TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15.407
RSS-GEN, ISSUE 5, APRIL 2018
RSS-247, ISSUE 2, FEBRUARY 2017
TEST REPORT

For

Shenzhen Jingwah Information Technology Co., Ltd.

4F, Bldg 4, Jinghua Square, No.1 Huafa North Road, Futian District, Shenzhen, China

FCC ID: RBD-S5003L
IC: 20054-S5003L

Report Type:	**Product Name:**
Original Report	Smart Phone

Report Number:	RGMA181226002-00E
Report Date:	2019-03-22
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		Smart Phone
EUT Model:		S5003L
Multiple Model:		A5000-PB
Rated Input Voltage:		DC3.7V from Battery or DC5V from adapter
Adapter Information	**Model:**	TPA-95A050100UU
	Input:	AC 100-240V, 50/60Hz, 0.15A
	Output:	DC5V, 1000mA
External Dimension:		146mm(L)* 73mm(W)*11mm(H)
Serial Number:		181226002
EUT Received Date:		2019.01.03

Note: The series product model A5000-PB is electrically identical with model S5003L, we selected S5003L for fully testing, the differences details was explained in the declaration letter.

Objective

This type approval report is prepared on behalf of ***Shenzhen Jingwah Information Technology Co., Ltd.*** in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

Related Submittal(s)/Grant(s)

FCC Part 22H, 24E,27 PCE submissions with FCC ID: RBD-S5003L.
FCC Part 15C DSS submissions with FCC ID: RBD-S5003L.
FCC Part 15C DTS submissions with FCC ID: RBD-S5003L.
FCC Part 15B JBP submissions with FCC ID: RBD-S5003L.
RSS-247 DSSs, RSS-247 DTSs, RSS-130, RSS-132, RSS-133, RSS-139 submissions with IC: 20054- S5003L

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions,conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

The system support 802.11a/n ht20/ n ht40 in 5GHz band.

For 5150~5250 MHz band, 6 channels are provided:

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

For 802.11a, 802.11n ht20 Channel 36, 40 and 48 was tested, for 802.11n ht40 Channel 38, 46 were tested.

For 5250~5350 MHz band, 6 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320

For 802.11a, 802.11n ht20, Channel 52, 56 and 64 were tested, for 802.11n ht40 Channel 54, 62 were tested.

For 5470~5725 MHz band, 18 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
102	5510	118	5590	134	5670
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
110	5550	126	5630	142	5710
112	5560	128	5640	144	5720

For 802.11a, 802.11n ht20 Channel 100, 116 and 140 were tested, for 802.11n ht40 Channel 102, 110 and 134 were tested.

Channel 144 for 802.11a, n ht20, 142 for 802.11n ht40, crossed the band U-NII 2C to U-NII 3, were chosed to test for compliance requirement.

For Canada RSS-247, channels 118 to 128 were disabled by software since the frequency occupied the frequency band 5600-5650MHz.

For 5725~5850MHz band, 7 channels are provided to testing:

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

For 802.11a, 802.11n ht20 Channel 149, 157 and 165 was tested, for 802.11n ht40 Channel 151, 159 was tested.

EUT Exercise Software

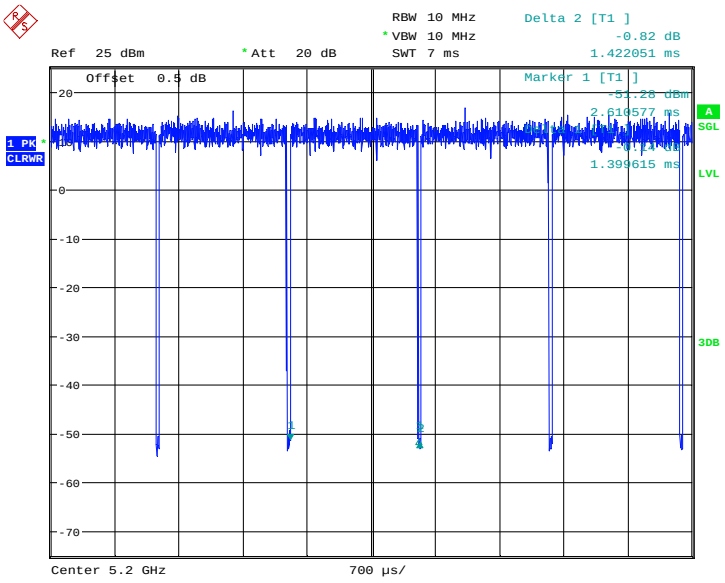
The software “Engineering Mode” was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates, bandwidths, and modulations. The maximum power was configured as below table, that provided by the manufacturer:

Band	Mode	Channel	Frequency (MHz)	Data rate	Power level
5150 - 5250 MHz	802.11a	Low	5180	6 Mbps	12
		Middle	5200	6 Mbps	12
		High	5240	6 Mbps	12
	802.11n ht20	Low	5180	MCS0	12
		Middle	5200	MCS0	12
		High	5240	MCS0	12
	802.11n ht40	Low	5190	MCS0	11
		High	5230	MCS0	11
5250 - 5350 MHz	802.11 a	Low	5260	6 Mbps	15.0
		Middle	5280	6 Mbps	15.0
		High	5320	6 Mbps	15.0
	802.11 n20	Low	5260	MCS0	15.0
		Middle	5280	MCS0	15.0
		High	5320	MCS0	15.0
	802.11 n40	Low	5270	MCS0	14.5
		High	5310	MCS0	14.5
5470 - 5725 MHz	802.11 a	Low	5500	6 Mbps	14.5
		Middle	5580	6 Mbps	15.0
		High	5700	6 Mbps	18.5
		Crossed	5720	6 Mbps	18.5
	802.11 n20	Low	5500	MCS0	14.5
		Middle	5580	MCS0	15.0
		High	5700	MCS0	19.0
		Crossed	5720	MCS0	19.0
	802.11 n40	Low	5510	MCS0	13.5
		Middle	5550	MCS0	13.5
		High	5670	MCS0	16.5
		Crossed	5710	MCS0	17.0
5725 - 5850 MHz	802.11a	Low	5745	6 Mbps	14
		Middle	5785	6 Mbps	14
		High	5825	6 Mbps	15
	802.11n ht20	Low	5745	MCS0	14
		Middle	5785	MCS0	14
		High	5825	MCS0	15
	802.11n ht40	Low	5755	MCS0	13
		High	5795	MCS0	13

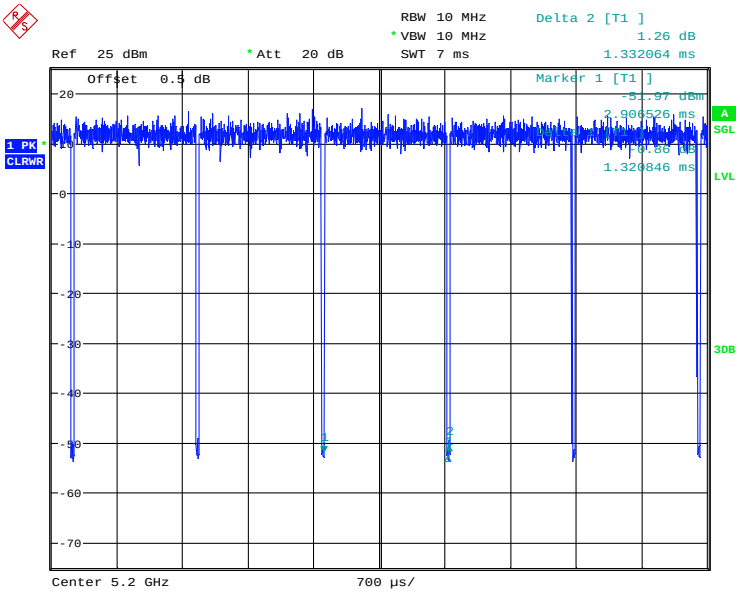
The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle(x) (%)	Duty Cycle Factor (10*log(1/x)) (dB)
802.11 a	1.400	1.422	98.45	/
802.11n ht20	1.321	1.332	99.17	/
802.11n ht40	0.656	0.685	95.77	0.19

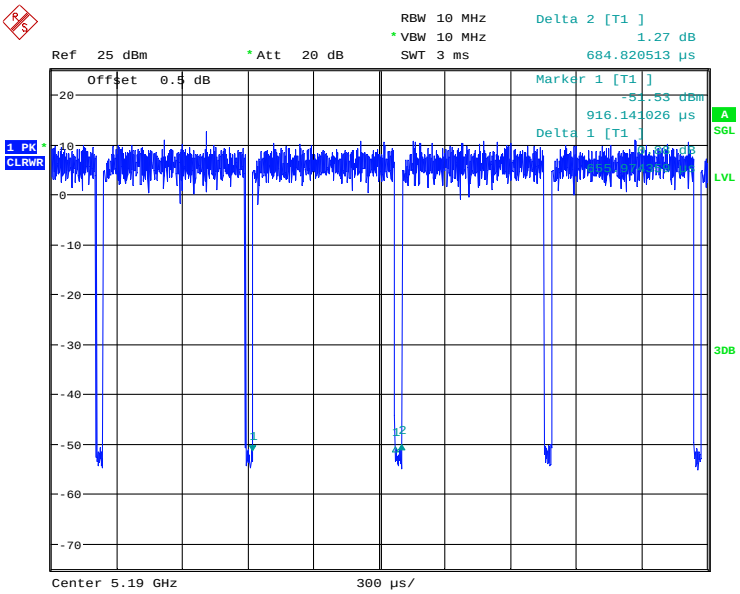
802.11a



802.11n ht20



802.11n ht40



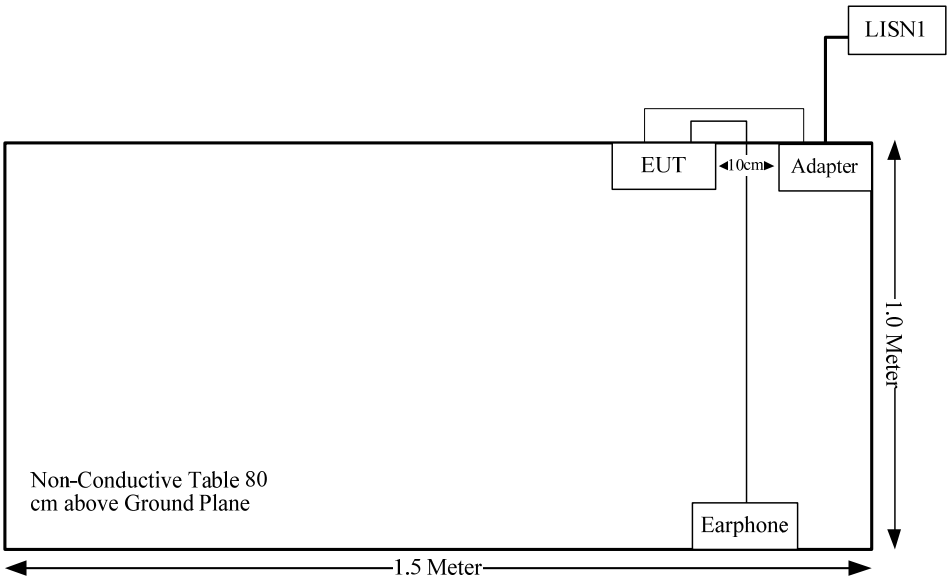
Equipment Modifications

No modification was made to the EUT.

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From	To
USB Cable	yes	no	1	EUT	Adapter
EarphoneCable	yes	no	1	EUT	Earphone

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1093 RSS-102 Clause 4	RF Exposure	Compliance
FCC§15.203, RSS-Gen Clause 6.8	Antenna Requirement	Compliance
FCC§15.407(b)(6)& §15.207(a), RSS-Gen Clause 8.8	Conducted Emissions	Compliance
FCC§15.205& §15.209 &§15.407(b), RSS-247 Clause 6.2	Undesirable Emission& Restricted Bands	Compliance
FCC§15.407(a) (e), RSS-247 Clause 6.2 RSS-Gen Clause 6.7	Emission Bandwidth	Compliance
FCC§15.407(a) RSS-247 Clause 6.2	Conducted Transmitter Output Power	Compliance
FCC§15.407 (a), RSS-247 Clause 6.2	Power Spectral Density	Compliance
FCC§15.407 (h), RSS-247 Clause 6.3	Dynamic Frequency Selection(DFS)	Compliance*

Compliance*: Please refer to the DFS report: RGMA190305001-00E.

FCC §15.407 (f) & §1.1310 & §2.1093, RSS-102 CLAUSE 4- RF EXPOSURE

Applicable Standard

According to§15.407(f),§1.1310 and §2.1093.

According to RSS-102 Clause 4 Table 3, SAR limits for device used by the general public

Body Region	Average SAR (W/Kg)	Averaging Time (minutes)	Mass Average (g)
Whole Body	0.08	6	Whole Body
Localized Head, Neck and Trunk	1.6	6	1
Localized Limbs	4	6	10

Test Result

Compliant, please refer to the SAR report: RGMA181226002-20.

FCC §15.203& RSS-GEN CLAUSE 6.8 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC§ 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

According to RSS-Gen Clause 6.8, 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 one internal FPC antenna arrangement for BT/WLAN, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	input impedance (Ohm)	Antenna Gain /Frequency Range
FPC	50	2.7 dBi/2.4~2.5GHz 2.27 dBi/5.15~5.85GHz

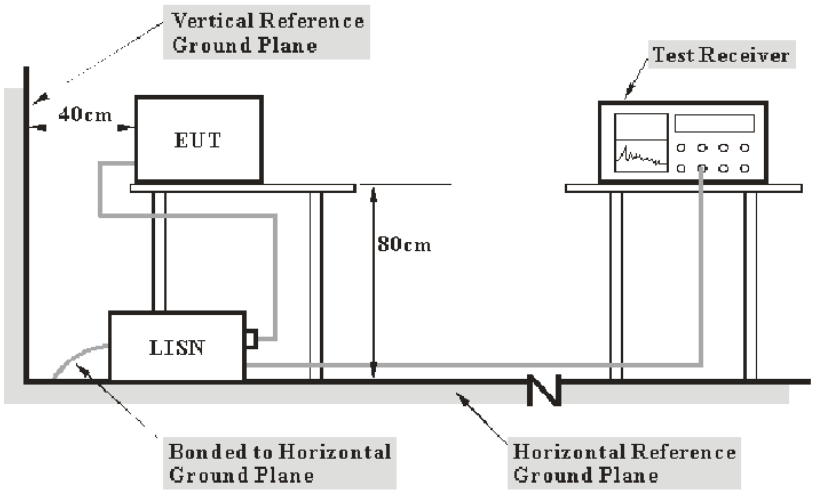
Result: Compliance.

FCC §15.207(a) RSS-GEN CLAUSE 8.8– CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6), RSS-GEN CLAUSE 8.8.

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 per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits and RSS-Gen clause 8.8 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main lisn with a 120 V/60 Hz AC power source.

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

The "**Margin**" column of the following data tables indicates the degree of compliance within 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 = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2018-12-10	2019-12-10

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

Test Procedure

During the conducted emission test, the EUT was connected to the first 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.

Test Data

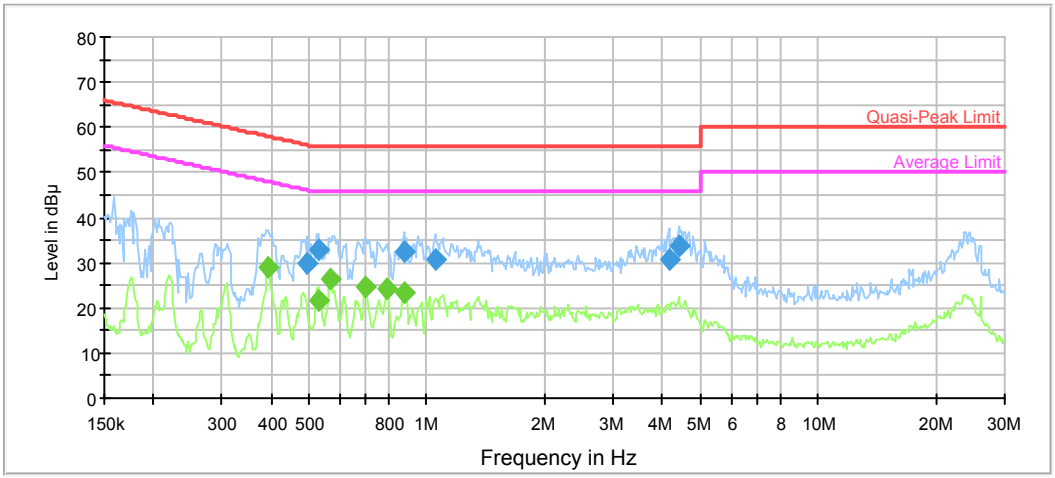
Environmental Conditions

Temperature:	27.9 °C
Relative Humidity:	60 %
ATM Pressure:	100.1~102.1 kPa

The testing was performed by Lily Xie on 2019-01-08.

Test Mode: Transmitting

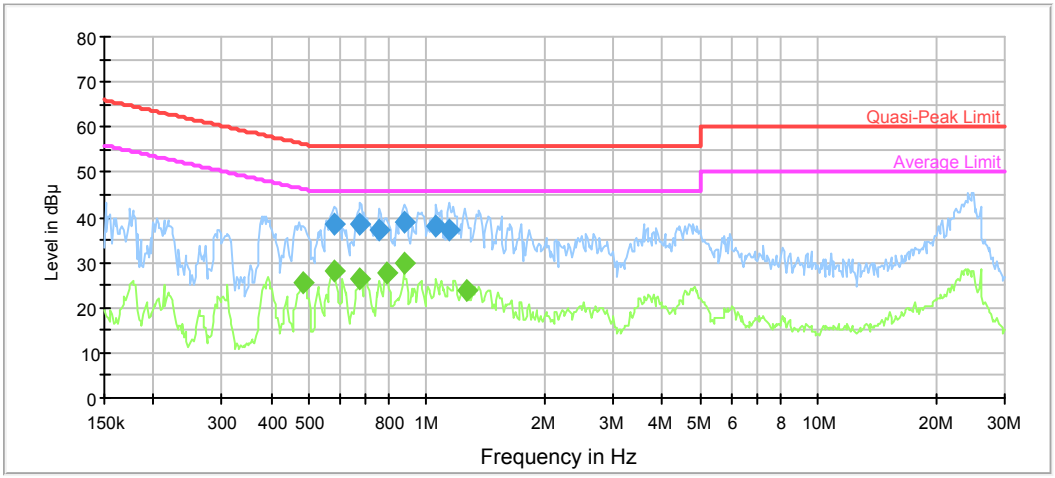
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.495646	29.7	9.000	L1	9.9	26.4	56.1	Compliance
0.528270	33.0	9.000	L1	9.9	23.0	56.0	Compliance
0.872708	32.3	9.000	L1	9.8	23.7	56.0	Compliance
1.048242	30.7	9.000	L1	9.8	25.3	56.0	Compliance
4.160384	30.9	9.000	L1	9.8	25.1	56.0	Compliance
4.399032	33.6	9.000	L1	9.8	22.4	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.393383	28.8	9.000	L1	10.0	19.2	48.0	Compliance
0.528270	21.8	9.000	L1	9.9	24.2	46.0	Compliance
0.567545	26.4	9.000	L1	9.8	19.6	46.0	Compliance
0.698191	24.7	9.000	L1	9.8	21.3	46.0	Compliance
0.786832	24.0	9.000	L1	9.8	22.0	46.0	Compliance
0.872708	23.5	9.000	L1	9.8	22.5	46.0	Compliance

AC120 V, 60 Hz, Neutral:



requency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.581275	38.5	9.000	N	9.8	17.5	56.0	Compliance
0.676289	38.6	9.000	N	9.8	17.4	56.0	Compliance
0.756101	37.1	9.000	N	9.8	18.9	56.0	Compliance
0.872708	39.0	9.000	N	9.8	17.0	56.0	Compliance
1.056628	38.2	9.000	N	9.8	17.8	56.0	Compliance
1.144267	37.2	9.000	N	9.8	18.8	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.483938	25.6	9.000	N	9.9	20.7	46.3	Compliance
0.581275	28.1	9.000	N	9.8	17.9	46.0	Compliance
0.676289	26.2	9.000	N	9.8	19.8	46.0	Compliance
0.793127	27.5	9.000	N	9.8	18.5	46.0	Compliance
0.872708	29.8	9.000	N	9.8	16.2	46.0	Compliance
1.259081	23.7	9.000	N	9.8	22.3	46.0	Compliance

FCC §15.209, §15.205 , §15.407(b) &RSS-247 CLAUSE 6.2, RSS-GEN CLAUSE 8.10 –UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

According to RSS-247 Clause 6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

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.

Frequency band 5250-5350 MHz

6.2.2.2 Unwanted emission limits

Devices shall comply with the following:

a) All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or

b) All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text “for indoor use only.”

Frequency bands 5470-5600 MHz and 5650-5725 MHz:

6.2.3.2 Unwanted emission limits

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.

Frequency band 5725-5850 MHz

6.2.4.2 Unwanted emission limits

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

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;

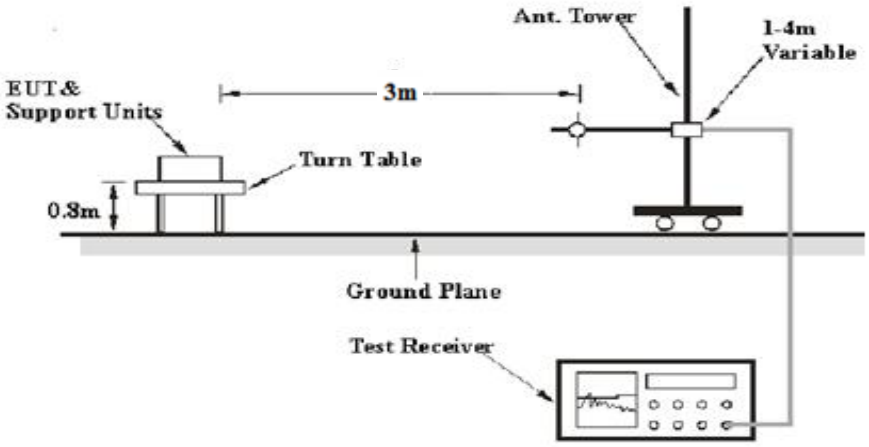
b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

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

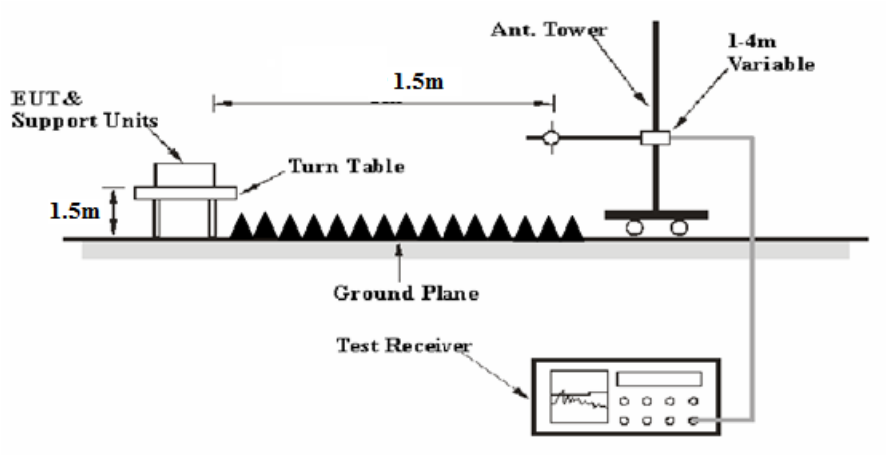
d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

EUT Setup

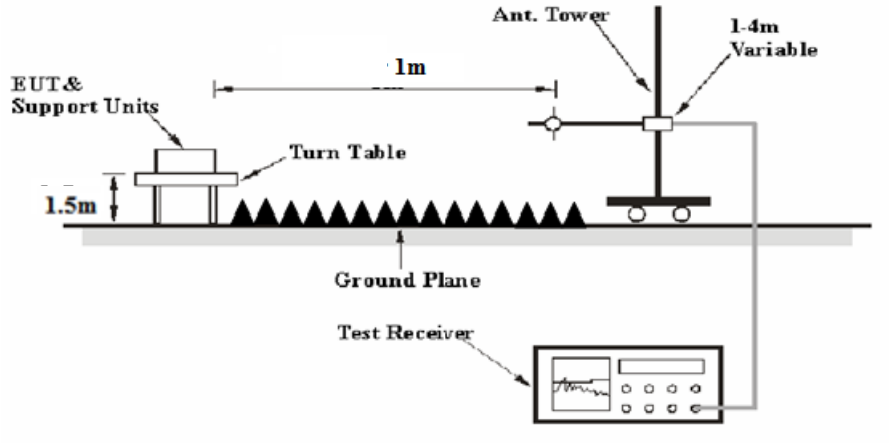
Below 1 GHz:



1-26.5 GHz:



26.5-40 GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A , above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 limits and RSS-247, RSS-Gen limits.

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 & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet.

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

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m or 1m
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB
or
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1m]) dB= 9.54 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

Corrected Amplitude & Margin Calculation

For the range 30MHz-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 = Meter Reading + Antenna Factor + Cable Loss - 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:

Margin = Limit - Corrected Amplitude

For the range 1GHz-40GHz, Test performed at 1.5m or 1m, the Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading and the Distance extrapolation factor. The basic equation is as follows:

Corrected Amplitude
= Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain-Distance extrapolation factor

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 = Limit- Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2018-05-06	2019-05-06
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
R&S	Spectrum Analyzer	FSP 38	100478	2018-12-10	2019-12-10
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2018-06-27	2019-06-27
Sinoscite	Bandstop Filters	BSF5150-5850MN-0899-003	0899003	2018-05-06	2019-05-06
Mini Circuits	High Pass Filter	VHF-6010+	31118	2018-06-16	2019-06-16

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

Test Data

Environmental Conditions

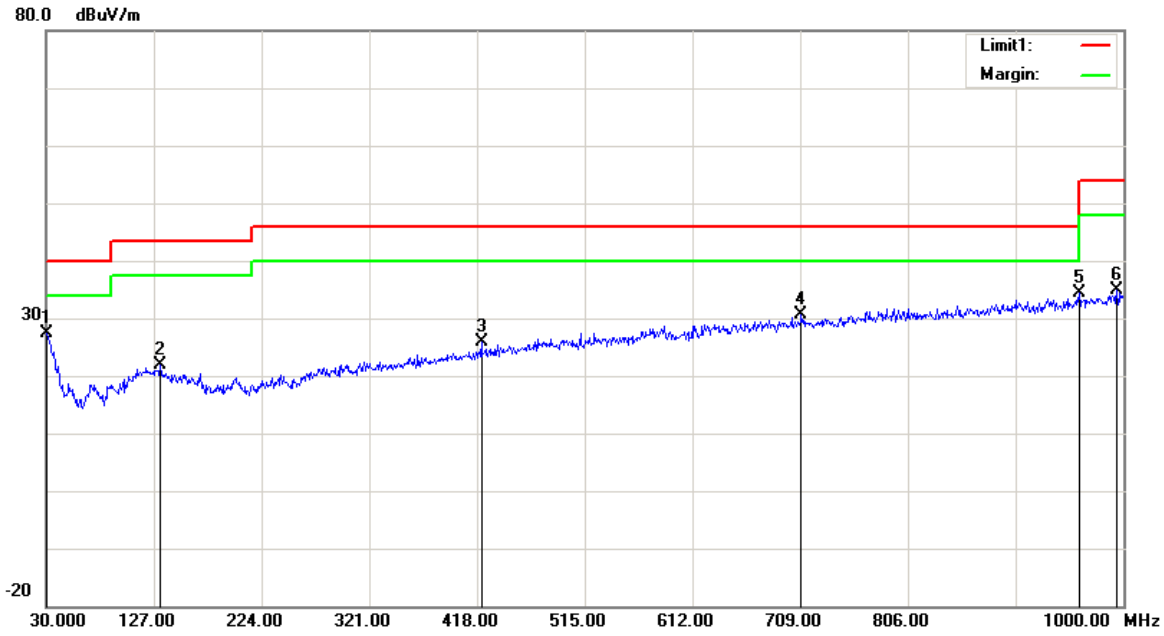
Temperature:	21.2~24.6 °C
Relative Humidity:	28~53 %
ATM Pressure:	100.1~102.1kPa

** The testing was performed by Tyler Pan, Kami Zhou Vern Shen from 2019-01-12 to 2019-03-18.*

Test Mode: Transmitting

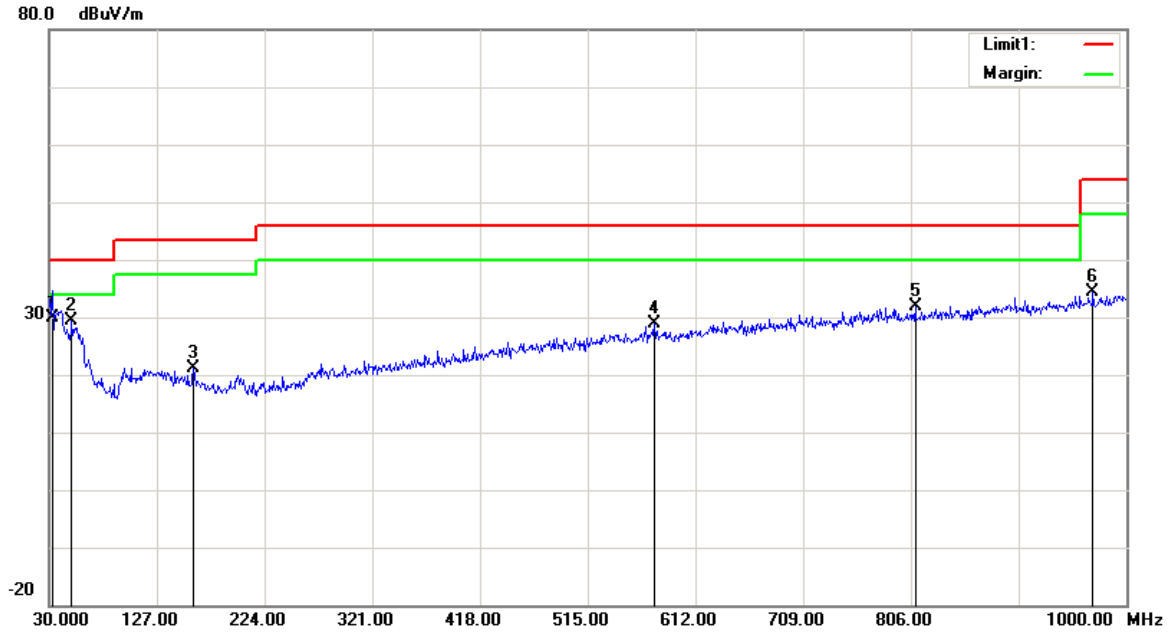
1) Below 1GHz(802.11a 5825 MHz was the worst):

Horizontal



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.9700	26.52	peak	0.95	27.47	40.00	12.53
132.8200	26.79	peak	-4.95	21.84	43.50	21.66
421.8800	27.39	peak	-1.51	25.88	46.00	20.12
709.9700	27.45	peak	3.12	30.57	46.00	15.43
960.2300	11.46	peak	22.90	34.36	54.00	19.64
994.1800	11.72	peak	23.20	34.92	54.00	19.08

Vertical



Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
32.9100	30.44	QP	-0.50	29.94	40.00	10.06
50.3700	40.62	peak	-11.25	29.37	40.00	10.63
159.9800	27.06	peak	-5.85	21.21	43.50	22.29
575.1400	27.76	peak	1.11	28.87	46.00	17.13
809.8800	27.05	peak	4.83	31.88	46.00	14.12
969.9300	11.29	peak	23.00	34.29	54.00	19.71

