

FCC PART 15.247

TEST REPORT

For

SHENZHEN TENDA TECHNOLOGY CO.,LTD.

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FCC ID: V7TN80

Report Type: Original Report	Product Type: Wireless N900 Concurrent Dual-Band Gigabit Router
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Report Number: R2DG130314004-00C	
Report Date: 2013-03-29	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The SHENZHEN TENDA TECHNOLOGY CO.,LTD.'s product, model number: N80 (FCC ID: V7TN80) or ("EUT") in this report is a *Wireless N900 Concurrent Dual-Band Gigabit Router*, which was measured approximately: 21.6 cm (L) x 15.6 cm (W) x 3.9 cm (H), rated input voltage: DC 12V from adapter.

Adapter information: Honor
Model: ADS-40FSG-12 12030 GPCU
Input: AC 100-240V, 50/60Hz, Max.1.0A
Output: DC 12V, 2.5A

** All measurement and test data in this report was gathered from production sample serial number: 130314004 (Assigned by BACL, Dongguan). The EUT was received on 2013-03-15.*

Objective

This report is prepared on behalf of SHENZHEN TENDA TECHNOLOGY CO.,LTD. accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communications Commission rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15E NII submissions with FCC ID: V7TN80.
FCC Part 15B JBP submissions with FCC ID: V7TN80.

Test Methodology

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

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

The uncertainty of any RF tests which use conducted method measurement is ± 3.46 dB, the uncertainty of any radiation on emissions measurement is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

6G~18GHz: 5.23 dB

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

Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Dongguan) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 500069-0).



The current scope of accreditations can be found at <http://ts.nist.gov/standards/scopes/5000690.htm>

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer. For 2.4G band, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

For 802.11b, 802.11g, and 802.11n20 modes were tested with Channel 1, 6 and 11. For 802.11n40 mode were tested with Channel 3, 6 and 9.

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

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

For 802.11a and 802.11n ht20, Channel 149, 153, 157, 161 and 165 was used, we choose the channel 149, 157, 165 for test, for 802.11n ht40 151, 159 was tested.

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

For 802.11a, 802.11b and 802.11g, the EUT can transmitting with chain 0, chain 1 or chain 2, therefore investigated worst case to representative chain 0 in test report.

EUT Exercise Software

The software 'Broadcom MTool 2.0.0.3' was used for testing, which was provided by manufacturer.

Equipment Modifications

No modification was made to the EUT tested.

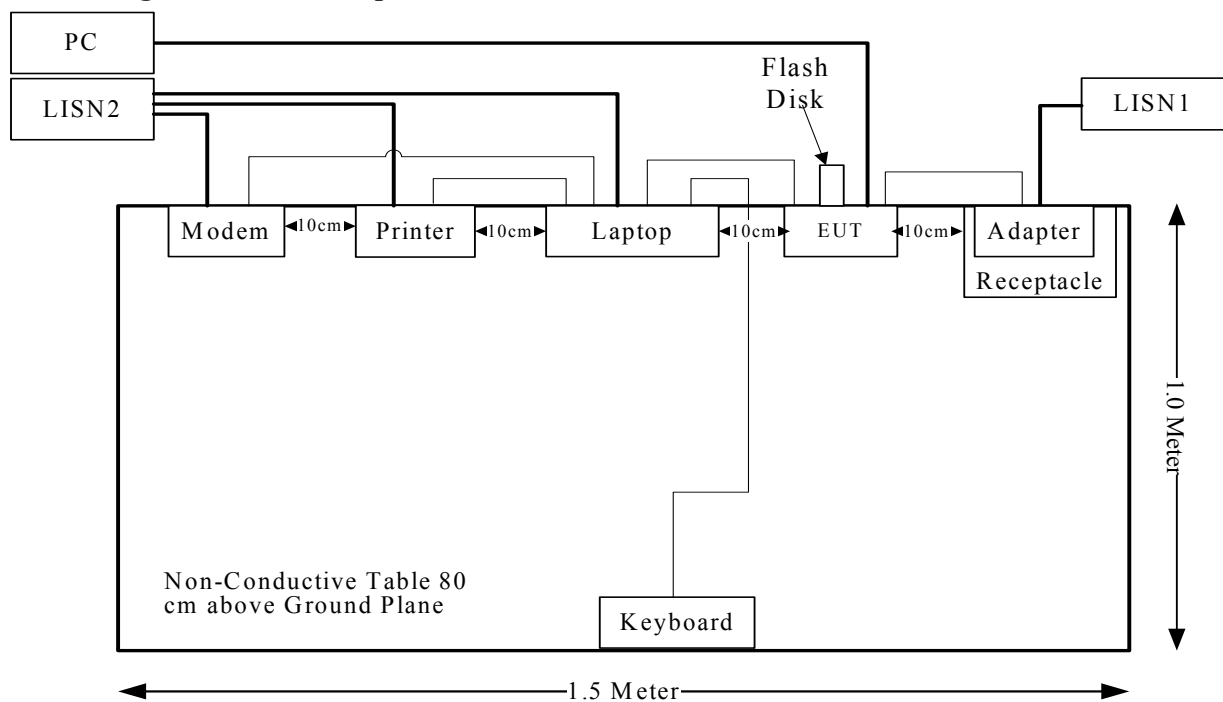
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Laptop	PP11L	N/A
Kinston	Flash Disk	4G	/
DELL	PC	GX620	/

External Cable

Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Laptop	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Laptop	Modem
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Laptop	Keyboard
RJ 45 Cable	1.0	Laptop	EUT
RJ45 Cable*4	10	EUT	PC

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091	Maximum Permissible Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247(i) and subpart §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 Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

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

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

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

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Band	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G	2412	5	3.16	19.76	94.62	20.00	0.05956	1.0
5.8G	5755	5	3.16	16.95	49.55	20.00	0.03119	1.0

Result: The device meet FCC MPE at 20 cm distance

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

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

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

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has 3 dipole antennas, which were using a unique connector to attach the EUT, and the maximum gain is 5.0dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS**Applicable Standard**

FCC§15.207

Measurement Uncertainty

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

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

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

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

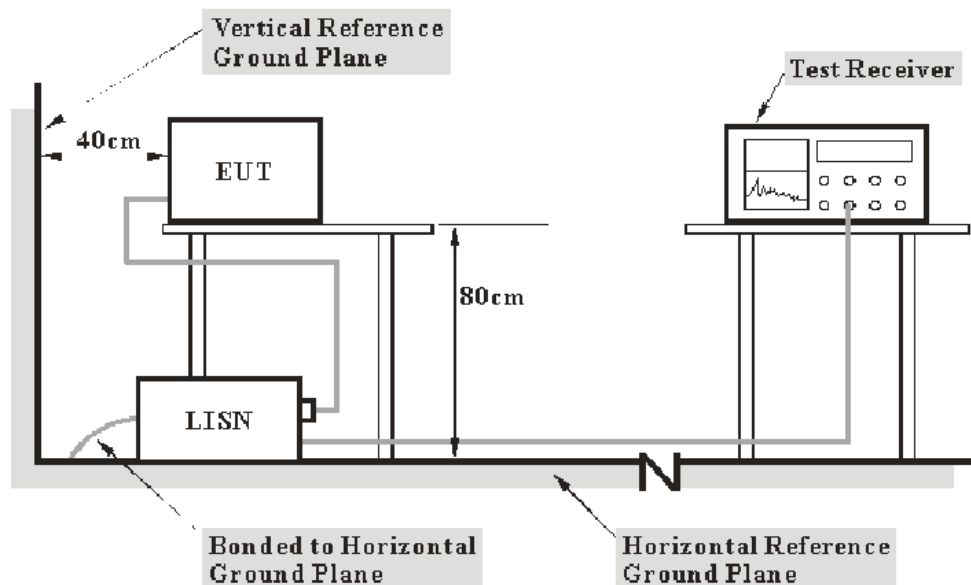
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

Based on CISPR 16-4-2-2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cisp}

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

EUT Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

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

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

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

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

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

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2012-11-29	2013-11-28
R&S	LISN1	ESH3-Z5	843331/015	2012-09-17	2013-09-16
R&S	LISN2	ESH3-Z5	100113	2012-11-29	2013-11-28
BACL	Test Software	BACL-EMC	V1.0-2010	N/A	N/A

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

Test Results Summary

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

11.35 dB at 0.320 MHz in the Neutral conducted mode

Test Data

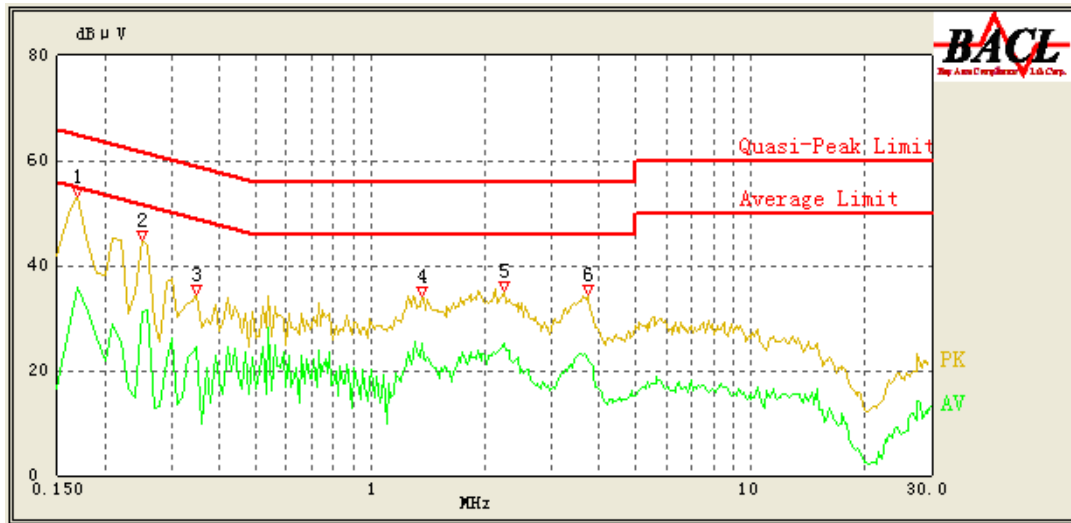
Environmental Conditions

Temperature:	26.1 ° C
Relative Humidity:	61 %
ATM Pressure:	100.4kPa

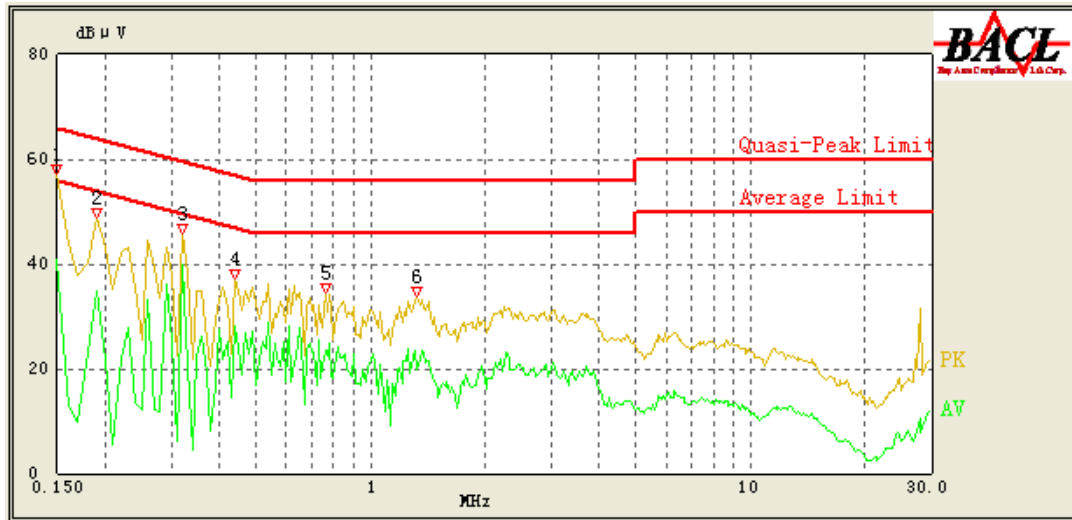
The testing was performed by Leon Chen on 2013-03-28.

Test Mode: Transmitting

120 V, 60 Hz, Line:



Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.170	49.08	1.03	65.43	16.35	QP
0.170	35.71	1.03	55.43	19.72	AV
0.250	40.45	0.89	63.14	22.69	QP
0.250	31.13	0.89	53.14	22.01	AV
0.350	32.25	0.74	60.29	28.04	QP
0.350	24.60	0.74	50.29	25.69	AV
1.360	30.22	0.33	56.00	25.78	QP
1.360	25.12	0.33	46.00	20.88	AV
2.260	31.31	0.37	56.00	24.69	QP
2.260	25.08	0.37	46.00	20.92	AV
3.720	28.76	0.42	56.00	27.24	QP
3.710	22.79	0.42	46.00	23.21	AV

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.150	38.31	1.84	66.00	27.69	QP
0.150	40.70	1.84	56.00	15.30	AV
0.190	36.60	1.63	64.86	28.26	QP
0.190	34.77	1.63	54.86	20.09	AV
0.320	39.93	1.02	61.14	21.21	QP
0.320	39.79	1.02	51.14	11.35	AV
0.440	32.69	0.71	57.71	25.02	QP
0.440	28.32	0.71	47.71	19.39	AV
0.760	29.15	0.38	56.00	26.85	QP
0.760	23.46	0.38	46.00	22.54	AV
1.330	29.20	0.24	56.00	26.80	QP
1.330	19.92	0.24	46.00	26.08	AV

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

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

If U_{lab} is less than or equal to U_{cisp} of Table 2, then:

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

If U_{lab} is greater than U_{cisp} of Table 2, then:

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

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

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

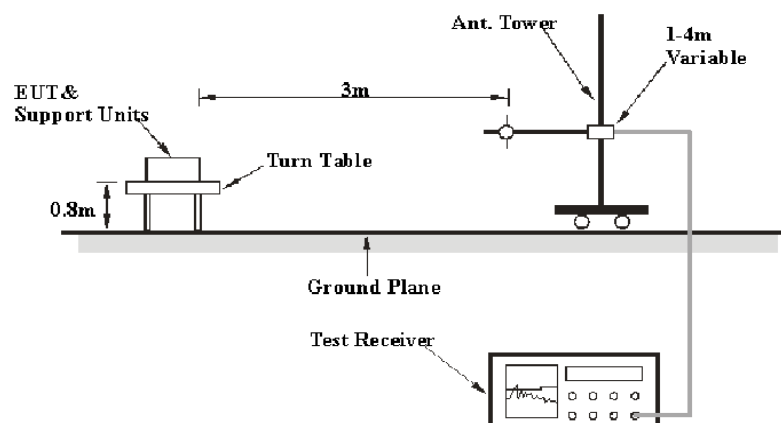
6G~18GHz: 5.23 dB

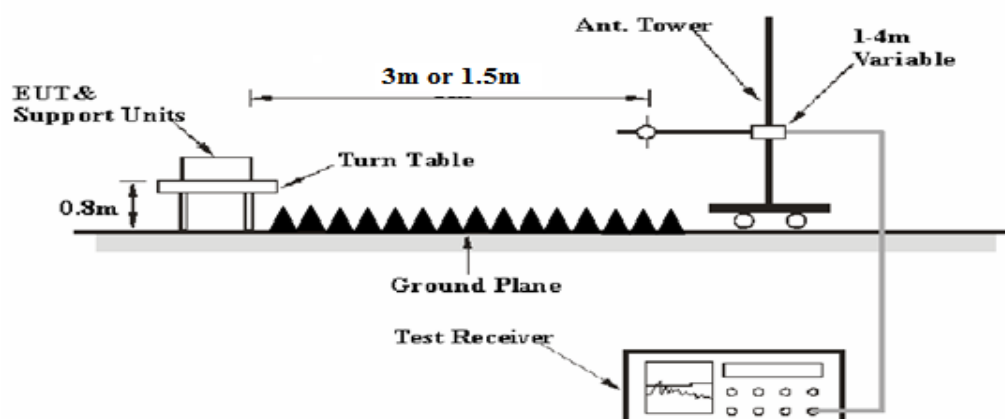
Table 2 – Values of U_{cisp}

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

EUT Setup

Below 1GHz:



Above 1GHz:

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

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

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

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

<u>Frequency Range</u>	<u>RBW</u>	<u>Video B/W</u>	<u>Detector</u>
30 MHz – 1000 MHz	120 kHz	300 kHz	QP
1000 MHz – 40 GHz	1 MHz	3 MHz	PK
1000 MHz – 40 GHz	1 MHz	10 Hz	Ave.

Test Procedure

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

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

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

The limits of the fundamental above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m

Distance extrapolation factor = $20 \log (3\text{m}/1.5)$ dB

Limit line = specific limits (dB μ V/m) + 6dB

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI TEST RECIEVER	ESCI	100224	2012-5-14	2013-5-13
Sunol Sciences	Antenna	JB3	A060611-1	2012-9-6	2013-9-5
HP	HP AMPLIFIER	8447E	2434A02181	N/A	N/A
R&S	Spectrum analyzer	FSEM 30	849016/001	2012-9-4	2013-9-3
ETS LINDGREN	horn antenna	3115	000 527 35	2012-9-6	2013-9-5
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	N/A	N/A
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Section 15.205, 15.209 and 15.247, with the worst margin reading of:

0.36 dB at 9848 MHz in the Vertical polarization for 802.11b Mode

Test Data**Environmental Conditions**

Temperature:	24.3~25 ° C
Relative Humidity:	63 ~40 %
ATM Pressure:	100.2~100.8kPa

*The testing was performed by Leon Chen from 2013-03-21 to 2013-03-27.
Mode: Transmitting*

2.4GHz band:
802.11b Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	76.31	PK	H	25.67	3.93	0.00	105.91	N/A	N/A
2412	69.27	AV	H	25.67	3.93	0.00	98.87	N/A	N/A
2412	81.45	PK	V	25.67	3.93	0.00	111.05	N/A	N/A
2412	74.33	AV	V	25.67	3.93	0.00	103.93	N/A	N/A
2390	32.37	PK	V	25.61	3.84	0.00	61.82	74.00	12.18
2390	19.26	AV	V	25.61	3.84	0.00	48.71	54.00	5.29
4824	48.38	PK	V	30.64	4.73	27.26	56.49	74.00	17.51
4824	45.07	AV	V	30.64	4.73	27.26	53.18	54.00	0.82*
7236	41.52	PK	V	34.17	6.56	26.36	55.89	74.00	18.11
7236	34.86	AV	V	34.17	6.56	26.36	49.23	54.00	4.77
9648	39.31	PK	V	36.06	8.70	26.06	58.01	74.00	15.99
9648	33.96	AV	V	36.06	8.70	26.06	52.66	54.00	1.34*
7500	39.54	PK	V	34.80	7.06	26.37	55.03	74.00	18.97
7500	37.25	AV	V	34.80	7.06	26.37	52.74	54.00	1.26*
610.58	41.6	QP	V	19.90	3.06	22.28	42.28	46.00	3.72*
Middle Channel: 2437 MHz									
2437	76.75	PK	H	25.74	3.98	0.00	106.47	N/A	N/A
2437	69.52	AV	H	25.74	3.98	0.00	99.24	N/A	N/A
2437	81.72	PK	V	25.74	3.98	0.00	111.44	N/A	N/A
2437	74.62	AV	V	25.74	3.98	0.00	104.34	N/A	N/A
4874	48.09	PK	V	30.77	4.76	27.26	56.36	74.00	17.64
4874	44.87	AV	V	30.77	4.76	27.26	53.14	54.00	0.86*
7311	41.33	PK	V	34.35	6.70	26.51	55.87	74.00	18.13
7311	35	AV	V	34.35	6.70	26.51	49.54	54.00	4.46*
9748	39.4	PK	V	36.30	8.60	25.68	58.62	74.00	15.38
9748	34.05	AV	V	36.30	8.60	25.68	53.27	54.00	0.73*
5000	44.47	PK	V	31.10	4.78	27.27	53.08	74.00	20.92
5000	42.79	AV	V	31.10	4.78	27.27	51.40	54.00	2.60*
7500	39.29	PK	V	34.80	7.06	26.37	54.78	74.00	19.22
7500	37.41	AV	V	34.80	7.06	26.37	52.90	54.00	1.10*
610.58	40.7	QP	V	19.90	3.06	22.28	41.38	46.00	4.62*
High Channel: 2462 MHz									
2462	76.72	PK	H	25.80	3.93	0.00	106.45	N/A	N/A
2462	69.39	AV	H	25.80	3.93	0.00	99.12	N/A	N/A
2462	81.82	PK	V	25.80	3.93	0.00	111.55	N/A	N/A
2462	74.8	AV	V	25.80	3.93	0.00	104.53	N/A	N/A
2483.5	32.67	PK	H	25.86	3.80	0.00	62.33	74.00	11.67
2483.5	19.37	AV	H	25.86	3.80	0.00	49.03	54.00	4.97
4924	48.24	PK	H	30.90	4.70	27.27	56.57	74.00	17.43
4924	45.07	AV	H	30.90	4.70	27.27	53.40	54.00	0.60*
7386	41.67	PK	H	34.53	6.84	26.66	56.38	74.00	17.62
7386	34.99	AV	H	34.53	6.84	26.66	49.70	54.00	4.30*
9848	39.4	PK	H	36.54	8.49	25.49	58.94	74.00	15.06
9848	34.1	AV	H	36.54	8.49	25.49	53.64	54.00	0.36*
7500	39.79	PK	H	34.80	7.06	26.37	55.28	74.00	18.72
7500	37.52	AV	H	34.80	7.06	26.37	53.01	54.00	0.99*
975.84	41.3	QP	V	22.48	3.60	22.22	45.16	54.00	8.84

*Within measurement uncertainty!

802.11g Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	75.54	PK	H	25.67	3.93	0.00	105.14	N/A	N/A
2412	68.69	AV	H	25.67	3.93	0.00	98.29	N/A	N/A
2412	80.53	PK	V	25.67	3.93	0.00	110.13	N/A	N/A
2412	73.48	AV	V	25.67	3.93	0.00	103.08	N/A	N/A
2390	31.45	PK	V	25.61	3.84	0.00	60.90	74.00	13.10
2390	18.34	AV	V	25.61	3.84	0.00	47.79	54.00	6.21
4824	46.6	PK	V	30.64	4.73	27.26	54.71	74.00	19.29
4824	30.8	AV	V	30.64	4.73	27.26	38.91	54.00	15.09
7236	44.02	PK	V	34.17	6.56	26.36	58.39	74.00	15.61
7236	25.79	AV	V	34.17	6.56	26.36	40.16	54.00	13.84
9648	38.4	PK	V	36.06	8.70	26.06	57.10	74.00	16.90
9648	22.1	AV	V	36.06	8.70	26.06	40.80	54.00	13.20
7500	39.19	PK	V	34.80	7.06	26.37	54.68	74.00	19.32
7500	37.24	AV	V	34.80	7.06	26.37	52.73	54.00	1.27*
610.58	41.3	QP	V	19.90	3.06	22.28	41.98	46.00	4.02*
Middle Channel: 2437 MHz									
2437	75.57	PK	H	25.74	3.98	0.00	105.29	N/A	N/A
2437	68.3	AV	H	25.74	3.98	0.00	98.02	N/A	N/A
2437	80.52	PK	V	25.74	3.98	0.00	110.24	N/A	N/A
2437	73.67	AV	V	25.74	3.98	0.00	103.39	N/A	N/A
4874	46.84	PK	H	30.77	4.76	27.26	55.11	74.00	18.89
4874	31.03	AV	H	30.77	4.76	27.26	39.30	54.00	14.70
7311	43.85	PK	H	34.35	6.70	26.51	58.39	74.00	15.61
7311	25.81	AV	H	34.35	6.70	26.51	40.35	54.00	13.65
9748	38.51	PK	H	36.30	8.60	25.68	57.73	74.00	16.27
9748	21.83	AV	H	36.30	8.60	25.68	41.05	54.00	12.95
5000	43.29	PK	H	31.10	4.78	27.27	51.90	74.00	22.10
5000	41.35	AV	H	31.10	4.78	27.27	49.96	54.00	4.04*
7500	38.89	PK	H	34.80	7.06	26.37	54.38	74.00	19.62
7500	37.39	AV	H	34.80	7.06	26.37	52.88	54.00	1.12*
610.58	42.1	QP	V	19.90	3.06	22.28	42.78	46.00	3.22*
High Channel: 2462 MHz									
2462	75.49	PK	H	25.80	3.93	0.00	105.22	N/A	N/A
2462	68.51	AV	H	25.80	3.93	0.00	98.24	N/A	N/A
2462	80.88	PK	V	25.80	3.93	0.00	110.61	N/A	N/A
2462	73.8	AV	V	25.80	3.93	0.00	103.53	N/A	N/A
2483.5	31.39	PK	H	25.86	3.80	0.00	61.05	74.00	12.95
2483.5	18.34	AV	H	25.86	3.80	0.00	48.00	54.00	6.00
4924	46.63	PK	H	30.90	4.70	27.27	54.96	74.00	19.04
4924	30.66	AV	H	30.90	4.70	27.27	38.99	54.00	15.01
7386	44.31	PK	H	34.53	6.84	26.66	59.02	74.00	14.98
7386	25.78	AV	H	34.53	6.84	26.66	40.49	54.00	13.51
9848	38.26	PK	H	36.54	8.49	25.49	57.80	74.00	16.20
9848	22.07	AV	H	36.54	8.49	25.49	41.61	54.00	12.39
7500	39.11	PK	H	34.80	7.06	26.37	54.60	74.00	19.40
7500	37.46	AV	H	34.80	7.06	26.37	52.95	54.00	1.05*
610.58	41.5	QP	V	19.90	3.06	22.28	42.18	46.00	3.82*

*Within measurement uncertainty!

802.11 n20 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	69.33	PK	H	25.67	3.93	0.00	98.93	N/A	N/A
2412	55.28	AV	H	25.67	3.93	0.00	84.88	N/A	N/A
2412	75.67	PK	V	25.67	3.93	0.00	105.27	N/A	N/A
2412	61.29	AV	V	25.67	3.93	0.00	90.89	N/A	N/A
2390	32.15	PK	V	25.61	3.84	0.00	61.60	74.00	12.40
2390	18.24	AV	V	25.61	3.84	0.00	47.69	54.00	6.31
4824	35.87	PK	V	30.64	4.73	27.26	43.98	74.00	30.02
4824	22.64	AV	V	30.64	4.73	27.26	30.75	54.00	23.25
7236	33.28	PK	V	34.17	6.56	26.36	47.65	74.00	26.35
7236	20.07	AV	V	34.17	6.56	26.36	34.44	54.00	19.56
9648	31.56	PK	V	36.06	8.70	26.06	50.26	74.00	23.74
9648	17.88	AV	V	36.06	8.70	26.06	36.58	54.00	17.42
7500	39.72	PK	V	34.80	7.06	26.37	55.21	74.00	18.79
7500	37.12	AV	V	34.80	7.06	26.37	52.61	54.00	1.39*
610.58	40.6	QP	V	19.90	3.06	22.28	41.28	46.00	4.72*
Middle Channel: 2437 MHz									
2437	69.64	PK	H	25.74	3.98	0.00	99.36	N/A	N/A
2437	55.71	AV	H	25.74	3.98	0.00	85.43	N/A	N/A
2437	76.07	PK	V	25.74	3.98	0.00	105.79	N/A	N/A
2437	61.6	AV	V	25.74	3.98	0.00	91.32	N/A	N/A
4874	36.16	PK	H	30.77	4.76	27.26	44.43	74.00	29.57
4874	22.95	AV	H	30.77	4.76	27.26	31.22	54.00	22.78
7311	33.22	PK	H	34.35	6.70	26.51	47.76	74.00	26.24
7311	20.24	AV	H	34.35	6.70	26.51	34.78	54.00	19.22
9748	31.74	PK	H	36.30	8.60	25.68	50.96	74.00	23.04
9748	17.97	AV	H	36.30	8.60	25.68	37.19	54.00	16.81
5000	43.27	PK	H	31.10	4.78	27.27	51.88	74.00	22.12
5000	41.16	AV	H	31.10	4.78	27.27	49.77	54.00	4.23*
7500	39.76	PK	H	34.80	7.06	26.37	55.25	74.00	18.75
7500	37.16	AV	H	34.80	7.06	26.37	52.65	54.00	1.35*
610.58	41	QP	V	19.90	3.06	22.28	41.68	46.00	4.32*
High Channel: 2462 MHz									
2462	69.38	PK	H	25.80	3.93	0.00	99.11	N/A	N/A
2462	55.53	AV	H	25.80	3.93	0.00	85.26	N/A	N/A
2462	75.95	PK	V	25.80	3.93	0.00	105.68	N/A	N/A
2462	61.66	AV	V	25.80	3.93	0.00	91.39	N/A	N/A
2483.5	32.42	PK	H	25.86	3.80	0.00	62.08	74.00	11.92
2483.5	18.72	AV	H	25.86	3.80	0.00	48.38	54.00	5.62
4924	36.16	PK	H	30.90	4.70	27.27	44.49	74.00	29.51
4924	22.6	AV	H	30.90	4.70	27.27	30.93	54.00	23.07
7386	33.35	PK	H	34.53	6.84	26.66	48.06	74.00	25.94
7386	19.97	AV	H	34.53	6.84	26.66	34.68	54.00	19.32
9848	31.69	PK	H	36.54	8.49	25.49	51.23	74.00	22.77
9848	17.42	AV	H	36.54	8.49	25.49	36.96	54.00	17.04
7500	39.83	PK	H	34.80	7.06	26.37	55.32	74.00	18.68
7500	37.4	AV	H	34.80	7.06	26.37	52.89	54.00	1.11*
610.58	40.8	QP	V	19.90	3.06	22.28	41.48	46.00	4.52*

*Within measurement uncertainty!

802.11 n40 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2422 MHz									
2422	68.59	PK	H	25.70	3.95	0.00	98.24	N/A	N/A
2422	54.65	AV	H	25.70	3.95	0.00	84.30	N/A	N/A
2422	74.57	PK	V	25.70	3.95	0.00	104.22	N/A	N/A
2422	59.85	AV	V	25.70	3.95	0.00	89.50	N/A	N/A
2390	33.61	PK	V	25.61	3.84	0.00	63.06	74.00	10.94
2390	18.34	AV	V	25.61	3.84	0.00	47.79	54.00	6.21
4844	36.12	PK	V	30.69	4.78	27.26	44.33	74.00	29.67
4844	22.76	AV	V	30.69	4.78	27.26	30.97	54.00	23.03
7266	33.28	PK	V	34.24	6.62	26.42	47.72	74.00	26.28
7266	20.19	AV	V	34.24	6.62	26.42	34.63	54.00	19.37
9688	31.78	PK	V	36.15	8.66	25.91	50.68	74.00	23.32
9688	17.69	AV	V	36.15	8.66	25.91	36.59	54.00	17.41
7500	39.93	PK	V	34.80	7.06	26.37	55.42	74.00	18.58
7500	37.22	AV	V	34.80	7.06	26.37	52.71	54.00	1.29*
975.84	41.6	QP	V	22.48	3.60	22.22	45.46	46.00	0.54*
Middle Channel: 2437 MHz									
2437	69.08	PK	H	25.74	3.98	0.00	98.80	N/A	N/A
2437	54.78	AV	H	25.74	3.98	0.00	84.50	N/A	N/A
2437	74.59	PK	V	25.74	3.98	0.00	104.31	N/A	N/A
2437	60.16	AV	V	25.74	3.98	0.00	89.88	N/A	N/A
4874	35.89	PK	H	30.77	4.76	27.26	44.16	74.00	29.84
4874	22.85	AV	H	30.77	4.76	27.26	31.12	54.00	22.88
7311	33.1	PK	H	34.35	6.70	26.51	47.64	74.00	26.36
7311	19.9	AV	H	34.35	6.70	26.51	34.44	54.00	19.56
9748	32.07	PK	H	36.30	8.60	25.68	51.29	74.00	22.71
9748	17.81	AV	H	36.30	8.60	25.68	37.03	54.00	16.97
5000	43.27	PK	H	31.10	4.78	27.27	51.88	74.00	22.12
5000	41.16	AV	H	31.10	4.78	27.27	49.77	54.00	4.23*
7500	39.71	PK	H	34.80	7.06	26.37	55.20	74.00	18.80
7500	37.5	AV	H	34.80	7.06	26.37	52.99	54.00	1.01*
975.84	40.9	QP	V	22.48	3.60	22.22	44.76	54.00	9.24
High Channel: 2452 MHz									
2452	68.88	PK	H	25.78	4.00	0.00	98.65	N/A	N/A
2452	54.75	AV	H	25.78	4.00	0.00	84.52	N/A	N/A
2452	74.99	PK	V	25.78	4.00	0.00	104.76	N/A	N/A
2452	60.2	AV	V	25.78	4.00	0.00	89.97	N/A	N/A
2483.5	33.62	PK	H	25.86	3.80	0.00	63.28	74.00	10.72
2483.5	18.78	AV	H	25.86	3.80	0.00	48.44	54.00	5.56
4904	36.11	PK	H	30.85	4.72	27.27	44.41	74.00	29.59
4904	22.81	AV	H	30.85	4.72	27.27	31.11	54.00	22.89
7356	33.49	PK	H	34.45	6.79	26.60	48.13	74.00	25.87
7356	20.28	AV	H	34.45	6.79	26.60	34.92	54.00	19.08
9808	31.81	PK	H	36.44	8.53	25.48	51.30	74.00	22.70
9808	17.56	AV	H	36.44	8.53	25.48	37.05	54.00	16.95
7500	40.01	PK	H	34.80	7.06	26.37	55.50	74.00	18.50
7500	36.92	AV	H	34.80	7.06	26.37	52.41	54.00	1.59*
610.58	41.8	QP	V	19.90	3.06	22.28	42.48	46.00	3.52*

*Within measurement uncertainty!

5725-5850MHz band:
802.11a Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 5745MHz									
5745	67.05	PK	H	32.15	5.10	0.00	104.30	N/A	N/A
5745	54.27	AV	H	32.15	5.10	0.00	91.52	N/A	N/A
5745	76.29	PK	V	32.15	5.10	0.00	113.54	N/A	N/A
5745	61.68	AV	V	32.15	5.10	0.00	98.93	N/A	N/A
5725	30.34	PK	V	32.15	4.83	0.00	67.32	80.00	12.68
5725	15.75	AV	V	32.15	4.83	0.00	52.73	60.00	7.27
11490	32.45	PK	V	37.89	7.85	25.92	52.27	80.00	27.73
11490	21.96	AV	V	37.89	7.85	25.92	41.78	60.00	18.22
17235	32.13	PK	V	40.91	12.63	24.94	60.73	80.00	19.27
17235	18.17	AV	V	40.91	12.63	24.94	46.77	60.00	13.23
7500	39.47	PK	V	34.80	7.06	26.37	54.96	80.00	25.04
7500	37.72	AV	V	34.80	7.06	26.37	53.21	60.00	6.79
610.58	40.7	QP	V	19.90	3.06	22.28	41.38	46.00	4.62*
975.84	39.15	QP	V	23.67	3.85	22.04	44.63	54.00	9.37
Middle Channel: 5785MHz									
5785	67.01	PK	H	32.16	5.15	0.00	104.32	N/A	N/A
5785	54.27	AV	H	32.16	5.15	0.00	91.58	N/A	N/A
5785	76.13	PK	V	32.16	5.15	0.00	113.44	N/A	N/A
5785	61.65	AV	V	32.16	5.15	0.00	98.96	N/A	N/A
11570	32.91	PK	V	37.90	7.97	25.91	52.87	80.00	27.13
11570	21.24	AV	V	37.90	7.97	25.91	41.20	60.00	18.80
17355	32.23	PK	V	41.63	12.26	24.68	61.44	80.00	18.56
17355	18.57	AV	V	41.63	12.26	24.68	47.78	60.00	12.22
7500	39.57	PK	V	34.80	7.06	26.37	55.06	80.00	24.94
7500	37.42	AV	V	34.80	7.06	26.37	52.91	60.00	7.09
610.58	40	QP	V	19.90	3.06	22.28	40.68	46.00	5.32*
975.84	39.08	QP	V	23.67	3.85	22.04	44.56	46.00	1.44
250.15	40.69	QP	V	12.18	1.92	21.49	33.30	46.00	12.70
High Channel: 5825MHz									
5825	67.39	PK	H	32.17	5.35	0.00	104.91	N/A	N/A
5825	54.41	AV	H	32.17	5.35	0.00	91.93	N/A	N/A
5825	75.95	PK	V	32.17	5.35	0.00	113.47	N/A	N/A
5825	61.65	AV	V	32.17	5.35	0.00	99.17	N/A	N/A
5850	29.95	PK	V	32.17	5.56	0.00	67.68	80.00	12.32
5850	15.78	AV	V	32.17	5.56	0.00	53.51	60.00	6.49
11650	32.33	PK	V	37.90	8.14	25.78	52.59	80.00	27.41
11650	21.22	AV	V	37.90	8.14	25.78	41.48	60.00	18.52
17475	32.25	PK	V	42.35	11.89	24.27	62.22	80.00	17.78
17475	18.12	AV	V	42.35	11.89	24.27	48.09	60.00	11.91
7500	39.56	PK	V	34.80	7.06	26.37	55.05	80.00	24.95
7500	37.36	AV	V	34.80	7.06	26.37	52.85	60.00	7.15
610.58	40.1	QP	V	19.90	3.06	22.28	40.78	46.00	5.22*
975.84	38.99	QP	V	23.67	3.85	22.04	44.47	54.00	9.53

*Within measurement uncertainty!

802.11n ht20 Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 5745MHz									
5745	60.12	PK	H	32.15	5.10	0.00	97.37	N/A	N/A
5745	47.06	AV	H	32.15	5.10	0.00	84.31	N/A	N/A
5745	69.28	PK	V	32.15	5.10	0.00	106.53	N/A	N/A
5745	56.31	AV	V	32.15	5.10	0.00	93.56	N/A	N/A
5725	30.87	PK	V	32.15	4.83	0.00	67.85	80.00	12.15
5725	16.46	AV	V	32.15	4.83	0.00	53.44	60.00	6.56
11490	35.3	PK	V	37.89	7.85	25.92	55.12	80.00	24.88
11490	20.48	AV	V	37.89	7.85	25.92	40.30	60.00	19.70
17235	32.75	PK	V	40.91	12.63	24.94	61.35	80.00	18.65
17235	18.61	AV	V	40.91	12.63	24.94	47.21	60.00	12.79
7500	39.64	PK	V	34.80	7.06	26.37	55.13	80.00	24.87
7500	37.28	AV	V	34.80	7.06	26.37	52.77	60.00	7.23
610.58	41.3	QP	V	19.90	3.06	22.28	41.98	46.00	4.02*
975.84	38.59	QP	V	23.67	3.85	22.04	44.07	54.00	9.93
Middle Channel: 5785MHz									
5785	61.15	PK	H	32.16	5.15	0.00	98.46	N/A	N/A
5785	47.85	AV	H	32.16	5.15	0.00	85.16	N/A	N/A
5785	69.65	PK	V	32.16	5.15	0.00	106.96	N/A	N/A
5785	56.8	AV	V	32.16	5.15	0.00	94.11	N/A	N/A
11570	35.13	PK	V	37.90	7.97	25.91	55.09	80.00	24.91
11570	20.29	AV	V	37.90	7.97	25.91	40.25	60.00	19.75
17355	32.46	PK	V	41.63	12.26	24.68	61.67	80.00	18.33
17355	18.52	AV	V	41.63	12.26	24.68	47.73	60.00	12.27
7500	39.48	PK	V	34.80	7.06	26.37	54.97	80.00	25.03
7500	37.31	AV	V	34.80	7.06	26.37	52.80	60.00	7.20
610.58	41.3	QP	V	19.90	3.06	22.28	41.98	46.00	4.02*
975.84	38.95	QP	V	23.67	3.85	22.04	44.43	54.00	9.57
250.15	40.93	QP	V	12.18	1.92	21.49	33.54	46.00	12.46
High Channel: 5825MHz									
5825	61.06	PK	H	32.17	5.35	0.00	98.58	N/A	N/A
5825	47.95	AV	H	32.17	5.35	0.00	85.47	N/A	N/A
5825	69.62	PK	V	32.17	5.35	0.00	107.14	N/A	N/A
5825	56.59	AV	V	32.17	5.35	0.00	94.11	N/A	N/A
5850	30.56	PK	V	32.17	5.56	0.00	68.29	80.00	11.71
5850	15.76	AV	V	32.17	5.56	0.00	53.49	60.00	6.51
11650	35.14	PK	V	37.90	8.14	25.78	55.40	80.00	24.60
11650	20.37	AV	V	37.90	8.14	25.78	40.63	60.00	19.37
17475	32.49	PK	V	42.35	11.89	24.27	62.46	80.00	17.54
17475	18.46	AV	V	42.35	11.89	24.27	48.43	60.00	11.57
7500	39.44	PK	V	34.80	7.06	26.37	54.93	80.00	25.07
7500	36.8	AV	V	34.80	7.06	26.37	52.29	60.00	7.71
610.58	40.8	QP	V	19.90	3.06	22.28	41.48	46.00	4.52*
975.84	39.55	QP	V	23.67	3.85	22.04	45.03	54.00	8.97

*Within measurement uncertainty!

802.11n ht40 Mode:

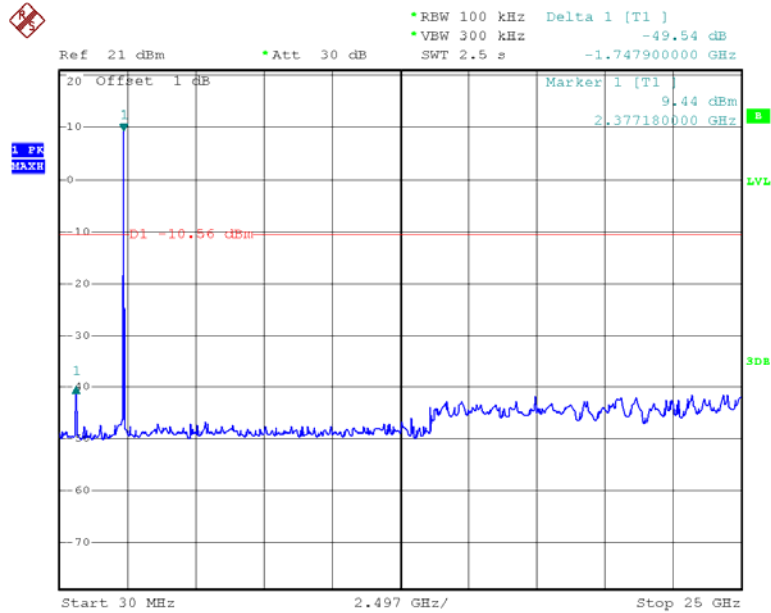
Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel:5755MHz									
5755	61.13	PK	H	32.15	5.17	0.00	98.45	N/A	N/A
5755	47.81	AV	H	32.15	5.17	0.00	85.13	N/A	N/A
5755	69.99	PK	V	32.15	5.17	0.00	107.31	N/A	N/A
5755	56.93	AV	V	32.15	5.17	0.00	94.25	N/A	N/A
5725	30.68	PK	V	32.15	4.83	0.00	67.66	80.00	12.34
5725	16	AV	V	32.15	4.83	0.00	52.98	60.00	7.02
11510	34.84	PK	V	37.90	7.84	25.92	54.66	80.00	25.34
11510	20.19	AV	V	37.90	7.84	25.92	40.01	60.00	19.99
17265	32.73	PK	V	41.09	12.54	24.88	61.48	80.00	18.52
17265	18.44	AV	V	41.09	12.54	24.88	47.19	60.00	12.81
7500	39.53	PK	V	34.80	7.06	26.37	55.02	80.00	24.98
7500	37.12	AV	V	34.80	7.06	26.37	52.61	60.00	7.39
610.58	41.1	QP	V	19.90	3.06	22.28	41.78	46.00	4.22*
975.84	38.79	QP	V	23.67	3.85	22.04	44.27	54.00	9.73
High Channel: 5795MHz									
5795	60.8	PK	H	32.16	5.14	0.00	98.10	N/A	N/A
5795	48.14	AV	H	32.16	5.14	0.00	85.44	N/A	N/A
5795	69.59	PK	V	32.16	5.14	0.00	106.89	N/A	N/A
5795	56.62	AV	V	32.16	5.14	0.00	93.92	N/A	N/A
5850	30.65	PK	V	32.17	5.56	0.00	68.38	80.00	11.62
5850	16.05	AV	V	32.17	5.56	0.00	53.78	60.00	6.22
11590	35.08	PK	V	37.90	8.01	25.91	55.08	80.00	24.92
11590	20	AV	V	37.90	8.01	25.91	40.00	60.00	20.00
17385	32.73	PK	V	41.81	12.17	24.61	62.10	80.00	17.90
17385	18.45	AV	V	41.81	12.17	24.61	47.82	60.00	12.18
7500	39.56	PK	V	34.80	7.06	26.37	55.05	80.00	24.95
7500	36.95	AV	V	34.80	7.06	26.37	52.44	60.00	7.56
610.58	40.5	QP	V	19.90	3.06	22.28	41.18	46.00	4.82*
975.84	39.04	QP	V	23.67	3.85	22.04	44.52	54.00	9.48

*Within measurement uncertainty!

