



FCC PART 15.407

TEST REPORT

For

Skspruce Technologies Inc.

1732 North 1st St Suite 220, San Jose, CA

FCC ID: 2ACKD-WIA3280

Report Type: Original Report	Product Name: Indoor Access Point
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Report Number: <u>RSC141011002</u>	
Report Date: <u>2015-02-11</u>	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Skspurce Technologies Inc.*'s product, model number: *WIA3200-80 (FCC ID: 2ACKD-WIA3280)* or ("EUT") in this report was a *Indoor Access Point*, which was measured approximately: 200mm (W) x 200mm (D) x 45mm (H). The operating frequency were 5150~5250MHz, 5725~5850MHz.

POE:

Input: AC 100 - 240V, 50/60Hz
Output: DC 48 - 56V

AC ADAPTER:

Input: AC 100 - 240V, 50/60Hz
Output: DC12V

**All measurement and test data in this report were gathered from final production sample, serial number: 8112014062300026 (provided by the Applicant). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2014-12-30, and EUT complied with test requirement.*

Objective

This type approval report is prepared on behalf of *Skspurce Technologies Inc.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communications Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Related Submittal(s)/Grant(s)

FCC Part 15.247 submissions with FCC ID: 2ACKD-WIA3280.
FCC Part 15 Class B submissions with FCC ID: 2ACKD-WIA3280.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

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

Test Facility

The test site used by BACL to collect test data is located in the 5040, HuiLongWan Plaza, No. 1, ShaWan Road, JinNiu District, ChengDu, 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 July 31, 2009. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

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 operating frequency range is 5150~5250 MHz and 5725~5850 MHz, the frequencies are 5180 MHz, 5210 MHz, 5220 MHz, 5240 MHz, 5190 MHz, 5230 MHz for 5150~5250 MHz band. 5745 MHz, 5785 MHz, 5825 MHz, 5775MHz, 5755 MHz, 5795 MHz for 5725~5850 MHz band, which was provided by the manufacturer.

EUT Exercise Software

The software "art2_ver_4_9_93_RC_Bin, SecureCRT 7.1 & tftpd32" was used for testing, which was provided by manufacturer.

For 5150~5250 MHz

Test Mode	Test Software Version	art2_ver_4_9_93_RC_Bin, SecureCRT 7.1 & tftpd32				
802.11a	Test Frequency	5180MHz	5220MHz	5240MHz		
	Data Rate	OFDM 6Mbps	OFDM 6Mbps	OFDM 6Mbps		
	Power Level Setting Antenna 0	25	25	25		
	Power Level Setting Antenna 1	25	25	25		
	Power Level Setting Antenna 2	28	28	28		
802.11ac VHT20	Test Frequency	5180MHz	5220MHz	5240MHz		
	Data Rate	1SSO 6.5Mbps	1SSO 6.5Mbps	1SSO 6.5Mbps		
	Power Level Setting Antenna 0	22	22	22		
	Power Level Setting Antenna 1	21	21	21		
	Power Level Setting Antenna 2	24.5	24.5	24.5		
802.11ac VHT40	Test Frequency	5190MHz	5230MHz			
	Data Rate	1SSO 13.5Mbps	1SSO 13.5Mbps			
	Power Level Setting Antenna 0	22	22			
	Power Level Setting Antenna 1	21	21			
	Power Level Setting Antenna 2	24.5	24.5			
802.11ac VHT80	Test Frequency	5210MHz				
	Data Rate	1SSO 29.3Mbps				
	Power Level Setting Antenna 0	22				
	Power Level Setting Antenna 1	21				
	Power Level Setting Antenna 2	24.5				
802.11n HT20	Test Frequency	5180MHz	5220MHz	5240MHz		
	Data Rate	MCS0 6.5Mbps	MCS0 6.5Mbps	MCS0 6.5Mbps		
	Power Level Setting Antenna 0	22	22	22		
	Power Level Setting Antenna 1	21	21	21		
	Power Level Setting Antenna 2	24.5	24.5	24.5		
802.11n HT40	Test Frequency	5190MHz	5230MHz			
	Data Rate	MCS0 13.5Mbps	MCS0 13.5Mbps			
	Power Level Setting Antenna 0	22	22			
	Power Level Setting Antenna 1	21	21			
	Power Level Setting Antenna 2	24.5	24.5			

For 5725~5850 MHz

Test Mode	Test Software Version	art2_ver_4_9_93_RC_Bin, SecureCRT 7.1 & tftpd32				
802.11a	Test Frequency	5745MHz	5785MHz	5825MHz		
	Data Rate	OFDM 6Mbps	OFDM 6Mbps	OFDM 6Mbps		
	Power Level Setting Antenna 0	25	25	25		
	Power Level Setting Antenna 1	23.5	23.5	23.5		
	Power Level Setting Antenna 2	28	28	28		
802.11ac VHT20	Test Frequency	5745MHz	5785MHz	5825MHz		
	Data Rate	1SSO 6.5Mbps	1SSO 6.5Mbps	1SSO 6.5Mbps		
	Power Level Setting Antenna 0	21.5	21.5	21.5		
	Power Level Setting Antenna 1	20	20	20		
	Power Level Setting Antenna 2	25	25	25		
802.11ac VHT40	Test Frequency	5755MHz	5795MHz			
	Data Rate	1SSO 13.5Mbps	1SSO 13.5Mbps			
	Power Level Setting Antenna 0	21.5	21.5			
	Power Level Setting Antenna 1	20	20			
	Power Level Setting Antenna 2	25	25			
802.11ac VHT80	Test Frequency	5775MHz				
	Data Rate	1SSO 29.3Mbps				
	Power Level Setting Antenna 0	21.5				
	Power Level Setting Antenna 1	20				
	Power Level Setting Antenna 2	25				
802.11n HT20	Test Frequency	5745MHz	5785MHz	5825MHz		
	Data Rate	MCS0 6.5Mbps	MCS0 6.5Mbps	MCS0 6.5Mbps		
	Power Level Setting Antenna 0	21.5	21.5	21.5		
	Power Level Setting Antenna 1	20	20	20		
	Power Level Setting Antenna 2	25	25	25		
802.11n HT40	Test Frequency	5755MHz	5795MHz			
	Data Rate	MCS0 13.5Mbps	MCS0 13.5Mbps			
	Power Level Setting Antenna 0	21.5	21.5			
	Power Level Setting Antenna 1	20	20			
	Power Level Setting Antenna 2	25	25			

Equipment under Test (EUT) General Description

Applicant	Description	Model Number	Serial Number
Skspurce Technologies Inc.	Indoor Access Point	WIA3200-80	8112014062300026

Support Equipment List and Details

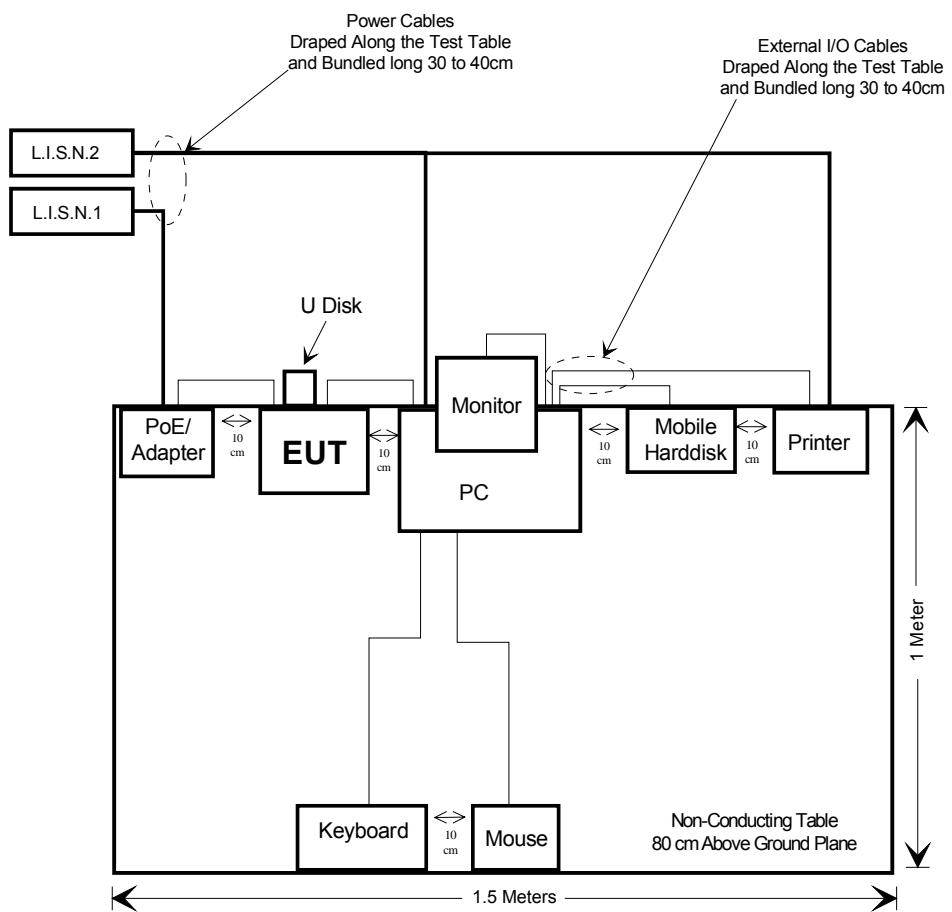
Manufacturer	Description	Model	Serial Number
IBM	PC	8176	99Y7315
DELL	Monitor	SK-8815	9161649
IBM	Keyboard	KM-110X	XBK133000993
Logitech	Mouse	M-U0004	810-001808
Antek	Voip Gateway	EGW802	050830054-1B
EPSON	Printer	B261A	GXSK285854
GIGADIT	PoE Injector	NONE	NONE
LITEON	AC Adapter	PA-1051-0	L21133000100

External I/O Cable

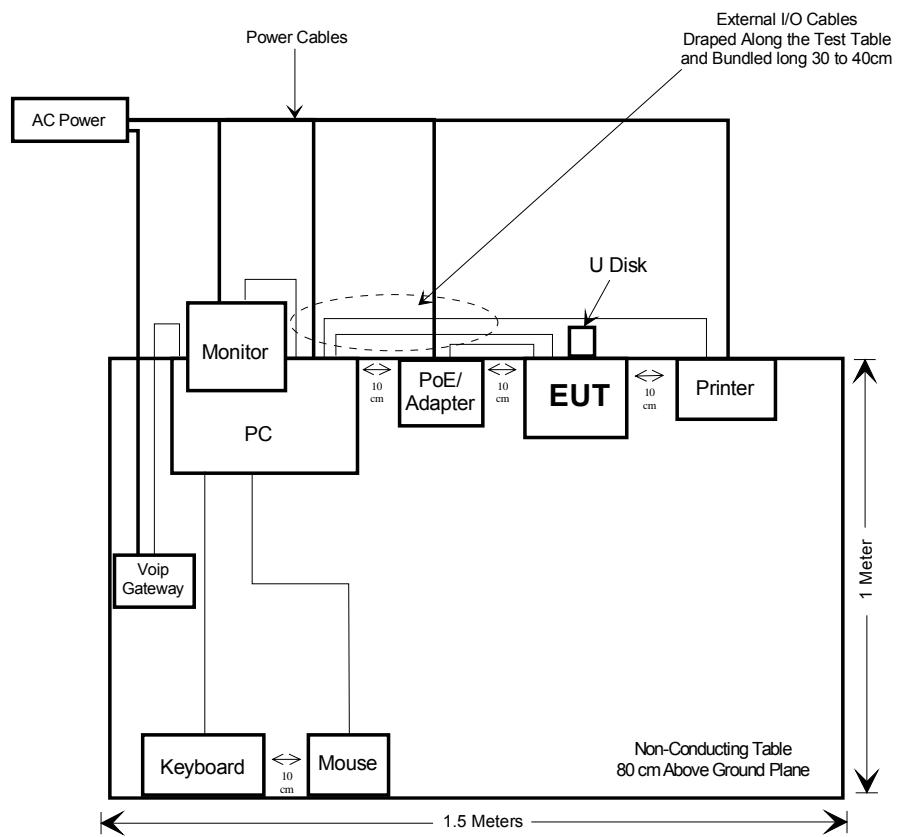
Cable Description	Length (m)	From	To
Unshielded LAN/Power cable	1.0	PoE Injector/AC Adapter	EUT
Shielded VGA cable	1.5	PC	Monitor
Unshielded LAN cable	1.0	PC	EUT
Shielded Mouse cable	1.5	PC	Mouse
Shielded Keyboard cable	1.5	PC	Keyboard
Shielded LPT Cable	1.5	PC	Printer
Shielded RS232 Cable	0.5	PC	Voip Gateway

Block Diagram of Test Setup

For Conducted Emissions:



For Undesirable Emission& Restricted Bands:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1091	Maximum Permissible Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b) (1),(4),(6),(7)	Undesirable Emission& Restricted Bands	Compliance
§15.407(b) (1),(2), (3),(4)	Band Edge	Compliance
§15.407(a) (1),(3) & (e)	26dB & 6dB Bandwidth	Compliance
§15.407(a)(1),(3)	Conducted Transmitter Output Power	Compliance
§15.407 (a)(1),(3),(5)	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/f ²)	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.

Calculated Formulary:

Predication of MPE limit at a given distance

S = PG/4πR² = power density (in appropriate units, e.g. mW/cm²);

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);

Calculated Data:

DTS Band:

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2462	3	2.00	20.74	118.58	20	0.047	1.0
802.11g	2437	3	2.00	20.61	115.08	20	0.046	1.0
802.11n HT20	2462	3	2.00	19.89	97.45	20	0.039	1.0
802.11n HT40	2422	3	2.00	20.06	101.41	20	0.040	1.0

UNII Band:

5150-5250 MHz

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5240	3	2.00	20.84	121.34	20	0.048	1
802.11ac VHT20	5180	3	2.00	19.96	99.08	20	0.039	1
802.11ac VHT40	5190	3	2.00	19.27	84.53	20	0.034	1
802.11ac VHT80	5210	3	2.00	19.53	89.74	20	0.036	1
802.11n HT20	5220	3	2.00	19.91	97.95	20	0.039	1
802.11n HT40	5190	3	2.00	19.38	86.70	20	0.034	1

5725-5850 MHz

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5745	3	2.00	20.62	115.35	20	0.046	1
802.11ac VHT20	5745	3	2.00	20.15	103.51	20	0.041	1
802.11ac VHT40	5755	3	2.00	19.71	93.54	20	0.037	1
802.11ac VHT80	5775	3	2.00	19.51	89.33	20	0.035	1
802.11n HT20	5745	3	2.00	20.18	104.23	20	0.041	1
802.11n HT40	5755	3	2.00	19.70	93.33	20	0.037	1

According to KDB 447498 D01 General RF exposure guidance v05r02, EUT has 5GHz and 2.4GHz transmitting simultaneously. So the sum of MPE ratio for six antennas is 0.095 which is less than 1.0, So the collocation exposure exclusion applies.

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 has six PCB antennas (three antennas for 2.4GHz & three antennas for 5GHz) which were attached to the EUT, and complied with 15.203, the maximum gain is 3.0 dBi. Please refer to the EUT internal photos.

Result: Compliance.

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

Applicable Standard

FCC §15.207, §15.407(b) (6)

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisp}_r of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cisp}_r of Table 1, then:

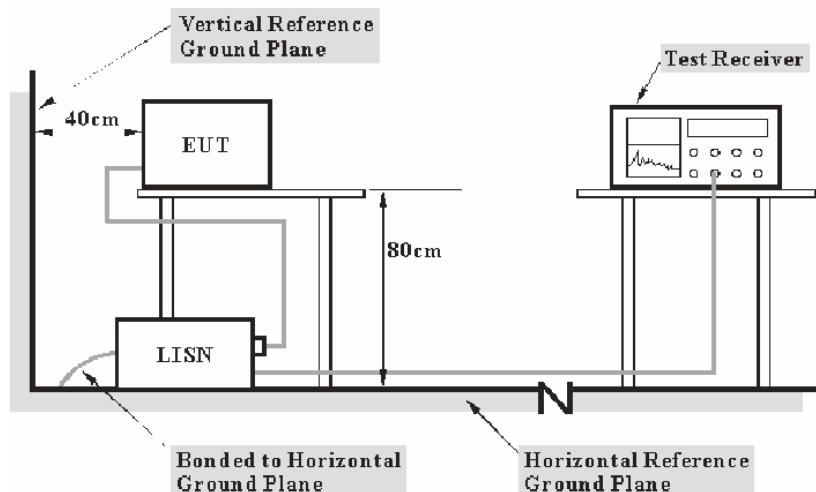
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cisp}}_r)$, exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cisp}}_r)$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Chengdu) is 3.17 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cisp}_r

Measurement	U_{cisp}_r
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

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 C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

DC 48V was used by the EUT through POE injector.
DC12V was used by the EUT through AC adapter.

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:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2014-06-23	2015-06-22
Rohde & Schwarz	L.I.S.N.	ENV216	3560.6550.06	2014-06-23	2015-06-22
Rohde & Schwarz	L.I.S.N.	ENV216	3560.6550.12	2014-02-08	2015-02-07

* **Statement of Traceability:** BACL (Chengdu) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

During the conducted emission test, the adapter was connected to the LISN and the other support equipments were connected to the outlet of the second 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, with the worst margin reading of:

6.3 dB at 0.153636 MHz in the Line conducted mode for POE Mode

Test Data

Environmental Conditions

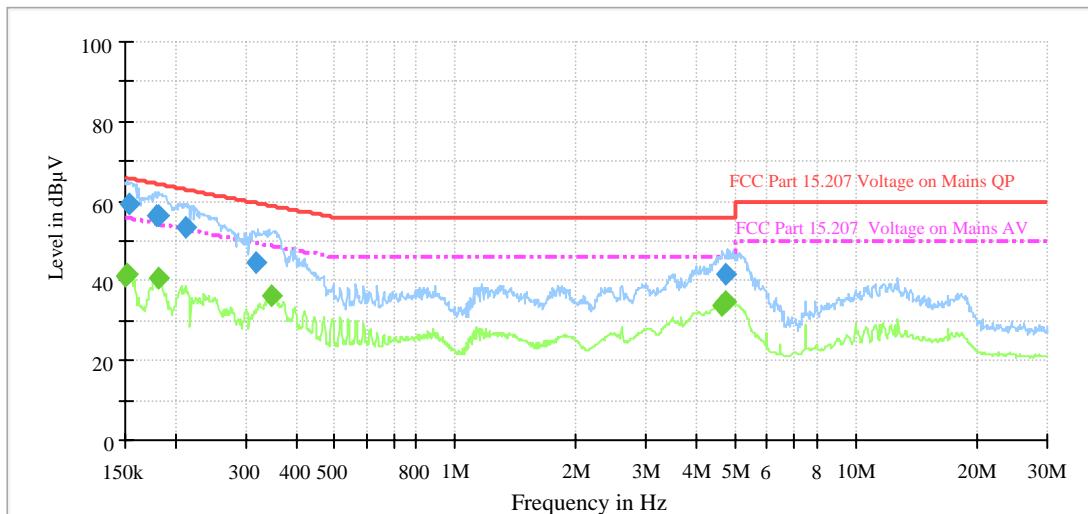
Temperature:	15 °C
Relative Humidity:	63 %
ATM Pressure:	96.1 kPa

The testing was performed by Kevin Tao on 2015-01-12.

Test Mode: Transmitting

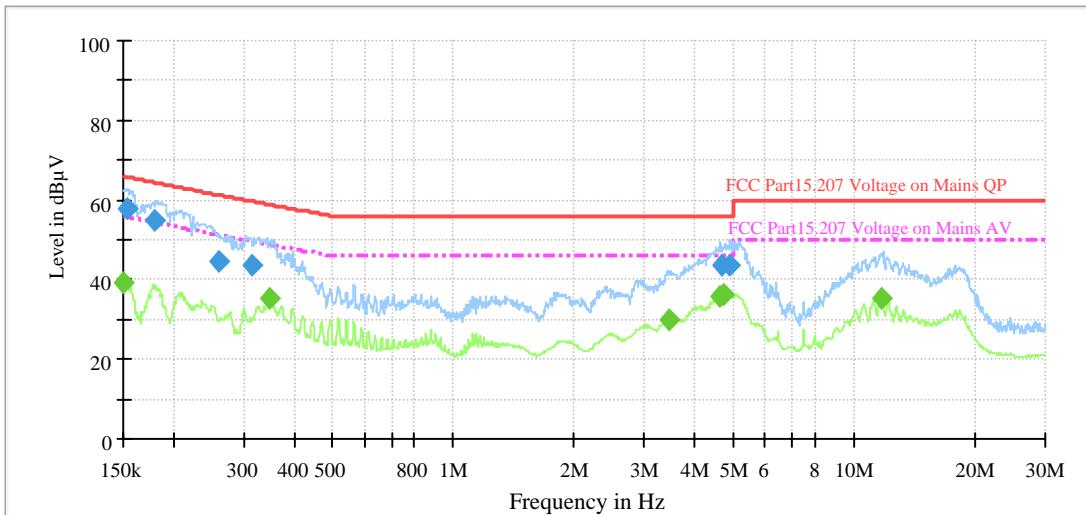
For POE Mode

Line



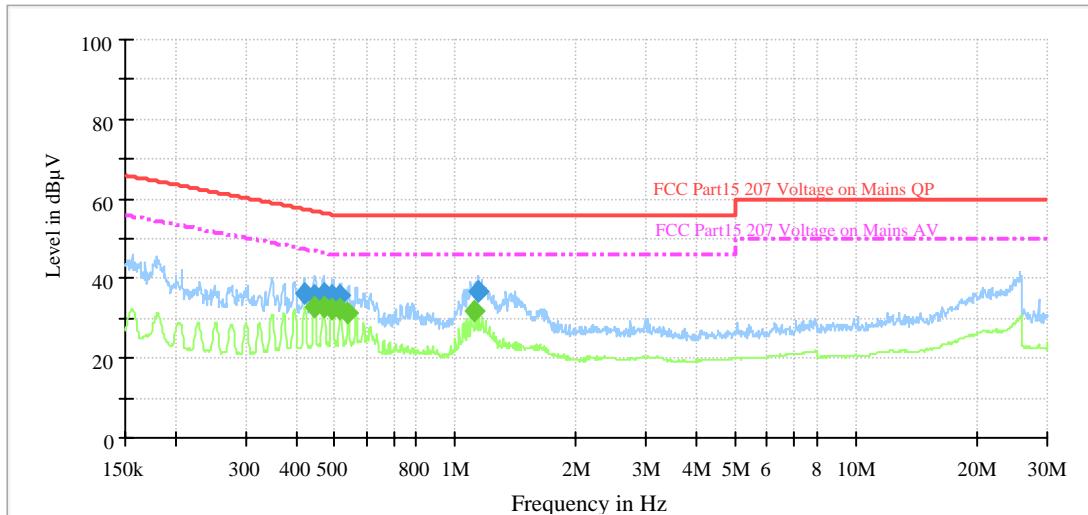
Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.153636	59.5	9.000	Off	L1	18.8	6.3	65.8
0.178947	56.5	9.000	Off	L1	19.0	7.9	64.4
0.181386	56.6	9.000	Off	L1	19.0	7.7	64.3
0.211763	53.7	9.000	Off	L1	19.3	9.3	63.0
0.318890	44.7	9.000	Off	L1	19.9	14.8	59.5
4.751466	41.6	9.000	Off	L1	20.5	14.4	56.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.1	9.000	Off	L1	18.7	14.9	56.0
0.151807	41.7	9.000	Off	L1	18.7	14.2	55.9
0.181386	40.6	9.000	Off	L1	19.0	13.7	54.3
0.348942	36.4	9.000	Off	L1	19.9	12.4	48.8
4.619278	33.9	9.000	Off	L1	20.5	12.1	46.0
4.731991	34.6	9.000	Off	L1	20.5	11.4	46.0

Neutral

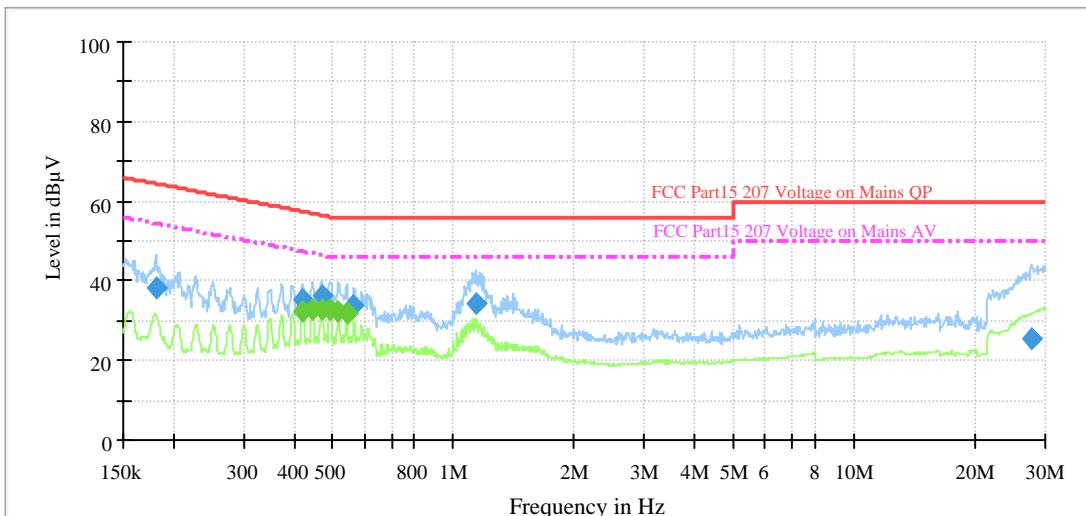
Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Filter	Neutral	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.153636	58.0	9.000	Off	N	18.8	7.8	65.8
0.178776	55.0	9.000	Off	N	19.0	9.4	64.4
0.259059	44.6	9.000	Off	N	19.5	16.7	61.3
0.314858	43.8	9.000	Off	N	19.8	15.8	59.6
4.675114	43.9	9.000	Off	N	20.4	12.1	56.0
4.906948	43.6	9.000	Off	N	20.4	12.4	56.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Filter	Neutral	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150600	39.1	9.000	Off	N	18.7	16.9	56.0
0.348942	35.1	9.000	Off	N	19.9	13.7	48.8
3.440435	30.0	9.000	Off	N	20.4	16.0	46.0
4.617455	36.0	9.000	Off	N	20.4	10.0	46.0
4.731991	36.1	9.000	Off	N	20.4	9.9	46.0
11.685206	35.3	9.000	Off	N	20.5	14.7	50.0

*For Adapter Mode***Line**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.420135	36.3	9.000	Off	L1	20.1	21.1	57.4
0.446062	35.8	9.000	Off	L1	20.1	21.1	56.9
0.467950	36.3	9.000	Off	L1	20.1	20.2	56.6
0.492876	35.7	9.000	Off	L1	20.1	20.4	56.1
0.517062	35.6	9.000	Off	L1	20.1	20.4	56.0
1.139770	37.0	9.000	Off	L1	20.2	19.0	56.0

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.444284	32.9	9.000	Off	L1	20.1	14.1	47.0
0.469822	32.7	9.000	Off	L1	20.1	13.8	46.5
0.492876	32.4	9.000	Off	L1	20.1	13.7	46.1
0.517062	32.2	9.000	Off	L1	20.1	13.8	46.0
0.540273	31.4	9.000	Off	L1	20.1	14.6	46.0
1.117246	31.7	9.000	Off	L1	20.2	14.3	46.0

Neutral

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Neutral	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.180957	38.1	9.000	Off	N	19.0	26.4	64.4
0.418461	35.4	9.000	Off	N	20.1	22.0	57.5
0.469822	36.4	9.000	Off	N	20.1	20.1	56.5
0.564526	33.9	9.000	Off	N	20.1	22.1	56.0
1.139770	34.3	9.000	Off	N	20.2	21.7	56.0
27.672851	25.7	9.000	Off	N	20.8	34.3	60.0

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Filter	Neutral	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.420135	32.2	9.000	Off	N	20.1	15.2	47.4
0.444284	33.0	9.000	Off	N	20.1	14.0	47.0
0.469822	32.7	9.000	Off	N	20.1	13.8	46.5
0.492876	32.9	9.000	Off	N	20.0	13.2	46.1
0.517062	32.5	9.000	Off	N	20.1	13.5	46.0
0.542434	31.7	9.000	Off	N	20.1	14.3	46.0

Note: EUT transmitting simultaneously with 2.4G and 5G radio frequency and supports intelligent radio frequency management functionalities.

FCC §15.209, §15.205 & §15.407(b) (1) (4) (6) (7) – UNDESIRABLE EMISSION & RESTRICTED BANDS

Applicable Standard

FCC §15.407 (b) (1), (4), (6), (7); §15.209; §15.205;

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.

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.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

According to KDB 789033 D01 General UNII Test Procedures v01, emission shall be computed as:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2, \text{ for } d = 3 \text{ meters.}$$

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cispr}})$, exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{cispr}})$, exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Chengdu) is:

30M~200MHz: ± 4.7 dB ;

200M~1GHz: ± 6.0 dB ;

1G-6GHz: ± 5.13 dB;

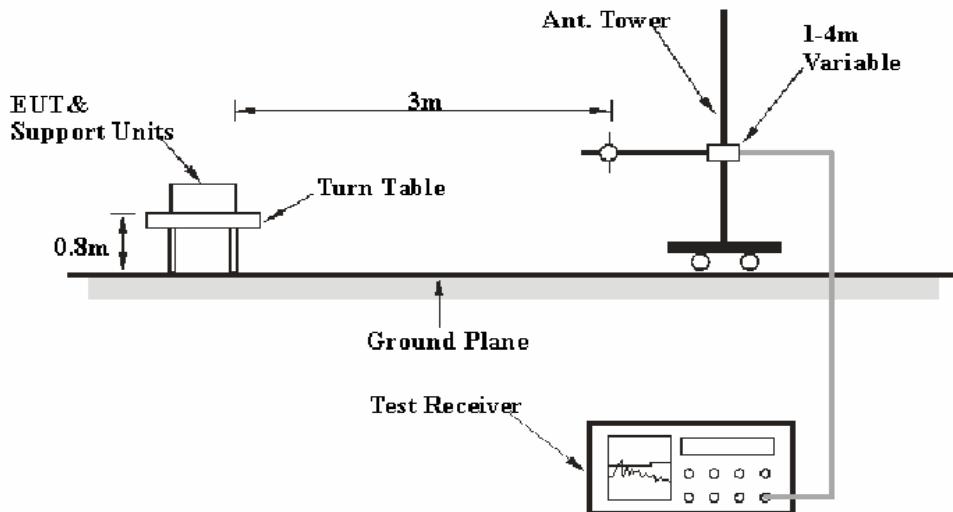
6G~40GHz: ± 5.47 dB;

Table 1 – Values of U_{cispr}

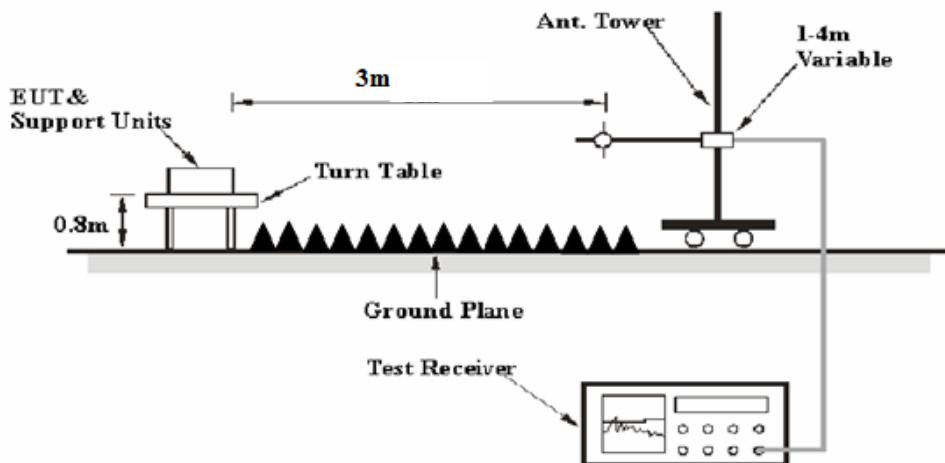
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters semi-anechoic chamber, using the setup accordance with the ANSI C63.4-2003. 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.

DC 48V was used by the EUT through POE injector.
DC12V was used by the EUT through AC adapter.

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:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	/	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second 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 1 GHz.

According to ANSI C63.4-2003, the above 1GHz test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m.

Extrapolation result (dB μ V/m) = Corrected Amplitude (dB μ V/m) -6dB

Test Equipment List and Details

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2014-06-23	2015-06-22
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2014-06-23	2015-06-22
Sunol Sciences	Broadband Antenna	JB3	A101808	2013-04-10	2015-04-09
Rohde & Schwarz	Spectrum Analyzer	FSL18	100180	2014-06-23	2015-06-22
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2014-10-17	2015-10-16
EM TEST	Horn Antenna	3115	003-6076	2014-04-09	2015-04-08
WEINSCHEL ENGINEERING	Attenuator	1A 10dB	AB1165	2014-10-31	2015-10-30
Mini-circuits	Filter	VHF-3100+	31306	2014-07-15	2015-07-14
Mini-circuits	Filter	VHF-6010+	31336	2014-07-15	2015-07-14
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2014-11-18	2015-11-17
EMCT	Semi-Anechoic Chamber	966	N/A	2013-03-13	2016-03-12

* **Statement of Traceability:** BACL (Chengdu) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Receiver Reading + Cable loss + Antenna Factor – Amplifier Gain

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

Margin = Limit-Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, Section 15.205, 15.209 and 15.407, with the worst margin reading of:

4.27 dB at 98 MHz in the Vertical polarization for 802.11a mode (5150-5250MHz)

Test Data

Environmental Conditions

Temperature:	16 °C & 17 °C
Relative Humidity:	60 % & 58 %
ATM Pressure:	97.5 kPa & 96 kPa

The testing was performed by Kevin Tao on 2015-01-15 & 2015-01-16.

Test mode: transmitting

5150-5250 MHz

For 802.11a mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5180 MHz									
10360	39.35	PK	V	37.40	6.34	23.80	59.29	68.20	8.91
10360	24.97	AV	V	37.40	6.34	23.80	44.91	54.00	9.09
15540	31.35	PK	V	39.40	6.45	22.40	54.80	68.20	13.40
15540	17.32	AV	V	39.40	6.45	22.40	40.77	54.00	13.23
98	50.2	QP	V	13.37	0.26	26.20	37.63	43.50	5.87
5220 MHz									
10440	40.38	PK	V	37.40	6.34	23.80	60.32	68.20	7.88
10440	25.71	AV	V	37.40	6.34	23.80	45.65	54.00	8.35
15660	31.98	PK	V	39.40	6.45	22.40	55.43	68.20	12.77
15660	18.51	AV	V	39.40	6.45	22.40	41.96	54.00	12.04
98	51.8	QP	V	13.37	0.26	26.20	39.23	43.50	*4.27
5240 MHz									
10480	41.08	PK	V	37.40	6.34	23.80	61.02	68.20	7.18
10480	26.34	AV	V	37.40	6.34	23.80	46.28	54.00	7.72
15720	32.26	PK	V	39.40	6.45	22.40	55.71	68.20	12.49
15720	18.32	AV	V	39.40	6.45	22.40	41.77	54.00	12.23
98	49.5	QP	V	13.37	0.26	26.20	36.93	43.50	6.57

* Within Measurement Uncertainty.

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5180 MHz									
10360	39.31	PK	V	37.40	6.34	23.80	59.25	68.20	8.95
10360	24.06	AV	V	37.40	6.34	23.80	44.00	54.00	10.00
15540	30.89	PK	V	39.40	6.45	22.40	54.34	68.20	13.86
15540	17.24	AV	V	39.40	6.45	22.40	40.69	54.00	13.31
98	49.6	QP	V	13.37	0.26	26.20	37.03	43.50	6.47
5220 MHz									
10440	41.48	PK	V	37.40	6.34	23.80	61.42	68.20	6.78
10440	26.12	AV	V	37.40	6.34	23.80	46.06	54.00	7.94
15660	31.91	PK	V	39.40	6.45	22.40	55.36	68.20	12.84
15660	17.55	AV	V	39.40	6.45	22.40	41.00	54.00	13.00
98	50.1	QP	V	13.37	0.26	26.20	37.53	43.50	5.97
5240 MHz									
10480	39.48	PK	V	37.40	6.34	23.80	59.42	68.20	8.78
10480	25.07	AV	V	37.40	6.34	23.80	45.01	54.00	8.99
15720	30.62	PK	V	39.40	6.45	22.40	54.07	68.20	14.13
15720	17.68	AV	V	39.40	6.45	22.40	41.13	54.00	12.87
98	49.3	QP	V	13.37	0.26	26.20	36.73	43.50	6.77

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5190 MHz									
10380	40.13	PK	V	37.40	6.34	23.80	60.07	68.20	8.13
10380	23.56	AV	V	37.40	6.34	23.80	43.50	54.00	10.50
15570	30.56	PK	V	39.40	6.45	22.40	54.01	68.20	14.19
15570	19.23	AV	V	39.40	6.45	22.40	42.68	54.00	11.32
98	48.9	QP	V	13.37	0.26	26.20	36.33	43.50	7.17
5230 MHz									
10460	43.25	PK	V	37.40	6.34	23.80	63.19	68.20	*5.01
10460	26.14	AV	V	37.40	6.34	23.80	46.08	54.00	7.92
15690	29.96	PK	V	39.40	6.45	22.40	53.41	68.20	14.79
15690	18.67	AV	V	39.40	6.45	22.40	42.12	54.00	11.88
98	48.7	QP	V	13.37	0.26	26.20	36.13	43.50	7.37

* Within Measurement Uncertainty.

For 802.11ac VHT80 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5210 MHz									
10420	36.35	PK	V	37.40	6.34	23.80	56.29	68.20	11.91
10420	21.84	AV	V	37.40	6.34	23.80	41.78	54.00	12.22
15630	31.23	PK	V	39.40	6.45	22.40	54.68	68.20	13.52
15630	19.68	AV	V	39.40	6.45	22.40	43.13	54.00	10.87
98	49.7	QP	V	13.37	0.26	26.20	37.13	43.50	6.37

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5180 MHz									
10360	38.53	PK	V	37.40	6.34	23.80	58.47	68.20	9.73
10360	22.97	AV	V	37.40	6.34	23.80	42.91	54.00	11.09
15540	30.52	PK	V	39.40	6.45	22.40	53.97	68.20	14.23
15540	20.13	AV	V	39.40	6.45	22.40	43.58	54.00	10.42
98	46.82	QP	V	13.37	0.26	26.20	34.25	43.50	9.25
5220 MHz									
10440	39.74	PK	V	37.40	6.34	23.80	59.68	68.20	8.52
10440	24.03	AV	V	37.40	6.34	23.80	43.97	54.00	10.03
15660	32.38	PK	V	39.40	6.45	22.40	55.83	68.20	12.37
15660	21.45	AV	V	39.40	6.45	22.40	44.90	54.00	9.10
98	45.67	QP	V	13.37	0.26	26.20	33.10	43.50	10.40
5240 MHz									
10480	38.69	PK	V	37.40	6.34	23.80	58.63	68.20	9.57
10480	23.01	AV	V	37.40	6.34	23.80	42.95	54.00	11.05
15720	31.59	PK	V	39.40	6.45	22.40	55.04	68.20	13.16
15720	19.97	AV	V	39.40	6.45	22.40	43.42	54.00	10.58
98	44.64	QP	V	13.37	0.26	26.20	32.07	43.50	11.43

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5190 MHz									
10380	35.77	PK	V	37.40	6.34	23.80	55.71	68.20	12.49
10380	21.74	AV	V	37.40	6.34	23.80	41.68	54.00	12.32
15570	30.99	PK	V	39.40	6.45	22.40	54.44	68.20	13.76
15570	19.23	AV	V	39.40	6.45	22.40	42.68	54.00	11.32
98	48.9	QP	V	13.37	0.26	26.20	36.33	43.50	7.17
5230 MHz									
10460	36.98	PK	V	37.40	6.34	23.80	56.92	68.20	11.28
10460	23.15	AV	V	37.40	6.34	23.80	43.09	54.00	10.91
15690	31.52	PK	V	39.40	6.45	22.40	54.97	68.20	13.23
15690	20.16	AV	V	39.40	6.45	22.40	43.61	54.00	10.39
98	49.2	QP	V	13.37	0.26	26.20	36.63	43.50	6.87

5725-5850 MHz

For 802.11a mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5745 MHz									
11490	43.03	PK	V	38.00	6.34	23.80	63.57	68.20	*4.63
11490	28.84	AV	V	38.00	6.34	23.80	49.38	54.00	*4.62
17235	29.98	PK	V	43.00	6.45	22.40	57.03	68.20	11.17
17235	16.47	AV	V	43.00	6.45	22.40	43.52	54.00	10.48
98	47.6	QP	V	13.37	0.26	26.20	35.03	43.50	8.47
5785 MHz									
11570	39.79	PK	V	38.00	6.34	23.80	60.33	68.20	7.87
11570	26.07	AV	V	38.00	6.34	23.80	46.61	54.00	7.39
17355	30.35	PK	V	43.00	6.45	22.40	57.40	68.20	10.80
17355	16.38	AV	V	43.00	6.45	22.40	43.43	54.00	10.57
98	48.3	QP	V	13.37	0.26	26.20	35.73	43.50	7.77
5825 MHz									
11650	42.32	PK	V	38.00	6.34	23.80	62.86	68.20	*5.34
11650	27.48	AV	V	38.00	6.34	23.80	48.02	54.00	5.98
17475	30.58	PK	V	43.00	6.45	22.40	57.63	68.20	10.57
17475	16.65	AV	V	43.00	6.45	22.40	43.70	54.00	10.30
98	48.2	QP	V	13.37	0.26	26.20	35.63	43.50	7.87

* Within Measurement Uncertainty.

