

Test Report No. 7191120731-EEC15/02
dated 05 Oct 2015



PSB Singapore

Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.

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TEST REPORT COVER PAGE

Product Information			
Product Name / Description:	MOTOTRBO MOBILE RADIO (2.4GHz WiFi)	Applicant Company Number:	109U
Model Number(s):	AAM28QNN9RA1AN	UPN Number:	92FT7080
All Used IC Test Site(s) Reg. #:	2932I-1	SAR Test Lab Company Number:	--

Emissions Information								
	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6	Band 7	Band 8
RSS # & Issue #	RSS-247 & Issue 1							
Frequency Min (MHz)	2412							
Frequency Max (MHz)	2462							
RF Power Min (W) Conducted / EIRP / ERP	--							
RF Power Max (W) Conducted	0.017							
Field Strength Units @ distance	111.5 dBµV/m @ 3m							
Measured BW (kHz) (99%, 26dB, 6dB, etc.)	17840 (99%)							
Calculated BW (kHz) As per TRC-43	17900							
Emission Classification (FID, GID, DID, etc.)	17M9D1 D							
Transmitter Spurious Units @ distance	1.54GHz 51.2 dBµV/m (Peak) @ 3m							
	B	B	B	B	B	B	B	B
RSS # & Issue #								
Frequency Min (MHz)								
Frequency Max (MHz)								
RF Power Min (W) Conducted / EIRP / ERP								
RF Power Max (W) Conducted / EIRP / ERP								
Field Strength Units @ distance								
Measured BW (kHz) (99%, 26dB, 6dB, etc.)								
Calculated BW (kHz) As per TRC-43								
Emission Classification (FID, GID, DID, etc.)								
Transmitter Spurious Units @ distance								

Agreement Signature

ATTESTATION: The test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all the applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Applicant / Agent Name:	Lim Cher Hwee	Applicant / Agent Title:	Assistant Vice President
Applicant / Agent Signature:		Signature Date:	05 Oct 2015

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH
47 CFR FCC Parts 15B & C
RSS-GEN Issue 4: 2014
RSS-247 Issue 1: 2015
OF A
MOTOTRBO MOBILE RADIO (2.4GHz WiFi)
[Model : AAM28QNN9RA1AN]
[FCC ID : AZ492FT7080 & IC : 109U-92FT7080]

TEST FACILITY TÜV SÜD PSB Pte Ltd
Electrical & Electronics Centre (EEC), Product Services,
No. 1 Science Park Drive, Singapore 118221

FCC REG. NO. 99142 (3m and 10m Semi-Anechoic Chamber, Science Park)

IND. CANADA REG. NO. 2932I-1 (3m and 10m Semi-Anechoic Chamber, Science Park)

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QUOTATION NUMBER 2191024733

JOB NUMBER 7191120731

TEST PERIOD 31 Aug 2015 – 28 Sep 2015

PREPARED BY

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Lim Cher Hwee
Assistant Vice President



LA-2007-0380-A
LA-2007-0381-F
LA-2007-0382-B
LA-2007-0383-G

LA-2007-0384-G
LA-2007-0385-E
LA-2007-0386-C
LA-2010-0464-D

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.

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TEST SUMMARY

The product was tested in accordance with the customer's specifications.

Test Results Summary

Test Standard	Description	Pass / Fail
47 CFR FCC Part 15 and RSS-GEN Issue 4: 2014 and RSS-247 Issue 1: 2015		
15.207 RSS-GEN 8.8	Conducted Emissions	Pass
15.205, 15.209 RSS-GEN 8.9, 8.10	Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)	Pass
15.247(a)(2) RSS-247 5.2(1)	Spectrum Bandwidth (6dB and 99% Bandwidth Measurement)	Pass
15.247(b)(3) RSS-247 5.4(4)	Maximum Peak Power	Pass
15.247(d) RSS-247 5.5	RF Conducted Spurious Emissions (Non-Restricted Bands)	Pass
15.247(d) RSS-247 5.5	RF Conducted Spurious Emissions (Restricted Bands)	Pass
15.247(d) RSS-247 5.5	Band Edge Compliance (Conducted)	Pass
15.247(d) RSS-247 5.5	Band Edge Compliance (Radiated)	Pass
15.247(e) RSS-247 5.2(2)	Peak Power Spectral Density	Pass
1.1310 RSS-102 4.0, RSS-GEN 3.2	Maximum Permissible Exposure	Pass

TEST SUMMARY

Notes

1. The channels as listed below, under the different configurations were tested for 802.11b WLAN.

<u>Transmit Channel</u>	<u>Frequency (GHz)</u>	<u>Modulation</u>	<u>Data Rate</u>
Channel 1 (Lower Channel)	2.412	DBPSK	1Mbps
Channel 6 (Middle Channel)	2.437	DBPSK	1Mbps
Channel 11 (Upper Channel)	2.462	DBPSK	1Mbps
Channel 1 (Lower Channel)	2.412	DQPSK	2Mbps
Channel 6 (Middle Channel)	2.437	DQPSK	2Mbps
Channel 11 (Upper Channel)	2.462	DQPSK	2Mbps
Channel 1 (Lower Channel)	2.412	CCK	11Mbps
Channel 6 (Middle Channel)	2.437	CCK	11Mbps
Channel 11 (Upper Channel)	2.462	CCK	11Mbps

2. The channels as listed below, under the different configurations were tested for 802.11g WLAN.

<u>Transmit Channel</u>	<u>Frequency (GHz)</u>	<u>Modulation</u>	<u>Data Rate</u>
Channel 1 (Lower Channel)	2.412	BPSK	9Mbps
Channel 6 (Middle Channel)	2.437	BPSK	9Mbps
Channel 11 (Upper Channel)	2.462	BPSK	9Mbps
Channel 1 (Lower Channel)	2.412	QPSK	18Mbps
Channel 6 (Middle Channel)	2.437	QPSK	18Mbps
Channel 11 (Upper Channel)	2.462	QPSK	18Mbps
Channel 1 (Lower Channel)	2.412	16QAM	36Mbps
Channel 6 (Middle Channel)	2.437	16QAM	36Mbps
Channel 11 (Upper Channel)	2.462	16QAM	36Mbps
Channel 1 (Lower Channel)	2.412	64QAM	54Mbps
Channel 6 (Middle Channel)	2.437	64QAM	54Mbps
Channel 11 (Upper Channel)	2.462	64QAM	54Mbps

3. The channels as listed below, under the different configurations were tested for 802.11n WLAN.

<u>Transmit Channel</u>	<u>Frequency (GHz)</u>	<u>Modulation</u>	<u>Data Rate</u>
Channel 1 (Lower Channel)	2.412	BPSK	6.5Mbps
Channel 6 (Middle Channel)	2.437	BPSK	6.5Mbps
Channel 11 (Upper Channel)	2.462	BPSK	6.5Mbps
Channel 1 (Lower Channel)	2.412	QPSK	19.5Mbps
Channel 6 (Middle Channel)	2.437	QPSK	19.5Mbps
Channel 11 (Upper Channel)	2.462	QPSK	19.5Mbps
Channel 1 (Lower Channel)	2.412	16QAM	39Mbps
Channel 6 (Middle Channel)	2.437	16QAM	39Mbps
Channel 11 (Upper Channel)	2.462	16QAM	39Mbps
Channel 1 (Lower Channel)	2.412	64QAM	65Mbps
Channel 6 (Middle Channel)	2.437	64QAM	65Mbps
Channel 11 (Upper Channel)	2.462	64QAM	65Mbps

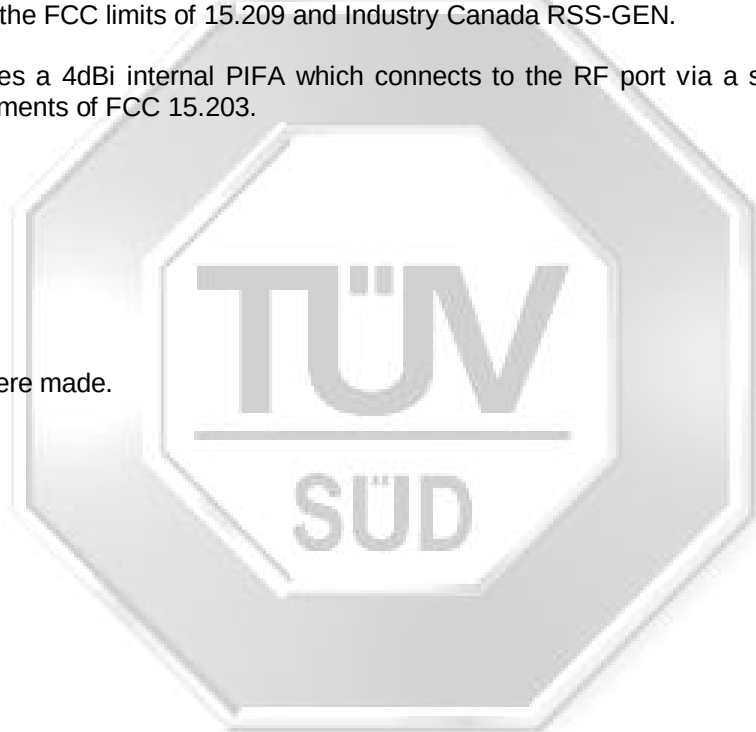
TEST SUMMARY

Notes (continued)

4. The EUT is a Class B device when in non-transmitting state and meets the 47 CFR FCC Part15B Class B requirements.
5. All test measurement procedures are according to ANSI C63.4: 2014, ANSI C63.10: 2013 and KDB 558074 D01 DTS Measurement Guidance V03R03.
6. RSS-102 is RSS-102 Issue 4: 2015.
7. The unit was also investigated for inter-modulation products between the co-located WiFi and the land mobile radios. All inter-modulation products between the co-located radios were found to be compliant to the FCC limits of 15.209 and Industry Canada RSS-GEN.
8. The EUT uses a 4dBi internal PIFA which connects to the RF port via a spring contact. The EUT meets requirements of FCC 15.203.

Modifications

No modifications were made.



PRODUCT DESCRIPTION

Description	: The Equipment Under Test (EUT) is a MOTOTRBO MOBILE RADIO .
Manufacturer	: Motorola Solutions Malaysia Sdn Bhd Plot 2, Technoplex Industrial Park Mukim 12 Swd, Medan Bayan Lepas, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Penang, Malaysia
Model Number	: AAM28QNN9RA1AN
FCC ID	: AZ492FT7080
IC	: 109U-92FT7080
Serial Number	: 511TRMB915
Microprocessor	: Ti OMAPL138BZWT3R
Operating / Transmitting Frequency	: <u>Bluetooth / Bluetooth LE</u> 2.402GHz (lower channel) to 2.480GHz (upper channel) 79 channels (Bluetooth), 40 channels (Bluetooth LE) <u>WiFi</u> 2.412GHz (lower channel) to 2.462GHz (upper channel) 11 channels <u>Land Mobile</u> 403MHz to 470MHz /Channel Spacing 12.5kHz/25kHz
Clock / Oscillator Frequency	: Reference Clock: 19.2 MHz , LO: 329.65 MHz - 396.65 MHz
Modulation	: <u>Bluetooth</u> Gaussian Frequency Shift Keying (GFSK) ($\pi/4$) DQPSK 8DPSK <u>WiFi</u> Differential Binary Phase Shift Keying (DBPSK) Differential Quadrature Phase Shift Keying (DQPSK) Complementary Code Keying (CCK) Binary Phase Shift Keying (BPSK) Quadrature Phase Shift Keying (QPSK) 16-Quadrature Amplitude Modulation (16QAM) 64-Quadrature Amplitude Modulation (64QAM) <u>Land Mobile</u> Frequency Modulation (FM)
Antenna Gain	: 4.0 dBi (PIFA Antenna)



PRODUCT DESCRIPTION

(Continued)

Port / Connectors	:	Refer to manufacturer's user manual / operating manual
Rated Input Power	:	120V 60Hz
Accessories	:	Refer to manufacturer's user manual / operating manual



SUPPORTING EQUIPMENT DESCRIPTION

Equipment Description (Including Brand Name)	Model, Serial & FCC ID Number	Cable Description (List Length, Type & Purpose)
Fujitsu Laptop	M/N: S6310 S/N: R7100269 FCC ID: DoC	Nil
Fujitsu AC Adapter	M/N: CP293662-01 S/N: O6X00399B FCC ID: DoC	1.80m unshielded power cable
Microsoft Wheel Mouse	M/N: X08-71118 S/N: Nil FCC ID: DoC	Nil
Alfatronix Limited Desktop Power Supply	M/N: AD MT 3100/DM S/N: Nil FCC ID: DoC	Nil
Motorola IMPRES Keypad Microphone	M/N: RMN5127C S/N: Nil FCC ID: DoC	Nil

EUT OPERATING CONDITIONS

47 CFR FCC Part 15 and RSS-GEN Issue 4 and RSS-247 Issue 1

- 1. Conducted Emissions**
- 2. Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)**
- 3. Spectrum Bandwidth (6dB Bandwidth Measurement)**
- 4. Maximum Peak Power**
- 5. RF Conducted Spurious Emissions Emission (Non-Restricted Bands)**
- 6. RF Conducted Spurious Emissions Emission (Restricted Bands)**
- 7. Band Edge Compliance (Conducted)**
- 8. Band Edge Compliance (Radiated)**
- 9. Peak Power Spectral Density**
- 10. Maximum Permissible Exposure**

The EUT was exercised by operating in maximum continuous transmission in test mode, i.e transmitting at lower, middle and upper channels respectively at one time.



CONDUCTED EMISSION TEST

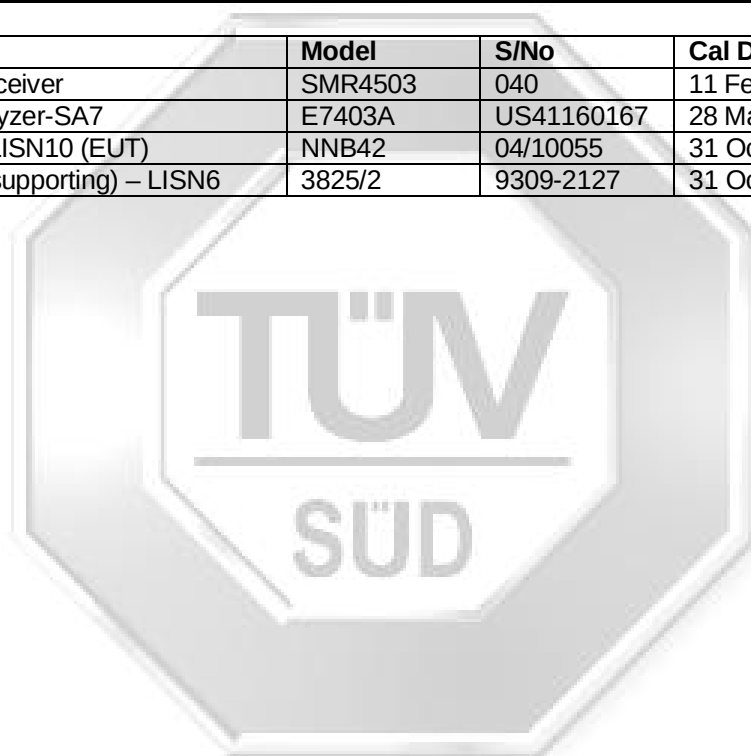
47 CFR FCC Part 15.207 and RSS-GEN 8.8 Conducted Emission Limits

Frequency Range (MHz)	Limit Values (dBμV)	
	Quasi-peak (Q-P)	Average (AV)
0.15 - 0.5	66 – 56 *	56 – 46 *
0.5 - 5.0	56	46
5.0 - 30.0	60	50

* Decreasing linearly with the logarithm of the frequency

47 CFR FCC Part 15.207 and RSS-GEN 8.8 Conducted Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Schaffner EMI Receiver	SMR4503	040	11 Feb 2016	1 year
Agilent EMC Analyzer-SA7	E7403A	US41160167	28 May 2016	1 year
Schaffner LISN –LISN10 (EUT)	NNB42	04/10055	31 Oct 2015	1 year
EMCO LISN (for supporting) – LISN6	3825/2	9309-2127	31 Oct 2015	1 year



CONDUCTED EMISSION TEST

47 CFR FCC Part 15.207 and RSS-GEN 8.8 Conducted Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50 Ω /50 μ H EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipment were powered separately from another LISN.

47 CFR FCC Part 15.207 and RSS-GEN 8.8 Conducted Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A scan was made on the NEUTRAL line over the required frequency range using an EMI test receiver.
3. High peaks, relative to the limit line, were then selected.
4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 9kHz. Both Quasi-peak and Average measurements were made.
5. Steps 2 to 4 were then repeated for the LIVE line.

Sample Calculation Example

At 20 MHz

Q-P limit = 60.0 dB μ V

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.2 dB

Q-P reading obtained directly from EMI Receiver = 40.0 dB μ V
(Calibrated for system losses)

Therefore, Q-P margin = 60.0 - 40.0 = 20.0

i.e. 20.0 dB below Q-P limit

CONDUCTED EMISSION TEST

47 CFR FCC Part 15.207 and and RSS-GEN 8.8 Conducted Emission Results

Test Input Power	120V 60Hz	Temperature	24°C
Line Under Test	AC Mains	Relative Humidity	60%
Modulation	802.11b @ 11Mbps (Worst)	Atmospheric Pressure	1030mbar
		Tested By	Li Chaoming

Frequency (MHz)	Peak Value (dBμV)	Q-P Limit (dBμV)	Q-P Margin (dB)	AV Value (dBμV)	AV Limit (dBμV)	AV Margin (dB)	Line	Channel
0.1867	43.8	64.2	20.4	-- *See Note 3	54.2	10.4	Live	11
0.4684	35.1	56.5	21.4	-- *See Note 3	46.5	11.4	Live	11
0.6031	34.3	56.0	21.7	-- *See Note 3	46.0	11.7	Live	11
1.2522	35.4	56.0	20.6	-- *See Note 3	46.0	10.6	Neutral	11
1.9869	34.1	56.0	21.9	-- *See Note 3	46.0	11.9	Live	11
3.3585	36.2	56.0	19.8	-- *See Note 3	46.0	9.8	Neutral	11

Test Input Power	120V 60Hz	Temperature	24°C
Line Under Test	AC Mains	Relative Humidity	60%
Modulation	802.11g @ 9Mbps (Worst)	Atmospheric Pressure	1030mbar
		Tested By	Li Chaoming

Frequency (MHz)	Peak Value (dBμV)	Q-P Limit (dBμV)	Q-P Margin (dB)	AV Value (dBμV)	AV Limit (dBμV)	AV Margin (dB)	Line	Channel
0.1867	43.9	64.2	20.3	-- *See Note 3	54.2	10.3	Live	11
0.7868	33.9	56.0	22.1	-- *See Note 3	46.0	12.1	Live	11
1.1787	33.6	56.0	22.4	-- *See Note 3	46.0	12.4	Neutral	11
1.5338	33.5	56.0	22.5	-- *See Note 3	46.0	12.5	Neutral	11
2.5380	33.7	56.0	22.3	-- *See Note 3	46.0	12.3	Live	11
3.3953	34.4	56.0	21.6	-- *See Note 3	46.0	11.6	Neutral	11

Test Input Power	120V 60Hz	Temperature	24°C
Line Under Test	AC Mains	Relative Humidity	60%
Modulation	802.11n @ 6.5Mbps (Worst)	Atmospheric Pressure	1030mbar
		Tested By	Li Chaoming

Frequency (MHz)	Peak Value (dBμV)	Q-P Limit (dBμV)	Q-P Margin (dB)	AV Value (dBμV)	AV Limit (dBμV)	AV Margin (dB)	Line	Channel
0.1623	43.6	65.3	21.7	-- *See Note 3	55.3	11.7	Neutral	11
0.7991	33.6	56.0	22.4	-- *See Note 3	46.0	12.4	Neutral	11
1.4481	32.7	56.0	23.3	-- *See Note 3	46.0	13.3	Neutral	11
1.7910	33.0	56.0	23.0	-- *See Note 3	46.0	13.0	Neutral	11
2.9911	33.2	56.0	22.8	-- *See Note 3	46.0	12.8	Neutral	11
3.8606	32.9	56.0	23.1	-- *See Note 3	46.0	13.1	Live	11

CONDUCTED EMISSION TEST

Notes

1. All possible modes of operation were investigated from 150kHz to 30MHz. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
3. As the measured peak shows compliance to the Q-P & Average limits, as such no Q-P & Average measurements was carried out. The EUT is deemed to meet both requirements.
4. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
9kHz - 30MHz
RBW: 9kHz VBW: 30kHz
5. Conducted Emissions Measurement Uncertainty
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 9kHz – 30MHz is $\pm 2.2\text{dB}$.



RADIATED EMISSION TEST

47 CFR FCC Part 15.205 and RSS-GEN 8.10 Restricted Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	Above 38.6
13.36 - 13.41			

47 CFR FCC Parts 15.109(a), 15.209 and RSS-GEN 8.9 Radiated Emission Limits

Frequency Range (MHz)	Quasi-Peak Limit Values (dBµV/m)
0.009 - 0.490	20 log [2400 / F (kHz)] @ 300m
0.490 - 1.705	20 log [24000 / F (kHz)] @ 30m
1.705 - 30.0	30.0 @ 30m
30 - 88	40.0 @ 3m
88 - 216	43.5 @ 3m
216 - 960	46.0 @ 3m
Above 960	54.0* @ 3m

* For frequency bands 9kHz – 90kHz, 110kHz – 490kHz and above 1GHz, average detector was used. A peak limit of 20dB above the average limit does apply.

47 CFR FCC Part 15.209, RSS-GEN 8.9 and 8.10 Radiated Emission Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
R&S Test Receiver – ESI1	ESI40	100010	14 Jul 2016	1 year
Schaffner Bilog Antenna –(30MHz-2GHz) BL3 (Ref)	CBL6112D	2549	29 Jan 2016	1 year
ETS Horn Antenna(18GHz-40GHz)(Ref)	3116	0004-2474	02 Oct 2016	1 year
EMCO Horn Antenna(1GHz-18GHz)	3115	0003-6088	20 Apr 2016	1 year
R&S Preamplifier (1GHz -18GHz)	SCU18	102191	13 Mar 2016	1 year
Agilent Preamplifier(1GHz-26.5GHz) (PA18)	8449D	3008A02305	06 Oct 2016	1 year
Com-Power Preamplifier (1MHz-1GHz)	PAM-103	441096	13 Oct 2015	1 year
Micro-Tronics Bandstop Filter (2.4-2.5 GHz)	BRM50701	017	13 Aug 2016	1 year

RADIATED EMISSION TEST

47 CFR FCC Part 15.209, RSS-GEN 8.9 and 8.10 Radiated Emission Test Setup

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table. For >1GHz measurements, the EUT is raised further to a height of 1.5m with a non-metallic foam block.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

47 CFR FCC Part 15.209, RSS-GEN 8.9 and 8.10 Radiated Emission Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the worst emission frequencies from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
 - a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - b. The EUT was then rotated to the direction that gave the maximum emission.
 - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point in the range of 9kHz – 90kHz, 110kHz – 490kHz and above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.
6. The frequency range covered was from the lowest radio frequency signal generated from the EUT, without going below 9kHz to 10th harmonics of the EUT fundamental frequency, using the loop antenna for frequency below 30MHz, Bi-log antenna for frequencies from 30MHz up to 1GHz, and the Horn antenna above 1GHz.

Sample Calculation Example

At 300 MHz	Q-P limit (Class B) = 46.0 dB μ V/m
Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB	
Q-P reading obtained directly from EMI Receiver = 40.0 dB μ V/m (Calibrated level including antenna factors & cable losses)	
Therefore, Q-P margin = 46.0 - 40.0 = 6.0	i.e. 6.0 dB below Q-P limit



RADIATED EMISSION TEST

47 CFR FCC Part 15.205, 15.209 and RSS-GEN 8.9 and 8.10 Radiated Emission Results

Test Input Power	120V 60Hz	Temperature	24°C
Test Distance	3m (30MHz – 1GHz)	Relative Humidity	60%
	802.11b @ 1Mbps (Worst)	Atmospheric Pressure	1030mbar
		Tested By	Lim Kay Tak

Spurious Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBμV/m)	Q-P Limit (dBμV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Channel
30.8730	9.8	40.0	30.2	224	39	V	11
44.7580	1.8	40.0	38.2	328	232	V	11
324.0050	35.8	46.0	10.2	100	258	H	11
397.0920	21.9	46.0	24.1	100	314	H	11
449.5810	9.7	46.0	36.3	100	148	V	11
456.8530	9.0	46.0	37.0	135	282	V	11





RADIATED EMISSION TEST

47 CFR FCC Part 15.205, 15.209 and RSS-GEN 8.9 and 8.10 Radiated Emission Results

Test Input Power	120V 60Hz	Temperature	24°C
Test Distance	3m (1GMHz –25GHz)	Relative Humidity	60%
	802.11b @ 2Mbps (Worst Mode)	Atmospheric Pressure	1030mbar
		Tested By	Dylan Lin

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.5161	47.8	74.0	26.2	27.8	54.0	26.2	400	13	V	1
1.8602	47.8	74.0	26.2	29.6	54.0	24.4	300	358	V	1
1.9918	44.1	74.0	29.9	29.9	54.0	24.1	200	252	V	1
2.1335	42.7	74.0	31.3	28.1	54.0	25.9	300	349	V	1
3.6009	44.3	74.0	29.7	42.7	54.0	11.3	200	343	V	1
4.8255	43.3	74.0	30.7	32.1	54.0	21.9	300	199	V	1

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.3441	48.8	74.0	25.2	27.1	54.0	26.9	300	22	V	6
1.6882	47.0	74.0	27.0	29.7	54.0	24.3	300	98	V	6
1.8602	45.2	74.0	28.8	29.3	54.0	24.7	300	358	V	6
1.9918	45.2	74.0	28.8	28.6	54.0	25.4	100	340	V	6
2.1335	43.7	74.0	30.3	28.7	54.0	25.3	200	338	V	6
3.6009	44.7	74.0	29.3	41.0	54.0	13.0	300	256	V	6

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.5364	51.2	74.0	22.8	26.6	54.0	27.4	300	275	V	11
1.6578	47.9	74.0	26.1	28.0	54.0	26.0	100	323	V	11
1.8602	48.1	74.0	25.9	26.8	54.0	27.2	200	171	V	11
1.9918	51.2	74.0	22.8	29.3	54.0	24.7	100	349	V	11
2.1335	44.1	74.0	29.9	27.0	54.0	27.0	200	297	V	11
3.6009	44.7	74.0	29.3	42.1	54.0	11.9	200	338	V	11

RADIATED EMISSION TEST

47 CFR FCC Part 15.205, 15.209 and RSS-GEN 8.9 and 8.10 Radiated Emission Results

Test Input Power	120V 60Hz	Temperature	24°C
Test Distance	3m (1GMHz –25GHz)	Relative Humidity	60%
	802.11g @ 36Mbps (Worst Mode)	Atmospheric Pressure	1030mbar
		Tested By	Dylan Lin

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.3441	45.0	74.0	29.0	27.7	54.0	26.3	400	359	V	1
1.6882	48.0	74.0	26.0	29.0	54.0	25.0	300	98	V	1
1.8602	48.9	74.0	25.1	31.3	54.0	22.7	100	16	V	1
1.9918	42.1	74.0	31.9	29.3	54.0	24.7	100	47	H	1
2.1335	49.6	74.0	24.4	30.9	54.0	23.1	100	16	V	1
3.6009	45.1	74.0	28.9	42.3	54.0	11.7	200	343	V	1

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.0810	49.4	74.0	24.6	26.8	54.0	27.2	100	343	V	6
1.1518	47.7	74.0	26.3	26.3	54.0	27.7	100	234	H	6
1.3441	47.5	74.0	26.5	26.5	54.0	27.5	300	14	V	6
1.6578	47.0	74.0	27.0	28.5	54.0	25.5	300	81	V	6
1.9918	44.3	74.0	29.7	29.4	54.0	24.6	100	259	V	6
3.6009	44.8	74.0	29.2	41.5	54.0	12.5	300	14	V	6

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.1619	49.2	74.0	24.8	26.5	54.0	27.5	100	47	H	11
1.6578	47.9	74.0	26.1	28.7	54.0	25.3	300	81	V	11
1.9918	43.8	74.0	30.2	28.6	54.0	25.4	100	47	H	11
2.0930	42.4	74.0	31.6	28.3	54.0	25.7	100	333	V	11
2.3573	40.1	74.0	33.9	31.7	54.0	22.3	300	166	V	11
3.6009	45.2	74.0	28.8	42.2	54.0	11.8	200	343	V	11



RADIATED EMISSION TEST

47 CFR FCC Part 15.205, 15.209 and RSS-GEN 8.9 and 8.10 Radiated Emission Results

Test Input Power	120V 60Hz	Temperature	24°C
Test Distance	3m (1GMHz –25GHz)	Relative Humidity	60%
	802.11n @ 39Mbps (Worst Mode)	Atmospheric Pressure	1030mbar
		Tested By	Dylan Lin

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.1518	49.6	54.0	24.4	25.8	54.0	28.2	300	40	V	1
1.3238	44.7	54.0	29.3	28.2	54.0	25.8	300	48	H	1
1.6578	48.6	54.0	25.4	28.3	54.0	25.7	400	73	V	1
1.9918	45.6	54.0	28.4	28.5	54.0	25.5	100	252	V	1
2.1335	42.9	54.0	31.1	26.3	54.0	27.7	400	72	H	1
3.6009	43.9	54.0	30.1	40.6	54.0	13.4	300	256	V	1

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.6578	47.0	74.0	27.0	28.2	54.0	25.8	100	323	V	6
1.7084	44.0	74.0	30.0	27.7	54.0	26.3	300	190	V	6
1.8602	47.3	74.0	26.7	26.8	54.0	27.2	400	359	V	6
1.9918	44.0	74.0	30.0	29.7	54.0	24.3	300	49	H	6
2.1335	41.5	74.0	32.5	27.6	54.0	26.4	300	14	V	6
3.6009	44.5	74.0	29.5	41.5	54.0	12.5	200	343	V	6

Spurious Emissions above 1GHz - 25GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	Pol (H/V)	Ch
1.3238	45.4	74.0	28.6	27.3	54.0	26.7	300	56	V	11
1.6578	46.4	74.0	27.6	27.8	54.0	26.2	100	325	V	11
1.8602	45.6	74.0	28.4	31.0	54.0	23.0	100	16	V	11
1.9918	41.7	74.0	32.3	28.7	54.0	25.3	100	39	H	11
2.1335	40.0	74.0	34.0	29.4	54.0	24.6	200	10	V	11
3.6009	44.2	74.0	29.8	41.1	54.0	12.9	300	14	V	11

RADIATED EMISSION TEST

Notes

1. All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. Quasi-peak measurement was used for frequency measurement up to 1GHz. Average and peak measurements were used for emissions above 1GHz. The average measurement was done by averaging over a complete cycle of the pulse train, including the blanking interval as the pulse train duration does not exceed 0.1 second.
3. A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
4. EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:
30MHz - 1GHz
RBW: 100kHz VBW: 1MHz
>1GHz
RBW: 1MHz VBW: 1MHz
5. The upper frequency of radiated emission investigations was according to requirements stated in Section 15.33(a) for intentional radiators & Section 15.33(b) for unintentional radiators.
6. The upper frequency of radiated emission investigations was according to requirements stated in RSS-GEN 6.13.
7. The channel in the table refers to the transmit channel of the EUT.
8. Radiated Emissions Measurement Uncertainty
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 25GHz is $\pm 4.0\text{dB}$.

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

47 CFR FCC Part 15.247(a)(2) and RSS-247 5.2(1) Spectrum Bandwidth (6dB and 99% Bandwidth Measurement) Limits

The EUT shows compliance to the requirements of this section, which states that the minimum bandwidth of the EUT employing digital modulation techniques shall be at least 500kHz.

47 CFR FCC Part 15.247(a)(2) and RSS-247 5.2(1) Spectrum Bandwidth (6dB and 99% Bandwidth Measurement) Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E4440A	MY45304764	12 Dec 2015	1 year

47 CFR FCC Part 15.247(a)(2) and RSS-247 5.2(1) Spectrum Bandwidth (6dB and 99% Bandwidth Measurement) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to the following:
RBW = 100kHz
VBW = 3 times RBW
5. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(a)(2) and RSS-247 5.2(1) Spectrum Bandwidth (6dB and 99% Bandwidth Measurement) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel.
2. The center frequency of the spectrum analyser was set to the transmitting frequency with the frequency span wide enough to capture the 6dB and 99% bandwidth of the transmitting frequency.
3. The spectrum analyser was set to max hold to capture the transmitting frequency. The signal capturing was continuous until no further changes were observed.
4. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser. For 6dB bandwidth measurement, the frequencies below the 6dB peak frequency at lower (f_L) and upper (f_H) sides of the transmitting frequency were marked and measured by using the marker-delta function of the spectrum analyser. For 99% bandwidth measurement, the spectrum analyser power measurement was activated with bandwidth measurement as 99%.
5. For 6dB bandwidth measurement, the 6dB bandwidth of the transmitting frequency is the frequency difference between the marked lower and upper frequencies, $|f_H - f_L|$. For 99% bandwidth measurement, the measured 99% bandwidth shown on the spectrum analyser was recorded.
6. The steps 2 to 5 were repeated with the transmitting frequency was set to middle and upper channel respectively.



SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

47 CFR FCC Part 15.247(a)(2) and RSS-247 5.2(1) Spectrum Bandwidth (6dB and 99% Bandwidth Measurement) Results

Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Liau Lee Yin

802.11b

Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Modulation @ Data Rate
1 (lower ch)	2.412	10.00	13.37	DBPSK @ 1Mbps
		9.67	13.22	DQPSK @ 2Mbps
		10.17	13.29	CCK @ 11Mbps
6 (mid ch)	2.437	10.00	13.46	DBPSK @ 1Mbps
		9.83	13.42	DQPSK @ 2Mbps
		9.67	13.60	CCK @ 11Mbps
11 (upper ch)	2.462	10.12	13.52	DBPSK @ 1Mbps
		9.71	13.60	DQPSK @ 2Mbps
		9.21	13.70	CCK @ 11Mbps

Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Liau Lee Yin

802.11g

Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Modulation @ Data Rate
1 (lower ch)	2.412	16.42	16.53	BPSK @ 9Mbps
		16.46	16.53	QPSK @ 18Mbps
		16.50	16.50	16QAM @ 36Mbps
		16.54	16.60	64QAM @ 54Mbps
6 (mid ch)	2.437	16.42	16.41	BPSK @ 9Mbps
		16.46	16.53	QPSK @ 18Mbps
		16.54	16.51	16QAM @ 36Mbps
		16.50	16.65	64QAM @ 54Mbps
11 (upper ch)	2.462	16.46	16.55	BPSK @ 9Mbps
		16.50	16.51	QPSK @ 18Mbps
		16.50	16.57	16QAM @ 36Mbps
		16.50	16.66	64QAM @ 54Mbps



SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Results

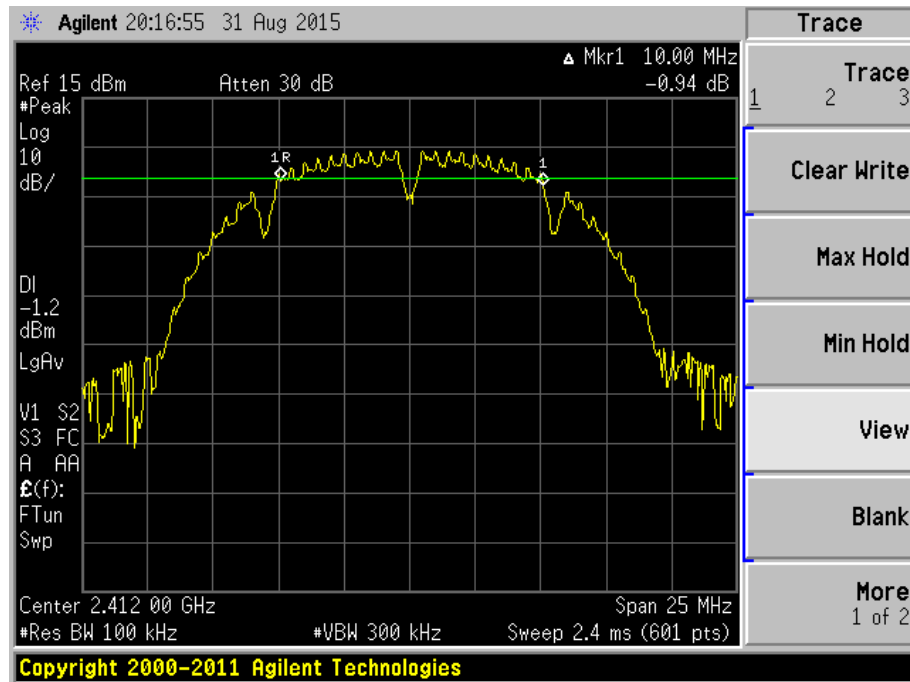
Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Liau Lee Yin

802.11n

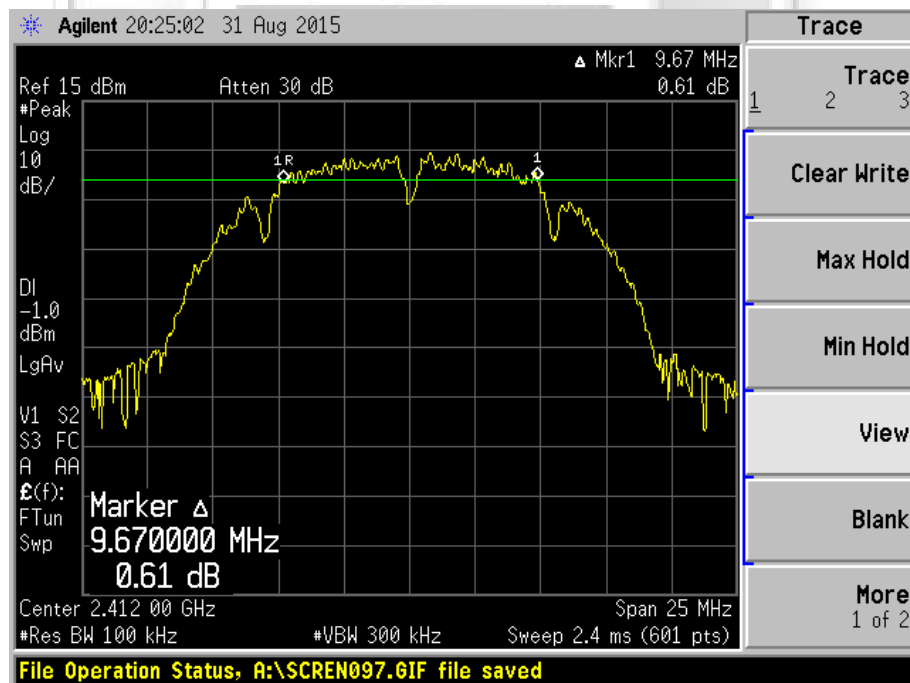
Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Modulation @ Data Rate
1 (lower ch)	2.412	17.71	17.62	BPSK @ 6.5Mbps (MCS0)
		17.71	17.70	QPSK @ 19.5Mbps (MCS2)
		17.75	17.65	16QAM @ 39Mbps (MCS4)
		17.75	17.64	64QAM @ 65Mbps (MCS7)
6 (mid ch)	2.437	17.67	17.65	BPSK @ 6.5Mbps (MCS0)
		17.71	17.72	QPSK @ 19.5Mbps (MCS2)
		17.75	17.76	16QAM @ 39Mbps (MCS4)
		17.75	17.83	64QAM @ 65Mbps (MCS7)
11 (upper ch)	2.462	17.67	17.68	BPSK @ 6.5Mbps (MCS0)
		17.67	17.67	QPSK @ 19.5Mbps (MCS2)
		17.75	17.65	16QAM @ 39Mbps (MCS4)
		17.75	17.84	64QAM @ 65Mbps (MCS7)

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



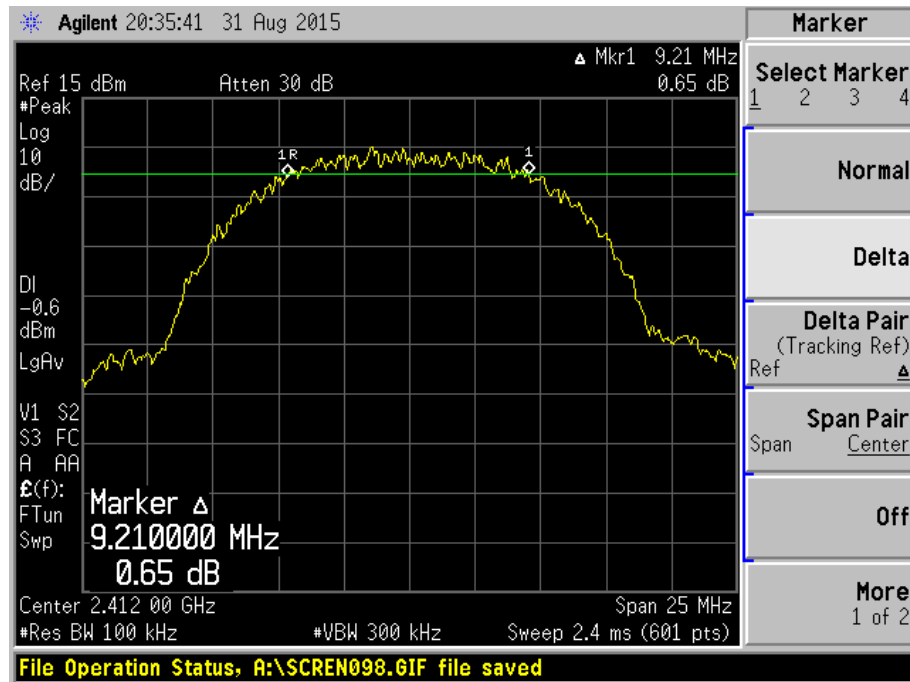
Plot 1 - Channel 1 (lower ch) @ DBPSK 1Mbps



Plot 2 - Channel 1 (lower ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

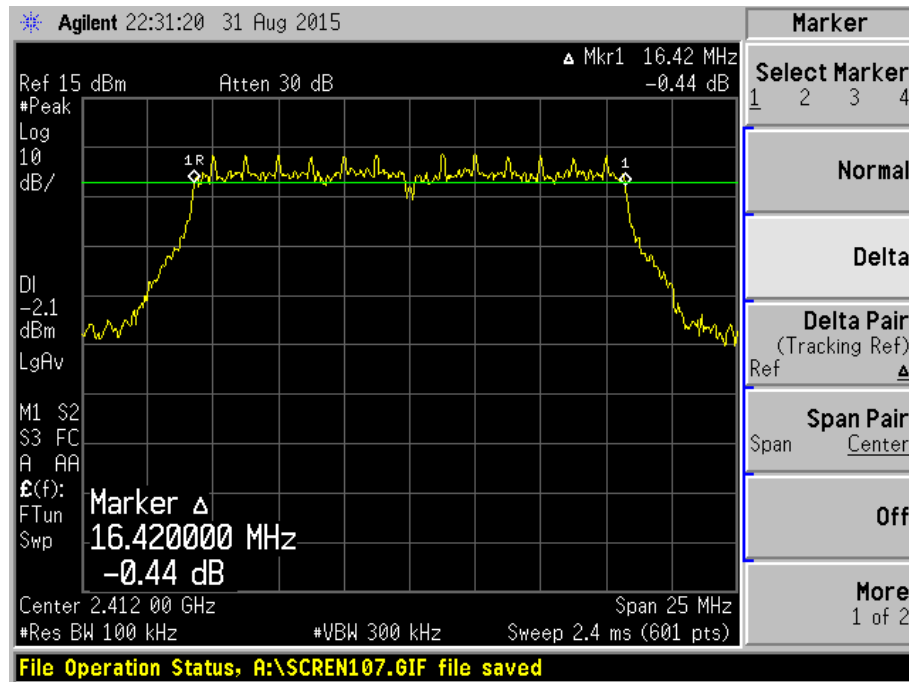
Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



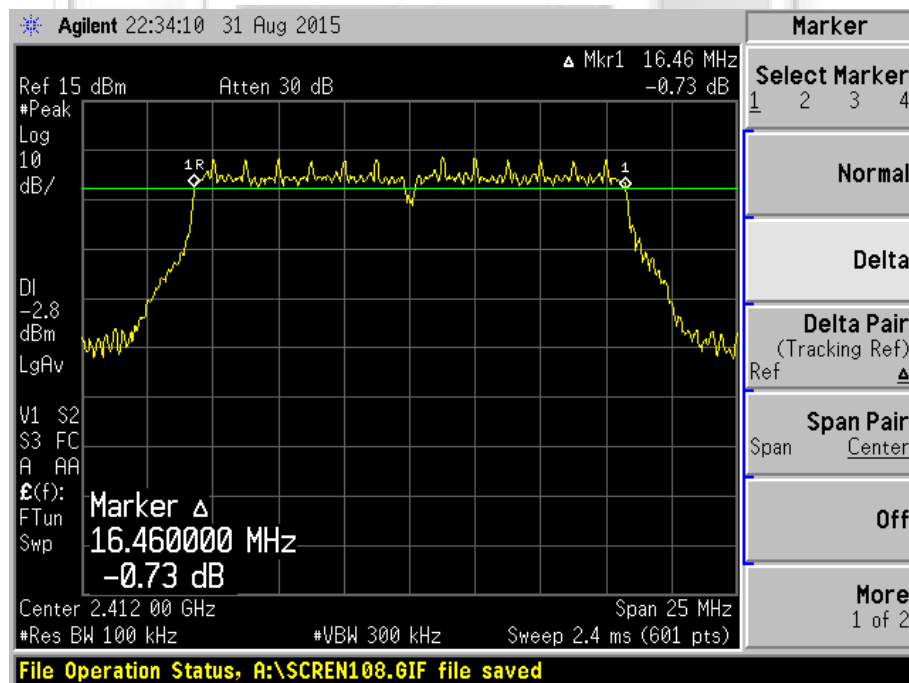
Plot 3 - Channel 1 (lower ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



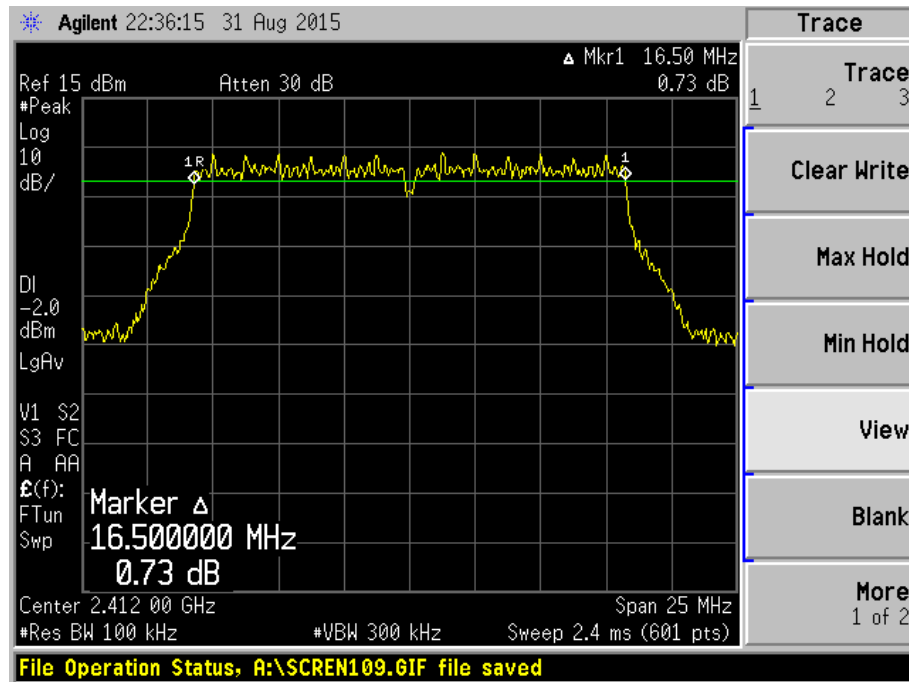
Plot 4 - Channel 1 (lower ch) @ BPSK 9Mbps



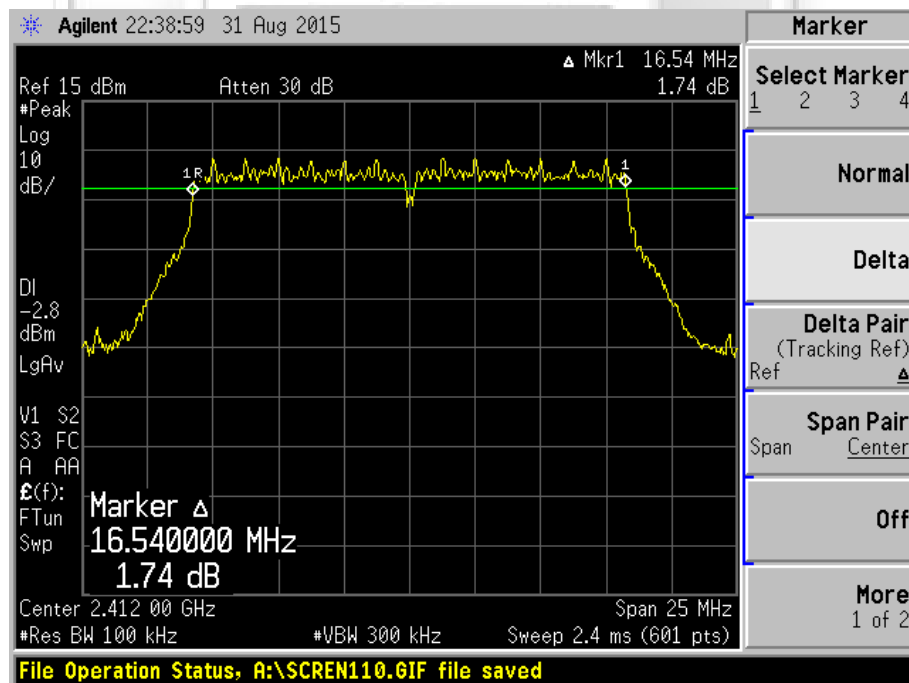
Plot 5 - Channel 1 (lower ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



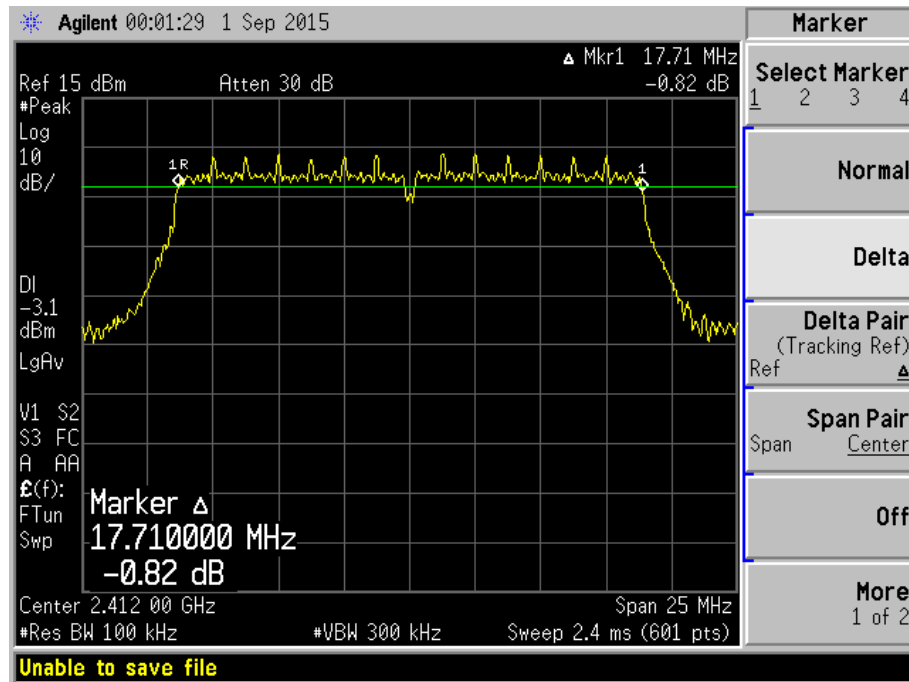
Plot 6 - Channel 1 (lower ch) @ 16QAM 36Mbps



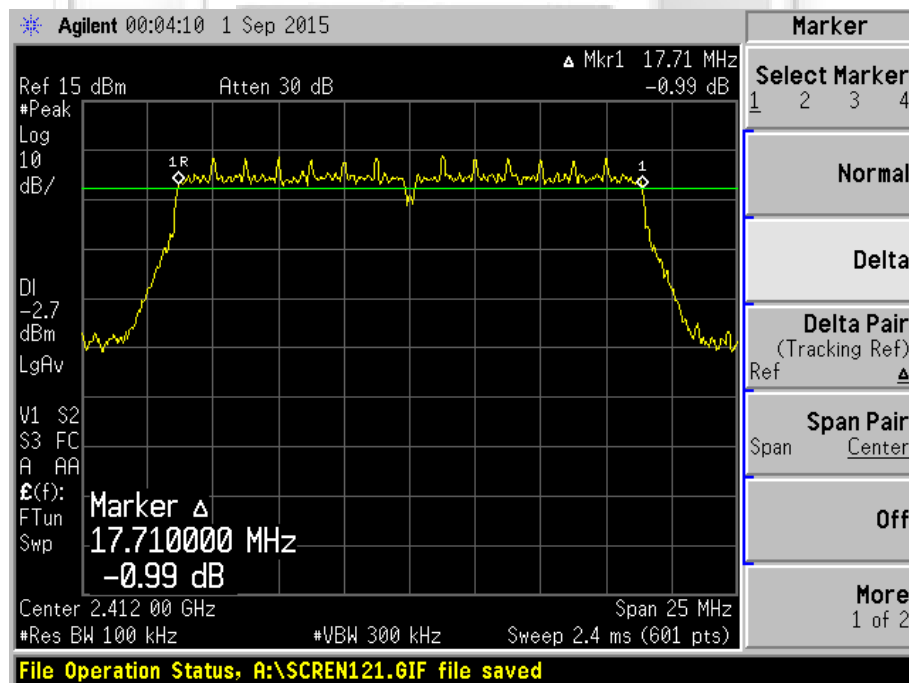
Plot 7 - Channel 1 (lower ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



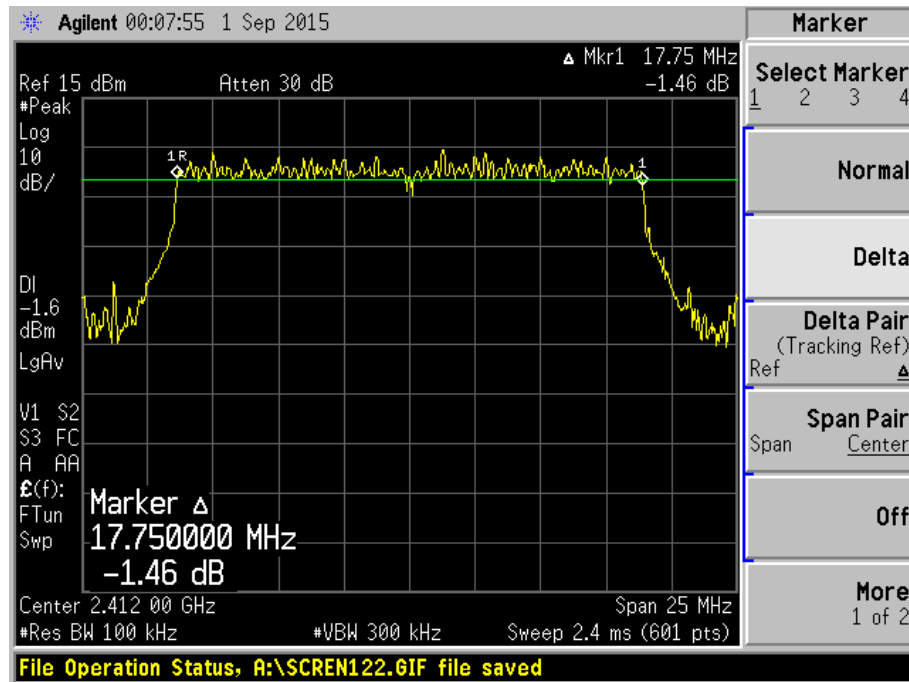
Plot 8 - Channel 1 (lower ch) @ BPSK 6.5Mbps



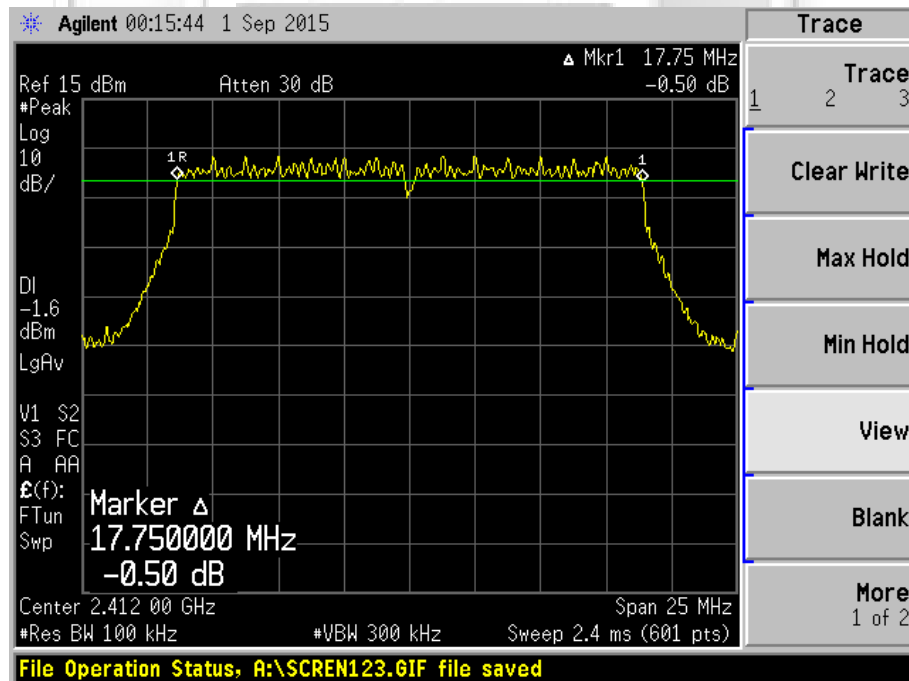
Plot 9 - Channel 1 (lower ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



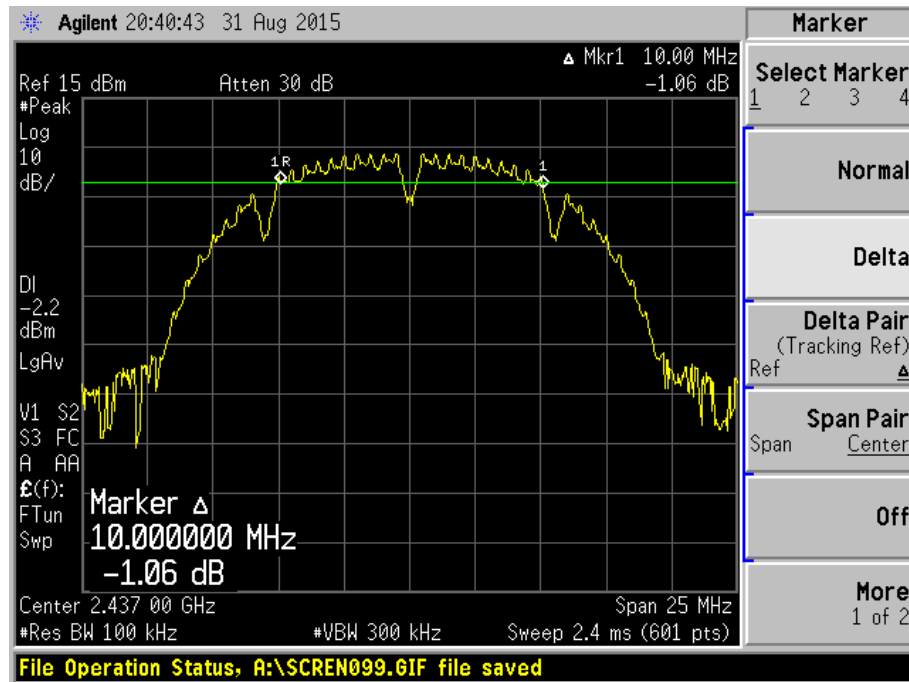
Plot 10 - Channel 1 (lower ch) @ 16QAM 39Mbps



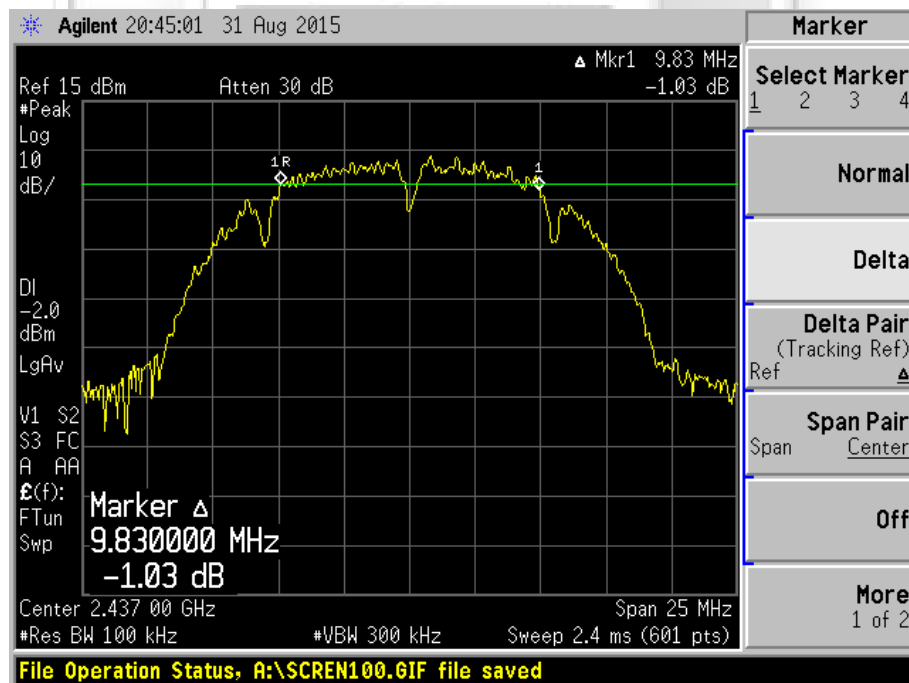
Plot 11 - Channel 1 (lower ch) @ 64QAM 65Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



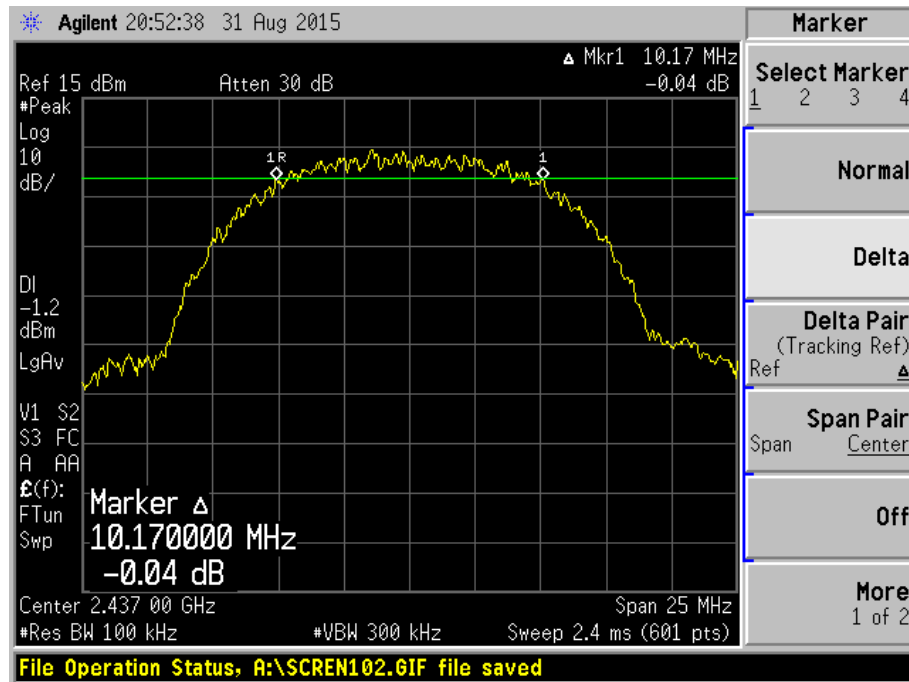
Plot 12 - Channel 6 (middle ch) @ DBPSK 1Mbps



Plot 13 - Channel 6 (middle ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

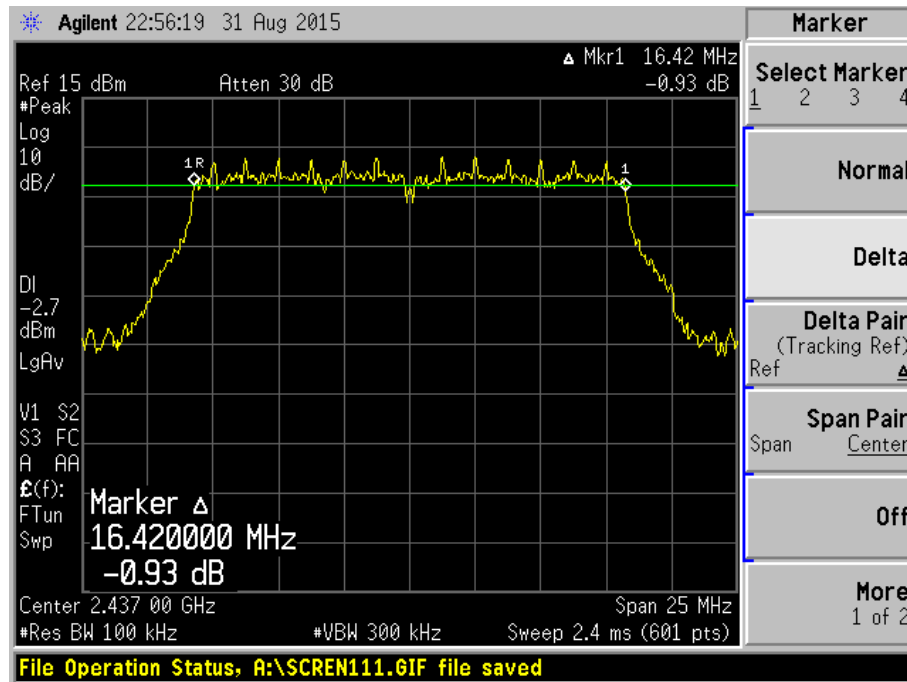
Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



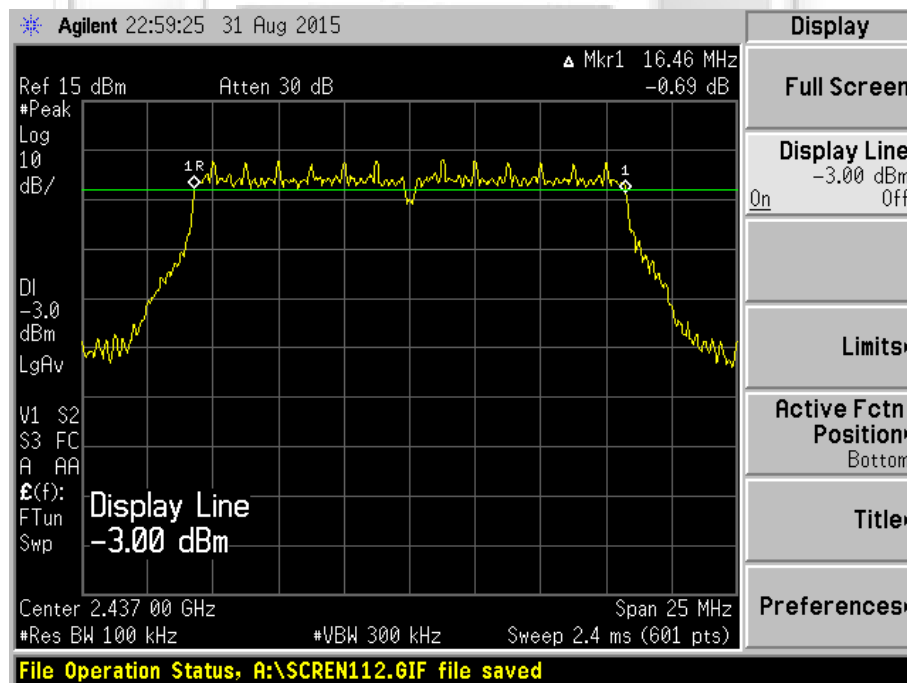
Plot 14 - Channel 6 (middle ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



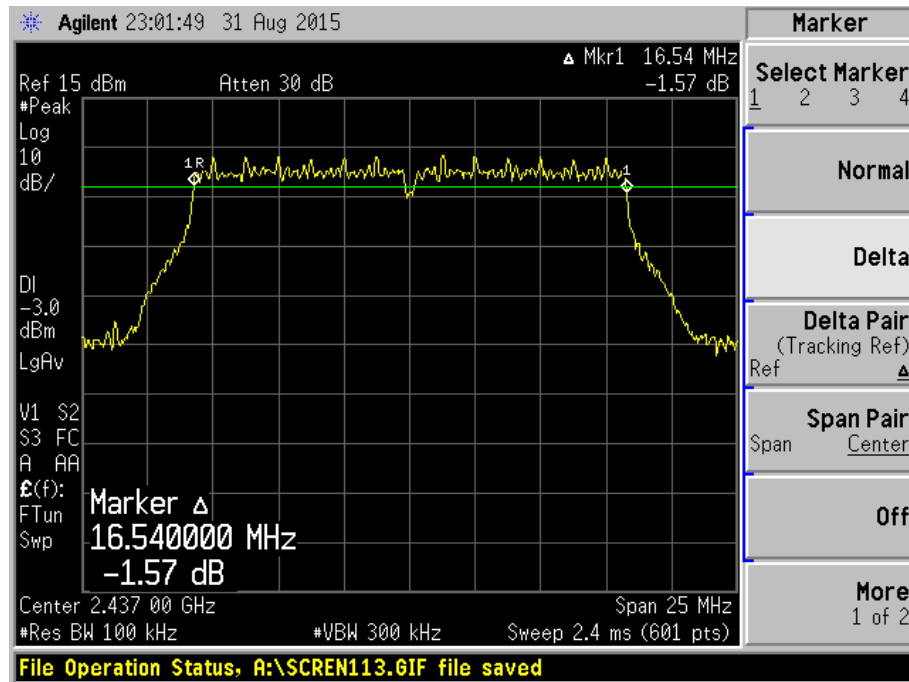
Plot 15 - Channel 6 (middle ch) @ BPSK 9Mbps



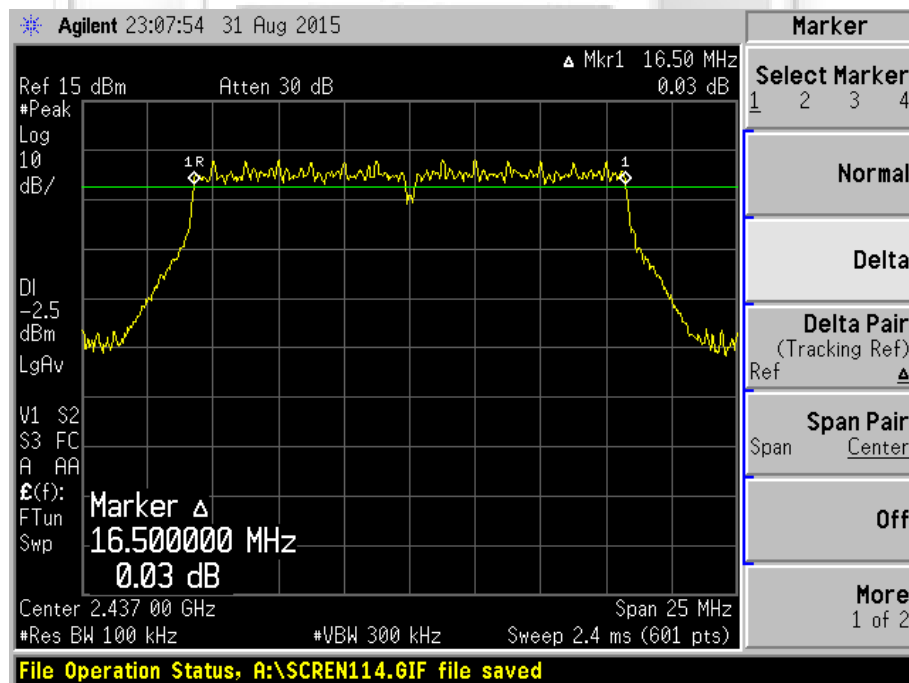
Plot 16 - Channel 6 (middle ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



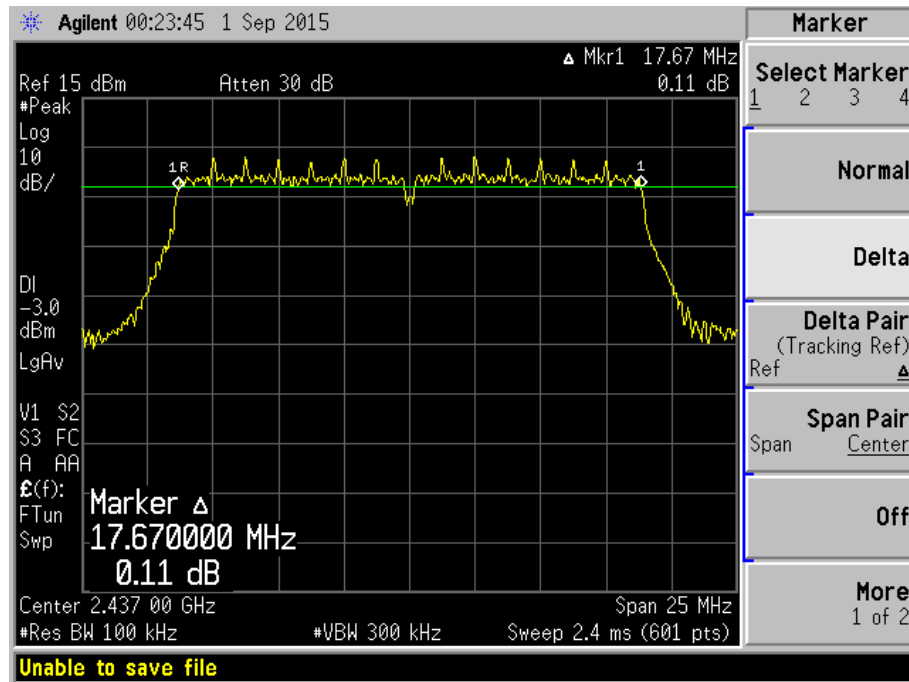
Plot 17 - Channel 6 (middle ch) @ 16QAM 36Mbps



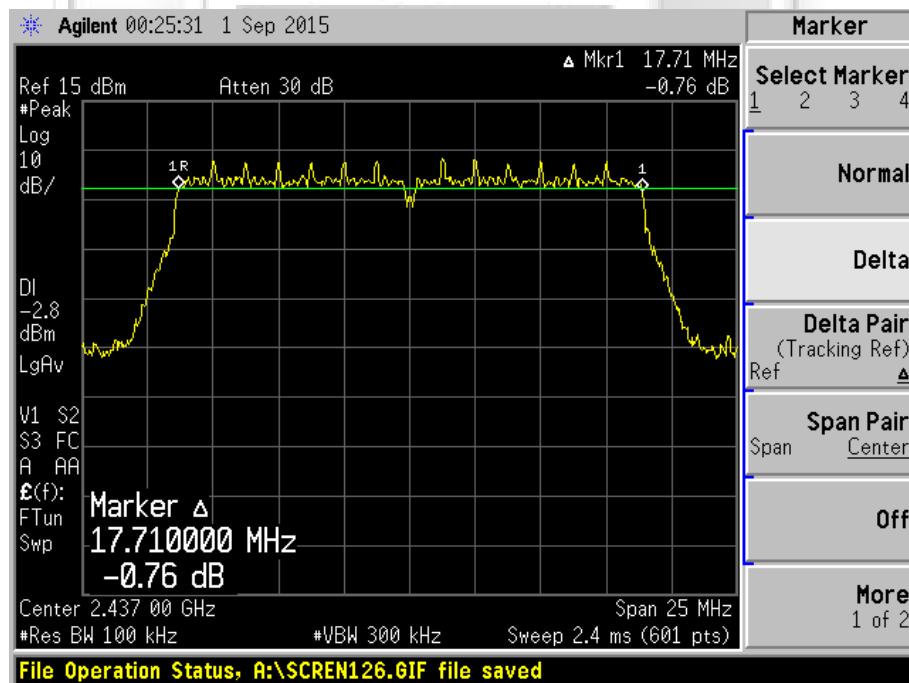
Plot 18 - Channel 6 (middle ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



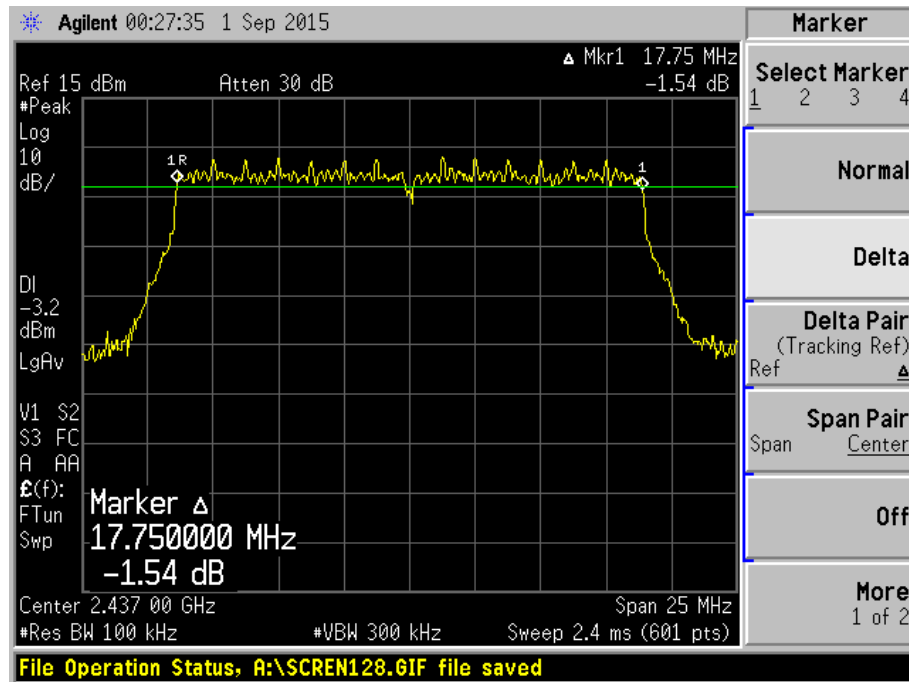
Plot 19 - Channel 6 (middle ch) @ BPSK 6.5Mbps



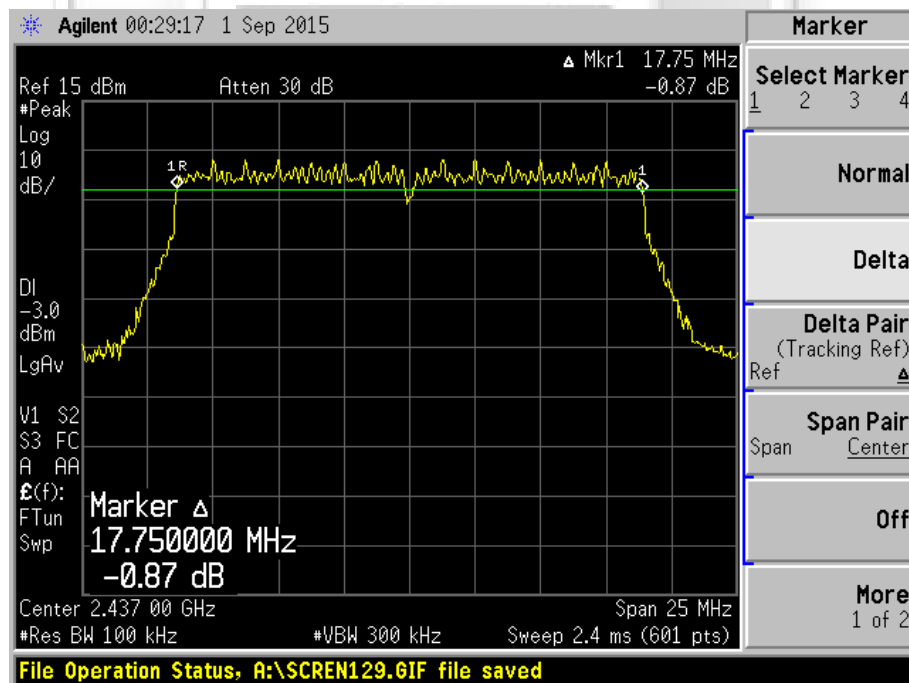
Plot 20 - Channel 6 (middle ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



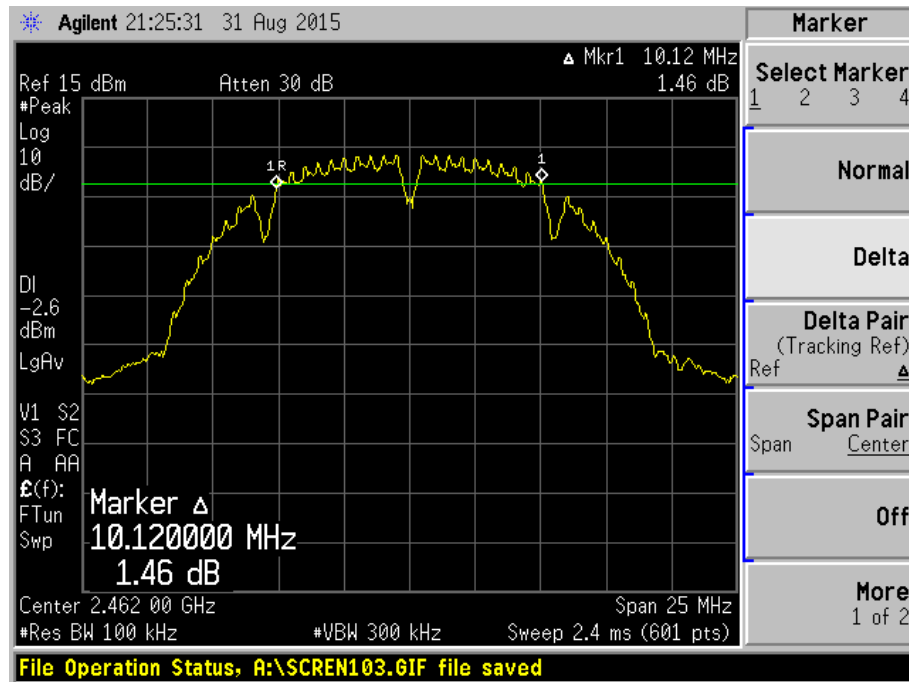
Plot 21 - Channel 6 (middle ch) @ 16QAM 39Mbps



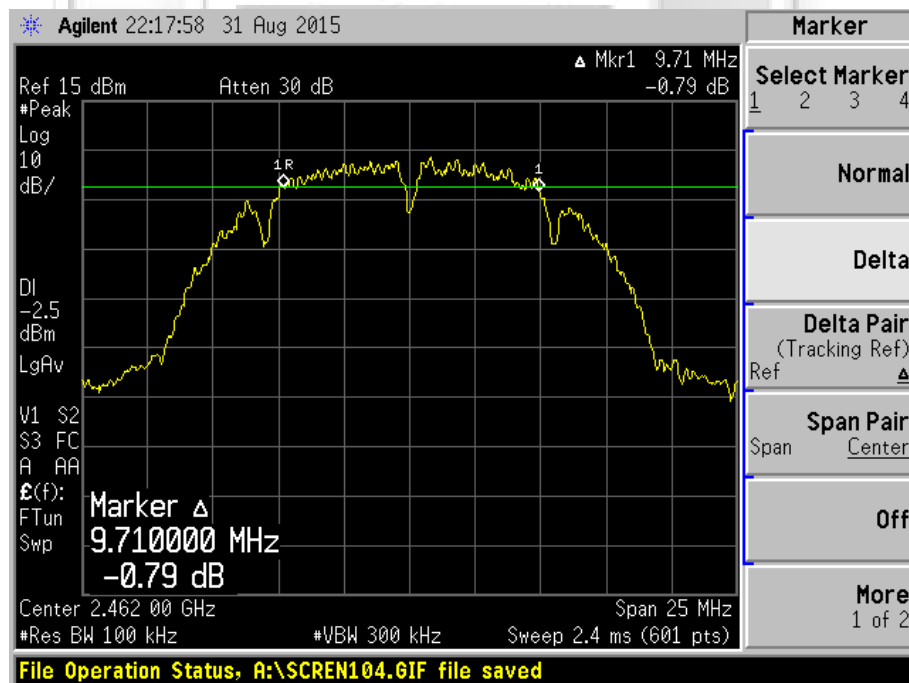
Plot 22 - Channel 6 (middle ch) @ 64QAM 65Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



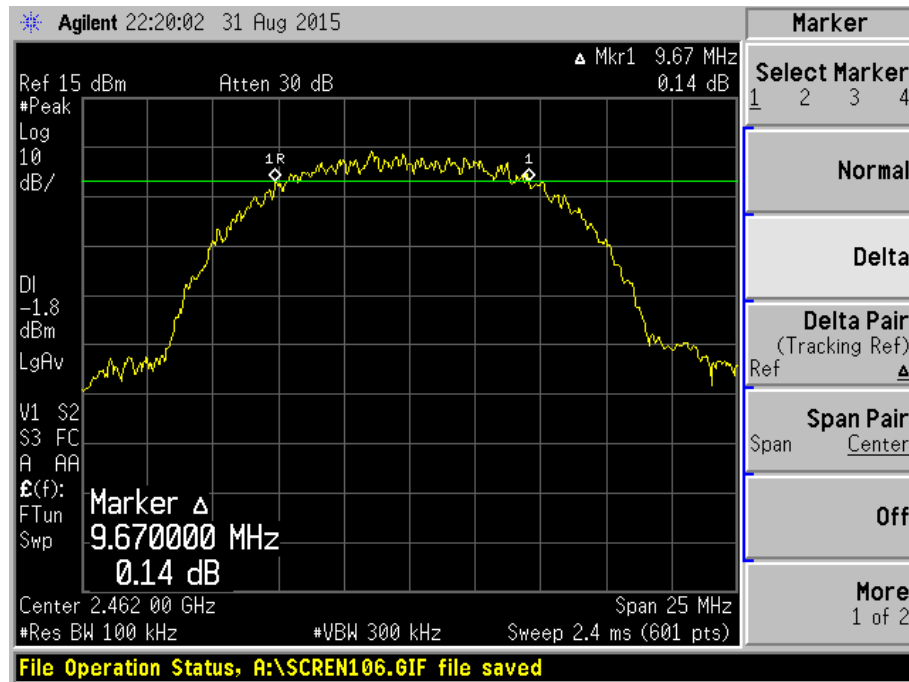
Plot 23 - Channel 11 (upper ch) @ DBPSK 1Mbps



Plot 24 - Channel 11 (upper ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

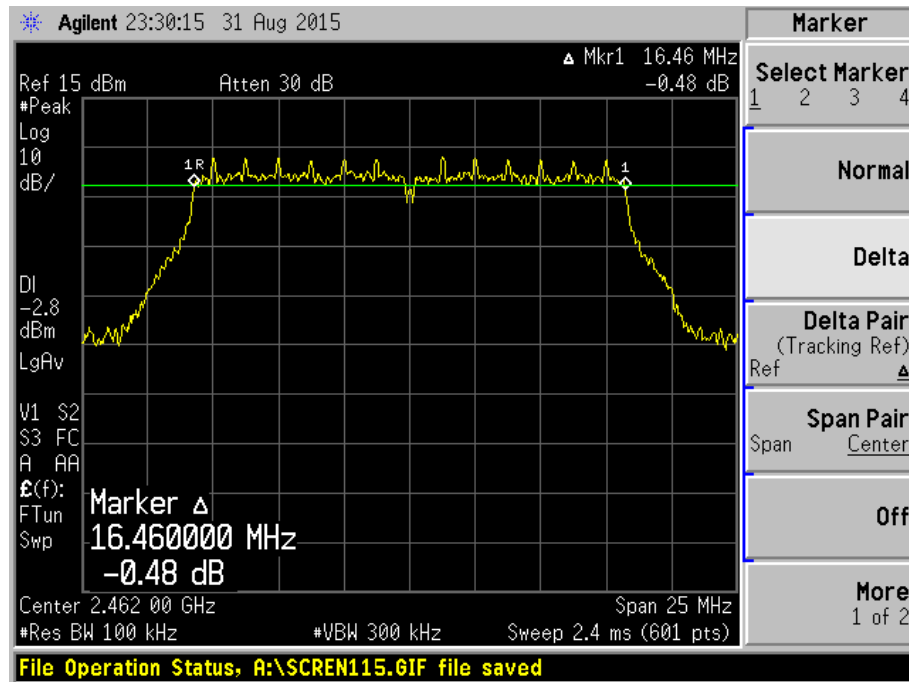
Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b



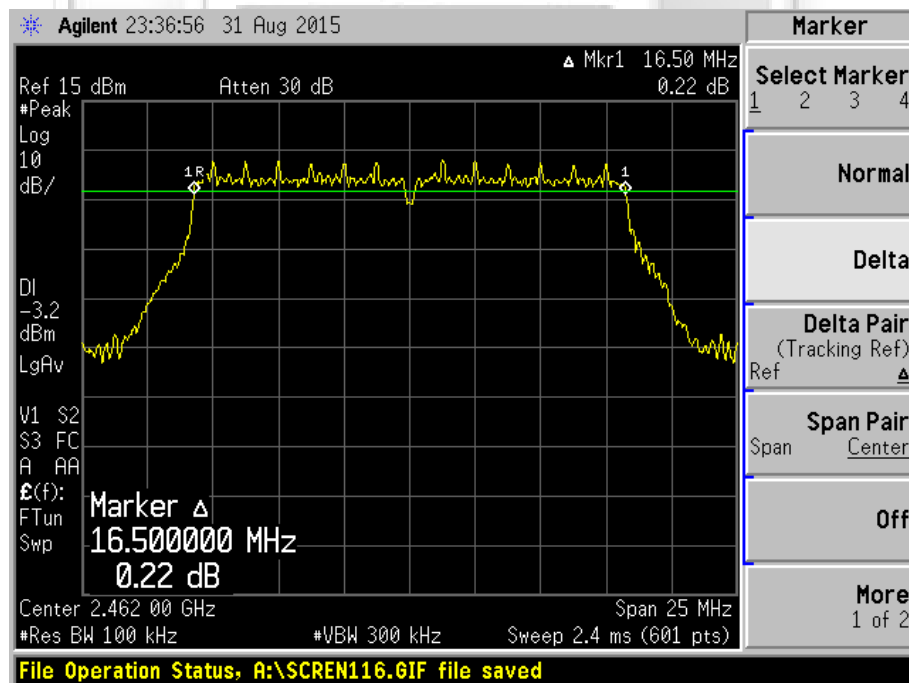
Plot 25 - Channel 11 (upper ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



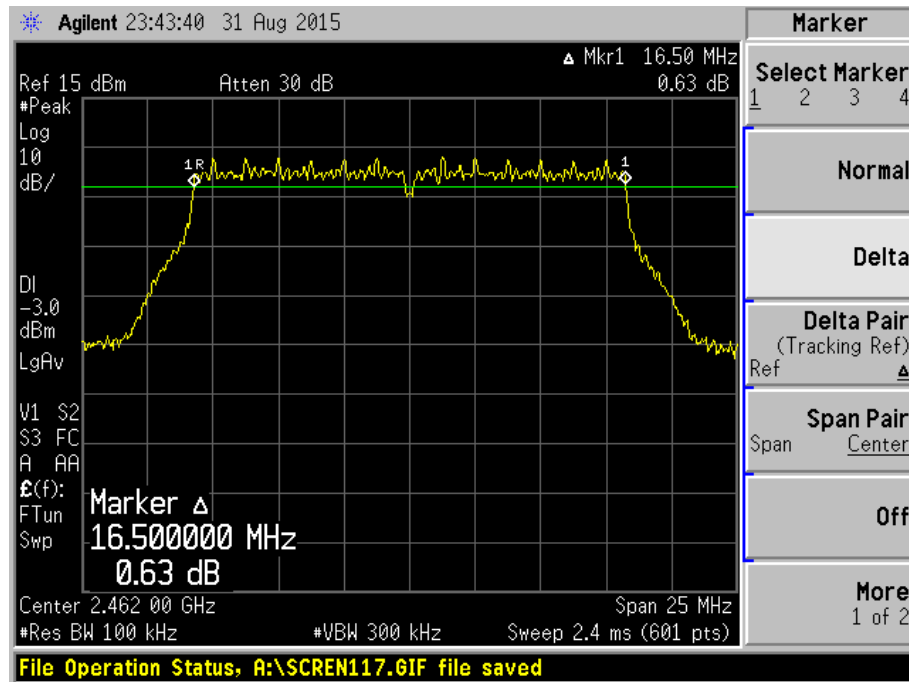
Plot 26 - Channel 11 (upper ch) @ BPSK 9Mbps



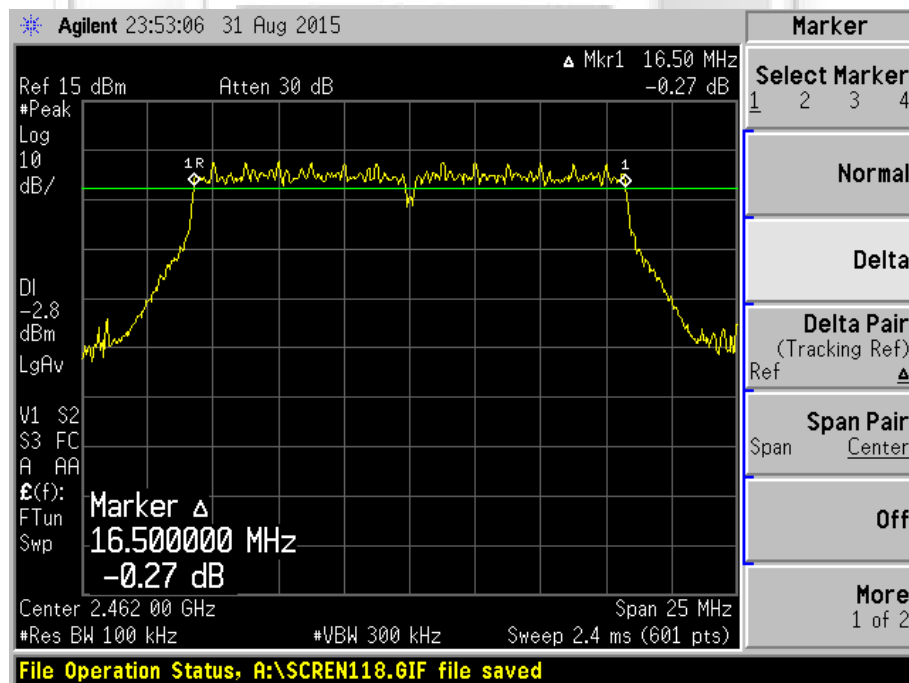
Plot 27 - Channel 11 (upper ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



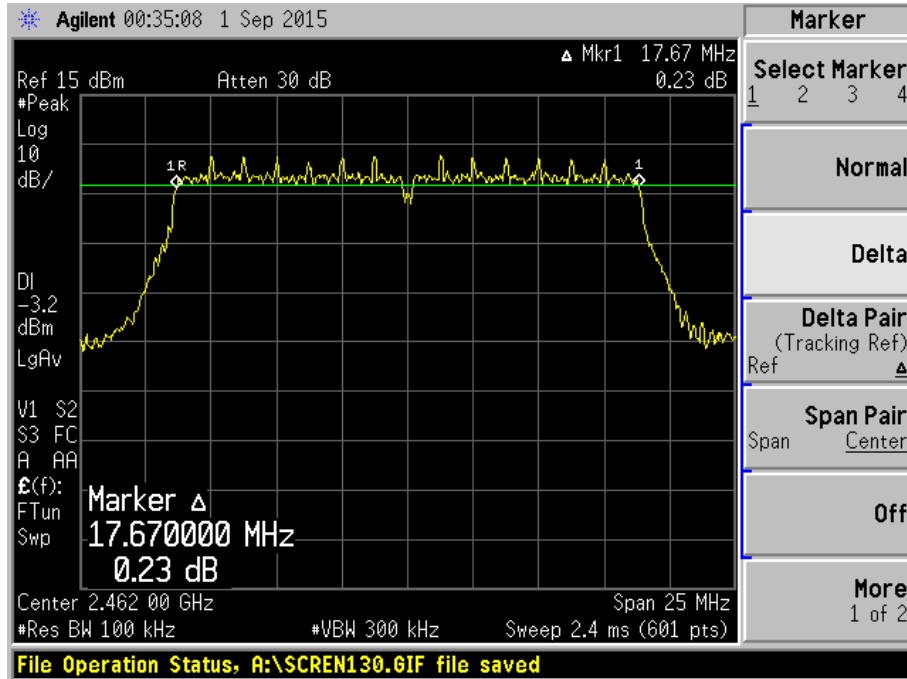
Plot 28 - Channel 11 (upper ch) @ 16QAM 36Mbps



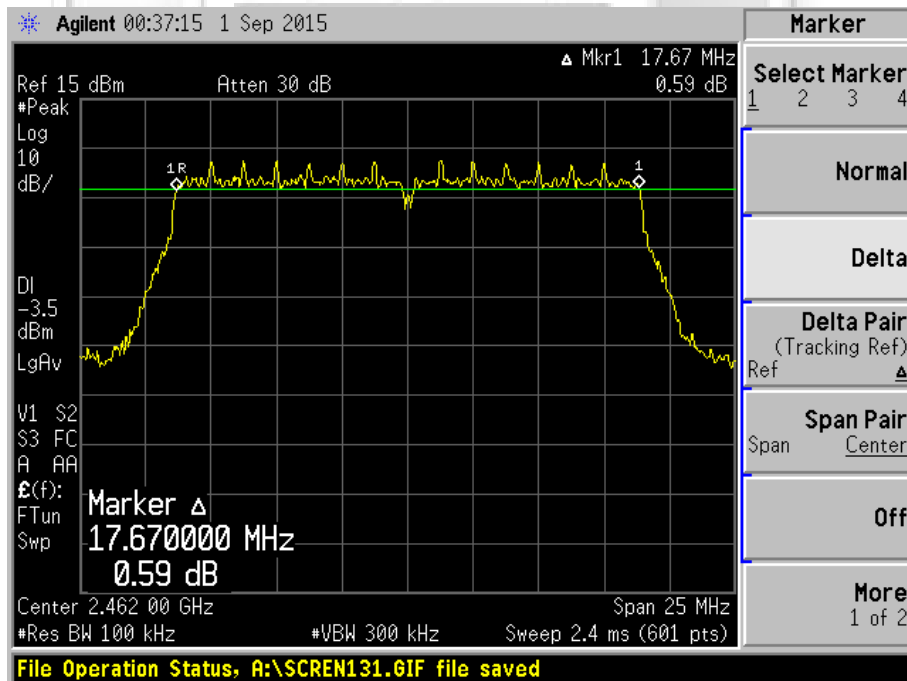
Plot 29 - Channel 11 (upper ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



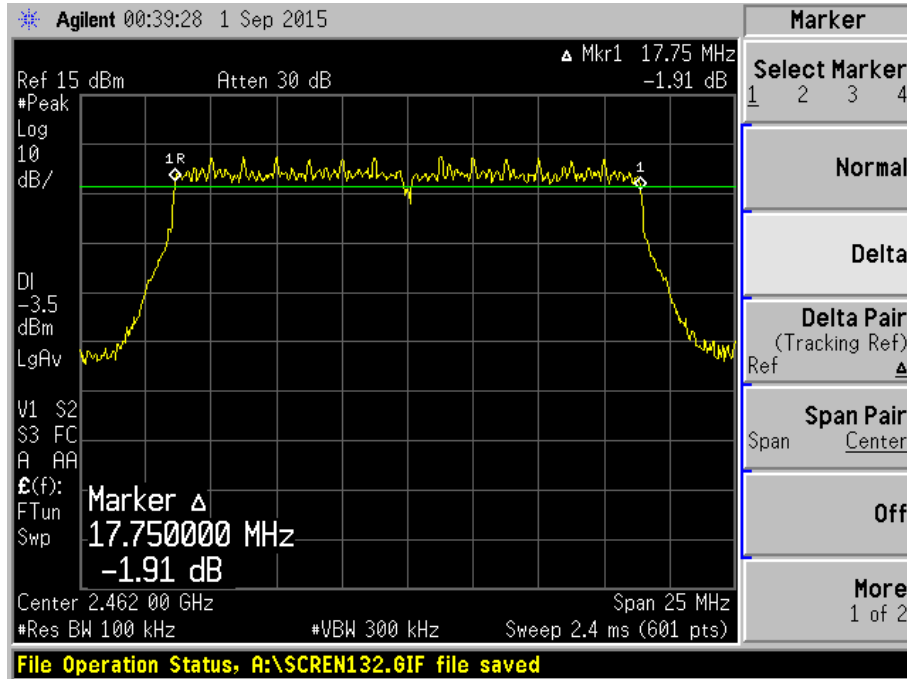
Plot 30 - Channel 11 (upper ch) @ BPSK 6.5Mbps



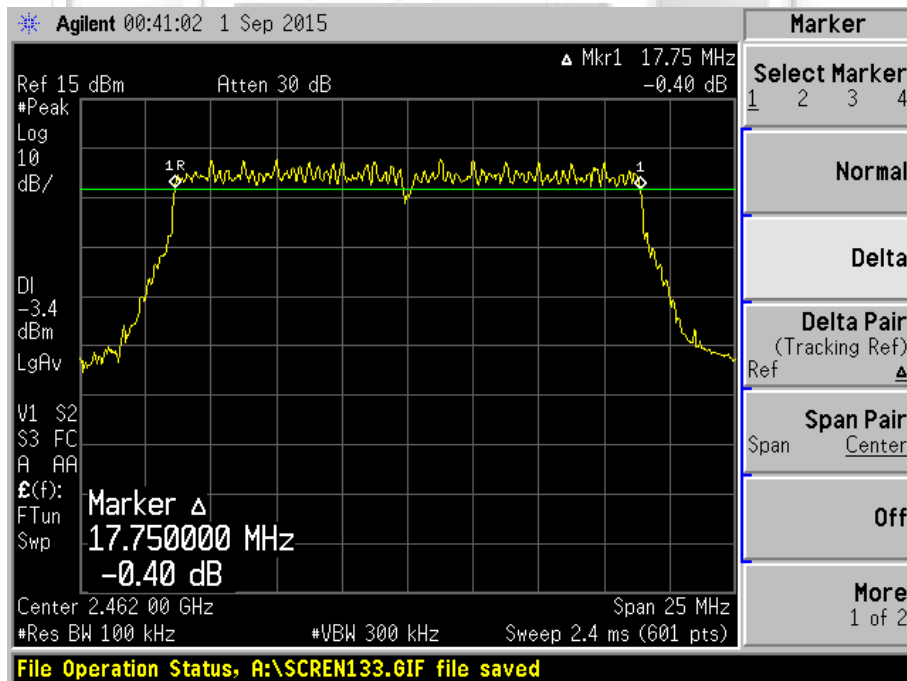
Plot 31 - Channel 11 (upper ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11n



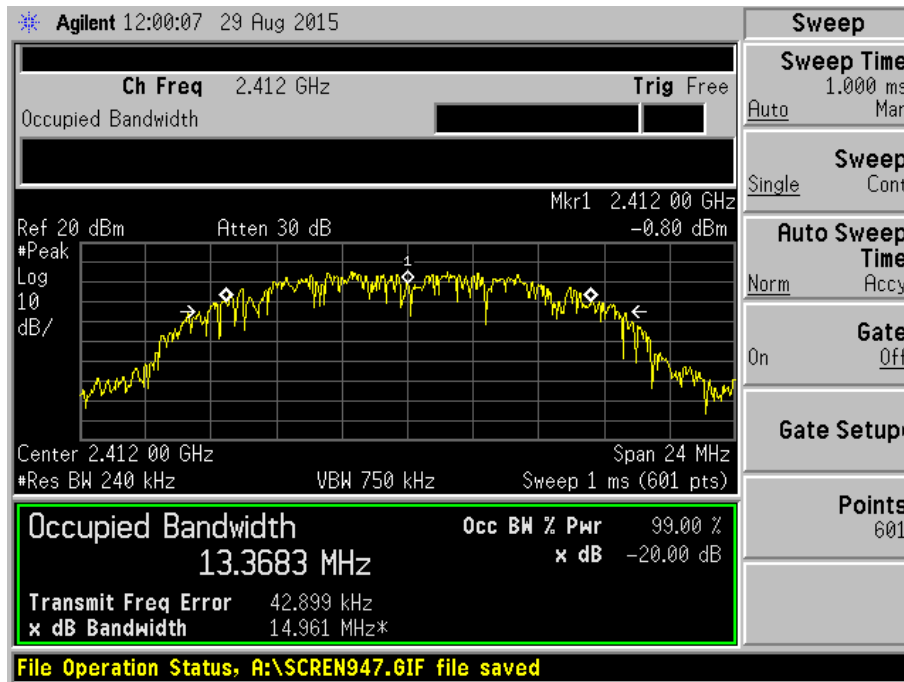
Plot 32 - Channel 11 (upper ch) @ 16QAM 39Mbps



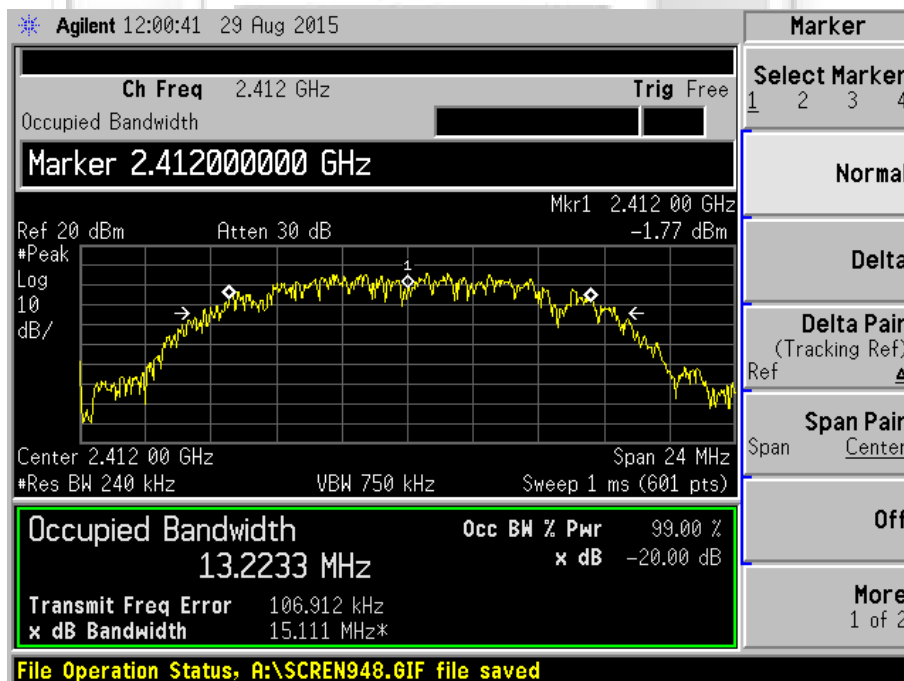
Plot 33 - Channel 11 (upper ch) @ 64QAM 65Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