Conducted Spurious Emissions at Antenna Port

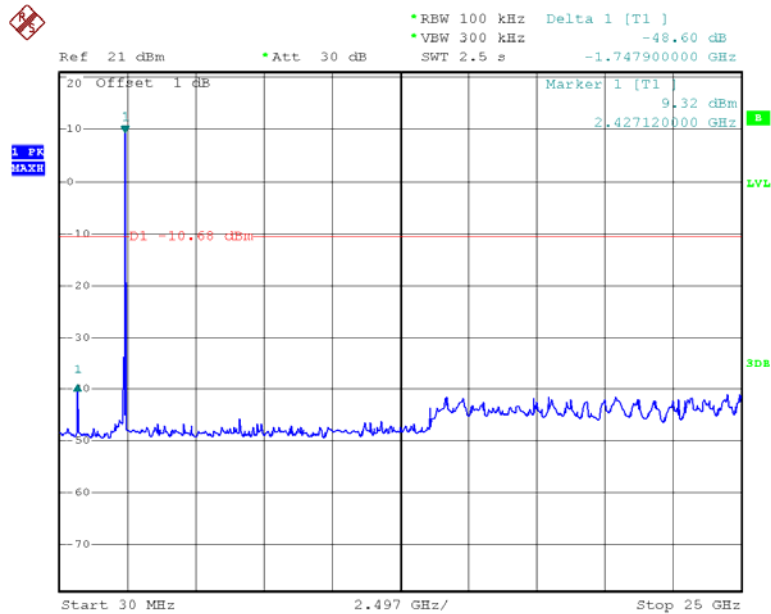
2.4G Band:

802.11b Low Channel



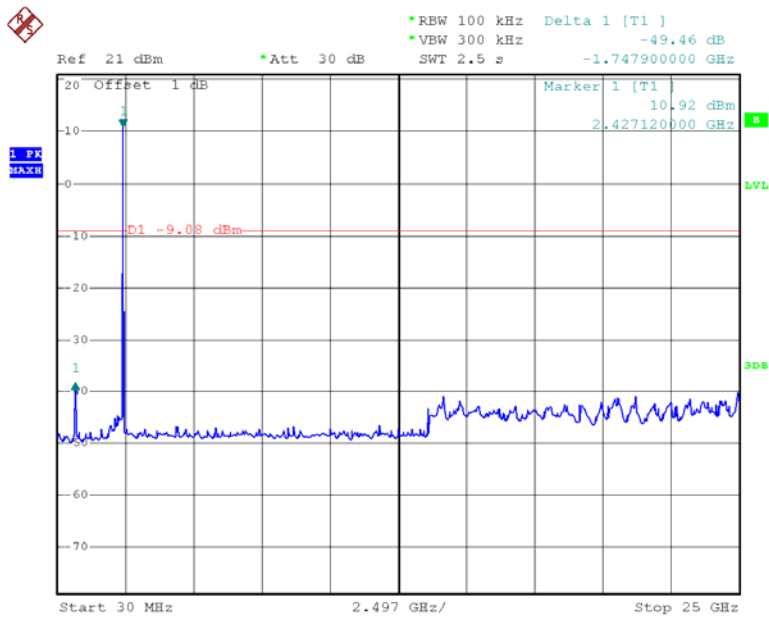
Date: 21.MAR.2013 20:25:52

802.11b Middle Channel



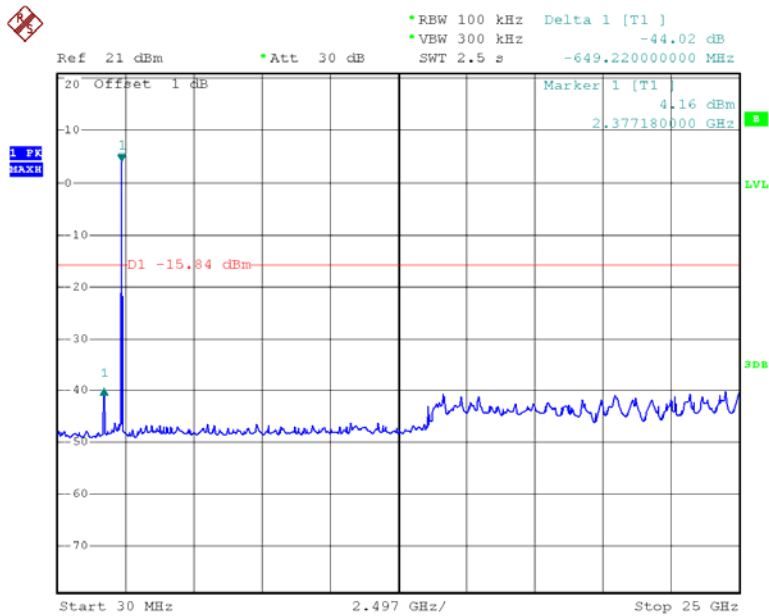
Date: 21.MAR.2013 20:27:55

802.11b High Channel



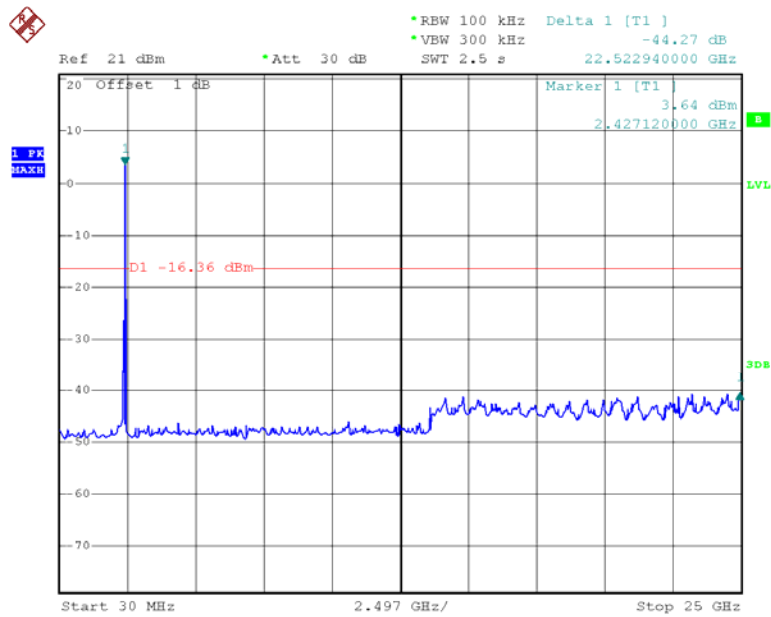
Date: 21.MAR.2013 20:28:54

802.11g Low Channel



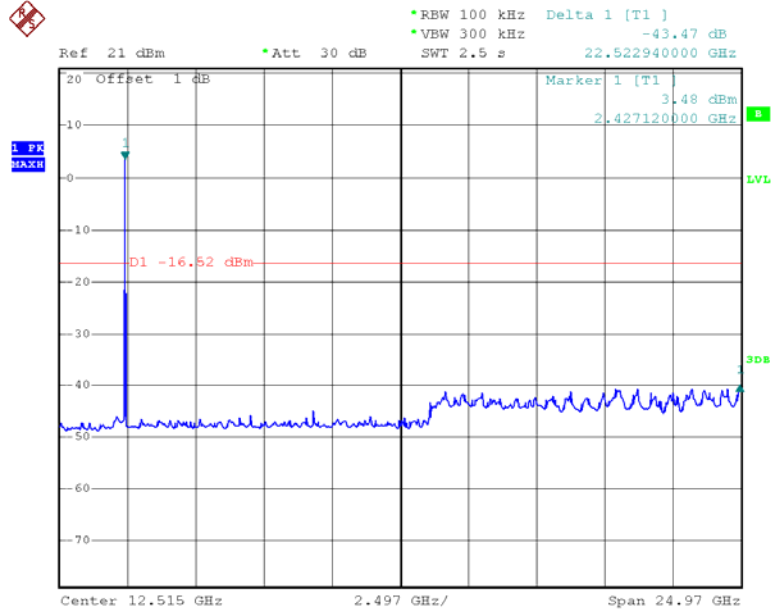
Date: 21.MAR.2013 20:57:24

802.11g Middle Channel

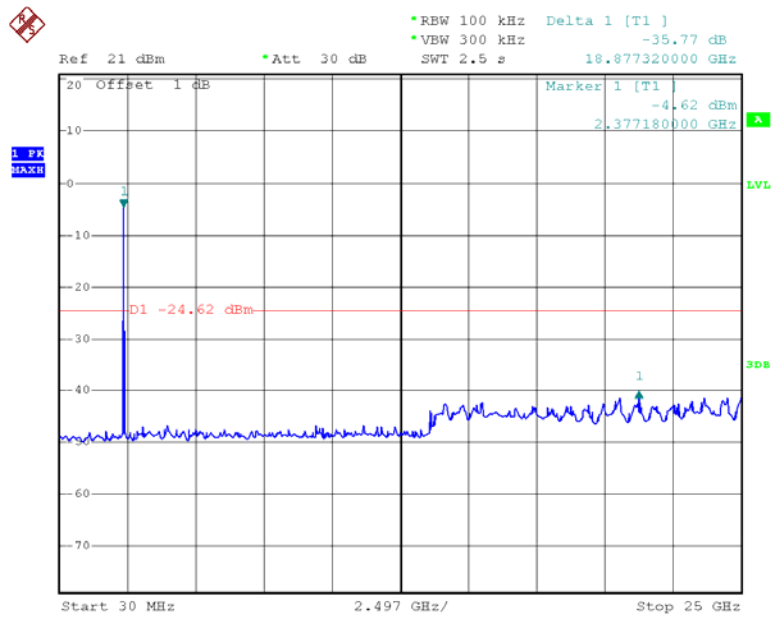


Date: 21.MAR.2013 21:00:51

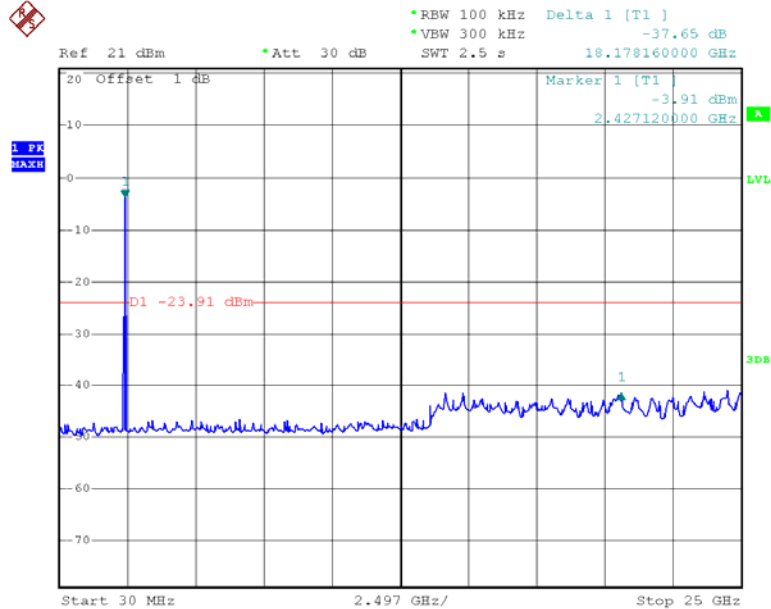
802.11g High Channel



Date: 21.MAR.2013 21:04:18

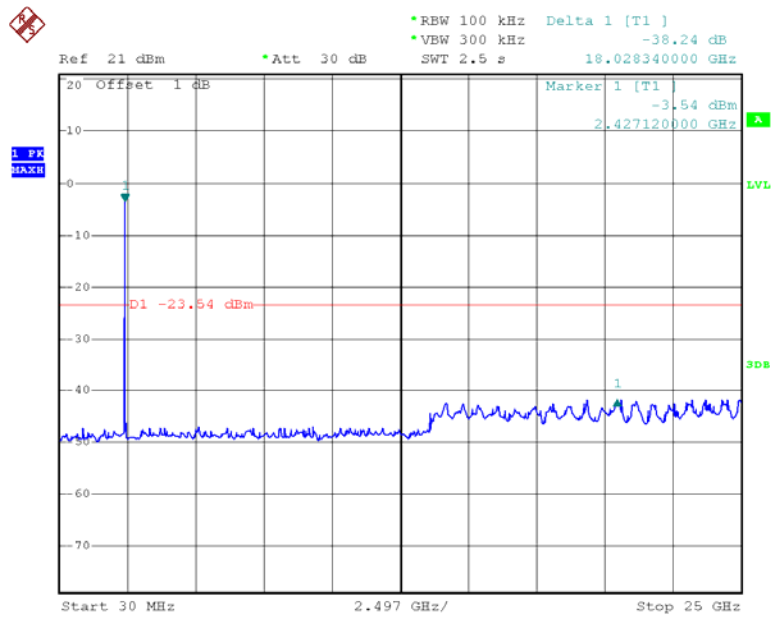
Chain 0: 802.11n20 Low Channel

Date: 27.MAR.2013 19:25:02

Chain 0: 802.11n20 Middle Channel

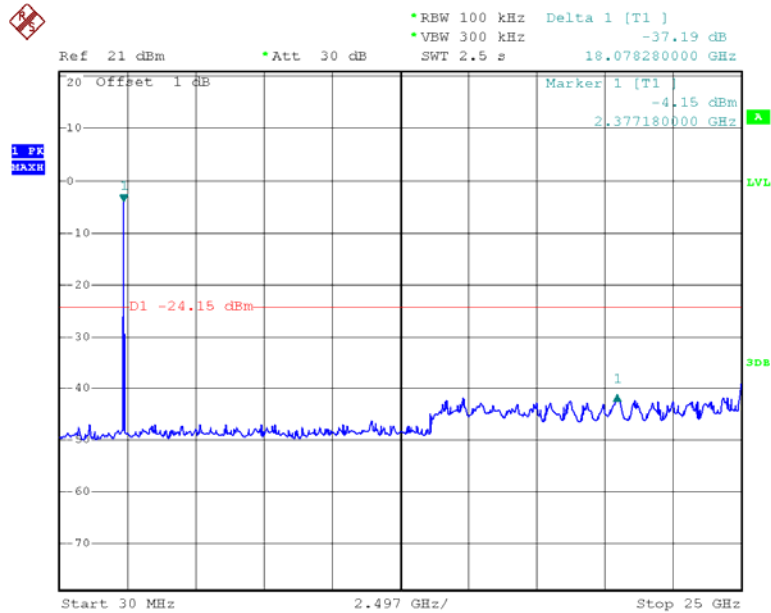
Date: 27.MAR.2013 19:24:13

Chain 0: 802.11n20 High Channel



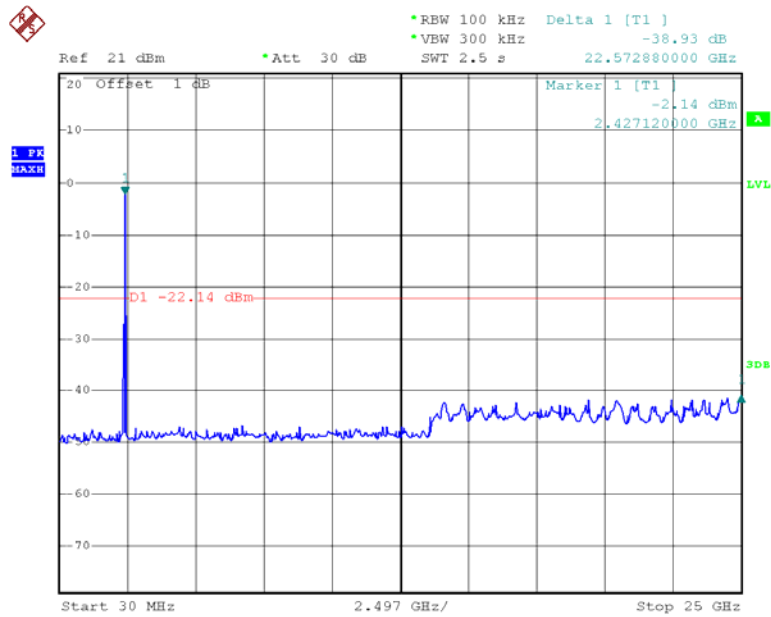
Date: 27.MAR.2013 19:23:05

Chain 1: 802.11n20 Low Channel



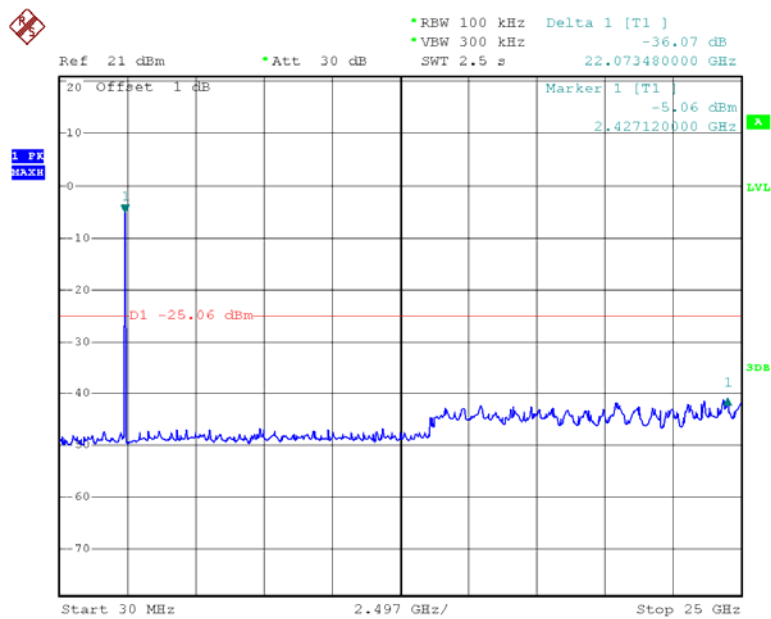
Date: 27.MAR.2013 19:25:58

Chain 1: 802.11n20 Middle Channel



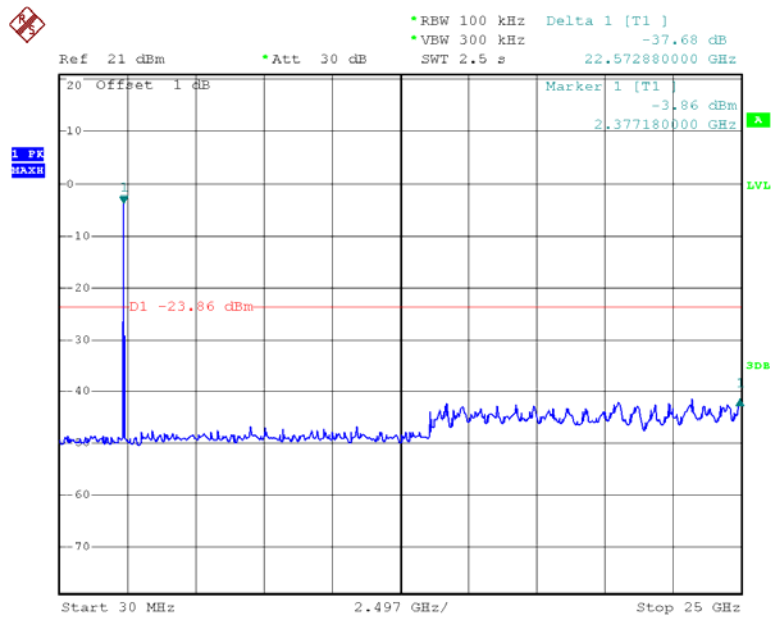
Date: 27.MAR.2013 19:26:37

Chain 1: 802.11n20 High Channel



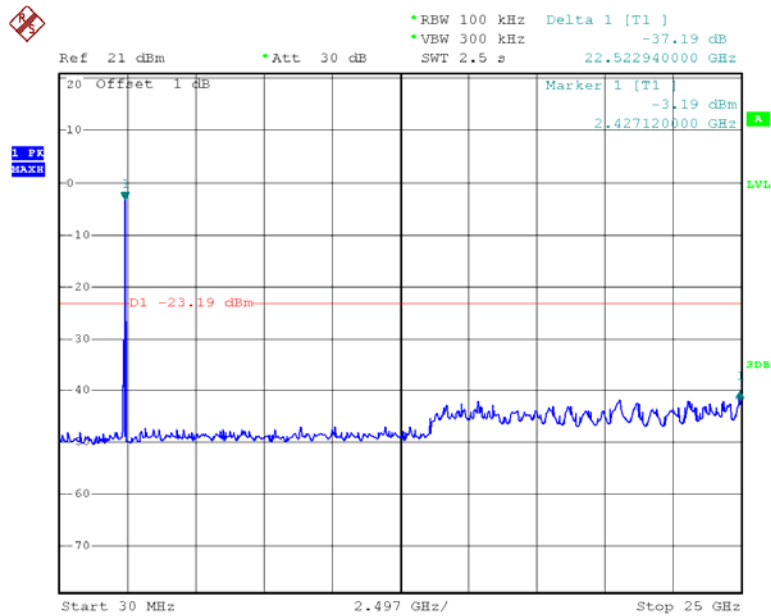
Date: 27.MAR.2013 19:27:27

Chain 2: 802.11n20 Low Channel



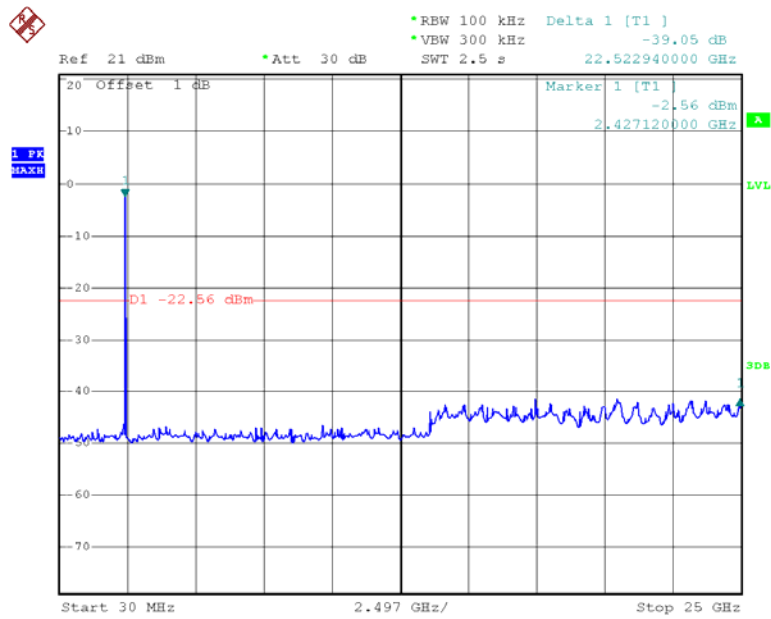
Date: 27.MAR.2013 19:29:16

Chain 2: 802.11n20 Middle Channel



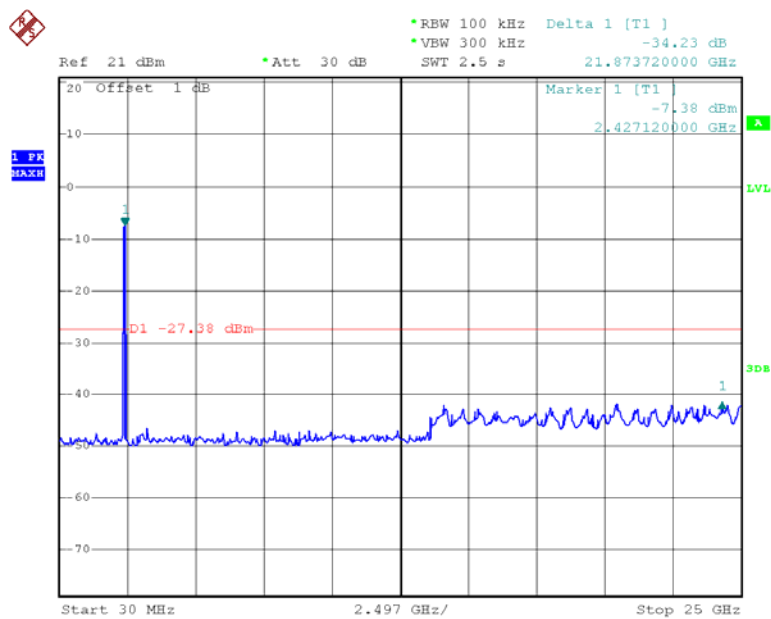
Date: 27.MAR.2013 19:28:45

Chain 2: 802.11n20 High Channel

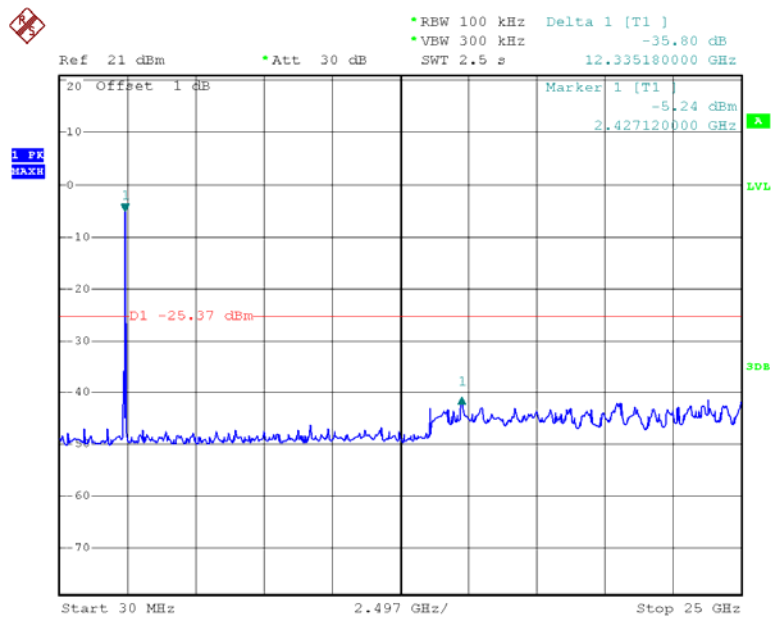


Date: 27.MAR.2013 19:28:13

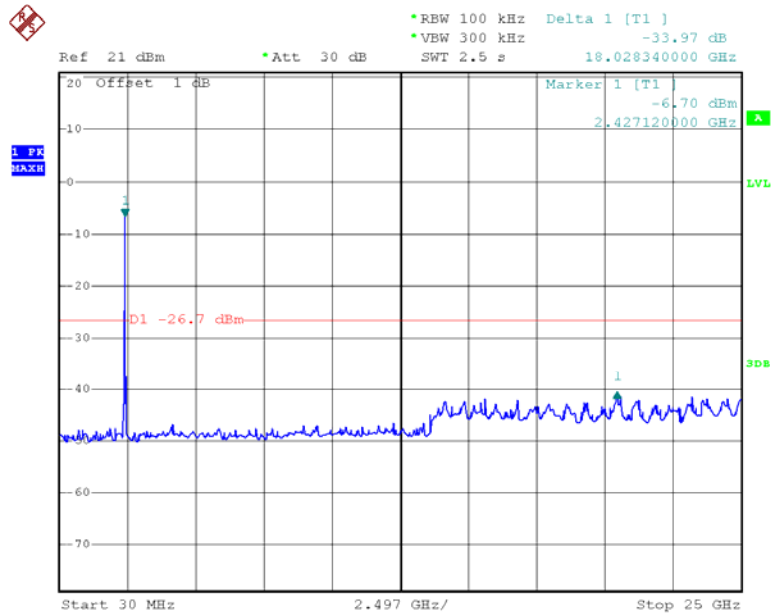
Chain 0: 802.11n40 Low Channel



Date: 27.MAR.2013 19:34:42

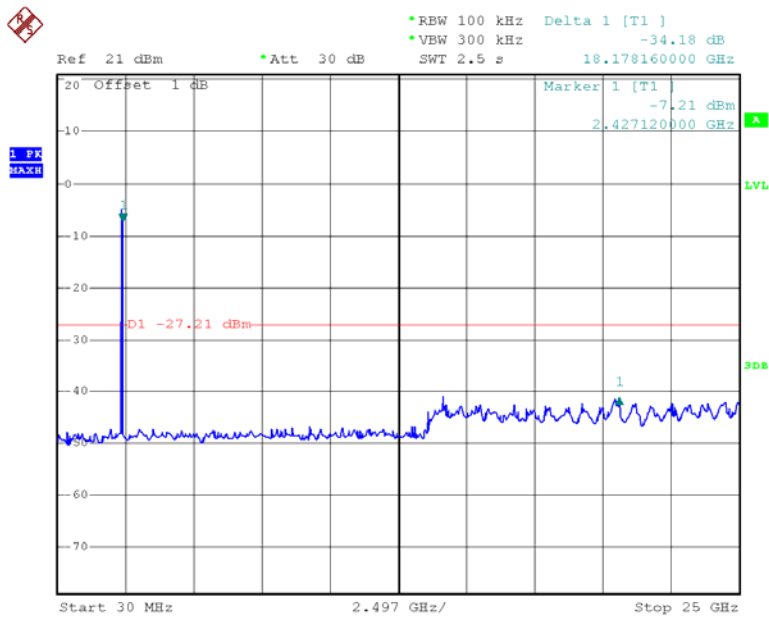
Chain 0: 802.11n40 Middle Channel

Date: 27.MAR.2013 19:36:12

Chain 0: 802.11n40 High Channel

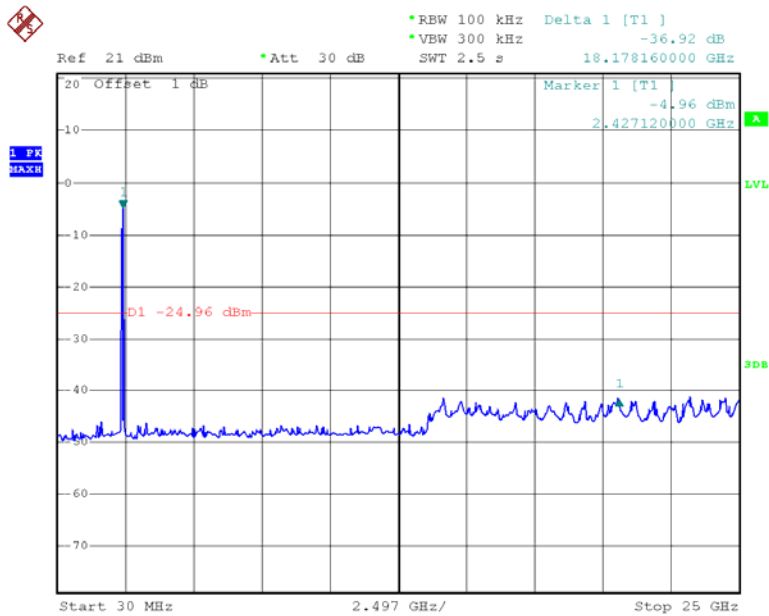
Date: 27.MAR.2013 19:37:10

Chain 1: 802.11n40 Low Channel



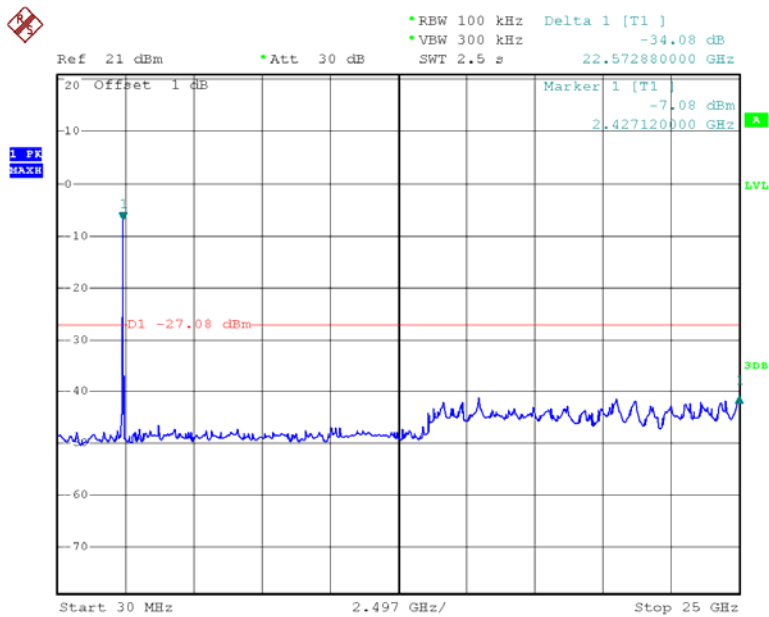
Date: 27.MAR.2013 19:39:53

Chain 1: 802.11n40 Middle Channel



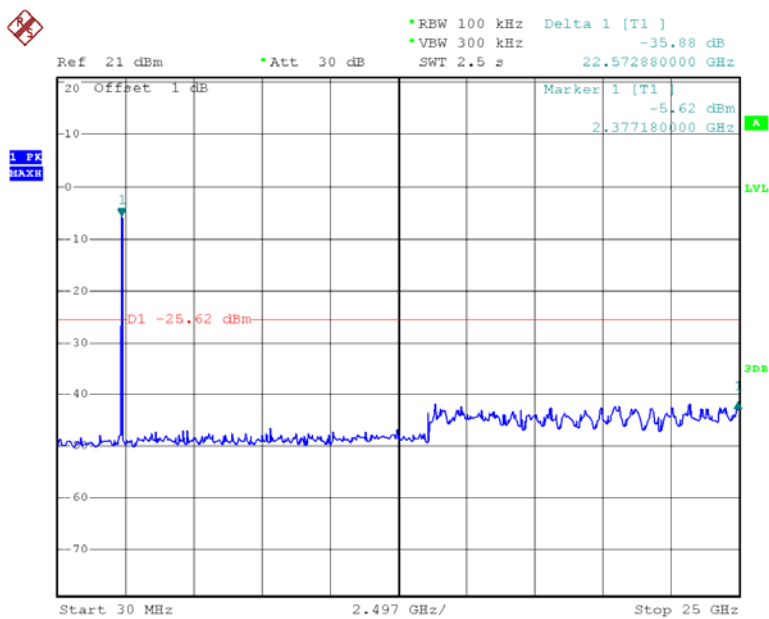
Date: 27.MAR.2013 19:39:08

Chain 1: 802.11n40 High Channel



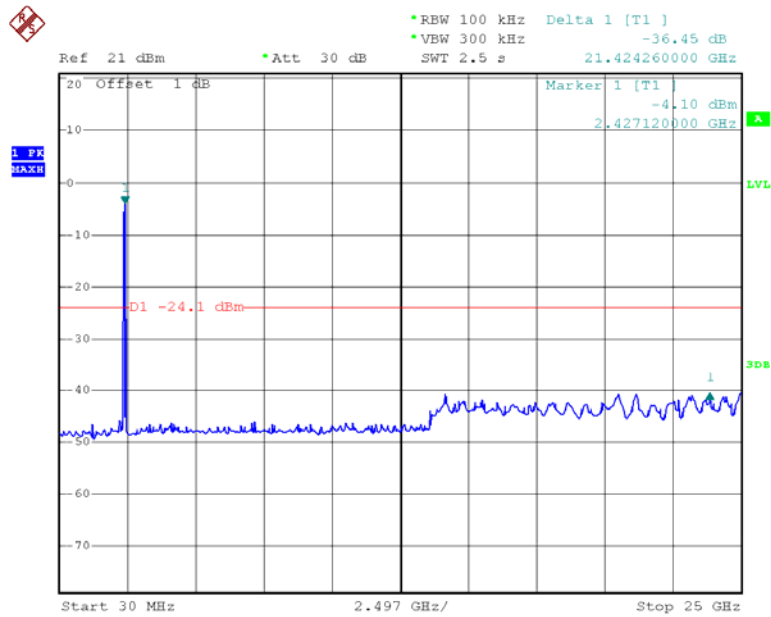
Date: 27.MAR.2013 19:37:53

Chain 2: 802.11n40 Low Channel



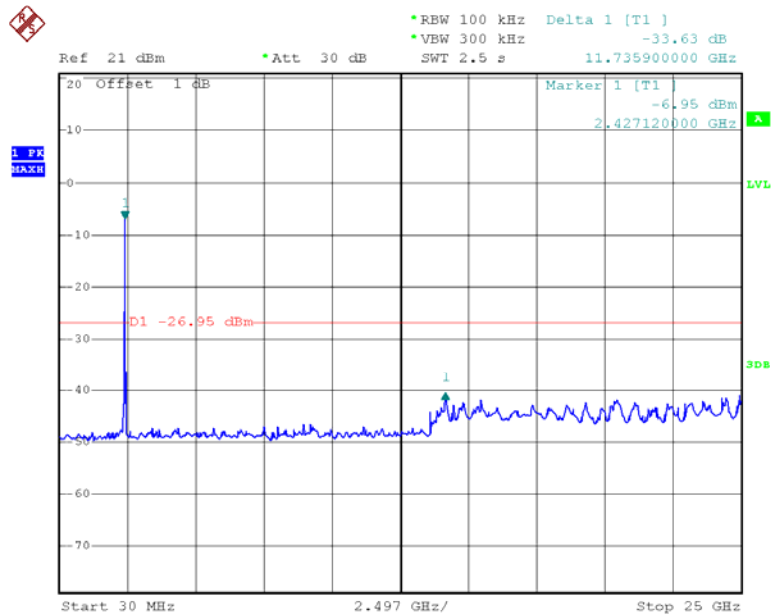
Date: 27.MAR.2013 19:40:36

Chain 2: 802.11n40 Middle Channel

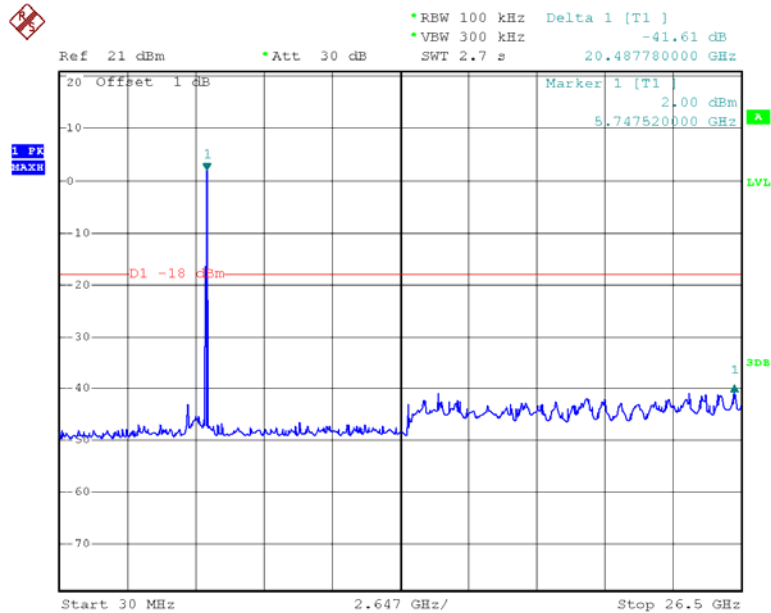


Date: 27.MAR.2013 19:44:14

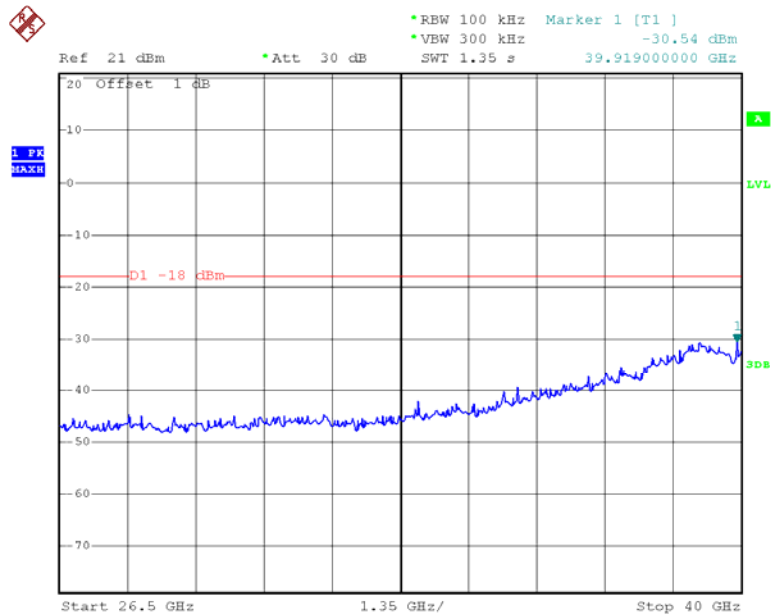
Chain 2: 802.11n40 High Channel



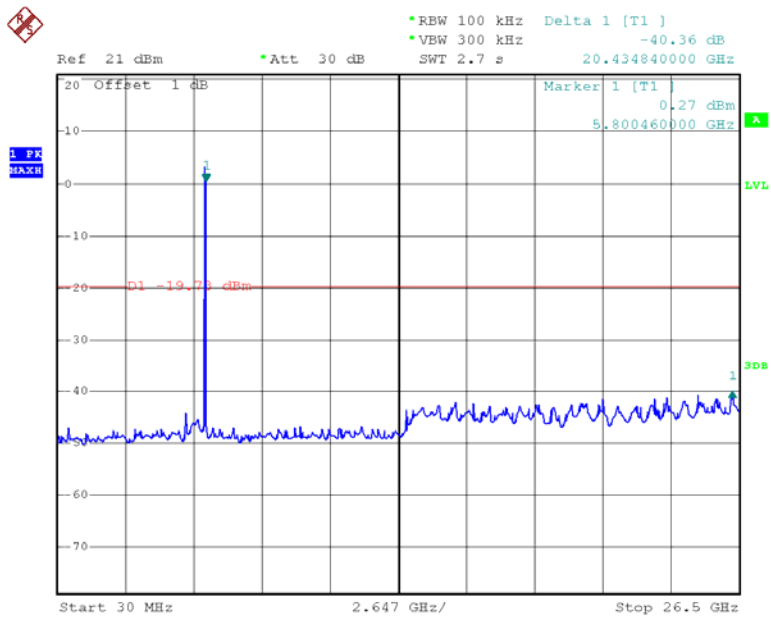
Date: 27.MAR.2013 19:45:01

5725-5850MHz Band:**802.11a Low Channel 30M-26.5G**

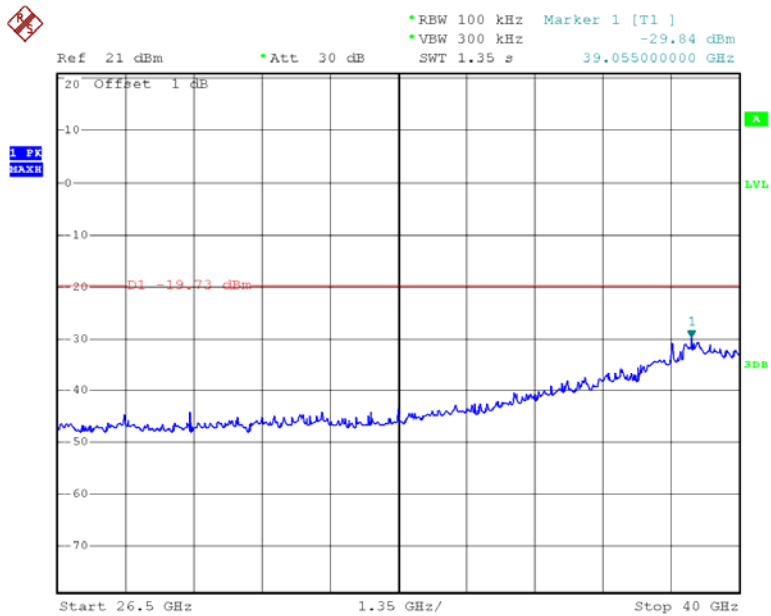
Date: 27.MAR.2013 19:48:38

802.11a Low Channel 26.5-40G

Date: 27.MAR.2013 19:49:23

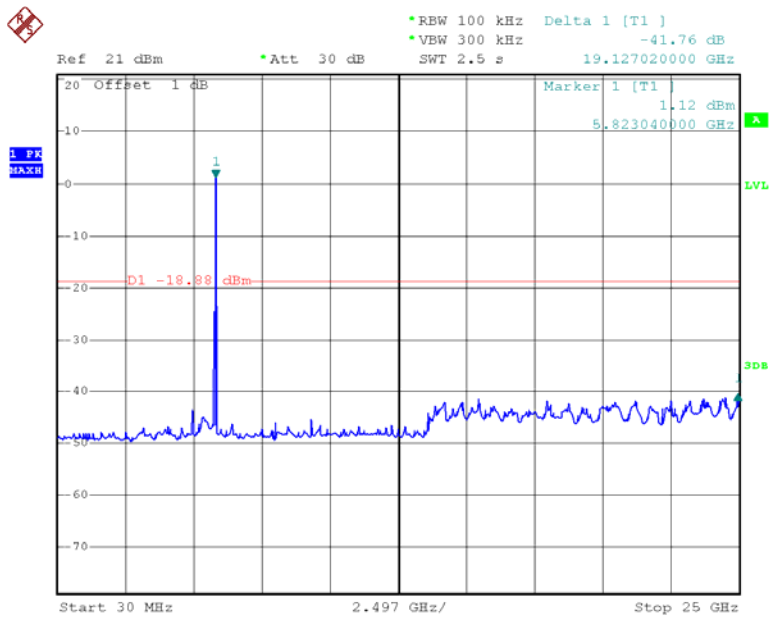
802.11a Middle Channel 30M-26.5G

Date: 27.MAR.2013 19:50:15

802.11a Middle Channel 26.5-40G

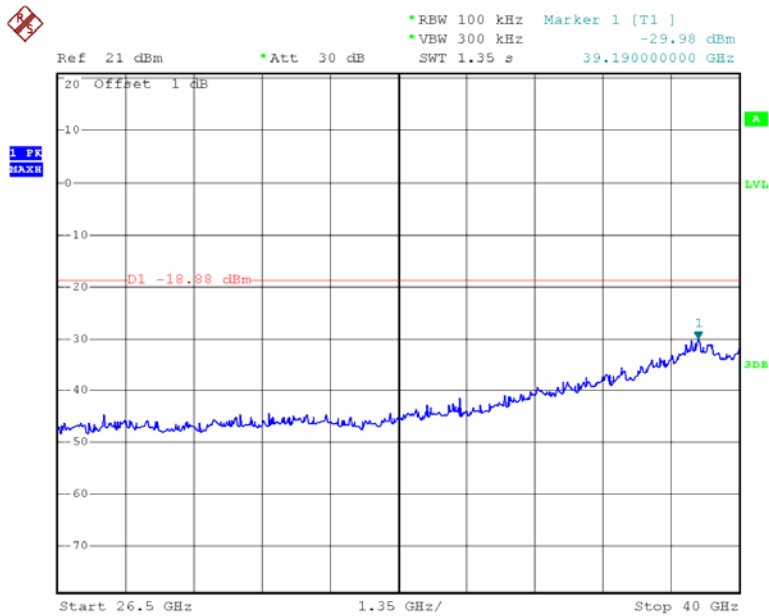
Date: 27.MAR.2013 19:50:38

802.11a High Channel 30M-26.5G

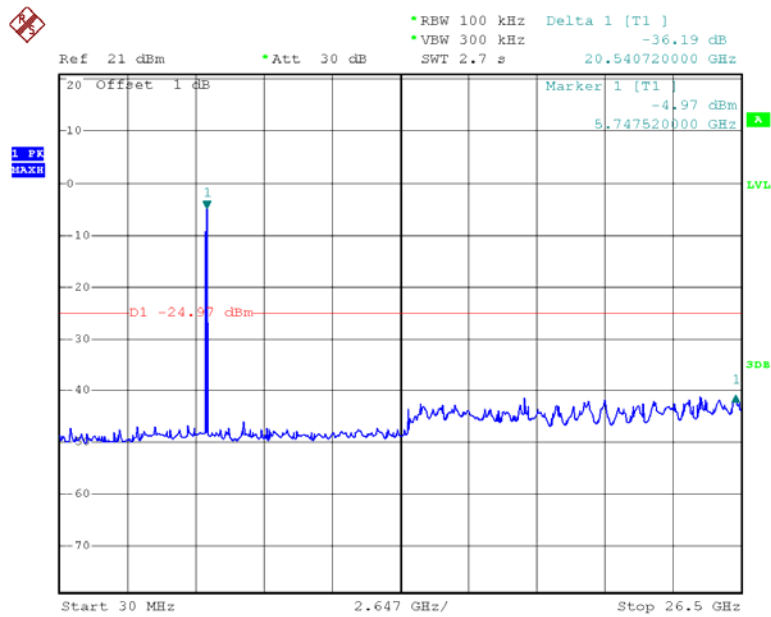


Date: 27.MAR.2013 19:52:05

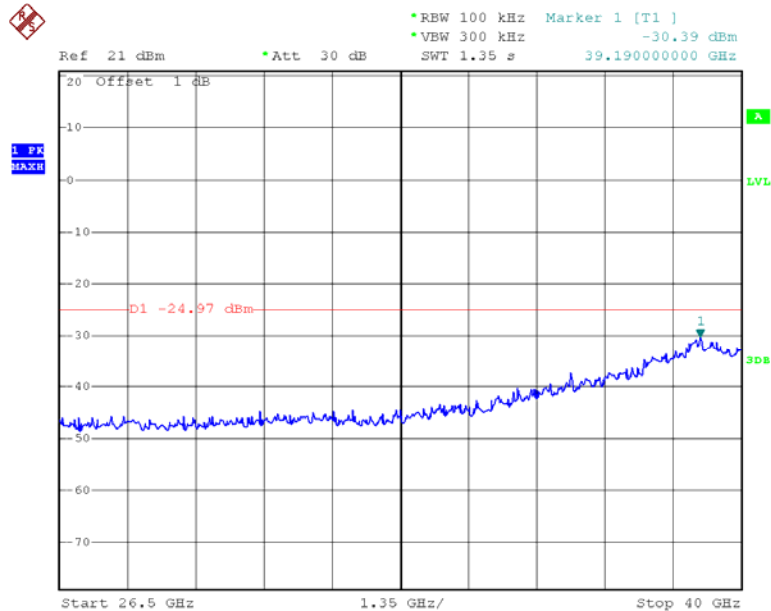
802.11a High Channel 26.5-40G



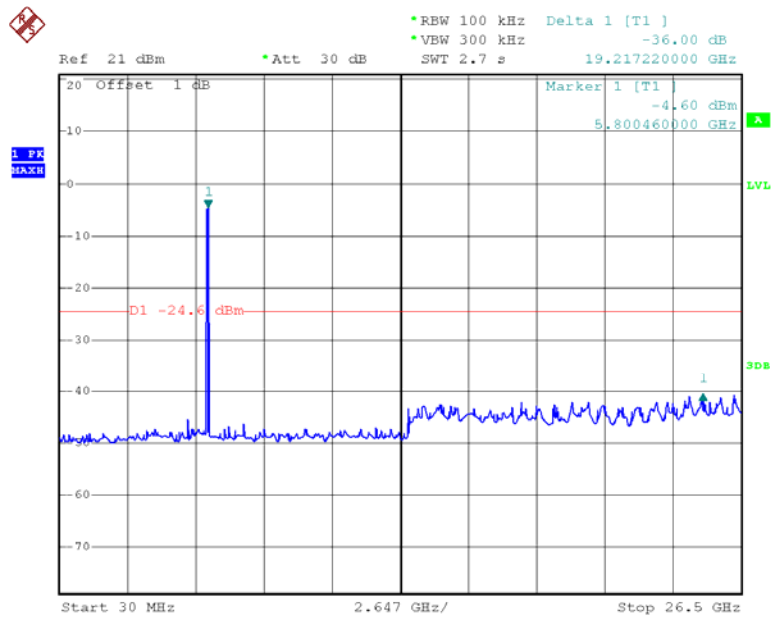
Date: 27.MAR.2013 19:53:22

Chain 0: 802.11n ht20 Low Channel 30M-26.5G

Date: 27.MAR.2013 19:58:39

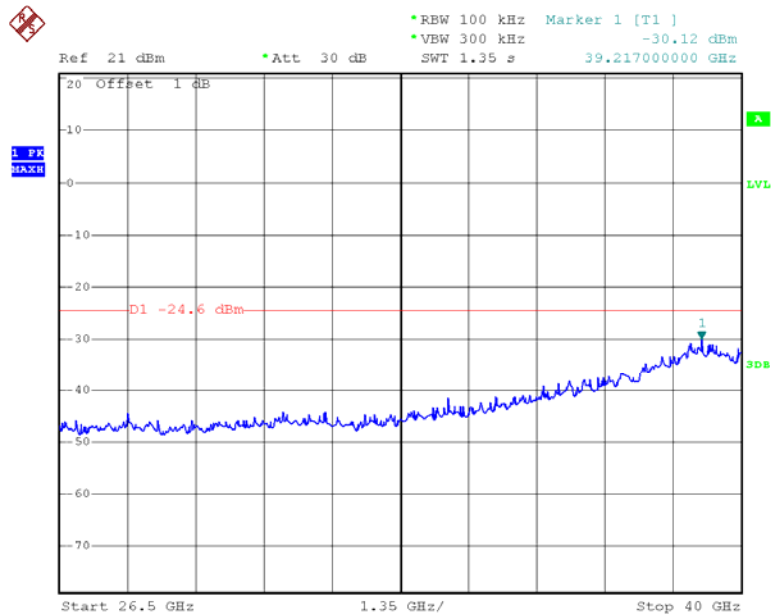
Chain 0: 802.11n ht20 Low Channel 26.5-40G

Chain 0: 802.11n ht20 Middle Channel 30M-26.5G



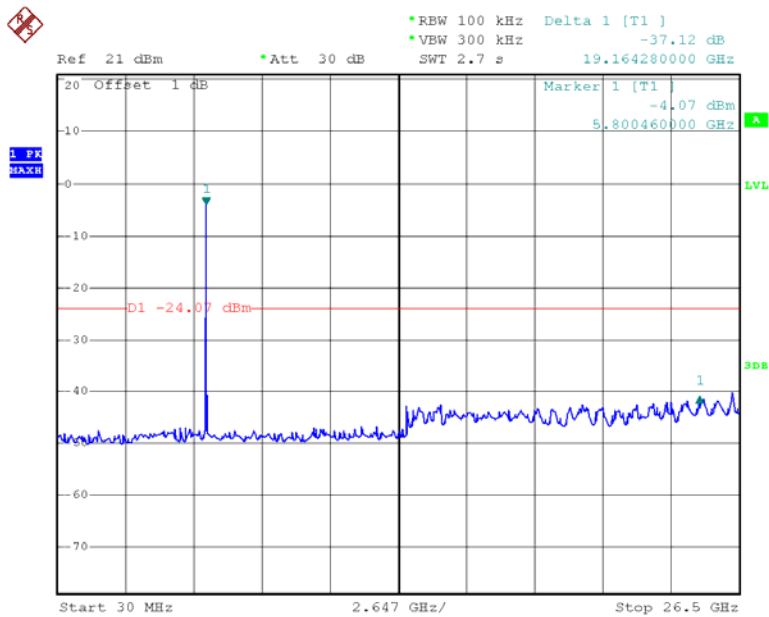
Date: 27.MAR.2013 19:57:33

Chain 0: 802.11n ht20 Middle Channel 26.5-40G



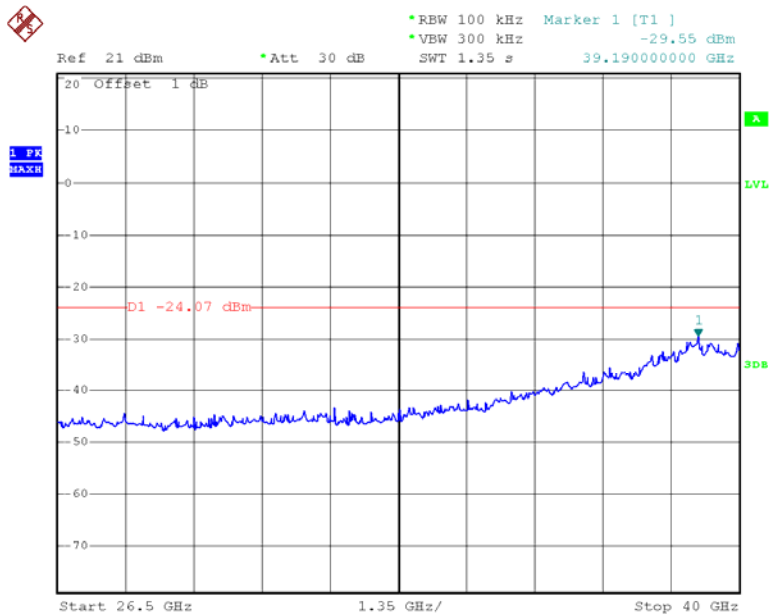
Date: 27.MAR.2013 19:57:49

Chain 0: 802.11n ht20 High Channel 30M-26.5G

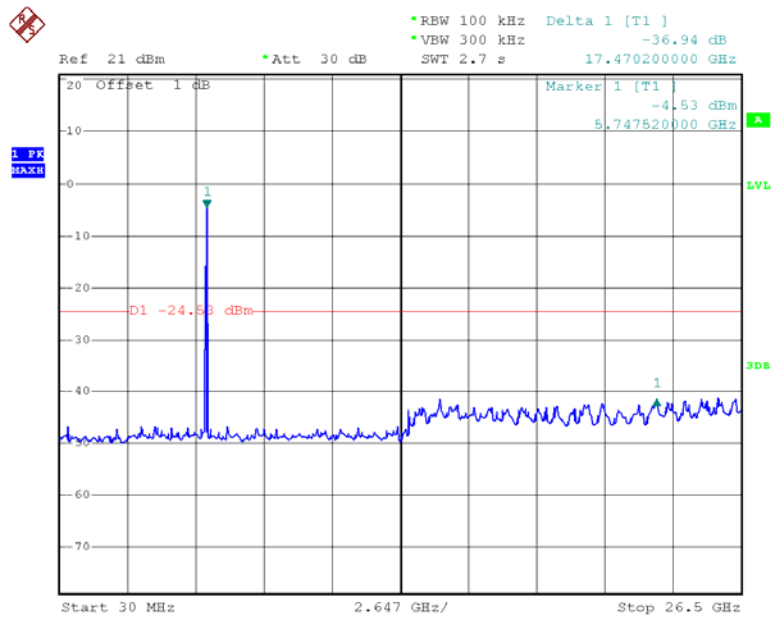


Date: 27.MAR.2013 19:55:10

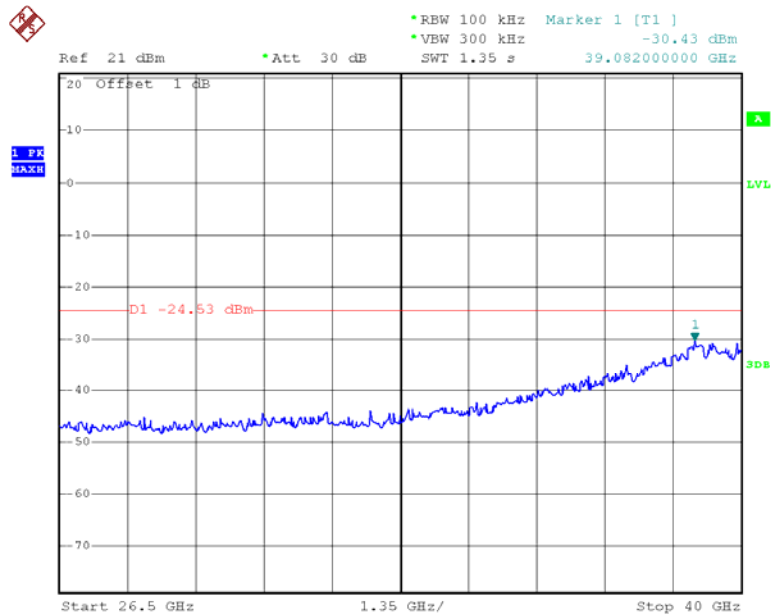
Chain 0: 802.11n ht20 High Channel 26.5-40G



