FCC PART 15.407

TEST REPORT

For

Kasda Digital Technology Co., Ltd.

B-31 Building, Tanglang Industry Zone, XiLi Nanshan, Shenzhen, China

FCC ID: OWI-KA1750

Report Type:	**Product Type:**
Original Report	Wireless Router

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Report Number:	RSZ140710005-00C
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Kasda Digital Technology Co., Ltd.*'s product, model number: *KA1750 (FCC ID: OWI-KA1750)* or the "EUT" in this report was a *Wireless Router,* which was measured approximately: 26 cm (L) x 16 cm (W) x 5.8 cm (H), rated with input voltage: DC 12V from adapter.

Adapter information: Power Adapter
Model: ADS0363-W120250
Input: 100-240V~50/60 Hz, 1.0A
Output: DC 12V, 2.5A

Note: The serial models KA1750 and GR1750AC share the same schematics, they are different in model names, the details was explained in the attached product similarity declaration letter provided and guaranteed by applicant. Model KA1750 was selected for testing.

**All measurement and test data in this report was gathered from production sample serial number: KA1750000010 (Assigned by applicant). The EUT supplied by the applicant was received on 2014-07-10.*

Objective

This type approval report is prepared on behalf of *Kasda Digital Technology Co., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communication Commissions 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 DTS and part 15B JBP submissions with FCC ID: OWI-KA1750.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, 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. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with RF radiated emission is 5.91 dB for 30MHz-1GHz.and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. 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 system was configured for testing in an engineering mode, which was provided by manufacture.

EUT Exercise Software

Run CMD.exe and input specific command which was provided by the manufacturer.

802.11a: Rate 54Mbps, Power level: 48
802.11n: Rate MCS7, Power level: 48
802.11ac: Rate MCS7, Power level: 48

Equipment Modifications

No modification was made to the EUT tested.

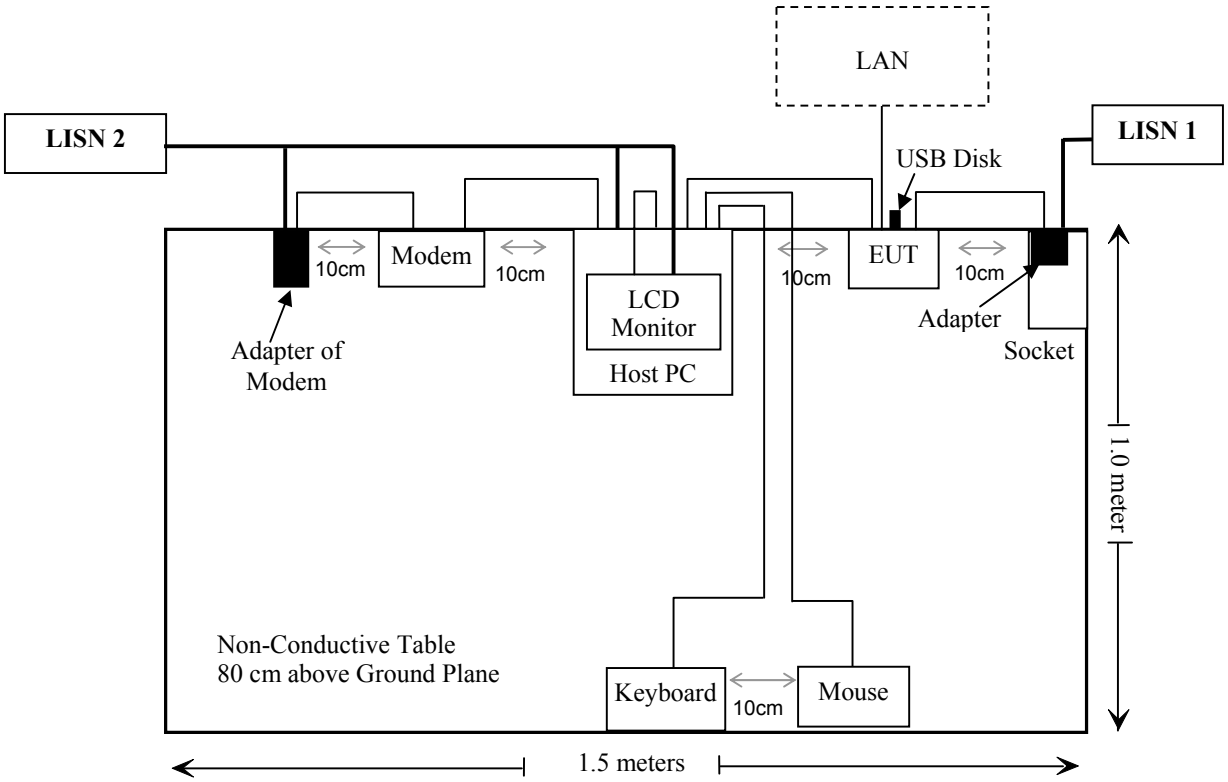
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	PC	VOSTRO 220S	127BP2X
DELL	LCD Monitor	E178WFPC	CN-OWY564-64180-7C4-2SQH
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Mouse	MOC5UO	G1900NKD
SAST	Modem	AEM-2100	0293
Kingston	USB Disk	--	--

External I/O Cable

Cable Description	Length (m)	From/Port	To
Shielding Detachable USB Cable	1.5	Host PC	Mouse
Shielding Detachable Serial Cable	1.2	Host PC	Modem
Shielding Detachable K/B Cable	1.5	Host PC	Keyboard
Shielding Detachable VGA Cable	1.5	Host PC	LCD Monitor
Unshielding Detachable DC Cable	1.2	Modem	Modem Adapter
Unshielding Undetachable DC Power Cable	1.2	EUT	Adapter
Unshielded Detachable RJ45 Cable	1.5	EUT	Host PC

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

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

Applicable Standard

According to FCC §2.1091 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

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

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11n-HT40	5230	5.0	3.16	22.09	161.81	20	0.102	1.0

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliance

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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

This product has three integrated antenna with maximum gain 5.0 dBi which was soldered on PCB, fulfill the requirement of this section, and please refer to the EUT photo.

Result: Compliance.

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

Applicable Standard

FCC §15.207, §15.407(b) (6)

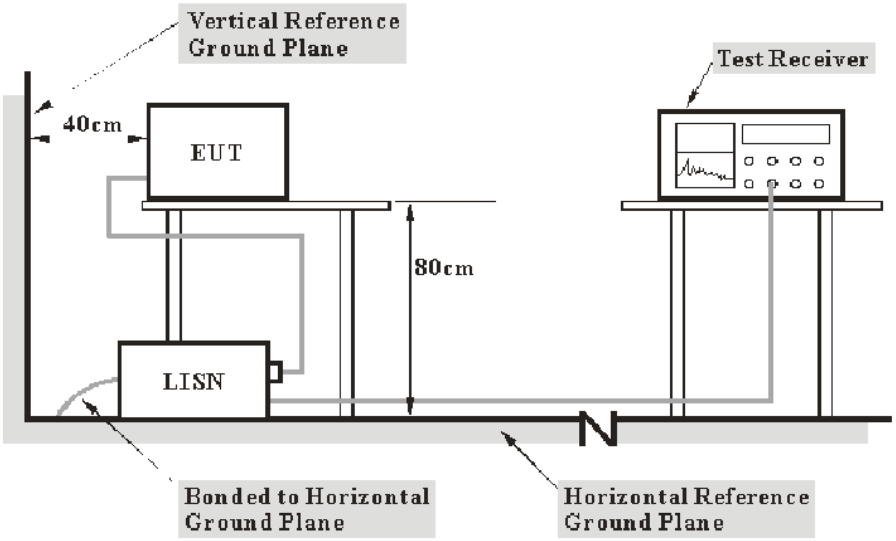
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN and receiver, LISN voltage division factor, LISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Expanded Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

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

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

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

Test Procedure

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

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2014-06-03	2015-06-03
Rohde & Schwarz	LISN	ESH2-Z5	892107/021	2014-06-09	2015-06-09
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2014-06-09	2015-06-09
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2014-05-14	2015-05-14
Rohde & Schwarz	CE Test software	EMC 32	V8.53	--	--

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, the worst margin reading as below:

11.5 dB at **0.549810 MHz** in the **Line** conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

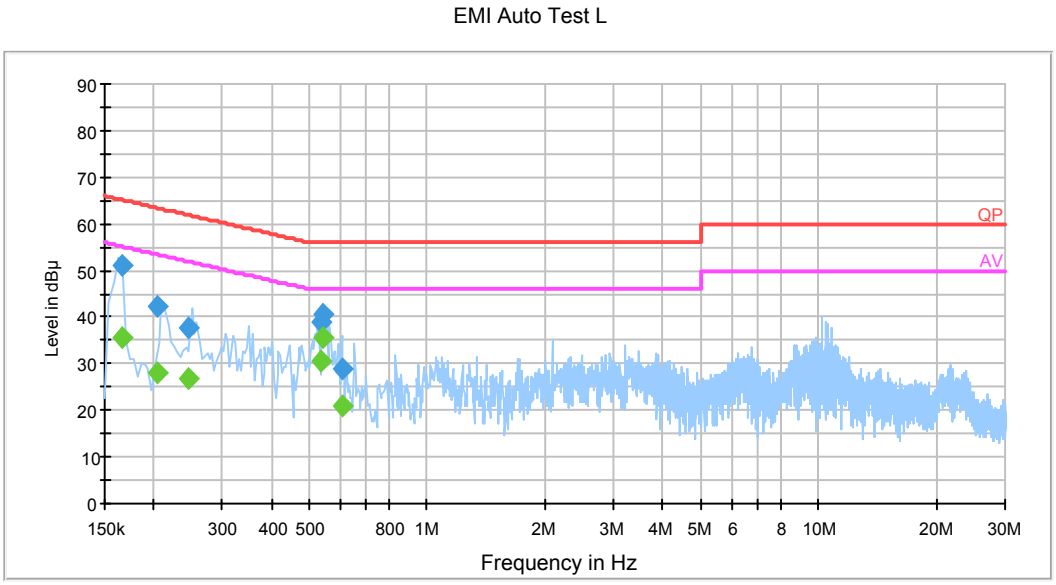
Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhangon 2014-07-17.

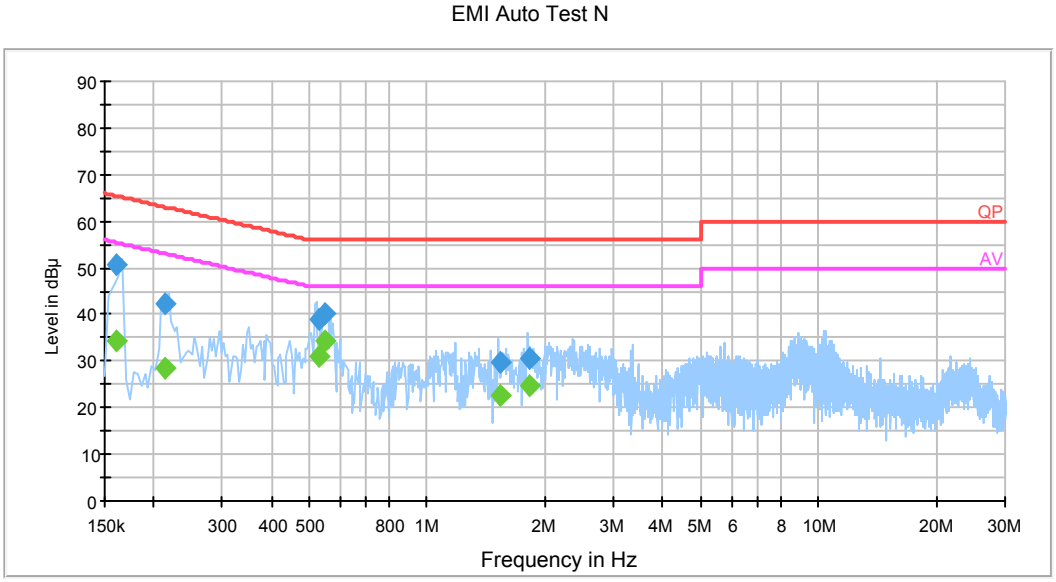
EUT operation mode: Running

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.166501	51.1	19.6	65.1	14.0	QP
0.166501	35.4	19.6	55.1	19.7	Ave.
0.205500	42.2	19.6	63.4	21.2	QP
0.205500	28.1	19.6	53.4	25.3	Ave.
0.245500	37.5	19.5	61.9	24.4	QP
0.245500	26.7	19.5	51.9	25.2	Ave.
0.533890	38.9	19.6	56.0	17.1	QP
0.533890	30.8	19.6	46.0	15.2	Ave.
0.541870	40.7	19.6	56.0	15.3	QP
0.541870	35.5	19.6	46.0	10.5	Ave.
0.604910	28.8	19.6	56.0	27.2	QP
0.604910	21.0	19.6	46.0	25.0	Ave.

AC120V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.161500	50.8	19.6	65.4	14.6	QP
0.161500	34.2	19.6	55.4	21.2	Ave.
0.213500	42.4	19.5	63.1	20.7	QP
0.213500	28.7	19.5	53.1	24.4	Ave.
0.529830	38.8	19.6	56.0	17.2	QP
0.529830	31.1	19.6	46.0	14.9	Ave.
0.549810	40.1	19.6	56.0	15.9	QP
0.549810	34.5	19.6	46.0	11.5	Ave.
1.544830	29.6	19.5	56.0	26.4	QP
1.544830	22.4	19.5	46.0	23.6	Ave.
1.837150	30.5	19.6	56.0	25.5	QP
1.837150	24.9	19.6	46.0	21.1	Ave.

Note:
1) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

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

Applicable Standard

FCC §15.407 (b) (1), (2), (3), (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 EIRP 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 EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

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 EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725–5.825 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 EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz。

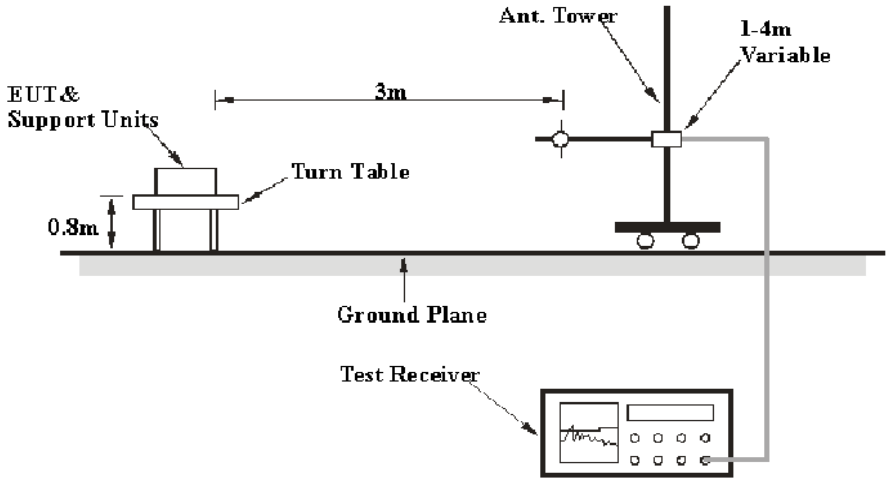
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz, 1.95dB for conducted measurement at antenna port. And the uncertainty will not be taken into consideration for the test data recorded in the report

EUT Setup



The radiated emission tests were performed in the 1.5 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. 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 adapter was connected to a 120 VAC/60 Hz power source,

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	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	/	Ave.

Test Procedure

Radiated Spurious Emission

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

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

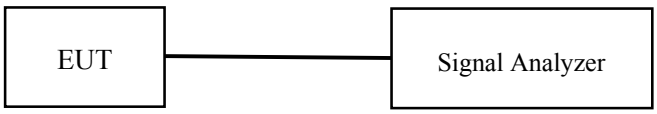
Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

The EUT is set 1.5 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

According to C63.4, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m
Distance extrapolation factor =20 log (3m/1.5m) dB
Extrapolation result = Corrected Amplitude (dBμV/m) -6dB

Conducted Spurious Emission at Antenna Port

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1MHz, report the peak value out of the oprating band.
3. Repeat above procedures until all frequencies measured were complete.



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 = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2014-05-06	2015-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-09-25	2014-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Mini	Amplifier	ZVA-183-S+	5969001149	2014-04-23	2015-04-23
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2013-08-03	2014-08-03
Agilent	Spectrum Analyzer	8564E	3943A01781	2014-05-07	2015-05-07
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13

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

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, the worst margin reading as below:

1.4 dB at **2800 MHz** in the **Horizontal** polarization (802.11n mode)

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhangon 2014-07-17.

EUT operation mode: Running

30 MHz ~ 40 GHz:

802.11a mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
469.1	51.88	QP	115	1.2	H	-9.00	42.88	46	3.12
5180.00	87.56	PK	239	2.0	H	11.93	99.49	/	/
5180.00	77.08	Ave.	239	2.0	H	11.93	89.01	/	/
5180.00	91.18	PK	164	2.3	V	11.93	103.11	/	/
5180.00	79.70	Ave.	164	2.3	V	11.93	91.63	/	/
7000.00	35.01	PK	14	2.4	V	17.39	52.40	74	21.60
7000.00	18.34	Ave.	14	2.4	V	17.39	35.73	54	18.27
7500.00	37.23	PK	57	2.1	V	15.9	53.13	74	20.87
7500.00	32.32	Ave.	57	2.1	V	15.9	48.22	54	5.78
10360.00	33.53	PK	282	2.5	H	20.25	53.78	74	20.22
10360.00	17.00	Ave.	282	2.5	H	20.25	37.25	54	16.75
15540.00	32.11	PK	155	1.2	H	23.85	55.96	74	18.04
15540.00	15.41	Ave.	155	1.2	H	23.85	39.26	54	14.74
5200 MHz									
469.1	51.26	QP	332	1.3	H	-9.00	42.26	46	3.74
5200.00	84.15	PK	145	2.3	H	11.93	96.08	/	/
5200.00	72.61	Ave.	145	2.3	H	11.93	84.54	/	/
5200.00	90.95	PK	348	2.3	V	11.93	102.88	/	/
5200.00	80.04	Ave.	348	2.3	V	11.93	91.97	/	/
5127.15	42.13	PK	257	1.7	V	11.83	53.96	74	20.04
5127.15	30.38	Ave.	257	1.7	V	11.83	42.21	54	11.79
5358.60	38.69	PK	357	1.8	V	12.01	50.7	74	23.30
5358.60	25.52	Ave.	357	1.8	V	12.01	37.53	54	16.47
7000.00	31.34	PK	223	1.9	V	17.39	48.73	74	25.27
7000.00	15.41	Ave.	223	1.9	V	17.39	32.8	54	21.20
7500.00	35.07	PK	63	1.4	V	15.9	50.97	74	23.03
7500.00	28.67	Ave.	63	1.4	V	15.9	44.57	54	9.43
10400.00	31.35	PK	204	2.1	H	20.38	51.73	74	22.27
10400.00	15.41	Ave.	204	2.1	H	20.38	35.79	54	18.21
15600.00	30.79	PK	113	2.5	H	23.85	54.64	74	19.36
15600.00	15.41	Ave.	113	2.5	H	23.85	39.26	54	14.74

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5240 MHz									
469.1	49.86	QP	221	1.3	H	-9.00	40.86	46	5.14
5240.00	81.81	PK	223	1.6	H	11.92	93.73	/	/
5240.00	71.29	Ave.	223	1.6	H	11.92	83.21	/	/
5240.00	89.28	PK	158	1.3	V	11.92	101.2	/	/
5240.00	78.66	Ave.	158	1.3	V	11.92	90.58	/	/
5407.10	36.17	PK	326	1.5	V	12.1	48.27	74	25.73
5407.10	23.71	Ave.	326	1.5	V	12.1	35.81	54	18.19
10480.00	34.91	PK	237	1.9	H	20.41	55.32	74	18.68
10480.00	18.34	Ave.	237	1.9	H	20.41	38.75	54	15.25
15720.00	32.43	PK	255	1.8	H	23.85	56.28	74	17.72
15720.00	15.41	Ave.	255	1.8	H	23.85	39.26	54	14.74

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
469.1	51.66	QP	112	1.3	H	-9.00	42.66	46	3.34
5745.00	86.75	PK	349	2.3	H	13.51	100.26	/	/
5745.00	75.42	Ave.	349	2.3	H	13.51	88.93	/	/
5745.00	87.52	PK	49	1.6	V	13.51	101.03	/	/
5745.00	76.24	Ave.	49	1.6	V	13.51	89.75	/	/
7500.00	33.51	PK	166	1.5	V	15.9	49.41	74	24.59
7500.00	25.52	Ave.	166	1.5	V	15.9	41.42	54	12.58
5665.00	40.15	PK	16	1.8	V	12.98	53.13	74	20.87
5665.00	27.88	Ave.	16	1.8	V	12.98	40.86	54	13.14
11490.00	38.96	PK	280	1.6	H	20.47	59.43	74	14.57
11490.00	24.96	Ave.	280	1.6	H	20.47	45.43	54	8.57
17235.00	31.82	PK	268	1.2	H	23.85	55.67	74	18.33
17235.00	17.00	Ave.	268	1.2	H	23.85	40.85	54	13.15
5785 MHz									
469.1	51.18	QP	118	1.3	H	-9.00	42.18	46	3.82
5785.00	86.34	PK	151	2.1	H	13.87	100.21	/	/
5785.00	74.48	Ave.	151	2.1	H	13.87	88.35	/	/
5785.00	87.68	PK	156	2.5	V	13.87	101.55	/	/
5785.00	77.22	Ave.	156	2.5	V	13.87	91.09	/	/
5699.20	41.61	PK	258	2.5	V	12.98	54.59	74	19.41
5699.20	30.21	Ave.	258	2.5	V	12.98	43.19	54	10.81
7500.00	33.67	PK	222	1.6	V	15.9	49.57	74	24.43
7500.00	25.92	Ave.	222	1.6	V	15.9	41.82	54	12.18
5865.21	40.07	PK	146	1.3	V	13.84	53.91	74	20.09
5865.21	28.11	Ave.	146	1.3	V	13.84	41.95	54	12.05
11570.00	30.90	PK	115	1.1	H	20.09	50.99	74	23.01
11570.00	15.41	Ave.	115	1.1	H	20.09	35.5	54	18.50
17355.00	32.56	PK	301	2.2	H	23.85	56.41	74	17.59
17355.00	17.00	Ave.	301	2.2	H	23.85	40.85	54	13.15

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5805 MHz									
469.1	49.82	QP	115	1.1	H	-9.00	40.82	46	5.18
5805.00	85.94	PK	265	2.3	H	13.87	99.81	/	/
5805.00	74.12	Ave.	265	2.3	H	13.87	87.99	/	/
5805.00	87.99	PK	242	1.9	V	13.87	101.86	/	/
5805.00	77.81	Ave.	242	1.9	V	13.87	91.68	/	/
2881.65	40.34	PK	233	1.6	V	8.56	48.9	74	25.10
2881.65	28.01	Ave.	233	1.6	V	8.56	36.57	54	17.43
5457.80	34.82	PK	316	1.9	V	12.1	46.92	74	27.08
5457.80	19.50	Ave.	316	1.9	V	12.1	31.6	54	22.40
7500.00	35.34	PK	100	1.1	V	15.9	51.24	74	22.76
7500.00	25.52	Ave.	100	1.1	V	15.9	41.42	54	12.58
11610.00	30.10	PK	112	1.9	H	20.41	50.51	74	23.49
11610.00	15.41	Ave.	112	1.9	H	20.41	35.82	54	18.18
17415.00	32.03	PK	274	1.4	H	23.85	55.88	74	18.12
17415.00	17.00	Ave.	274	1.4	H	23.85	40.85	54	13.15

802.11n20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
469.1	51.24	QP	133	1.2	H	-9.00	42.24	46	3.76
5180.00	93.44	PK	188	1.3	H	11.93	105.37	/	/
5180.00	82.09	Ave.	188	1.3	H	11.93	94.02	/	/
5180.00	90.43	PK	78	2.3	V	11.93	102.36	/	/
5180.00	79.16	Ave.	78	2.3	V	11.93	91.09	/	/
5395.63	39.42	PK	91	1.3	H	12.01	51.43	74	22.57
5395.63	31.80	Ave.	91	1.3	H	12.01	43.81	54	10.19
2500.00	43.55	PK	148	1.7	H	7.21	50.76	74	23.24
2500.00	39.22	Ave.	148	1.7	H	7.21	46.43	54	7.57
2800.00	46.64	PK	247	2.4	H	8.62	55.26	74	18.74
2800.00	43.78	Ave.	247	2.4	H	8.62	52.4	54	1.60
10360.00	40.02	PK	320	1.8	H	20.25	60.27	74	13.73
10360.00	22.26	Ave.	320	1.8	H	20.25	42.51	54	11.49
15540.00	43.12	PK	48	1.2	H	23.85	66.97	74	7.03
15540.00	17.00	Ave.	48	1.2	H	23.85	40.85	54	13.15
5200 MHz									
469.1	50.55	QP	113	1.1	H	-9.00	41.55	46	4.45
5200.00	93.13	PK	123	2.3	H	11.93	105.06	/	/
5200.00	81.78	Ave.	123	2.3	H	11.93	93.71	/	/
5200.00	87.57	PK	98	1.4	V	11.93	99.5	/	/
5200.00	75.87	Ave.	98	1.4	V	11.93	87.8	/	/
5119.60	45.03	PK	329	1.3	H	11.83	56.86	74	17.14
5119.60	33.69	Ave.	329	1.3	H	11.83	45.52	54	8.48
5416.57	38.03	PK	354	2.2	H	12.1	50.13	74	23.87
5416.57	29.73	Ave.	354	2.2	H	12.1	41.83	54	12.17
2500.00	43.48	PK	145	1.2	H	7.21	50.69	74	23.31
2500.00	38.11	Ave.	145	1.2	H	7.21	45.32	54	8.68
2800.00	45.99	PK	141	1.4	H	8.62	54.61	74	19.39
2800.00	43.51	Ave.	141	1.4	H	8.62	52.13	54	1.87
10400.00	37.98	PK	286	1.7	H	20.38	58.36	74	15.64
10400.00	23.02	Ave.	286	1.7	H	20.38	43.4	54	10.60
15600.00	31.22	PK	178	1.7	H	23.85	55.07	74	18.93
15600.00	17.00	Ave.	178	1.7	H	23.85	40.85	54	13.15

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5240 MHz									
469.1	49.58	QP	135	1.3	H	-9.00	40.58	46	5.42
5240.00	91.32	PK	1	1.4	H	11.92	103.24	/	/
5240.00	78.95	Ave.	1	1.4	H	11.92	90.87	/	/
5240.00	84.58	PK	308	2.3	V	11.92	96.5	/	/
5240.00	72.90	Ave.	308	2.3	V	11.92	84.82	/	/
5021.60	39.99	PK	33	2.1	H	12.57	52.56	74	21.44
5021.60	33.48	Ave.	33	2.1	H	12.57	46.05	54	7.95
2500.00	44.22	PK	120	2.1	H	7.21	51.43	74	22.57
2500.00	40.05	Ave.	120	2.1	H	7.21	47.26	54	6.74
2800.00	45.82	PK	270	1.8	H	8.62	54.44	74	19.56
2800.00	43.01	Ave.	270	1.8	H	8.62	51.63	54	2.37
10480.00	36.35	PK	311	1.7	H	20.41	56.76	74	17.24
10480.00	17.00	Ave.	311	1.7	H	20.41	37.41	54	16.59
5163.00	41.42	PK	163	1.1	H	11.93	53.35	74	20.65
5163.00	30.06	Ave.	163	1.1	H	11.93	41.99	54	12.01
5745 MHz									
469.1	49.87	QP	115	1.5	H	-9.00	40.87	46	5.13
5745.00	88.94	PK	239	1.4	H	13.51	102.45	/	/
5745.00	79.42	Ave.	239	1.4	H	13.51	92.93	/	/
5745.00	85.31	PK	186	1.8	V	13.51	98.82	/	/
5745.00	74.26	Ave.	186	1.8	V	13.51	87.77	/	/
5660.65	45.13	PK	216	1.1	H	12.98	58.11	74	15.89
5660.65	33.69	Ave.	216	1.1	H	12.98	46.67	54	7.33
2500.00	45.61	PK	301	1.9	H	7.21	52.82	74	21.18
2500.00	41.42	Ave.	301	1.9	H	7.21	48.63	54	5.37
2800.00	46.99	PK	168	2.0	H	8.62	55.61	74	18.39
2800.00	43.19	Ave.	168	2.0	H	8.62	51.81	54	2.19
11490.00	34.03	PK	11	1.4	H	20.47	54.5	74	19.50
11490.00	17.00	Ave.	11	1.4	H	20.47	37.47	54	16.53
7500.00	34.29	PK	108	1.7	V	15.9	50.19	74	23.81
7500.00	27.46	Ave.	108	1.7	V	15.9	43.36	54	10.64

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5785 MHz									
469.1	49.98	QP	132	1.2	H	-9.00	40.98	46	5.02
5785.00	89.23	PK	170	1.6	H	13.87	103.1	/	/
5785.00	78.03	Ave.	170	1.6	H	13.87	91.9	/	/
5785.00	84.54	PK	128	1.0	V	13.87	98.41	/	/
5785.00	73.14	Ave.	128	1.0	V	13.87	87.01	/	/
5368.50	33.44	PK	240	1.9	H	12.01	45.45	74	28.55
5368.50	19.50	Ave.	240	1.9	H	12.01	31.51	54	22.49
7500.00	32.83	PK	105	1.2	H	15.9	48.73	74	25.27
7500.00	23.71	Ave.	105	1.2	H	15.9	39.61	54	14.39
2500.00	43.98	PK	258	1.7	H	7.21	51.19	74	22.81
2500.00	40.55	Ave.	258	1.7	H	7.21	47.76	54	6.24
2800.00	46.83	PK	221	2.0	H	8.62	55.45	74	18.55
2800.00	43.54	Ave.	221	2.0	H	8.62	52.16	54	1.84
5863.95	43.66	PK	156	1.0	H	13.84	57.5	74	16.50
5863.95	31.80	Ave.	156	1.0	H	13.84	45.64	54	8.36
11570.00	31.22	PK	297	1.5	H	20.09	51.31	74	22.69
11570.00	17.00	Ave.	297	1.5	H	20.09	37.09	54	16.91
5805 MHz									
469.1	50.12	QP	135	1.3	H	-9.00	41.12	46	4.88
5805.00	89.23	PK	211	2.0	H	13.87	103.1	/	/
5805.00	78.88	Ave.	211	2.0	H	13.87	92.75	/	/
5805.00	83.99	PK	242	1.1	V	13.87	97.86	/	/
5805.00	73.02	Ave.	242	1.1	V	13.87	86.89	/	/
5444.35	34.56	PK	94	1.1	H	12.1	46.66	74	27.34
5444.35	20.52	Ave.	94	1.1	H	12.1	32.62	54	21.38
7500.00	34.15	PK	286	1.4	H	15.9	50.05	74	23.95
7500.00	24.36	Ave.	286	1.4	H	15.9	40.26	54	13.74
2500.00	44.94	PK	225	2.2	H	7.21	52.15	74	21.85
2500.00	41.86	Ave.	225	2.2	H	7.21	49.07	54	4.93
2800.00	45.47	PK	142	1.6	H	8.62	54.09	74	19.91
2800.00	43.11	Ave.	142	1.6	H	8.62	51.73	54	2.27
11610.00	35.02	PK	145	1.6	H	20.41	55.43	74	18.57
11610.00	17.00	Ave.	145	1.6	H	20.41	37.41	54	16.59

802.11n40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
469.1	49.65	QP	154	1.1	H	-9.00	40.65	46	5.35
5190.00	88.62	PK	37	2.2	H	11.93	100.55	/	/
5190.00	67.62	Ave.	37	2.2	H	11.93	79.55	/	/
5190.00	90.13	PK	104	1.2	V	11.93	102.06	/	/
5190.00	68.12	Ave.	104	1.2	V	11.93	80.05	/	/
5353.30	37.27	PK	289	1.6	V	12.01	49.28	74	24.72
5353.30	20.52	Ave.	289	1.6	V	12.01	32.53	54	21.47
2500.00	43.10	PK	64	1.7	H	7.21	50.31	74	23.69
2500.00	39.82	Ave.	64	1.7	H	7.21	47.03	54	6.97
2800.00	46.41	PK	187	1.3	H	8.62	55.03	74	18.97
2800.00	43.98	Ave.	187	1.3	H	8.62	52.6	54	1.40
5274.00	40.46	PK	254	1.6	V	11.88	52.34	74	21.66
5274.00	23.02	Ave.	254	1.6	V	11.88	34.9	54	19.10
10380.00	31.22	PK	186	2.0	H	20.38	51.6	74	22.40
10380.00	17.00	Ave.	186	2.0	H	20.38	37.38	54	16.62
5230 MHz									
469.1	50.89	QP	125	1.1	H	-9.00	41.89	46	4.11
5230.00	89.11	PK	312	2.0	H	11.92	101.03	/	/
5230.00	67.99	Ave.	312	2.0	H	11.92	79.91	/	/
5230.00	91.72	PK	138	1.1	V	11.92	103.64	/	/
5230.00	70.27	Ave.	138	1.1	V	11.92	82.19	/	/
5386.20	37.28	PK	285	2.5	V	12.01	49.29	74	24.71
5386.20	21.43	Ave.	285	2.5	V	12.01	33.44	54	20.56
2500.00	44.20	PK	358	1.6	H	7.21	51.41	74	22.59
2500.00	40.90	Ave.	358	1.6	H	7.21	48.11	54	5.89
2800.00	48.28	PK	100	1.5	H	8.62	56.9	74	17.10
2800.00	43.91	Ave.	100	1.5	H	8.62	52.53	54	1.47
10460.00	35.11	PK	158	2.4	H	20.41	55.52	74	18.48
10460.00	18.34	Ave.	158	2.4	H	20.41	38.75	54	15.25

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
469.1	49.65	QP	132	1.3	H	-9.00	40.65	46	5.35
5755.00	87.55	PK	333	1.7	H	13.51	101.06	/	/
5755.00	66.23	Ave.	333	1.7	H	13.51	79.74	/	/
5755.00	92.17	PK	259	1.7	V	13.51	105.68	/	/
5755.00	69.09	Ave.	259	1.7	V	13.51	82.6	/	/
7500.00	35.11	PK	63	1.2	V	15.9	51.01	74	22.99
7500.00	26.04	Ave.	63	1.2	V	15.9	41.94	54	12.06
2500.00	43.77	PK	331	1.7	H	7.21	50.98	74	23.02
2500.00	40.23	Ave.	331	1.7	H	7.21	47.44	54	6.56
2800.00	47.57	PK	258	1.7	H	8.62	56.19	74	17.81
2800.00	43.30	Ave.	258	1.7	H	8.62	51.92	54	2.08
5718.00	44.58	PK	223	1.3	V	13.51	58.09	74	15.91
5718.00	26.54	Ave.	223	1.3	V	13.51	40.05	54	13.95
11510.00	34.60	PK	255	2.5	H	20.47	55.07	74	18.93
11510.00	18.34	Ave.	255	2.5	H	20.47	38.81	54	15.19
5795 MHz									
469.1	49.13	QP	158	1.5	H	-9.00	40.13	46	5.87
5795.00	86.99	PK	96	1.6	H	13.87	100.86	/	/
5795.00	65.78	Ave.	96	1.6	H	13.87	79.65	/	/
5795.00	92.19	PK	199	2.2	V	13.87	106.06	/	/
5795.00	69.01	Ave.	199	2.2	V	13.87	82.88	/	/
5384.00	33.15	PK	198	2.3	V	12.01	45.16	74	28.84
5384.00	19.50	Ave.	198	2.3	V	12.01	31.51	54	22.49
7500.00	34.89	PK	181	2.0	V	15.9	50.79	74	23.21
7500.00	26.04	Ave.	181	2.0	V	15.9	41.94	54	12.06
2500.00	43.99	PK	323	2.2	H	7.21	51.2	74	22.80
2500.00	40.54	Ave.	323	2.2	H	7.21	47.75	54	6.25
2800.00	46.88	PK	103	1.4	H	8.62	55.5	74	18.50
2800.00	43.14	Ave.	103	1.4	H	8.62	51.76	54	2.24
11590.00	35.23	PK	302	1.2	H	20.41	55.64	74	18.36
11590.00	18.34	Ave.	302	1.2	H	20.41	38.75	54	15.25

802.11ac80 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.407/205/209	
	Reading (dBµV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBµV/m)	Margin (dB)
5210 MHz									
469.1	51.22	QP	125	1.1	H	-9.00	42.22	46	3.78
5210.00	84.93	PK	283	2.0	H	11.92	96.85	/	/
5210.00	63.72	Ave.	283	2.0	H	11.92	75.64	/	/
5210.00	87.07	PK	270	1.4	V	11.92	98.99	/	/
5210.00	65.64	Ave.	270	1.4	V	11.92	77.56	/	/
5105.29	50.29	PK	246	1.1	V	11.93	62.22	74	11.78
5105.29	24.86	Ave.	246	1.1	V	11.93	36.79	54	17.21
2500.00	44.12	PK	100	1.5	H	7.21	51.33	74	22.67
2500.00	40.62	Ave.	100	1.5	H	7.21	47.83	54	6.17
2800.00	46.42	PK	341	1.4	H	8.62	55.04	74	18.96
2800.00	43.78	Ave.	341	1.4	H	8.62	52.4	54	1.60
10420.00	34.56	PK	144	1.2	H	20.38	54.94	74	19.06
10420.00	17.00	Ave.	144	1.2	H	20.38	37.38	54	16.62
5775 MHz									
469.1	49.57	QP	332	1.5	H	-9.00	40.57	46	5.43
5775.00	84.59	PK	297	1.6	H	13.51	98.1	/	/
5775.00	65.11	Ave.	297	1.6	H	13.51	78.62	/	/
5775.00	88.83	PK	274	2.1	V	13.51	102.34	/	/
5775.00	67.56	Ave.	274	2.1	V	13.51	81.07	/	/
7500.00	34.98	PK	44	2.4	V	15.9	50.88	74	23.12
7500.00	25.52	Ave.	44	2.4	V	15.9	41.42	54	12.58
2500.00	44.59	PK	351	2.3	H	7.21	51.8	74	22.20
2500.00	40.78	Ave.	351	2.3	H	7.21	47.99	54	6.01
2800.00	46.78	PK	277	2.4	H	8.62	55.4	74	18.60
2800.00	43.56	Ave.	277	2.4	H	8.62	52.18	54	1.82
11550.00	33.51	PK	12	1.2	H	20.09	53.6	74	20.40
11550.00	17.00	Ave.	12	1.2	H	20.09	37.09	54	16.91

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Margin = Limit- Corr. Amplitude

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 EIRP 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 EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

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 EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725–5.825 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 EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP 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	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2014-05-06	2015-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-09-25	2014-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Mini	Amplifier	ZVA-183-S+	5969001149	2014-04-23	2015-04-23
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2013-08-03	2014-08-03
Agilent	Spectrum Analyzer	8564E	3943A01781	2014-05-07	2015-05-07
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13

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

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhangon 2014-07-17.

EUT operation mode: Running

802.11a mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
5180.00	87.56	PK	239	2.0	H	11.93	99.49	/	/
5180.00	77.08	Ave.	239	2.0	H	11.93	89.01	/	/
5180.00	91.18	PK	164	2.3	V	11.93	103.11	/	/
5180.00	79.70	Ave.	164	2.3	V	11.93	91.63	/	/
5149.10	46.32	PK	19	1.7	V	11.83	58.15	74	15.85
5149.10	33.03	Ave.	19	1.7	V	11.83	44.86	54	9.14
5240 MHz									
5240.00	81.81	PK	223	1.6	H	11.92	93.73	/	/
5240.00	71.29	Ave.	223	1.6	H	11.92	83.21	/	/
5240.00	89.28	PK	158	1.3	V	11.92	101.2	/	/
5240.00	78.66	Ave.	158	1.3	V	11.92	90.58	/	/
5350.90	42.93	PK	102	1.5	V	11.93	54.86	74	19.14
5350.90	30.98	Ave.	102	1.5	V	11.93	42.91	54	11.09

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
5745.00	86.75	PK	349	2.3	H	13.51	100.26	/	/
5745.00	75.42	Ave.	349	2.3	H	13.51	88.93	/	/
5745.00	87.52	PK	49	1.6	V	13.51	101.03	/	/
5745.00	76.24	Ave.	49	1.6	V	13.51	89.75	/	/
5724.66	33.55	PK	125	2.0	V	12.1	45.65	74	28.35
5724.66	19.50	Ave.	125	2.0	V	12.1	31.6	54	22.40
5805 MHz									
5805.00	85.94	PK	265	2.3	H	13.87	99.81	/	/
5805.00	74.12	Ave.	265	2.3	H	13.87	87.99	/	/
5805.00	87.99	PK	242	1.9	V	13.87	101.86	/	/
5805.00	77.81	Ave.	242	1.9	V	13.87	91.68	/	/
5851.33	42.34	PK	178	1.3	V	13.51	55.85	74	18.15
5851.33	31.21	Ave.	178	1.3	V	13.51	44.72	54	9.28

802.11n20 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5180 MHz									
5180.00	93.44	PK	188	1.3	H	11.93	105.37	/	/
5180.00	82.09	Ave.	188	1.3	H	11.93	94.02	/	/
5180.00	90.43	PK	78	2.3	V	11.93	102.36	/	/
5180.00	79.16	Ave.	78	2.3	V	11.93	91.09	/	/
5149.40	45.72	PK	352	1.6	H	11.83	57.55	74	16.45
5149.40	34.10	Ave.	352	1.6	H	11.83	45.93	54	8.07
5240 MHz									
5240.00	91.32	PK	1	1.4	H	11.92	103.24	/	/
5240.00	78.95	Ave.	1	1.4	H	11.92	90.87	/	/
5240.00	84.58	PK	308	2.3	V	11.92	96.5	/	/
5240.00	72.90	Ave.	308	2.3	V	11.92	84.82	/	/
5350.50	35.78	PK	205	1.5	H	11.93	47.71	74	26.29
5350.50	26.54	Ave.	205	1.5	H	11.93	38.47	54	15.53

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5745 MHz									
5745.00	88.94	PK	239	1.4	H	13.51	102.45	/	/
5745.00	79.42	AV	239	1.4	H	13.51	92.93	/	/
5745.00	85.31	PK	186	1.8	V	13.51	98.82	/	/
5745.00	74.26	AV	186	1.8	V	13.51	87.77	/	/
5724.84	34.53	PK	77	1.4	H	12.01	46.54	74	27.46
5724.84	20.52	AV	77	1.4	H	12.01	32.53	54	21.47
5805 MHz									
5805.00	89.23	PK	211	2.0	H	13.87	103.1	/	/
5805.00	78.88	Ave.	211	2.0	H	13.87	92.75	/	/
5805.00	83.99	PK	242	1.1	V	13.87	97.86	/	/
5805.00	73.02	Ave.	242	1.1	V	13.87	86.89	/	/
5849.62	43.89	PK	300	2.0	H	13.51	57.4	74	16.60
5849.62	32.06	Ave.	300	2.0	H	13.51	45.57	54	8.43

802.11n40 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5190 MHz									
5190.00	88.62	PK	37	2.2	H	11.93	100.55	/	/
5190.00	67.62	Ave.	37	2.2	H	11.93	79.55	/	/
5190.00	90.13	PK	104	1.2	V	11.93	102.06	/	/
5190.00	68.12	Ave.	104	1.2	V	11.93	80.05	/	/
5150.00	41.47	PK	131	1.2	V	11.83	53.3	74	20.70
5150.00	23.71	Ave.	131	1.2	V	11.83	35.54	54	18.46
5230 MHz									
5230.00	89.11	PK	312	2.0	H	11.92	101.03	/	/
5230.00	67.99	Ave.	312	2.0	H	11.92	79.91	/	/
5230.00	91.72	PK	138	1.1	V	11.92	103.64	/	/
5230.00	70.27	Ave.	138	1.1	V	11.92	82.19	/	/
5357.60	43.12	PK	268	2.1	V	11.92	55.04	74	18.96
5357.60	23.02	Ave.	268	2.1	V	11.92	34.94	54	19.06

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5755 MHz									
5755.00	87.55	PK	333	1.7	H	13.51	101.06	/	/
5755.00	66.23	Ave.	333	1.7	H	13.51	79.74	/	/
5755.00	92.17	PK	259	1.7	V	13.51	105.68	/	/
5755.00	69.09	Ave.	259	1.7	V	13.51	82.6	/	/
5723.17	32.83	PK	113	1.4	V	12.1	44.93	74	29.07
5723.17	19.50	Ave.	113	1.4	V	12.1	31.6	54	22.40
5795 MHz									
5795.00	86.99	PK	96	1.6	H	13.87	100.86	/	/
5795.00	65.78	Ave.	96	1.6	H	13.87	79.65	/	/
5795.00	92.19	PK	199	2.2	V	13.87	106.06	/	/
5795.00	69.01	Ave.	199	2.2	V	13.87	82.88	/	/
5852.43	46.26	PK	347	1.9	V	13.51	59.77	74	14.23
5852.43	27.89	Ave.	347	1.9	V	13.51	41.4	54	12.60

802.11ac80 mode:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
5210 MHz									
5210.00	84.93	PK	283	2.0	H	11.92	96.85	/	/
5210.00	63.72	Ave.	283	2.0	H	11.92	75.64	/	/
5210.00	87.07	PK	270	1.4	V	11.92	98.99	/	/
5210.00	65.64	Ave.	270	1.4	V	11.92	77.56	/	/
5351.50	36.85	PK	283	2.0	V	12.01	48.86	74	25.14
5351.50	20.52	Ave.	283	2.0	V	12.01	32.53	54	21.47
5149.70	45.99	PK	220	1.4	V	11.83	57.82	74	16.18
5149.70	23.71	Ave.	220	1.4	V	11.83	35.54	54	18.46

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.407/205/209	
	Reading (dBµV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBµV/m)	Margin (dB)
5775 MHz									
5775.00	84.59	PK	297	1.6	H	13.51	98.1	/	/
5775.00	65.11	Ave.	297	1.6	H	13.51	78.62	/	/
5775.00	88.83	PK	274	2.1	V	13.51	102.34	/	/
5775.00	67.56	Ave.	274	2.1	V	13.51	81.07	/	/
5724.00	35.04	PK	39	2.1	V	12.01	47.05	74	26.95
5724.00	19.50	Ave.	39	2.1	V	12.01	31.51	54	22.49
5851.50	54.33	PK	174	1.5	V	13.51	67.84	74	6.16
5851.50	30.06	Ave.	174	1.5	V	13.51	43.57	54	10.43

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Margin = Limit- Corr. Amplitude

FCC §15.407(a) (1) – 26 dB EMISSION BANDWIDTH

Applicable Standard

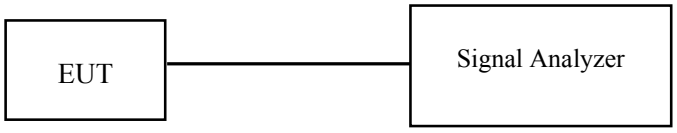
For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting 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.

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

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. 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.

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. 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%.
4. Repeat above procedures until all frequencies measured were complete.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12

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

Test Data

Environmental Conditions

Temperature:	23 – 26 ℃
Relative Humidity:	50 - 56 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhang from 2014-08-29 to 2014-09-09.