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5745 MHz									
11490	40.14	PK	V	38.00	6.34	23.80	60.68	68.20	7.52
11490	26.63	AV	V	38.00	6.34	23.80	47.17	54.00	6.83
17235	30.74	PK	V	43.00	6.45	22.40	57.79	68.20	10.41
17235	16.83	AV	V	43.00	6.45	22.40	43.88	54.00	10.12
98	48.1	QP	V	13.37	0.26	26.20	35.53	43.50	7.97
5785 MHz									
11570	40.42	PK	V	38.00	6.34	23.80	60.96	68.20	7.24
11570	25.87	AV	V	38.00	6.34	23.80	46.41	54.00	7.59
17355	29.72	PK	V	43.00	6.45	22.40	56.77	68.20	11.43
17355	15.86	AV	V	43.00	6.45	22.40	42.91	54.00	11.09
98	48.4	QP	V	13.37	0.26	26.20	35.83	43.50	7.67
5825 MHz									
11650	41.83	PK	V	38.00	6.34	23.80	62.37	68.20	5.83
11650	26.95	AV	V	38.00	6.34	23.80	47.49	54.00	6.51
17475	30.34	PK	V	43.00	6.45	22.40	57.39	68.20	10.81
17475	15.49	AV	V	43.00	6.45	22.40	42.54	54.00	11.46
98	47.9	QP	V	13.37	0.26	26.20	35.33	43.50	8.17

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5755 MHz									
11510	38.03	PK	V	38.00	6.34	23.80	58.57	68.20	9.63
11510	23.95	AV	V	38.00	6.34	23.80	44.49	54.00	9.51
17265	30.27	PK	V	43.00	6.45	22.40	57.32	68.20	10.88
17265	17.08	AV	V	43.00	6.45	22.40	44.13	54.00	9.87
98	49.7	QP	V	13.37	0.26	26.20	37.13	43.50	6.37
5795 MHz									
11590	37.72	PK	V	38.00	6.34	23.80	58.26	68.20	9.94
11590	23.65	AV	V	38.00	6.34	23.80	44.19	54.00	9.81
17385	30.53	PK	V	43.00	6.45	22.40	57.58	68.20	10.62
17385	16.32	AV	V	43.00	6.45	22.40	43.37	54.00	10.63
98	50.1	QP	V	13.37	0.26	26.20	37.53	43.50	5.97

For 802.11ac VHT80 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5775 MHz									
11550	35.82	PK	V	38.00	6.34	23.80	56.36	68.20	11.84
11550	23.78	AV	V	38.00	6.34	23.80	44.32	54.00	9.68
17325	30.46	PK	V	43.00	6.45	22.40	57.51	68.20	10.69
17325	15.48	AV	V	43.00	6.45	22.40	42.53	54.00	11.47
98	49.2	QP	V	13.37	0.26	26.20	36.63	43.50	6.87

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5745 MHz									
11490	40.66	PK	V	38.00	6.34	23.80	61.20	68.20	7.00
11490	26.72	AV	V	38.00	6.34	23.80	47.26	54.00	6.74
17235	30.17	PK	V	43.00	6.45	22.40	57.22	68.20	10.98
17235	16.09	AV	V	43.00	6.45	22.40	43.14	54.00	10.86
98	48.2	QP	V	13.37	0.26	26.20	35.63	43.50	7.87
5785 MHz									
11570	40.06	PK	V	38.00	6.34	23.80	60.60	68.20	7.60
11570	25.77	AV	V	38.00	6.34	23.80	46.31	54.00	7.69
17355	29.88	PK	V	43.00	6.45	22.40	56.93	68.20	11.27
17355	16.23	AV	V	43.00	6.45	22.40	43.28	54.00	10.72
98	47.6	QP	V	13.37	0.26	26.20	35.03	43.50	8.47
5825 MHz									
11650	40.71	PK	V	38.00	6.34	23.80	61.25	68.20	6.95
11650	26.48	AV	V	38.00	6.34	23.80	47.02	54.00	6.98
17475	30.26	PK	V	43.00	6.45	22.40	57.31	68.20	10.89
17475	16.48	AV	V	43.00	6.45	22.40	43.53	54.00	10.47
98	48.2	QP	V	13.37	0.26	26.20	35.63	43.50	7.87

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5755 MHz									
11510	38.51	PK	V	38.00	6.34	23.80	59.05	68.20	9.15
11510	24.05	AV	V	38.00	6.34	23.80	44.59	54.00	9.41
17265	30.01	PK	V	43.00	6.45	22.40	57.06	68.20	11.14
17265	16.36	AV	V	43.00	6.45	22.40	43.41	54.00	10.59
98	47.6	QP	V	13.37	0.26	26.20	35.03	43.50	8.47
5795 MHz									
11590	38.15	PK	V	38.00	6.34	23.80	58.69	68.20	9.51
11590	23.78	AV	V	38.00	6.34	23.80	44.32	54.00	9.68
17385	30.17	PK	V	43.00	6.45	22.40	57.22	68.20	10.98
17385	16.54	AV	V	43.00	6.45	22.40	43.59	54.00	10.41
98	47.3	QP	V	13.37	0.26	26.20	34.73	43.50	8.77

FCC §15.407(b) (1) (2) (3) (4) – BAND EDGE

Applicable Standard

FCC §15.407 (b) (1), (2), (3), (4);

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.

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.

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.

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.

Test Procedure

Radiated emission method, according to KDB 789033 D02 General UNII Test Procedures New Rules v01, clause II.G 3 d) (i), marker-delta method, as described in ANSI C63.10

Test Equipment List and Details

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2014-06-23	2015-06-22
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2014-06-23	2015-06-22
Sunol Sciences	Broadband Antenna	JB3	A101808	2013-04-10	2015-04-09
Rohde & Schwarz	Spectrum Analyzer	FSL18	100180	2014-06-23	2015-06-22
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2014-10-17	2015-10-16
EM TEST	Horn Antenna	3115	003-6076	2014-04-09	2015-04-08
WEINSCHEL ENGINEERING	Attenuator	1A 10dB	AB1165	2014-10-31	2015-10-30
Mini-circuits	Filter	VHF-3100+	31306	2014-07-15	2015-07-14
Mini-circuits	Filter	VHF-6010+	31336	2014-07-15	2015-07-14
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2014-11-18	2015-11-17
EMCT	Semi-Anechoic Chamber	966	N/A	2013-03-13	2016-03-12

* **Statement of Traceability:** BACL (Chengdu) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	17 °C & 18 °C
Relative Humidity:	60 % & 42 %
ATM Pressure:	97.1 kPa & 97.5 kPa

The testing was performed by Kevin Tao on 2015-01-05 & 2015-01-06.

Test mode: transmitting

5150-5250 MHz:

For 802.11a mode

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
(MHz)	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5180 MHz									
5180	78.32	PK	H	31.70	4.15	0.00	114.17	N/A	N/A
5180	65.84	AV	H	31.70	4.15	0.00	101.69	N/A	N/A
5180	83.24	PK	V	31.70	4.15	0.00	119.09	N/A	N/A
5180	70.65	AV	V	31.70	4.15	0.00	106.50	N/A	N/A
5149.95	40.16	PK	V	31.70	4.10	26.55	49.41	68.20	18.79
5149.95	28.63	AV	V	31.70	4.10	26.55	37.88	54.00	16.12
5350.05	39.51	PK	V	31.70	4.20	26.55	48.86	68.20	19.34
5350.05	26.92	AV	V	31.70	4.20	26.55	36.27	54.00	17.73
5220 MHz									
5220	80.69	PK	H	31.70	4.15	0.00	116.54	N/A	N/A
5220	66.52	AV	H	31.70	4.15	0.00	102.37	N/A	N/A
5220	81.74	PK	V	31.70	4.15	0.00	117.59	N/A	N/A
5220	68.71	AV	V	31.70	4.15	0.00	104.56	N/A	N/A
5149.95	40.16	PK	V	31.70	4.10	26.55	49.41	68.20	18.79
5149.95	24.83	AV	V	31.70	4.10	26.55	34.08	54.00	19.92
5350.05	37.58	PK	V	31.70	4.20	26.55	46.93	68.20	21.27
5350.05	21.36	AV	V	31.70	4.20	26.55	30.71	54.00	23.29
5240 MHz									
5240	80.21	PK	H	31.70	4.15	0.00	116.06	N/A	N/A
5240	66.57	AV	H	31.70	4.15	0.00	102.42	N/A	N/A
5240	82.86	PK	V	31.70	4.15	0.00	118.71	N/A	N/A
5240	69.53	AV	V	31.70	4.15	0.00	105.38	N/A	N/A
5149.95	38.13	PK	V	31.70	4.10	26.55	47.38	68.20	20.82
5149.95	24.69	AV	V	31.70	4.10	26.55	33.94	54.00	20.06
5350.05	39.12	PK	V	31.70	4.20	26.55	48.47	68.20	19.73
5350.05	23.54	AV	V	31.70	4.20	26.55	32.89	54.00	21.11

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5180 MHz									
5180	75.23	PK	H	31.70	4.15	0.00	111.08	N/A	N/A
5180	61.28	AV	H	31.70	4.15	0.00	97.13	N/A	N/A
5180	79.41	PK	V	31.70	4.15	0.00	115.26	N/A	N/A
5180	67.28	AV	V	31.70	4.15	0.00	103.13	N/A	N/A
5149.95	41.36	PK	V	31.70	4.10	26.55	50.61	68.20	17.59
5149.95	26.13	AV	V	31.70	4.10	26.55	35.38	54.00	18.62
5350.05	38.66	PK	V	31.70	4.20	26.55	48.01	68.20	20.19
5350.05	21.25	AV	V	31.70	4.20	26.55	30.60	54.00	23.40
5220 MHz									
5220	75.75	PK	H	31.70	4.15	0.00	111.60	N/A	N/A
5220	62.72	AV	H	31.70	4.15	0.00	98.57	N/A	N/A
5220	80.13	PK	V	31.70	4.15	0.00	115.98	N/A	N/A
5220	67.03	AV	V	31.70	4.15	0.00	102.88	N/A	N/A
5149.95	41.64	PK	V	31.70	4.10	26.55	50.89	68.20	17.31
5149.95	21.67	AV	V	31.70	4.10	26.55	30.92	54.00	23.08
5350.05	39.13	PK	V	31.70	4.20	26.55	48.48	68.20	19.72
5350.05	22.14	AV	V	31.70	4.20	26.55	31.49	54.00	22.51
5240 MHz									
5240	74.12	PK	H	31.70	4.15	0.00	109.97	N/A	N/A
5240	61.51	AV	H	31.70	4.15	0.00	97.36	N/A	N/A
5240	80.15	PK	V	31.70	4.15	0.00	116.00	N/A	N/A
5240	65.53	AV	V	31.70	4.15	0.00	101.38	N/A	N/A
5149.95	42.08	PK	V	31.70	4.10	26.55	51.33	68.20	16.87
5149.95	25.14	AV	V	31.70	4.10	26.55	34.39	54.00	19.61
5350.05	41.36	PK	V	31.70	4.20	26.55	50.71	68.20	17.49
5350.05	22.89	AV	V	31.70	4.20	26.55	32.24	54.00	21.76

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5190 MHz									
5190	71.96	PK	H	31.70	4.15	0.00	107.81	N/A	N/A
5190	57.22	AV	H	31.70	4.15	0.00	93.07	N/A	N/A
5190	77.88	PK	V	31.70	4.15	0.00	113.73	N/A	N/A
5190	63.12	AV	V	31.70	4.15	0.00	98.97	N/A	N/A
5149.95	44.88	PK	V	31.70	4.10	26.55	54.13	68.20	14.07
5149.95	25.11	AV	V	31.70	4.10	26.55	34.36	54.00	19.64
5350.05	40.22	PK	V	31.70	4.20	26.55	49.57	68.20	18.63
5350.05	21.13	AV	V	31.70	4.20	26.55	30.48	54.00	23.52
5230 MHz									
5230	72.38	PK	H	31.70	4.15	0.00	108.23	N/A	N/A
5230	57.89	AV	H	31.70	4.15	0.00	93.74	N/A	N/A
5230	77.13	PK	V	31.70	4.15	0.00	112.98	N/A	N/A
5230	62.16	AV	V	31.70	4.15	0.00	98.01	N/A	N/A
5149.95	45.34	PK	V	31.70	4.10	26.55	54.59	68.20	13.61
5149.95	24.08	AV	V	31.70	4.10	26.55	33.33	54.00	20.67
5350.05	42.37	PK	V	31.70	4.20	26.55	51.72	68.20	16.48
5350.05	21.35	AV	V	31.70	4.20	26.55	30.70	54.00	23.30

For 802.11ac VHT80 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5210 MHz									
5210	68.84	PK	H	31.70	4.15	0.00	104.69	N/A	N/A
5210	51.6	AV	H	31.70	4.15	0.00	87.45	N/A	N/A
5210	74.64	PK	V	31.70	4.15	0.00	110.49	N/A	N/A
5210	57.46	AV	V	31.70	4.15	0.00	93.31	N/A	N/A
5149.95	45.13	PK	V	31.70	4.10	26.55	54.38	68.20	13.82
5149.95	24.15	AV	V	31.70	4.10	26.55	33.40	54.00	20.60
5350.05	42.32	PK	V	31.70	4.20	26.55	51.67	68.20	16.53
5350.05	24.89	AV	V	31.70	4.20	26.55	34.24	54.00	19.76

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5180 MHz									
5180	76.38	PK	H	31.70	4.15	0.00	112.23	N/A	N/A
5180	63.51	AV	H	31.70	4.15	0.00	99.36	N/A	N/A
5180	79.84	PK	V	31.70	4.15	0.00	115.69	N/A	N/A
5180	64.38	AV	V	31.70	4.15	0.00	100.23	N/A	N/A
5149.95	47.98	PK	V	31.70	4.10	26.55	57.23	68.20	10.97
5149.95	30.91	AV	V	31.70	4.10	26.55	40.16	54.00	13.84
5350.05	43.65	PK	V	31.70	4.20	26.55	53.00	68.20	15.20
5350.05	28.36	AV	V	31.70	4.20	26.55	37.71	54.00	16.29
5220 MHz									
5220	77.31	PK	H	31.70	4.15	0.00	113.16	N/A	N/A
5220	64.26	AV	H	31.70	4.15	0.00	100.11	N/A	N/A
5220	79.21	PK	V	31.70	4.15	0.00	115.06	N/A	N/A
5220	65.32	AV	V	31.70	4.15	0.00	101.17	N/A	N/A
5149.95	39.16	PK	V	31.70	4.10	26.55	48.41	68.20	19.79
5149.95	28.47	AV	V	31.70	4.10	26.55	37.72	54.00	16.28
5350.05	39.65	PK	V	31.70	4.20	26.55	49.00	68.20	19.20
5350.05	25.11	AV	V	31.70	4.20	26.55	34.46	54.00	19.54
5240 MHz									
5240	76.89	PK	H	31.70	4.15	0.00	112.74	N/A	N/A
5240	63.54	AV	H	31.70	4.15	0.00	99.39	N/A	N/A
5240	80.18	PK	V	31.70	4.15	0.00	116.03	N/A	N/A
5240	66.03	AV	V	31.70	4.15	0.00	101.88	N/A	N/A
5149.95	39.89	PK	V	31.70	4.10	26.55	49.14	68.20	19.06
5149.95	23.43	AV	V	31.70	4.10	26.55	32.68	54.00	21.32
5350.05	39.37	PK	V	31.70	4.20	26.55	48.72	68.20	19.48
5350.05	24.31	AV	V	31.70	4.20	26.55	33.66	54.00	20.34

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5190 MHz									
5190	73.15	PK	H	31.70	4.15	0.00	109.00	N/A	N/A
5190	60.54	AV	H	31.70	4.15	0.00	96.39	N/A	N/A
5190	75.22	PK	V	31.70	4.15	0.00	111.07	N/A	N/A
5190	59.94	AV	V	31.70	4.15	0.00	95.79	N/A	N/A
5149.95	40.31	PK	V	31.70	4.10	26.55	49.56	68.20	18.64
5149.95	25.36	AV	V	31.70	4.10	26.55	34.61	54.00	19.39
5350.05	39.65	PK	V	31.70	4.20	26.55	49.00	68.20	19.20
5350.05	24.99	AV	V	31.70	4.20	26.55	34.34	54.00	19.66
5230 MHz									
5230	72.12	PK	H	31.70	4.15	0.00	107.97	N/A	N/A
5230	57.96	AV	H	31.70	4.15	0.00	93.81	N/A	N/A
5230	77.57	PK	V	31.70	4.15	0.00	113.42	N/A	N/A
5230	61.71	AV	V	31.70	4.15	0.00	97.56	N/A	N/A
5149.95	39.61	PK	V	31.70	4.10	26.55	48.86	68.20	19.34
5149.95	24.51	AV	V	31.70	4.10	26.55	33.76	54.00	20.24
5350.05	37.86	PK	V	31.70	4.20	26.55	47.21	68.20	20.99
5350.05	24.06	AV	V	31.70	4.20	26.55	33.41	54.00	20.59

5725-5850 MHz:

For 802.11a mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5745 MHz									
5745	81.47	PK	H	32.50	4.15	0.00	118.12	N/A	N/A
5745	68.97	AV	H	32.50	4.15	0.00	105.62	N/A	N/A
5745	83.24	PK	V	32.50	4.15	0.00	119.89	N/A	N/A
5745	70.16	AV	V	32.50	4.15	0.00	106.81	N/A	N/A
5724.95	51.43	PK	V	32.50	4.10	26.55	61.48	78.20	16.72
5724.95	31.73	AV	V	32.50	4.10	26.55	41.78	54.00	12.22
5850.05	49.38	PK	V	32.50	4.20	26.55	59.53	78.20	18.67
5850.05	28.24	AV	V	32.50	4.20	26.55	38.39	54.00	15.61
5785 MHz									
5785	80.29	PK	H	32.50	4.15	0.00	116.94	N/A	N/A
5785	66.65	AV	H	32.50	4.15	0.00	103.30	N/A	N/A
5785	82.37	PK	V	32.50	4.15	0.00	119.02	N/A	N/A
5785	69.66	AV	V	32.50	4.15	0.00	106.31	N/A	N/A
5724.35	48.74	PK	V	32.50	4.10	26.55	58.79	78.20	19.41
5724.35	35.26	AV	V	32.50	4.10	26.55	45.31	54.00	8.69
5850.45	50.13	PK	V	32.50	4.20	26.55	60.28	78.20	17.92
5850.45	35.72	AV	V	32.50	4.20	26.55	45.87	54.00	8.13
5825 MHz									
5825	80.18	PK	H	32.50	4.15	0.00	116.83	N/A	N/A
5825	67.85	AV	H	32.50	4.15	0.00	104.50	N/A	N/A
5825	82.23	PK	V	32.50	4.15	0.00	118.88	N/A	N/A
5825	69.26	AV	V	32.50	4.15	0.00	105.91	N/A	N/A
5724.5	50.84	PK	V	32.50	4.10	26.55	60.89	78.20	17.31
5724.5	36.82	AV	V	32.50	4.10	26.55	46.87	54.00	7.13
5850.1	57.31	PK	V	32.50	4.20	26.55	67.46	78.20	10.74
5850.1	36.21	AV	V	32.50	4.20	26.55	46.36	54.00	7.64

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5745 MHz									
5745	80.97	PK	H	32.50	4.15	0.00	117.62	N/A	N/A
5745	67.93	AV	H	32.50	4.15	0.00	104.58	N/A	N/A
5745	81.82	PK	V	32.50	4.15	0.00	118.47	N/A	N/A
5745	68.75	AV	V	32.50	4.15	0.00	105.40	N/A	N/A
5724.95	41.55	PK	V	32.50	4.10	26.55	51.60	78.20	26.60
5724.95	21.02	AV	V	32.50	4.10	26.55	31.07	54.00	22.93
5850.05	42.14	PK	V	32.50	4.20	26.55	52.29	78.20	25.91
5850.05	25.04	AV	V	32.50	4.20	26.55	35.19	54.00	18.81
5785 MHz									
5785	81.11	PK	H	32.50	4.15	0.00	117.76	N/A	N/A
5785	67.82	AV	H	32.50	4.15	0.00	104.47	N/A	N/A
5785	82.38	PK	V	32.50	4.15	0.00	119.03	N/A	N/A
5785	68.96	AV	V	32.50	4.15	0.00	105.61	N/A	N/A
5724.95	36.57	PK	V	32.50	4.10	26.55	46.62	78.20	31.58
5724.95	23.13	AV	V	32.50	4.10	26.55	33.18	54.00	20.82
5850.05	42.95	PK	V	32.50	4.20	26.55	53.10	78.20	25.10
5850.05	24.17	AV	V	32.50	4.20	26.55	34.32	54.00	19.68
5825 MHz									
5825	79.87	PK	H	32.50	4.15	0.00	116.52	N/A	N/A
5825	67.46	AV	H	32.50	4.15	0.00	104.11	N/A	N/A
5825	81.47	PK	V	32.50	4.15	0.00	118.12	N/A	N/A
5825	68.76	AV	V	32.50	4.15	0.00	105.41	N/A	N/A
5724.8	33.95	PK	V	32.50	4.10	26.55	44.00	78.20	34.20
5724.8	19.47	AV	V	32.50	4.10	26.55	29.52	54.00	24.48
5850.75	51.02	PK	V	32.50	4.20	26.55	61.17	78.20	17.03
5850.75	33.05	AV	V	32.50	4.20	26.55	43.20	54.00	10.80

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11ac VHT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5755 MHz									
5755	76.92	PK	H	32.50	4.15	0.00	113.57	N/A	N/A
5755	61.38	AV	H	32.50	4.15	0.00	98.03	N/A	N/A
5755	78.75	PK	V	32.50	4.15	0.00	115.40	N/A	N/A
5755	63.81	AV	V	32.50	4.15	0.00	100.46	N/A	N/A
5724.95	42.63	PK	V	32.50	4.10	26.55	52.68	78.20	25.52
5724.95	28.91	AV	V	32.50	4.10	26.55	38.96	54.00	15.04
5850.05	38.82	PK	V	32.50	4.20	26.55	48.97	78.20	29.23
5850.05	24.05	AV	V	32.50	4.20	26.55	34.20	54.00	19.80
5795 MHz									
5795	76.58	PK	H	32.50	4.15	0.00	113.23	N/A	N/A
5795	61.79	AV	H	32.50	4.15	0.00	98.44	N/A	N/A
5795	80.21	PK	V	32.50	4.15	0.00	116.86	N/A	N/A
5795	65.47	AV	V	32.50	4.15	0.00	102.12	N/A	N/A
5724.95	32.76	PK	V	32.50	4.10	26.55	42.81	78.20	35.39
5724.95	21.85	AV	V	32.50	4.10	26.55	31.90	54.00	22.10
5850.05	42.48	PK	V	32.50	4.20	26.55	52.63	78.20	25.57
5850.05	29.13	AV	V	32.50	4.20	26.55	39.28	54.00	14.72

For 802.11ac VHT80 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5775 MHz									
5775	73.05	PK	H	32.50	4.15	0.00	109.70	N/A	N/A
5775	56.25	AV	H	32.50	4.15	0.00	92.90	N/A	N/A
5775	76.24	PK	V	32.50	4.15	0.00	112.89	N/A	N/A
5775	59.35	AV	V	32.50	4.15	0.00	96.00	N/A	N/A
5724.95	40.93	PK	V	32.50	4.10	26.55	50.98	78.20	27.22
5724.95	25.41	AV	V	32.50	4.10	26.55	35.46	54.00	18.54
5850.05	53.25	PK	V	32.50	4.20	26.55	63.40	78.20	14.80
5850.05	37.45	AV	V	32.50	4.20	26.55	47.60	54.00	6.40

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
5745 MHz									
5745	81.16	PK	H	32.50	4.15	0.00	117.81	N/A	N/A
5745	68.02	AV	H	32.50	4.15	0.00	104.67	N/A	N/A
5745	82.02	PK	V	32.50	4.15	0.00	118.67	N/A	N/A
5745	68.76	AV	V	32.50	4.15	0.00	105.41	N/A	N/A
5724.95	42.58	PK	V	32.50	4.10	26.55	52.63	78.20	25.57
5724.95	24.31	AV	V	32.50	4.10	26.55	34.36	54.00	19.64
5850.05	41.85	PK	V	32.50	4.20	26.55	52.00	78.20	26.20
5850.05	25.77	AV	V	32.50	4.20	26.55	35.92	54.00	18.08
5785 MHz									
5785	78.61	PK	H	32.50	4.15	0.00	115.26	N/A	N/A
5785	65.74	AV	H	32.50	4.15	0.00	102.39	N/A	N/A
5785	81.97	PK	V	32.50	4.15	0.00	118.62	N/A	N/A
5785	68.36	AV	V	32.50	4.15	0.00	105.01	N/A	N/A
5724.95	41.48	PK	V	32.50	4.10	26.55	51.53	78.20	26.67
5724.95	25.84	AV	V	32.50	4.10	26.55	35.89	54.00	18.11
5850.05	44.48	PK	V	32.50	4.20	26.55	54.63	78.20	23.57
5850.05	24.75	AV	V	32.50	4.20	26.55	34.90	54.00	19.10
5825 MHz									
5825	80.42	PK	H	32.50	4.15	0.00	117.07	N/A	N/A
5825	65.84	AV	H	32.50	4.15	0.00	102.49	N/A	N/A
5825	82.39	PK	V	32.50	4.15	0.00	119.04	N/A	N/A
5825	68.87	AV	V	32.50	4.15	0.00	105.52	N/A	N/A
5724.8	34.32	PK	V	32.50	4.10	26.55	44.37	78.20	33.83
5724.8	21.56	AV	V	32.50	4.10	26.55	31.61	54.00	22.39
5850.45	52.39	PK	V	32.50	4.20	26.55	62.54	78.20	15.66
5850.45	32.66	AV	V	32.50	4.20	26.55	42.81	54.00	11.19

Bay Area Compliance Laboratories Corp. (Chengdu)

For 802.11n HT40 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5755 MHz									
5755	80.44	PK	H	32.50	4.15	0.00	117.09	N/A	N/A
5755	72.65	AV	H	32.50	4.15	0.00	109.30	N/A	N/A
5755	81.68	PK	V	32.50	4.15	0.00	118.33	N/A	N/A
5755	73.5	AV	V	32.50	4.15	0.00	110.15	N/A	N/A
5724.95	44.71	PK	V	32.50	4.10	26.55	54.76	78.20	23.44
5724.95	28.65	AV	V	32.50	4.10	26.55	38.70	54.00	15.30
5850.05	39.22	PK	V	32.50	4.20	26.55	49.37	78.20	28.83
5850.05	24.12	AV	V	32.50	4.20	26.55	34.27	54.00	19.73
5795 MHz									
5795	78.23	PK	H	32.50	4.15	0.00	114.88	N/A	N/A
5795	63.49	AV	H	32.50	4.15	0.00	100.14	N/A	N/A
5795	80.45	PK	V	32.50	4.15	0.00	117.10	N/A	N/A
5795	66.56	AV	V	32.50	4.15	0.00	103.21	N/A	N/A
5724.95	37.42	PK	V	32.50	4.10	26.55	47.47	78.20	30.73
5724.95	23.28	AV	V	32.50	4.10	26.55	33.33	54.00	20.67
5850.05	44.12	PK	V	32.50	4.20	26.55	54.27	78.20	23.93
5850.05	29.61	AV	V	32.50	4.20	26.55	39.76	54.00	14.24

Note:

Corrected Amplitude = Receiver Reading + Cable loss + Antenna Factor – Amplifier Gain

Margin = Limit-Corrected Amplitude

FCC §15.407(a) (1) (3) & (e) – 26dB & 6dB BANDWIDTH

Applicable Standard

For 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.

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.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

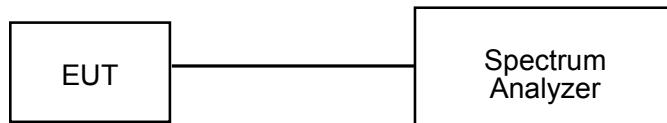
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2014-10-17	2015-10-16
Rohde & Schwarz	Spectrum Analyzer	FSL18	100180	2014-06-23	2015-06-22

* **Statement of Traceability:** BACL (Chengdu) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3.
 - (a) Use a RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW. Use a peak detector. Do not use the Max Hold function. Rather, use the view button to capture the emission. Measure maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat, measurement as needed until the RBW/EBW ratio is approximately 1%.
 - (b) Set RBW = 100 kHz and the video bandwidth (VBW) $\geq 3 \times$ RBW. Use a peak detector. Do not use the Max Hold function and auto couple. Rather, use the trace to stabilize the emission. Measure the maximum width of emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.
4. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

Temperature:	18°C & 16 °C
Relative Humidity:	60%, 43% & 58 %
ATM Pressure:	97.1 kPa ,97.5 kPa & 96.2 kPa

The testing was performed by Kevin Tao on 2015-01-05, 2015-01-06& 2014-01-07.

Test Result: Pass.

Please refer to the following tables and plots.

*Test mode: Transmitting***5150-5250 MHz:**

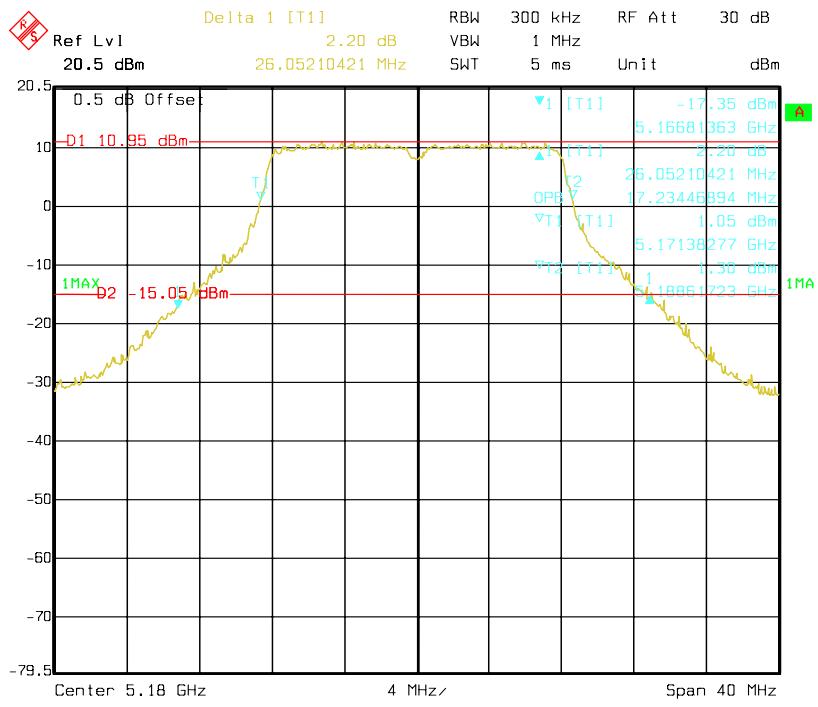
Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)			OBW (MHz)			Limit (kHz)
			Antenna 0	Antenna 1	Antenna 2	Antenna 0	Antenna 1	Antenna 2	
802.11a	Low	5180	26.05	26.77	25.41	17.23	17.55	17.23	-
	Middle	5220	26.05	26.53	25.41	17.23	17.31	17.23	-
	High	5240	26.05	26.37	25.49	17.23	17.31	17.15	-
802.11ac VHT20	Low	5180	26.45	26.69	26.77	17.39	18.35	18.35	-
	Middle	5220	26.69	27.25	26.77	18.43	18.43	18.27	-
	High	5240	26.69	26.53	26.53	18.43	18.35	18.43	-
802.11ac VHT40	Low	5190	51.70	51.58	50.02	37.15	37.03	36.55	-
	High	5230	51.70	52.06	50.38	37.03	37.27	36.55	-
802.11ac VHT80	Low	5210	100.36	100.36	102.28	75.92	75.92	76.16	-
802.11n HT20	Low	5180	26.69	26.69	26.05	18.35	18.35	18.27	-
	Middle	5220	26.69	26.77	26.05	18.27	18.35	18.35	-
	High	5240	26.69	27.25	26.05	18.35	18.43	18.27	-
802.11n HT40	Low	5190	52.30	51.58	50.38	37.27	37.15	36.79	-
	High	5230	52.06	51.58	50.02	37.03	37.15	37.03	-

5725-5850 MHz:

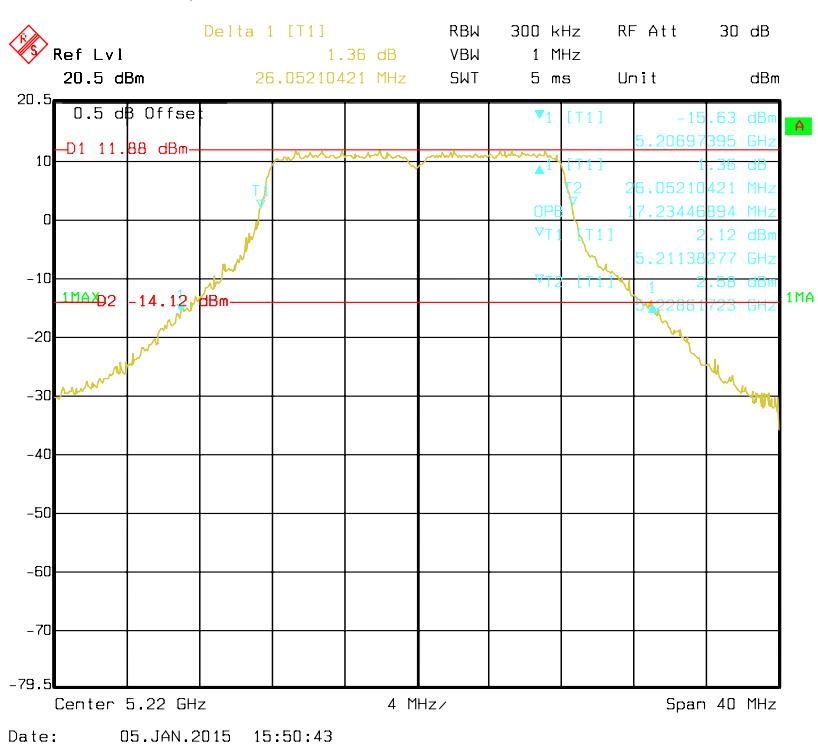
Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)			OBW (MHz)			Limit (kHz)
			Antenna 0	Antenna 1	Antenna 2	Antenna 0	Antenna 1	Antenna 2	
802.11a	Low	5745	16.59	16.67	16.59	17.63	17.55	17.63	>500
	Middle	5785	16.59	16.67	16.59	17.71	17.79	17.55	>500
	High	5825	16.59	16.67	16.59	17.63	17.79	17.55	>500
802.11ac VHT20	Low	5745	17.79	17.79	17.79	18.67	18.67	18.59	>500
	Middle	5785	17.79	17.79	17.79	18.59	18.59	18.59	>500
	High	5825	17.79	17.79	17.79	18.75	18.67	18.59	>500
802.11ac VHT40	Low	5755	36.67	36.79	36.67	37.03	36.91	36.79	>500
	High	5795	36.67	36.79	36.67	36.91	37.03	36.79	>500
802.11ac VHT80	Low	5775	77.13	77.13	77.13	75.92	75.92	75.92	>500
802.11n HT20	Low	5725	17.79	17.79	17.79	18.59	18.67	18.59	>500
	Middle	5785	17.79	17.79	17.79	18.67	18.67	18.59	>500
	High	5825	17.79	17.79	17.79	18.67	18.75	18.59	>500
802.11n HT40	Low	5755	36.67	36.67	36.67	37.03	37.15	36.79	>500
	High	5795	36.67	36.79	36.67	36.91	37.03	36.79	>500

5150-5250 MHz:

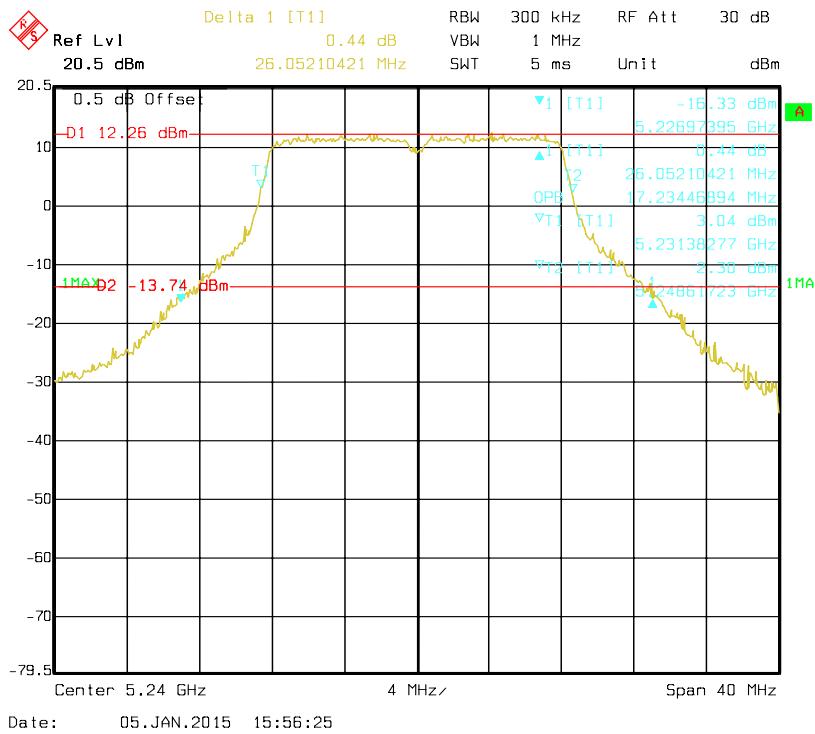
802.11a mode, Antenna 0: 26 dB + OBW Bandwidth-5180 MHz



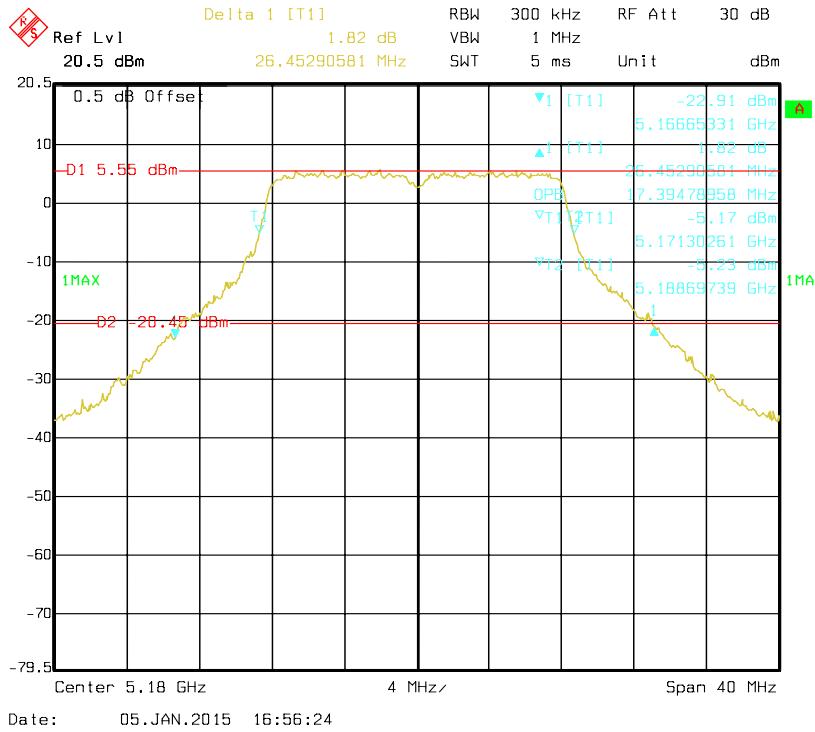
802.11a mode, Antenna 0: 26 dB + OBW Bandwidth-5220 MHz



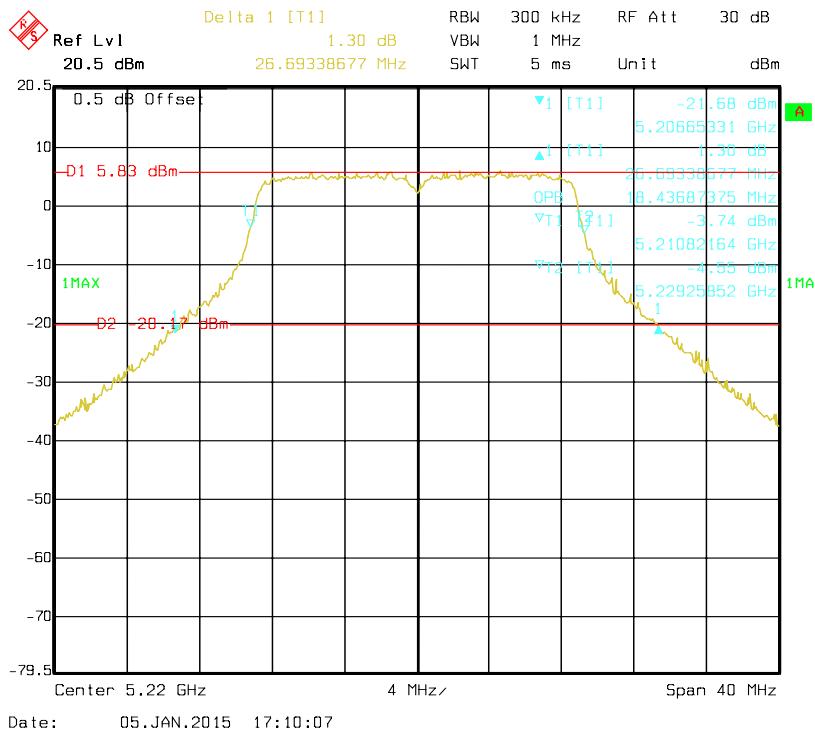
802.11a mode, Antenna 0: 26 dB + OBW Bandwidth-5240 MHz



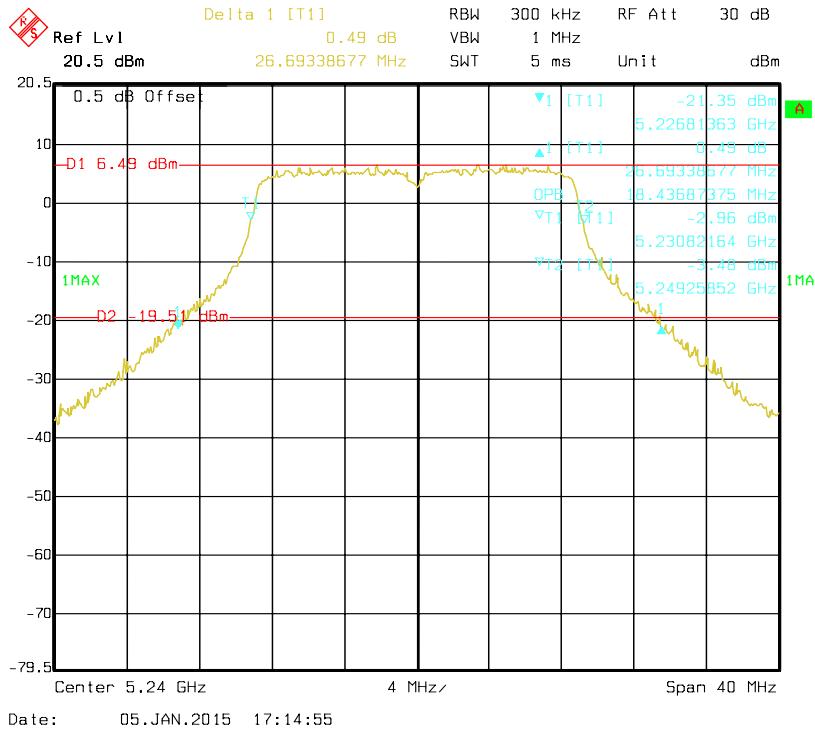
802.11ac VHT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5180 MHz



