FCC PART 15.407
TEST AND MEASUREMENT REPORT

For

Cisco Systems, Inc.

170 W. Tasman Drive,

San Jose, CA 95131, USA

FCC ID: LDKIR829GW-LTE

Report Type:	**Product Type:**
CIIPC Report	Smart Grid Router

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Report Number:	R1506011-407/Cisco EDCS-1514900
Report Date:	2015-10-05
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1506011-407/ Cisco EDCS-1514900	Initial	2015-10-05

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report has been compiled on behalf of *Cisco Systems, Inc.* and their product, *FCC ID: LDKIR829GW-LTE,* model number: *IR829GW-LTE*, which henceforth is referred to as the EUT (Equipment Under Test.) The EUT is a Smart Grid Router.

1.2 Mechanical Description of EUT

The EUT measures approximately 1.73 (H) x 11(W) x 7.7(D) in. (43.9 x 279 x 196 mm) and 1.73 (H) x 11(W) x 10.55(D) in (43.9 x 279 x 268 mm) with IP54 cable guard and weighs approximately 2kg.

The data gathered are from a typical production sample provided by the manufacturer with serial number: R1506011-01, assigned by BACL.

1.3 Objective

This is a CIIPC report prepared on behalf of *Cisco Systems, Inc.* in accordance with FCC CFR47 §15.407.

The objective is to determine compliance with FCC Part 15.407 for Output Power, Antenna Requirements, AC Line Conducted Emissions, Bandwidth, and power spectral density, Band Edges Measurement, Spurious Emissions, Conducted and Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS with FCC ID: LDKIR829GW-LTE.
FCC Part 15.407 NII (5.2 &5.8 GHz Bands) with FCC ID: LDKIR829GW-LTE.

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard of procedures for compliance testing of unlicensed wireless device. And KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the 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 CISPR16-4-2: 2011, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.7 Test Facility

Bay area compliance Laboratories Corp. (BACL) is:
1- An independent Commercial Test Laboratory accredited to **ISO 17025: 2005** by **A2LA**, in the fields of: Electromagnetic Compatibility & Telecommunications covering Emissions, Immunity, Radio, RF Exposure, Safety and Telecom. This includes NEBS (Network Equipment Building System), Wireless RF, Telecommunications Terminal Equipment (TTE); Network Equipment; Information Technology Equipment (ITE); Medical Electrical Equipment; Industrial, Commercial, and Medical Test Equipment; Professional Audio and Video Equipment; Electronic (Digital) Products; Industrial and Scientific Instruments; Cabled Distribution Systems and Energy Efficiency Lighting.

2- An ENERGY STAR Recognized Laboratory, for the LM80 Testing, a wide variety of Luminares and Computers.

3- A NIST Designated Phase-I and Phase-II CAB including: ACMA (Australian Communication and Media Authority), BSMI (Bureau of Standards, Metrology and Inspection of Taiwan), IDA (Infocomm Development Authority of Singapore), IC(Industry Canada), Korea (Ministry of Communications Radio Research Laboratory), NCC (Formerly DGT; Directorate General of Telecommunication of Chinese Taipei) OFTA (Office of the Telecommunications Authority of Hong Kong), Vietnam, VCCI - Voluntary Control Council for Interference of Japan and a designated EU CAB (Conformity Assessment Body) (Notified Body) for the EMC and R&TTE Directives.

4- A Product Certification Body accredited to **ISO Guide 65: 1996** by **A2LA** to certify:
.
2. Radio Standards Specifications (RSS) in the Category I Equipment Standards List and All Broadcasting Technical Standards (BETS) in Category I Equipment Standards List for Industry Canada.
3. Radio Communication Equipment for Singapore.
4. Radio Equipment Specifications, GMDSS Marine Radio Equipment Specifications, and Fixed Network Equipment Specifications for Hong Kong.
5. Japan MIC Telecommunication Business Law (A1, A2) and Radio Law (B1, B2 and B3).
6. Audio/Video, Battery Charging Systems, Computers, Displays, Enterprise Servers, Imaging Equipment, Set-Top Boxes, Telephony, Televisions, Ceiling Fans, CFLs (Including GU24s),Decorative Light Strings, Integral LED Lamps, Luminaires, Residential Ventilating Fans.

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

The test site at BACL Corp. has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997, and Article 8 of the VCCI regulations on December 25, 1997. The test site also complies with the test methods and procedures set forth in CISPR 22:2008 §10.4 for measurements below 1 GHz and §10.6 for measurements above 1 GHz as well as ANSI C63.4-2014, ANSI C63.4-2014, TIA/EIA-603 & CISPR 24:2010.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and they are listed under FCC registration number: 90464 and VCCI Registration No.: A-0027. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL Corp. is an American Association for Laboratory Accreditation (A2LA) accredited laboratory (Lab Code 3297-02). The current scope of accreditations can be found at

http://www.a2la.org/scopepdf/3297-02.pdf?CFID=1132286&CFTOKEN=e42a3240dac3f6ba-6DE17DCB-1851-9E57-477422F667031258&jsessionid=8430d44f1f47cf2996124343c704b367816b

2 EUT Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2014 and KDB-789033 D02 General UNII Test Procedures New Rules v01

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

The worst-case data rates are determined to be as follows for each mode based upon investigation by measuring the average power, peak power and PPSD across all data rates bandwidths, and modulations.

2.2 EUT Exercise Software

The test software used was Putty, which was used to access to IOS and perform commands to control the radio.

2.3 Special Equipment

N/A

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Local Support Equipment

Manufacturer	Description	Model No.	Serial No.
DELL	Laptop	Latitude E6530	-

2.6 EUT Internal Configuration Details

Manufacturer	Description	Model
Cisco Systems	Main board	1298MR
Cisco Systems	PCB board	28-12083-01
Cisco Systems	PCB board	95.0948T00 REV.215
Qualcomm	Sierra Wireless AirPrime 4G chip	MC7350
Qualcomm	5 G module	AR9590
Qualcomm	2.4 G Module	QCA9550

2.7 Interface Ports and Cables

Cable Description	Length (m)	To	From
RF Cable	<1M	PSA	EUT

2.8 Power Supply List and Details

Manufacturer	Description	Model	Serial Number
Power Systems Technologies Limited	Power Adapter	FA060LS1-01	PST1903F56A

3 Summary of Test Results

FCC Rules	Description of Test	Result
§15.407(f), §2.1091	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207	AC Power Line Conducted Emissions	Compliant
§15.209(a), 15.407(b)	Spurious Radiated Emissions	Compliant
§15.407(a)	Emission Bandwidth	Compliant
§15.407(a)	Peak Output Power Measurement	Compliant
§15.407(a)	Power Spectral Density	Compliant
§2.1051, §15.407(b)	Spurious Emissions at Antenna Terminals	Compliant
§15.407(h)	Dynamic Frequency Selection (DFS)	Compliant*

Note: * Please refer to DFS report: R1506011-DFS

4 FCC §2.1091 & §15.407(f) - RF Exposure

4.1 Applicable Standard

According to FCC §15.407(f) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for 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)
Limits for General Population/Uncontrolled Exposure				
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

4.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

4.3 MPE Results

5.3 GHz band:

Antenna gain = 4 dBi

Maximum peak output power at antenna input terminal (dBm):	21.35
Maximum peak output power at antenna input terminal (mW):	136.458
Prediction distance (cm):	20
Prediction frequency (MHz):	5270
Maximum Antenna Gain, typical (dBi):	4
Maximum Antenna Gain (numeric):	2.512
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.068
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Antenna gain = 7 dBi

Maximum peak output power at antenna input terminal (dBm):	19.00
Maximum peak output power at antenna input terminal (mW):	79.433
Prediction distance (cm):	20
Prediction frequency (MHz):	5310
Maximum Antenna Gain, typical (dBi):	7
Maximum Antenna Gain (numeric):	5.012
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.079
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Antenna gain = 14 dBi

Maximum peak output power at antenna input terminal (dBm):	12.51
Maximum peak output power at antenna input terminal (mW):	17.824
Prediction distance (cm):	20
Prediction frequency (MHz):	5260
Maximum Antenna Gain, typical (dBi):	14
Maximum Antenna Gain (numeric):	25.119
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.089
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure.

5.6 GHz band:

Antenna gain = 4 dBi

Maximum peak output power at antenna input terminal (dBm):	22.08
Maximum peak output power at antenna input terminal (mW):	161.436
Prediction distance (cm):	20
Prediction frequency (MHz):	5510
Maximum Antenna Gain, typical (dBi):	4
Maximum Antenna Gain (numeric):	2.512
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.081
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Antenna gain = 7 dBi

Maximum peak output power at antenna input terminal (dBm):	19.31
Maximum peak output power at antenna input terminal (mW):	85.310
Prediction distance (cm):	20
Prediction frequency (MHz):	5550
Maximum Antenna Gain, typical (dBi):	7
Maximum Antenna Gain (numeric):	5.012
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.085
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

Antenna gain = 14 dBi

Maximum peak output power at antenna input terminal (dBm):	11.13
Maximum peak output power at antenna input terminal (mW):	12.972
Prediction distance (cm):	20
Prediction frequency (MHz):	5550
Maximum Antenna Gain, typical (dBi):	14
Maximum Antenna Gain (numeric):	25.119
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.065
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure.

Co-location:

2.4 GHz and 5 GHz bands can transmit simultaneously. A certified 2G/3G/4G module (FCC ID: N7NMC7355, IC: 2417C-MC7355) was built in the host. Per FCC KDB 447498, when RF sources have difference frequencies, the fraction of the FCC power density limit shall be determined and the sum of all fractional components shall be less than 1.

WLAN Co-location

Frequency Band	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
2.4 GHz	20	0.246	1.0	24.6 %	57.2 %	100 %
5 GHz	20	0.572	1.0	32.6 %		

2.4 GHz WLAN + 5 GHz WLAN + 850 MHz Co-Location

Frequency Band	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
2.4 GHz	20	0.246	1.0	24.6 %	93.3 %	100 %
5 GHz	20	0.572	1.0	32.6 %		
850 MHz	20	0.198	0.549	36.1 %		

2.4 GHz WLAN + 5 GHz WLAN + 1900 MHz Co-Location

Frequency Band	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
2.4 GHz	20	0.246	1.0	24.6 %	69.8 %	100 %
5 GHz	20	0.572	1.0	32.6 %		
1900 MHz	20	0.126	1.0	12.6 %		

2.4 GHz WLAN + 5 GHz WLAN + 700 MHz Co-Location

Frequency Band	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
2.4 GHz	20	0.246	1.0	24.6 %	99.6 %	100 %
5 GHz	20	0.572	1.0	32.6 %		
700 MHz	20	0.199	0.469	42.4 %		

2.4 GHz WLAN + 5 GHz WLAN + 1700 MHz Co-Location

Frequency Band	Evaluated Distance (cm)	Worst-Case MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Worst-Case MPE Ratios	Sum of MPE Ratios	Limit
2.4 GHz	20	0.246	1.0	24.6 %	77.1 %	100 %
5 GHz	20	0.572	1.0	32.6 %		
1700 MHz	20	0.199	1.0	19.9 %		

Conclusion: Simultaneous transmission MPE test exclusion applied to this device due to the sum of MPE ratios for all simultaneous transmitting antennas incorporated in the host is less than 1.0.

5 FCC §15.203 – Antenna Requirements

5.1 Applicable Standard

According to FCC §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.2 Antenna List and Details

Antenna Type	Antenna Gain (dBi) @ 5 GHz
Omnidirectional	3
Dipole	3.5
Dual-band dipole	4
Omnidirectional TM02 Mode patch	4.5
Omnidirectional collinear array	6
Omnidirectional collinear array	7
Diversity patch	7
Two element patch array	14

Note: 1) For the Antenna directional gain greater than 6 dBi, the limit for output and power density will be reduced by certain amount.
2) The manufacturer will use three output power settings to control this unit, the table shows below.

Antenna Type	Antenna Gain (dBi)	Software Power Setting
Omnidirectional	3	4
Dipole	3.5	4
Dual-band dipole	4	4
Omnidirectional TM02 Mode patch	4.5	7
Omnidirectional collinear array	6	7
Omnidirectional collinear array	7	7
Diversity patch	7	7
Two element patch array	14	14

6 FCC §15.207 - AC Power Line Conducted Emissions

6.1 Applicable Standards

As per FCC §15.207 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 1
0.5-5	56	46
5-30	60	50

Note 1 Decreases with the logarithm of the frequency.

6.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4-2014 measurement procedure. The specification used was FCC §15.207 limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The AC/DC power adapter of the EUT was connected with LISN-1 which provided 120 V / 60 Hz AC power.

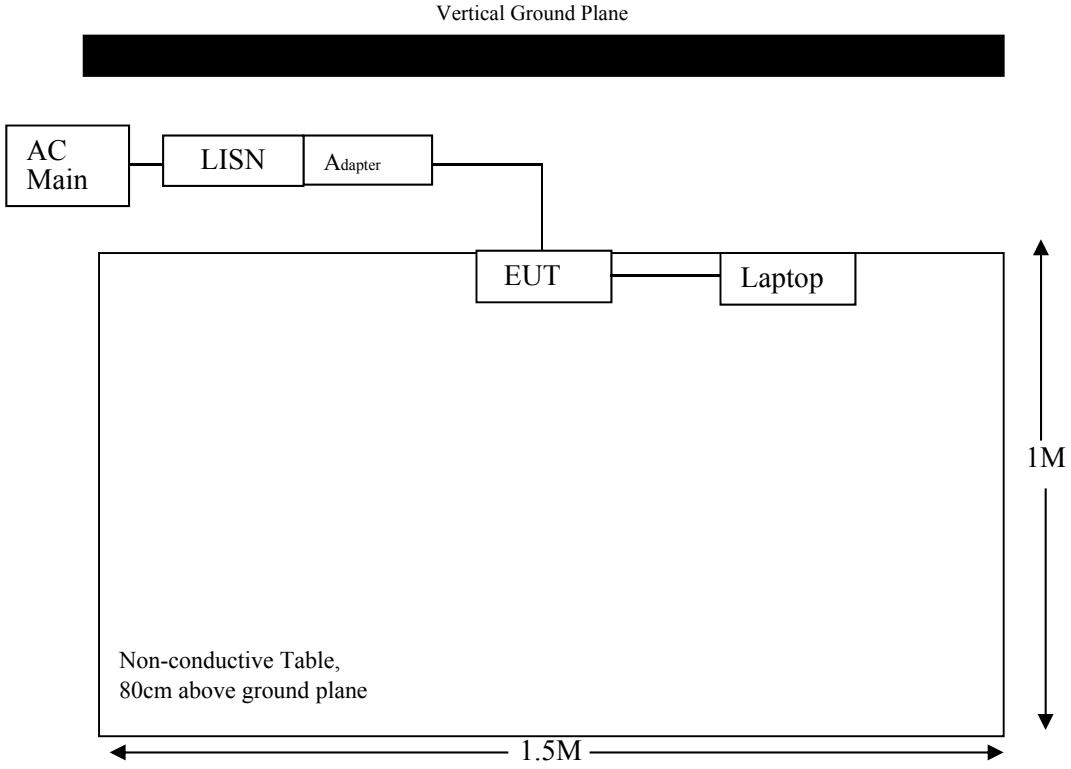
6.3 Test Procedure

During the conducted emissions test, the power cord of the EUT host system was connected to the mains outlet of the LISN-1 and the power cord of the support equipment was connected to LISN-2.

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

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a “QP.” Average readings are distinguished with an “Ave”.

6.4 Test Setup Block Diagram



6.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Cable Loss (CL), the Attenuator Factor (Atten) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + CL + Atten

For example, a corrected amplitude of 46.2 dBuV = Indicated Reading (32.5 dBuV) + Cable Loss (3.7 dB) + Attenuator (10 dB)

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

Margin = Corrected Amplitude - Limit

6.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2014-09-28	1 year
Solar Electronics	LISN	9252-50-R-24-N	511205	2014-06-25	1 year
TTE	Filter, High Pass	H962-150k-50-21378	K7133	2015-01-30	1 year
Suirong	30 ft conductive emission cable	LMR 400	-	Cal. Not Required	N/A
Hewlett-Packard	5 ft N-type RF cable	-	1268	Cal. Not Required	N/A

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

6.7 Test Environmental Conditions

Temperature:	23º C
Relative Humidity:	46 %
ATM Pressure:	105.24 KPa

The testing was performed by Jimmy Xiao on 2015-06-18 in 5m chamber3.

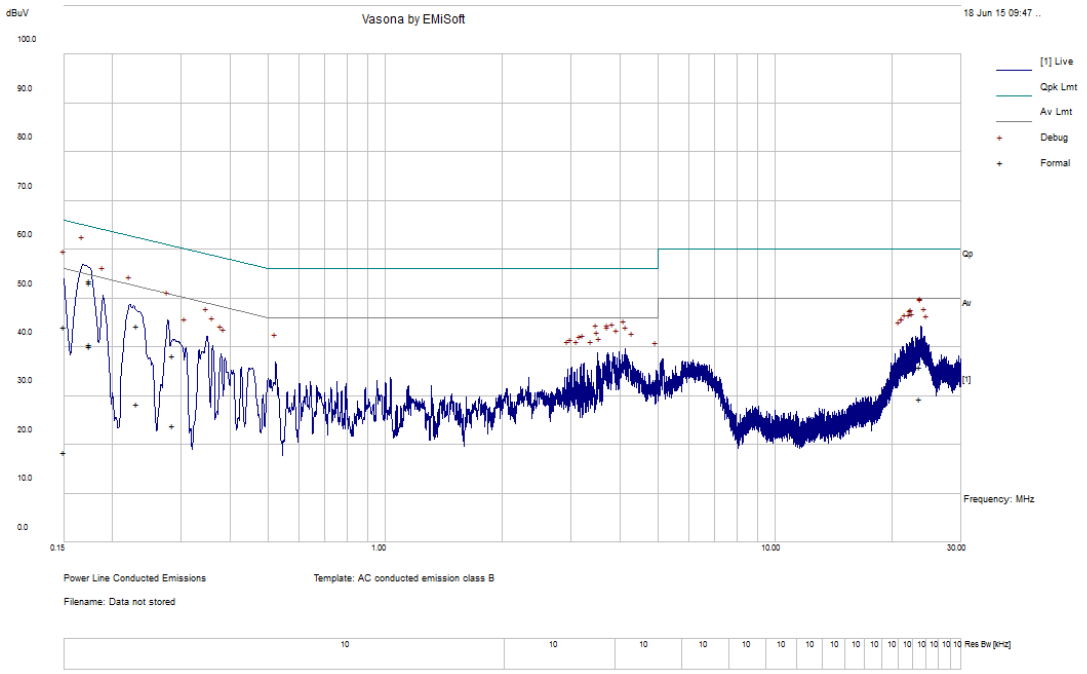
6.8 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC 15.207 standard's conducted emissions limits, with the margin reading of:

Connection: AC/DC adapter connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-10.96	0.174459	Line	0.15-30

6.9 Conducted Emissions Test Plots and Data

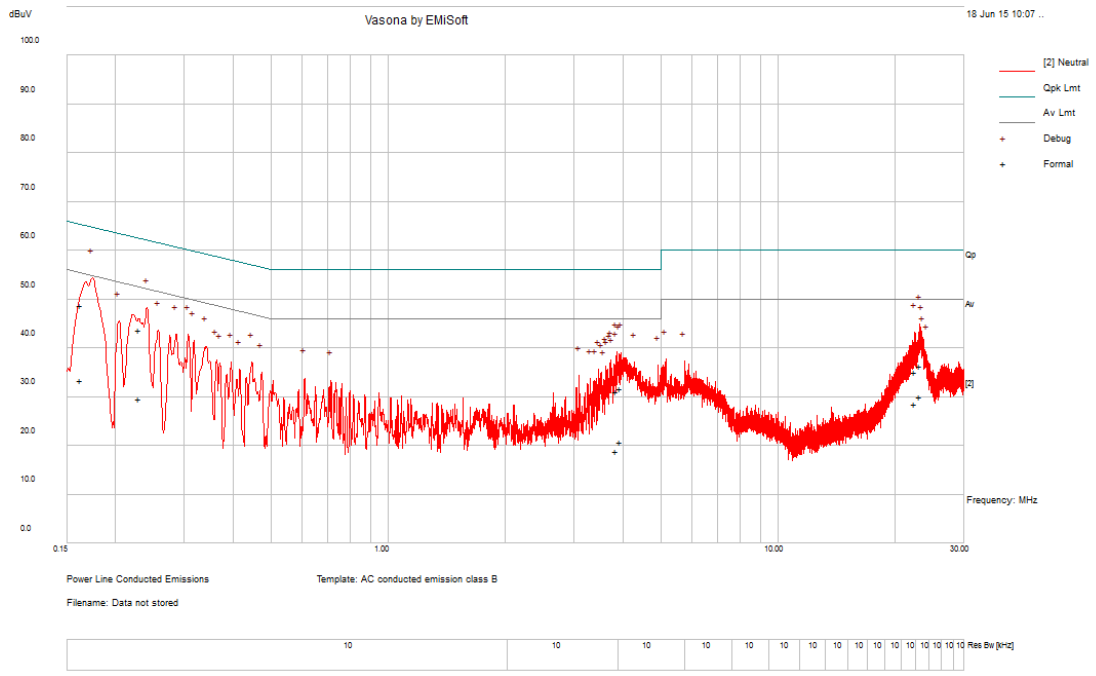
120 V, 60 Hz – Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.174459	53.79	Line	64.75	-10.96	QP
0.150112	44.18	Line	65.99	-21.81	QP
0.174588	53.27	Line	64.74	-11.47	QP
0.231600	44.51	Line	62.39	-17.88	QP
0.285222	38.41	Line	60.66	-22.25	QP
23.60152	35.93	Line	60.00	-24.07	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.174459	40.61	Line	54.75	-14.14	Ave.
0.150112	18.63	Line	55.99	-37.36	Ave.
0.174588	40.20	Line	54.74	-14.54	Ave.
0.231600	28.38	Line	52.39	-24.01	Ave.
0.285222	23.96	Line	50.66	-26.70	Ave.
23.60152	29.38	Line	50.00	-20.62	Ave.

120 V, 60 Hz – Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.163098	48.94	Neutral	65.3	-16.37	QP
0.229269	43.72	Neutral	62.48	-18.75	QP
23.05518	36.42	Neutral	60	-23.58	QP
22.36209	35.08	Neutral	60	-24.92	QP
3.847561	31.27	Neutral	56	-24.73	QP
3.942338	31.82	Neutral	56	-24.18	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.163098	33.42	Neutral	55.3	-21.88	Ave.
0.229269	29.76	Neutral	52.48	-22.71	Ave.
23.05518	30.17	Neutral	50	-19.83	Ave.
22.36209	28.59	Neutral	50	-21.41	Ave.
3.847561	19.01	Neutral	46	-26.99	Ave.
3.942338	20.84	Neutral	46	-25.16	Ave.

7 FCC §15.209 & §15.407(b) - Spurious Radiated Emissions

7.1 Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 Note 1	3
88 - 216	150 Note 1	3
216 - 960	200 Note 1	3
Above 960	500	3

Note 1: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3 3458 – 3 358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per FCC Part 15.407 (b)

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

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

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

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

7.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2014. The specification used was the FCC 15C/15E limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

7.3 Test Procedure

For the radiated emissions test, the EUT host, and all support equipment power cords were connected to the AC floor outlet.

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

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, 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.

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

7.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

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

Margin = Corrected Amplitude - Limit

7.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2014-09-28	1 year
Agilent	Spectrum Analyzer	E4440A	MY44303352	2014-10-16	1 year
Sunol Science Corp	System Controller	SC99V	011003-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2014-09-18	1 year
EMCO	Horn Antenna	3115	9511-4627	2014-10-17	1 year
Hewlett Packard	Pre-amplifier	8447D	2944A10187	2014-08-08	1 year
WiseWave	Horn Antenna	ARH-4223-02	10555-01	2014-08-09	3 Years
Suirong	30 ft conductive emission cable	LMR 400	-	2015-03-05	1 year
-	SMA cable	-	C0002	Each time[1]	N/A
IW Microwave	High Frequency Cable	DC-1438	SPS-2303-3840-SPS	2014-09-23	1 year
Suirong	30 ft conductive emission cable	LMR 400	-	2015-03-05	1 year
Hewlett-Packard	5 ft N-type RF cable	-	1268	2014-07-24	1 year
Agilent	Pre-Amplifier	8449B	3008A01978	2015-03-11	1year

Statement of Traceability: BACL *attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.*

7.6 Test Environmental Conditions

Temperature:	25º C
Relative Humidity:	42 %
ATM Pressure:	104.7 KPa

The testing was performed by Jimmy Xiao on 2015-06-18 in 5m chamber3.

7.7 Summary of Test Results

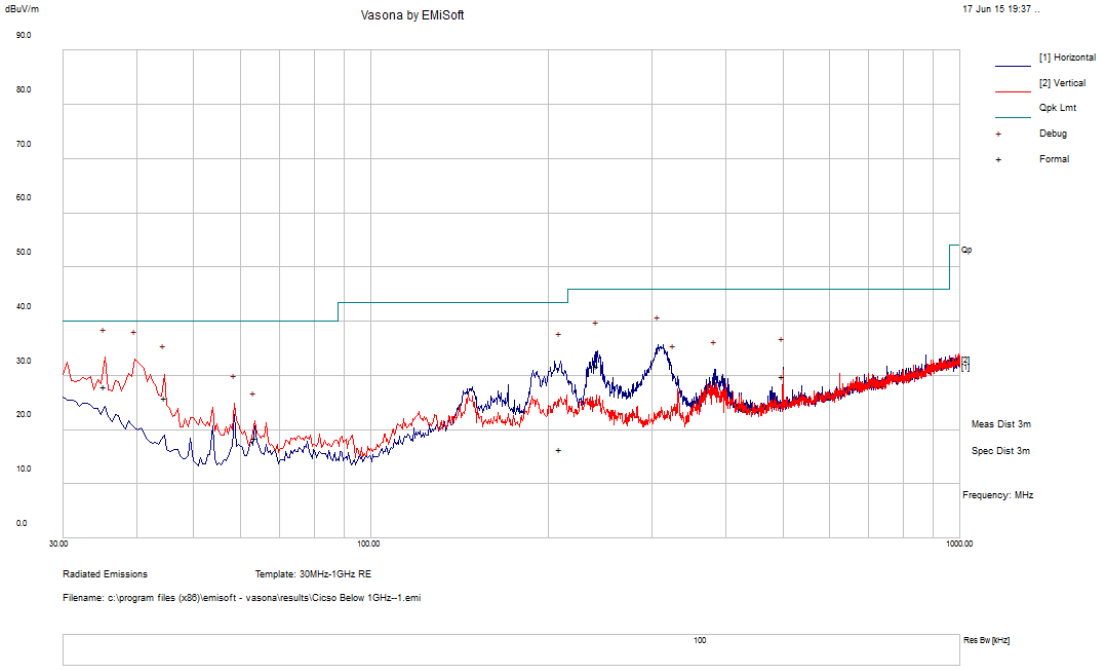
According to the data hereinafter, the EUT complied with the FCC Part 15.205, 15.209 and 15.407 standard's radiated emissions limits, and had the worst margin of:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range**
-5.59	17100	Vertical	30 MHz to 40 GHz

Please refer to the following table and plots for specific test result details

7.8 Radiated Emissions Test Result Data

1) 30 MHz – 1 GHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comments
35.255	28.14	135	V	360	40	-11.86	QP
44.6715	25.99	101	V	342	40	-14.01	QP
209.602	16.46	129	H	223	43.5	-27.04	QP
241.718	31.89	121	H	18	46	-14.11	QP
500.0335	29.87	165	V	209	46	-16.13	QP
63.4985	18.59	158	H	125	40	-21.41	QP

2) 1–40 GHz

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

5.3 GHz Band:

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5260 MHz, measured at 3 meters											
10520	45.06	0	150	V	38.34	7.00	34.49	55.91	74	-18.09	Peak
10520	44.24	0	150	H	38.34	7.00	34.49	55.09	74	-18.91	Peak
10520	31.69	0	150	V	38.34	7.00	34.49	42.54	54	-11.46	Ave
10520	31.91	0	150	H	38.34	7.00	34.49	42.76	54	-11.24	Ave
15780	44.44	0	150	V	37.93	8.35	34.61	56.11	74	-17.89	Peak
15780	44.64	0	150	H	37.93	8.35	34.61	56.31	74	-17.69	Peak
15780	32.48	0	150	V	37.93	8.35	34.61	44.15	54	-9.85	Ave
15780	32.49	0	150	H	37.93	8.35	34.61	44.16	54	-9.84	Ave
21040	44.61	0	150	V	34.60	9.79	34.00	55.00	74	-19.00	Peak
21040	44.18	0	150	H	34.60	9.79	34.00	54.57	74	-19.43	Peak
21040	31.60	0	150	V	34.60	9.79	34.00	41.99	54	-12.01	Ave
21040	31.63	0	150	H	34.60	9.79	34.00	42.02	54	-11.98	Ave
Middle Channel 5300 MHz, measured at 3 meters											
10560	44.79	0	150	V	38.42	7.07	34.49	55.79	74	-18.21	Peak
10560	45.05	0	150	H	38.42	7.07	34.49	56.05	74	-17.95	Peak
10560	32.44	0	150	V	38.42	7.07	34.49	43.44	54	-10.56	Ave
10560	32.51	0	150	H	38.42	7.07	34.49	43.51	54	-10.49	Ave
15840	44.19	0	150	V	37.91	8.38	34.61	55.87	74	-18.13	Peak
15840	44.37	0	150	H	37.91	8.38	34.61	56.05	74	-17.95	Peak
15840	32.02	0	150	V	37.91	8.38	34.61	43.70	54	-10.30	Ave
15840	32.33	0	150	H	37.91	8.38	34.61	44.01	54	-9.99	Ave
21120	45.38	0	150	V	34.60	9.80	34.00	55.78	74	-18.22	Peak
21120	45.61	0	150	H	34.60	9.80	34.00	56.01	74	-17.99	Peak
21120	31.45	0	150	V	34.60	9.80	34.00	41.85	54	-12.15	Ave
21120	31.77	0	150	H	34.60	9.80	34.00	42.17	54	-11.83	Ave
High Channel 5320 MHz, measured at 3 meters											
10640	43.32	0	150	V	38.42	7.07	34.49	54.32	74	-19.68	Peak
10640	42.88	0	150	H	38.42	7.07	34.49	53.88	74	-20.12	Peak
10640	31.16	0	150	V	38.42	7.07	34.49	42.16	54	-11.84	Ave
10640	31.25	0	150	H	38.42	7.07	34.49	42.25	54	-11.75	Ave
15960	44.14	0	150	V	37.90	8.39	34.61	55.82	74	-18.18	Peak
15960	44.49	0	150	H	37.90	8.39	34.61	56.17	74	-17.83	Peak
15960	31.65	0	150	V	37.90	8.39	34.61	43.33	54	-10.67	Ave
15960	31.84	0	150	H	37.90	8.39	34.61	43.52	54	-10.48	Ave
21280	45.38	0	150	V	34.60	9.79	34.00	55.77	74	-18.23	Peak
21280	44.52	0	150	H	34.60	9.79	34.00	54.91	74	-19.09	Peak
21280	31.98	0	150	V	34.60	9.79	34.00	42.37	54	-11.63	Ave
21280	32.03	0	150	H	34.60	9.79	34.00	42.42	54	-11.58	Ave

802.11n20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5260 MHz, measured at 3 meters											
10520	43.71	0	150	V	38.34	7.00	34.49	54.56	74	-19.44	Peak
10520	43.37	0	150	H	38.34	7.00	34.49	54.22	74	-19.78	Peak
10520	30.39	0	150	V	38.34	7.00	34.49	41.24	54	-12.76	Ave
10520	30.14	0	150	H	38.34	7.00	34.49	40.99	54	-13.01	Ave
15780	45.31	0	150	V	37.93	8.35	34.61	56.98	74	-17.02	Peak
15780	45.22	0	150	H	37.93	8.35	34.61	56.89	74	-17.11	Peak
15780	32.11	0	150	V	37.93	8.35	34.61	43.78	54	-10.22	Ave
15780	32.01	0	150	H	37.93	8.35	34.61	43.68	54	-10.32	Ave
21040	44.51	0	150	V	34.60	9.79	34.00	54.90	74	-19.10	Peak
21040	44.24	0	150	H	34.60	9.79	34.00	54.63	74	-19.37	Peak
21040	31.41	0	150	V	34.60	9.79	34.00	41.80	54	-12.20	Ave
21040	31.09	0	150	H	34.60	9.79	34.00	41.48	54	-12.52	Ave
Middle Channel 5300 MHz, measured at 3 meters											
10560	43.77	0	150	V	38.42	7.07	34.49	54.77	74	-19.23	Peak
10560	43.55	0	150	H	38.42	7.07	34.49	54.55	74	-19.45	Peak
10560	30.28	0	150	V	38.42	7.07	34.49	41.28	54	-12.72	Ave
10560	30.21	0	150	H	38.42	7.07	34.49	41.21	54	-12.79	Ave
15840	44.61	0	150	V	37.91	8.38	34.61	56.29	74	-17.71	Peak
15840	44.78	0	150	H	37.91	8.38	34.61	56.46	74	-17.54	Peak
15840	31.49	0	150	V	37.91	8.38	34.61	43.17	54	-10.83	Ave
15840	31.53	0	150	H	37.91	8.38	34.61	43.21	54	-10.79	Ave
21120	45.24	0	150	V	34.60	9.80	34.00	55.64	74	-18.36	Peak
21120	45.21	0	150	H	34.60	9.80	34.00	55.61	74	-18.39	Peak
21120	31.67	0	150	V	34.60	9.80	34.00	42.07	54	-11.93	Ave
21120	31.66	0	150	H	34.60	9.80	34.00	42.06	54	-11.94	Ave
High Channel 5320 MHz, measured at 3 meters											
10640	43.25	0	150	V	38.42	7.07	34.49	54.25	74	-19.75	Peak
10640	43.81	0	150	H	38.42	7.07	34.49	54.81	74	-19.19	Peak
10640	30.23	0	150	V	38.42	7.07	34.49	41.23	54	-12.77	Ave
10640	30.42	0	150	H	38.42	7.07	34.49	41.42	54	-12.58	Ave
15960	45.58	0	150	V	37.90	8.39	34.61	57.26	74	-16.74	Peak
15960	44.99	0	150	H	37.90	8.39	34.61	56.67	74	-17.33	Peak
15960	32.39	0	150	V	37.90	8.39	34.61	44.07	54	-9.93	Ave
15960	32.21	0	150	H	37.90	8.39	34.61	43.89	54	-10.11	Ave
21280	44.24	0	150	V	34.60	9.79	34.00	54.63	74	-19.37	Peak
21280	44.47	0	150	H	34.60	9.79	34.00	54.86	74	-19.14	Peak
21280	31.42	0	150	V	34.60	9.79	34.00	41.81	54	-12.19	Ave
21280	31.57	0	150	H	34.60	9.79	34.00	41.96	54	-12.04	Ave

802.11n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5270 MHz, measured at 3 meters											
10540	44.48	0	150	V	38.34	7.05	34.49	55.38	74	-18.62	Peak
10540	44.66	0	150	H	38.34	7.05	34.49	55.56	74	-18.44	Peak
10540	31.92	0	150	V	38.34	7.05	34.49	42.82	54	-11.18	Ave
10540	29.65	0	150	H	38.34	7.05	34.49	40.55	54	-13.45	Ave
15810	43.76	0	150	V	37.93	8.35	34.61	55.43	74	-18.57	Peak
15810	44.48	0	150	H	37.93	8.35	34.61	56.15	74	-17.85	Peak
15810	32.09	0	150	V	37.93	8.35	34.61	43.76	54	-10.24	Ave
15810	29.46	0	150	H	37.93	8.35	34.61	41.13	54	-12.87	Ave
21080	43.44	0	150	V	34.60	9.84	34.00	53.88	74	-20.12	Peak
21080	44.42	0	150	H	34.60	9.84	34.00	54.86	74	-19.14	Peak
21080	31.49	0	150	V	34.60	9.84	34.00	41.93	54	-12.07	Ave
21080	29.09	0	150	H	34.60	9.84	34.00	39.53	54	-14.47	Ave
High Channel 5310 MHz, measured at 3 meters											
10620	44.16	0	150	V	38.42	7.07	34.49	55.16	74	-18.84	Peak
10620	44.19	0	150	H	38.42	7.07	34.49	55.19	74	-18.81	Peak
10620	32.41	0	150	V	38.42	7.07	34.49	43.41	54	-10.59	Ave
10620	31.67	0	150	H	38.42	7.07	34.49	42.67	54	-11.33	Ave
15930	43.71	0	150	V	37.91	8.38	34.61	55.39	74	-18.61	Peak
15930	43.9	0	150	H	37.91	8.38	34.61	55.58	74	-18.42	Peak
15930	32.41	0	150	V	37.91	8.38	34.61	44.09	54	-9.91	Ave
15930	31.26	0	150	H	37.91	8.38	34.61	42.94	54	-11.06	Ave
21240	43.91	0	150	V	34.60	9.79	34.00	54.30	74	-19.70	Peak
21240	43.77	0	150	H	34.60	9.79	34.00	54.16	74	-19.84	Peak
21240	32.04	0	150	V	34.60	9.79	34.00	42.43	54	-11.57	Ave
21240	31.65	0	150	H	34.60	9.79	34.00	42.04	54	-11.96	Ave

5.6 GHz Band

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5500 MHz, measured at 3 meters											
11000	44.23	0	150	V	38.38	7.36	34.05	55.92	74	-18.08	Peak
11000	43.62	0	150	H	38.38	7.36	34.05	55.31	74	-18.69	Peak
11000	31.26	0	150	V	38.38	7.36	34.05	42.95	54	-11.05	Ave
11000	30.87	0	150	H	38.38	7.36	34.05	42.56	54	-11.44	Ave
16500	46.21	0	150	V	38.77	8.50	34.64	58.84	74	-15.16	Peak
16500	44.87	0	150	H	38.77	8.50	34.64	57.50	74	-16.50	Peak
16500	31.78	0	150	V	38.77	8.50	34.64	44.41	54	-9.59	Ave
16500	31.42	0	150	H	38.77	8.50	34.64	44.05	54	-9.95	Ave
22000	45.69	0	150	V	34.90	9.94	34.69	55.84	74	-18.16	Peak
22000	46.02	0	150	H	34.90	9.94	34.69	56.17	74	-17.83	Peak
22000	31.57	0	150	V	34.90	9.94	34.69	41.72	54	-12.28	Ave
22000	31.65	0	150	H	34.90	9.94	34.69	41.80	54	-12.20	Ave
Middle Channel 5580 MHz, measured at 3 meters											
11160	43.64	0	150	V	38.51	7.52	34.05	55.62	74	-18.38	Peak
11160	44.62	0	150	H	38.51	7.52	34.05	56.60	74	-17.40	Peak
11160	31.26	0	150	V	38.51	7.52	34.05	43.24	54	-10.76	Ave
11160	32.06	0	150	H	38.51	7.52	34.05	44.04	54	-9.96	Ave
16740	42.62	0	150	V	39.94	8.63	34.64	56.55	74	-17.45	Peak
16740	41.62	0	150	H	39.94	8.63	34.64	55.55	74	-18.45	Peak
16740	30.24	0	150	V	39.94	8.63	34.64	44.17	54	-9.83	Ave
16740	30.01	0	150	H	39.94	8.63	34.64	43.94	54	-10.06	Ave
22320	41.89	0	150	V	34.90	9.92	34.69	52.02	74	-21.98	Peak
22320	42.35	0	150	H	34.90	9.92	34.69	52.48	74	-21.52	Peak
22320	30.05	0	150	V	34.90	9.92	34.69	40.18	54	-13.82	Ave
22320	30.17	0	150	H	34.90	9.92	34.69	40.30	54	-13.70	Ave
High Channel 5700 MHz, measured at 3 meters											
11400	43.21	0	150	V	38.88	7.57	34.05	55.61	74	-18.39	Peak
11400	42.86	0	150	H	38.88	7.57	34.05	55.26	74	-18.74	Peak
11400	31.02	0	150	V	38.88	7.57	34.05	43.42	54	-10.58	Ave
11400	30.98	0	150	H	38.88	7.57	34.05	43.38	54	-10.62	Ave
17100	44.26	0	150	V	42.64	8.66	34.64	60.92	74	-13.08	Peak
17100	43.75	0	150	H	42.64	8.66	34.64	60.41	74	-13.59	Peak
17100	31.56	0	150	V	42.64	8.66	34.64	48.22	54	-5.78	Ave
17100	31.24	0	150	H	42.64	8.66	34.64	47.90	54	-6.10	Ave
22800	42.68	0	150	V	34.90	10.17	34.69	53.06	74	-20.94	Peak
22800	43.05	0	150	H	34.90	10.17	34.69	53.43	74	-20.57	Peak
22800	31.02	0	150	V	34.90	10.17	34.69	41.40	54	-12.60	Ave
22800	30.85	0	150	H	34.90	10.17	34.69	41.23	54	-12.77	Ave

802.11n20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5500 MHz, measured at 3 meters											
11000	45.12	0	150	V	38.38	7.36	34.05	56.81	74	-17.19	Peak
11000	44.65	0	150	H	38.38	7.36	34.05	56.34	74	-17.66	Peak
11000	32.65	0	150	V	38.38	7.36	34.05	44.34	54	-9.66	Ave
11000	32.14	0	150	H	38.38	7.36	34.05	43.83	54	-10.17	Ave
16500	43.56	0	150	V	38.77	8.50	34.64	56.19	74	-17.81	Peak
16500	42.86	0	150	H	38.77	8.50	34.64	55.49	74	-18.51	Peak
16500	31.87	0	150	V	38.77	8.50	34.64	44.50	54	-9.50	Ave
16500	31.41	0	150	H	38.77	8.50	34.64	44.04	54	-9.96	Ave
22000	42.61	0	150	V	34.90	9.94	34.69	52.76	74	-21.24	Peak
22000	41.56	0	150	H	34.90	9.94	34.69	51.71	74	-22.29	Peak
22000	31.06	0	150	V	34.90	9.94	34.69	41.21	54	-12.79	Ave
22000	30.57	0	150	H	34.90	9.94	34.69	40.72	54	-13.28	Ave
Middle Channel 5580 MHz, measured at 3 meters											
11160	44.36	0	150	V	38.51	7.52	34.05	56.34	74	-17.66	Peak
11160	43.85	0	150	H	38.51	7.52	34.05	55.83	74	-18.17	Peak
11160	32.14	0	150	V	38.51	7.52	34.05	44.12	54	-9.88	Ave
11160	31.67	0	150	H	38.51	7.52	34.05	43.65	54	-10.35	Ave
16740	45.02	0	150	V	39.94	8.63	34.64	58.95	74	-15.05	Peak
16740	44.16	0	150	H	39.94	8.63	34.64	58.09	74	-15.91	Peak
16740	32.85	0	150	V	39.94	8.63	34.64	46.78	54	-7.22	Ave
16740	32.47	0	150	H	39.94	8.63	34.64	46.40	54	-7.60	Ave
22320	43.26	0	150	V	34.90	9.92	34.69	53.39	74	-20.61	Peak
22320	42.15	0	150	H	34.90	9.92	34.69	52.28	74	-21.72	Peak
22320	31.12	0	150	V	34.90	9.92	34.69	41.25	54	-12.75	Ave
22320	30.86	0	150	H	34.90	9.92	34.69	40.99	54	-13.01	Ave
High Channel 5700 MHz, measured at 3 meters											
11400	43.26	0	150	V	38.88	7.57	34.05	55.66	74	-18.34	Peak
11400	42.87	0	150	H	38.88	7.57	34.05	55.27	74	-18.73	Peak
11400	31.24	0	150	V	38.88	7.57	34.05	43.64	54	-10.36	Ave
11400	30.68	0	150	H	38.88	7.57	34.05	43.08	54	-10.92	Ave
17100	44.26	0	150	V	42.64	8.66	34.64	60.92	74	-13.08	Peak
17100	43.56	0	150	H	42.64	8.66	34.64	60.22	74	-13.78	Peak
17100	31.75	0	150	V	42.64	8.66	34.64	48.41	54	-5.59	Ave
17100	31.25	0	150	H	42.64	8.66	34.64	47.91	54	-6.09	Ave
22800	43.26	0	150	V	34.90	10.17	34.69	53.64	74	-20.36	Peak
22800	42.87	0	150	H	34.90	10.17	34.69	53.25	74	-20.75	Peak
22800	31.24	0	150	V	34.90	10.17	34.69	41.62	54	-12.38	Ave
22800	31.17	0	150	H	34.90	10.17	34.69	41.55	54	-12.45	Ave

802.11n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5510 MHz, measured at 3 meters											
11020	44.36	0	150	V	38.38	7.36	34.05	56.05	74	-17.95	Peak
11020	43.82	0	150	H	38.38	7.36	34.05	55.51	74	-18.49	Peak
11020	32.54	0	150	V	38.38	7.36	34.05	44.23	54	-9.77	Ave
11020	32.01	0	150	H	38.38	7.36	34.05	43.70	54	-10.30	Ave
16530	43.65	0	150	V	38.77	8.50	34.64	56.28	74	-17.72	Peak
16530	42.87	0	150	H	38.77	8.50	34.64	55.50	74	-18.50	Peak
16530	32.04	0	150	V	38.77	8.50	34.64	44.67	54	-9.33	Ave
16530	31.24	0	150	H	38.77	8.50	34.64	43.87	54	-10.13	Ave
22040	43.21	0	150	V	34.90	9.76	34.69	53.18	74	-20.82	Peak
22040	42.89	0	150	H	34.90	9.76	34.69	52.86	74	-21.14	Peak
22040	31.26	0	150	V	34.90	9.76	34.69	41.23	54	-12.77	Ave
22040	30.57	0	150	H	34.90	9.76	34.69	40.54	54	-13.46	Ave
Middle Channel 5550 MHz, measured at 3 meters											
11100	43.26	0	150	V	38.51	7.39	34.05	55.11	74	-18.89	Peak
11100	42.89	0	150	H	38.51	7.39	34.05	54.74	74	-19.26	Peak
11100	31.24	0	150	V	38.51	7.39	34.05	43.09	54	-10.91	Ave
11100	30.68	0	150	H	38.51	7.39	34.05	42.53	54	-11.47	Ave
16650	43.26	0	150	V	39.26	8.55	34.64	56.43	74	-17.57	Peak
16650	42.85	0	150	H	39.26	8.55	34.64	56.02	74	-17.98	Peak
16650	31.14	0	150	V	39.26	8.55	34.64	44.31	54	-9.69	Ave
16650	30.74	0	150	H	39.26	8.55	34.64	43.91	54	-10.09	Ave
22200	43.68	0	150	V	35.00	9.91	34.69	53.90	74	-20.10	Peak
22200	42.98	0	150	H	35.00	9.91	34.69	53.20	74	-20.80	Peak
22200	31.12	0	150	V	35.00	9.91	34.69	41.34	54	-12.66	Ave
22200	30.26	0	150	H	35.00	9.91	34.69	40.48	54	-13.52	Ave
High Channel 5670 MHz, measured at 3 meters											
11340	44.21	0	150	V	38.84	7.52	34.05	56.52	74	-17.48	Peak
11340	43.26	0	150	H	38.84	7.52	34.05	55.57	74	-18.43	Peak
11340	32.14	0	150	V	38.84	7.52	34.05	44.45	54	-9.55	Ave
11340	31.65	0	150	H	38.84	7.52	34.05	43.96	54	-10.04	Ave
17010	42.06	0	150	V	41.89	8.61	34.64	57.92	74	-16.08	Peak
17010	43.14	0	150	H	41.89	8.61	34.64	59.00	74	-15.00	Peak
17010	30.74	0	150	V	41.89	8.61	34.64	46.60	54	-7.40	Ave
17010	31.16	0	150	H	41.89	8.61	34.64	47.02	54	-6.98	Ave
22680	42.89	0	150	V	34.90	10.07	34.69	53.17	74	-20.83	Peak
22680	43.25	0	150	H	34.90	10.07	34.69	53.53	74	-20.47	Peak
22680	30.56	0	150	V	34.90	10.07	34.69	40.84	54	-13.16	Ave
22680	31.07	0	150	H	34.90	10.07	34.69	41.35	54	-12.65	Ave

8 FCC §15.407(a) & §15.407(e) – Emission Bandwidth

8.1 Applicable Standards

FCC §15.407(a)

26 dB emission bandwidth is measured as reference for power and PSD measurement.

8.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section C: Emission bandwidth and section D: 99 Percent Occupied Bandwidth

8.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Analyzer	FSQ	1155.5001.26	2015-03-09	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed according to A2LA requirements, traceable to the NIST.*

8.4 Test Environmental Conditions

Temperature:	21 ºC
Relative Humidity:	43 %
ATM Pressure:	105.2 kPa

The testing was performed by Jimmy Xiao from 2015-06-30 at RF site.

8.5 Test Results

Please refer to the following tables and plots.

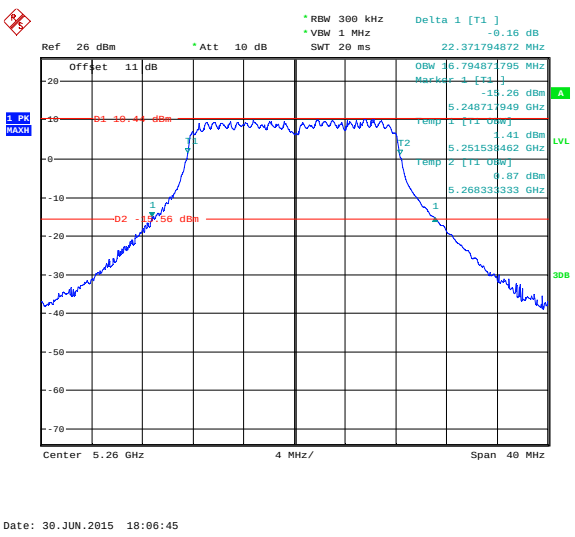
5.3 GHz Band

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26 dB Emission Bandwidth (MHz)	
		Antenna 0	Antenna 1	Antenna 0	Antenna 1
802.11a					
Low	5260	16.79	17.05	22.37	22.82
Middle	5300	16.73	17.05	22.37	22.69
High	5320	16.73	17.05	22.31	22.69
802.11n20					
Low	5260	17.95	18.08	23.59	23.78
Middle	5300	17.95	18.08	23.46	23.59
High	5320	18.01	18.08	23.53	23.91
802.11n40					
Low	5270	36.54	36.92	45.26	47.82
High	5310	36.54	36.92	45.38	47.95

99% Occupied Bandwidth & 26 dB Emission Bandwidth

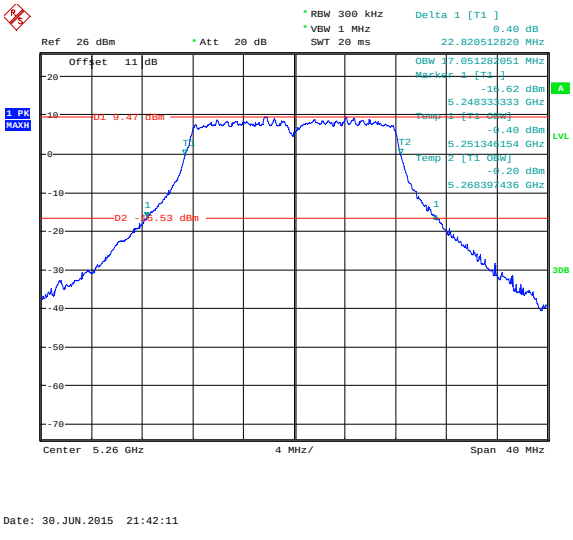
802.11a mode

Low channel: Chain 0



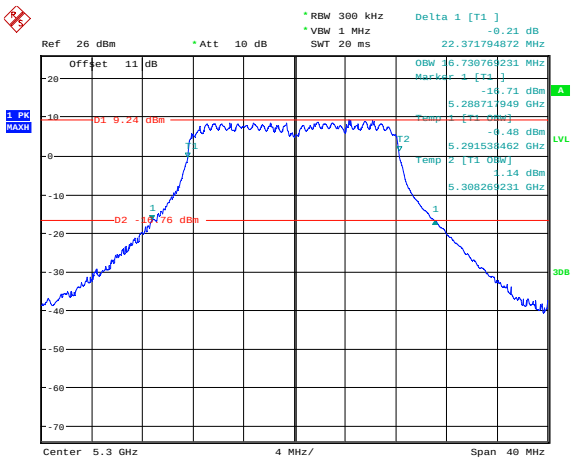
Date: 30.JUN.2015 18:06:45

Low channel: Chain 1



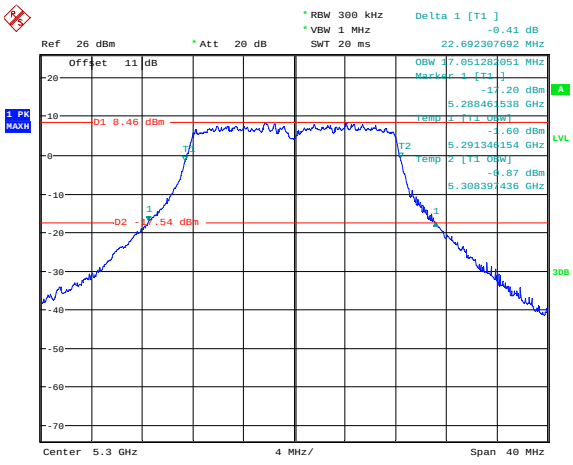
Date: 30.JUN.2015 21:42:11

Middle channel: Chain 0



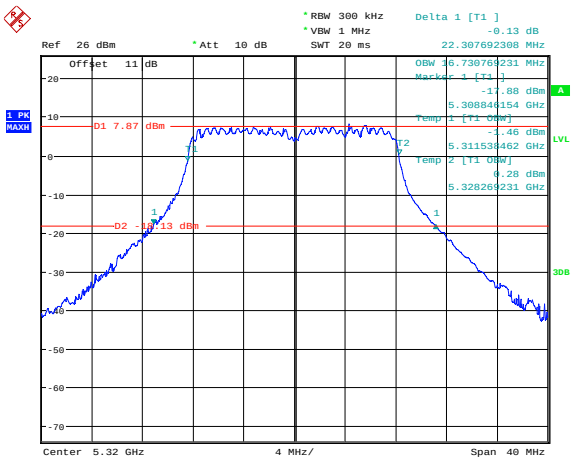
Date: 30.JUN.2015 18:08:30

Middle channel: Chain 1



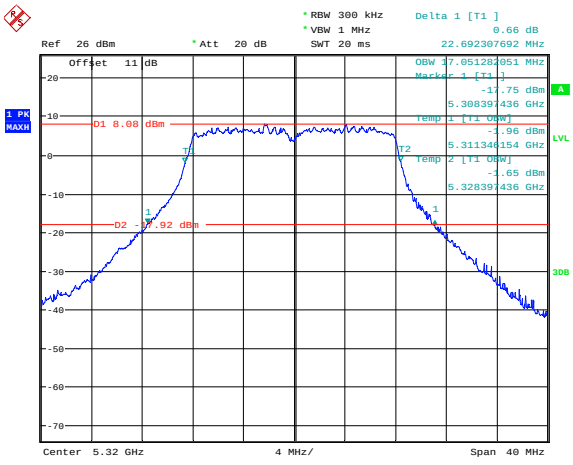
Date: 30.JUN.2015 21:43:22

High channel: Chain 0



Date: 30.JUN.2015 18:09:50

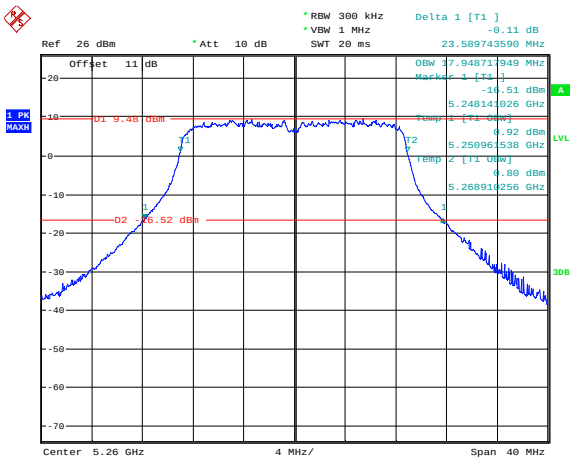
High channel: Chain 1



Date: 30.JUN.2015 21:44:35

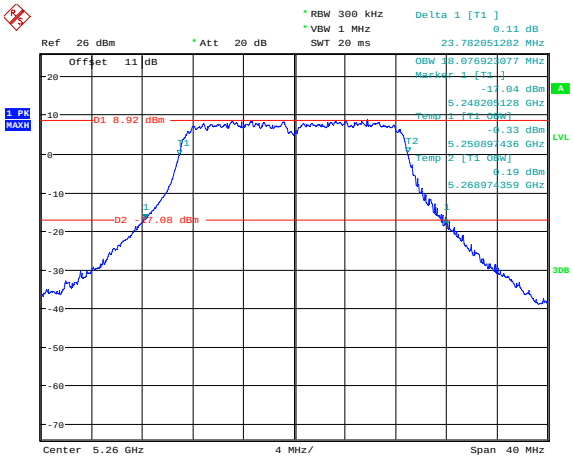
802.11n20 mode

Low channel: Chain 0



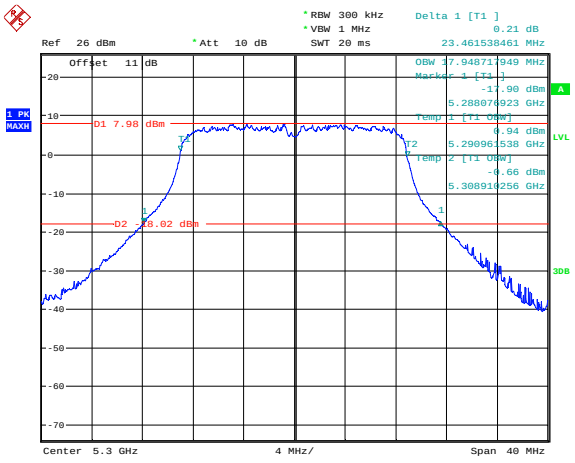
Date: 30.JUN.2015 18:13:36

Low channel: Chain 1



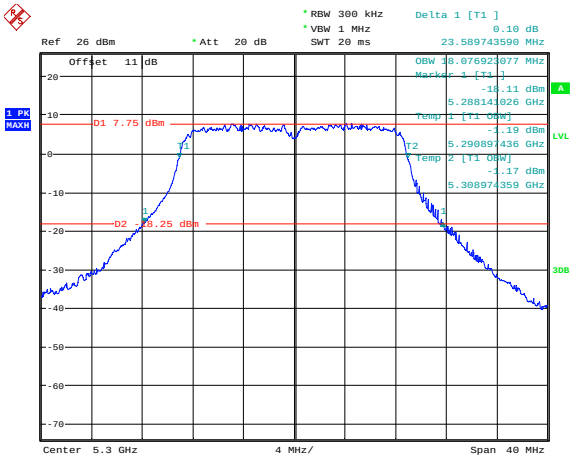
Date: 30.JUN.2015 21:46:10

Middle channel: Chain 0



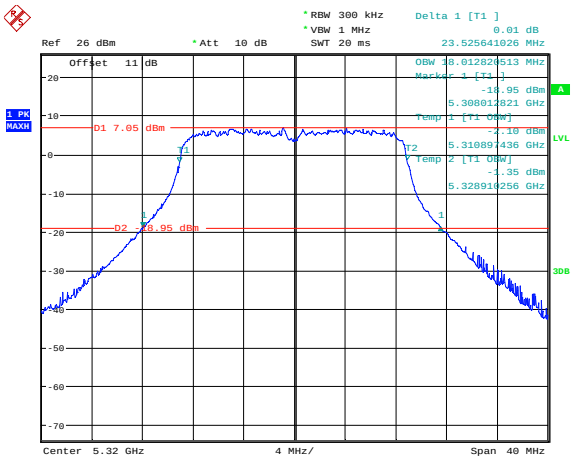
Date: 30.JUN.2015 18:15:53

Middle channel: Chain 1

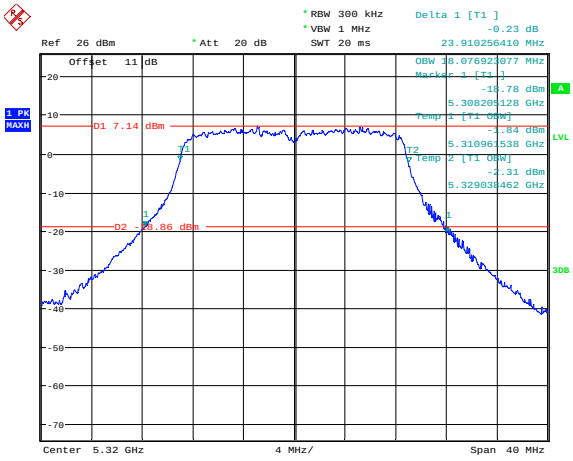


Date: 30.JUN.2015 21:47:53

High channel: Chain 0

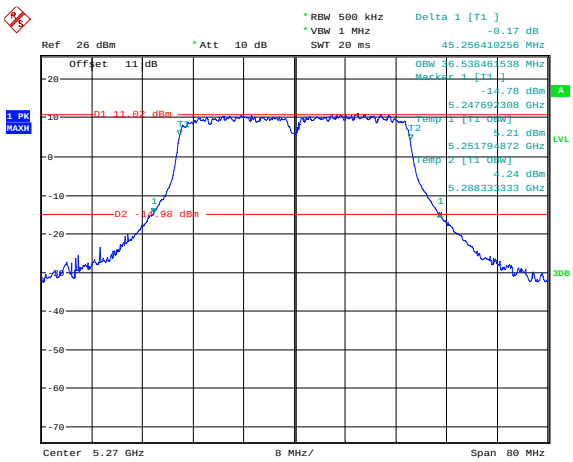


High channel: Chain 1

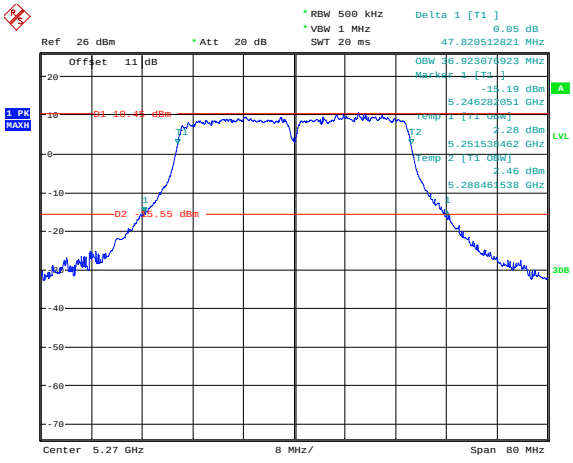


802.11n40 mode

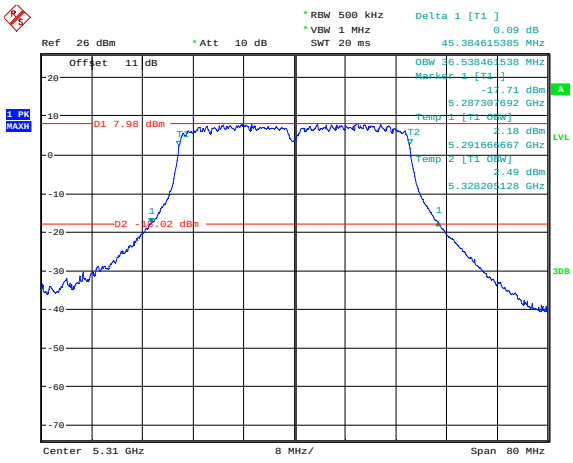
Low channel: Chain 0



Low channel: Chain 1

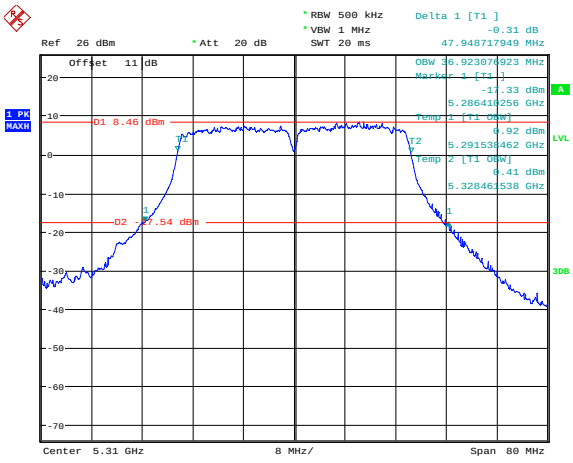


High channel: Chain 0



Date: 30.JUN.2015 18:19:42

High channel: Chain 1



Date: 30.JUN.2015 21:55:03

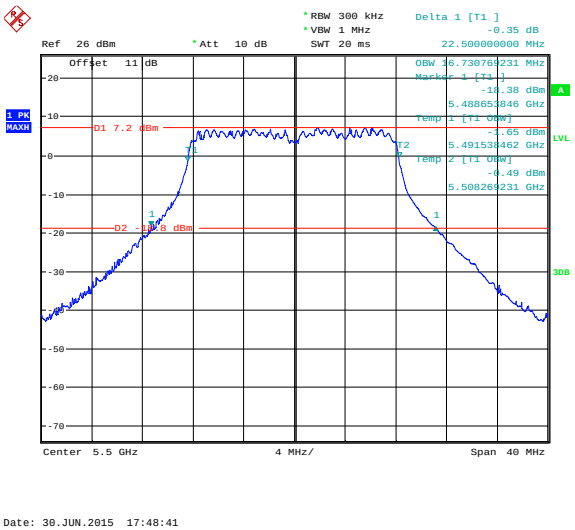
5.6 GHz Band

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26 dB Emission Bandwidth (MHz)	
		Antenna 0	Antenna 1	Antenna 0	Antenna 1
802.11a					
Low	5500	16.73	17.05	22.50	22.95
Middle	5580	16.73	17.05	22.50	22.63
High	5700	16.73	17.05	22.50	22.95
802.11n20					
Low	5500	17.95	18.08	23.46	24.17
Middle	5580	17.95	18.08	23.59	23.72
High	5700	17.95	18.07	23.27	23.85
802.11n40					
Low	5510	36.54	37.05	45.77	48.33
Middle	5550	36.54	36.92	45.00	48.59
High	5670	36.54	37.05	45.90	48.72