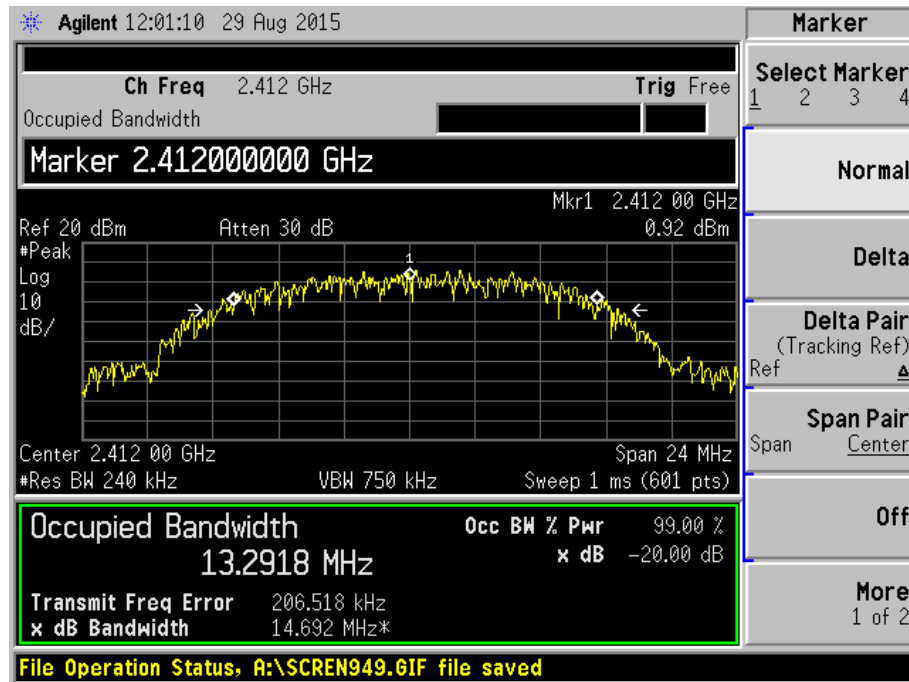
Plot 34 - Channel 1 (lower ch) @ DBPSK 1Mbps



Plot 35 - Channel 1 (lower ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

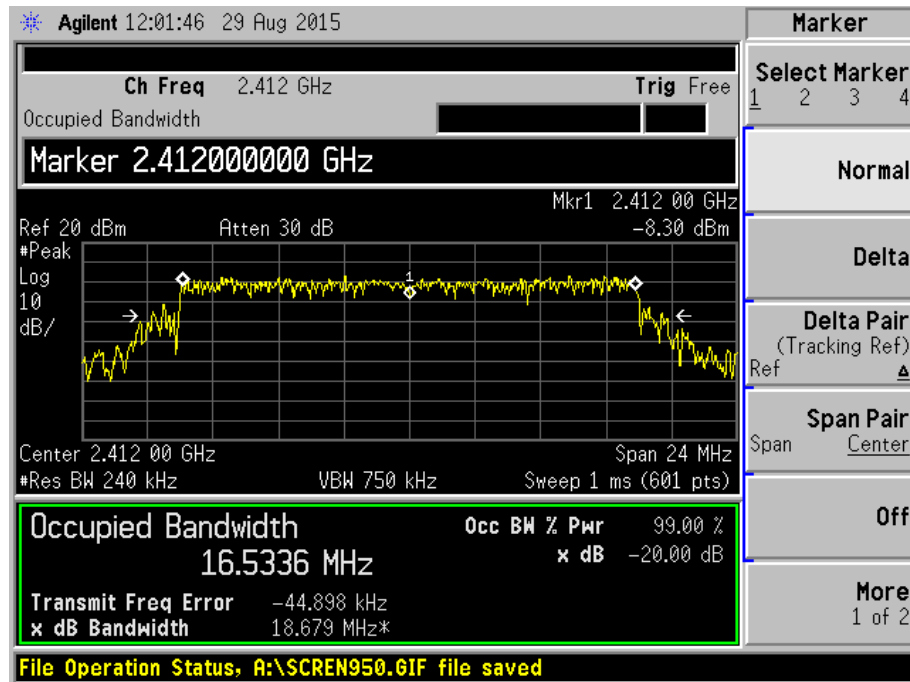
Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



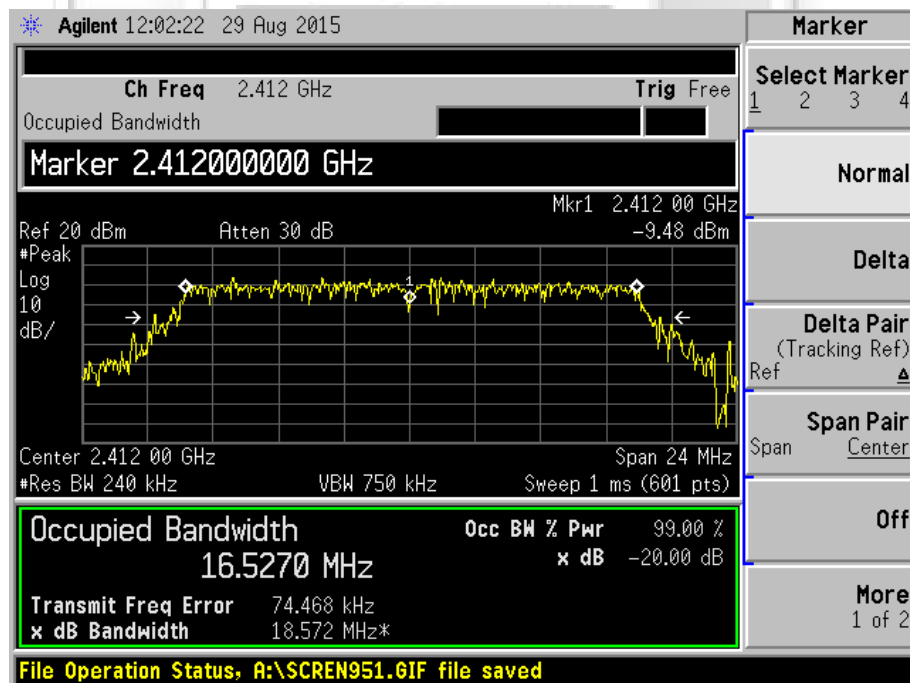
Plot 36 - Channel 1 (lower ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



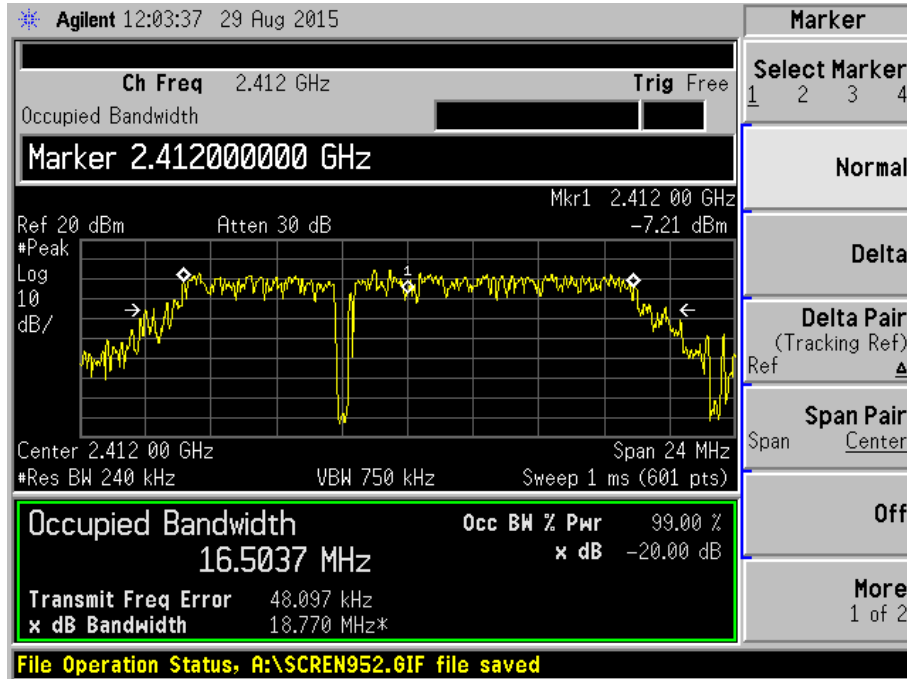
Plot 37 - Channel 1 (lower ch) @ BPSK 9Mbps



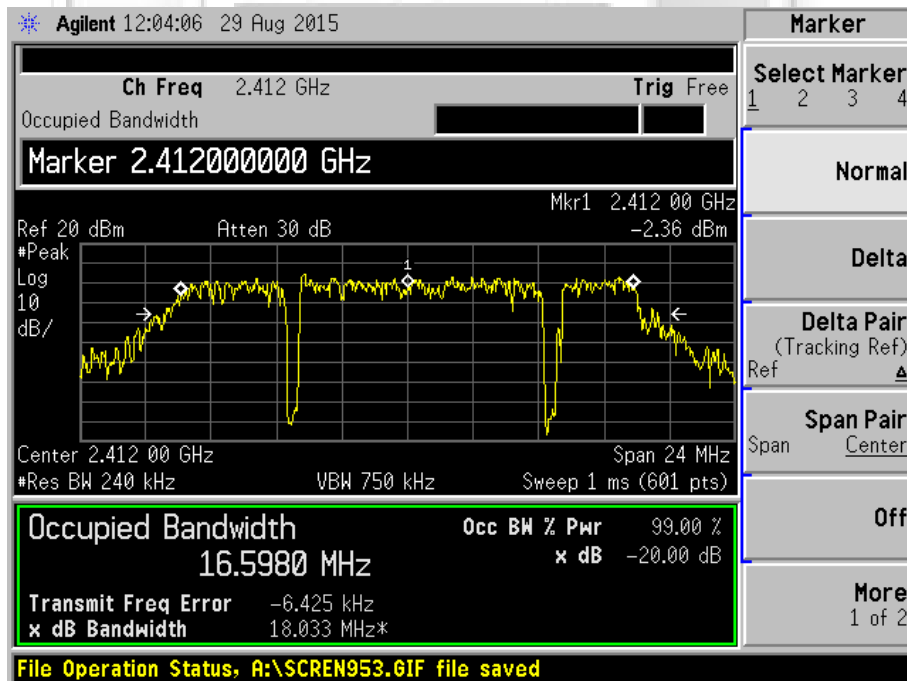
Plot 38 - Channel 1 (lower ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



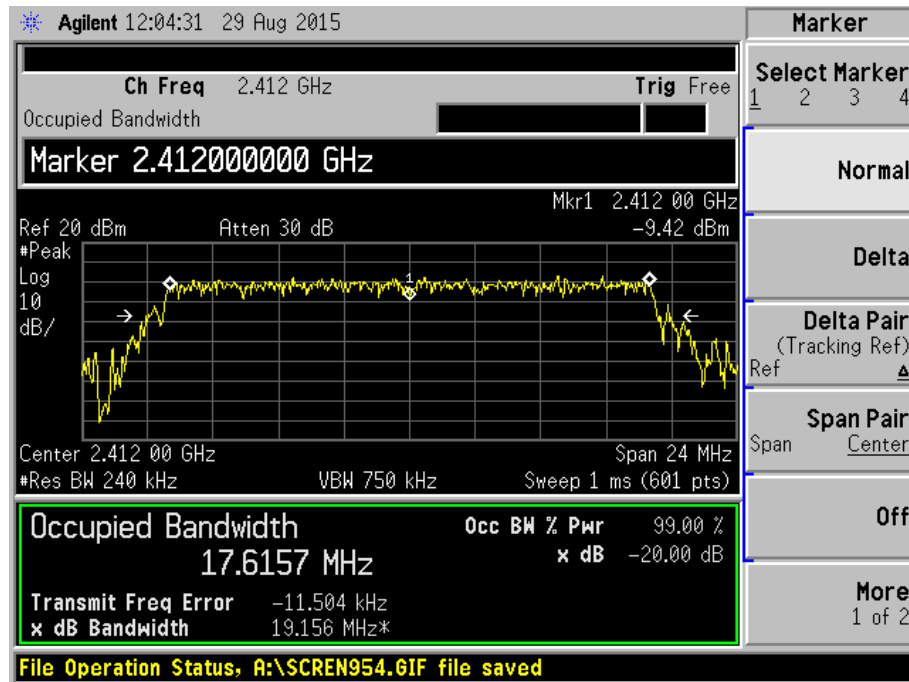
Plot 39 - Channel 1 (lower ch) @ 16QAM 36Mbps



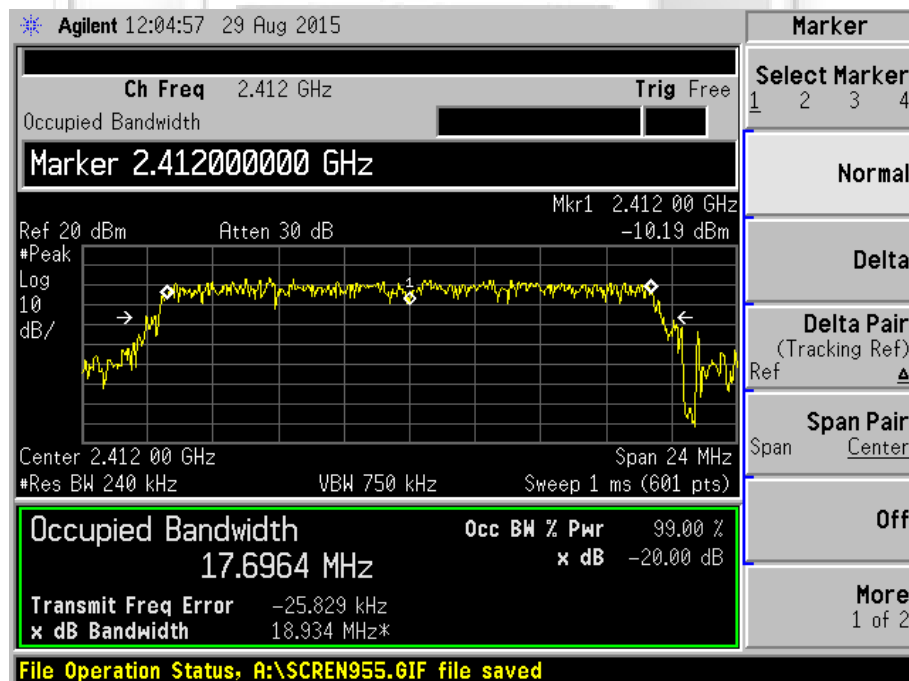
Plot 40 - Channel 1 (lower ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



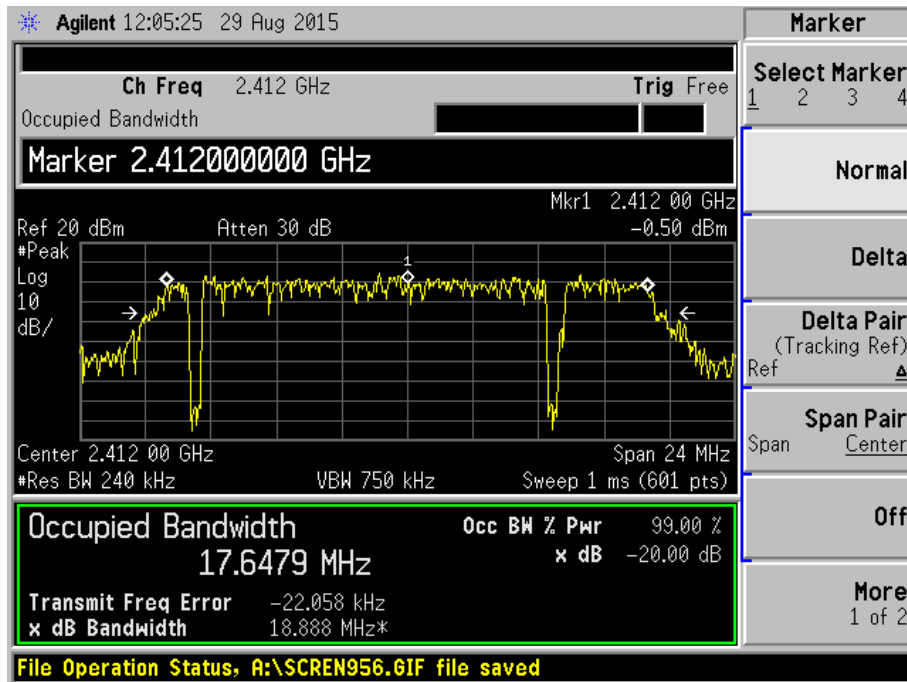
Plot 41 - Channel 1 (lower ch) @ BPSK 6.5Mbps



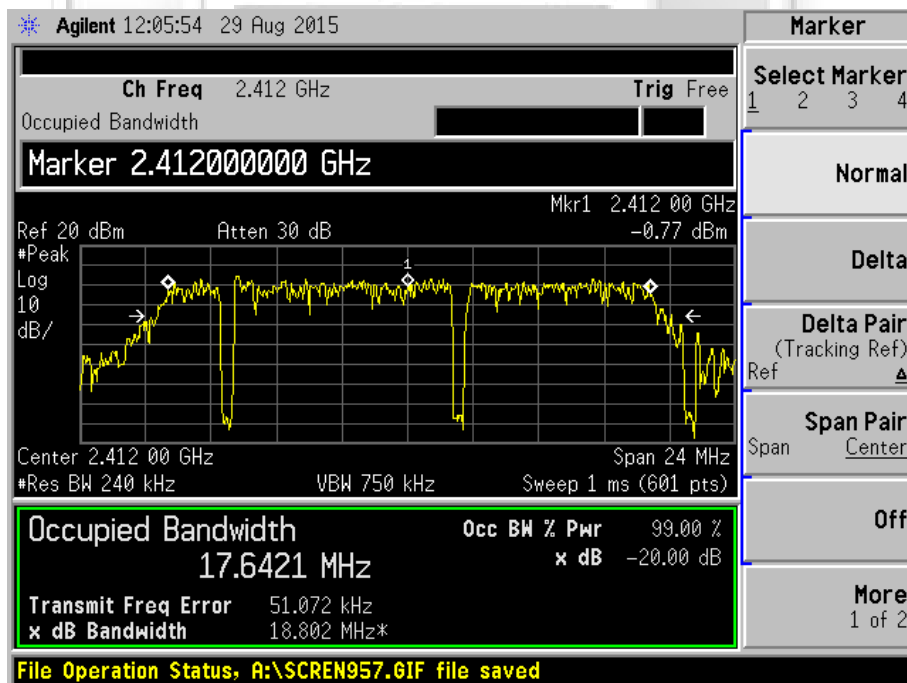
Plot 42 - Channel 1 (lower ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



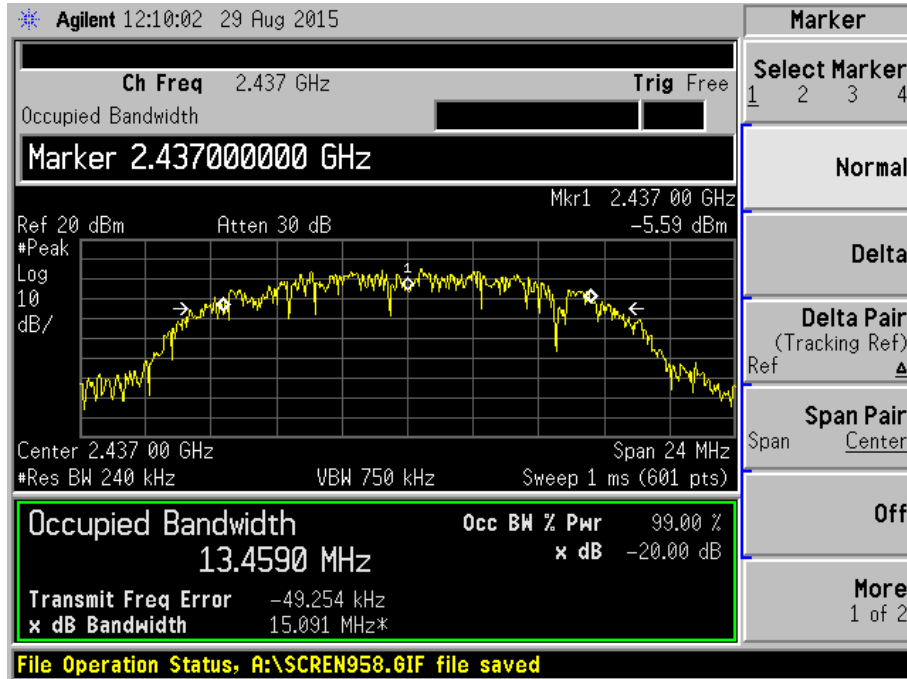
Plot 43 - Channel 1 (lower ch) @ 16QAM 39Mbps



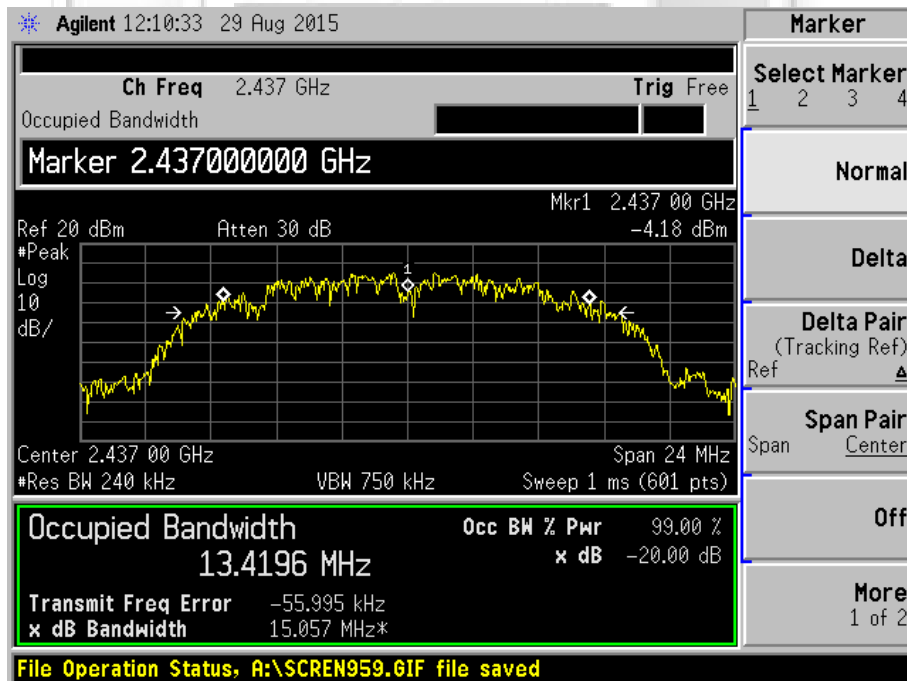
Plot 44 - Channel 1 (lower ch) @ 64QAM 65Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



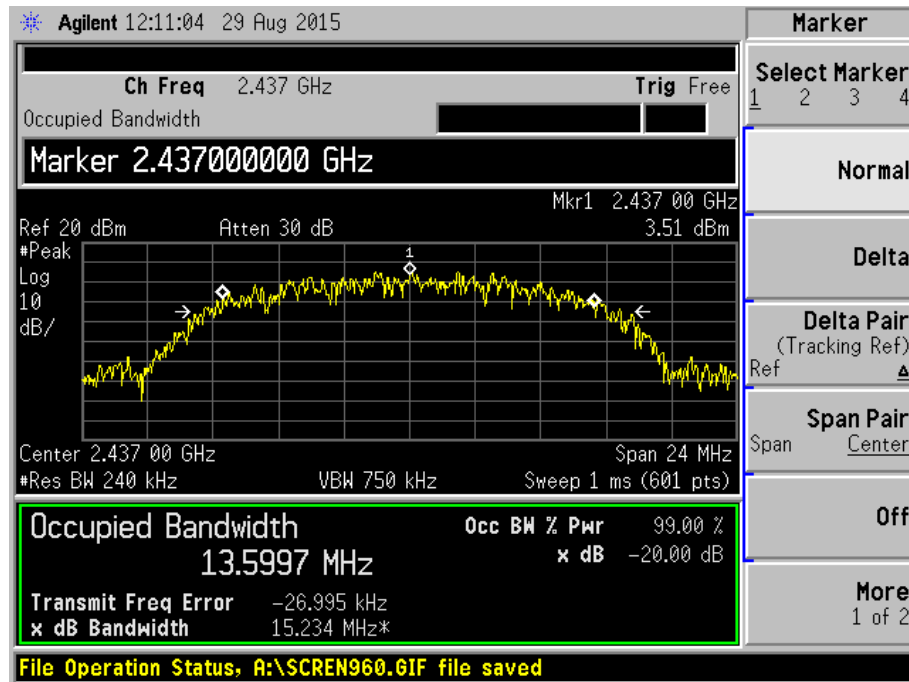
Plot 45 - Channel 6 (middle ch) @ DBPSK 1Mbps



Plot 46 - Channel 6 (middle ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

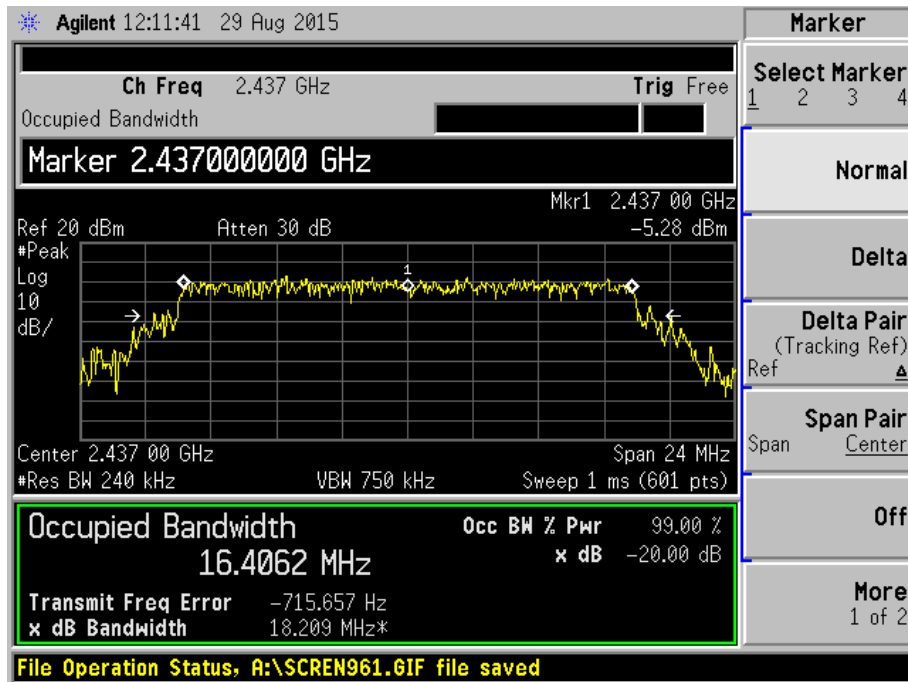
Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



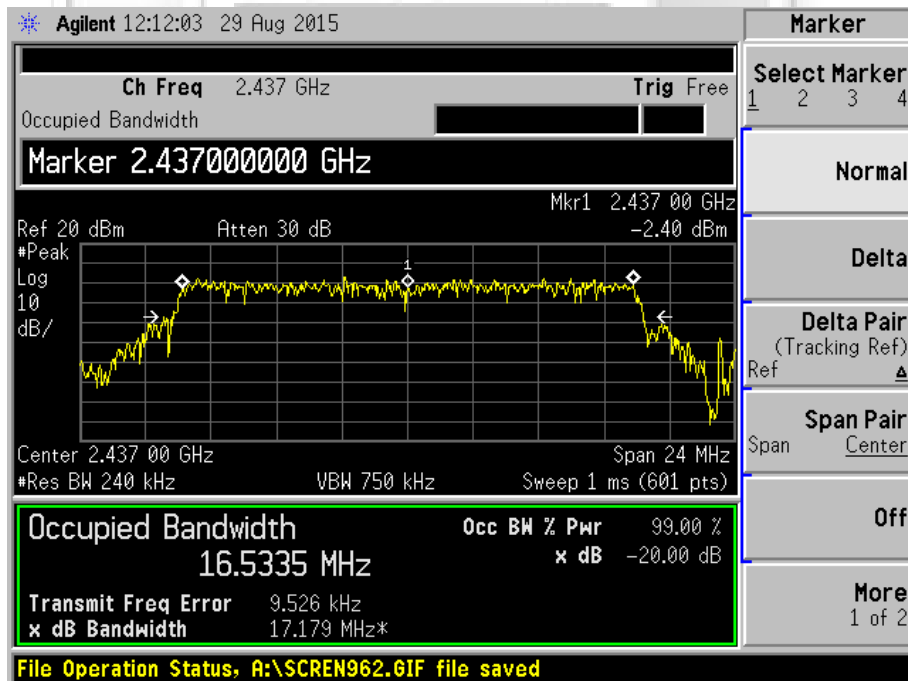
Plot 47 - Channel 6 (middle ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



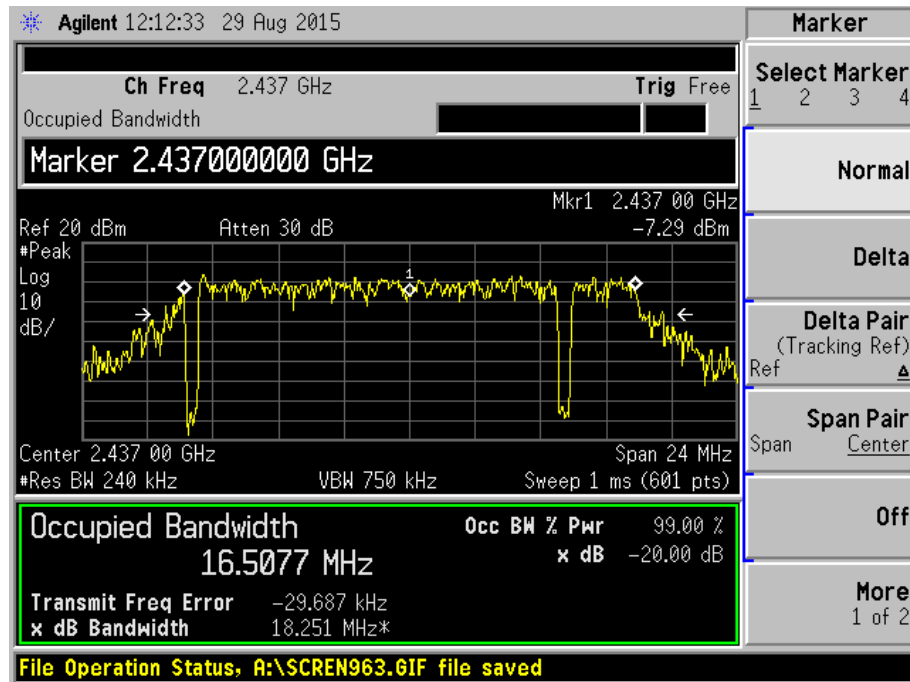
Plot 48 - Channel 6 (middle ch) @ BPSK 9Mbps



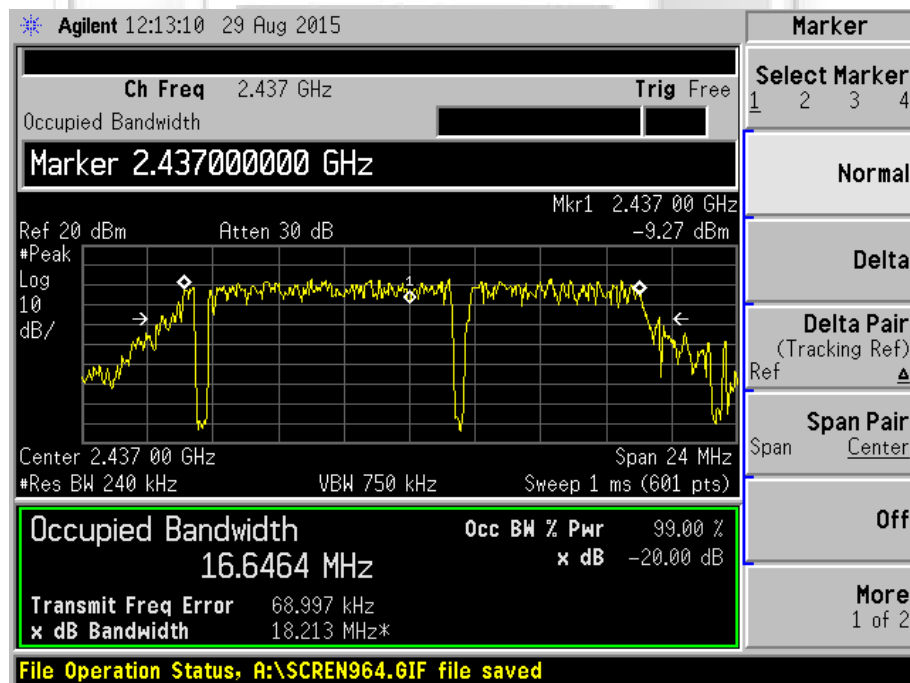
Plot 49 - Channel 6 (middle ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



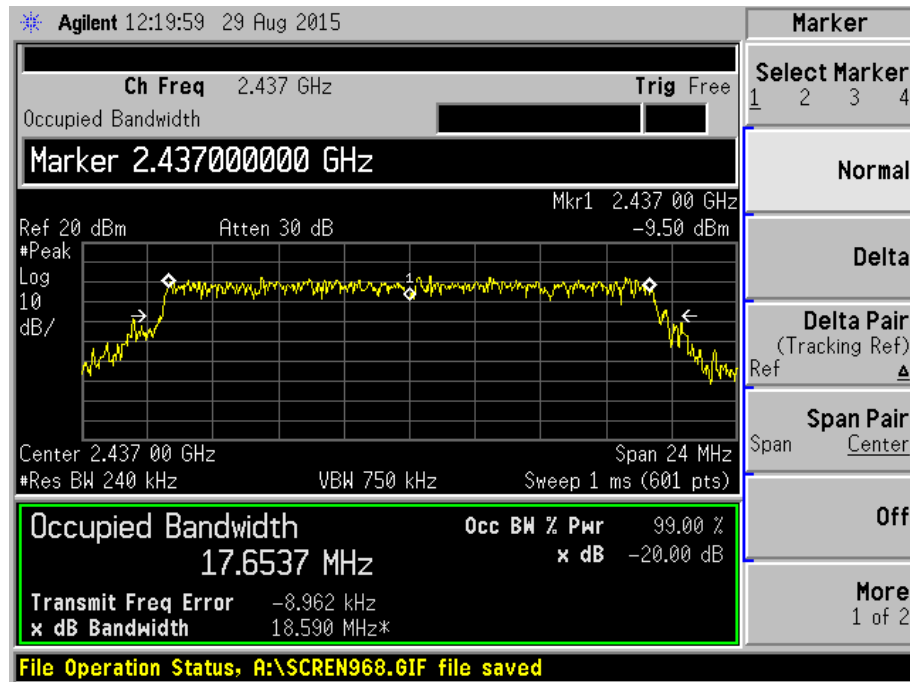
Plot 50 - Channel 6 (middle ch) @ 16QAM 36Mbps



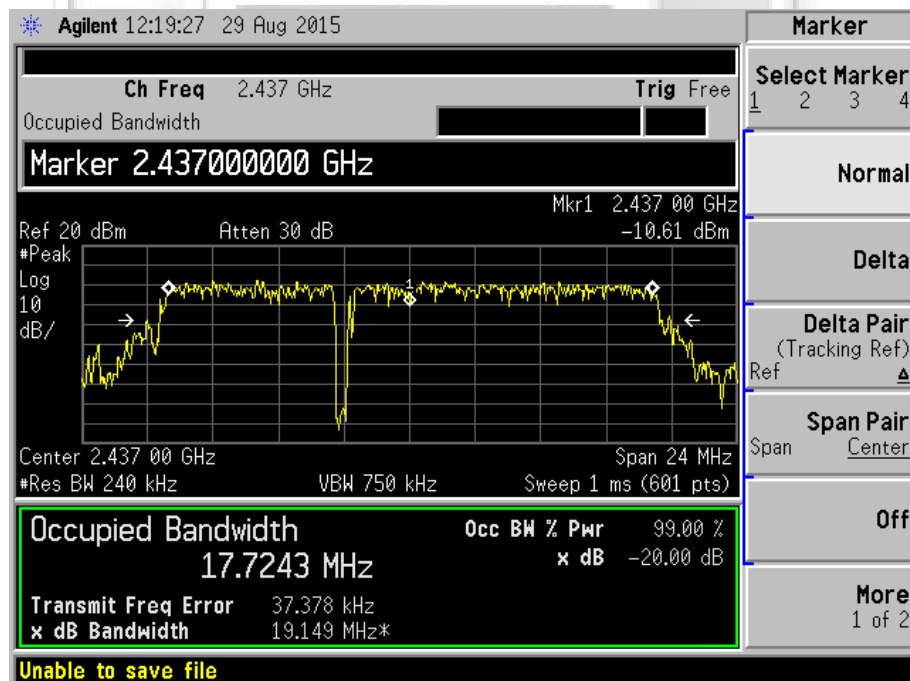
Plot 51 - Channel 6 (middle ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



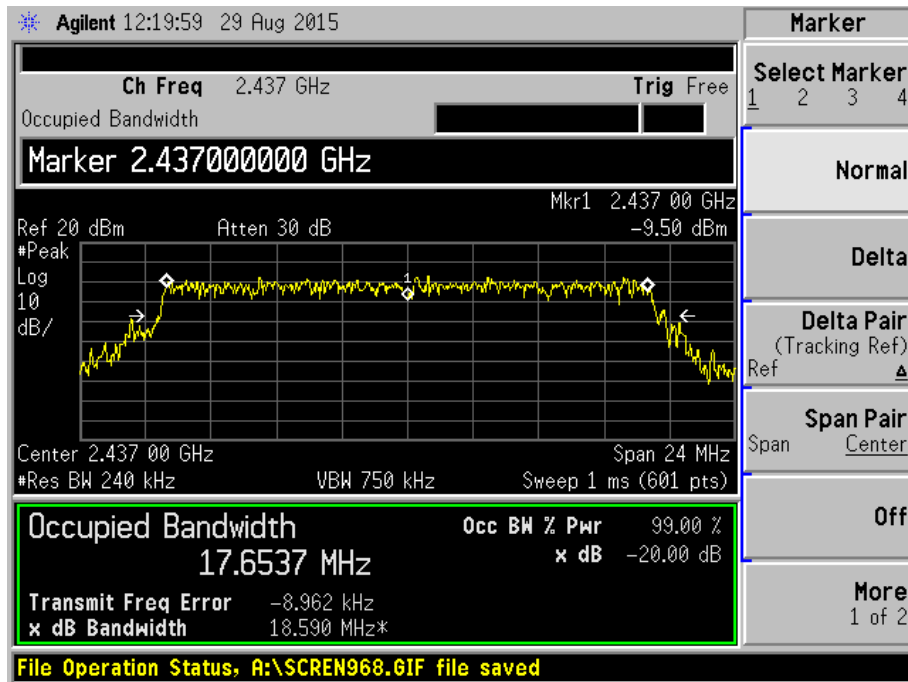
Plot 52 - Channel 6 (middle ch) @ BPSK 6.5Mbps



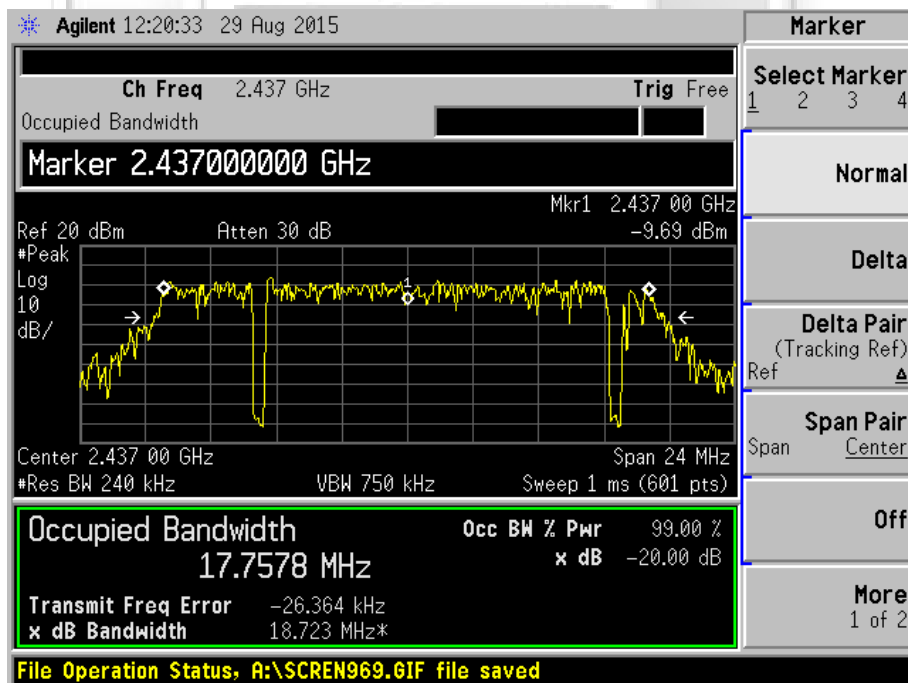
Plot 53 - Channel 6 (middle ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



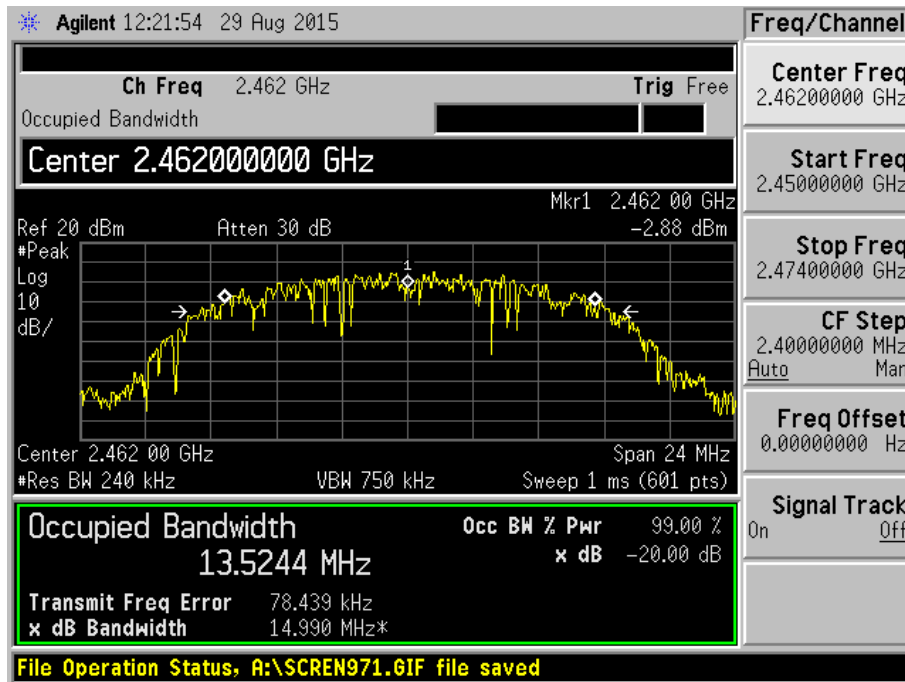
Plot 54 - Channel 6 (middle ch) @ 16QAM 39Mbps



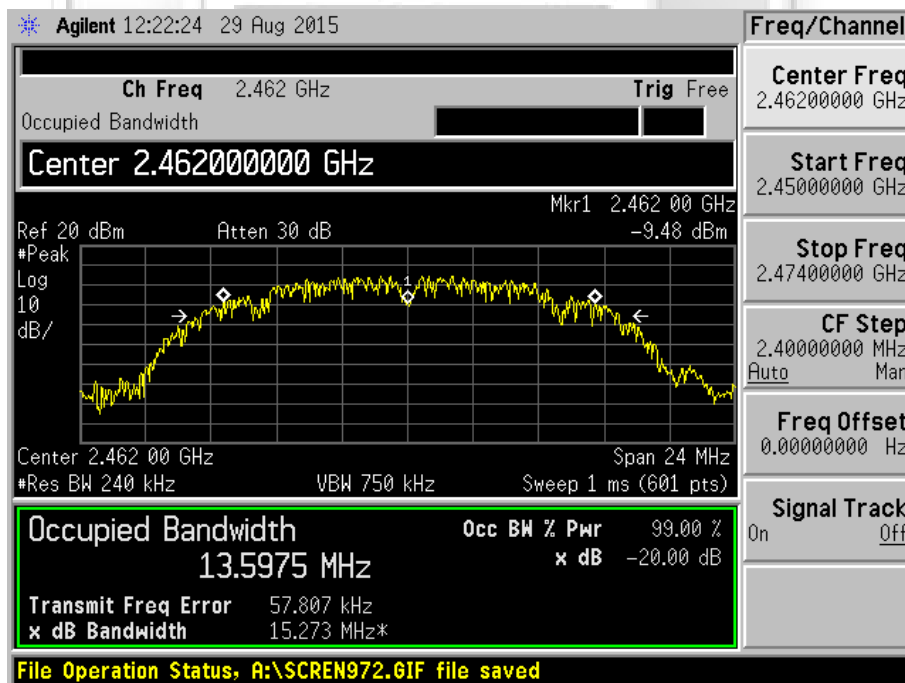
Plot 55 - Channel 6 (middle ch) @ 64QAM 65Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



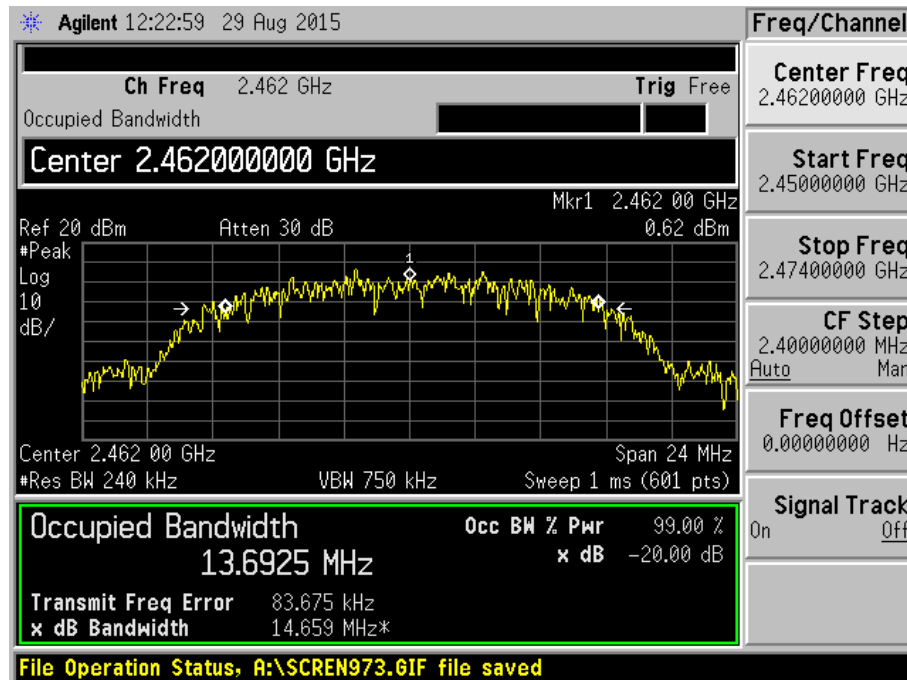
Plot 56 - Channel 11 (upper ch) @ DBPSK 1Mbps



Plot 57 - Channel 11 (upper ch) @ DQPSK 2Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

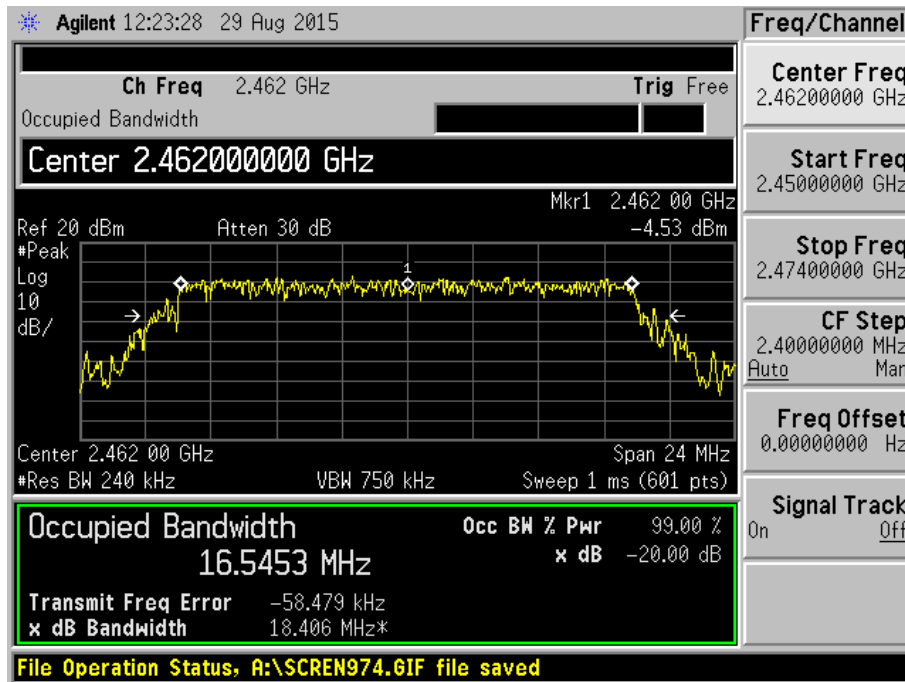
Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11b



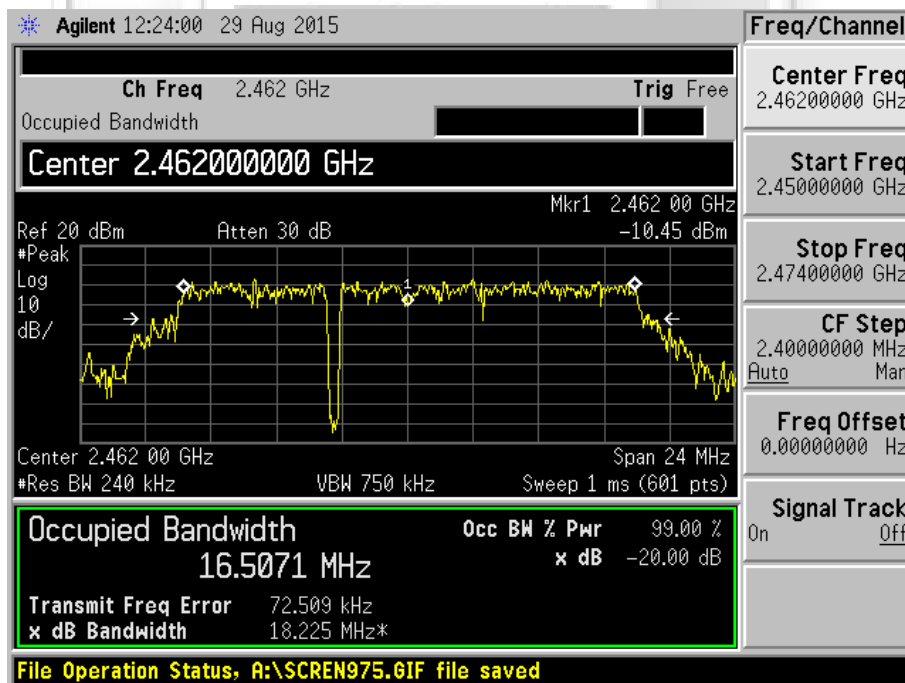
Plot 58 - Channel 11 (upper ch) @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



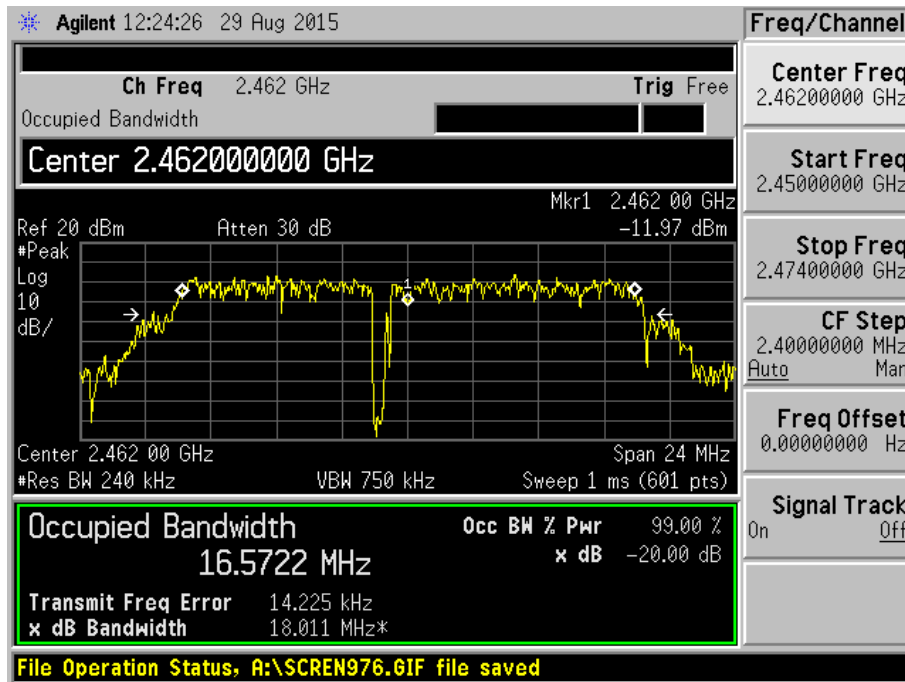
Plot 59 - Channel 11 (upper ch) @ BPSK 9Mbps



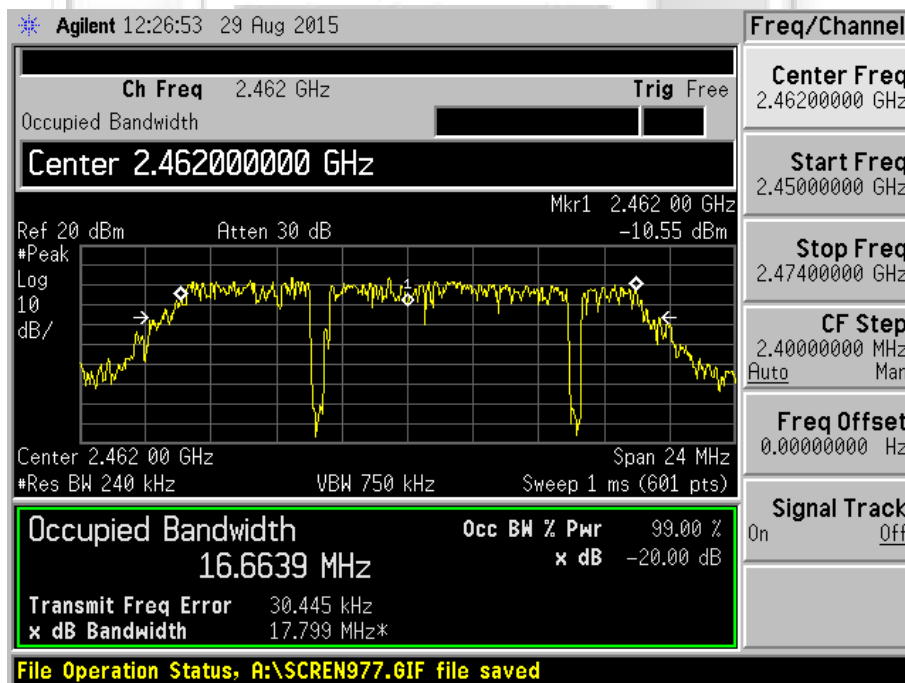
Plot 60 - Channel 11 (upper ch) @ QPSK 18Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11g



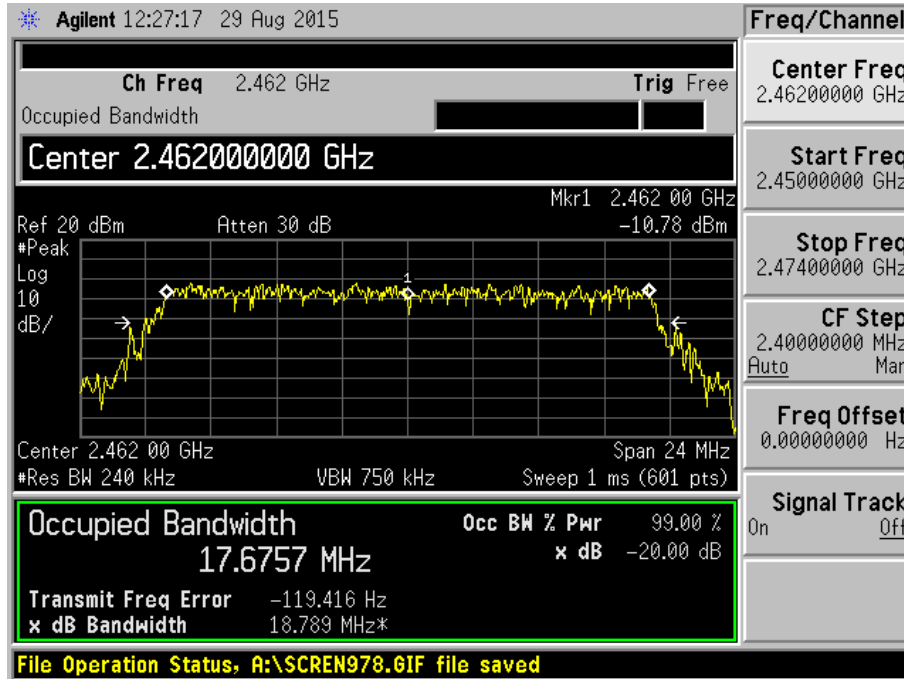
Plot 61 - Channel 11 (upper ch) @ 16QAM 36Mbps



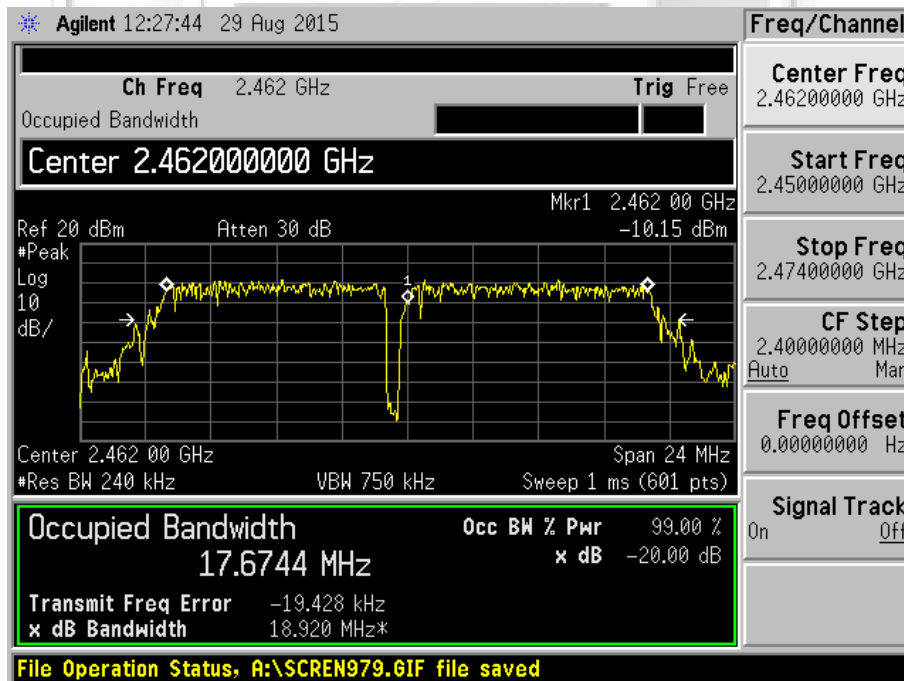
Plot 62 - Channel 11 (upper ch) @ 64QAM 54Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



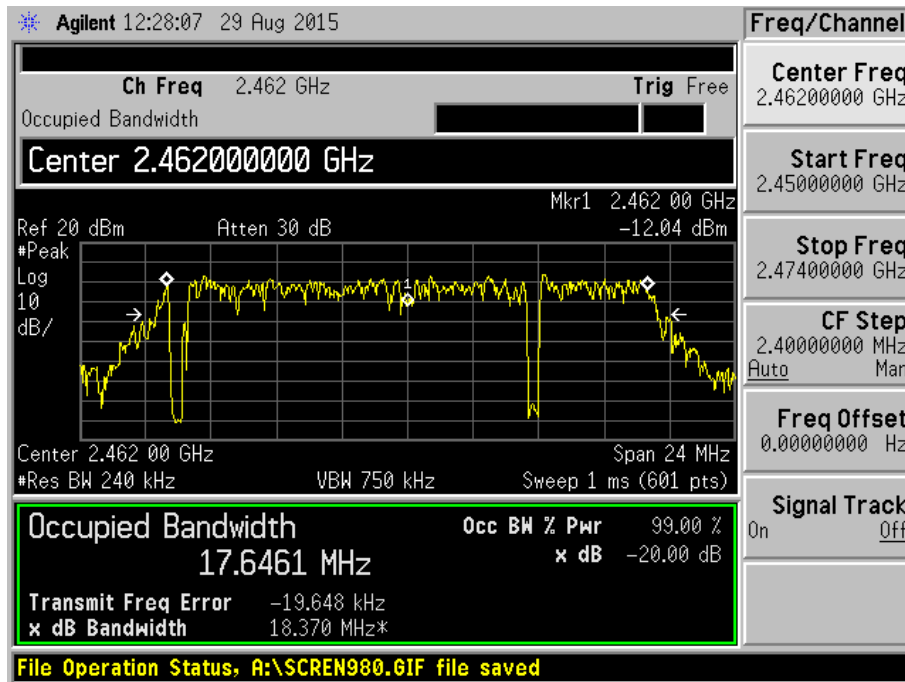
Plot 63 - Channel 11 (upper ch) @ BPSK 6.5Mbps



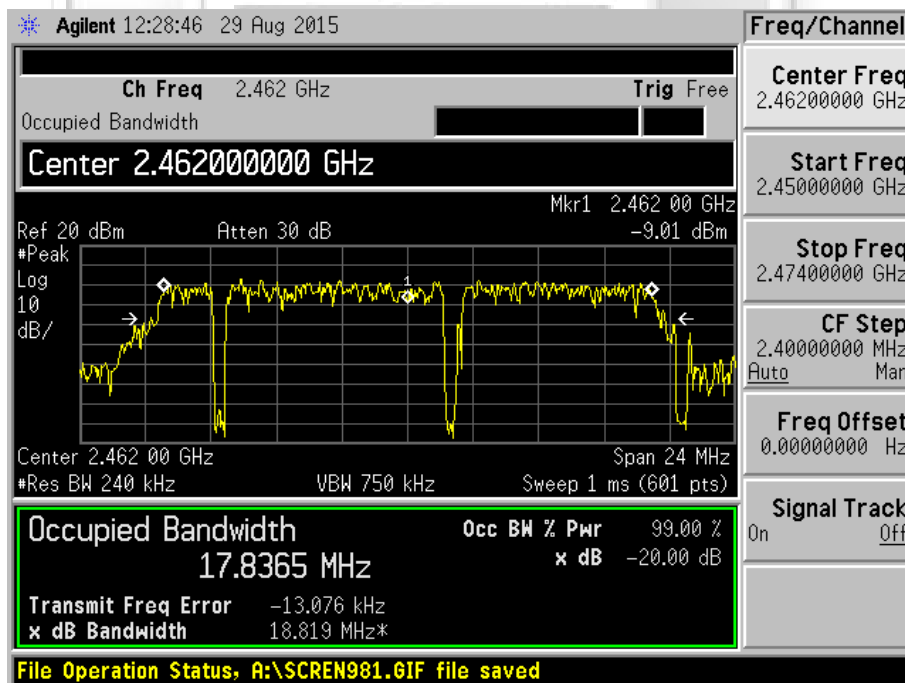
Plot 64 - Channel 11 (upper ch) @ QPSK 19.5Mbps

SPECTRUM BANDWIDTH (6dB and 99% BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (99% Bandwidth Measurement) Plots – 802.11n



Plot 65 - Channel 11 (upper ch) @ 16QAM 39Mbps



Plot 66 - Channel 11 (upper ch) @ 64QAM 65Mbps

MAXIMUM PEAK POWER TEST

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Limits

The EUT shows compliance to the requirements of this section, which states the maximum peak power of the EUT employing digital modulation shall not exceed 1W (30dBm).

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Boonton Electronics RF Power Meter	4532	72901	27 Aug 2016	1 year
Boonton Electronics Peak Power Sensor	56218-S/1	1417	27 Aug 2016	1 year

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the power meter.
4. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel with specified modulation and data rate.
2. The maximum peak power of the transmitting frequency was detected and recorded.
3. Repeat steps 1 to 2 with all possible modulations and data rates.
4. The steps 2 to 3 were repeated with the transmitting frequency was set to middle and upper respectively.



MAXIMUM PEAK POWER TEST

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Results

Test Input Power	120V 60Hz	Temperature	24°C
Antenna Gain	4.0 dBi	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Liau Lee Yin

802.11b

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)	Modulation @ Data Rate
1 (lower ch)	2.412	0.017	1.0	DBPSK @ 1Mbps
		0.017	1.0	DQPSK @ 2Mbps
		0.017	1.0	CCK @ 11Mbps
6 (mid ch)	2.437	0.016	1.0	DBPSK @ 1Mbps
		0.017	1.0	DQPSK @ 2Mbps
		0.016	1.0	CCK @ 11Mbps
11 (upper ch)	2.462	0.016	1.0	DBPSK @ 1Mbps
		0.016	1.0	DQPSK @ 2Mbps
		0.016	1.0	CCK @ 11Mbps

802.11g

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)	Modulation @ Data Rate
1 (lower ch)	2.412	0.011	1.0	BPSK @ 9Mbps
		0.011	1.0	QPSK @ 18Mbps
		0.010	1.0	16QAM @ 36Mbps
		0.011	1.0	64QAM @ 54Mbps
6 (mid ch)	2.437	0.010	1.0	BPSK @ 9Mbps
		0.011	1.0	QPSK @ 18Mbps
		0.010	1.0	16QAM @ 36Mbps
		0.010	1.0	64QAM @ 54Mbps
11 (upper ch)	2.462	0.011	1.0	BPSK @ 9Mbps
		0.011	1.0	QPSK @ 18Mbps
		0.010	1.0	16QAM @ 36Mbps
		0.011	1.0	64QAM @ 54Mbps

MAXIMUM PEAK POWER TEST

47 CFR FCC Part 15.247(b)(3) and RSS-247 5.4(4) Maximum Peak Power Results

Test Input Power	120V 60Hz	Temperature	24°C
Antenna Gain	4.0 dBi	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Liau Lee Yin

802.11n

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)	Modulation @ Data Rate
1 (lower ch)	2.412	0.007	1.0	BPSK @ 6.5Mbps (MCS0)
		0.007	1.0	QPSK @ 19.5Mbps (MCS2)
		0.006	1.0	16QAM @ 39Mbps (MCS4)
		0.006	1.0	64QAM @ 65Mbps (MCS7)
6 (mid ch)	2.437	0.007	1.0	BPSK @ 6.5Mbps (MCS0)
		0.007	1.0	QPSK @ 19.5Mbps (MCS2)
		0.006	1.0	16QAM @ 39Mbps (MCS4)
		0.006	1.0	64QAM @ 65Mbps (MCS7)
11 (upper ch)	2.462	0.007	1.0	BPSK @ 6.5Mbps (MCS0)
		0.007	1.0	QPSK @ 19.5Mbps (MCS2)
		0.007	1.0	16QAM @ 39Mbps (MCS4)
		0.006	1.0	64QAM @ 65Mbps (MCS7)

Notes

1. Nil.

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Non-Restricted Bands) Limits

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Non-Restricted Bands) Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E4440A	MY45304764	12 Dec 2015	1 year

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Non-Restricted Bands) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz.
5. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Non-Restricted Bands) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
2. The start and stop frequencies of the spectrum analyser were set to 30MHz and 10GHz.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. The steps 2 to 3 were repeated with frequency span was set from 10GHz to 25GHz.
5. Repeat steps 1 to 4 with all possible modulations and data rates.
6. The steps 2 to 5 were repeated with the transmitting frequency was set to middle and upper channel respectively.

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Non-Restricted Bands) Results

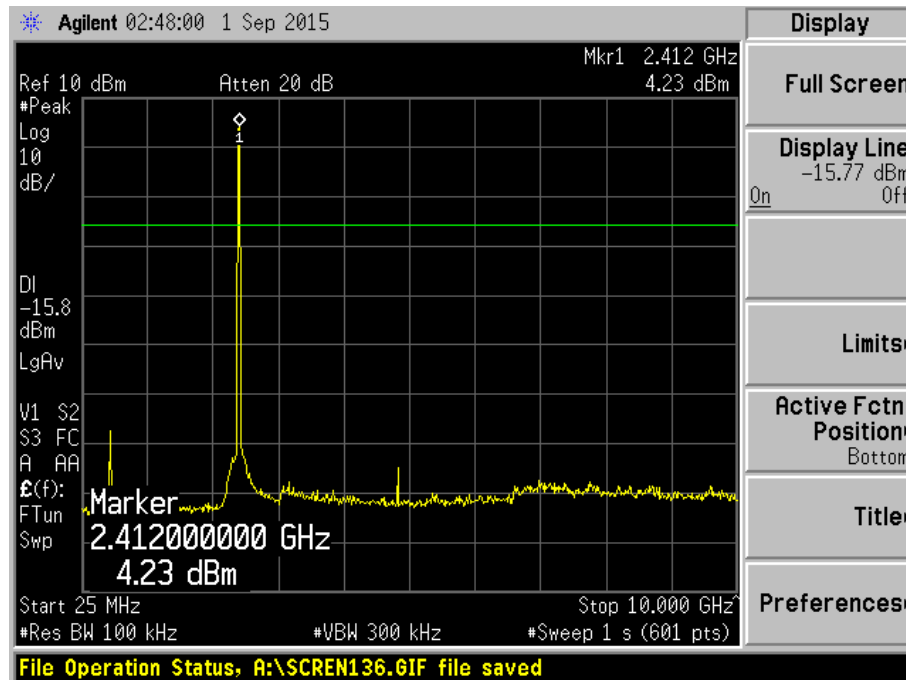
Test Input Power	120V 60Hz	Temperature	24°C
Attached Plots	67 – 84 (802.11b) 85 – 108 (802.11g) 109 – 132 (802.11n)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

All spurious signals found were below the specified limit. Please refer to the attached plots.

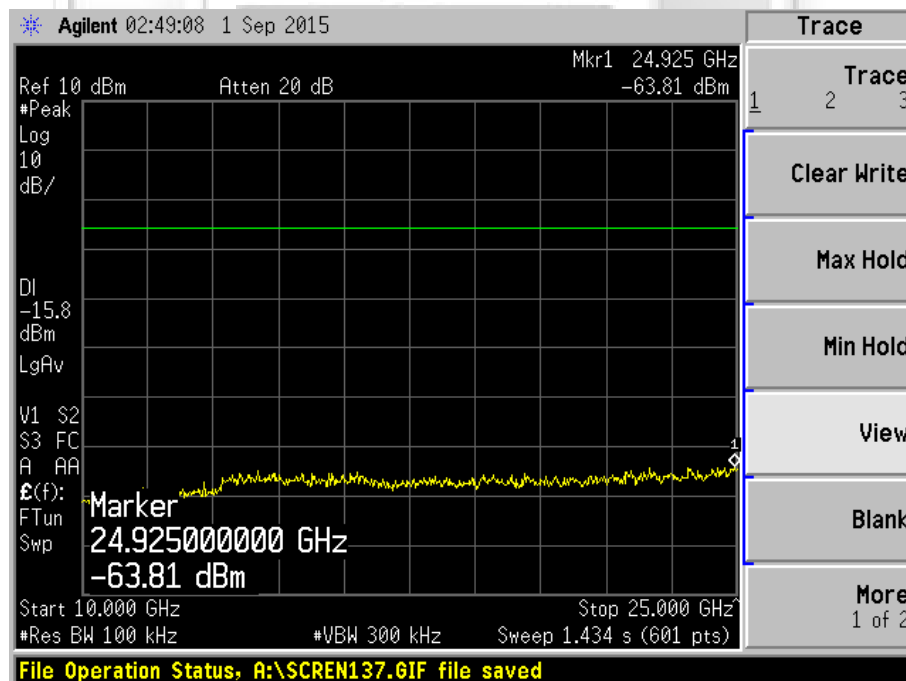


RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



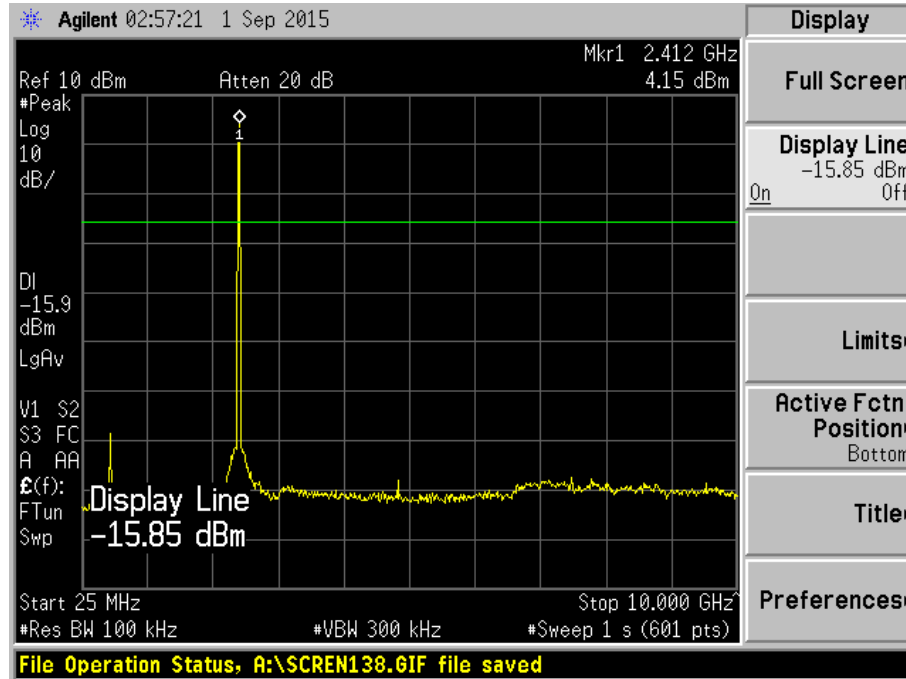
Plot 67 – Channel 1 (lower ch) @ DBPSK 1Mbps



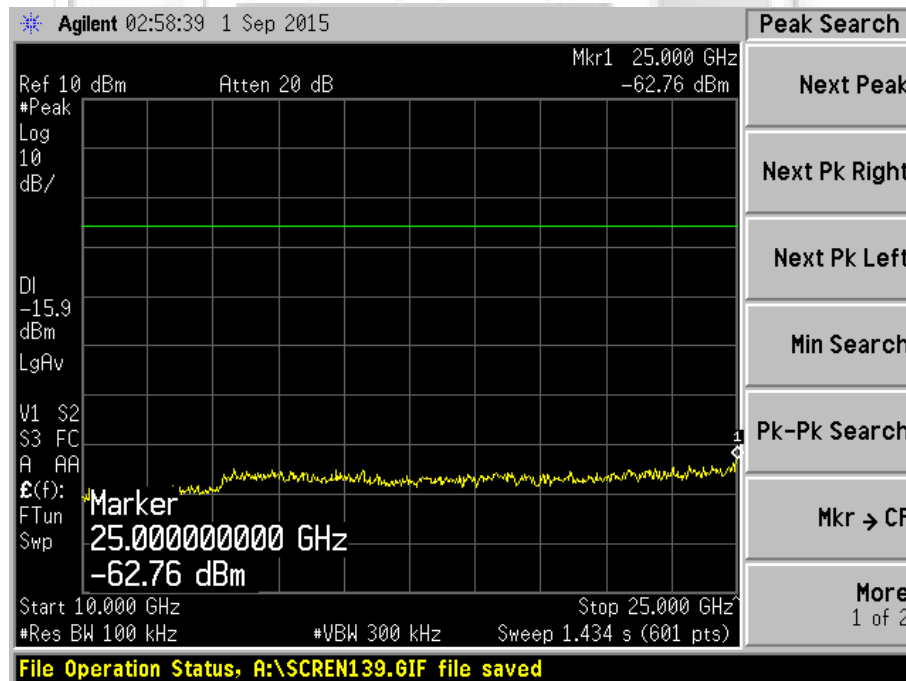
Plot 68 – Channel 1 (lower ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



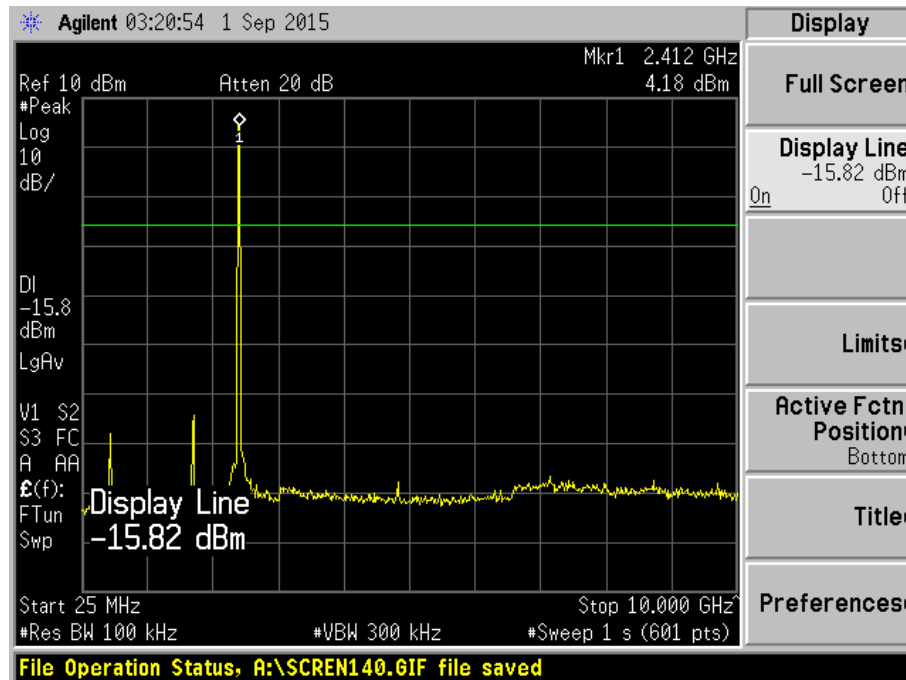
Plot 69 – Channel 1 (lower ch) @ DQPSK 2Mbps



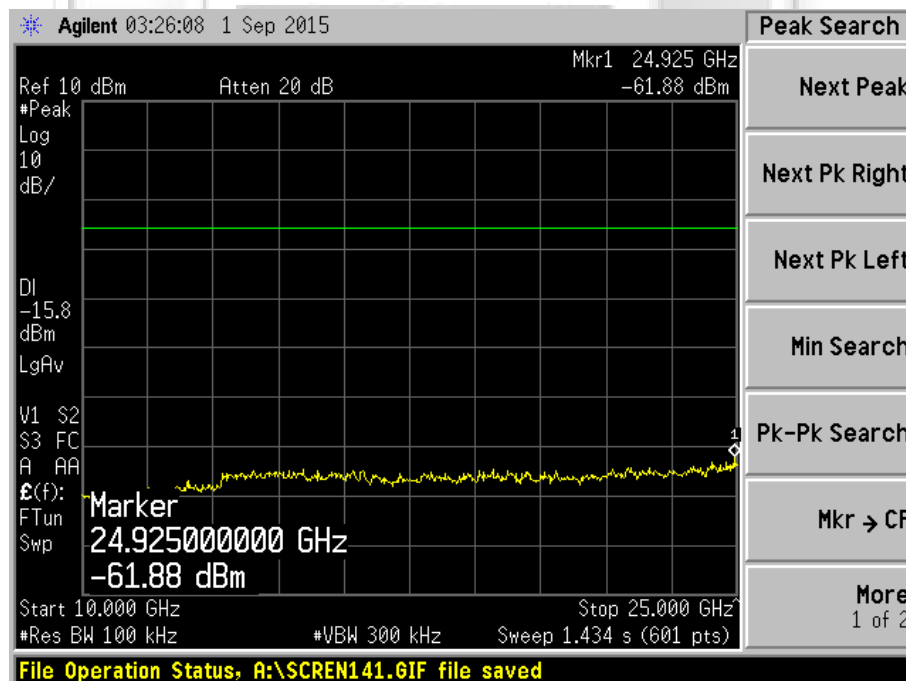
Plot 70 – Channel 1 (lower ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



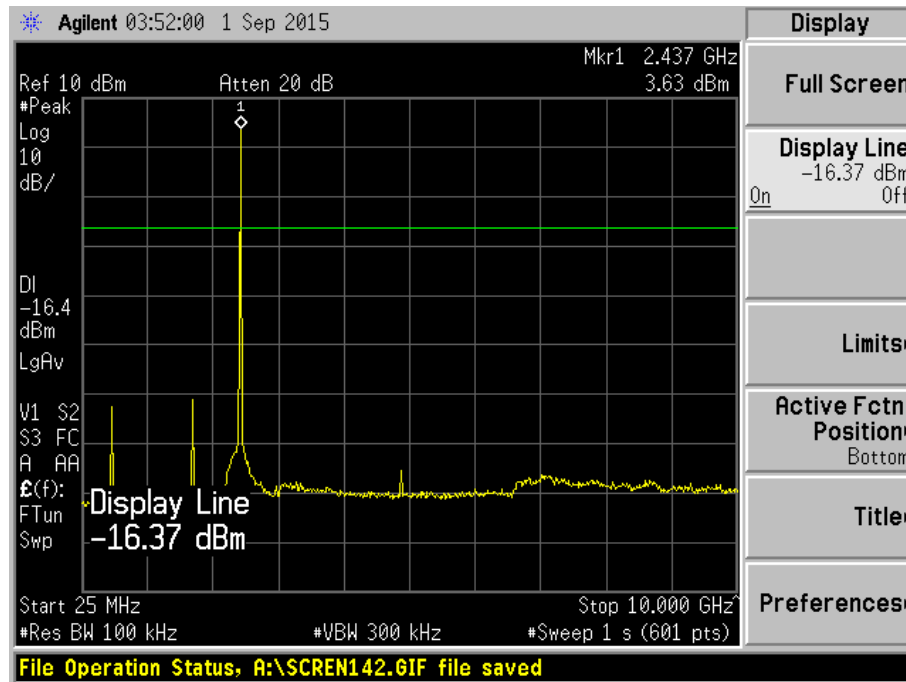
Plot 71 – Channel 1 (lower ch) @ CCK 11Mbps



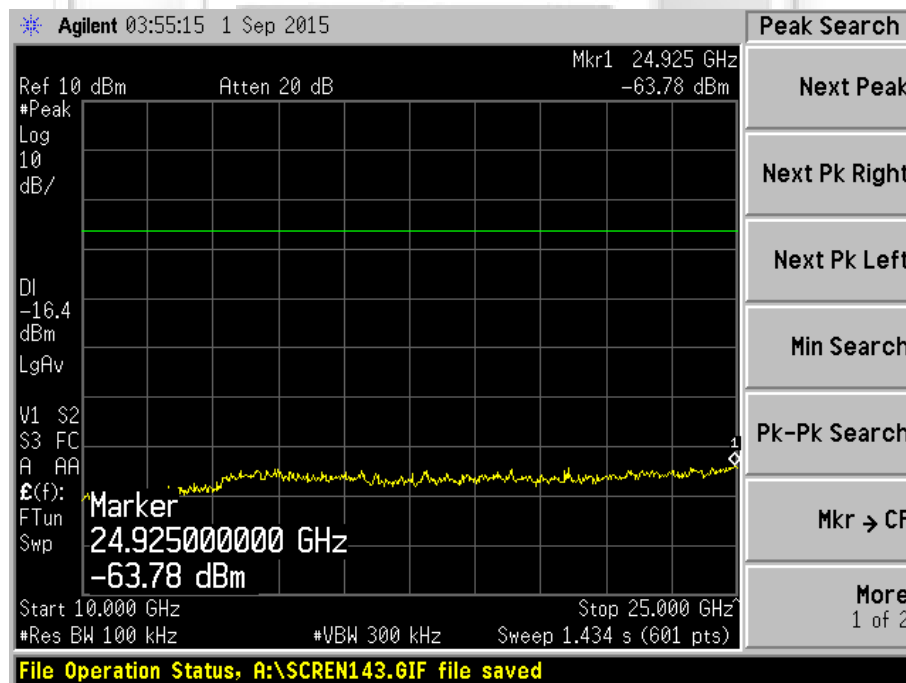
Plot 72 – Channel 1 (lower ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



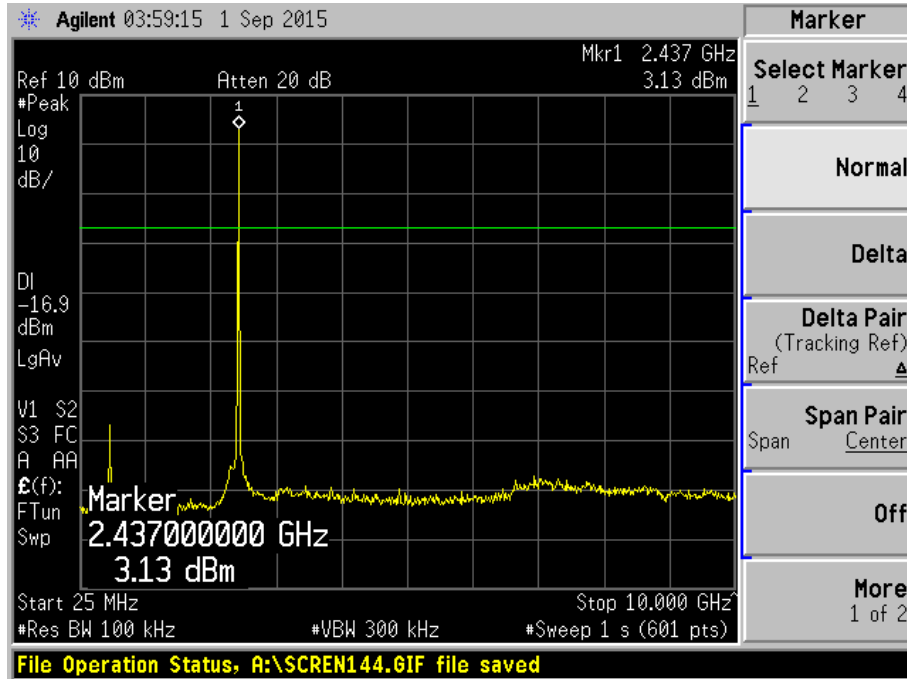
Plot 73 – Channel 6 (middle ch) @ DBPSK 1Mbps



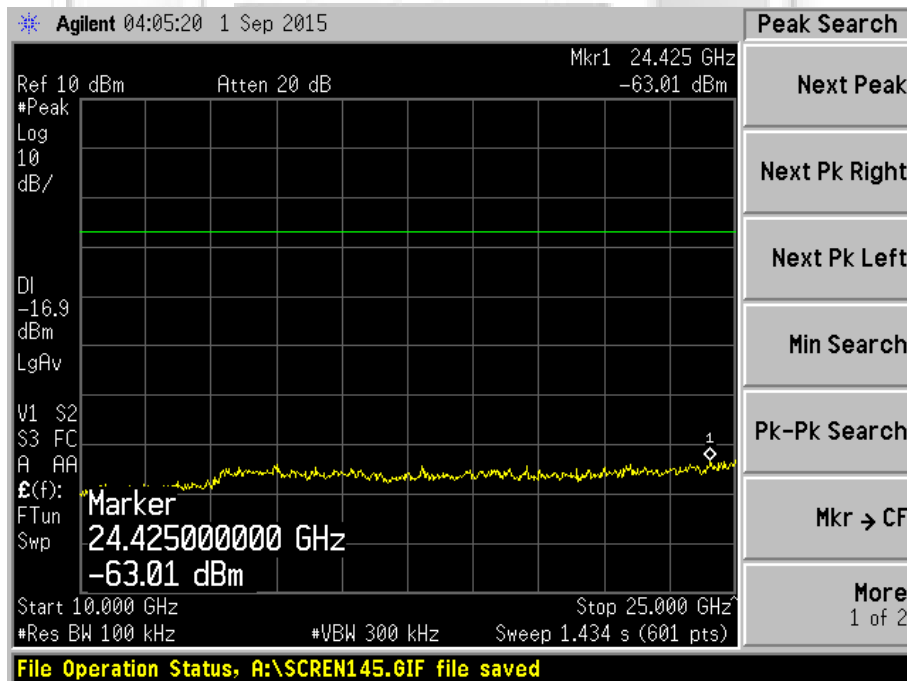
Plot 74 – Channel 6 (middle ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



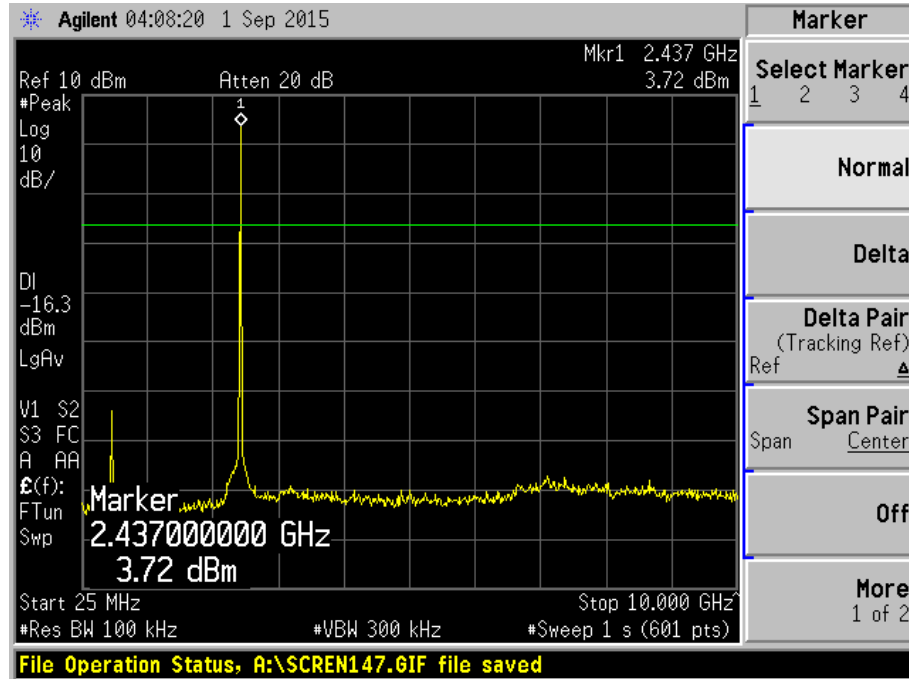
Plot 75 – Channel 6 (middle ch) @ DQPSK 2Mbps



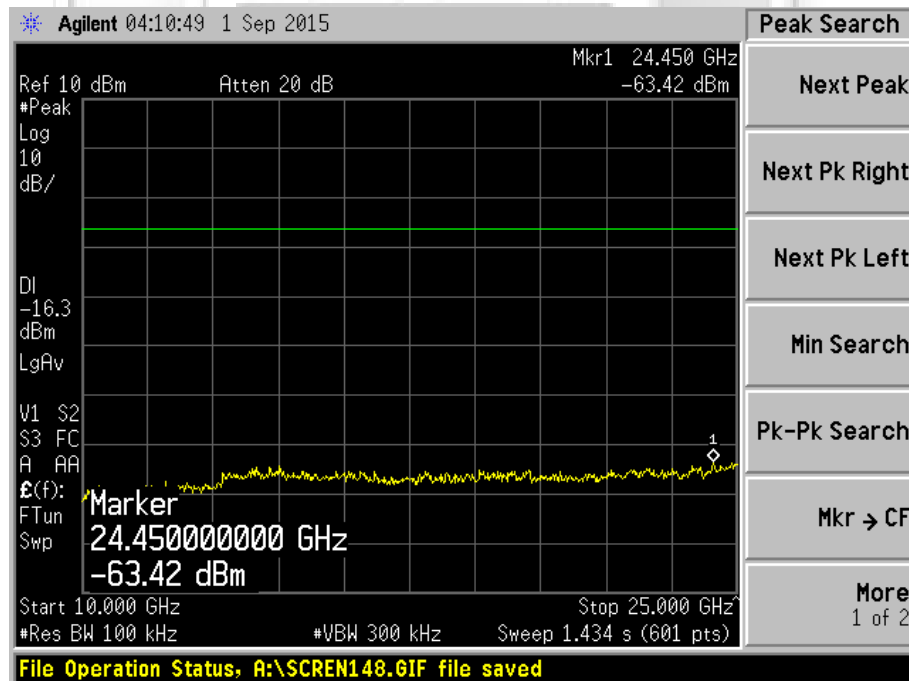
Plot 76 – Channel 6 (middle ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



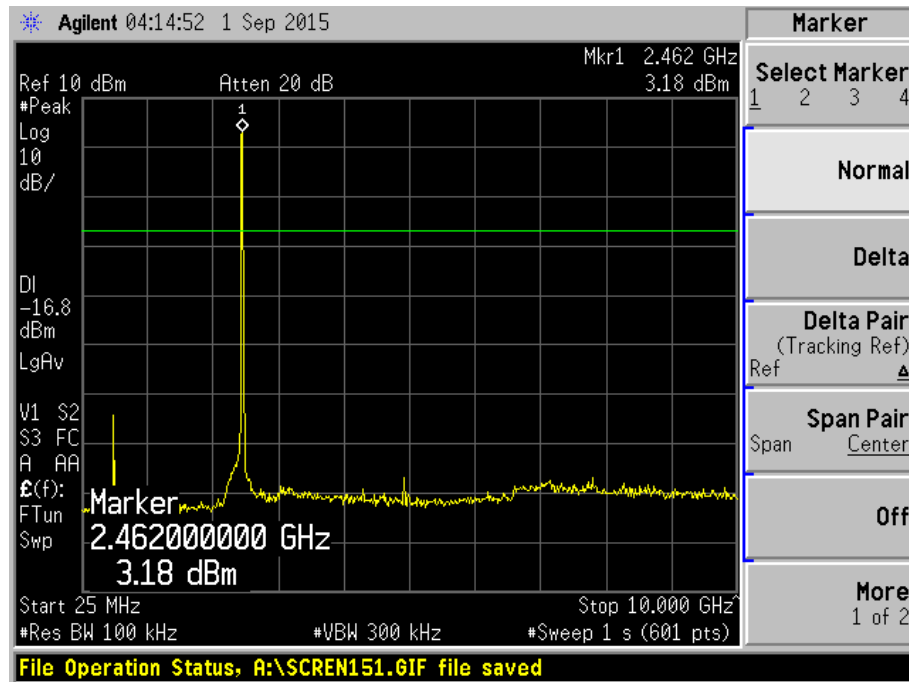
Plot 77 – Channel 6 (middle ch) @ CCK 11Mbps



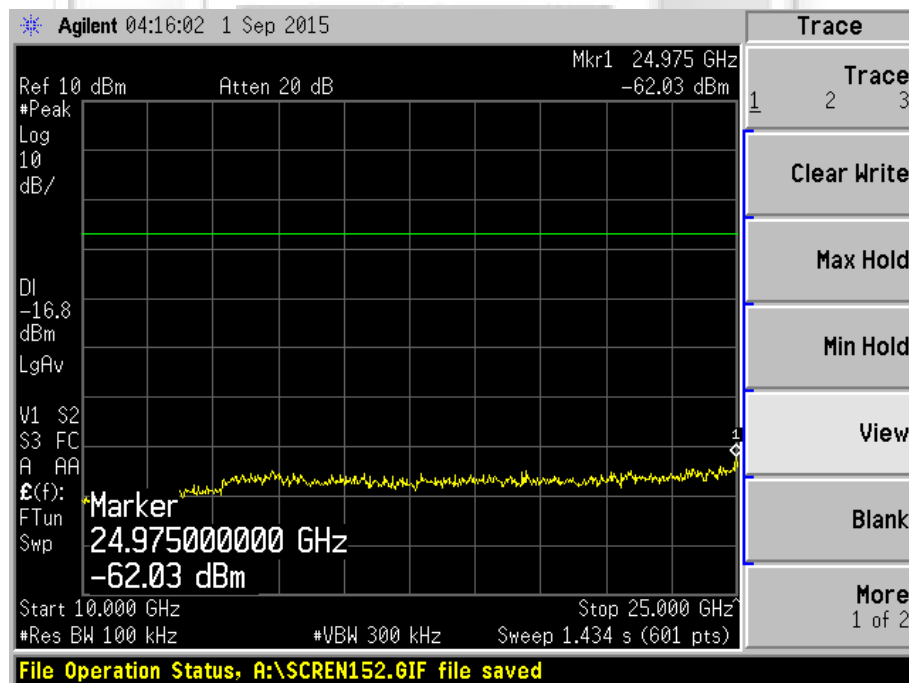
Plot 78 – Channel 6 (middle ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



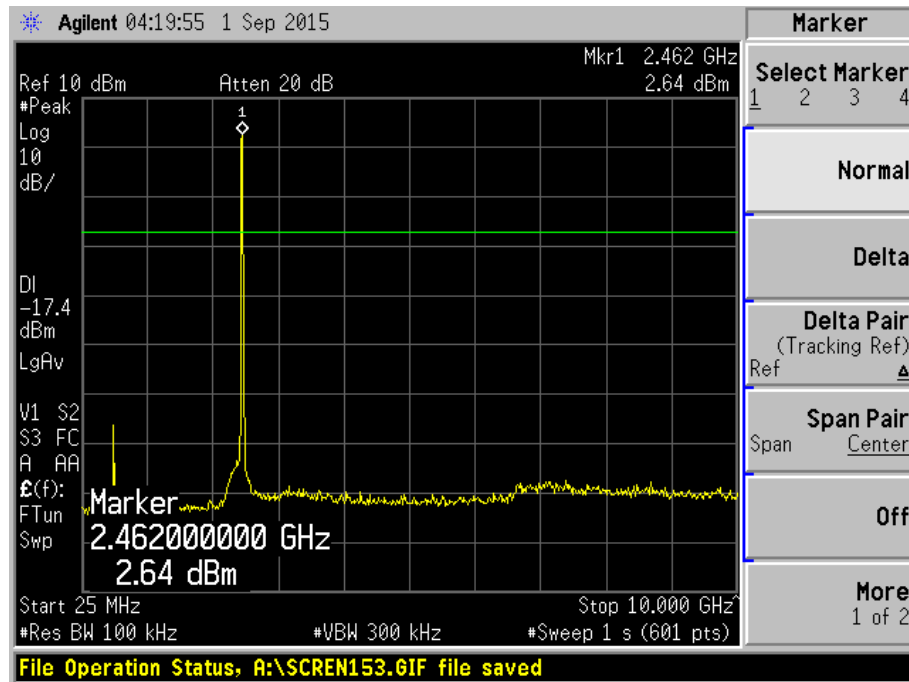
Plot 79 – Channel 11 (upper ch) @ DBPSK 1Mbps



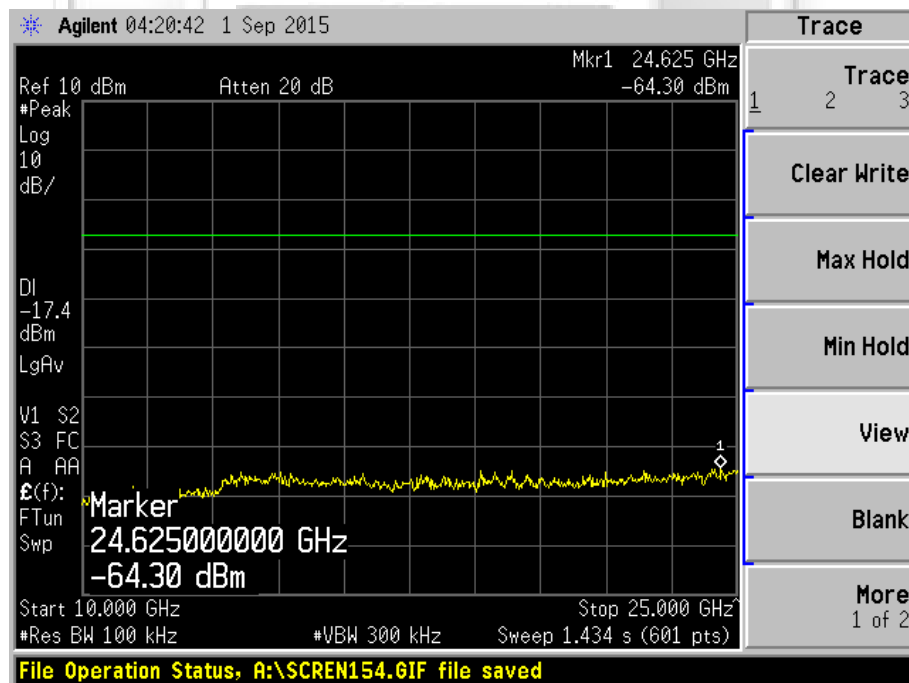
Plot 80 – Channel 11 (upper ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



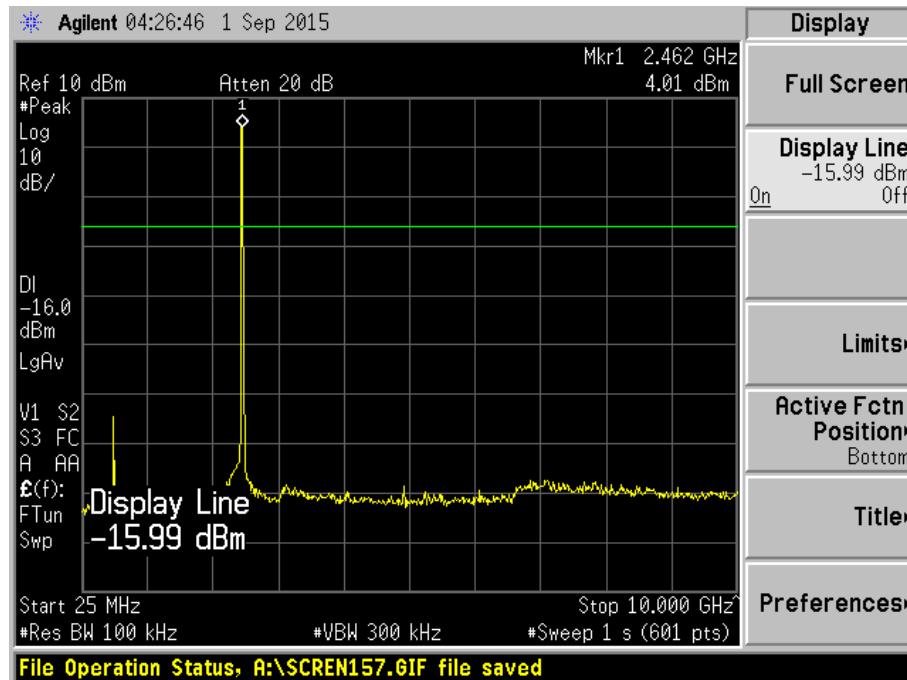
Plot 81 – Channel 11 (upper ch) @ DQPSK 2Mbps



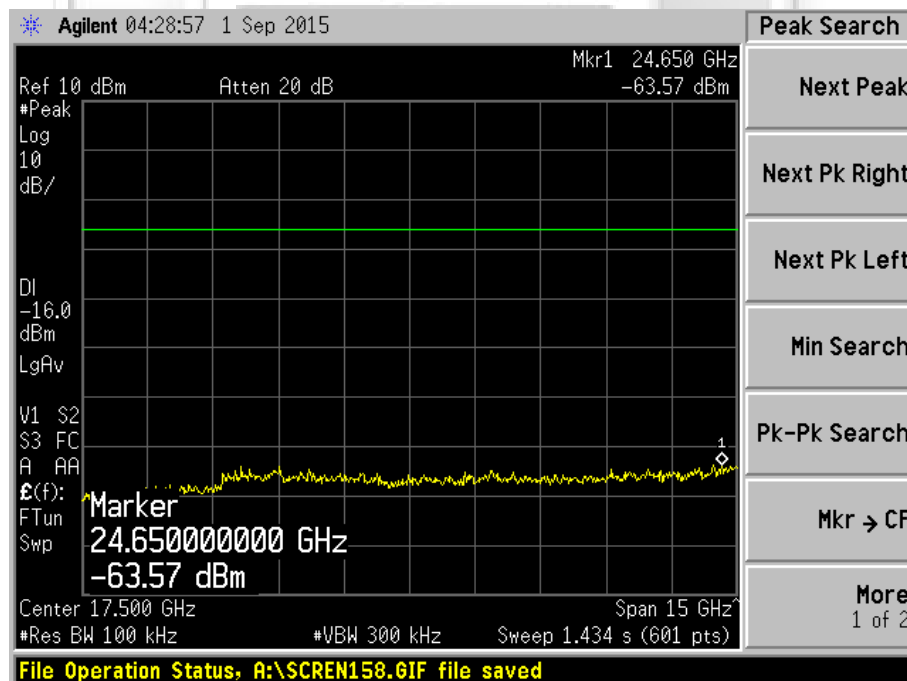
Plot 82 – Channel 11 (upper ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



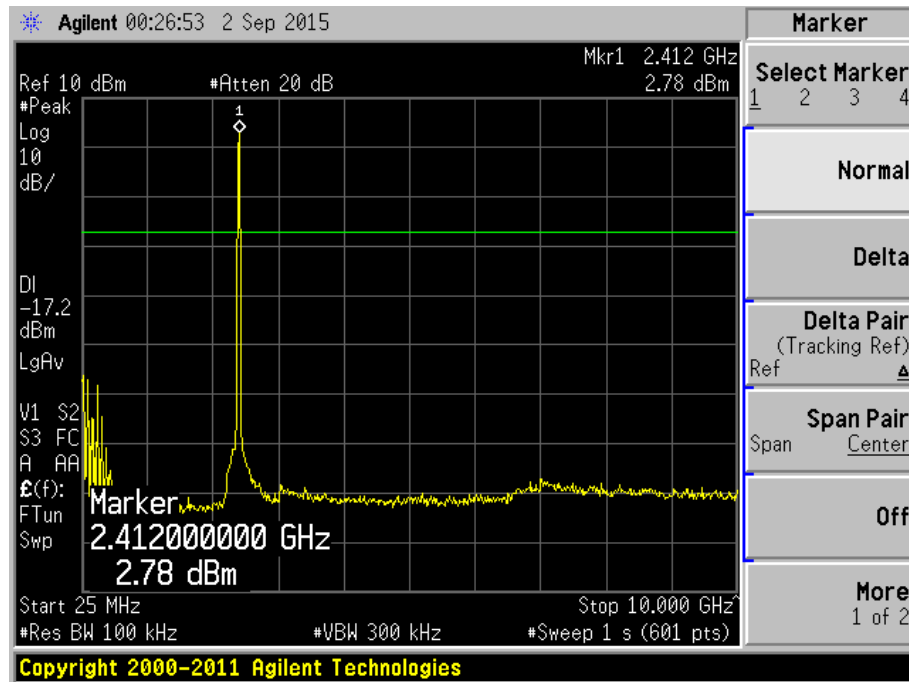
Plot 83 – Channel 11 (upper ch) @ CCK 11Mbps



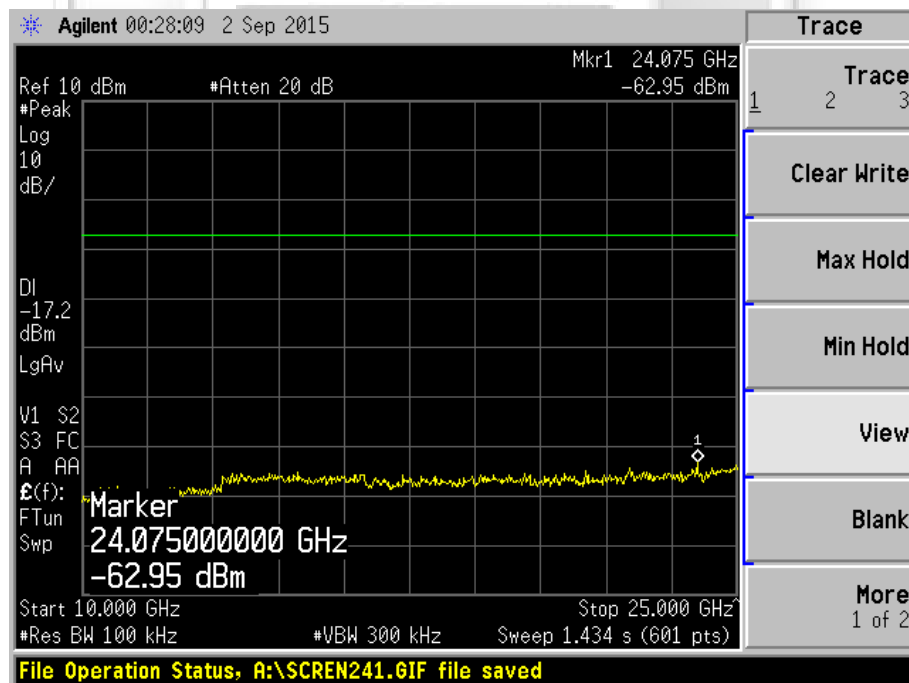
Plot 84 – Channel 11 (upper ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