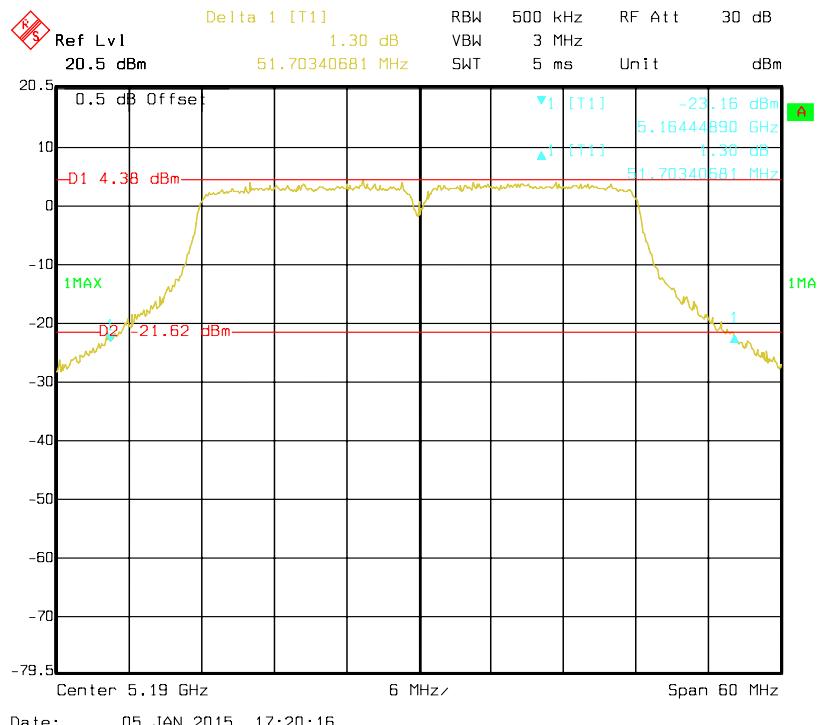
802.11ac VHT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5220 MHz



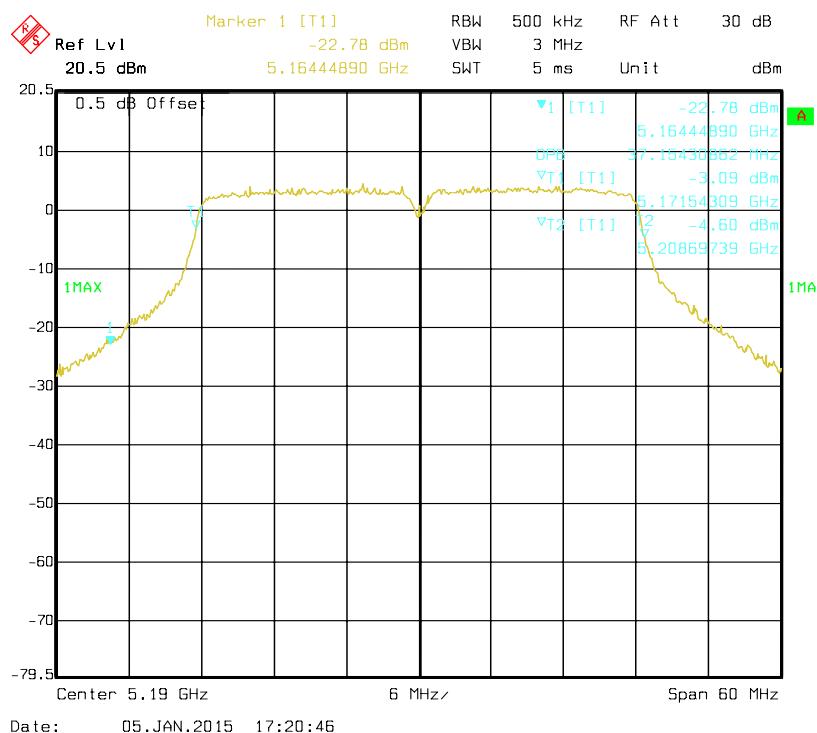
802.11ac VHT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5240 MHz



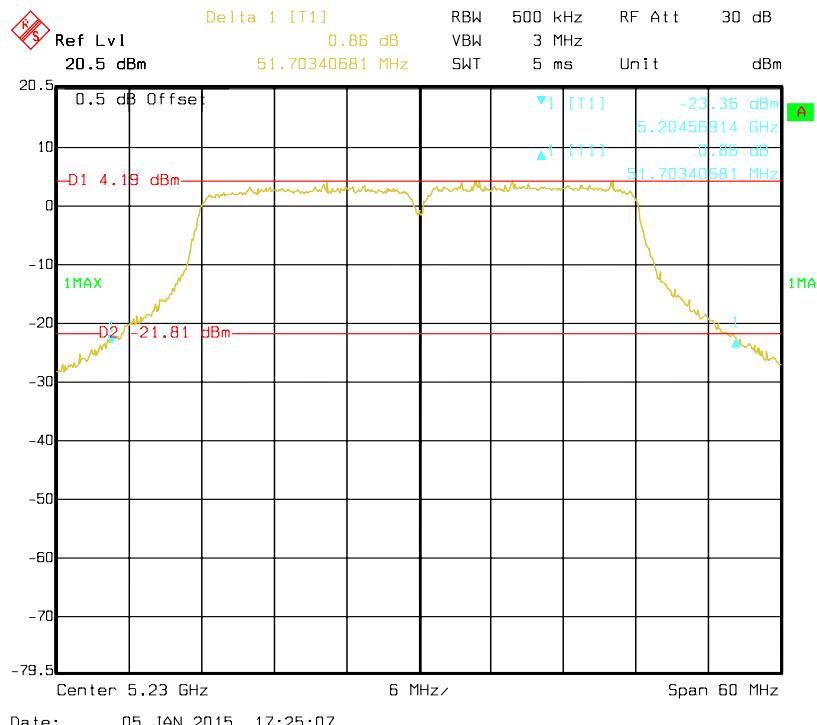
802.11ac VHT40 mode, Antenna 0: 26 dB Bandwidth-5190 MHz



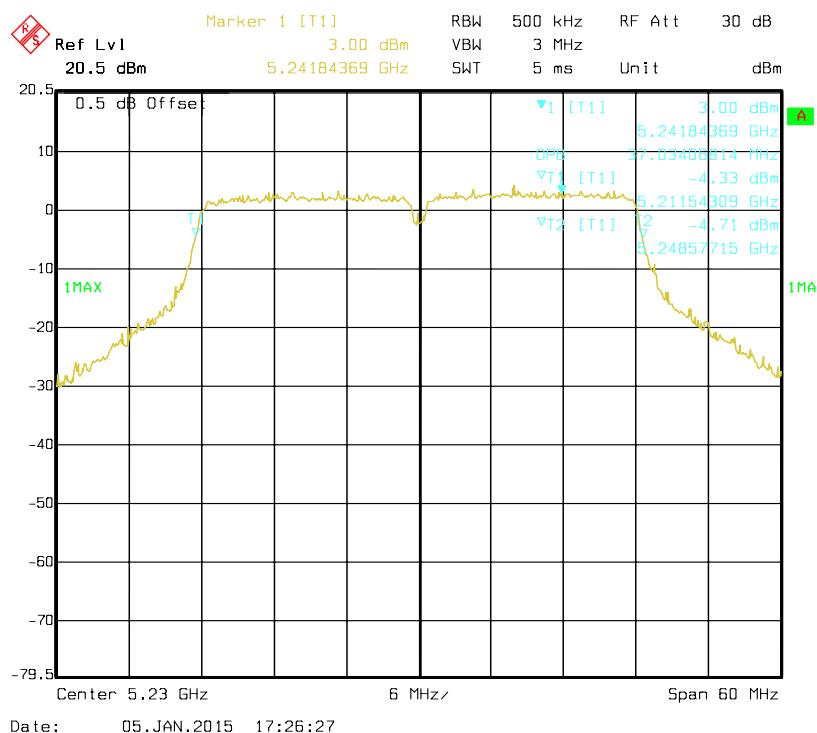
802.11ac VHT40 mode, Antenna 0: OBW Bandwidth-5190 MHz



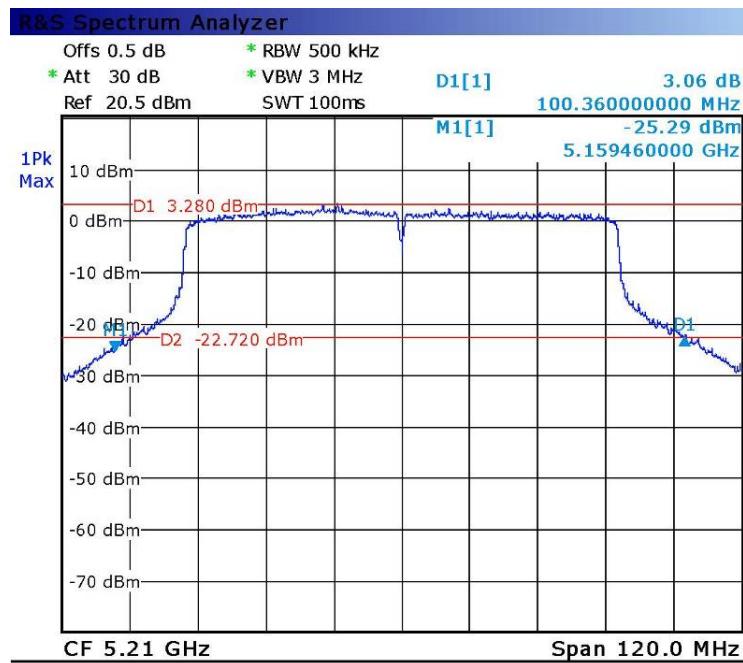
802.11ac VHT40 mode, Antenna 0: 26 dB Bandwidth-5230 MHz



802.11ac VHT40 mode, Antenna 0: OBW Bandwidth-5230 MHz

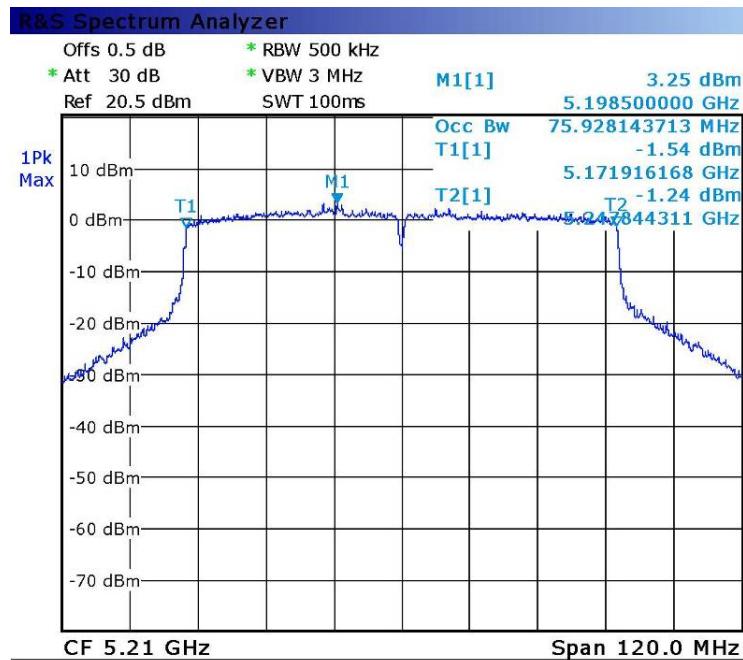


802.11ac VHT80 mode, Antenna 0: 26 dB Bandwidth-5210 MHz



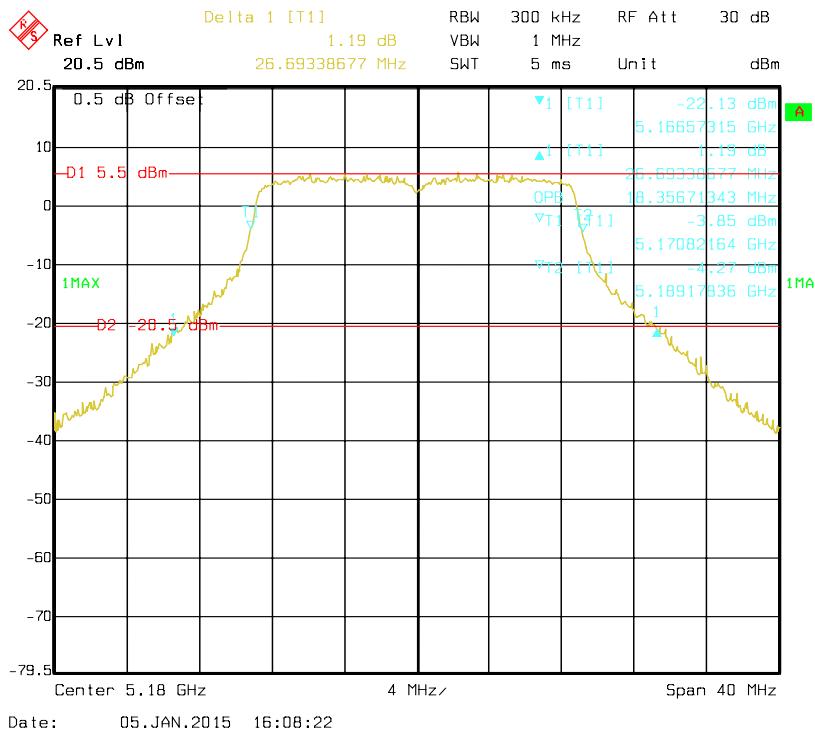
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802.11ac VHT80 mode, Antenna 0: OBW Bandwidth-5210 MHz

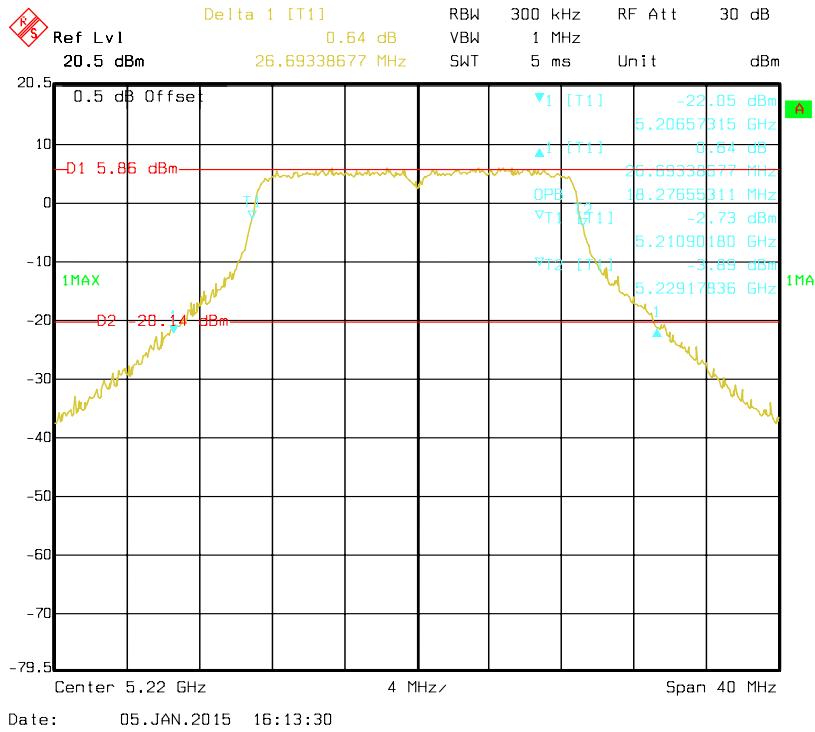


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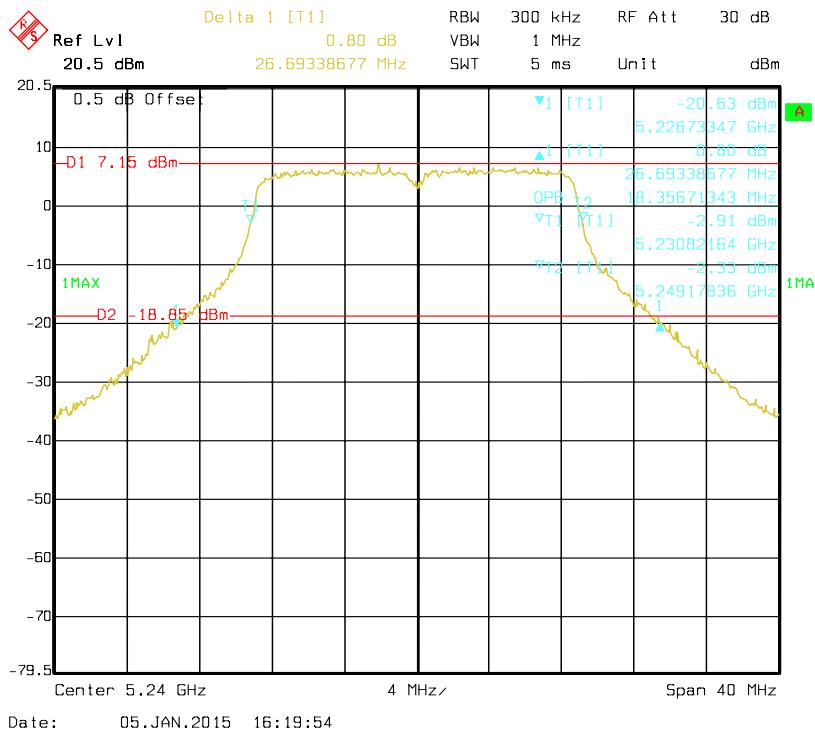
802.11n HT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5180 MHz



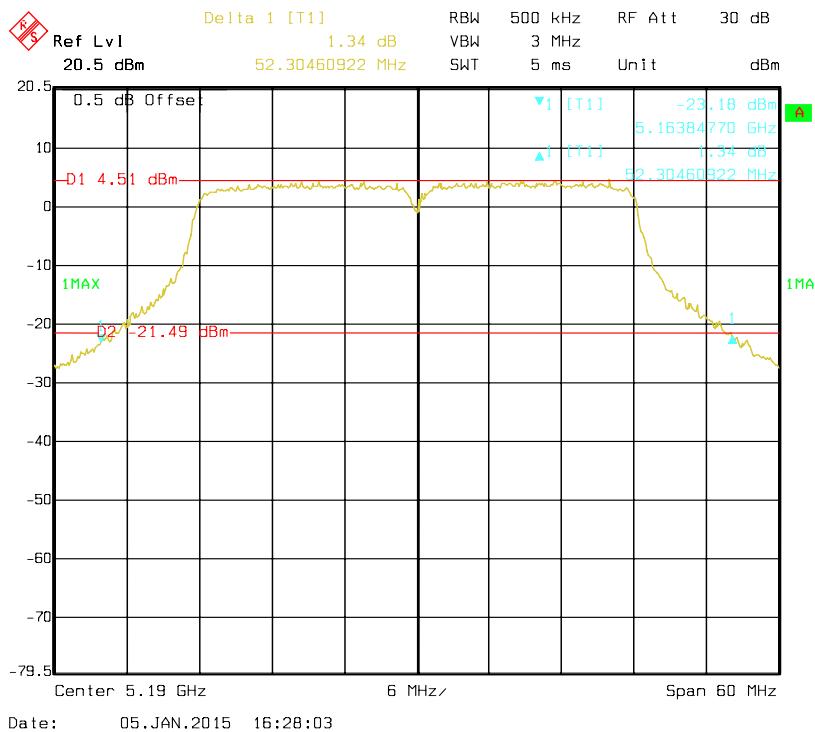
802.11n HT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5220 MHz



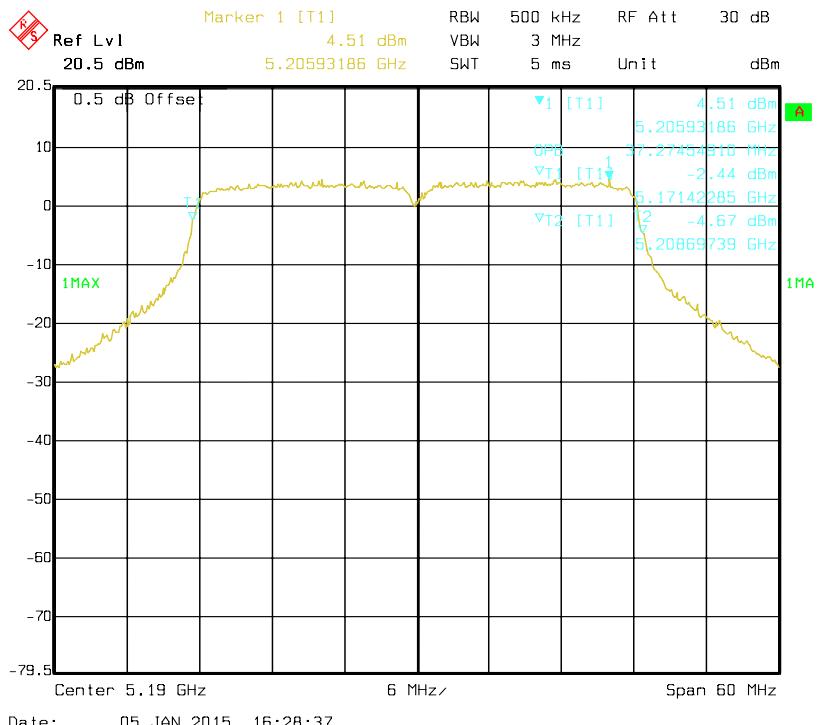
802.11n HT20 mode, Antenna 0: 26 dB + OBW Bandwidth-5240 MHz



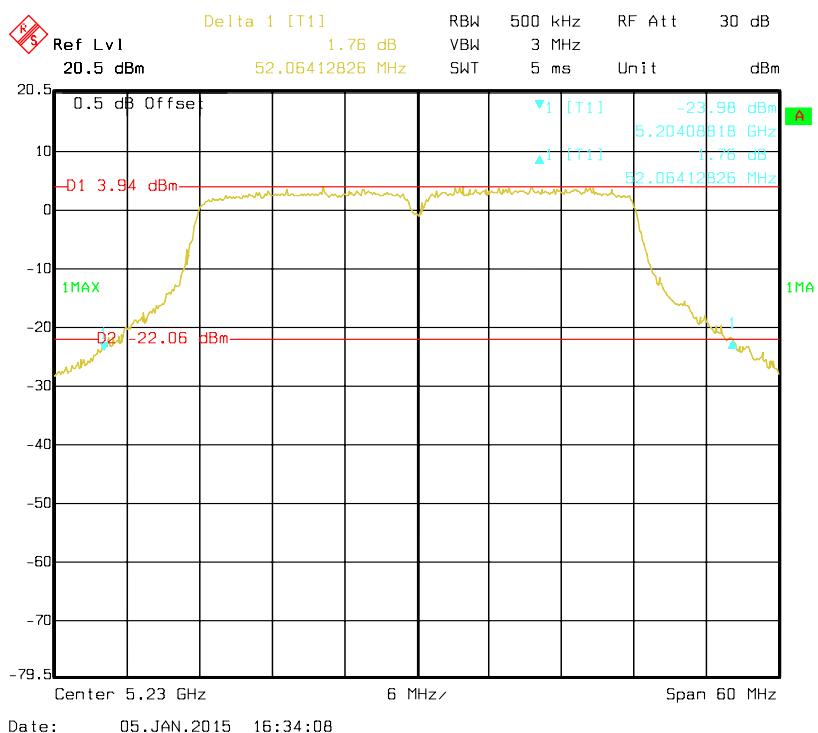
802.11n HT40 mode, Antenna 0: 26 dB Bandwidth-5190 MHz



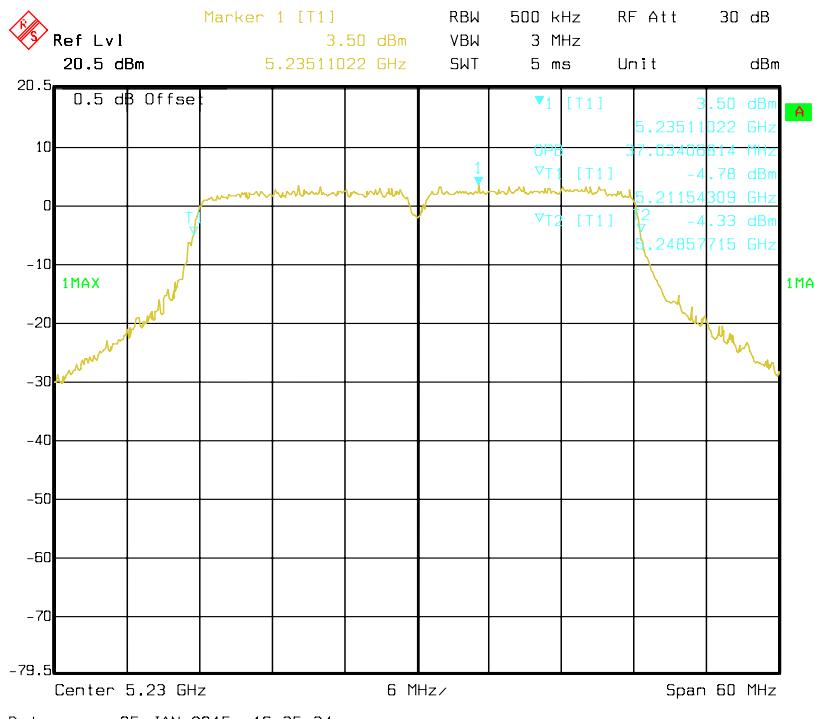
802.11n HT40 mode, Antenna 0: OBW Bandwidth-5190 MHz



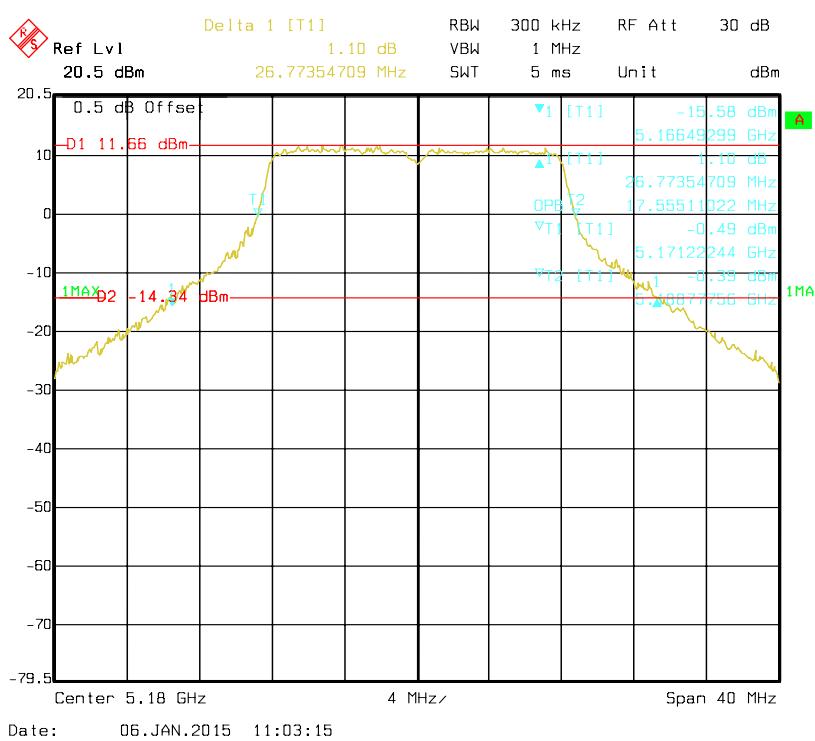
802.11n HT40 mode, Antenna 0: 26 dB Bandwidth-5230 MHz



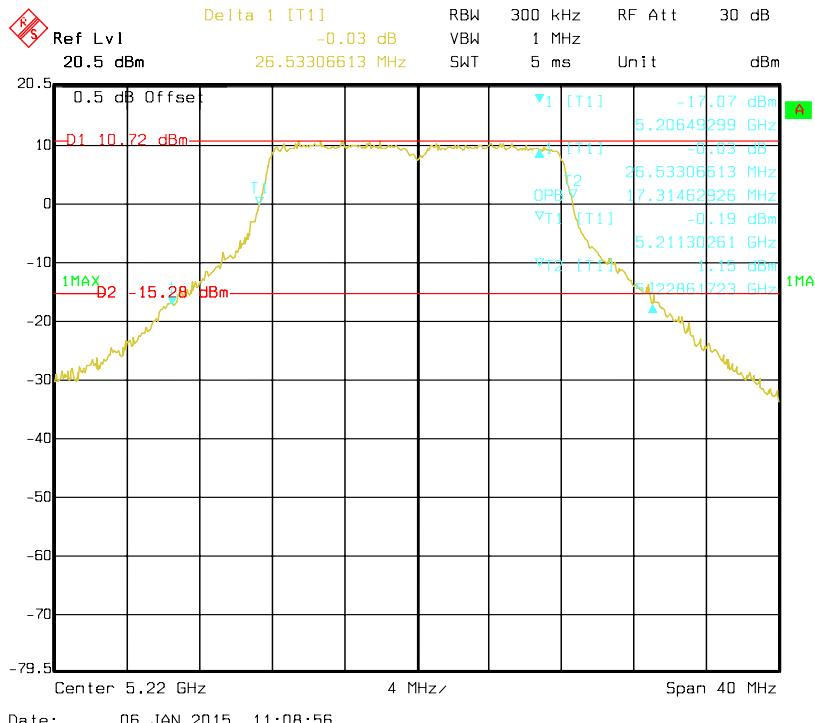
802.11n HT40 mode, Antenna 0: OBW Bandwidth-5230 MHz



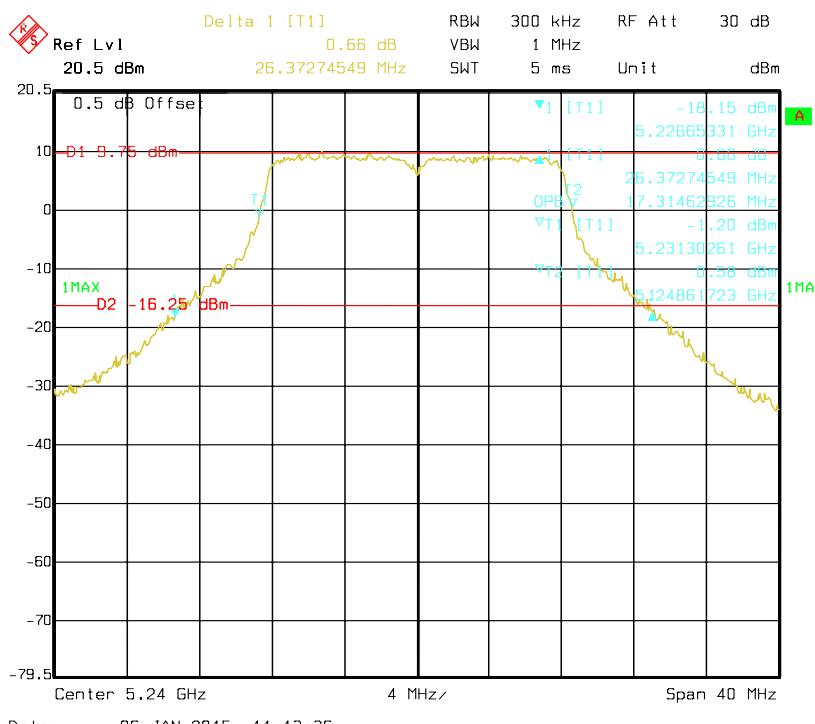
802.11a mode, Antenna 1: 26 dB + OBW Bandwidth-5180 MHz



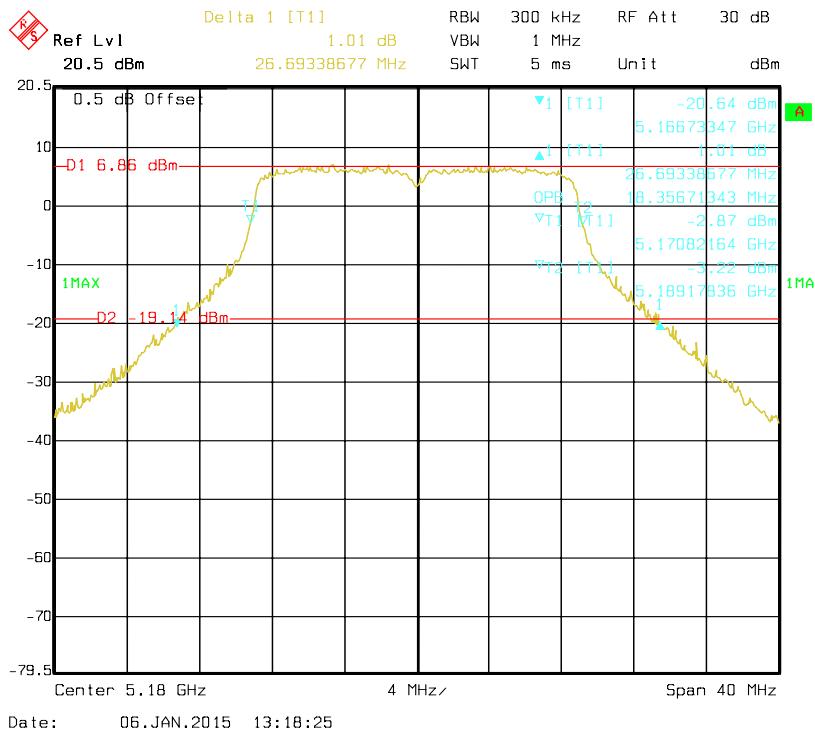
802.11a mode, Antenna 1: 26 dB + OBW Bandwidth-5220 MHz



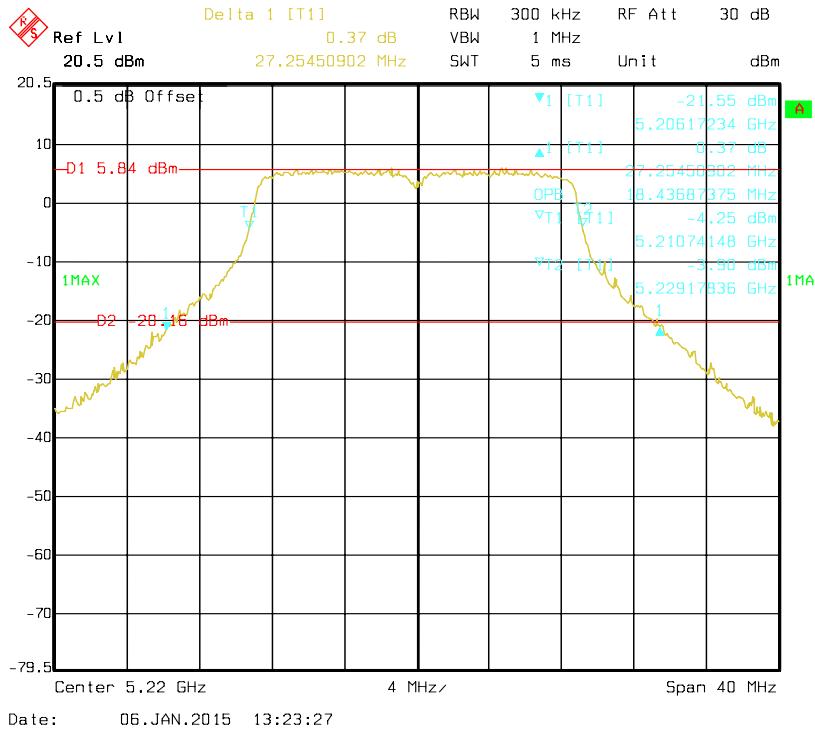
802.11a mode, Antenna 1: 26 dB + OBW Bandwidth-5240 MHz



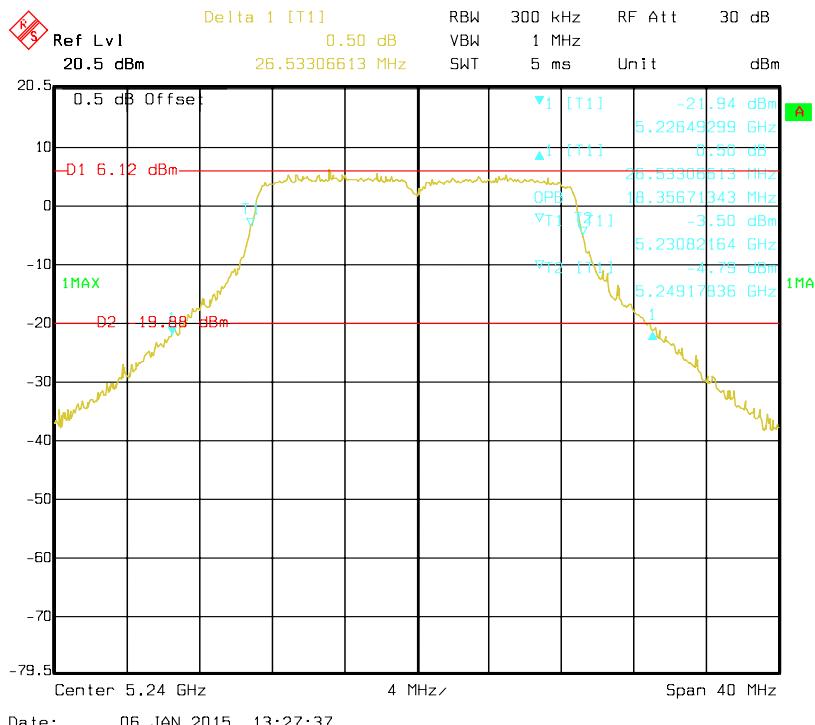
802.11ac VHT20 mode, Antenna 1: 26 dB + OBW Bandwidth-5180 MHz



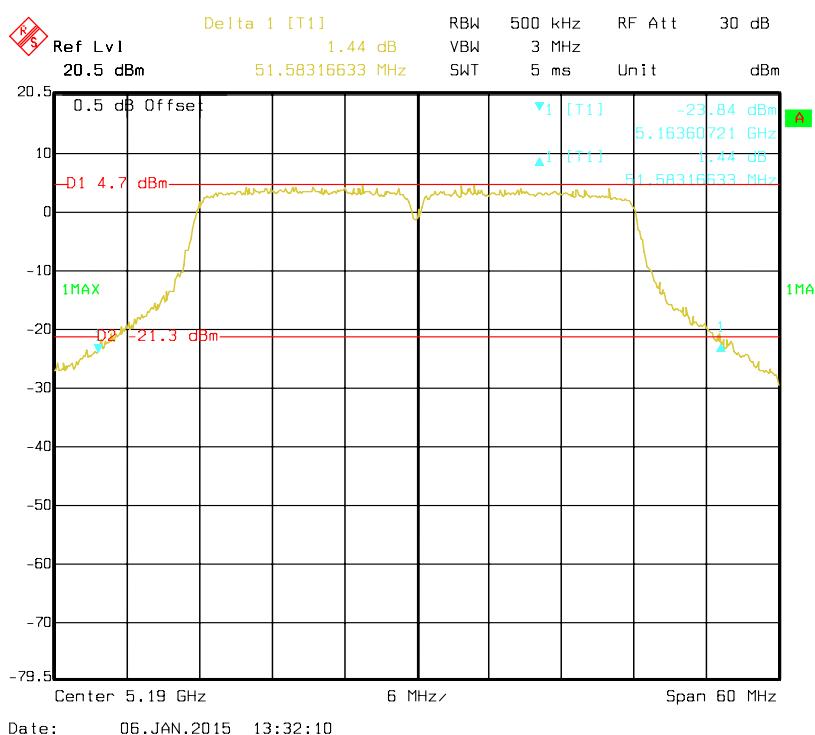
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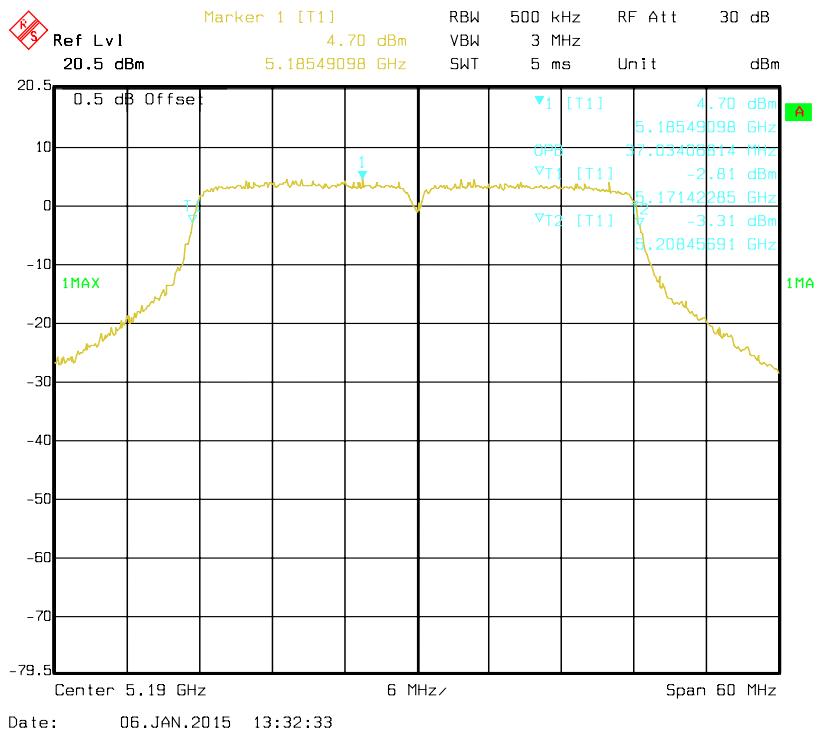
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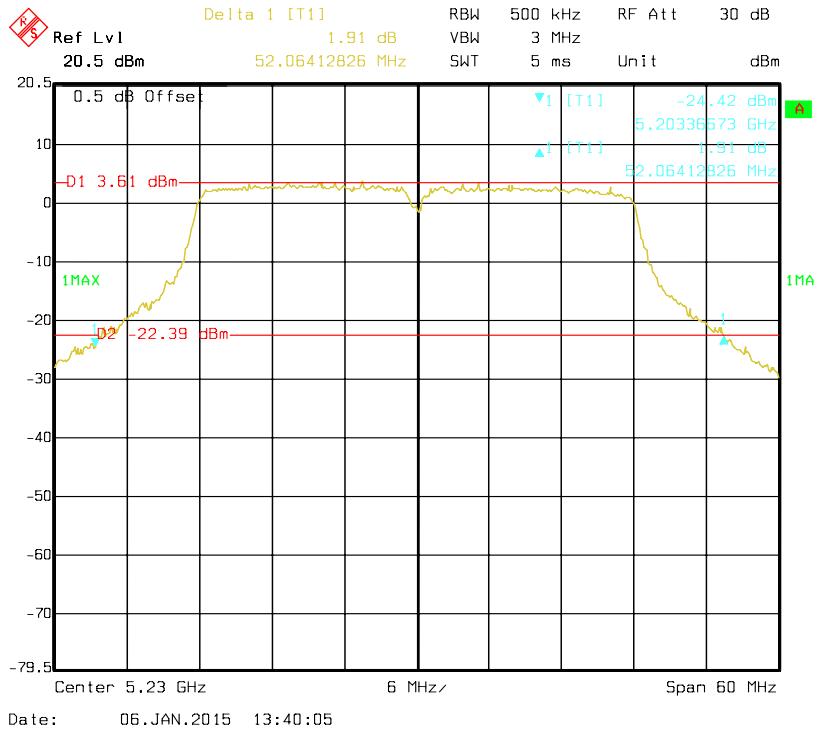
802.11ac VHT40 mode, Antenna 1: 26 dB Bandwidth-5190 MHz