EUT operation mode: Transmitting

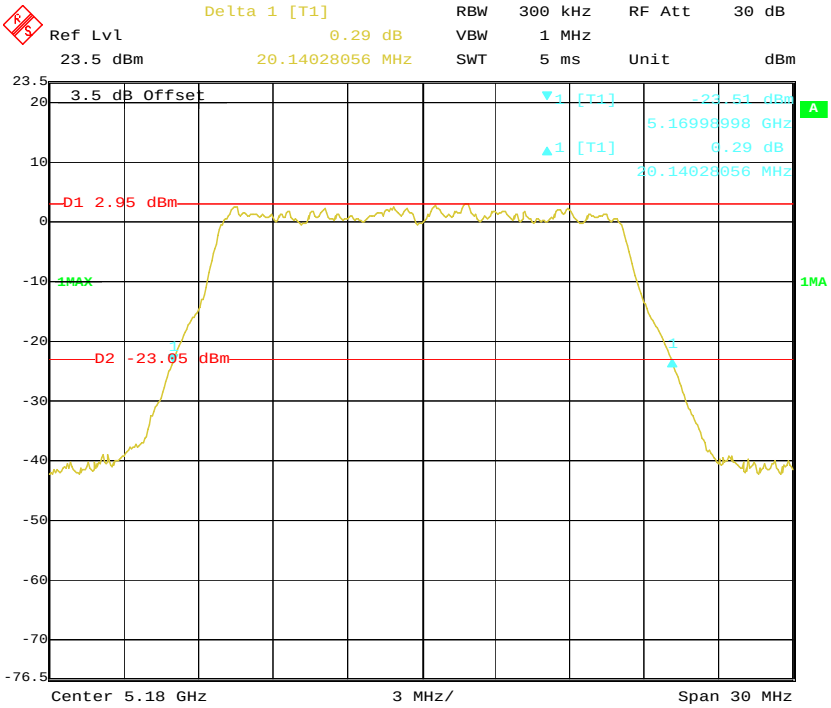
Test Result: Pass, please refer to the following tables and plots.

5150 MHz – 5250 MHz

Frequency (MHz)	Antenna Port	26dB Emission Bandwidth (MHz)
802.11a		
5180	Chain 0	20.14
	Chain 1	20.02
	Chain 2	20.08
5200	Chain 0	20.14
	Chain 1	20.02
	Chain 2	20.08
5240	Chain 0	20.14
	Chain 1	20.02
	Chain 2	20.08

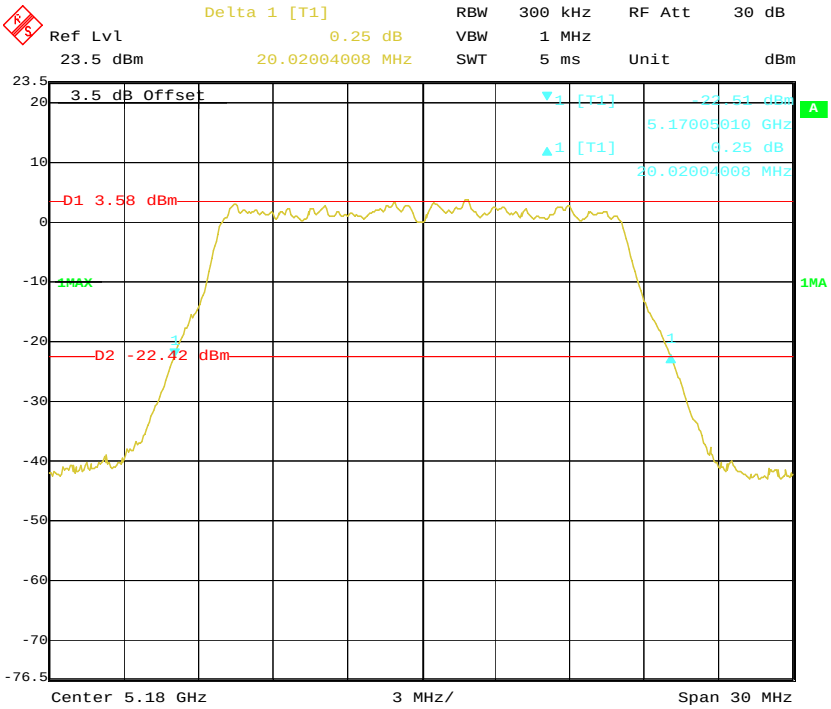
Frequency (MHz)	Antenna Port	26dB Emission Bandwidth (MHz)
802.11n20		
5180	Chain 0	20.74
	Chain 1	20.62
	Chain 2	20.68
5200	Chain 0	20.74
	Chain 1	20.62
	Chain 2	20.68
5240	Chain 0	20.74
	Chain 1	20.62
	Chain 2	20.68
802.11n40		
5190	Chain 0	39.32
	Chain 1	39.32
	Chain 2	39.08
5230	Chain 0	39.18
	Chain 1	39.08
	Chain 2	39.08
802.11ac80		
5210	Chain 0	82.48
	Chain 1	82.73
	Chain 2	82.00

802.11a mode, 26dB Emission Bandwidth, Antenna 0, 5180 MHz



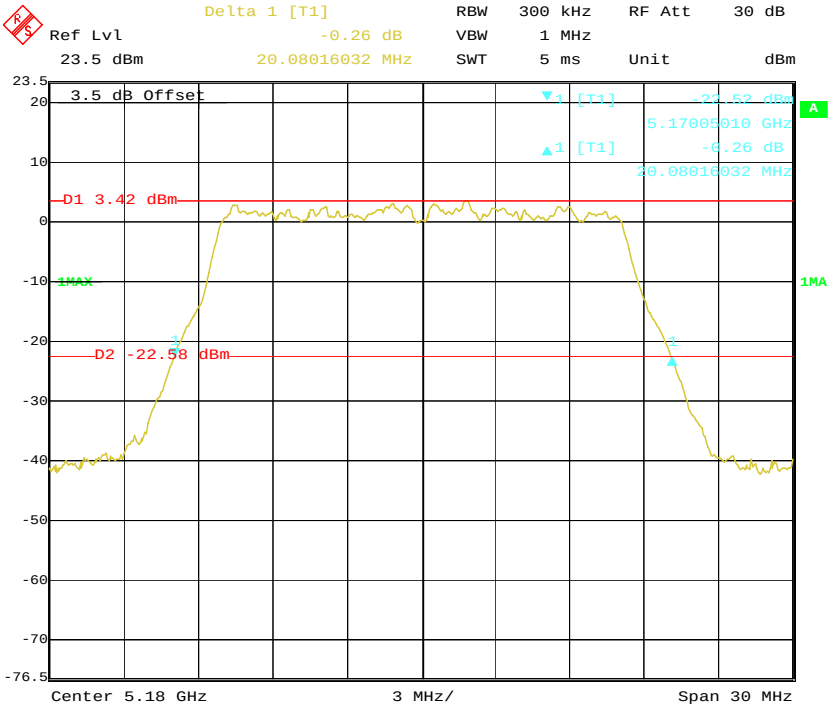
Date: 6.SEP.2014 15:34:21

802.11a mode, 26dB Emission Bandwidth, Antenna 1, 5180 MHz

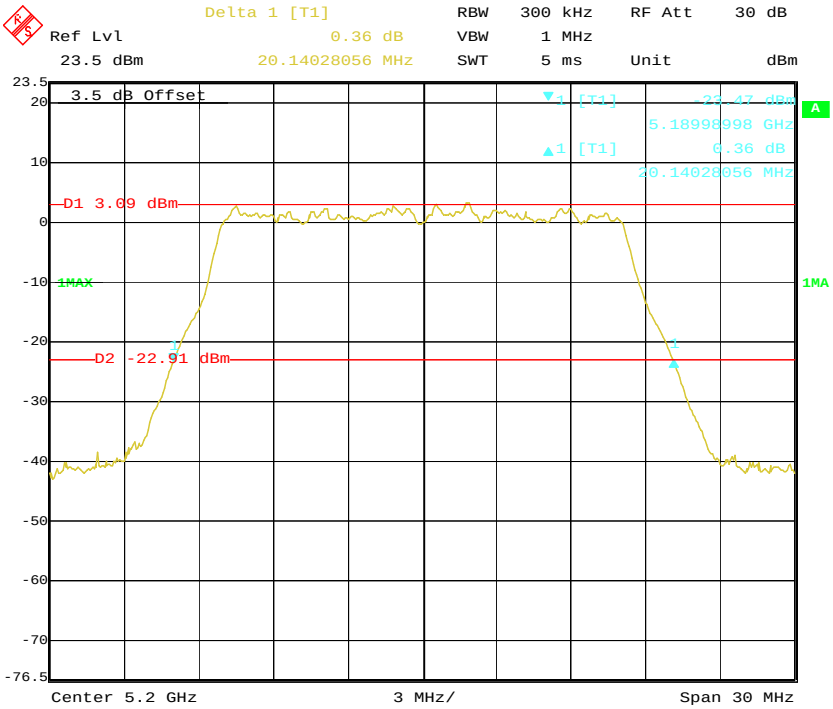


Date: 6.SEP.2014 16:19:08

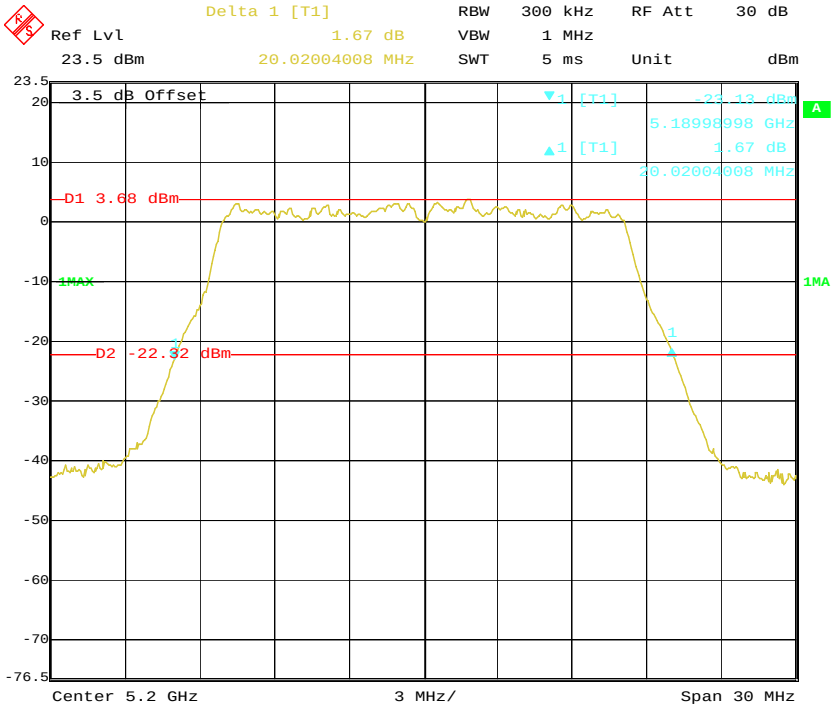
802.11a mode, 26dB Emission Bandwidth, Antenna 2, 5180 MHz



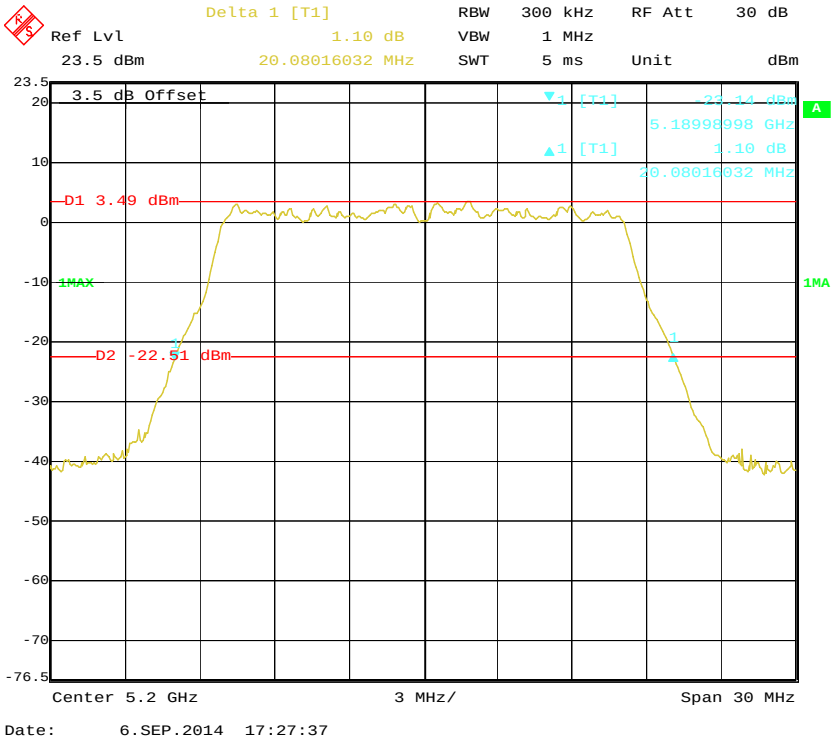
802.11a mode, 26dB Emission Bandwidth, Antenna 0, 5200 MHz



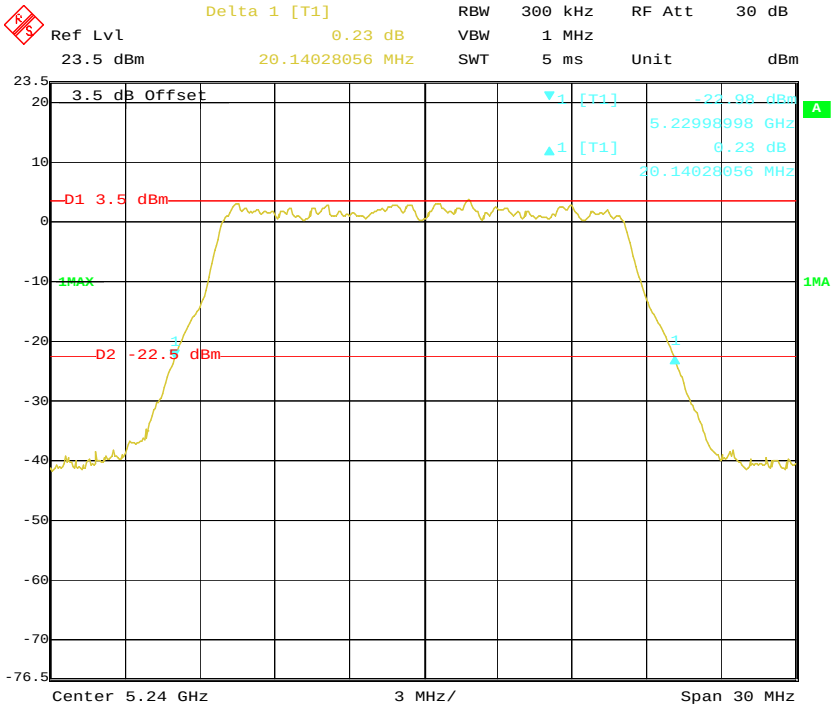
802.11a mode, 26dB Emission Bandwidth, Antenna 1, 5200 MHz



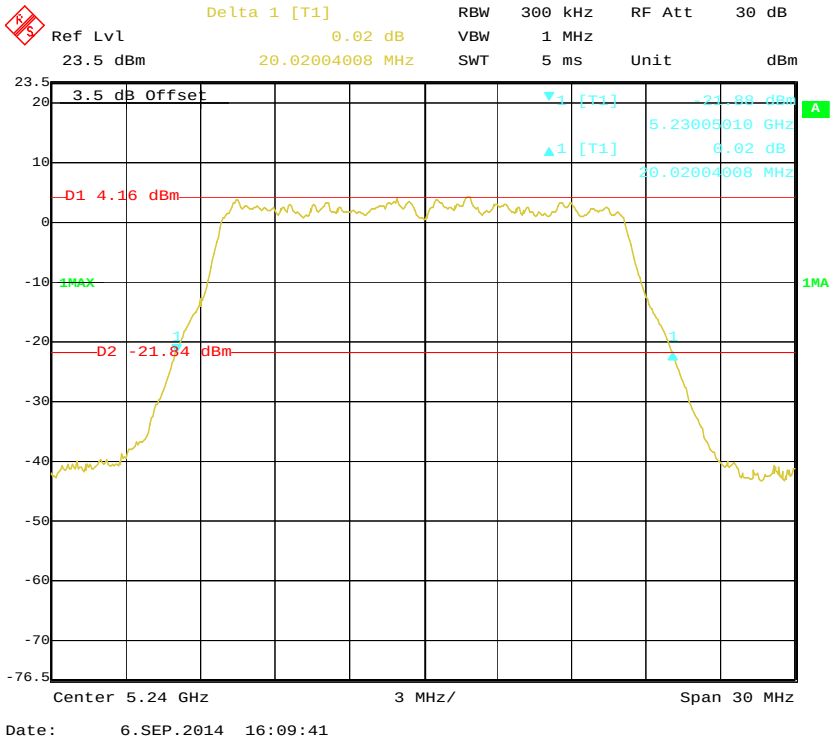
802.11a mode, 26dB Emission Bandwidth, Antenna 2, 5200 MHz



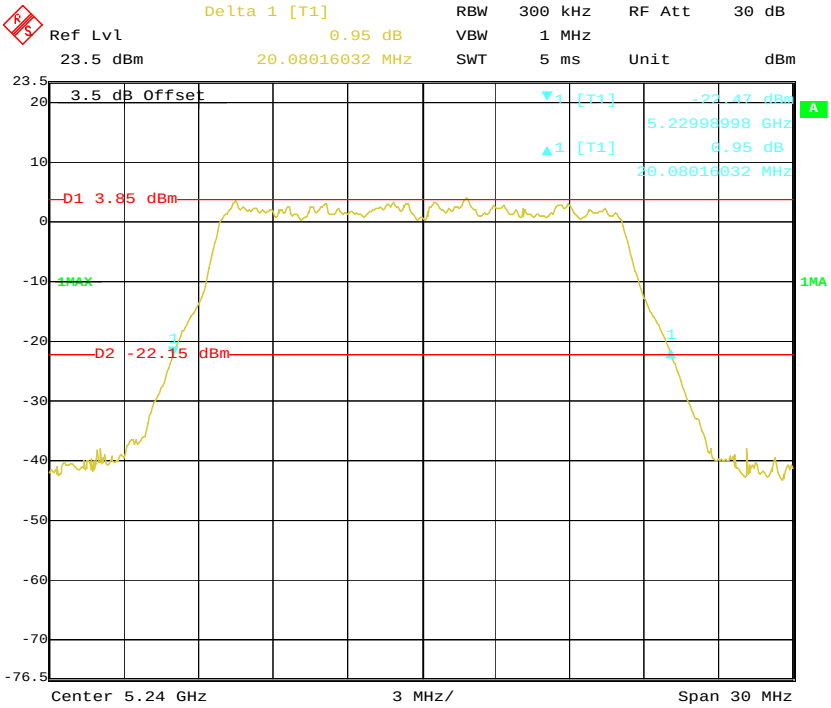
802.11a mode, 26dB Emission Bandwidth, Antenna 0, 5240 MHz



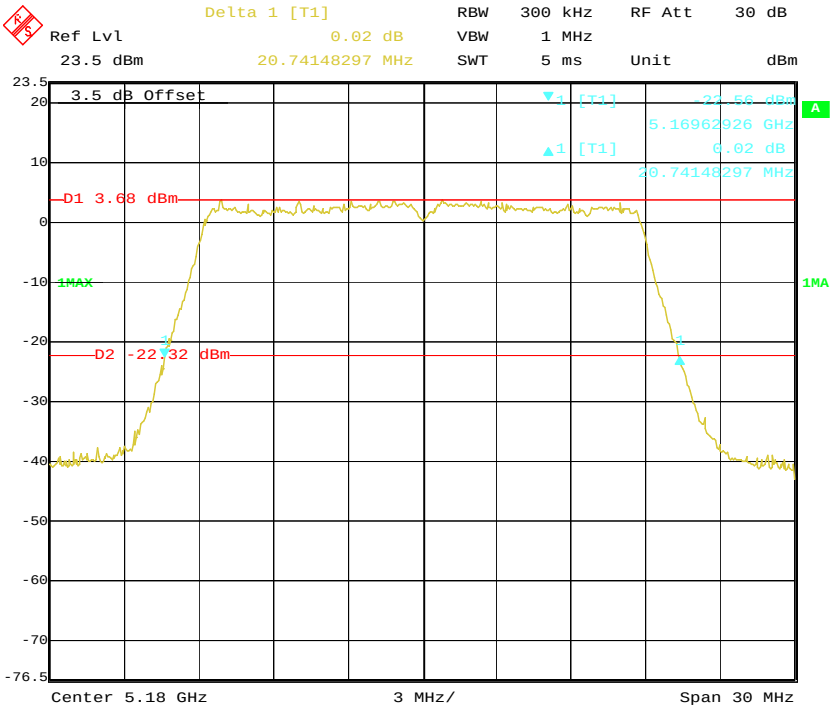
802.11a mode, 26dB Emission Bandwidth, Antenna 1, 5240 MHz



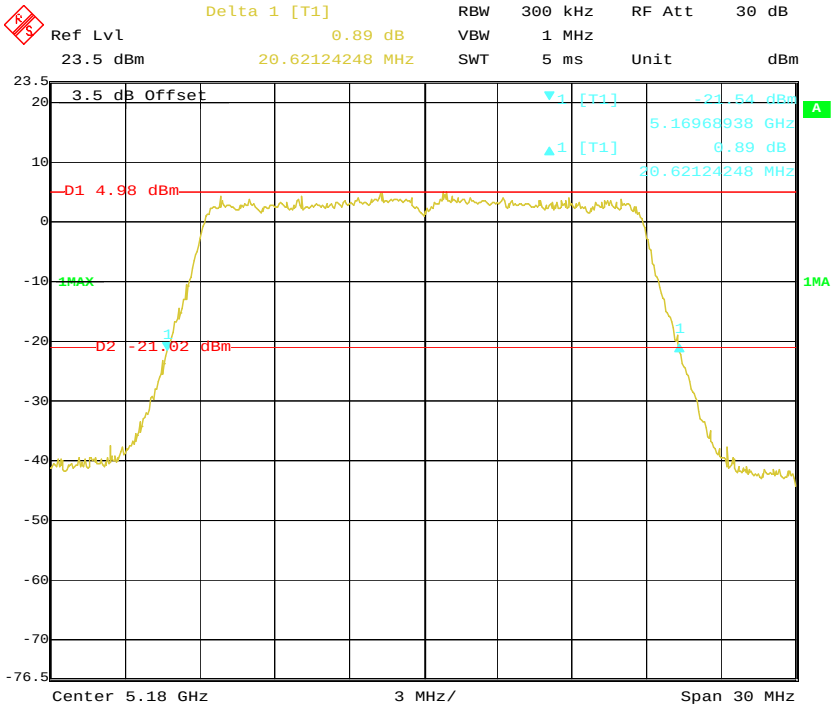
802.11a mode, 26dB Emission Bandwidth, Antenna 2, 5240 MHz



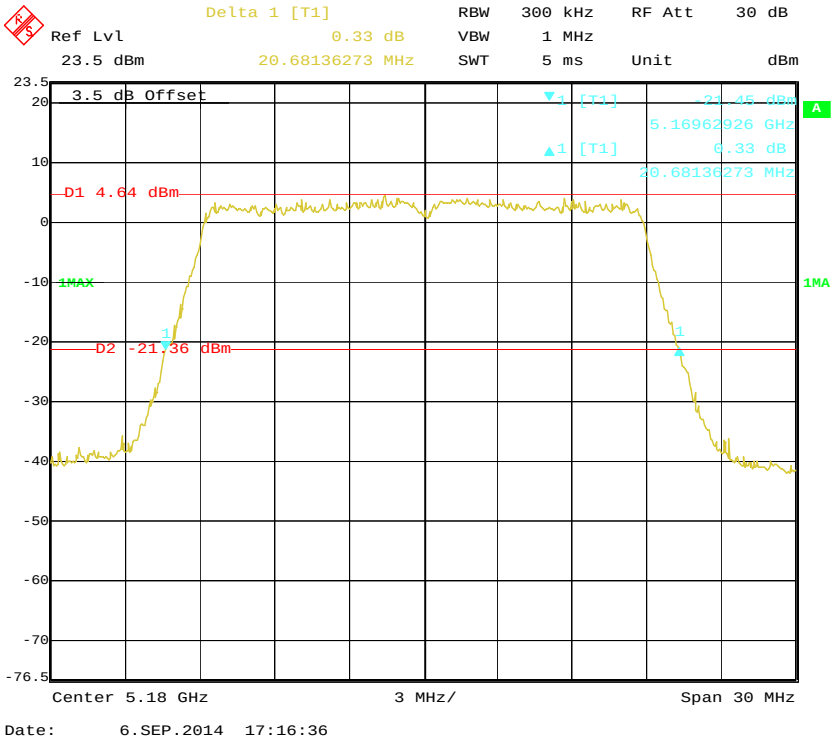
802.11n20 mode, 26dB Emission Bandwidth, Antenna 0, 5180 MHz



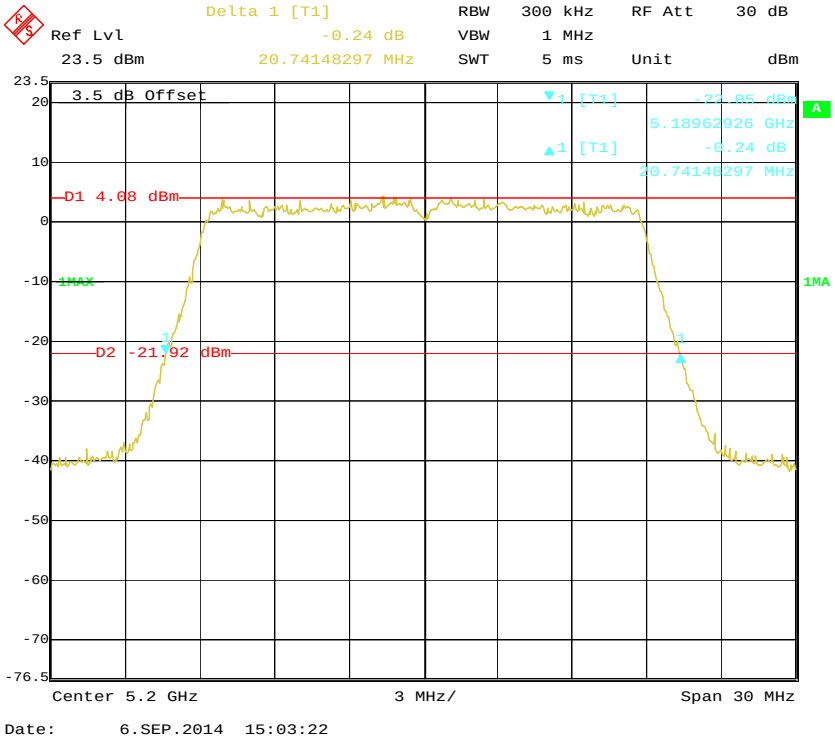
802.11n20 mode, 26dB Emission Bandwidth, Antenna 1, 5180 MHz



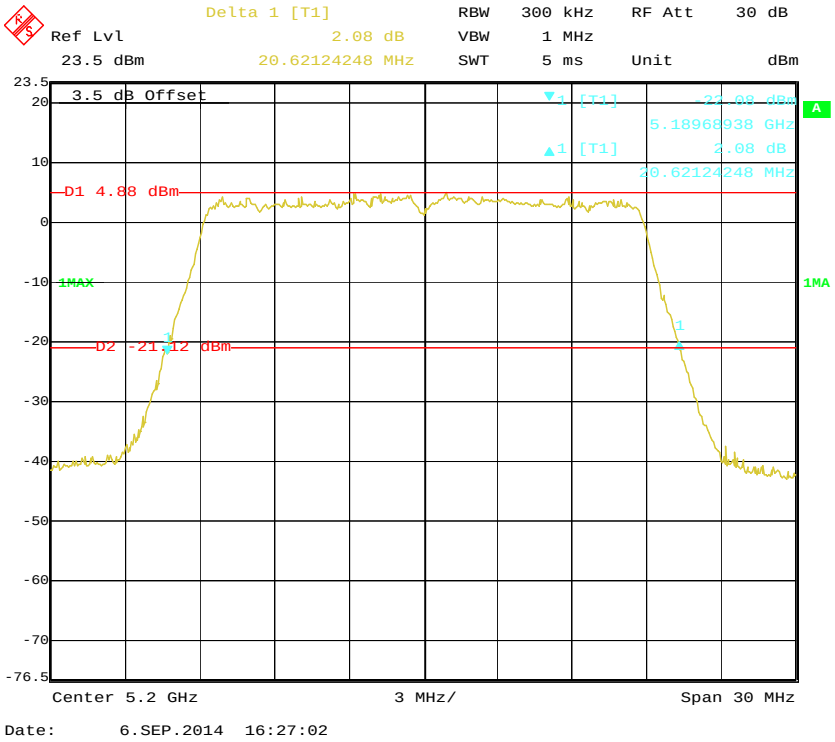
802.11n20 mode, 26dB Emission Bandwidth, Antenna 2, 5180 MHz



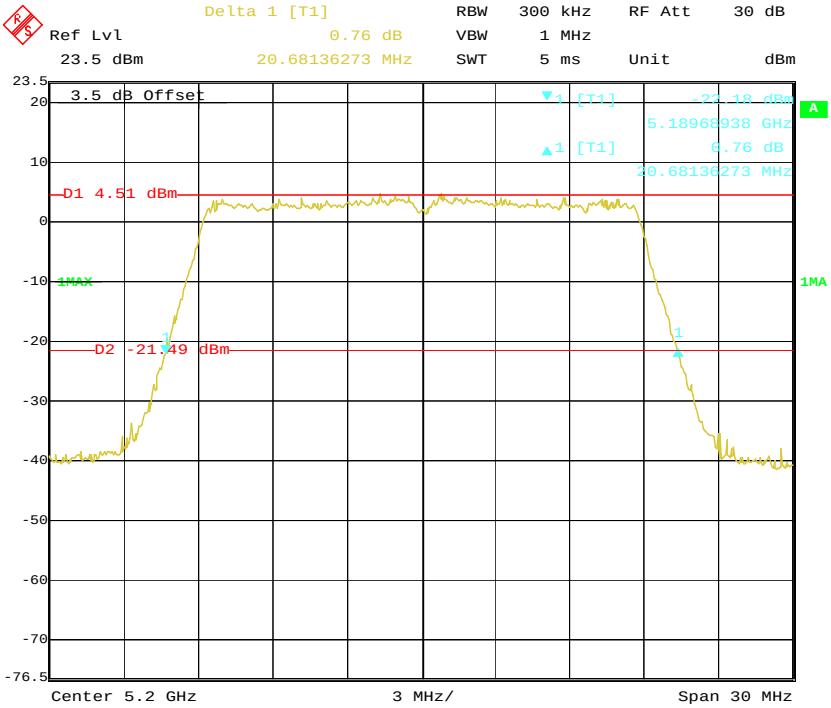
802.11n20 mode, 26dB Emission Bandwidth, Antenna 0, 5200 MHz



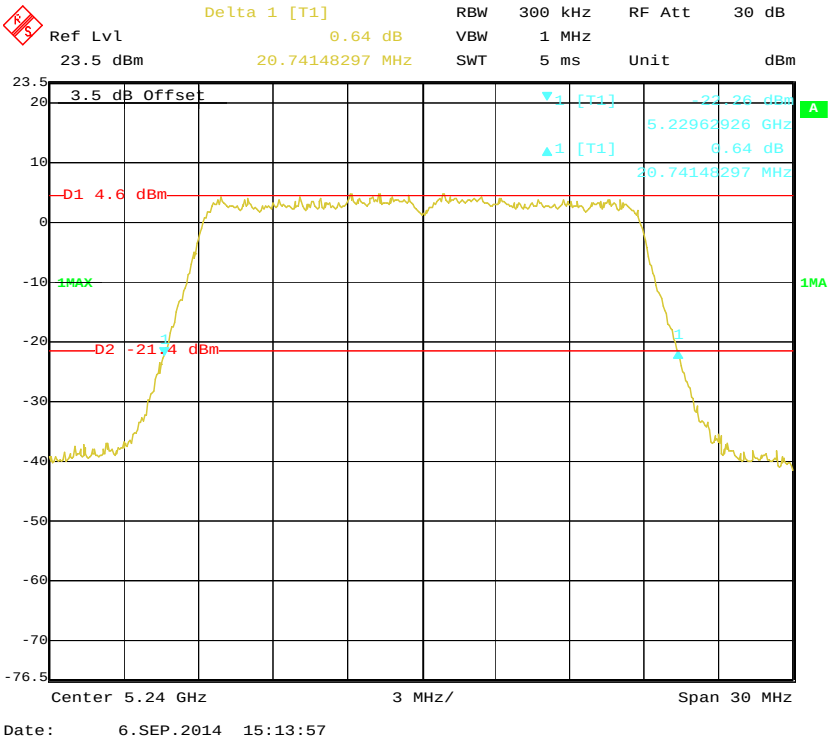
802.11n20 mode, 26dB Emission Bandwidth, Antenna 1, 5200 MHz



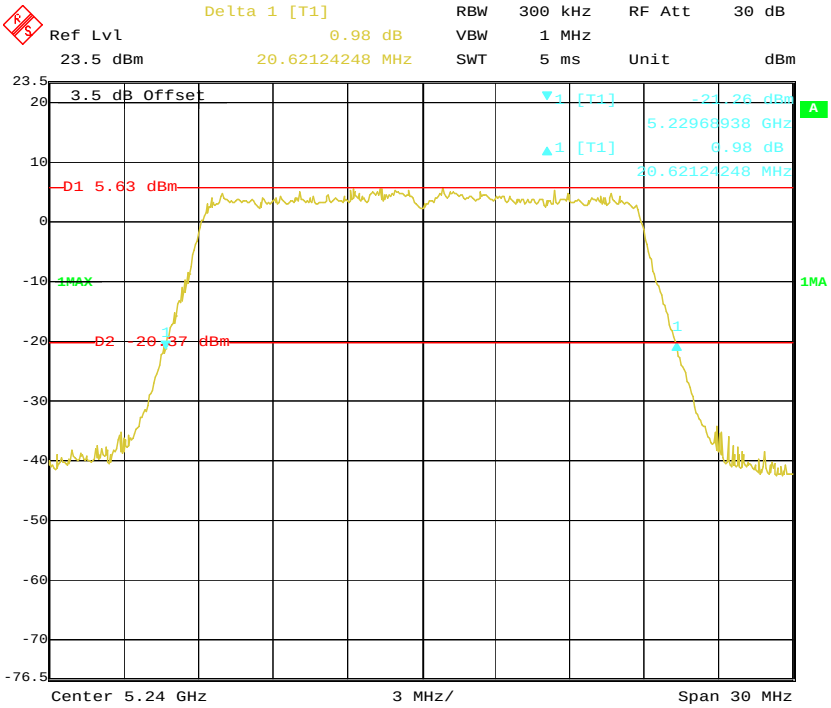
802.11n20 mode, 26dB Emission Bandwidth, Antenna 2, 5200 MHz



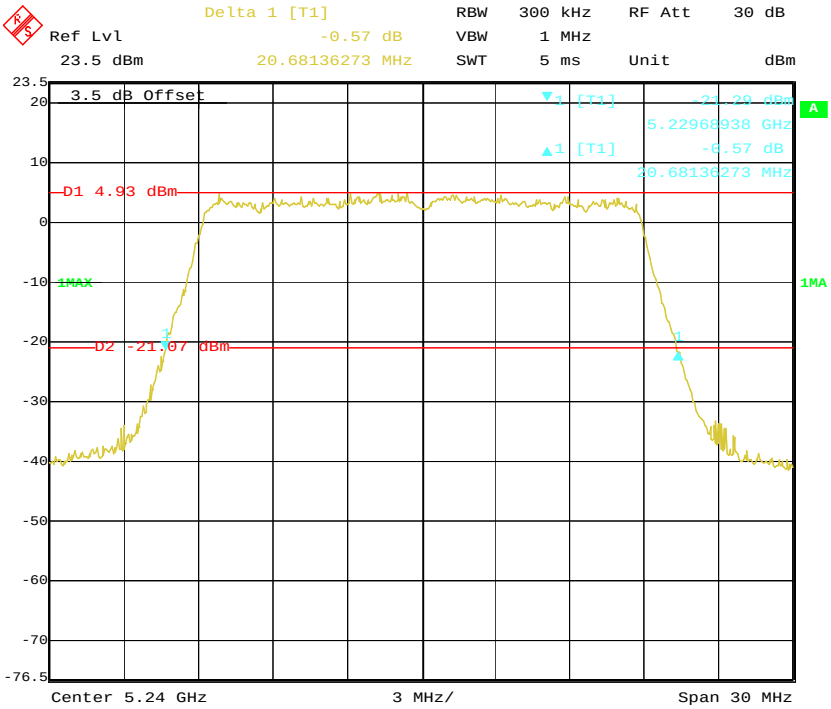
802.11n20 mode, 26dB Emission Bandwidth, Antenna 0, 5240 MHz



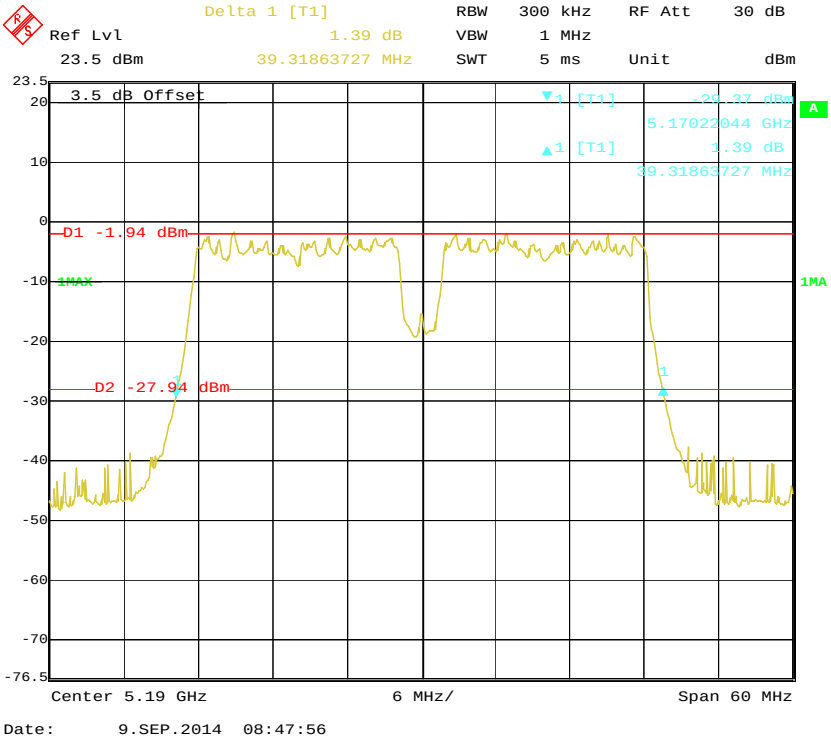
802.11n20 mode, 26dB Emission Bandwidth, Antenna 1, 5240 MHz



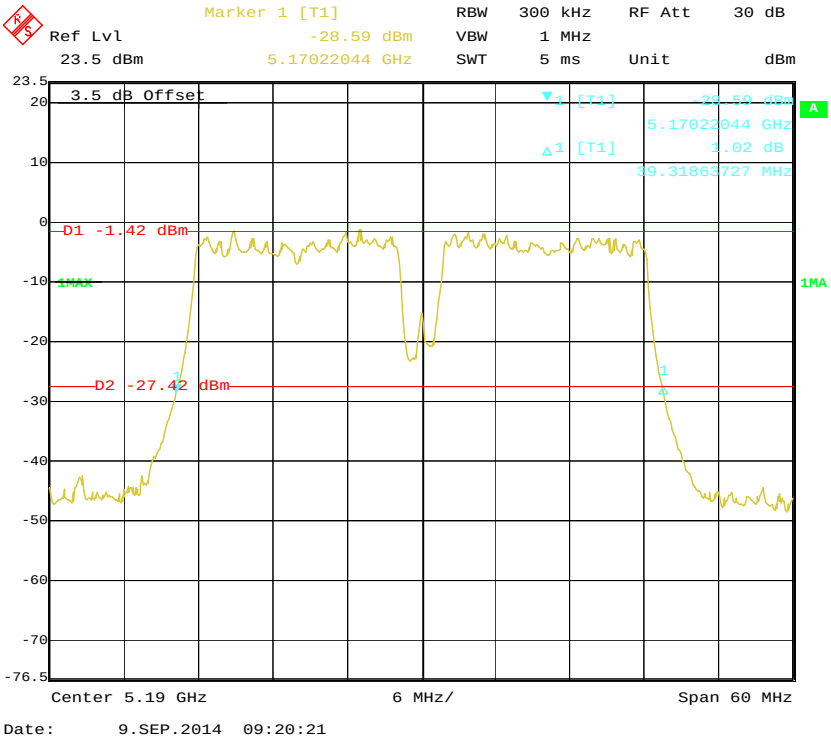
802.11n20 mode, 26dB Emission Bandwidth, Antenna 2, 5240 MHz



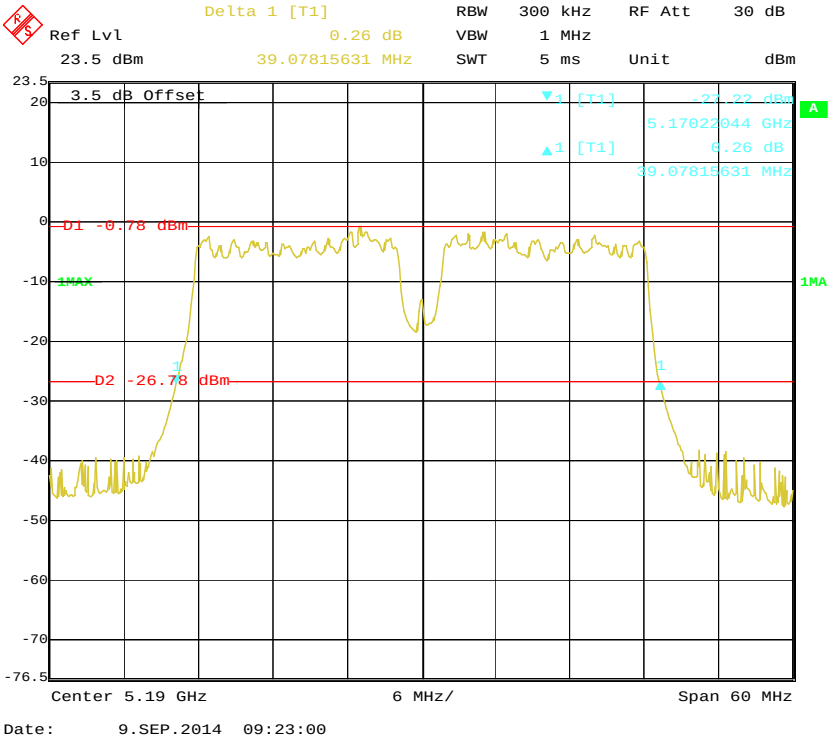
802.11n40 mode, 26dB Emission Bandwidth, Antenna 0, 5190 MHz



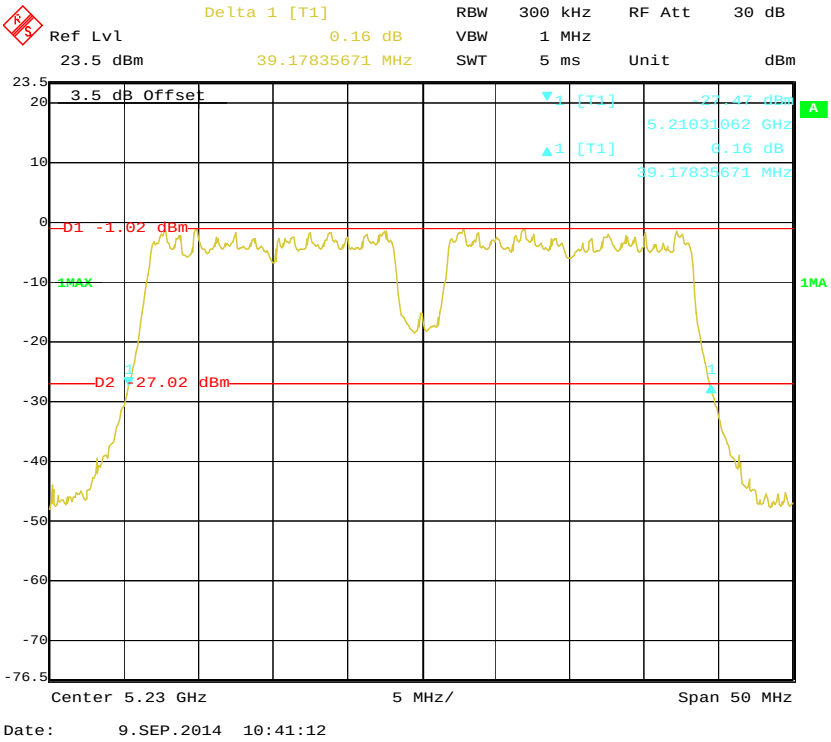
802.11n40 mode, 26dB Emission Bandwidth, Antenna 1, 5190 MHz



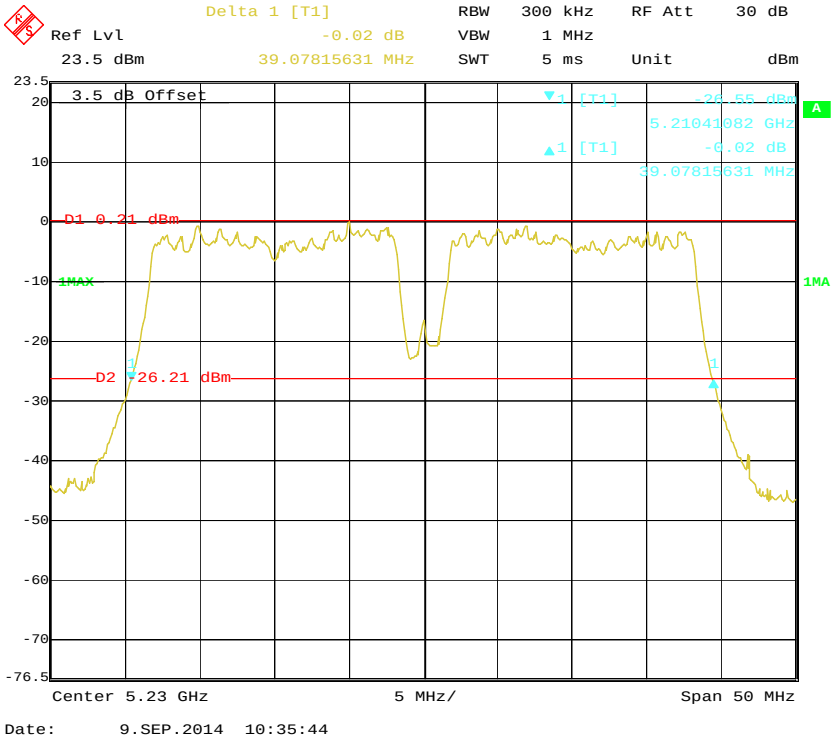
802.11n40 mode, 26dB Emission Bandwidth, Antenna 2, 5190 MHz



