FCC PART 15.407

TEST REPORT

For

SHENZHEN TENDA TECHNOLOGY CO., LTD.

6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

FCC ID: V7TW15E

Report Type:	**Product Name:**
Original Report	AC1200 Wireless Hotspot Router

Test Engineer:	*Kevin Hu*
Report Number:	RDG170426007B
Report Date:	2017-05-24
Reviewed By:	Henry Ding EMC Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: 028-65523123, Fax: 028-65525125 www.baclcorp.com

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

he ***SHENZHEN TENDA TECHNOLOGY CO., LTD.***'s product, model number: ***W15E (FCC ID: V7TW15E)*** (the "EUT") in this report was a ***AC1200 Wireless Hotspot Router****,* which was measured approximately: 22 cm (L) × 13.5 cm (W) × 3 cm (H), rated input voltage: DC12V from adapter.

Adapter Information:
Model:BN036-A12012U
Input:AC100-240V, 50/60Hz, 0.4A
Output:DC 12V, 1.0A

**All measurement and test data in this report was gathered from final production sample, serial number: 170426007 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2017-04-26, and EUT conformed to test requirement.*

Objective

This type approval report is prepared on behalf of ***SHENZHEN TENDA TECHNOLOGY CO., LTD.*** in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules.

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.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: V7TW15E.

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices”.

All of the measurements detailed in this Test Report were performed by Bay Area Compliance Laboratories Corp. (Chengdu).

The Bay Area Compliance Laboratories Corp. Chengdu’s measurement Uncertainties (calculated for a k=2 Coverage Factor corresponding to approximately 95% Coverage) were as follows:

-For all of the AC Line Conducted Emissions Tests reported herein: ±3.17 dB.
-For of all of the Direct Antenna Conducted Emissions Tests reported herein: ±0.56 dB.

-For of all of the direct Radiated Emissions Tests reported herein are:
30 MHz to 200 MHz: ±4.7 dB;
200 MHz to 1 GHz: ±6.0 dB;
1 GHz to 6 GHz: ±5.13dB; and,
6 GHz to 40 GHz: ±5.47dB.

And the uncertainty will not be taken into consideration for all test data recorded in the report.

Test Facility

The test site used by BACL to collect test data is located in the No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

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/ac vht20/ac vht40/ac vht80, for 5150~5250 MHz band, 7 channels are provided to testing:

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

802.11a, 802.11n ht20 and 802.11ac20 modes were tested with Channel 36, 40 and 48,
802.11n ht40 and 802.11ac40 modes were tested with Channel 38 and 46.
802.11ac80 mode was tested with channel 42

For 5725~5850MHz band, 8 channels are provided to testing:

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

802.11a, 802.11n ht20 and 802.11ac20 modes were tested with Channel 149, 157 and 165,
802.11n ht40 and 802.11ac40 modes were tested with Channel 151 and 159.
802.11ac80 mode was tested with channel 155

The device supports SISO and MIMO at 802.11n ht20/n ht40/AC80 mode, per pre-test, MIMO mode was the worst and reported.

EUT Exercise Software

The software “MTool 2.0.1.7” 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:

5125-5250 MHz:

Test Mode	Test Software Version	MTool 2.0.1.7		
802.11a	Test Frequency	5180MHz	5200MHz	5240MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Chain 0	65	76	70
	Chain 1	63	74	68
802.11n ht20	Test Frequency	5180MHz	5200MHz	5240MHz
	Data Rate	MCS0	MCS0	MCS0
	Chain 0	54	64	59
	Chain 1	54	64	59
802.11n ht40	Test Frequency	5190MHz	/	5230MHz
	Data Rate	MCS0	/	MCS0
	Chain 0	52	/	52
	Chain 1	52	/	52
802.11 ac20	Test Frequency	5180MHz	5200MHz	5240MHz
	Data Rate	MNSS0	MNSS0	MNSS0
	Chain 0	56	65	61
	Chain 1	56	65	61
802.11 ac40	Test Frequency	5190MHz	/	5230MHz
	Data Rate	MNSS0	/	MNSS0
	Chain 0	52	/	57
	Chain 1	52	/	57
802.11ac ht80	Test Frequency	/	5210MHz	/
	Data Rate	/	MNSS0	/
	Chain 0	/	53	/
	Chain 1	/	53	/

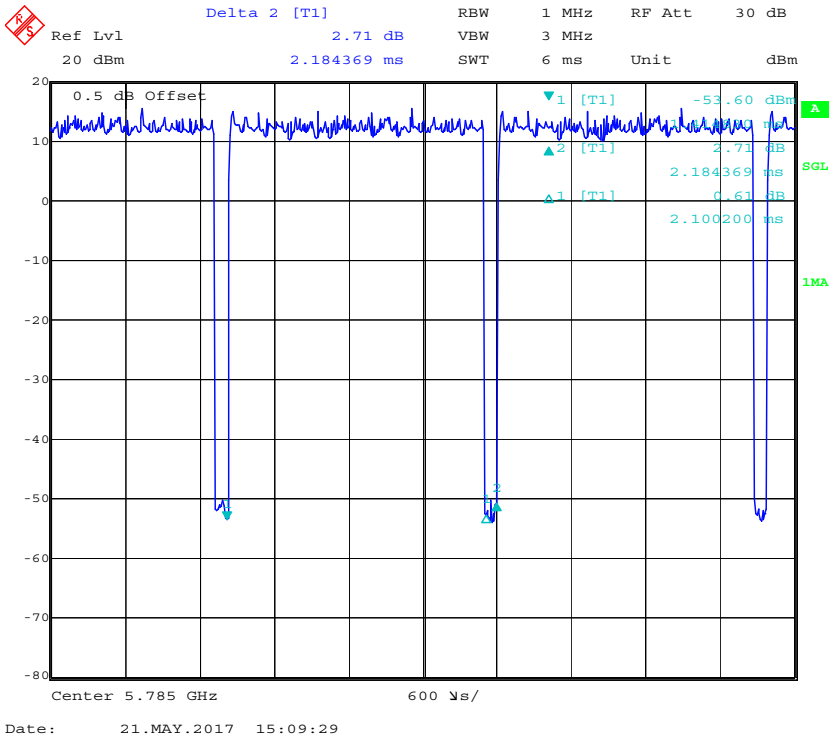
5725-5850MHz:

Test Mode	Test Software Version	MTool 2.0.1.7		
802.11a	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Chain 0	90	90	90
	Chain 1	90	90	90
802.11n ht20	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	MCS0	MCS0	MCS0
	Chain 0	82	/	82
	Chain 1	82	/	82
802.11n ht40	Test Frequency	5755MHz	/	5795MHz
	Data Rate	MCS0	/	MCS0
	Chain 0	82	/	82
	Chain 1	82	/	82
802.11 ac20	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	MNSS0	MNSS0	MNSS0
	Chain 0	90	90	90
	Chain 1	90	90	90
802.11 ac40	Test Frequency	5755MHz	/	5795MHz
	Data Rate	MNSS0	/	MNSS0
	Chain 0	82	/	82
	Chain 1	82	/	82
802.11 ac80	Test Frequency	/	5775MHz	/
	Data Rate	/	MNSS0	/
	Chain 0	/	72	/
	Chain 1	/	72	/

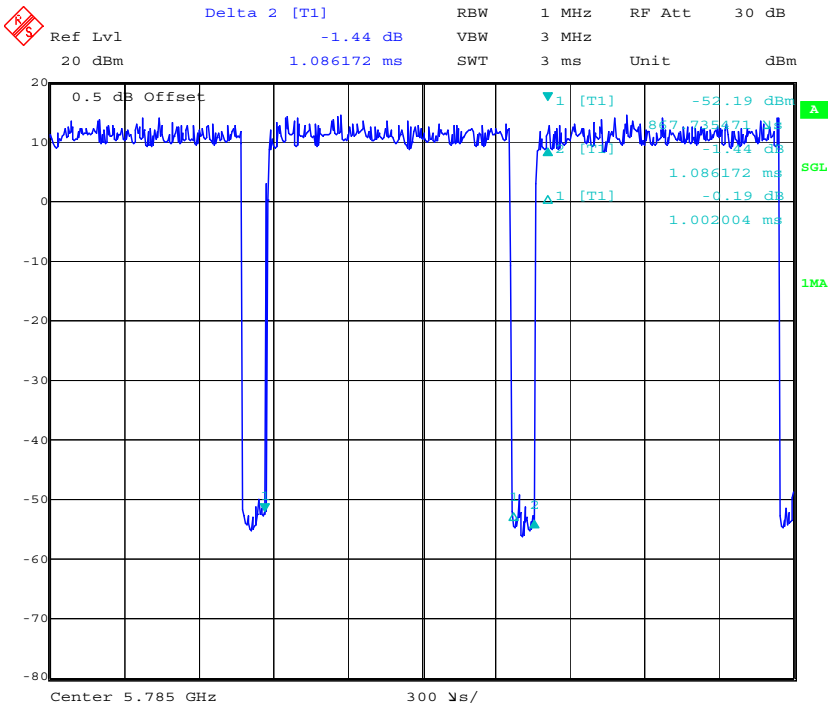
The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)	Minimum Transmission Duration (T) (ms)	Duty cycle Corrected Factor (10*log(1/x)) (dB)
802.11 a	2.10	2.18	96.33%	2.10	0.16
802.11n ht20	1.00	1.09	91.74%	1.00	0.37
802.11n ht40	0.509	0.595	85.55%	0.509	0.68
802.11ac20	1.00	1.02	98.04%	1.00	0.09
802.11ac40	0.513	0.531	96.61%	0.513	0.15
802.11ac80	0.265	0.286	92.66%	0.265	0.33

802.11a



802.11 n20



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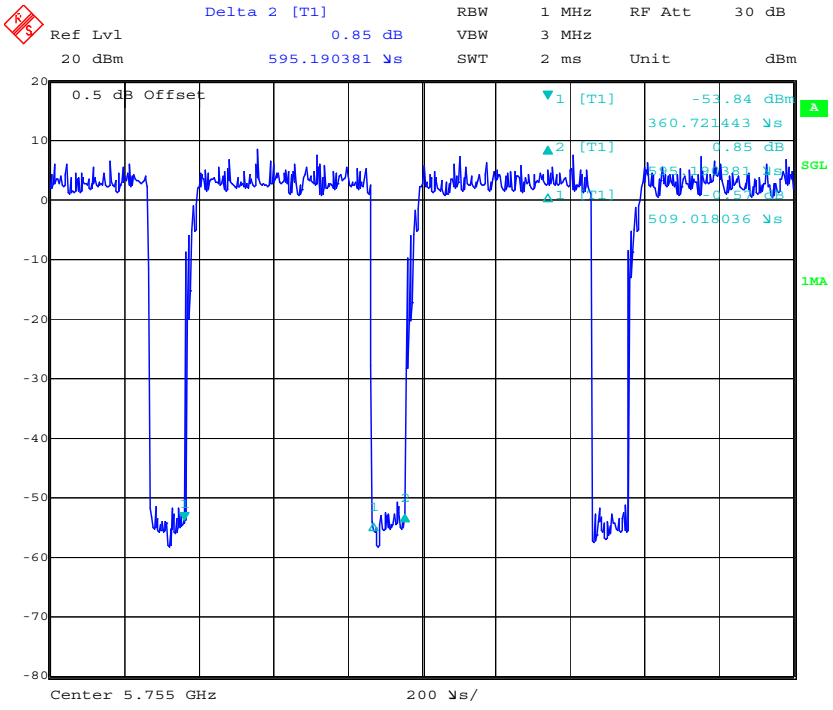
802.11 n40



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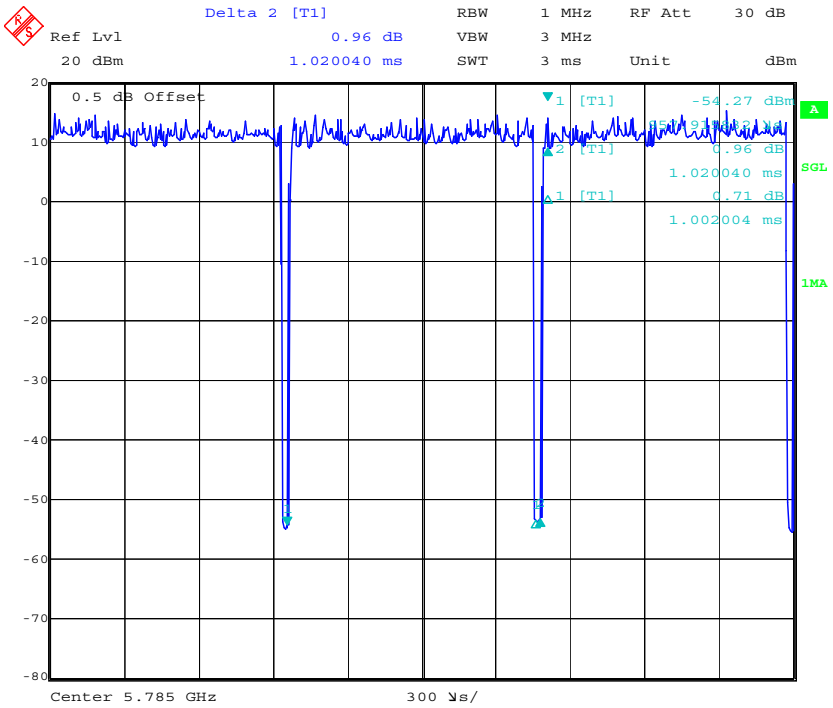
802.11 ac20



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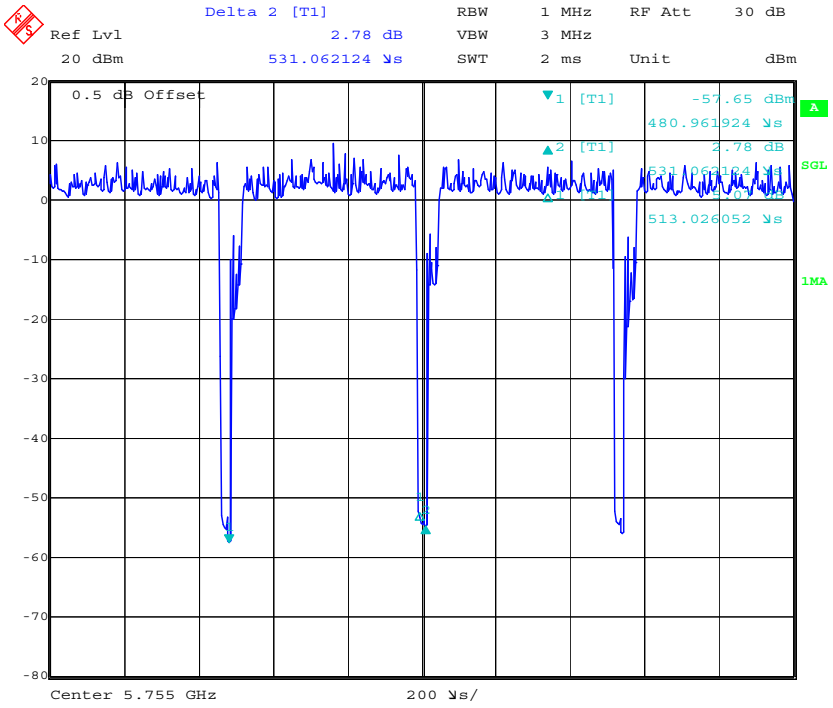
802.11 ac40



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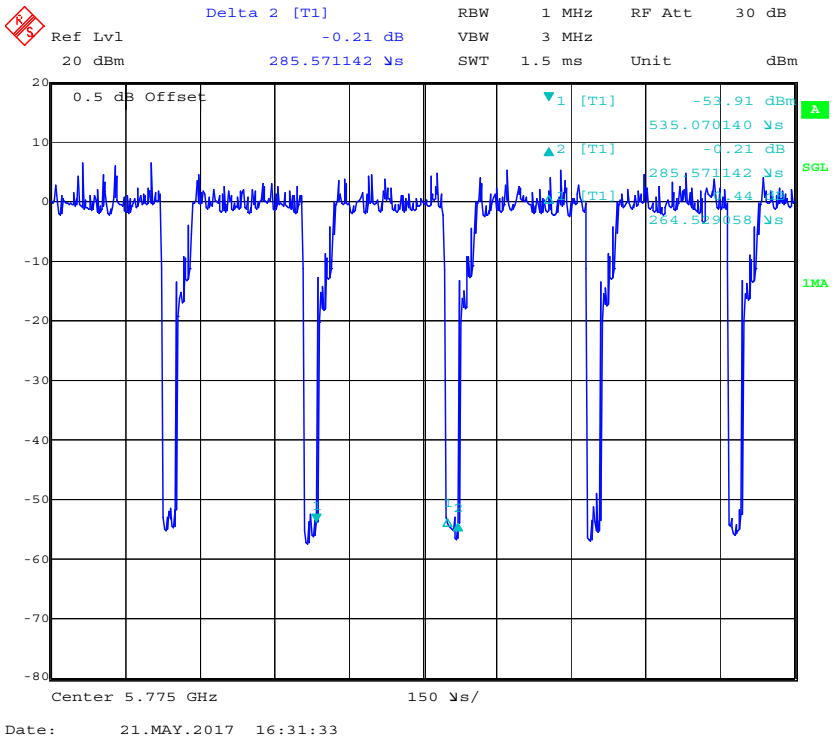
802.11 ac80



Equipment Modifications

No modification was made to the EUT.

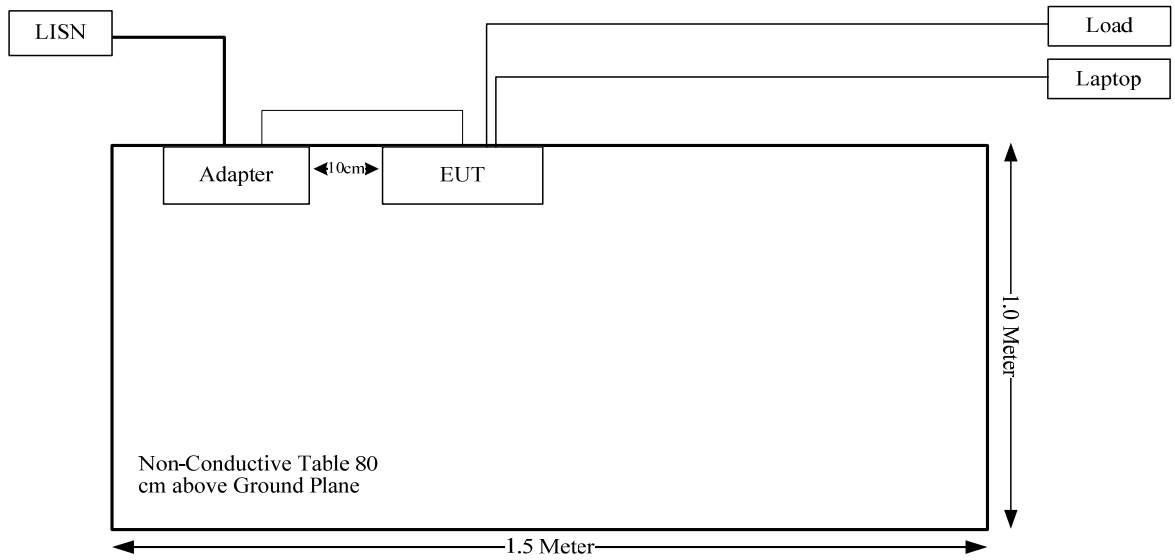
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	PC	8176	99Y7315

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 cable	No	No	10	EUT	Laptop
RJ45 cable*4	No	No	10	EUT	Load

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1091	Maximum Permissable Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b)	Out Of Band Emissions	Compliance
§15.407(a) (e)	Emission Bandwidth	Compliance
§15.407(g)	Frequency Stability	Compliance
§15.407(a)	Conducted Transmitter Output Power	Compliance
§15.407 (a)	Power Spectral Density	Compliance

FCC §15.407 (f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.407(f)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	5	3.16	26	398.11	20.00	0.25	1.0
5180-5825	5	3.16	24	251.19	20.00	0.16	1.0

The 2.4GHz band and 5GHz band can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$=S_{2.4}/S_{limit-2.4} + S_5/S_{limit-5}$

=0.25/1+0.16/1

=0.41

< 1.0

Result: The device meet FCC MPE at 20 cm distance

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 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 use of a standard antenna jack or electrical connector is prohibited.
And according to FCC 47 CFR section 15.407 (a)(1),if transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT have 2 external antennas for 2.4GHz band permanently attached to the unit, the antenna gain is 5dBi, and 2 external antennas for 5GHz band permanently attached to the unit, the antenna gain is 5dBi. Please refer to the EUT photo.

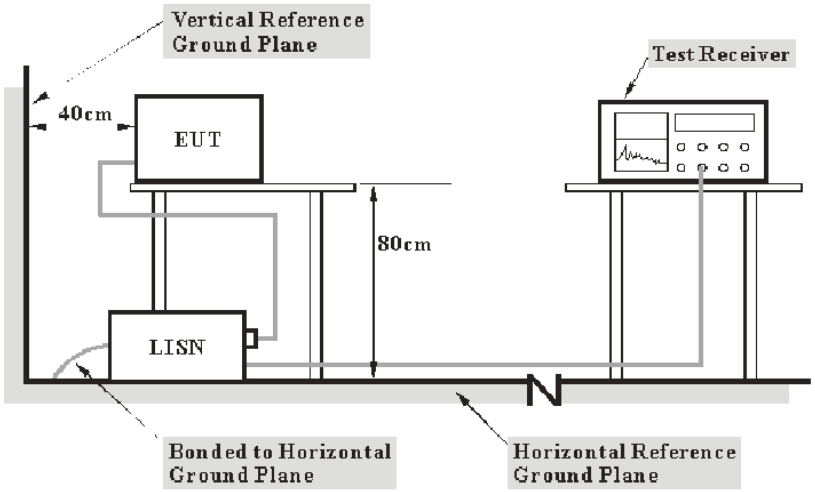
Result: Compliance.

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6).

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.

The spacing between the peripherals was 10 cm.

The adapter was connected to 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 maximum 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
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2016-12-02	2017-12-01
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2016-12-02	2017-12-01
SOLAR ELECTRONICS	L.I.S.N.	9252-50-24-BNC	984413	2016-12-02	2017-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	DE14781	2016-10-31	2017-10-30
Unknown	Conducted Cable	Unknown	NO.5	2016-11-10	2017-11-09
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Procedure

During the conducted emission test, the adapter 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 Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data

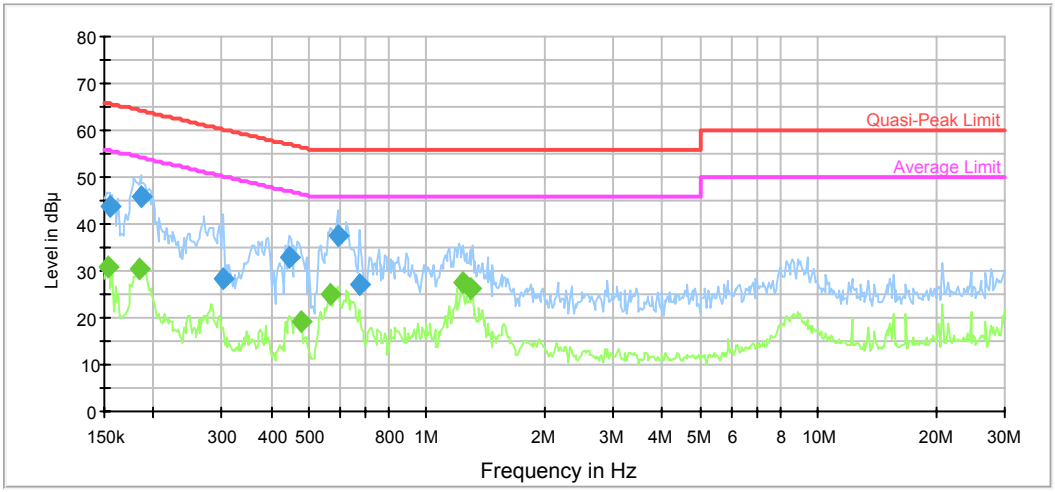
Environmental Conditions

Temperature:	19 °C
Relative Humidity:	56 %
ATM Pressure:	95.6 kPa

The testing was performed by Kevin Hu on 2017-05-02

Test Mode: Transmitting

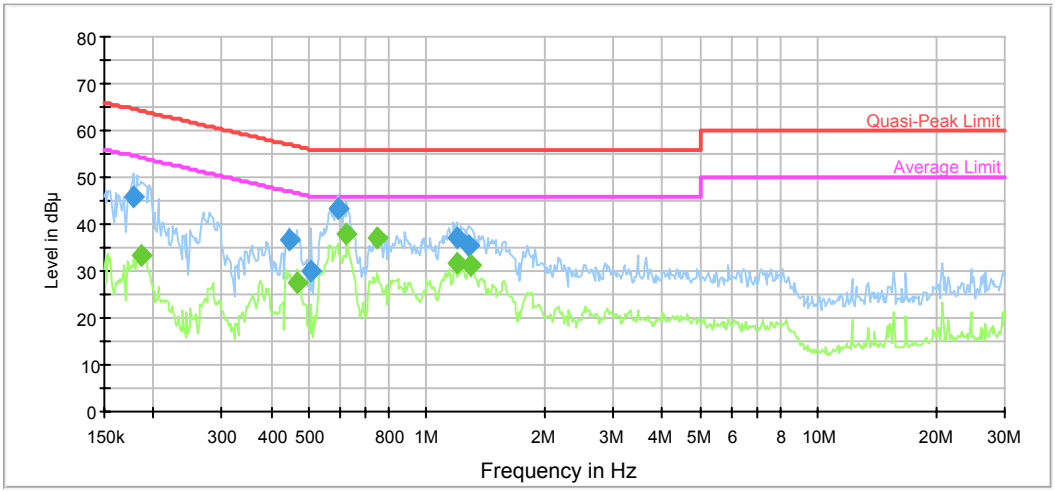
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154858	43.8	9.000	L1	19.7	21.9	65.7	Compliance
0.186006	45.7	9.000	L1	19.7	18.5	64.2	Compliance
0.302425	28.3	9.000	L1	19.7	31.9	60.2	Compliance
0.446873	33.0	9.000	L1	19.7	23.9	56.9	Compliance
0.590613	37.7	9.000	L1	19.8	18.3	56.0	Compliance
0.670921	26.9	9.000	L1	19.7	29.1	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.153629	30.6	9.000	L1	19.7	25.2	55.8	Compliance
0.184529	30.5	9.000	L1	19.7	23.8	54.3	Compliance
0.480097	19.1	9.000	L1	19.7	27.2	46.3	Compliance
0.567545	25.1	9.000	L1	19.7	20.9	46.0	Compliance
1.239175	27.4	9.000	L1	19.7	18.6	46.0	Compliance
1.289541	26.2	9.000	L1	19.7	19.8	46.0	Compliance

AC120 V, 60 Hz, Neutral:



requency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.178741	45.7	9.000	N	19.7	18.8	64.5	Compliance
0.446873	36.7	9.000	N	19.6	20.2	56.9	Compliance
0.507637	30.0	9.000	N	19.6	26.0	56.0	Compliance
0.590613	43.5	9.000	N	19.6	12.5	56.0	Compliance
1.190776	37.2	9.000	N	19.6	18.8	56.0	Compliance
1.279307	35.6	9.000	N	19.6	20.4	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.187494	33.3	9.000	N	19.6	20.8	54.1	Compliance
0.465037	27.7	9.000	N	19.6	18.9	46.6	Compliance
0.624492	38.0	9.000	N	19.6	8.0	46.0	Compliance
0.750100	37.0	9.000	N	19.6	9.0	46.0	Compliance
1.190776	31.5	9.000	N	19.6	14.5	46.0	Compliance
1.289541	31.4	9.000	N	19.6	14.6	46.0	Compliance

FCC §15.209, §15.205 & §15.407(b) –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: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

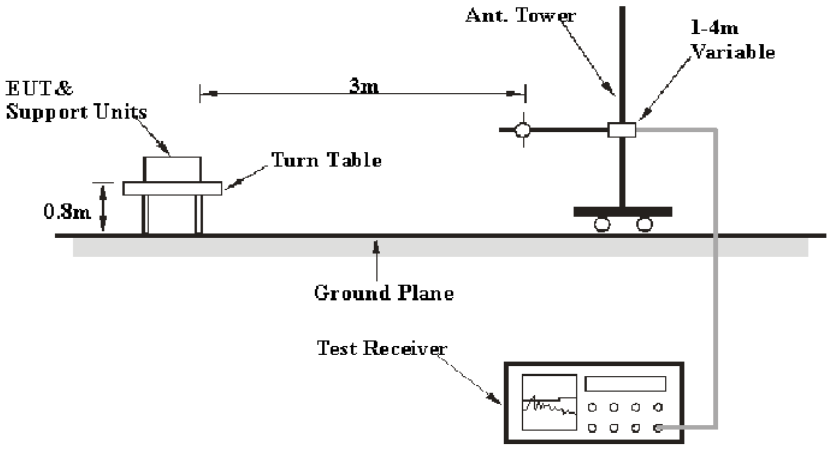
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(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.

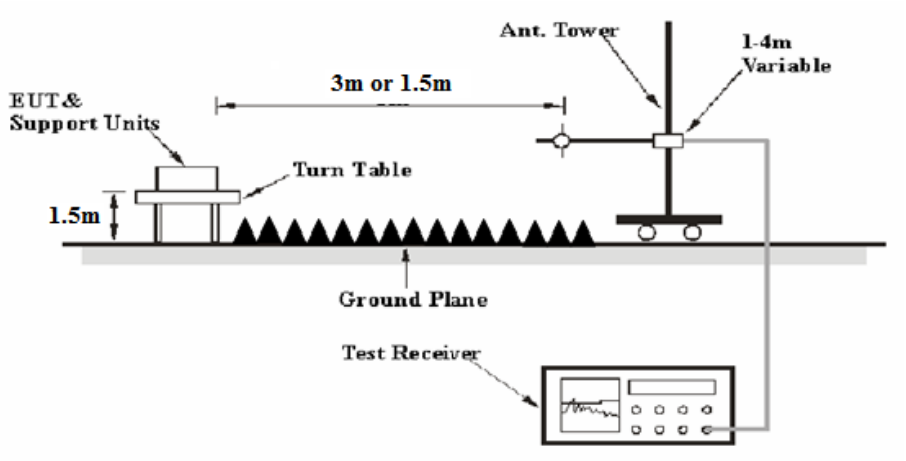
(7) The provisions of §15.205 apply to intentional radiators operating under this section.

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 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:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP

1GHz- 40GHz:

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

Test Procedure

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

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

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

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04, 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
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB
Extrapolation result = Corrected Amplitude (dBμV/m) - distance extrapolation factor (6dB)

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + 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 = Extrapolation result -Limit

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2016-12-02	2017-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2016-12-02	2017-12-01
Sunol Sciences	Broadband Antenna	JB3	A121808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2016-12-02	2017-12-01
ETS	Horn Antenna	3115	003-6076	2016-12-02	2017-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113024	2014-06-16	2017-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2016-05-20	2017-05-19
EMCT	Semi-Anechoic Chamber	966	966-1	2015-04-24	2018-04-23
Unknown	RF Cable (below 1GHz)	Unknown	NO.1	2016-11-10	2017-11-09
Unknown	RF Cable (below 1GHz)	Unknown	NO.4	2016-11-10	2017-11-09
Unknown	RF Cable (above 1GHz)	Unknown	NO.2	2016-11-10	2017-11-09
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1312	2016-08-18	2017-08-18
Quinstar	Amplifier	QLW-18405536-JO	15964001032	2016-08-18	2017-08-18
Agilent	Spectrum Analyzer	8564E	5943A01752	2016-08-18	2017-08-18

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	25.0 °C
Relative Humidity:	36.4%
ATM Pressure:	100.9 kPa

** The testing was performed by Kevin Hu on 2017-05-17*

Test Mode: Transmitting(Above 1GHz test performed at distance 1.5m from EUT to Antenna)

5150-5250MHz:
802.11a mode(Chain 0 was the worst)

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5180 MHz										
5180	66.77	PK	H	31.72	5.21	0.00	103.70	97.70	N/A	N/A
5180	58.06	AV	H	31.72	5.21	0.00	94.99	88.99	N/A	N/A
5180	77.23	PK	V	31.72	5.21	0.00	114.16	108.16	N/A	N/A
5180	67.8	AV	V	31.72	5.21	0.00	104.73	98.73	N/A	N/A
5150	29.43	PK	V	31.67	5.18	0.00	66.28	60.28	74.00	13.72
5150	16.5	AV	V	31.67	5.18	0.00	53.35	47.35	54.00	6.65
10360	35.01	PK	V	37.37	7.76	26.37	53.77	47.77	74.00	26.23
10360	25.69	AV	V	37.37	7.76	26.37	44.45	38.45	54.00	15.55
15540	27.56	PK	V	39.41	10.22	25.32	51.87	45.87	74.00	28.13
15540	18.28	AV	V	39.41	10.22	25.32	42.59	36.59	54.00	17.41
3052	38.29	PK	V	24.49	3.51	26.43	39.86	33.86	74.00	40.14
3052	27.8	AV	V	24.49	3.51	26.43	29.37	23.37	54.00	30.63
4735	34.15	PK	V	30.55	5.16	26.86	43.00	37.00	74.00	37.00
4735	22.1	AV	V	30.55	5.16	26.86	30.95	24.95	54.00	29.05
99.84	46.5	QP	V	10.71	0.51	28.31	29.41	29.41	43.50	14.09
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76
Middle Channel:5200 MHz										
5200	70.2	PK	H	31.76	5.23	0.00	107.19	101.19	N/A	N/A
5200	60.67	AV	H	31.76	5.23	0.00	97.66	91.66	N/A	N/A
5200	80.99	PK	V	31.76	5.23	0.00	117.98	111.98	N/A	N/A
5200	71.61	AV	V	31.76	5.23	0.00	108.6	102.6	N/A	N/A
10400	35.16	PK	V	37.38	7.79	26.36	53.97	47.97	74.00	26.03
10400	25.2	AV	V	37.38	7.79	26.36	44.01	38.01	54.00	15.99
15600	28.26	PK	V	39.42	10.22	25.31	52.59	46.59	74.00	27.41
15600	18.88	AV	V	39.42	10.22	25.31	43.21	37.21	54.00	16.79
3089	38.35	PK	V	24.70	3.56	26.44	40.17	34.17	74.00	39.83
3089	27.74	AV	V	24.70	3.56	26.44	29.56	23.56	54.00	30.44
4768	34.25	PK	V	30.66	5.14	26.87	43.18	37.18	74.00	36.82
4768	22.97	AV	V	30.66	5.14	26.87	31.90	25.90	54.00	28.10
99.84	46.6	QP	V	10.71	0.51	28.31	29.51	29.51	43.50	13.99
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66
High Channel:5240 MHz										
5240	65.54	PK	H	31.83	5.27	0.00	102.64	96.64	N/A	N/A
5240	56.47	AV	H	31.83	5.27	0.00	93.57	87.57	N/A	N/A
5240	76.06	PK	V	31.83	5.27	0.00	113.16	107.16	N/A	N/A
5240	66.73	AV	V	31.83	5.27	0.00	103.83	97.83	N/A	N/A
5350	27.34	PK	V	32.03	5.37	0.00	64.74	58.74	74.00	15.26
5350	14.31	AV	V	32.03	5.37	0.00	51.71	45.71	54.00	8.29
10480	35.54	PK	V	37.40	7.84	26.35	54.43	48.43	74.00	25.57
10480	26.3	AV	V	37.40	7.84	26.35	45.19	39.19	54.00	14.81
15720	27.89	PK	V	39.44	10.24	25.30	52.27	46.27	74.00	27.73
15720	18.28	AV	V	39.44	10.24	25.30	42.66	36.66	54.00	17.34
3124	38.68	PK	V	24.89	3.62	26.45	40.74	34.74	74.00	39.26
3124	28.15	AV	V	24.89	3.62	26.45	30.21	24.21	54.00	29.79
4796	34.17	PK	V	30.75	5.13	26.87	43.18	37.18	74.00	36.82
4796	22.71	AV	V	30.75	5.13	26.87	31.72	25.72	54.00	28.28
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86

802.11n ht20 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5180 MHz										
5180	71.15	PK	H	31.72	5.21	0.00	108.08	102.08	N/A	N/A
5180	58.94	AV	H	31.72	5.21	0.00	95.87	89.87	N/A	N/A
5180	76.87	PK	V	31.72	5.21	0.00	113.80	107.80	N/A	N/A
5180	65.06	AV	V	31.72	5.21	0.00	101.99	95.99	N/A	N/A
5150	27.69	PK	V	31.67	5.18	0.00	64.54	58.54	74.00	15.46
5150	15.74	AV	V	31.67	5.18	0.00	52.59	46.59	54.00	7.41
10360	35.99	PK	V	37.37	7.76	26.37	54.75	48.75	74.00	25.25
10360	25.01	AV	V	37.37	7.76	26.37	43.77	37.77	54.00	16.23
15540	28.2	PK	V	39.41	10.22	25.32	52.51	46.51	74.00	27.49
15540	18.16	AV	V	39.41	10.22	25.32	42.47	36.47	54.00	17.53
1358	30.57	PK	V	23.73	2.47	26.47	30.30	24.30	74.00	49.70
1358	19.2	AV	V	23.73	2.47	26.47	18.93	12.93	54.00	41.07
3314	38.89	PK	V	25.96	3.90	26.52	42.23	36.23	74.00	37.77
3314	27.57	AV	V	25.96	3.90	26.52	30.91	24.91	54.00	29.09
99.84	47	QP	V	10.71	0.51	28.31	29.91	29.91	43.50	13.59
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76
Middle Channel:5200 MHz										
5200	75.19	PK	H	31.76	5.23	0.00	112.18	106.18	N/A	N/A
5200	63	AV	H	31.76	5.23	0.00	99.99	93.99	N/A	N/A
5200	81.94	PK	V	31.76	5.23	0.00	118.93	112.93	N/A	N/A
5200	71.63	AV	V	31.76	5.23	0.00	108.62	102.62	N/A	N/A
10400	35.17	PK	V	37.38	7.79	26.36	53.98	47.98	74.00	26.02
10400	24.36	AV	V	37.38	7.79	26.36	43.17	37.17	54.00	16.83
15600	27.89	PK	V	39.42	10.22	25.31	52.22	46.22	74.00	27.78
15600	18.03	AV	V	39.42	10.22	25.31	42.36	36.36	54.00	17.64
1384	30.77	PK	V	23.80	2.51	26.44	30.64	24.64	74.00	49.36
1384	19.2	AV	V	23.80	2.51	26.44	19.07	13.07	54.00	40.93
3345	38.23	PK	V	26.13	3.95	26.53	41.78	35.78	74.00	38.22
3345	27.44	AV	V	26.13	3.95	26.53	30.99	24.99	54.00	29.01
99.84	47	QP	V	10.71	0.51	28.31	29.91	29.91	43.50	13.59
122.15	40.9	QP	V	15.91	0.85	28.12	29.54	29.54	43.50	13.96
High Channel:5240 MHz										
5240	70.93	PK	H	31.83	5.27	0.00	108.03	102.03	N/A	N/A
5240	59	AV	H	31.83	5.27	0.00	96.10	90.10	N/A	N/A
5240	78.15	PK	V	31.83	5.27	0.00	115.25	109.25	N/A	N/A
5240	66.76	AV	V	31.83	5.27	0.00	103.86	97.86	N/A	N/A
5350	27.35	PK	V	32.03	5.37	0.00	64.75	58.75	74.00	15.25
5350	14.48	AV	V	32.03	5.37	0.00	51.88	45.88	54.00	8.12
10480	36.15	PK	V	37.40	7.84	26.35	55.04	49.04	74.00	24.96
10480	25.52	AV	V	37.40	7.84	26.35	44.41	38.41	54.00	15.59
15720	28.2	PK	V	39.44	10.24	25.30	52.58	46.58	74.00	27.42
15720	17.62	AV	V	39.44	10.24	25.30	42.00	36.00	54.00	18.00
1416	30.64	PK	V	23.88	2.55	26.41	30.66	24.66	74.00	49.34
1416	20.02	AV	V	23.88	2.55	26.41	20.04	14.04	54.00	39.96
3386	38.39	PK	V	26.36	4.01	26.55	42.21	36.21	74.00	37.79
3386	27.14	AV	V	26.36	4.01	26.55	30.96	24.96	54.00	29.04
99.84	46.6	QP	V	10.71	0.51	28.31	29.51	29.51	43.50	13.99
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86

802.11n ht40 mode(2TX was the worst)

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5190 MHz										
5190	67.77	PK	H	31.74	5.22	0.00	104.73	98.73	N/A	N/A
5190	56.18	AV	H	31.74	5.22	0.00	93.14	87.14	N/A	N/A
5190	75.05	PK	V	31.74	5.22	0.00	112.01	106.01	N/A	N/A
5190	62.81	AV	V	31.74	5.22	0.00	99.77	93.77	N/A	N/A
5150	28.9	PK	V	31.67	5.18	0.00	65.75	59.75	74.00	14.25
5150	15.96	AV	V	31.67	5.18	0.00	52.81	46.81	54.00	7.19
10380	34.92	PK	V	37.38	7.78	26.37	53.71	47.71	74.00	26.29
10380	24.55	AV	V	37.38	7.78	26.37	43.34	37.34	54.00	16.66
15570	28.87	PK	V	39.41	10.22	25.31	53.19	47.19	74.00	26.81
15570	17.93	AV	V	39.41	10.22	25.31	42.25	36.25	54.00	17.75
1435	31.12	PK	V	23.93	2.58	26.39	31.24	25.24	74.00	48.76
1435	19.69	AV	V	23.93	2.58	26.39	19.81	13.81	54.00	40.19
2258	32.71	PK	V	24.02	3.02	26.86	32.89	26.89	74.00	47.11
2258	21.89	AV	V	24.02	3.02	26.86	22.07	16.07	54.00	37.93
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66
High Channel:5230 MHz										
5230	68.02	PK	H	31.81	5.26	0.00	105.09	99.09	N/A	N/A
5230	56.66	AV	H	31.81	5.26	0.00	93.73	87.73	N/A	N/A
5230	75.81	PK	V	31.81	5.26	0.00	112.88	106.88	N/A	N/A
5230	64.44	AV	V	31.81	5.26	0.00	101.51	95.51	N/A	N/A
5350	25.81	PK	V	32.03	5.37	0.00	63.21	57.21	74.00	16.79
5350	14.19	AV	V	32.03	5.37	0.00	51.59	45.59	54.00	8.41
10460	36.21	PK	V	37.39	7.83	26.36	55.07	49.07	74.00	24.93
10460	25.09	AV	V	37.39	7.83	26.36	43.95	37.95	54.00	16.05
15690	28.49	PK	V	39.44	10.24	25.30	52.87	46.87	74.00	27.13
15690	17.9	AV	V	39.44	10.24	25.30	42.28	36.28	54.00	17.72
1469	30.14	PK	V	24.02	2.63	26.36	30.43	24.43	74.00	49.57
1469	20.1	AV	V	24.02	2.63	26.36	20.39	14.39	54.00	39.61
2283	32.23	PK	V	23.94	3.02	26.86	32.33	26.33	74.00	47.67
2283	21.48	AV	V	23.94	3.02	26.86	21.58	15.58	54.00	38.42
99.84	46.7	QP	V	10.71	0.51	28.31	29.61	29.61	43.50	13.89
122.15	40.8	QP	V	15.91	0.85	28.12	29.44	29.44	43.50	14.06

802.11ac20 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5180 MHz										
5180	70.39	PK	H	31.72	5.21	0.00	107.32	101.32	N/A	N/A
5180	59.83	AV	H	31.72	5.21	0.00	96.76	90.76	N/A	N/A
5180	78.05	PK	V	31.72	5.21	0.00	114.98	108.98	N/A	N/A
5180	67.12	AV	V	31.72	5.21	0.00	104.05	98.05	N/A	N/A
5150	27.69	PK	V	31.67	5.18	0.00	64.54	58.54	74.00	15.46
5150	16.04	AV	V	31.67	5.18	0.00	52.89	46.89	54.00	7.11
10360	35.57	PK	V	37.37	7.76	26.37	54.33	48.33	74.00	25.67
10360	25.14	AV	V	37.37	7.76	26.37	43.90	37.90	54.00	16.10
15540	28.16	PK	V	39.41	10.22	25.32	52.47	46.47	74.00	27.53
15540	17.62	AV	V	39.41	10.22	25.32	41.93	35.93	54.00	18.07
1504	30.56	PK	V	24.11	2.67	26.33	31.01	25.01	74.00	48.99
1504	19.81	AV	V	24.11	2.67	26.33	20.26	14.26	54.00	39.74
3821	34.99	PK	V	28.28	4.66	26.56	41.37	35.37	74.00	38.63
3821	24.18	AV	V	28.28	4.66	26.56	30.56	24.56	54.00	29.44
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	40.9	QP	V	15.91	0.85	28.12	29.54	29.54	43.50	13.96
Middle Channel:5200 MHz										
5200	75.6	PK	H	31.76	5.23	0.00	112.59	106.59	N/A	N/A
5200	62.87	AV	H	31.76	5.23	0.00	99.86	93.86	N/A	N/A
5200	82.91	PK	V	31.76	5.23	0.00	119.9	113.9	N/A	N/A
5200	70.85	AV	V	31.76	5.23	0.00	107.84	101.84	N/A	N/A
10400	35.26	PK	V	37.38	7.79	26.36	54.07	48.07	74.00	25.93
10400	24.32	AV	V	37.38	7.79	26.36	43.13	37.13	54.00	16.87
15600	28.89	PK	V	39.42	10.22	25.31	53.22	47.22	74.00	26.78
15600	17.6	AV	V	39.42	10.22	25.31	41.93	35.93	54.00	18.07
1536	31.46	PK	V	24.16	2.70	26.37	31.95	25.95	74.00	48.05
1536	20.64	AV	V	24.16	2.70	26.37	21.13	15.13	54.00	38.87
3848	35.35	PK	V	28.39	4.70	26.56	41.88	35.88	74.00	38.12
3848	24.1	AV	V	28.39	4.70	26.56	30.63	24.63	54.00	29.37
99.84	46.6	QP	V	10.71	0.51	28.31	29.51	29.51	43.50	13.99
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86
High Channel:5240 MHz										
5240	71.72	PK	H	31.83	5.27	0.00	108.82	102.82	N/A	N/A
5240	59.2	AV	H	31.83	5.27	0.00	96.30	90.30	N/A	N/A
5240	78.87	PK	V	31.83	5.27	0.00	115.97	109.97	N/A	N/A
5240	66.93	AV	V	31.83	5.27	0.00	104.03	98.03	N/A	N/A
5350	27.3	PK	V	32.03	5.37	0.00	64.70	58.70	74.00	15.30
5350	14.13	AV	V	32.03	5.37	0.00	51.53	45.53	54.00	8.47
10480	35.98	PK	V	37.40	7.84	26.35	54.87	48.87	74.00	25.13
10480	25.41	AV	V	37.40	7.84	26.35	44.30	38.30	54.00	15.70
15720	28.26	PK	V	39.44	10.24	25.30	52.64	46.64	74.00	27.36
15720	17.8	AV	V	39.44	10.24	25.30	42.18	36.18	54.00	17.82
1572	31.73	PK	V	24.22	2.72	26.40	32.27	26.27	74.00	47.73
1572	20.99	AV	V	24.22	2.72	26.40	21.53	15.53	54.00	38.47
3885	35.07	PK	V	28.54	4.75	26.56	41.80	35.80	74.00	38.20
3885	23.48	AV	V	28.54	4.75	26.56	30.21	24.21	54.00	29.79
99.84	47.1	QP	V	10.71	0.51	28.31	30.01	30.01	43.50	13.49
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66

802.11ac40 mode(2TX was the worst)