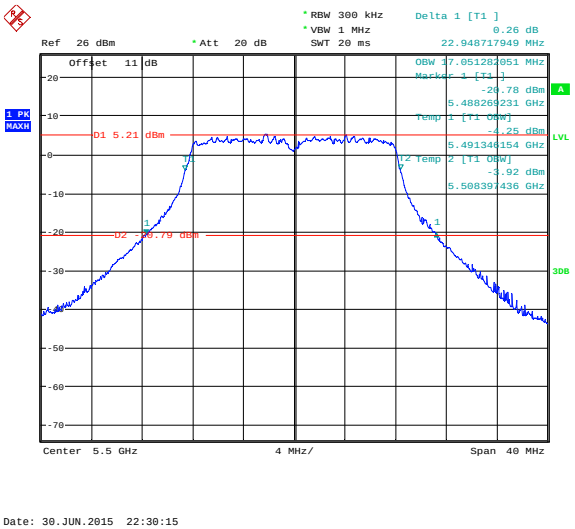
99% Occupied Bandwidth & 26 dB Emission Bandwidth

802.11a mode

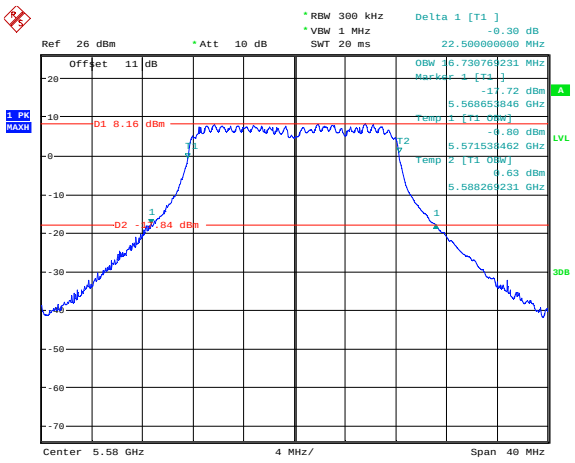
Low channel: Chain 0



Low channel: Chain 1

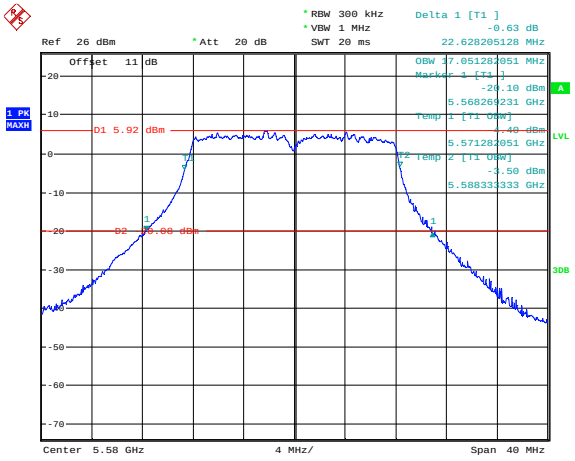


Middle channel: Chain 0



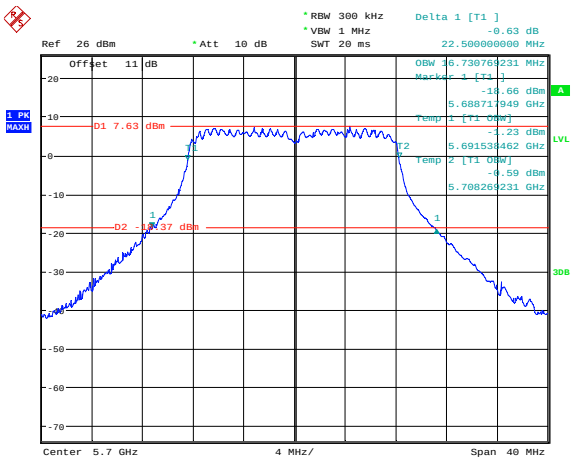
Date: 30.JUN.2015 17:50:19

Middle channel: Chain 1



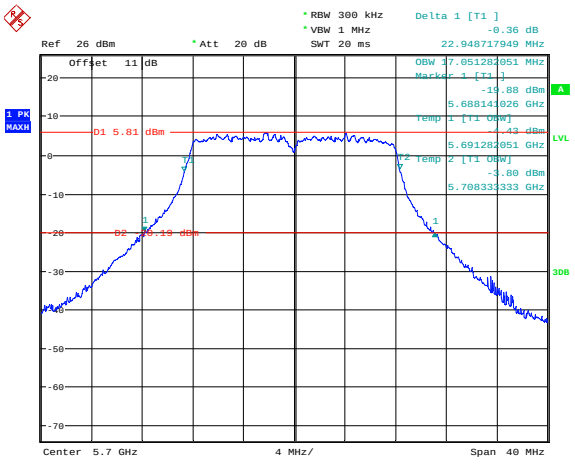
Date: 30.JUN.2015 22:31:40

High channel: Chain 0



Date: 30.JUN.2015 17:52:35

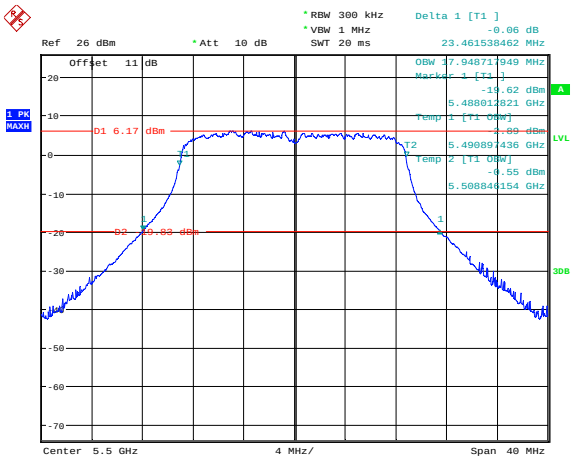
High channel: Chain 1



Date: 30.JUN.2015 22:33:15

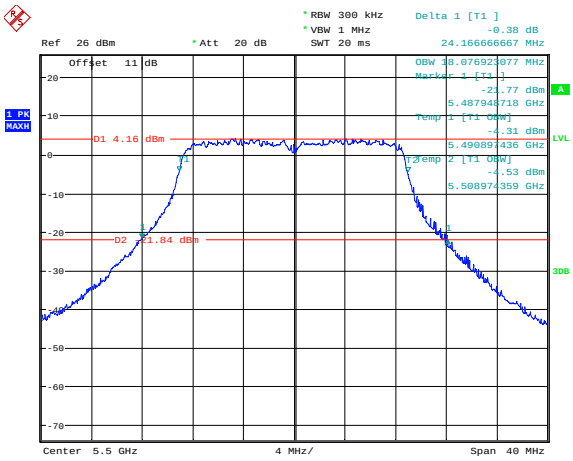
802.11n20 mode

Low channel: Chain 0



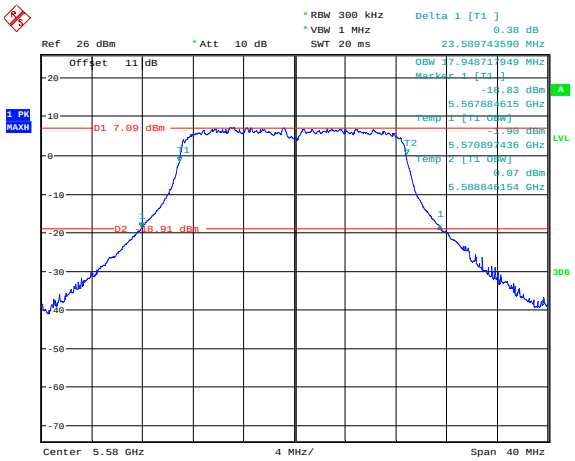
Date: 30.JUN.2015 17:54:09

Low channel: Chain 1



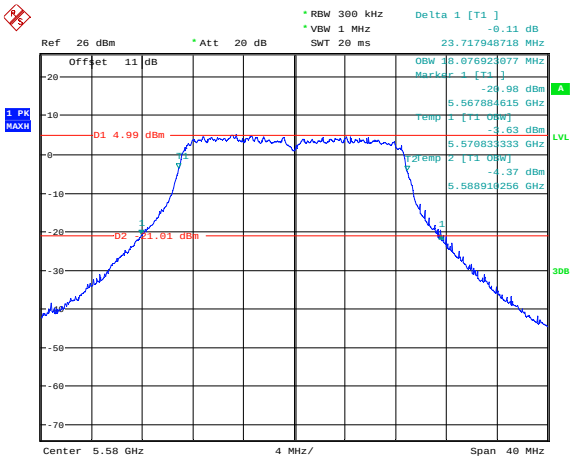
Date: 30.JUN.2015 22:34:41

Middle channel: Chain 0



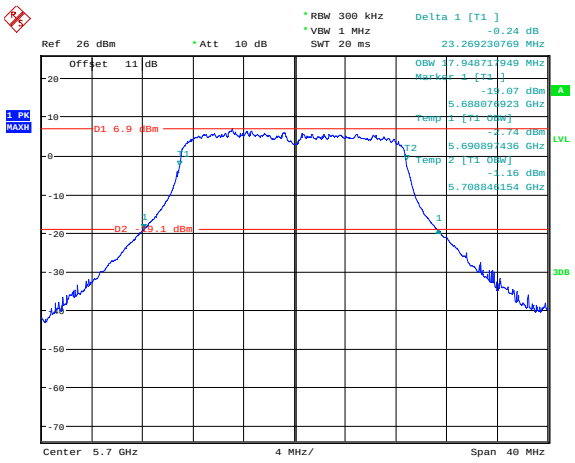
Date: 30.JUN.2015 17:56:14

Middle channel: Chain 1



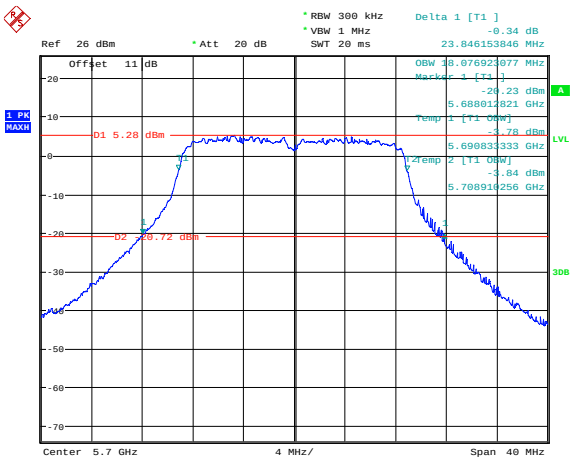
Date: 30.JUN.2015 22:35:48

High channel: Chain 0



Date: 30.JUN.2015 17:57:08

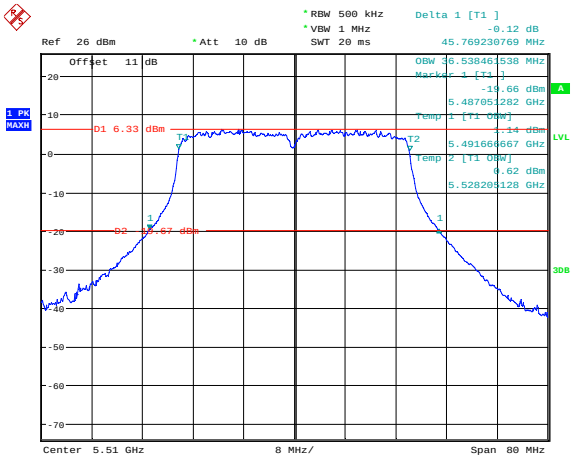
High channel: Chain 1



Date: 30.JUN.2015 22:37:22

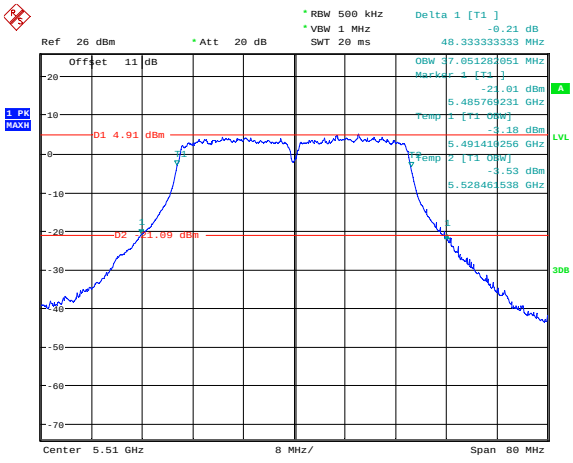
802.11n40 mode

Low channel: Chain 0



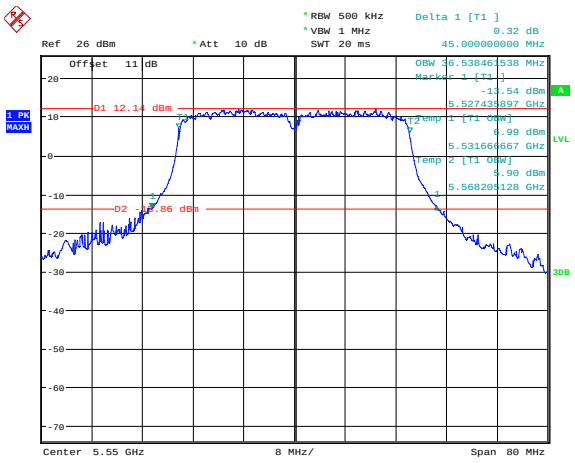
Date: 30.JUN.2015 17:59:34

Low channel: Chain 1



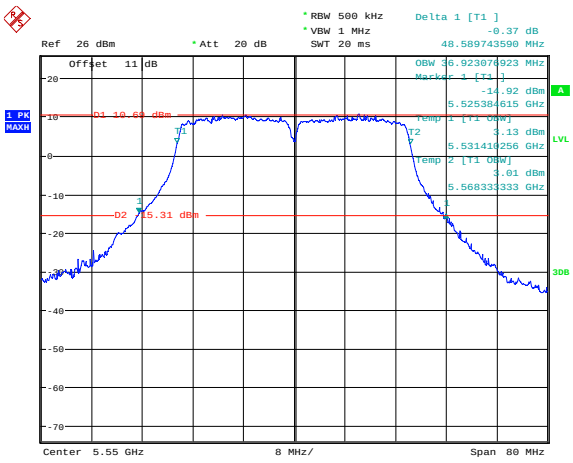
Date: 30.JUN.2015 22:38:52

Middle channel: Chain 0



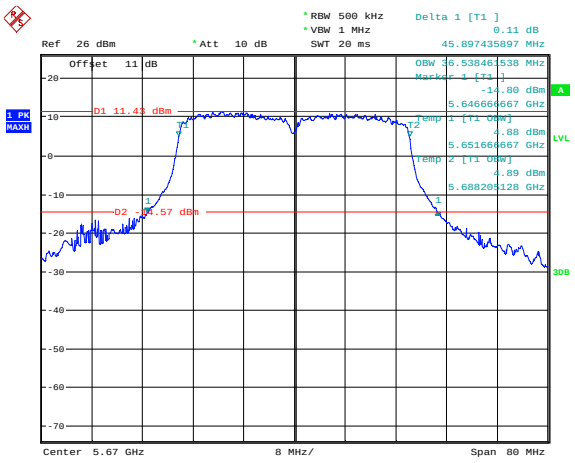
Date: 30.JUN.2015 18:01:35

Middle channel: Chain 1



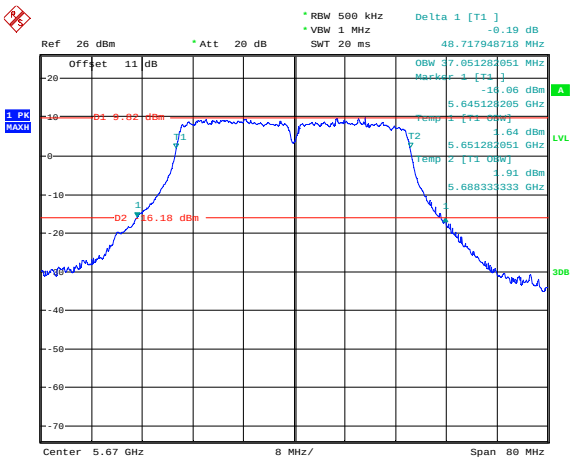
Date: 30.JUN.2015 22:40:28

High channel: Chain 0



Date: 30.JUN.2015 18:04:31

High channel: Chain 1



Date: 30.JUN.2015 22:41:44

9 FCC §407(a) – Maximum Conducted Output Power

9.1 Applicable Standards

According to FCC §15.407(a)

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

9.2 Measurement Procedure

Test measurements are based on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01, GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORAMTION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

9.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Analyzer	FSQ	1155.5001.26	2015-03-09	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed according to A2LA requirements, traceable to the NIST.*

9.4 Test Environmental Conditions

Temperature:	22-25º C
Relative Humidity:	40-43 %
ATM Pressure:	102.1-104.4 KPa

The testing was performed by Jimmy Xiao from 2015-06-30 to 2015-07-09 at RF site.

9.5 Test Results

5.3 GHz Band

Antenna gain=4 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	17.61	17.44	20.54	22.97	Pass
Middle	5300	16.33	16.62	19.49	22.97	Pass
High	5320	15.69	15.72	18.72	22.97	Pass
802.11n20						
Low	5260	17.89	17.19	20.56	22.97	Pass
Middle	5300	16.69	16.33	19.52	22.97	Pass
High	5320	15.75	15.69	18.73	22.97	Pass
802.11n40						
Low	5270	18.99	17.58	21.35	22.97	Pass
High	5310	17.54	17.69	20.63	22.97	Pass

Note: Directional gain=4 dBi + 10lg2=7.01 dBi

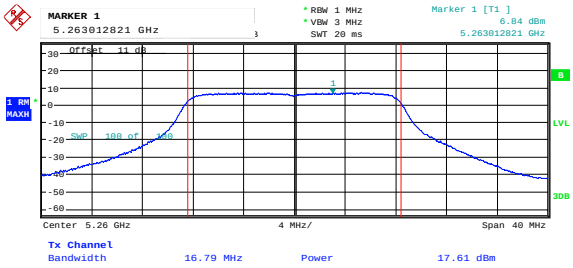
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.98 dBm-(7.01 dBi-6 dBi) = 22.97 dBm

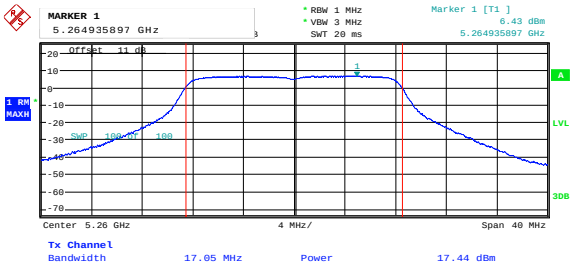
802.11a mode

Low channel: Chain 0



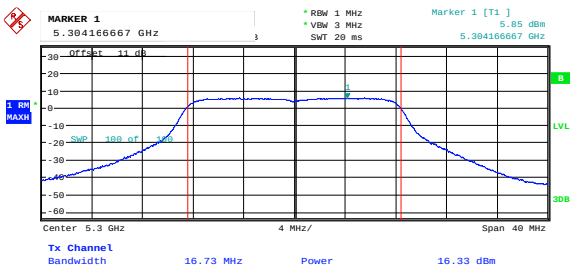
Date: 30.JUN.2015 19:54:57

Low channel: Chain 1



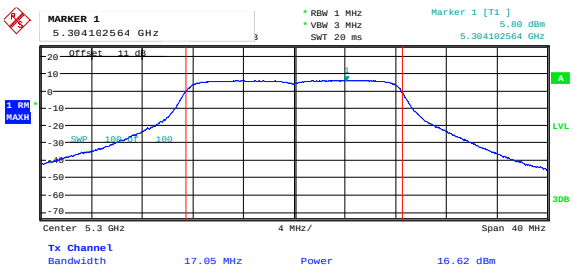
Date: 1.JUL.2015 15:33:38

Middle channel: Chain 0



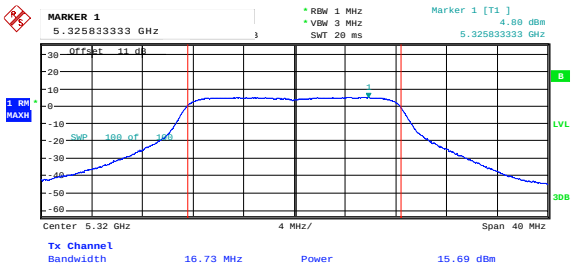
Date: 30.JUN.2015 19:55:35

Middle channel: Chain 1



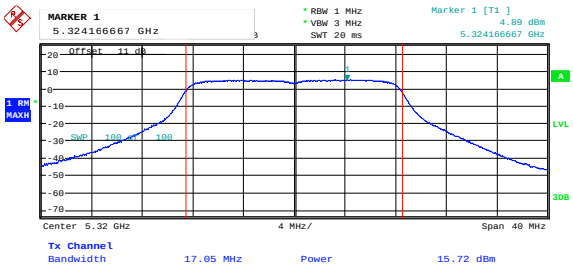
Date: 1.JUL.2015 15:34:14

High channel: Chain 0



Date: 30.JUN.2015 19:56:58

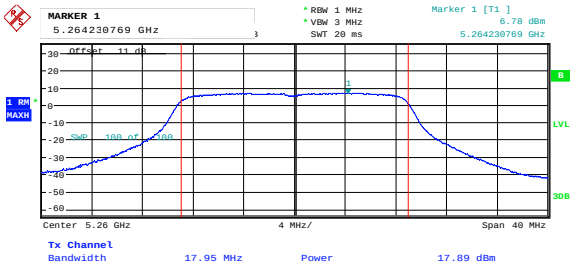
High channel: Chain 1



Date: 1.JUL.2015 15:34:47

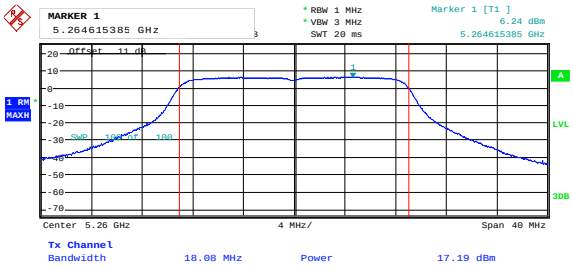
802.11n20 mode

Low channel: Chain 0



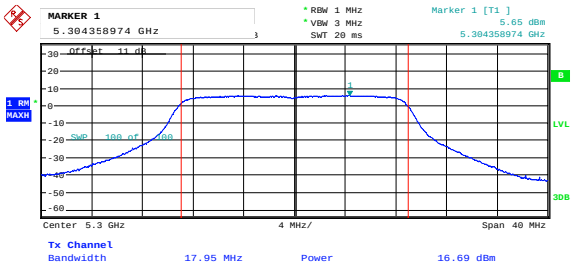
Date: 30.JUN.2015 20:05:31

Low channel: Chain 1



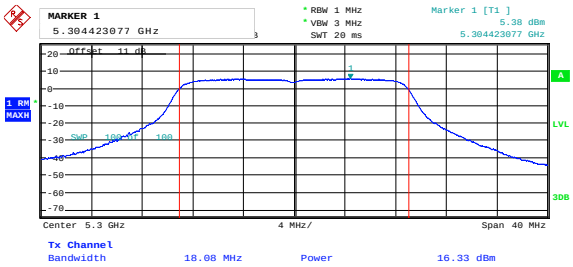
Date: 1.JUL.2015 15:45:36

Middle channel: Chain 0



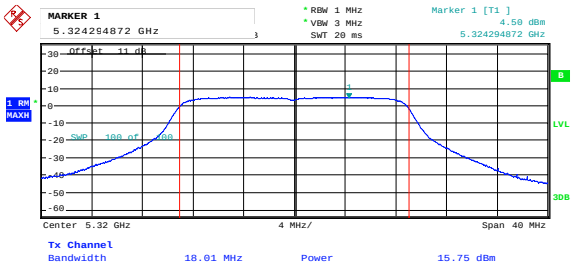
Date: 30.JUN.2015 20:06:13

Middle channel: Chain 1



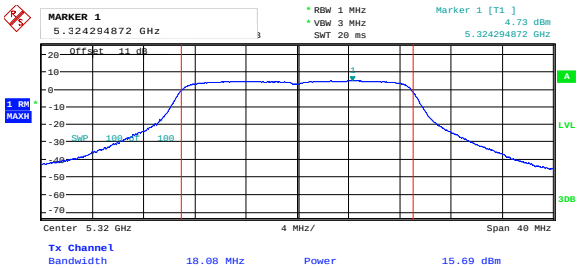
Date: 1.JUL.2015 15:46:02

High channel: Chain 0



Date: 30.JUN.2015 20:07:01

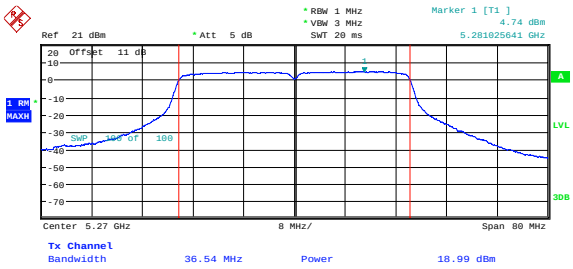
High channel: Chain 1



Date: 1.JUL.2015 15:46:26

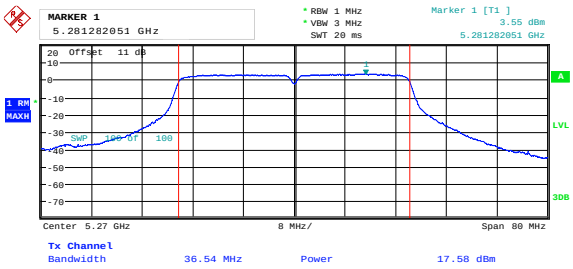
802.11n40 mode

Low channel: Chain 0



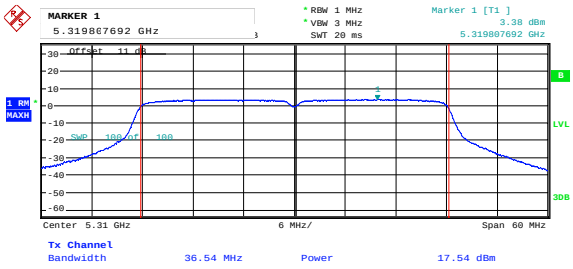
Date: 9.JUL.2015 19:18:43

Low channel: Chain 1



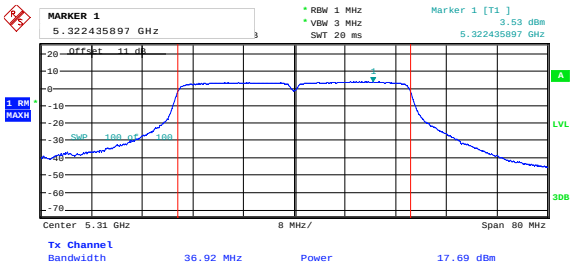
Date: 9.JUL.2015 19:22:15

High channel: Chain 0



Date: 30.JUN.2015 20:15:19

High channel: Chain 1



Date: 1.JUL.2015 15:54:15

Antenna gain=7 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	13.72	14.39	17.08	19.97	Pass
Middle	5300	13.49	13.11	16.31	19.97	Pass
High	5320	12.67	12.73	15.71	19.97	Pass
802.11n20						
Low	5260	14.47	14.15	17.32	19.97	Pass
Middle	5300	13.33	13.01	16.18	19.97	Pass
High	5320	12.41	12.51	15.47	19.97	Pass
802.11n40						
Low	5270	15.78	14.56	18.22	19.97	Pass
High	5310	15.96	16.01	19.00	19.97	Pass

Note: Directional gain=7 dBi + 10lg2=10.01dBi

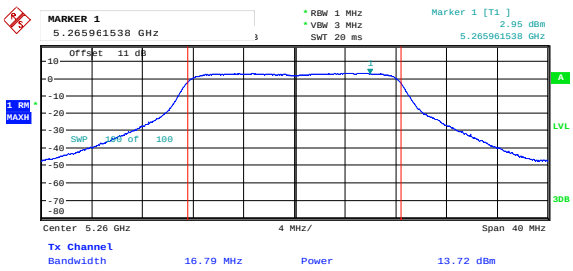
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.9 8dBm-(10.01 dBi-6 dBi) = 19.97 dBm

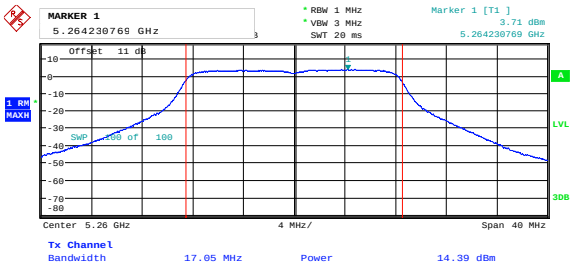
802.11a mode

Low channel: Chain 0



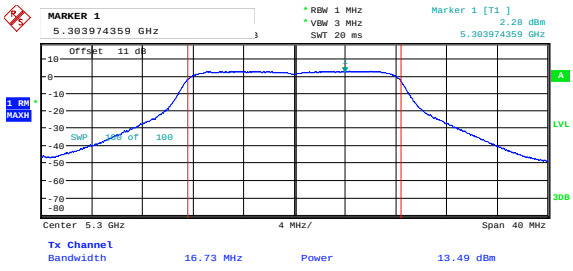
Date: 1.JUL.2015 18:44:39

Low channel: Chain 1



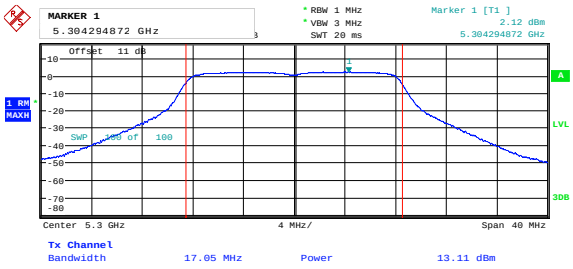
Date: 1.JUL.2015 18:22:55

Middle channel: Chain 0



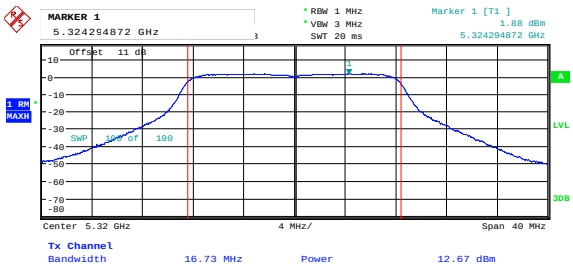
Date: 1.JUL.2015 18:45:12

Middle channel: Chain 1



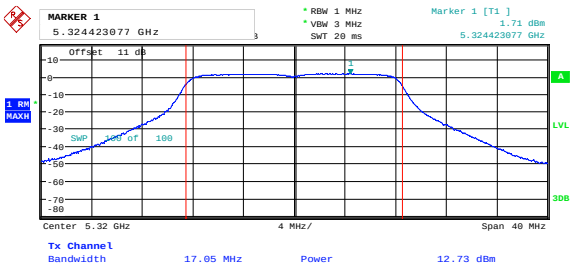
Date: 1.JUL.2015 18:23:09

High channel: Chain 0



Date: 1.JUL.2015 18:45:31

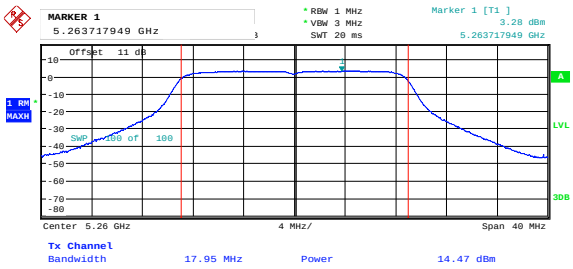
High channel: Chain 1



Date: 1.JUL.2015 18:23:27

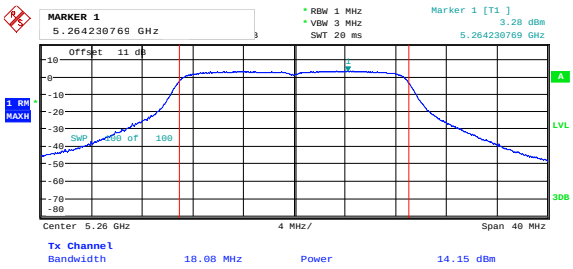
802.11n20 mode

Low channel: Chain 0



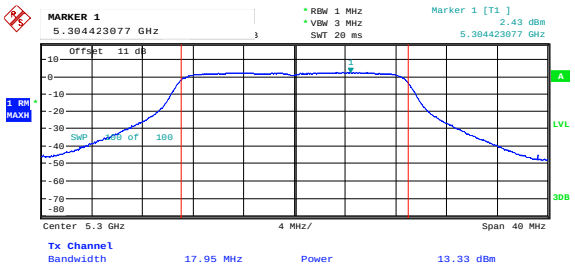
Date: 1.JUL.2015 18:49:35

Low channel: Chain 1



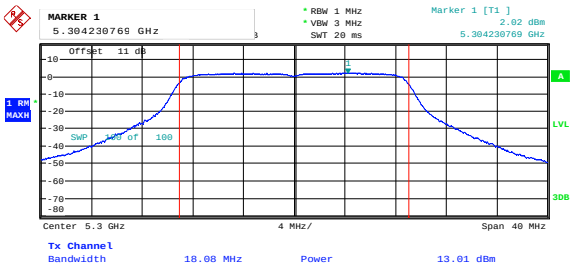
Date: 1.JUL.2015 18:28:47

Middle channel: Chain 0



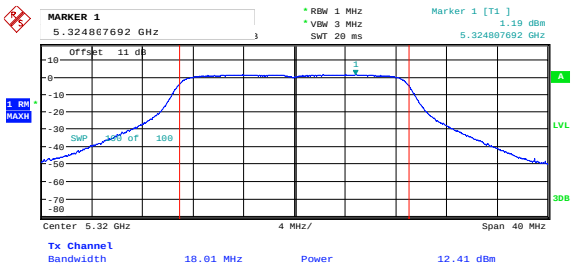
Date: 1.JUL.2015 18:49:56

Middle channel: Chain 1



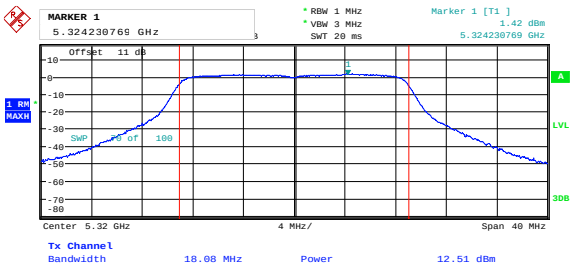
Date: 1.JUL.2015 18:29:06

High channel: Chain 0



Date: 1.JUL.2015 18:50:20

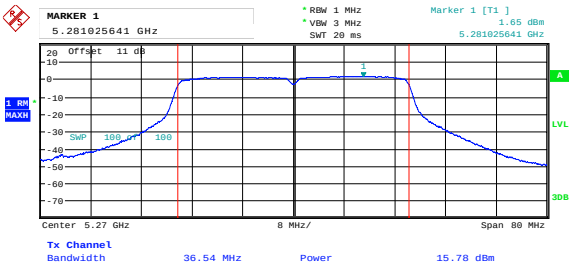
High channel: Chain 1



Date: 1.JUL.2015 18:29:21

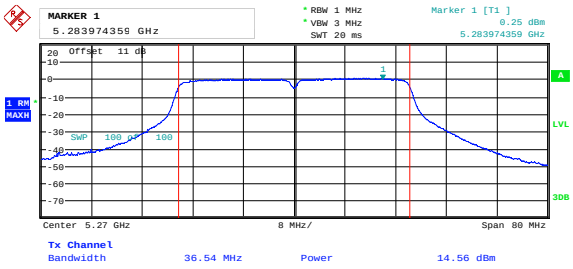
802.11n40 mode

Low channel: Chain 0



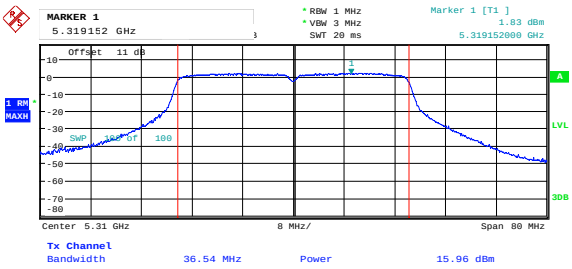
Date: 9.JUL.2015 19:16:31

Low channel: Chain 1



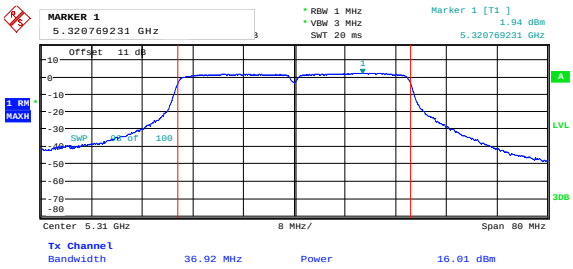
Date: 9.JUL.2015 19:23:19

High channel: Chain 0



Date: 1.JUL.2015 18:55:01

High channel: Chain 1



Date: 1.JUL.2015 18:34:07

Antenna gain=14 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	9.83	9.14	12.51	12.97	Pass
Middle	5300	8.31	8.08	11.21	12.97	Pass
High	5320	7.67	7.52	10.61	12.97	Pass
802.11n20						
Low	5260	9.62	9.07	12.36	12.97	Pass
Middle	5300	8.07	7.91	11.00	12.97	Pass
High	5320	7.50	7.43	10.48	12.97	Pass
802.11n40						
Low	5270	9.11	8.13	11.66	12.97	Pass
High	5310	9.34	9.52	12.44	12.97	Pass

Note: Directional gain=14dBi + 10lg2=17.01 dBi

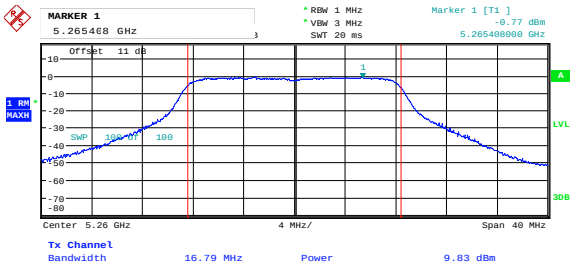
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.98dBm-(17.01 dBi-6 dBi) = 12.97 dBm

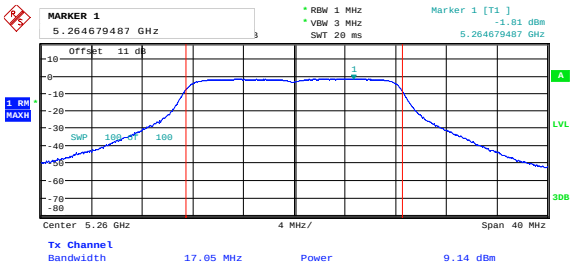
802.11a mode

Low channel: Chain 0



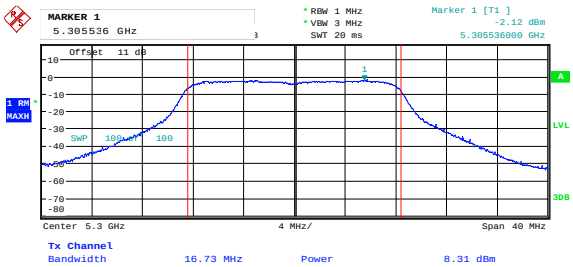
Date: 1.JUL.2015 19:37:00

Low channel: Chain 1



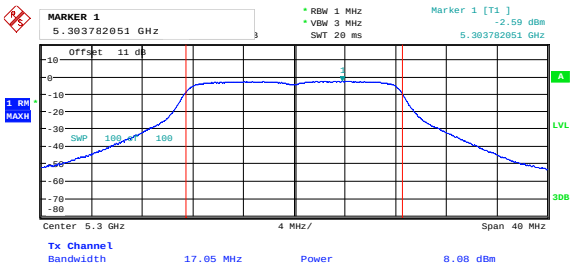
Date: 1.JUL.2015 17:55:45

Middle channel: Chain 0



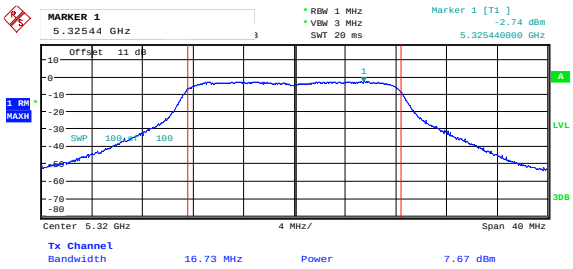
Date: 1.JUL.2015 19:37:38

Middle channel: Chain 1



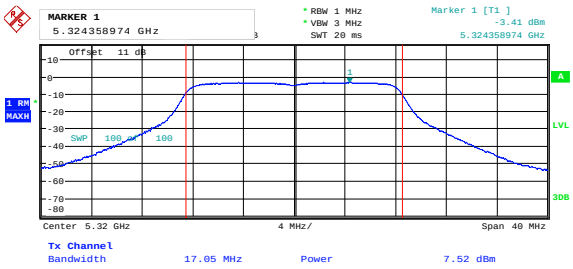
Date: 1.JUL.2015 17:56:13

High channel: Chain 0



Date: 1.JUL.2015 19:38:07

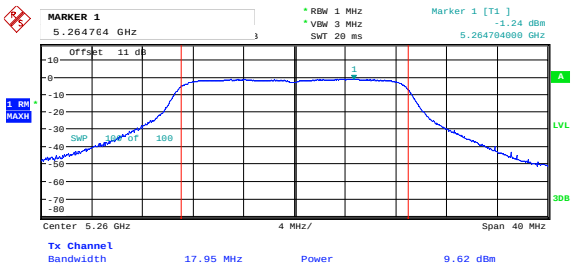
High channel: Chain 1



Date: 1.JUL.2015 17:56:35

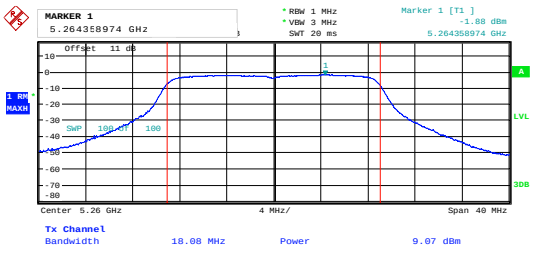
802.11n20 mode

Low channel: Chain 0



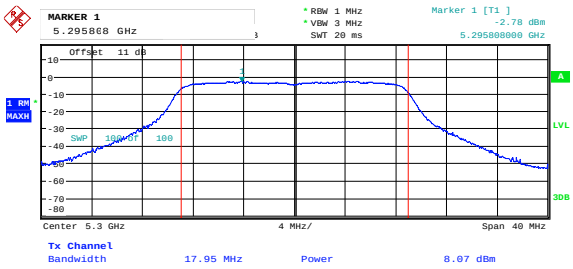
Date: 1.JUL.2015 19:44:02

Low channel: Chain 1



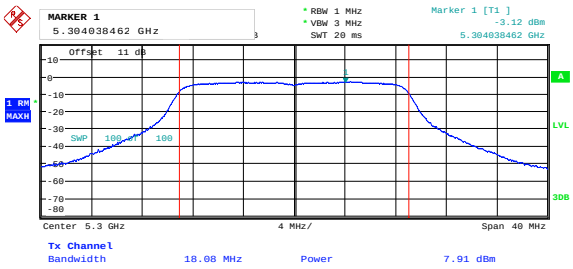
Date: 1.JUL.2015 18:04:06

Middle channel: Chain 0



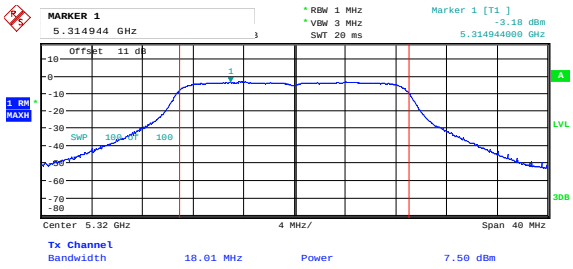
Date: 1.JUL.2015 19:44:33

Middle channel: Chain 1



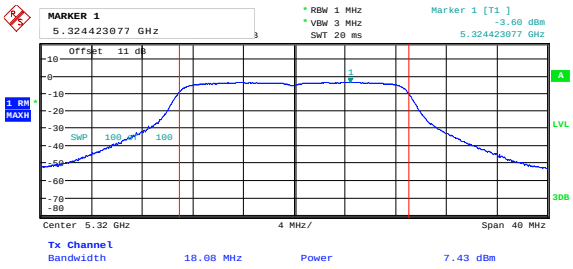
Date: 1.JUL.2015 18:04:29

High channel: Chain 0



Date: 1.JUL.2015 19:45:12

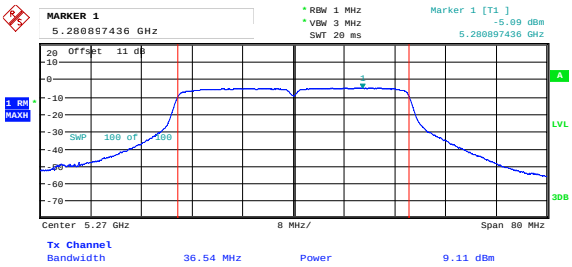
High channel: Chain 1



Date: 1.JUL.2015 18:04:53

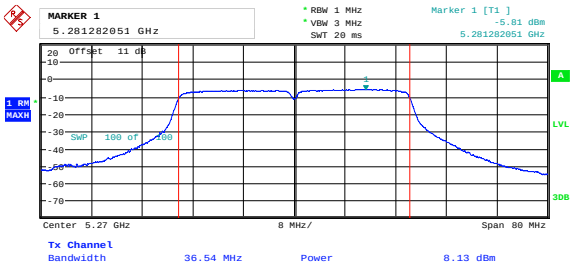
802.11n40 mode

Low channel: Chain 0



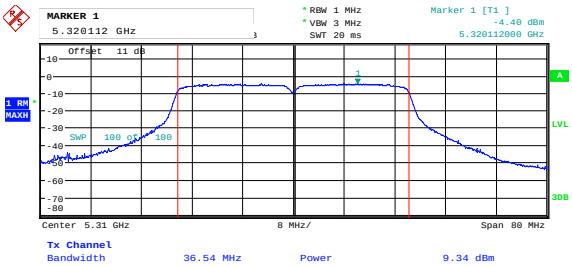
Date: 9.JUL.2015 19:20:07

Low channel: Chain 1



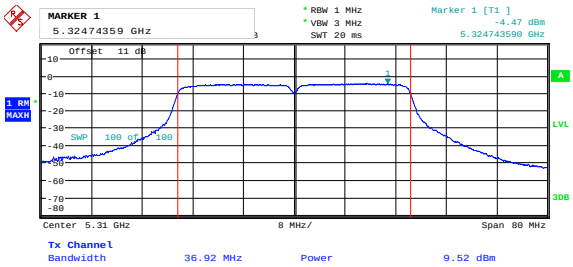
Date: 9.JUL.2015 19:21:33

High channel: Chain 0



Date: 1.JUL.2015 19:52:46

High channel: Chain 1



Date: 1.JUL.2015 18:15:19

5.6 GHz Band:

Antenna gain=4 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	14.90	13.56	17.29	22.97	Pass
Middle	5580	16.17	13.79	18.15	22.97	Pass
High	5700	15.08	14.09	17.62	22.97	Pass
802.11n20						
Low	5500	14.75	13.60	17.22	22.97	Pass
Middle	5580	15.86	13.78	17.95	22.97	Pass
High	5700	14.88	14.10	17.52	22.97	Pass
802.11n40						
Low	5510	15.45	14.82	18.16	22.97	Pass
Middle	5550	19.46	18.65	22.08	22.97	
High	5670	18.67	18.36	21.53	22.97	Pass

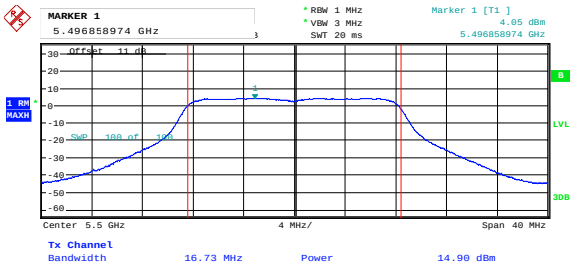
Note: Directional gain=4dBi + 10lg2=7.01 dBi
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.98dBm-(7.01 dBi-6 dBi) = 22.97 dBm

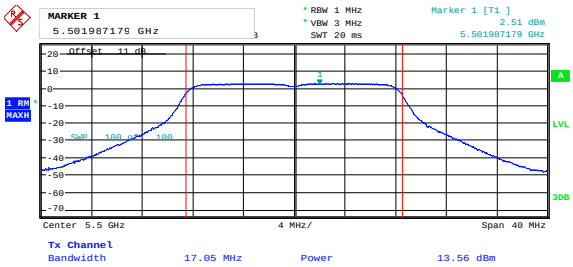
802.11a mode

Low channel: Chain 0



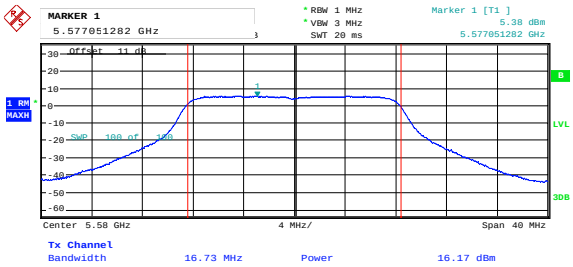
Date: 30.JUN.2015 19:57:49

Low channel: Chain 1



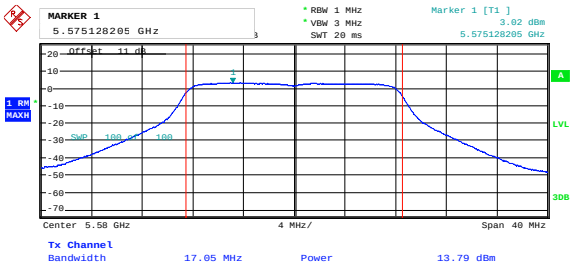
Date: 1.JUL.2015 15:35:18

Middle channel: Chain 0



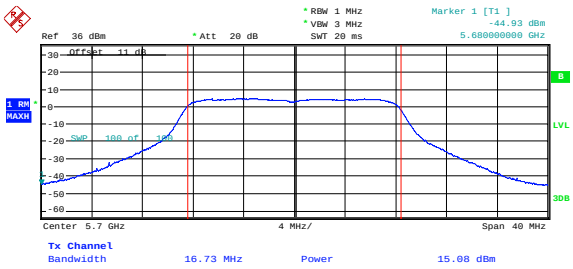
Date: 30.JUN.2015 19:58:23

Middle channel: Chain 1



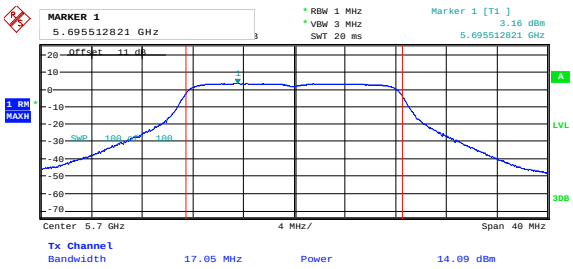
Date: 1.JUL.2015 15:39:25

High channel: Chain 0



Date: 30.JUN.2015 19:58:50

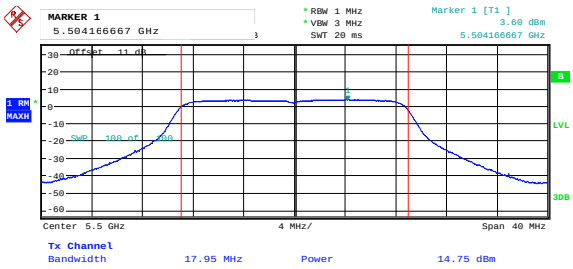
High channel: Chain 1



Date: 1.JUL.2015 15:39:57

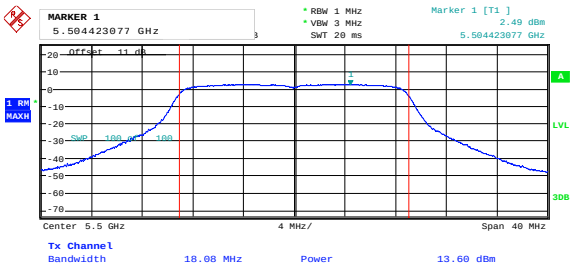
802.11n20 mode

Low channel: Chain 0



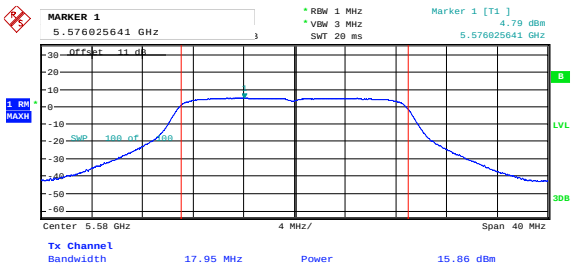
Date: 30.JUN.2015 20:07:55

Low channel: Chain 1



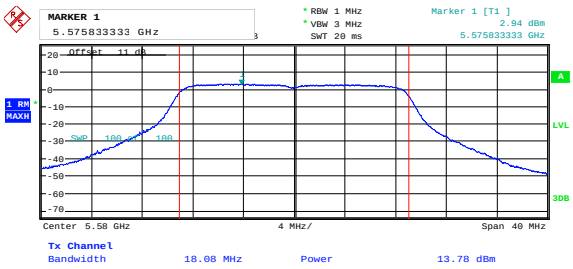
Date: 1.JUL.2015 15:47:05

Middle channel: Chain 0



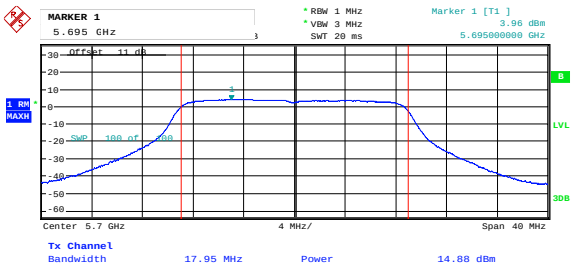
Date: 30.JUN.2015 20:08:34

Middle channel: Chain 1



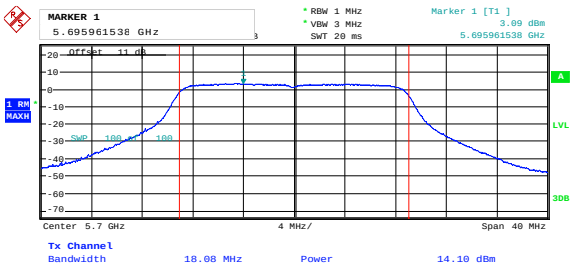
Date: 1.JUL.2015 15:47:29

High channel: Chain 0



Date: 30.JUN.2015 20:09:16

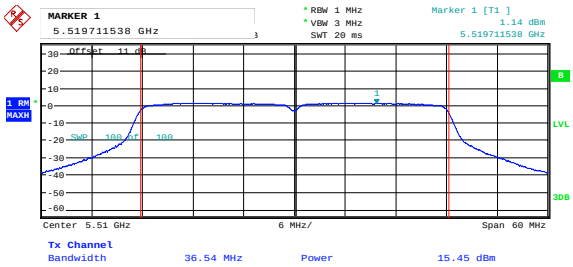
High channel: Chain 1



Date: 1.JUL.2015 15:48:24

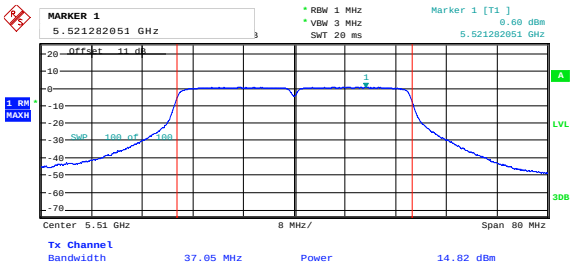
802.11n40 mode

Low channel: Chain 0



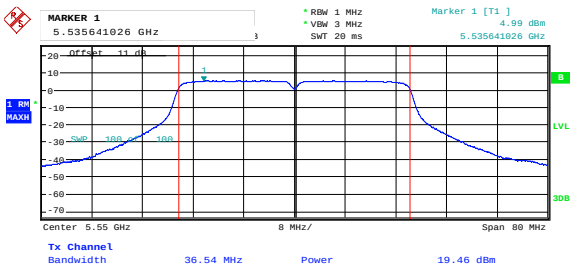
Date: 30.JUN.2015 20:15:57

Low channel: Chain 1



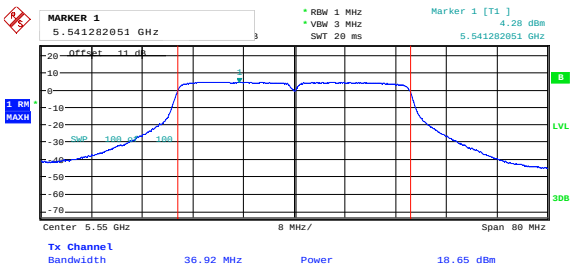
Date: 1.JUL.2015 15:55:15

Middle channel: Chain 0



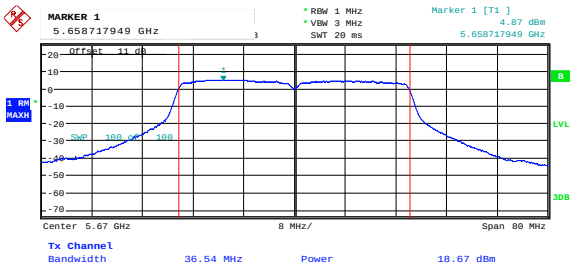
Date: 10.JUL.2015 20:59:53

Middle channel: Chain 1



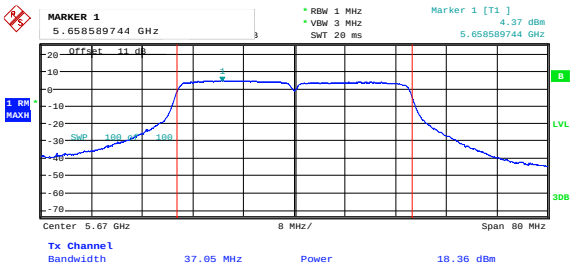
Date: 10.JUL.2015 20:57:16

High channel: Chain 0



Date: 10.JUL.2015 21:01:22

High channel: Chain 1



Date: 10.JUL.2015 21:03:09

Antenna gain=7 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	11.97	10.78	14.43	19.97	Pass
Middle	5580	12.99	10.73	15.02	19.97	Pass
High	5700	11.80	11.24	14.54	19.97	Pass
802.11n20						
Low	5500	11.94	10.60	14.33	19.97	Pass
Middle	5580	12.86	10.74	14.94	19.97	Pass
High	5700	11.94	11.06	14.53	19.97	Pass
802.11n40						
Low	5510	15.23	13.87	17.61	19.97	Pass
Middle	5550	17.12	15.30	19.31	19.97	
High	5670	16.30	14.60	18.54	19.97	Pass