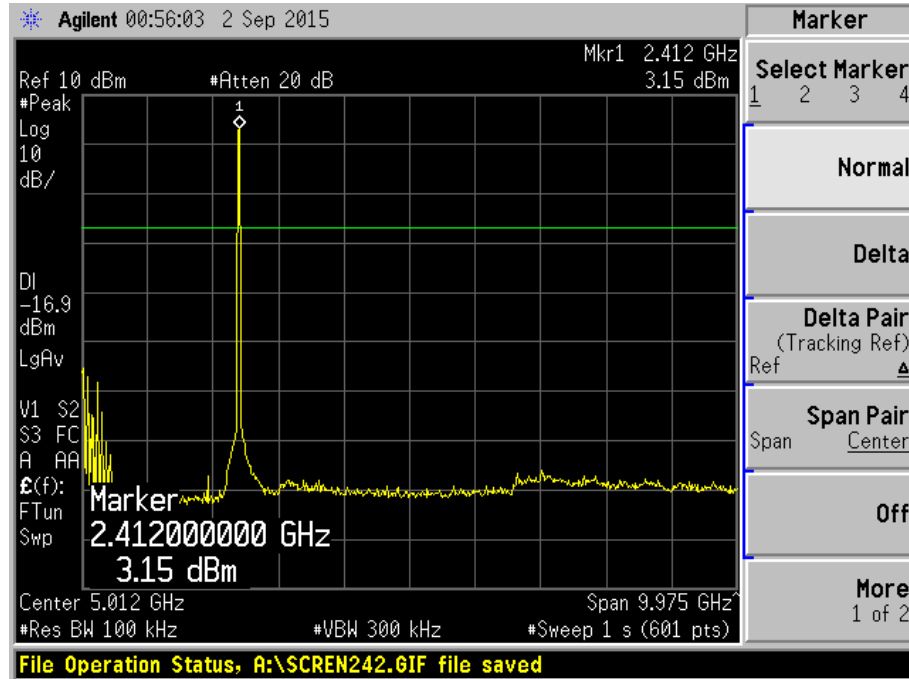
Plot 85 – Channel 1 (lower ch) @ BPSK 9Mbps



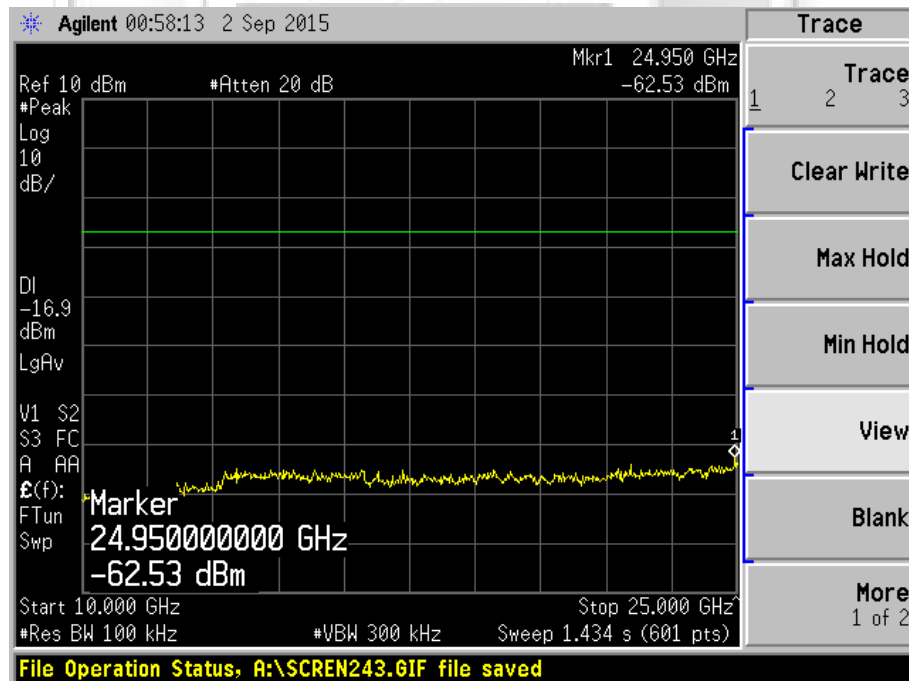
Plot 86 – Channel 1 (lower ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



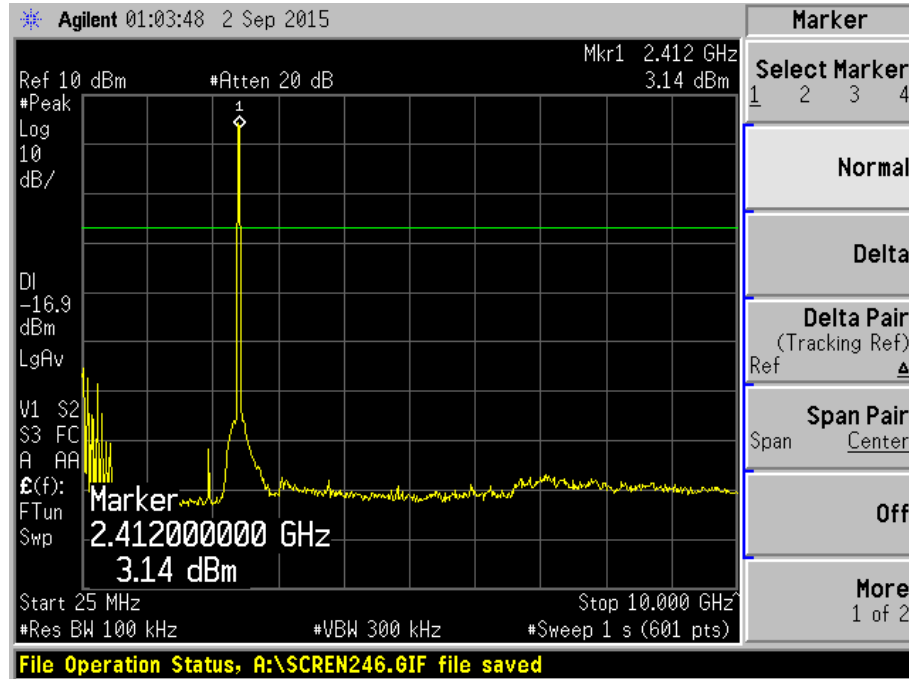
Plot 87 – Channel 1 (lower ch) @ QPSK 18Mbps



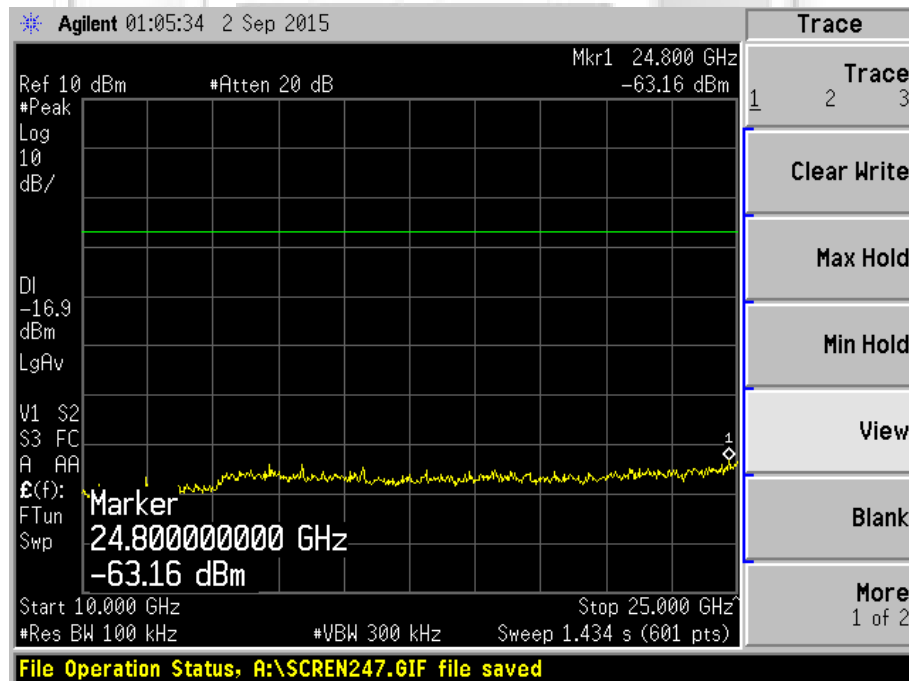
Plot 88 – Channel 1 (lower ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



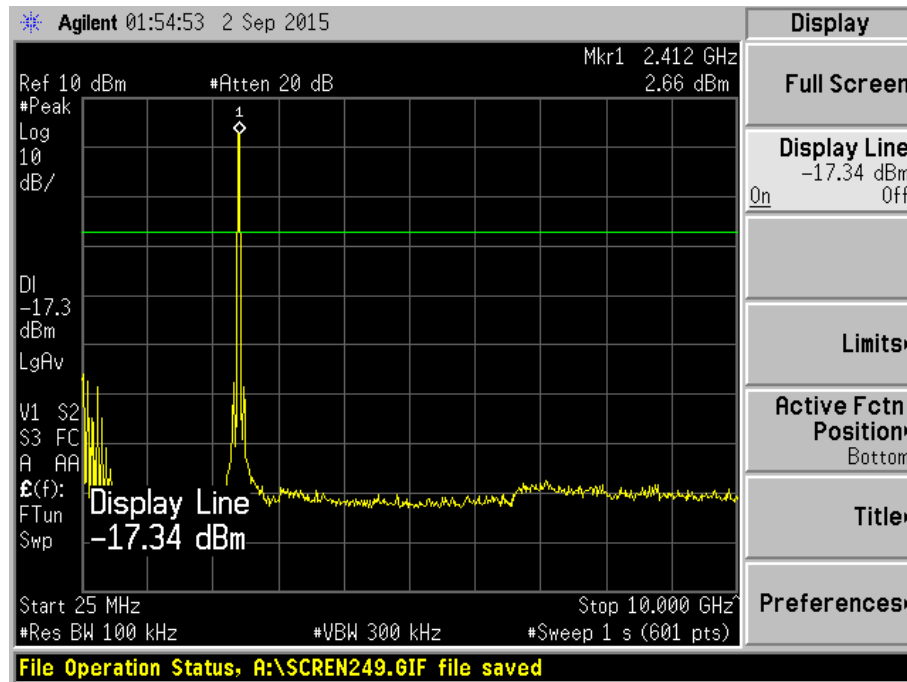
Plot 89 – Channel 1 (lower ch) @ 16QAM 36Mbps



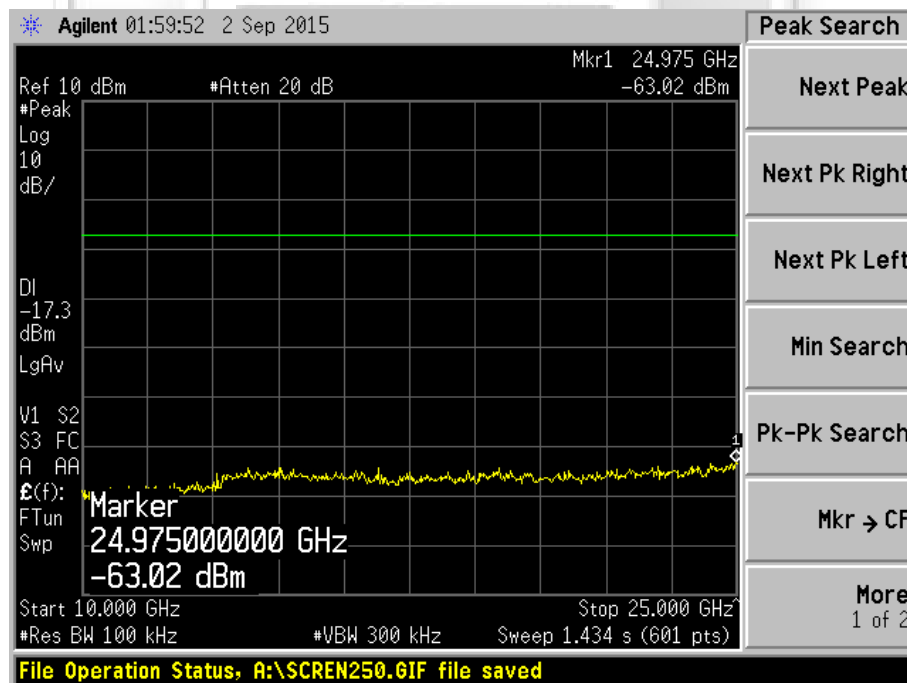
Plot 90 – Channel 1 (lower ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



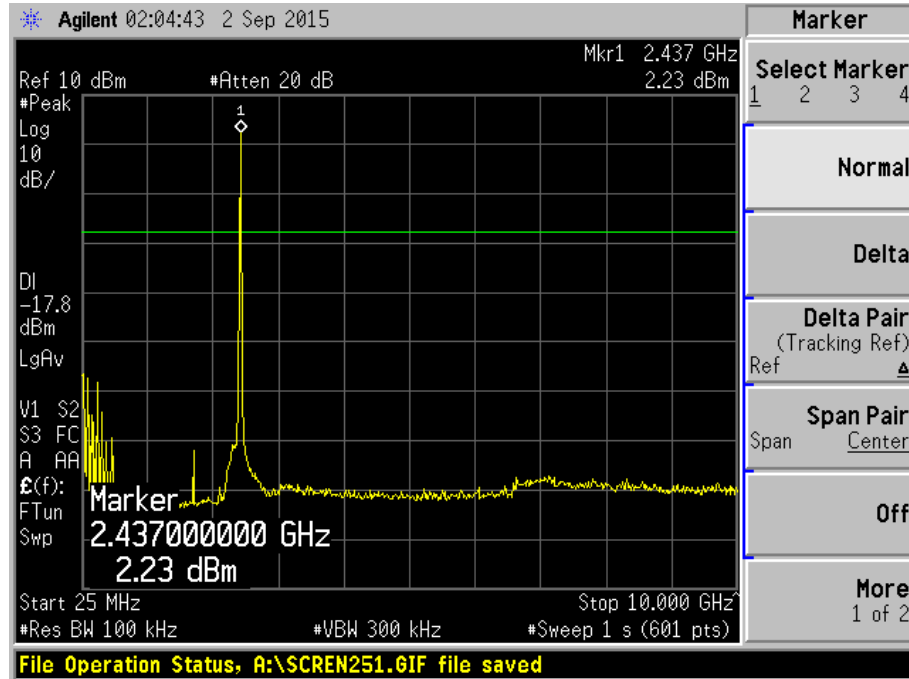
Plot 91 – Channel 1 (lower ch) @ 64QAM 54Mbps



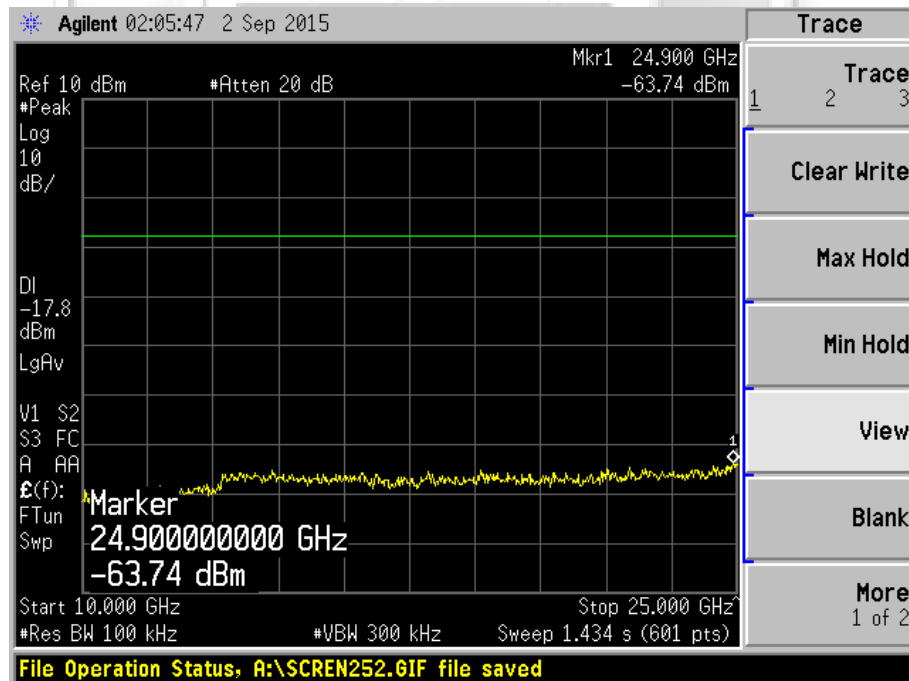
Plot 92 – Channel 1 (lower ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



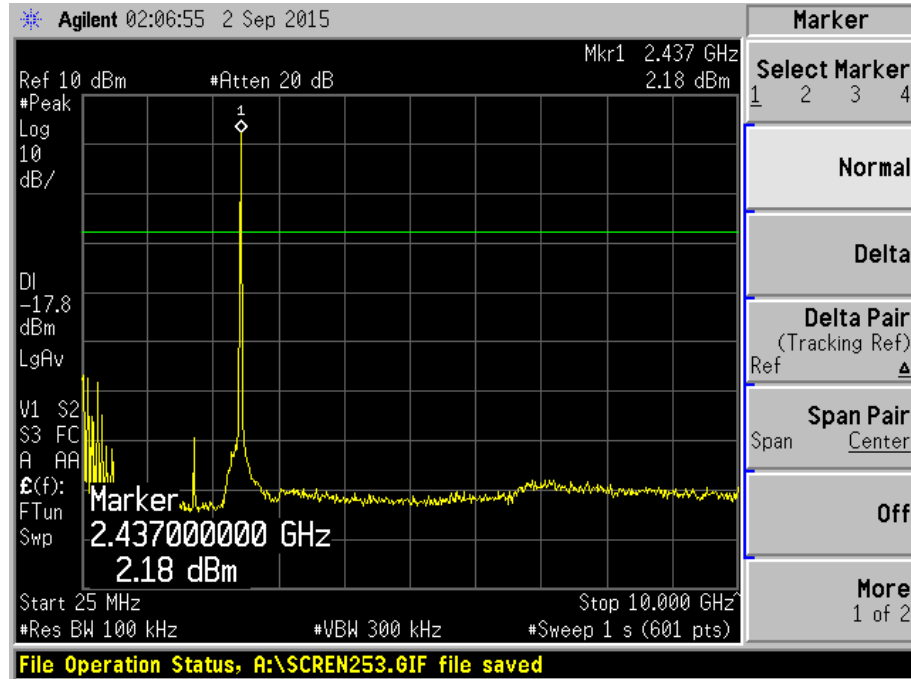
Plot 93 – Channel 6 (middle ch) @ BPSK 9Mbps



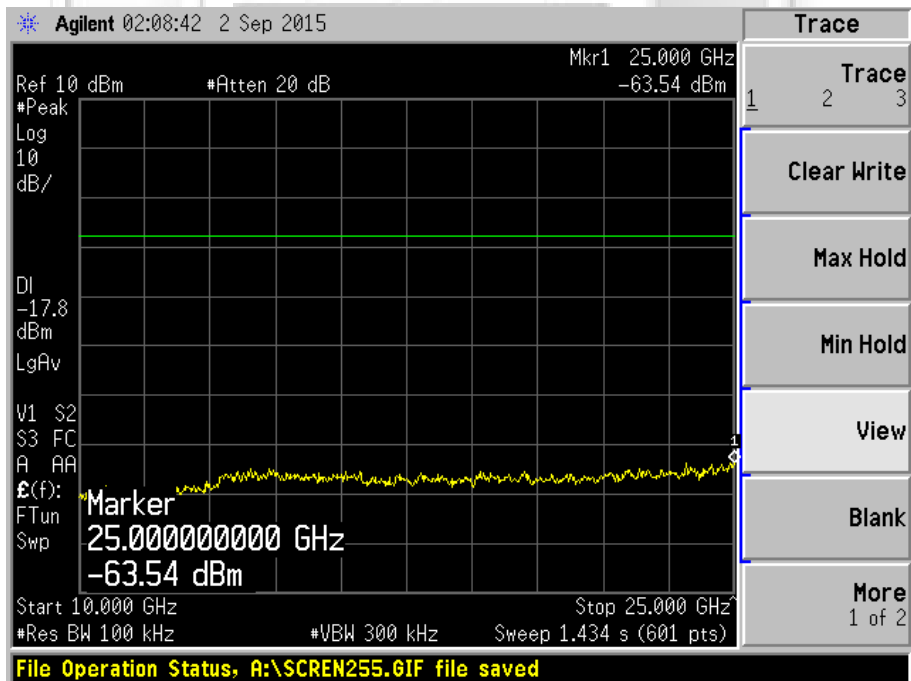
Plot 94 – Channel 6 (middle ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



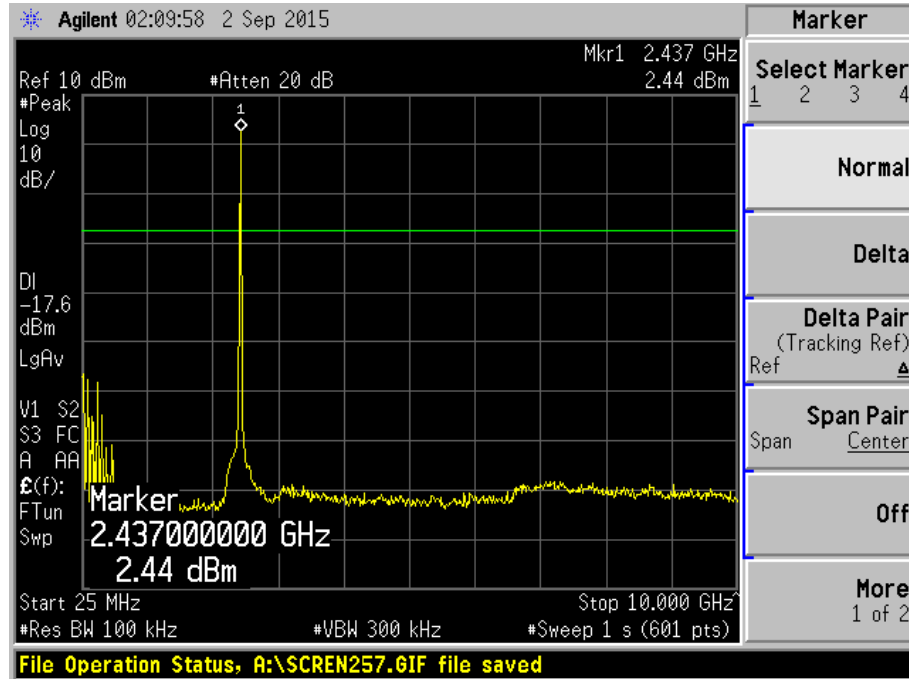
Plot 95 – Channel 6 (middle ch) @ QPSK 18Mbps



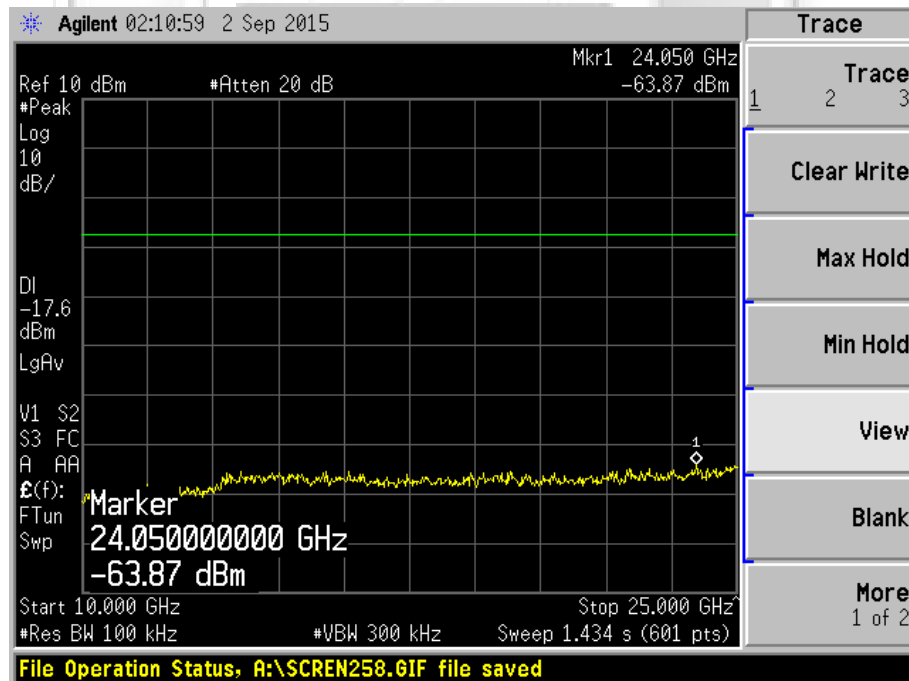
Plot 96 – Channel 6 (middle ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



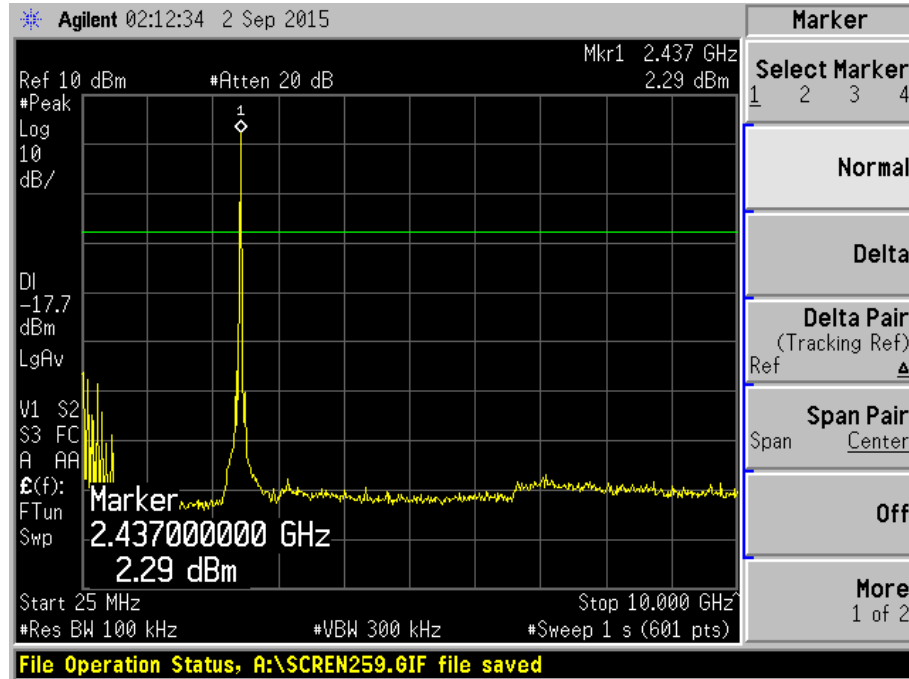
Plot 97 – Channel 6 (middle ch) @ 16QAM 36Mbps



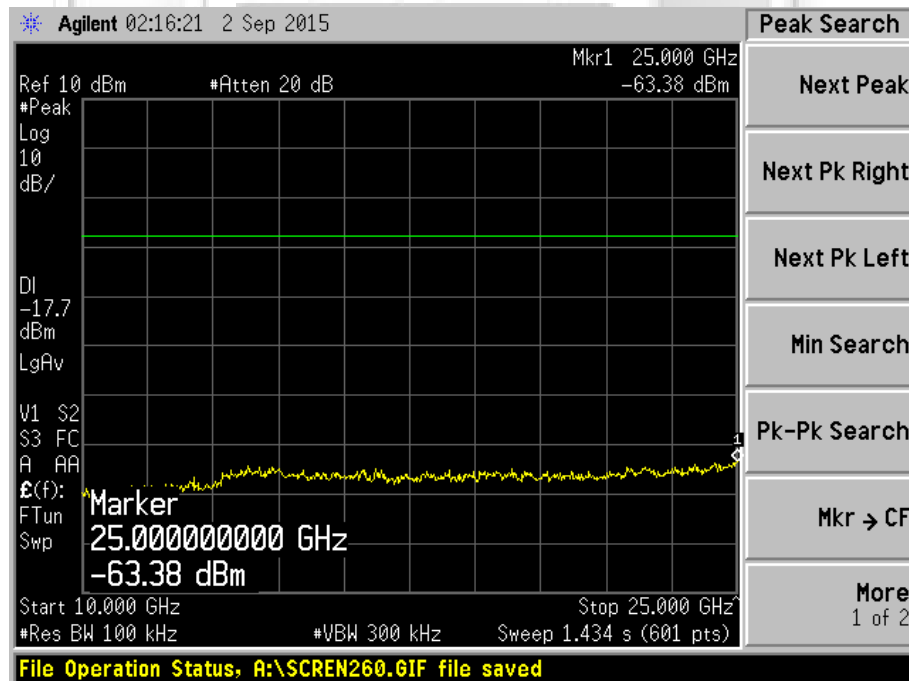
Plot 98 – Channel 6 (middle ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



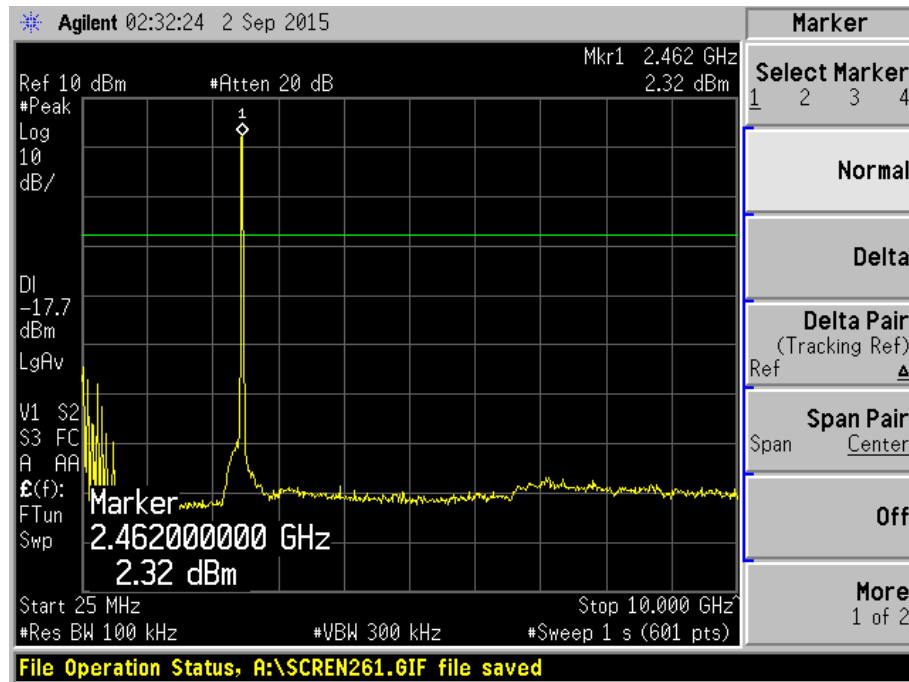
Plot 99 – Channel 6 (middle ch) @ 64QAM 54Mbps



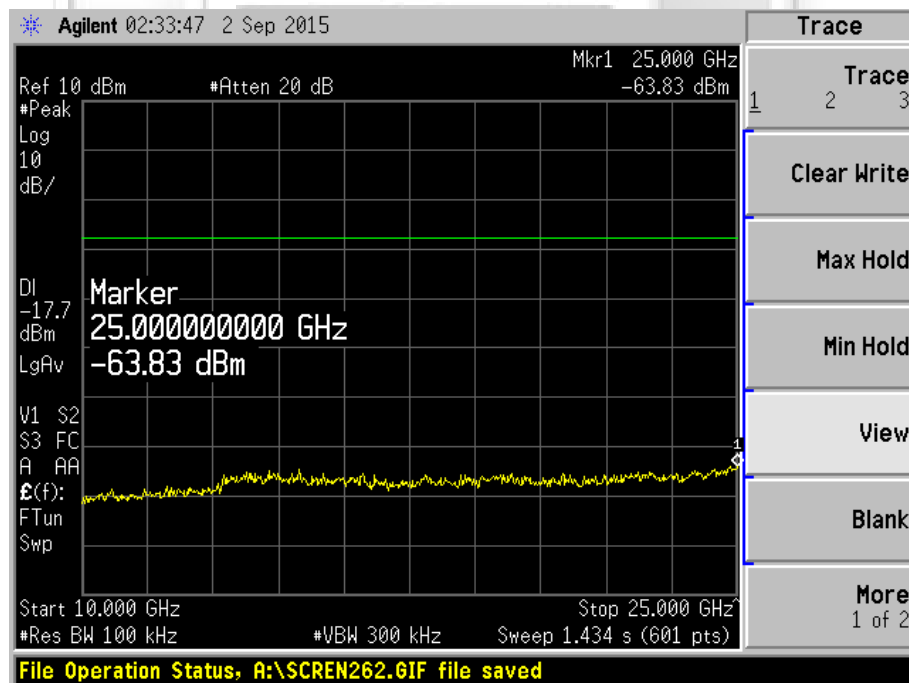
Plot 100 – Channel 6 (middle ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



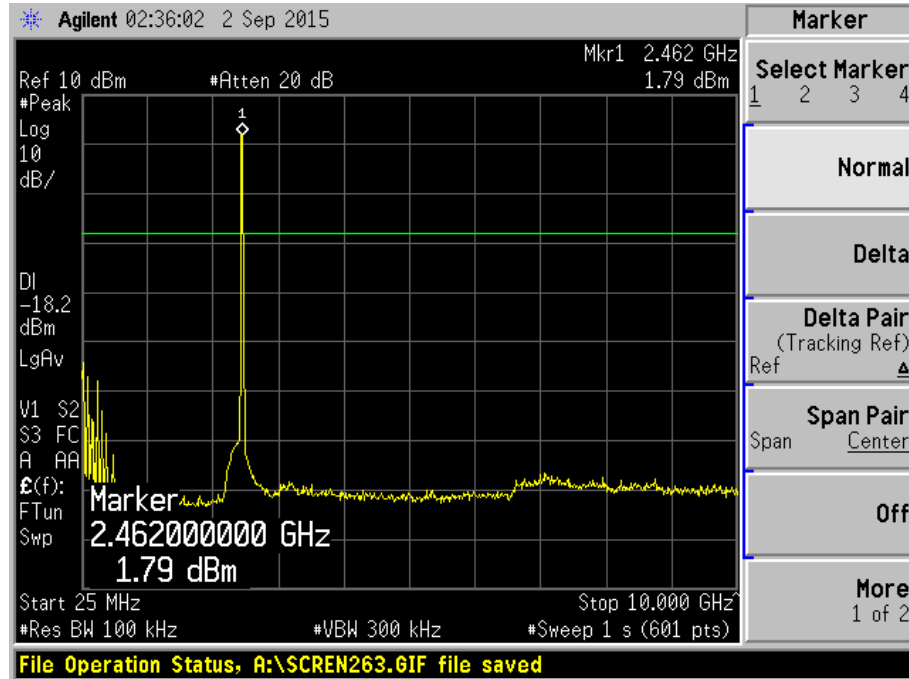
Plot 101 – Channel 11 (upper ch) @ BPSK 9Mbps



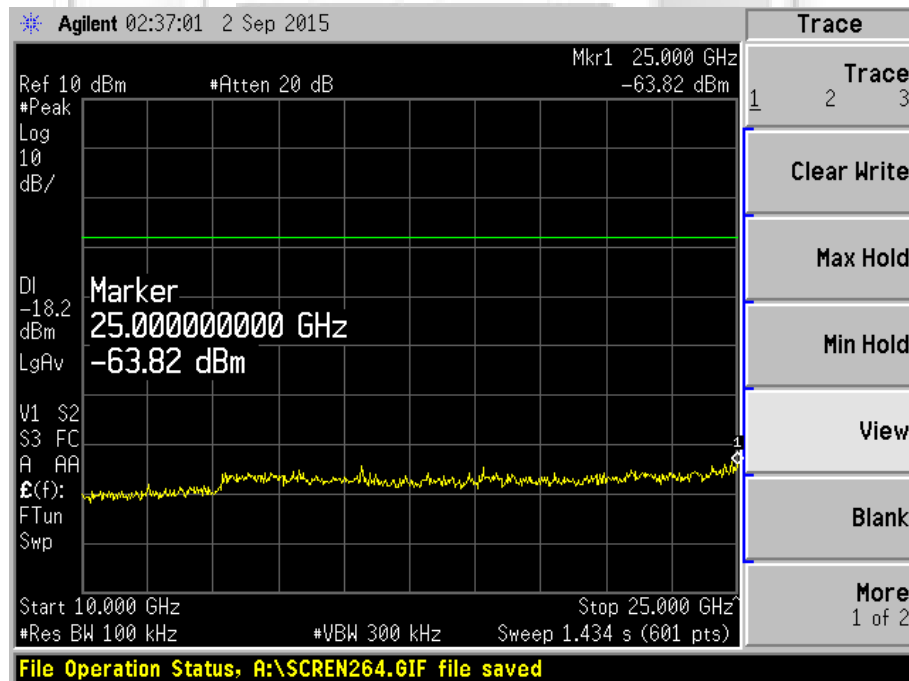
Plot 102 – Channel 11 (upper ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



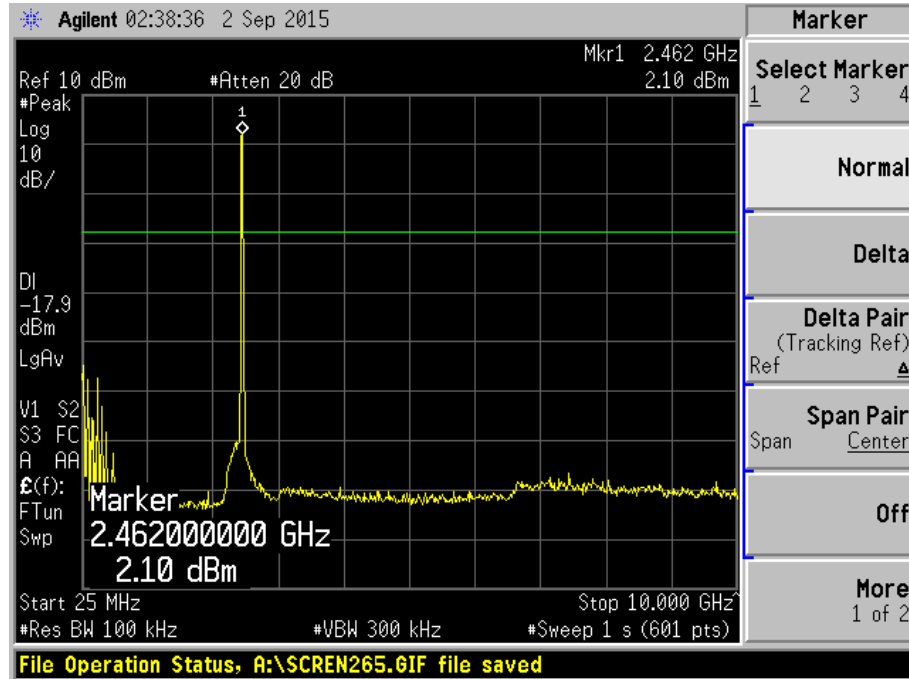
Plot 103 – Channel 11 (upper ch) @ QPSK 18Mbps



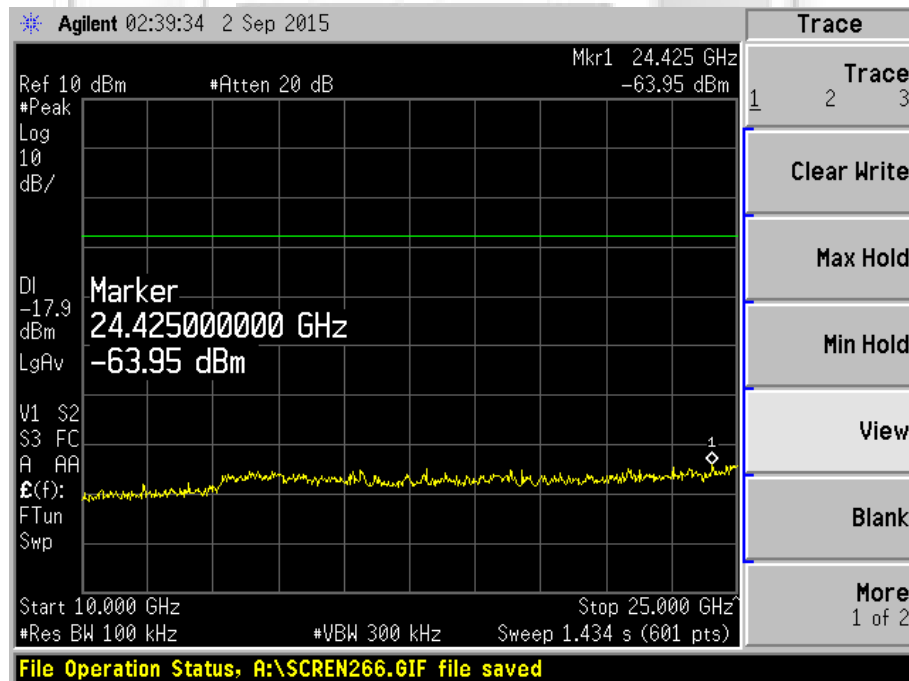
Plot 104 – Channel 11 (upper ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



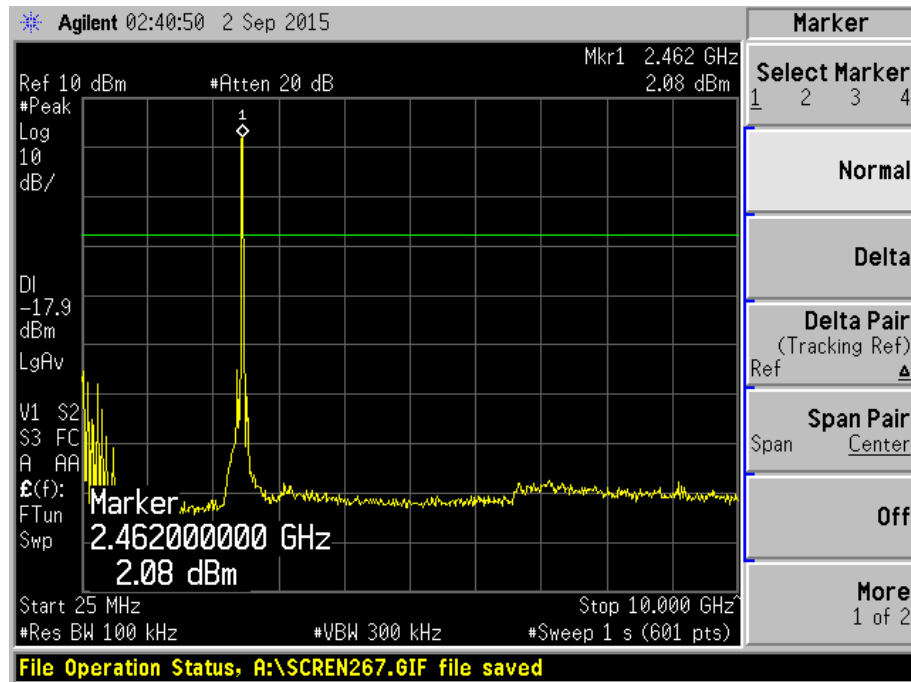
Plot 105 – Channel 11 (upper ch) @ 16QAM 36Mbps



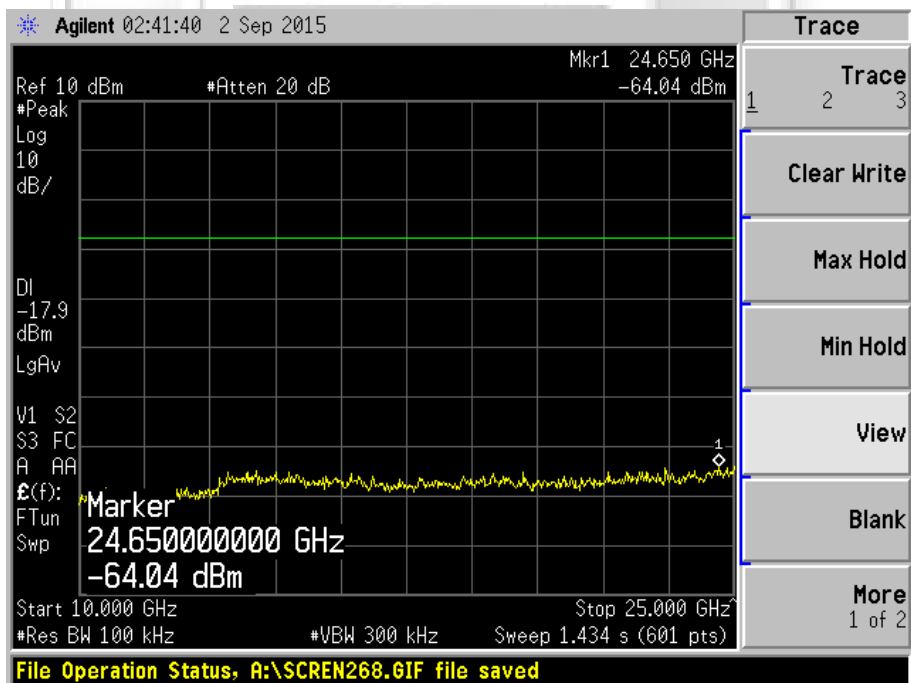
Plot 106 – Channel 11 (upper ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



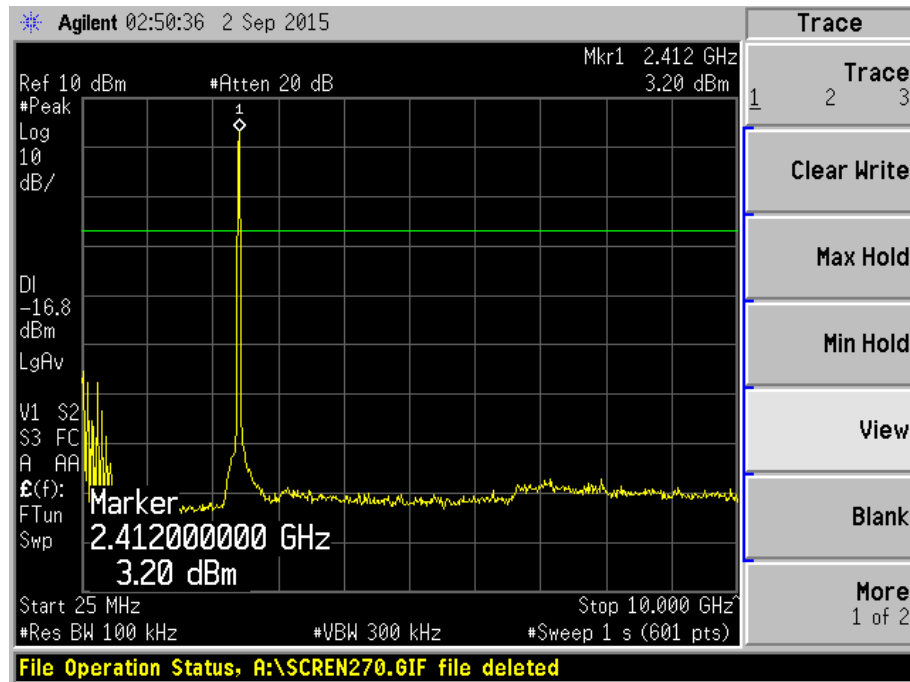
Plot 107 – Channel 11 (upper ch) @ 64QAM 54Mbps



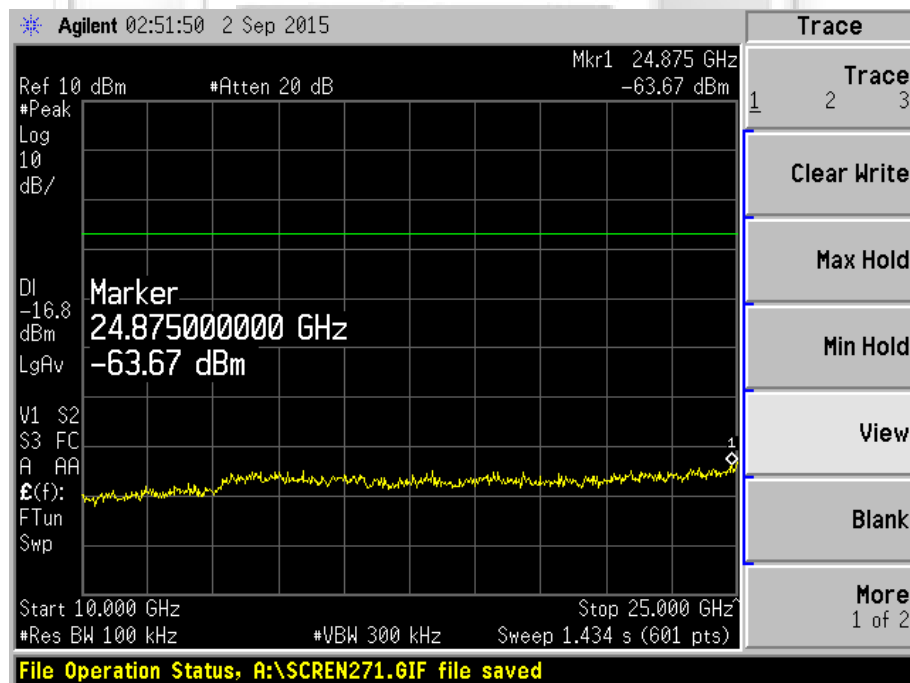
Plot 108 – Channel 11 (upper ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



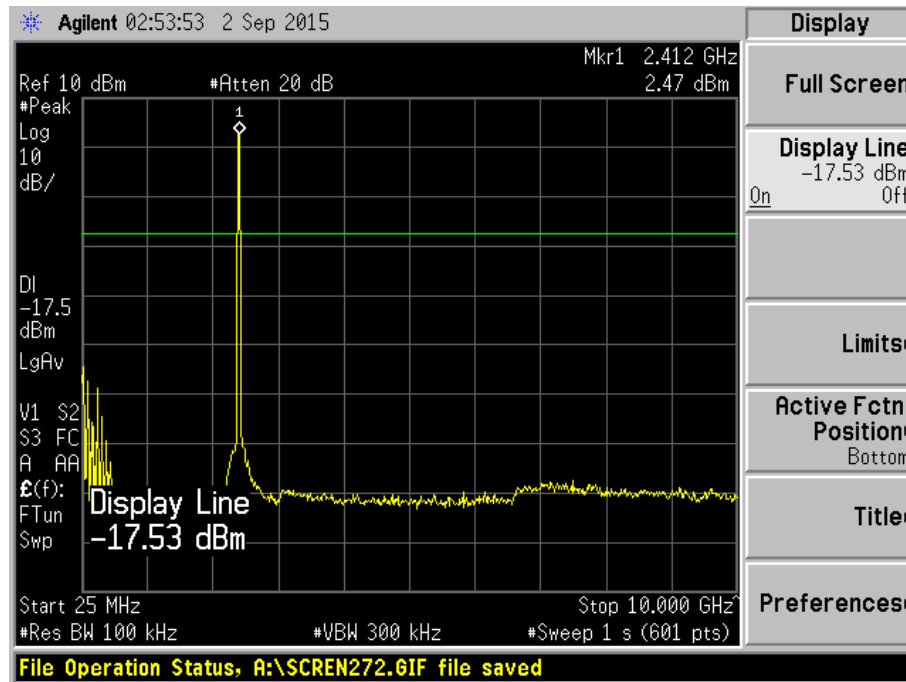
Plot 109 – Channel 1 (lower ch) @ BPSK 6.5Mbps



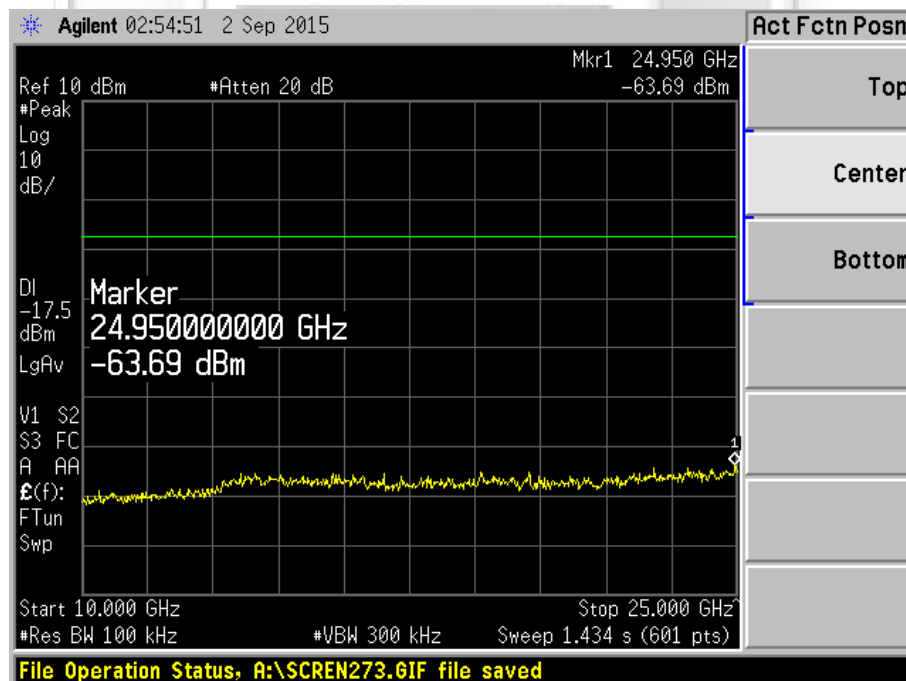
Plot 110 – Channel 1 (lower ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



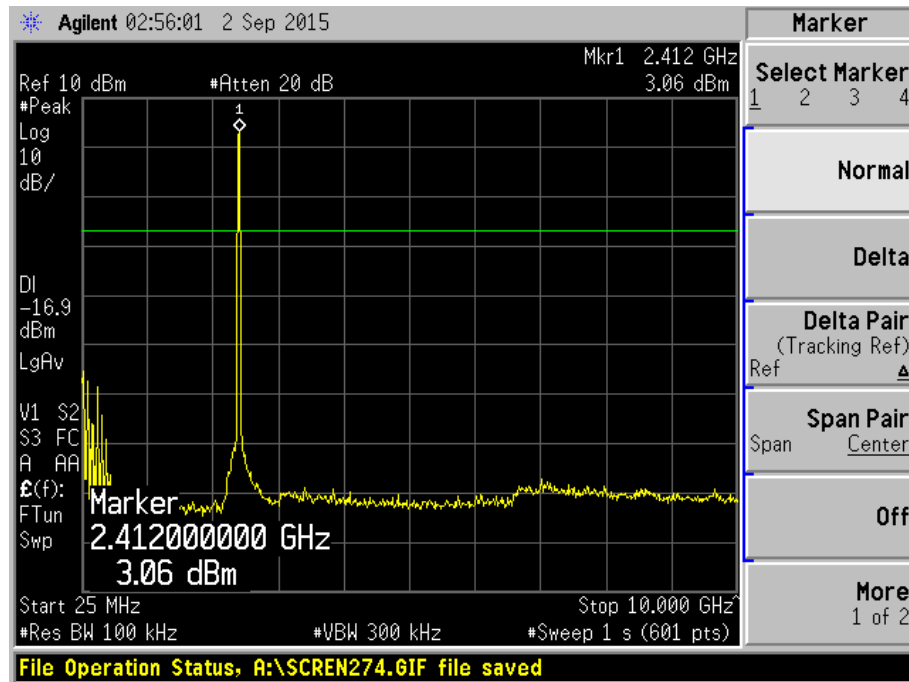
Plot 111 – Channel 1 (lower ch) @ QPSK 19.5Mbps



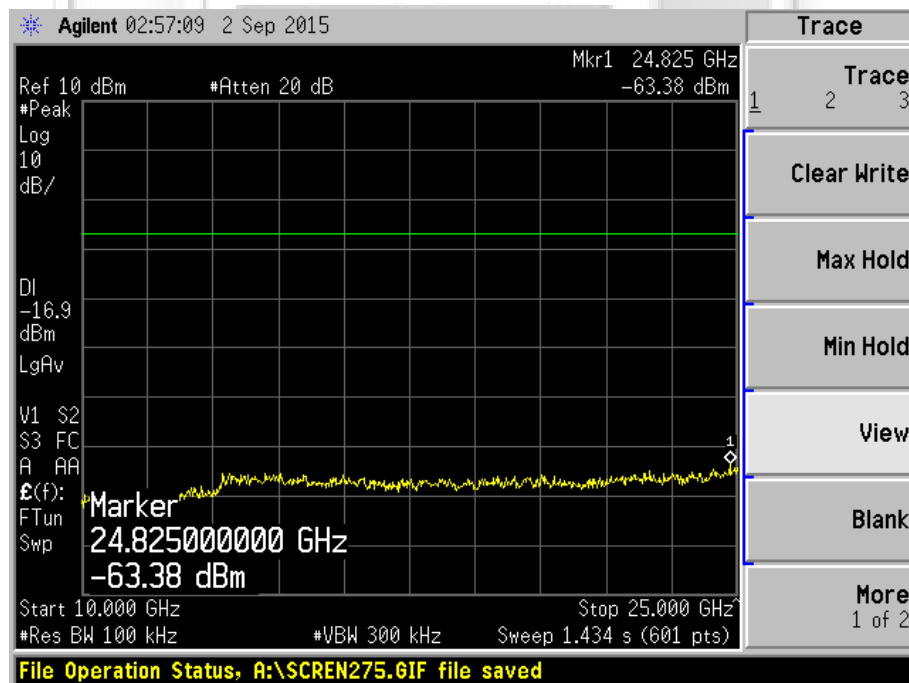
Plot 112 – Channel 1 (lower ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



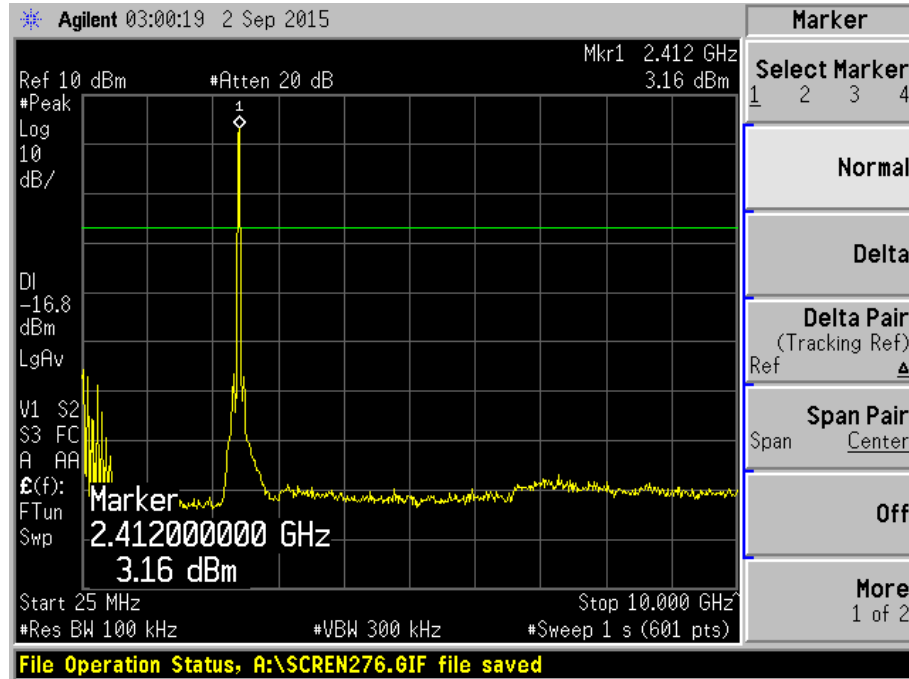
Plot 113 – Channel 1 (lower ch) @ 16QAM 39Mbps



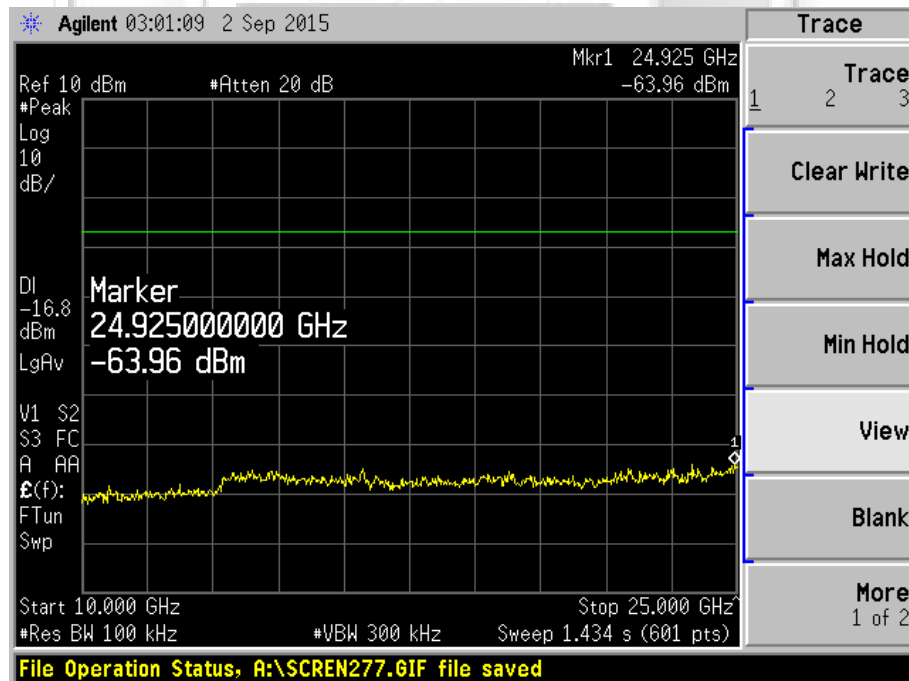
Plot 114 – Channel 1 (lower ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



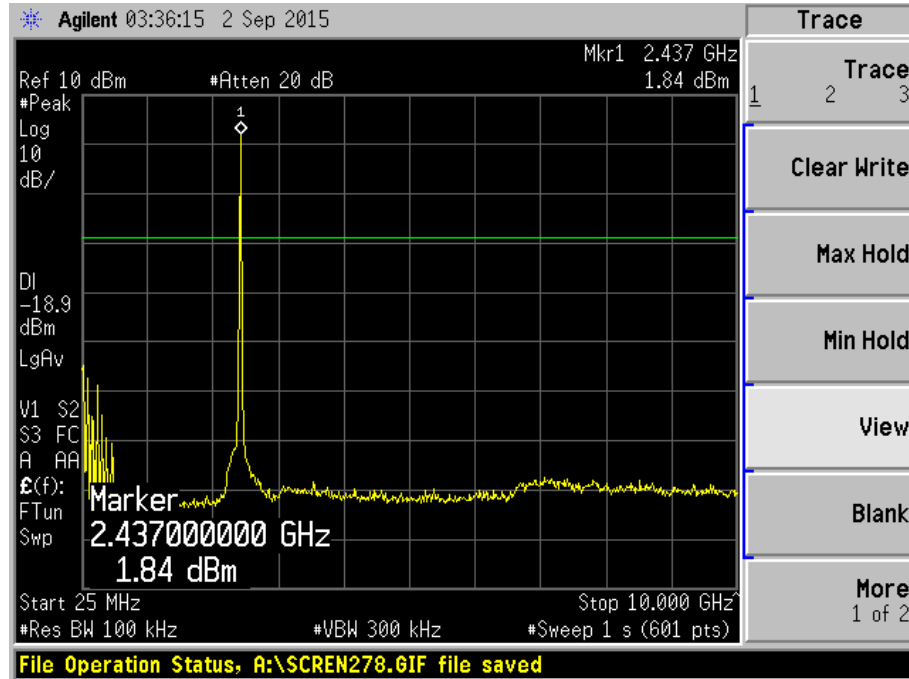
Plot 115 – Channel 1 (lower ch) @ 64QAM 65Mbps



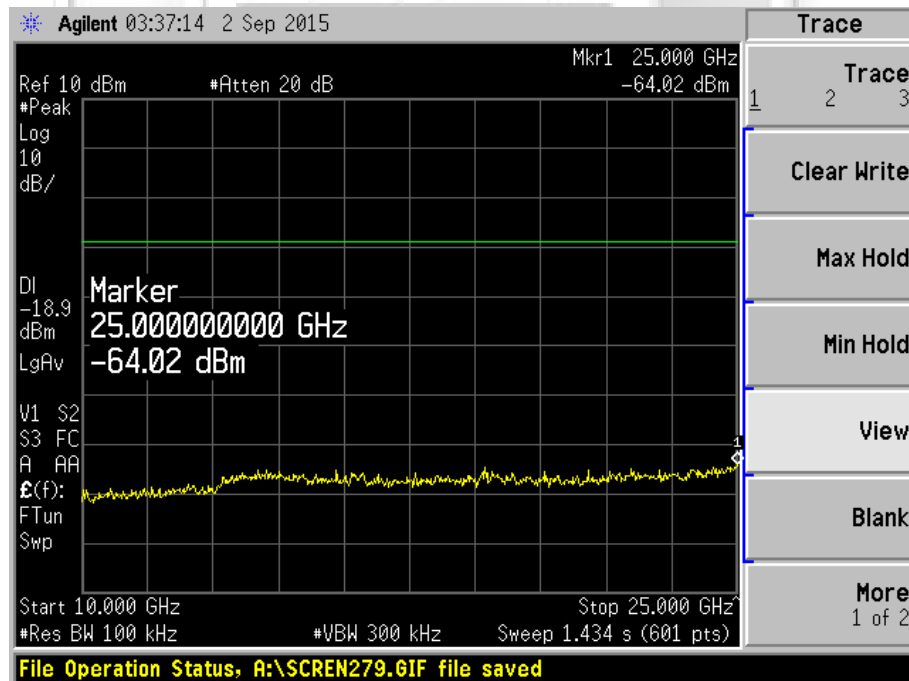
Plot 116 – Channel 1 (lower ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



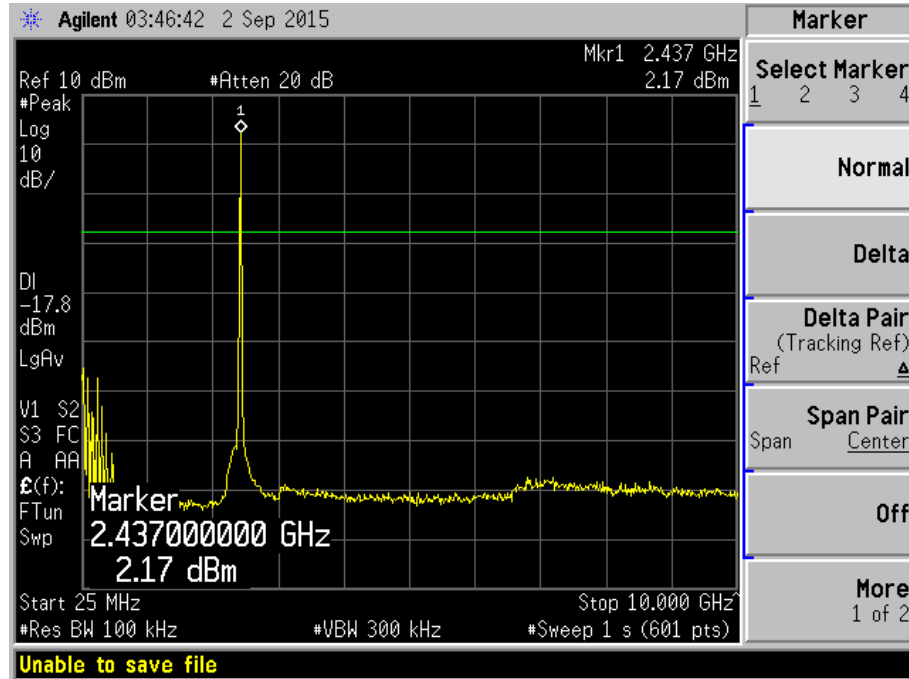
Plot 117 – Channel 6 (middle ch) @ BPSK 6.5Mbps



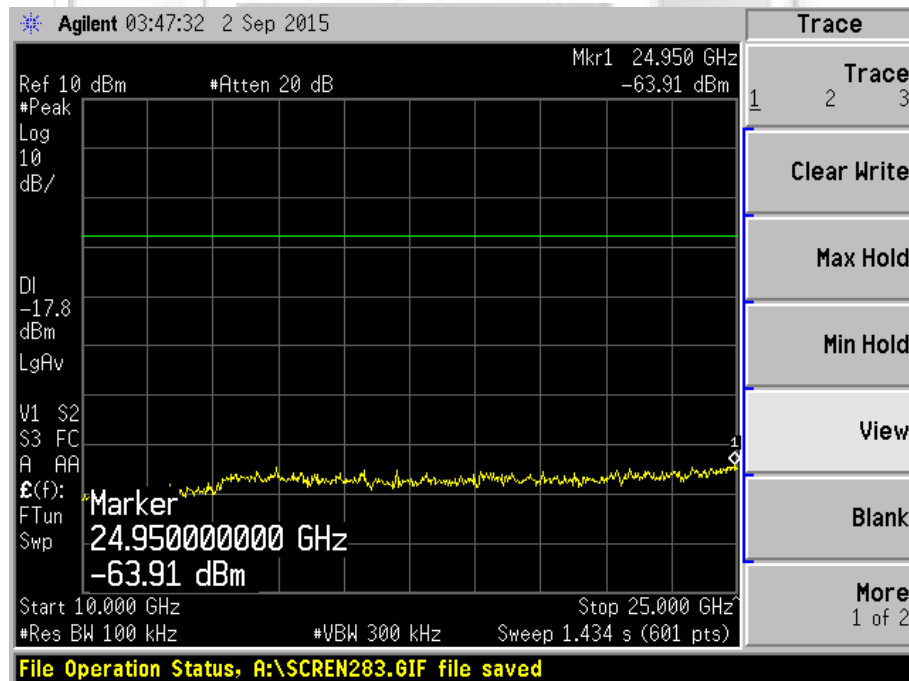
Plot 118 – Channel 6 (middle ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



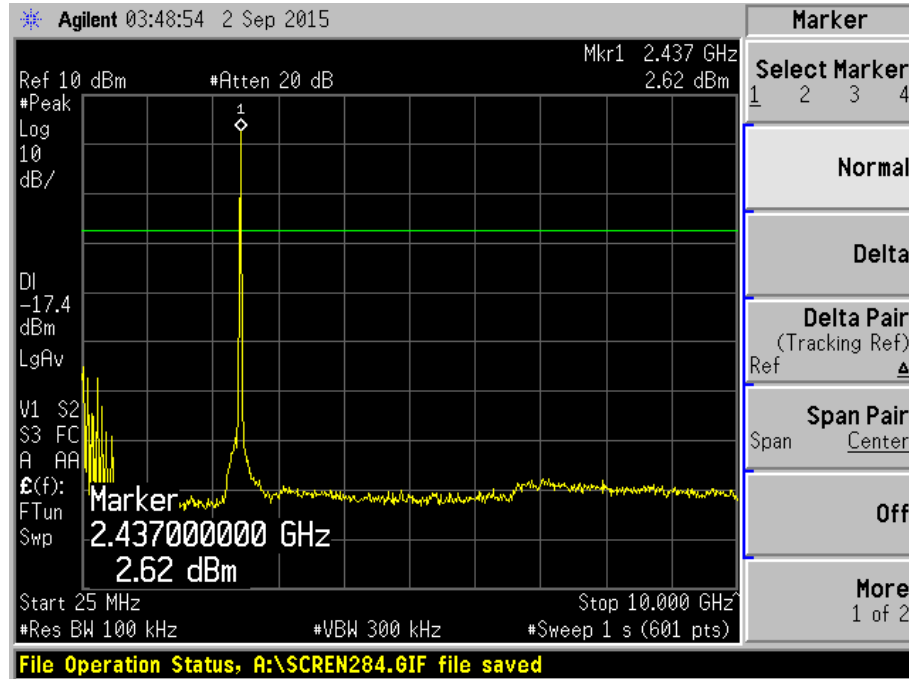
Plot 119 – Channel 6 (middle ch) @ QPSK 19.5Mbps



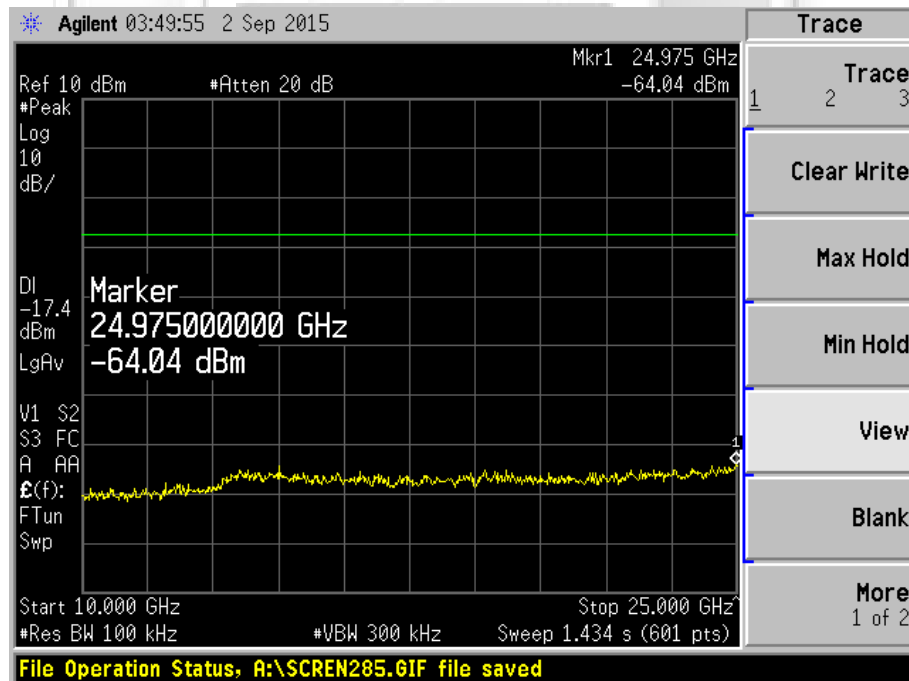
Plot 120 – Channel 6 (middle ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



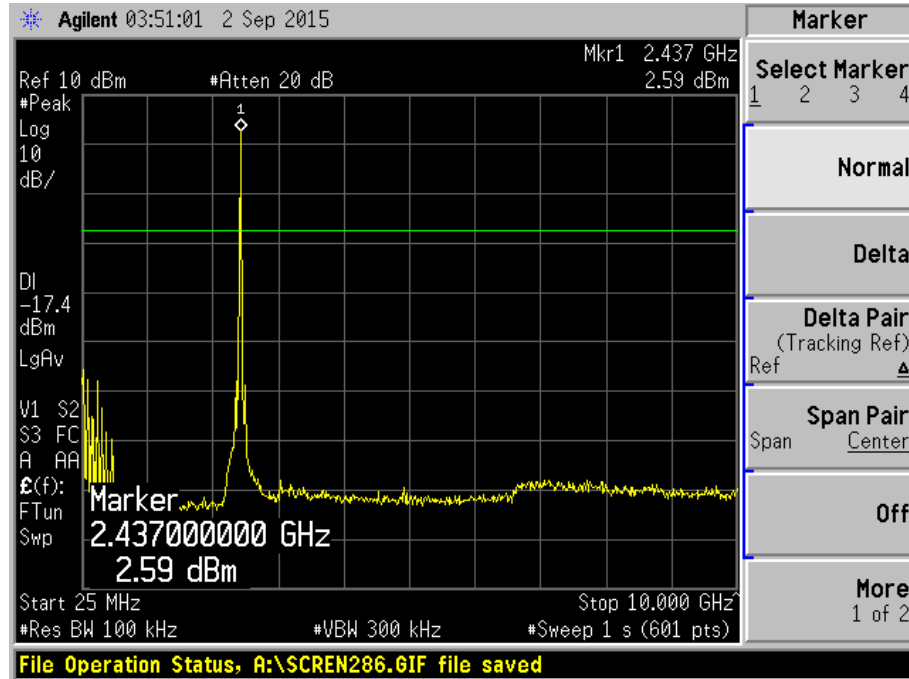
Plot 121 – Channel 6 (middle ch) @ 16QAM 39Mbps



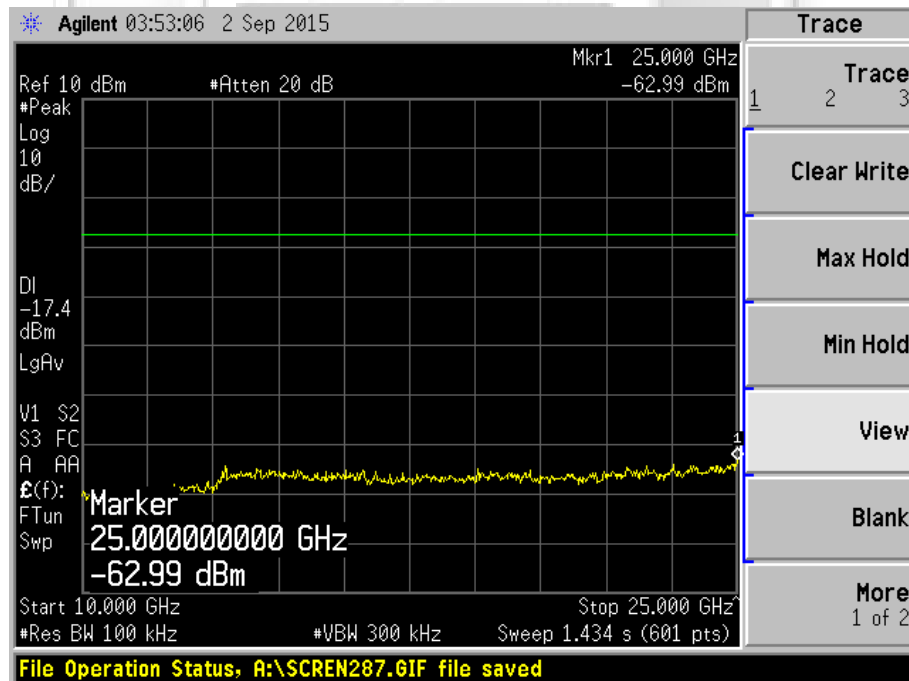
Plot 122 – Channel 6 (middle ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



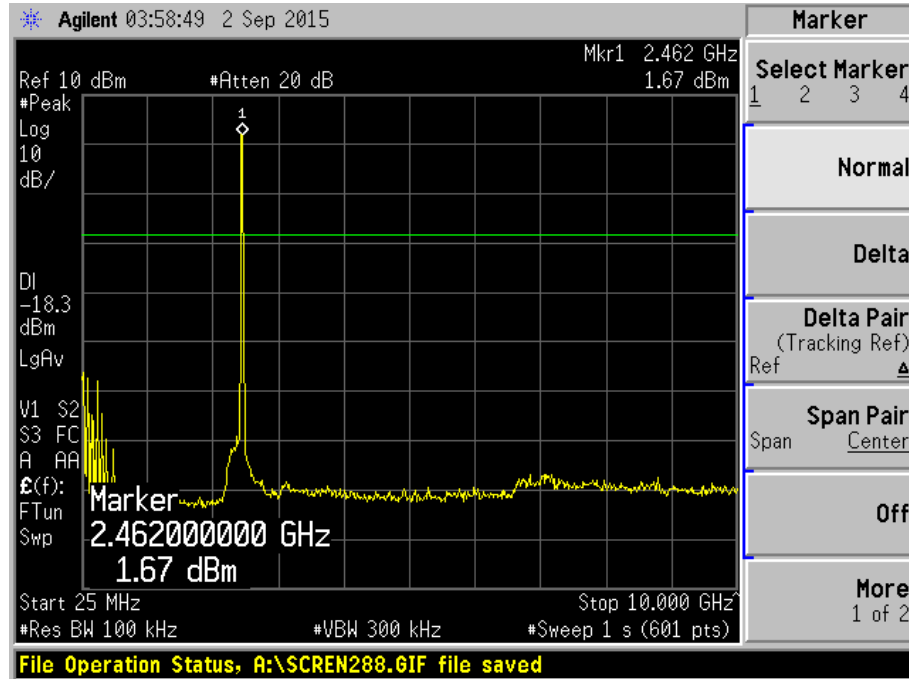
Plot 123 – Channel 6 (middle ch) @ 64QAM 65Mbps



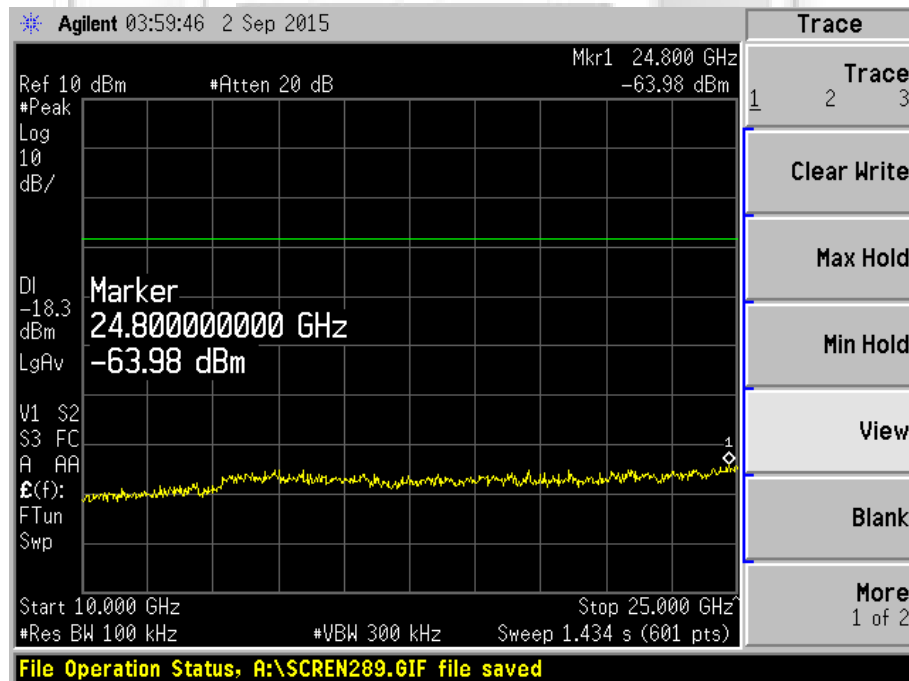
Plot 124 – Channel 6 (middle ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



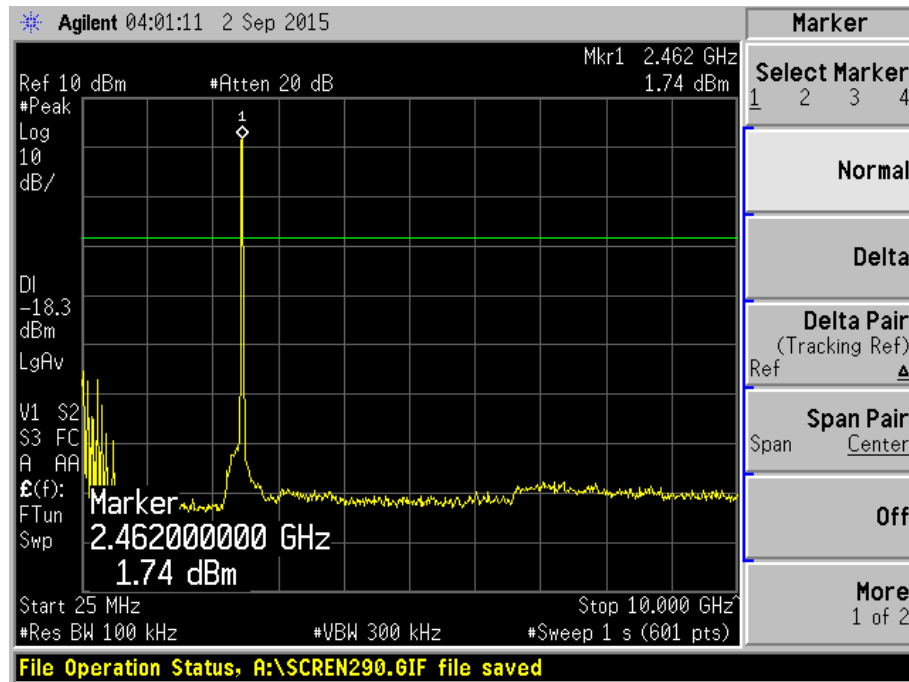
Plot 125 – Channel 11 (upper ch) @ BPSK 6.5Mbps



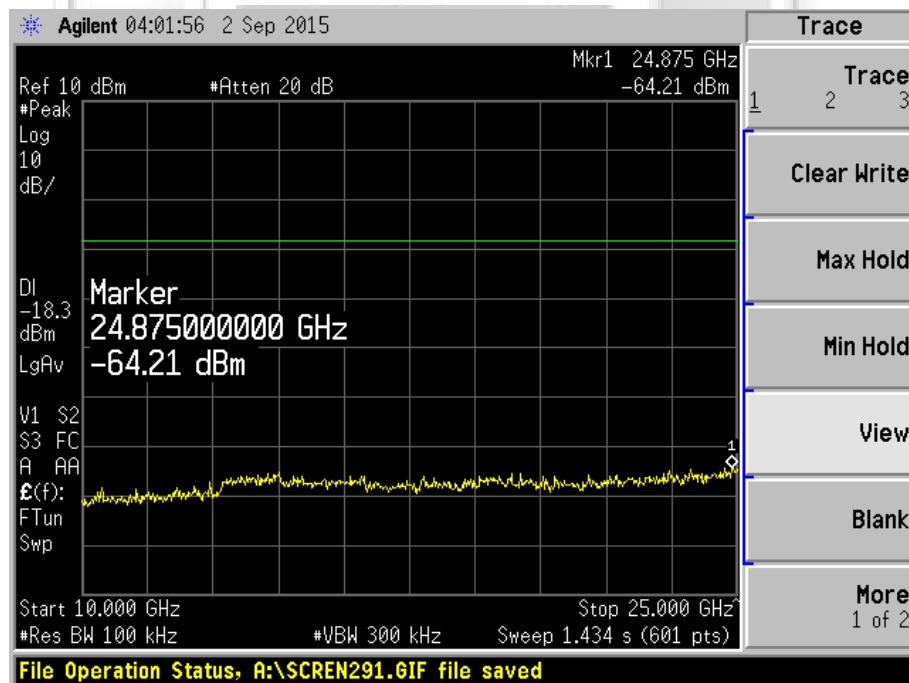
Plot 126 – Channel 11 (upper ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



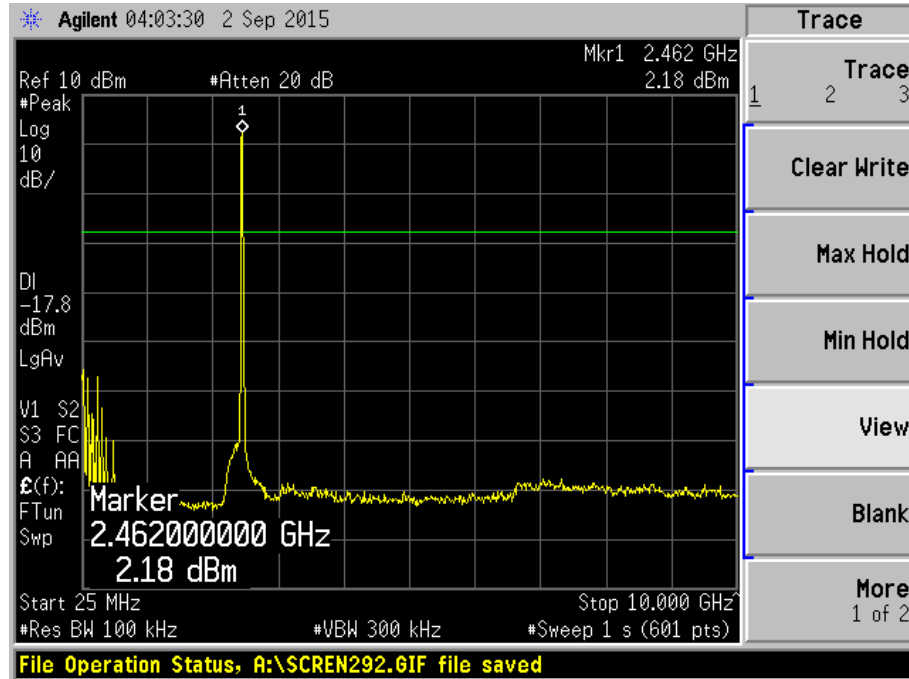
Plot 127 – Channel 11 (upper ch) @ QPSK 19.5Mbps



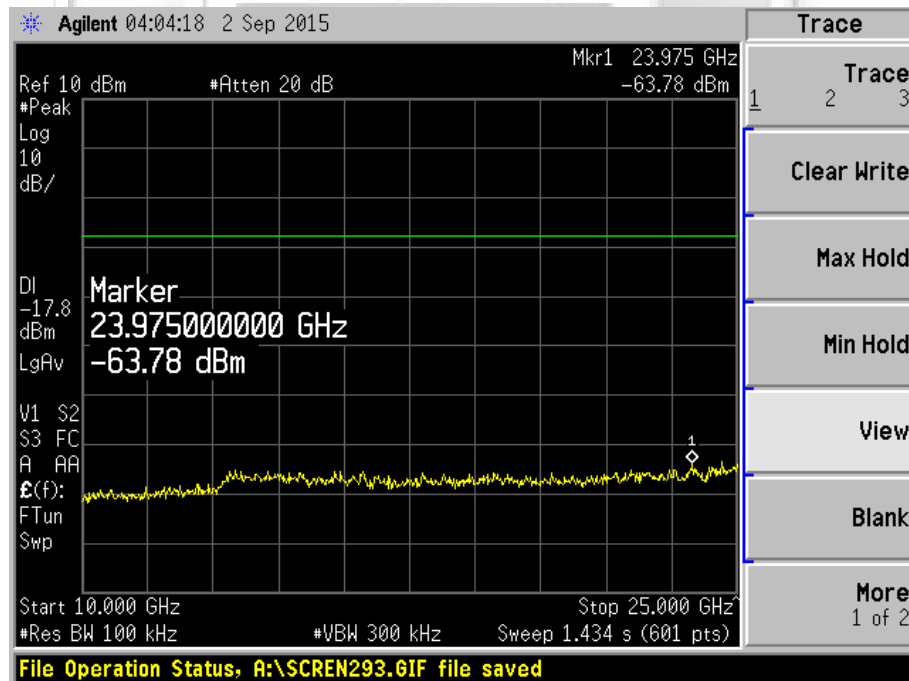
Plot 128 – Channel 11 (upper ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11n



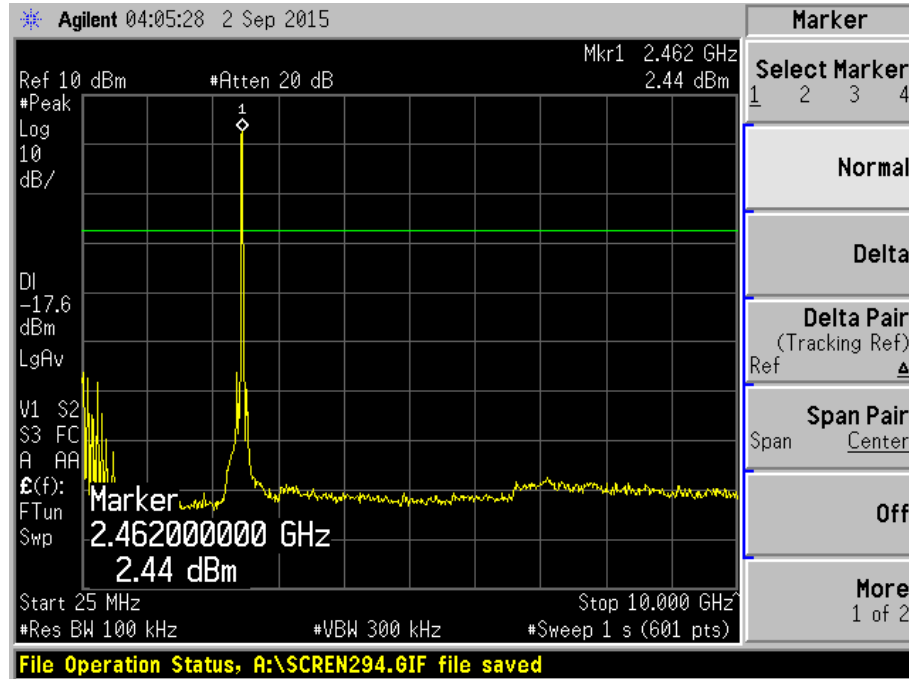
Plot 129 – Channel 11 (upper ch) @ 16QAM 65Mbps



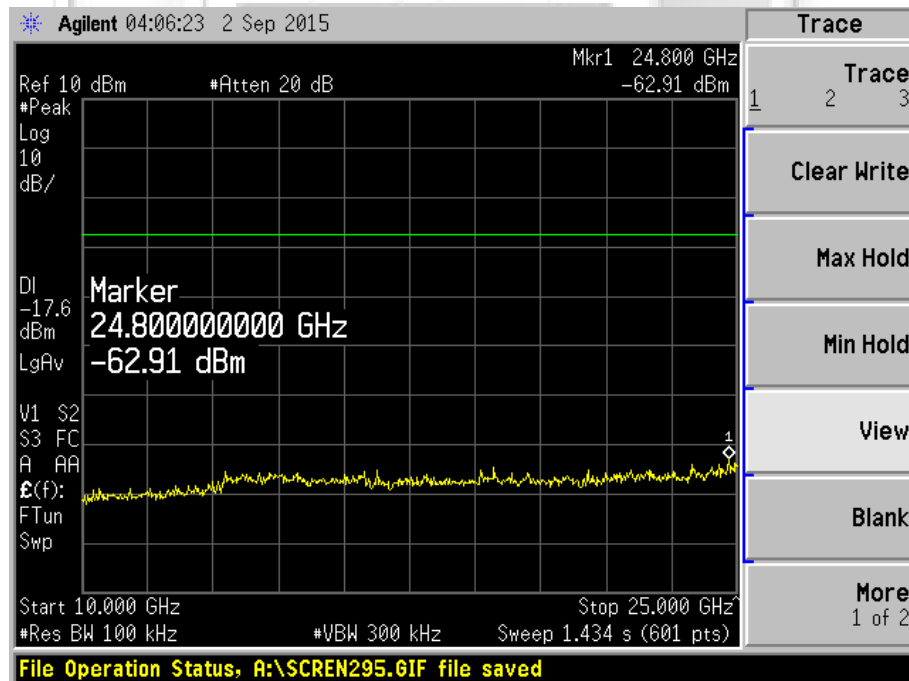
Plot 130 – Channel 11 (upper ch) @ 16QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



Plot 131 – Channel 11 (upper ch) @ 64QAM 54Mbps



Plot 132 – Channel 11 (upper ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

47 CFR FCC Part 15.205 and RSS-GEN 8.10 Restricted Bands

MHz			MHz			MHz			GHz		
0.090	-	0.110	16.42	-	16.423	399.9	-	410	4.5	-	5.15
0.495	-	0.505	16.69475	-	16.69525	608	-	614	5.35	-	5.46
2.1735	-	2.1905	16.80425	-	16.80475	960	-	1240	7.25	-	7.75
4.125	-	4.128	25.5	-	25.67	1300	-	1427	8.025	-	8.5
4.17725	-	4.17775	37.5	-	38.25	1435	-	1626.5	9.0	-	9.2
4.20725	-	4.20775	73	-	74.6	1645.5	-	1646.5	9.3	-	9.5
6.215	-	6.218	74.8	-	75.2	1660	-	1710	10.6	-	12.7
6.26775	-	6.26825	108	-	121.94	1718.8	-	1722.2	13.25	-	13.4
6.31175	-	6.31225	123	-	138	2200	-	2300	14.47	-	14.5
8.291	-	8.294	149.9	-	150.05	2310	-	2390	15.35	-	16.2
8.362	-	8.366	156.52475	-	156.52525	2483.5	-	2500	17.7	-	21.4
8.37625	-	8.38675	156.7	-	156.9	2690	-	2900	22.01	-	23.12
8.41425	-	8.41475	162.0125	-	167.17	3260	-	3267	23.6	-	24.0
12.29	-	12.293	167.72	-	173.2	3332	-	3339	31.2	-	31.8
12.51975	-	12.52025	240	-	285	3345.8	-	3358	36.43	-	36.5
12.57675	-	12.57725	322	-	335.4	3600	-	4400	Above 38.6		
13.36	-	13.41									

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Restricted Bands) Limits

The EUT shows compliance to the requirements of this section, which states that emissions which fall in the restricted bands must comply with the radiated emission limits specified in the table below:

Frequency Range (MHz)	EIRP (dBm)	Radiated Emissions (dBμV/m)
0.009 – 0.490	-6.7 – (-41.4) **	67.6 – 20logF* @ 300m **
0.490 – 1.705	-41.4 – (-52.3) **	87.6 – 20logF* @ 30m **
1.705 – 30	-45.7	29.5 @ 30m
30 - 88	-55.2	40.0 @ 3m
88 - 216	-51.7	43.5 @ 3m
216 - 960	-49.2	46.0 @ 3m
>960	-41.2 ***	54.0 @ 3m ***
* F is frequency in kHz.		
** Decreasing linearly with the logarithm of the frequency.		
*** Above 1GHz, a peak limit of 20dB above the average limit does apply.		

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Restricted Bands) Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E4440A	MY45304764	12 Dec 2015	1 year
Micro-tronics Bandstop Filter (2.4GHz)	BRM50701	017	13 Aug 2016	1 year

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Restricted Bands) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) of the spectrum analyser was set to the following settings. The video bandwidth (VBW) was set to at least three times of the RBW.

Frequency (MHz)	RBW (kHz)
0.009 – 0.150	0.2
0.150 – 30.0	9.0
30.0 - 1000	100.0
> 1000	1000.0

5. The detector of the spectrum analyser was set to peak detection mode.
6. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Restricted Bands) Test Method

1. Measurement in the range 9kHz – 1000MHz
 - 1.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
 - 1.2 The start and stop frequencies of the spectrum analyser were set according to the supported RBW.
 - 1.3 The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
 - 1.4 No further measurement was required if all the captured emissions complied to the limits. Else, the spectrum analyser was set to zoom to the captured emission with the detector of the spectrum analyser was set to quasi-peak. The emission level of the captured frequency was measured.
 - 1.5 The step 1.4 was repeated until all the captured emissions which exceeding the limits were measured.
 - 1.6 Repeat steps 1.1 to 1.5 with all possible modulations and data rates.
 - 1.7 The steps 1.2 to 1.6 were repeated with the transmitting frequency was set to middle and upper channel respectively.
2. Measurement above 1000MHz
 - 2.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
 - 2.2 The start and stop frequencies of the spectrum analyser were set according to the supported frequency band of the set RBW with the number of points in a sweep was set to equal or greater than 2 times of the ratio of span over RBW.
 - 2.3 The detector of the spectrum analyser was set to power average (RMS) mode with the sweep time was set to equal or greater than 10 times of the product of number of measurement points in a sweep and transmission symbol time.
 - 2.4 The spectrum analyser was then allowed to capture any spurious emissions within a single sweep. The peak marker function of the spectrum analyser was used to locate the highest power level.
 - 2.5 The steps 2.2 to 2.4 were repeated until all the required frequency bands were measured.
 - 2.6 Repeat steps 2.1 to 2.5 with all possible modulations and data rates.
 - 2.7 The steps 2.2 to 2.6 were repeated with the transmitting frequency was set to middle and upper channel respectively.
 - 2.8 The measurements were repeated with the detector of the spectrum analyser was set to peak detecting mode. The sweep time was set to auto coupler.

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

**47 CFR FCC Part 15.247(d) and RSS-247 5.5 RF Conducted Spurious Emissions (Restricted Bands)
Results**

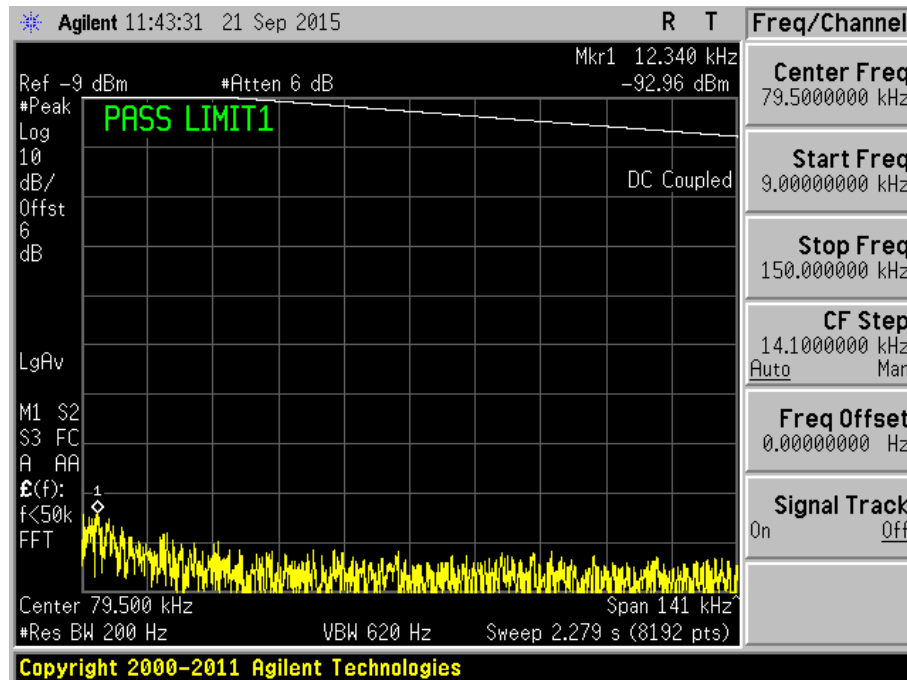
Test Input Power	120V 60Hz	Temperature	24°C
Attached Plots	133 – 186 (802.11b) 187 – 258 (802.11g) 259 – 330 (802.11n)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

All spurious signals found were below the specified limit. Please refer to the attached plots.

