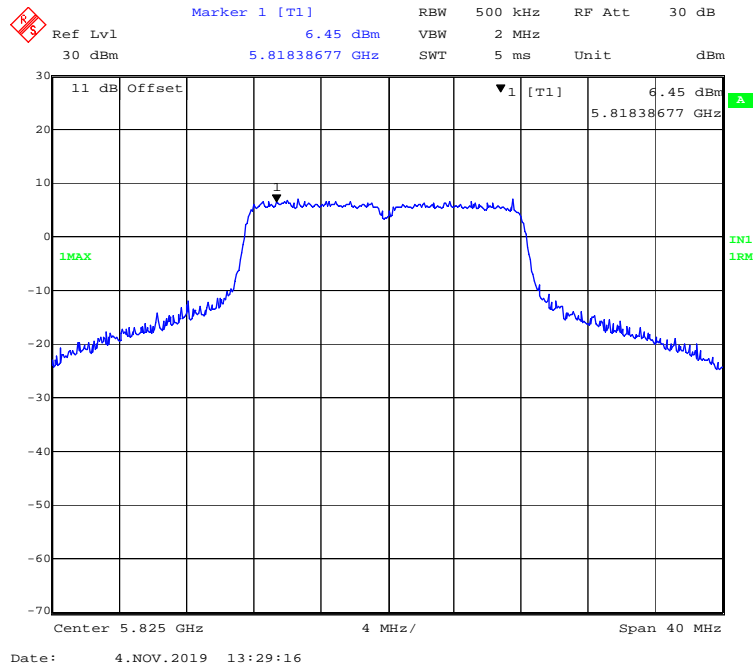


**802.11a mode, Power spectral density-5785MHz**

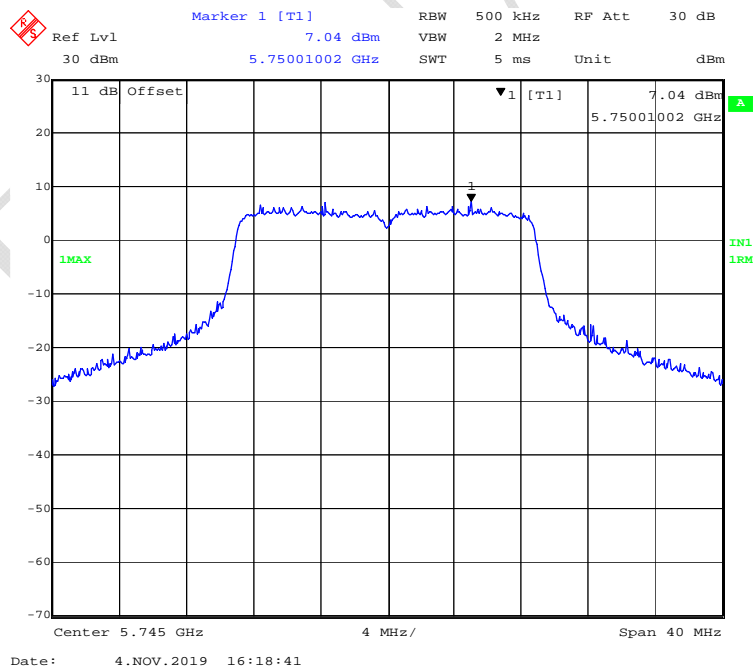




### 802.11a mode, Power spectral density-5825MHz

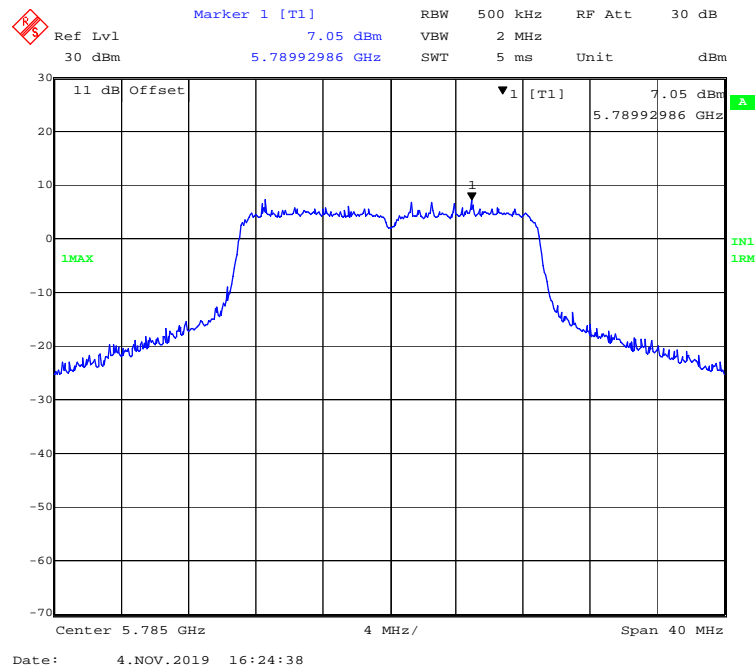


### 802.11ac20 mode, Power spectral density-5745MHz

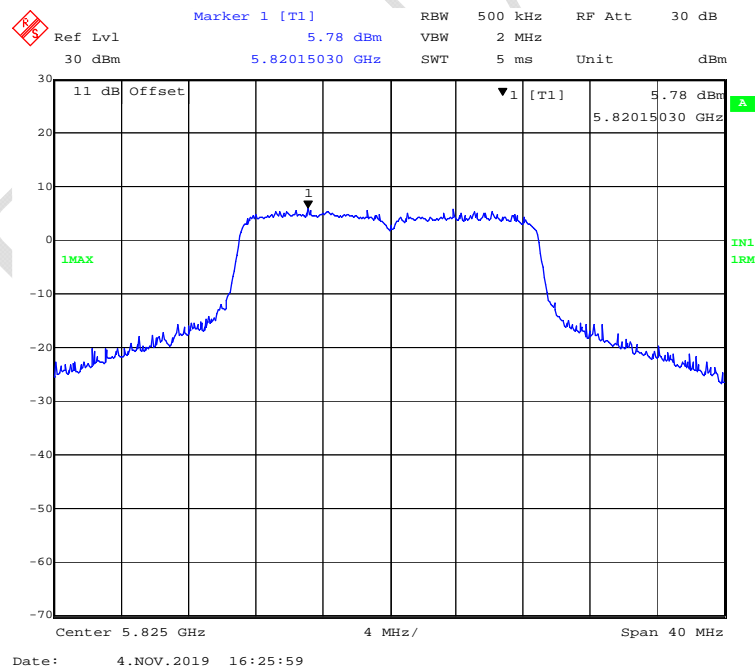




### 802.11ac20 mode, Power spectral density-5785MHz

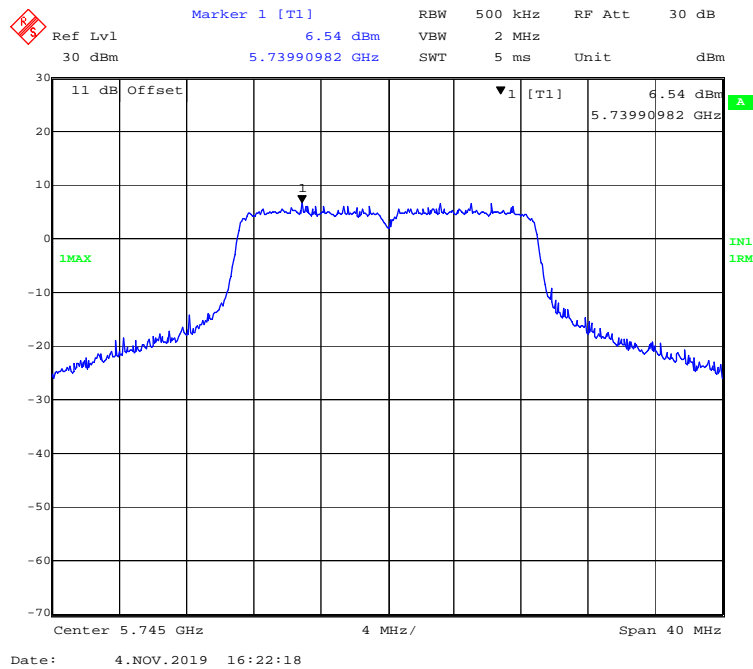


### 802.11ac20 mode, Power spectral density-5825MHz

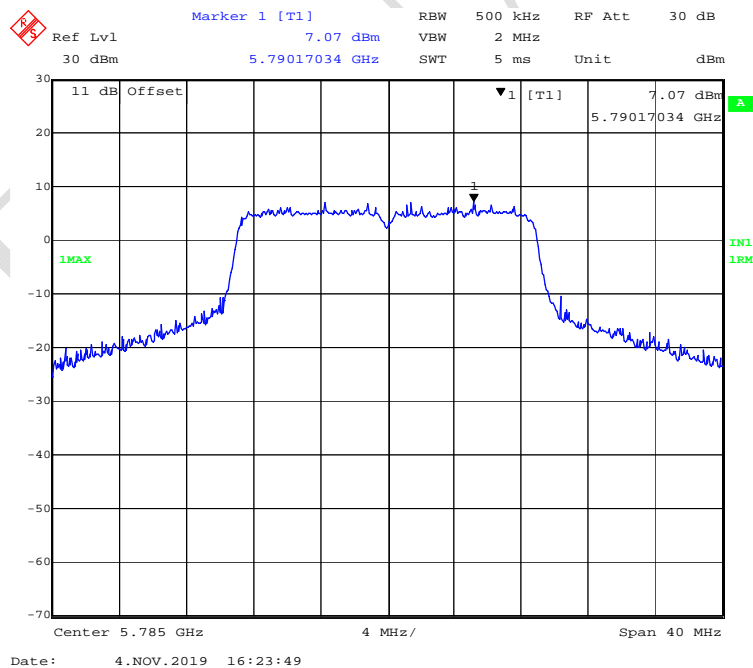




802.11n-HT20 mode, Power spectral density-5745MHz

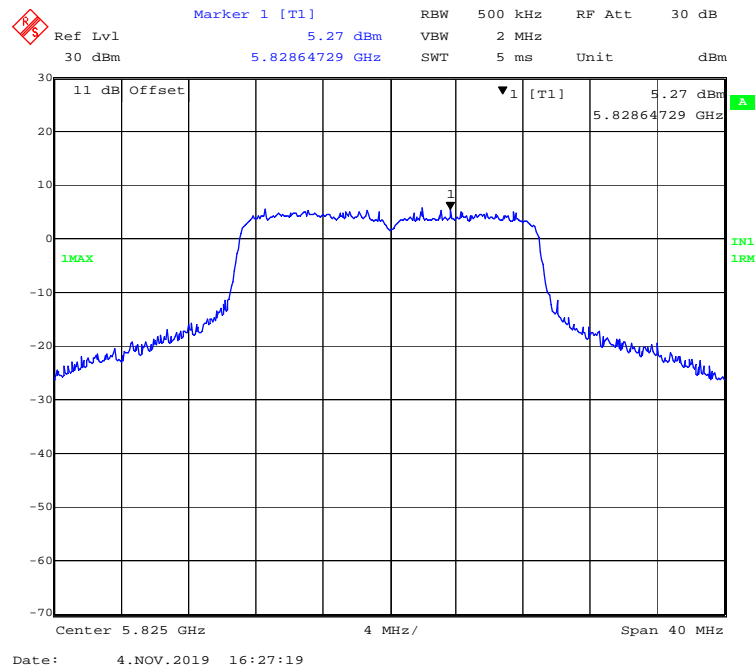


802.11n-HT20 mode, Power spectral density-5785MHz