Date: 27.MAR.2013 19:55:54

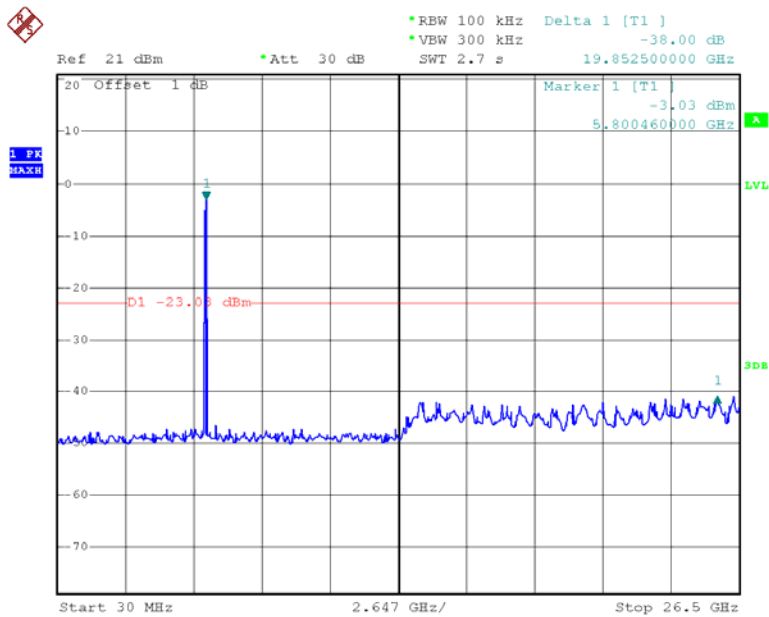
Chain 1: 802.11n ht20 Low Channel 30M-26.5G

Date: 27.MAR.2013 19:59:45

Chain 1: 802.11n ht20 Low Channel 26.5-40G

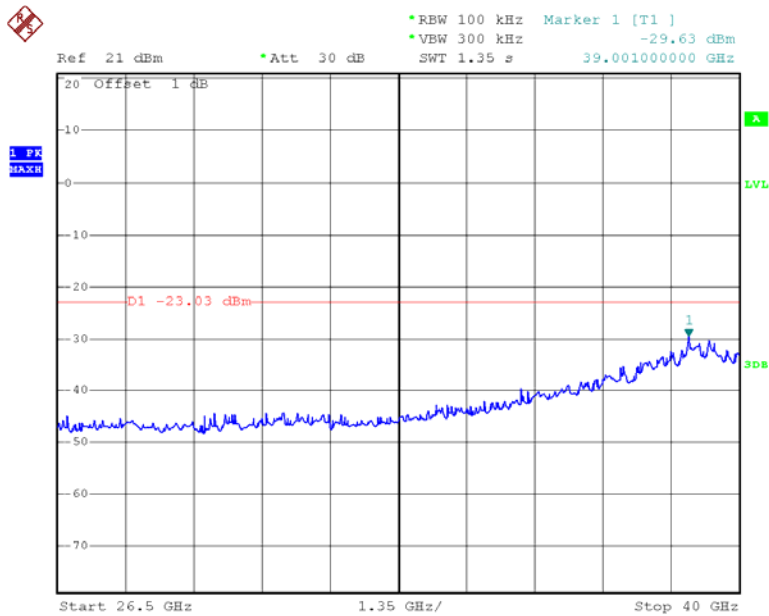
Date: 27.MAR.2013 20:00:06

Chain 1: 802.11n ht20 Middle Channel 30M-26.5G

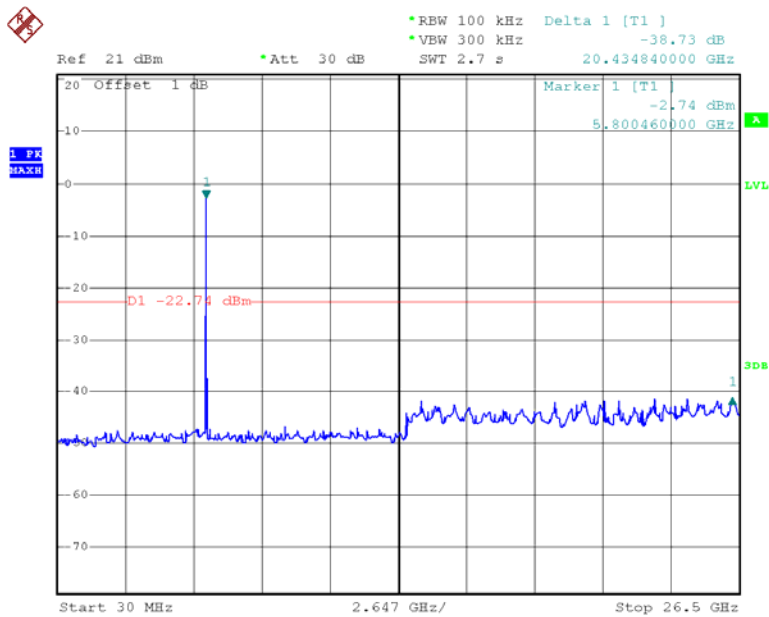


Date: 27.MAR.2013 20:01:11

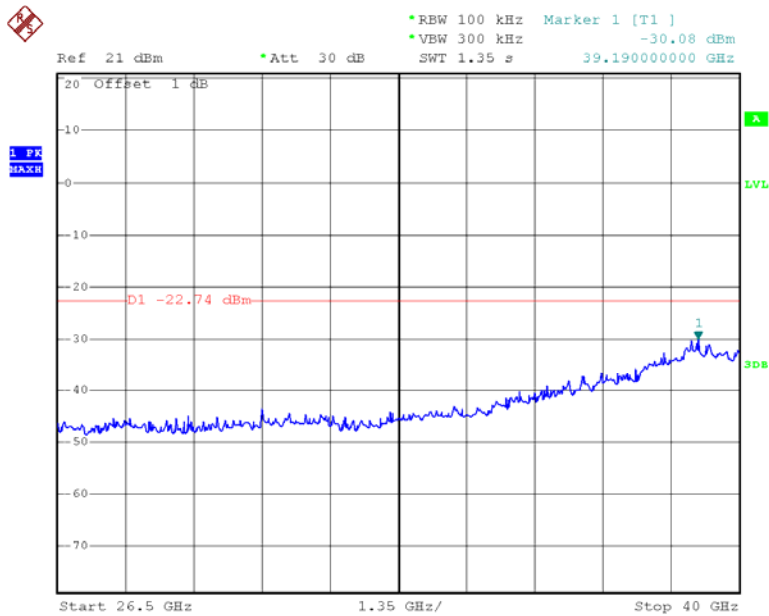
Chain 1: 802.11n ht20 Middle Channel 26.5-40G



Date: 27.MAR.2013 20:01:33

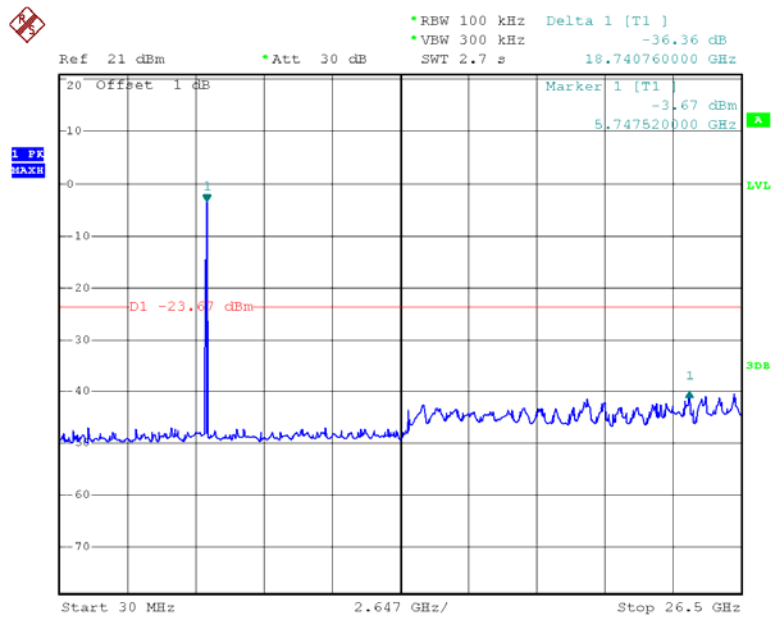
Chain 1: 802.11n ht20 High Channel 30M-26.5G

Date: 27.MAR.2013 20:02:11

Chain 1: 802.11n ht20 High Channel 26.5-40G

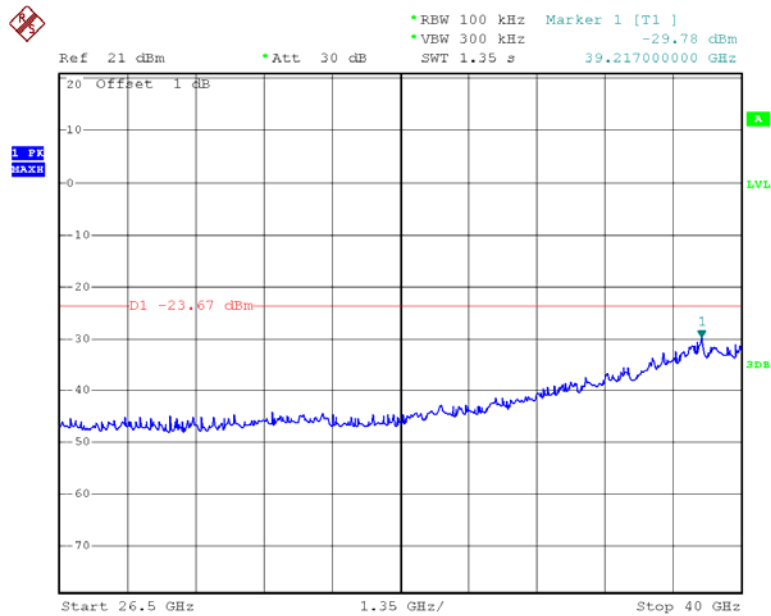
Date: 27.MAR.2013 20:02:29

Chain 2: 802.11n ht20 Low Channel 30M-26.5G



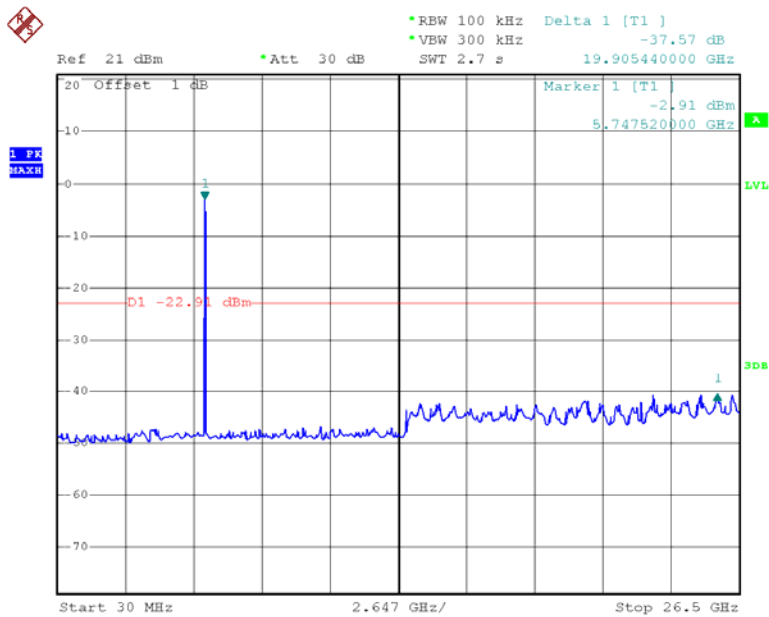
Date: 27.MAR.2013 20:05:55

Chain 2: 802.11n ht20 Low Channel 26.5-40G



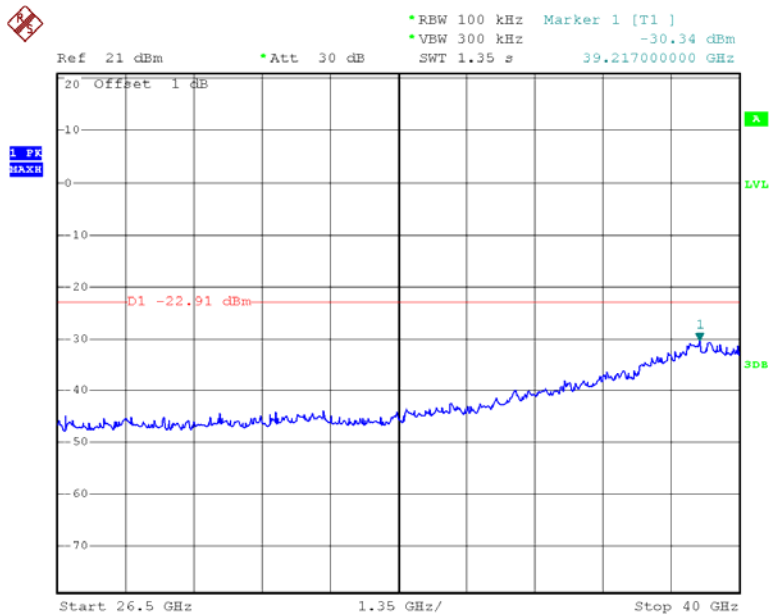
Date: 27.MAR.2013 20:06:19

Chain 2: 802.11n ht20 Middle Channel 30M-26.5G



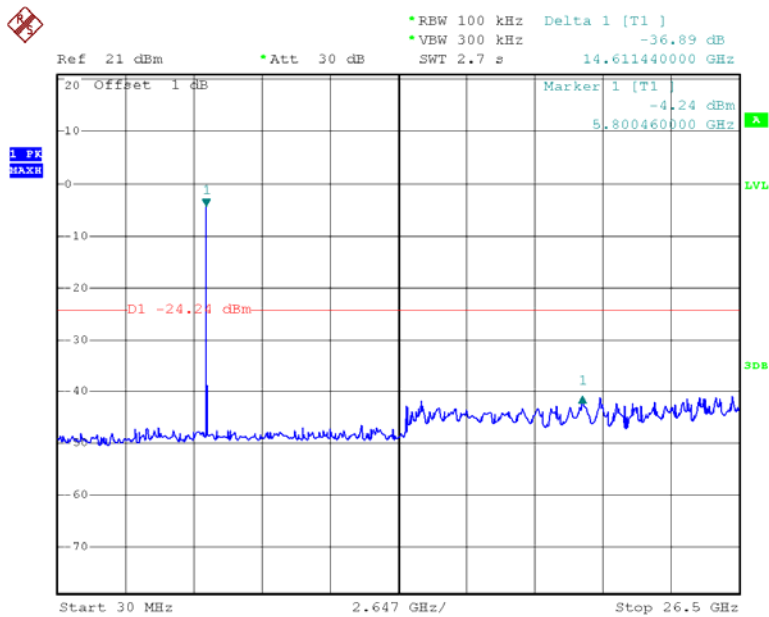
Date: 27.MAR.2013 20:04:44

Chain 2: 802.11n ht20 Middle Channel 26.5-40G



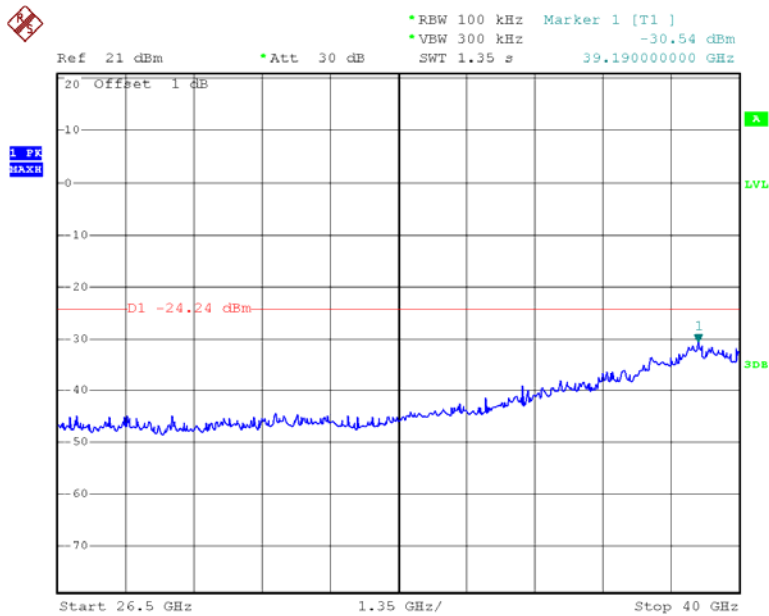
Date: 27.MAR.2013 20:05:09

Chain 2: 802.11n ht20 High Channel 30M-26.5G



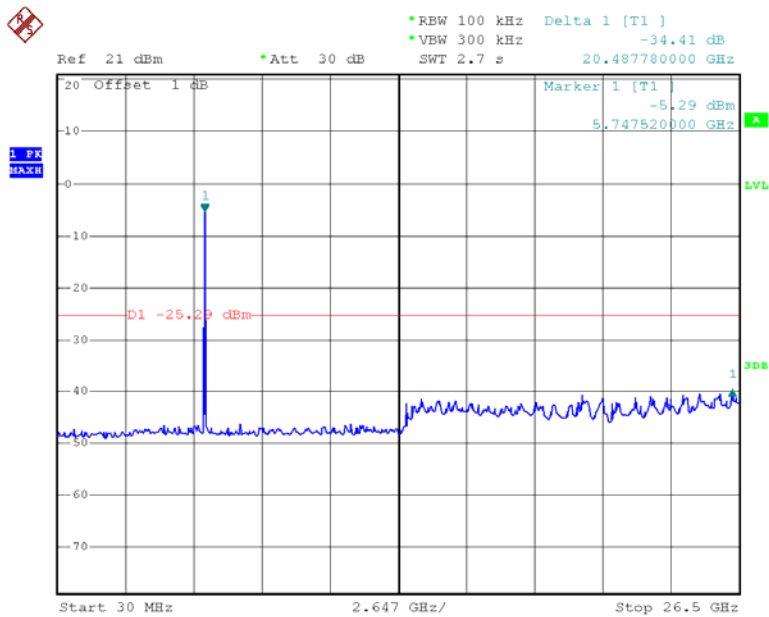
Date: 27.MAR.2013 20:03:17

Chain 2: 802.11n ht20 High Channel 26.5-40G



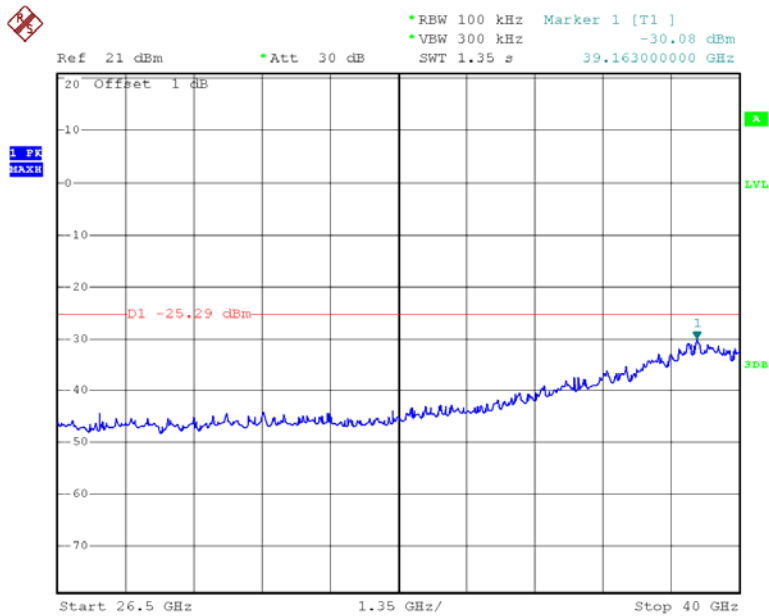
Date: 27.MAR.2013 20:03:59

Chain 0: 802.11n ht40 Low Channel 30M-26.5G



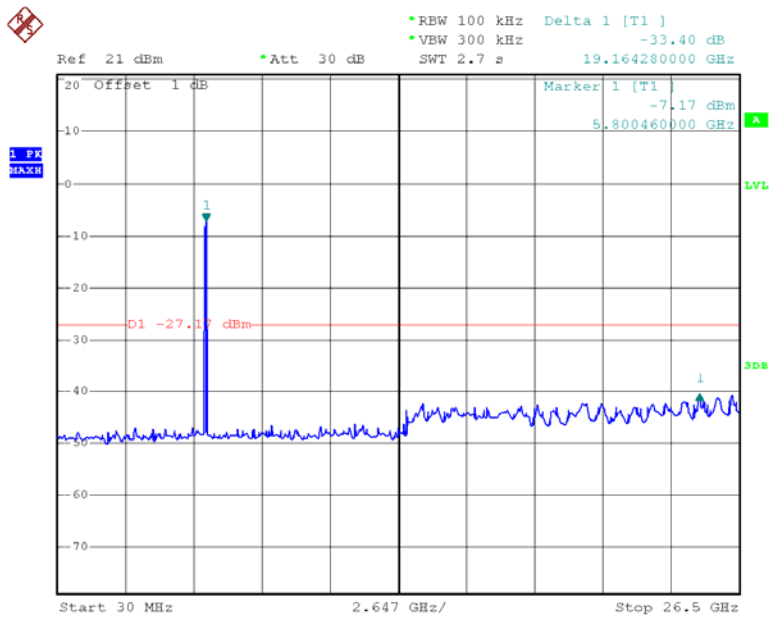
Date: 27.MAR.2013 20:10:33

Chain 0: 802.11n ht40 Low Channel 26.5-40G



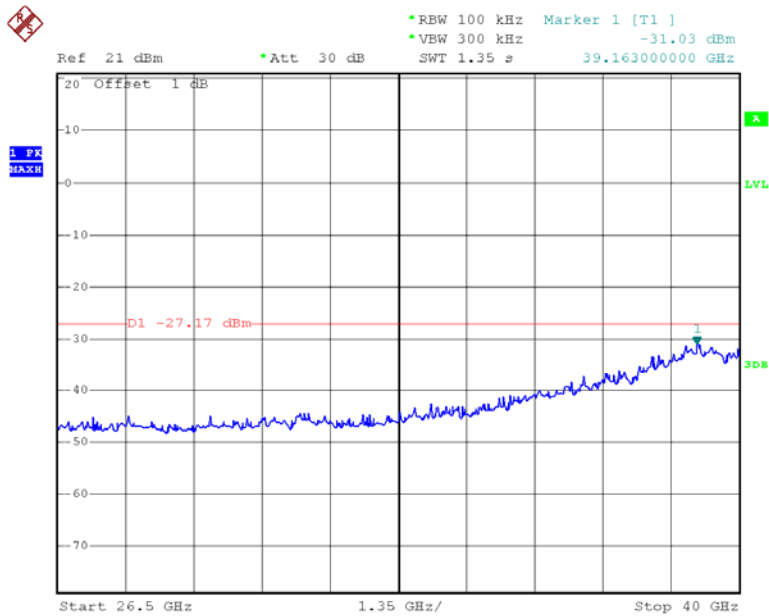
Date: 27.MAR.2013 20:10:54

Chain 0: 802.11n ht40 High Channel 30M-26.5G

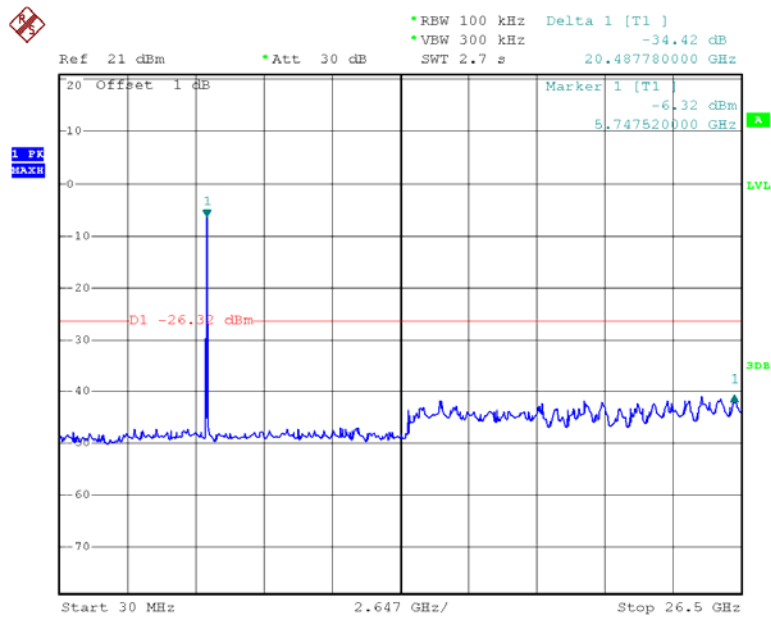


Date: 27.MAR.2013 20:11:42

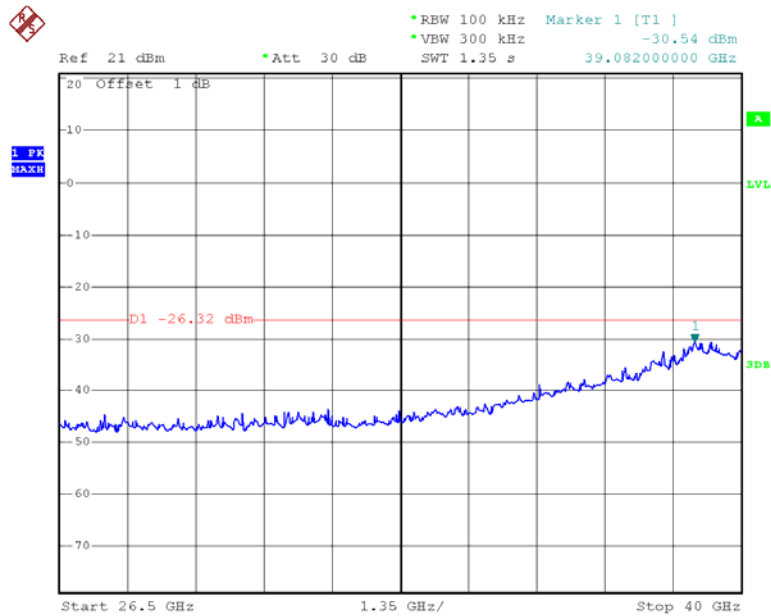
Chain 0: 802.11n ht40 High Channel 26.5-40G



Date: 27.MAR.2013 20:12:06

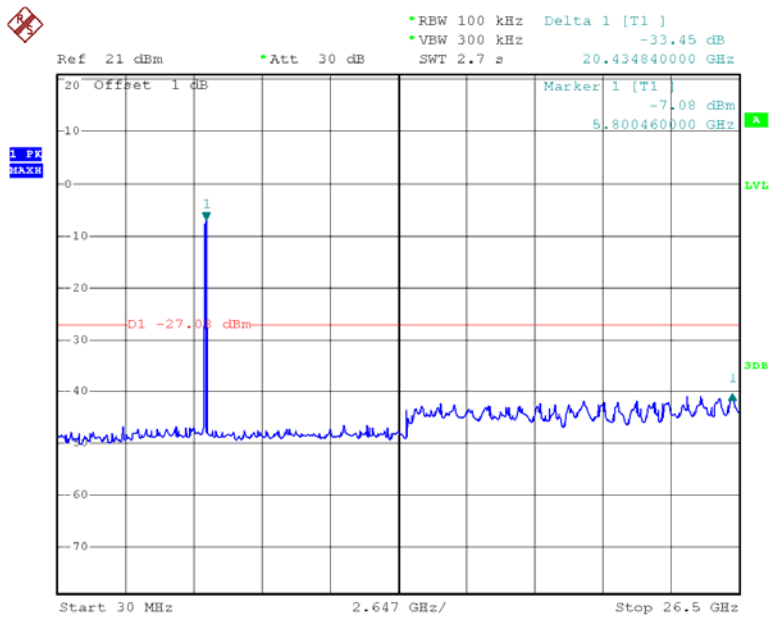
Chain 1: 802.11n ht40 Low Channel 30M-26.5G

Date: 27.MAR.2013 20:14:22

Chain 1: 802.11n ht40 Low Channel 26.5-40G

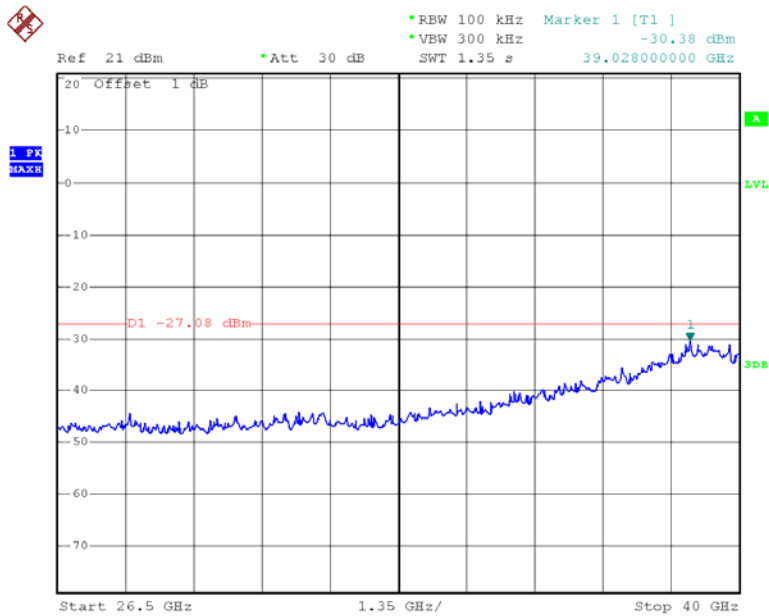
Date: 27.MAR.2013 20:14:39

Chain 1: 802.11n ht40 High Channel 30M-26.5G



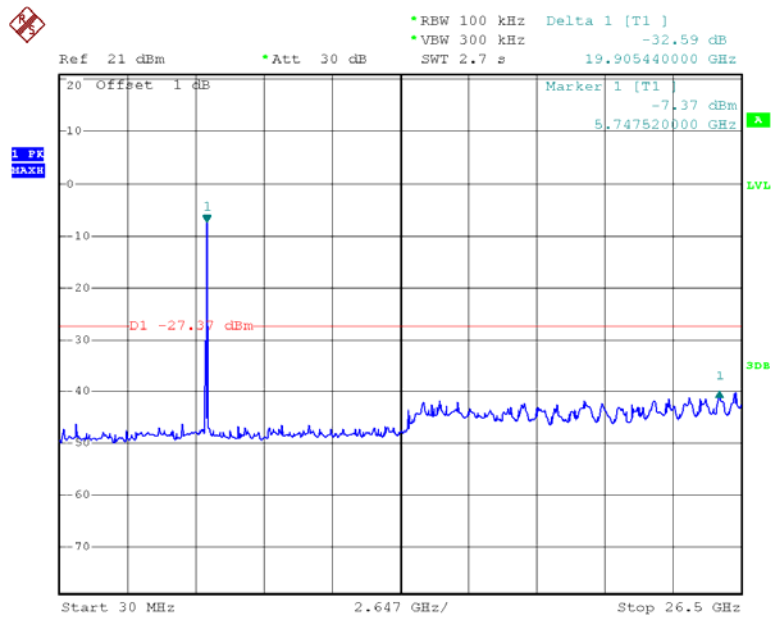
Date: 27.MAR.2013 20:13:02

Chain 1: 802.11n ht40 High Channel 26.5-40G



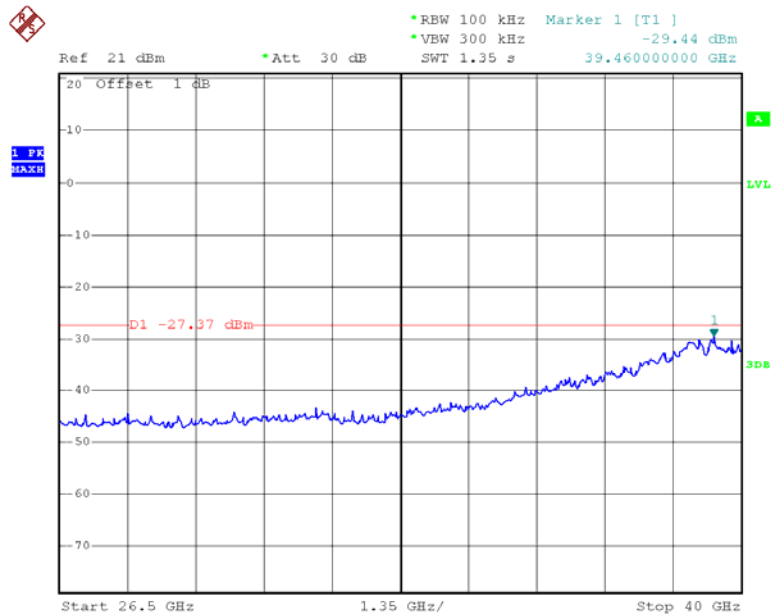
Date: 27.MAR.2013 20:13:16

Chain 2: 802.11n ht40 Low Channel 30M-26.5G



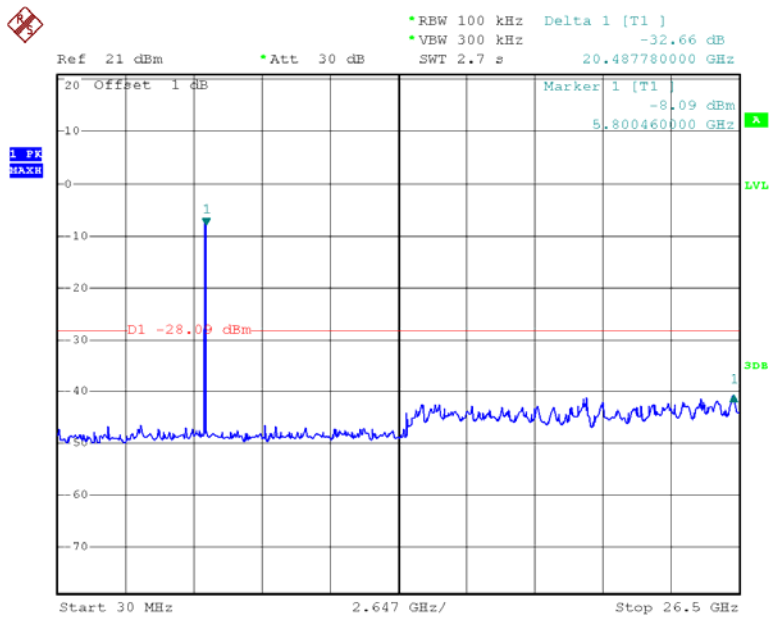
Date: 27.MAR.2013 20:15:55

Chain 2: 802.11n ht40 Low Channel 26.5-40G



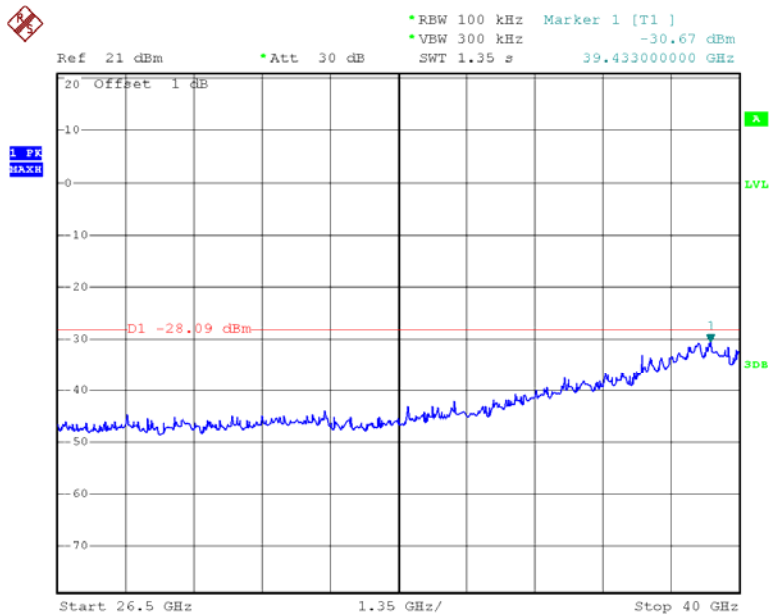
Date: 27.MAR.2013 20:16:46

Chain 2: 802.11n ht40 High Channel 30M-26.5G



Date: 27.MAR.2013 20:17:54

Chain 2: 802.11n ht40 High Channel 26.5-40G



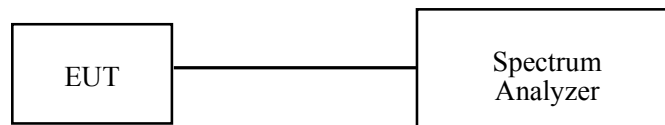
Date: 27.MAR.2013 20:18:08

FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH**Applicable Standard**

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

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

Test Data**Environmental Conditions**

Temperature:	26.4~27.8° C
Relative Humidity:	51~57 %
ATM Pressure:	100.2~100.8kPa

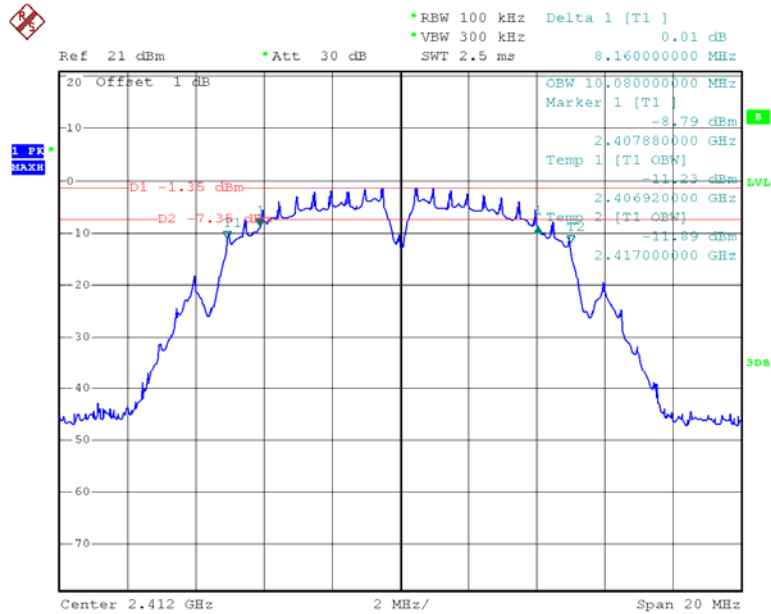
The testing was performed by Leon Chen from 2013-03-21 to 2013-03-27.

Test Result: Pass.

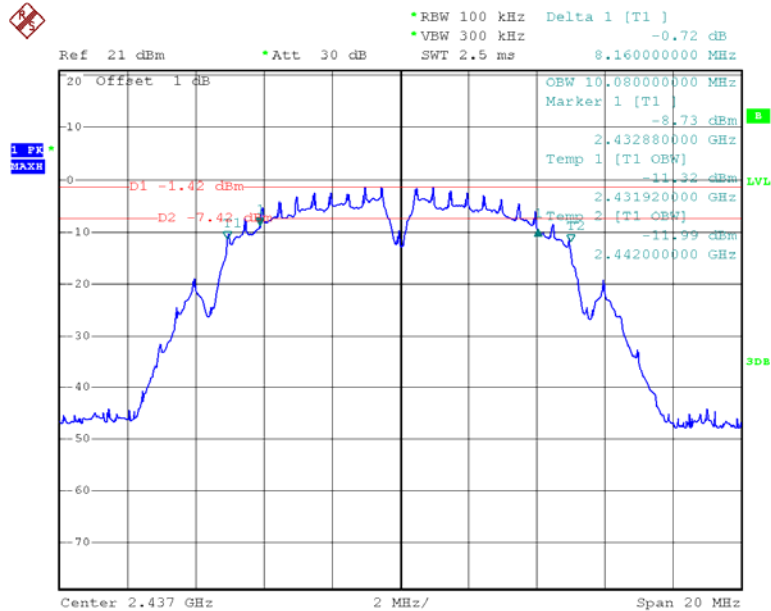
Please refer to the following tables and plots.

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (kHz)
802.11b mode			
Low	2412	8.16	>500
Middle	2437	8.16	>500
High	2462	8.16	>500
802.11g mode			
Low	2412	16.72	>500
Middle	2437	16.72	>500
High	2462	16.72	>500
chain 0: 802.11n20 mode			
Low	2412	17.76	>500
Middle	2437	17.76	>500
High	2462	17.76	>500
chain 1: 802.11n20 mode			
Low	2412	17.76	>500
Middle	2437	17.76	>500
High	2462	17.76	>500
chain 2: 802.11n20 mode			
Low	2412	17.76	>500
Middle	2437	17.76	>500
High	2462	17.76	>500
chain 0: 802.11n40 mode			
Low	2422	36.80	>500
Middle	2437	36.80	>500
High	2452	36.80	>500
chain 1: 802.11n40 mode			
Low	2422	36.80	>500
Middle	2437	36.80	>500
High	2452	36.80	>500
chain 2: 802.11n40 mode			
Low	2422	36.80	>500
Middle	2437	36.80	>500
High	2452	36.80	>500
802.11a mode			
Low	5745	16.56	>500
Middle	5785	16.56	>500
High	5825	16.56	>500
chain 0:802.11n ht20 mode			
Low	5745	17.76	>500
Middle	5785	17.76	>500
High	5825	17.76	>500
chain 1:802.11n ht20 mode			
Low	5745	17.76	>500
Middle	5785	17.76	>500
High	5825	17.76	>500

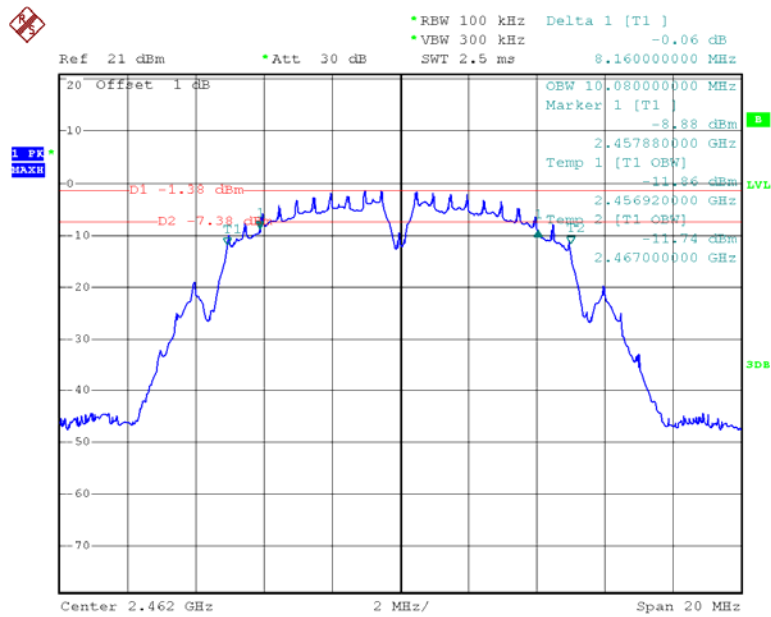
chain 2:802.11n ht20 mode			
Low	5745	17.76	>500
Middle	5785	17.76	>500
High	5825	17.76	>500
chain 0:802.11n ht40 mode			
Low	5755	36.64	>500
High	5795	36.80	>500
chain 1:802.11n ht40 mode			
Low	5755	36.64	>500
High	5795	36.80	>500
chain 2:802.11n ht40 mode			
Low	5755	36.64	>500
High	5795	36.80	>500

