



**FCC CFR47 PART 15 SUBPART E
INDUSTRY CANADA RSS-210 ISSUE 8**

CERTIFICATION TEST REPORT

FOR

QUAD-BAND RADIO WITH WLAN AND BT RADIO

MODEL NUMBER: A1457

**FCC ID: BCG-E2643B
IC: 579C-E2643B**

REPORT NUMBER: 13U15637-14

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Prepared for

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: QUAD-BAND RADIO WITH WLAN AND BT RADIO

MODEL: A1457

SERIAL NUMBER: C39KD00CFJOY (RF) and C39KQ006FL3K (DFS)

DATE TESTED: MAY 14 – JUNE (RF) and JULY 15, 2013 (DFS)

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:

Tested By:



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WiSE Operations Manager
UL Verification Services Inc.

Francisco Guarnero
WiSE Lab Technician
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Model A1457 is a mobile phone with multimedia functions (music, application support, and video), cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/LTE radio, IEEE 802.11a/b/g/n, Bluetooth and GPS radio. The rechargeable battery is not user accessible.

Testing of Model A1457 (FCC ID: BCG-E2643B) and (IC #: 579C-E2643B) is considered representative of Model A1530 (FCC ID: BCG-E2643A) and (IC #: 579C-E2643A). Model A1457 is identical to Model A1530 except for the WWAN functions. Both the WLAN and WWAN antenna locations for both models are identical.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	14.005	25.15
5180 - 5240	802.11n HT20	14.258	26.66
5190 - 5230	802.11n HT40	14.316	27.01
5260 - 5320	802.11a	15.368	34.42
5260 - 5320	802.11n HT20	15.258	33.56
5270 - 5310	802.11n HT40	15.343	34.22
5500 - 5700	802.11a	15.988	39.70
5500 - 5700	802.11n HT20	15.74	37.50
5510 - 5670	802.11n HT40	15.871	38.65

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PiFA antenna, with a maximum gain as below table.

FREQUENCY (MHZ)	ANTENNA GAIN (dBi)
5150 - 5250	-5.91
5250 - 5350	-5.83
5500 - 5700	-4.25
5725 - 5850	-4.21

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was WL Tool FW 6.10.56.166.

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5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel for RF radiated emissions below 1GHz tests is channel with highest RF output power.

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

For the fundamental investigation, the EUT is investigated for vertical and horizontal antenna orientations and the worst case was determined to be at X-position.

Based on the manufacturer's attestation that the nominal output power is reduced as the data rate increases, the data rates tested represent the highest power and worst-case with respect to EMC performance.

Worst-case data rates were used:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44GHz	Agilent	N9030A	F00129	02/22/14
Spectrum Analyzer, 44GHz	Agilent	E4446A	C01159	04/10/14
Directional Coupler	Krytar	1817	N02656	CNR
Communication Test Set	Agilent / HP	E5515C	C01086	11/10/13
Communication Test Set	R & S	CMW500	F00014	02/21/14
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/14
Signal generator, 6 GHz	Agilent / HP	8665B	F00066	05/07/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02686	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Bilog, 30-1GHz	Sunol Science	JB1	C01011	03/28/14
Peak Power Meter	Boonton	4541	C01189	06/20/14
Peak Power Sensor	Agilent / HP	N1911A	F00153	04/05/14
Peak Power Meter	Agilent	N1911A	F00026	04/02/14
Peak Power Sensor	Agilent	E9323A	F00160	04/03/14
Horn Antenna	ETS Lindgren	3117	C01005	02/21/14
Horn Antenna	ETS Lindgren	3117	F00131	02/19/14
PreAmp 1-18GHz	Agilent/HP	8449B	F00167	03/23/14
PreAmp 1300MHz	Agilent	8447D	C00580	01/28/14

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a 20 MHz	2.03	2.07	0.980	98.0%	0.09	0.493
802.11n HT20	1.91	1.94	0.985	98.5%	0.07	0.524
802.11n HT40	0.94	0.97	0.963	96.3%	0.16	1.070

7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD

The Duty Cycle is greater than or equal to 98% therefore KDB 789033 Method SA-1 is used.

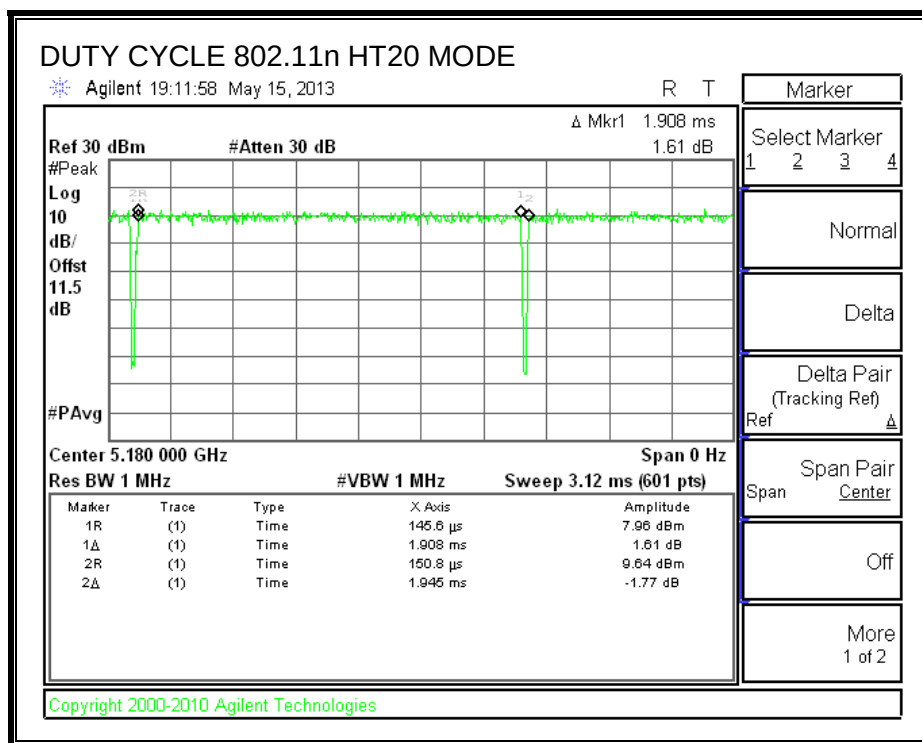
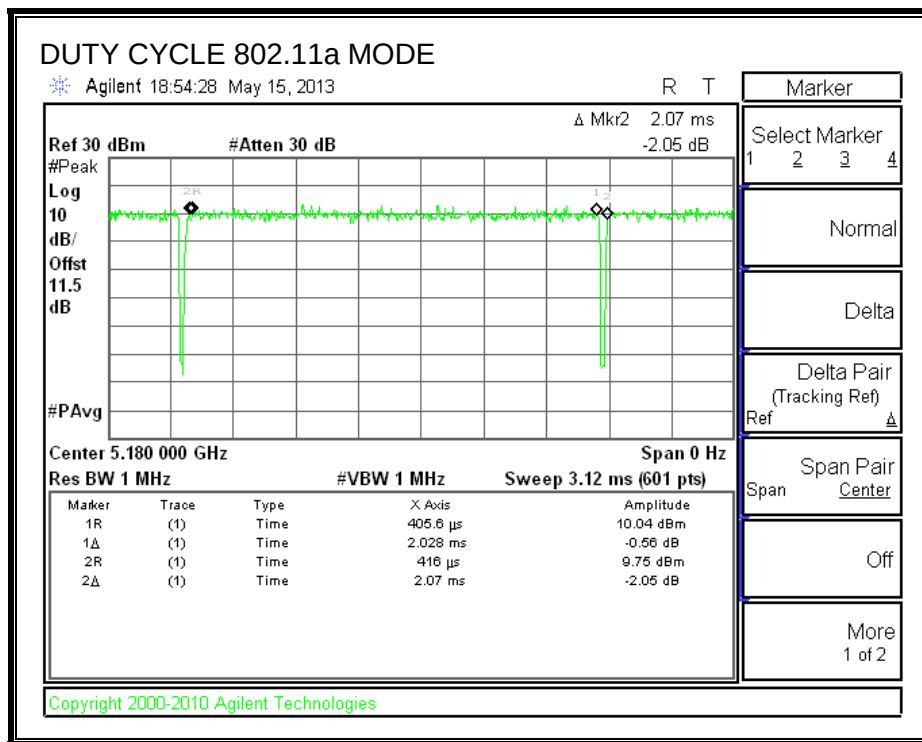
The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used.

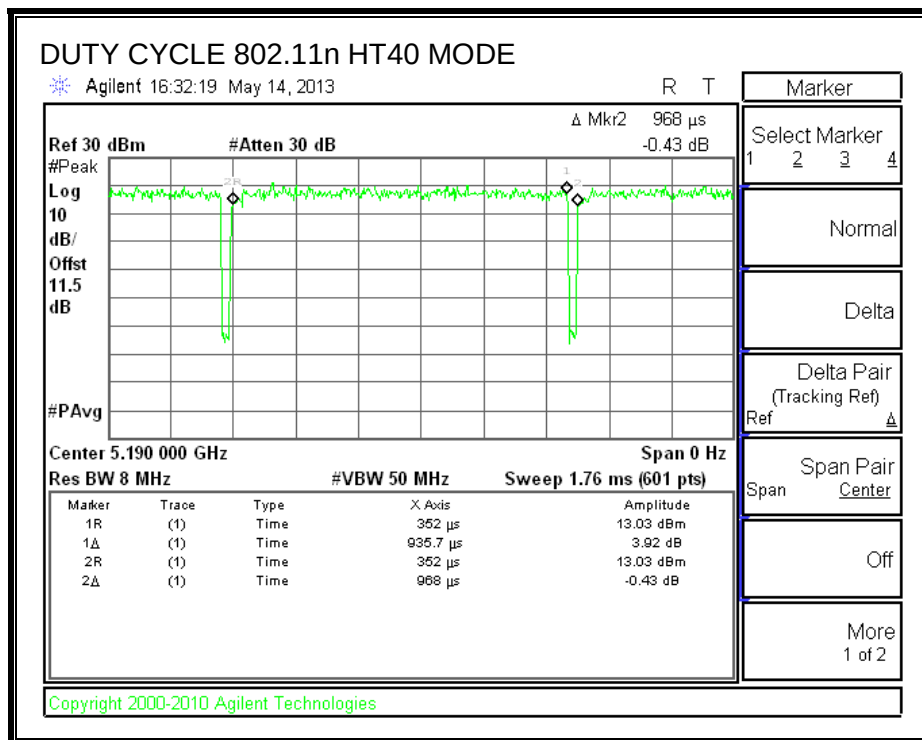
7.1.3. MEASUREMENT METHOD FOR AVERAGE SPURIOUS EMISSIONS ABOVE 1 GHz

The Duty Cycle is greater than or equal to 98%, KDB 789033 Method AD with Power RMS Averaging is used.

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

7.1.4. DUTY CYCLE PLOTS





8. ANTENNA PORT TEST RESULTS

8.1. 802.11a MODE IN THE 5.2 GHz BAND

8.1.1. 26 dB BANDWIDTH

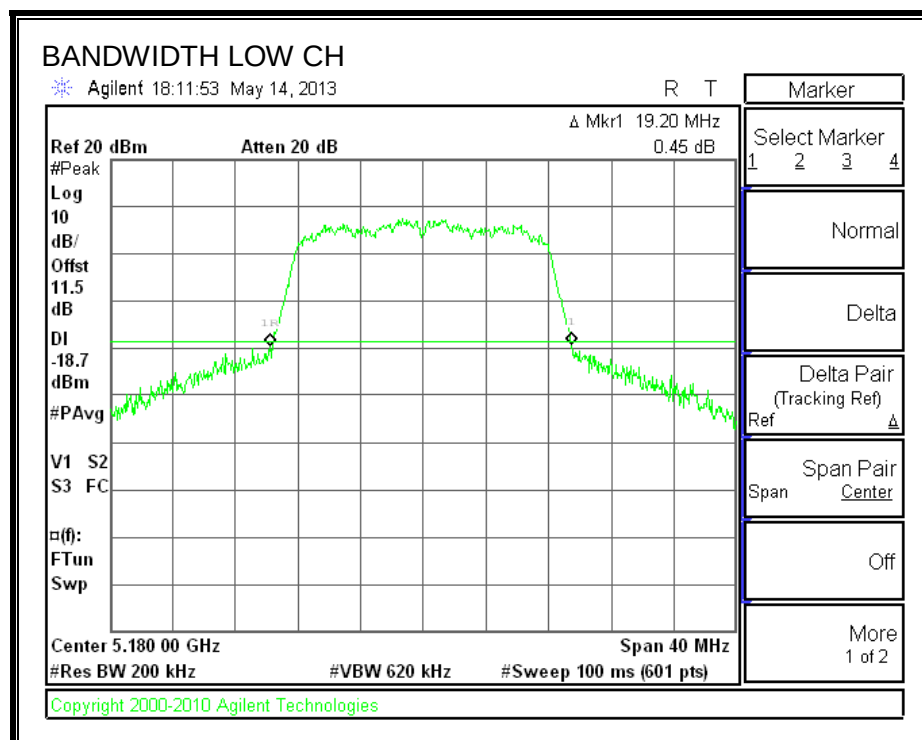
LIMITS

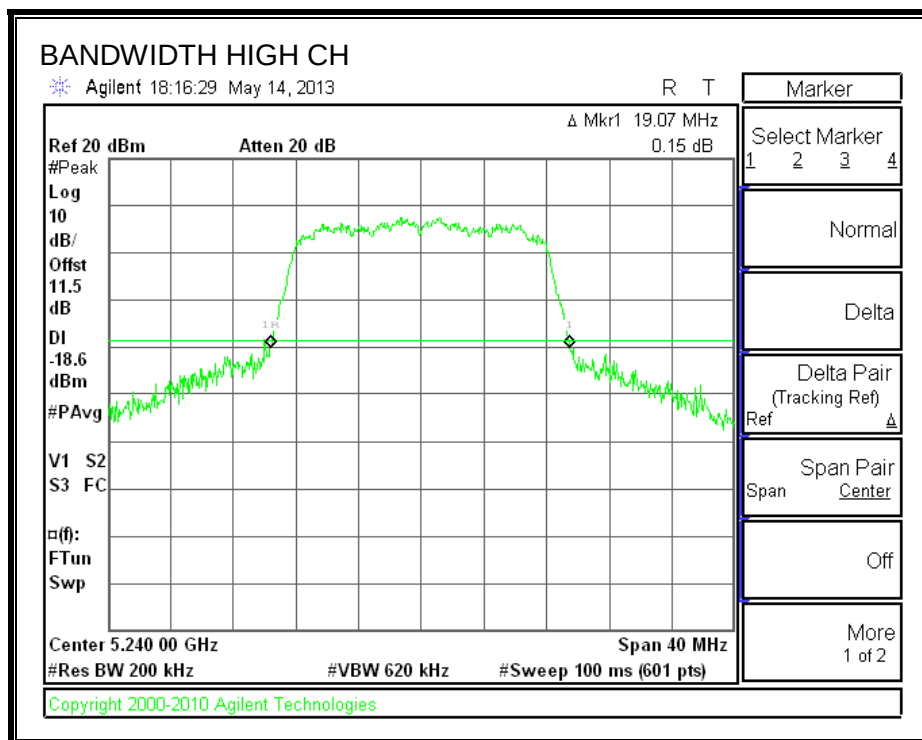
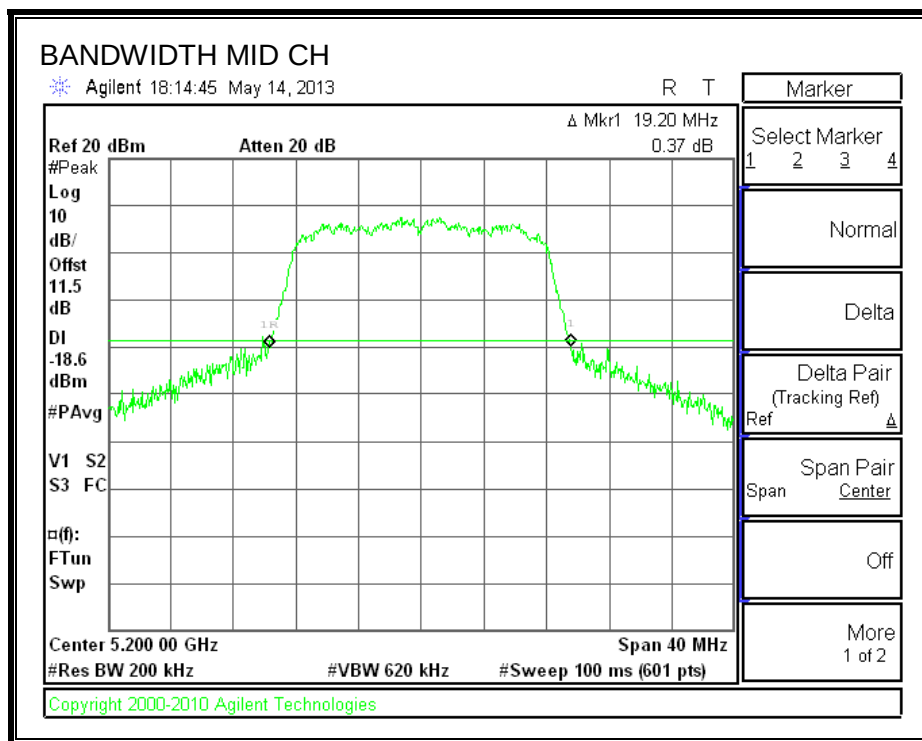
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	19.20
Mid	5200	19.20
High	5240	19.07

26 dB BANDWIDTH





8.1.2. 99% BANDWIDTH

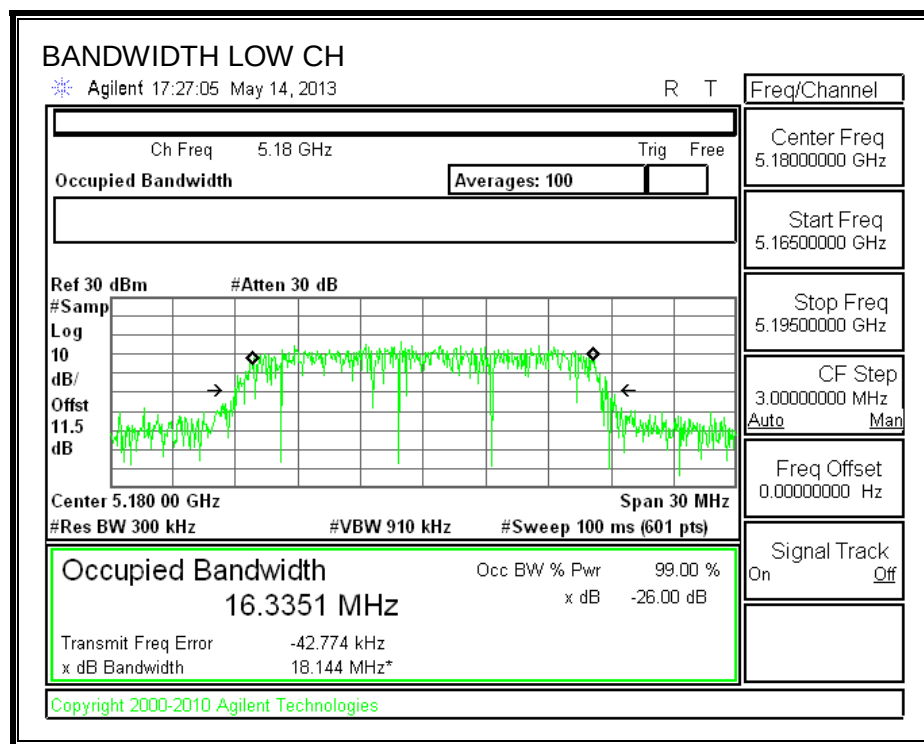
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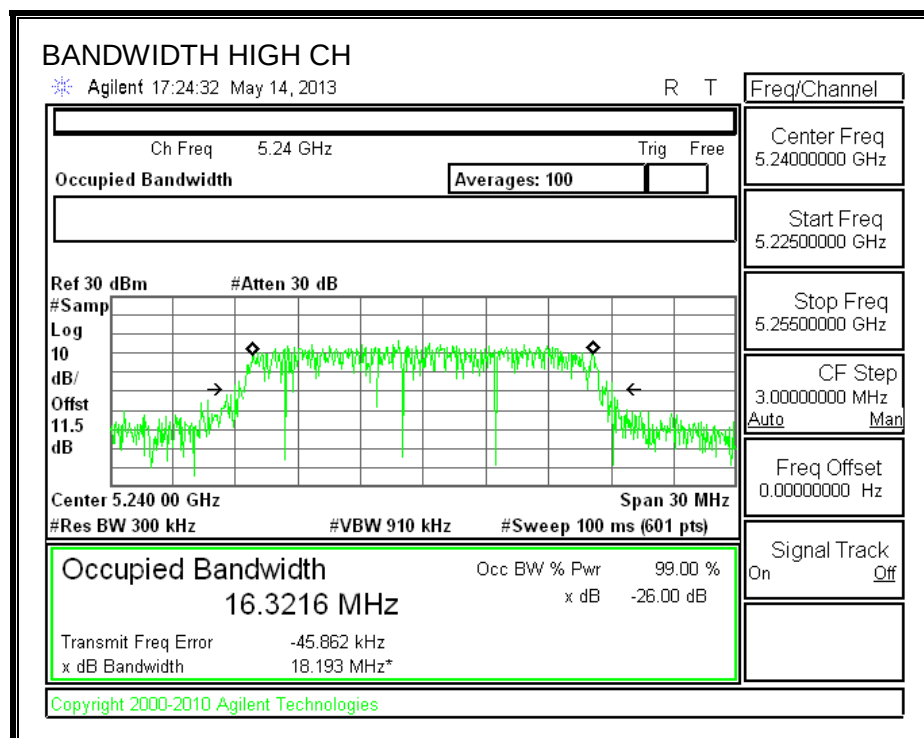
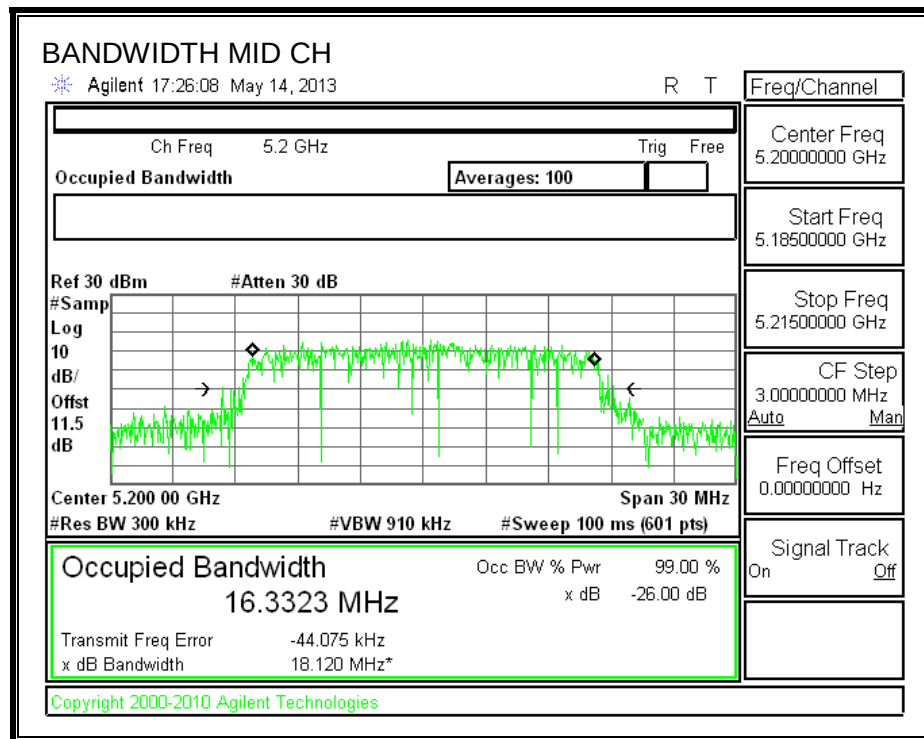
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.3351
Mid	5200	16.3323
High	5240	16.3216

99% BANDWIDTH





8.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5180	14.00
Mid	5200	13.90
High	5240	13.91

8.1.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	19.20	16.3351	-5.91
Mid	5200	19.20	16.3323	-5.91
High	5240	19.07	16.3216	-5.91

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	16.83	22.13	28.04	16.83	4.00	10.00	4.00
Mid	5200	16.83	22.13	28.04	16.83	4.00	10.00	4.00
High	5240	16.80	22.13	28.04	16.80	4.00	10.00	4.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd Power & PPSD
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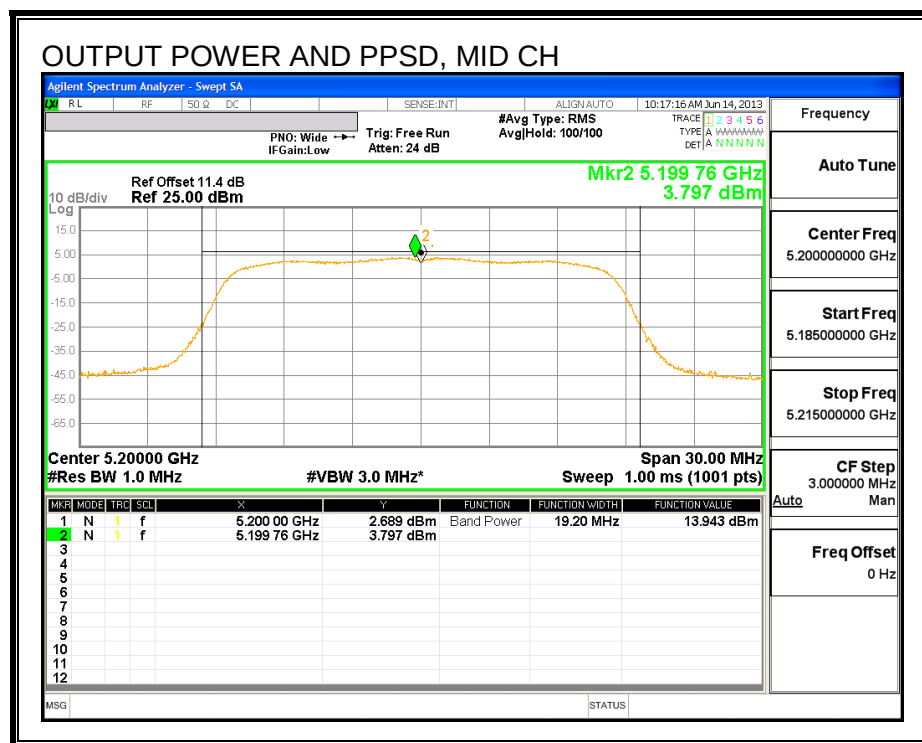
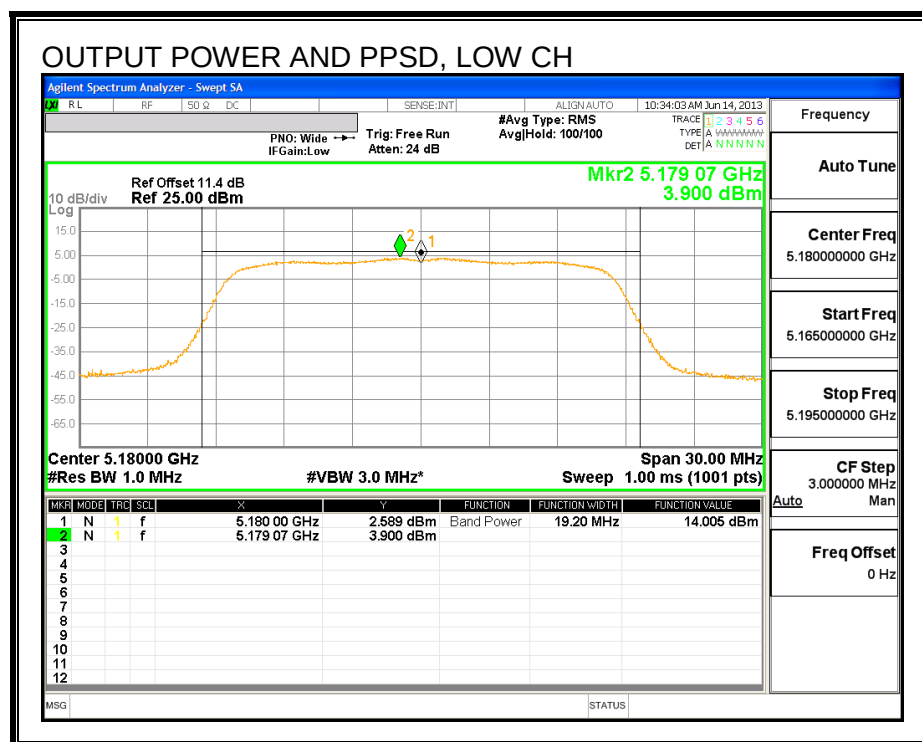
Output Power Results

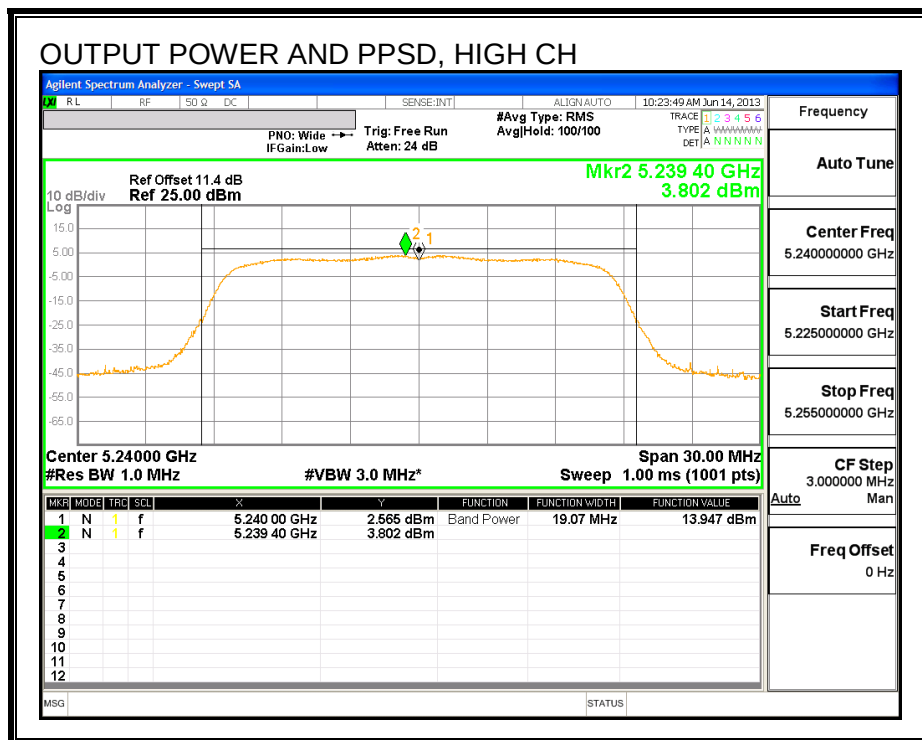
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.005	14.10	16.83	-2.74
Mid	5200	13.943	14.03	16.83	-2.80
High	5240	13.947	14.04	16.80	-2.77

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	3.900	3.99	4.00	-0.01
Mid	5200	3.797	3.89	4.00	-0.11
High	5240	3.802	3.89	4.00	-0.11