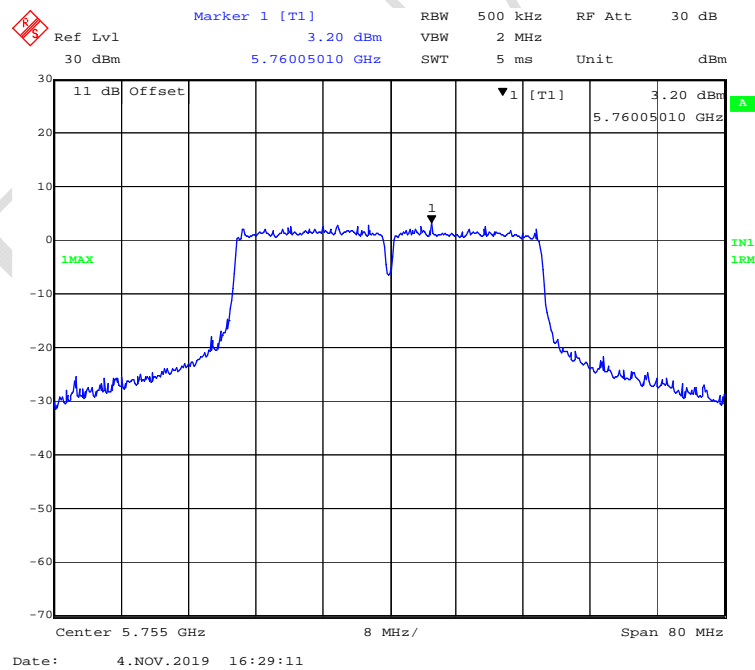




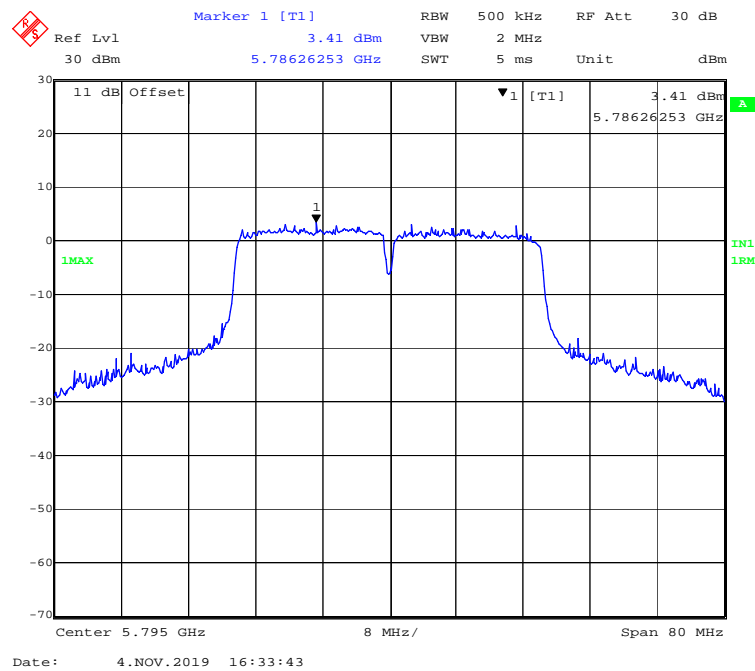
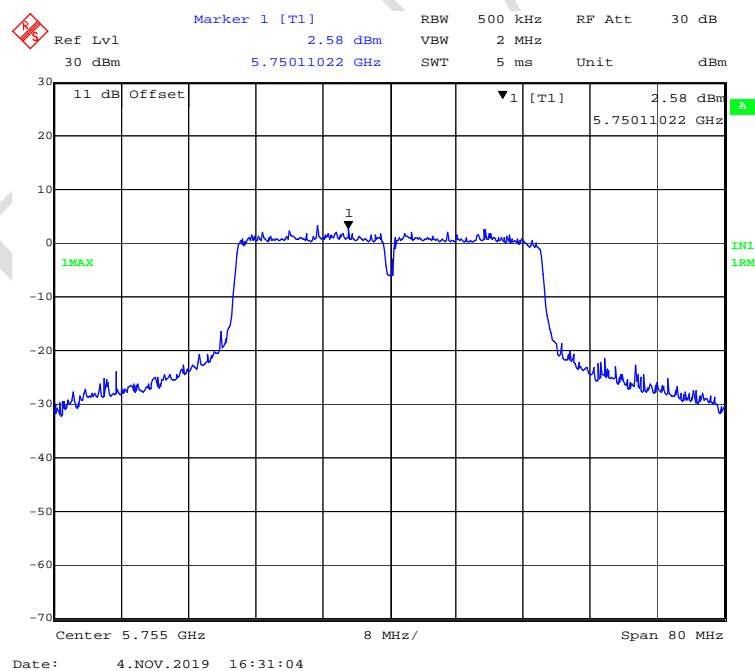
### 802.11n-HT20 mode, Power spectral density-5825MHz



### 802.11ac40 mode, Power spectral density-5755MHz

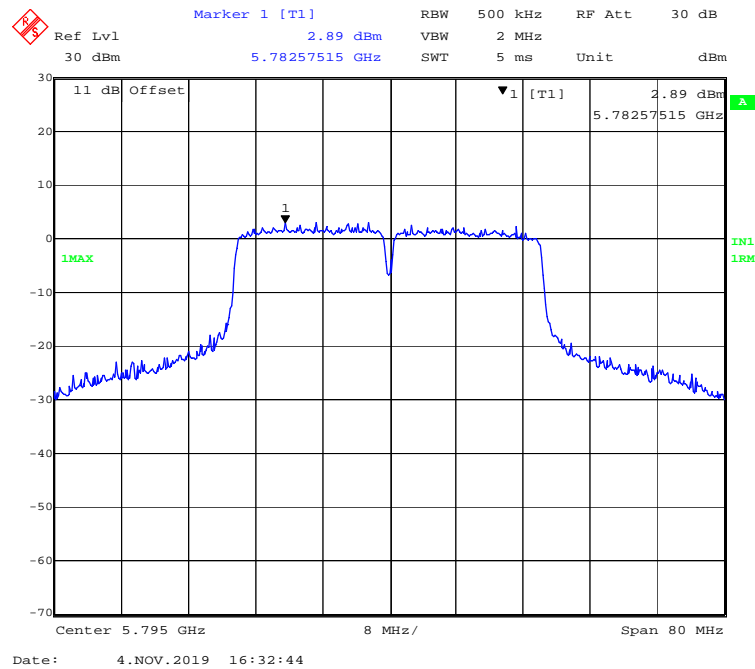




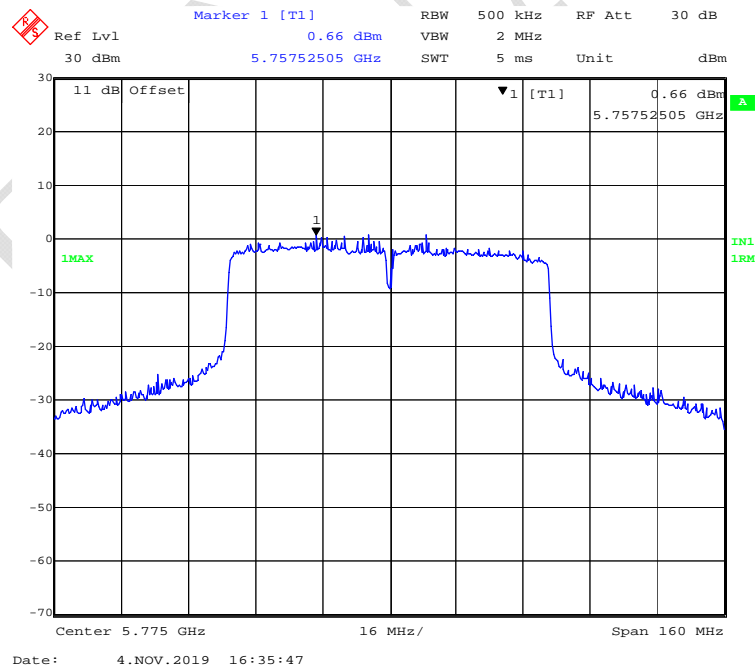
**802.11ac40 mode, Power spectral density-5795MHz****802.11n-HT40 mode, Power spectral density-5755MHz**



### 802.11n-HT40 mode, Power spectral density-5795MHz



### 802.11ac80 mode, Power spectral density-5775MHz

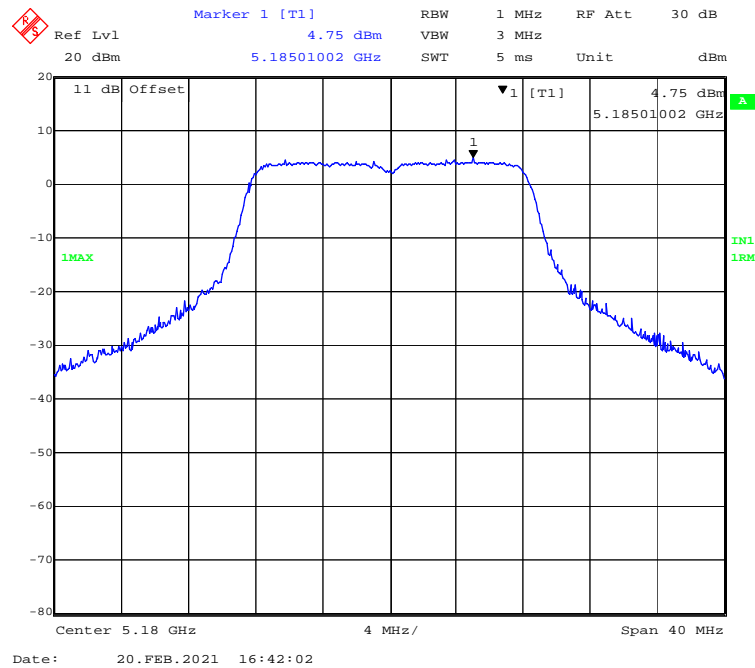




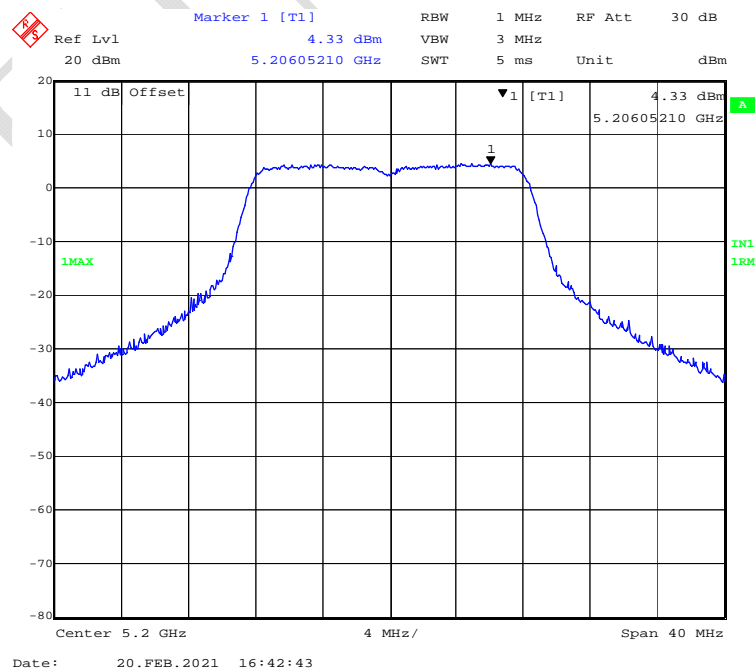
ANT 2:

5150MHz-5250MHz Band :