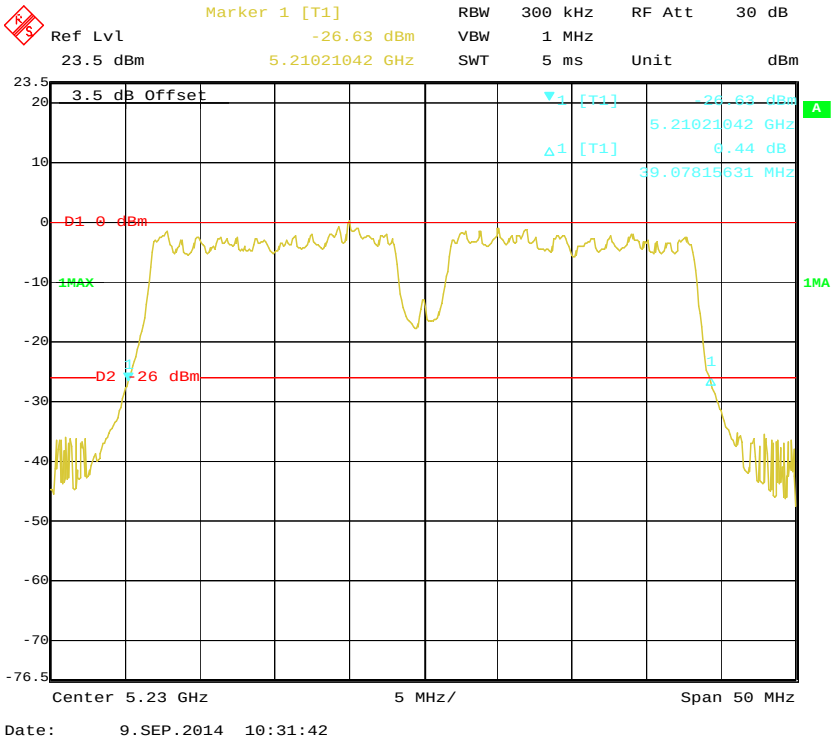
802.11n40 mode, 26dB Emission Bandwidth, Antenna 0, 5230 MHz



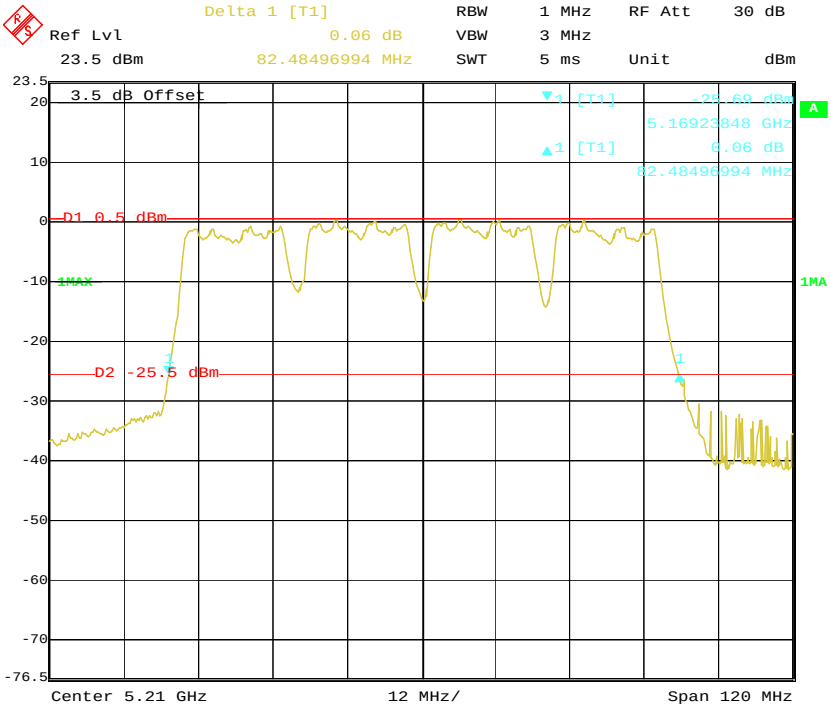
802.11n40 mode, 26dB Emission Bandwidth, Antenna 1, 5230 MHz



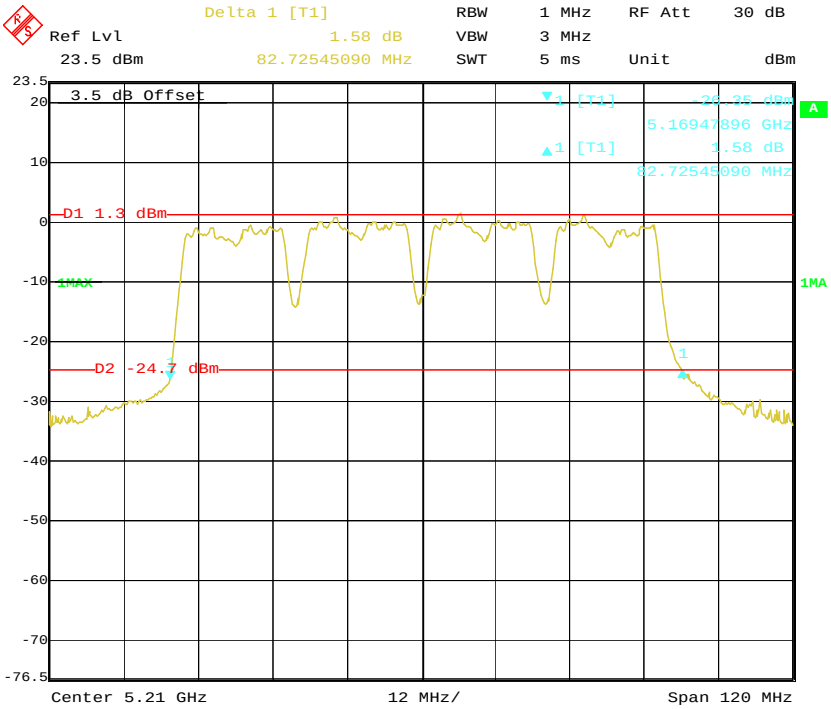
802.11n40 mode, 26dB Emission Bandwidth, Antenna 2, 5230 MHz



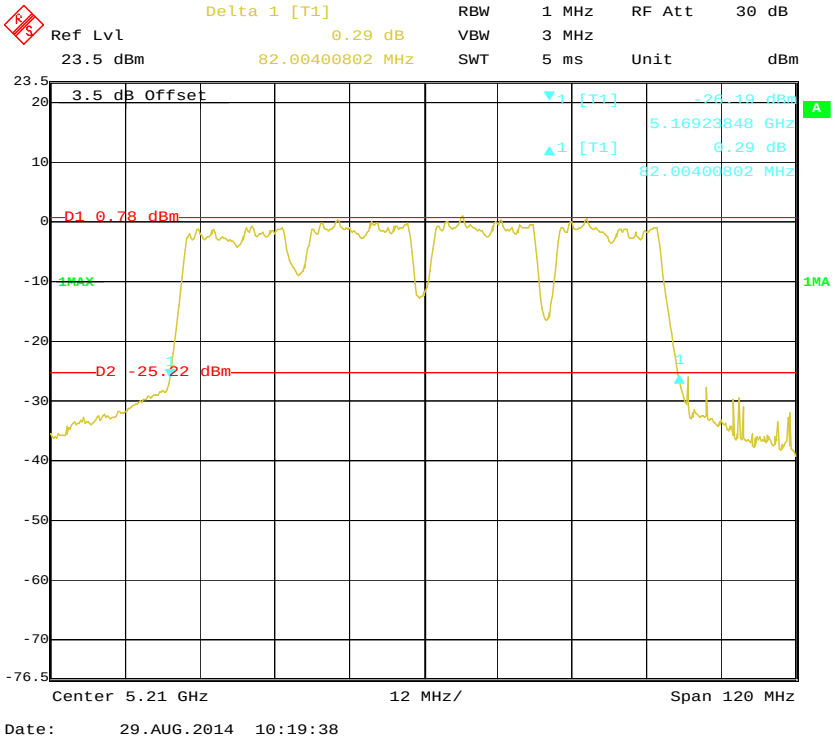
802.11ac80 mode, 26dB Emission Bandwidth, Antenna 0, 5210 MHz



802.11ac80 mode, 26dB Emission Bandwidth, Antenna 1, 5210 MHz



802.11ac80 mode, 26dB Emission Bandwidth, Antenna 2, 5210 MHz

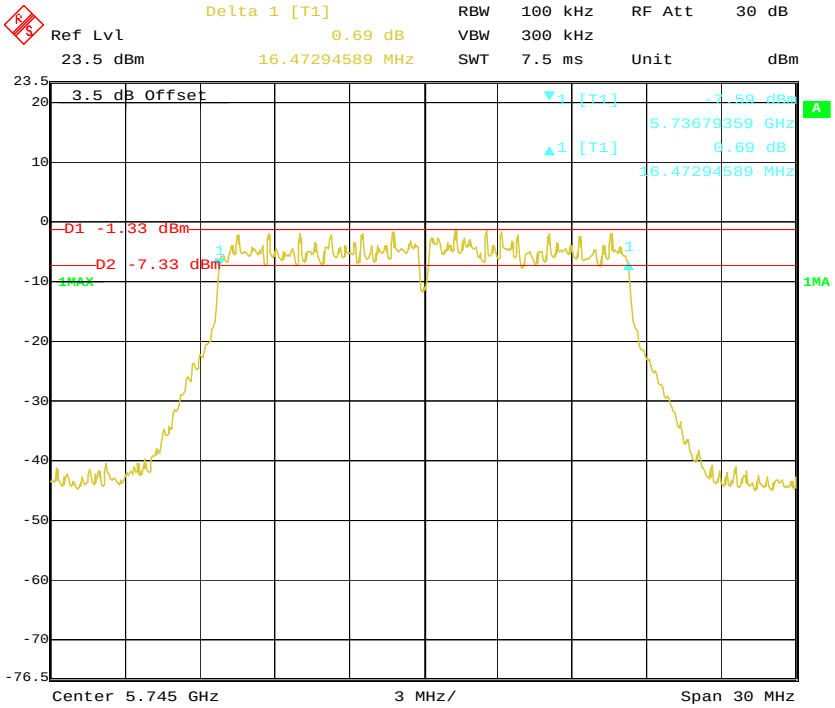


5725 MHz – 5825 MHz

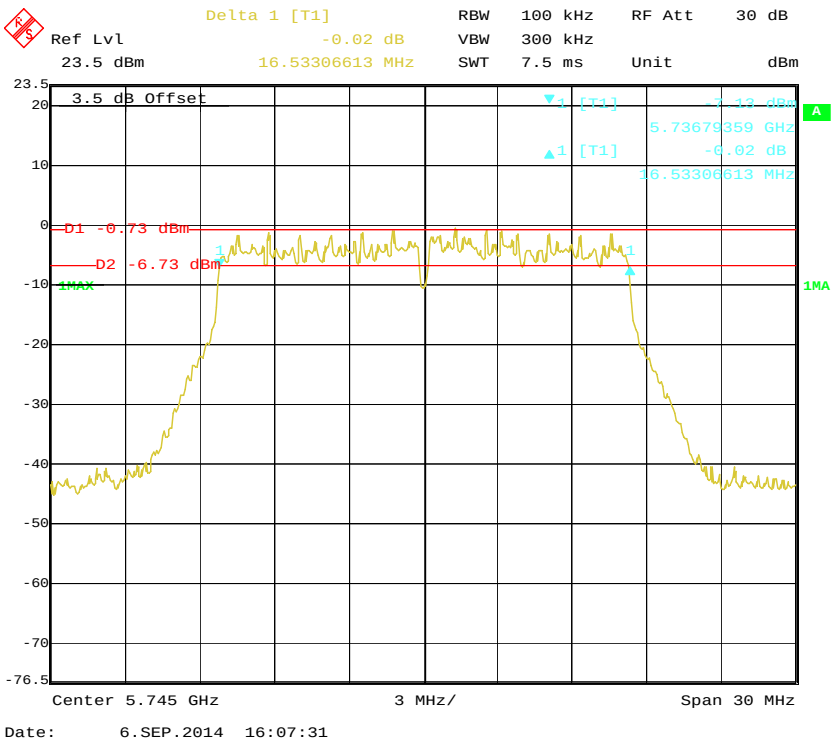
Frequency (MHz)	Antenna Port	6dB Emission Bandwidth (MHz)
802.11a		
5745	Chain 0	16.47
	Chain 1	16.53
	Chain 2	16.47
5785	Chain 0	16.47
	Chain 1	16.53
	Chain 2	16.47
5805	Chain 0	16.47
	Chain 1	16.53
	Chain 2	16.47

Frequency (MHz)	Antenna Port	6dB Emission Bandwidth (MHz)
802.11n20		
5745	Chain 0	17.86
	Chain 1	17.80
	Chain 2	17.86
5785	Chain 0	17.86
	Chain 1	17.80
	Chain 2	17.86
5805	Chain 0	17.86
	Chain 1	17.80
	Chain 2	17.86
802.11n40		
5755	Chain 0	36.27
	Chain 1	36.17
	Chain 2	36.17
5795	Chain 0	36.27
	Chain 1	36.17
	Chain 2	36.17
802.11ac80		
5775	Chain 0	76.23
	Chain 1	75.99
	Chain 2	75.99

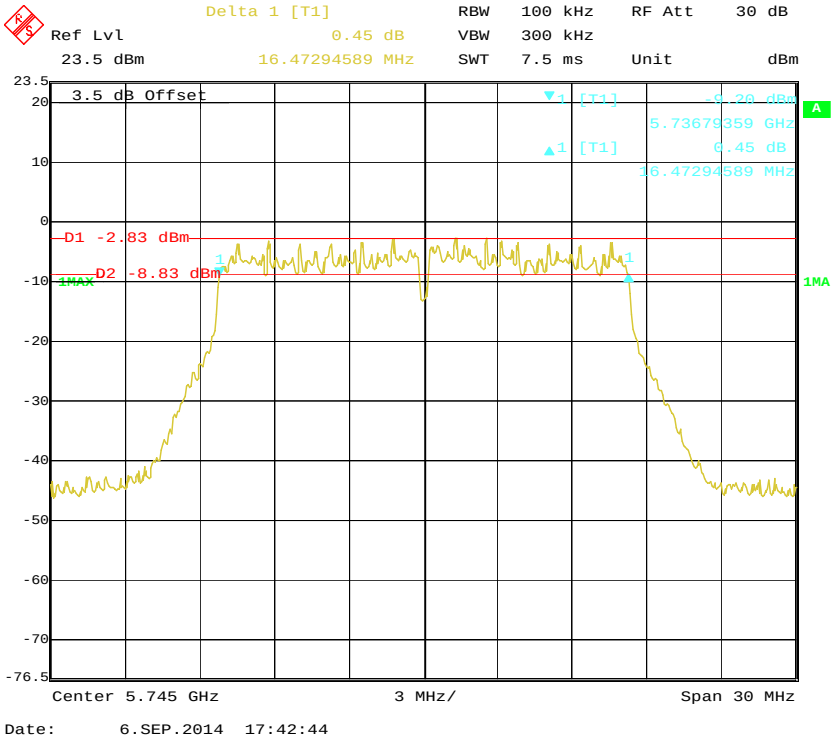
802.11a mode, 6dB Emission Bandwidth, Antenna 0, 5745 MHz



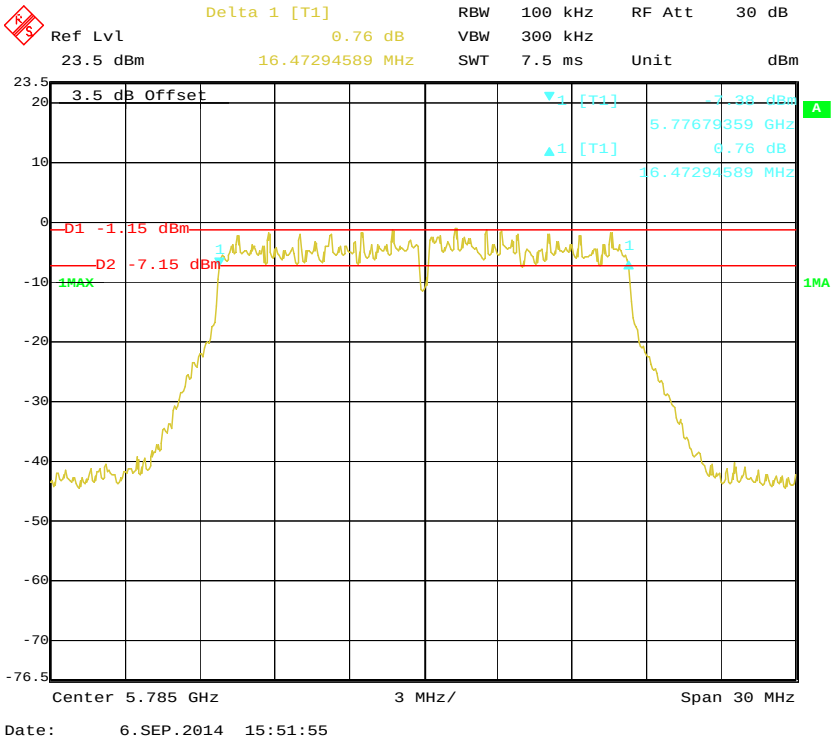
802.11a mode, 6dB Emission Bandwidth, Antenna 1, 5745 MHz



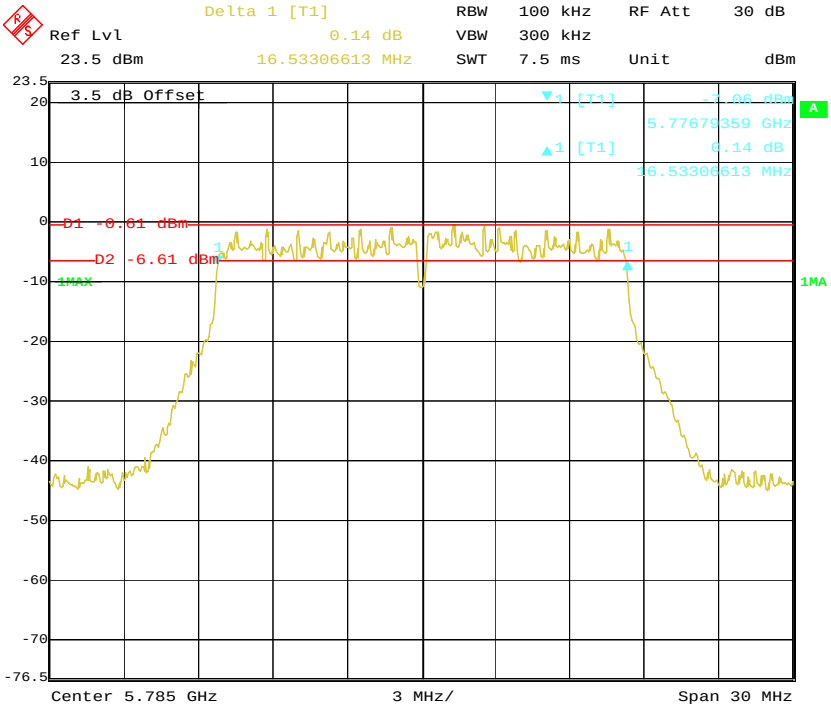
802.11a mode, 6dB Emission Bandwidth, Antenna 2, 5745 MHz



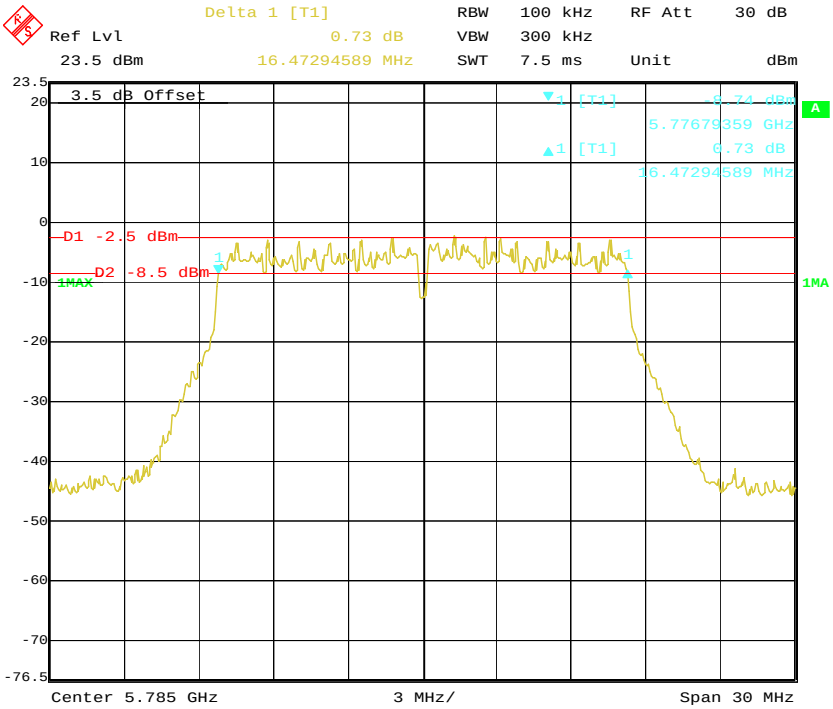
802.11a mode, 6dB Emission Bandwidth, Antenna 0, 5785 MHz



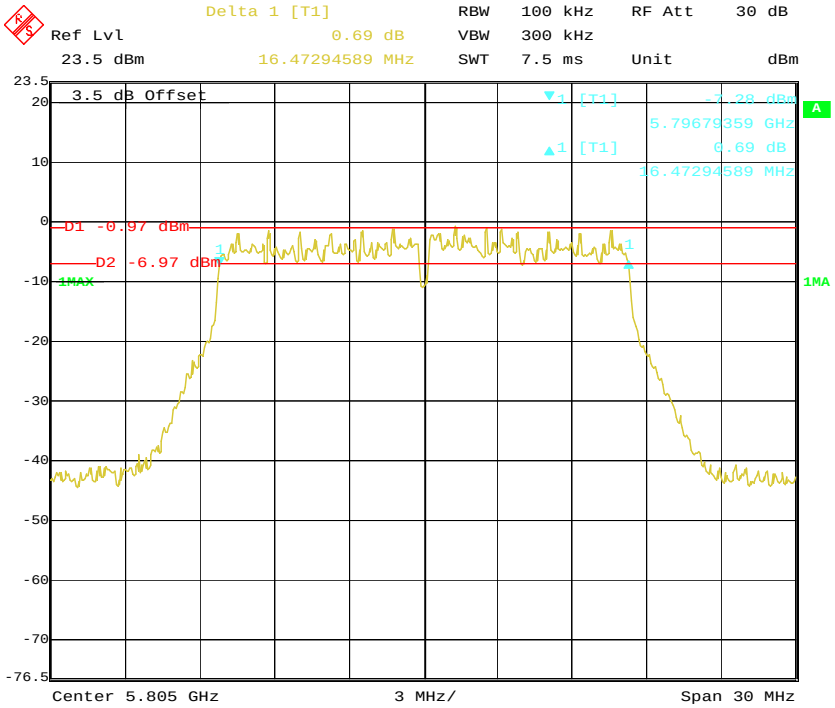
802.11a mode, 6dB Emission Bandwidth, Antenna 1, 5785 MHz



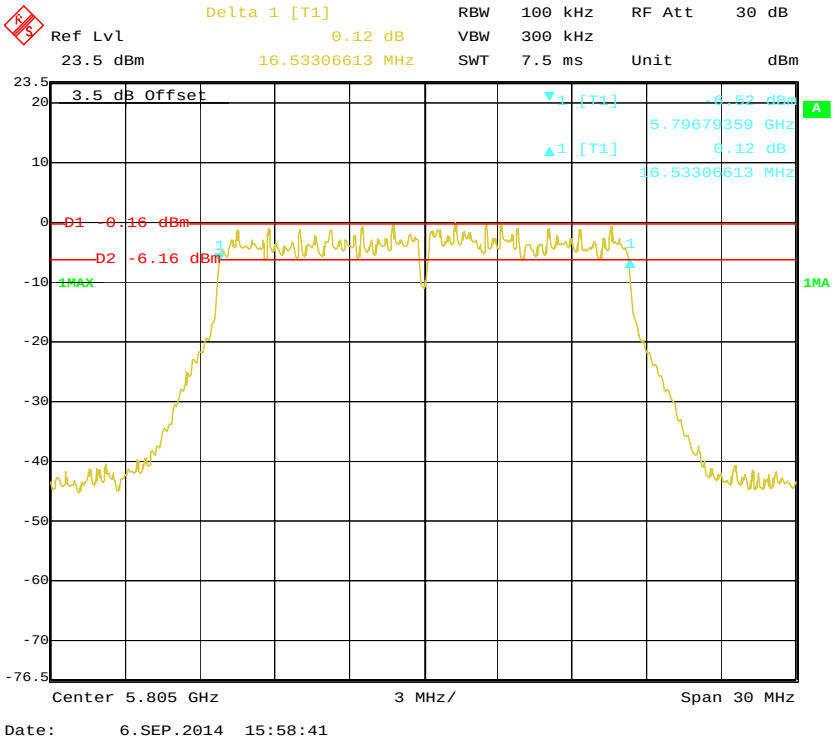
802.11a mode, 6dB Emission Bandwidth, Antenna 2, 5785 MHz



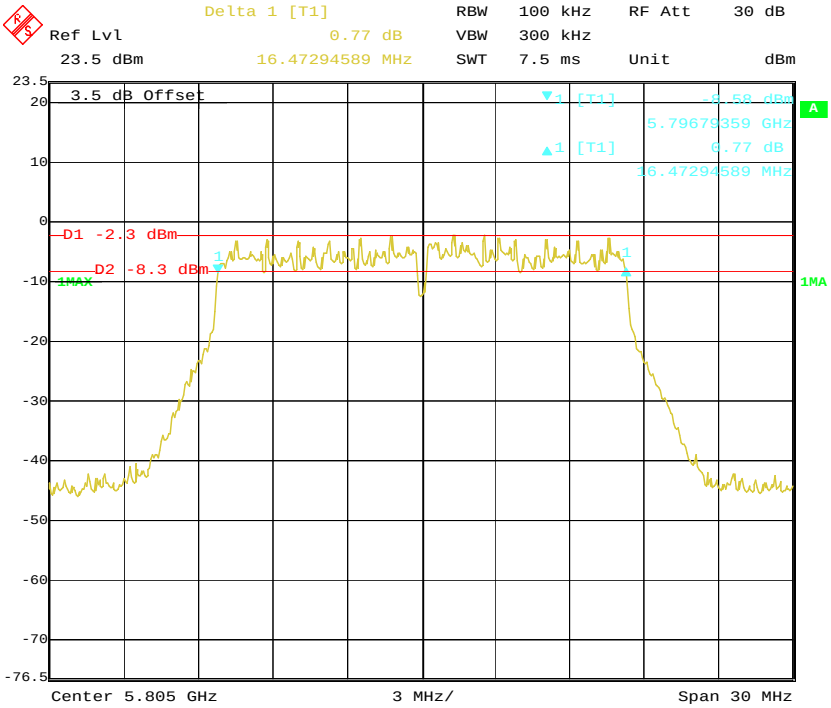
802.11a mode, 6dB Emission Bandwidth, Antenna 0, 5805 MHz



802.11a mode, 6dB Emission Bandwidth, Antenna 1, 5805 MHz



802.11a mode, 6dB Emission Bandwidth, Antenna 2, 5805 MHz



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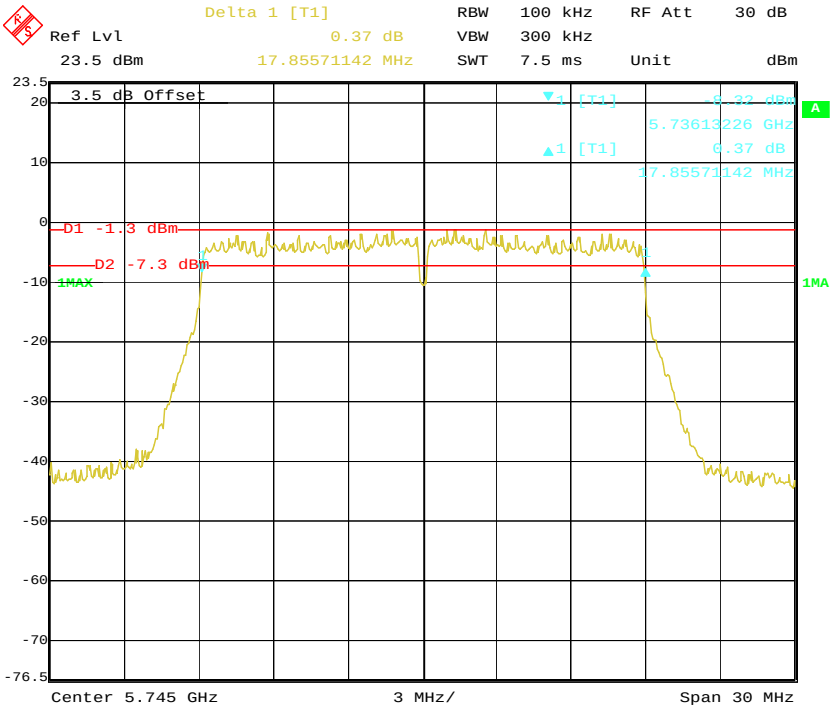
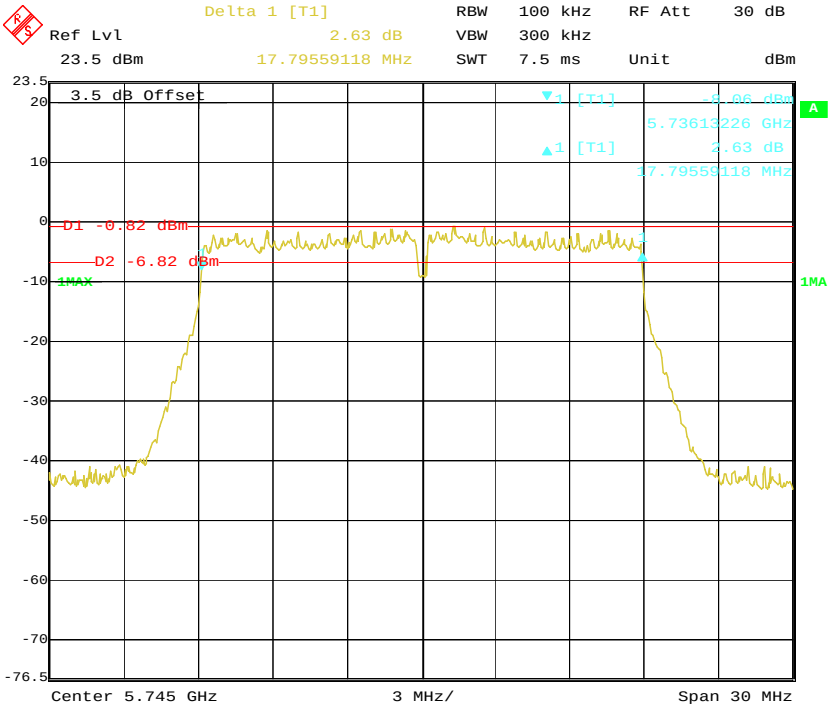
802.11n20 mode, 6dB Emission Bandwidth, Antenna 0, 5745 MHz

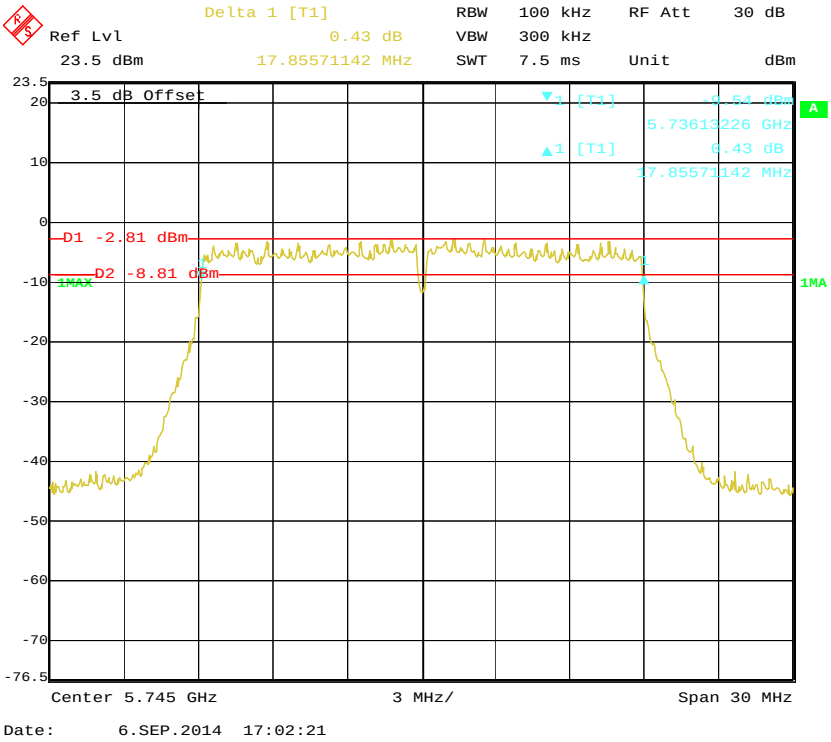


Date: 6.SEP.2014 15:17:25

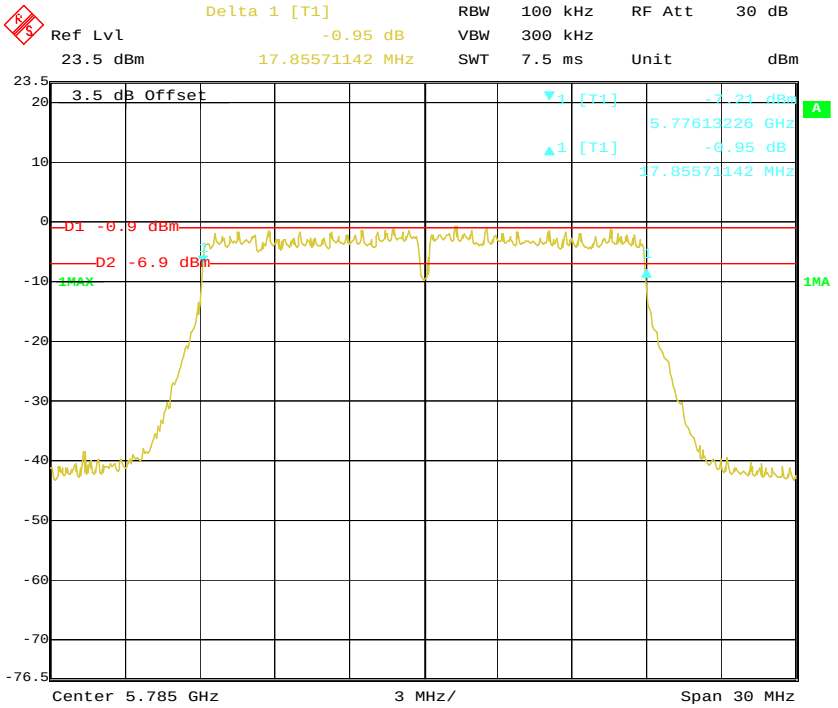
802.11n20 mode, 26dB Emission Bandwidth, Antenna 1, 5745 MHz



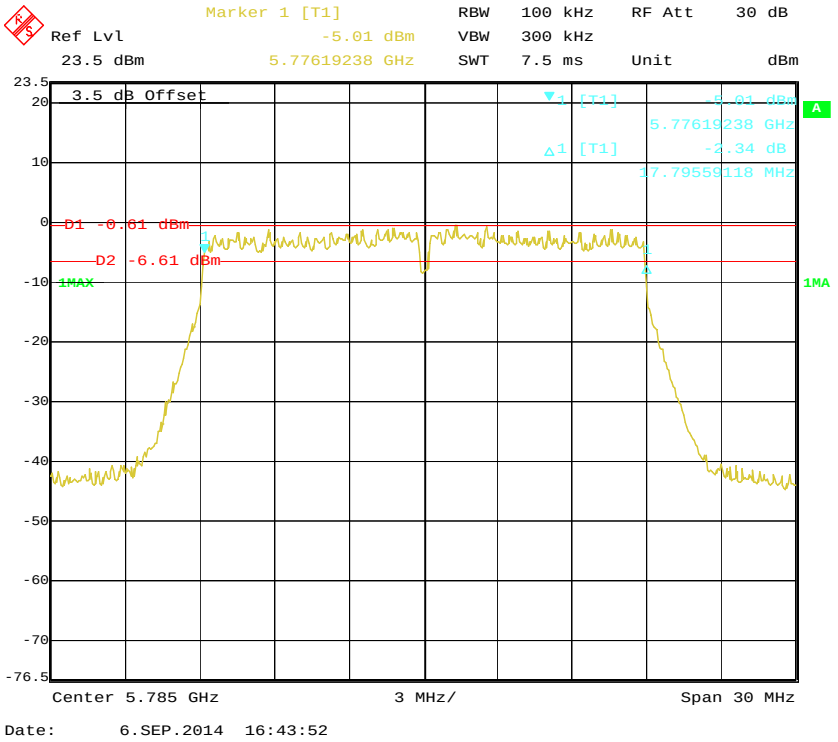
802.11n20 mode, 6dB Emission Bandwidth, Antenna 2, 5745 MHz



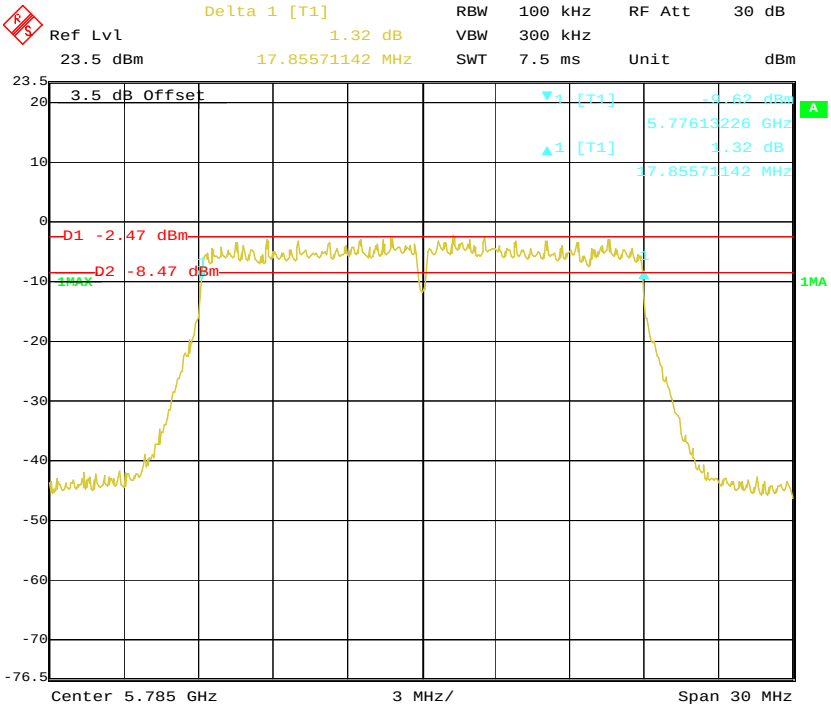
802.11n20 mode, 6dB Emission Bandwidth, Antenna 0, 5785 MHz



802.11n20 mode, 6dB Emission Bandwidth, Antenna 1, 5785 MHz

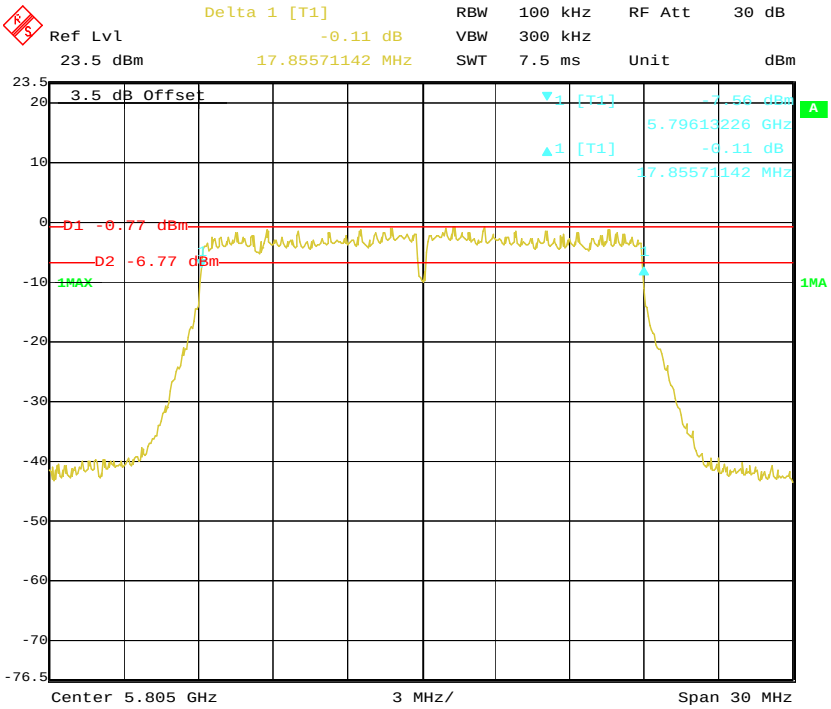


802.11n20 mode, 6dB Emission Bandwidth, Antenna 2, 5785 MHz



Date: 6.SEP.2014 16:54:41

802.11n20 mode, 6dB Emission Bandwidth, Antenna 0, 5805 MHz



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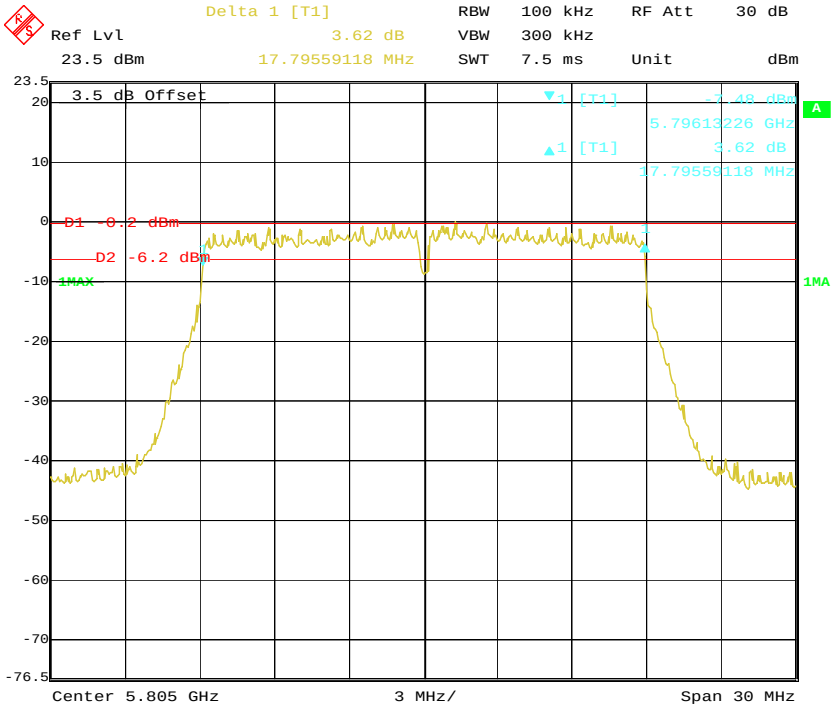
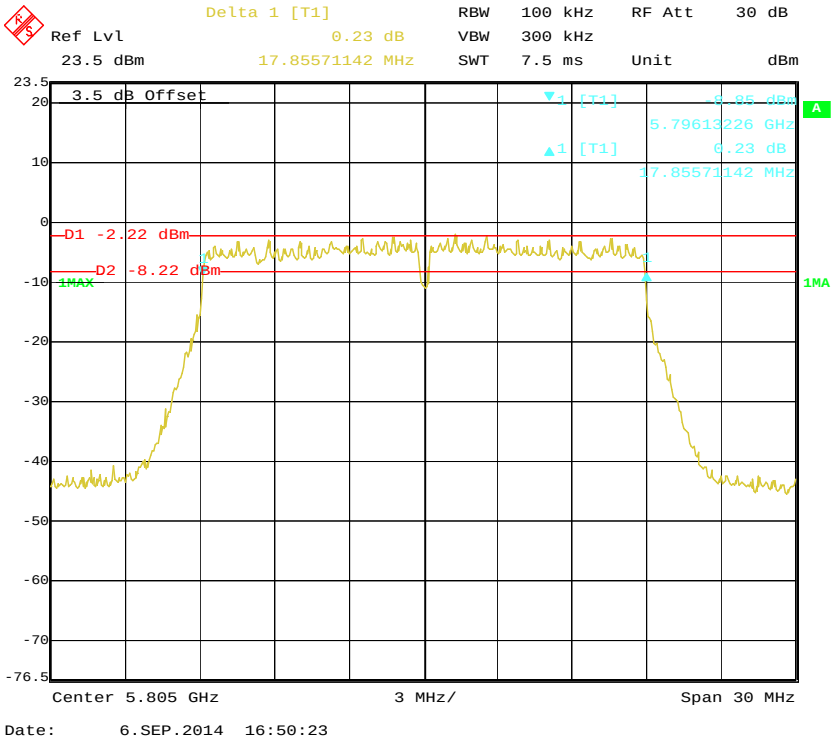
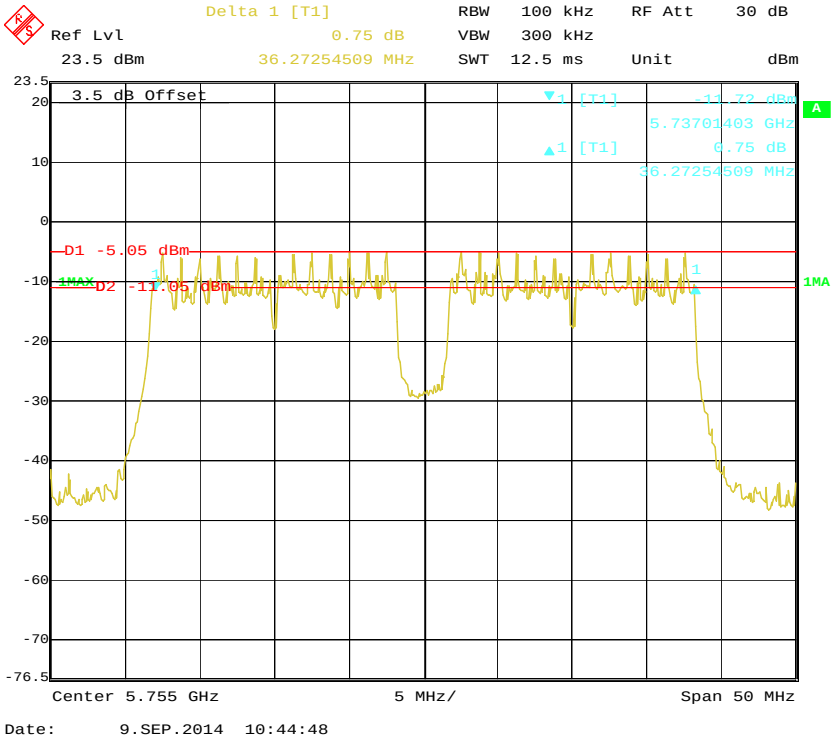
802.11n20 mode, 6dB Emission Bandwidth, Antenna 1, 5805 MHz