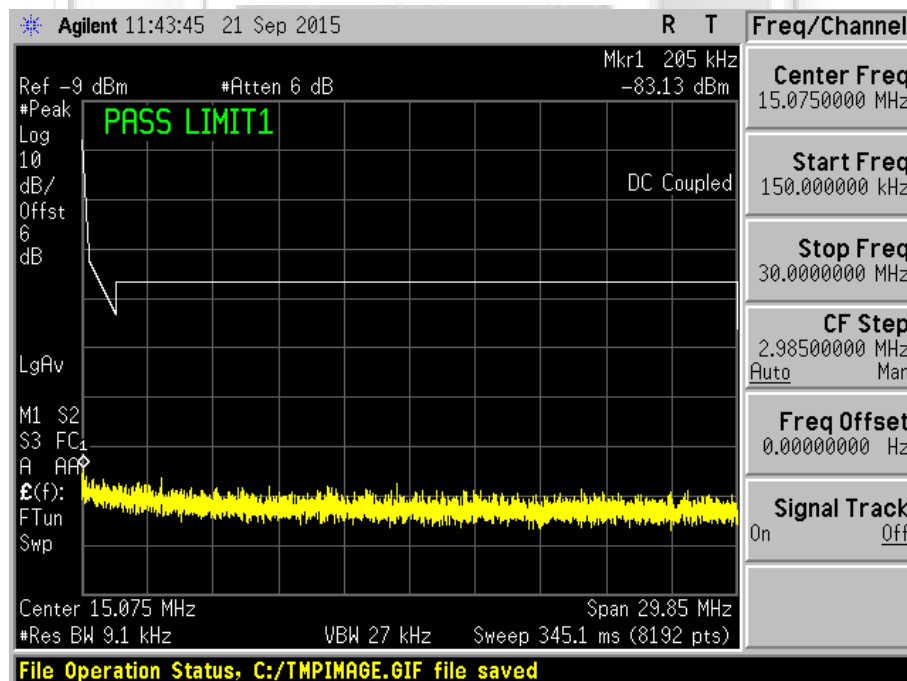


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



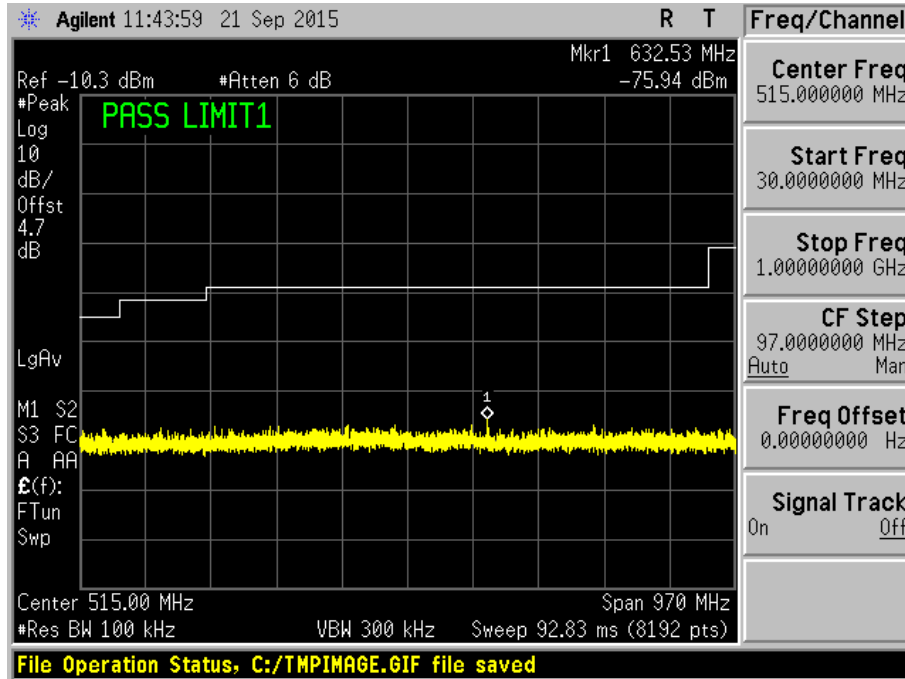
Plot 133 – Channel 1 (lower ch) @ DBPSK 1Mbps



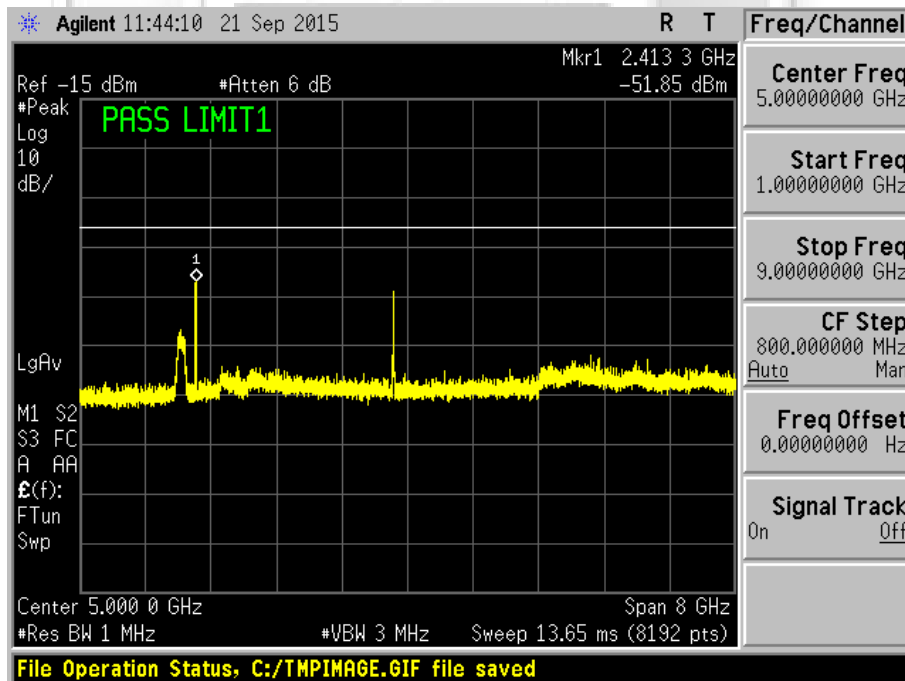
Plot 134 – Channel 1 (lower ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



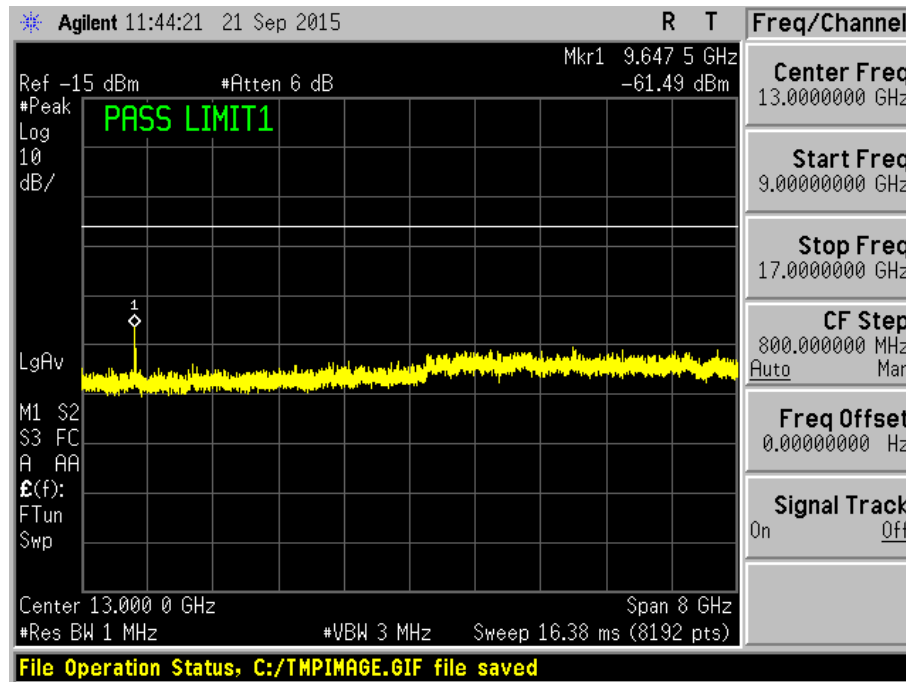
Plot 135 – Channel 1 (lower ch) @ DBPSK 1Mbps



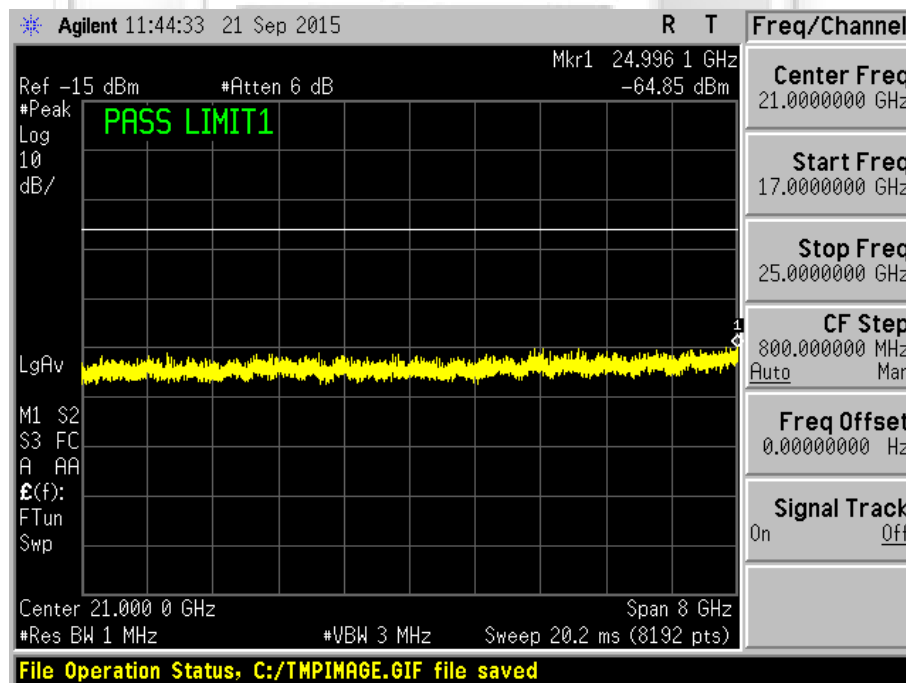
Plot 136 – Channel 1 (lower ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



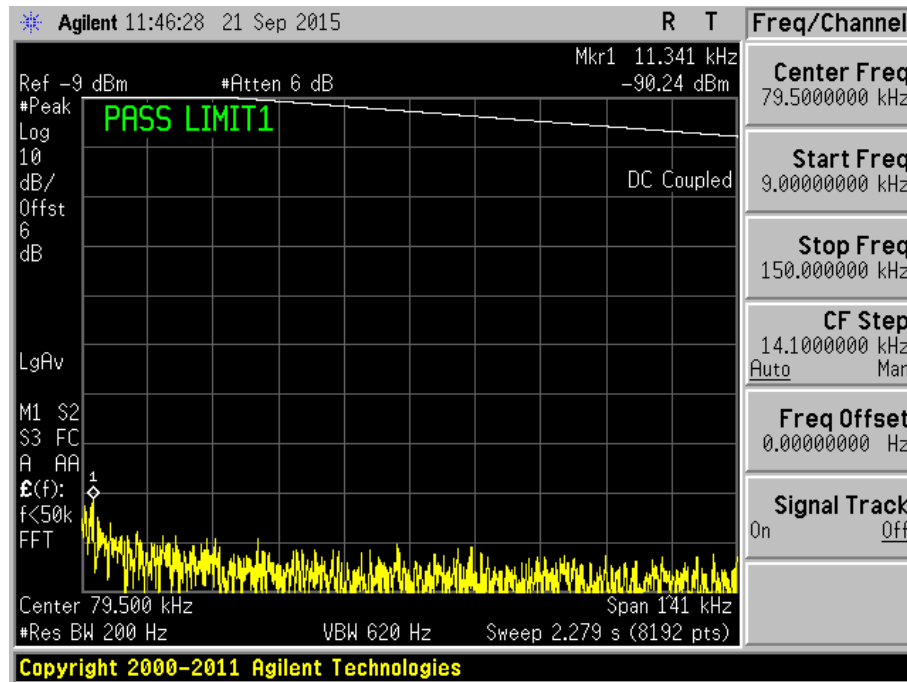
Plot 137 – Channel 1 (lower ch) @ DBPSK 1Mbps



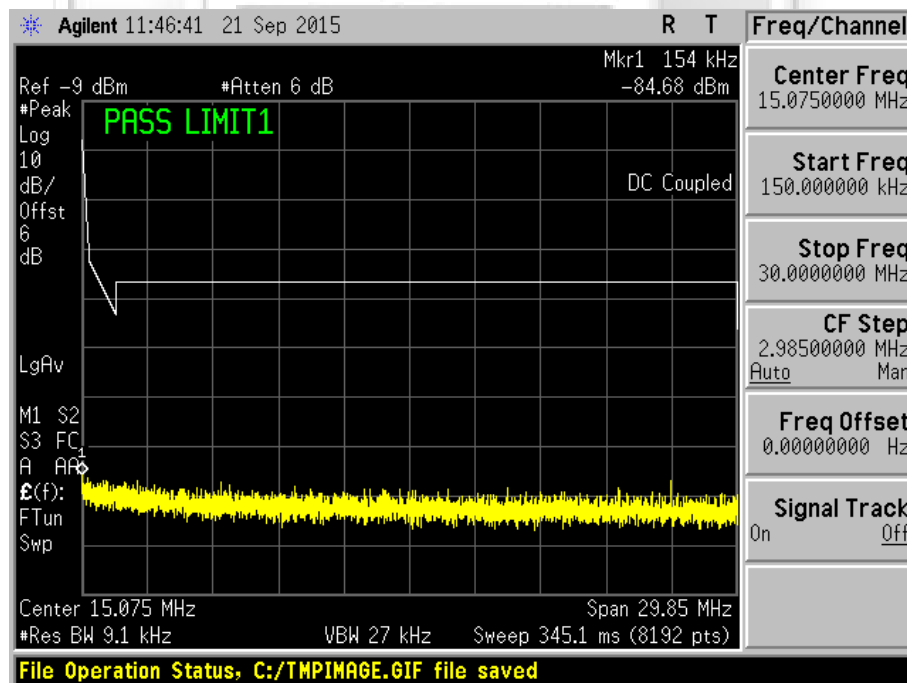
Plot 138 – Channel 1 (lower ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



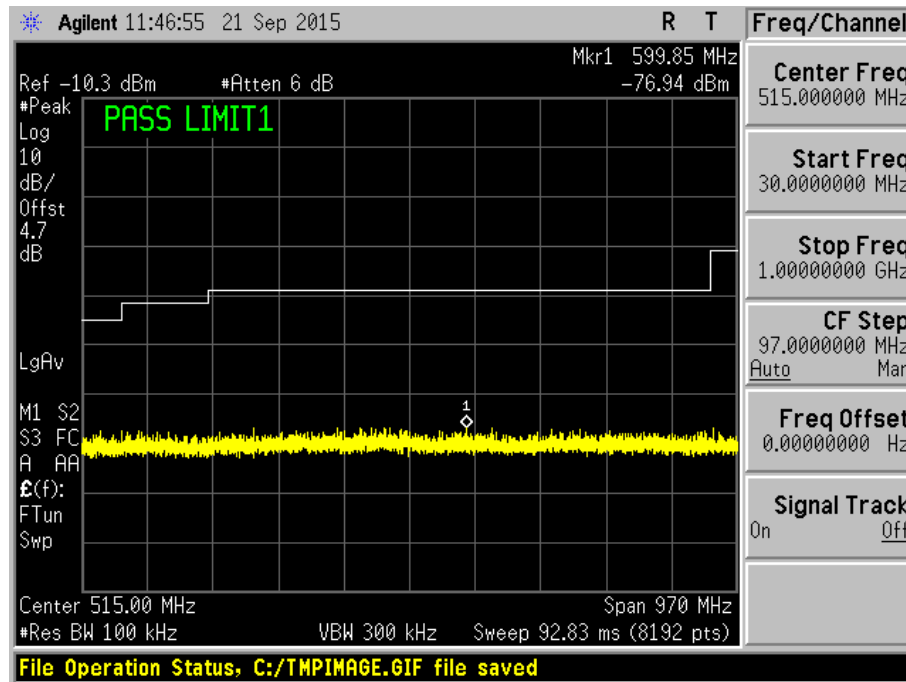
Plot 139 – Channel 1 (lower ch) @ DQPSK 2Mbps



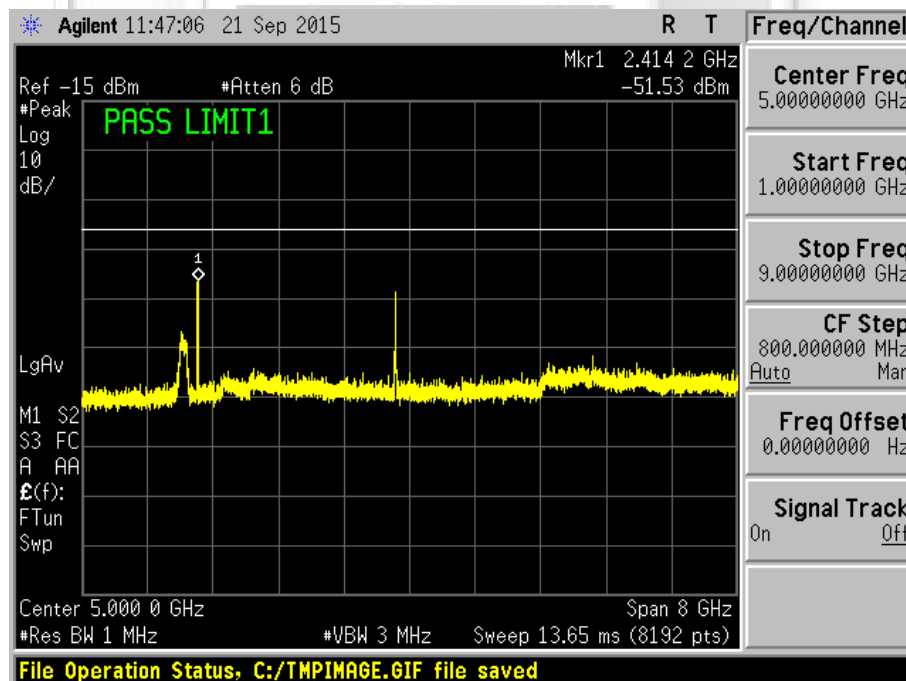
Plot 140 – Channel 1 (lower ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



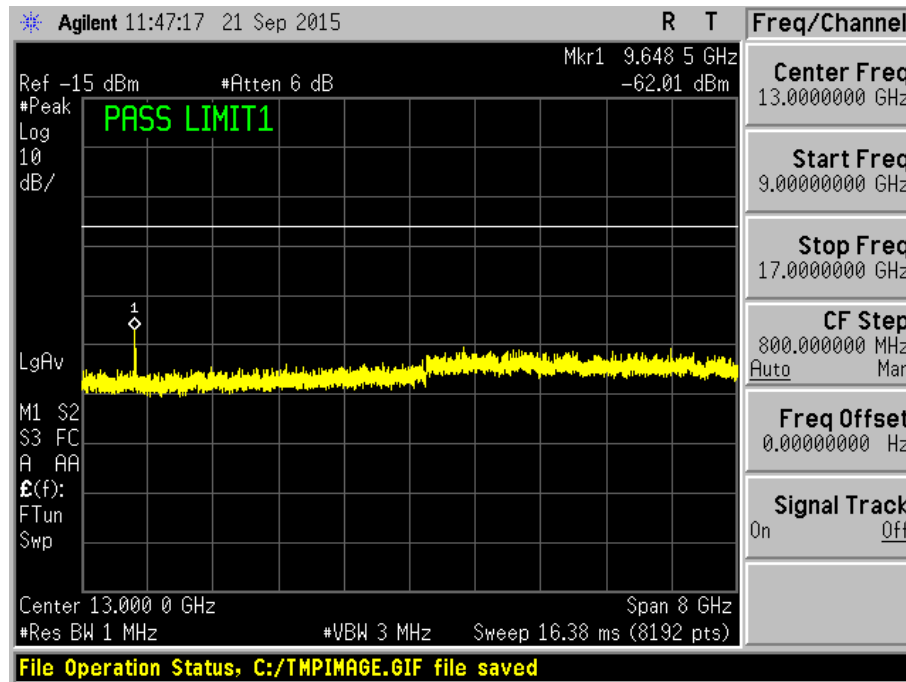
Plot 141 – Channel 1 (lower ch) @ DQPSK 2Mbps



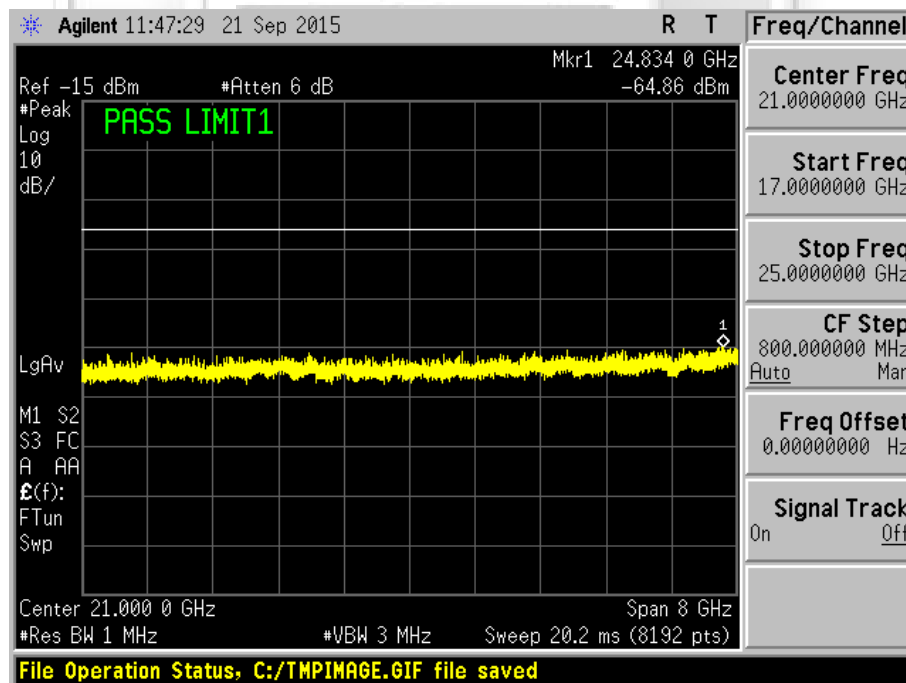
Plot 142 – Channel 1 (lower ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



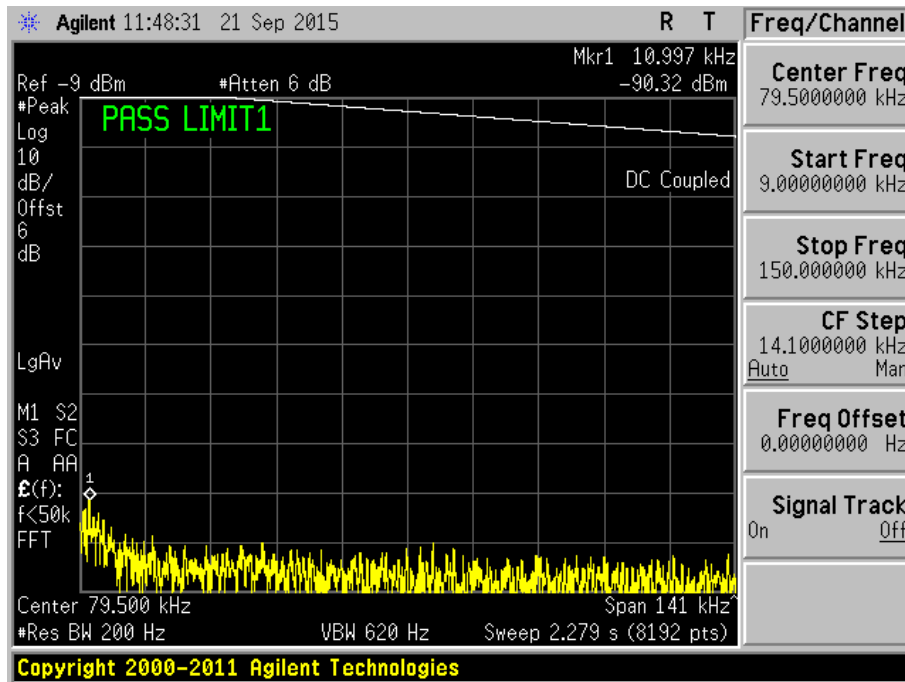
Plot 143 – Channel 1 (lower ch) @ DQPSK 2Mbps



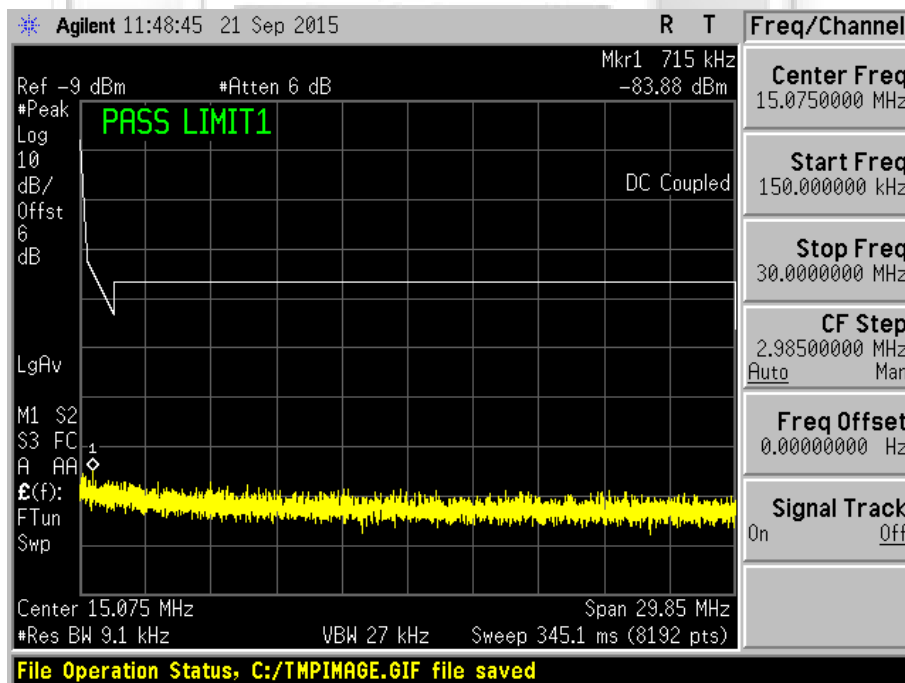
Plot 144 – Channel 1 (lower ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



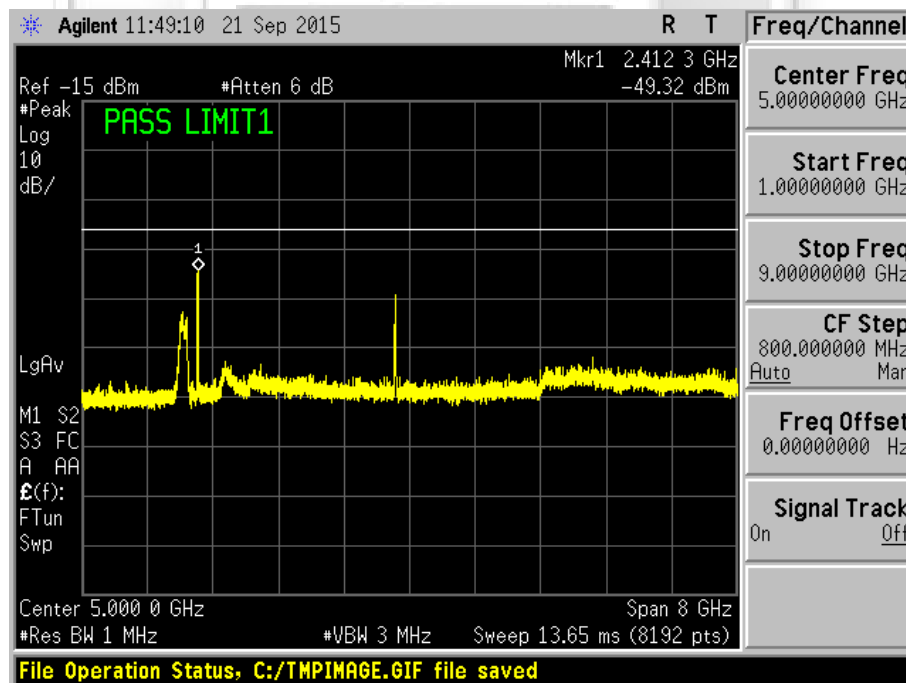
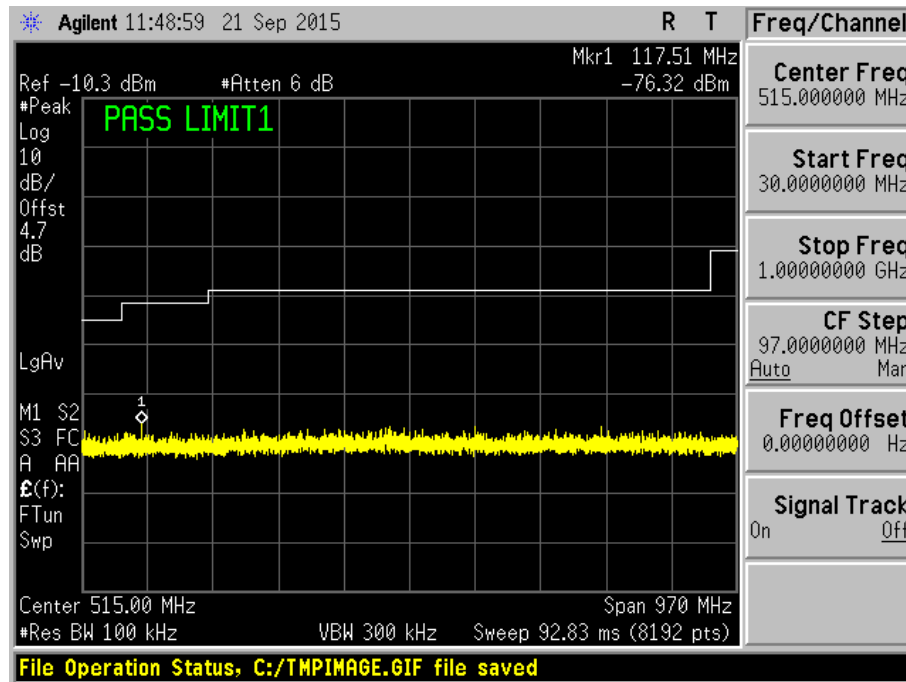
Plot 145 – Channel 1 (lower ch) @ CCK 11Mbps



Plot 146 – Channel 1 (lower ch) @ CCK 11Mbps

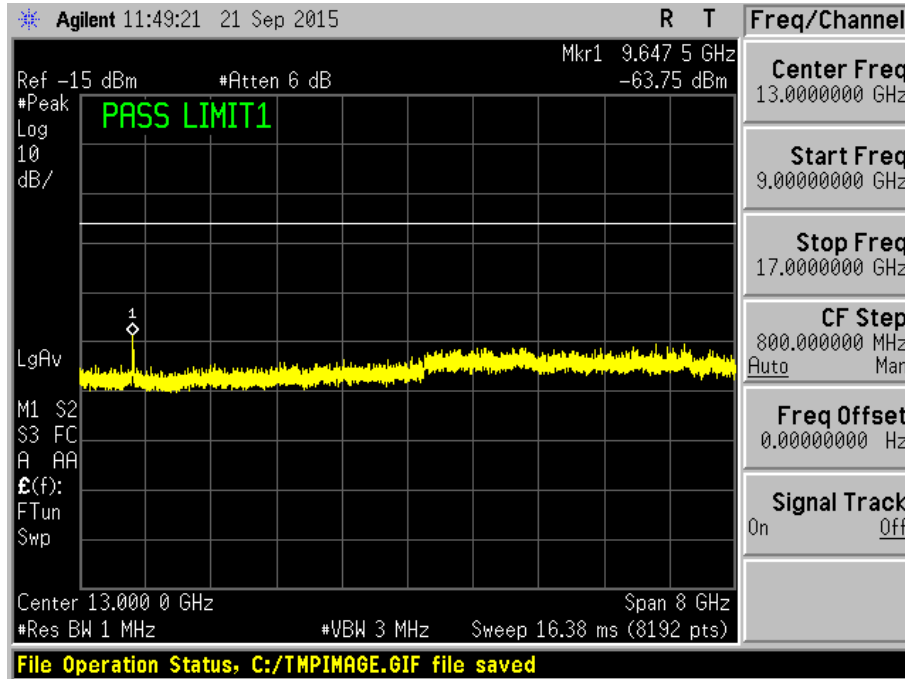
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b

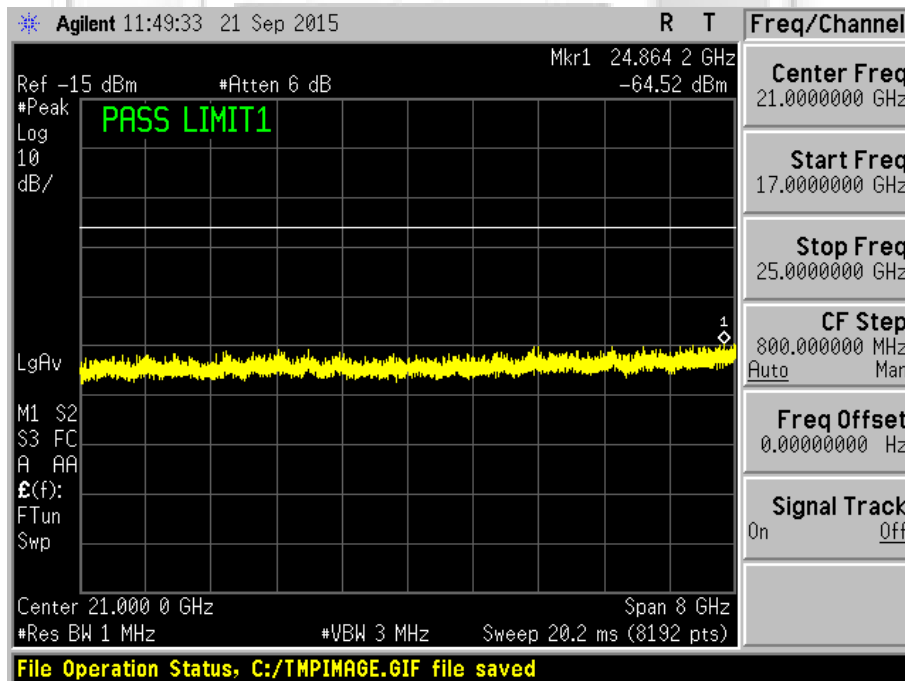


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



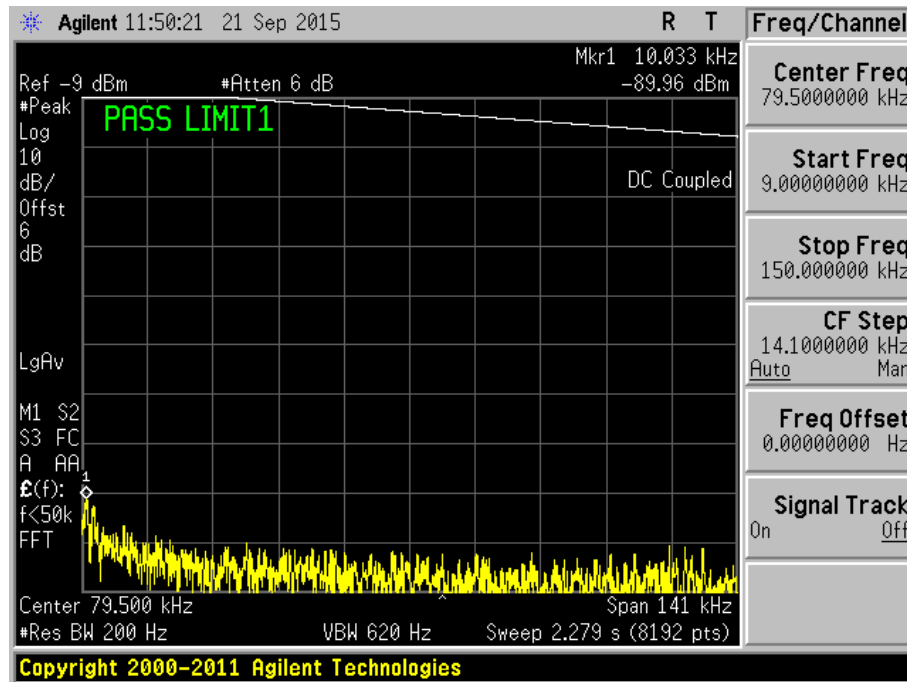
Plot 149 – Channel 1 (lower ch) @ CCK 11Mbps



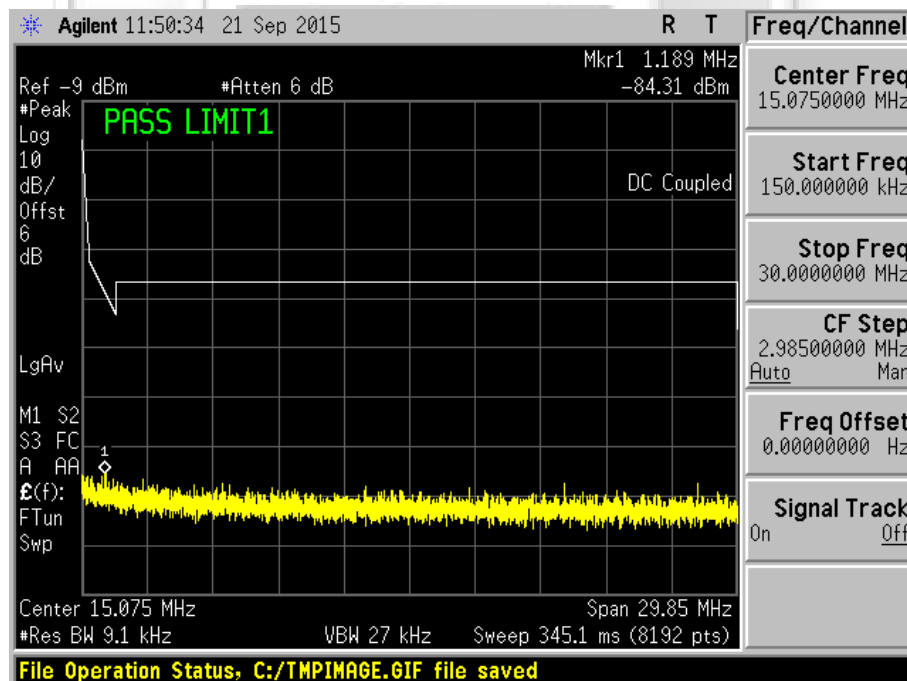
Plot 150 – Channel 1 (lower ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



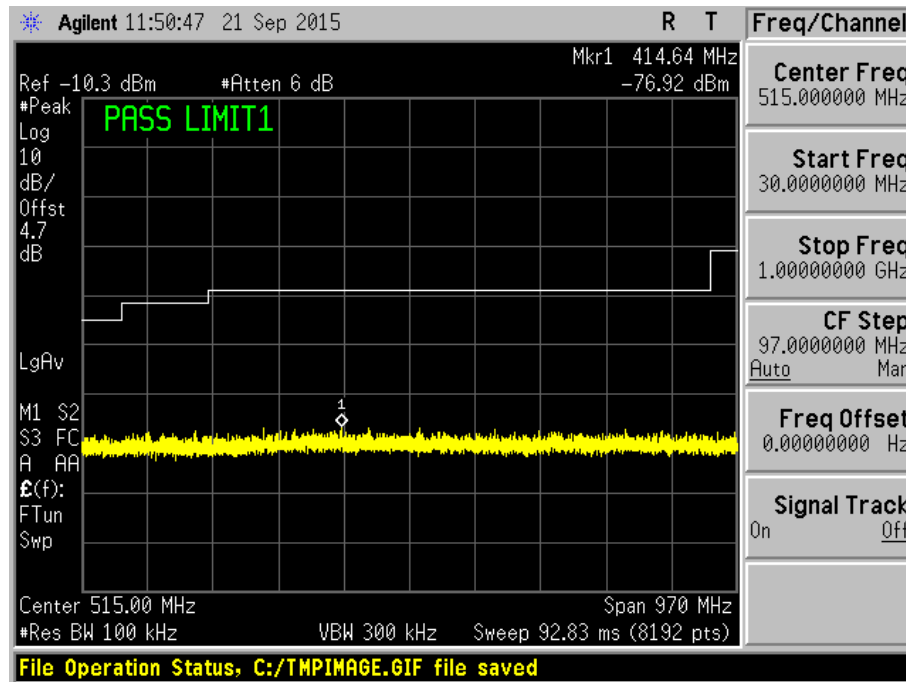
Plot 151 – Channel 6 (middle ch) @ DBPSK 1Mbps



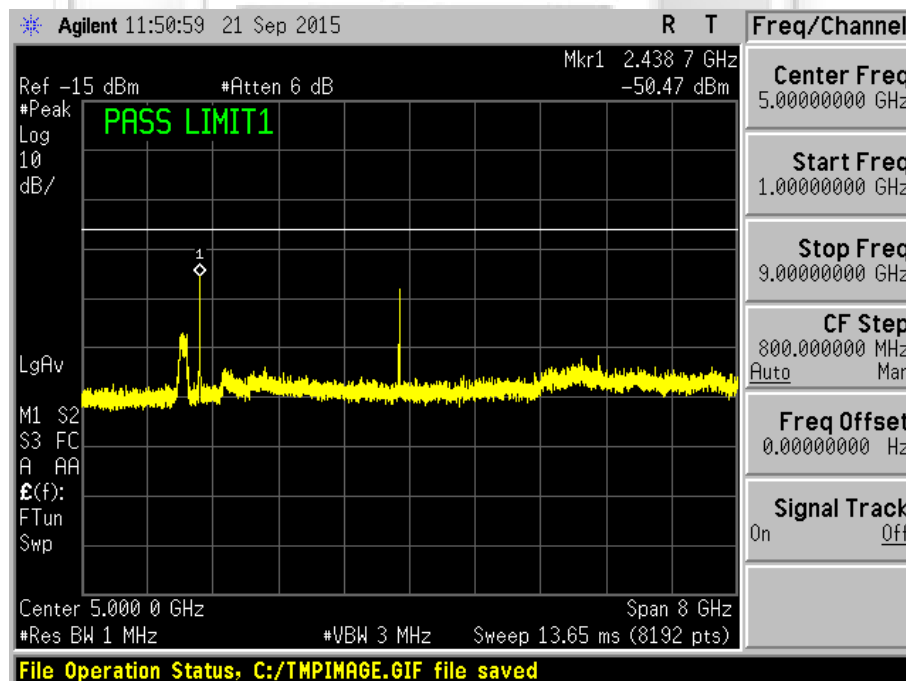
Plot 152 – Channel 6 (middle ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



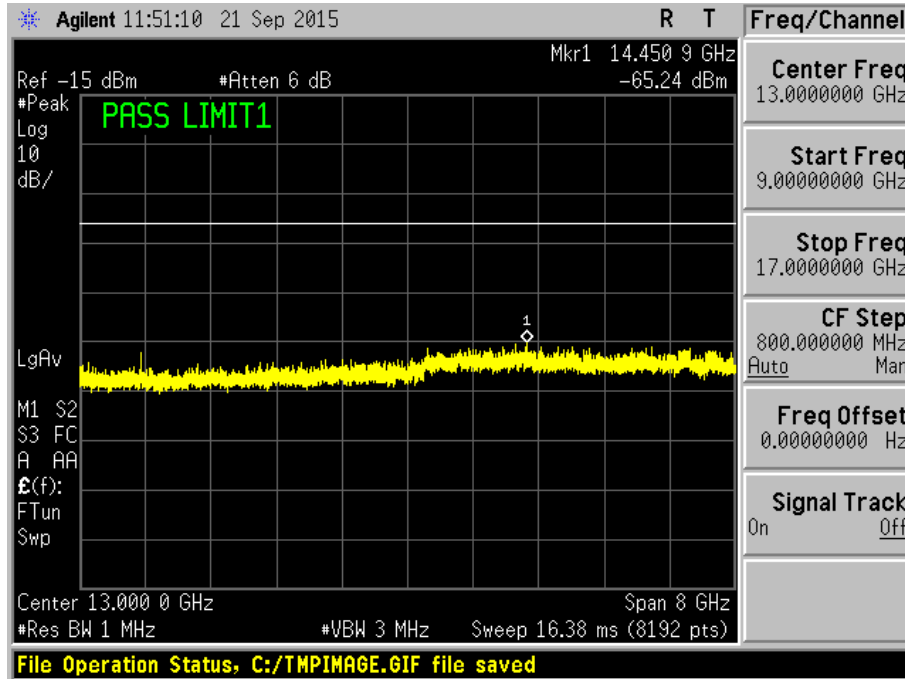
Plot 153 – Channel 6 (middle ch) @ DBPSK 1Mbps



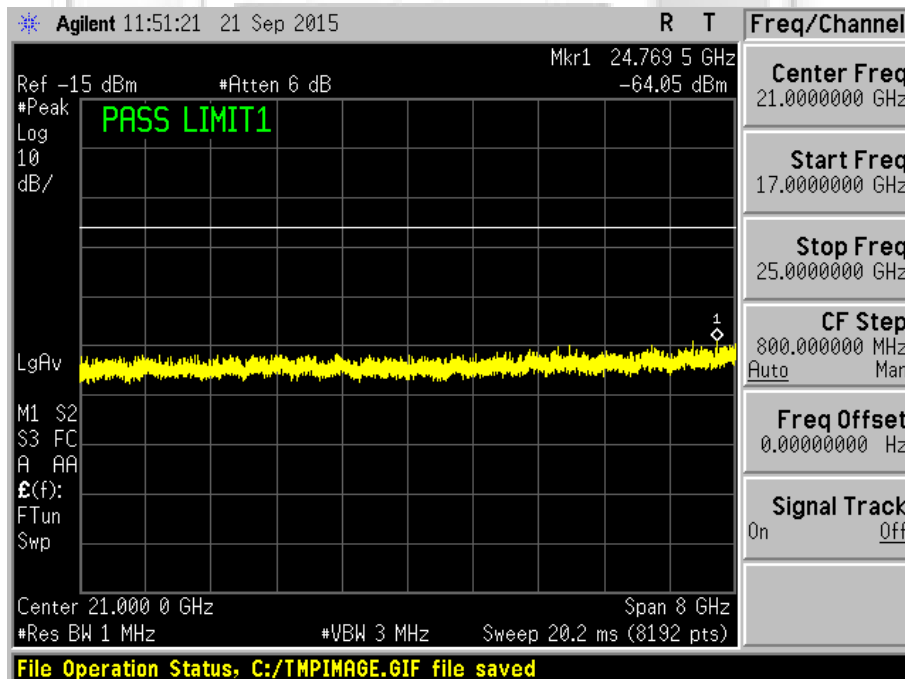
Plot 154 – Channel 6 (middle ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



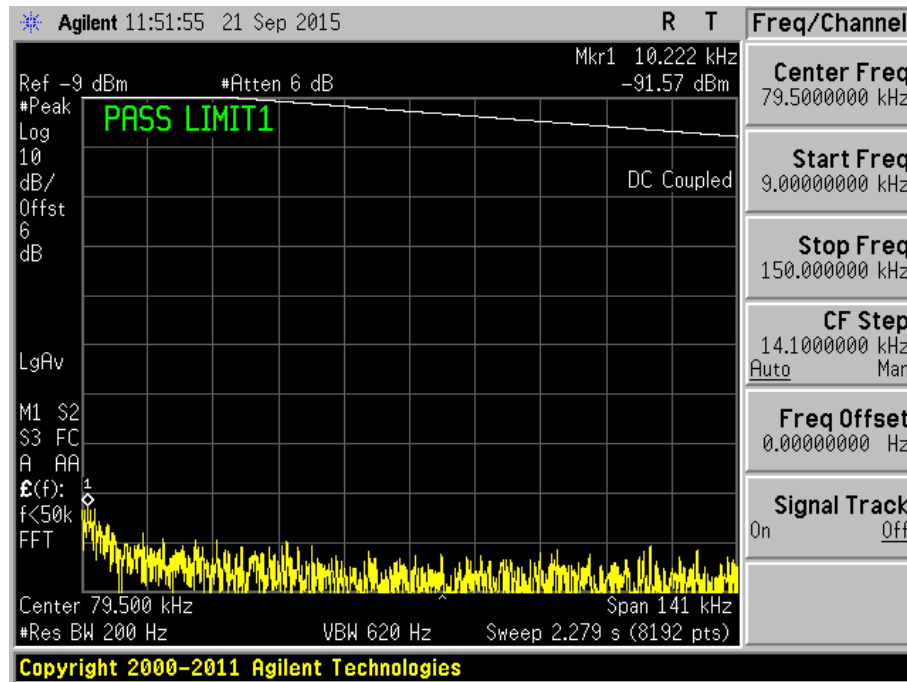
Plot 155 – Channel 6 (middle ch) @ DBPSK 1Mbps



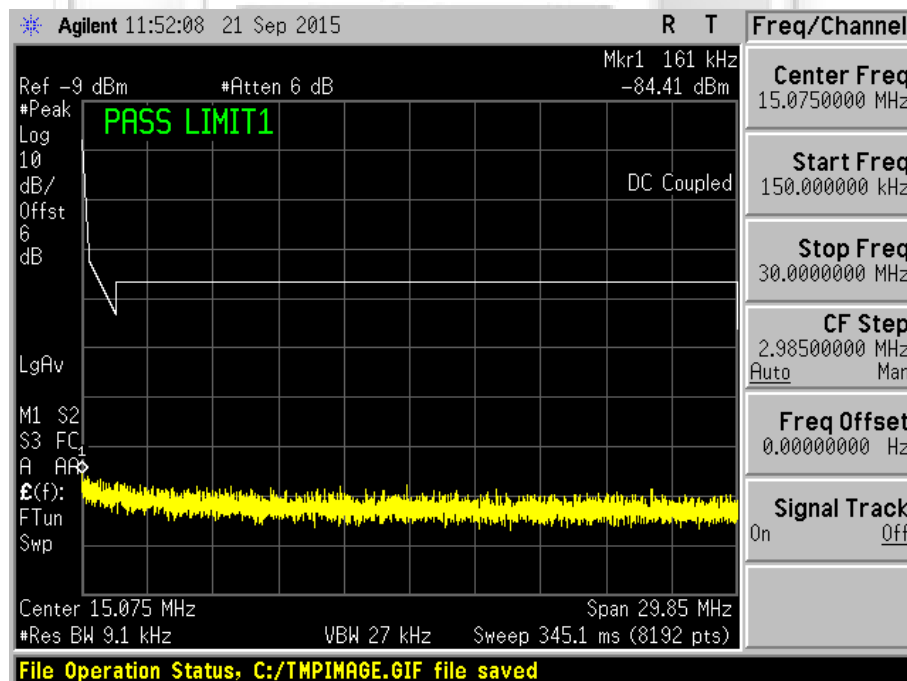
Plot 156 – Channel 6 (middle ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



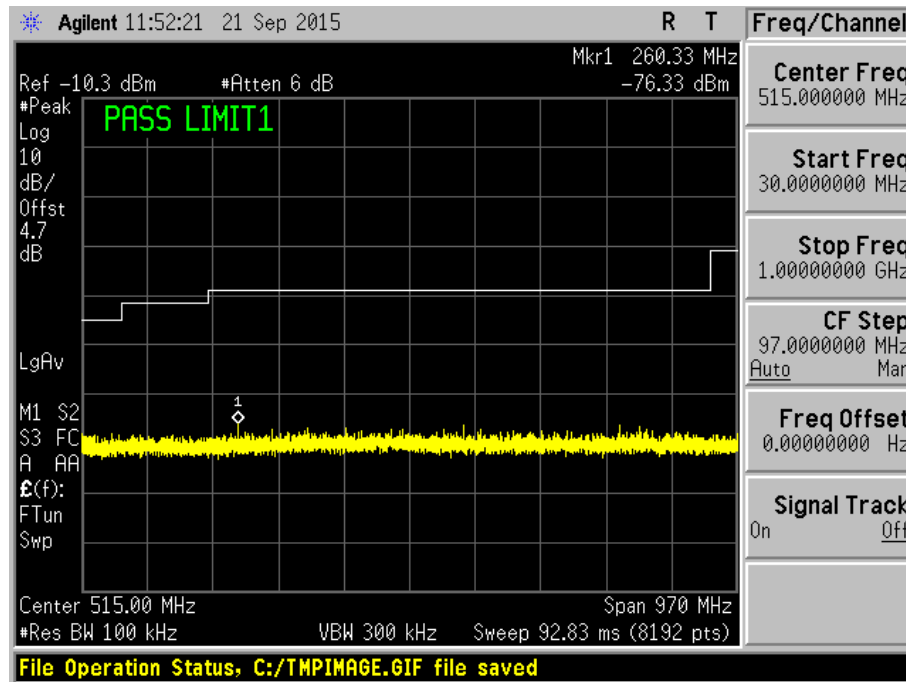
Plot 157 – Channel 6 (middle ch) @ DQPSK 2Mbps



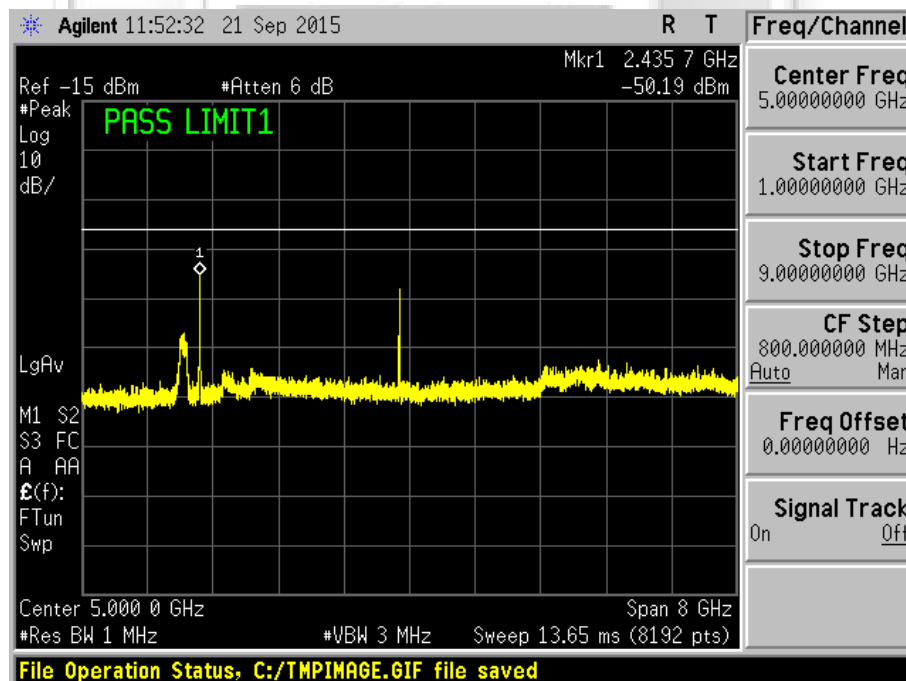
Plot 158 – Channel 6 (middle ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



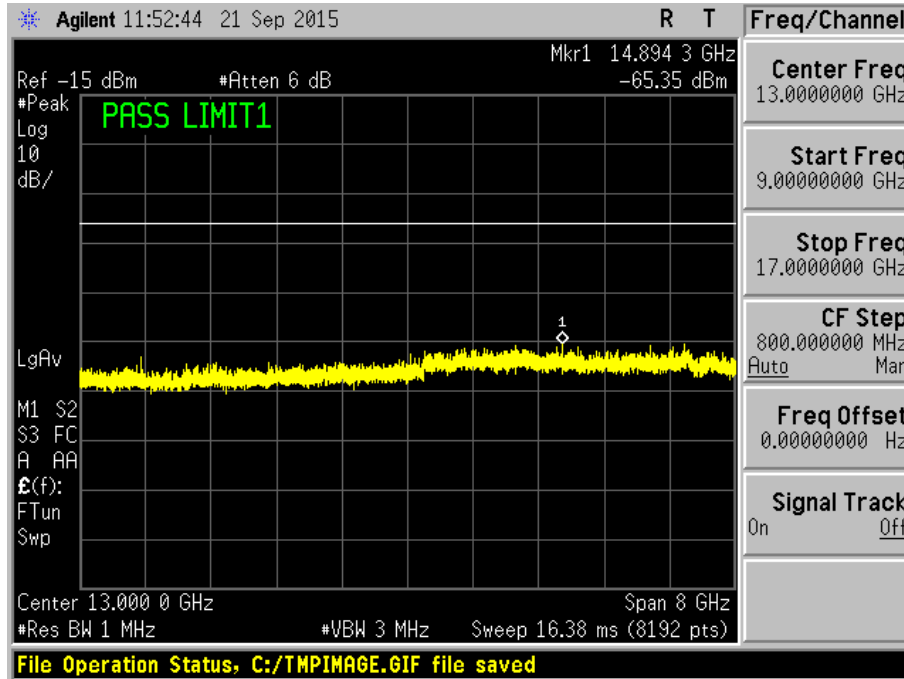
Plot 159 – Channel 6 (middle ch) @ DQPSK 2Mbps



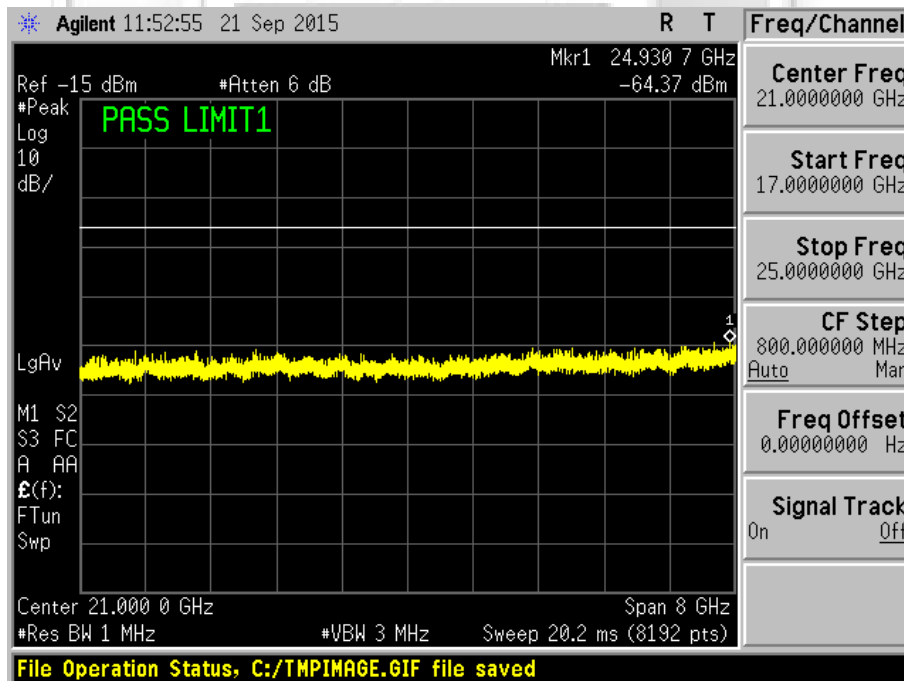
Plot 160 – Channel 6 (middle ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



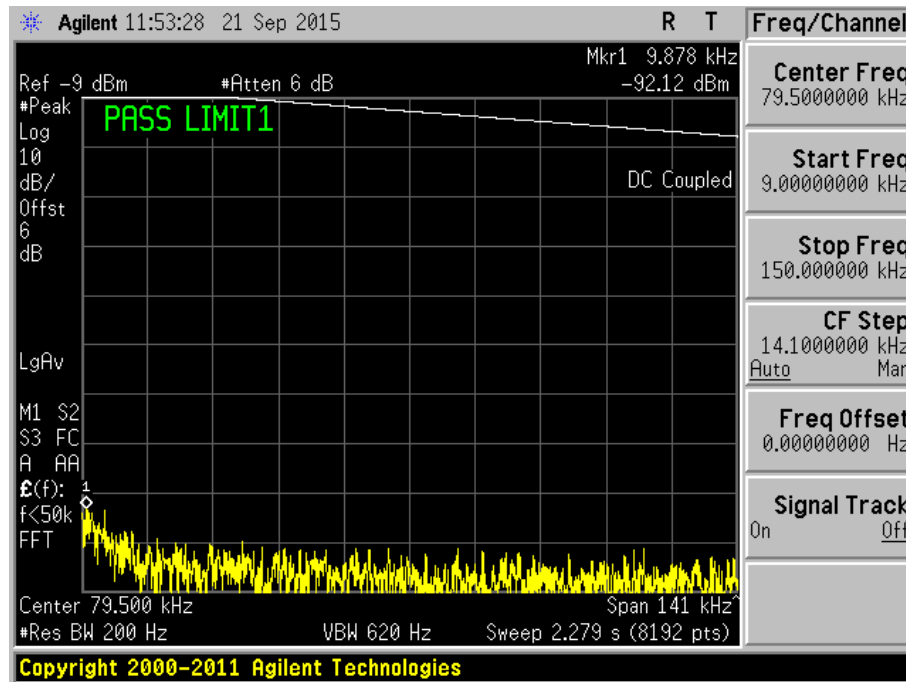
Plot 161 – Channel 6 (middle ch) @ DQPSK 2Mbps



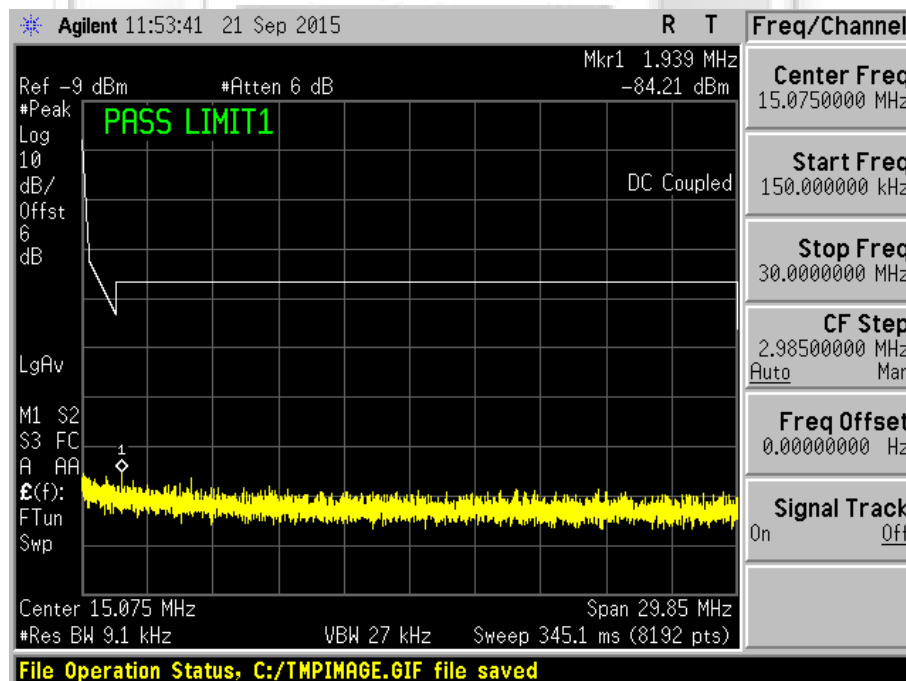
Plot 162 – Channel 6 (middle ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



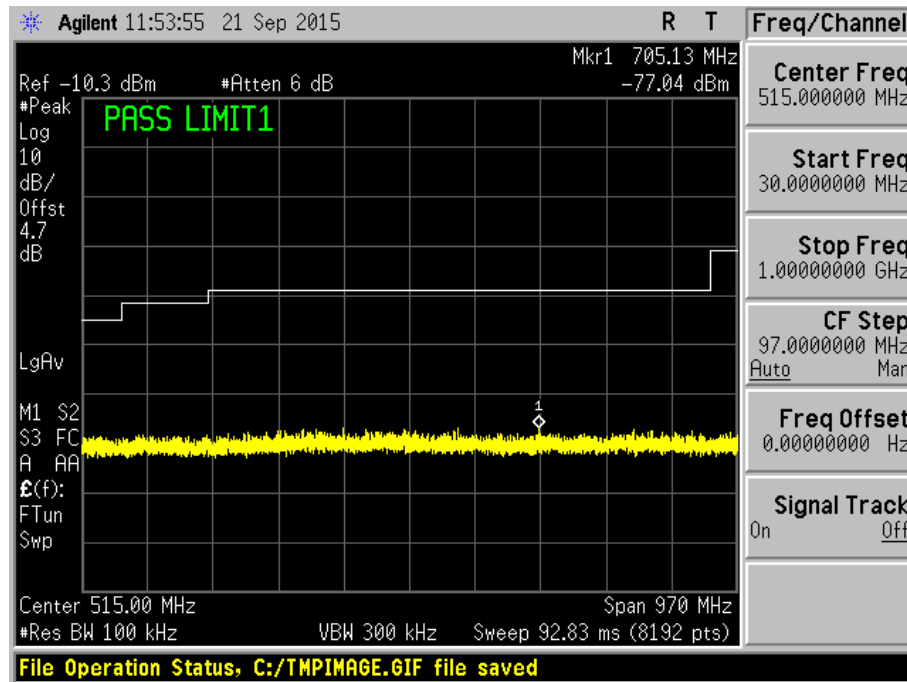
Plot 163 – Channel 6 (middle ch) @ CCK 11Mbps



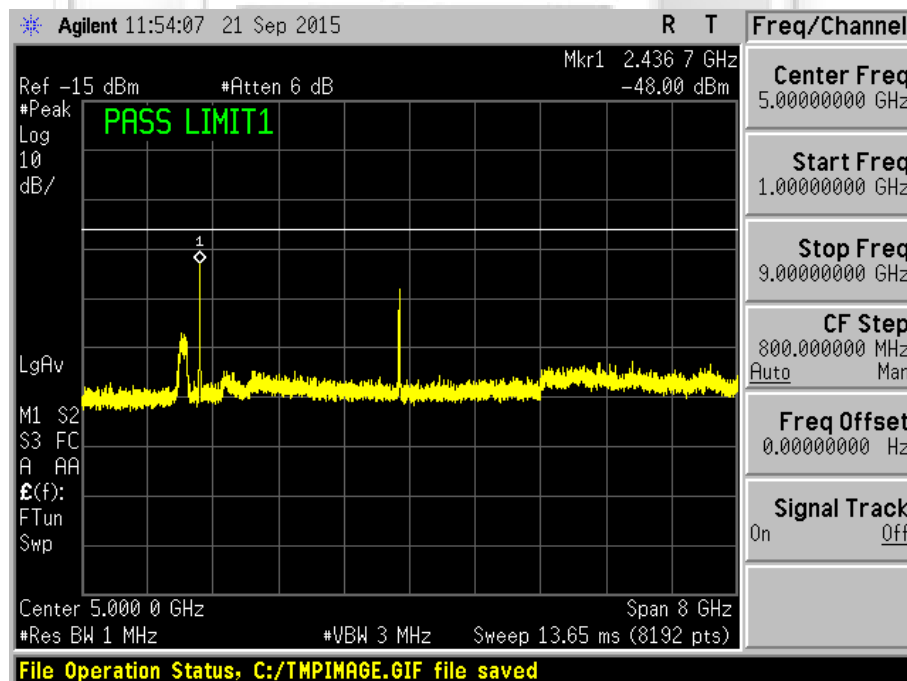
Plot 164 – Channel 6 (middle ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



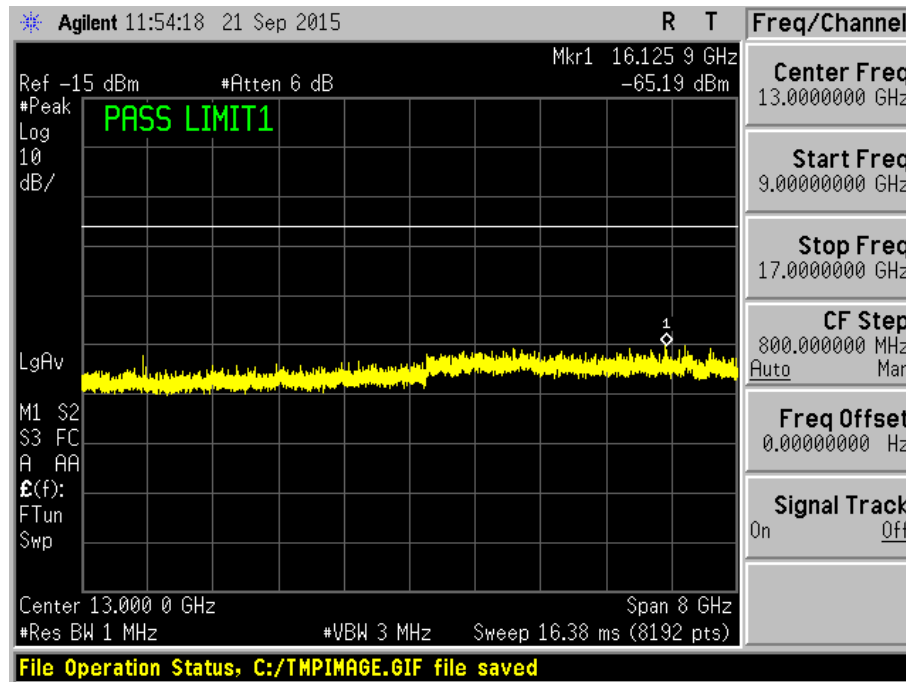
Plot 165 – Channel 6 (middle ch) @ CCK 11Mbps



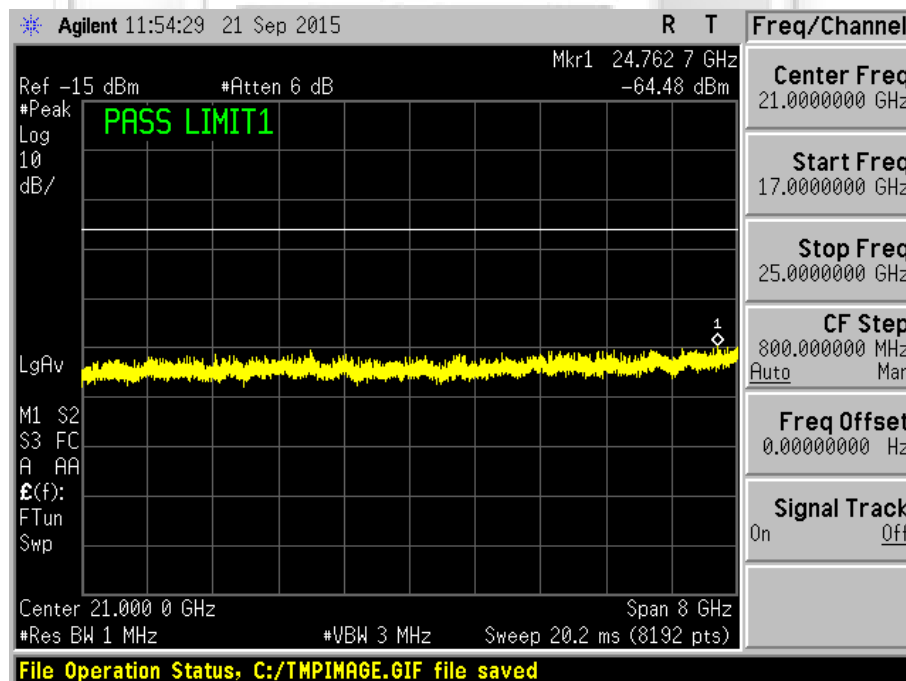
Plot 166 – Channel 6 (middle ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



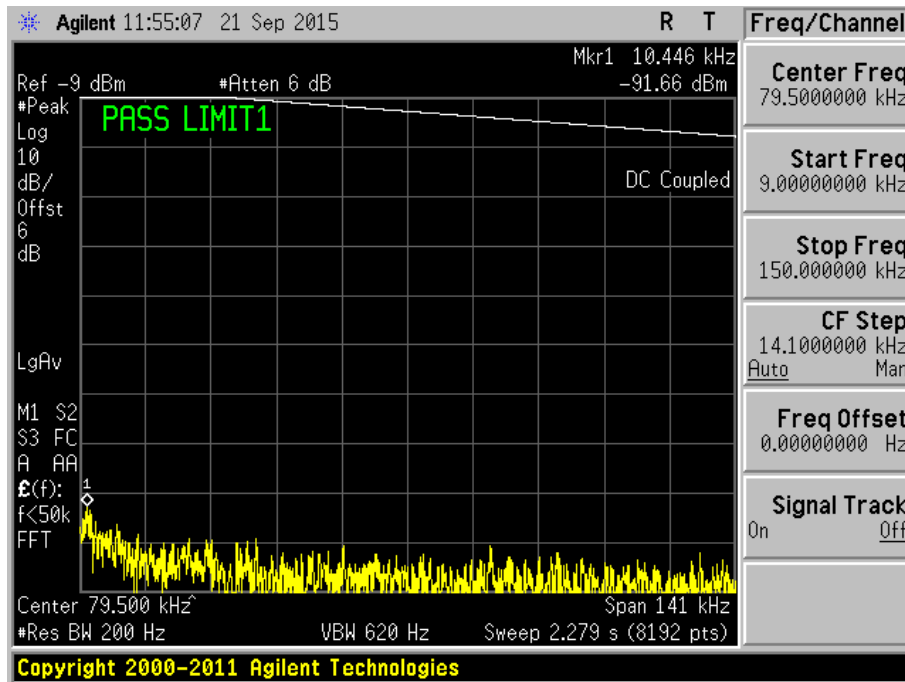
Plot 167 – Channel 6 (middle ch) @ CCK 11Mbps



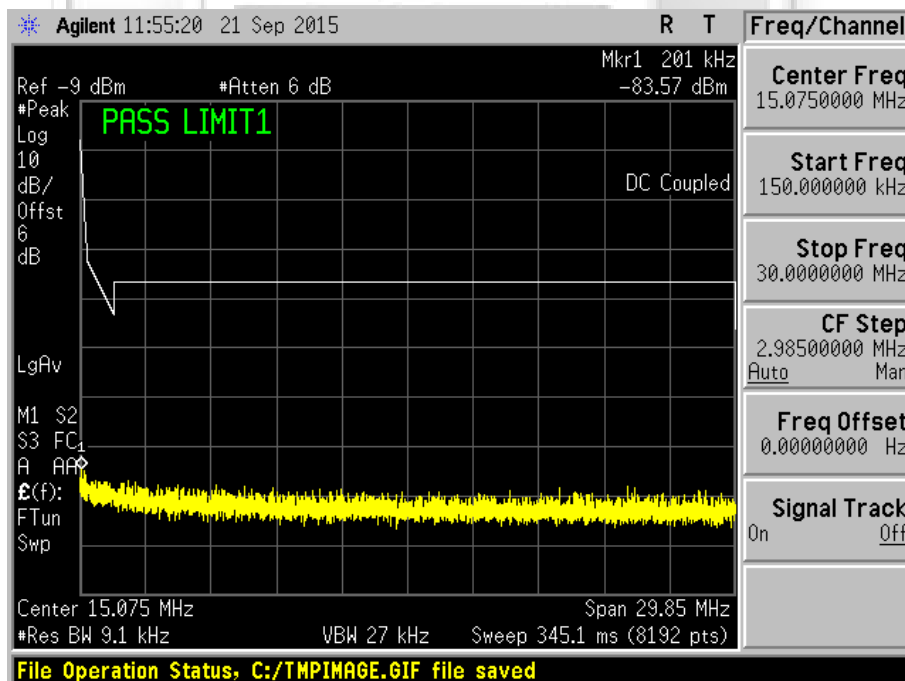
Plot 168 – Channel 6 (middle ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



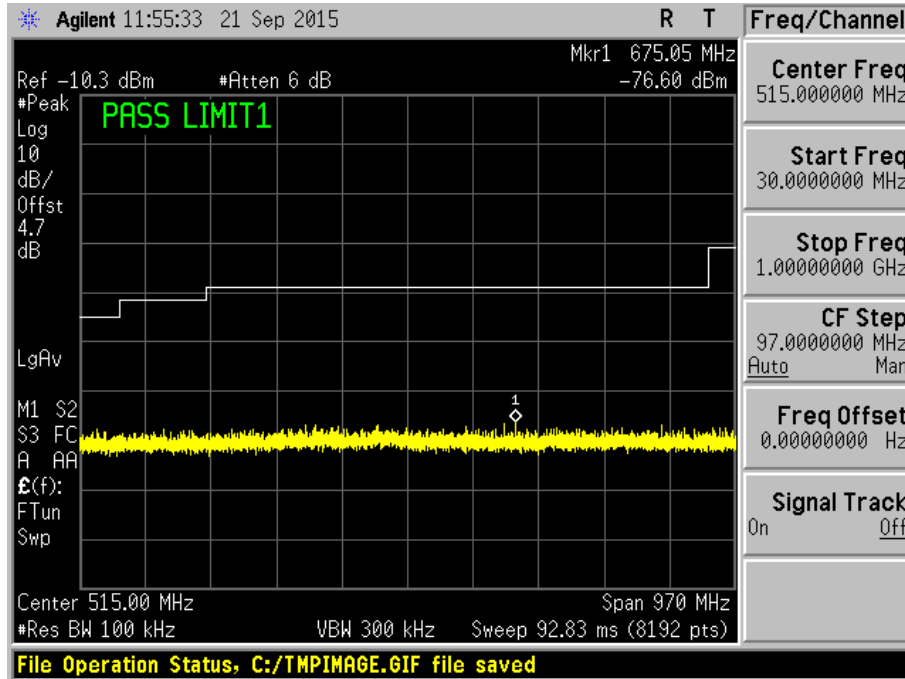
Plot 169 – Channel 11 (upper ch) @ DBPSK 1Mbps



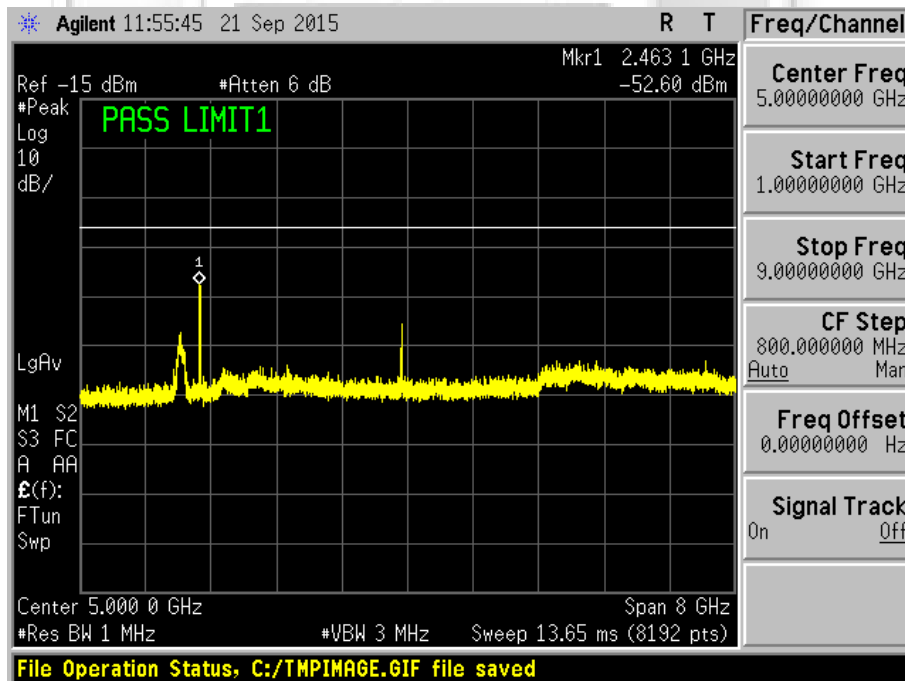
Plot 170 – Channel 11 (upper ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



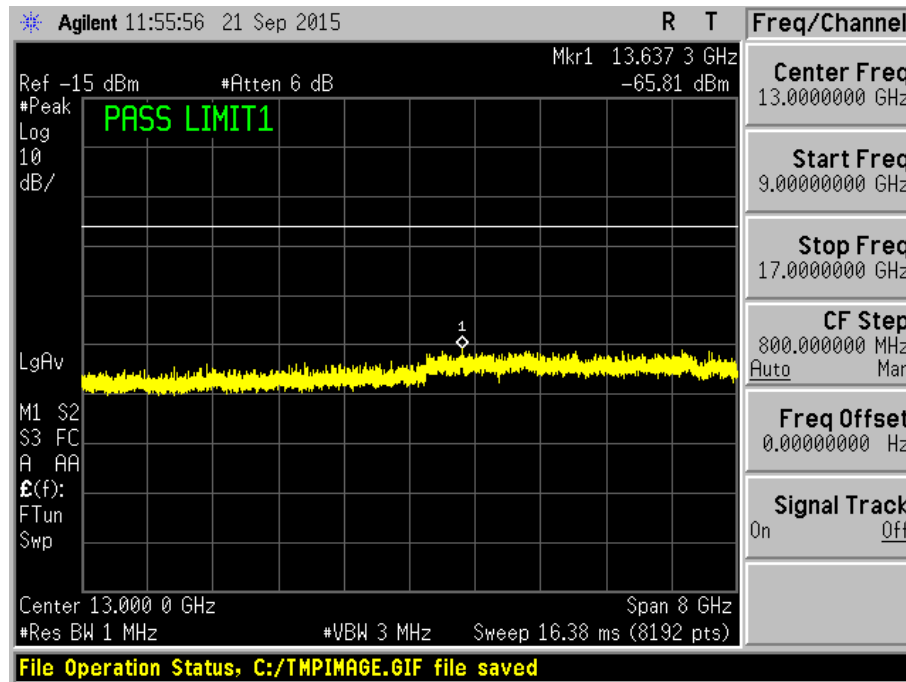
Plot 171 – Channel 11 (upper ch) @ DBPSK 1Mbps



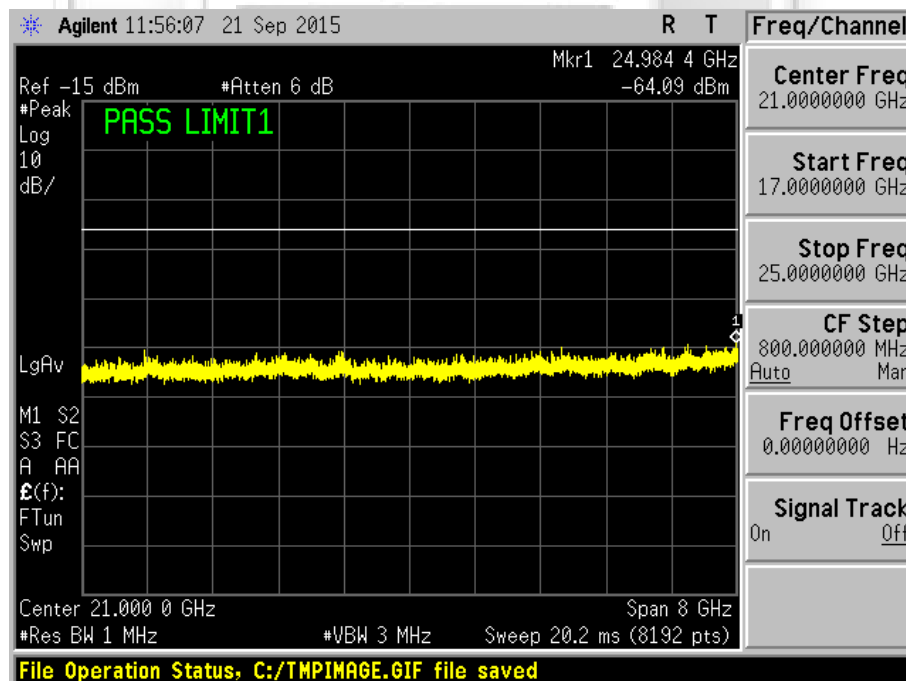
Plot 172 – Channel 11 (upper ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



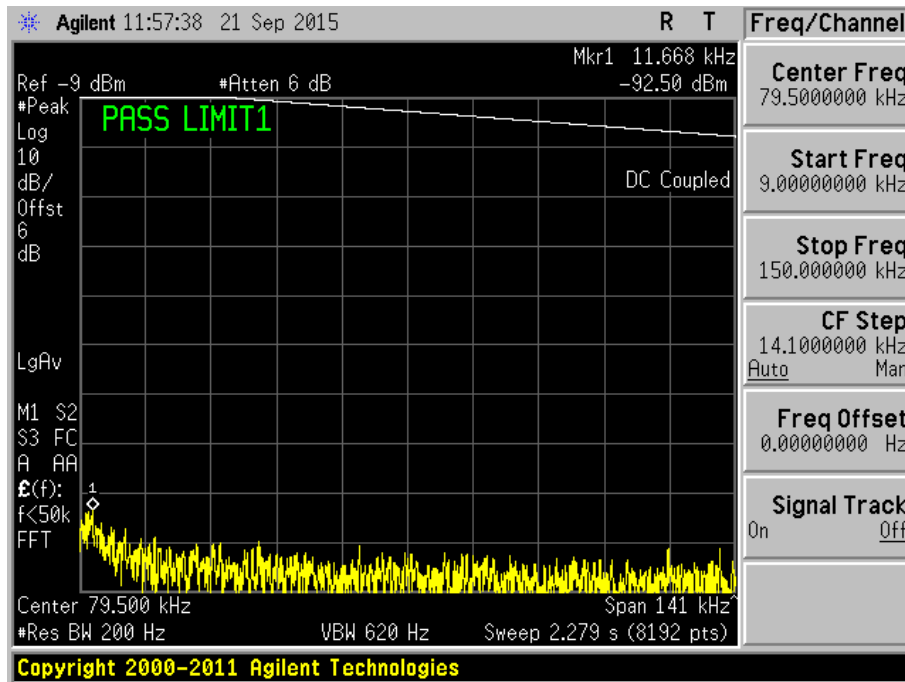
Plot 173 – Channel 11 (upper ch) @ DBPSK 1Mbps



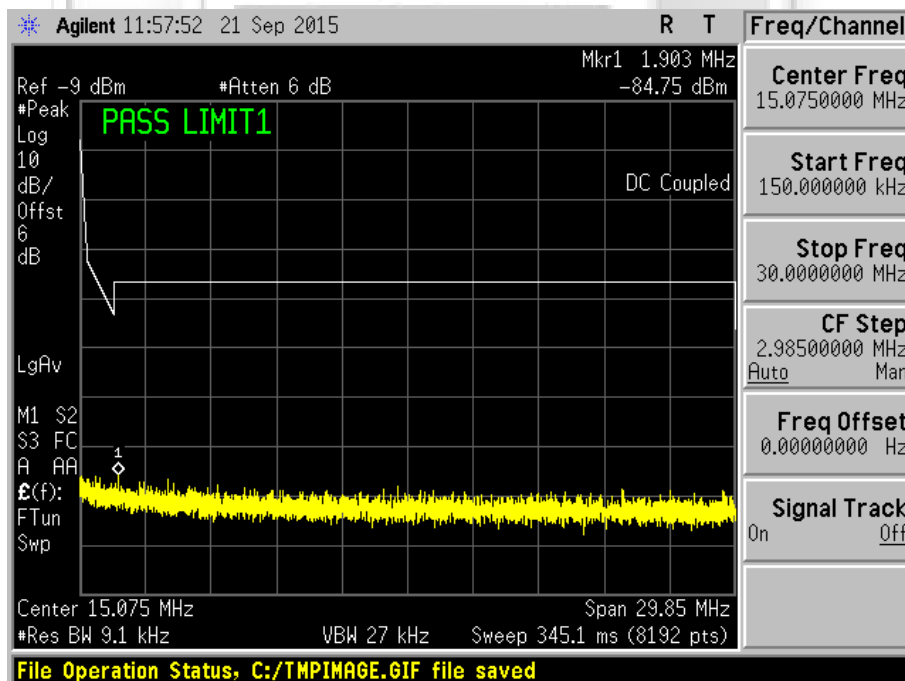
Plot 174 – Channel 11 (upper ch) @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



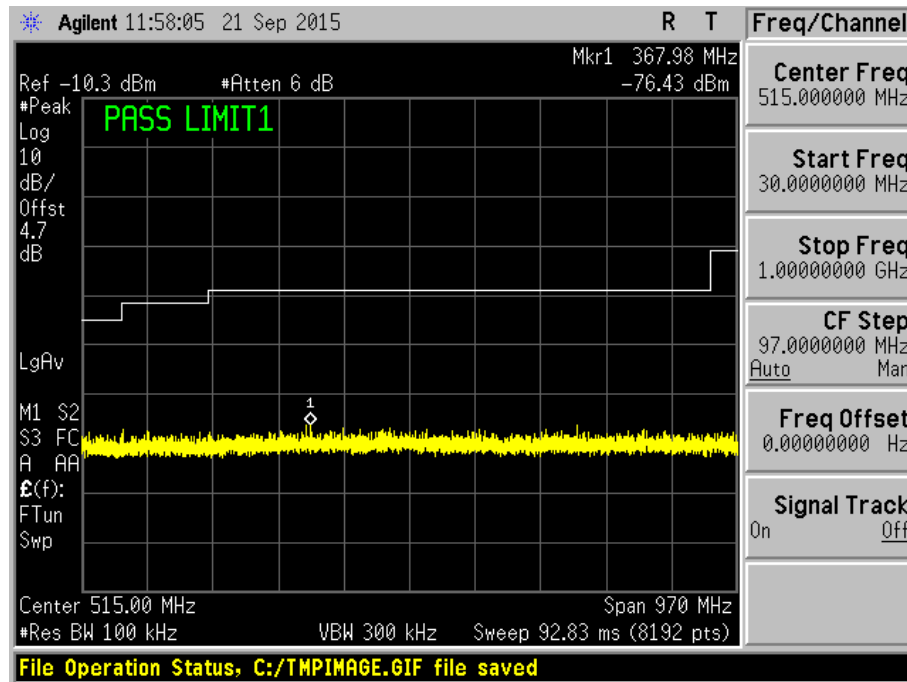
Plot 175 – Channel 11 (upper ch) @ DQPSK 2Mbps



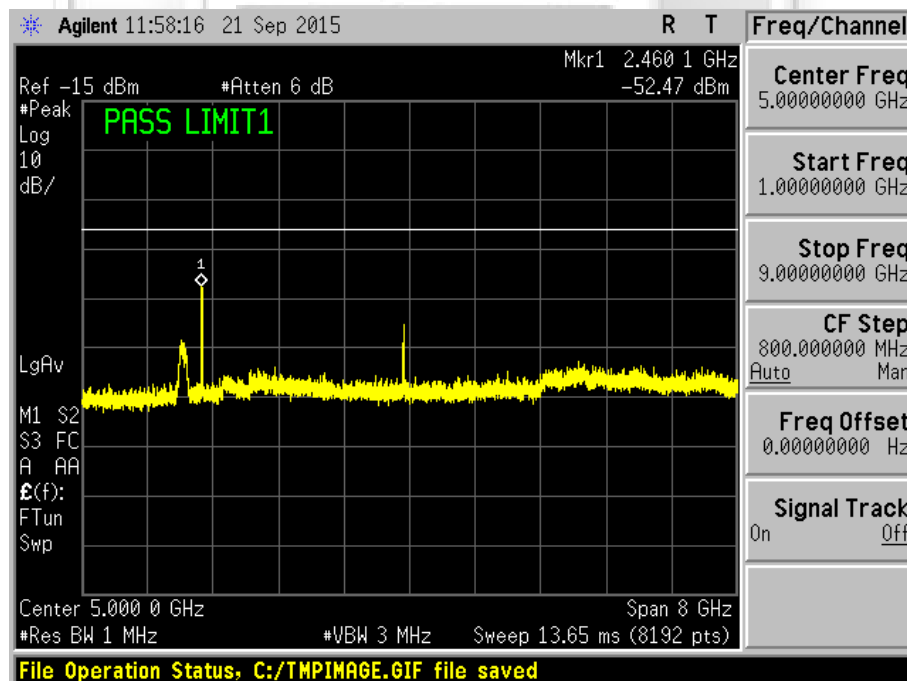
Plot 176 – Channel 11 (upper ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



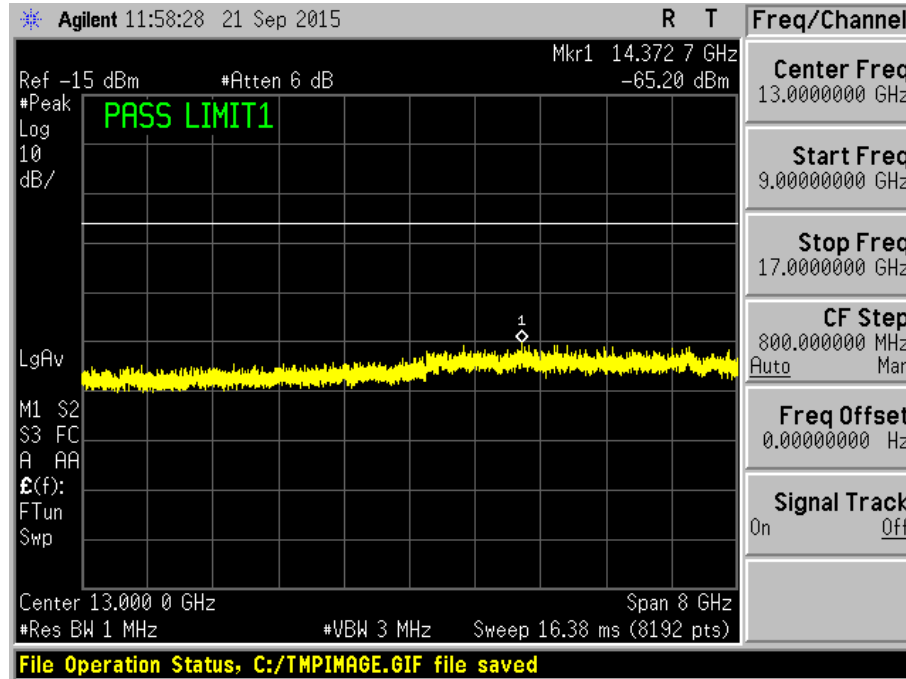
Plot 177 – Channel 11 (upper ch) @ DQPSK 2Mbps



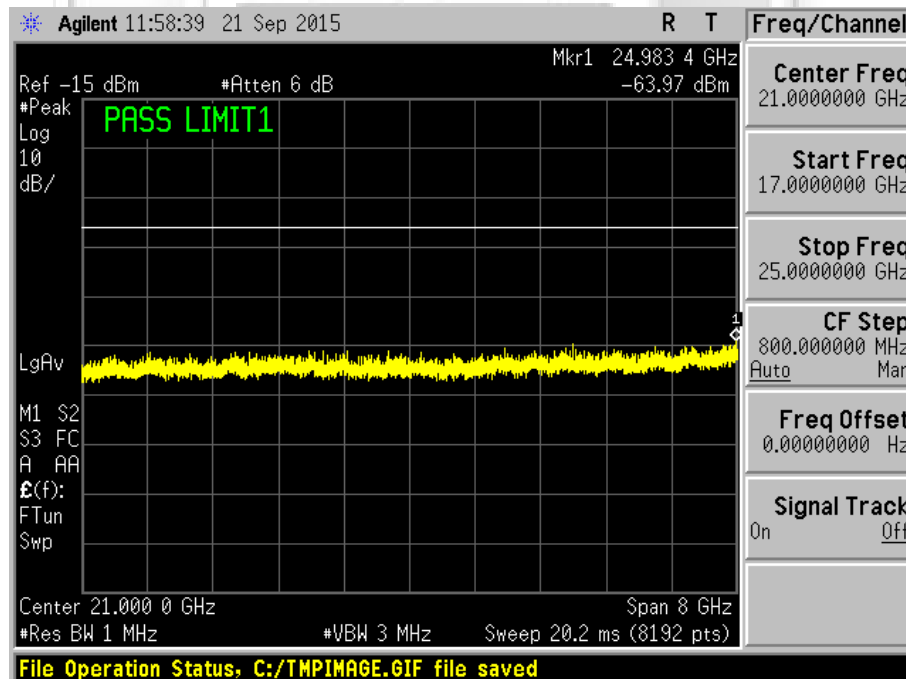
Plot 178 – Channel 11 (upper ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



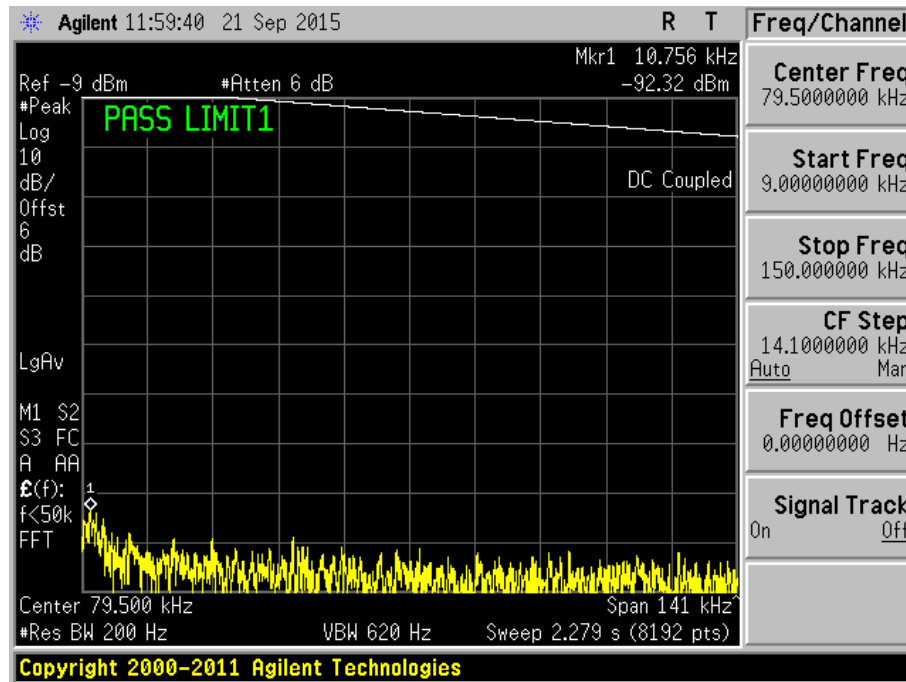
Plot 179 – Channel 11 (upper ch) @ DQPSK 2Mbps



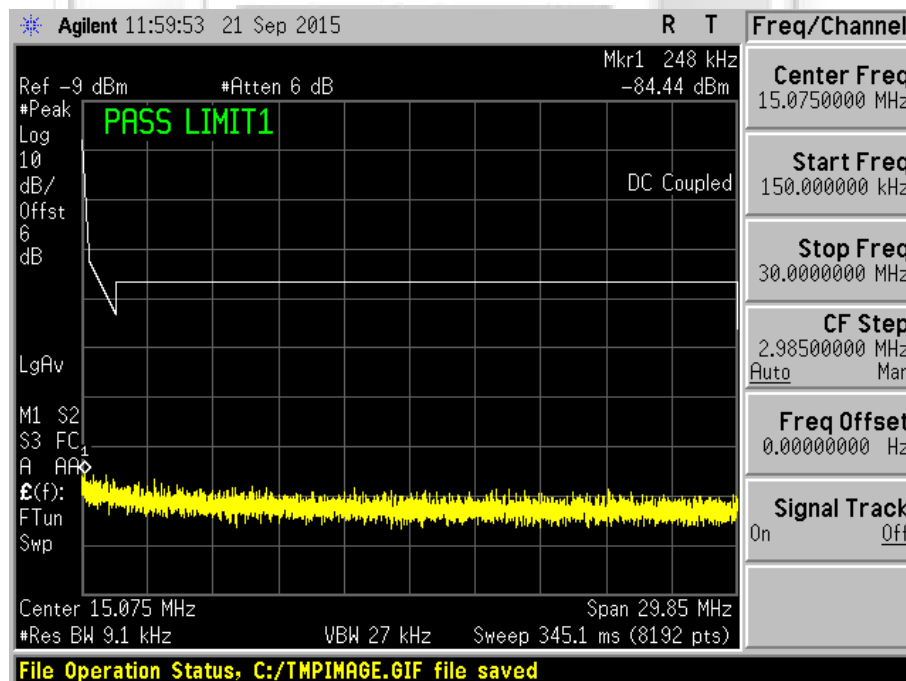
Plot 180 – Channel 11 (upper ch) @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



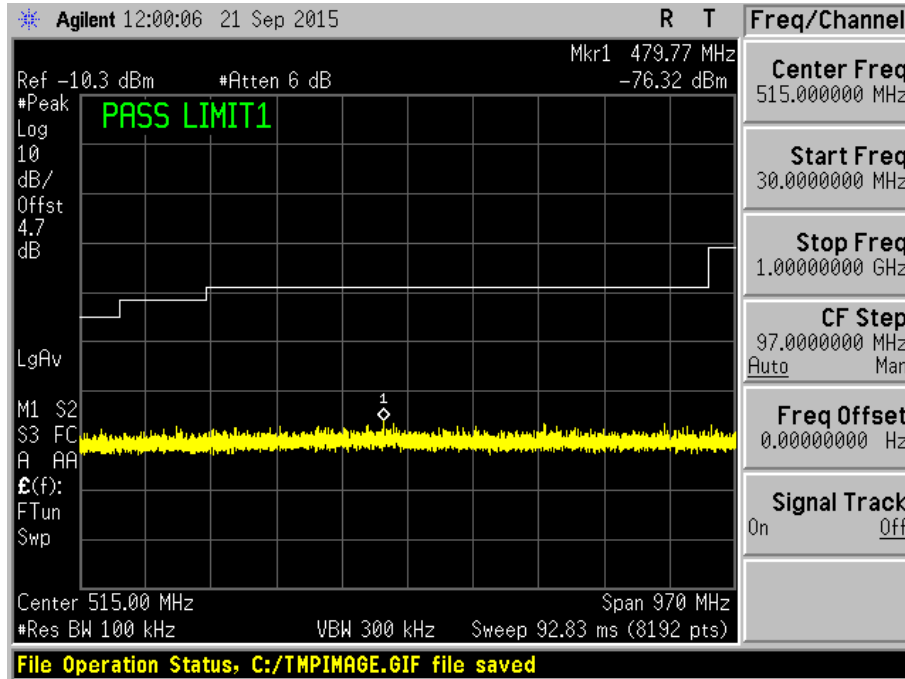
Plot 181 – Channel 11 (upper ch) @ CCK 11Mbps



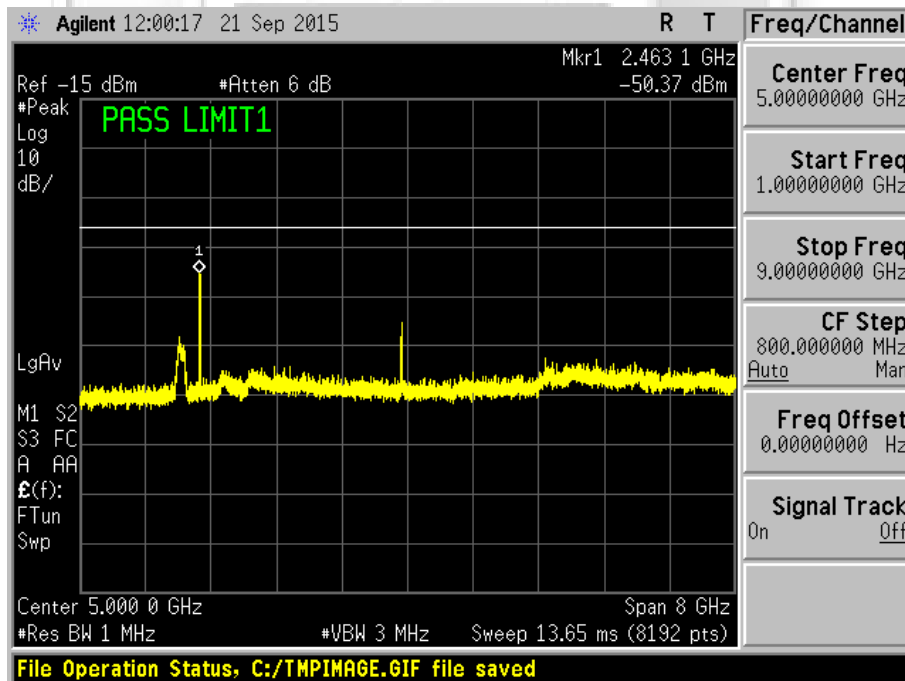
Plot 182 – Channel 11 (upper ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



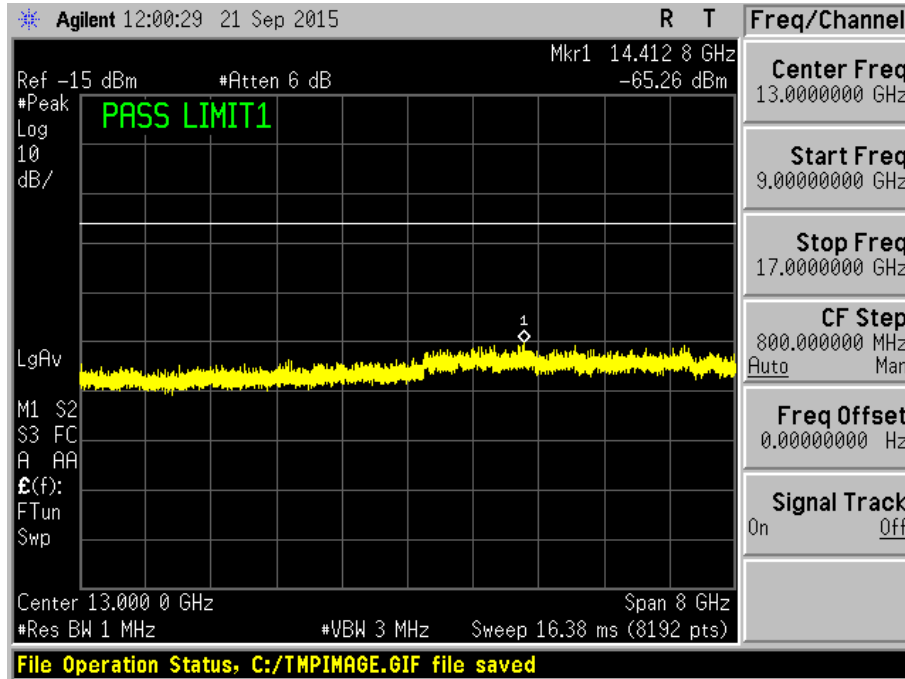
Plot 183 – Channel 11 (upper ch) @ CCK 11Mbps



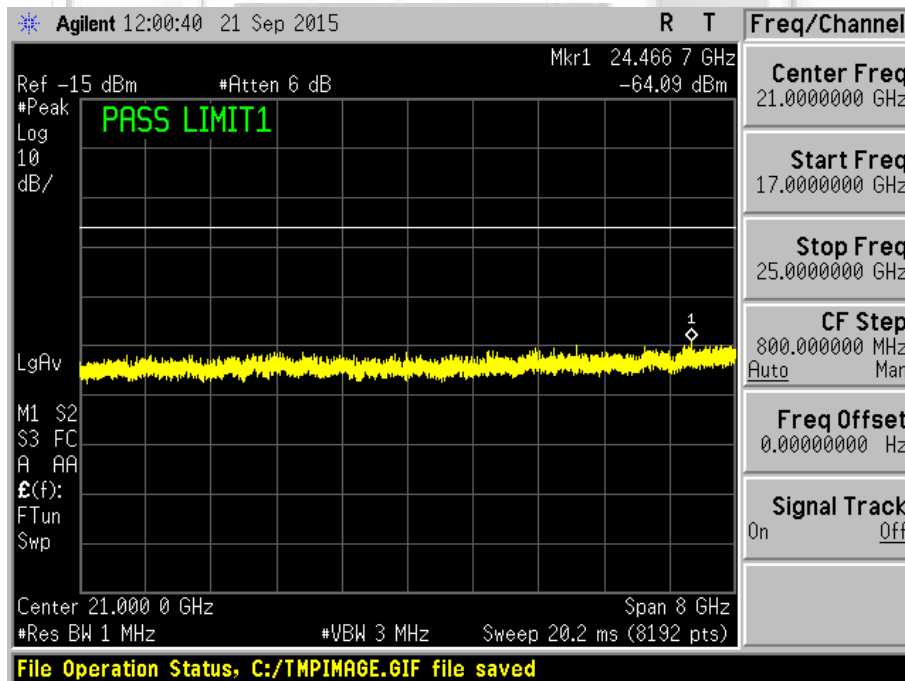
Plot 184 – Channel 11 (upper ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11b



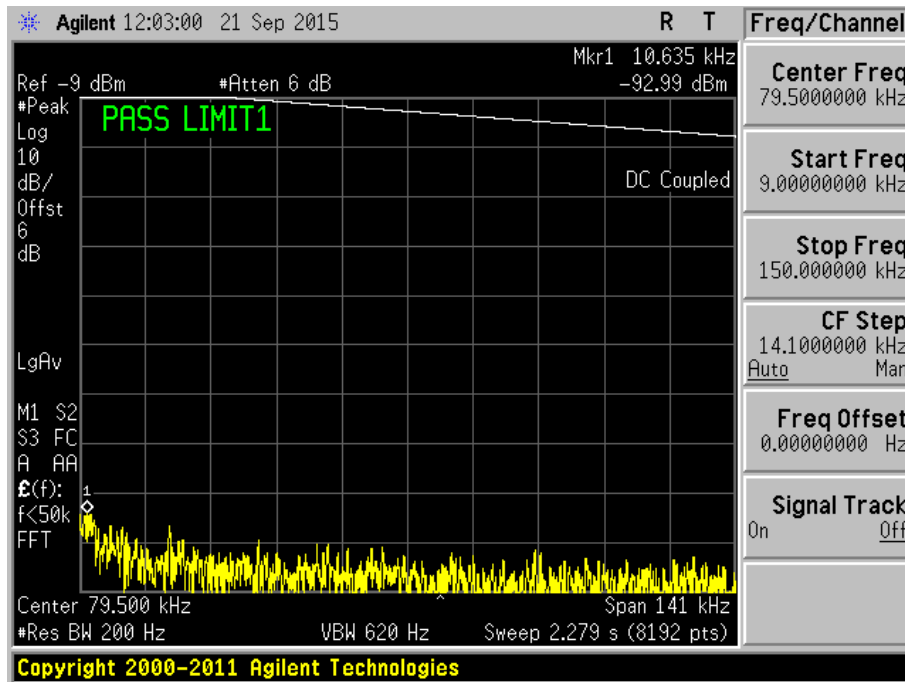
Plot 185 – Channel 11 (upper ch) @ CCK 11Mbps



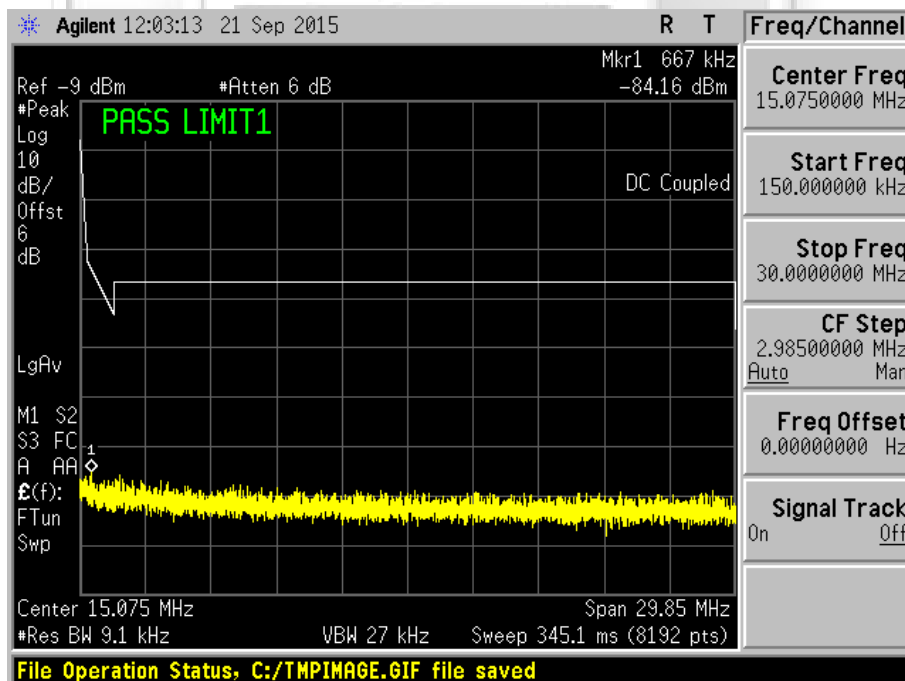
Plot 186 – Channel 11 (upper ch) @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