## 802.11a mode, Power spectral density-5180MHz

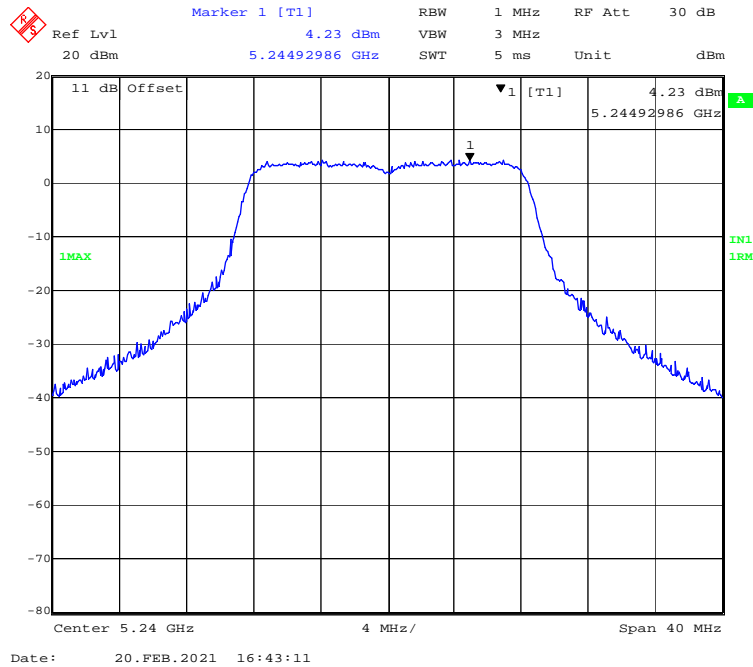


## 802.11a mode, Power spectral density-5200MHz

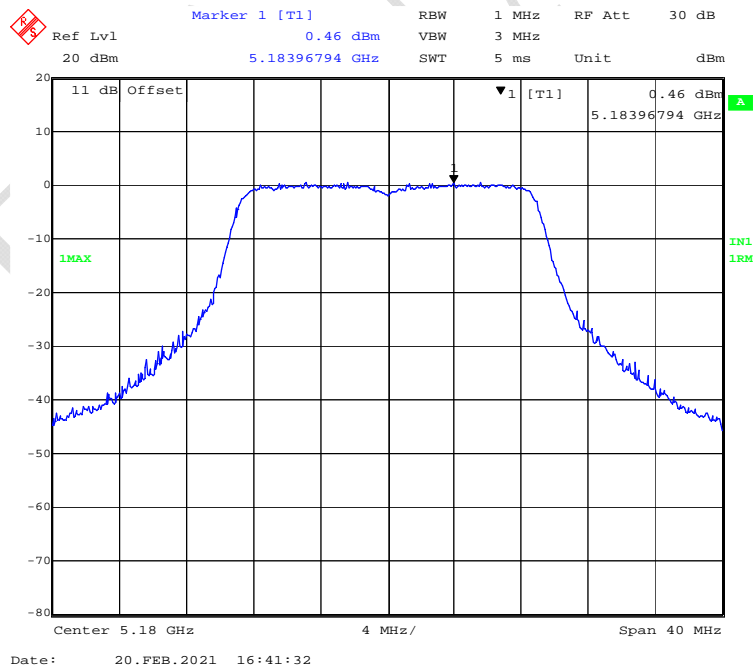




### 802.11a mode, Power spectral density-5240MHz

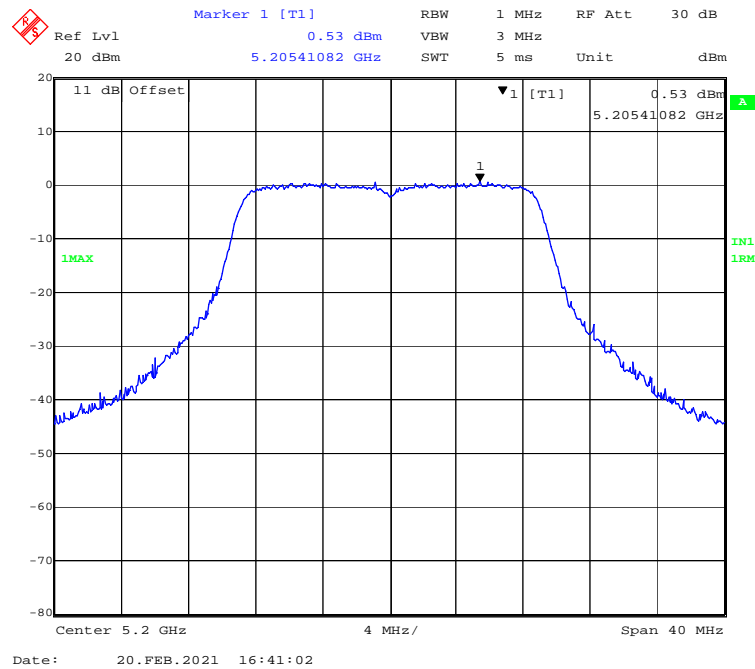


### 802.11ac20 mode, Power spectral density-5180MHz

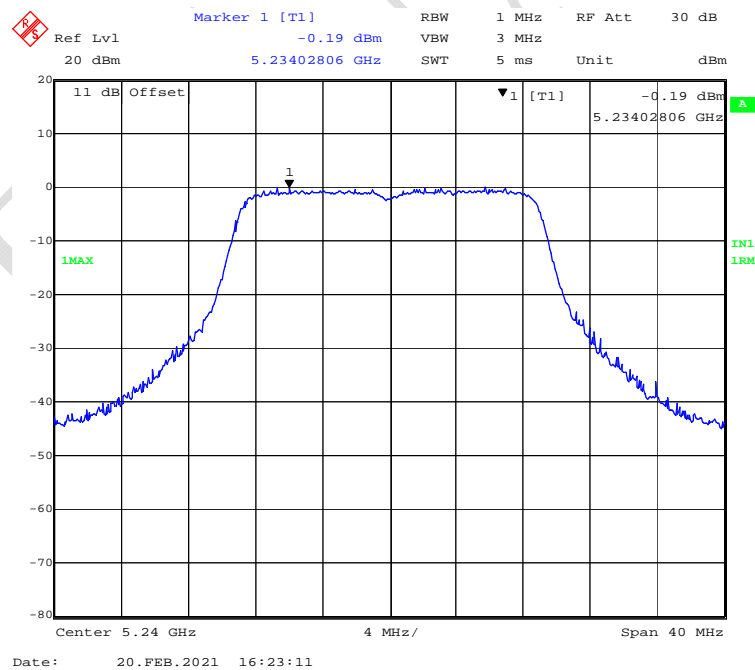




### 802.11ac20 mode, Power spectral density-5200MHz

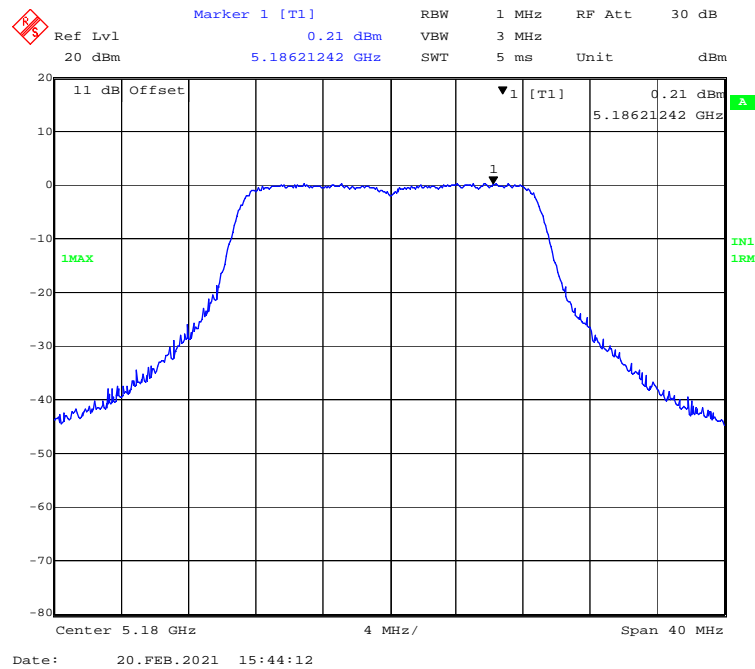


### 802.11ac20 mode, Power spectral density-5240MHz

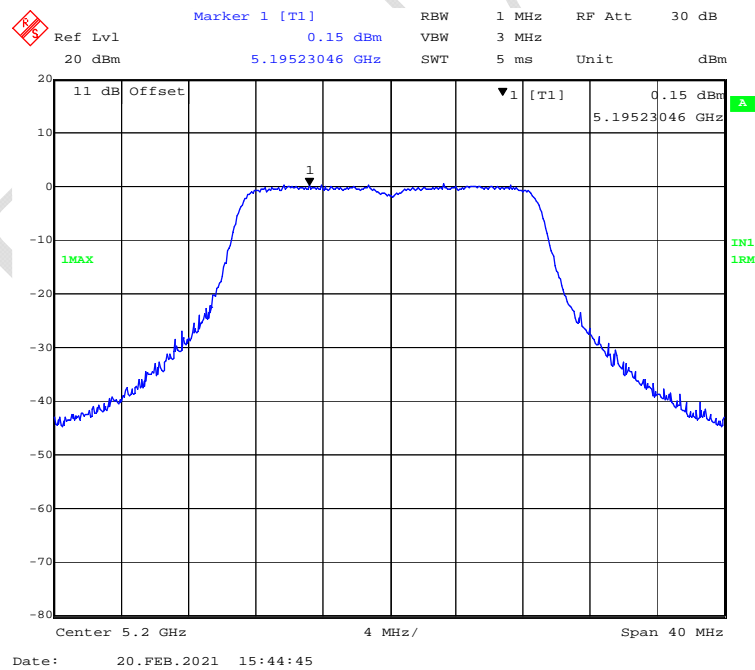




**802.11n-HT20 mode, Power spectral density-5180MHz**

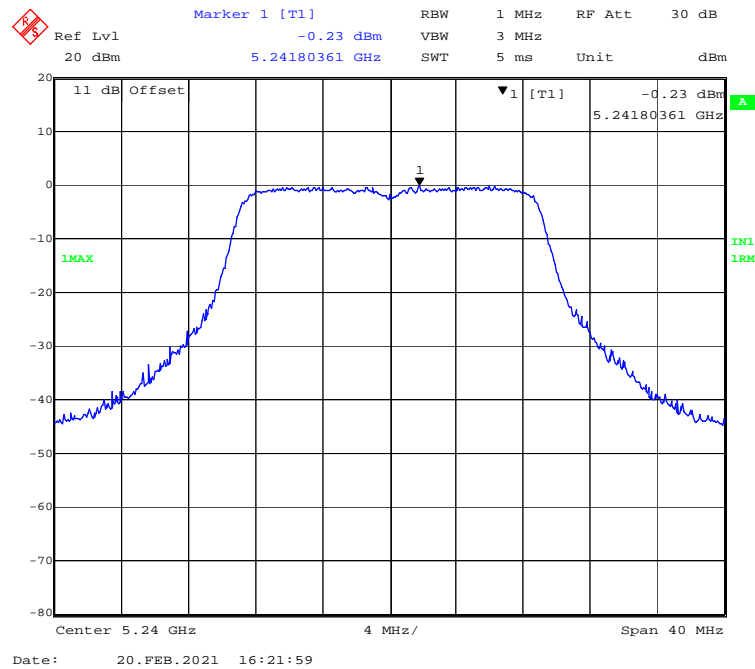


**802.11n-HT20 mode, Power spectral density-5200MHz**

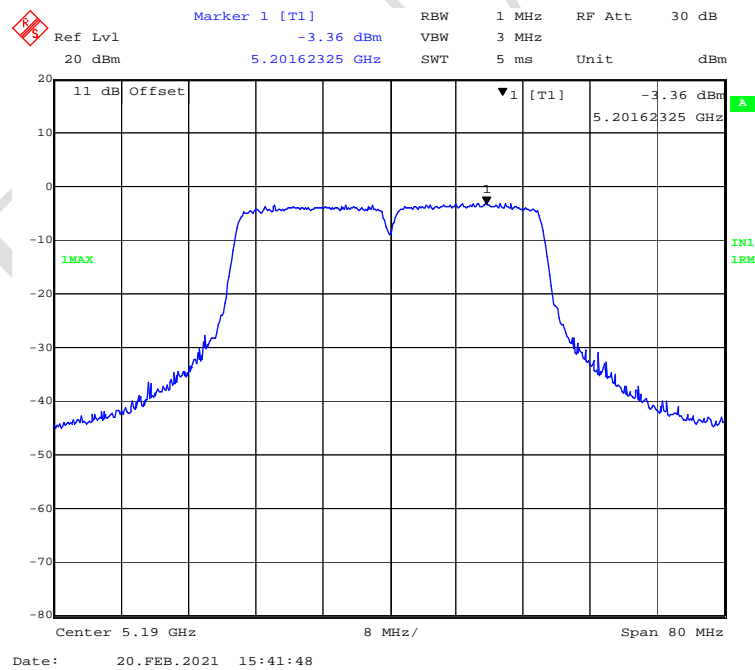




### 802.11n-HT20 mode, Power spectral density-5240MHz

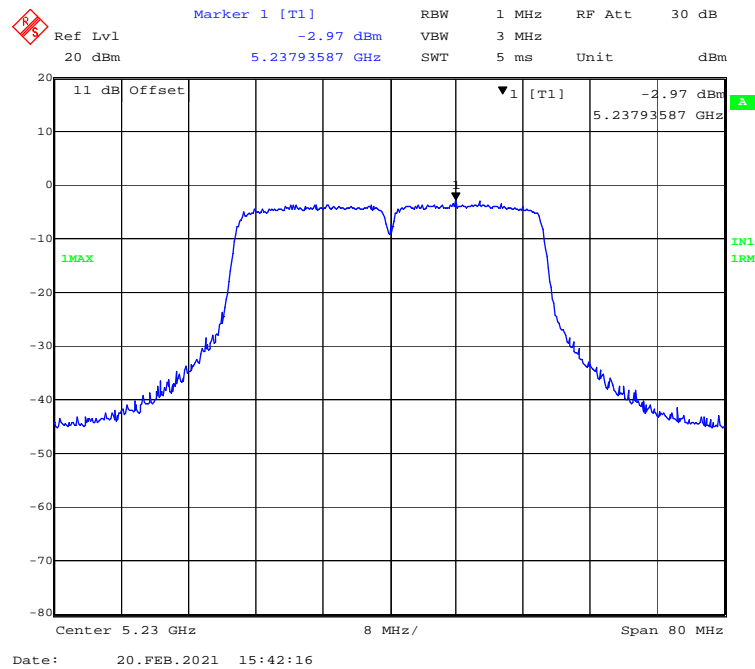


### 802.11ac40 mode, Power spectral density-5190MHz

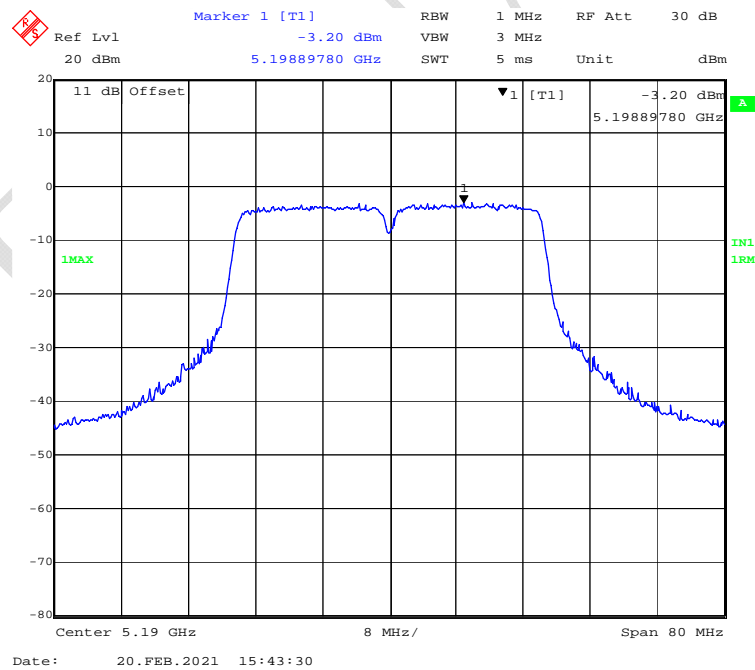