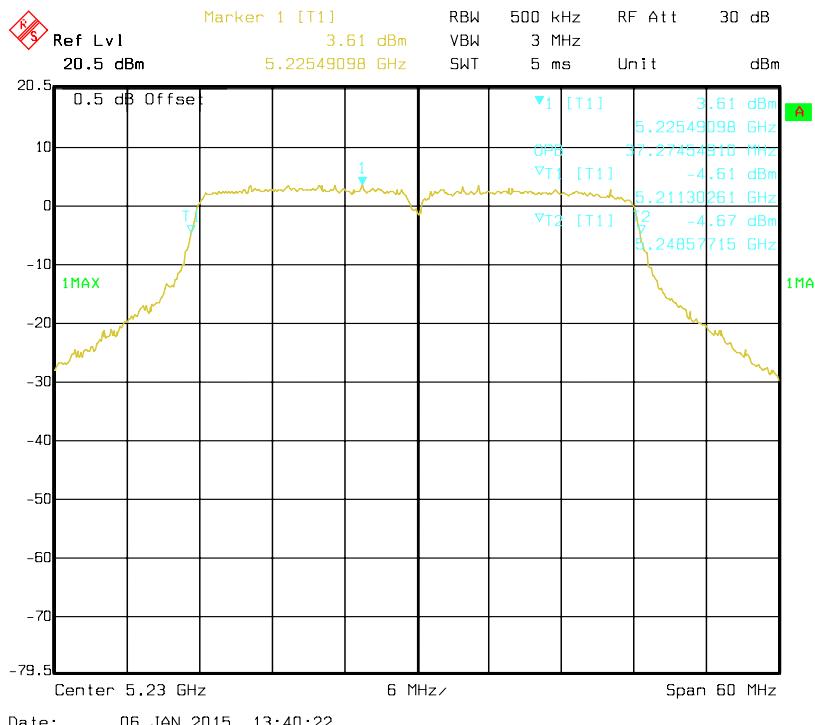
802.11ac VHT40 mode, Antenna 1: OBW Bandwidth-5190 MHz



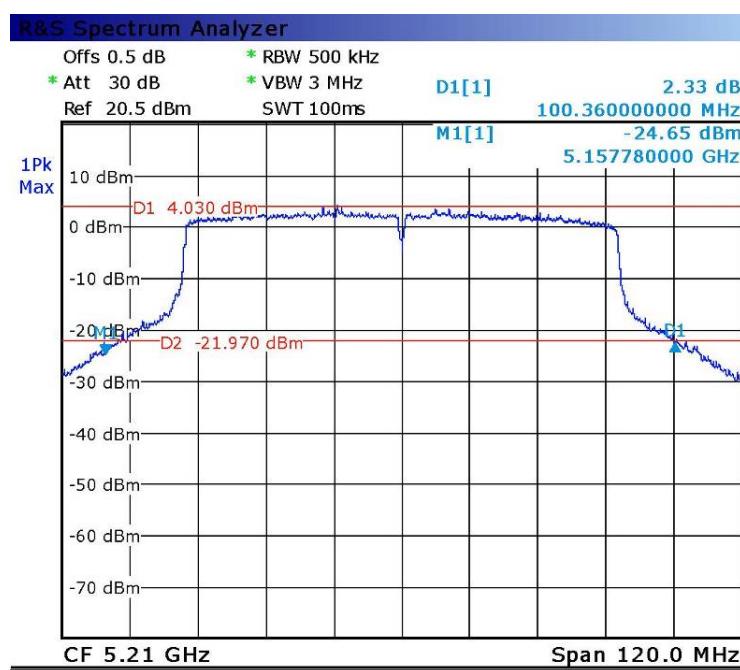
802.11ac VHT40 mode, Antenna 1: 26 dB Bandwidth-5230 MHz



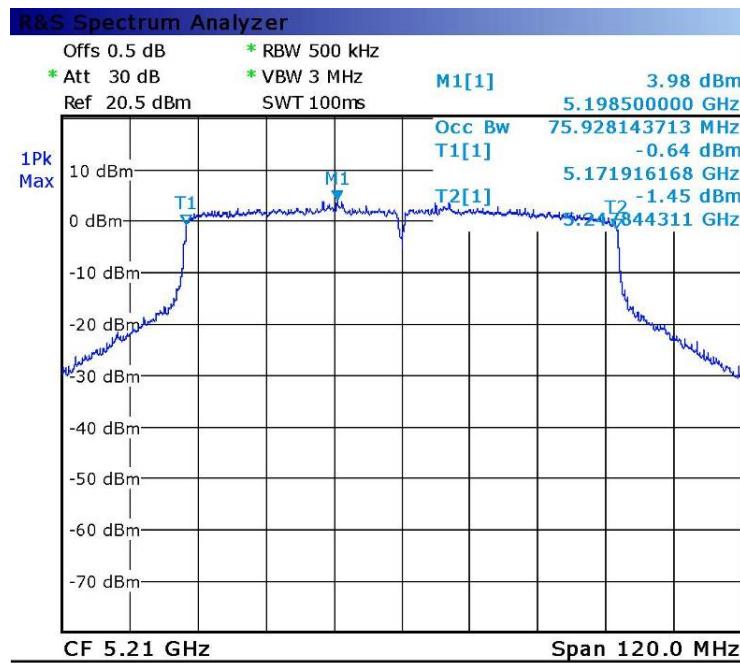
802.11ac VHT40 mode, Antenna 1: OBW Bandwidth-5230 MHz



802.11ac VHT80 mode, Antenna 1: 26 dB Bandwidth-5210 MHz

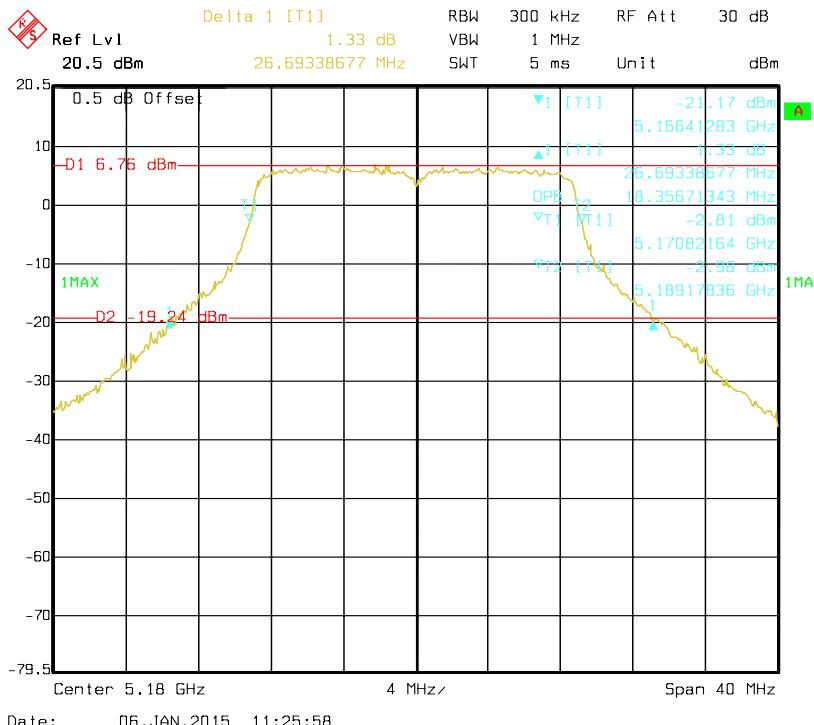


802.11ac VHT80 mode, Antenna 1: OBW Bandwidth-5210 MHz



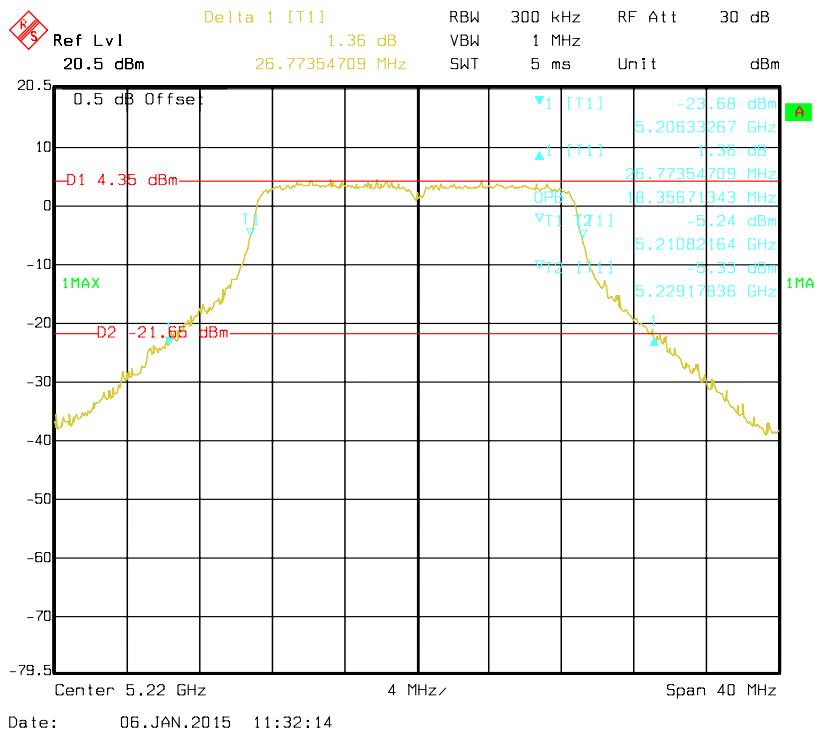
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802.11n HT20 mode, Antenna 1: 26 dB + OBW Bandwidth-5180 MHz

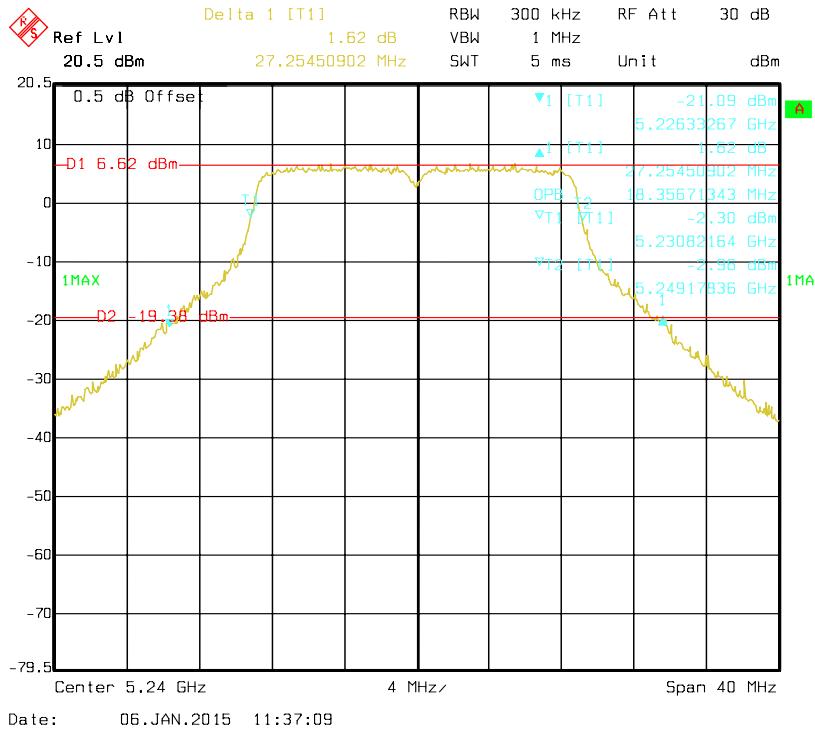


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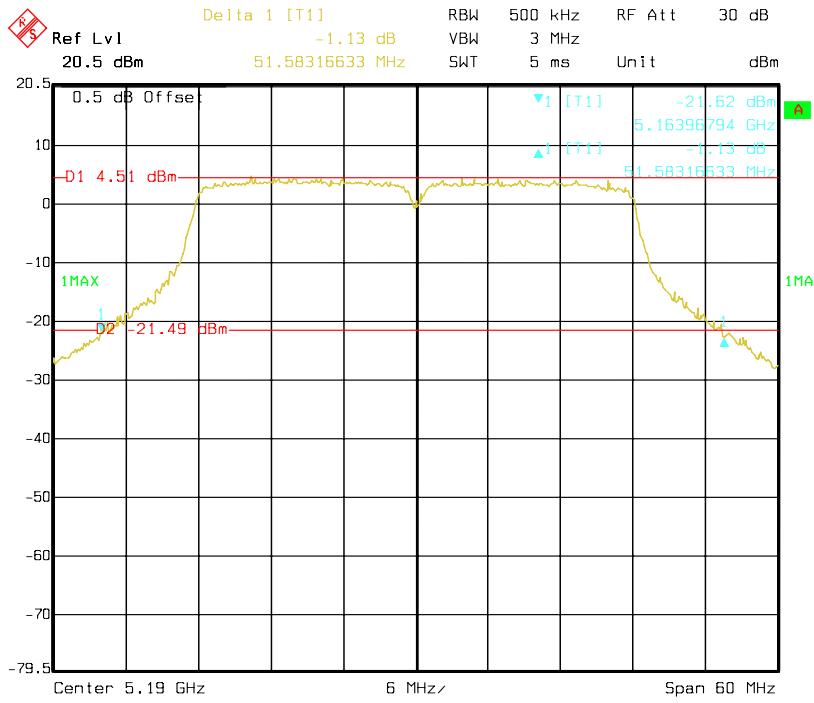
802.11n HT20 mode, Antenna 1: 26 dB + OBW Bandwidth-5220 MHz



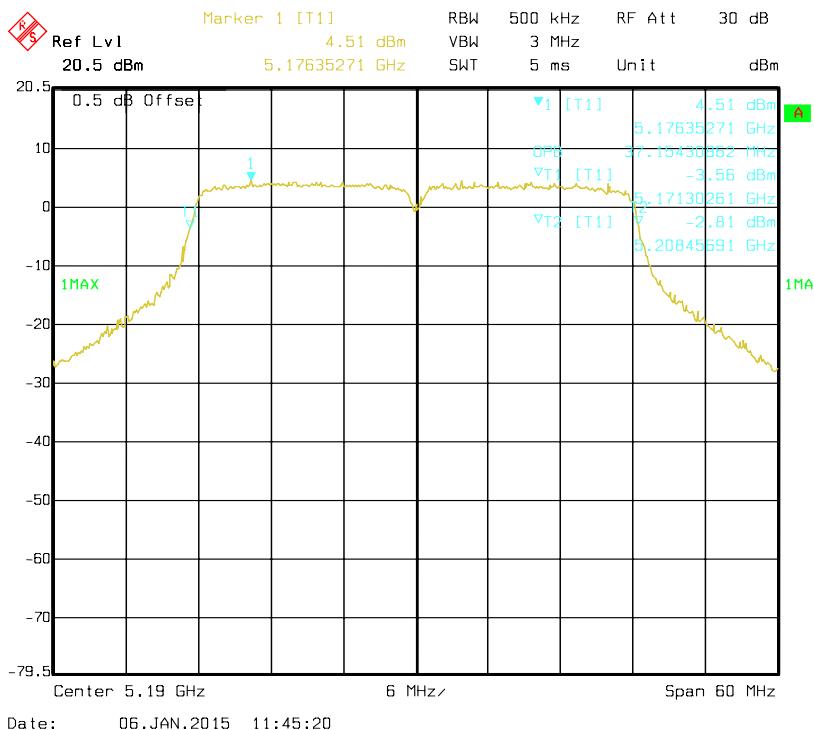
802.11n HT20 mode, Antenna 1: 26 dB + OBW Bandwidth-5240 MHz



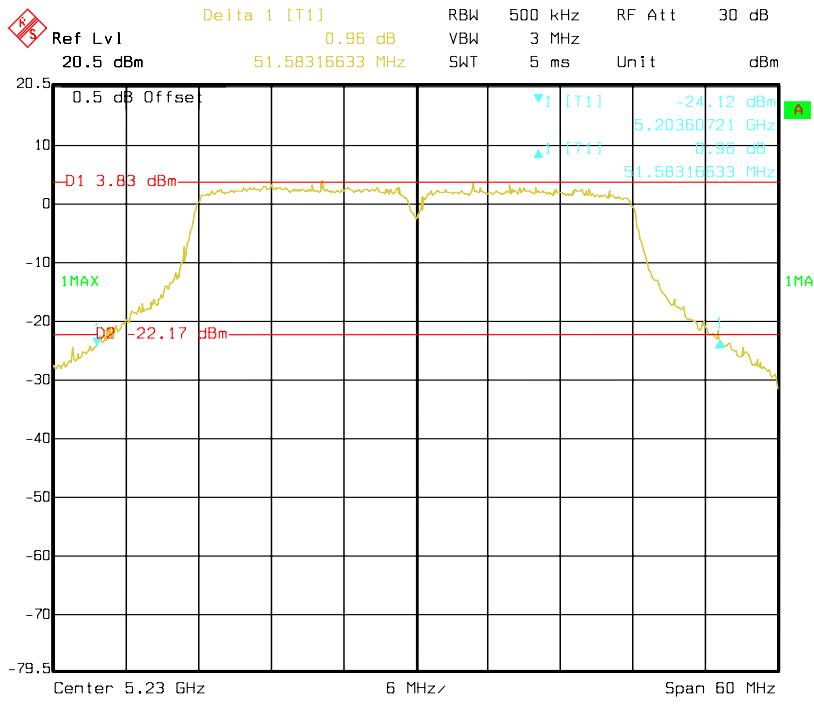
802.11n HT40 mode, Antenna 1: 26 dB Bandwidth-5190 MHz



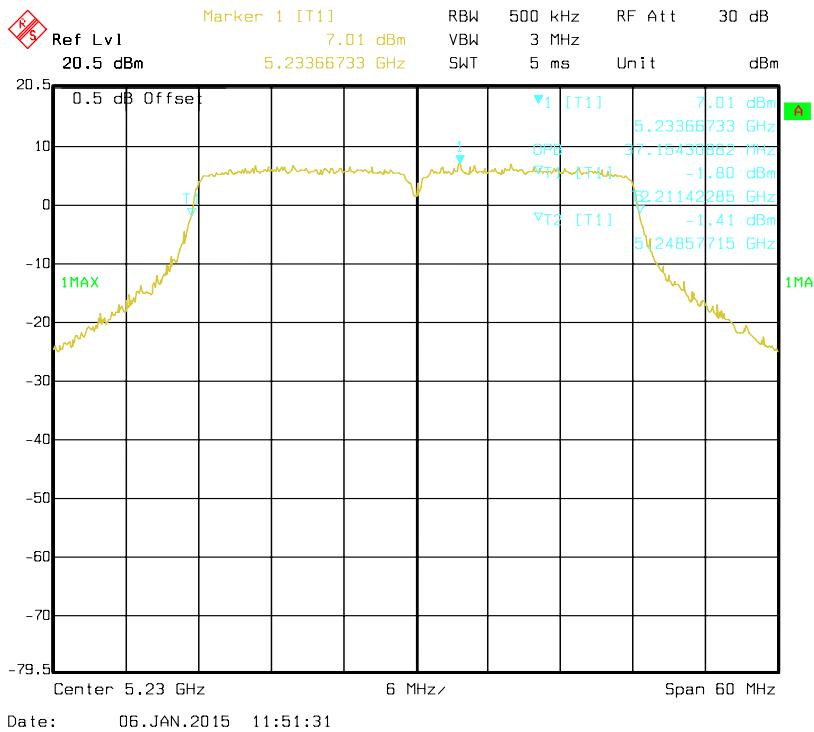
802.11n HT40 mode, Antenna 1: OBW Bandwidth-5190 MHz



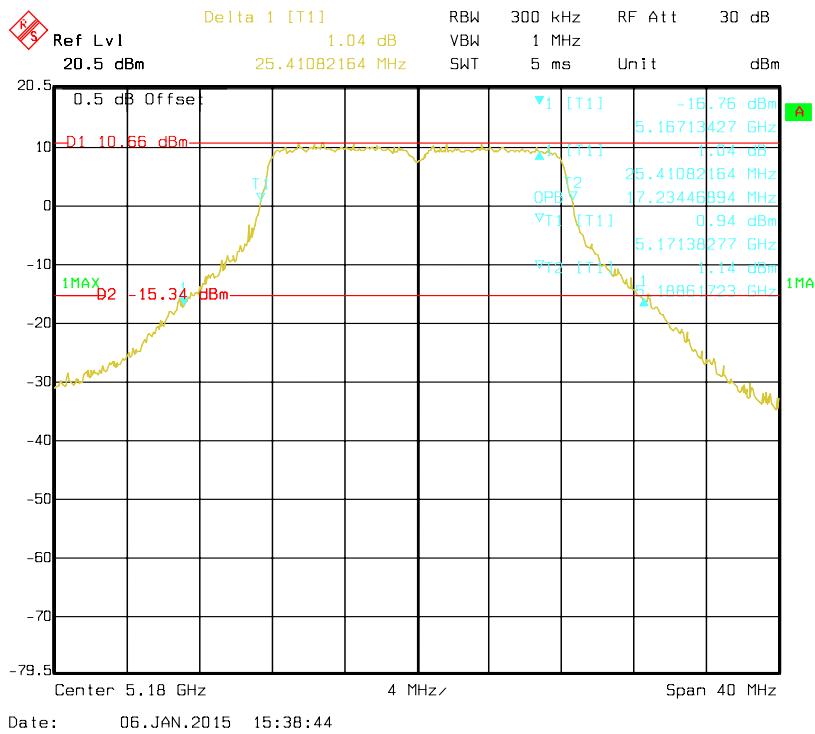
802.11n HT40 mode, Antenna 1: 26 dB Bandwidth-5230 MHz



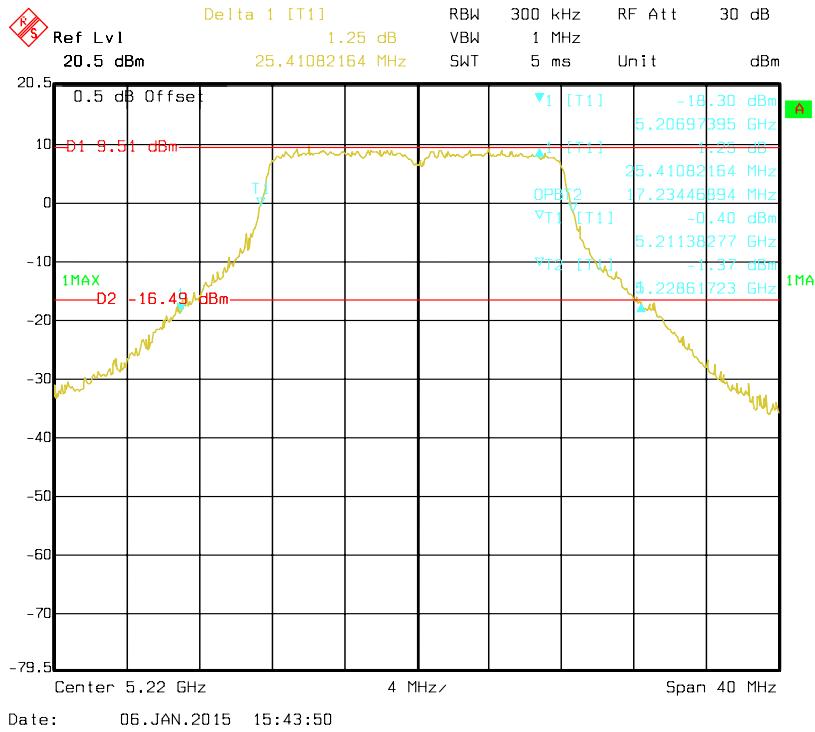
802.11n HT40 mode, Antenna 1: OBW Bandwidth-5230 MHz



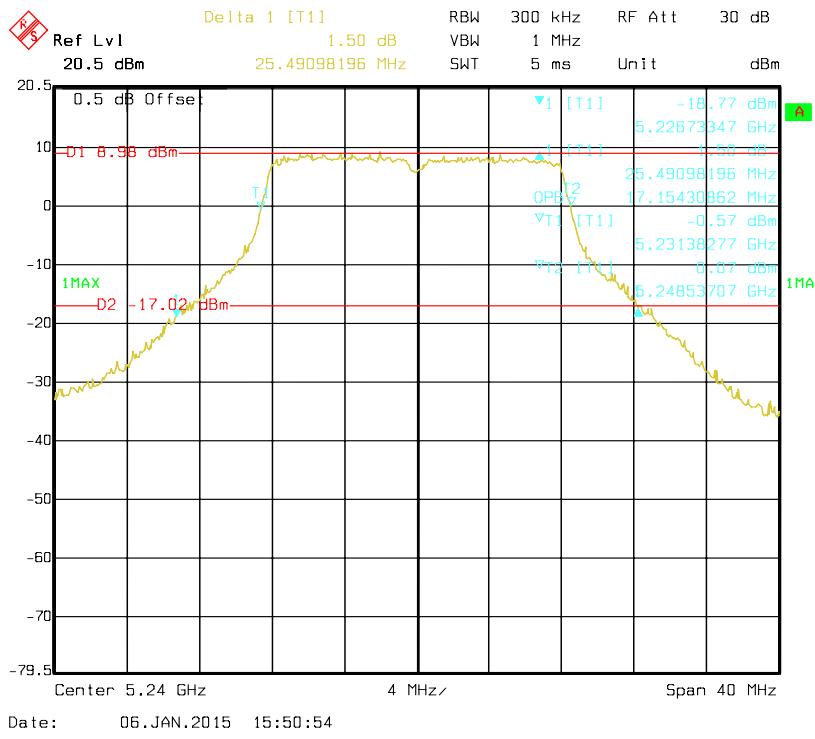
802.11a mode, Antenna 2: 26 dB + OBW Bandwidth-5180 MHz



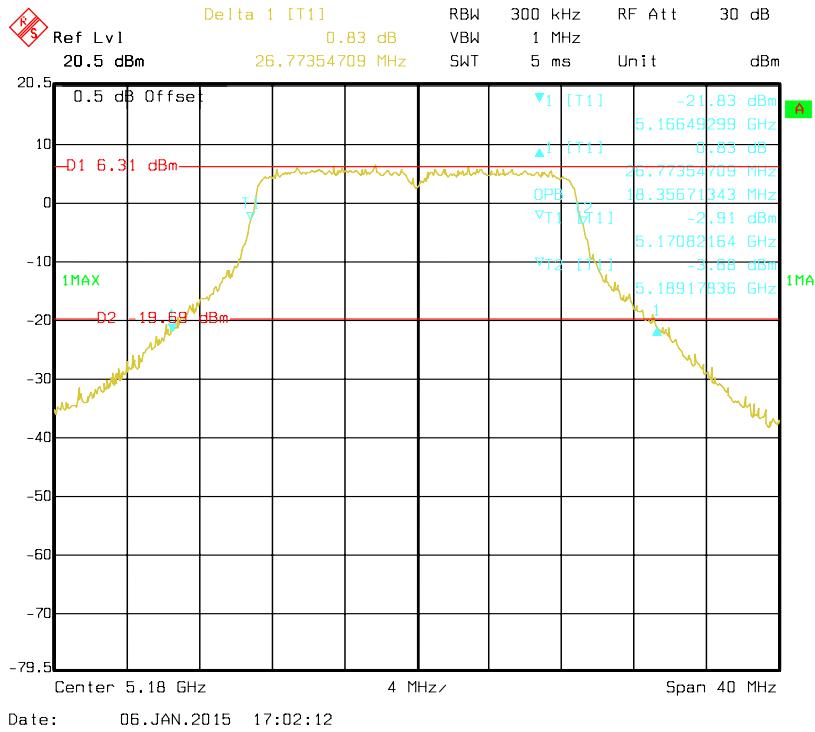
802.11a mode, Antenna 2: 26 dB + OBW Bandwidth-5220 MHz



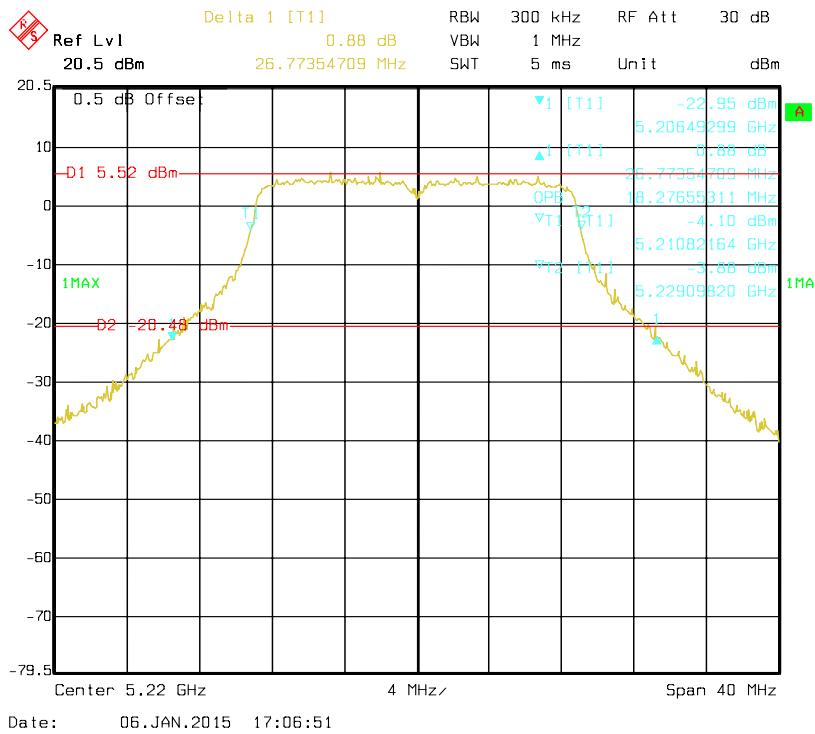
802.11a mode, Antenna 2: 26 dB + OBW Bandwidth-5240 MHz



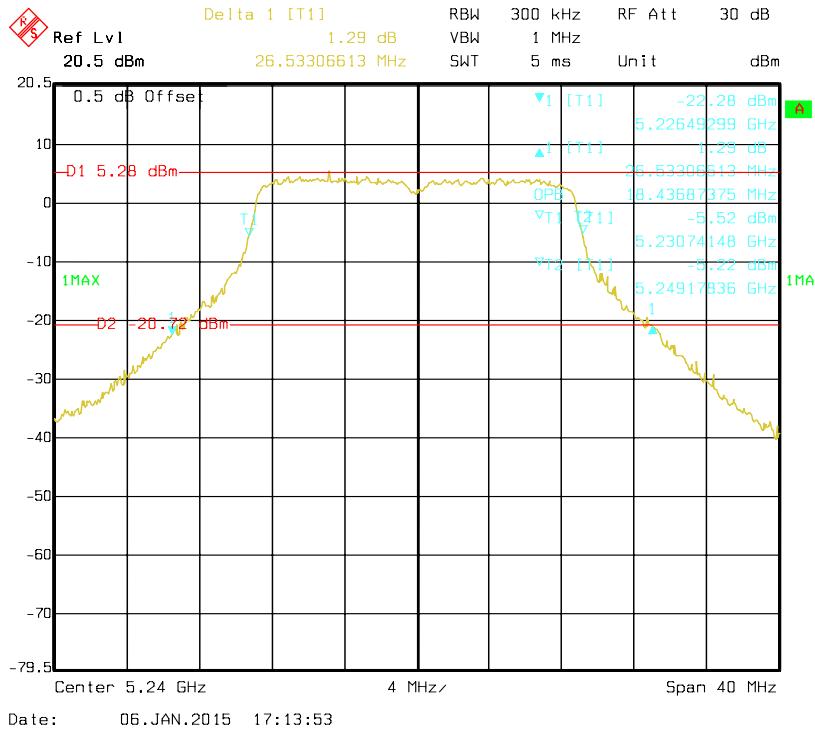
802.11ac VHT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5180 MHz



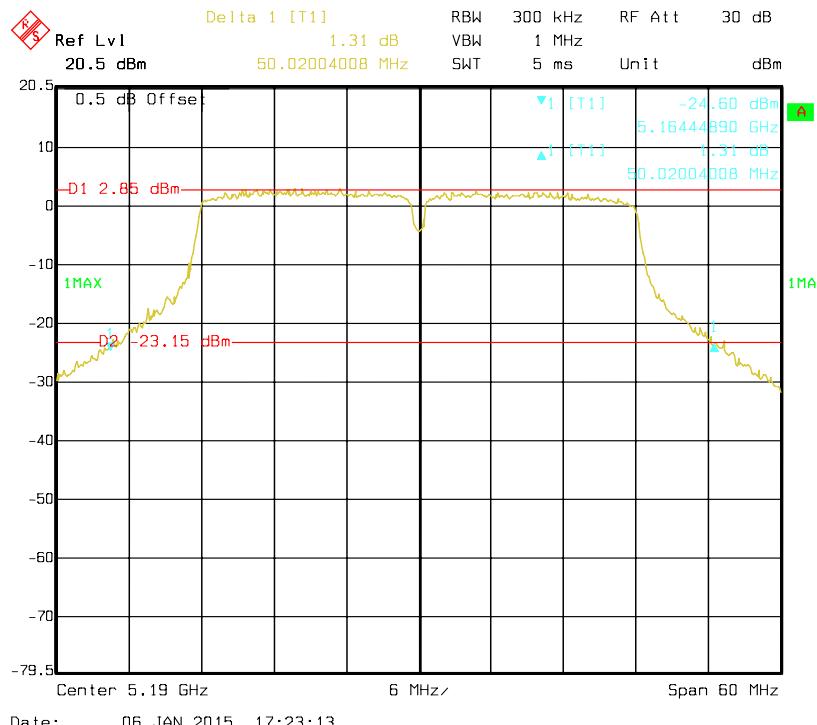
802.11ac VHT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5220 MHz



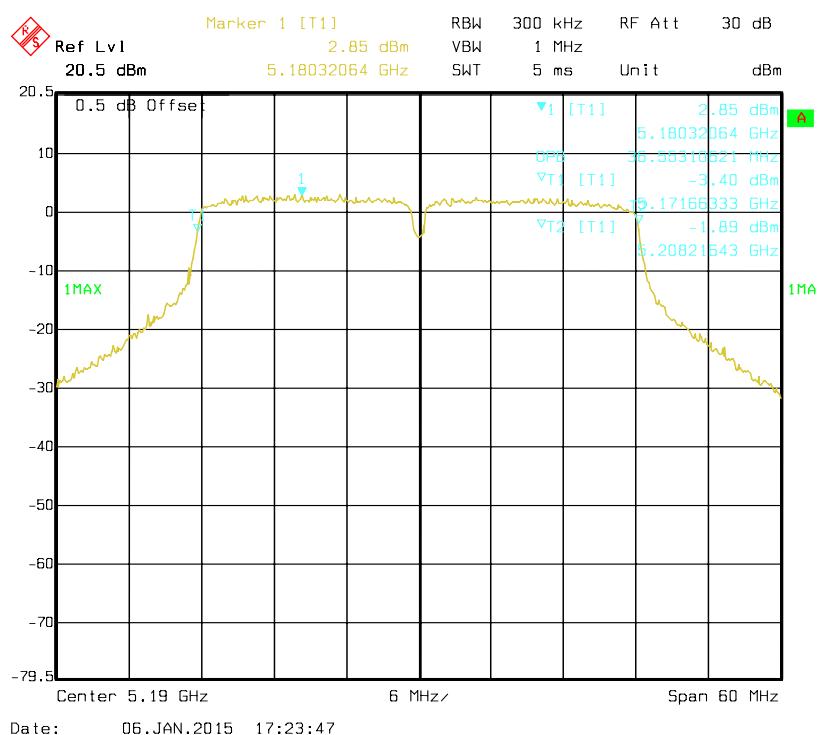
802.11ac VHT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5240 MHz



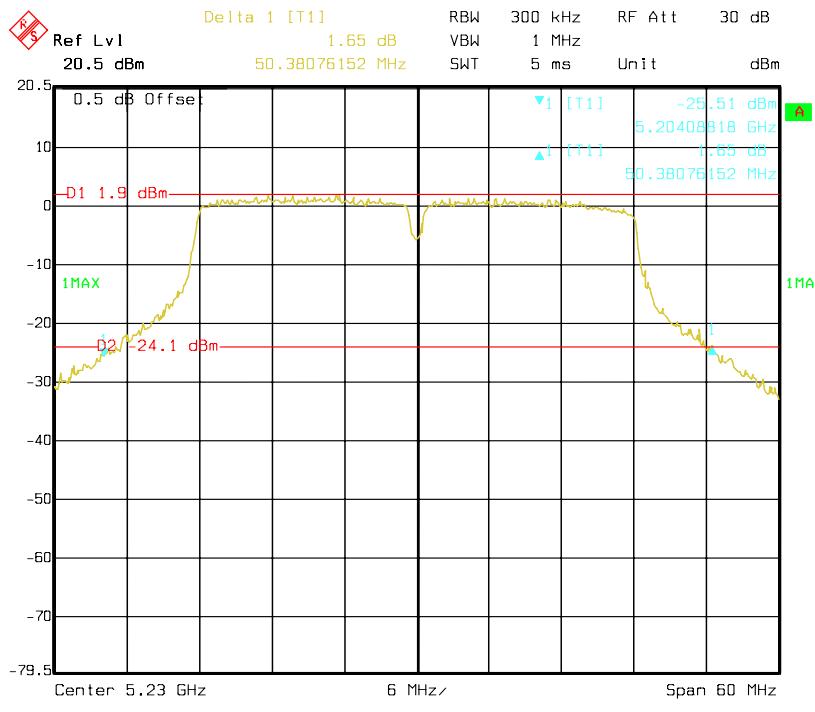
802.11ac VHT40 mode, Antenna 2: 26 dB Bandwidth-5190 MHz



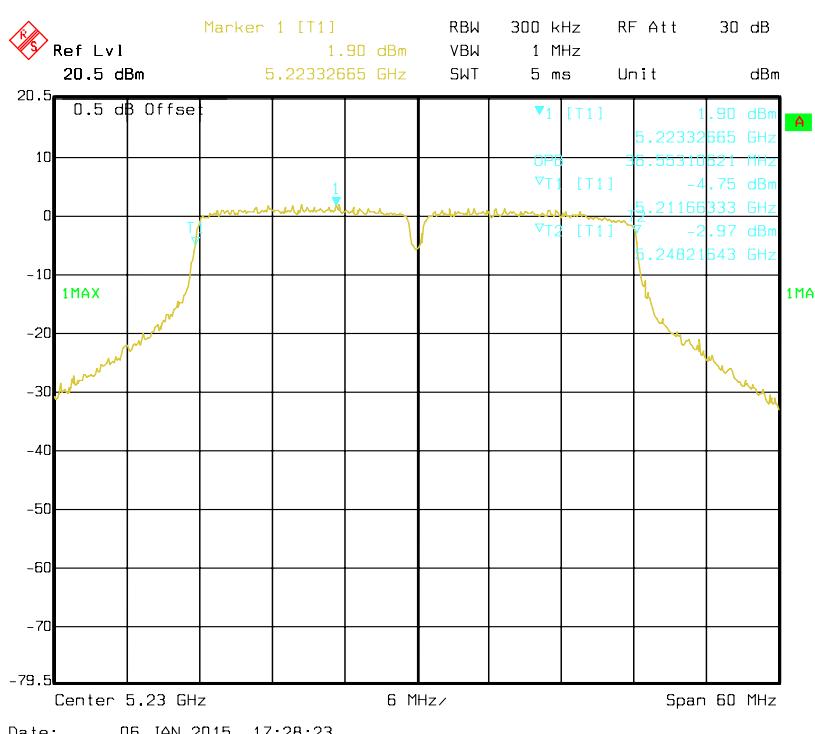
802.11ac VHT40 mode, Antenna 2: OBW Bandwidth-5190 MHz



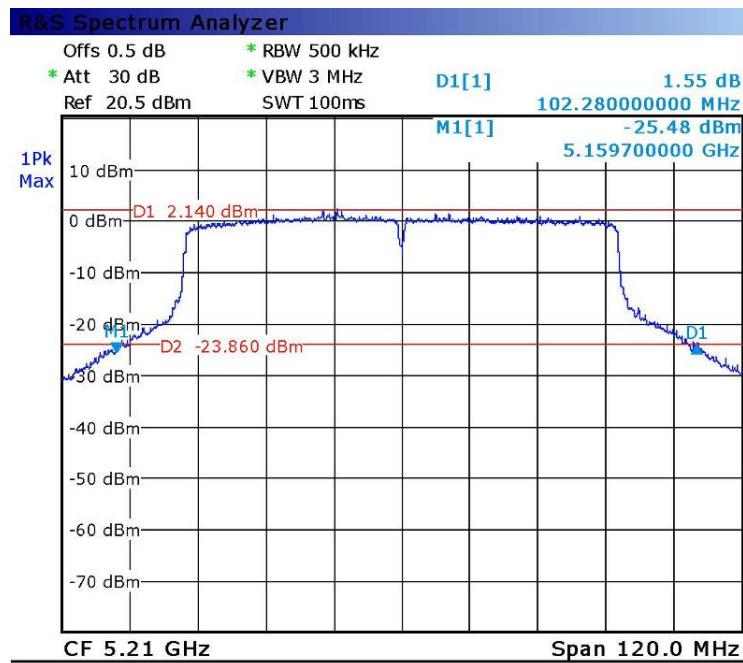
802.11ac VHT40 mode, Antenna 2: 26 dB Bandwidth-5230 MHz



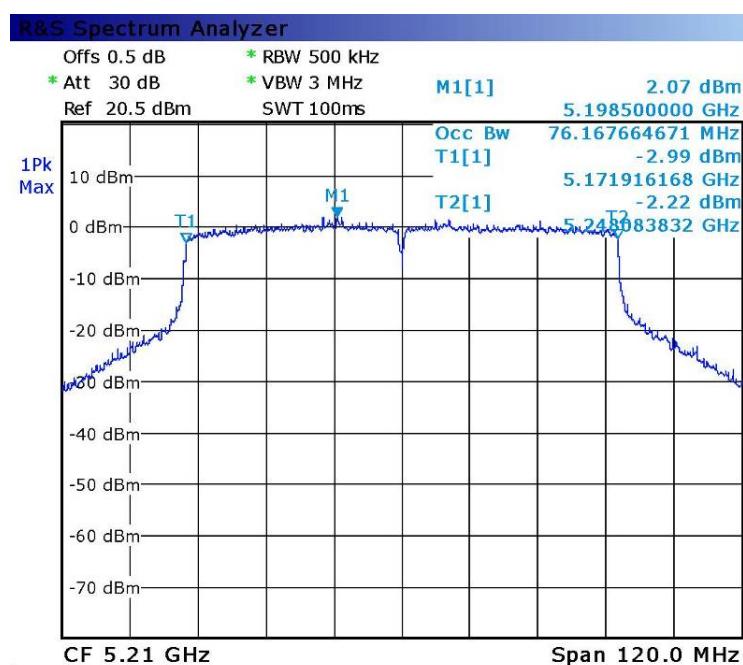
802.11ac VHT40 mode, Antenna 2: OBW Bandwidth-5230 MHz