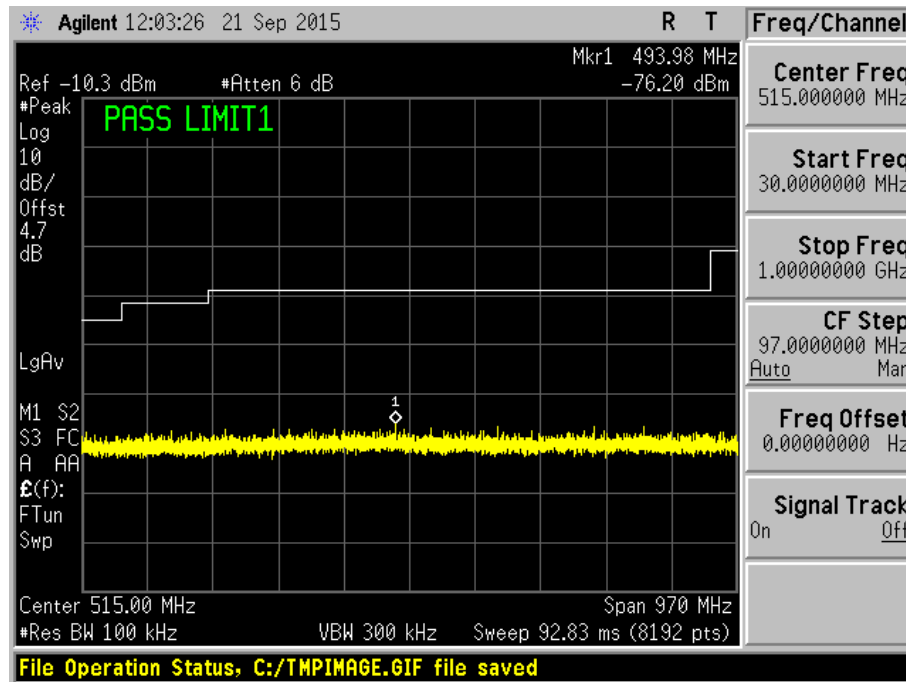
Plot 187 – Channel 1 (lower ch) @ BPSK 9Mbps



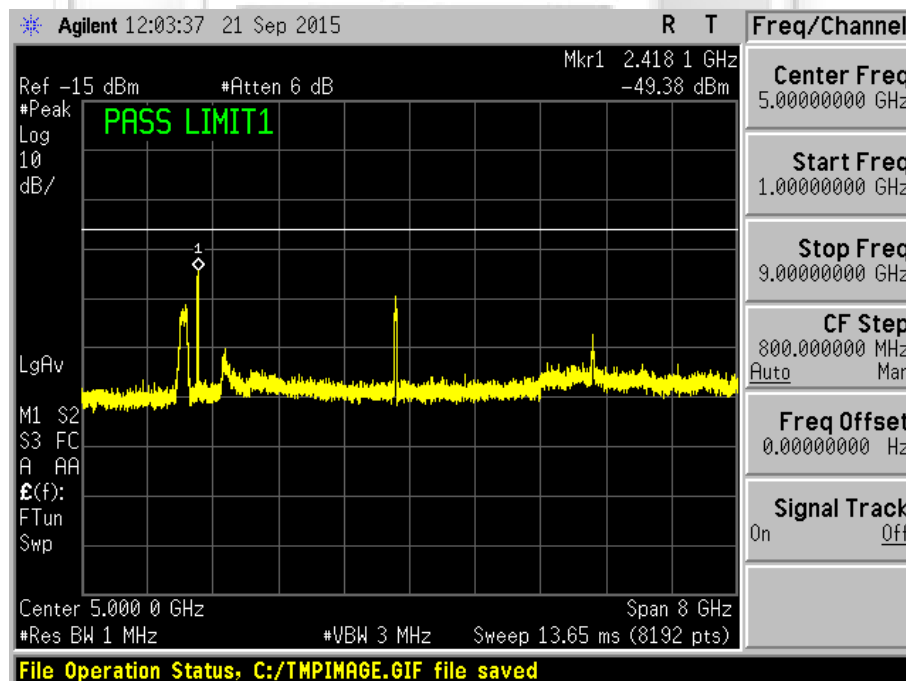
Plot 188 – Channel 1 (lower ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



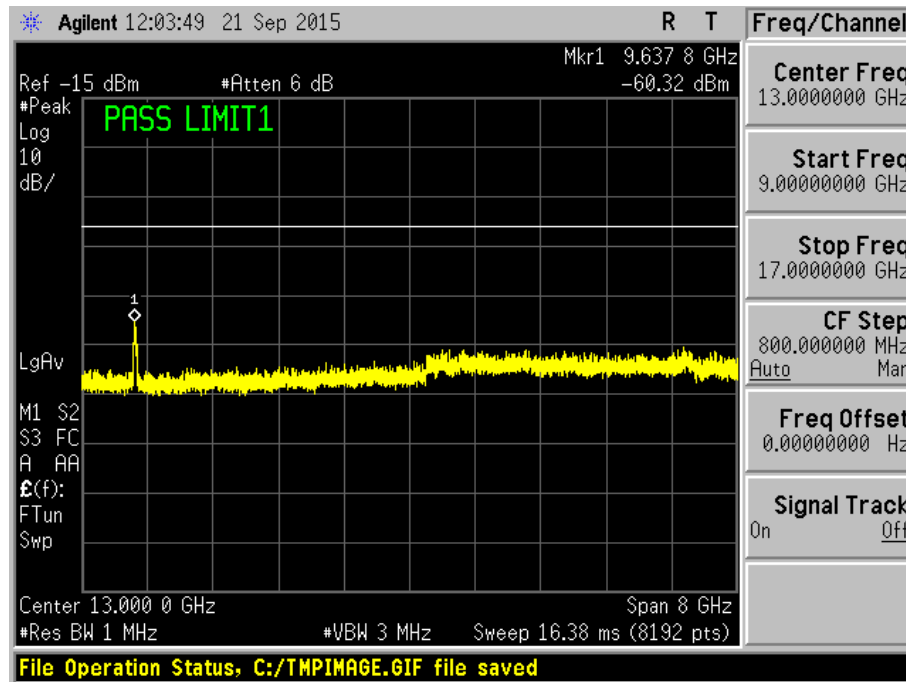
Plot 189 – Channel 1 (lower ch) @ BPSK 9Mbps



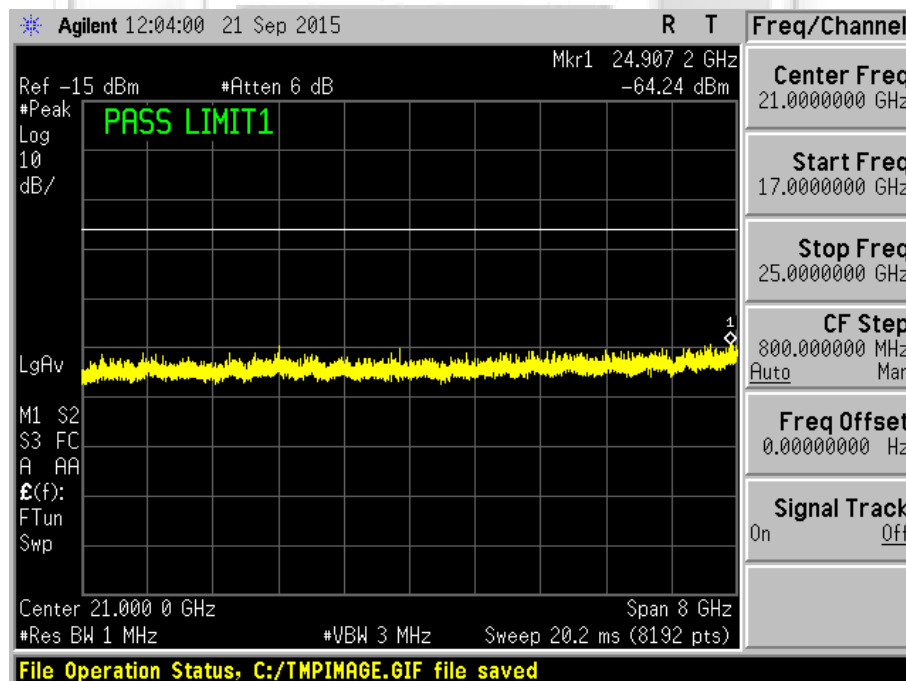
Plot 190 – Channel 1 (lower ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



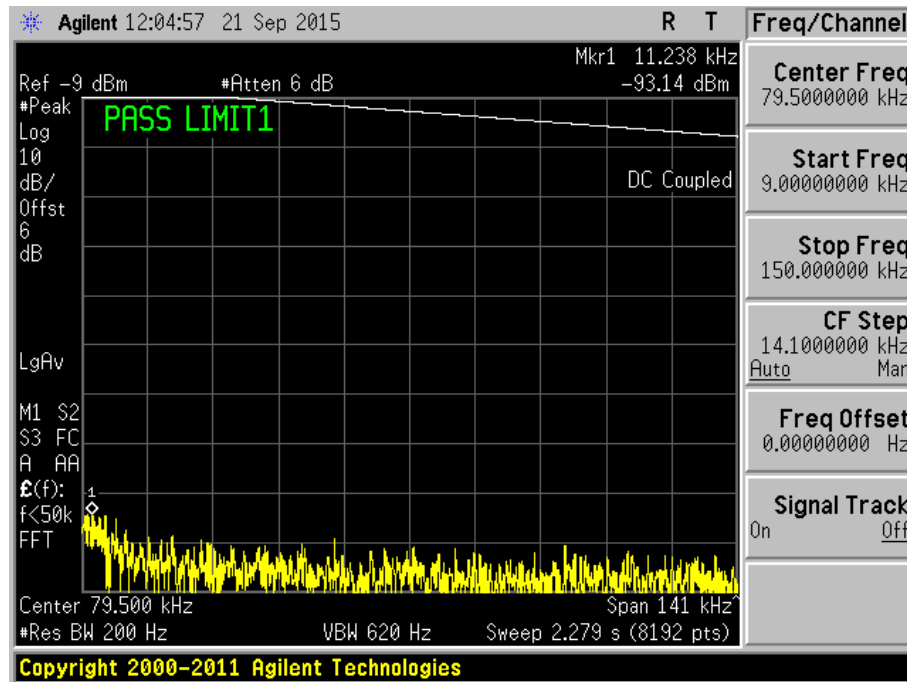
Plot 191 – Channel 1 (lower ch) @ BPSK 9Mbps



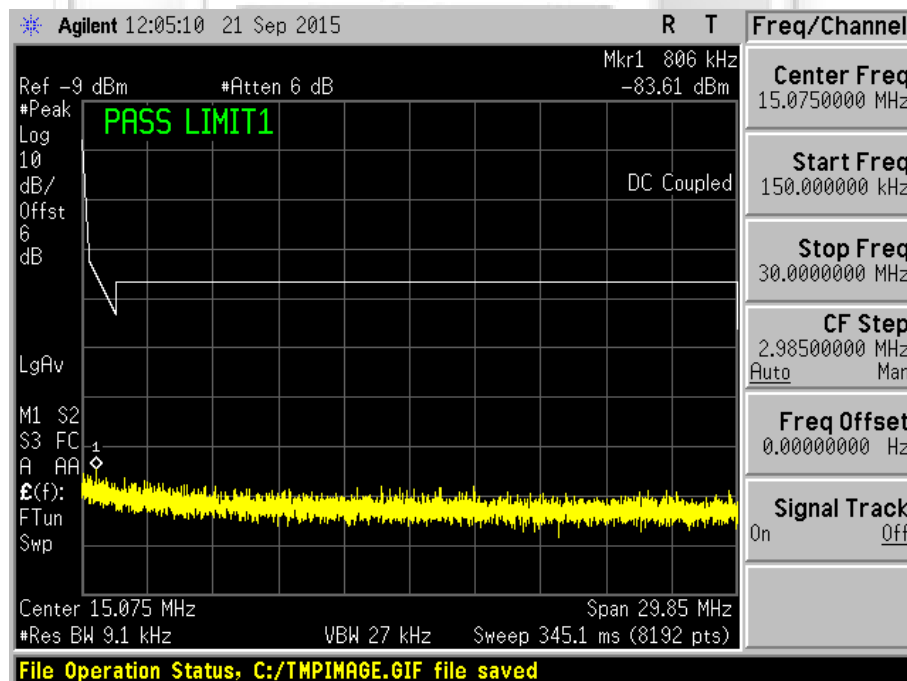
Plot 192 – Channel 1 (lower ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



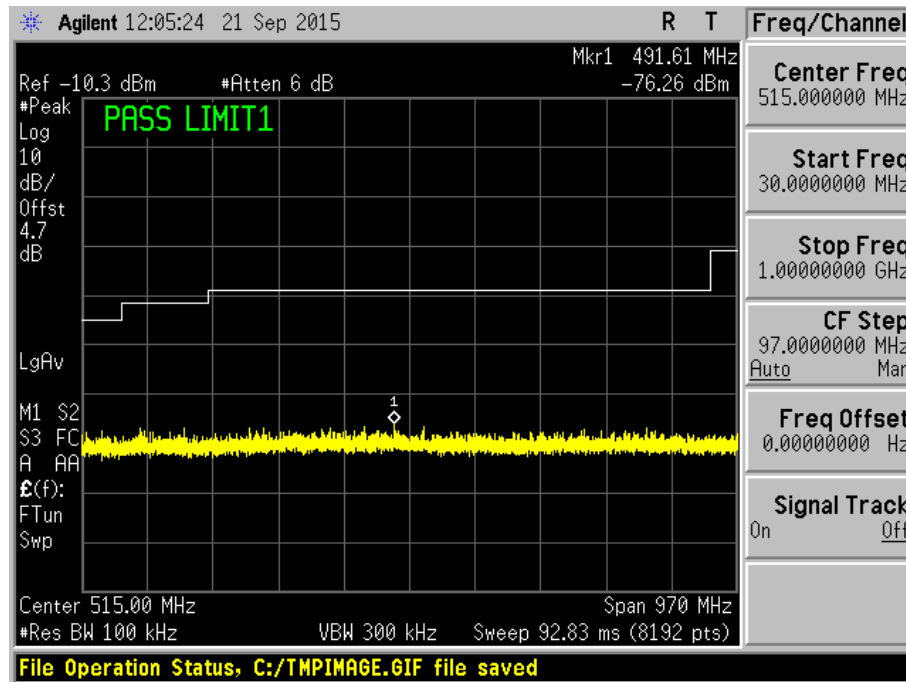
Plot 193 – Channel 1 (lower ch) @ QPSK 18Mbps



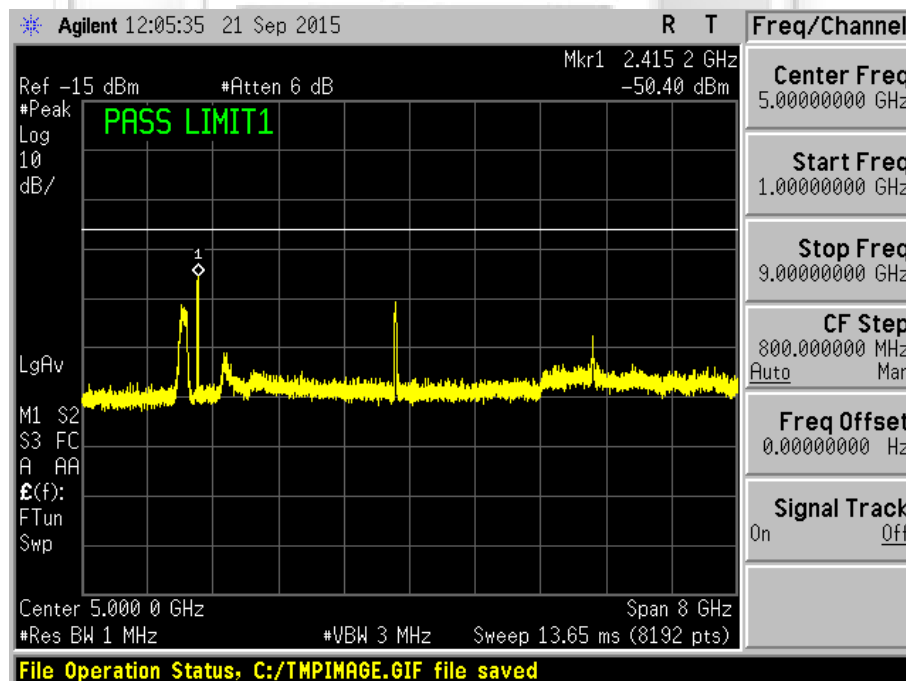
Plot 194 – Channel 1 (lower ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



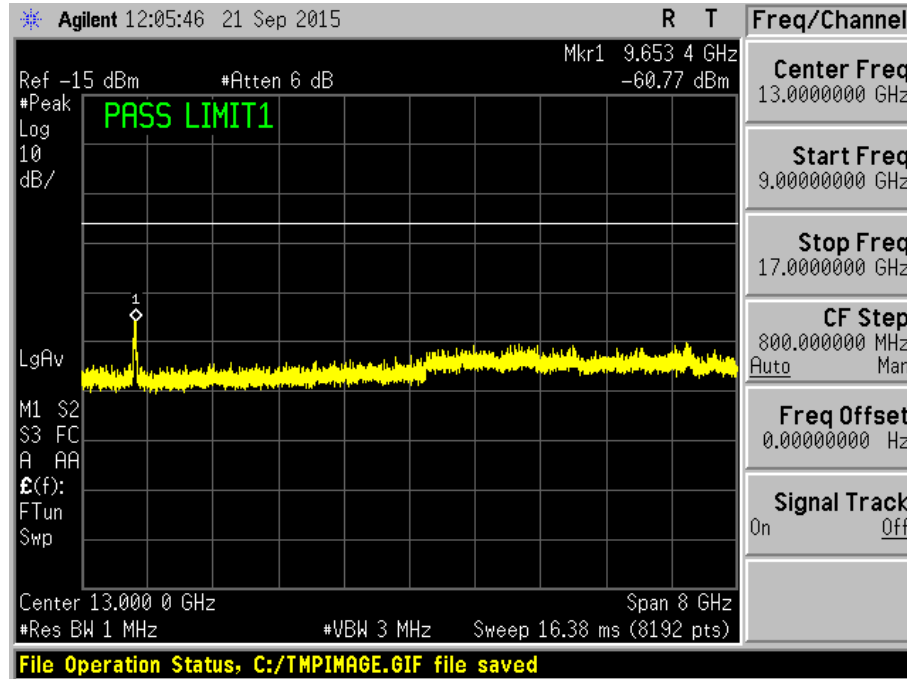
Plot 195 – Channel 1 (lower ch) @ QPSK 18Mbps



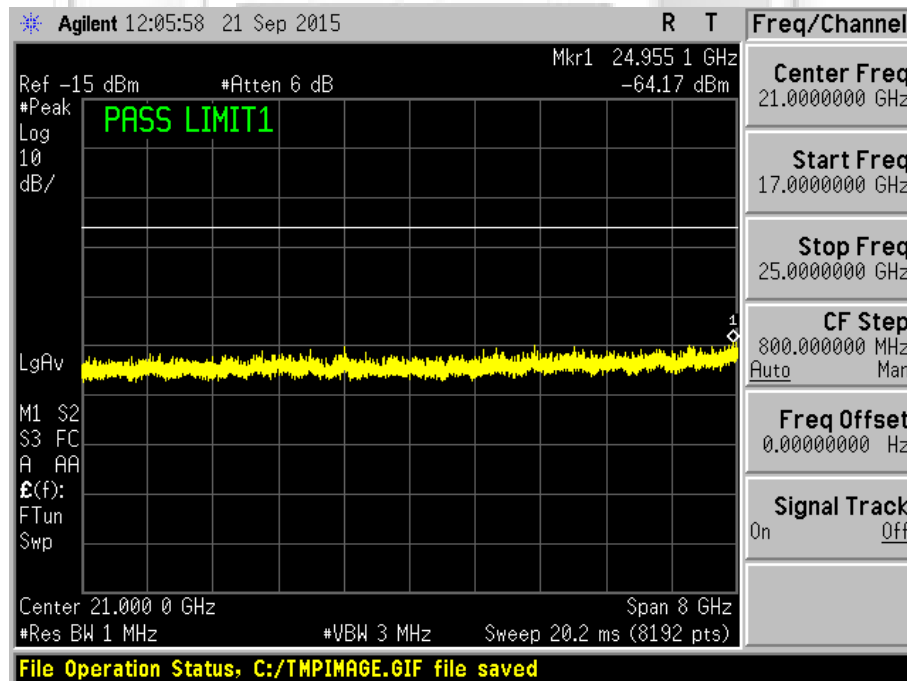
Plot 196 – Channel 1 (lower ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



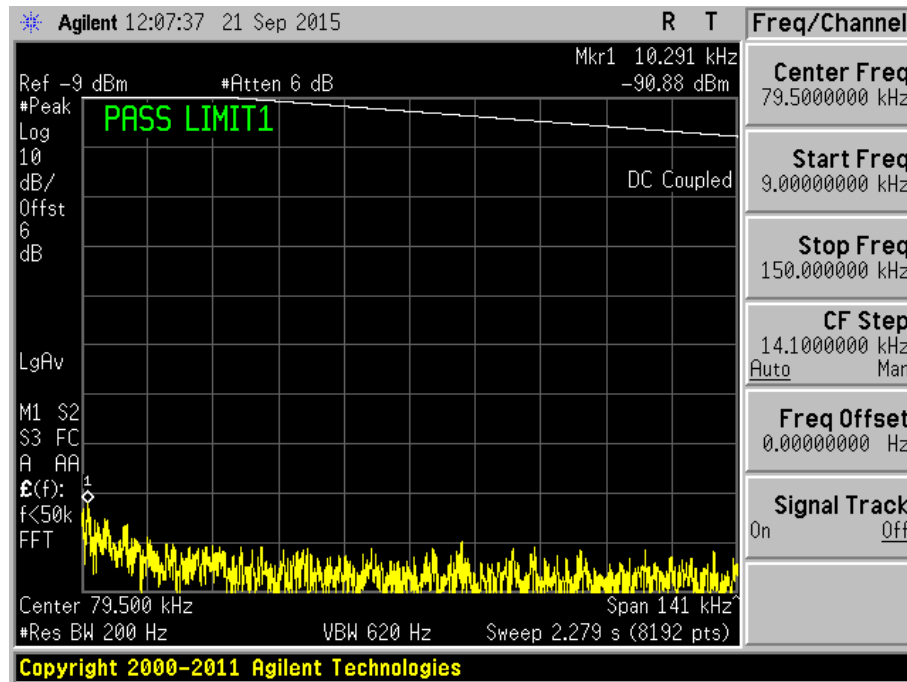
Plot 197 – Channel 1 (lower ch) @ QPSK 18Mbps



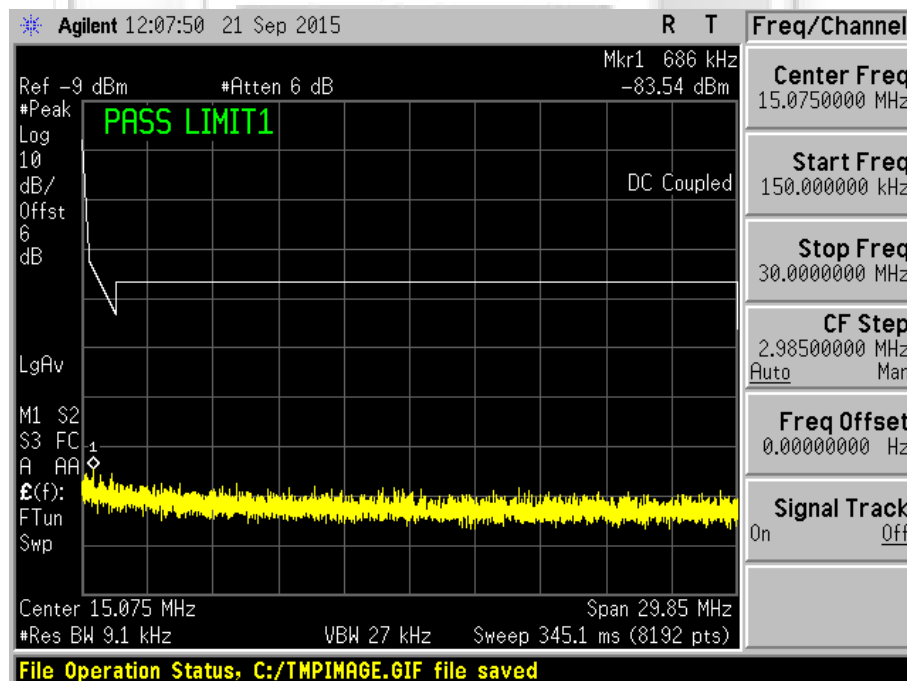
Plot 198 – Channel 1 (lower ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



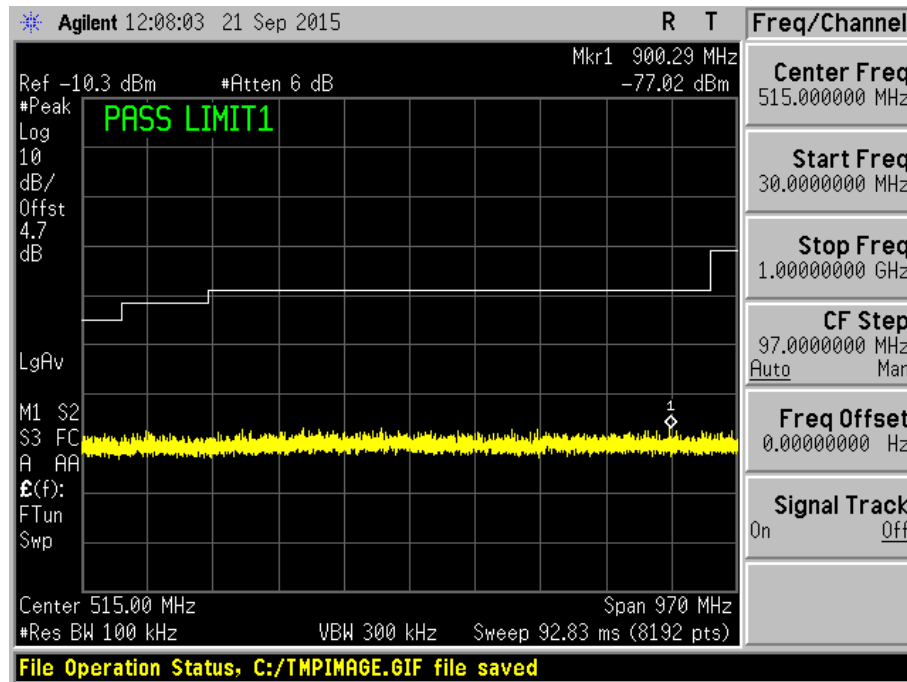
Plot 199 – Channel 1 (lower ch) @ 16QAM 36Mbps



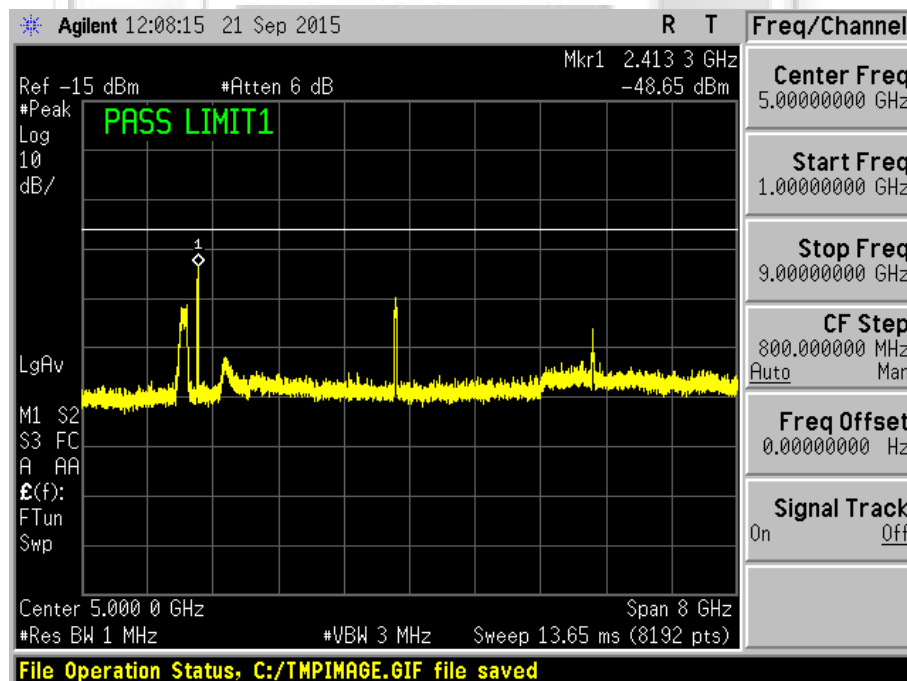
Plot 200 – Channel 1 (lower ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



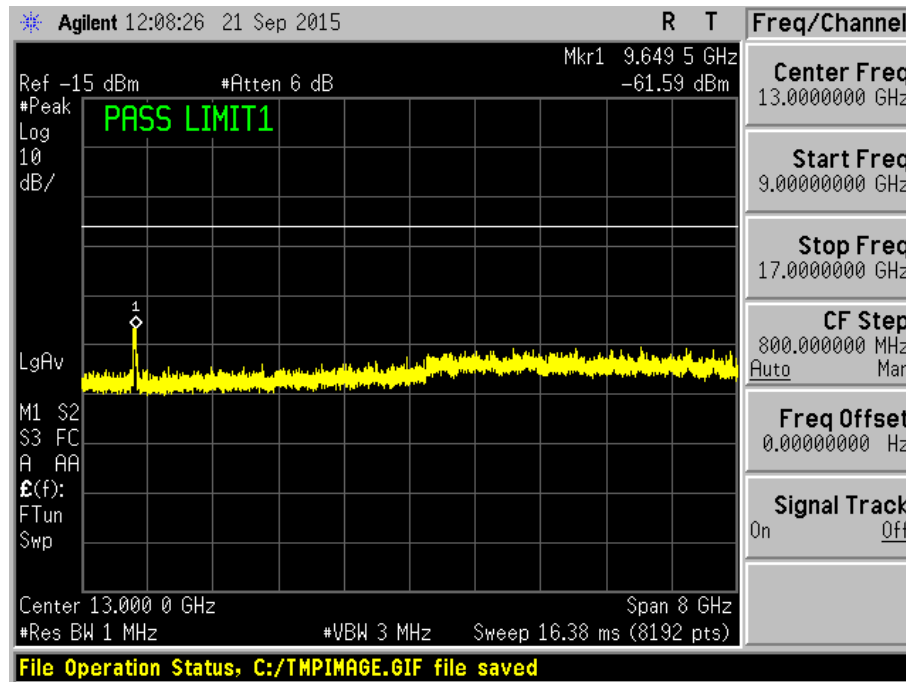
Plot 201 – Channel 1 (lower ch) @ 16QAM 36Mbps



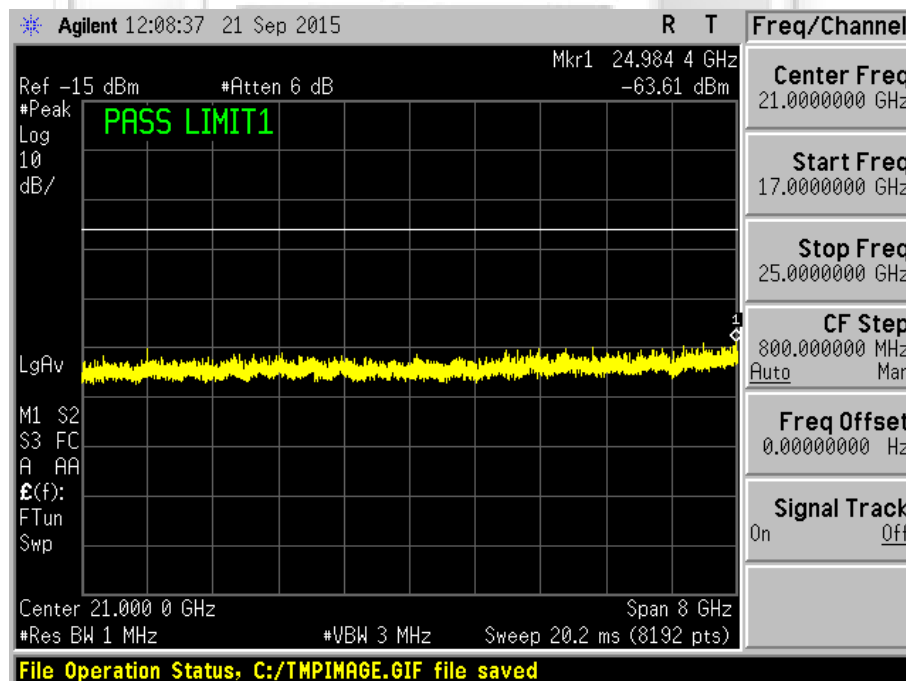
Plot 202 – Channel 1 (lower ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



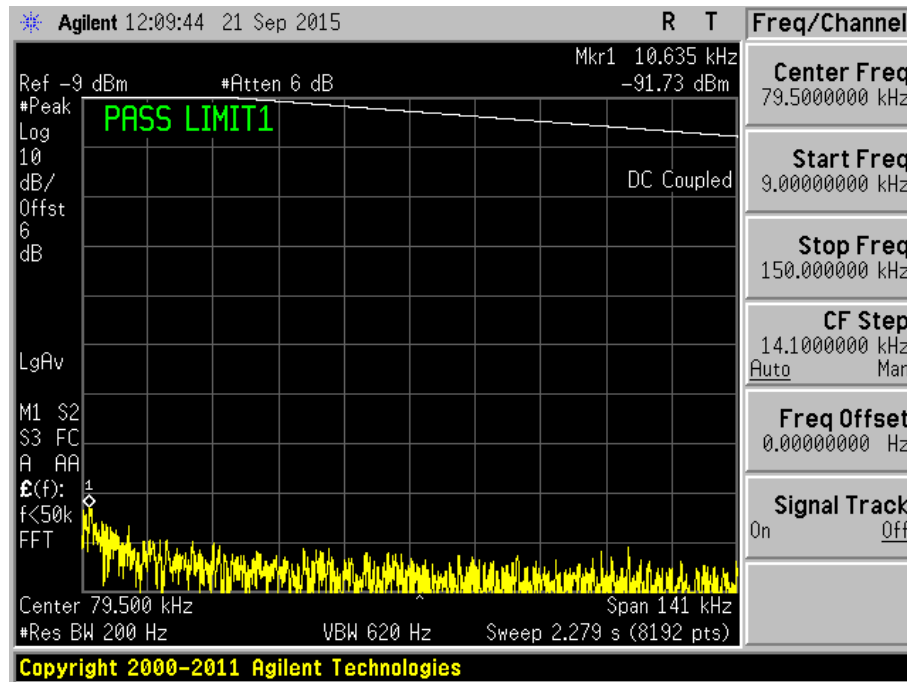
Plot 203 – Channel 1 (lower ch) @ 16QAM 36Mbps



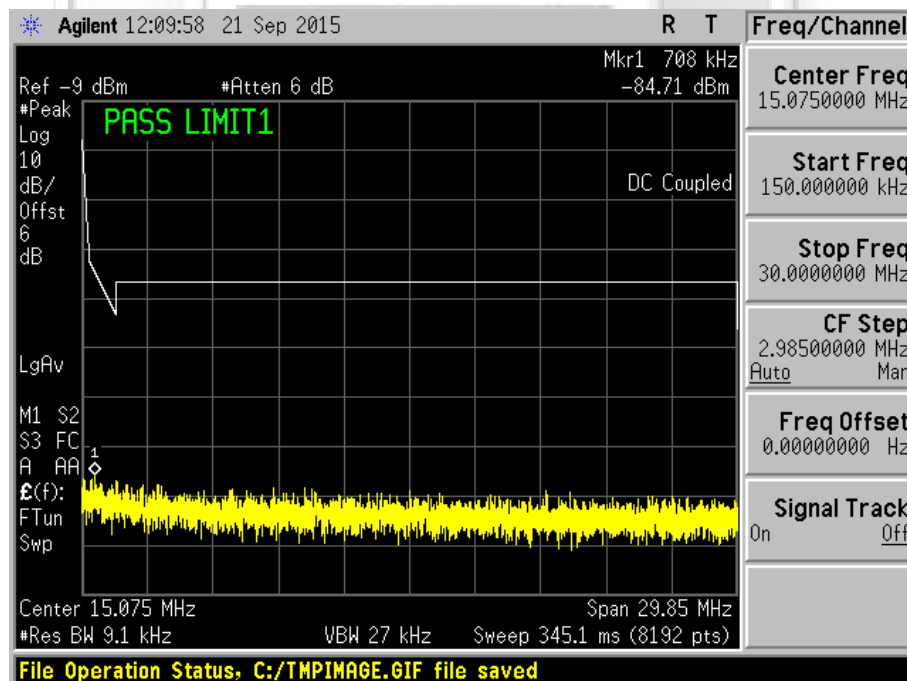
Plot 204 – Channel 1 (lower ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



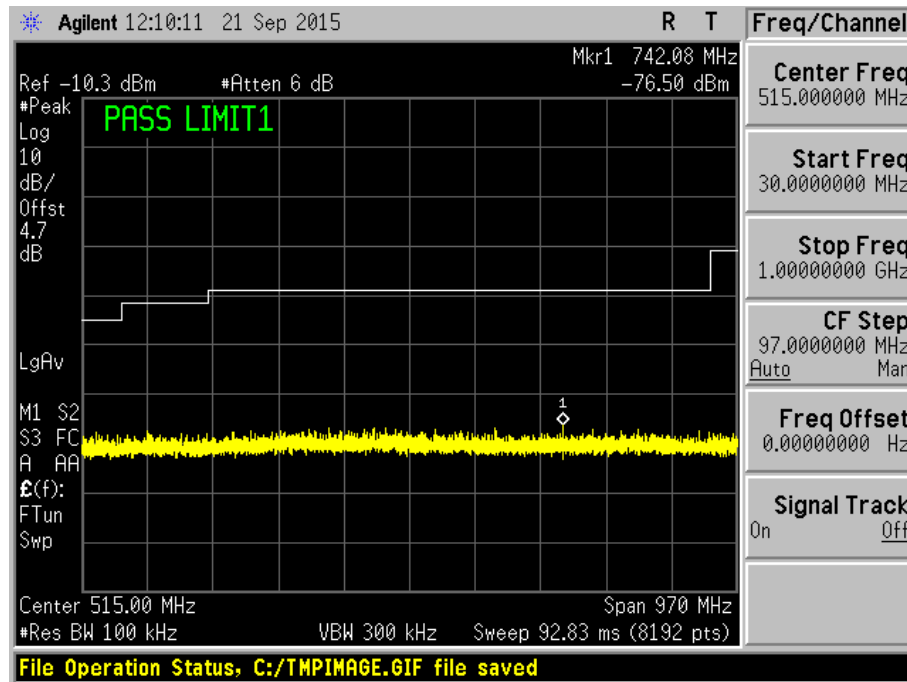
Plot 205 – Channel 1 (lower ch) @ 64QAM 54Mbps



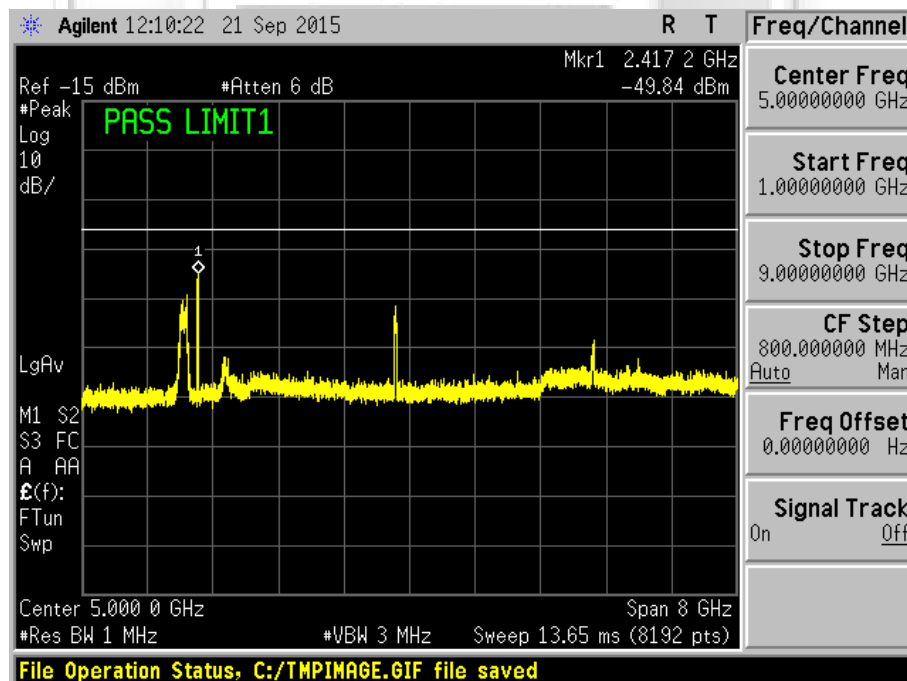
Plot 206 – Channel 1 (lower ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



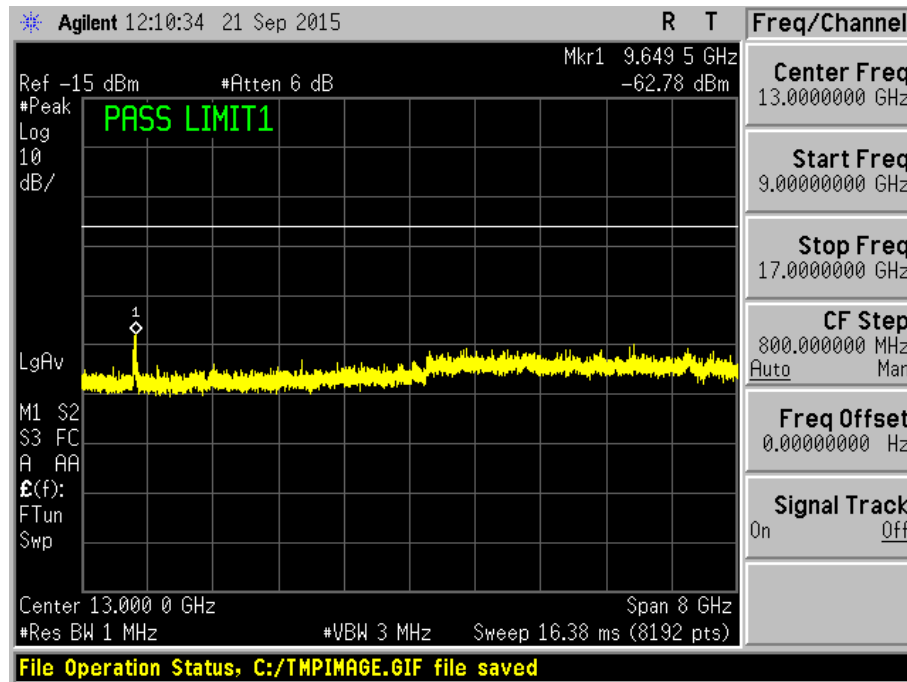
Plot 207 – Channel 1 (lower ch) @ 64QAM 54Mbps



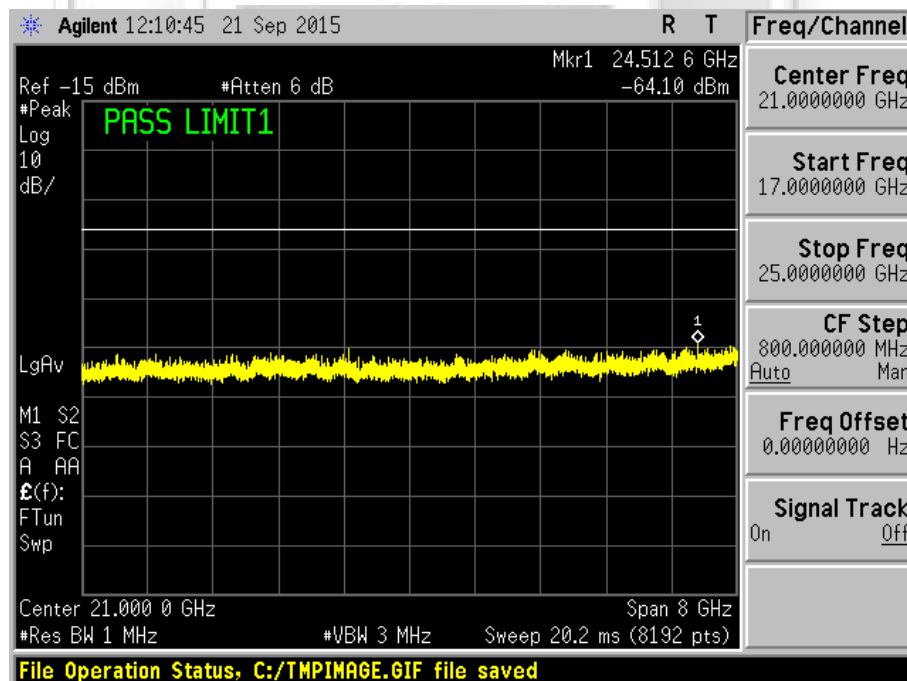
Plot 208 – Channel 1 (lower ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



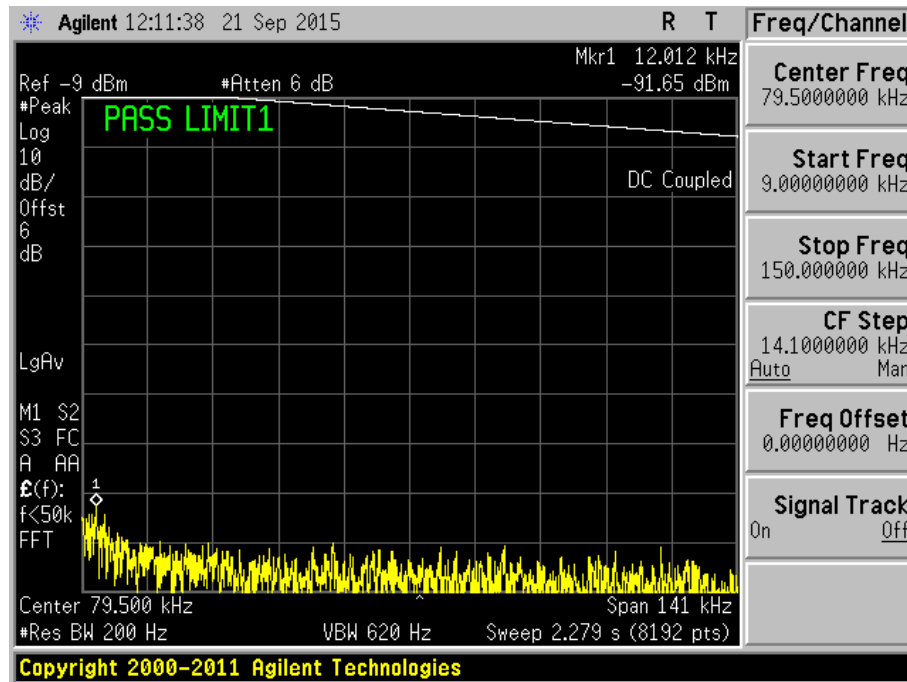
Plot 209 – Channel 1 (lower ch) @ 64QAM 54Mbps



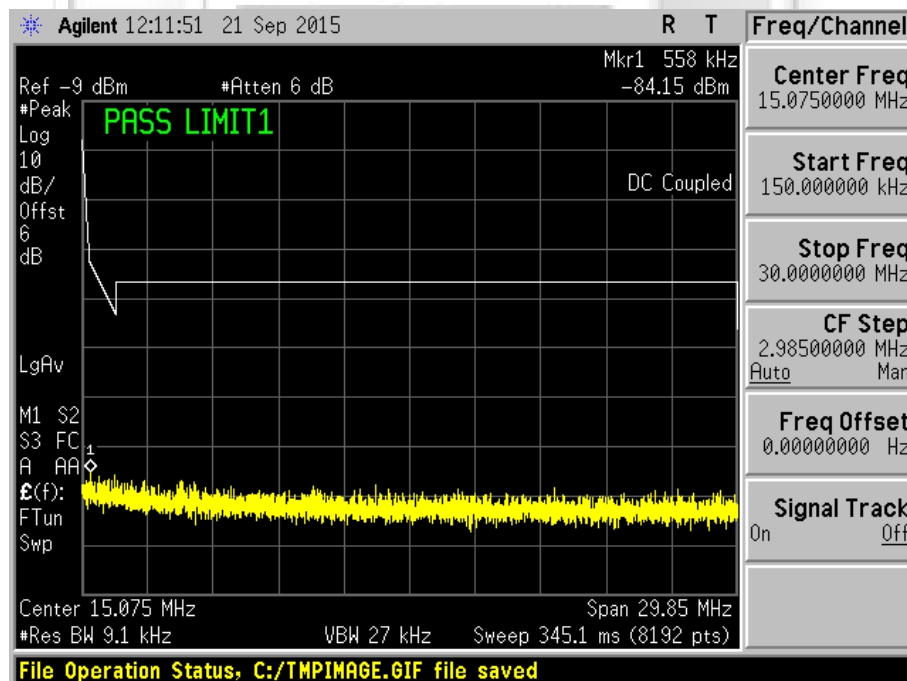
Plot 210 – Channel 1 (lower ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



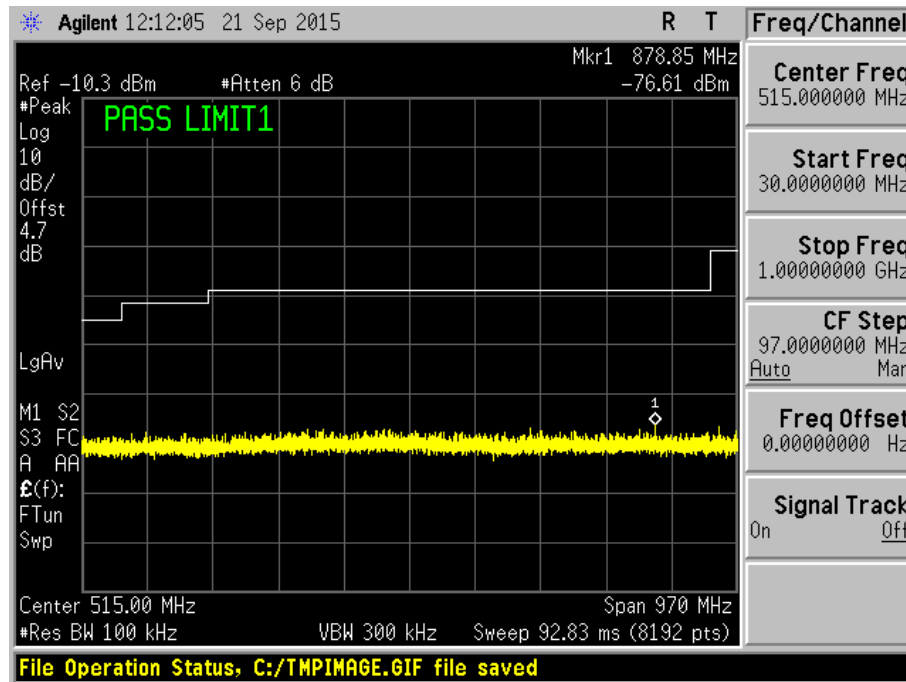
Plot 211 – Channel 6 (middle ch) @ BPSK 9Mbps



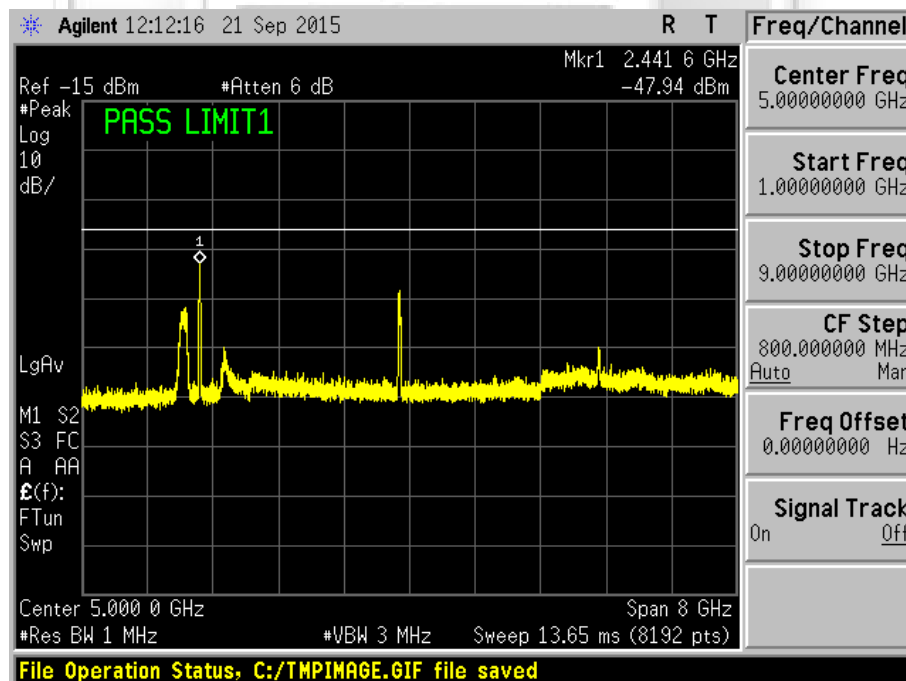
Plot 212 – Channel 6 (middle ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



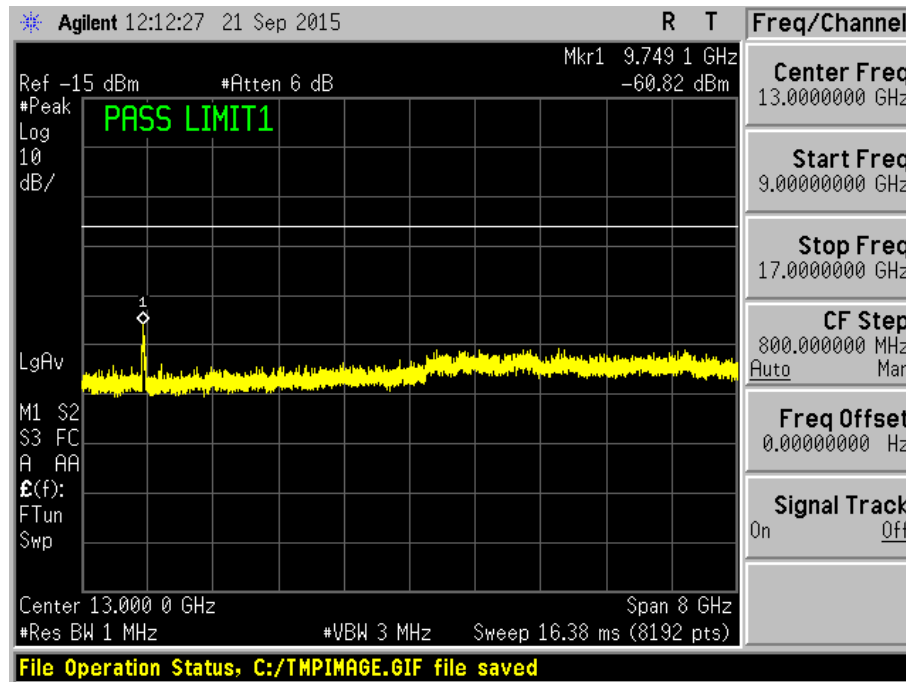
Plot 213 – Channel 6 (middle ch) @ BPSK 9Mbps



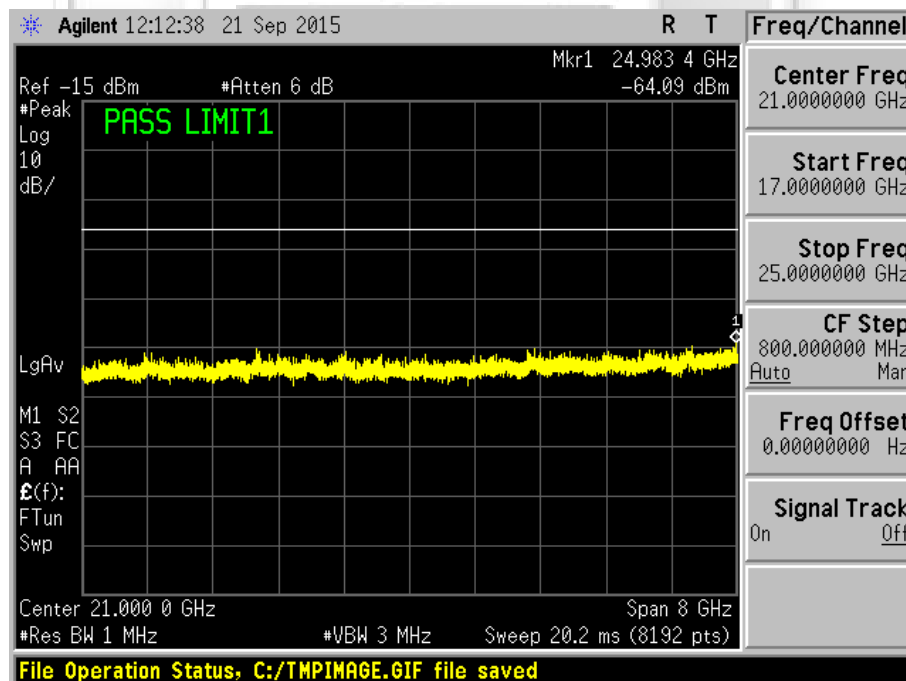
Plot 214 – Channel 6 (middle ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



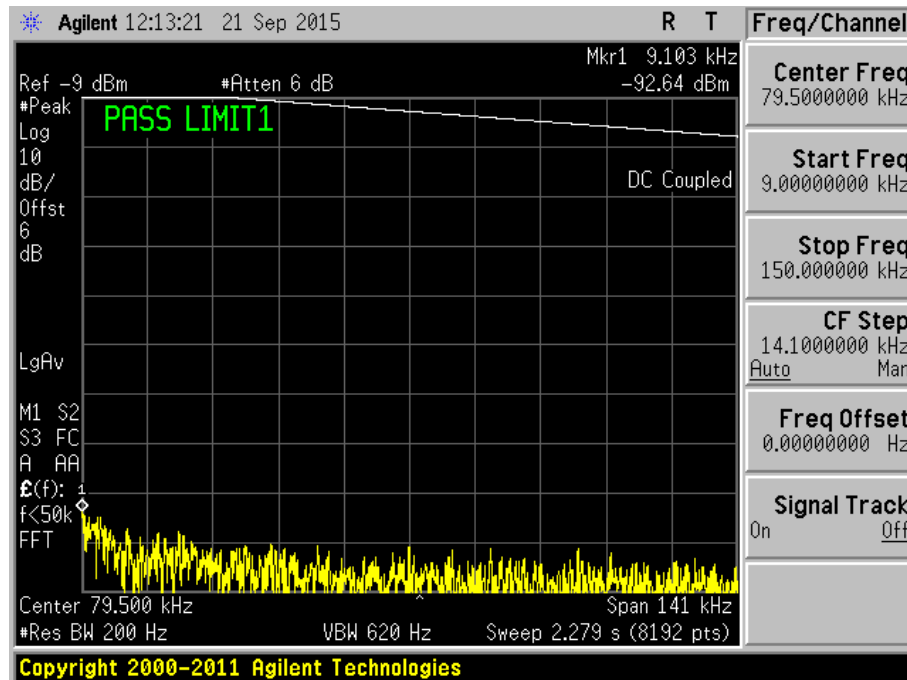
Plot 215 – Channel 6 (middle ch) @ BPSK 9Mbps



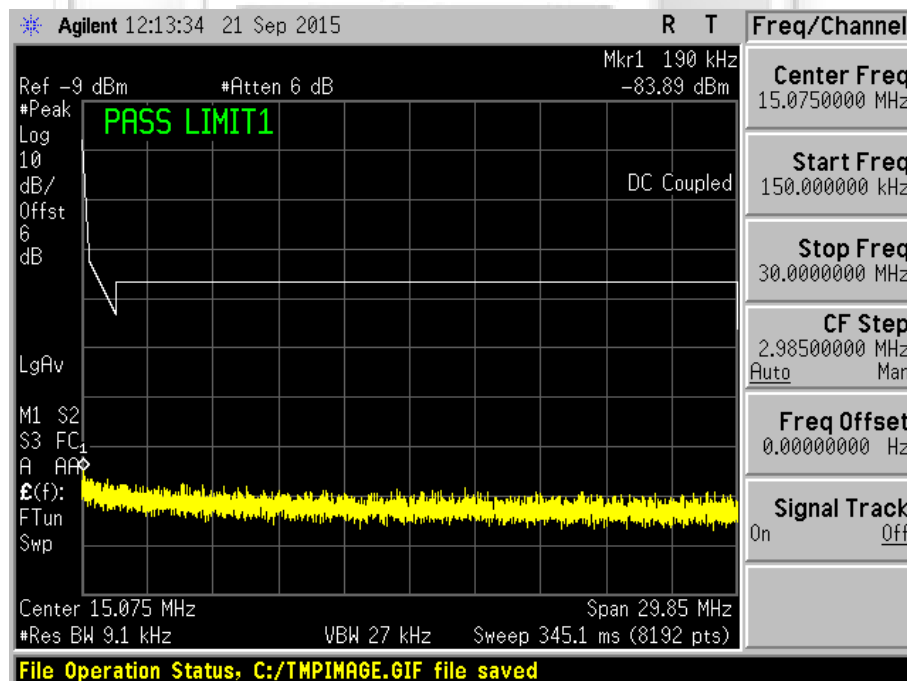
Plot 216 – Channel 6 (middle ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



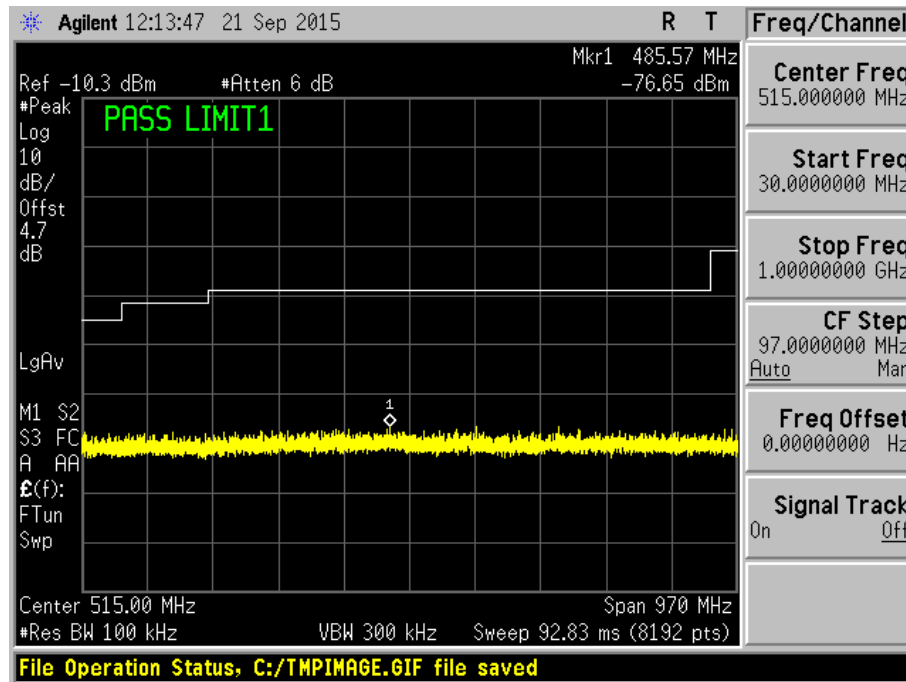
Plot 217 – Channel 6 (middle ch) @ QPSK 18Mbps



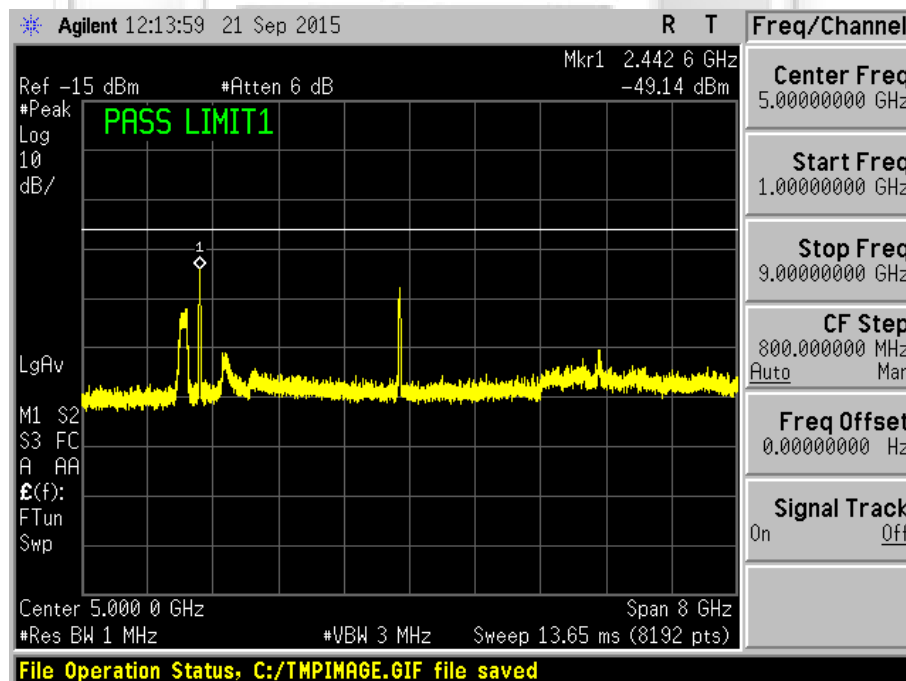
Plot 218 – Channel 6 (middle ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



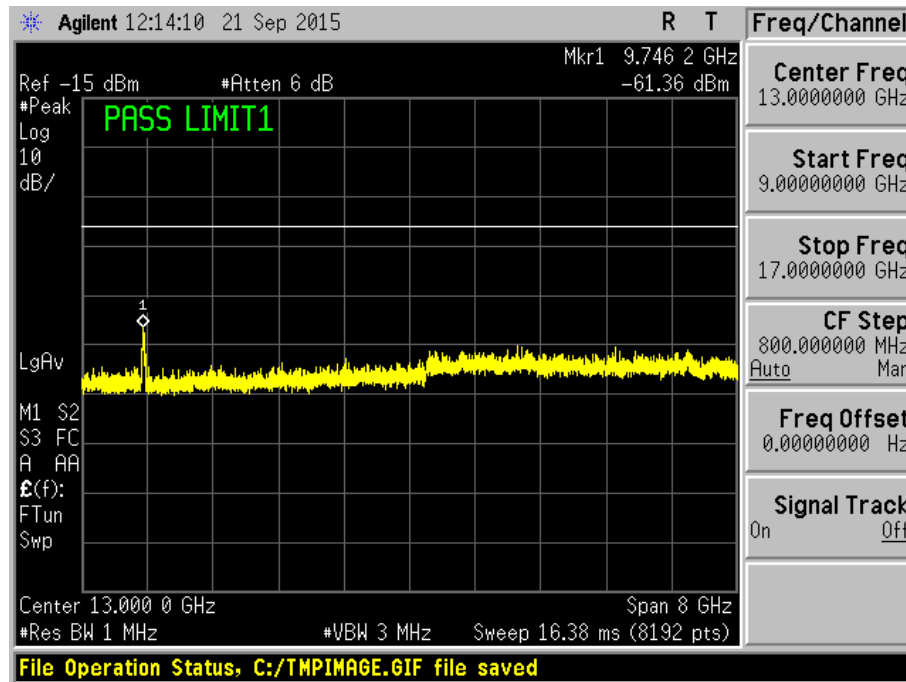
Plot 219 – Channel 6 (middle ch) @ QPSK 18Mbps



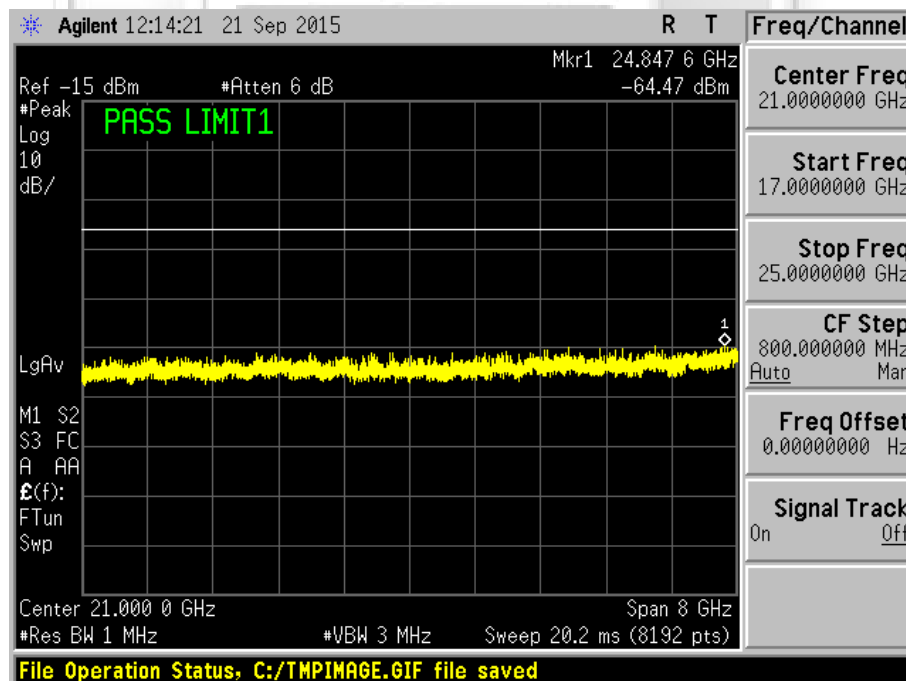
Plot 220 – Channel 6 (middle ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



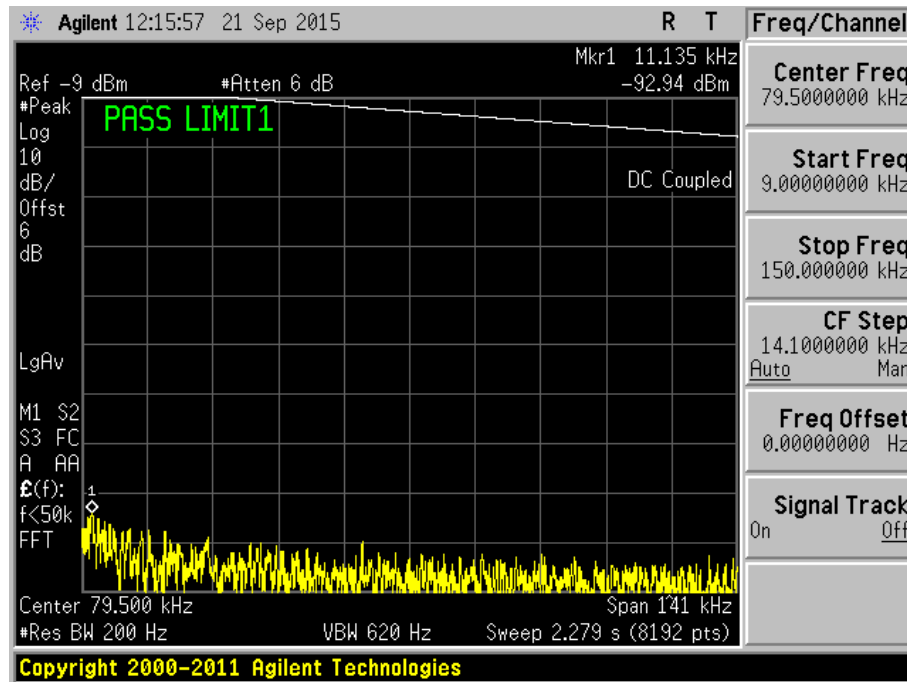
Plot 221 – Channel 6 (middle ch) @ QPSK 18Mbps



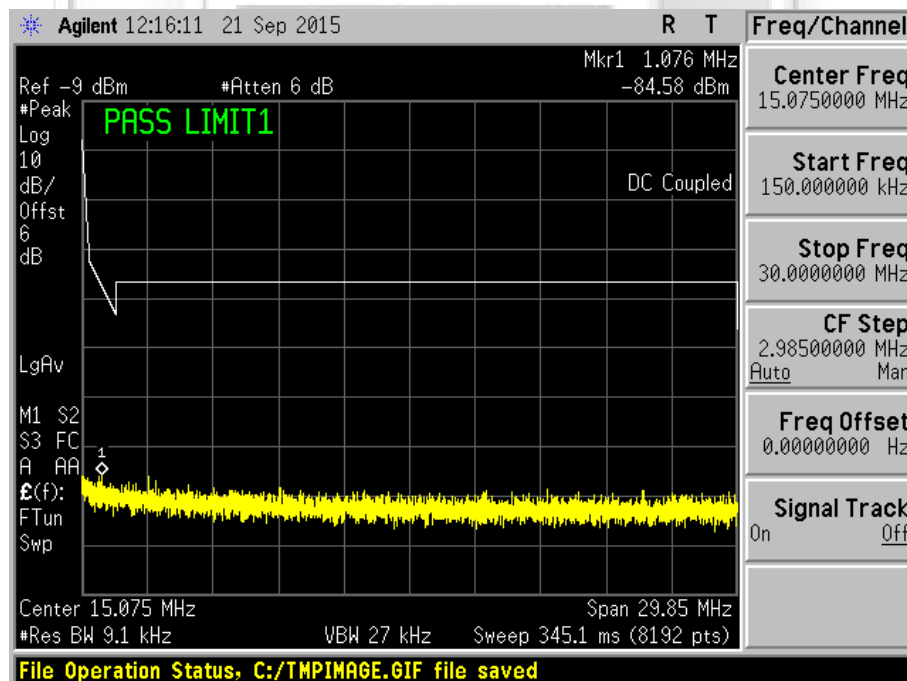
Plot 222 – Channel 6 (middle ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



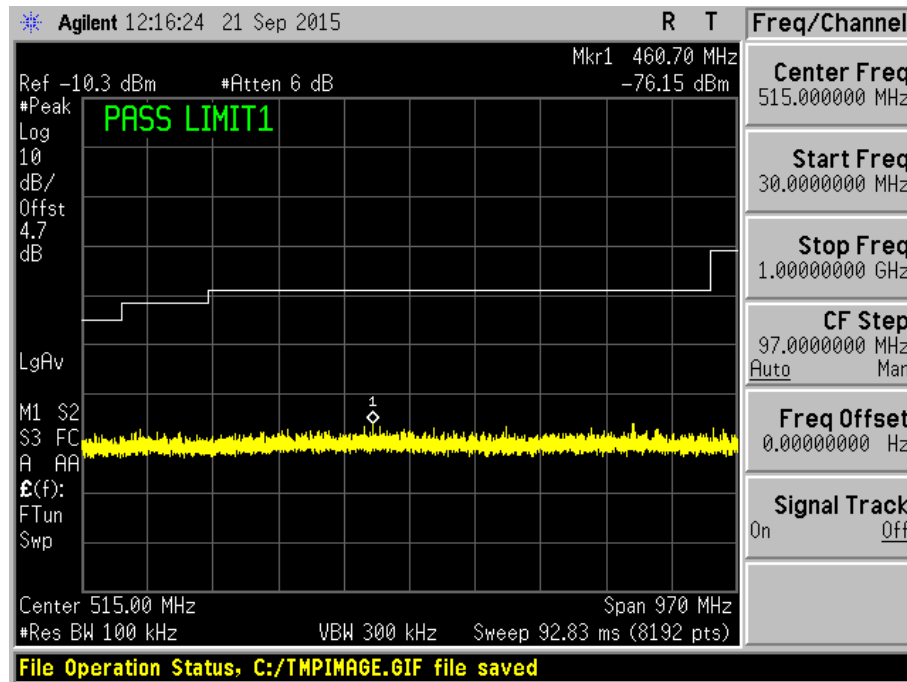
Plot 223 – Channel 6 (middle ch) @ 16QAM 36Mbps



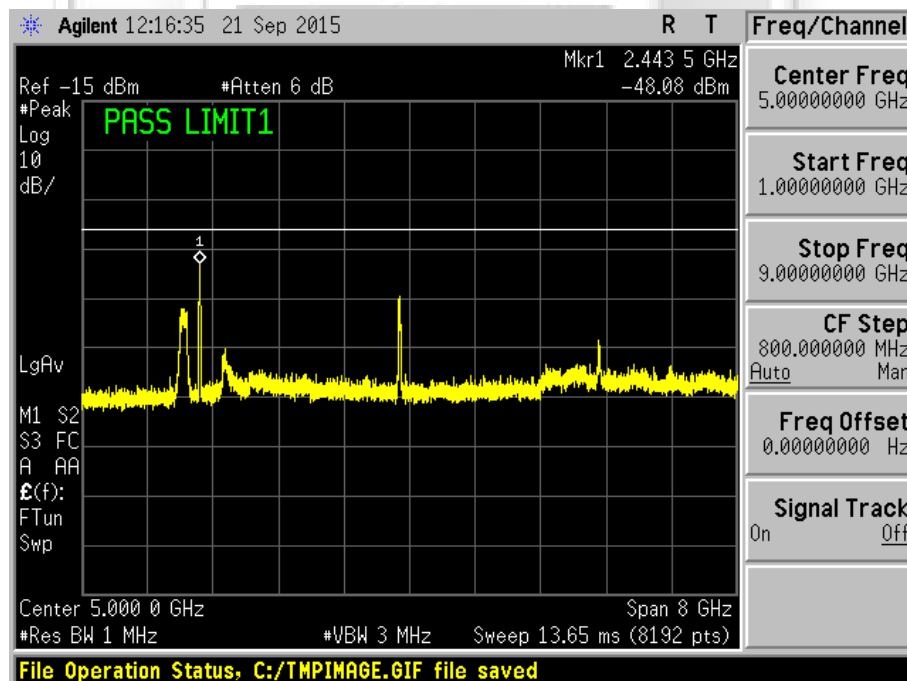
Plot 224 – Channel 6 (middle ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



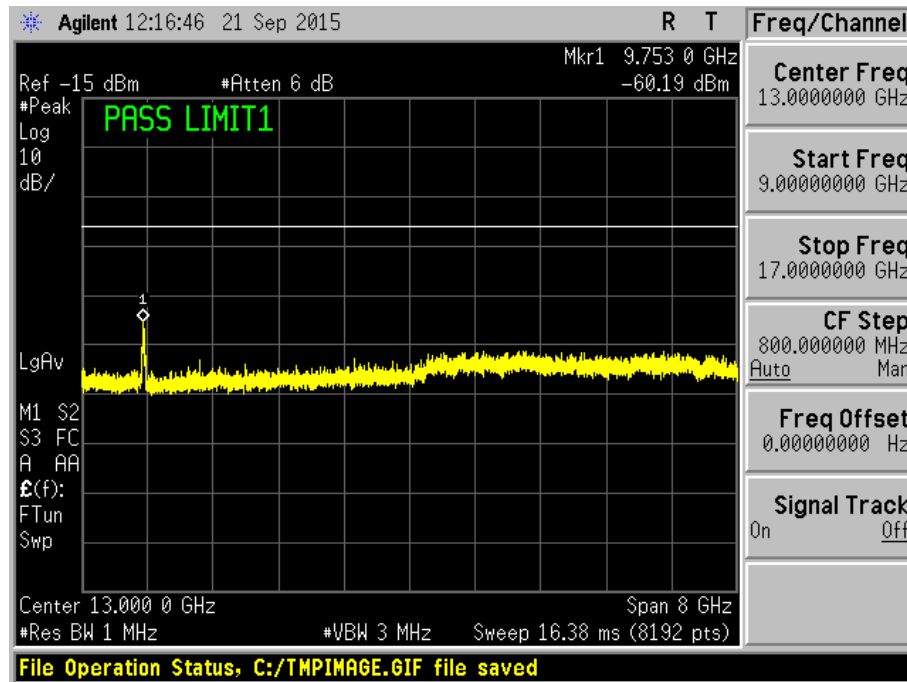
Plot 225 – Channel 6 (middle ch) @ 16QAM 36Mbps



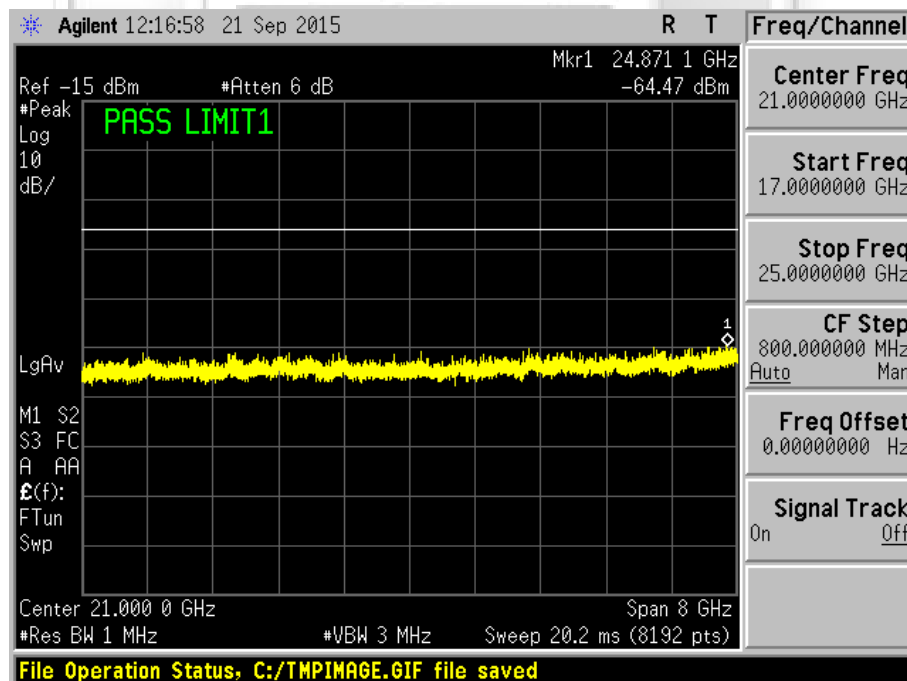
Plot 226 – Channel 6 (middle ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



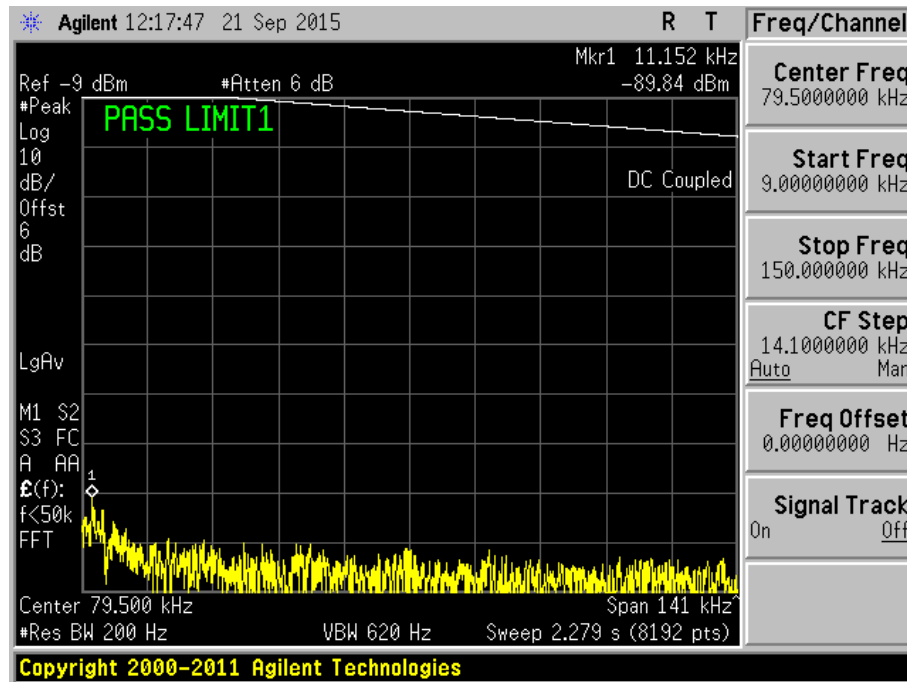
Plot 227 – Channel 6 (middle ch) @ 16QAM 36Mbps



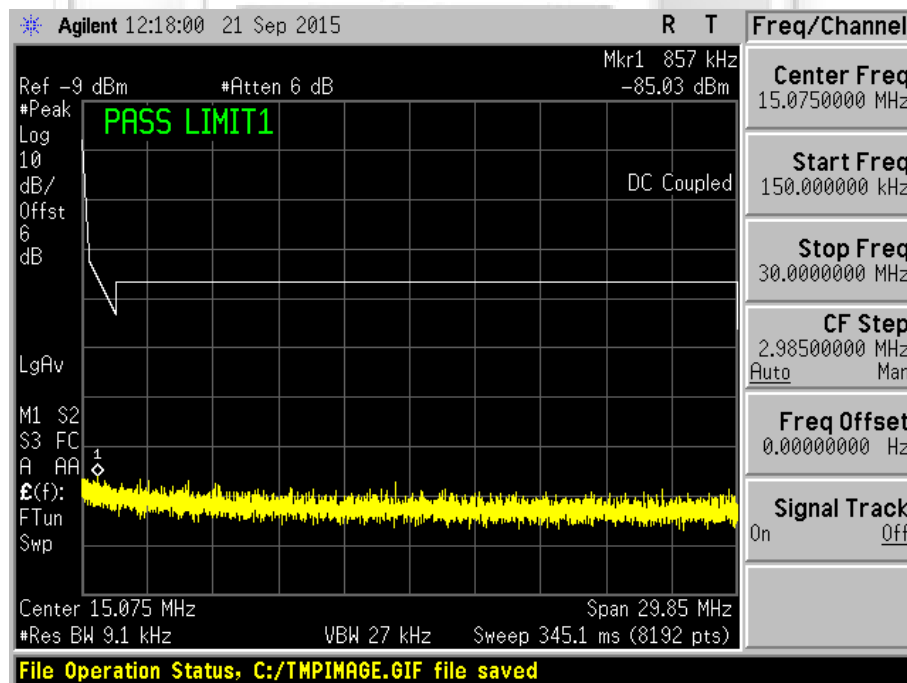
Plot 228 – Channel 6 (middle ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



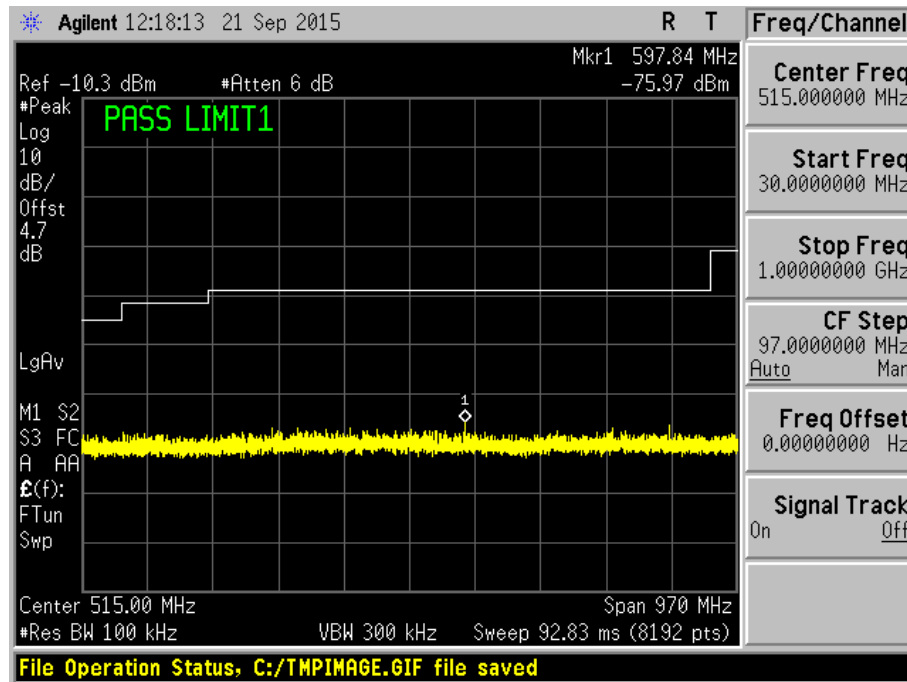
Plot 229 – Channel 6 (middle ch) @ 64QAM 54Mbps



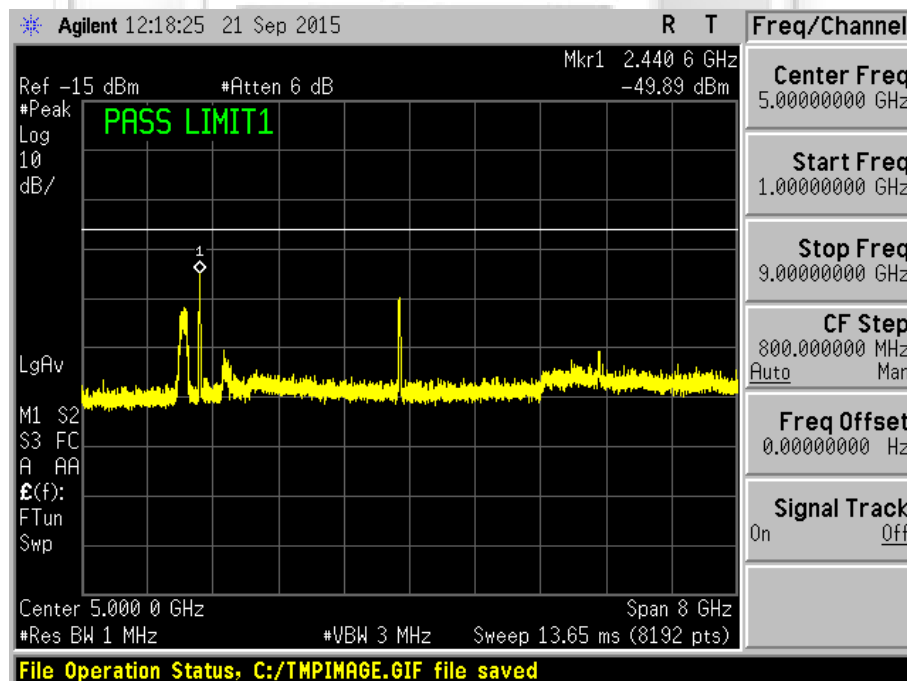
Plot 230 – Channel 6 (middle ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



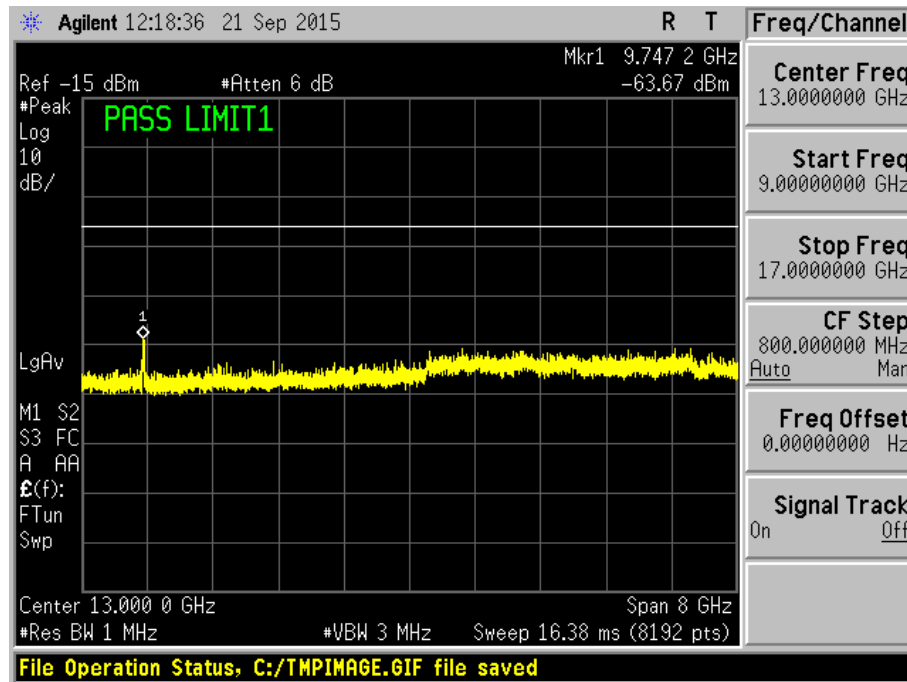
Plot 231 – Channel 6 (middle ch) @ 64QAM 54Mbps



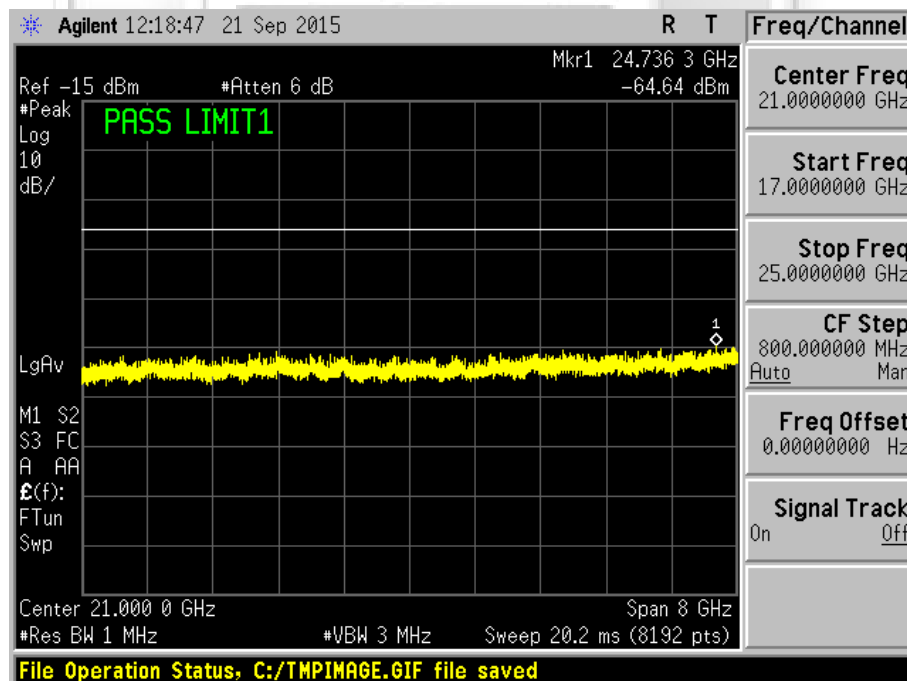
Plot 232 – Channel 6 (middle ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



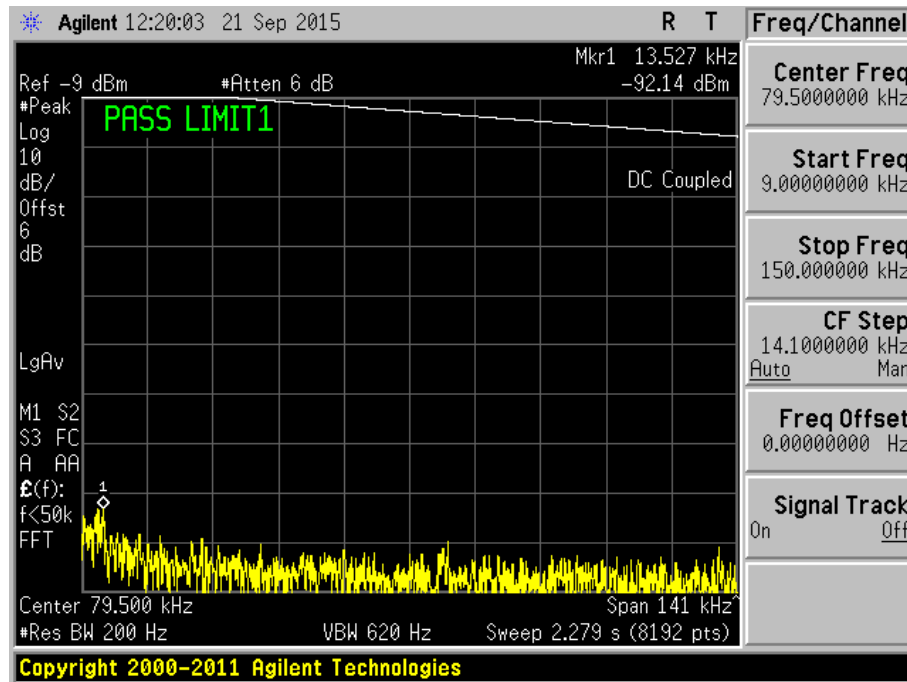
Plot 233 – Channel 6 (middle ch) @ 64QAM 54Mbps



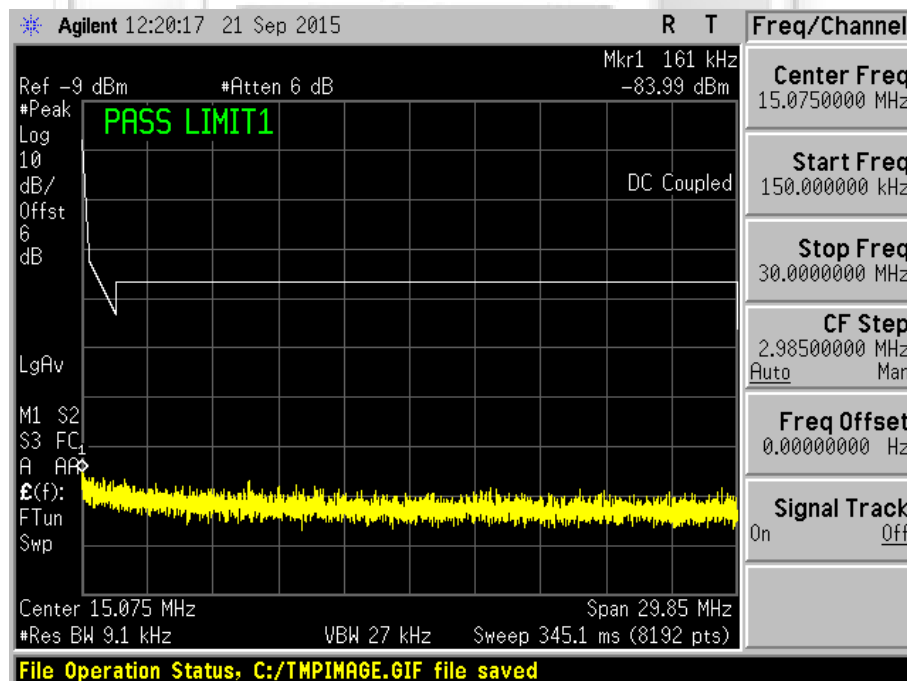
Plot 234 – Channel 6 (middle ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



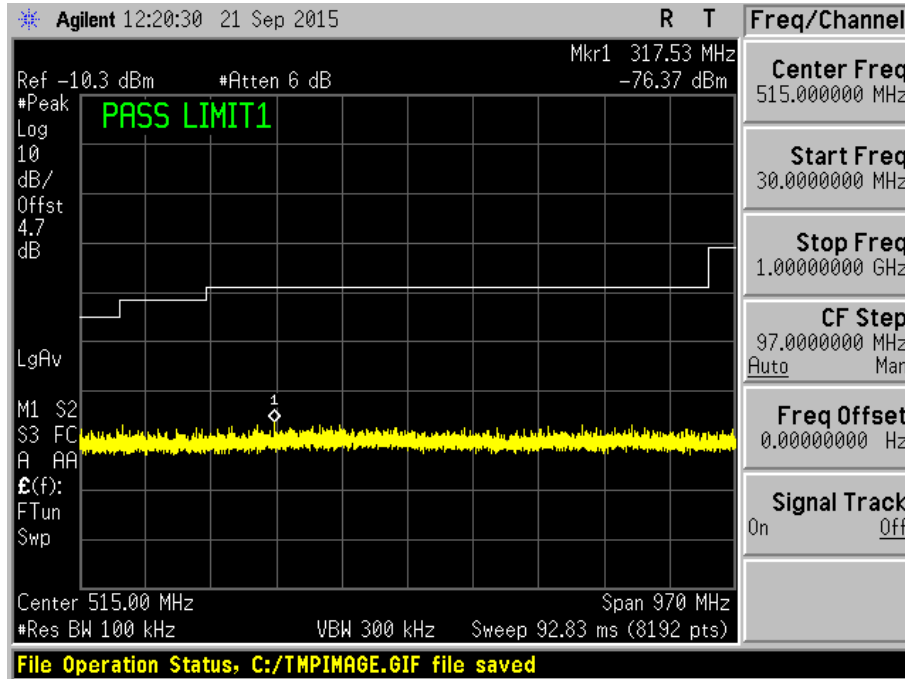
Plot 235 – Channel 11 (upper ch) @ BPSK 9Mbps



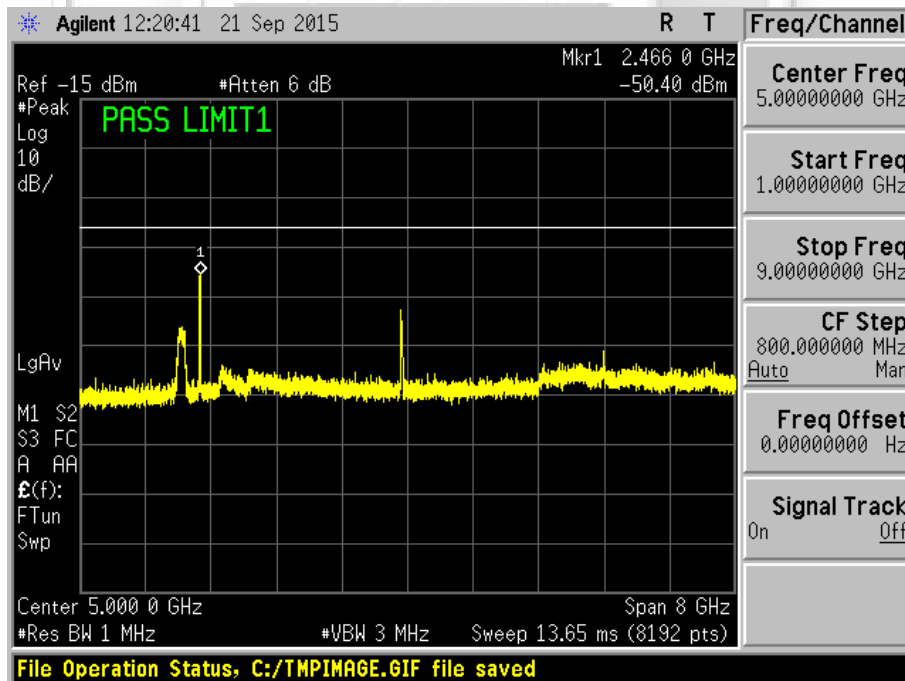
Plot 236 – Channel 11 (upper ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



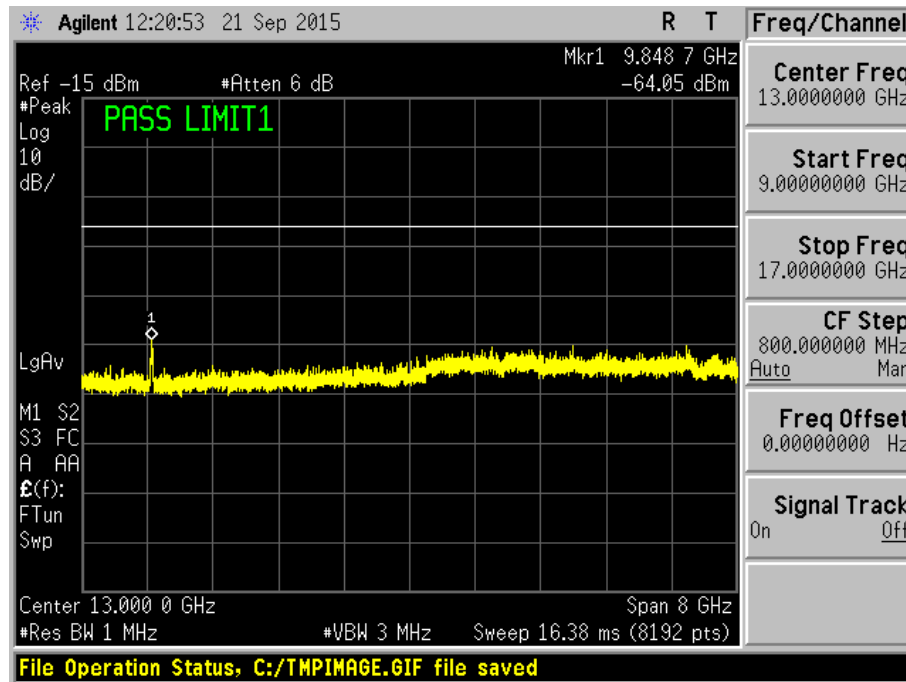
Plot 237 – Channel 11 (upper ch) @ BPSK 9Mbps



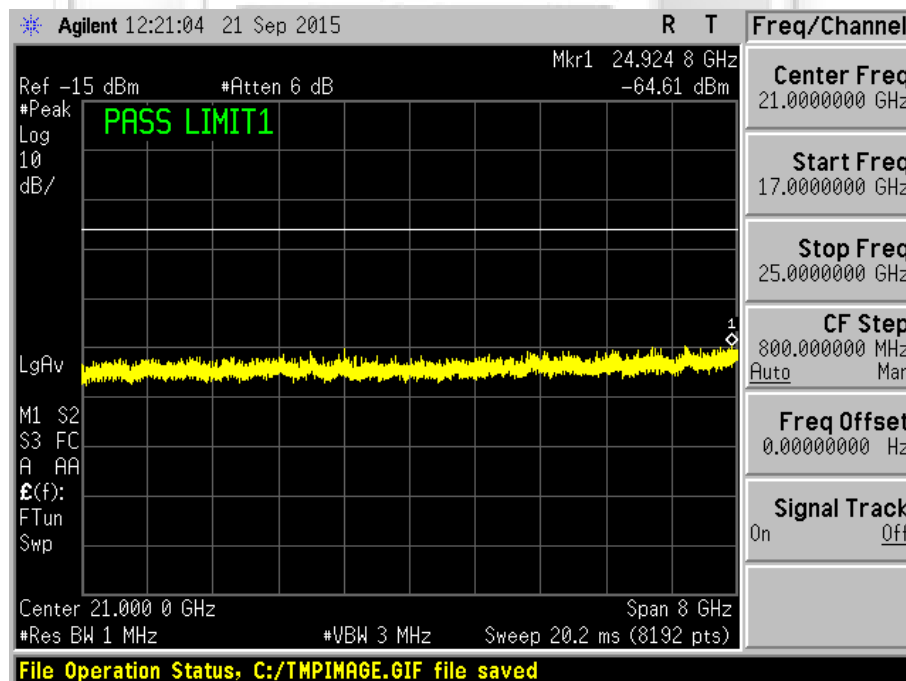
Plot 238 – Channel 11 (upper ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



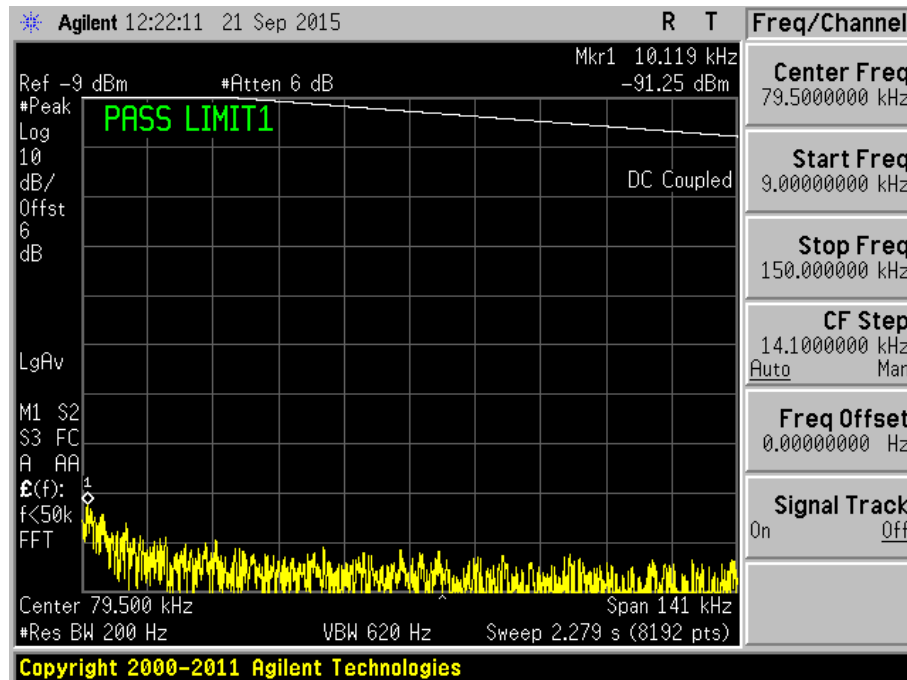
Plot 239 – Channel 11 (upper ch) @ BPSK 9Mbps