### 802.11ac40 mode, Power spectral density-5230MHz

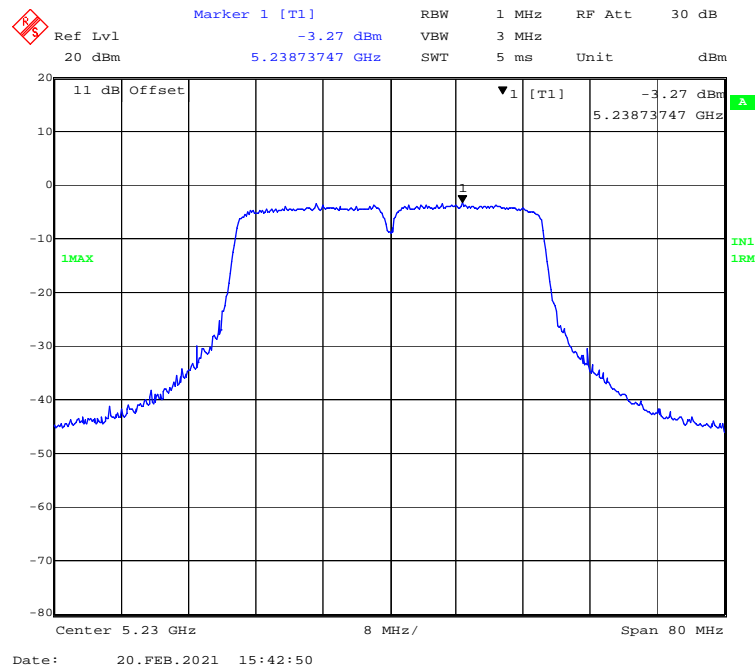


### 802.11n-HT40 mode, Power spectral density-5190MHz

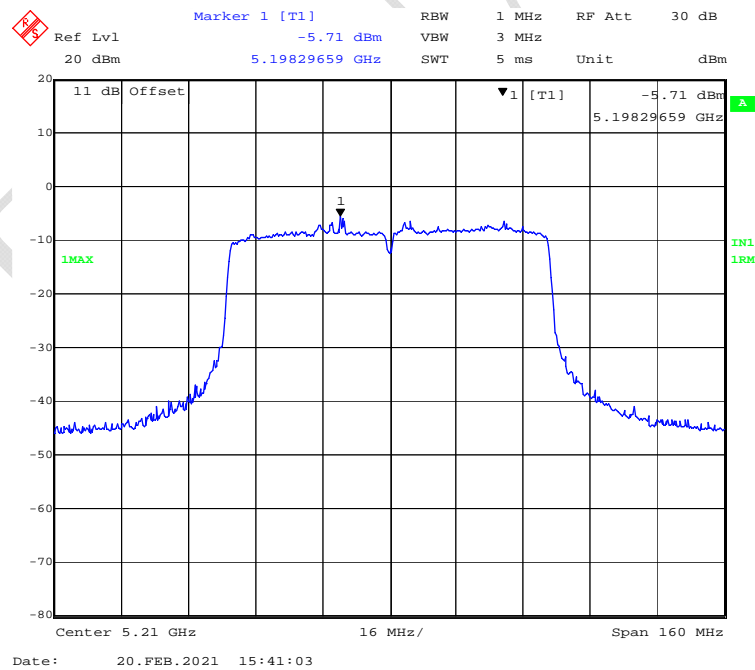




### 802.11n-HT40 mode, Power spectral density-5230MHz

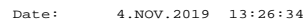


### 802.11ac80 mode, Power spectral density-5210MHz





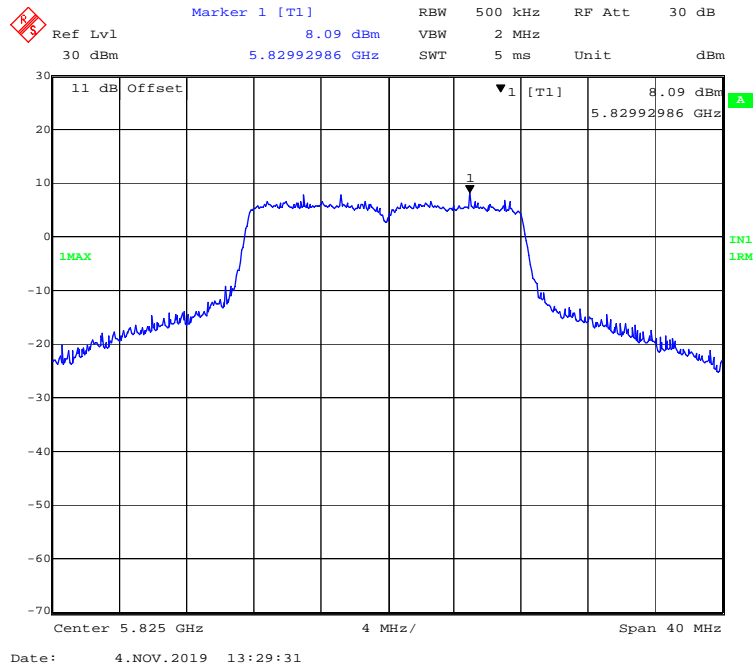
### 802.11a mode, Power spectral density-5745MHz



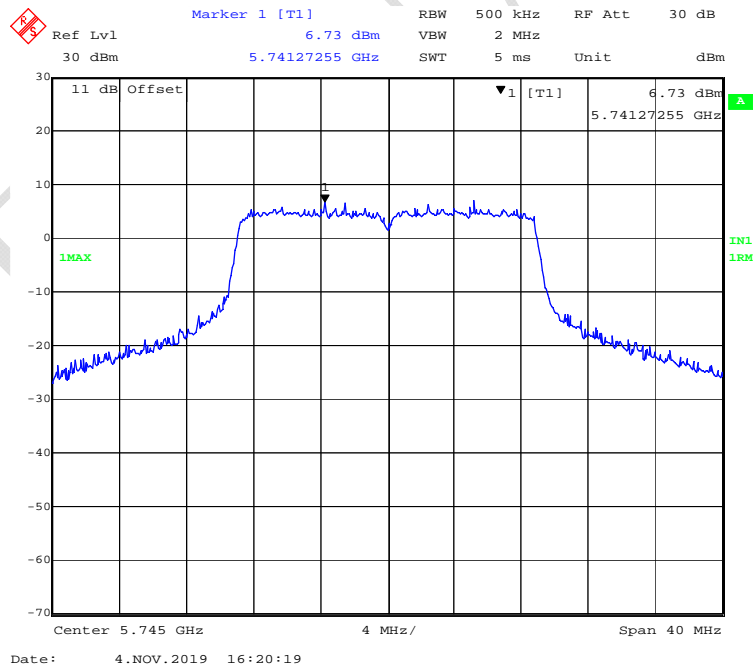
Date: 4.NOV.2019 13:25:31



### 802.11a mode, Power spectral density-5825MHz



### 802.11ac20 mode, Power spectral density-5745MHz





Ref Lvl 30 dBm  
 30 dBm  
 Marker 1 [T1] 5.99 dBm  
 5.78127255 GHz  
 RBW 500 kHz  
 RF Att 30 dB  
 SWT 5 ms  
 Unit dBm

11 dB Offset  
 1 [T1] 5.99 dBm  
 5.78127255 GHz  
 1MAX  
 IN1  
 1RM  
 Center 5.785 GHz  
 4 MHz/  
 Span 40 MHz  
 Date: 4.NOV.2019 16:24:56

REF Lvl 30 dBm  
 30 dBm  
 5.82632265 GHz  
 6.27 dBm  
 500 kHz  
 2 MHz  
 5 ms  
 Unit dBm