OUTPUT POWER AND PSD





8.1.5. PEAK EXCURSION

LIMITS

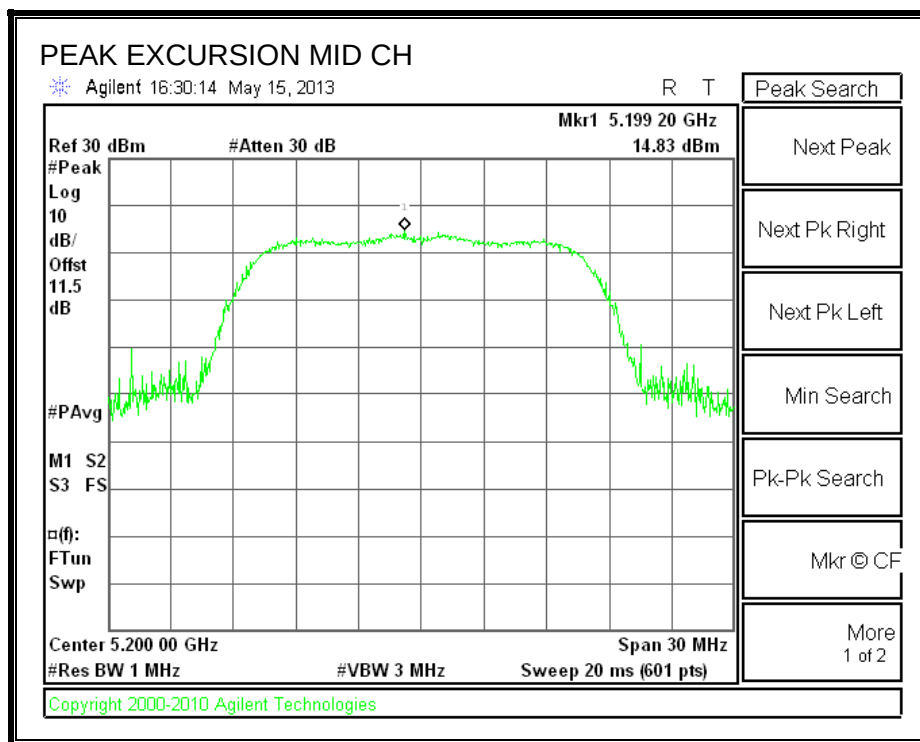
FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	14.83	3.91	0.09	10.83	13	-2.17

PEAK EXCURSION



8.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

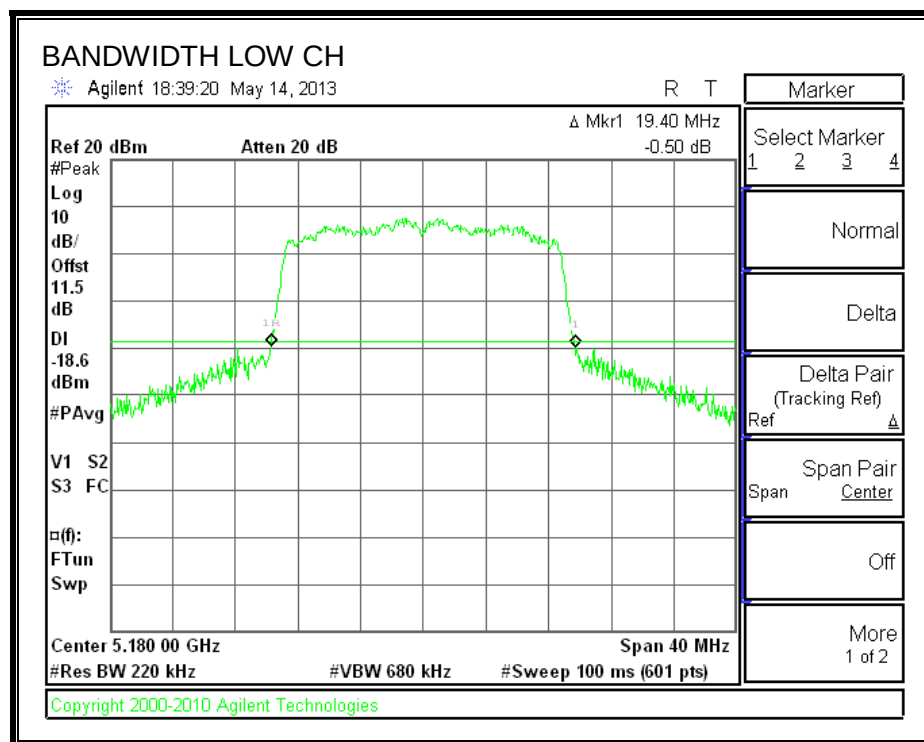
LIMITS

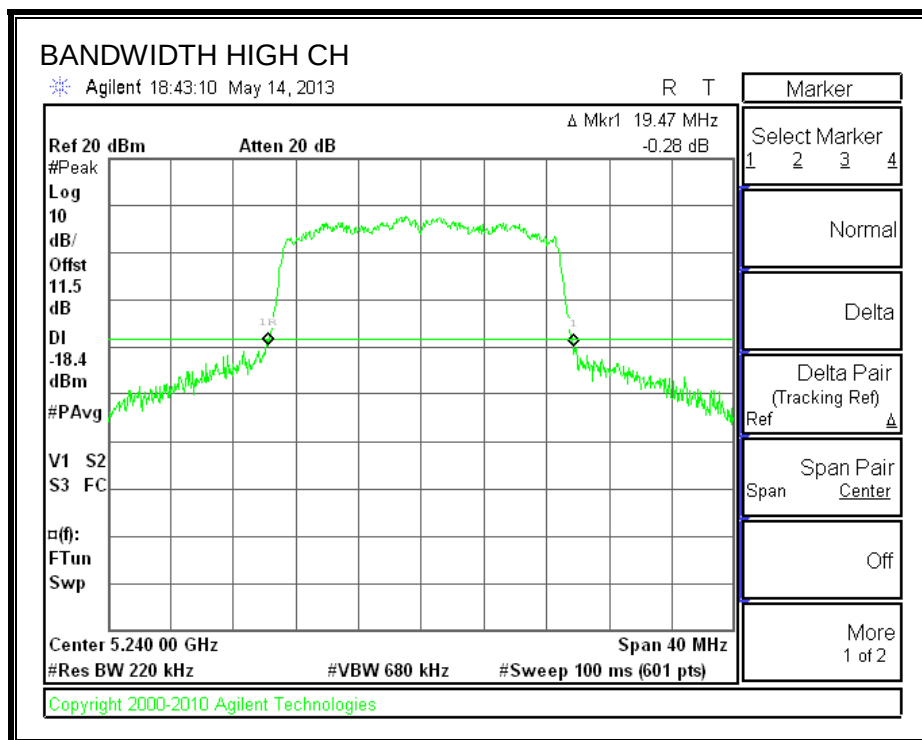
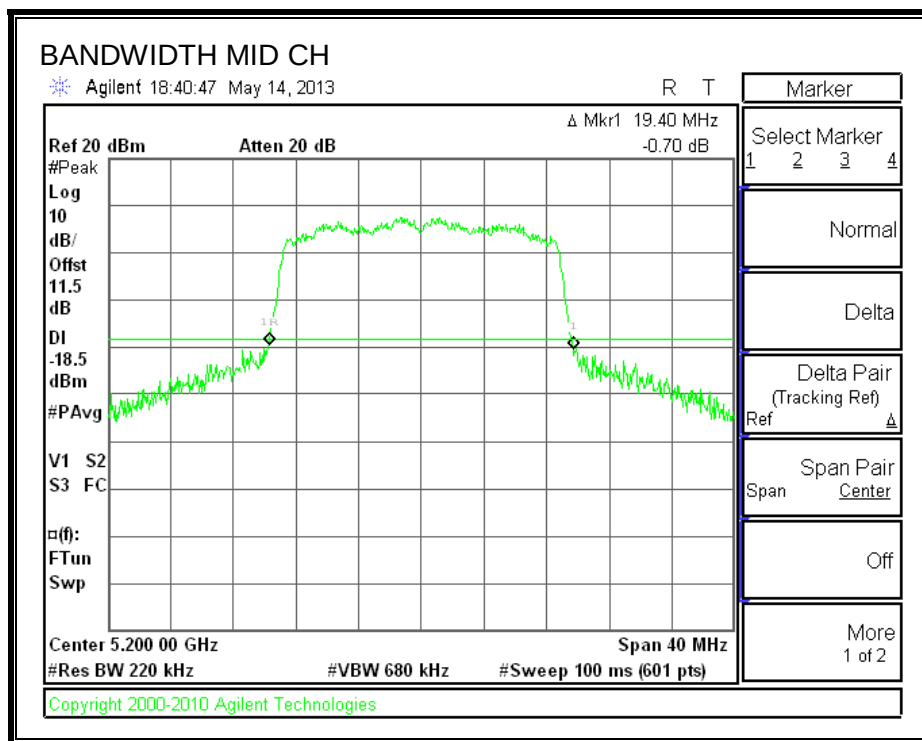
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	19.40
Mid	5200	19.40
High	5240	19.47

26 dB BANDWIDTH





8.2.2. 99% BANDWIDTH

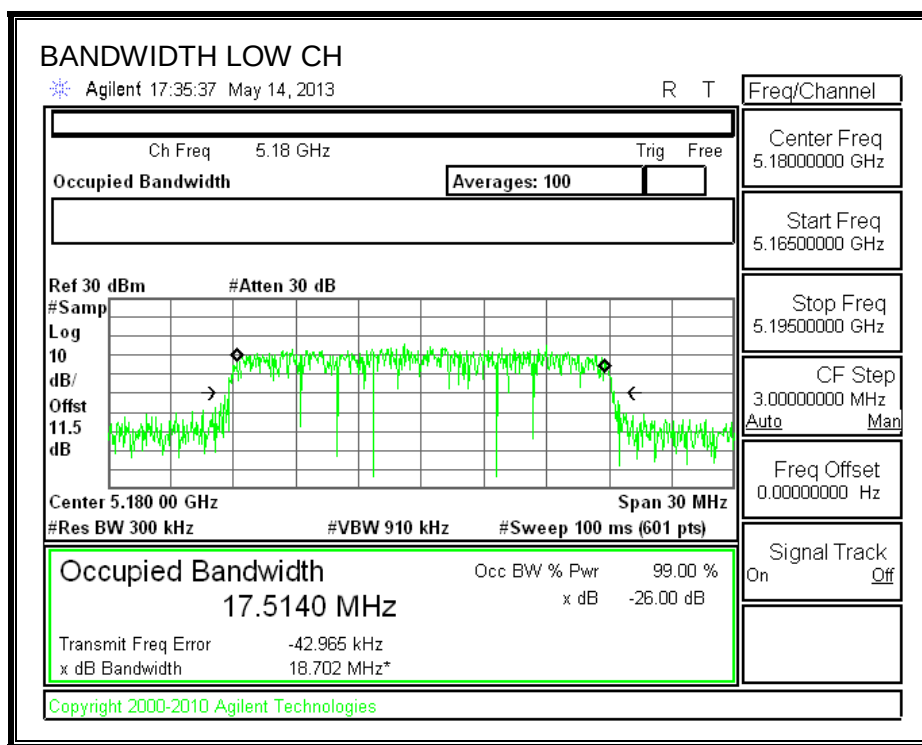
LIMITS

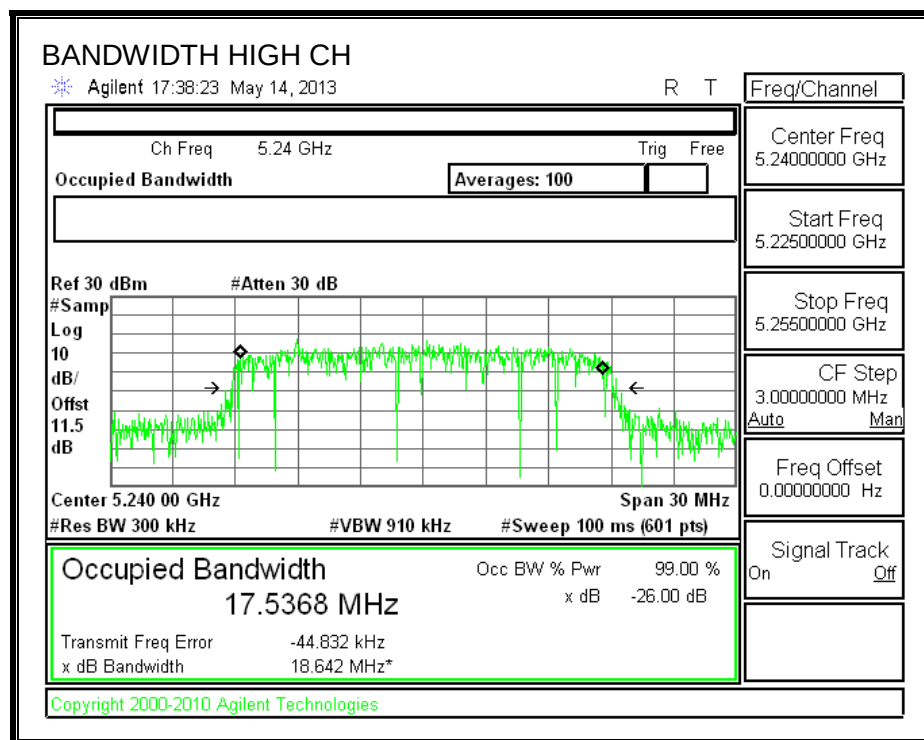
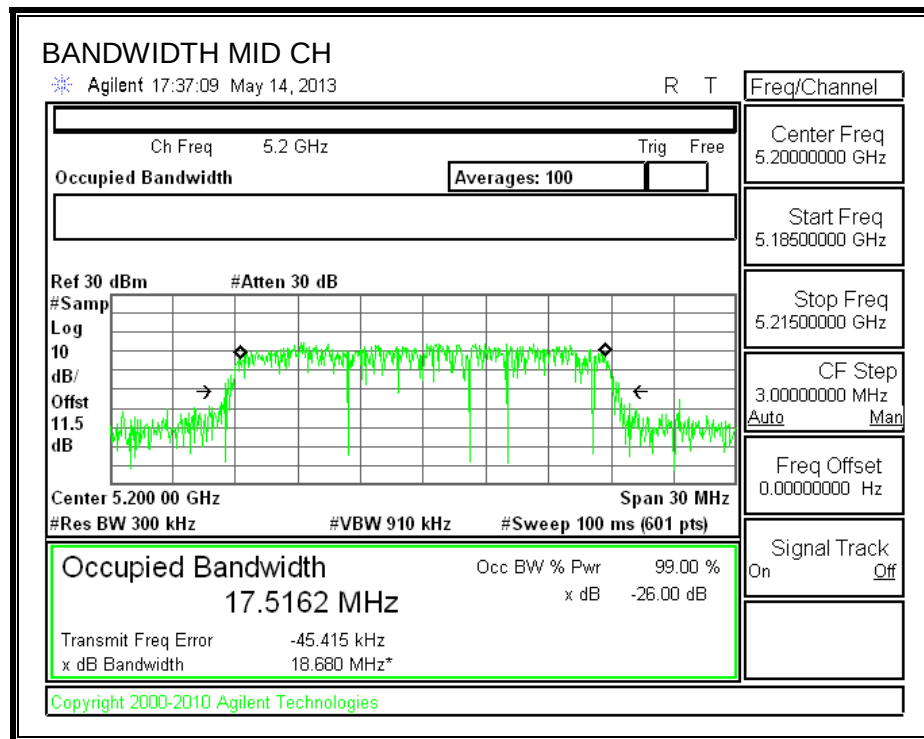
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.5140
Mid	5200	17.5162
High	5240	17.5368

99% BANDWIDTH





8.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5180	14.21
Mid	5200	14.01
High	5240	13.50

8.2.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	19.40	17.5140	-5.91
Mid	5200	19.40	17.5162	-5.91
High	5240	19.47	17.5368	-5.91

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	16.88	22.43	28.34	16.88	4.00	10.00	4.00
Mid	5200	16.88	22.43	28.34	16.88	4.00	10.00	4.00
High	5240	16.89	22.44	28.35	16.89	4.00	10.00	4.00

Duty Cycle CF (dB)	0.07	Included in Calculations of Corr'd Power & PPSP
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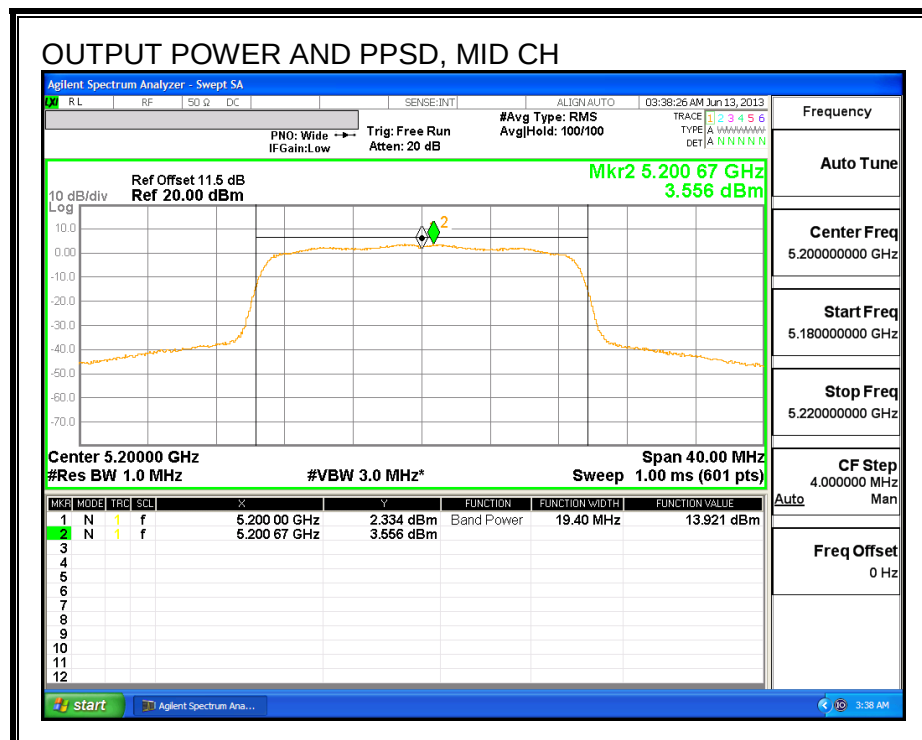
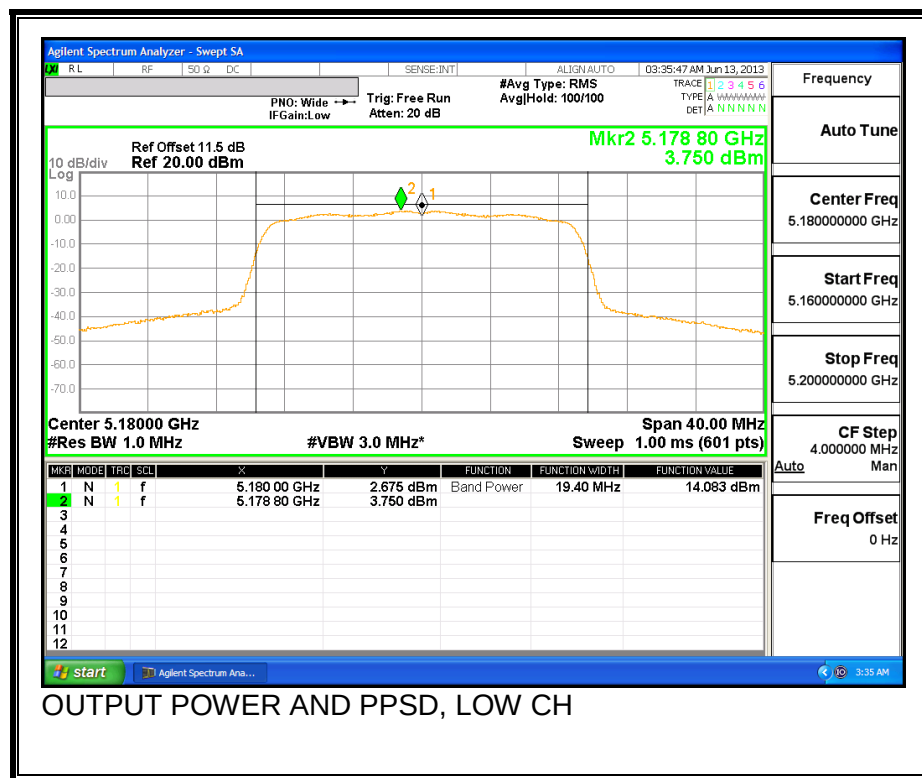
Output Power Results

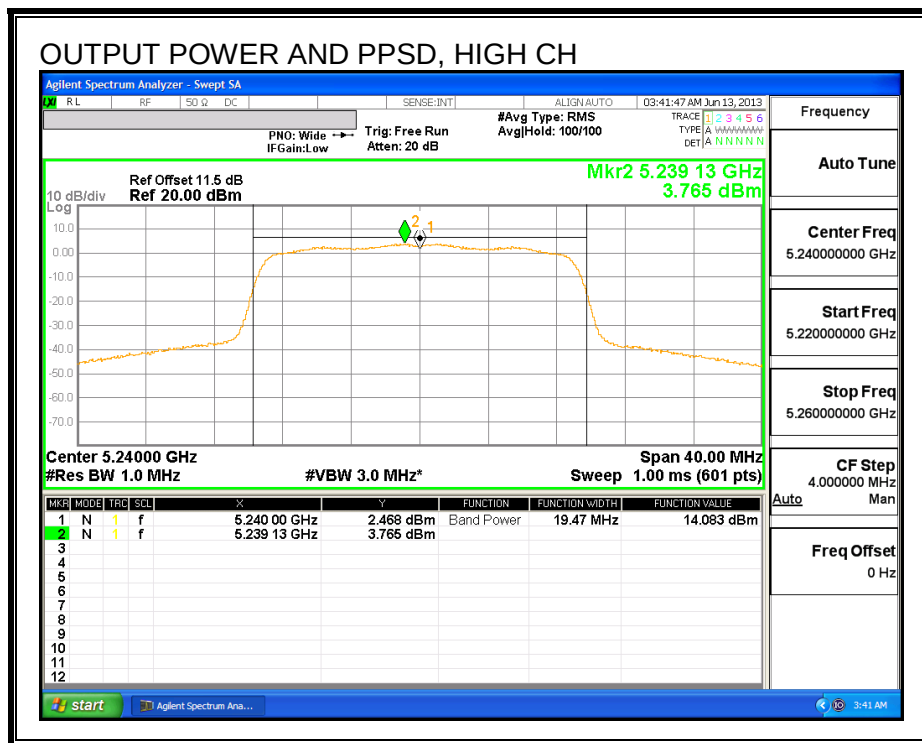
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.083	14.15	16.88	-2.73
Mid	5200	13.921	13.99	16.88	-2.89
High	5240	14.083	14.15	16.89	-2.74

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	3.750	3.82	4.00	-0.18
Mid	5200	3.556	3.63	4.00	-0.37
High	5240	3.765	3.84	4.00	-0.16

OUTPUT POWER AND PSD





8.2.5. PEAK EXCURSION

LIMITS

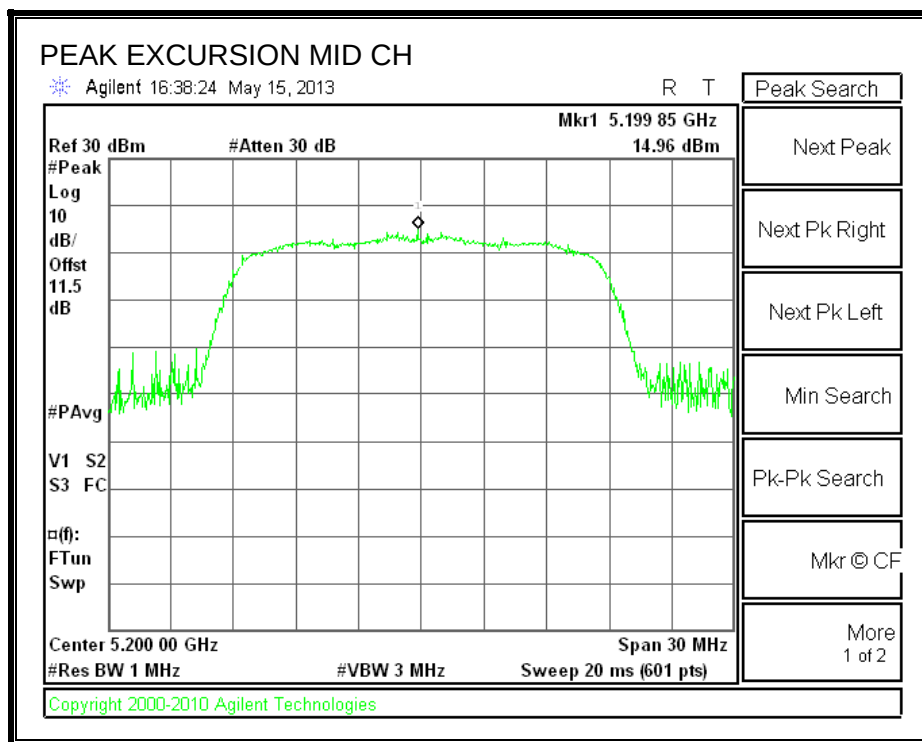
FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	14.96	3.98	0.07	10.91	13	-2.09

PEAK EXCURSION



8.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

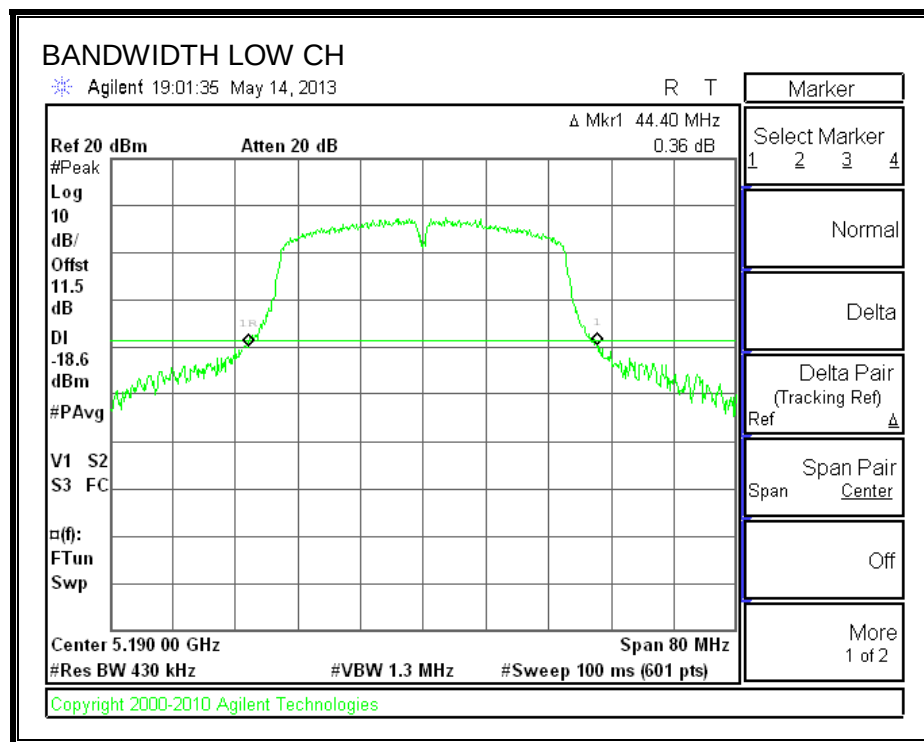
LIMITS

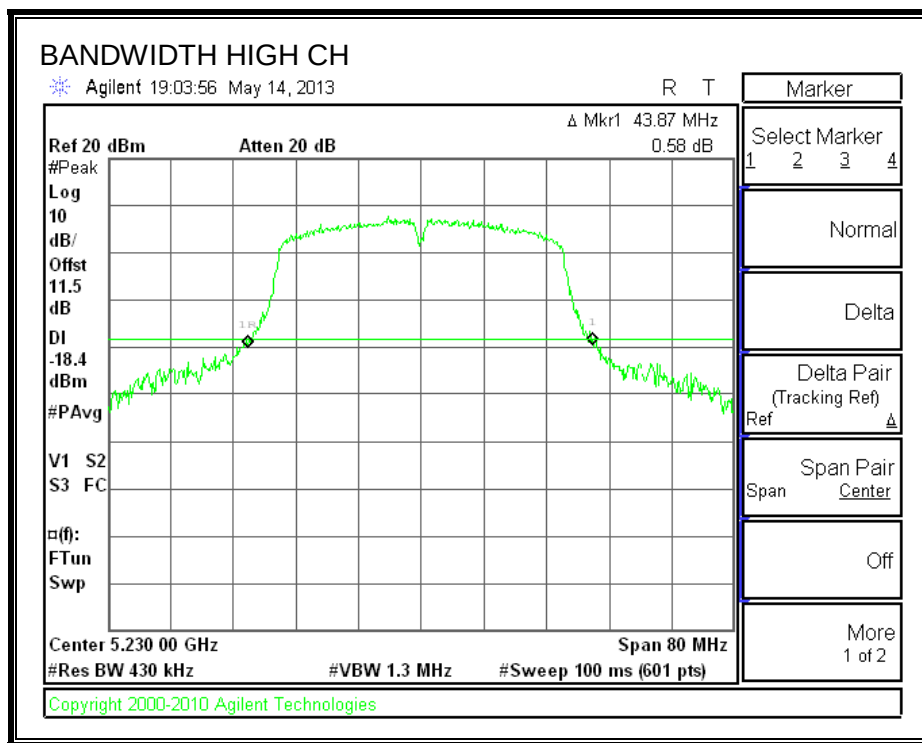
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	44.40
5230	5230	43.87

26 dB BANDWIDTH





8.3.2. 99% BANDWIDTH

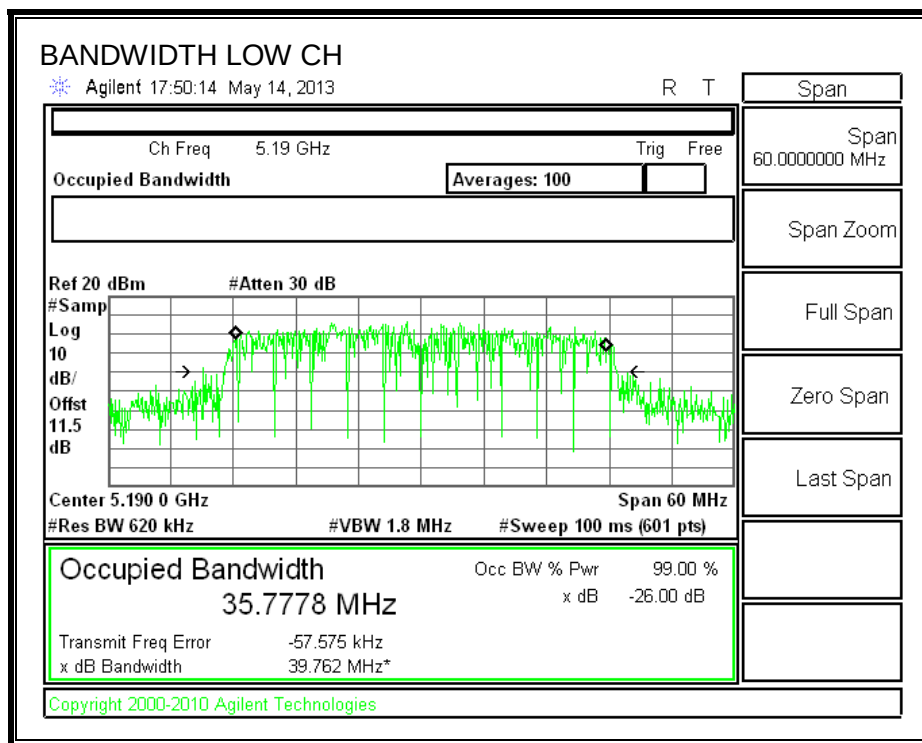
LIMITS

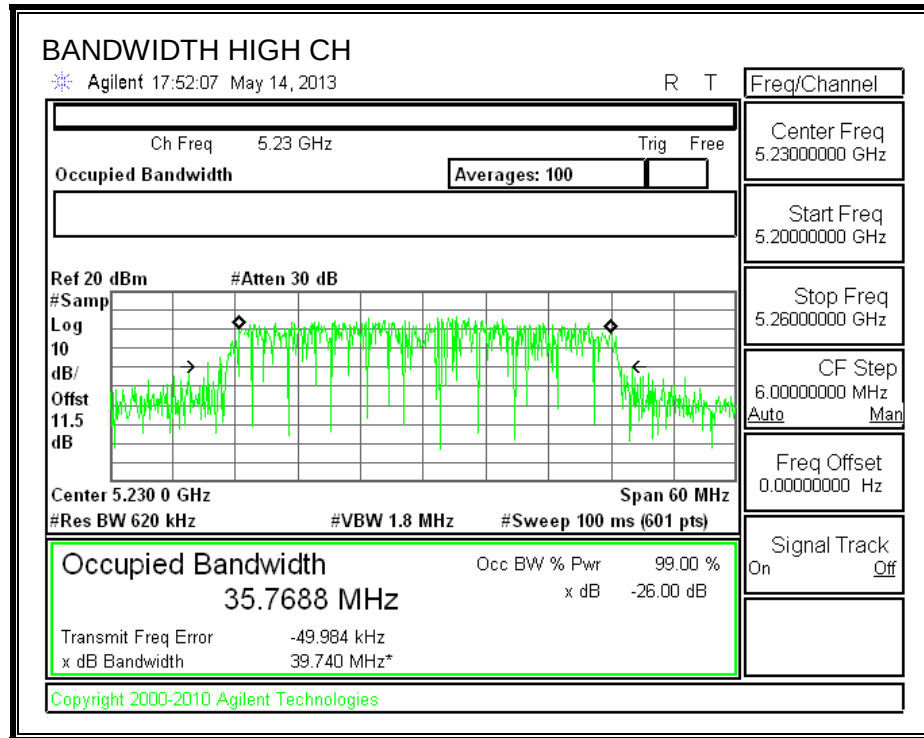
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	35.7778
High	5230	35.7688