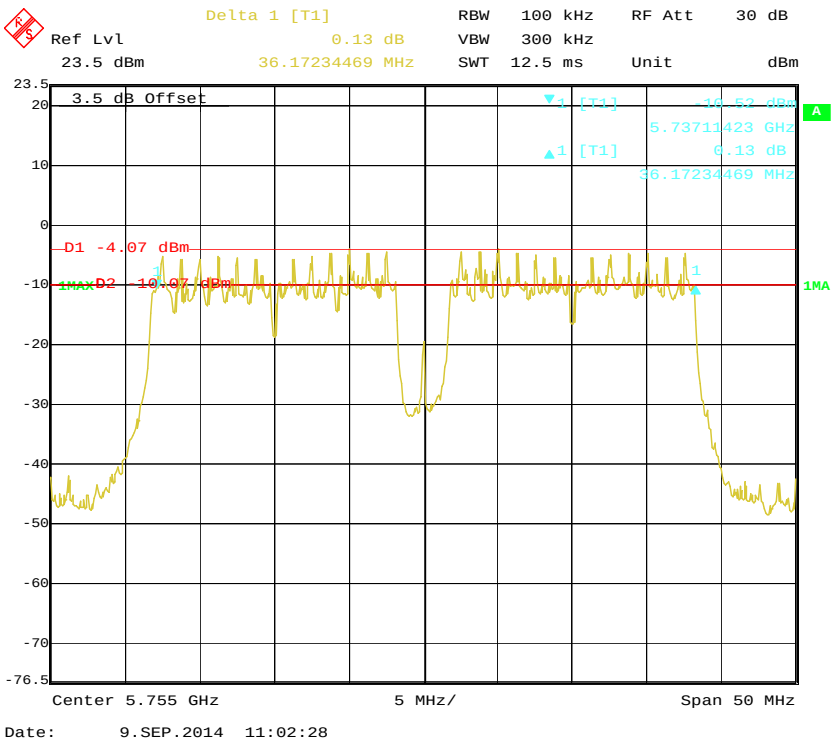
802.11n20 mode, 6dB Emission Bandwidth, Antenna 2, 5805 MHz



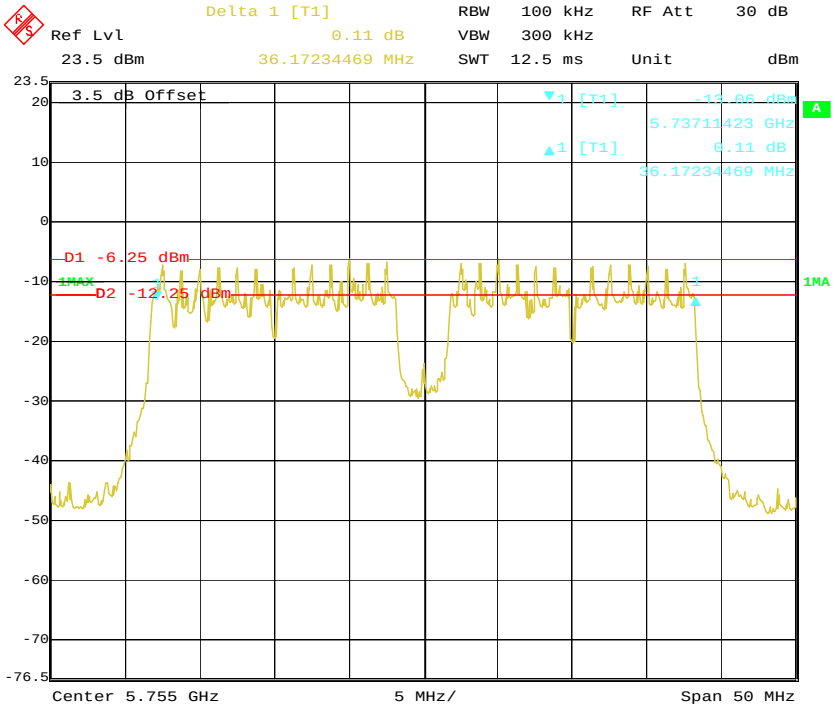
802.11n40 mode, 6dB Emission Bandwidth, Antenna 0, 5775 MHz



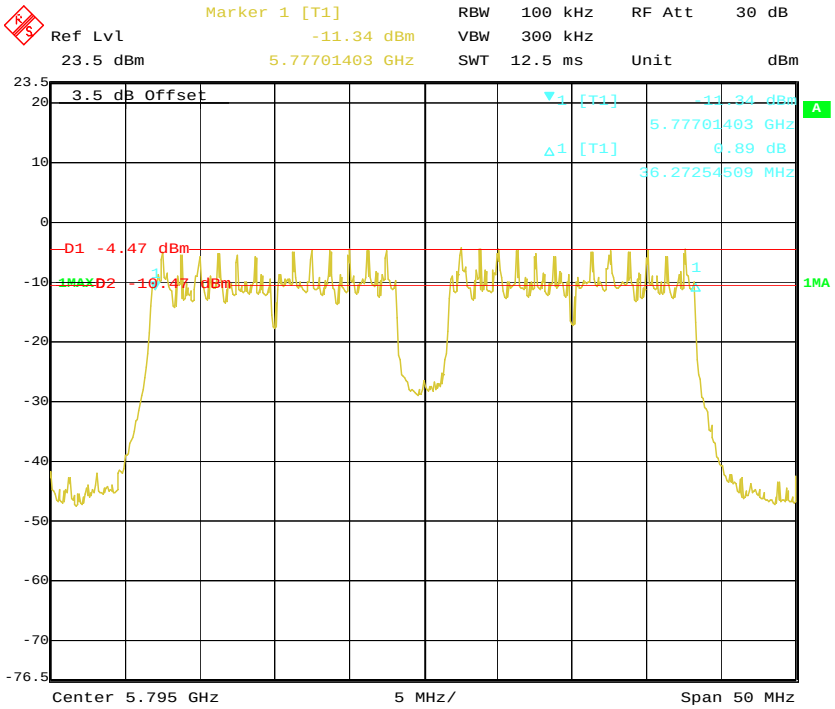
802.11n40 mode, 6dB Emission Bandwidth, Antenna 1, 5775 MHz



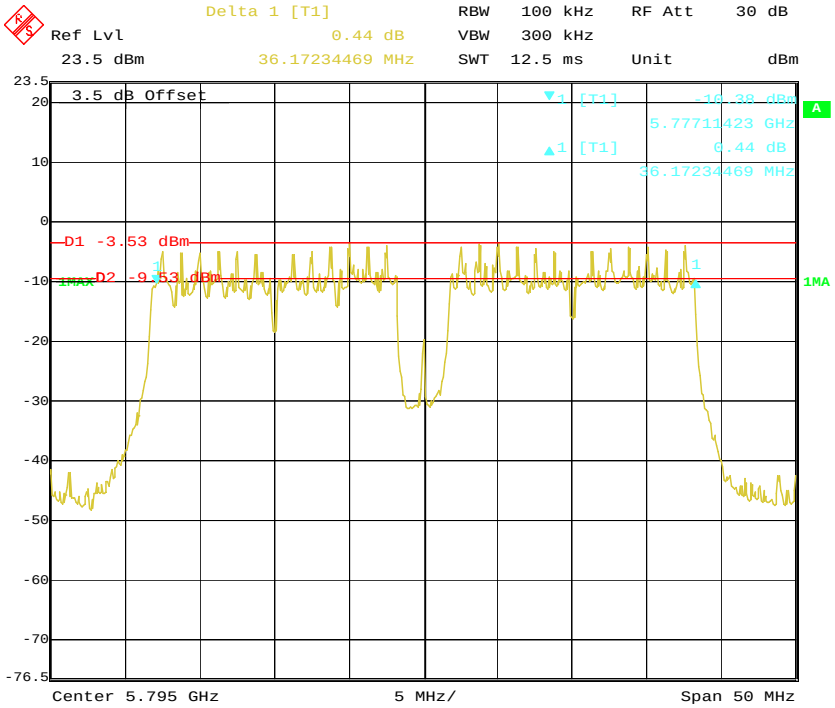
802.11n40 mode, 6dB Emission Bandwidth, Antenna 2, 5775 MHz



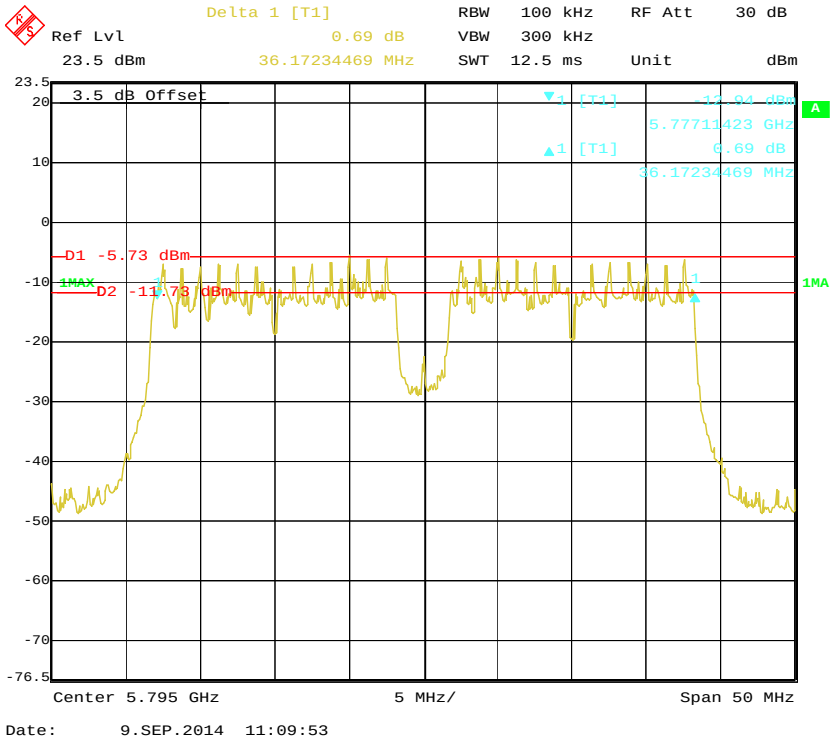
802.11n40 mode, 6dB Emission Bandwidth, Antenna 0, 5795 MHz



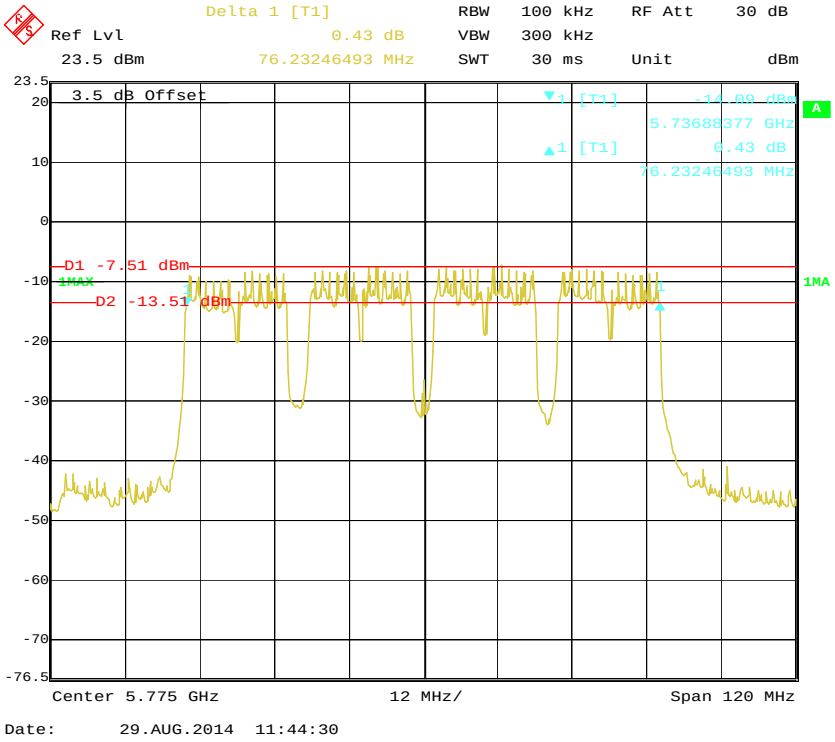
802.11n40 mode, 6dB Emission Bandwidth, Antenna 1, 5795 MHz



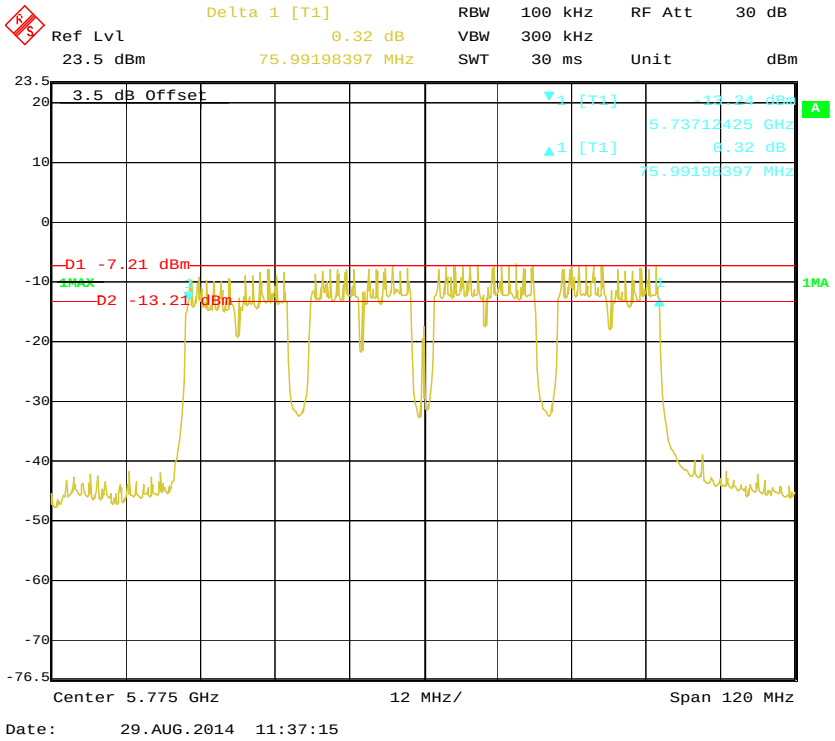
802.11n40 mode, 6dB Emission Bandwidth, Antenna 2, 5795 MHz



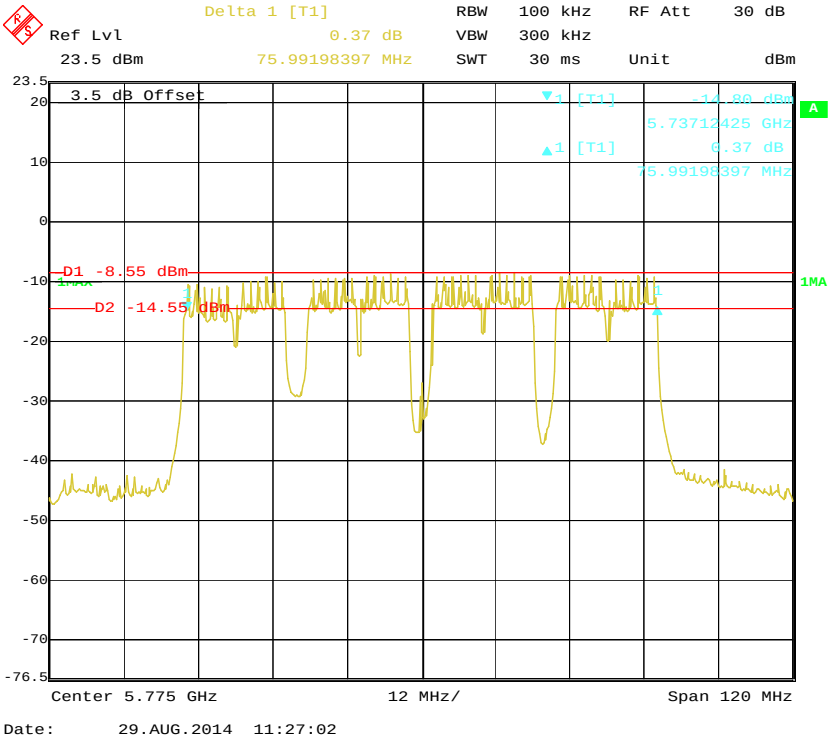
802.11ac80 mode, 6dB Emission Bandwidth, Antenna 0, 5775 MHz



802.11ac80 mode, 6dB Emission Bandwidth, Antenna 1, 5775 MHz



802.11ac80 mode, 6dB Emission Bandwidth, Antenna 2, 5775 MHz



FCC §15.407(a) (1) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. 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.

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

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. 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.

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 was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set span to encompass the entire emission bandwidth (EBW) of the signal. Set RBW = 1 MHz.Set VBW ≥ 3 MHz. Use sample detector mode Use a video trigger with the trigger level set to enable triggering only on full power pulses.Transmitter must operate at full control power for entire sweep of every sweep.If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”. Trace average 100 traces in power averaging mode.Compute power by integrating the spectrum across the 99% OBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms.

4. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.
5. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12

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

Test Data

Environmental Conditions

Temperature:	23 – 26 ℃
Relative Humidity:	50 - 56 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhang from 2014-08/28 to 2014-09-09.

EUT operation mode: Transmitting

Test Result: Pass

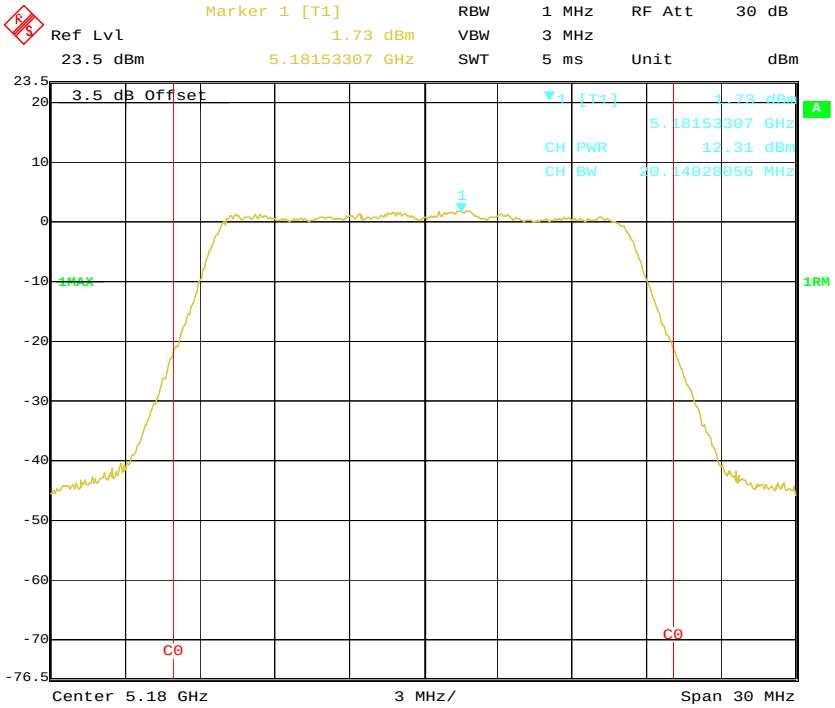
Please refer to the following tables and plots.

5150 MHz – 5250 MHz:

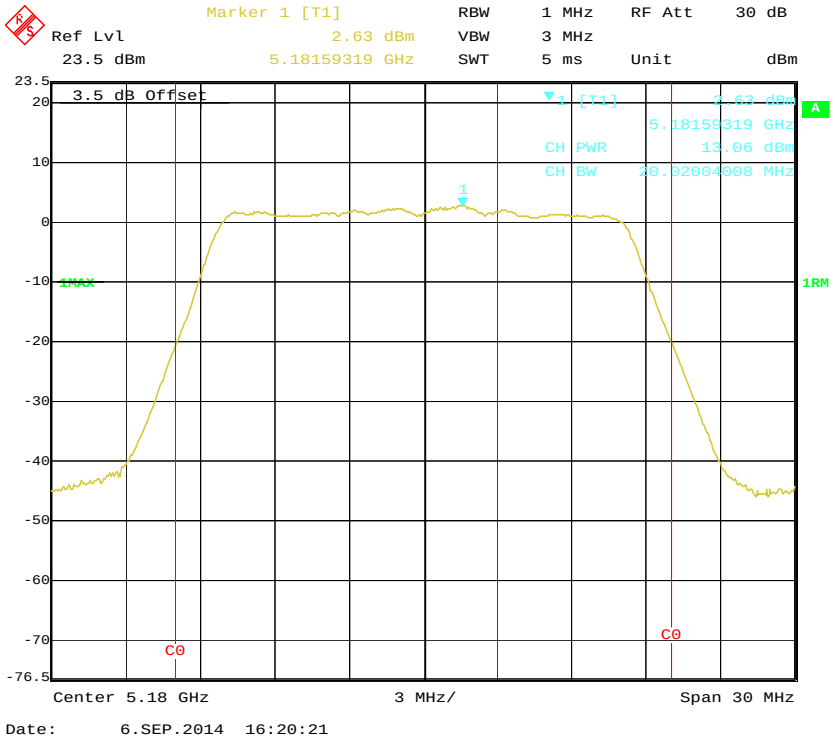
Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11a				
5180	0	12.31	/	30
	1	13.06		
	2	12.68		
5200	0	12.55	/	
	1	13.14		
	2	12.77		
5240	0	12.88	/	
	1	13.48		
	2	13.18		

Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11n20				
5180	0	12.41	17.68	30
	1	13.18		
	2	13.10		
5200	0	12.72	17.83	
	1	13.24		
	2	13.19		
5240	0	13.35	18.36	
	1	13.90		
	2	13.50		
802.11n40				
5190	0	16.30	21.39	30
	1	16.70		
	2	16.84		
5230	0	17.22	22.09	
	1	17.61		
	2	17.12		
802.11ac				
5210	0	15.46	20.50	30
	1	15.92		
	2	15.79		

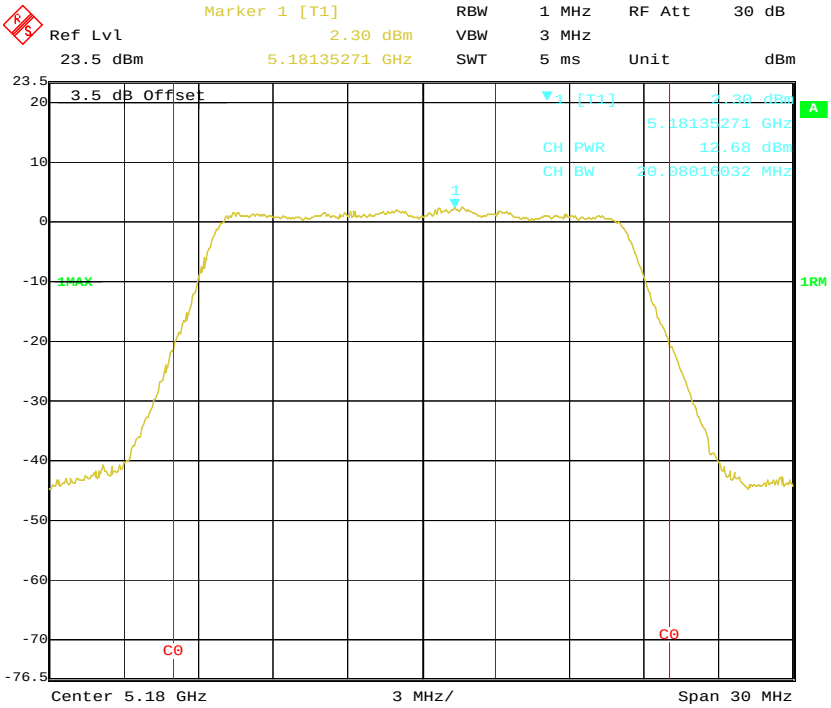
802.11a mode, RF Conducted Output Power, Antenn 0, 5180 MHz



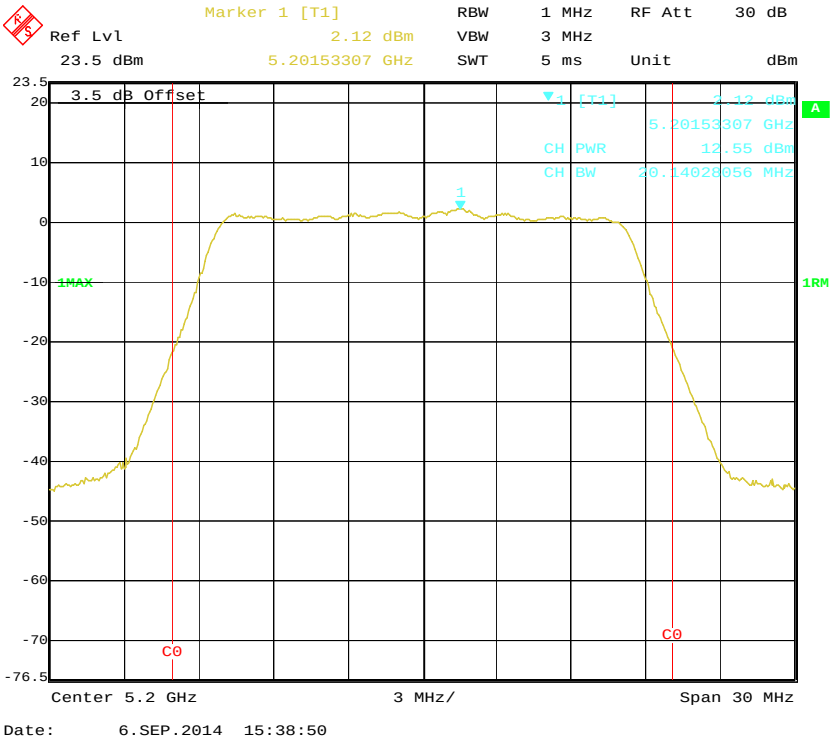
802.11a mode, RF Conducted Output Power, Antenn 1, 5180 MHz



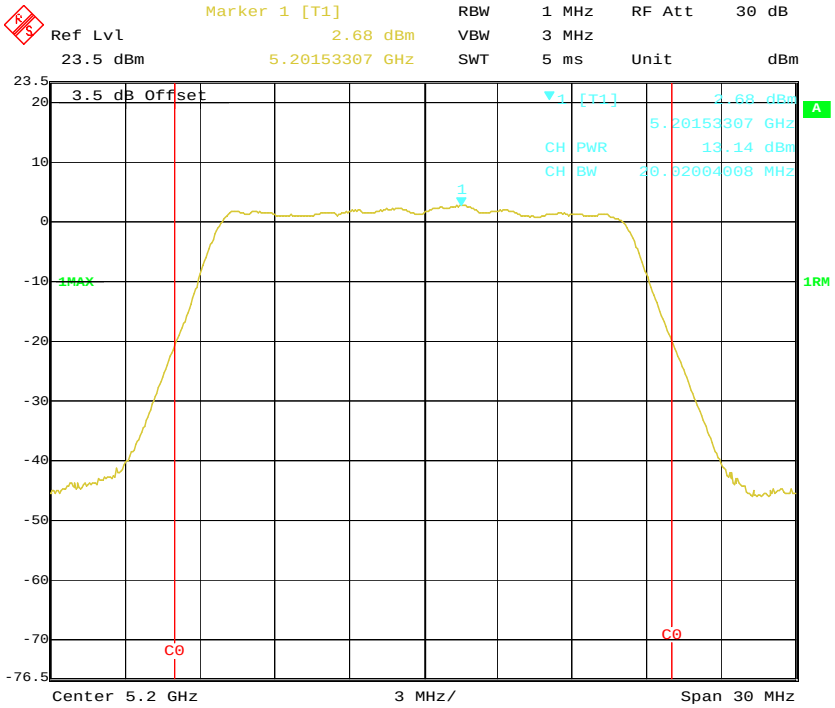
802.11a mode, RF Conducted Output Power, Antenn 2, 5180 MHz



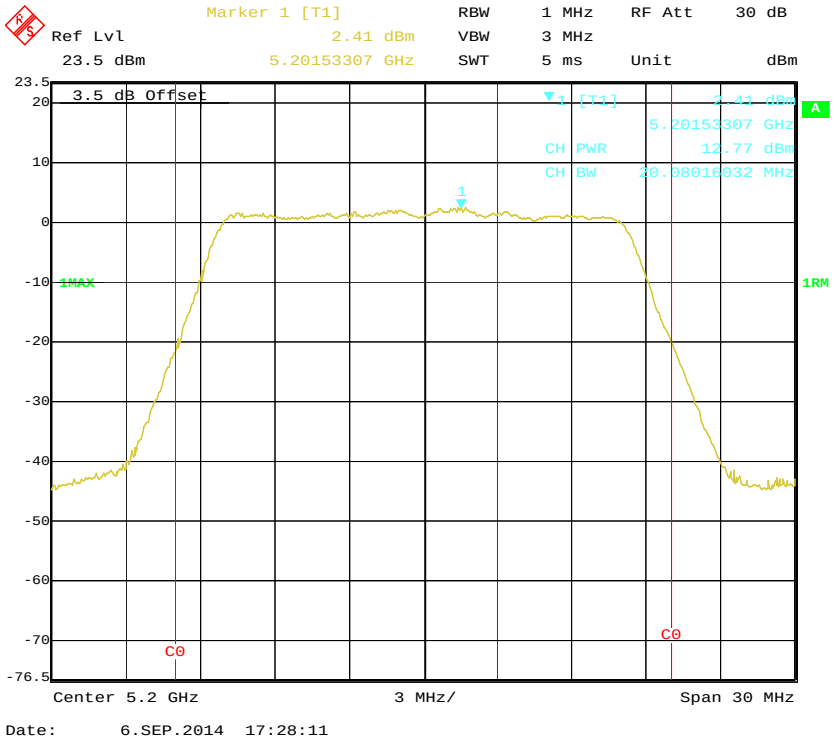
802.11a mode, RF Conducted Output Power, Antenn 0, 5200 MHz



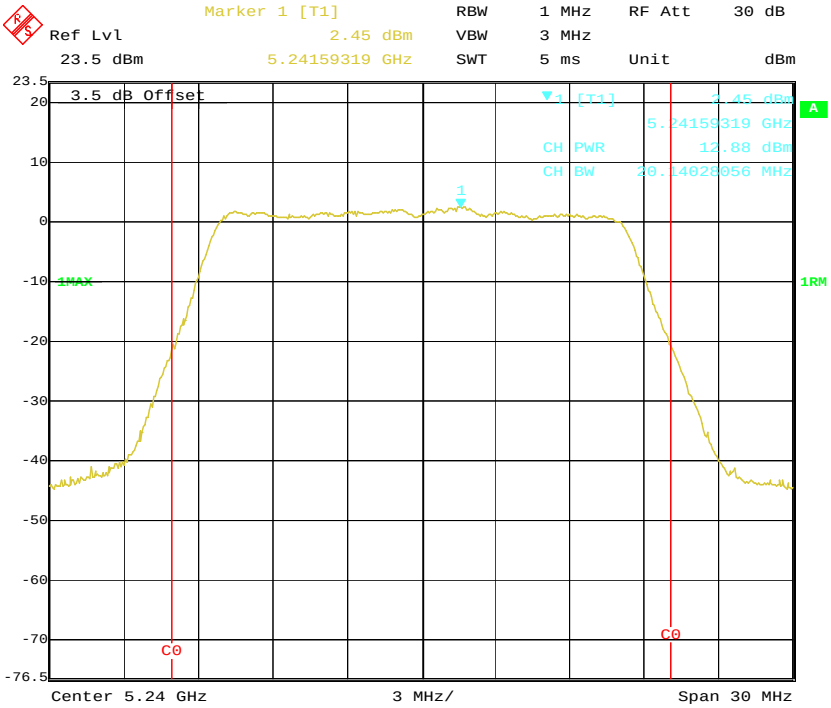
802.11a mode, RF Conducted Output Power, Antenn 1, 5200 MHz



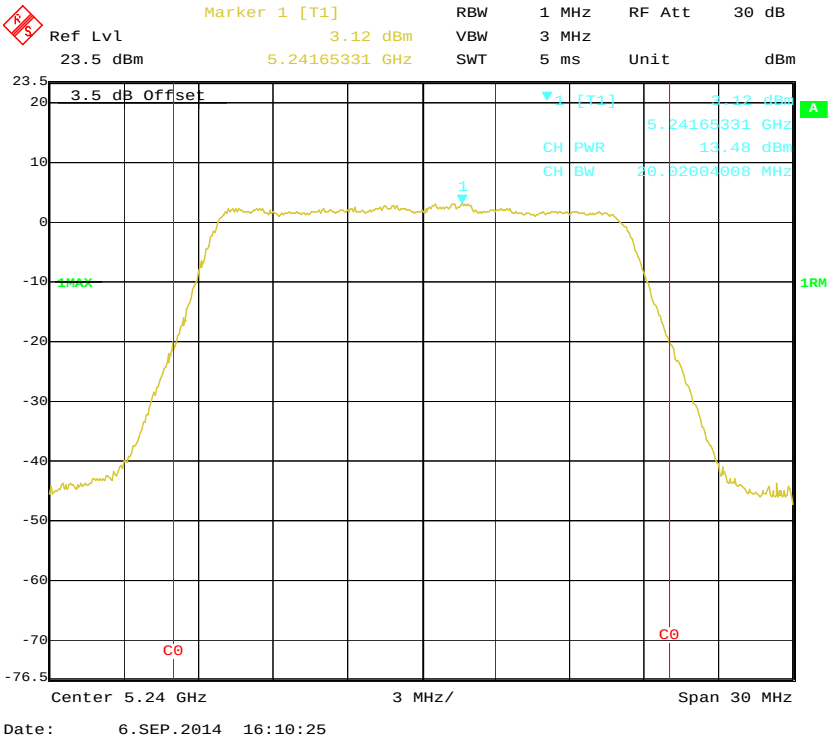
802.11a mode, RF Conducted Output Power, Antenn 2, 5200 MHz



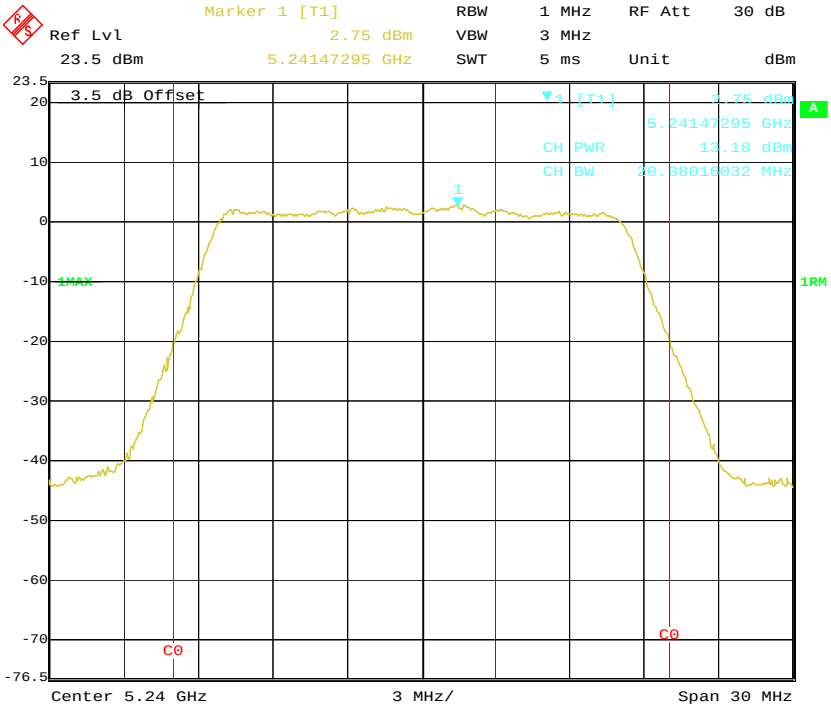
802.11a mode, RF Conducted Output Power, Antenn 0, 5240 MHz



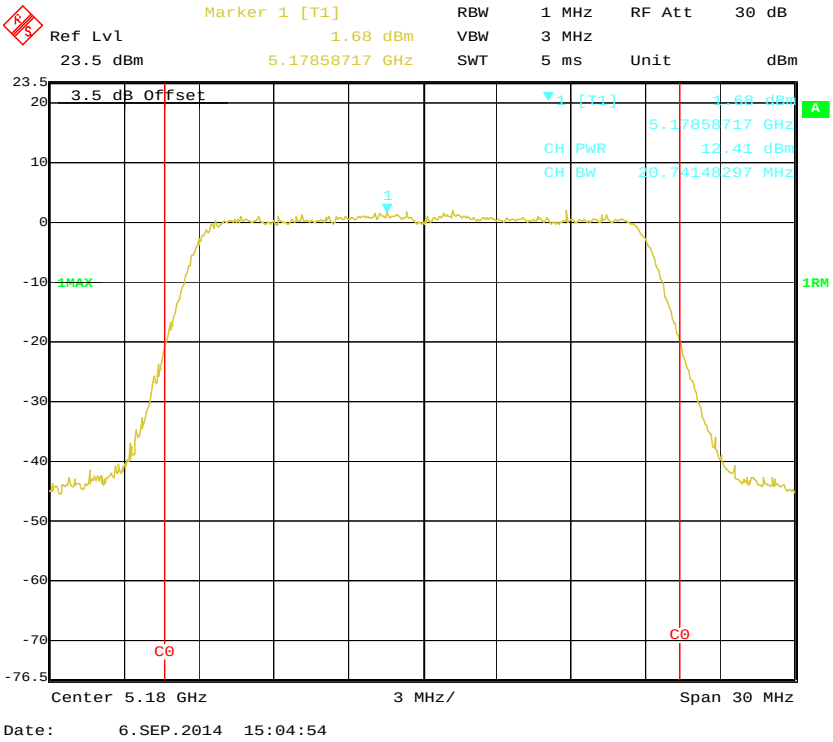
802.11a mode, RF Conducted Output Power, Antenn 1, 5240 MHz



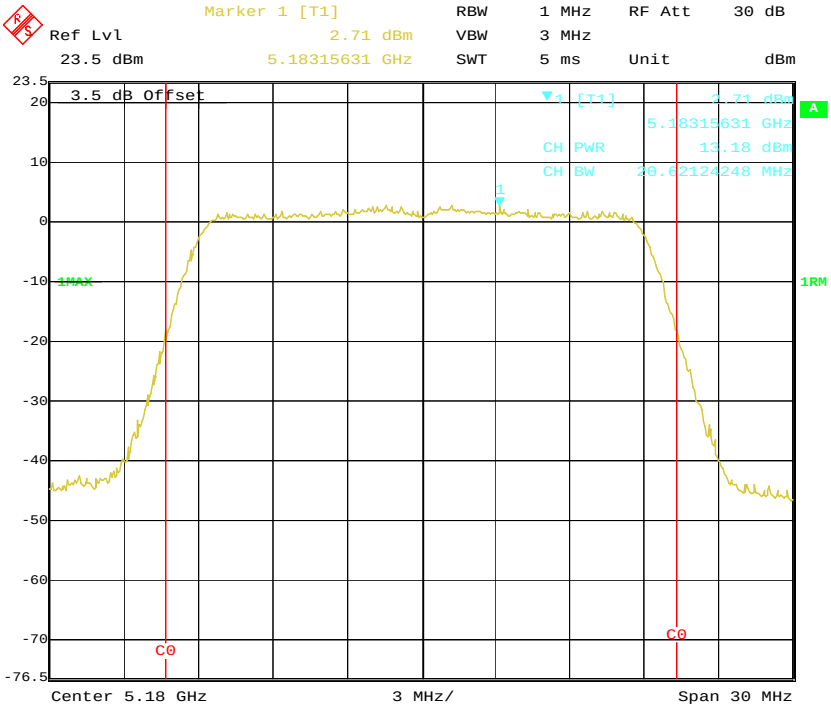
802.11a mode, RF Conducted Output Power, Antenn 2, 5240 MHz



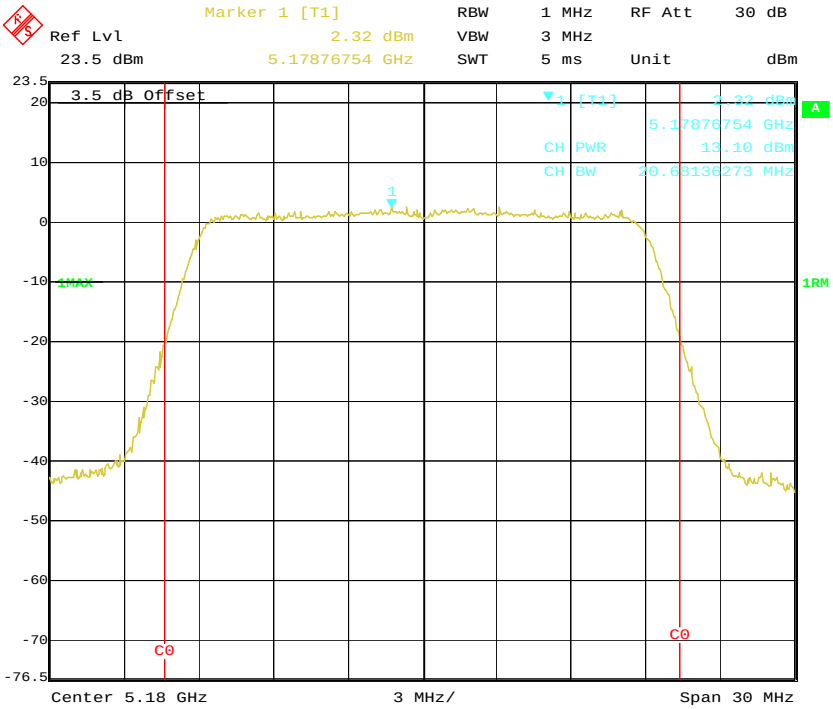
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5180 MHz



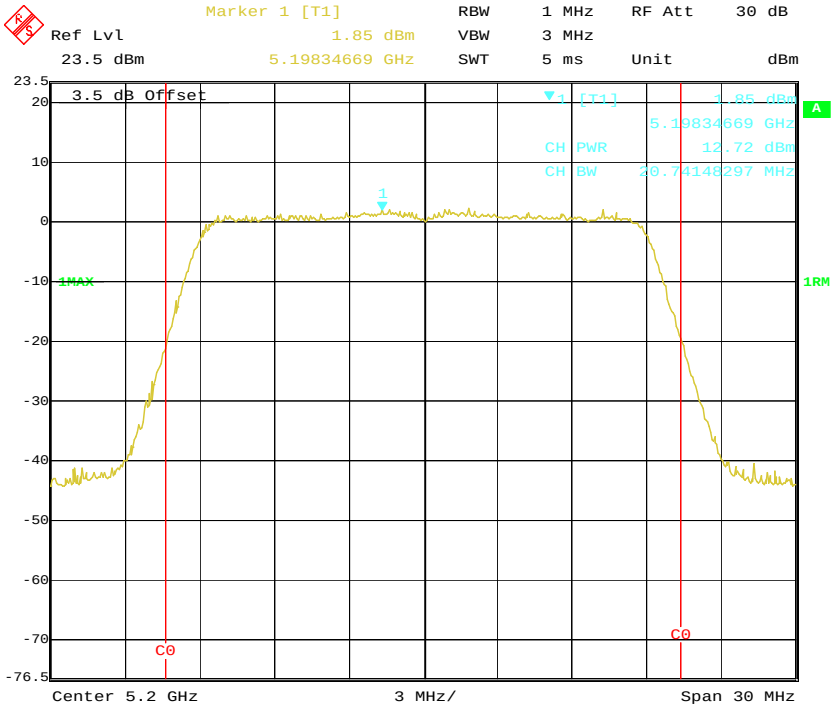
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5180 MHz



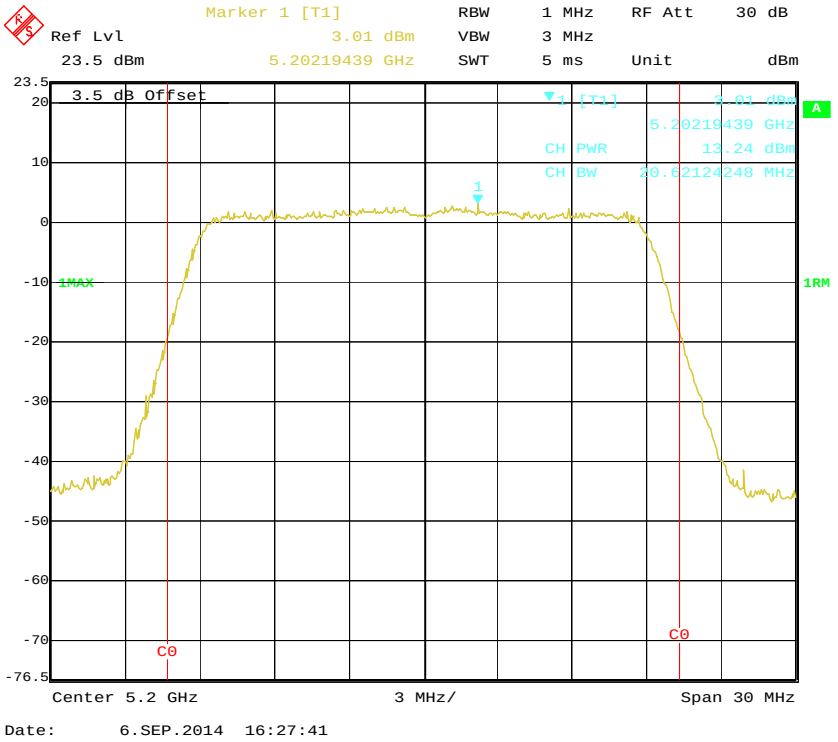
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5180 MHz



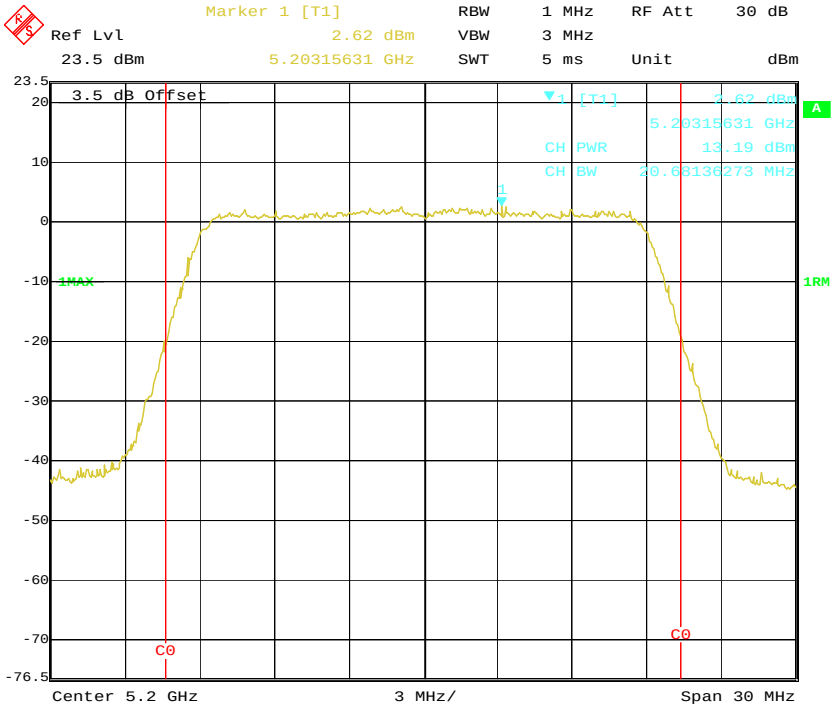
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5200 MHz