11 dB Offset  
 1 [T1]  
 6.27 dBm  
 5.82632265 GHz

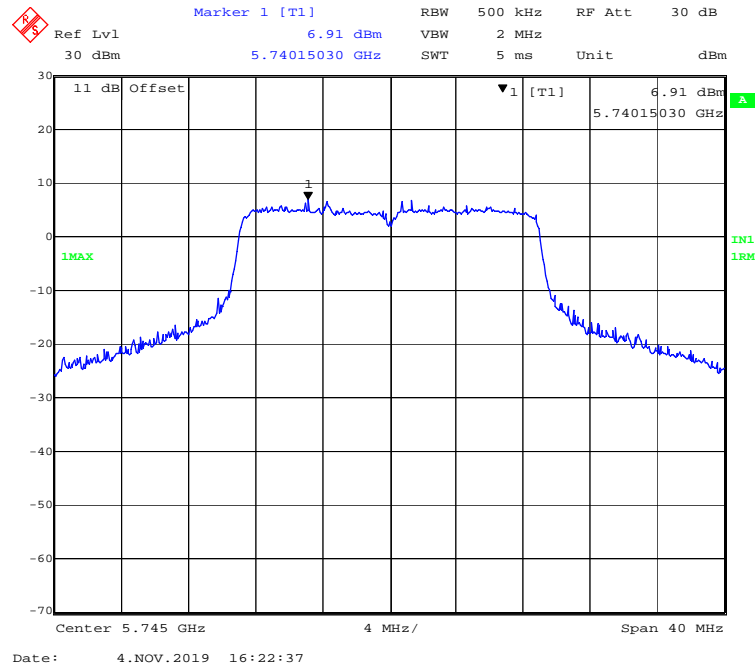
1MAX  
 IN1 1RM

Center 5.825 GHz  
 4 MHz/  
 Span 40 MHz

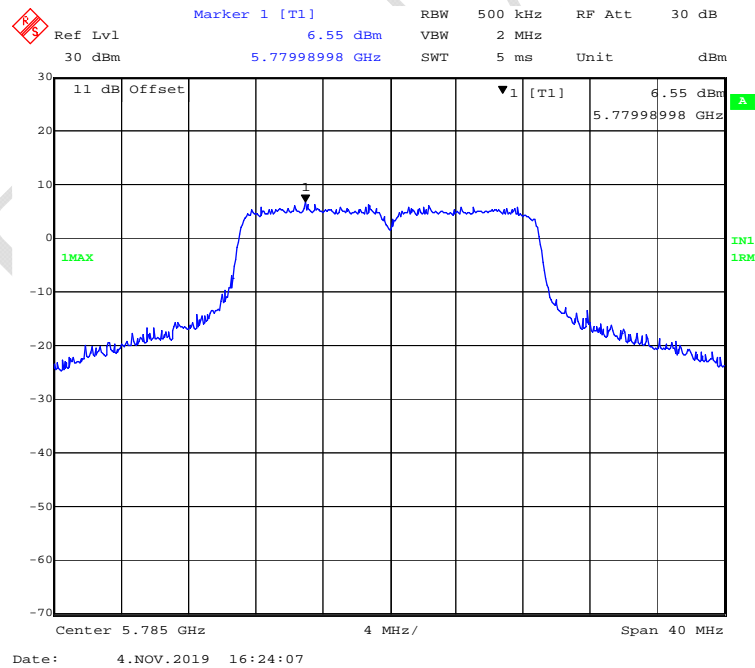
Date: 4.NOV.2019 16:26:31



**802.11n-HT20 mode, Power spectral density-5745MHz**

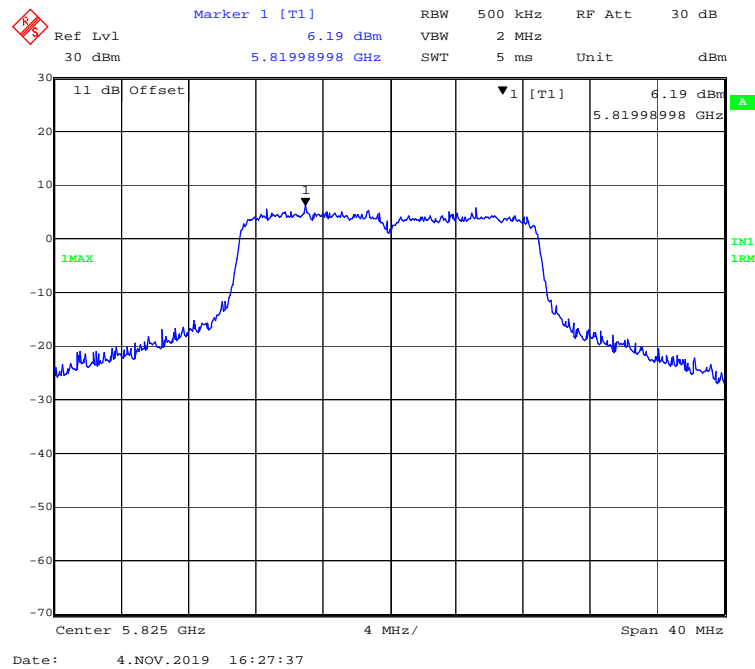


**802.11n-HT20 mode, Power spectral density-5785MHz**

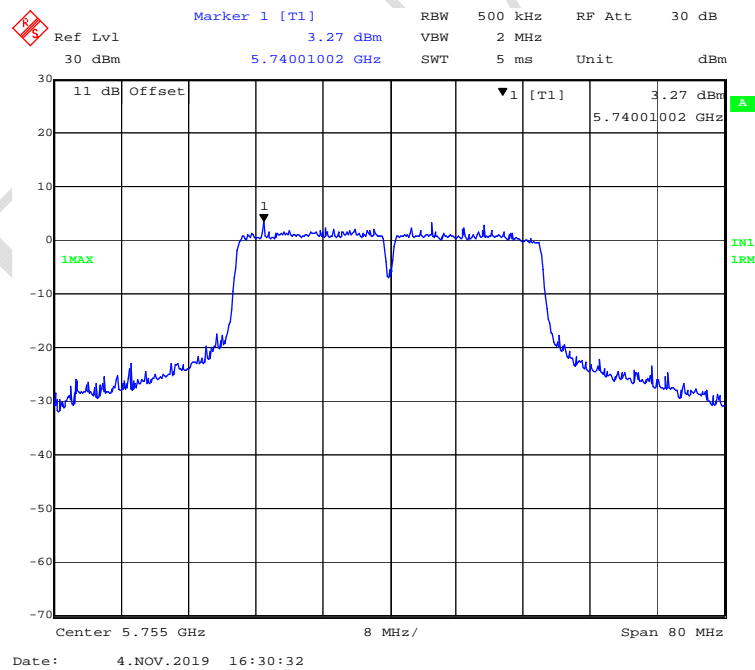




### 802.11n-HT20 mode, Power spectral density-5825MHz

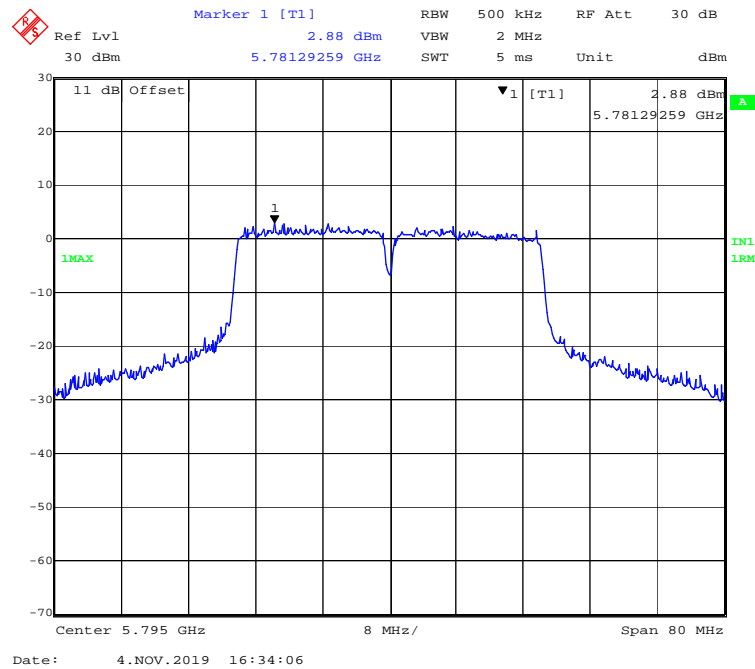


### 802.11ac40 mode, Power spectral density-5755MHz

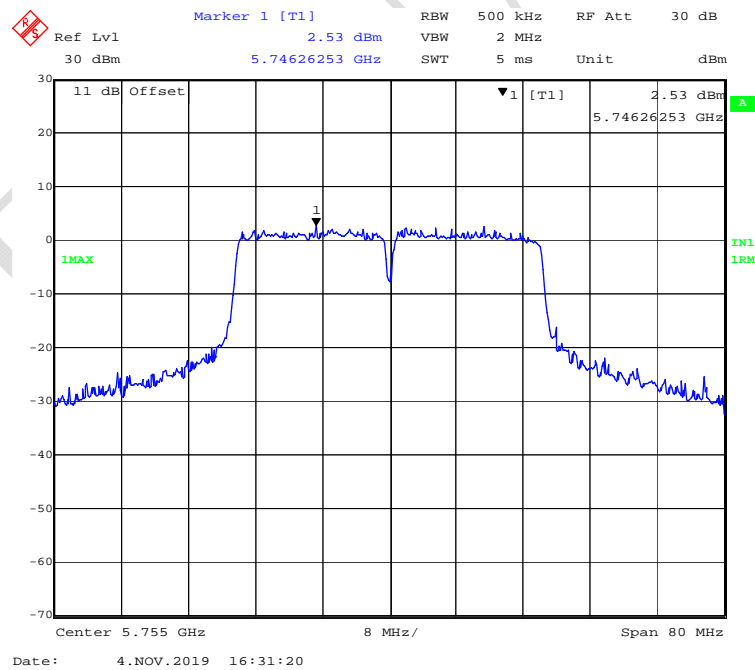




### 802.11ac40 mode, Power spectral density-5795MHz

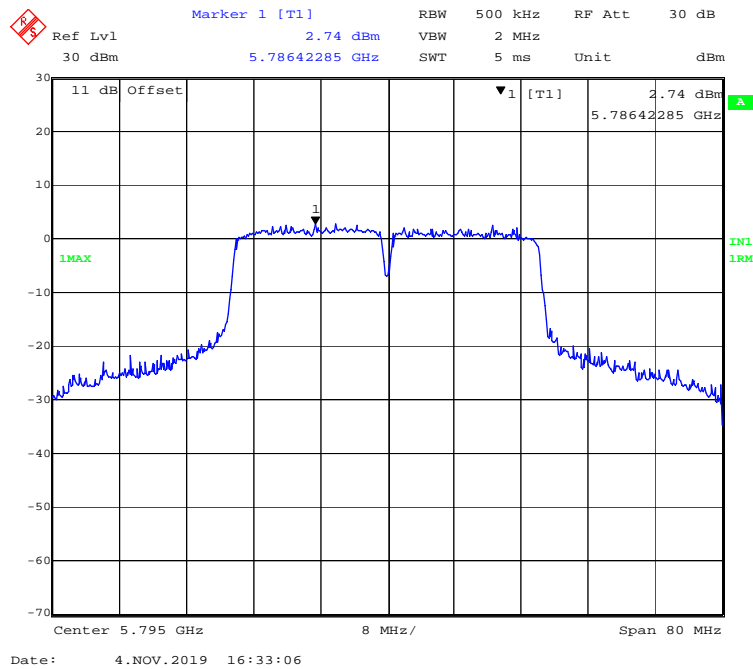


### 802.11n-HT40 mode, Power spectral density-5755MHz

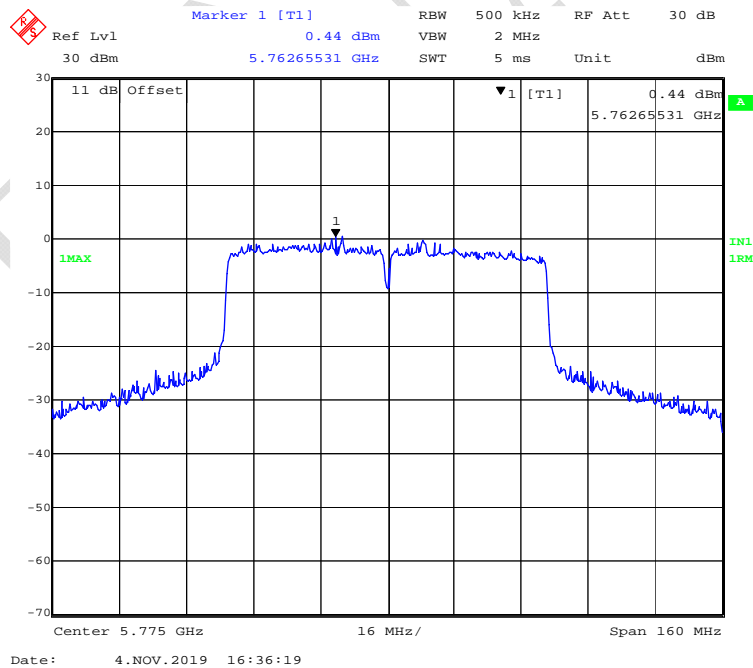




802.11n-HT40 mode, Power spectral density-5795MHz



802.11ac80 mode, Power spectral density-5775MHz

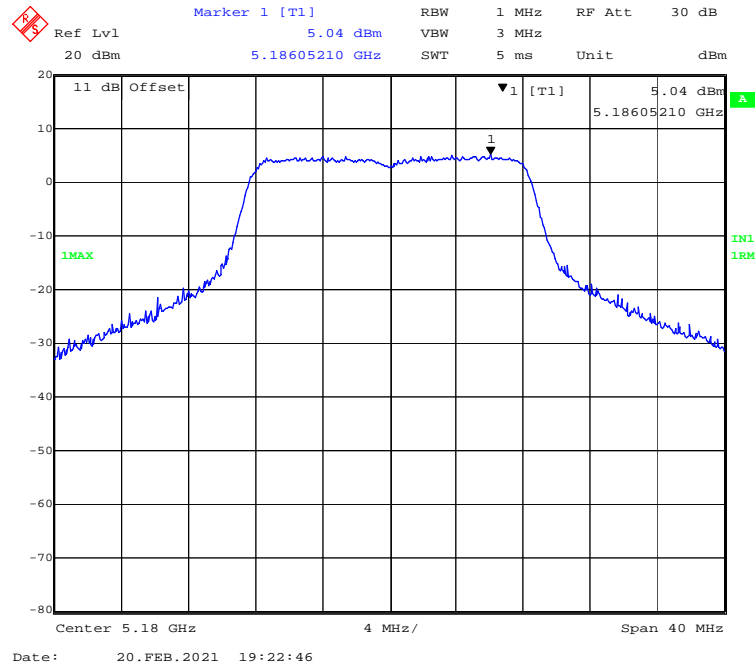




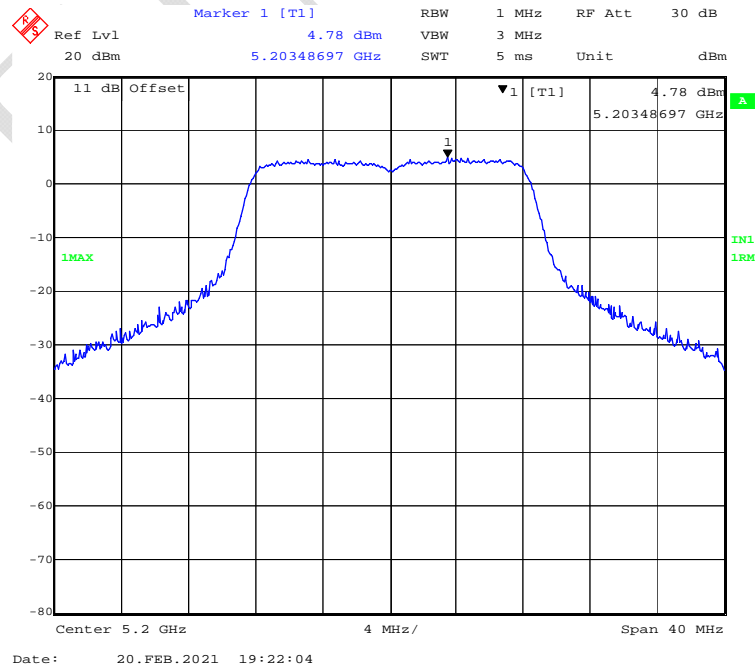
ANT 3:

5150MHz-5250MHz Band :