99% BANDWIDTH





8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Mid	5190	14.20
High	5230	13.91

8.3.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	44.40	35.7778	-5.91
High	5230	43.87	35.7688	-5.91

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	28.91	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	28.91	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd Power & PPSP
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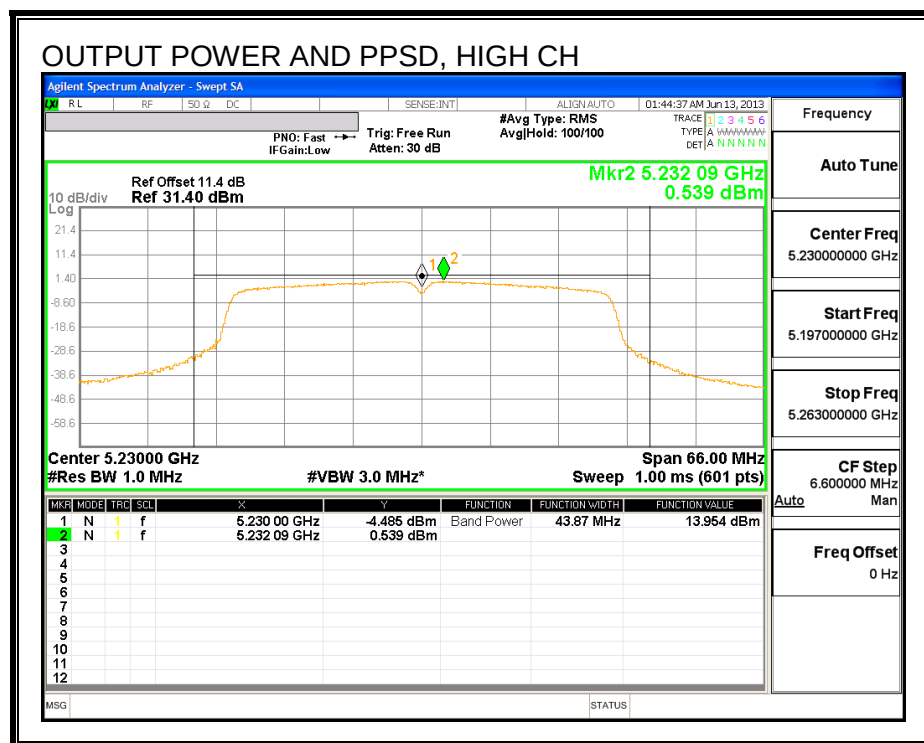
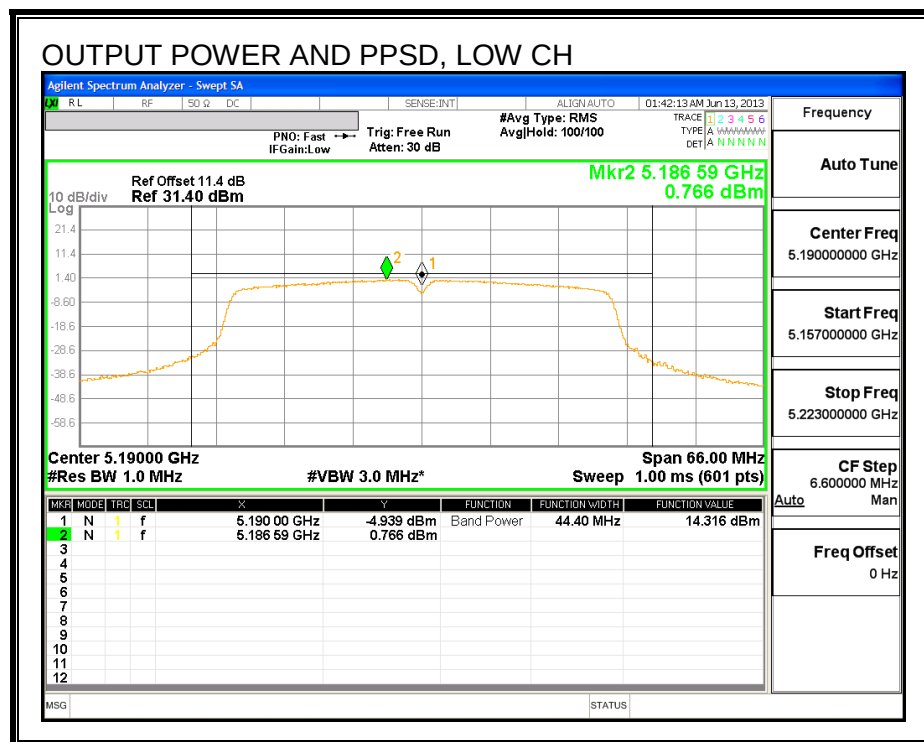
Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	14.316	14.48	17.00	-2.52
High	5230	13.964	14.12	17.00	-2.88

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	0.766	0.93	4.00	-3.07
High	5230	0.539	0.70	4.00	-3.30

OUTPUT POWER AND PPSD



8.3.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

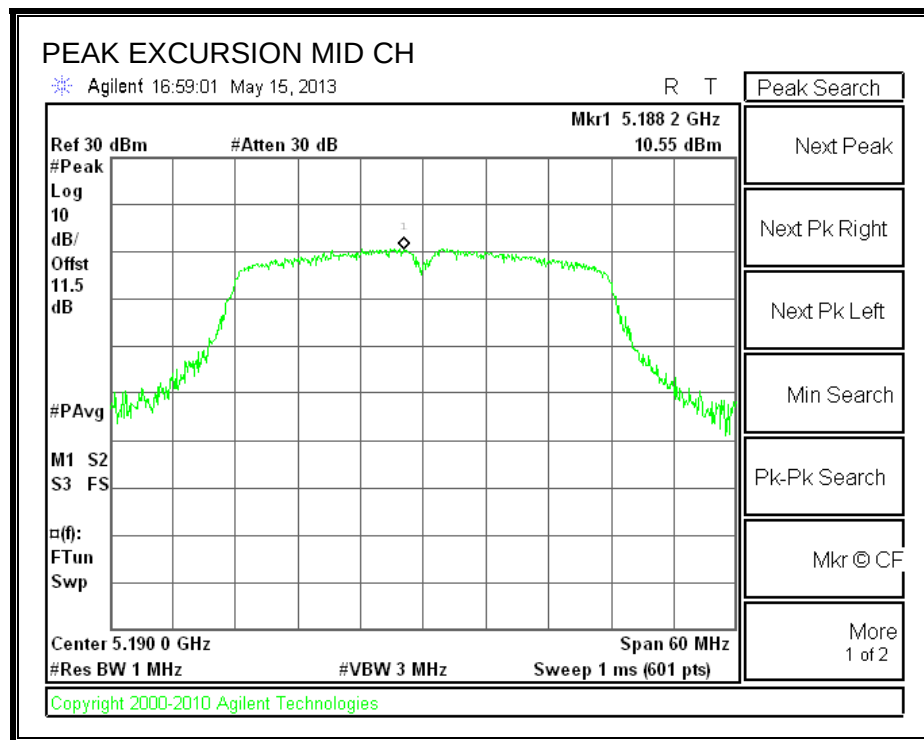
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5190	10.55	2.23	0.16	8.16	13	-4.84

PEAK EXCURSION



8.4. 802.11a MODE IN THE 5.3 GHZ BAND

8.4.1. 26 dB BANDWIDTH

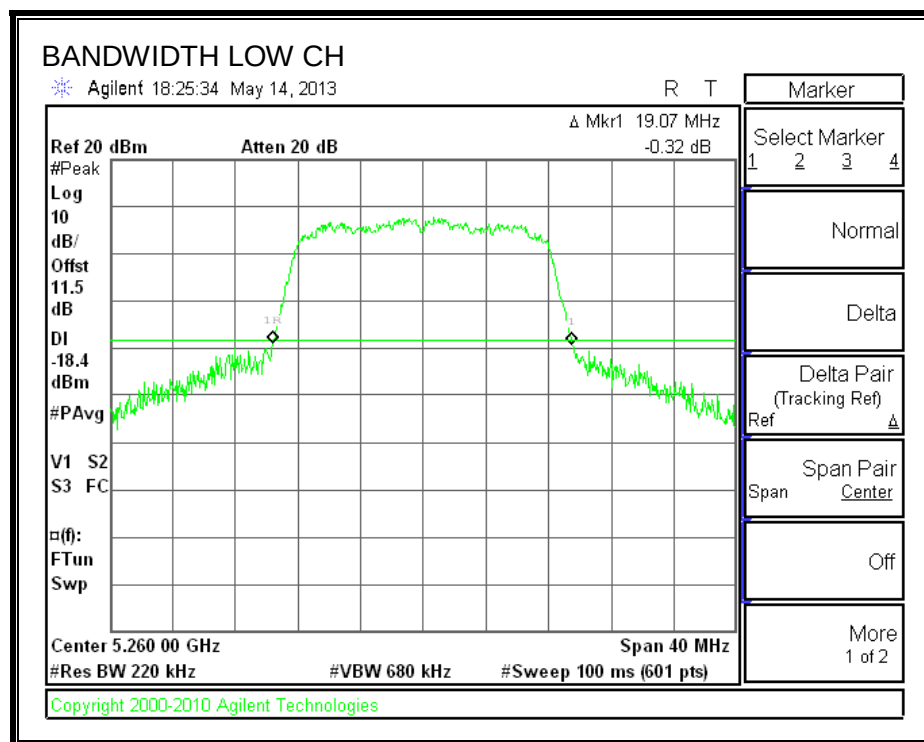
LIMITS

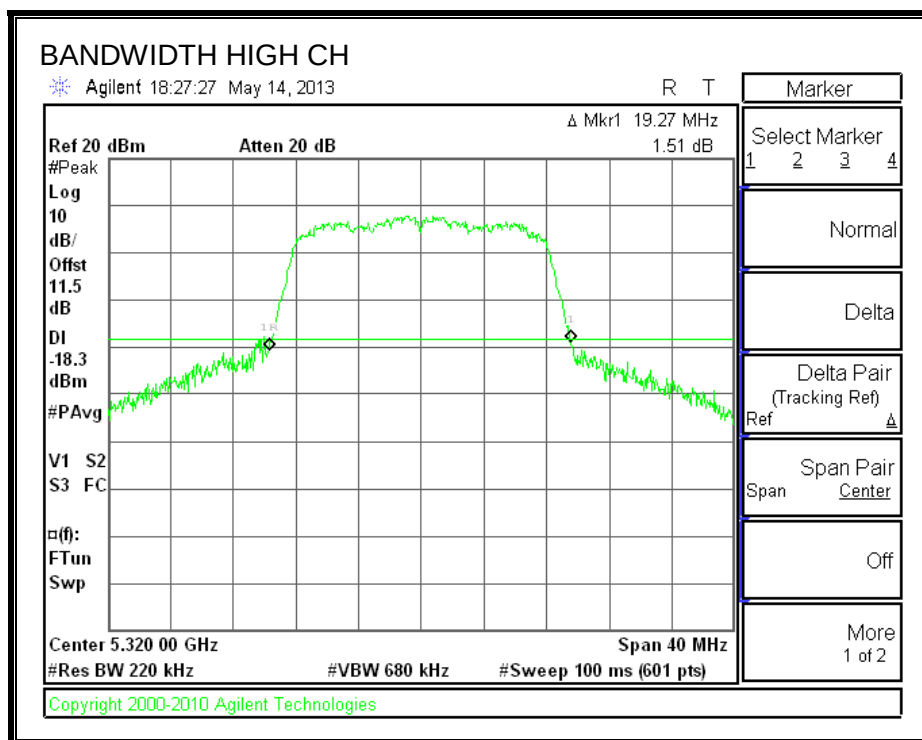
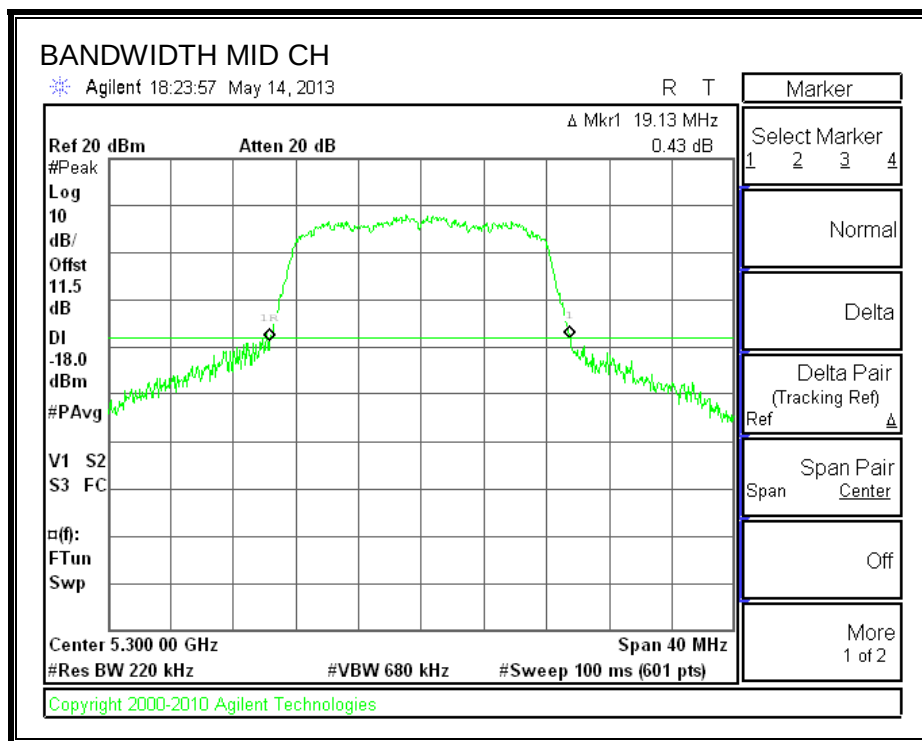
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	19.07
Mid	5300	19.13
High	5320	19.27

26 dB BANDWIDTH





8.4.2. 99% BANDWIDTH

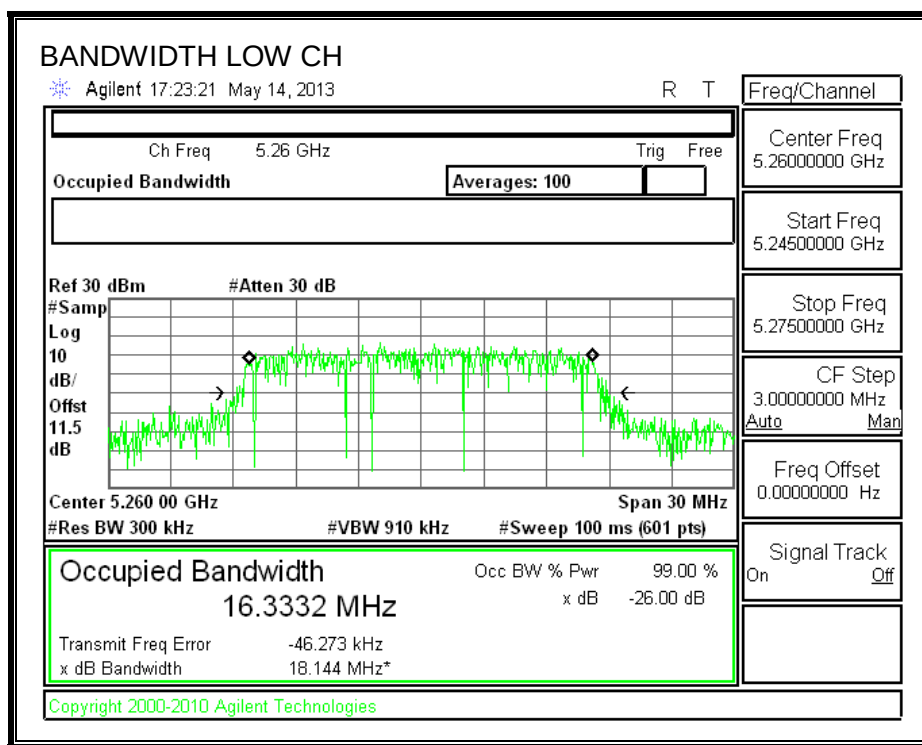
LIMITS

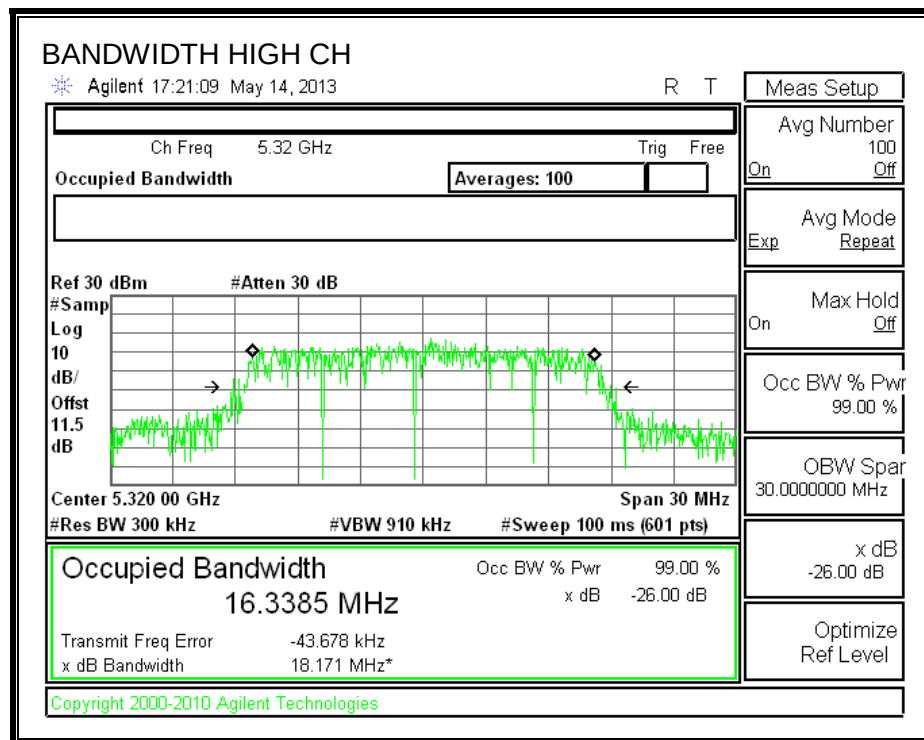
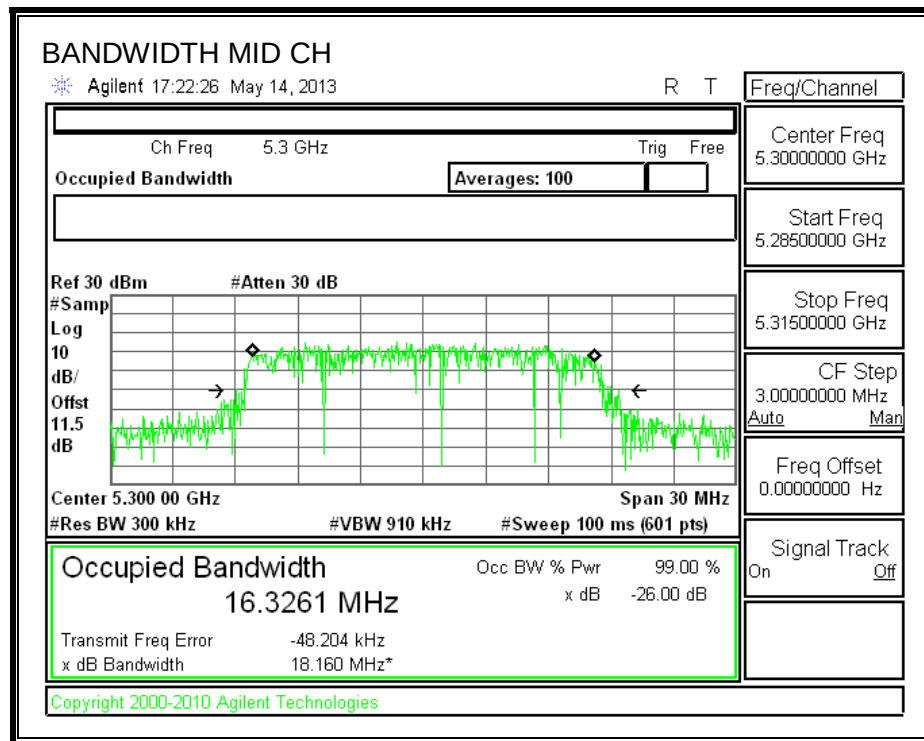
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.3332
Mid	5300	16.3261
High	5320	16.3385

99% BANDWIDTH





8.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5260	15.22
Mid	5300	15.00
High	5320	14.87

8.4.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	19.07	16.3332	-5.83
Mid	5300	19.13	16.3261	-5.83
High	5320	19.27	16.3385	-5.83

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	23.80	23.13	29.13	23.13	11.00	11.00	11.00
Mid	5300	23.82	23.13	29.13	23.13	11.00	11.00	11.00
High	5320	23.85	23.13	29.13	23.13	11.00	11.00	11.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd Power & PPSD
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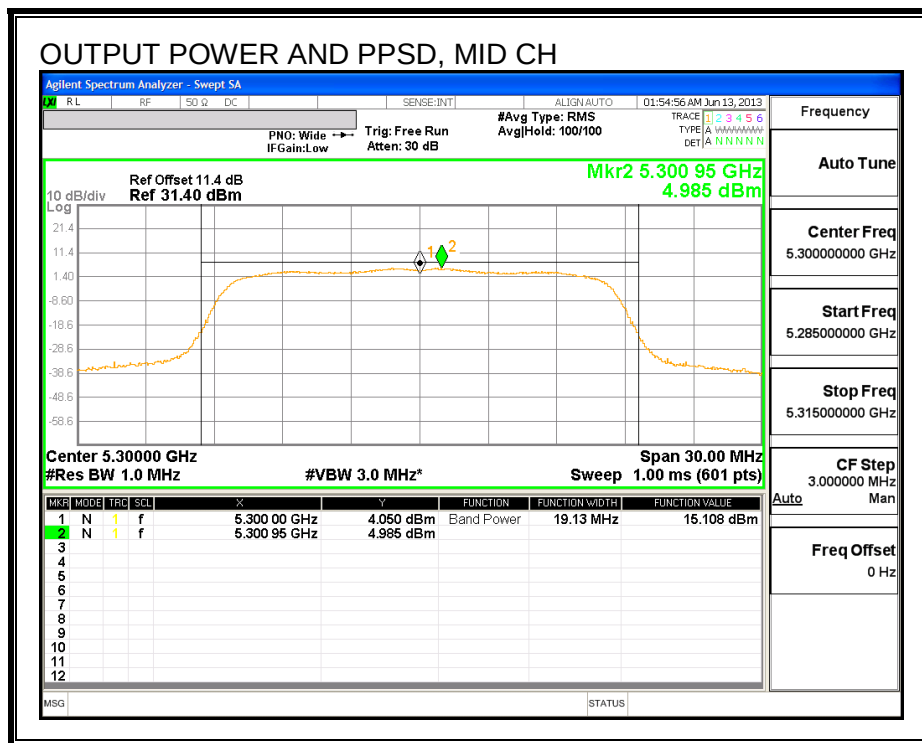
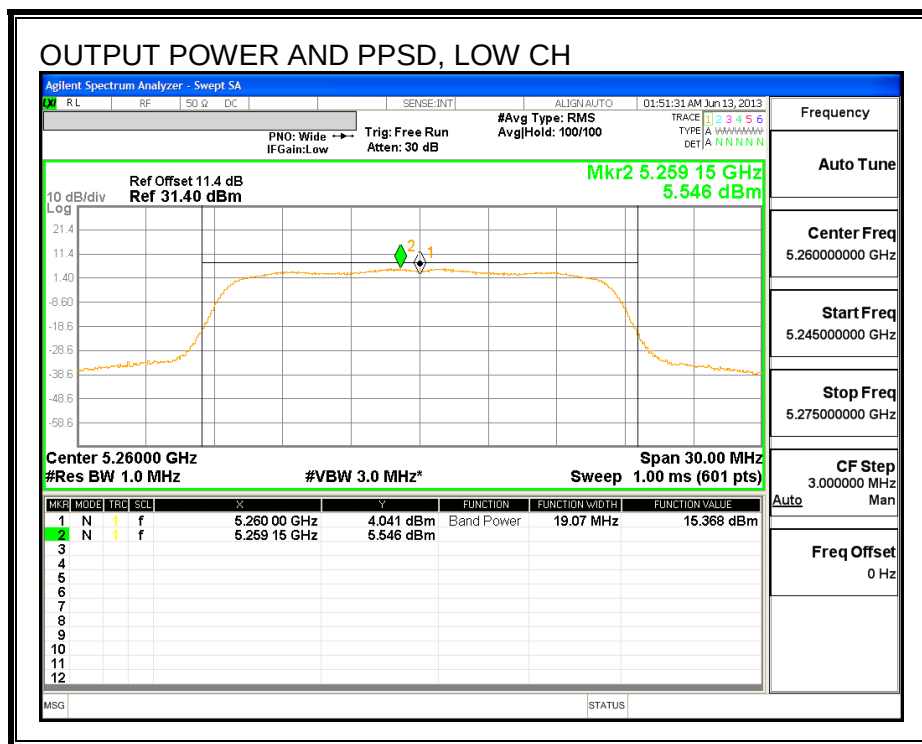
Output Power Results

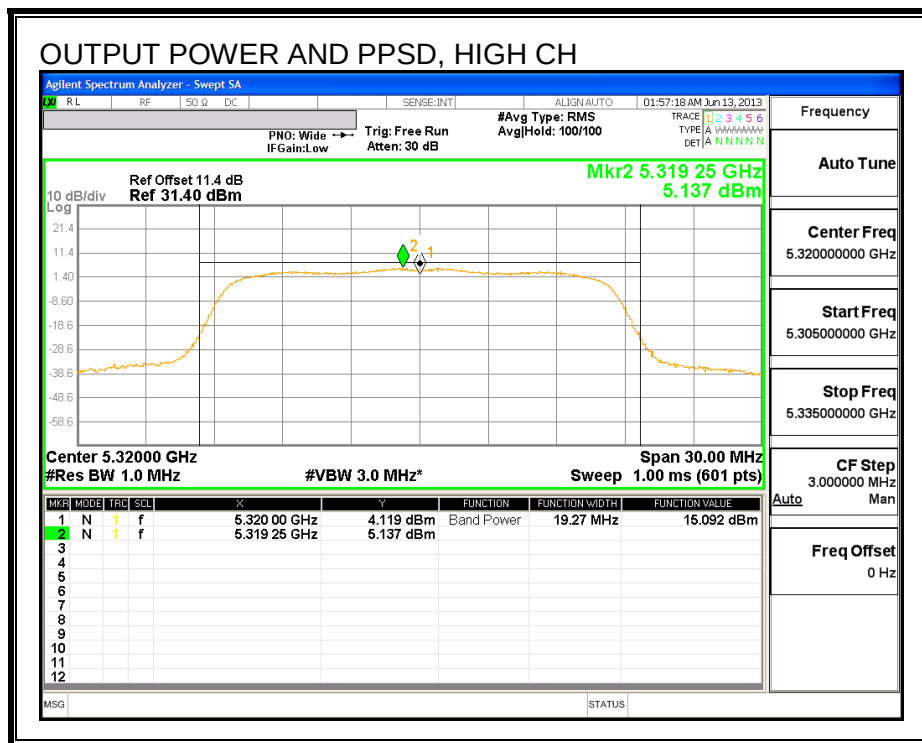
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.368	15.46	23.13	-7.67
Mid	5300	15.108	15.20	23.13	-7.93
High	5320	15.092	15.18	23.13	-7.95

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.546	5.64	11.00	-5.36
Mid	5300	4.985	5.08	11.00	-5.93
High	5320	5.137	5.23	11.00	-5.77

OUTPUT POWER AND PPSD





8.4.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

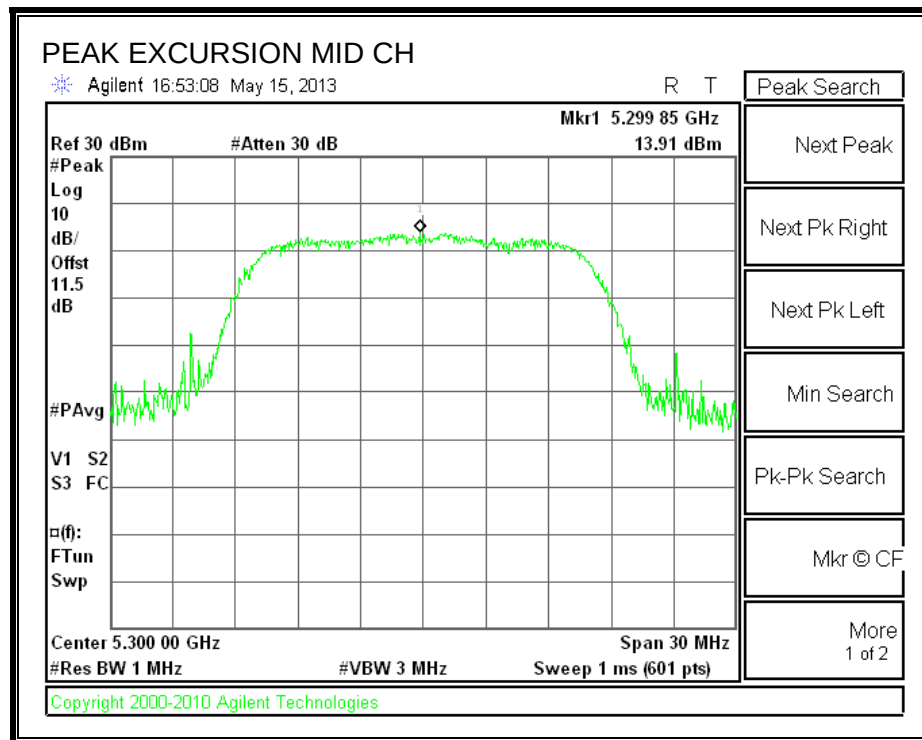
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5300	13.91	5.91	0.07	7.93	13	-5.07