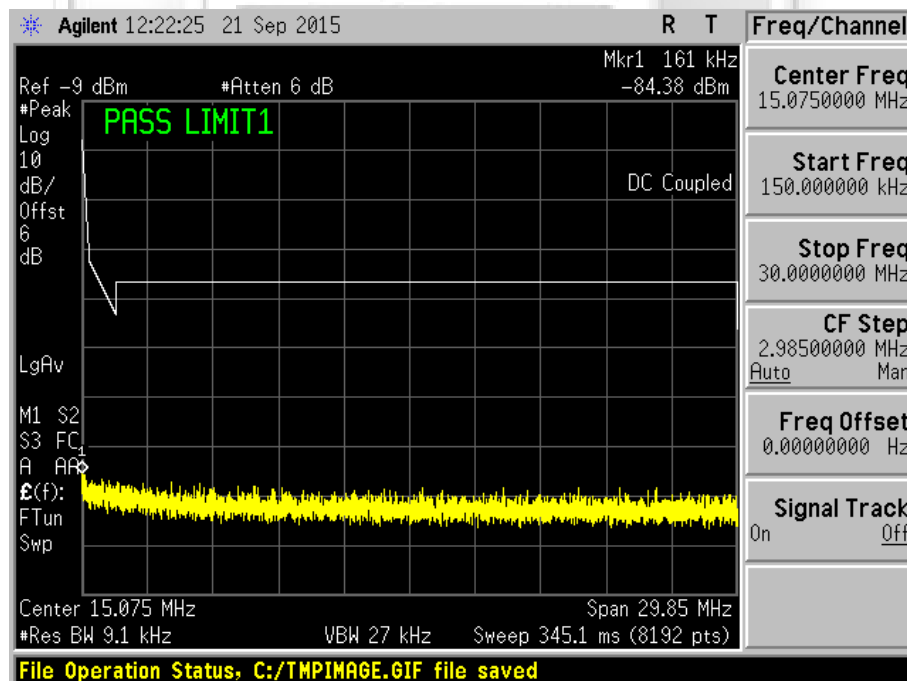
Plot 240 – Channel 11 (upper ch) @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



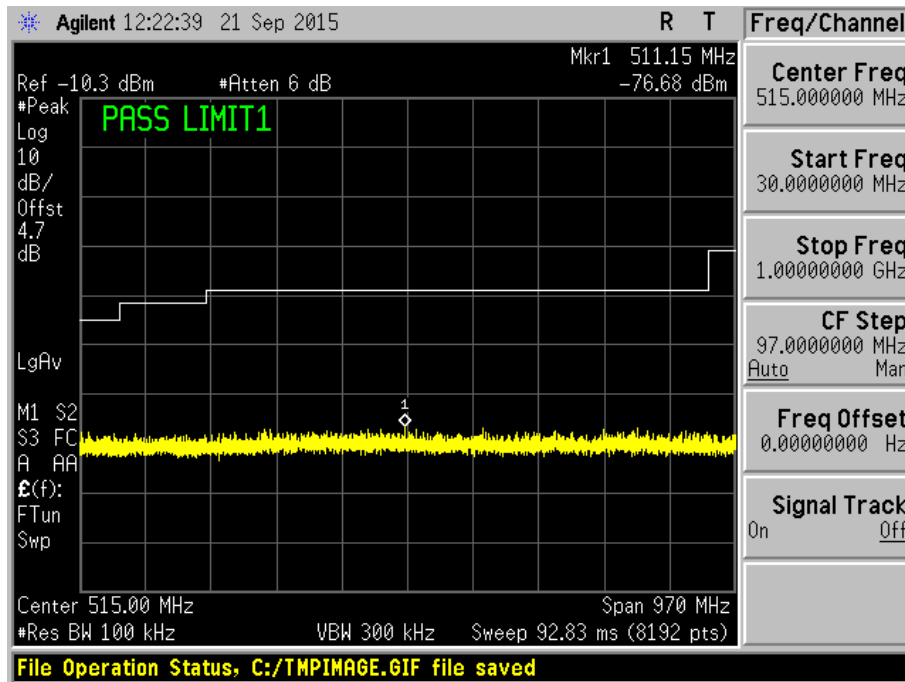
Plot 241 – Channel 11 (upper ch) @ QPSK 18Mbps



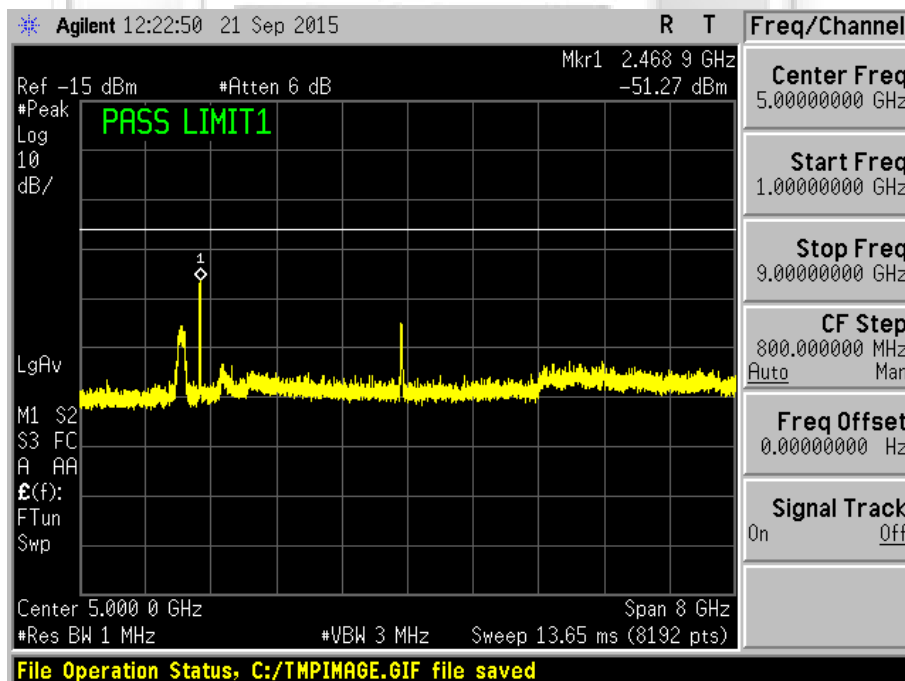
Plot 242 – Channel 11 (upper ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



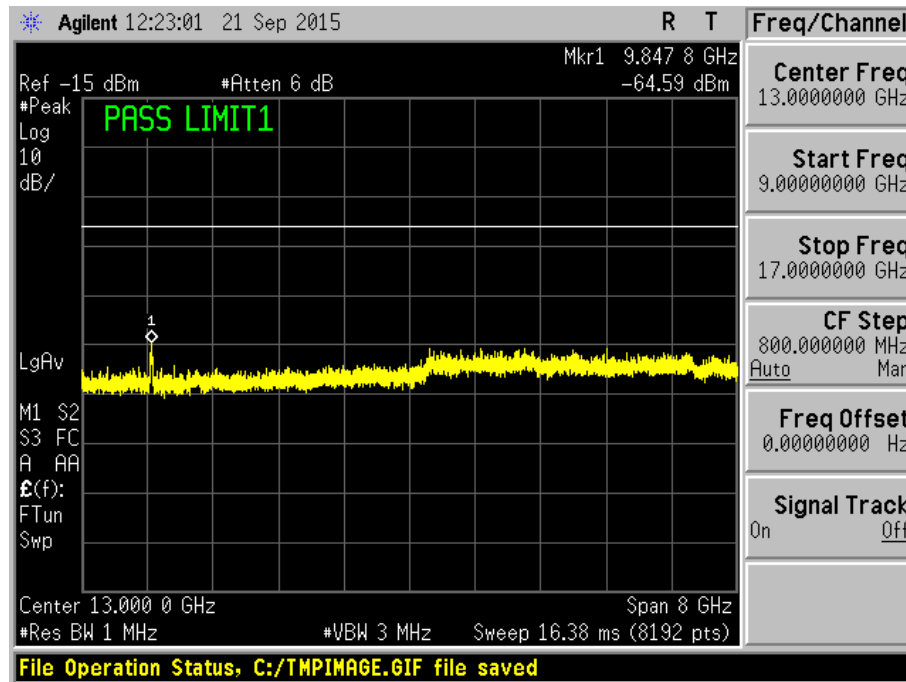
Plot 243 – Channel 11 (upper ch) @ QPSK 18Mbps



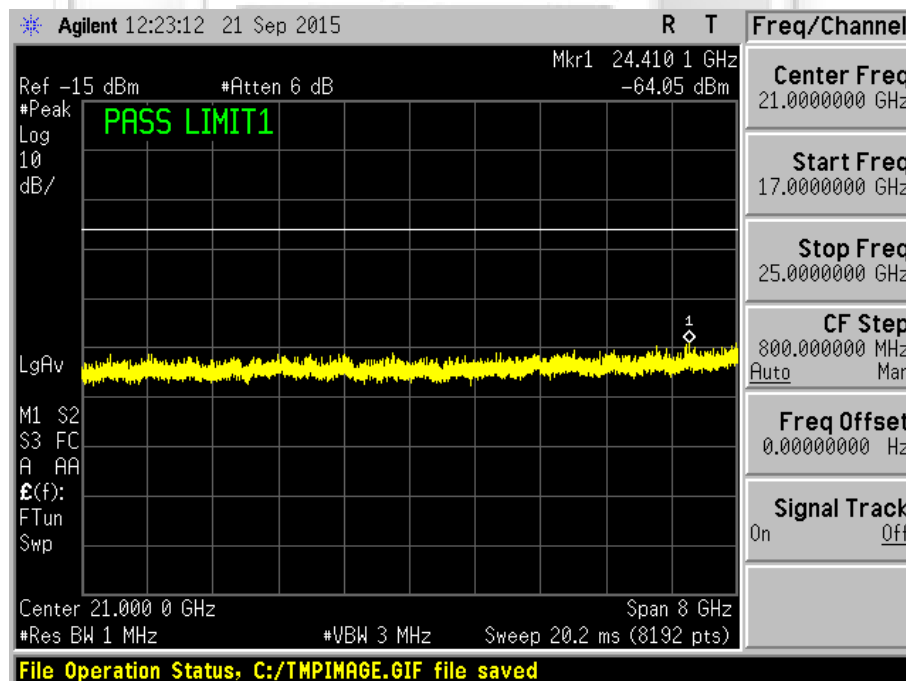
Plot 244 – Channel 11 (upper ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



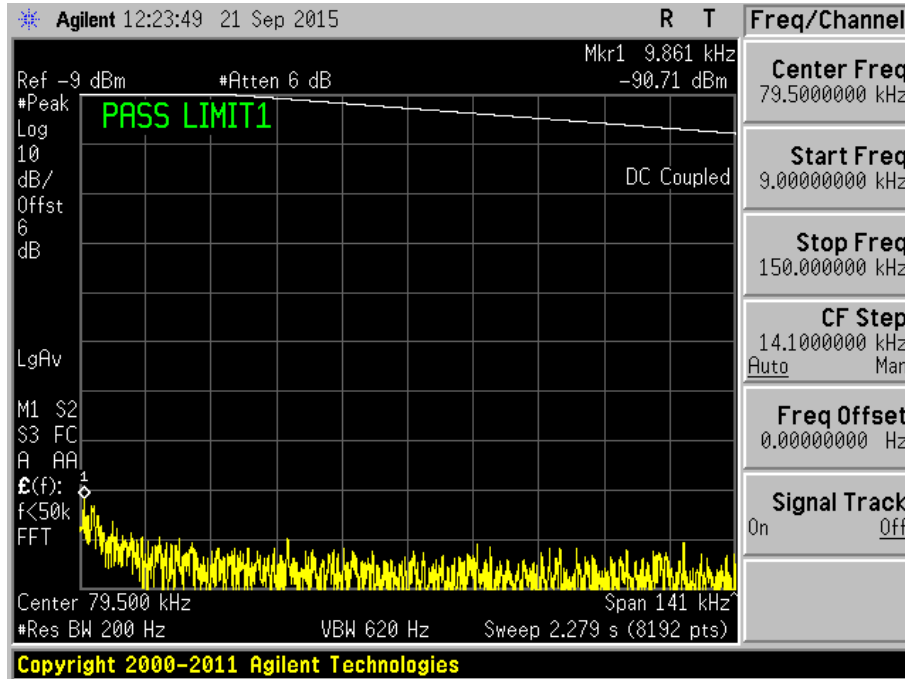
Plot 245 – Channel 11 (upper ch) @ QPSK 18Mbps



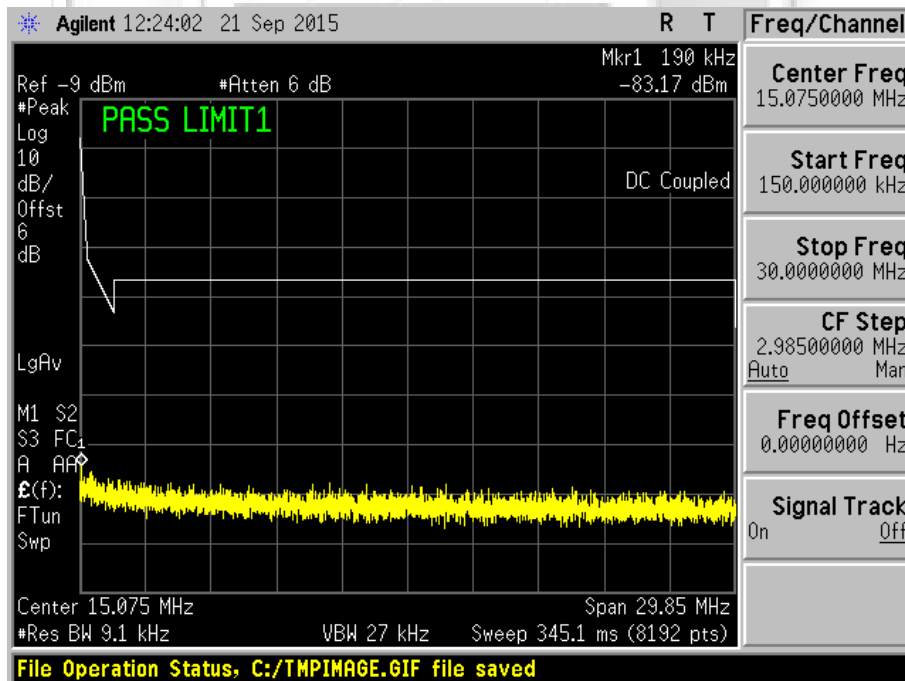
Plot 246 – Channel 11 (upper ch) @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



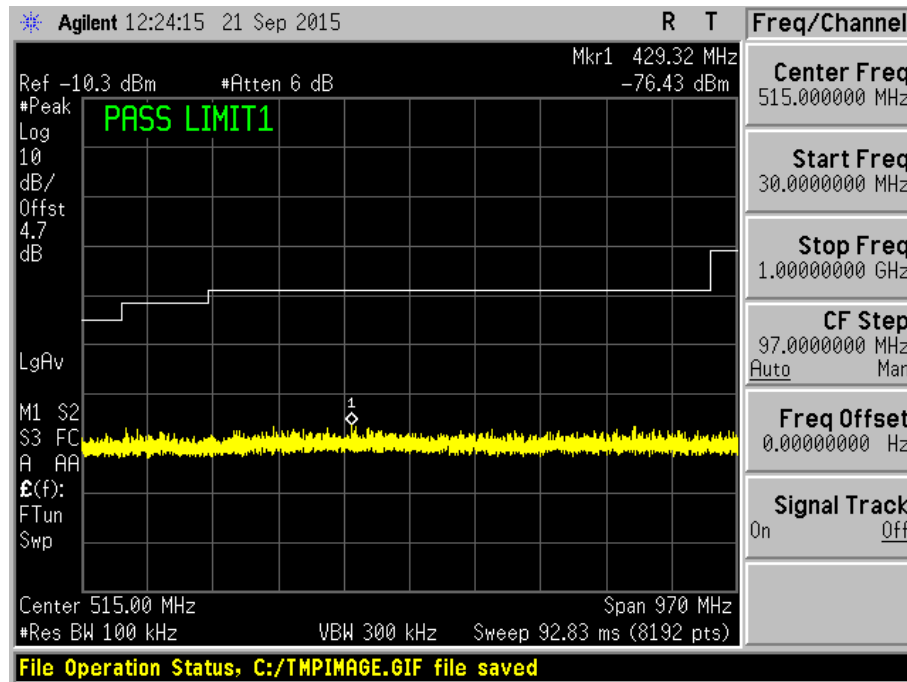
Plot 247 – Channel 11 (upper ch) @ 16QAM 36Mbps



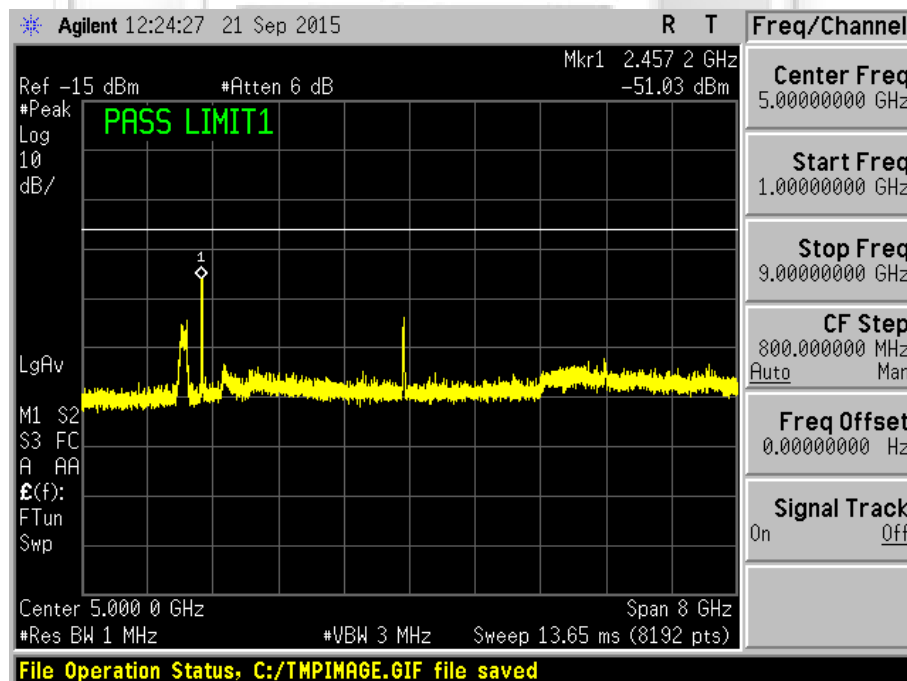
Plot 248 – Channel 11 (upper ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



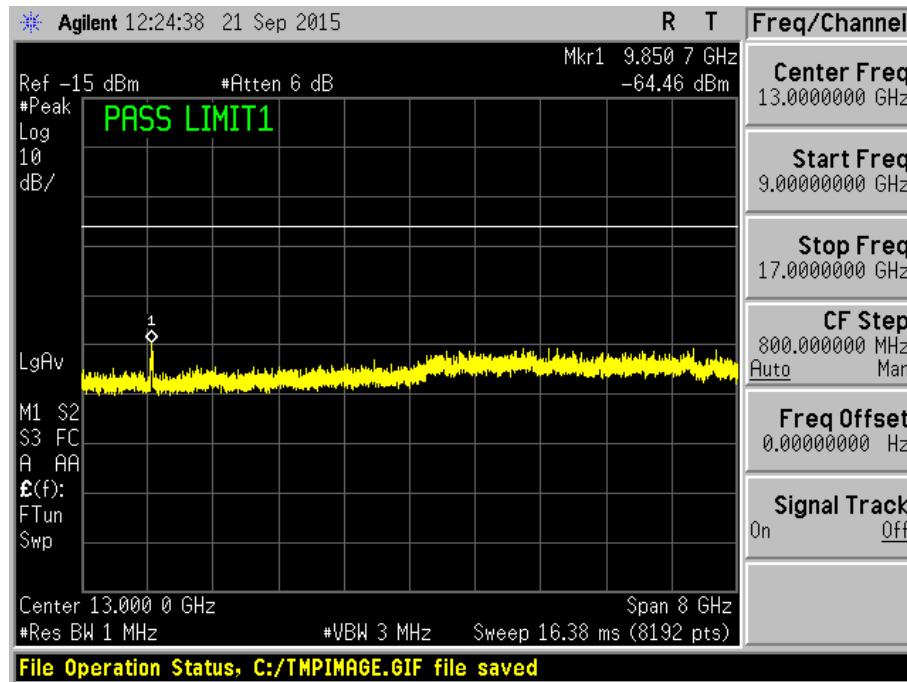
Plot 249 – Channel 11 (upper ch) @ 16QAM 36Mbps



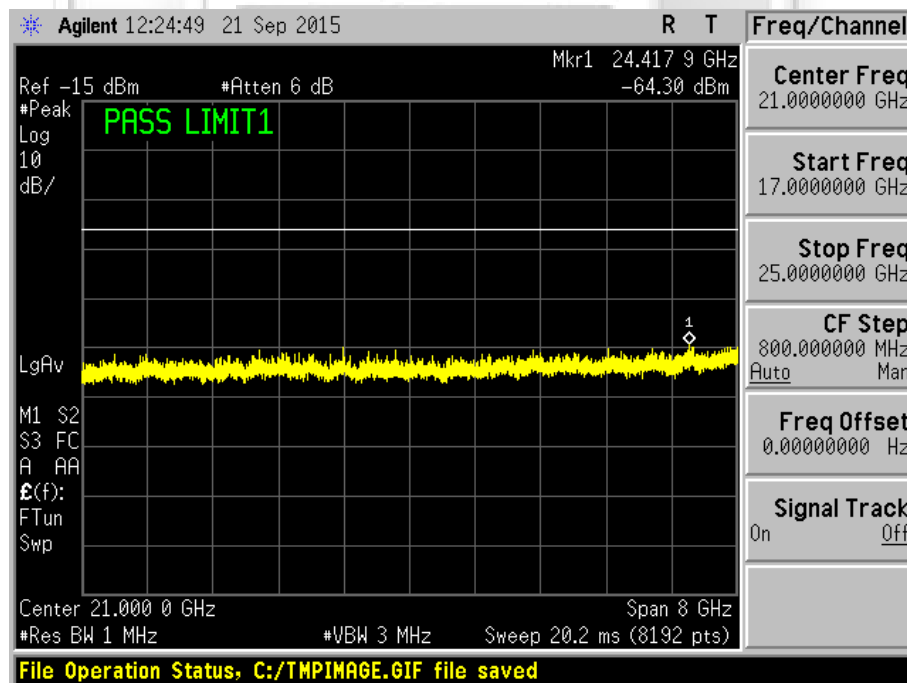
Plot 250 – Channel 11 (upper ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



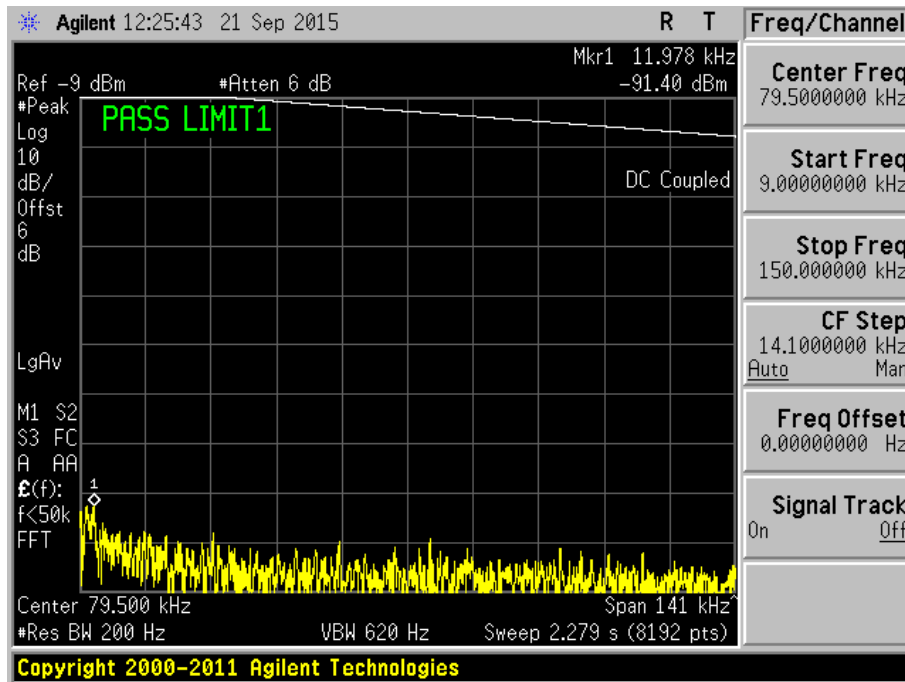
Plot 251 – Channel 11 (upper ch) @ 16QAM 36Mbps



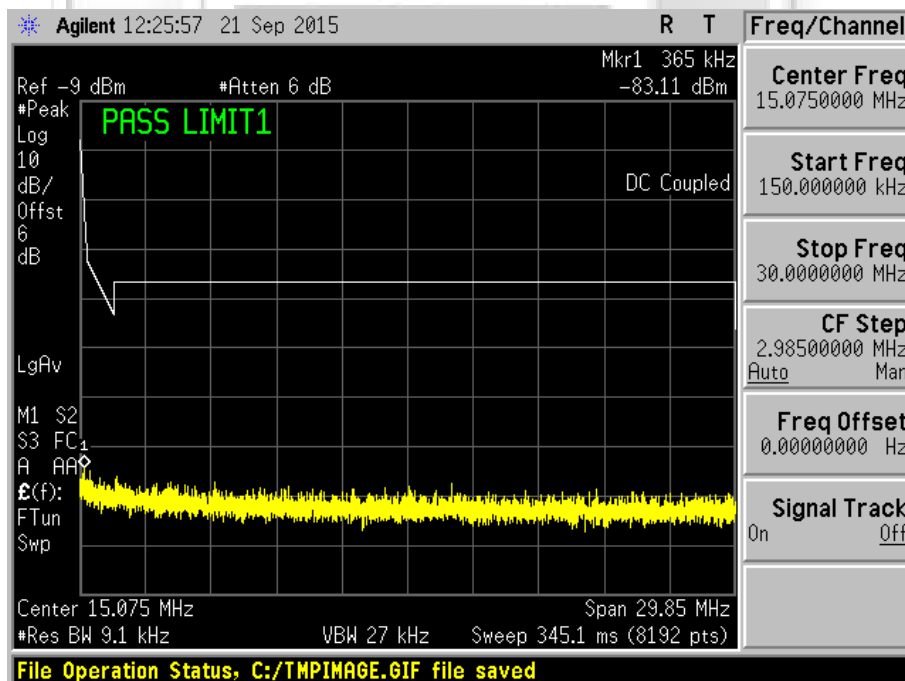
Plot 252 – Channel 11 (upper ch) @ 16QAM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



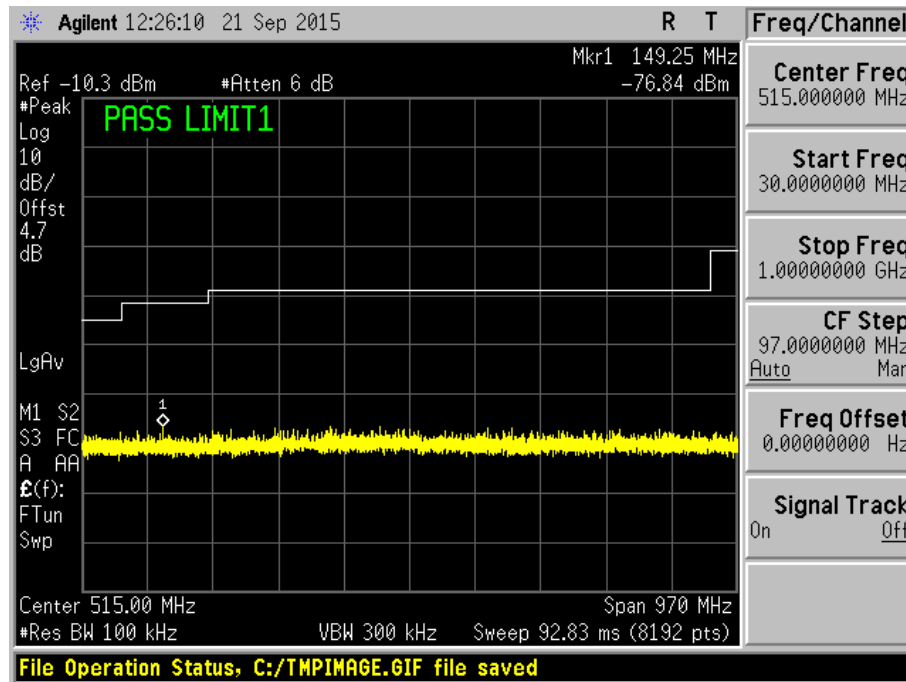
Plot 253 – Channel 11 (upper ch) @ 64QAM 54Mbps



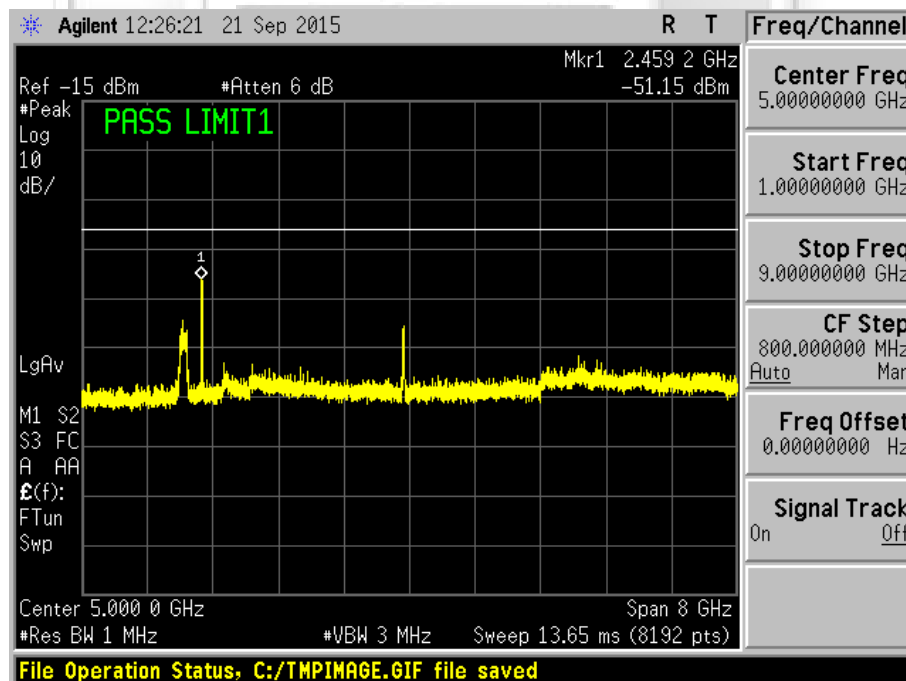
Plot 254 – Channel 11 (upper ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



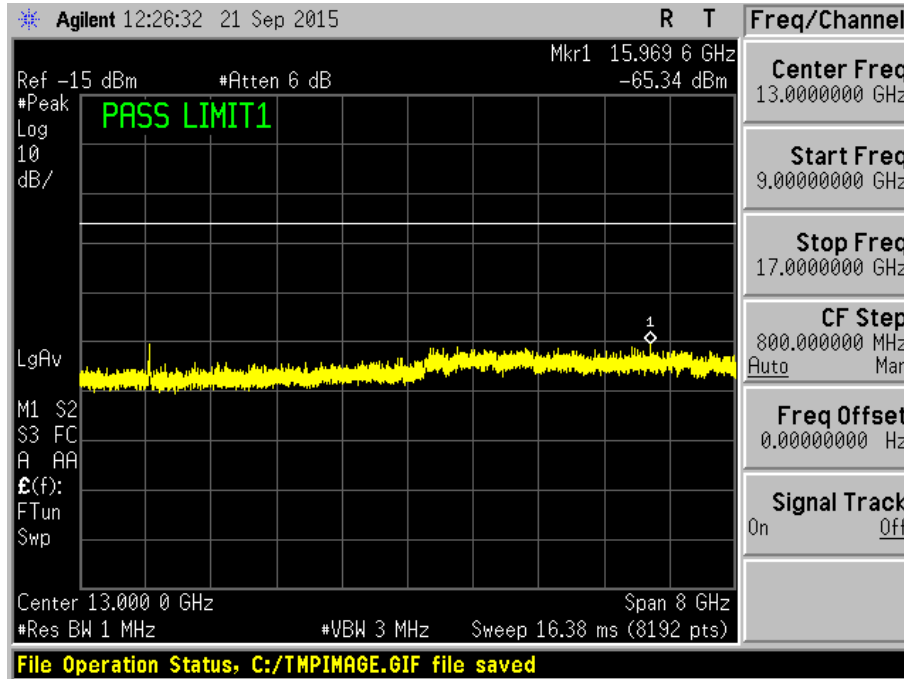
Plot 255 – Channel 11 (upper ch) @ 64QAM 54Mbps



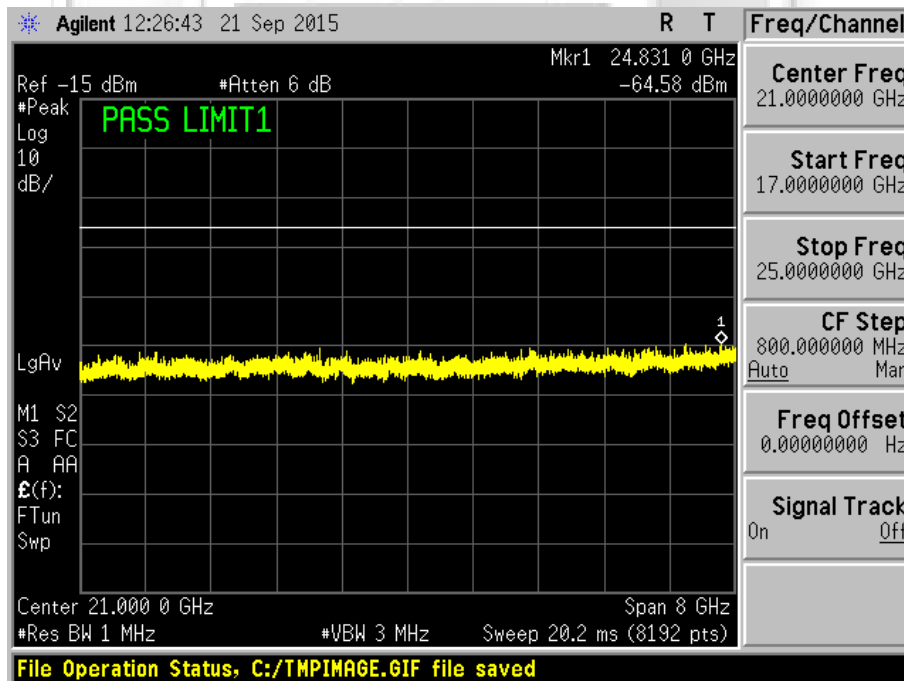
Plot 256 – Channel 11 (upper ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11g



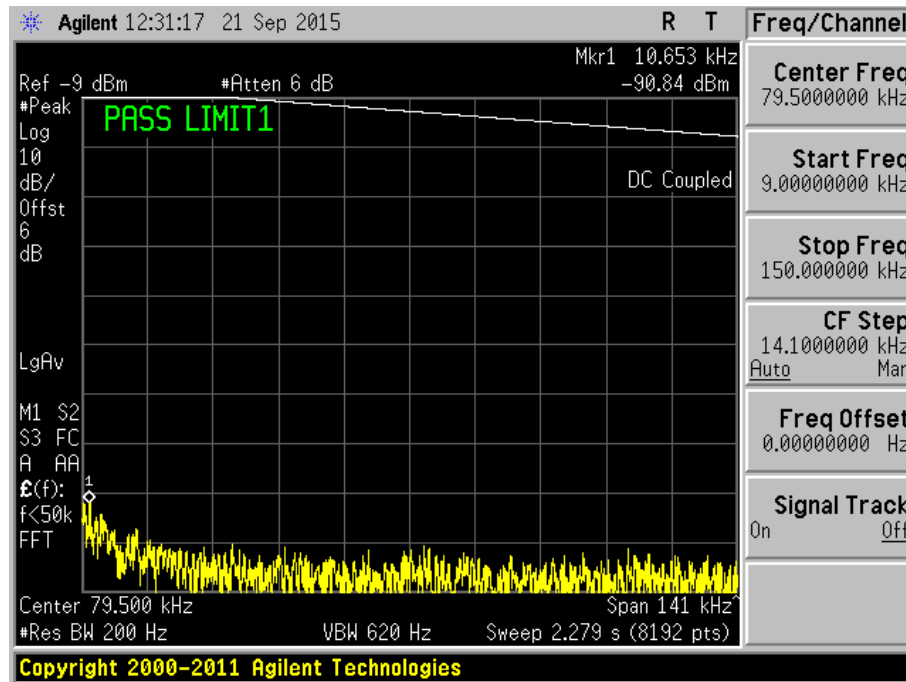
Plot 257 – Channel 11 (upper ch) @ 64QAM 54Mbps



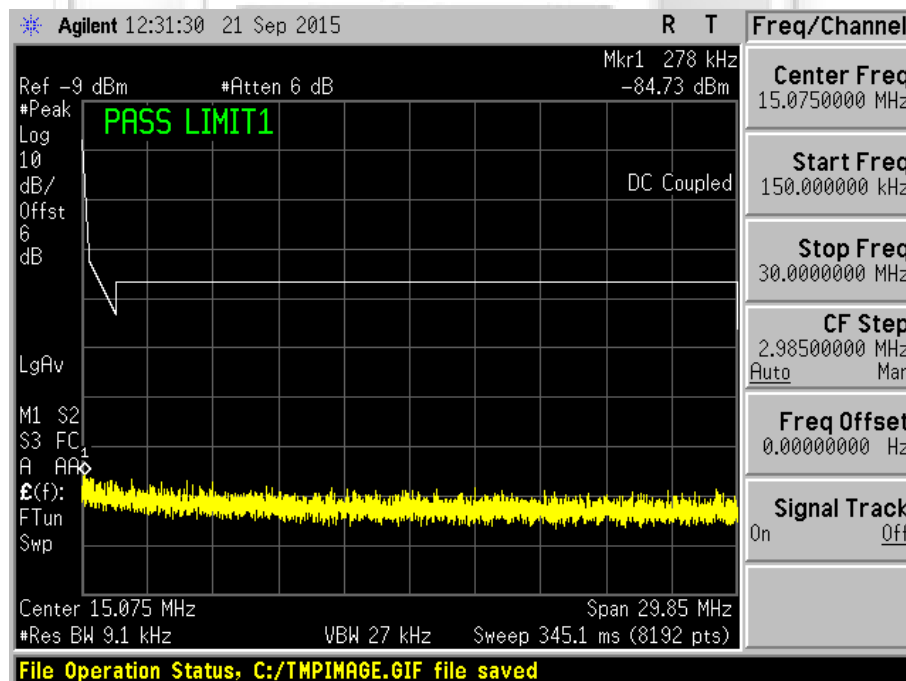
Plot 258 – Channel 11 (upper ch) @ 64QAM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



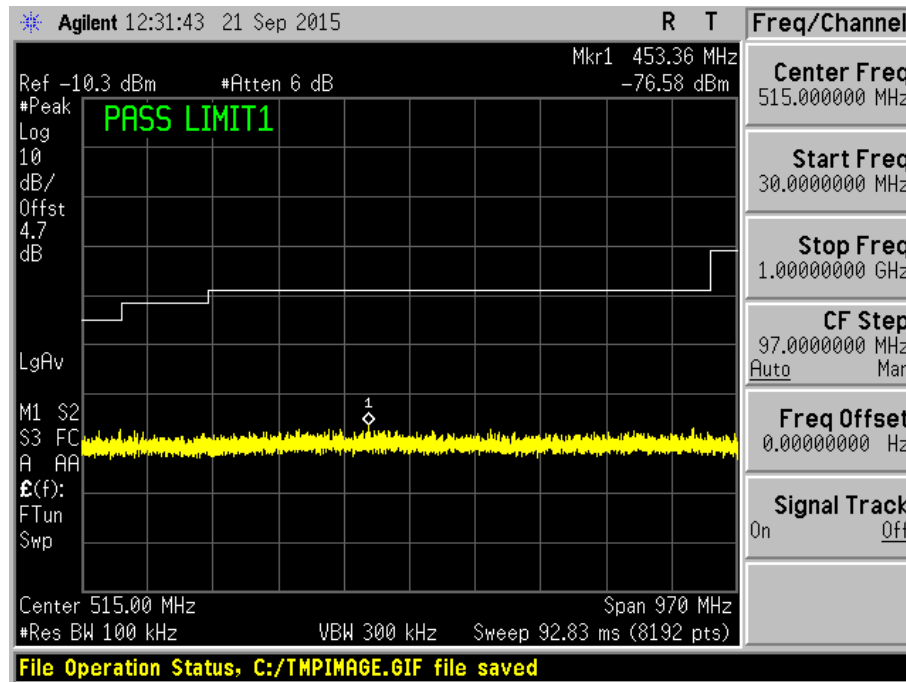
Plot 259 – Channel 1 (lower ch) @ BPSK 6.5Mbps



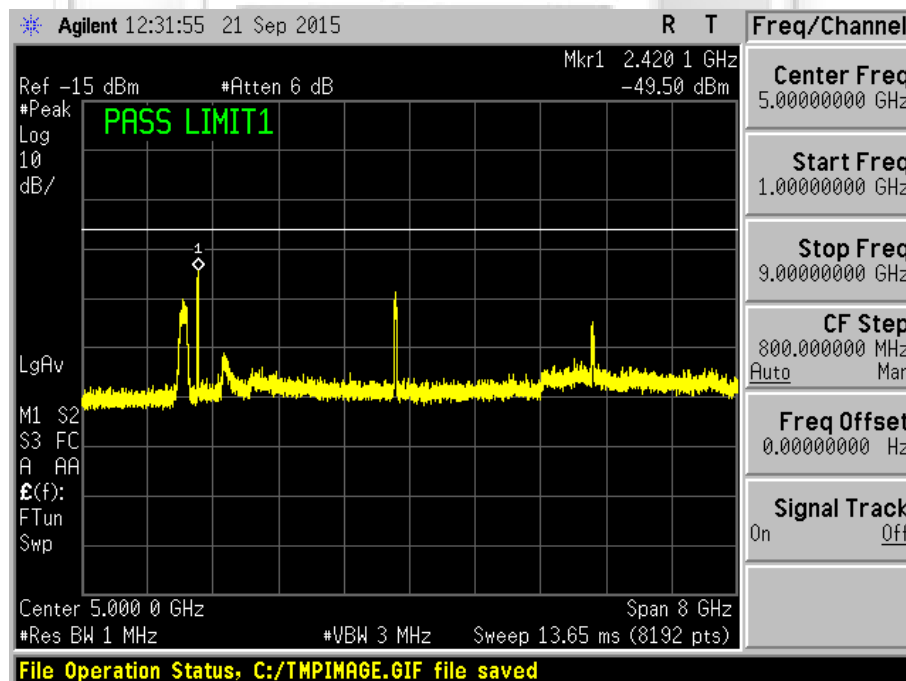
Plot 260 – Channel 1 (lower ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



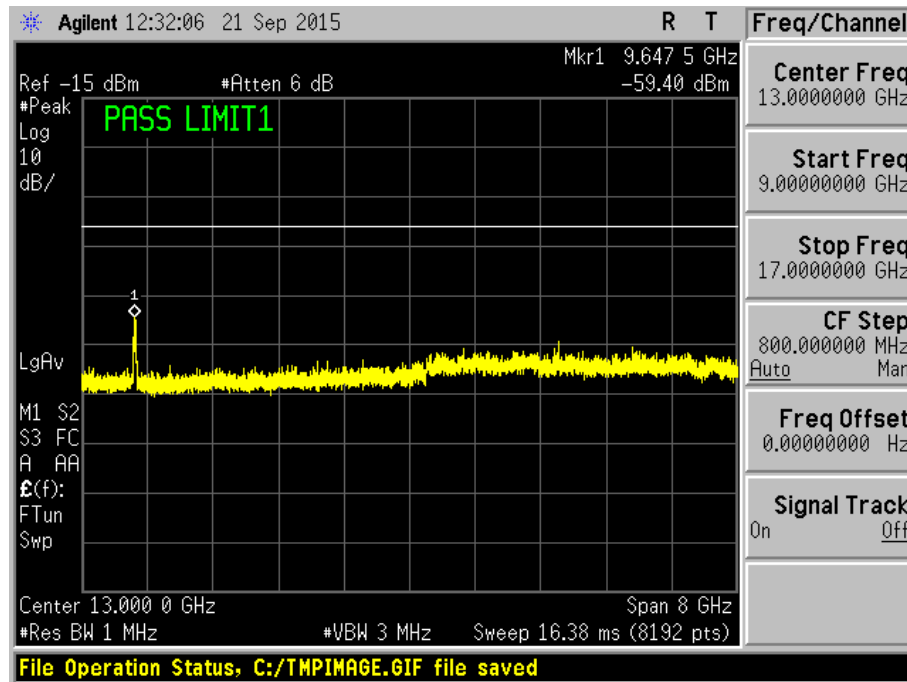
Plot 261 – Channel 1 (lower ch) @ BPSK 6.5Mbps



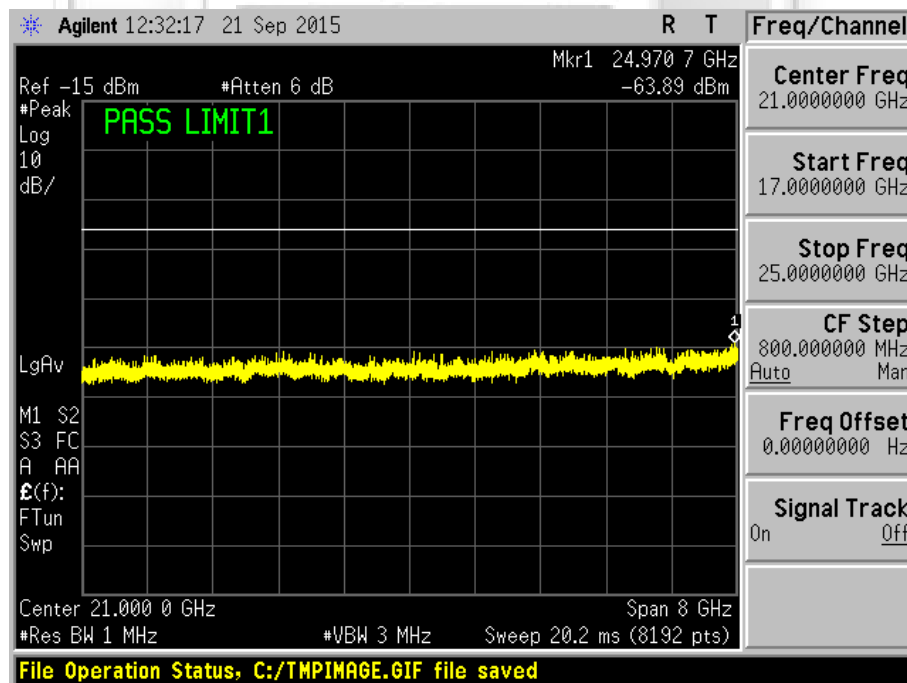
Plot 262 – Channel 1 (lower ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



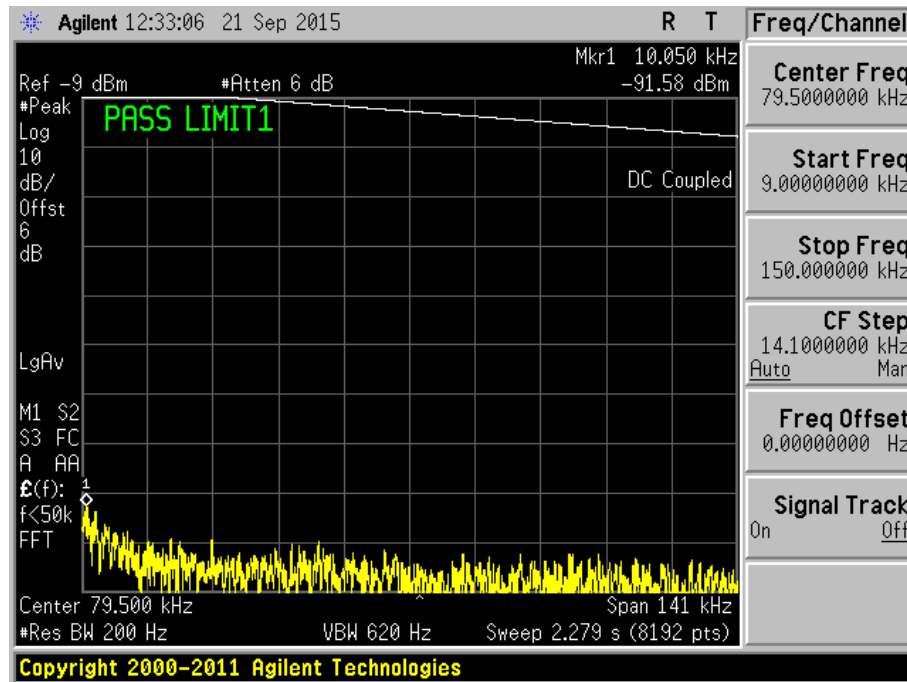
Plot 263 – Channel 1 (lower ch) @ BPSK 6.5Mbps



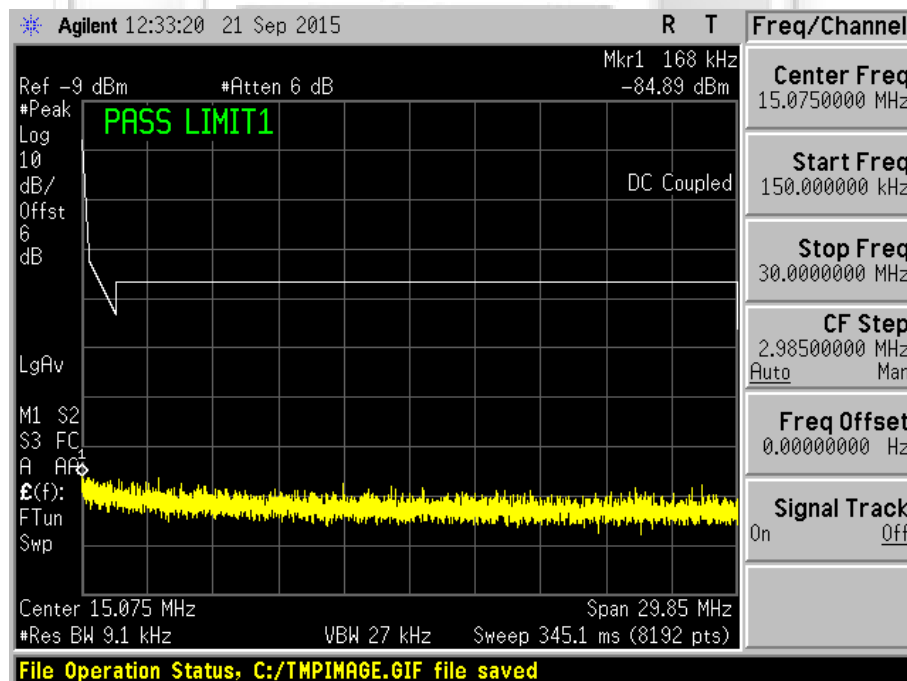
Plot 264 – Channel 1 (lower ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



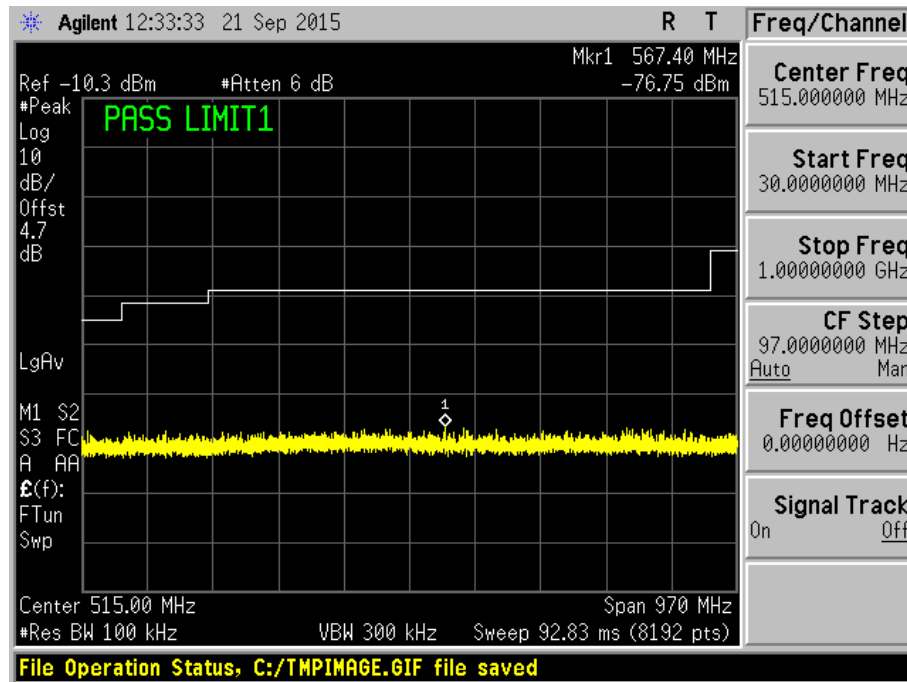
Plot 265 – Channel 1 (lower ch) @ QPSK 19.5Mbps



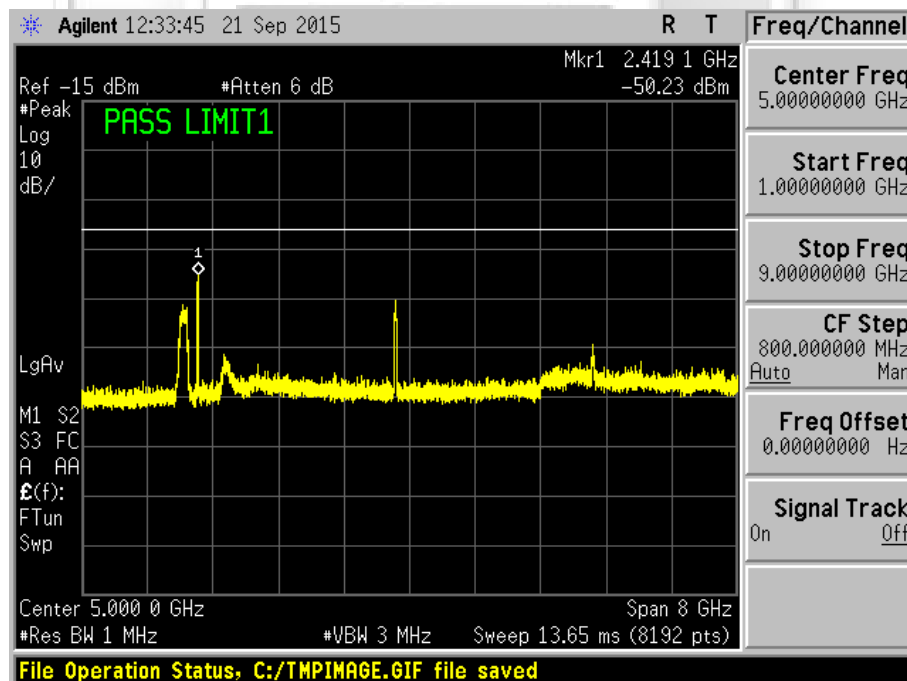
Plot 266 – Channel 1 (lower ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



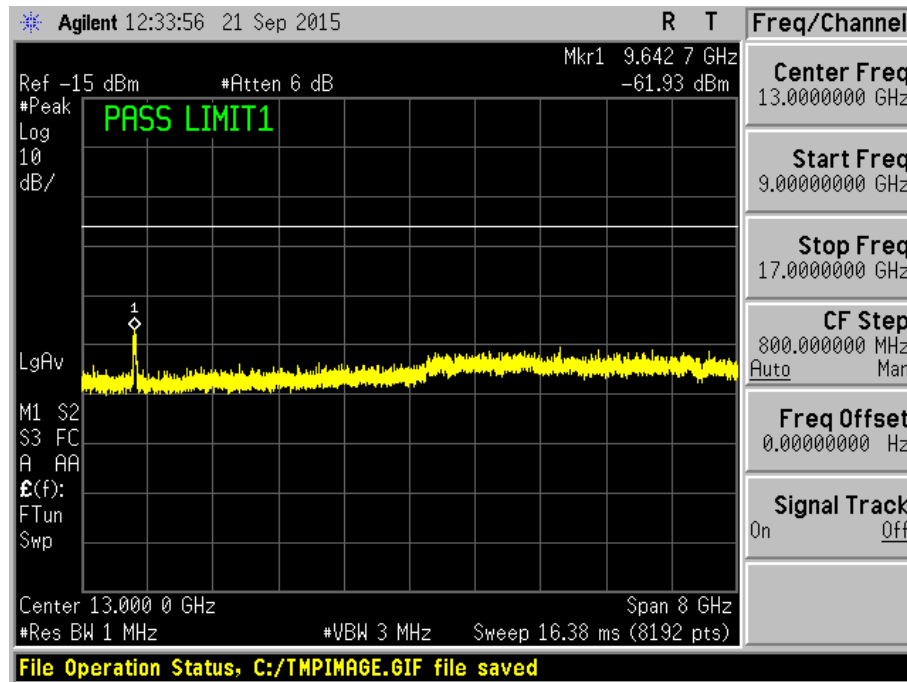
Plot 267 – Channel 1 (lower ch) @ QPSK 19.5Mbps



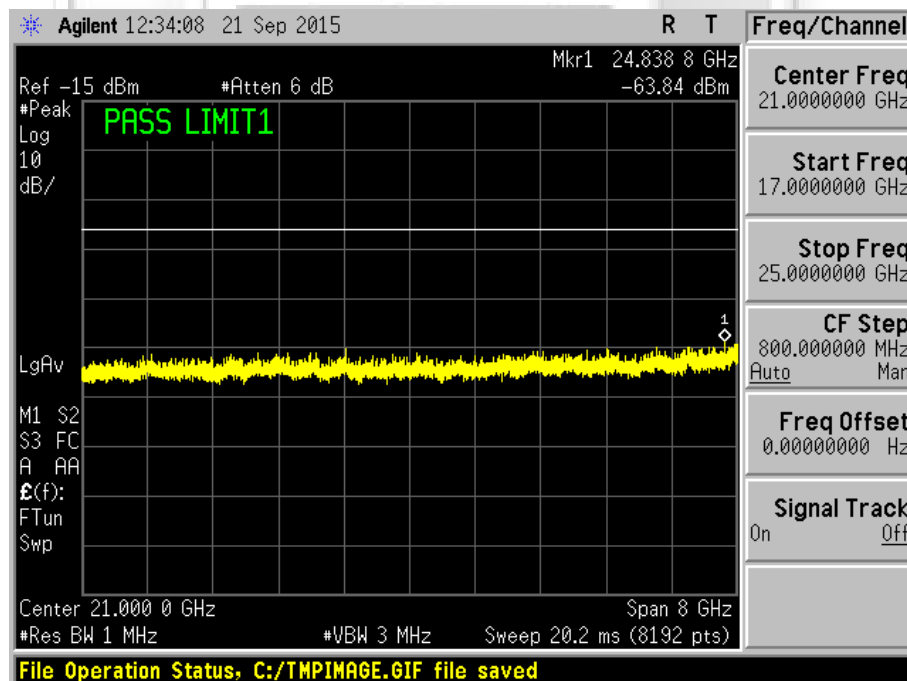
Plot 268 – Channel 1 (lower ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



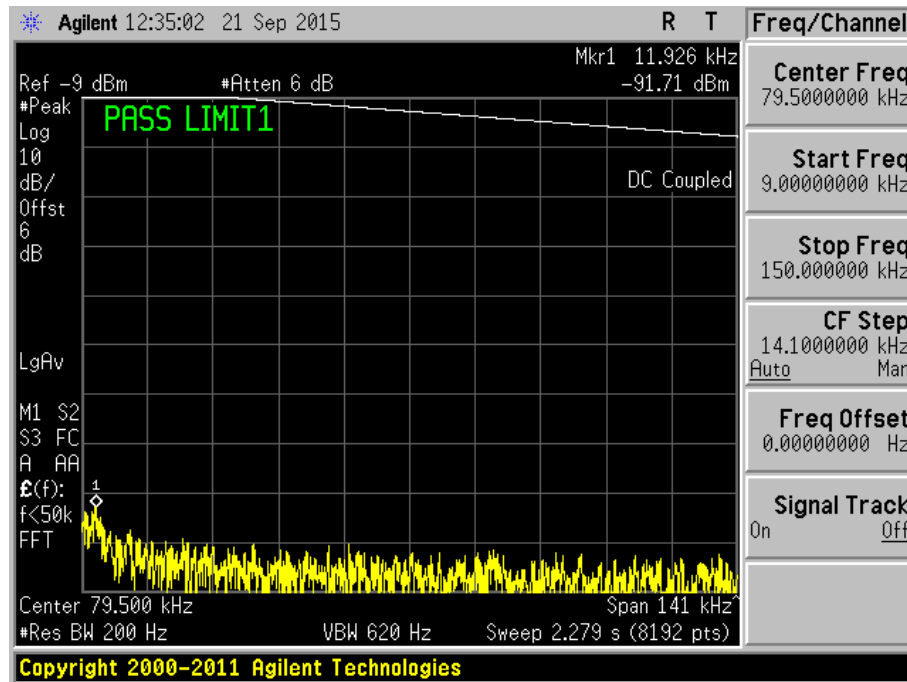
Plot 269 – Channel 1 (lower ch) @ QPSK 19.5Mbps



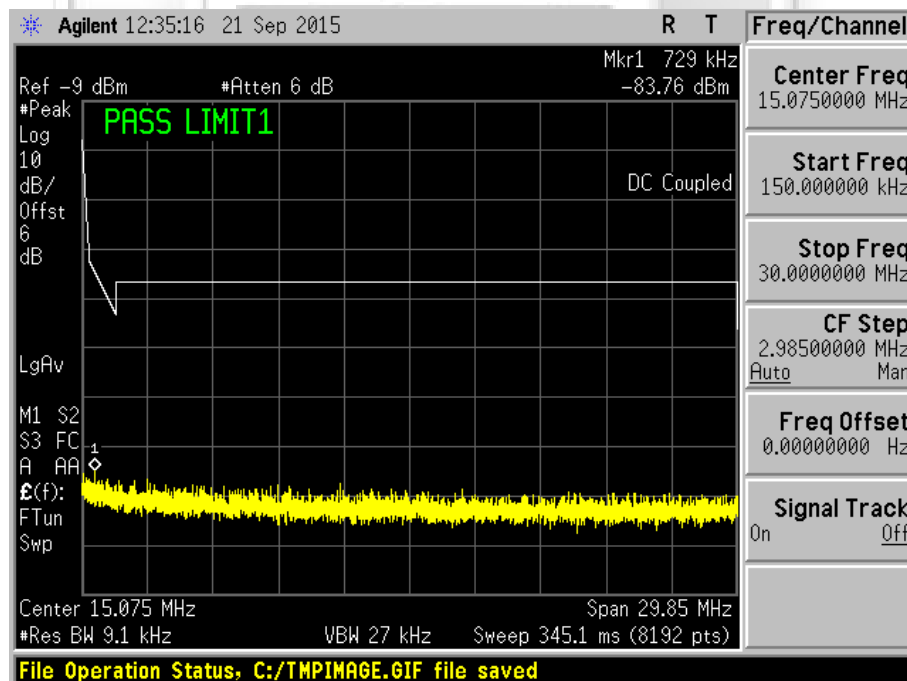
Plot 270 – Channel 1 (lower ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



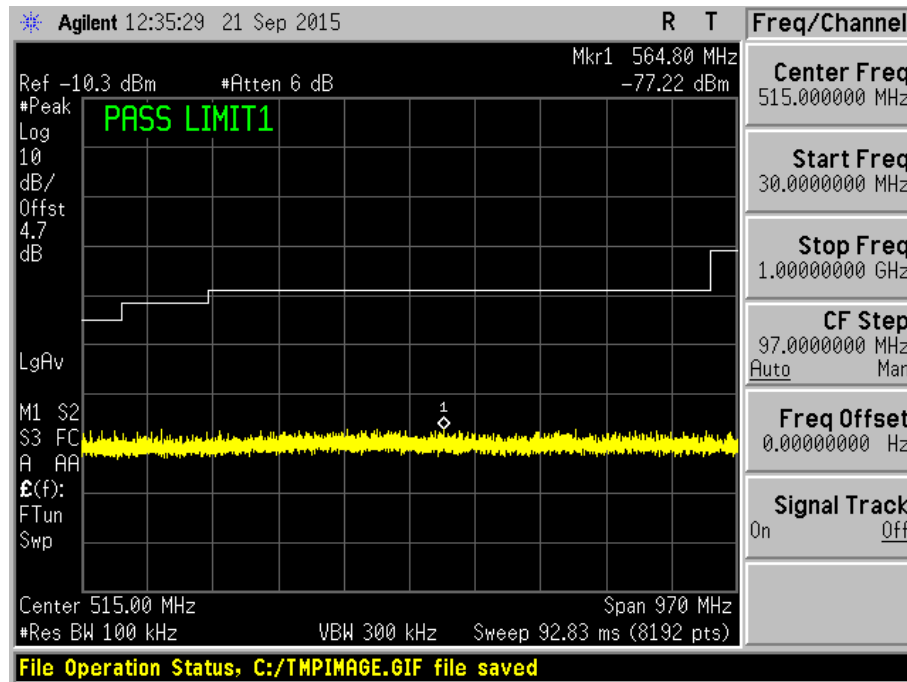
Plot 271 – Channel 1 (lower ch) @ 16QAM 39Mbps



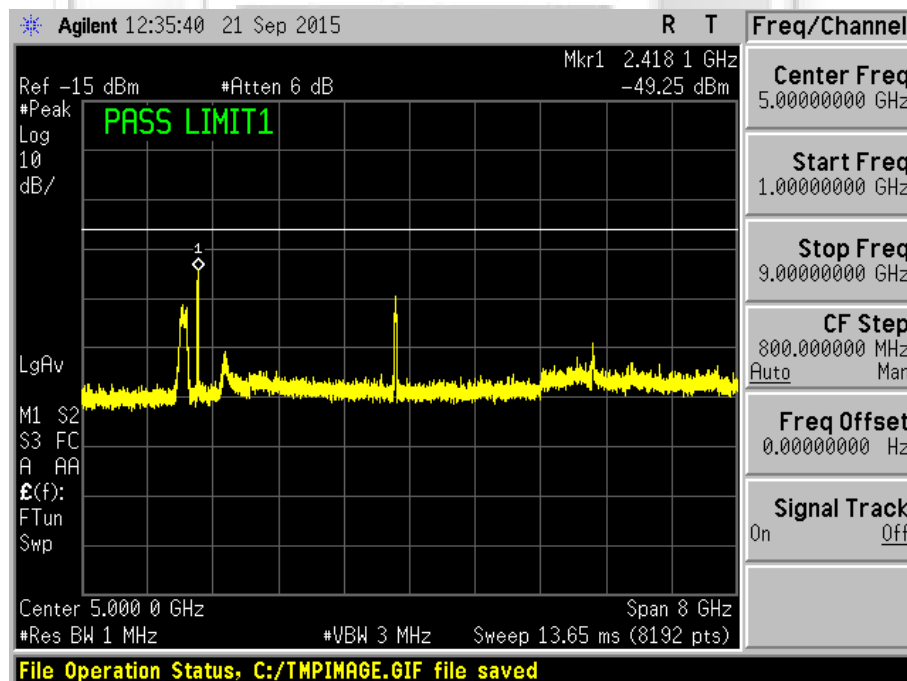
Plot 272 – Channel 1 (lower ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



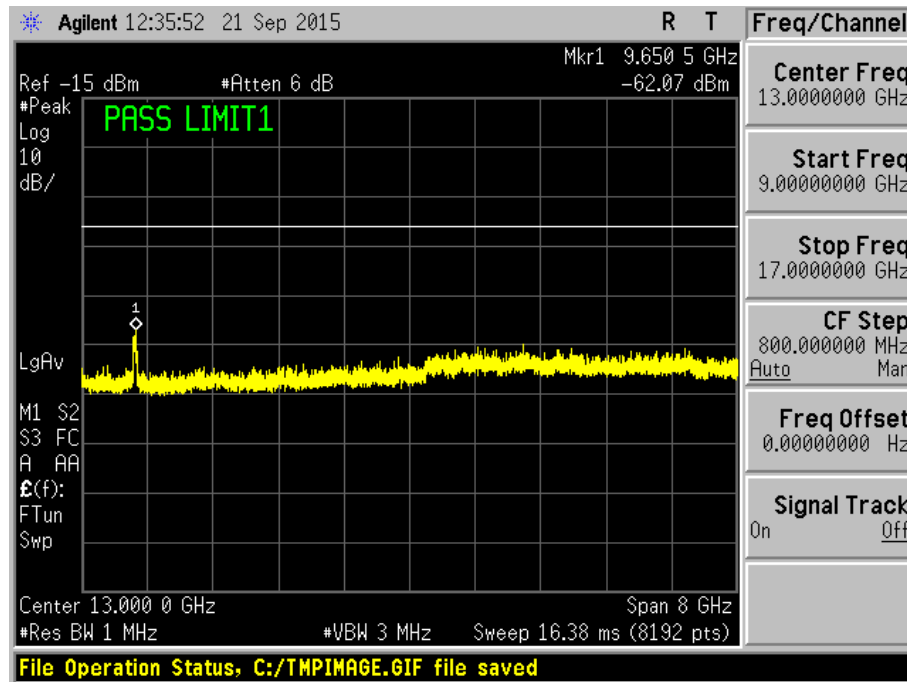
Plot 273 – Channel 1 (lower ch) @ 16QAM 39Mbps



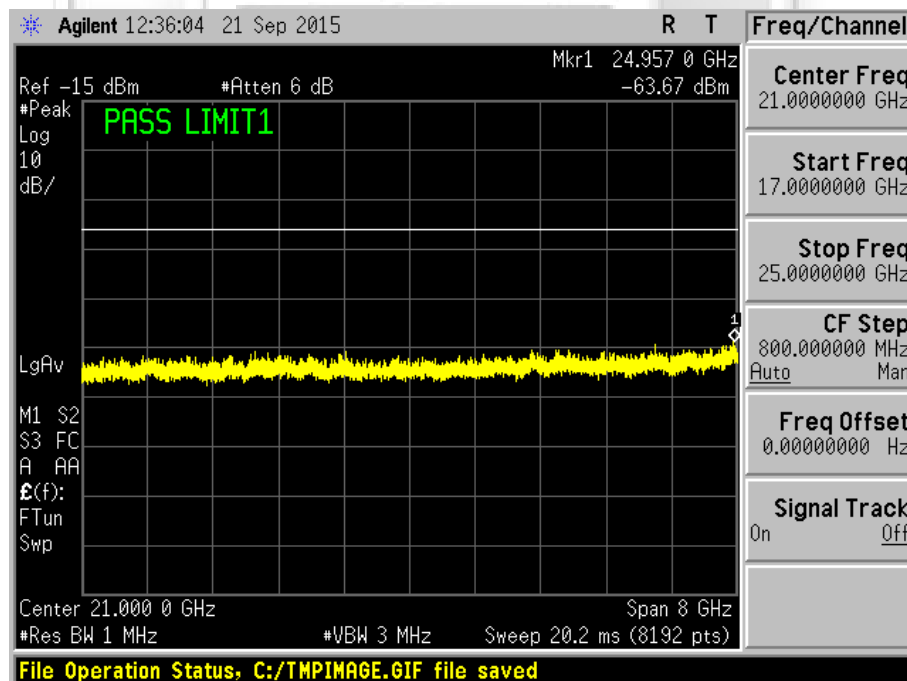
Plot 274 – Channel 1 (lower ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



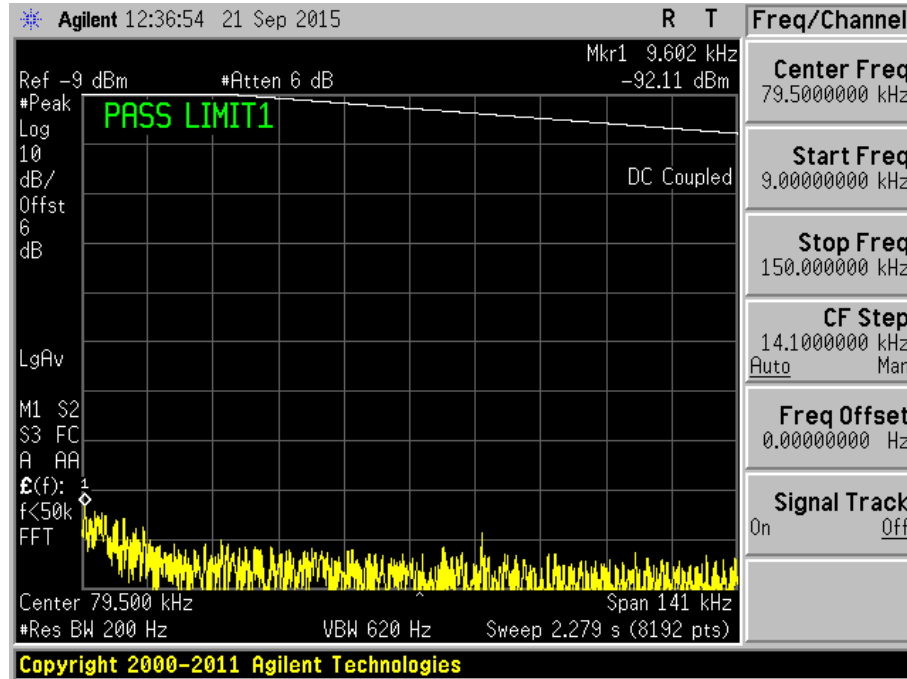
Plot 275 – Channel 1 (lower ch) @ 16QAM 39Mbps



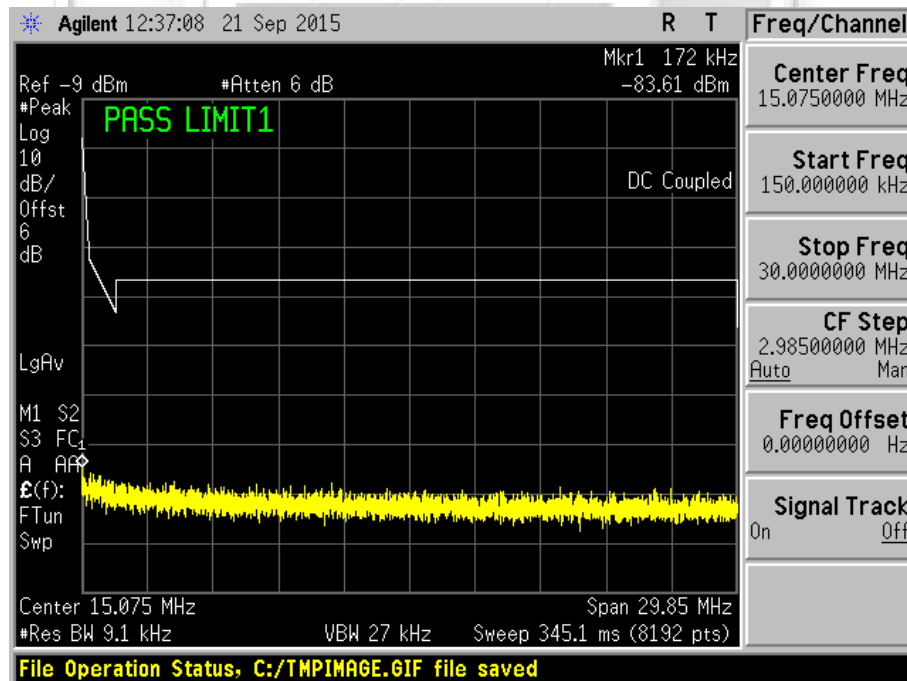
Plot 276 – Channel 1 (lower ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



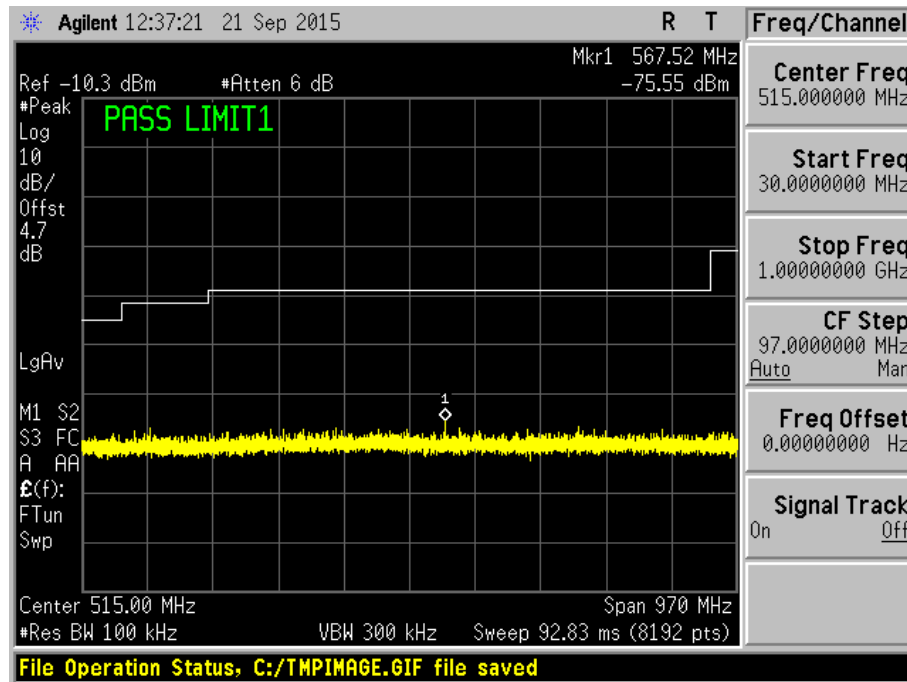
Plot 277 – Channel 1 (lower ch) @ 64QAM 65Mbps



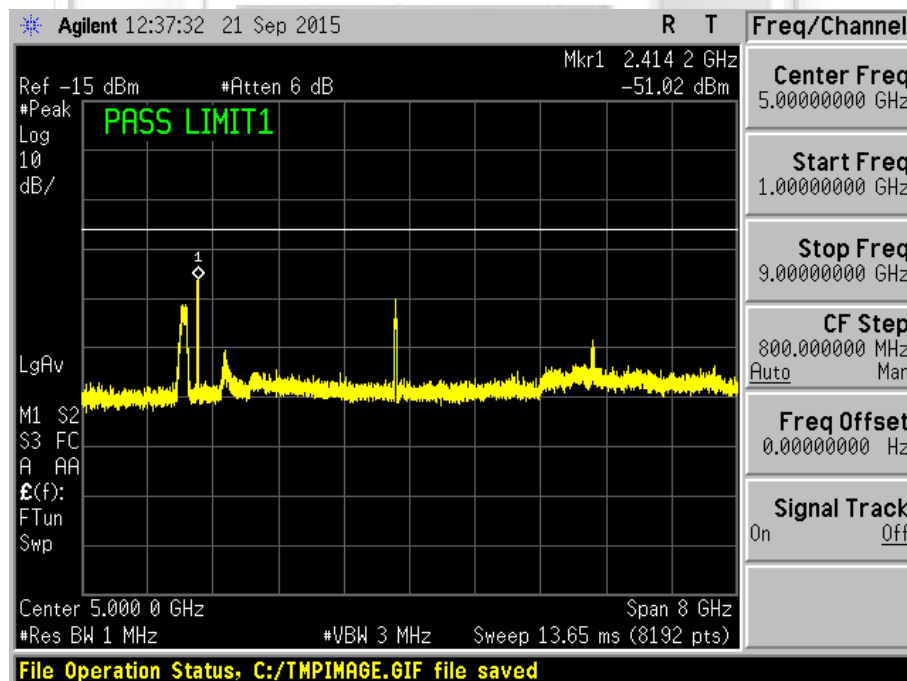
Plot 278 – Channel 1 (lower ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



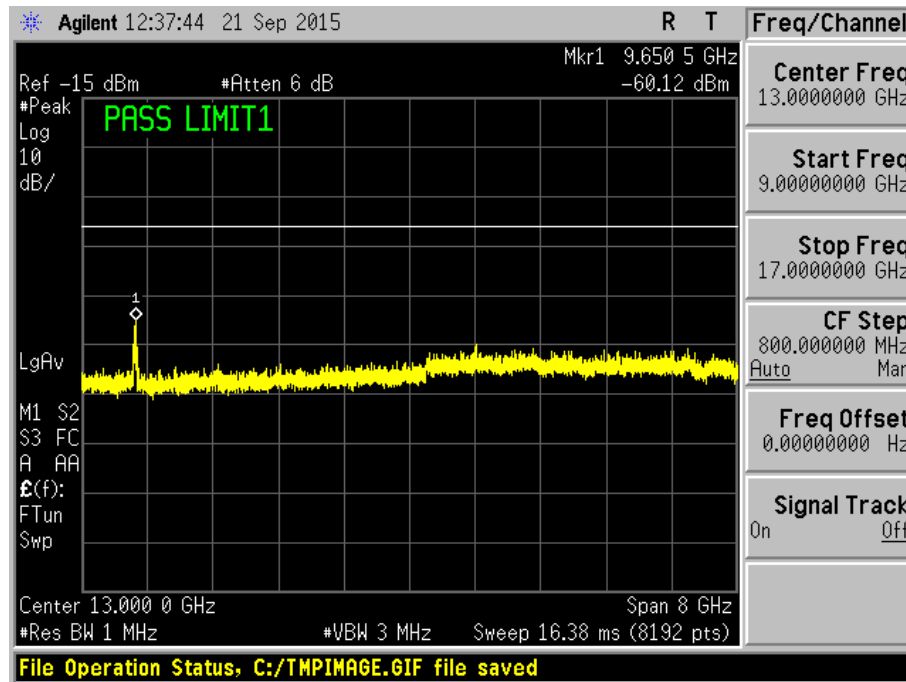
Plot 279 – Channel 1 (lower ch) @ 64QAM 65Mbps



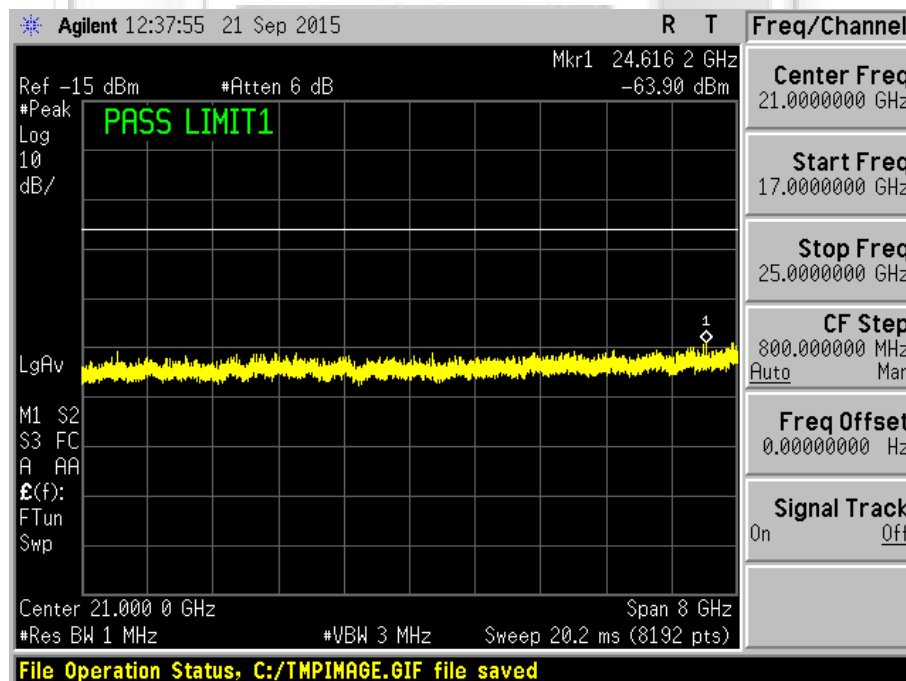
Plot 280 – Channel 1 (lower ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



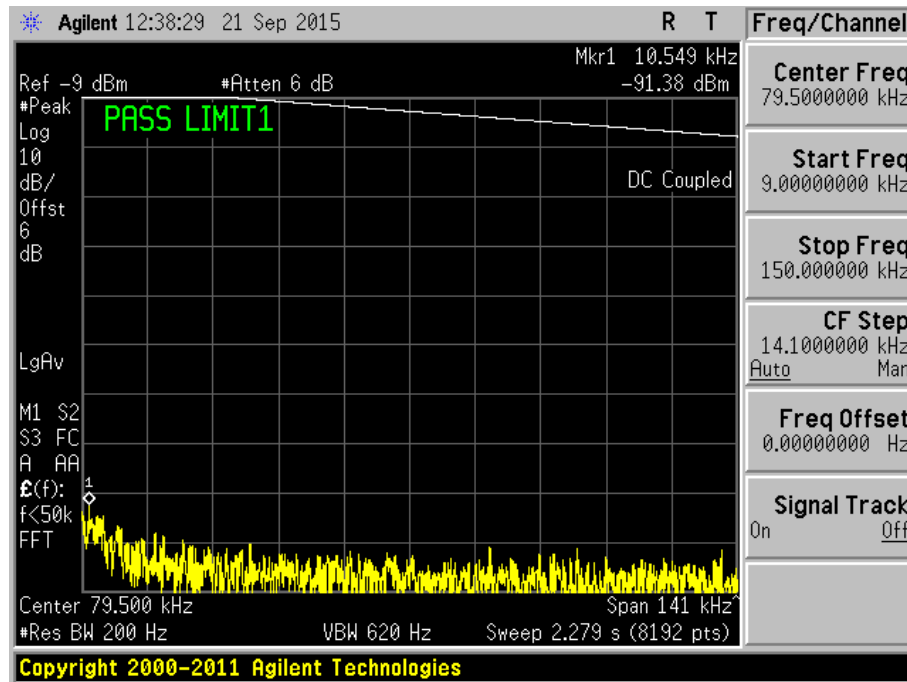
Plot 281 – Channel 1 (lower ch) @ 64QAM 65Mbps



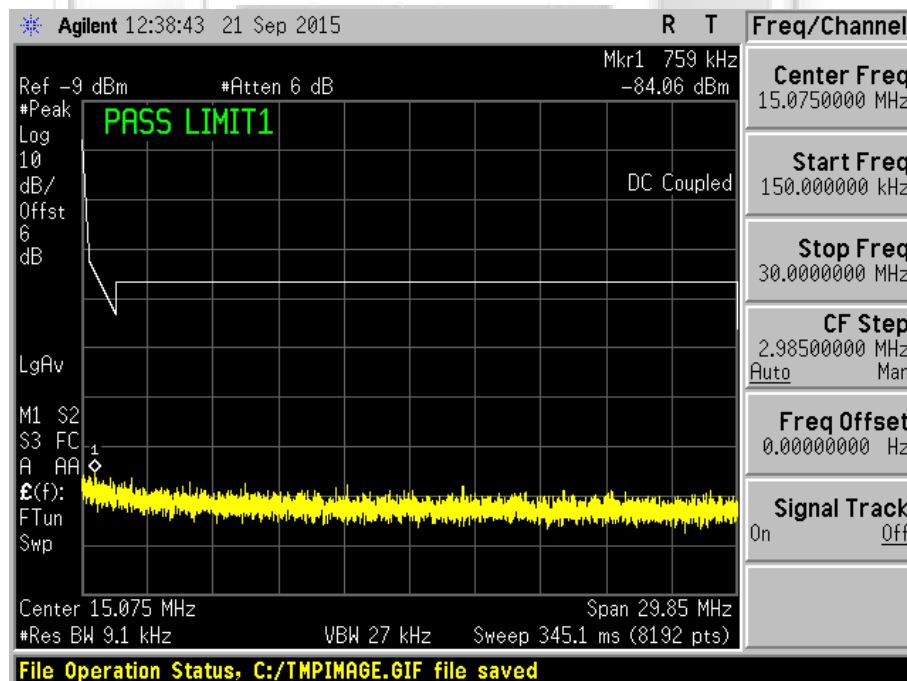
Plot 282 – Channel 1 (lower ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



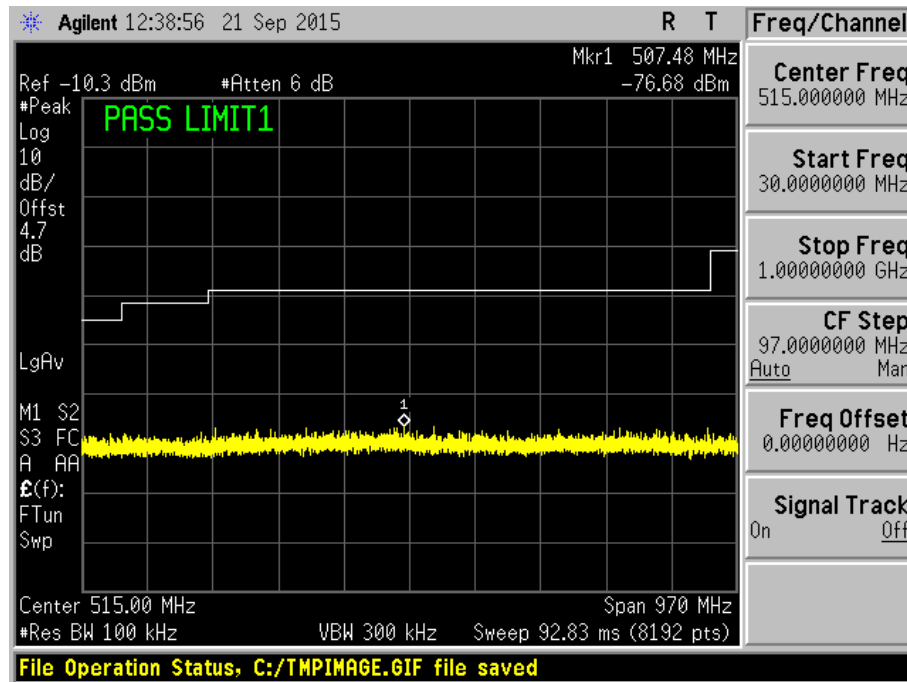
Plot 283 – Channel 6 (middle ch) @ BPSK 6.5Mbps



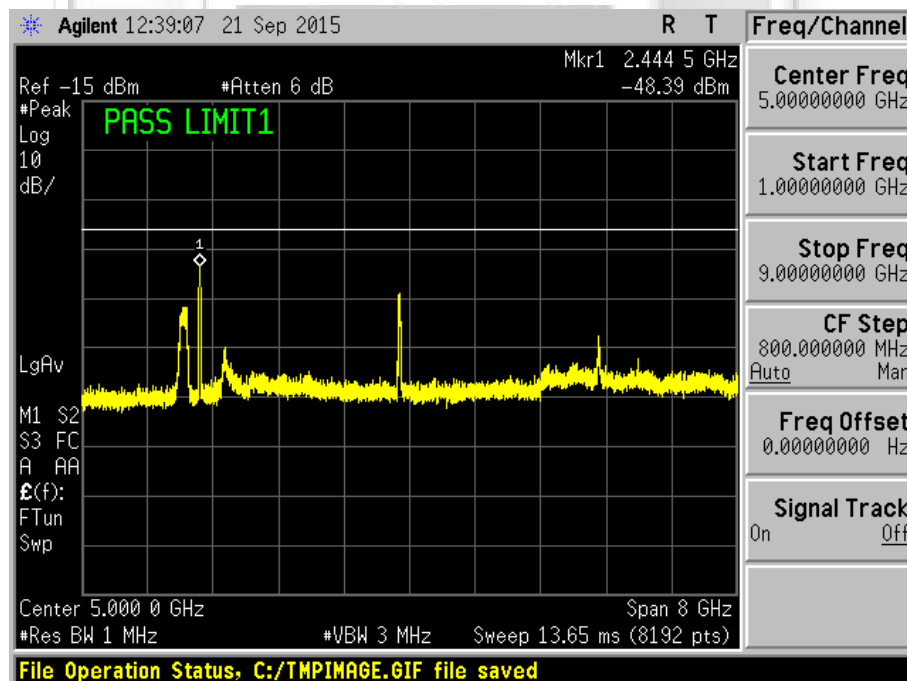
Plot 284 – Channel 6 (middle ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



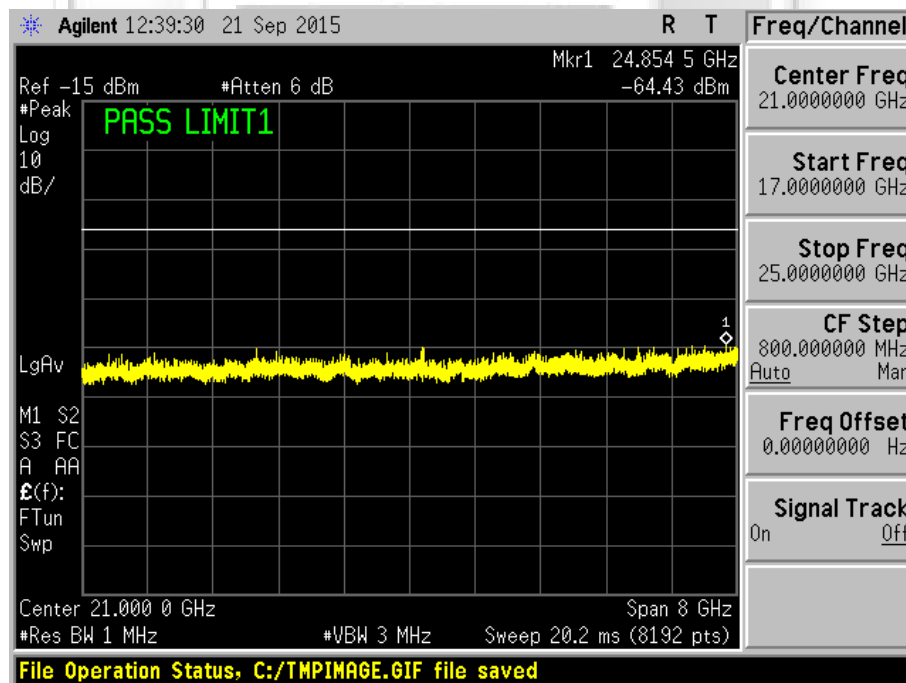
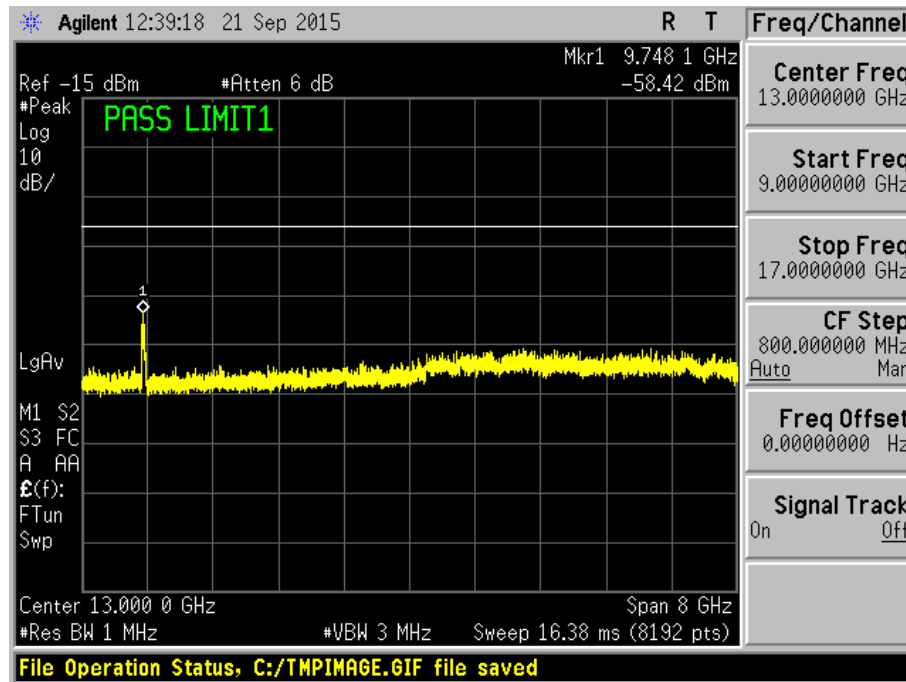
Plot 285 – Channel 6 (middle ch) @ BPSK 6.5Mbps



Plot 286 – Channel 6 (middle ch) @ BPSK 6.5Mbps

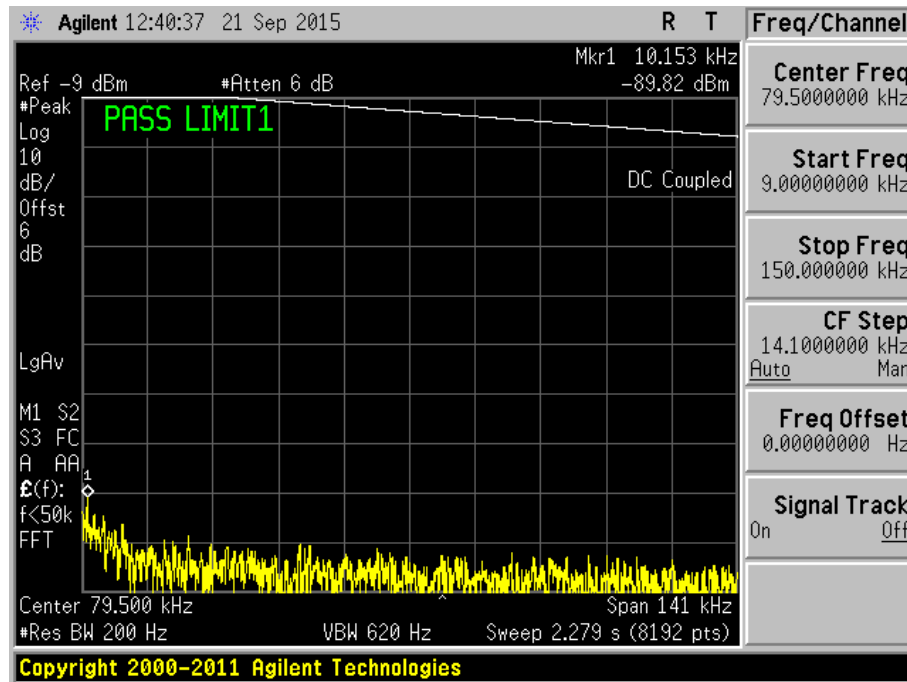
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n

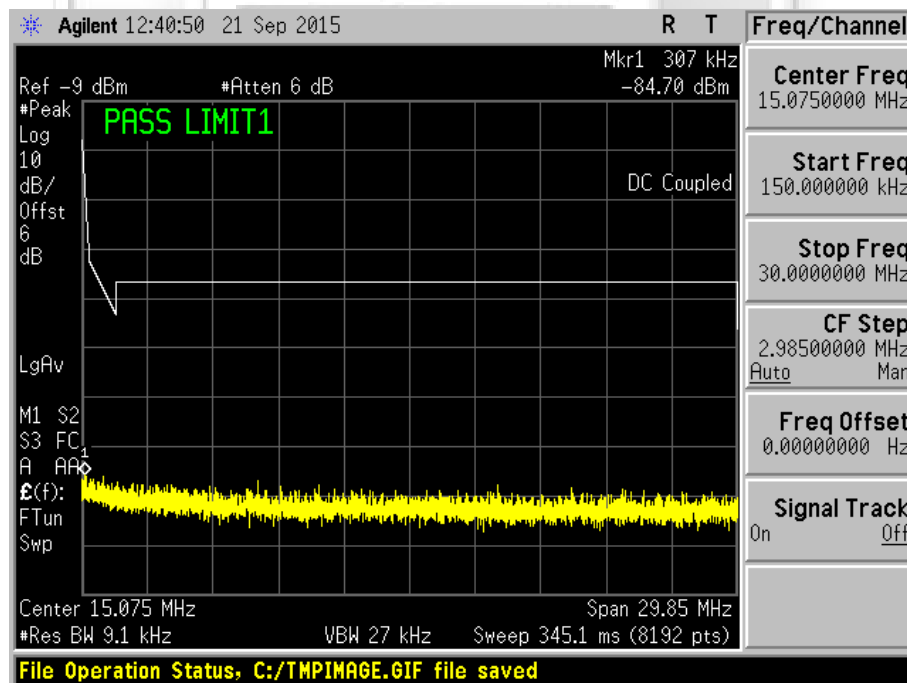


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



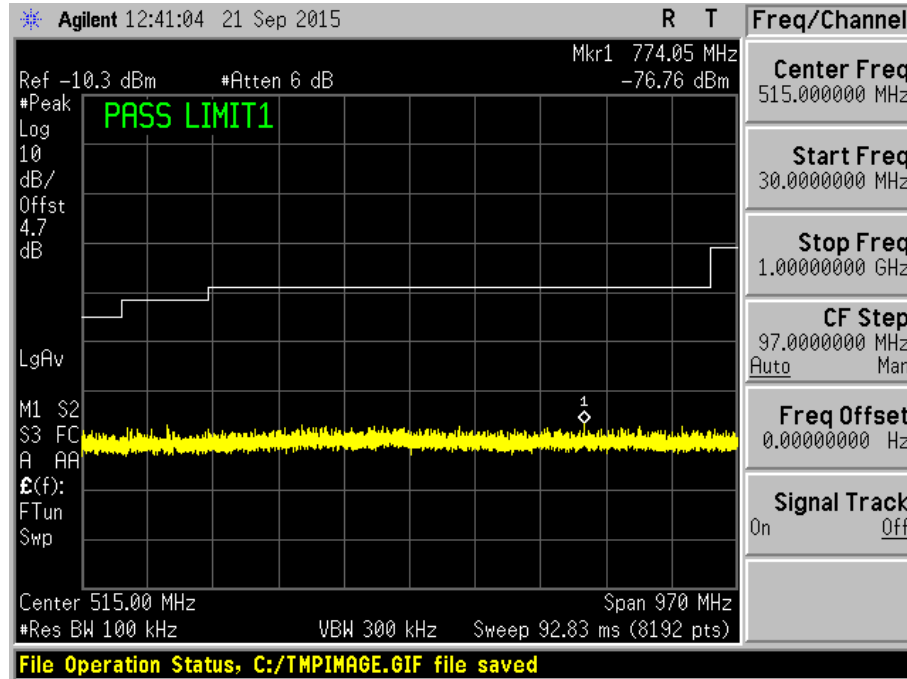
Plot 289 – Channel 6 (middle ch) @ QPSK 19.5Mbps



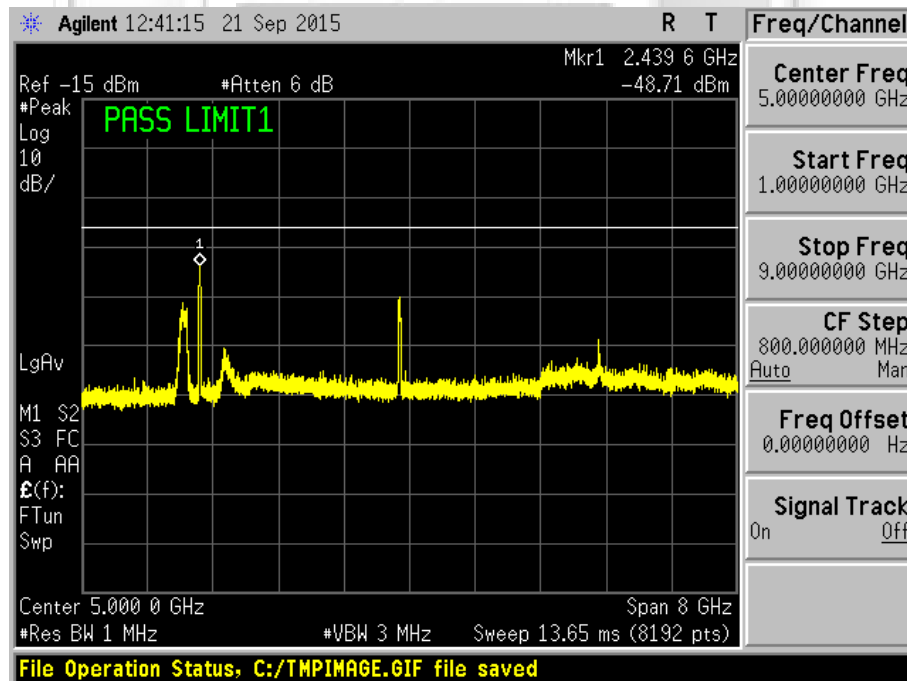
Plot 290 – Channel 6 (middle ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



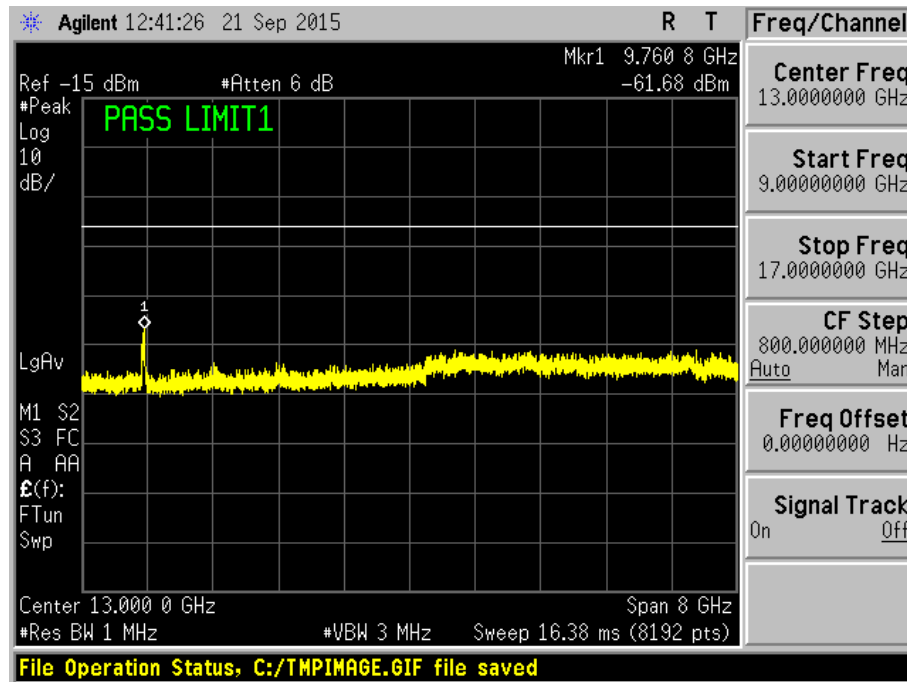
Plot 291 – Channel 6 (middle ch) @ QPSK 19.5Mbps