2) 1GHz-40GHz:
5150-5250MHz
802.11a

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5180 MHz										
5180.00	65.25	PK	H	33.59	3.58	0.00	102.42	96.4	N/A	N/A
5180.00	55.68	AV	H	33.59	3.58	0.00	92.85	86.83	N/A	N/A
5180.00	59.38	PK	V	33.59	3.58	0.00	96.55	90.53	N/A	N/A
5180.00	49.25	AV	V	33.59	3.58	0.00	86.42	80.4	N/A	N/A
5150.00	27.87	PK	H	33.54	3.56	0.00	64.97	58.95	74.00	15.05
5150.00	14.54	AV	H	33.54	3.56	0.00	51.64	45.62	54.00	8.38
10360.00	47.69	PK	H	38.17	6.29	36.85	55.30	49.28	68.20	18.92
15540.00	54.57	PK	H	38.06	8.85	39.04	62.44	56.42	74.00	17.58
15540.00	40.78	AV	H	38.06	8.85	39.04	48.65	42.63	54.00	11.37
Middle Channel: 5200 MHz										
5200.00	66.86	PK	H	33.62	3.60	0.00	104.08	98.06	N/A	N/A
5200.00	56.74	AV	H	33.62	3.60	0.00	93.96	87.94	N/A	N/A
5200.00	60.25	PK	V	33.62	3.60	0.00	97.47	91.45	N/A	N/A
5200.00	50.64	AV	V	33.62	3.60	0.00	87.86	81.84	N/A	N/A
10400.00	48.93	PK	H	38.18	6.32	36.86	56.57	50.55	68.20	17.65
15600.00	53.44	PK	H	38.00	8.83	39.09	61.18	55.16	74.00	18.84
15600.00	40.12	AV	H	38.00	8.83	39.09	47.86	41.84	54.00	12.16
High Channel: 5240 MHz										
5240.00	65.92	PK	H	33.68	3.52	0.00	103.12	97.1	N/A	N/A
5240.00	55.26	AV	H	33.68	3.52	0.00	92.46	86.44	N/A	N/A
5240.00	59.74	PK	V	33.68	3.52	0.00	96.94	90.92	N/A	N/A
5240.00	49.65	AV	V	33.68	3.52	0.00	86.85	80.83	N/A	N/A
5350.00	24.60	PK	H	33.86	3.52	0.00	61.98	55.96	74.00	18.04
5350.00	14.27	AV	H	33.86	3.52	0.00	51.65	45.63	54.00	8.37
10480.00	49.55	PK	H	38.20	6.37	36.88	57.24	51.22	68.20	16.98
15720.00	53.05	PK	H	37.88	8.79	39.18	60.54	54.52	74.00	19.48
15720.00	39.74	AV	H	37.88	8.79	39.18	47.23	41.21	54.00	12.79

802.11n ht20

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5180 MHz										
5180.00	65.79	PK	H	33.59	3.58	0.00	102.96	96.94	N/A	N/A
5180.00	56.30	AV	H	33.59	3.58	0.00	93.47	87.45	N/A	N/A
5180.00	57.69	PK	V	33.59	3.58	0.00	94.86	88.84	N/A	N/A
5180.00	48.57	AV	V	33.59	3.58	0.00	85.74	79.72	N/A	N/A
5150.00	24.66	PK	H	33.54	3.56	0.00	61.76	55.74	74.00	18.26
5150.00	15.18	AV	H	33.54	3.56	0.00	52.28	46.26	54.00	7.74
10360.00	48.37	PK	H	38.17	6.29	36.85	55.98	49.96	68.20	18.24
15540.00	52.84	PK	H	38.06	8.85	39.04	60.71	54.69	74.00	19.31
15540.00	39.46	AV	H	38.06	8.85	39.04	47.33	41.31	54.00	12.69
Middle Channel: 5200 MHz										
5200.00	66.17	PK	H	33.62	3.60	0.00	103.39	97.37	N/A	N/A
5200.00	57.35	AV	H	33.62	3.60	0.00	94.57	88.55	N/A	N/A
5200.00	59.31	PK	V	33.62	3.60	0.00	96.53	90.51	N/A	N/A
5200.00	50.42	AV	V	33.62	3.60	0.00	87.64	81.62	N/A	N/A
10400.00	48.24	PK	H	38.18	6.32	36.86	55.88	49.86	68.20	18.34
15600.00	53.21	PK	H	38.00	8.83	39.09	60.95	54.93	74.00	19.07
15600.00	40.08	AV	H	38.00	8.83	39.09	47.82	41.8	54.00	12.20
High Channel: 5240 MHz										
5240.00	65.21	PK	H	33.68	3.52	0.00	102.41	96.39	N/A	N/A
5240.00	56.34	AV	H	33.68	3.52	0.00	93.54	87.52	N/A	N/A
5240.00	58.37	PK	V	33.68	3.52	0.00	95.57	89.55	N/A	N/A
5240.00	49.57	AV	V	33.68	3.52	0.00	86.77	80.75	N/A	N/A
5350.00	24.76	PK	H	33.86	3.52	0.00	62.14	56.12	74.00	17.88
5350.00	15.40	AV	H	33.86	3.52	0.00	52.78	46.76	54.00	7.24
10480.00	48.88	PK	H	38.20	6.37	36.88	56.57	50.55	68.20	17.65
15720.00	53.61	PK	H	37.88	8.79	39.18	61.10	55.08	74.00	18.92
15720.00	40.12	AV	H	37.88	8.79	39.18	47.61	41.59	54.00	12.41

802.11n ht40

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Extrapolation result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5190 MHz										
5190.00	62.66	PK	H	33.60	3.59	0.00	99.85	93.83	N/A	N/A
5190.00	53.84	AV	H	33.60	3.59	0.00	91.03	85.01	N/A	N/A
5190.00	57.00	PK	V	33.60	3.59	0.00	94.19	88.17	N/A	N/A
5190.00	48.61	AV	V	33.60	3.59	0.00	85.80	79.78	N/A	N/A
5150.00	32.28	PK	H	33.54	3.56	0.00	69.38	63.36	74.00	10.64
5150.00	17.53	AV	H	33.54	3.56	0.00	54.63	48.61	54.00	5.39
10380.00	46.77	PK	H	38.18	6.31	36.85	54.41	48.39	68.20	19.81
15570.00	51.22	PK	H	38.03	8.84	39.06	59.03	53.01	74.00	20.99
15570.00	39.39	AV	H	38.03	8.84	39.06	47.20	41.18	54.00	12.82
High Channel: 5230 MHz										
5230.00	63.29	PK	H	33.67	3.54	0.00	100.50	94.48	N/A	N/A
5230.00	53.61	AV	H	33.67	3.54	0.00	90.82	84.8	N/A	N/A
5230.00	58.35	PK	V	33.67	3.54	0.00	95.56	89.54	N/A	N/A
5230.00	48.57	AV	V	33.67	3.54	0.00	85.78	79.76	N/A	N/A
5350.00	25.27	PK	H	33.86	3.52	0.00	62.65	56.63	74.00	17.37
5350.00	15.97	AV	H	33.86	3.52	0.00	53.35	47.33	54.00	6.67
10460.00	49.24	PK	H	38.19	6.36	36.87	56.92	50.9	68.20	17.3
15690.00	50.07	PK	H	37.91	8.80	39.15	57.63	51.61	74.00	22.39
15690.00	38.87	AV	H	37.91	8.80	39.15	46.43	40.41	54.00	13.59

5250-5350MHz
802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5260 MHz										
5260.00	70.85	PK	H	33.72	3.49	0.00	108.06	102.04	N/A	N/A
5260.00	60.87	AV	H	33.72	3.49	0.00	98.08	92.06	N/A	N/A
5260.00	66.26	PK	V	33.72	3.49	0.00	103.47	97.45	N/A	N/A
5260.00	56.28	AV	V	33.72	3.49	0.00	93.49	87.47	N/A	N/A
5150.00	26.14	PK	H	33.54	3.56	0.00	63.24	57.22	74.00	16.78
5150.00	16.33	AV	H	33.54	3.56	0.00	53.43	47.41	54.00	6.59
10520.00	52.34	PK	H	38.21	6.39	36.89	60.05	54.03	68.20	14.17
15780.00	58.41	PK	H	37.82	8.76	39.22	65.77	59.75	74.00	14.25
15780.00	44.12	AV	H	37.82	8.76	39.22	51.48	45.46	54.00	8.54
Middle Channel: 5280 MHz										
5280.00	70.52	PK	H	33.75	3.45	0.00	107.72	101.7	N/A	N/A
5280.00	60.47	AV	H	33.75	3.45	0.00	97.67	91.65	N/A	N/A
5280.00	65.91	PK	V	33.75	3.45	0.00	103.11	97.09	N/A	N/A
5280.00	56.03	AV	V	33.75	3.45	0.00	93.23	87.21	N/A	N/A
10560.00	52.41	PK	H	38.24	6.40	36.90	60.15	54.13	68.20	14.07
15840.00	58.17	PK	H	37.76	8.74	39.27	65.40	59.38	74.00	14.62
15840.00	44.06	AV	H	37.76	8.74	39.27	51.29	45.27	54.00	8.73
High Channel: 5320 MHz										
5320.00	70.47	PK	H	33.81	3.45	0.00	107.73	101.71	N/A	N/A
5320.00	60.49	AV	H	33.81	3.45	0.00	97.75	91.73	N/A	N/A
5320.00	65.96	PK	V	33.81	3.45	0.00	103.22	97.2	N/A	N/A
5320.00	56.07	AV	V	33.81	3.45	0.00	93.33	87.31	N/A	N/A
5350.00	28.64	PK	H	33.86	3.52	0.00	66.02	60	74.00	14.00
5350.00	16.66	AV	H	33.86	3.52	0.00	54.04	48.02	54.00	5.98
10640.00	52.16	PK	H	38.28	6.43	36.93	59.94	53.92	74.00	20.08
10640.00	39.10	AV	H	38.28	6.43	36.93	46.88	40.86	54.00	13.14
15960.00	58.33	PK	H	37.64	8.70	39.36	65.31	59.29	74.00	14.71
15960.00	44.28	AV	H	37.64	8.70	39.36	51.26	45.24	54.00	8.76

802.11n ht20

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5260 MHz										
5260.00	70.70	PK	H	33.72	3.49	0.00	107.91	101.89	N/A	N/A
5260.00	60.77	AV	H	33.72	3.49	0.00	97.98	91.96	N/A	N/A
5260.00	66.23	PK	V	33.72	3.49	0.00	103.44	97.42	N/A	N/A
5260.00	56.17	AV	V	33.72	3.49	0.00	93.38	87.36	N/A	N/A
5150.00	26.54	PK	H	33.54	3.56	0.00	63.64	57.62	74.00	16.38
5150.00	16.31	AV	H	33.54	3.56	0.00	53.41	47.39	54.00	6.61
10520.00	53.03	PK	H	38.21	6.39	36.89	60.74	54.72	68.20	13.48
15780.00	58.02	PK	H	37.82	8.76	39.22	65.38	59.36	74.00	14.64
15780.00	43.92	AV	H	37.82	8.76	39.22	51.28	45.26	54.00	8.74
Middle Channel: 5280 MHz										
5280.00	70.87	PK	H	33.75	3.45	0.00	108.07	102.05	N/A	N/A
5280.00	60.90	AV	H	33.75	3.45	0.00	98.10	92.08	N/A	N/A
5280.00	66.14	PK	V	33.75	3.45	0.00	103.34	97.32	N/A	N/A
5280.00	56.20	AV	V	33.75	3.45	0.00	93.40	87.38	N/A	N/A
10560.00	53.21	PK	H	38.24	6.40	36.90	60.95	54.93	68.20	13.27
15840.00	58.44	PK	H	37.76	8.74	39.27	65.67	59.65	74.00	14.35
15840.00	45.10	AV	H	37.76	8.74	39.27	52.33	46.31	54.00	7.69
High Channel: 5320 MHz										
5320.00	70.92	PK	H	33.81	3.45	0.00	108.18	102.16	N/A	N/A
5320.00	61.02	AV	H	33.81	3.45	0.00	98.28	92.26	N/A	N/A
5320.00	66.30	PK	V	33.81	3.45	0.00	103.56	97.54	N/A	N/A
5320.00	56.22	AV	V	33.81	3.45	0.00	93.48	87.46	N/A	N/A
5350.00	27.75	PK	H	33.86	3.52	0.00	65.13	59.11	74.00	14.89
5350.00	16.03	AV	H	33.86	3.52	0.00	53.41	47.39	54.00	6.61
10640.00	54.01	PK	H	38.28	6.43	36.93	61.79	55.77	74.00	18.23
10640.00	41.11	AV	H	38.28	6.43	36.93	48.89	42.87	54.00	11.13
15960.00	58.30	PK	H	37.64	8.70	39.36	65.28	59.26	74.00	14.74
15960.00	45.07	AV	H	37.64	8.70	39.36	52.05	46.03	54.00	7.97

802.11n ht40

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5270 MHz										
5270.00	67.58	PK	H	33.73	3.47	0.00	104.78	98.76	N/A	N/A
5270.00	58.02	AV	H	33.73	3.47	0.00	95.22	89.2	N/A	N/A
5270.00	63.44	PK	V	33.73	3.47	0.00	100.64	94.62	N/A	N/A
5270.00	53.89	AV	V	33.73	3.47	0.00	91.09	85.07	N/A	N/A
5150.00	26.70	PK	H	33.54	3.56	0.00	63.80	57.78	74.00	16.22
5150.00	16.41	AV	H	33.54	3.56	0.00	53.51	47.49	54.00	6.51
10540.00	50.36	PK	H	38.22	6.40	36.89	58.09	52.07	68.20	16.13
15810.00	55.43	PK	H	37.79	8.75	39.25	62.72	56.7	74.00	17.30
15810.00	41.64	AV	H	37.79	8.75	39.25	48.93	42.91	54.00	11.09
High Channel: 5310 MHz										
5310.00	67.69	PK	H	33.80	3.43	0.00	104.92	98.9	N/A	N/A
5310.00	58.21	AV	H	33.80	3.43	0.00	95.44	89.42	N/A	N/A
5310.00	63.85	PK	V	33.80	3.43	0.00	101.08	95.06	N/A	N/A
5310.00	54.24	AV	V	33.80	3.43	0.00	91.47	85.45	N/A	N/A
5350.00	35.44	PK	H	33.86	3.52	0.00	72.82	66.8	74.00	7.20
5350.00	20.63	AV	H	33.86	3.52	0.00	58.01	51.99	54.00	2.01
10620.00	50.71	PK	H	38.27	6.43	36.92	58.49	52.47	74.00	21.53
10620.00	37.54	AV	H	38.27	6.43	36.92	45.32	39.3	54.00	14.70
15930.00	55.69	PK	H	37.67	8.71	39.34	62.73	56.71	74.00	17.29
15930.00	41.49	AV	H	37.67	8.71	39.34	48.53	42.51	54.00	11.49

5470-5725MHz:
802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5500 MHz										
5500.00	71.34	PK	H	34.10	3.54	0.00	108.98	102.96	N/A	N/A
5500.00	61.40	AV	H	34.10	3.54	0.00	99.04	93.02	N/A	N/A
5500.00	67.59	PK	V	34.10	3.54	0.00	105.23	99.21	N/A	N/A
5500.00	57.63	AV	V	34.10	3.54	0.00	95.27	89.25	N/A	N/A
5460.00	28.06	PK	H	34.04	3.57	0.00	65.67	59.65	74.00	14.35
5460.00	16.64	AV	H	34.04	3.57	0.00	54.25	48.23	54.00	5.77
11000.00	55.79	PK	H	38.50	6.57	37.06	63.80	57.78	74.00	16.22
11000.00	42.45	AV	H	38.50	6.57	37.06	50.46	44.44	54.00	9.56
16500.00	56.24	PK	H	38.20	8.63	39.30	63.77	57.75	68.20	10.45
Middle Channel: 5580 MHz										
5580.00	72.81	PK	H	34.13	3.56	0.00	110.50	104.48	N/A	N/A
5580.00	62.83	AV	H	34.13	3.56	0.00	100.52	94.5	N/A	N/A
5580.00	67.98	PK	V	34.13	3.56	0.00	105.67	99.65	N/A	N/A
5580.00	58.04	AV	V	34.13	3.56	0.00	95.73	89.71	N/A	N/A
11160.00	57.02	PK	H	38.66	6.58	37.16	65.10	59.08	74.00	14.92
11160.00	43.87	AV	H	38.66	6.58	37.16	51.95	45.93	54.00	8.07
16740.00	57.86	PK	H	39.16	8.67	39.05	66.64	60.62	68.20	7.58
High Channel: 5700 MHz										
5700.00	75.60	PK	H	34.18	3.68	0.00	113.46	107.44	N/A	N/A
5700.00	65.97	AV	H	34.18	3.68	0.00	103.83	97.81	N/A	N/A
5700.00	71.65	PK	V	34.18	3.68	0.00	109.51	103.49	N/A	N/A
5700.00	62.10	AV	V	34.18	3.68	0.00	99.96	93.94	N/A	N/A
5725.00	33.02	PK	H	34.19	3.69	0.00	70.90	64.88	68.20	3.32
11400.00	60.50	PK	H	38.90	6.59	37.30	68.69	62.67	74.00	11.33
11400.00	47.03	AV	H	38.90	6.59	37.30	55.22	49.2	54.00	4.80
17100.00	61.41	PK	H	40.78	8.75	38.70	72.24	66.22	68.20	1.98
Crossed Channel: 5720 MHz										
5720.00	75.17	PK	H	34.19	3.69	0.00	113.05	107.03	N/A	N/A
5720.00	65.20	AV	H	34.19	3.69	0.00	103.08	97.06	N/A	N/A
5720.00	71.21	PK	V	34.19	3.69	0.00	109.09	103.07	N/A	N/A
5720.00	61.30	AV	V	34.19	3.69	0.00	99.18	93.16	N/A	N/A
11440.00	59.87	PK	H	38.94	6.59	37.32	68.08	62.06	74.00	11.94
11440.00	46.69	AV	H	38.94	6.59	37.32	54.90	48.88	54.00	5.12
17160.00	60.73	PK	H	41.13	8.76	38.66	71.96	65.94	68.20	2.26

802.11n ht20

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5500 MHz										
5500.00	71.98	PK	H	34.10	3.54	0.00	109.62	103.6	N/A	N/A
5500.00	62.17	AV	H	34.10	3.54	0.00	99.81	93.79	N/A	N/A
5500.00	67.44	PK	V	34.10	3.54	0.00	105.08	99.06	N/A	N/A
5500.00	57.60	AV	V	34.10	3.54	0.00	95.24	89.22	N/A	N/A
5460.00	28.76	PK	H	34.04	3.57	0.00	66.37	60.35	74.00	13.65
5460.00	17.09	AV	H	34.04	3.57	0.00	54.70	48.68	54.00	5.32
11000.00	55.61	PK	V	38.50	6.57	37.06	63.62	57.6	74.00	16.40
11000.00	42.36	AV	V	38.50	6.57	37.06	50.37	44.35	54.00	9.65
16500.00	55.81	PK	V	38.20	8.63	39.30	63.34	57.32	68.20	10.88
Middle Channel: 5580 MHz										
5580.00	72.49	PK	H	34.13	3.56	0.00	110.18	104.16	N/A	N/A
5580.00	62.56	AV	H	34.13	3.56	0.00	100.25	94.23	N/A	N/A
5580.00	68.04	PK	V	34.13	3.56	0.00	105.73	99.71	N/A	N/A
5580.00	58.10	AV	V	34.13	3.56	0.00	95.79	89.77	N/A	N/A
11160.00	57.67	PK	H	38.66	6.58	37.16	65.75	59.73	74.00	14.27
11160.00	43.80	AV	H	38.66	6.58	37.16	51.88	45.86	54.00	8.14
16740.00	57.65	PK	H	39.16	8.67	39.05	66.43	60.41	68.20	7.79
High Channel: 5700 MHz										
5700.00	75.69	PK	H	34.18	3.68	0.00	113.55	107.53	N/A	N/A
5700.00	65.87	AV	H	34.18	3.68	0.00	103.73	97.71	N/A	N/A
5700.00	71.53	PK	V	34.18	3.68	0.00	109.39	103.37	N/A	N/A
5700.00	61.64	AV	V	34.18	3.68	0.00	99.50	93.48	N/A	N/A
5725.00	34.02	PK	H	34.19	3.69	0.00	71.90	65.88	68.20	2.32
11400.00	59.87	PK	H	38.90	6.59	37.30	68.06	62.04	74.00	11.96
11400.00	46.56	AV	H	38.90	6.59	37.30	54.75	48.73	54.00	5.27
17100.00	60.38	PK	H	40.78	8.75	38.70	71.21	65.19	68.20	3.01
Crossed Channel: 5720 MHz										
5720.00	74.57	PK	H	34.19	3.69	0.00	112.45	106.43	N/A	N/A
5720.00	64.53	AV	H	34.19	3.69	0.00	102.41	96.39	N/A	N/A
5720.00	71.00	PK	V	34.19	3.69	0.00	108.88	102.86	N/A	N/A
5720.00	61.14	AV	V	34.19	3.69	0.00	99.02	93	N/A	N/A
11440.00	59.60	PK	H	38.94	6.59	37.32	67.81	61.79	74.00	12.21
11440.00	46.28	AV	H	38.94	6.59	37.32	54.49	48.47	54.00	5.53
17160.00	60.32	PK	H	41.13	8.76	38.66	71.55	65.53	68.20	2.67

802.11n ht40

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5510 MHz										
5510.00	66.50	PK	H	34.10	3.54	0.00	104.14	98.12	N/A	N/A
5510.00	56.17	AV	H	34.10	3.54	0.00	93.81	87.79	N/A	N/A
5510.00	61.77	PK	V	34.10	3.54	0.00	99.41	93.39	N/A	N/A
5510.00	51.80	AV	V	34.10	3.54	0.00	89.44	83.42	N/A	N/A
5460.00	35.62	PK	H	34.04	3.57	0.00	73.23	67.21	74.00	6.79
5460.00	20.72	AV	H	34.04	3.57	0.00	58.33	52.31	54.00	1.69
11020.00	50.85	PK	H	38.52	6.57	37.07	58.87	52.85	74.00	21.15
11020.00	37.66	AV	H	38.52	6.57	37.07	45.68	39.66	54.00	14.34
16530.00	51.36	PK	H	38.32	8.64	39.27	59.05	53.03	68.20	15.17
Middle Channel: 5550 MHz										
5550.00	66.85	PK	H	34.12	3.56	0.00	104.53	98.51	N/A	N/A
5550.00	56.90	AV	H	34.12	3.56	0.00	94.58	88.56	N/A	N/A
5550.00	61.81	PK	V	34.12	3.56	0.00	99.49	93.47	N/A	N/A
5550.00	51.74	AV	V	34.12	3.56	0.00	89.42	83.4	N/A	N/A
11100.00	51.13	PK	H	38.60	6.57	37.12	59.18	53.16	74.00	20.84
11100.00	38.20	AV	H	38.60	6.57	37.12	46.25	40.23	54.00	13.77
16650.00	51.40	PK	H	38.80	8.66	39.14	59.72	53.7	68.20	14.50
High Channel: 5670 MHz										
5670.00	70.84	PK	H	34.17	3.65	0.00	108.66	102.64	N/A	N/A
5670.00	61.30	AV	H	34.17	3.65	0.00	99.12	93.1	N/A	N/A
5670.00	66.10	PK	V	34.17	3.65	0.00	103.92	97.9	N/A	N/A
5670.00	57.06	AV	V	34.17	3.65	0.00	94.88	88.86	N/A	N/A
5725.00	33.98	PK	H	34.19	3.69	0.00	71.86	65.84	68.20	2.36
11340.00	54.66	PK	H	38.84	6.58	37.26	62.82	56.8	74.00	17.20
11340.00	41.32	AV	H	38.84	6.58	37.26	49.48	43.46	54.00	10.54
17010.00	54.98	PK	H	40.26	8.72	38.76	65.20	59.18	68.20	9.02
Crossed Channel: 5710 MHz										
5710.00	70.56	PK	H	34.18	3.68	0.00	108.42	102.4	N/A	N/A
5710.00	61.30	AV	H	34.18	3.68	0.00	99.16	93.14	N/A	N/A
5710.00	66.54	PK	V	34.18	3.68	0.00	104.40	98.38	N/A	N/A
5710.00	57.33	AV	V	34.18	3.68	0.00	95.19	89.17	N/A	N/A
11420.00	54.32	PK	H	38.92	6.59	37.31	62.52	56.5	74.00	17.50
11420.00	41.06	AV	H	38.92	6.59	37.31	49.26	43.24	54.00	10.76
17130.00	55.21	PK	H	40.95	8.75	38.68	66.23	60.21	68.20	7.99

5725-5850MHz
802.11a

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Extrapolation result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	66.43	PK	H	34.20	3.69	0.00	104.32	98.3	N/A	N/A
5745.00	56.31	AV	H	34.20	3.69	0.00	94.20	88.18	N/A	N/A
5745.00	65.25	PK	V	34.20	3.69	0.00	103.14	97.12	N/A	N/A
5745.00	55.38	AV	V	34.20	3.69	0.00	93.27	87.25	N/A	N/A
5725.00	33.07	PK	H	34.19	3.69	0.00	70.95	64.93	122.20	57.27
5720.00	27.58	PK	H	34.19	3.69	0.00	65.46	59.44	110.80	51.36
5700.00	26.30	PK	H	34.18	3.68	0.00	64.16	58.14	105.20	47.06
5650.00	25.99	PK	H	34.16	3.63	0.00	63.78	57.76	68.20	10.44
11490.00	62.31	PK	H	38.99	6.59	37.35	70.54	64.52	74.00	9.48
11490.00	47.67	AV	H	38.99	6.59	37.35	55.90	49.88	54.00	4.12
17235.00	57.14	PK	H	41.56	8.78	38.61	68.87	62.85	68.20	5.35
Middle Channel: 5785 MHz										
5785.00	66.26	PK	H	34.21	3.71	0.00	104.18	98.16	N/A	N/A
5785.00	56.37	AV	H	34.21	3.71	0.00	94.29	88.27	N/A	N/A
5785.00	65.17	PK	V	34.21	3.71	0.00	103.09	97.07	N/A	N/A
5785.00	55.42	AV	V	34.21	3.71	0.00	93.34	87.32	N/A	N/A
11570.00	66.58	PK	H	39.00	6.61	37.44	74.75	68.73	74.00	5.27
11570.00	50.03	AV	H	39.00	6.61	37.44	58.20	52.18	54.00	1.82
17355.00	52.46	PK	H	42.26	8.81	38.52	65.01	58.99	68.20	9.21
High Channel: 5825 MHz										
5825.00	65.61	PK	H	34.23	3.73	0.00	103.57	97.55	N/A	N/A
5825.00	55.96	AV	H	34.23	3.73	0.00	93.92	87.9	N/A	N/A
5825.00	64.53	PK	V	34.23	3.73	0.00	102.49	96.47	N/A	N/A
5825.00	54.34	AV	V	34.23	3.73	0.00	92.30	86.28	N/A	N/A
5850.00	25.15	PK	H	34.24	3.75	0.00	63.14	57.12	122.20	65.08
5855.00	26.04	PK	H	34.24	3.75	0.00	64.03	58.01	110.80	52.79
5875.00	26.75	PK	H	34.25	3.77	0.00	64.77	58.75	105.20	46.45
5925.00	26.26	PK	H	34.27	3.80	0.00	64.33	58.31	68.20	9.89
11650.00	66.43	PK	H	39.00	6.64	37.53	74.54	68.52	74.00	5.48
11650.00	50.87	AV	H	39.00	6.64	37.53	58.98	52.96	54.00	1.04
17475.00	52.63	PK	H	42.96	8.84	38.44	65.99	59.97	68.20	8.23

802.11n ht20

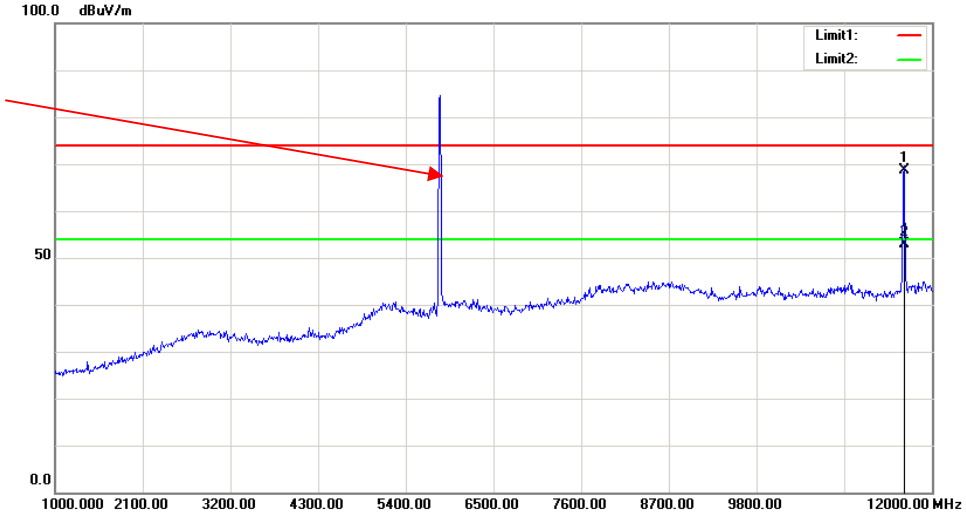
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	68.73	PK	H	34.20	3.69	0.00	106.62	100.6	N/A	N/A
5745.00	57.51	AV	H	34.20	3.69	0.00	95.40	89.38	N/A	N/A
5745.00	67.80	PK	V	34.20	3.69	0.00	105.69	99.67	N/A	N/A
5745.00	56.48	AV	V	34.20	3.69	0.00	94.37	88.35	N/A	N/A
5725.00	35.28	PK	H	34.19	3.69	0.00	73.16	67.14	122.20	55.06
5720.00	28.86	PK	H	34.19	3.69	0.00	66.74	60.72	110.80	50.08
5700.00	27.06	PK	H	34.18	3.68	0.00	64.92	58.9	105.20	46.30
5650.00	26.56	PK	H	34.16	3.63	0.00	64.35	58.33	68.20	9.87
11490.00	67.60	PK	H	38.99	6.59	37.35	75.83	69.81	74.00	4.19
11490.00	50.35	AV	H	38.99	6.59	37.35	58.58	52.56	54.00	1.44
17235.00	52.36	PK	H	41.56	8.78	38.61	64.09	58.07	68.20	10.13
Middle Channel: 5785 MHz										
5785.00	68.49	PK	H	34.21	3.71	0.00	106.41	100.39	N/A	N/A
5785.00	57.02	AV	H	34.21	3.71	0.00	94.94	88.92	N/A	N/A
5785.00	67.45	PK	V	34.21	3.71	0.00	105.37	99.35	N/A	N/A
5785.00	56.38	AV	V	34.21	3.71	0.00	94.30	88.28	N/A	N/A
11570.00	64.05	PK	H	39.00	6.61	37.44	72.22	66.2	74.00	7.80
11570.00	46.84	AV	H	39.00	6.61	37.44	55.01	48.99	54.00	5.01
17355.00	53.74	PK	H	42.26	8.81	38.52	66.29	60.27	68.20	7.93
High Channel: 5825 MHz										
5825.00	66.25	PK	H	34.23	3.73	0.00	104.21	98.19	N/A	N/A
5825.00	55.37	AV	H	34.23	3.73	0.00	93.33	87.31	N/A	N/A
5825.00	65.27	PK	V	34.23	3.73	0.00	103.23	97.21	N/A	N/A
5825.00	54.74	AV	V	34.23	3.73	0.00	92.70	86.68	N/A	N/A
5850.00	28.45	PK	H	34.24	3.75	0.00	66.44	60.42	122.20	61.78
5855.00	27.18	PK	H	34.24	3.75	0.00	65.17	59.15	110.80	51.65
5875.00	27.51	PK	H	34.25	3.77	0.00	65.53	59.51	105.20	45.69
5925.00	26.89	PK	H	34.27	3.80	0.00	64.96	58.94	68.20	9.26
11650.00	66.98	PK	H	39.00	6.64	37.53	75.09	69.07	74.00	4.93
11650.00	49.82	AV	H	39.00	6.64	37.53	57.93	51.91	54.00	2.09
17475.00	54.64	PK	H	42.96	8.84	38.44	68.00	61.98	68.20	6.22