PEAK EXCURSION



8.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

8.5.1. 26 dB BANDWIDTH

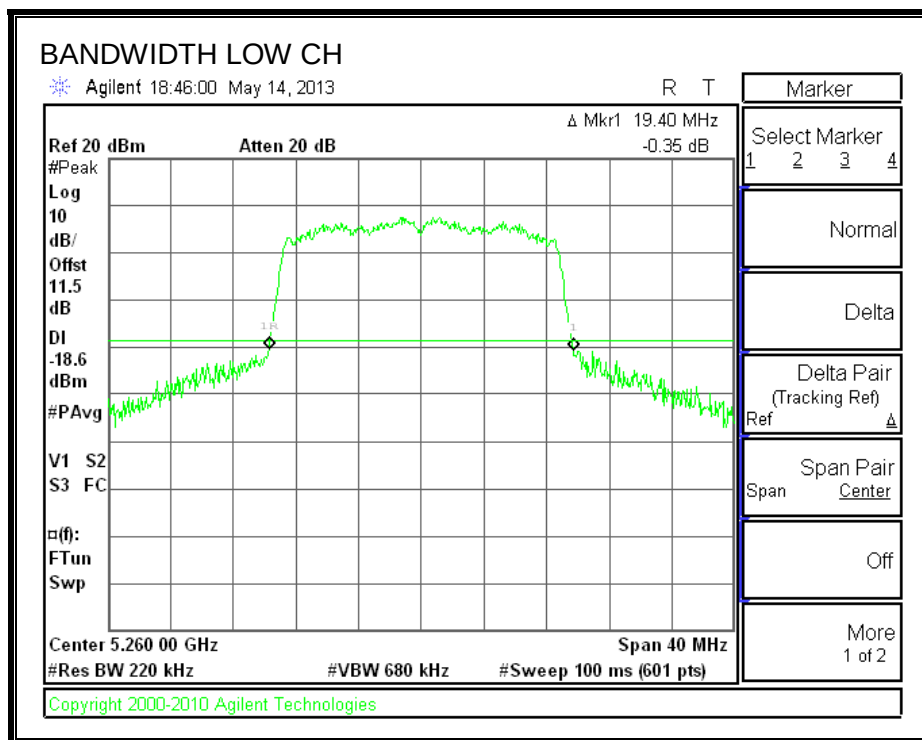
LIMITS

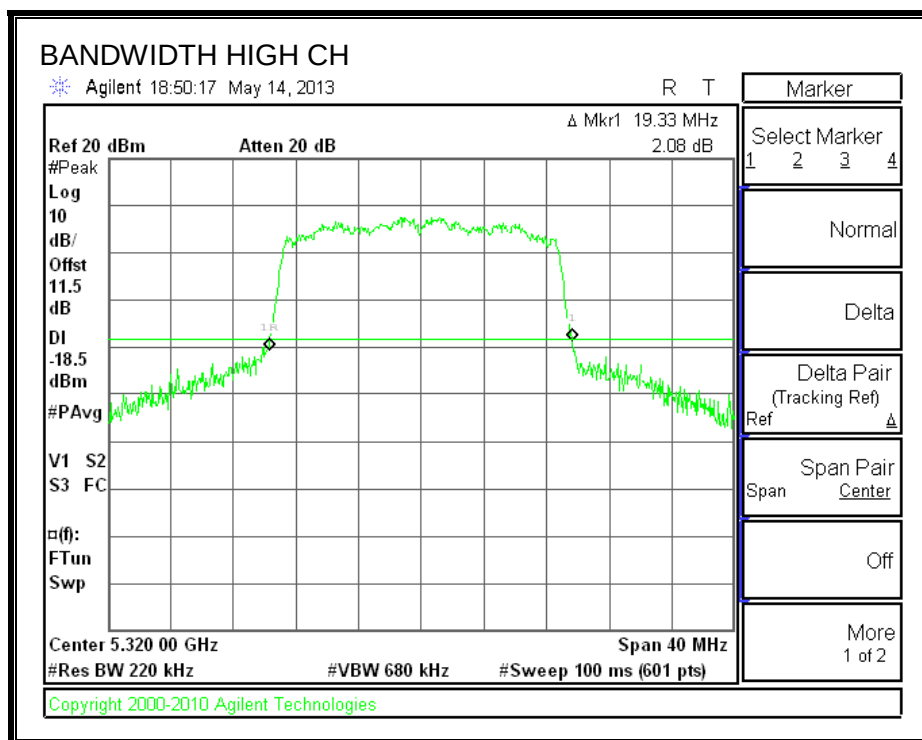
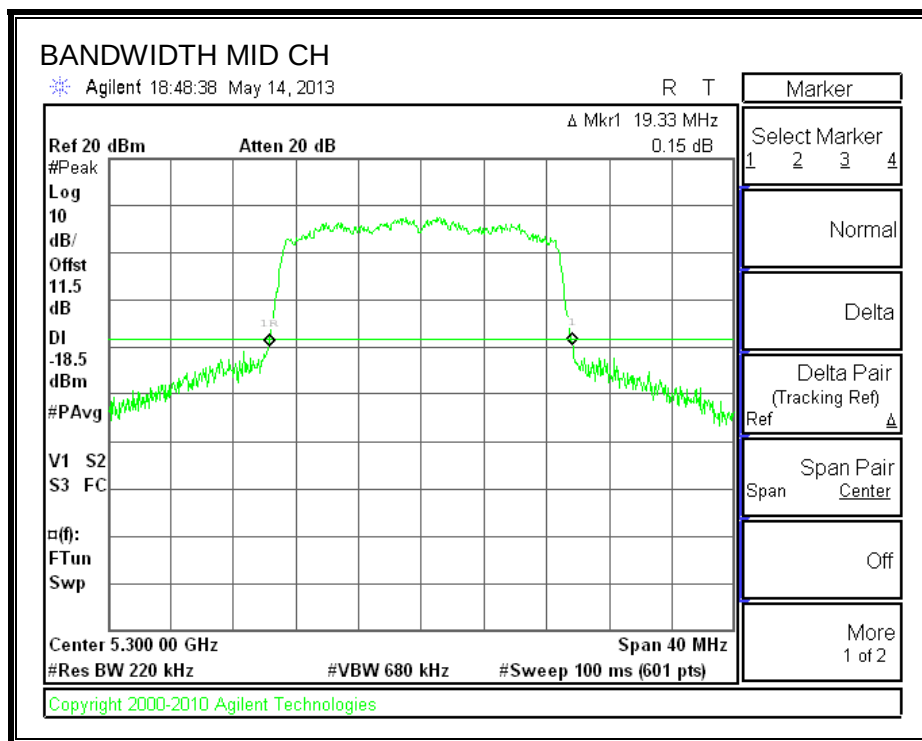
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	19.40
Mid	5300	19.33
High	5320	19.33

26 dB BANDWIDTH





8.5.2. 99% BANDWIDTH

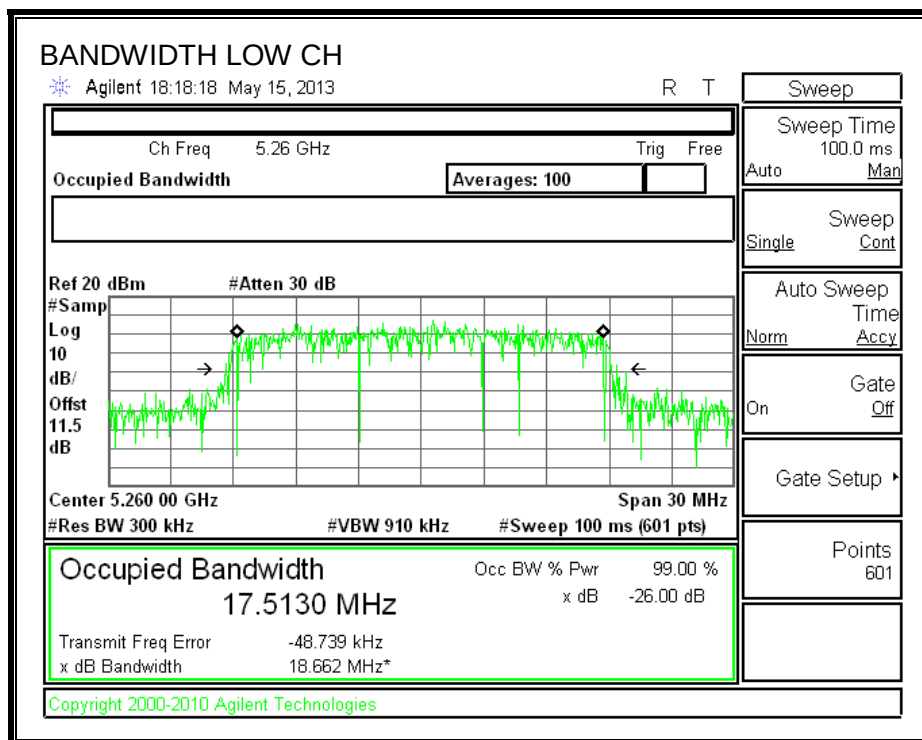
LIMITS

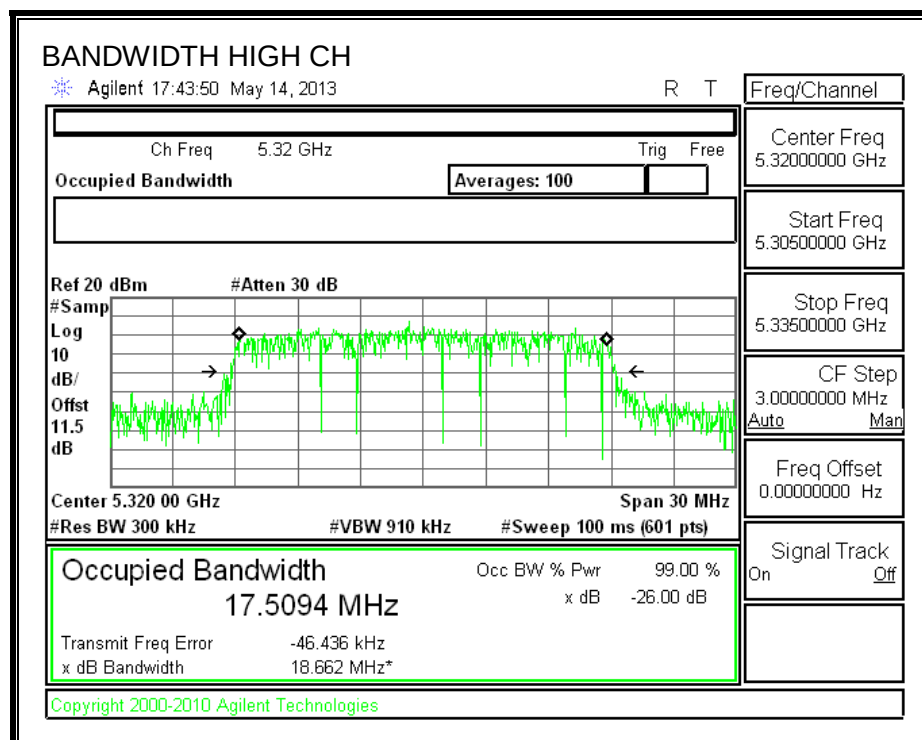
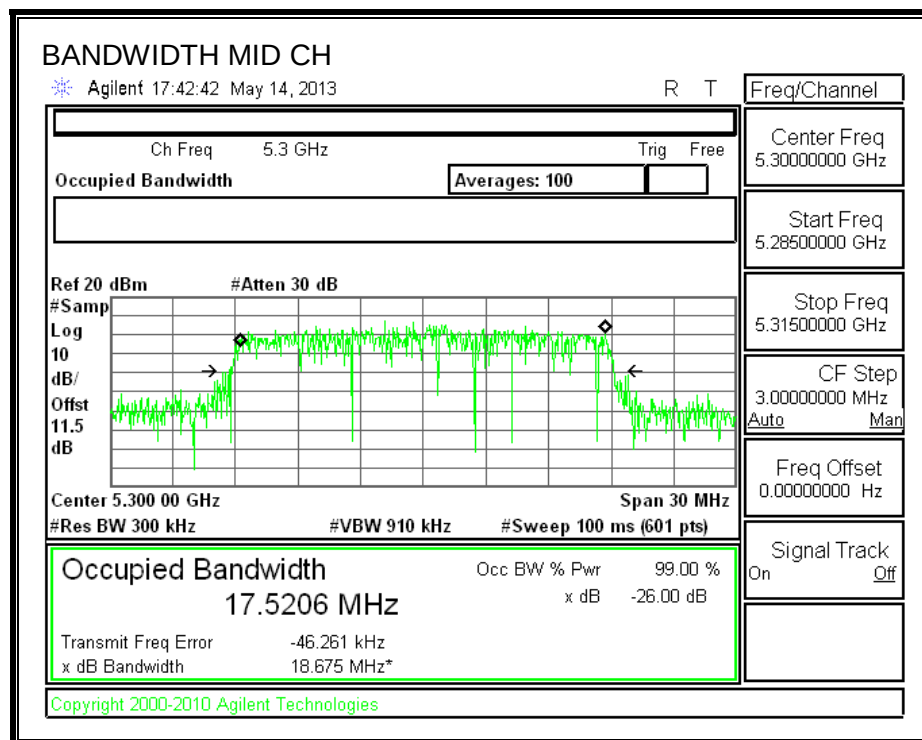
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.5130
Mid	5300	17.5206
High	5320	17.5094

99% BANDWIDTH





8.5.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.4 dB (including 10 dB pad and 1.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5260	15.24
Mid	5300	15.02
High	5320	14.89

8.5.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	19.40	17.5130	-5.83
Mid	5300	19.33	17.5206	-5.83
High	5320	19.33	17.5094	-5.83

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	23.88	23.43	29.43	23.43	11.00	11.00	11.00
Mid	5300	23.86	23.44	29.44	23.44	11.00	11.00	11.00
High	5320	23.86	23.43	29.43	23.43	11.00	11.00	11.00

Duty Cycle CF (dB)	0.07	Included in Calculations of Corr'd Power & PPSP
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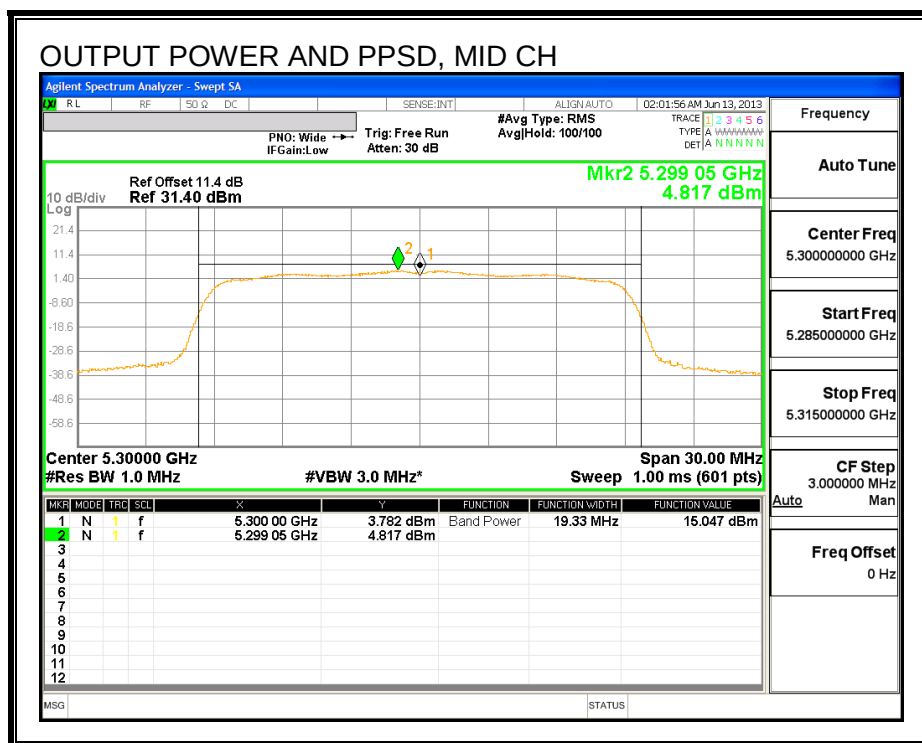
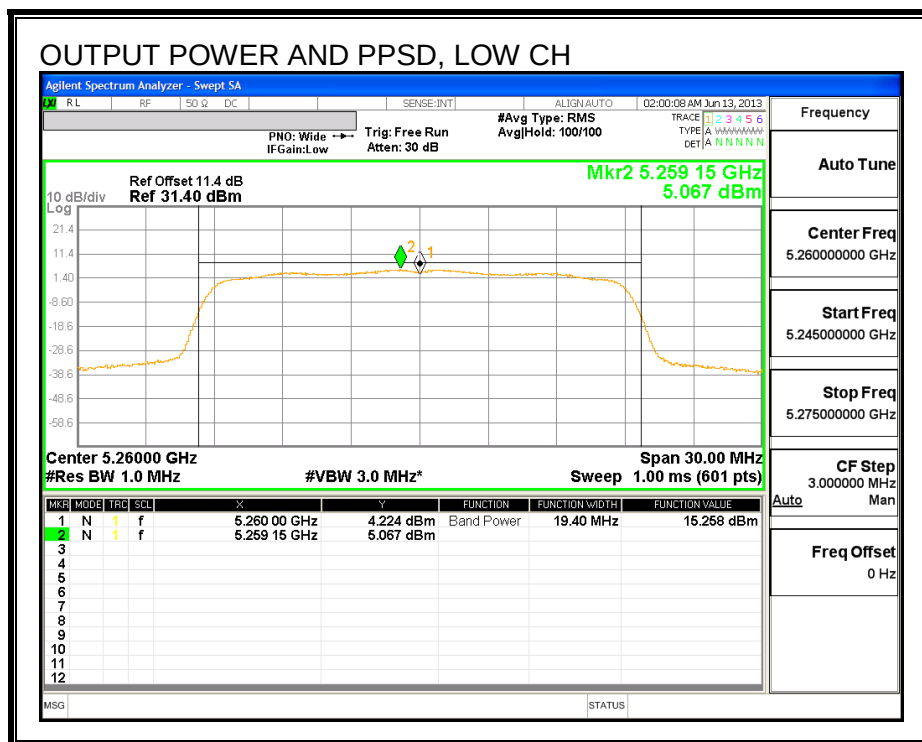
Output Power Results

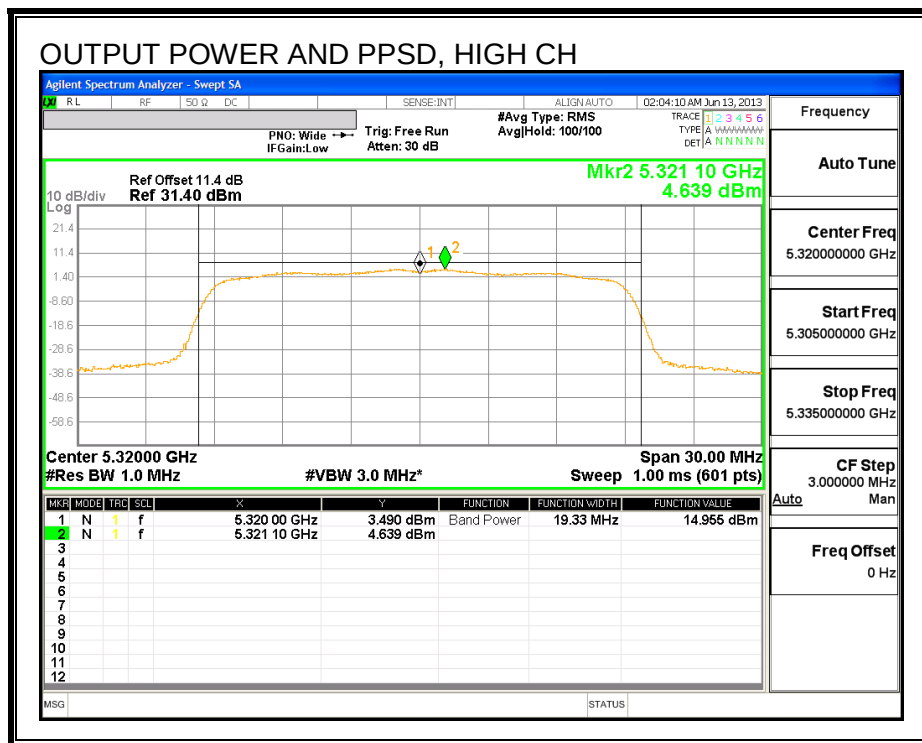
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.258	15.33	23.43	-8.11
Mid	5300	15.047	15.12	23.44	-8.32
High	5320	14.955	15.03	23.43	-8.41

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.067	5.14	11.00	-5.86
Mid	5300	4.817	4.89	11.00	-6.11
High	5320	4.639	4.71	11.00	-6.29

OUTPUT POWER AND PPSD





8.5.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

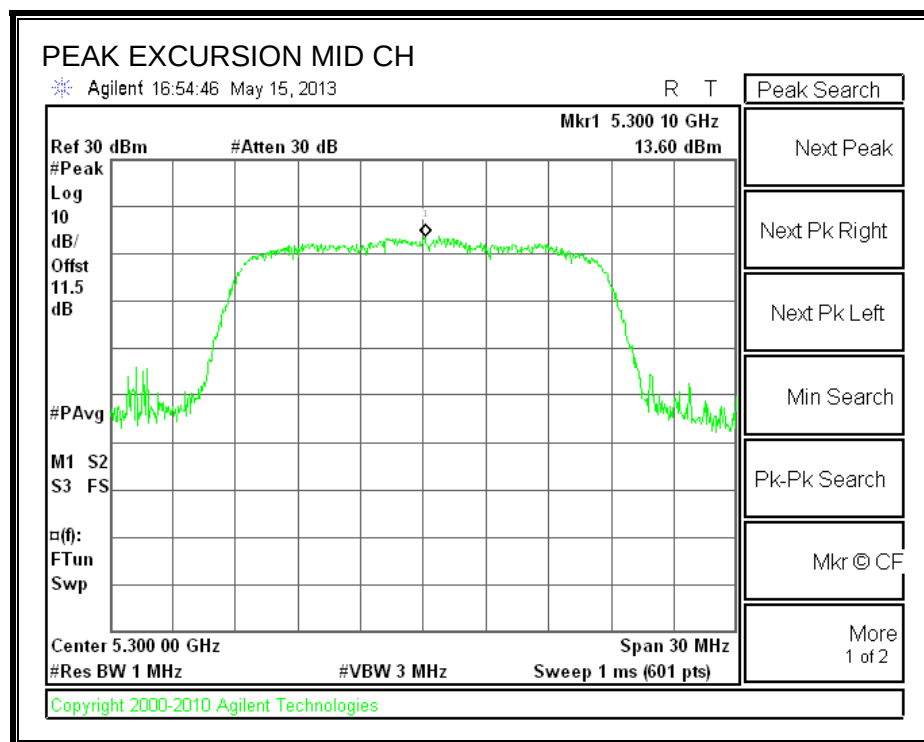
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5300	13.60	5.52	0.09	7.99	13	-5.01

PEAK EXCURSION



8.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

8.6.1. 26 dB BANDWIDTH

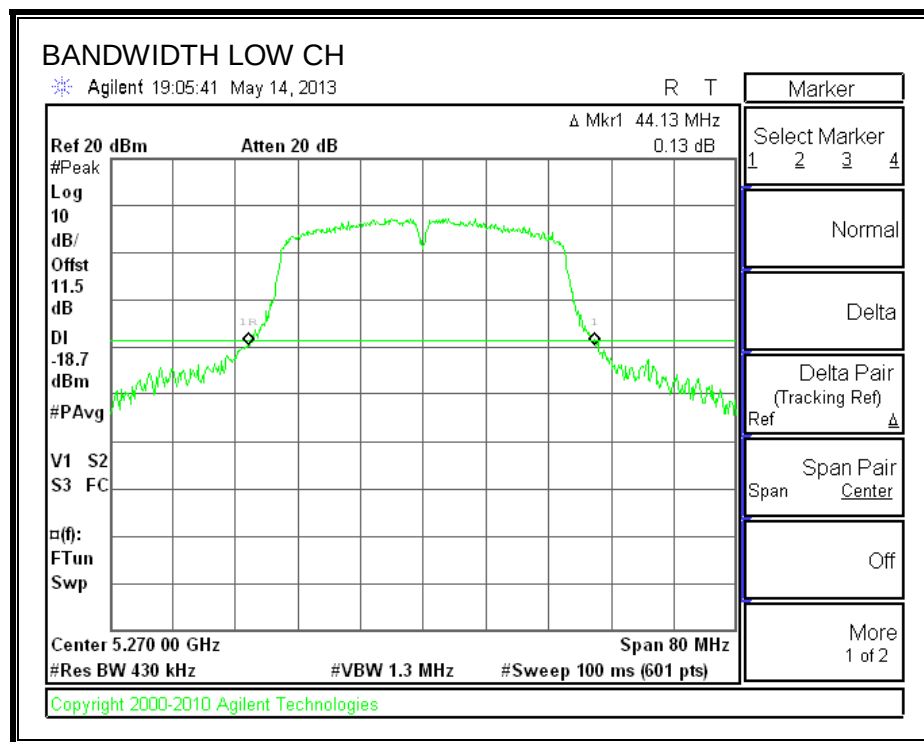
LIMITS

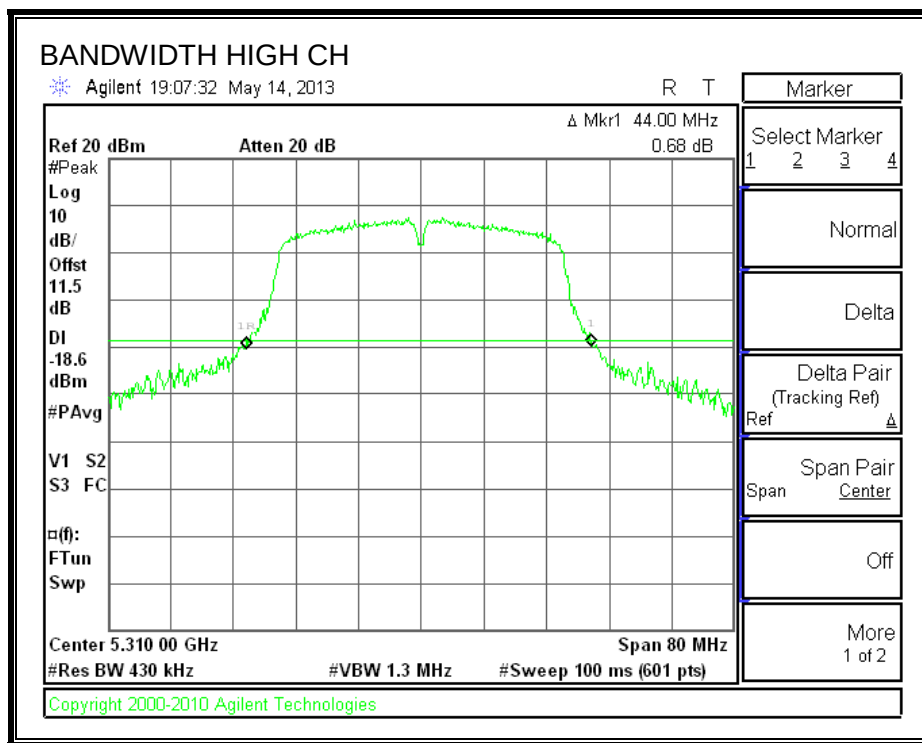
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	44.13
High	5310	44.00

26 dB BANDWIDTH





8.6.2. 99% BANDWIDTH

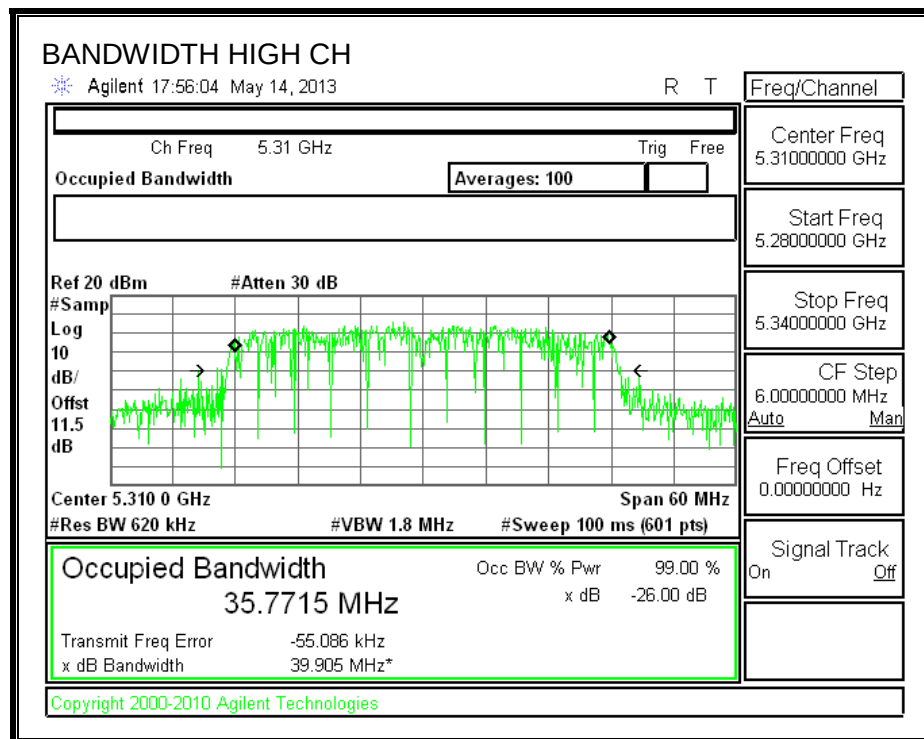
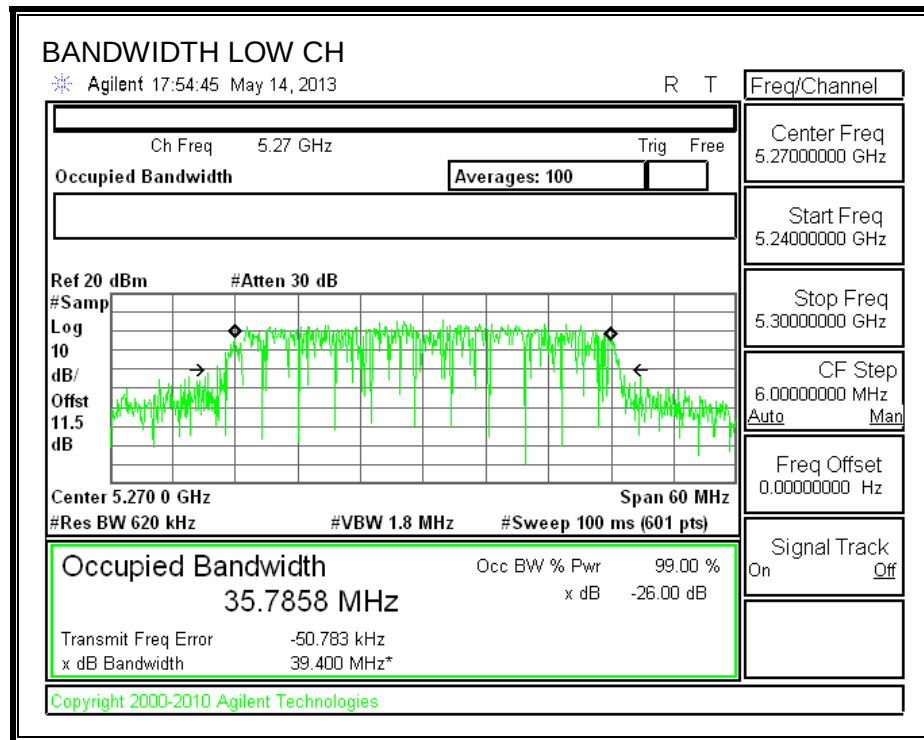
LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	35.7858
High	5310	35.7715

99% BANDWIDTH



8.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5270	15.24
High	5310	15.00

8.6.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	44.13	35.7858	-5.83
High	5310	44.00	35.7715	-5.83