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5190 MHz										
5190	66.76	PK	H	31.74	5.22	0.00	103.72	97.72	N/A	N/A
5190	55.91	AV	H	31.74	5.22	0.00	92.87	86.87	N/A	N/A
5190	74.12	PK	V	31.74	5.22	0.00	111.08	105.08	N/A	N/A
5190	63.07	AV	V	31.74	5.22	0.00	100.03	94.03	N/A	N/A
5150	28.48	PK	V	31.67	5.18	0.00	65.33	59.33	74.00	14.67
5150	15.85	AV	V	31.67	5.18	0.00	52.70	46.70	54.00	7.30
10380	35.27	PK	V	37.38	7.78	26.37	54.06	48.06	74.00	25.94
10380	24.51	AV	V	37.38	7.78	26.37	43.30	37.30	54.00	16.70
15570	28.61	PK	V	39.41	10.22	25.31	52.93	46.93	74.00	27.07
15570	17.18	AV	V	39.41	10.22	25.31	41.50	35.50	54.00	18.50
2015	32.08	PK	V	24.85	3.05	26.82	33.16	27.16	74.00	46.84
2015	20.82	AV	V	24.85	3.05	26.82	21.90	15.90	54.00	38.10
3342	38.29	PK	V	26.12	3.94	26.53	41.82	35.82	74.00	38.18
3342	27.55	AV	V	26.12	3.94	26.53	31.08	25.08	54.00	28.92
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66
High Channel:5230 MHz										
5230	68.07	PK	H	31.81	5.26	0.00	105.14	99.14	N/A	N/A
5230	56.53	AV	H	31.81	5.26	0.00	93.60	87.60	N/A	N/A
5230	74.01	PK	V	31.81	5.26	0.00	111.08	105.08	N/A	N/A
5230	62.65	AV	V	31.81	5.26	0.00	99.72	93.72	N/A	N/A
5350	25.49	PK	V	32.03	5.37	0.00	62.89	56.89	74.00	17.11
5350	14.63	AV	V	32.03	5.37	0.00	52.03	46.03	54.00	7.97
10460	36.31	PK	V	37.39	7.83	26.36	55.17	49.17	74.00	24.83
10460	24.6	AV	V	37.39	7.83	26.36	43.46	37.46	54.00	16.54
15690	27.96	PK	V	39.44	10.24	25.30	52.34	46.34	74.00	27.66
15690	17.81	AV	V	39.44	10.24	25.30	42.19	36.19	54.00	17.81
2043	32.07	PK	V	24.75	3.04	26.83	33.03	27.03	74.00	46.97
2043	21.28	AV	V	24.75	3.04	26.83	22.24	16.24	54.00	37.76
3387	37.82	PK	V	26.37	4.01	26.55	41.65	35.65	74.00	38.35
3387	26.5	AV	V	26.37	4.01	26.55	30.33	24.33	54.00	29.67
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86

802.11n ac80 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Middle Channel:5210 MHz										
5210	63.07	PK	H	31.78	5.24	0.00	100.09	94.09	N/A	N/A
5210	50.74	AV	H	31.78	5.24	0.00	87.76	81.76	N/A	N/A
5210	74.32	PK	V	31.78	5.24	0.00	111.34	105.34	N/A	N/A
5210	62.46	AV	V	31.78	5.24	0.00	99.48	93.48	N/A	N/A
5150	29.76	PK	V	31.67	5.18	0.00	66.61	60.61	74.00	13.39
5150	16.48	AV	V	31.67	5.18	0.00	53.33	47.33	54.00	6.67
5350	28.9	PK	V	32.03	5.37	0.00	66.30	60.30	74.00	13.70
5350	15.35	AV	V	32.03	5.37	0.00	52.75	46.75	54.00	7.25
10420	35.69	PK	V	37.38	7.80	26.36	54.51	48.51	74.00	25.49
10420	24.96	AV	V	37.38	7.80	26.36	43.78	37.78	54.00	16.22
15630	28.21	PK	V	39.43	10.23	25.31	52.56	46.56	74.00	27.44
15630	17.88	AV	V	39.43	10.23	25.31	42.23	36.23	54.00	17.77
3125	39.38	PK	V	24.90	3.62	26.46	41.44	35.44	74.00	38.56
3125	27.92	AV	V	24.90	3.62	26.46	29.98	23.98	54.00	30.02
99.84	46.7	QP	V	10.71	0.51	28.31	29.61	29.61	43.50	13.89
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66

5725-5850MHz:
802.11a mode, (chain 0 was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5745 MHz										
5745	74.28	PK	H	32.59	5.74	0.00	112.61	106.61	N/A	N/A
5745	63.84	AV	H	32.59	5.74	0.00	102.17	96.17	N/A	N/A
5745	84.39	PK	V	32.59	5.74	0.00	122.72	116.72	N/A	N/A
5745	74.03	AV	V	32.59	5.74	0.00	112.36	106.36	N/A	N/A
5725	55.7	PK	V	32.57	5.72	0.00	93.99	87.99	122.20	34.21
5720	44.89	PK	V	32.56	5.71	0.00	83.16	77.16	110.80	33.64
5700	34.79	PK	V	32.54	5.70	0.00	73.03	67.03	105.20	38.17
5650	33.19	PK	V	32.48	5.65	0.00	71.32	65.32	68.20	2.88
11490	35.91	PK	V	37.99	8.22	26.02	56.10	50.10	74.00	23.90
11490	25.86	AV	V	37.99	8.22	26.02	46.05	40.05	54.00	13.95
17235	27.89	PK	V	42.98	10.82	25.99	55.70	49.70	74.00	24.30
17235	18.4	AV	V	42.98	10.82	25.99	46.21	40.21	54.00	13.79
4867	35.66	PK	V	30.97	5.09	26.87	44.85	38.85	74.00	35.15
4867	25.08	AV	V	30.97	5.09	26.87	34.27	28.27	54.00	25.73
6187	34.08	PK	V	33.09	6.02	26.61	46.58	40.58	74.00	33.42
6187	23.1	AV	V	33.09	6.02	26.61	35.60	29.60	54.00	24.40
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76
Middle Channel:5785 MHz										
5785	74.08	PK	H	32.64	5.77	0.00	112.49	106.49	N/A	N/A
5785	64.02	AV	H	32.64	5.77	0.00	102.43	96.43	N/A	N/A
5785	83.94	PK	V	32.64	5.77	0.00	122.35	116.35	N/A	N/A
5785	73.76	AV	V	32.64	5.77	0.00	112.17	106.17	N/A	N/A
11570	35.84	PK	V	38.03	8.21	26.00	56.08	50.08	74.00	23.92
11570	25.65	AV	V	38.03	8.21	26.00	45.89	39.89	54.00	14.11
17355	27.34	PK	V	43.53	11.03	26.16	55.74	49.74	74.00	24.26
17355	18.25	AV	V	43.53	11.03	26.16	46.65	40.65	54.00	13.35
4867	35.4	PK	V	30.97	5.09	26.87	44.59	38.59	74.00	35.41
4867	25.17	AV	V	30.97	5.09	26.87	34.36	28.36	54.00	25.64
6187	34.27	PK	V	33.09	6.02	26.61	46.77	40.77	74.00	33.23
6187	22.36	AV	V	33.09	6.02	26.61	34.86	28.86	54.00	25.14
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66

High Channel:5825 MHz										
5825	73.99	PK	H	32.69	5.81	0.00	112.49	106.49	N/A	N/A
5825	63.85	AV	H	32.69	5.81	0.00	102.35	96.35	N/A	N/A
5825	84.93	PK	V	32.69	5.81	0.00	123.43	117.43	N/A	N/A
5825	74.59	AV	V	32.69	5.81	0.00	113.09	107.09	N/A	N/A
5850	50.9	PK	V	32.72	5.83	0.00	89.45	83.45	122.20	38.75
5855	45.65	PK	V	32.73	5.83	0.00	84.21	78.21	110.80	32.59
5875	38.78	PK	V	32.75	5.85	0.00	77.38	71.38	105.20	33.82
5925	29.55	PK	V	32.81	5.89	0.00	68.25	62.25	68.20	5.95
11650	35.96	PK	V	38.06	8.20	25.98	56.24	50.24	74.00	23.76
11650	25.83	AV	V	38.06	8.20	25.98	46.11	40.11	54.00	13.89
17475	27.81	PK	V	44.09	11.23	26.33	56.80	50.80	74.00	23.20
17475	17.57	AV	V	44.09	11.23	26.33	46.56	40.56	54.00	13.44
4867	35.77	PK	V	30.97	5.09	26.87	44.96	38.96	74.00	35.04
4867	25.41	AV	V	30.97	5.09	26.87	34.60	28.60	54.00	25.40
6187	34	PK	V	33.09	6.02	26.61	46.50	40.50	74.00	33.50
6187	23.29	AV	V	33.09	6.02	26.61	35.79	29.79	54.00	24.21
99.84	47	QP	V	10.71	0.51	28.31	29.91	29.91	43.50	13.59
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76

802.11n ht20 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5745 MHz										
5745	75.99	PK	H	32.59	5.74	0.00	114.32	108.32	N/A	N/A
5745	63.81	AV	H	32.59	5.74	0.00	102.14	96.14	N/A	N/A
5745	88.92	PK	V	32.59	5.74	0.00	127.25	121.25	N/A	N/A
5745	77.07	AV	V	32.59	5.74	0.00	115.40	109.40	N/A	N/A
5725	61.04	PK	V	32.57	5.72	0.00	99.33	93.33	122.20	28.87
5720	49.27	PK	V	32.56	5.71	0.00	87.54	81.54	110.80	29.26
5700	37.94	PK	V	32.54	5.70	0.00	76.18	70.18	105.20	35.02
5650	29.44	PK	V	32.48	5.65	0.00	67.57	61.57	68.20	6.63
11490	36.15	PK	V	37.99	8.22	26.02	56.34	50.34	74.00	23.66
11490	25.17	AV	V	37.99	8.22	26.02	45.36	39.36	54.00	14.64
17235	28.58	PK	V	42.98	10.82	25.99	56.39	50.39	74.00	23.61
17235	17.09	AV	V	42.98	10.82	25.99	44.90	38.90	54.00	15.10
4867	35.64	PK	V	30.97	5.09	26.87	44.83	38.83	74.00	35.17
4867	24.85	AV	V	30.97	5.09	26.87	34.04	28.04	54.00	25.96
6187	33.71	PK	V	33.09	6.02	26.61	46.21	40.21	74.00	33.79
6187	22.33	AV	V	33.09	6.02	26.61	34.83	28.83	54.00	25.17
99.84	47	QP	V	10.71	0.51	28.31	29.91	29.91	43.50	13.59
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86
Middle Channel:5785 MHz										
5785	75.92	PK	H	32.64	5.77	0.00	114.33	108.33	N/A	N/A
5785	63.83	AV	H	32.64	5.77	0.00	102.24	96.24	N/A	N/A
5785	88.48	PK	V	32.64	5.77	0.00	126.89	120.89	N/A	N/A
5785	77.04	AV	V	32.64	5.77	0.00	115.45	109.45	N/A	N/A
11570	35.7	PK	V	38.03	8.21	26.00	55.94	49.94	74.00	24.06
11570	24.97	AV	V	38.03	8.21	26.00	45.21	39.21	54.00	14.79
17355	28.05	PK	V	43.53	11.03	26.16	56.45	50.45	74.00	23.55
17355	16.96	AV	V	43.53	11.03	26.16	45.36	39.36	54.00	14.64
4867	34.37	PK	V	30.97	5.09	26.87	43.56	37.56	74.00	36.44
4867	23.65	AV	V	30.97	5.09	26.87	32.84	26.84	54.00	27.16
6187	34.55	PK	V	33.09	6.02	26.61	47.05	41.05	74.00	32.95
6187	23.32	AV	V	33.09	6.02	26.61	35.82	29.82	54.00	24.18
99.84	47.2	QP	V	10.71	0.51	28.31	30.11	30.11	43.50	13.39
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76

High Channel:5825 MHz										
5825	75.38	PK	H	32.69	5.81	0.00	113.88	107.88	N/A	N/A
5825	63.6	AV	H	32.69	5.81	0.00	102.10	96.10	N/A	N/A
5825	87.93	PK	V	32.69	5.81	0.00	126.43	120.43	N/A	N/A
5825	75.66	AV	V	32.69	5.81	0.00	114.16	108.16	N/A	N/A
5850	50.05	PK	V	32.72	5.83	0.00	88.60	82.60	122.20	39.60
5855	47.6	PK	V	32.73	5.83	0.00	86.16	80.16	110.80	30.64
5875	40.04	PK	V	32.75	5.85	0.00	78.64	72.64	105.20	32.56
5925	29.66	PK	V	32.81	5.89	0.00	68.36	62.36	68.20	5.84
11650	36.18	PK	V	38.06	8.20	25.98	56.46	50.46	74.00	23.54
11650	25.16	AV	V	38.06	8.20	25.98	45.44	39.44	54.00	14.56
17475	27.96	PK	V	44.09	11.23	26.33	56.95	50.95	74.00	23.05
17475	16.44	AV	V	44.09	11.23	26.33	45.43	39.43	54.00	14.57
4867	34.66	PK	V	30.97	5.09	26.87	43.85	37.85	74.00	36.15
4867	23.52	AV	V	30.97	5.09	26.87	32.71	26.71	54.00	27.29
6187	33.99	PK	V	33.09	6.02	26.61	46.49	40.49	74.00	33.51
6187	23.17	AV	V	33.09	6.02	26.61	35.67	29.67	54.00	24.33
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66

802.11n ht40 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5755 MHz										
5755	71.35	PK	H	32.61	5.74	0.00	109.70	103.70	N/A	N/A
5755	58.56	AV	H	32.61	5.74	0.00	96.91	90.91	N/A	N/A
5755	83.9	PK	V	32.61	5.74	0.00	122.25	116.25	N/A	N/A
5755	71.27	AV	V	32.61	5.74	0.00	109.62	103.62	N/A	N/A
5725	52.85	PK	V	32.57	5.72	0.00	91.14	85.14	122.20	37.06
5720	49.31	PK	V	32.56	5.71	0.00	87.58	81.58	110.80	29.22
5700	40.4	PK	V	32.54	5.70	0.00	78.64	72.64	105.20	32.56
5650	31.24	PK	V	32.48	5.65	0.00	69.37	63.37	68.20	4.83
11510	36.14	PK	V	38.00	8.22	26.02	56.34	50.34	74.00	23.66
11510	25.29	AV	V	38.00	8.22	26.02	45.49	39.49	54.00	14.51
17265	28.42	PK	V	43.12	10.88	26.04	56.38	50.38	74.00	23.62
17265	17.66	AV	V	43.12	10.88	26.04	45.62	39.62	54.00	14.38
4867	34.8	PK	V	30.97	5.09	26.87	43.99	37.99	74.00	36.01
4867	24.72	AV	V	30.97	5.09	26.87	33.91	27.91	54.00	26.09
6187	34.06	PK	V	33.09	6.02	26.61	46.56	40.56	74.00	33.44
6187	22.83	AV	V	33.09	6.02	26.61	35.33	29.33	54.00	24.67
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86
High Channel:5795 MHz										
5795	70.8	PK	H	32.65	5.78	0.00	109.23	103.23	N/A	N/A
5795	58.17	AV	H	32.65	5.78	0.00	96.60	90.60	N/A	N/A
5795	83.74	PK	V	32.65	5.78	0.00	122.17	116.17	N/A	N/A
5795	71.16	AV	V	32.65	5.78	0.00	109.59	103.59	N/A	N/A
5850	42.54	PK	V	32.72	5.83	0.00	81.09	75.09	122.20	47.11
5855	40.39	PK	V	32.73	5.83	0.00	78.95	72.95	110.80	37.85
5875	35.11	PK	V	32.75	5.85	0.00	73.71	67.71	105.20	37.49
5925	27.57	PK	V	32.81	5.89	0.00	66.27	60.27	68.20	7.93
11590	35.88	PK	V	38.04	8.21	25.99	56.14	50.14	74.00	23.86
11590	25.15	AV	V	38.04	8.21	25.99	45.41	39.41	54.00	14.59
17385	27.32	PK	V	43.67	11.08	26.21	55.86	49.86	74.00	24.14
17385	16.58	AV	V	43.67	11.08	26.21	45.12	39.12	54.00	14.88
4867	35.2	PK	V	30.97	5.09	26.87	44.39	38.39	74.00	35.61
4867	24.64	AV	V	30.97	5.09	26.87	33.83	27.83	54.00	26.17
6187	34.33	PK	V	33.09	6.02	26.61	46.83	40.83	74.00	33.17
6187	22.88	AV	V	33.09	6.02	26.61	35.38	29.38	54.00	24.62
99.84	47	QP	V	10.71	0.51	28.31	29.91	29.91	43.50	13.59
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66

802.11ac20 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5745 MHz										
5745	75.99	PK	H	32.59	5.74	0.00	114.32	108.32	N/A	N/A
5745	63.81	AV	H	32.59	5.74	0.00	102.14	96.14	N/A	N/A
5745	89.12	PK	V	32.59	5.74	0.00	127.45	121.45	N/A	N/A
5745	77.07	AV	V	32.59	5.74	0.00	115.40	109.40	N/A	N/A
5725	58.24	PK	V	32.57	5.72	0.00	96.53	90.53	122.20	31.67
5720	48.38	PK	V	32.56	5.71	0.00	86.65	80.65	110.80	30.15
5700	37.67	PK	V	32.54	5.70	0.00	75.91	69.91	105.20	35.29
5650	30.18	PK	V	32.48	5.65	0.00	68.31	62.31	68.20	5.89
11490	36.16	PK	V	37.99	8.22	26.02	56.35	50.35	74.00	23.65
11490	25.33	AV	V	37.99	8.22	26.02	45.52	39.52	54.00	14.48
17235	28.26	PK	V	42.98	10.82	25.99	56.07	50.07	74.00	23.93
17235	17.45	AV	V	42.98	10.82	25.99	45.26	39.26	54.00	14.74
4867	35.52	PK	V	30.97	5.09	26.87	44.71	38.71	74.00	35.29
4867	24.24	AV	V	30.97	5.09	26.87	33.43	27.43	54.00	26.57
6187	34.37	PK	V	33.09	6.02	26.61	46.87	40.87	74.00	33.13
6187	22.71	AV	V	33.09	6.02	26.61	35.21	29.21	54.00	24.79
99.84	46.9	QP	V	10.71	0.51	28.31	29.81	29.81	43.50	13.69
122.15	41.2	QP	V	15.91	0.85	28.12	29.84	29.84	43.50	13.66
Middle Channel:5785 MHz										
5785	75.92	PK	H	32.64	5.77	0.00	114.33	108.33	N/A	N/A
5785	64.19	AV	H	32.64	5.77	0.00	102.60	96.60	N/A	N/A
5785	89.05	PK	V	32.64	5.77	0.00	127.46	121.46	N/A	N/A
5785	76.74	AV	V	32.64	5.77	0.00	115.15	109.15	N/A	N/A
11570	36.43	PK	V	38.03	8.21	26.00	56.67	50.67	74.00	23.33
11570	25.16	AV	V	38.03	8.21	26.00	45.40	39.40	54.00	14.60
17355	28	PK	V	43.53	11.03	26.16	56.40	50.40	74.00	23.60
17355	17.51	AV	V	43.53	11.03	26.16	45.91	39.91	54.00	14.09
4867	34.91	PK	V	30.97	5.09	26.87	44.10	38.10	74.00	35.90
4867	23.77	AV	V	30.97	5.09	26.87	32.96	26.96	54.00	27.04
6187	34.52	PK	V	33.09	6.02	26.61	47.02	41.02	74.00	32.98
6187	23.24	AV	V	33.09	6.02	26.61	35.74	29.74	54.00	24.26
99.84	47.1	QP	V	10.71	0.51	28.31	30.01	30.01	43.50	13.49
122.15	41.4	QP	V	15.91	0.85	28.12	30.04	30.04	43.50	13.46

High Channel:5825 MHz										
5825	74.57	PK	H	32.69	5.81	0.00	113.07	107.07	N/A	N/A
5825	62.94	AV	H	32.69	5.81	0.00	101.44	95.44	N/A	N/A
5825	88.11	PK	V	32.69	5.81	0.00	126.61	120.61	N/A	N/A
5825	76.05	AV	V	32.69	5.81	0.00	114.55	108.55	N/A	N/A
5850	49.76	PK	V	32.72	5.83	0.00	88.31	82.31	122.20	39.89
5855	47.62	PK	V	32.73	5.83	0.00	86.18	80.18	110.80	30.62
5875	40.11	PK	V	32.75	5.85	0.00	78.71	72.71	105.20	32.49
5925	29.36	PK	V	32.81	5.89	0.00	68.06	62.06	68.20	6.14
11650	36.35	PK	V	38.06	8.20	25.98	56.63	50.63	74.00	23.37
11650	24.98	AV	V	38.06	8.20	25.98	45.26	39.26	54.00	14.74
17475	27.2	PK	V	44.09	11.23	26.33	56.19	50.19	74.00	23.81
17475	17.46	AV	V	44.09	11.23	26.33	46.45	40.45	54.00	13.55
4867	34.77	PK	V	30.97	5.09	26.87	43.96	37.96	74.00	36.04
4867	23.56	AV	V	30.97	5.09	26.87	32.75	26.75	54.00	27.25
6187	33.87	PK	V	33.09	6.02	26.61	46.37	40.37	74.00	33.63
6187	23.21	AV	V	33.09	6.02	26.61	35.71	29.71	54.00	24.29
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	41.1	QP	V	15.91	0.85	28.12	29.74	29.74	43.50	13.76

802.11ac40 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel:5755 MHz										
5755	71.79	PK	H	32.61	5.74	0.00	110.14	104.14	N/A	N/A
5755	59.1	AV	H	32.61	5.74	0.00	97.45	91.45	N/A	N/A
5755	84.16	PK	V	32.61	5.74	0.00	122.51	116.51	N/A	N/A
5755	71.34	AV	V	32.61	5.74	0.00	109.69	103.69	N/A	N/A
5725	52.34	PK	V	32.57	5.72	0.00	90.63	84.63	122.20	37.57
5720	48.78	PK	V	32.56	5.71	0.00	87.05	81.05	110.80	29.75
5700	38.68	PK	V	32.54	5.70	0.00	76.92	70.92	105.20	34.28
5650	31.39	PK	V	32.48	5.65	0.00	69.52	63.52	68.20	4.68
11510	36.1	PK	V	38.00	8.22	26.02	56.30	50.30	74.00	23.70
11510	26.27	AV	V	38.00	8.22	26.02	46.47	40.47	54.00	13.53
17265	28.17	PK	V	43.12	10.88	26.04	56.13	50.13	74.00	23.87
17265	17.24	AV	V	43.12	10.88	26.04	45.20	39.20	54.00	14.80
4867	35.08	PK	V	30.97	5.09	26.87	44.27	38.27	74.00	35.73
4867	24.63	AV	V	30.97	5.09	26.87	33.82	27.82	54.00	26.18
6187	34.43	PK	V	33.09	6.02	26.61	46.93	40.93	74.00	33.07
6187	22.8	AV	V	33.09	6.02	26.61	35.30	29.30	54.00	24.70
99.84	46.8	QP	V	10.71	0.51	28.31	29.71	29.71	43.50	13.79
122.15	41	QP	V	15.91	0.85	28.12	29.64	29.64	43.50	13.86
High Channel:5795 MHz										
5795	71.05	PK	H	32.65	5.78	0.00	109.48	103.48	N/A	N/A
5795	58.23	AV	H	32.65	5.78	0.00	96.66	90.66	N/A	N/A
5795	83.8	PK	V	32.65	5.78	0.00	122.23	116.23	N/A	N/A
5795	71.11	AV	V	32.65	5.78	0.00	109.54	103.54	N/A	N/A
5850	42.69	PK	V	32.72	5.83	0.00	81.24	75.24	122.20	46.96
5855	40.51	PK	V	32.73	5.83	0.00	79.07	73.07	110.80	37.73
5875	35.37	PK	V	32.75	5.85	0.00	73.97	67.97	105.20	37.23
5925	27.53	PK	V	32.81	5.89	0.00	66.23	60.23	68.20	7.97
11590	36.15	PK	V	38.04	8.21	25.99	56.41	50.41	74.00	23.59
11590	24.97	AV	V	38.04	8.21	25.99	45.23	39.23	54.00	14.77
17385	27.13	PK	V	43.67	11.08	26.21	55.67	49.67	74.00	24.33
17385	16.81	AV	V	43.67	11.08	26.21	45.35	39.35	54.00	14.65
4867	35.64	PK	V	30.97	5.09	26.87	44.83	38.83	74.00	35.17
4867	24.09	AV	V	30.97	5.09	26.87	33.28	27.28	54.00	26.72
6187	34.44	PK	V	33.09	6.02	26.61	46.94	40.94	74.00	33.06
6187	23.21	AV	V	33.09	6.02	26.61	35.71	29.71	54.00	24.29
99.84	47.2	QP	V	10.71	0.51	28.31	30.11	30.11	43.50	13.39
122.15	40.8	QP	V	15.91	0.85	28.12	29.44	29.44	43.50	14.06

802.11n ac80 mode(2TX was the worst):

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 (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Middle Channel:5775 MHz										
5775	65.3	PK	H	32.63	5.76	0.00	103.69	97.69	N/A	N/A
5775	54.19	AV	H	32.63	5.76	0.00	92.58	86.58	N/A	N/A
5775	78.92	PK	V	32.63	5.76	0.00	117.31	111.31	N/A	N/A
5775	68.15	AV	V	32.63	5.76	0.00	106.54	100.54	N/A	N/A
5725	47.32	PK	V	32.57	5.72	0.00	85.61	79.61	122.20	42.59
5720	46.74	PK	V	32.56	5.71	0.00	85.01	79.01	110.80	31.79
5700	44.59	PK	V	32.54	5.70	0.00	82.83	76.83	105.20	28.37
5650	31.78	PK	V	32.48	5.65	0.00	69.91	63.91	68.20	4.29
5850	45.21	PK	V	32.72	5.83	0.00	83.76	77.76	122.20	44.44
5855	43.92	PK	V	32.73	5.83	0.00	82.48	76.48	110.80	34.32
5875	39.99	PK	V	32.75	5.85	0.00	78.59	72.59	105.20	32.61
5925	30.23	PK	V	32.81	5.89	0.00	68.93	62.93	68.20	5.27
11550	36.55	PK	V	38.02	8.21	26.01	56.77	50.77	74.00	23.23
11550	25.97	AV	V	38.02	8.21	26.01	46.19	40.19	54.00	13.81
17325	28.12	PK	V	43.40	10.98	26.12	56.38	50.38	74.00	23.62
17325	16.86	AV	V	43.40	10.98	26.12	45.12	39.12	54.00	14.88
2786	36.48	PK	V	23.77	3.24	26.62	36.87	30.87	74.00	43.13
2786	25.06	AV	V	23.77	3.24	26.62	25.45	19.45	54.00	34.55
99.84	46.6	QP	V	10.71	0.51	28.31	29.51	29.51	43.50	13.99
122.15	40.9	QP	V	15.91	0.85	28.12	29.54	29.54	43.50	13.96

FCC §15.407(b)–OUT- OF-BAND EMISSIONS

Applicable Standard

FCC §15.407

(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.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-5	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Data

Environmental Conditions

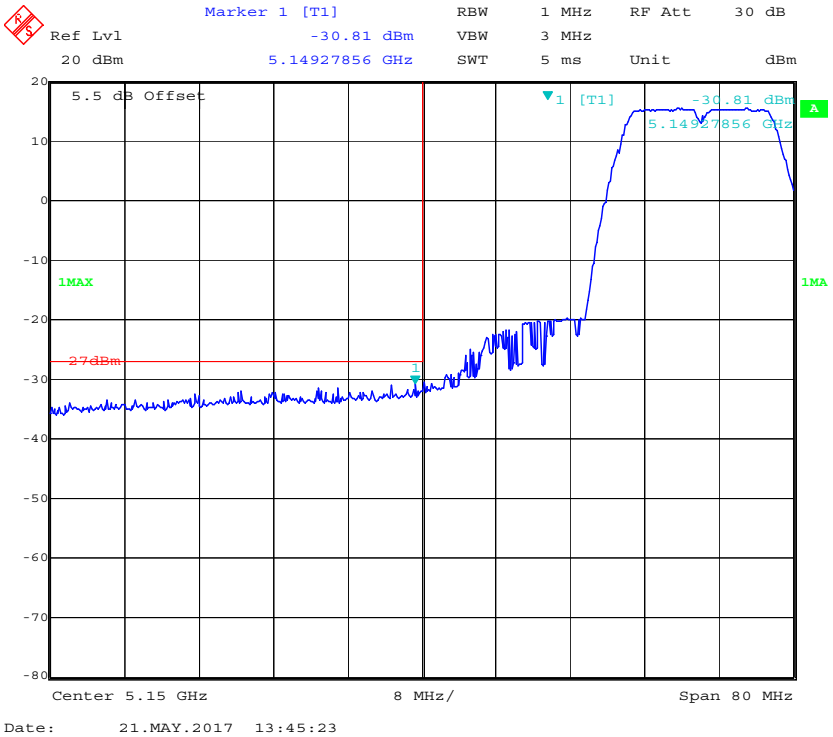
Temperature:	19.7~20.2 °C
Relative Humidity:	48~50.1 %
ATM Pressure:	96.8~100.4 kPa

The testing was performed by Kevin Hu from 2017-05-21 to 2017-05-22.

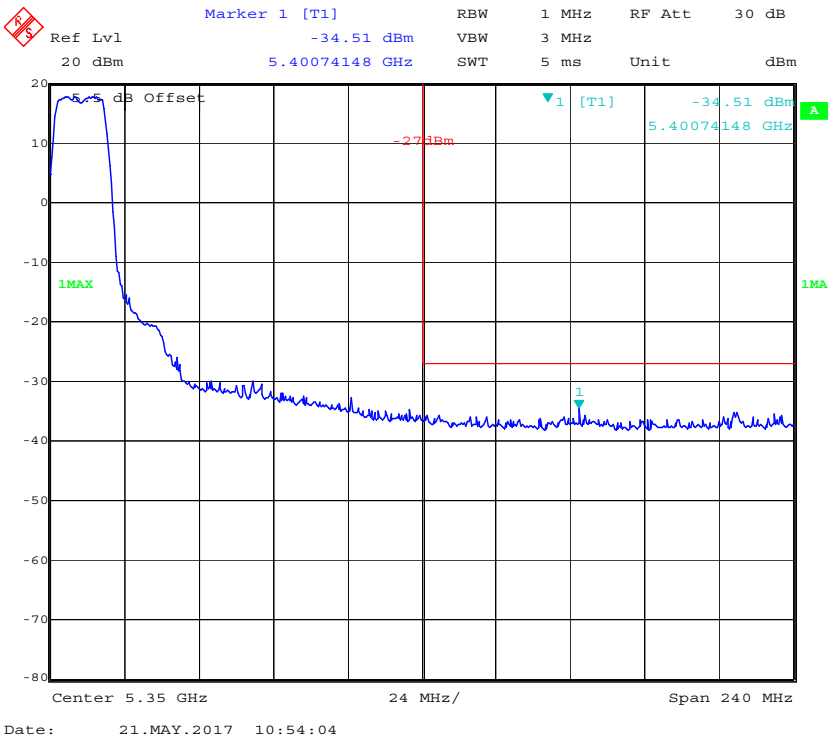
Test Result: Pass.
Please refer to the following tables and plots.

5150-5250MHz(the atenna gain was offset in the display, all emission under limit more than 3dBc, so 2TX mode also compliance the requirement)
Chain 0:

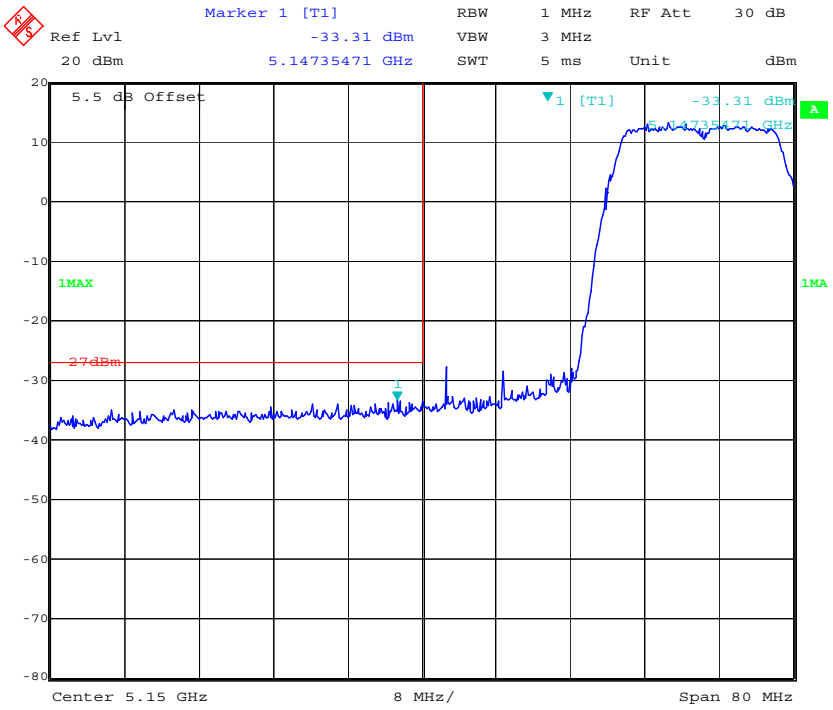
802.11a Low Channel



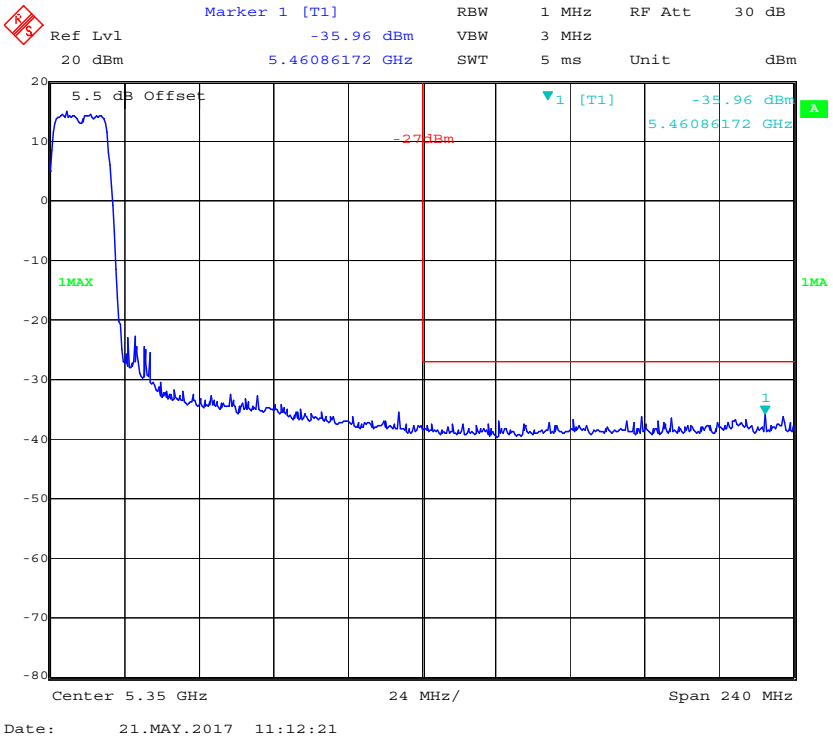
802.11a High Channel



802.11n ht20 Low Channel



802.11n ht20 High Channel



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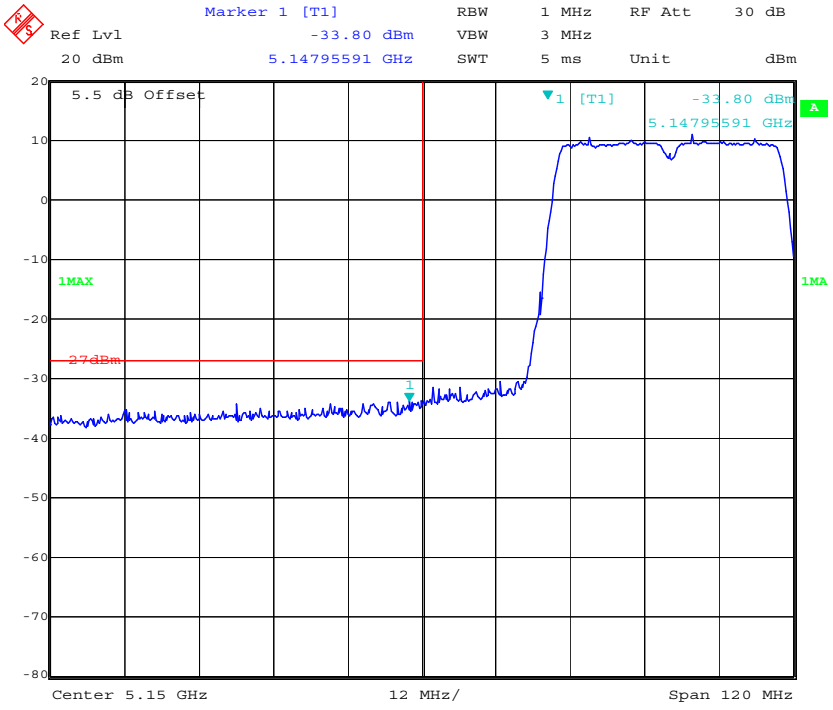

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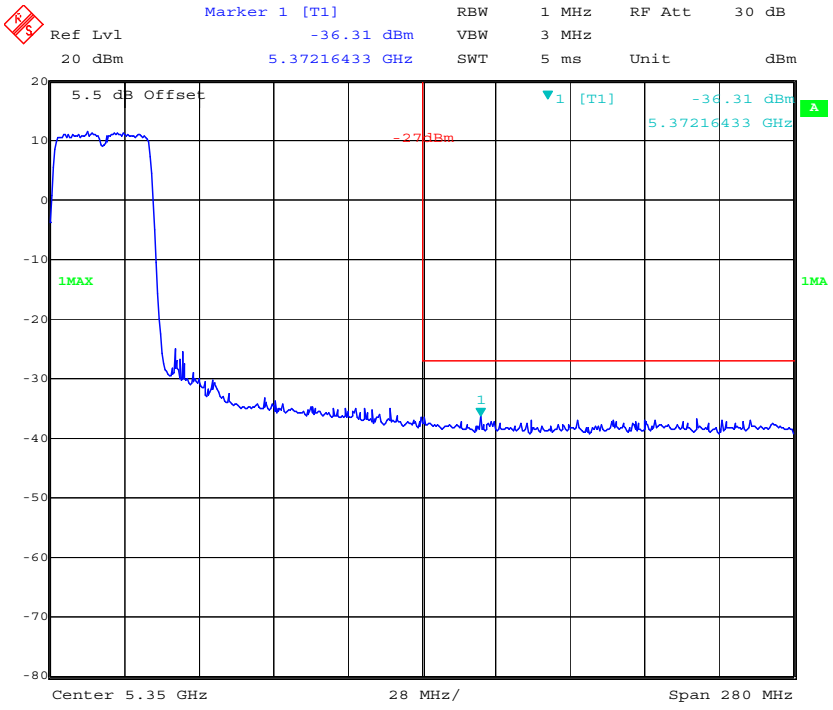
802.11n ht40 High Channel



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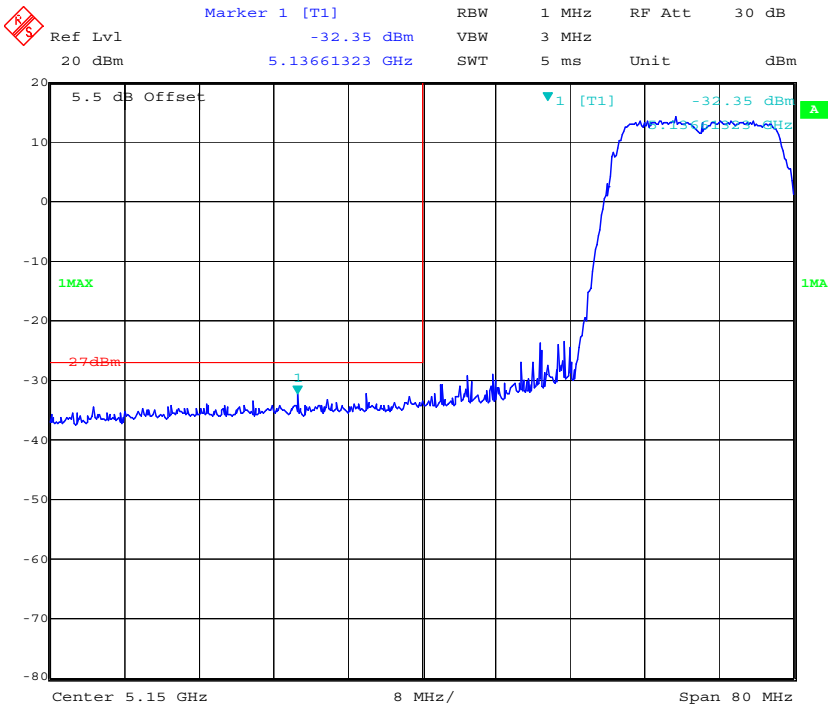
802.11ac20 Low Channel



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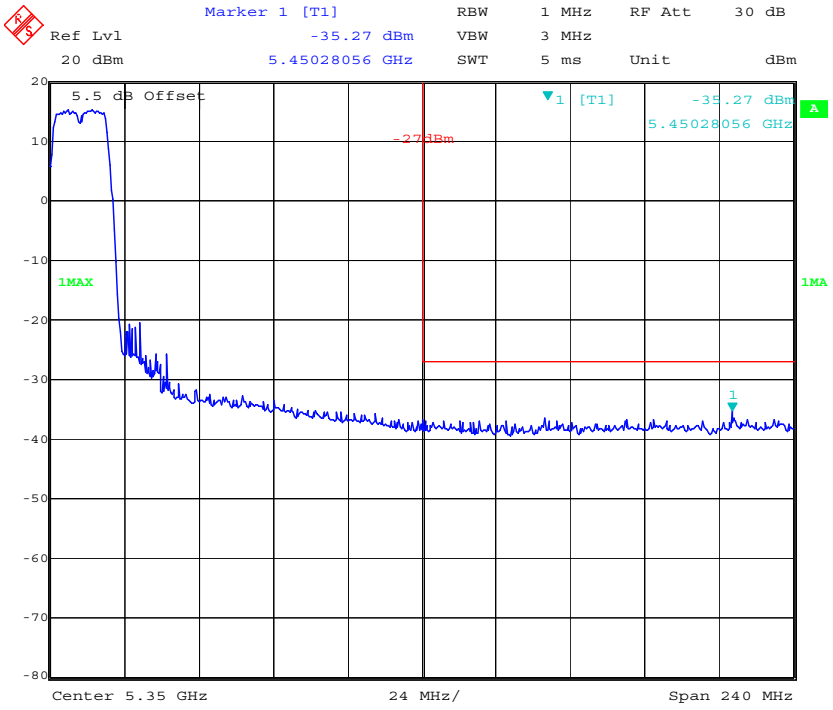
802.11ac20 High Channel



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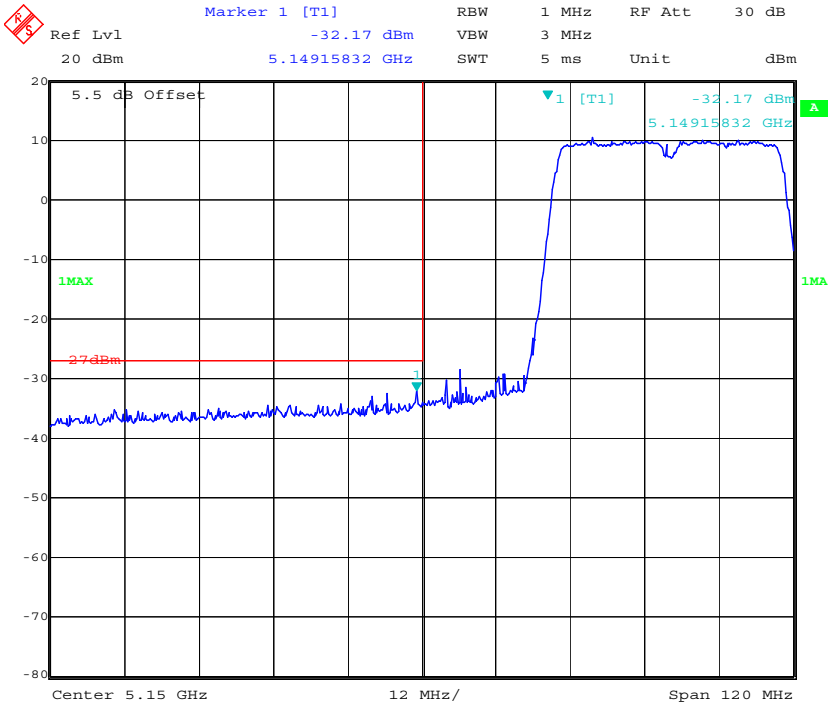
802.11ac40 Low Channel



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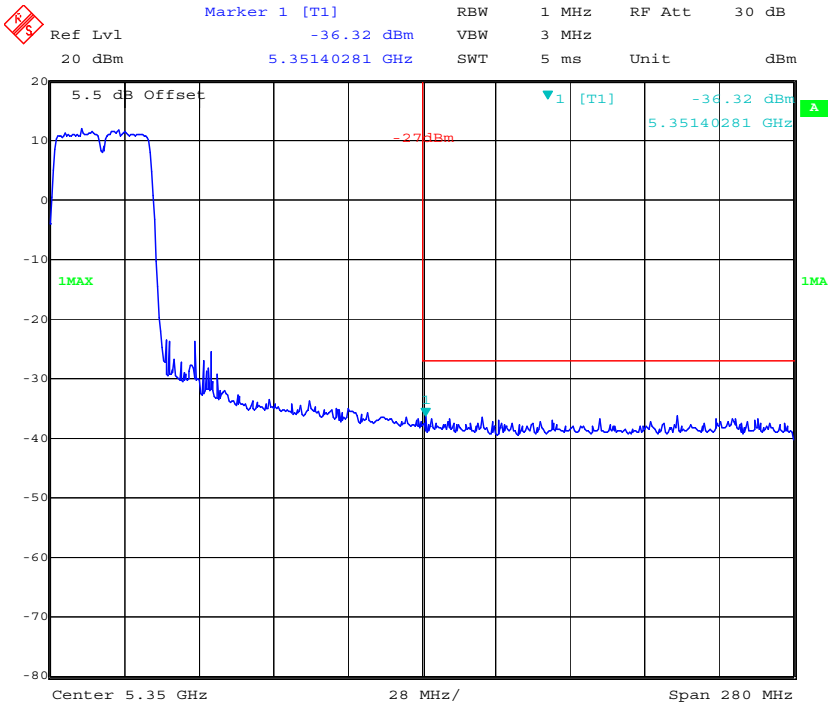
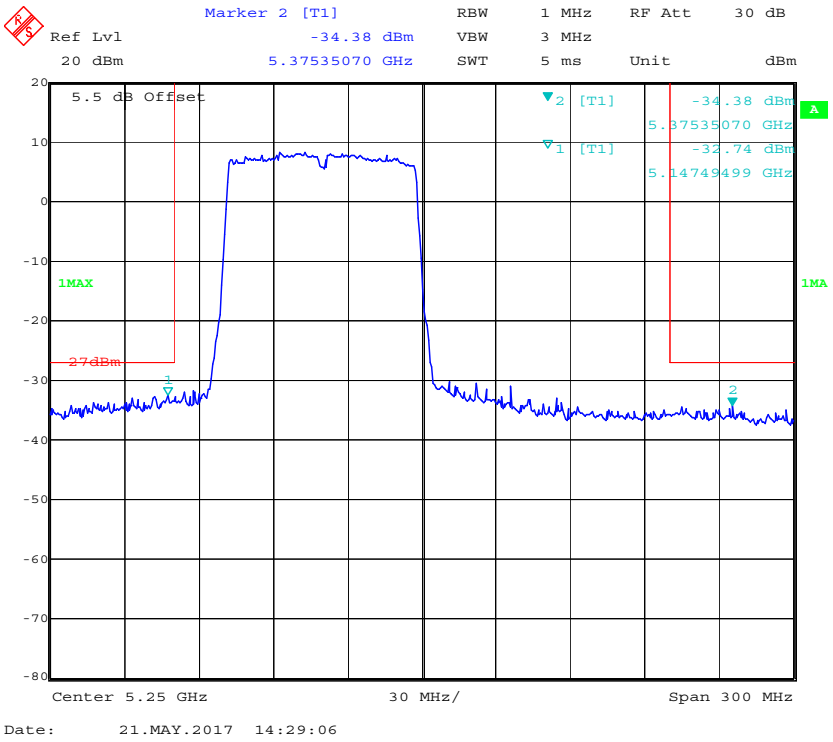
802.11ac40 High Channel