Note: Directional gain=7dBi + 10lg2=10.01 dBi

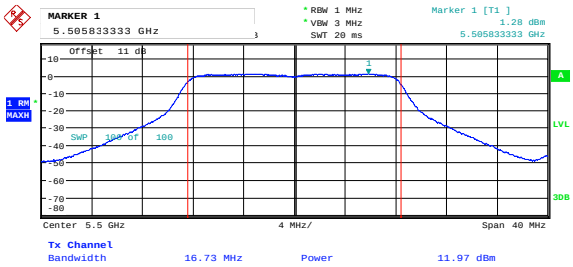
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.98dBm-(10.01dBi-6dBi) = 19.97 dBm

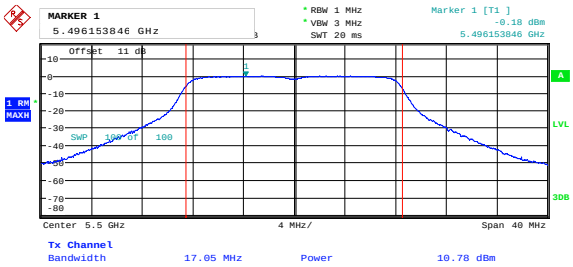
802.11a mode

Low channel: Chain 0



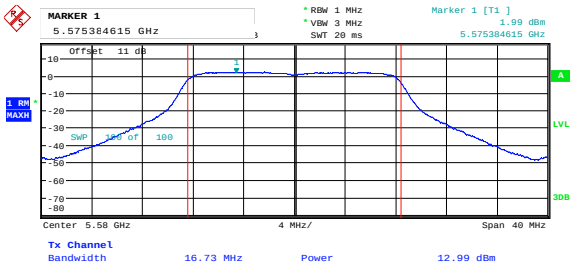
Date: 1.JUL.2015 18:45:51

Low channel: Chain 1



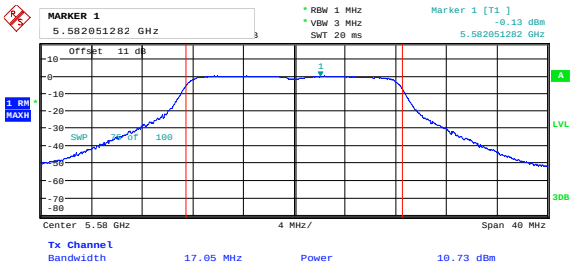
Date: 1.JUL.2015 18:23:54

Middle channel: Chain 0



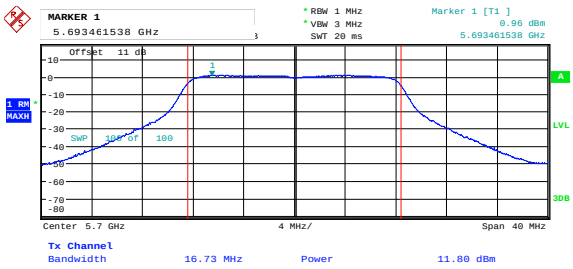
Date: 1.JUL.2015 18:46:05

Middle channel: Chain 1



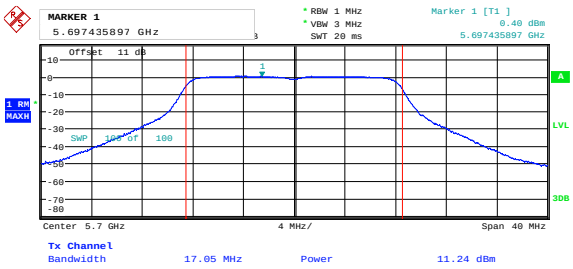
Date: 1.JUL.2015 18:24:14

High channel: Chain 0



Date: 1.JUL.2015 18:46:20

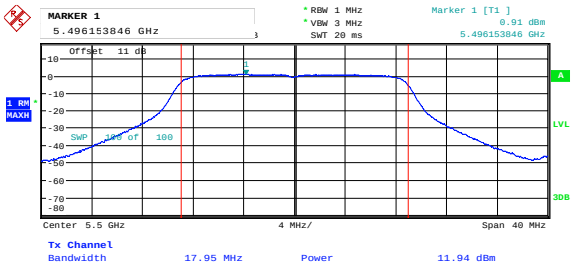
High channel: Chain 1



Date: 1.JUL.2015 18:24:35

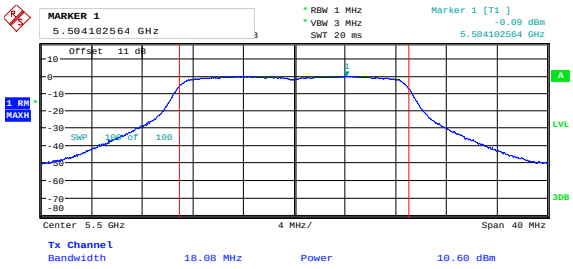
802.11n20 mode

Low channel: Chain 0



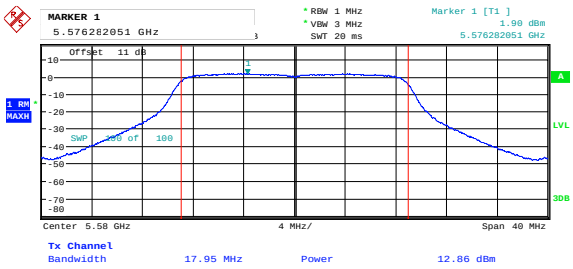
Date: 1.JUL.2015 18:50:50

Low channel: Chain 1



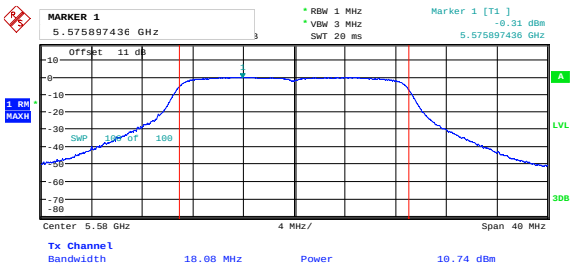
Date: 1.JUL.2015 18:29:45

Middle channel: Chain 0



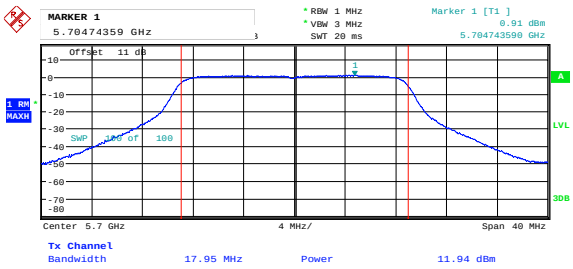
Date: 1.JUL.2015 18:51:09

Middle channel: Chain 1



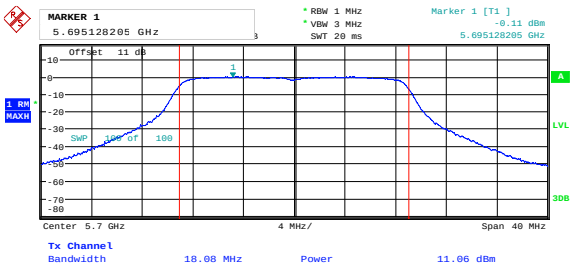
Date: 1.JUL.2015 18:30:01

High channel: Chain 0



Date: 1.JUL.2015 18:51:30

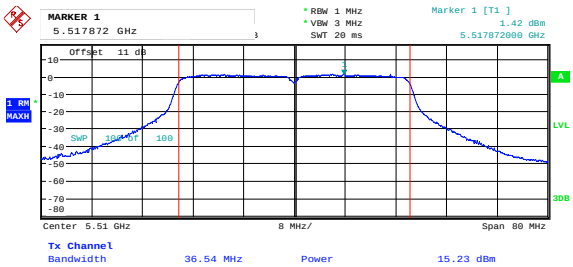
High channel: Chain 1



Date: 1.JUL.2015 18:30:16

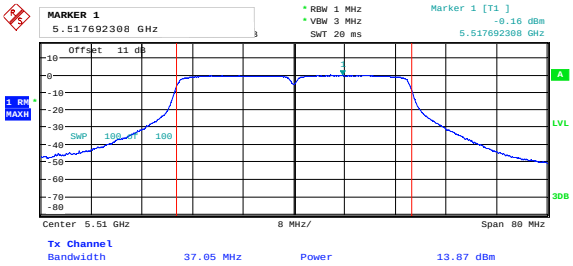
802.11n40 mode

Low channel: Chain 0



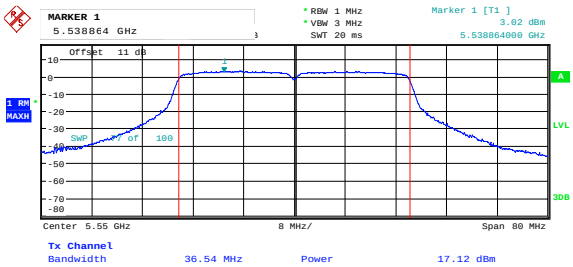
Date: 1.JUL.2015 18:55:21

Low channel: Chain 1



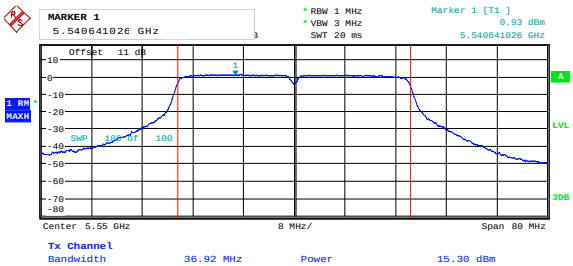
Date: 1.JUL.2015 18:34:46

Middle channel: Chain 0



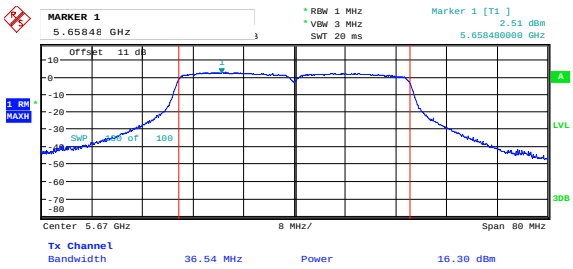
Date: 1.JUL.2015 18:55:44

Middle channel: Chain 1



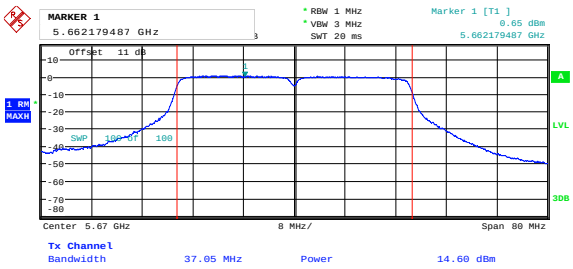
Date: 1.JUL.2015 18:35:14

High channel: Chain 0



Date: 1.JUL.2015 18:56:01

High channel: Chain 1



Date: 1.JUL.2015 18:35:43

Antenna gain=14 dBi

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	7.18	5.37	9.38	12.97	Pass
Middle	5580	8.33	5.33	10.09	12.97	Pass
High	5700	7.24	6.11	9.72	12.97	Pass
802.11n20						
Low	5500	7.23	5.29	9.38	12.97	Pass
Middle	5580	8.27	5.33	10.05	12.97	Pass
High	5700	7.29	6.04	9.72	12.97	Pass
802.11n40						
Low	5510	8.26	6.50	10.48	12.97	Pass
Middle	5550	9.12	6.81	11.13	12.97	
High	5670	8.49	6.25	10.52	12.97	Pass

Note: Directional gain=14dBi + 10lg2=17.01 dBi

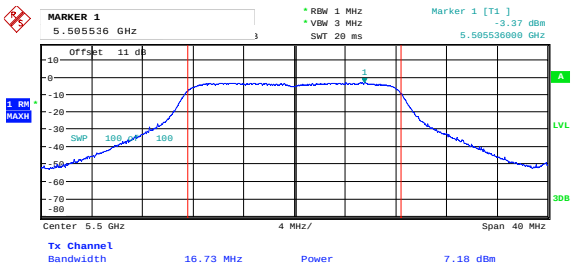
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The power limit is 250 mW or 11 dBm + 10 lgB, which is less

So the conducted output power limit = 23.98dBm-(17.01 dBi-6 dBi) = 12.97 dBm

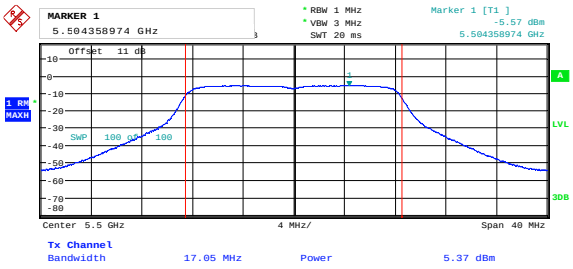
802.11a mode

Low channel: Chain 0



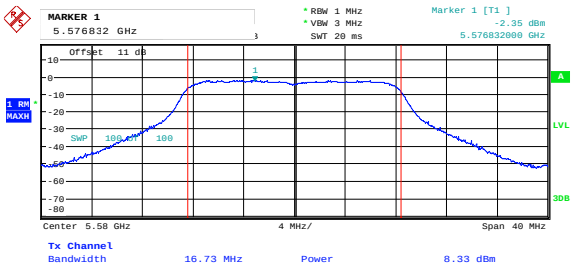
Date: 1.JUL.2015 19:38:44

Low channel: Chain 1



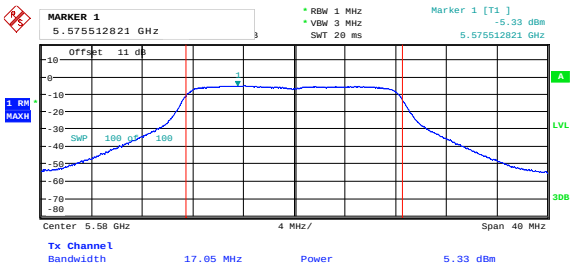
Date: 1.JUL.2015 17:57:06

Middle channel: Chain 0



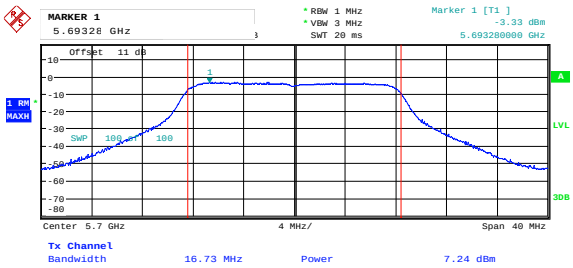
Date: 1.JUL.2015 19:39:11

Middle channel: Chain 1



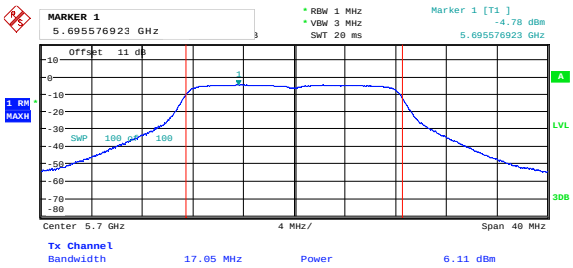
Date: 1.JUL.2015 17:59:00

High channel: Chain 0



Date: 1.JUL.2015 19:39:41

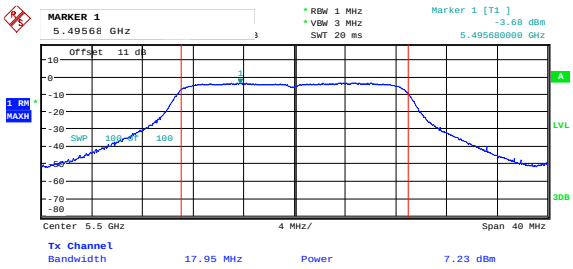
High channel: Chain 1



Date: 1.JUL.2015 17:59:27

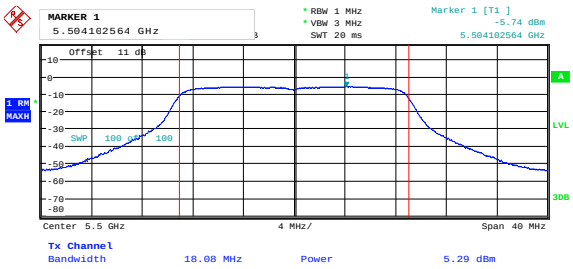
802.11n20 mode

Low channel: Chain 0



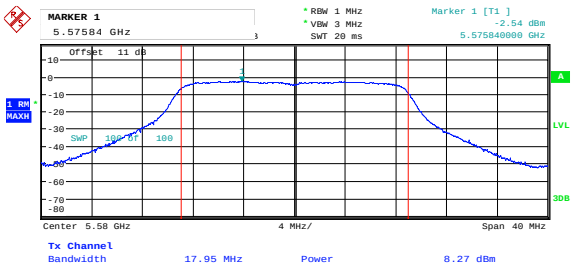
Date: 1.JUL.2015 19:46:03

Low channel: Chain 1



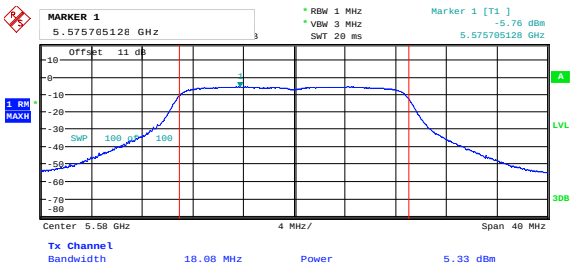
Date: 1.JUL.2015 18:07:04

Middle channel: Chain 0



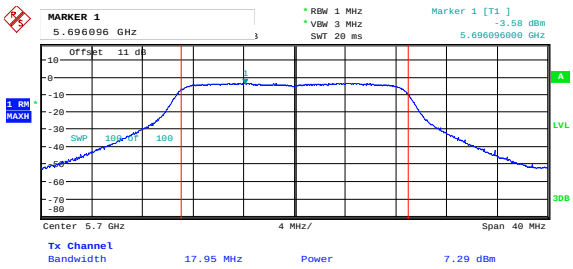
Date: 1.JUL.2015 19:46:42

Middle channel: Chain 1



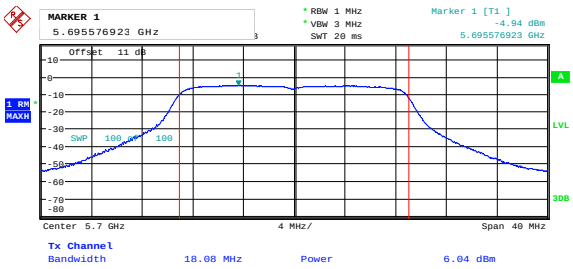
Date: 1.JUL.2015 18:08:42

High channel: Chain 0



Date: 1.JUL.2015 19:47:24

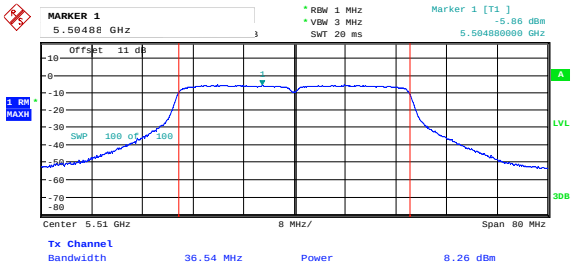
High channel: Chain 1



Date: 1.JUL.2015 18:09:13

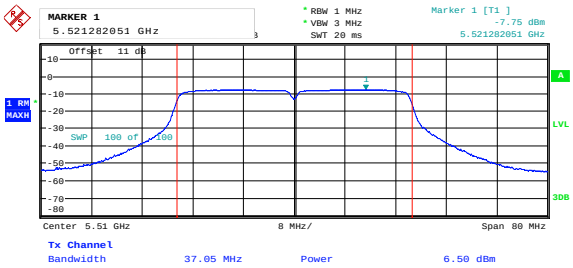
802.11n40 mode

Low channel: Chain 0



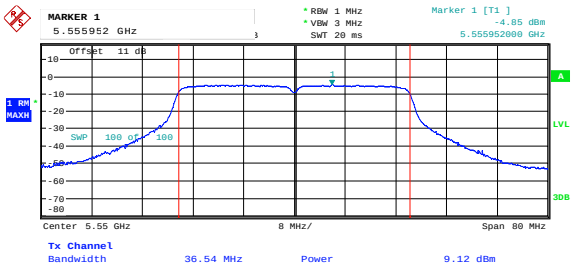
Date: 1.JUL.2015 19:53:29

Low channel: Chain 1



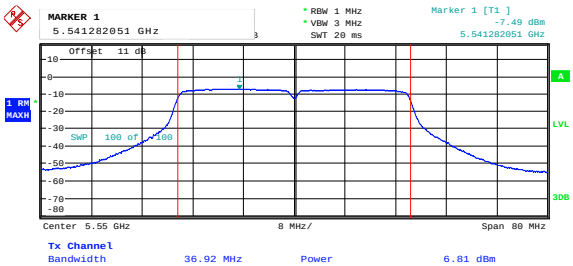
Date: 1.JUL.2015 18:15:53

Middle channel: Chain 0



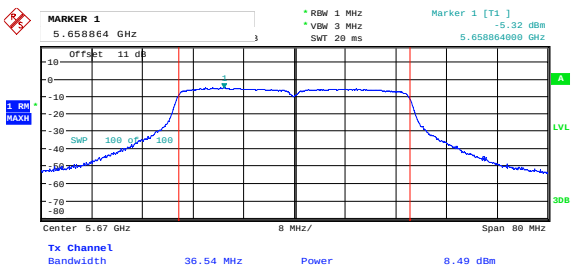
Date: 1.JUL.2015 19:53:56

Middle channel: Chain 1



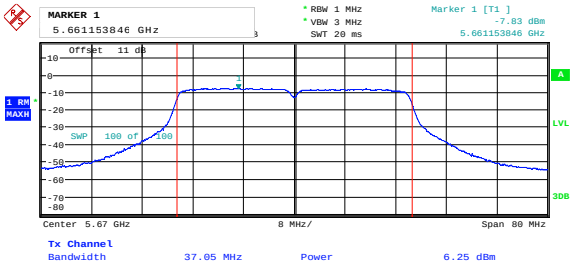
Date: 1.JUL.2015 18:16:41

High channel: Chain 0



Date: 1.JUL.2015 19:54:21

High channel: Chain 1



Date: 1.JUL.2015 18:17:38

10 FCC §15.407(b) - Spurious Emissions at Antenna Ports

10.1 Applicable Standards

According to FCC §15.407(b)

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

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

10.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section H: Unwanted emissions measurement

10.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2014-10-24	1 year
Rohde & Schwarz	Analyzer	FSQ	1155.5001.26	2015-03-09	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed according to A2LA requirements, traceable to the NIST.*

10.4 Test Environmental Conditions

Temperature:	20-22º C
Relative Humidity:	38-40 %
ATM Pressure:	102.5-103.8 KPa

The testing was performed by Jimmy Xiao from 2015-06-22 to 2015-10-02 at RF site.

10.5 Test Results

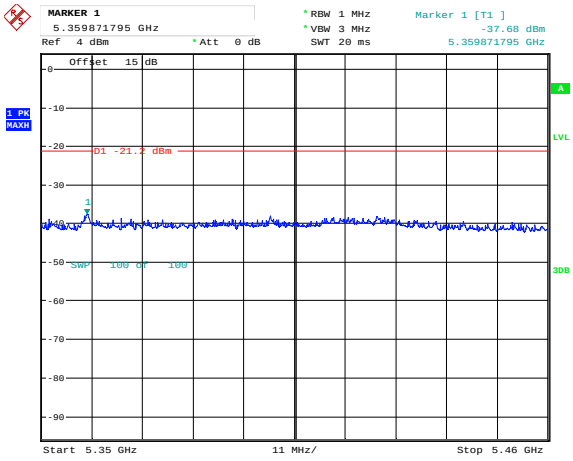
Please refer to the following plots.

5.3 GHz Restricted Band

Antenna gain=4 dBi (Chain 0)

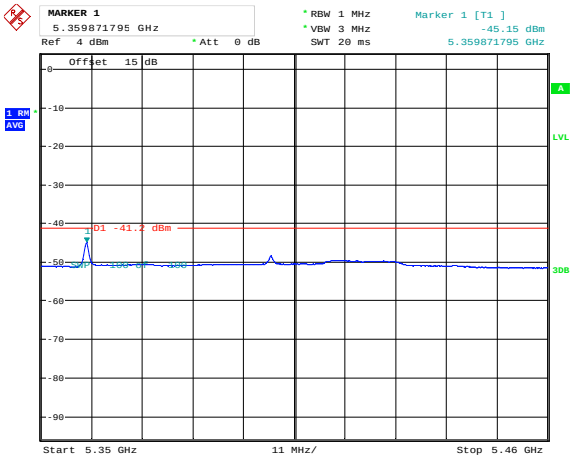
802.11a mode

Low channel (Peak)



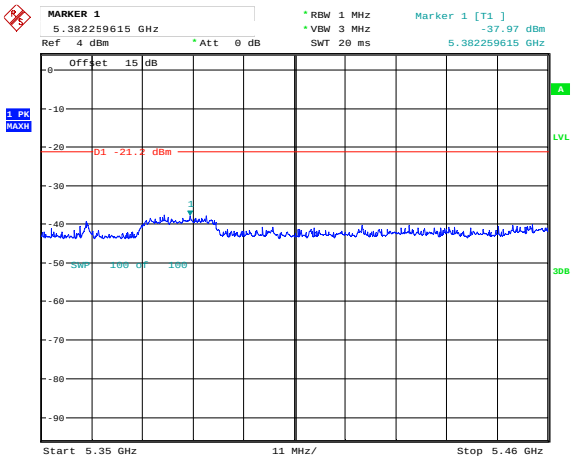
Date: 23.JUN.2015 19:51:53

Low channel (Ave)



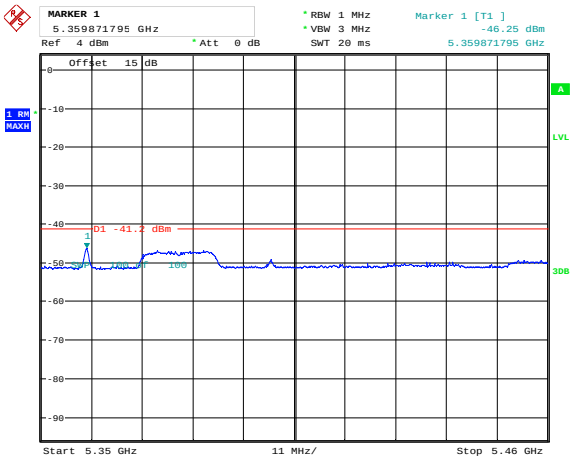
Date: 23.JUN.2015 19:51:15

Middle channel (Peak)



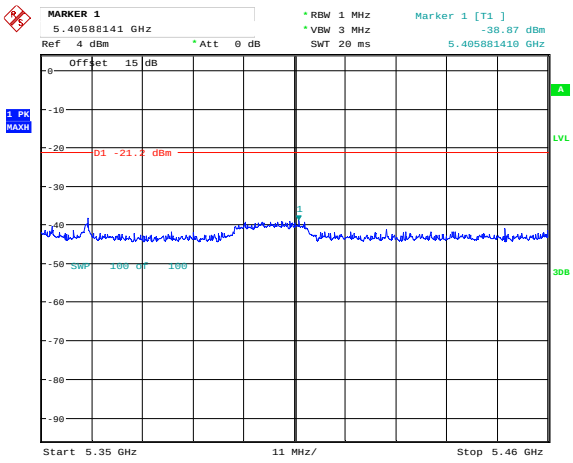
Date: 23.JUN.2015 19:52:43

Middle channel (Ave)



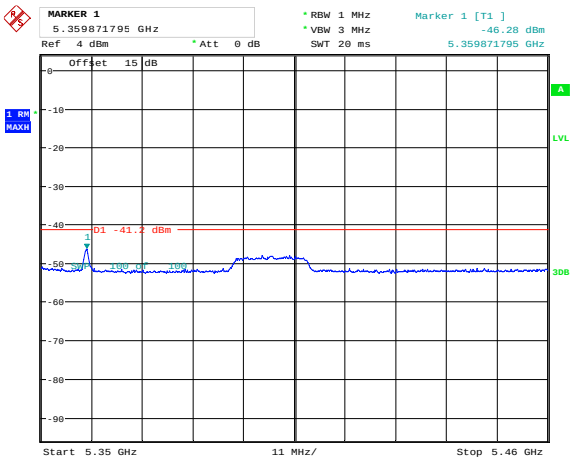
Date: 23.JUN.2015 19:54:03

High channel (Peak)



Date: 23.JUN.2015 19:55:04

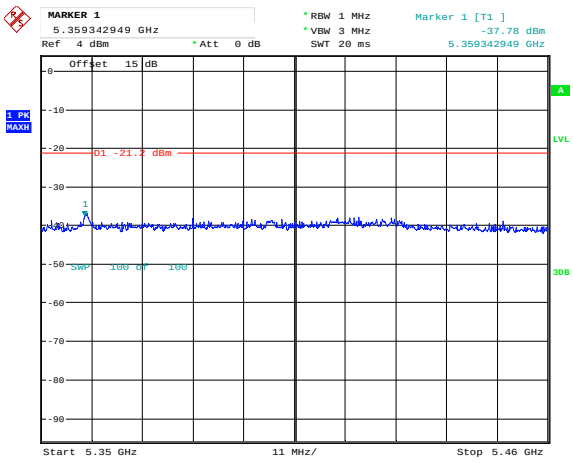
High channel (Ave)



Date: 23.JUN.2015 19:54:39

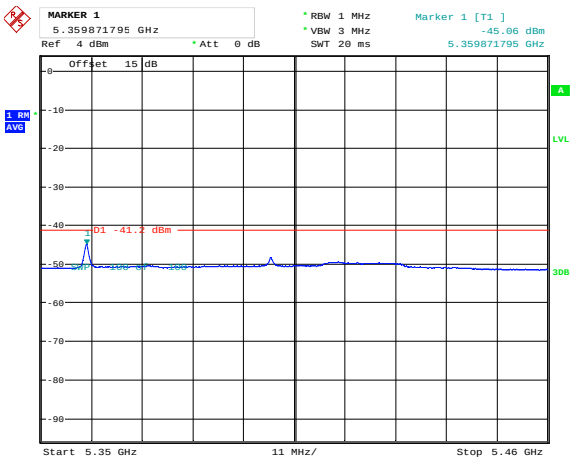
802.11n20 mode

Low channel (Peak)



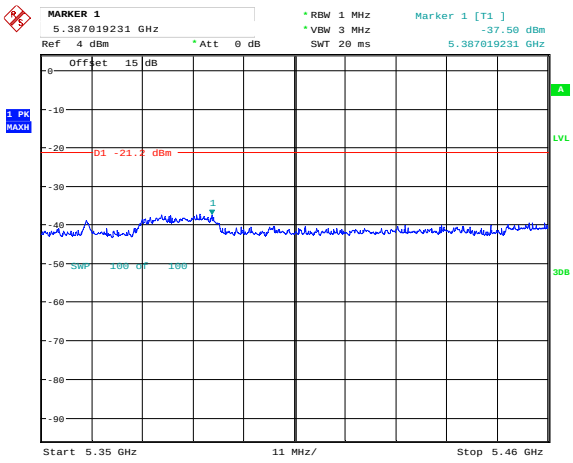
Date: 23.JUN.2015 20:05:05

Low channel (Ave)



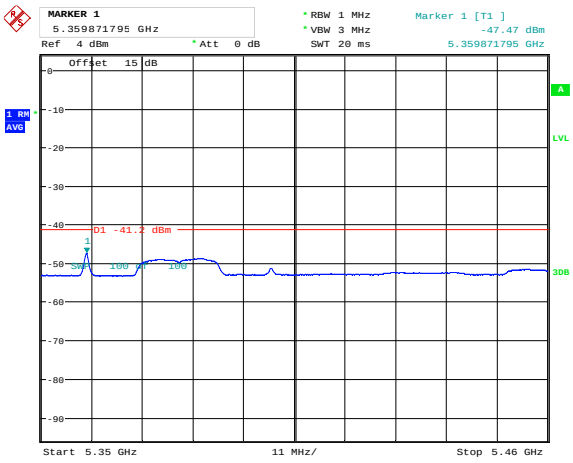
Date: 23.JUN.2015 20:05:42

Middle channel (Peak)



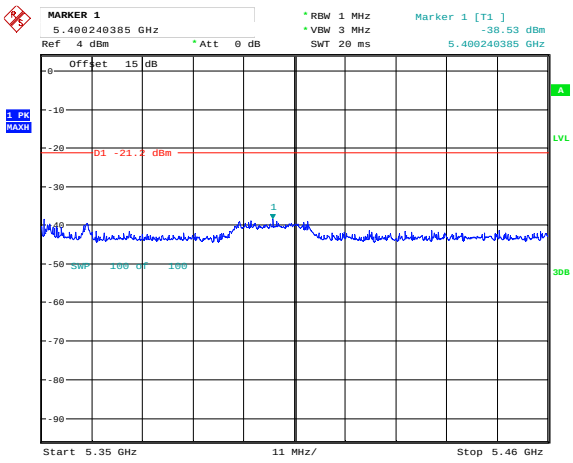
Date: 23.JUN.2015 20:07:39

Middle channel (Ave)



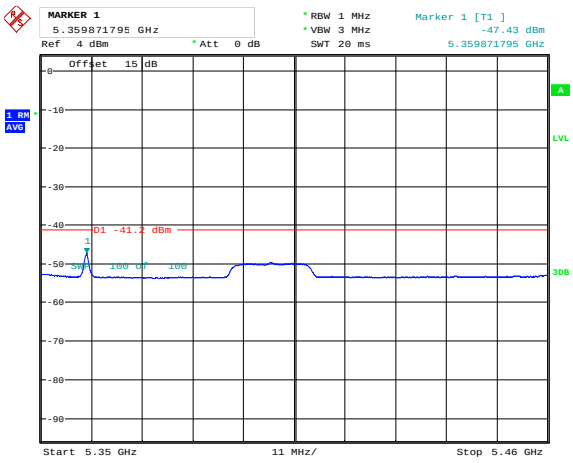
Date: 23.JUN.2015 20:06:41

High channel (Peak)



Date: 23.JUN.2015 20:08:16

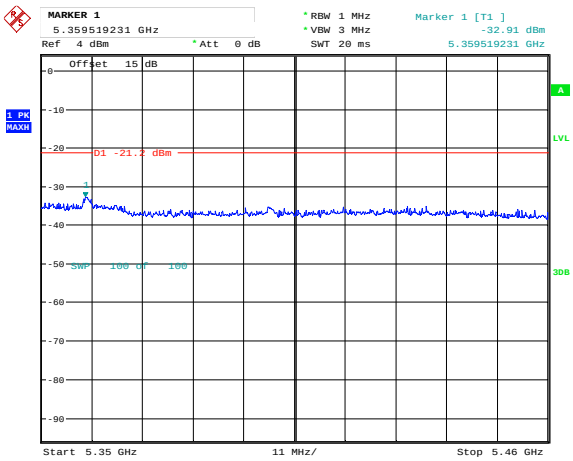
High channel (Ave)



Date: 23.JUN.2015 20:08:49

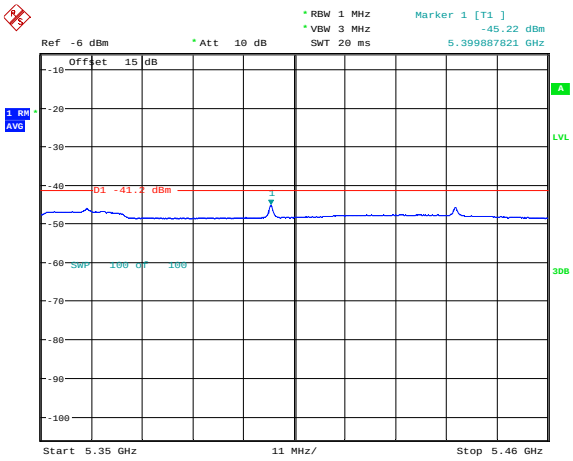
802.11n40 mode

Low channel (Peak)



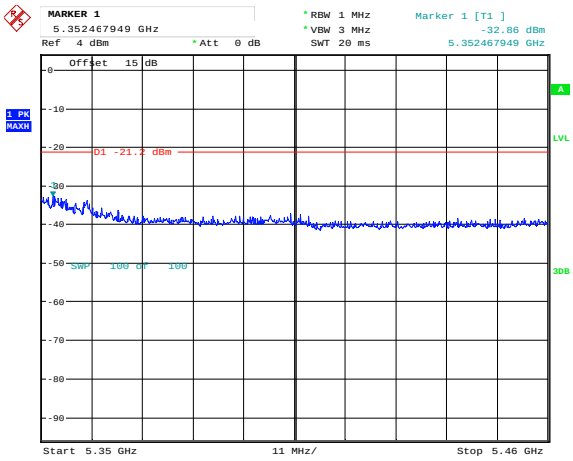
Date: 23.JUN.2015 20:13:35

Low channel (Ave)



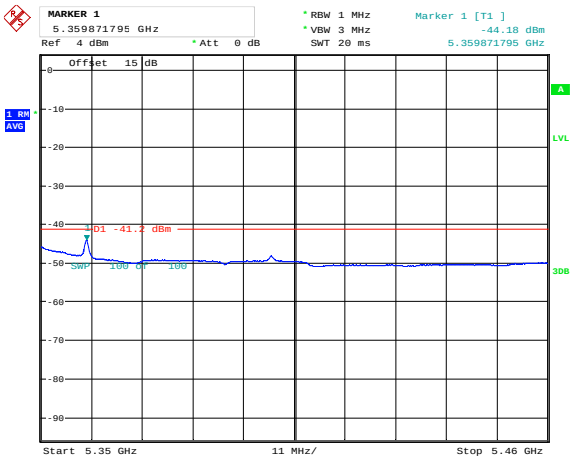
Date: 2.OCT.2015 19:46:10

High channel (Peak)



Date: 23.JUN.2015 20:15:22

High channel (Ave)

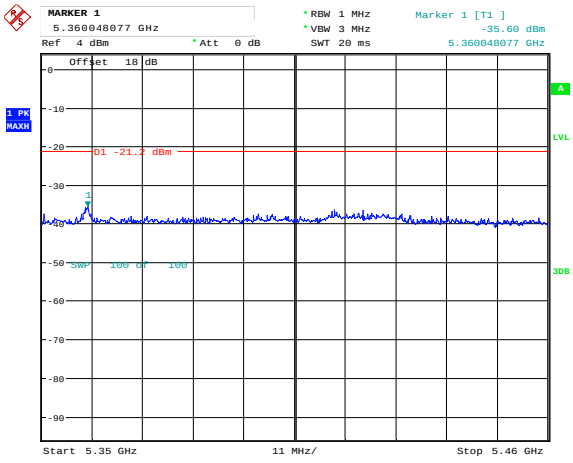


Date: 23.JUN.2015 20:14:41

Antenna gain=7 dBi (Chain 0)

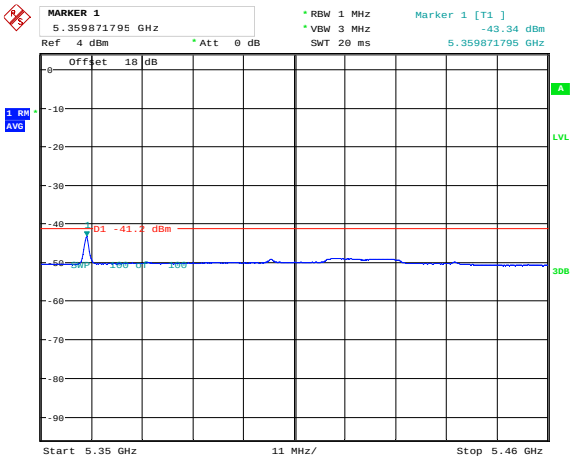
802.11a mode

Low channel (Peak)



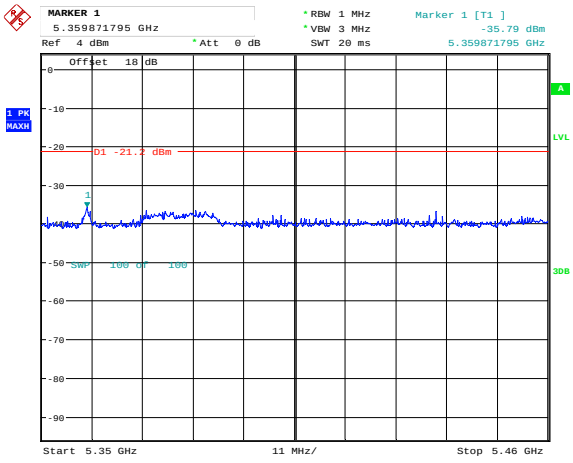
Date: 22.JUN.2015 22:07:50

Low channel (Ave)



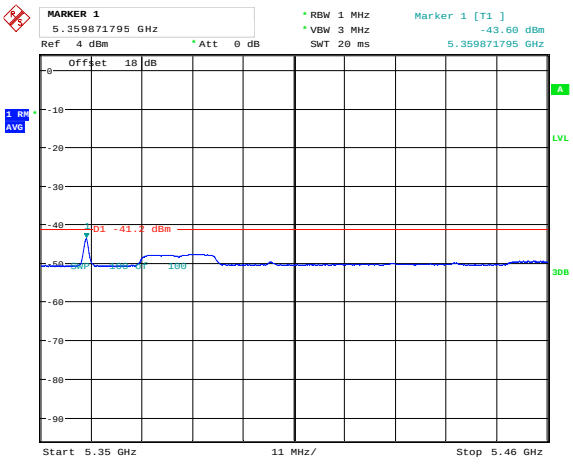
Date: 22.JUN.2015 22:05:58

Middle channel (Peak)



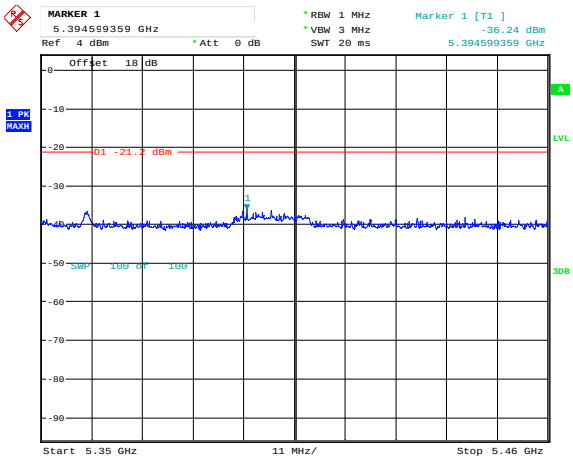
Date: 22.JUN.2015 22:08:33

Middle channel (Ave)



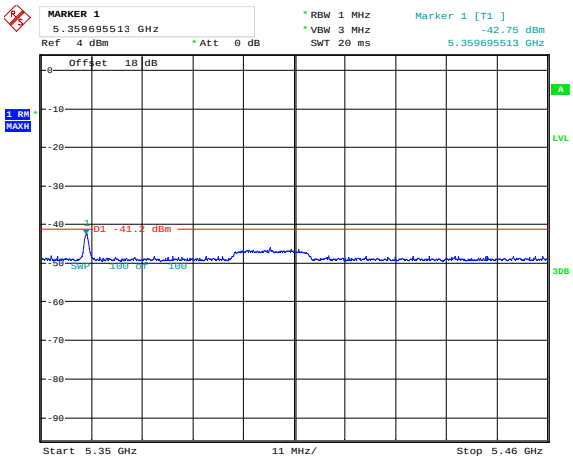
Date: 22.JUN.2015 22:08:56

High channel (Peak)



Date: 22.JUN.2015 22:10:28

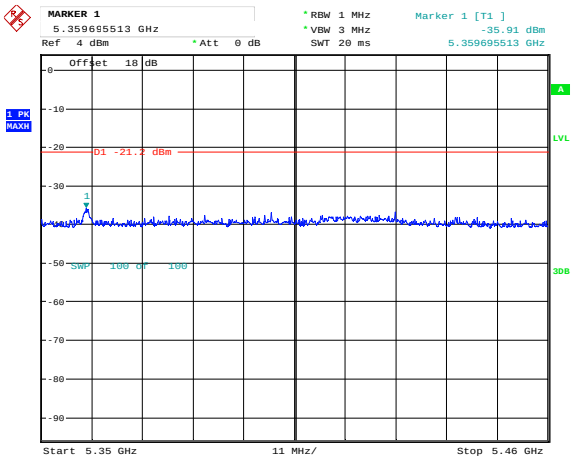
High channel (Ave)



Date: 22.JUN.2015 22:10:05

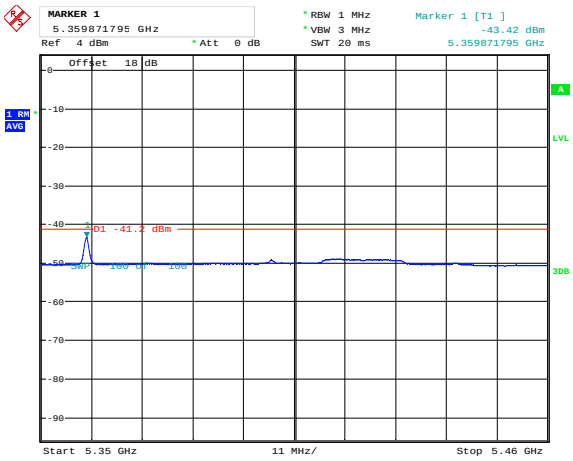
802.11n20 mode

Low channel (Peak)



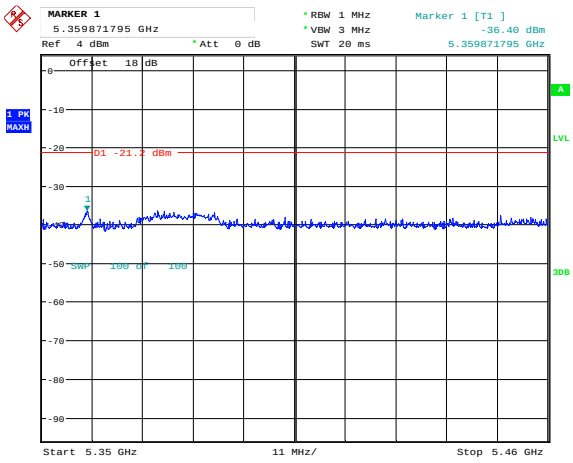
Date: 22.JUN.2015 22:12:56

Low channel (Ave)



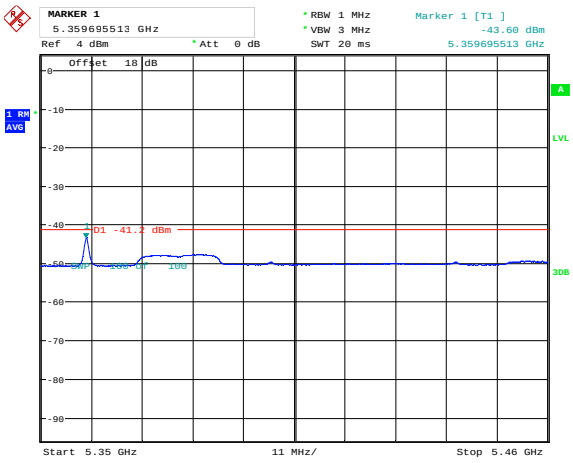
Date: 22.JUN.2015 22:13:32

Middle channel (Peak)



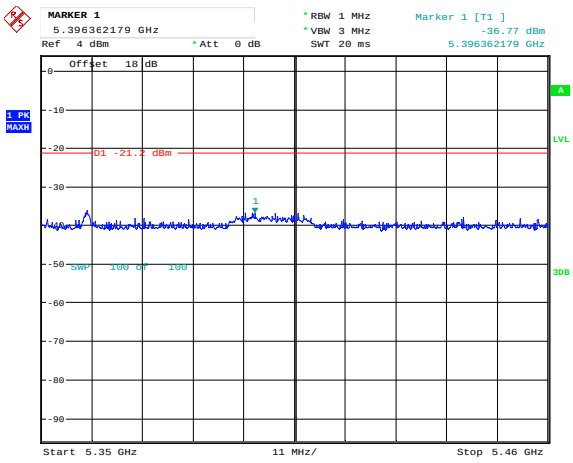
Date: 22.JUN.2015 22:15:00

Middle channel (Ave)



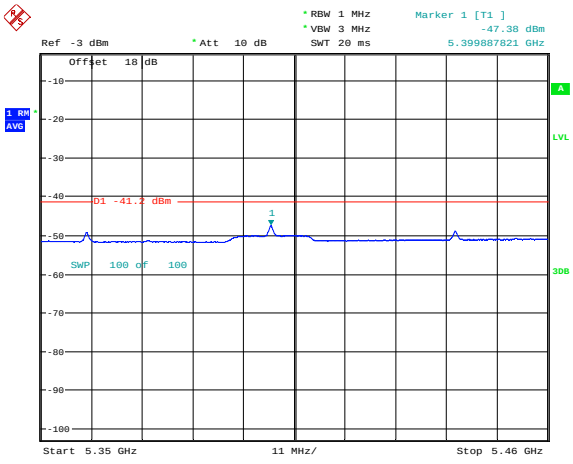
Date: 22.JUN.2015 22:14:29

High channel (Peak)



Date: 22.JUN.2015 22:16:40

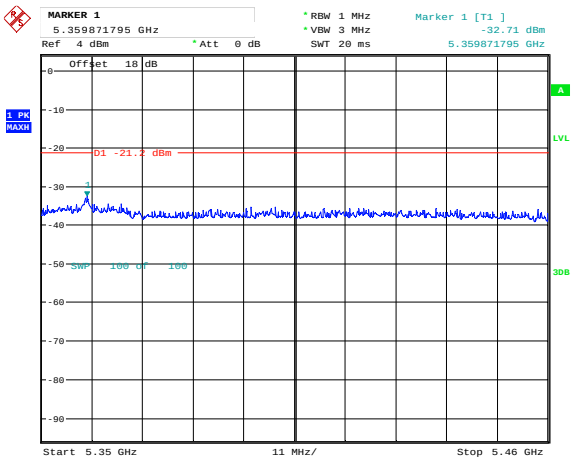
High channel (Ave)



Date: 2.OCT.2015 19:51:03

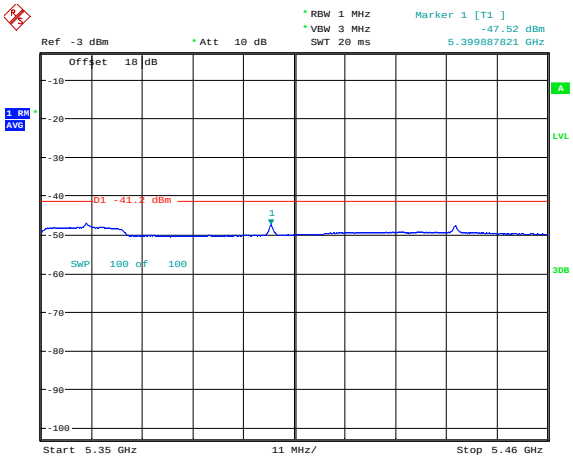
802.11n40 mode

Low channel (Peak)



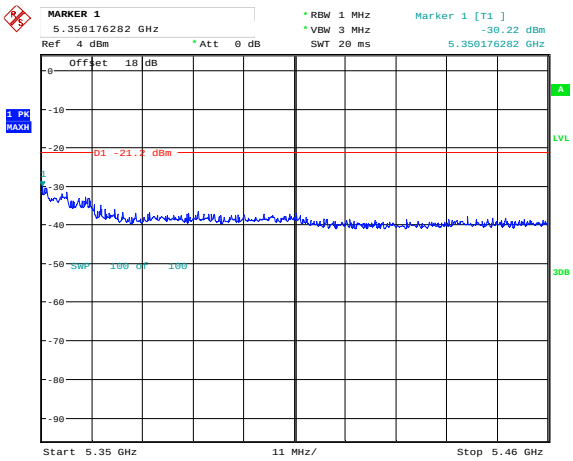
Date: 22.JUN.2015 22:22:11

Low channel (Ave)



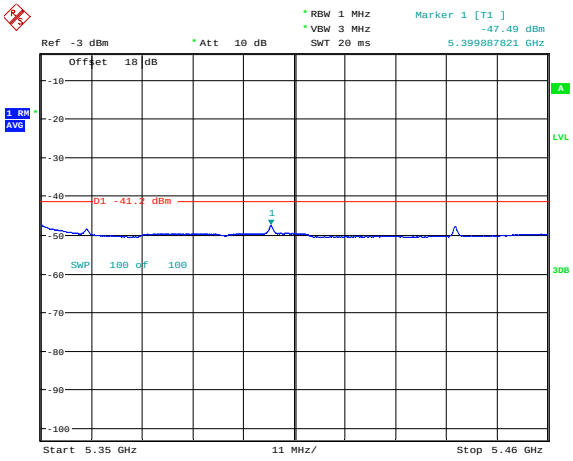
Date: 2.OCT.2015 19:48:23

High channel (Peak)



Date: 22.JUN.2015 22:28:01

High channel (Ave)

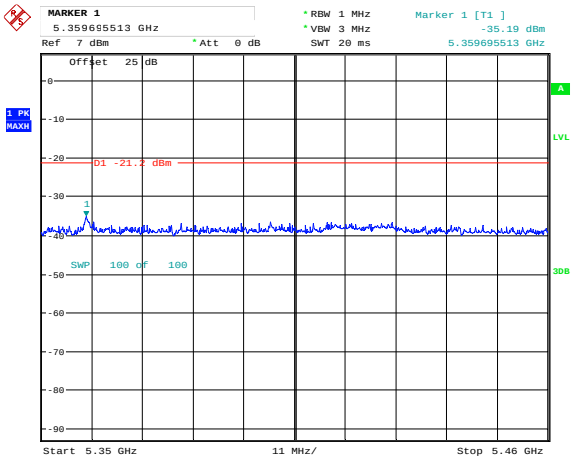


Date: 2.OCT.2015 19:49:40

Antenna gain=14 dBi (Chain 0)

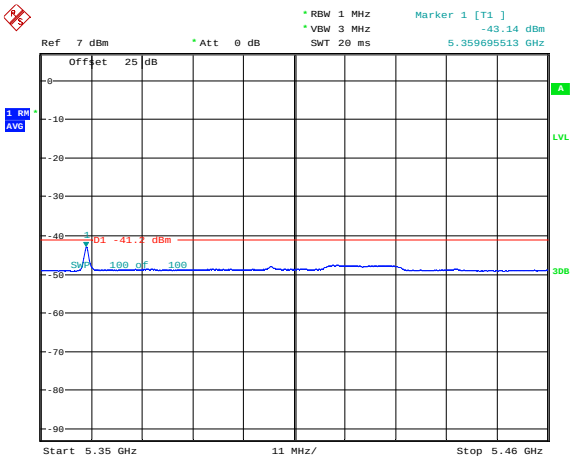
802.11a mode

Low channel (Peak)



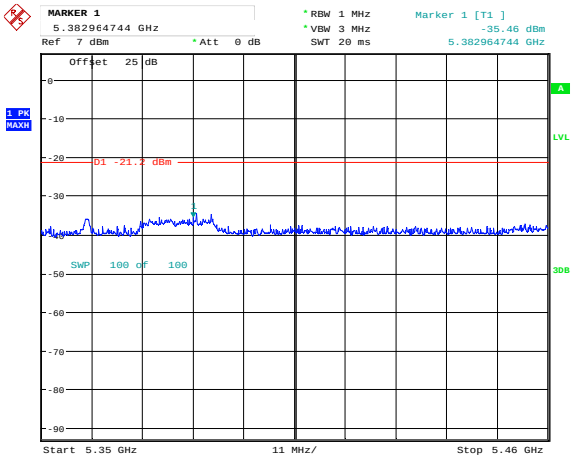
Date: 22.JUN.2015 19:18:40

Low channel (Ave)