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd Power & PPSP
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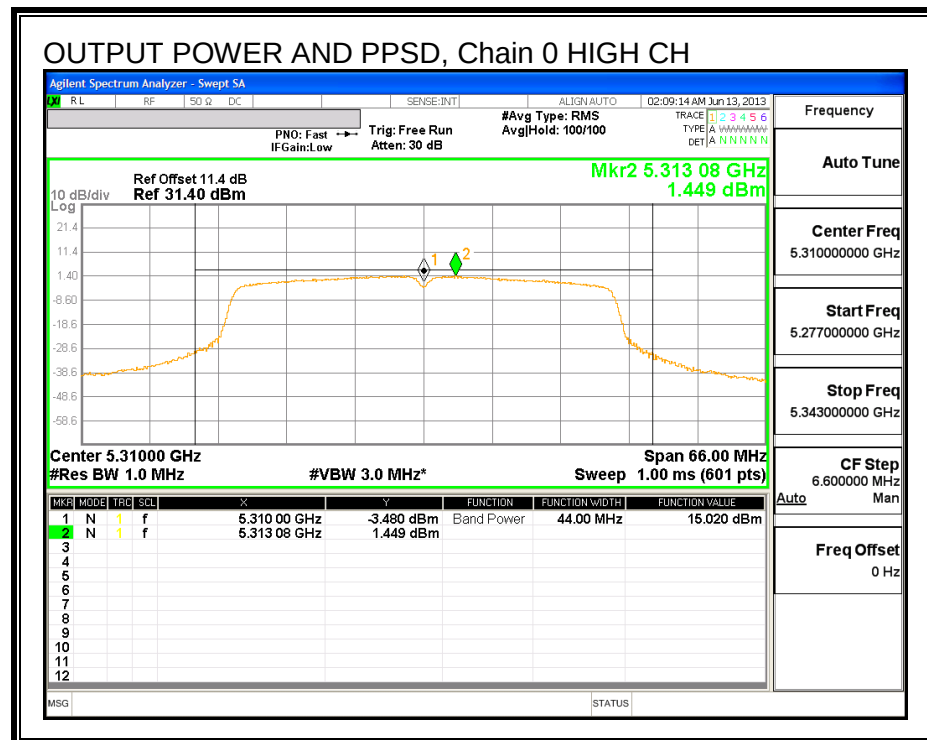
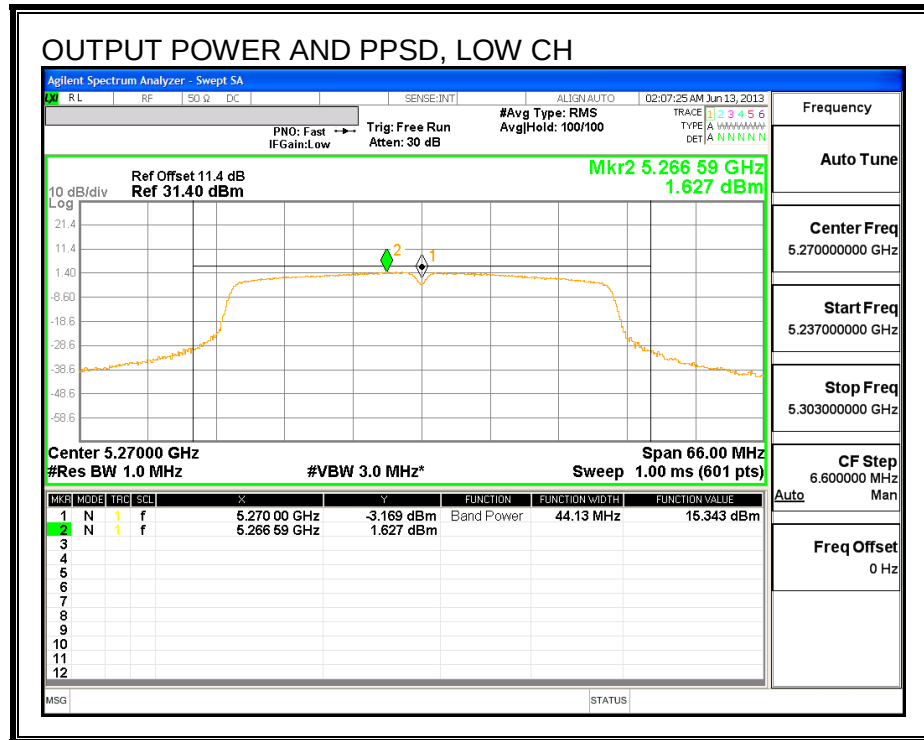
Output Power Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	15.343	15.50	24.00	-8.50
High	5310	15.020	15.18	24.00	-8.82

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	1.627	1.79	11.00	-9.21
High	5310	1.449	1.61	11.00	-9.39

OUTPUT POWER AND PPSD,



8.6.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

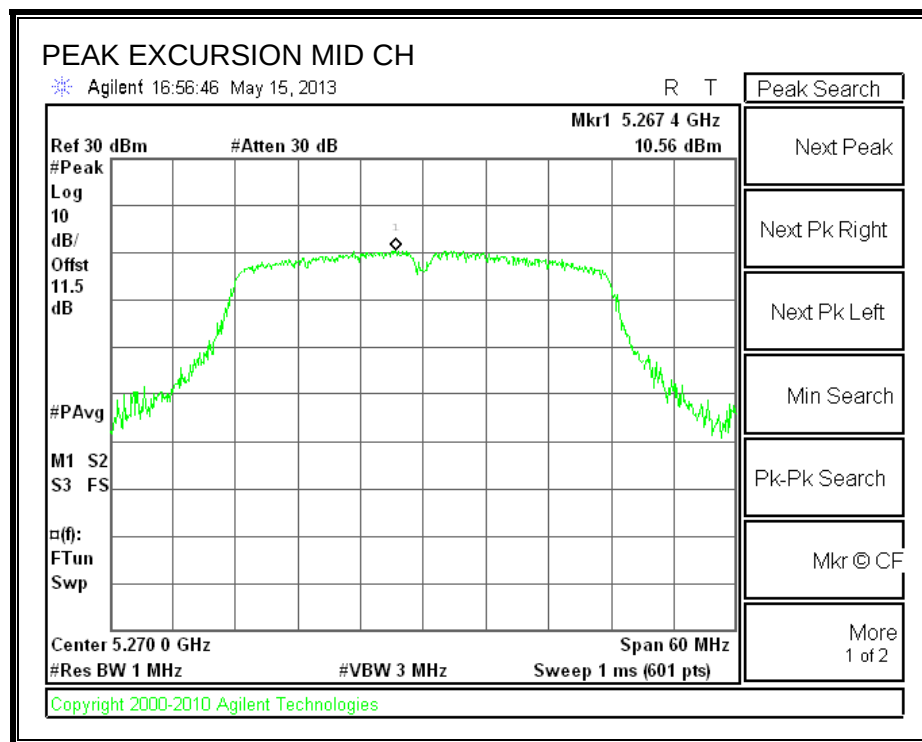
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

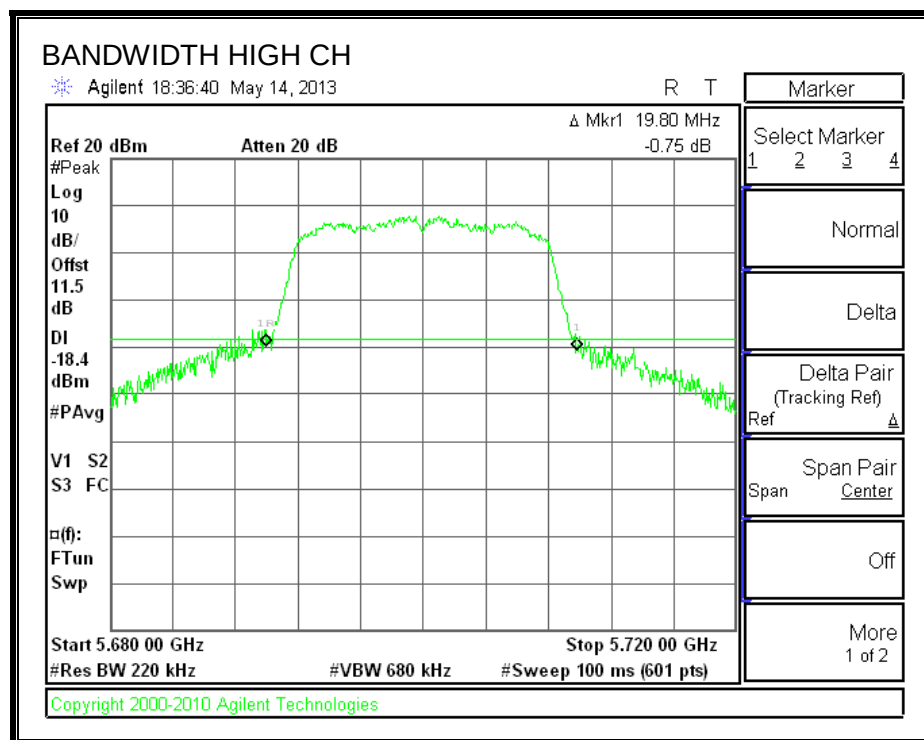
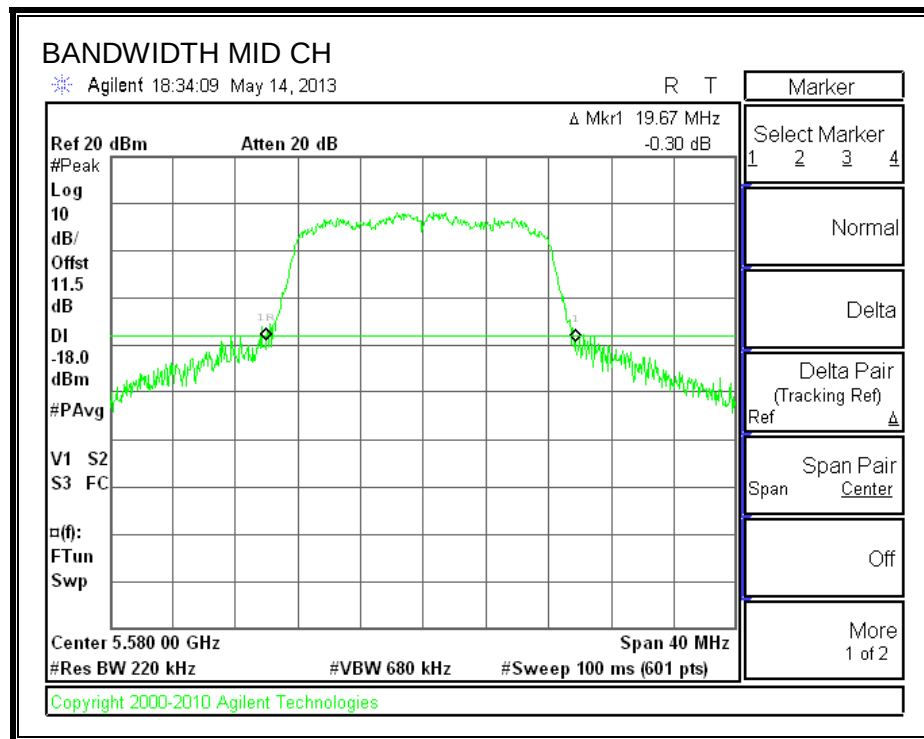
RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5270	10.56	2.33	0.16	8.07	13	-4.93

PEAK EXCURSION





8.7.2. 99% BANDWIDTH

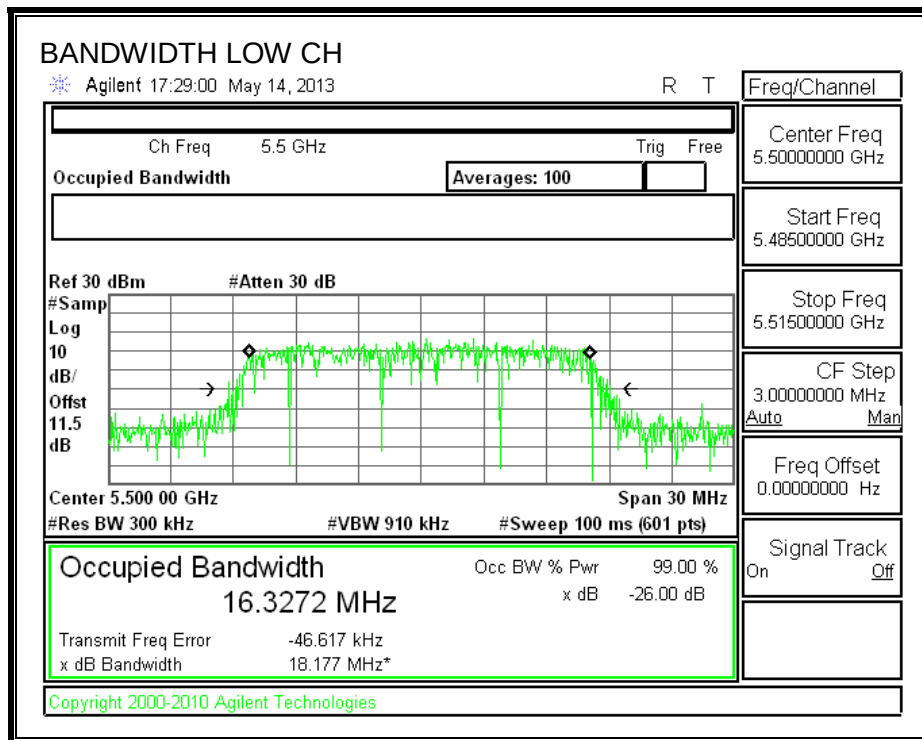
LIMITS

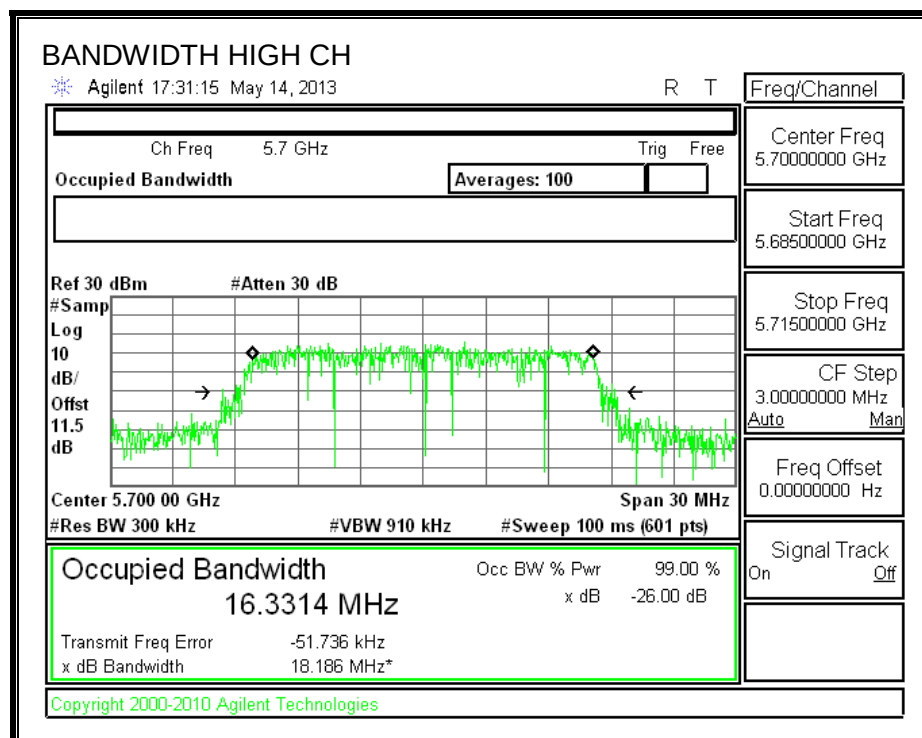
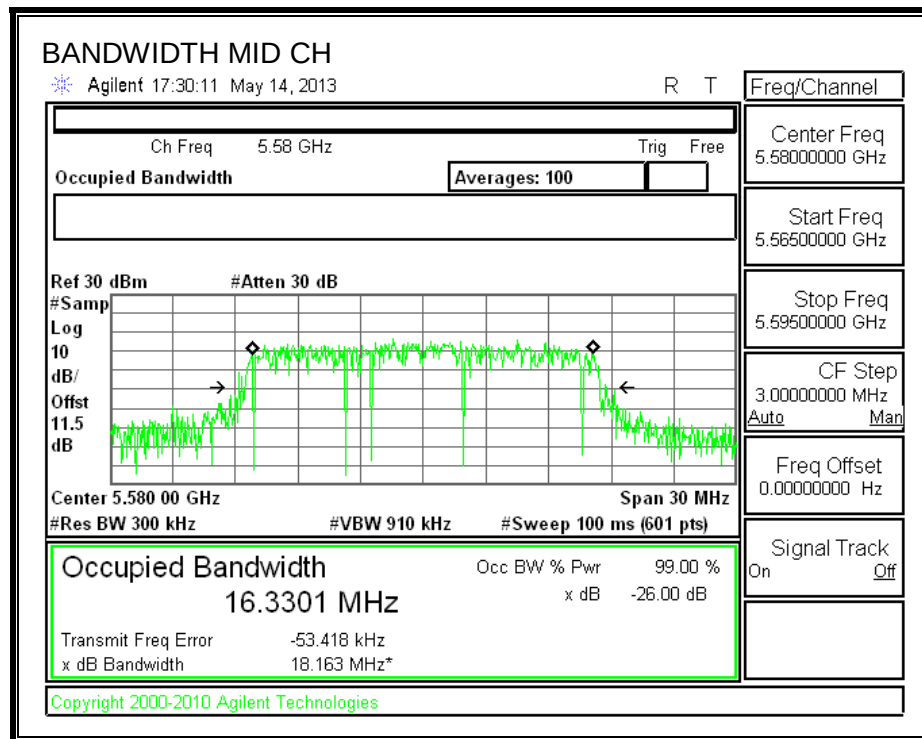
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.3272
Mid	5580	16.3301
High	5700	16.3314

99% BANDWIDTH





8.7.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5500	15.66
Mid	5580	15.50
High	5700	15.58

8.7.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	19.60	16.3272	-4.25
Mid	5580	19.67	16.3301	-4.25
High	5700	19.80	16.3314	-4.25

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	23.92	23.13	29.13	23.13	11.00	11.00	11.00
Mid	5580	23.94	23.13	29.13	23.13	11.00	11.00	11.00
High	5700	23.97	23.13	29.13	23.13	11.00	11.00	11.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd Power & PPSP
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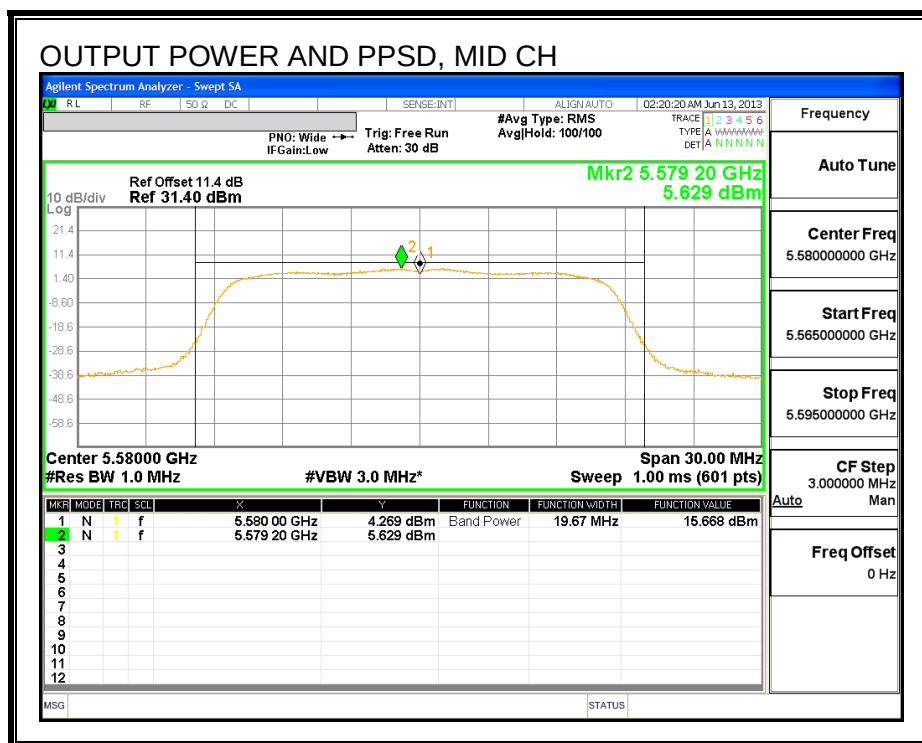
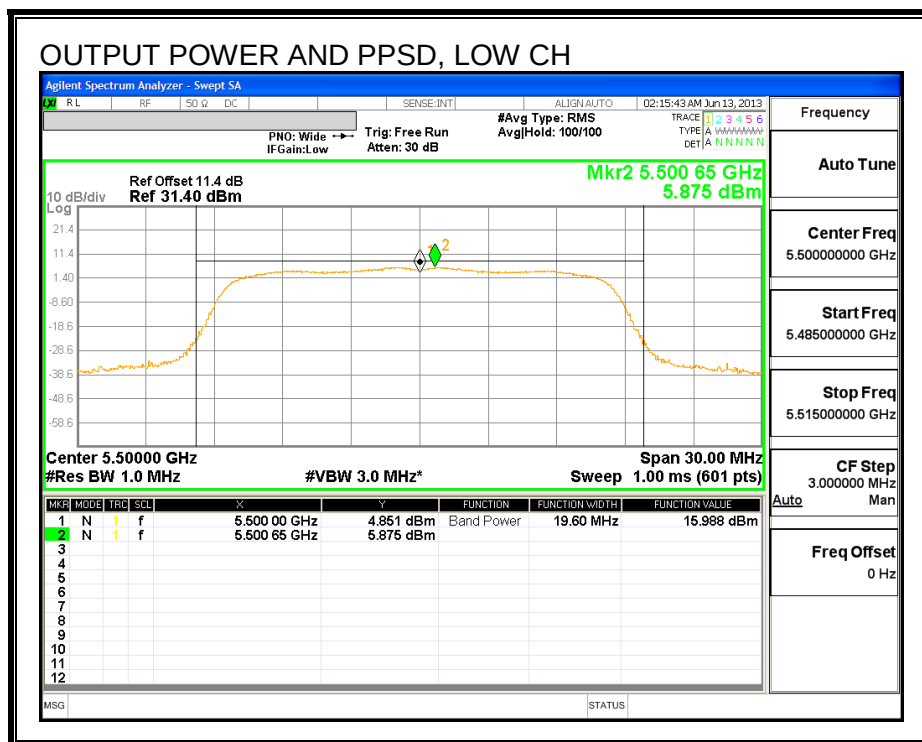
Output Power Results

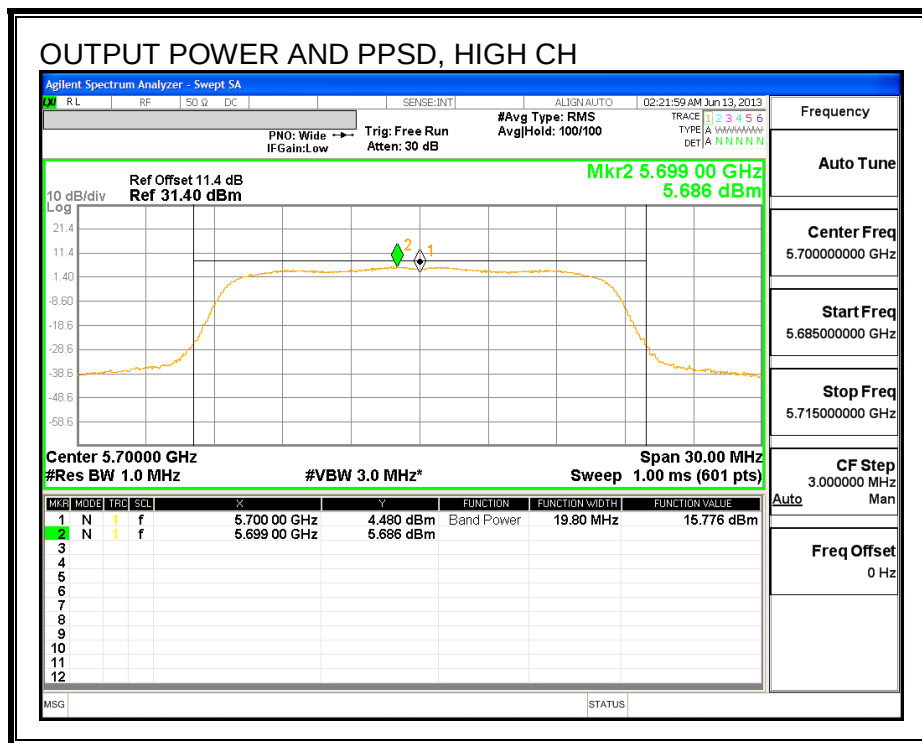
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	15.988	16.08	23.13	-7.05
Mid	5580	15.668	15.76	23.13	-7.37
High	5700	15.776	15.87	23.13	-7.26

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	5.875	5.97	11.00	-5.04
Mid	5580	5.629	5.72	11.00	-5.28
High	5700	5.686	5.78	11.00	-5.22

OUTPUT POWER AND PPSD





8.7.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

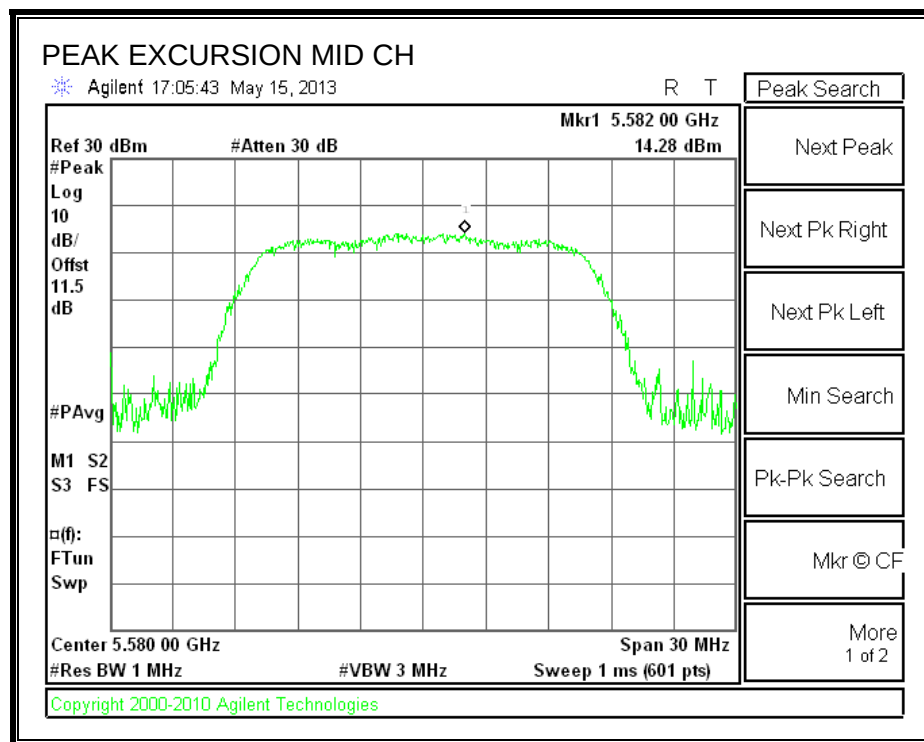
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	14.28	5.64	0.07	8.57	13	-4.43

PEAK EXCURSION



8.8. 802.11n HT20 MODE IN THE 5.6 GHz BAND

8.8.1. 26 dB BANDWIDTH

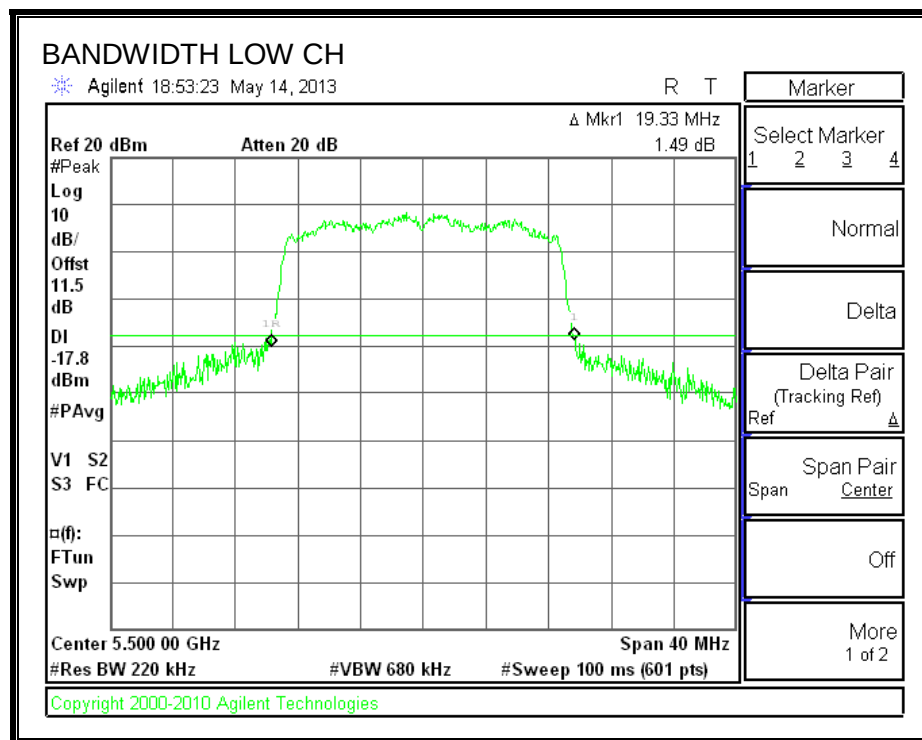
LIMITS

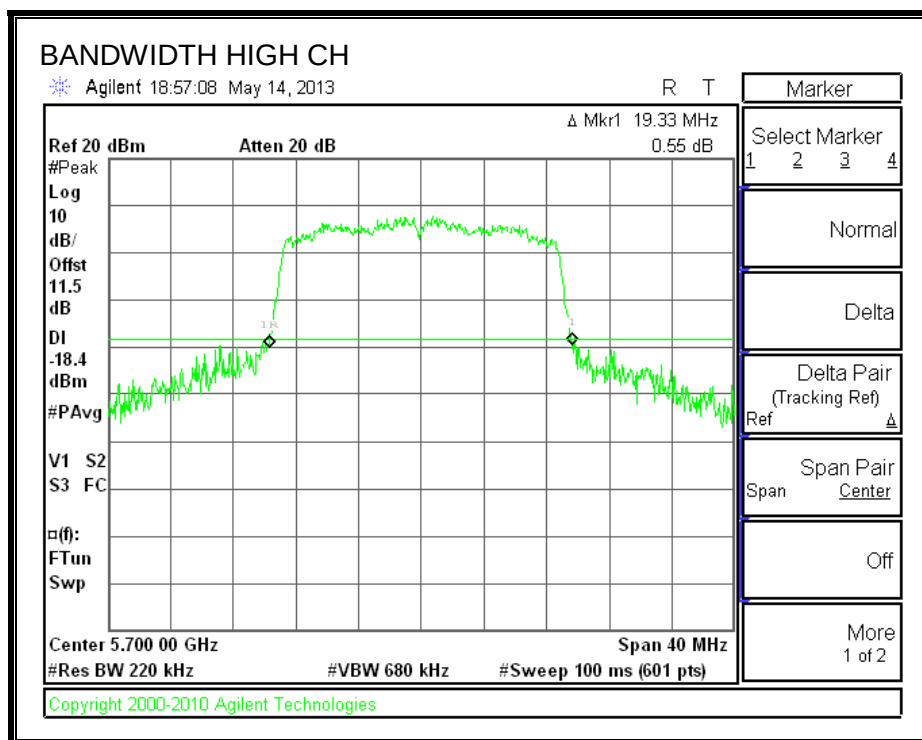
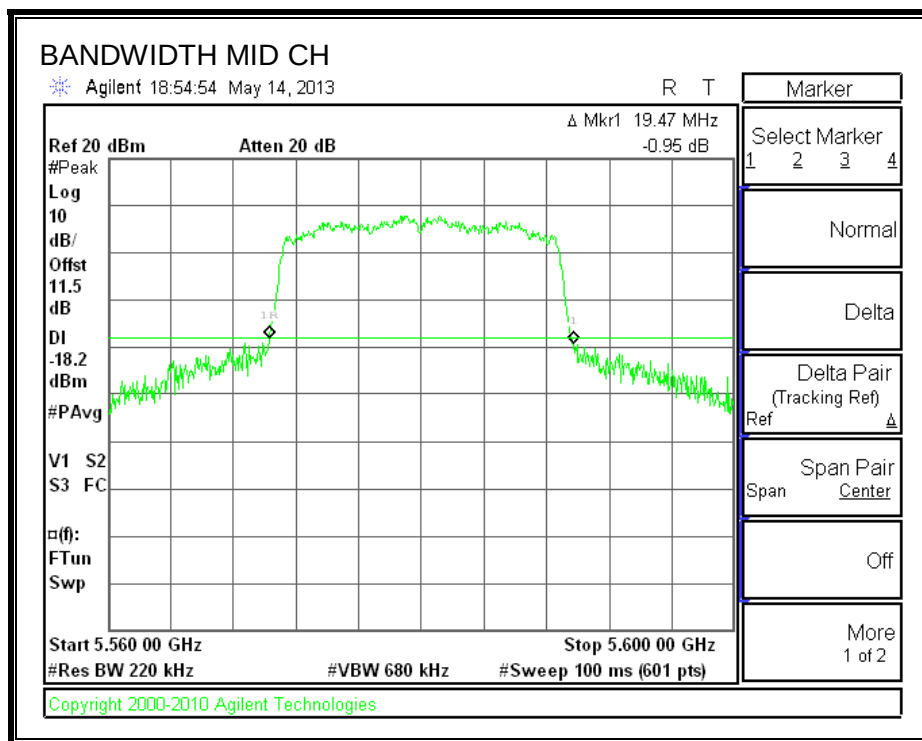
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	19.33
Mid	5580	19.47
High	5700	19.33