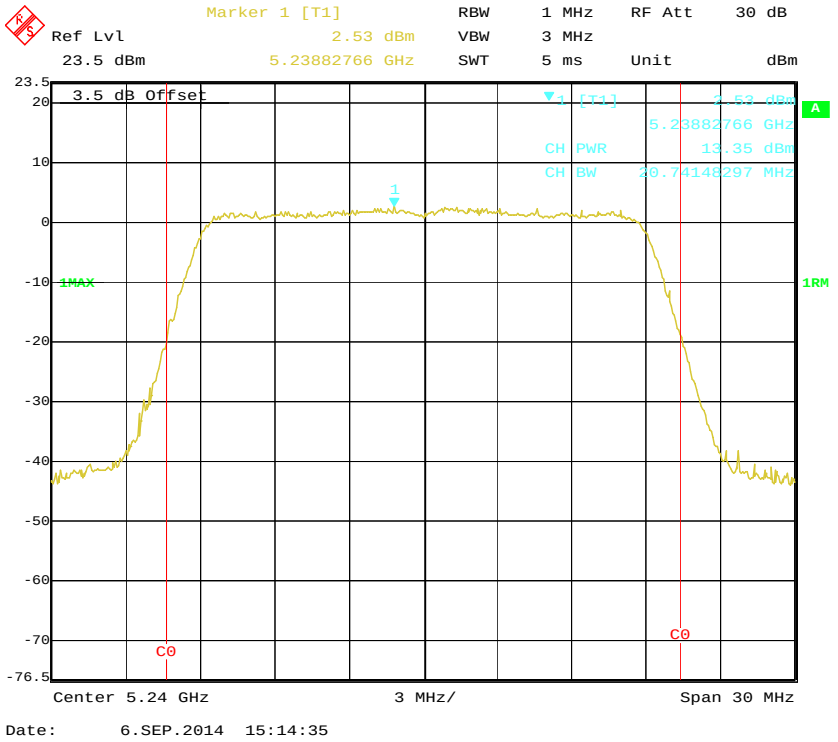
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5200 MHz



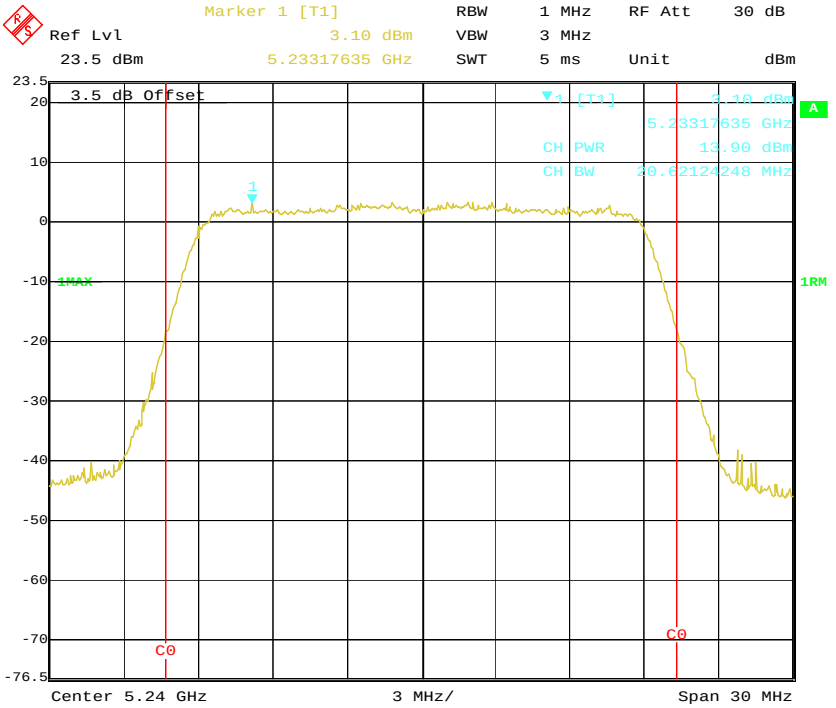
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5200 MHz



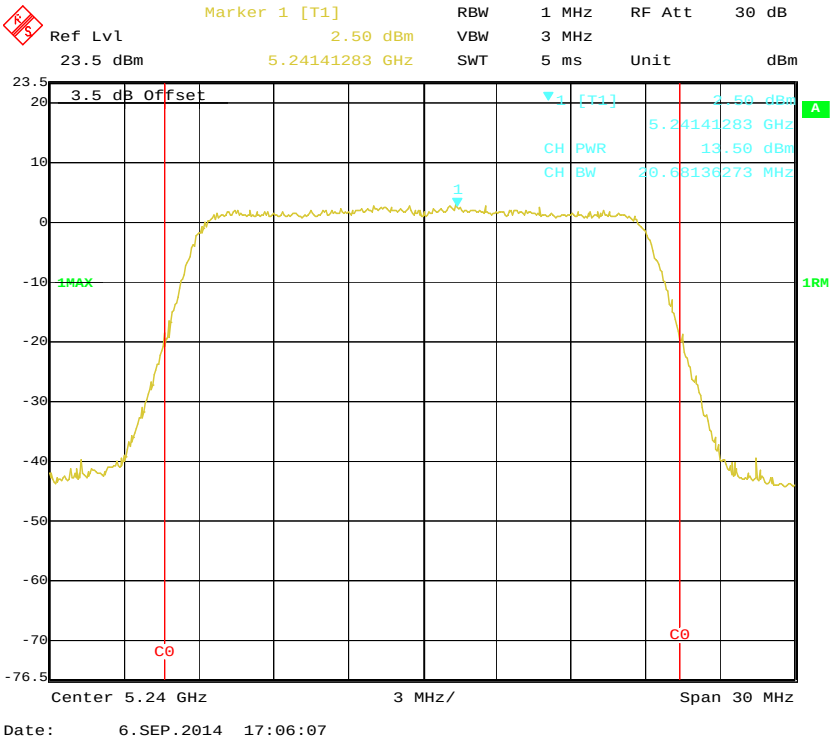
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5240 MHz



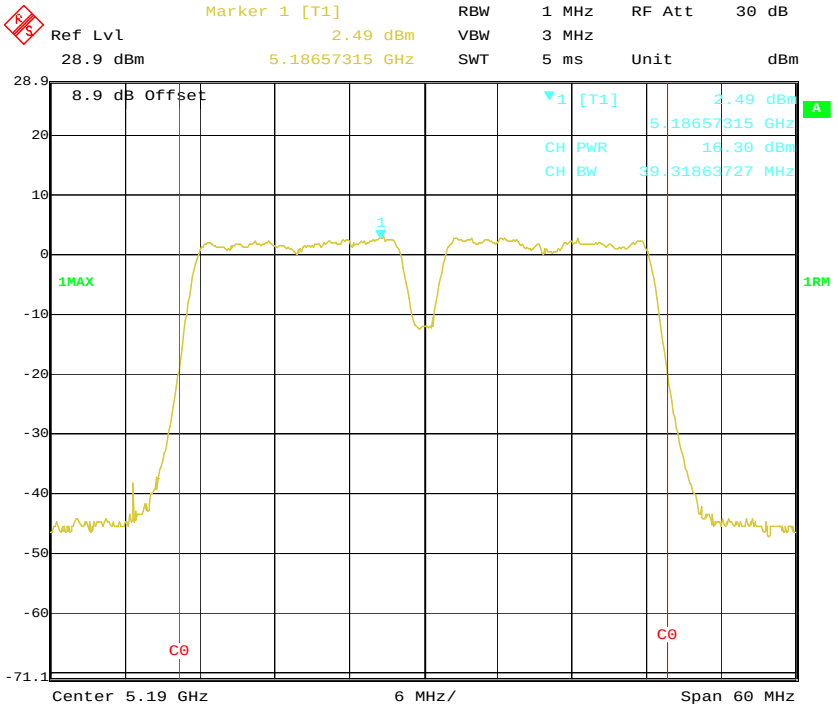
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5240 MHz



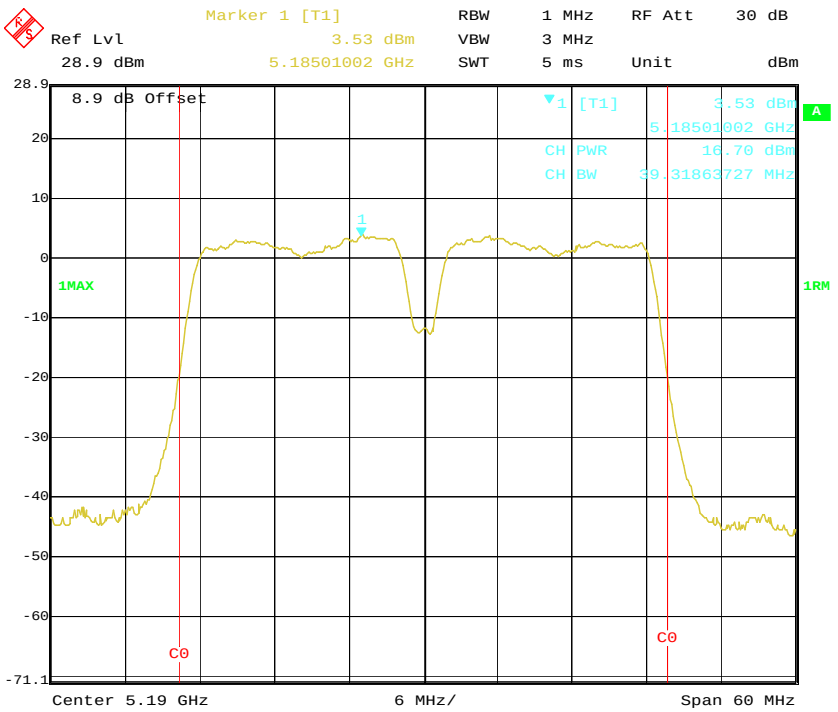
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5240 MHz



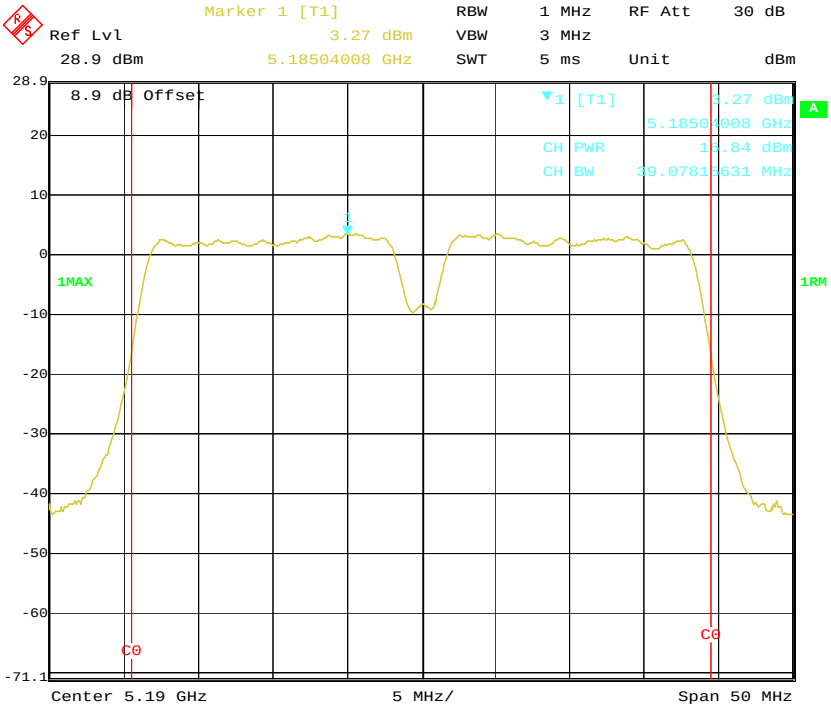
802.11n40 mode, RF Conducted Output Power, Antenn 0, 5190 MHz



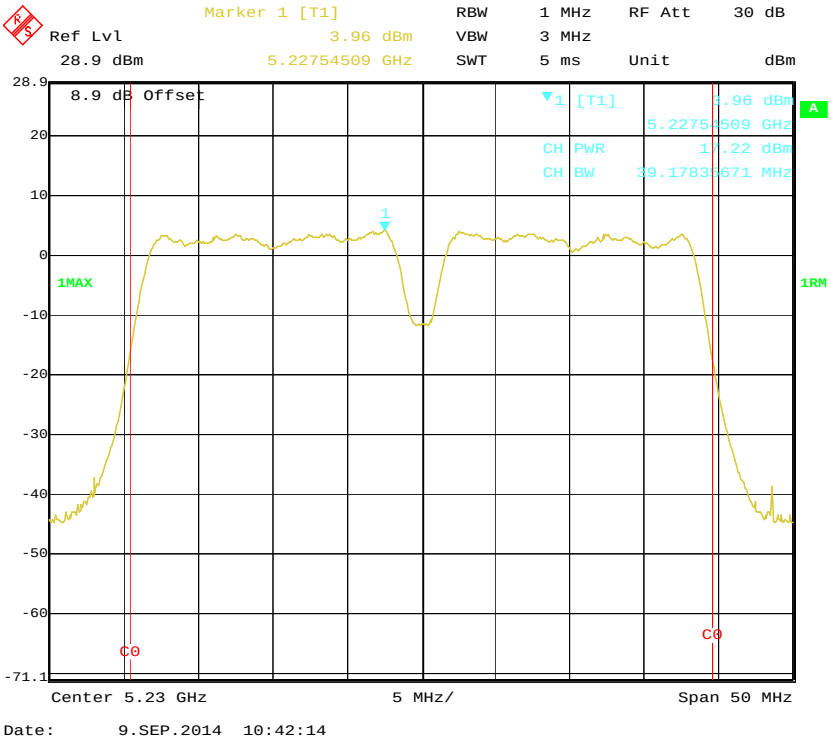
802.11n40 mode, RF Conducted Output Power, Antenn 1, 5190 MHz



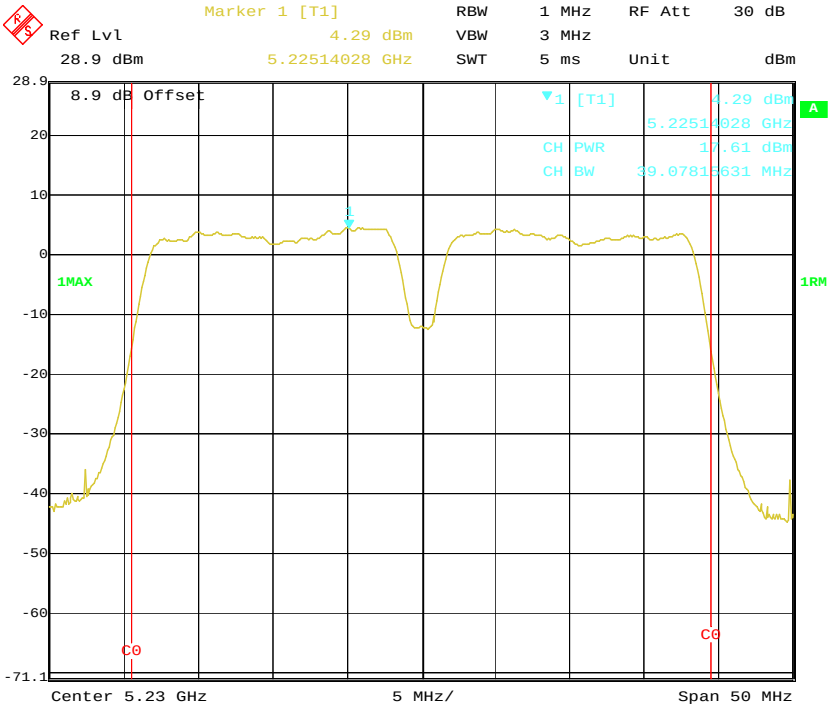
802.11n40 mode, RF Conducted Output Power, Antenn 2, 5190 MHz



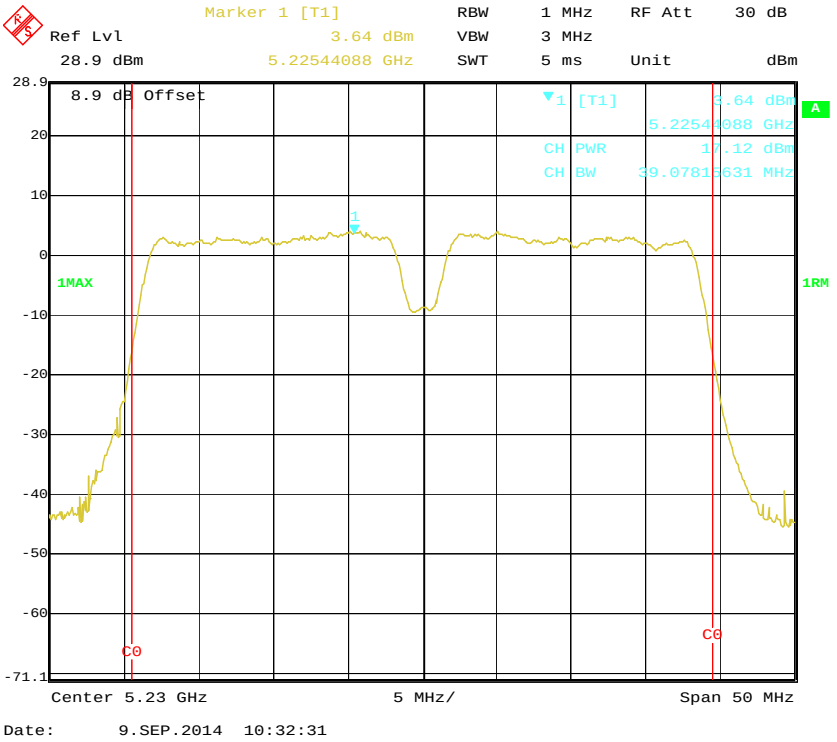
802.11n40 mode, RF Conducted Output Power, Antenn 0, 5230 MHz



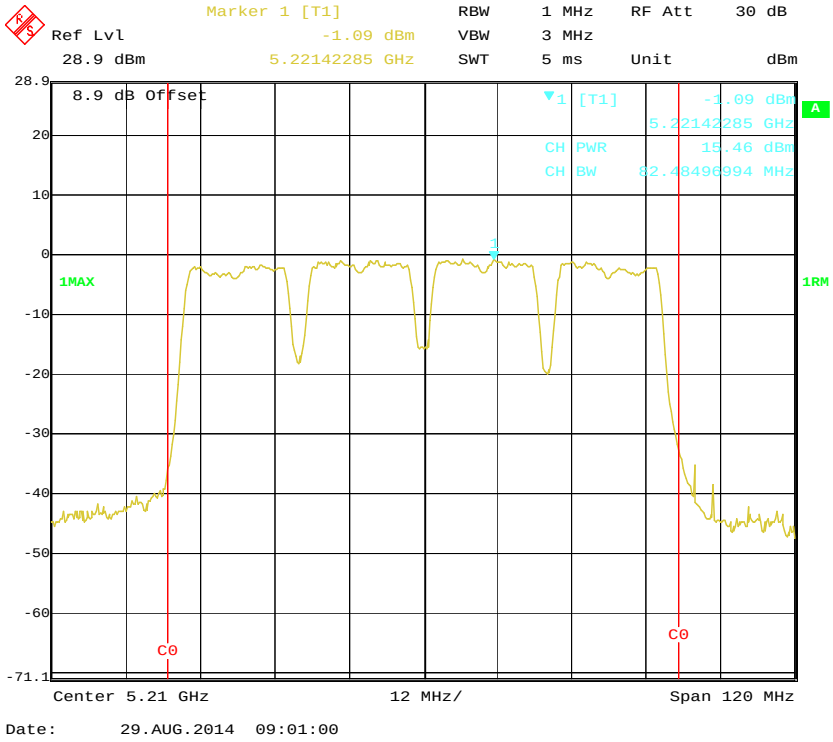
802.11n40 mode, RF Conducted Output Power, Antenn 1, 5230 MHz



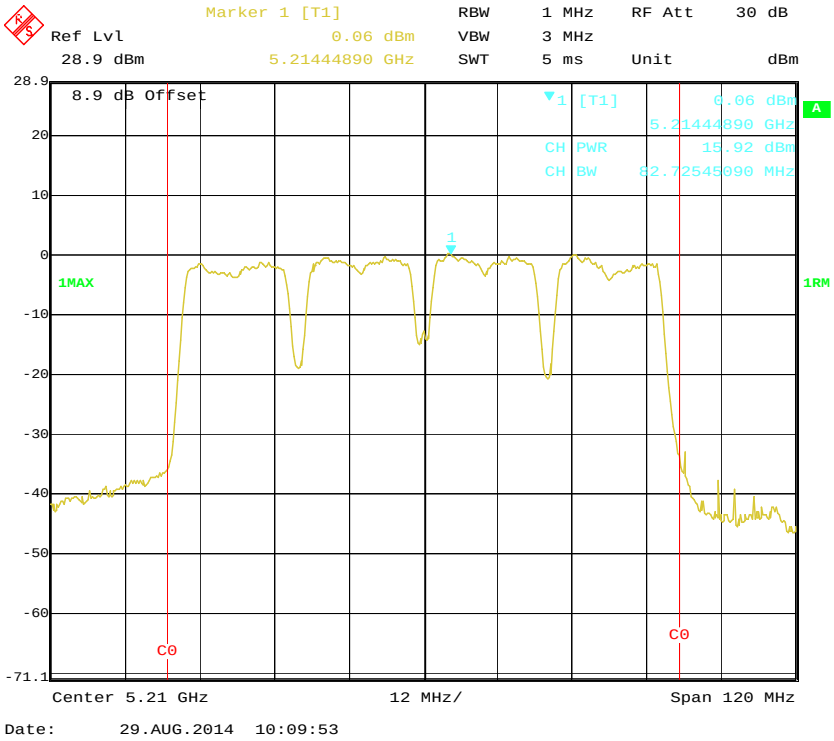
802.11n40 mode, RF Conducted Output Power, Antenn 2, 5230 MHz



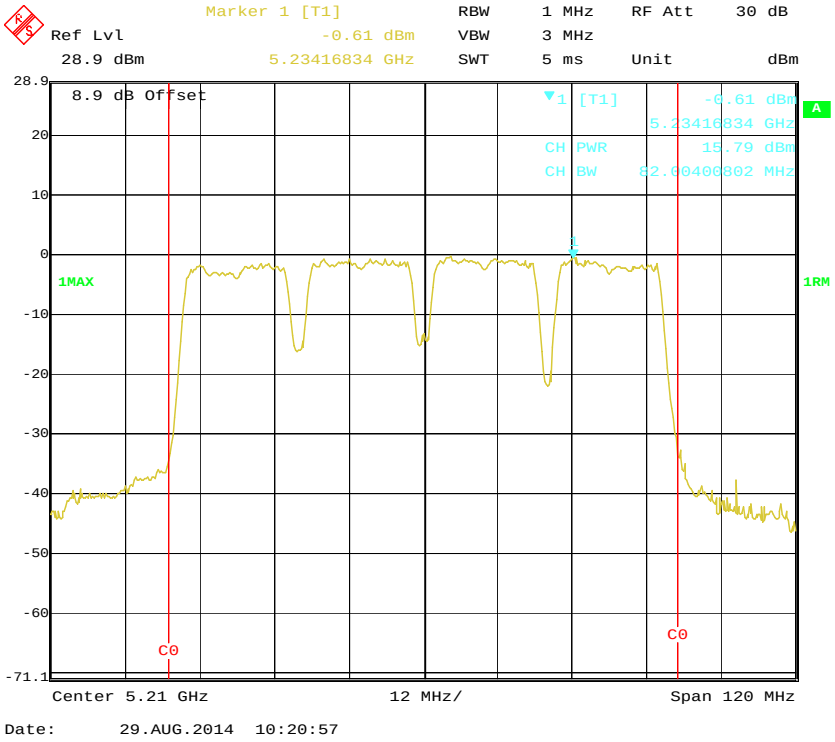
802.11ac80 mode, RF Conducted Output Power, Antenn 0, 5210 MHz



802.11ac80 mode, RF Conducted Output Power, Antenn 1, 5210 MHz



802.11ac80 mode, RF Conducted Output Power, Antenn 2, 5210 MHz

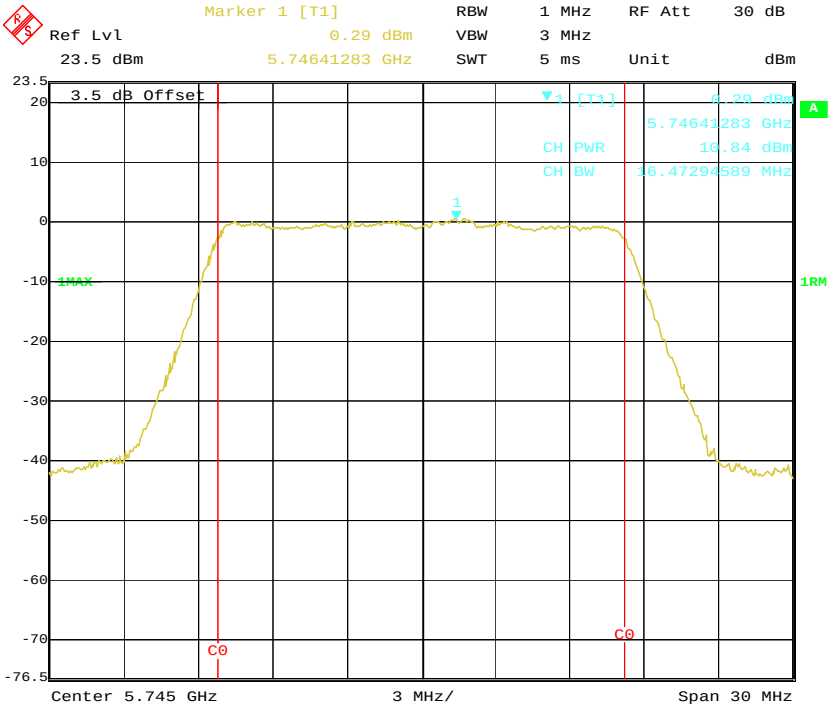


5725 MHz – 5825 MHz:

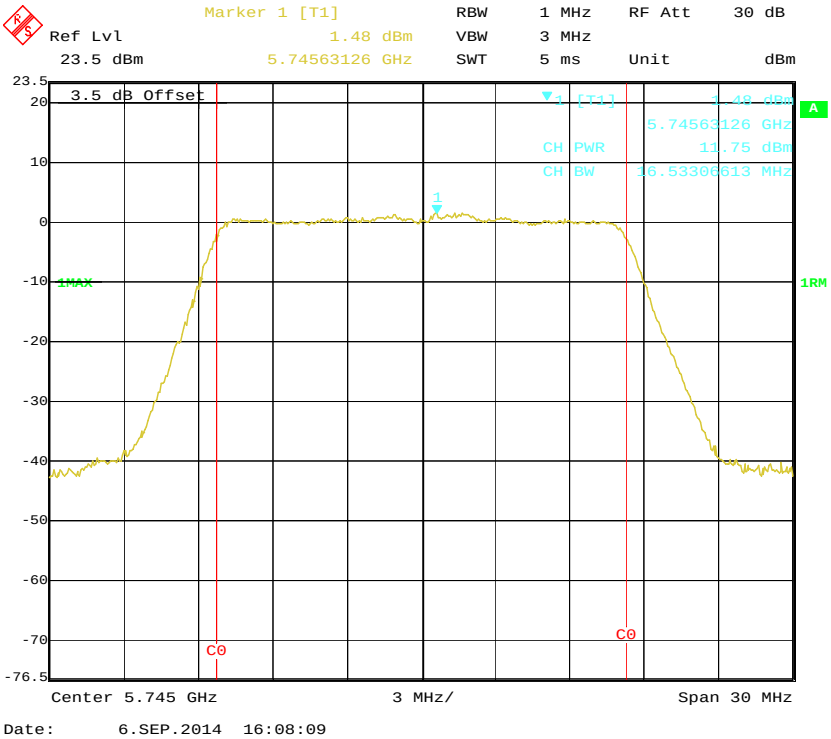
Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11a				
5745	0	10.84	/	30
	1	11.75		
	2	9.78		
5785	0	11.33	/	
	1	11.81		
	2	10.07		
5805	0	11.59	/	
	1	12.14		
	2	10.33		

Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11n20				
5745	0	11.81	16.11	26.2
	1	11.93		
	2	10.03		
5785	0	11.70	16.23	
	1	12.15		
	2	10.33		
5805	0	12.06	16.52	
	1	12.48		
	2	10.46		
802.11n40				
5755	0	14.92	19.55	26.2
	1	15.77		
	2	13.28		
5795	0	15.67	20.09	
	1	16.09		
	2	13.92		
802.11ac				
5775	0	15.26	19.88	26.2
	1	15.71		
	2	14.21		

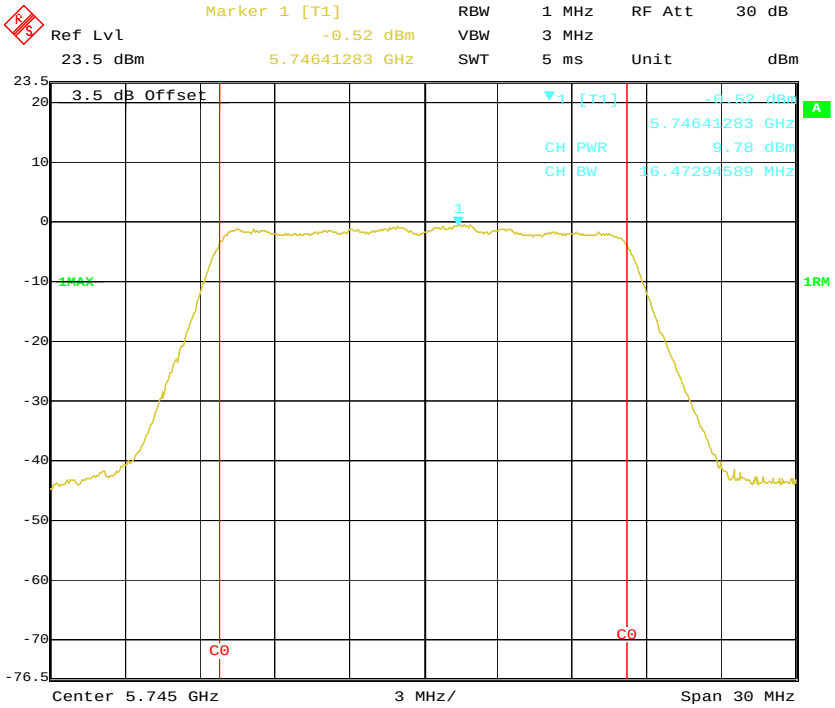
802.11a mode, RF Conducted Output Power, Antenn 0, 5745 MHz



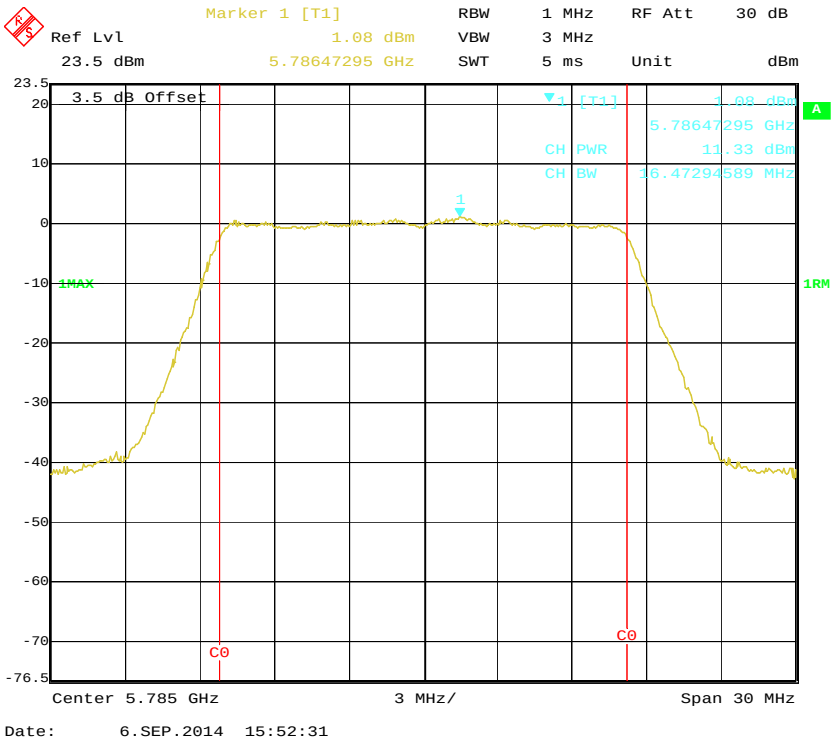
802.11a mode, RF Conducted Output Power, Antenn 1, 5745 MHz



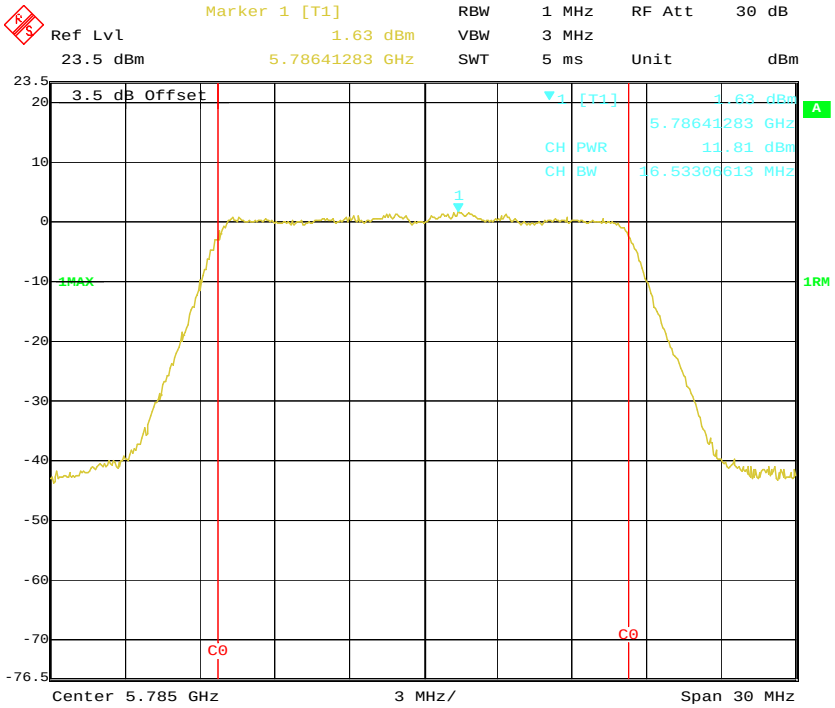
802.11a mode, RF Conducted Output Power, Antenn 2, 5745 MHz



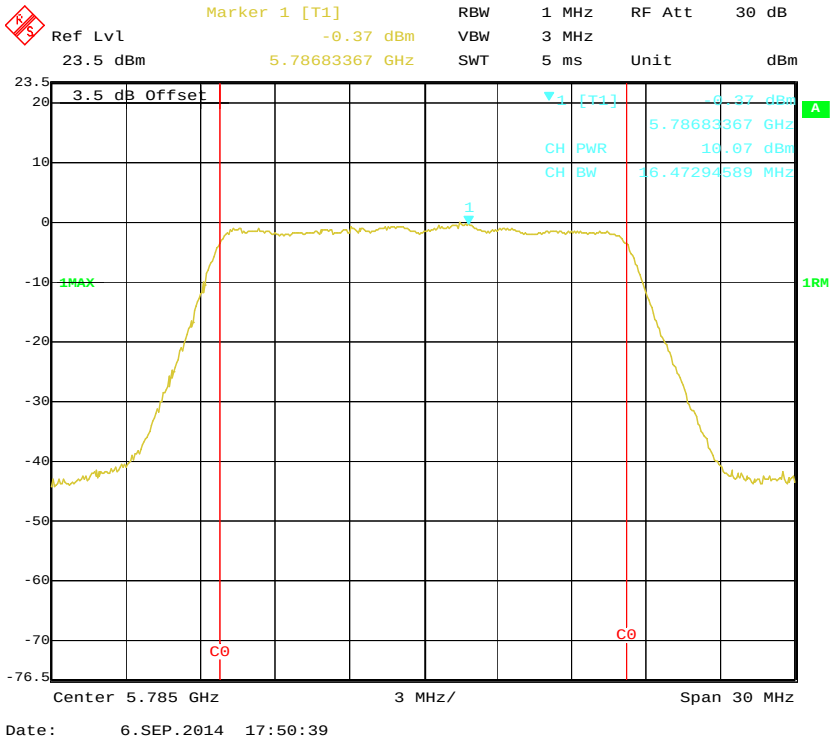
802.11a mode, RF Conducted Output Power, Antenn 0, 5785 MHz



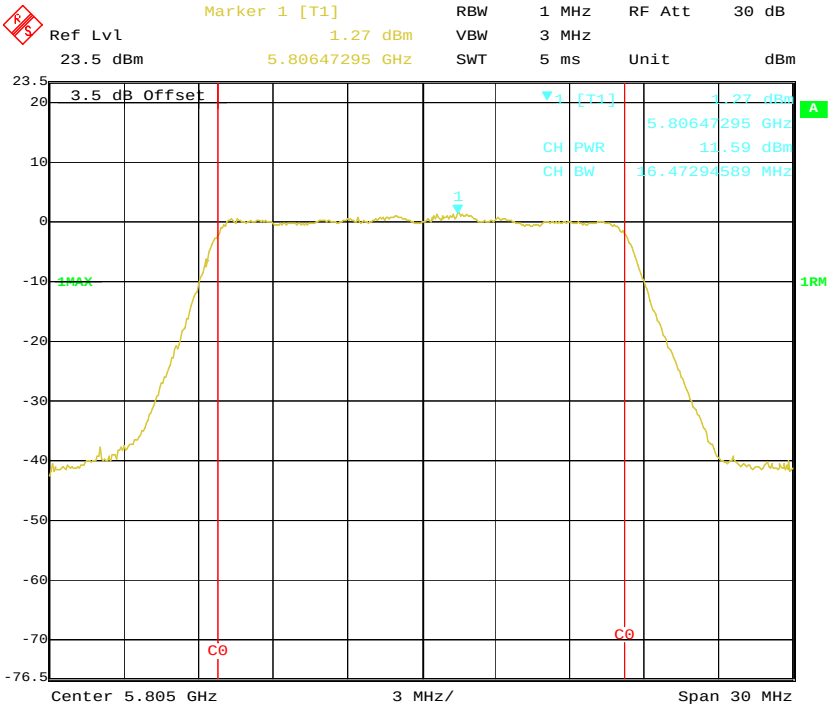
802.11a mode, RF Conducted Output Power, Antenn 1, 5785 MHz



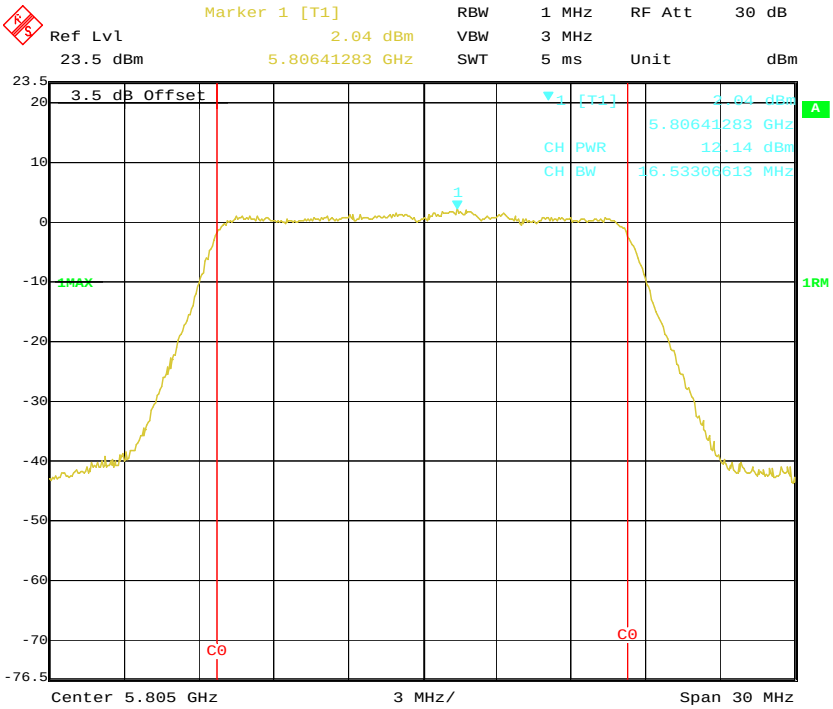
802.11a mode, RF Conducted Output Power, Antenn 2, 5785 MHz



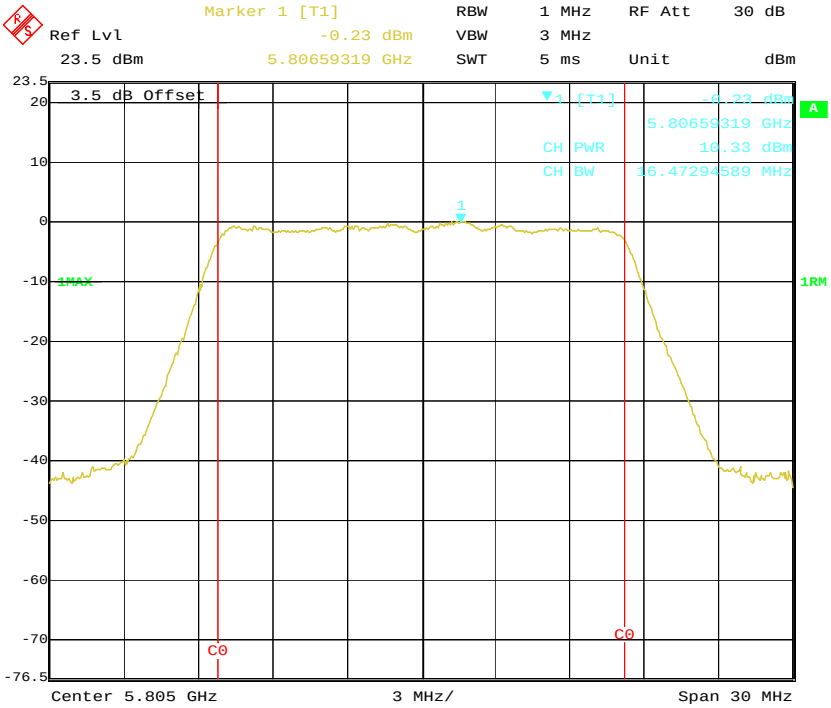
802.11a mode, RF Conducted Output Power, Antenn 0, 5805 MHz



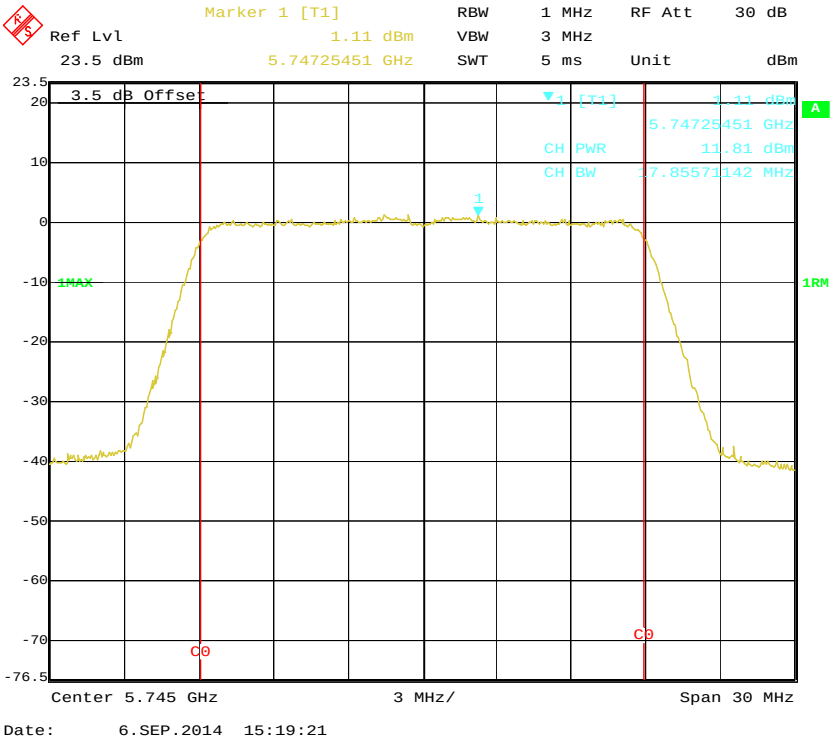
802.11a mode, RF Conducted Output Power, Antenn 1, 5805 MHz



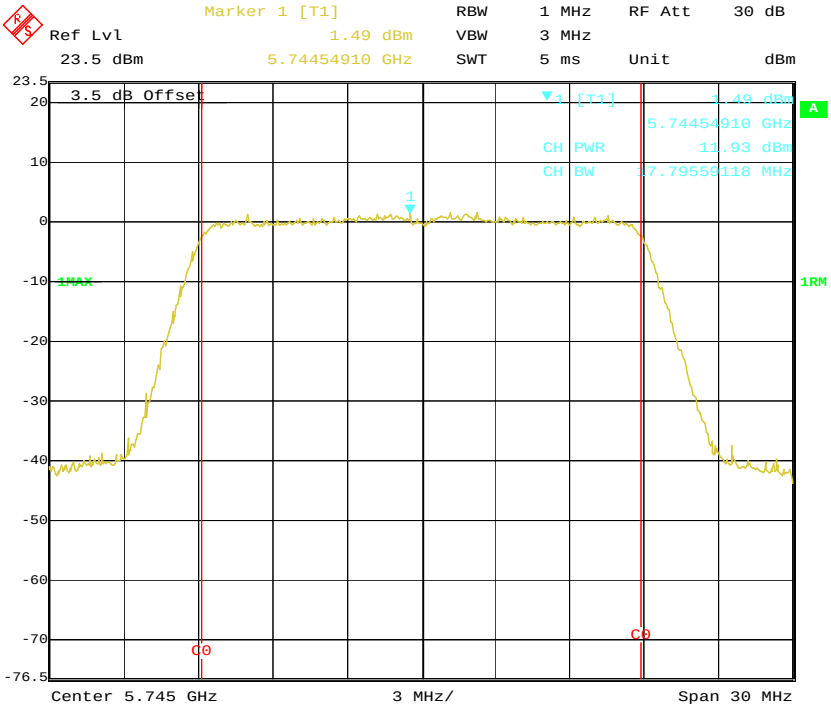
802.11a mode, RF Conducted Output Power, Antenn 2, 5805 MHz