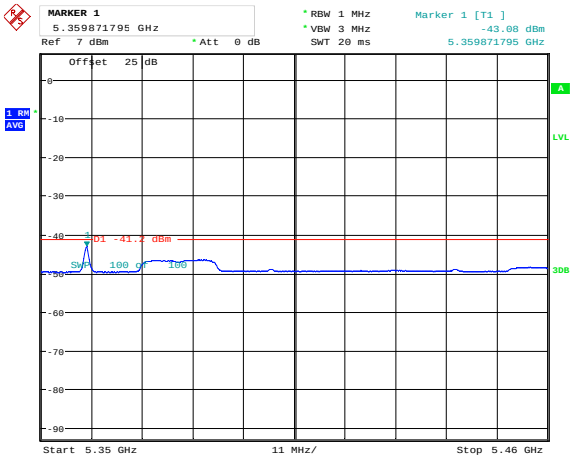
Date: 22.JUN.2015 19:18:06

Middle channel (Peak)



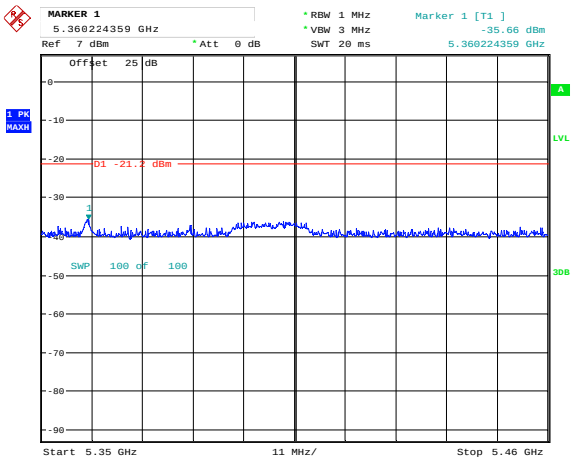
Date: 22.JUN.2015 19:20:47

Middle channel (Ave)



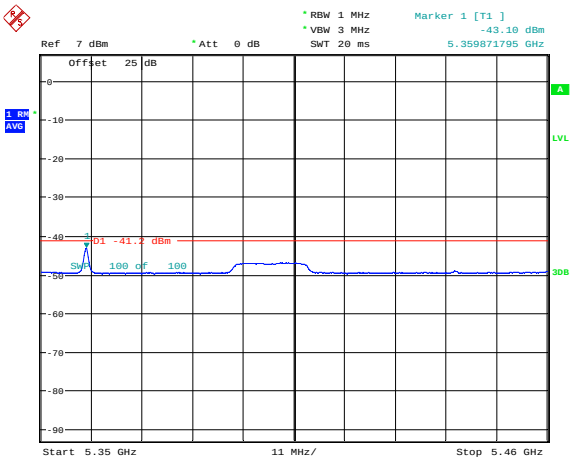
Date: 22.JUN.2015 19:20:10

High channel (Peak)



Date: 22.JUN.2015 19:23:10

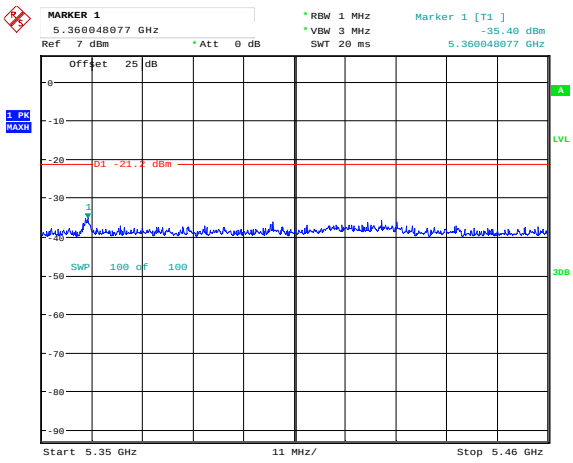
High channel (Ave)



Date: 22.JUN.2015 19:22:12

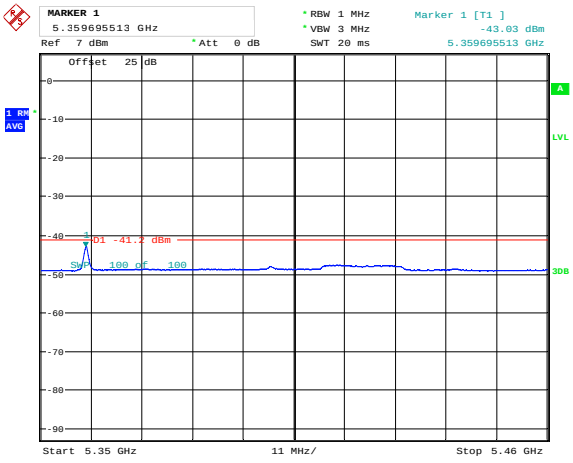
802.11n20 mode

Low channel (Peak)



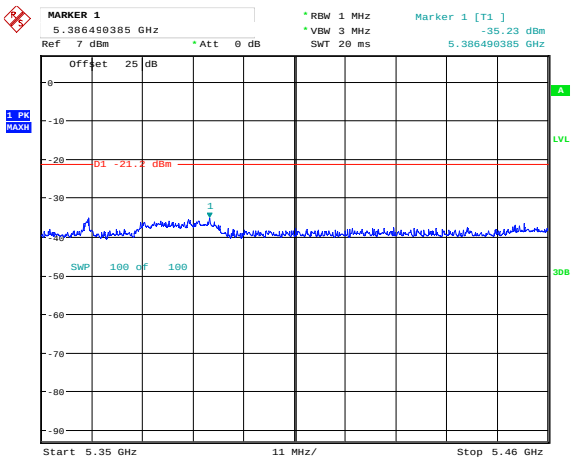
Date: 22.JUN.2015 19:26:51

Low channel (Ave)



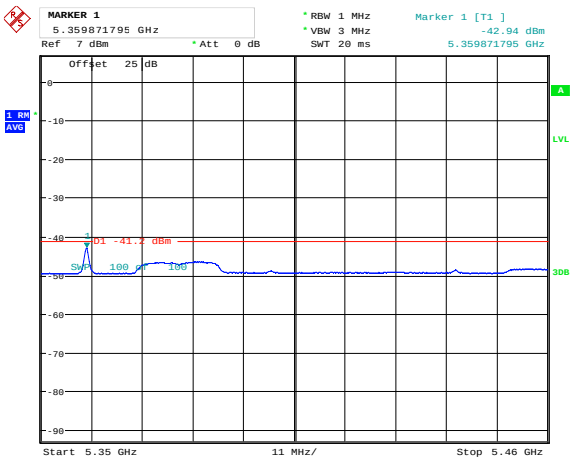
Date: 22.JUN.2015 19:26:15

Middle channel (Peak)



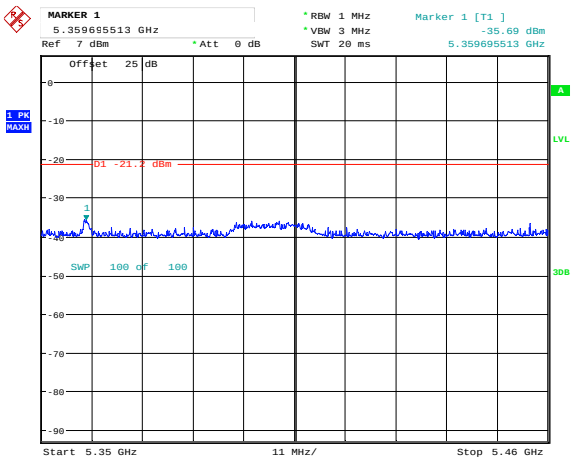
Date: 22.JUN.2015 19:29:10

Middle channel (Ave)



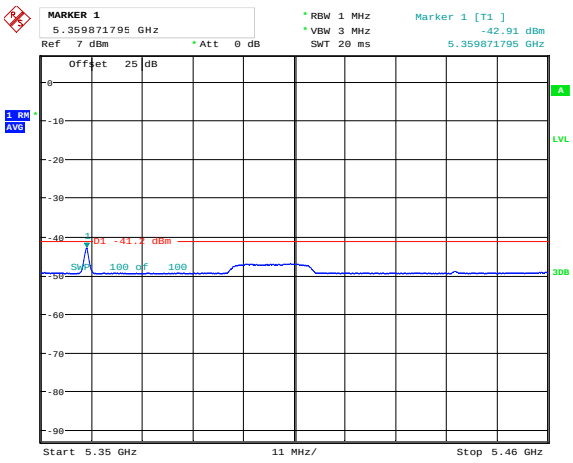
Date: 22.JUN.2015 19:28:40

High channel (Peak)



Date: 22.JUN.2015 19:30:46

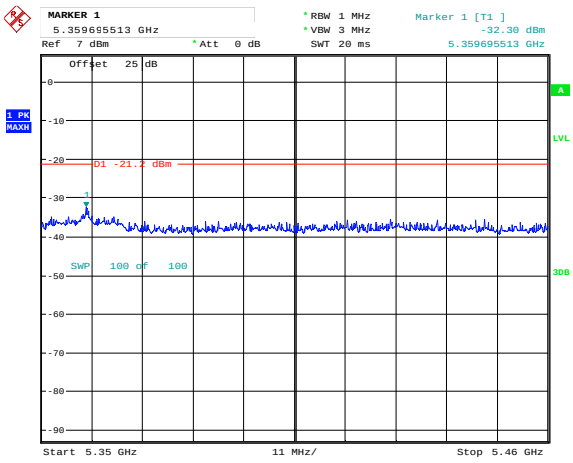
High channel (Ave)



Date: 22.JUN.2015 19:30:16

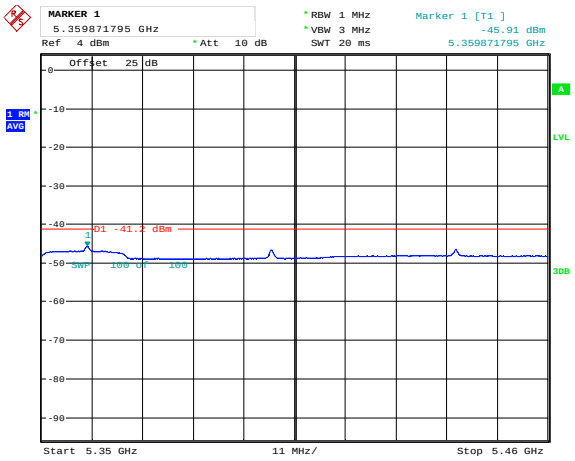
802.11n40 mode

Low channel (Peak)



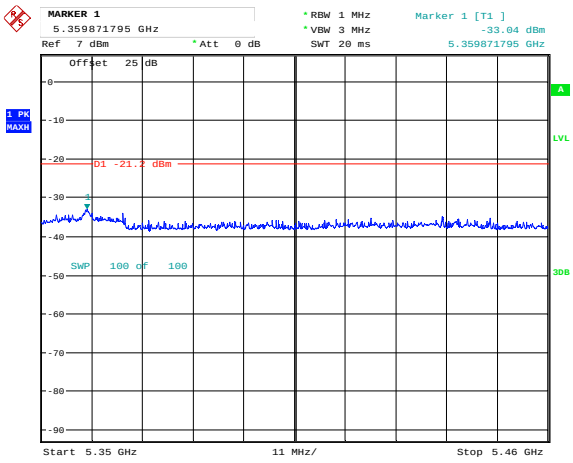
Date: 22.JUN.2015 19:38:34

Low channel (Ave)



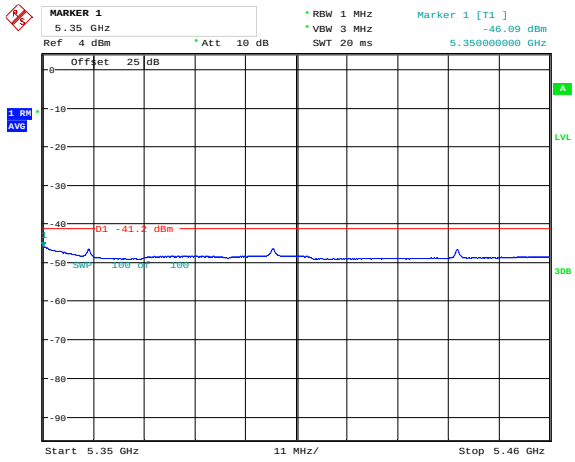
Date: 2.OCT.2015 19:52:42

High channel (Peak)



Date: 22.JUN.2015 19:41:14

High channel (Ave)

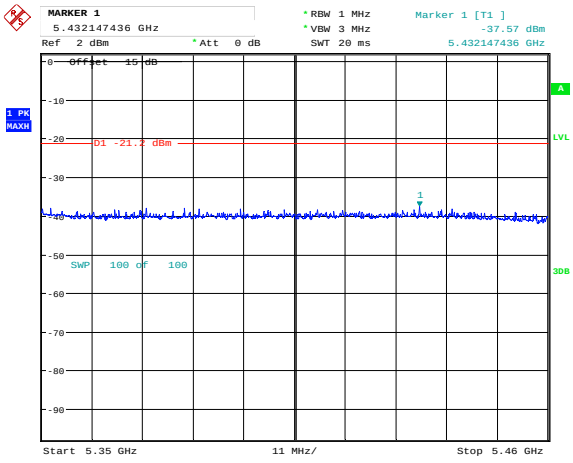


Date: 2.OCT.2015 19:53:57

Antenna gain=4 dBi (Chain 1)

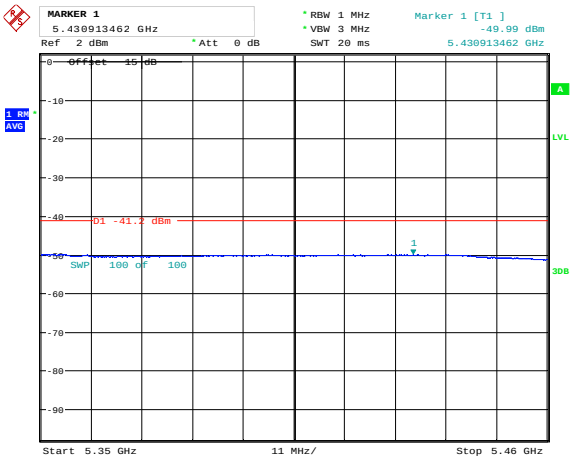
802.11a mode

Low channel (Peak)



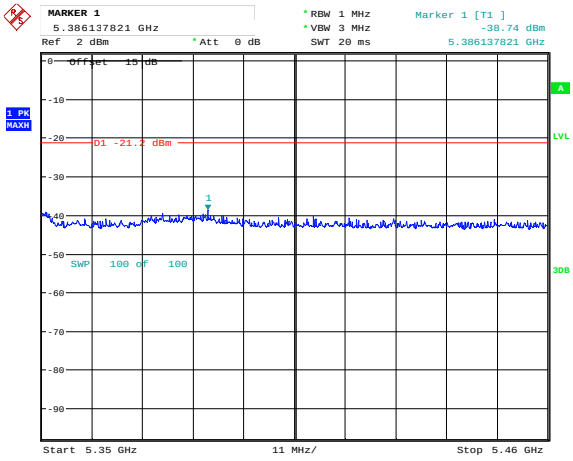
Date: 2.JUL.2015 16:31:38

Low channel (Ave)



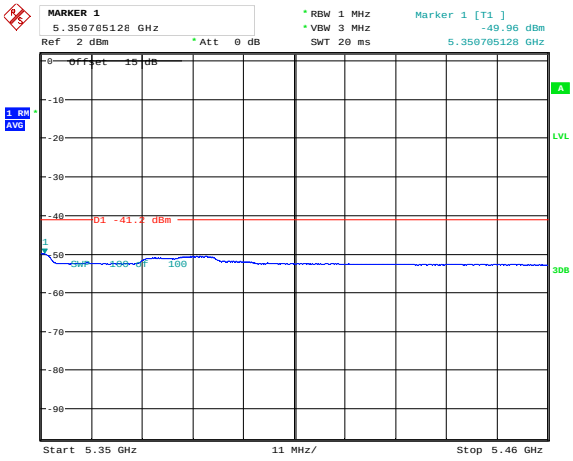
Date: 2.JUL.2015 16:31:07

Middle channel (Peak)



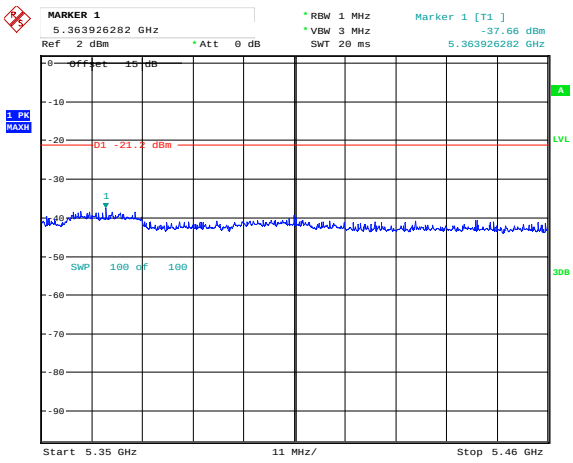
Date: 2.JUL.2015 16:32:09

Middle channel (Ave)



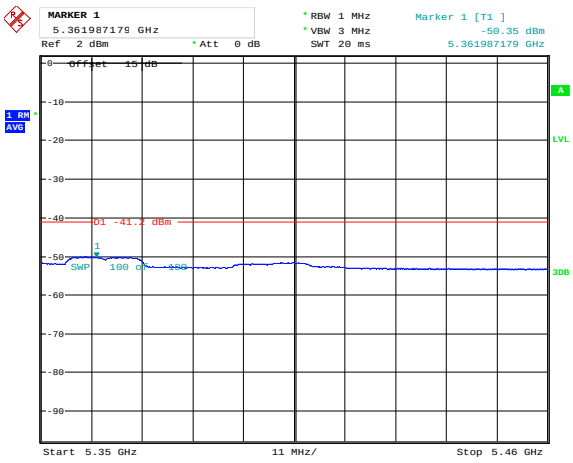
Date: 2.JUL.2015 16:32:40

High channel (Peak)



Date: 2.JUL.2015 16:33:46

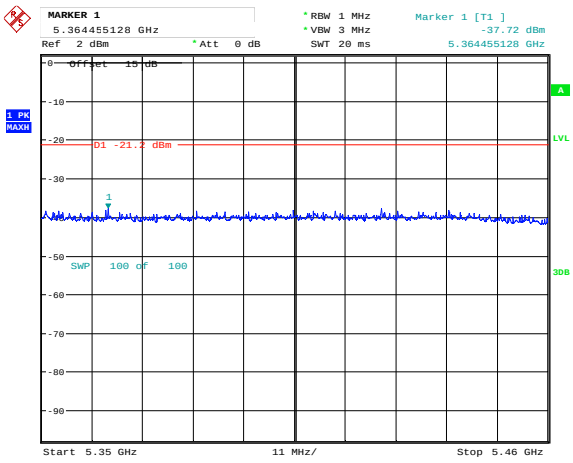
High channel (Ave)



Date: 2.JUL.2015 16:33:14

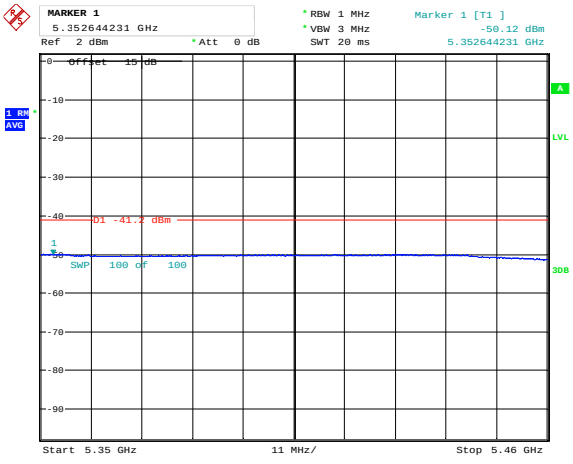
802.11n20 mode

Low channel (Peak)



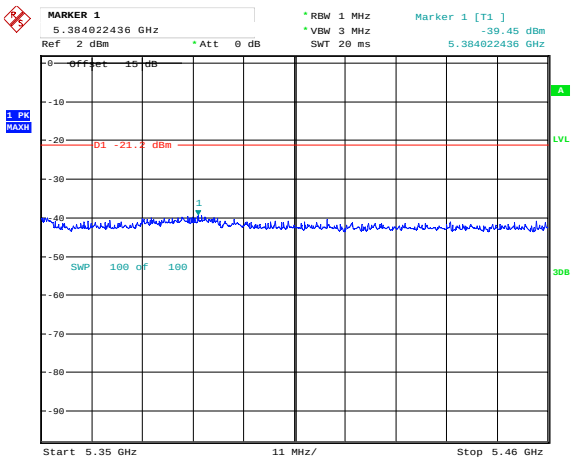
Date: 2.JUL.2015 16:47:51

Low channel (Ave)



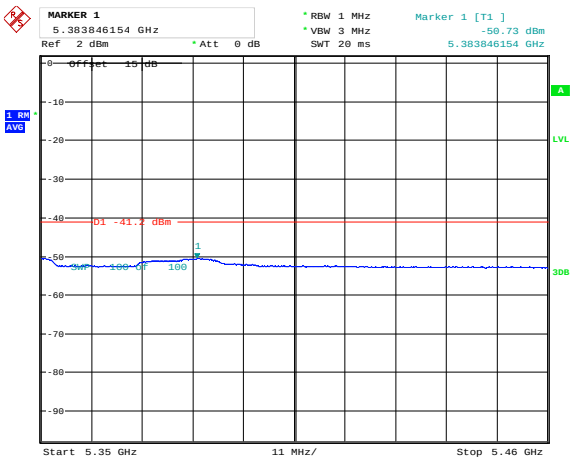
Date: 2.JUL.2015 16:47:15

Middle channel (Peak)



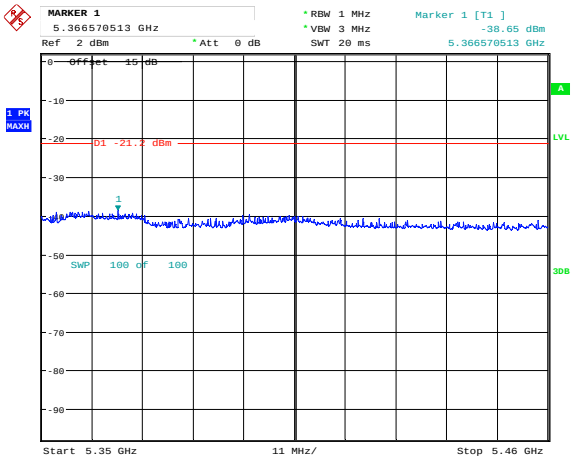
Date: 2.JUL.2015 16:48:23

Middle channel (Ave)



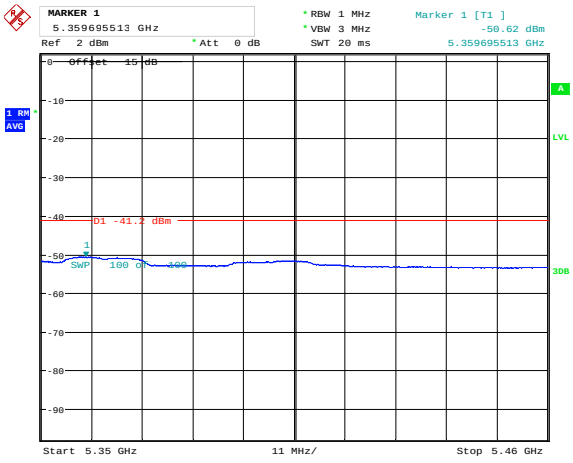
Date: 2.JUL.2015 16:48:46

High channel (Peak)



Date: 2.JUL.2015 16:49:55

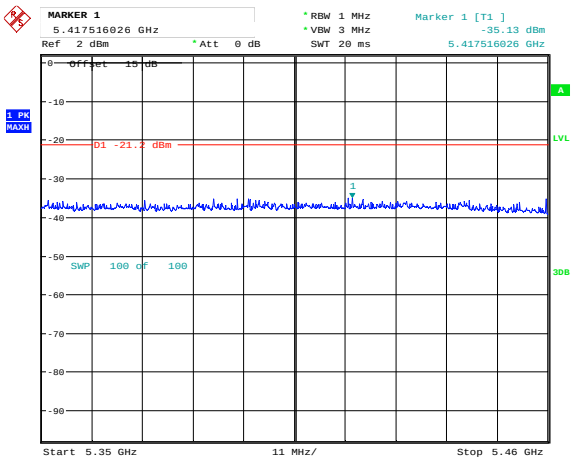
High channel (Ave)



Date: 2.JUL.2015 16:49:22

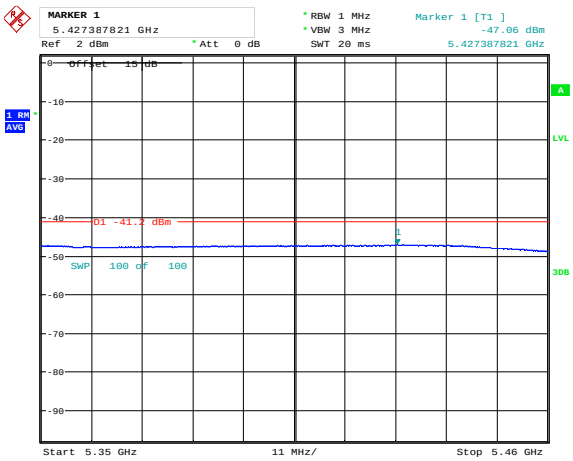
802.11n40 mode

Low channel (Peak)



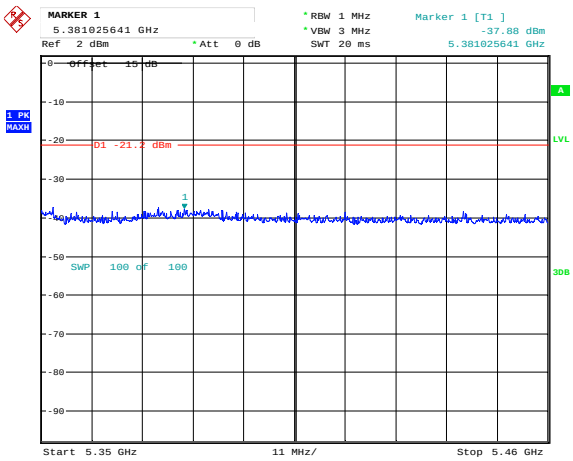
Date: 2.JUL.2015 17:05:39

Low channel (Ave)



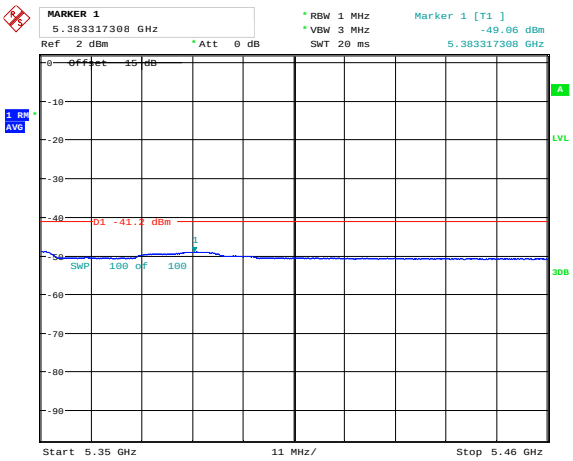
Date: 2.JUL.2015 17:06:04

High channel (Peak)



Date: 2.JUL.2015 17:07:12

High channel (Ave)

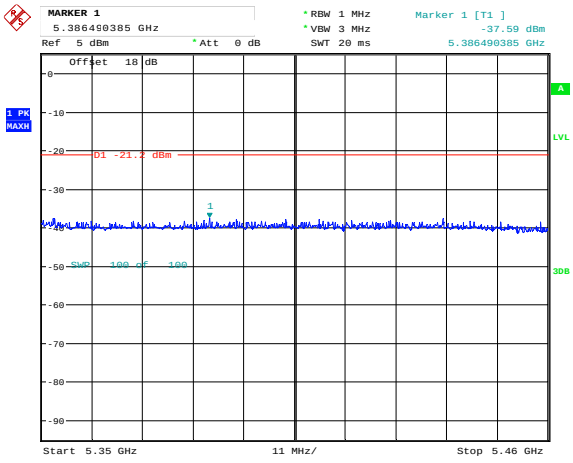


Date: 2.JUL.2015 17:06:42

Antenna gain=7 dBi (Chain 1)

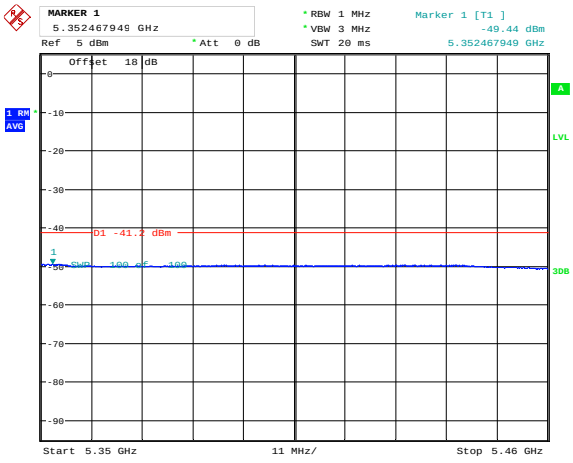
802.11a mode

Low channel (Peak)



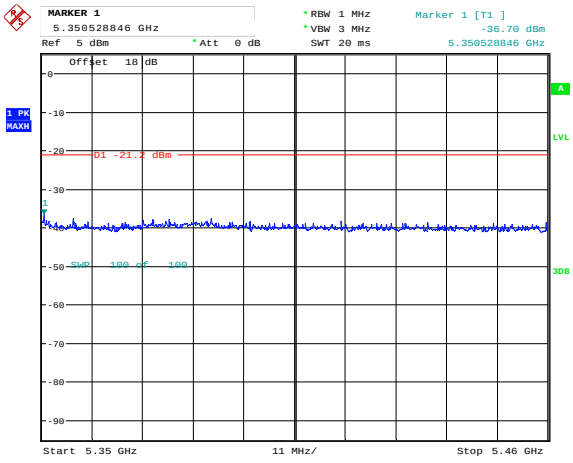
Date: 2.JUL.2015 17:19:00

Low channel (Ave)



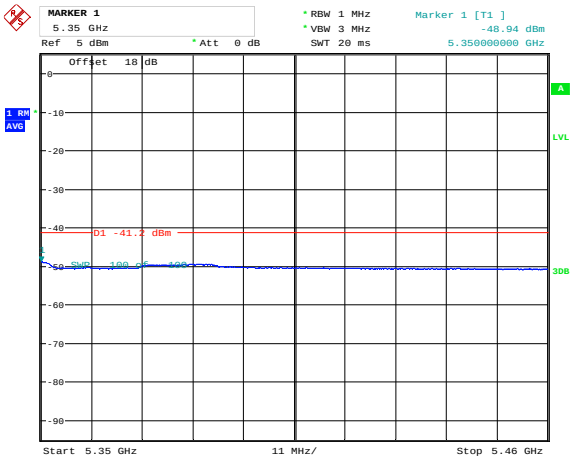
Date: 2.JUL.2015 17:19:25

Middle channel (Peak)



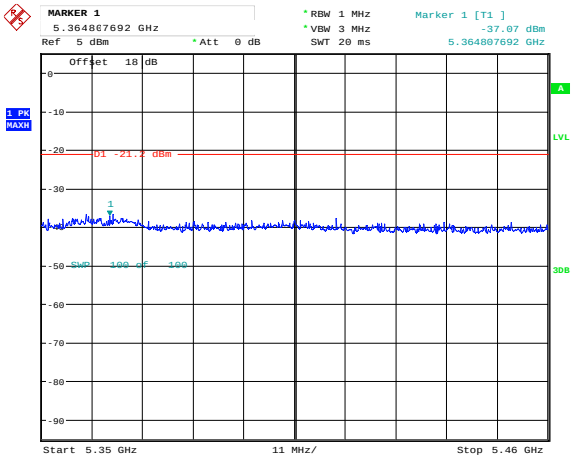
Date: 2.JUL.2015 17:20:23

Middle channel (Ave)



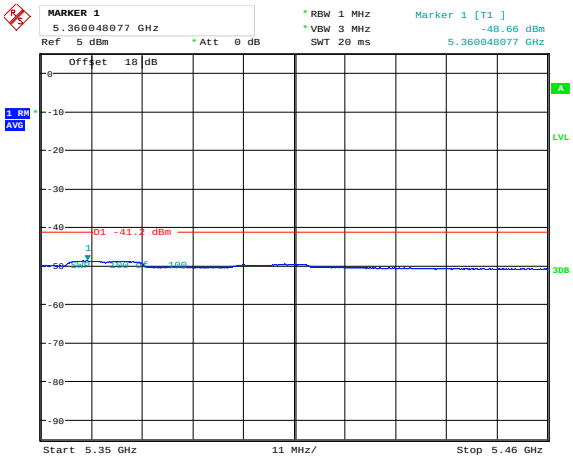
Date: 2.JUL.2015 17:19:52

High channel (Peak)



Date: 2.JUL.2015 17:20:43

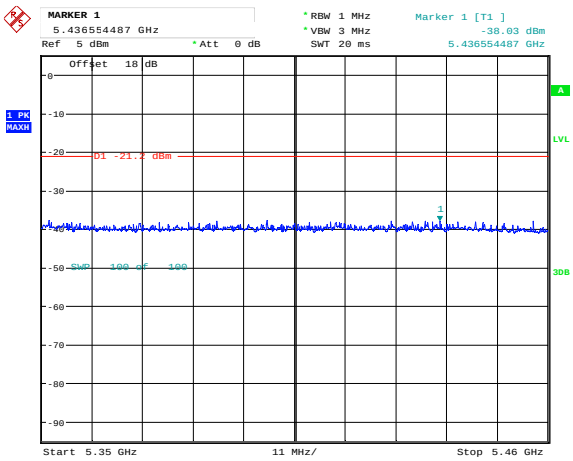
High channel (Ave)



Date: 2.JUL.2015 17:21:10

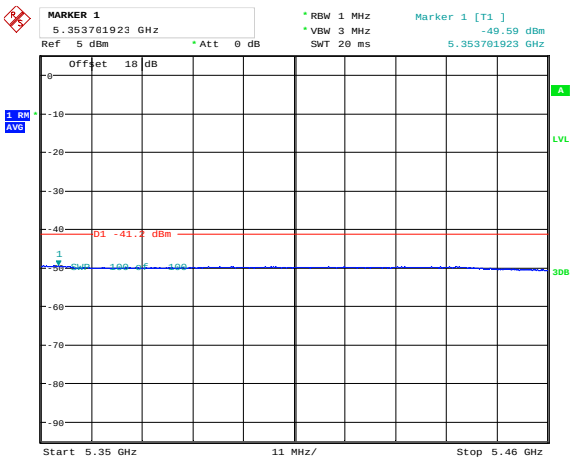
802.11n20 mode

Low channel (Peak)



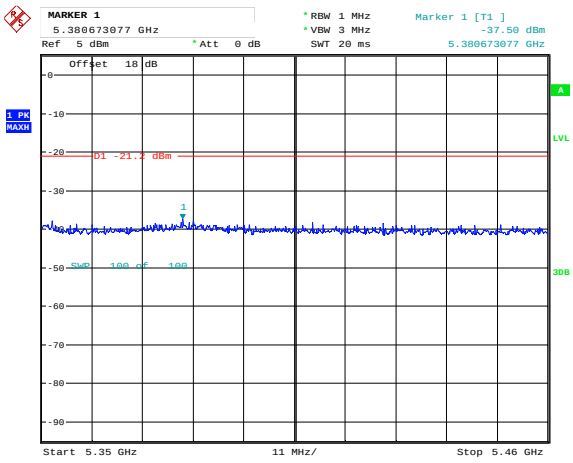
Date: 2.JUL.2015 17:30:51

Low channel (Ave)



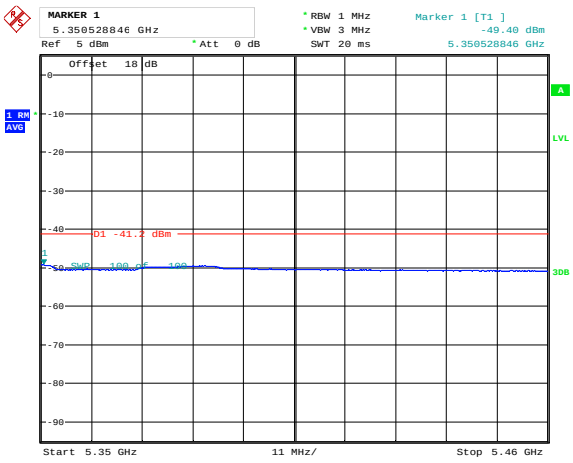
Date: 2.JUL.2015 17:31:12

Middle channel (Peak)



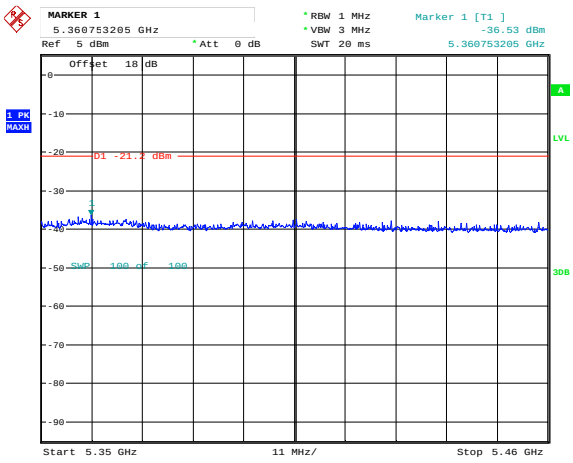
Date: 2.JUL.2015 17:34:24

Middle channel (Ave)



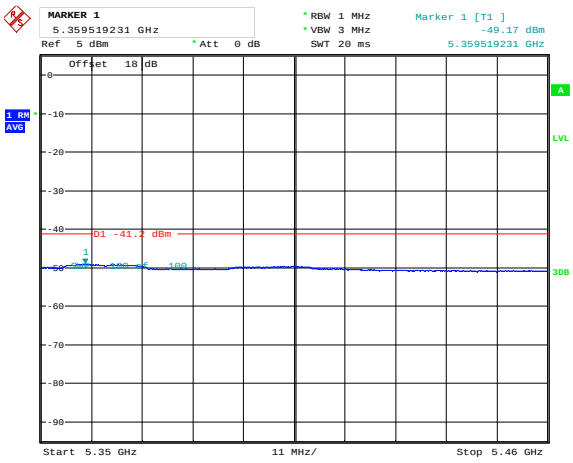
Date: 2.JUL.2015 17:31:47

High channel (Peak)



Date: 2.JUL.2015 17:37:02

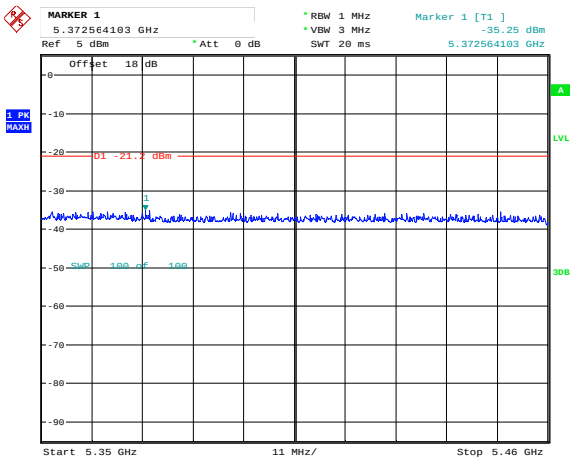
High channel (Ave)



Date: 2.JUL.2015 17:37:27

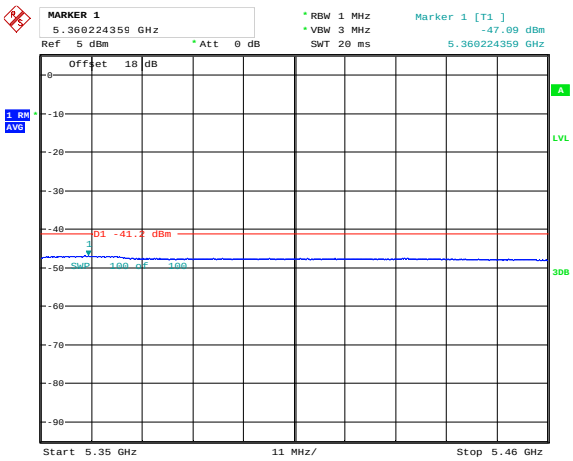
802.11n40 mode

Low channel (Peak)



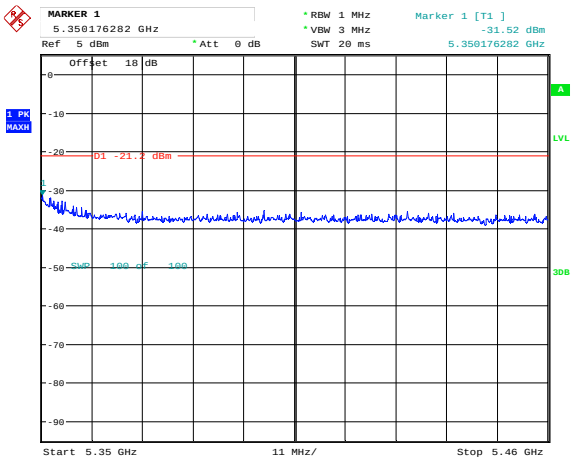
Date: 2.JUL.2015 18:00:00

Low channel (Ave)



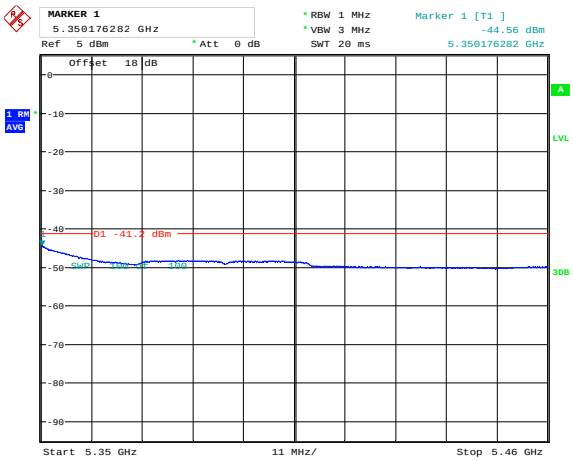
Date: 2.JUL.2015 17:59:37

High channel (Peak)



Date: 2.JUL.2015 18:00:24

High channel (Ave)

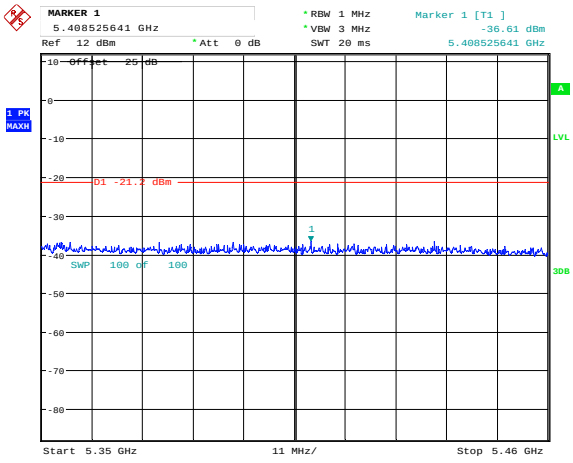


Date: 2.JUL.2015 18:00:59

Antenna gain=14 dBi (Chain 1)

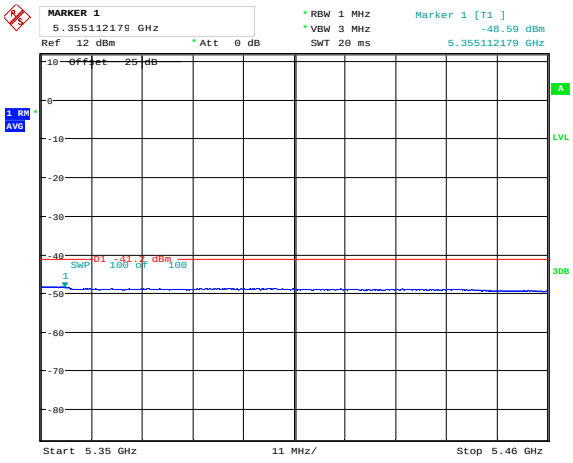
802.11a mode

Low channel (Peak)



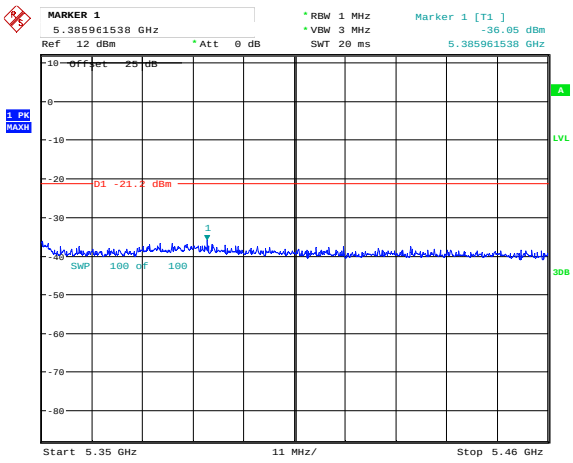
Date: 2.JUL.2015 18:36:51

Low channel (Ave)



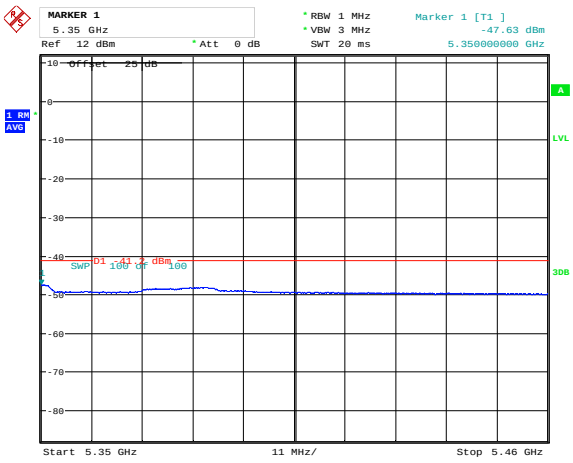
Date: 2.JUL.2015 18:36:30

Middle channel (Peak)



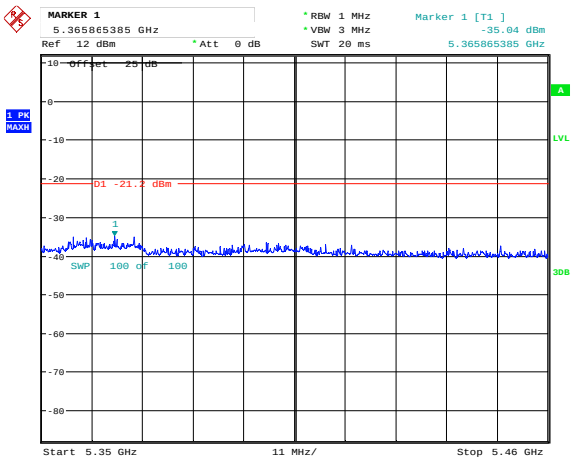
Date: 2.JUL.2015 18:37:21

Middle channel (Ave)



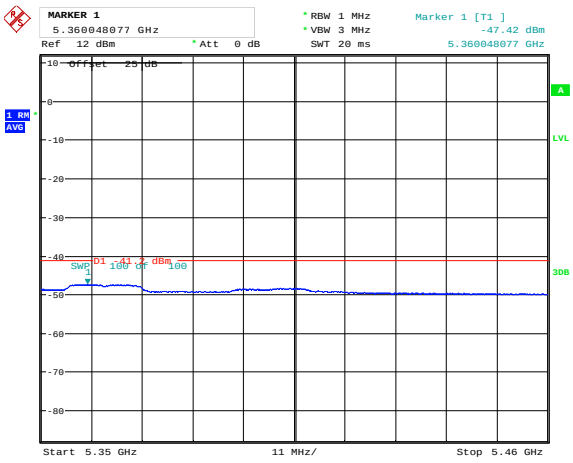
Date: 2.JUL.2015 18:37:45

High channel (Peak)



Date: 2.JUL.2015 18:38:42

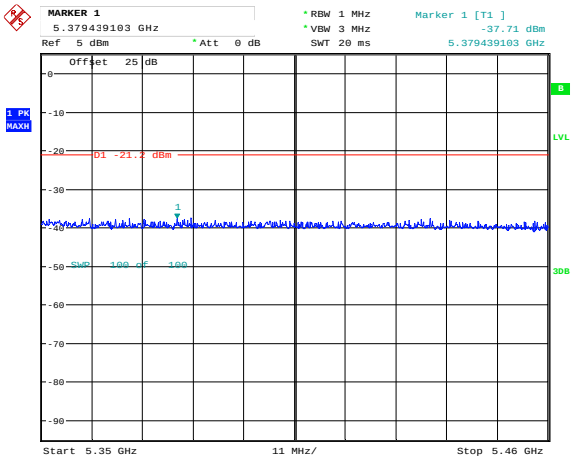
High channel (Ave)



Date: 2.JUL.2015 18:38:16

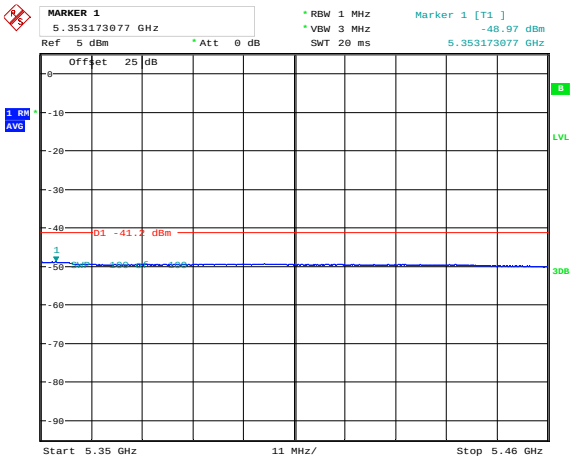
802.11n20 mode

Low channel (Peak)



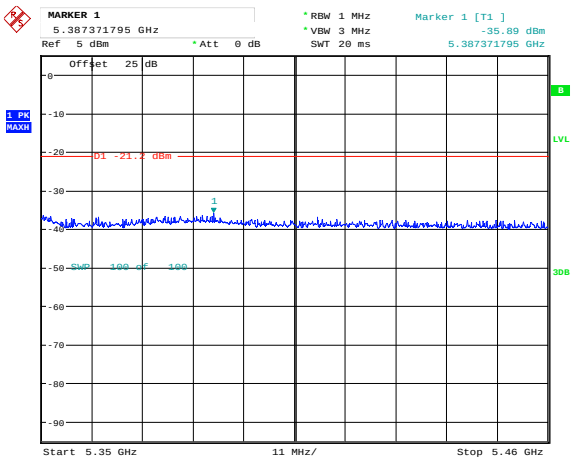
Date: 2.JUL.2015 19:50:37

Low channel (Ave)



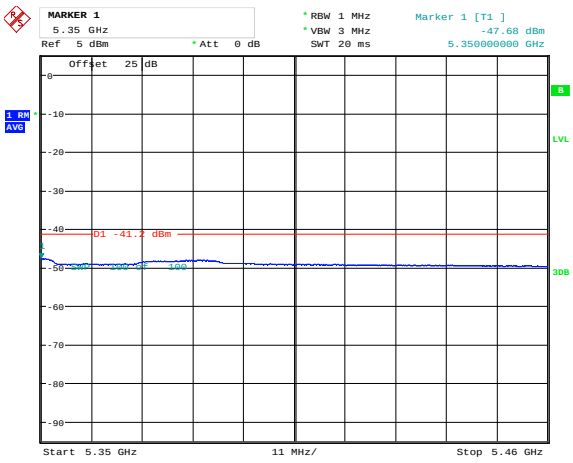
Date: 2.JUL.2015 19:50:15

Middle channel (Peak)



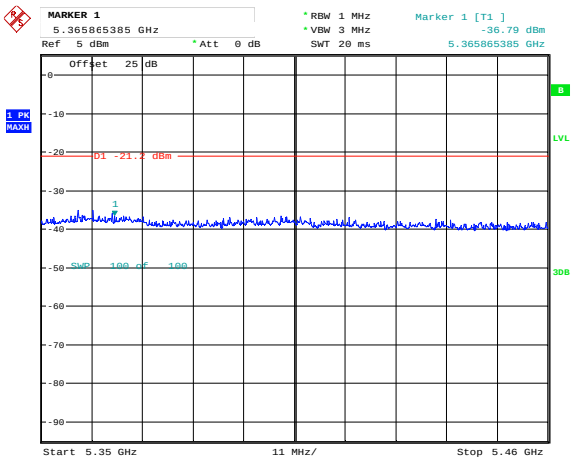
Date: 2.JUL.2015 19:51:29

Middle channel (Ave)



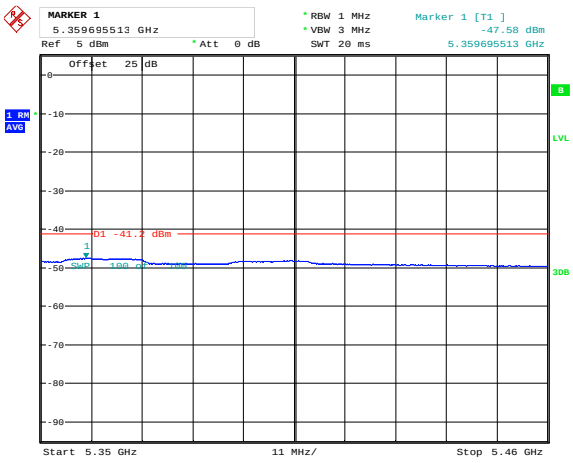
Date: 2.JUL.2015 19:51:56

High channel (Peak)



Date: 2.JUL.2015 19:53:23

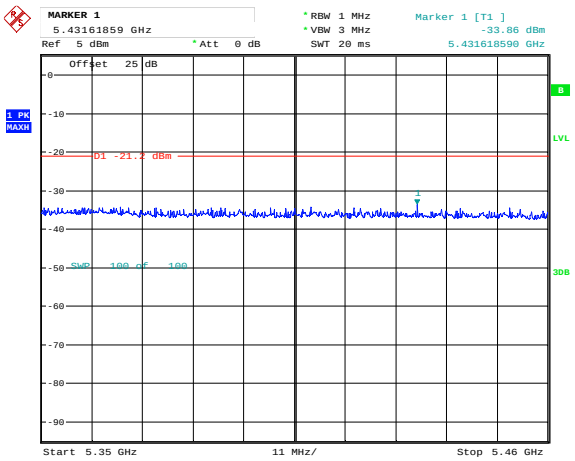
High channel (Ave)



Date: 2.JUL.2015 19:53:00

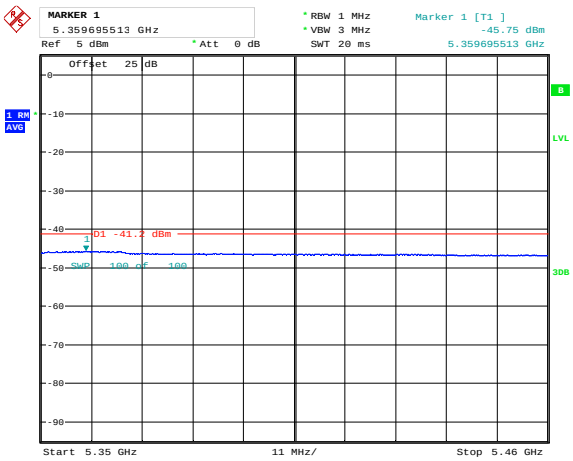
802.11n40 mode

Low channel (Peak)



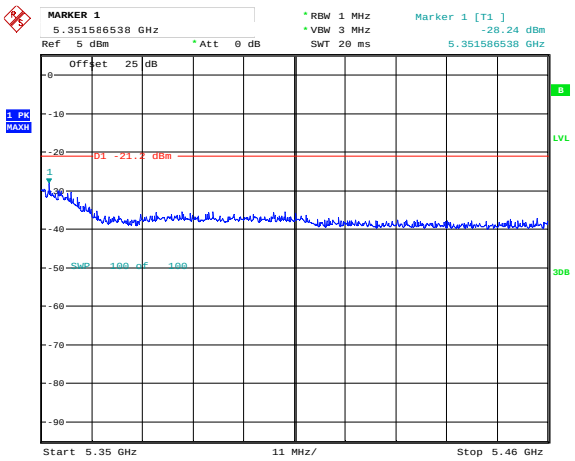
Date: 2.JUL.2015 20:03:14

Low channel (Ave)



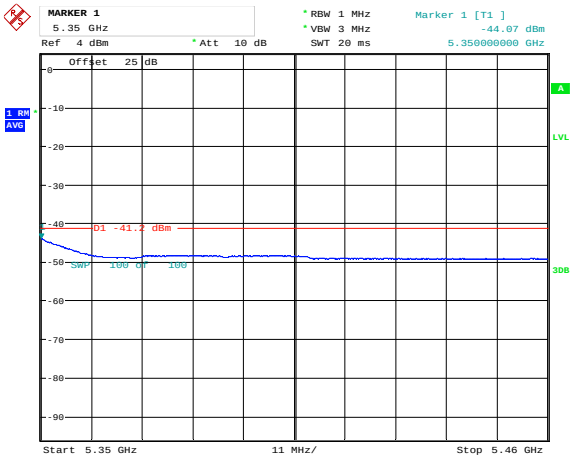
Date: 2.JUL.2015 20:03:50

High channel (Peak)



Date: 2.JUL.2015 20:05:12

High channel (Ave)



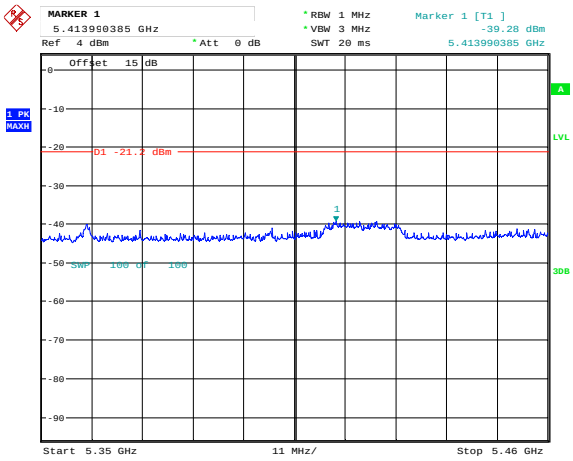
Date: 2.OCT.2015 19:56:03

5.6 GHz Band

Antenna gain=4 dBi (Chain 0)

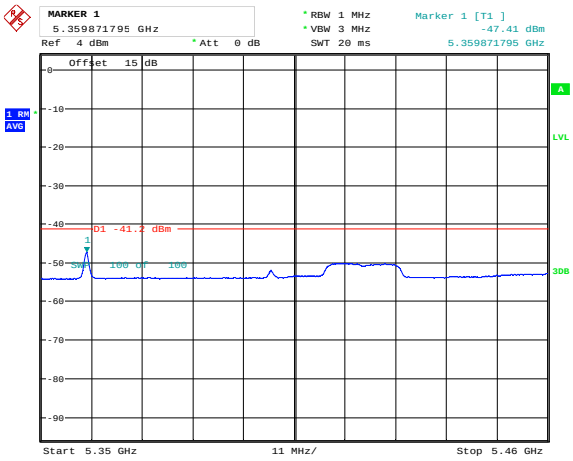
802.11a mode

Low channel (Peak)



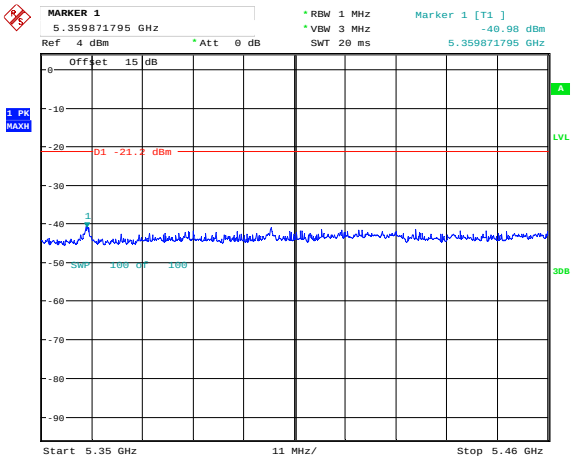
Date: 23.JUN.2015 20:19:21

Low channel (Ave)