26 dB BANDWIDTH





8.8.2. 99% BANDWIDTH

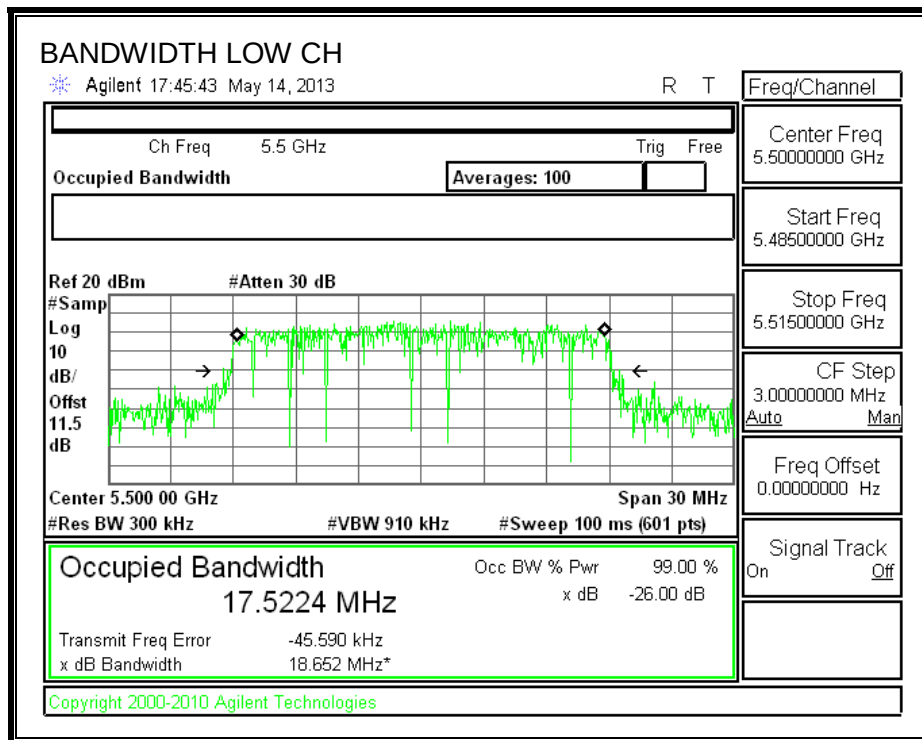
LIMITS

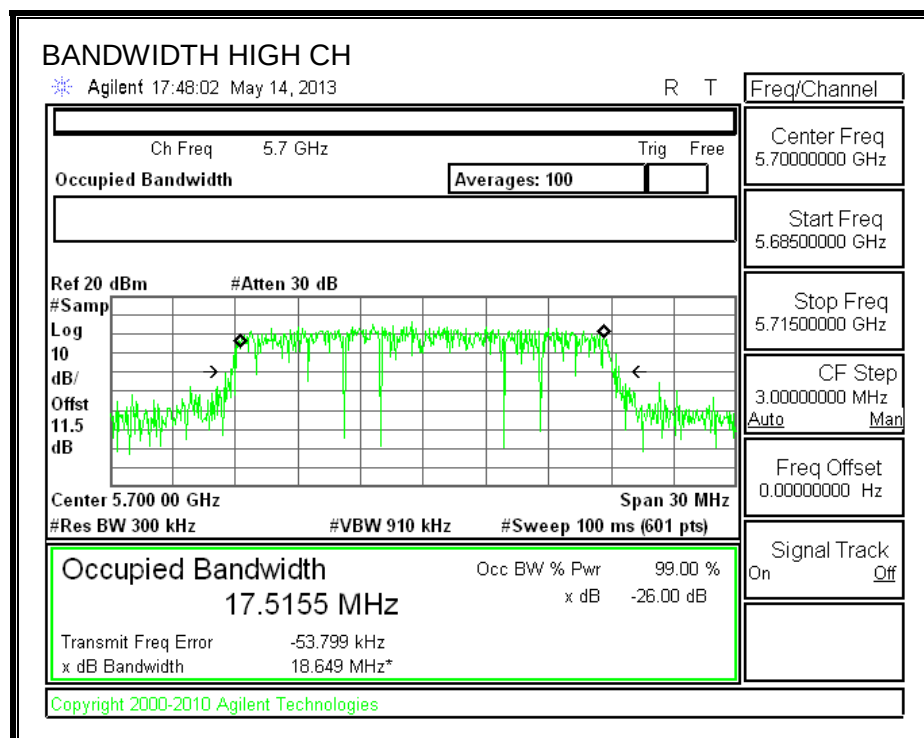
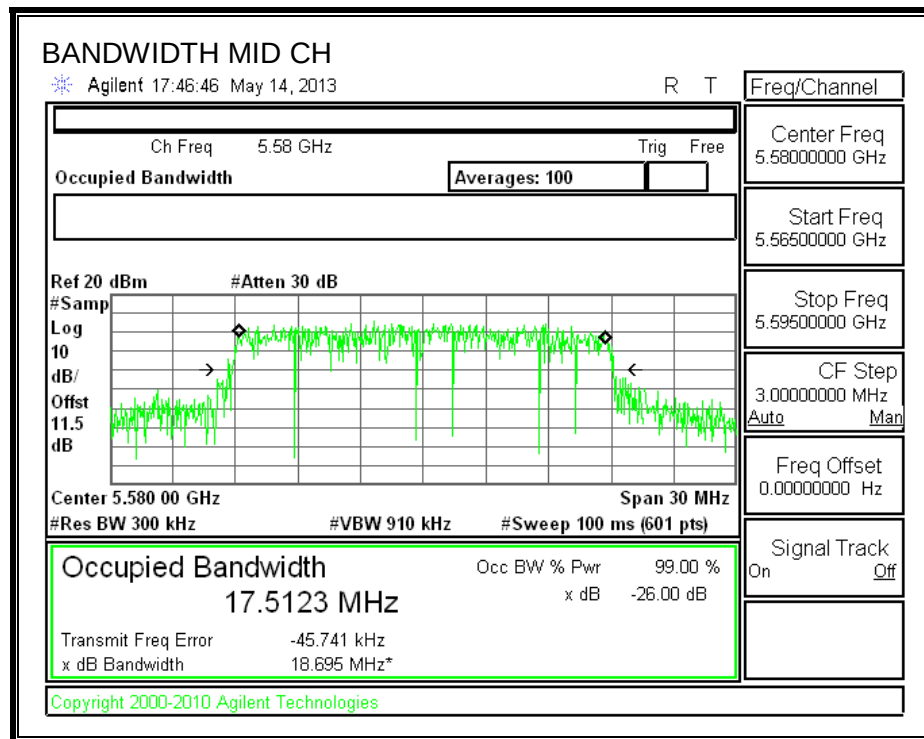
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.5224
Mid	5580	17.5123
High	5700	17.5155

99% BANDWIDTH





8.8.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5500	15.69
Mid	5580	15.46
High	5700	15.62

8.8.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	19.33	17.5224	-4.25
Mid	5580	19.47	17.5123	-4.25
High	5700	19.33	17.5155	-4.25

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	23.86	23.44	29.44	23.44	11.00	11.00	11.00
Mid	5580	23.89	23.43	29.43	23.43	11.00	11.00	11.00
High	5700	23.86	23.43	29.43	23.43	11.00	11.00	11.00

Duty Cycle CF (dB)	0.07	Included in Calculations of Corr'd Power & PSD
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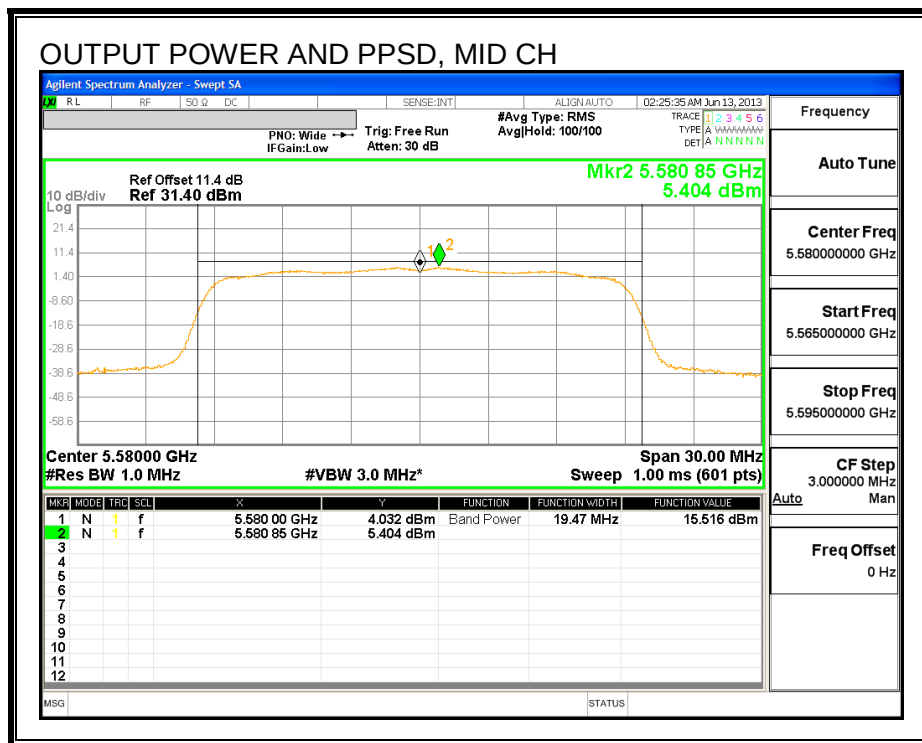
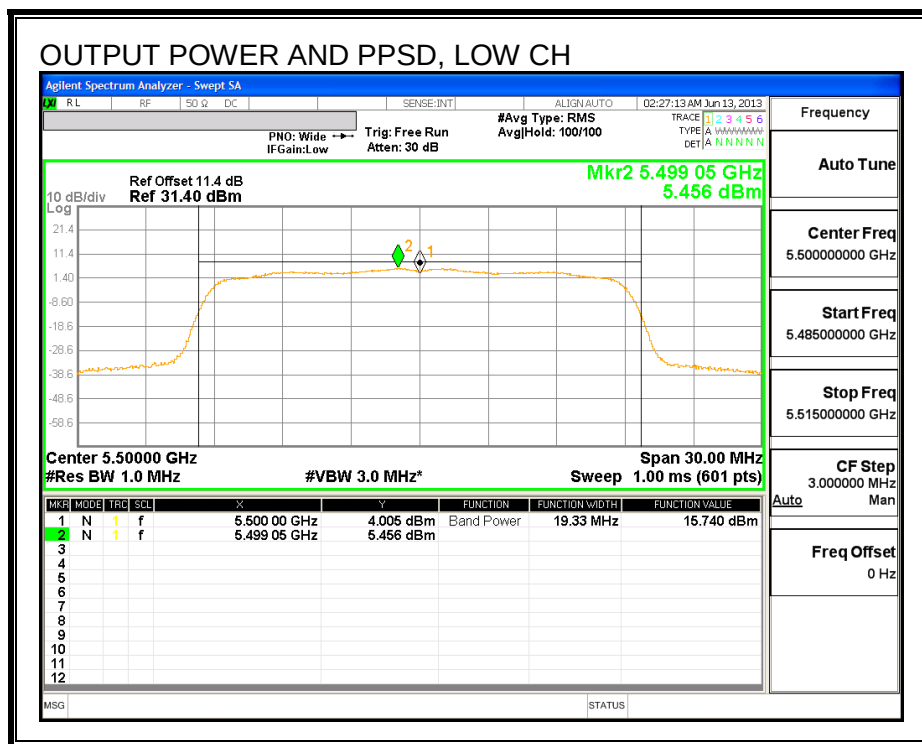
Output Power Results

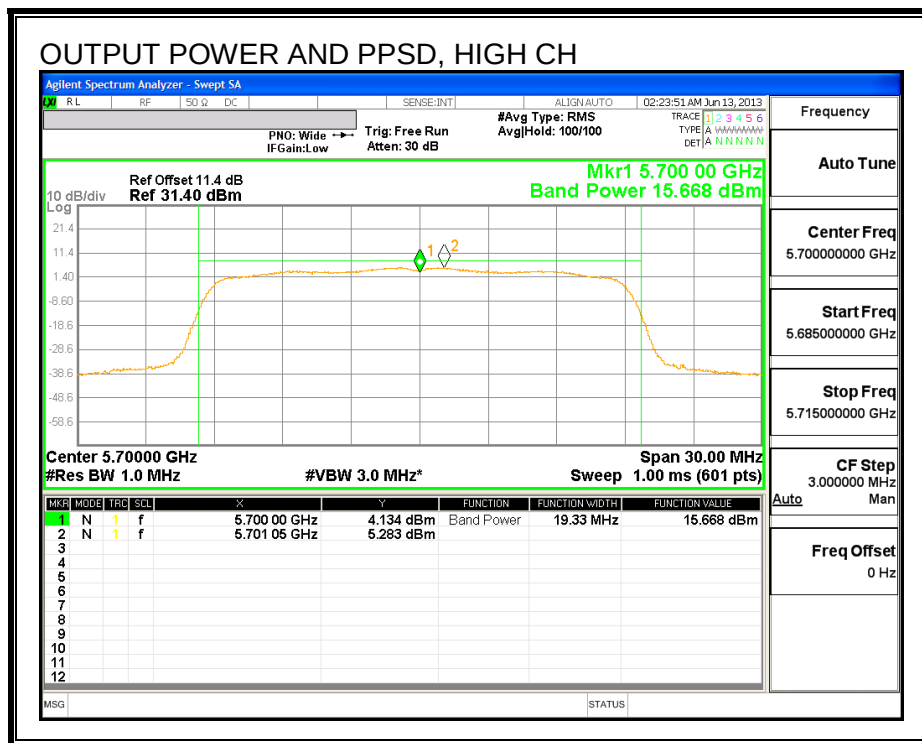
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	15.740	15.81	23.44	-7.63
Mid	5580	15.516	15.59	23.43	-7.85
High	5700	15.668	15.74	23.43	-7.70

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	5.499	5.57	11.00	-5.43
Mid	5580	5.404	5.47	11.00	-5.53
High	5700	5.283	5.35	11.00	-5.65

OUTPUT POWER AND PPSD





8.8.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

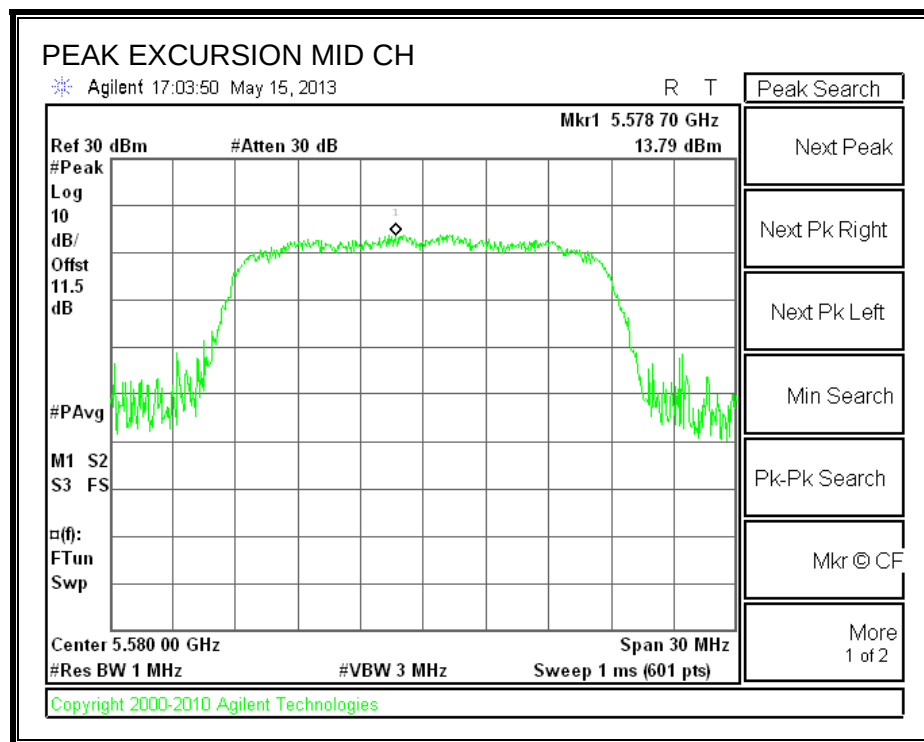
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5580	13.79	5.96	0.09	7.74	13	-5.26

PEAK EXCURSION



8.9. 802.11n HT40 MODE IN THE 5.6 GHz BAND

8.9.1. 26 dB BANDWIDTH

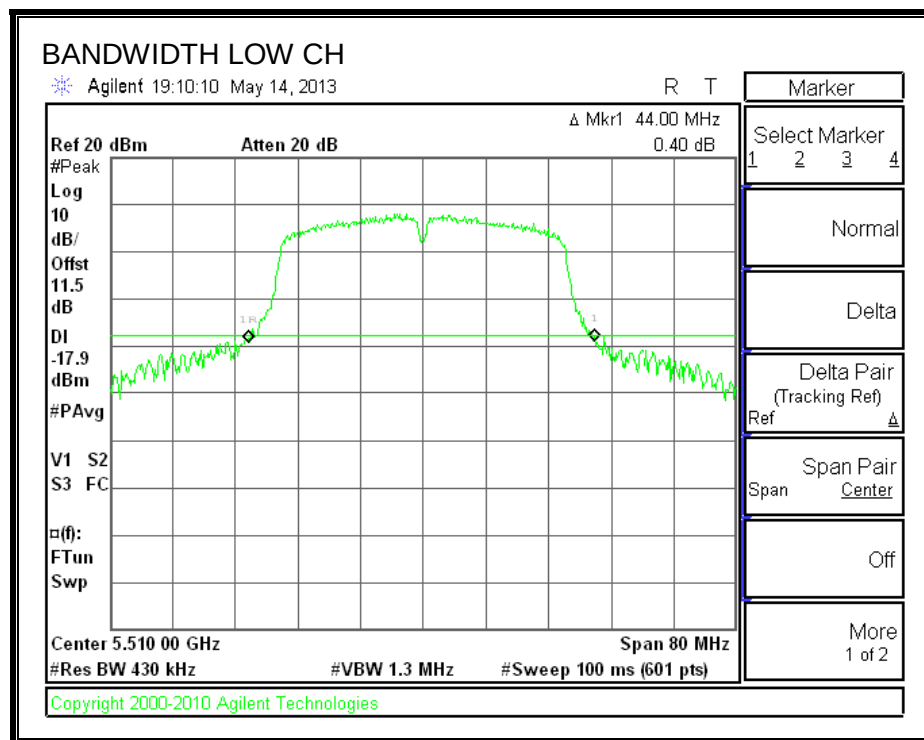
LIMITS

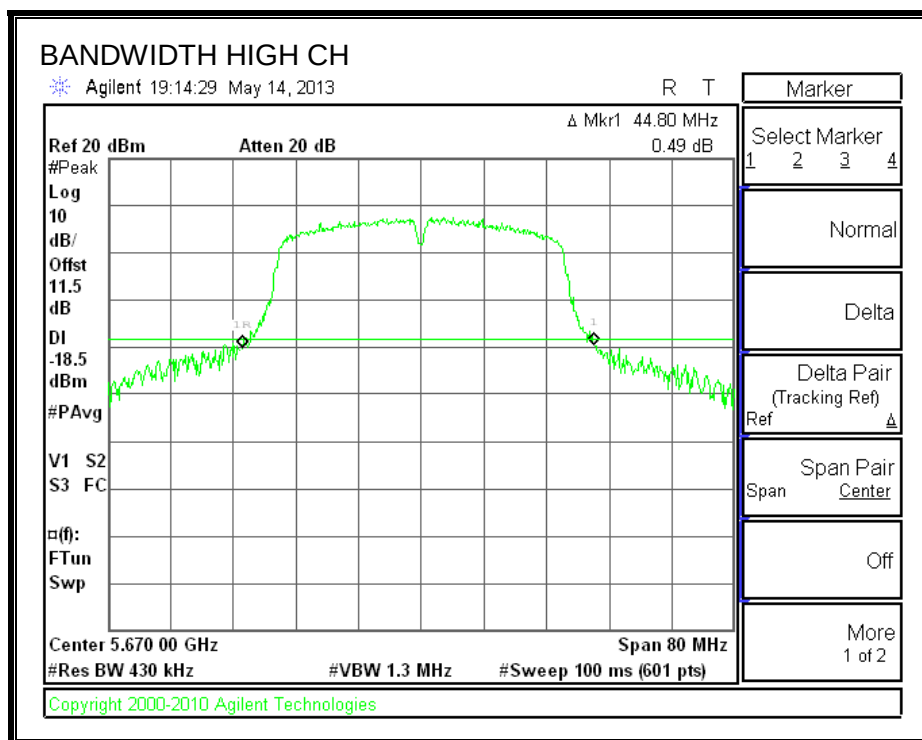
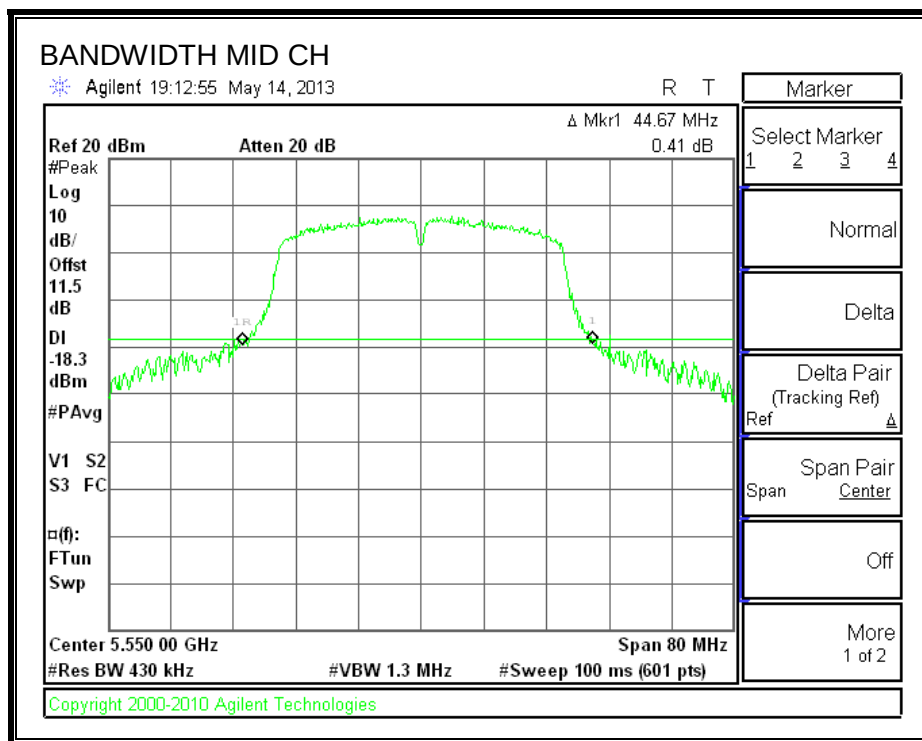
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	44.00
Mid	5550	44.67
High	5670	44.80

26 dB BANDWIDTH





8.9.2. 99% BANDWIDTH

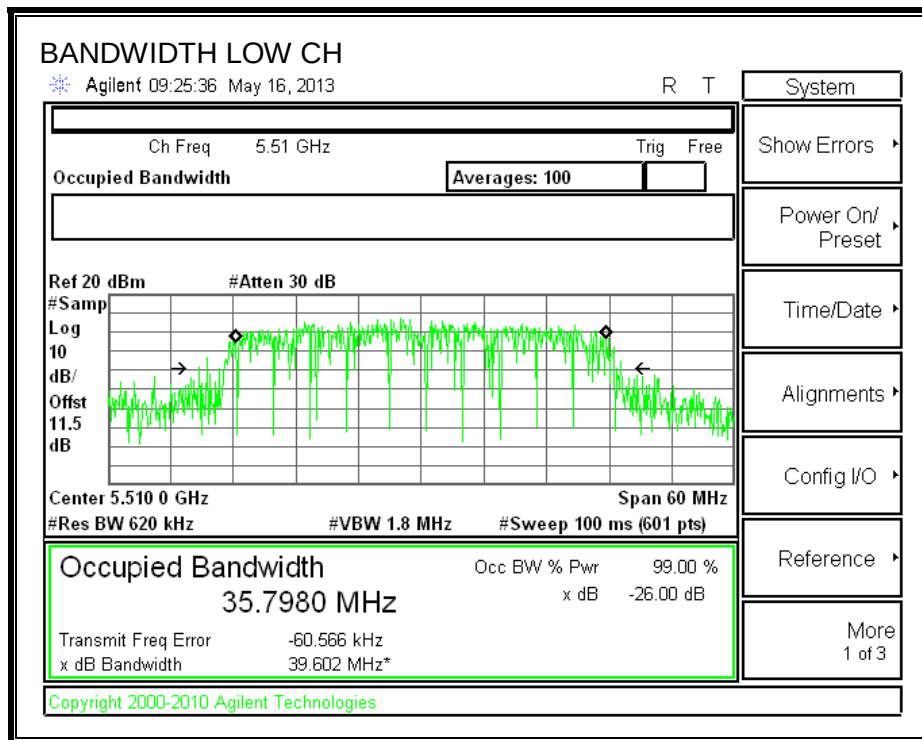
LIMITS

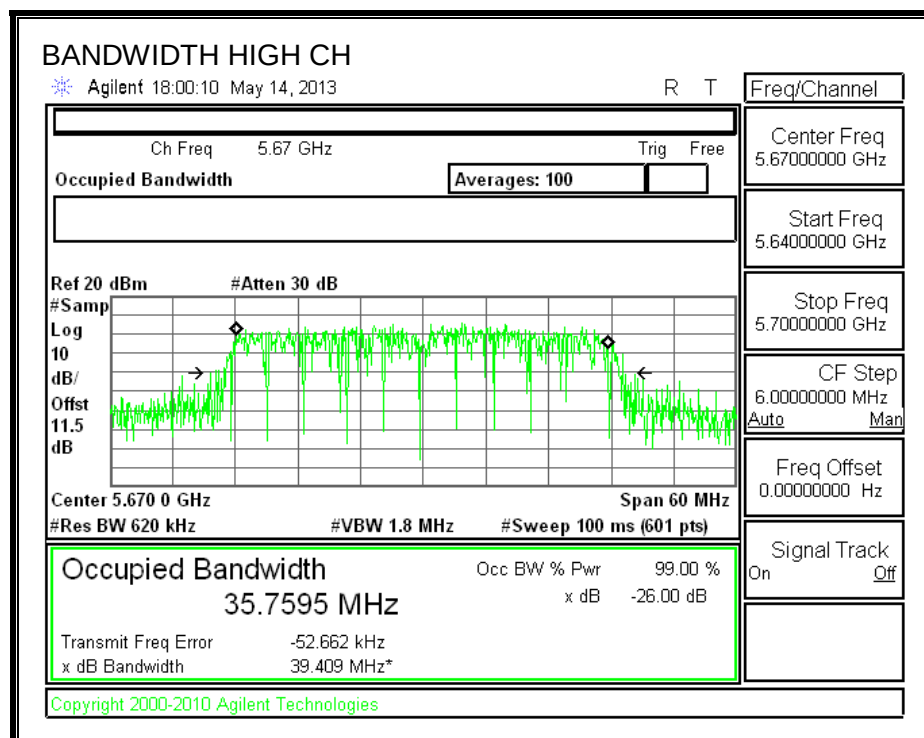
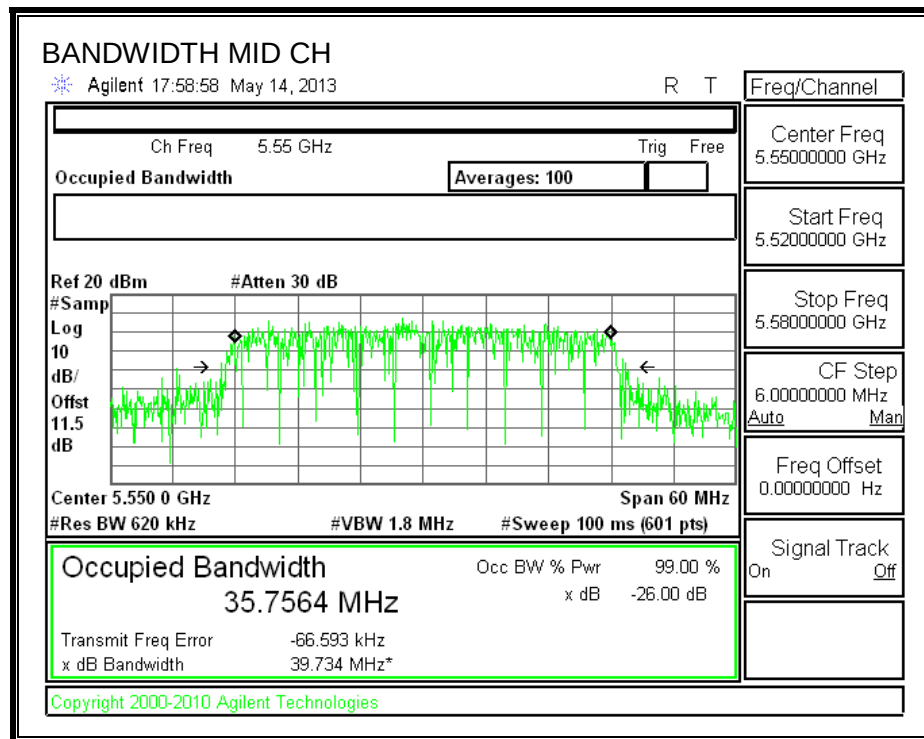
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	35.7980
Mid	5550	35.7564
High	5670	35.7595

99% BANDWIDTH





8.9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 11.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Power (dBm)
Low	5510	15.40
Mid	5550	15.67
High	5670	15.57

8.9.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.5–5.7 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	44.00	35.7980	-4.25
Mid	5550	44.67	35.7564	-4.25
High	5670	44.80	35.7595	-4.25