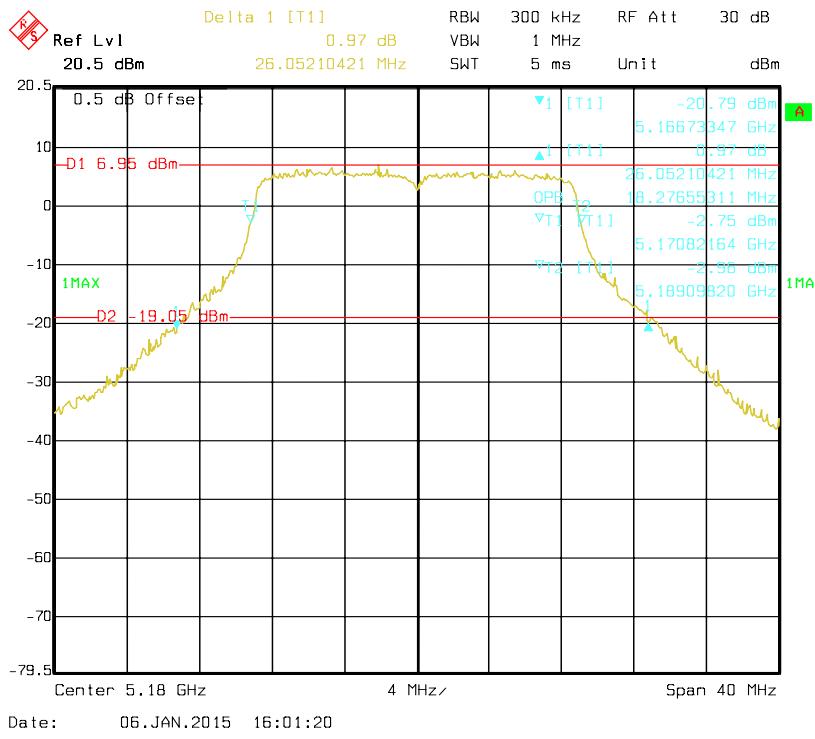
802.11ac VHT80 mode, Antenna 2: 26 dB Bandwidth-5210 MHz



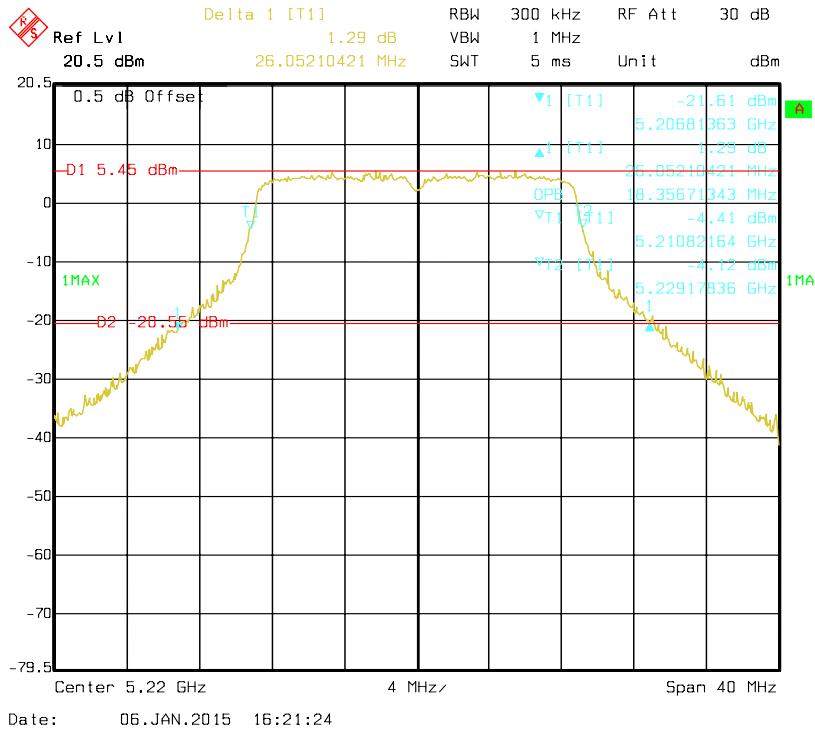
802.11ac VHT80 mode, Antenna 2: OBW Bandwidth-5210 MHz



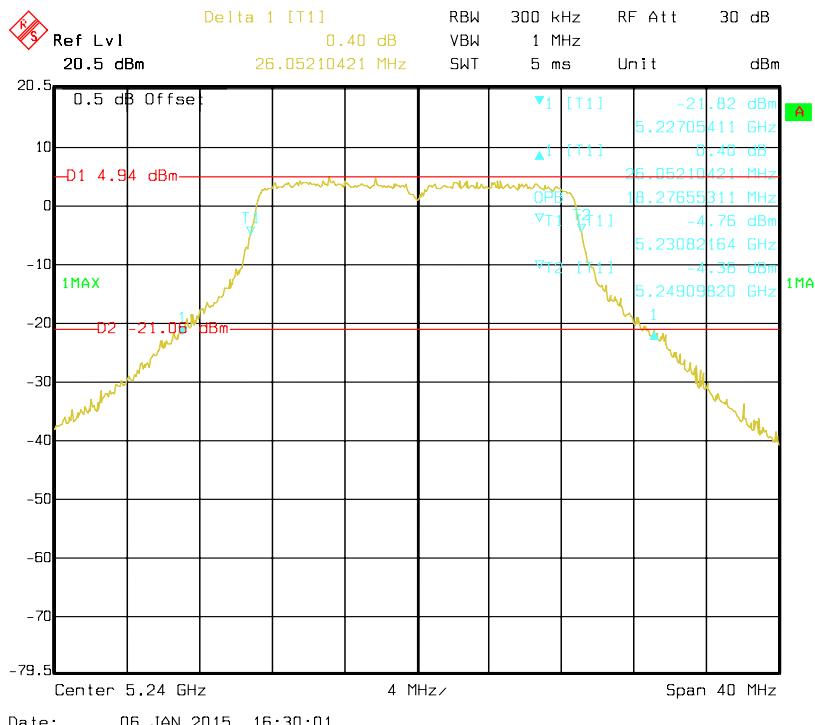
802.11n HT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5180 MHz



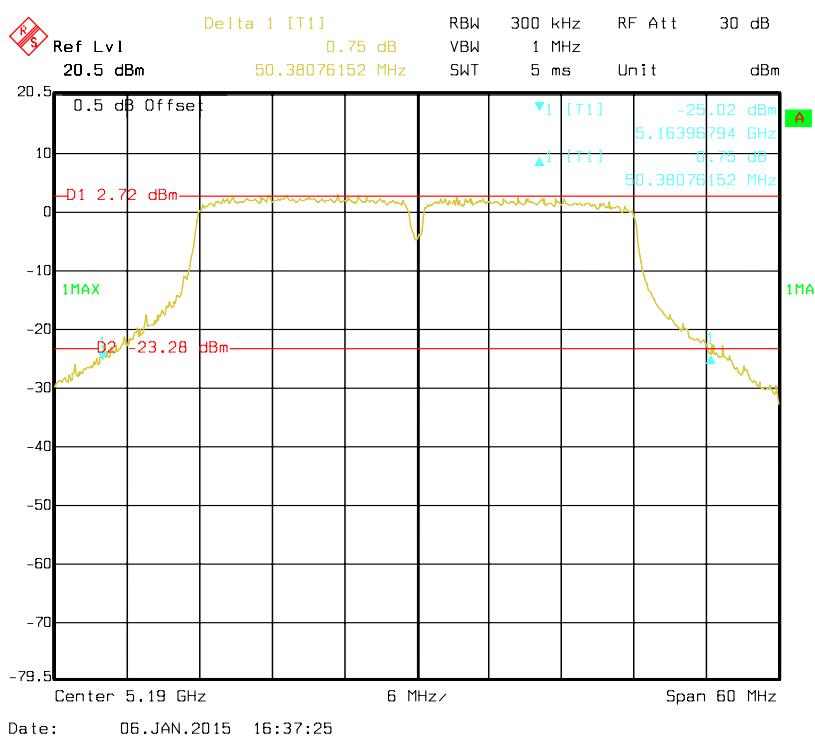
802.11n HT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5220 MHz



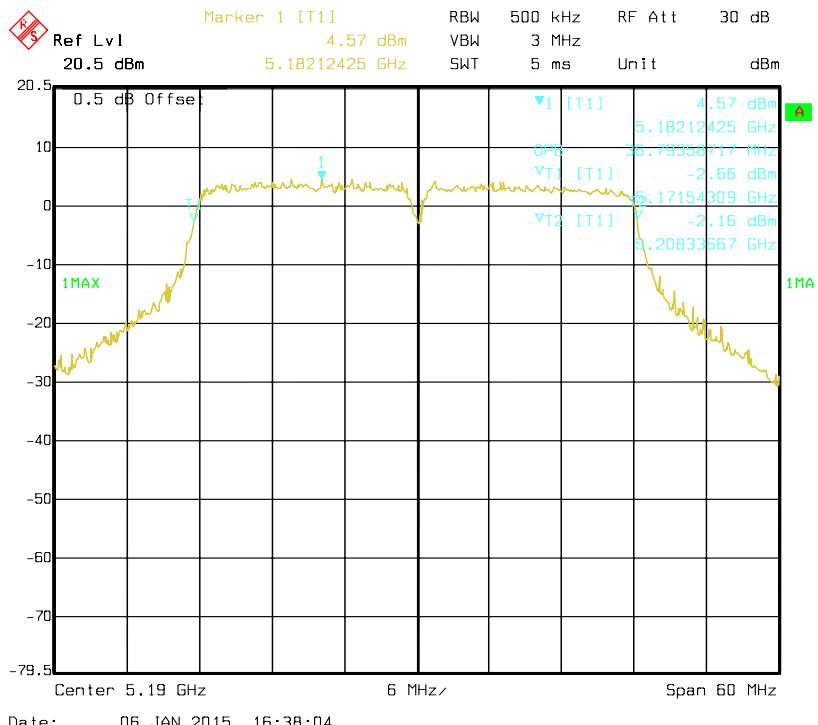
802.11n HT20 mode, Antenna 2: 26 dB + OBW Bandwidth-5240 MHz



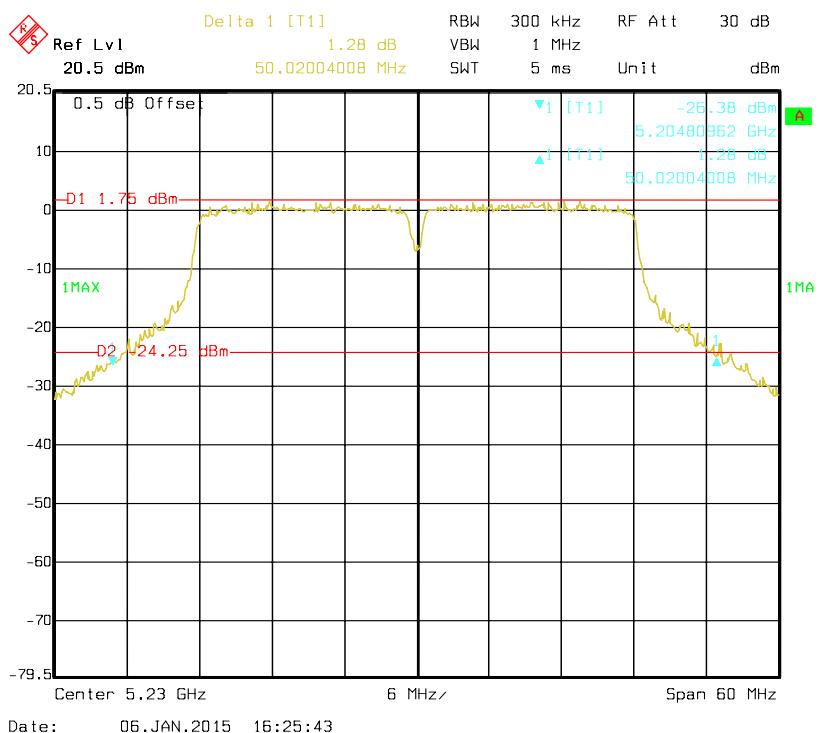
802.11n HT40 mode, Antenna 2: 26 dB Bandwidth-5190 MHz



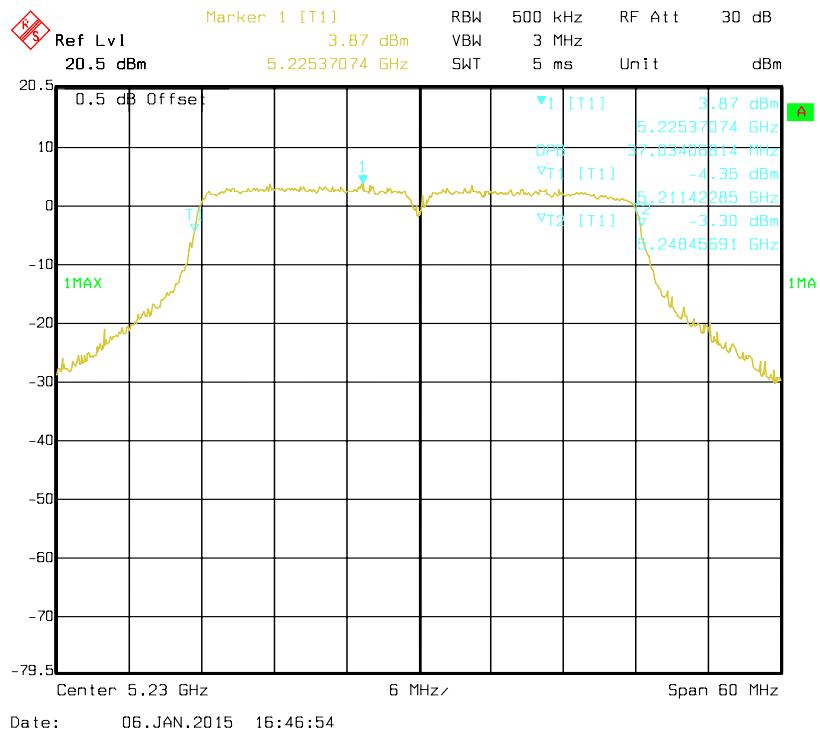
802.11n HT40 mode, Antenna 2: OBW Bandwidth-5190 MHz



802.11n HT40 mode, Antenna 2: 26 dB Bandwidth-5230 MHz

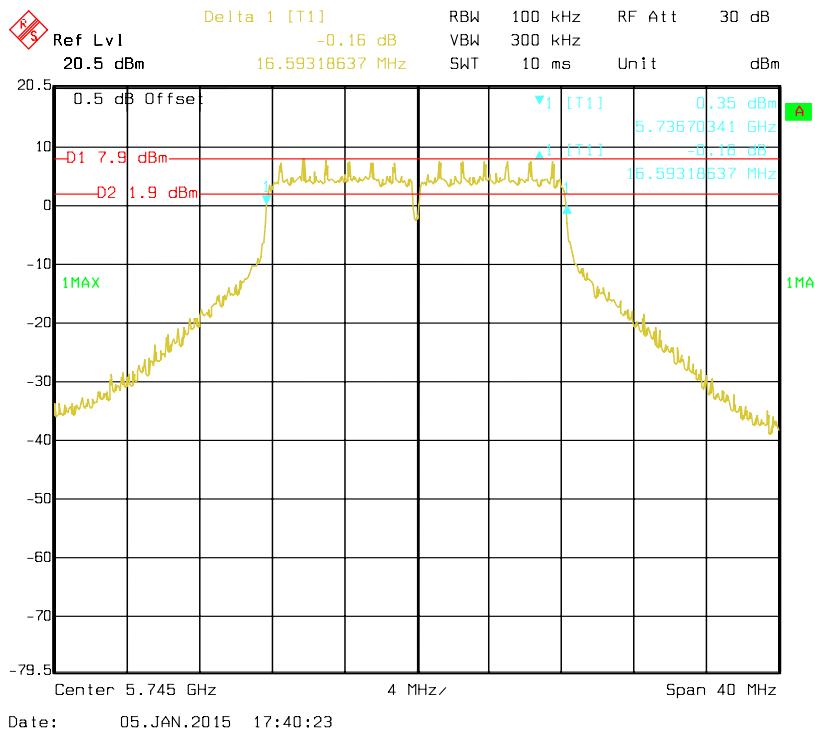


802.11n HT40 mode, Antenna 2: OBW Bandwidth-5230 MHz

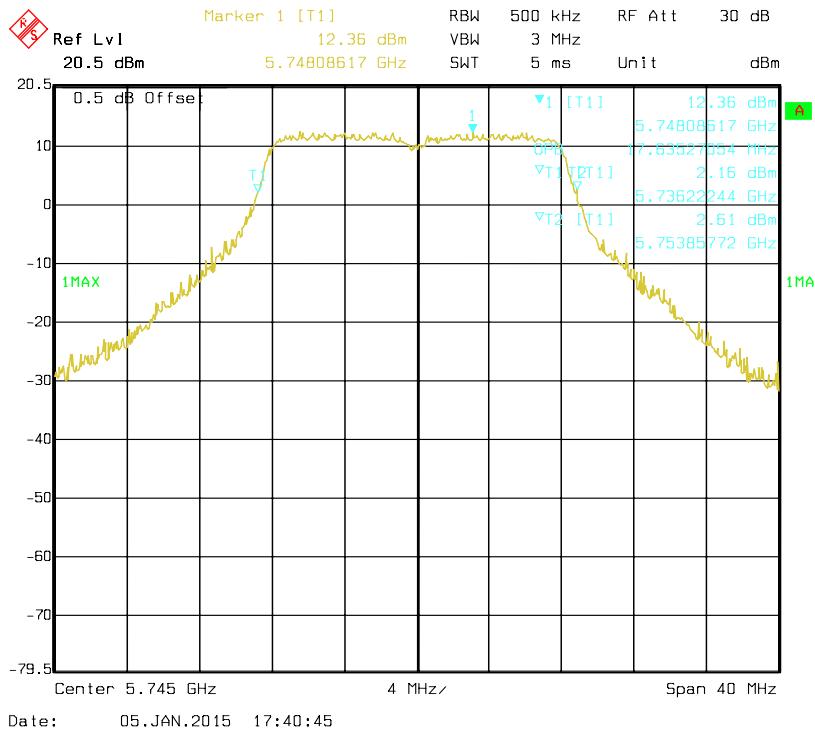


5725-5850 MHz:

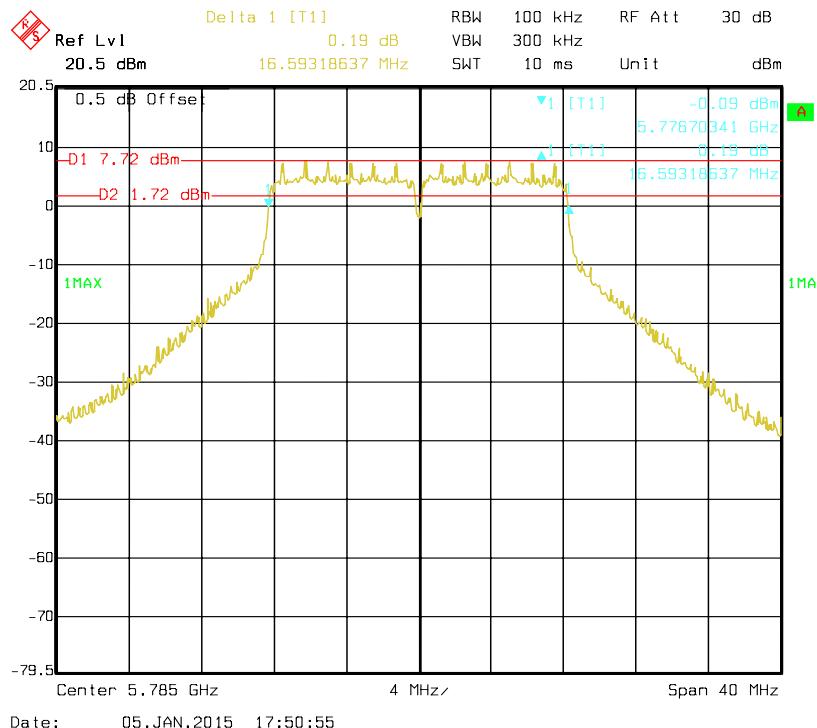
802.11a mode, Antenna 0: 6 dB Bandwidth-5745 MHz



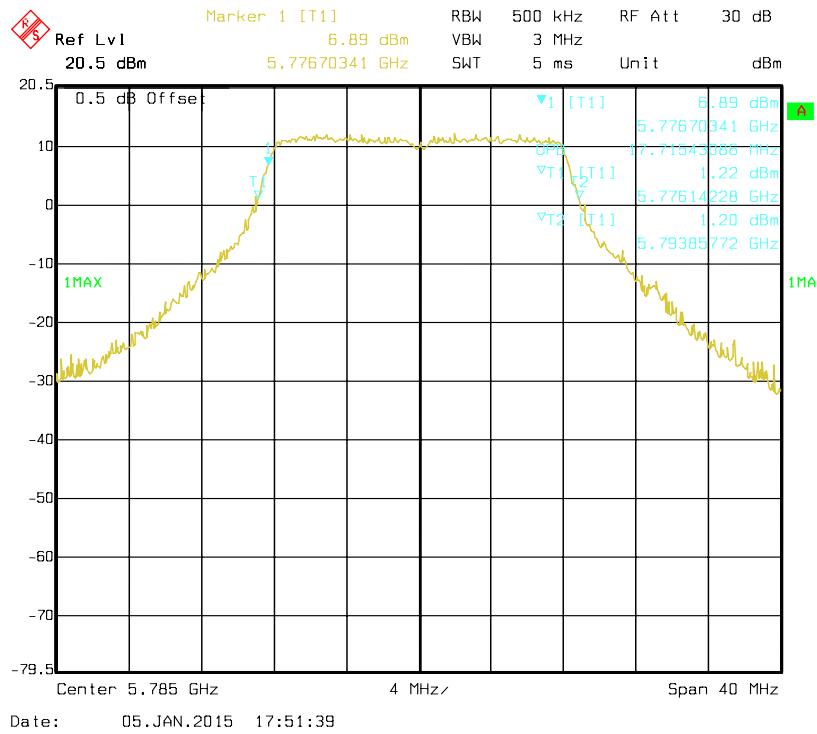
802.11a mode, Antenna 0: OBW Bandwidth-5745 MHz



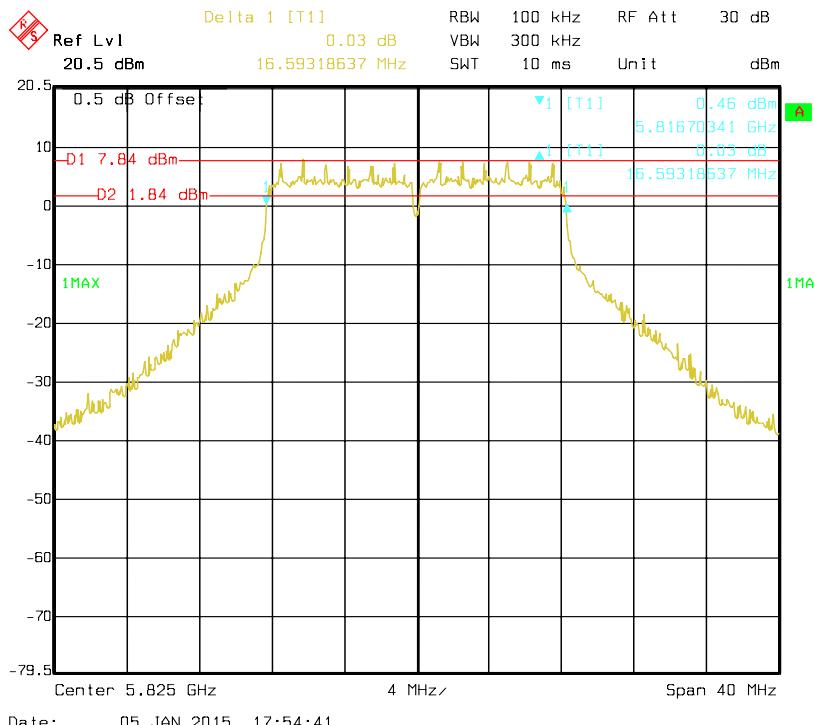
802.11a mode, Antenna 0: 6 dB Bandwidth-5785 MHz



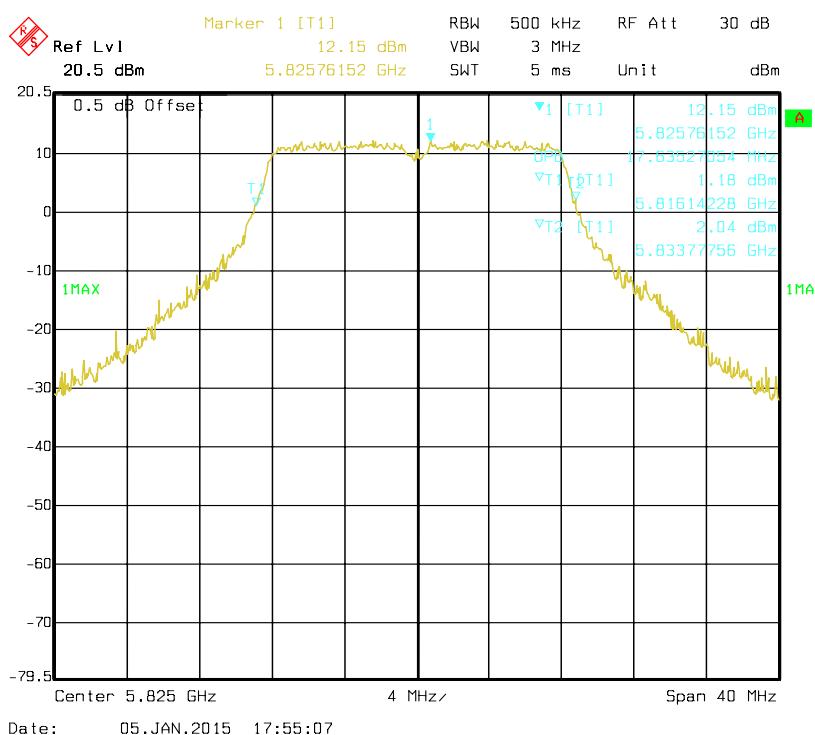
802.11a mode, Antenna 0: OBW Bandwidth-5785 MHz



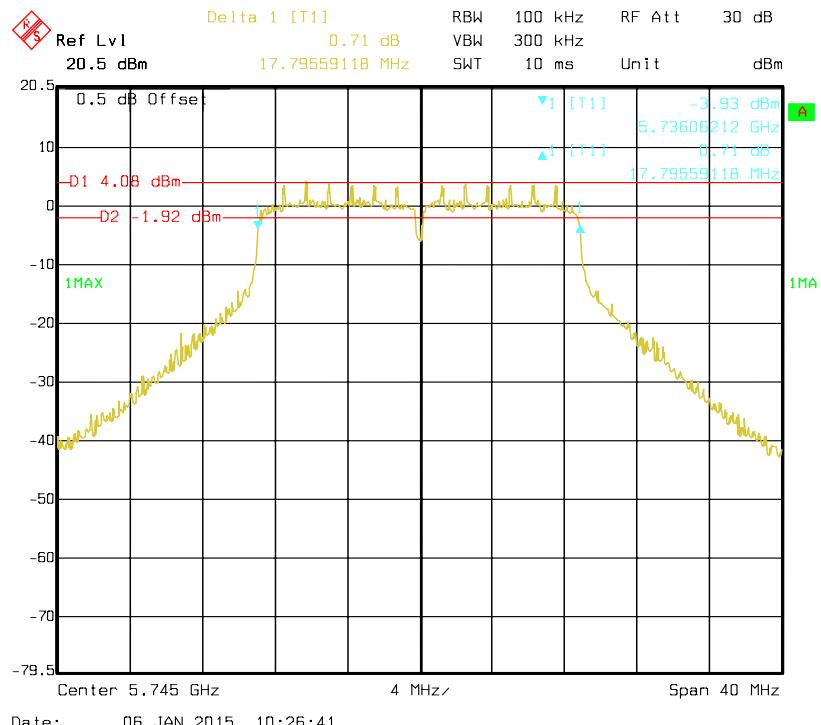
802.11a mode, Antenna 0: 6 dB Bandwidth-5825 MHz



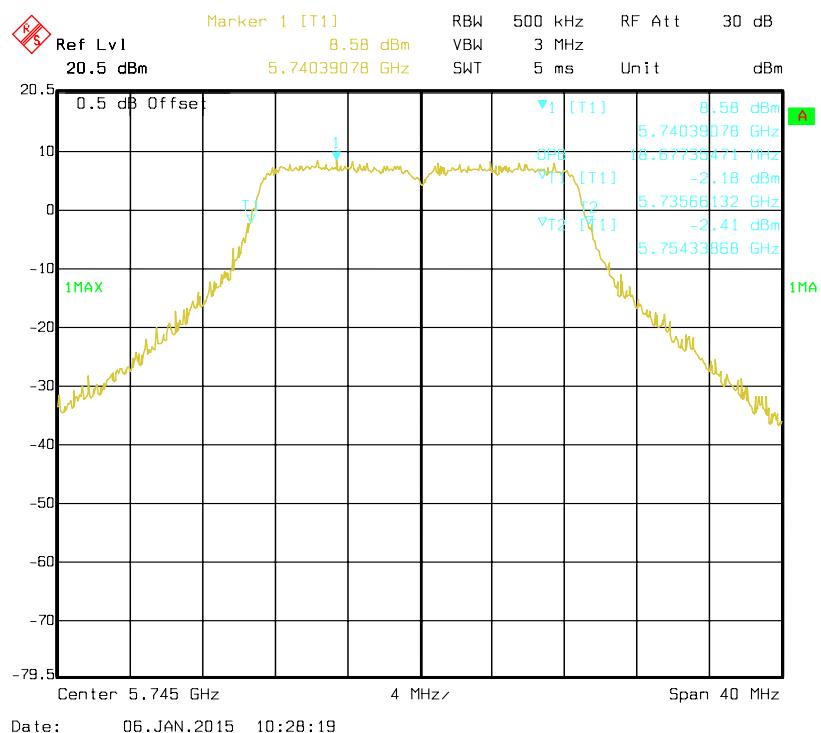
802.11a mode, Antenna 0: OBW Bandwidth-5825 MHz



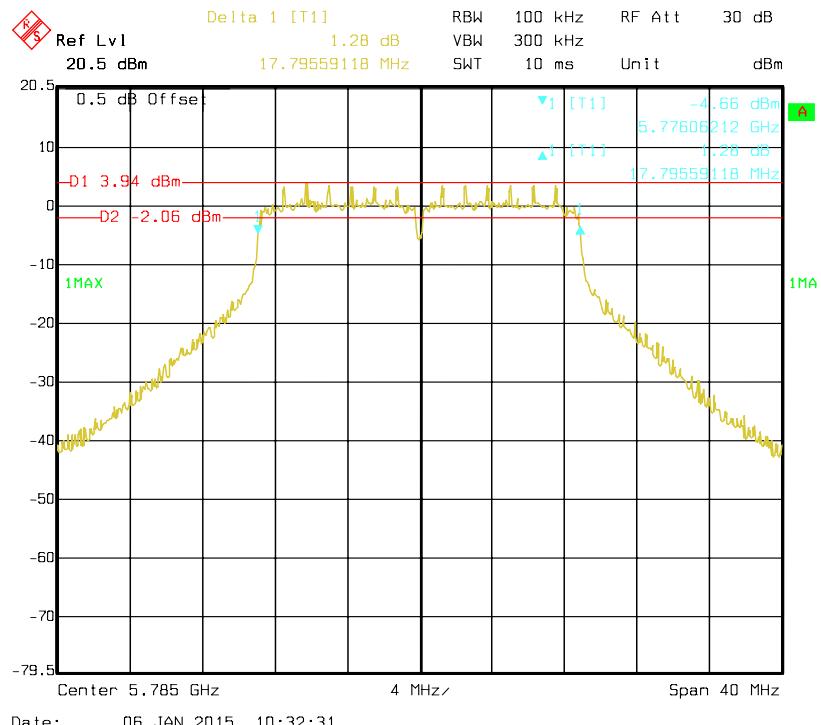
802.11ac VHT20 mode, Antenna 0: 6 dB Bandwidth-5745 MHz



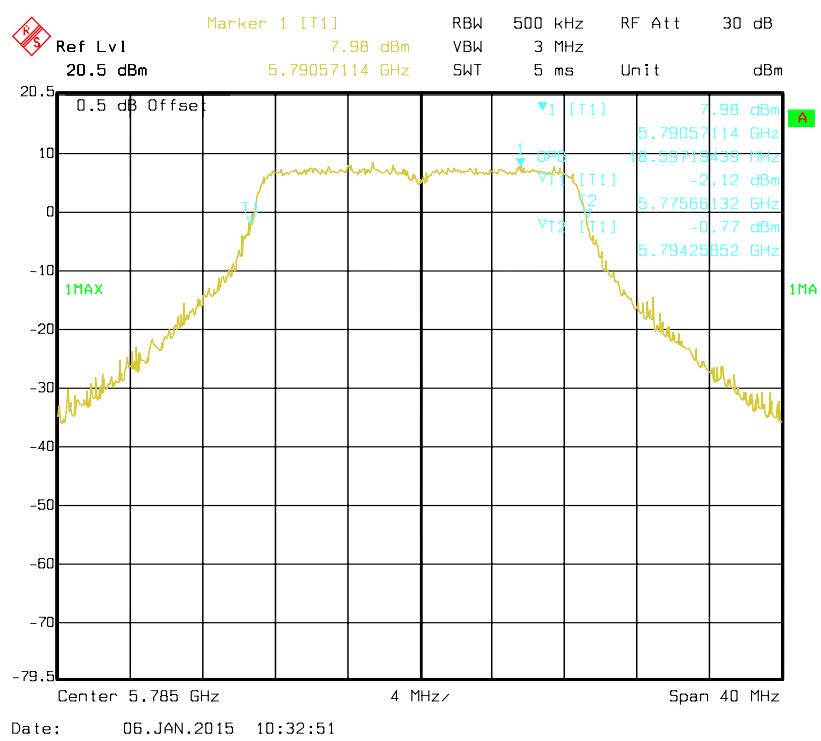
802.11ac VHT20 mode, Antenna 0: OBW Bandwidth-5745 MHz



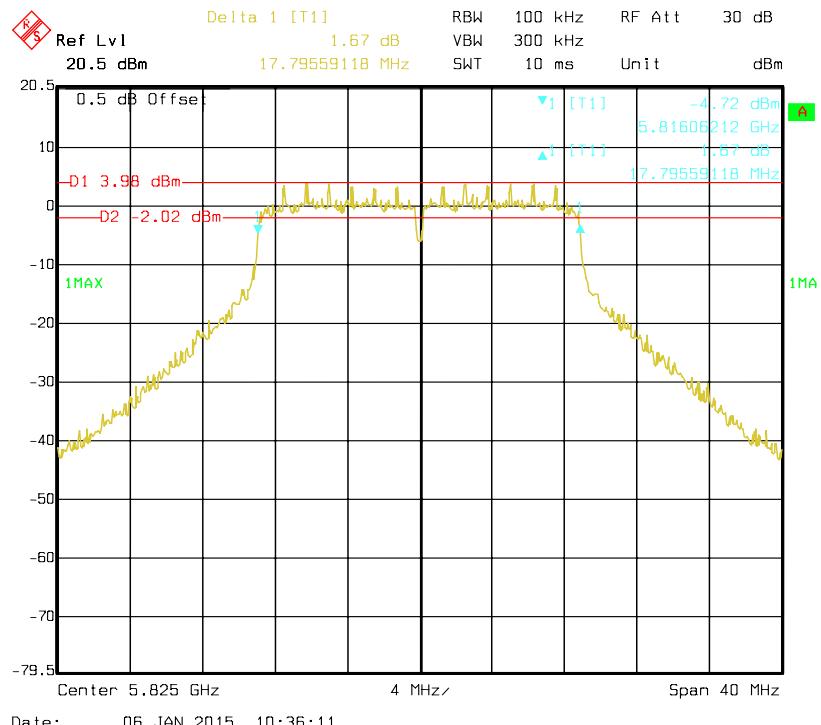
802.11ac VHT20 mode, Antenna 0: 6 dB Bandwidth-5785 MHz



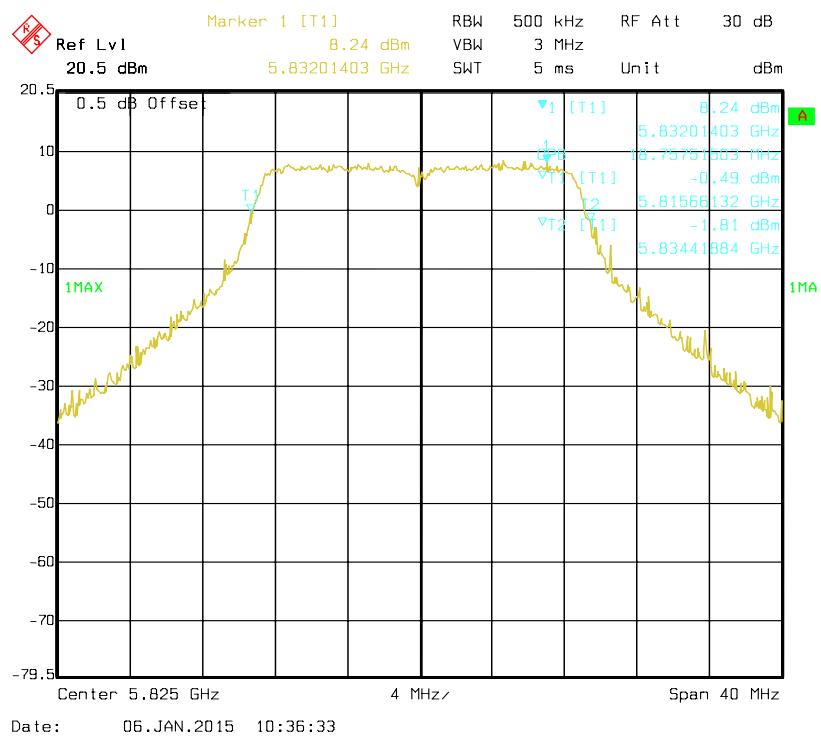
802.11ac VHT20 mode, Antenna 0: OBW Bandwidth-5785 MHz



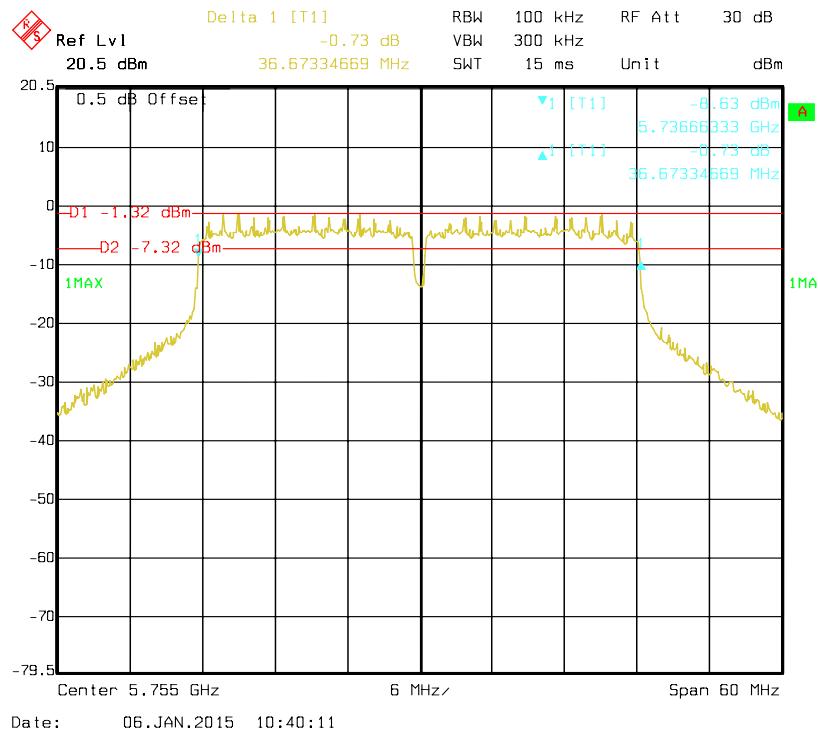
802.11ac VHT20 mode, Antenna 0: 6 dB Bandwidth-5825 MHz



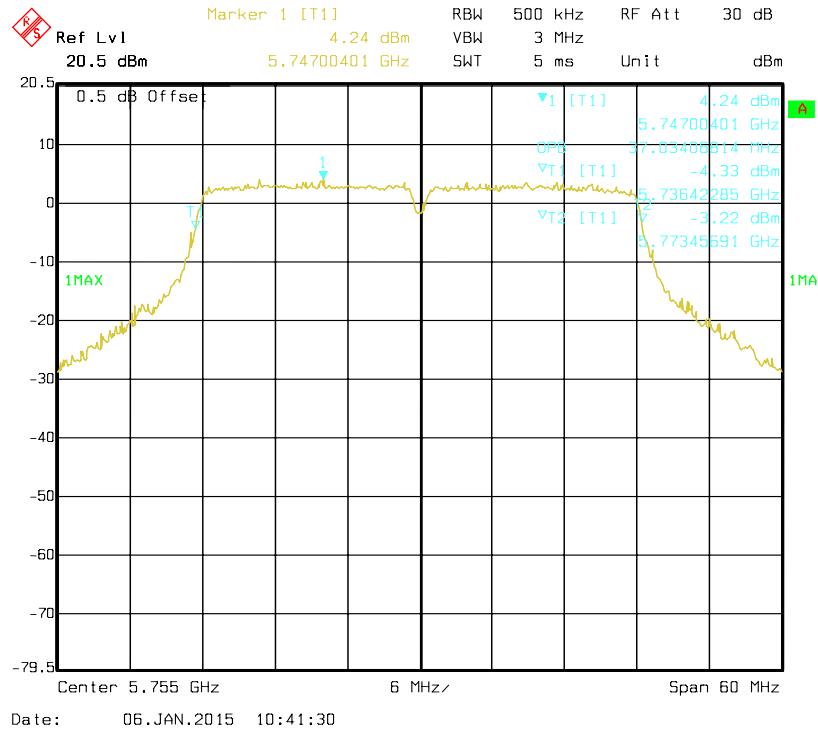
802.11ac VHT20 mode, Antenna 0: OBW Bandwidth-5825 MHz



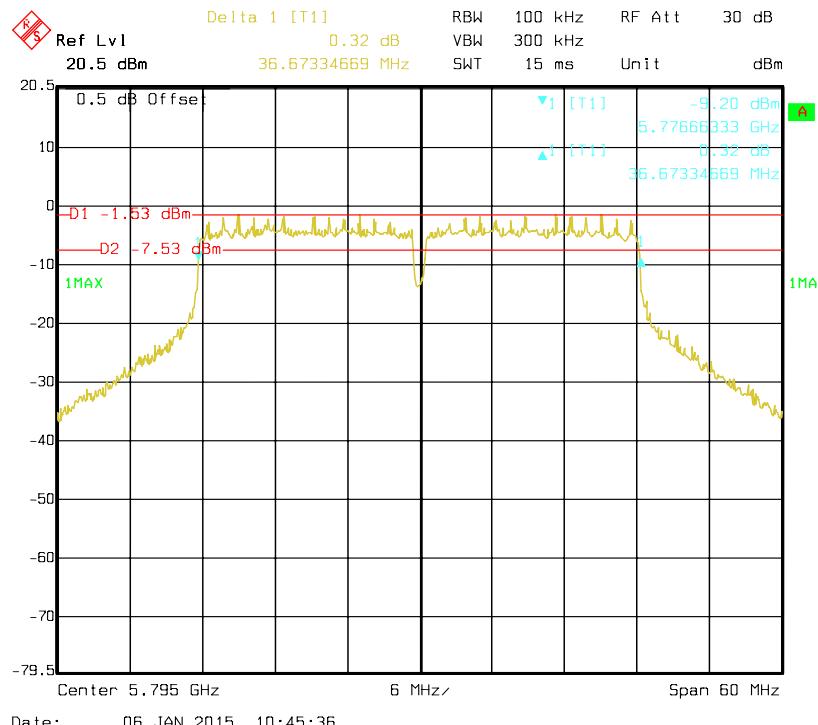
802.11ac VHT40 mode, Antenna 0: 6 dB Bandwidth-5755 MHz