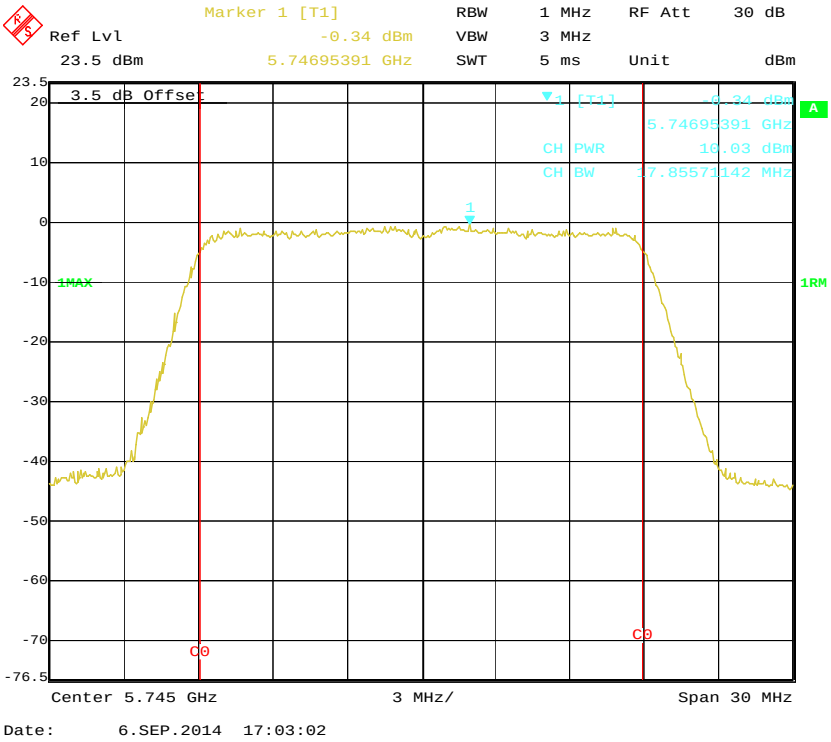
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5745 MHz



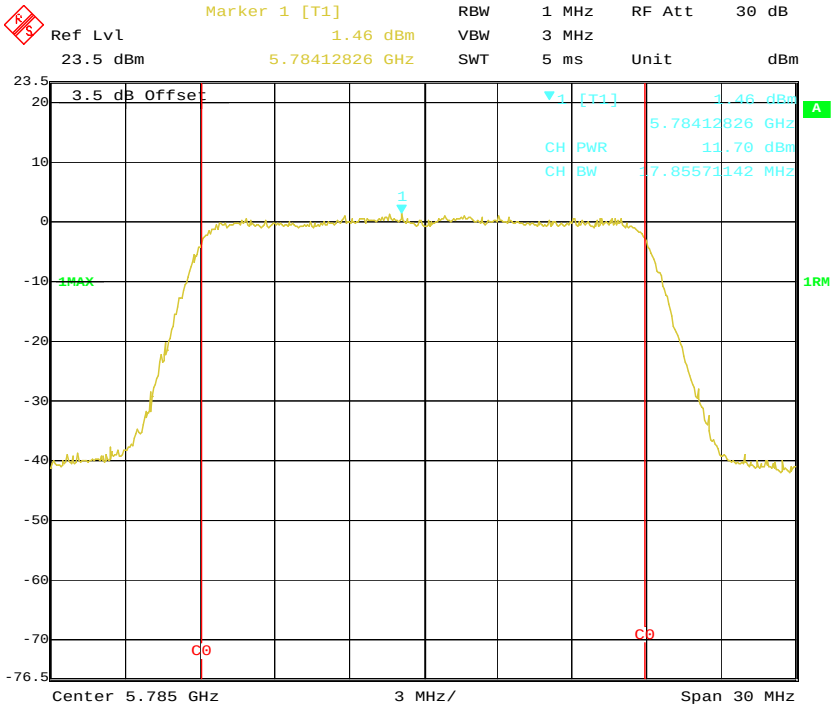
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5745 MHz



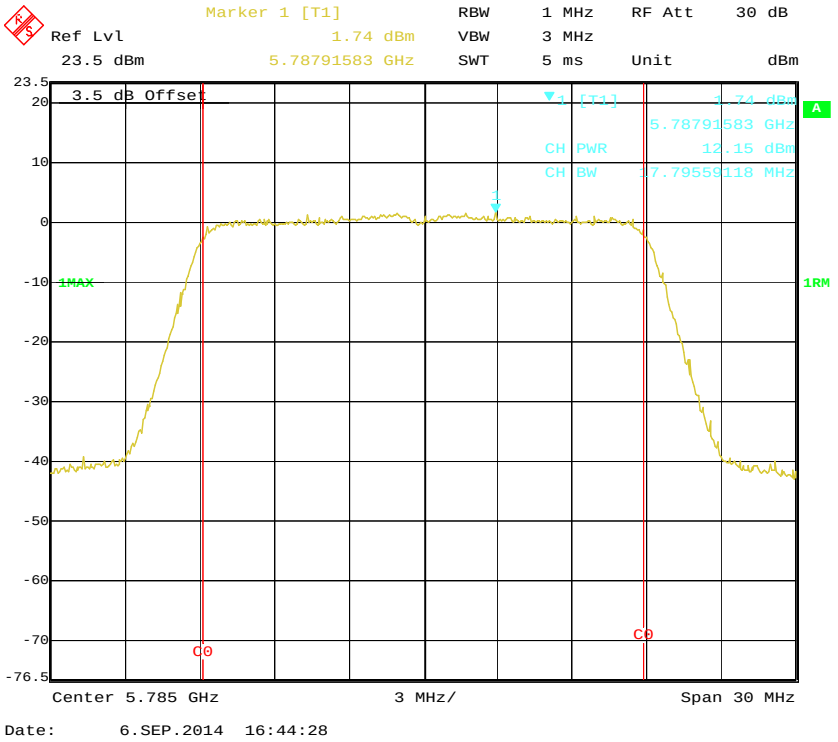
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5745 MHz



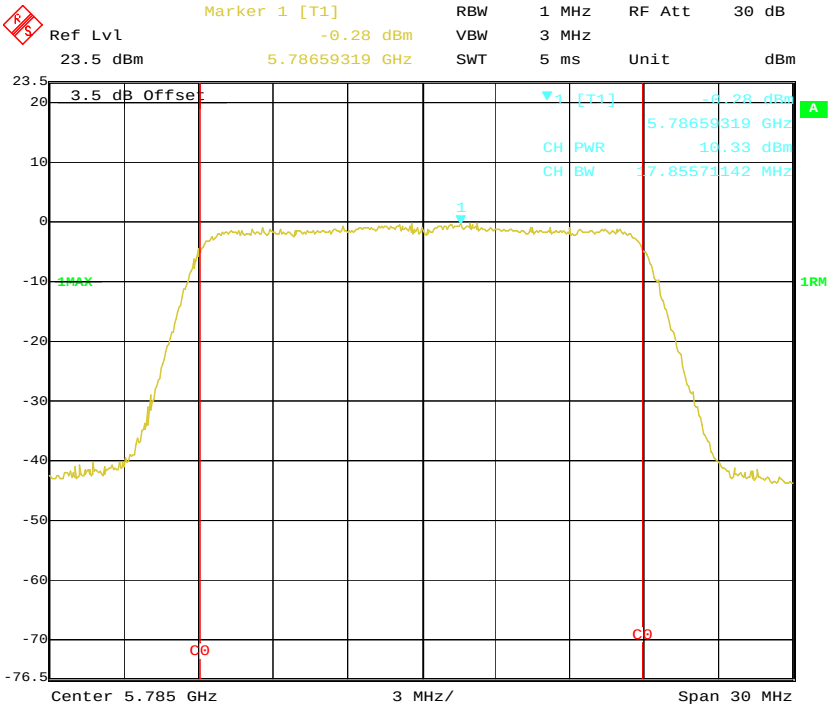
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5785 MHz



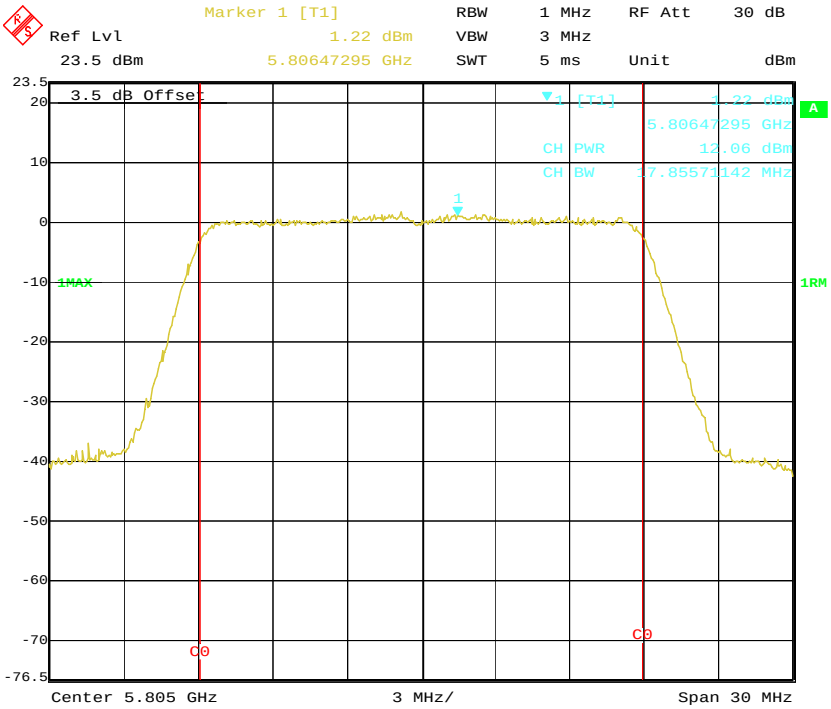
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5785 MHz



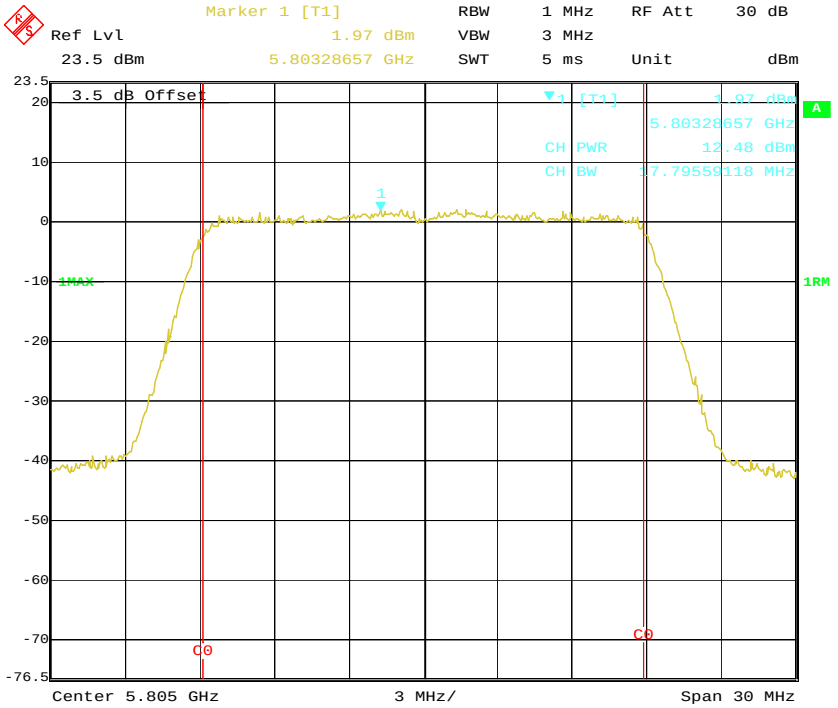
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5785 MHz



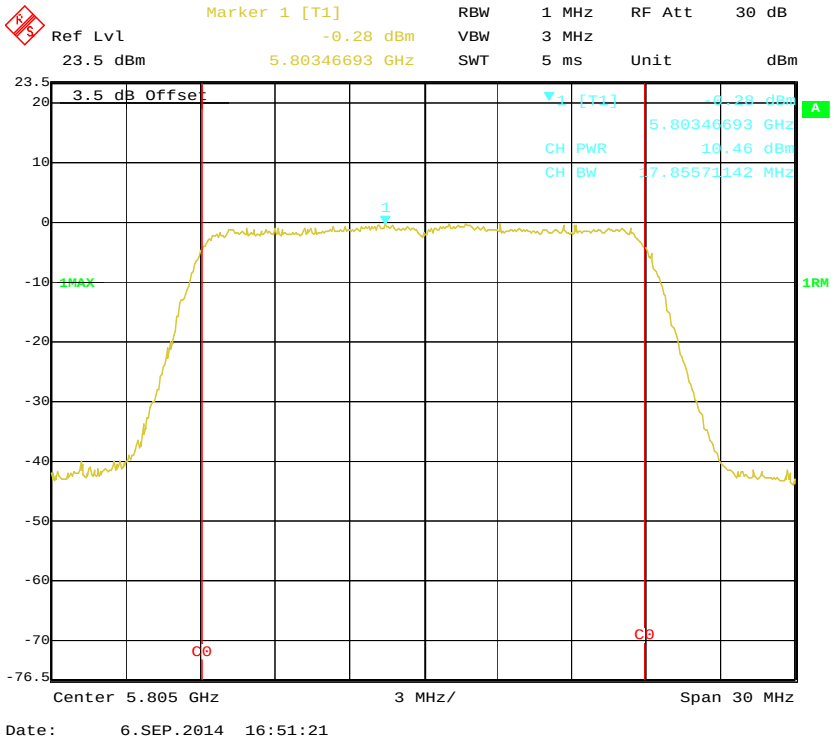
802.11n20 mode, RF Conducted Output Power, Antenn 0, 5805 MHz



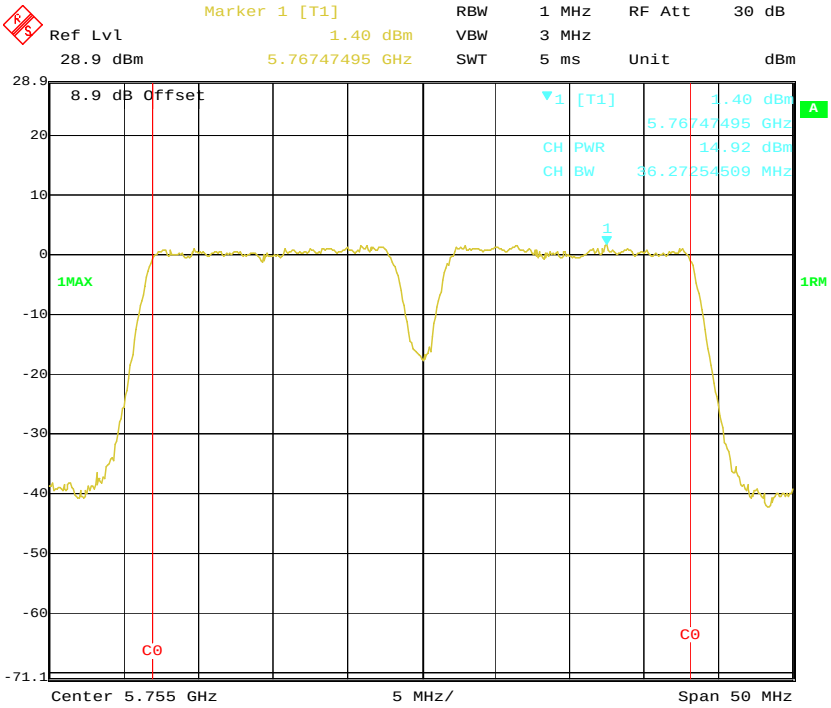
802.11n20 mode, RF Conducted Output Power, Antenn 1, 5805 MHz



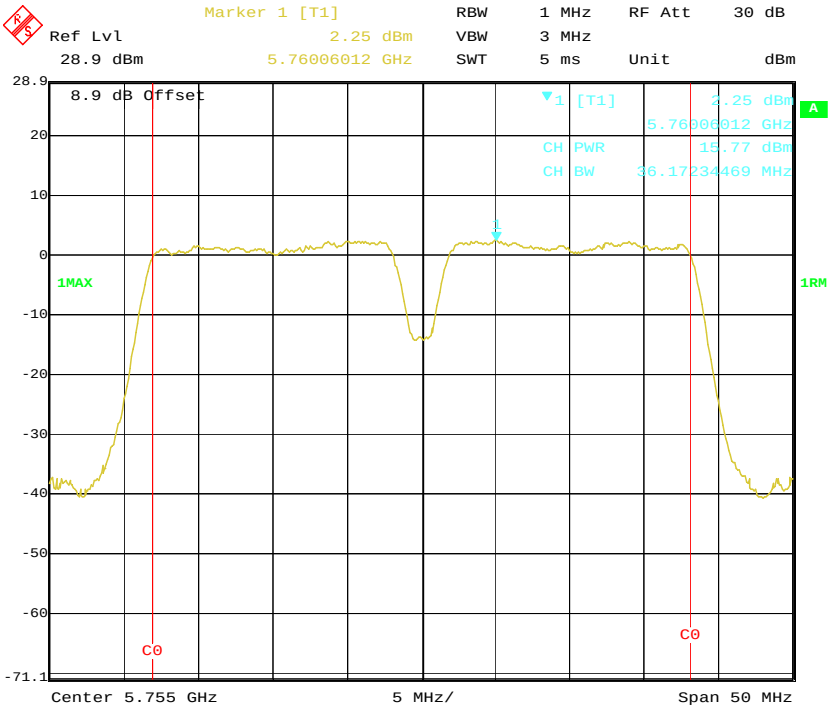
802.11n20 mode, RF Conducted Output Power, Antenn 2, 5805 MHz



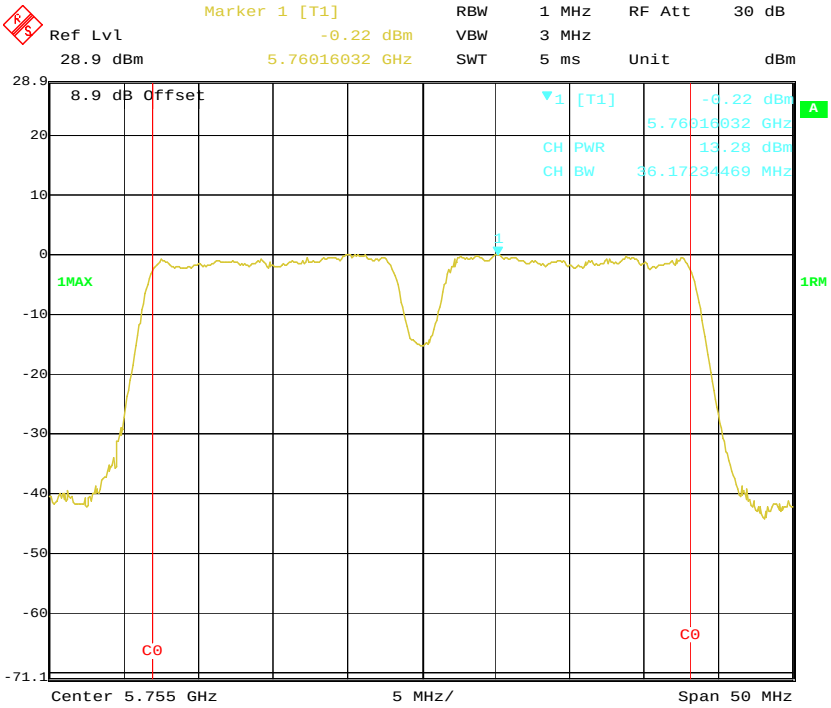
802.11n40 mode, RF Conducted Output Power, Antenn 0, 5755 MHz



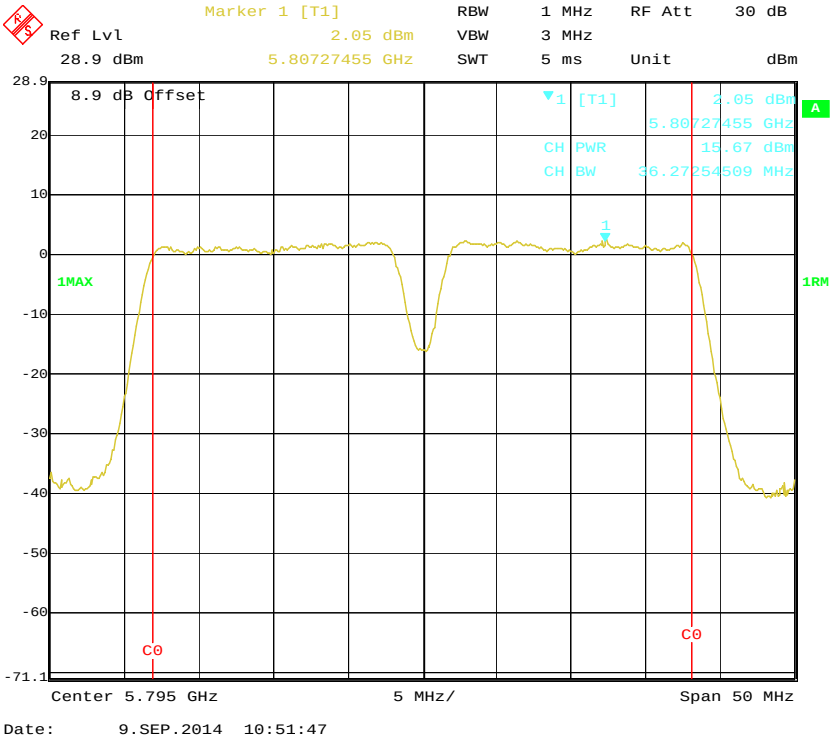
802.11n40 mode, RF Conducted Output Power, Antenn 1, 5755 MHz



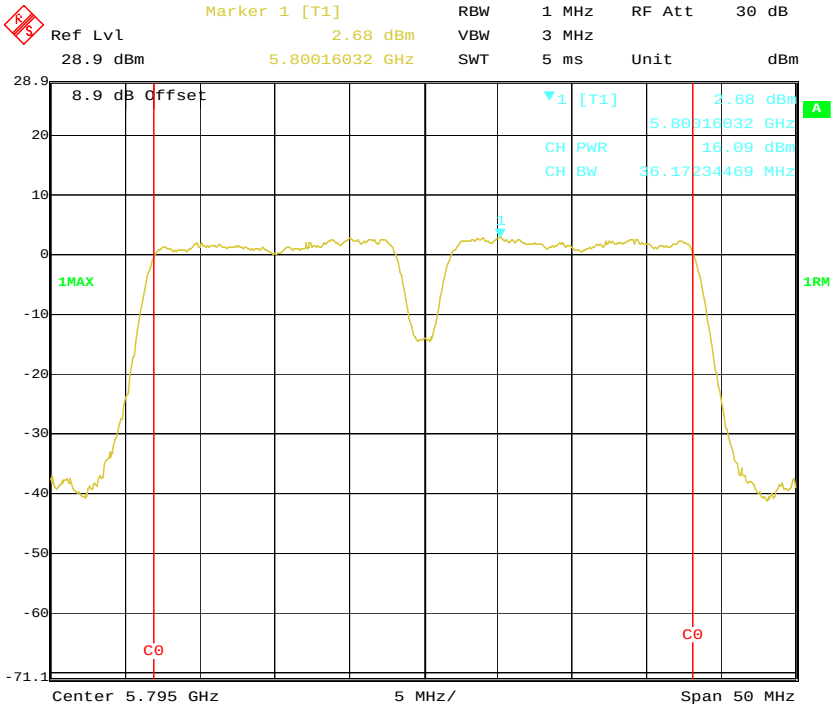
802.11n40 mode, RF Conducted Output Power, Antenn 2, 5755 MHz



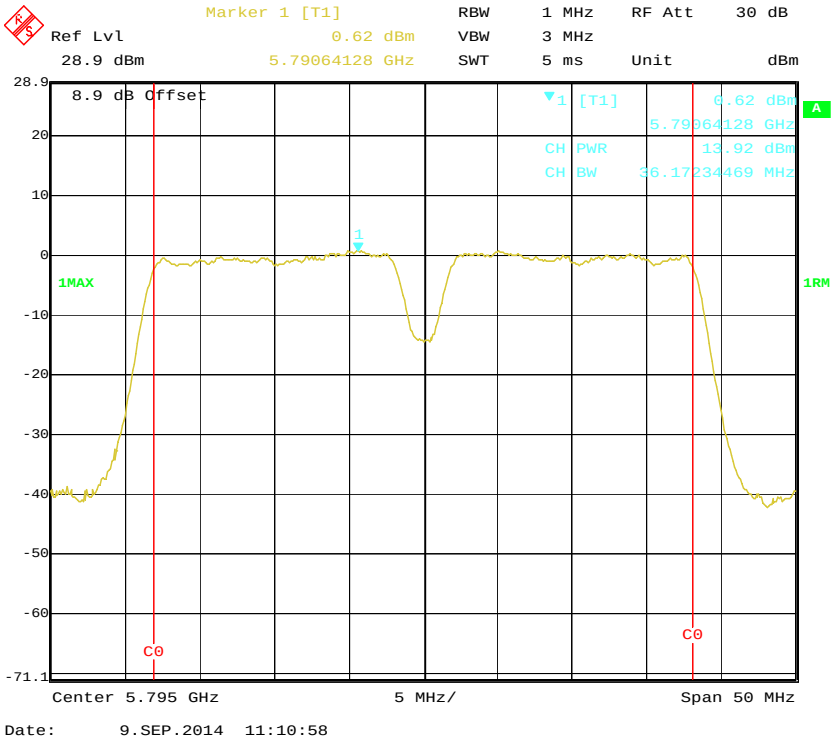
802.11n40 mode, RF Conducted Output Power, Antenn 0, 5795 MHz



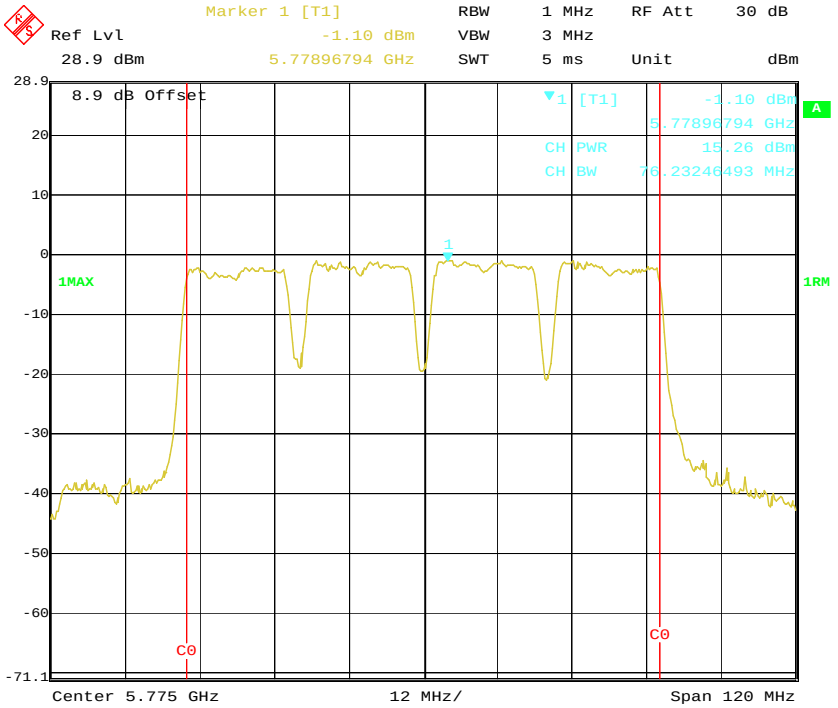
802.11n40 mode, RF Conducted Output Power, Antenn 1, 5795 MHz



802.11n40 mode, RF Conducted Output Power, Antenn 2, 5795 MHz

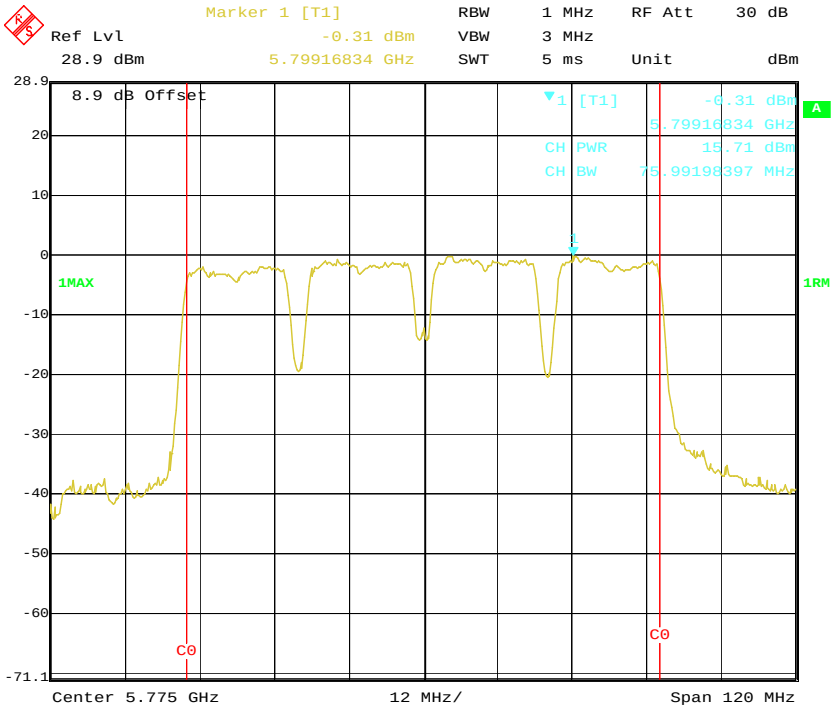


802.11ac80 mode, RF Conducted Output Power, Antenn 0, 5775 MHz



Date: 29.AUG.2014 11:46:04

802.11ac80 mode, RF Conducted Output Power, Antenn 1, 5775 MHz



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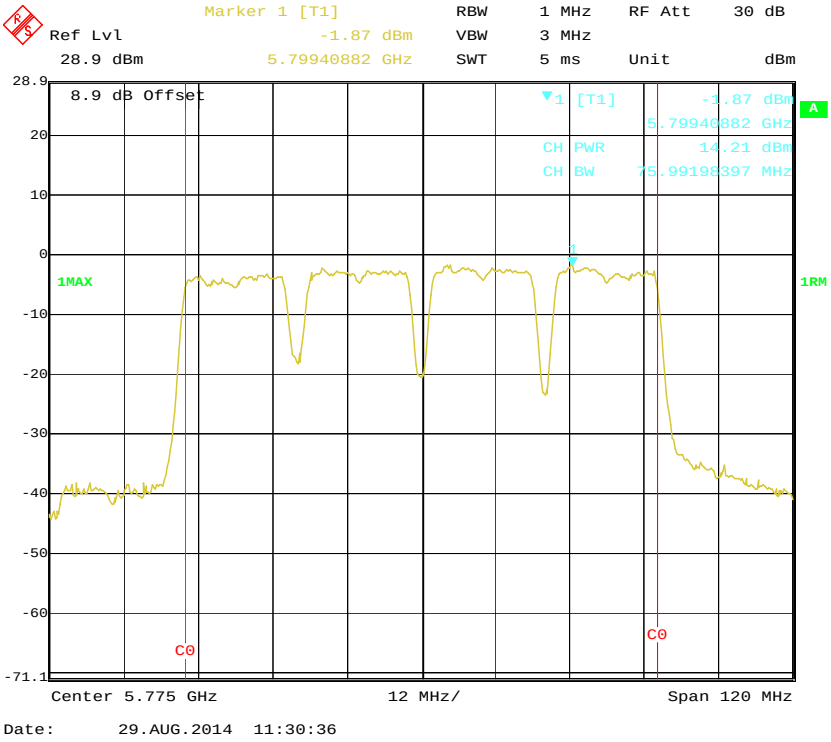
802.11ac80 mode, RF Conducted Output Power, Antenn 2, 5775 MHz



FCC §15.407(a) (1) (5) - POWER SPECTRAL DENSITY

Applicable Standard

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. 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.

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

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. 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.

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 was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Use sample detector and power averaging (not video averaging) mode. Set RBW= 1 MHz*, VBW > 1 MHz. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging. This method is permitted only if the transmission pulse or sequence of pulses remains at maximum transmits power throughout each of the 100 sweeps of averaging and that the interval between pulses is not included in any of the sweeps.
4. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12

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

Test Data

Environmental Conditions

Temperature:	23 – 26 ℃
Relative Humidity:	50 - 56 %
ATM Pressure:	101.0 kPa

The testing was performed by Gardon Zhang from 2014-08-29 to 2014-09-09.

EUT operation mode: Transmitting

Test Result: Pass

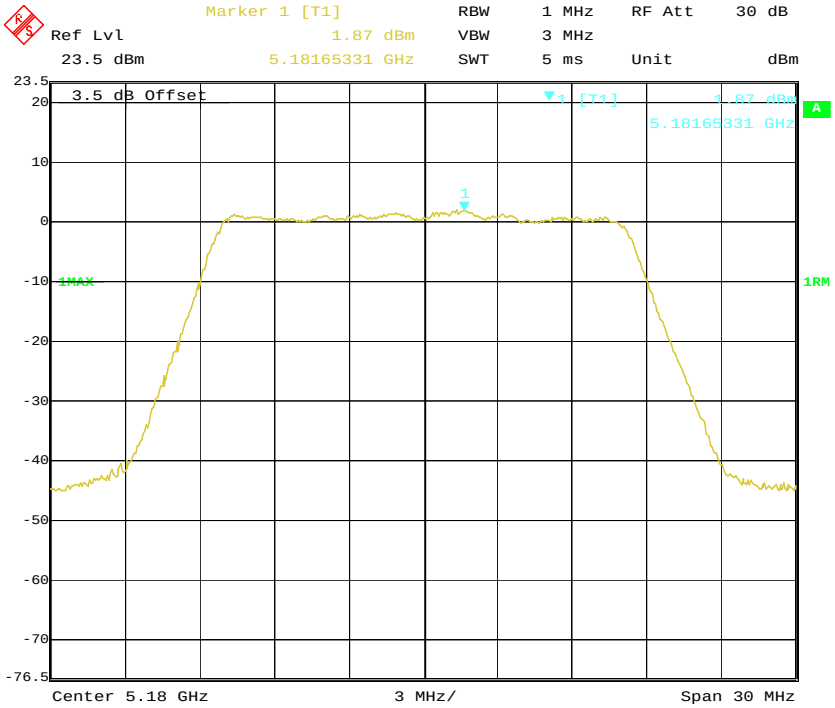
Please refer to the following tables and plots.

5150 MHz – 5250 MHz:

Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/MHz)	Power spectral density (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11a				
5180	0	1.87	/	17
	1	2.62		
	2	2.33		
5200	0	2.09	/	
	1	2.73		
	2	2.38		
5240	0	2.49	/	
	1	3.08		
	2	2.73		

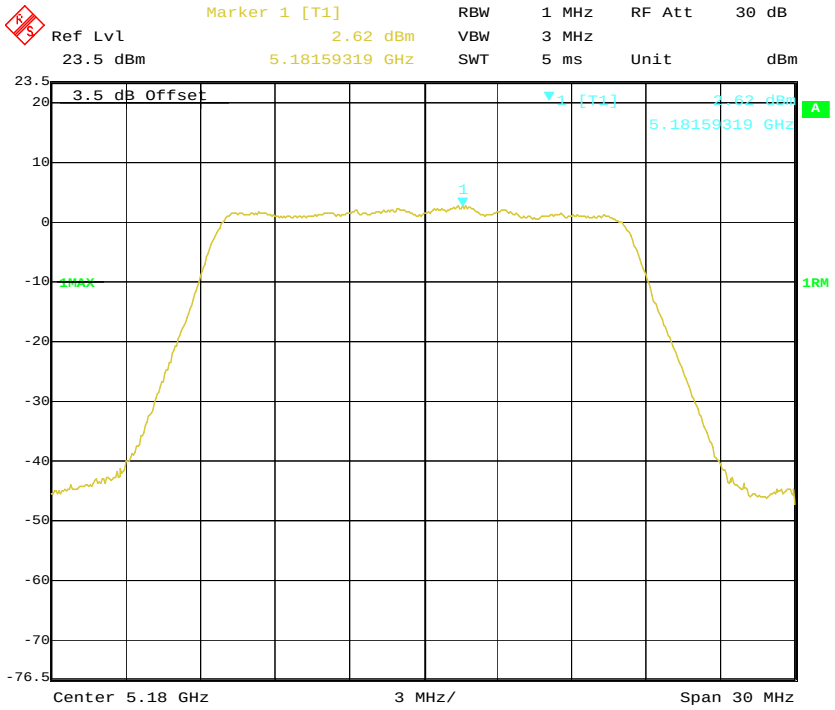
Frequency (MHz)	Antenna Port	Output Power (dBm)	Output Power (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11n20				
5180	0	1.74	7.02	17
	1	2.88		
	2	2.05		
5200	0	2.06	7.15	
	1	2.49		
	2	2.58		
5240	0	2.42	7.68	
	1	3.40		
	2	2.85		
802.11n40				
5190	0	2.65	7.95	17
	1	3.55		
	2	3.28		
5230	0	3.85	8.70	
	1	4.17		
	2	3.74		
802.11ac80				
5210	0	-0.76	4.33	17
	1	-0.13		
	2	-0.46		

802.11a mode, Power Spectral Density, Antenn 0, 5180 MHz



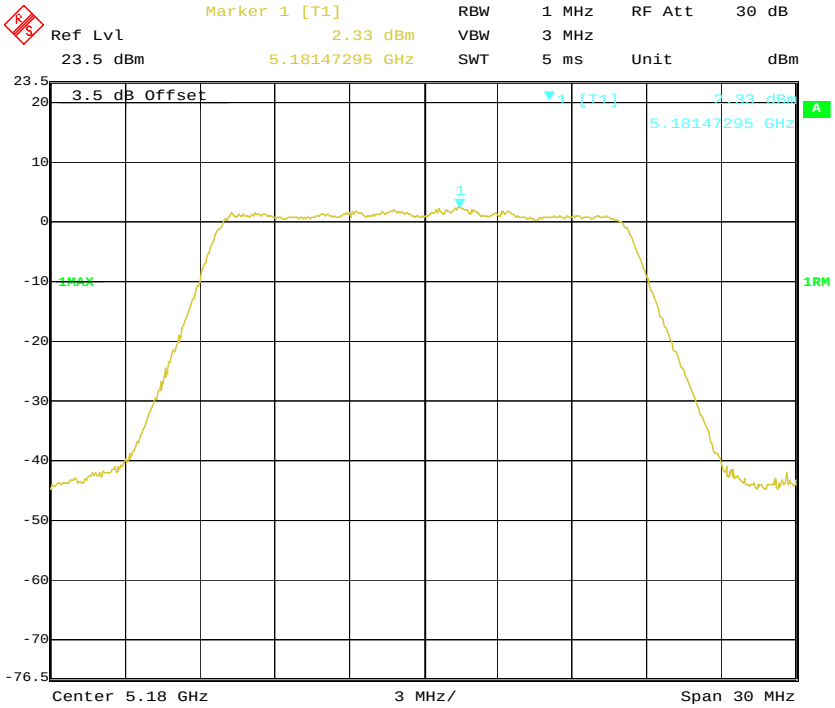
Date: 6.SEP.2014 15:36:20

802.11a mode, Power Spectral Density, Antenn 1, 5180 MHz



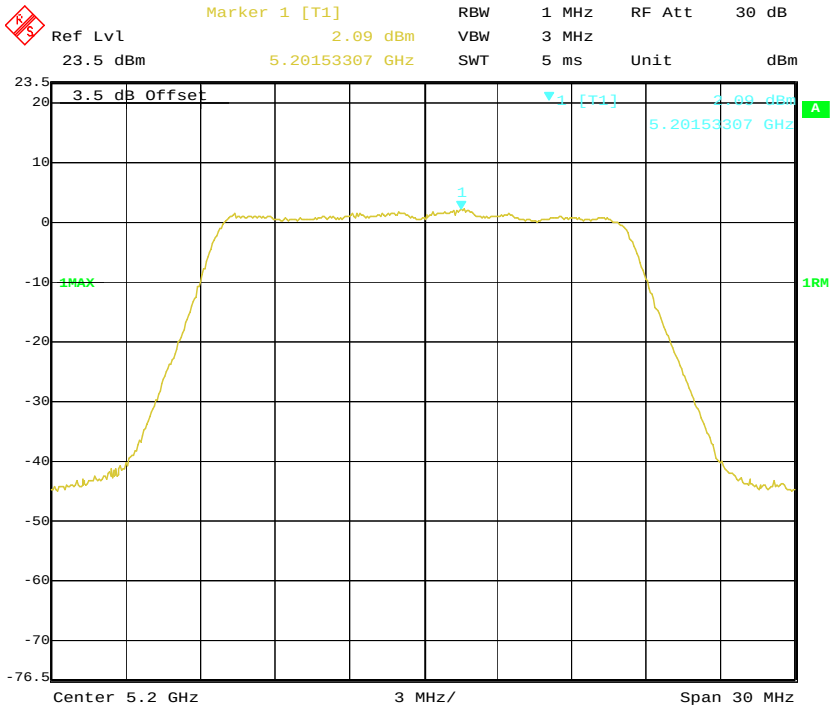
Date: 6.SEP.2014 16:17:36

802.11a mode, Power Spectral Density, Antenn 2, 5180 MHz



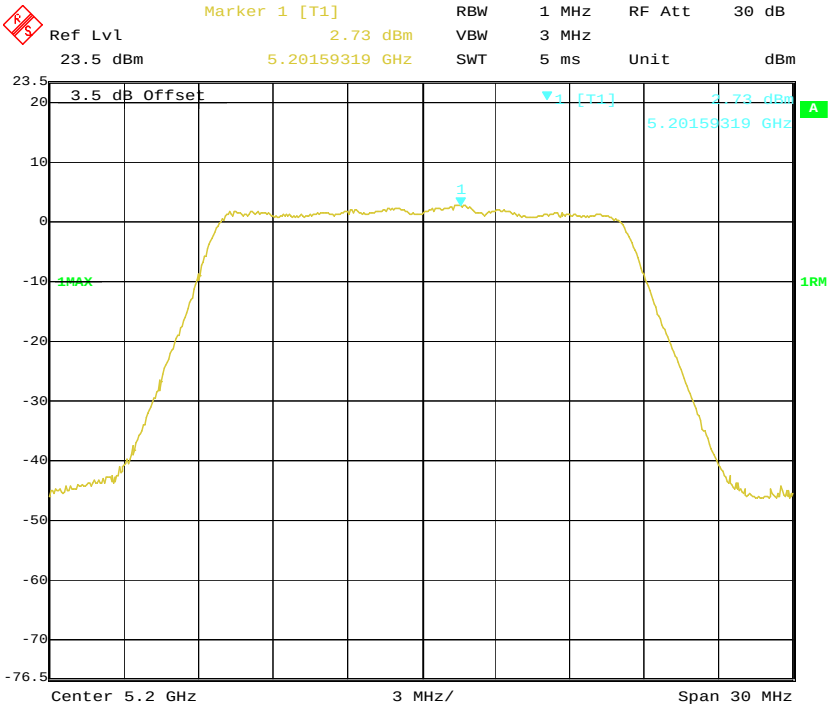
Date: 6.SEP.2014 17:21:39

802.11a mode, Power Spectral Density, Antenn 0, 5200 MHz

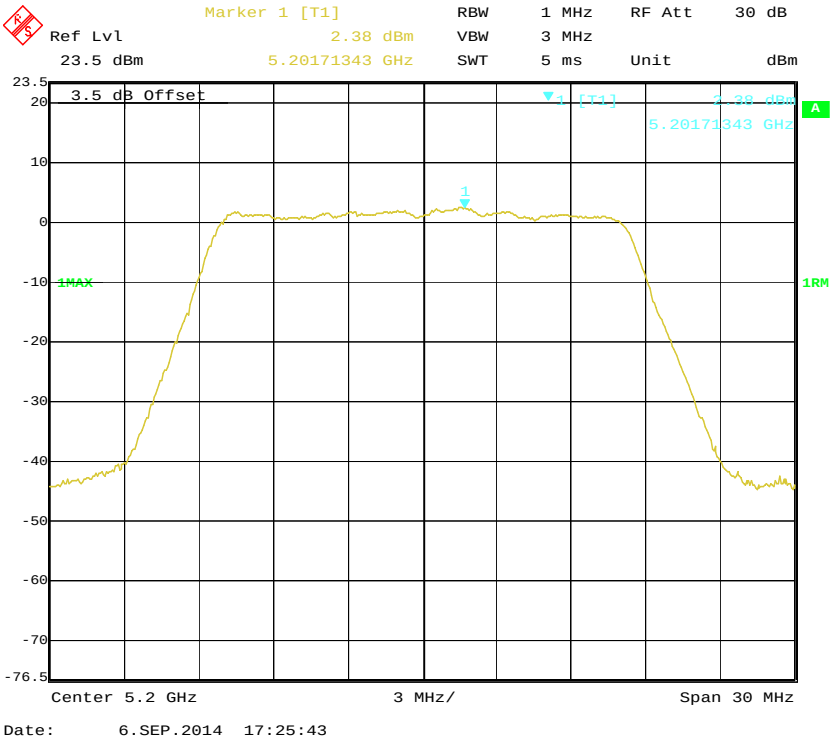


Date: 6.SEP.2014 15:37:07

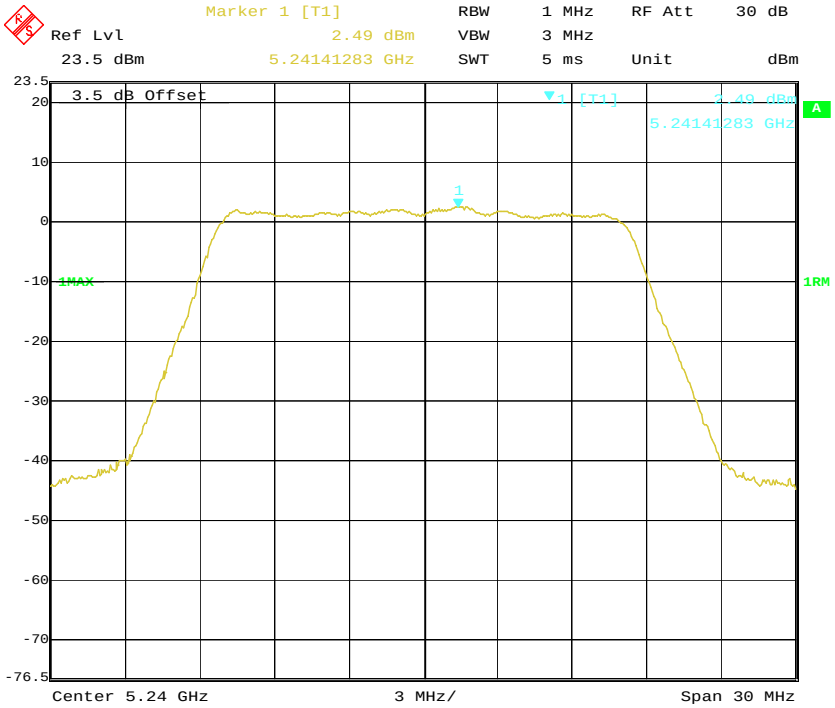
802.11a mode, Power Spectral Density, Antenn 1, 5200 MHz