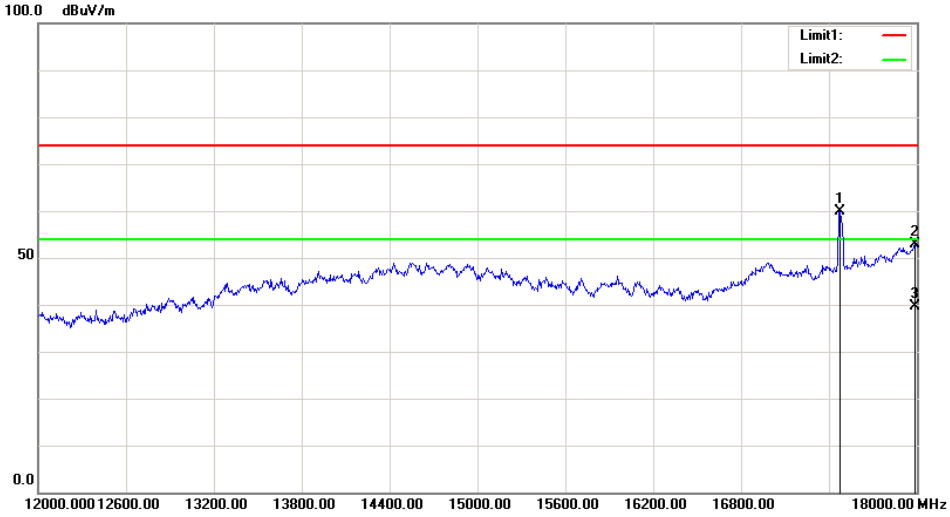
802.11n ht40

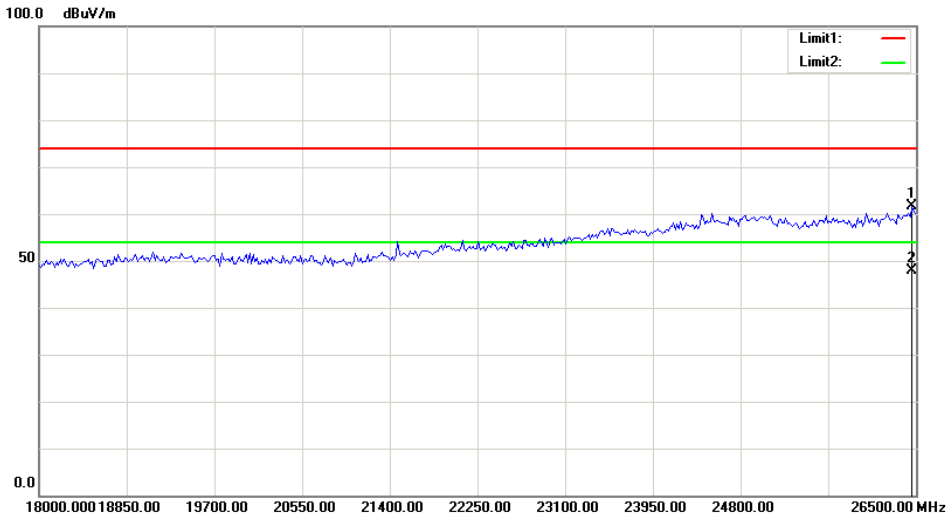
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Extrapolation result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5755 MHz										
5755.00	65.61	PK	H	34.20	3.70	0.00	103.51	97.49	N/A	N/A
5755.00	54.65	AV	H	34.20	3.70	0.00	92.55	86.53	N/A	N/A
5755.00	59.88	PK	V	34.20	3.70	0.00	97.78	91.76	N/A	N/A
5755.00	48.59	AV	V	34.20	3.70	0.00	86.49	80.47	N/A	N/A
5725.00	36.10	PK	H	34.19	3.69	0.00	73.98	67.96	122.20	54.24
5720.00	35.23	PK	H	34.19	3.69	0.00	73.11	67.09	110.80	43.71
5700.00	26.57	PK	H	34.18	3.68	0.00	64.43	58.41	105.20	46.79
5650.00	26.00	PK	H	34.16	3.63	0.00	63.79	57.77	68.20	10.43
11510.00	52.83	PK	H	39.00	6.59	37.37	61.05	55.03	74.00	18.97
11510.00	37.87	AV	H	39.00	6.59	37.37	46.09	40.07	54.00	13.93
17265.00	49.01	PK	H	41.74	8.79	38.58	60.96	54.94	68.20	13.26
High Channel: 5795 MHz										
5795.00	64.72	PK	H	34.22	3.71	0.00	102.65	96.63	N/A	N/A
5795.00	53.48	AV	H	34.22	3.71	0.00	91.41	85.39	N/A	N/A
5795.00	58.55	PK	V	34.22	3.71	0.00	96.48	90.46	N/A	N/A
5795.00	47.69	AV	V	34.22	3.71	0.00	85.62	79.6	N/A	N/A
5850.00	27.12	PK	H	34.24	3.75	0.00	65.11	59.09	122.20	63.11
5855.00	26.68	PK	H	34.24	3.75	0.00	64.67	58.65	110.80	52.15
5875.00	26.66	PK	H	34.25	3.77	0.00	64.68	58.66	105.20	46.54
5925.00	25.09	PK	H	34.27	3.80	0.00	63.16	57.14	68.20	11.06
11590.00	51.97	PK	H	39.00	6.62	37.46	60.13	54.11	74.00	19.89
11590.00	38.41	AV	H	39.00	6.62	37.46	46.57	40.55	54.00	13.45
17385.00	47.26	PK	H	42.43	8.82	38.50	60.01	53.99	68.20	14.21

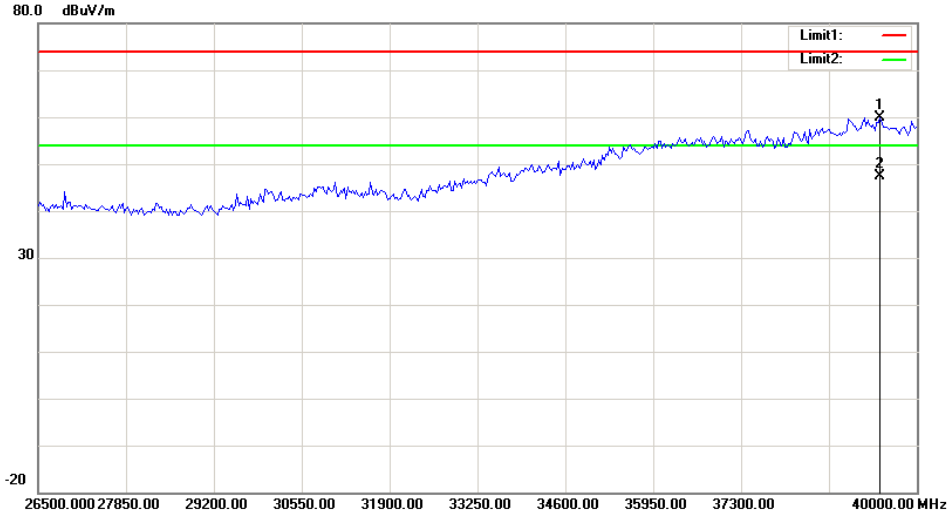
Test Plots(For worst mode 802.11a 5825MHz)
Horizontal

Fundamental Test with Band Rejection Filter



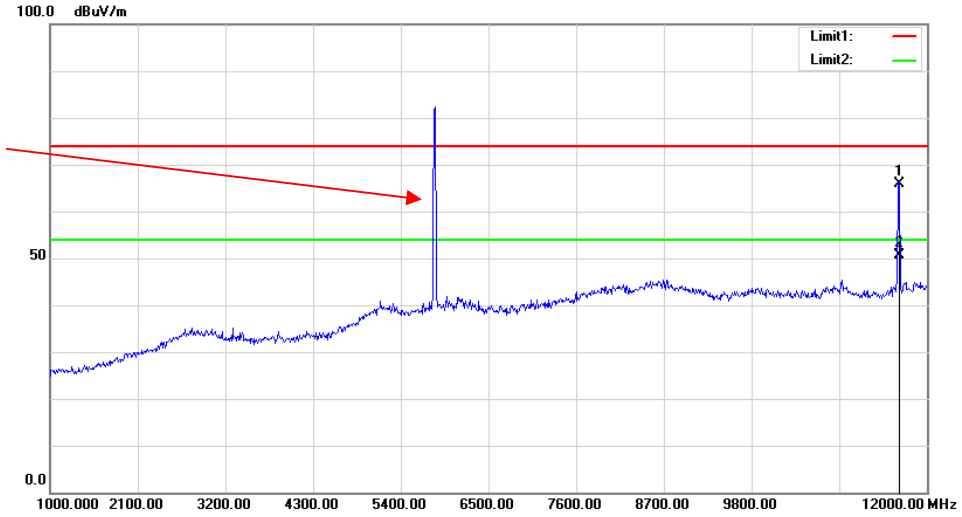


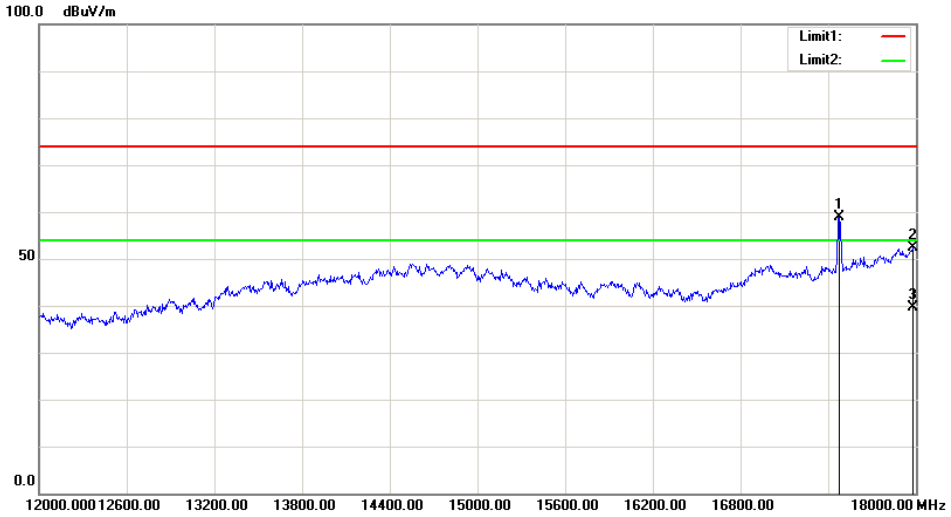


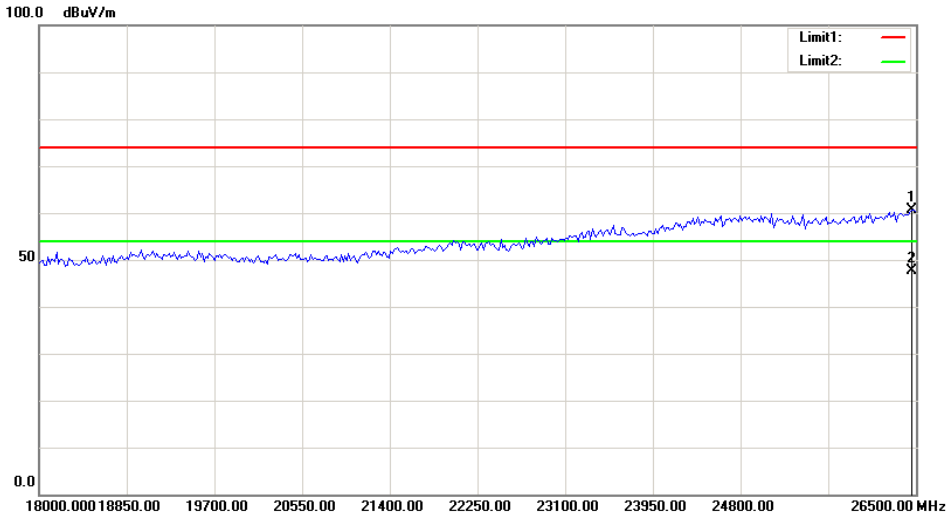


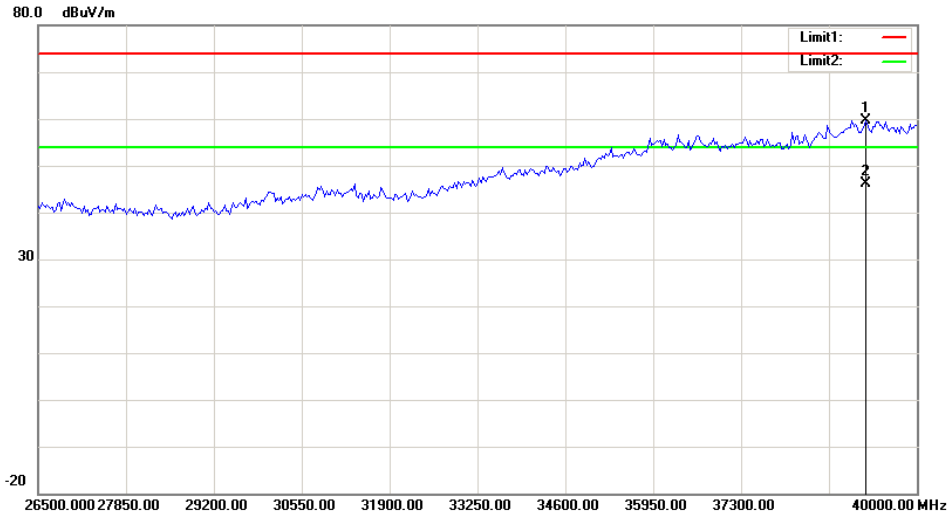
Vertical

Fundamental Test with Band Rejection Filter






100.0 dBuV/m
Limit1:
Limit2:
50
0.0
1
2
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz


80.0 dBuV/m
Limit1:
Limit2:
30
-20
1
2
26500.000 27850.00 29200.00 30550.00 31900.00 33250.00 34600.00 35950.00 37300.00 40000.00 MHz

FCC §15.407(a)(e) & RSS-247 CLAUSE 6.2,RSS-Gen CLAUSE 6.7– EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

Applicable Standard

15.407(a) (e), RSS-247 Clause 6.2 and RSS-Gen Clause 6.7

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2019-01-04	2020-01-04
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	21.4~25.6°C
Relative Humidity:	38~73 %
ATM Pressure:	100.1~102.1kPa

The testing was performed by Blake Yang,Elema Lei on 2019-01-08&2019-03-14.

Test Result: Pass.

Please refer to the following tables and plots.

Test mode: Transmitting

5150-5250MHz:

Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	5180	20.120	17.200
	5200	20.120	17.200
	5240	20.040	17.200
802.11n ht20	5180	20.281	18.000
	5200	20.281	18.080
	5240	20.281	18.080
802.11n ht40	5190	39.760	36.480
	5230	39.760	36.480

5250-5350MHz:

Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	5260	25.090	17.200
	5280	24.369	17.120
	5320	23.246	17.120
802.11n ht20	5260	25.010	17.920
	5280	25.010	18.000
	5320	27.735	18.080
802.11n ht40	5270	46.653	36.480
	5310	41.363	36.640

5470-5725MHz:

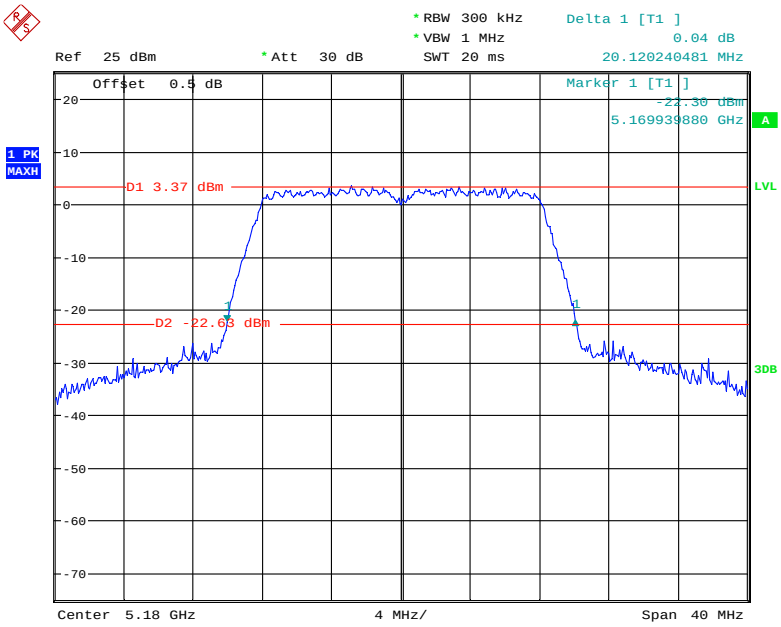
Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	5500	20.762	17.040
	5580	25.731	17.200
	5700	30.862	17.760
	5720	30.533	17.600
802.11n ht20	5500	20.120	17.920
	5580	24.289	18.000
	5700	31.743	18.960
	5720	32.867	18.600
802.11n ht40	5510	40.401	36.480
	5550	40.240	36.480
	5670	57.395	36.640
	5710	61.067	36.667

5725-5850MHz:

Mode	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	5745	15.311	17.040
	5785	15.150	16.880
	5825	15.551	16.960
802.11n ht20	5745	15.471	17.840
	5785	15.230	17.840
	5825	15.872	17.840
802.11n ht40	5755	36.072	36.640
	5795	35.912	36.640

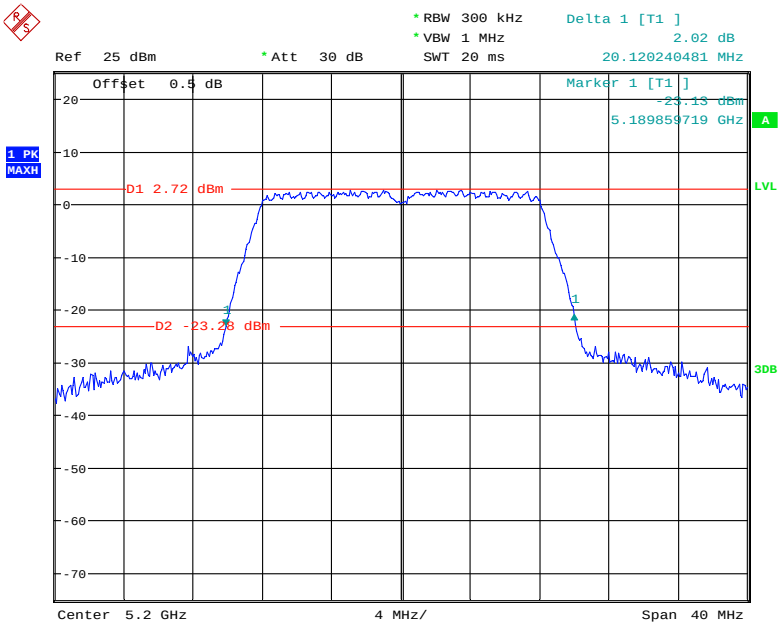
5150-5250MHz:
26dB Emission Bandwidth:

802.11a Low Channel



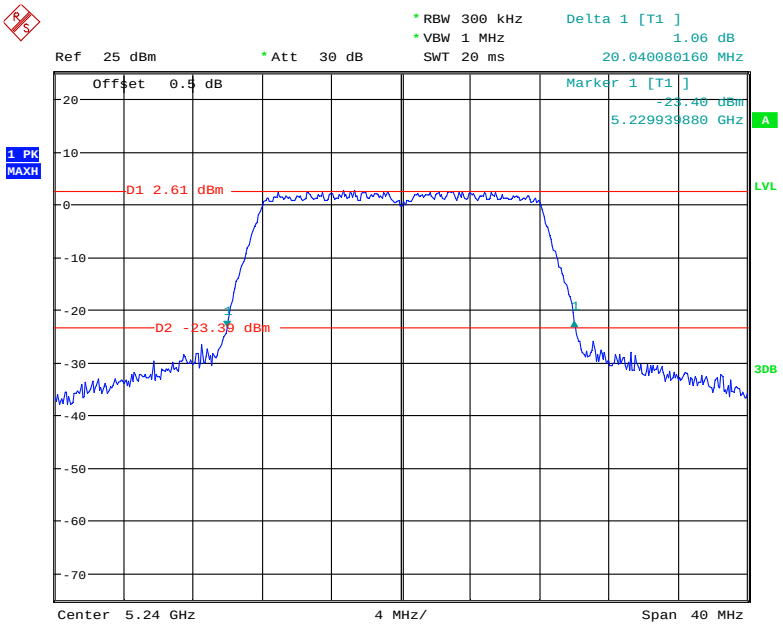
Date: 8.JAN.2019 18:12:44

802.11a Middle Channel



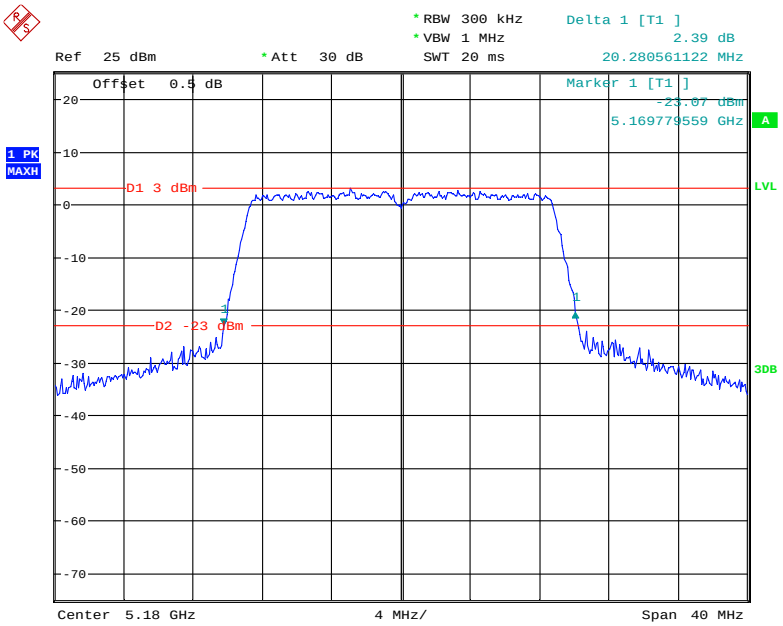
Date: 8.JAN.2019 18:17:55

802.11a High Channel



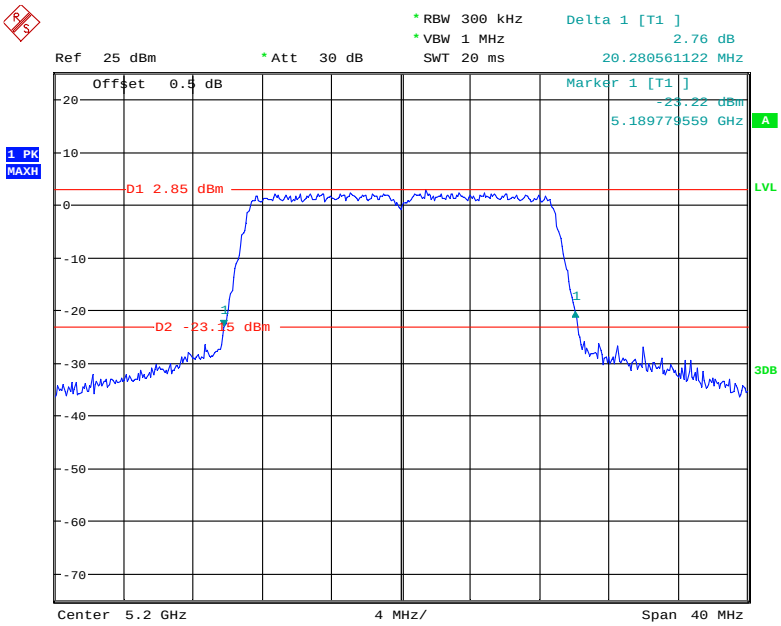
Date: 8.JAN.2019 18:15:19

802.11n ht20 Low Channel



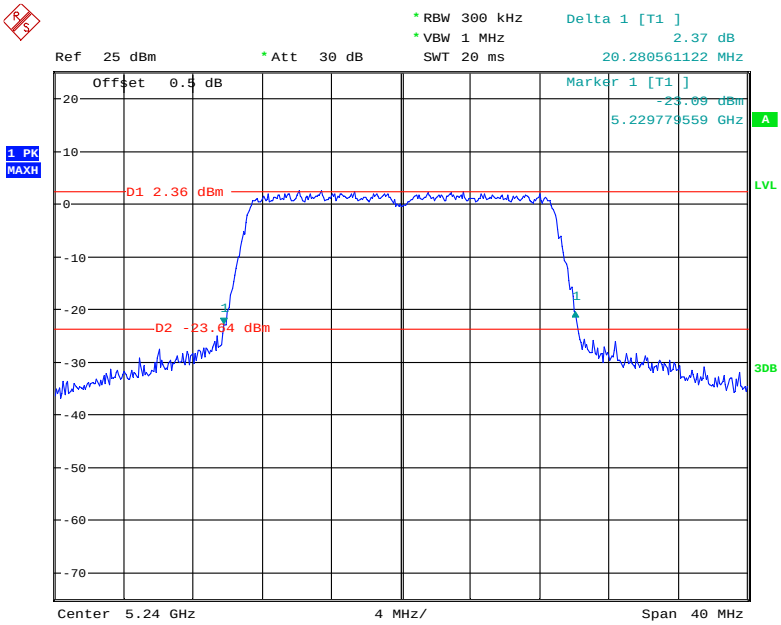
Date: 8.JAN.2019 18:26:09

802.11n ht20 Middle Channel



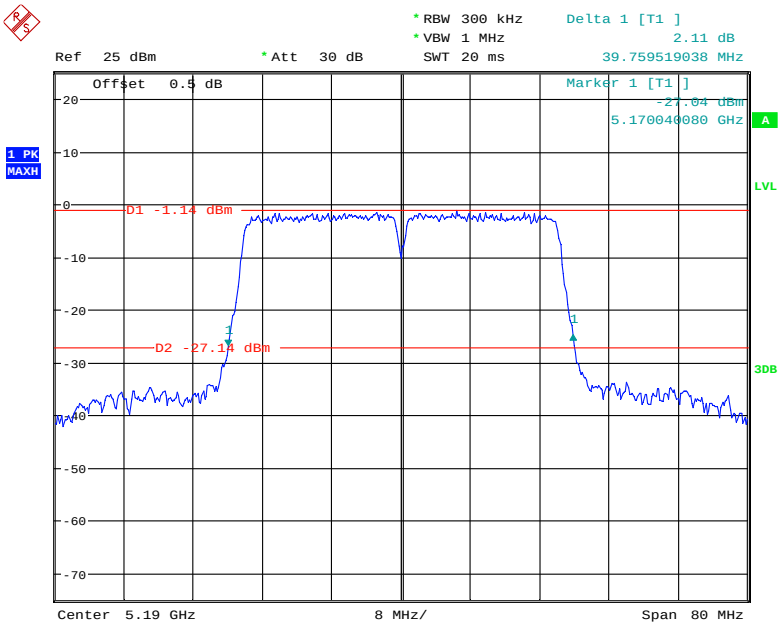
Date: 8.JAN.2019 18:23:46

802.11n ht20 High Channel



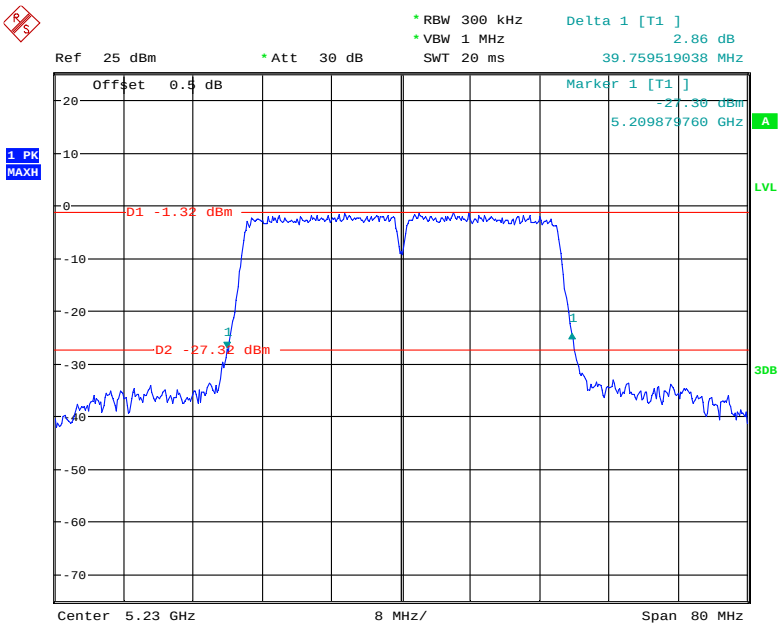
Date: 8.JAN.2019 18:28:55

802.11n ht40 Low Channel



Date: 8.JAN.2019 18:36:09

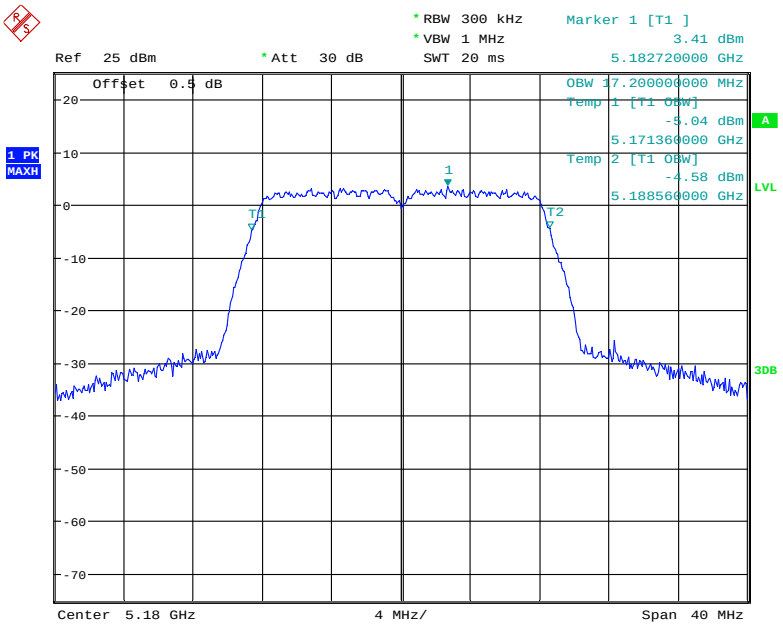
802.11n ht40 High Channel



Date: 8.JAN.2019 18:32:01

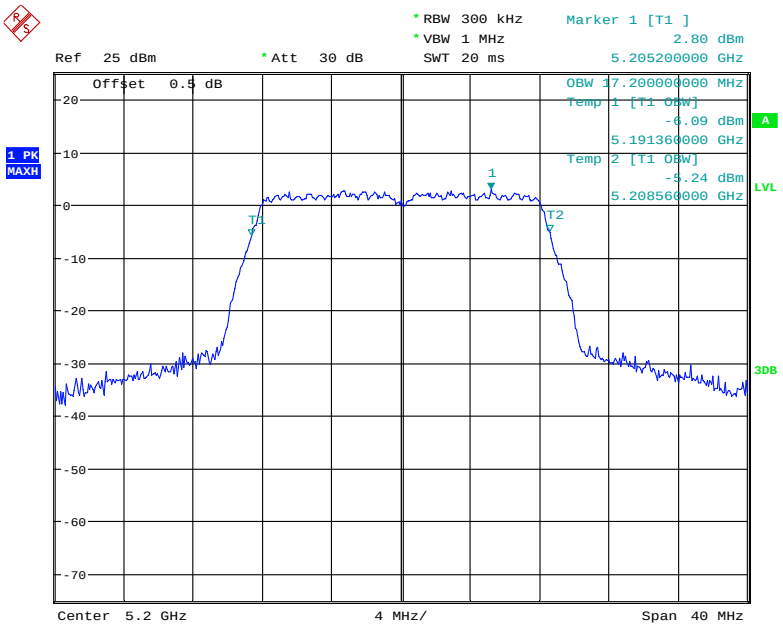
99% Occupied Bandwidth:
5150-5250MHz:

802.11a Low Channel



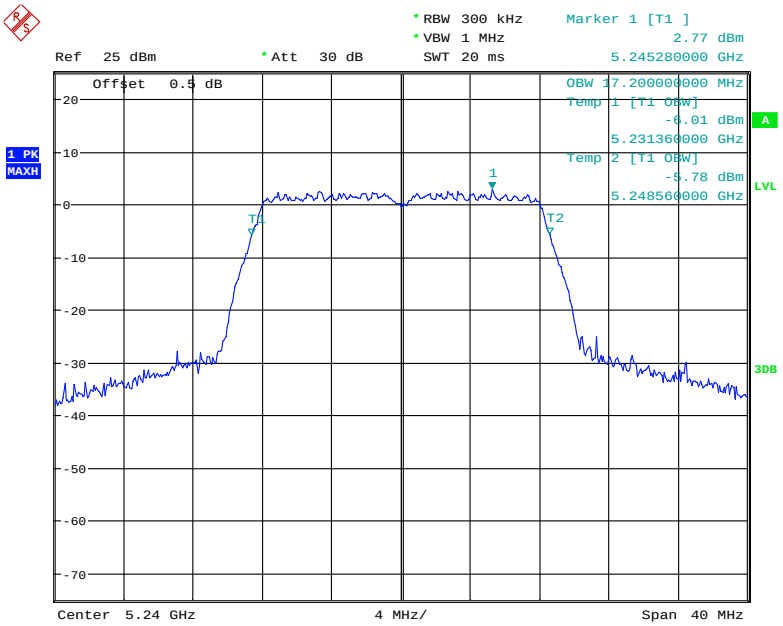
Date: 8.JAN.2019 18:13:14

802.11a Middle Channel



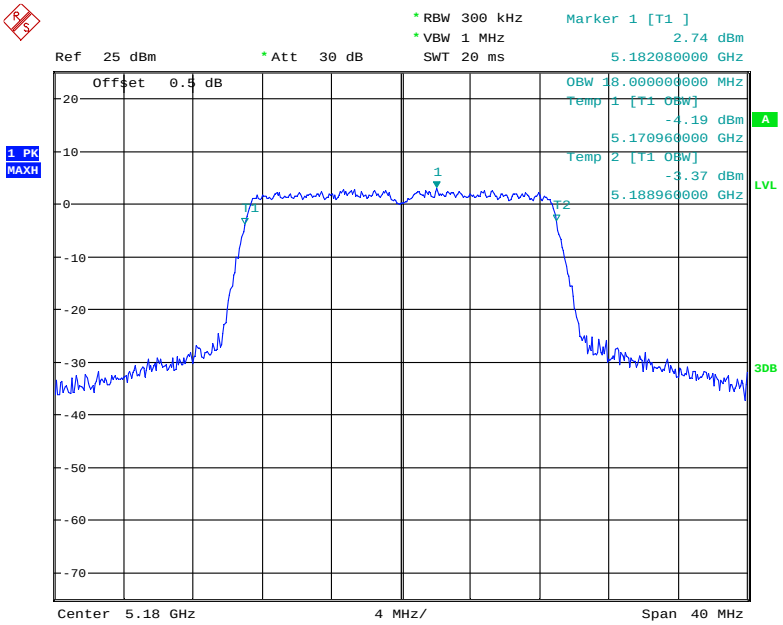
Date: 8.JAN.2019 18:18:24

802.11a High Channel



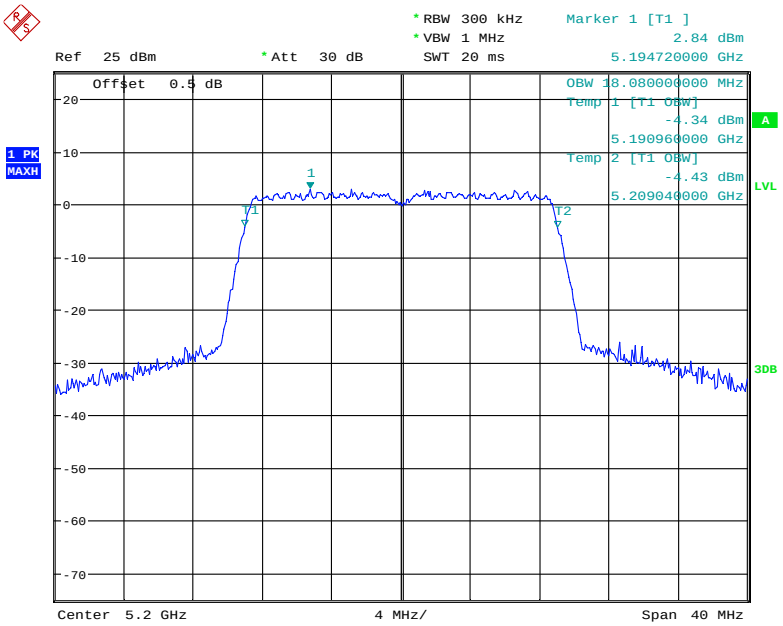
Date: 8.JAN.2019 18:15:52

802.11n ht20 Low Channel



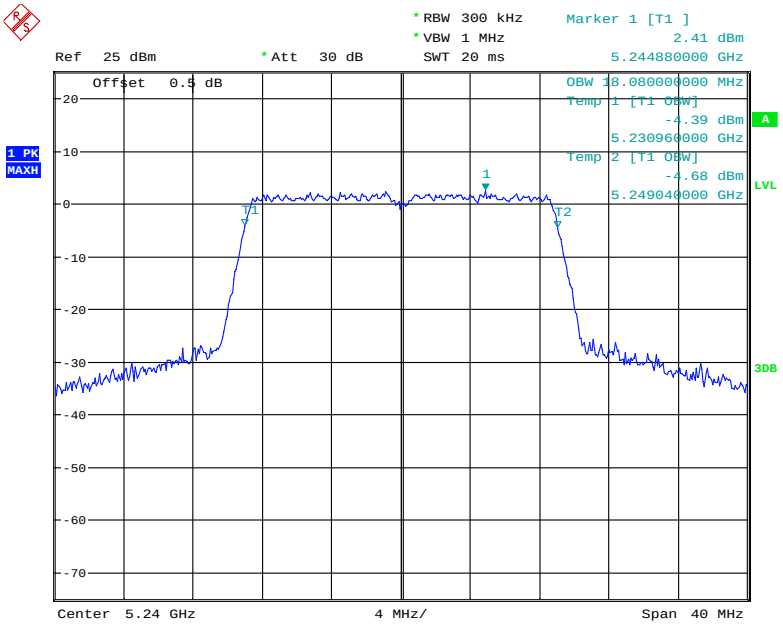
Date: 8.JAN.2019 18:26:39

802.11n ht20 Middle Channel



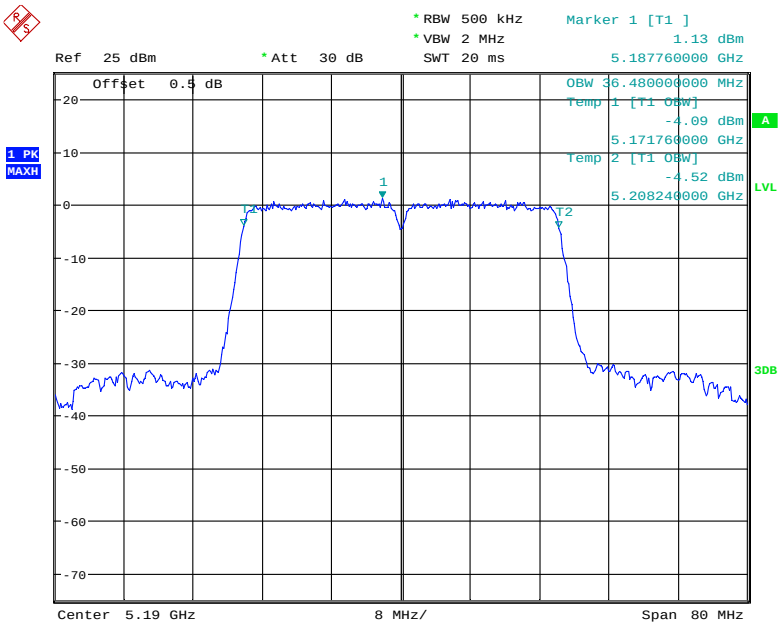
Date: 8.JAN.2019 18:24:26

802.11n ht20 High Channel



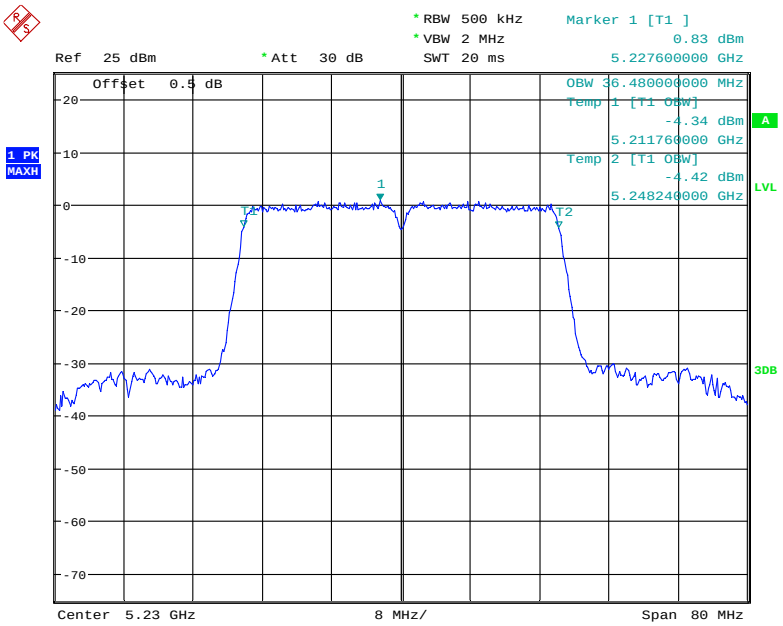
Date: 8.JAN.2019 18:29:28

802.11n ht40 Low Channel



Date: 8.JAN.2019 18:36:32

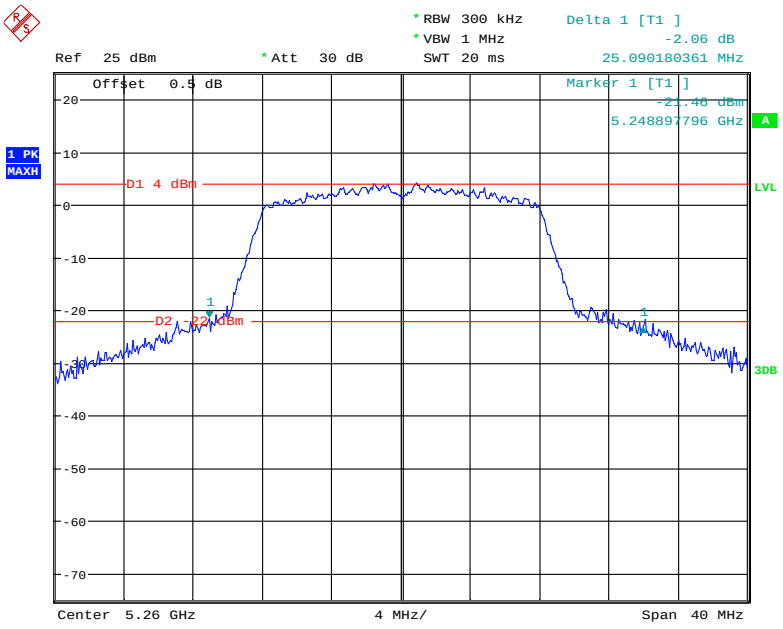
802.11n ht40 High Channel



Date: 8.JAN.2019 18:32:23

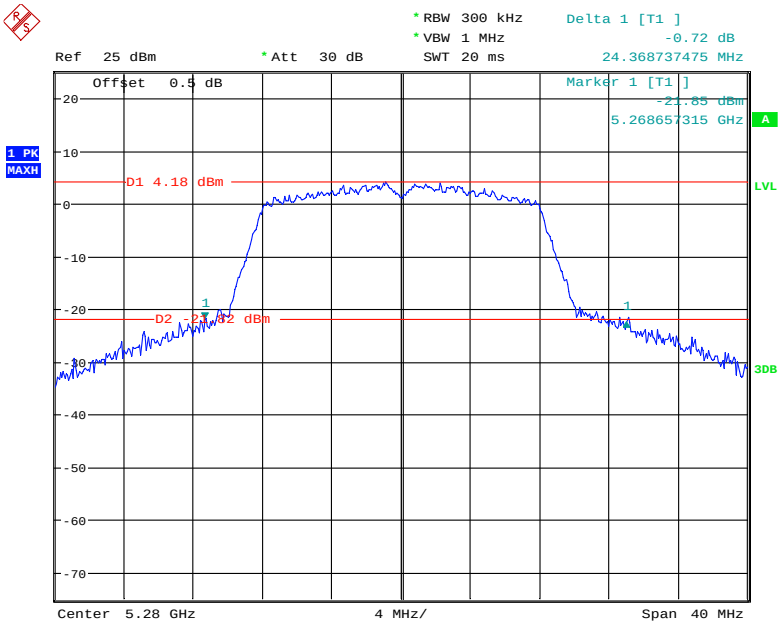
5250-5350MHz:
26dB Emission Bandwidth:

802.11a Low Channel



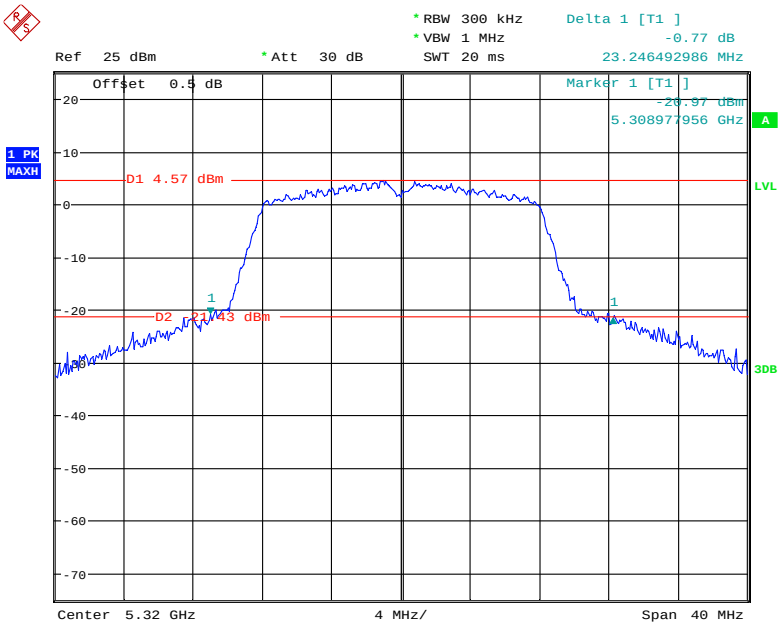
Date: 16.MAR.2019 09:34:45

802.11a Middle Channel



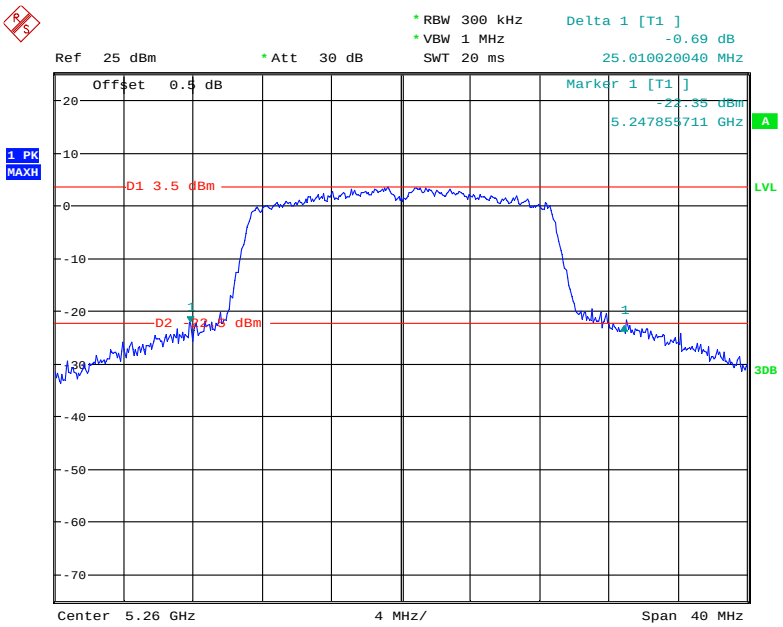
Date: 14.MAR.2019 11:23:02

802.11a High Channel



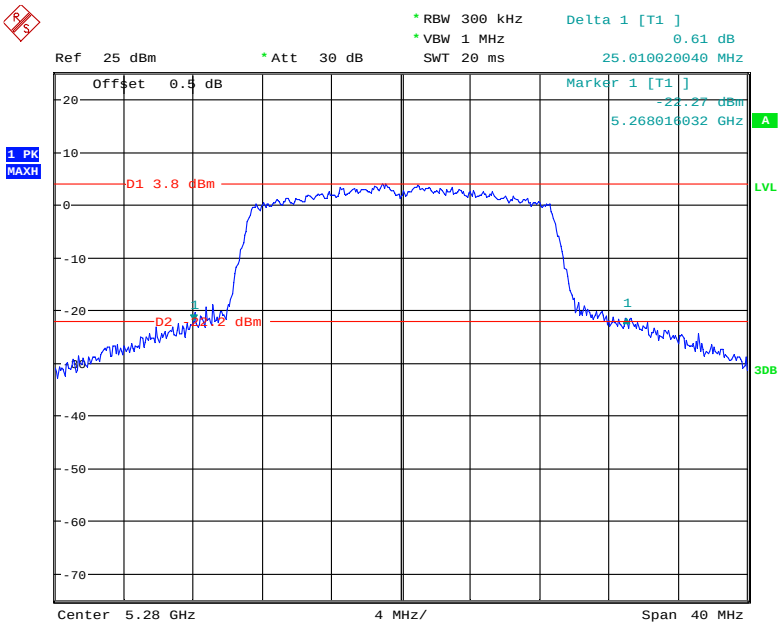
Date: 14.MAR.2019 11:32:08

802.11n ht20 Low Channel



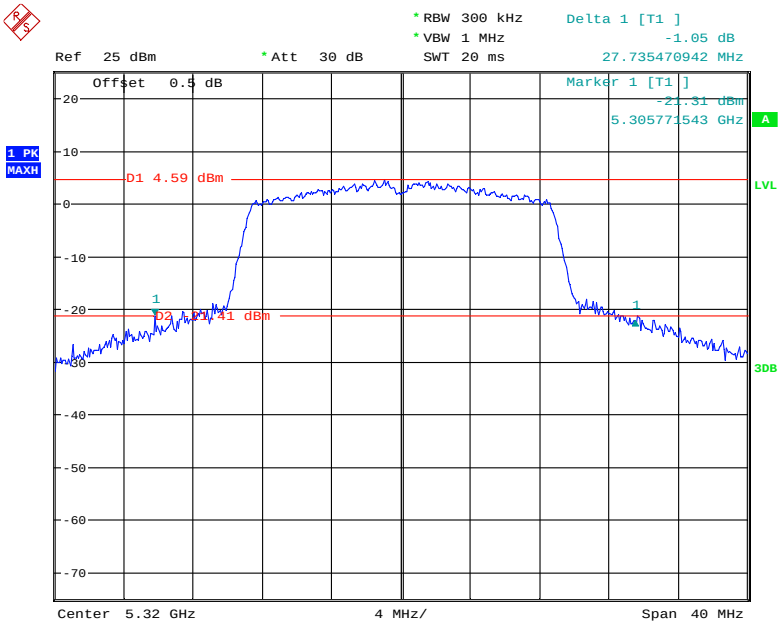
Date: 14.MAR.2019 11:37:43

802.11n ht20 Middle Channel



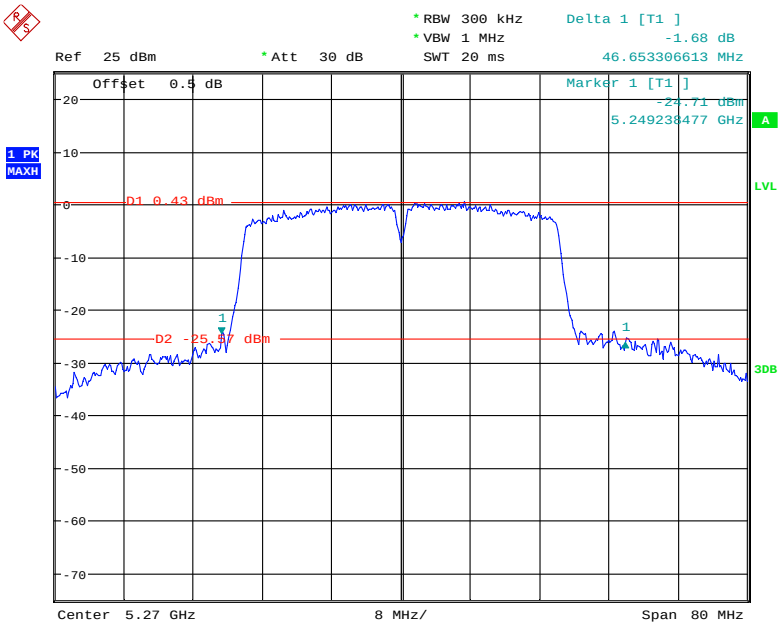
Date: 14.MAR.2019 11:40:12

802.11n ht20 High Channel



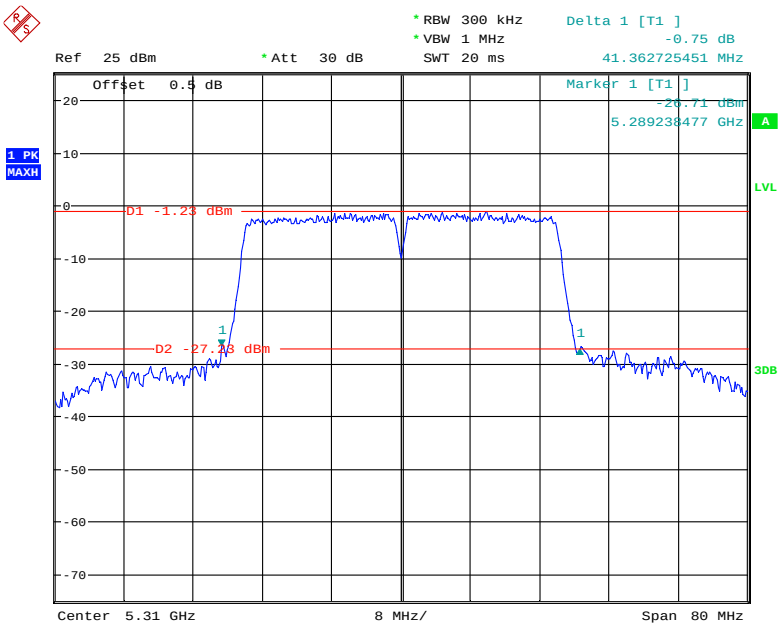
Date: 14.MAR.2019 11:43:10

802.11n ht40 Low Channel



Date: 14.MAR.2019 11:47:30

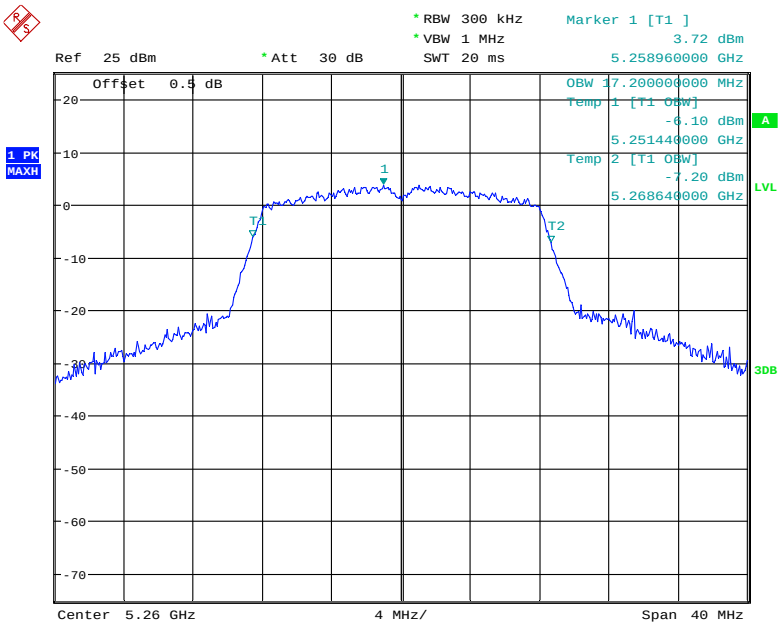
802.11n ht40 High Channel



Date: 14.MAR.2019 11:49:30

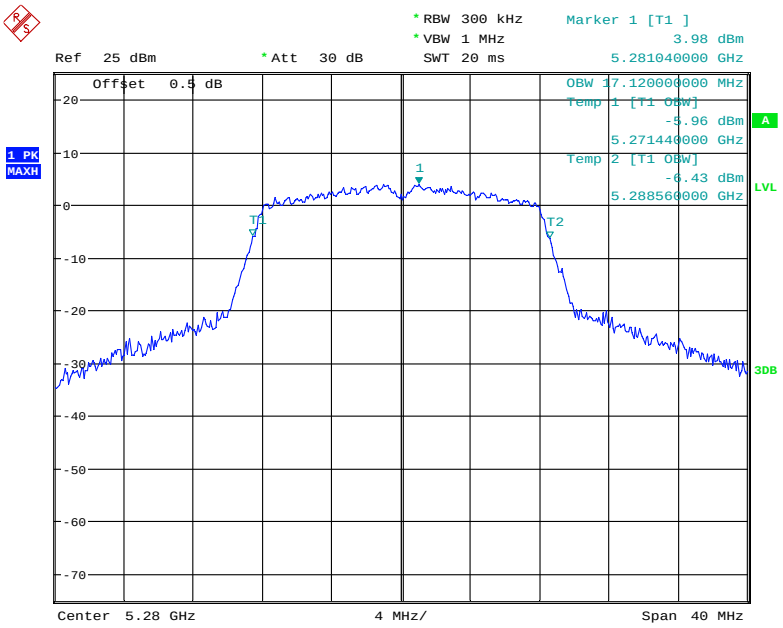
99% Occupied Bandwidth:

802.11a Low Channel



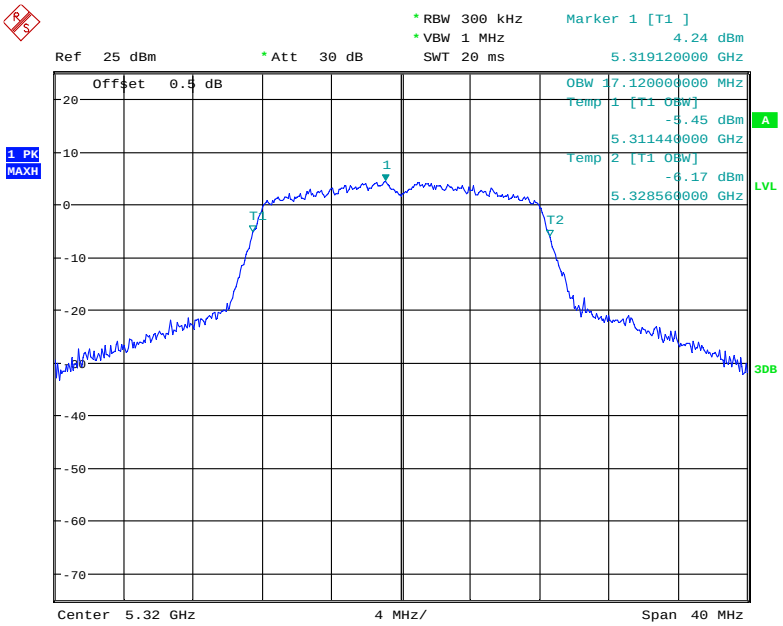
Date: 16.MAR.2019 09:35:43

802.11a Middle Channel



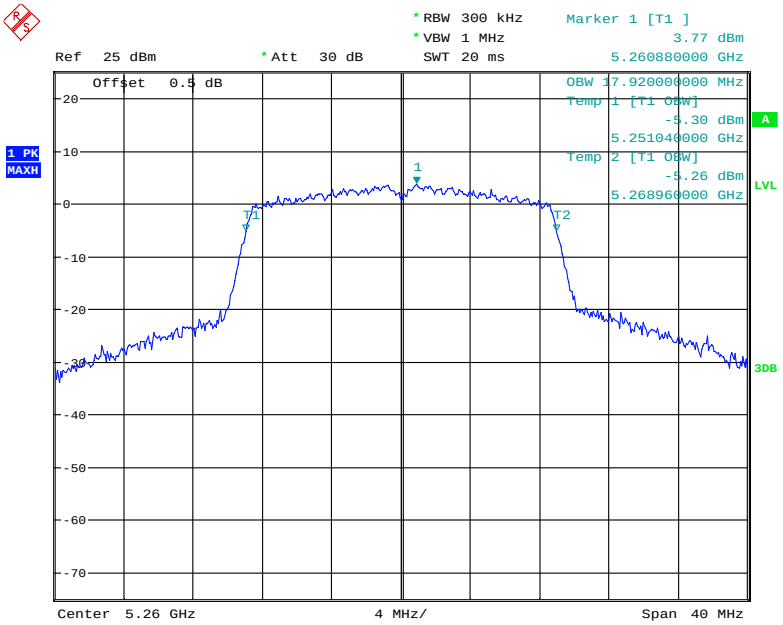
Date: 14.MAR.2019 11:24:13

802.11a High Channel



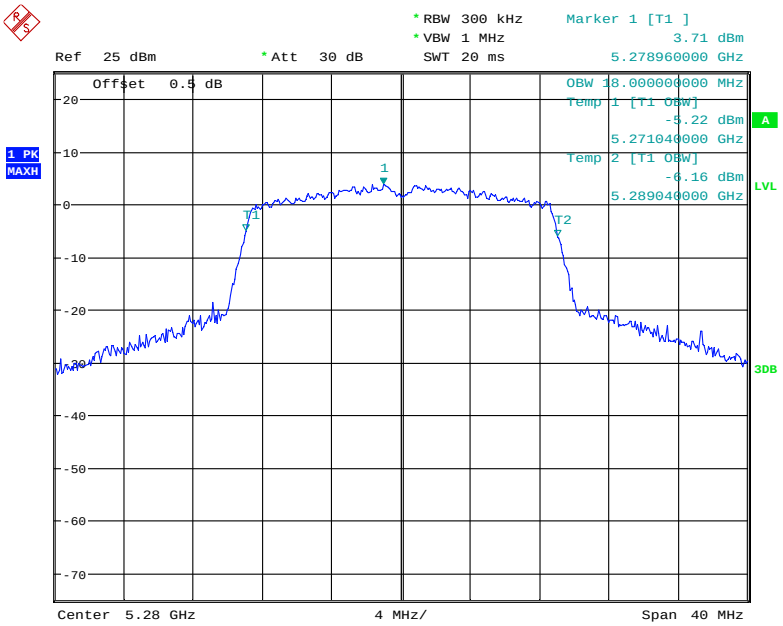
Date: 14.MAR.2019 11:33:20

802.11n ht20 Low Channel



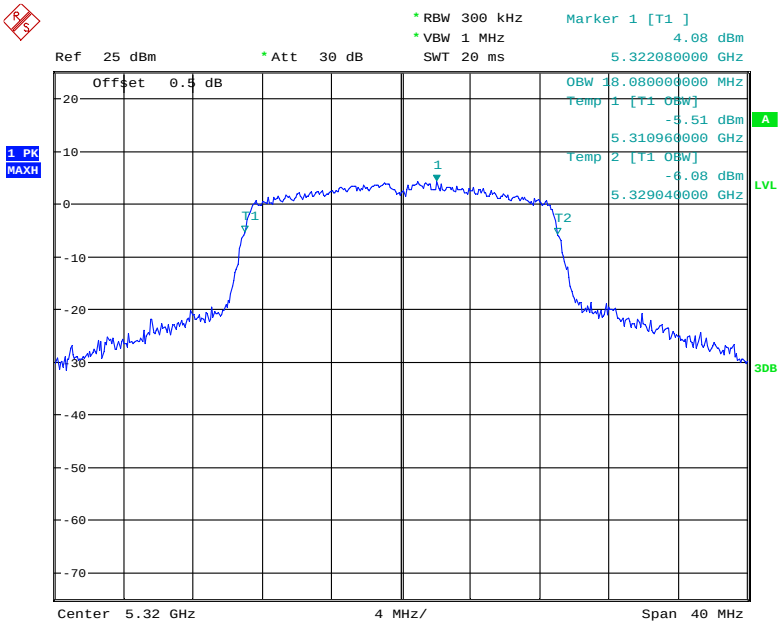
Date: 14.MAR.2019 11:38:42

802.11n ht20 Middle Channel



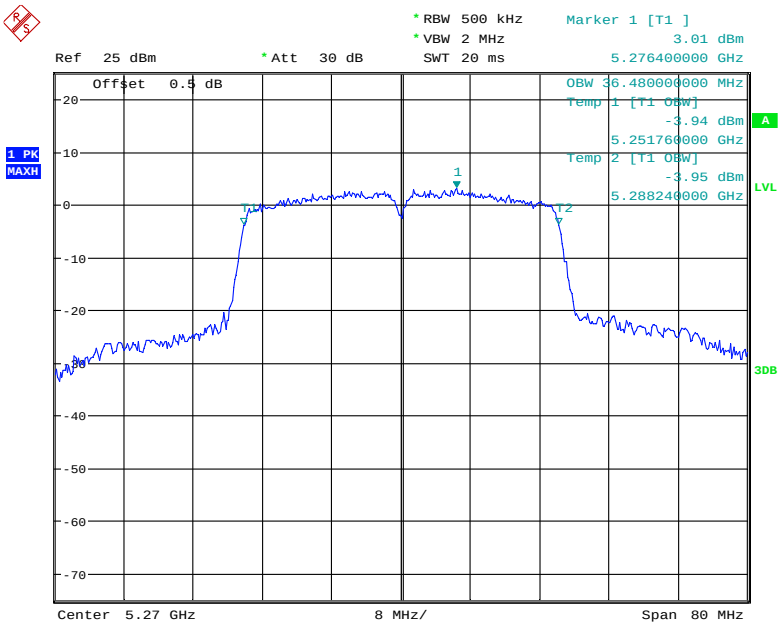
Date: 14.MAR.2019 11:41:14

802.11n ht20 High Channel



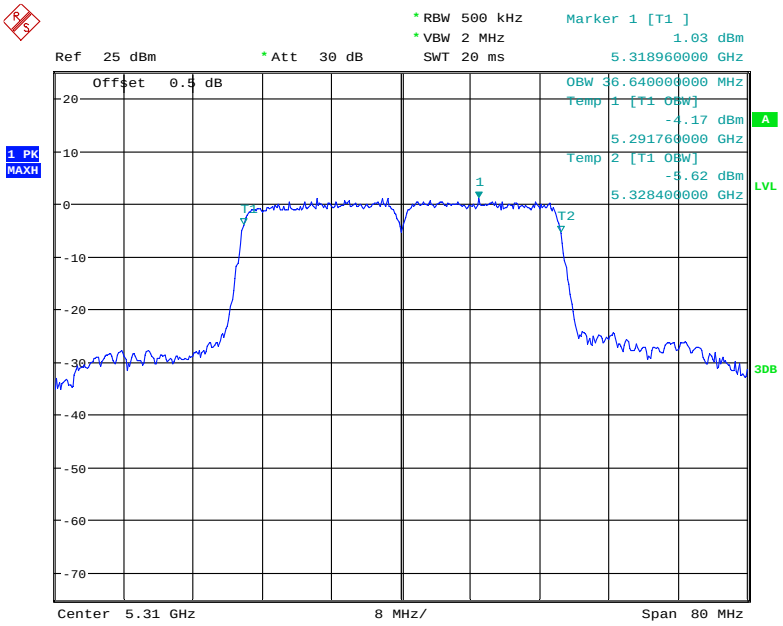
Date: 14.MAR.2019 11:44:08

802.11n ht40 Low Channel



Date: 14.MAR.2019 11:48:22

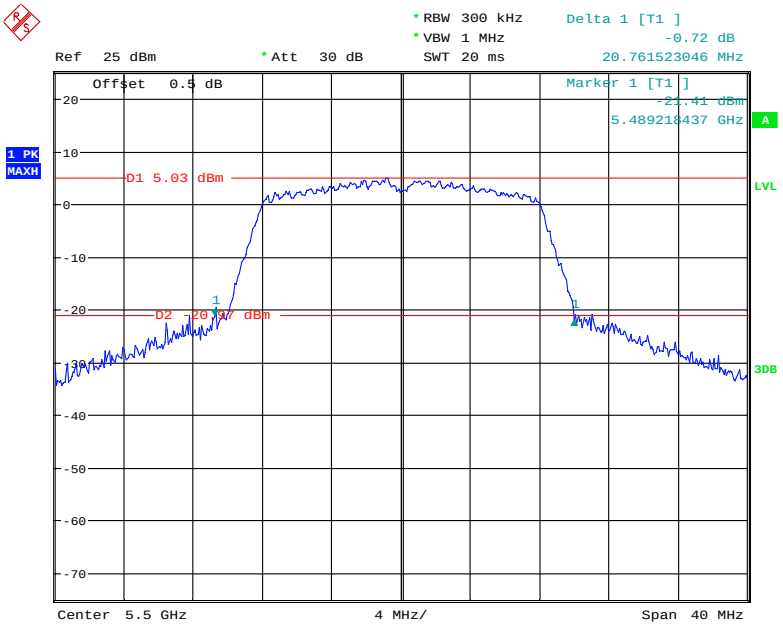
802.11n ht40 High Channel



Date: 14.MAR.2019 11:50:14

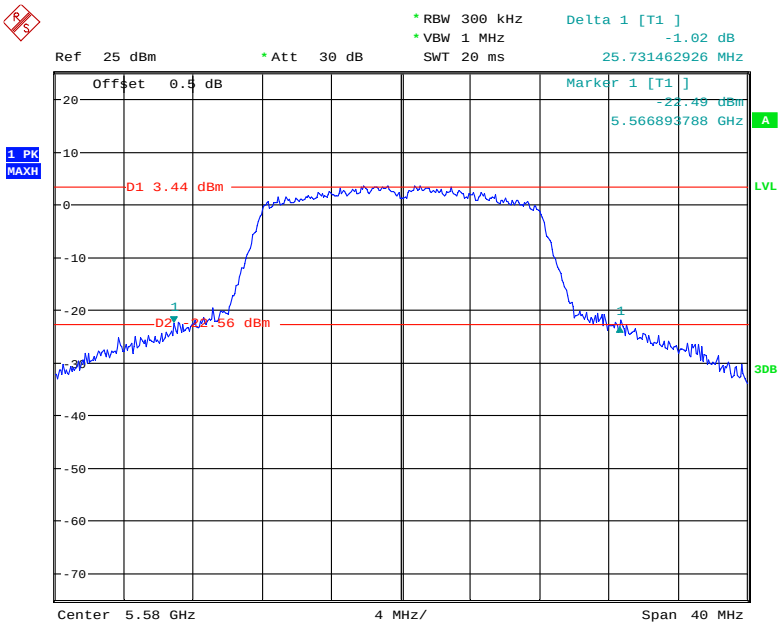
5470-5725MHz:
26dB Emission Bandwidth:

802.11a Low Channel



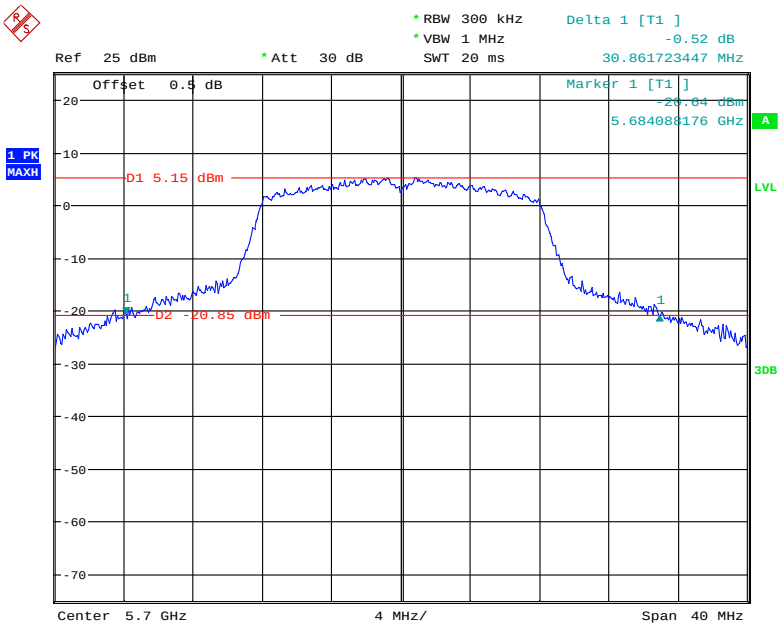
Date: 14.MAR.2019 11:56:59

802.11a Middle Channel



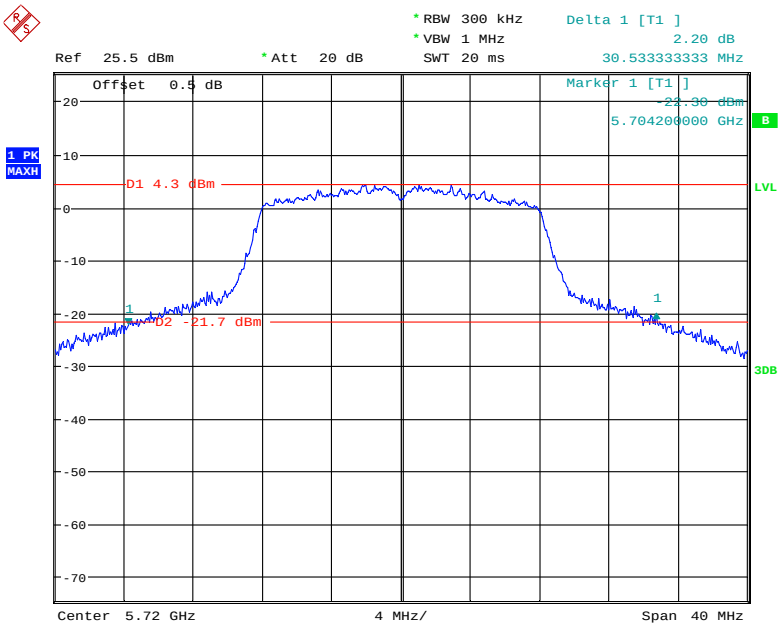
Date: 14.MAR.2019 16:25:53

802.11a High Channel



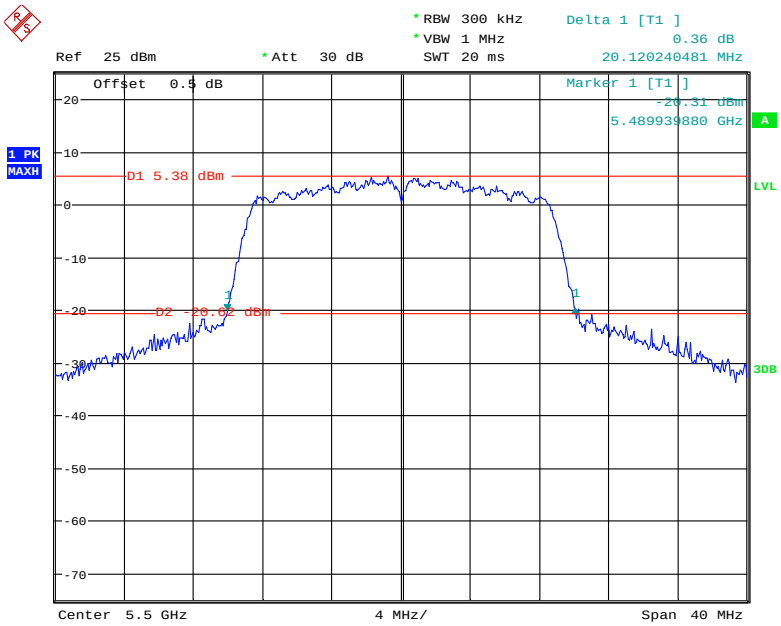
Date: 16.MAR.2019 09:38:14

802.11a 5720 Channel



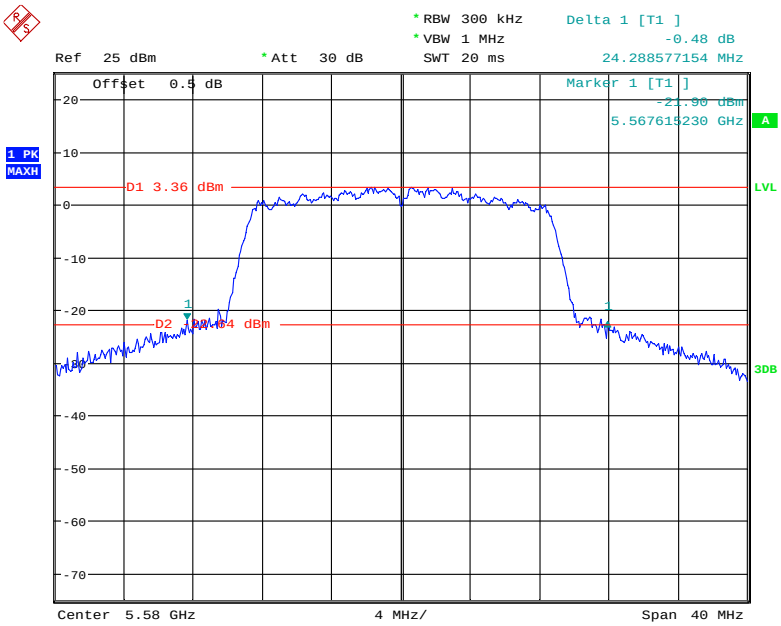
Date: 16.MAR.2019 09:54:12

802.11n ht20 Low Channel



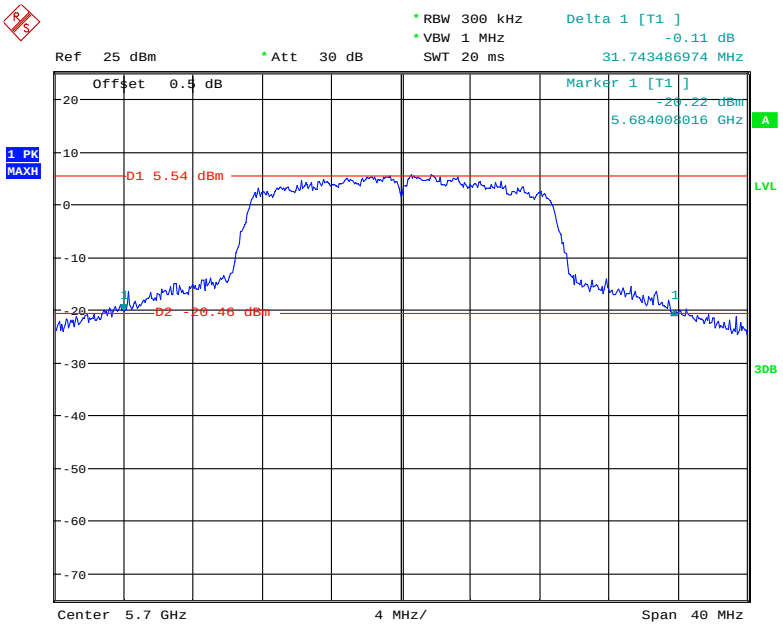
Date: 14.MAR.2019 16:33:21

802.11n ht20 Middle Channel



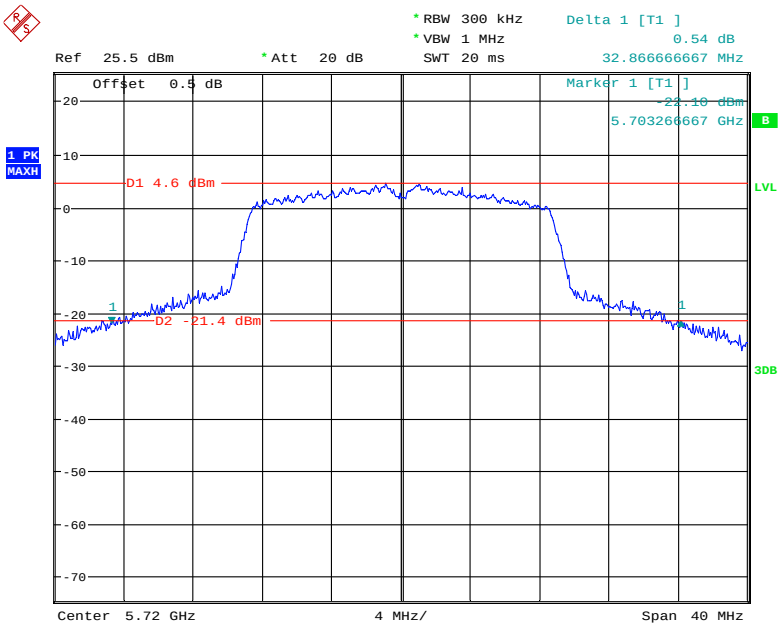
Date: 14.MAR.2019 16:35:56

802.11n ht20 High Channel



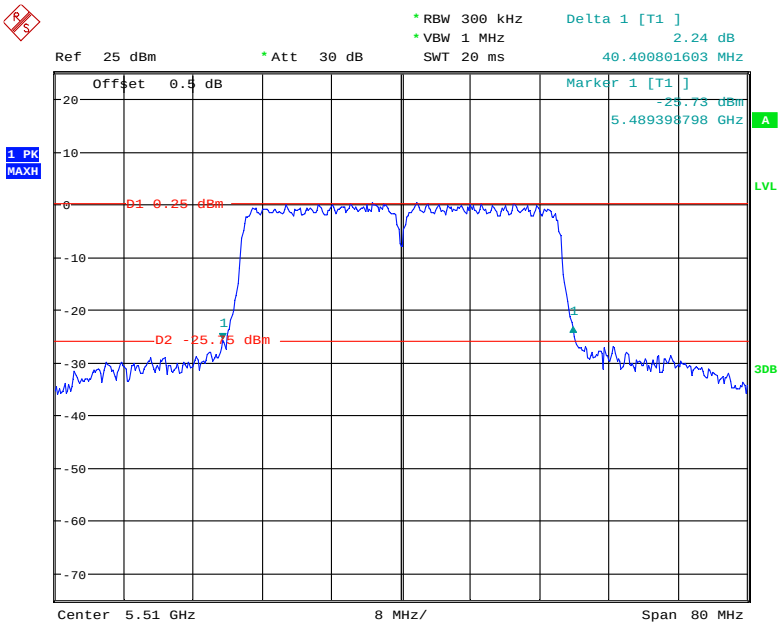
Date: 14.MAR.2019 16:38:41

802.11n ht20 5720 Channel



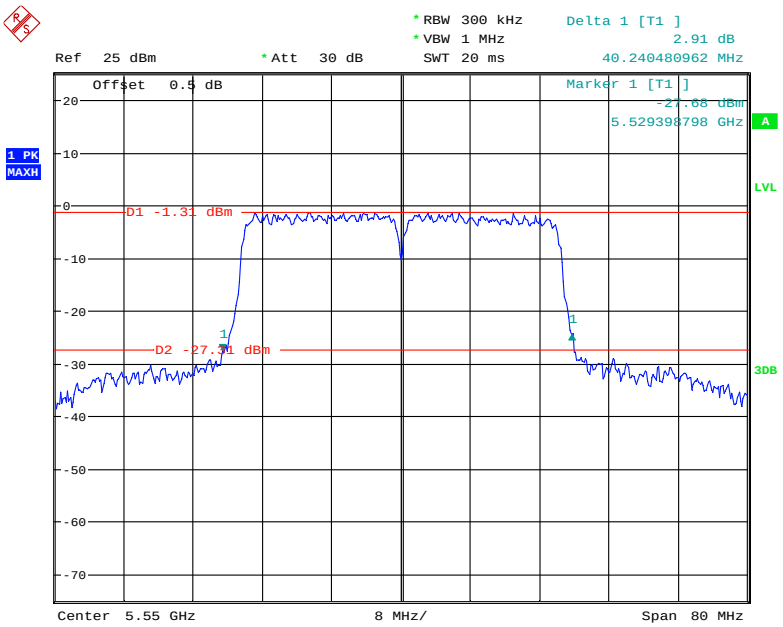
Date: 16.MAR.2019 09:53:10

802.11n ht40 Low Channel



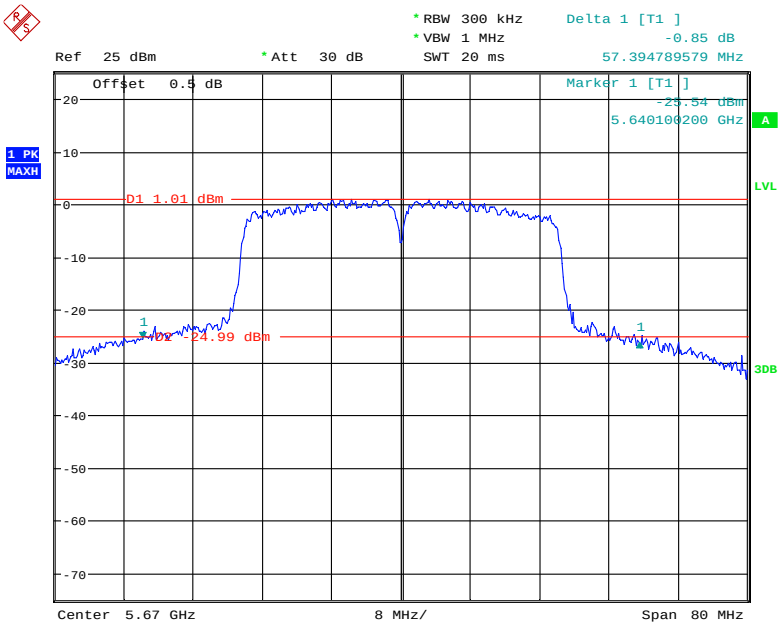
Date: 14.MAR.2019 16:41:33

802.11n ht40 Middle Channel



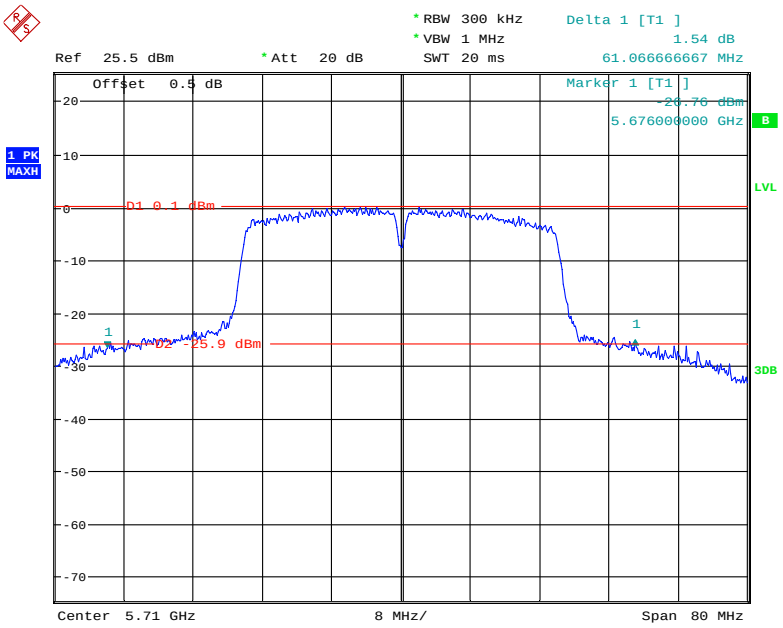
Date: 14.MAR.2019 16:43:32

802.11n ht40 High Channel



Date: 14.MAR.2019 16:45:43

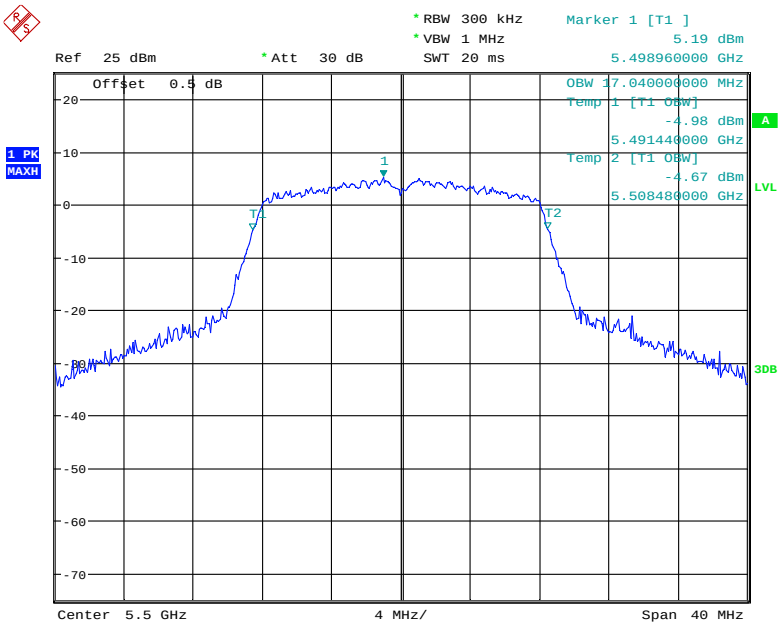
802.11n ht40 5710 Channel



Date: 16.MAR.2019 09:48:19

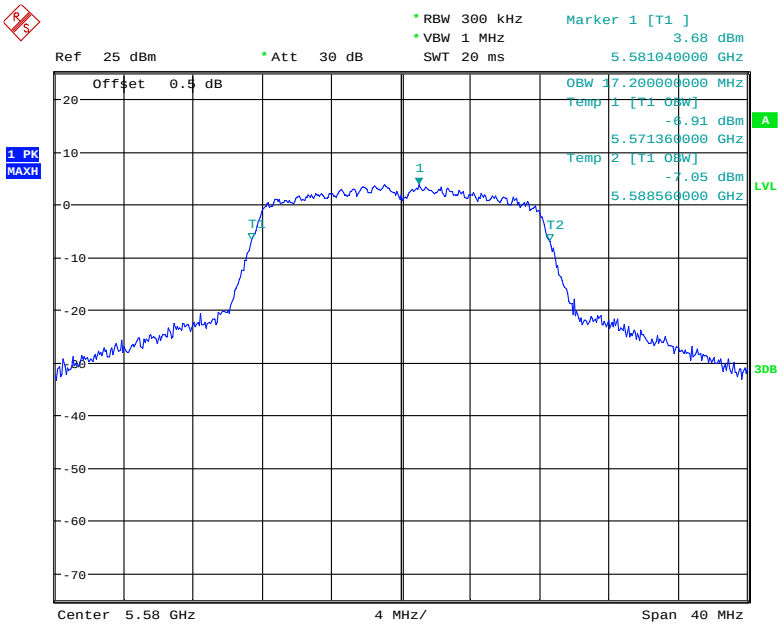
99% Occupied Bandwidth:
5470-5725MHz:

802.11a Low Channel



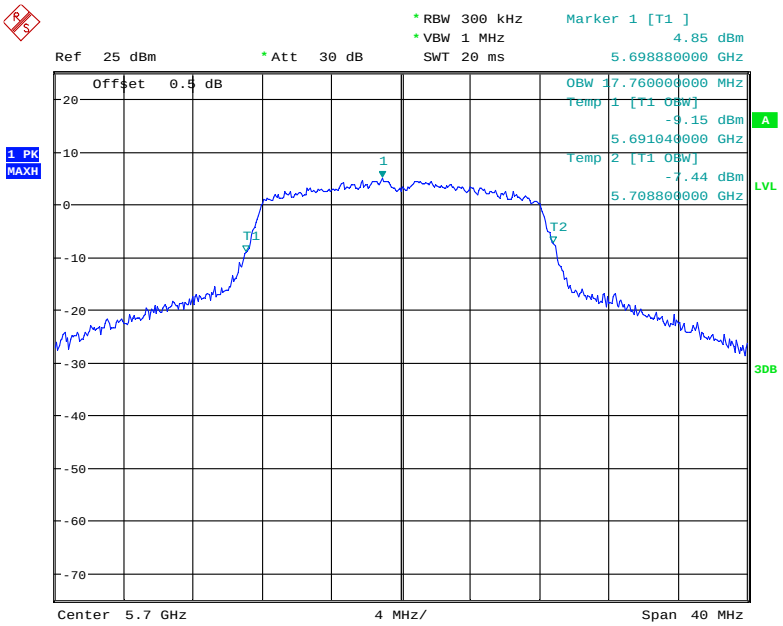
Date: 14.MAR.2019 11:58:05

802.11a Middle Channel



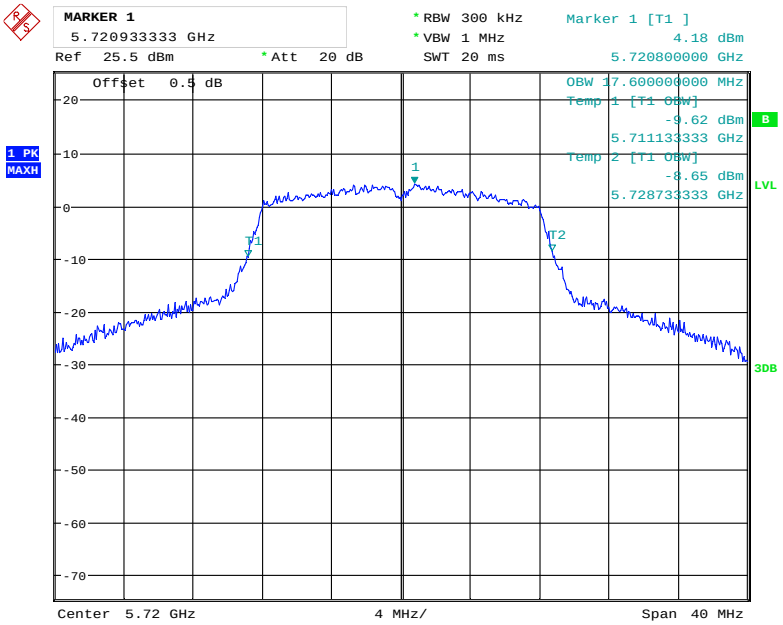
Date: 14.MAR.2019 16:27:03

802.11a High Channel



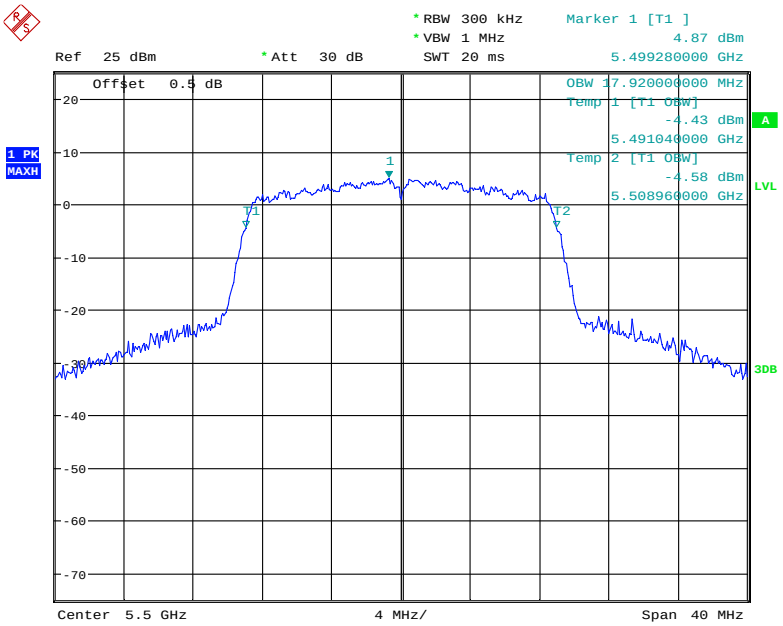
Date: 16.MAR.2019 09:39:09

802.11a 5720MHz



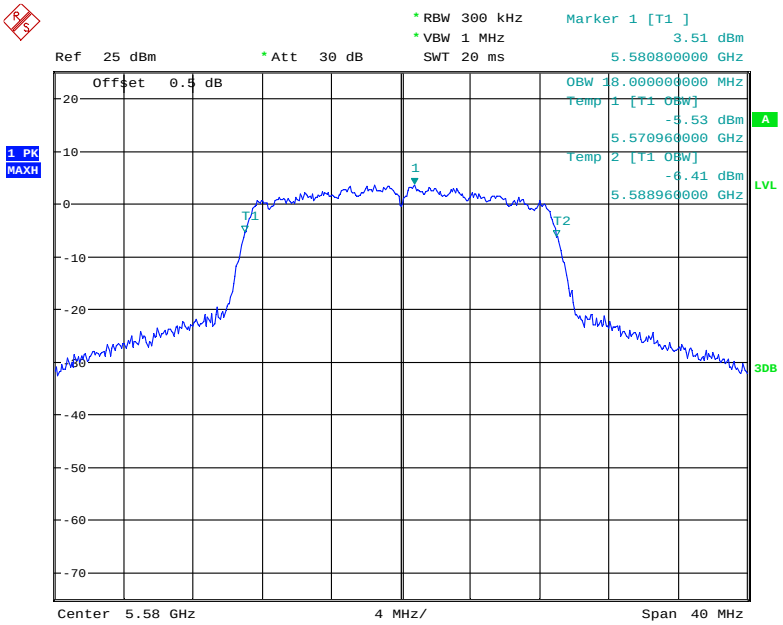
Date: 16.MAR.2019 09:43:51

802.11n ht20 Low Channel



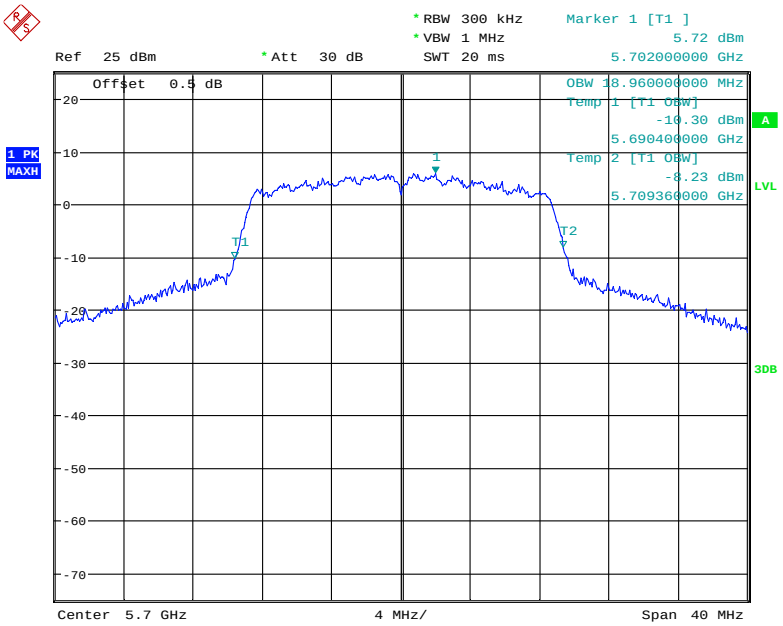
Date: 14.MAR.2019 16:34:26

802.11n ht20 Middle Channel



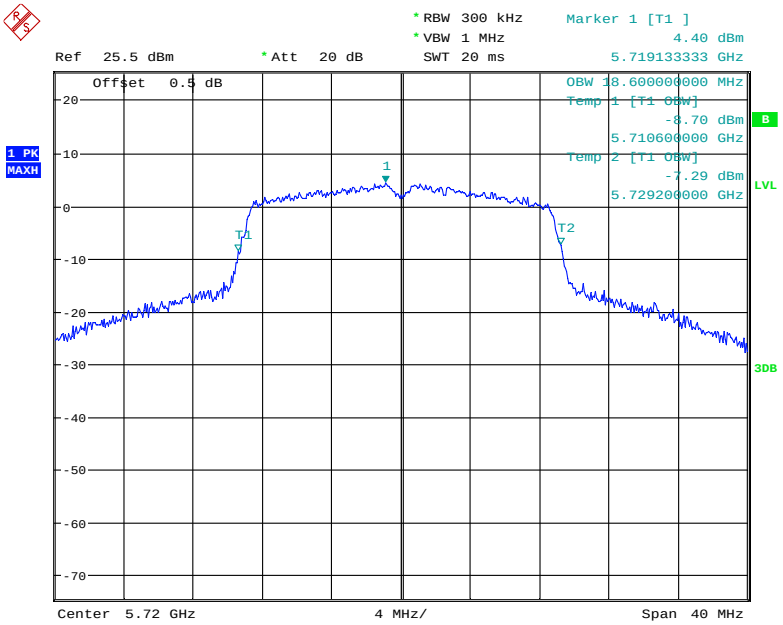
Date: 14.MAR.2019 16:37:12

802.11n ht20 High Channel



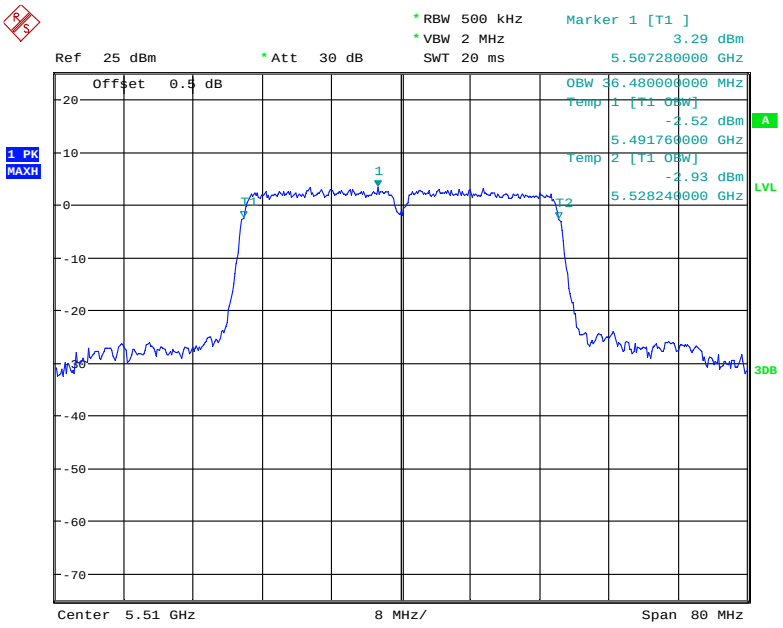
Date: 14.MAR.2019 16:39:52

802.11n ht20 5720 MHz



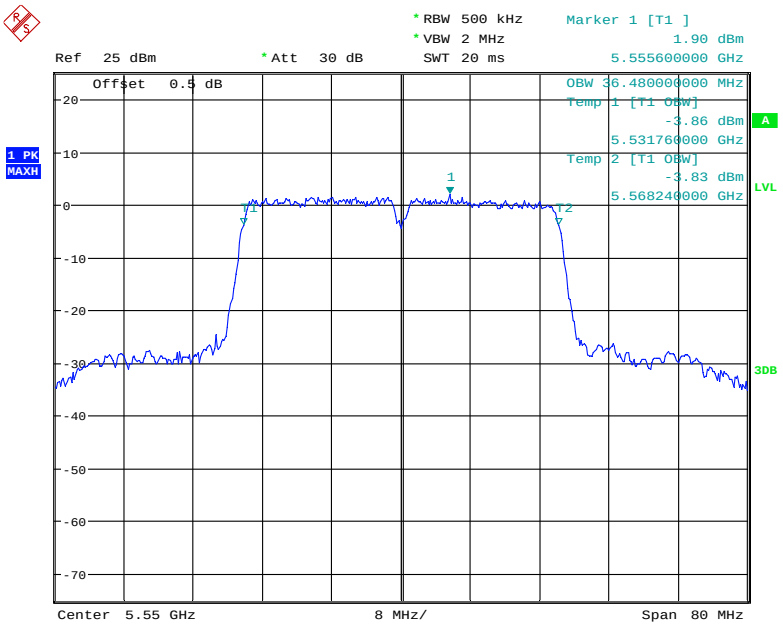
Date: 16.MAR.2019 09:44:36

802.11n ht40 Low Channel



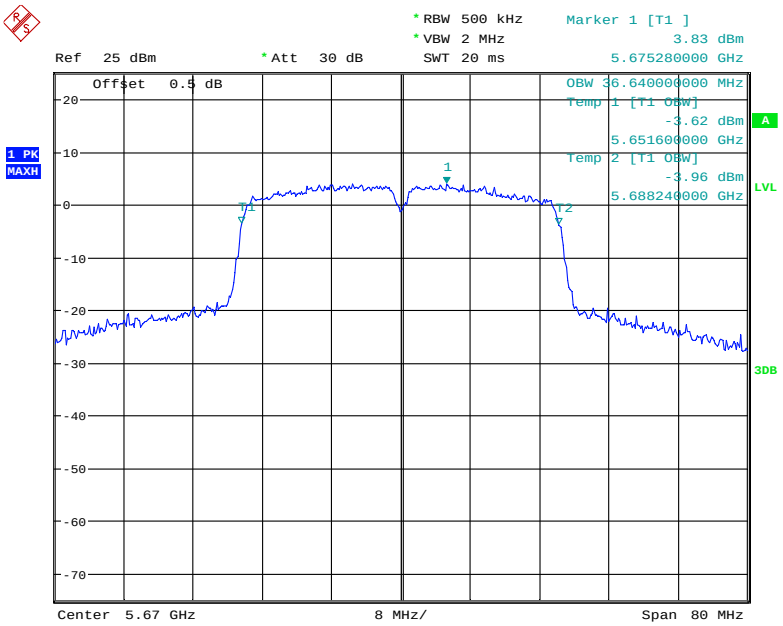
Date: 14.MAR.2019 16:42:14

802.11n ht40 Middle Channel



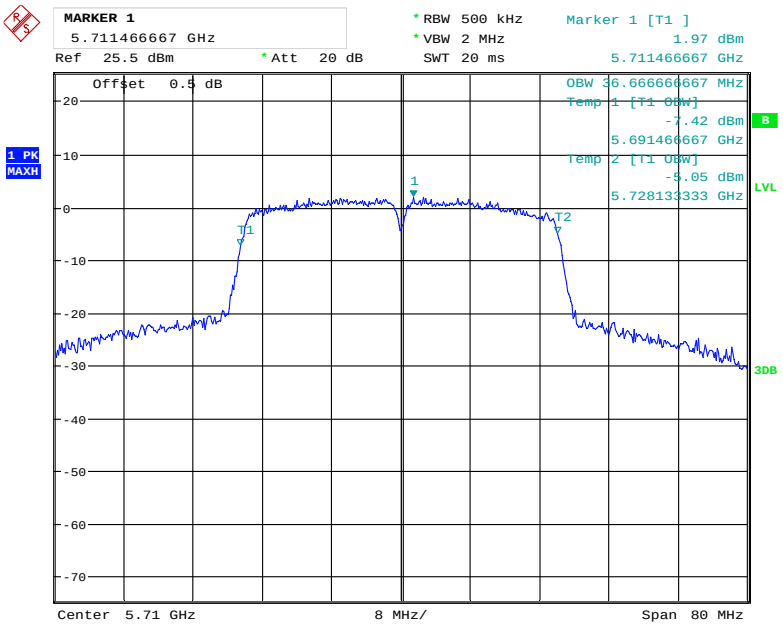
Date: 14.MAR.2019 16:44:20

802.11n ht40 High Channel



Date: 14.MAR.2019 16:46:46

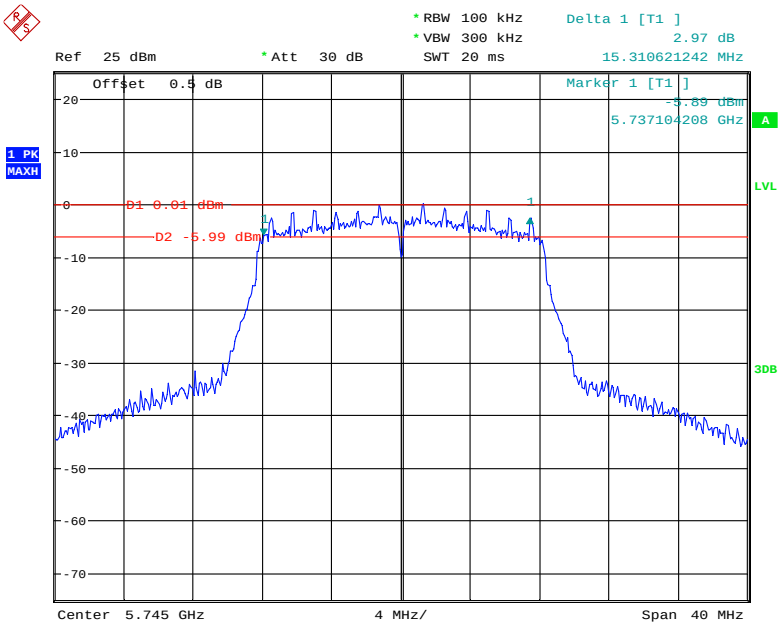
802.11n ht40 5710MHz



Date: 16.MAR.2019 09:46:05

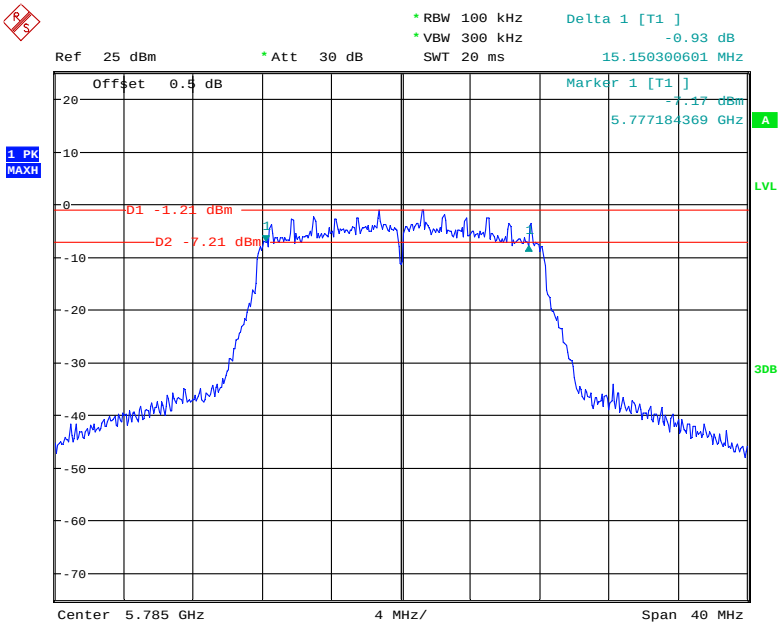
5725-5850MHz:
6dB Emission Bandwidth:

802.11a Low Channel



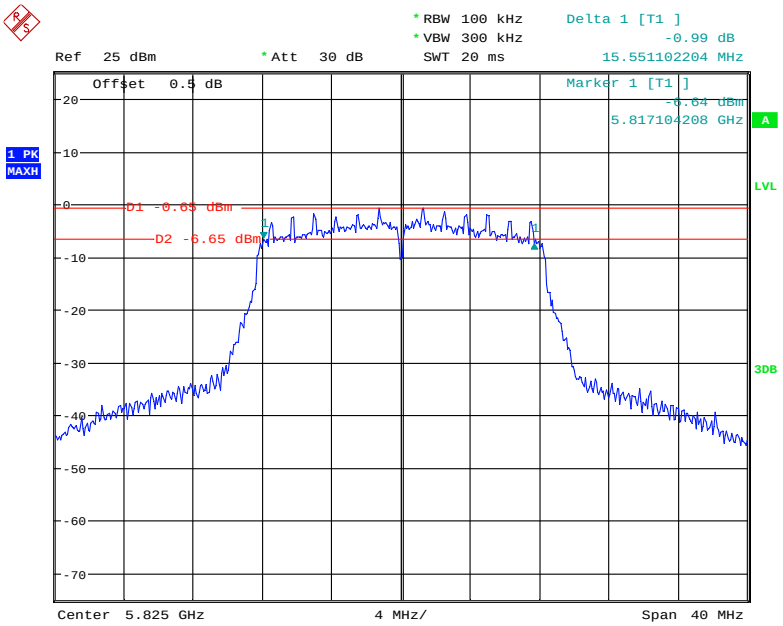
Date: 8.JAN.2019 19:19:28

802.11a Middle Channel



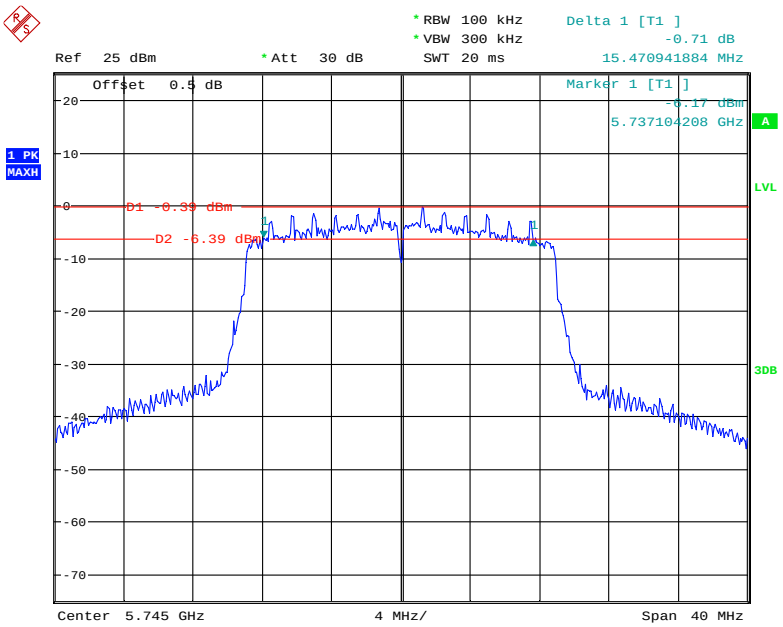
Date: 8.JAN.2019 19:27:22

802.11a High Channel



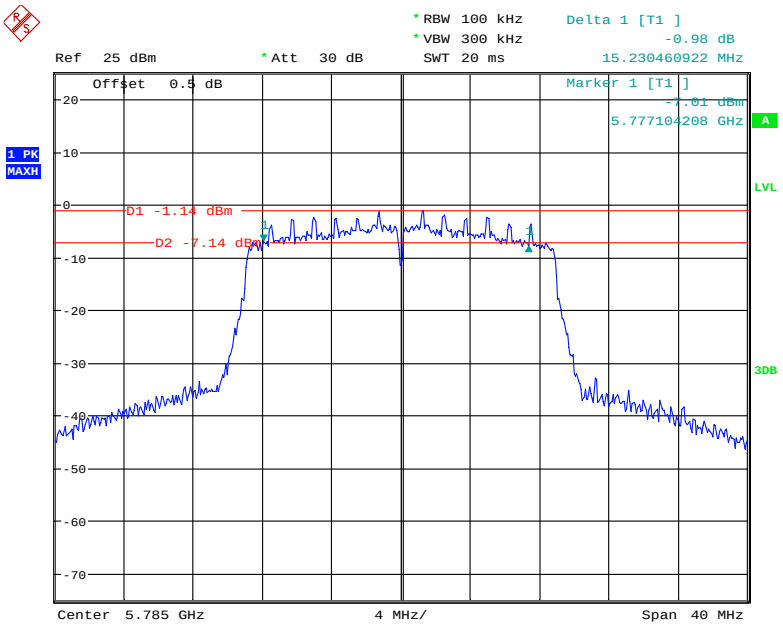
Date: 8.JAN.2019 19:20:44

802.11n ht20 Low Channel



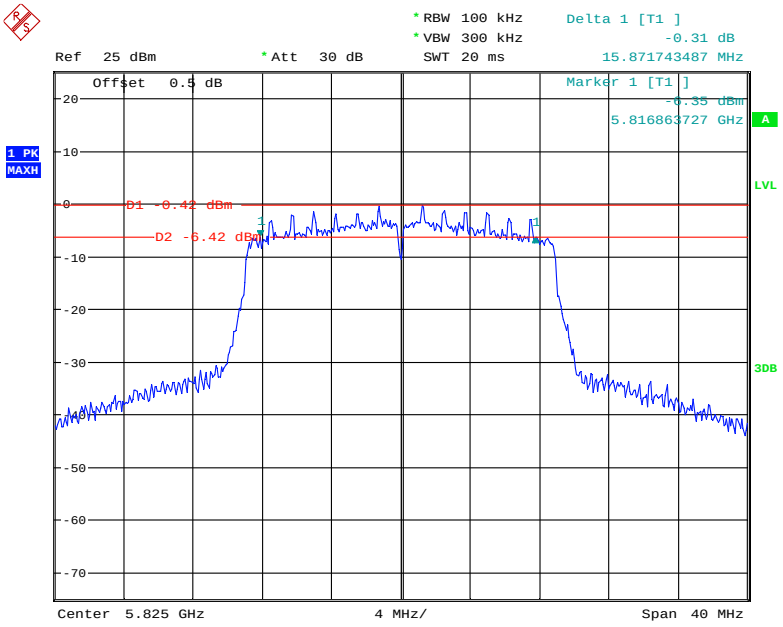
Date: 8.JAN.2019 19:33:14

802.11n ht20 Middle Channel



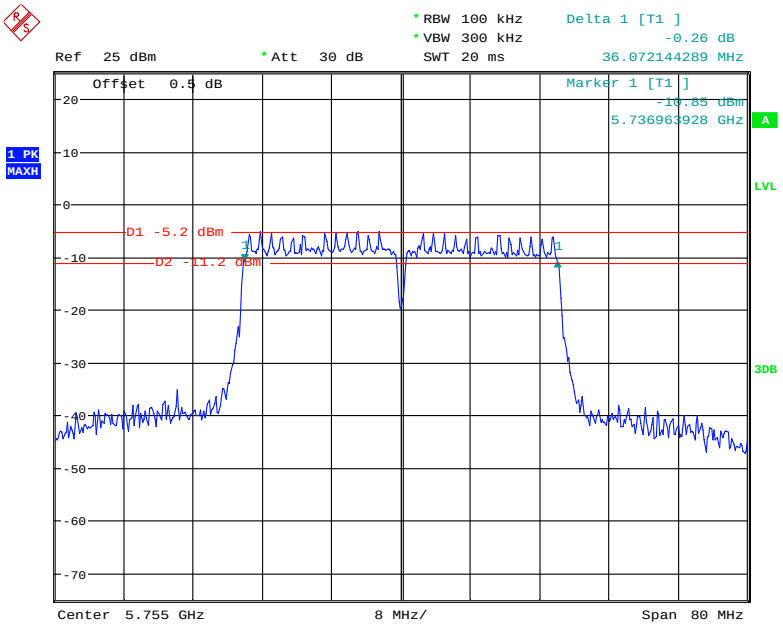
Date: 8.JAN.2019 19:30:56

802.11n ht20 High Channel



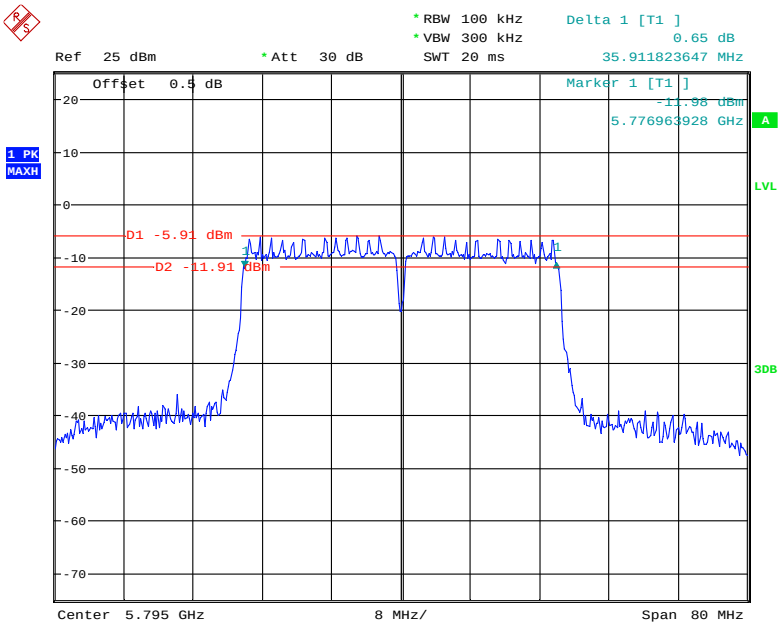
Date: 8.JAN.2019 19:35:47

802.11n ht40 Low Channel



Date: 8.JAN.2019 19:41:59

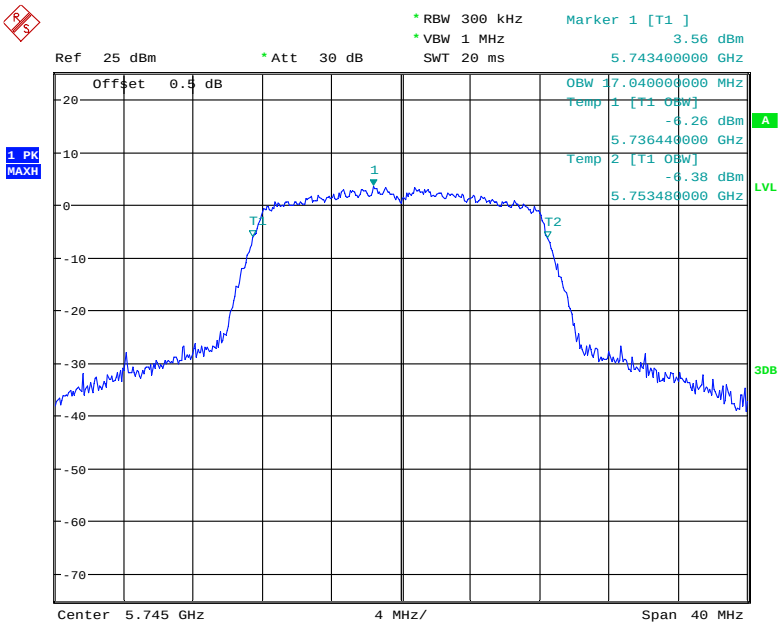
802.11n ht40 High Channel



Date: 8.JAN.2019 19:39:29

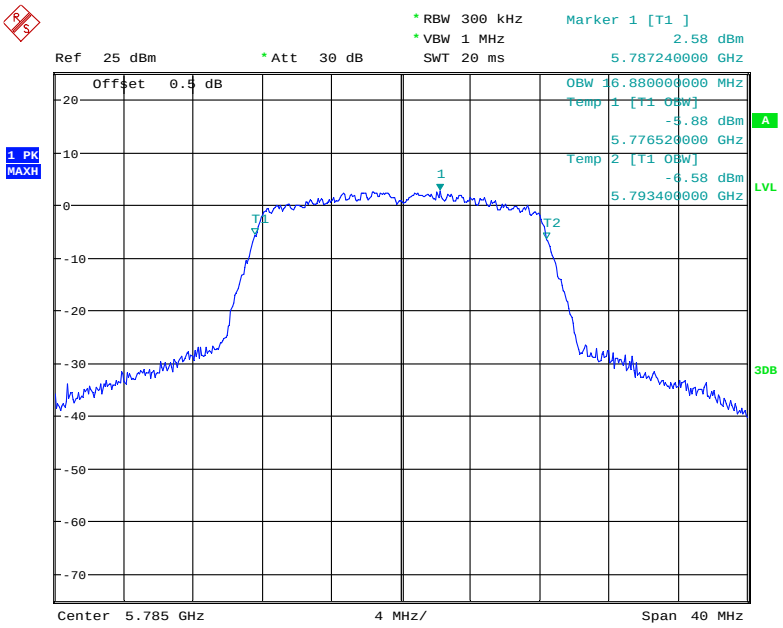
99% Occupied Bandwidth:

802.11a Low Channel



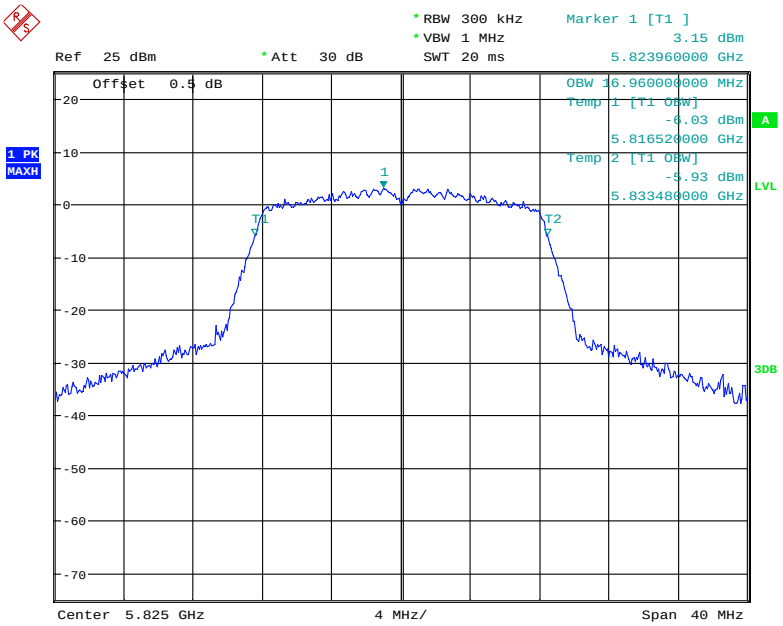
Date: 8.JAN.2019 18:40:56

802.11a Middle Channel



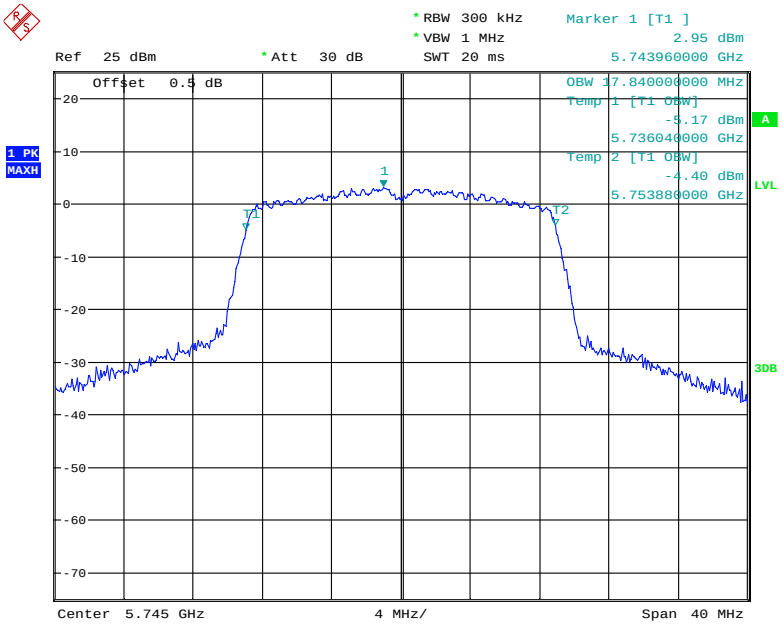
Date: 8.JAN.2019 19:27:59

802.11a High Channel



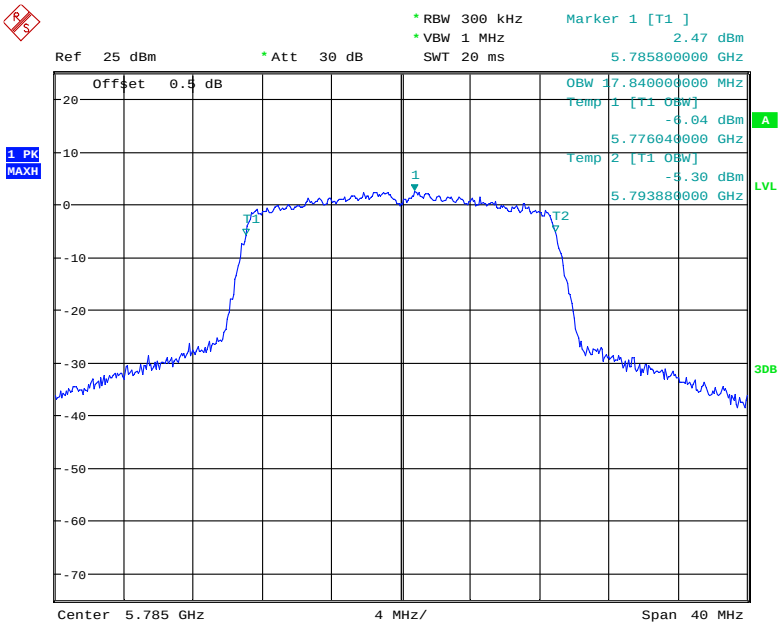
Date: 8.JAN.2019 19:21:17

802.11n ht20 Low Channel



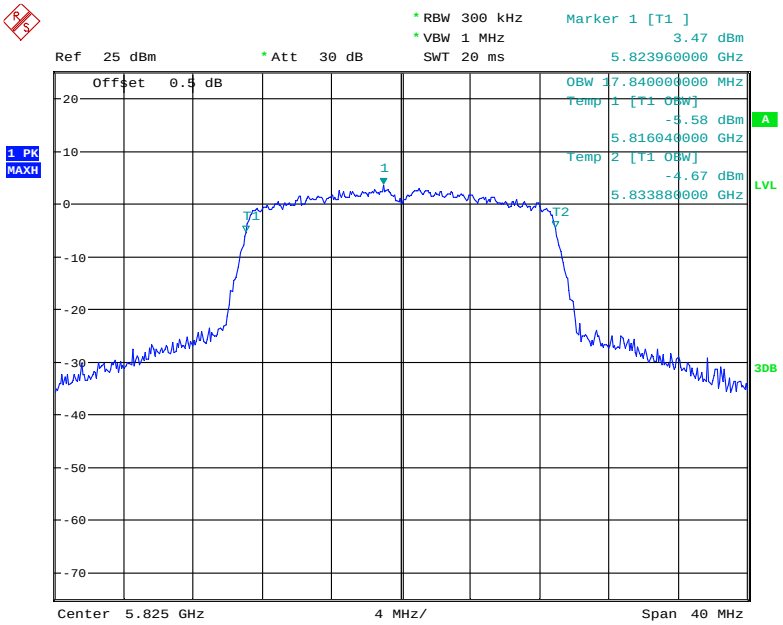
Date: 8.JAN.2019 19:33:50

802.11n ht20 Middle Channel



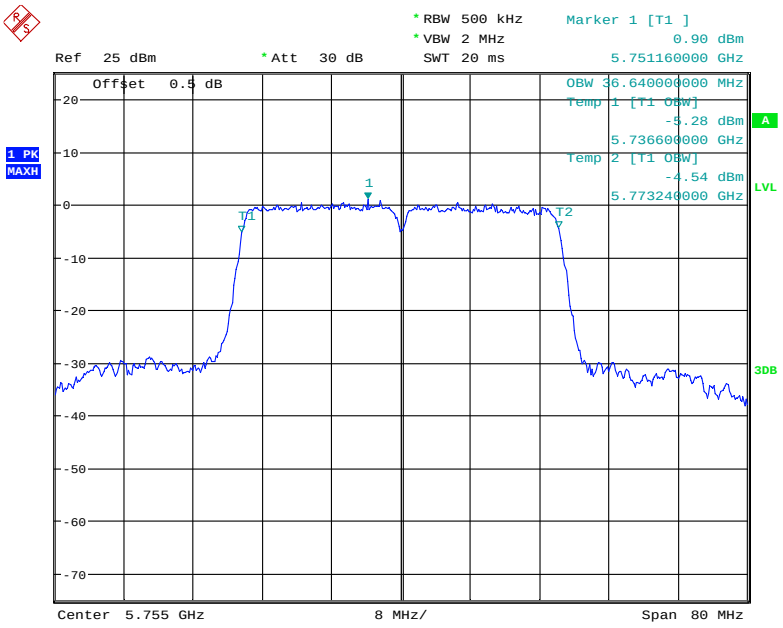
Date: 8.JAN.2019 19:31:29

802.11n ht20 High Channel



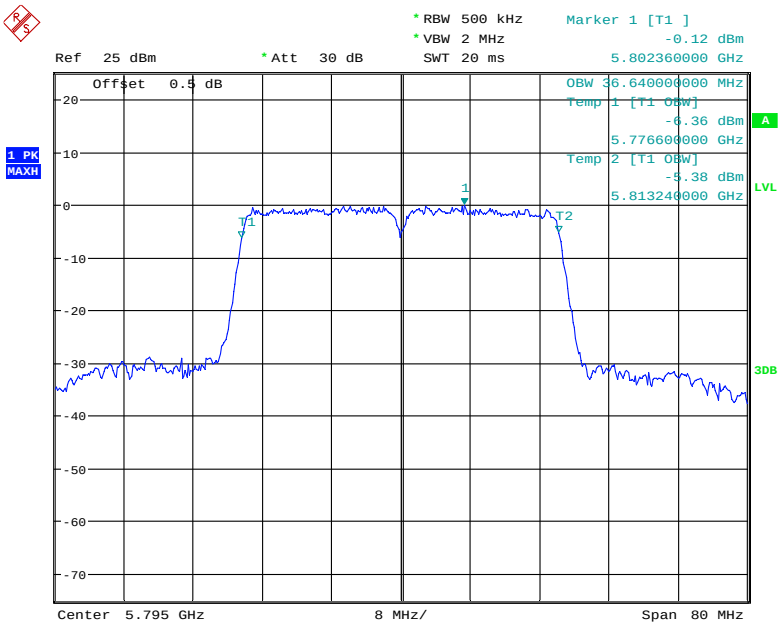
Date: 8.JAN.2019 19:36:16

802.11n ht40 Low Channel



Date: 8.JAN.2019 19:42:25

802.11n ht40 High Channel



Date: 8.JAN.2019 19:39:51

FCC §15.407(a) & RSS-247 CLAUSE 6.2 –MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.407(a)

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum 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 maximum 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 U-NII 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. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

According to RSS-247 Clause 6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

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 stringent. 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.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

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 TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

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

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-multipoint[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	21.4~25.6°C
Relative Humidity:	38~73 %
ATM Pressure:	100.1~102.1kPa

The testing was performed by Blake Yang,Elema Lei on 2019-01-08&2019-03-14.