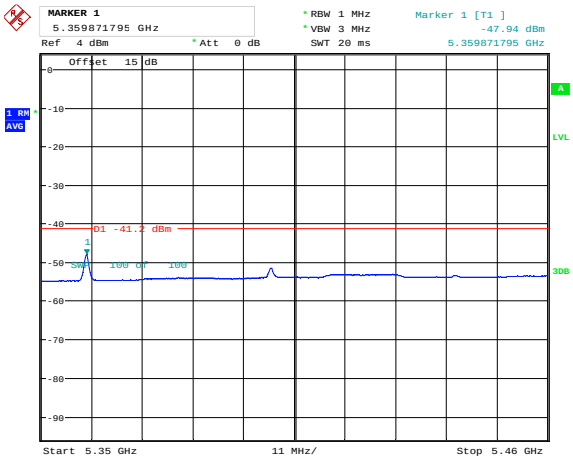
Date: 23.JUN.2015 20:20:00

Middle channel (Peak)



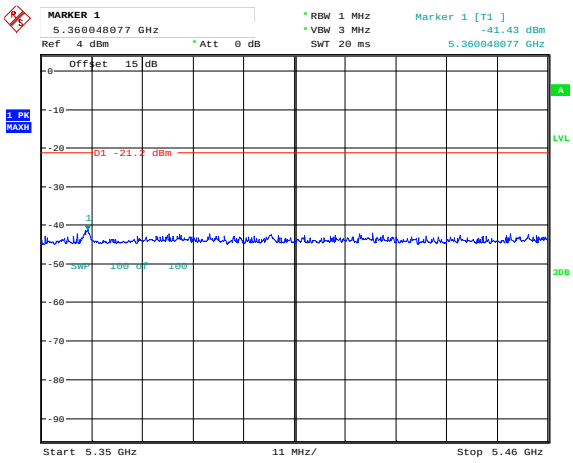
Date: 23.JUN.2015 20:21:43

Middle channel (Ave)



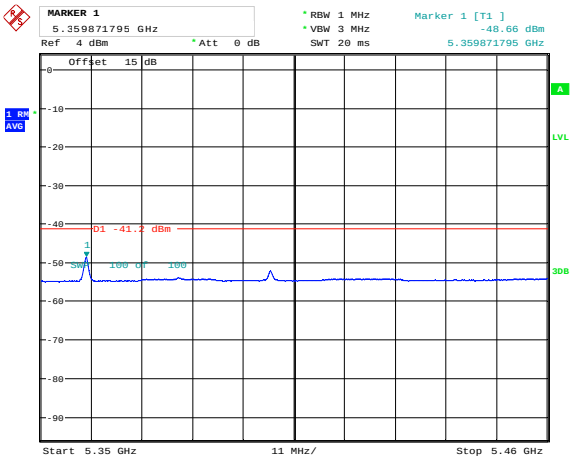
Date: 23.JUN.2015 20:21:14

High channel (Peak)



Date: 23.JUN.2015 20:22:30

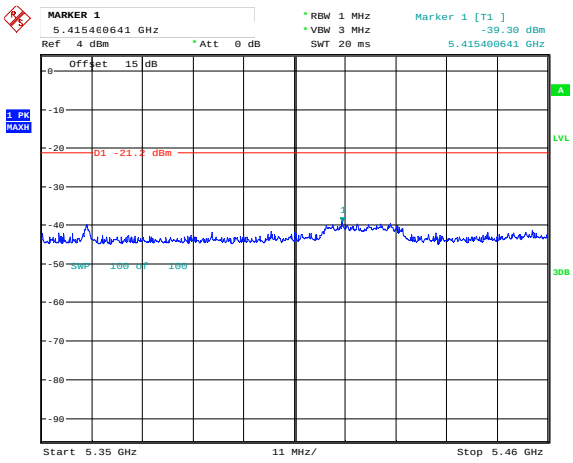
High channel (Ave)



Date: 23.JUN.2015 20:22:54

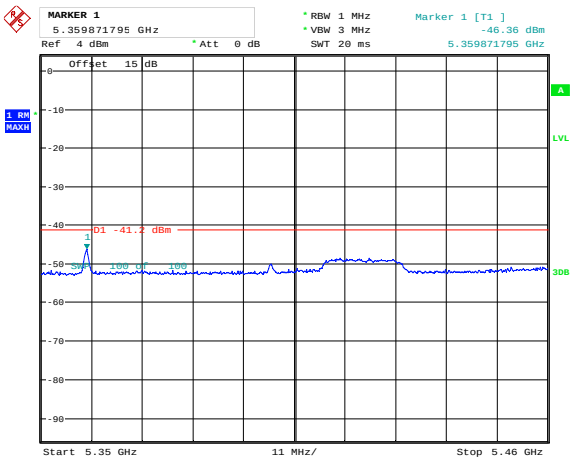
802.11n20 mode

Low channel (Peak)



Date: 23.JUN.2015 20:24:43

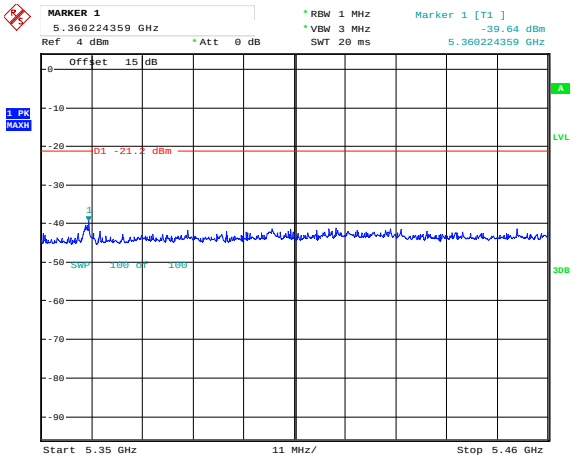
Low channel (Ave)



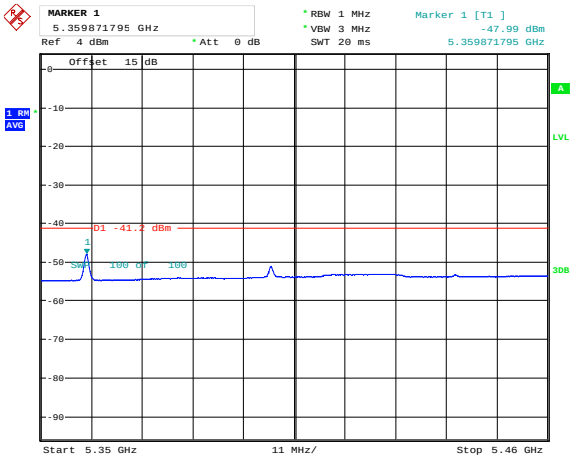
Date: 23.JUN.2015 20:24:17

Middle channel (Peak)

Middle channel (Ave)

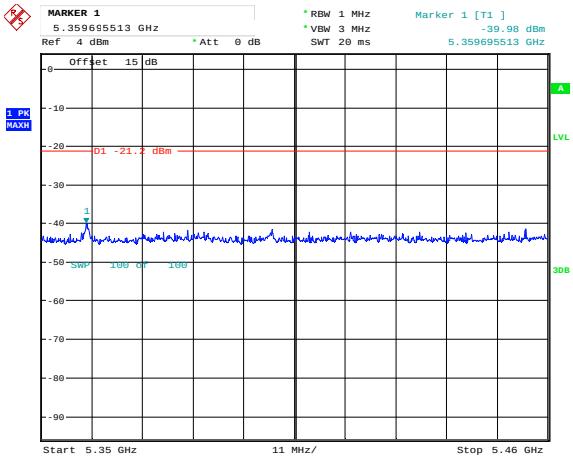


Date: 23.JUN.2015 20:25:33



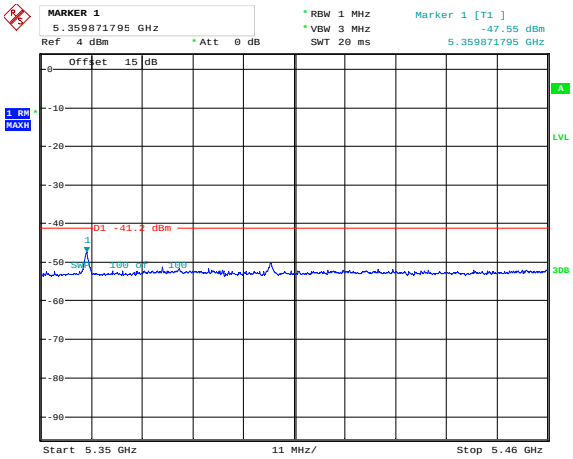
Date: 23.JUN.2015 20:26:35

High channel (Peak)



Date: 23.JUN.2015 20:27:48

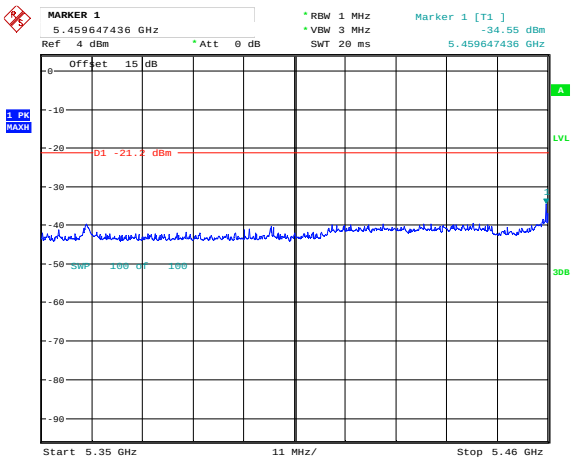
High channel (Ave)



Date: 23.JUN.2015 20:27:18

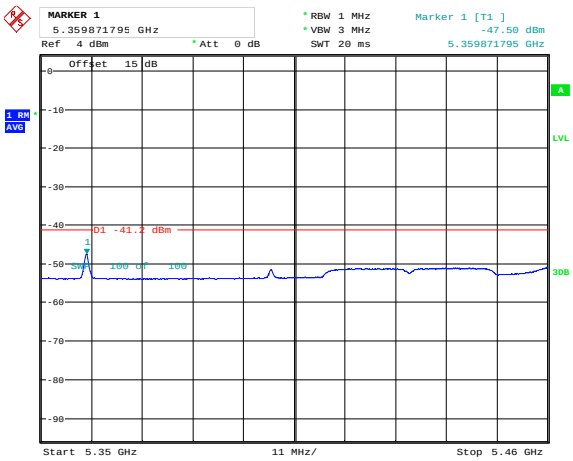
802.11n40 mode

Low channel (Peak)



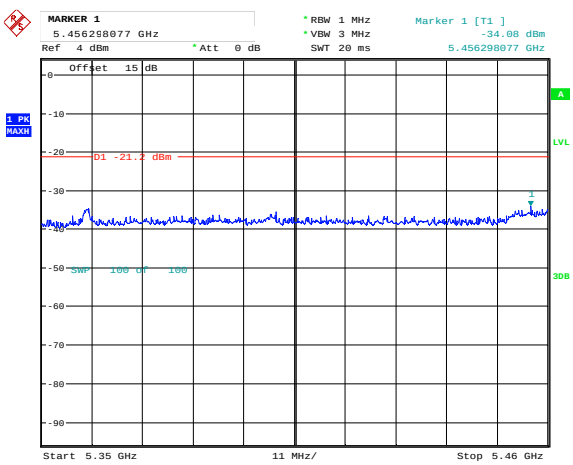
Date: 23.JUN.2015 20:31:21

Low channel (Ave)



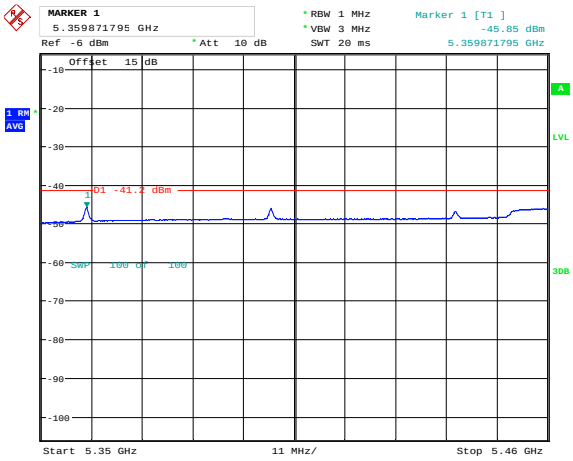
Date: 23.JUN.2015 20:30:27

Middle channel (Peak)



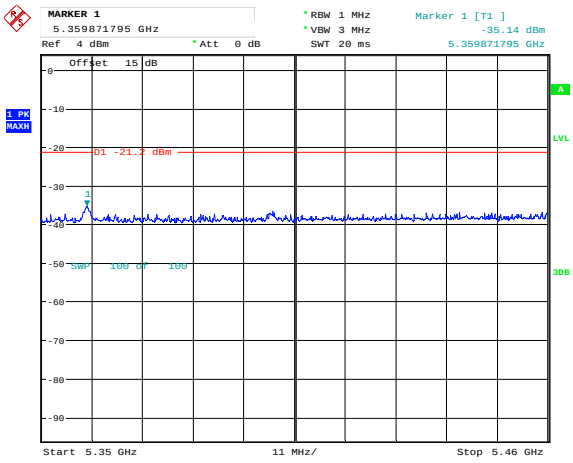
Date: 23.JUN.2015 20:32:31

Middle channel (Ave)



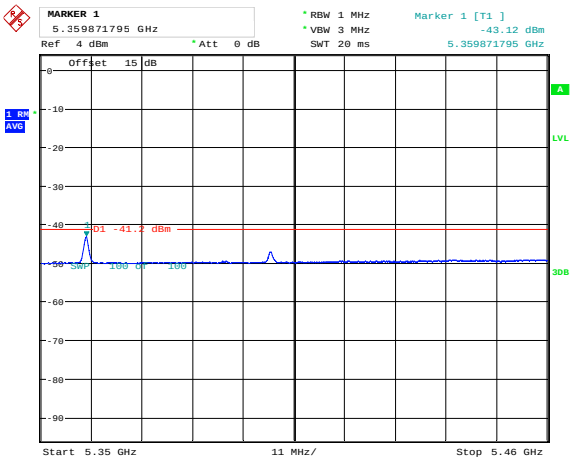
Date: 2.OCT.2015 19:58:08

High channel (Peak)



Date: 23.JUN.2015 20:35:54

High channel (Ave)

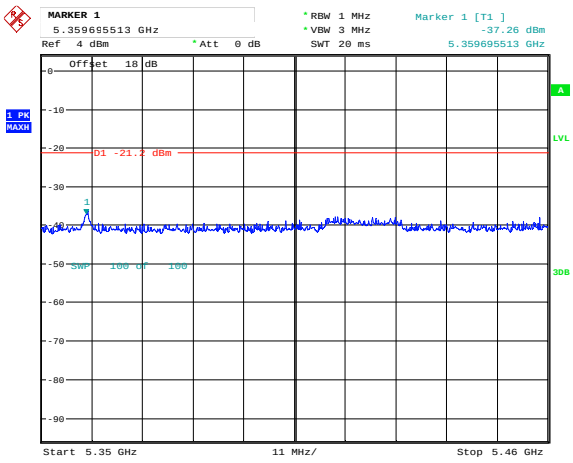


Date: 23.JUN.2015 20:33:55

Antenna gain=7 dBi (Chain 0)

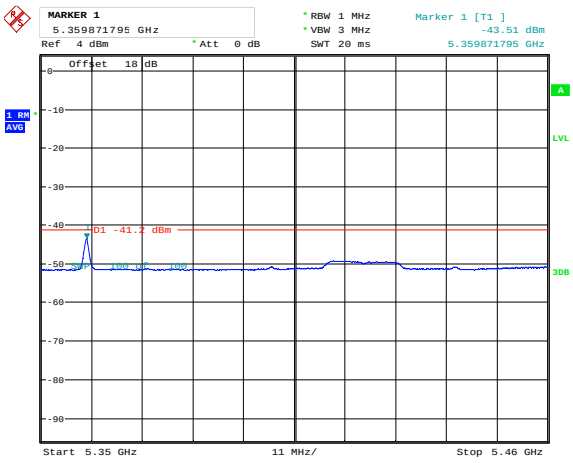
802.11a mode

Low channel (Peak)



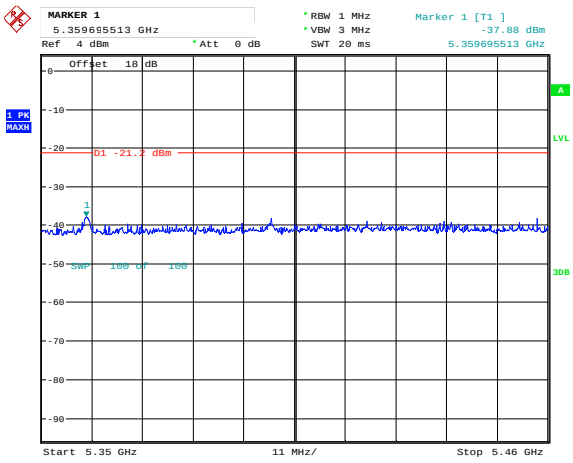
Date: 22.JUN.2015 22:34:19

Low channel (Ave)



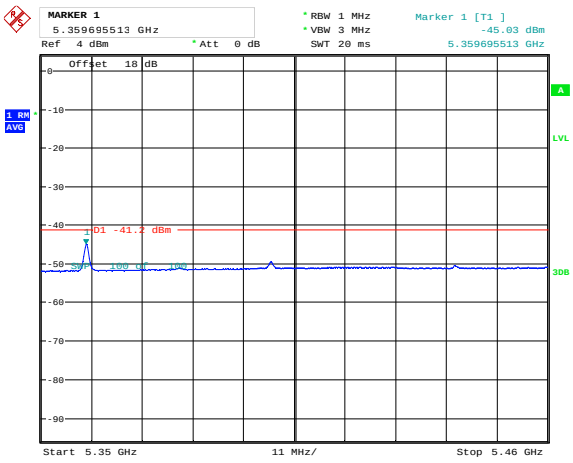
Date: 22.JUN.2015 22:35:02

Middle channel (Peak)



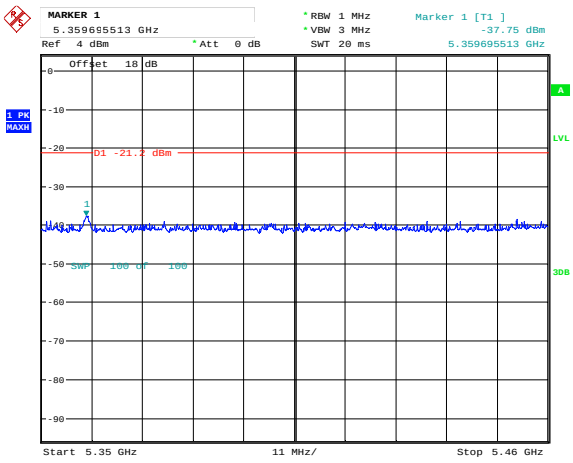
Date: 22.JUN.2015 22:36:40

Middle channel (Ave)



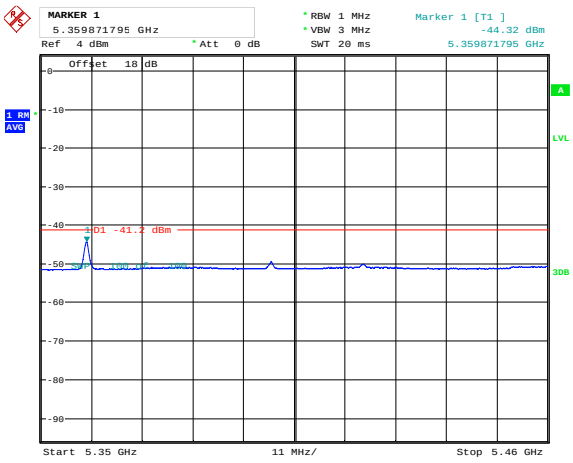
Date: 22.JUN.2015 22:36:16

High channel (Peak)



Date: 22.JUN.2015 22:37:35

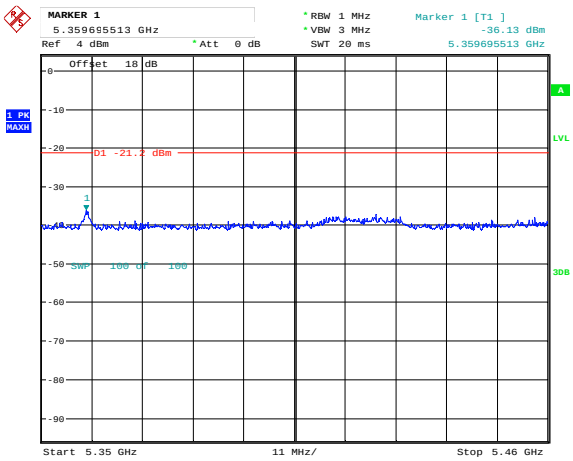
High channel (Ave)



Date: 22.JUN.2015 22:38:04

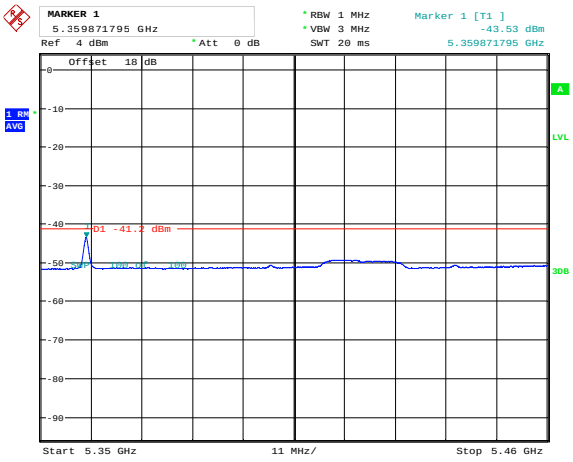
802.11n20 mode

Low channel (Peak)



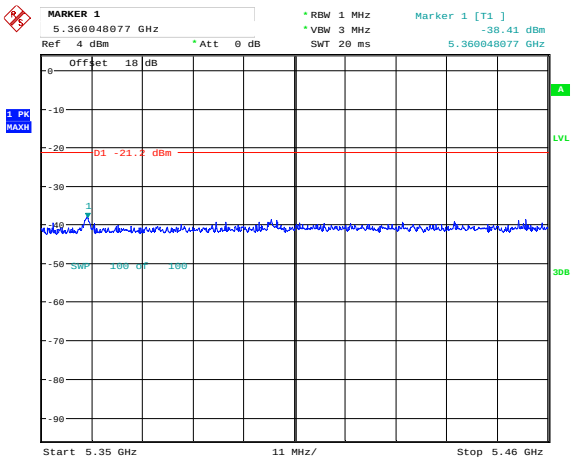
Date: 22.JUN.2015 22:40:58

Low channel (Ave)



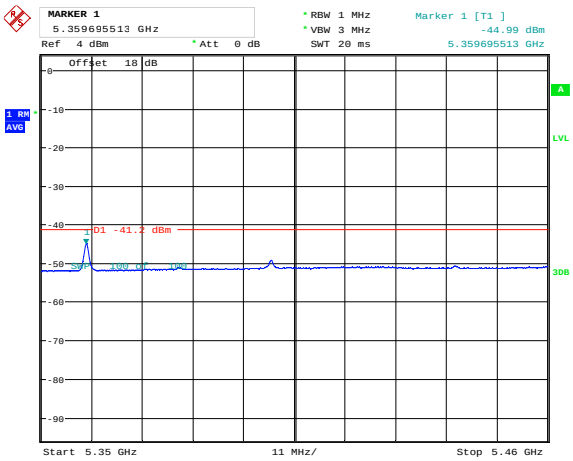
Date: 22.JUN.2015 22:39:45

Middle channel (Peak)



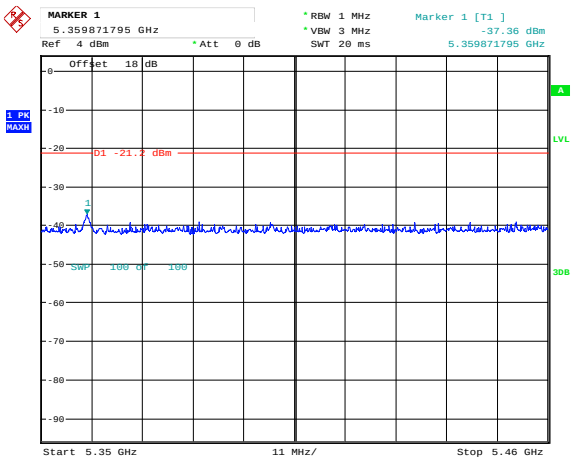
Date: 22.JUN.2015 22:41:47

Middle channel (Ave)



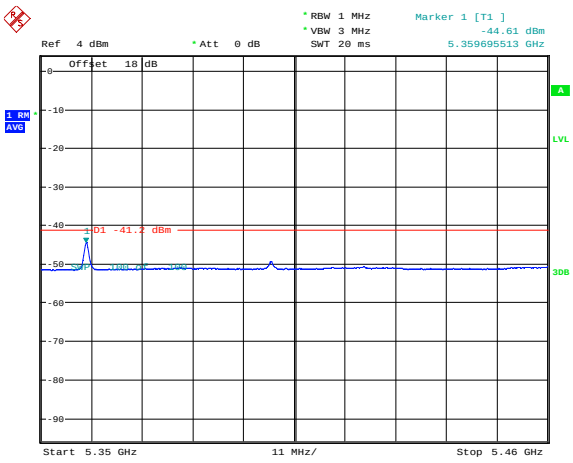
Date: 22.JUN.2015 22:42:11

High channel (Peak)



Date: 22.JUN.2015 22:43:23

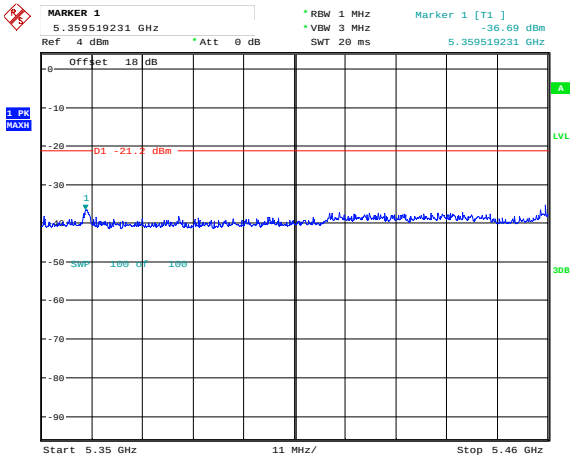
High channel (Ave)



Date: 22.JUN.2015 22:43:00

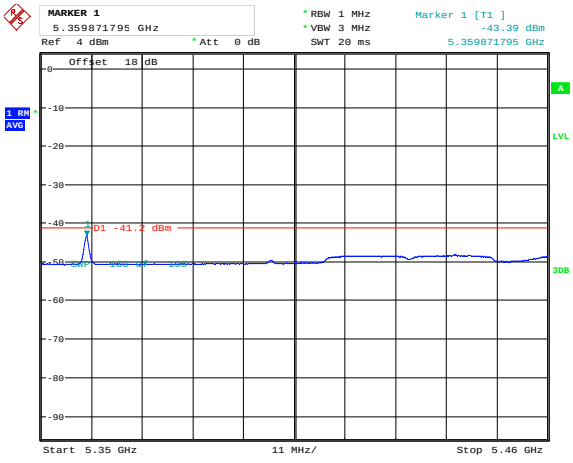
802.11n40 mode

Low channel (Peak)



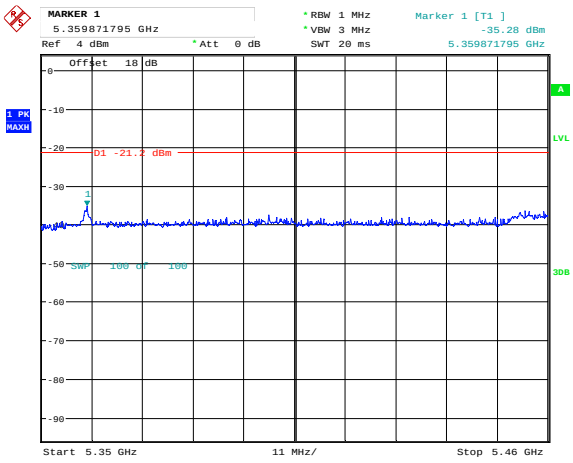
Date: 22.JUN.2015 22:47:18

Low channel (Ave)



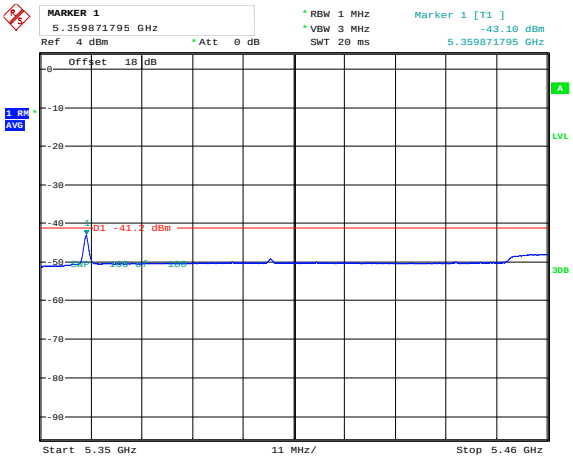
Date: 22.JUN.2015 22:46:28

Middle channel (Peak)



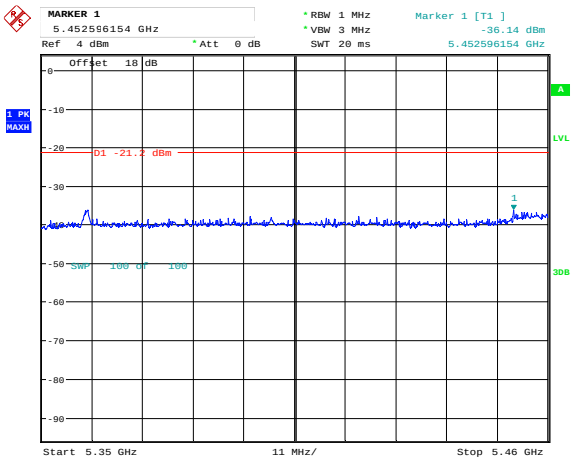
Date: 22.JUN.2015 22:53:07

Middle channel (Ave)



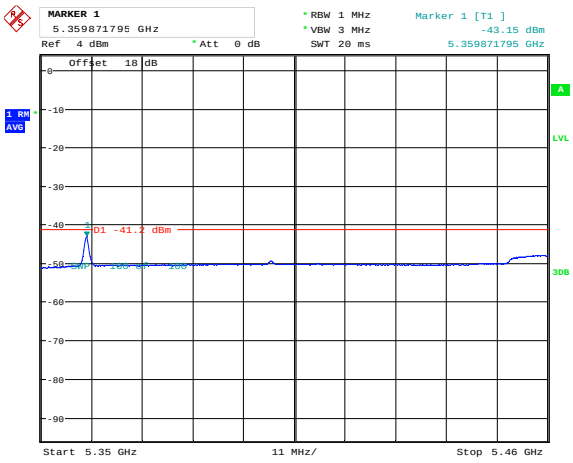
Date: 22.JUN.2015 22:52:10

High channel (Peak)



Date: 22.JUN.2015 22:56:42

High channel (Ave)

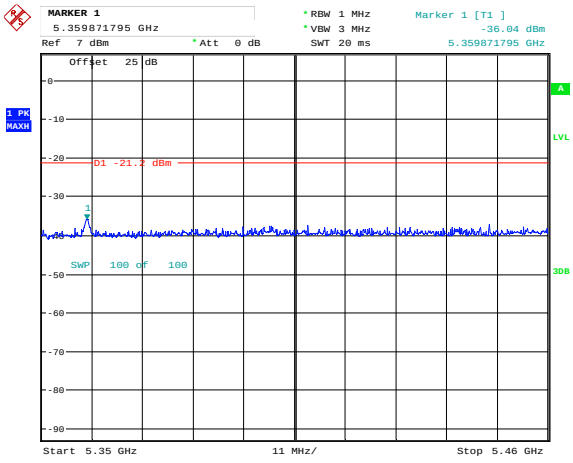


Date: 22.JUN.2015 22:55:50

Antenna gain=14 dBi (Chain 0)

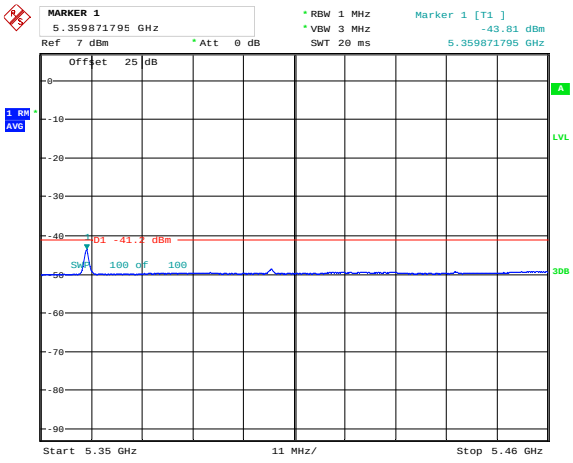
802.11a mode

Low channel (Peak)



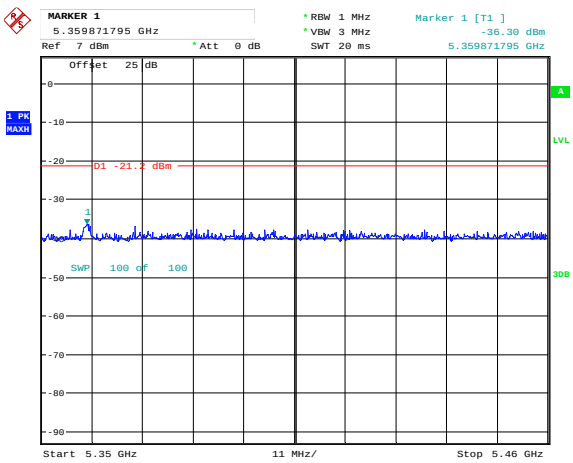
Date: 22.JUN.2015 20:12:56

Low channel (Ave)



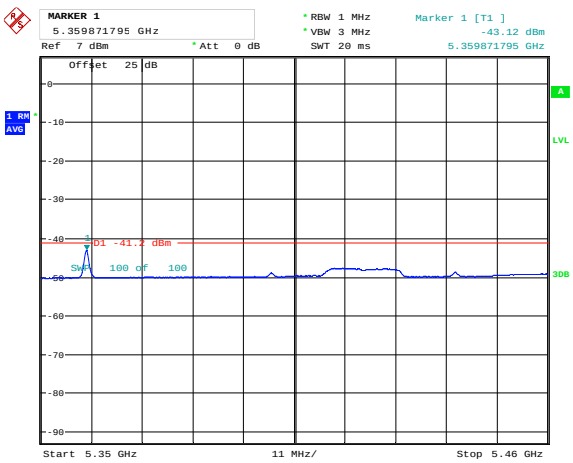
Date: 22.JUN.2015 20:15:54

Middle channel (Peak)



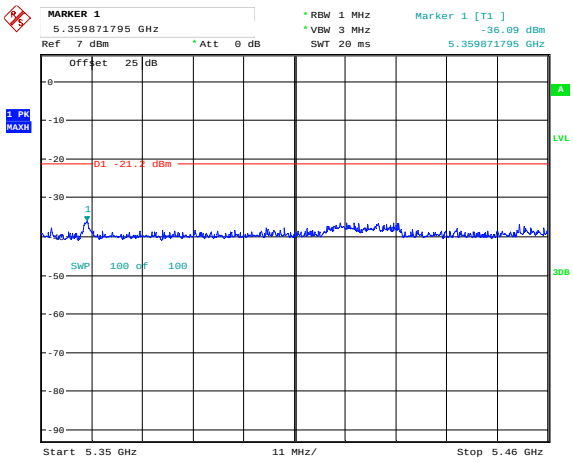
Date: 22.JUN.2015 20:16:23

Middle channel (Ave)



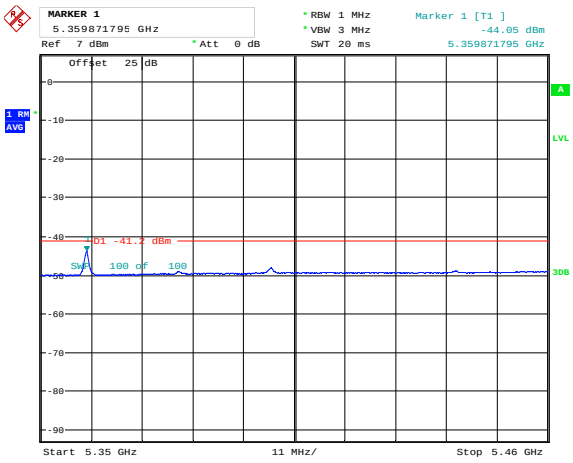
Date: 22.JUN.2015 20:09:23

High channel (Peak)



Date: 22.JUN.2015 20:10:18

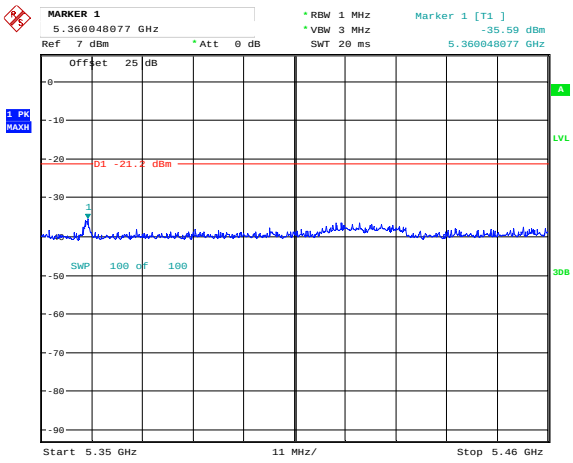
High channel (Ave)



Date: 22.JUN.2015 20:12:23

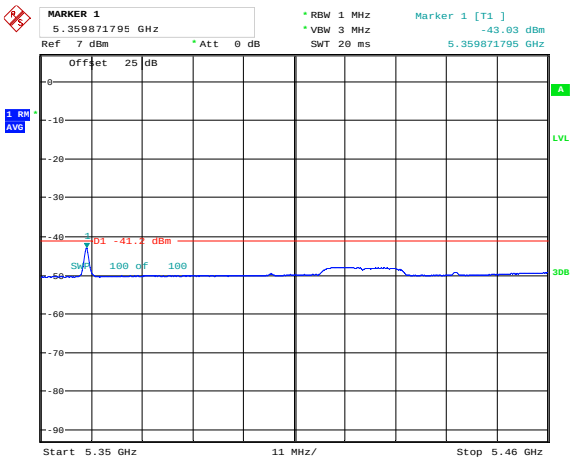
802.11n20 mode

Low channel (Peak)



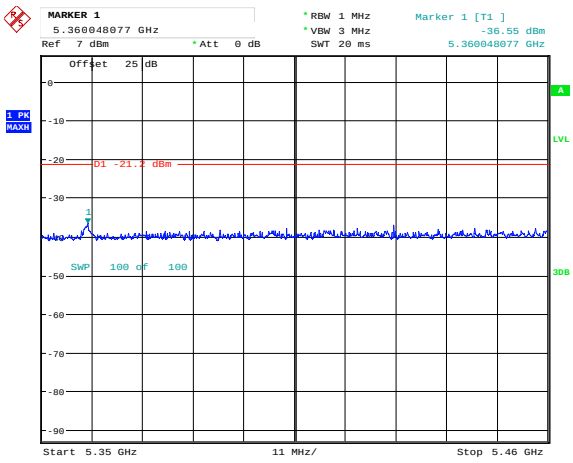
Date: 22.JUN.2015 20:20:41

Low channel (Ave)



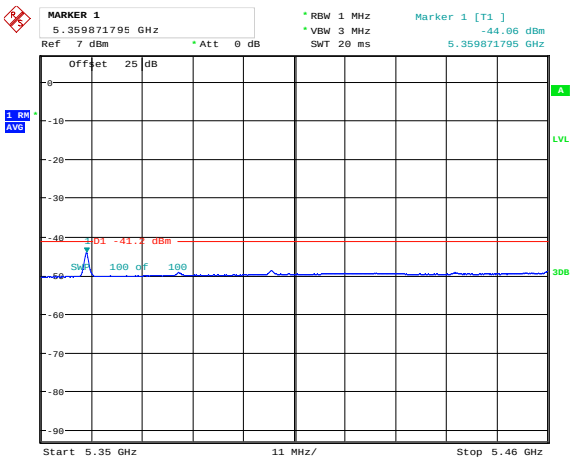
Date: 22.JUN.2015 20:19:47

Middle channel (Peak)



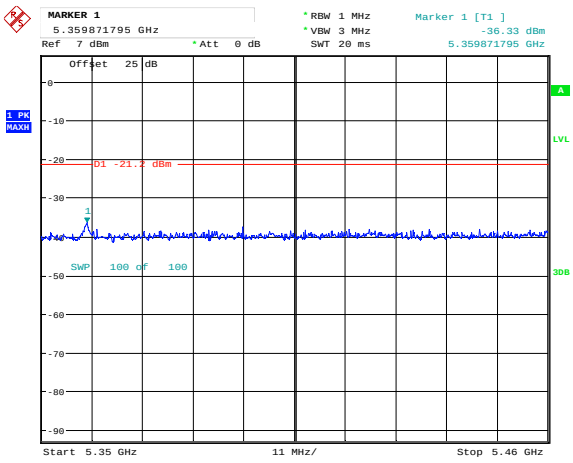
Date: 22.JUN.2015 20:23:23

Middle channel (Ave)



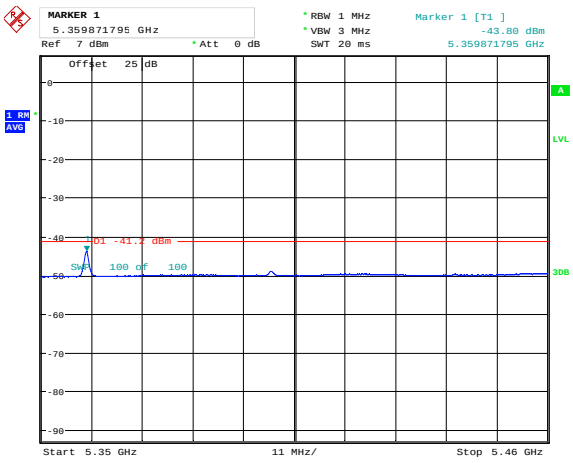
Date: 22.JUN.2015 20:22:45

High channel (Peak)



Date: 22.JUN.2015 20:25:19

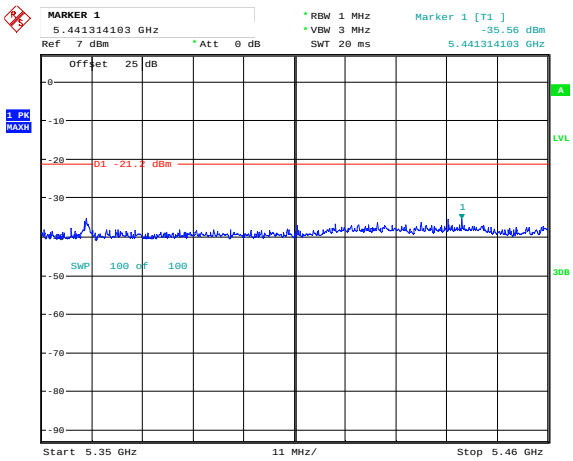
High channel (Ave)



Date: 22.JUN.2015 20:24:47

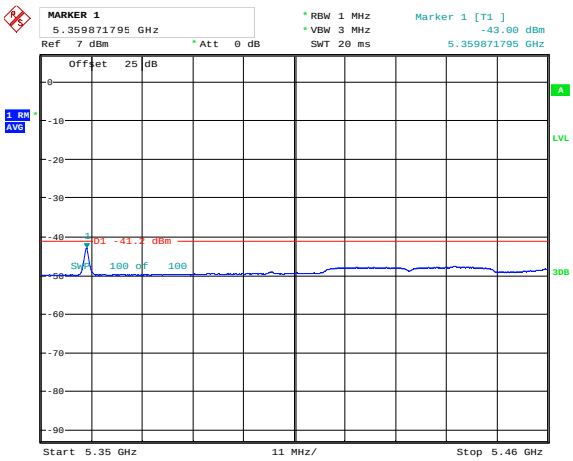
802.11n40 mode

Low channel (Peak)



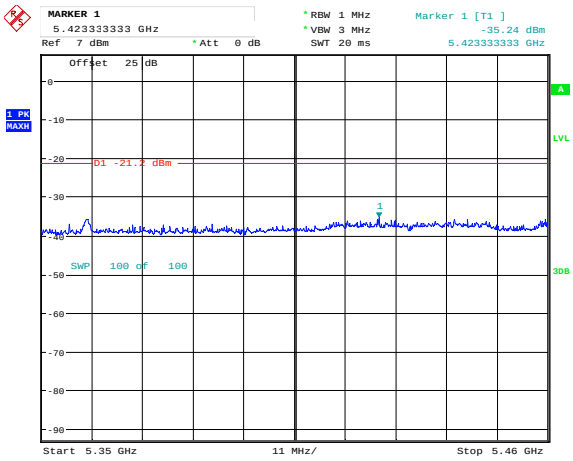
Date: 22.JUN.2015 20:29:26

Low channel (Ave)



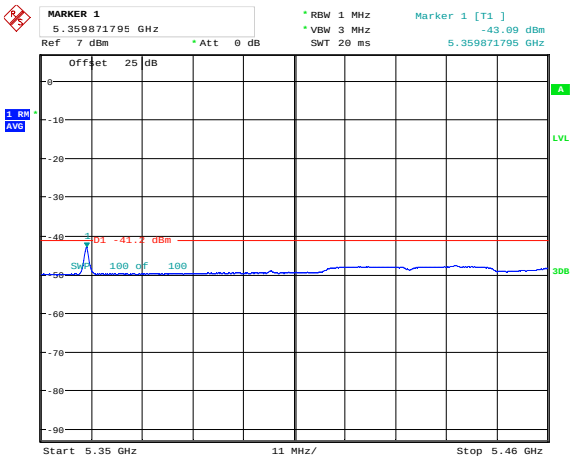
Date: 22.JUN.2015 20:27:56

Middle channel (Peak)



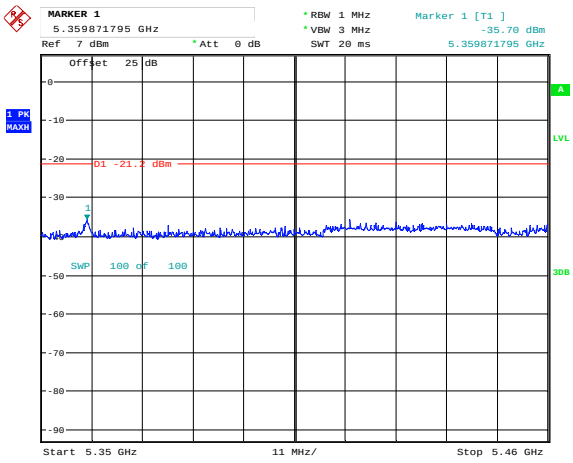
Date: 22.JUN.2015 20:35:07

Middle channel (Ave)



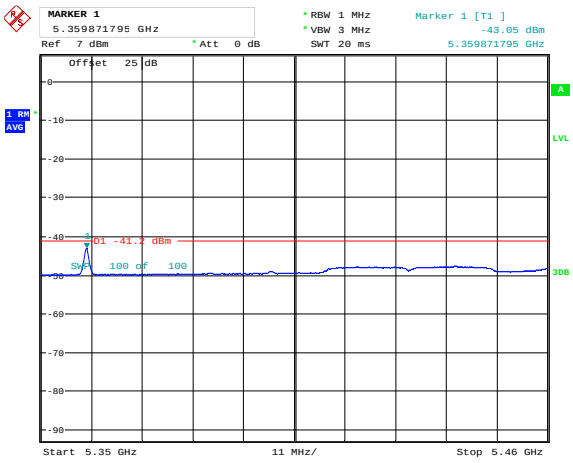
Date: 22.JUN.2015 20:33:38

High channel (Peak)



Date: 22.JUN.2015 20:38:29

High channel (Ave)

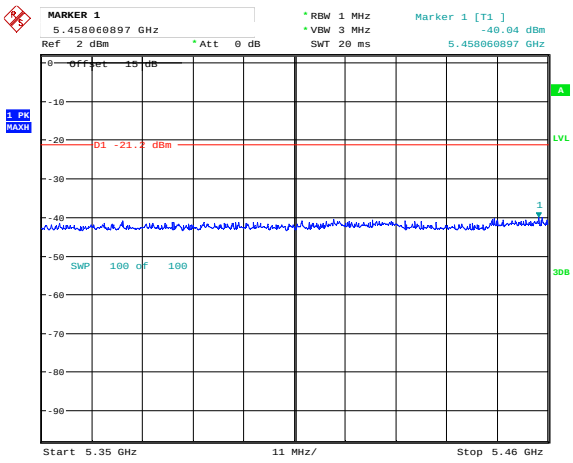


Date: 22.JUN.2015 20:37:55

Antenna gain=4 dBi (Chain 1)

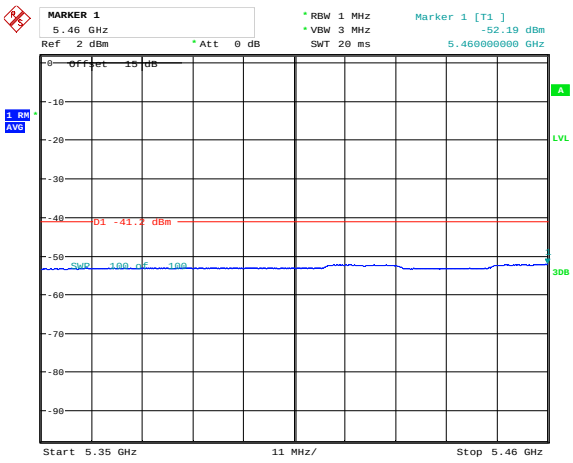
802.11a mode

Low channel (Peak)



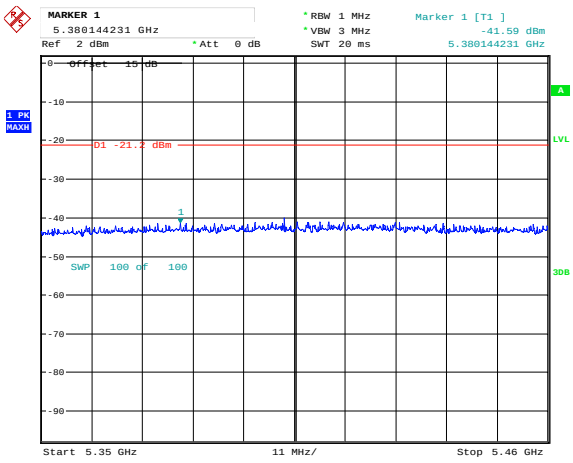
Date: 2.JUL.2015 16:35:32

Low channel (Ave)



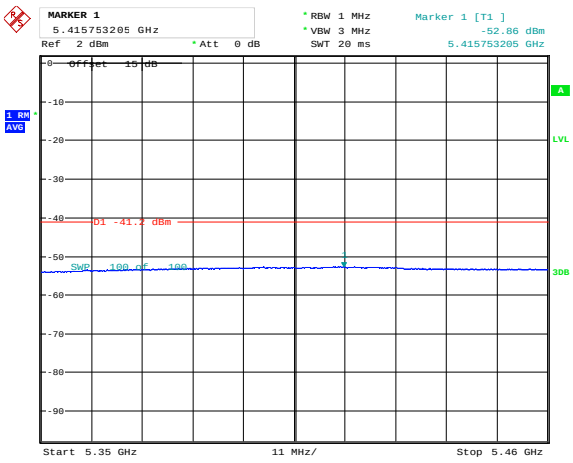
Date: 2.JUL.2015 16:36:04

Middle channel (Peak)



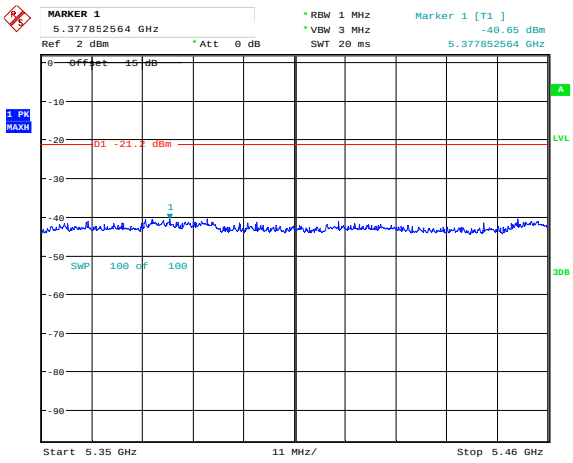
Date: 2.JUL.2015 16:37:01

Middle channel (Ave)



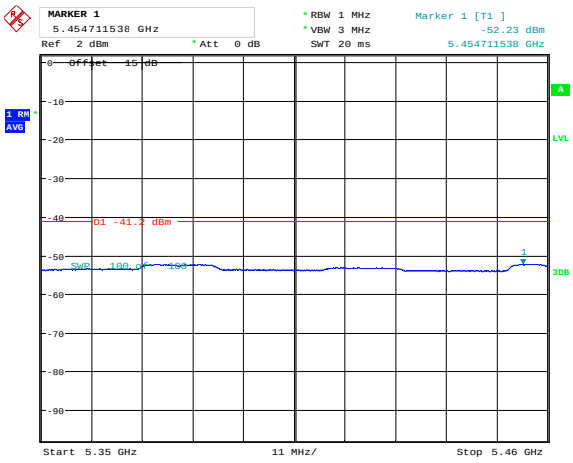
Date: 2.JUL.2015 16:36:35

High channel (Peak)



Date: 2.JUL.2015 16:37:40

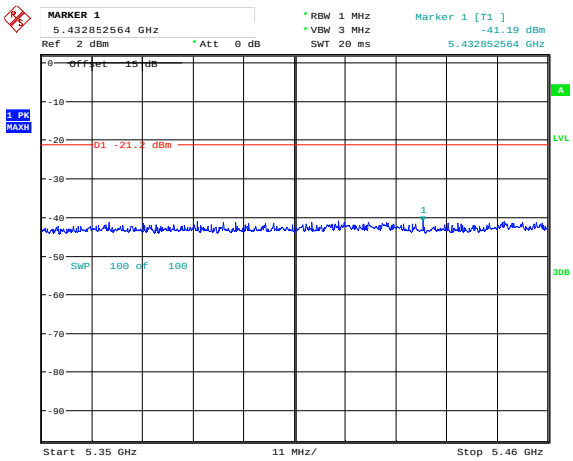
High channel (Ave)



Date: 2.JUL.2015 16:38:07

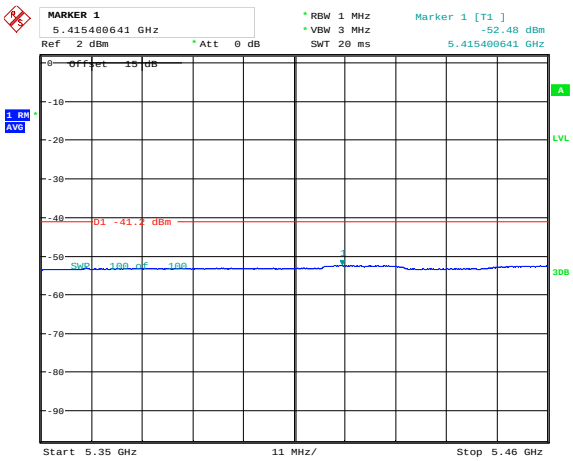
802.11n20 mode

Low channel (Peak)



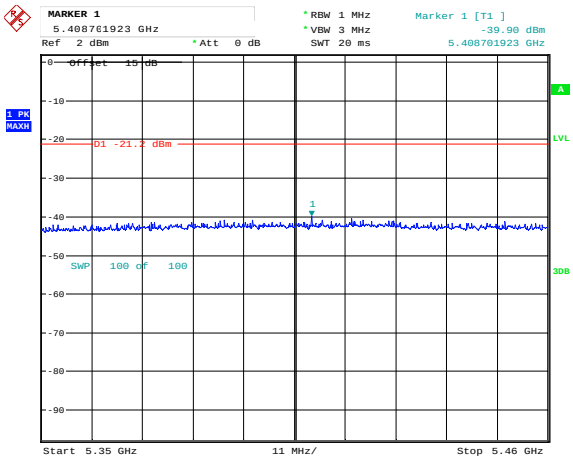
Date: 2.JUL.2015 16:50:31

Low channel (Ave)



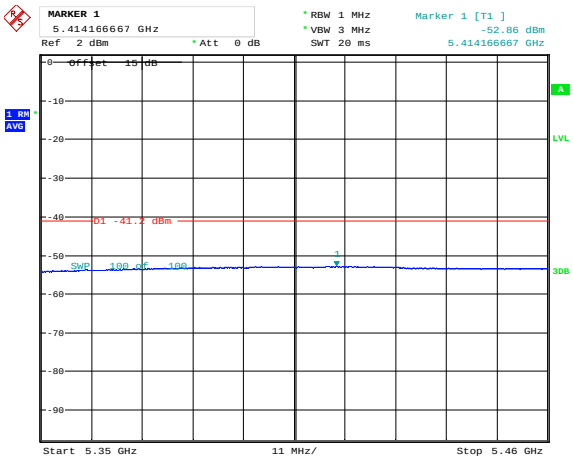
Date: 2.JUL.2015 16:50:56

Middle channel (Peak)



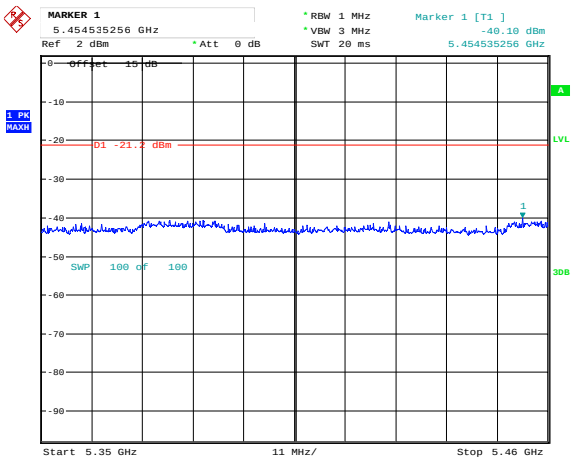
Date: 2.JUL.2015 16:52:16

Middle channel (Ave)



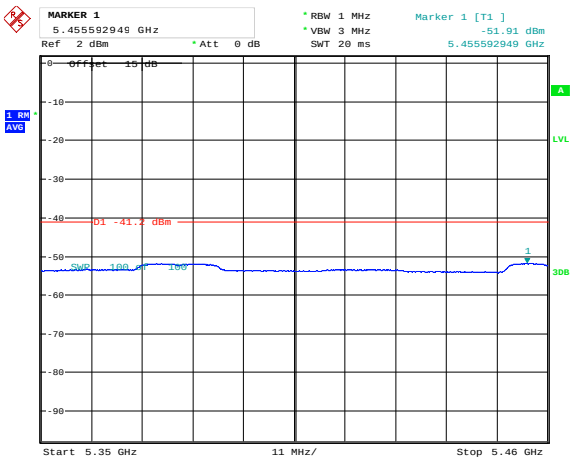
Date: 2.JUL.2015 16:51:25

High channel (Peak)



Date: 2.JUL.2015 16:53:02

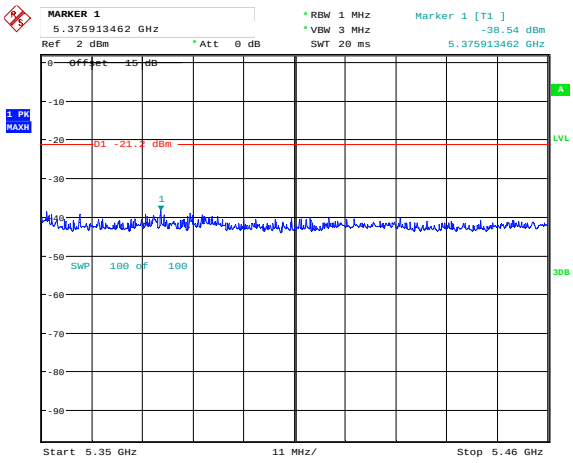
High channel (Ave)