802.11a mode, Power Spectral Density, Antenn 2, 5200 MHz

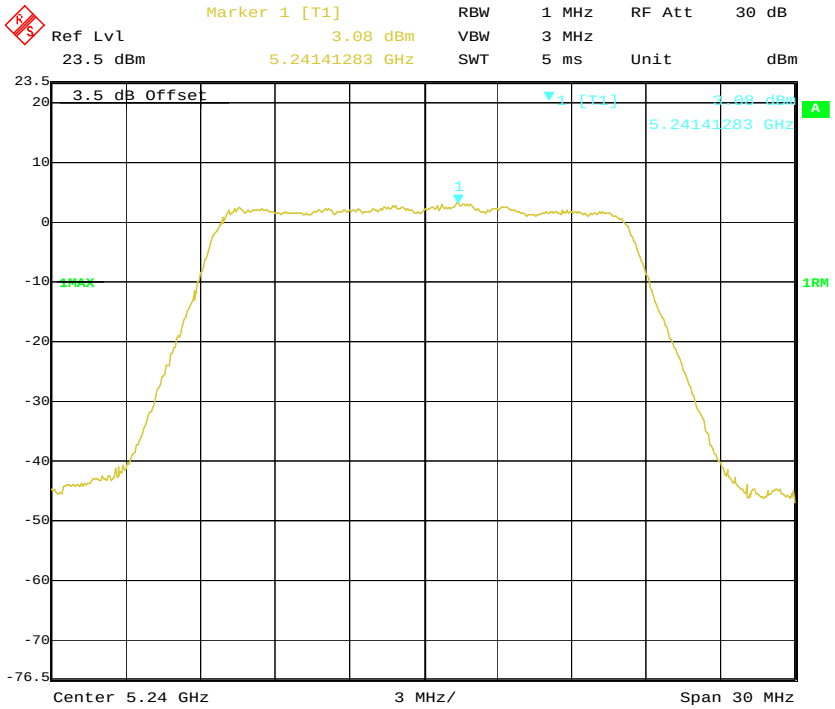


802.11a mode, Power Spectral Density, Antenn 0, 5240 MHz



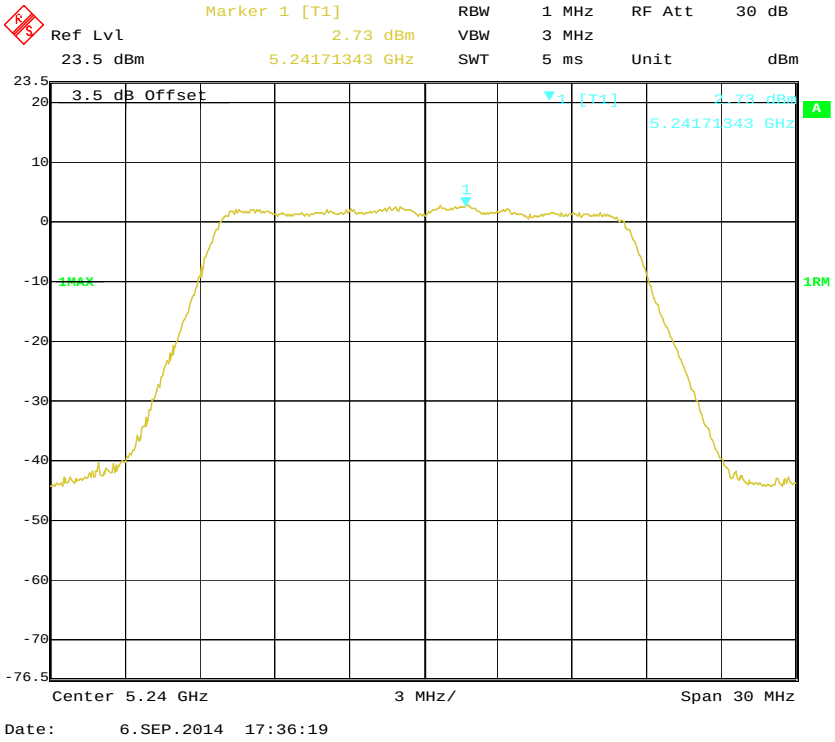
Date: 6.SEP.2014 15:43:24

802.11a mode, Power Spectral Density, Antenn 1, 5240 MHz

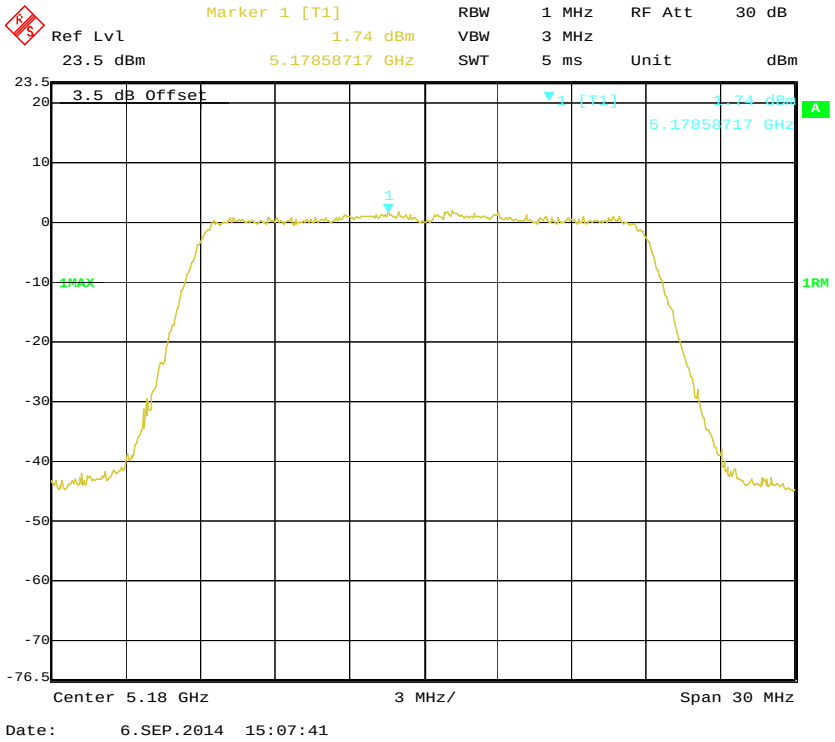


Date: 6.SEP.2014 16:10:39

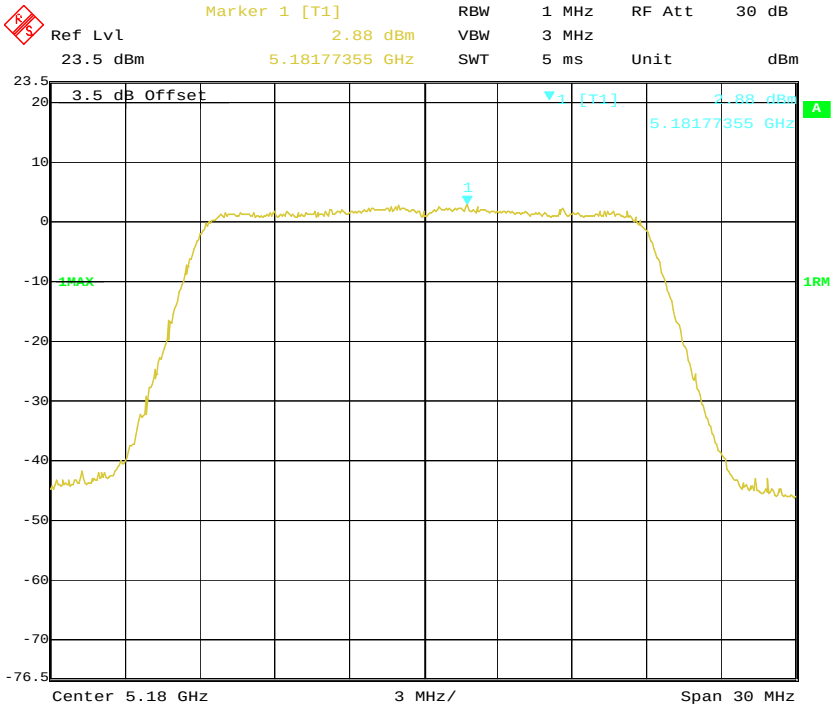
802.11a mode, Power Spectral Density, Antenn 2, 5240 MHz



802.11n20 mode, Power Spectral Density, Antenn 0, 5180 MHz



802.11n20 mode, Power Spectral Density, Antenn 1, 5180 MHz



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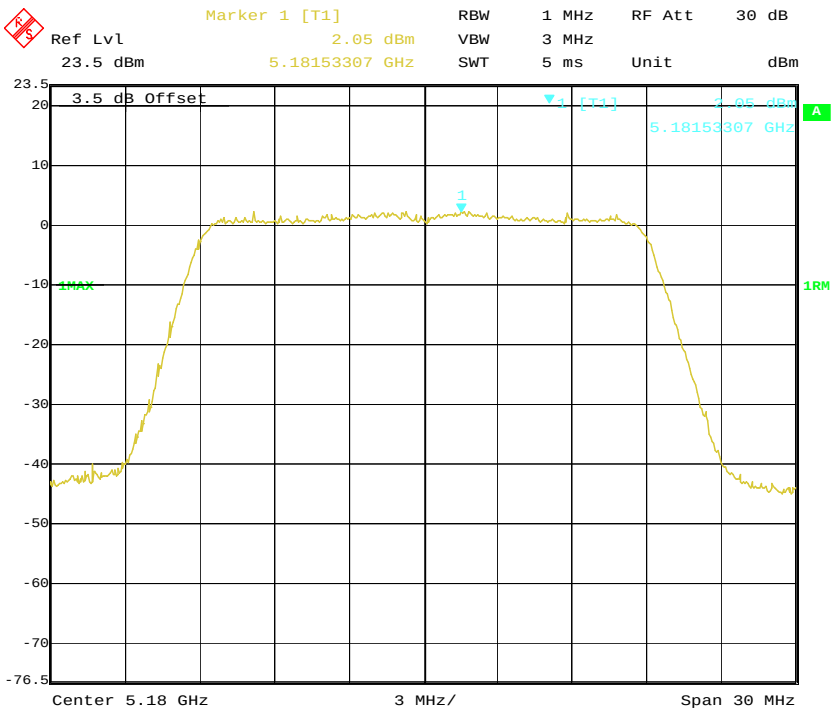
802.11n20 mode, Power Spectral Density, Antenn 2, 5180 MHz



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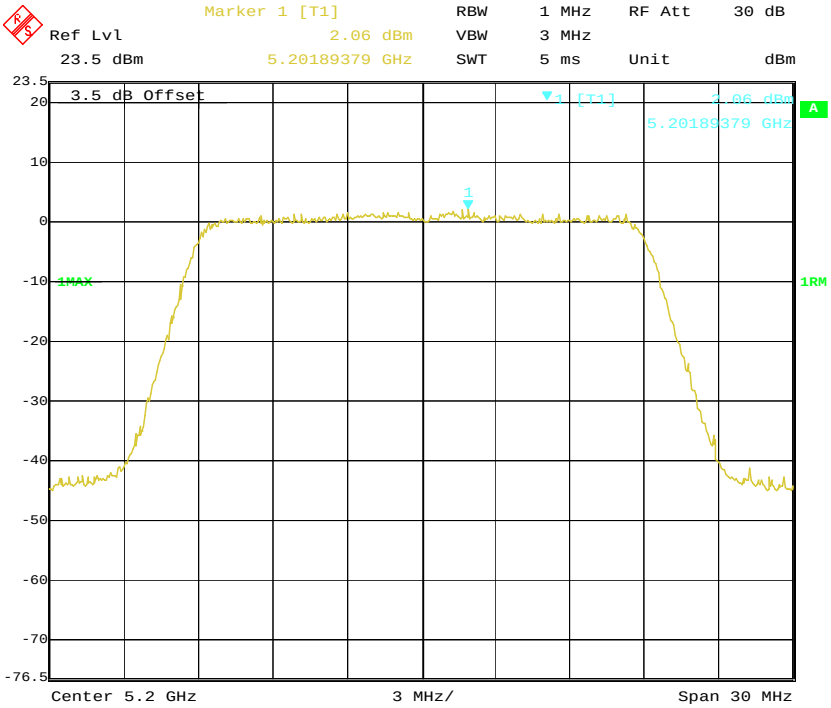
802.11n20 mode, Power Spectral Density, Antenn 0, 5200 MHz



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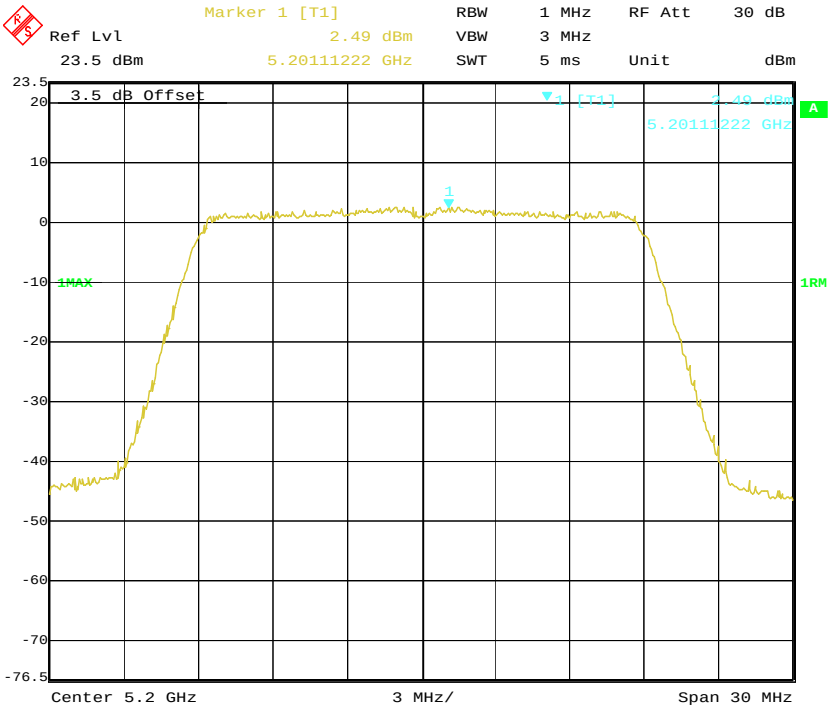
802.11n20 mode, Power Spectral Density, Antenn 1, 5200 MHz



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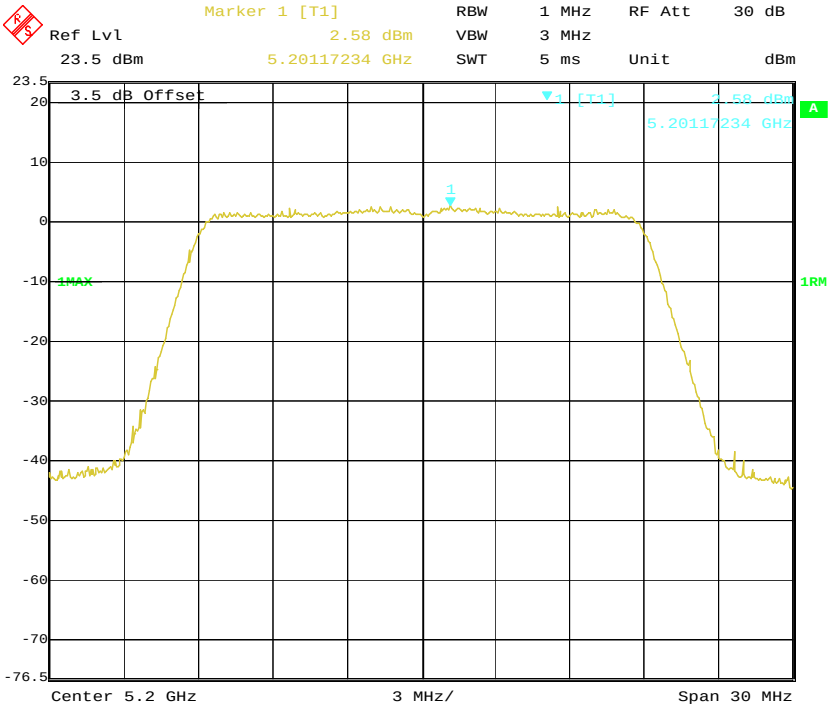
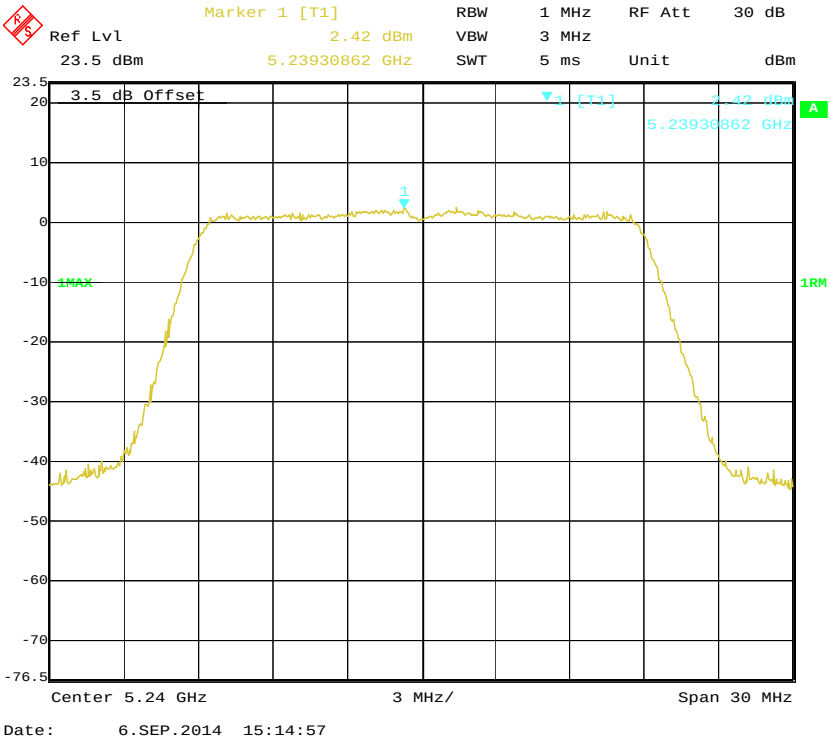
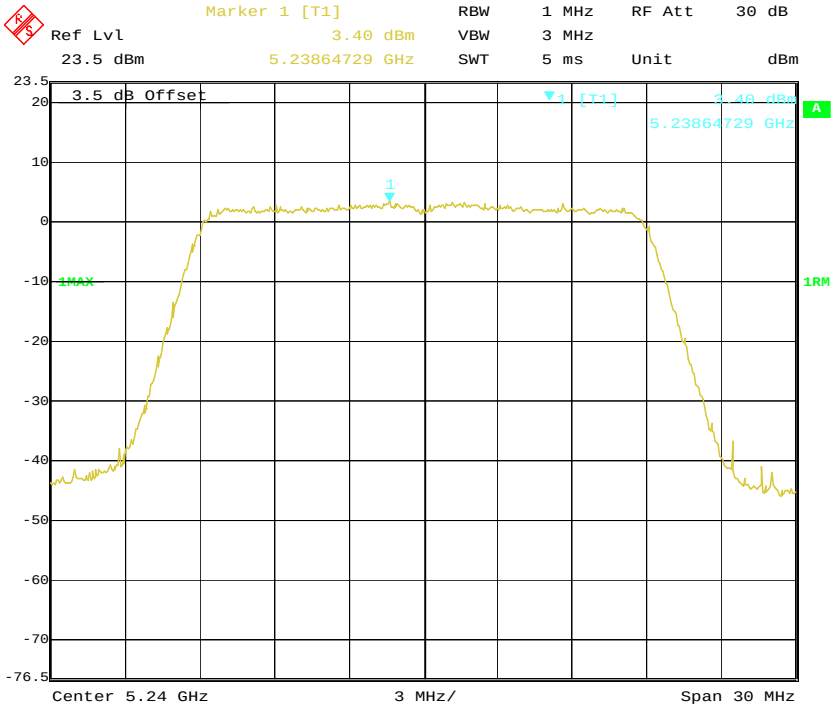
802.11n20 mode, Power Spectral Density, Antenn 2, 5200 MHz



802.11n20 mode, Power Spectral Density, Antenn 0, 5240 MHz



802.11n20 mode, Power Spectral Density, Antenn 1, 5240 MHz



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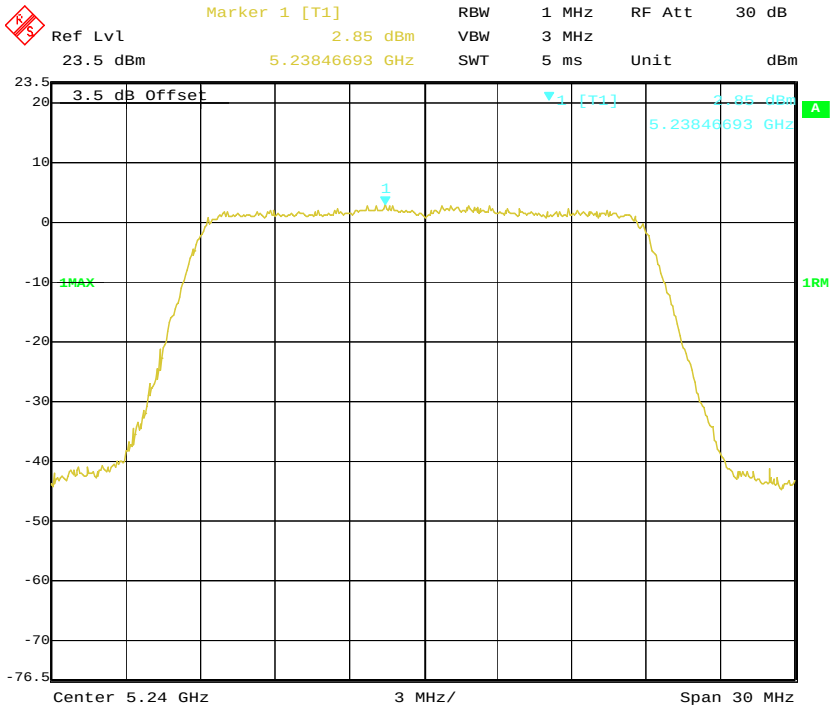
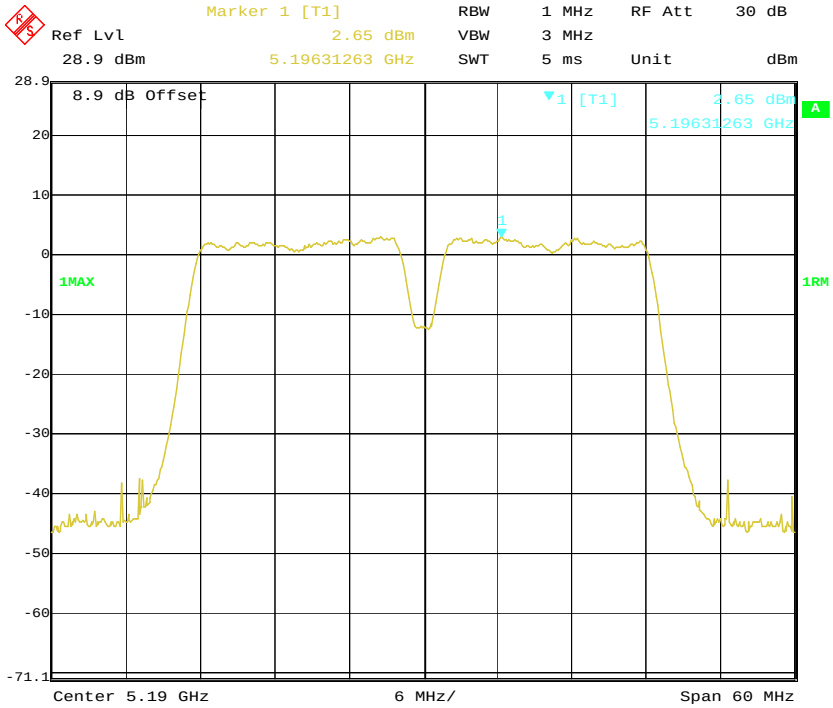
802.11n20 mode, RF Power Spectral Density, Antenn 2, 5240 MHz

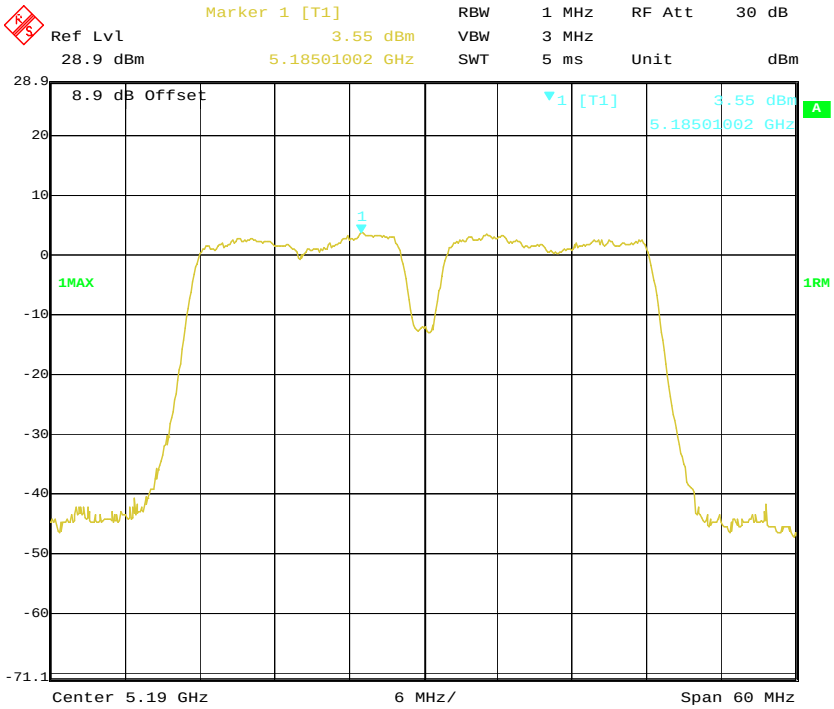


Date: 6.SEP.2014 17:03:41

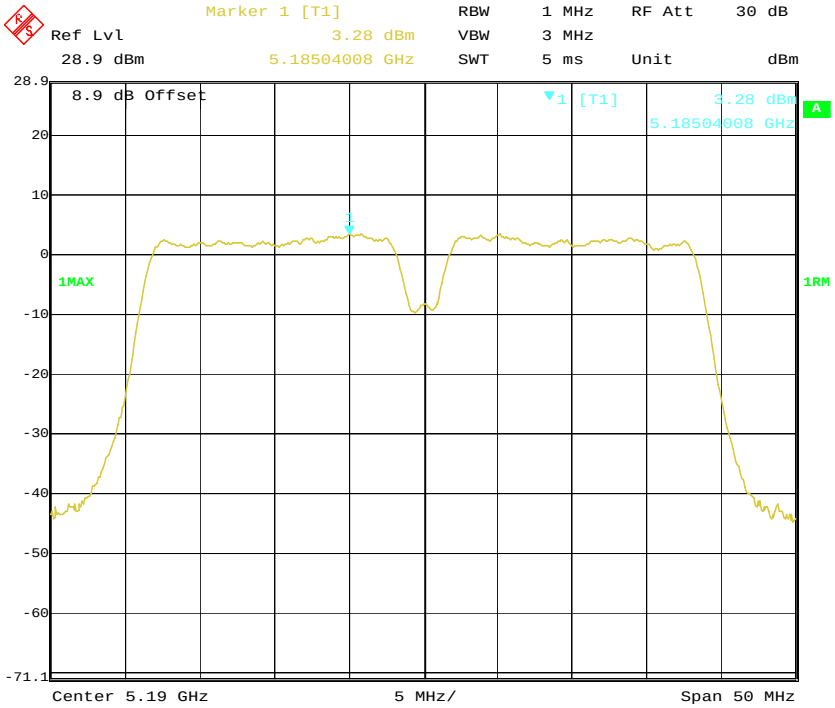
802.11n40 mode, Power Spectral Density, Antenn 0, 5190 MHz



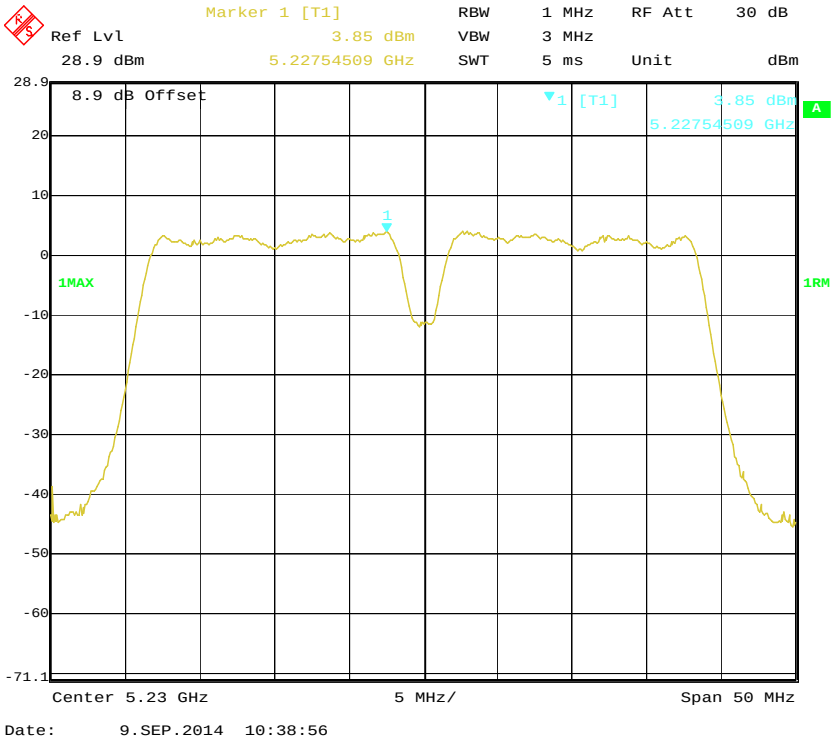
802.11n40 mode, Power Spectral Density, Antenn 1, 5190 MHz



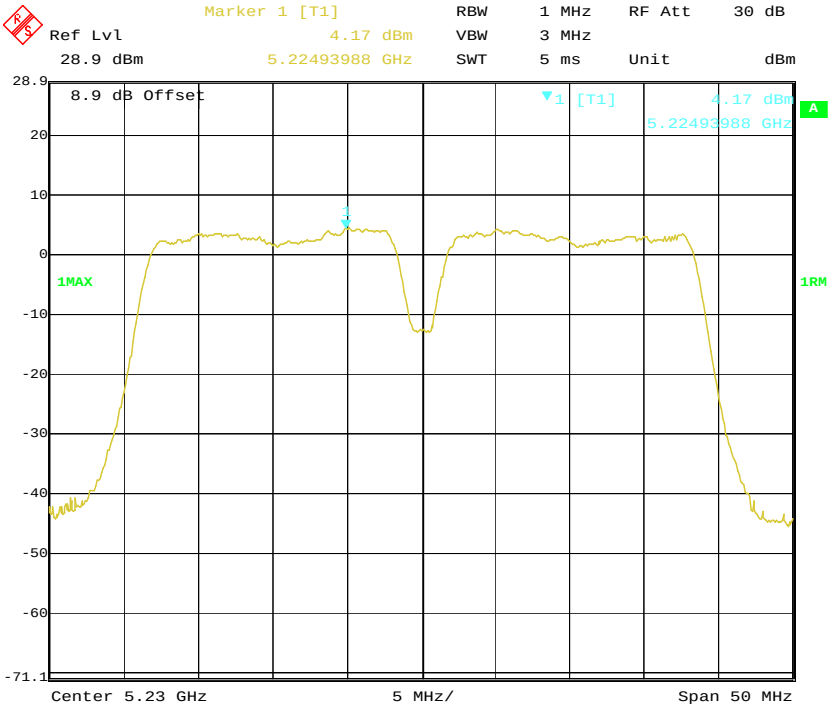
802.11n40 mode, Power Spectral Density, Antenn 2, 5190 MHz



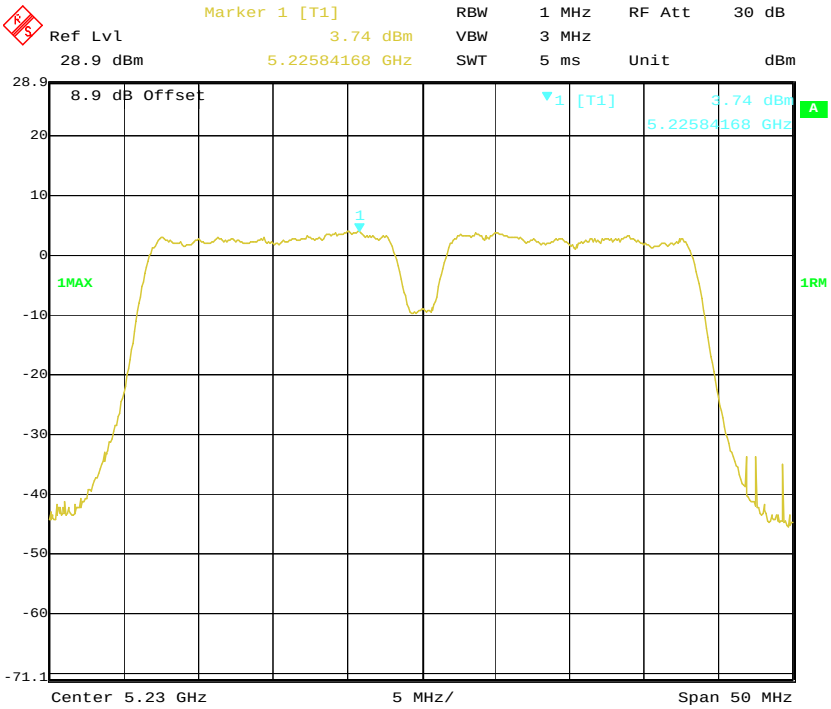
802.11n40 mode, Power Spectral Density, Antenn 0, 5230 MHz



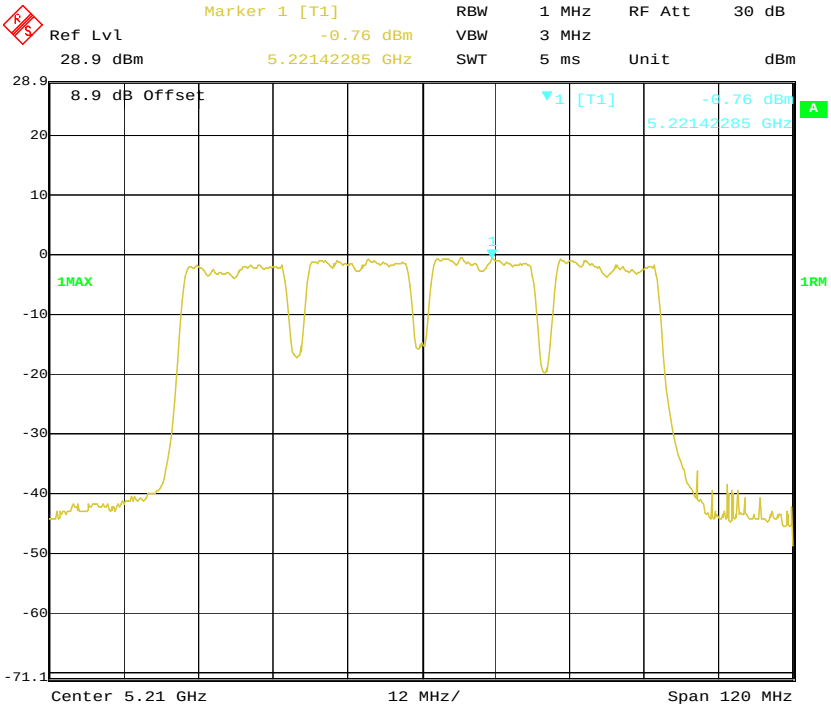
802.11n40 mode, Power Spectral Density, Antenn 1, 5230 MHz



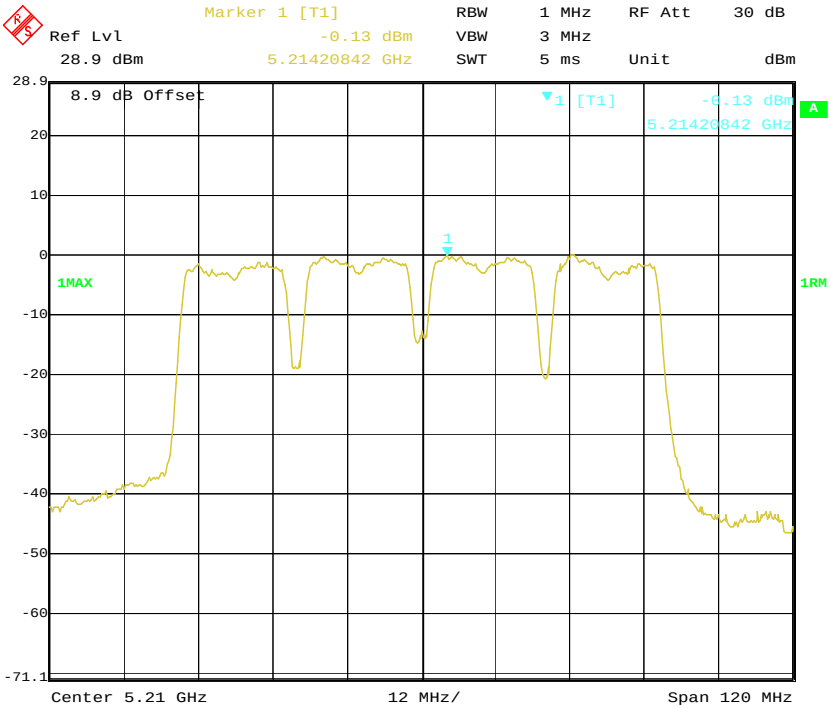
802.11n40 mode, Power Spectral Density, Antenn 2, 5230 MHz



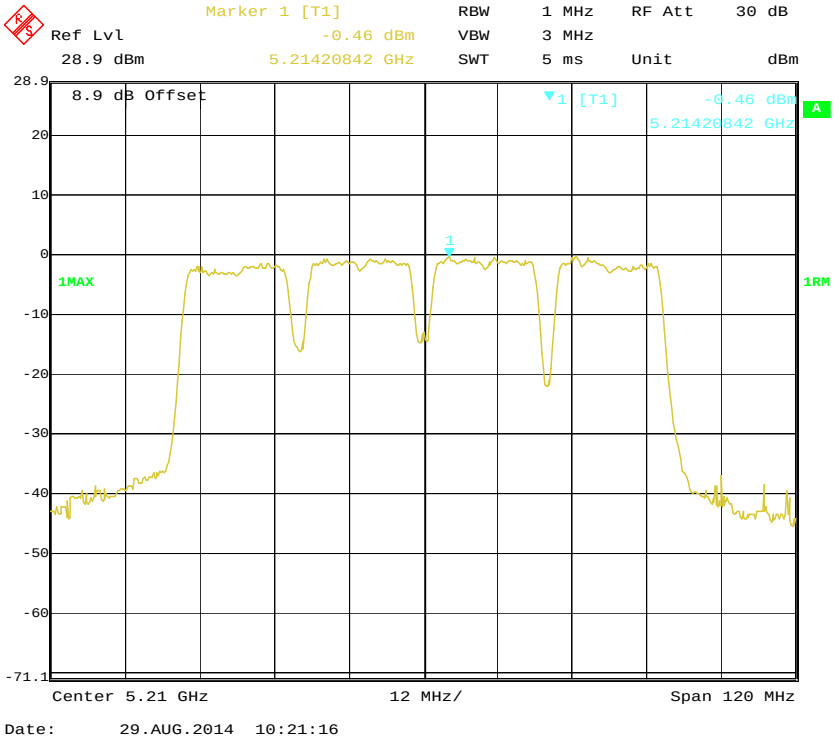
802.11ac80 mode, Power Spectral Density, Antenn 0, 5210 MHz



802.11ac80 mode, Power Spectral Density, Antenn 1, 5210 MHz



802.11ac80 mode, Power Spectral Density, Antenn 2, 5210 MHz

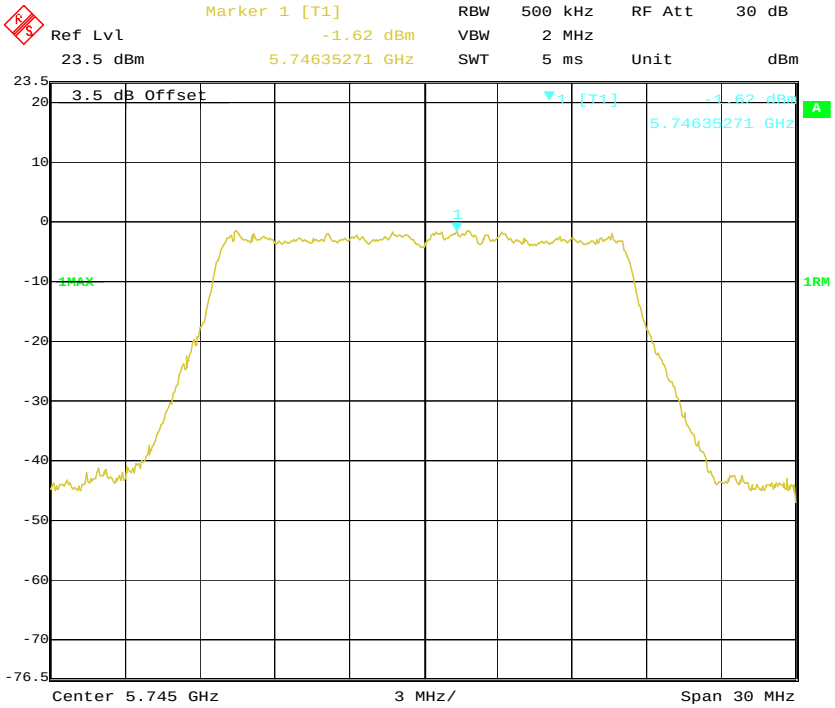


5725 MHz – 5825 MHz:

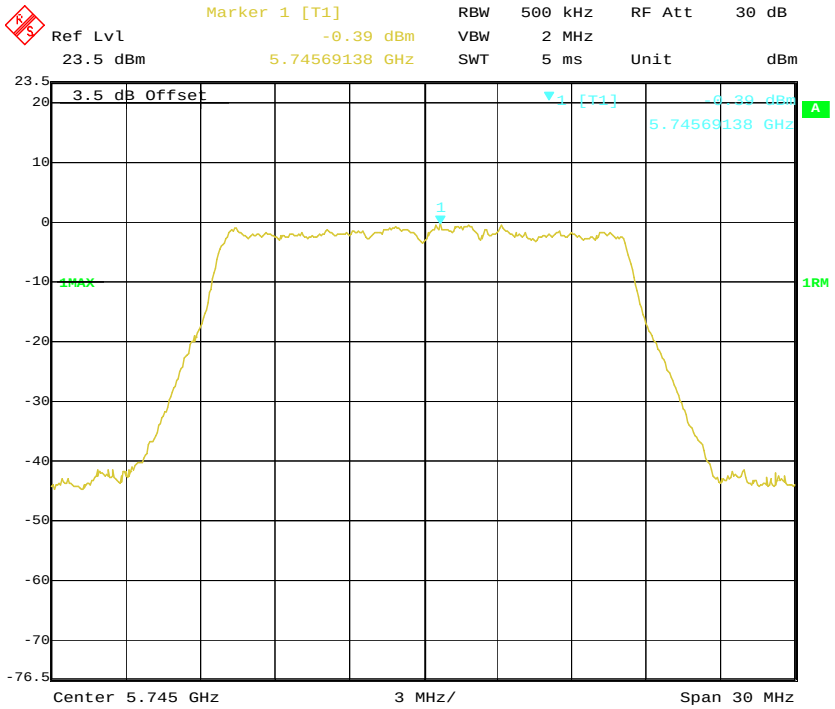
Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/500kHz)	Power spectral density (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11a				
5745	0	-1.62	/	30
	1	-0.39		
	2	-2.70		
5785	0	-1.06	/	
	1	-0.50		
	2	-2.13		
5805	0	-0.88	/	
	1	-0.15		
	2	-1.85		

Frequency (MHz)	Antenna Port	Power Spectral Density (dBm/500kHz)	Power spectral density (dBm) Chain0+Chain1+chain 2	Limit (dBm)
802.11n20				
5745	0	-0.78	3.91	30
	1	0.21		
	2	-2.39		
5785	0	-0.48	4.10	
	1	0.17		
	2	-1.96		
5805	0	0.06	4.51	
	1	0.53		
	2	-1.68		
802.11n40				
5755	0	0.54	5.27	30
	1	1.53		
	2	-0.92		
5795	0	1.16	5.87	
	1	2.06		
	2	-0.22		
802.11ac				
5775	0	-2.03	2.68	30
	1	-2.00		
	2	-2.26		

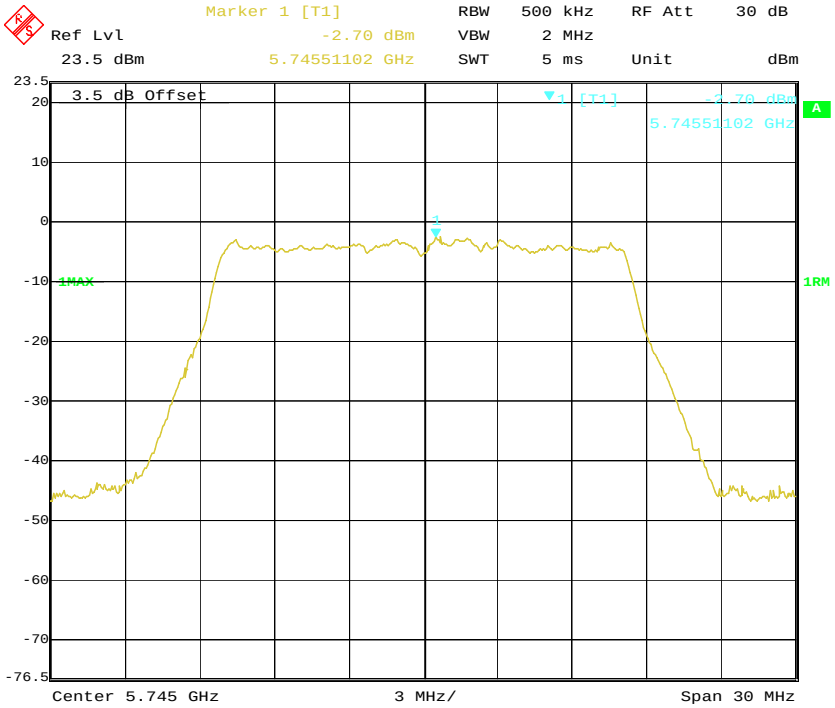
802.11a mode, Power Spectral Density, Antenn 0, 5745 MHz



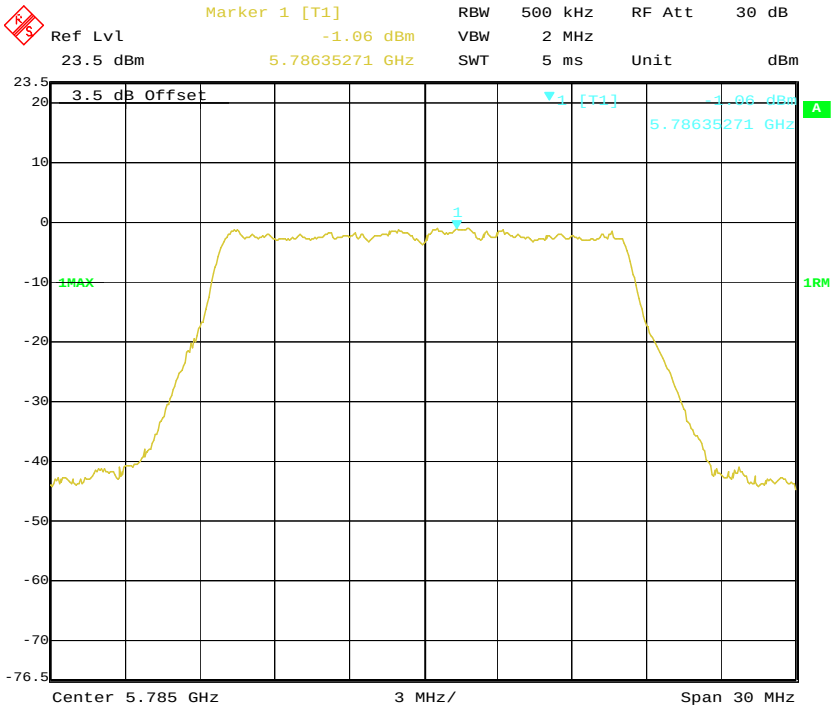
802.11a mode, Power Spectral Density, Antenn 1, 5745 MHz