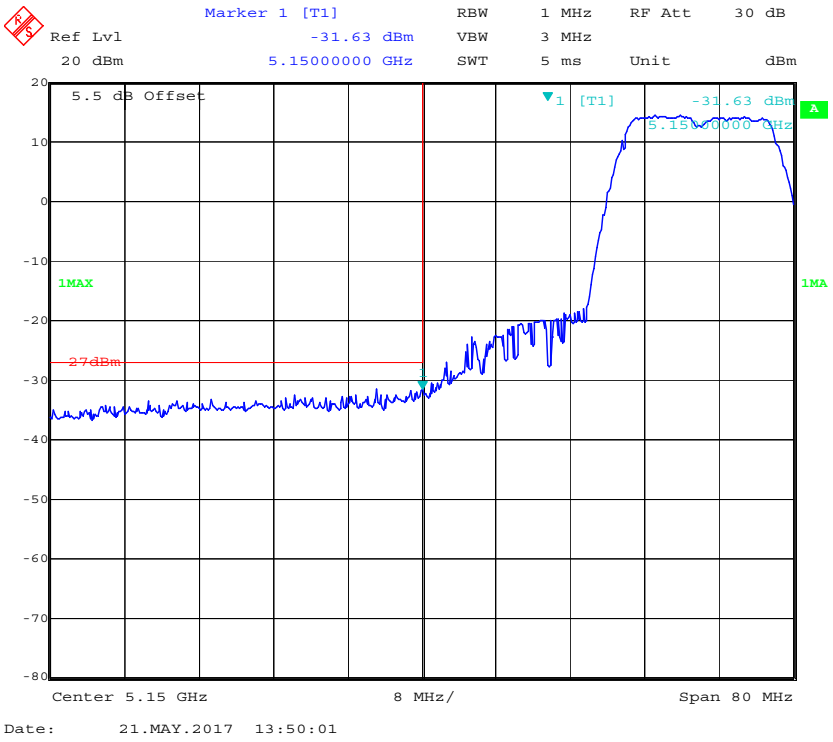
Date: 21.MAY.2017 11:02:37

802.11n ac80 Middle Channel

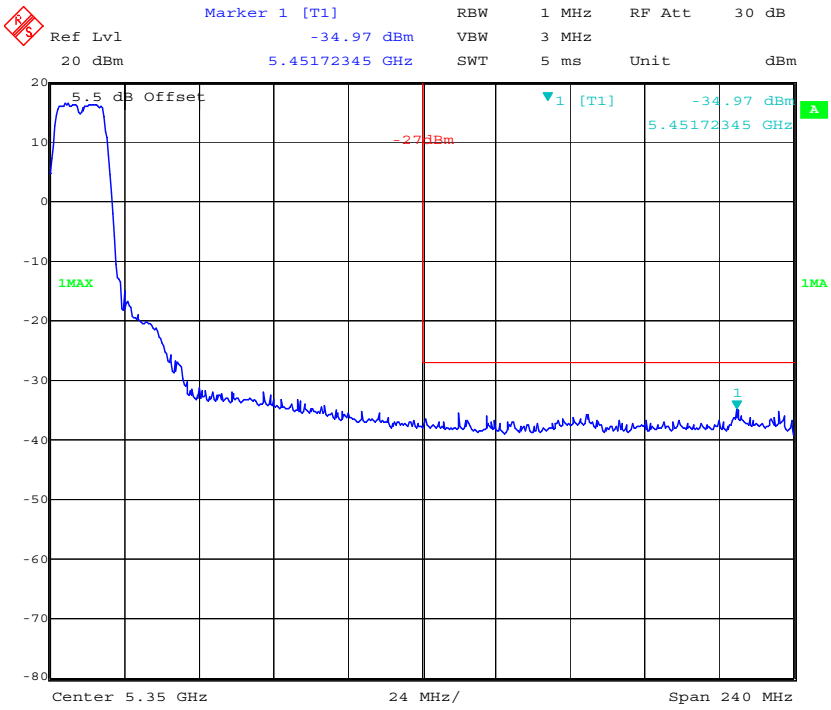


Chain 1:

802.11a Low Channel



802.11a High Channel



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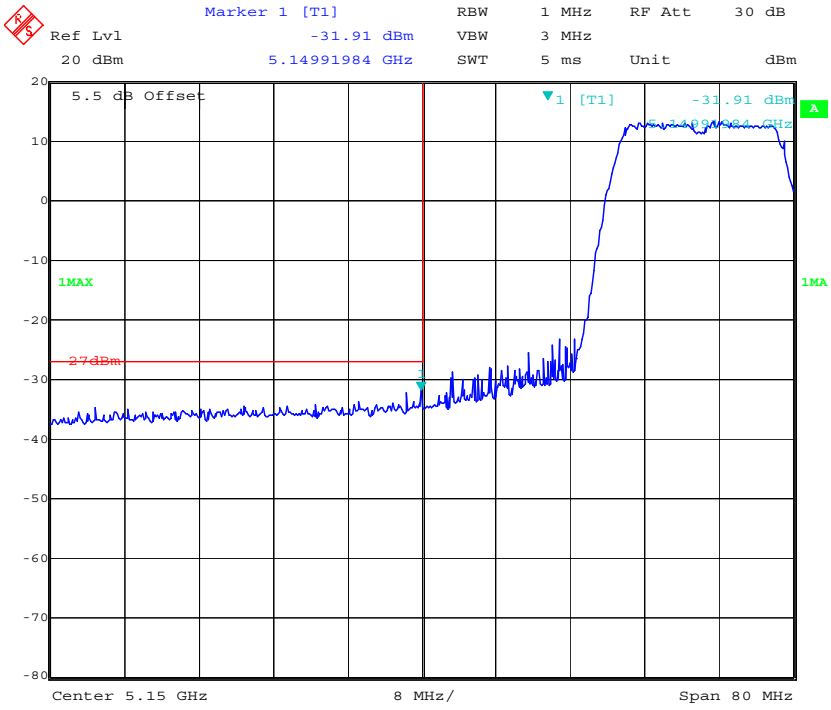
802.11n ht20 Low Channel



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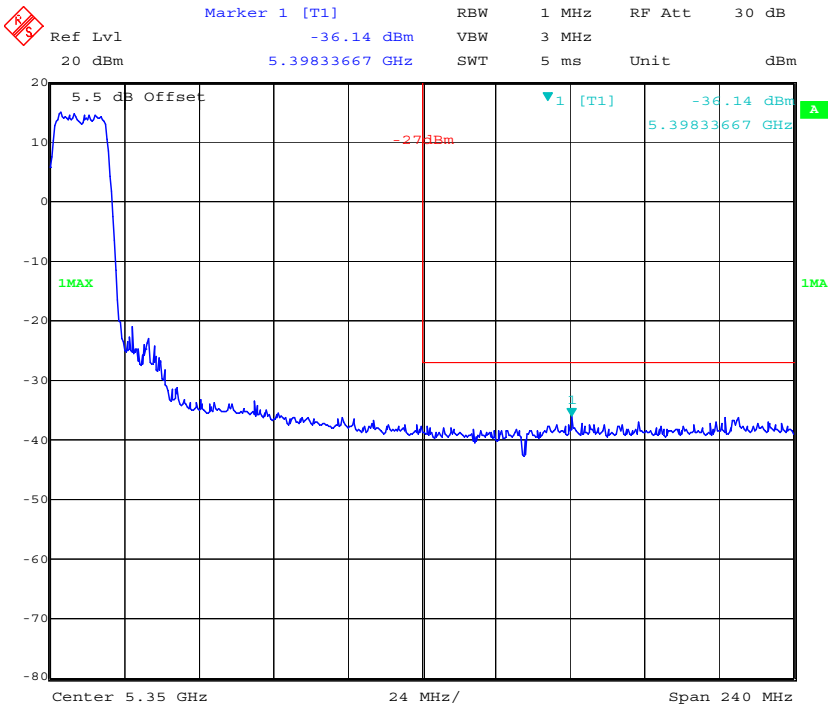
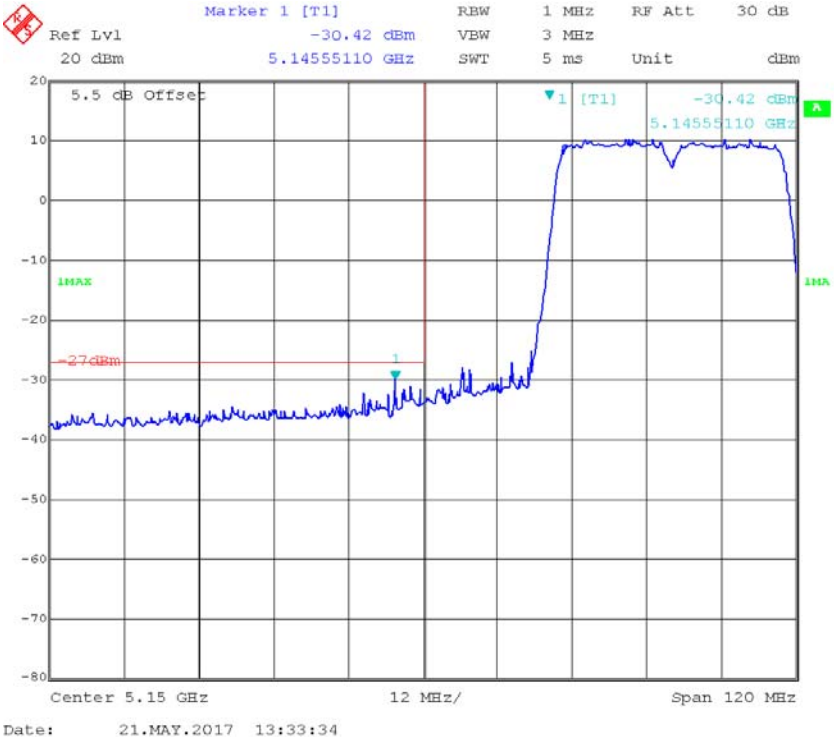
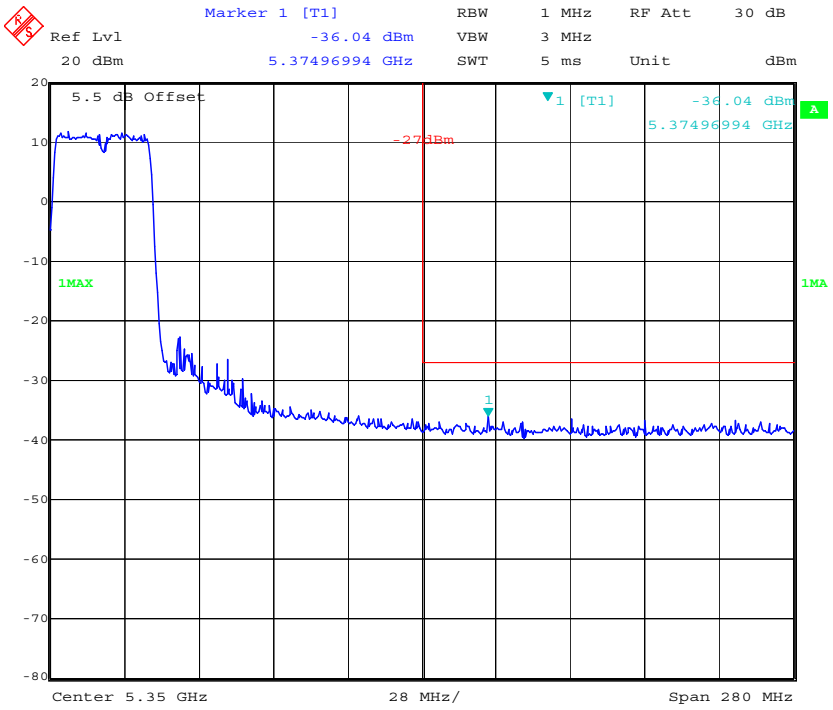


802.11n ht40 Low Channel

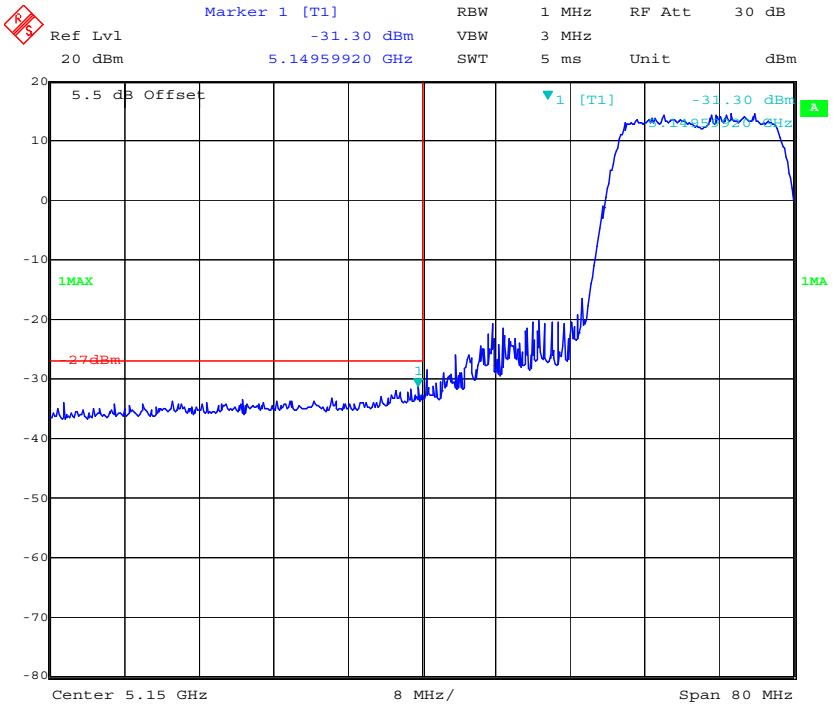


802.11n ht40 High Channel



Date: 21.MAY.2017 13:35:14

802.11ac20 Low Channel



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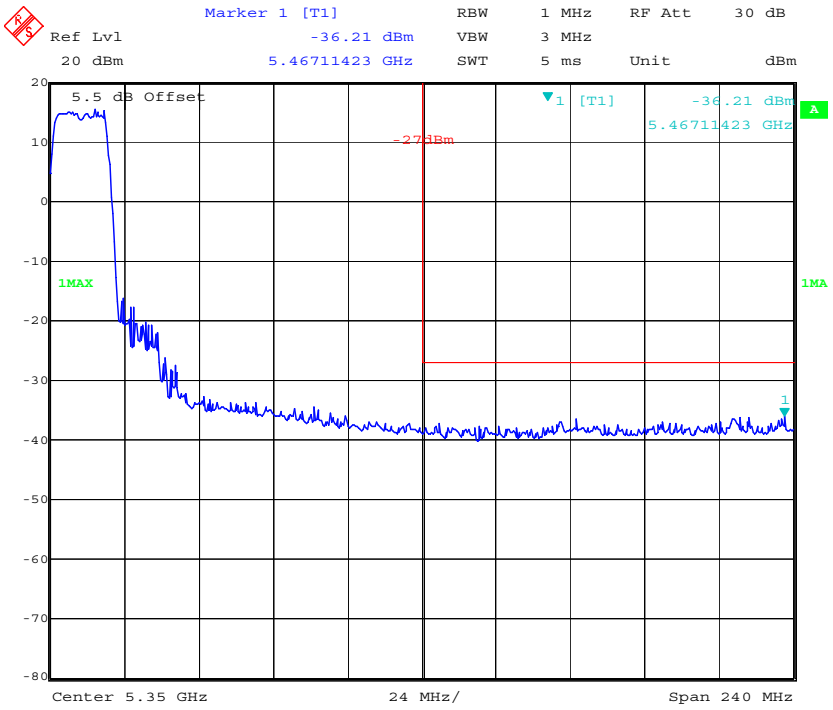
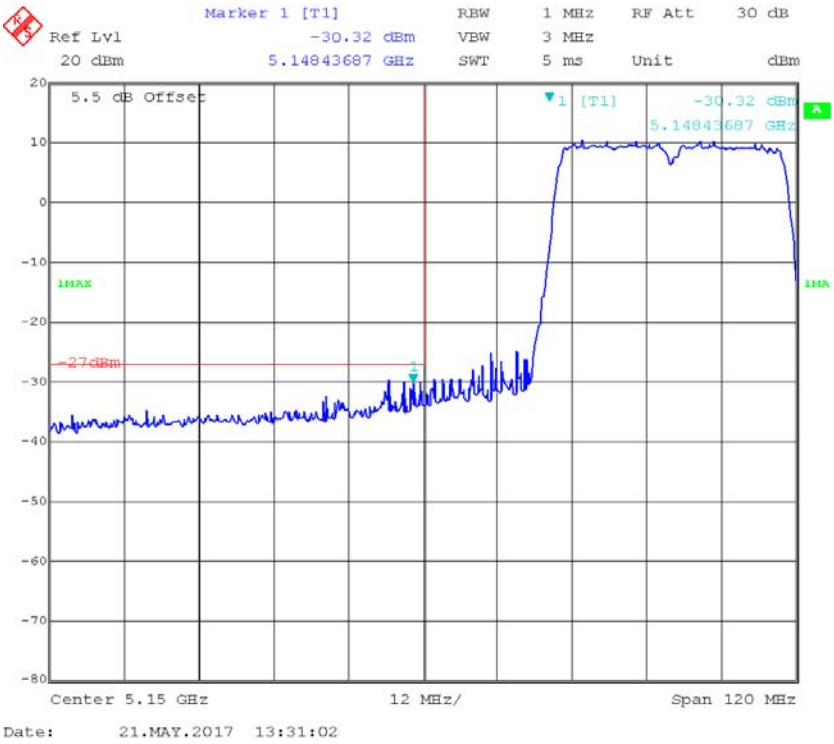
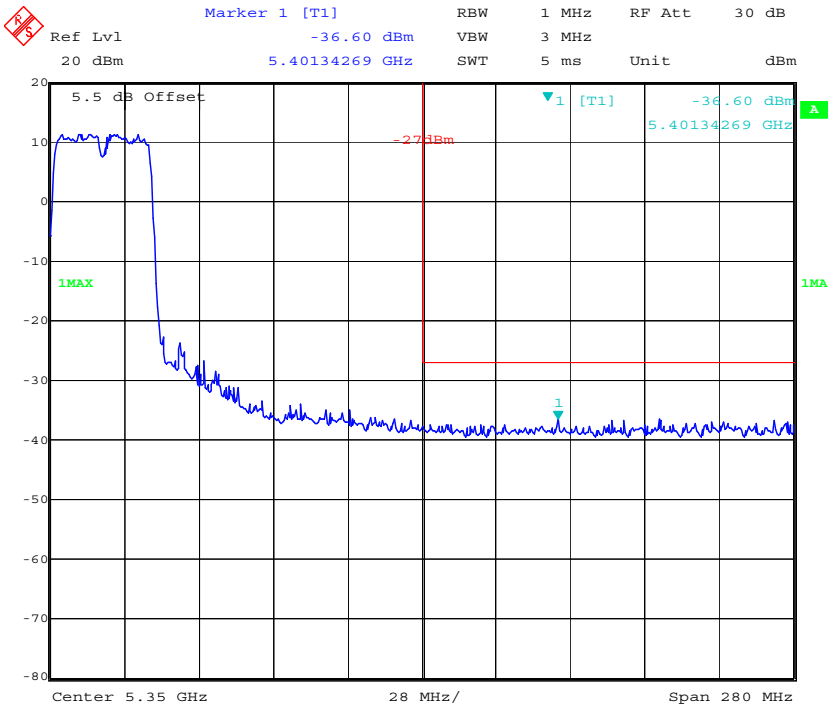
802.11ac20 High Channel



802.11ac40 Low Channel

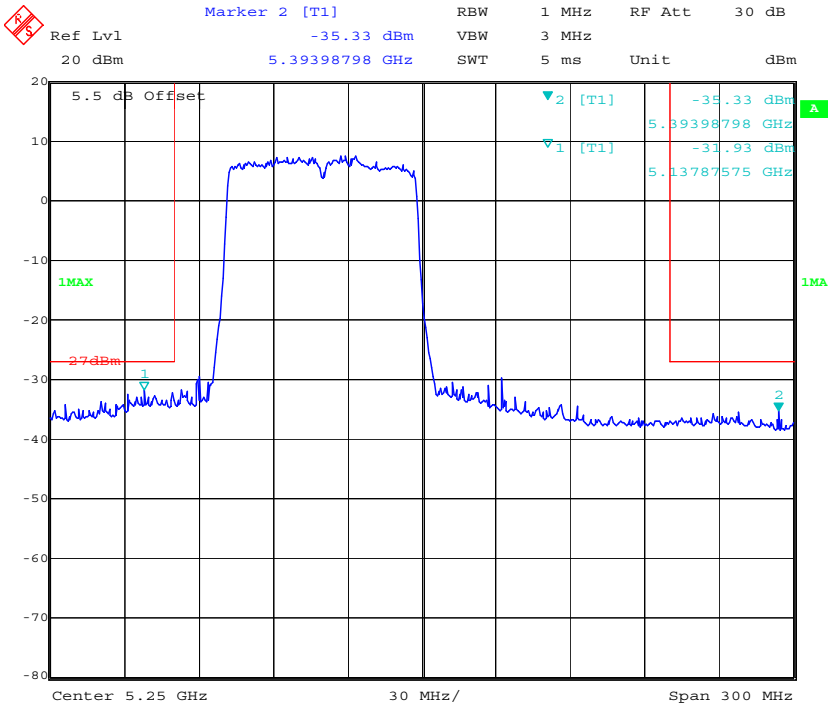


802.11ac40 High Channel



Date: 21.MAY.2017 13:28:57

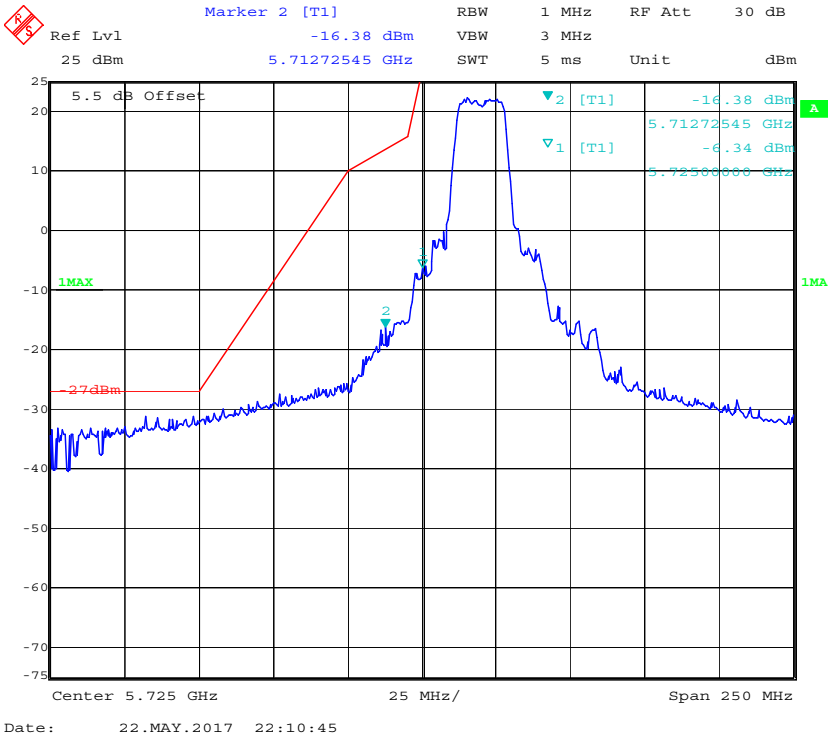
802.11n ac80 Middle Channel



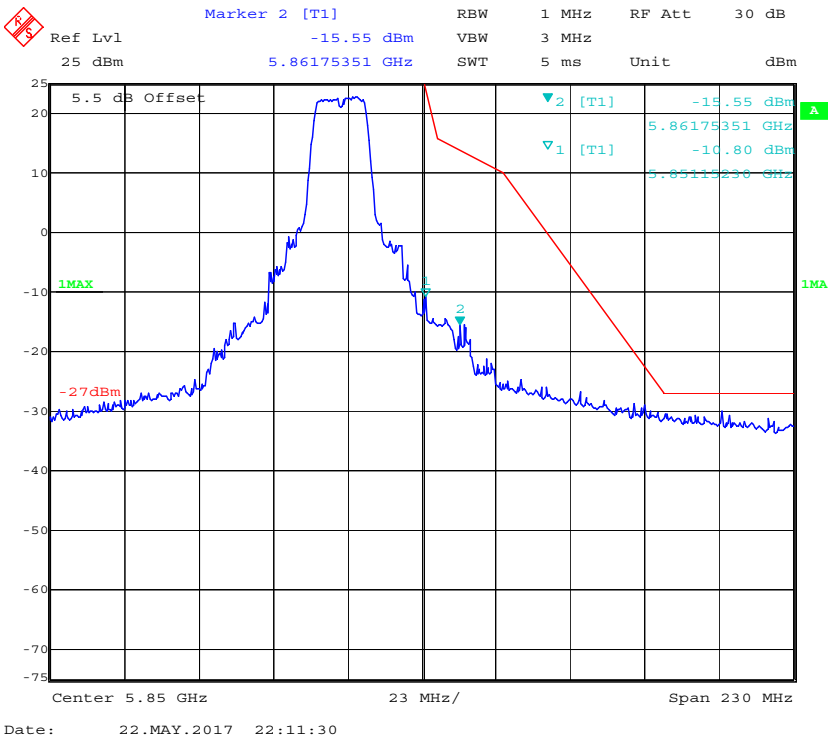
Date: 21.MAY.2017 14:30:22

5725-5850MHz(the atenna gain was offset in the display, all emission under limit more than 3dBc, so 2TX mode also compliance the requirement)
Chain 0:

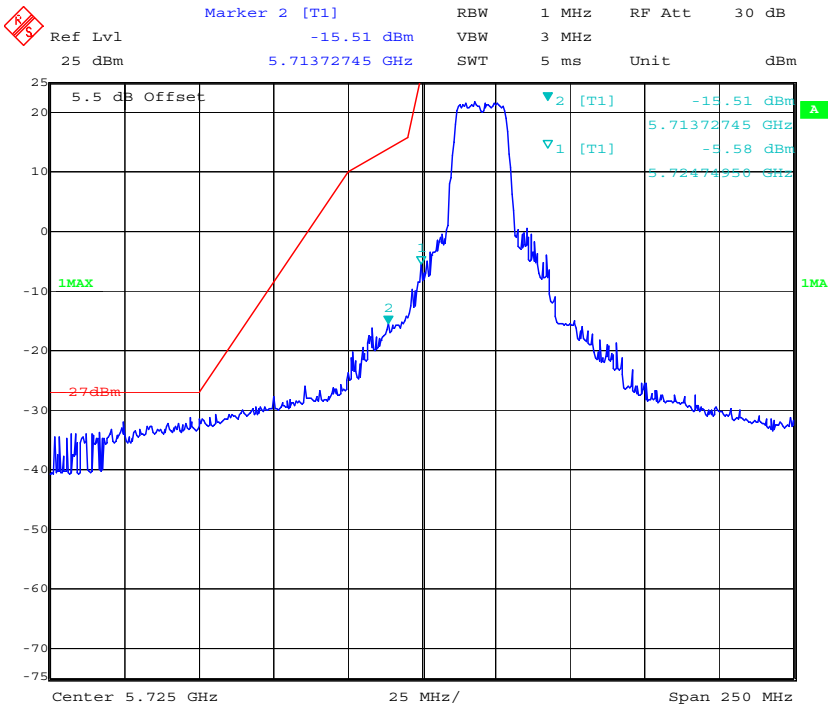
802.11a Low Channel



802.11a High Channel

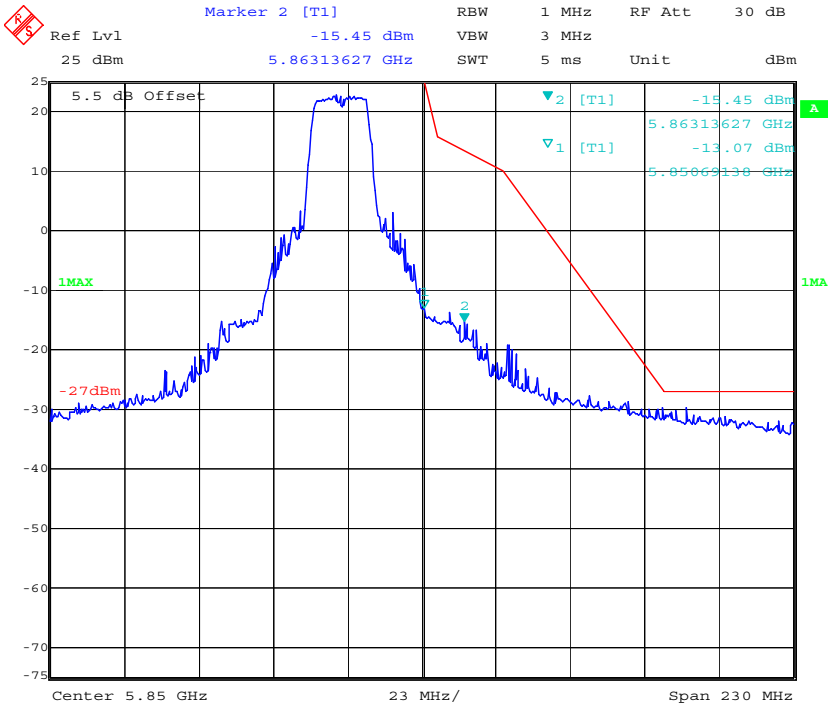


802.11n ht20 Low Channel



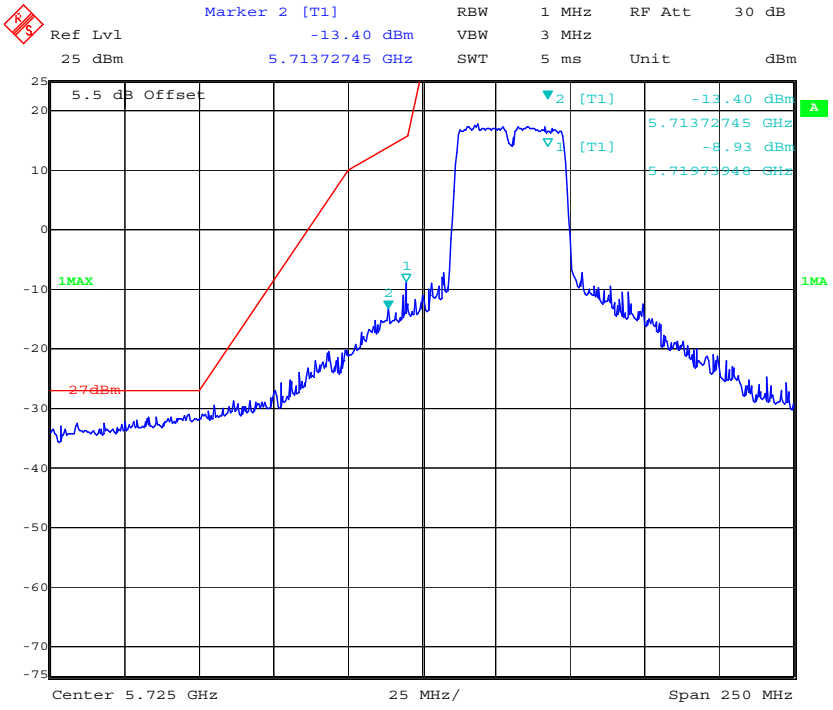
Date: 22.MAY.2017 22:13:51

802.11n ht20 High Channel



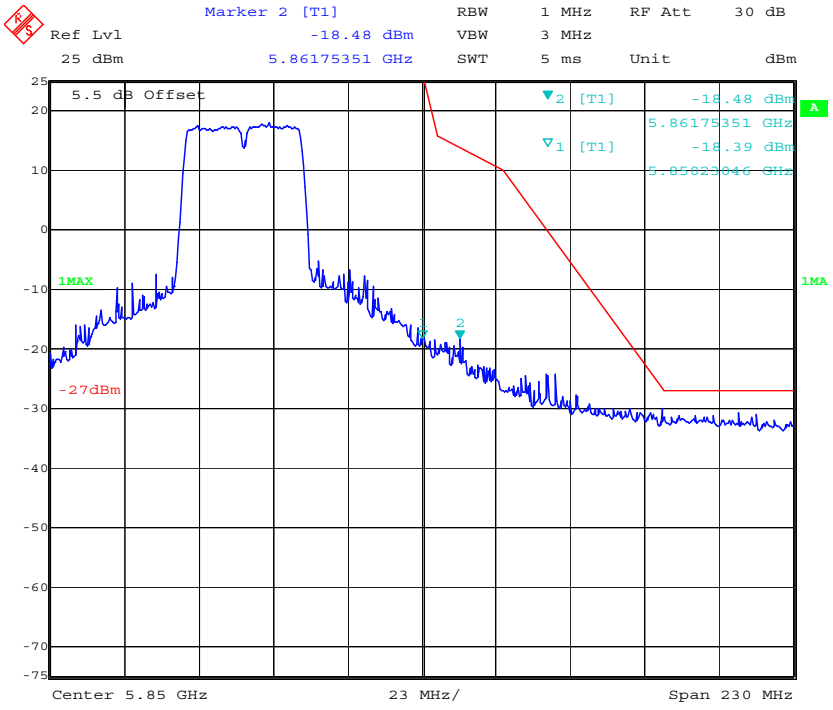
Date: 22.MAY.2017 22:12:35

802.11n ht40 Low Channel



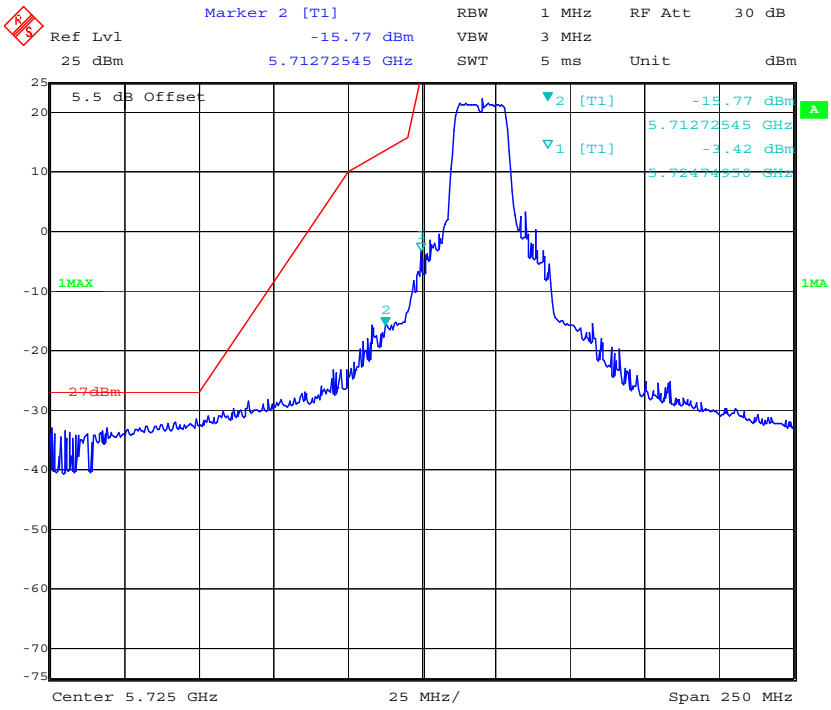
Date: 22.MAY.2017 22:21:27

802.11n ht40 High Channel



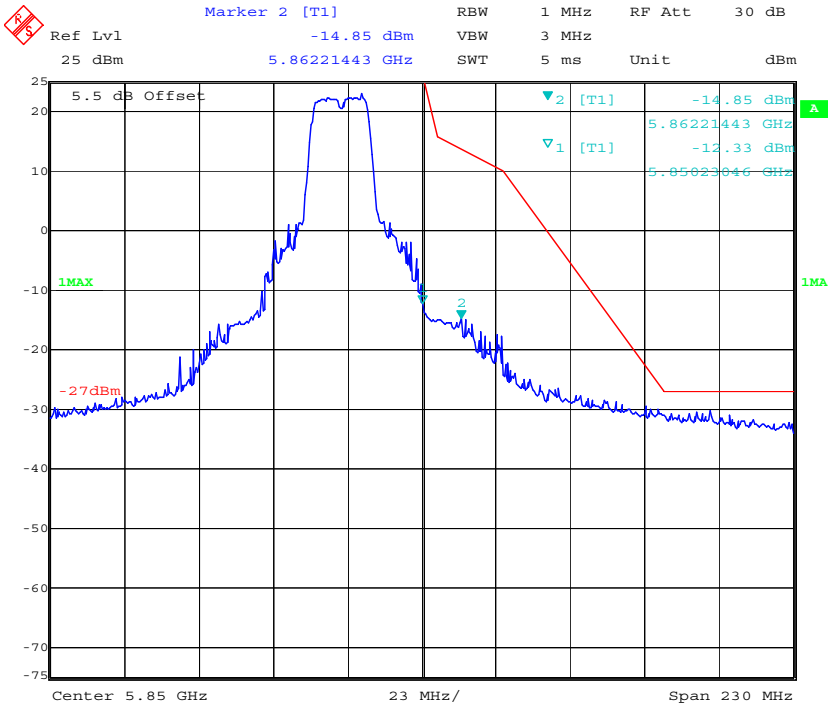
Date: 22.MAY.2017 22:22:23

802.11ac20 Low Channel



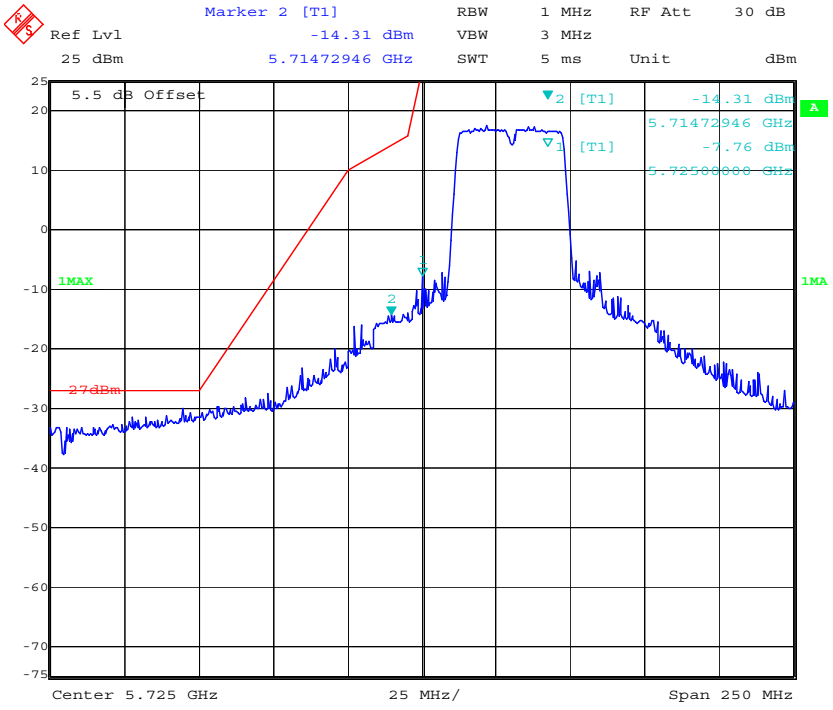
Date: 22.MAY.2017 22:20:14

802.11ac20 High Channel



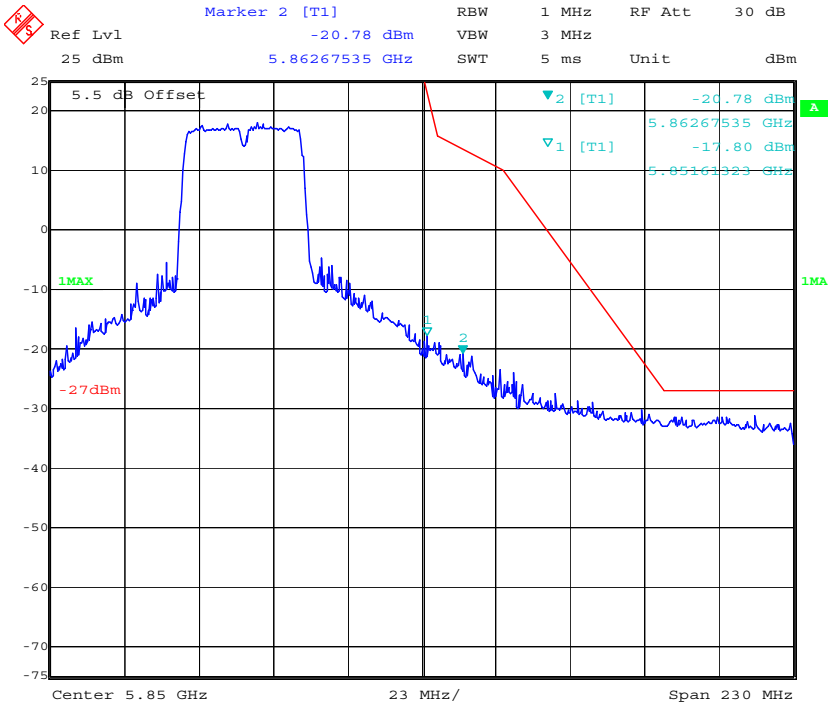
Date: 22.MAY.2017 22:16:41

802.11ac40 Low Channel



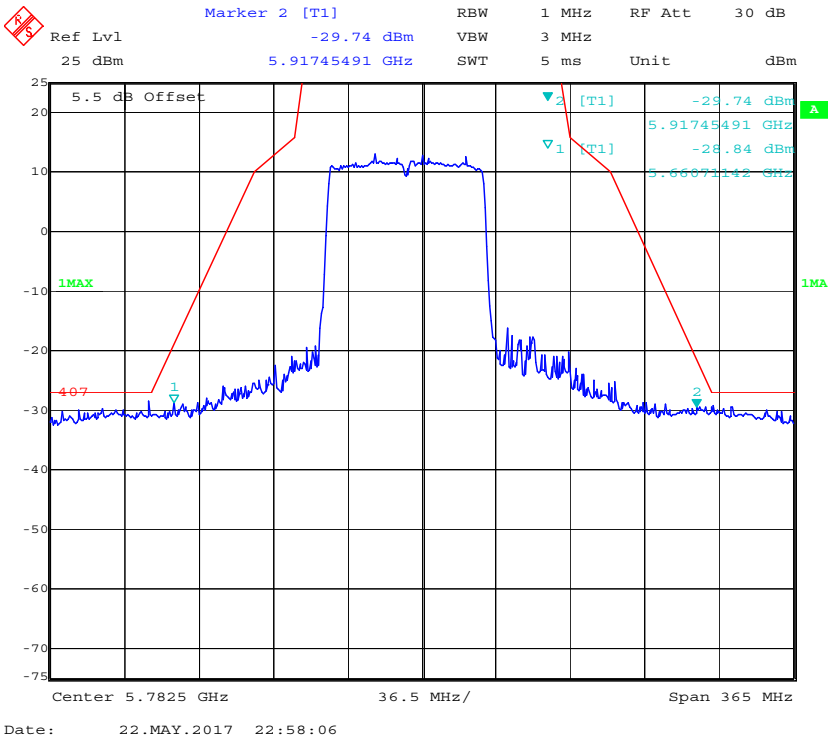
Date: 22.MAY.2017 22:19:12

802.11ac40 High Channel



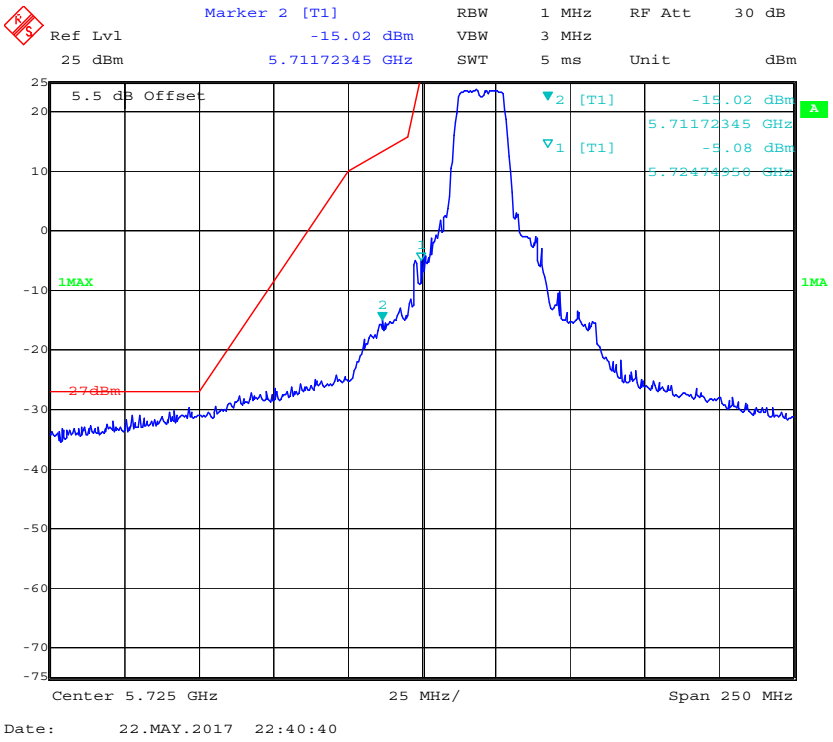
Date: 22.MAY.2017 22:18:29

802.11n ac80 Middle Channel

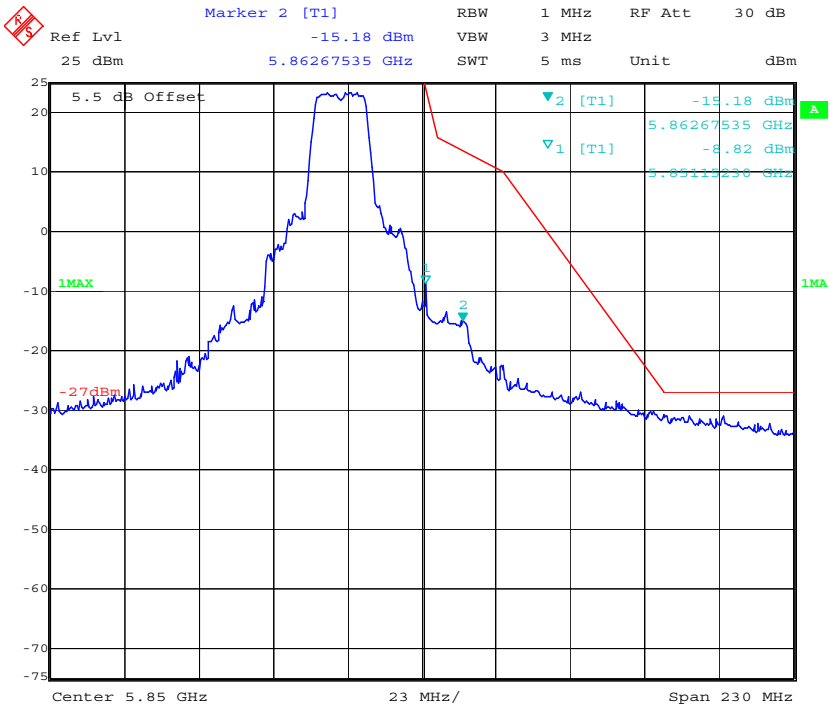


Chain 1:

802.11a Low Channel

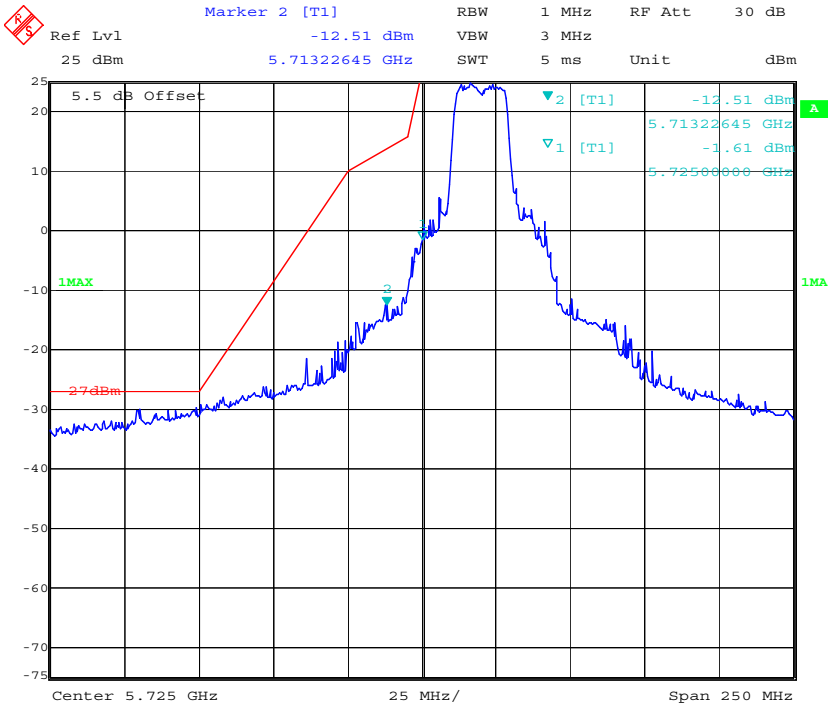


802.11a High Channel



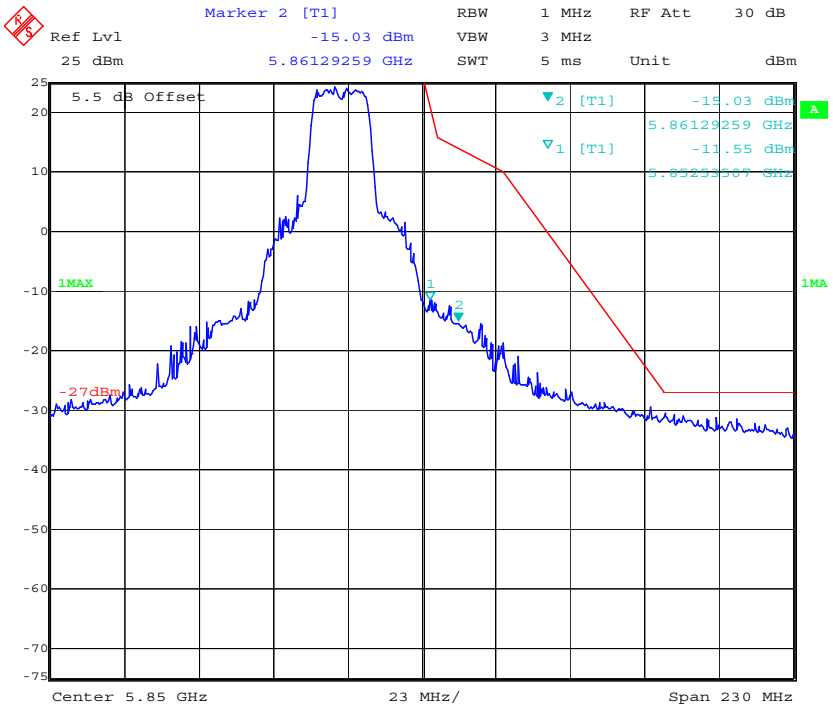
Date: 22.MAY.2017 22:41:27

802.11n ht20 Low Channel



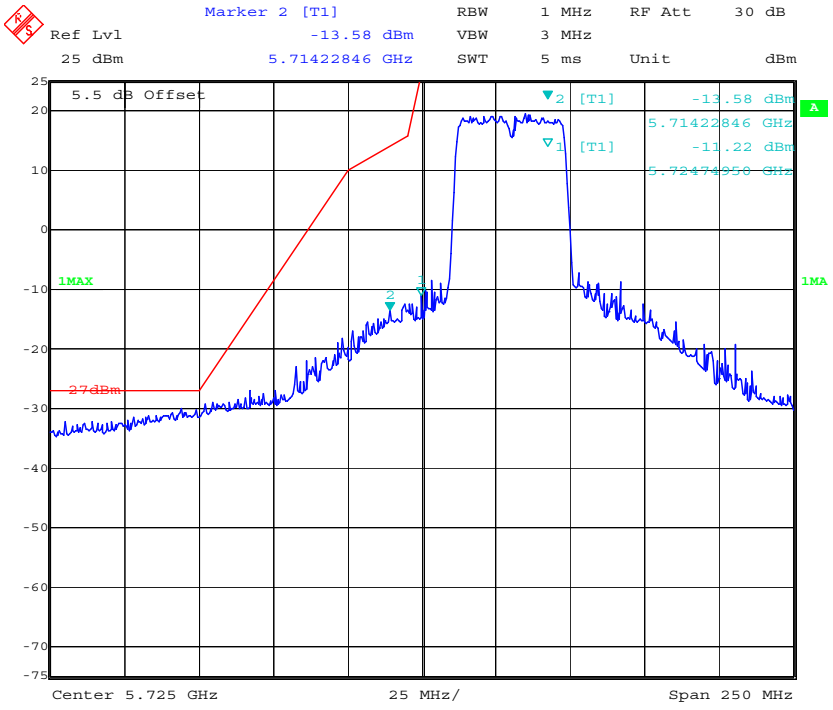
Date: 22.MAY.2017 22:39:36

802.11n ht20 High Channel



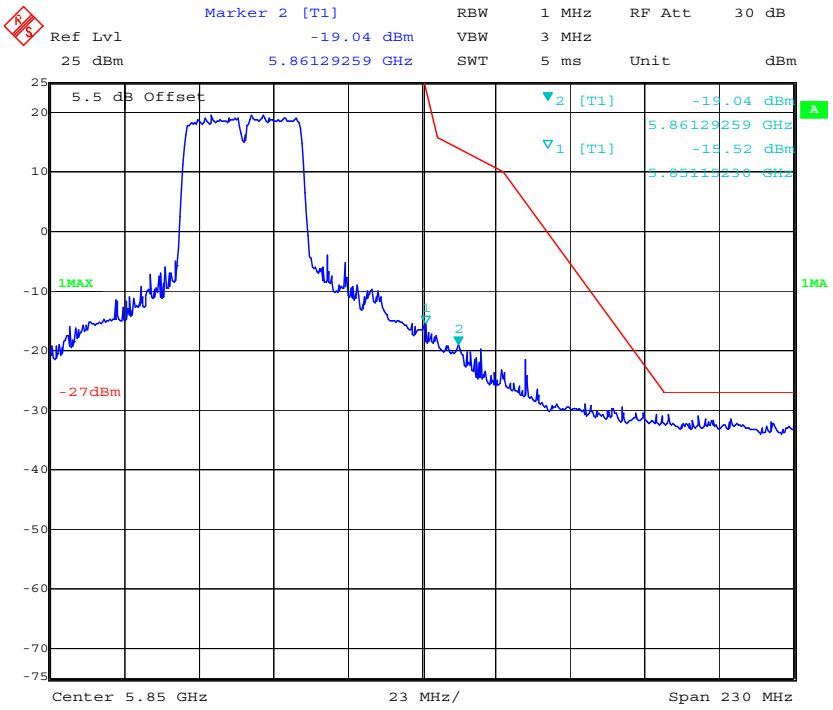
Date: 22.MAY.2017 22:38:09

802.11n ht40 Low Channel



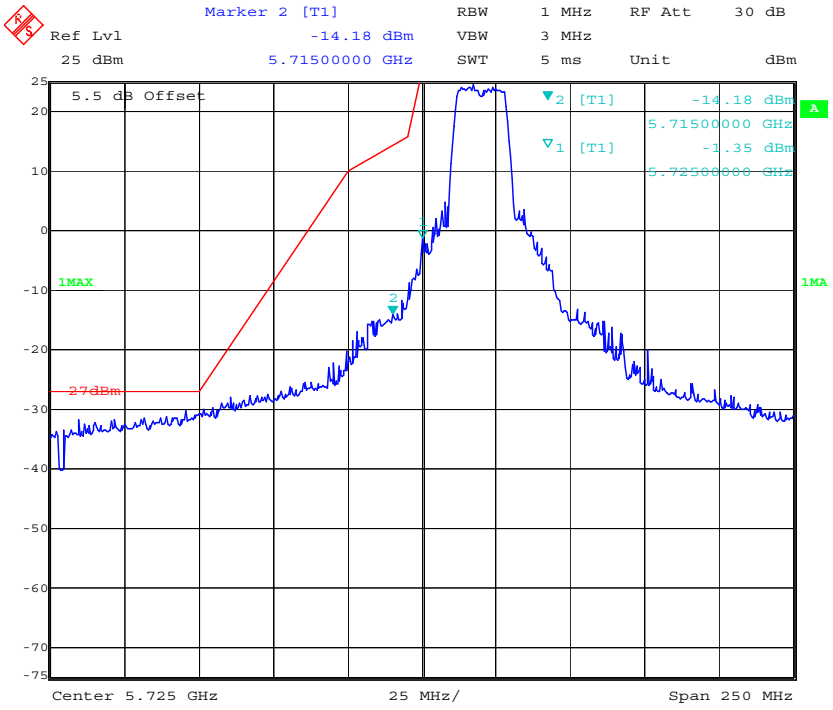
Date: 22.MAY.2017 22:24:23

802.11n ht40 High Channel



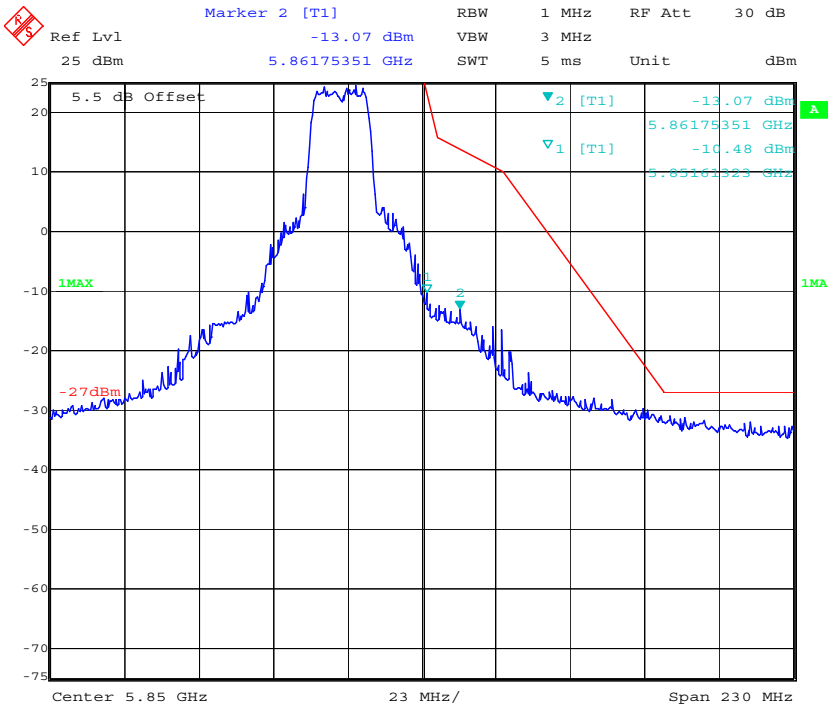
Date: 22.MAY.2017 22:23:30

802.11ac20 Low Channel



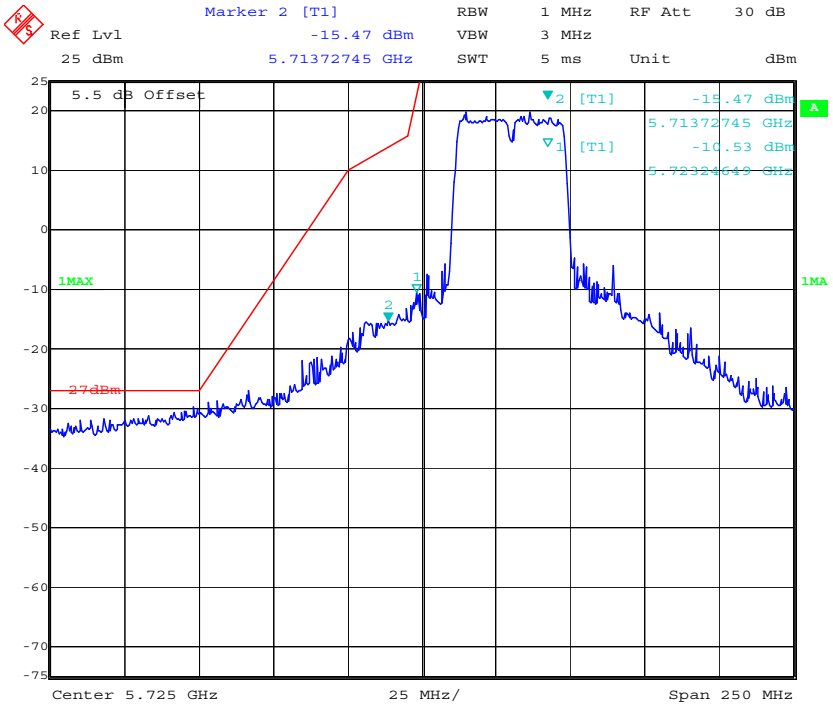
Date: 22.MAY.2017 22:36:34

802.11ac20 High Channel



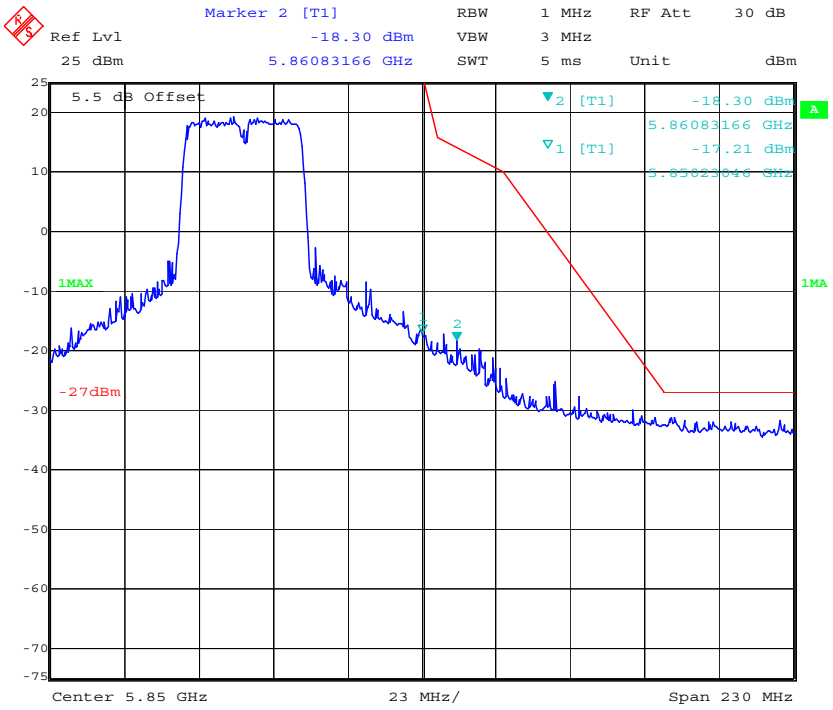
Date: 22.MAY.2017 22:37:13

802.11ac40 Low Channel



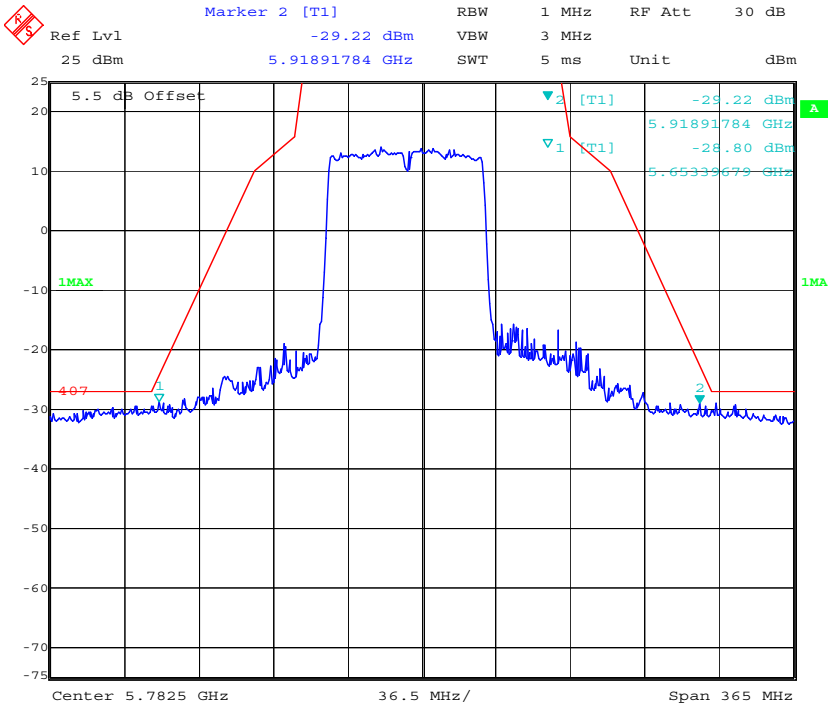
Date: 22.MAY.2017 22:25:15

802.11ac40 High Channel



Date: 22.MAY.2017 22:35:41

802.11n ac80 Middle Channel



Date: 22.MAY.2017 22:50:49

FCC §15.407(a)(e) –EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

Applicable Standard

15.407(a) (e)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-5	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Data

Environmental Conditions

Temperature:	20.2 °C
Relative Humidity:	50.1 %
ATM Pressure:	100.4 kPa

The testing was performed by Kevin Hu on 2017-05-21.

Test Result: Pass.

Please refer to the following tables and plots.

Test mode: Transmitting(Test performed at chain 0)

5150-5250MHz:

Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5180	21.72	17.31
	Middle	5200	21.88	17.15
	High	5240	21.72	17.15
802.11ac20	Low	5180	22.61	18.28
	Middle	5200	22.53	18.28
	High	5240	22.61	18.28
802.11ac40	Low	5190	40.72	36.71
	High	5230	40.72	36.71
802.11ac80	Middle	5210	83.37	75.99
802.11n ht20	Low	5180	22.53	18.2
	Middle	5200	22.61	18.2
	High	5240	22.36	18.2
802.11n ht40	Low	5190	40.56	36.87
	High	5230	40.56	36.71

Note: the 99% Occupied Bandwidth have not fall into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth.

5725-5850MHz:

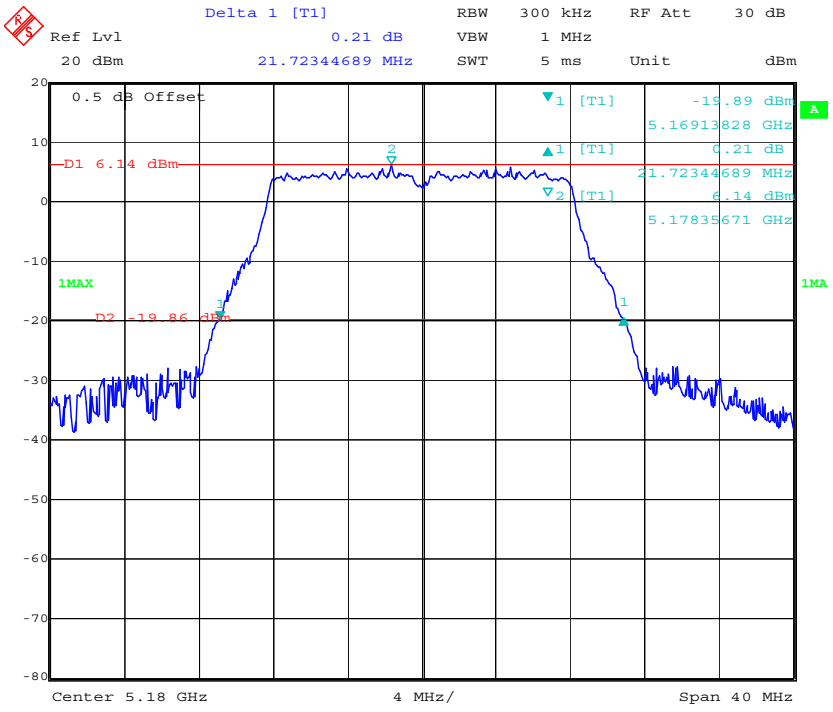
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5745	17.31
	Middle	5785	17.47
	High	5825	17.39
802.11ac20	Low	5745	18.52
	Middle	5785	18.44
	High	5825	18.44
802.11ac40	Low	5755	37.03
	High	5795	37.03
802.11ac80	Middle	5775	76.31
802.11n ht20	Low	5745	18.52
	Middle	5785	18.44
	High	5825	18.52
802.11n ht40	Low	5755	37.03
	High	5795	36.87

Note: For 5725-5850MHz band, the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz.

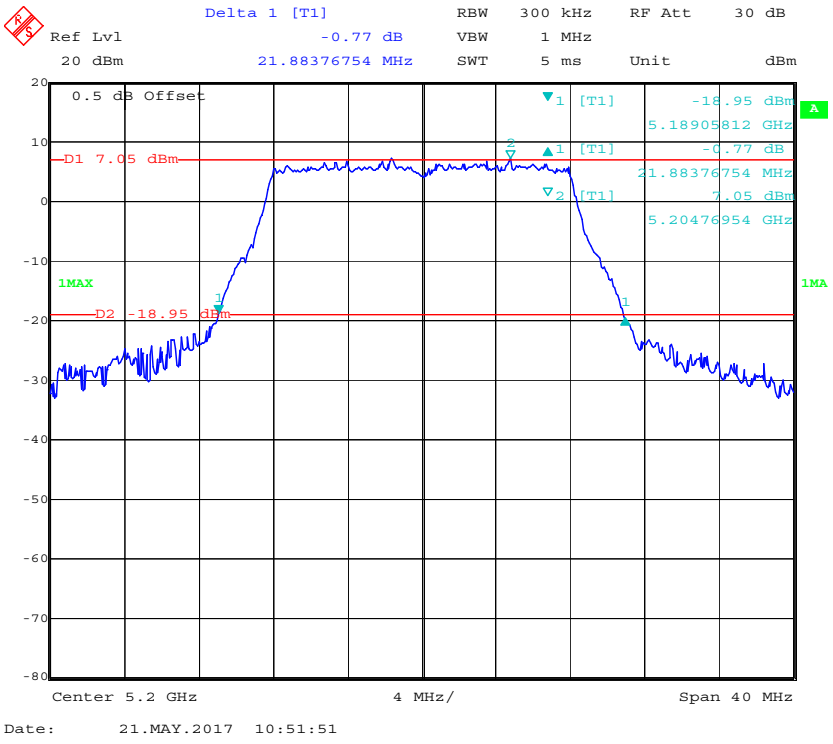
Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limits (MHz)	Result
802.11 a	Low	5745	16.43	≥0.5	PASS
	Middle	5785	16.43	≥0.5	PASS
	High	5825	16.51	≥0.5	PASS
802.11ac20	Low	5745	17.72	≥0.5	PASS
	Middle	5785	17.72	≥0.5	PASS
	High	5825	17.72	≥0.5	PASS
802.11ac40	Low	5755	36.39	≥0.5	PASS
	High	5795	36.39	≥0.5	PASS
802.11ac80	Middle	5775	75.99	≥0.5	PASS
802.11n ht20	Low	5745	17.64	≥0.5	PASS
	Middle	5785	17.72	≥0.5	PASS
	High	5825	17.72	≥0.5	PASS
802.11n ht40	Low	5755	36.39	≥0.5	PASS
	High	5795	36.39	≥0.5	PASS

5150-5250MHz: 26dB Emission Bandwidth:

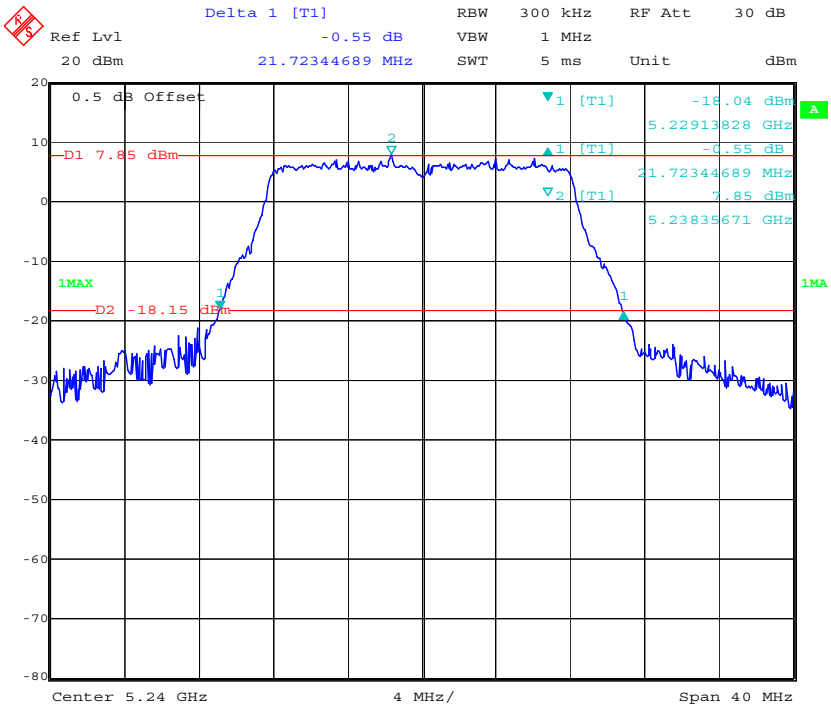
802.11a Low Channel



802.11a Middle Channel

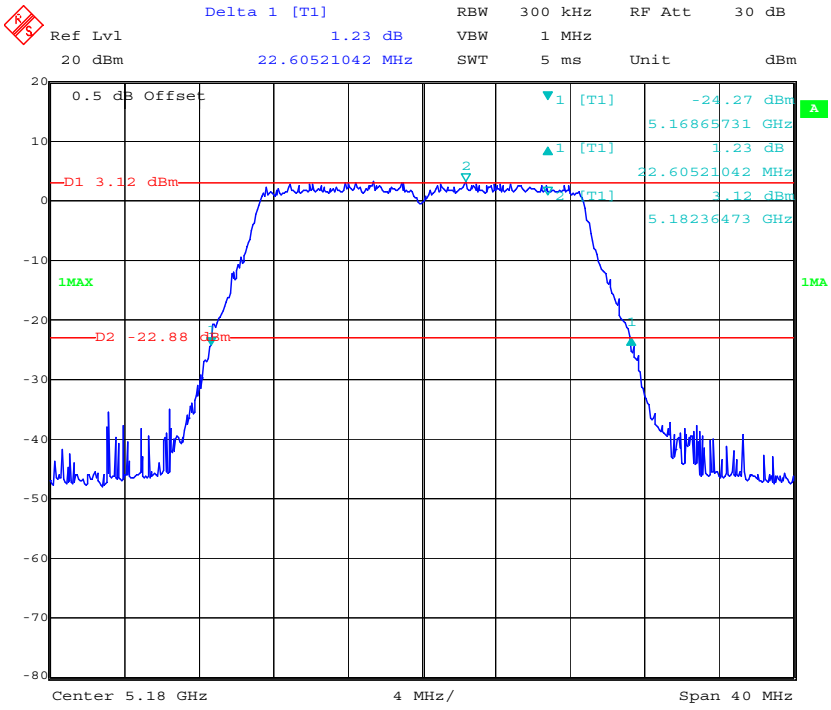


802.11a High Channel



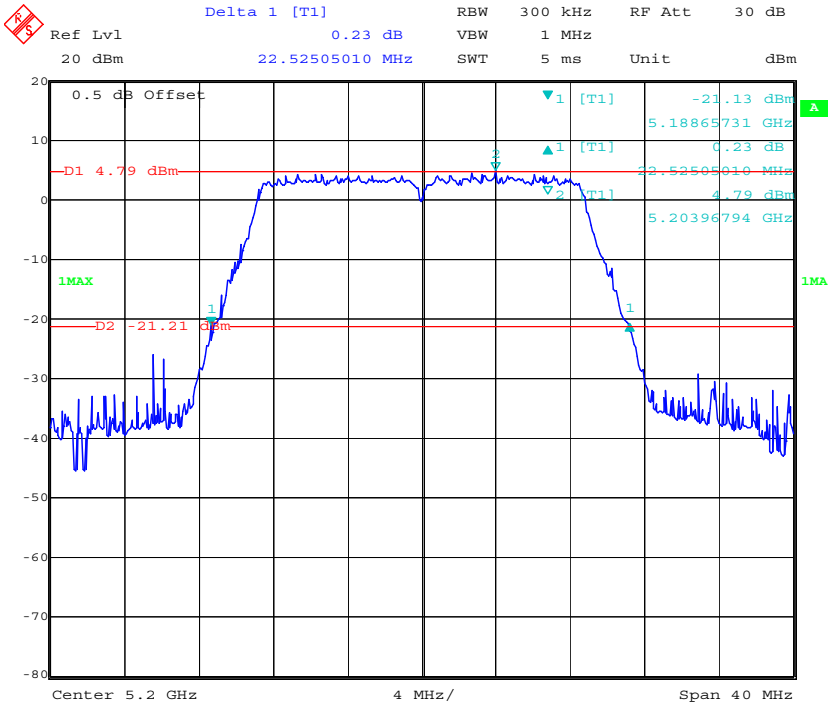
Date: 21.MAY.2017 10:53:06

802.11ac20 Low Channel



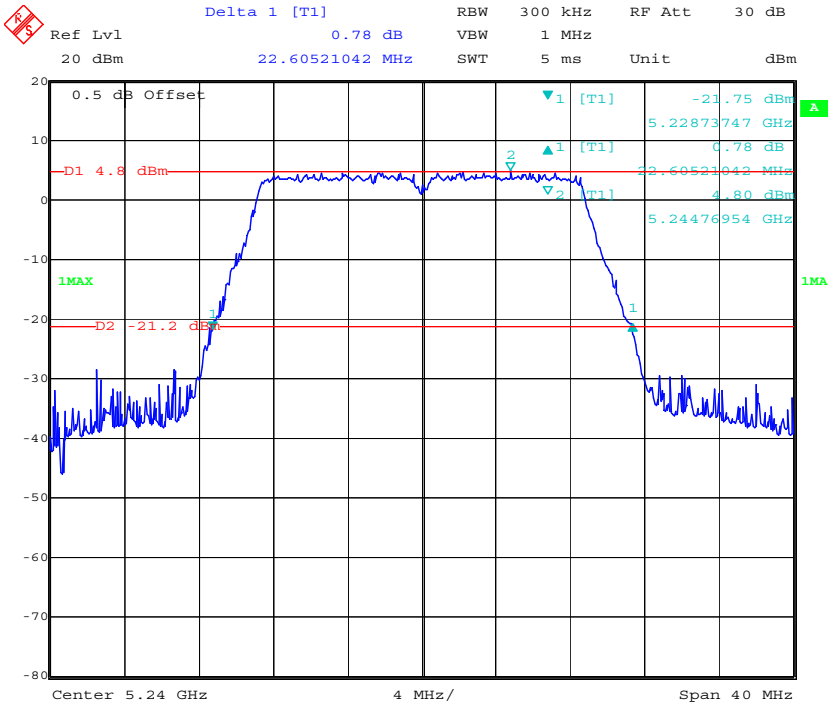
Date: 21.MAY.2017 10:47:49

802.11ac20 Middle Channel



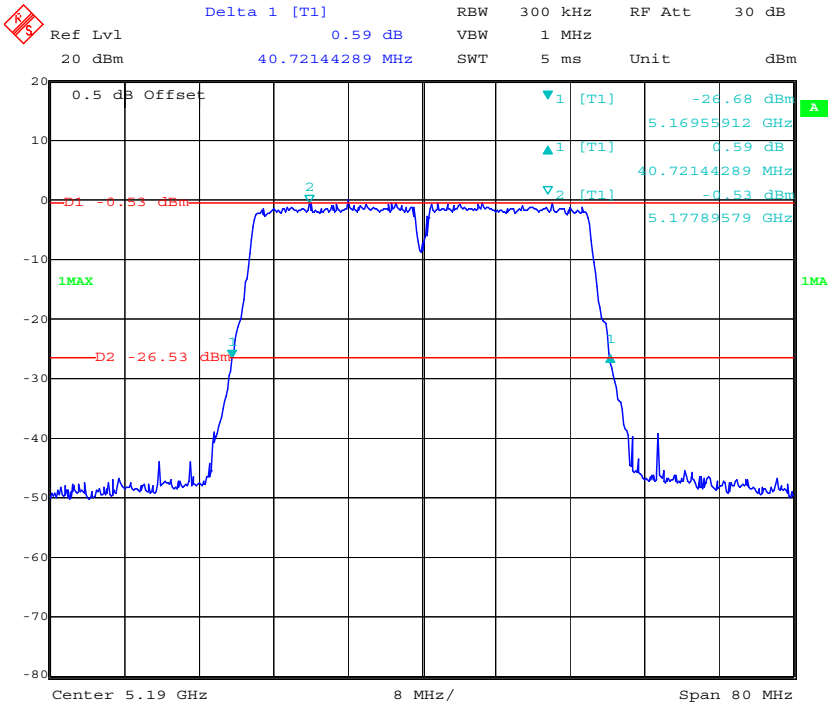
Date: 21.MAY.2017 10:57:46

802.11ac20 High Channel



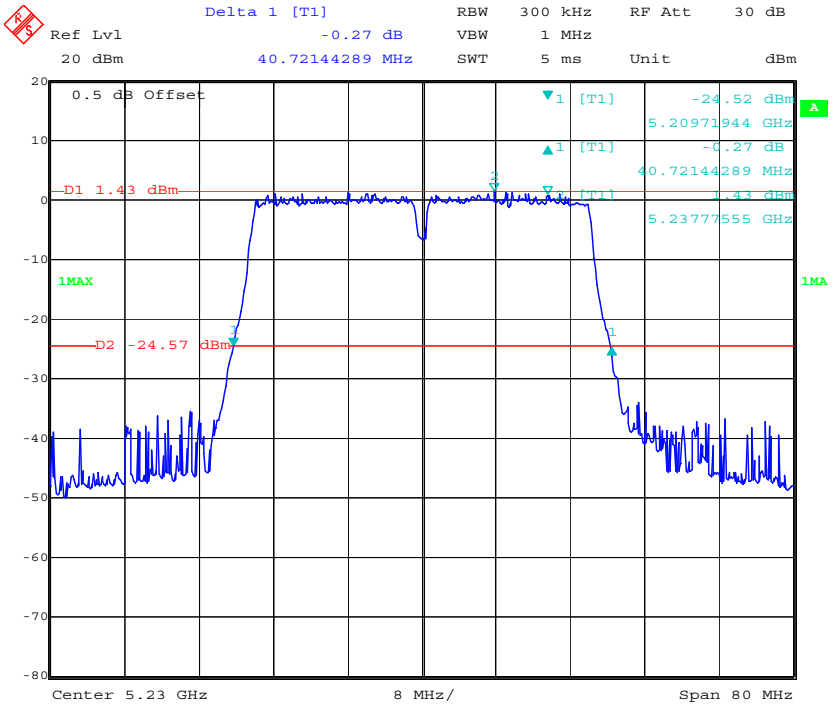
Date: 21.MAY.2017 10:55:40

802.11ac40 Low Channel



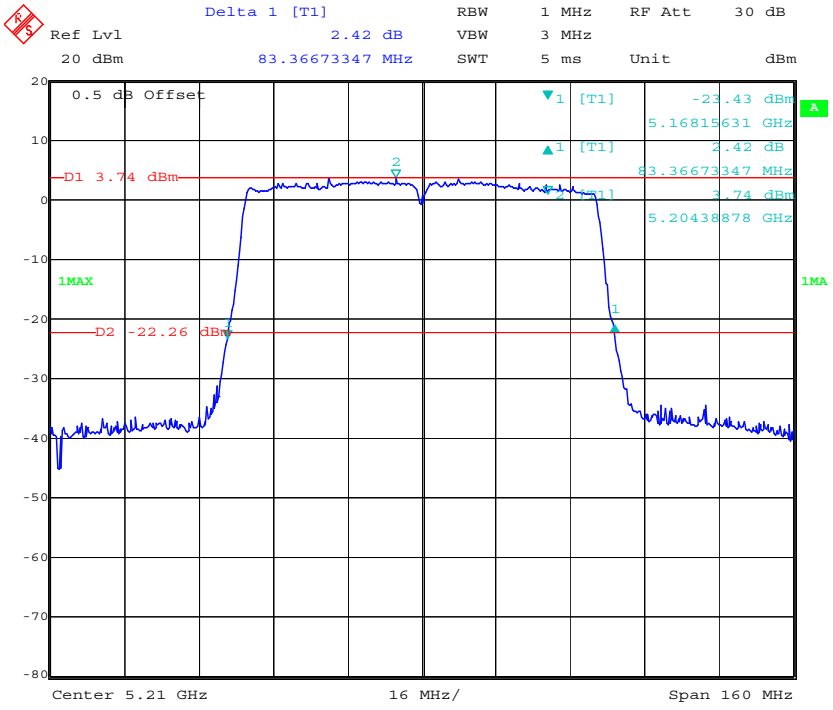
Date: 21.MAY.2017 10:59:33

802.11ac40 High Channel



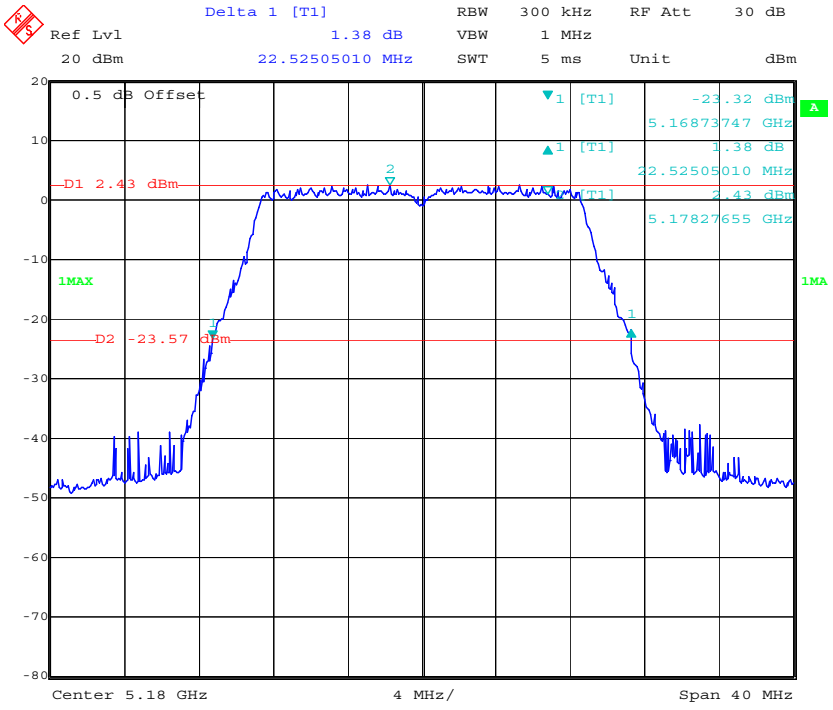
Date: 21.MAY.2017 11:01:46

802.11ac80 Middle Channel



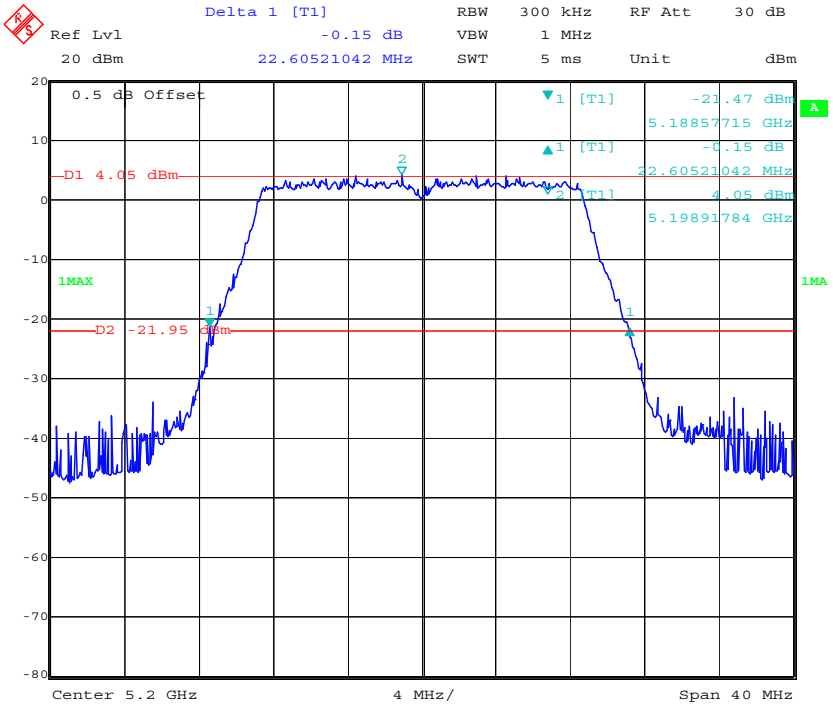
Date: 21.MAY.2017 14:25:14

802.11n ht20 Low Channel



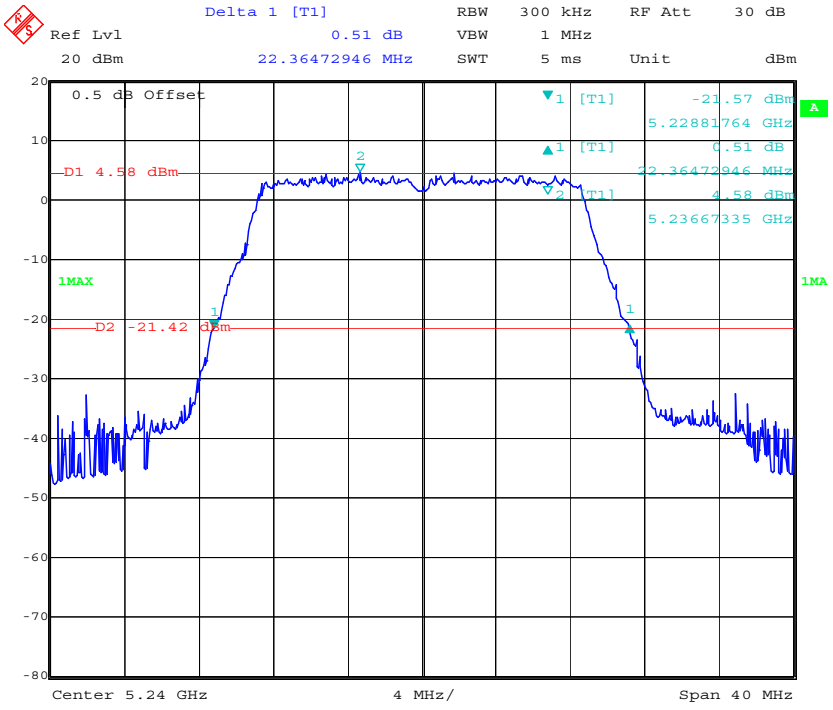
Date: 21.MAY.2017 11:08:06

802.11n ht20 Middle Channel



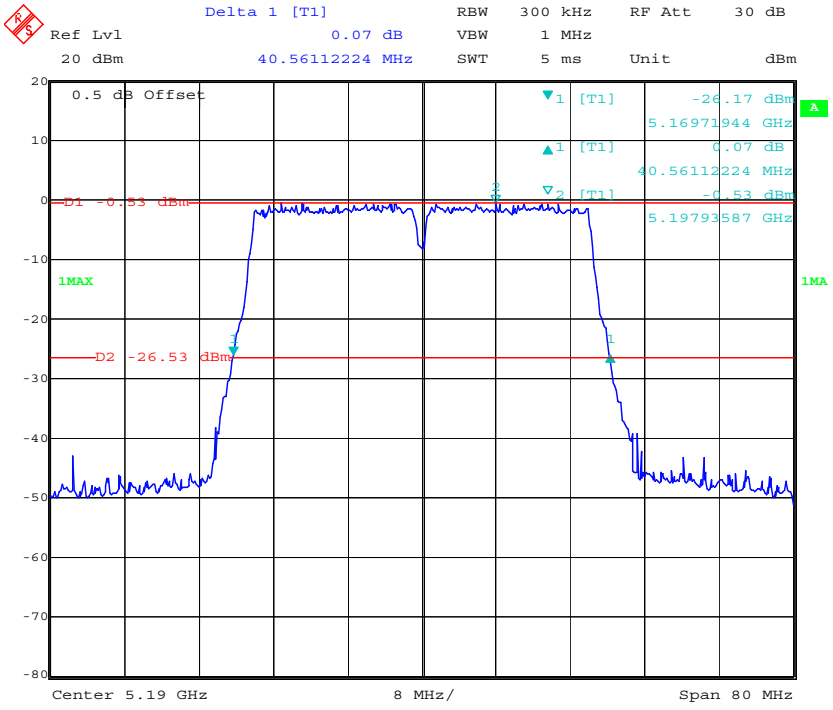
Date: 21.MAY.2017 11:09:48

802.11n ht20 High Channel



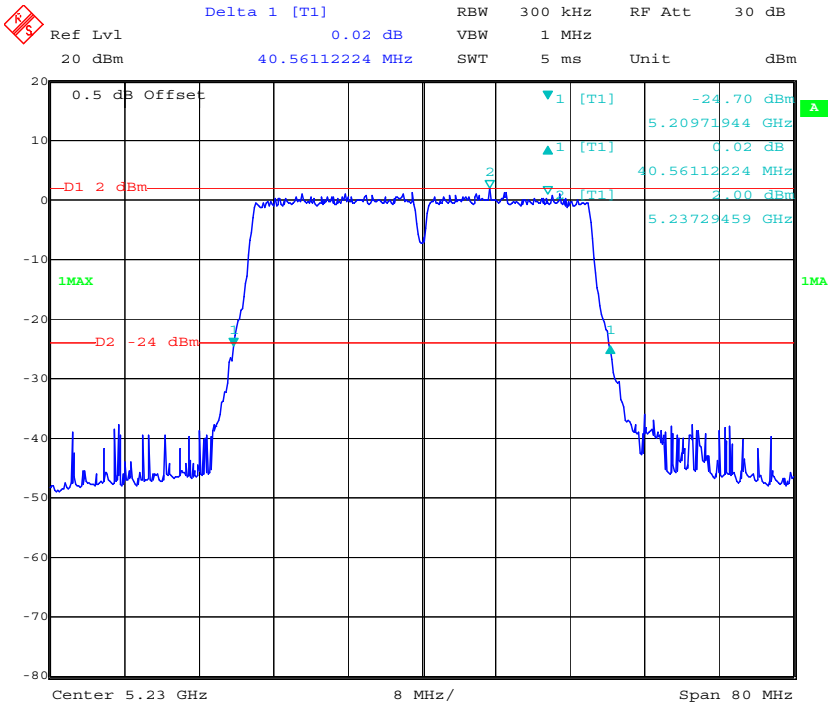
Date: 21.MAY.2017 11:11:23

802.11n ht40 Low Channel



Date: 21.MAY.2017 11:06:17

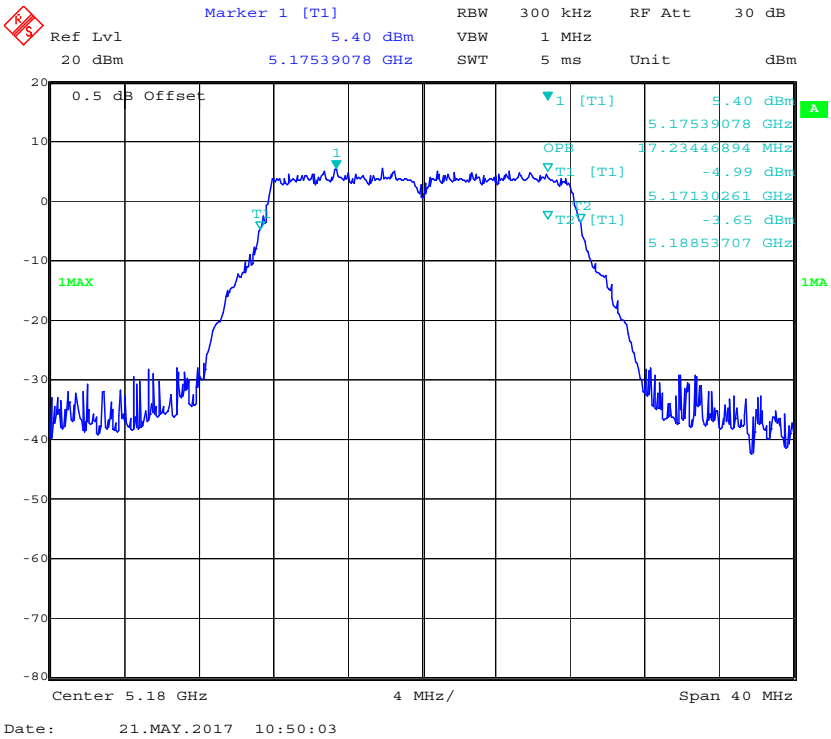
802.11n ht40 High Channel



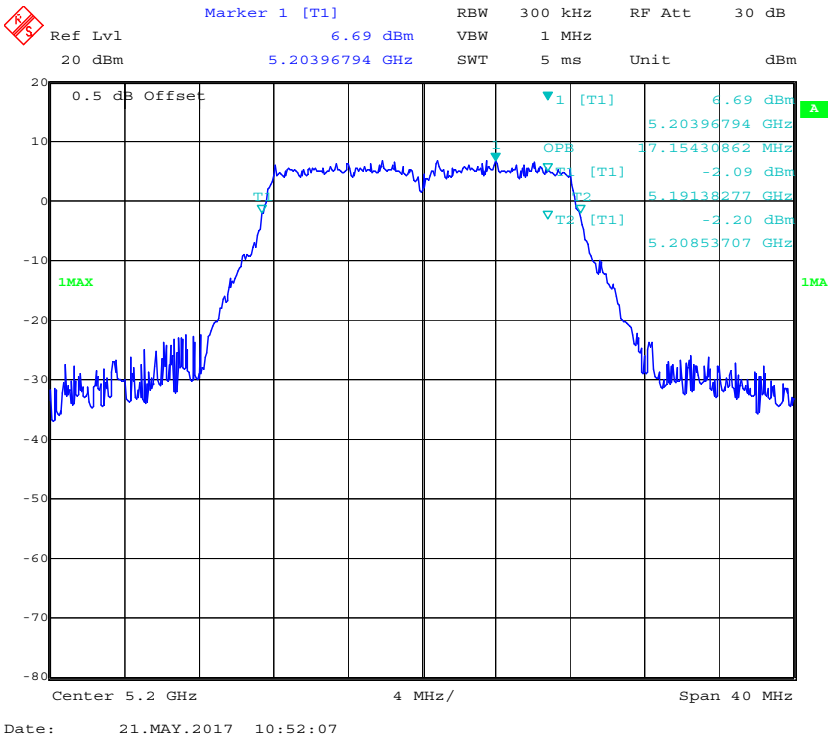
Date: 21.MAY.2017 11:03:37

99% Occupied Bandwidth

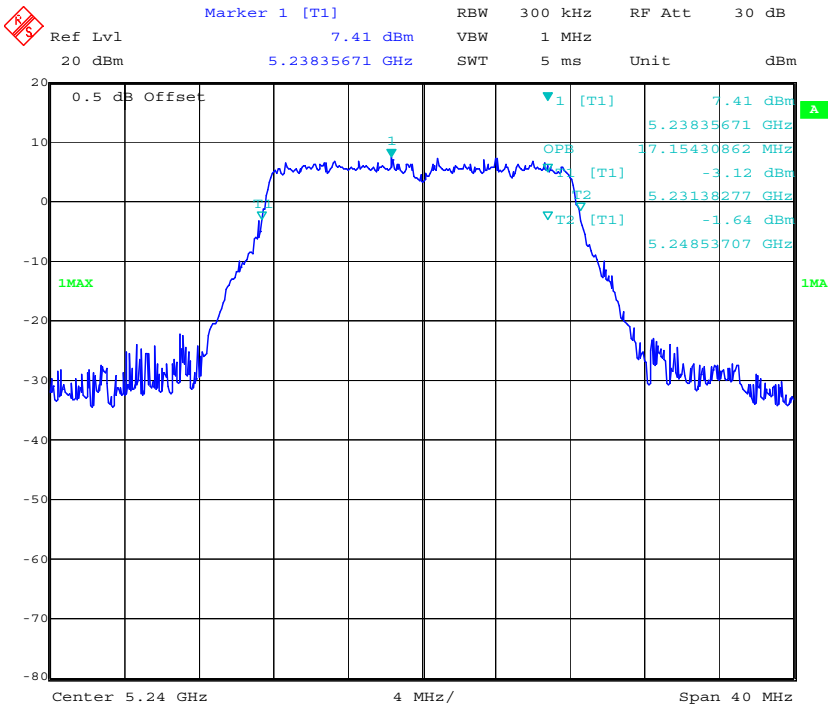
802.11a Low Channel



802.11a Middle Channel

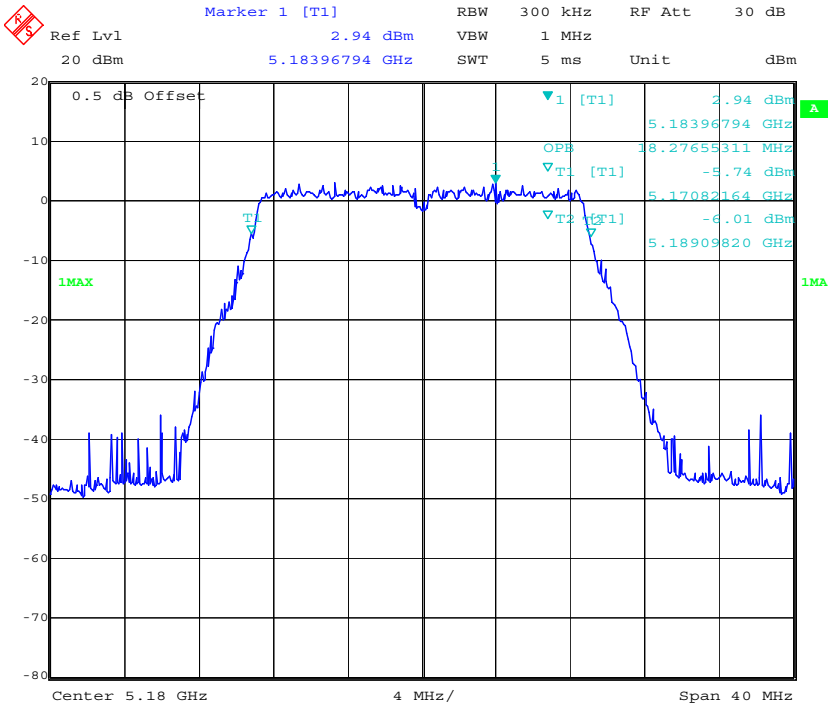


802.11a High Channel



Date: 21.MAY.2017 10:53:22

802.11ac20 Low Channel



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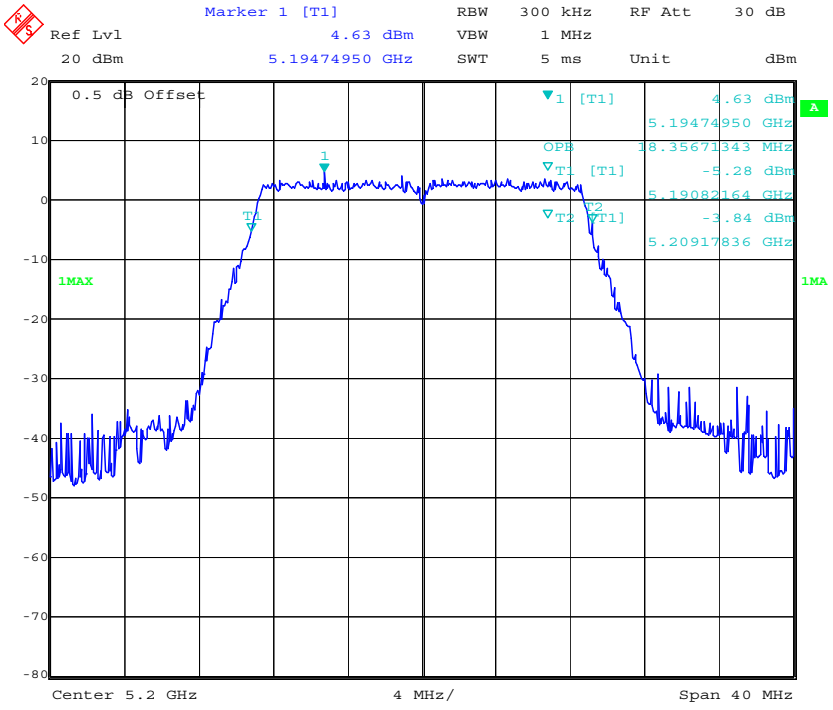
802.11ac20 Middle Channel



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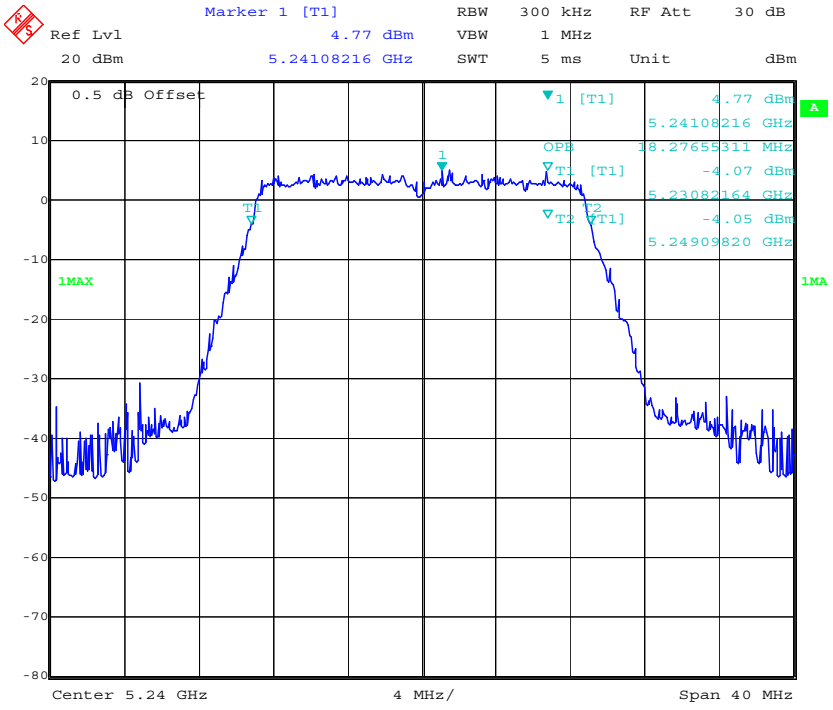

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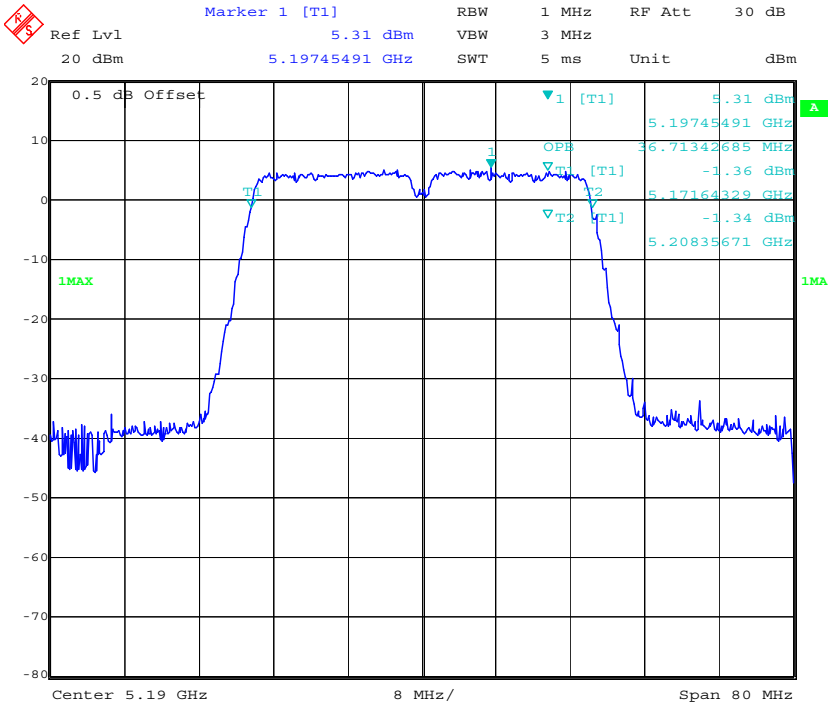

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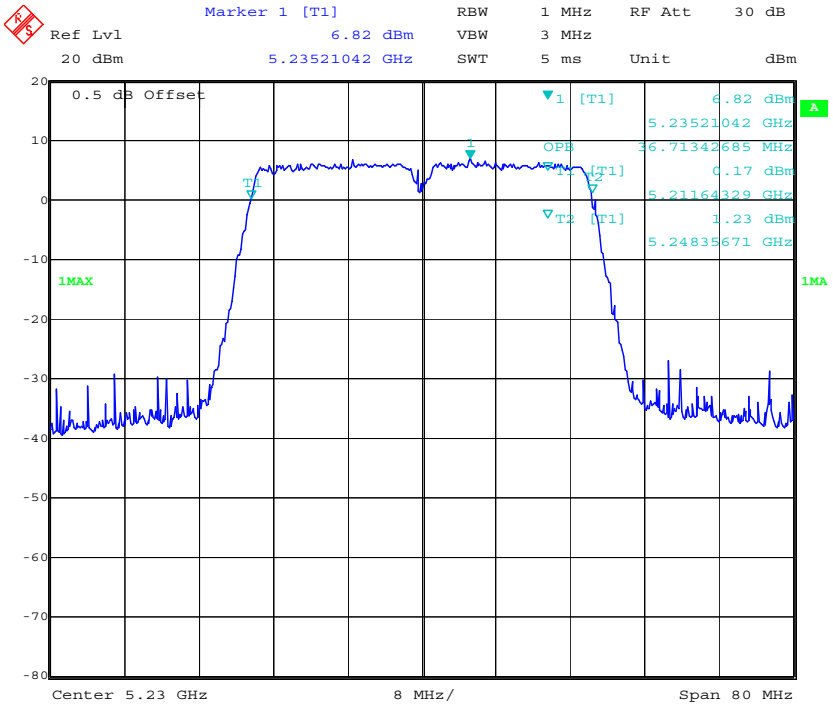

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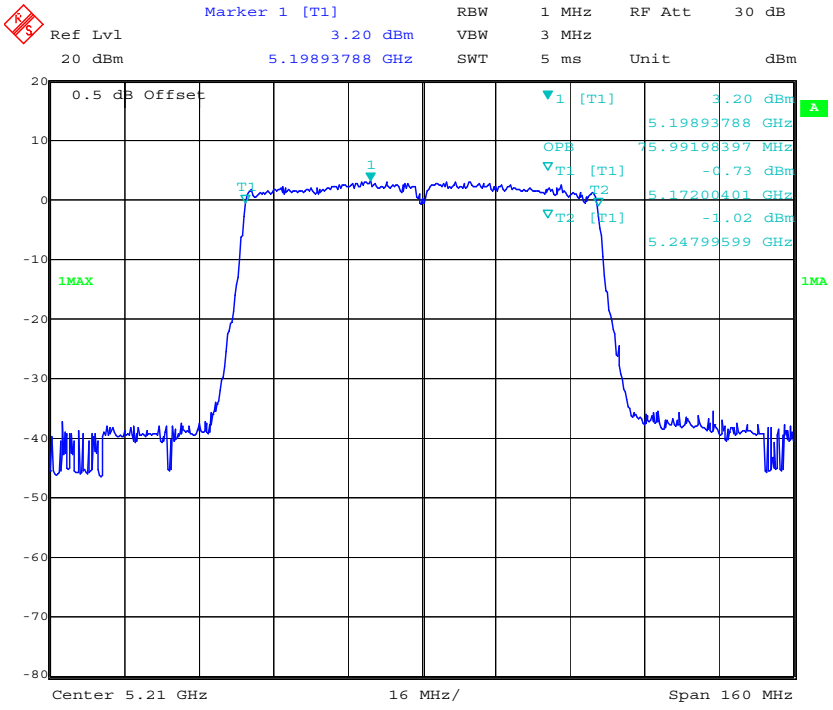

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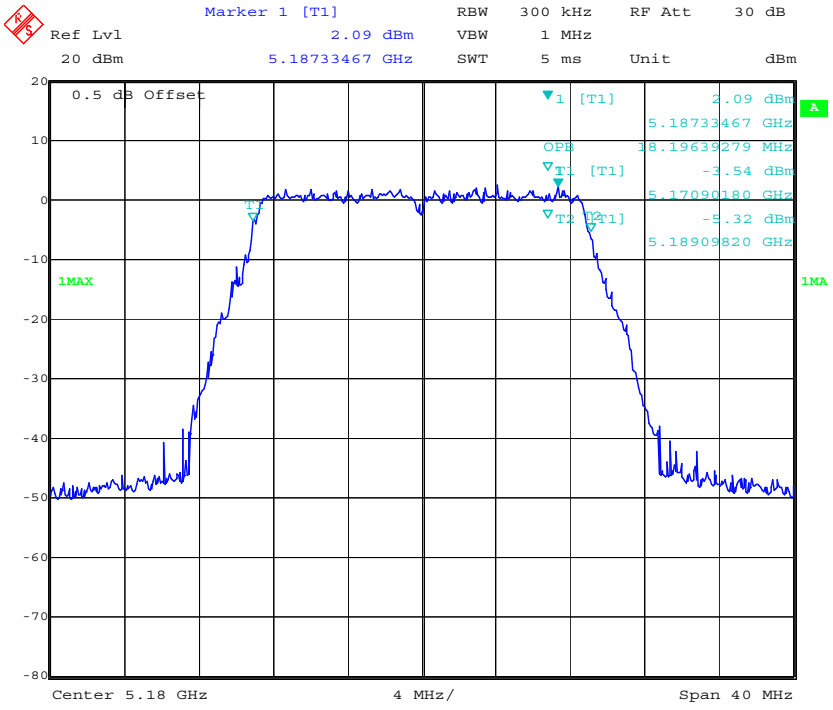

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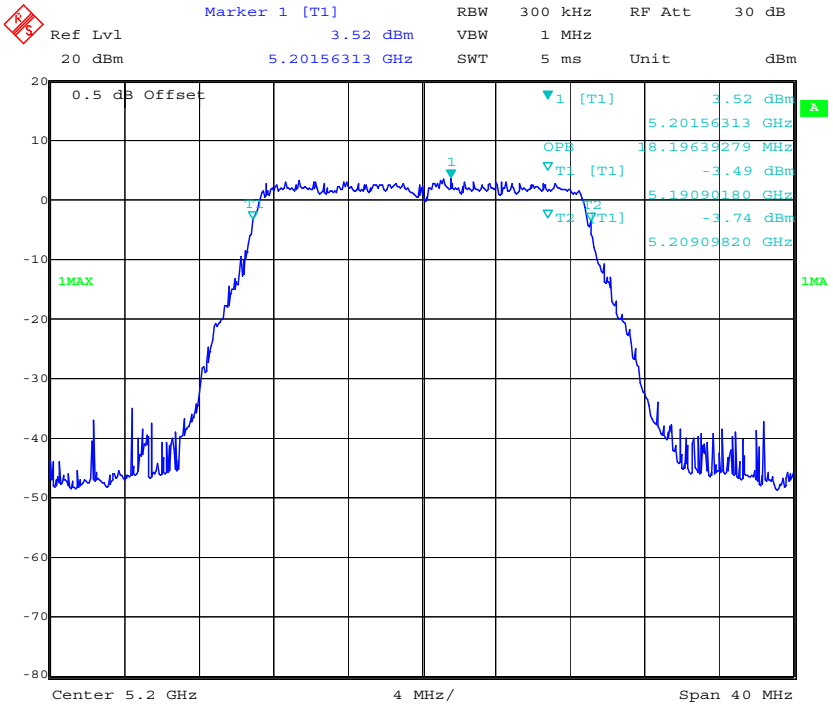

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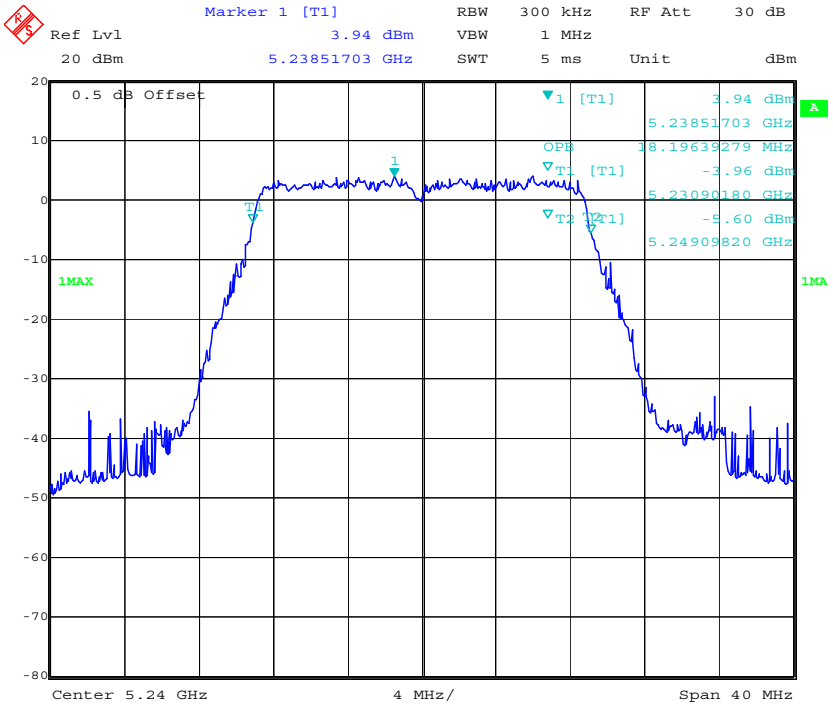

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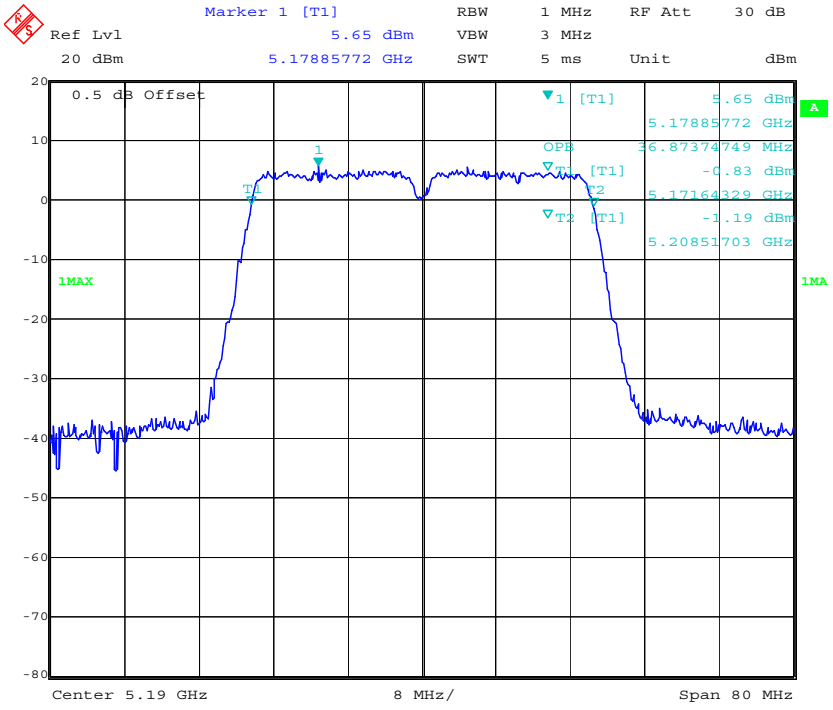

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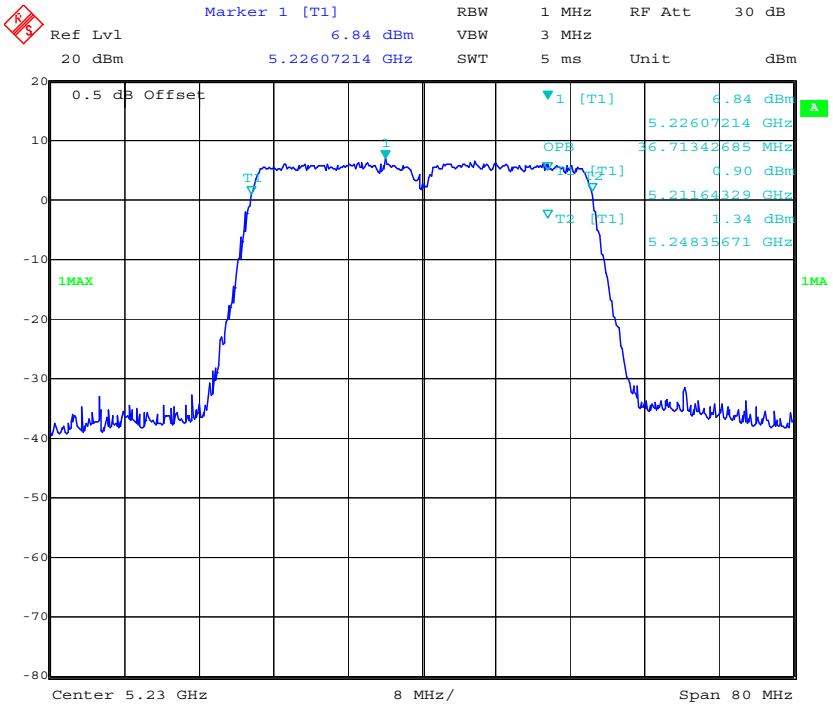
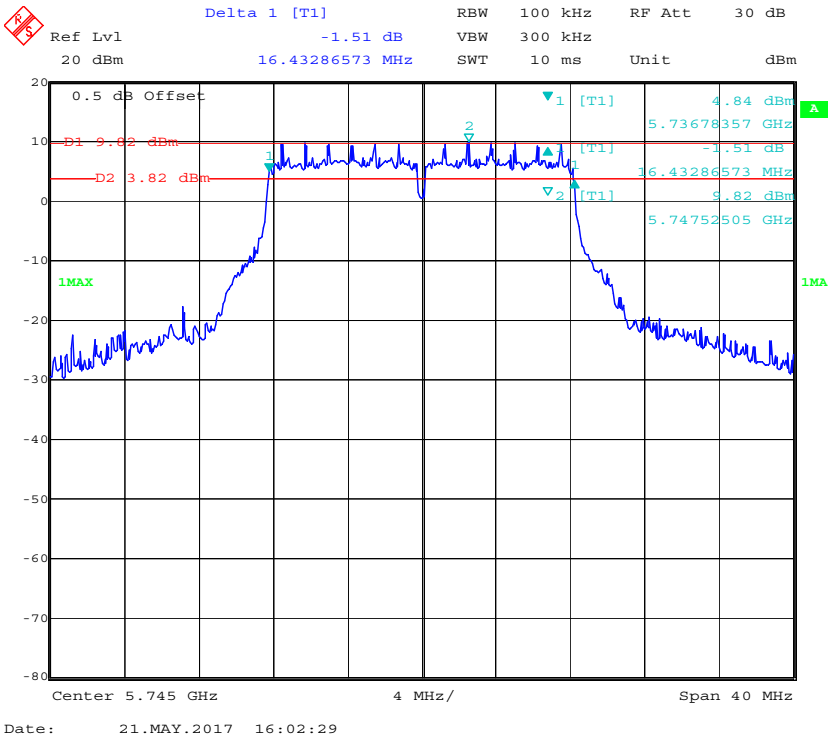


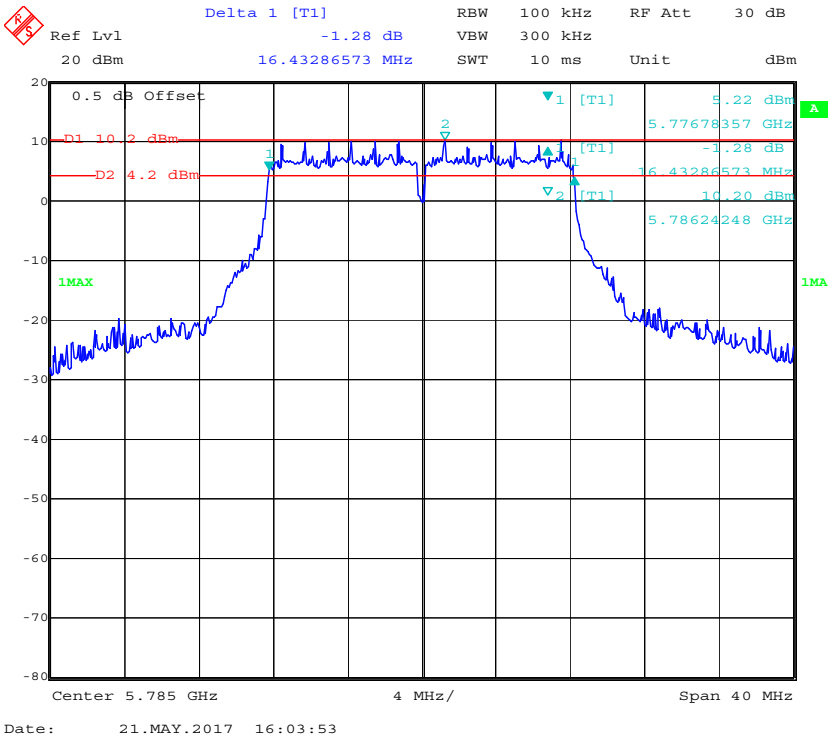
Date: 21.MAY.2017 11:03:53

5725-5850MHz:
6dB Bandwidth:

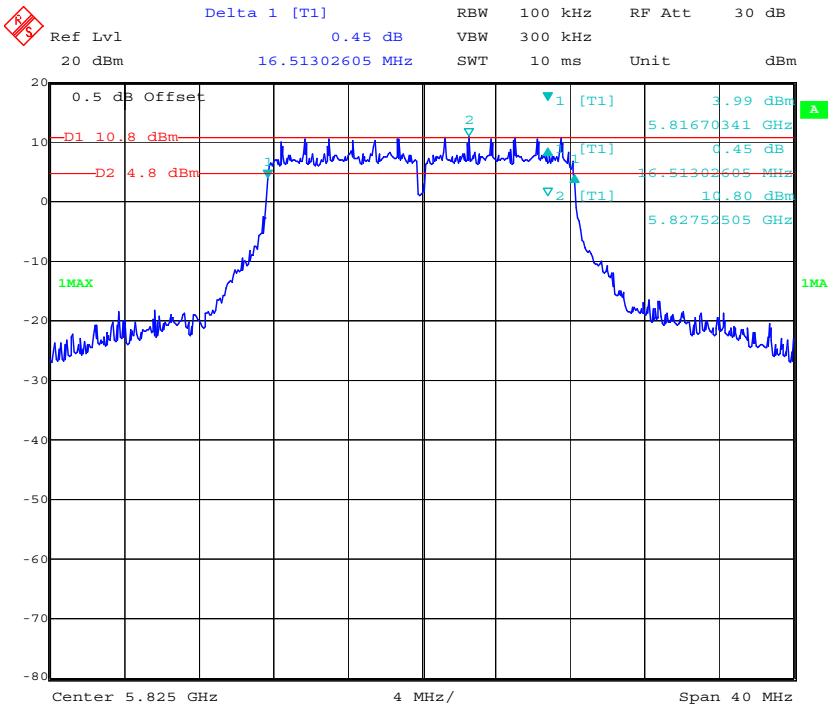
802.11a Low Channel



802.11a Middle Channel



802.11a High Channel



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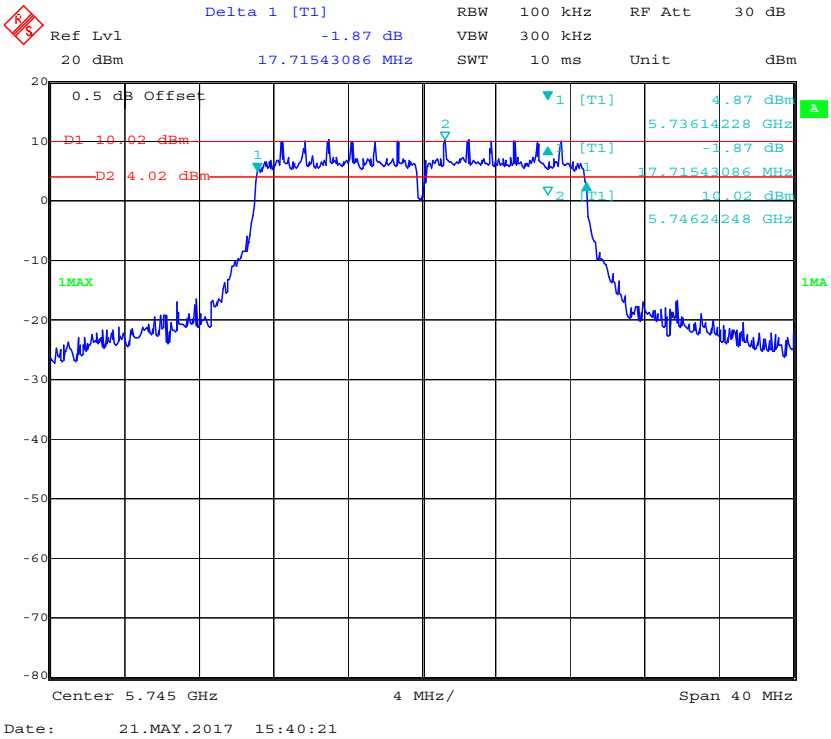
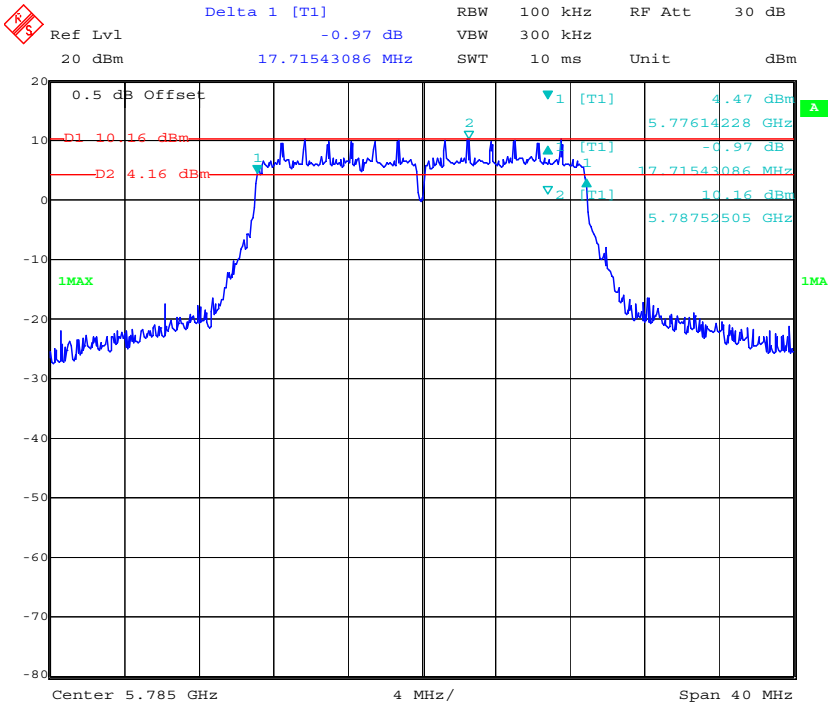


802.11ac20 Middle Channel



Date: 21.MAY.2017 15:41:40

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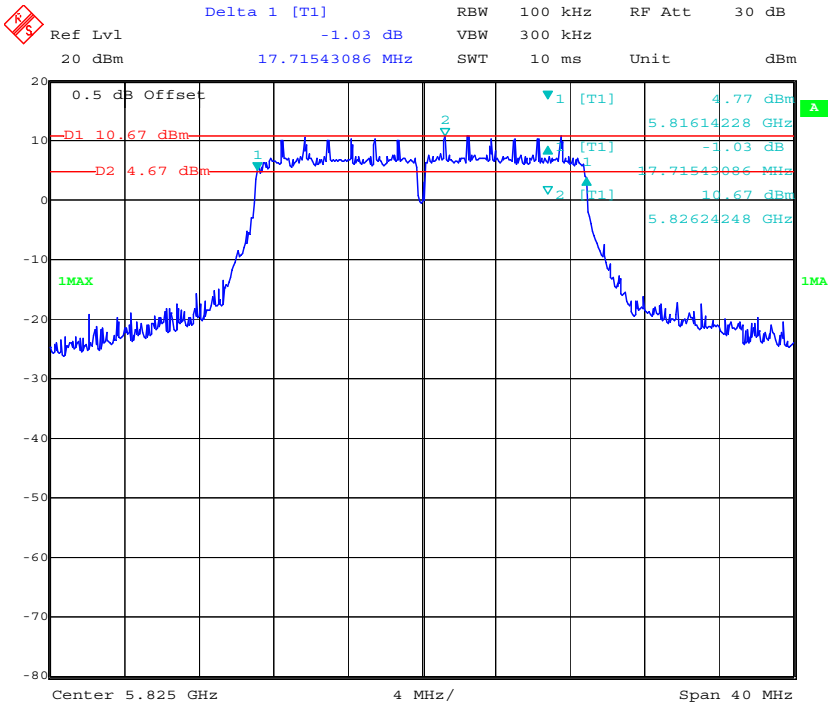

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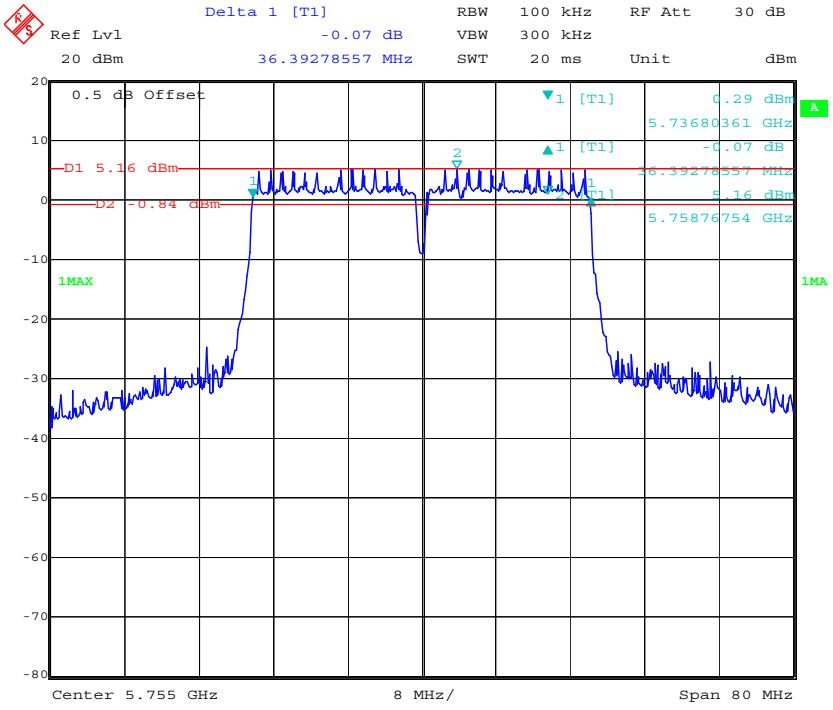
802.11ac40 Low Channel



Date: 21.MAY.2017 15:58:14

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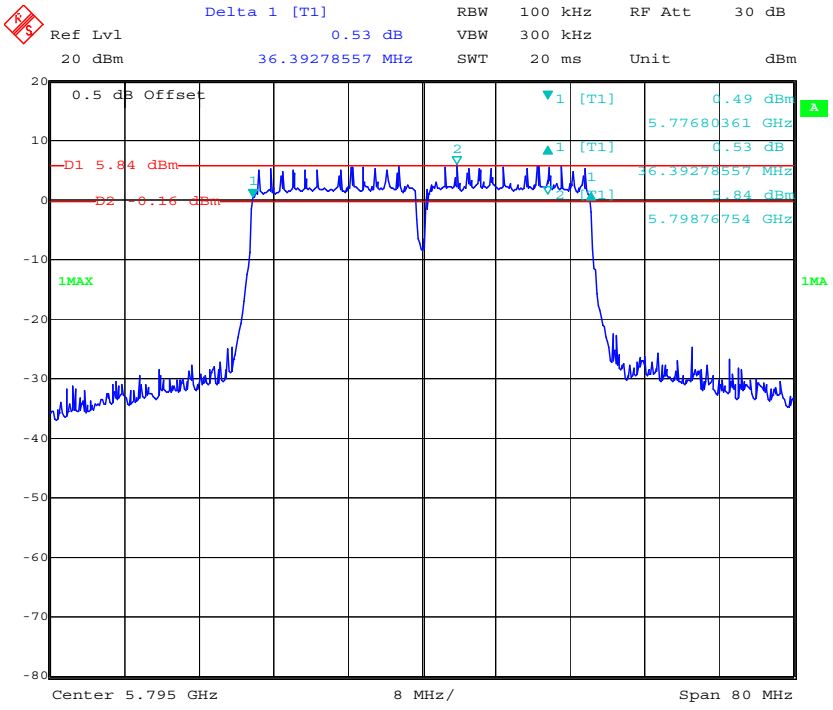

Date: 21.MAY.2017 15:59:38

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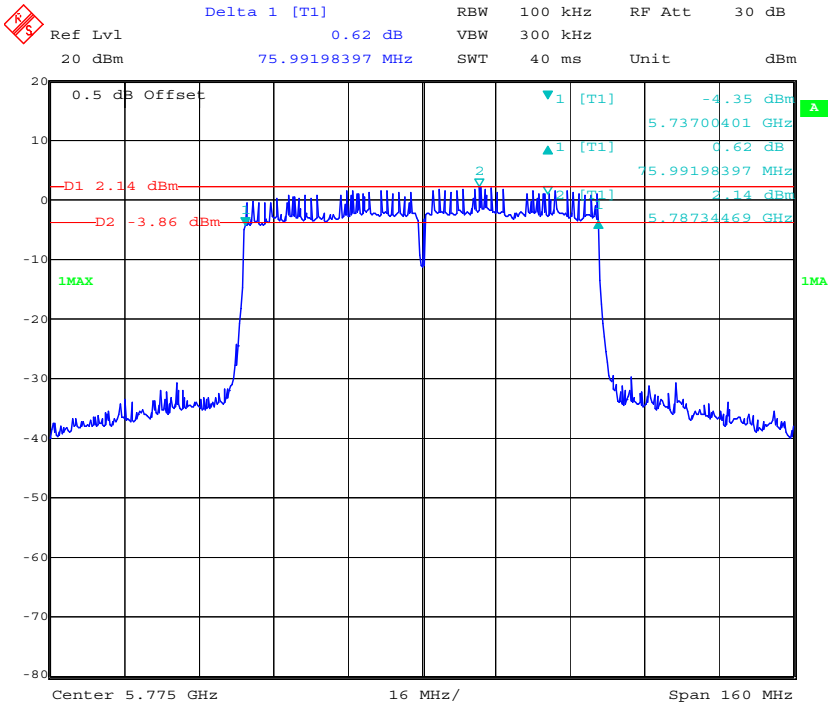

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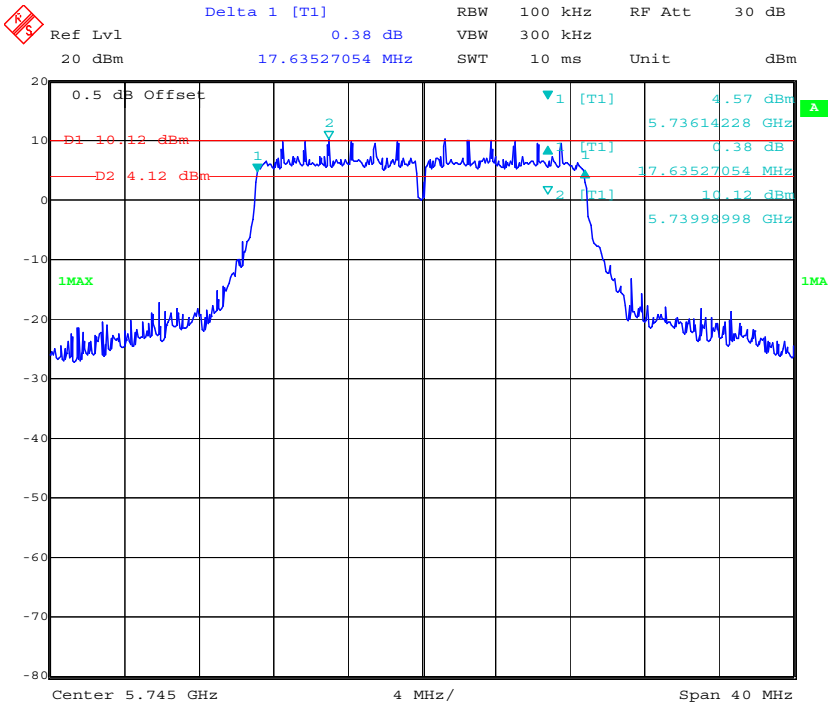
802.11n ht20 Low Channel



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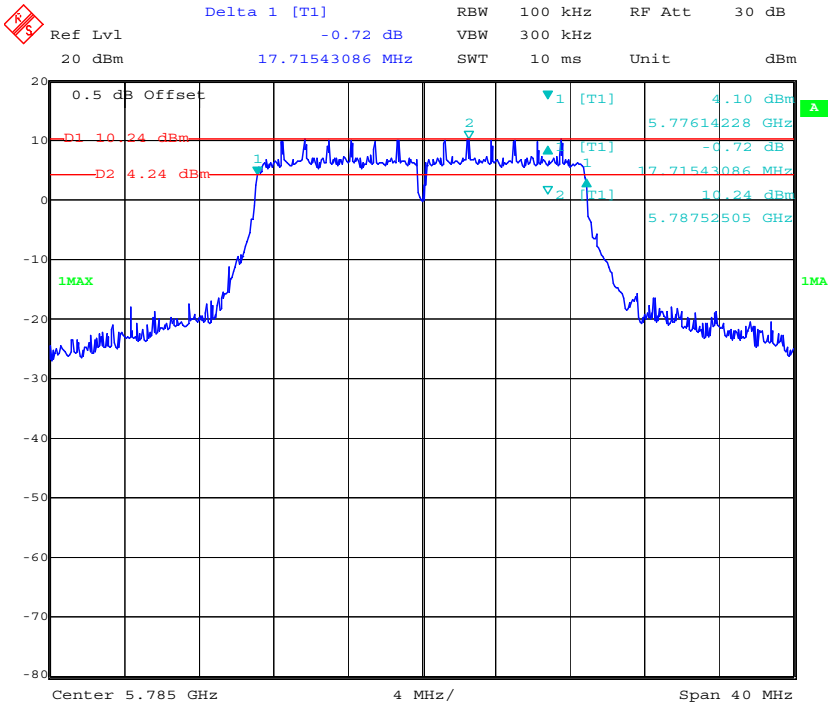

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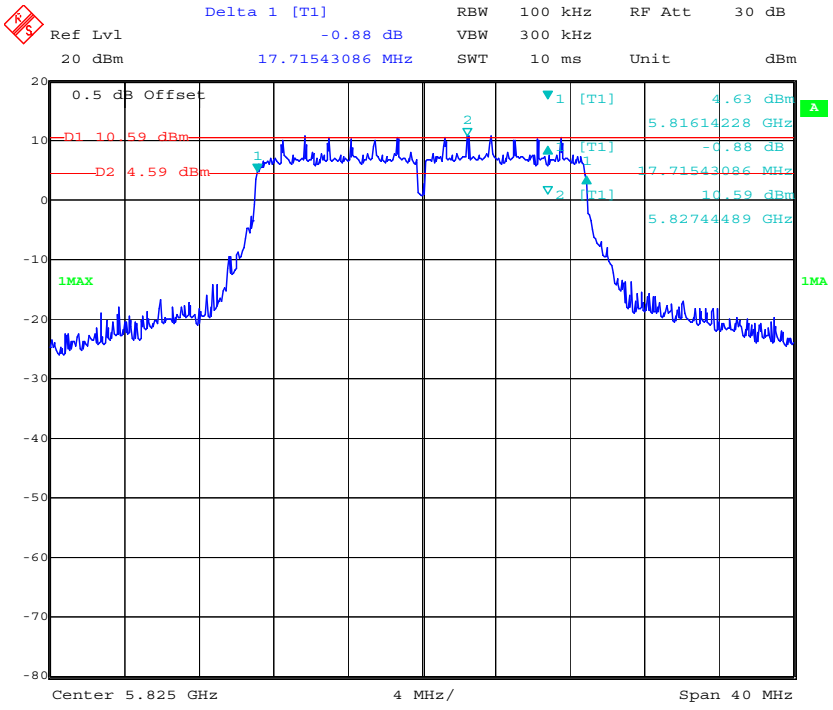