Date: 2.JUL.2015 16:53:38

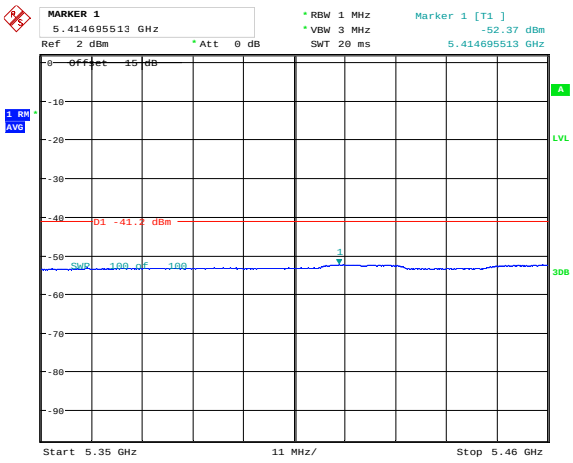
802.11n40 mode

Low channel (Peak)



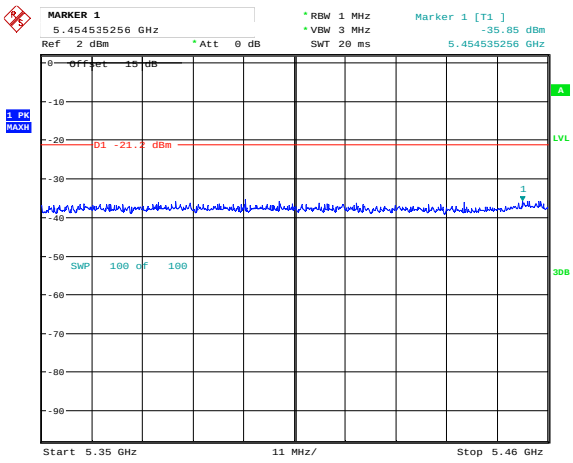
Date: 2.JUL.2015 17:07:41

Low channel (Ave)



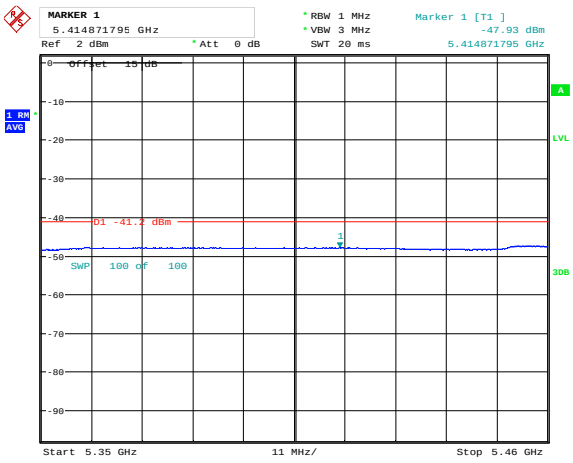
Date: 2.JUL.2015 17:08:04

Middle channel (Peak)



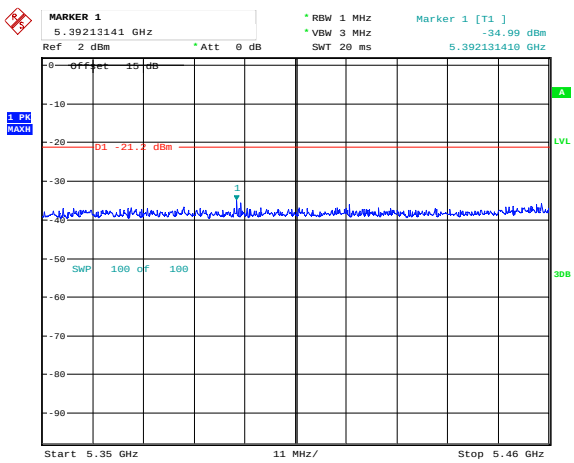
Date: 2.JUL.2015 17:08:48

Middle channel (Ave)



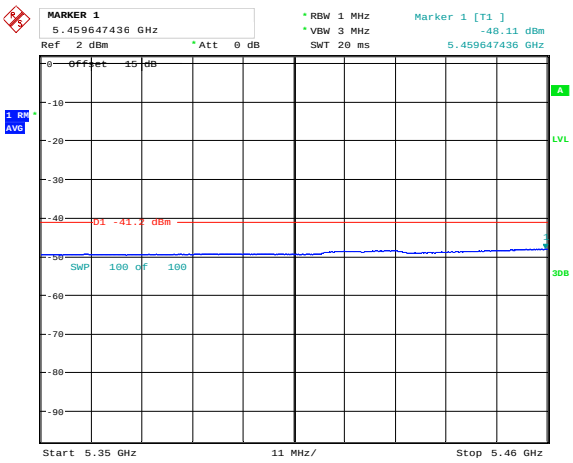
Date: 2.JUL.2015 17:08:24

High channel (Peak)



Date: 2.JUL.2015 17:09:19

High channel (Ave)

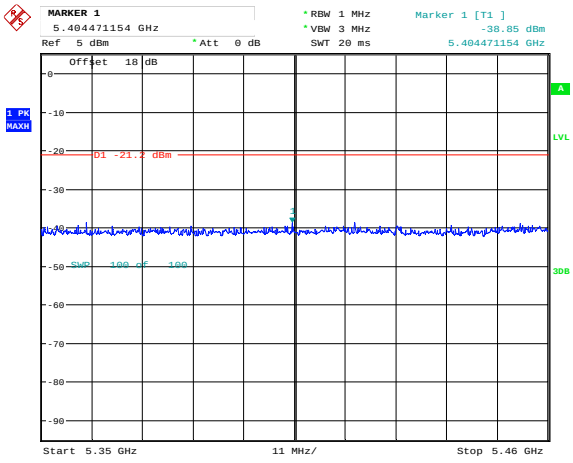


Date: 2.JUL.2015 17:10:05

Antenna gain=7 dBi (Chain 1)

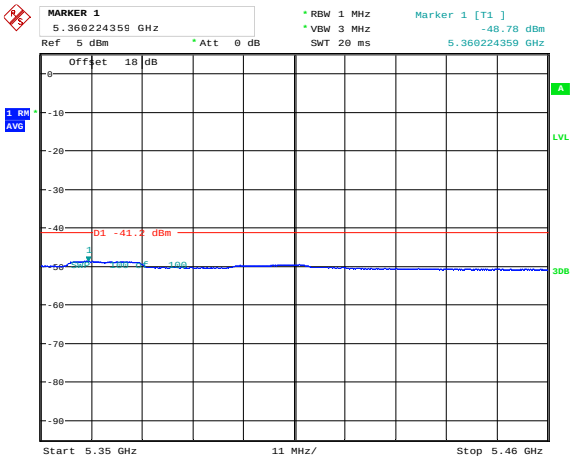
802.11a mode

Low channel (Peak)



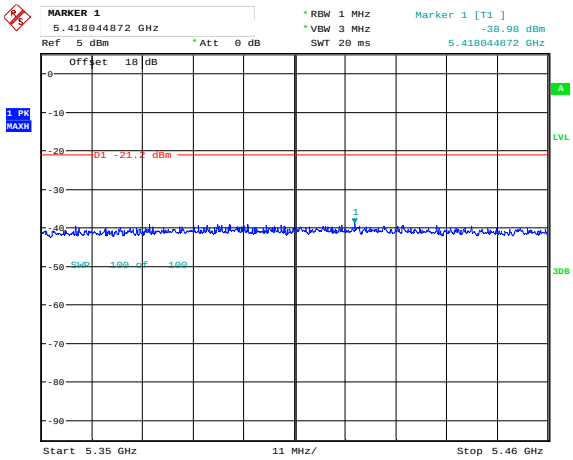
Date: 2.JUL.2015 17:22:07

Low channel (Ave)



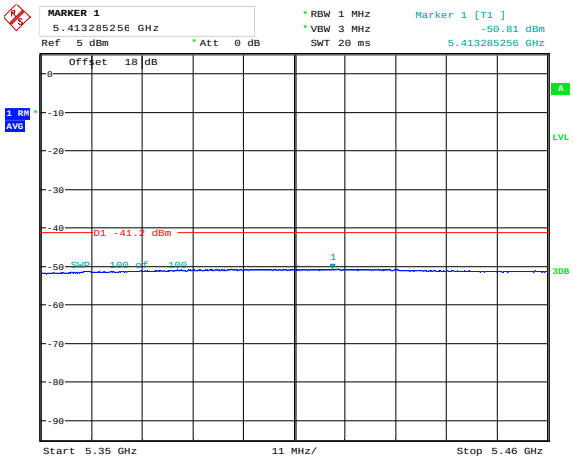
Date: 2.JUL.2015 17:21:37

Middle channel (Peak)



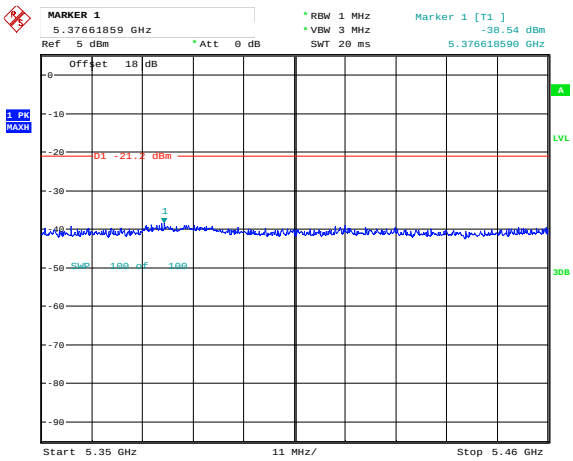
Date: 2.JUL.2015 17:22:27

Middle channel (Ave)



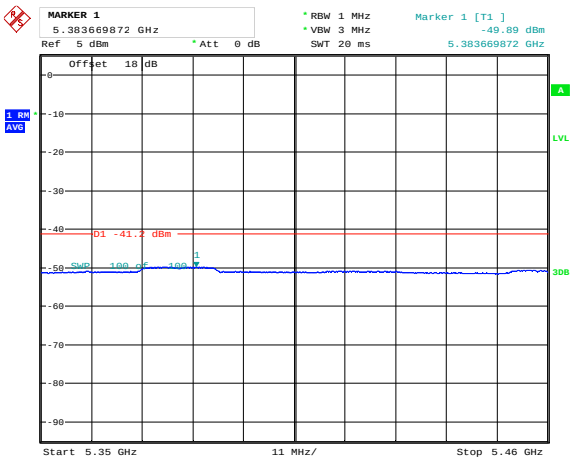
Date: 2.JUL.2015 17:22:53

High channel (Peak)



Date: 2.JUL.2015 17:23:45

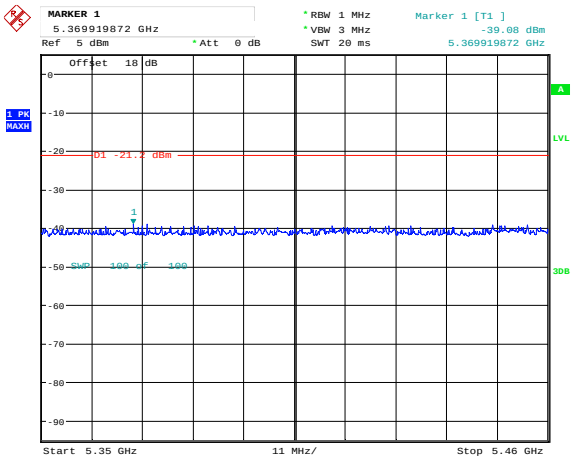
High channel (Ave)



Date: 2.JUL.2015 17:23:22

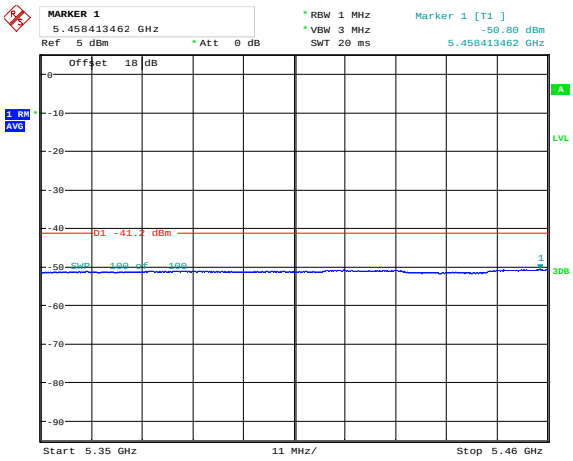
802.11n20 mode

Low channel (Peak)



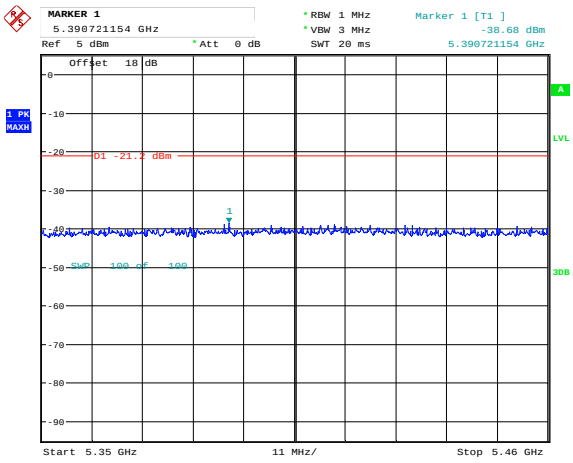
Date: 2.JUL.2015 17:38:52

Low channel (Ave)



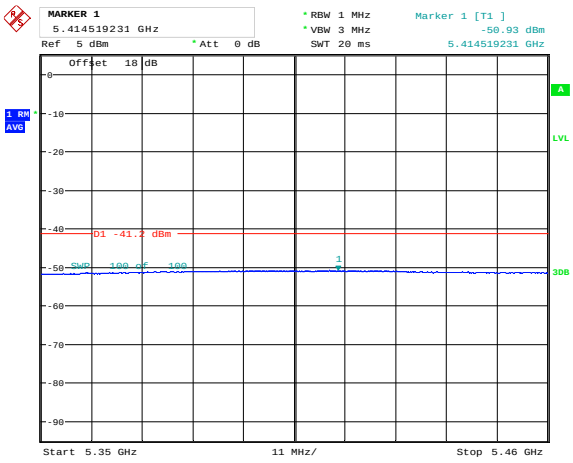
Date: 2.JUL.2015 17:37:59

Middle channel (Peak)



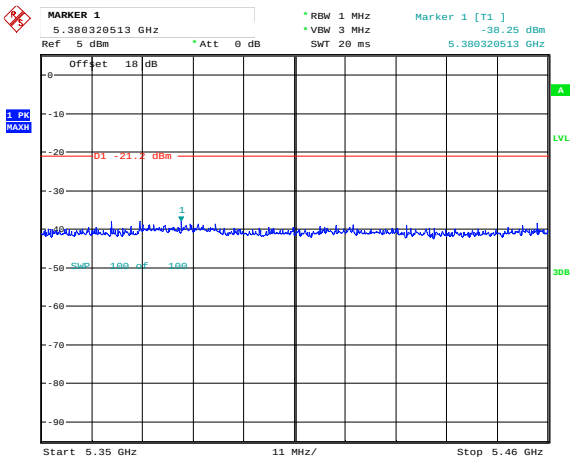
Date: 2.JUL.2015 17:39:18

Middle channel (Ave)



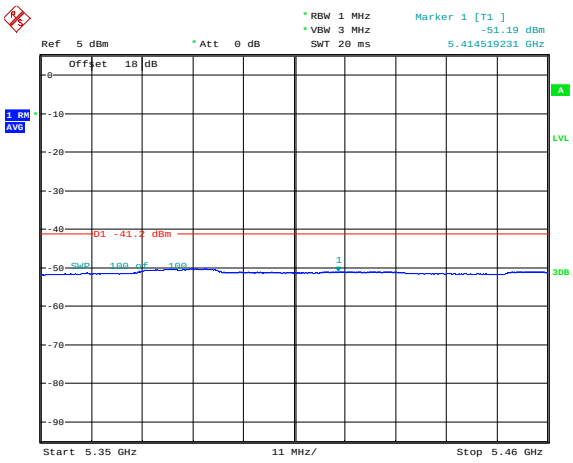
Date: 2.JUL.2015 17:40:32

High channel (Peak)



Date: 2.JUL.2015 17:41:17

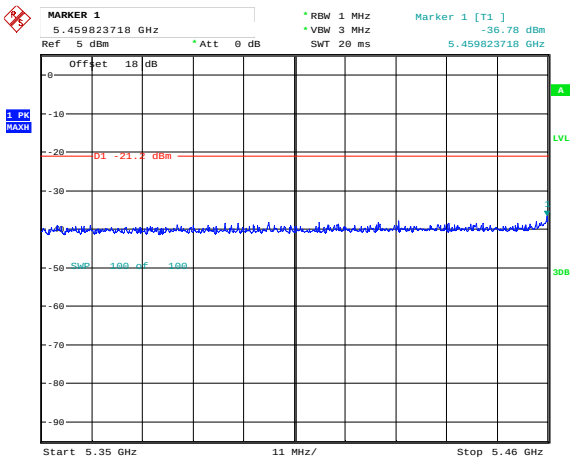
High channel (Ave)



Date: 2.JUL.2015 17:40:54

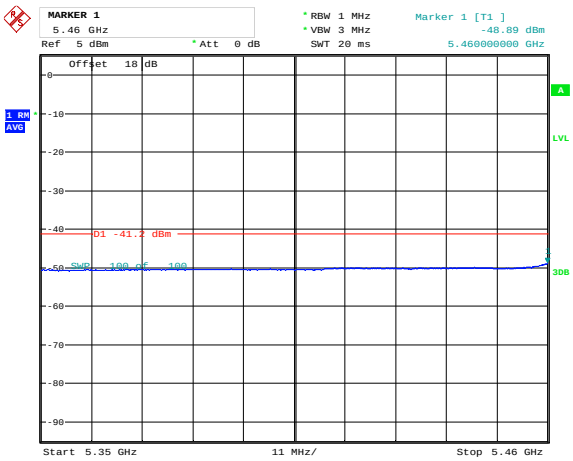
802.11n40 mode

Low channel (Peak)



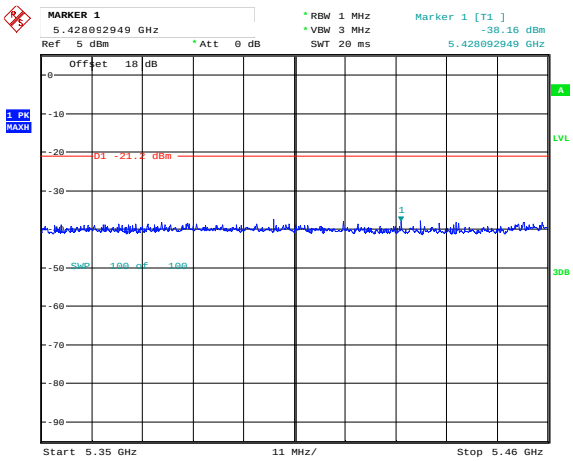
Date: 2.JUL.2015 18:01:53

Low channel (Ave)



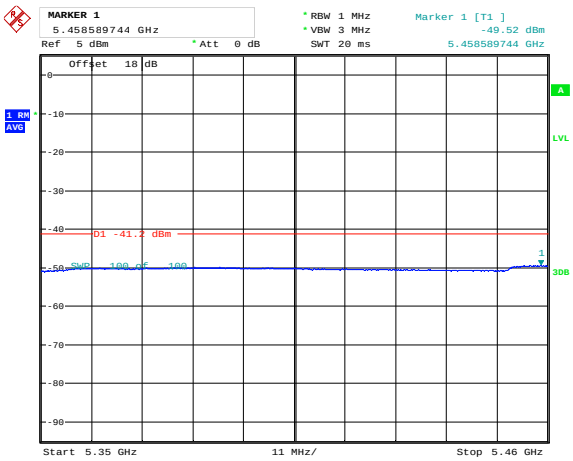
Date: 2.JUL.2015 18:01:26

Middle channel (Peak)



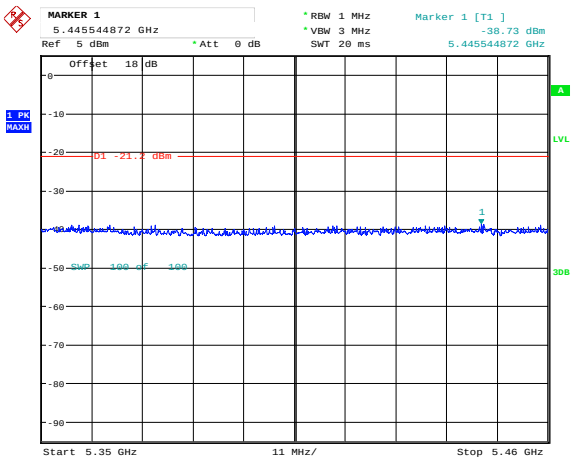
Date: 2.JUL.2015 18:02:24

Middle channel (Ave)



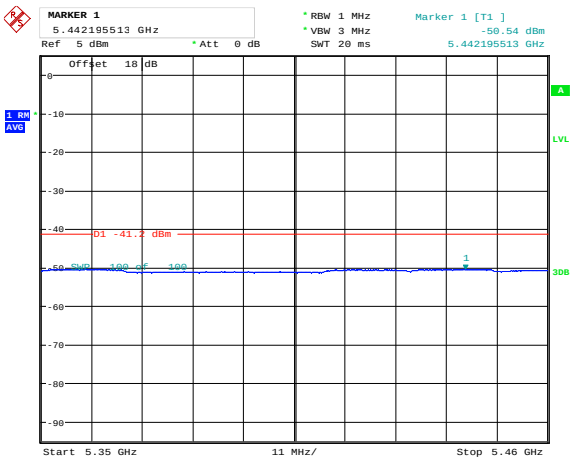
Date: 2.JUL.2015 18:02:50

High channel (Peak)



Date: 2.JUL.2015 18:04:08

High channel (Ave)

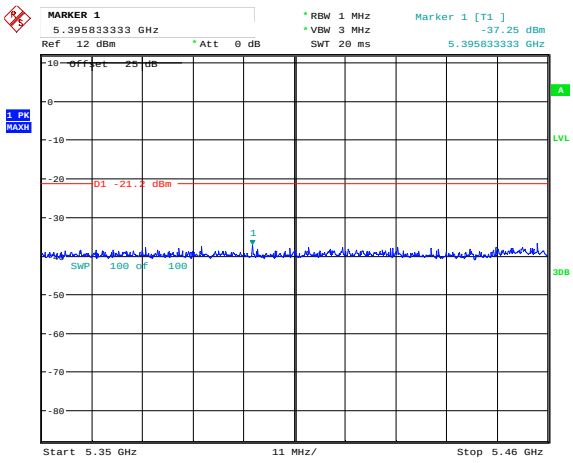


Date: 2.JUL.2015 18:03:43

Antenna gain=14 dBi (Chain 1)

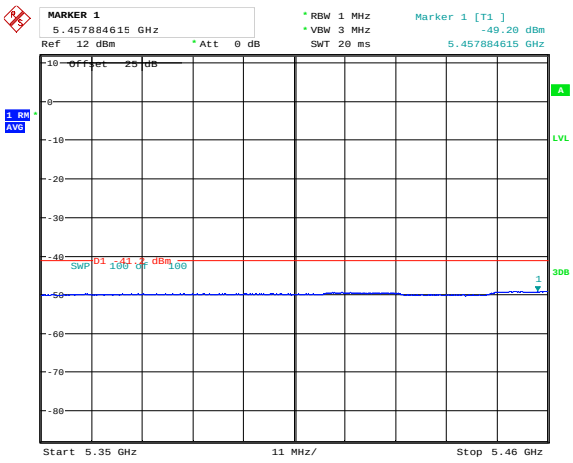
802.11a mode

Low channel (Peak)



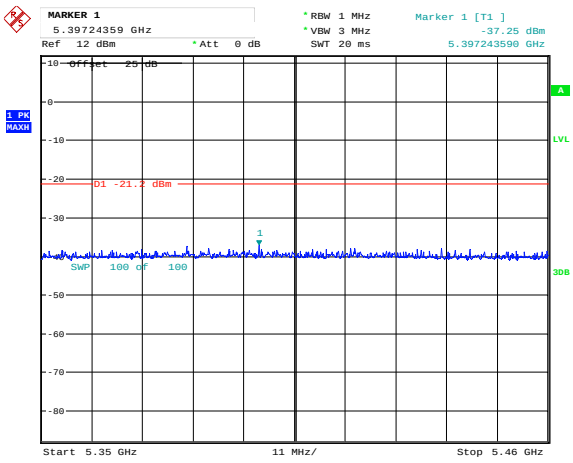
Date: 2.JUL.2015 18:39:19

Low channel (Ave)



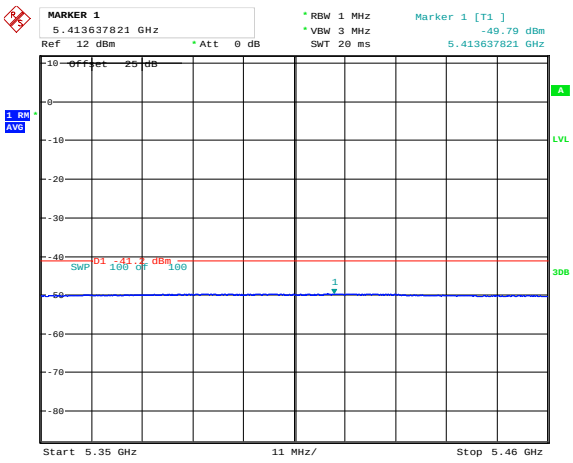
Date: 2.JUL.2015 18:39:41

Middle channel (Peak)



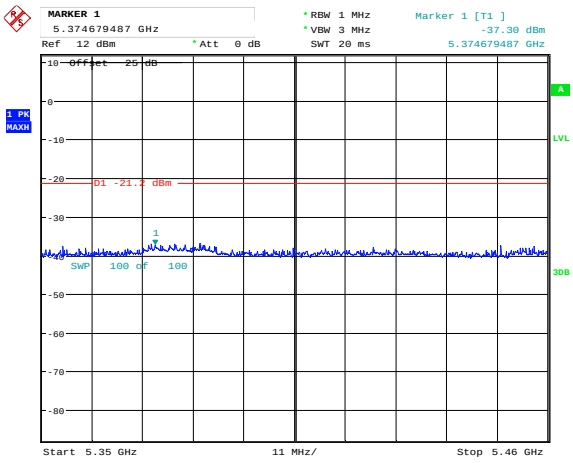
Date: 2.JUL.2015 18:40:49

Middle channel (Ave)



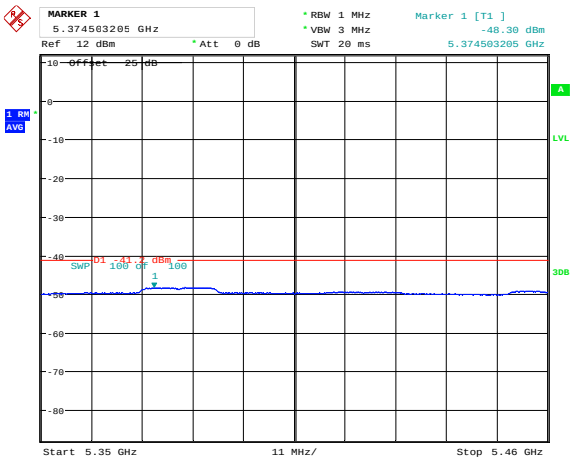
Date: 2.JUL.2015 18:40:09

High channel (Peak)



Date: 2.JUL.2015 18:41:20

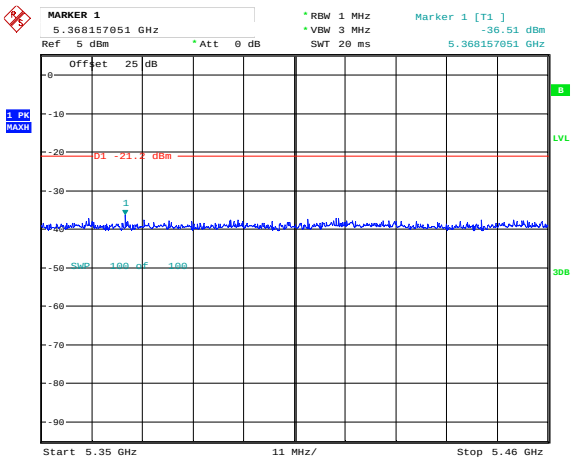
High channel (Ave)



Date: 2.JUL.2015 18:41:45

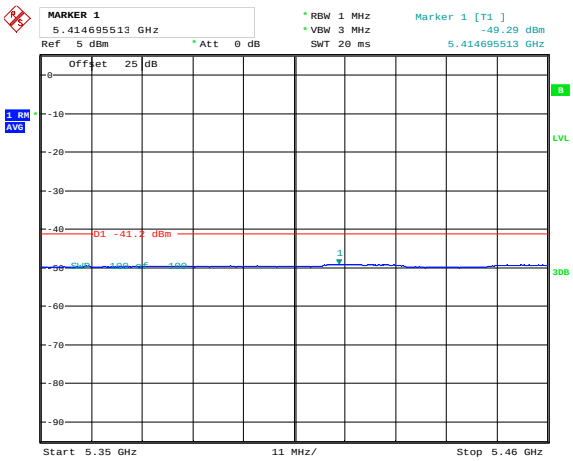
802.11n20 mode

Low channel (Peak)



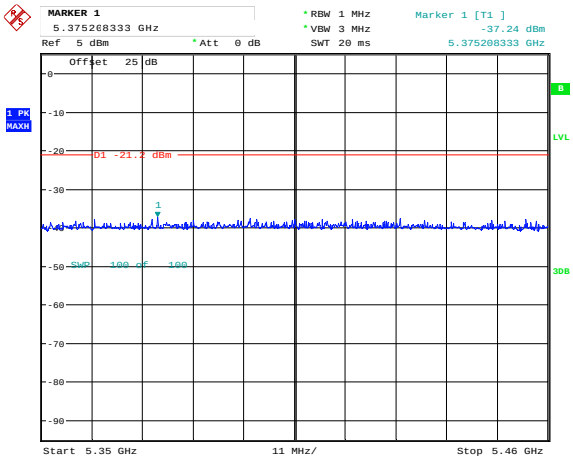
Date: 2.JUL.2015 19:54:13

Low channel (Ave)



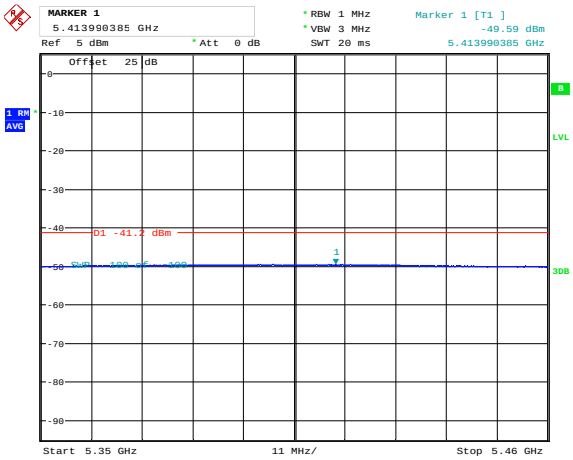
Date: 2.JUL.2015 19:54:53

Middle channel (Peak)



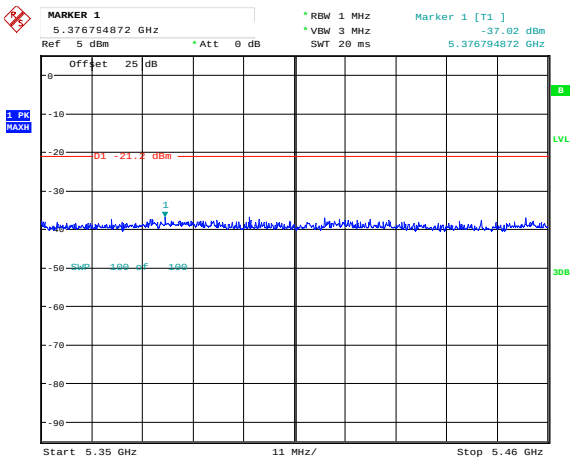
Date: 2.JUL.2015 19:55:56

Middle channel (Ave)



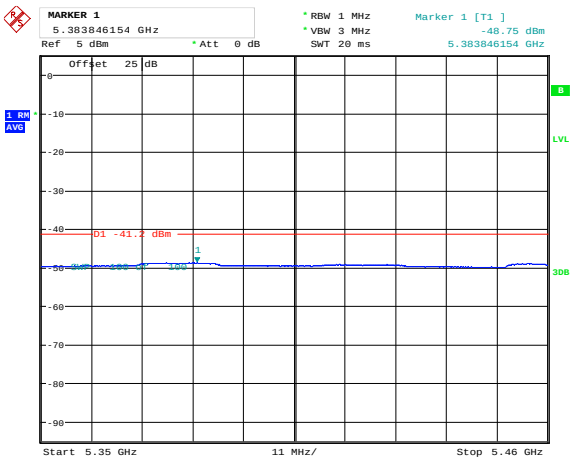
Date: 2.JUL.2015 19:55:33

High channel (Peak)



Date: 2.JUL.2015 19:56:25

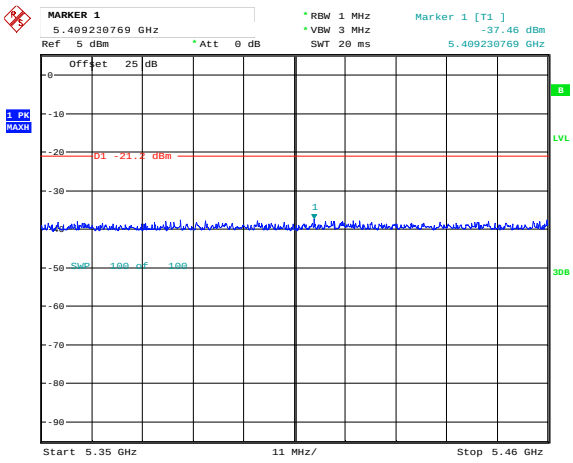
High channel (Ave)



Date: 2.JUL.2015 19:56:56

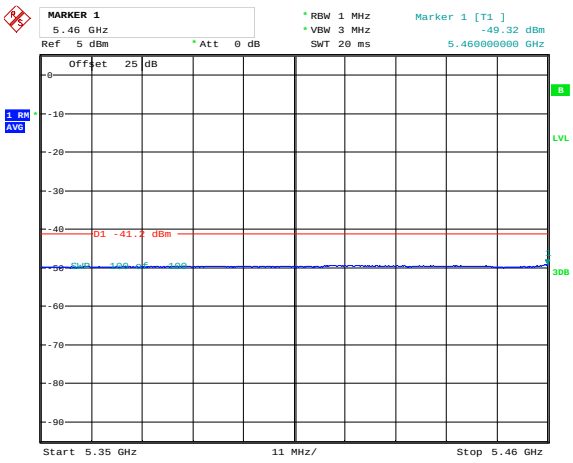
802.11n40 mode

Low channel (Peak)



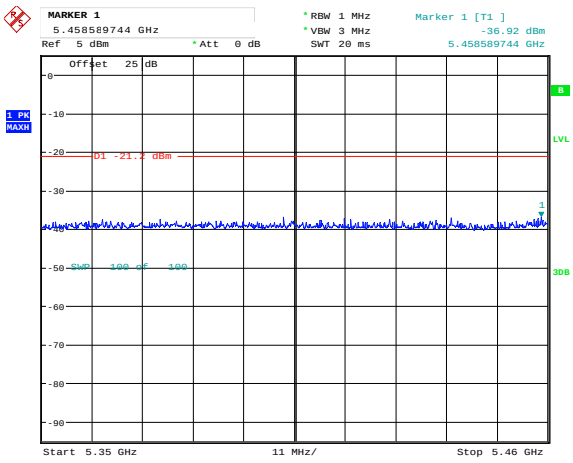
Date: 2.JUL.2015 20:05:49

Low channel (Ave)



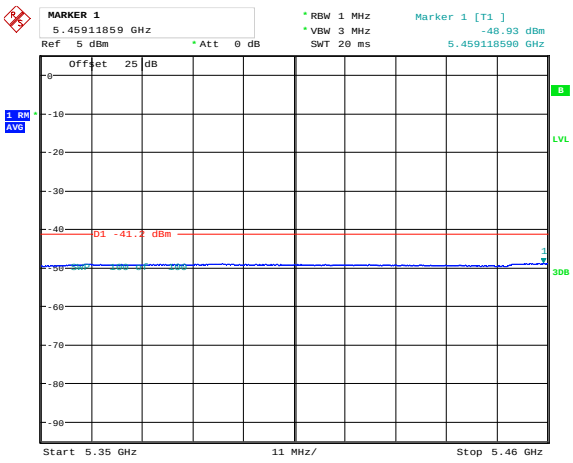
Date: 2.JUL.2015 20:06:19

Middle channel (Peak)



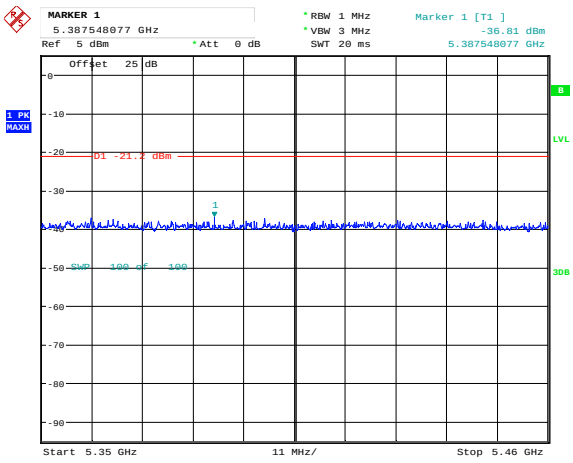
Date: 2.JUL.2015 20:07:18

Middle channel (Ave)



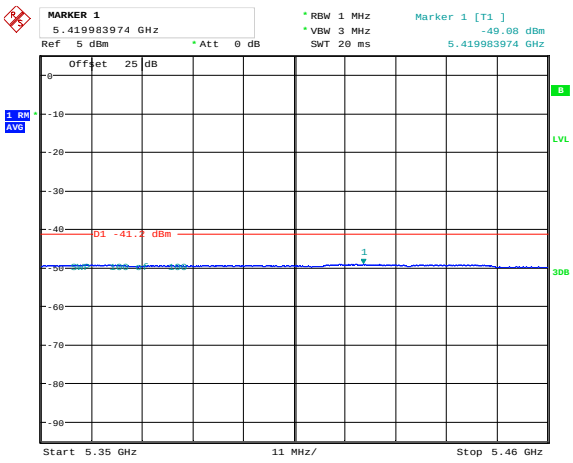
Date: 2.JUL.2015 20:06:57

High channel (Peak)



Date: 2.JUL.2015 20:07:49

High channel (Ave)



Date: 2.JUL.2015 20:08:17

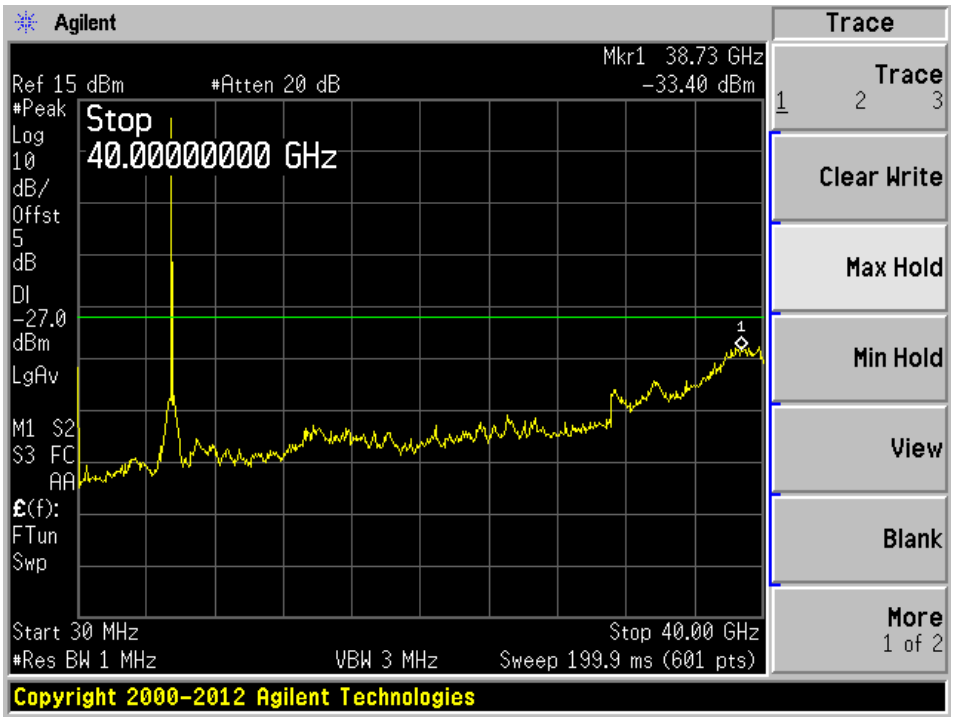
Note: The offset = cable loss + attenuator + antenna gain

Conducted Emission (30 MHz-40 GHz)

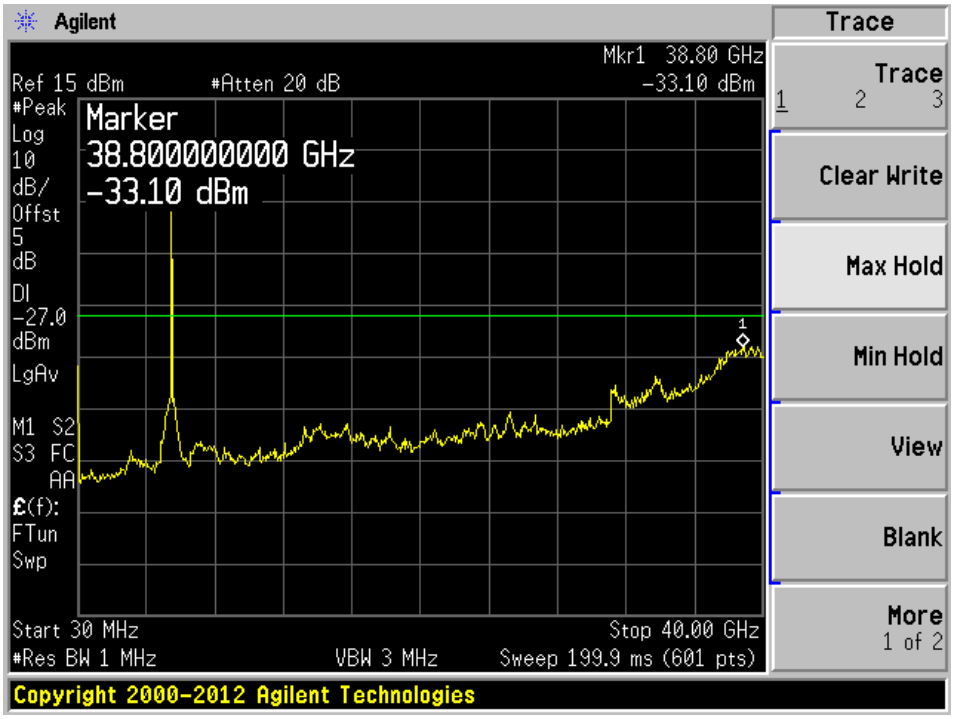
(Tested with the highest output power channel)