2.4G band:**802.11b Low Channel**

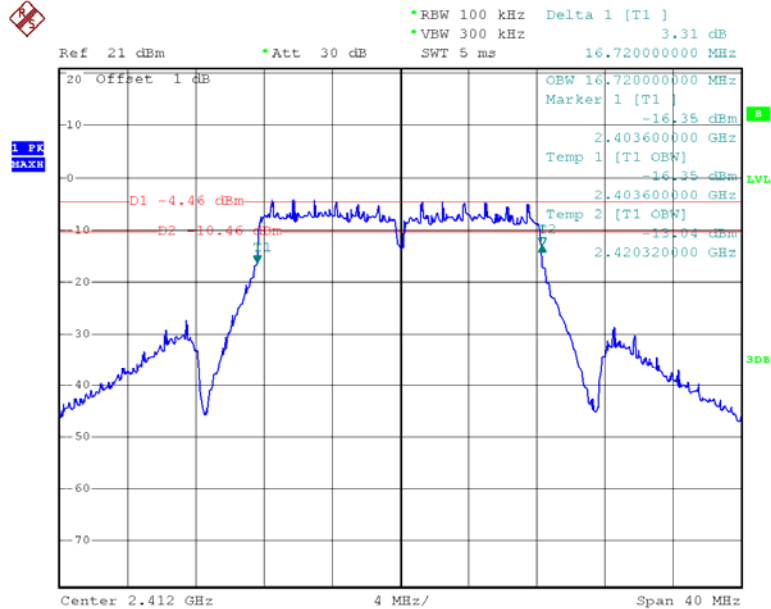
Date: 21.MAR.2013 20:00:20

802.11b Middle Channel

Date: 21.MAR.2013 20:05:20

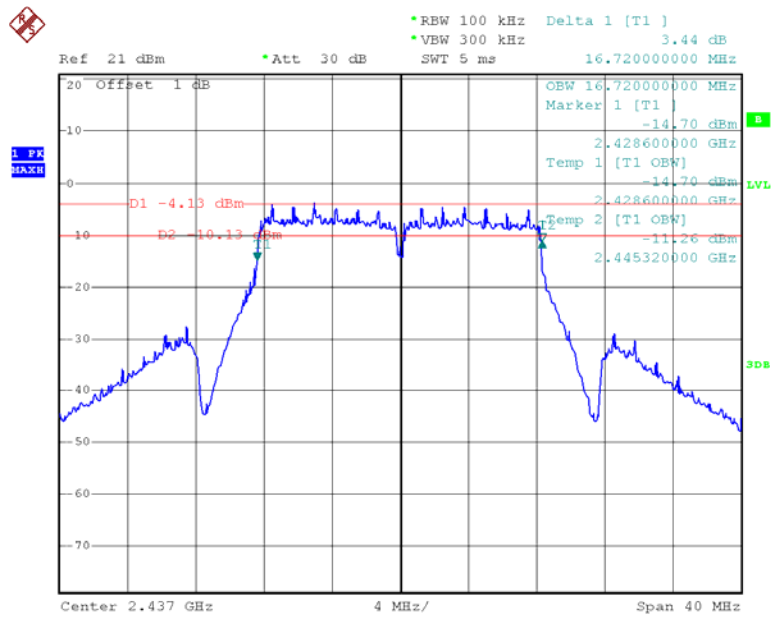
802.11b High Channel

Date: 21.MAR.2013 20:08:40

802.11g Low Channel

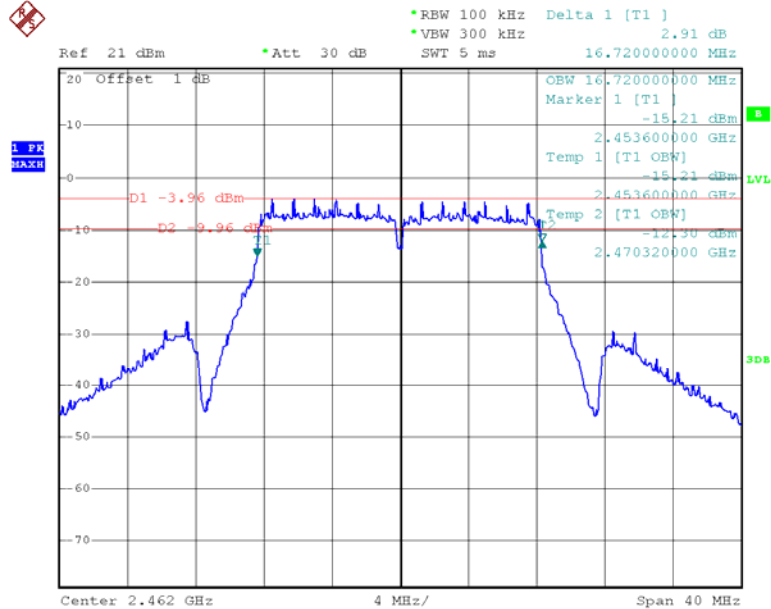
Date: 21.MAR.2013 20:38:19

802.11g Middle Channel



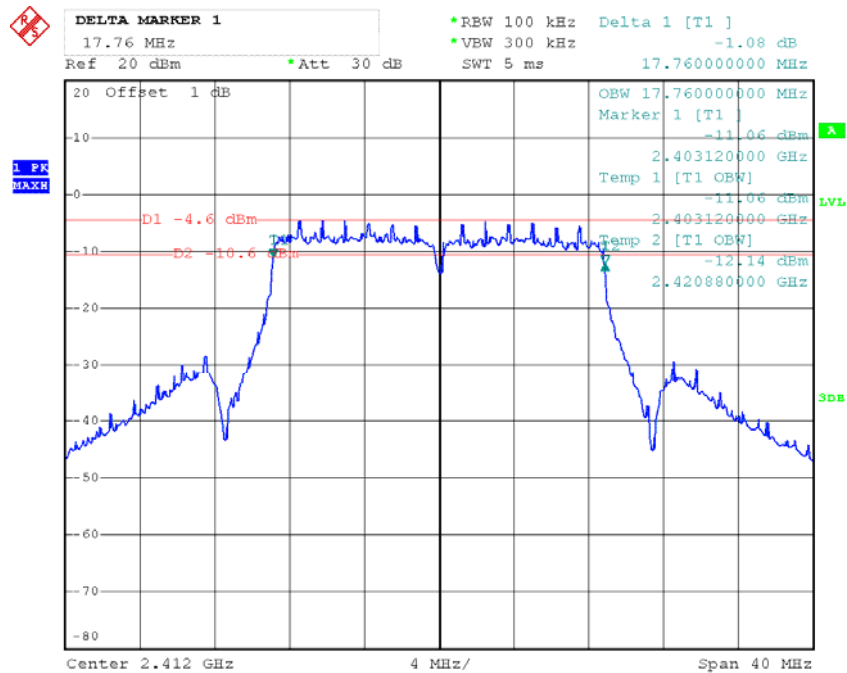
Date: 21.MAR.2013 20:35:44

802.11g High Channel



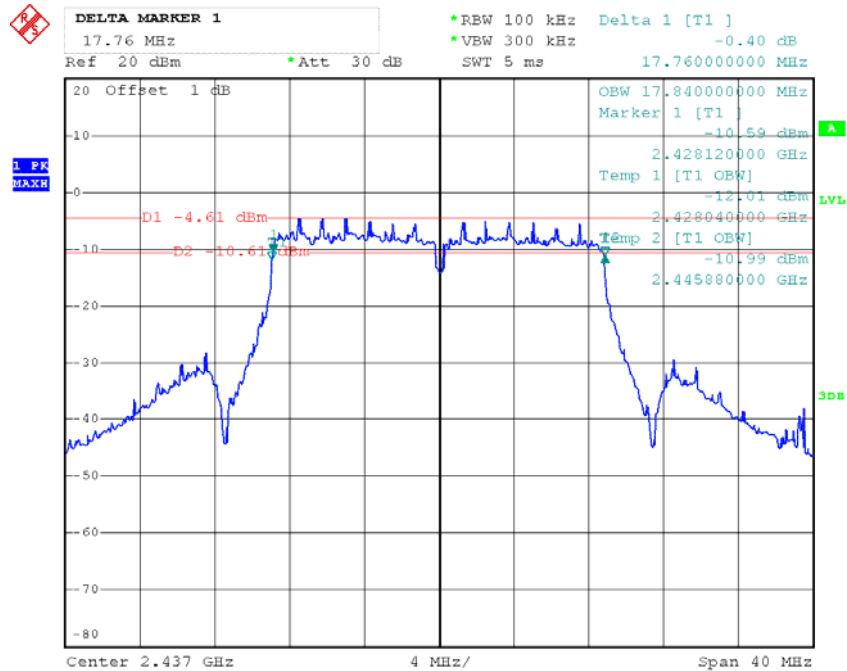
Date: 21.MAR.2013 20:33:09

Chain 0: 802.11n20 Low Channel



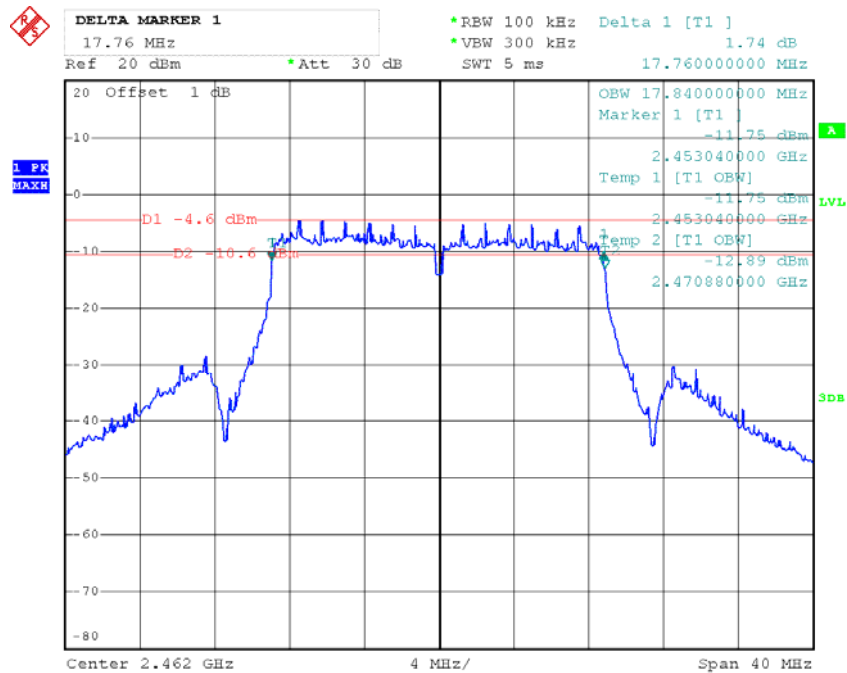
Date: 22.MAR.2013 09:48:47

Chain 0: 802.11n20 Middle Channel



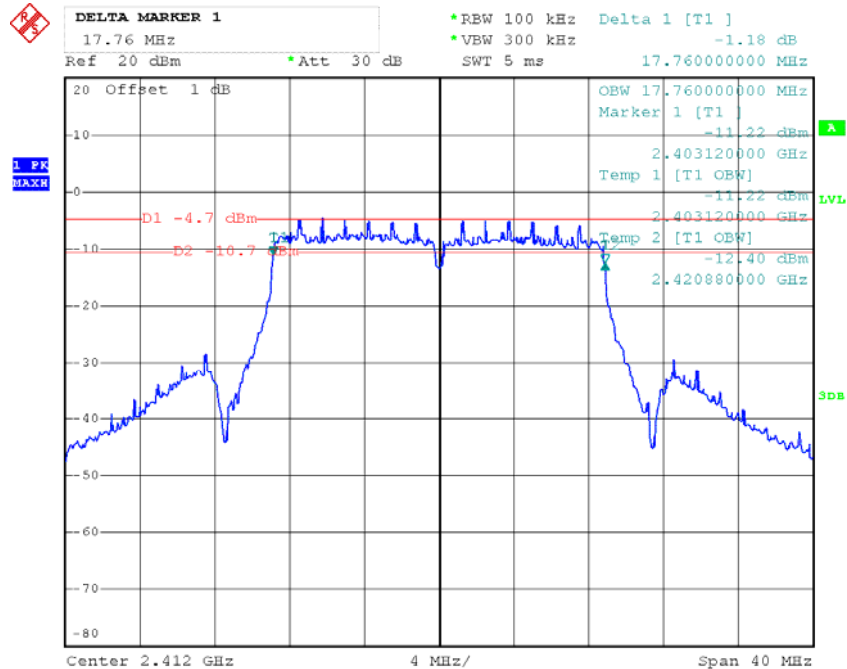
Date: 22.MAR.2013 09:58:09

Chain 0: 802.11n20 High Channel



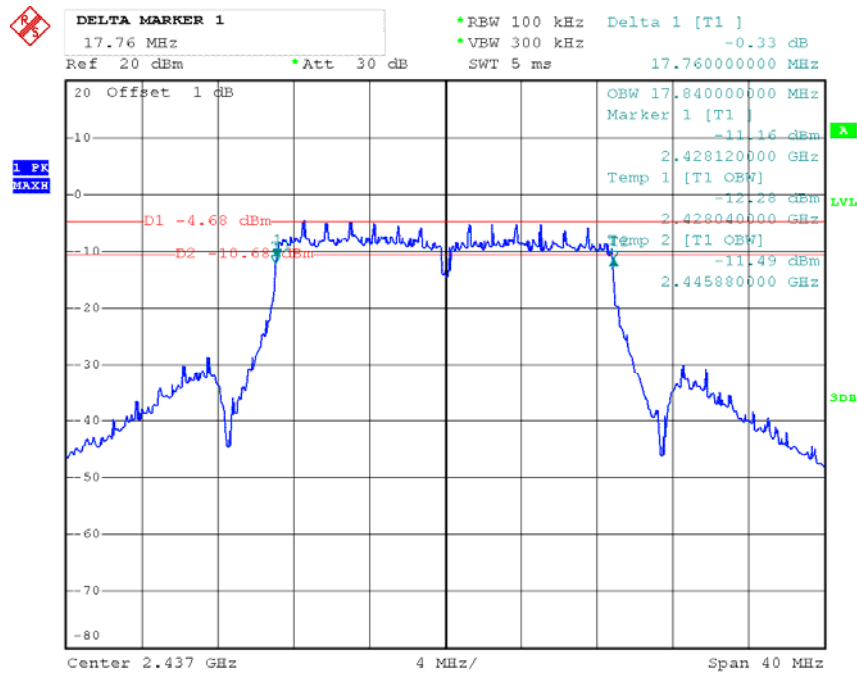
Date: 22.MAR.2013 10:04:04

Chain 1: 802.11n20 Low Channel



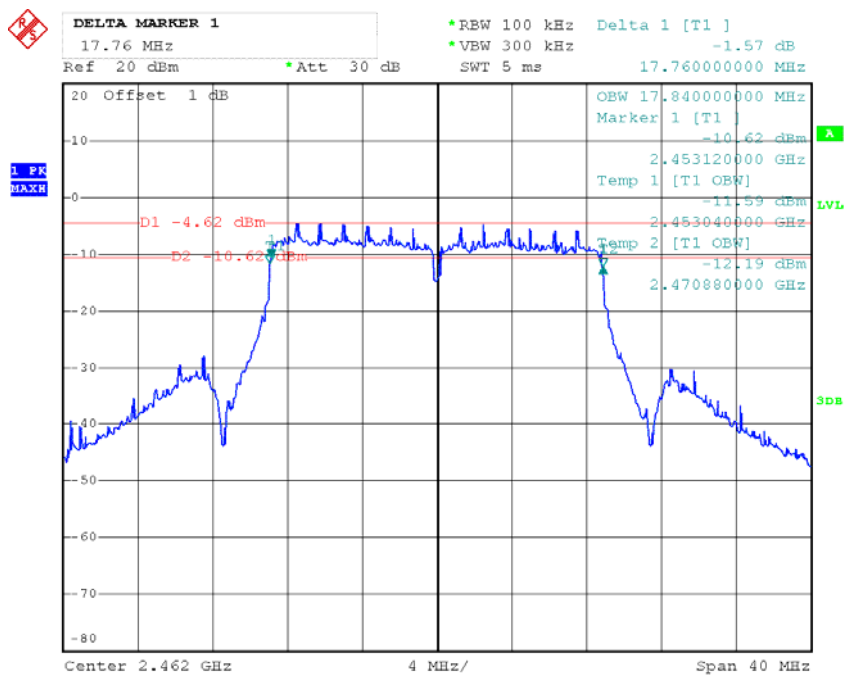
Date: 22.MAR.2013 09:52:20

Chain 1: 802.11n20 Middle Channel



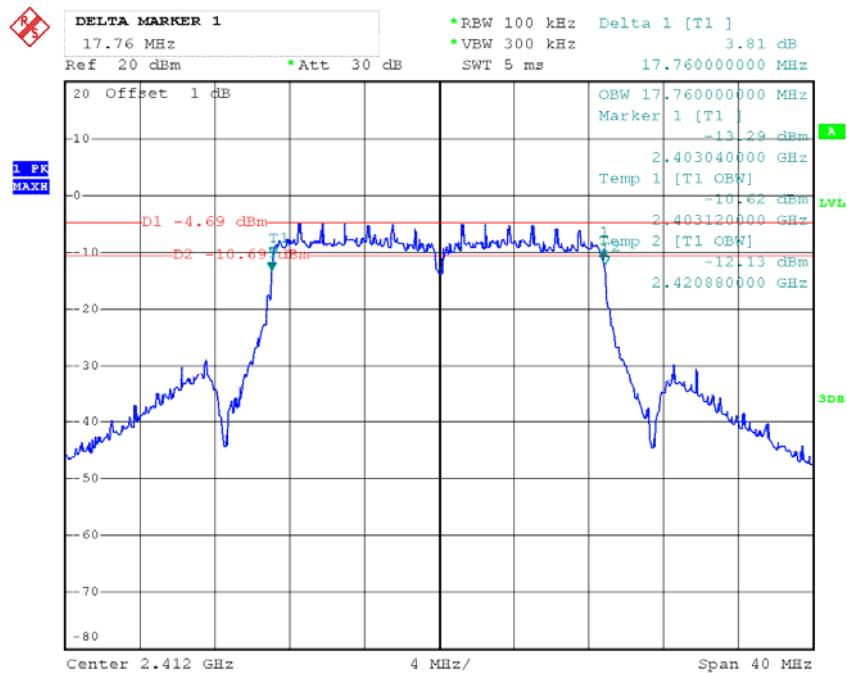
Date: 22.MAR.2013 09:59:18

Chain 1: 802.11n20 High Channel



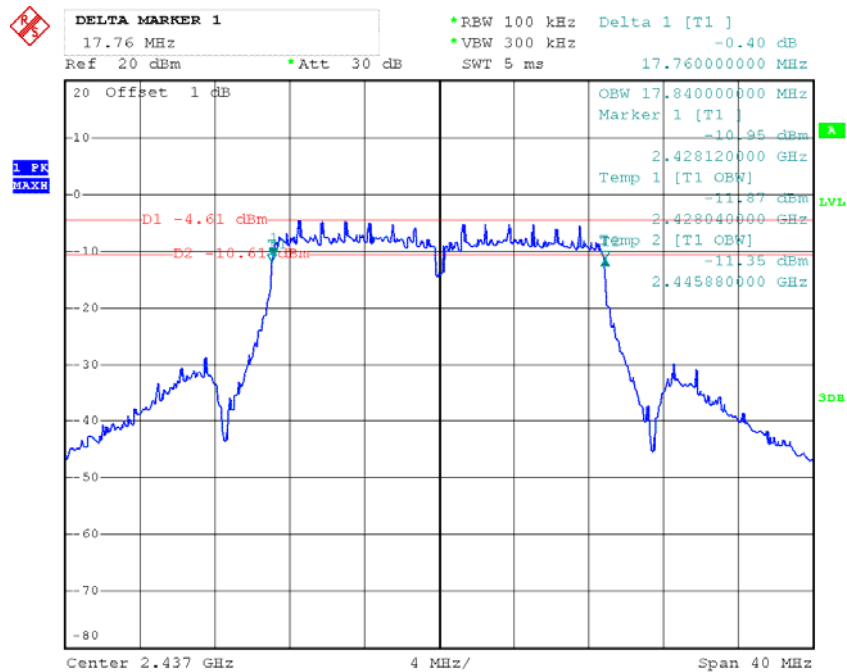
Date: 22.MAR.2013 10:05:58

Chain 2: 802.11n20 Low Channel



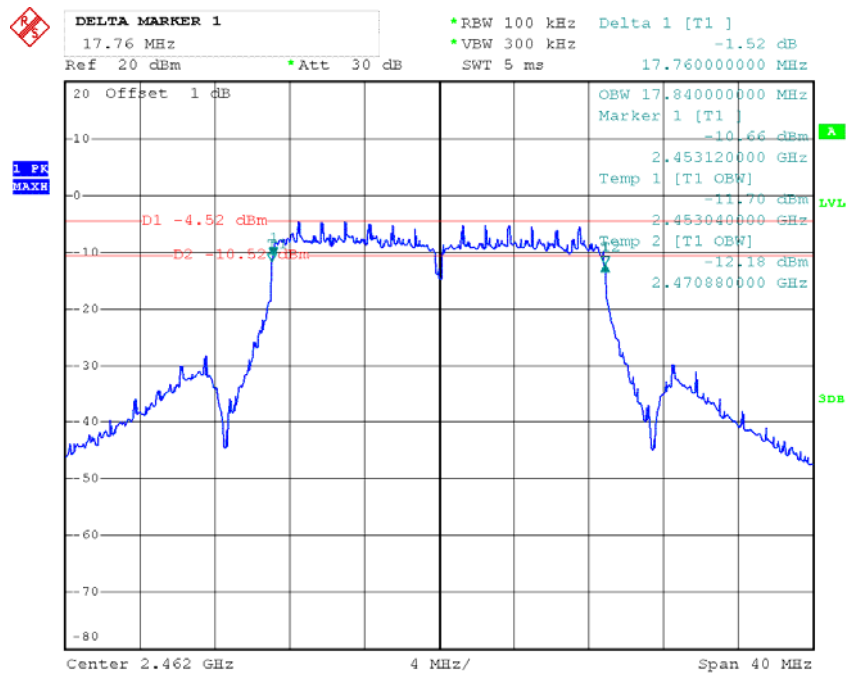
Date: 22.MAR.2013 09:53:23

Chain 2: 802.11n20 Middle Channel



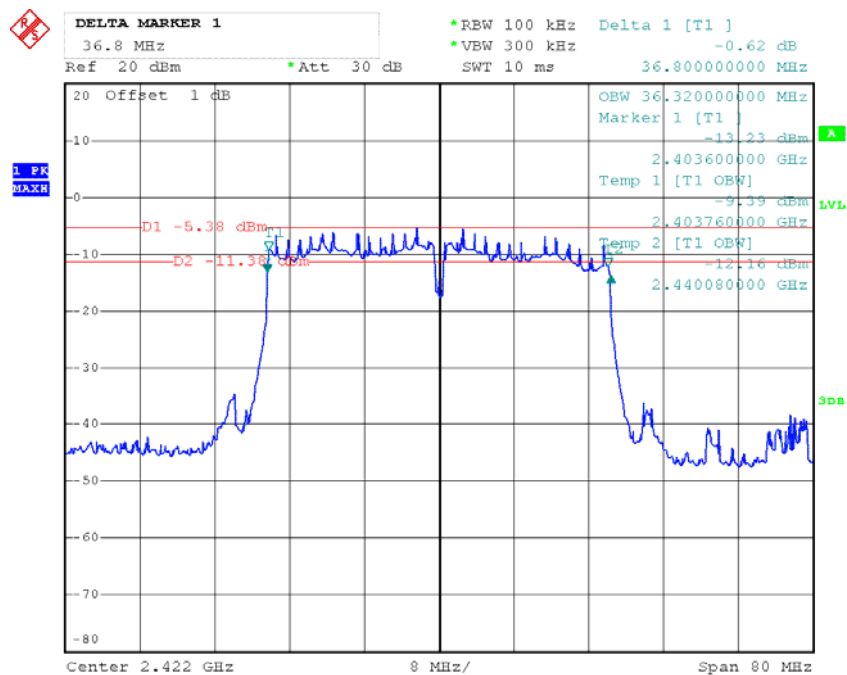
Date: 22.MAR.2013 10:02:00

Chain 2: 802.11n20 High Channel



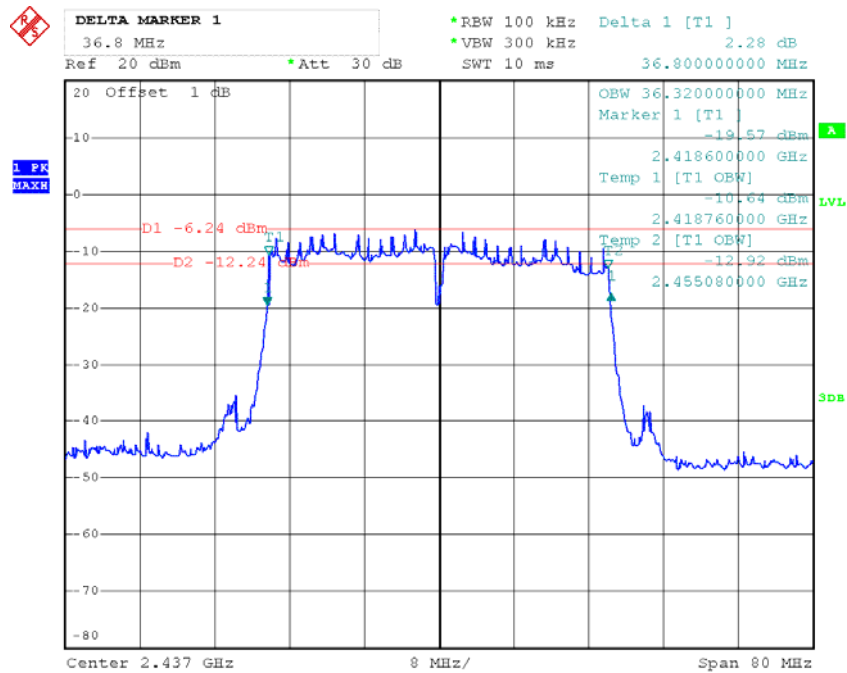
Date: 22.MAR.2013 10:07:28

Chain 0: 802.11n40 Low Channel



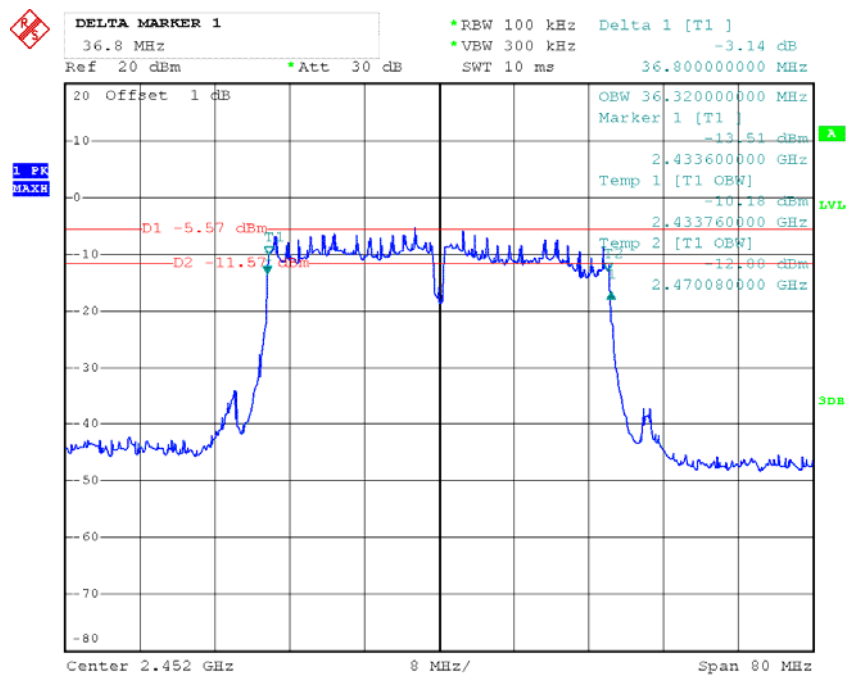
Date: 22.MAR.2013 13:14:36

Chain 0: 802.11n40 Middle Channel



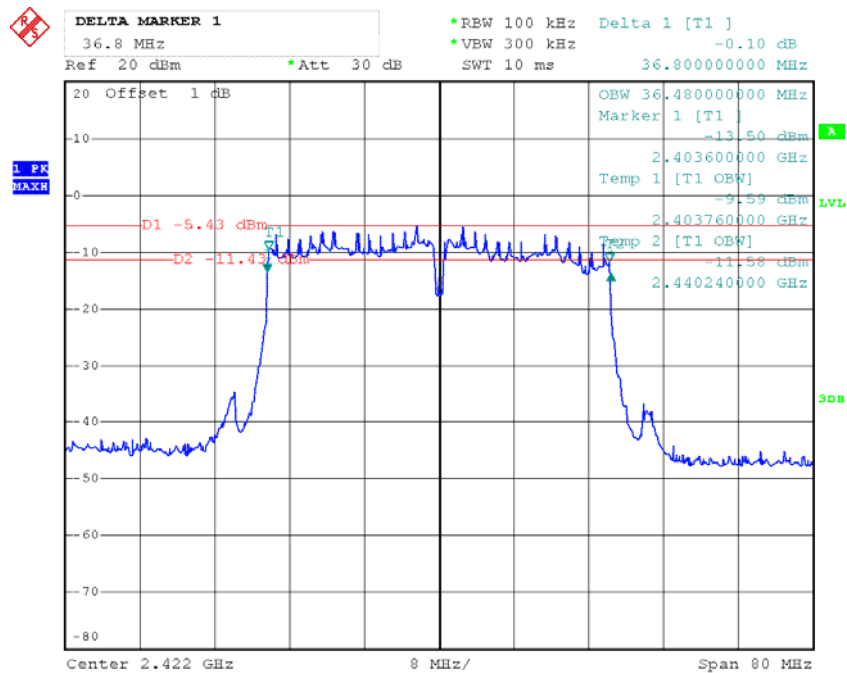
Date: 22.MAR.2013 13:27:49

Chain 0: 802.11n40 High Channel



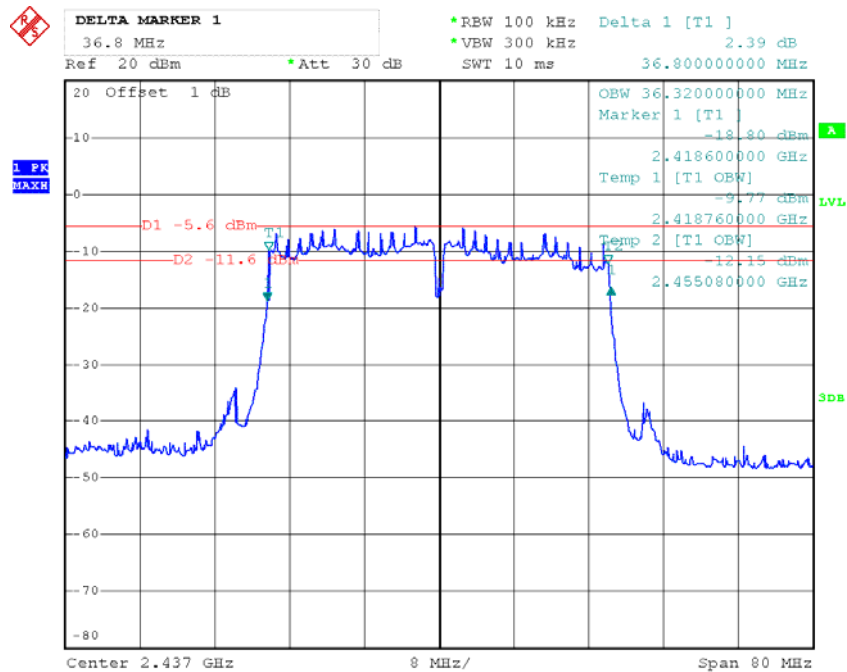
Date: 22.MAR.2013 13:49:17

Chain 1: 802.11n40 Low Channel



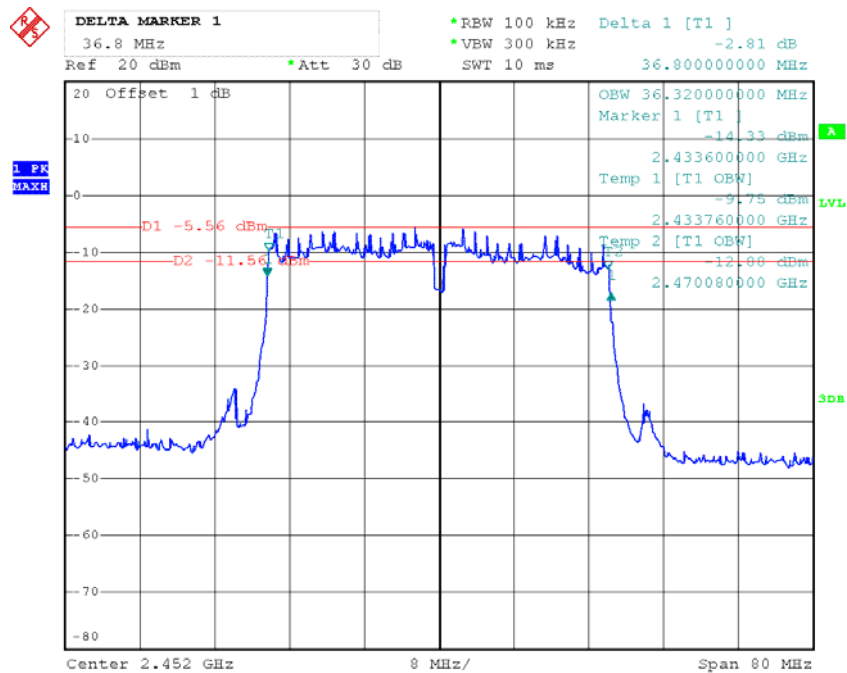
Date: 22.MAR.2013 13:18:54

Chain 1: 802.11n40 Middle Channel



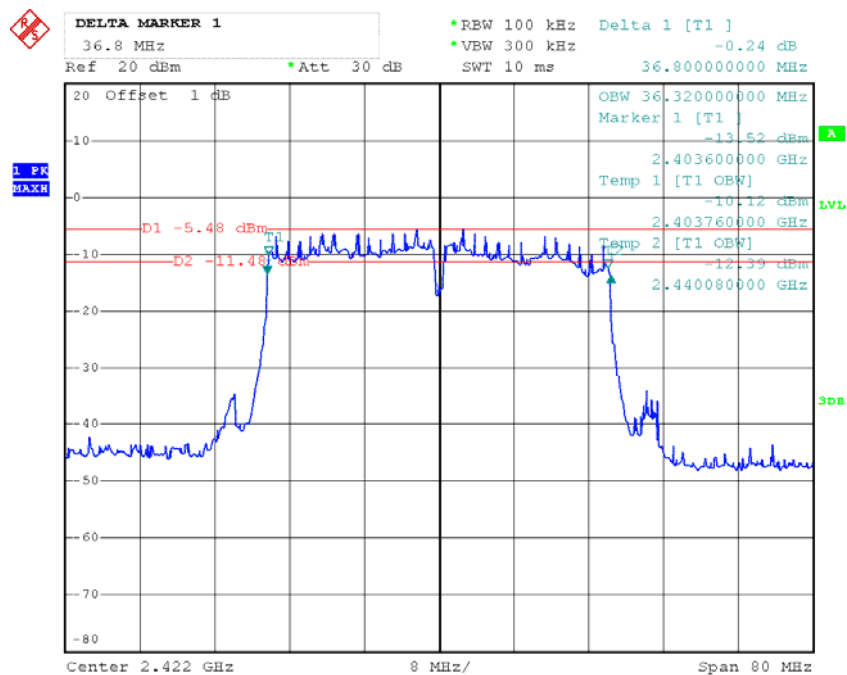
Date: 22.MAR.2013 13:29:43

Chain 1: 802.11n40 High Channel



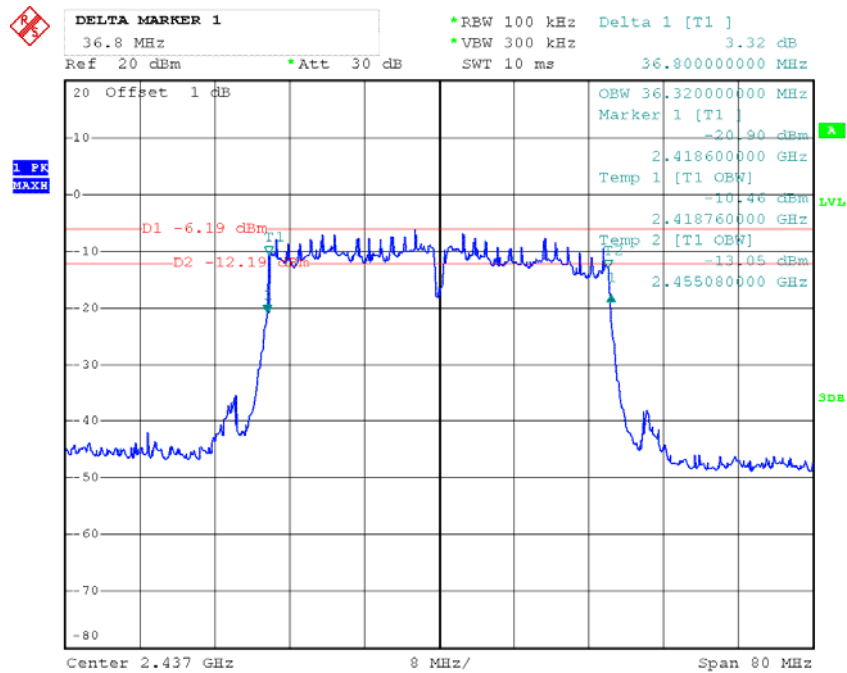
Date: 22.MAR.2013 13:42:02

Chain 2: 802.11n40 Low Channel



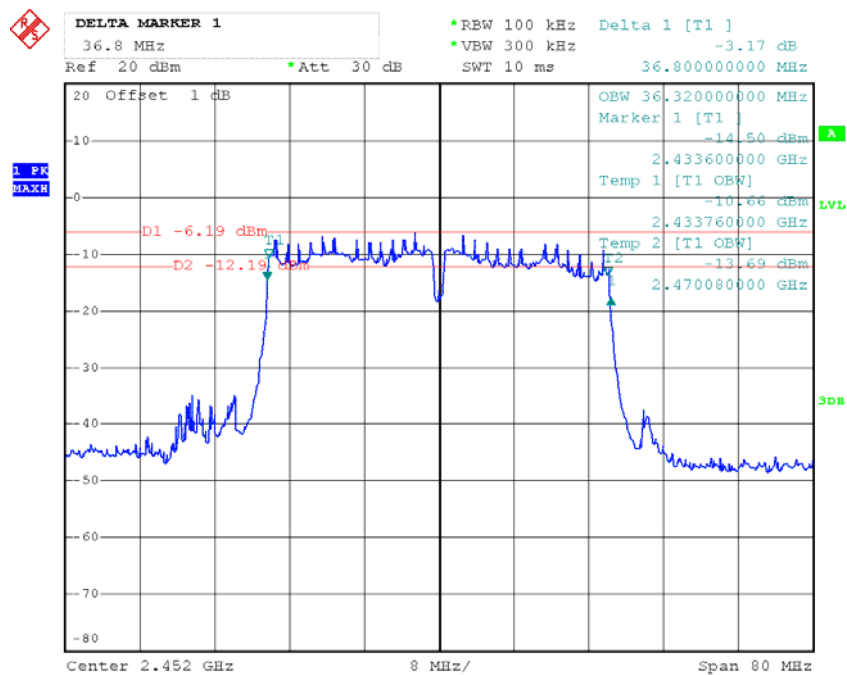
Date: 22.MAR.2013 13:21:10

Chain 2: 802.11n40 Middle Channel



Date: 22.MAR.2013 13:31:31

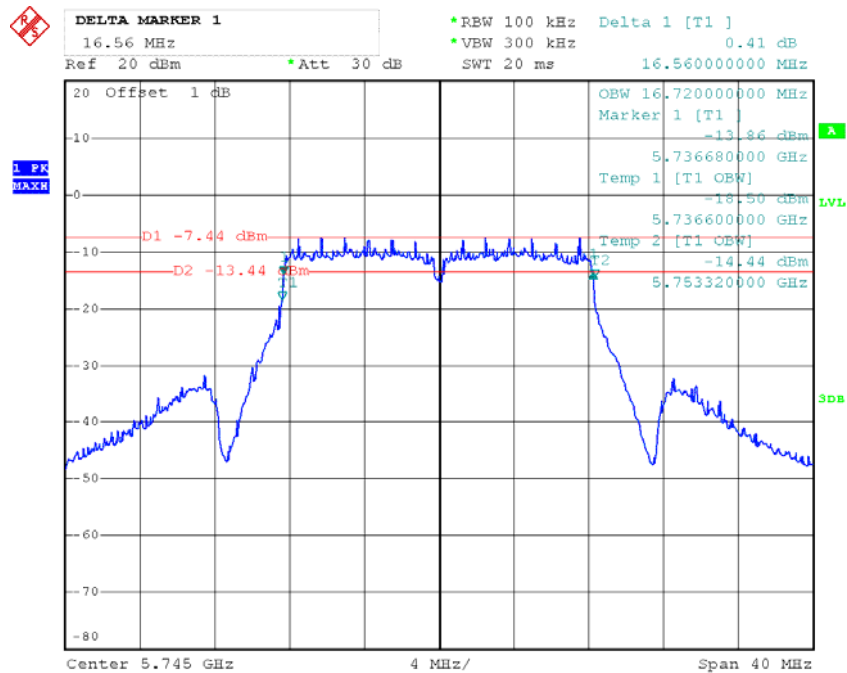
Chain 2: 802.11n40 High Channel



Date: 22.MAR.2013 13:34:14

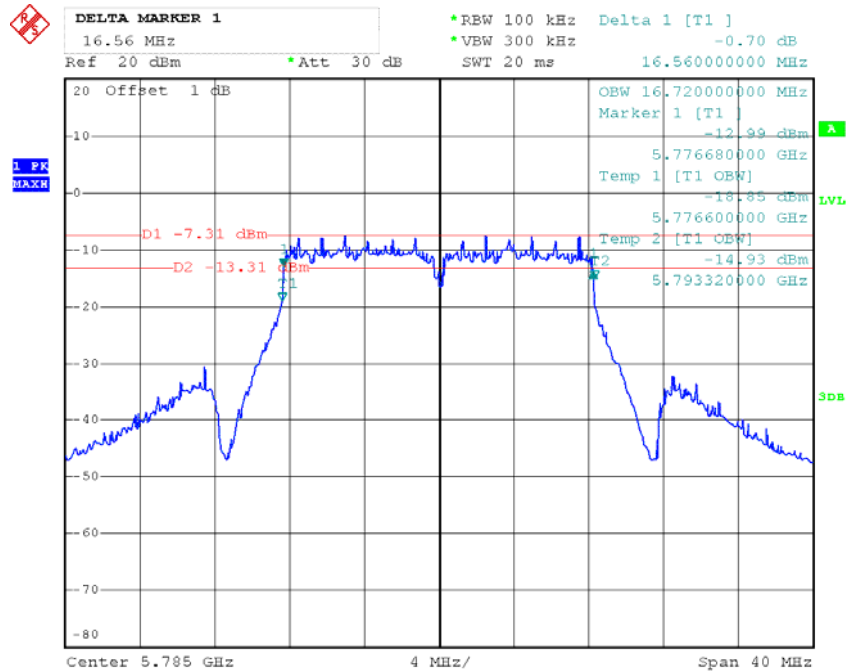
5725-5850MHz band:

802.11a Low Channel



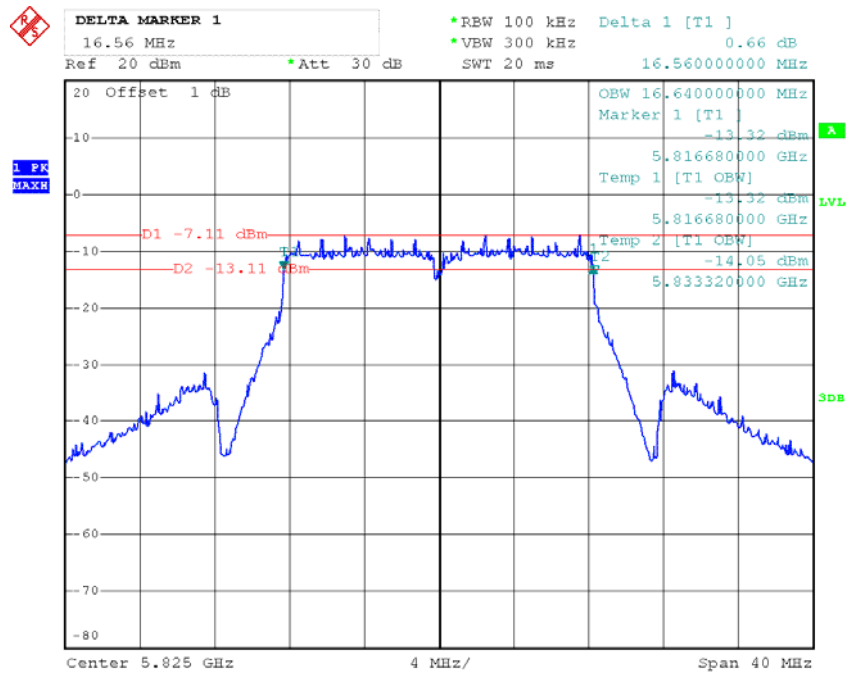
Date: 22.MAR.2013 14:38:27

802.11a Middle Channel



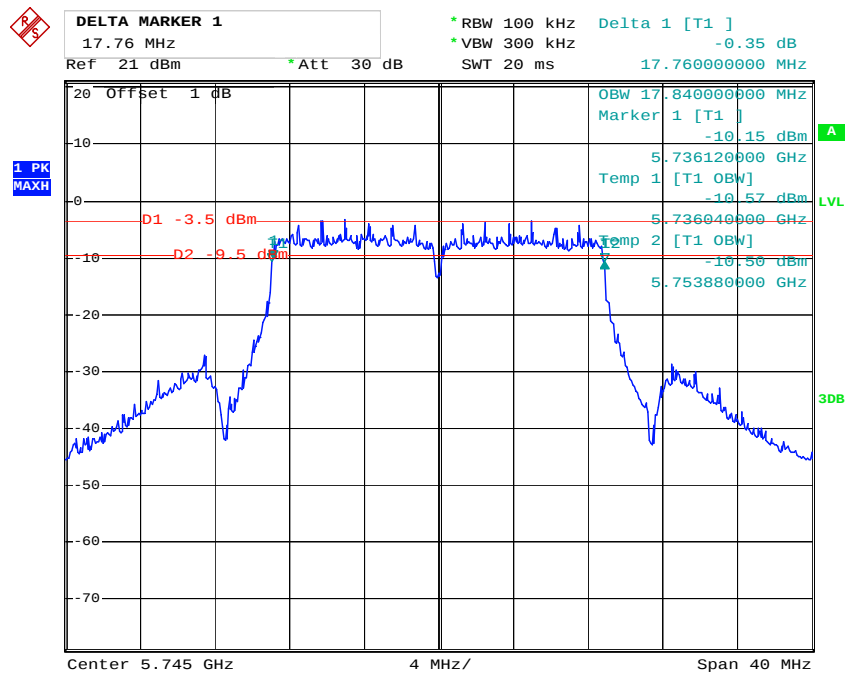
Date: 22.MAR.2013 14:43:00

802.11a High Channel



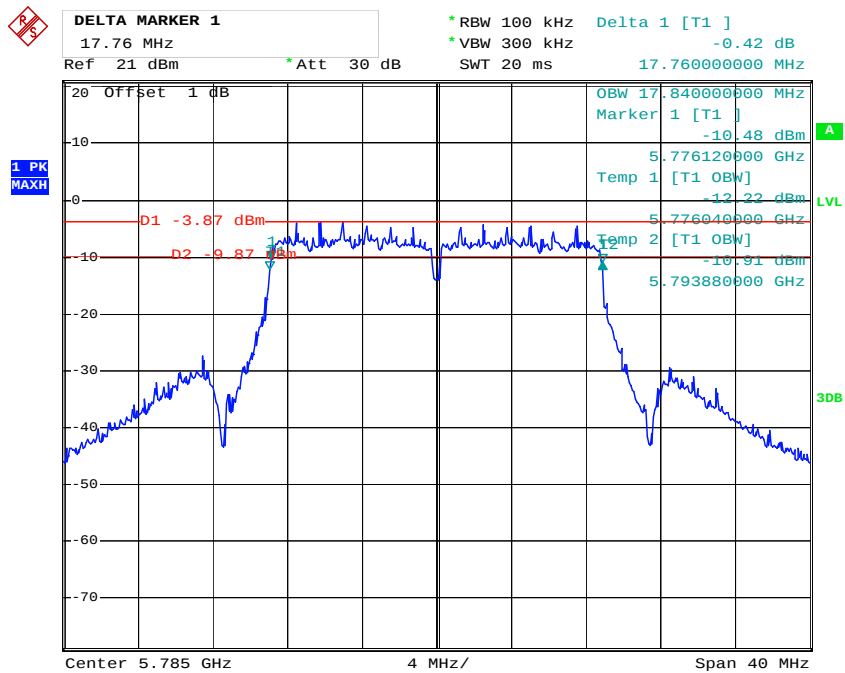
Date: 22.MAR.2013 14:44:49

Chain 0:802.11n ht20 Low Channel



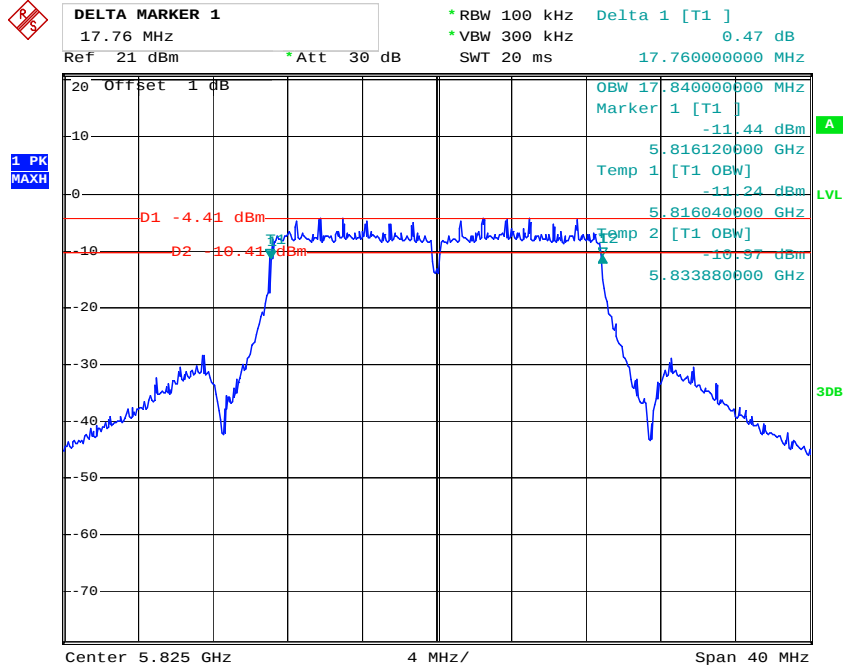
Date: 27.MAR.2013 14:31:09

Chain 0:802.11n ht20 Middle Channel



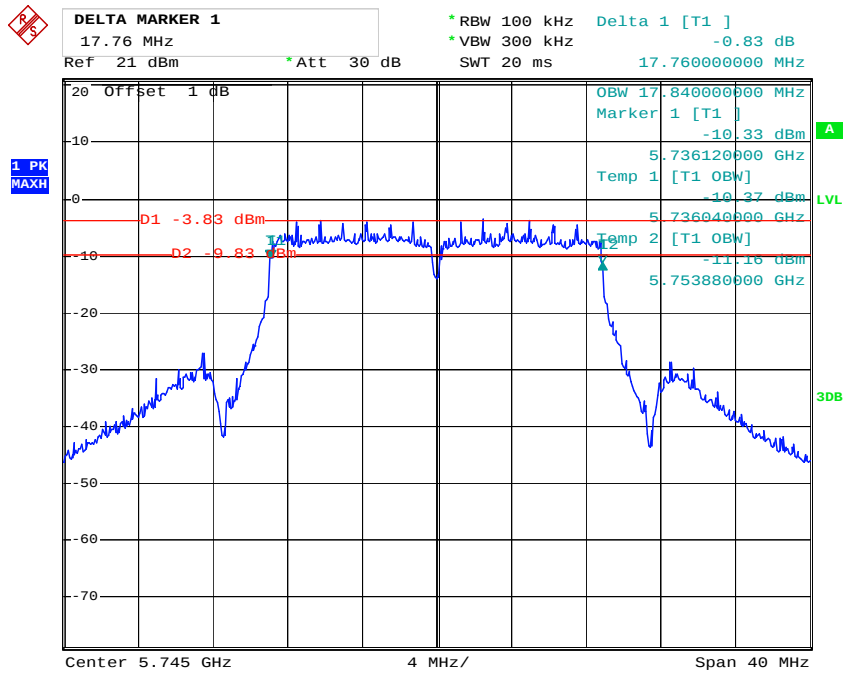
Date: 27.MAR.2013 14:27:46

Chain 0:802.11n ht20 High Channel



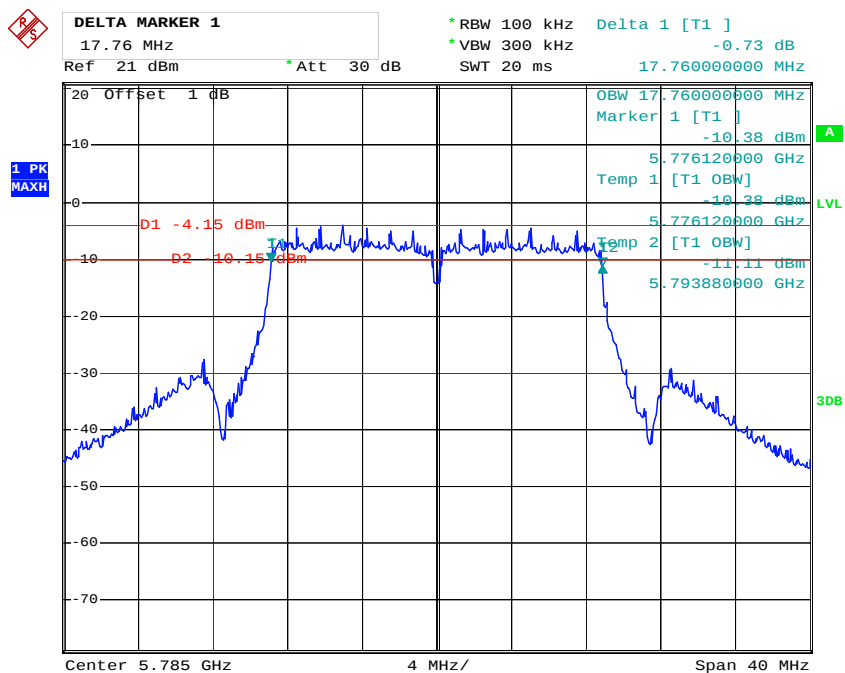
Date: 27.MAR.2013 14:34:40

Chain 1:802.11n ht20 Low Channel



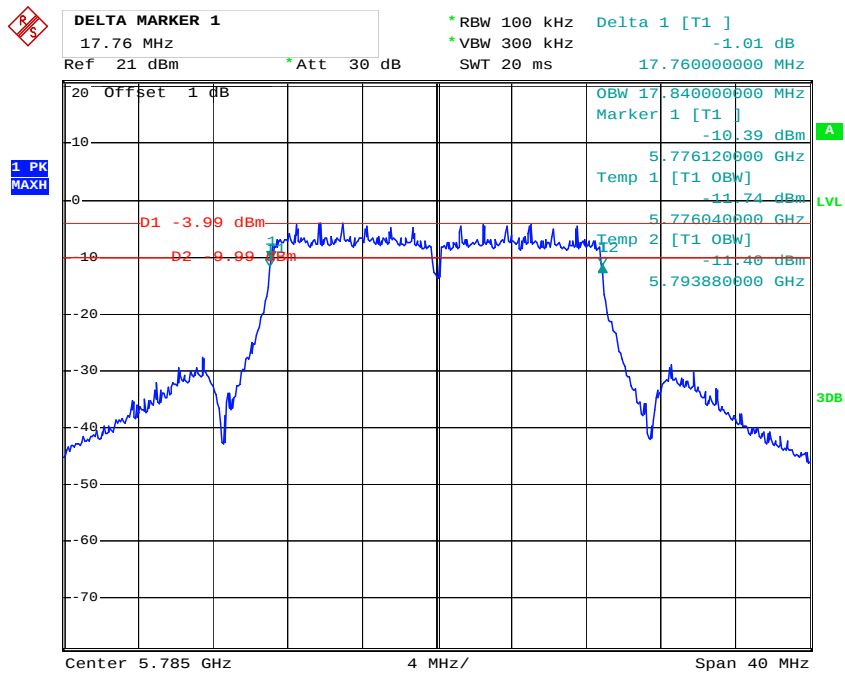
Date: 27.MAR.2013 14:43:15

Chain 1:802.11n ht20 Middle Channel



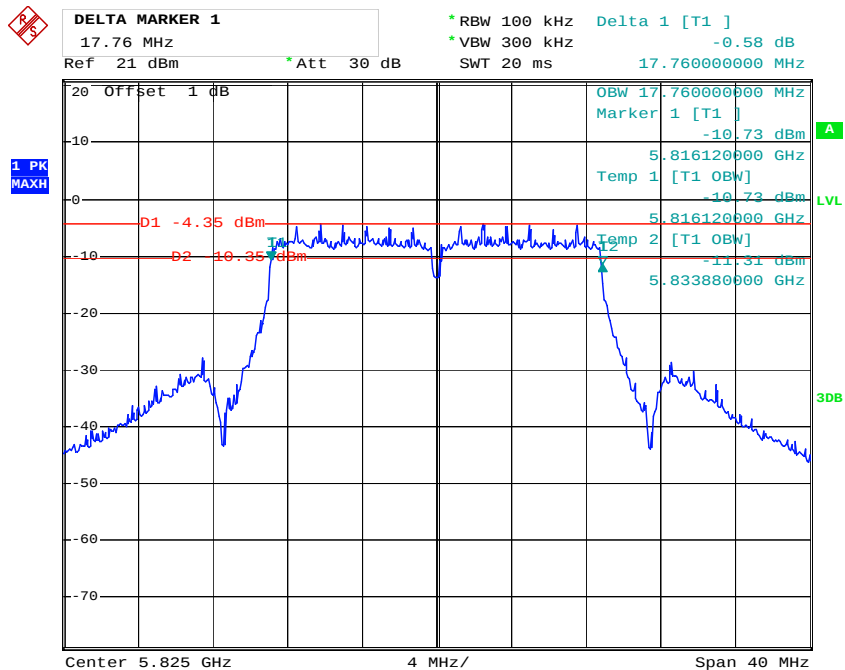
Date: 27.MAR.2013 14:39:43

Chain 2:802.11n ht20 Middle Channel



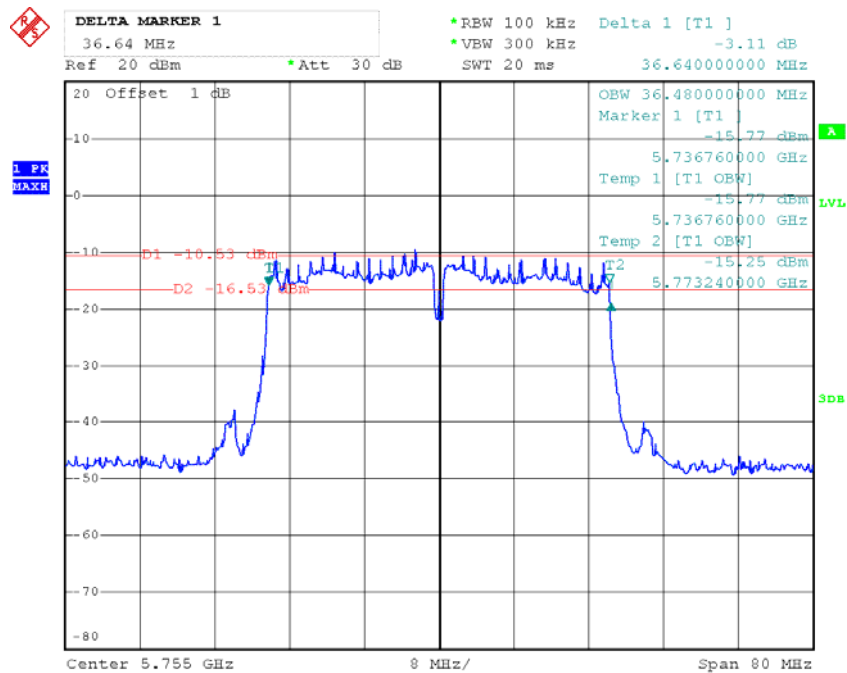
Date: 27.MAR.2013 14:52:11

Chain 2:802.11n ht20 High Channel



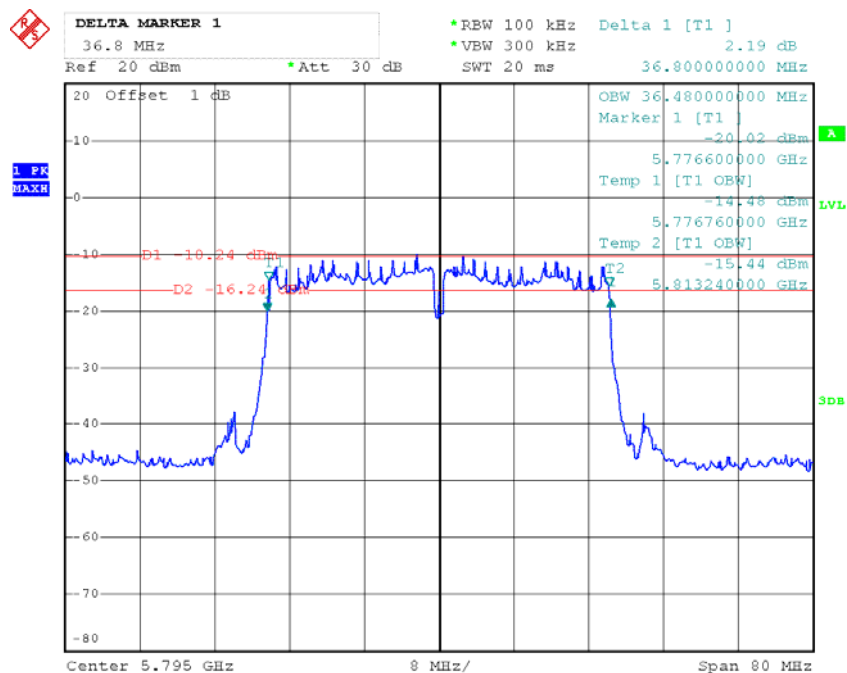
Date: 27.MAR.2013 14:53:53

Chain 0:802.11n ht40 Low Channel



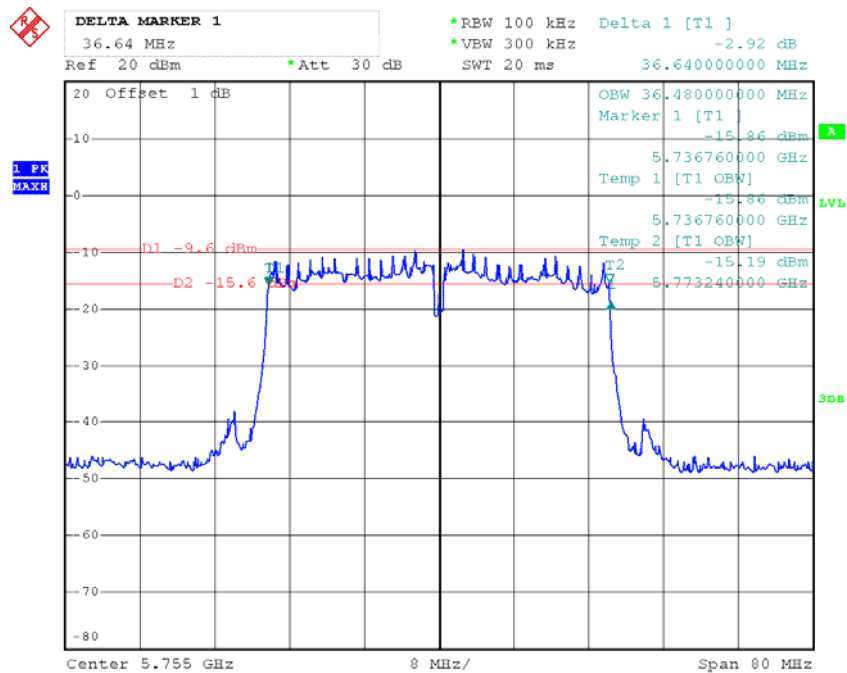
Date: 22.MAR.2013 15:05:30

Chain 0:802.11n ht40 High Channel



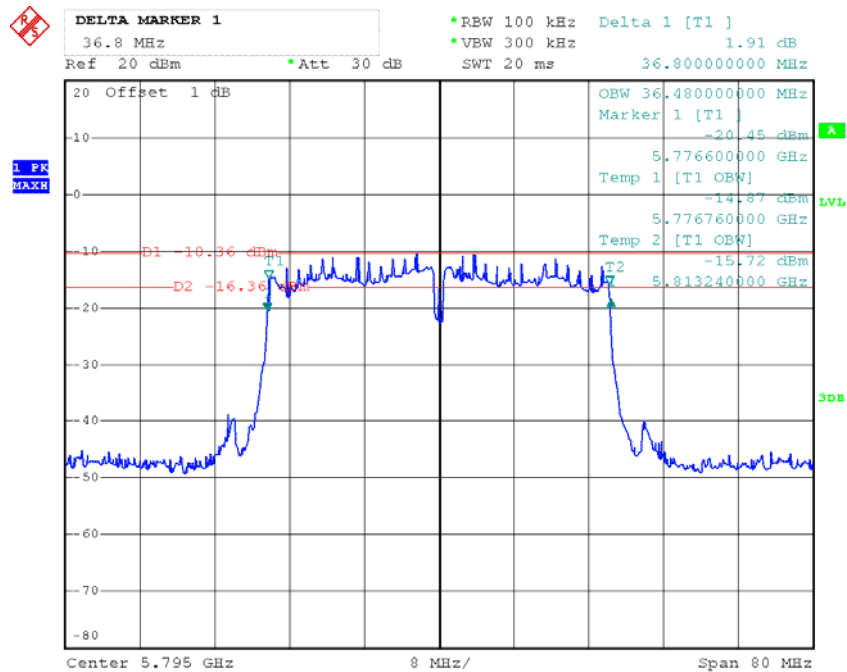
Date: 22.MAR.2013 15:15:57

Chain 1:802.11n ht40 Low Channel



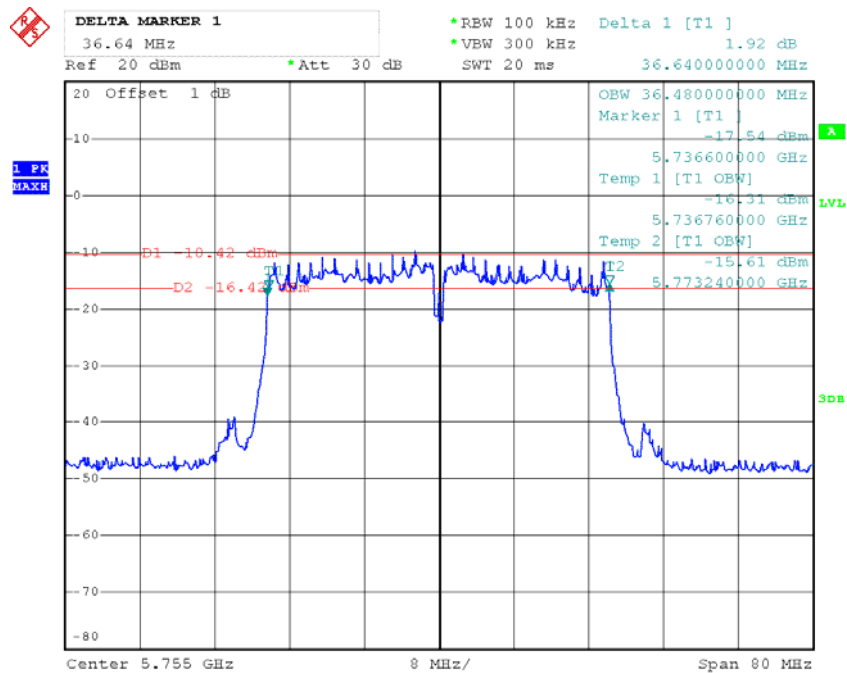
Date: 22.MAR.2013 15:09:57

Chain 1:802.11n ht40 High Channel



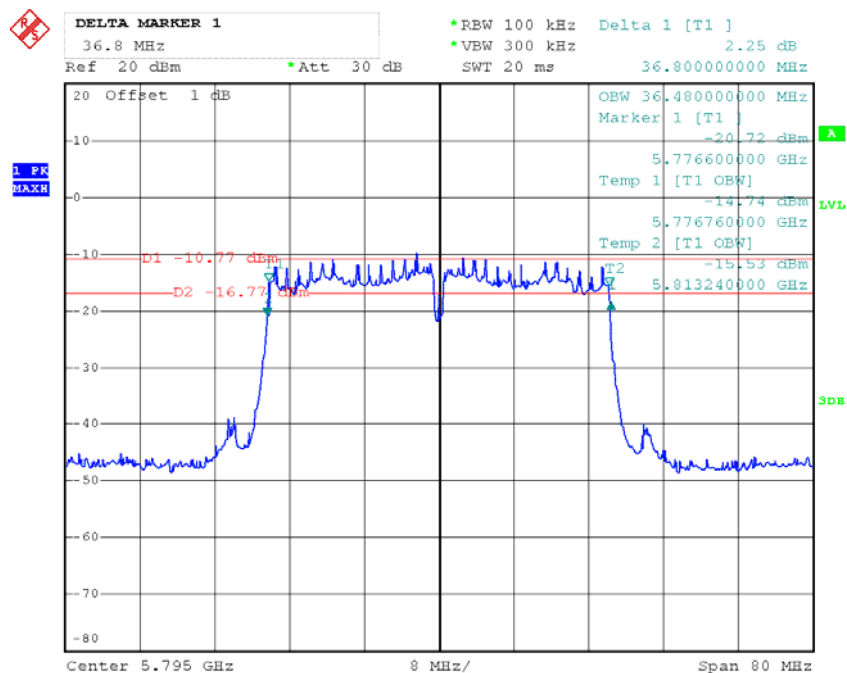
Date: 22.MAR.2013 15:17:12

Chain 2:802.11 n ht40 Low Channel



Date: 22.MAR.2013 15:12:07

Chain 2:802.11n ht40 High Channel



Date: 22.MAR.2013 15:19:41

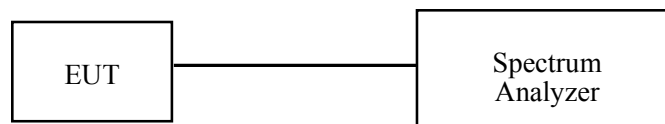
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

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

Test Data

Environmental Conditions

Temperature:	26.4~27.8° C
Relative Humidity:	51~57 %
ATM Pressure:	100.2~100.8kPa

The testing was performed by Leon Chen from 2013-03-21 to 2013-03-27.

Test Mode: Transmitting

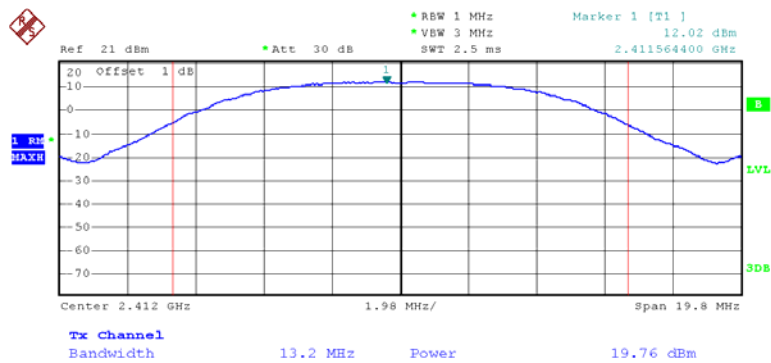
Channel	Frequency	Conducted Output Power	Limit	Result
	(MHz)	(dBm)	(dBm)	
2.4G band-802.11b mode				
Low	2412	19.76	30	PASS
Middle	2437	19.63	30	PASS
High	2462	19.61	30	PASS
2.4G band-802.11g mode				
Low	2412	17.64	30	PASS
Middle	2437	17.87	30	PASS
High	2462	17.94	30	PASS
2.4G band-chain 0: 802.11n20 mode				
Low	2412	12.60	30	PASS
Middle	2437	12.64	30	PASS
High	2462	12.86	30	PASS
2.4G band-chain 1: 802.11n20 mode				
Low	2412	12.48	30	PASS
Middle	2437	13.02	30	PASS
High	2462	12.53	30	PASS
2.4G band-chain 2: 802.11n20 mode				
Low	2412	12.70	30	PASS
Middle	2437	13.17	30	PASS
High	2462	12.95	30	PASS
2.4G band-chain 0: 802.11n40 mode				
Low	2422	12.88	30	PASS
Middle	2437	12.60	30	PASS
High	2452	13.16	30	PASS
2.4G band-chain 1: 802.11n40 mode				
Low	2422	12.55	30	PASS
Middle	2437	13.03	30	PASS
High	2452	13.22	30	PASS
2.4G band-chain 2: 802.11n40 mode				
Low	2422	12.86	30	PASS
Middle	2437	12.75	30	PASS
High	2452	12.64	30	PASS
5725-5850MHz band-802.11a mode				
Low	5745	16.60	30	PASS
Middle	5785	16.18	30	PASS
High	5825	16.89	30	PASS
5725-5850MHz band-chain 0: 802.11n ht20 mode				
Low	5745	12.46	30	PASS
Middle	5785	11.37	30	PASS
High	5825	11.92	30	PASS
5725-5850MHz band-chain 1: 802.11n ht20 mode				
Low	5745	11.16	30	PASS
Middle	5785	11.88	30	PASS
High	5825	12.06	30	PASS

5725-5850MHz band-chain 2: 802.11n ht20 mode				
Low	5745	11.83	30	PASS
Middle	5785	11.92	30	PASS
High	5825	11.48	30	PASS
5725-5850MHz band-chain 0: 802.11n ht40 mode				
Low	5755	11.90	30	PASS
High	5795	11.49	30	PASS
5725-5850MHz band-chain 1: 802.11n ht40 mode				
Low	5755	12.31	30	PASS
High	5795	11.49	30	PASS
5725-5850MHz band-chain 2: 802.11n ht40 mode				
Low	5755	12.30	30	PASS
High	5795	11.77	30	PASS

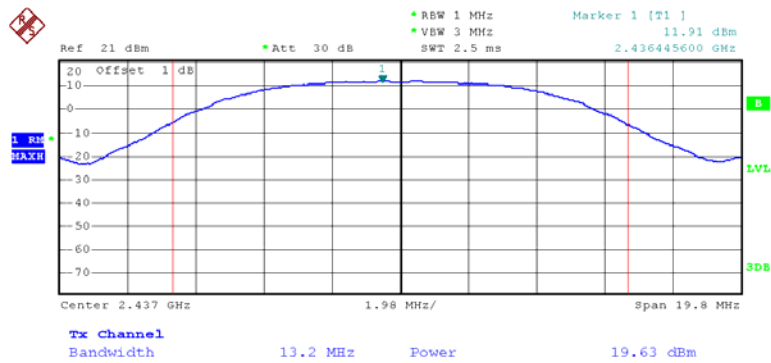
Total power: chain 0+ chain 1+chain2

Channel	Frequency	Conducted Output Power	Limit	Result
	(MHz)	(dBm)	(dBm)	
2.4G band-Total:802.11n20 mode				
Low	2412	17.37	30	PASS
Middle	2437	17.72	30	PASS
High	2462	17.55	30	PASS
2.4G band-Total:802.11n40 mode				
Low	2422	17.54	30	PASS
Middle	2437	17.57	30	PASS
High	2452	17.79	30	PASS
5725-5850MHz band-Total:802.11n ht20 mode				
Low	5745	16.62	30	PASS
Middle	5785	16.50	30	PASS
High	5825	16.60	30	PASS
5725-5850MHz band-Total:802.11n ht40 mode				
Low	5755	16.95	30	PASS
High	5795	16.36	30	PASS

Please refer to the following plots

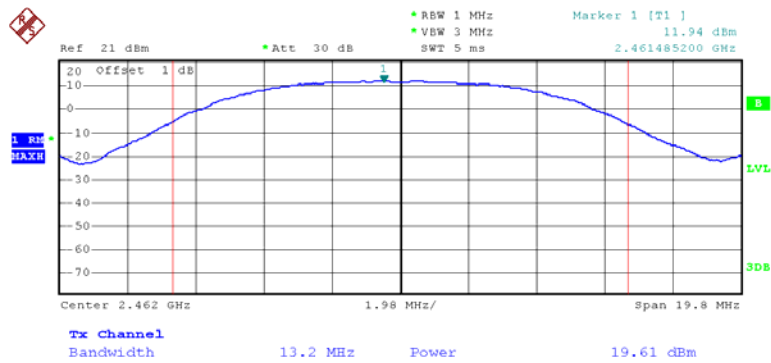
2.4G Band:**802.11b RF Output Power, Low Channel**

Date: 21.MAR.2013 20:22:36

802.11b RF Output Power, Middle Channel

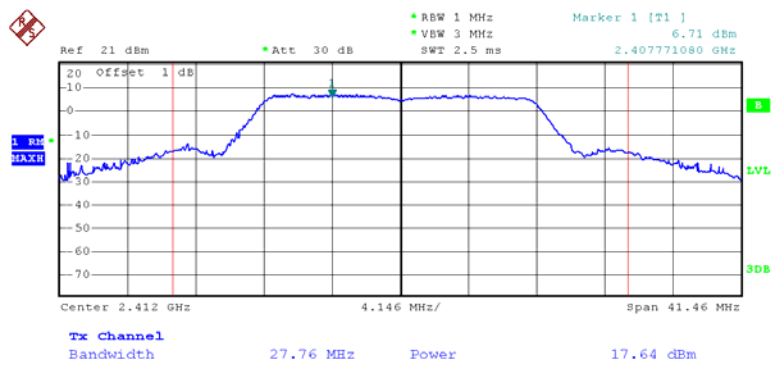
Date: 21.MAR.2013 20:20:20

802.11b RF Output Power, High Channel



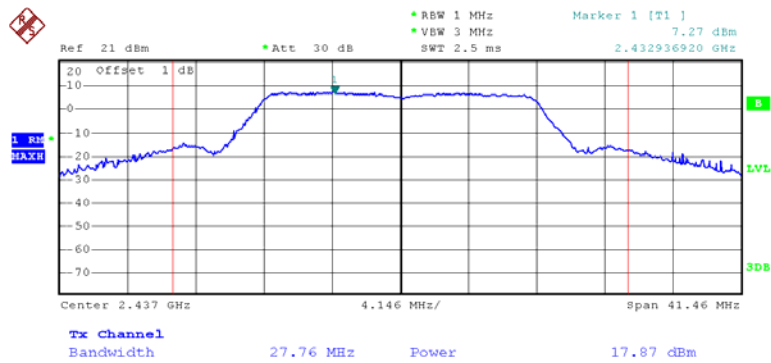
Date: 21.MAR.2013 20:16:47

802.11g RF Output Power, Low Channel



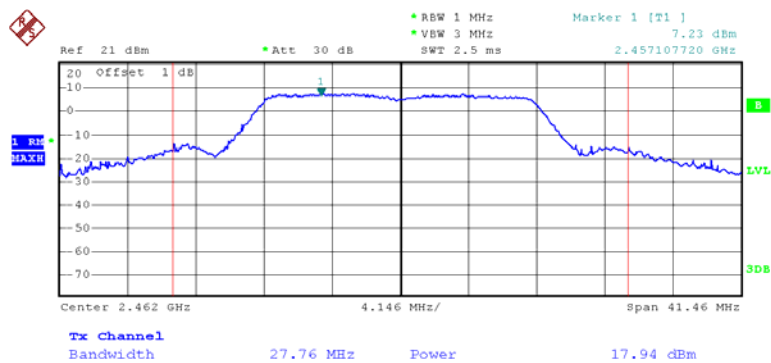
Date: 21.MAR.2013 20:50:56

802.11g RF Output Power, Middle Channel



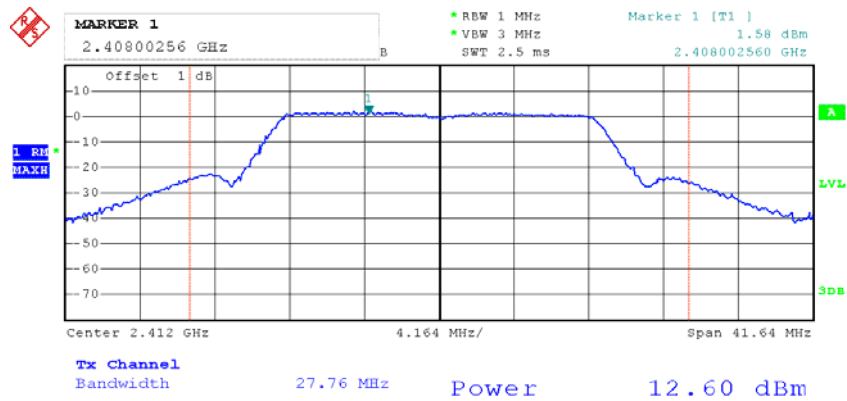
Date: 21.MAR.2013 20:51:35

802.11g RF Output Power, High Channel



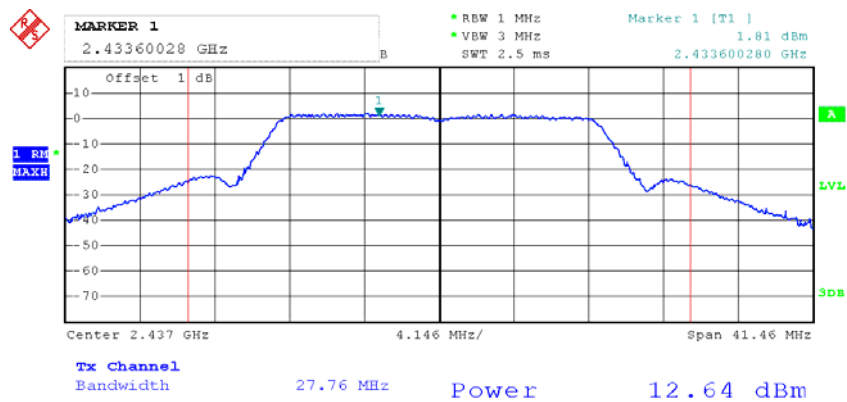
Date: 21.MAR.2013 20:52:02

Chain 0: 802.11n20 RF Output Power, Low Channel



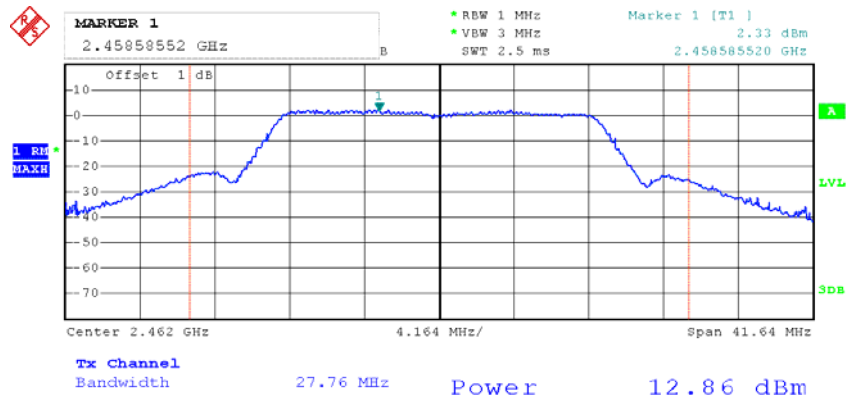
Date: 22.MAR.2013 10:18:01

Chain 0: 802.11n20 RF Output Power, Middle Channel



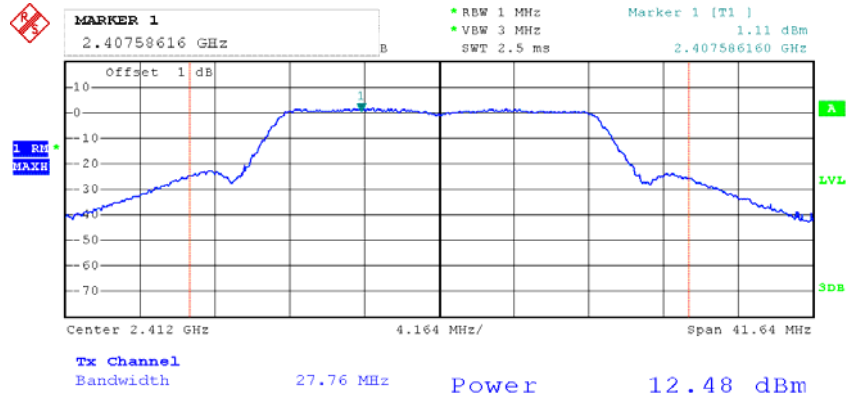
Date: 22.MAR.2013 10:31:41

Chain 0: 802.11n20 RF Output Power, High Channel



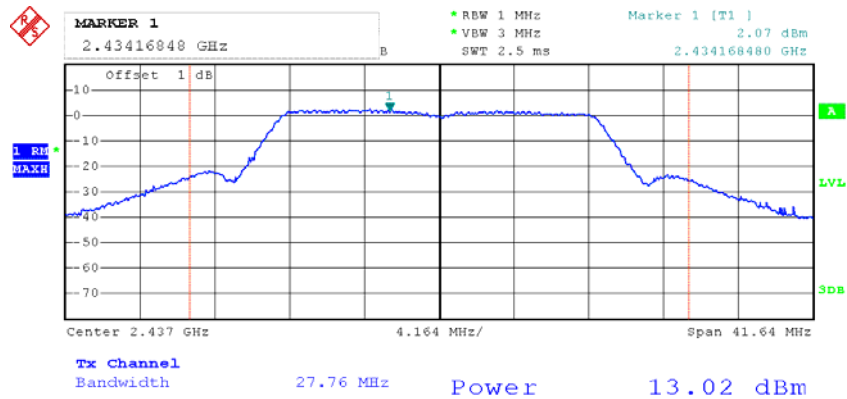
Date: 22.MAR.2013 10:37:43

Chain 1: 802.11n20 RF Output Power, Low Channel



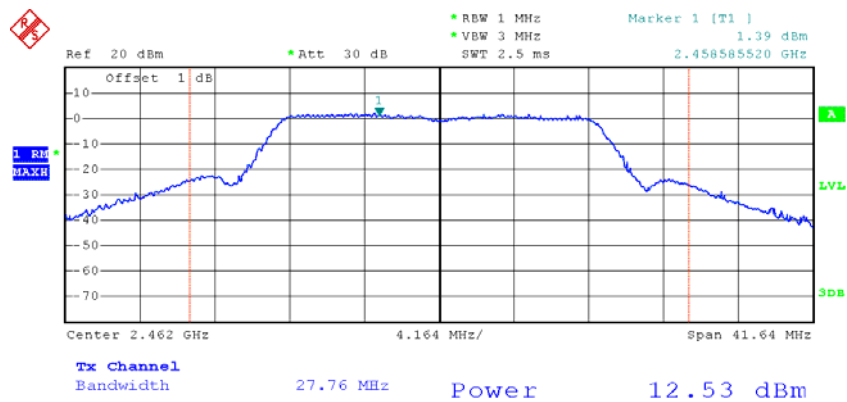
Date: 22.MAR.2013 10:24:54

Chain 1: 802.11n20 RF Output Power, Middle Channel



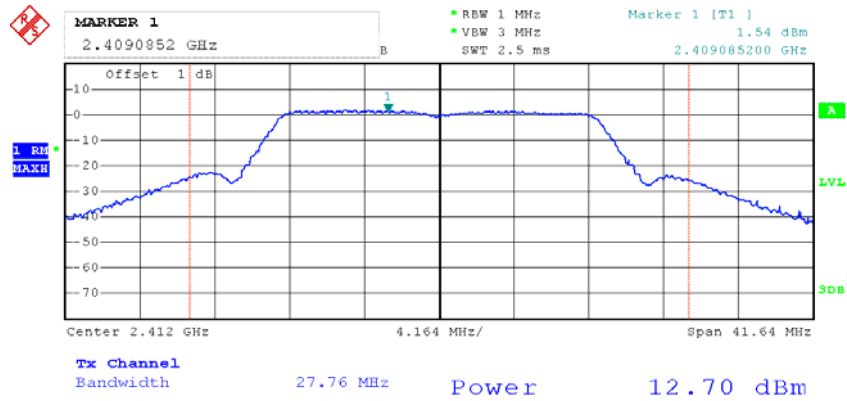
Date: 22.MAR.2013 10:34:05

Chain 1: 802.11n20 RF Output Power, High Channel



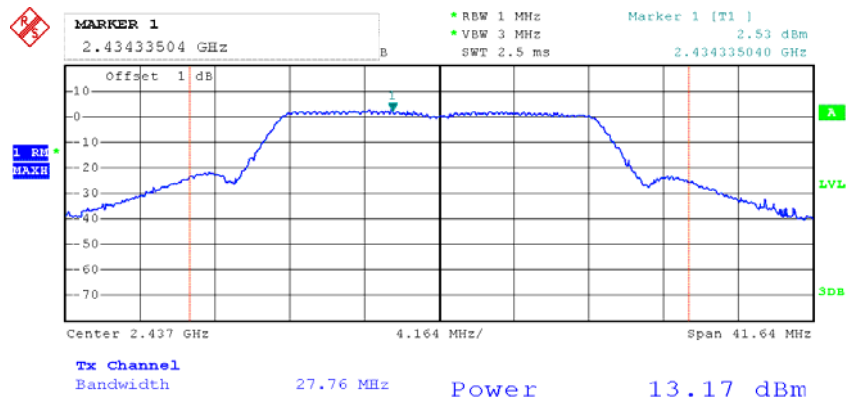
Date: 22.MAR.2013 10:38:55

Chain 2: 802.11n20 RF Output Power, Low Channel



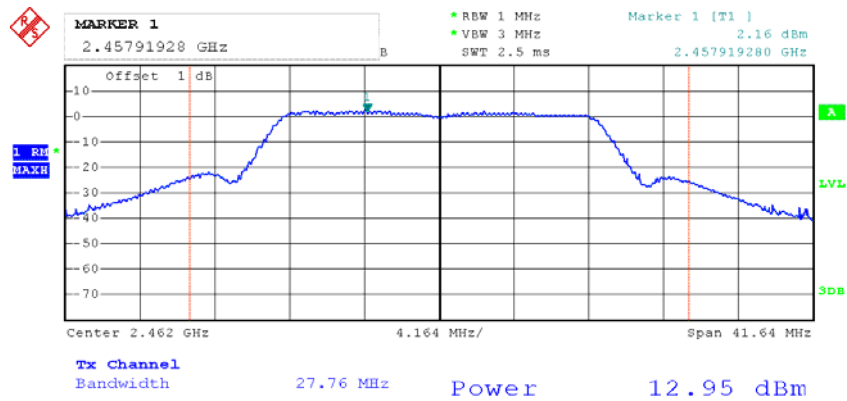
Date: 22.MAR.2013 10:24:27

Chain 2: 802.11n20 RF Output Power, Middle Channel



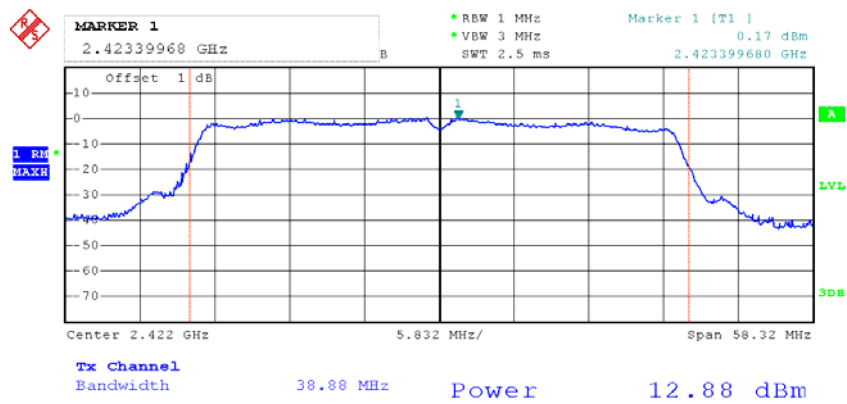
Date: 22.MAR.2013 10:34:31

Chain 2: 802.11n20 RF Output Power, High Channel

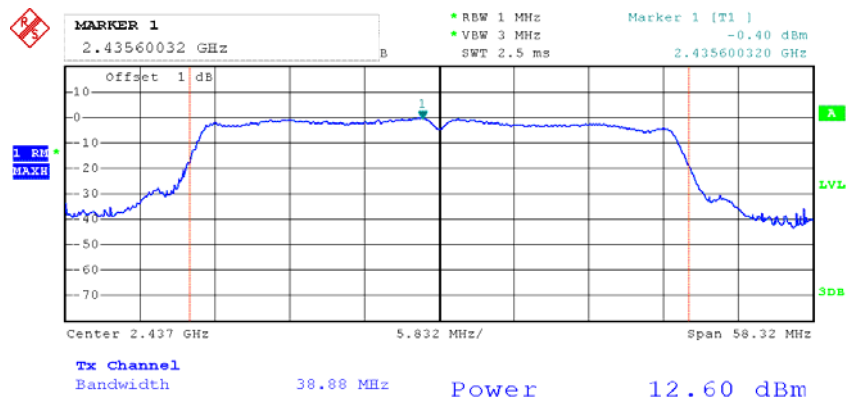


Date: 22.MAR.2013 10:42:32

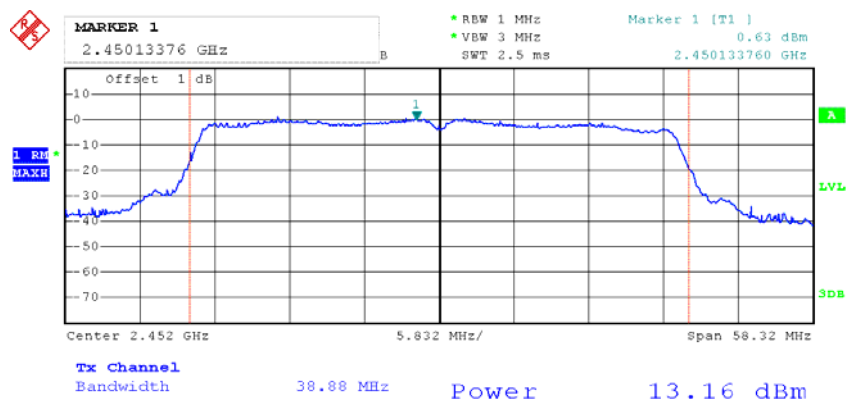
Chain 0: 802.11n40 RF Output Power, Low Channel



Date: 22.MAR.2013 13:54:30

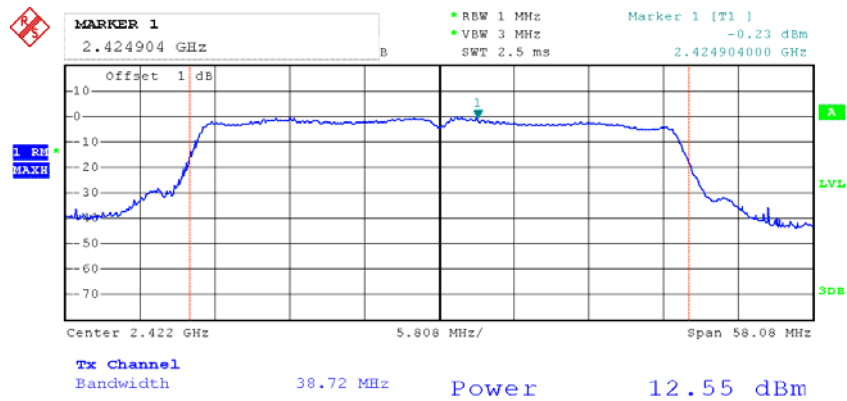
Chain 0: 802.11n40 RF Output Power, Middle Channel

Date: 22.MAR.2013 14:05:51

Chain 0: 802.11n40 RF Output Power, High Channel

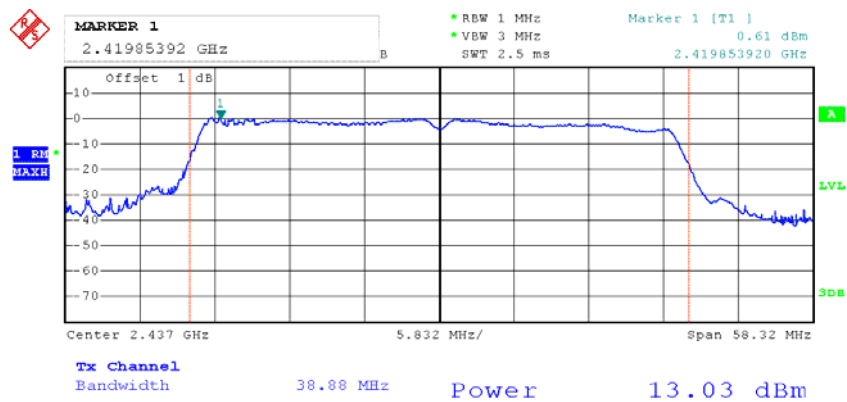
Date: 22.MAR.2013 14:11:07

Chain 1: 802.11n40 RF Output Power, Low Channel



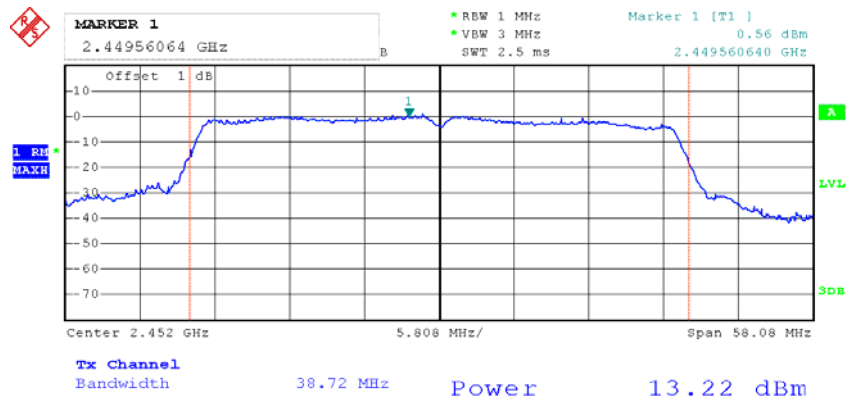
Date: 22.MAR.2013 14:02:33

Chain 1: 802.11n40 RF Output Power, Middle Channel



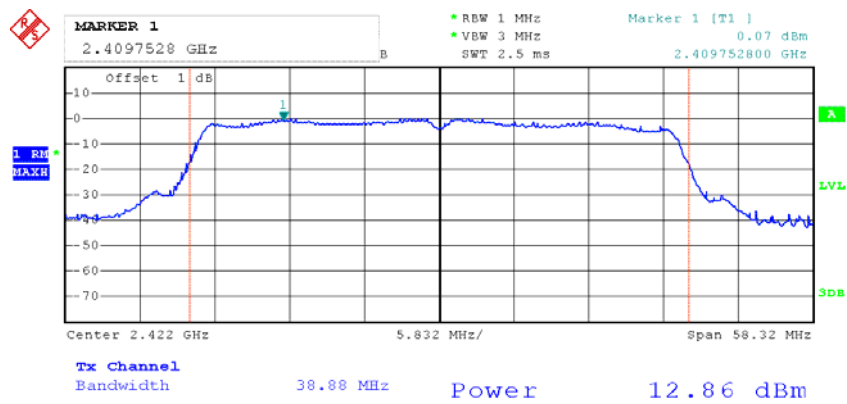
Date: 22.MAR.2013 14:06:43

Chain 1: 802.11n40 RF Output Power, High Channel



Date: 22.MAR.2013 14:13:30

Chain 2: 802.11n40 RF Output Power, Low Channel



Date: 22.MAR.2013 14:00:07

MARKER 1
2.43828304 GHz

Offset 1 dB

Center 2.437 GHz

Span 56.32 MHz

Bandwidth 38.88 MHz

Power 12.75 dBm

Marker 1 [T1]
-0.11 dBm
2.438283040 GHz

RBW 1 MHz
VBW 3 MHz
SWT 2.5 ms

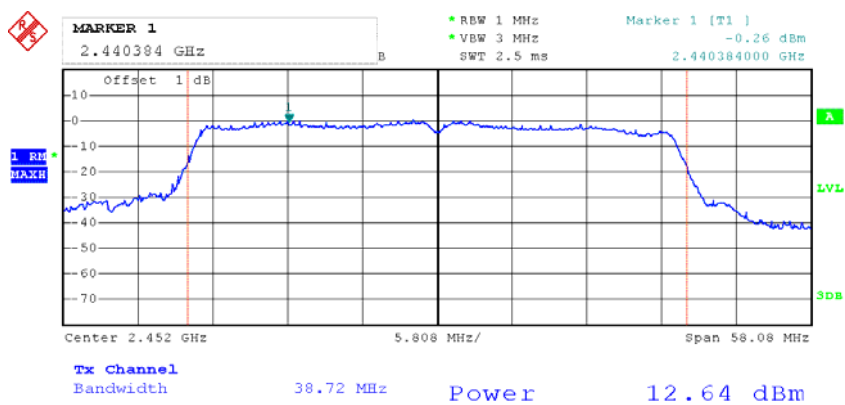
1. RBW
MAXH

1

LVL

3dB

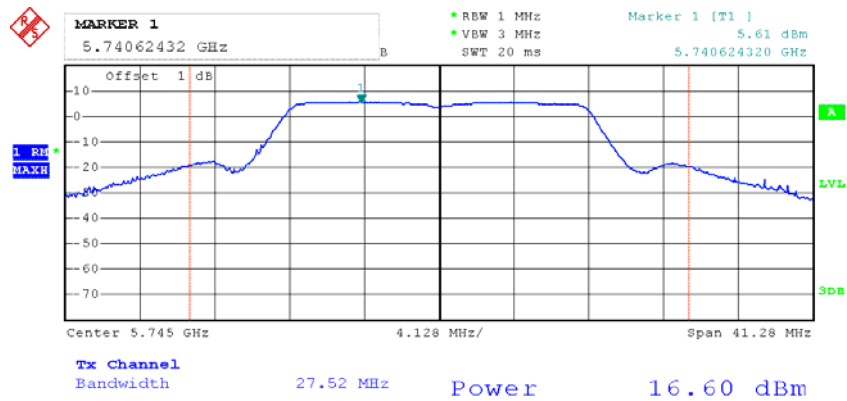
Chain 2: 802.11n40 RF Output Power, High Channel



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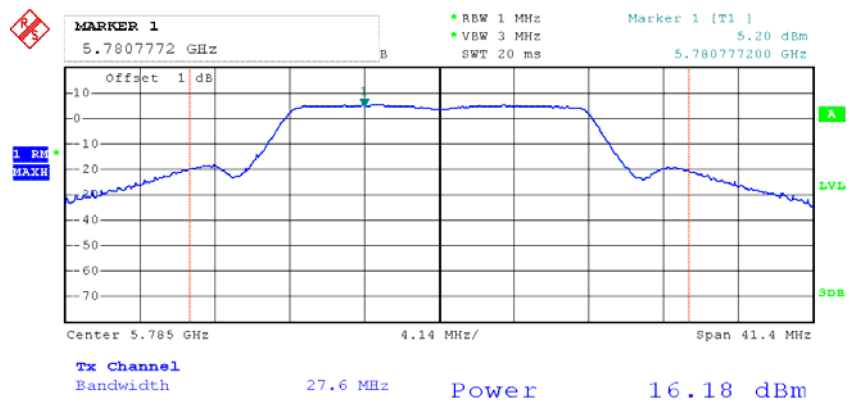
5725-5850 band:

802.11a RF Output Power, Low Channel



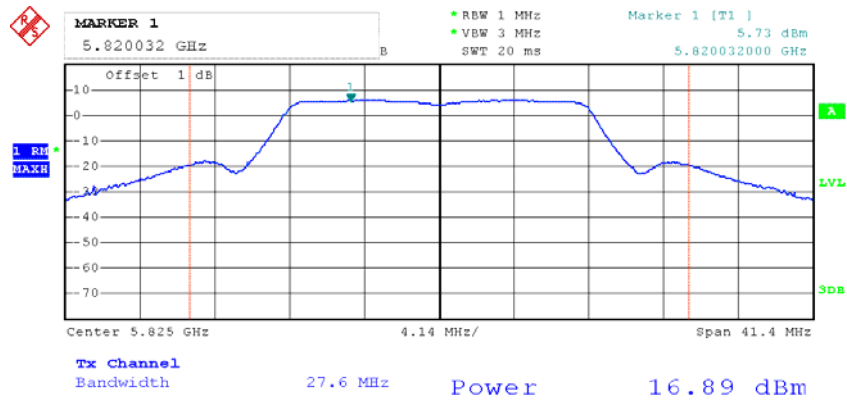
Date: 22.MAR.2013 14:54:03

802.11a RF Output Power, Middle Channel



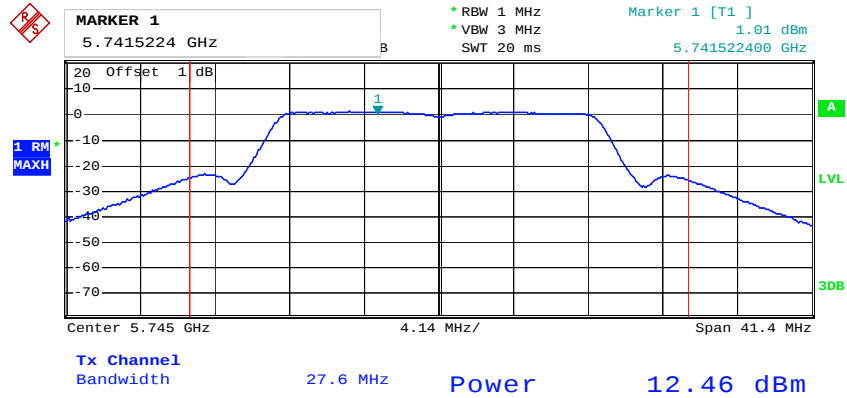
Date: 22.MAR.2013 14:52:40

802.11a RF Output Power, High Channel



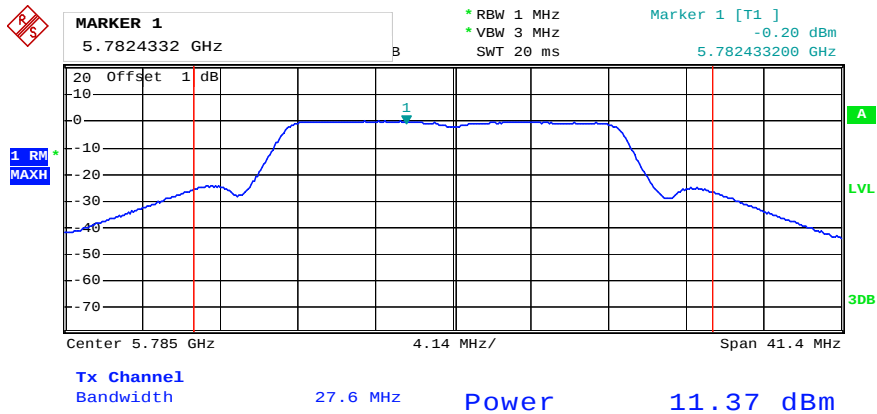
Date: 22.MAR.2013 14:49:27

Chain 0:802.11n ht20 RF Output Power, Low Channel



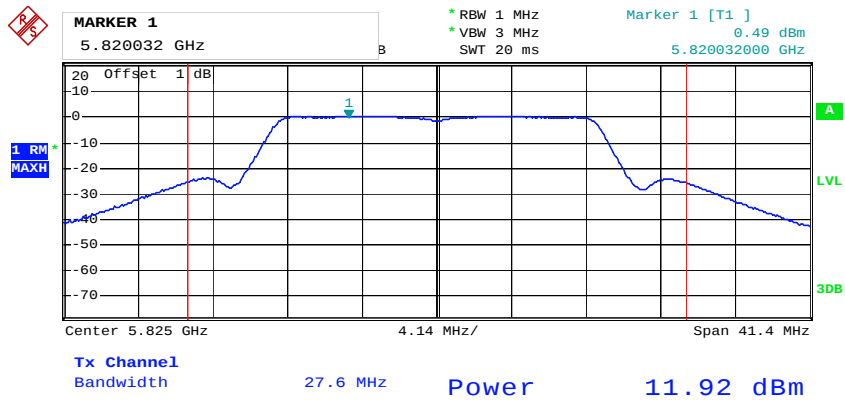
Date: 27.MAR.2013 15:30:27

Chain 0:802.11n ht20 RF Output Power, Middle Channel



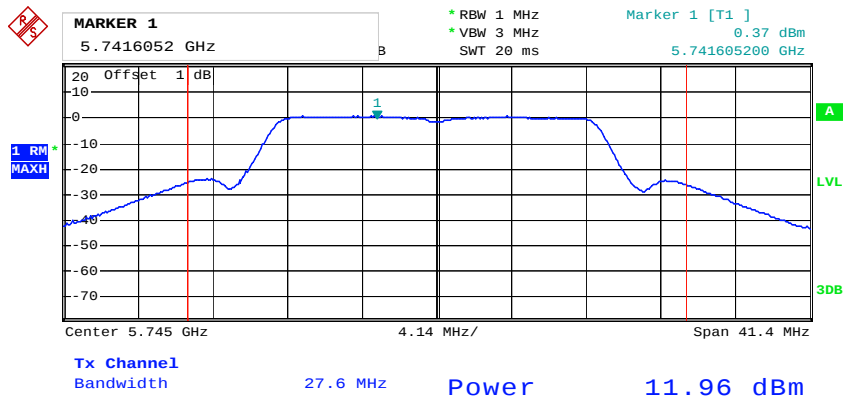
Date: 27.MAR.2013 15:20:22

Chain 0:802.11n ht20 RF Output Power, High Channel



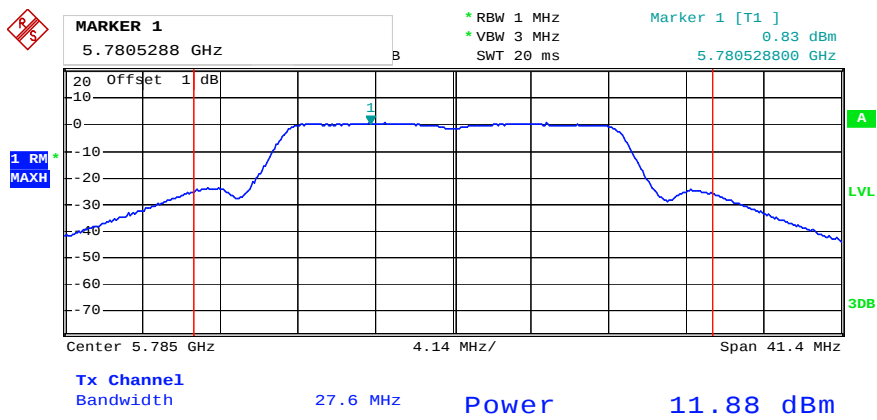
Date: 27.MAR.2013 15:01:43

Chain 1:802.11n ht20 RF Output Power, Low Channel



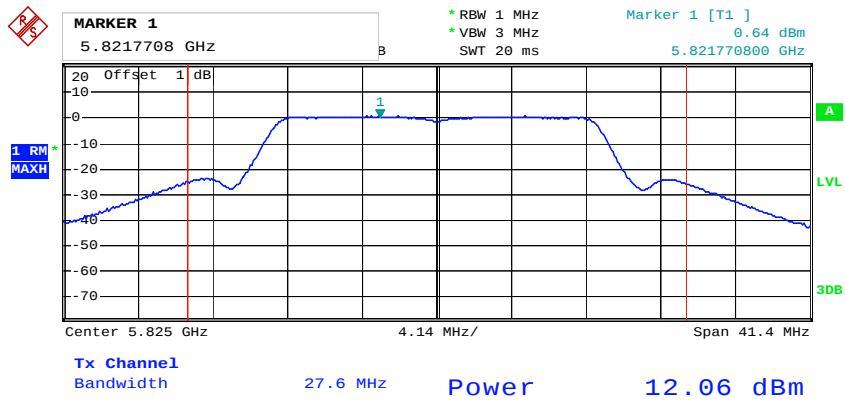
Date: 27.MAR.2013 15:31:12

Chain 1:802.11n ht20 RF Output Power, Middle Channel



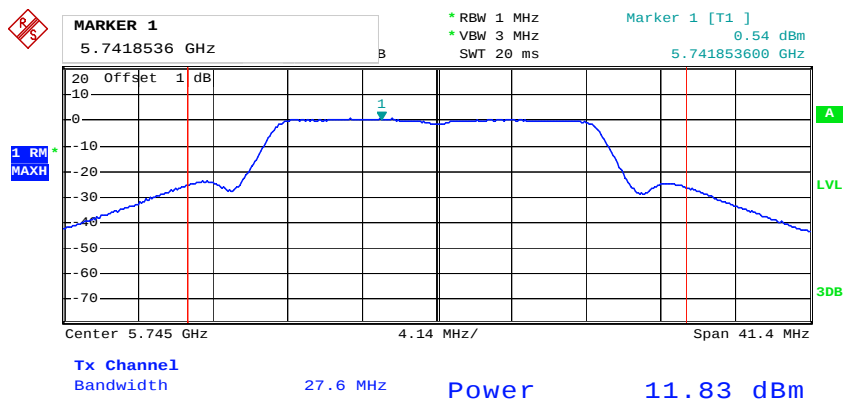
Date: 27.MAR.2013 15:25:38

Chain 1:802.11n ht20 RF Output Power, High Channel



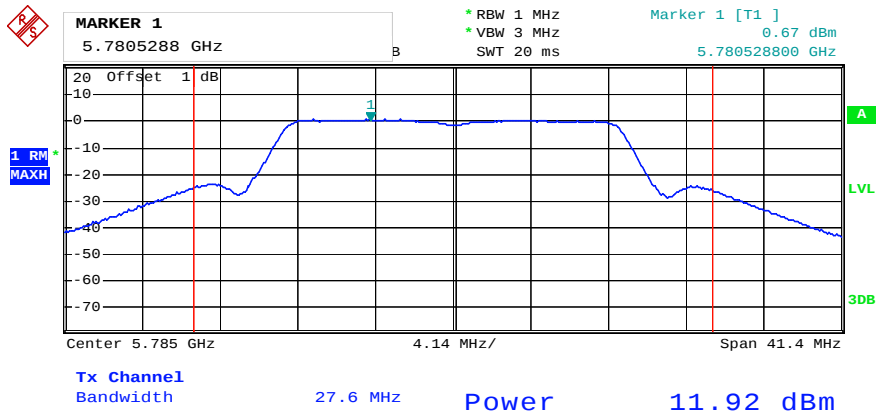
Date: 27.MAR.2013 15:05:42

Chain 2:802.11n ht20 RF Output Power, Low Channel



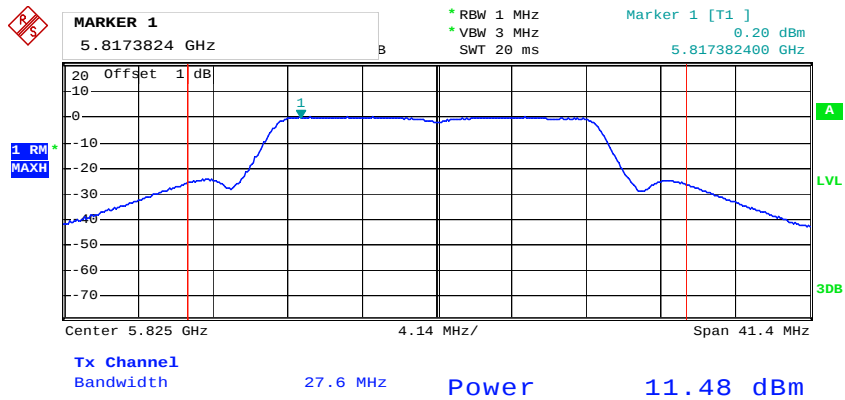
Date: 27.MAR.2013 15:32:52

Chain 2:802.11n ht20 RF Output Power, Middle Channel

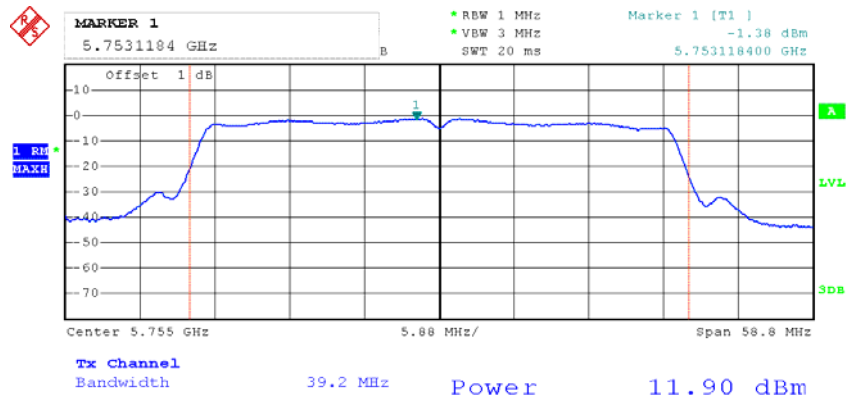


Date: 27.MAR.2013 15:27:01

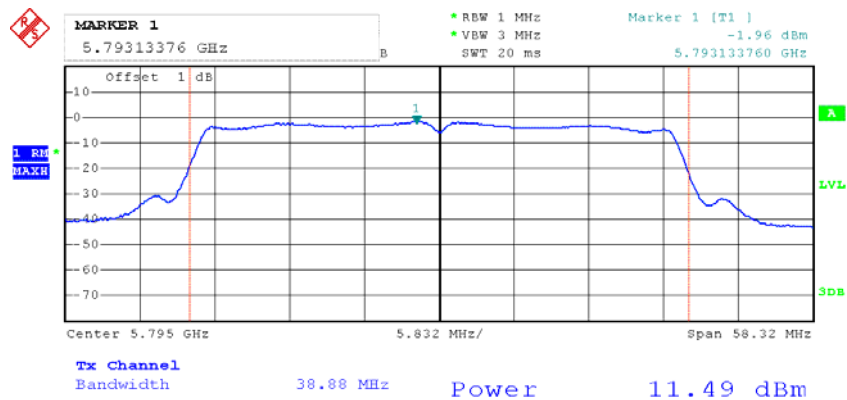
Chain 2:802.11n ht20 RF Output Power, High Channel



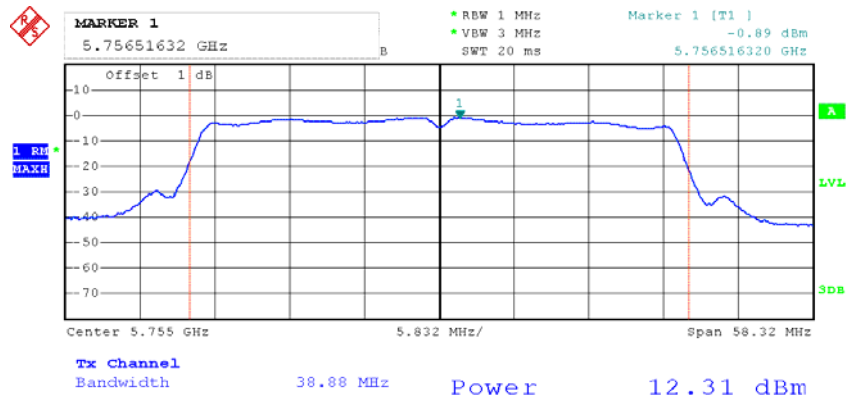
Date: 27.MAR.2013 15:07:28

Chain 0:802.11n ht40 RF Output Power, Low Channel

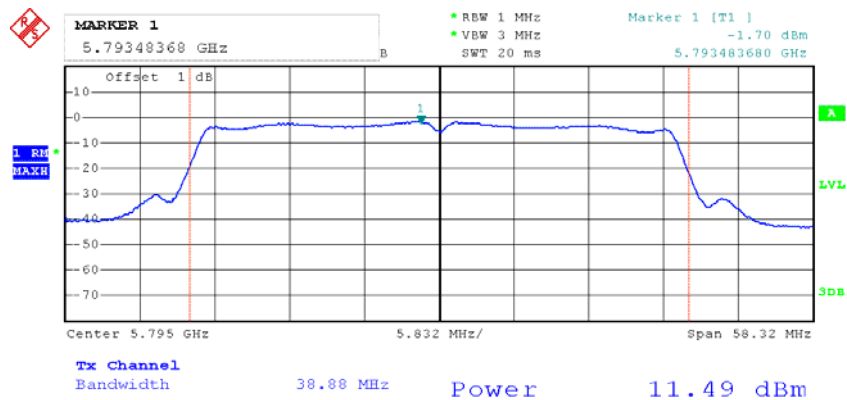
Date: 22.MAR.2013 15:26:26

Chain 0:802.11n ht40 RF Output Power, High Channel

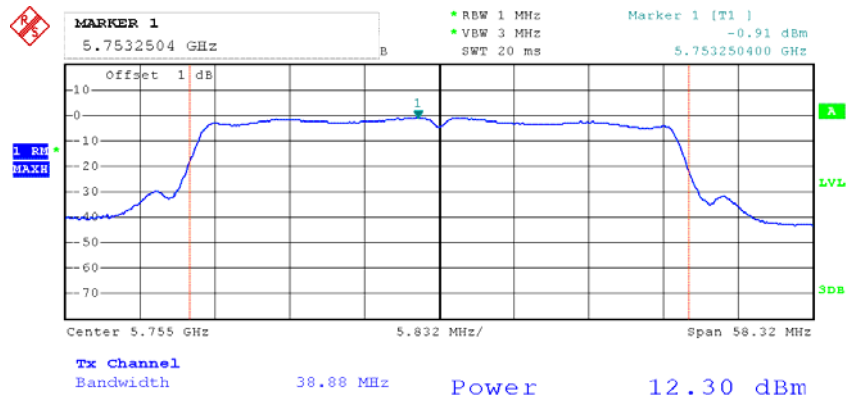
Date: 22.MAR.2013 15:22:50

Chain 1:802.11n ht40 RF Output Power, Low Channel

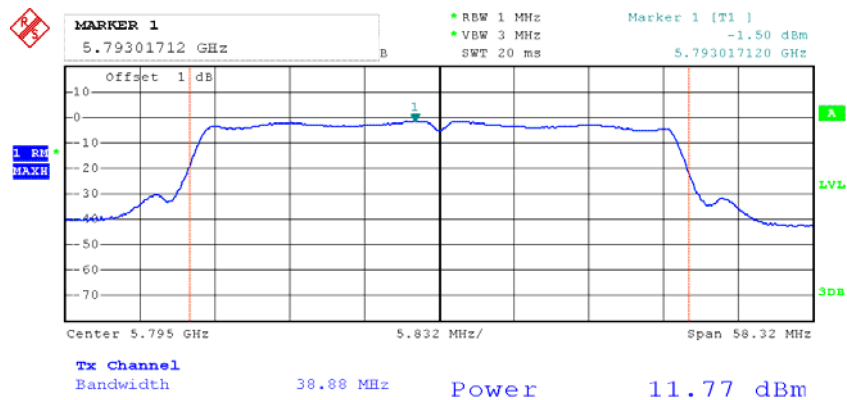
Date: 22.MAR.2013 15:28:26

Chain 1:802.11n ht40 RF Output Power, High Channel

Date: 22.MAR.2013 15:31:04

Chain 2:802.11n ht40 RF Output Power, Low Channel

Date: 22.MAR.2013 15:34:46

Chain 2:802.11n ht40 RF Output Power, High Channel

Date: 22.MAR.2013 15:31:57

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

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

Test Data

Environmental Conditions

Temperature:	26.4~27.8° C
Relative Humidity:	51~57 %
ATM Pressure:	100.2~100.8kPa

The testing was performed by Leon Chen from 2013-03-21 to 2013-03-27.

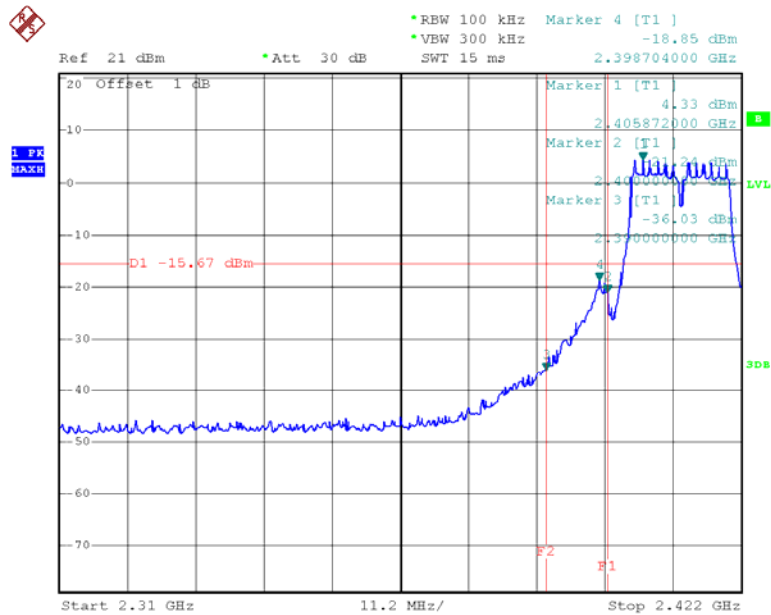
Test Result: Compliance

Test mode: Transmitting

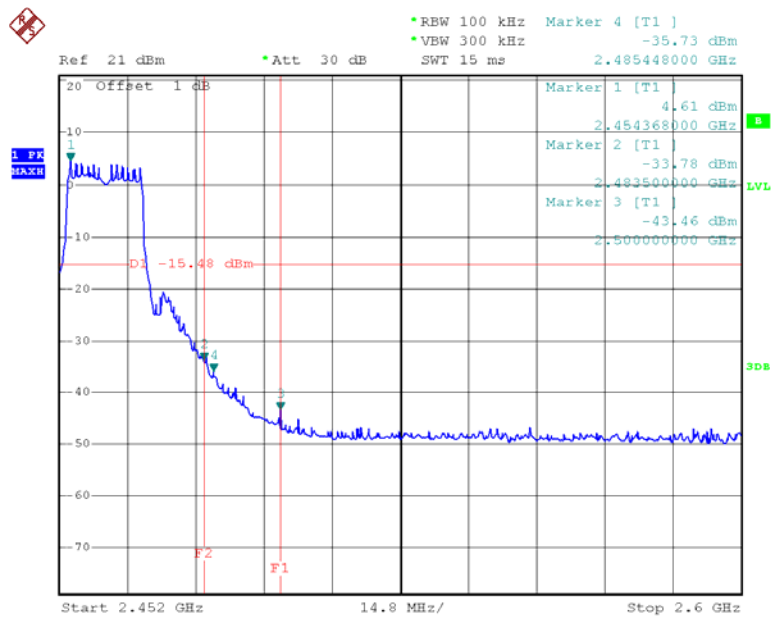
802.11b: Band Edge, Left Side



Date: 21.MAR.2013 20:30:07

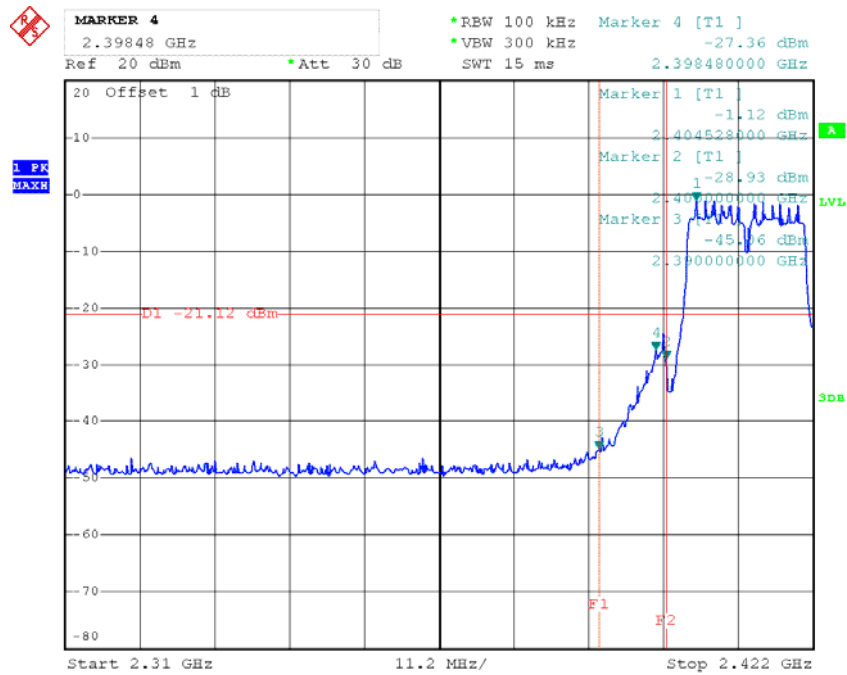
802.11g: Band Edge, Left Side

Date: 21.MAR.2013 20:59:15

802.11g: Band Edge, Right Side

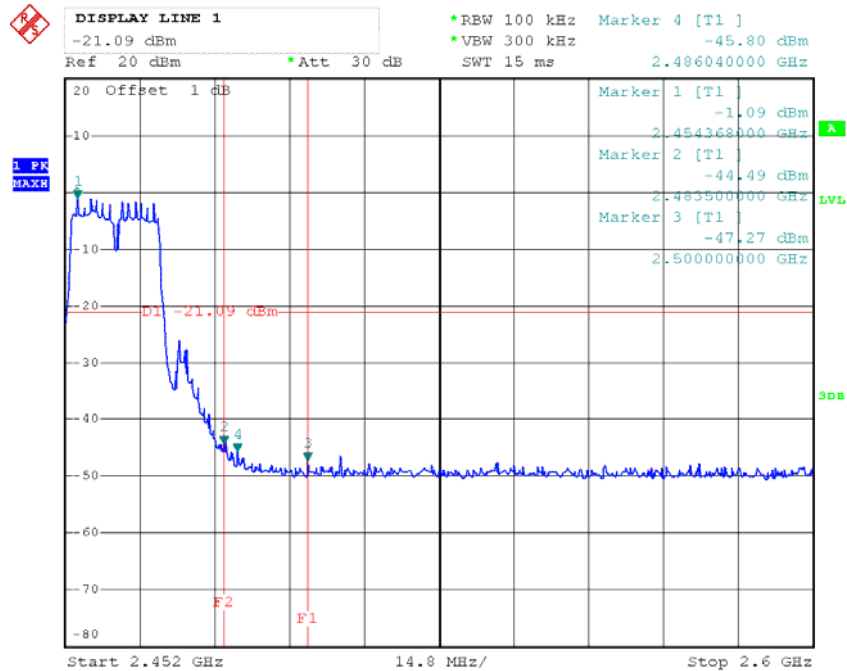
Date: 21.MAR.2013 21:05:27

Chain 0: 802.11n20 Band Edge, Left Side



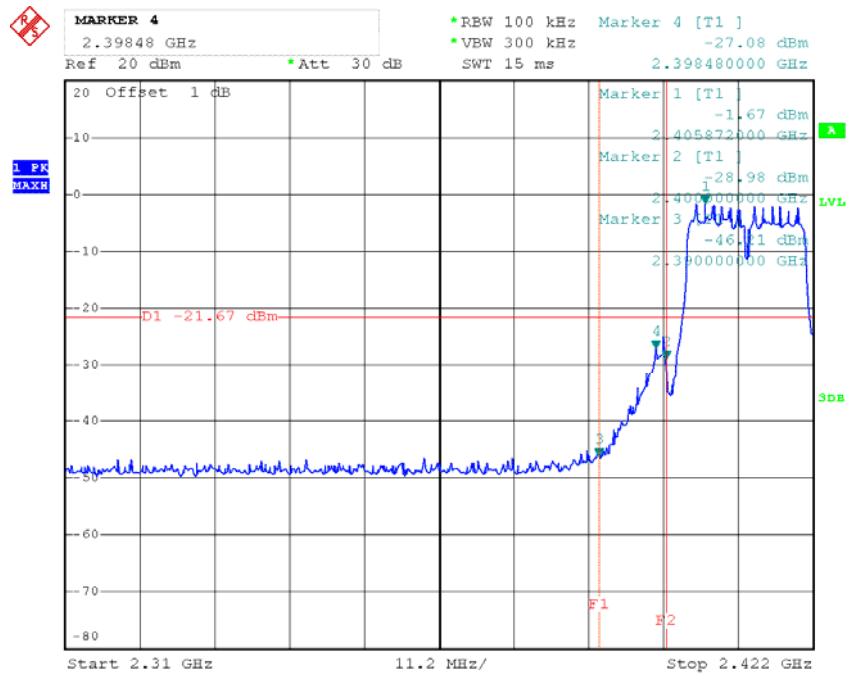
Date: 22.MAR.2013 10:27:25

Chain 0: 802.11n20 Band Edge, Right Side



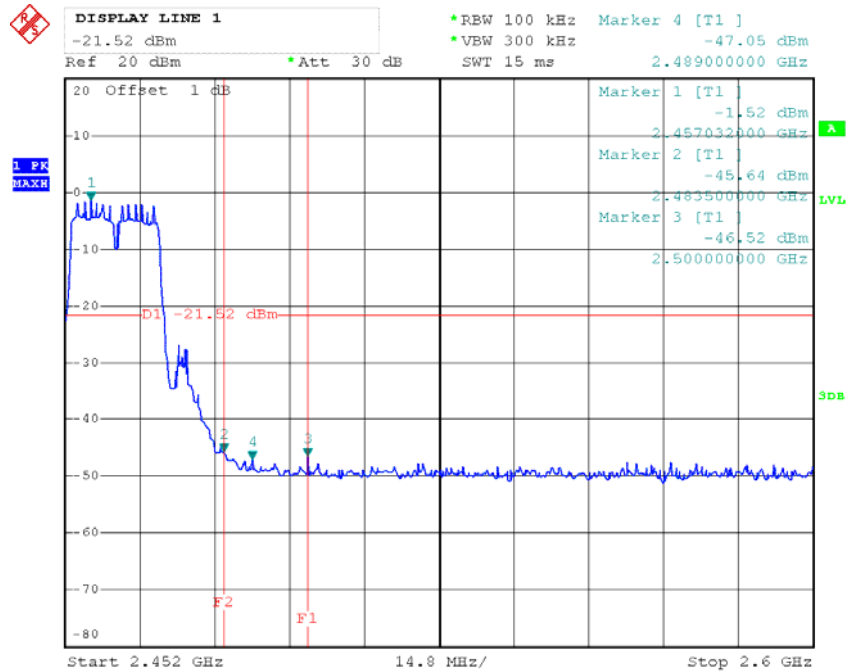
Date: 22.MAR.2013 10:46:14

Chain 1: 802.11n20 Band Edge, Left Side



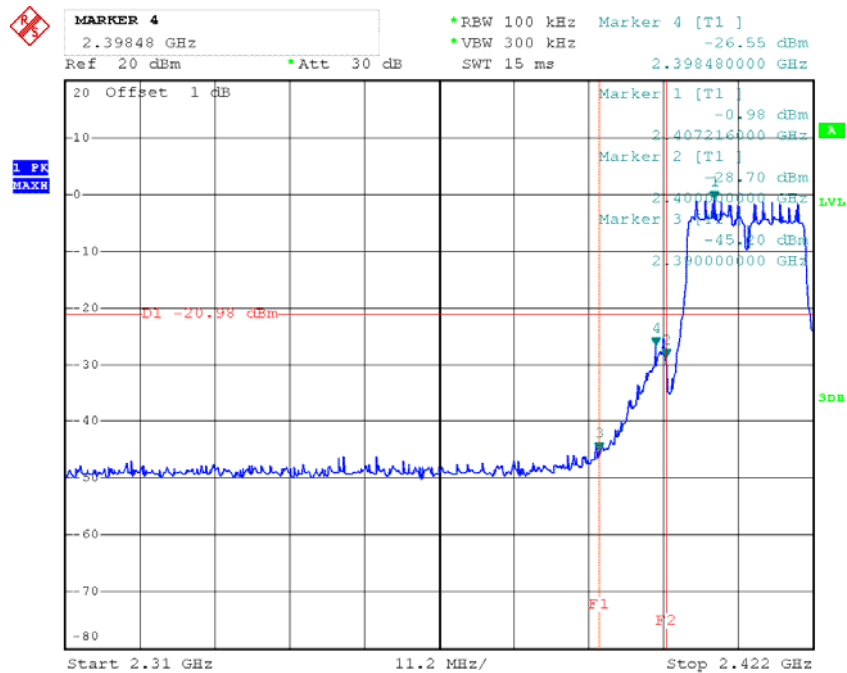
Date: 22.MAR.2013 10:28:40

Chain 1: 802.11n20 Band Edge, Right Side



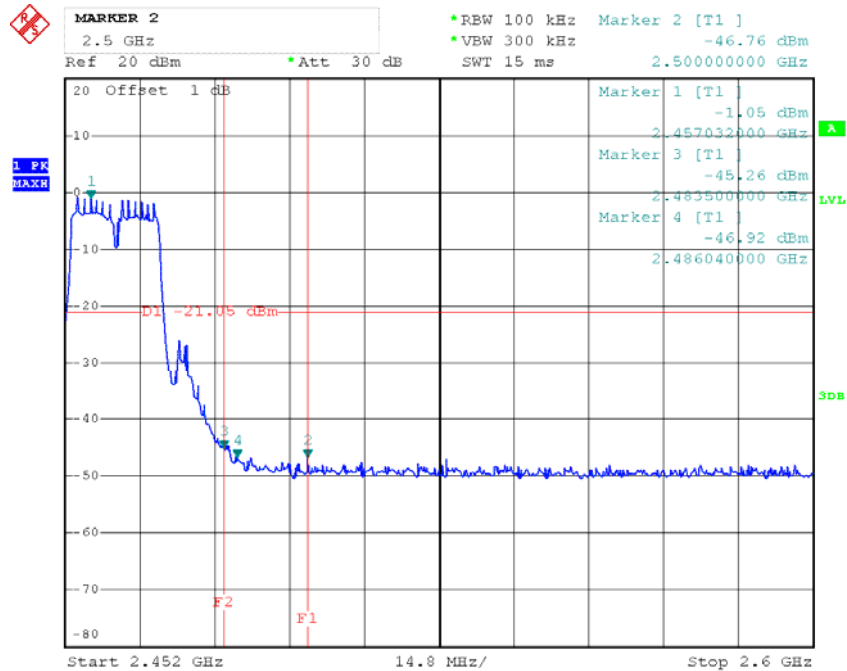
Date: 22.MAR.2013 10:45:06

Chain 2: 802.11n20 Band Edge, Left Side

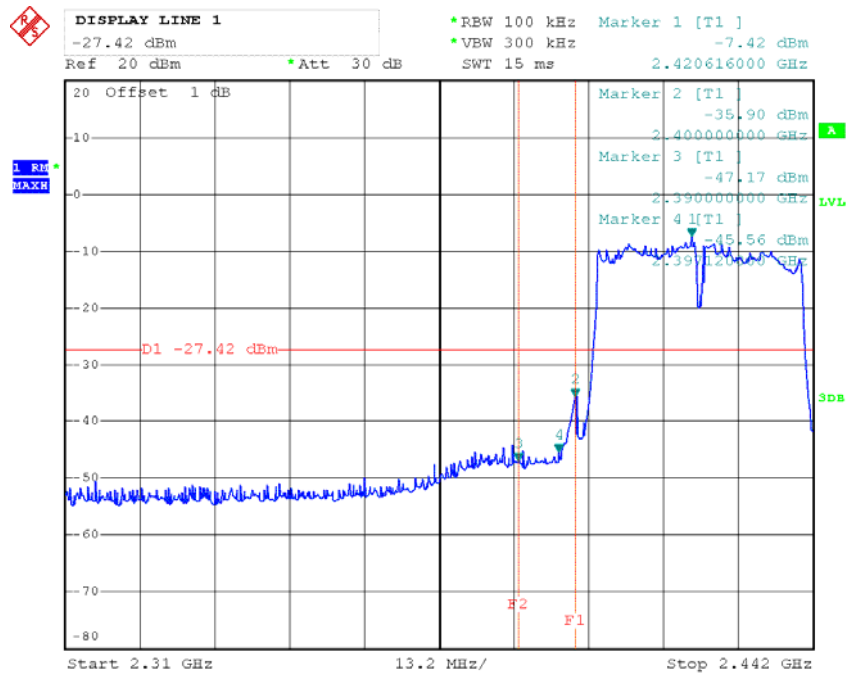


Date: 22.MAR.2013 10:29:38

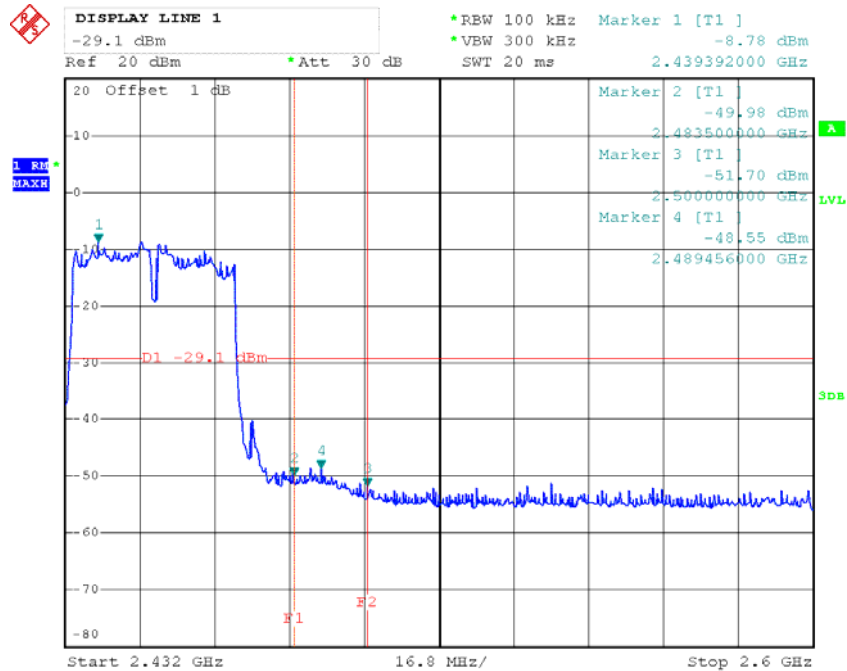
Chain 2: 802.11n20 Band Edge, Right Side



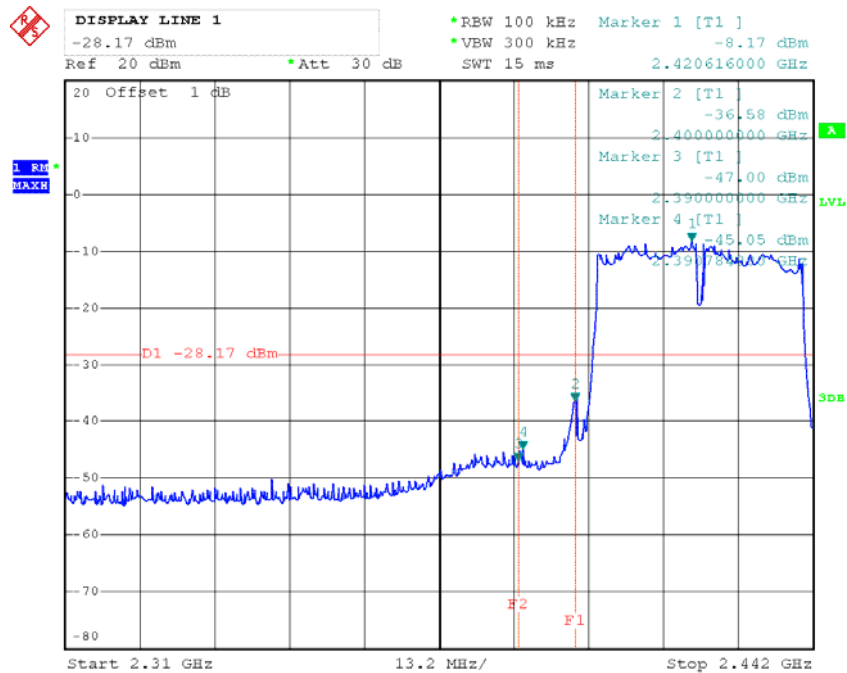
Date: 22.MAR.2013 10:43:58

Chain 0: 802.11n40 Band Edge, Left Side

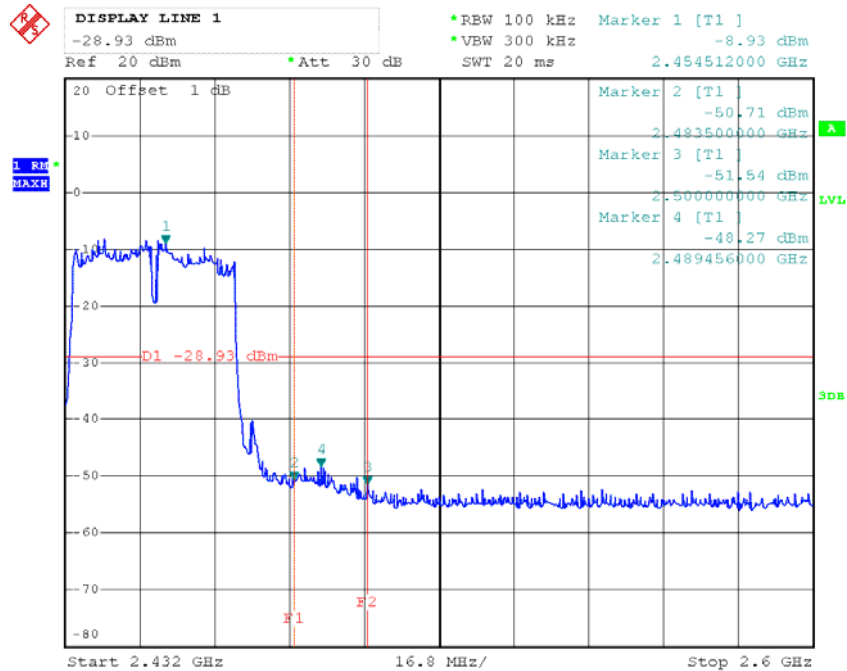
Date: 22.MAR.2013 14:19:45

Chain 0: 802.11n40 Band Edge, Right Side

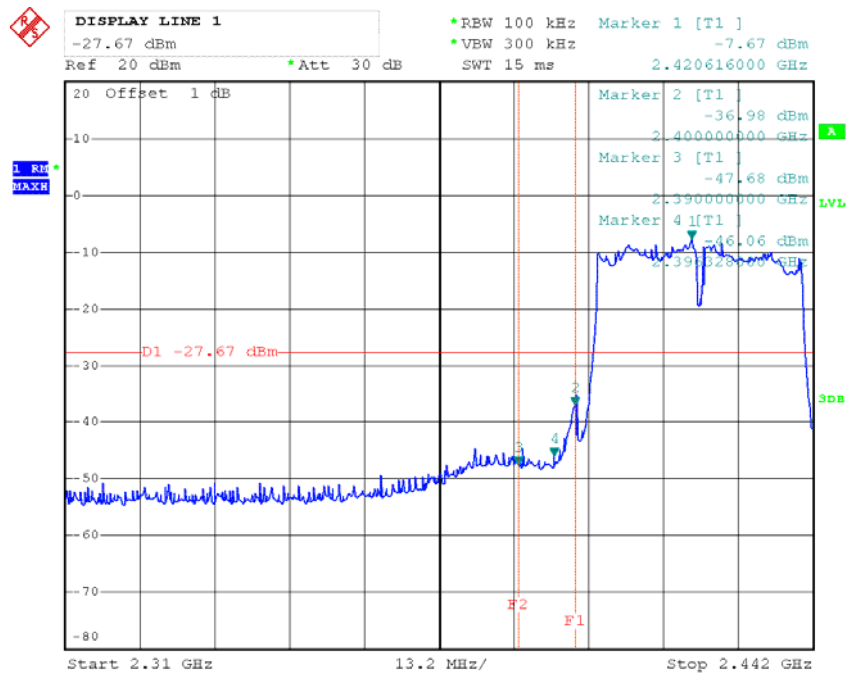
Date: 22.MAR.2013 14:18:15

Chain 1: 802.11n40 Band Edge, Left Side

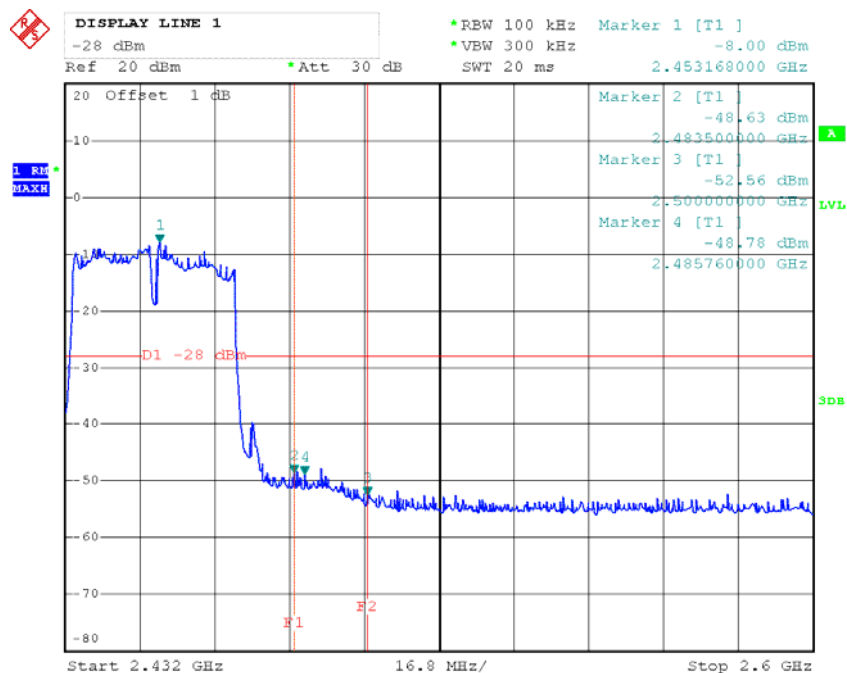
Date: 22.MAR.2013 14:20:43

Chain 1: 802.11n40 Band Edge, Right Side

Date: 22.MAR.2013 14:21:39

Chain 2: 802.11n40 Band Edge, Left Side

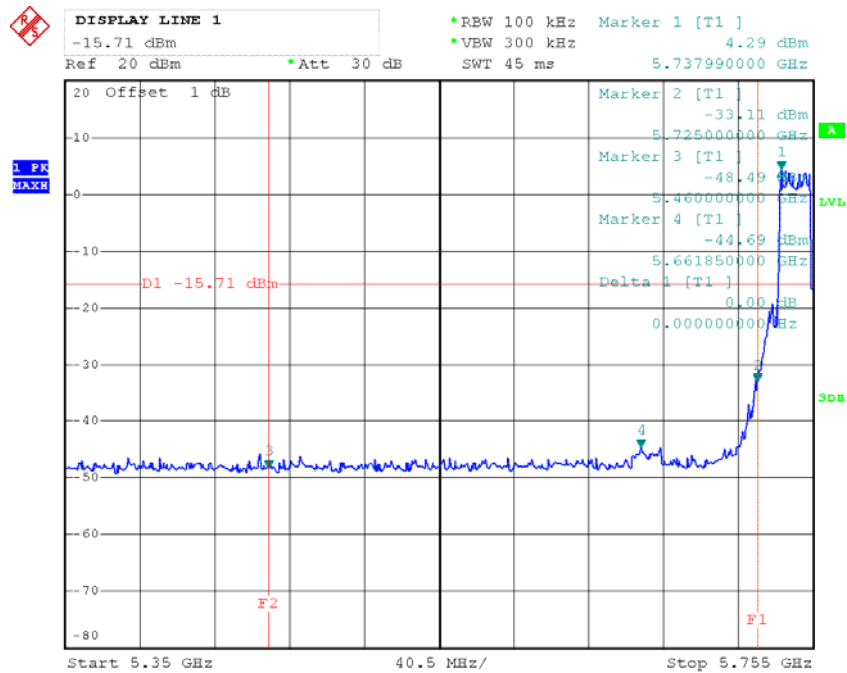
Date: 22.MAR.2013 14:23:32

Chain 2: 802.11n40 Band Edge, Right Side

Date: 22.MAR.2013 14:22:32

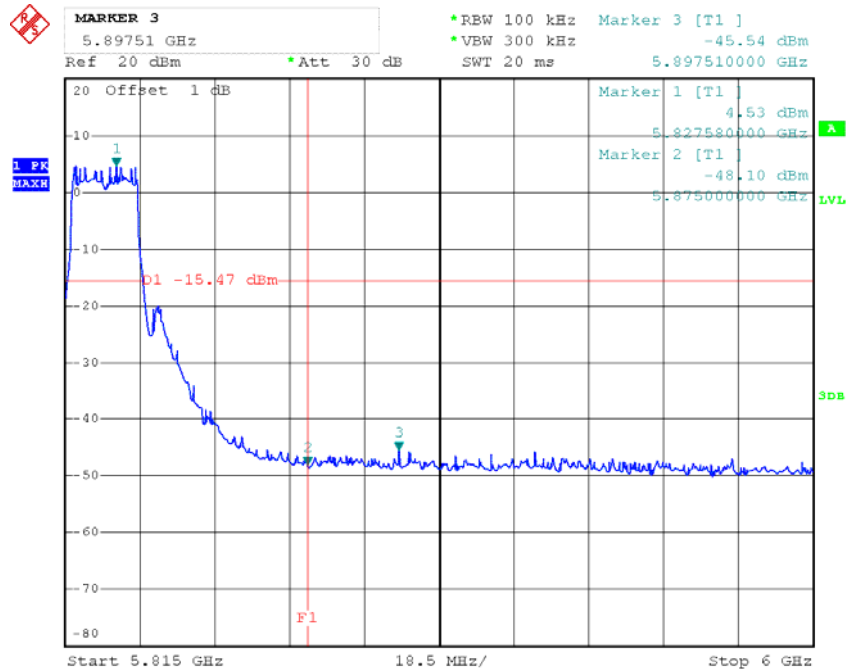
5725-5850MHz Band:

Left Band Edge (802.11a mode)



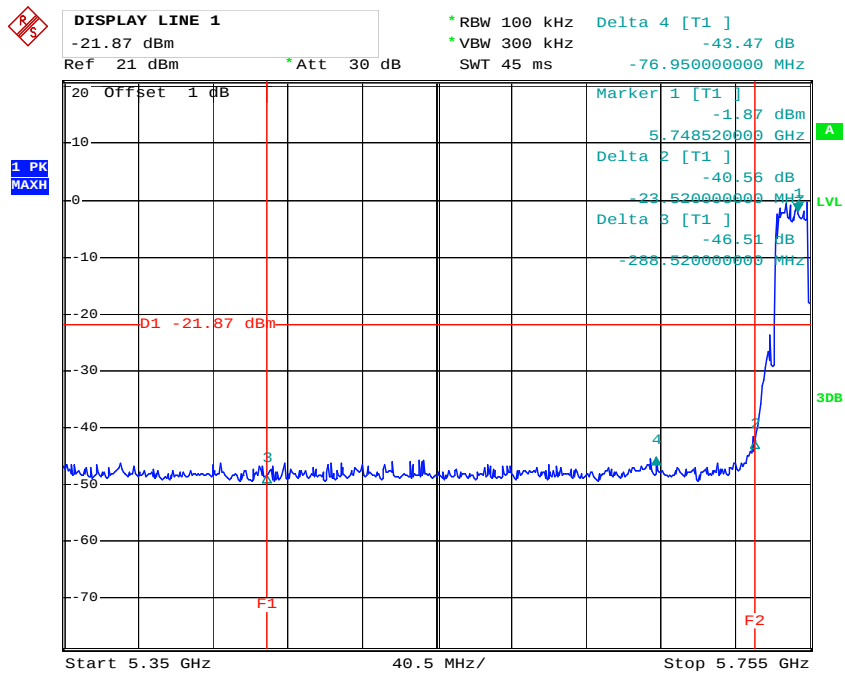
Date: 22.MAR.2013 14:57:20

Right Band Edge (802.11a mode)



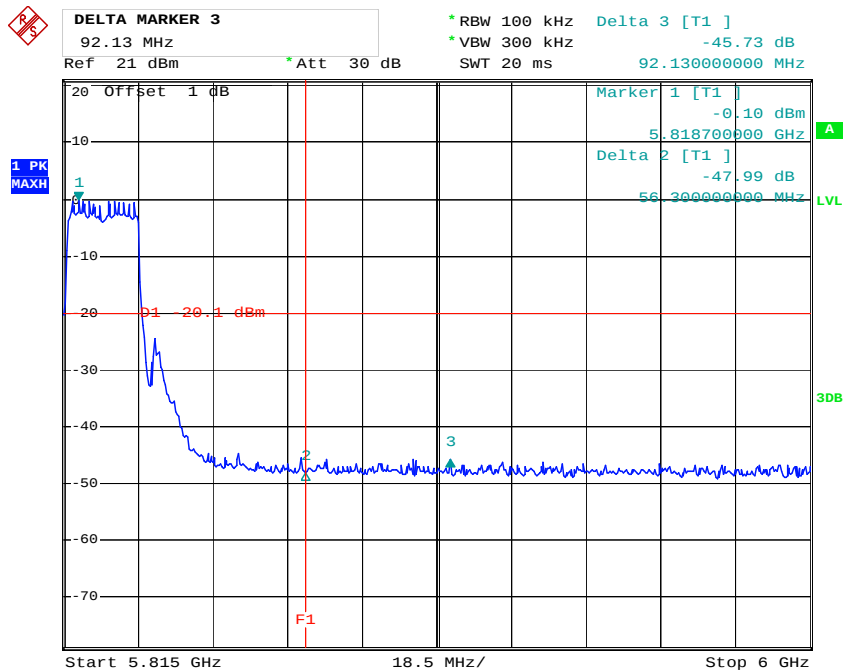
Date: 22.MAR.2013 14:59:22

Chain 0:Left Band Edge (802.11n ht20 mode)