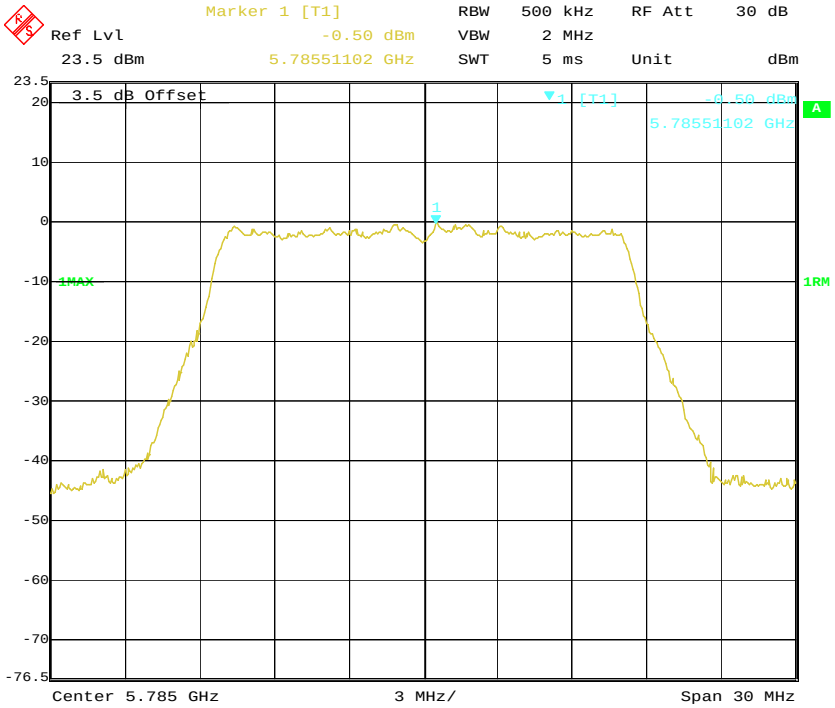
802.11a mode, Power Spectral Density, Antenn 2, 5745 MHz



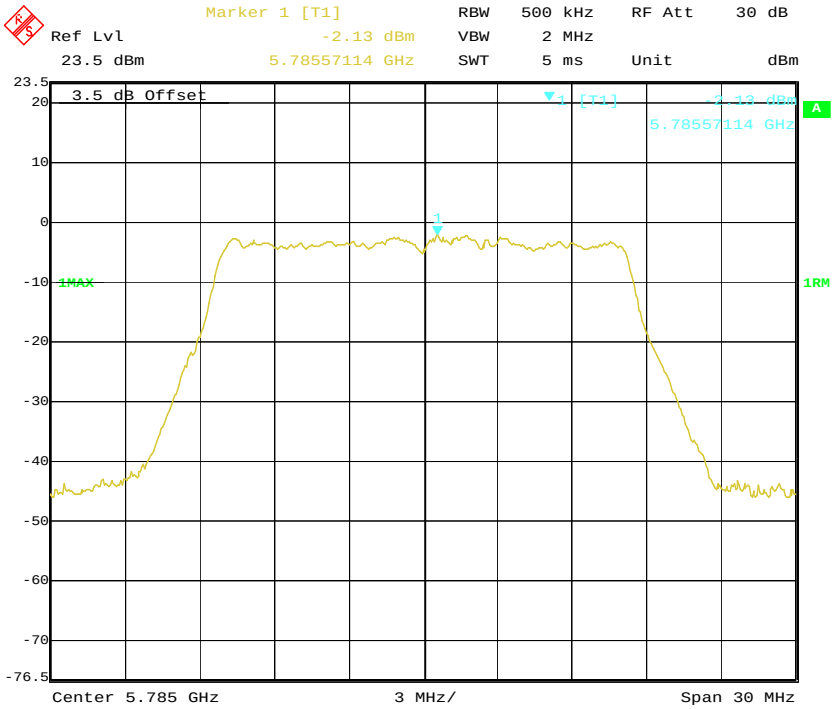
802.11a mode, Power Spectral Density, Antenn 0, 5785 MHz



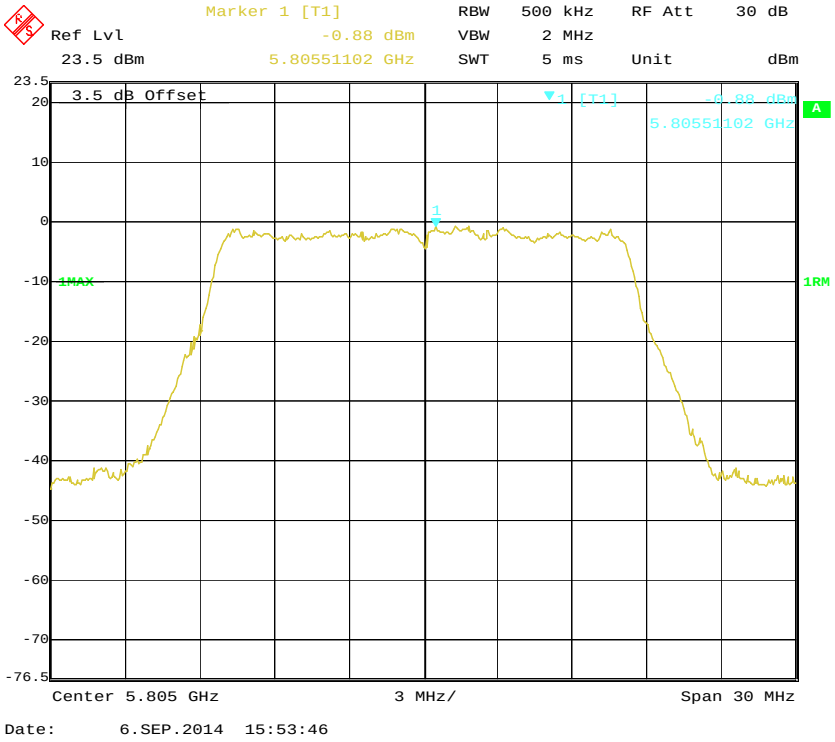
802.11a mode, Power Spectral Density, Antenn 1, 5785 MHz



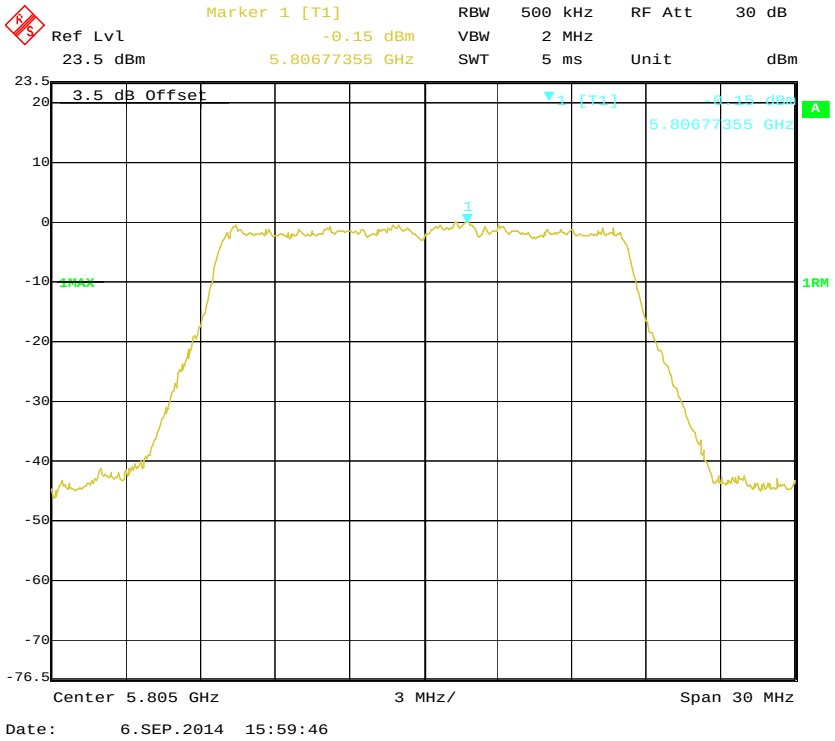
802.11a mode, Power Spectral Density, Antenn 2, 5785 MHz



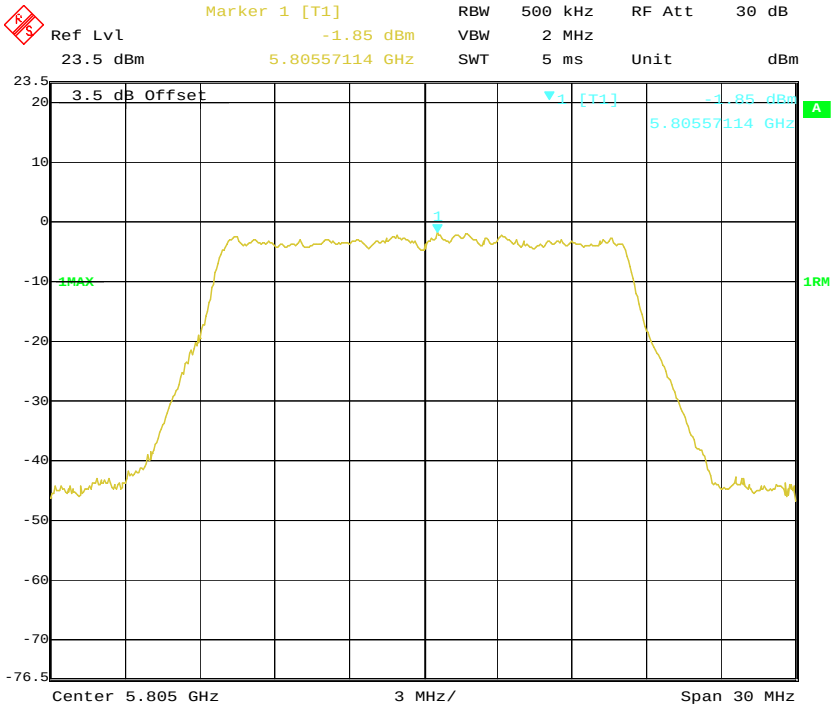
802.11a mode, Power Spectral Density, Antenn 0, 5805 MHz



802.11a mode, Power Spectral Density, Antenn 1, 5805 MHz



802.11a mode, Power Spectral Density, Antenn 2, 5805 MHz



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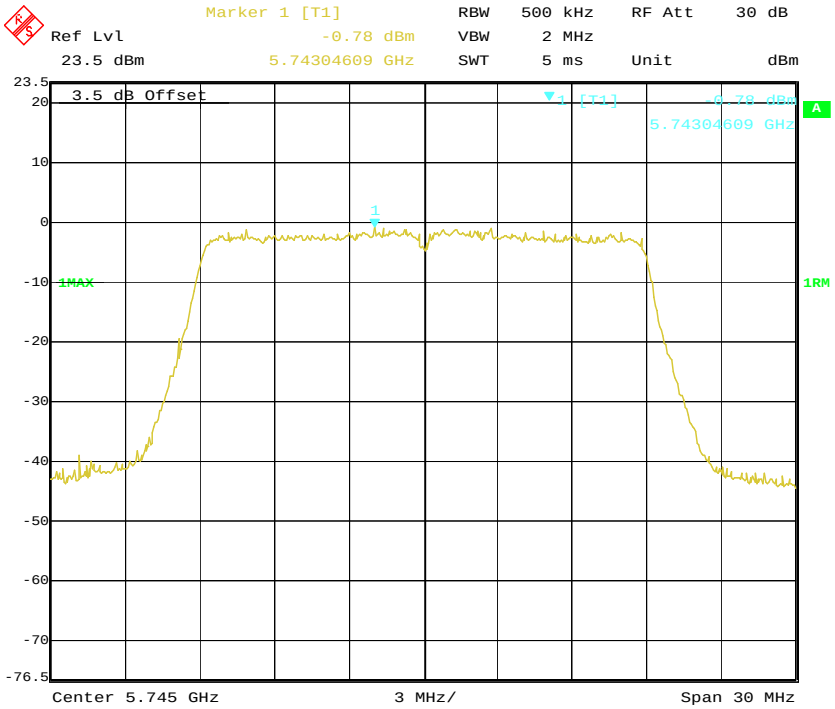
802.11n20 mode, Power Spectral Density, Antenn 0, 5745 MHz



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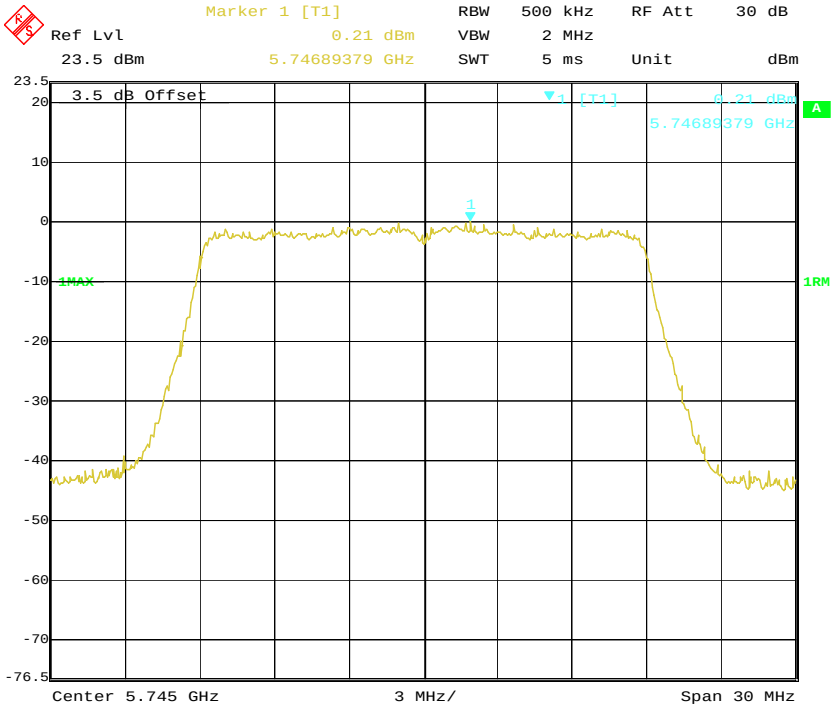
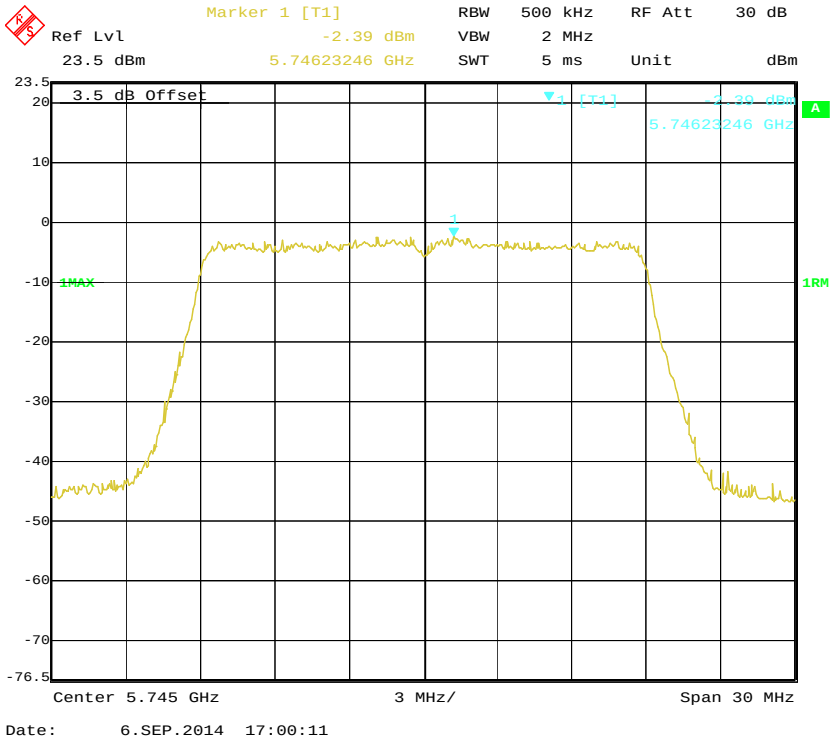
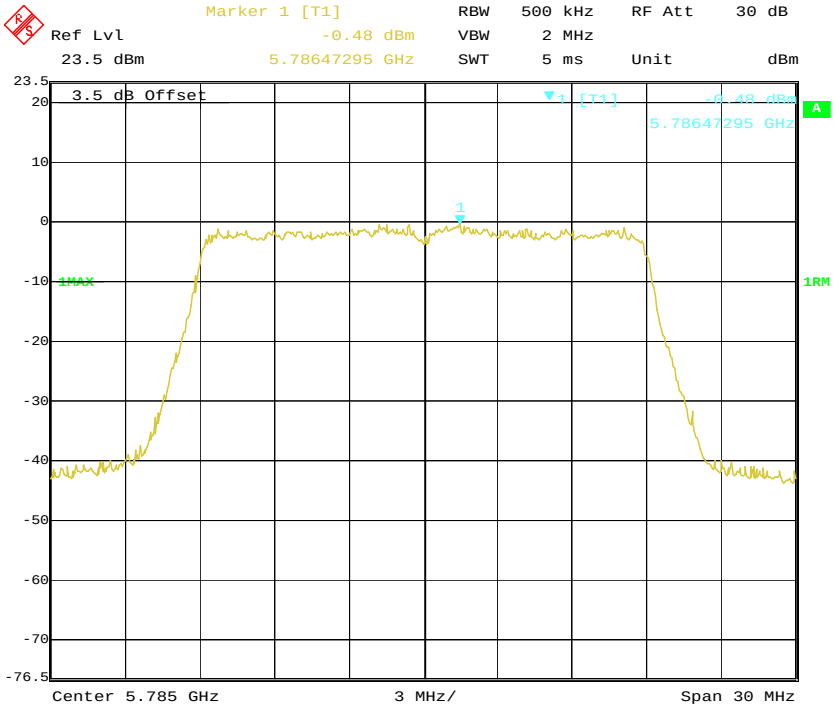
802.11n20 mode, Power Spectral Density, Antenn 1, 5745 MHz



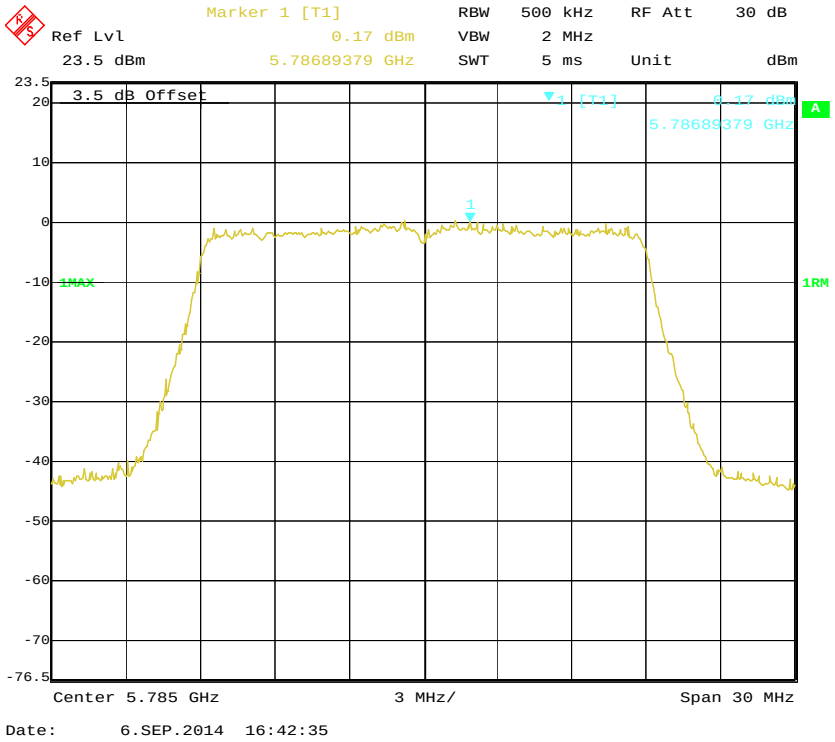
802.11n20 mode, Power Spectral Density, Antenn 2, 5745 MHz



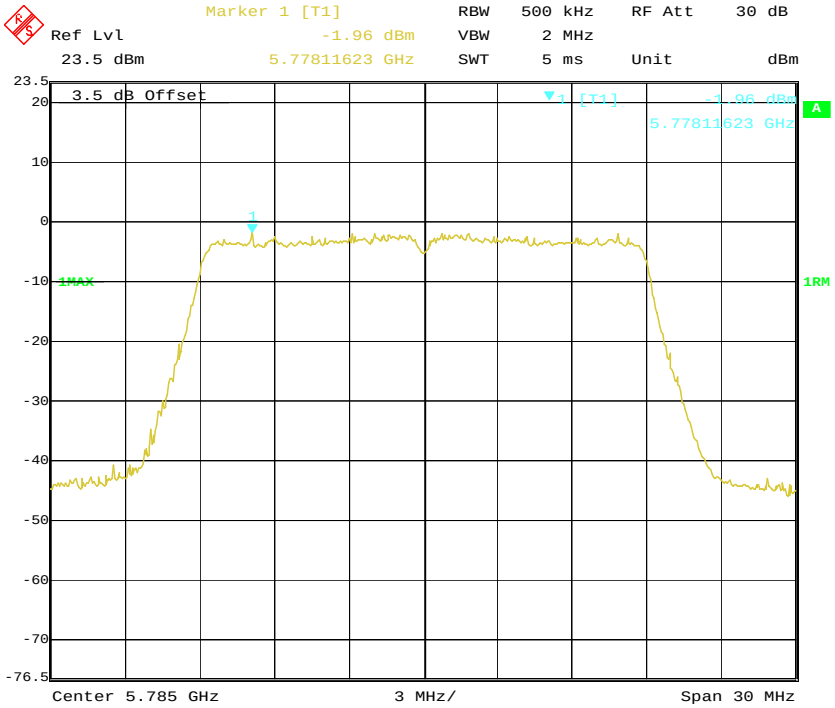
802.11n20 mode, Power Spectral Density, Antenn 0, 5785 MHz



802.11n20 mode, Power Spectral Density, Antenn 1, 5785 MHz



802.11n20 mode, Power Spectral Density, Antenn 2, 5785 MHz



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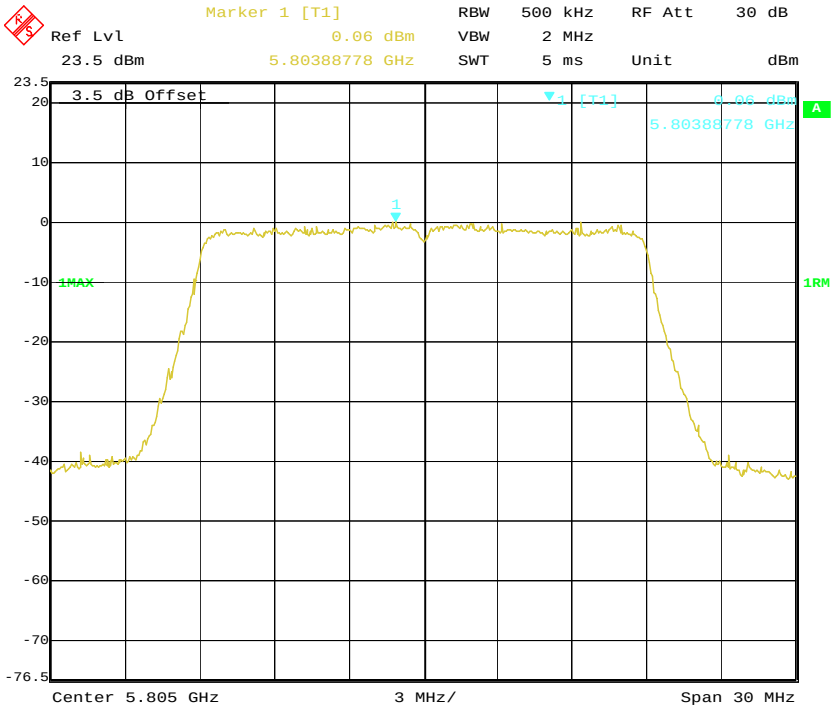
802.11n20 mode, Power Spectral Density, Antenn 0, 5805 MHz



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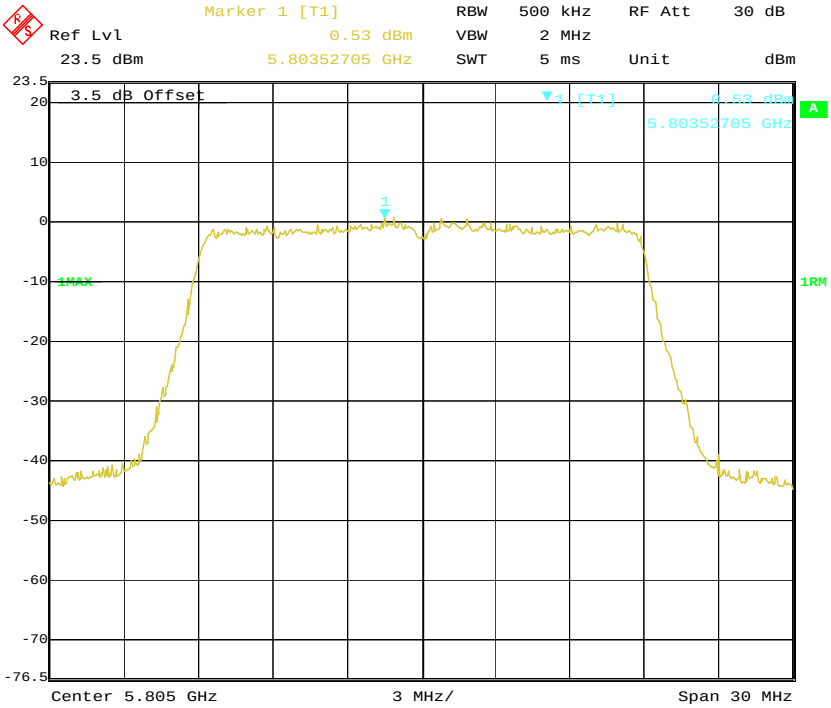
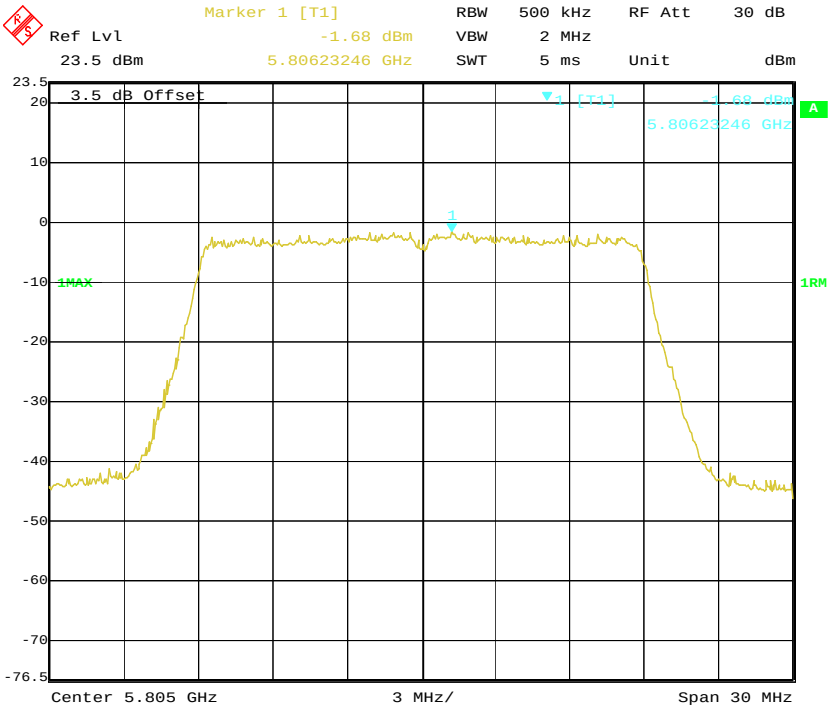
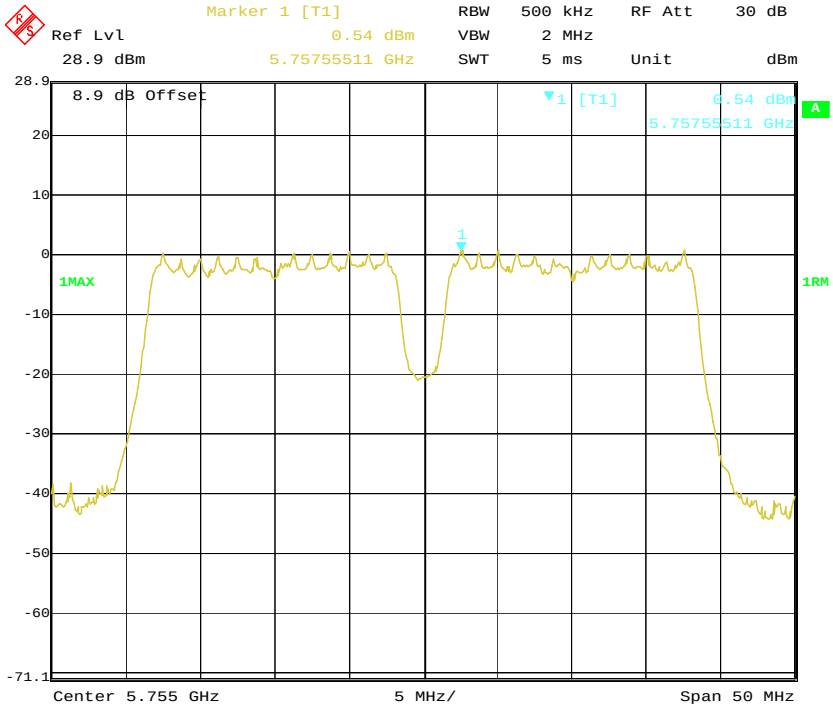
802.11n20 mode, Power Spectral Density, Antenn 1, 5805 MHz



802.11n20 mode, Power Spectral Density, Antenn 2, 5805 MHz

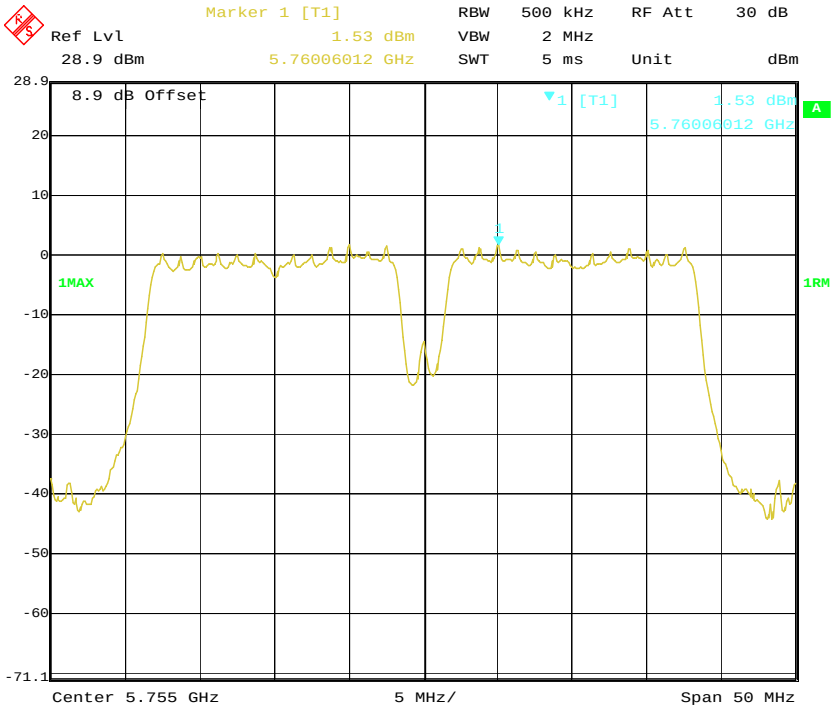


802.11n40 mode, Power Spectral Density, Antenn 0, 5755 MHz



Date: 9.SEP.2014 10:46:32

802.11n40 mode, Power Spectral Density, Antenn 1, 5755 MHz



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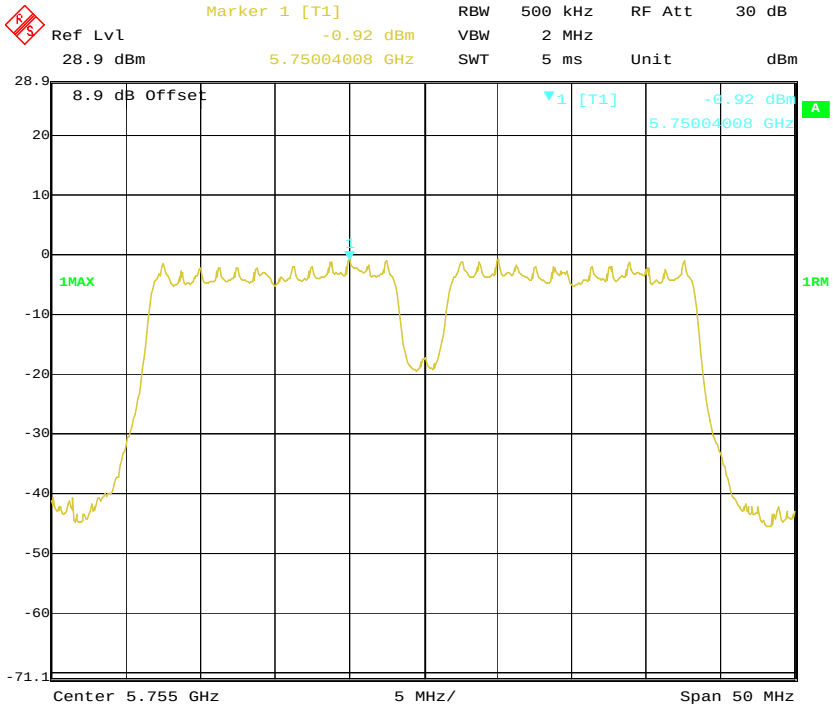
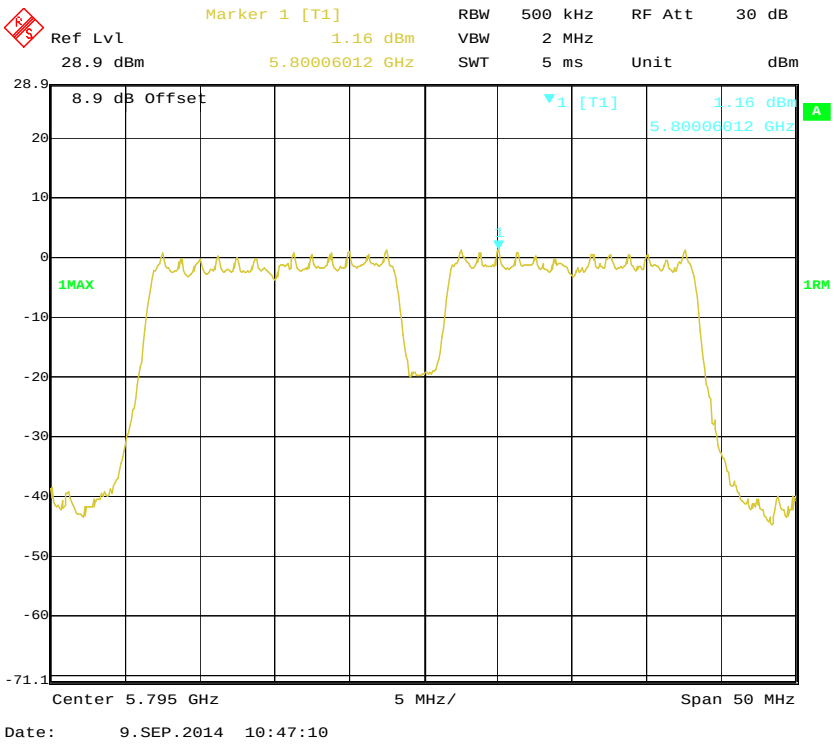
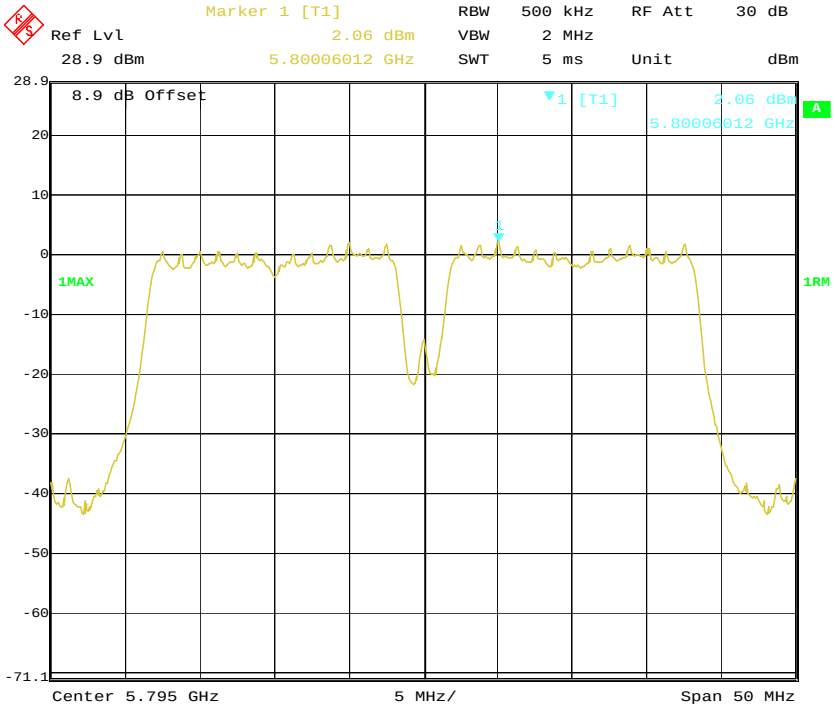
802.11n40 mode, Power Spectral Density, Antenn 2, 5755 MHz



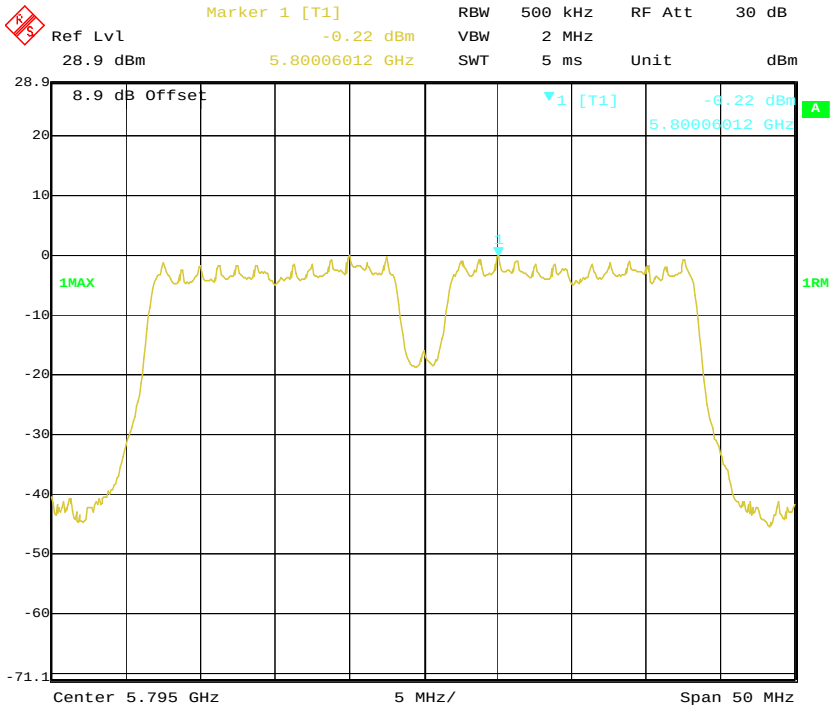
802.11n40 mode, Power Spectral Density, Antenn 0, 5795 MHz



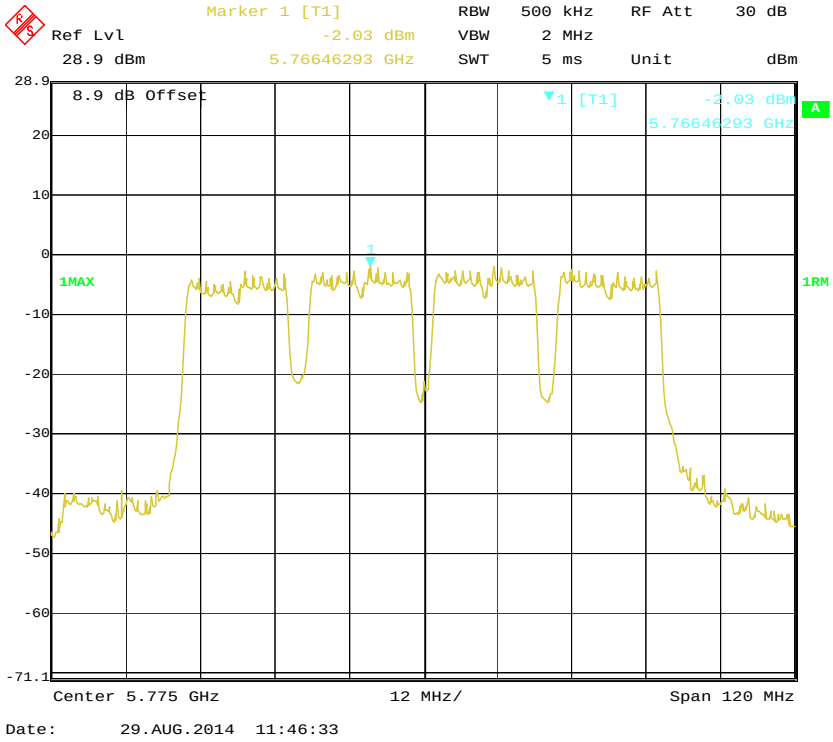
802.11n40 mode, Power Spectral Density, Antenn 1, 5795 MHz



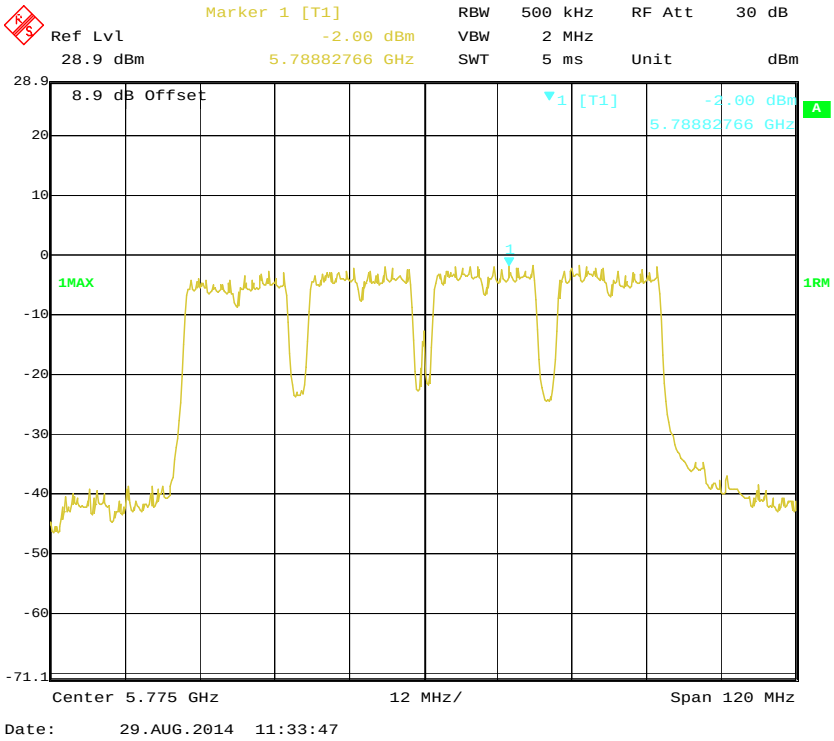
802.11n40 mode, Power Spectral Density, Antenn 2, 5795 MHz



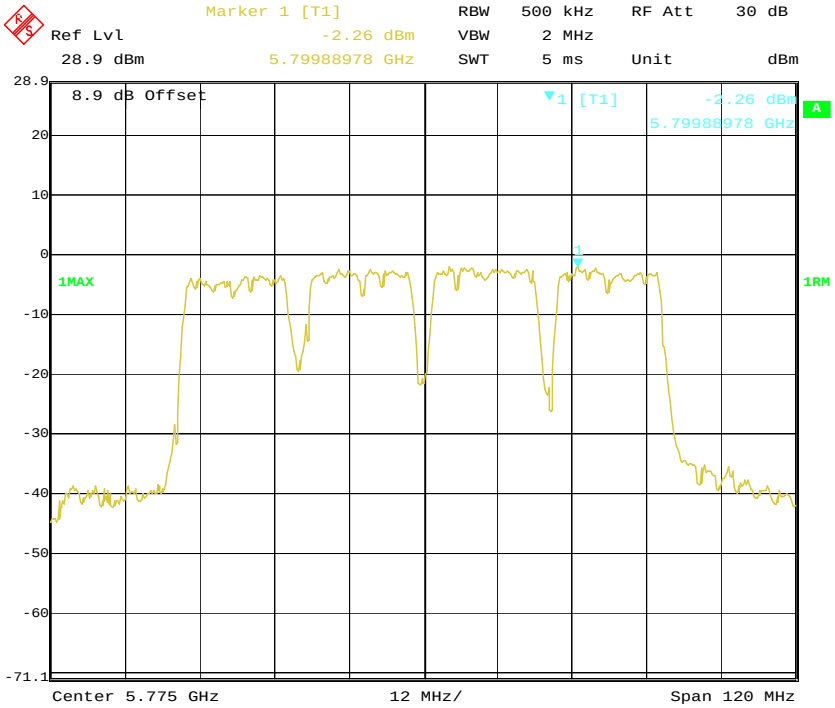
802.11ac80 mode, Power Spectral Density, Antenn 0, 5775 MHz



802.11ac80 mode, Power Spectral Density, Antenn 1, 5775 MHz



802.11ac80 mode, Power Spectral Density, Antenn 2, 5775 MHz



Date: 29.AUG.2014 11:32:39

PRODUCT SIMILARITY DECLARATION LETTER

Kasda Digital Technology Co., Ltd.
B-31 Building, Tanglang Industry Zone, XiLi Nanshan, Shenzhen, China
Tel: +86 755 8609 6689 Fax: +86 755 8610 6137

7/30/2014

Product Similarity Declaration

To Whom It May Concern,

We, Kasda Digital Technology Co., Ltd., hereby declare that we have a product named as Wireless Router (Model number: KA1750) was tested by BACL, meanwhile, for our marketing purpose, we would like to list a series models (KA1750, GR1750AC) on reports and certificate, all the models are identical schematics only named differently.
We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

Signature: Xiong Ying

Xiong,Ying

Purchasing Manager

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