5.3 GHz Band

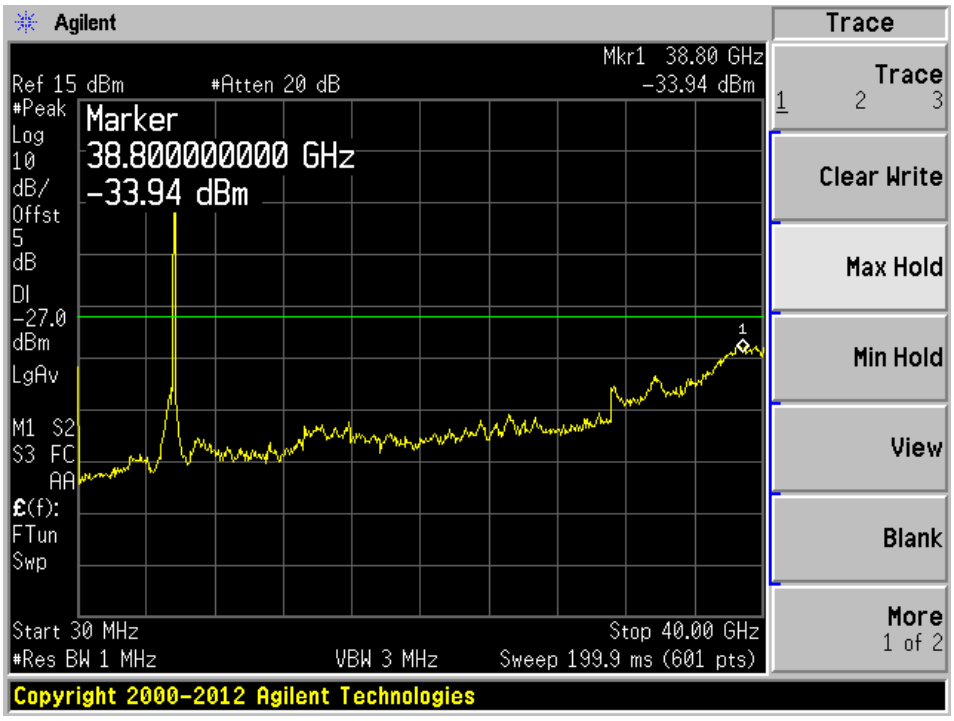
802.11a mode-chain 0



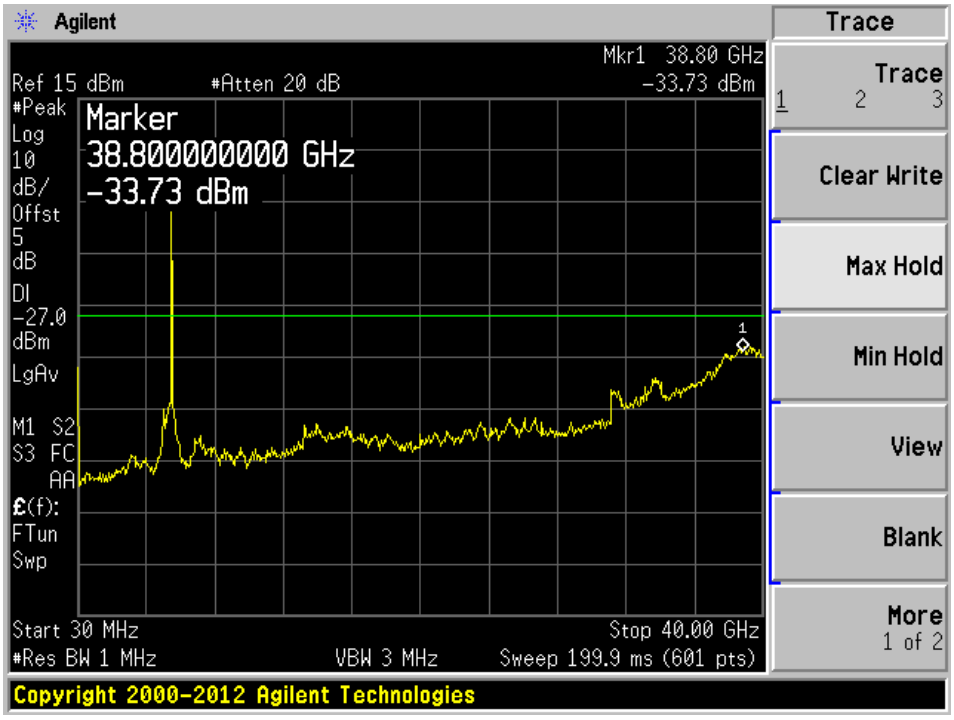
802.11n20 mode-chain 0



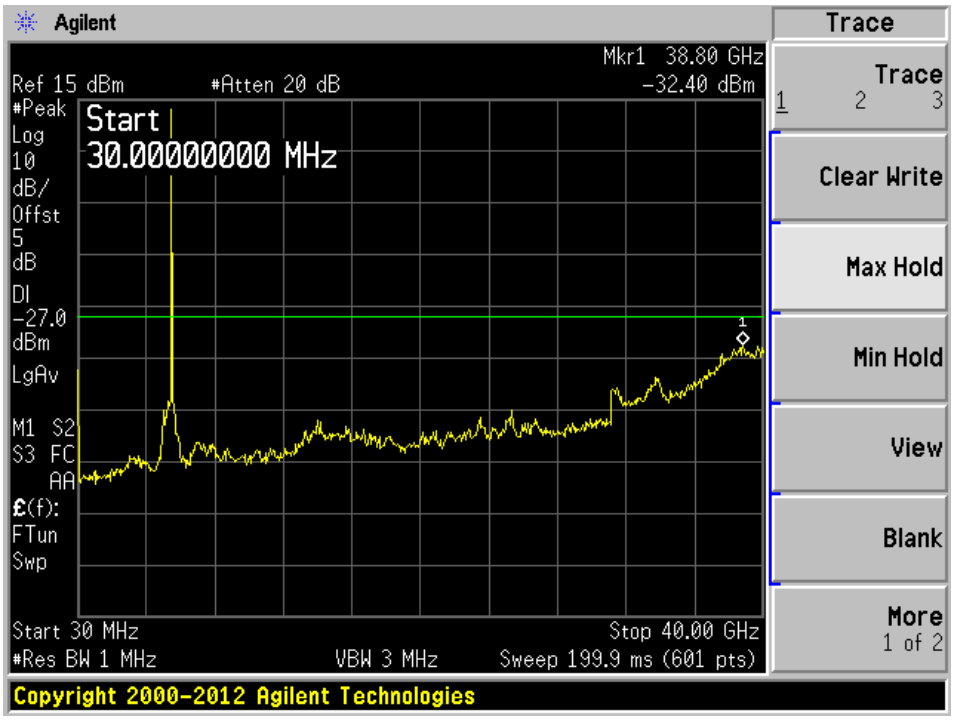
802.11n40 mode-chain 0



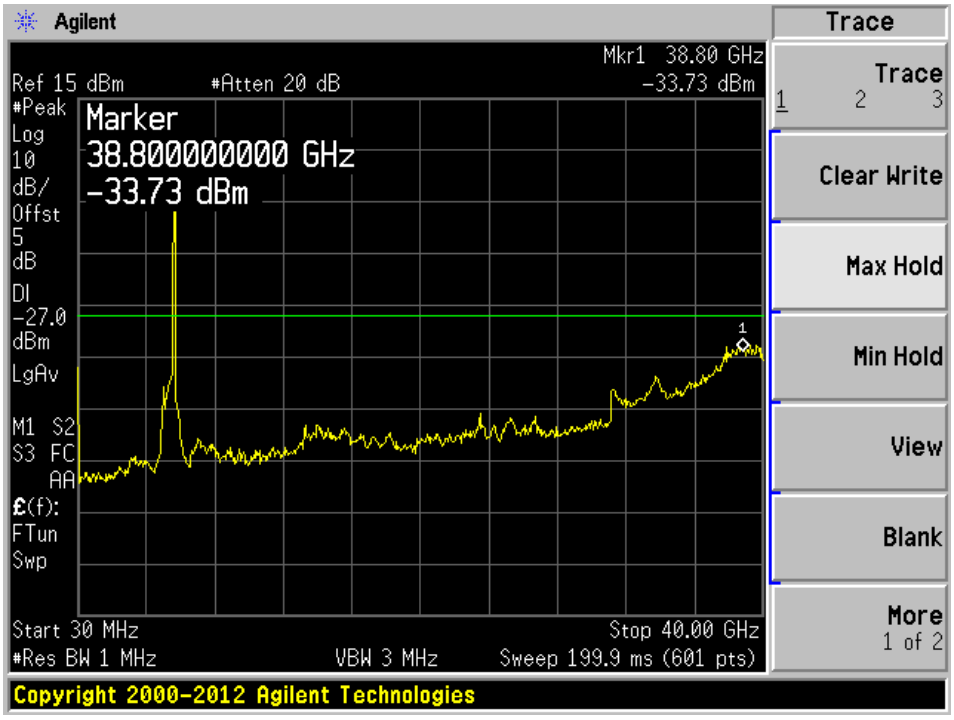
802.11a mode-chain 1



802.11n20 mode-chain 1

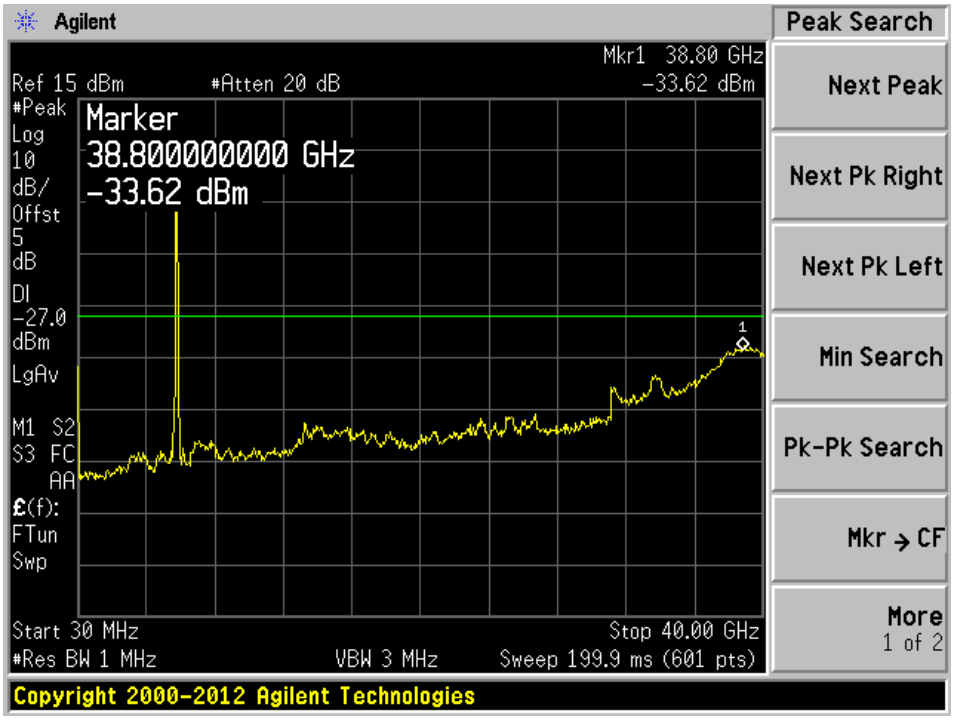


802.11n40 mode-chain 1

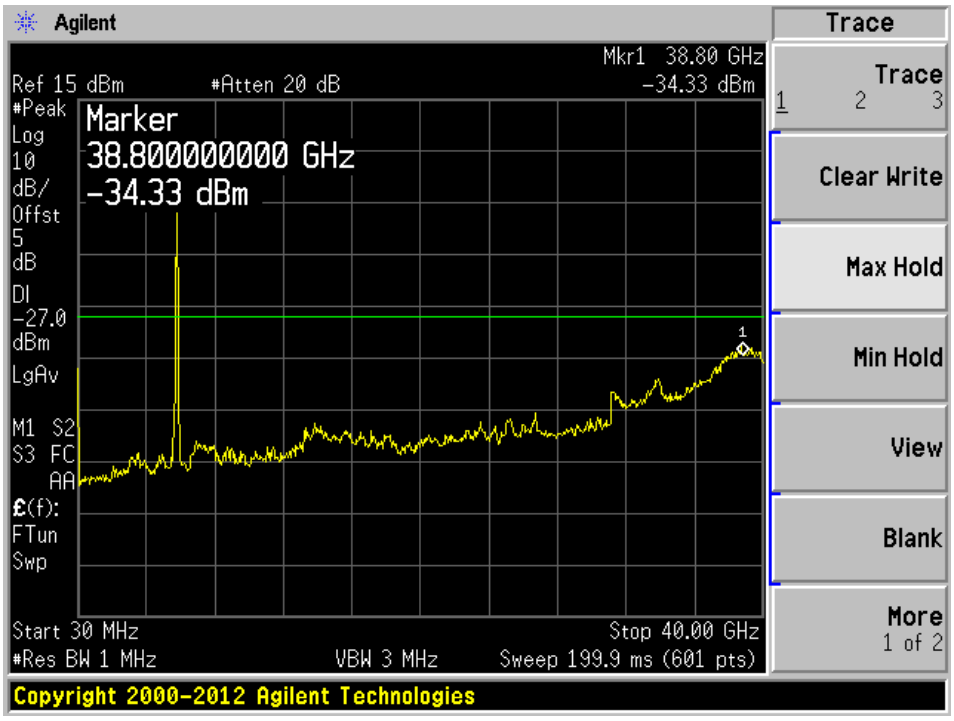


5.6 GHz Band

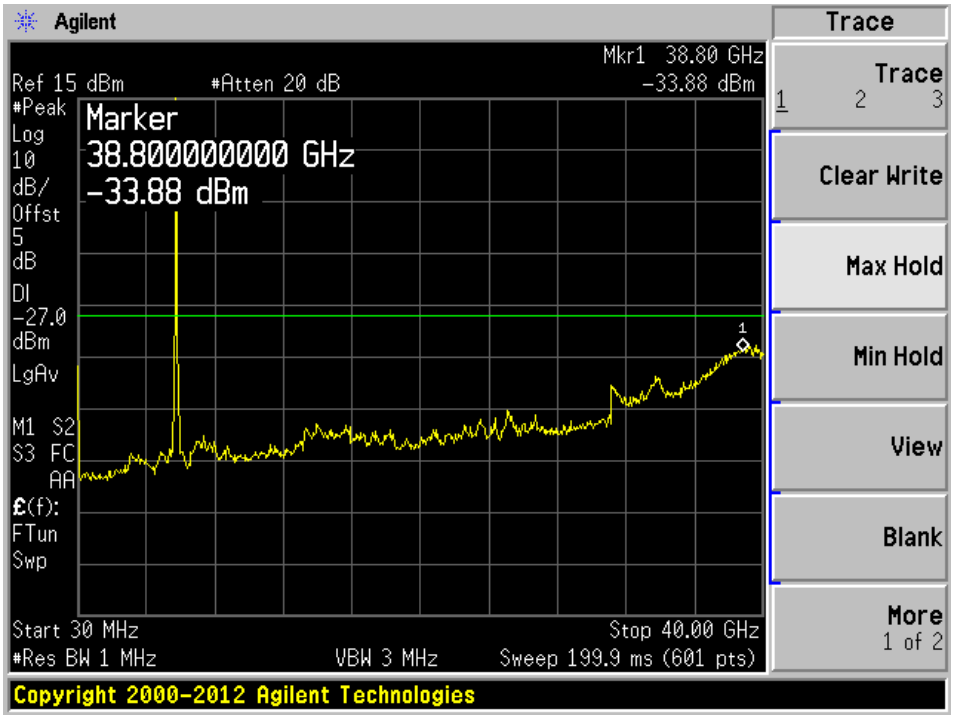
802.11a mode-chain 0



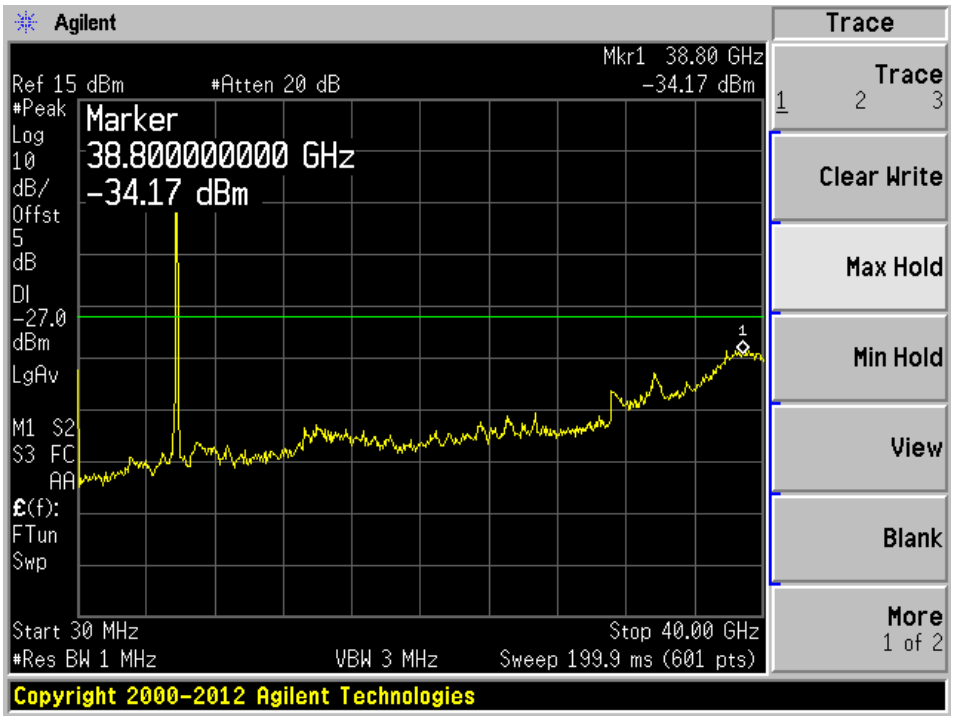
802.11n20 mode-chain 0



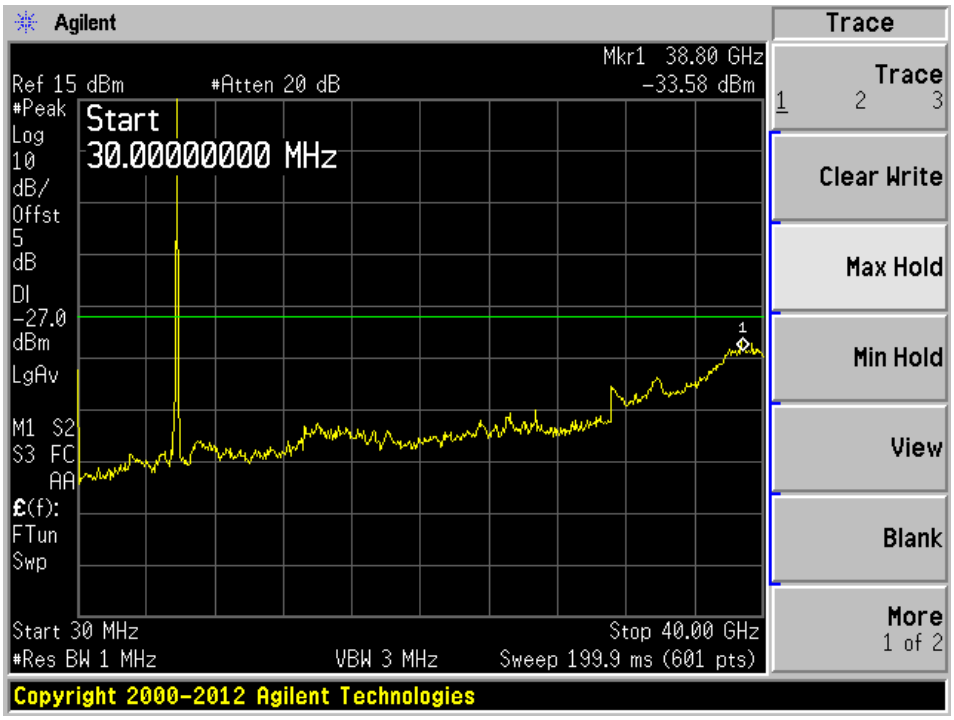
802.11n40 mode-chain 0



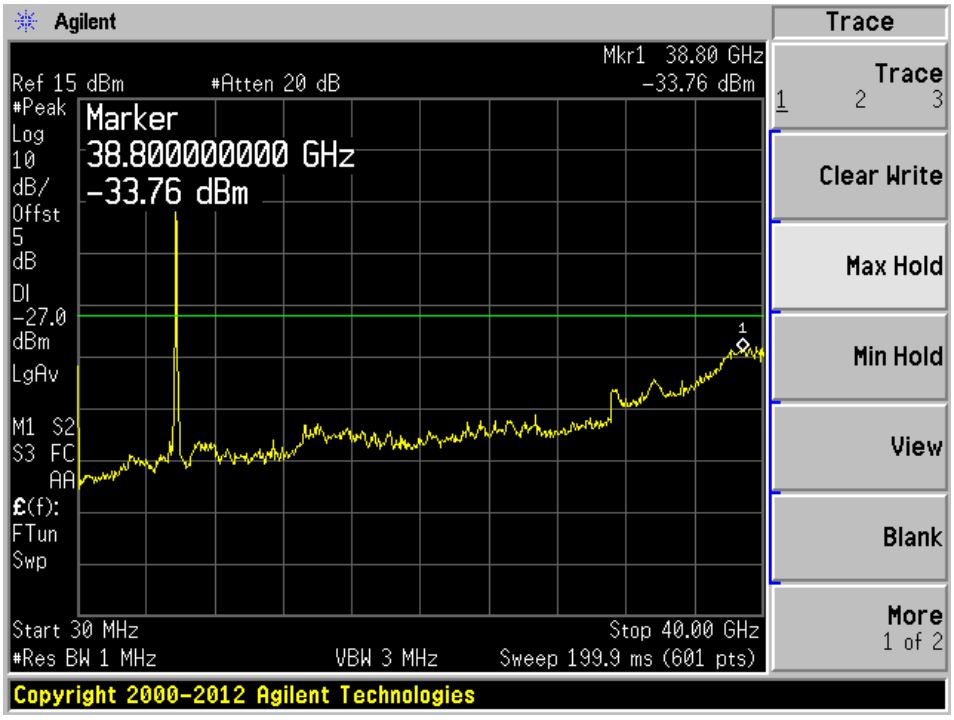
802.11a mode-chain 1



802.11n20 mode-chain 1



802.11n40 mode-chain 1



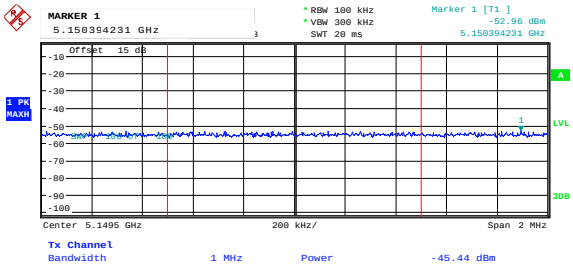
Band Edge

5.3 GHz Band

Antenna gain=4 dBi

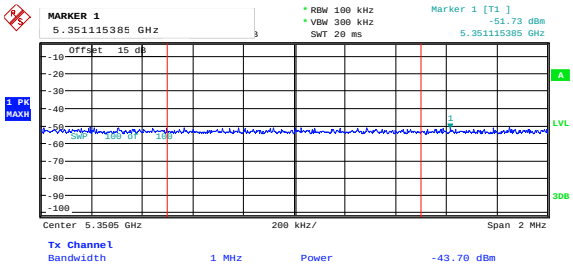
802.11a mode

Left Band-chain 0



Date: 1.JUL.2015 21:07:56

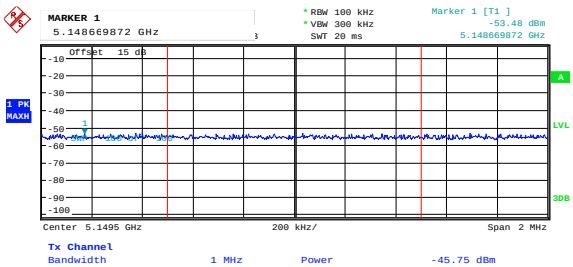
Right Band-chain 0



Date: 1.JUL.2015 21:08:59

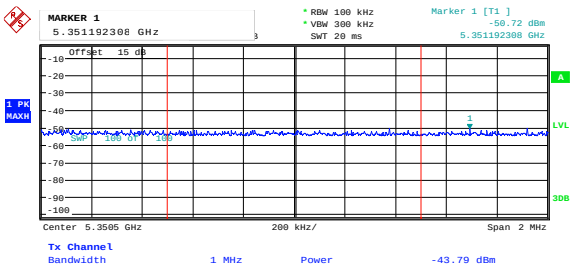
802.11n20 mode

Left Band-chain 0



Date: 1.JUL.2015 21:13:09

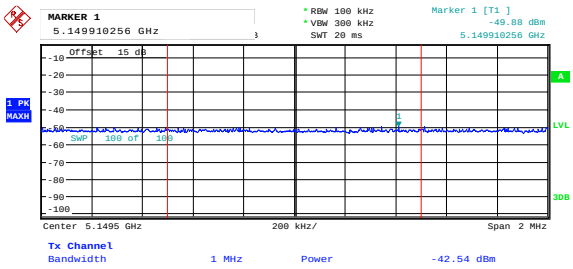
Right Band-chain 0



Date: 1.JUL.2015 21:14:08

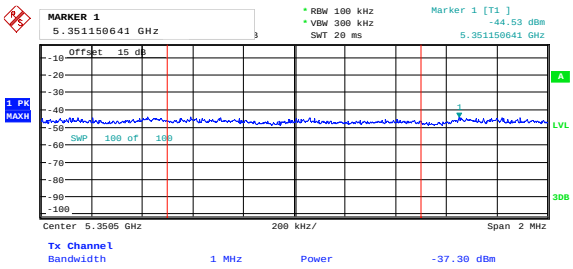
802.11n40 mode

Left Band-chain 0



Date: 1.JUL.2015 21:02:42

Right Band-chain 0

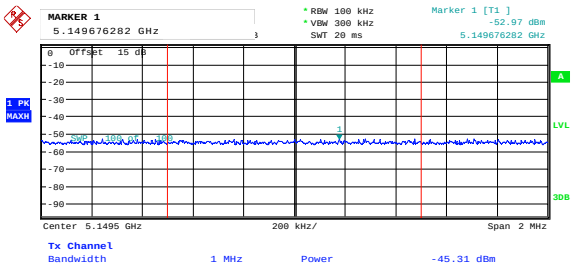


Date: 1.JUL.2015 21:03:47

Antenna gain=4 dBi

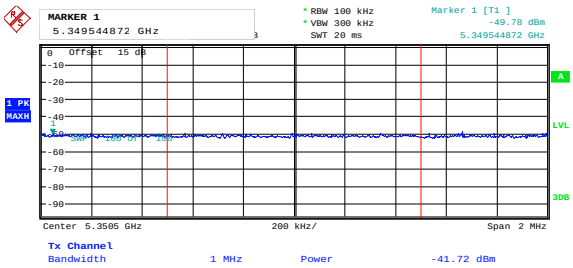
802.11a mode

Left Band-chain 1



Date: 1.JUL.2015 16:36:49

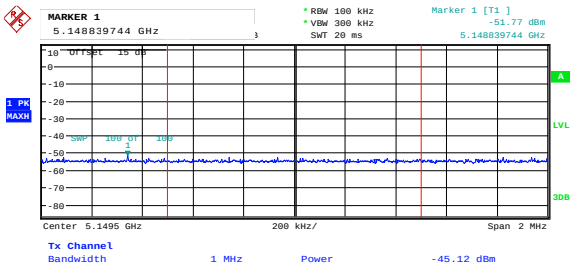
Right Band-chain 1



Date: 1.JUL.2015 16:36:11

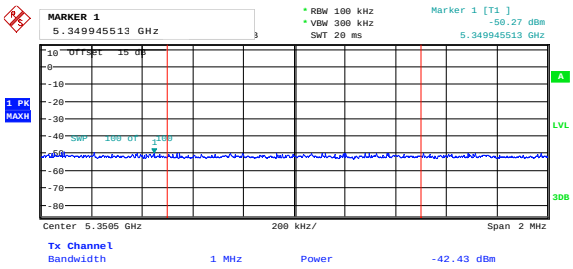
802.11n20 mode

Left Band-chain 1



Date: 1.JUL.2015 16:45:45

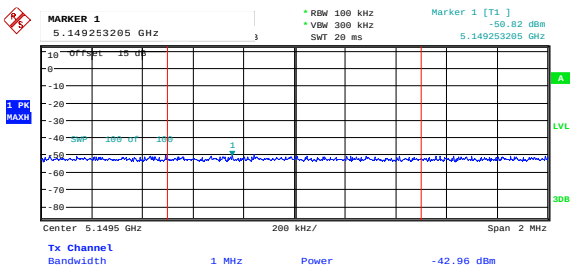
Right Band-chain 1



Date: 1.JUL.2015 16:45:08

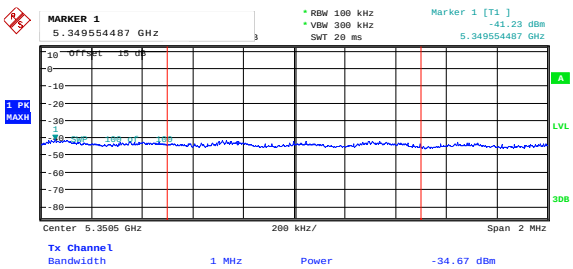
802.11n40 mode

Left Band-chain 1



Date: 1.JUL.2015 16:52:01

Right Band-chain 1



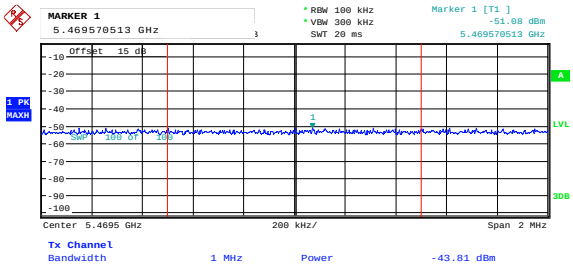
Date: 1.JUL.2015 16:53:51

5.6 GHz Band

Antenna gain=4 dBi

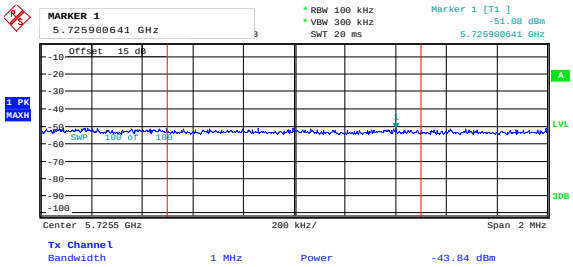
802.11a mode

Left Band-chain 0



Date: 1.JUL.2015 21:09:40

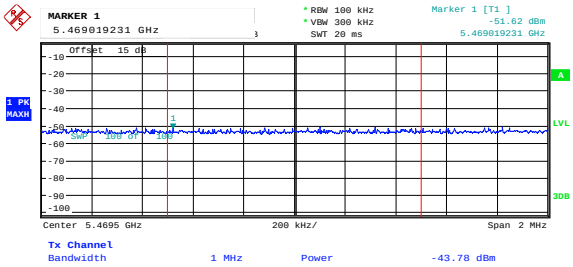
Right Band-chain 0



Date: 1.JUL.2015 21:10:10

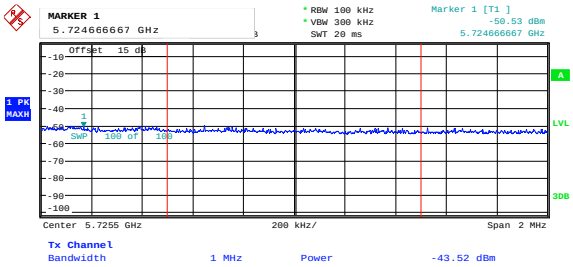
802.11n20 mode

Left Band-chain 0



Date: 1.JUL.2015 21:14:33

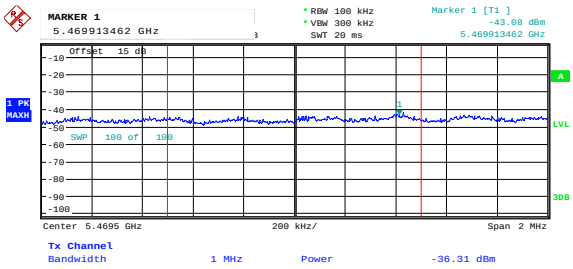
Right Band-chain 0



Date: 1.JUL.2015 21:15:01

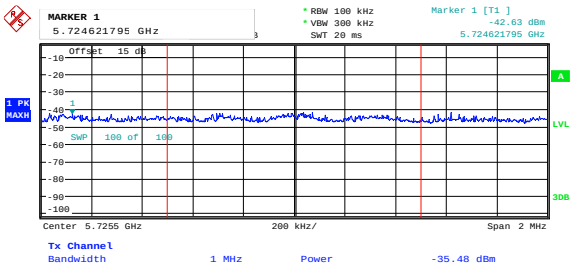
802.11n40 mode

Left Band-chain 0



Date: 1.JUL.2015 21:04:16

Right Band-chain 0

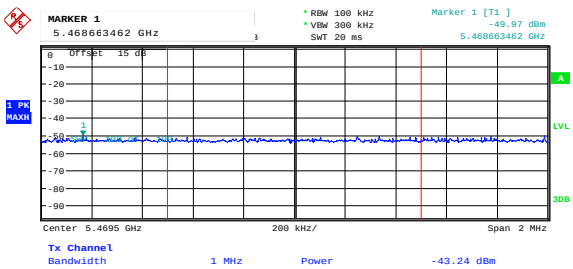


Date: 1.JUL.2015 21:04:48

Antenna gain=4 dBi

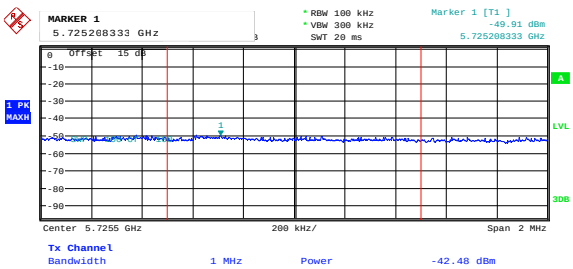
802.11a mode

Left Band-chain 1



Date: 1.JUL.2015 16:37:46

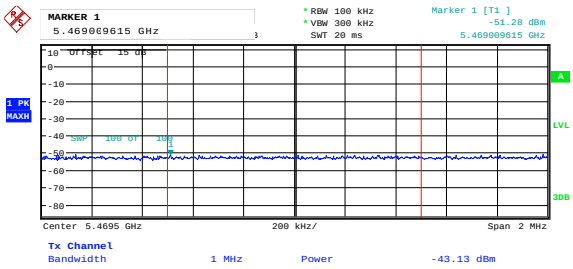
Right Band-chain 1



Date: 1.JUL.2015 16:38:29

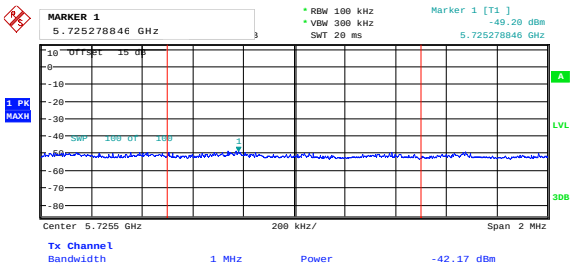
802.11n20 mode

Left Band-chain 1



Date: 1.JUL.2015 16:46:26

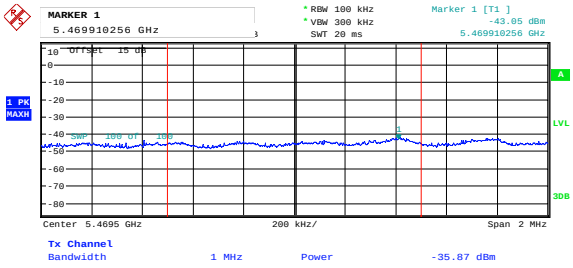
Right Band-chain 1



Date: 1.JUL.2015 16:47:05

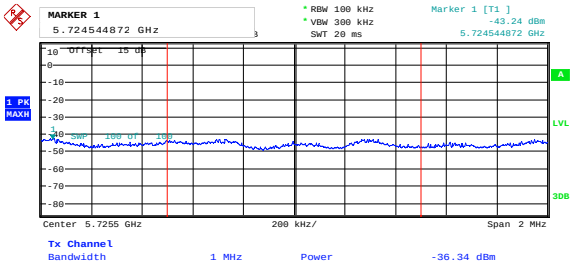
802.11n40 mode

Left Band-chain 1



Date: 1.JUL.2015 16:54:37

Right Band-chain 1



Date: 1.JUL.2015 16:56:51

11 FCC §15.407(a) - Power Spectral Density

11.1 Applicable Standards

According to FCC §15.407(a)

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

11.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section F: Peak power spectral density (PPSD)

11.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Analyzer	FSQ	1155.5001.26	2015-03-09	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed according to A2LA requirements, traceable to the NIST.*

11.4 Test Environmental Conditions

Temperature:	23º C
Relative Humidity:	42 %
ATM Pressure:	102.5 KPa

The testing was performed by Jimmy Xiao from 2015-06-30 at RF site.

11.5 Test Results

Please refer to the following tables and plots.

5.3 GHz Band

Antenna gain=4 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	7.06	6.47	9.79	9.99	Pass
Middle	5300	5.70	5.62	8.67	9.99	Pass
High	5320	4.96	5.22	8.10	9.99	Pass
802.11n20						
Low	5260	6.41	6.17	9.30	9.99	Pass
Middle	5300	5.20	5.56	8.39	9.99	Pass
High	5320	4.48	4.99	7.75	9.99	Pass
802.11n40						
Low	5270	6.03	5.97	9.01	9.99	Pass
High	5310	3.13	3.61	6.39	9.99	Pass

Note: Directional gain=4dBi + 10lg2=7.01 dBi

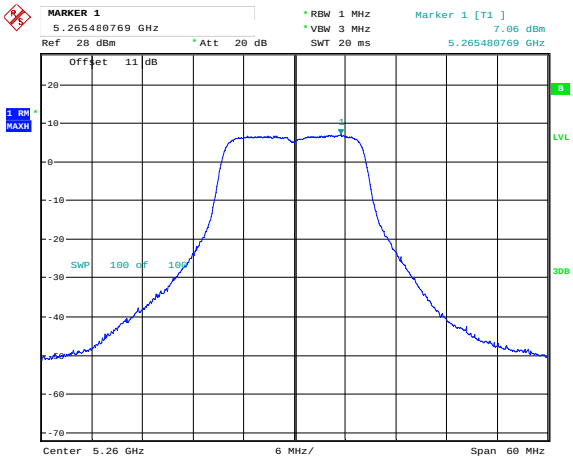
If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

So the maximum power spectral density limit = 11dBm/MHz-(7.01dBi-6 dBi) = 9.99 dBm/MHz

5.3 GHz Band

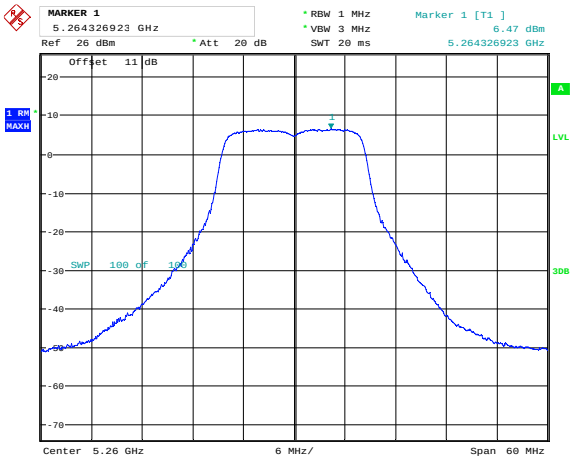
802.11a mode

Low channel: Chain 0



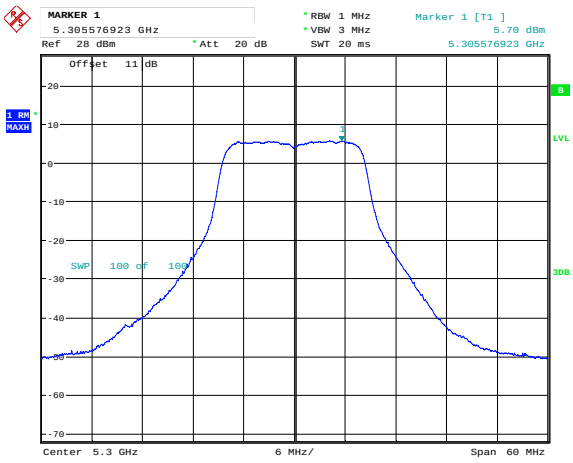
Date: 30.JUN.2015 20:44:20

Low channel: Chain 1



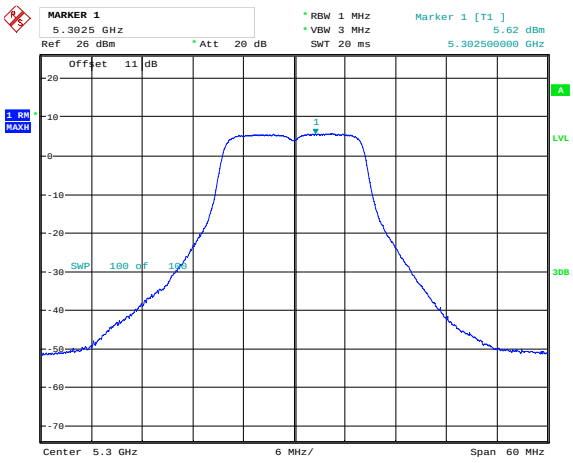
Date: 1.JUL.2015 16:02:45

Middle channel: Chain 0



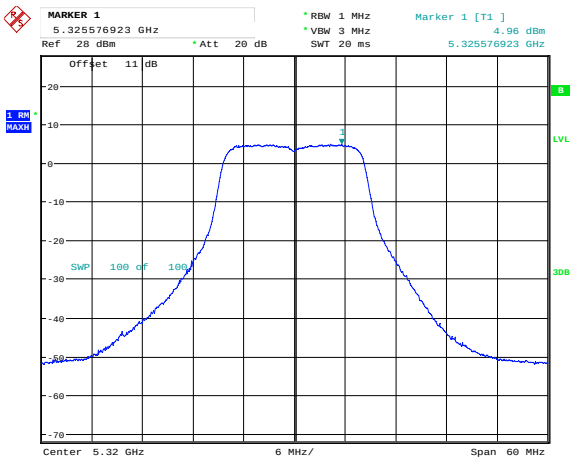
Date: 30.JUN.2015 20:43:56

Middle channel: Chain 1



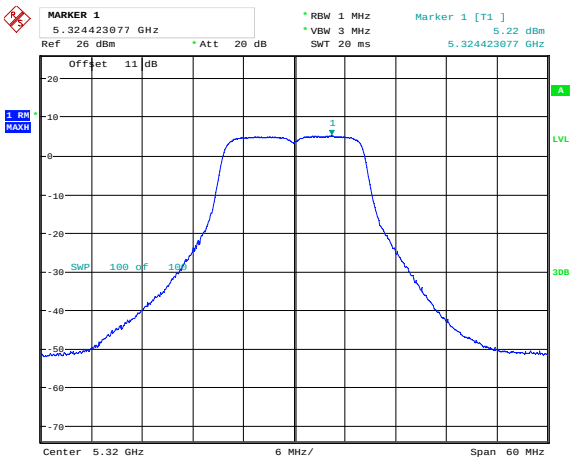
Date: 1.JUL.2015 16:03:18

High channel: Chain 0



Date: 30.JUN.2015 20:44:56

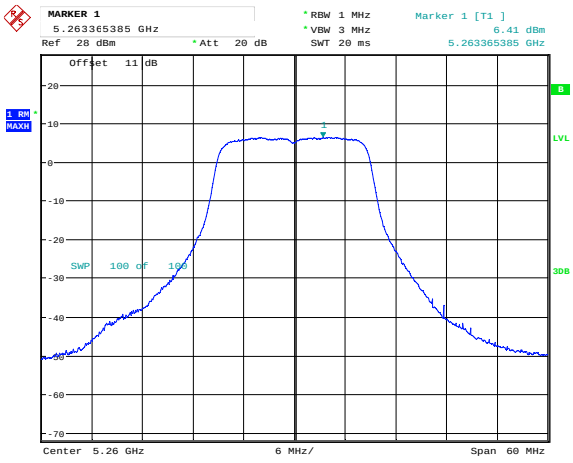
High channel: Chain 1



Date: 1.JUL.2015 16:03:46

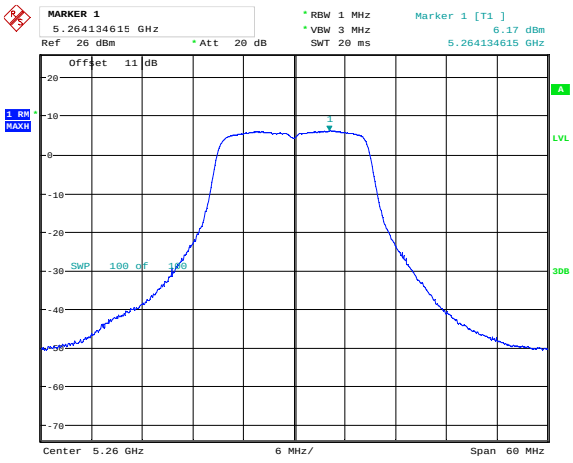
802.11n20 mode

Low channel: Chain 0



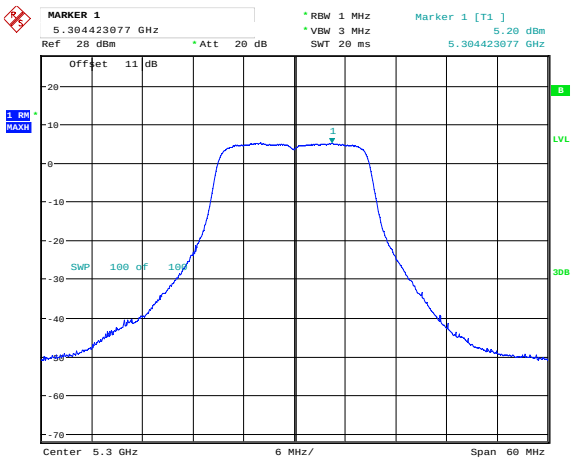
Date: 30.JUN.2015 20:53:03

Low channel: Chain 1



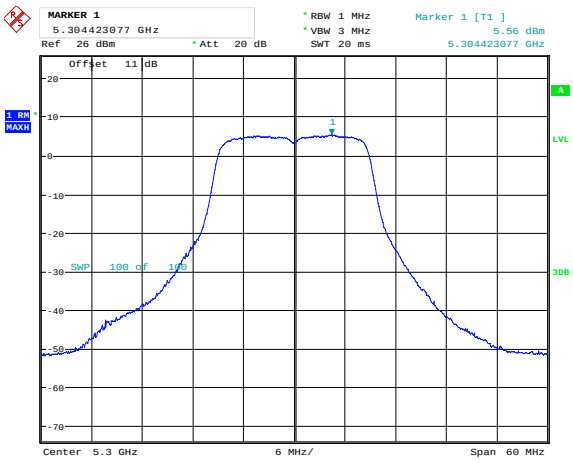
Date: 1.JUL.2015 16:11:44

Middle channel: Chain 0



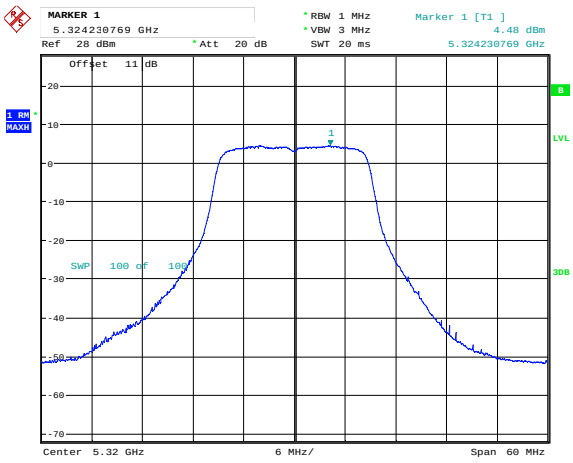
Date: 30.JUN.2015 20:53:35

Middle channel: Chain 1



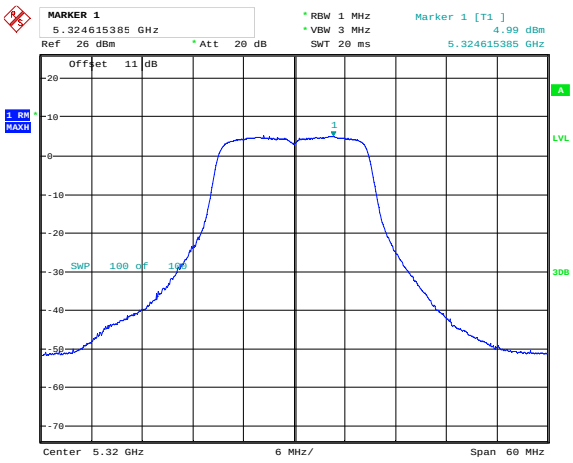
Date: 1.JUL.2015 16:12:15

High channel: Chain 0



Date: 30.JUN.2015 20:54:11

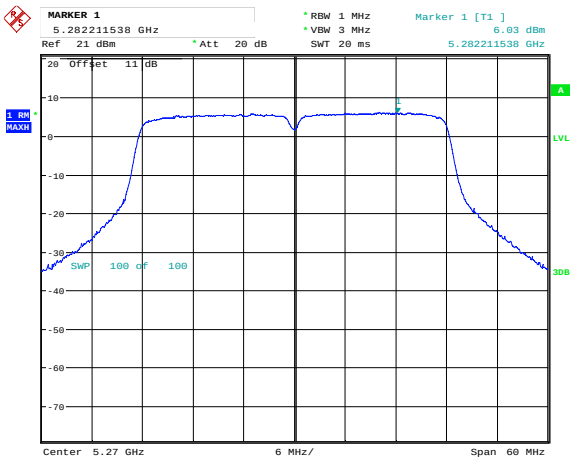
High channel: Chain 1



Date: 1.JUL.2015 16:12:41

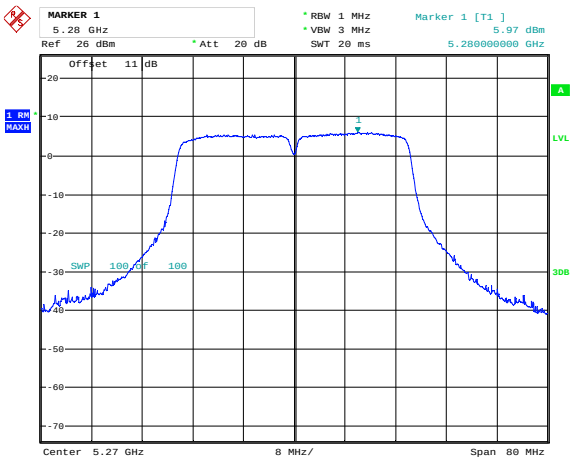
802.11n40 mode

Low channel: Chain 0



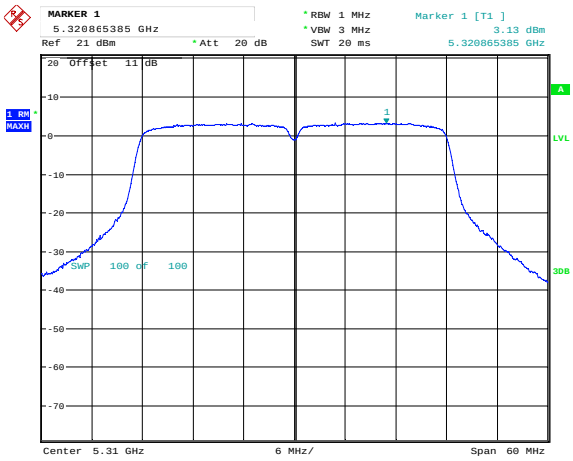
Date: 30.JUN.2015 21:01:40

Low channel: Chain 1



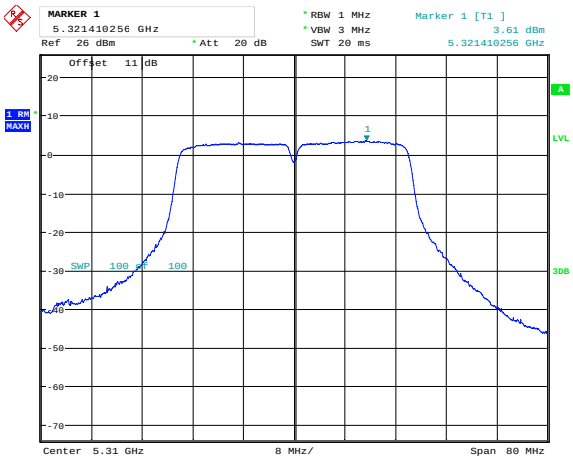
Date: 1.JUL.2015 16:18:30

High channel: Chain 0



Date: 30.JUN.2015 21:02:24

High channel: Chain 1



Date: 1.JUL.2015 16:19:01

Antenna gain=7 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	2.75	2.76	5.77	6.99	Pass
Middle	5300	1.61	2.52	5.10	6.99	Pass
High	5320	0.78	1.68	4.26	6.99	Pass
802.11n20						
Low	5260	3.08	2.93	6.02	6.99	Pass
Middle	5300	1.90	2.14	5.03	6.99	Pass
High	5320	1.13	1.43	4.29	6.99	Pass
802.11n40						
Low	5270	1.07	1.61	4.36	6.99	Pass
High	5310	0.34	1.26	3.83	6.99	Pass

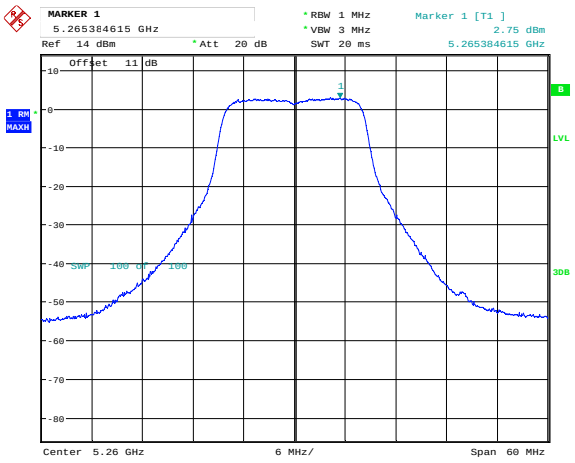
Note: Directional gain=7dBi + 10lg2=10.01 dBi

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

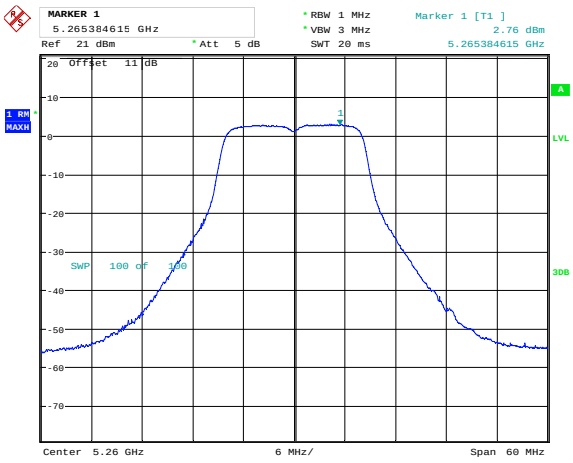
So the maximum power spectral density limit = 11dBm/MHz-(10.01 dBi-6 dBi) = 6.99 dBm/MHz

802.11a mode

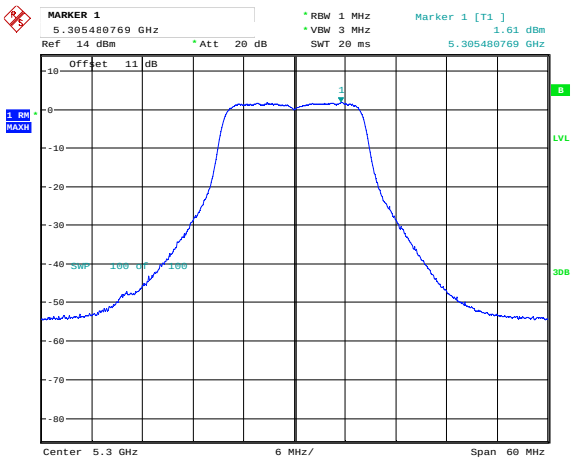
Low channel: Chain 0



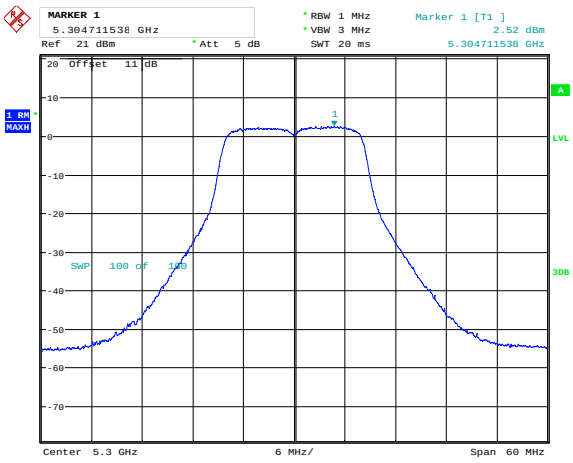
Low channel: Chain 1



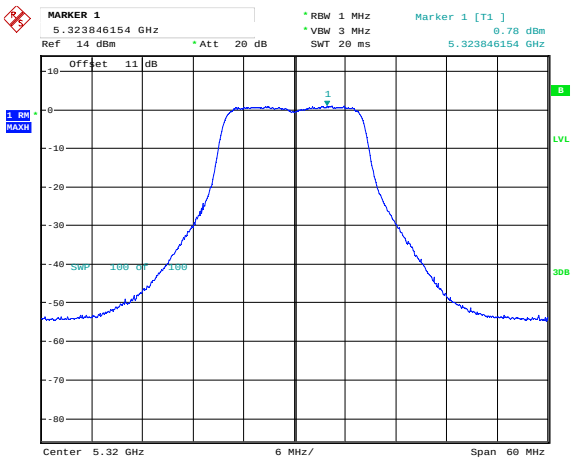
Middle channel: Chain 0



Middle channel: Chain 1

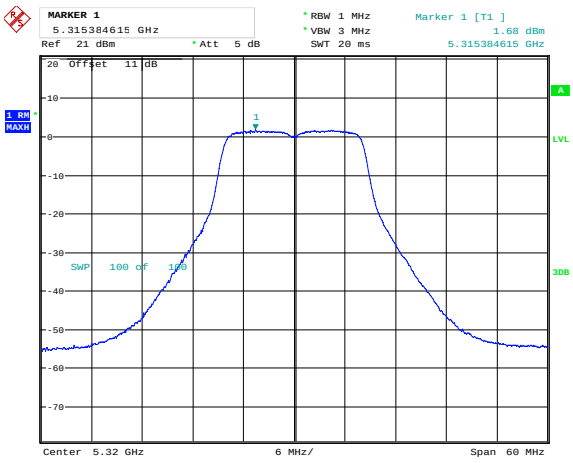


High channel: Chain 0



Date: 9.JUL.2015 20:53:49

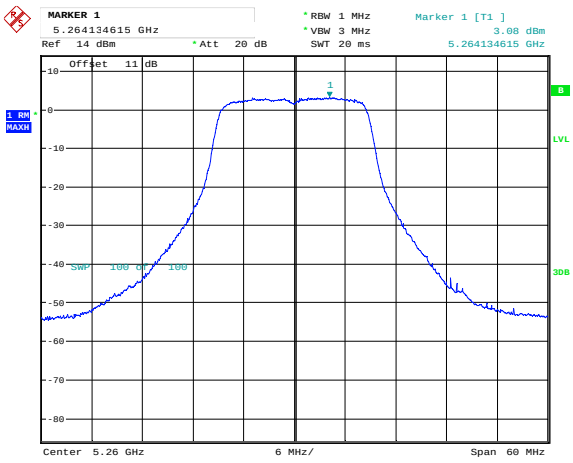
High channel: Chain 1



Date: 9.JUL.2015 19:33:12

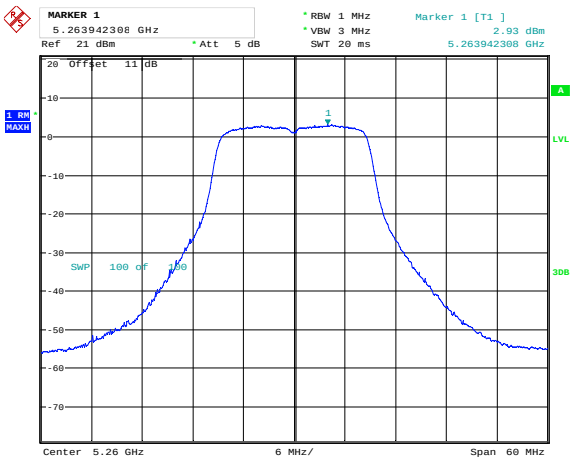
802.11n20 mode

Low channel: Chain 0



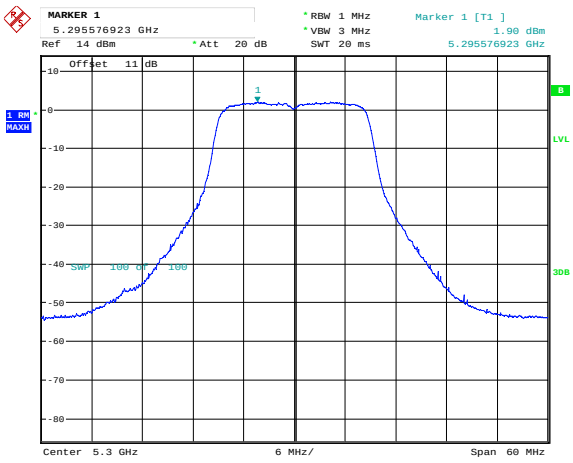
Date: 9.JUL.2015 20:58:00

Low channel: Chain 1



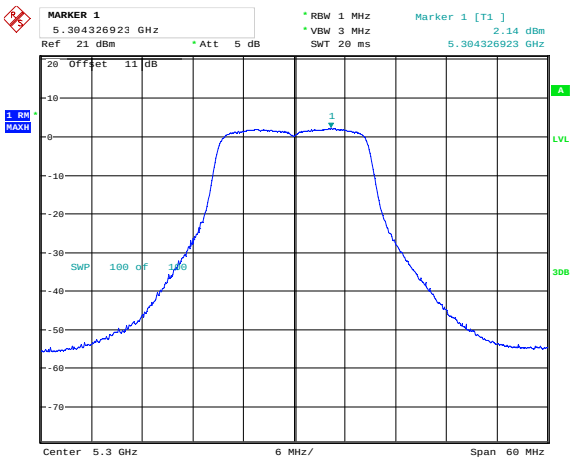
Date: 9.JUL.2015 19:38:22

Middle channel: Chain 0



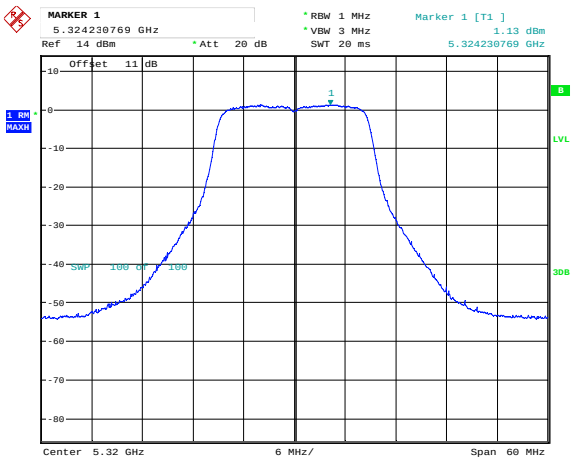
Date: 9.JUL.2015 20:58:29

Middle channel: Chain 1



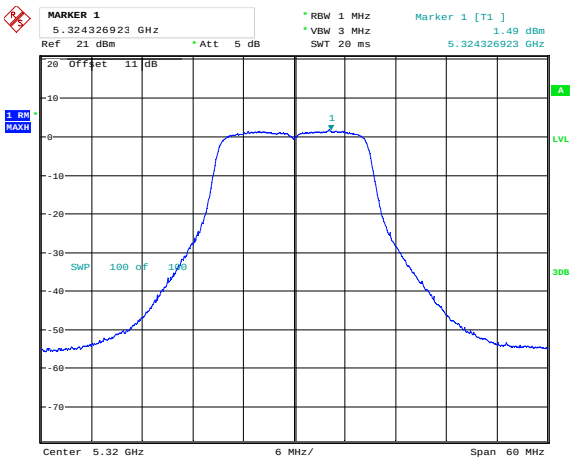
Date: 9.JUL.2015 19:38:50

High channel: Chain 0



Date: 9.JUL.2015 20:58:57

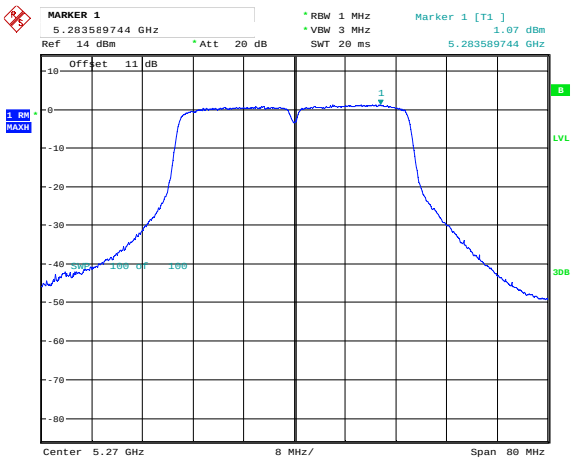
High channel: Chain 1



Date: 9.JUL.2015 19:39:18

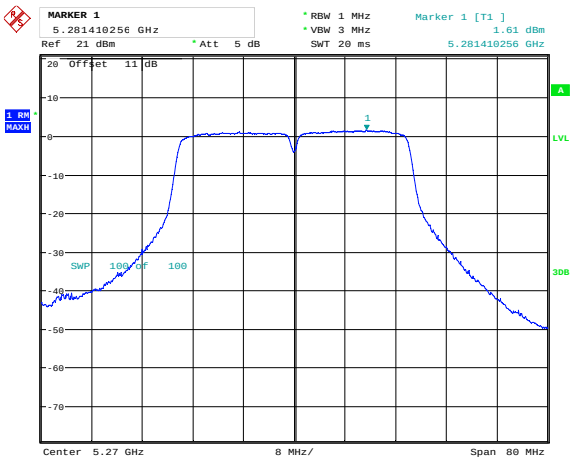
802.11n40 mode

Low channel: Chain 0



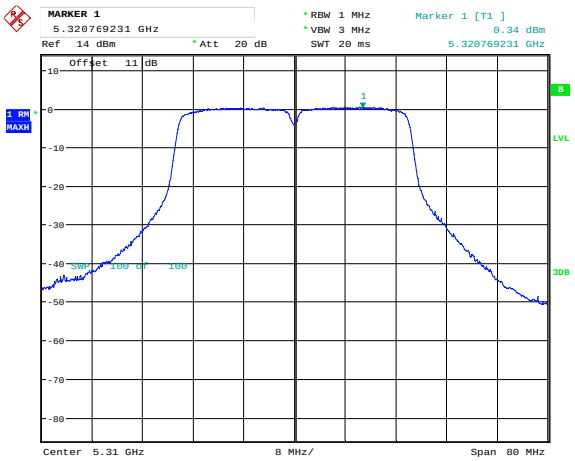
Date: 9.JUL.2015 20:48:32

Low channel: Chain 1



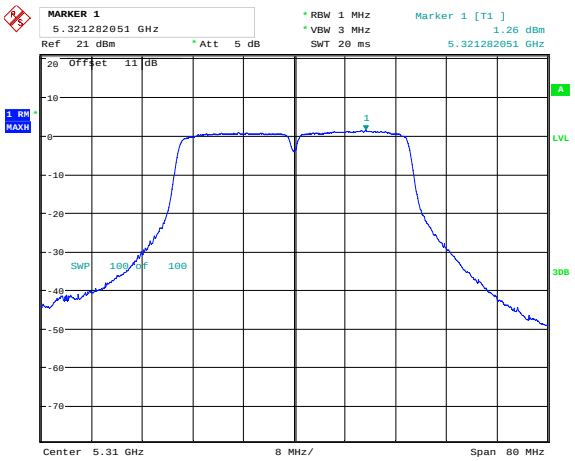
Date: 9.JUL.2015 19:43:34

High channel: Chain 0



Date: 9.JUL.2015 20:49:03

High channel: Chain 1



Date: 9.JUL.2015 19:44:07

Antenna gain=14 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5260	-4.11	-4.26	-1.17	-0.01	Pass
Middle	5300	-4.02	-3.35	-0.66	-0.01	Pass
High	5320	-4.79	-3.84	-1.28	-0.01	Pass
802.11n20						
Low	5260	-4.61	-4.18	-1.38	-0.01	Pass
Middle	5300	-4.53	-3.13	-0.76	-0.01	Pass
High	5320	-5.14	-3.47	-1.21	-0.01	Pass
802.11n40						
Low	5270	-5.46	-4.90	-2.16	-0.01	Pass
High	5310	-5.98	-4.98	-2.44	-0.01	Pass

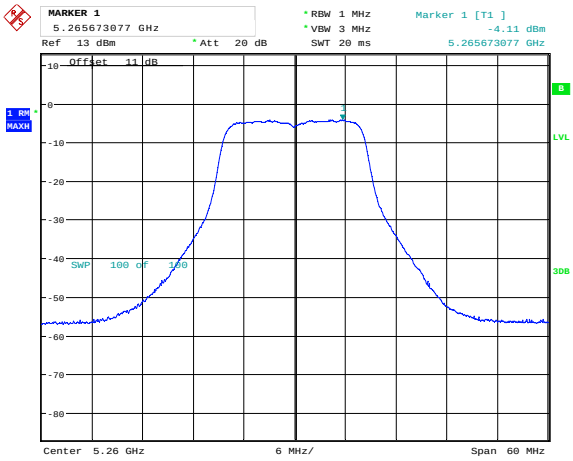
Note: Directional gain=14dBi + 10lg2=17.01 dBi

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

So the maximum power spectral density limit = 11dBm/MHz-(17.01 dBi-6 dBi) = -0.01 dBm/MHz

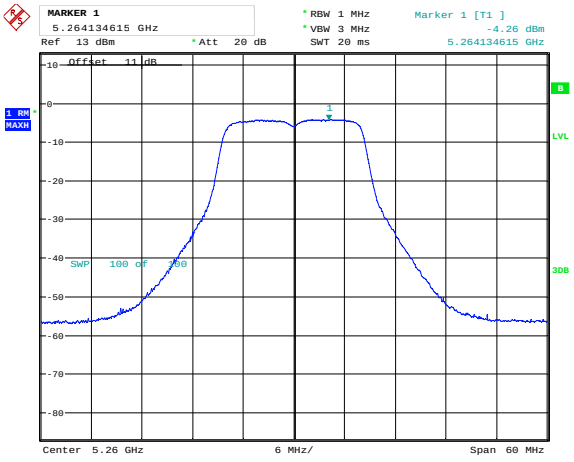
802.11a mode

Low channel: Chain 0



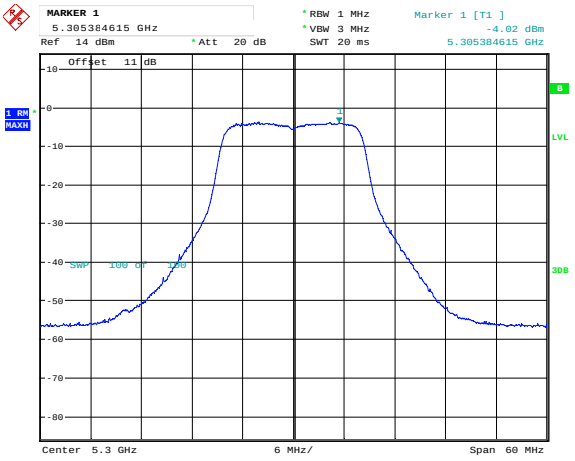
Date: 10.JUL.2015 21:11:26

Low channel: Chain 1



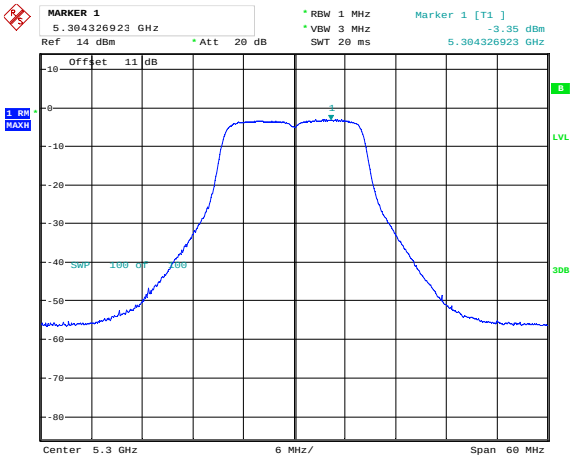
Date: 10.JUL.2015 21:10:13

Middle channel: Chain 0



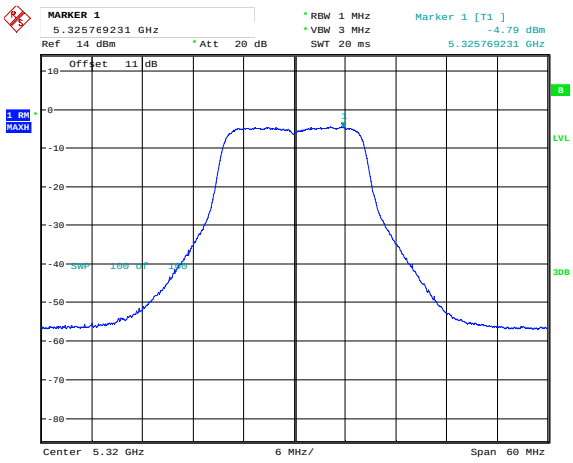
Date: 9.JUL.2015 20:34:33

Middle channel: Chain 1



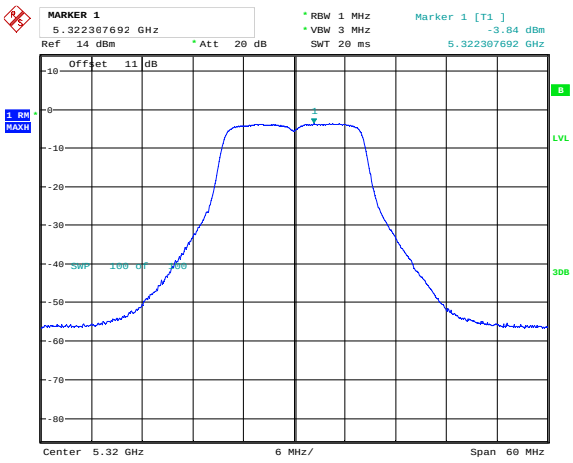
Date: 9.JUL.2015 19:56:40

High channel: Chain 0



Date: 9.JUL.2015 20:34:58

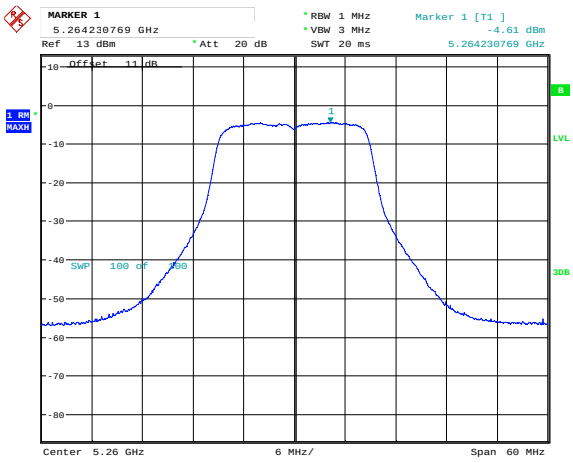
High channel: Chain 1



Date: 9.JUL.2015 19:57:09

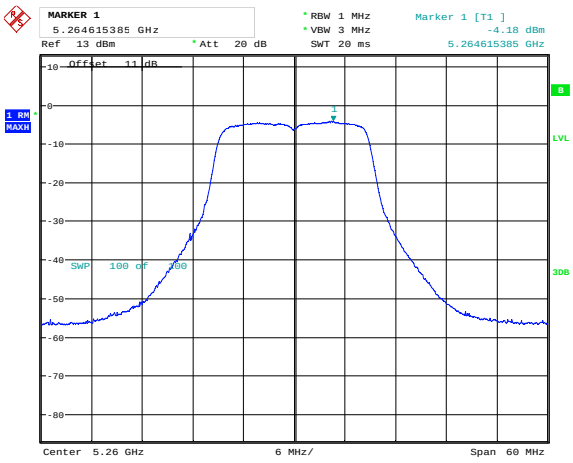
802.11n20 mode

Low channel: Chain 0



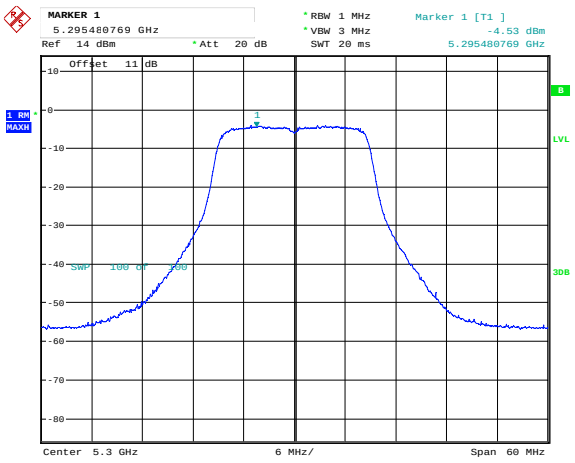
Date: 10.JUL.2015 21:11:50

Low channel: Chain 1



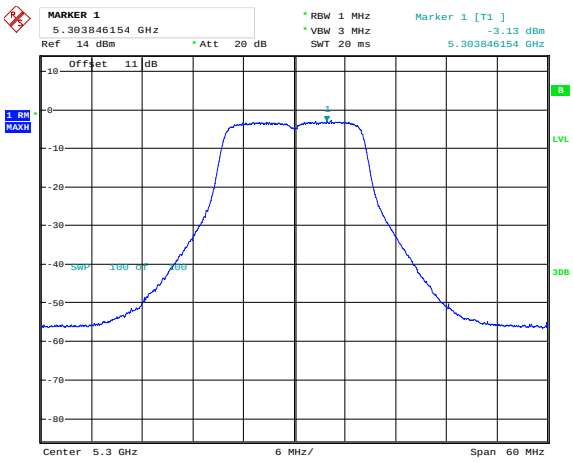
Date: 10.JUL.2015 21:09:40

Middle channel: Chain 0



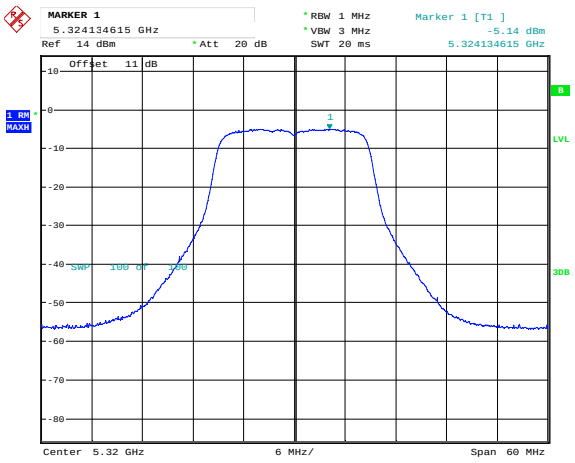
Date: 9.JUL.2015 20:39:18

Middle channel: Chain 1



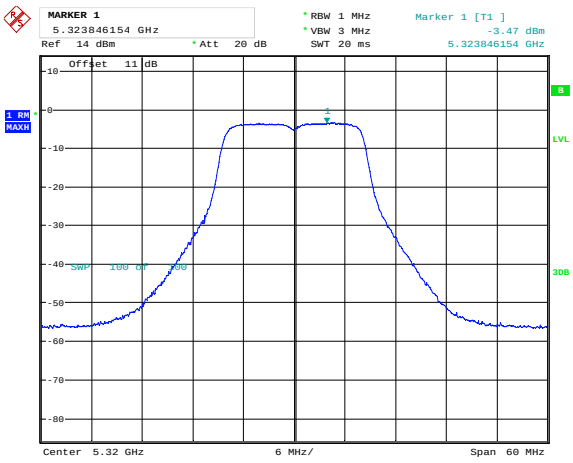
Date: 9.JUL.2015 20:01:25

High channel: Chain 0



Date: 9.JUL.2015 20:39:43

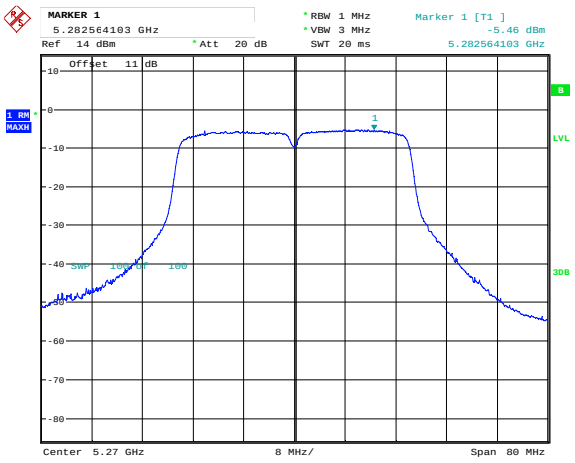
High channel: Chain 1



Date: 9.JUL.2015 20:01:52

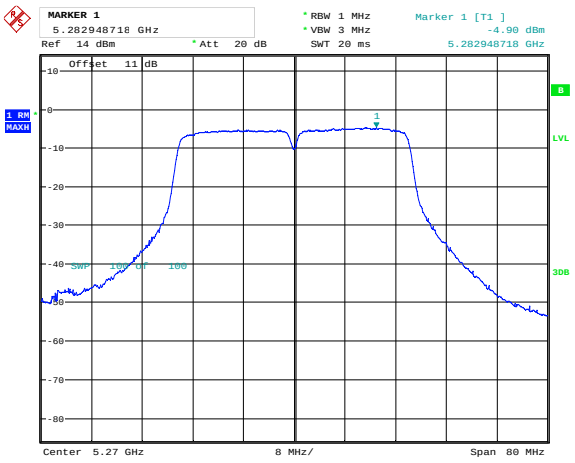
802.11n40 mode

Low channel: Chain 0



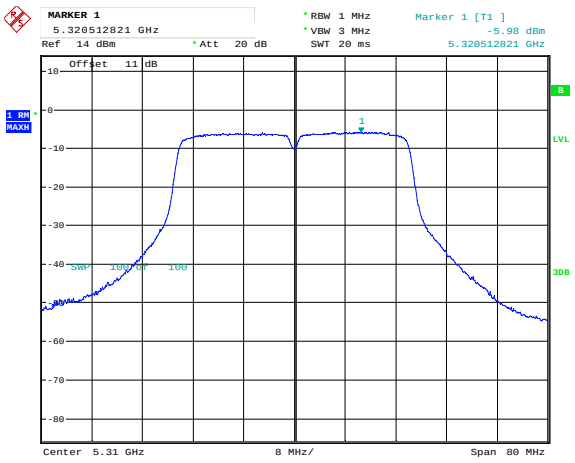
Date: 9.JUL.2015 20:43:52

Low channel: Chain 1



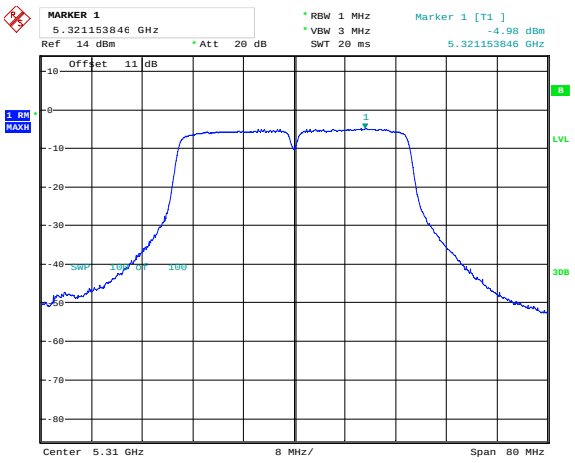
Date: 9.JUL.2015 19:49:51

High channel: Chain 0



Date: 9.JUL.2015 20:44:24

High channel: Chain 1



Date: 9.JUL.2015 19:50:23

5.6 GHz Band

Antenna gain=4 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	3.56	2.87	6.24	9.99	Pass
Middle	5580	5.23	2.70	7.16	9.99	Pass
High	5700	4.09	3.24	6.70	9.99	Pass
802.11n20						
Low	5500	3.37	2.78	6.10	9.99	Pass
Middle	5580	4.44	2.73	6.68	9.99	Pass
High	5700	3.47	3.08	6.29	9.99	Pass
802.11n40						
Low	5510	1.10	0.68	3.91	9.99	Pass
Middle	5550	7.34	6.40	9.91	9.99	
High	5670	6.40	5.42	8.95	9.99	Pass

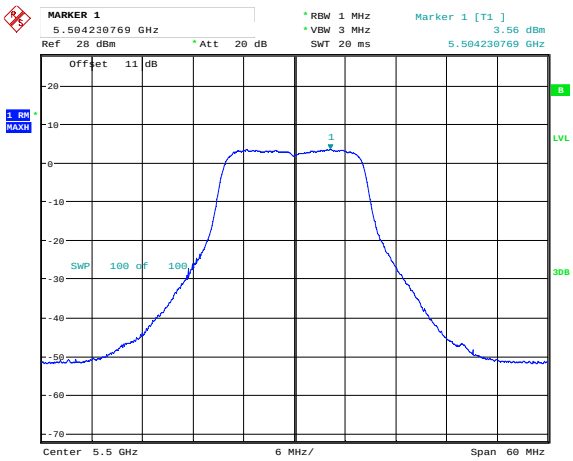
Note: Directional gain=4dBi + 10lg2=7.01 dBi

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

So the maximum power spectral density limit = 11dBm/MHz-(7.01 dBi-6 dBi) = 9.99 dBm/MHz.