Test Mode: Transmitting

5150-5250 MHz:

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)		E.I.R.P. (dBm)		Result
		Result	Limit for FCC	Result	Limit for ISED	
802.11a	5180	10.02	24.00	12.29	22.36	PASS
	5200	9.96	24.00	12.23	22.36	PASS
	5240	9.92	24.00	12.19	22.36	PASS
802.11n ht20	5180	9.94	24.00	12.21	22.55	PASS
	5200	9.92	24.00	12.19	22.57	PASS
	5240	9.89	24.00	12.16	22.57	PASS
802.11n ht40	5190	8.97	24.00	11.24	23.00	PASS
	5230	8.94	24.00	11.21	23.00	PASS

5250-5350MHz

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)			EIRP (dBm)		Result
		Results	FCC Limit	RSS-247 Limit	Results	RSS-247 Limit	
802.11 a	5260	9.87	24.00	23.36	12.14	29.36	PASS
	5280	9.80	24.00	23.34	12.07	29.34	PASS
	5320	10.16	24.00	23.34	12.43	29.34	PASS
802.11n ht20	5260	9.74	24.00	23.53	12.01	29.53	PASS
	5280	9.87	24.00	23.55	12.14	29.55	PASS
	5320	9.99	24.00	23.57	12.26	29.57	PASS
802.11n ht40	5270	8.96	24.00	24.00	11.23	30.00	PASS
	5310	9.07	24.00	24.00	11.34	30.00	PASS

5470-5725MHz

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)			EIRP (dBm)		Result
		Results	FCC Limit	RSS-247 Limit	Results	RSS-247 Limit	
802.11 a	5500	10.11	24.00	23.31	12.38	29.31	PASS
	5580	9.92	24.00	23.36	12.19	29.36	PASS
	5700	9.95	24.00	23.49	12.22	29.49	PASS
	5720	9.90	24.00	23.46	12.17	29.46	PASS
802.11n ht20	5500	10.02	24.00	23.53	12.29	29.53	PASS
	5580	9.73	24.00	23.55	12.00	29.55	PASS
	5700	9.98	24.00	23.78	12.25	29.78	PASS
	5720	9.99	24.00	23.70	12.26	29.70	PASS
802.11n ht40	5510	9.08	24.00	24.00	11.35	30.00	PASS
	5550	8.75	24.00	24.00	11.02	30.00	PASS
	5670	9.15	24.00	24.00	11.42	30.00	PASS
	5710	8.70	24.00	24.00	10.97	30.00	PASS

5725-5850MHz:

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)	Limit (dBm)	Result
802.11 a	5745	9.74	30	PASS
	5785	9.48	30	PASS
	5825	9.67	30	PASS
802.11n ht20	5745	9.62	30	PASS
	5785	9.36	30	PASS
	5825	9.95	30	PASS
802.11n Ht40	5755	8.79	30	PASS
	5795	8.52	30	PASS

Note: the duty cycle factor have been calculated into the Conducted power result. Antenna gain is 2.27dBi @ 5150-5850MHz.

FCC §15.407(a)& RSS-247 CLAUSE 6.2- POWER SPECTRAL DENSITY

Applicable Standard

According to FCC §15.407(a)

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum 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 maximum 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 U-NII 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. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

According to RSS-247 Clause 6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

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 stringent. 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.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

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 TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

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

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-multipoint[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2019-01-04	2020-01-04
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	21.4~25.6°C
Relative Humidity:	38~73 %
ATM Pressure:	100.1~102.1kPa

The testing was performed by Blake Yang,Elema Lei on 2019-01-08&2019-03-14.

Test Mode: Transmitting

Test Result:Compliance.Please refer to the following table and plot.

5150-5250MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty cycle Factor (dB)	Conducted Power Spectral Density (dBm/MHz)	Conducted Power Spectral Density Limit For FCC (dBm/MHz)	E.I.R.P. Power Spectral Density (dBm/MHz)	E.I.R.P. Power Spectral Density Limit for ISED (dBm/MHz)
802.11a	5180	0.06	0.00	0.06	11	2.33	10
	5200	-0.26	0.00	-0.26	11	2.01	10
	5240	-0.53	0.00	-0.53	11	1.74	10
802.11n ht20	5180	-0.04	0.00	-0.04	11	2.23	10
	5200	-0.05	0.00	-0.05	11	2.22	10
	5240	-0.42	0.00	-0.42	11	1.85	10
802.11n ht40	5190	-4.06	0.19	-3.87	11	-1.6	10
	5230	-4.30	0.19	-4.11	11	-1.84	10

5250-5350MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty cycle Factor (dB)	Conducted Power Spectral Density (dBm/MHz)	
				Results	Limit for FCC/ISED
802.11a	5260	1.02	0.00	1.02	11
	5280	2.31	0.00	2.31	11
	5320	1.72	0.00	1.72	11
802.11n ht20	5260	0.95	0.00	0.95	11
	5280	1.21	0.00	1.21	11
	5320	1.62	0.00	1.62	11
802.11n ht40	5270	-2.27	0.19	-2.08	11
	5310	-4.13	0.19	-3.94	11

5470-5725 MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty cycle Factor (dB)	Conducted Power Spectral Density (dBm/MHz)	
				Results	Limit for FCC/ISED
802.11a	5500	2.24	0.00	2.24	11
	5580	0.82	0.00	0.82	11
	5700	2.11	0.00	2.11	11
	5720	1.69	0.00	1.69	11
802.11n ht20	5500	1.79	0.00	1.79	11
	5580	0.49	0.00	0.49	11
	5700	2.78	0.00	2.78	11
	5720	2.26	0.00	2.26	11
802.11n ht40	5510	-3.07	0.19	-2.88	11
	5550	-4.62	0.19	-4.43	11
	5670	-2.28	0.19	-2.09	11
	5710	-2.91	0.19	-2.72	11

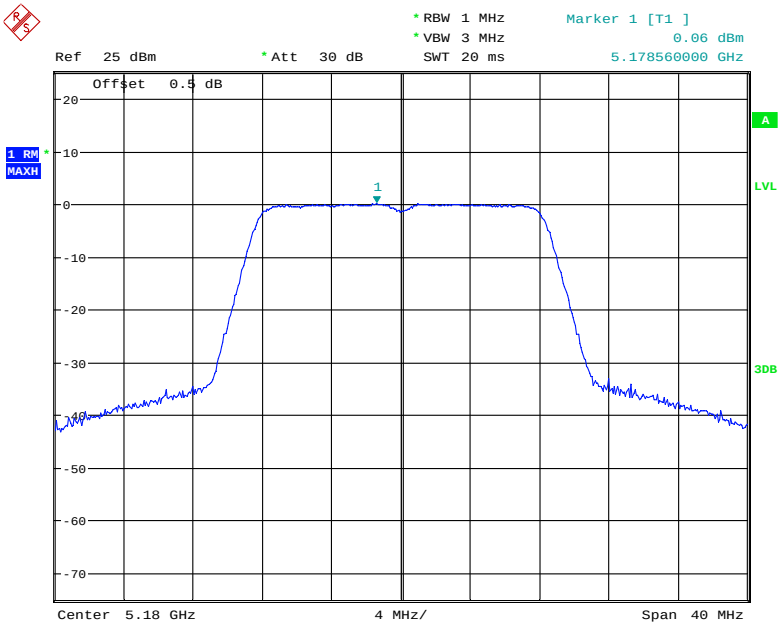
5725-5850 MHz:

Mode	Frequency (MHz)	Reading (dBm/300kHz)	Duty cycle Factor (dB)	Conducted Power Spectral Density (dBm/500kHz)	Conducted Power Spectral Density Limit For FCC/ISED (dBm/500kHz)
802.11a	5745	-2.62	0.00	-0.4	30
	5785	-3.79	0.00	-1.57	30
	5825	-3.15	0.00	-0.93	30
802.11n ht20	5745	-2.19	0.00	0.03	30
	5785	-3.06	0.00	-0.84	30
	5825	-1.92	0.00	0.3	30
802.11n ht40	5755	-7.63	0.19	-5.22	30
	5795	-8.43	0.19	-6.02	30