802.11a mode, Power spectral density-5180MHz

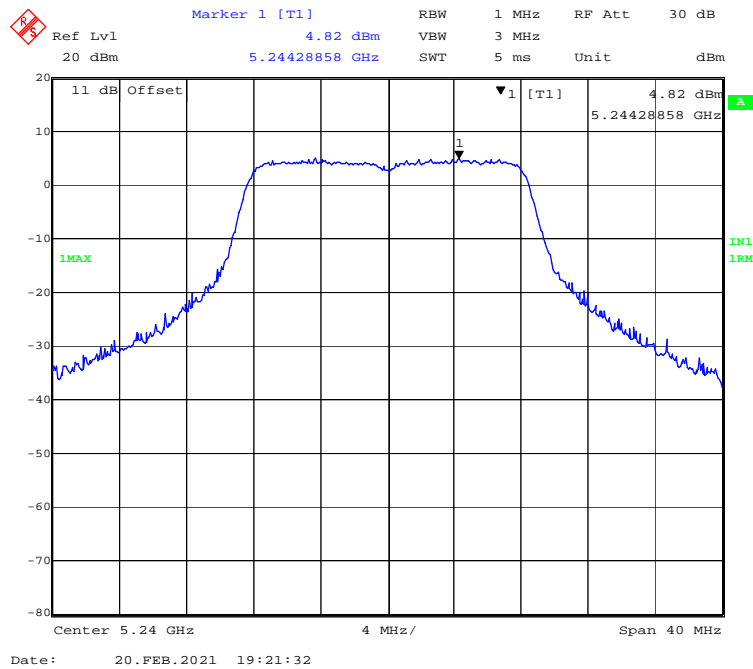


802.11a mode, Power spectral density-5200MHz

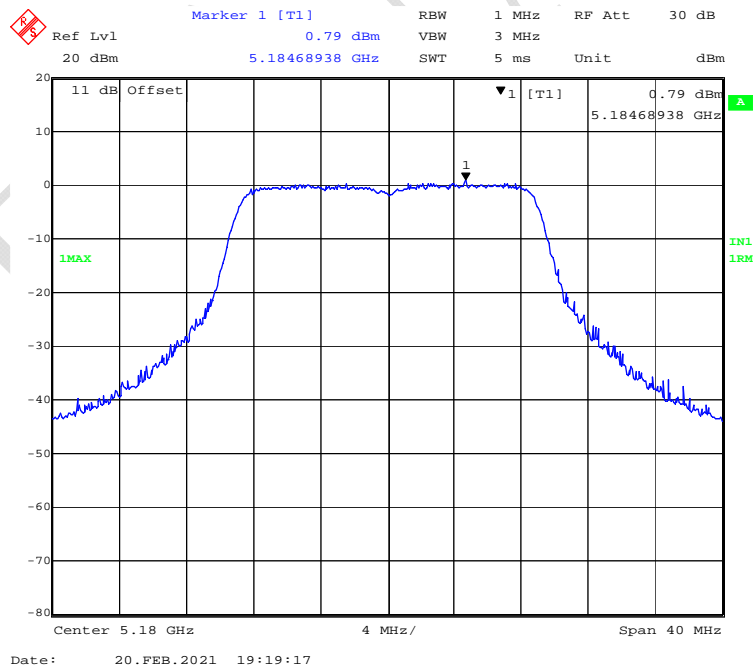




### 802.11a mode, Power spectral density-5240MHz

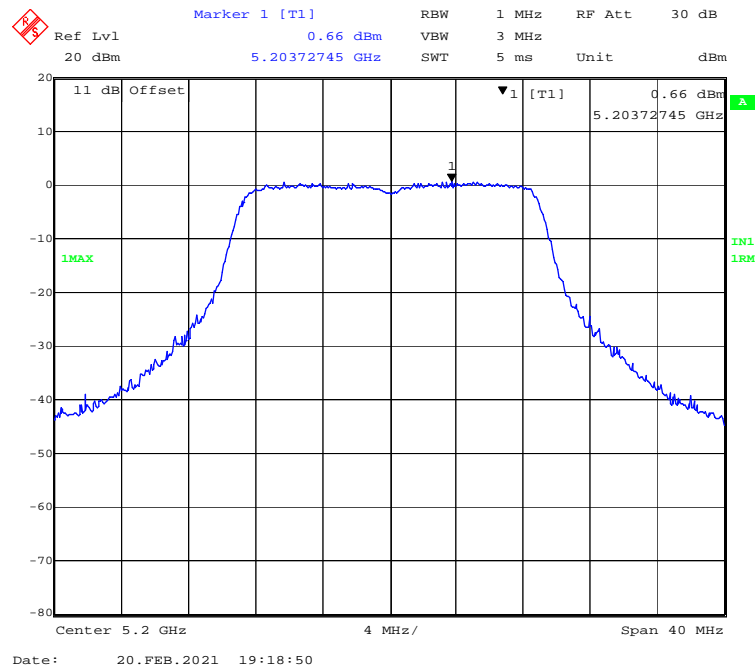


### 802.11ac20 mode, Power spectral density-5180MHz

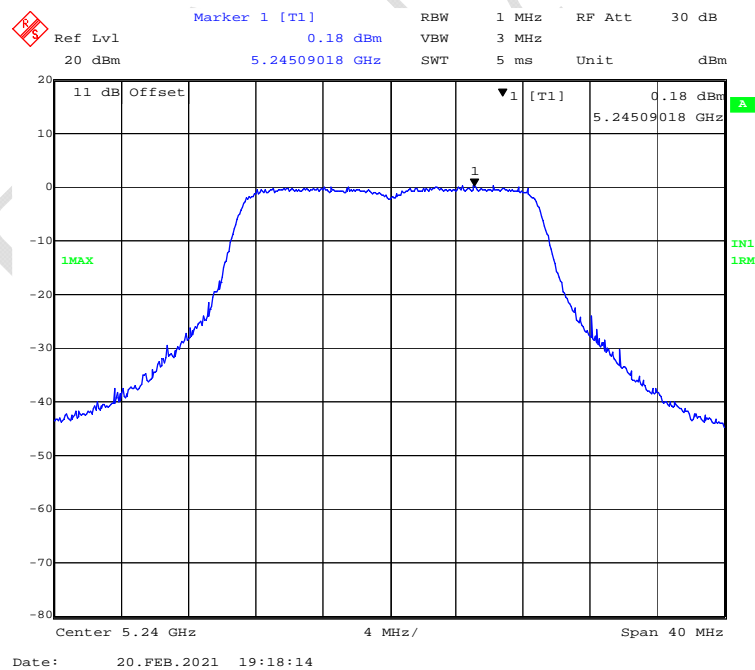




### 802.11ac20 mode, Power spectral density-5200MHz



### 802.11ac20 mode, Power spectral density-5240MHz





Ref Lvl 20 dBm  
 0.19 dBm  
 5.18348697 GHz  
 RBW 1 MHz  
 VBW 3 MHz  
 SWT 5 ms  
 RF Att 30 dB  
 Unit dBm

11 dB Offset  
 1 [T1]  
 0.19 dBm  
 5.18348697 GHz

1MAX  
 1RM

Center 5.18 GHz  
 4 MHz/  
 Span 40 MHz

Date: 20.FEB.2021 19:19:50

**Marker 1 [T1]**  
 Ref Lvl 0.59 dBm RBW 1 MHz RF Att 30 dB  
 20 dBm 5.20436874 GHz VBW 3 MHz Unit dBm  
 5 ms

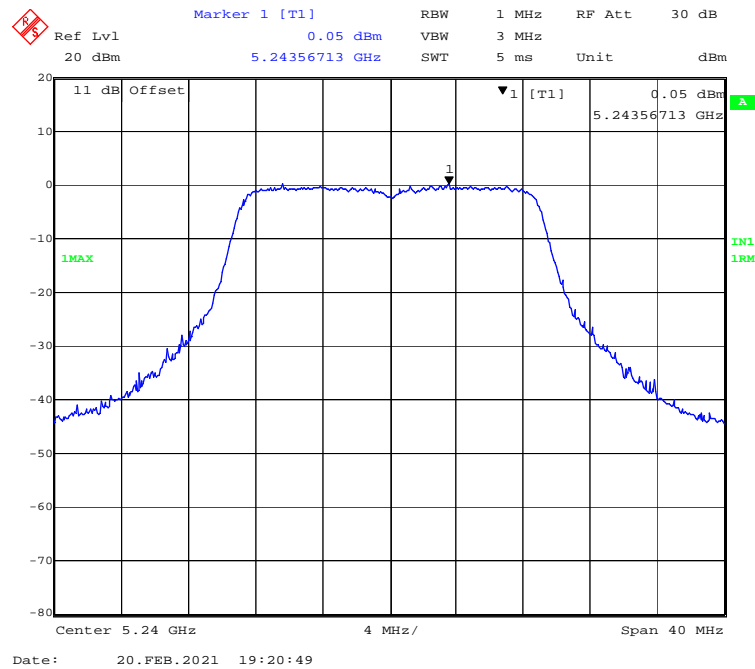
11 dB Offset  
 1 [T1]  
 0.59 dBm  
 5.20436874 GHz  
 1MAX  
 IN1  
 1RM