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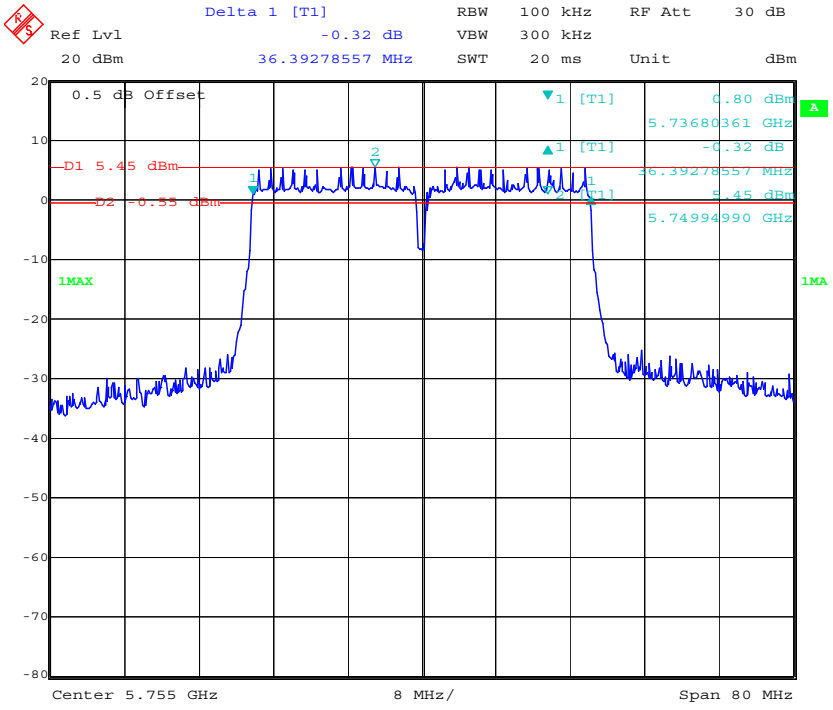

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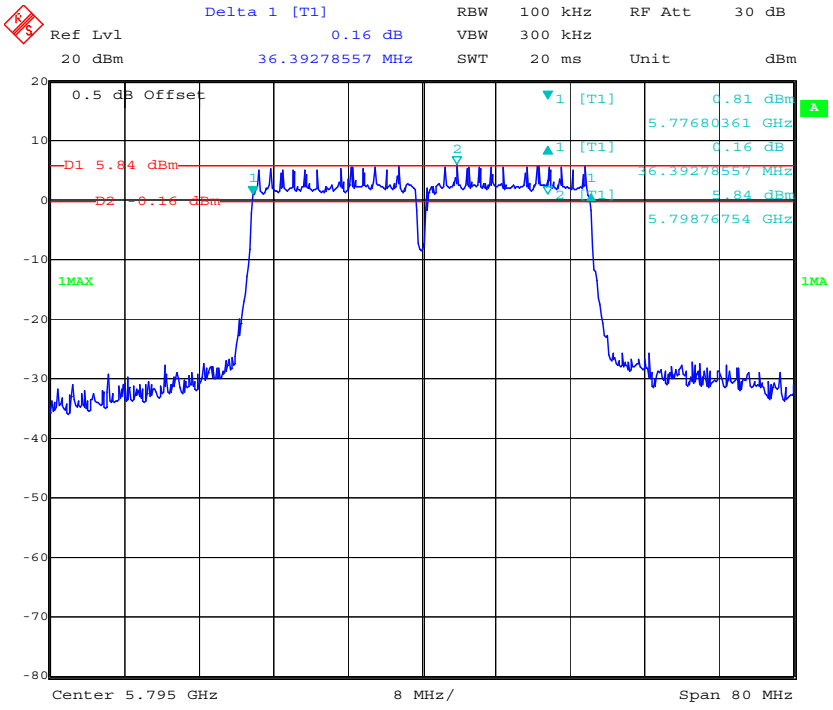
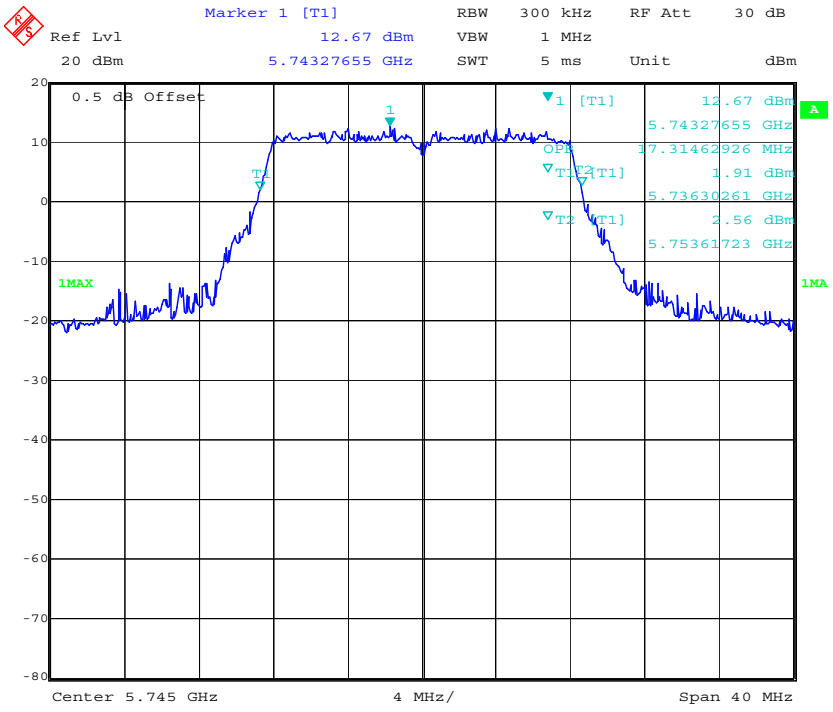


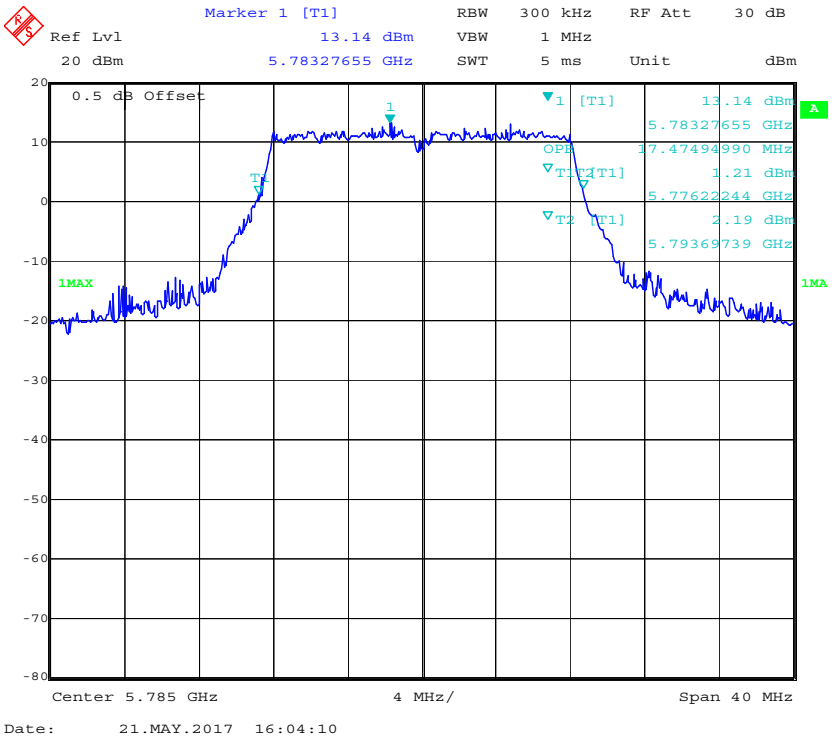
Date: 21.MAY.2017 15:53:42

99% Occupied Bandwidth:

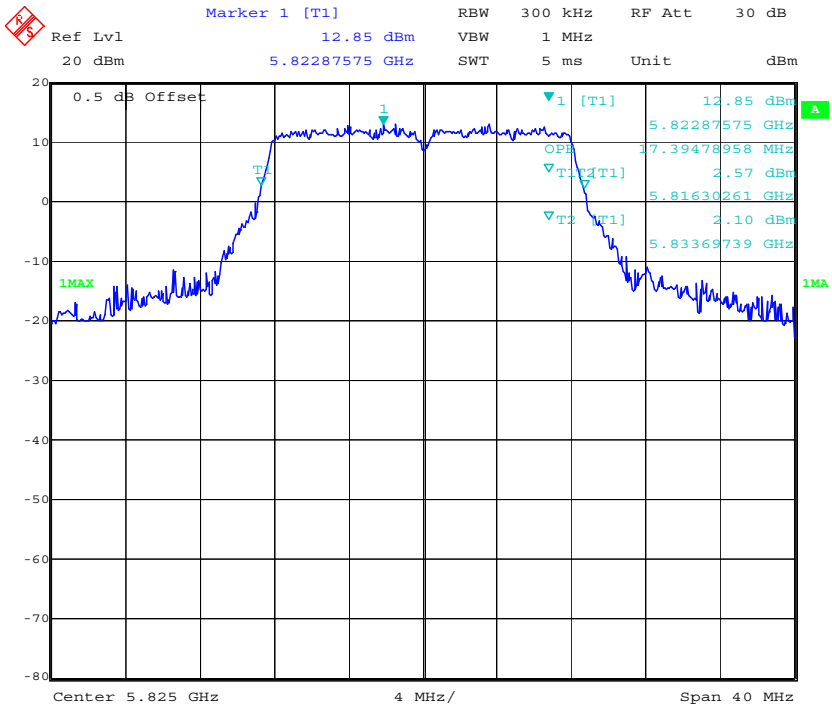
802.11a Low Channel



802.11a Middle Channel

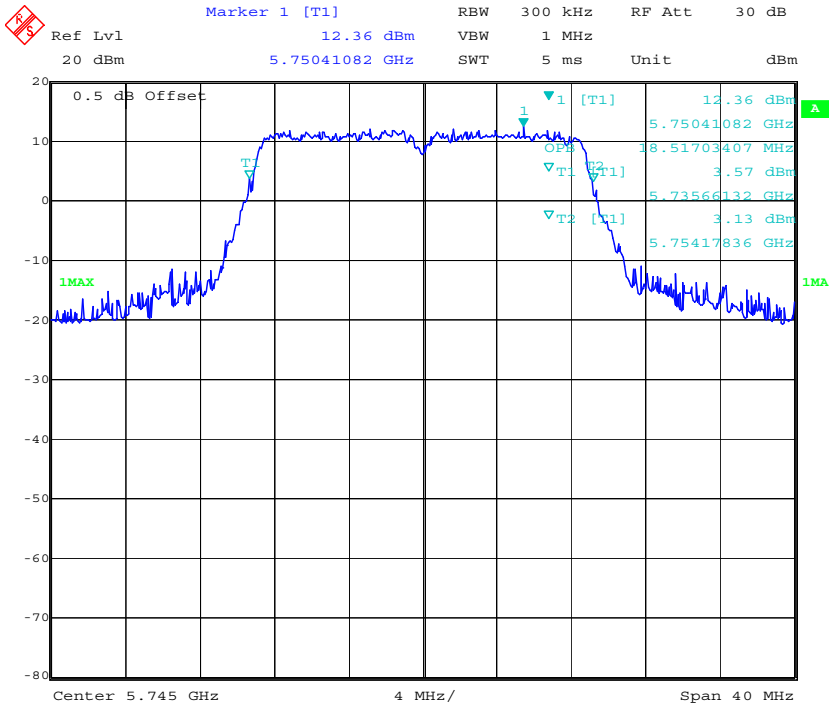


802.11a High Channel



Date: 21.MAY.2017 16:05:31

802.11ac20 Low Channel



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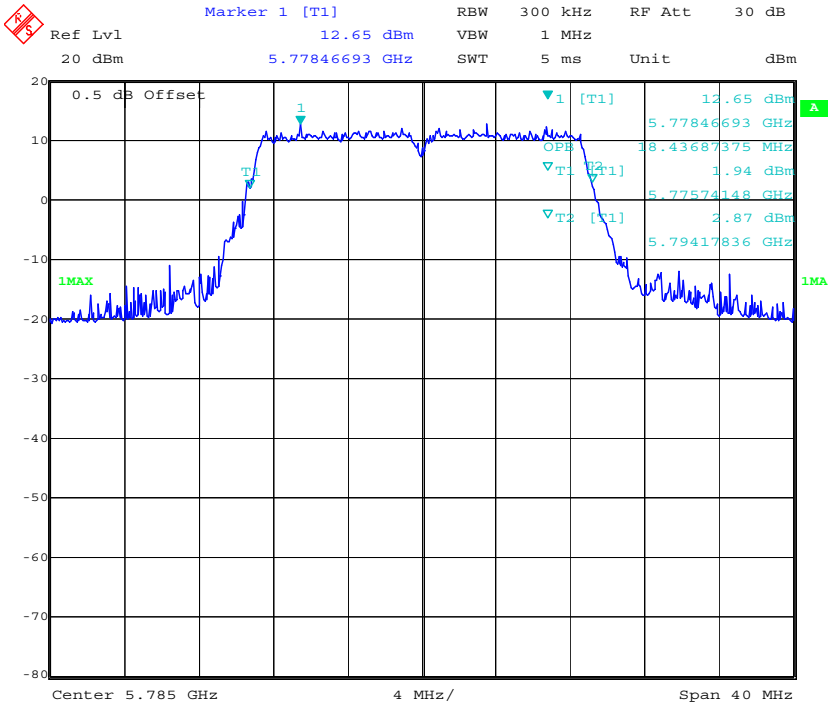
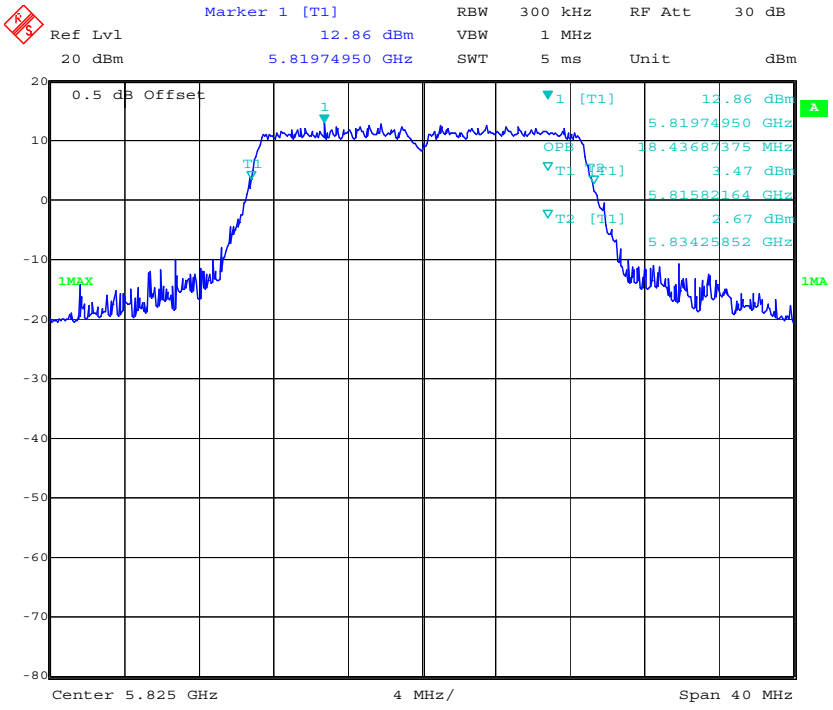


Date: 21.MAY.2017 15:41:56

802.11ac20 High Channel



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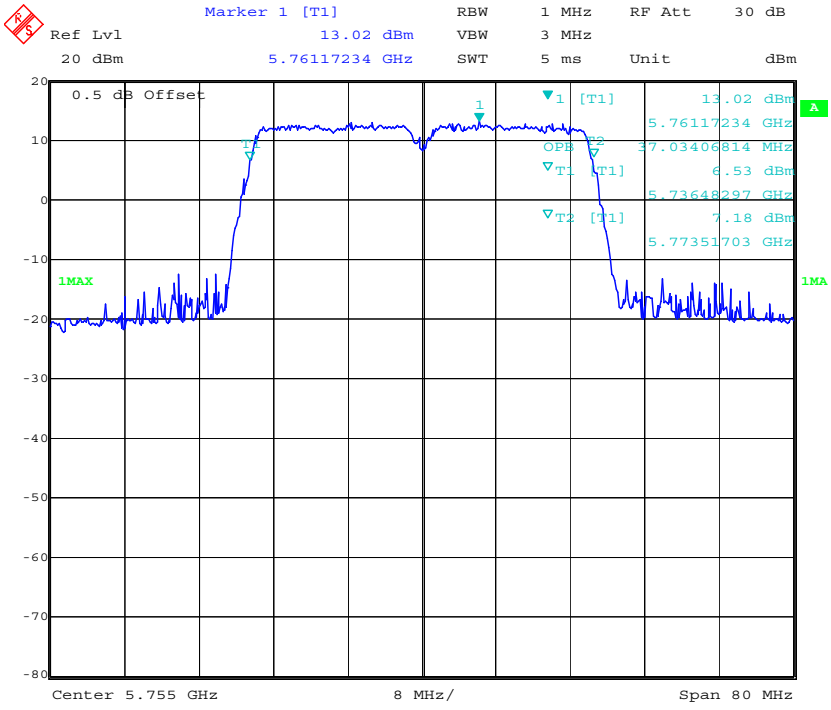

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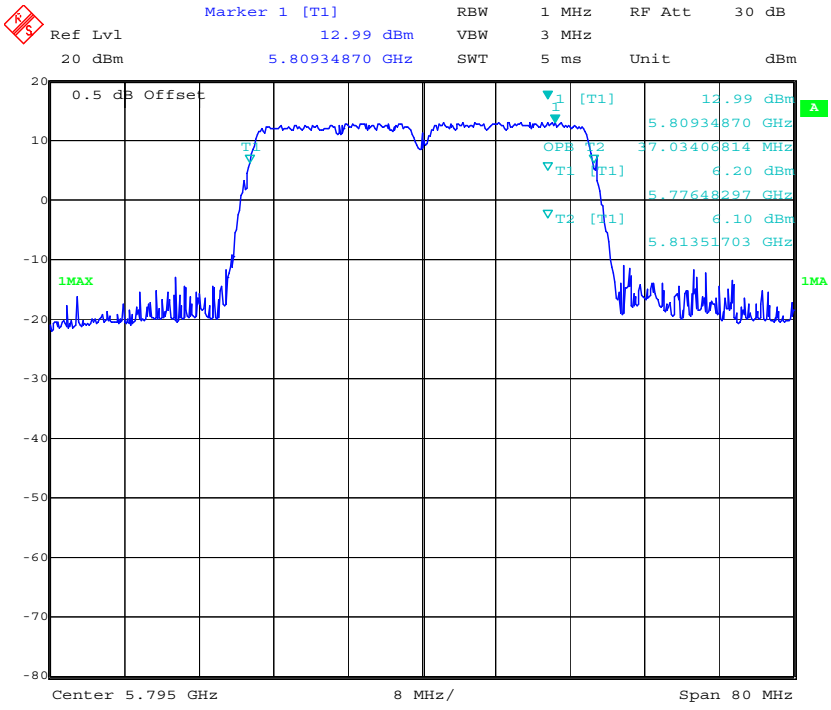
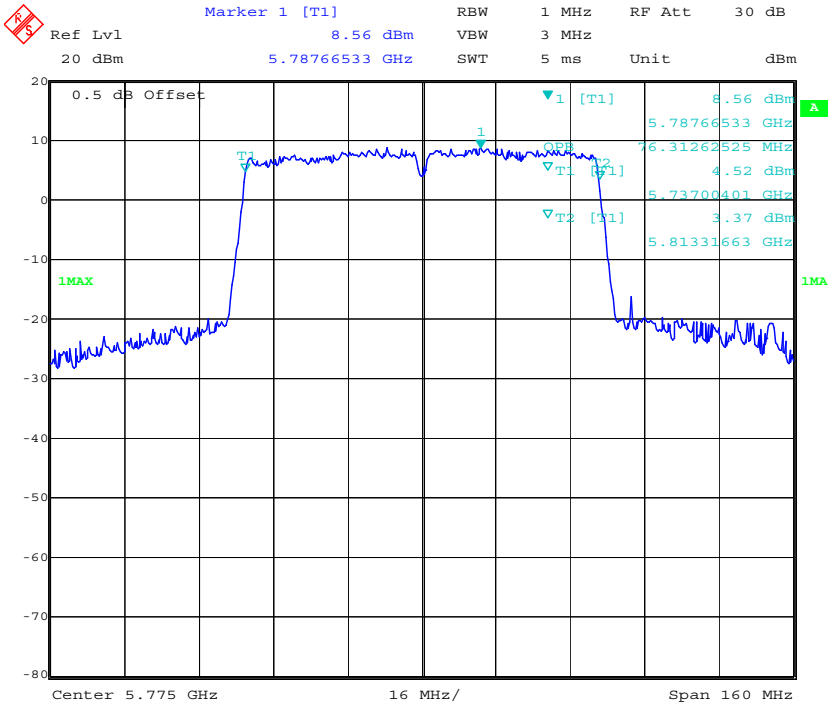


802.11ac80 Middle Channel



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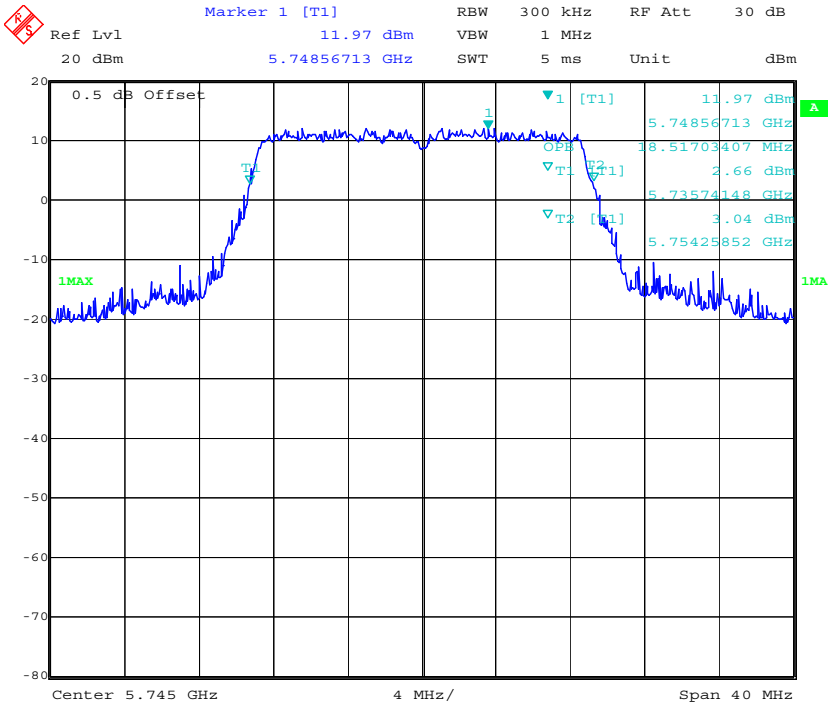

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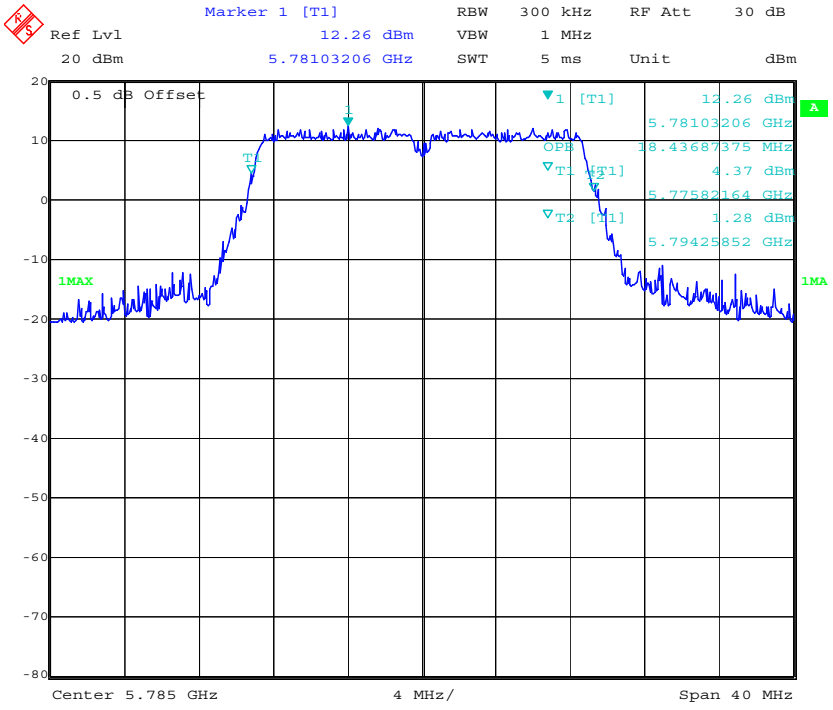

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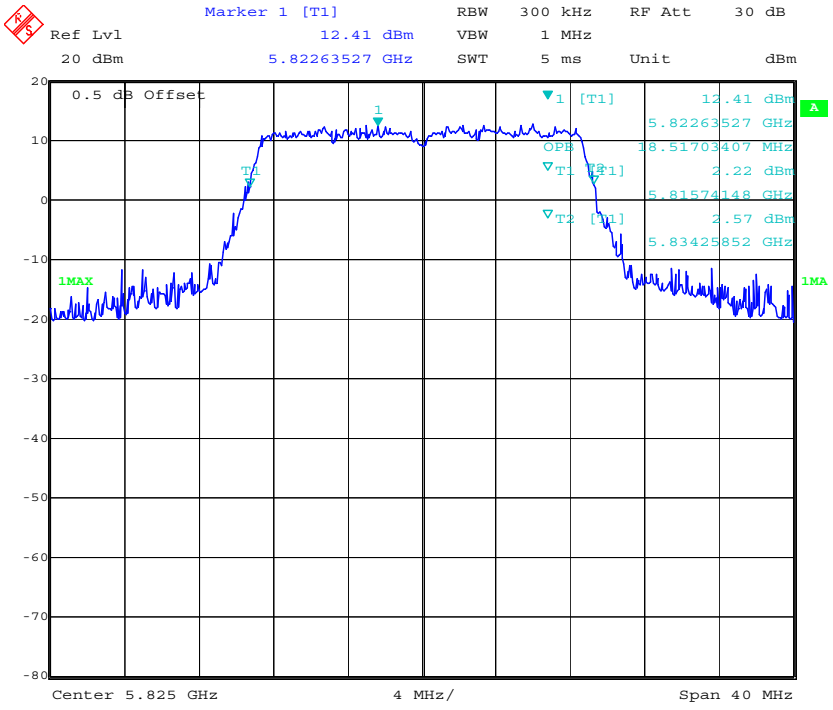

Date: 21.MAY.2017 15:44:42

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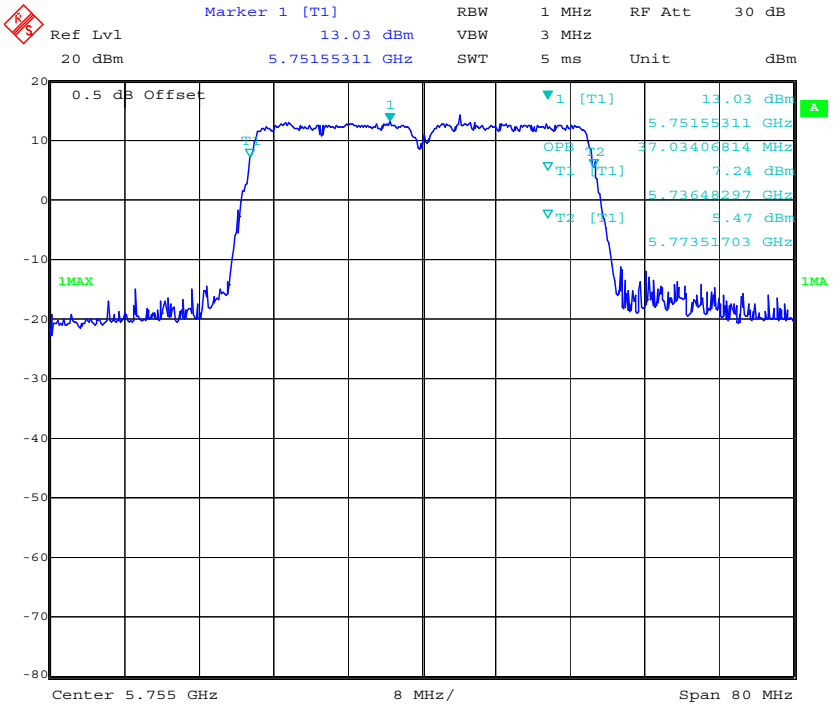

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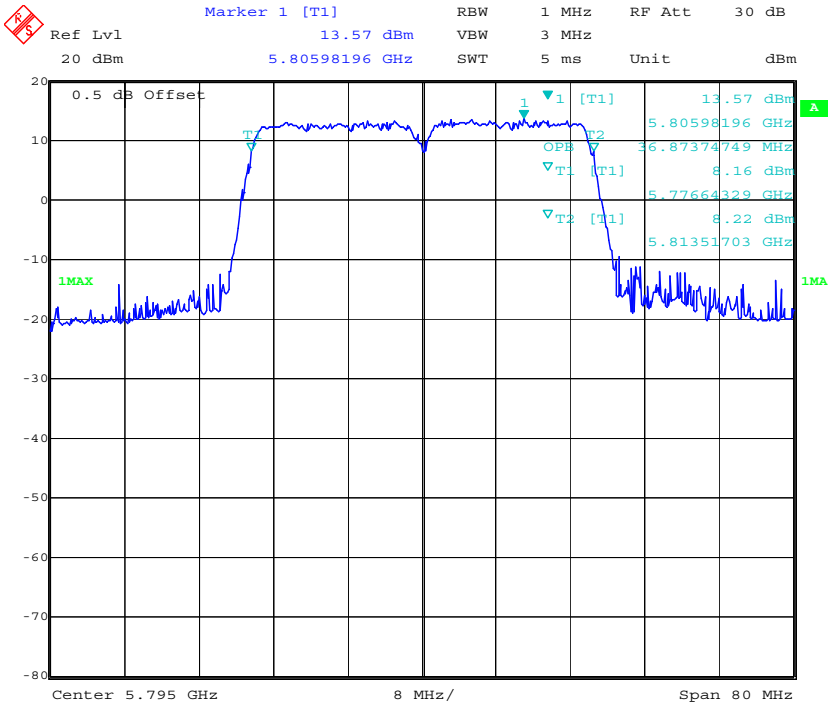


Date: 21.MAY.2017 15:53:58

FCC §15.407(g)–FREQUENCY STABILITY

Applicable Standard

FCC §15.407(g)

(g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Test Procedure

According to ANSI C63.10-2013 “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices”.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-5	Each Time	/
FLUKE	Multimeter	1587	27870099	2016-12-30	2017-12-29
BACL	High Temperature Test Chamber	BTH-150	30024	2016-12-02	2017-12-01

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	20.2 °C
Relative Humidity:	50.1 %
ATM Pressure:	100.4 kPa

The testing was performed by Kevin Hu on 2017-05-21.

Test Mode: Transmitting(Test was performed at Chain 0)

Test Result: Pass.

Un-modulation, channel 5180MHz			
Temperature	**Voltage**	**Measured Frequency**	**Result**
℃	**V_{AC}**	**MHz**	
-20	120	5180.001	Pass
-10		5180.006	
10		5180.004	
20		5180.002	
30		5180.002	
40		5180.004	
20	103	5180.004	
20	138	5180.002	

Un-modulation, channel 5745MHz			
Temperature	**Voltage**	**Measured Frequency**	**Result**
℃	**V_{AC}**	**MHz**	
-20	120	5745.002	Pass
-10		5745.006	
10		5745.010	
20		5745.002	
30		5745.002	
40		5745.012	
20	103	5745.010	
20	138	5745.002	

Note: the frequency stability range plus the operation bandwidth edge within the operation band.

FCC §15.407(a) –MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

(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.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54170074	2017-01-03	2018-01-03
Agilent	P-Series Power Meter	N1912A	MY5000798	2017-01-03	2018-01-03
Unknown	RF Cable	Unknown	C-5	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Data

Environmental Conditions

Temperature:	20.2 °C
Relative Humidity:	50.1 %
ATM Pressure:	100.4 kPa

The testing was performed by Kevin Hu on 2017-05-21

Test Mode: Transmitting

UNII Band	Mode	Channel	Frequency (MHz)	Conducted Average Output Power (dBm)			Limit (dBm)	Result
				Chain 0	Chain 1	Total		
5150-5250MHz	802.11 a	Low	5180	14.4	13.78	/	30	PASS
		Middle	5200	17.55	17.04	/	30	PASS
		High	5240	15.45	15.06	/	30	PASS
	802.11ac20	Low	5180	11.83	11.32	14.59	30	PASS
		Middle	5200	15.21	14.56	17.91	30	PASS
		High	5240	12.92	12.67	15.81	30	PASS
	802.11ac40	Low	5190	11.38	10.67	14.05	30	PASS
		High	5230	12.2	12.11	15.17	30	PASS
	802.11 ac80	Middle	5210	11.38	10.58	14.01	30	PASS
	802.11n ht20	Low	5180	11.44	10.96	14.22	30	PASS
		Middle	5200	15.66	15.52	18.6	30	PASS
		High	5240	12.6	12.46	15.54	30	PASS
	802.11n ht40	Low	5190	11.38	10.95	14.18	30	PASS
		High	5230	12.27	12.15	15.22	30	PASS
5725-5850MHz	802.11 a	Low	5745	19.79	21.25	/	30	PASS
		Middle	5785	19.81	20.68	/	30	PASS
		High	5825	19.83	20.26	/	30	PASS
	802.11ac20	Low	5745	19.5	21.15	23.41	30	PASS
		Middle	5785	19.45	20.66	23.11	30	PASS
		High	5825	19.6	20.04	22.84	30	PASS
	802.11ac40	Low	5755	17.85	18.88	21.41	30	PASS
		High	5795	17.88	18.31	21.11	30	PASS
	802.11 ac80	Middle	5775	16.06	15.73	18.91	30	PASS
	802.11n ht20	Low	5745	19.67	21.28	23.56	30	PASS
		Middle	5785	19.6	20.67	23.18	30	PASS
		High	5825	19.75	20.09	22.93	30	PASS
	802.11n ht40	Low	5755	18	18.87	21.47	30	PASS
		High	5795	18.04	18.54	21.31	30	PASS

Note 1: the dutycycle factor have be added in the results.
Note 2:The maximum antenna gain is 5dBi in 5GHz band. The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

So:

Directional gain = G_{ANT} + Array Gain = 5dBi < 6dBi

FCC §15.407(a) - POWER SPECTRAL DENSITY

Applicable Standard

(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.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-5	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	20.2 °C
Relative Humidity:	50.1 %
ATM Pressure:	100.4 kPa

The testing was performed by Kevin Hu on 2017-05-21.

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	Power Spectral Density (dBm/MHz)			
		Chain 0	Chain 1	dB	Chain 0	Chain 1	Total	Limits
802.11 a	5180	3.98	3.16	0.16	4.14	3.32	/	17
	5200	6.99	6.49	0.16	7.15	6.65	/	17
	5240	5.70	4.70	0.16	5.86	4.86	/	17
802.11 ac20	5180	1.05	1.65	0.09	1.14	1.74	4.46	15
	5200	4.14	4.59	0.09	4.23	4.68	7.47	15
	5240	3.1	3.21	0.09	3.19	3.3	6.26	15
802.11 ac40	5190	-2.31	-2.04	0.15	-2.16	-1.89	0.99	15
	5230	-0.63	-0.94	0.15	-0.48	-0.79	2.38	15
802.11 ac80	5210	-4.00	-4.34	0.33	-3.67	-4.01	-0.83	15
802.11n ht20	5180	0.82	1.22	0.37	1.19	1.59	4.40	15
	5200	4.20	4.64	0.37	4.57	5.01	7.81	15
	5240	2.57	2.83	0.37	2.94	3.2	6.08	15
802.11n ht40	5190	-2.25	-1.90	0.68	-1.57	-1.22	1.62	15
	5230	-0.72	-0.17	0.68	-0.04	0.51	3.25	15

5725-5850MHz

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Duty Cycle Factor	Power Spectral Density (dBm/500kHz)			
		Chain 0	Chain 1	dB	Chain 0	Chain 1	Total	Limits
802.11 a	5745	9.54	10.37	0.16	11.92	12.75	/	30
	5785	9.53	9.34	0.16	11.91	11.72	/	30
	5825	9.87	8.72	0.16	12.25	11.1	/	30
802.11 ac20	5745	9.25	9.79	0.09	11.56	12.1	14.85	28
	5785	9.27	9.35	0.09	11.58	11.66	14.63	28
	5825	9.63	9.74	0.09	11.94	12.05	15.01	28
802.11 ac40	5755	4.62	4.90	0.15	6.99	7.27	10.14	28
	5795	5.08	4.22	0.15	7.45	6.59	10.05	28
802.11 ac80	5775	1.37	2.03	0.33	3.92	4.58	7.27	28
802.11n ht20	5745	9.30	10.62	0.37	11.89	13.21	15.61	28
	5785	8.76	9.59	0.37	11.35	12.18	14.80	28
	5825	9.44	8.93	0.37	12.03	11.52	14.79	28
802.11n ht40	5755	4.78	4.86	0.68	7.68	7.76	10.73	28
	5795	5.12	4.37	0.68	8.02	7.27	10.67	28

Note:The maximum antenna gain is 5dBi in 5GHz band. The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

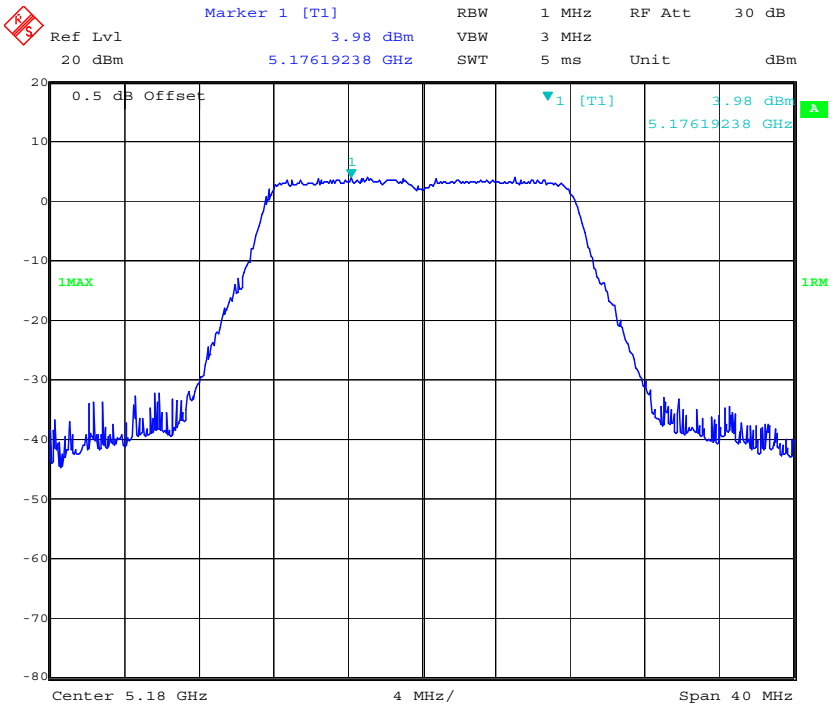
Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

So:

Directional gain = G_{ANT} + Array Gain = 5.0dBi+10*log(2)=8dBi

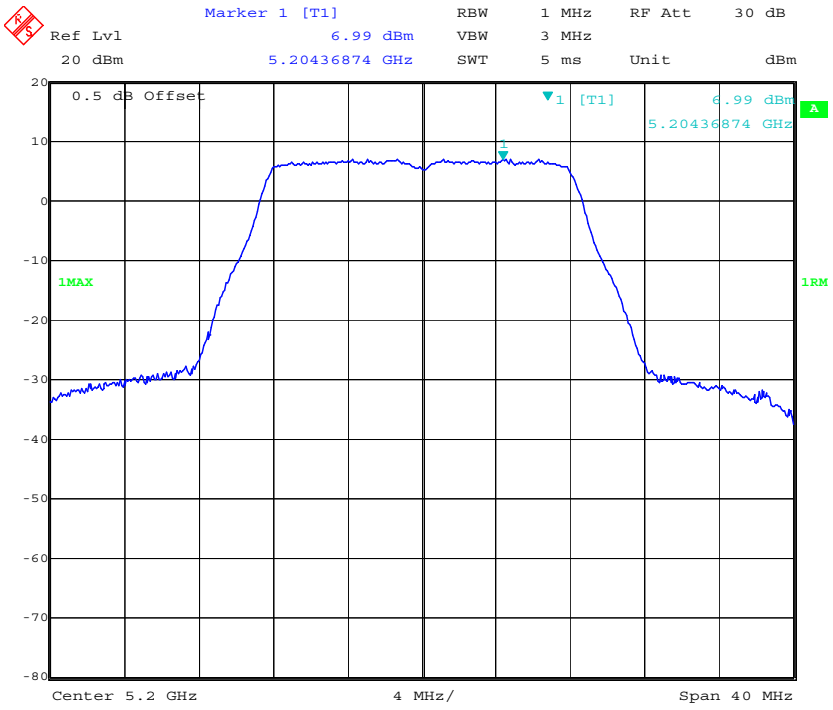
5150-5250MHz
Chain 0:

802.11a Low Channel



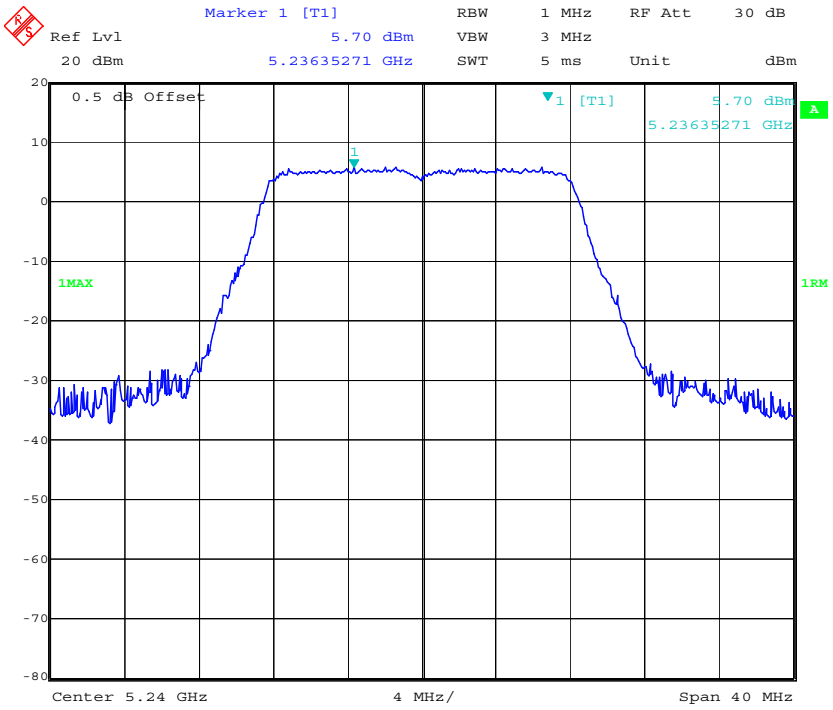
Date: 21.MAY.2017 10:50:17

802.11a Middle Channel



Date: 5.JUN.2017 15:17:50

802.11a High Channel



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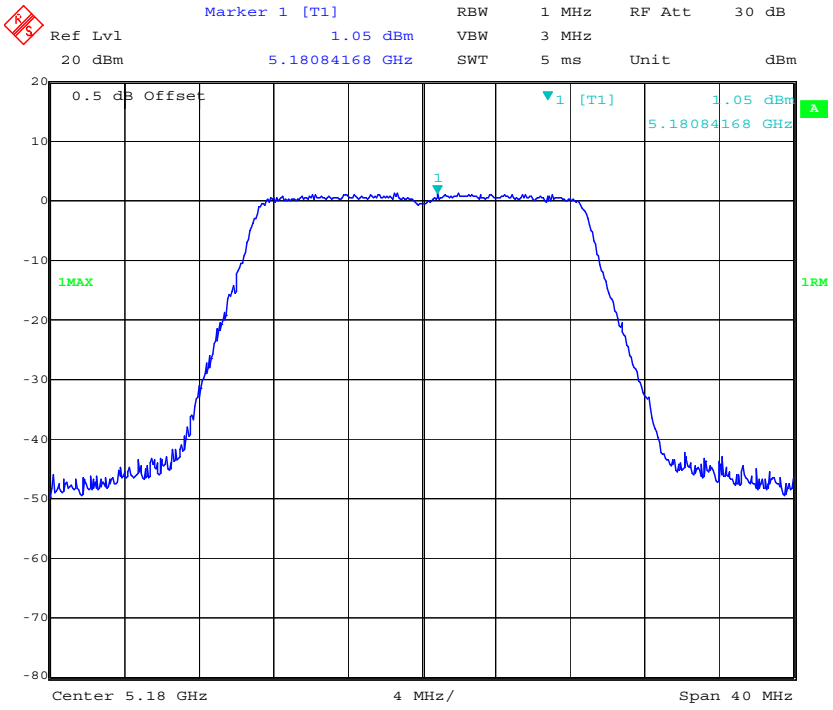
802.11ac vht20 Low Channel



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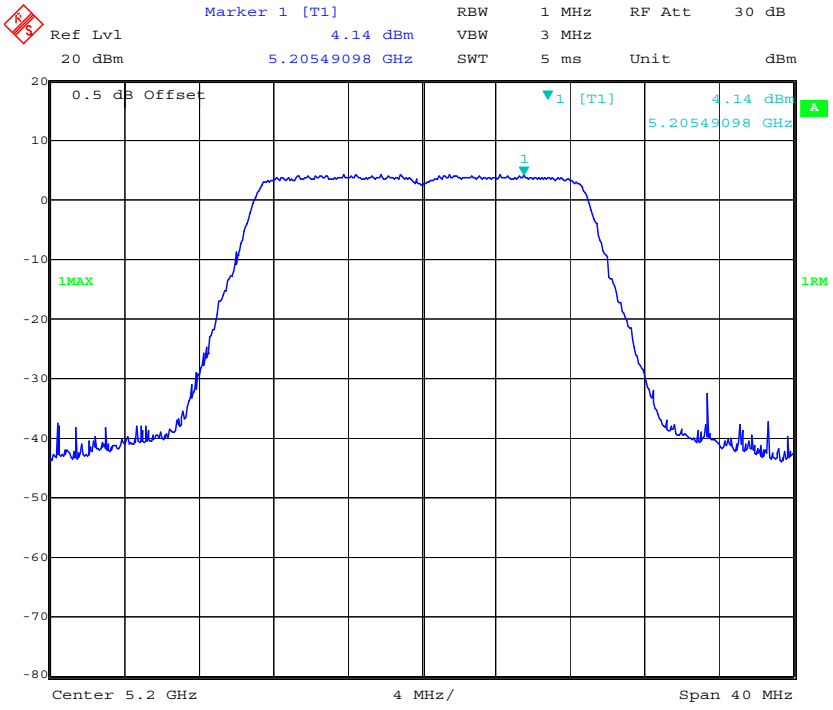
802.11ac vht20 Middle Channel



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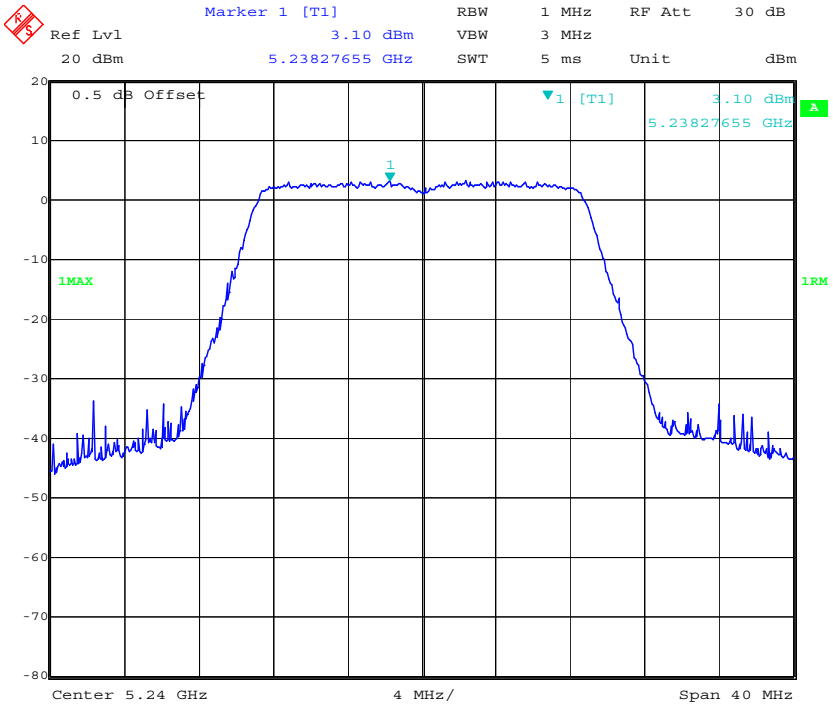