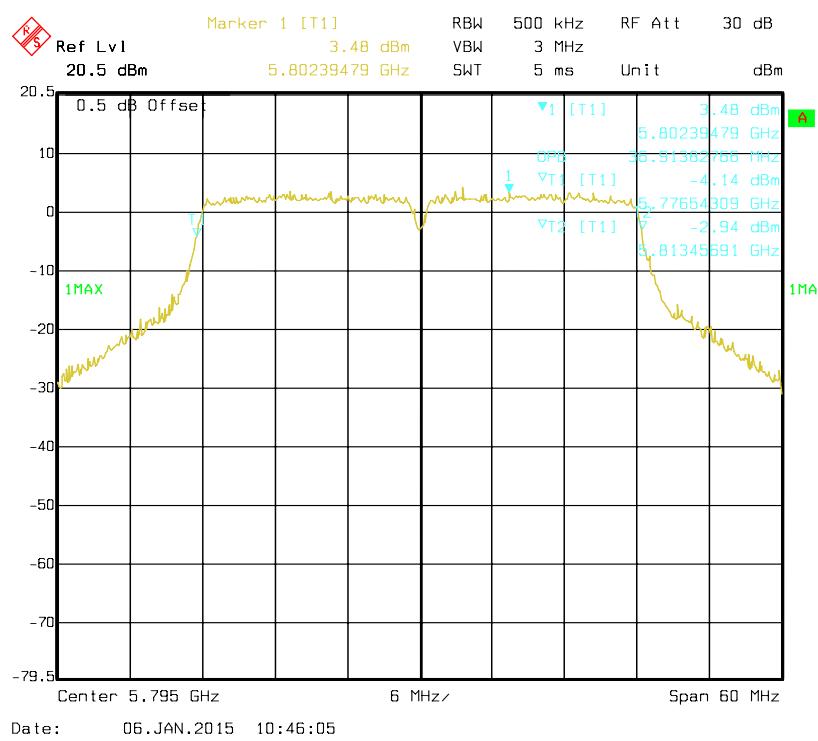
802.11ac VHT40 mode, Antenna 0: OBW Bandwidth-5755 MHz



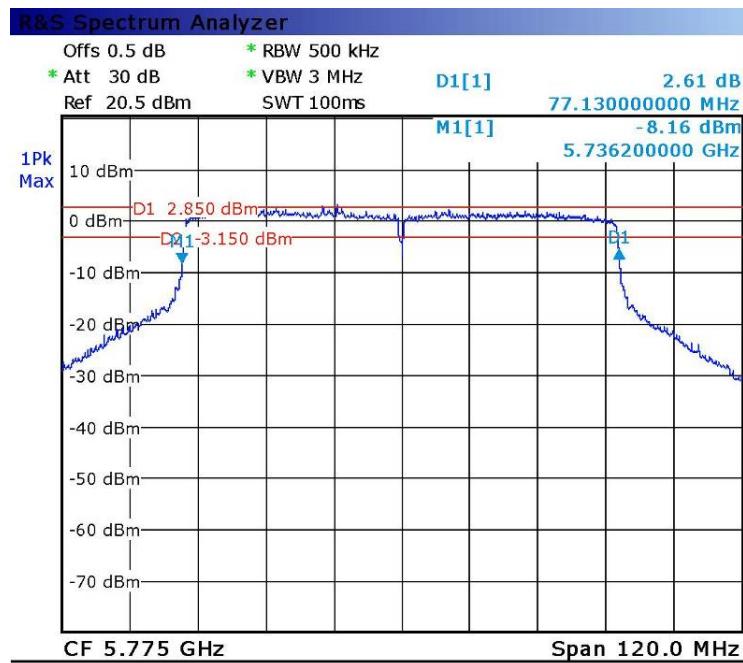
802.11ac VHT40 mode, Antenna 0: 6 dB Bandwidth-5795 MHz



802.11ac VHT40 mode, Antenna 0: OBW Bandwidth-5795 MHz

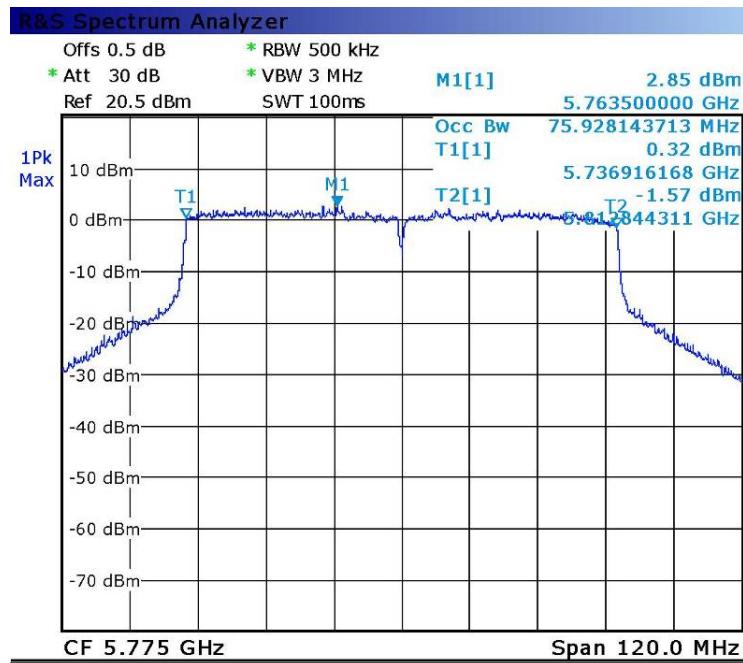


802.11ac VHT80 mode, Antenna 0: 6 dB Bandwidth-5775 MHz



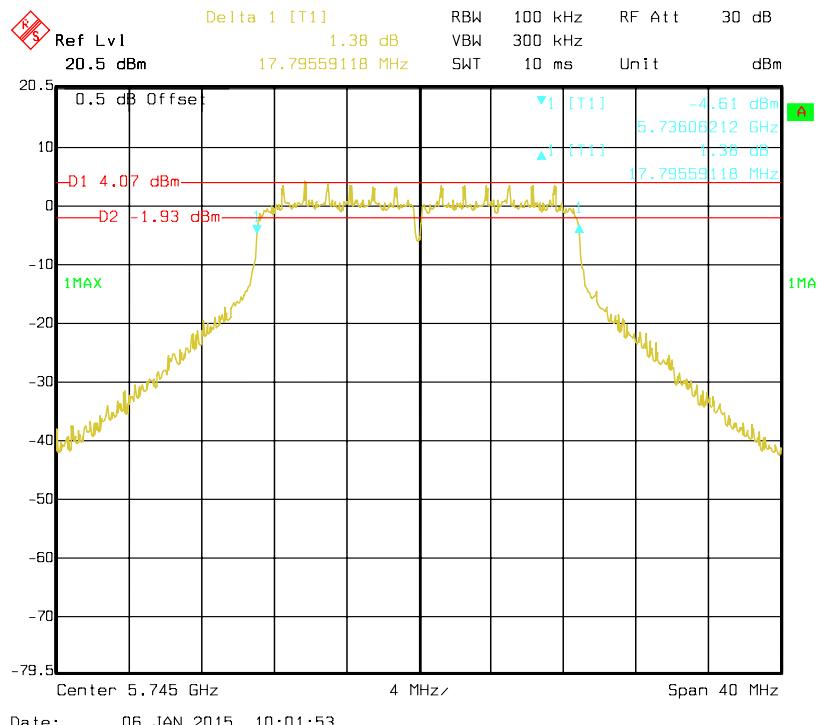
Date: 5.JAN.2015 14:19:56

802.11ac VHT80 mode, Antenna 0: OBW Bandwidth-5775 MHz

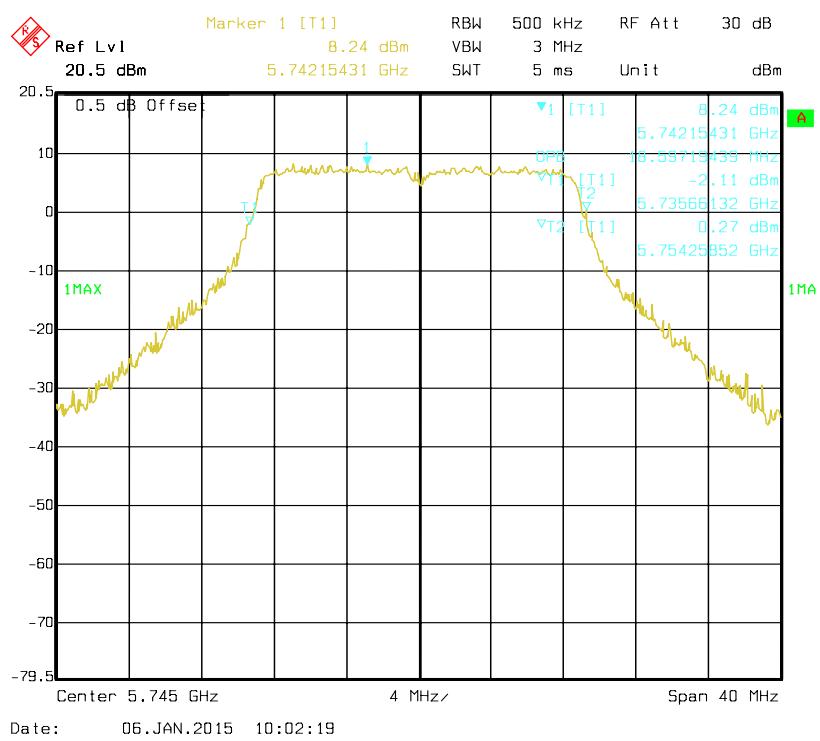


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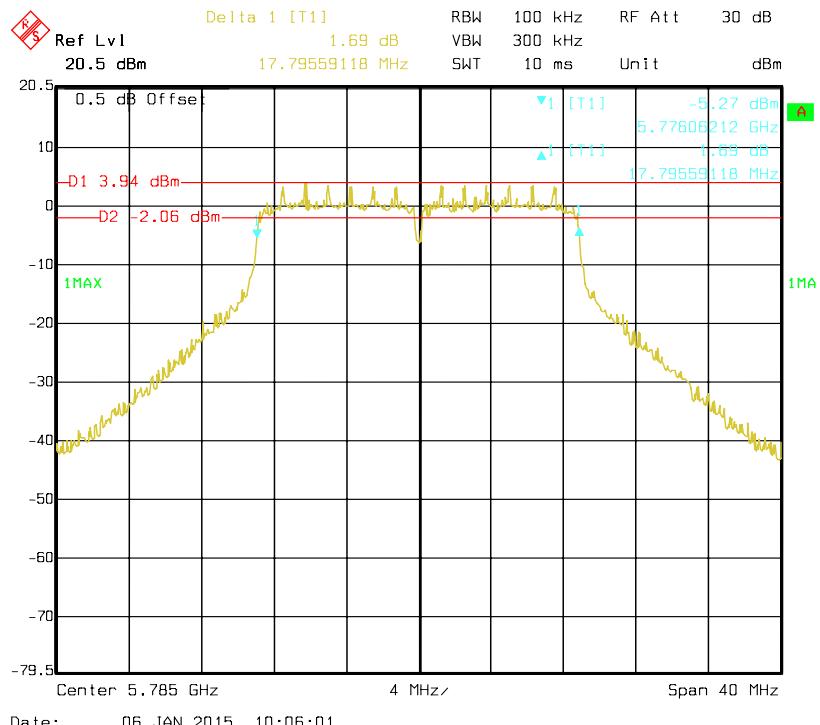
802.11n HT20 mode, Antenna 0: 6 dB Bandwidth-5745 MHz



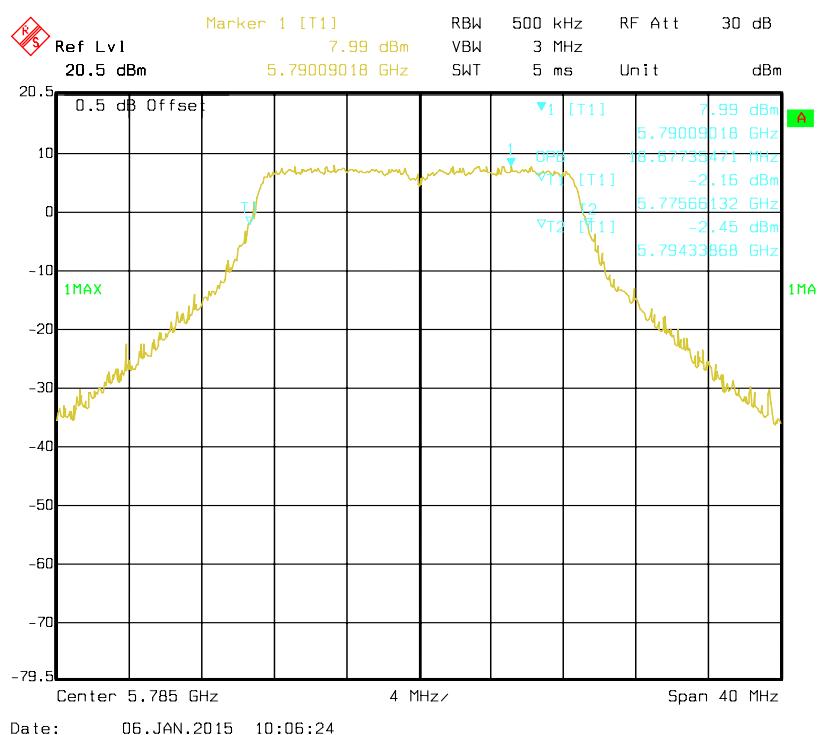
802.11n HT20 mode, Antenna 0: OBW Bandwidth-5745 MHz



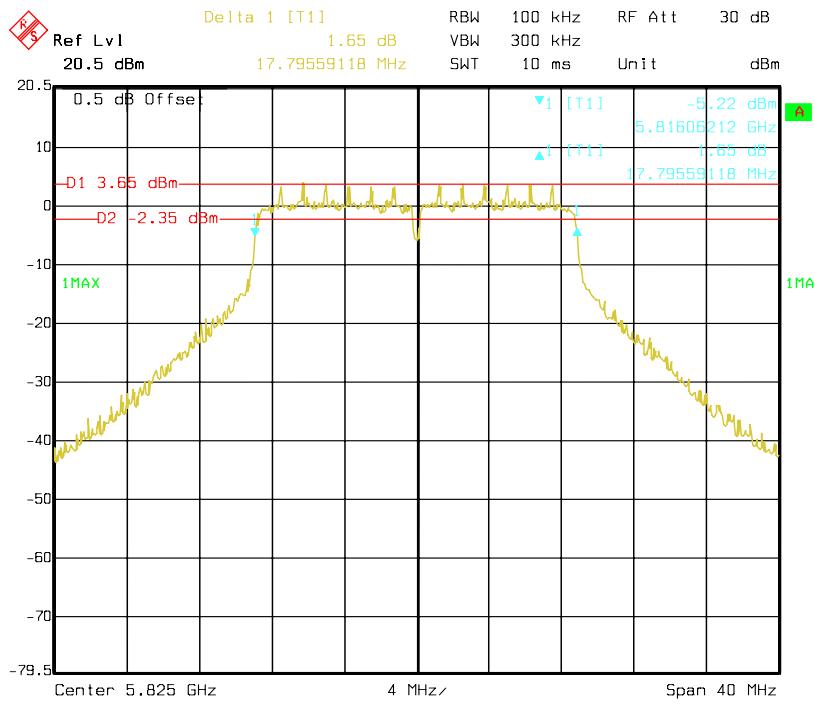
802.11n HT20 mode, Antenna 0: 6 dB Bandwidth-5785 MHz



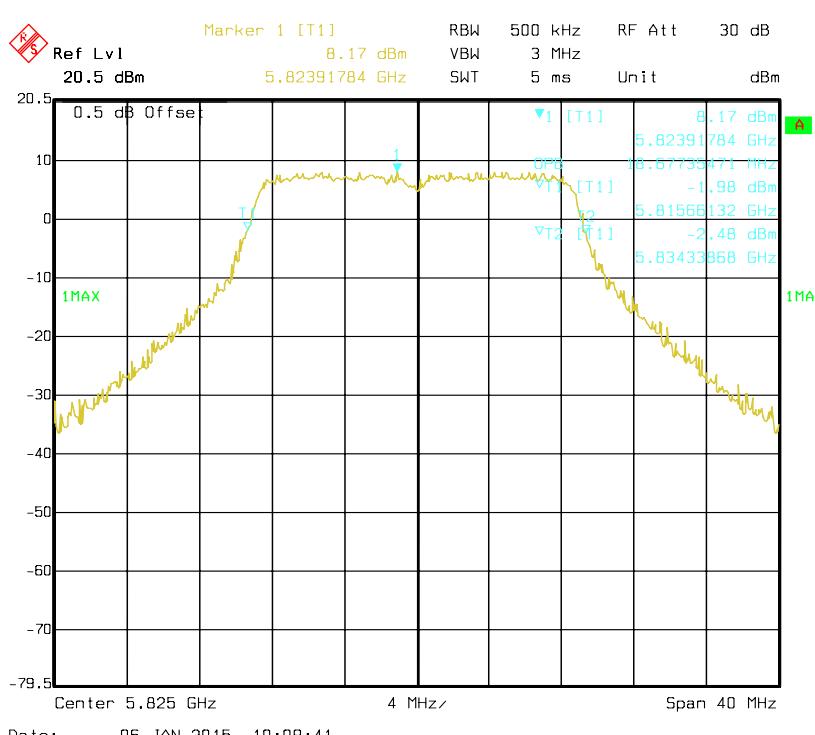
802.11n HT20 mode, Antenna 0: OBW Bandwidth-5785 MHz



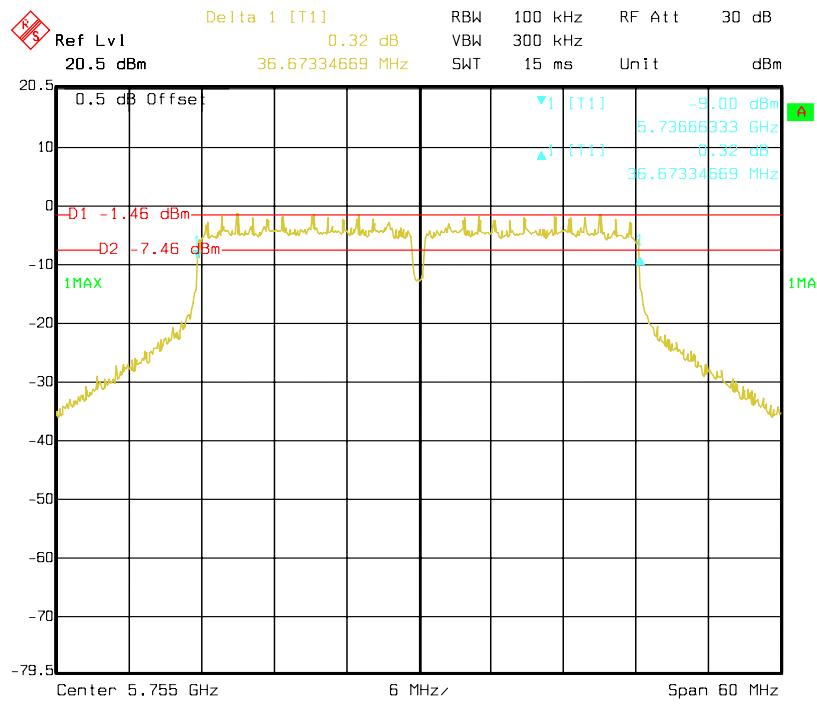
802.11n HT20 mode, Antenna 0: 6 dB Bandwidth-5825 MHz



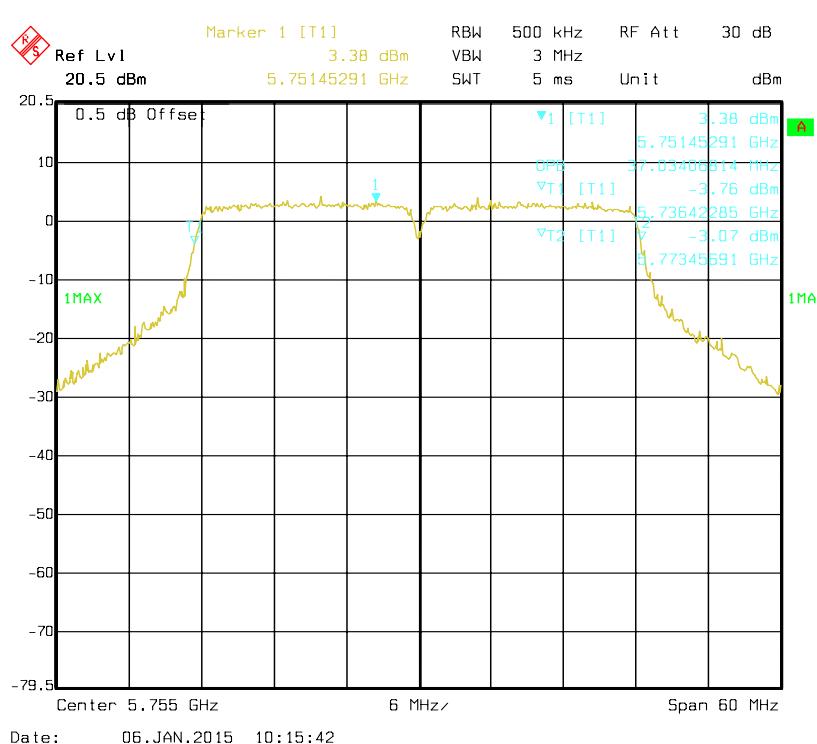
802.11n HT20 mode, Antenna 0: OBW Bandwidth-5825 MHz



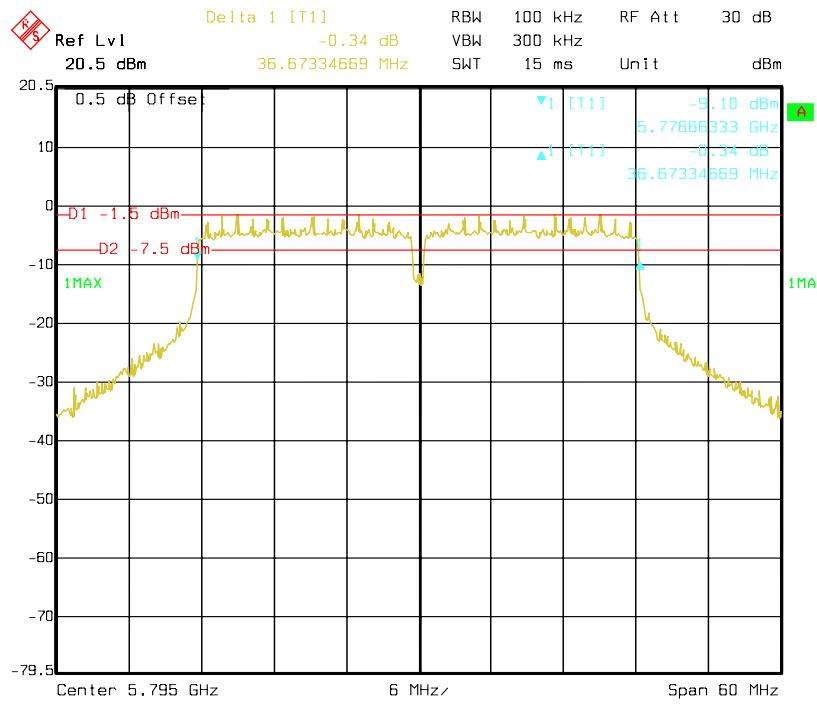
802.11n HT40 mode, Antenna 0: 6 dB Bandwidth-5755 MHz



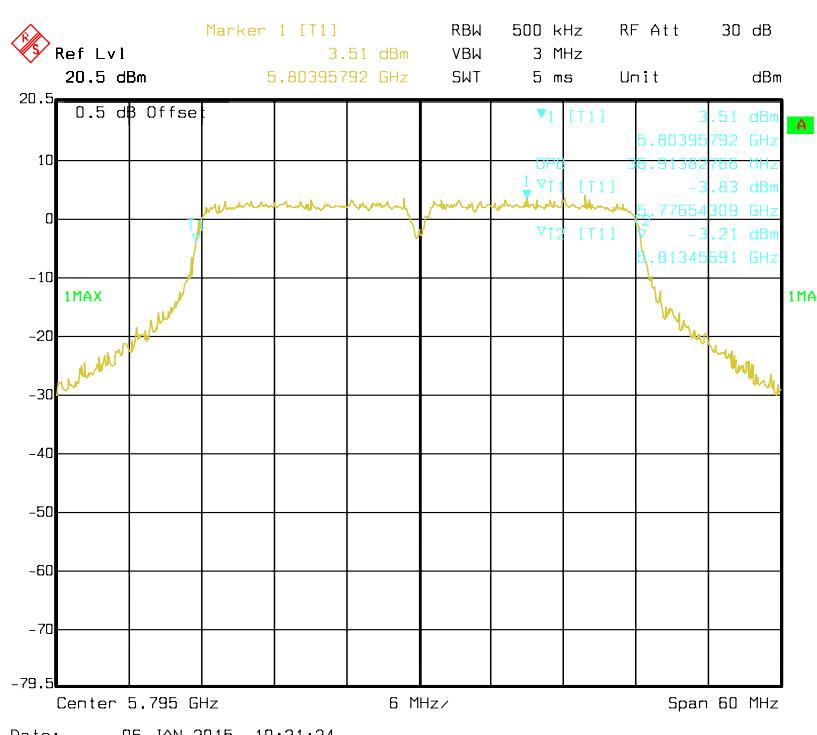
802.11n HT40 mode, Antenna 0: OBW Bandwidth-5755 MHz



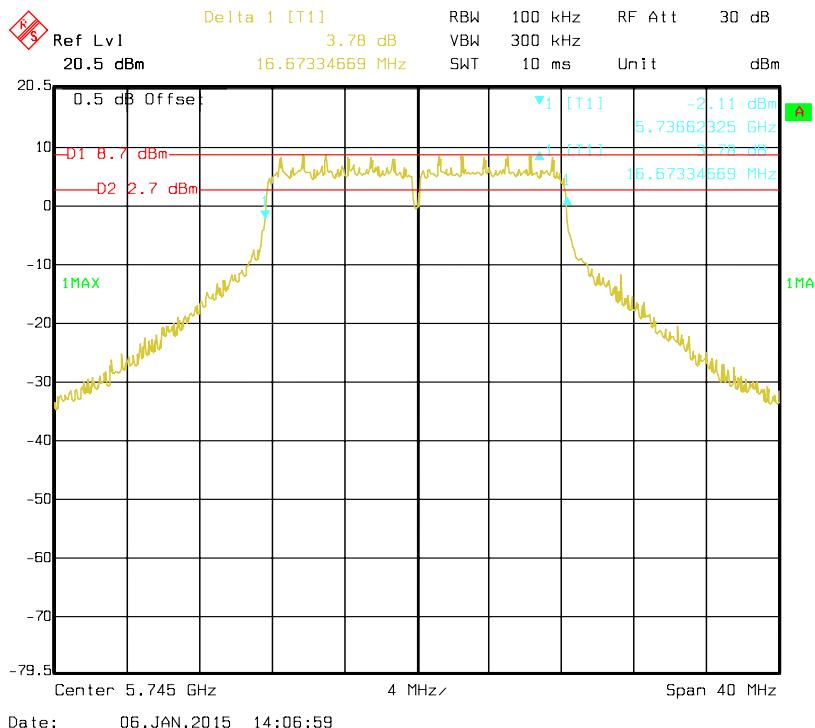
802.11n HT40 mode, Antenna 0: 6 dB Bandwidth-5795 MHz



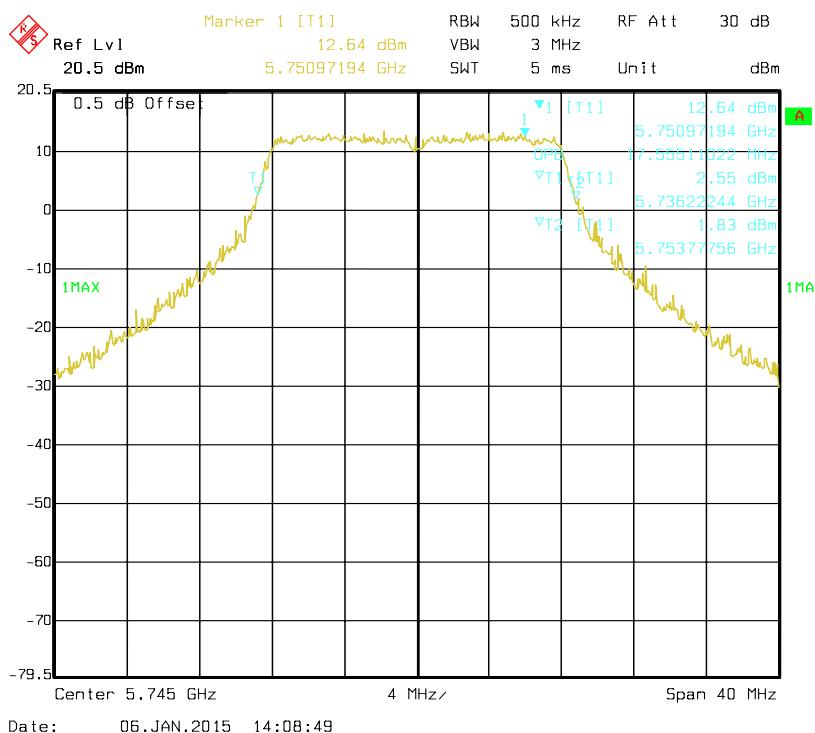
802.11n HT40 mode, Antenna 0: OBW Bandwidth-5795 MHz



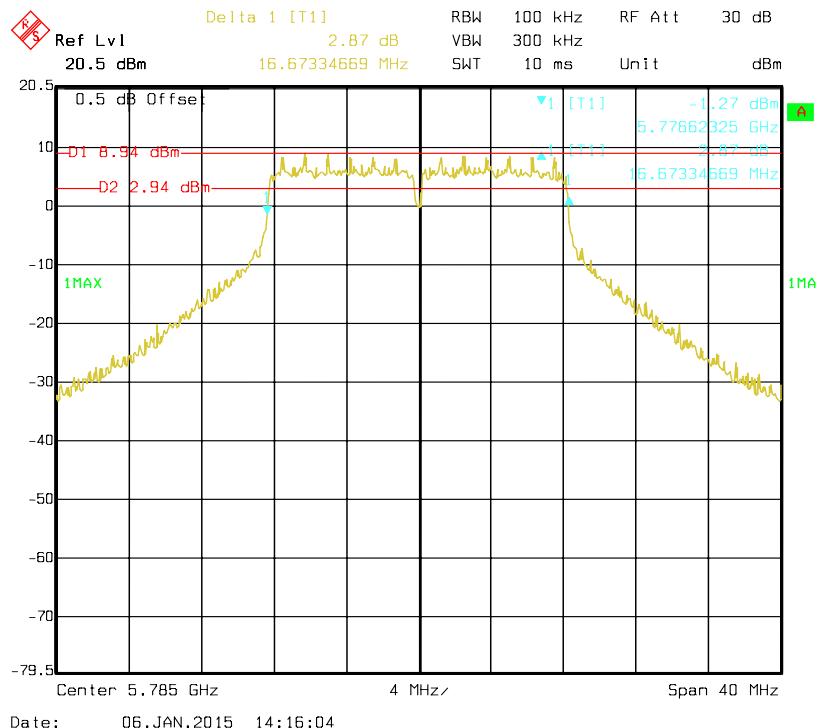
802.11a mode, Antenna 1: 6 dB Bandwidth-5745 MHz



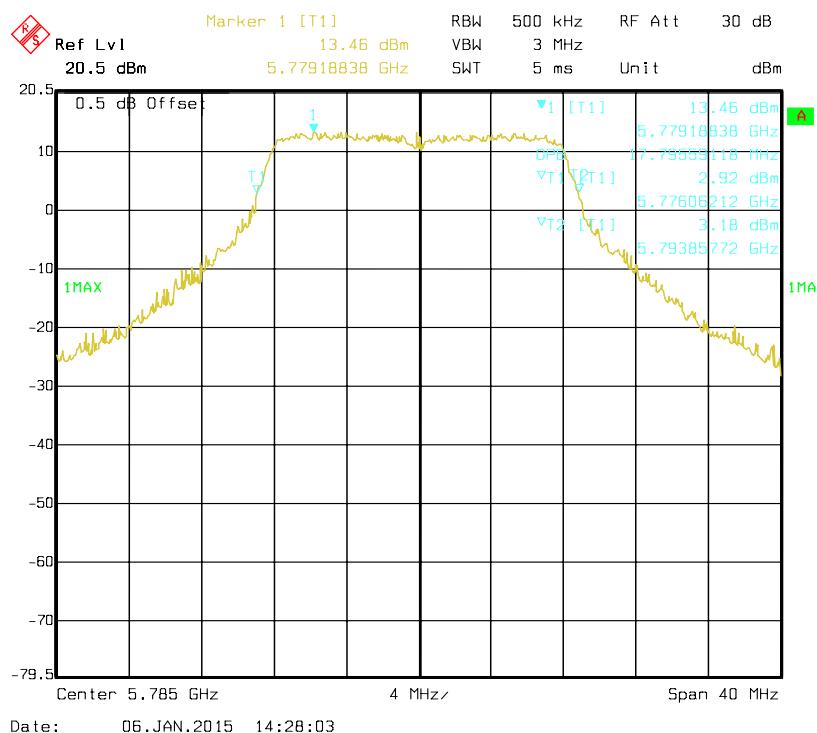
802.11a mode, Antenna 1: OBW Bandwidth-5745 MHz



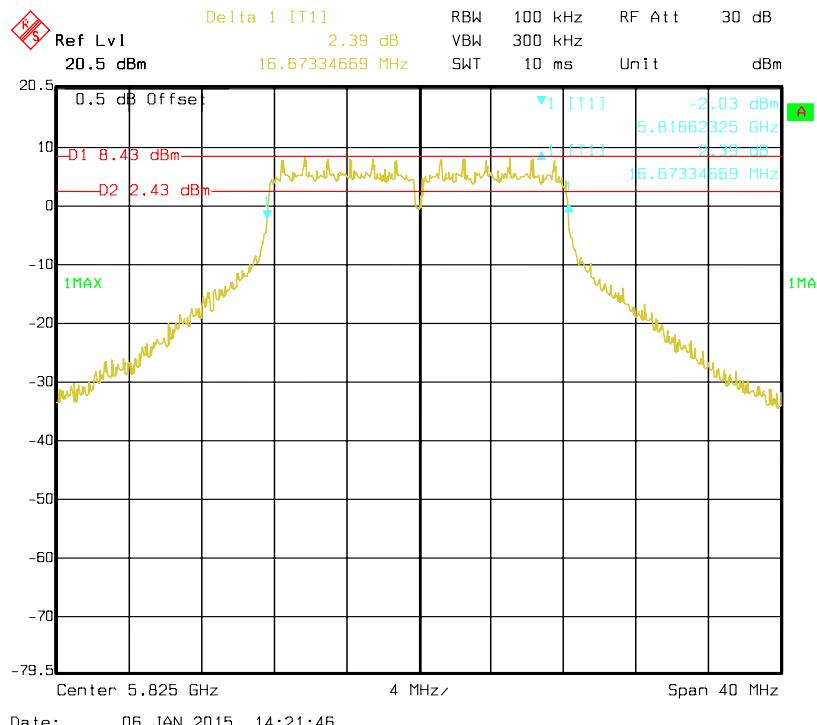
802.11a mode, Antenna 1: 6 dB Bandwidth-5785 MHz



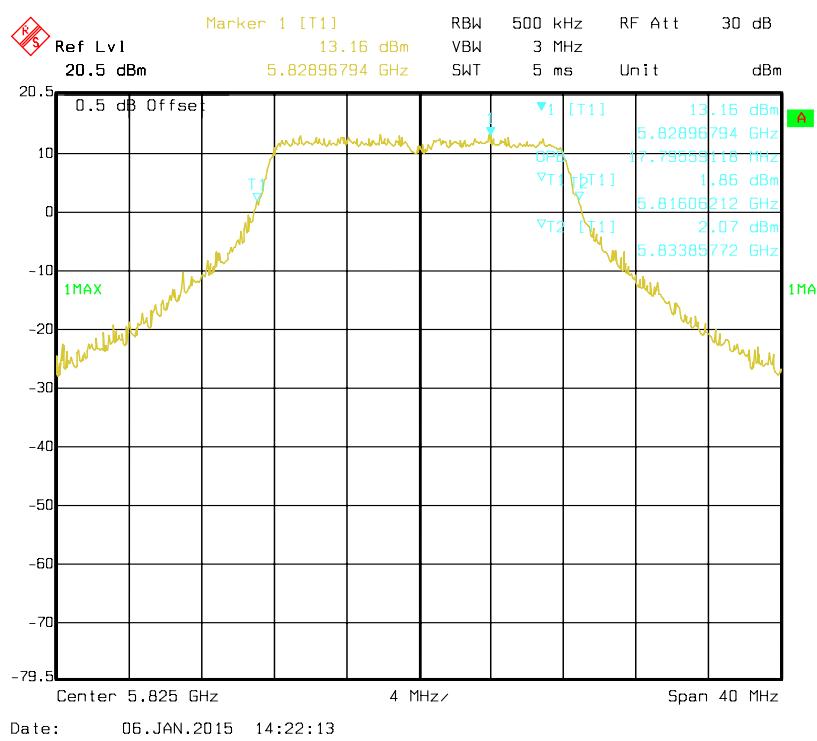
802.11a mode, Antenna 1: OBW Bandwidth-5785 MHz



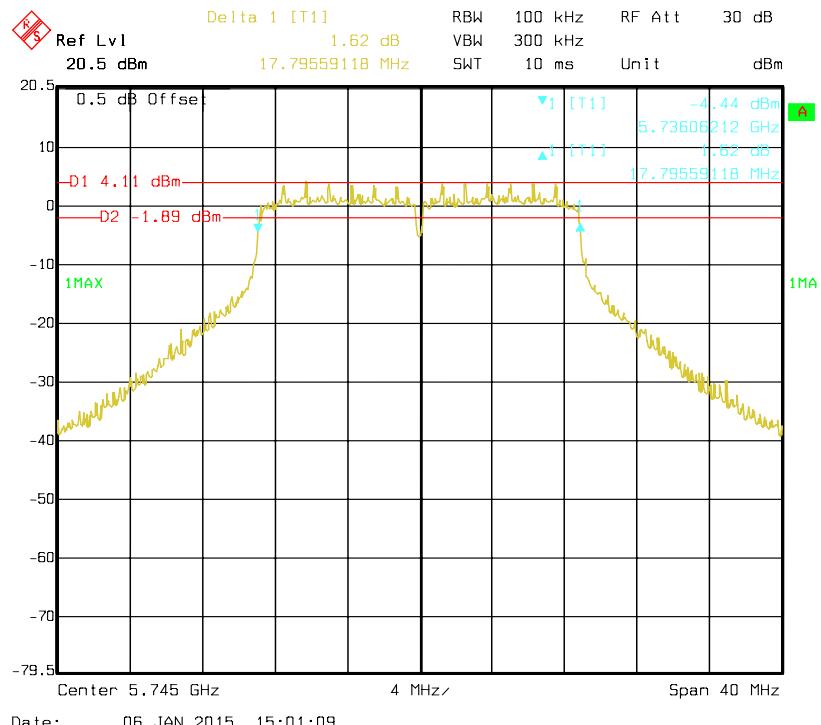
802.11a mode, Antenna 1: 6 dB Bandwidth-5825 MHz



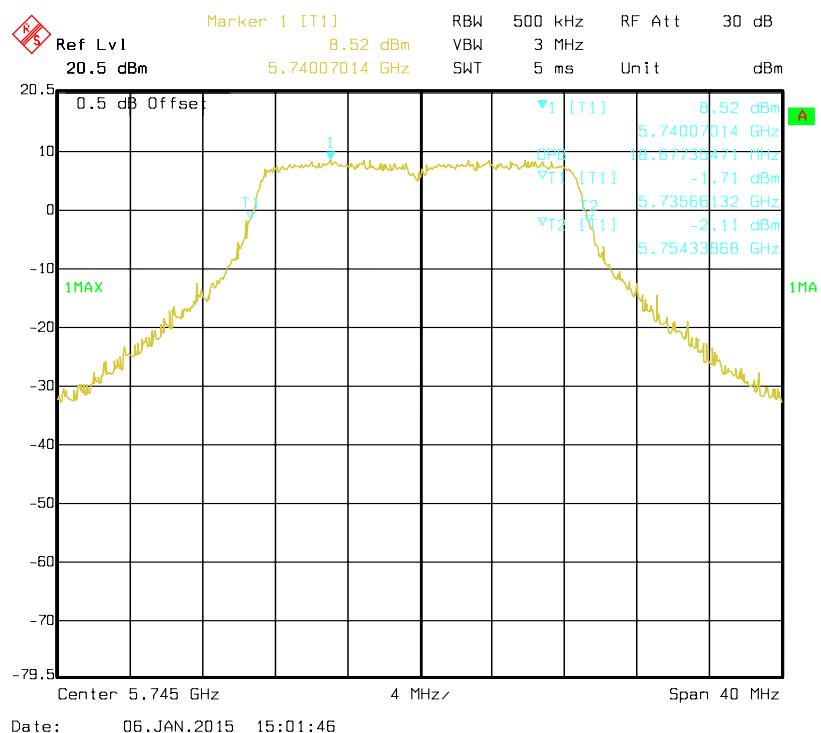
802.11a mode, Antenna 1: OBW Bandwidth-5825 MHz



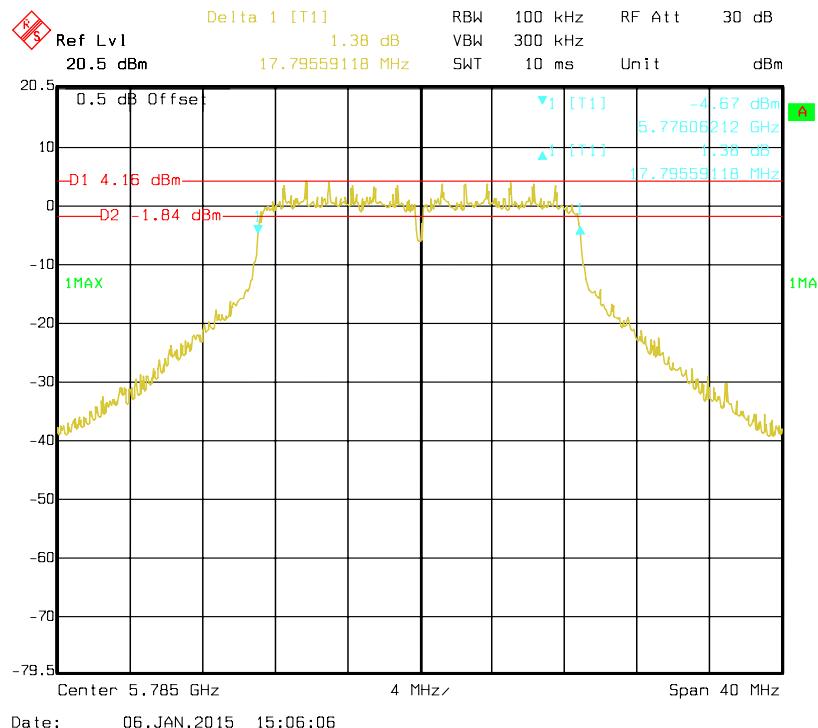
802.11ac VHT20 mode, Antenna 1: 6 dB Bandwidth-5745 MHz