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.16	Included in Calculations of Corr'd Power & PPSD
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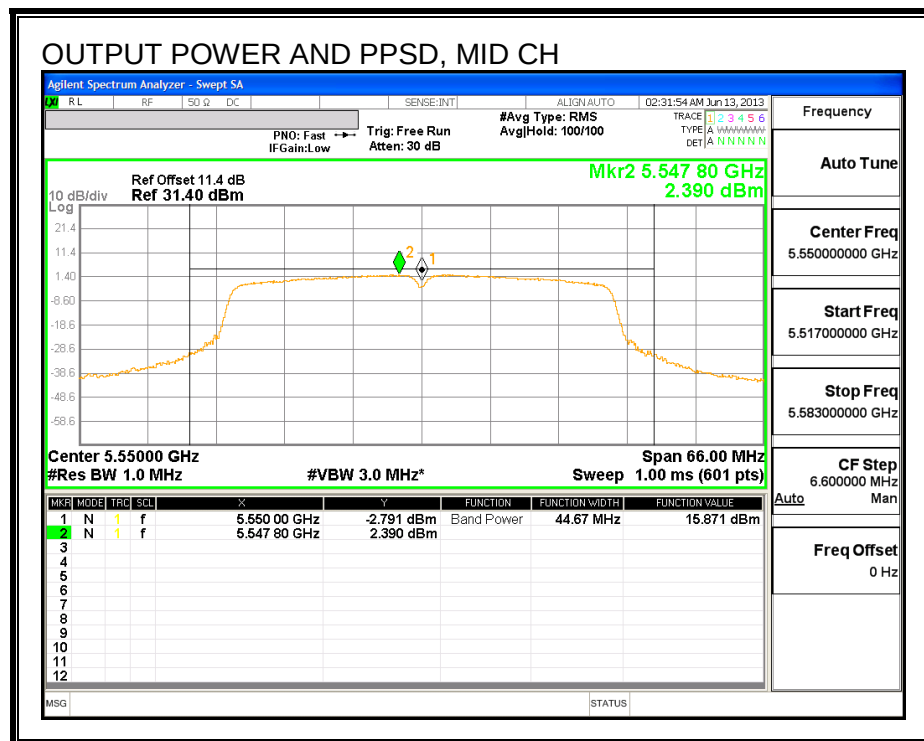
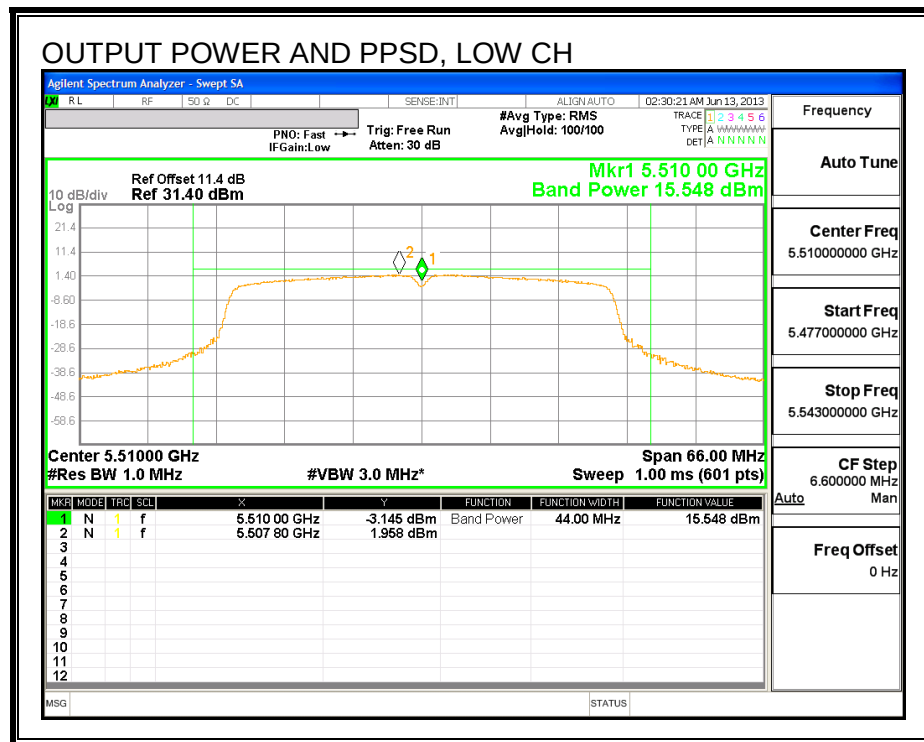
Output Power Results

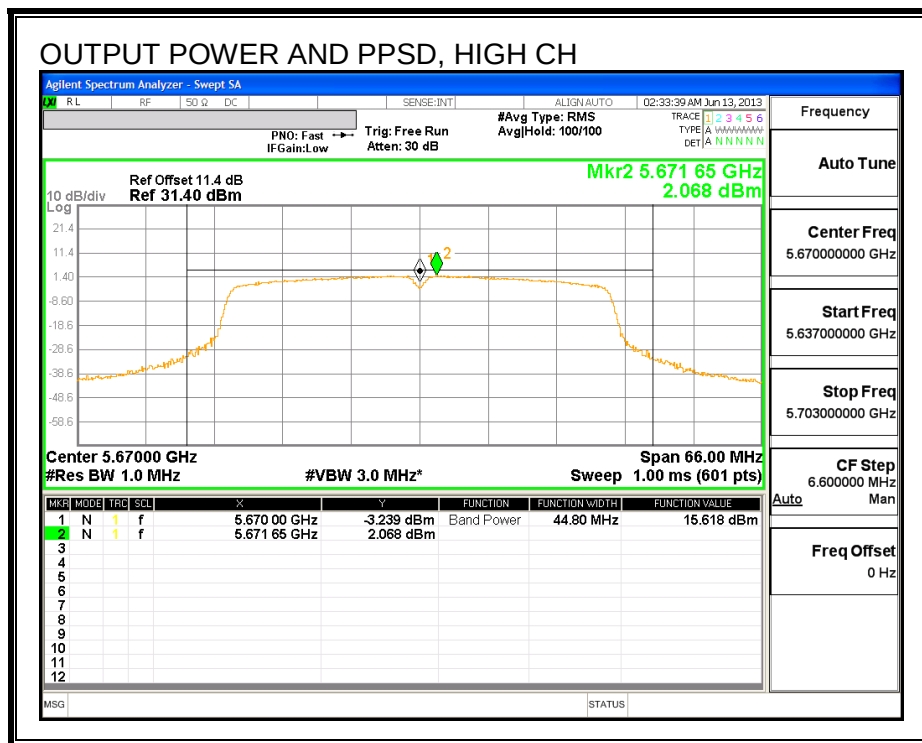
Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	15.548	15.71	24.00	-8.29
Mid	5550	15.871	16.03	24.00	-7.97
High	5670	15.668	15.83	24.00	-8.17

PPSD Results

Channel	Frequency (MHz)	Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	1.959	2.12	11.00	-8.88
Mid	5550	2.390	2.55	11.00	-8.45
High	5670	2.068	2.23	11.00	-8.77

OUTPUT POWER AND PPSD





8.9.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

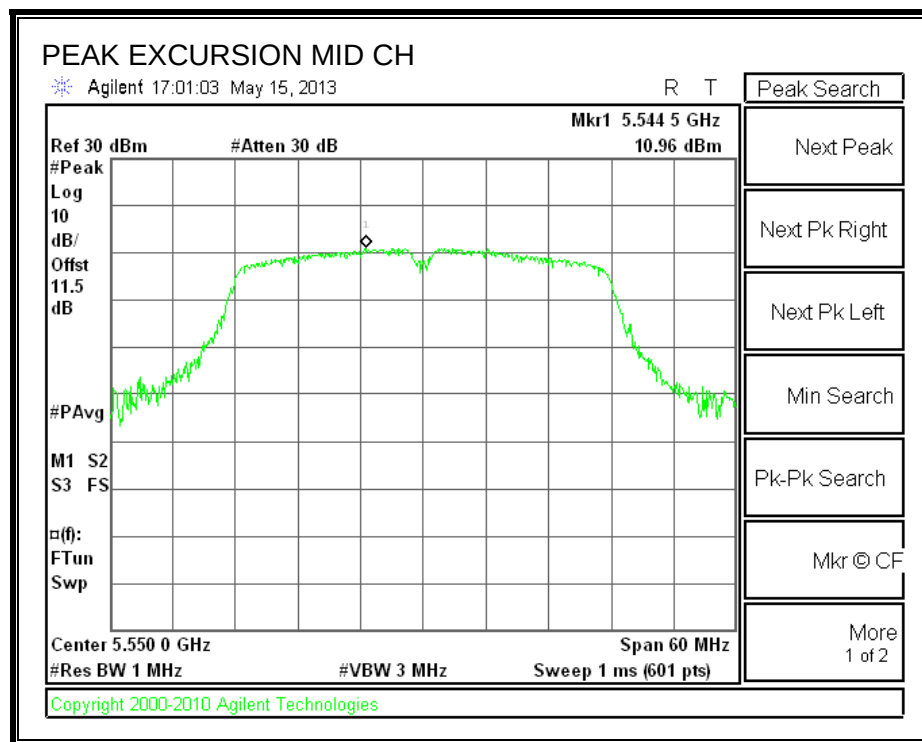
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

Refer to the results of 802.11n HT20 mode in the 5.2 GHz band.

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5550	10.96	2.75	0.16	8.05	13	-4.95

PEAK EXCURSION



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

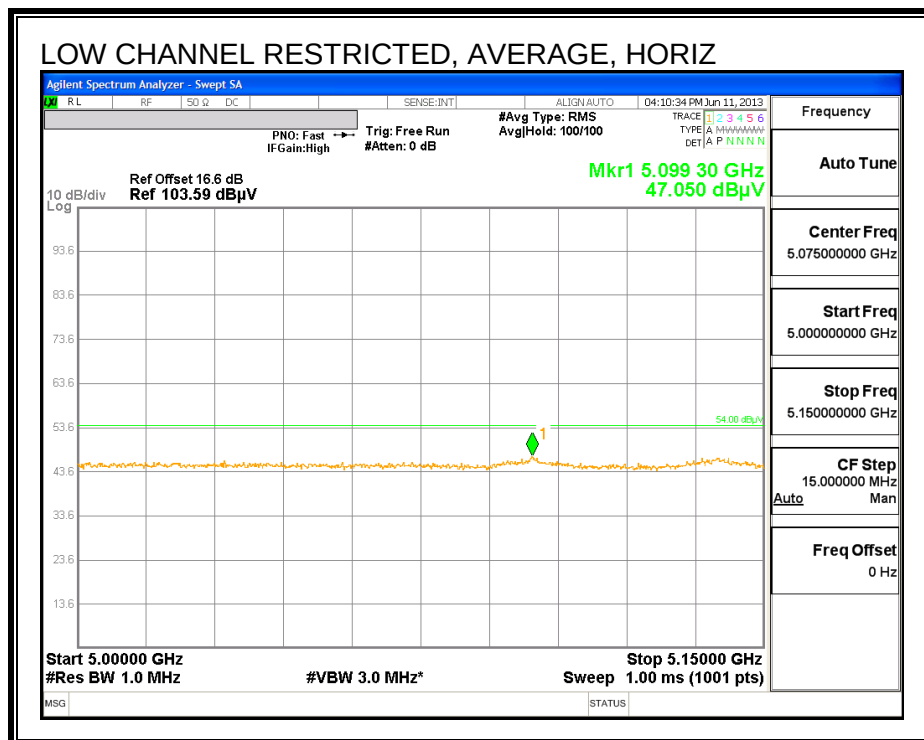
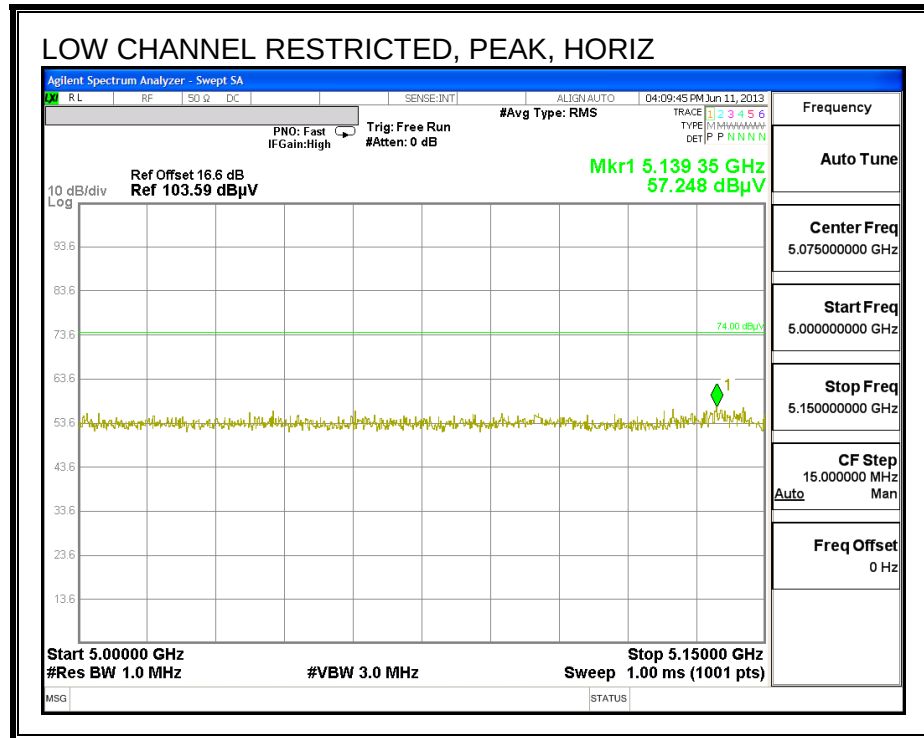
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

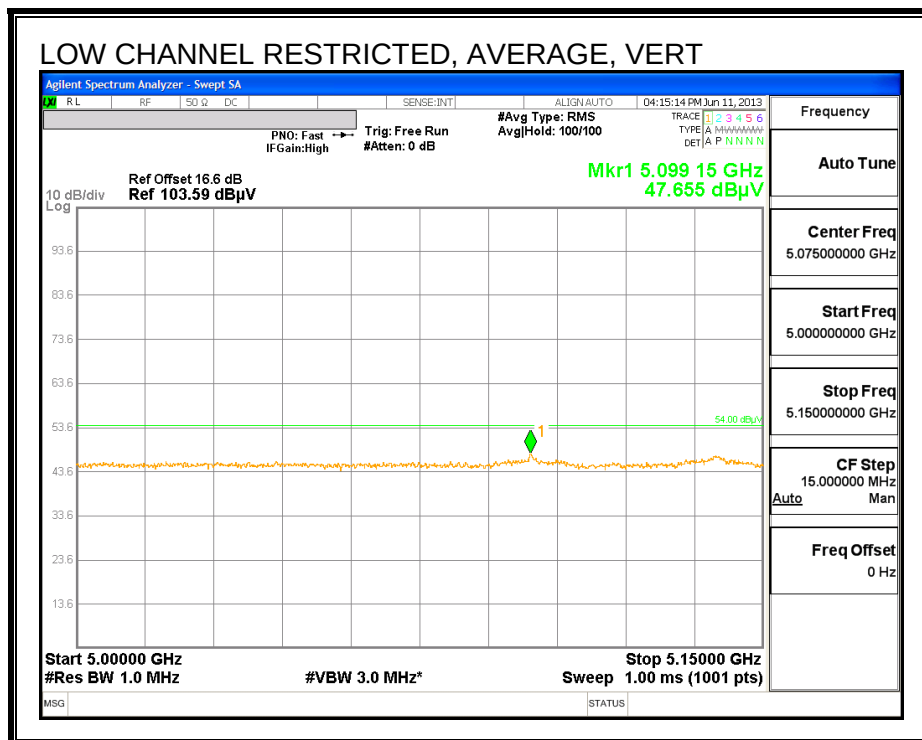
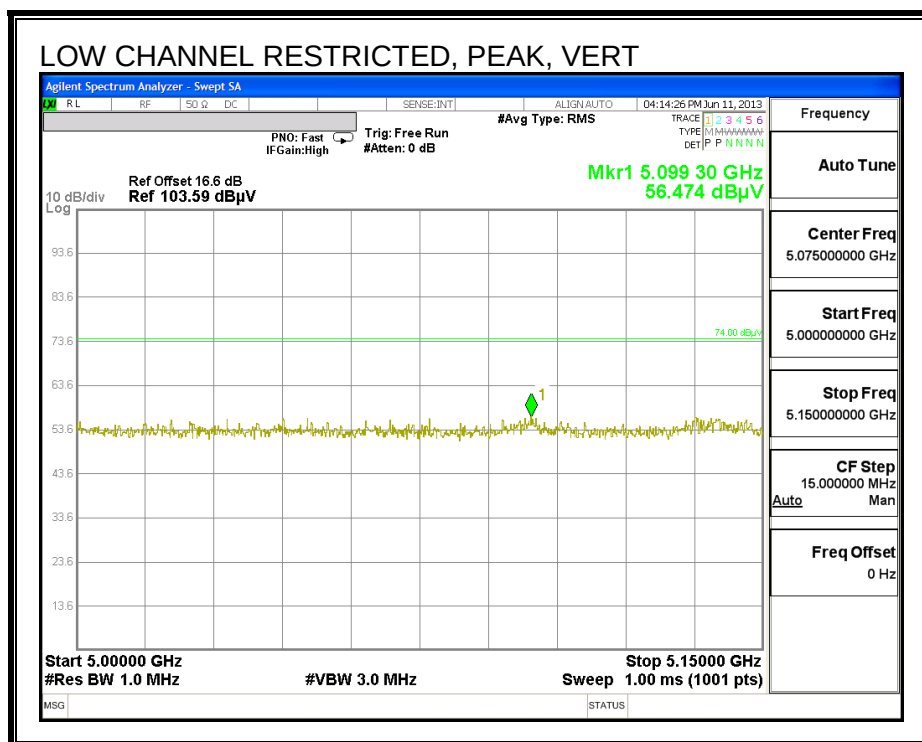
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.2. TRANSMITTER ABOVE 1 GHz

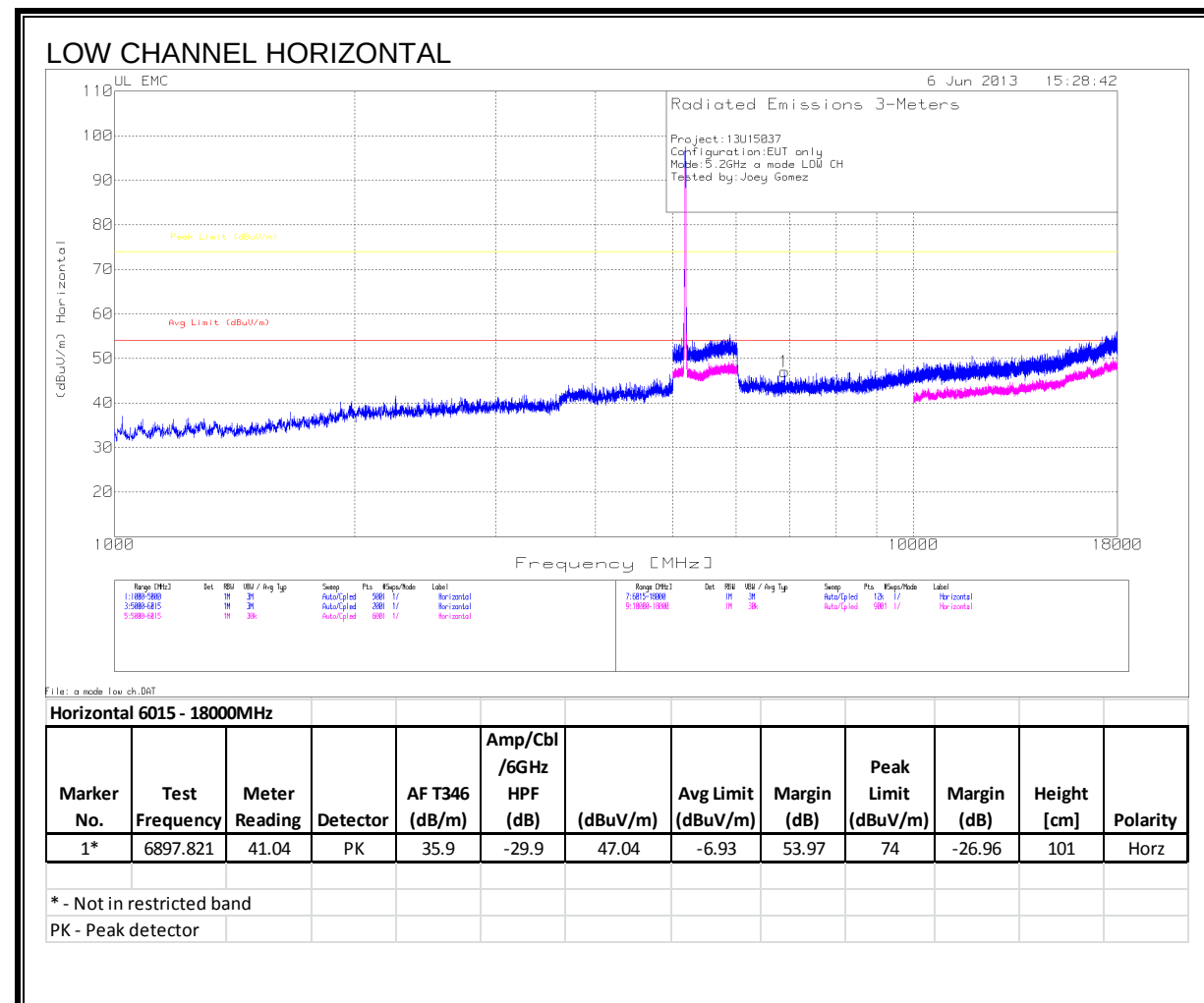
9.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

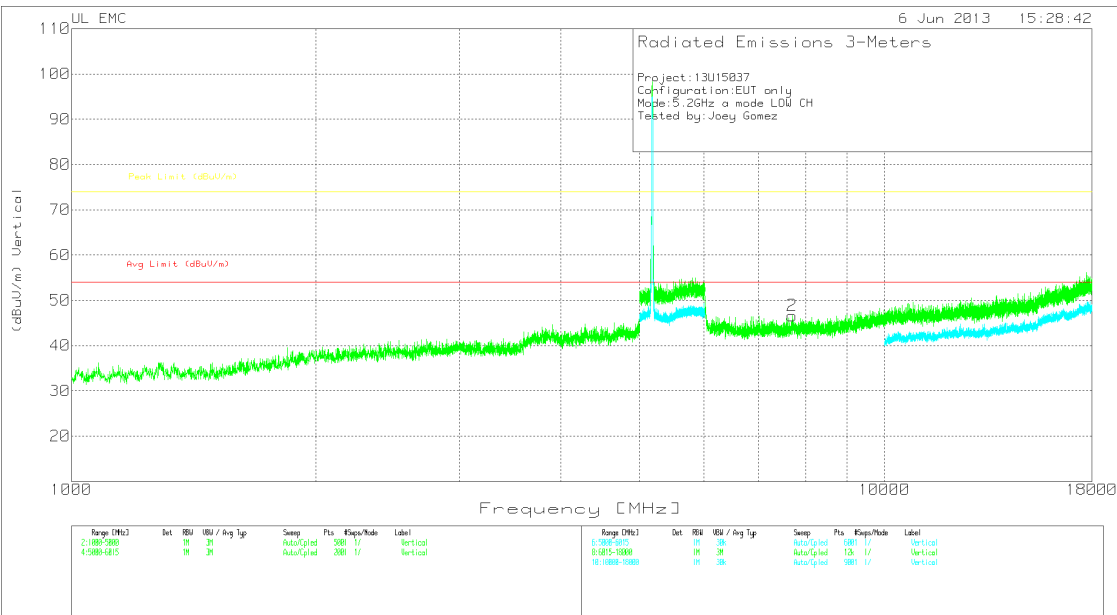




HARMONICS AND SPURIOUS EMISSIONS



LOW CHANNEL VERTICAL

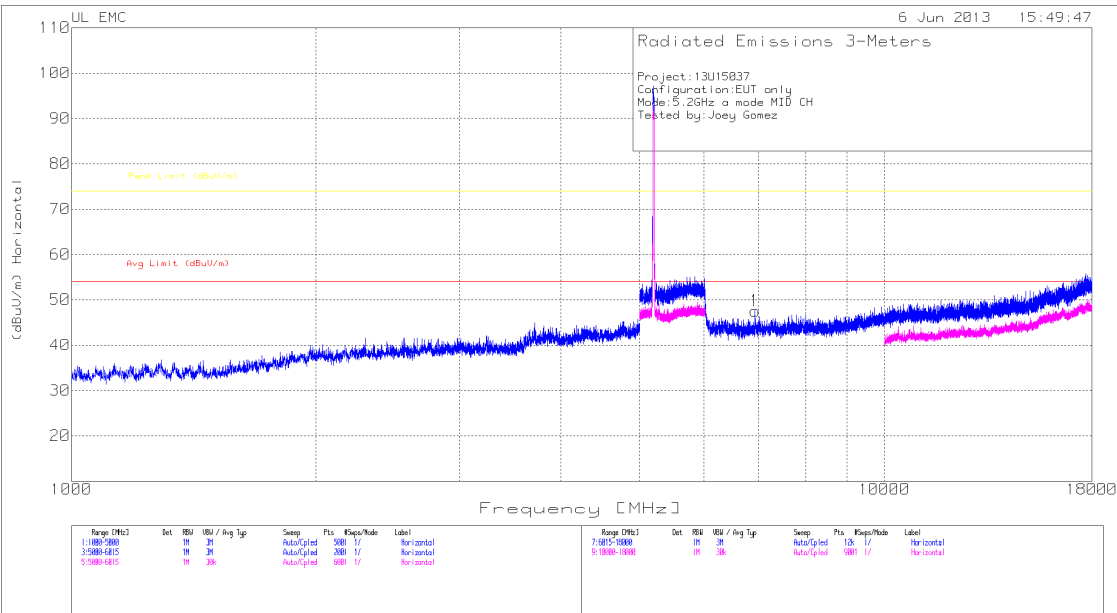


File: a mode low ch.DAT

Vertical 6015 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	AF T346 (dB/m)	Amp/Cb1 /6GHz HPF (dB)	(dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
2	7701.748	38.9	PK	36.2	-28.5	46.6	-7.37	53.97	74	-27.4	101	Vert
PK - Peak detector												

MID CHANNEL HORIZONTAL



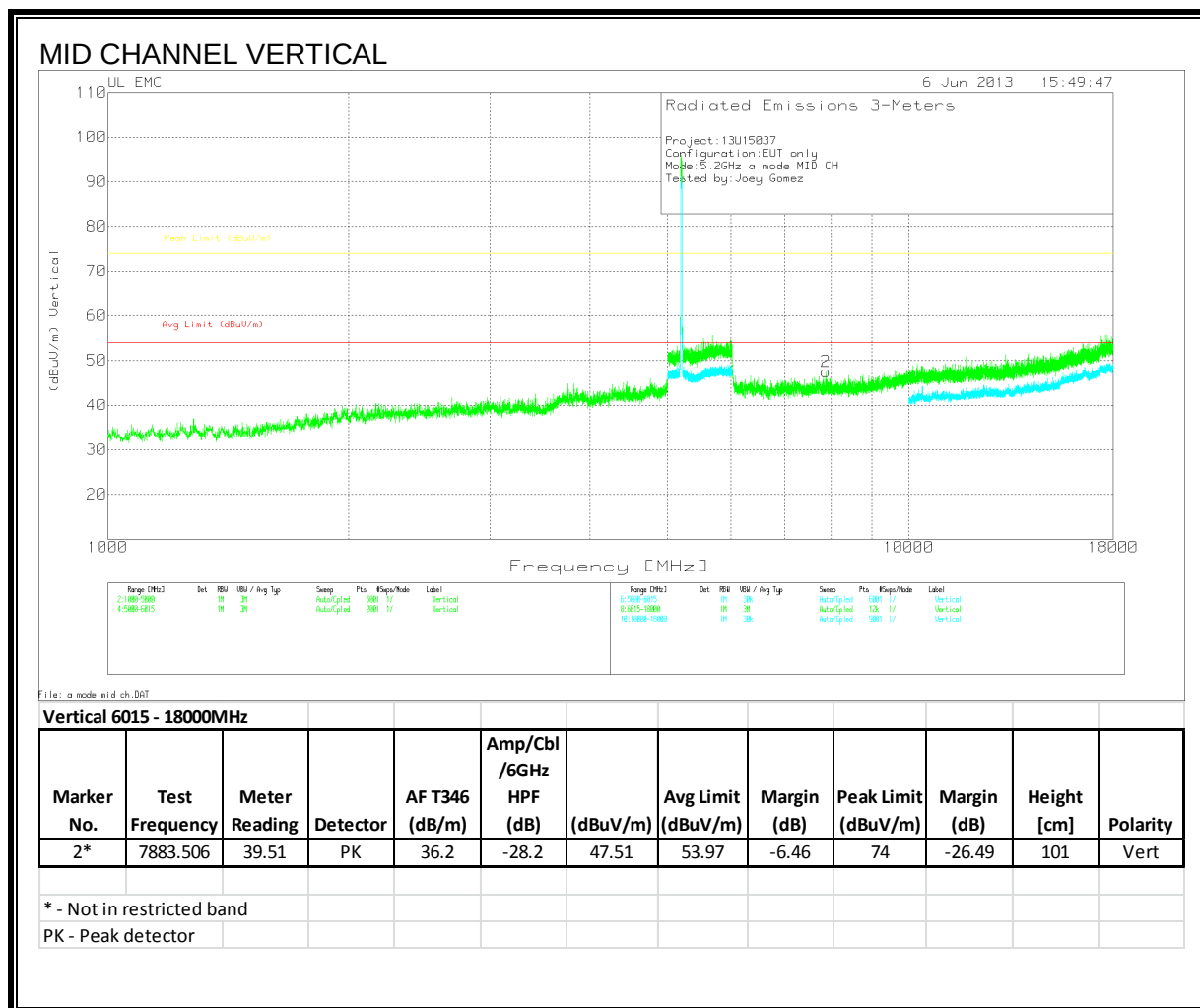
File: a mode mid ch.DAT

Horizontal 6015 - 18000MHz

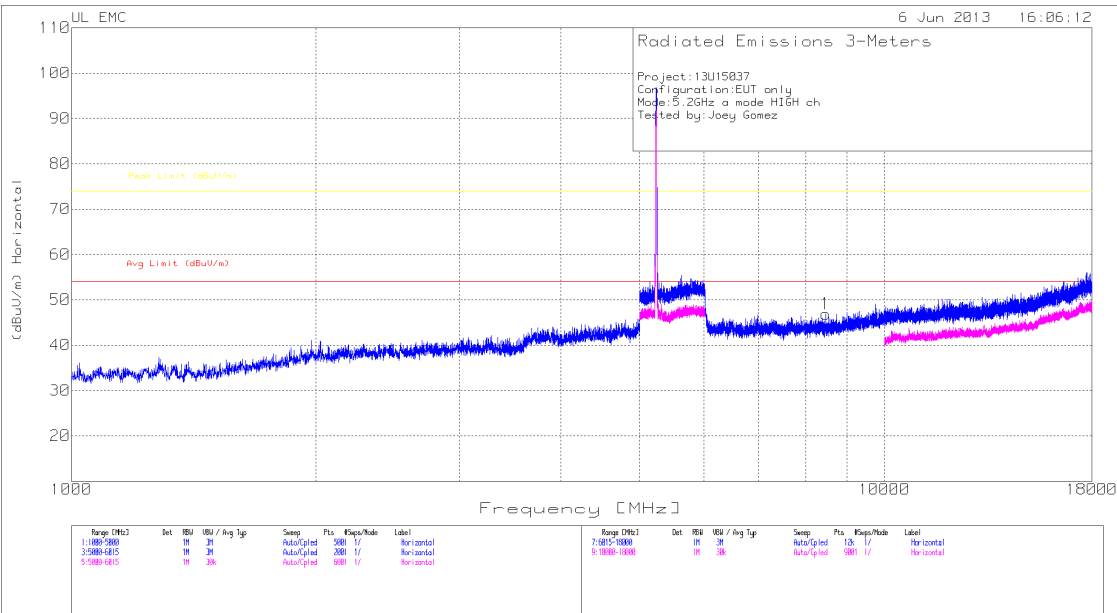
Marker No.	Test Frequency	Meter Reading	Detector	AF T346 (dB/m)	Amp/Cbl /6GHz HPF (dB)	(dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
1*	6934.772	41.18	PK	35.9	-29.5	47.58	53.97	-6.39	74	-26.42	101	Horz