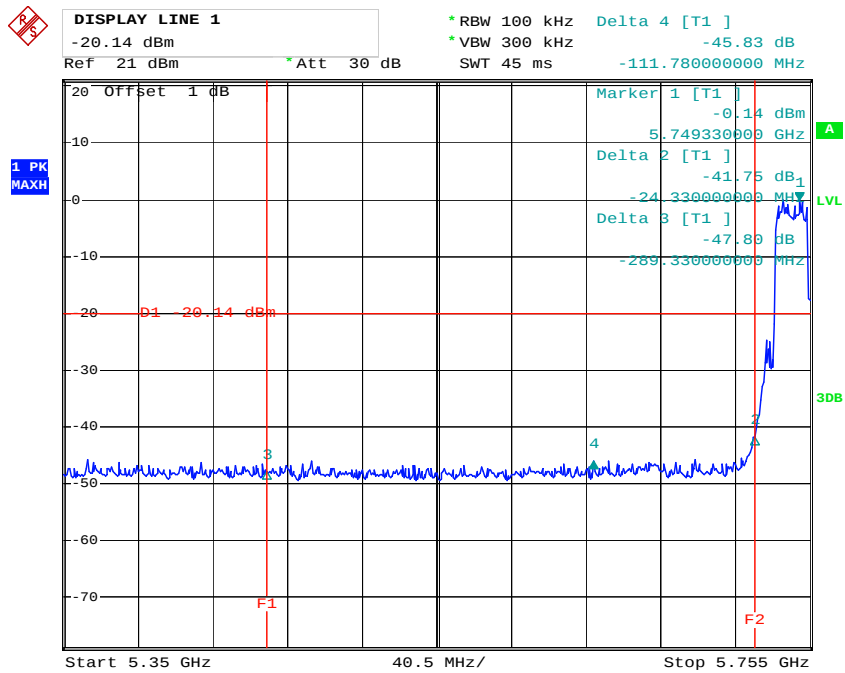
Date: 27.MAR.2013 15:37:23

Chain 0:Right Band Edge (802.11n ht20 mode)



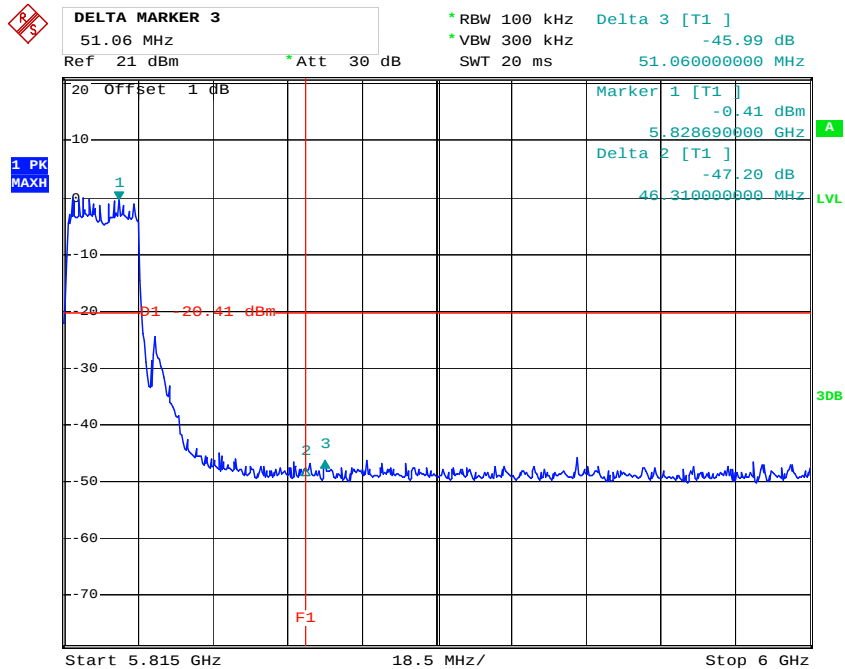
Date: 27.MAR.2013 15:15:41

Chain 1:Left Band Edge (802.11n ht20 mode)



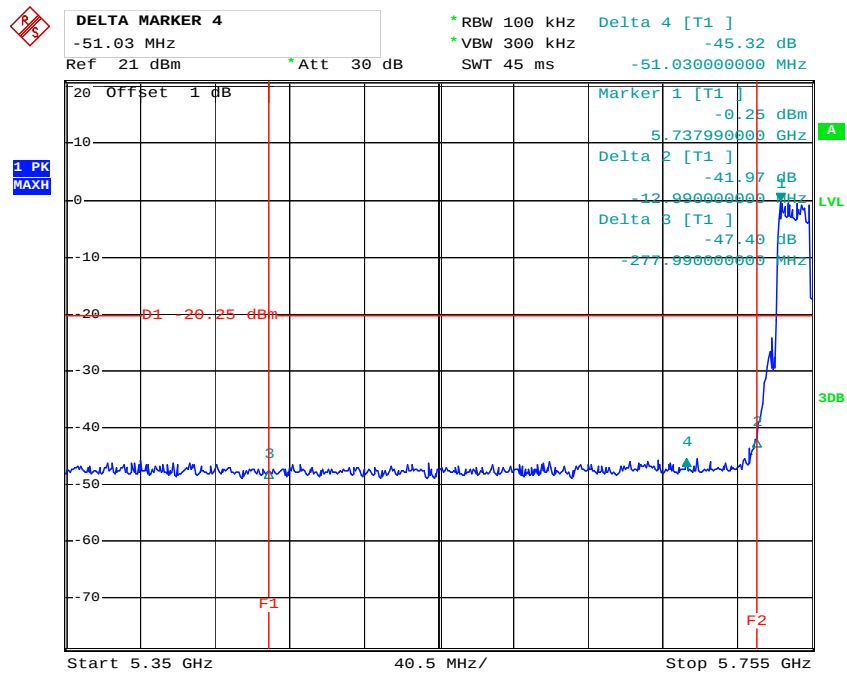
Date: 27.MAR.2013 15:36:32

Chain 1:Right Band Edge (802.11n ht20 mode)



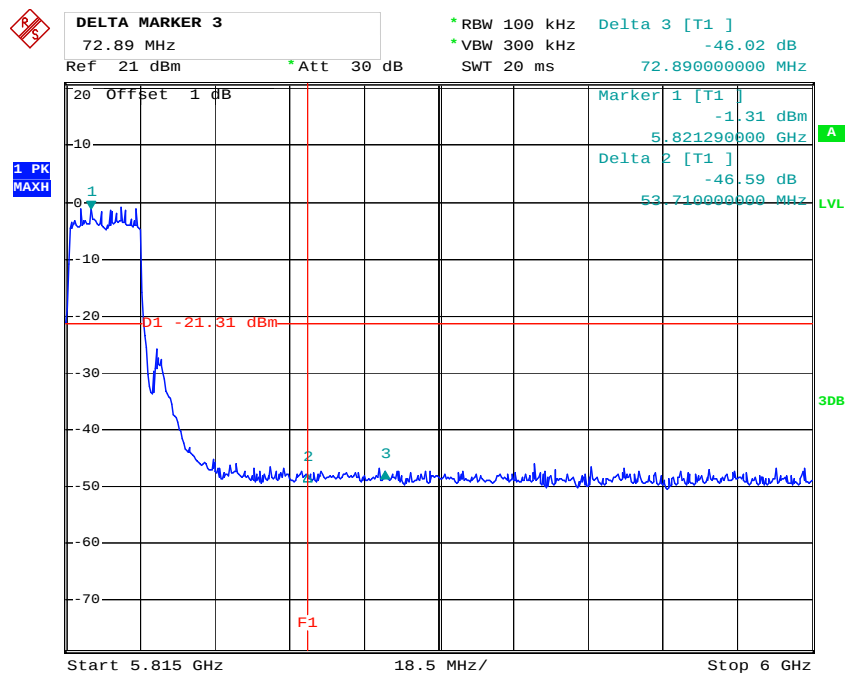
Date: 27.MAR.2013 15:16:43

Chain 2:Left Band Edge (802.11n ht20 mode)

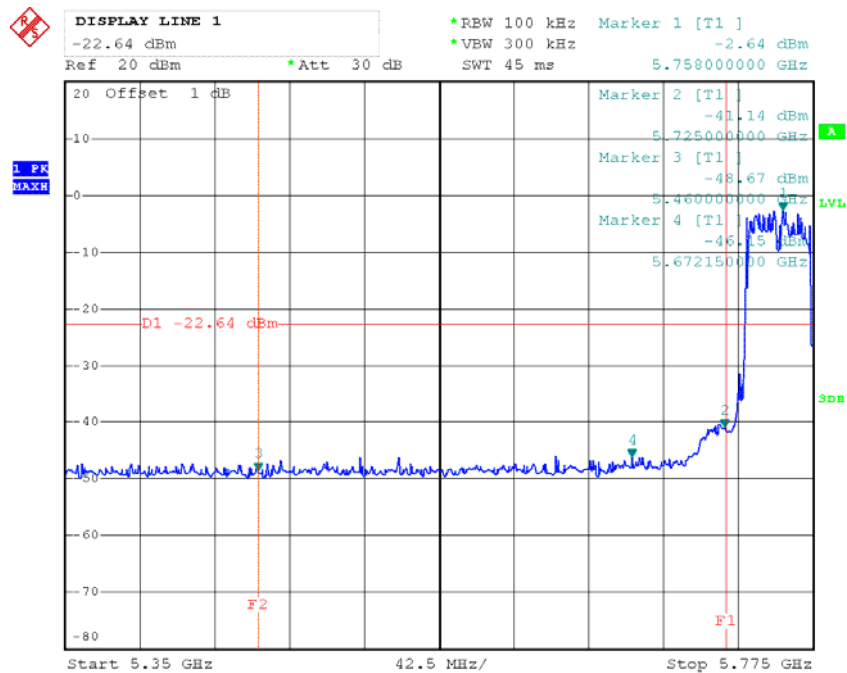


Date: 27.MAR.2013 15:35:36

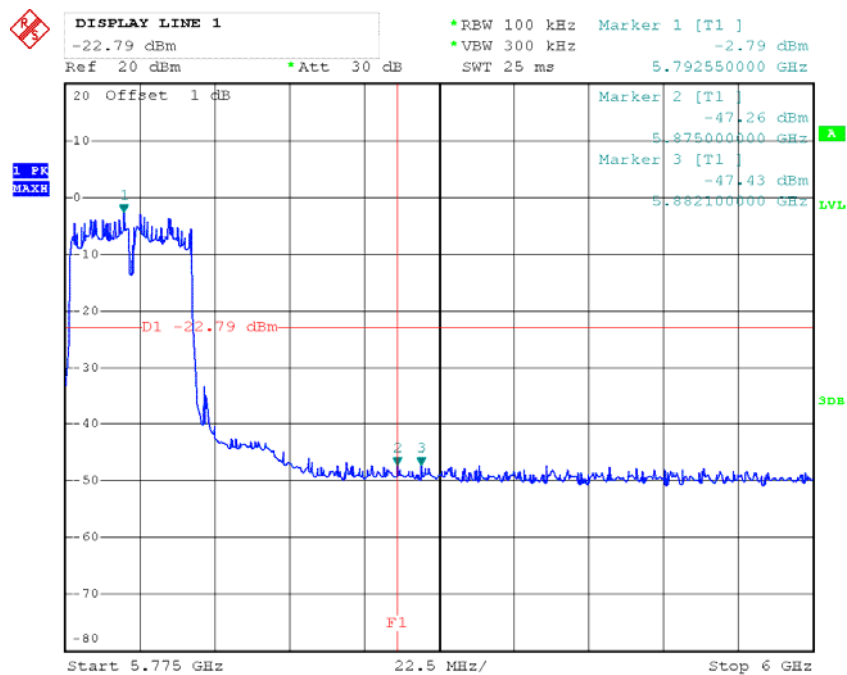
Chain 2:Right Band Edge (802.11n ht20 mode)



Date: 27.MAR.2013 15:18:01

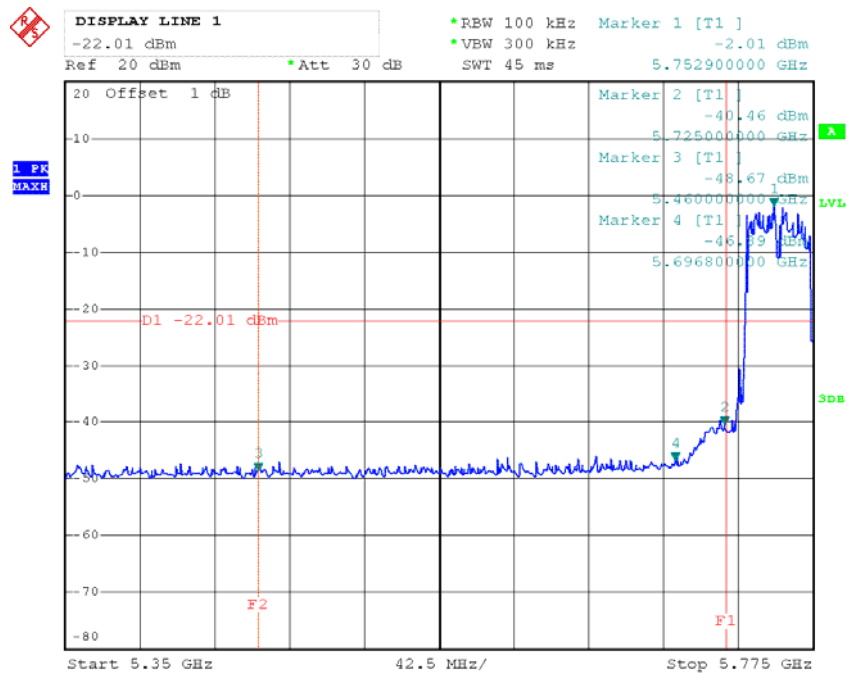
Chain 0:Left Band Edge (802.11n ht40 mode)

Date: 22.MAR.2013 15:36:36

Chain 0:Right Band Edge (802.11n ht40 mode)

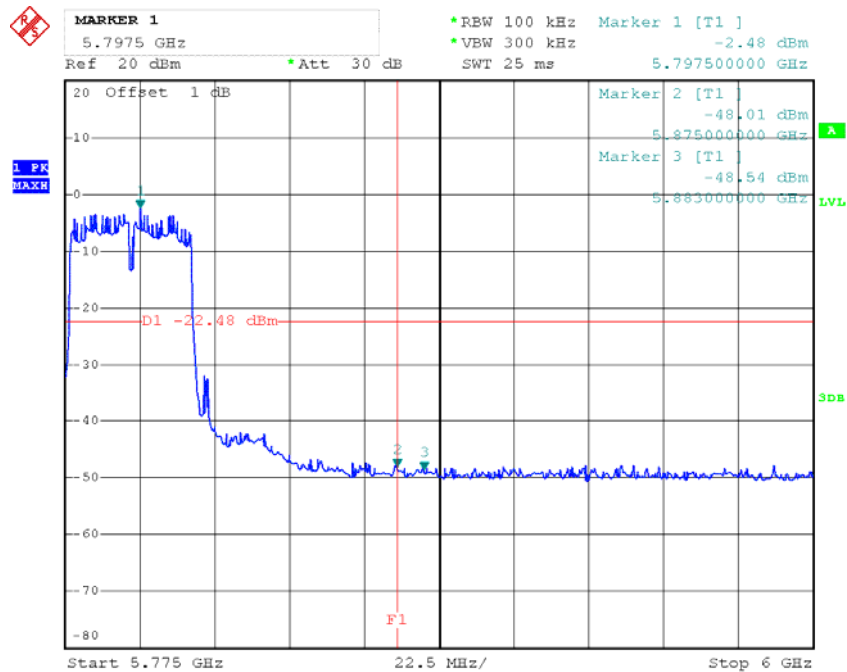
Date: 22.MAR.2013 15:37:48

Chain 1:Left Band Edge (802.11n ht40 mode)



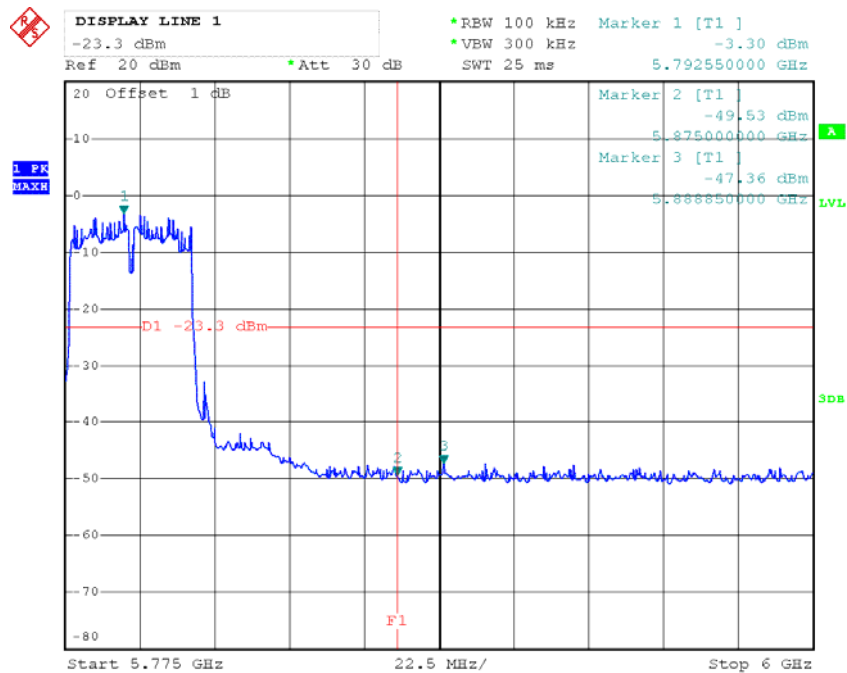
Date: 22.MAR.2013 15:40:13

Chain 1:Right Band Edge (802.11n ht40 mode)



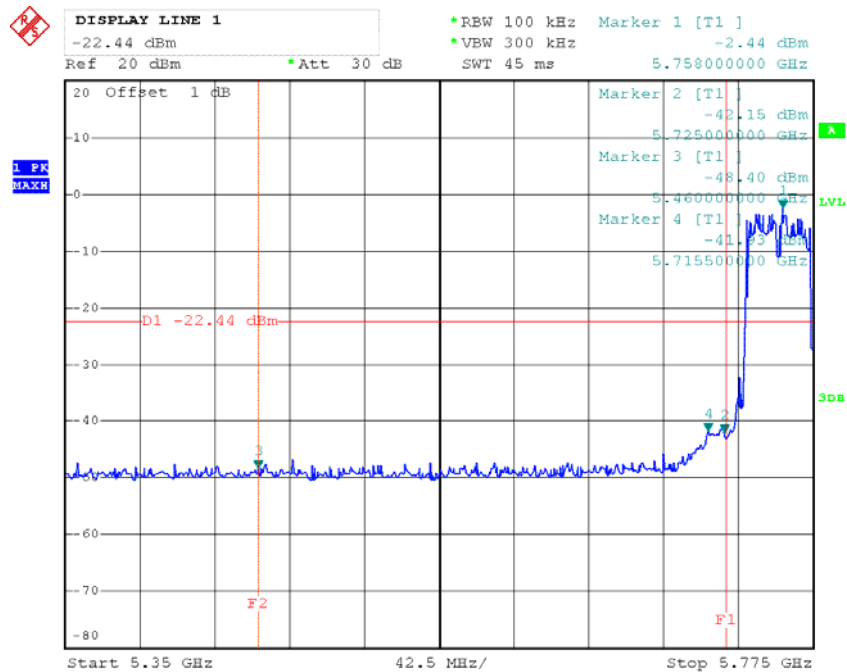
Date: 22.MAR.2013 15:38:51

Chain 2:Left Band Edge (802.11n ht40 mode)



Date: 22.MAR.2013 15:42:09

Chain 2:Right Band Edge (802.11n ht40 mode)



Date: 22.MAR.2013 15:41:11

FCC §15.247(e) - POWER SPECTRAL DENSITY**Applicable Standard**

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. According to KDB 558074 D01 DTS Meas Guidance v02, set the RBW = 3 kHz, VBW = 30 kHz, Set the span to 1.5 times the DTS channel bandwidth.
4. Use the peak marker function to determine the maximum power level in any 3 kHz band segment within the fundamental EBW.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

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

Test Data**Environmental Conditions**

Temperature:	26.4~27.8° C
Relative Humidity:	51~57 %
ATM Pressure:	100.2~100.8kPa

The testing was performed by Leon Chen from 2013-03-21 to 2013-03-27.

Test Mode: Transmitting

Test Result: Pass

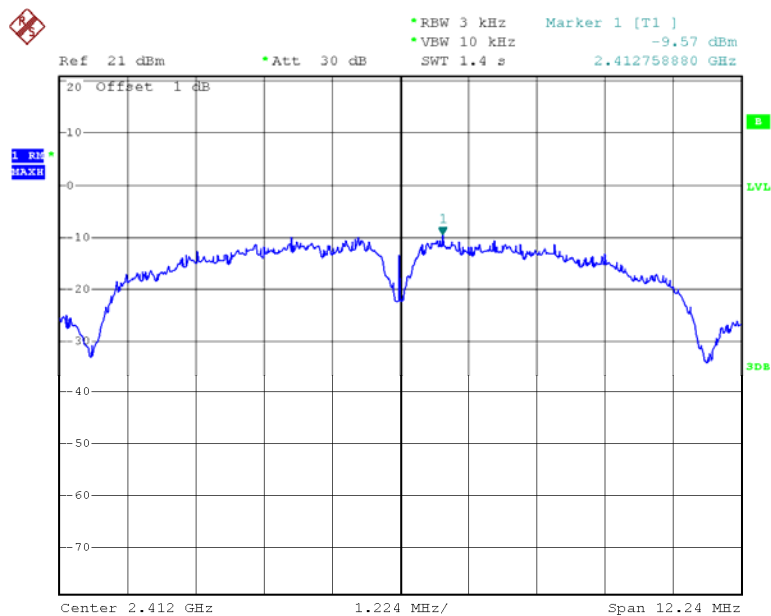
Channel	PSD	Limit	Result
	(dBm/3kHz)	(dBm/3kHz)	
2.4G band-802.11b mode			
Low	-9.57	8	PASS
Middle	-9.43	8	PASS
High	-9.76	8	PASS
2.4G band-802.11g mode			
Low	-17.72	8	PASS
Middle	-16.52	8	PASS
High	-17.42	8	PASS
2.4G band-chain 0: 802.11n20 mode			
Low	-23.14	8	PASS
Middle	-23.16	8	PASS
High	-23.02	8	PASS
2.4G band-chain 1: 802.11n20 mode			
Low	-23.37	8	PASS
Middle	-22.12	8	PASS
High	-22.96	8	PASS
2.4G band-chain 2: 802.11n20 mode			
Low	-22.99	8	PASS
Middle	-22.89	8	PASS
High	-22.57	8	PASS
2.4G band-chain 0: 802.11n40 mode			
Low	-25.96	8	PASS
Middle	-26.33	8	PASS
High	-25.93	8	PASS
2.4G band-chain 1: 802.11n40 mode			
Low	-26.67	8	PASS
Middle	-25.73	8	PASS
High	-25.60	8	PASS
2.4G band-chain 2: 802.11n40 mode			
Low	-26.78	8	PASS
Middle	-26.61	8	PASS
High	-26.35	8	PASS
5725-5850MHz band-802.11a mode			
Low	-17.64	8	PASS
Middle	-17.43	8	PASS
High	-17.12	8	PASS
5725-5850MHz band-Chain 0:802.11n ht20 mode			
Low	-21.60	8	PASS
Middle	-22.25	8	PASS
High	-21.73	8	PASS
5725-5850MHz band-Chain 1:802.11n ht20 mode			
Low	-22.29	8	PASS
Middle	-21.01	8	PASS
High	-22.29	8	PASS

5725-5850MHz band-Chain 2:802.11n ht20 mode			
Low	-21.65	8	PASS
Middle	-22.38	8	PASS
High	-23.20	8	PASS
5725-5850MHz band-Chain 0:802.11n ht40 mode			
Low	-25.33	8	PASS
High	-26.91	8	PASS
5725-5850MHz band-Chain 1:802.11n ht40 mode			
Low	-25.05	8	PASS
High	-26.36	8	PASS
5725-5850MHz band-Chain 2:802.11n ht40 mode			
Low	-25.97	8	PASS
High	-25.91	8	PASS

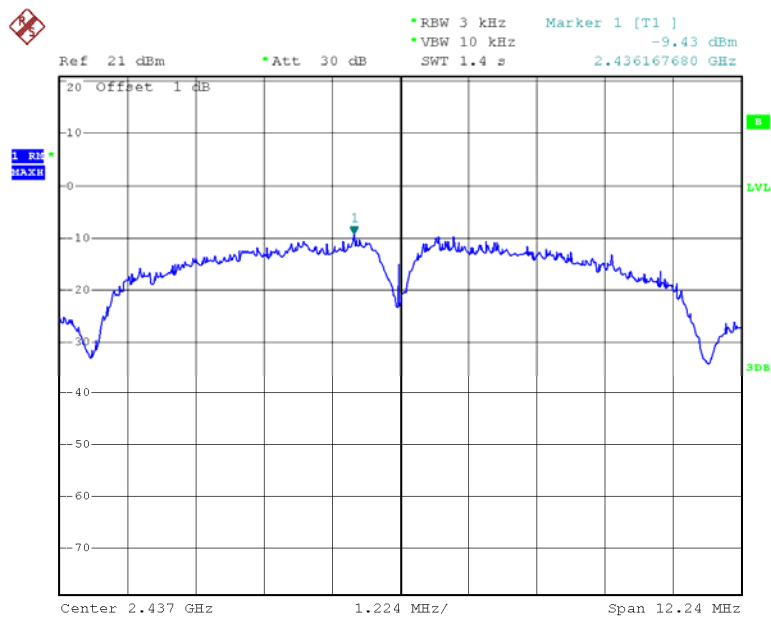
Total power: chain 0+ chain 1+chain 2:

Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
	PSD	Limit	
2.4G band-Total: 802.11n20 mode			
Low	-18.39	8	PASS
Middle	-17.93	8	PASS
High	-18.07	8	PASS
2.4G band-Total:: 802.11n40 mode			
Low	-21.68	8	PASS
Middle	-21.44	8	PASS
High	-21.18	8	PASS
5725-5850MHz band-Total:802.11n ht20 mode			
Low	-17.06	8	PASS
Middle	-17.06	8	PASS
High	-17.59	8	PASS
5725-5850MHz band-Total:802.11n ht40 mode			
Low	-20.66	8	PASS
High	-21.60	8	PASS

Please refer to the following plots

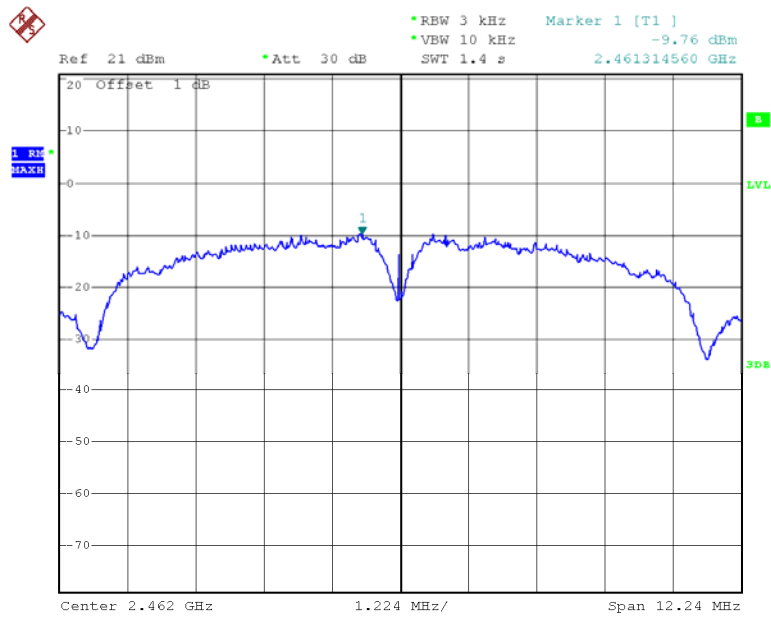
2.4G Band:**Power Spectral Density, 802.11b Low Channel**

Date: 21.MAR.2013 20:22:03

Power Spectral Density, 802.11b Middle Channel

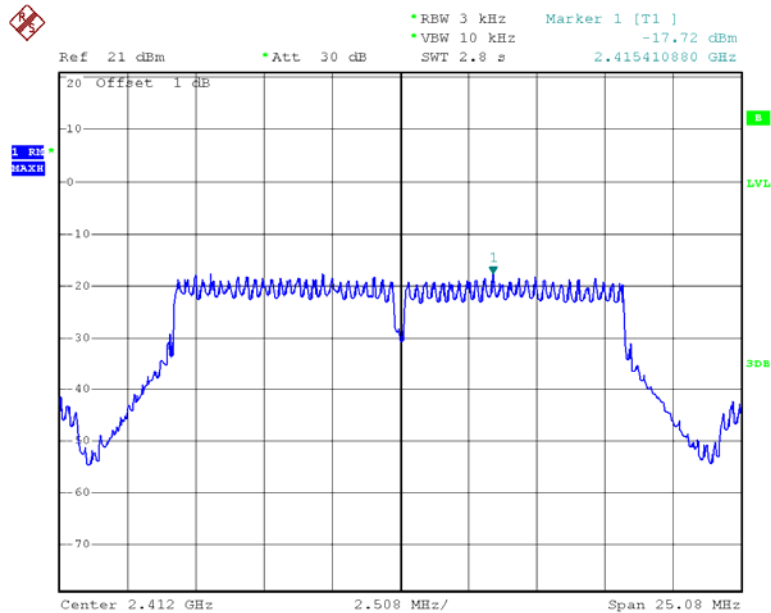
Date: 21.MAR.2013 20:21:18

Power Spectral Density, 802.11b High Channel

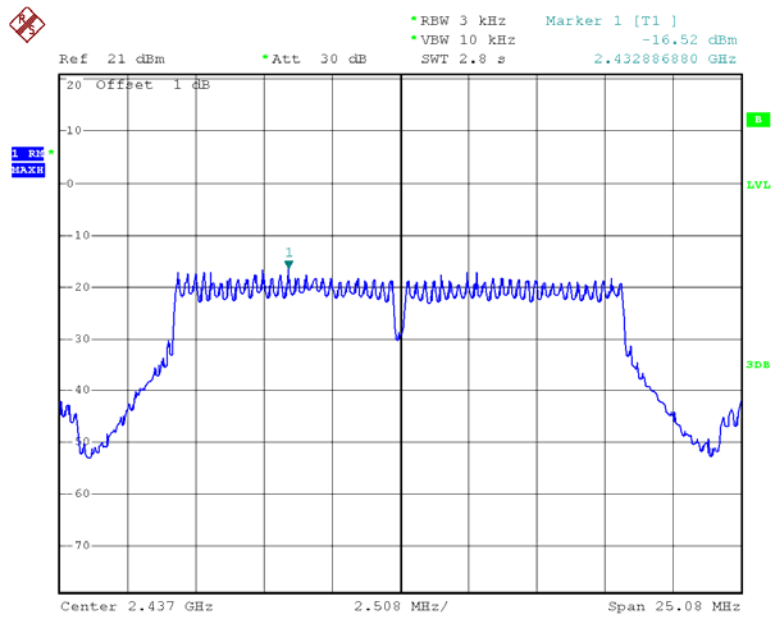


Date: 21.MAR.2013 20:19:11

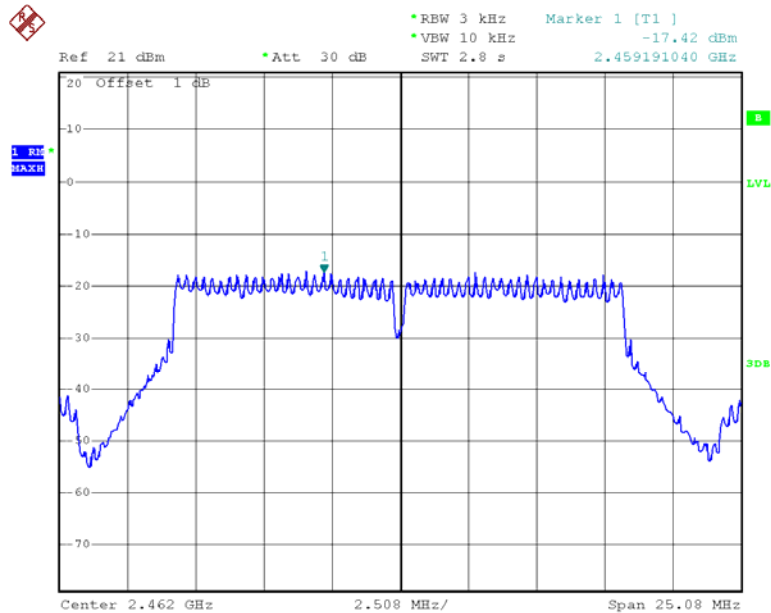
Power Spectral Density, 802.11g Low Channel



Date: 21.MAR.2013 20:55:12

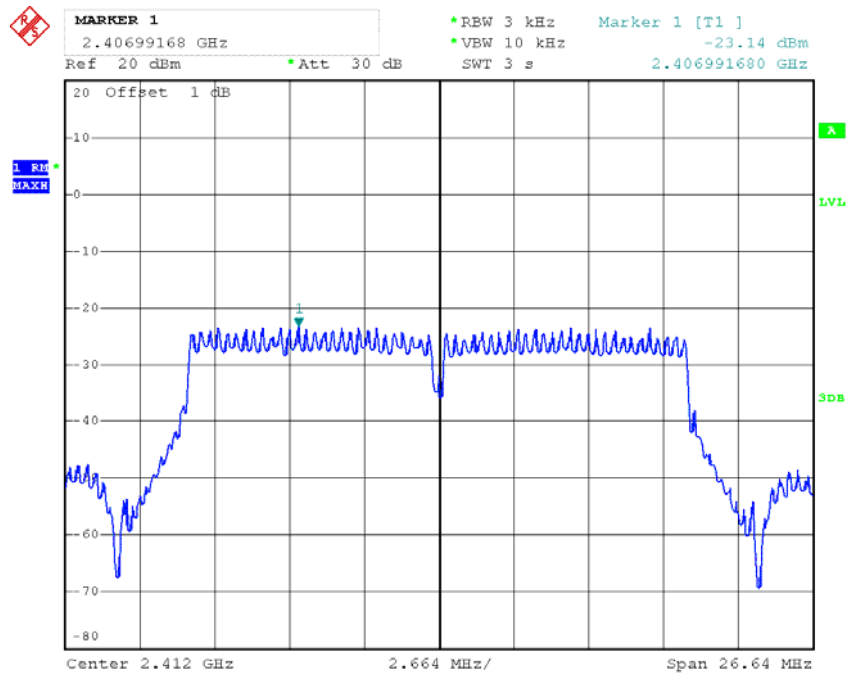
Power Spectral Density, 802.11g Middle Channel

Date: 21.MAR.2013 20:54:44

Power Spectral Density, 802.11g High Channel

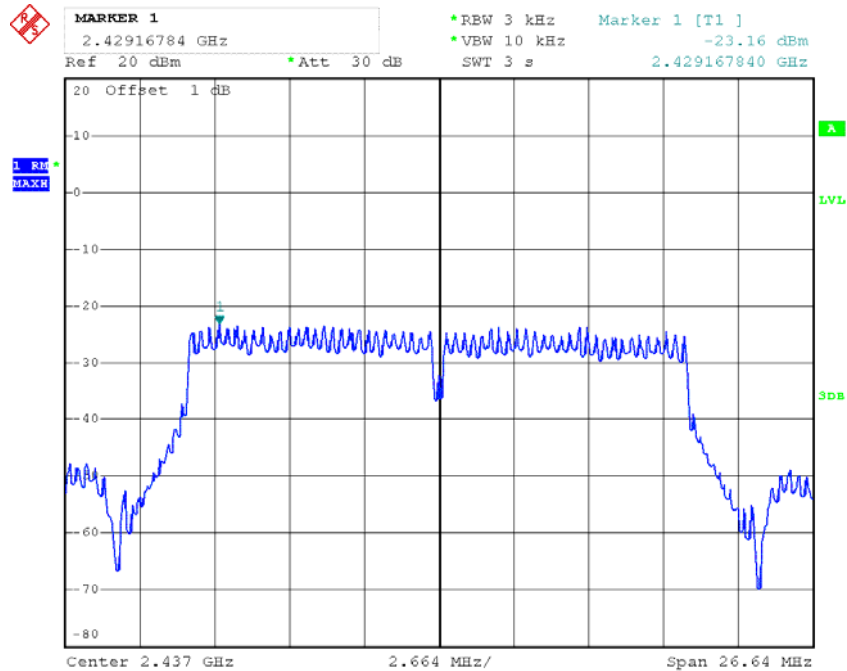
Date: 21.MAR.2013 20:53:58

Chain 0: Power Spectral Density, 802.11n20 Low Channel

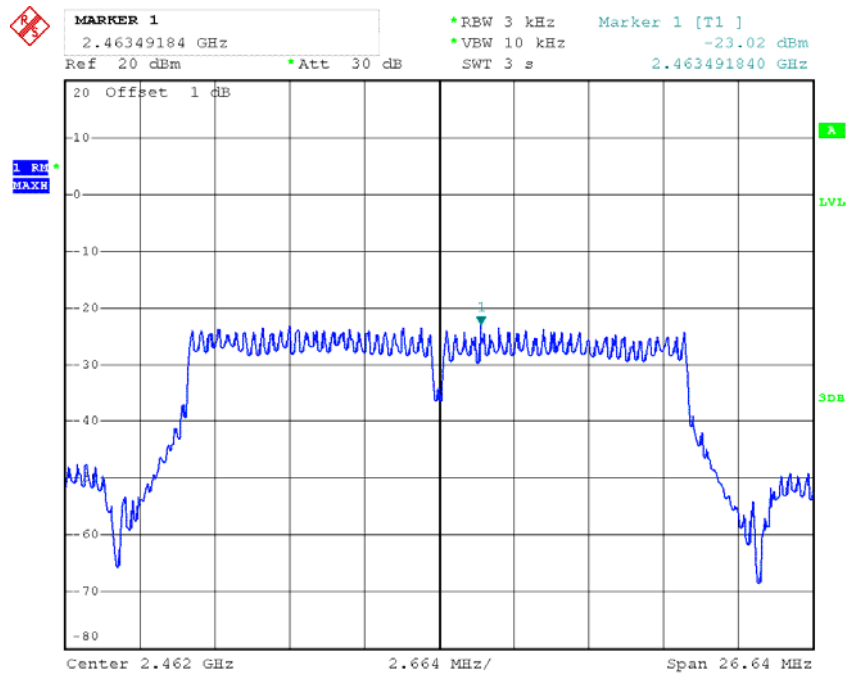


Date: 22.MAR.2013 10:18:59

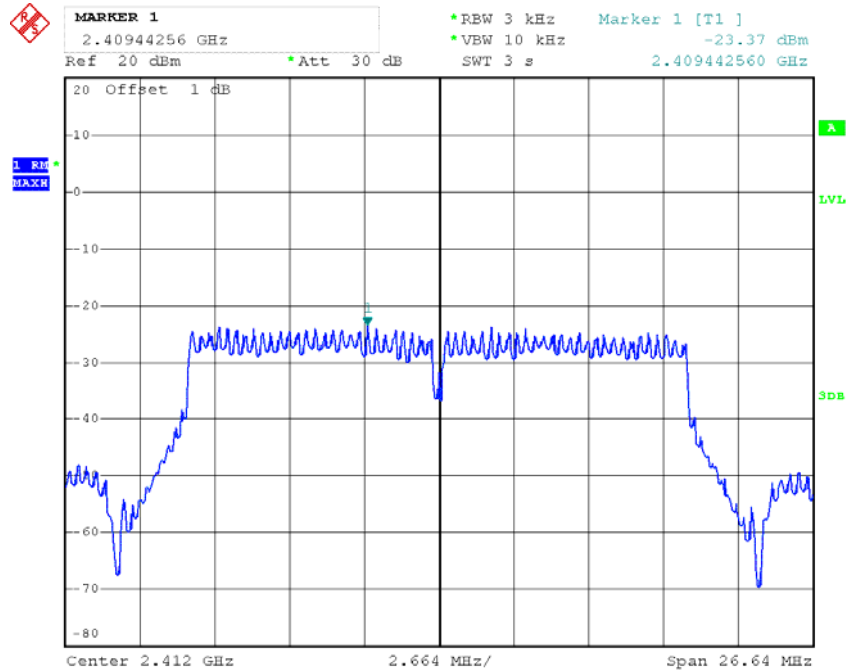
Chain 0: Power Spectral Density, 802.11n20 Middle Channel



Date: 22.MAR.2013 10:32:13

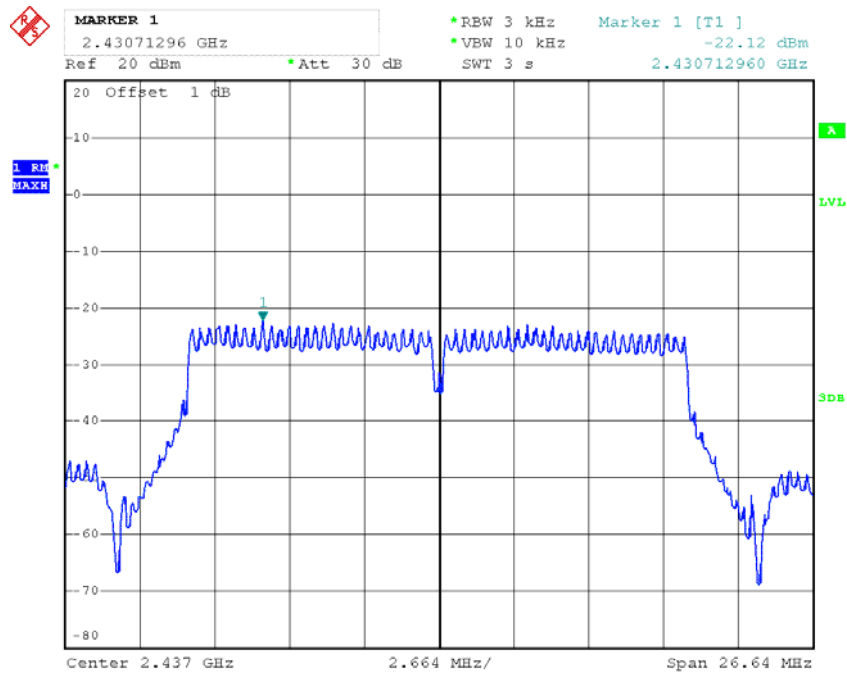
Chain 0: Power Spectral Density, 802.11n20 High Channel

Date: 22.MAR.2013 10:36:28

Chain 1: Power Spectral Density, 802.11n20 Low Channel

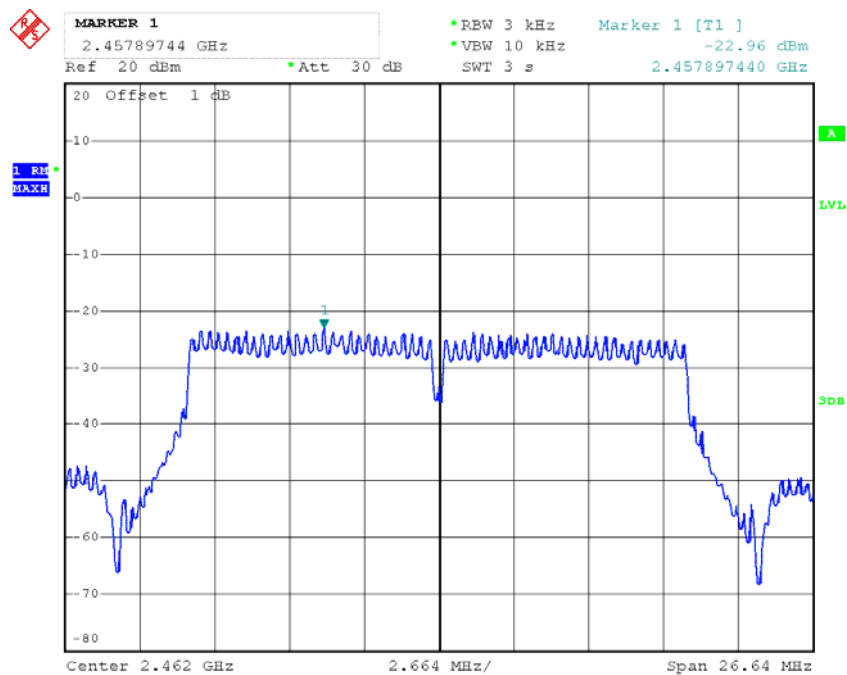
Date: 22.MAR.2013 10:21:38

Chain 1: Power Spectral Density, 802.11n20 Middle Channel



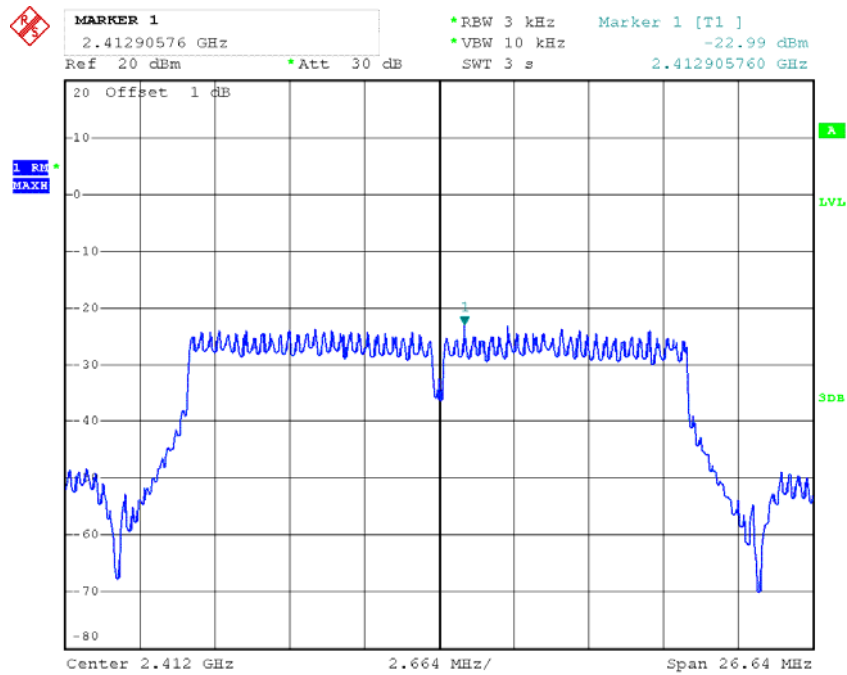
Date: 22.MAR.2013 10:33:05

Chain 1: Power Spectral Density, 802.11n20 High Channel



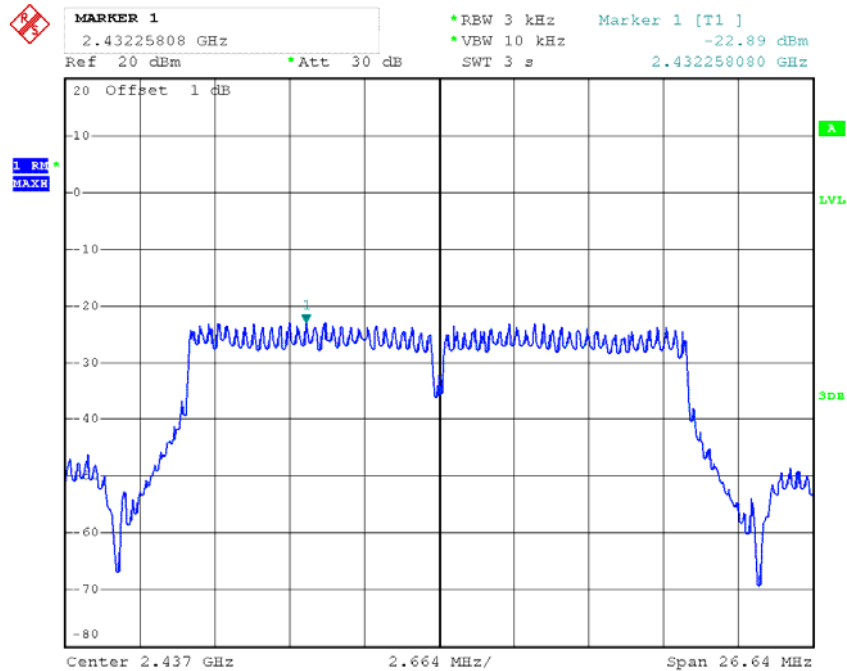
Date: 22.MAR.2013 10:40:06

Chain 2: Power Spectral Density, 802.11n20 Low Channel

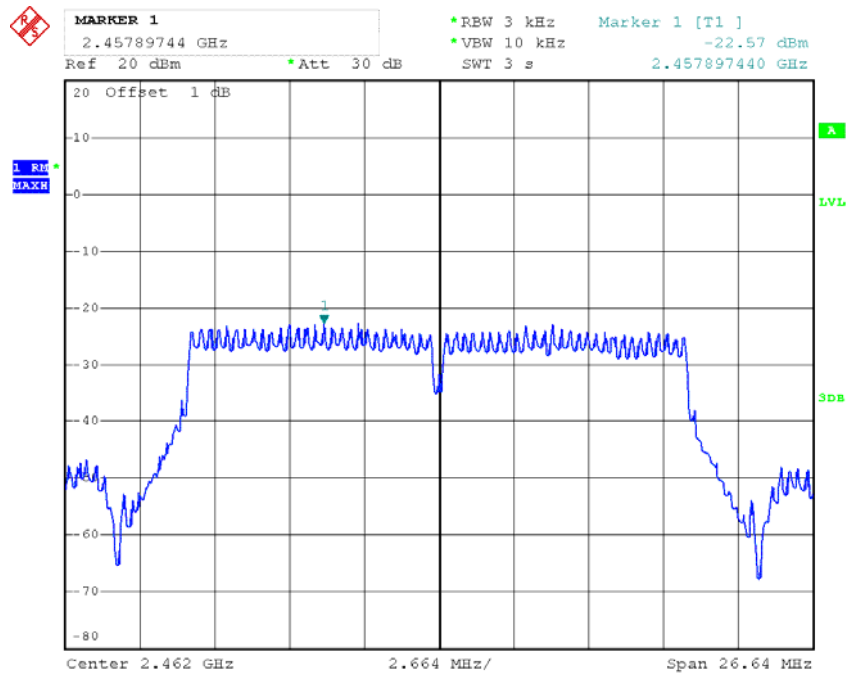


Date: 22.MAR.2013 10:22:39

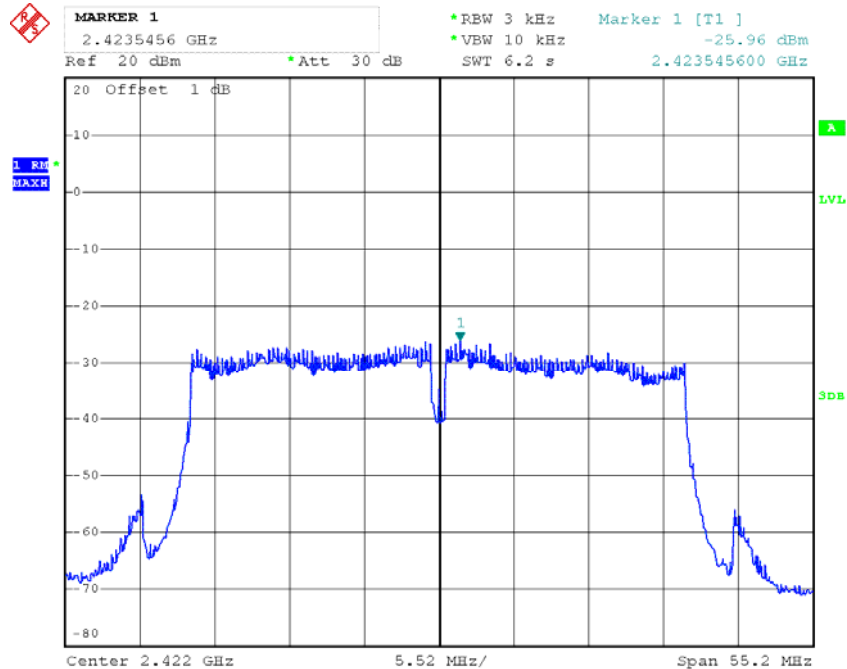
Chain 2: Power Spectral Density, 802.11n20 Middle Channel