Center 5.2 GHz 4 MHz/ Span 40 MHz

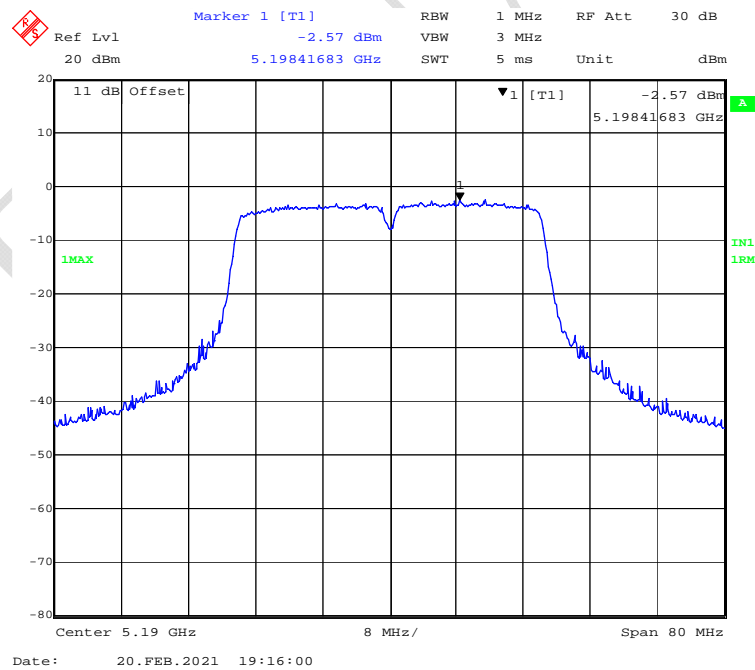
Date: 20.FEB.2021 19:20:21



### 802.11n-HT20 mode, Power spectral density-5240MHz

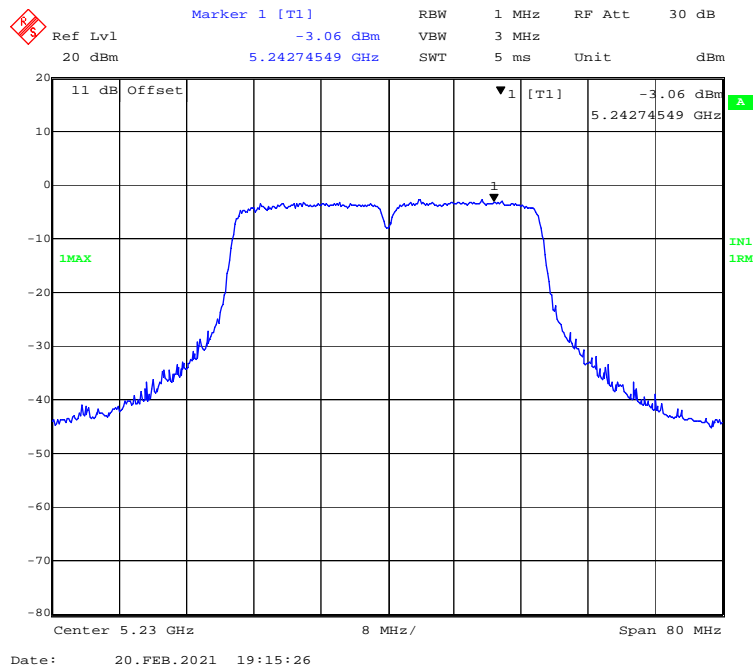


### 802.11ac40 mode, Power spectral density-5190MHz

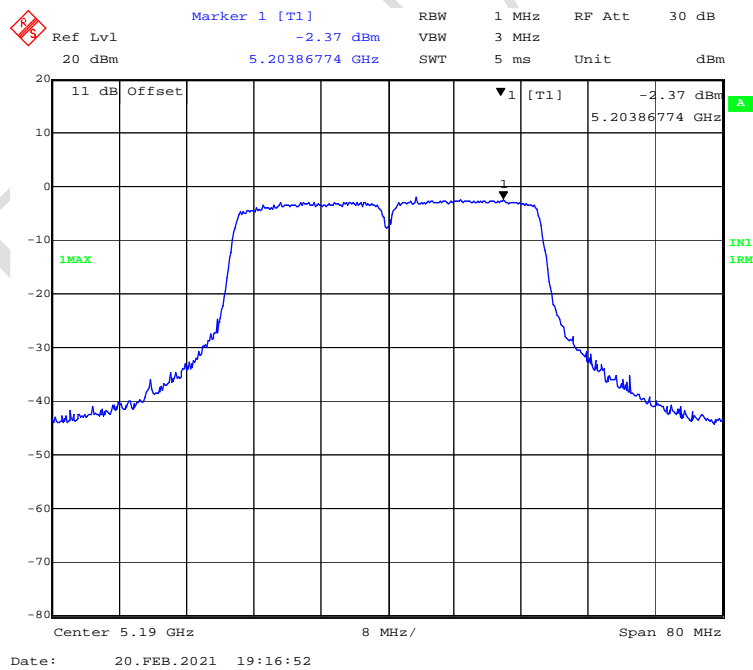




### 802.11ac40 mode, Power spectral density-5230MHz

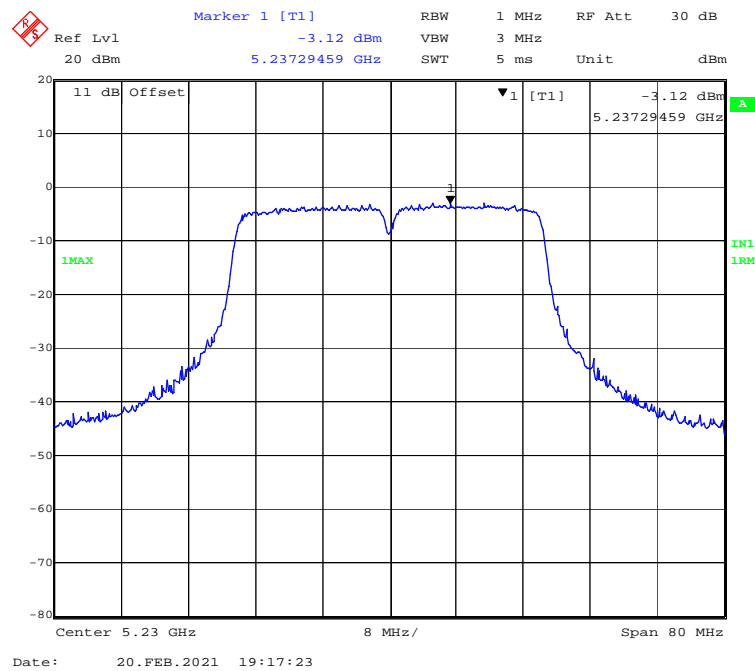


### 802.11n-HT40 mode, Power spectral density-5190MHz

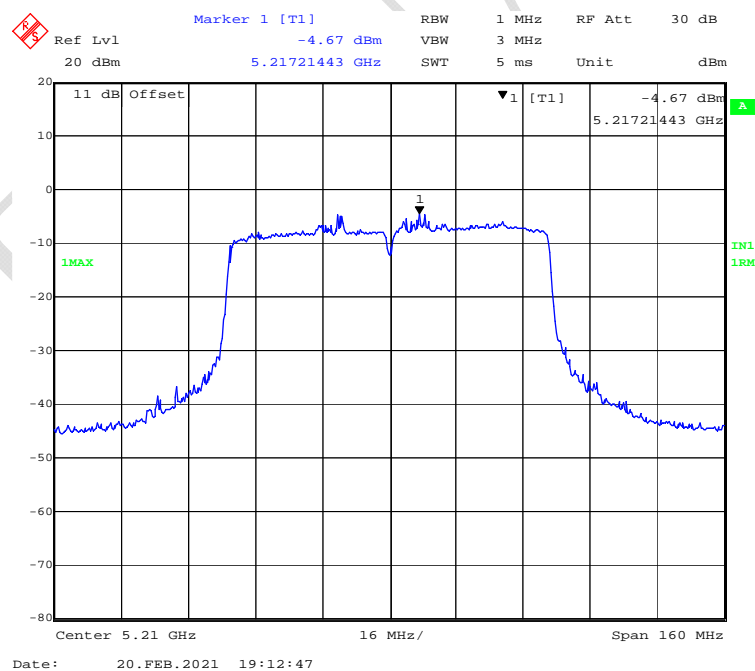




### 802.11n-HT40 mode, Power spectral density-5230MHz



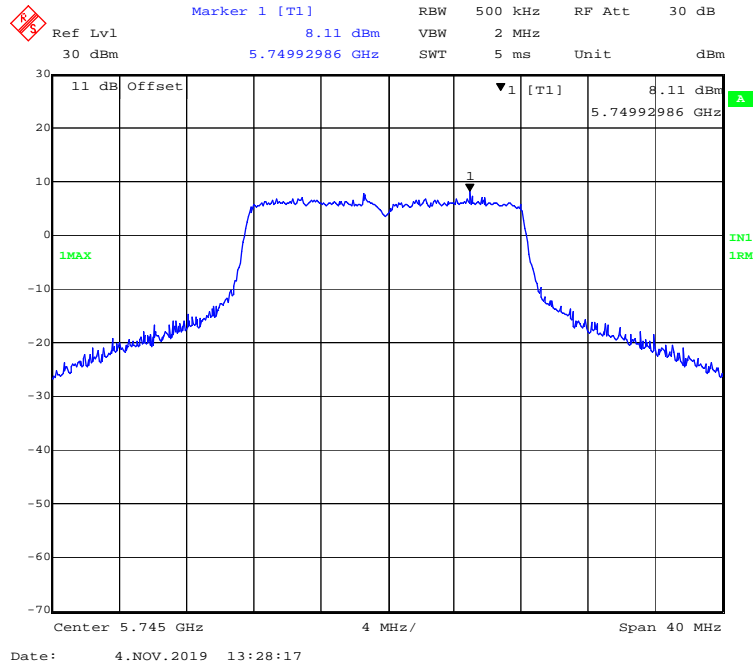
### 802.11ac80 mode, Power spectral density-5210MHz