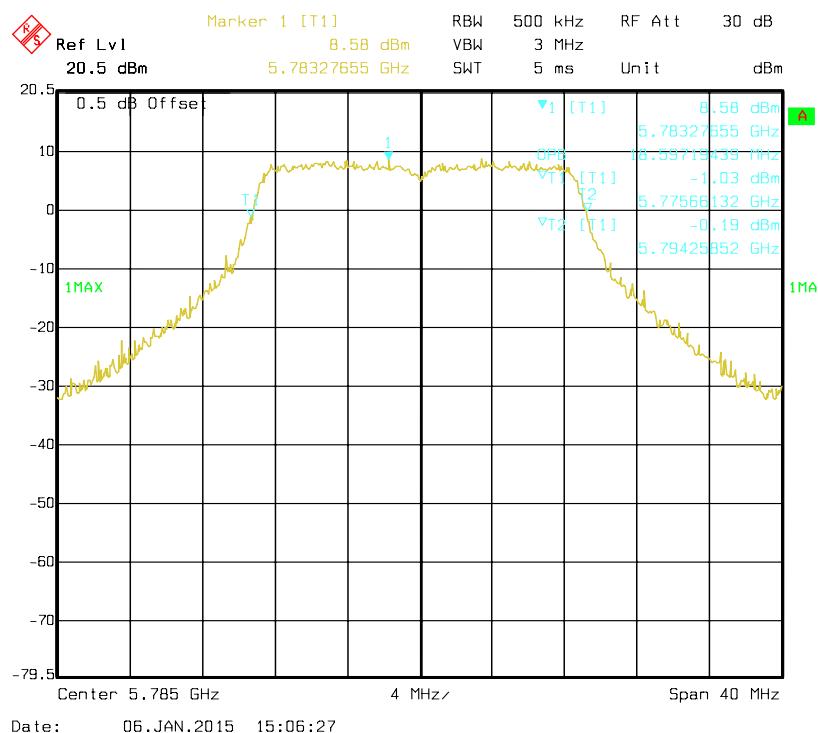
802.11ac VHT20 mode, Antenna 1: OBW Bandwidth-5745 MHz



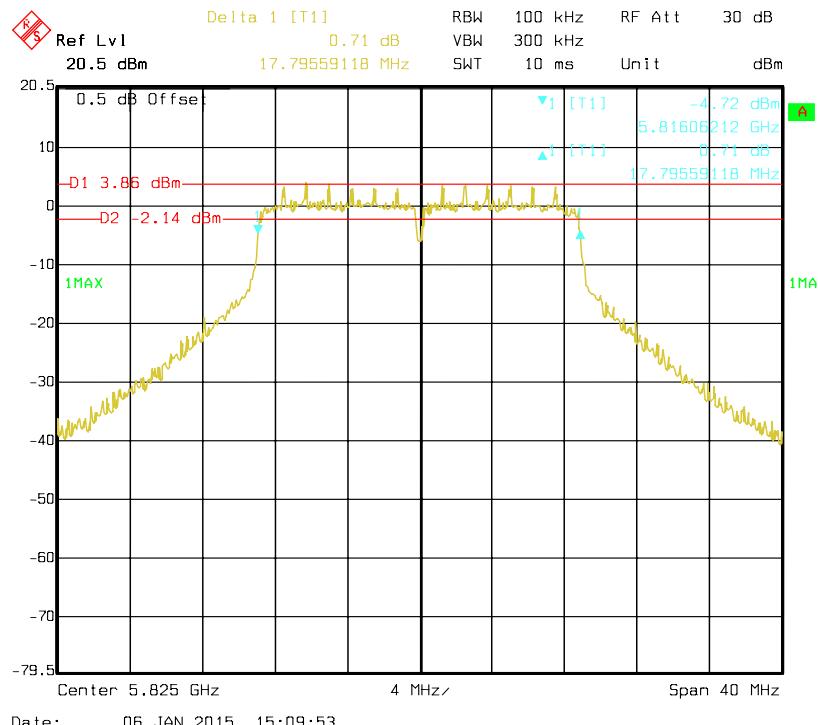
802.11ac VHT20 mode, Antenna 1: 6 dB Bandwidth-5785 MHz



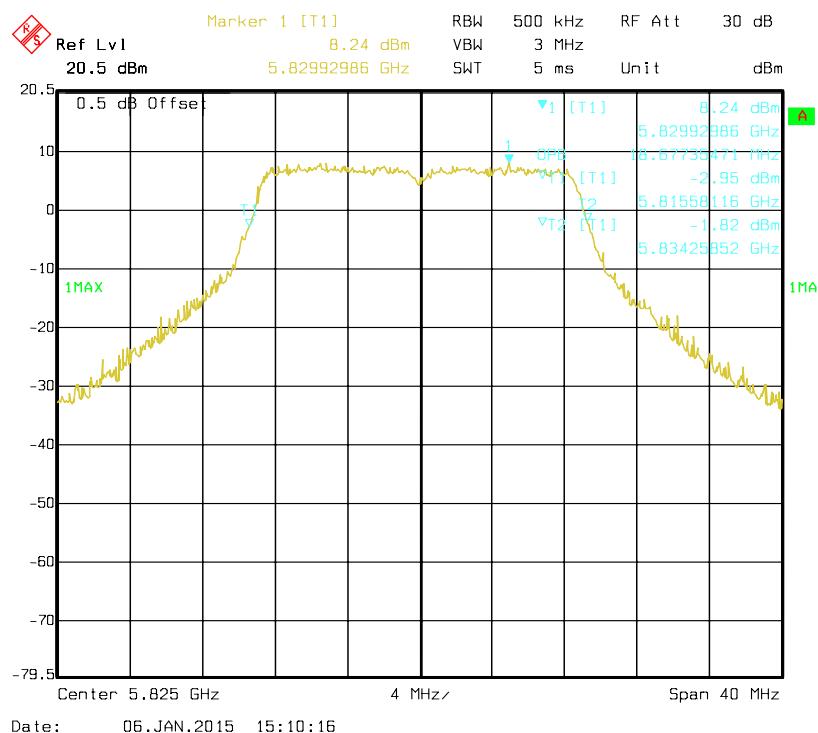
802.11ac VHT20 mode, Antenna 1: OBW Bandwidth-5785 MHz



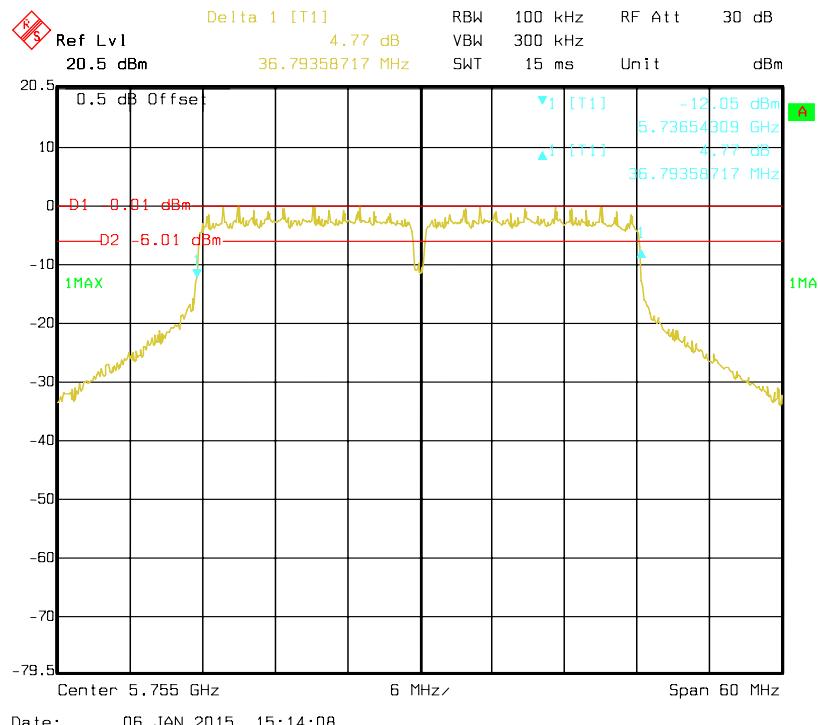
802.11ac VHT20 mode, Antenna 1: 6 dB Bandwidth-5825 MHz



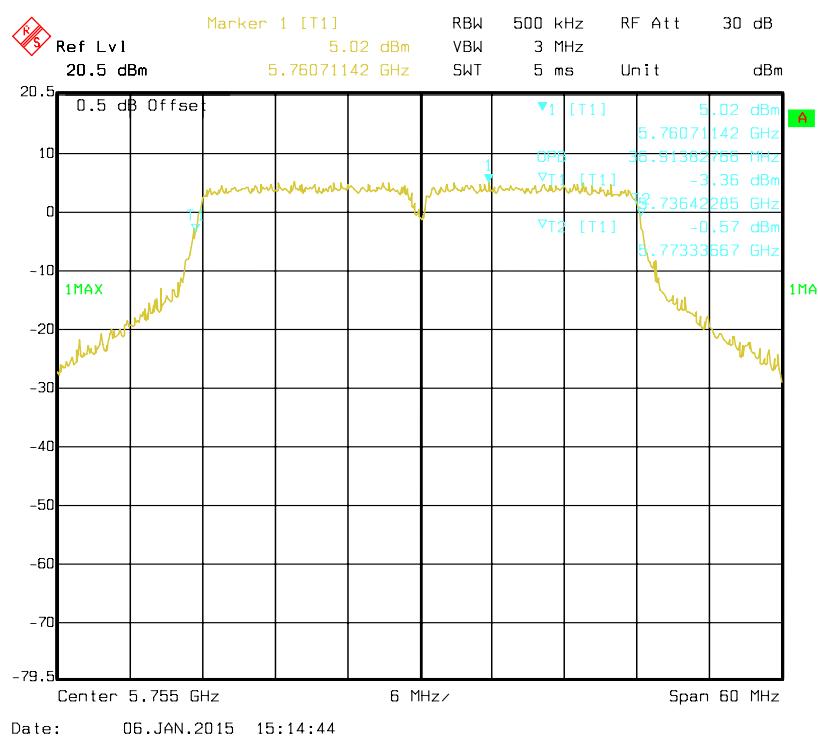
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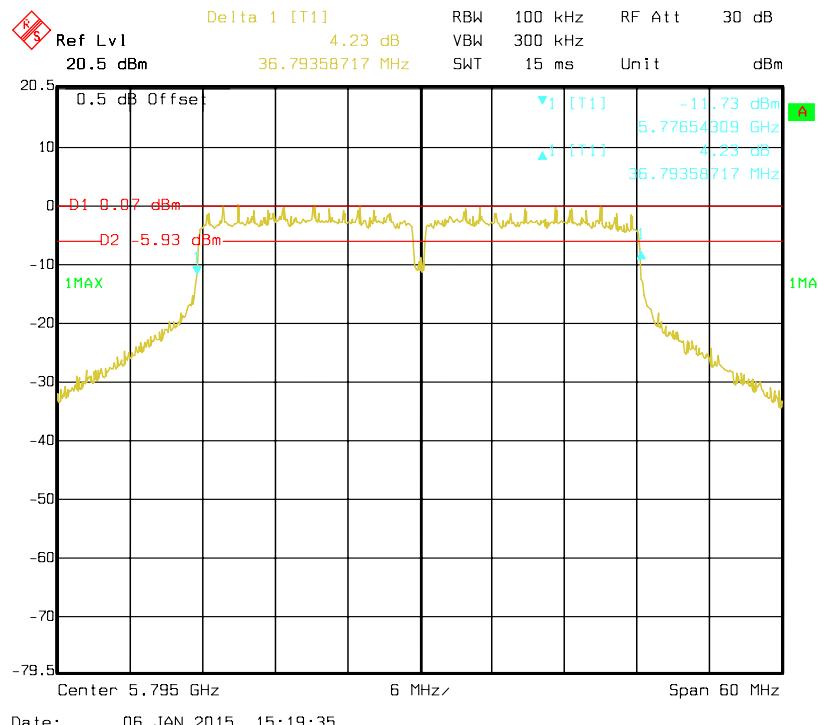
802.11ac VHT40 mode, Antenna 1: 6 dB Bandwidth-5755 MHz



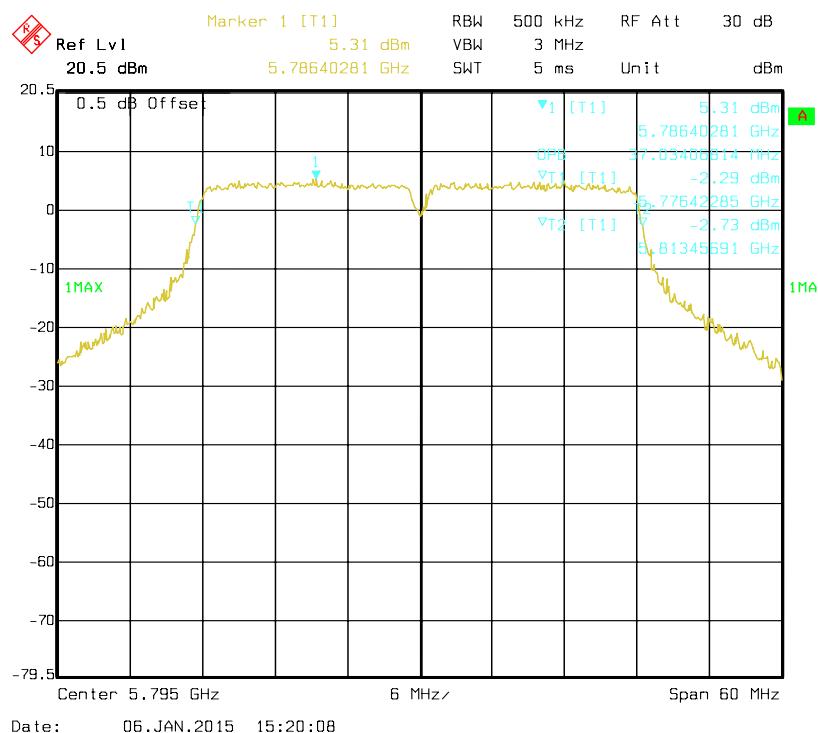
802.11ac VHT40 mode, Antenna 1: OBW Bandwidth-5755 MHz



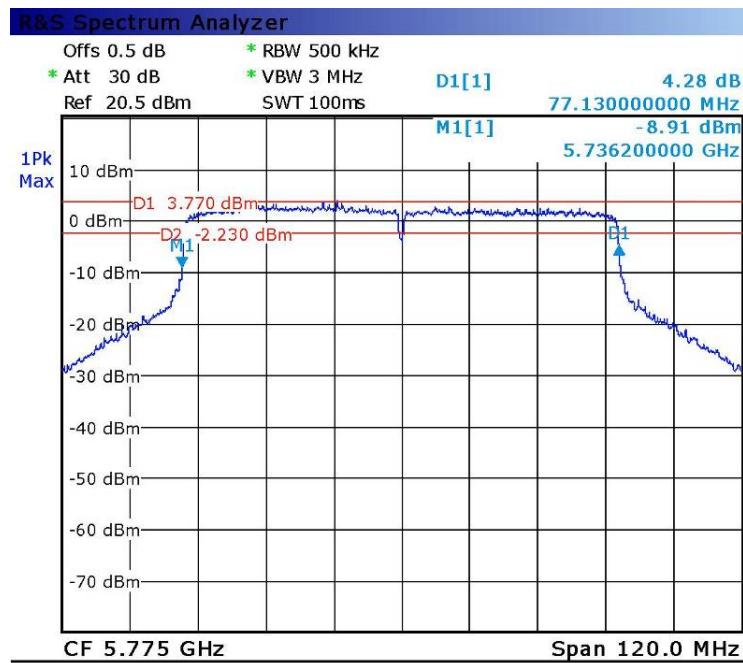
802.11ac VHT40 mode, Antenna 1: 6 dB Bandwidth-5795 MHz



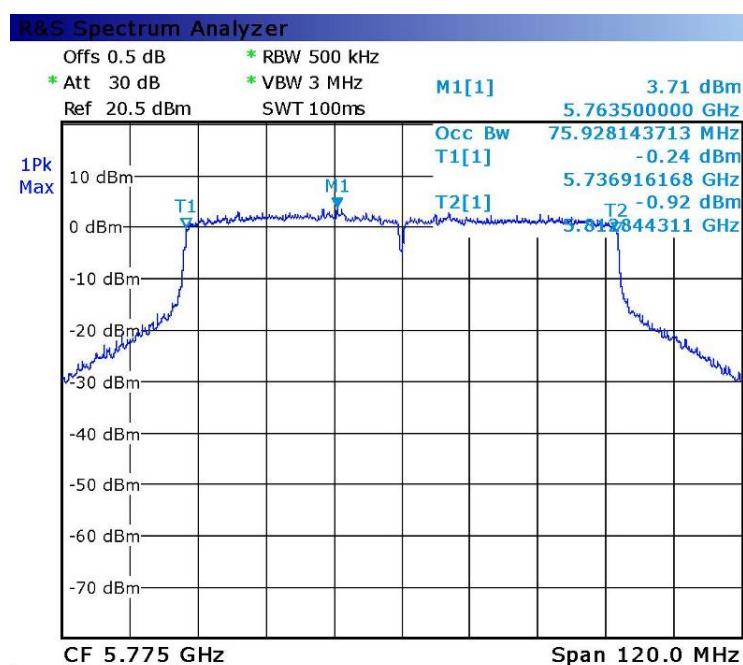
802.11ac VHT40 mode, Antenna 1: OBW Bandwidth-5795 MHz



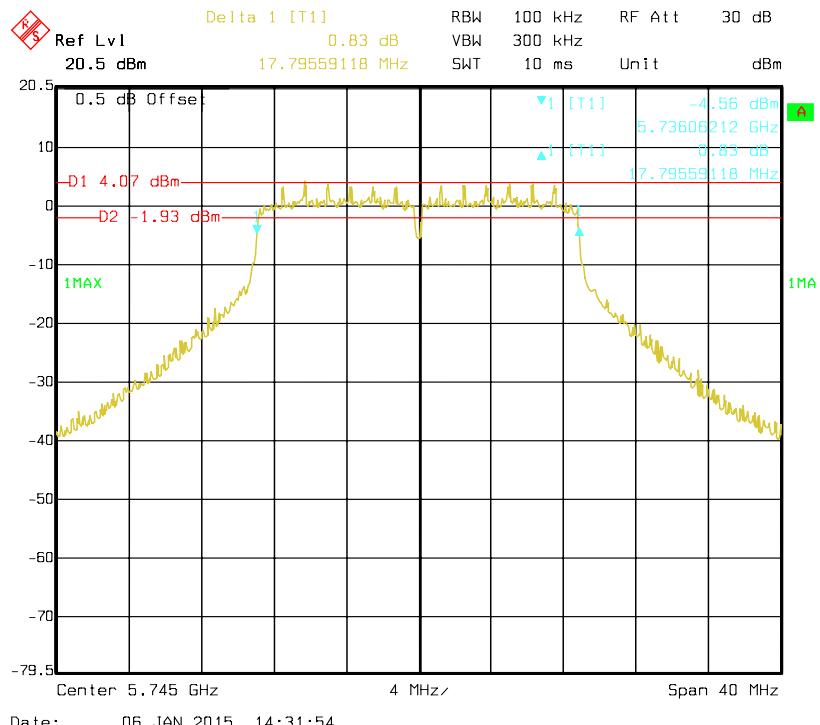
802.11ac VHT80 mode, Antenna 1: 6 dB Bandwidth-5775 MHz



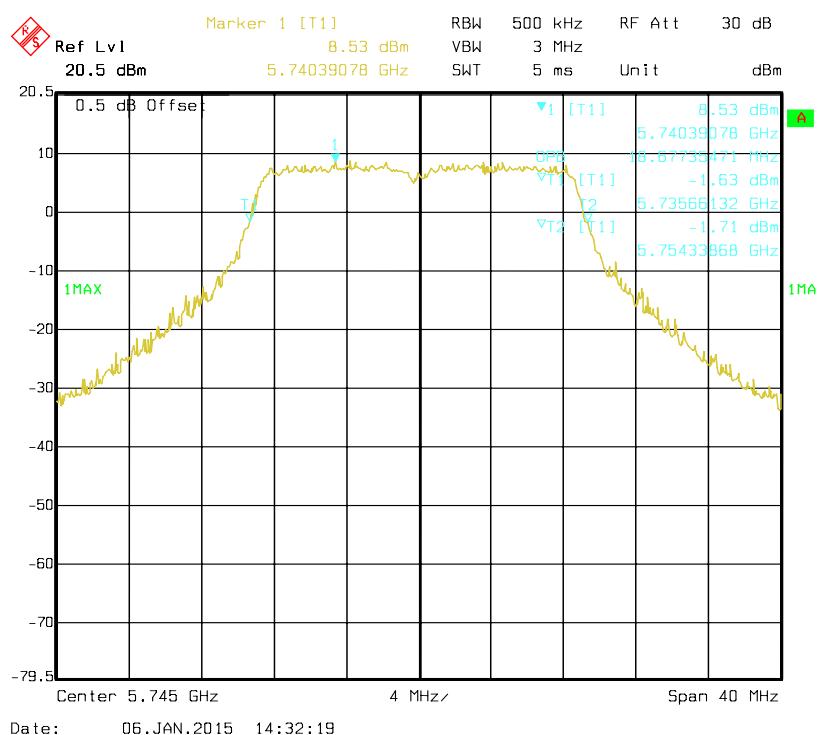
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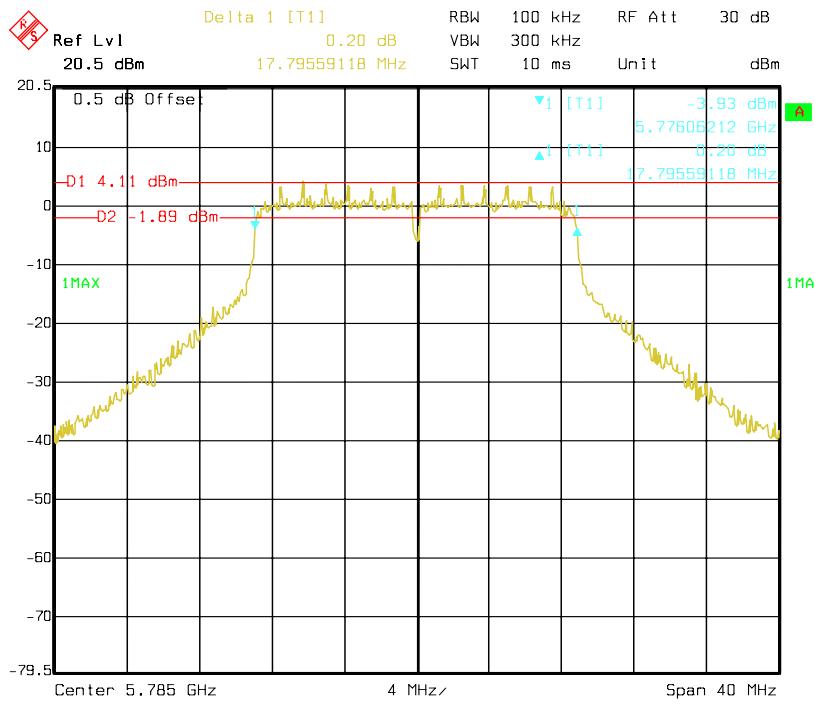
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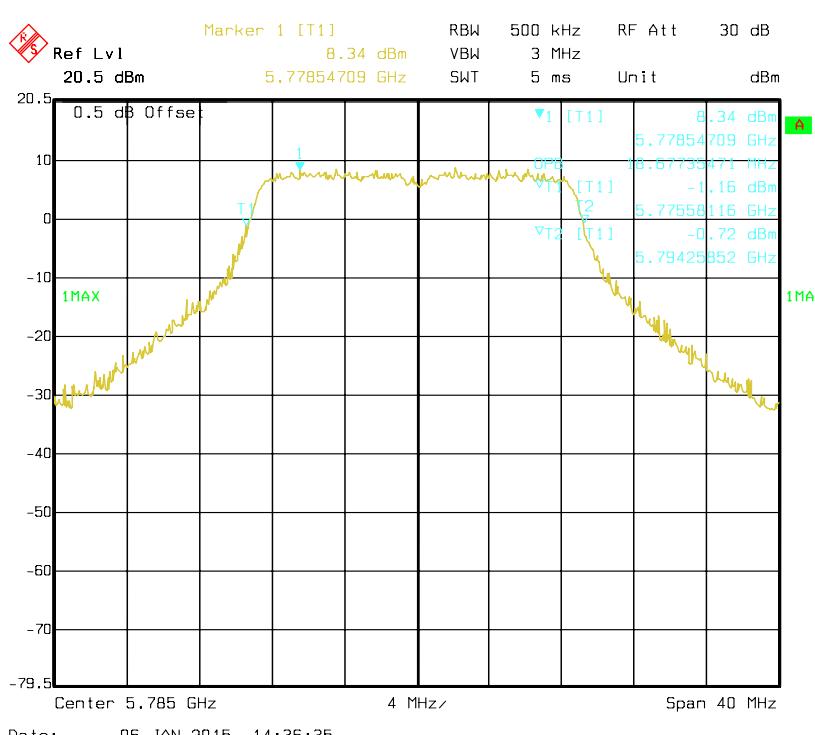
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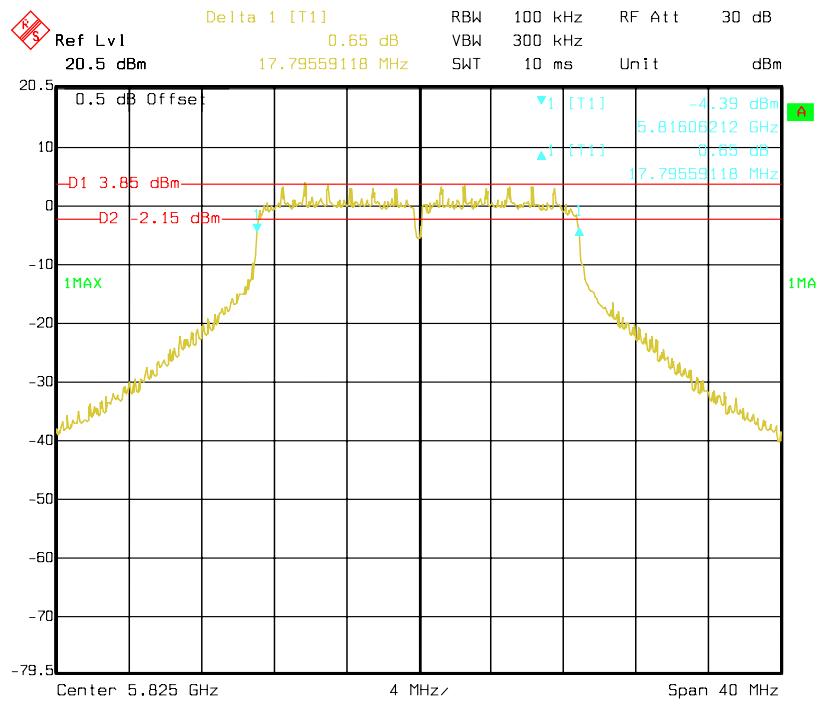
802.11n HT20 mode, Antenna 1: 6 dB Bandwidth-5785 MHz



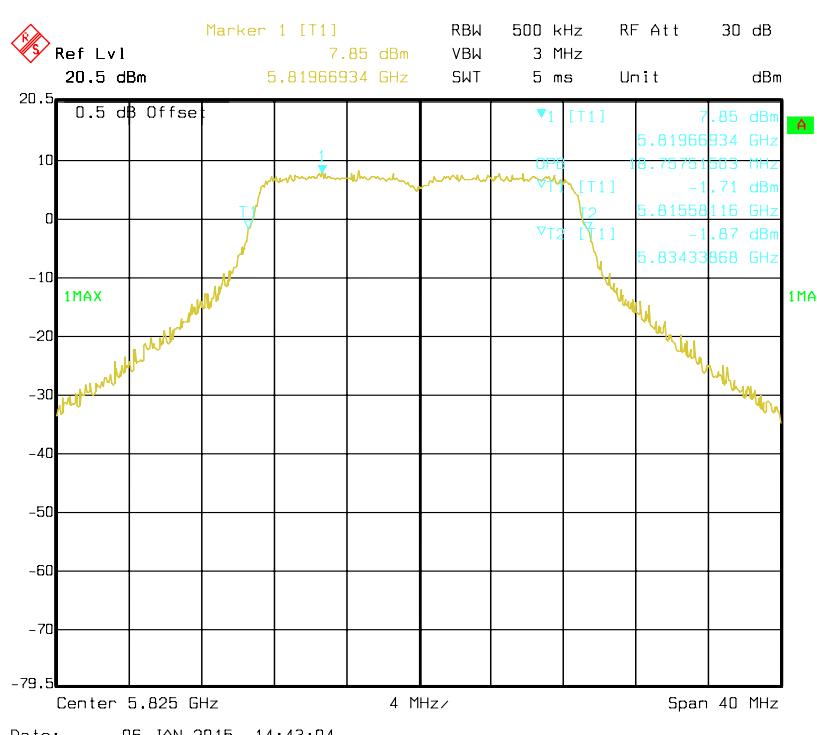
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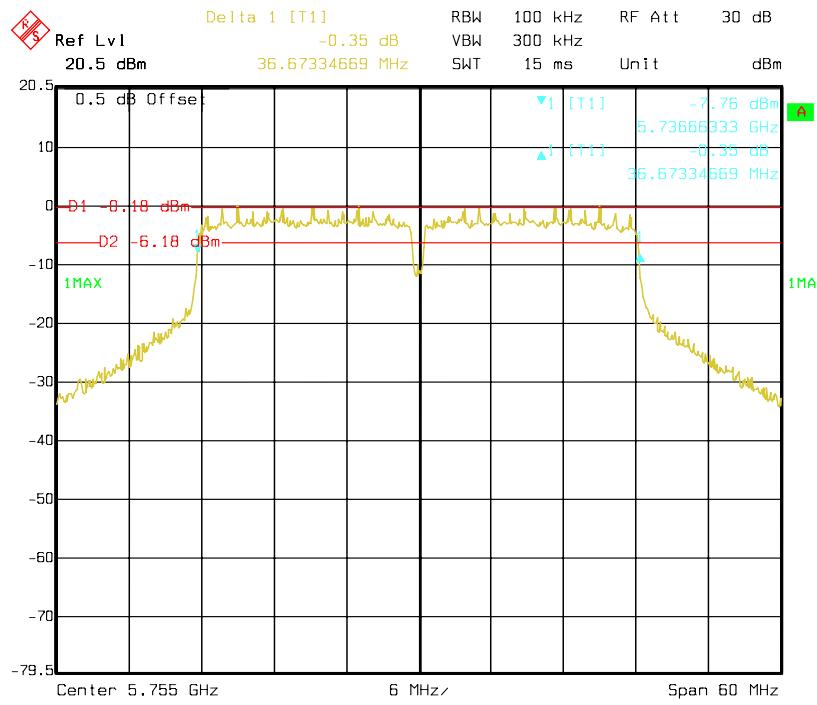
802.11n HT20 mode, Antenna 1: 6 dB Bandwidth-5825 MHz



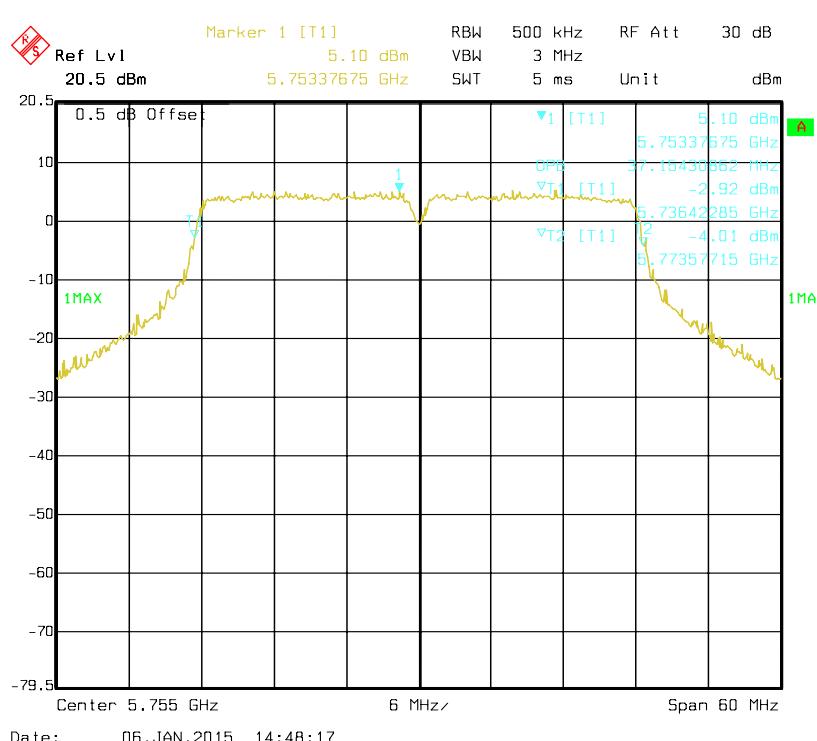
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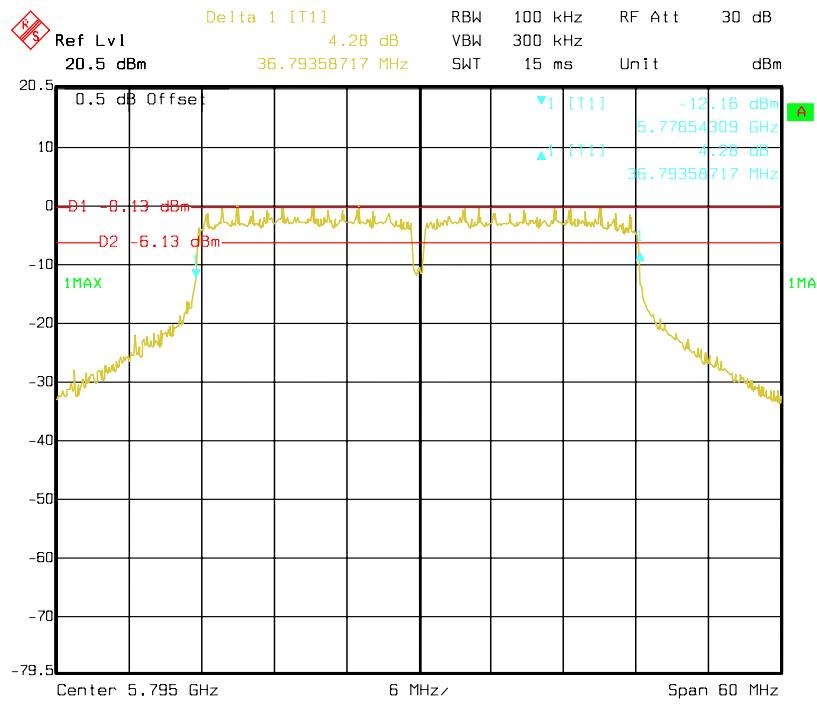
802.11n HT40 mode, Antenna 1: 6 dB Bandwidth-5755 MHz



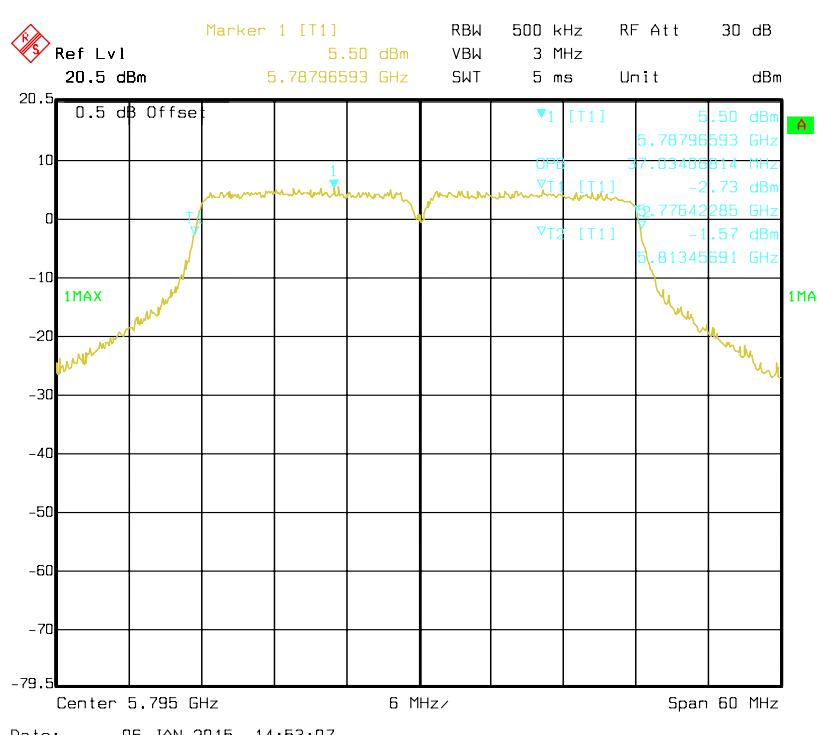
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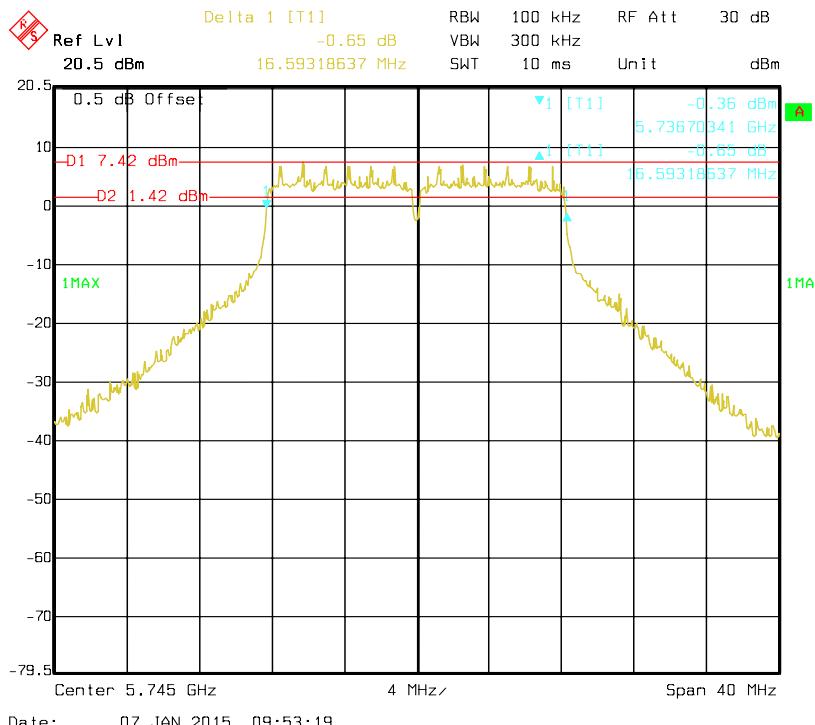
802.11n HT40 mode, Antenna 1: 6 dB Bandwidth-5795 MHz



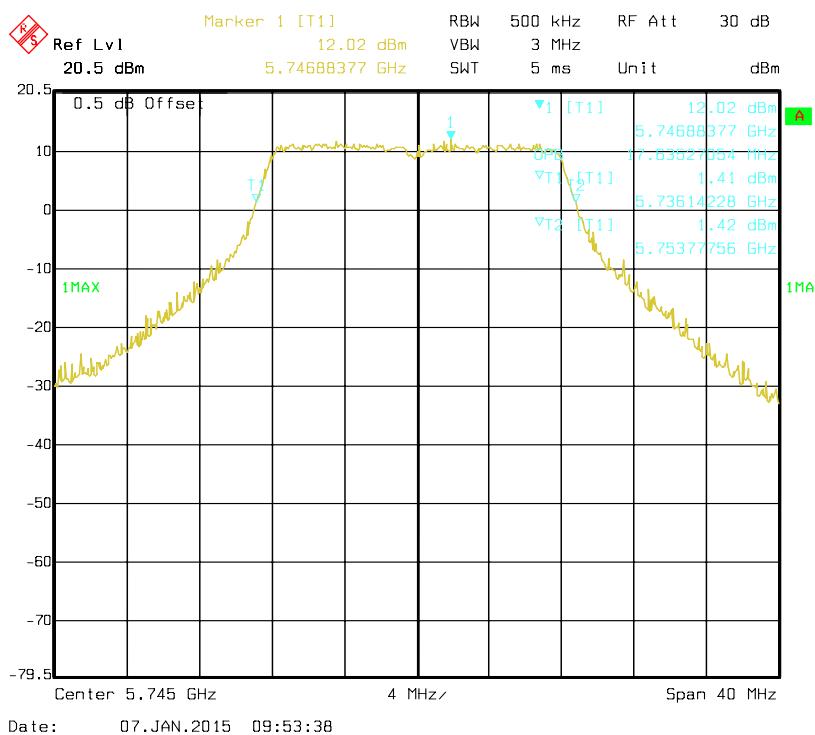
802.11n HT40 mode, Antenna 1: OBW Bandwidth-5795 MHz



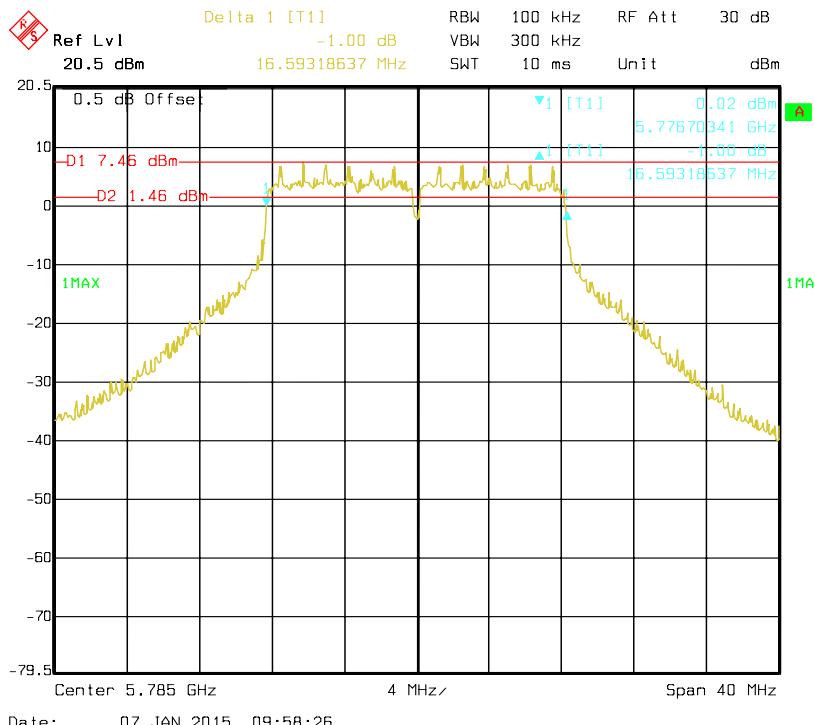
802.11a mode, Antenna 2: 6 dB Bandwidth-5745 MHz