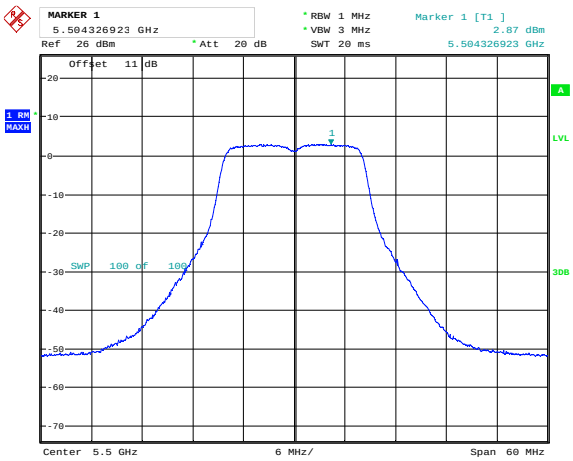
802.11a mode

Low channel: Chain 0



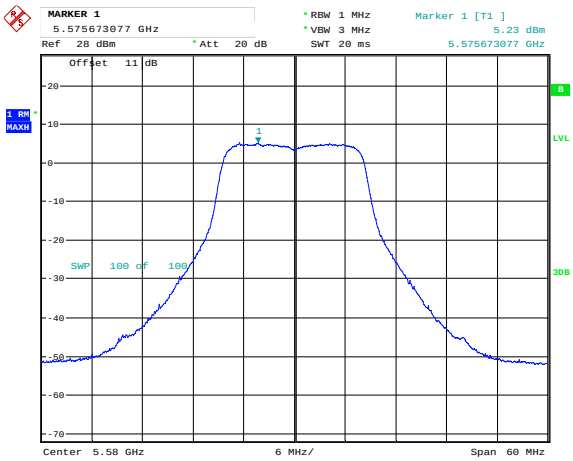
Date: 30.JUN.2015 20:45:28

Low channel: Chain 1



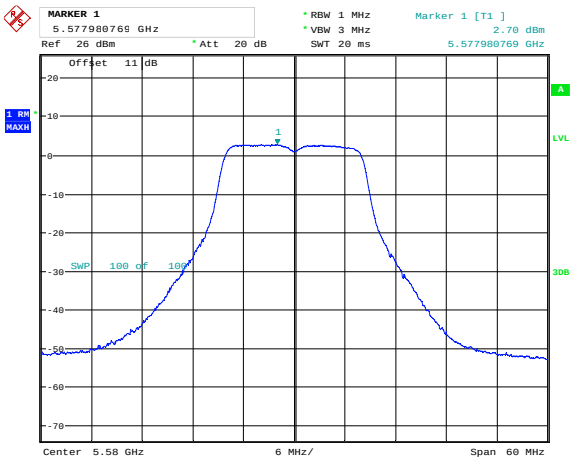
Date: 1.JUL.2015 16:04:13

Middle channel: Chain 0



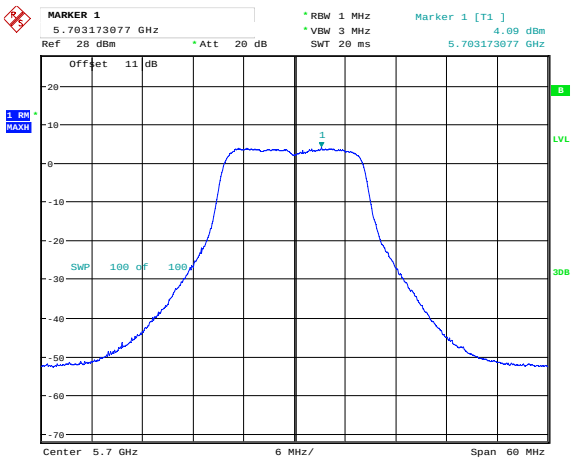
Date: 30.JUN.2015 20:46:00

Middle channel: Chain 1



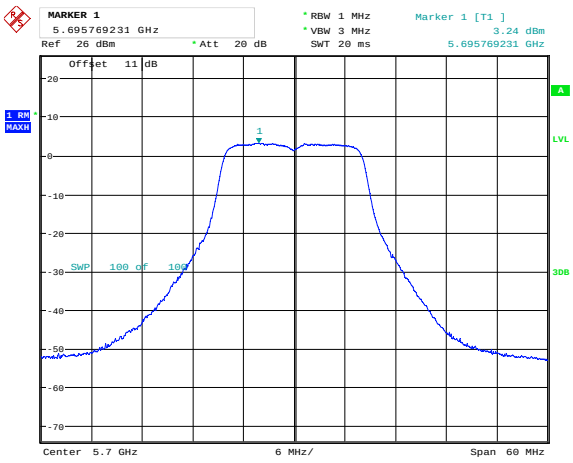
Date: 1.JUL.2015 16:05:21

High channel: Chain 0



Date: 30.JUN.2015 20:46:27

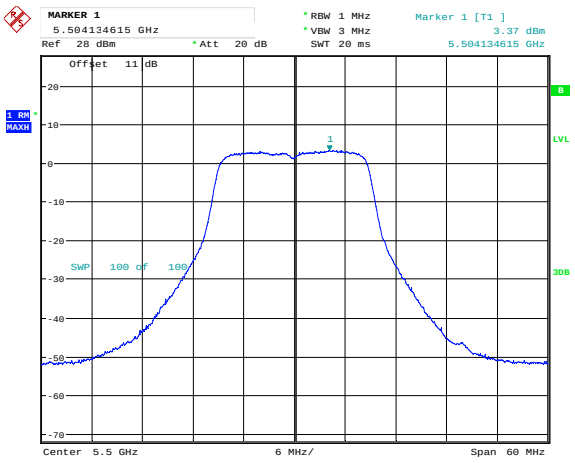
High channel: Chain 1



Date: 1.JUL.2015 16:05:45

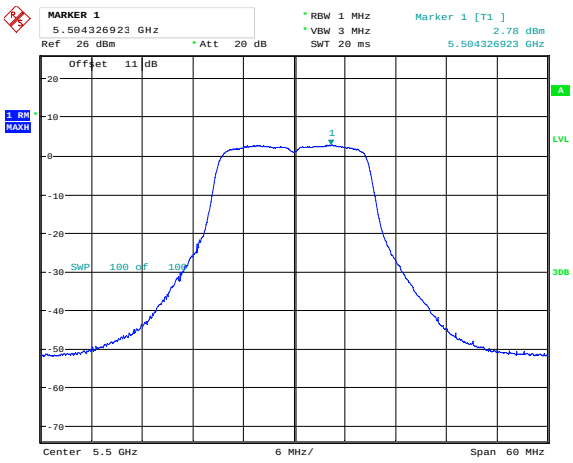
802.11n20 mode

Low channel: Chain 0



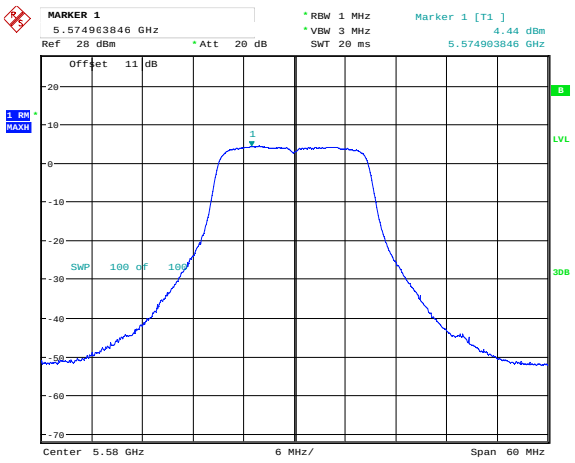
Date: 30.JUN.2015 20:54:43

Low channel: Chain 1



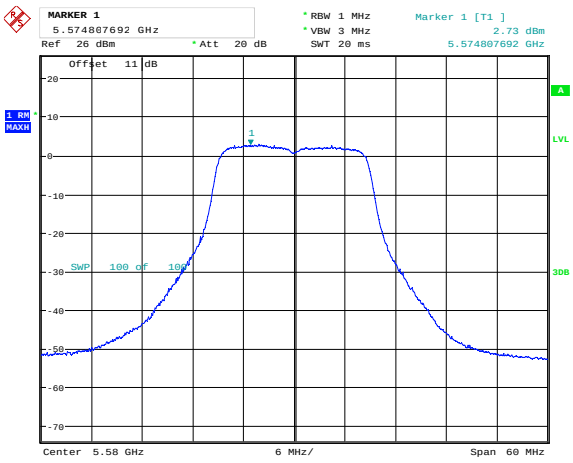
Date: 1.JUL.2015 16:13:11

Middle channel: Chain 0



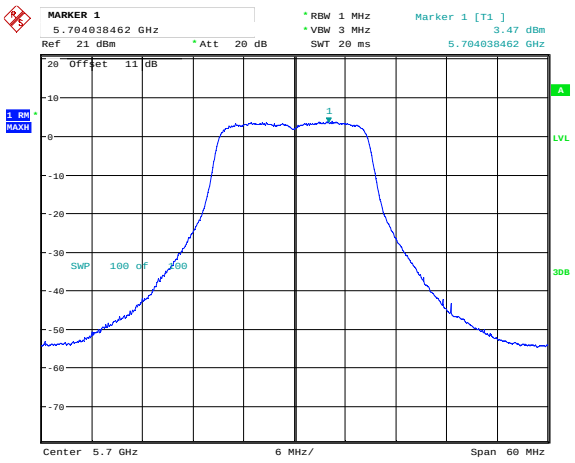
Date: 30.JUN.2015 20:55:06

Middle channel: Chain 1



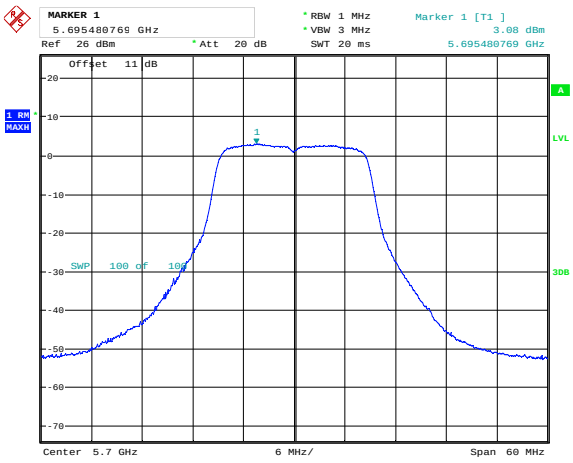
Date: 1.JUL.2015 16:13:35

High channel: Chain 0



Date: 30.JUN.2015 20:57:39

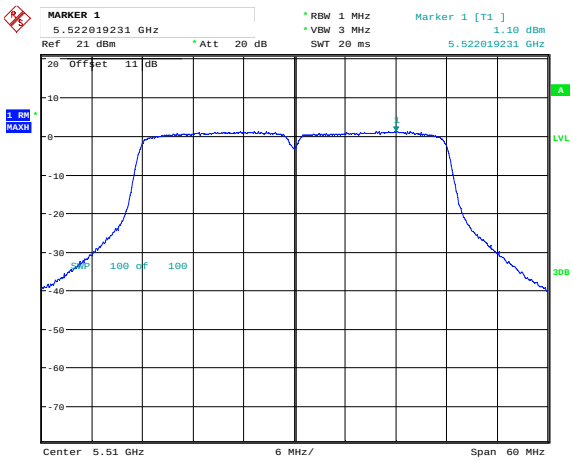
High channel: Chain 1



Date: 1.JUL.2015 16:13:57

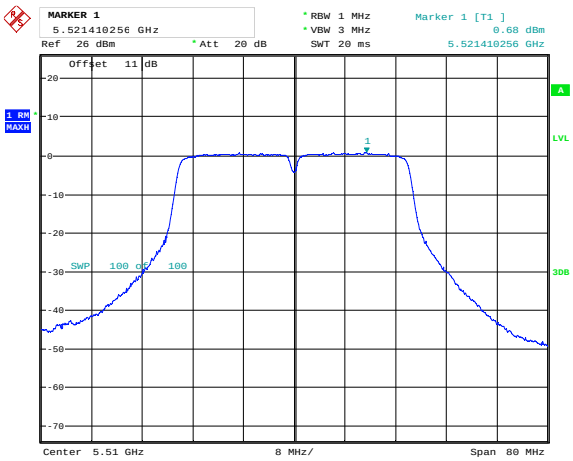
802.11n40 mode

Low channel: Chain 0



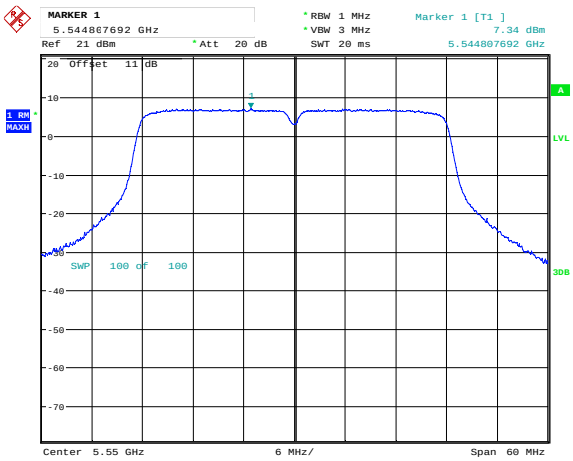
Date: 30.JUN.2015 21:03:09

Low channel: Chain 1



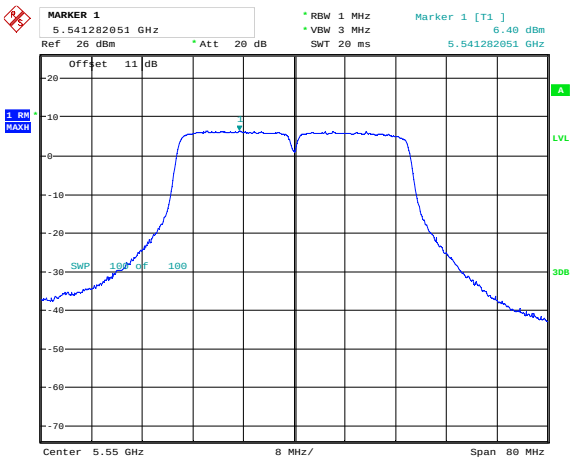
Date: 1.JUL.2015 16:19:29

Middle channel: Chain 0



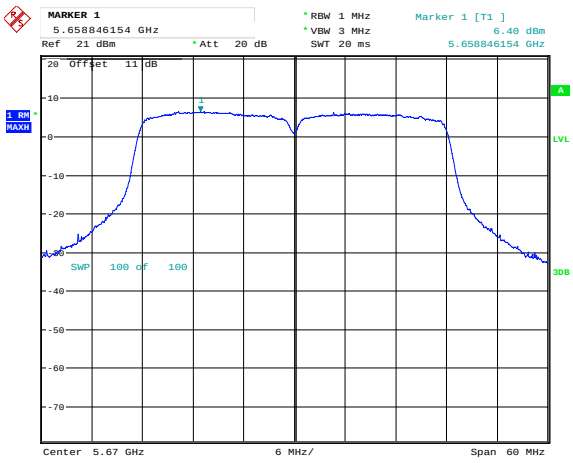
Date: 30.JUN.2015 21:03:47

Middle channel: Chain 1



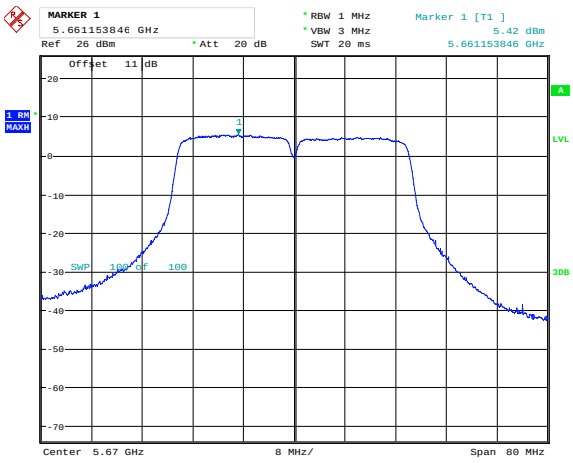
Date: 1.JUL.2015 16:20:05

High channel: Chain 0



Date: 30.JUN.2015 21:04:17

High channel: Chain 1



Date: 1.JUL.2015 16:20:35

Antenna gain=7 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	-0.08	0.06	3.00	6.99	Pass
Middle	5580	1.29	-0.07	3.67	6.99	Pass
High	5700	0.47	-0.27	3.13	6.99	Pass
802.11n20						
Low	5500	0.33	-0.45	2.97	6.99	Pass
Middle	5580	1.63	-0.63	3.66	6.99	Pass
High	5700	0.52	-0.46	3.07	6.99	Pass
802.11n40						
Low	5510	-0.49	-0.59	2.47	6.99	Pass
Middle	5550	1.62	0.80	4.24	6.99	
High	5670	1.30	0.35	3.86	6.99	Pass

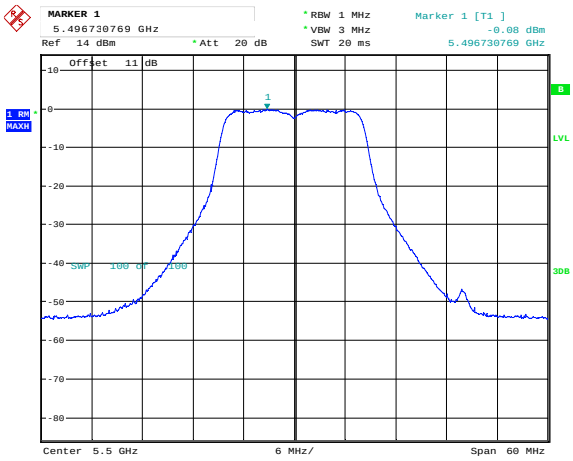
Note: Directional gain=7dBi + 10lg2=10.01 dBi

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

So the maximum power spectral density limit = 11dBm/MHz-(10.01 dBi-6 dBi) = 6.99 dBm/MHz

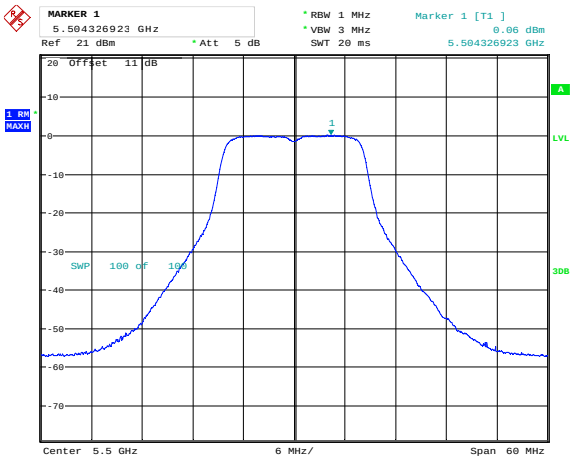
802.11a mode

Low channel: Chain 0



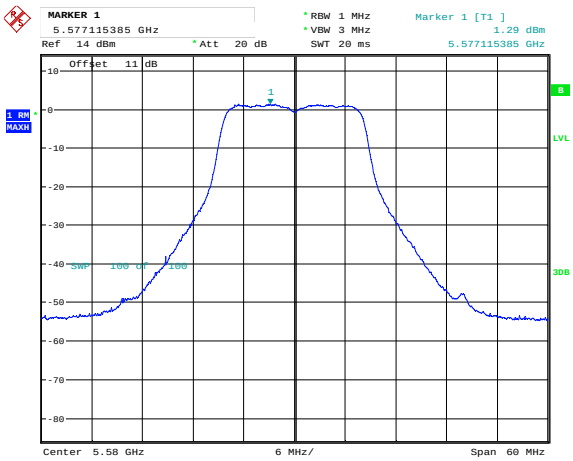
Date: 9.JUL.2015 20:54:17

Low channel: Chain 1



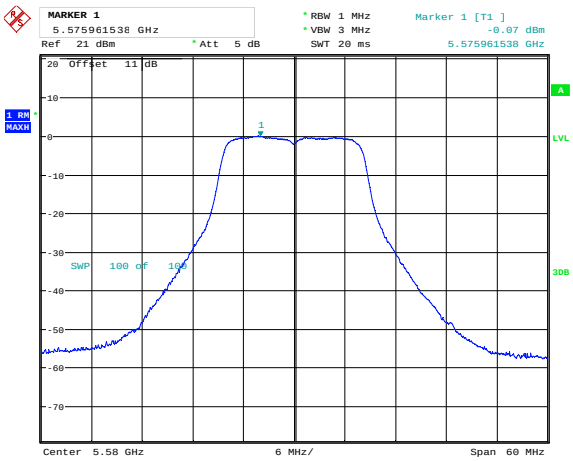
Date: 9.JUL.2015 19:33:59

Middle channel: Chain 0



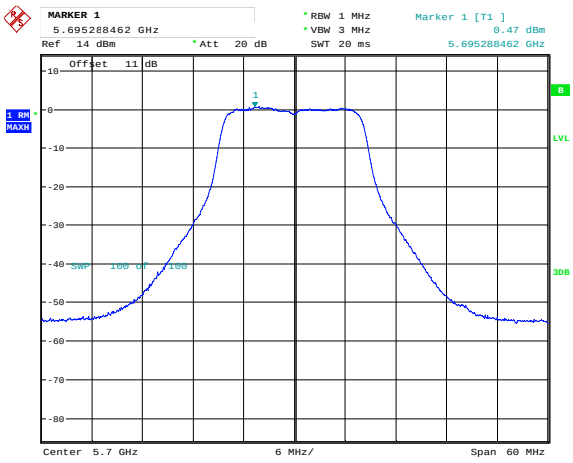
Date: 9.JUL.2015 20:54:50

Middle channel: Chain 1



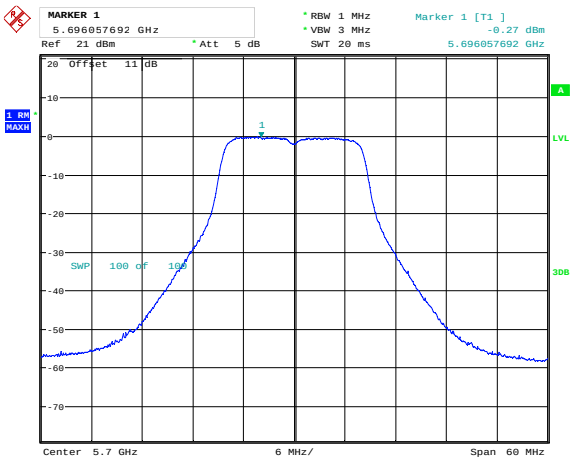
Date: 9.JUL.2015 19:34:35

High channel: Chain 0



Date: 9.JUL.2015 20:55:18

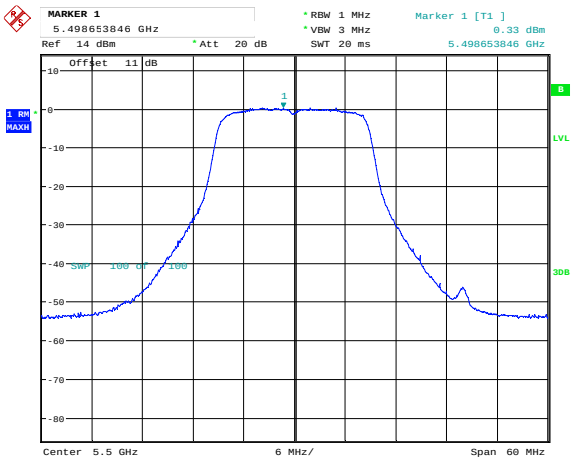
High channel: Chain 1



Date: 9.JUL.2015 19:35:13

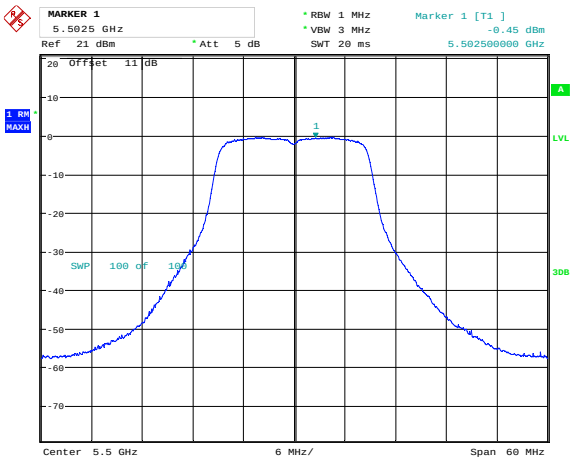
802.11n20 mode

Low channel: Chain 0



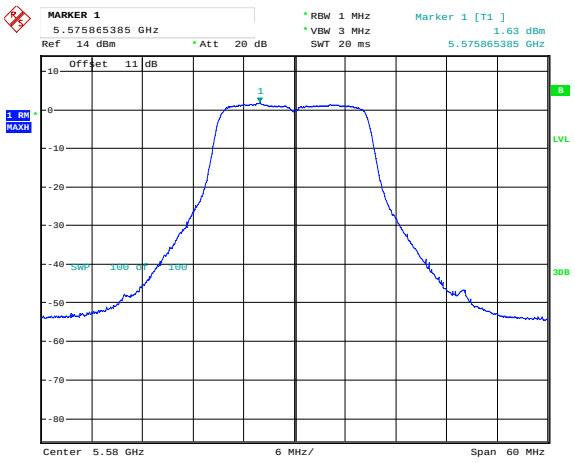
Date: 9.JUL.2015 20:59:34

Low channel: Chain 1



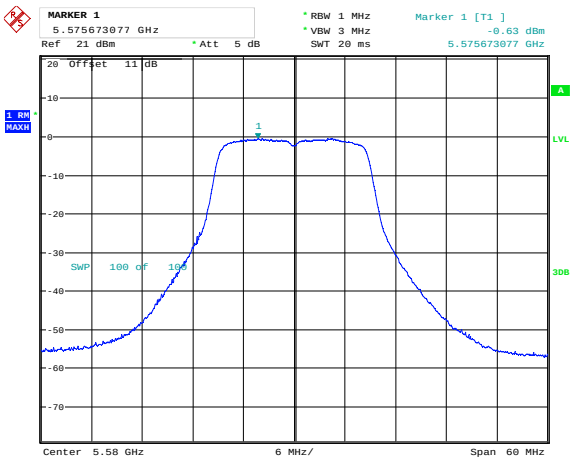
Date: 9.JUL.2015 19:39:50

Middle channel: Chain 0



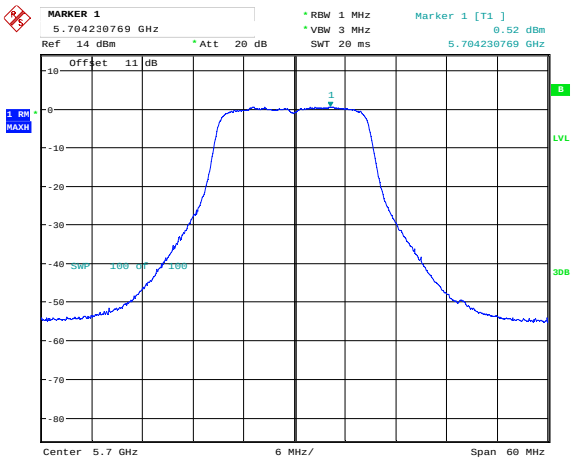
Date: 9.JUL.2015 21:00:03

Middle channel: Chain 1



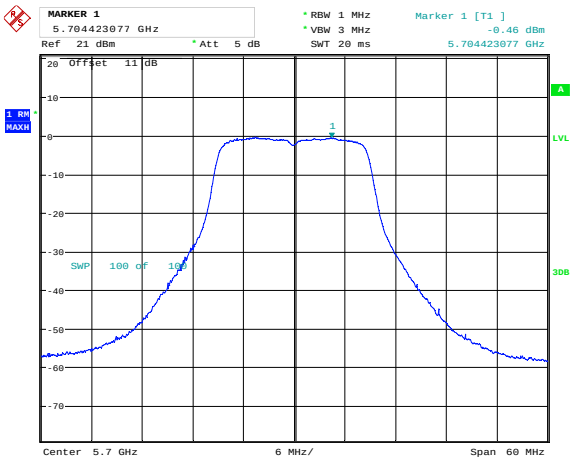
Date: 9.JUL.2015 19:40:25

High channel: Chain 0



Date: 9.JUL.2015 21:00:30

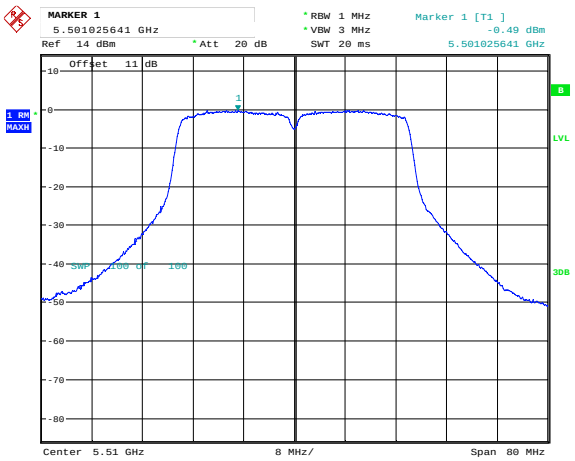
High channel: Chain 1



Date: 9.JUL.2015 19:40:54

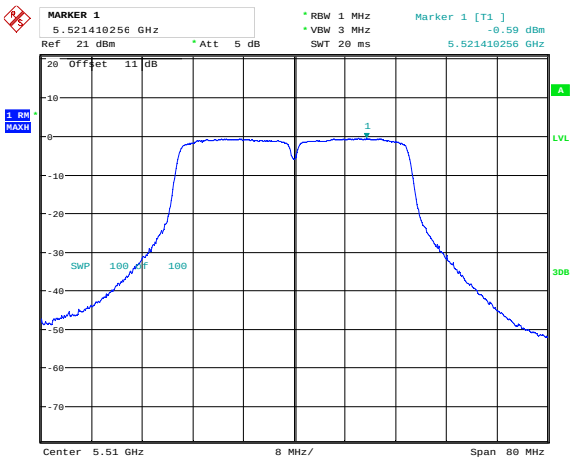
802.11n40 mode

Low channel: Chain 0



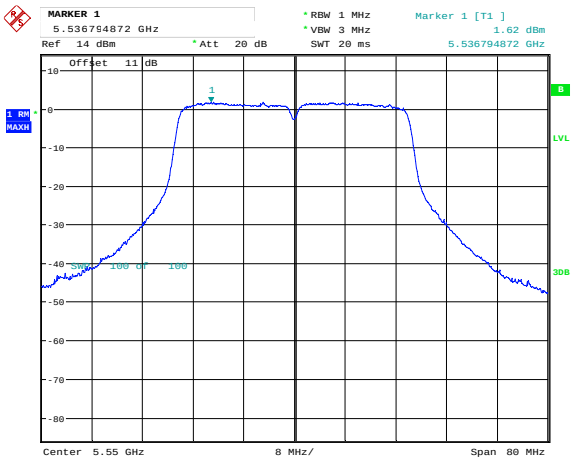
Date: 9.JUL.2015 20:49:39

Low channel: Chain 1



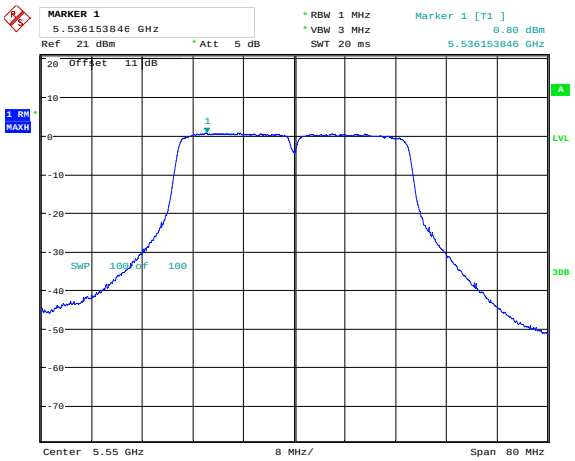
Date: 9.JUL.2015 19:44:46

Middle channel: Chain 0



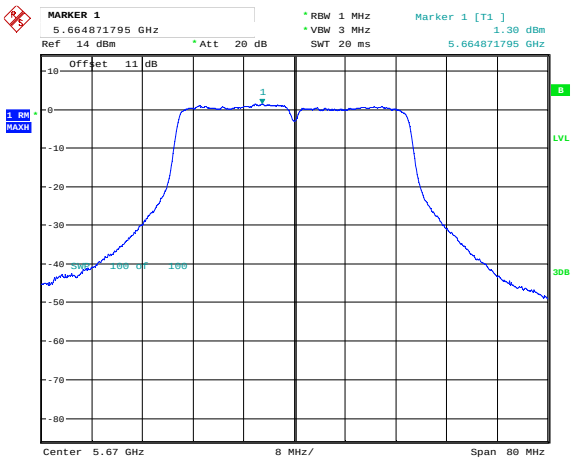
Date: 9.JUL.2015 20:50:12

Middle channel: Chain 1



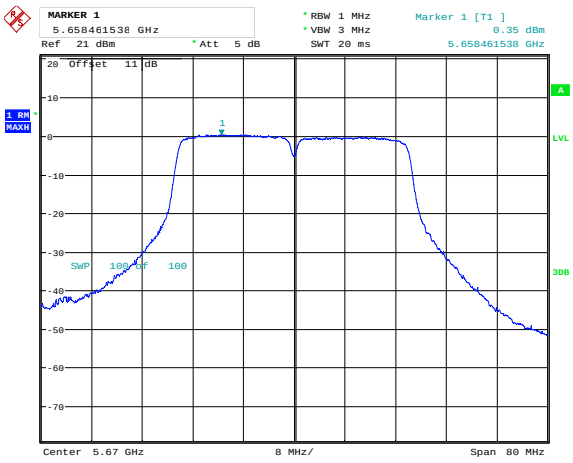
Date: 9.JUL.2015 19:45:26

High channel: Chain 0



Date: 9.JUL.2015 20:50:40

High channel: Chain 1



Date: 9.JUL.2015 19:46:02

Antenna gain=14 dBi

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Combined		
802.11a						
Low	5500	-5.11	-6.30	-2.65	-0.01	Pass
Middle	5580	-3.68	-5.84	-1.62	-0.01	Pass
High	5700	-4.31	-5.15	-1.70	-0.01	Pass
802.11n20						
Low	5500	-5.61	-6.33	-2.94	-0.01	Pass
Middle	5580	-3.97	-5.69	-1.74	-0.01	Pass
High	5700	-4.42	-5.26	-1.81	-0.01	Pass
802.11n40						
Low	5510	-7.56	-8.34	-4.92	-0.01	Pass
Middle	5550	-6.44	-7.93	-4.11	-0.01	
High	5670	-6.24	-7.96	-4.01	-0.01	Pass

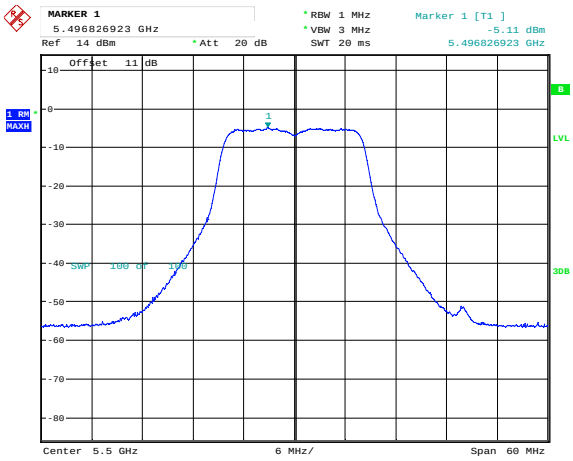
Note: Directional gain=14dBi + 10lg2=17.01 dBi

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

So the maximum power spectral density limit = 11dBm/MHz-(17.01 dBi-6 dBi) = -0.01 dBm/MHz

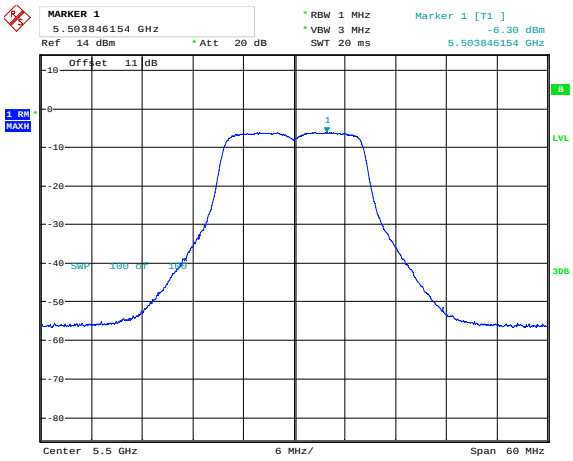
802.11a mode

Low channel: Chain 0



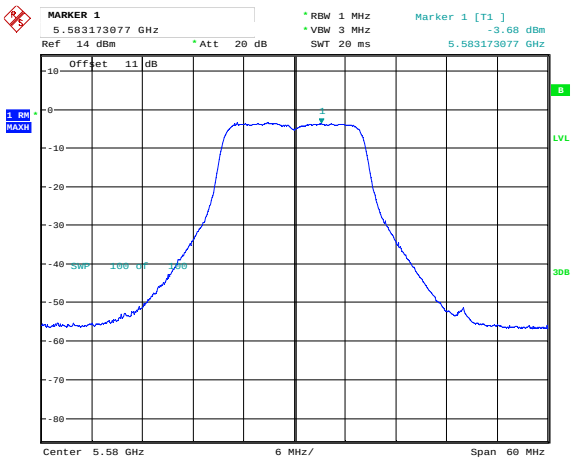
Date: 9.JUL.2015 20:35:23

Low channel: Chain 1



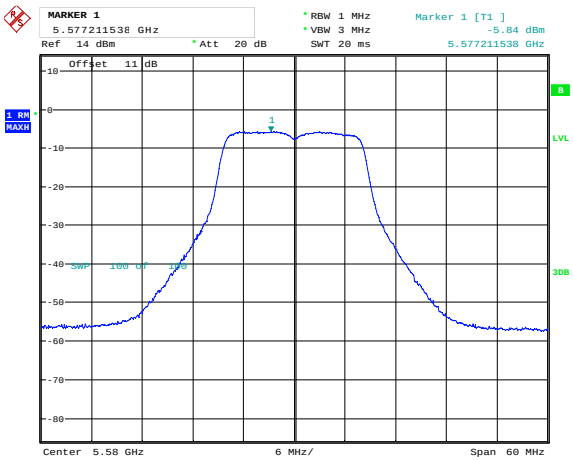
Date: 9.JUL.2015 19:57:42

Middle channel: Chain 0



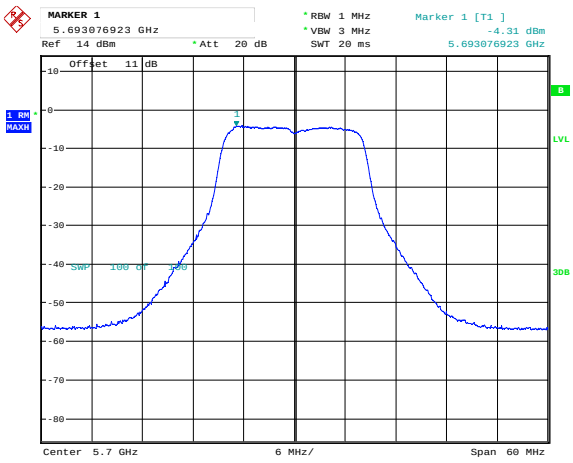
Date: 9.JUL.2015 20:35:54

Middle channel: Chain 1



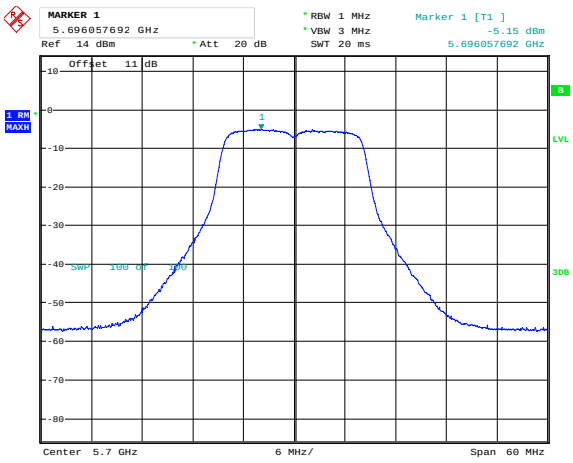
Date: 9.JUL.2015 19:58:09

High channel: Chain 0



Date: 9.JUL.2015 20:36:24

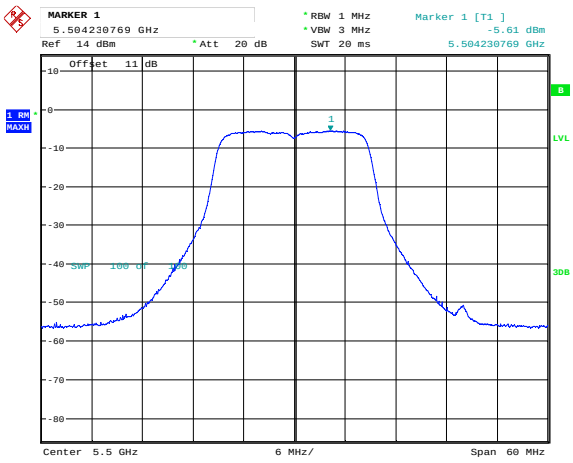
High channel: Chain 1



Date: 9.JUL.2015 19:58:40

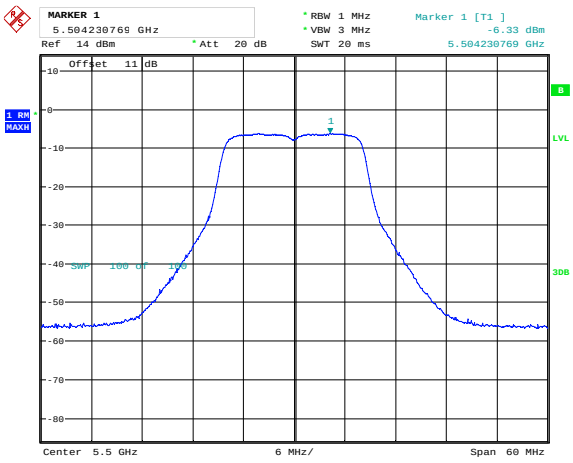
802.11n20 mode

Low channel: Chain 0



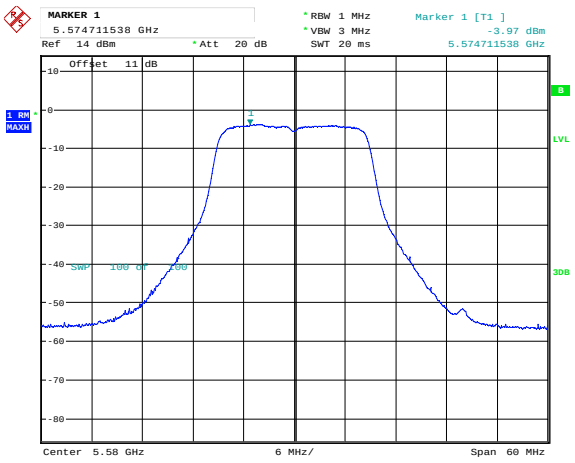
Date: 9.JUL.2015 20:40:12

Low channel: Chain 1



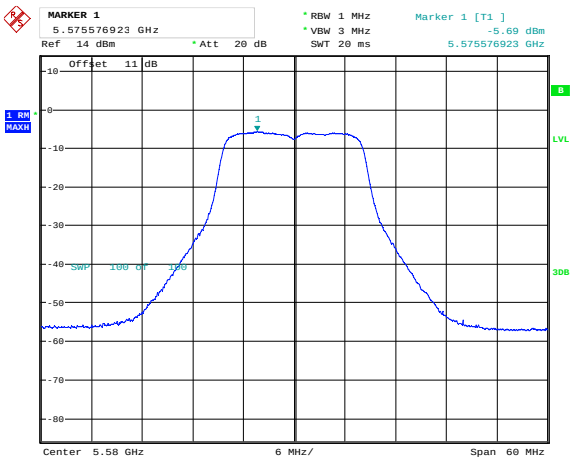
Date: 9.JUL.2015 20:02:20

Middle channel: Chain 0



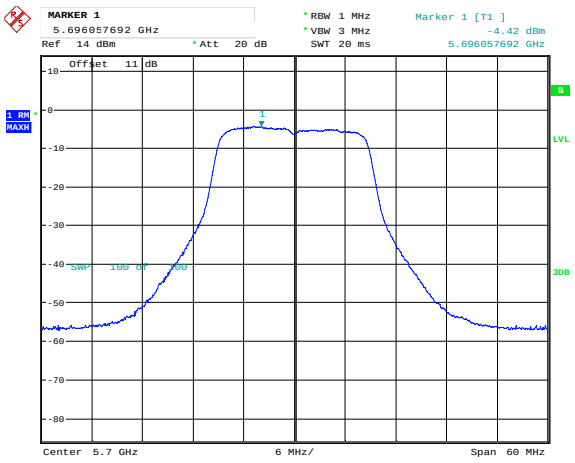
Date: 9.JUL.2015 20:40:37

Middle channel: Chain 1



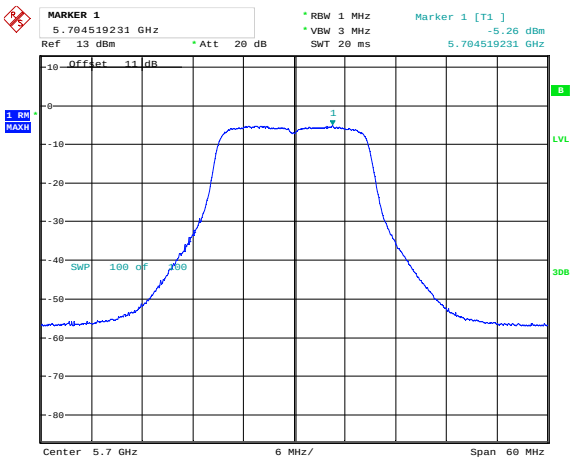
Date: 9.JUL.2015 20:02:47

High channel: Chain 0



Date: 9.JUL.2015 20:41:03

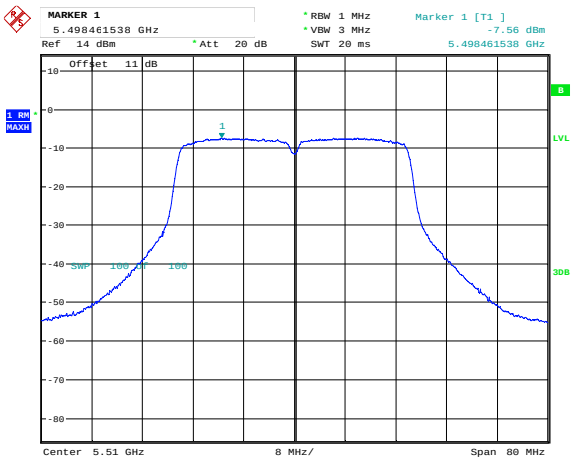
High channel: Chain 1



Date: 10.JUL.2015 21:07:01

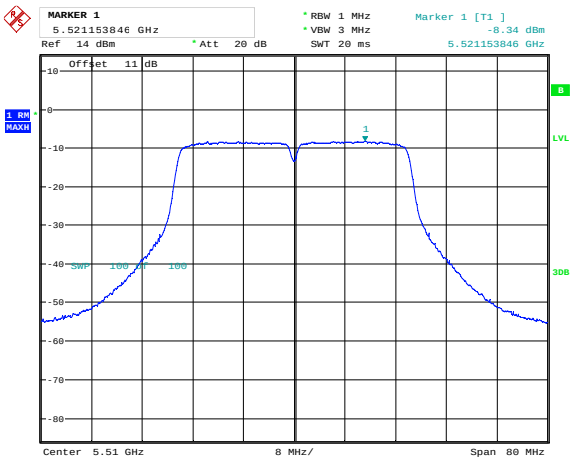
802.11n40 mode

Low channel: Chain 0



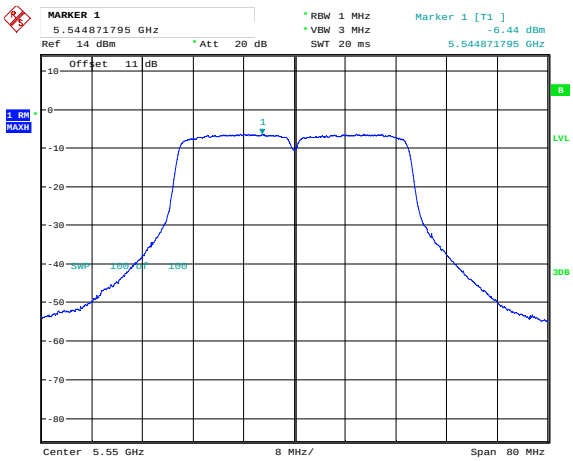
Date: 9.JUL.2015 20:44:53

Low channel: Chain 1



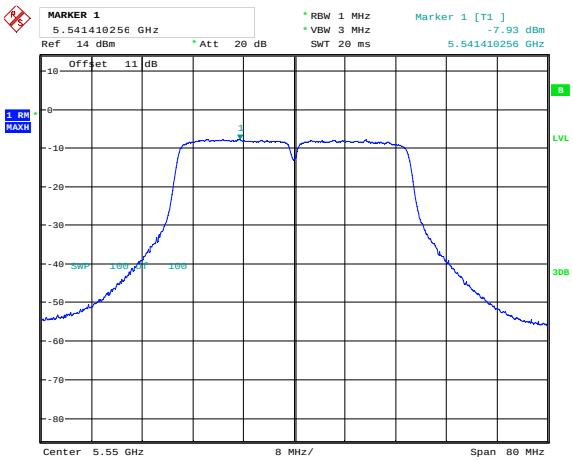
Date: 9.JUL.2015 19:51:16

Middle channel: Chain 0



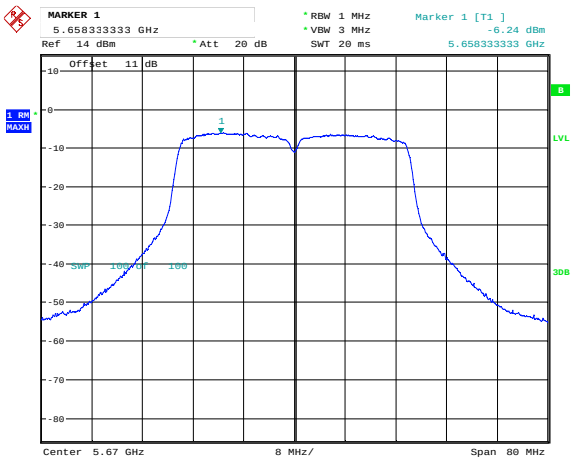
Date: 9.JUL.2015 20:45:18

Middle channel: Chain 1



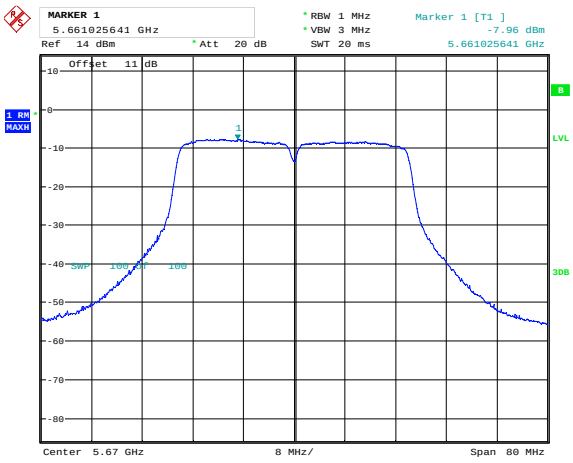
Date: 9.JUL.2015 19:51:51

High channel: Chain 0



Date: 9.JUL.2015 20:45:44

High channel: Chain 1



Date: 9.JUL.2015 19:52:21