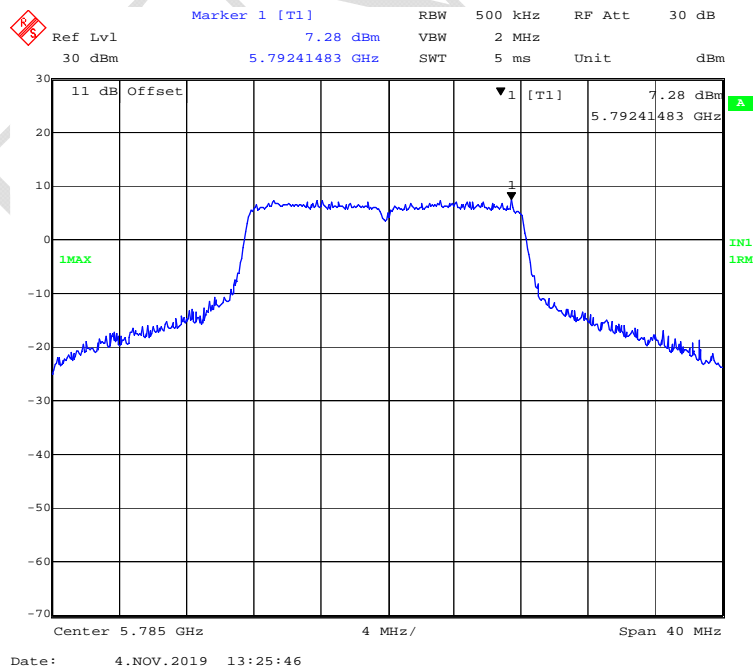


**5725MHz-5850 MHz Band:**

**802.11a mode, Power spectral density-5745MHz**

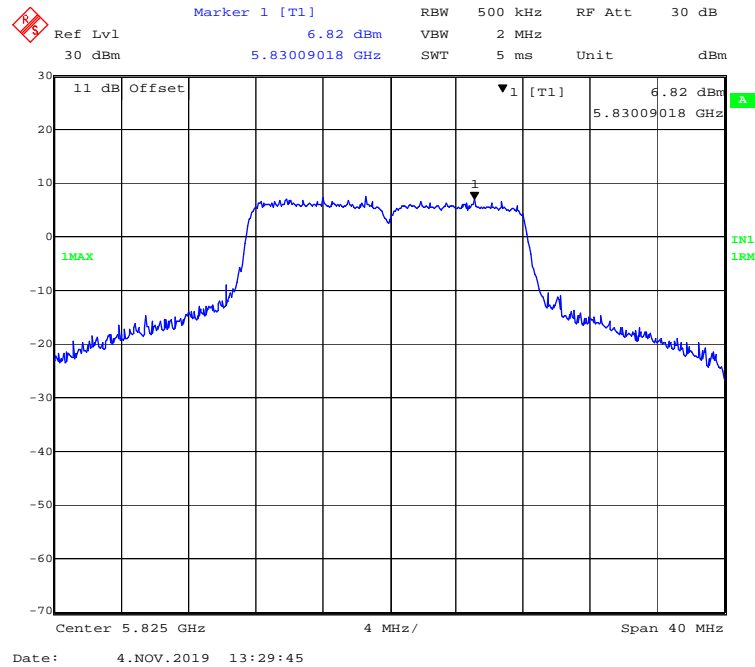


**802.11a mode, Power spectral density-5785MHz**

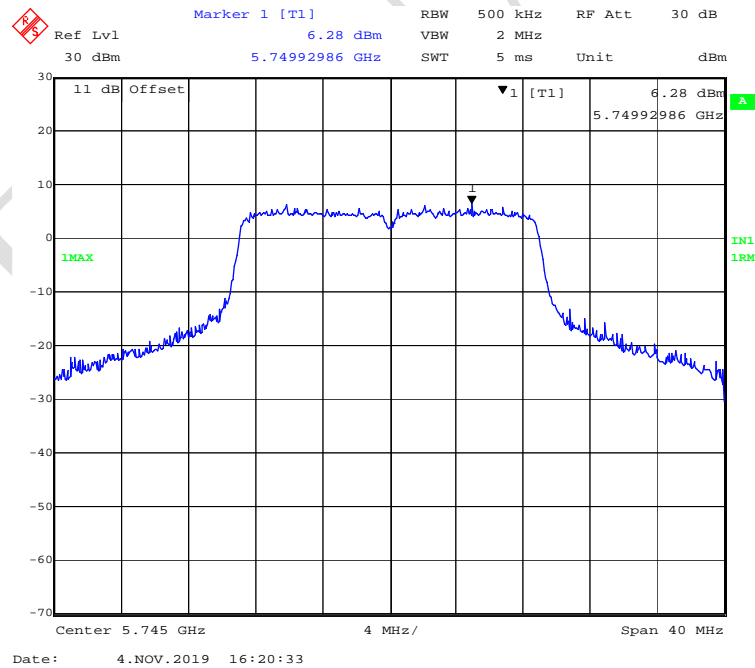




### 802.11a mode, Power spectral density-5825MHz

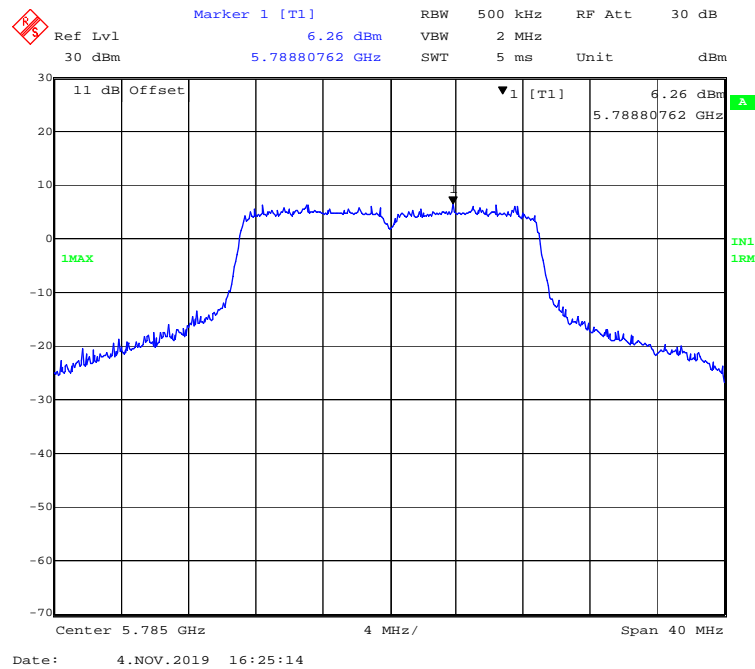


### 802.11ac20 mode, Power spectral density-5745MHz

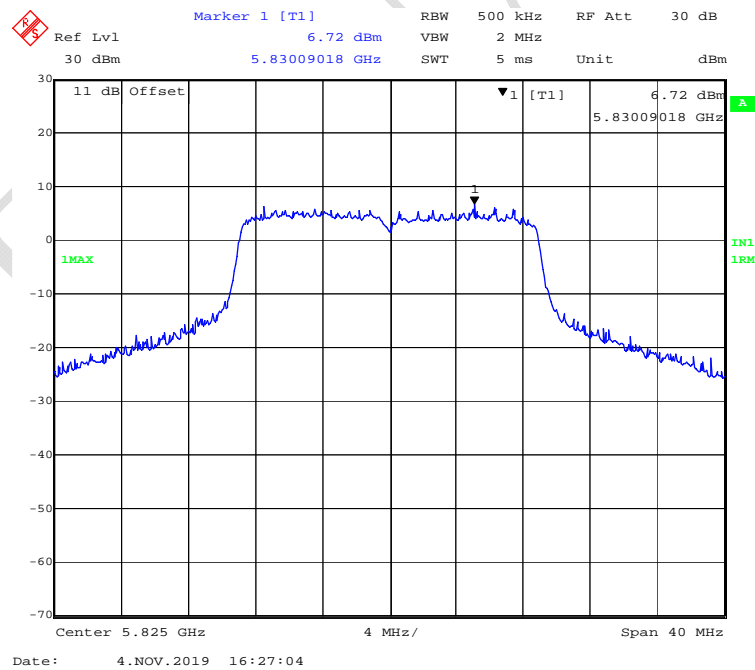




### 802.11ac20 mode, Power spectral density-5785MHz

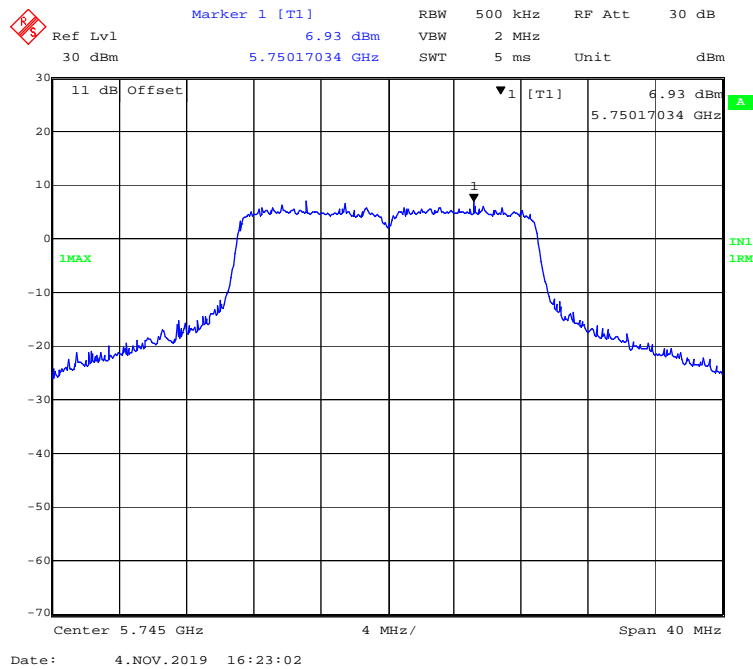


### 802.11ac20 mode, Power spectral density-5825MHz

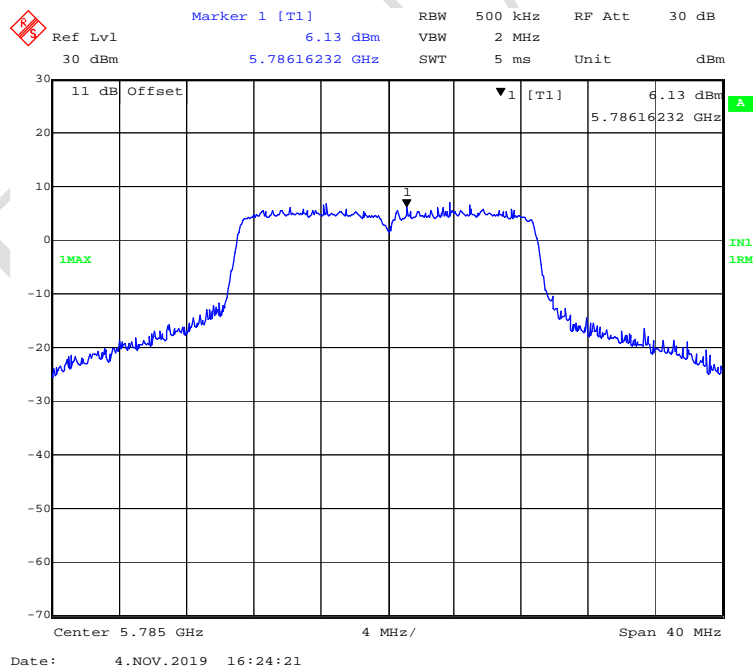




### 802.11n-HT20 mode, Power spectral density-5745MHz



### 802.11n-HT20 mode, Power spectral density-5785MHz





Marker 1 [T1]

Ref Lvl 5.83 dBm RBW 500 kHz RF Att 30 dB

30 dBm 5.82872745 GHz SWT 5 ms Unit dBm

11 dB Offset

▼ 1 [T1]

5.83 dBm

5.82872745 GHz

1MAX

Center 5.825 GHz

4 MHz/

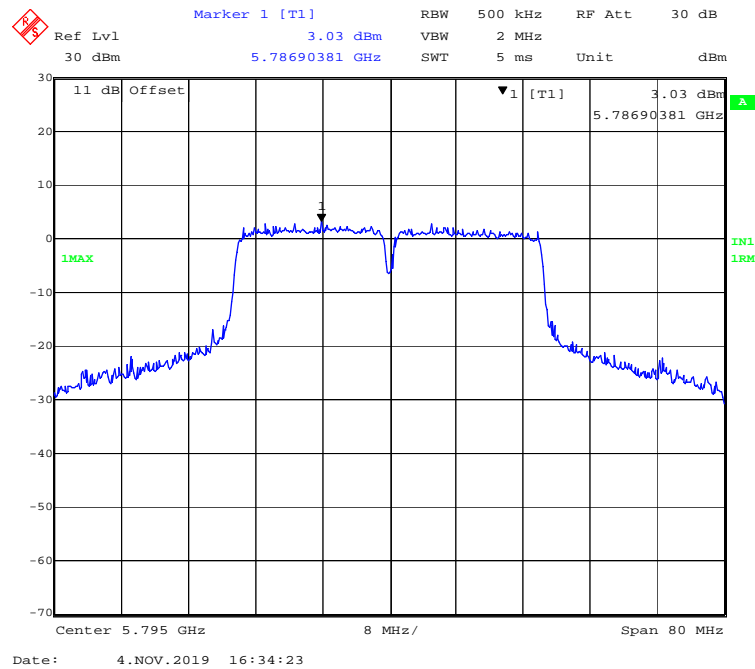
Span 40 MHz

Date: 4.NOV.2019 16:27:51

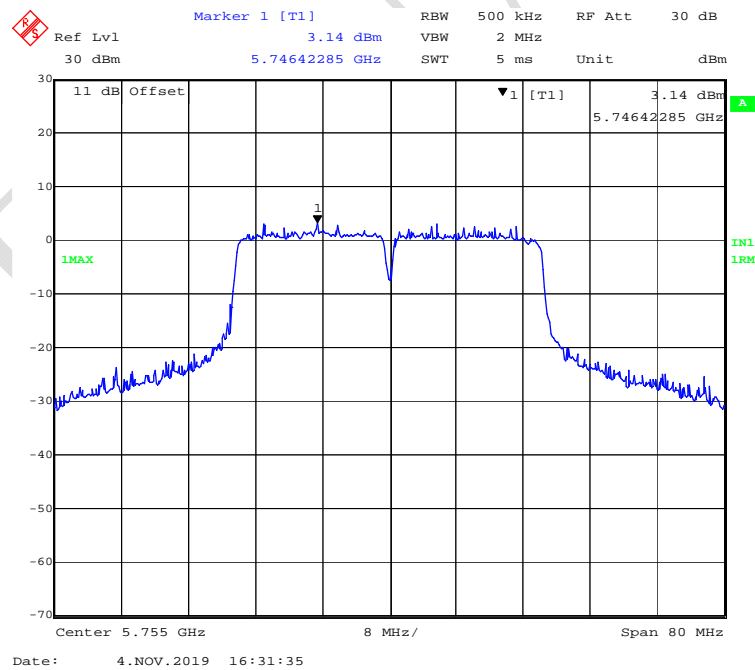
REF Lvl 30 dBm  
 30 dBm  
 5.74994990 GHz  
 Marker 1 [T1]  
 2.41 dBm  
 RBW 500 kHz  
 VBW 2 MHz  
 SWT 5 ms  
 RF Att 30 dB  
 Unit dBm  
 11 dB Offset  
 1MAX  
 1 [T1]  
 2.41 dBm  
 5.74994990 GHz  
 IN1 1RM  
 Center 5.755 GHz  
 8 MHz/  
 Span 80 MHz  
 Date: 4.NOV.2019 16:30:48



**802.11ac40 mode, Power spectral density-5795MHz**

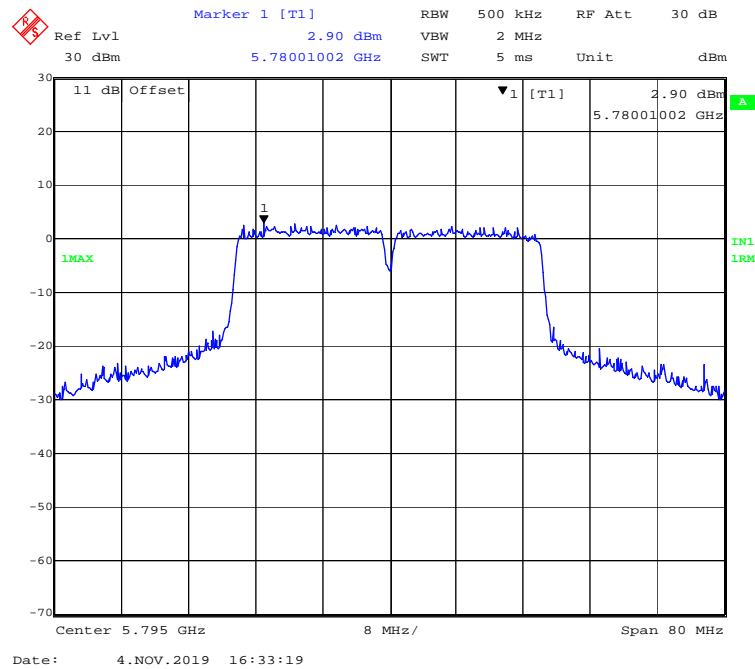


**802.11n-HT40 mode, Power spectral density-5755MHz**

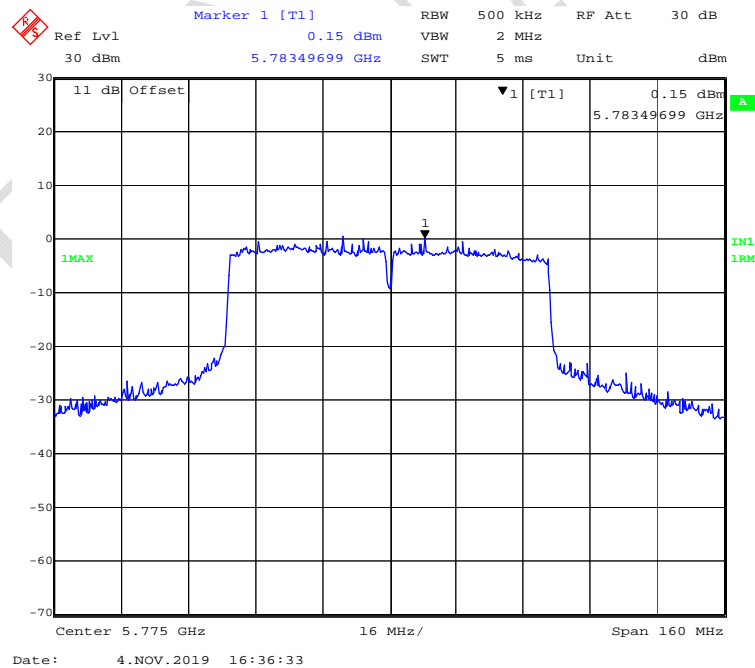




### 802.11n-HT40 mode, Power spectral density-5795MHz



### 802.11ac80 mode, Power spectral density-5775MHz





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**RSS-247 Clause 6.4- Additional requirements**

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**Applicable Standard**

According to RSS-247 Clause 6.4 Additional requirement

The following requirements shall apply:

a. The device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. A description on how this is done shall accompany the application for equipment certification. Note that this is not intended to prohibit transmission of control or signalling information or the use of repetitive codes where required by the technology.

b. All LE-LAN devices must contain security features to protect against modification of software by unauthorized parties.

Manufacturers must implement security features in any digitally modulated devices capable of operating in any of the frequency ranges within the 5 GHz band, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software must prevent the user from operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers may use various means, including the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment certification.

Manufacturers must take steps to ensure that DFS functionality cannot be disabled by the operator of the LE-LAN device.

c. The user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

i. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

ii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

iii. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and

iv. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.



**Result: Compliant**

RSS-247 Clause 6.4 a:

The device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure. Please refer to the declaration.

RSS-247 Clause 6.4 b:

The devices must contain security features to protect against modification of software by unauthorized parties. Please refer to the declaration.

RSS-247 Clause 6.4 c:

The device operates on 5150-5250MHz and 5725-5850MHz has three omni antennas, the antenna is detachable and meets the EIRP limit.

FINAL



### Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '\*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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