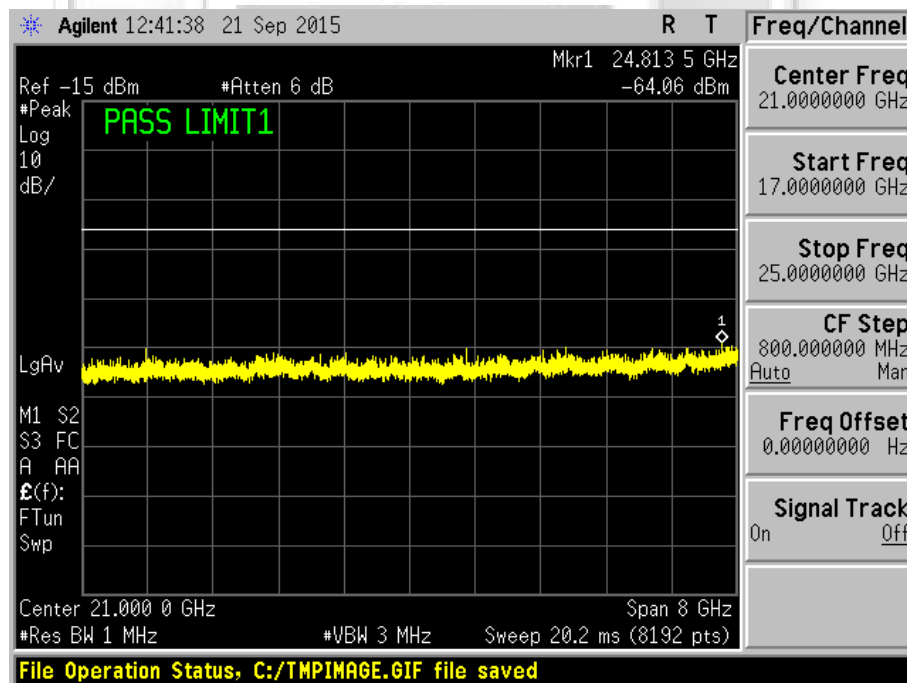
Plot 292 – Channel 6 (middle ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



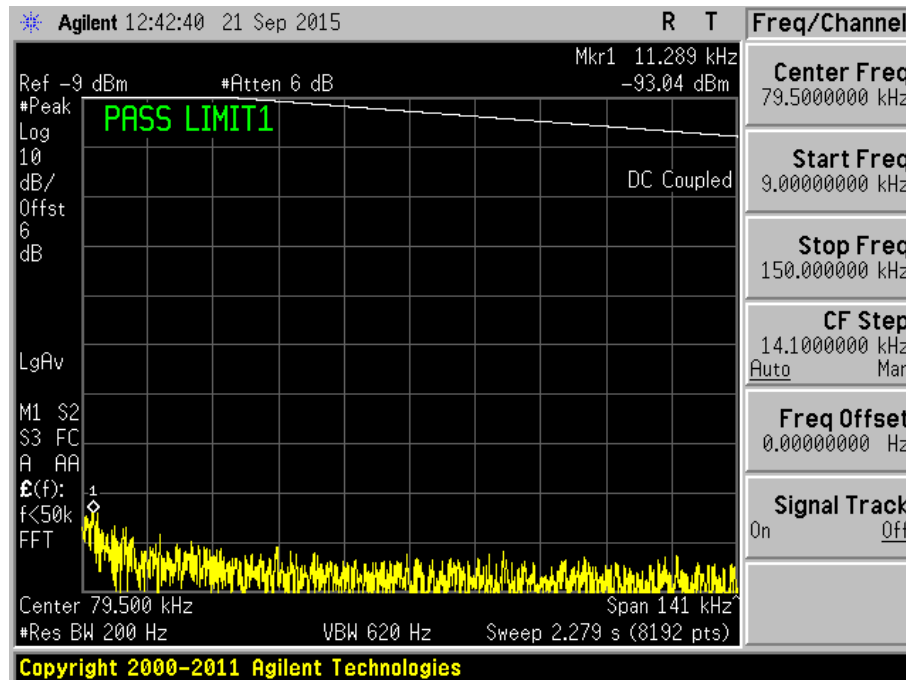
Plot 293 – Channel 6 (middle ch) @ QPSK 19.5Mbps



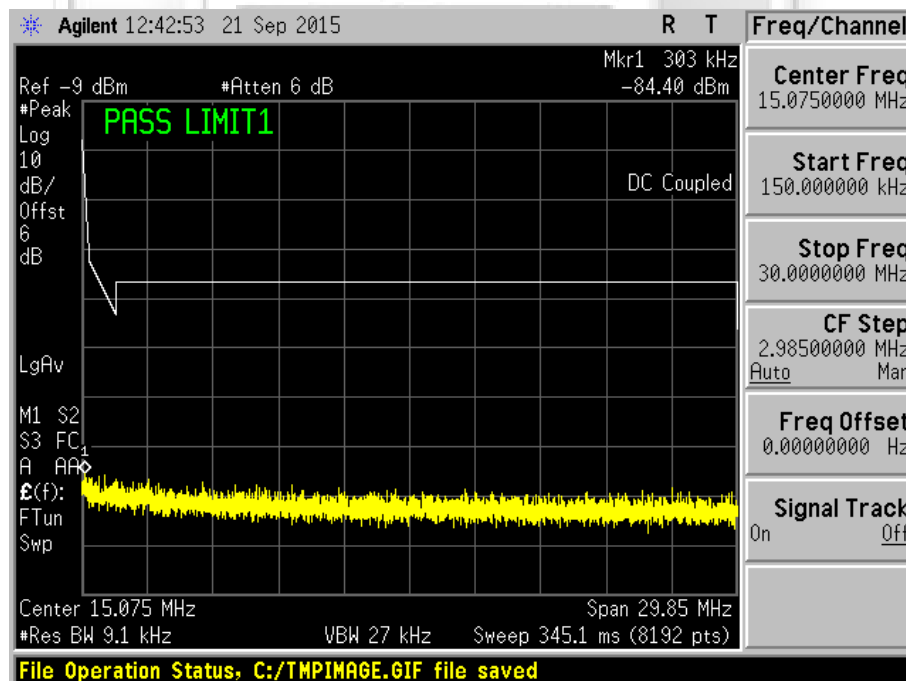
Plot 294 – Channel 6 (middle ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



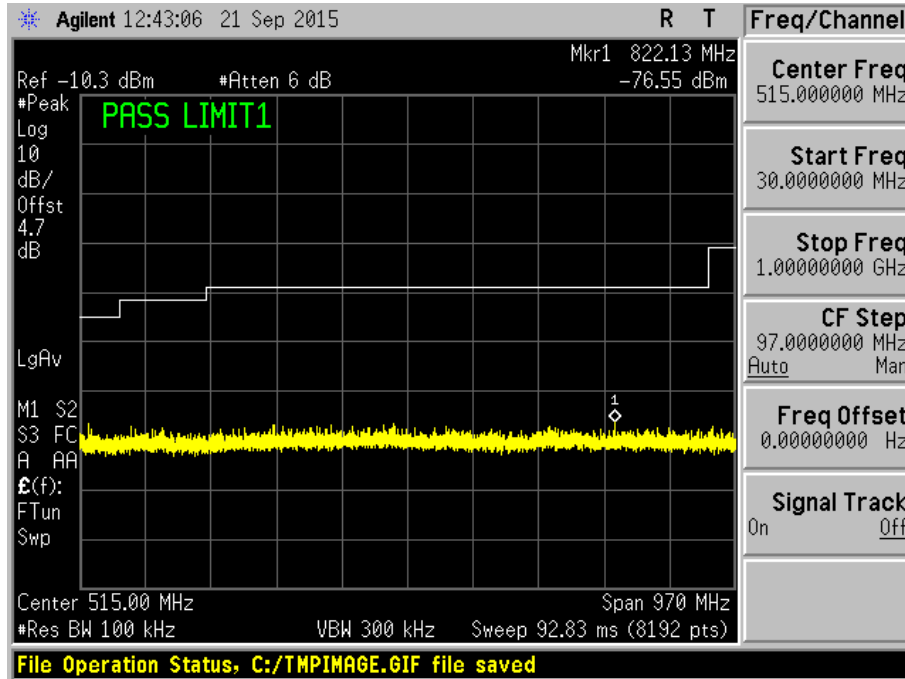
Plot 295 – Channel 6 (middle ch) @ 16QAM 39Mbps



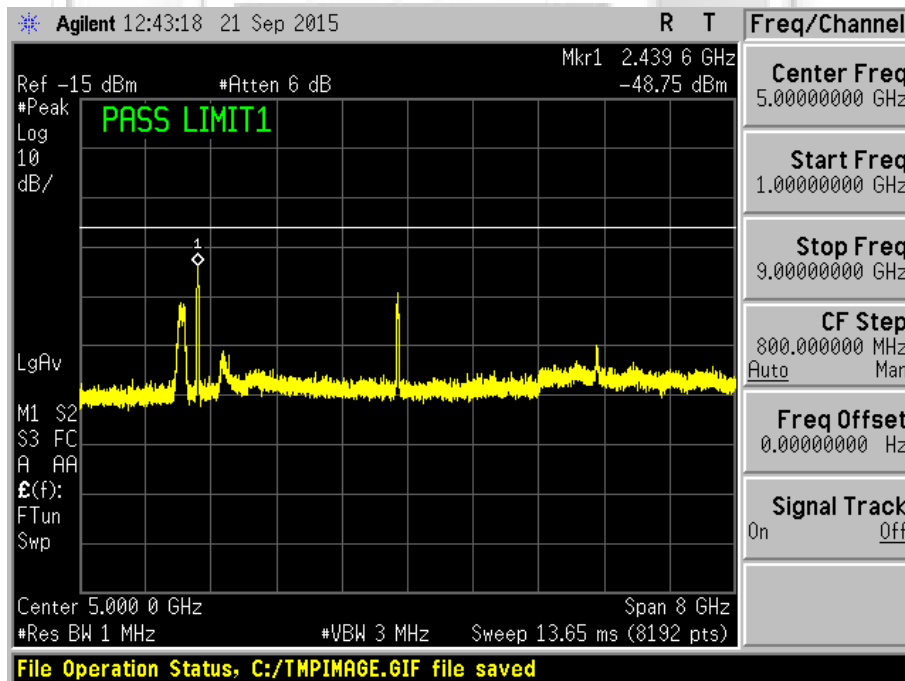
Plot 296 – Channel 6 (middle ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



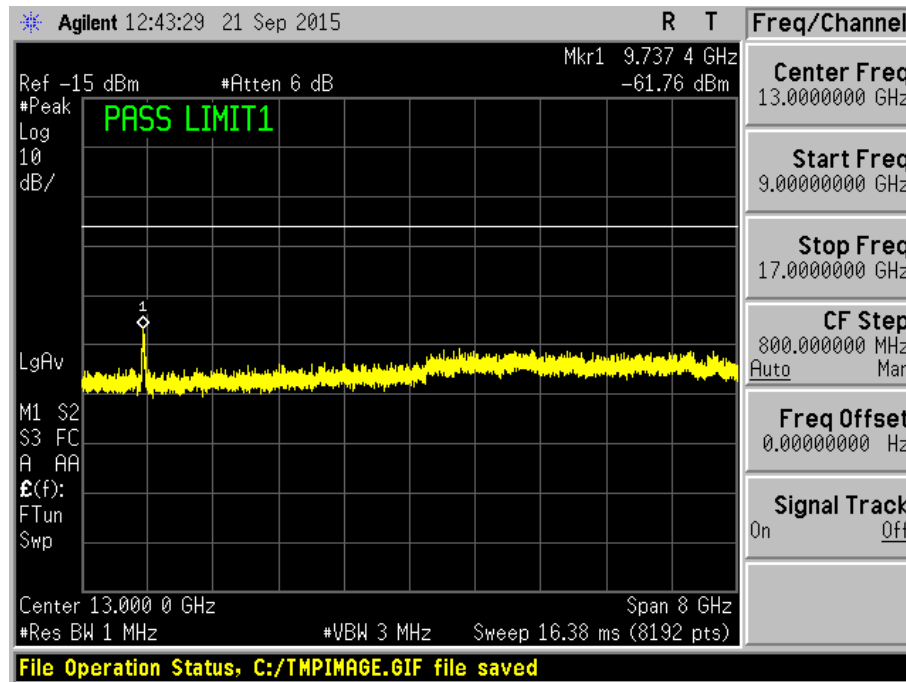
Plot 297 – Channel 6 (middle ch) @ 16QAM 39Mbps



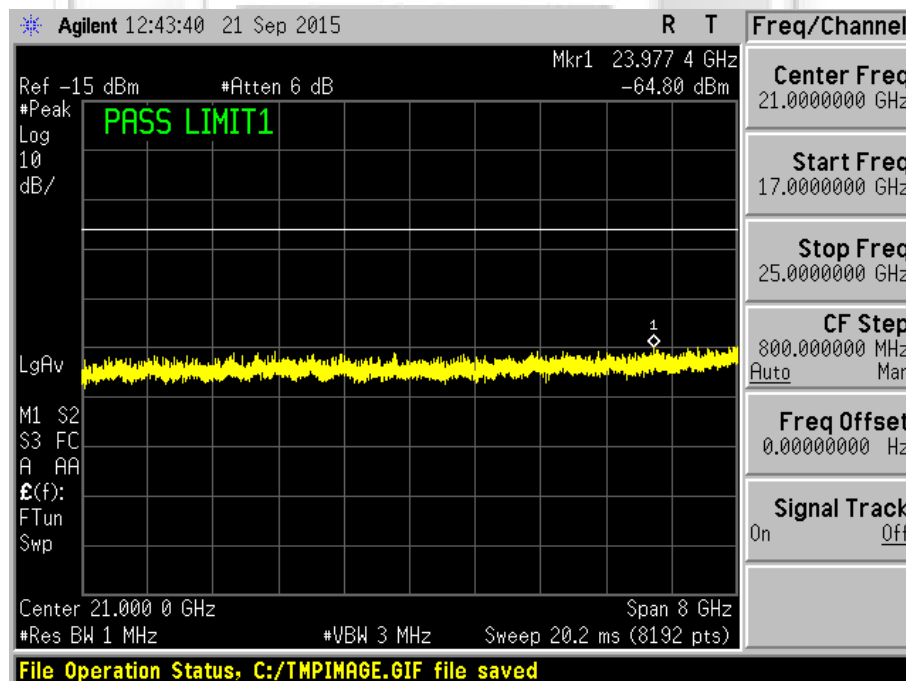
Plot 298 – Channel 6 (middle ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



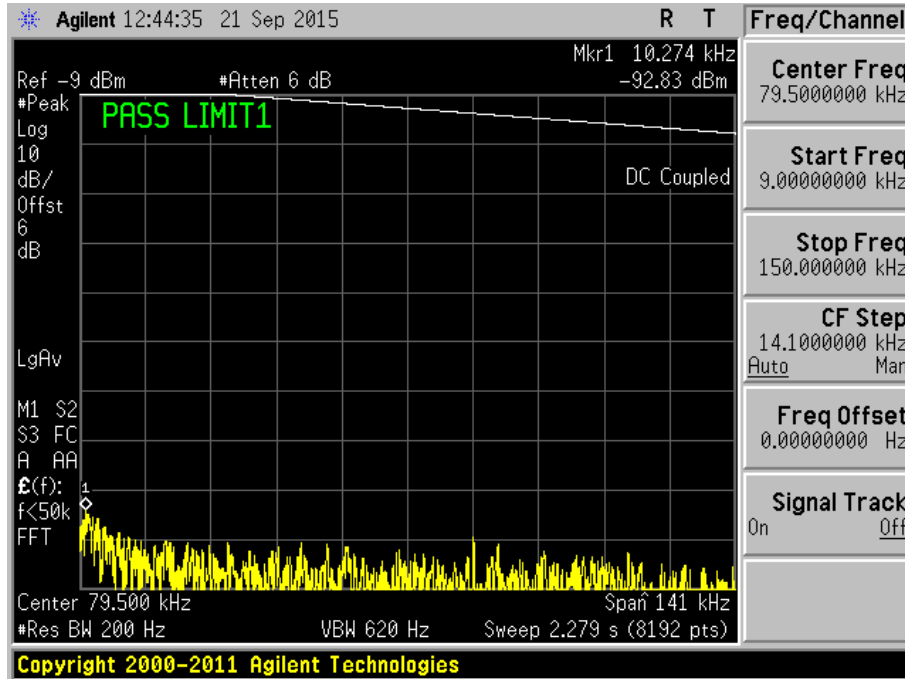
Plot 299 – Channel 6 (middle ch) @ 16QAM 39Mbps



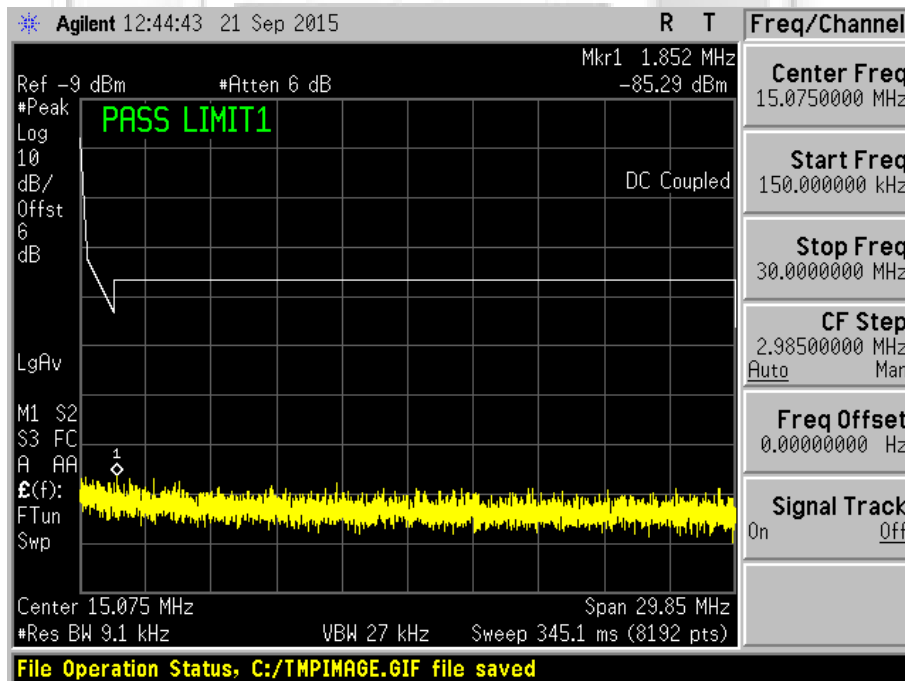
Plot 300 – Channel 6 (middle ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



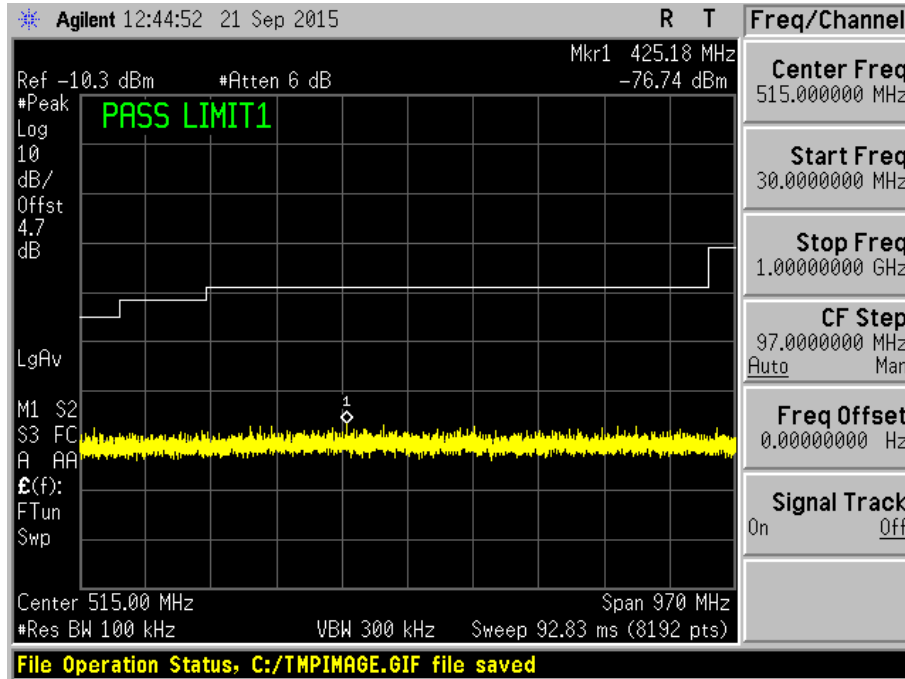
Plot 301 – Channel 6 (middle ch) @ 64QAM 65Mbps



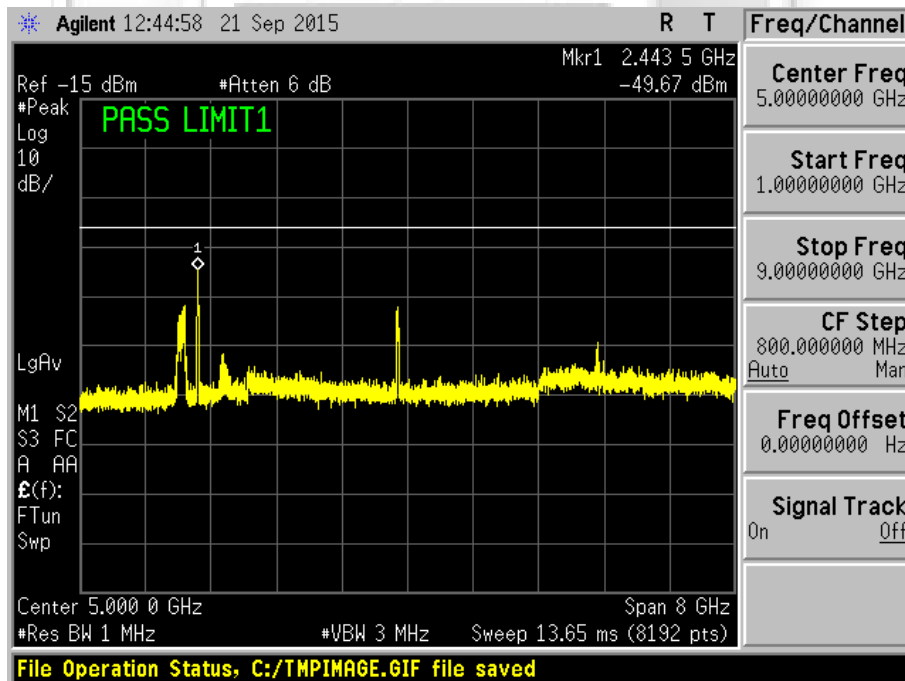
Plot 302 – Channel 6 (middle ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



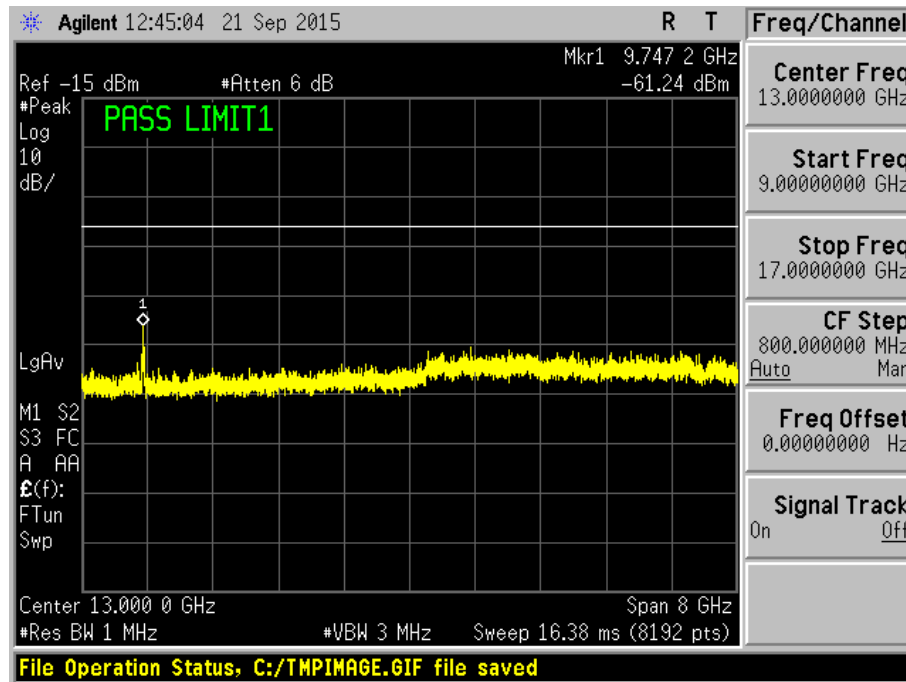
Plot 303 – Channel 6 (middle ch) @ 64QAM 65Mbps



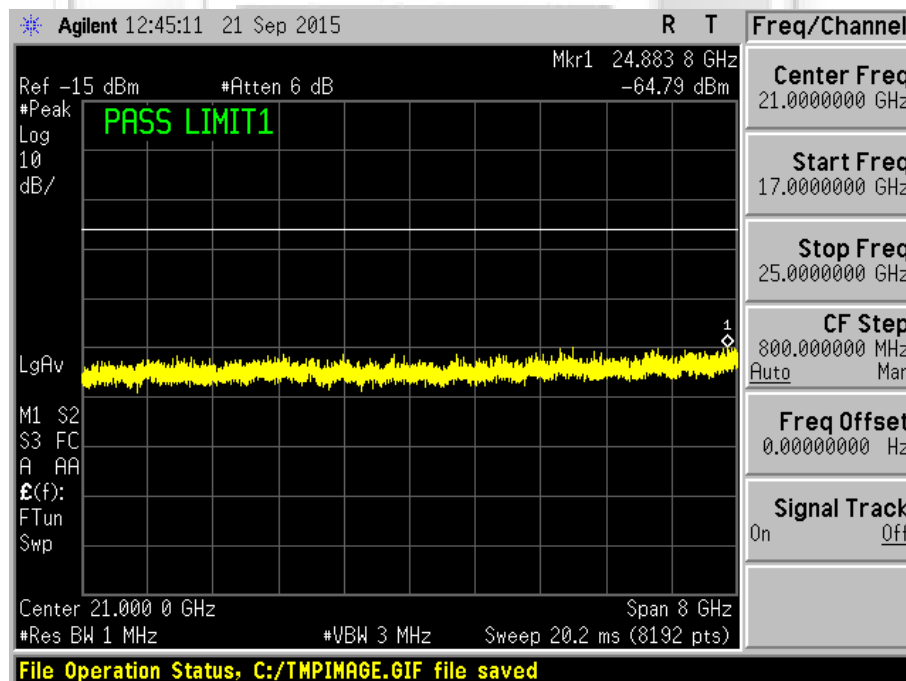
Plot 304 – Channel 6 (middle ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



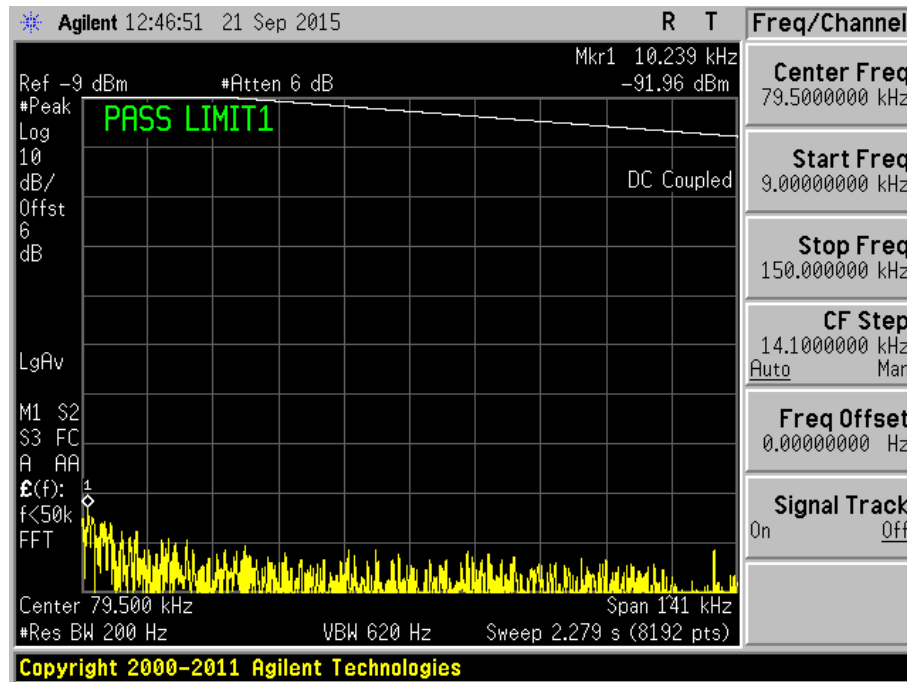
Plot 305 – Channel 6 (middle ch) @ 64QAM 65Mbps



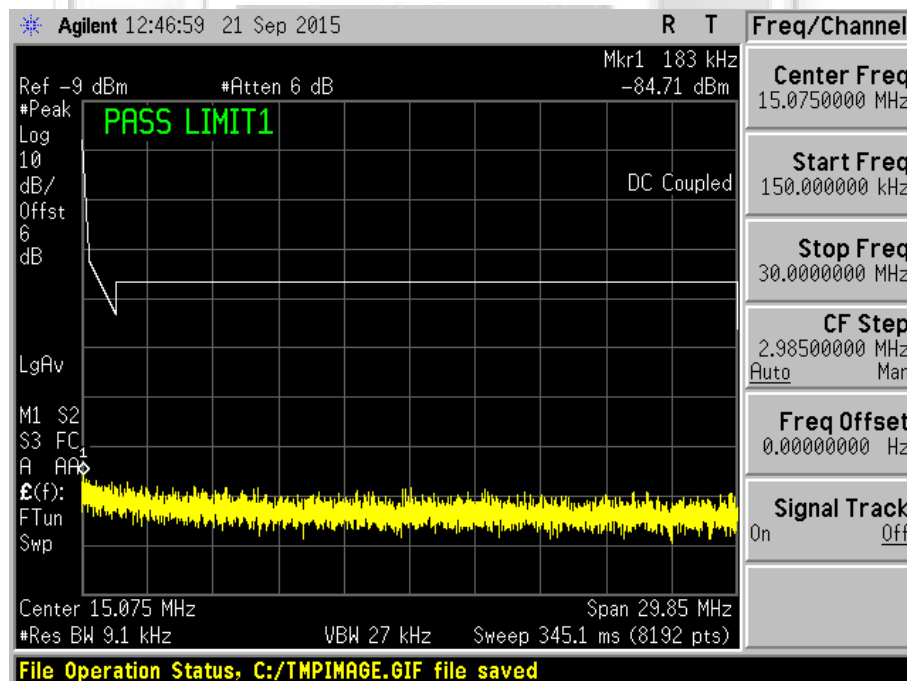
Plot 306 – Channel 6 (middle ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



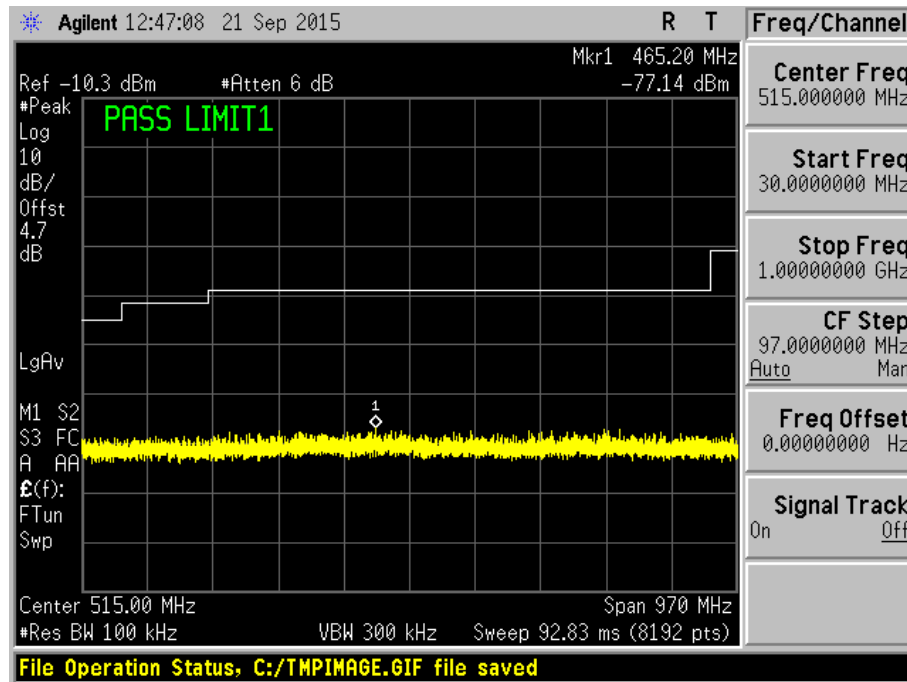
Plot 307 – Channel 11 (upper ch) @ BPSK 6.5Mbps



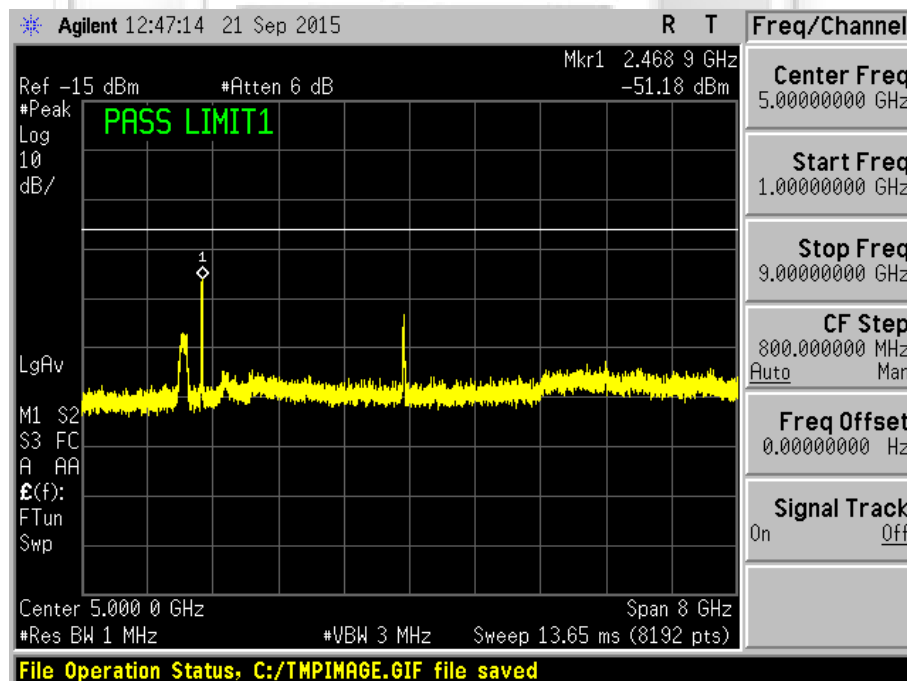
Plot 308 – Channel 11 (upper ch) @ BPSK 6.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



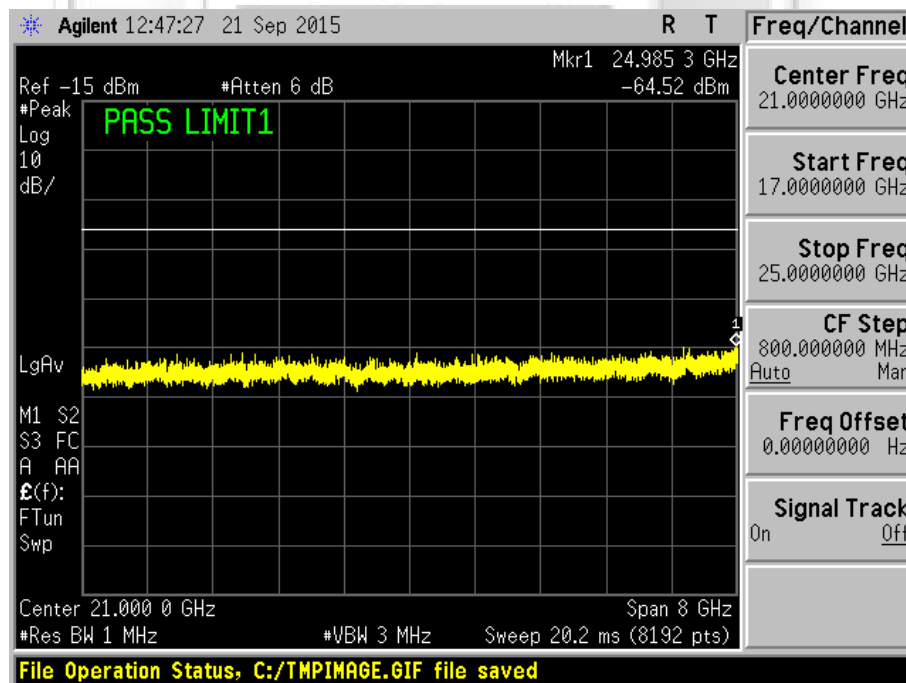
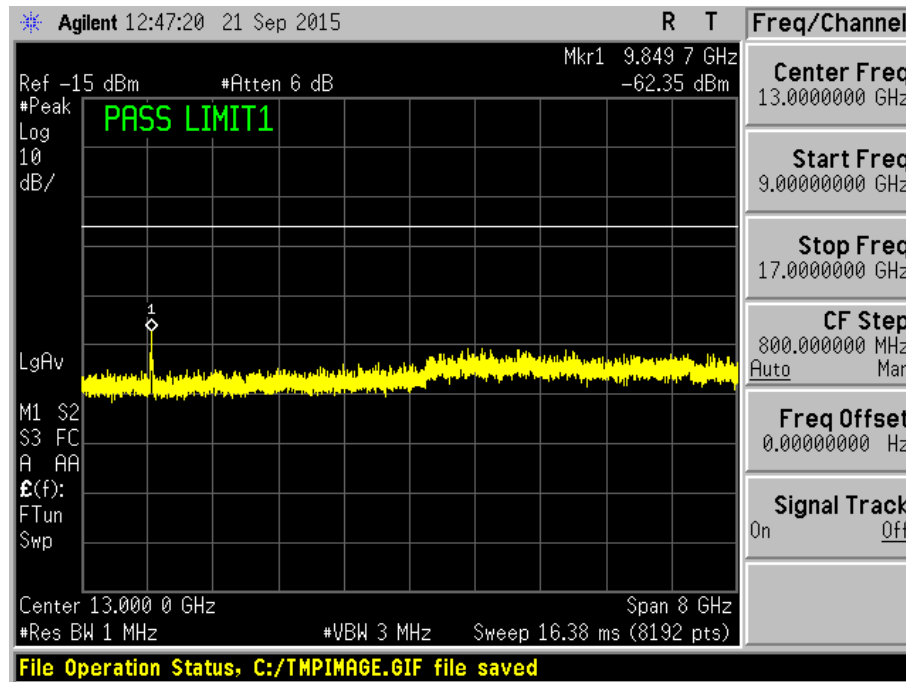
Plot 309 – Channel 11 (upper ch) @ BPSK 6.5Mbps



Plot 310 – Channel 11 (upper ch) @ BPSK 6.5Mbps

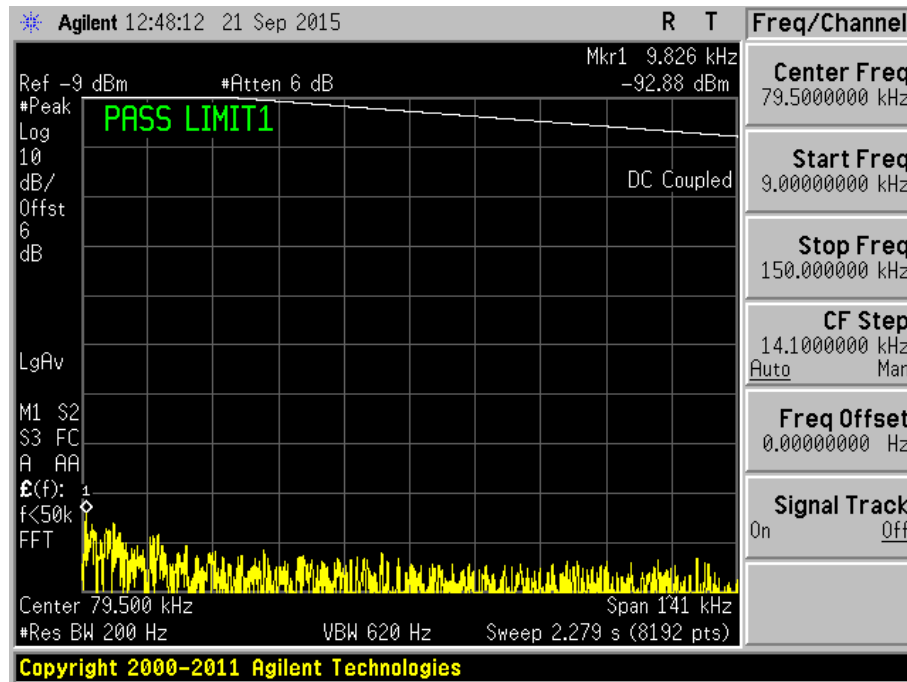
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n

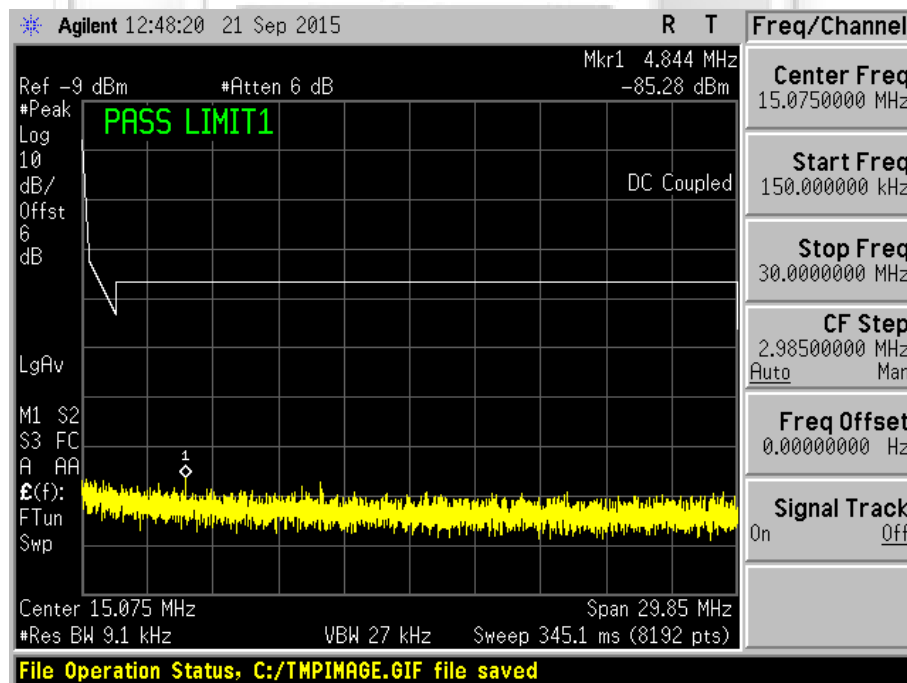


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



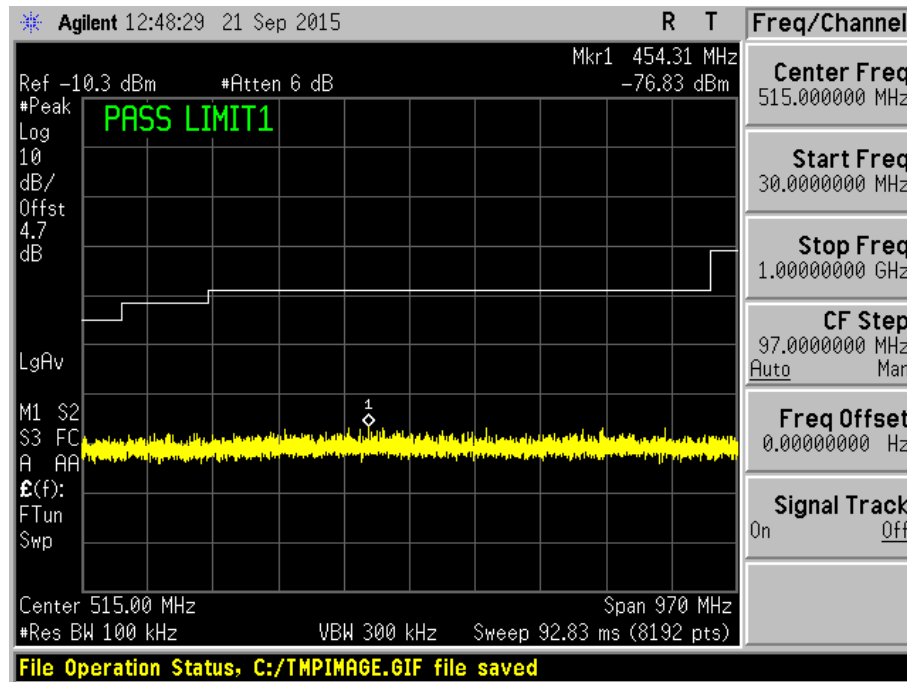
Plot 313 – Channel 11 (upper ch) @ QPSK 19.5Mbps



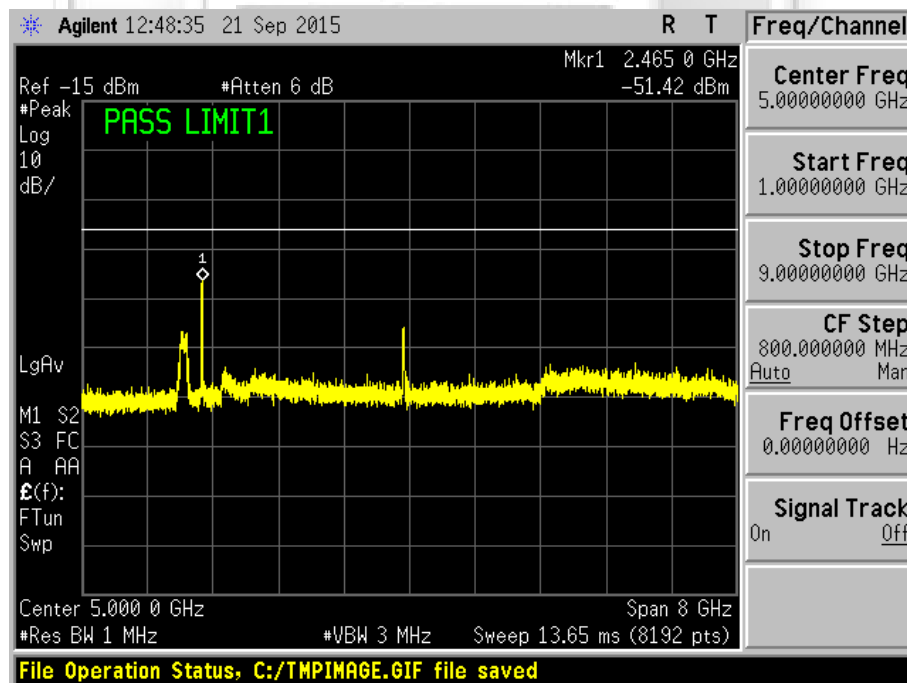
Plot 314 – Channel 11 (upper ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



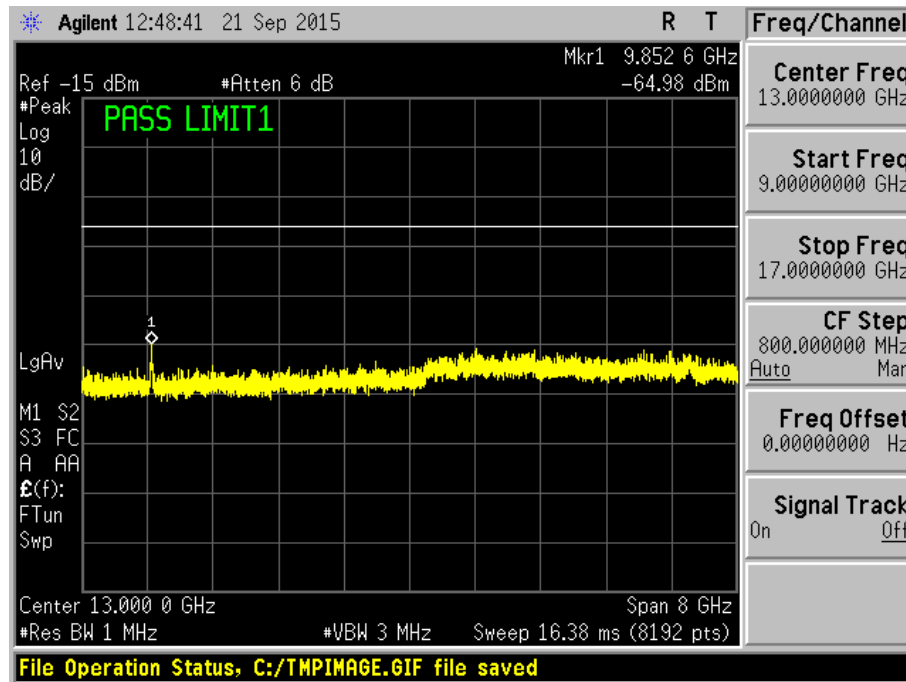
Plot 315 – Channel 11 (upper ch) @ QPSK 19.5Mbps



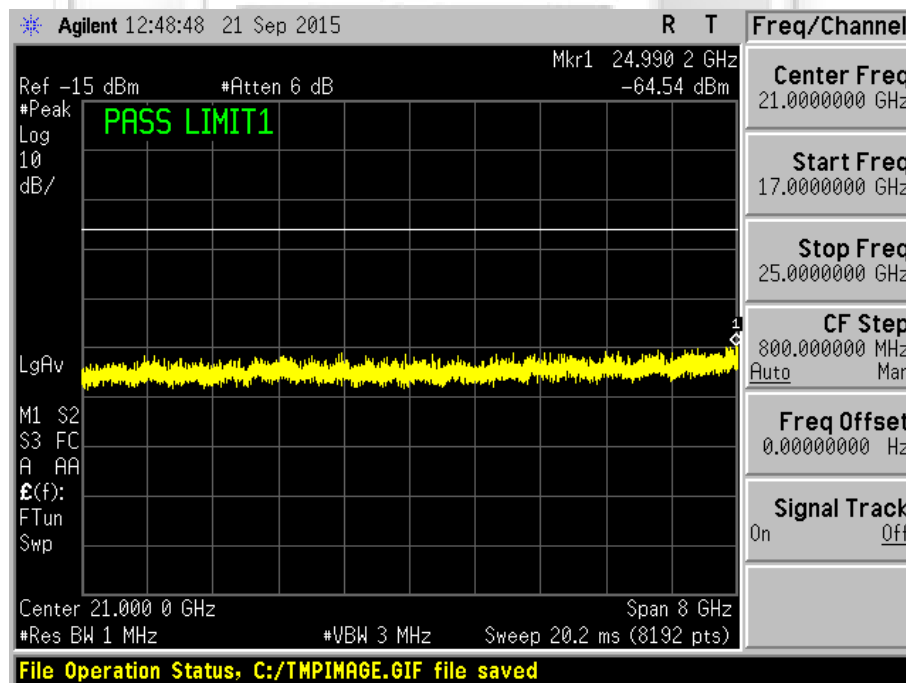
Plot 316 – Channel 11 (upper ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



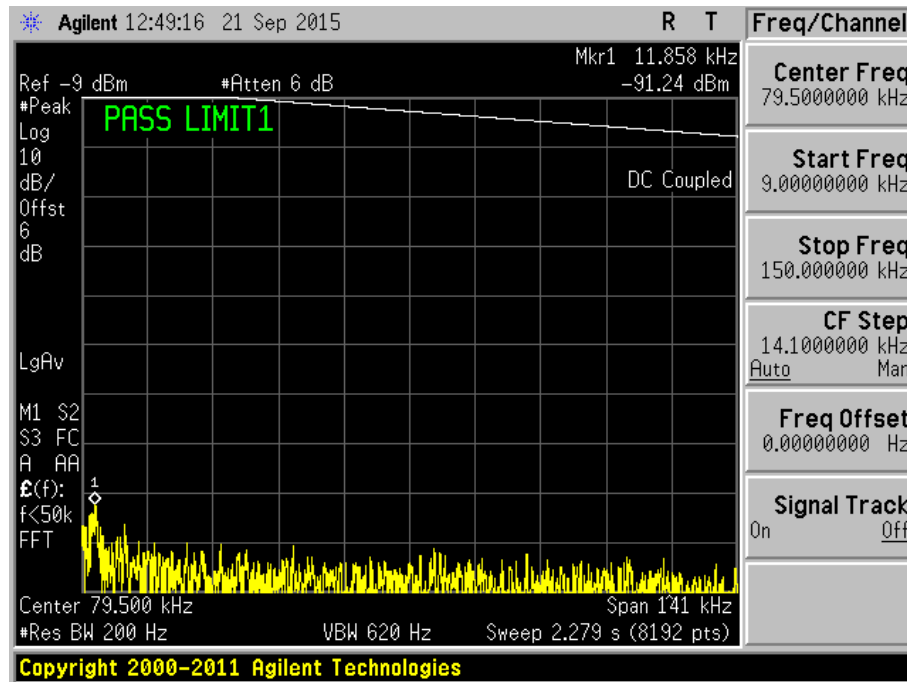
Plot 317 – Channel 11 (upper ch) @ QPSK 19.5Mbps



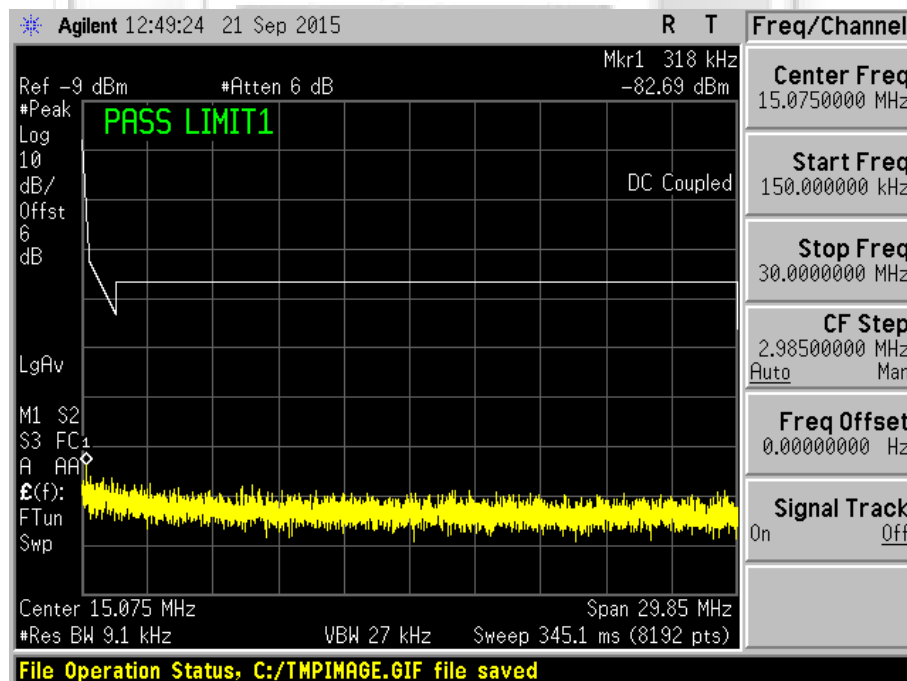
Plot 318 – Channel 11 (upper ch) @ QPSK 19.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



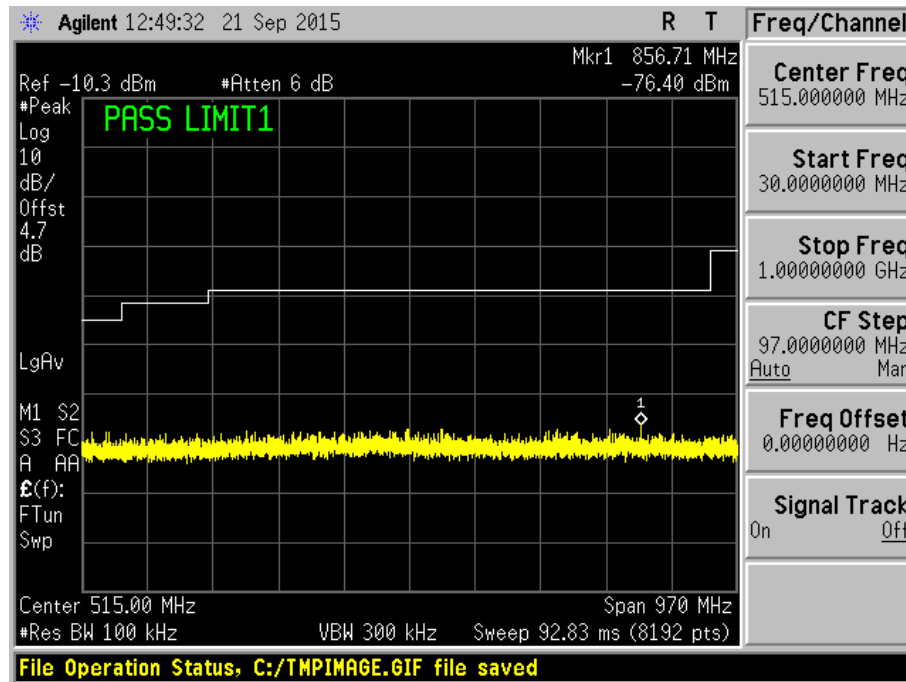
Plot 319 – Channel 11 (upper ch) @ 16QAM 39Mbps



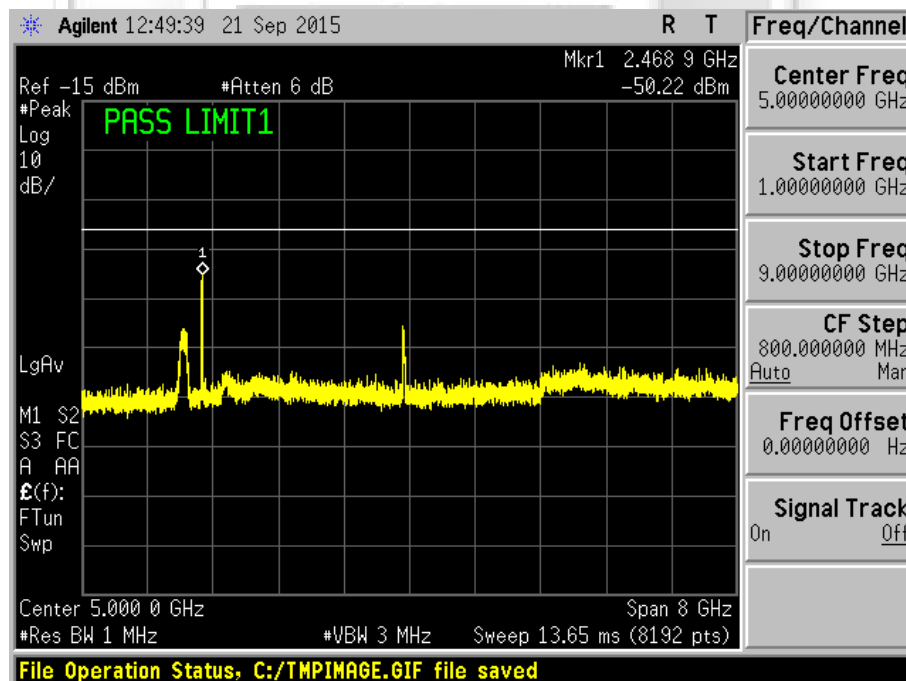
Plot 320 – Channel 1 (lower ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



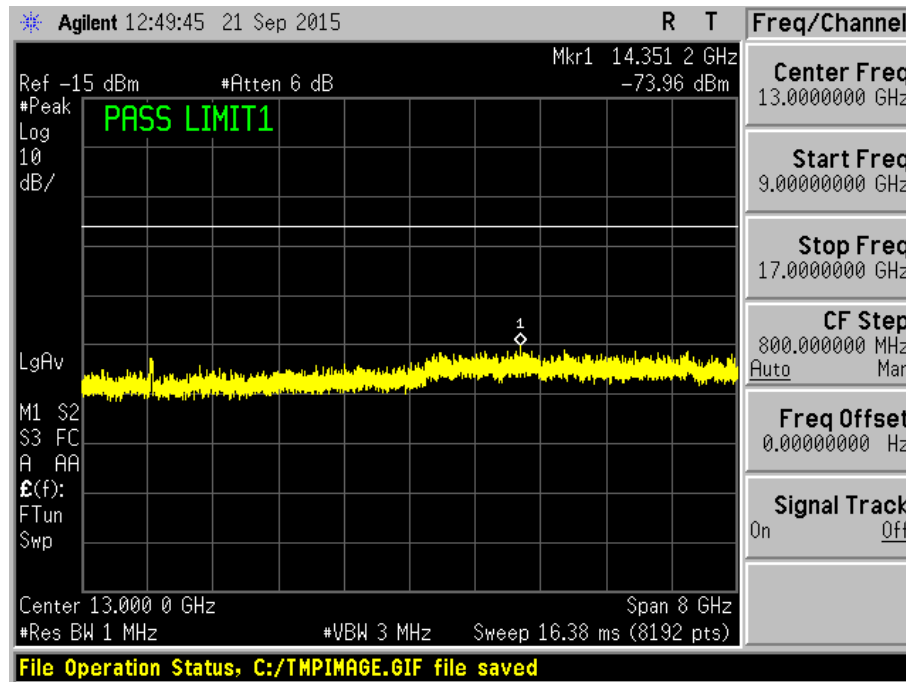
Plot 321 – Channel 11 (upper ch) @ 16QAM 39Mbps



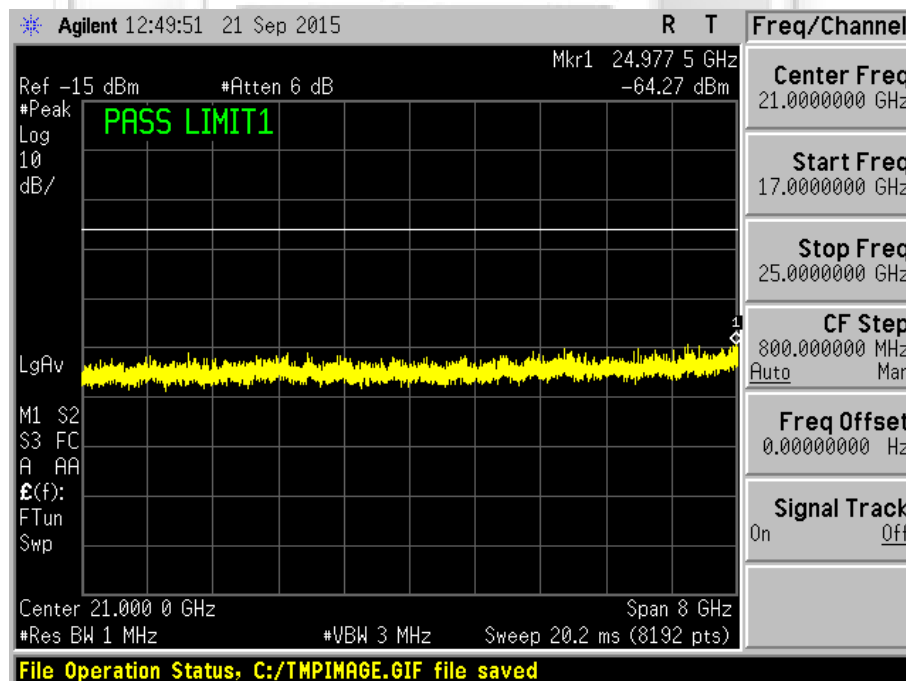
Plot 322 – Channel 11 (upper ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



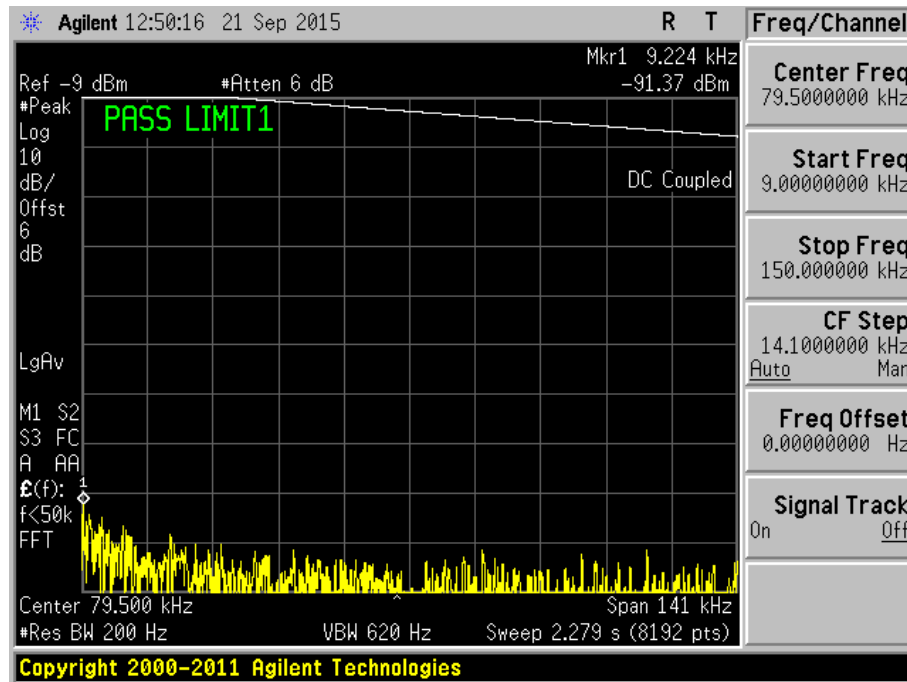
Plot 323 – Channel 11 (upper ch) @ 16QAM 39Mbps



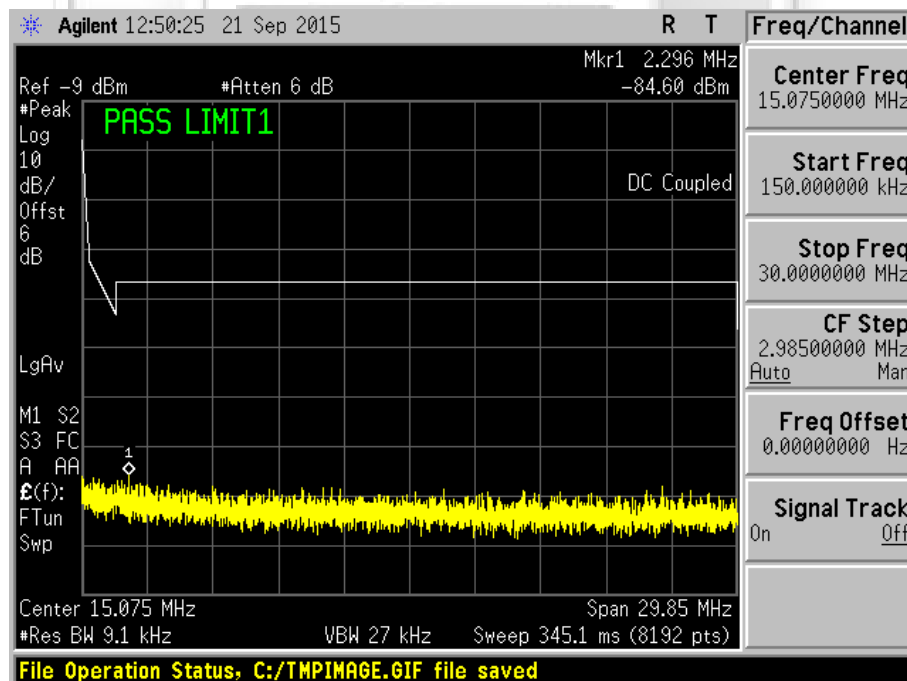
Plot 324 – Channel 11 (upper ch) @ 16QAM 39Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



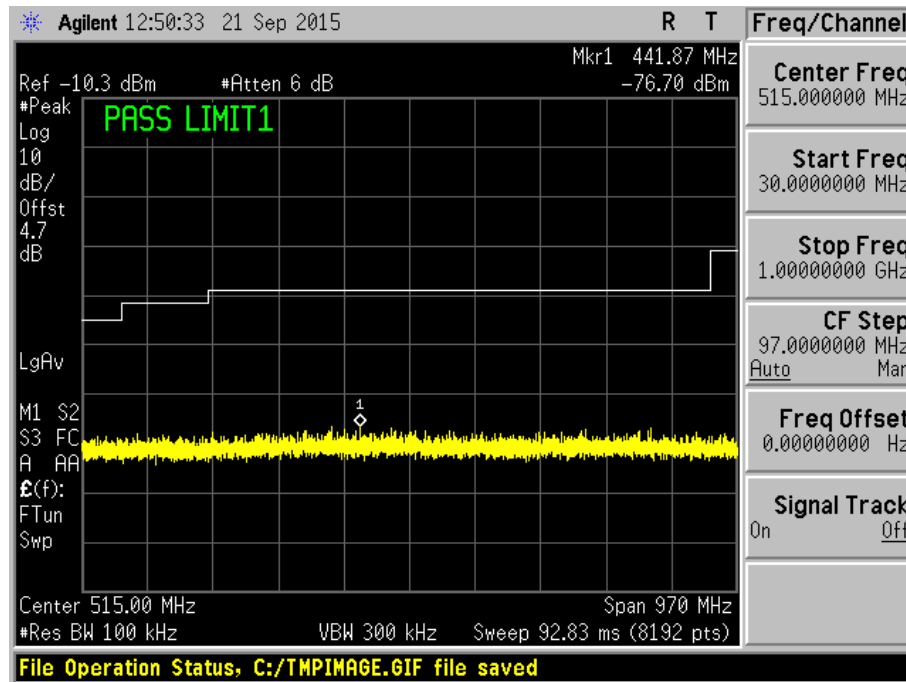
Plot 325 – Channel 11 (upper ch) @ 64QAM 65Mbps



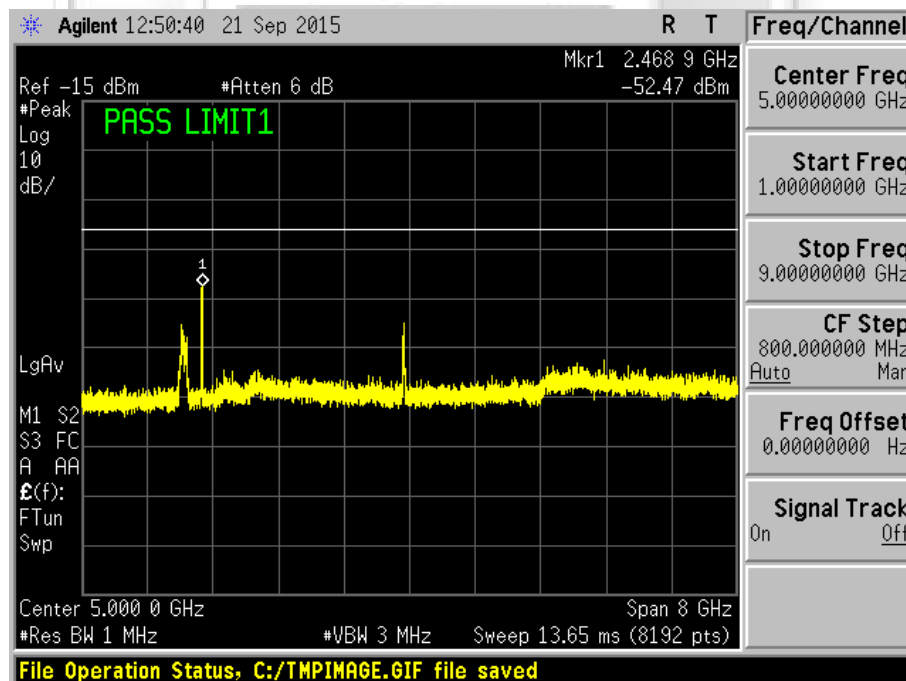
Plot 326 – Channel 11 (upper ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



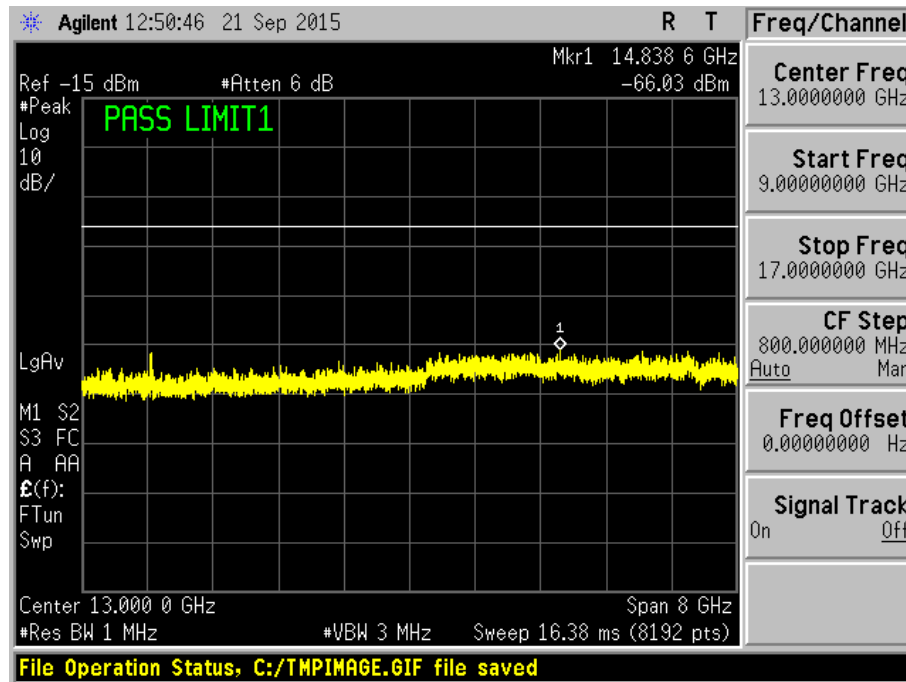
Plot 327 – Channel 11 (upper ch) @ 64QAM 65Mbps



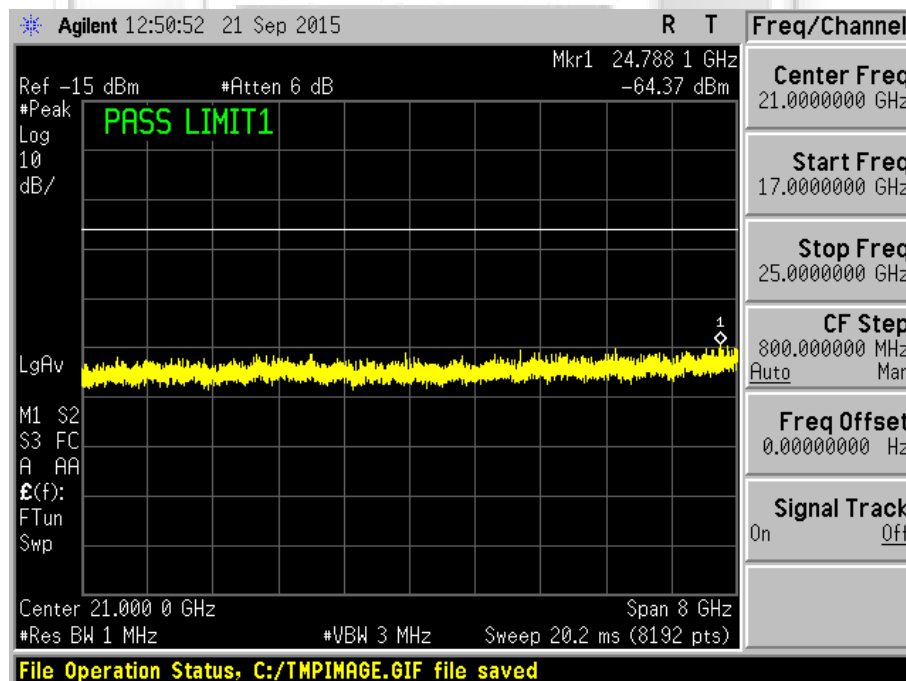
Plot 328 – Channel 11 (upper ch) @ 64QAM 65Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – 802.11n



Plot 329 – Channel 11 (upper ch) @ 64QAM 65Mbps



Plot 330 – Channel 11 (upper ch) @ 64QAM 65Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Conducted) Limits

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Conducted) Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E4440A	MY45304764	12 Dec 2015	1 year

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Conducted) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz.
5. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Conducted) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode with specified modulation and data rate.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. Repeat steps 1 to 3 with all possible modulations and data rates.
5. The steps 2 to 4 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band-edge.

BAND EDGE COMPLIANCE (CONDUCTED) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Conducted) Results

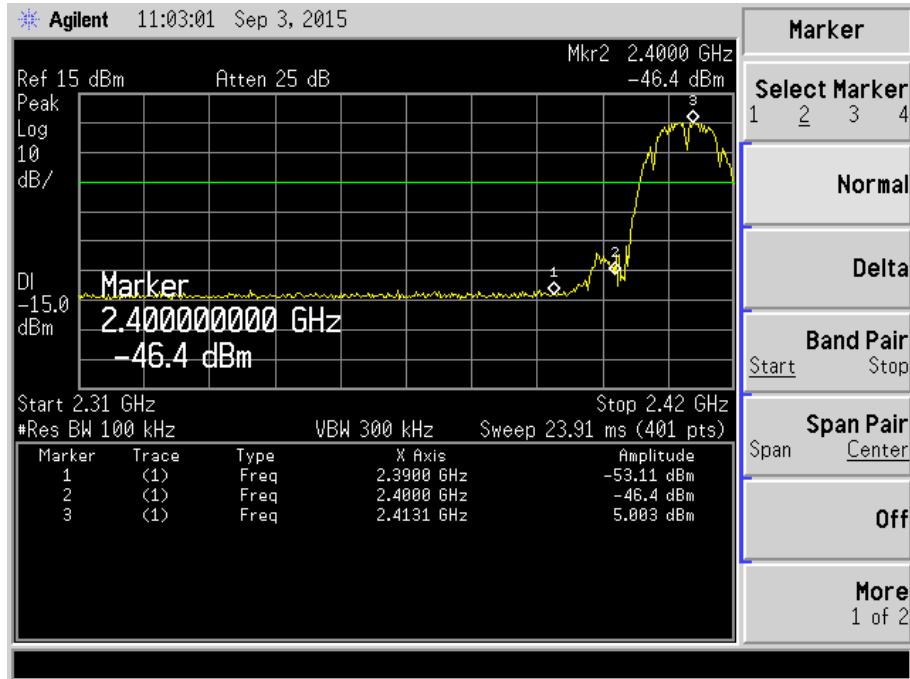
Test Input Power	120V 60Hz	Temperature	24°C
Attached Plots	331 – 336 (802.11b) 337 – 344 (802.11g) 345 – 352 (802.11n)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

No significant signal was found and they were below the specified limit.

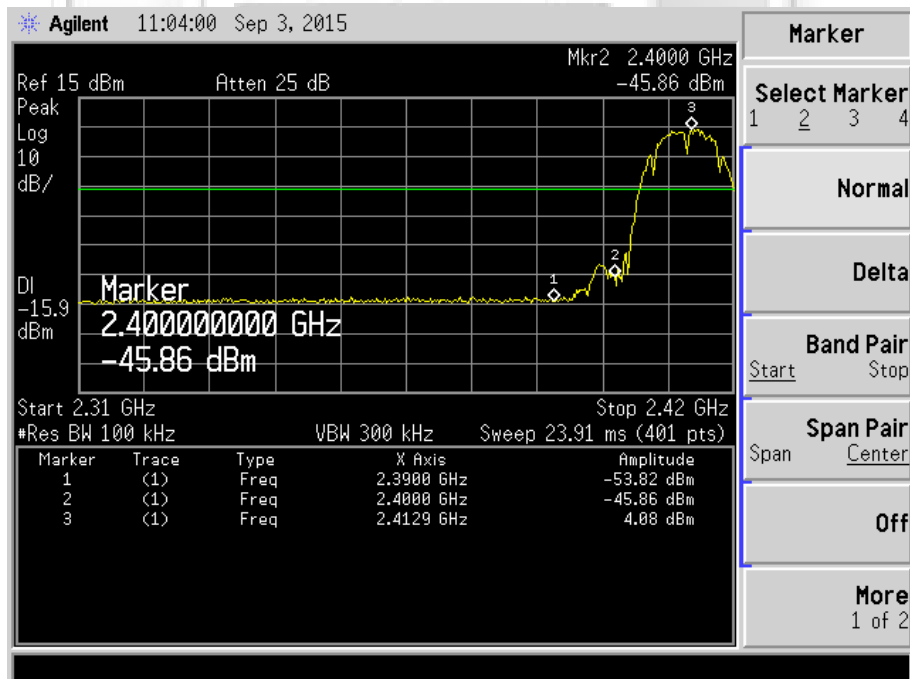


BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11b



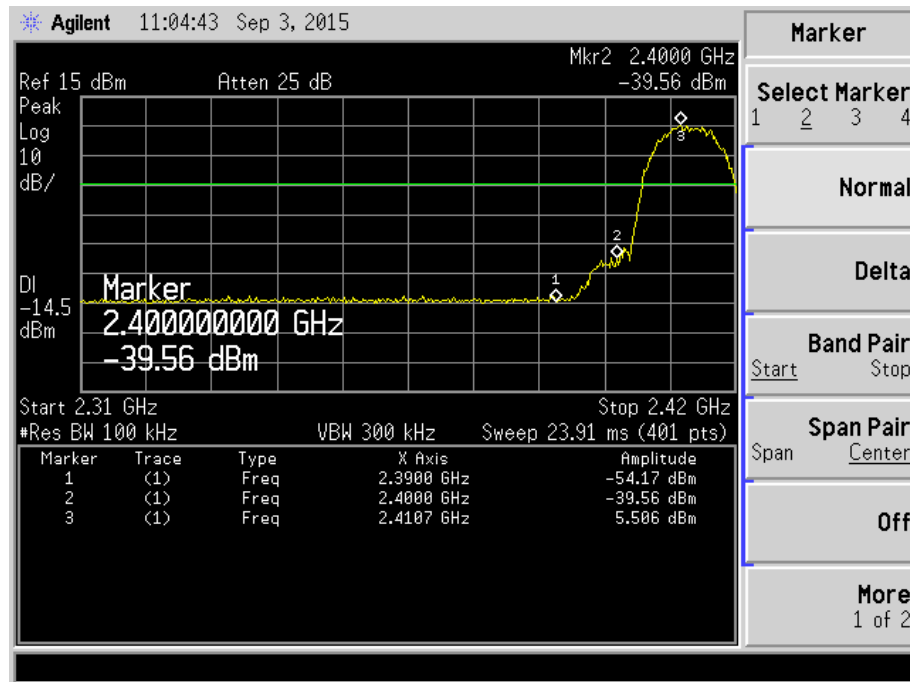
Plot 331 – Lower Band Edge at 2.4000GHz @ DBPSK 1Mbps



Plot 332 – Lower Band Edge at 2.4000GHz @ DQPSK 2Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11b



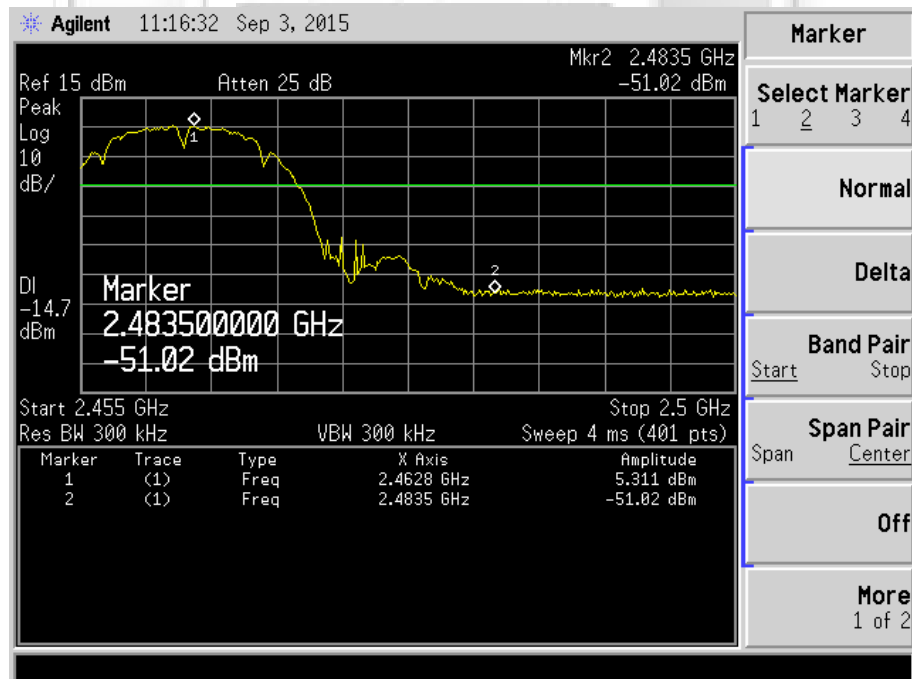
Plot 333 – Lower Band Edge at 2.4000GHz @ CCK 11Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11b



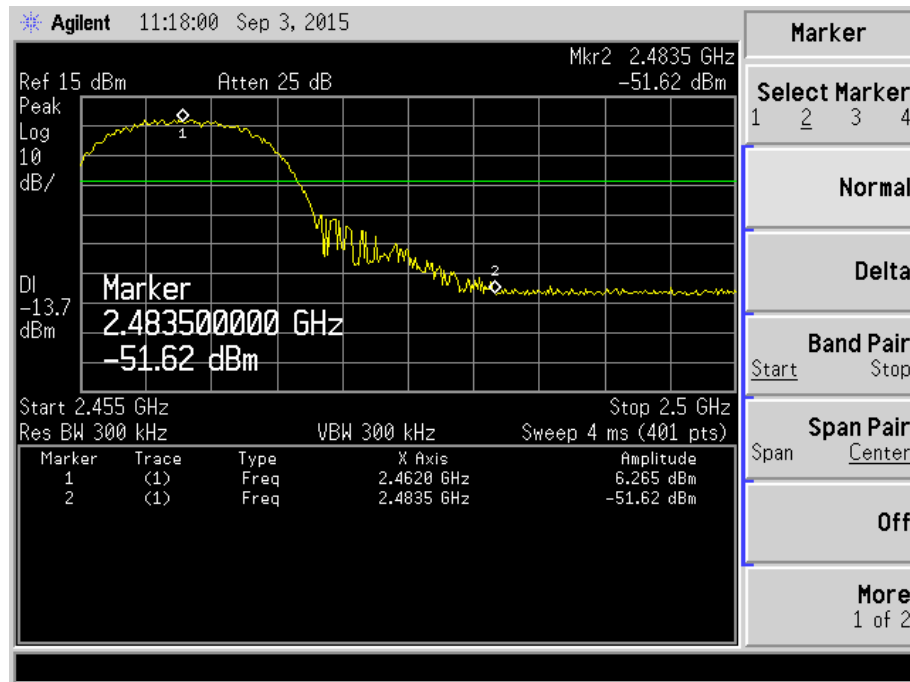
Plot 334 – Upper Band Edge at 2.4835GHz @ DBPSK 1Mbps



Plot 335 – Upper Band Edge at 2.4835GHz @ DQPSK 2Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

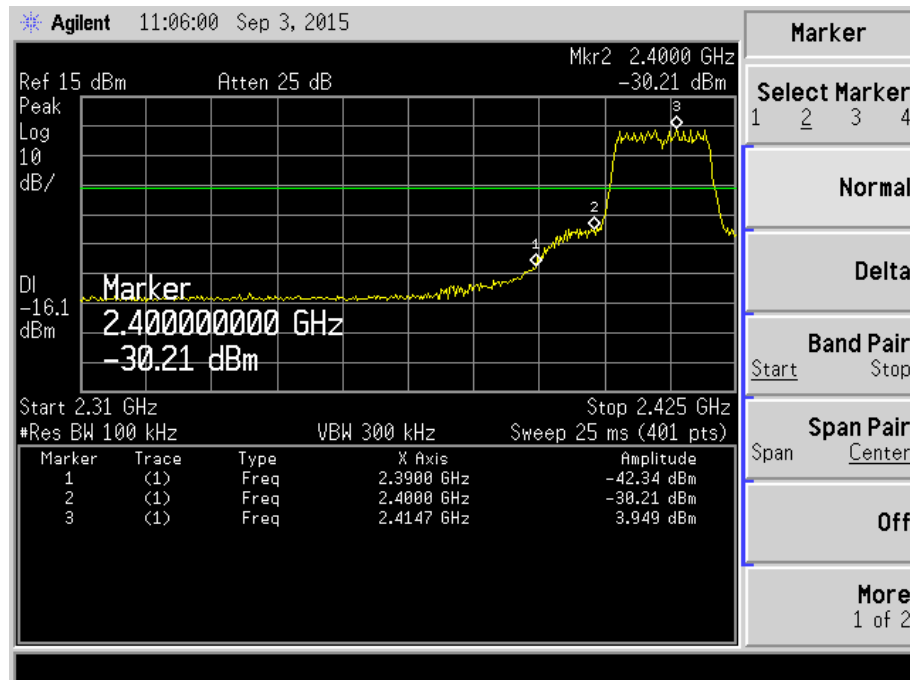
Band Edge Compliance (Conducted) Plots – 802.11b



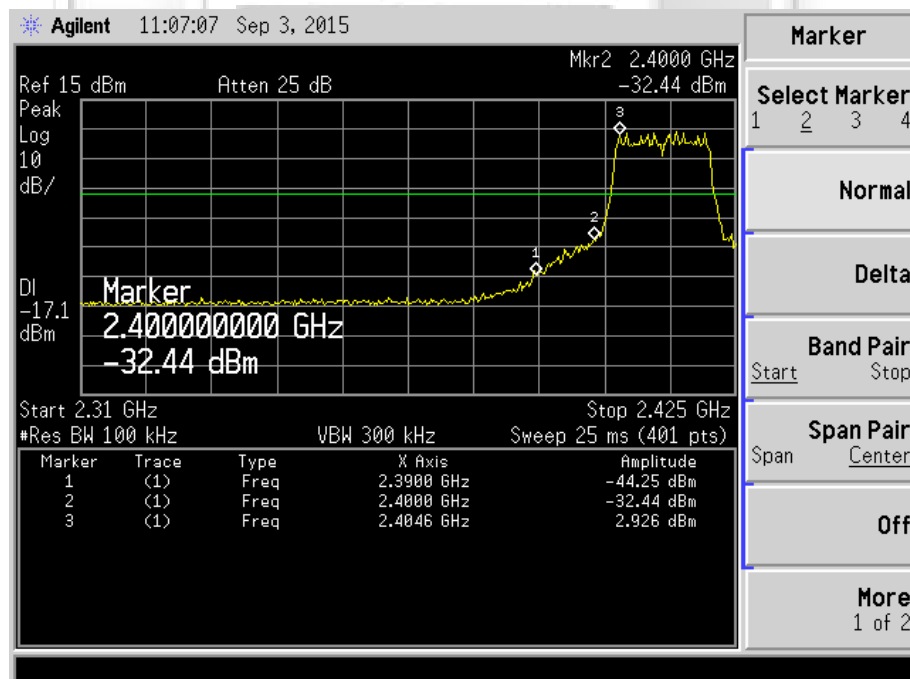
Plot 336 – Upper Band Edge at 2.4835GHz @ CCK 11Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11g



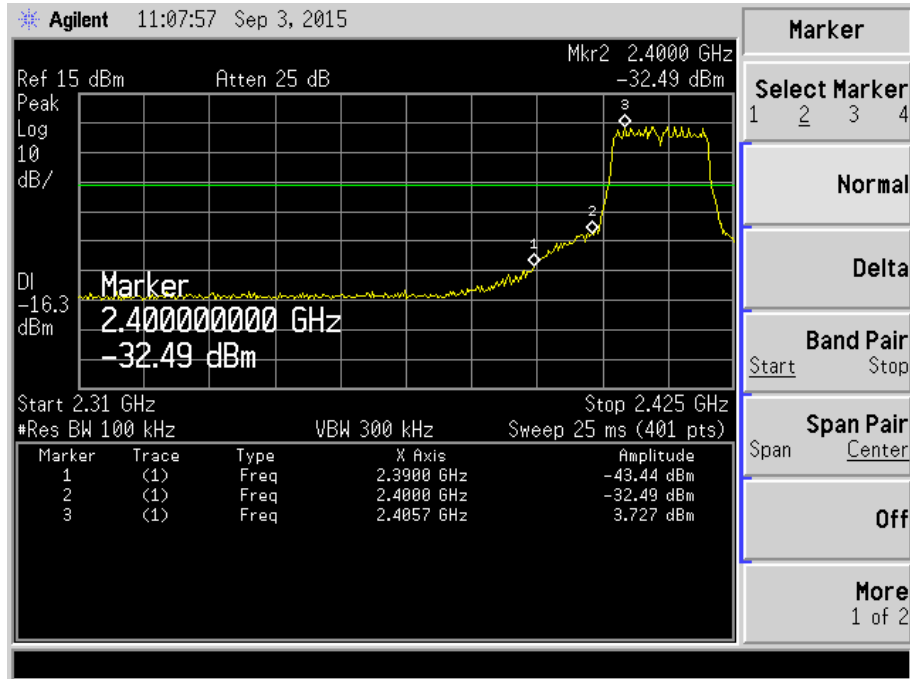
Plot 337 – Lower Band Edge at 2.4000GHz @ BPSK 9Mbps



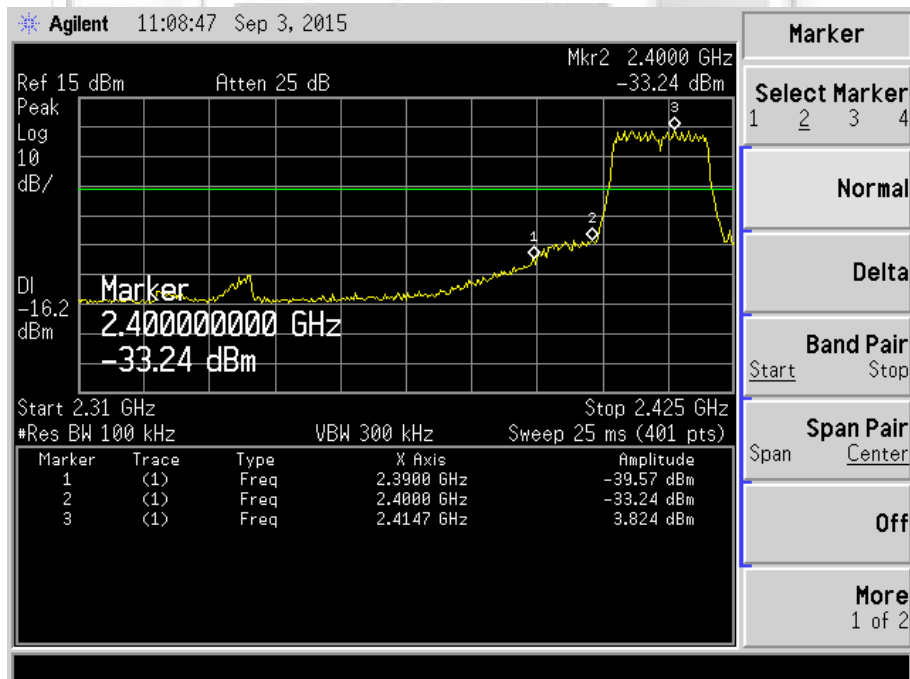
Plot 338 – Lower Band Edge at 2.4000GHz @ QPSK 18Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11g



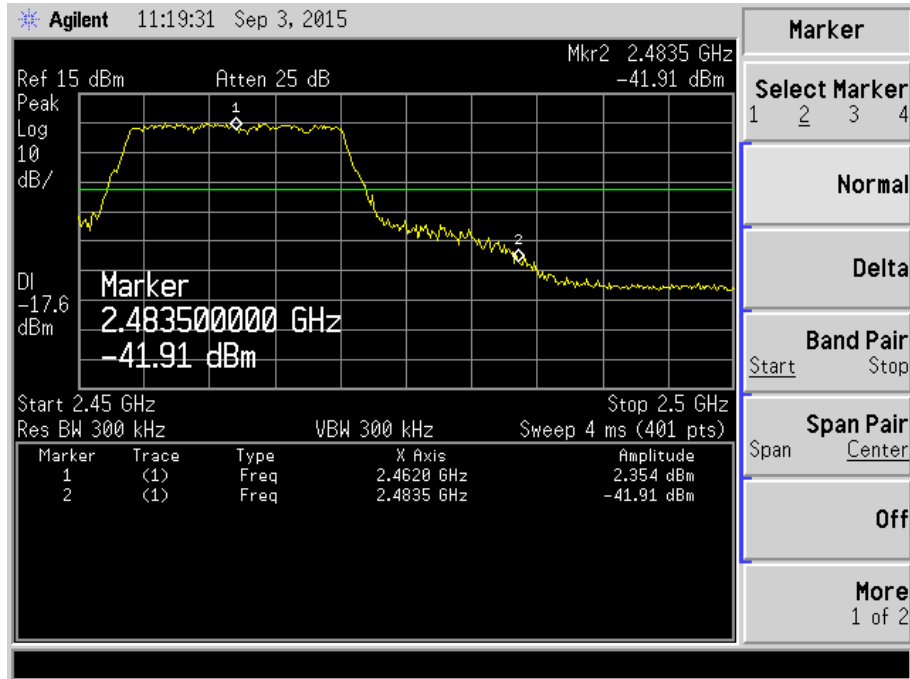
Plot 339 – Lower Band Edge at 2.4000GHz @ 16QAM 36Mbps



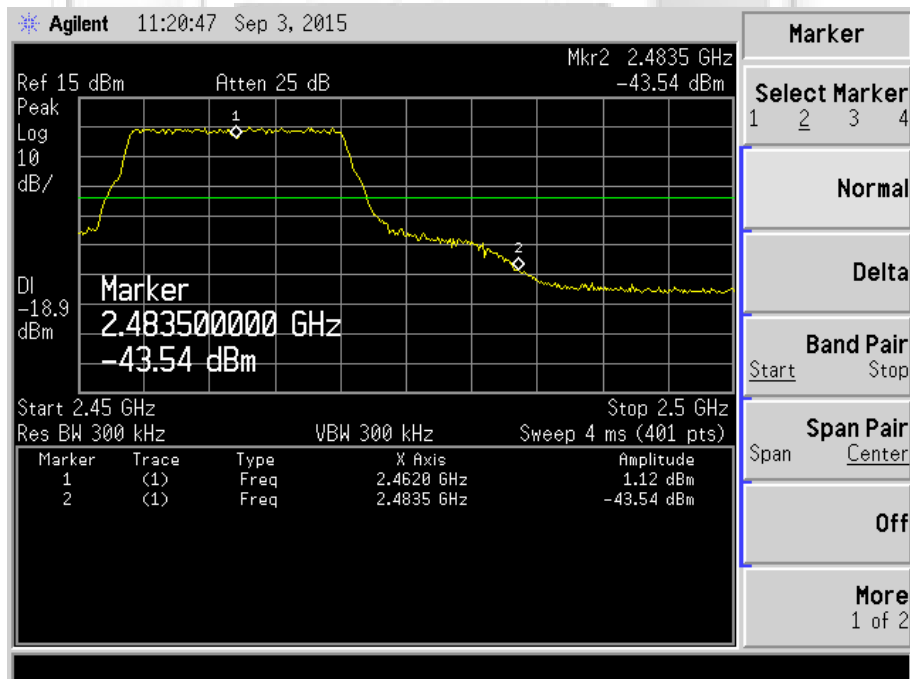
Plot 340 – Lower Band Edge at 2.4000GHz @ 64QAM 54Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11g



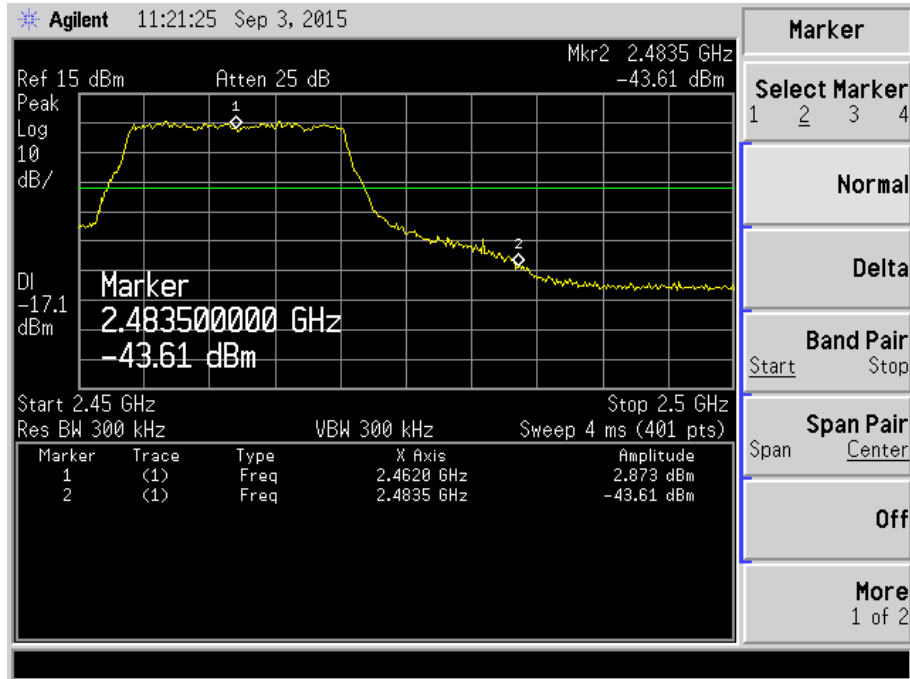
Plot 341 – Upper Band Edge at 2.4835GHz @ BPSK 9Mbps



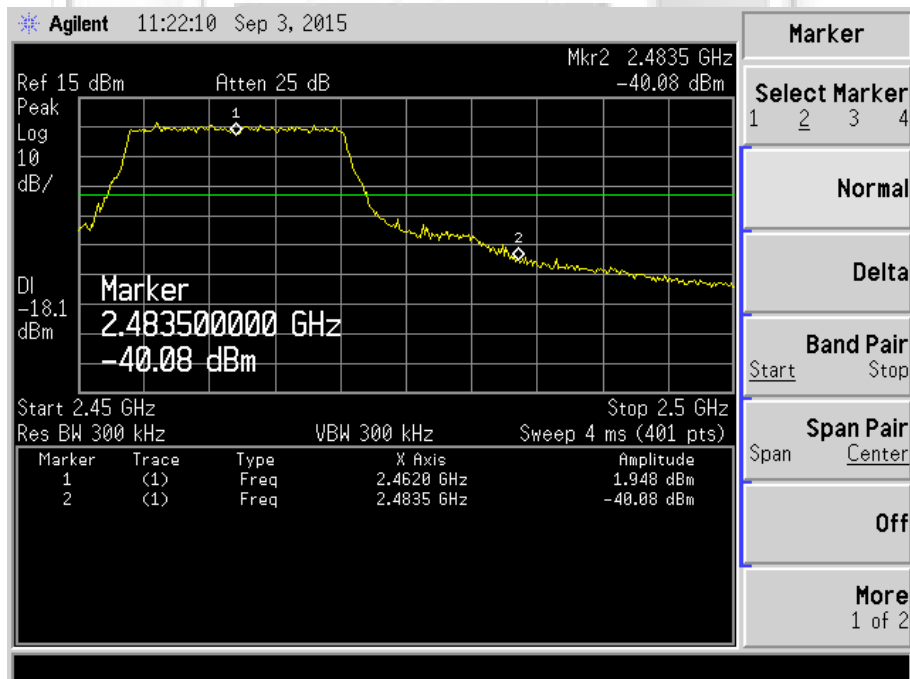
Plot 342 – Upper Band Edge at 2.4835GHz @ QPSK 18Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11g



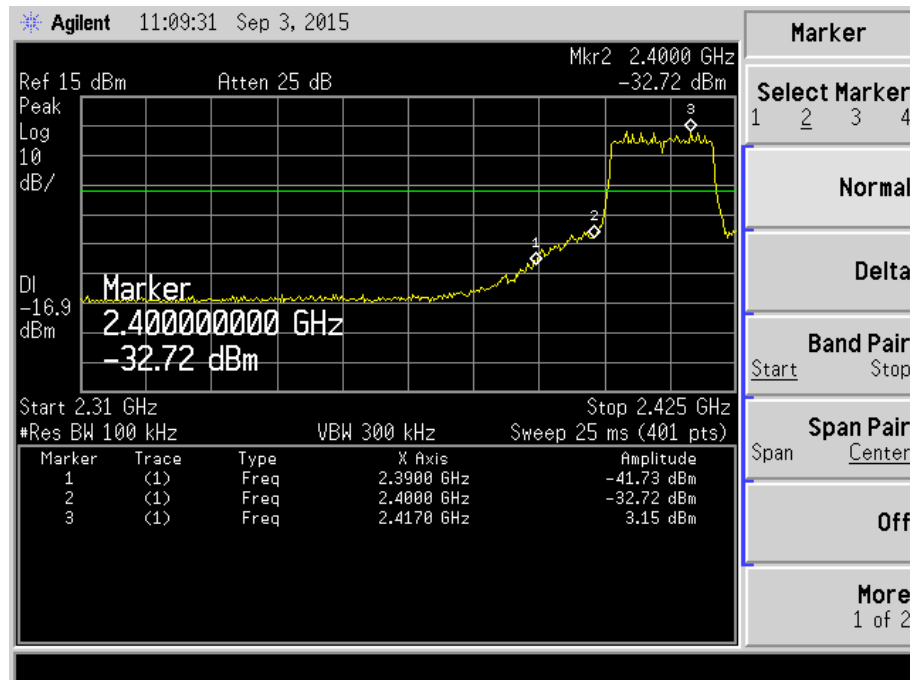
Plot 343 – Upper Band Edge at 2.4835GHz @ 16QAM 36Mbps



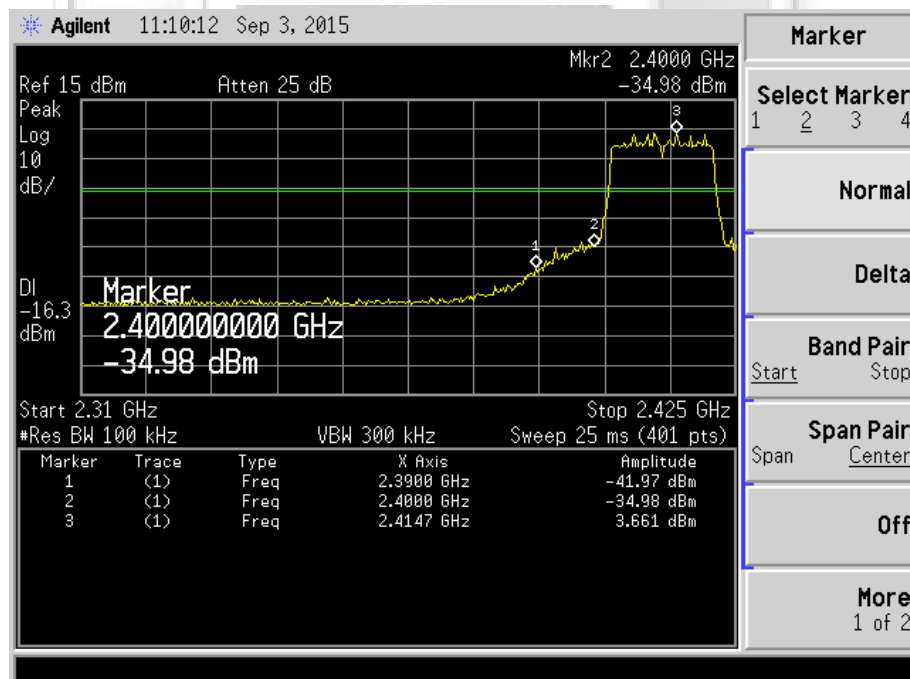
Plot 344 – Upper Band Edge at 2.4835GHz @ 64QAM 54Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11n



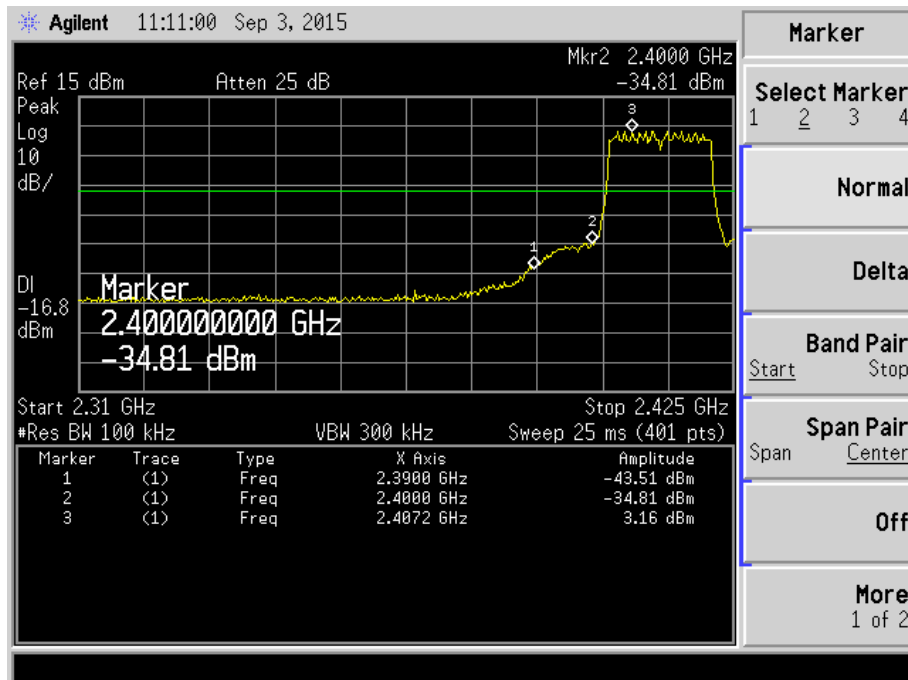
Plot 345 – Lower Band Edge at 2.4000GHz @ BPSK 6.5Mbps



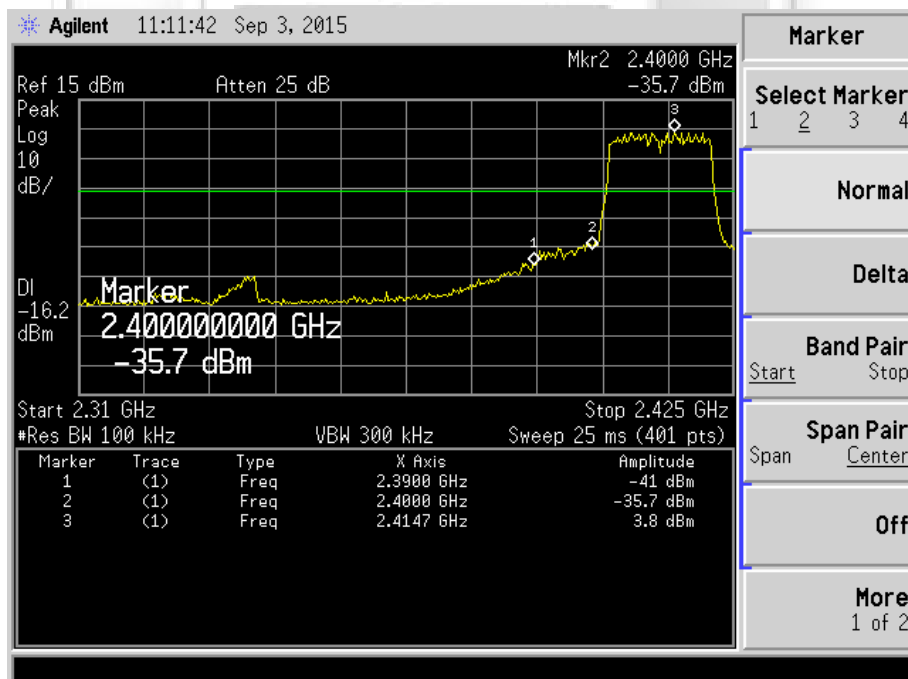
Plot 346 – Lower Band Edge at 2.4000GHz @ QPSK 19.5Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11n



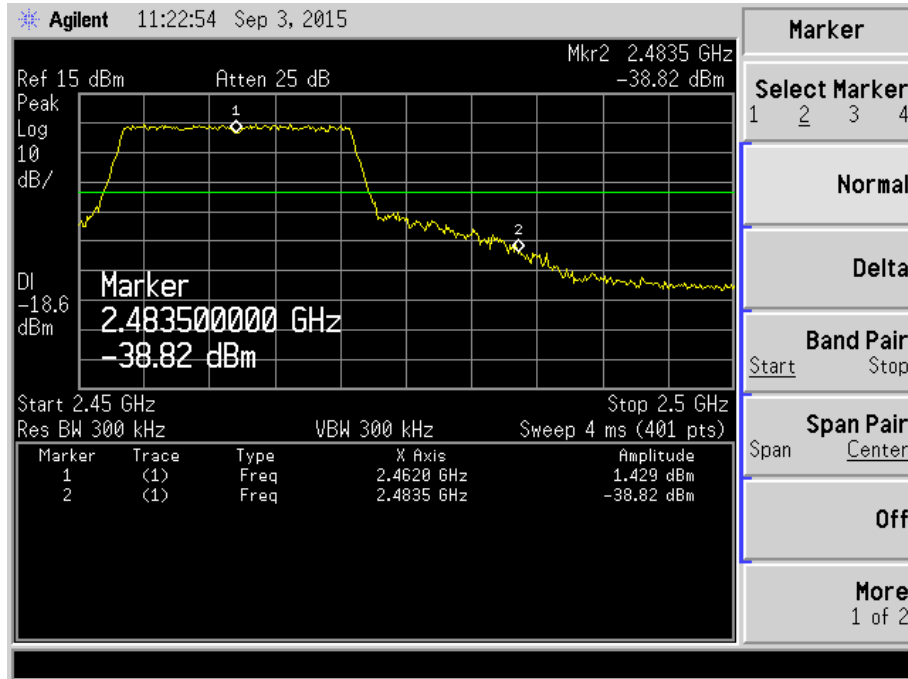
Plot 347 – Lower Band Edge at 2.4000GHz @ 16QAM 39Mbps



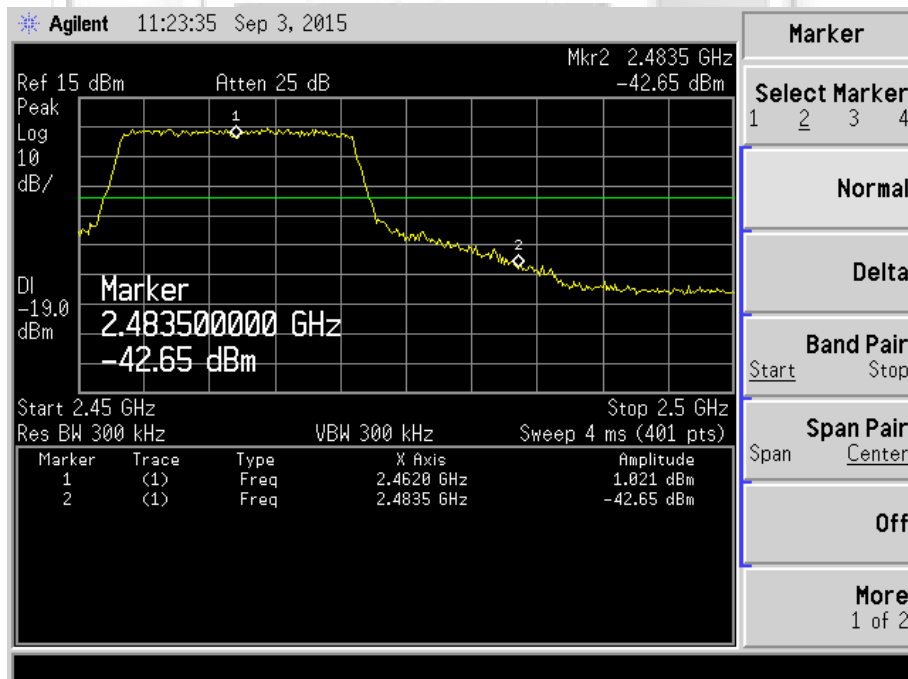
Plot 348 – Lower Band Edge at 2.4000GHz @ 64QAM 65Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11n



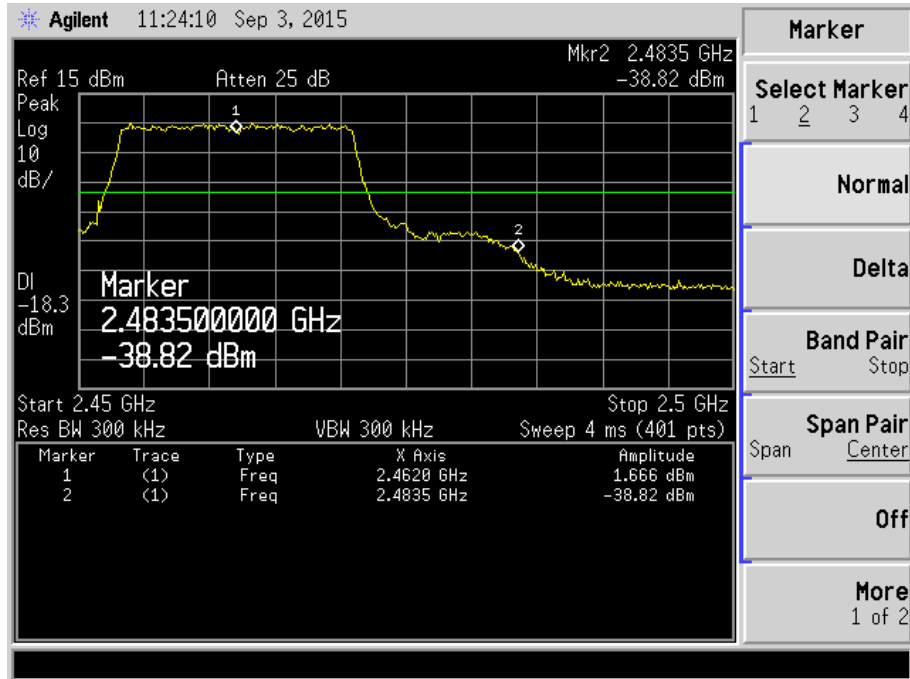
Plot 349 – Upper Band Edge at 2.4835GHz @ BPSK 6.5Mbps



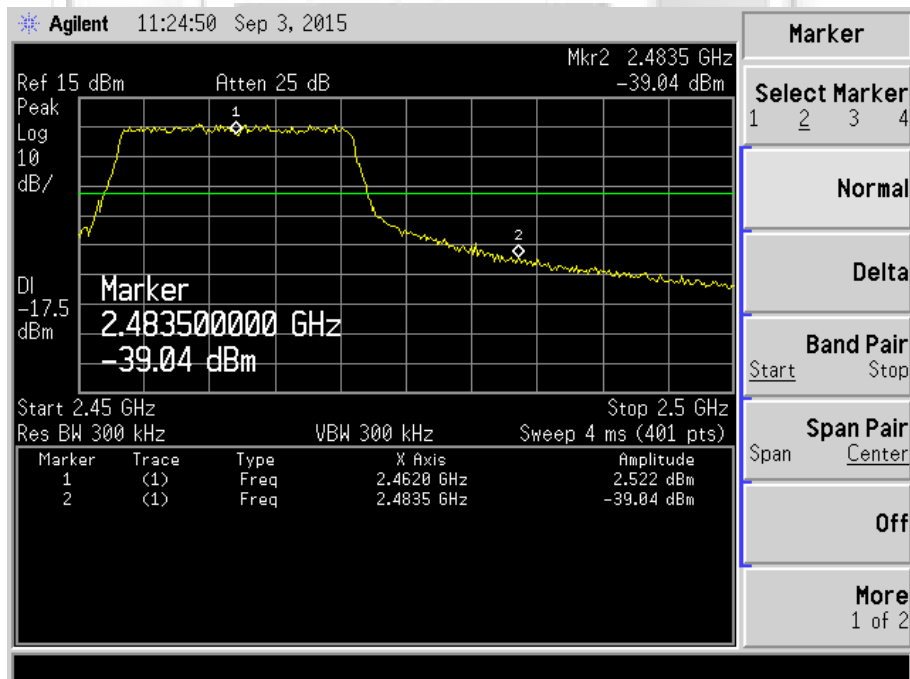
Plot 350 – Upper Band Edge at 2.4835GHz @ QPSK 19.5Mbps

BAND EDGE COMPLIANCE (CONDUCTED) TEST

Band Edge Compliance (Conducted) Plots – 802.11n



Plot 351 – Upper Band Edge at 2.4835GHz @ 16QAM 39Mbps



Plot 352 – Upper Band Edge at 2.4835GHz @ 64QAM 65Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Radiated) Limits

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power. In addition, radiated emissions which fall in the restricted bands shall comply to the radiated emission limits specified in 15.209.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Radiated) Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
R&S Test Receiver – ESI1	ESI40	100010	14 Jul 2016	1 year
EMCO Horn Antenna(1GHz-18GHz)	3115	0003-6088	20 Apr 2016	1 year
R&S Preamplifier (1GHz -18GHz)	SCU18	102191	13 Mar 2016	1 year

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Radiated) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz to show compliance of spurious at band edges are at least 20dB below the carriers. For restricted band spurious at band edges, peak and average measurement plots were taken using the following setting:
 - a. Peak Plot:
RBW = VBW = 1MHz
 - b. Average Plot
RBW = 1MHz, VBW = 30Hz
4. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Radiated) Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode with specified modulation and data rate.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. Repeat steps 1 to 3 with all possible modulations and data rates.
5. The steps 2 to 4 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band-edge.