Note: For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

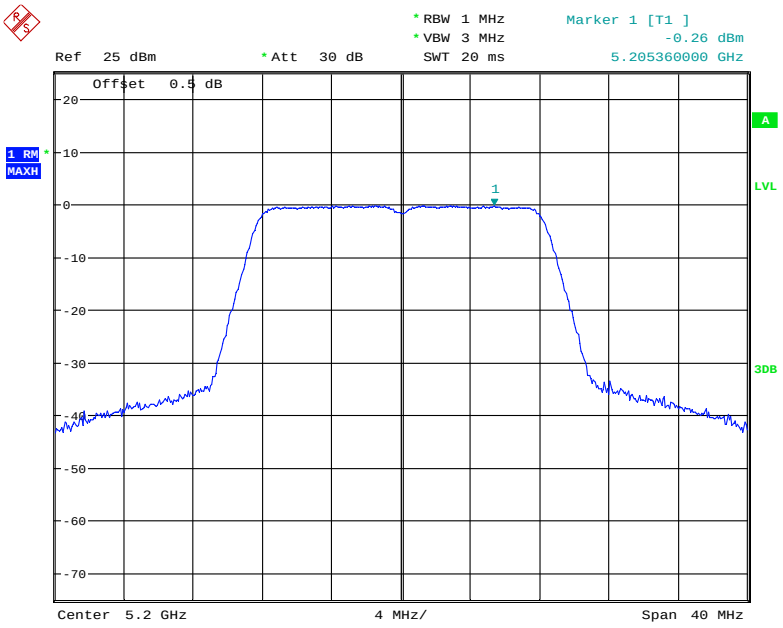
5150-5250MHz

802.11a Low Channel



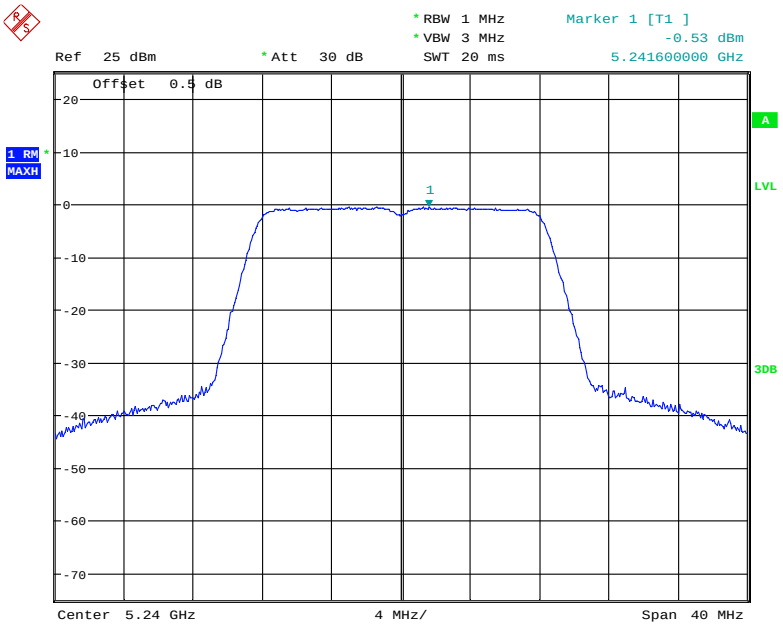
Date: 8.JAN.2019 18:13:31

802.11a Middle Channel



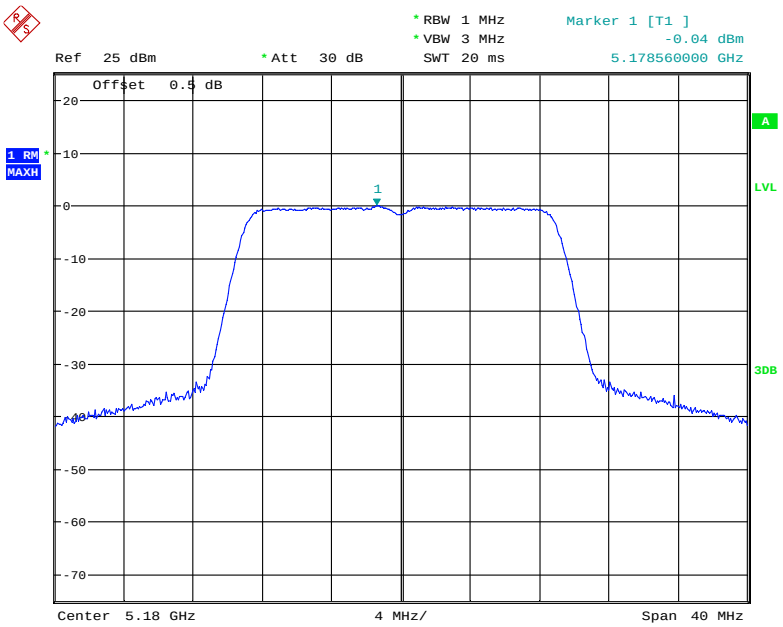
Date: 8.JAN.2019 18:18:45

802.11a High Channel



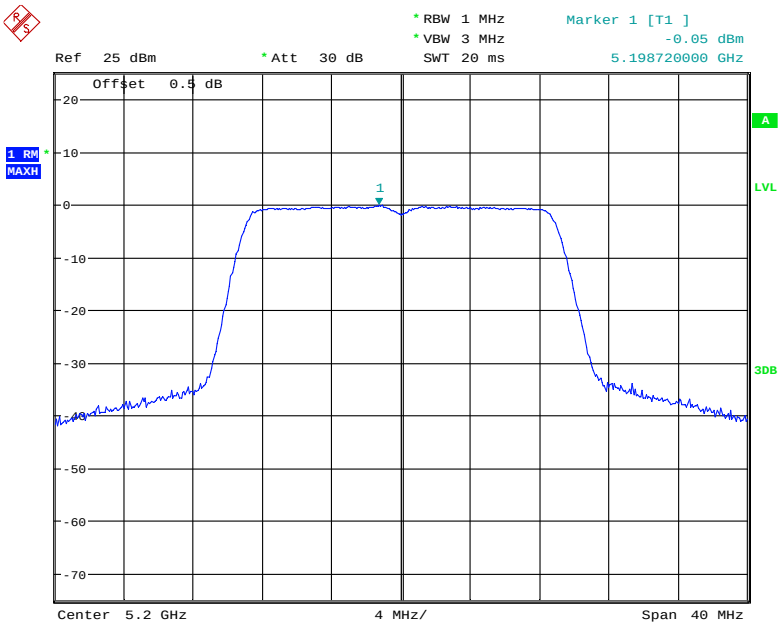
Date: 8.JAN.2019 18:16:09

802.11n ht20 Low Channel



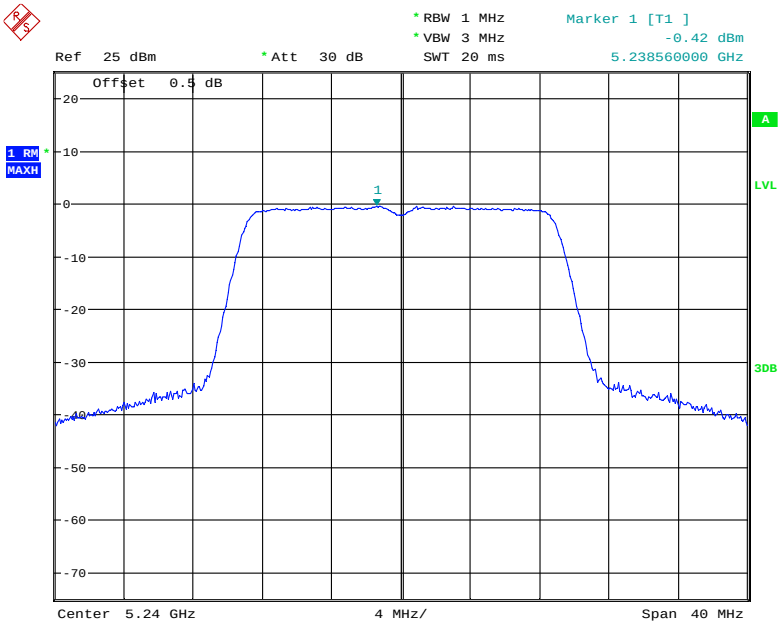
Date: 8.JAN.2019 18:27:00

802.11n ht20 Middle Channel



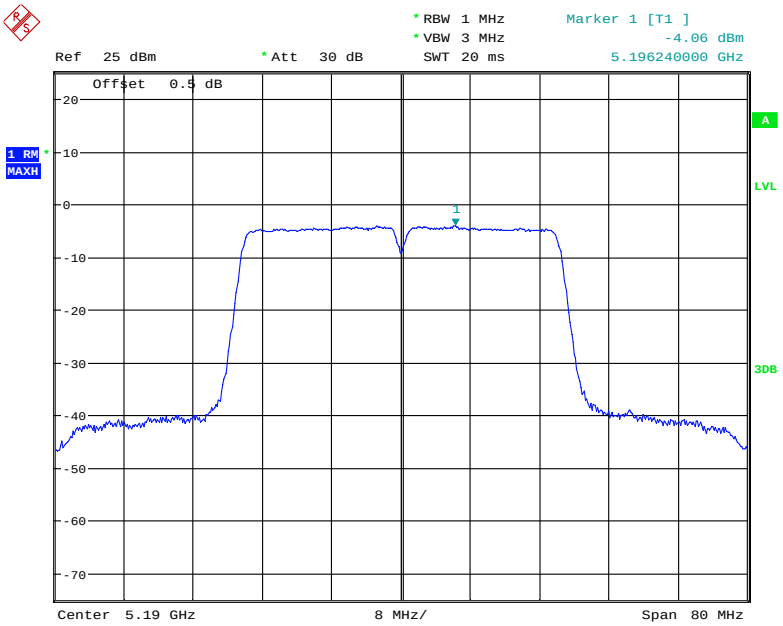
Date: 8.JAN.2019 18:24:43

802.11n ht20 High Channel



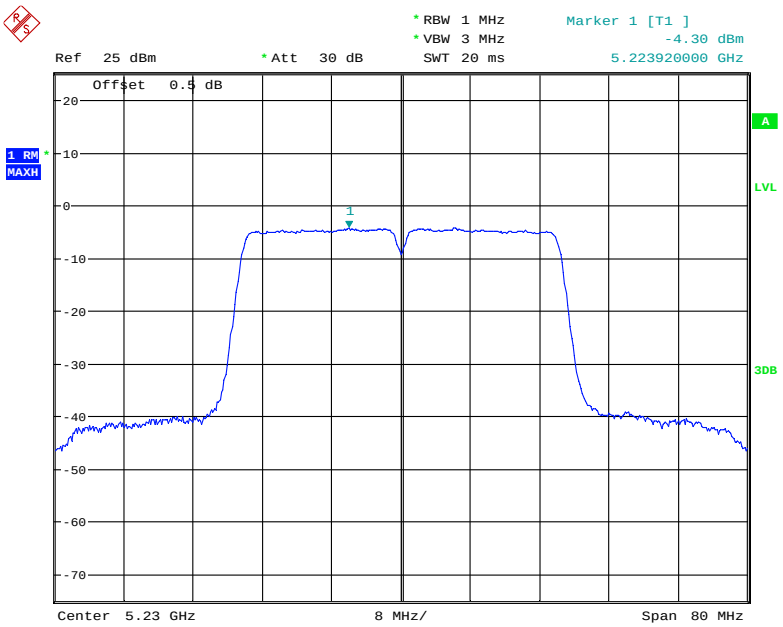
Date: 8.JAN.2019 18:29:46

802.11n ht40 Low Channel



Date: 8.JAN.2019 18:36:45

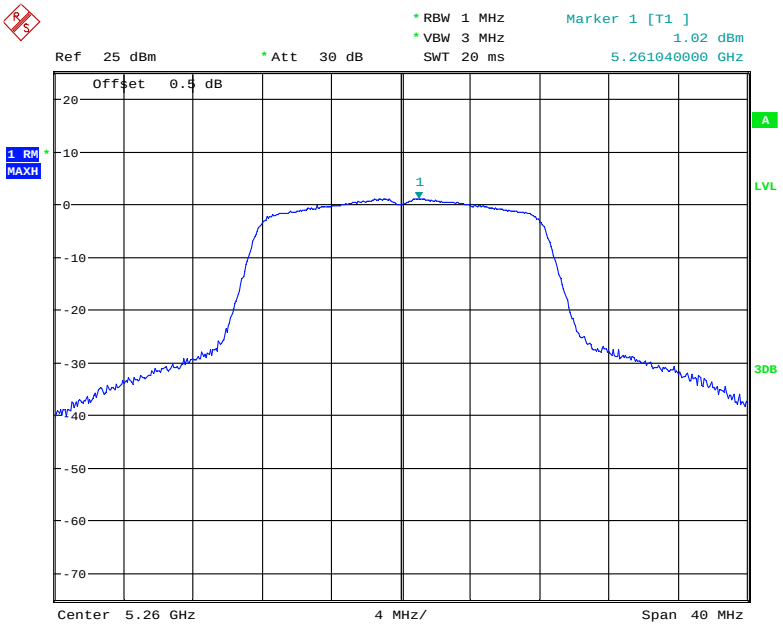
802.11n ht40 High Channel



Date: 8.JAN.2019 18:32:37

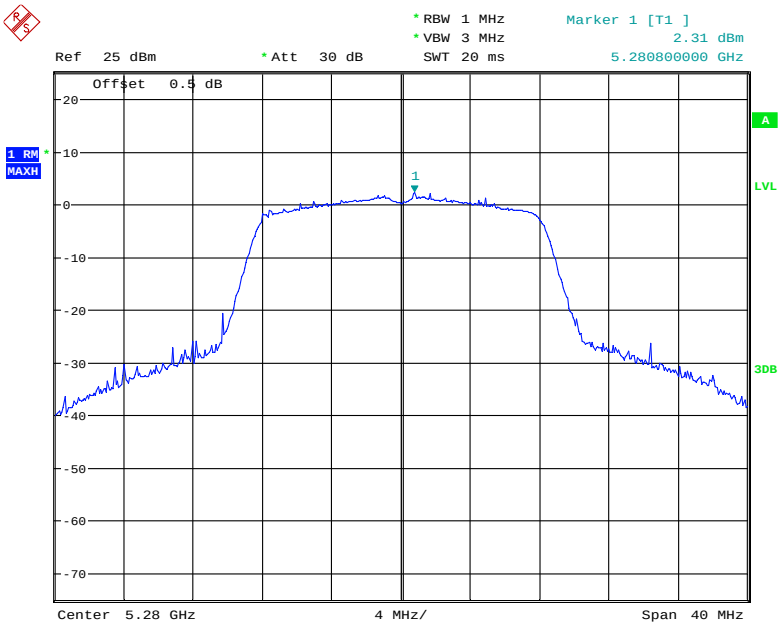
5250-5350MHz

802.11a Low Channel



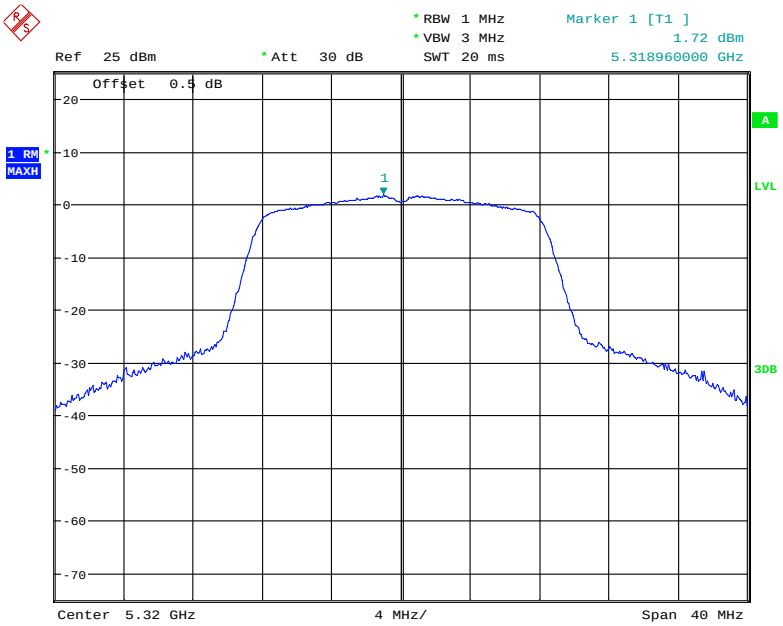
Date: 16.MAR.2019 09:36:04

802.11a Middle Channel



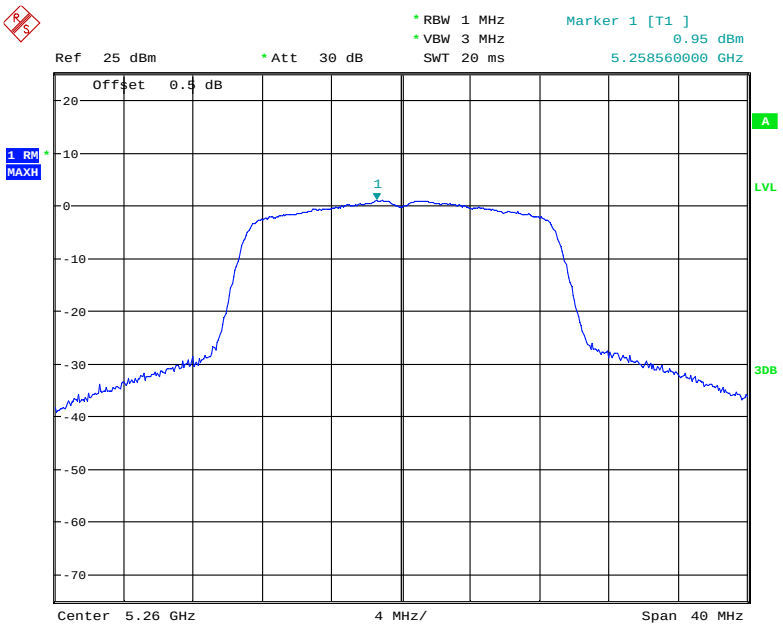
Date: 14.MAR.2019 11:24:41

802.11a High Channel



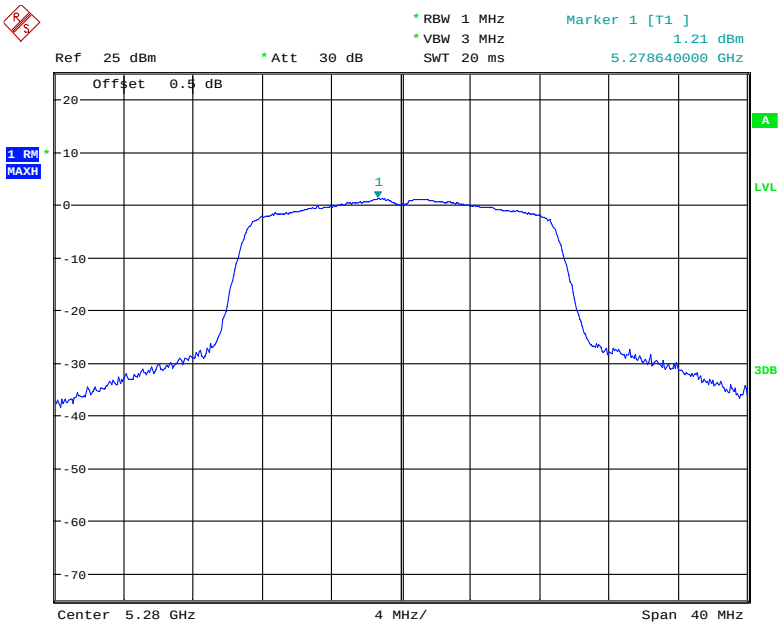
Date: 14.MAR.2019 11:33:38

802.11n ht20 Low Channel



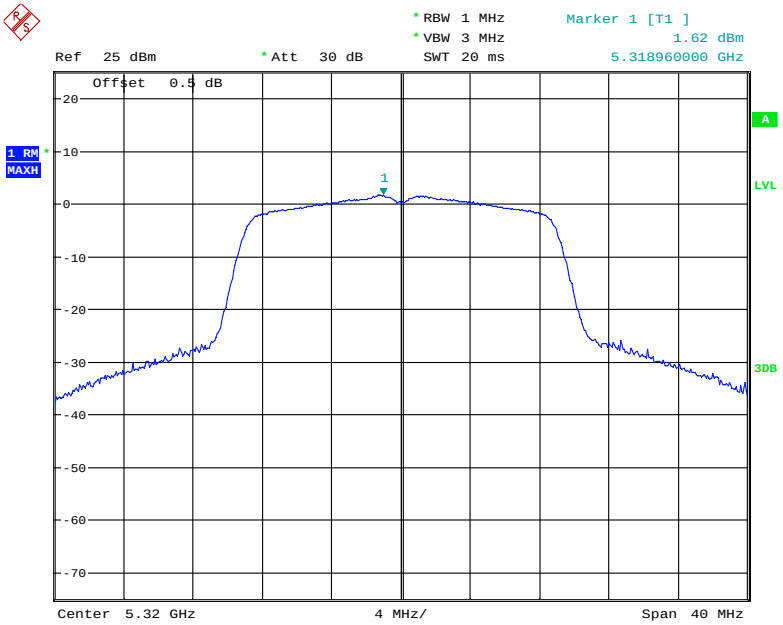
Date: 14.MAR.2019 11:38:56

802.11n ht20 Middle Channel



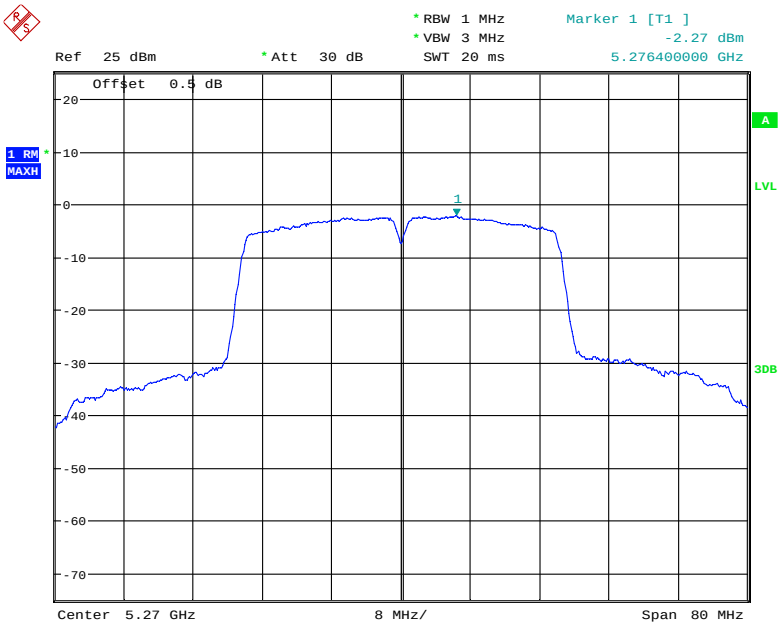
Date: 14.MAR.2019 11:41:35

802.11n ht20 High Channel



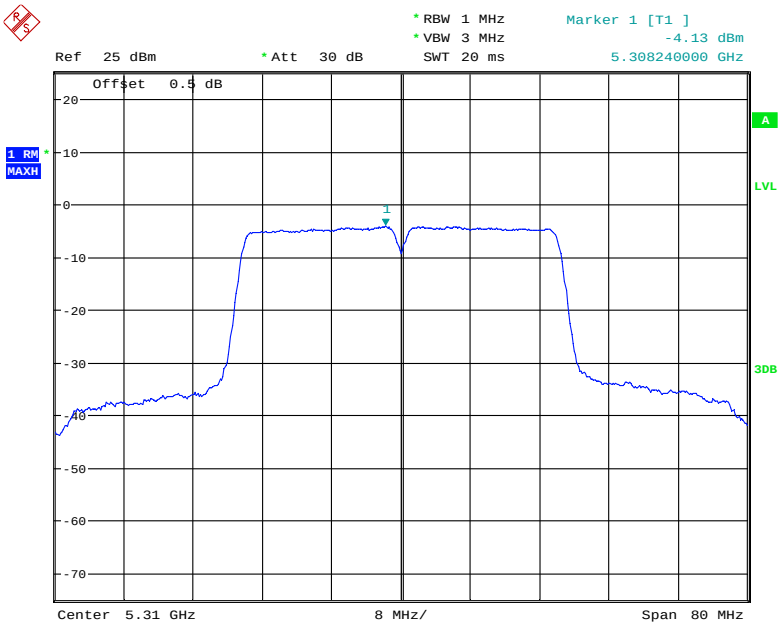
Date: 14.MAR.2019 11:44:26

802.11n ht40 Low Channel



Date: 14.MAR.2019 11:48:35

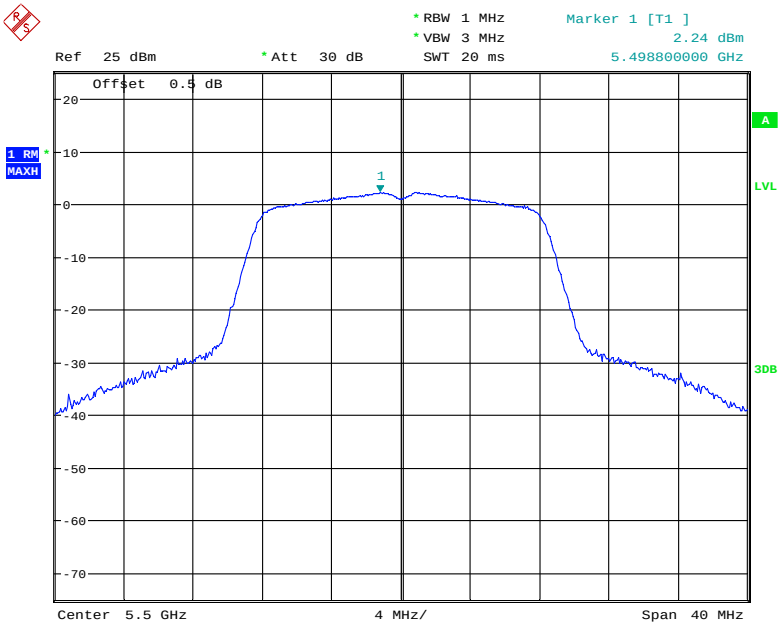
802.11n ht40 High Channel



Date: 14.MAR.2019 11:50:28

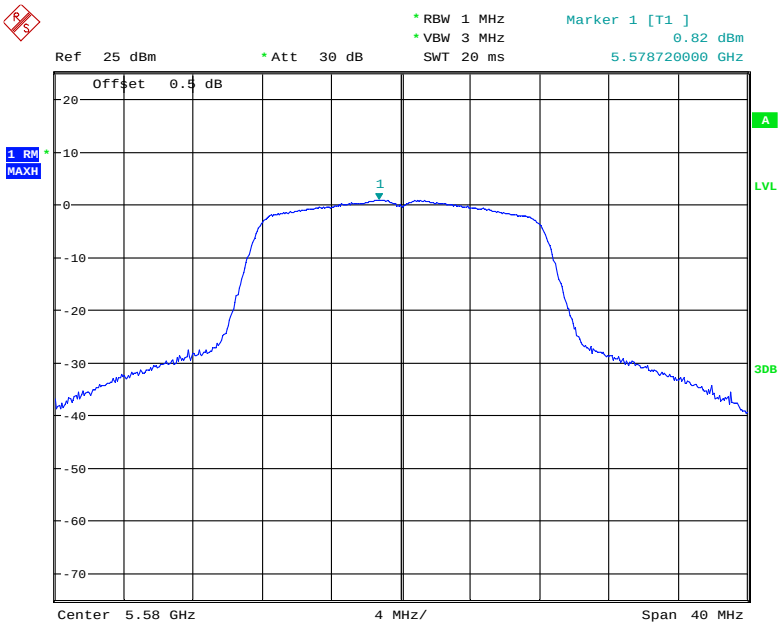
5470-5725MHz

802.11a Low Channel



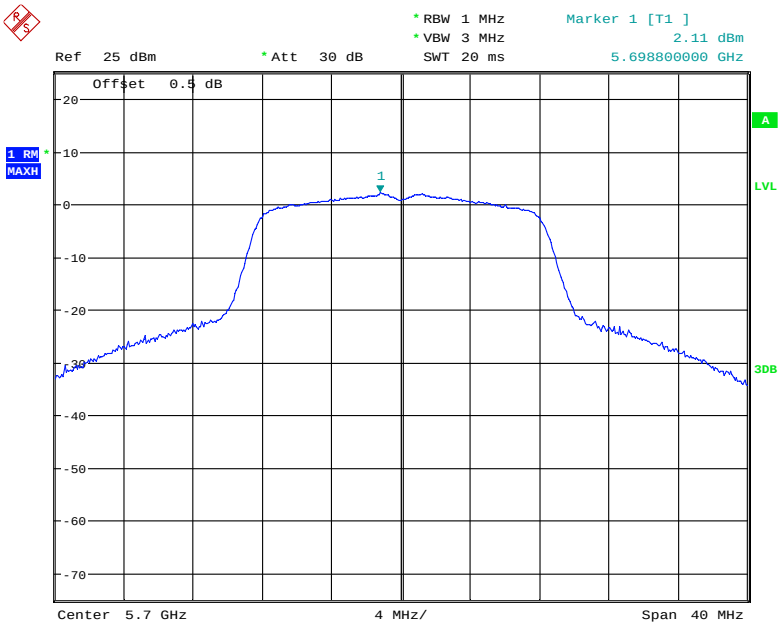
Date: 14.MAR.2019 11:58:27

802.11a Middle Channel



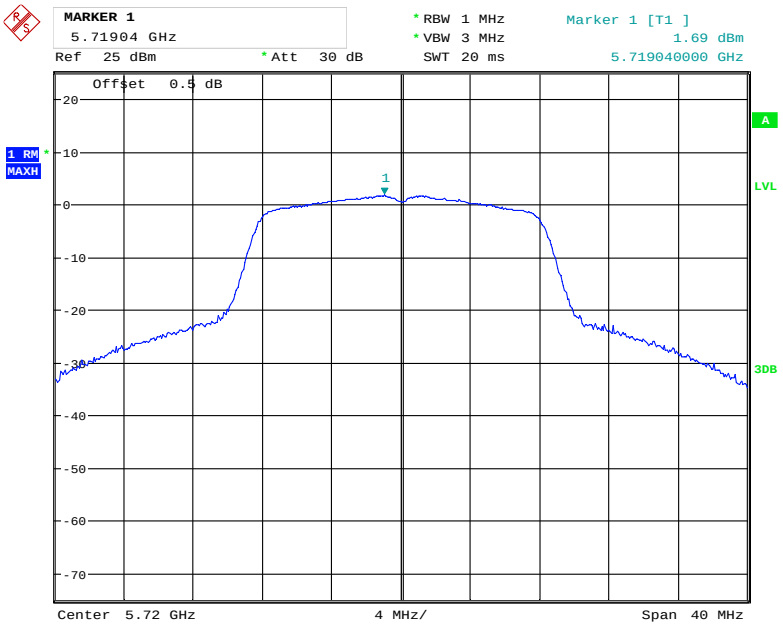
Date: 14.MAR.2019 16:27:21

802.11a High Channel



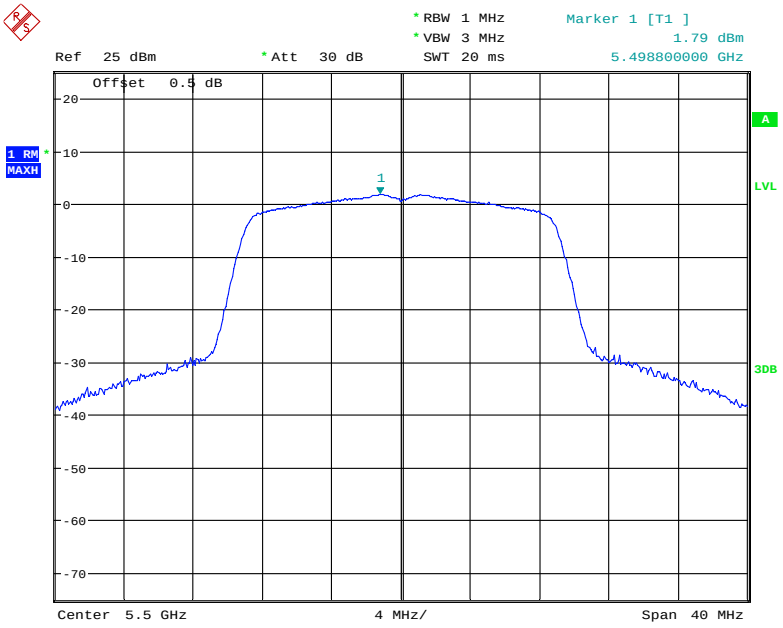
Date: 16.MAR.2019 09:39:23

802.11a 5720 Channel



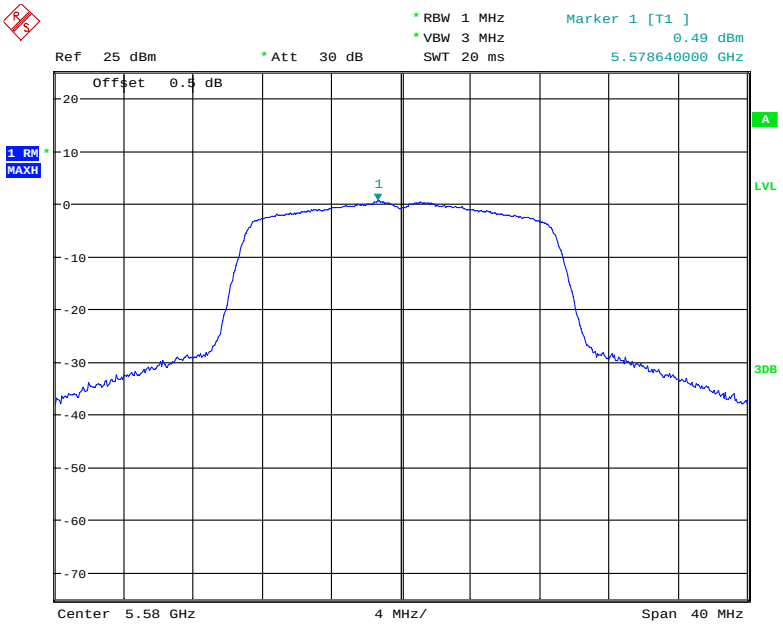
Date: 16.MAR.2019 09:42:13

802.11n ht20 Low Channel



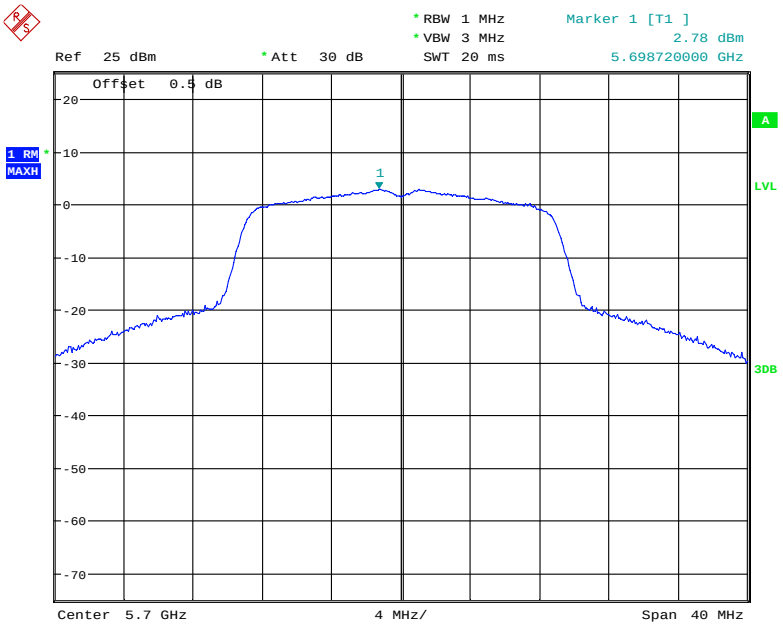
Date: 14.MAR.2019 16:34:44

802.11n ht20 Middle Channel



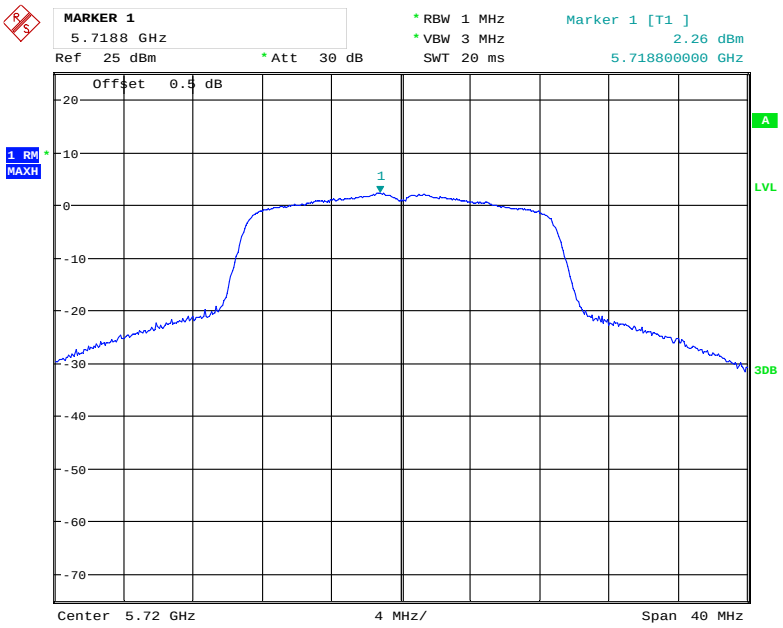
Date: 14.MAR.2019 16:37:33

802.11n ht20 High Channel



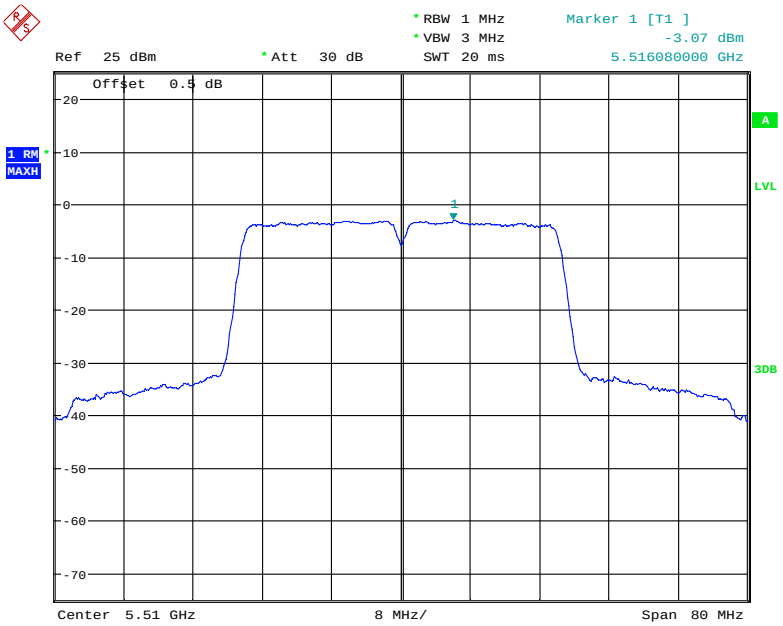
Date: 14.MAR.2019 16:40:10

802.11n ht20 5720 Channel



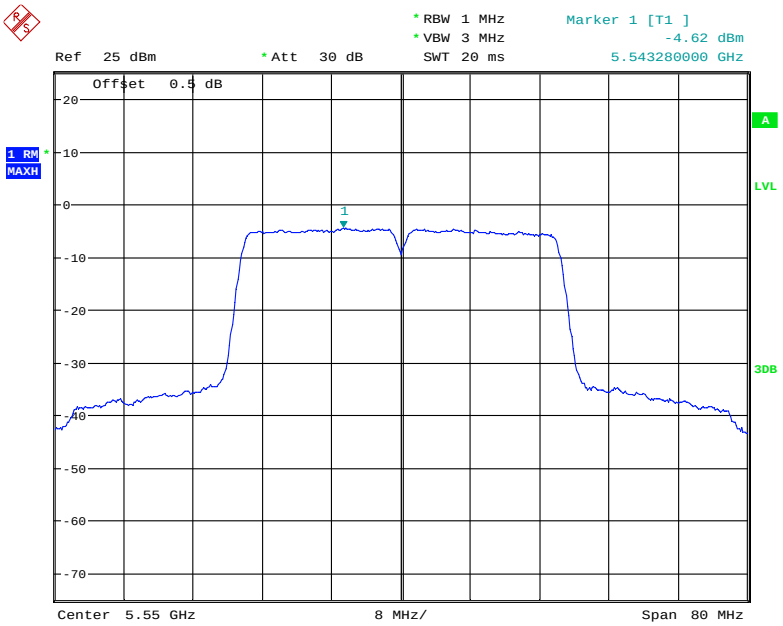
Date: 16.MAR.2019 09:44:50

802.11n ht40 Low Channel



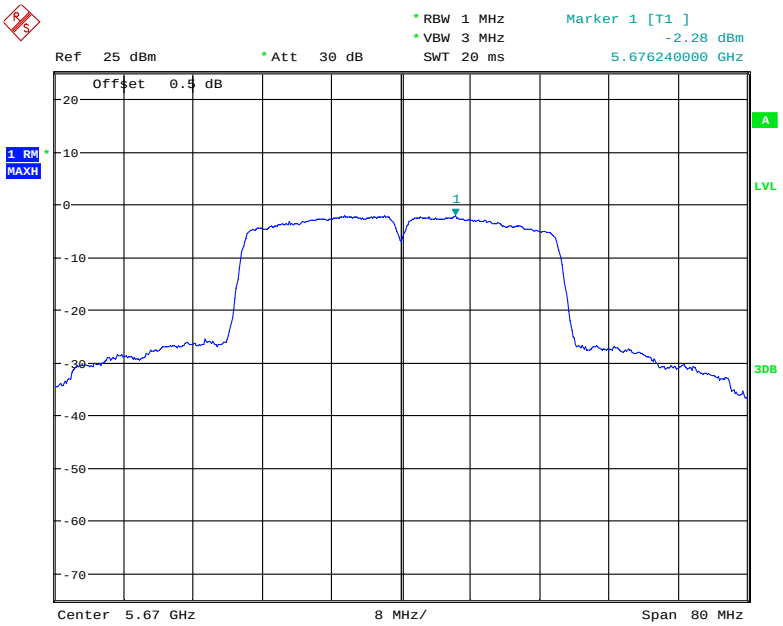
Date: 14.MAR.2019 16:42:28

802.11n ht40 Middle Channel



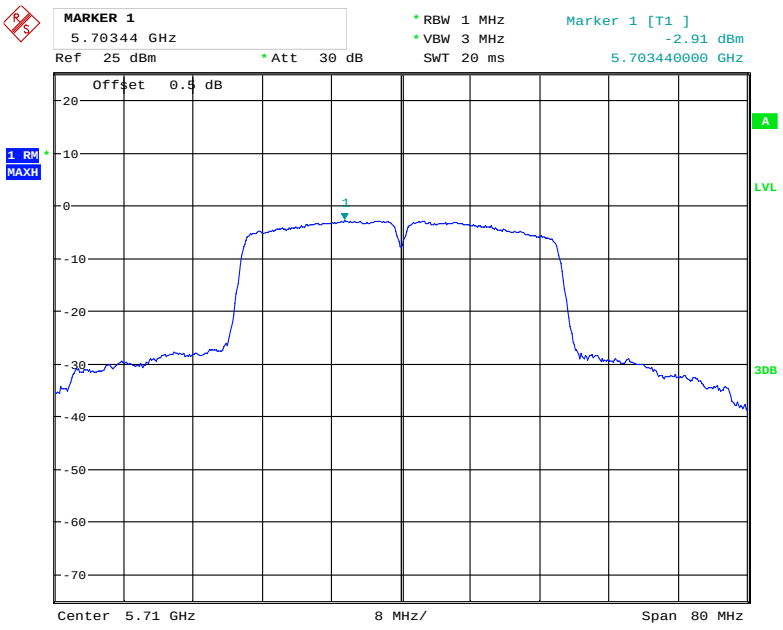
Date: 14.MAR.2019 16:44:34

802.11n ht40 High Channel



Date: 14.MAR.2019 16:47:00

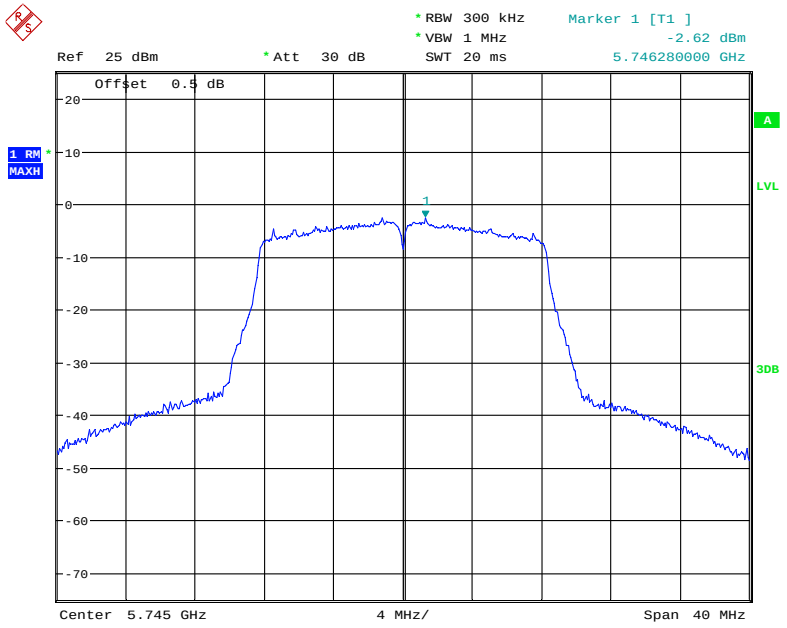
802.11n ht40 5710 Channel



Date: 16.MAR.2019 09:45:26

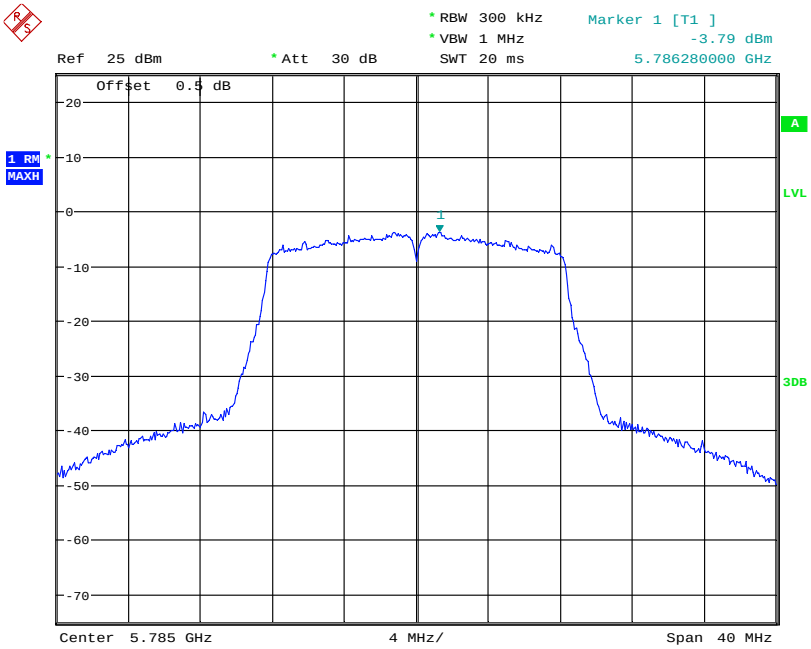
5725-5850MHz

802.11a Low Channel



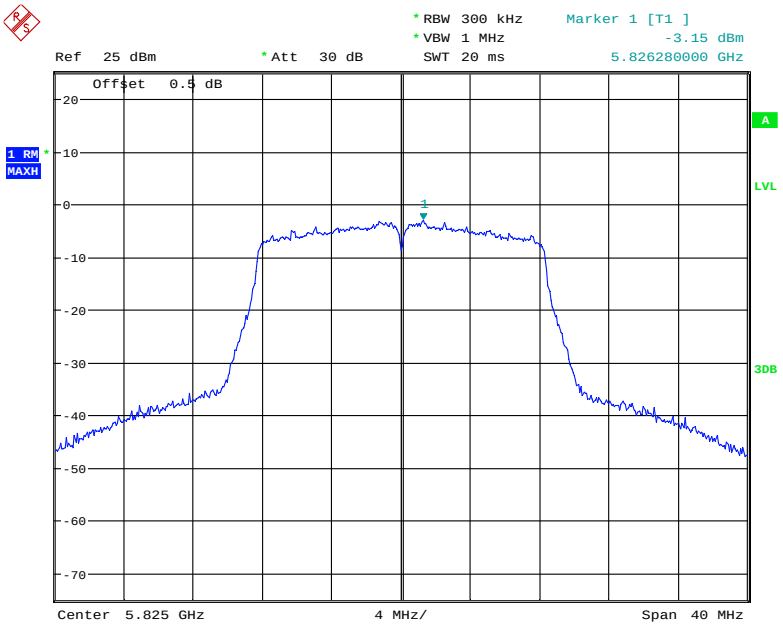
Date: 8.JAN.2019 18:41:24

802.11a Middle Channel



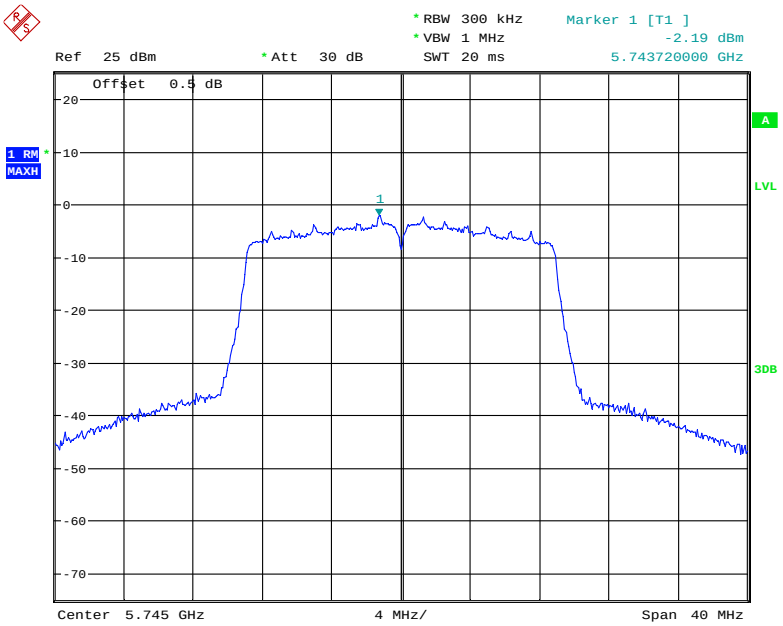
Date: 8.JAN.2019 19:28:24

802.11a High Channel



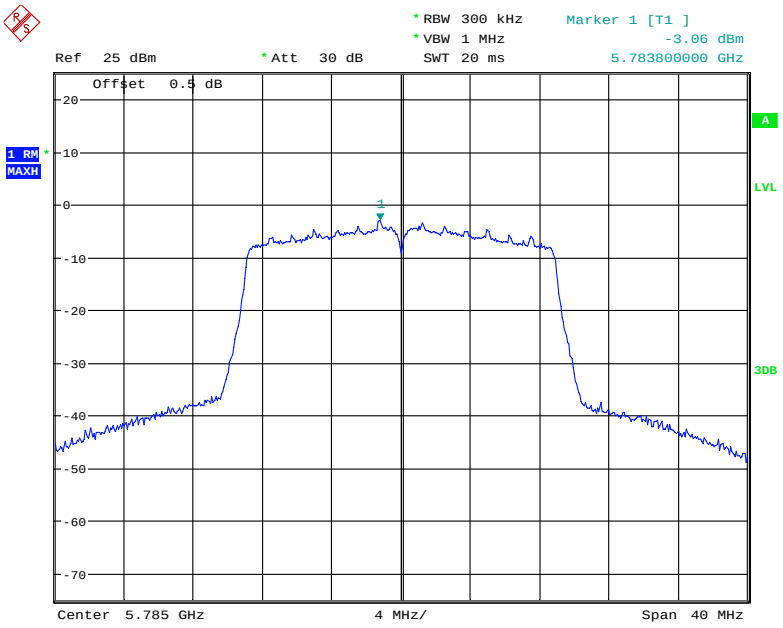
Date: 8.JAN.2019 19:21:49

802.11n ht20 Low Channel



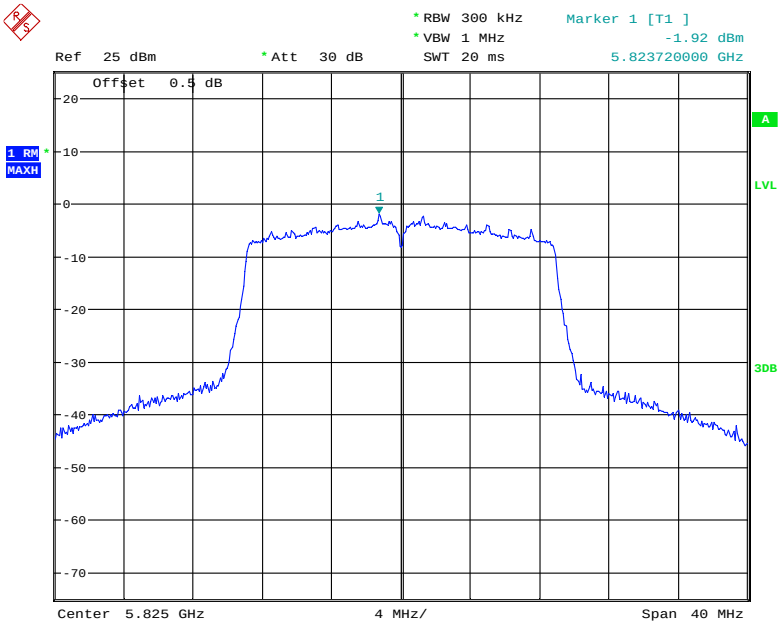
Date: 8.JAN.2019 19:34:11

802.11n ht20 Middle Channel



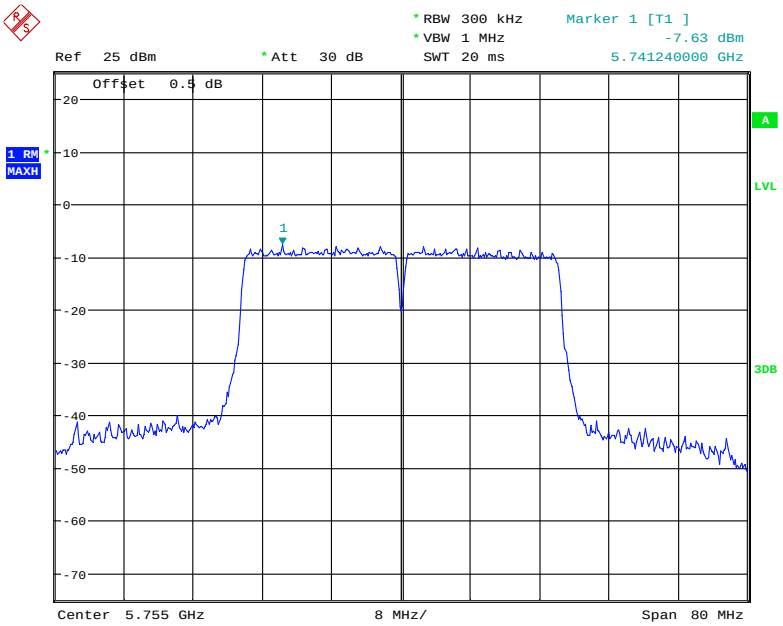
Date: 8.JAN.2019 19:31:54

802.11n ht20 High Channel



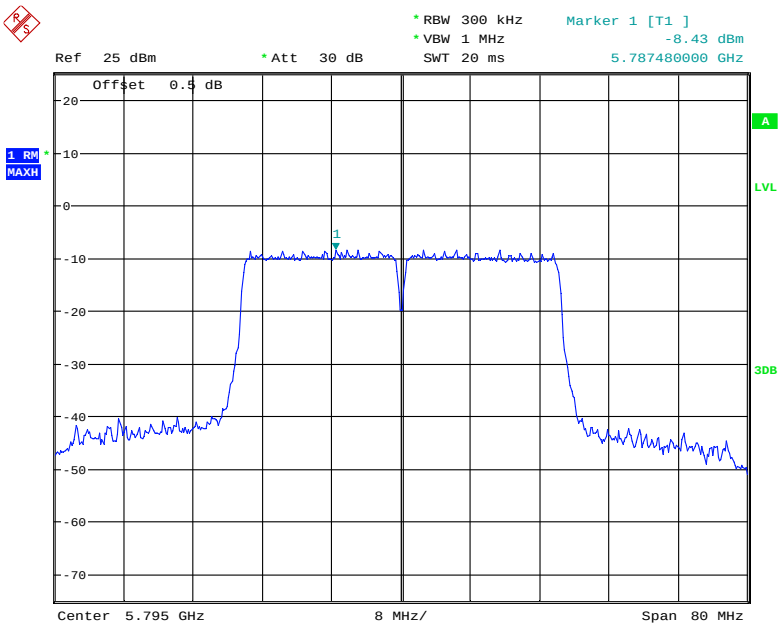
Date: 8.JAN.2019 19:36:44

802.11n ht40 Low Channel



Date: 8.JAN.2019 19:42:42

802.11n ht40 High Channel



Date: 8.JAN.2019 19:40:09

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