Date: 22.MAR.2013 10:35:12

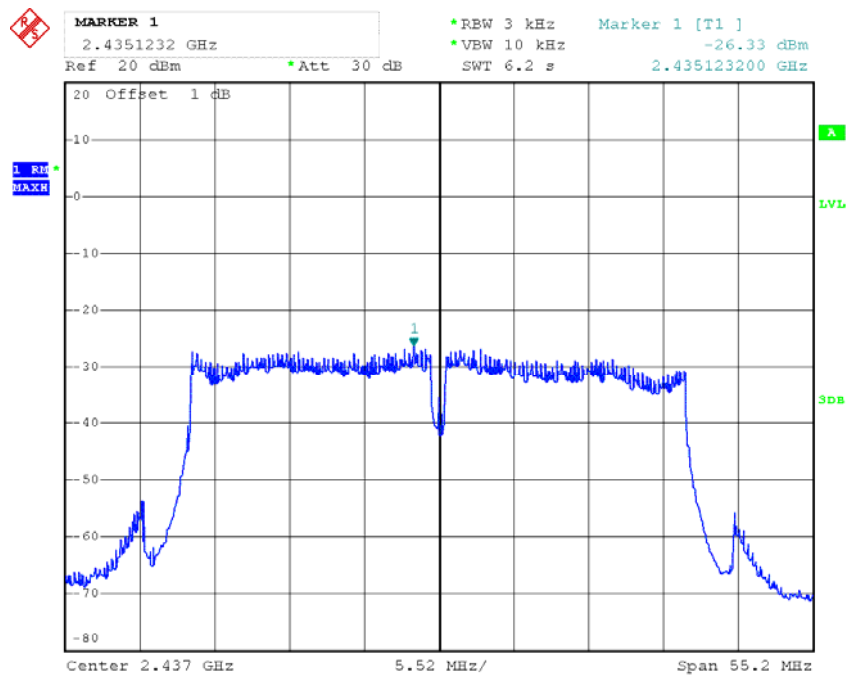
Chain 2: Power Spectral Density, 802.11n20 High Channel

Date: 22.MAR.2013 10:40:56

Chain 0: Power Spectral Density, 802.11n40 Low Channel

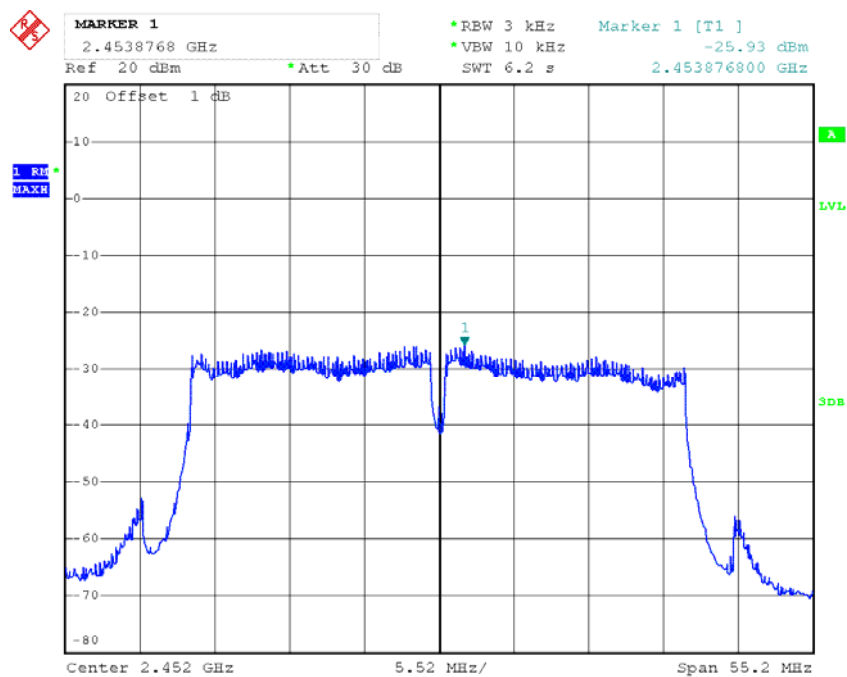
Date: 22.MAR.2013 13:55:37

Chain 0: Power Spectral Density, 802.11n40 Middle Channel



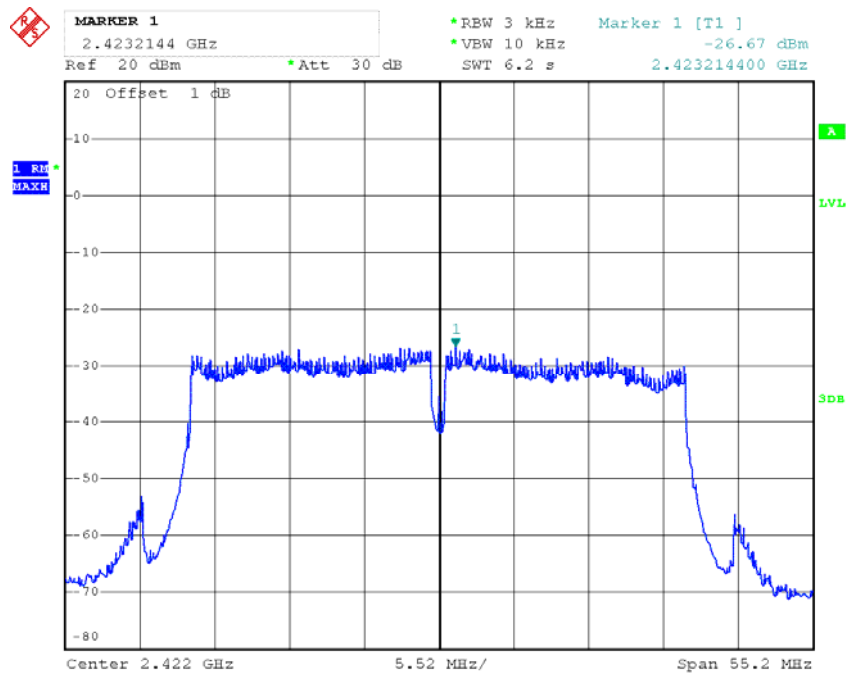
Date: 22.MAR.2013 14:04:21

Chain 0: Power Spectral Density, 802.11n40 High Channel



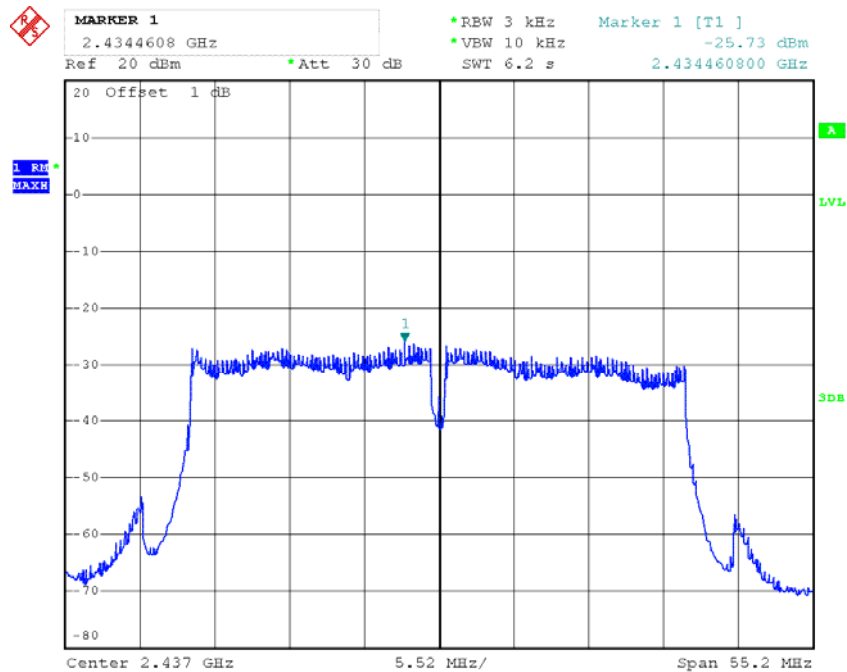
Date: 22.MAR.2013 14:12:04

Chain 1: Power Spectral Density, 802.11n40 Low Channel



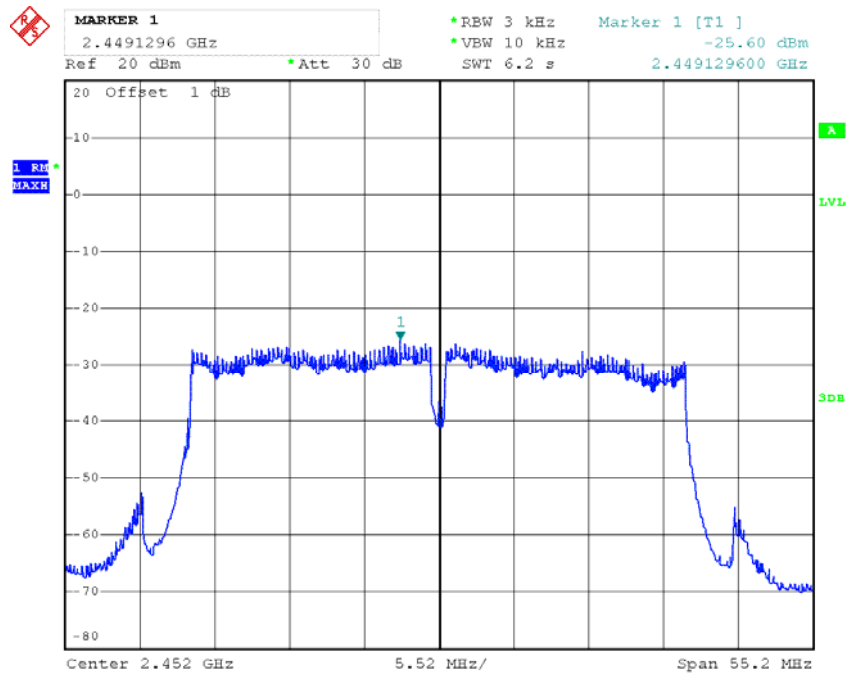
Date: 22.MAR.2013 14:03:16

Chain 1: Power Spectral Density, 802.11n40 Middle Channel

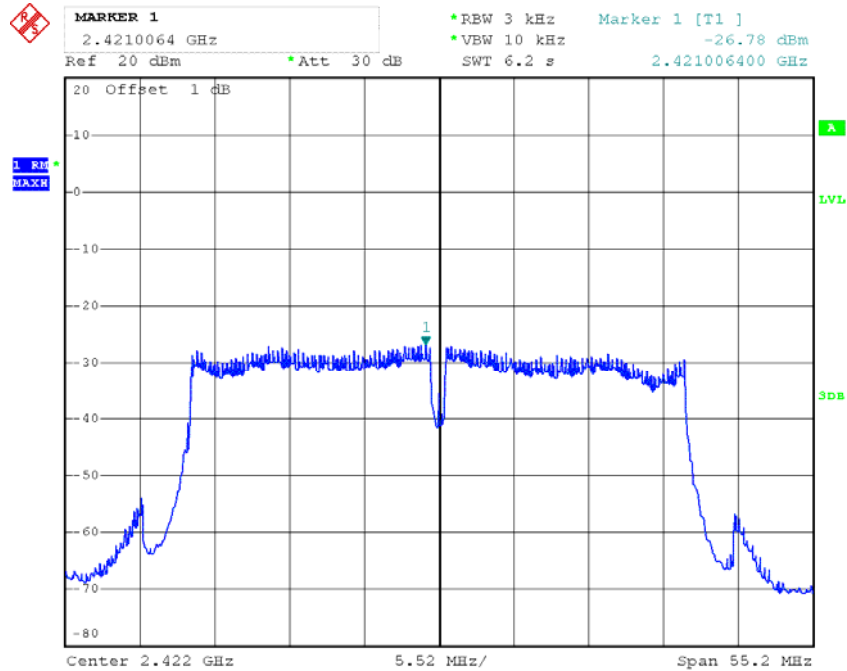


Date: 22.MAR.2013 14:07:41

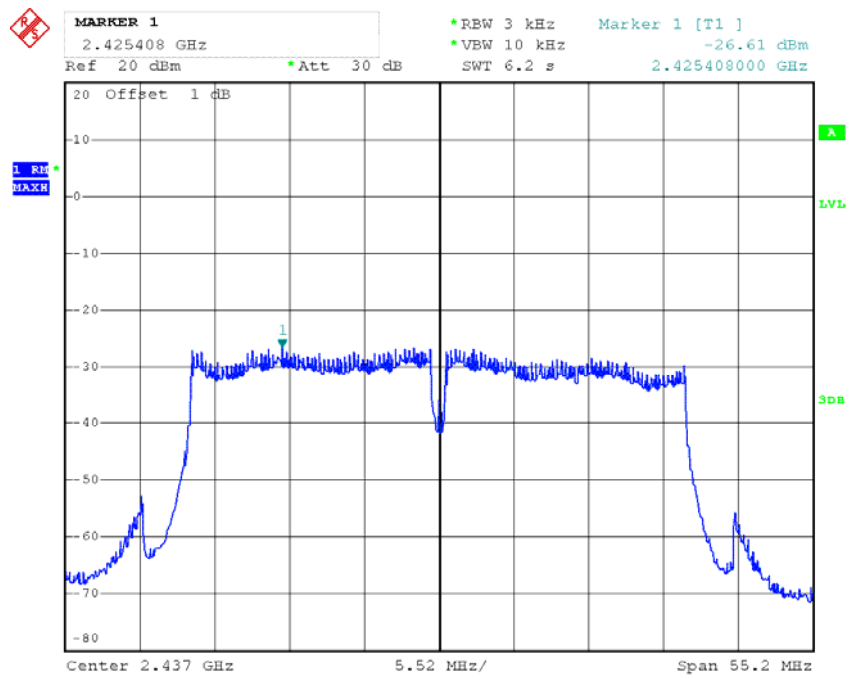
Chain 1: Power Spectral Density, 802.11n40 High Channel



Chain 2: Power Spectral Density, 802.11n40 Low Channel

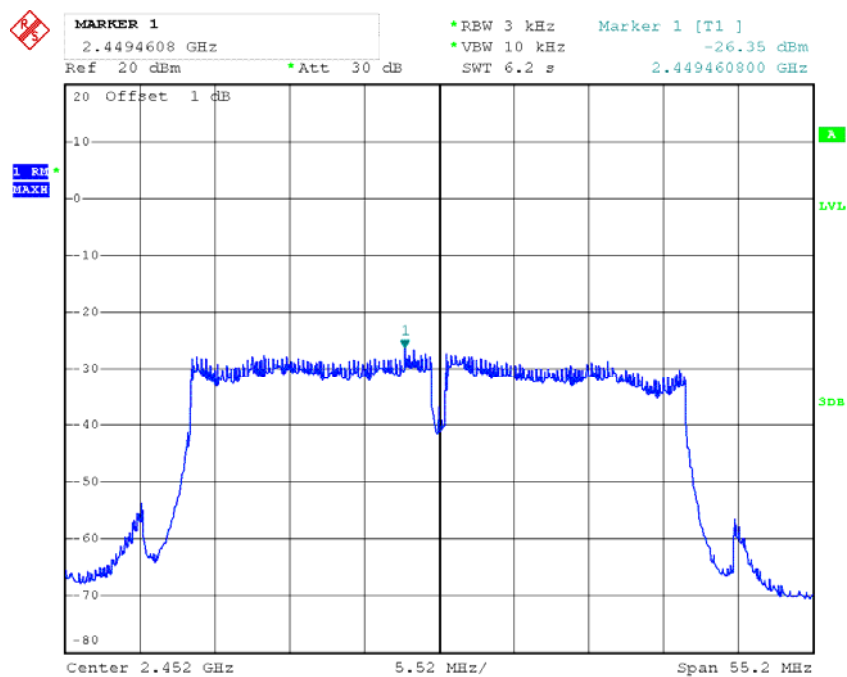


Chain 2: Power Spectral Density, 802.11n40 Middle Channel



Date: 22.MAR.2013 14:09:43

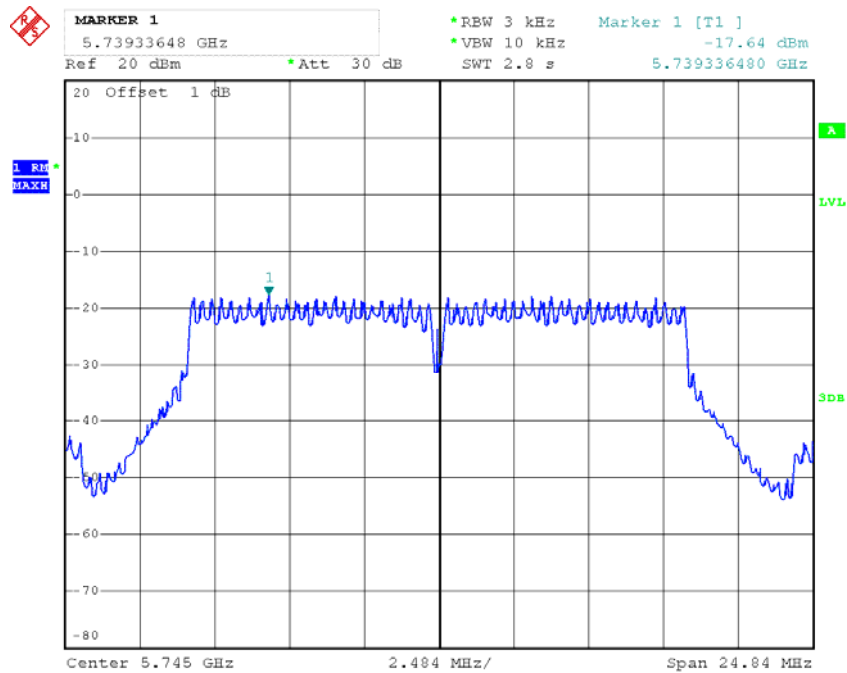
Chain 2: Power Spectral Density, 802.11n40 High Channel



Date: 22.MAR.2013 14:15:16

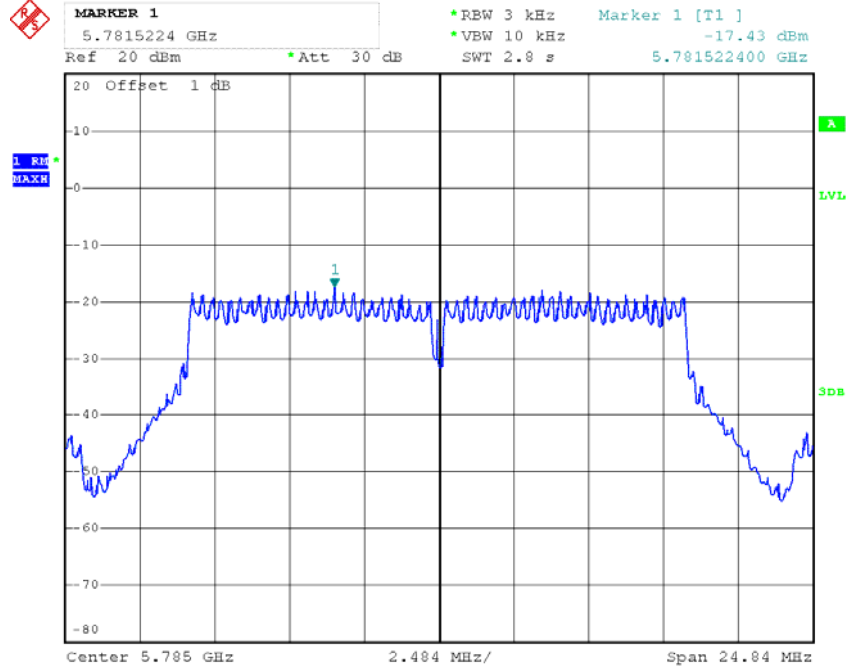
5725-5850MHz band:

Power Spectral Density, 802.11a Low Channel



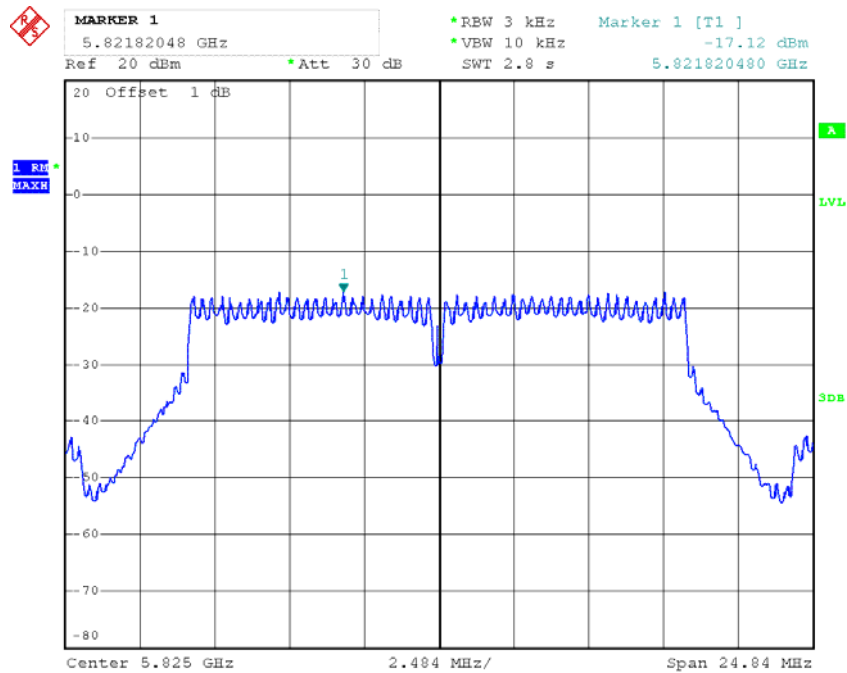
Date: 22.MAR.2013 14:55:15

Power Spectral Density, 802.11a Middle Channel



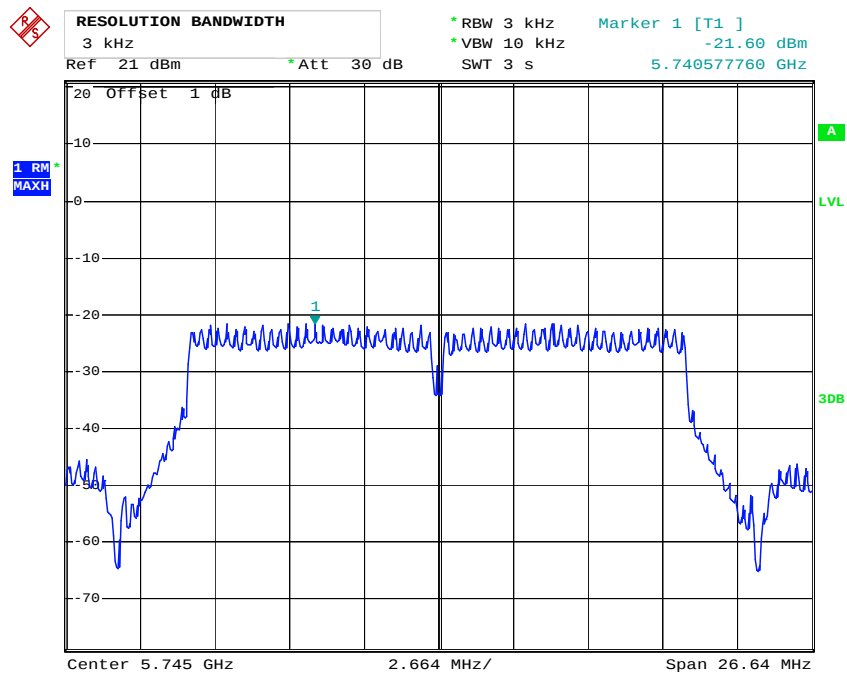
Date: 22.MAR.2013 14:51:31

Power Spectral Density, 802.11a High Channel



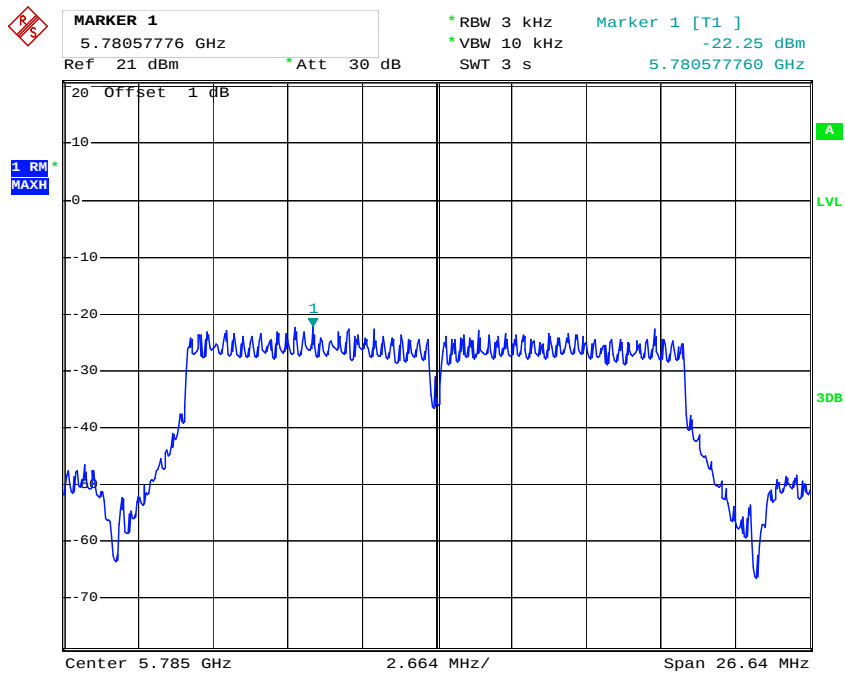
Date: 22.MAR.2013 14:50:35

Chain 0:Power Spectral Density, 802.11 n ht20 Low Channel



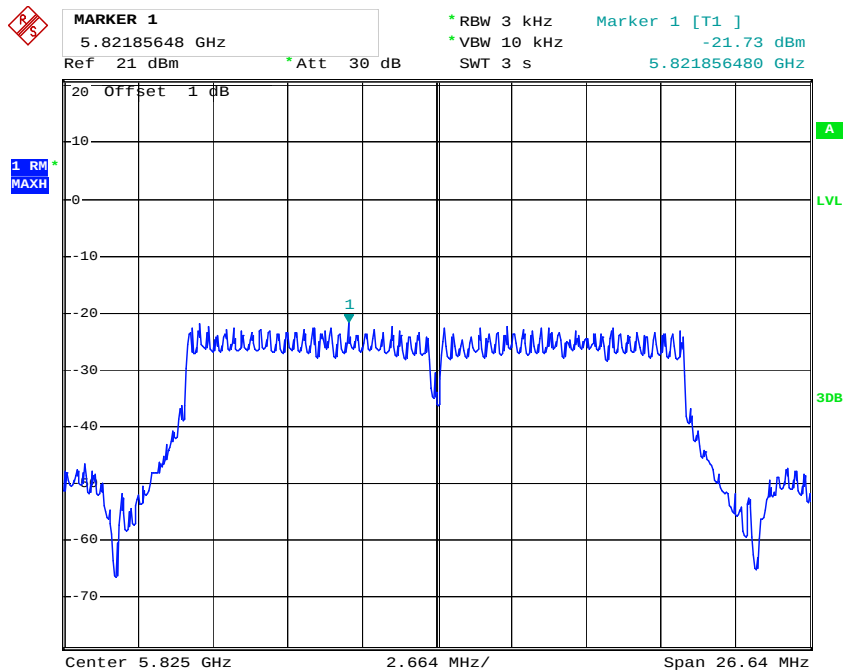
Date: 27.MAR.2013 15:29:32

Chain 0:Power Spectral Density, 802.11n ht20 Middle Channel



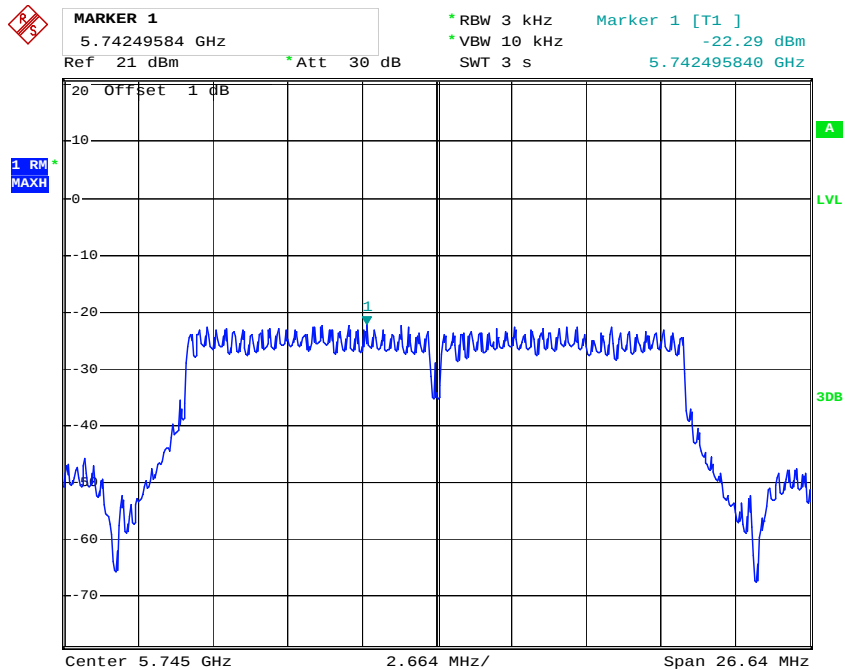
Date: 27.MAR.2013 15:21:27

Chain 0:Power Spectral Density, 802.11n ht20 High Channel



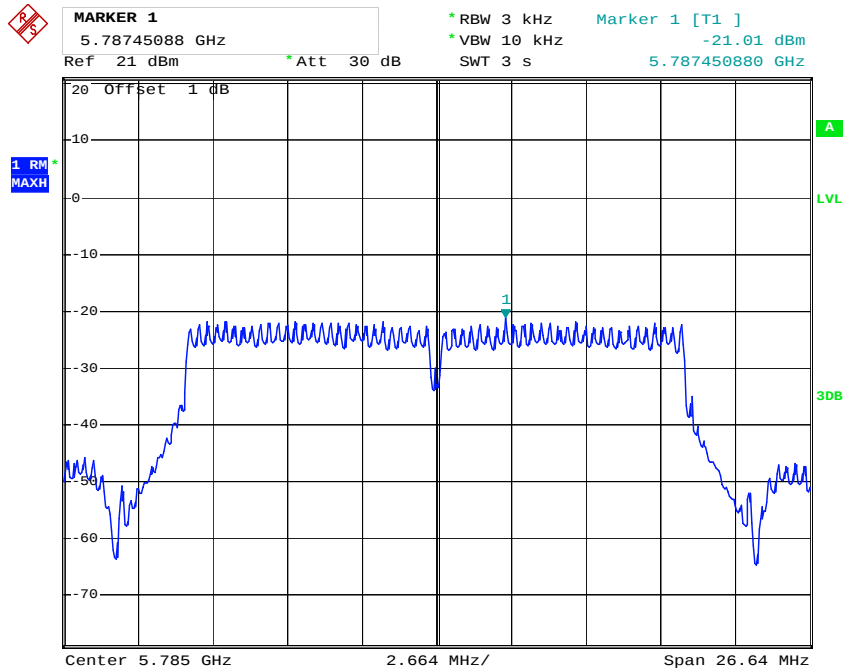
Date: 27.MAR.2013 15:11:31

Chain 1:Power Spectral Density, 802.11 n ht20 Low Channel



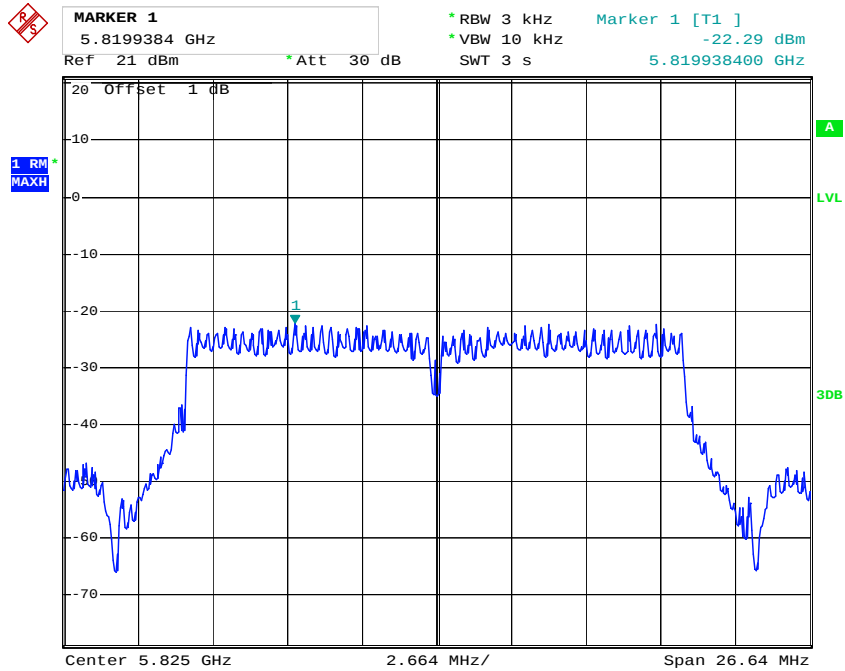
Date: 27.MAR.2013 15:32:06

Chain 1:Power Spectral Density, 802.11n ht20 Middle Channel



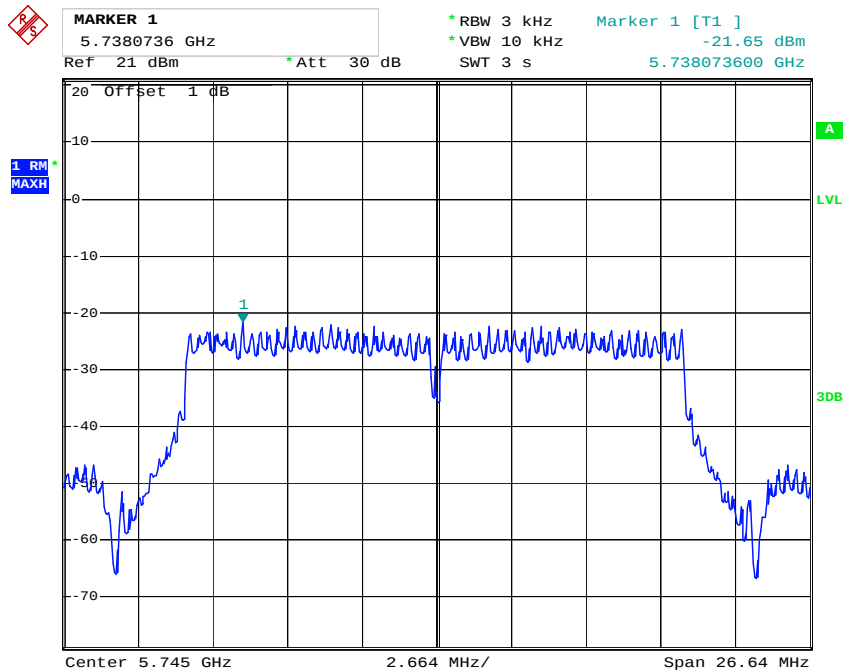
Date: 27.MAR.2013 15:24:22

Chain 1:Power Spectral Density, 802.11n ht20 High Channel



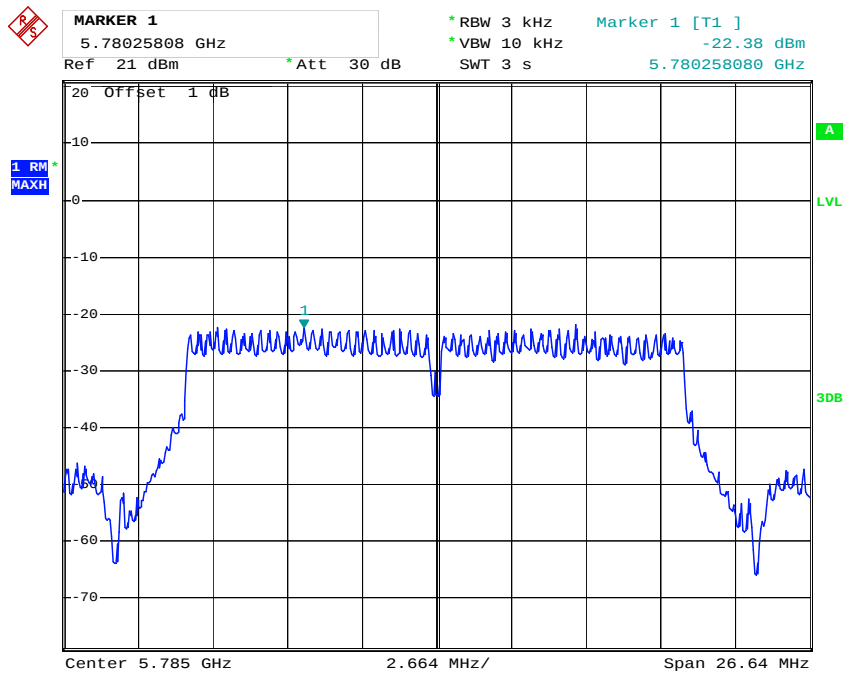
Date: 27.MAR.2013 15:10:25

Chain 2:Power Spectral Density, 802.11 n ht20 Low Channel



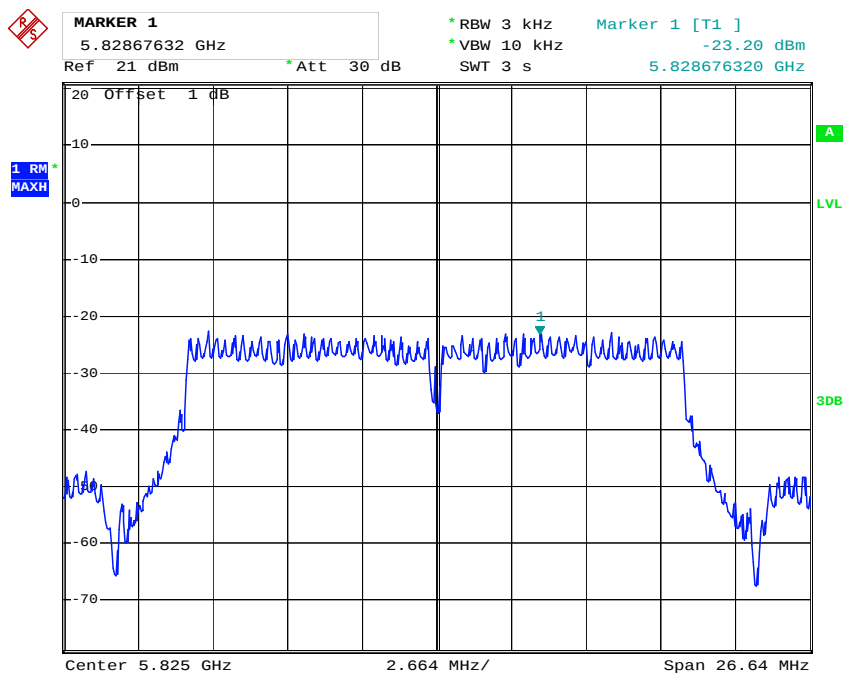
Date: 27.MAR.2013 15:33:36

Chain 2:Power Spectral Density, 802.11n ht20 Middle Channel



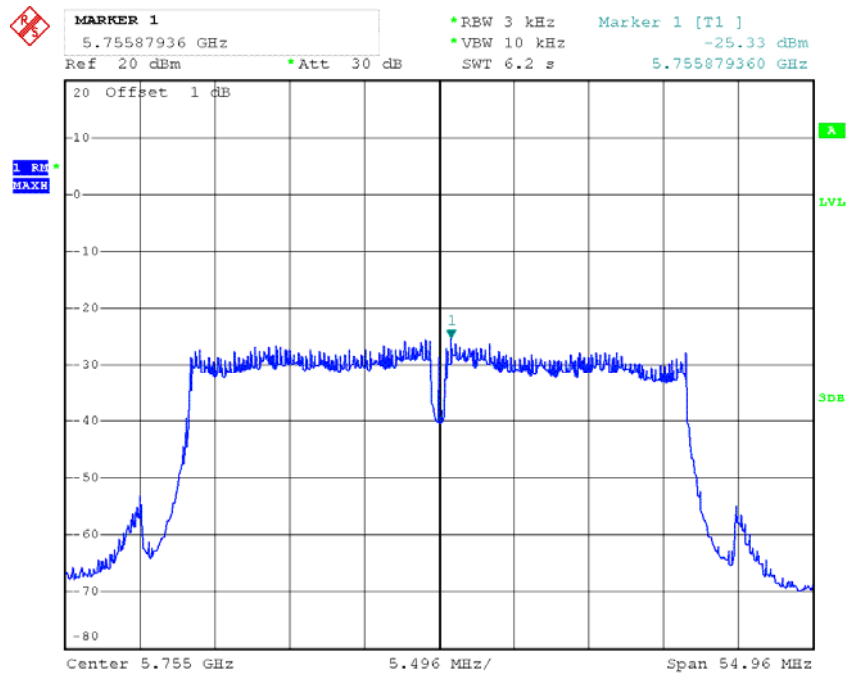
Date: 27.MAR.2013 15:28:02

Chain 2:Power Spectral Density, 802.11n ht20 High Channel



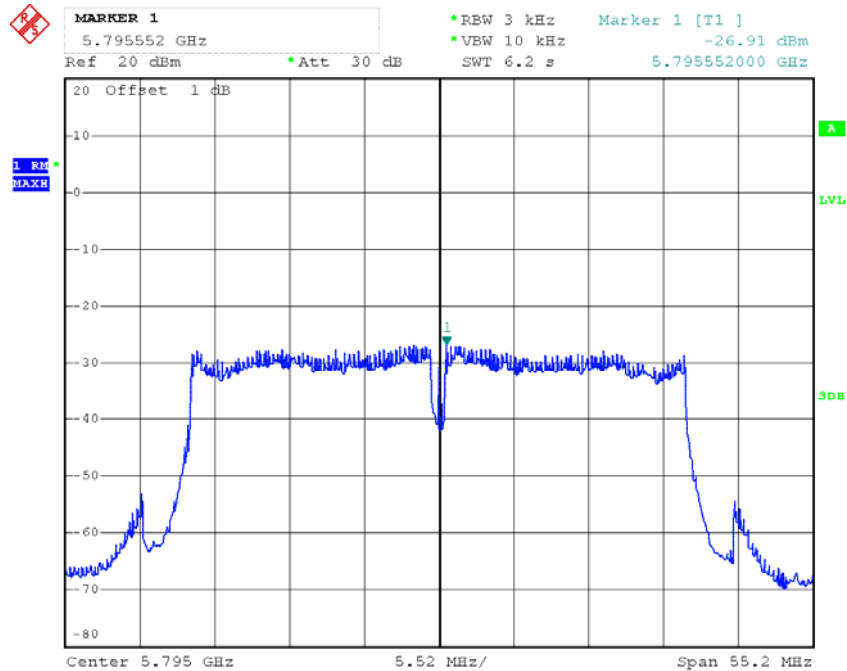
Date: 27.MAR.2013 15:09:13

Chain 0:Power Spectral Density, 802.11n ht40 Low Channel



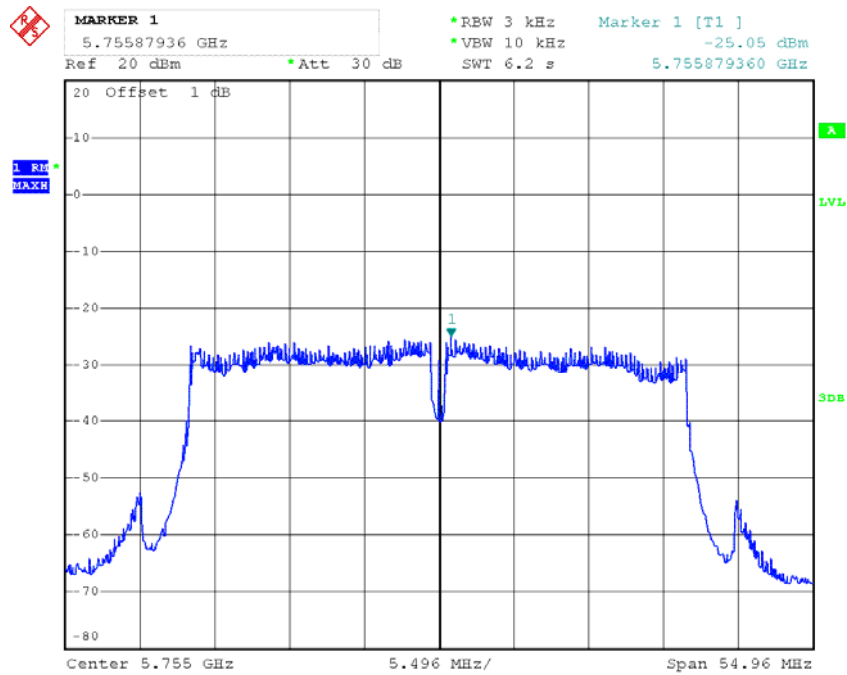
Date: 22.MAR.2013 15:25:29

Chain 0:Power Spectral Density, 802.11n ht40 High Channel



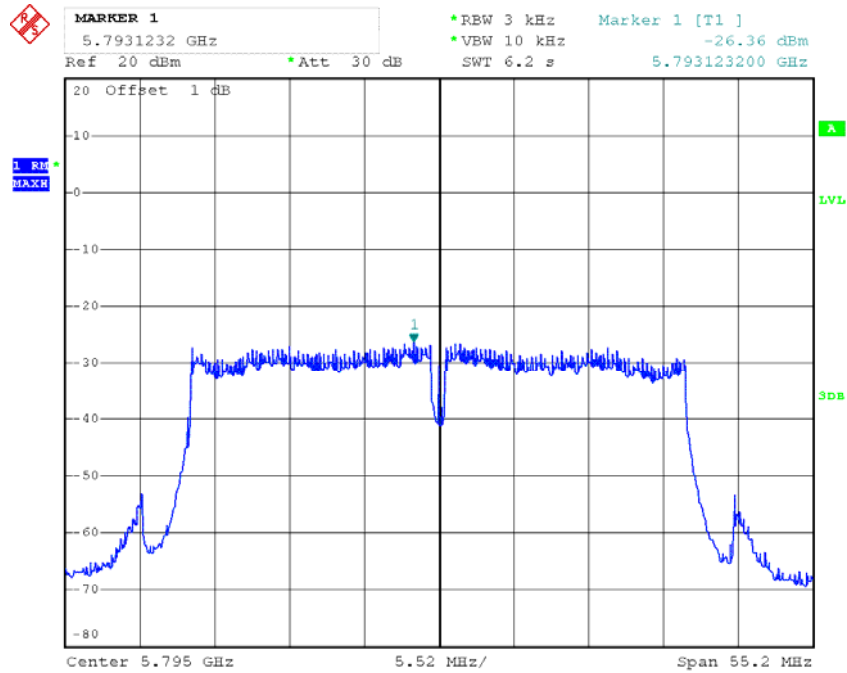
Date: 22.MAR.2013 15:23:55

Chain 1:Power Spectral Density, 802.11n ht40 Low Channel



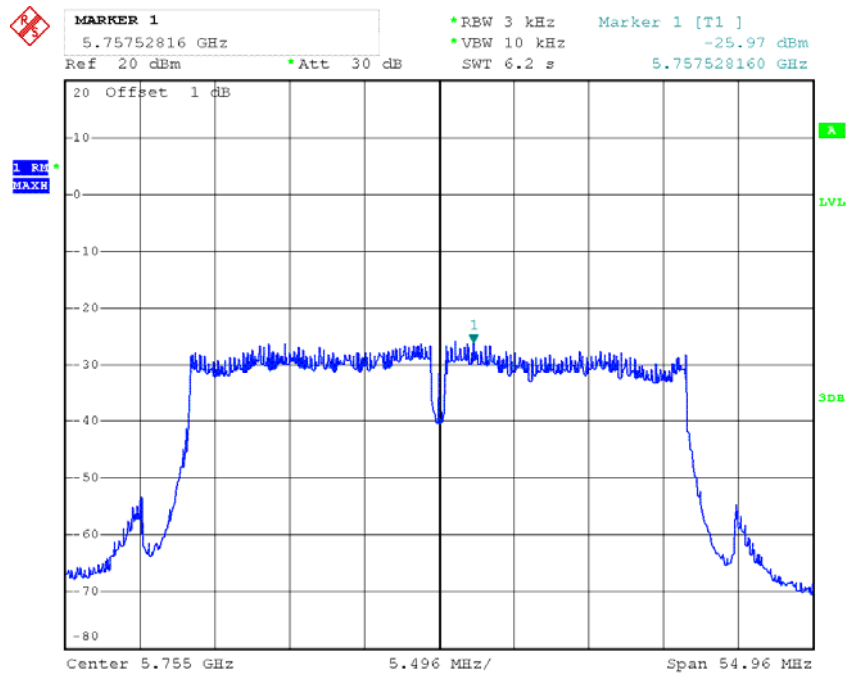
Date: 22.MAR.2013 15:29:05

Chain 1:Power Spectral Density, 802.11n ht40 High Channel



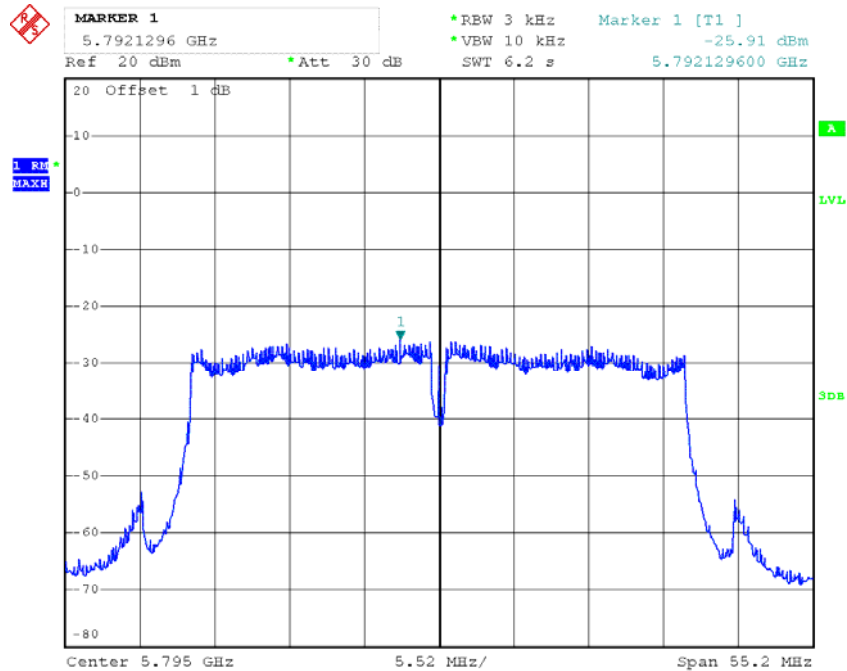
Date: 22.MAR.2013 15:30:12

Chain 2:Power Spectral Density, 802.11n ht40 Low Channel



Date: 22.MAR.2013 15:34:02

Chain 2:Power Spectral Density, 802.11n ht40 High Channel



Date: 22.MAR.2013 15:32:47

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