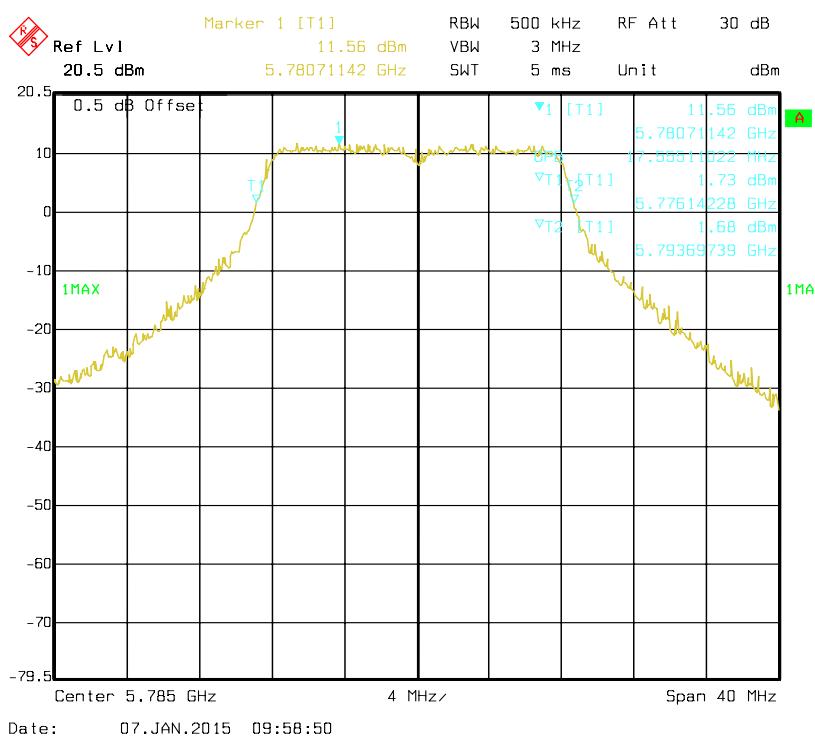
802.11a mode, Antenna 2: OBW Bandwidth-5745 MHz



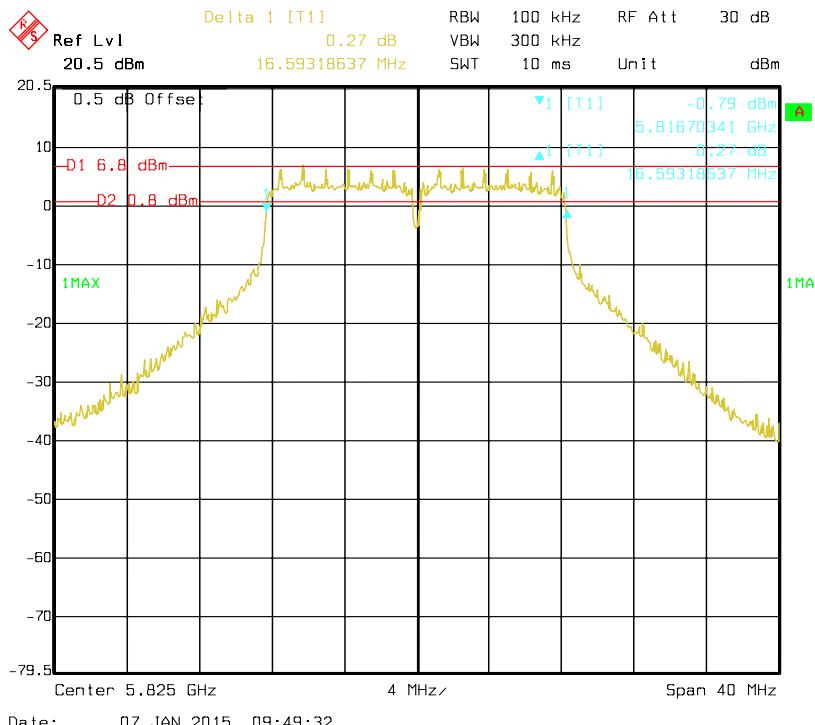
802.11a mode, Antenna 2: 6 dB Bandwidth-5785 MHz



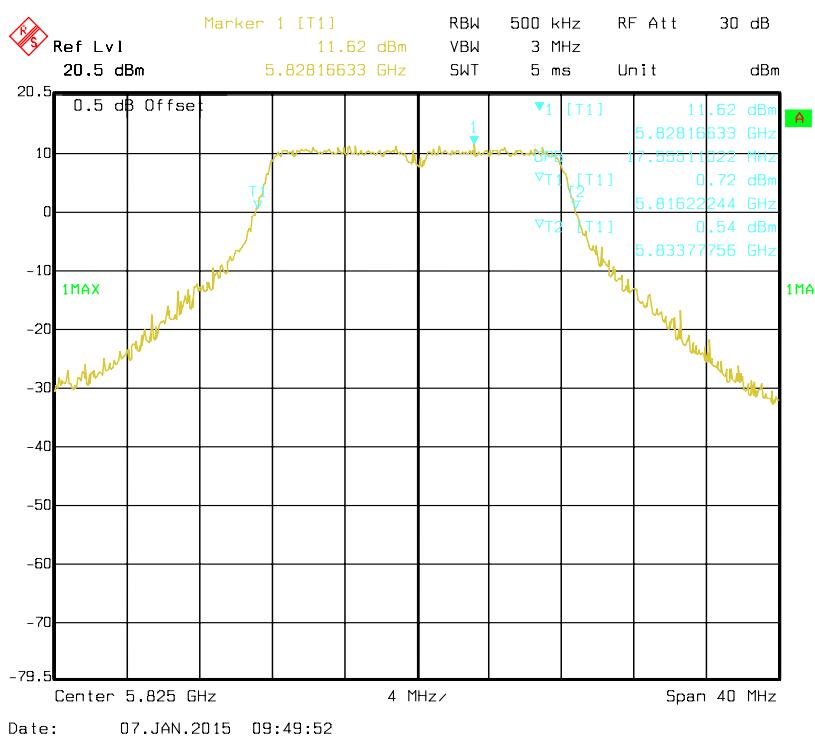
802.11a mode, Antenna 2: OBW Bandwidth-5785 MHz



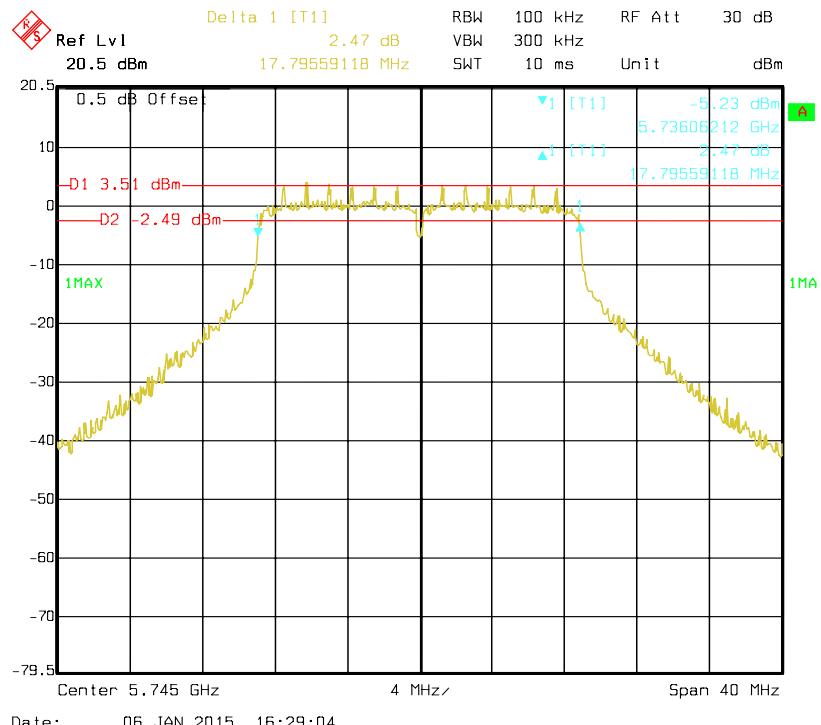
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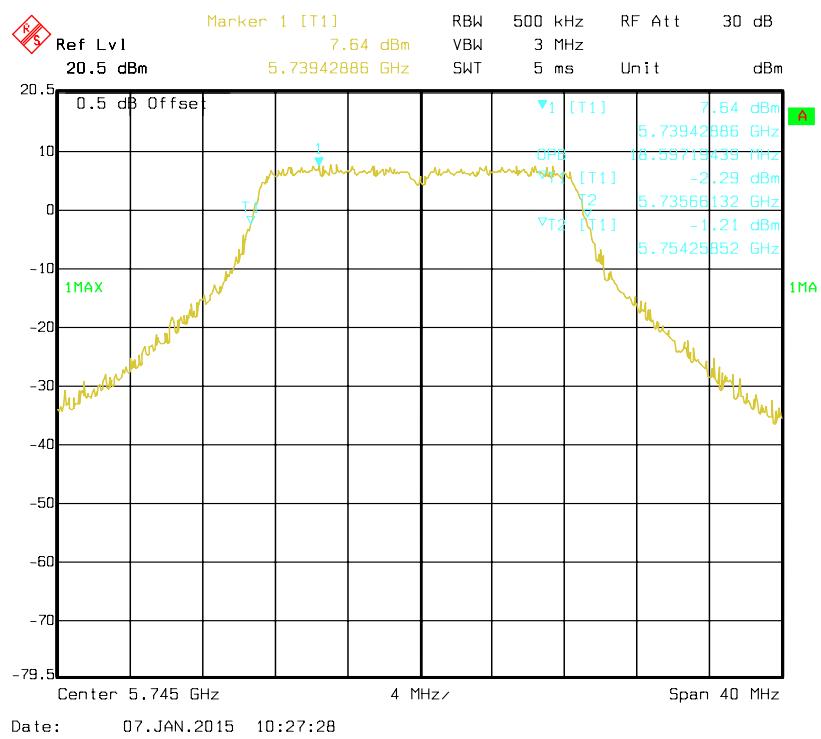
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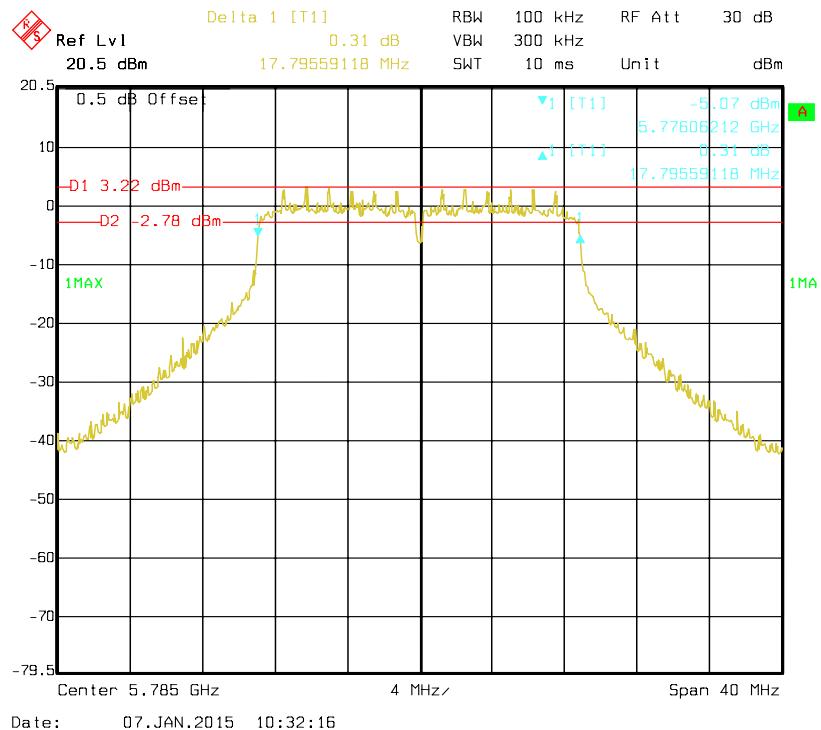
802.11ac VHT20 mode, Antenna 2: 6 dB Bandwidth-5745 MHz



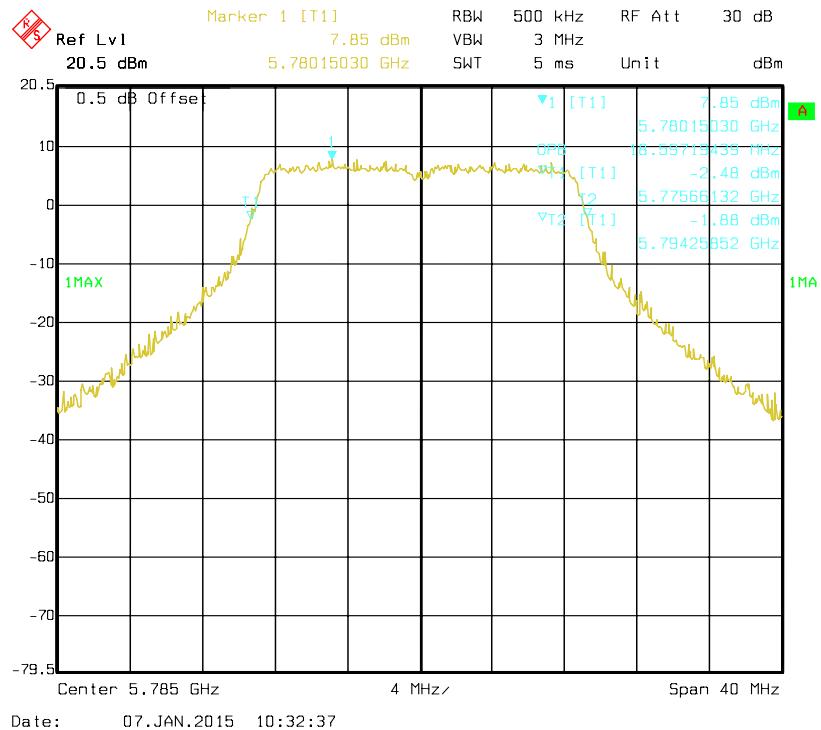
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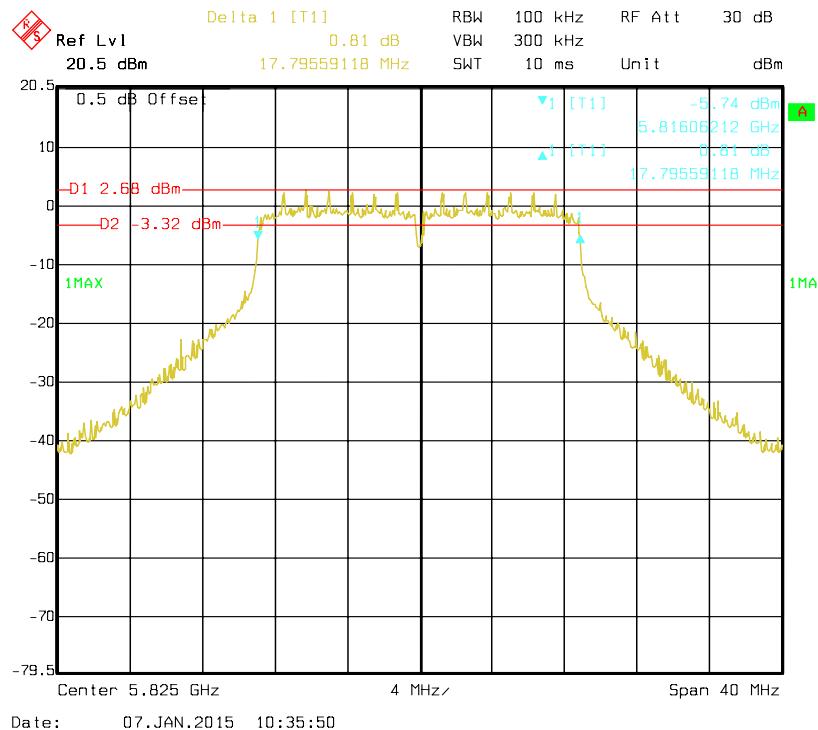
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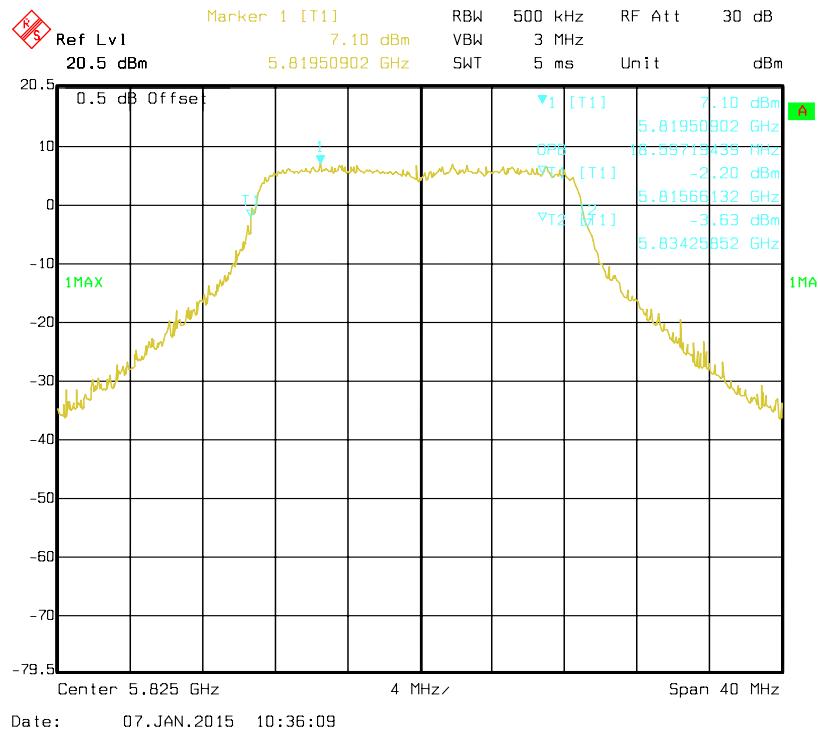
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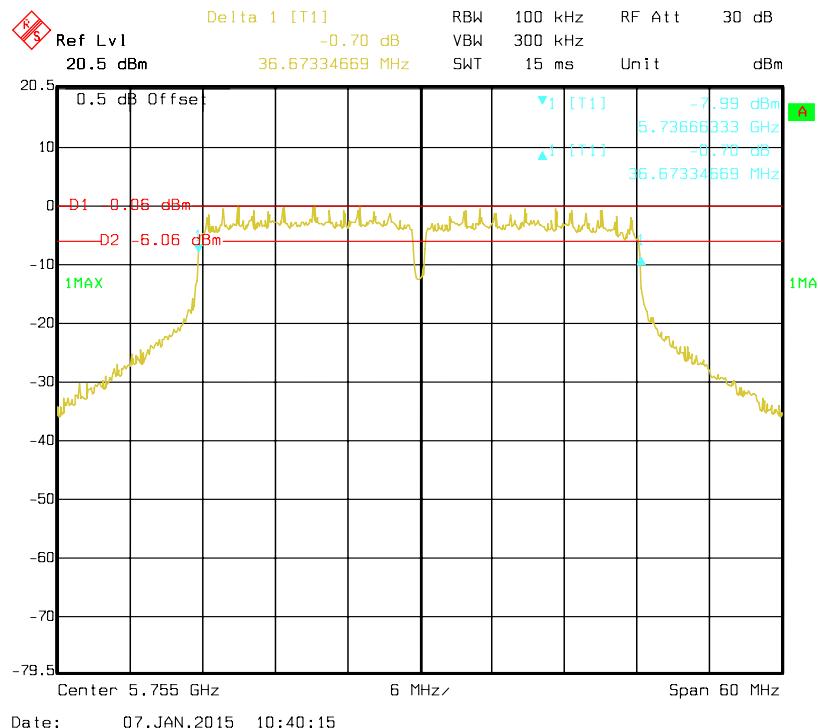
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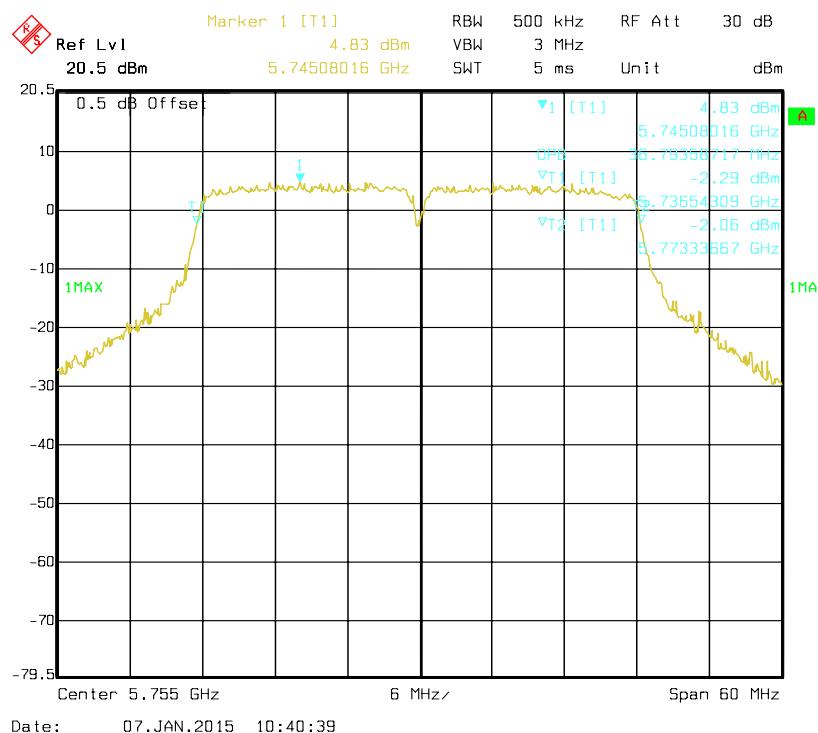
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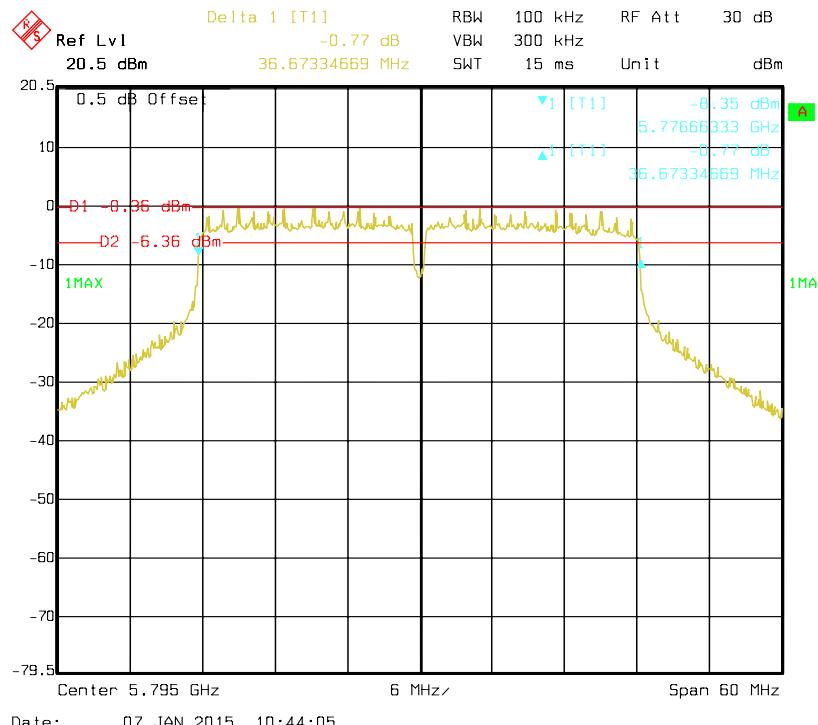
802.11ac VHT40 mode, Antenna 2: 6 dB Bandwidth-5755 MHz



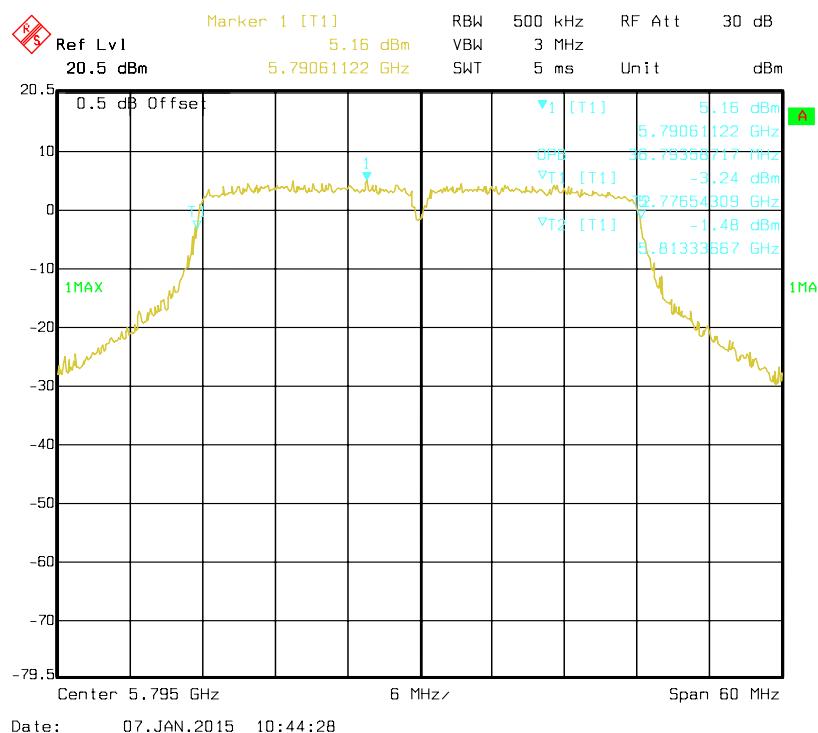
802.11ac VHT40 mode, Antenna 2: OBW Bandwidth-5755 MHz



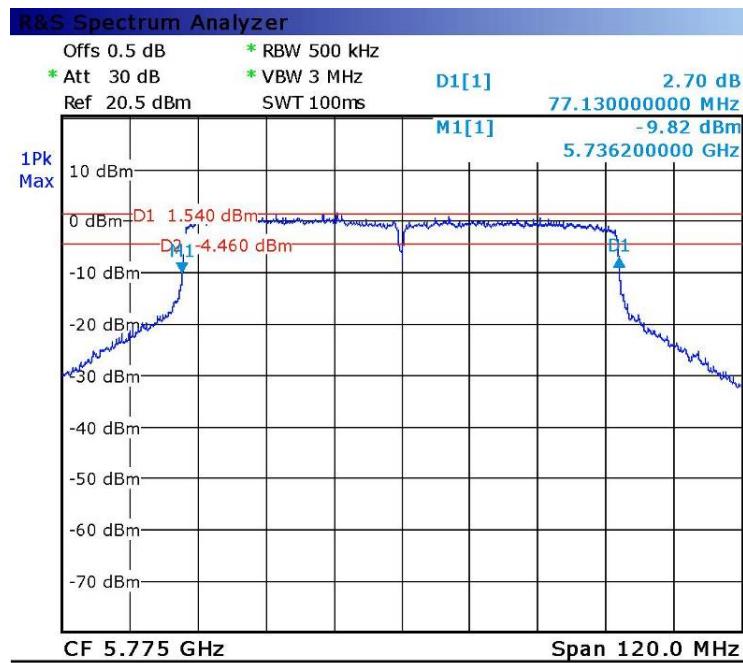
802.11ac VHT40 mode, Antenna 2: 6 dB Bandwidth-5795 MHz



802.11ac VHT40 mode, Antenna 2: OBW Bandwidth-5795 MHz

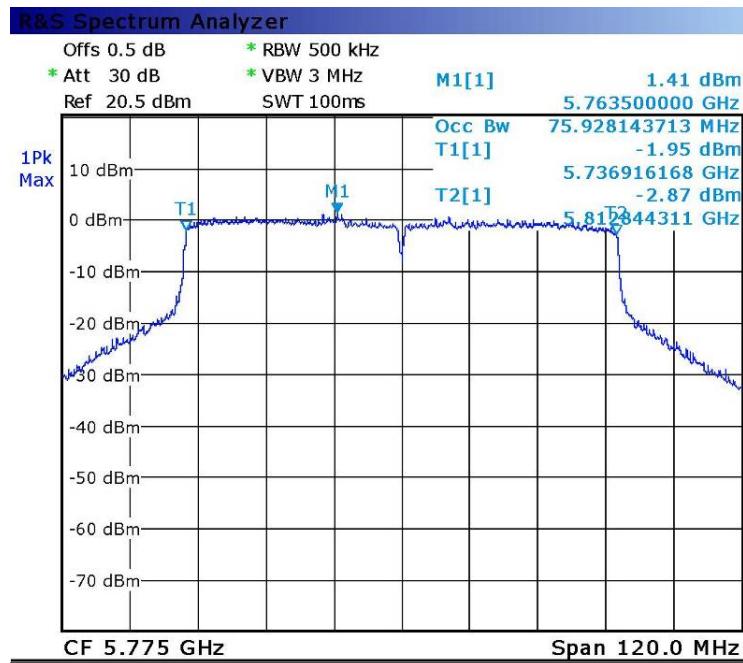


802.11ac VHT80 mode, Antenna 2: 6 dB Bandwidth-5775 MHz



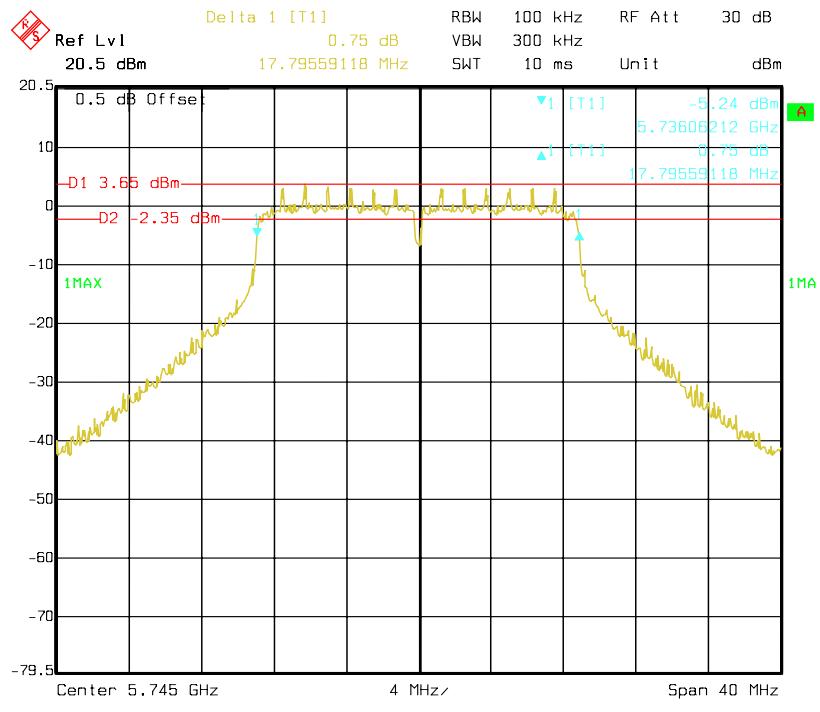
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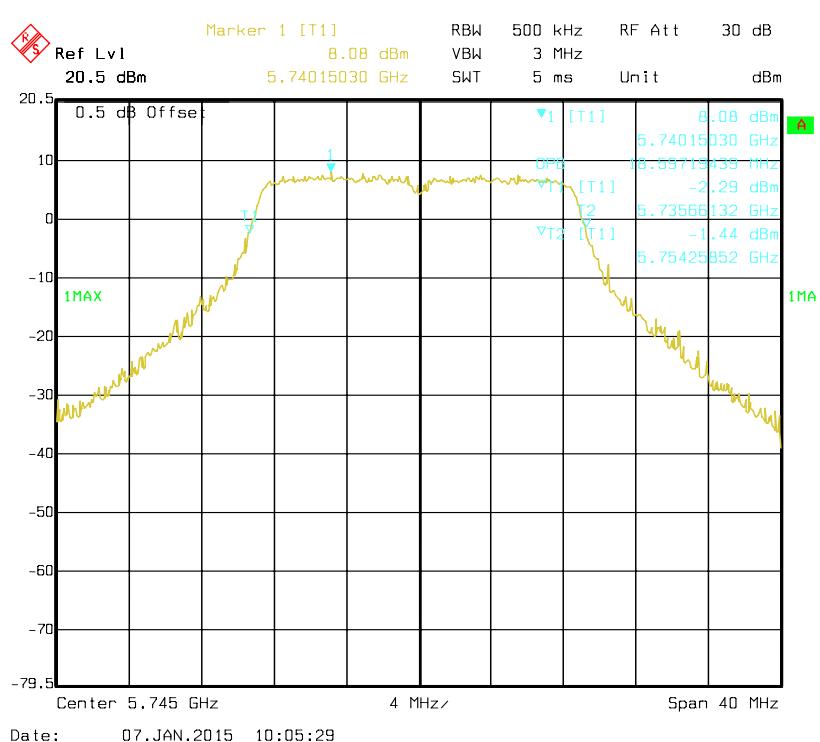


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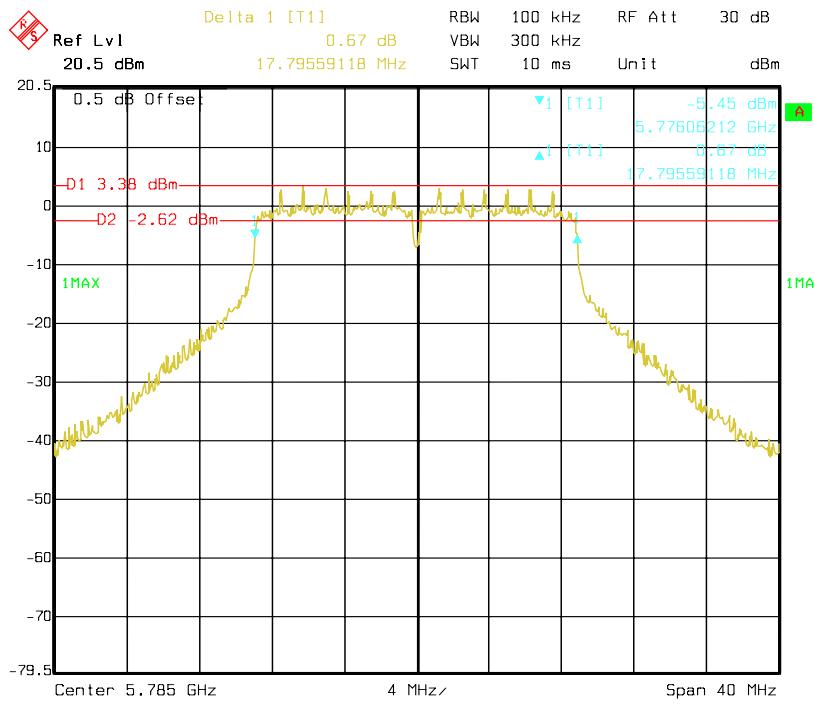
802.11n HT20 mode, Antenna 2: 6 dB Bandwidth-5745 MHz



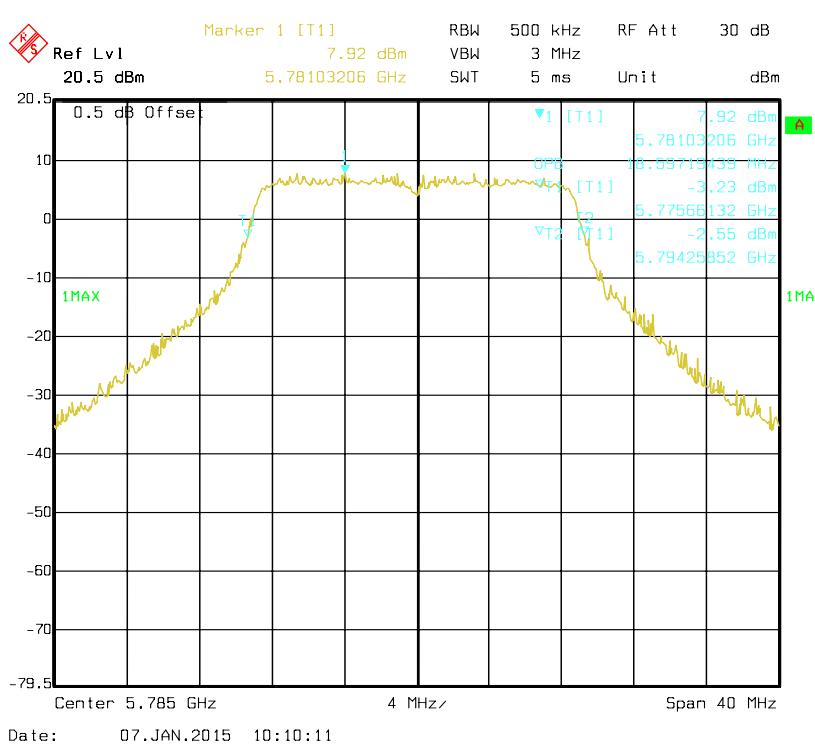
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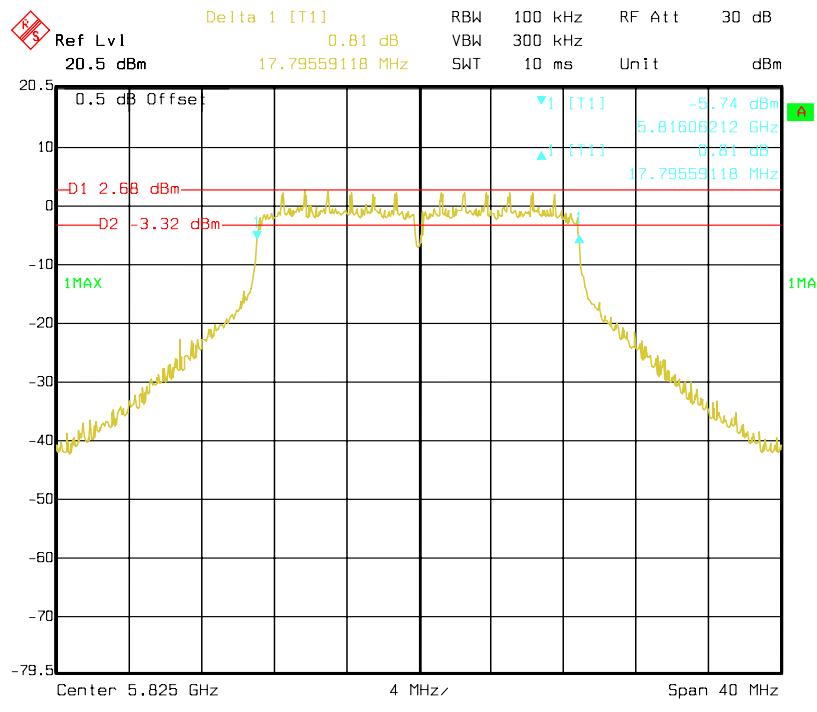
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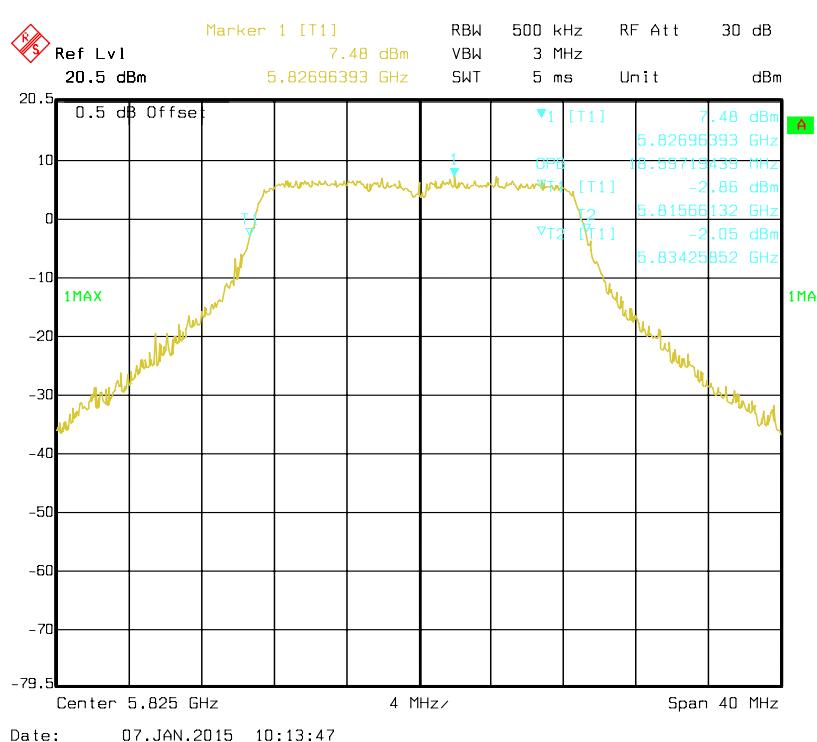
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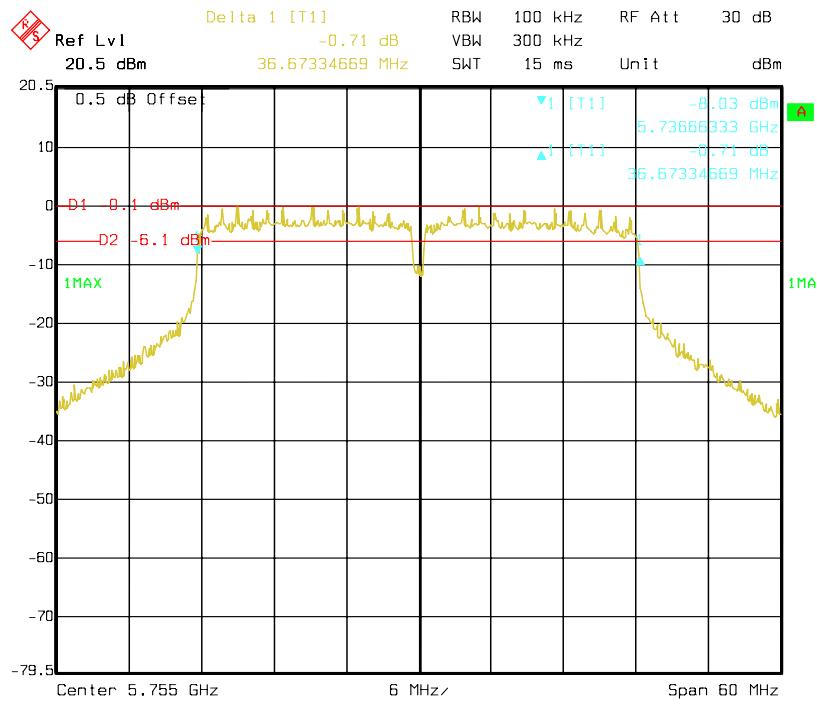
802.11n HT20 mode, Antenna 2: 6 dB Bandwidth-5825 MHz



802.11n HT20 mode, Antenna 2: OBW Bandwidth-5825 MHz



802.11n HT40 mode, Antenna 2: 6 dB Bandwidth-5755 MHz



802.11n HT40 mode, Antenna 2: OBW Bandwidth-5755 MHz