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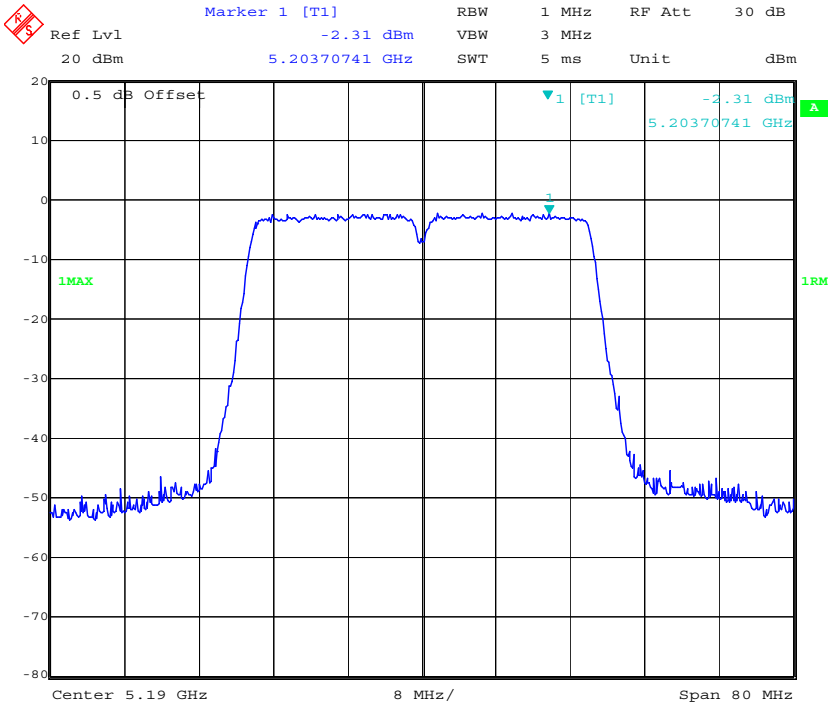
802.11ac vht40 Low Channel



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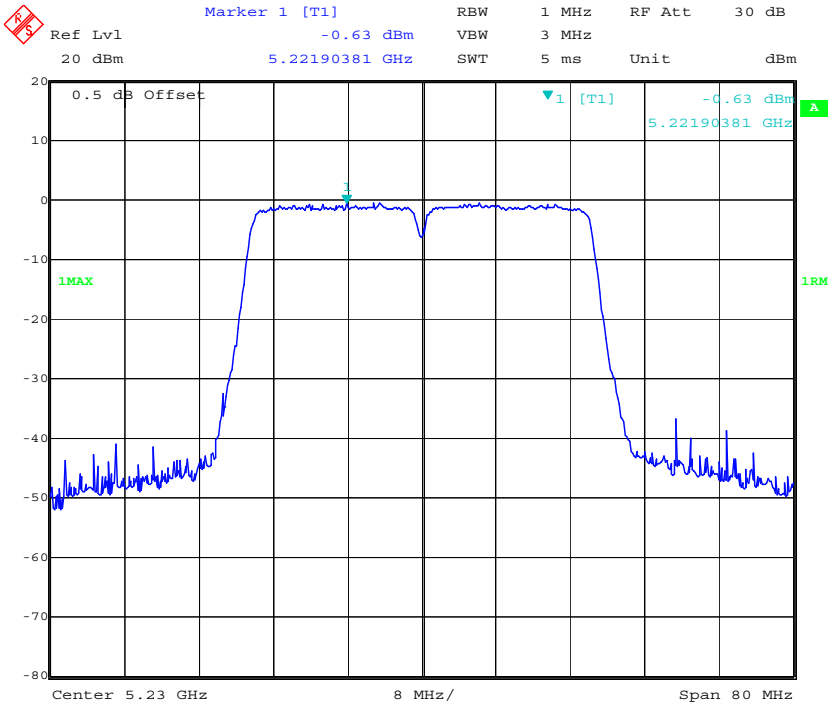
802.11ac vht40 High Channel



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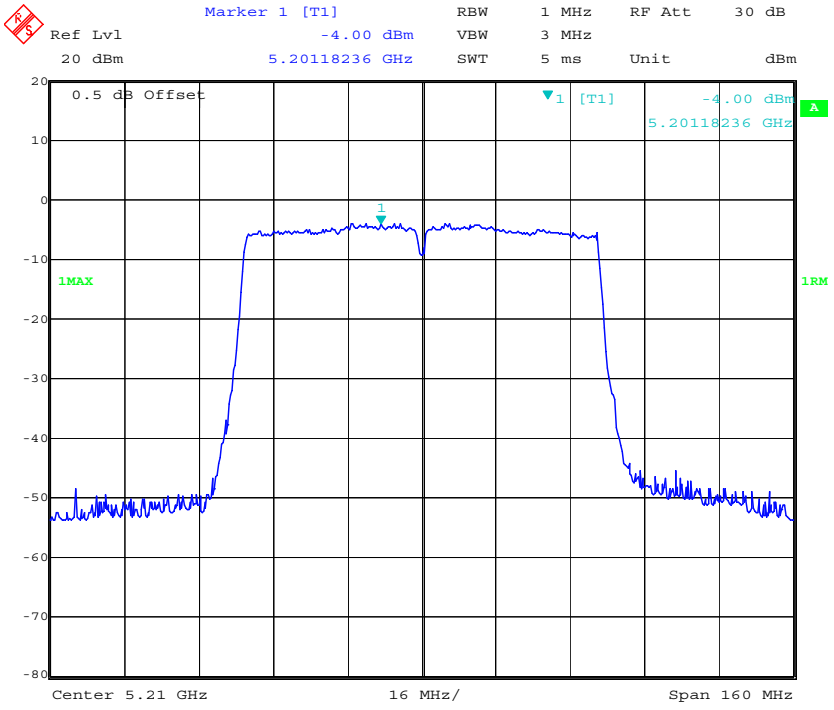
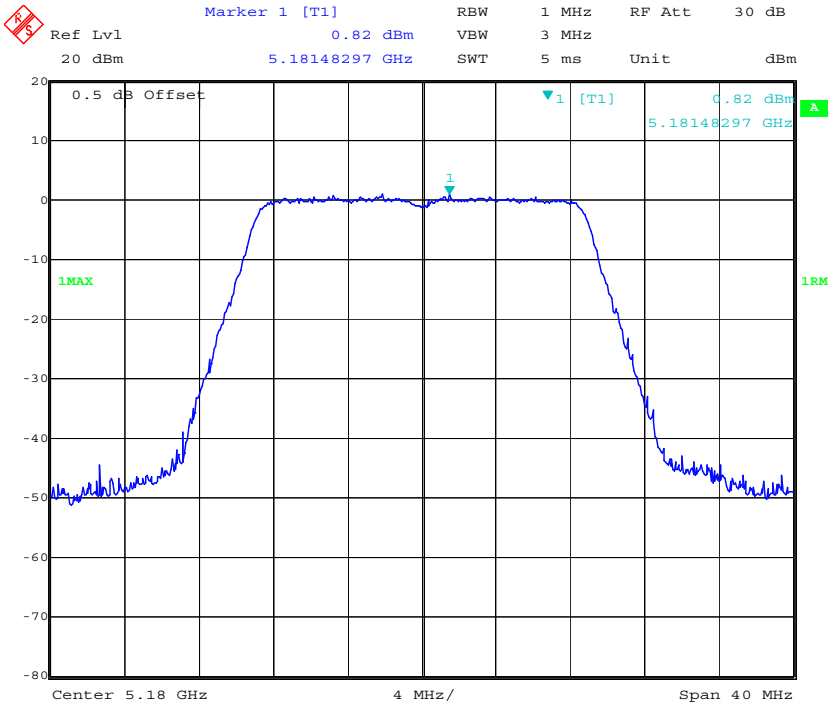
802.11ac80 Middle Channel



Date: 21.MAY.2017 14:12:42

802.11n ht20 Low Channel



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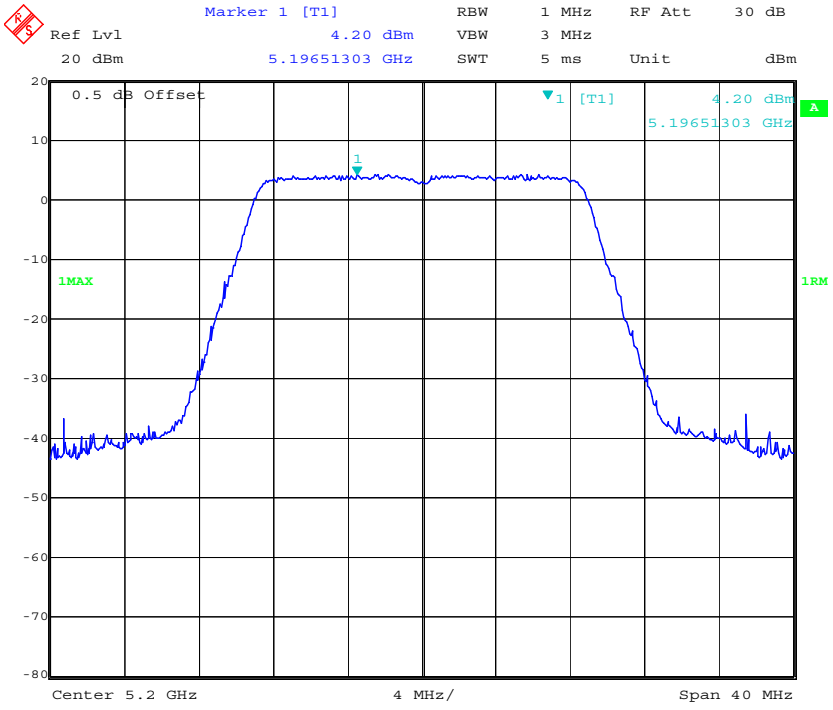

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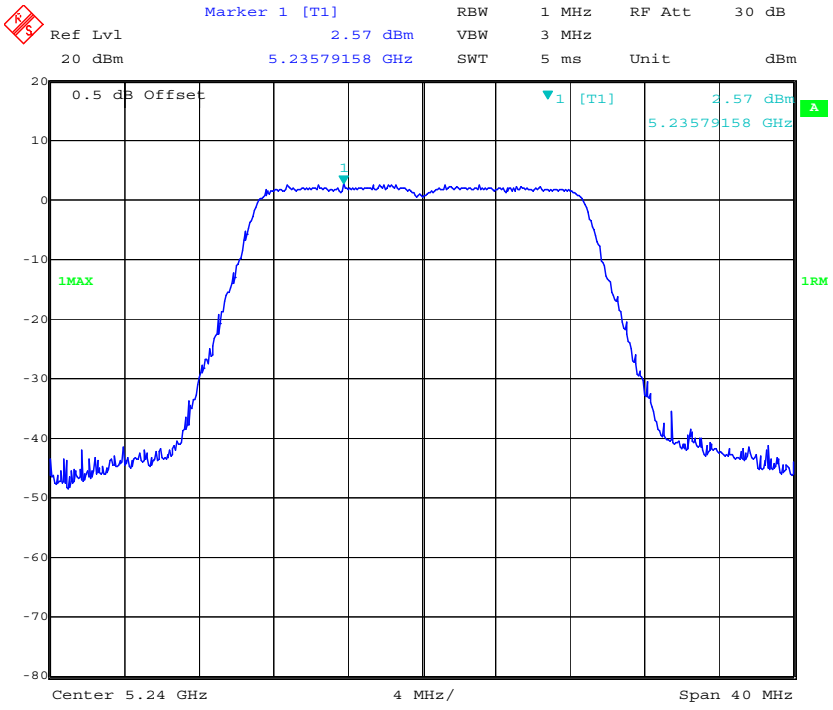
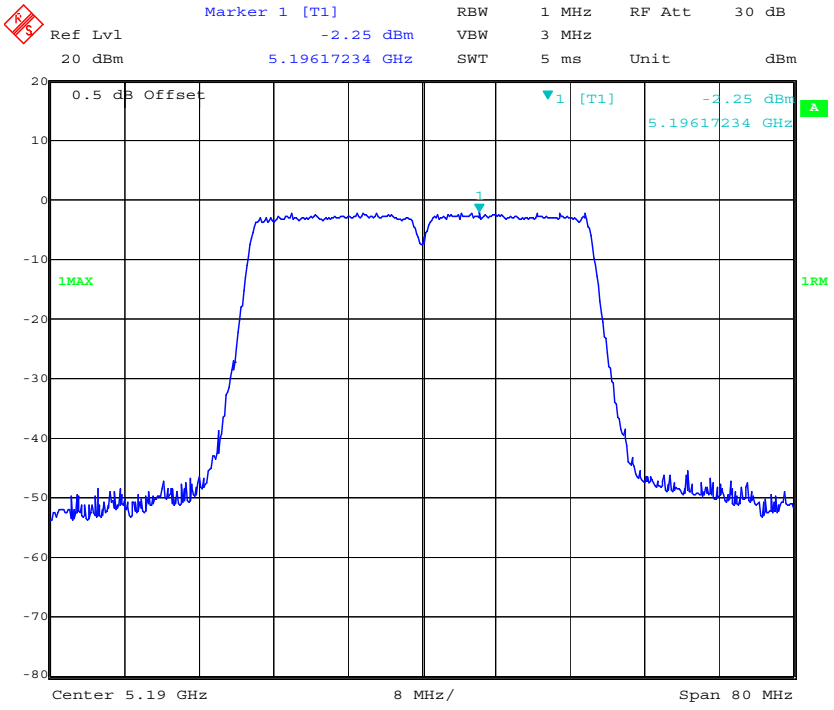
802.11n ht20 High Channel



Date: 21.MAY.2017 11:11:53

802.11n ht40 Low Channel



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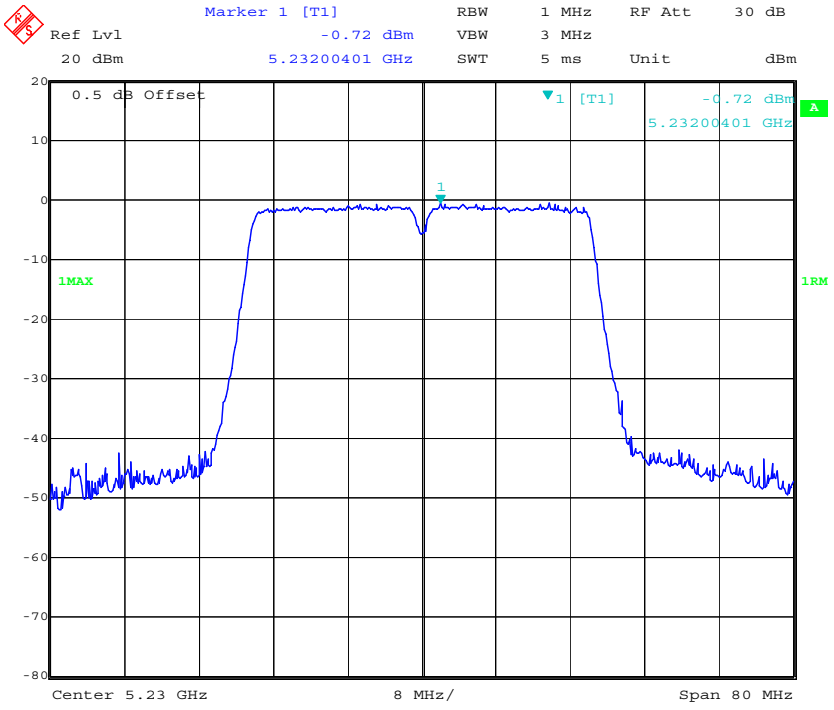
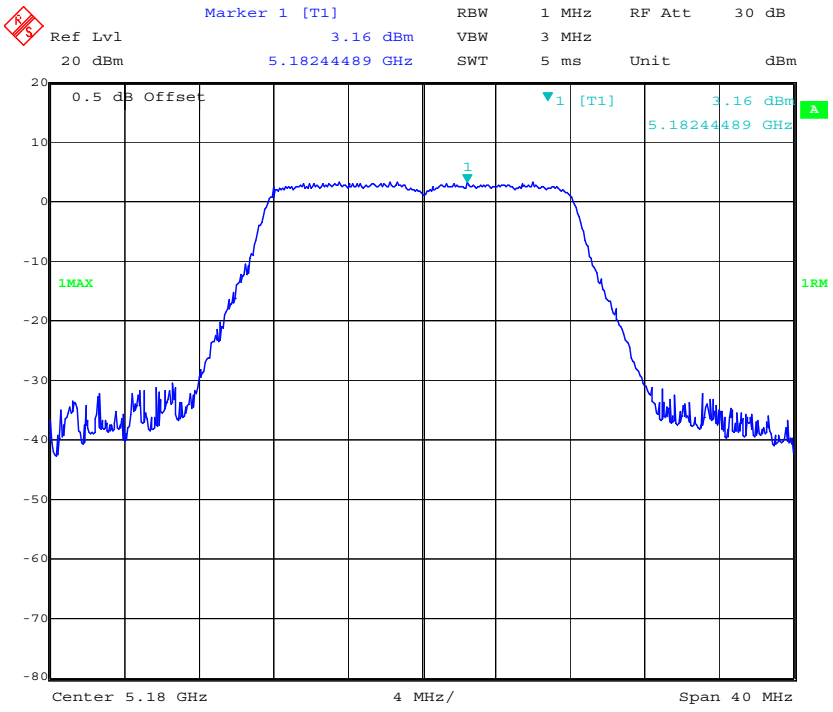
802.11n ht40 High Channel



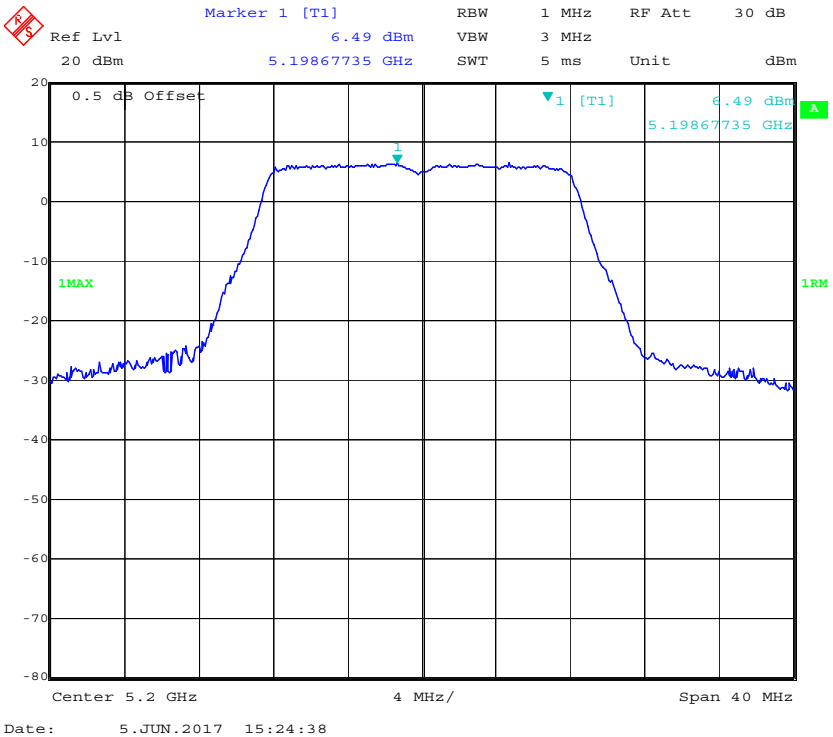
Date: 21.MAY.2017 11:04:08

Chain 1:

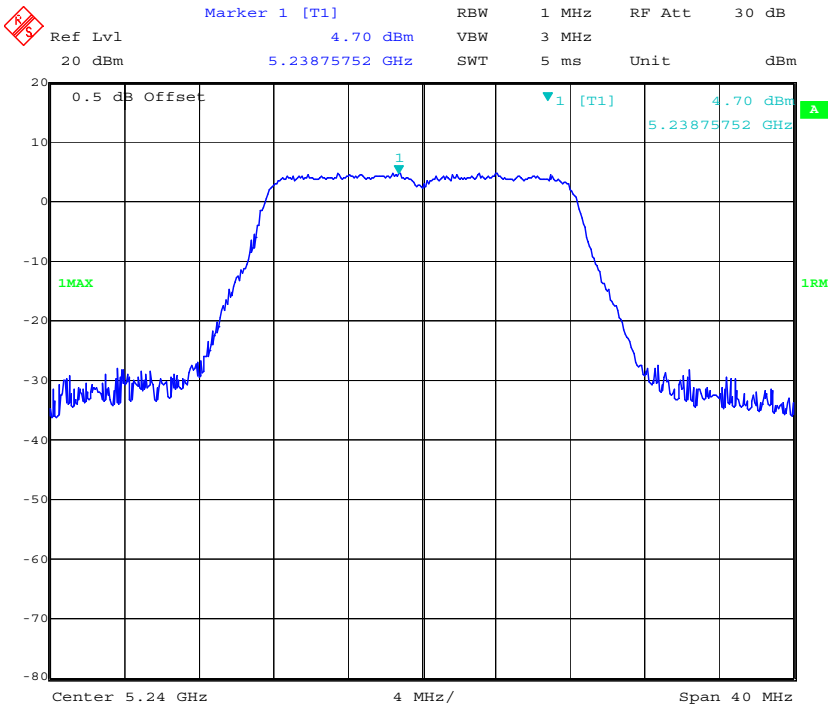
802.11a Low Channel



802.11a Middle Channel



802.11a High Channel



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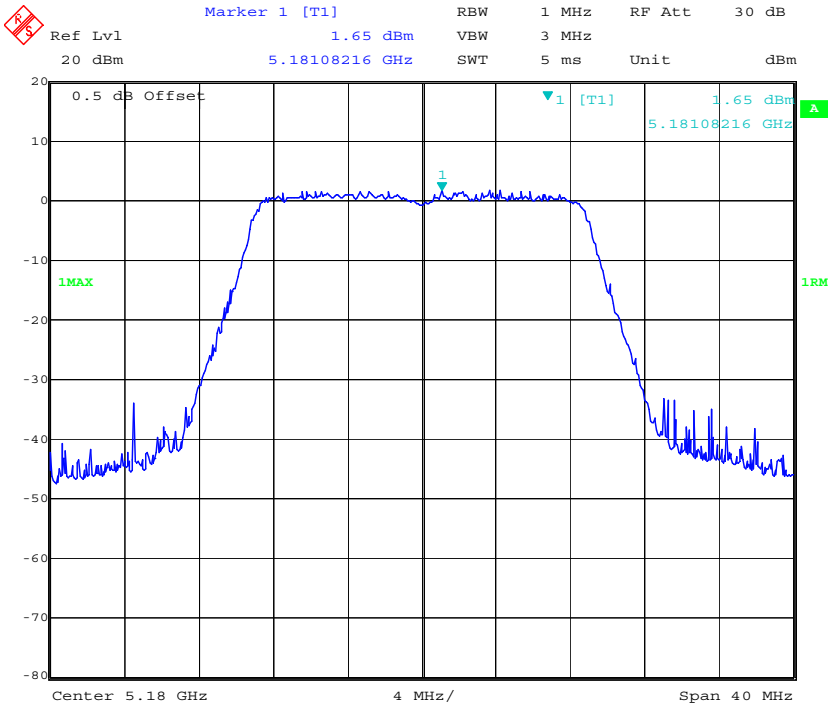
802.11ac vht20 Low Channel



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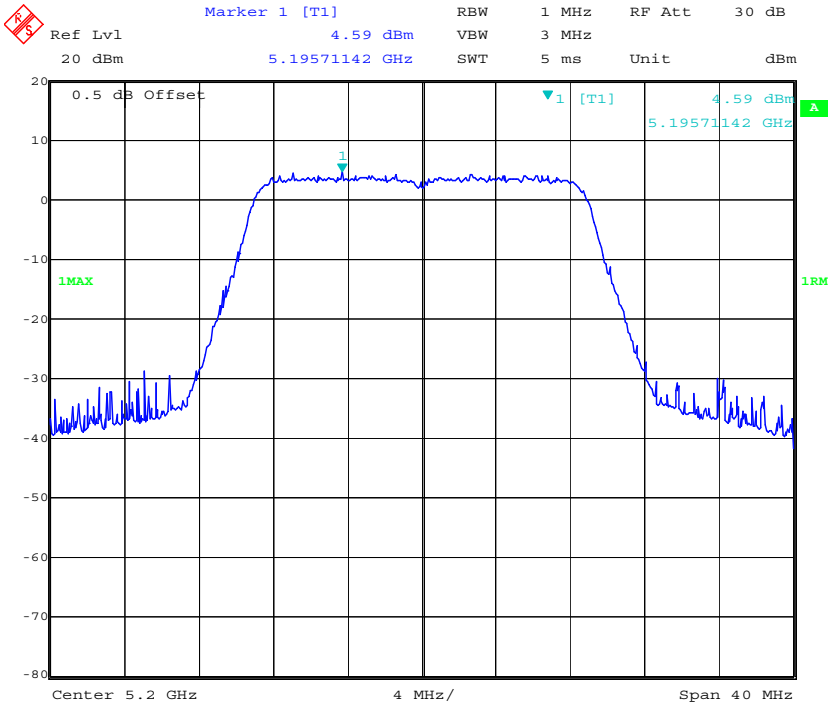
802.11ac vht20 Middle Channel



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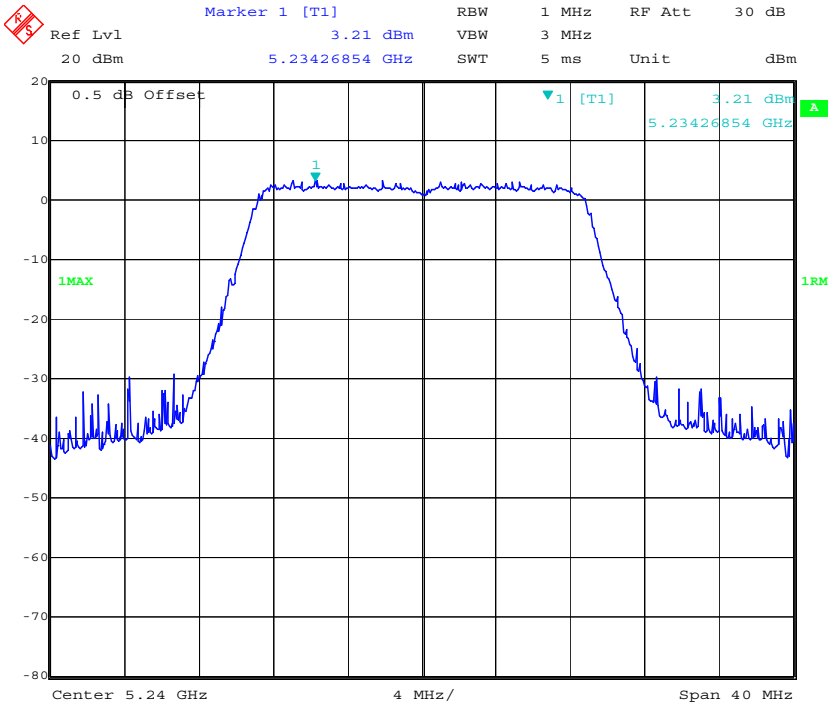
802.11ac vht20 High Channel



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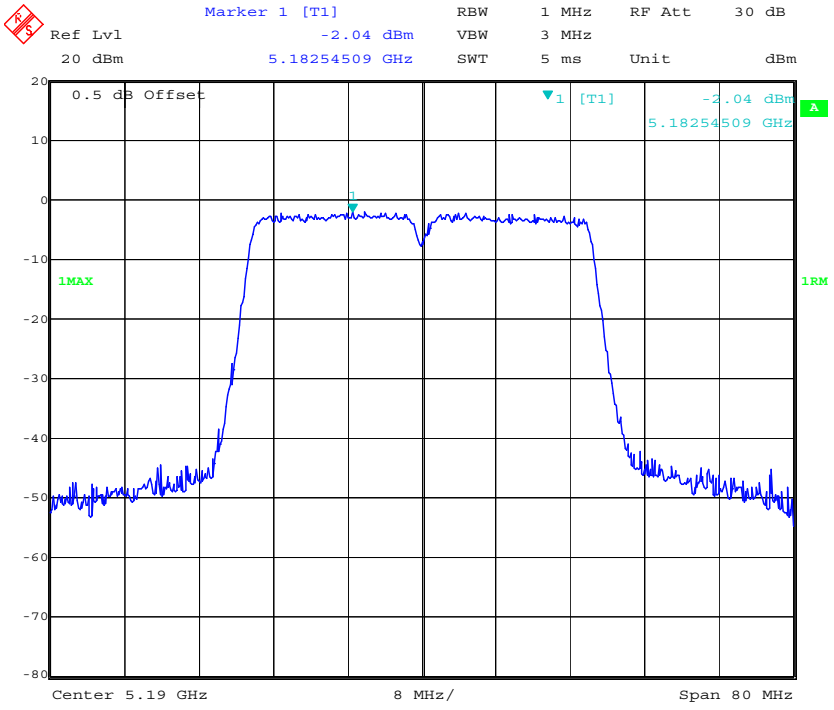
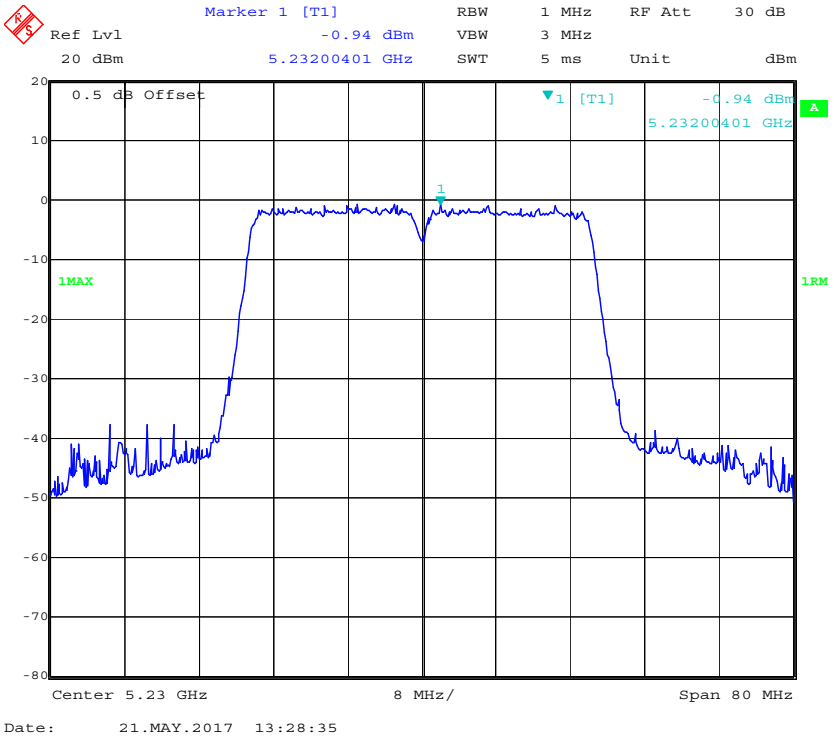
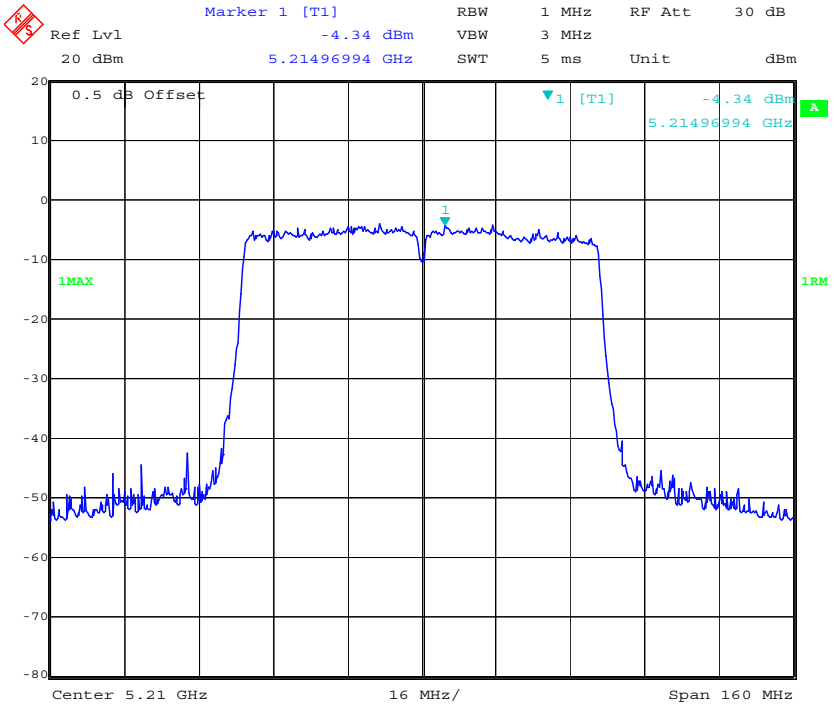
802.11ac vht40 Low Channel



802.11ac vht40 High Channel



802.11ac80 Middle Channel



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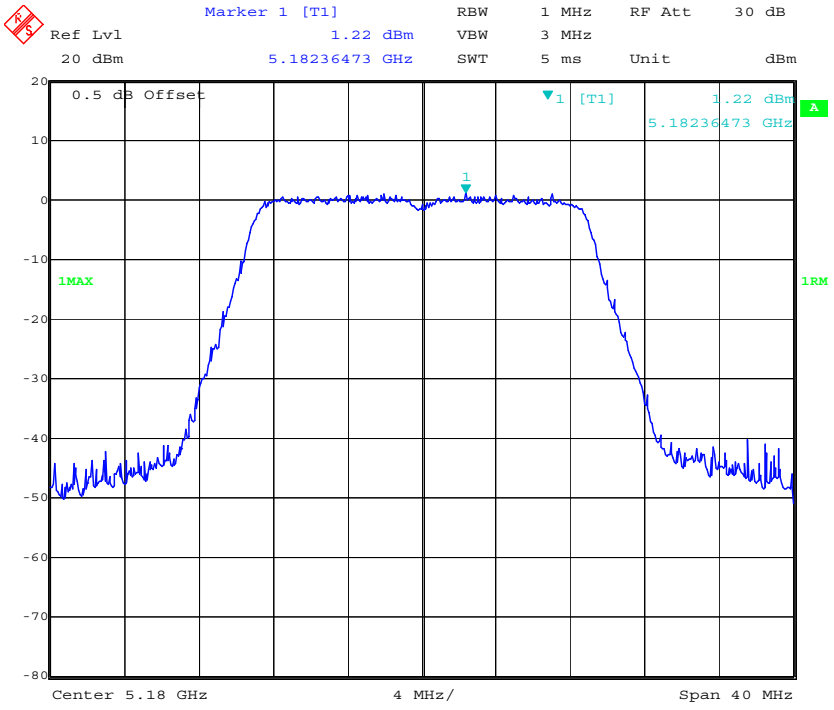
802.11n ht20 Low Channel



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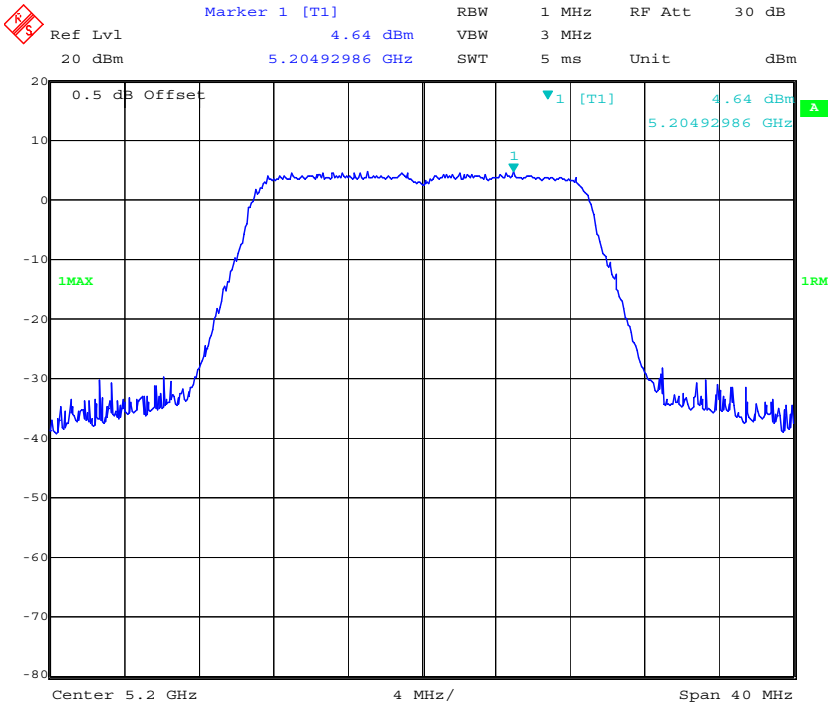
802.11n ht20 Middle Channel



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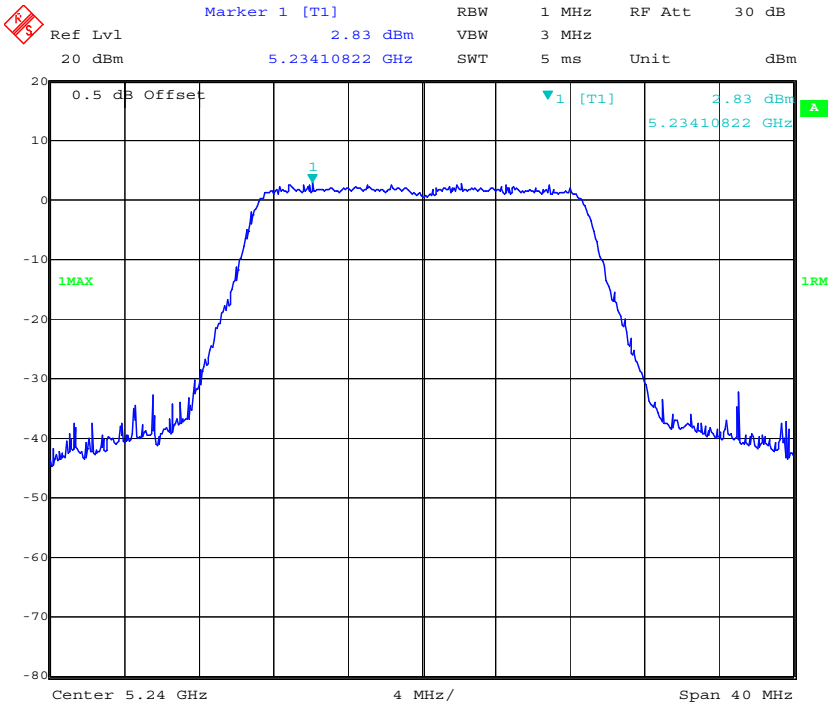
802.11n ht20 High Channel



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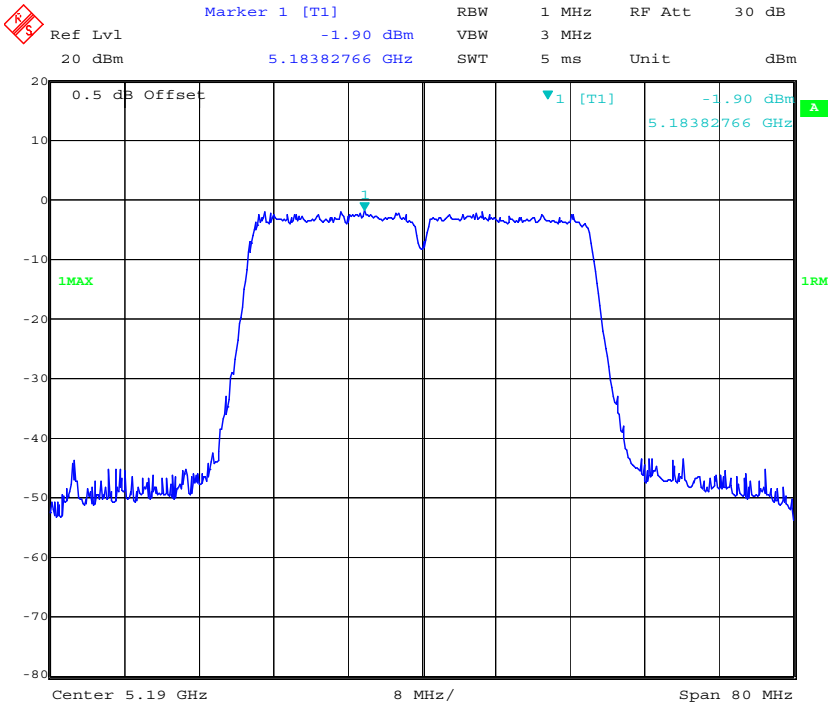
802.11n ht40 Low Channel



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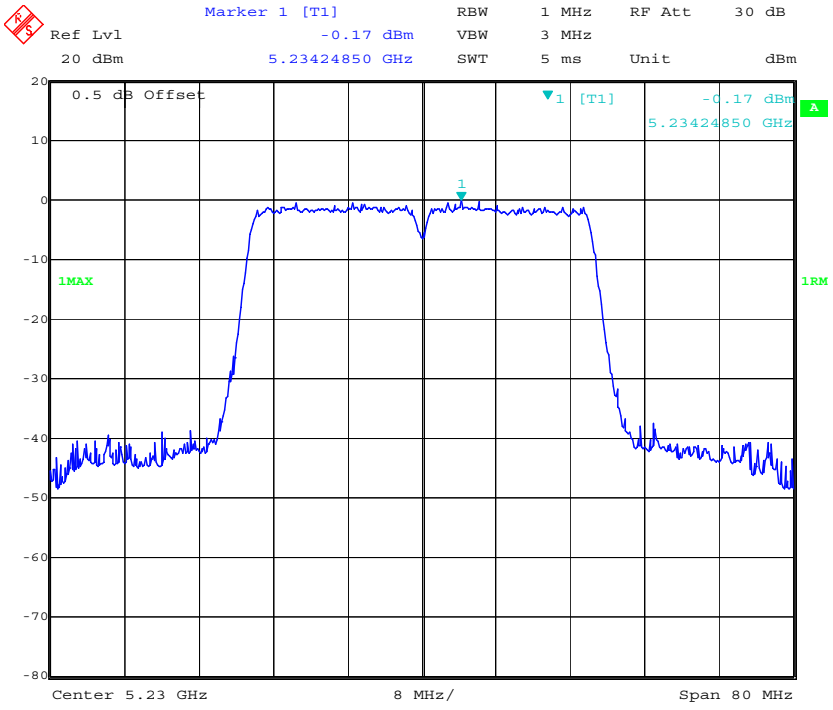
802.11n ht40 High Channel



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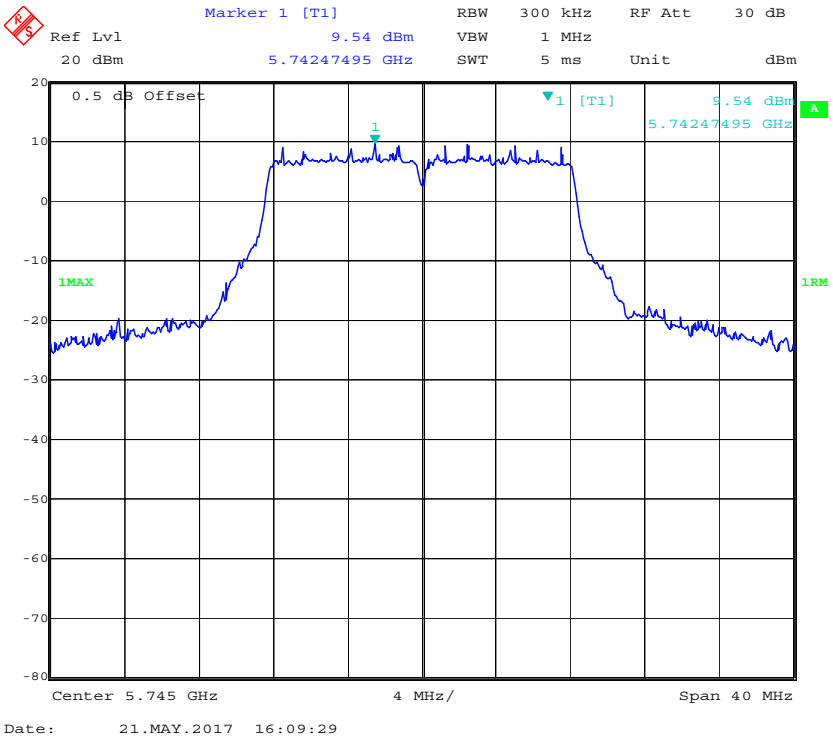
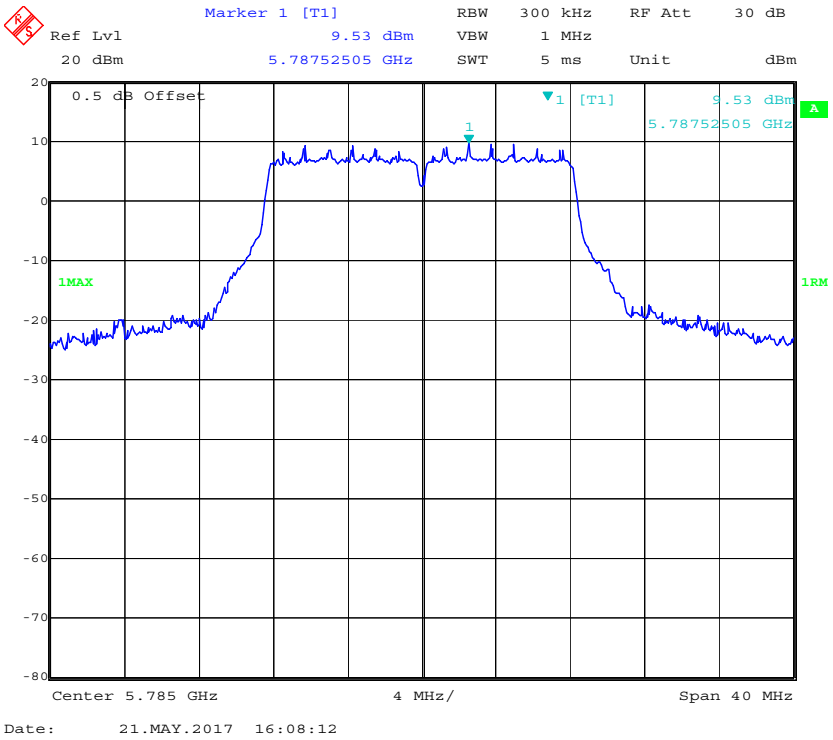
5725-5850MHz
Chain 0:

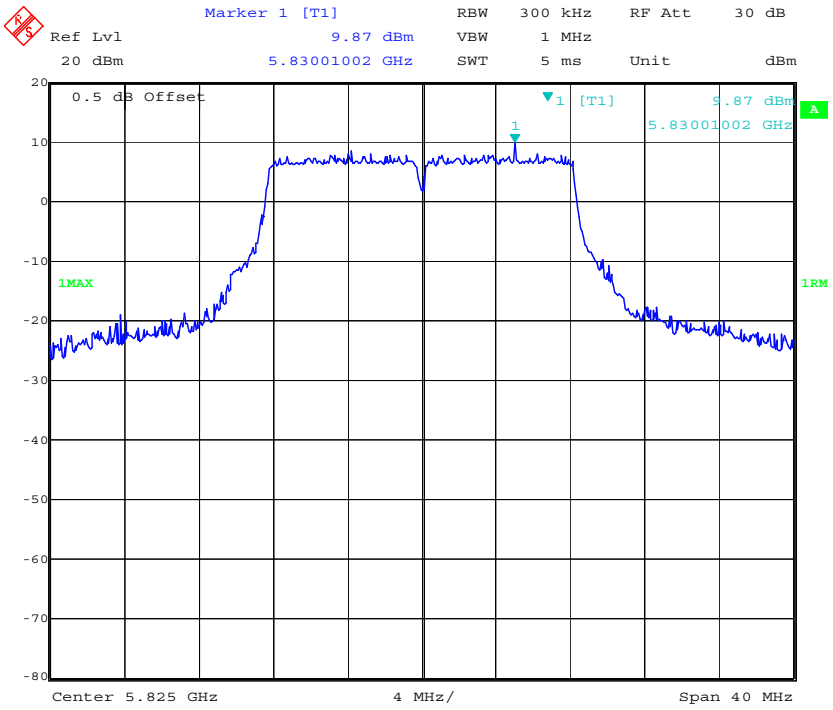
802.11a Low Channel



802.11a Middle Channel

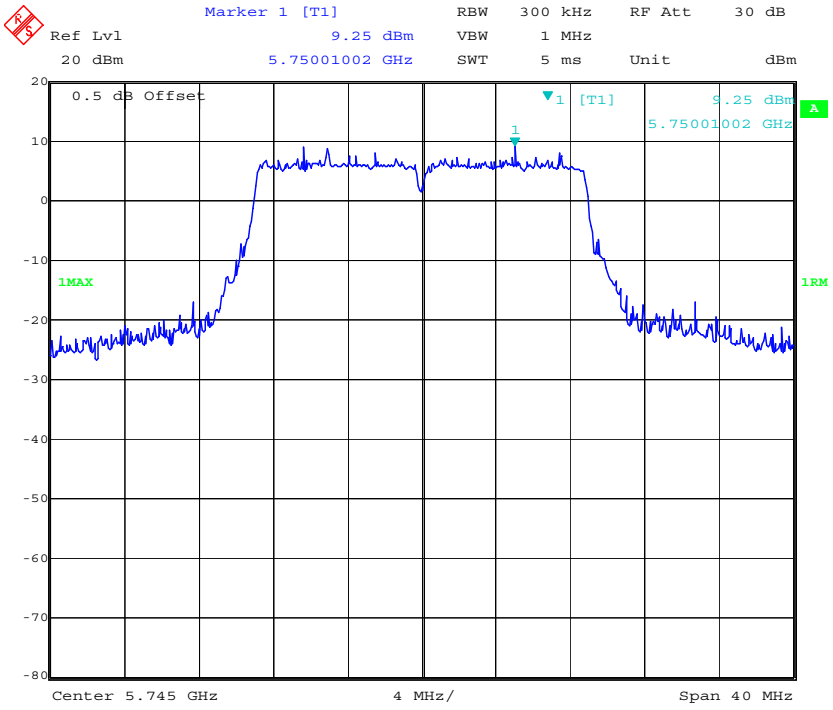


802.11a High Channel



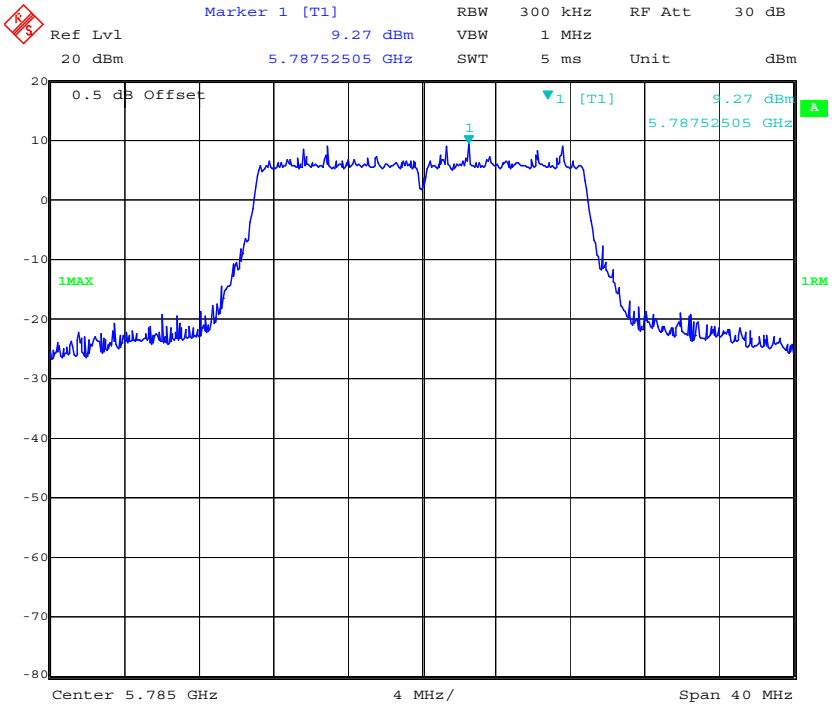
Date: 21.MAY.2017 16:05:45

802.11ac vht20 Low Channel



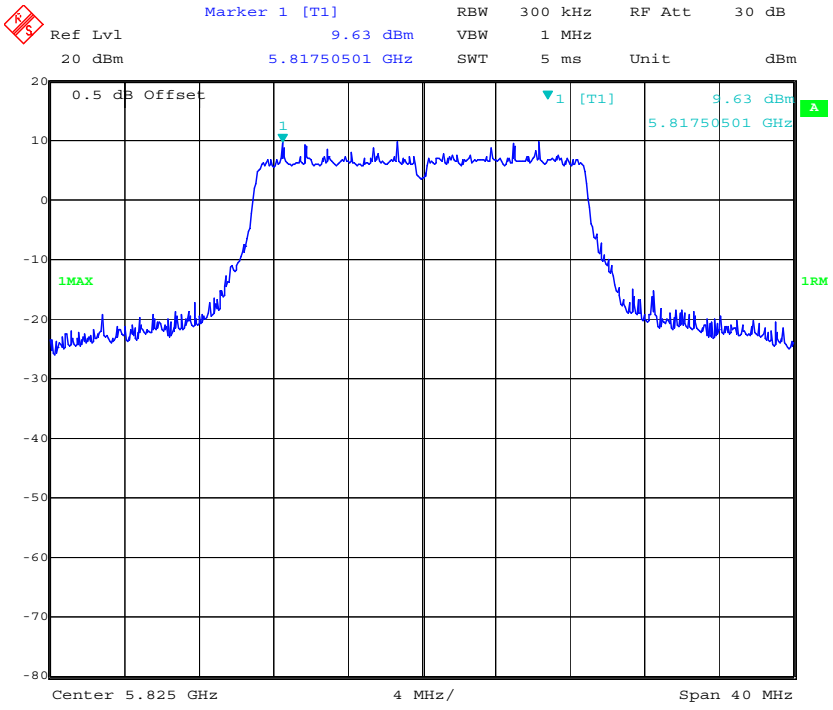
Date: 21.MAY.2017 15:40:51

802.11ac vht20 Middle Channel



Date: 21.MAY.2017 15:42:09

802.11ac vht20 High Channel



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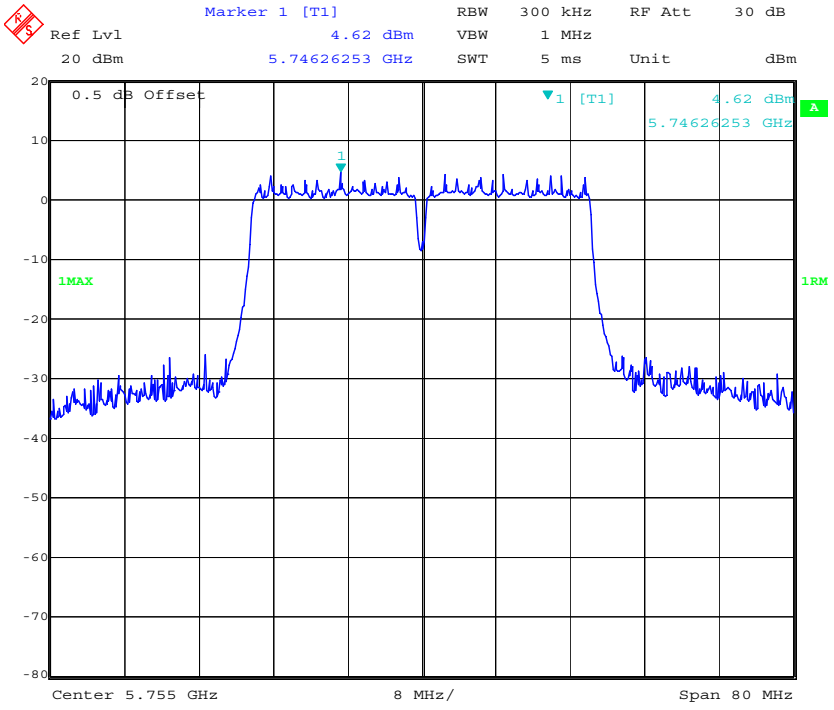
802.11ac vht40 Low Channel



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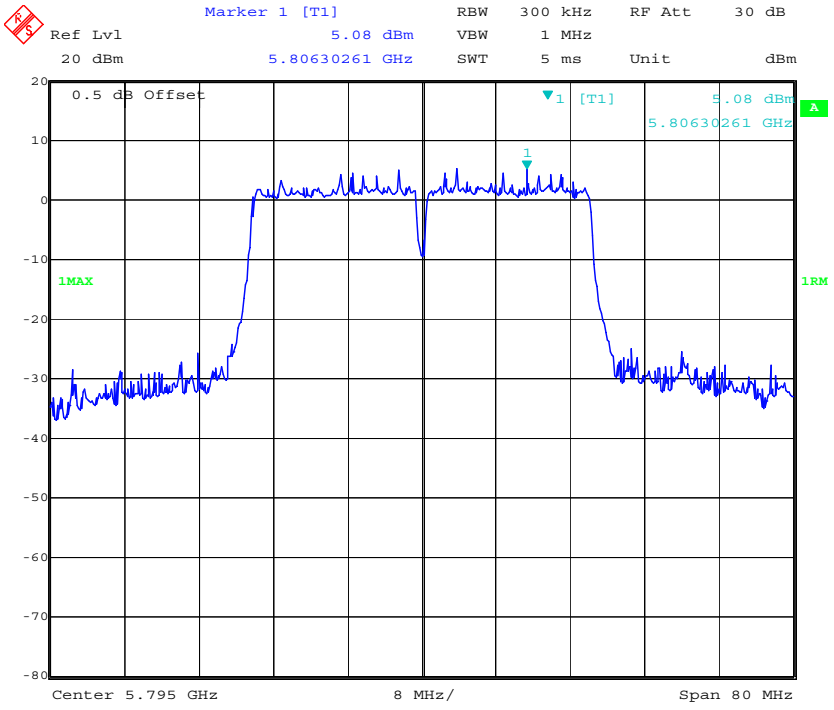
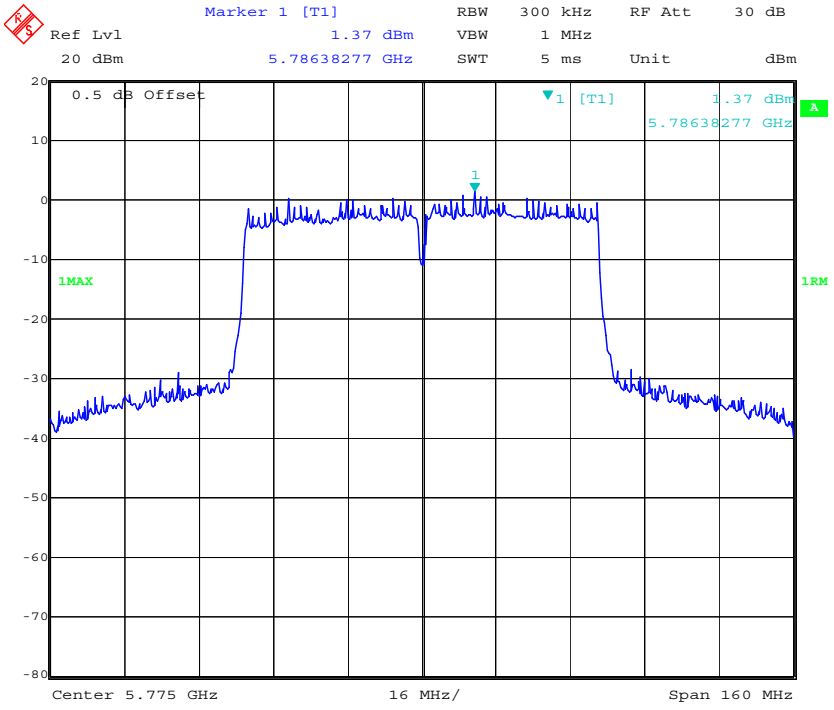


802.11ac80 Middle Channel



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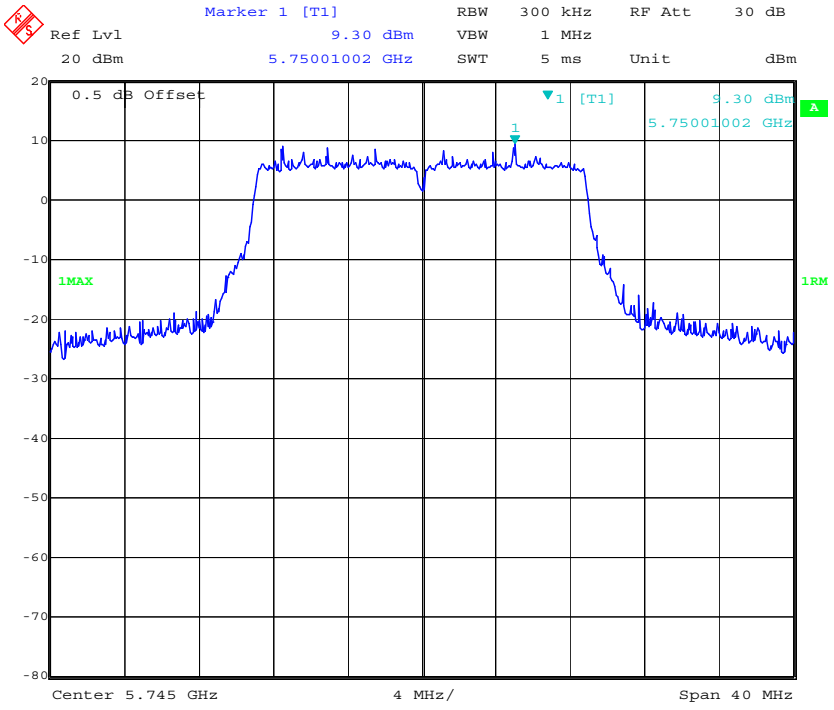

Date: 21.MAY.2017 15:47:54

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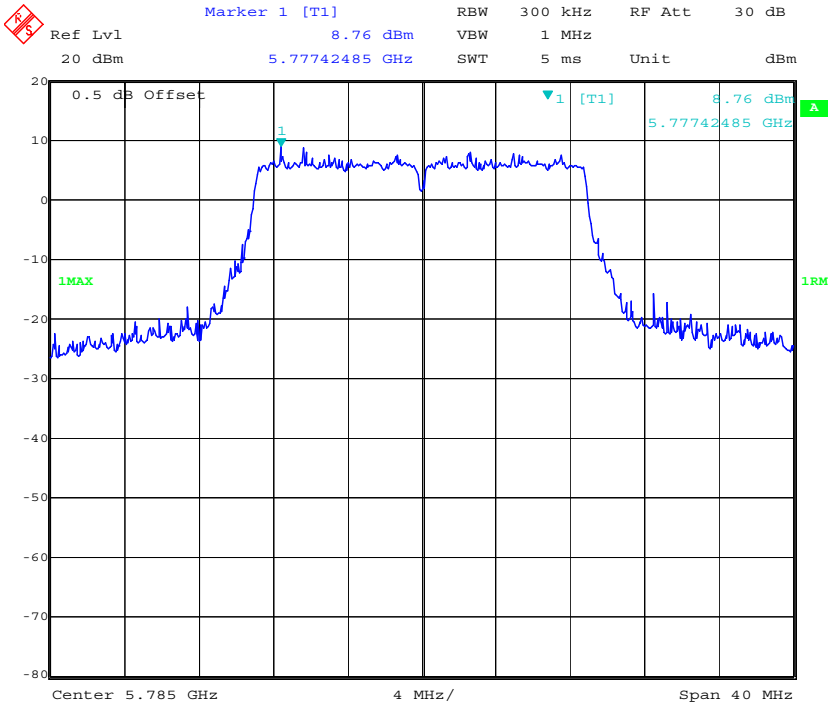

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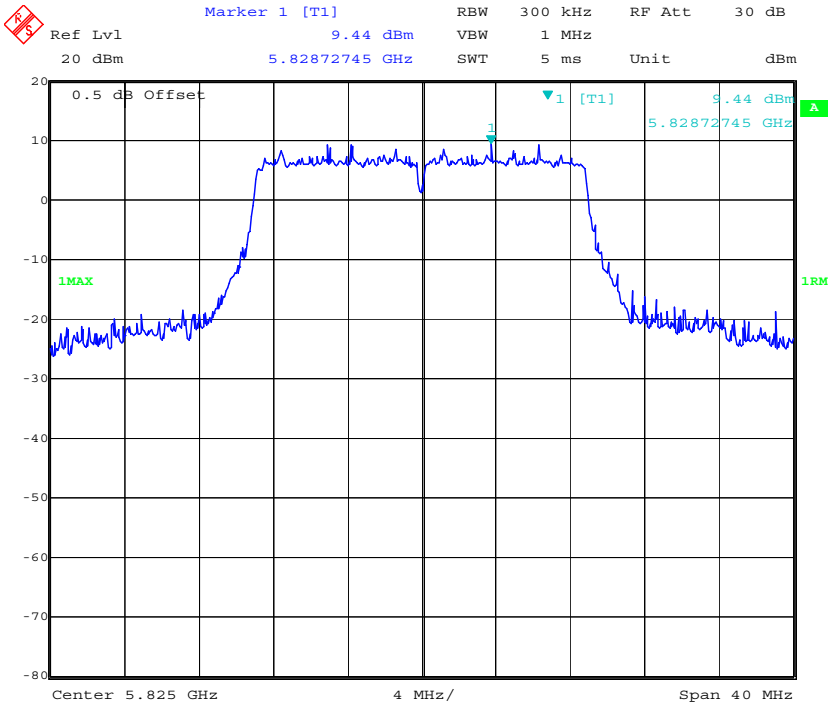

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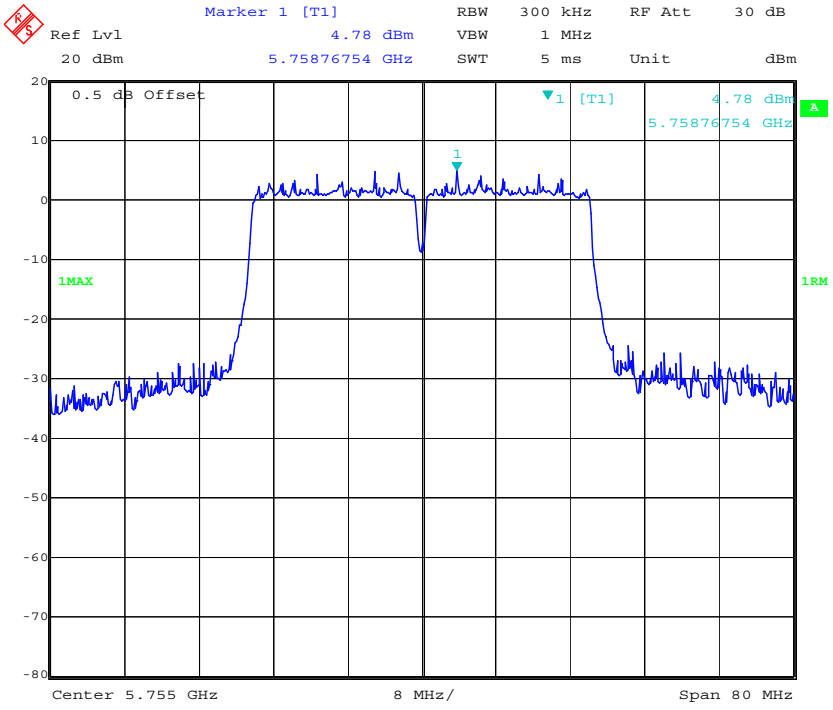

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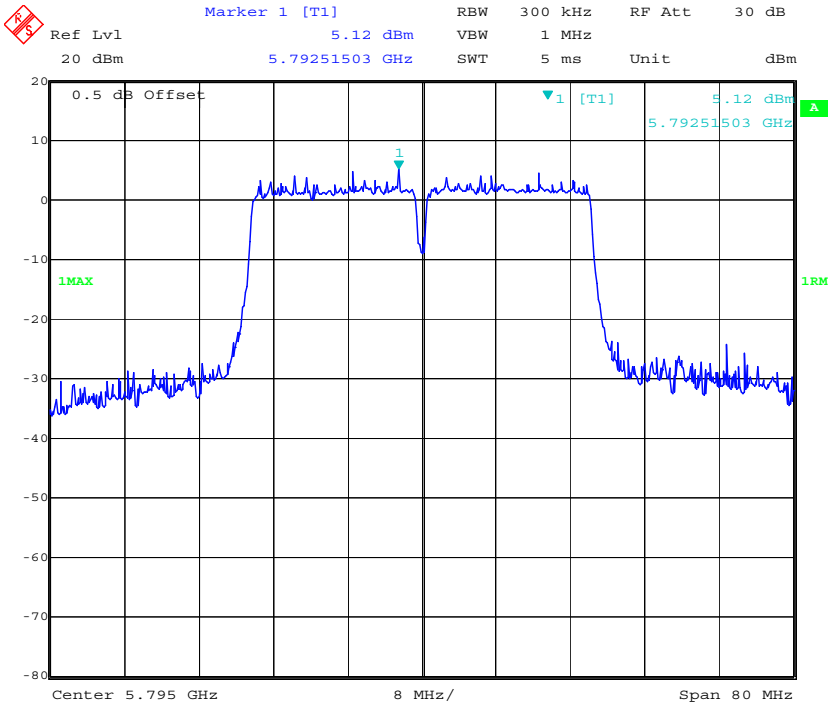

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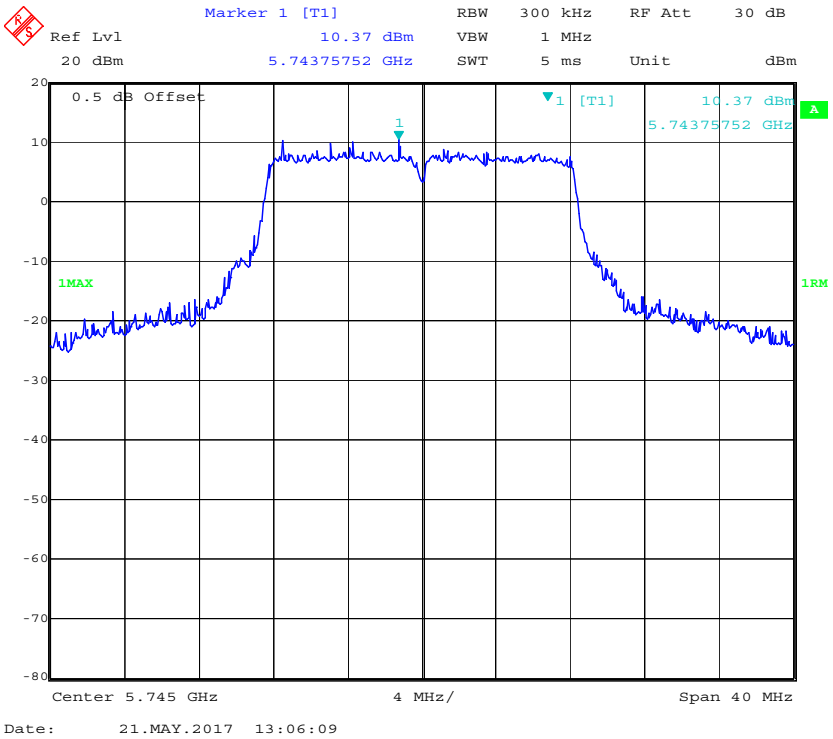
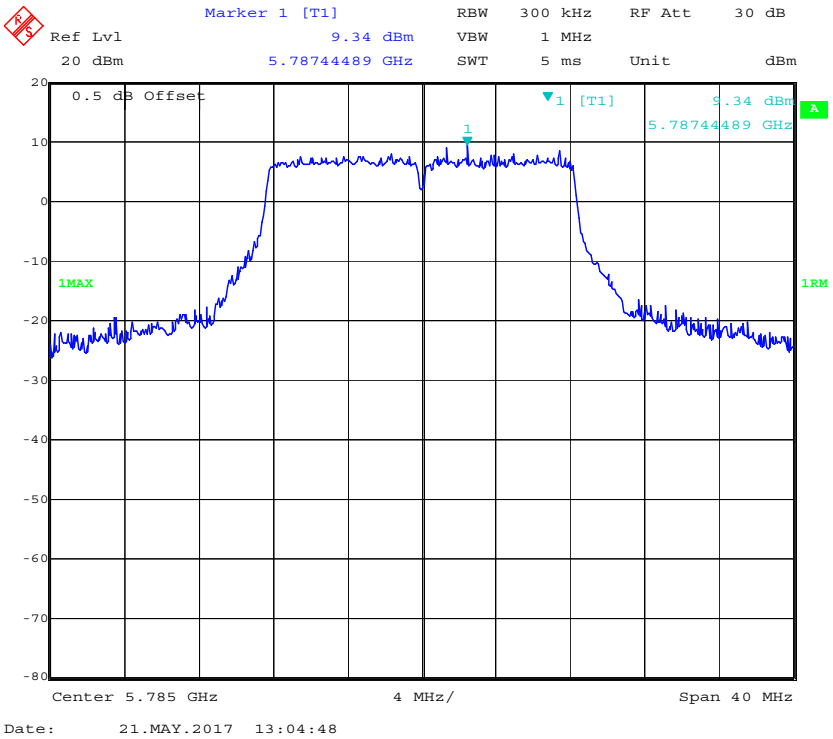
Chain 1:

802.11a Low Channel



Date: 21.MAY.2017 13:06:09

802.11a Middle Channel



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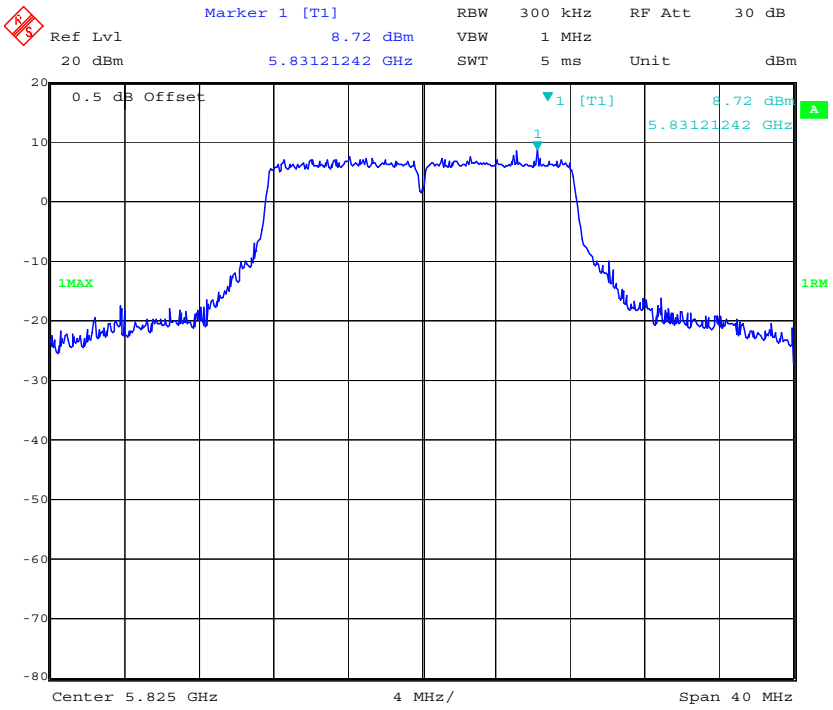
802.11a High Channel



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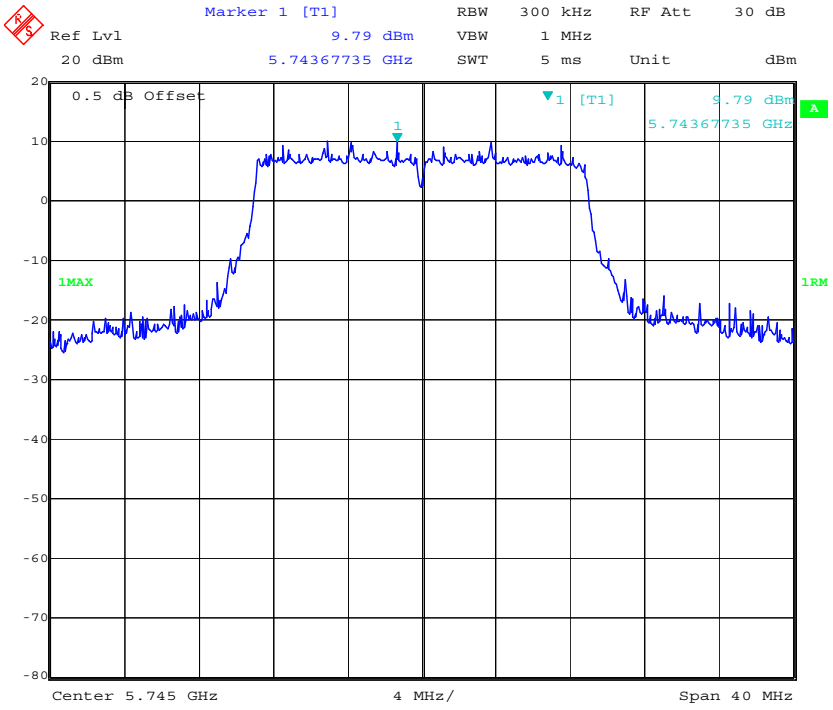
802.11ac vht20 Low Channel



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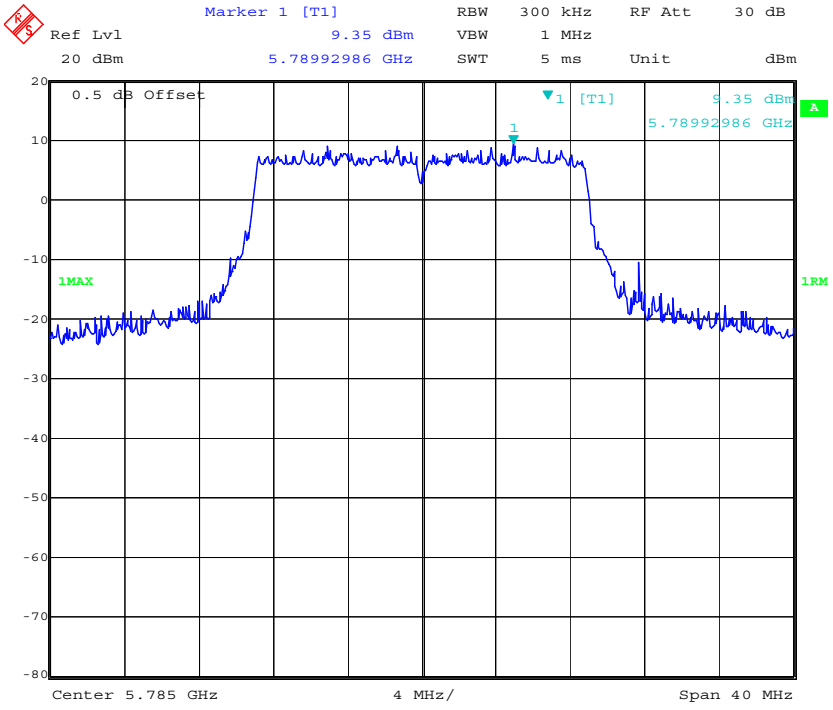
802.11ac vht20 Middle Channel



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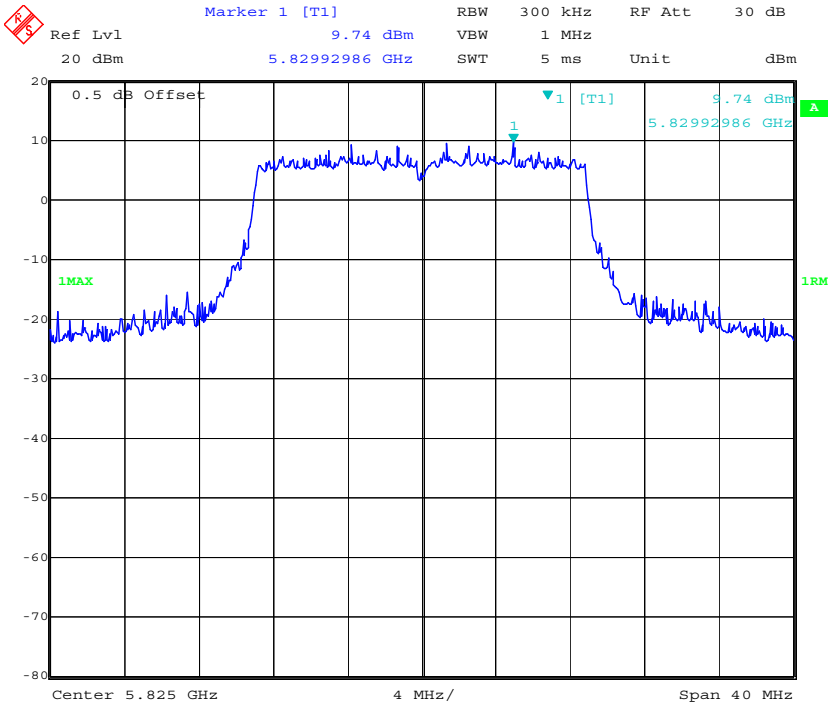
802.11ac vht20 High Channel



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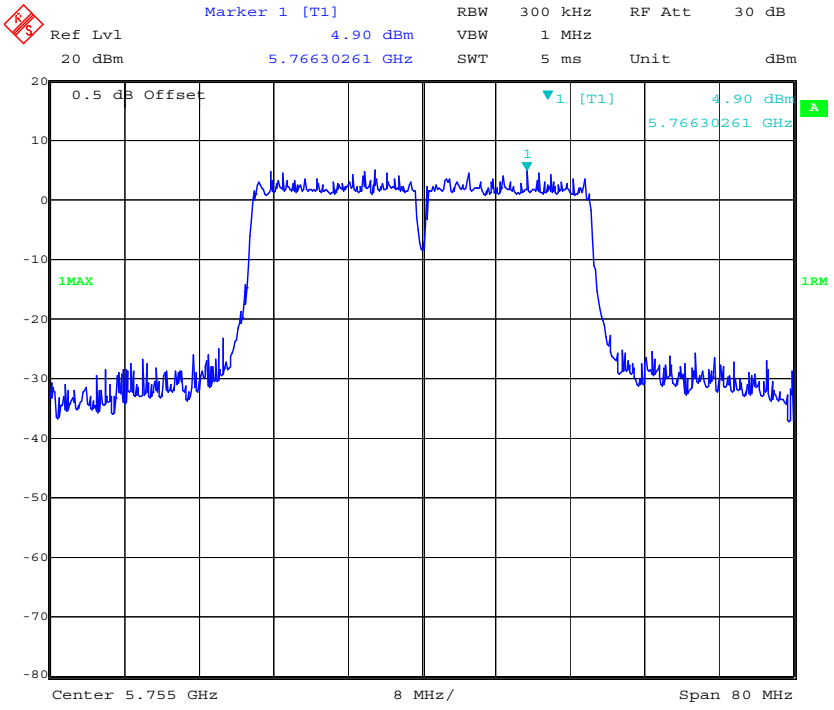
802.11ac vht40 Low Channel



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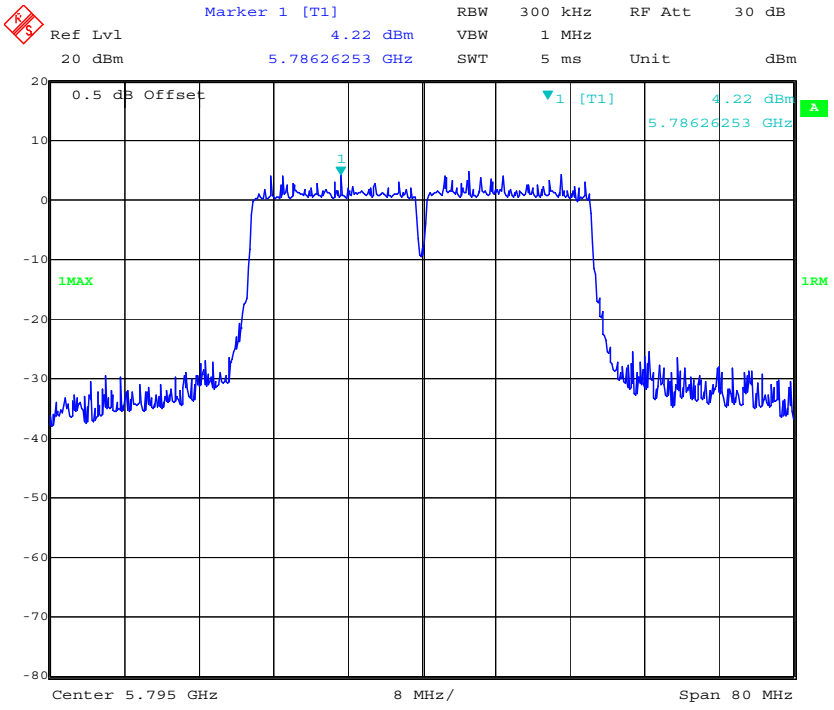

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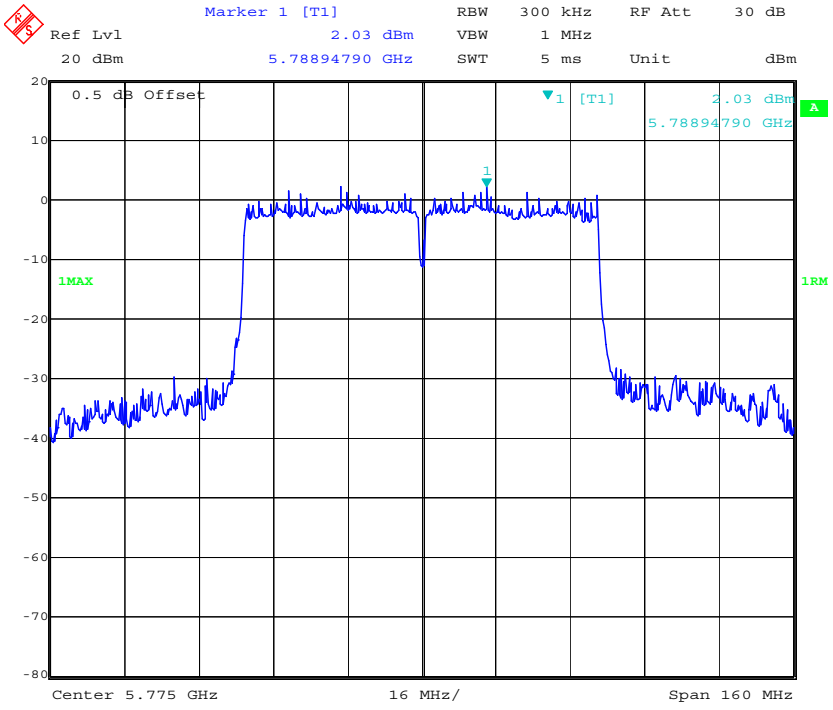
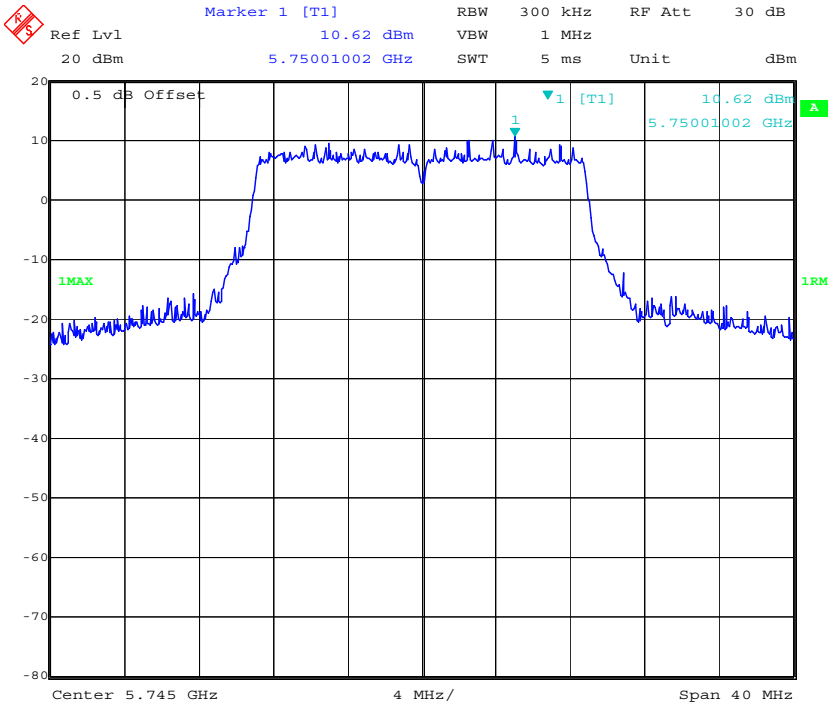
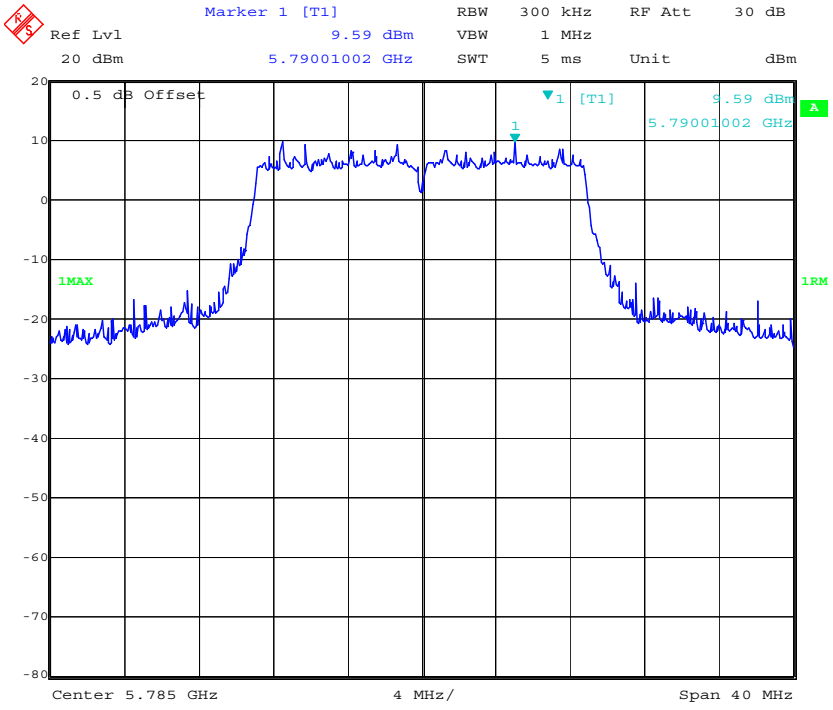


802.11n ht20 Low Channel

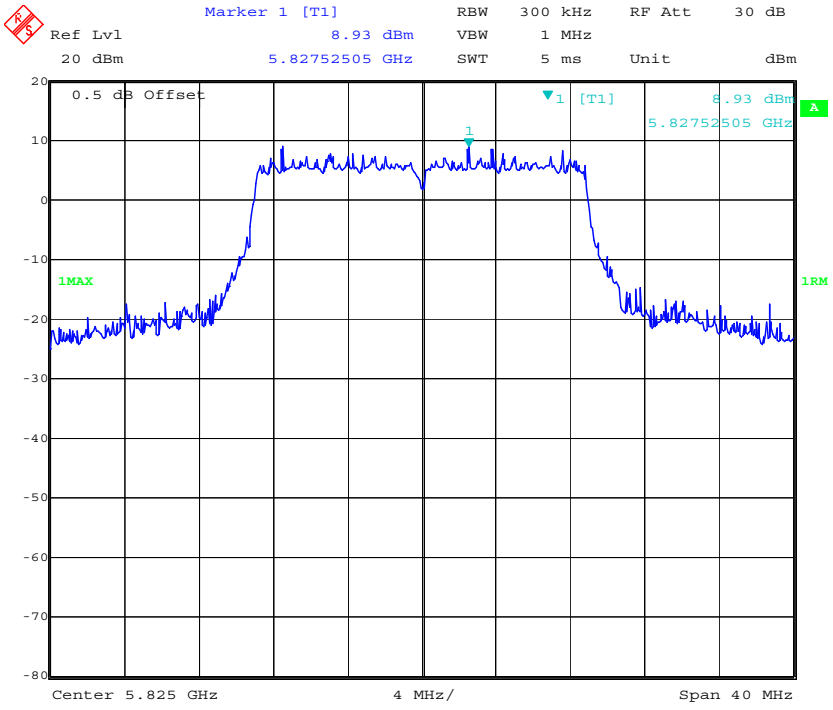


802.11n ht20 Middle Channel



Date: 21.MAY.2017 11:49:07

802.11n ht20 High Channel



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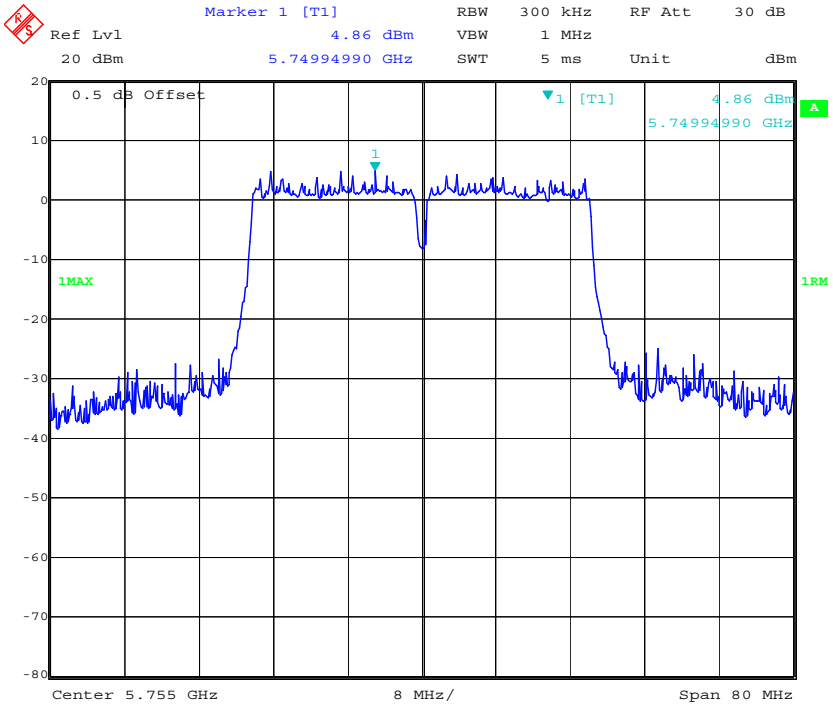
802.11n ht40 Low Channel



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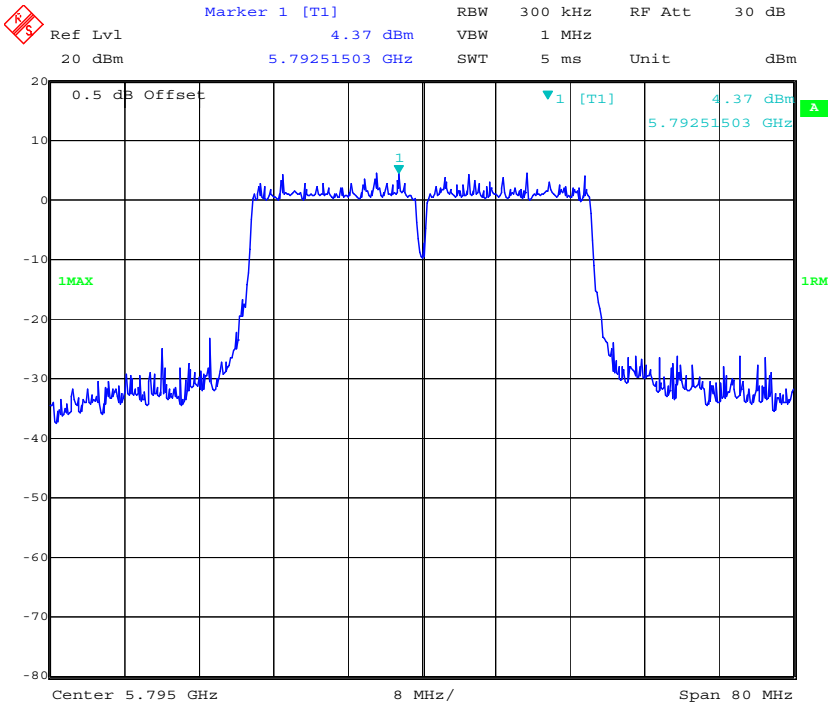
802.11n ht40 High Channel



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