* - Not in restricted band

PK - Peak detector



HIGH CHANNEL HORIZONTAL



File: a mode high ch.DAT

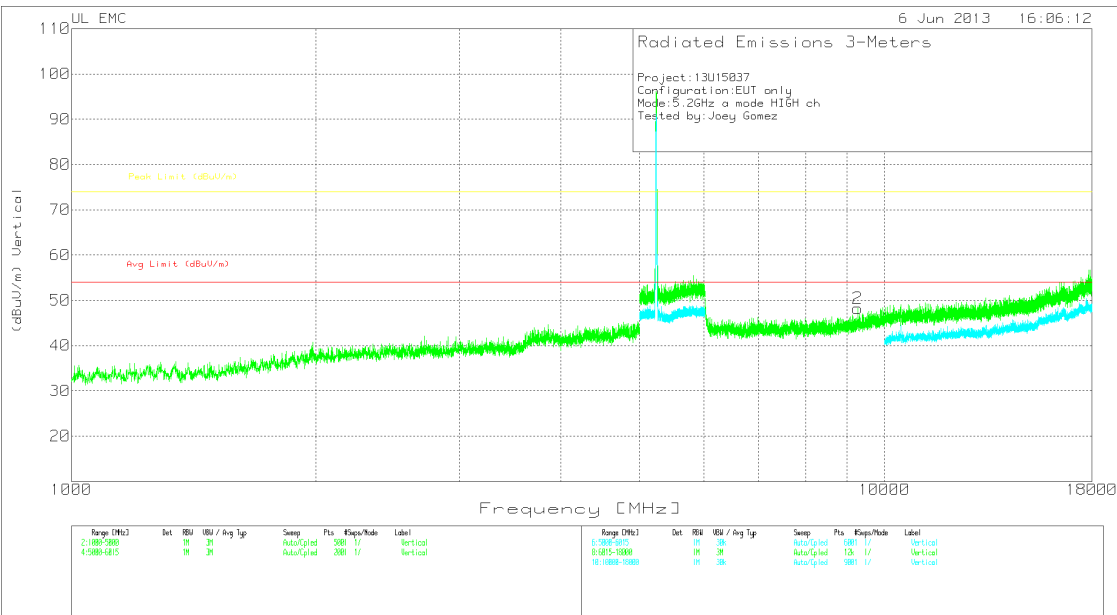
Horizontal 6015 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	AF T346 (dB/m)	Amp/Cbl /6GHz HPF (dB)	(dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
1	9756.006	37.25	PK	37.6	-25.8	49.05	53.97	-4.92	74	-24.95	101	Horz

* - Not in restricted band

PK - Peak detector

HIGH CHANNEL VERTICAL



File: a mode high.ch.DAT

Vertical 6015 - 18000MHz

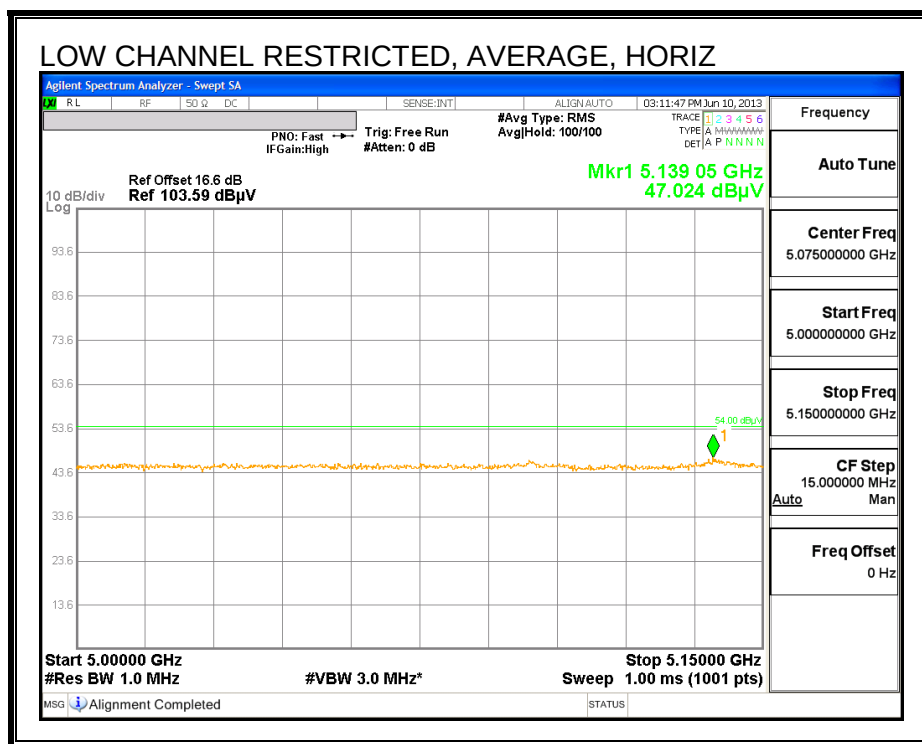
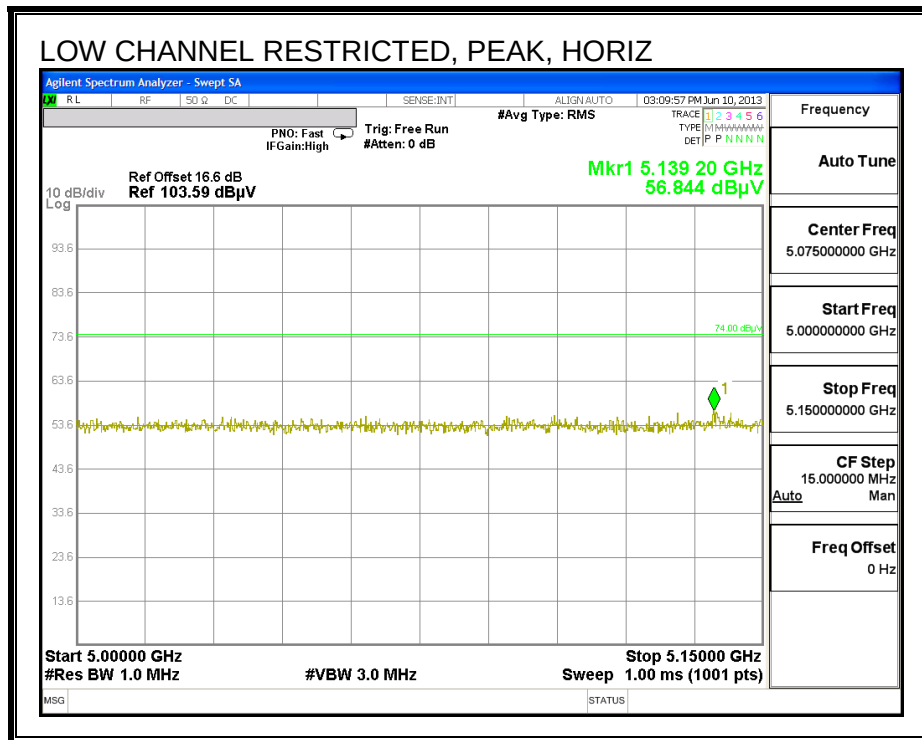
Marker No.	Test Frequency	Meter Reading	Detector	AF T346 (dB/m)	Amp/Cbl /6GHz HPF (dB)	(dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
2	9274.648	37.63	PK	37.1	-26.5	48.23	53.97	-5.74	74	-25.77	101	Vert

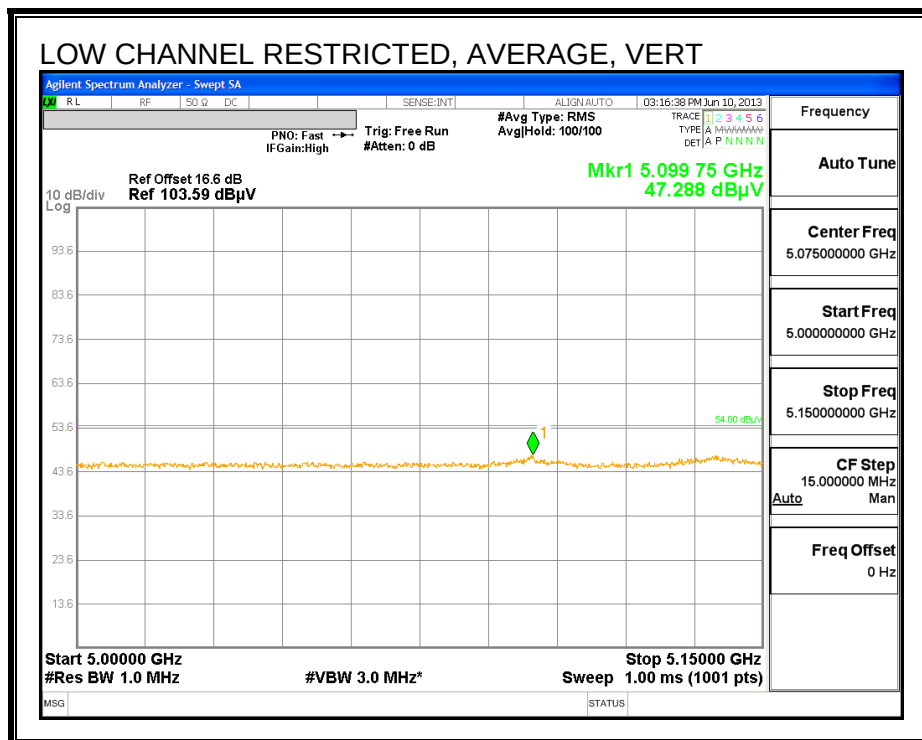
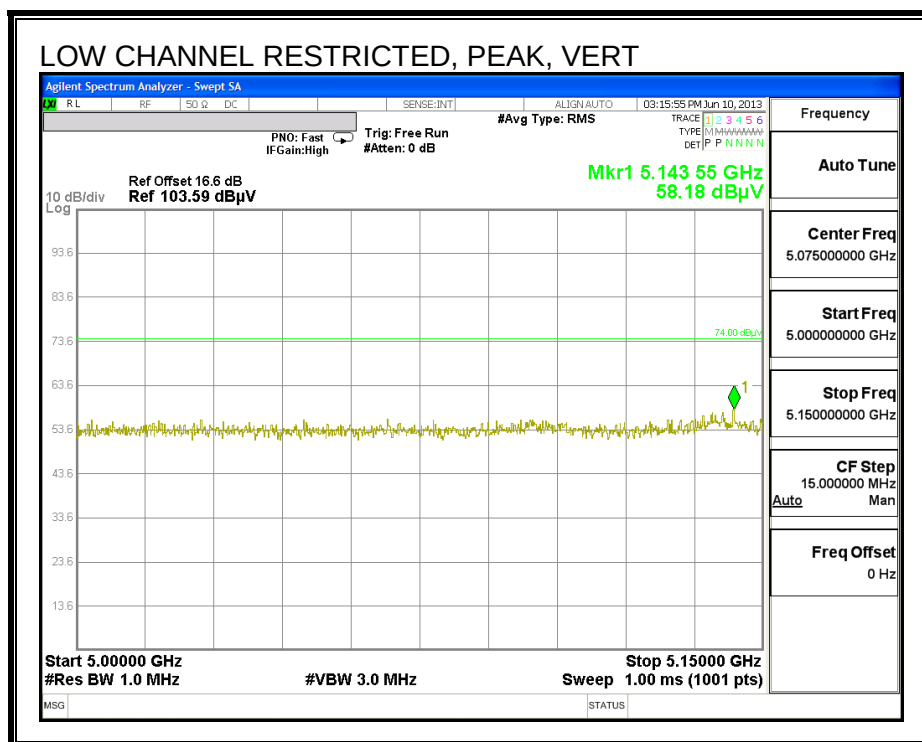
* - Not in restricted band

PK - Peak detector

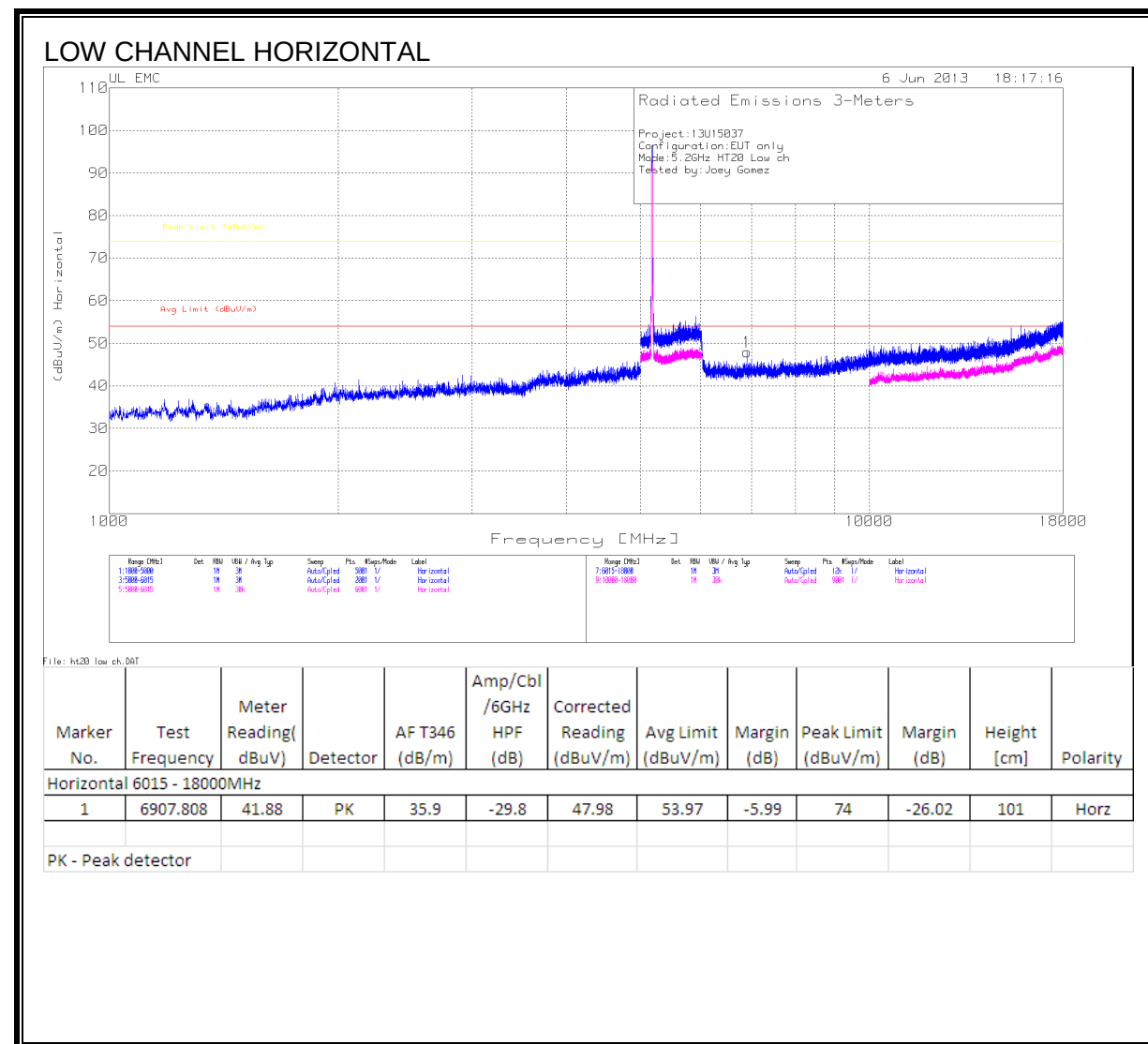
9.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

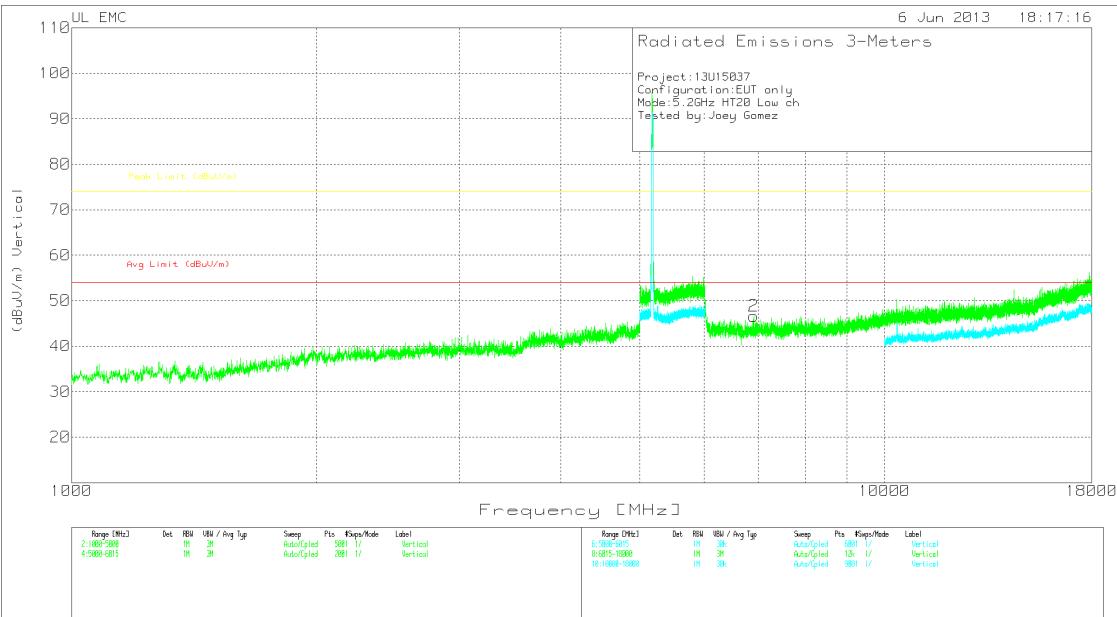




HARMONICS AND SPURIOUS EMISSIONS



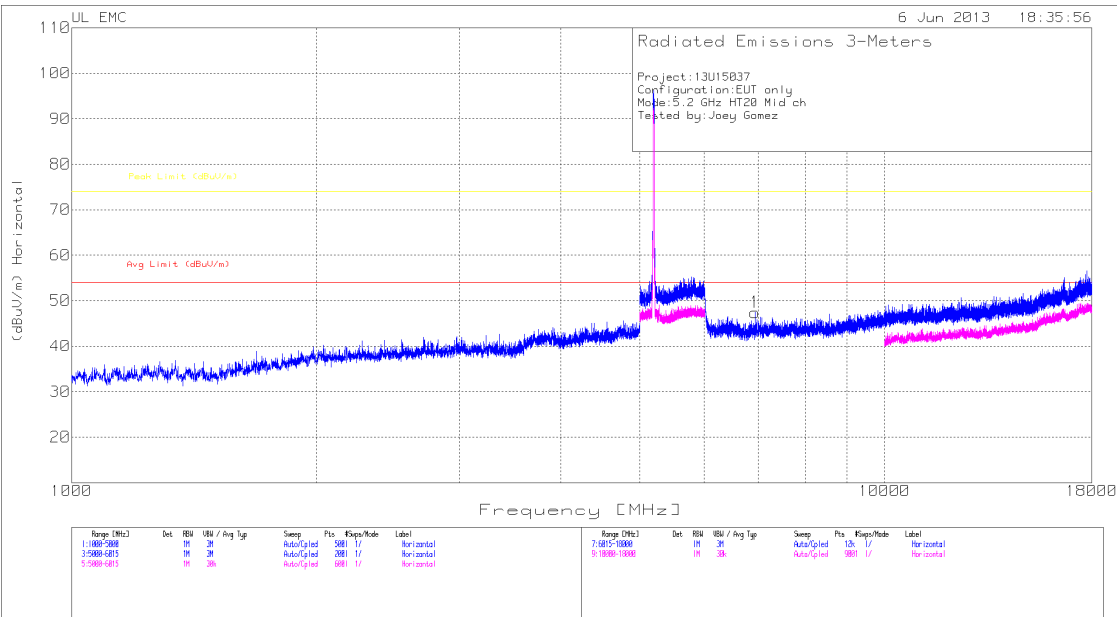
LOW CHANNEL VERTICAL



File: ht20_low_ch.DAT

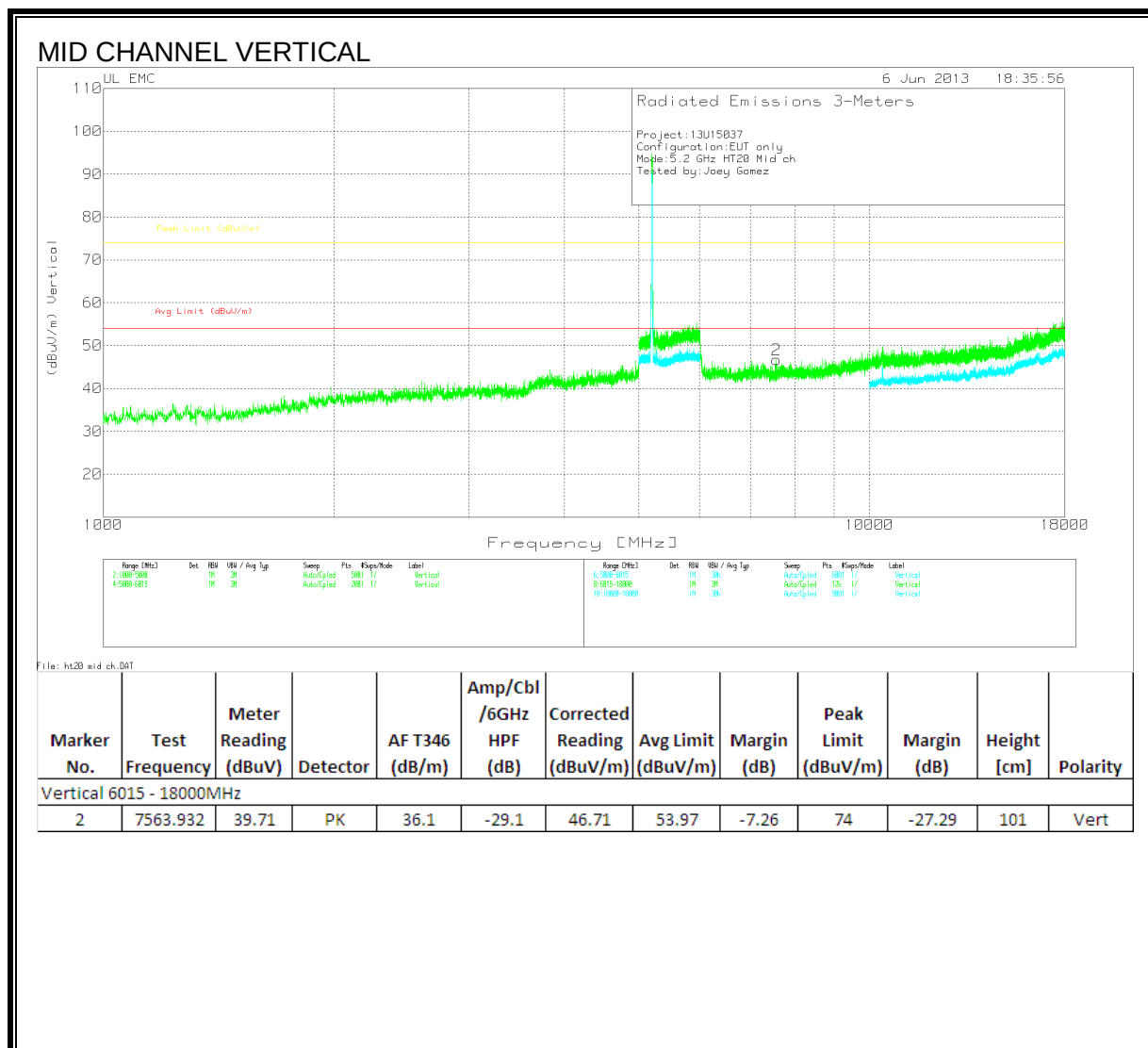
Marker No.	Test Frequency	Meter Reading (dBuV)	Detector	AF T346 (dB/m)	Amp/Cbl /6GHz HPF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
Vertical 6015 - 18000MHz												
2	6906.809	40.53	PK	35.9	-29.8	46.63	53.97	-7.34	74	-27.37	101	Vert
PK - Peak detector												

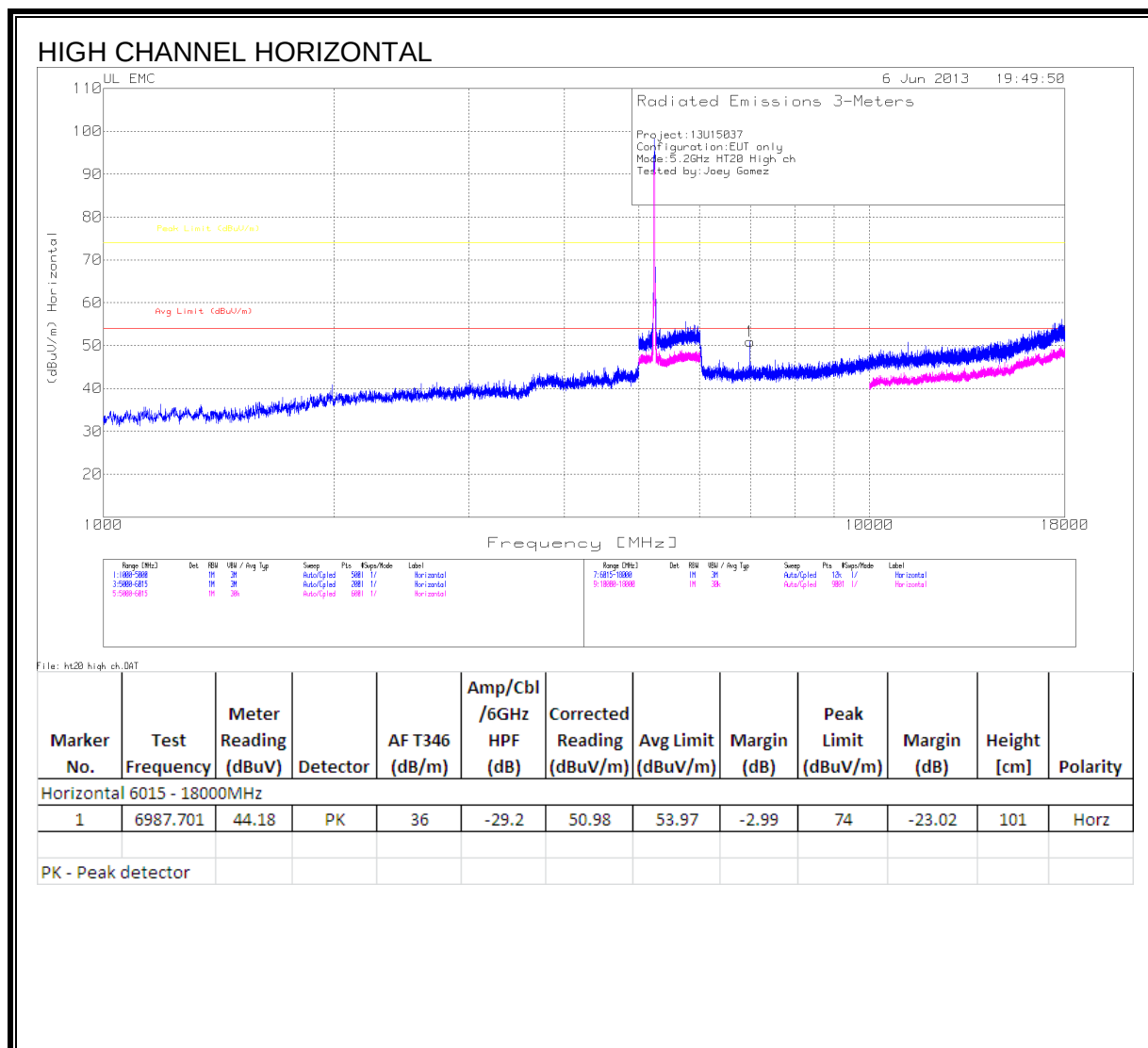
MID CHANNEL HORIZONTAL

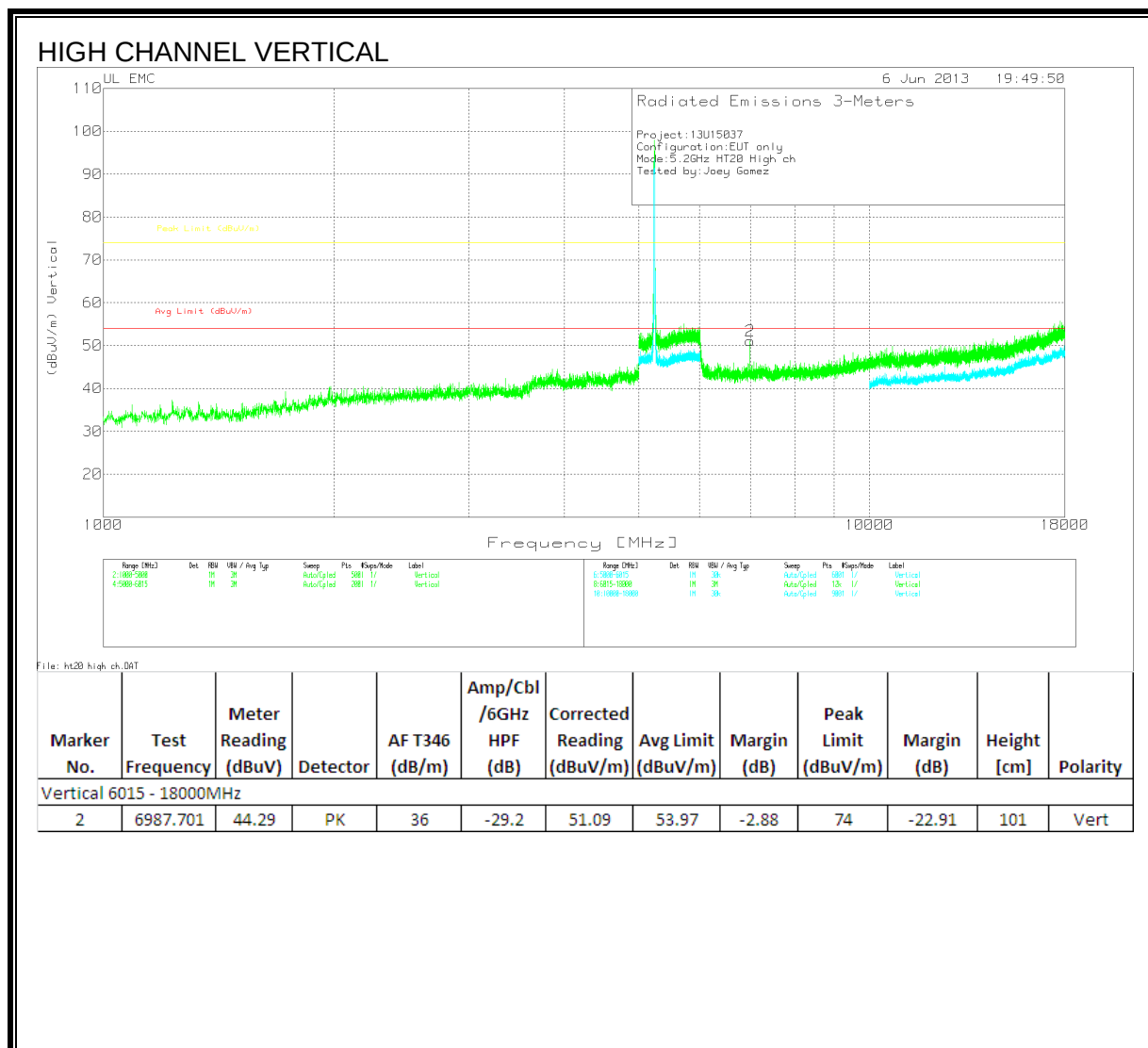


File: ht20 mid ch.DAT

Marker No.	Test Frequency	Meter Reading (dBuV)	Detector	AF T346 (dB/m)	Amp/Cbl /6GHz HPF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
Horizontal 6015 - 18000MHz												
1	6933.773	41.01	PK	35.9	-29.5	47.41	53.97	-6.56	74	-26.59	101	Horz
PK - Peak detector												







9.2.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