BAND EDGE COMPLIANCE (RADIATED) TEST

47 CFR FCC Part 15.247(d) and RSS-247 5.5 Band Edge Compliance (Radiated) Results

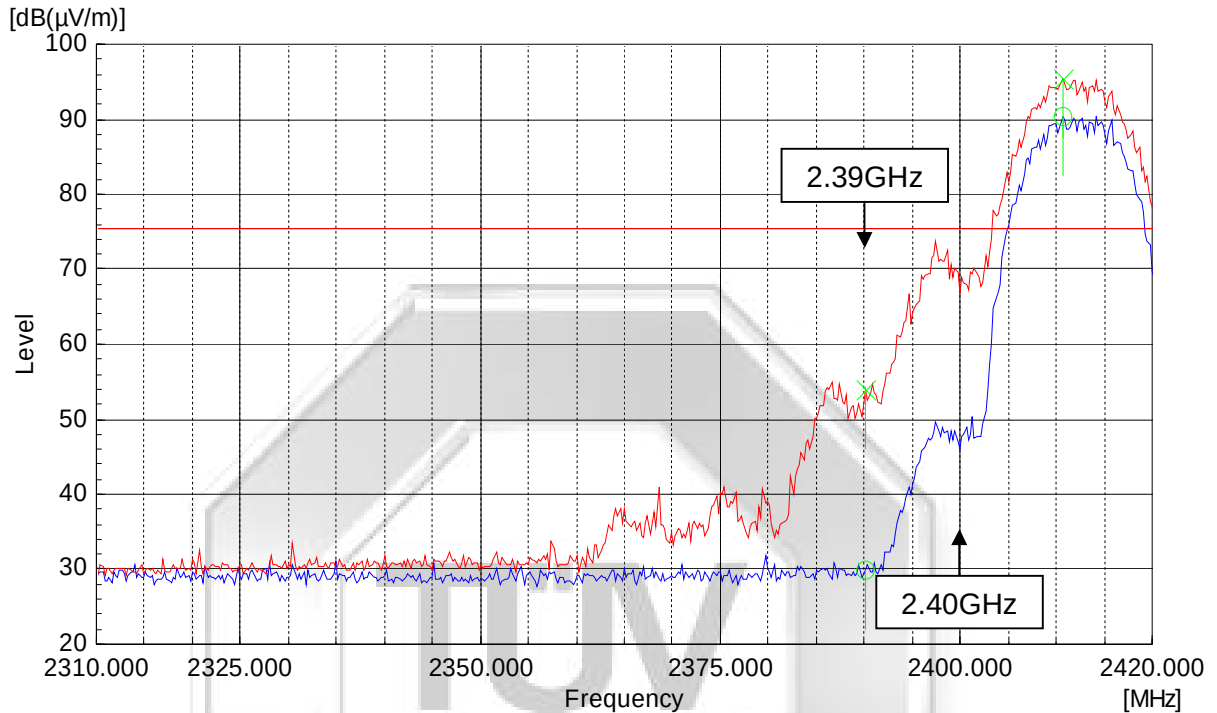
Test Input Power	120V 60Hz	Temperature	24°C
Attached Plots	353 – 358 (802.11b) 359 – 364 (802.11g) 365 – 370 (802.11n)	Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Dylan Lin

No significant signal was found and they were below the specified limit.

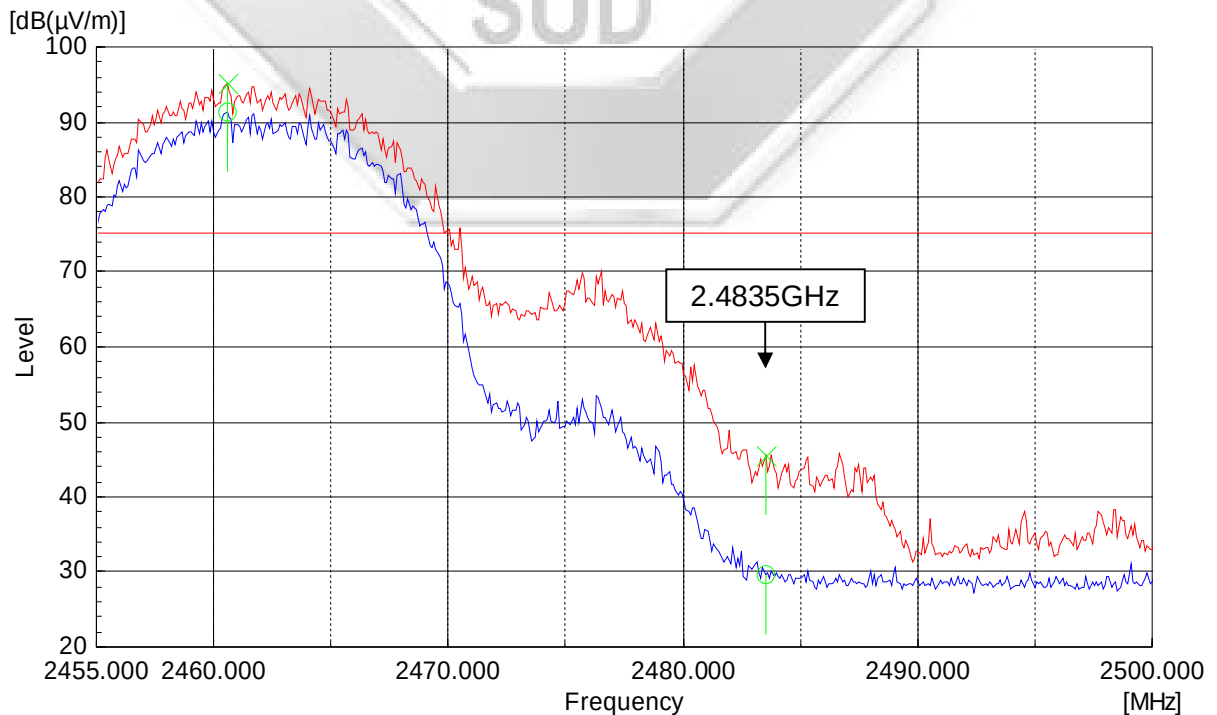


BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge) – 802.11b



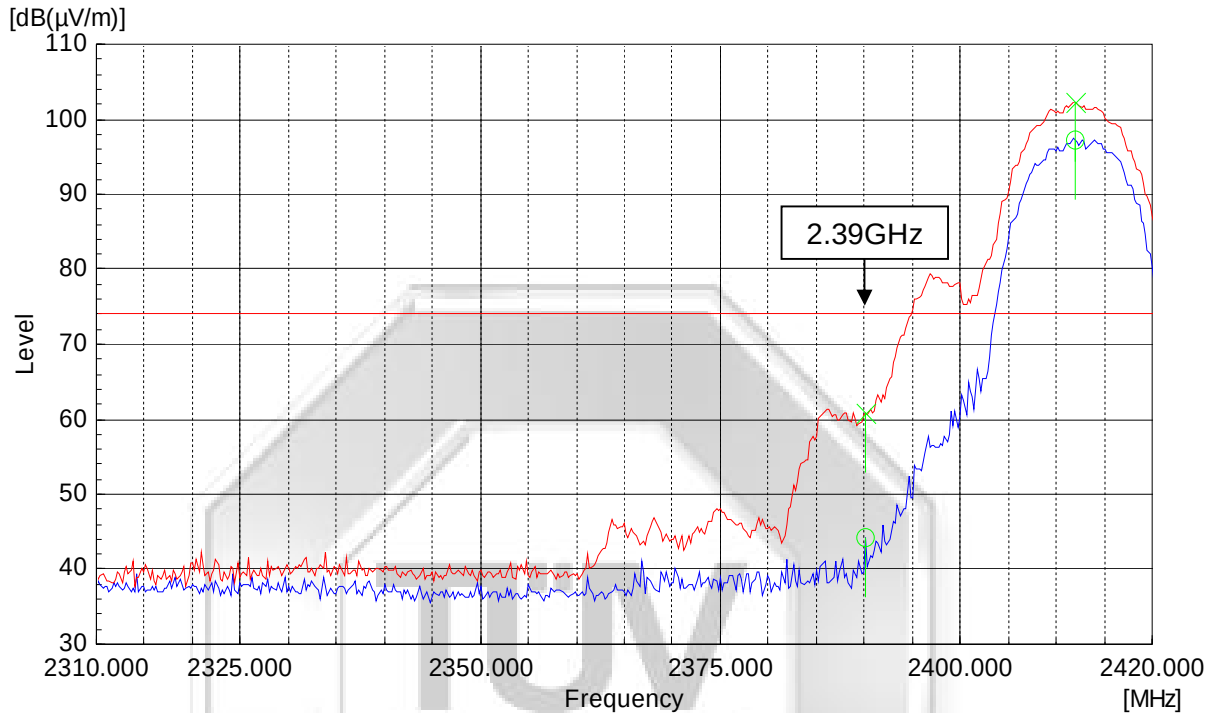
Plot 353 – Lower Band Edge at 2.4000GHz @ CCK 11Mbps



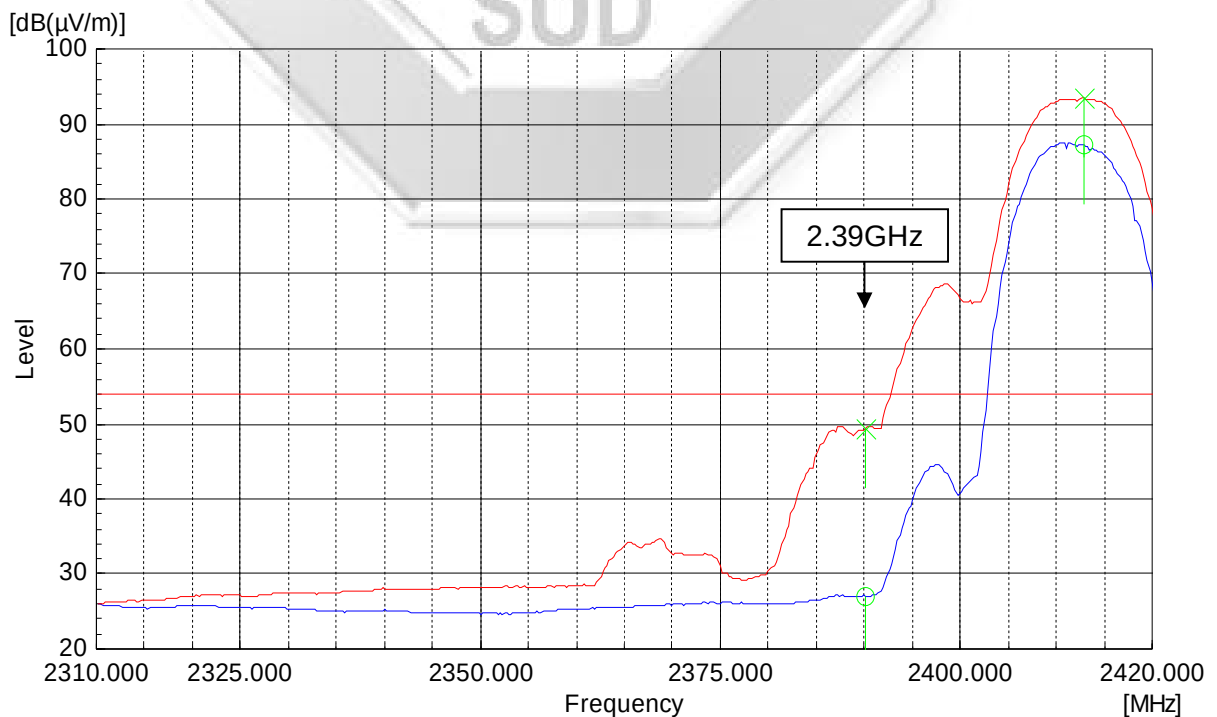
Plot 354 – Upper Band Edge at 2.4835GHz @ CCK 11Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11b



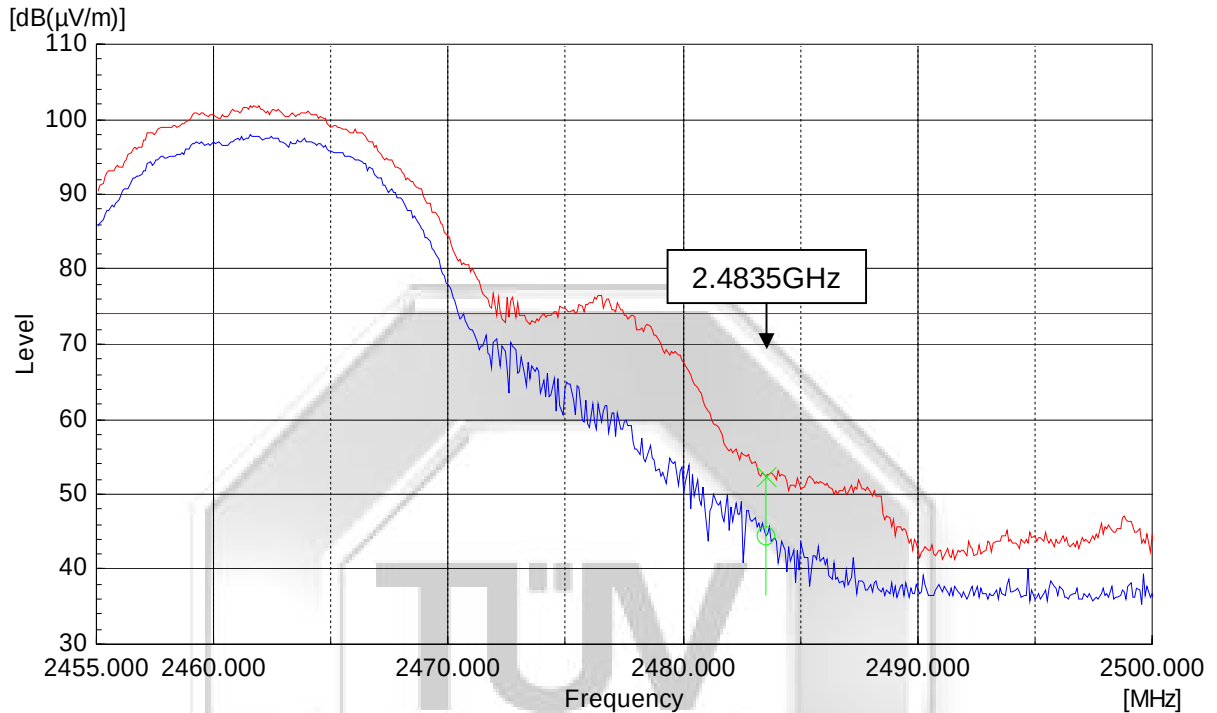
Plot 355 – Peak Plot at Lower Band Edge at 2.4000GHz @ CCK 11Mbps



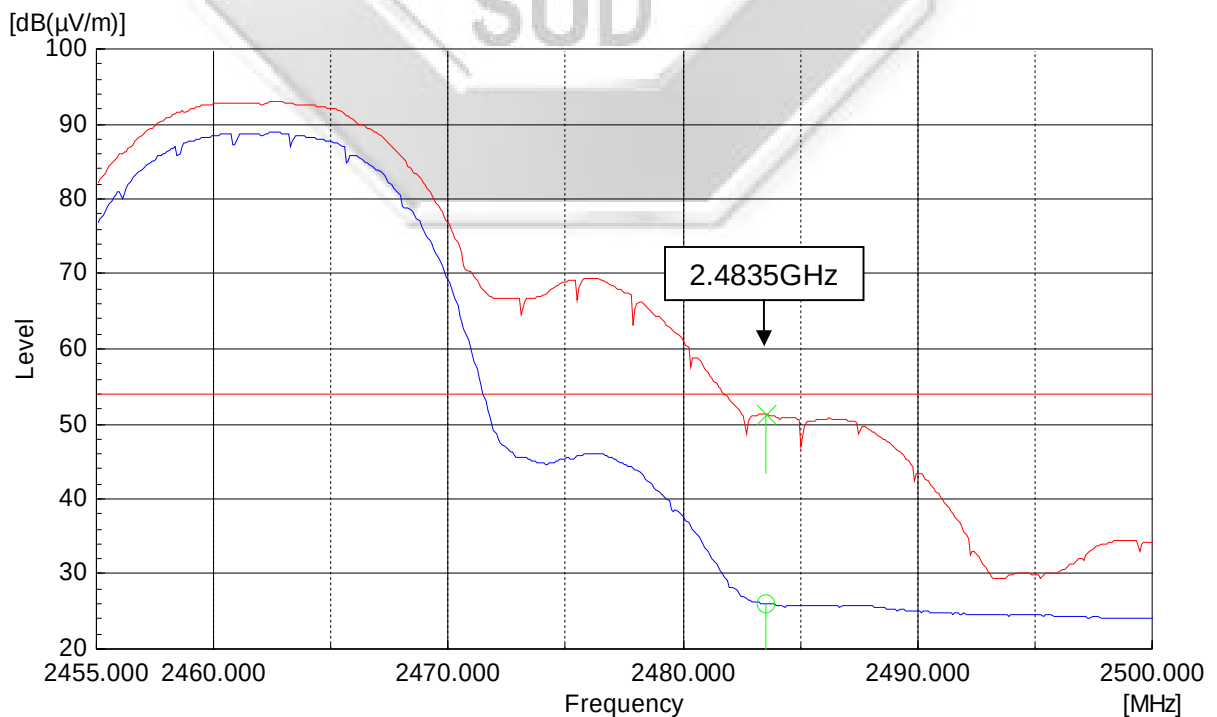
Plot 356 – Average Plot at Lower Band Edge at 2.4000GHz @ CCK 11Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11b



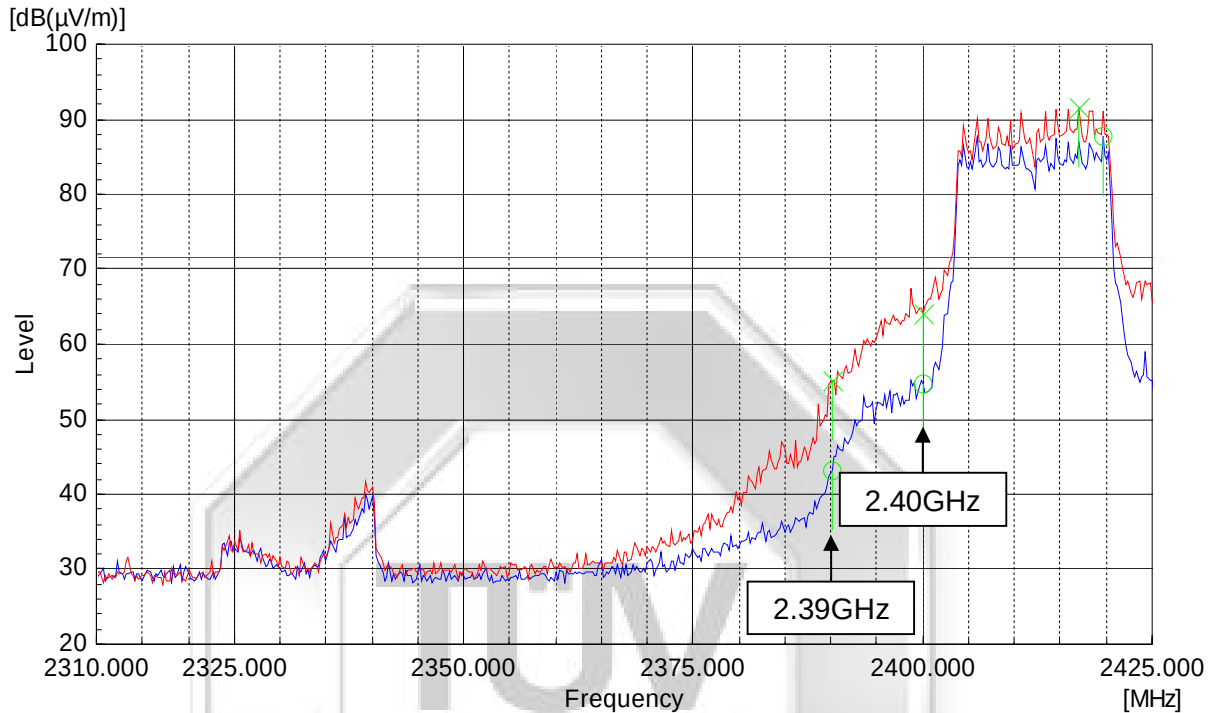
Plot 357 – Peak Plot at Upper Band Edge at 2.4835GHz @ CCK 11Mbps



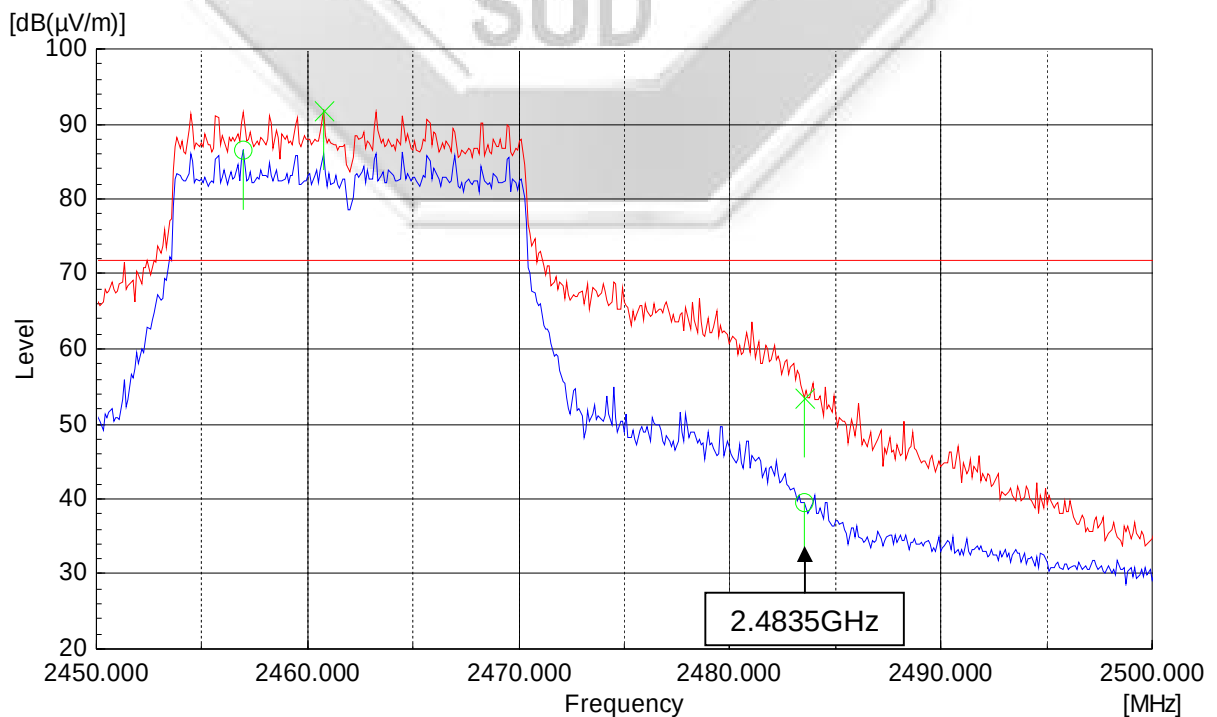
Plot 358 – Average Plot at Upper Band Edge at 2.4835GHz @ CCK 11Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge) – 802.11g



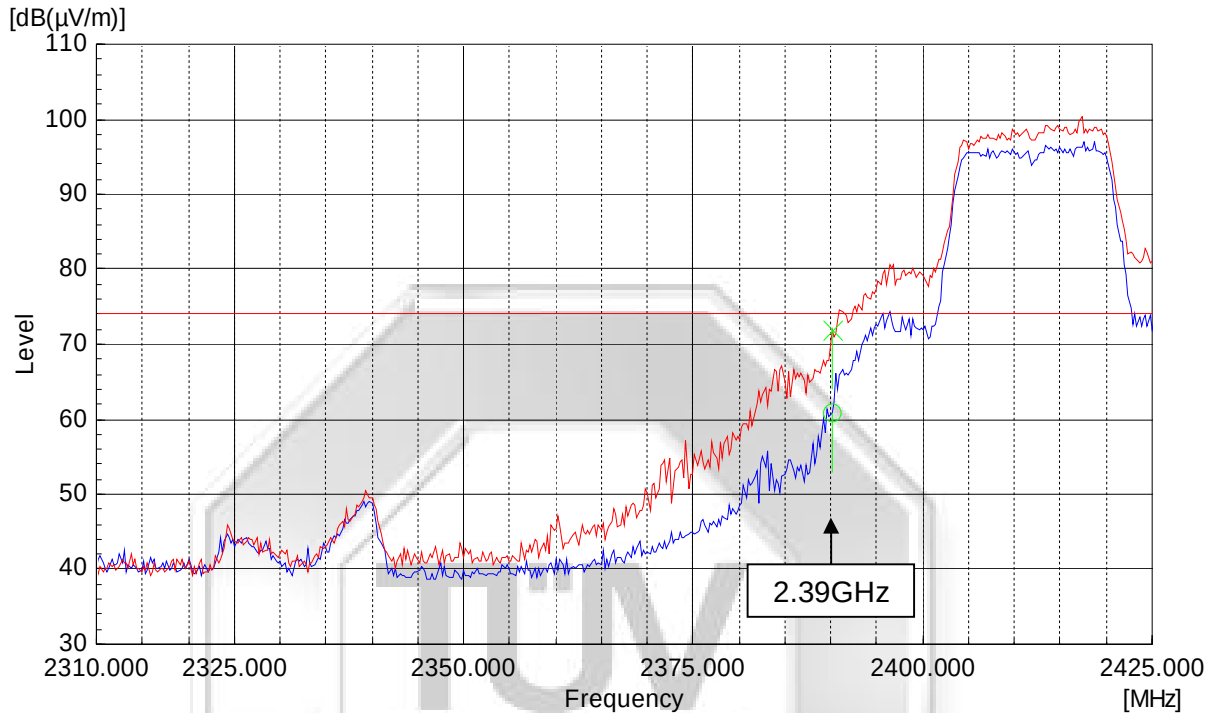
Plot 359 – Lower Band Edge at 2.4000GHz @ 64QAM 54Mbps



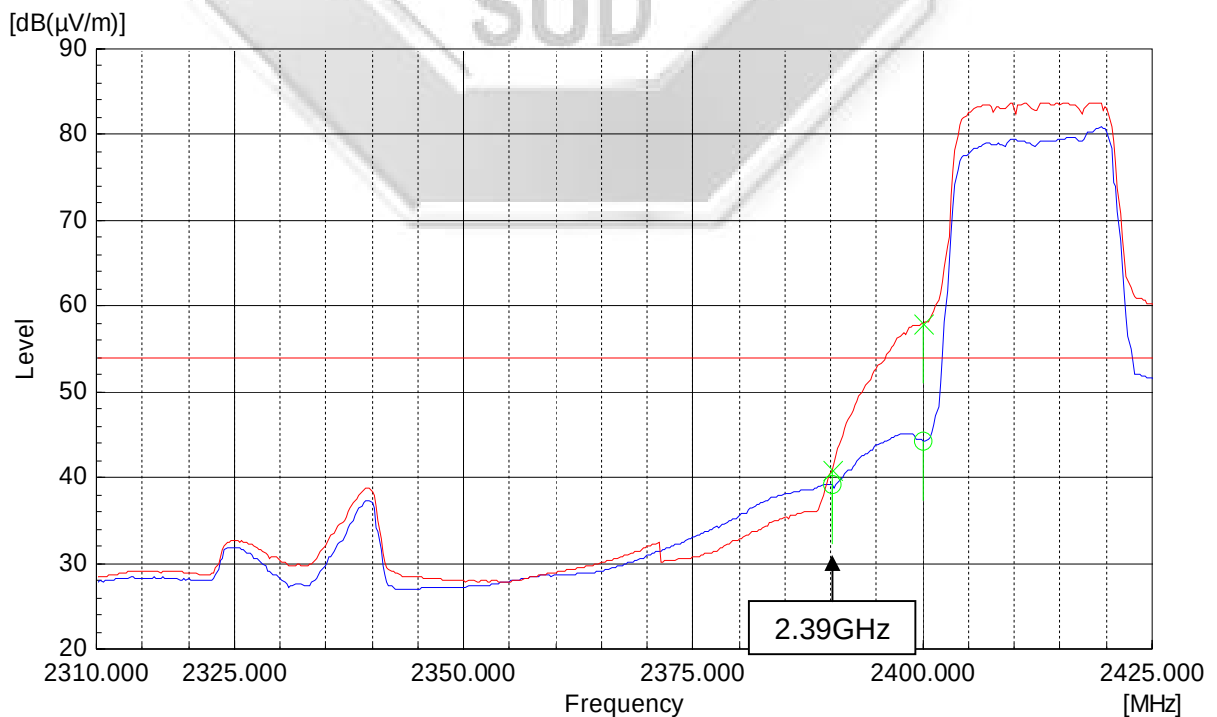
Plot 360 – Upper Band Edge at 2.4835GHz @ 64QAM 54Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11g



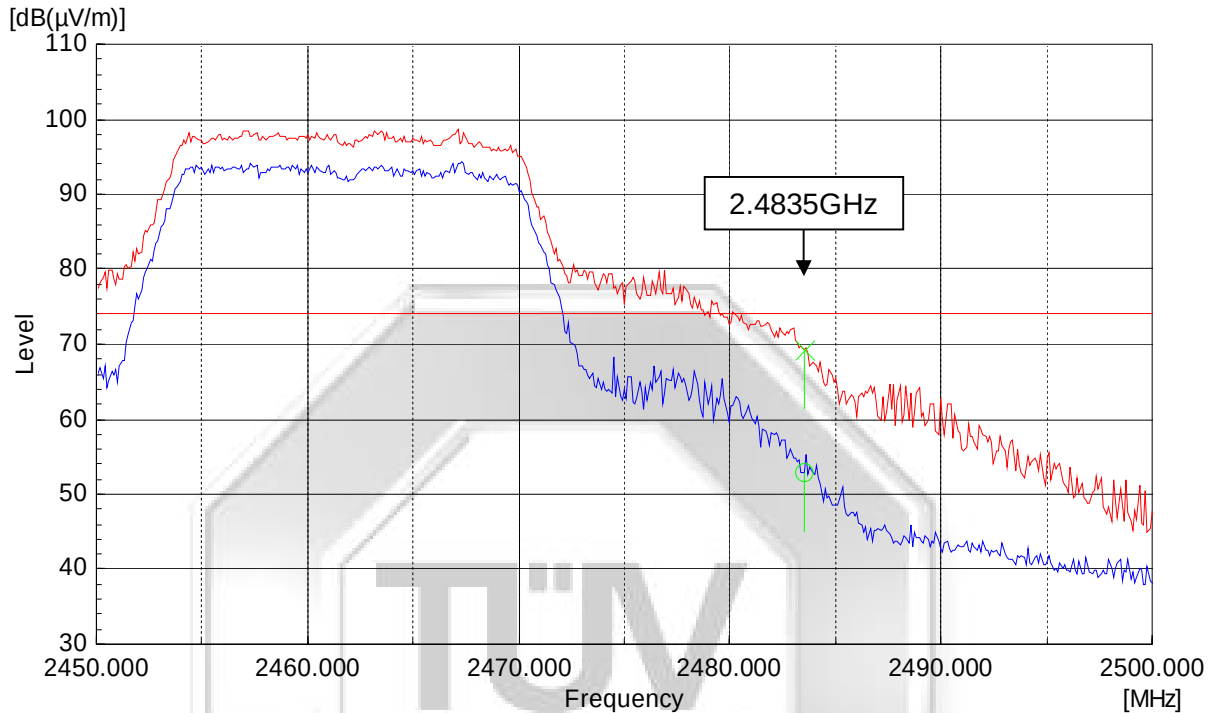
Plot 361 – Peak Plot at Lower Band Edge at 2.4000GHz @ 64QAM 54Mbps



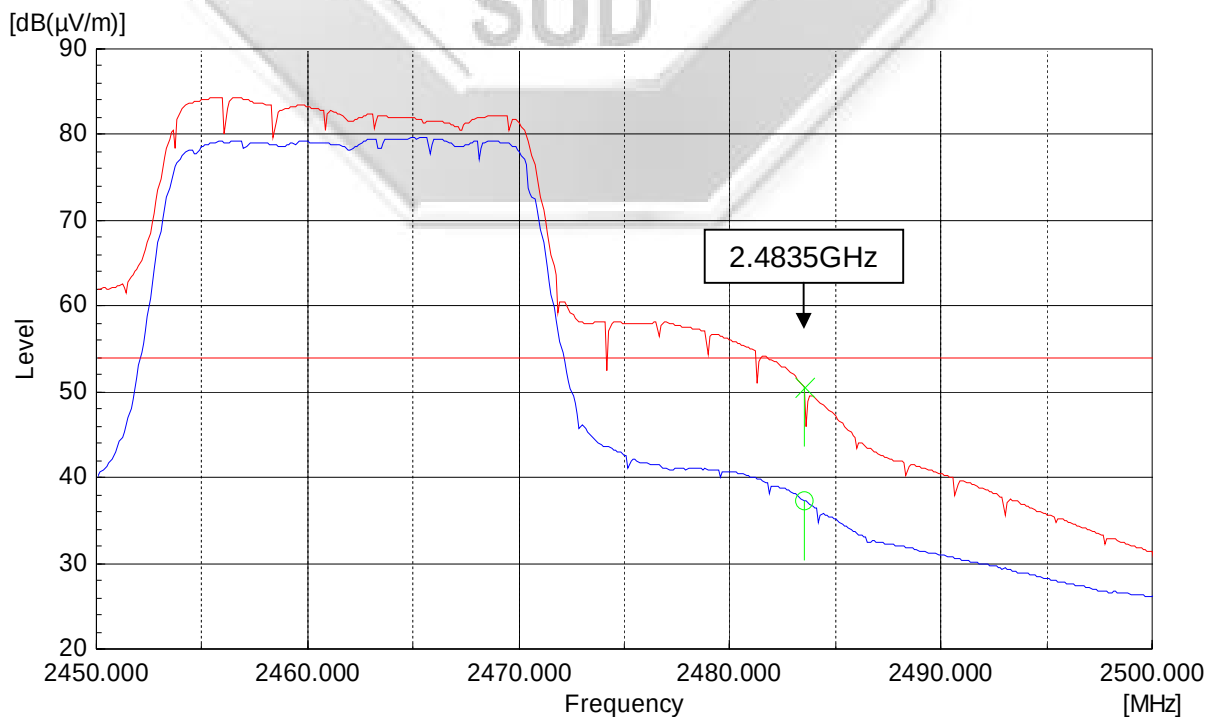
Plot 362 – Average Plot at Lower Band Edge at 2.4000GHz @ 64QAM 54Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11g



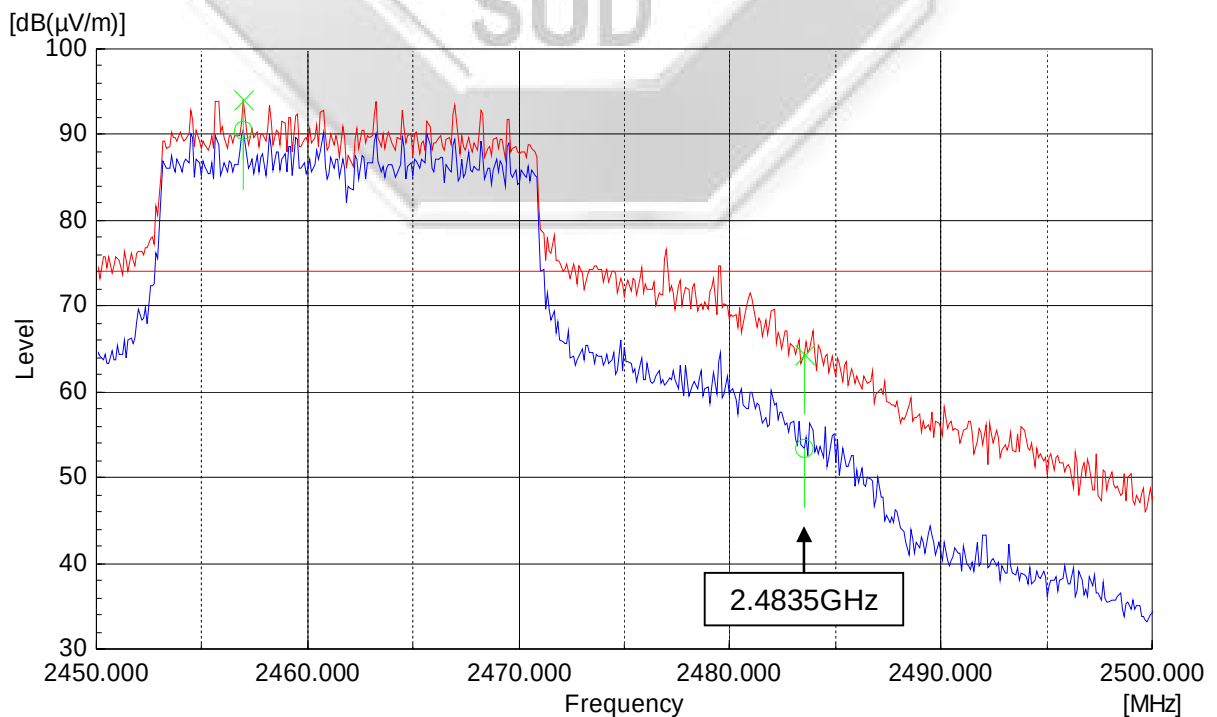
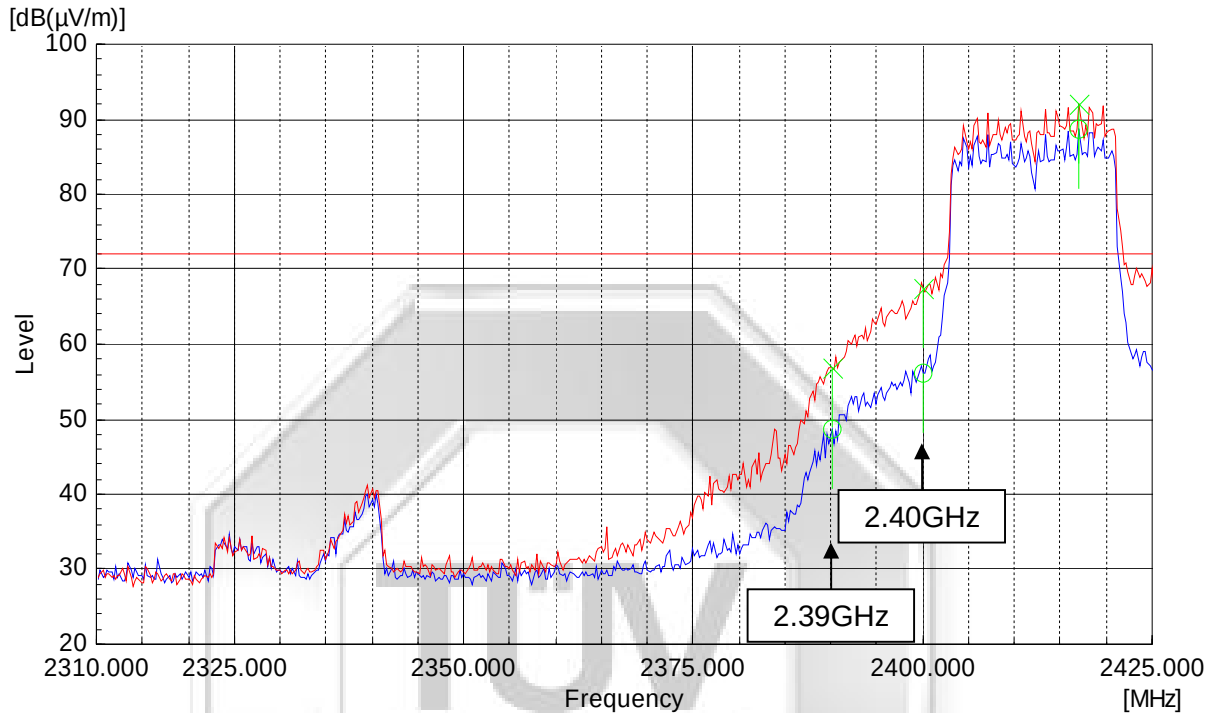
Plot 363 – Peak Plot at Upper Band Edge at 2.4835GHz @ 64QAM 54Mbps



Plot 364 – Average Plot at Upper Band Edge at 2.4835GHz @ 64QAM 54Mbps

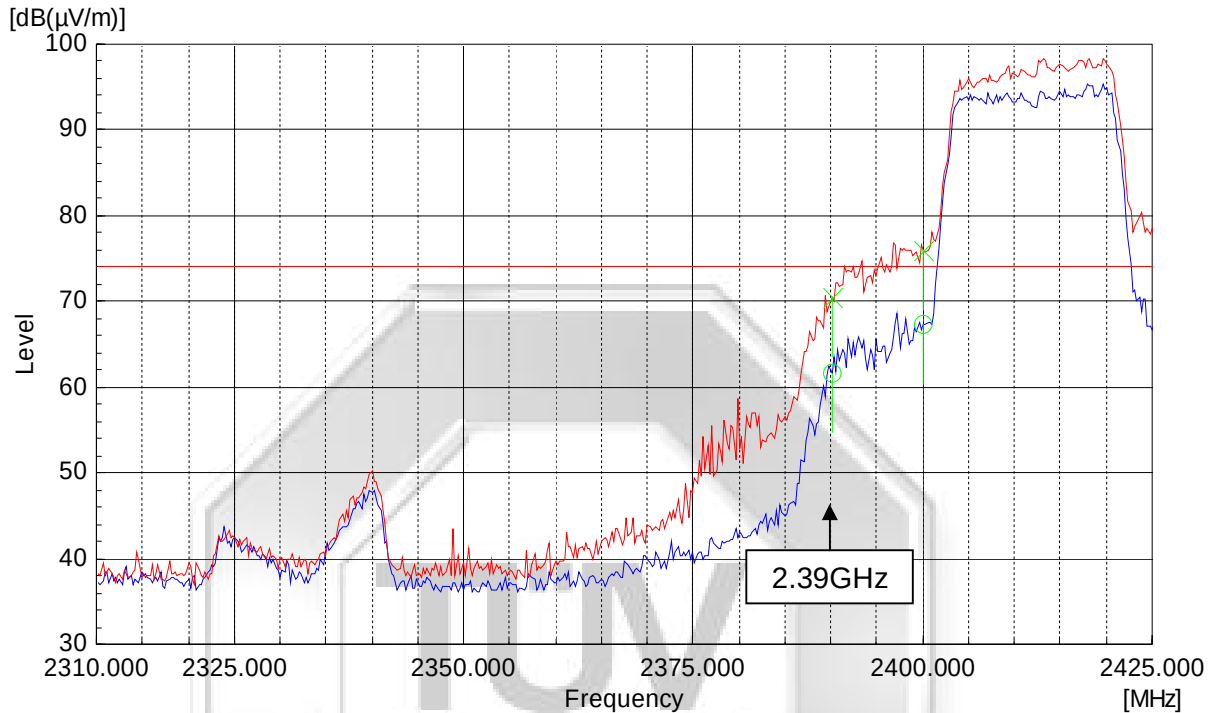
BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge) – 802.11n

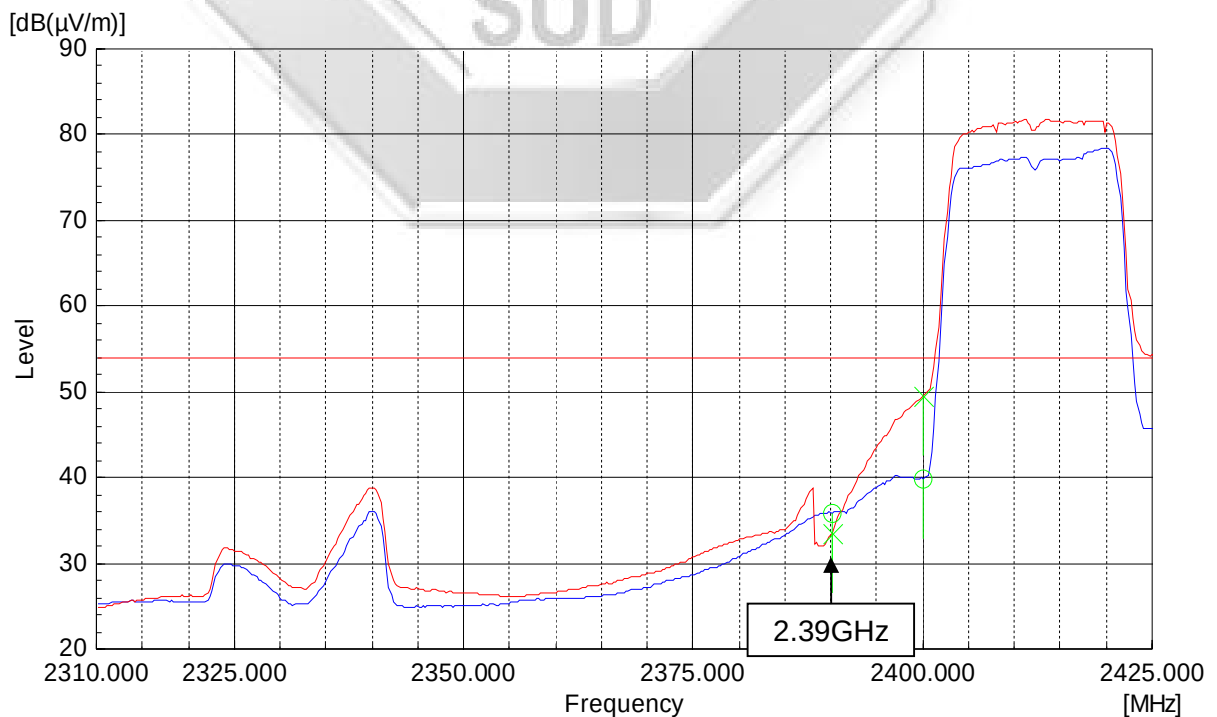


BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11n



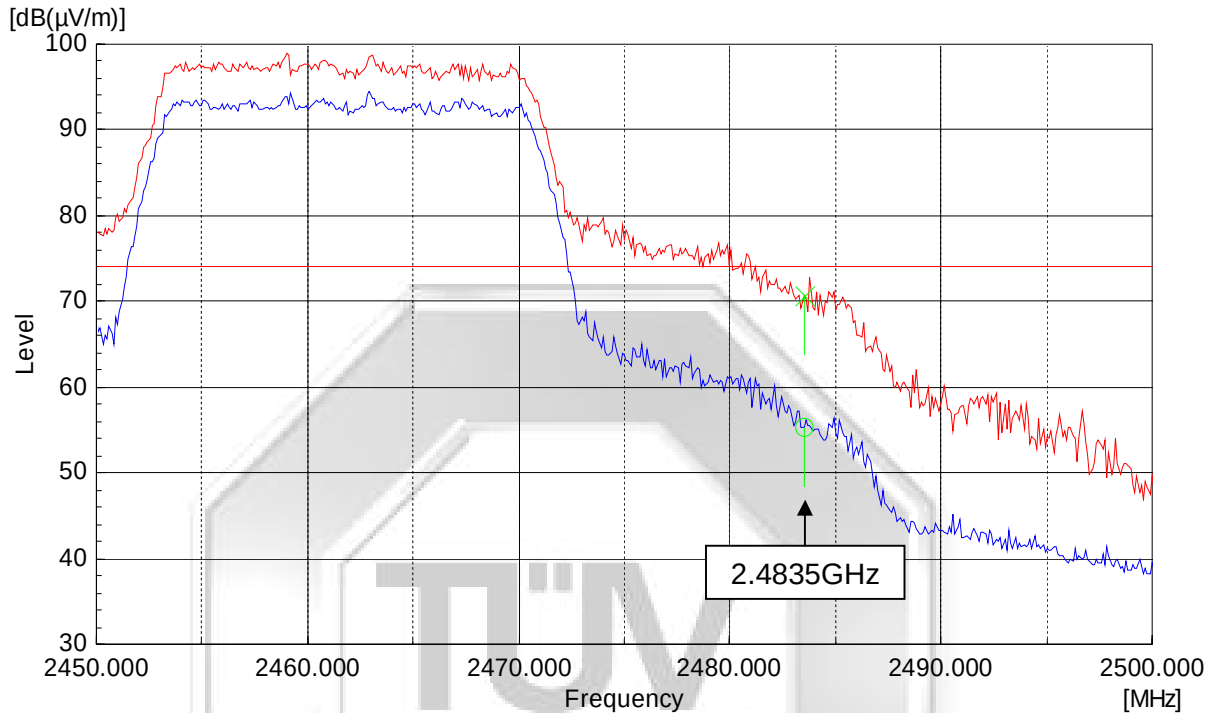
Plot 367 – Peak Plot at Lower Band Edge at 2.4000GHz @ 64QAM 65Mbps



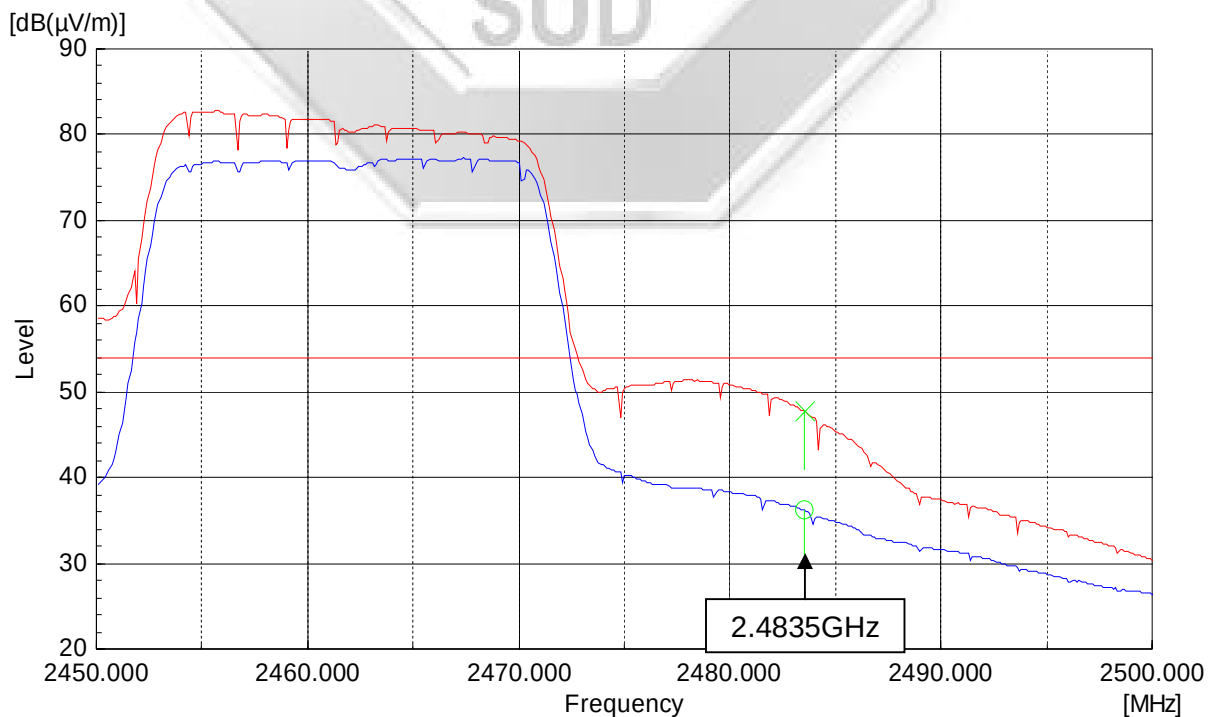
Plot 368 – Average Plot at Lower Band Edge at 2.4000GHz @ 64QAM 65Mbps

BAND EDGE COMPLIANCE (RADIATED) TEST

Band Edge Compliance (Radiated) Plots (Restricted Band) – 802.11n



Plot 369 – Peak Plot at Upper Band Edge at 2.4835GHz @ 64QAM 65Mbps



Plot 370 – Average Plot at Upper Band Edge at 2.4835GHz @ 64QAM 65Mbps

PEAK POWER SPECTRAL DENSITY TEST

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Limits

The EUT shows compliance to the requirements of this section, which states the peak power spectral density conducted from the intentional radiator (EUT) to the antenna shall not be greater than 8dBm (6.3mW) in any 3kHz band during any time interval of continuous transmission.

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Test Instrumentation

Instrument	Model	S/No	Cal Due Date	Cal Interval
Agilent Spectrum Analyzer	E4440A	MY45304764	12 Dec 2015	1 year

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum via a low-loss coaxial cable.
4. The resolution bandwidth (RBW), video bandwidth (VBW) and span of the spectrum analyser were set to the following:
RBW = 3kHz
VBW = 9kHz
Span = 1.5 times the channel bandwidth
Sweep time = auto couple
5. All other supporting equipment were powered separately from another filtered mains.

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel with specified modulation and data rate.
2. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser.
3. The peak power density of the transmitting frequency was plotted and recorded.
4. Repeat steps 1 to 3 with all possible modulations and data rates.
5. The steps 2 to 4 were repeated with the transmitting frequency was set to middle and upper channel respectively.



PEAK POWER SPECTRAL DENSITY TEST

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Results

Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

802.11b

Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)	Modulation @ Data Rate
1 (lower ch)	2.412	0.0579	6.3	DBPSK @ 1Mbps
		0.1773	6.3	DQPSK @ 2Mbps
		0.1412	6.3	CCK @ 11Mbps
6 (mid ch)	2.437	0.0515	6.3	DBPSK @ 1Mbps
		0.1528	6.3	DQPSK @ 2Mbps
		0.1291	6.3	CCK @ 11Mbps
11 (upper ch)	2.462	0.0517	6.3	DBPSK @ 1Mbps
		0.1382	6.3	DQPSK @ 2Mbps
		0.1112	6.3	CCK @ 11Mbps

Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

802.11g

Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)	Modulation @ Data Rate
1 (lower ch)	2.412	0.0854	6.3	BPSK @ 9Mbps
		0.0750	6.3	QPSK @ 18Mbps
		0.0805	6.3	16QAM @ 36Mbps
		0.1177	6.3	64QAM @ 54Mbps
6 (mid ch)	2.437	0.1336	6.3	BPSK @ 9Mbps
		0.1129	6.3	QPSK @ 18Mbps
		0.1125	6.3	16QAM @ 36Mbps
		0.1223	6.3	64QAM @ 54Mbps
11 (upper ch)	2.462	0.1029	6.3	BPSK @ 9Mbps
		0.1185	6.3	QPSK @ 18Mbps
		0.0959	6.3	16QAM @ 36Mbps
		0.1122	6.3	64QAM @ 54Mbps



PEAK POWER SPECTRAL DENSITY TEST

47 CFR FCC Part 15.247(e) and RSS-247 5.2(2) Peak Power Spectral Density Results

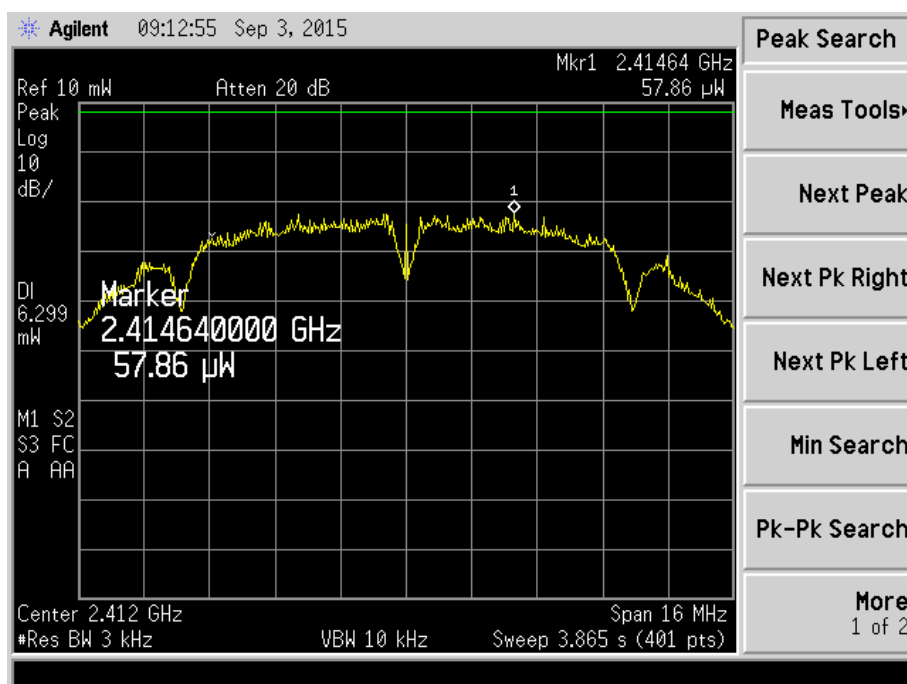
Test Input Power	120V 60Hz	Temperature	24°C
		Relative Humidity	60%
		Atmospheric Pressure	1030mbar
		Tested By	Chang Wai Kit

802.11n

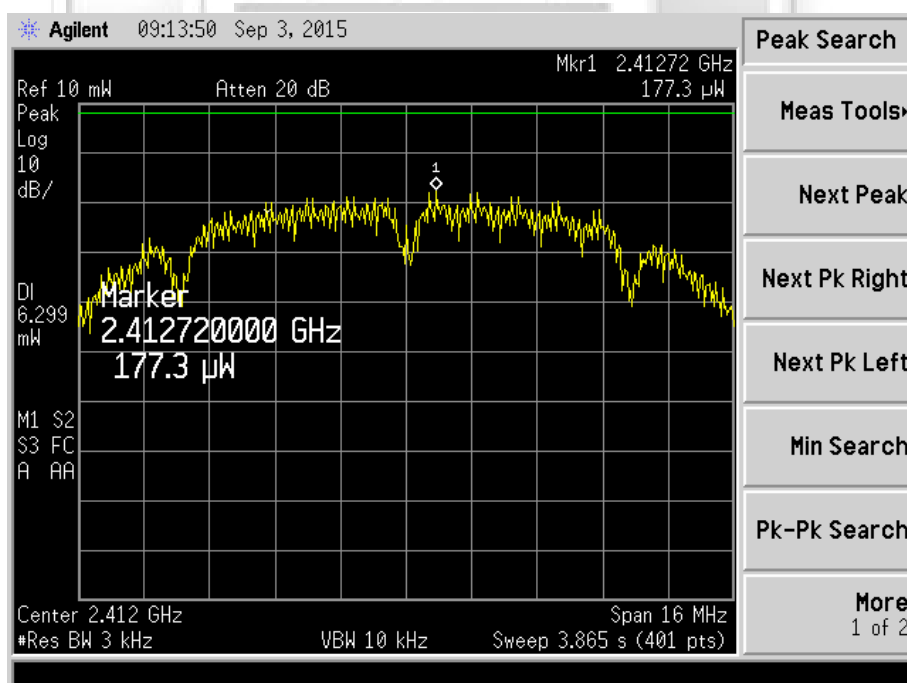
Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)	Modulation @ Data Rate
1 (lower ch)	2.412	0.1356	6.3	BPSK @ 6.5Mbps (MCS0)
		0.1338	6.3	QPSK @ 19.5Mbps (MCS2)
		0.1123	6.3	16QAM @ 39Mbps (MCS4)
		0.1211	6.3	64QAM @ 65Mbps (MCS7)
6 (mid ch)	2.437	0.0975	6.3	BPSK @ 6.5Mbps (MCS0)
		0.1102	6.3	QPSK @ 19.5Mbps (MCS2)
		0.1231	6.3	16QAM @ 39Mbps (MCS4)
		0.1000	6.3	64QAM @ 65Mbps (MCS7)
11 (upper ch)	2.462	0.1060	6.3	BPSK @ 6.5Mbps (MCS0)
		0.1264	6.3	QPSK @ 19.5Mbps (MCS2)
		0.1087	6.3	16QAM @ 39Mbps (MCS4)
		0.1058	6.3	64QAM @ 65Mbps (MCS7)

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11b



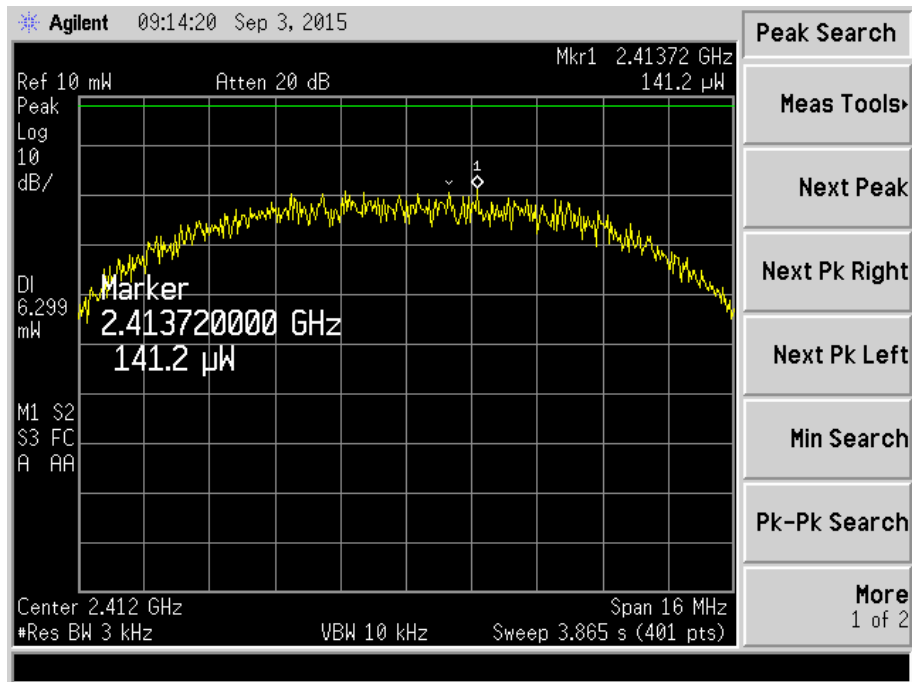
Plot 371 – Channel 1 (lower ch) @ DBPSK 1Mbps



Plot 372 – Channel 1 (lower ch) @ DQPSK 2Mbps

PEAK POWER SPECTRAL DENSITY TEST

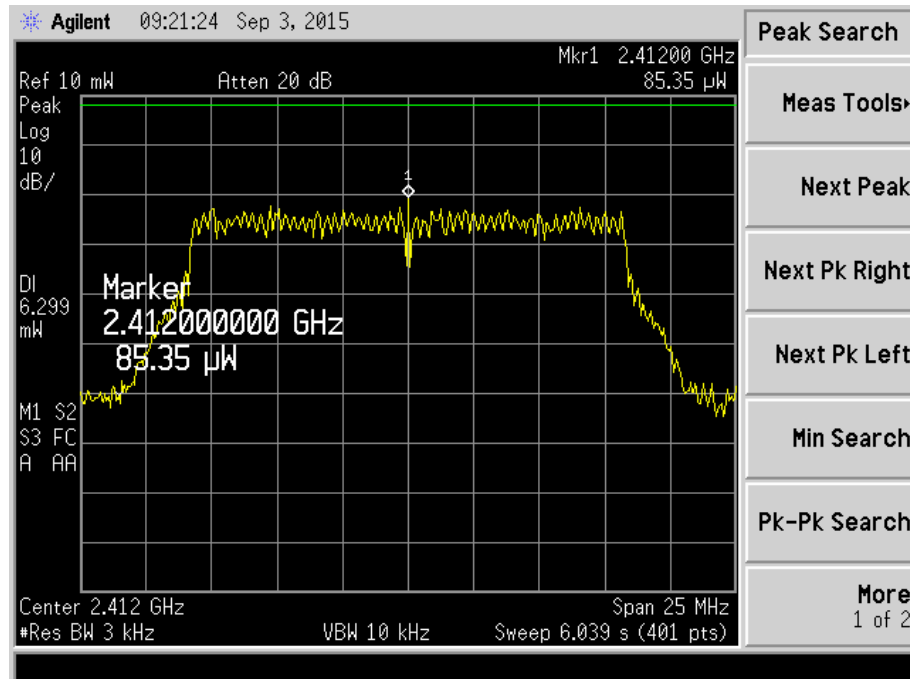
Peak Power Spectral Density Plots – 802.11b



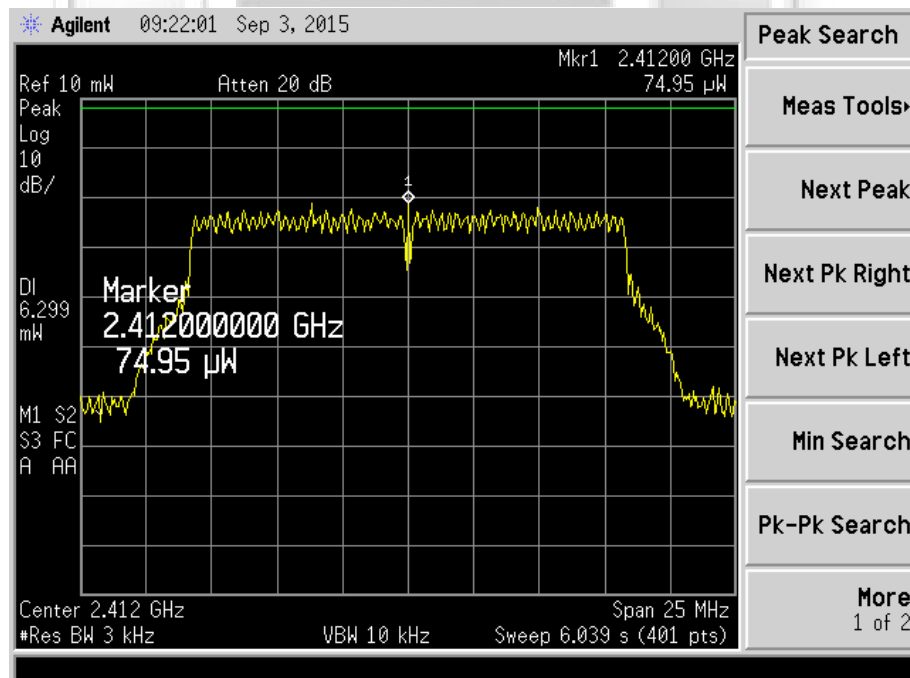
Plot 373 – Channel 1 (lower ch) @ CCK 11Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



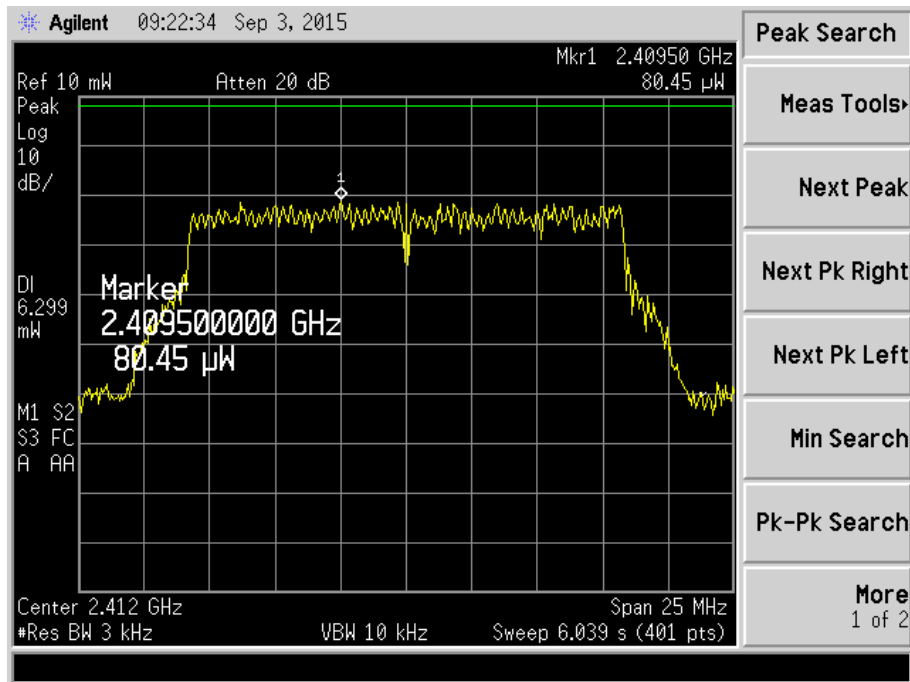
Plot 374 – Channel 1 (lower ch) @ BPSK 9Mbps



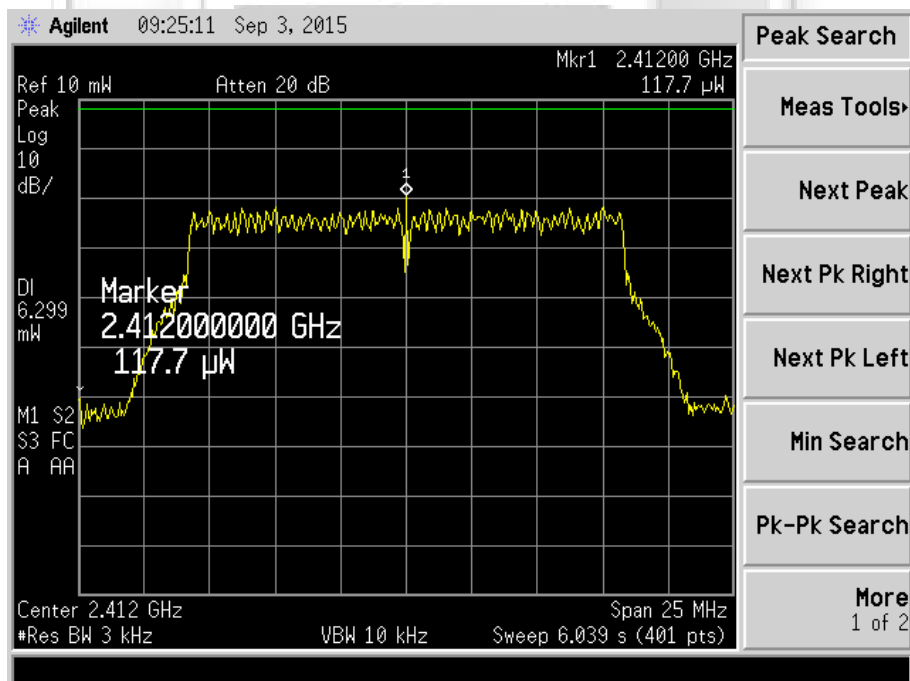
Plot 375 – Channel 1 (lower ch) @ QPSK 18Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



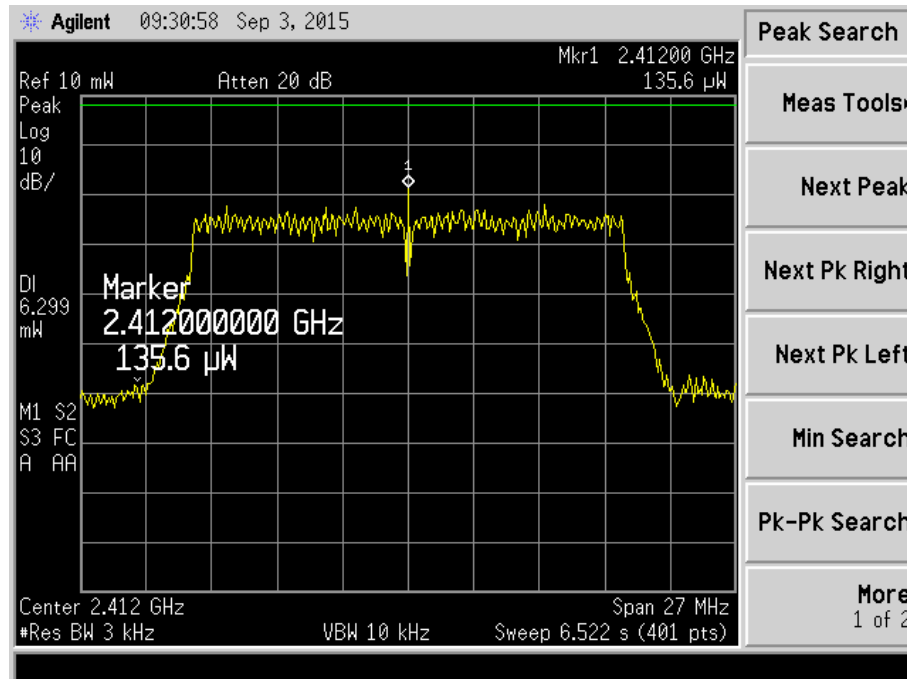
Plot 376 – Channel 1 (lower ch) @ 16QAM 36Mbps



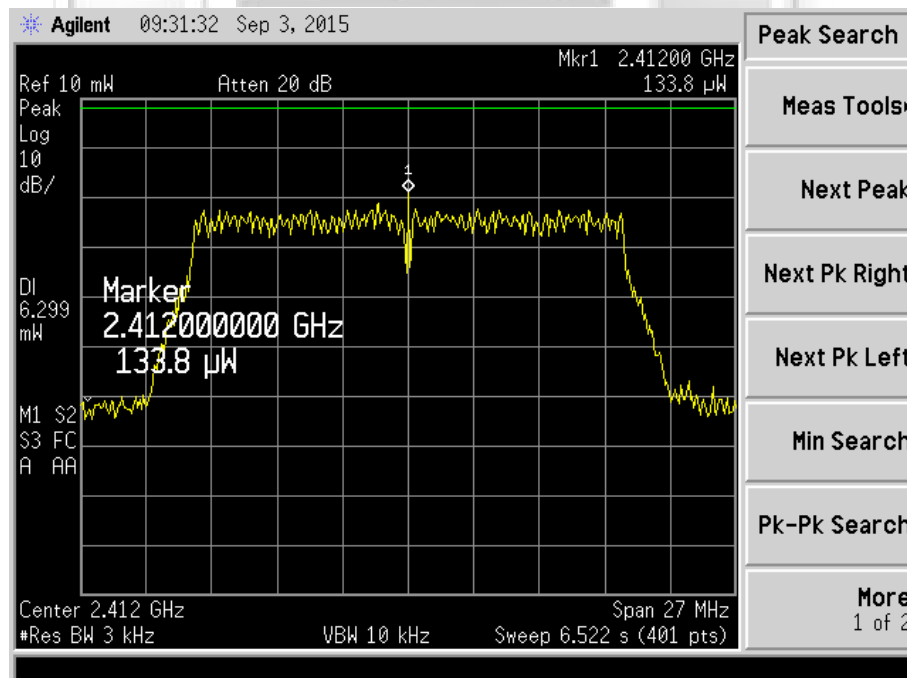
Plot 377 – Channel 1 (lower ch) @ 64QAM 54Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n



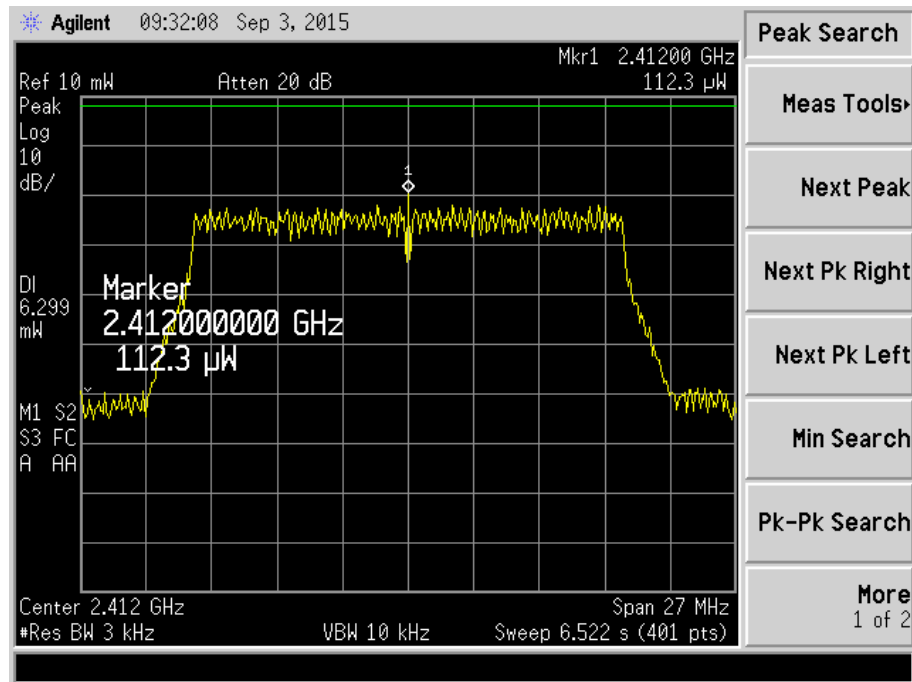
Plot 378 – Channel 1 (lower ch) @ BPSK 6.5Mbps



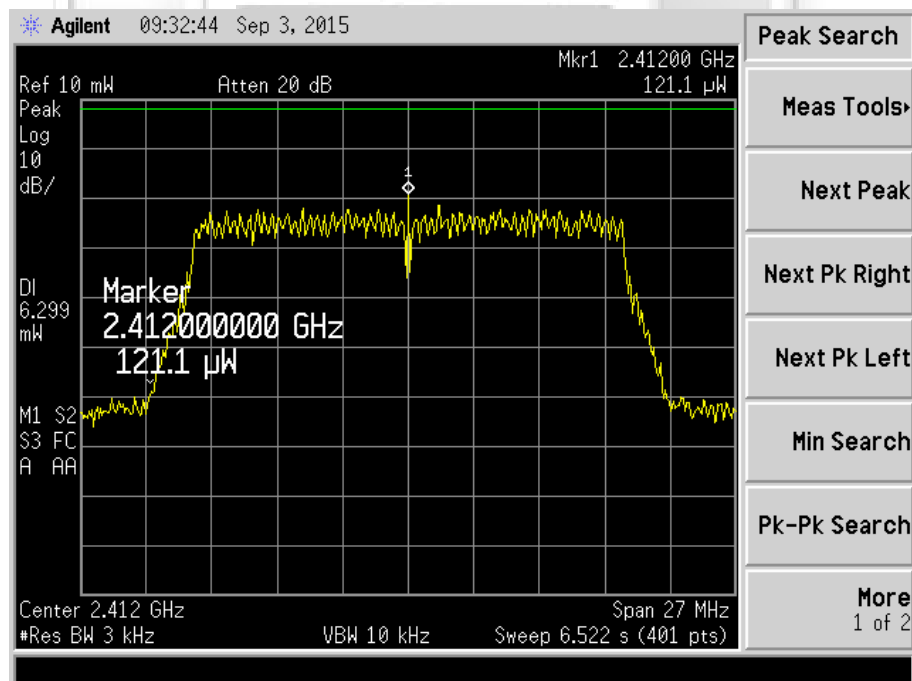
Plot 379 – Channel 1 (lower ch) @ QPSK 19.5Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n



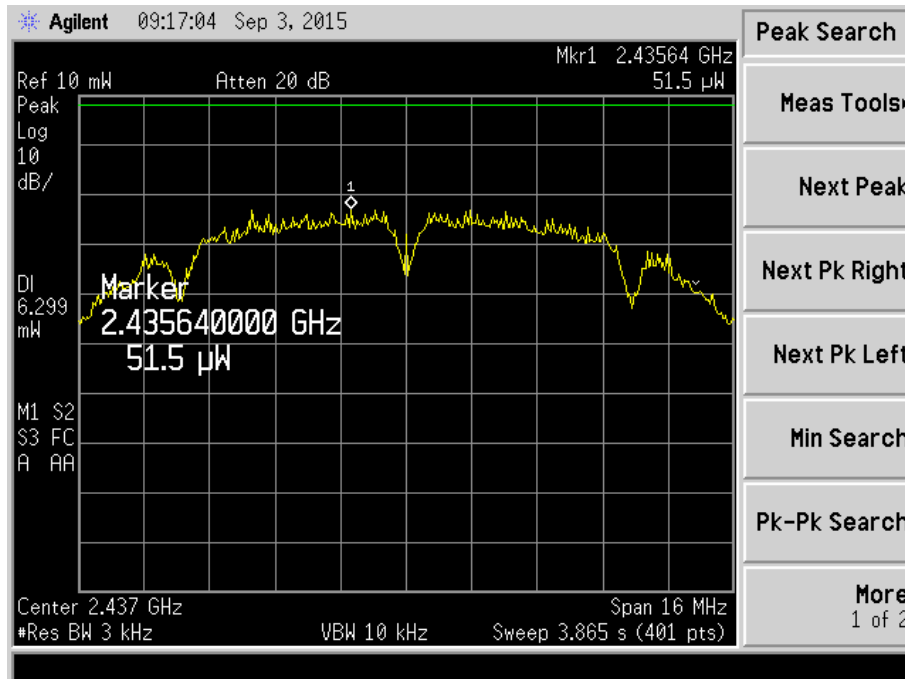
Plot 380 – Channel 1 (lower ch) @ 16QAM 39Mbps



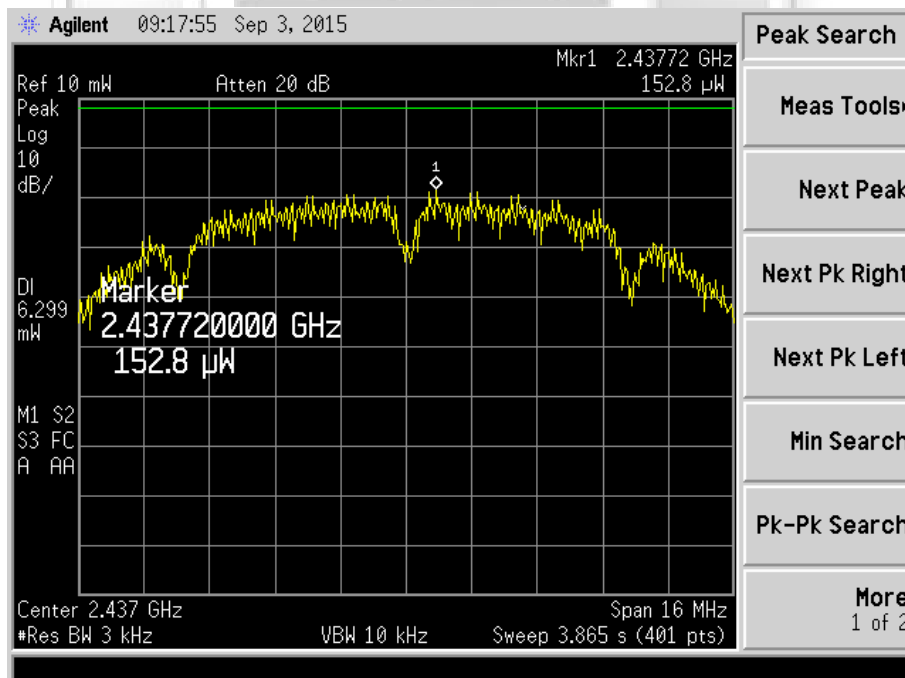
Plot 381 – Channel 1 (lower ch) @ 64QAM 65Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11b



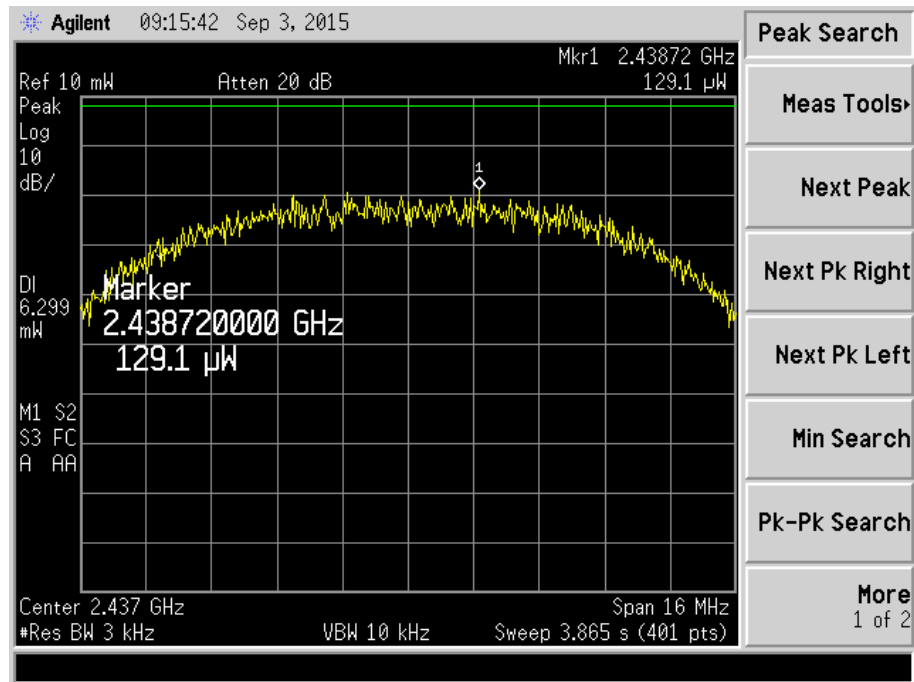
Plot 382 – Channel 6 (middle ch) @ DBPSK 1Mbps



Plot 383 – Channel 6 (middle ch) @ DQPSK 2Mbps

PEAK POWER SPECTRAL DENSITY TEST

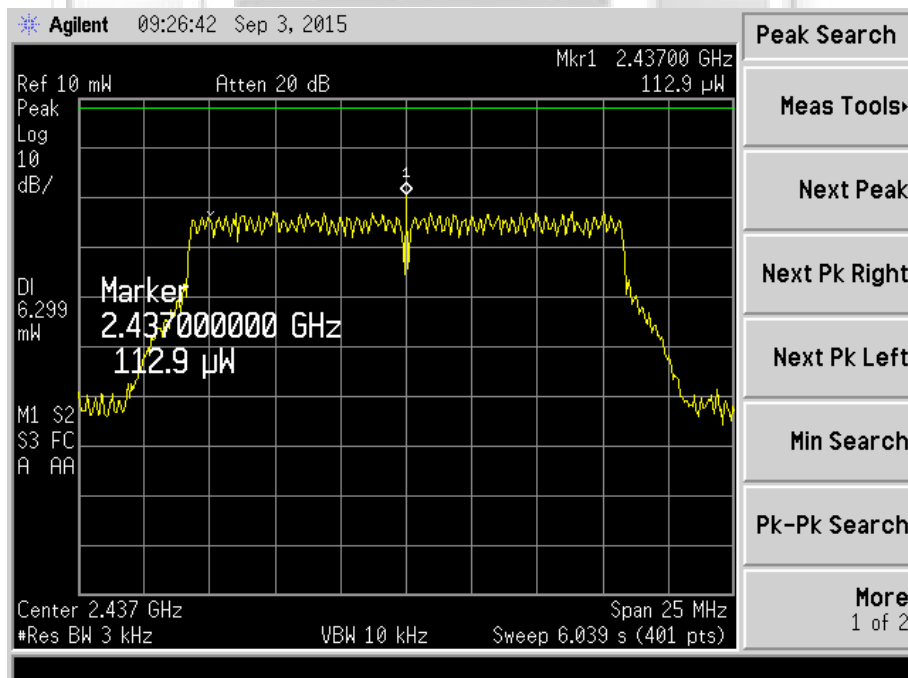
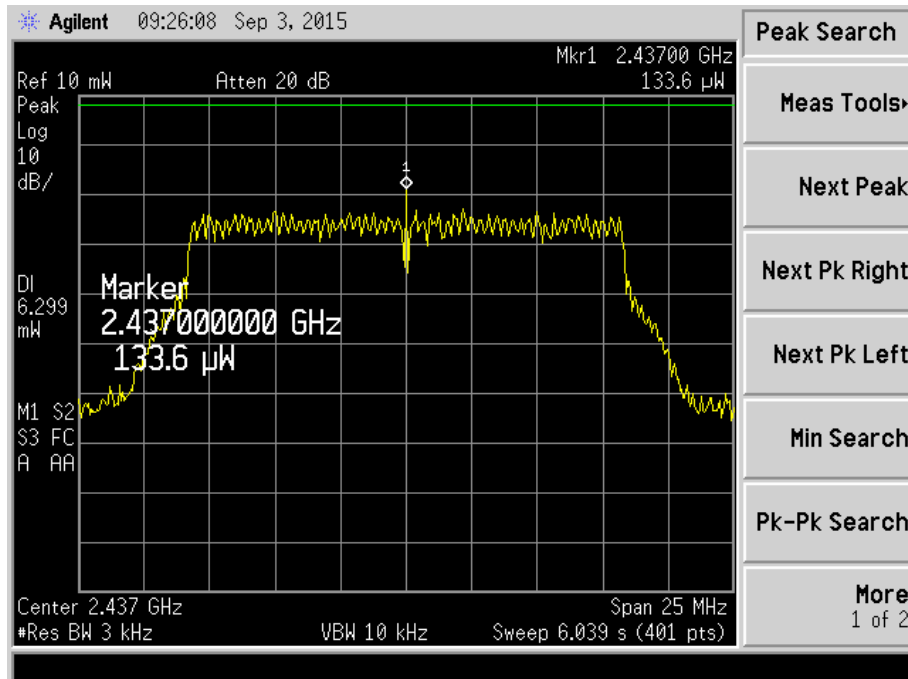
Peak Power Spectral Density Plots – 802.11b



Plot 384 – Channel 6 (middle ch) @ CCK 11Mbps

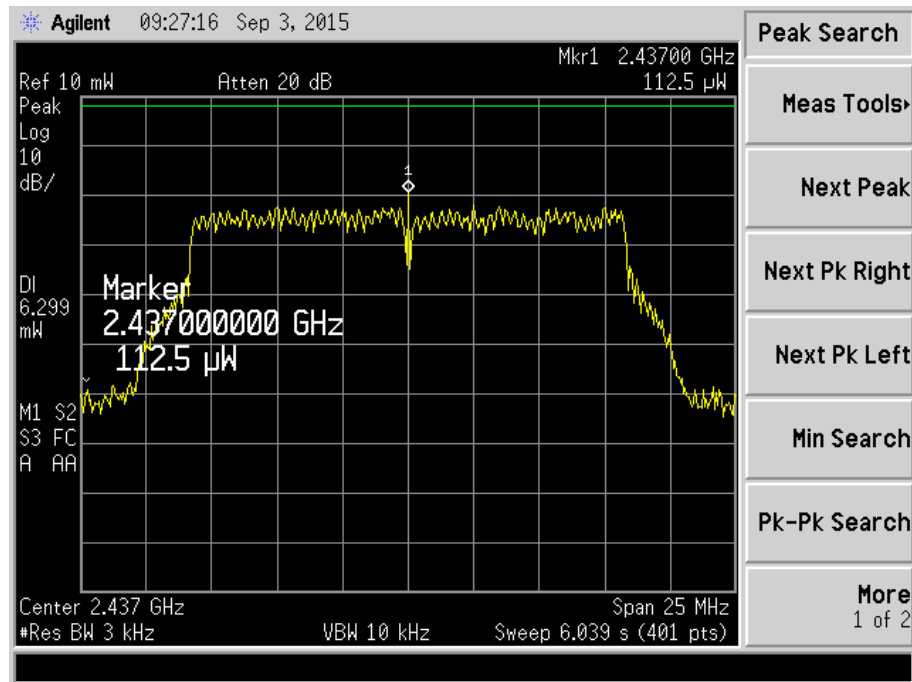
PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g

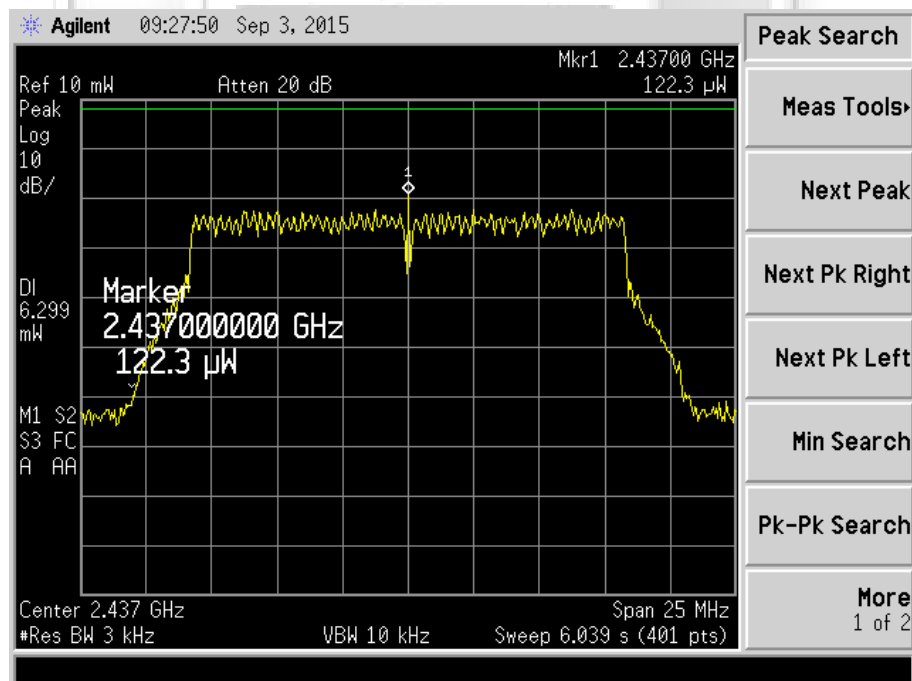


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



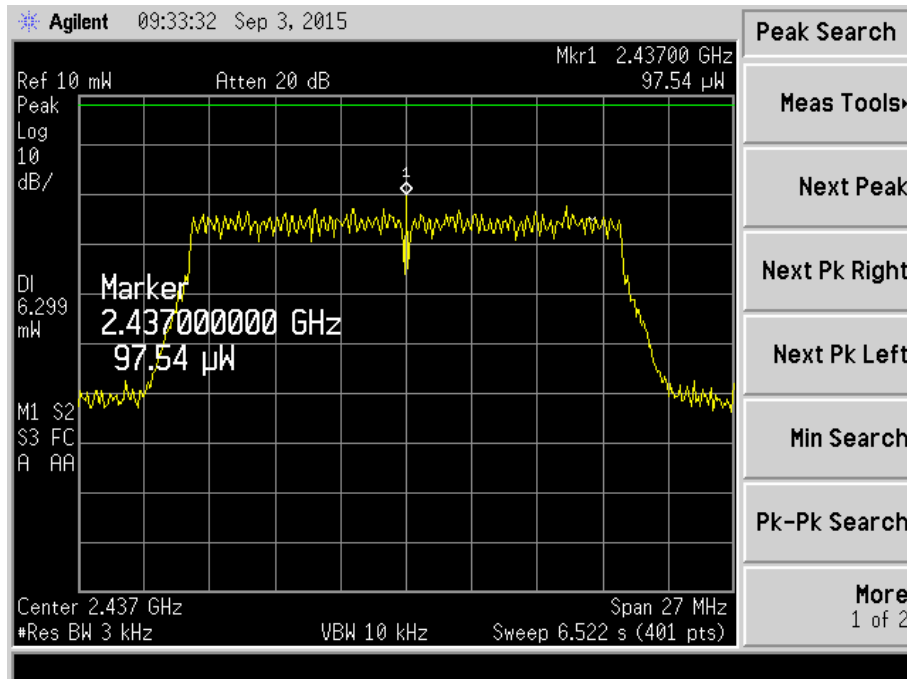
Plot 387 – Channel 6 (middle ch) @ 16QAM 36Mbps



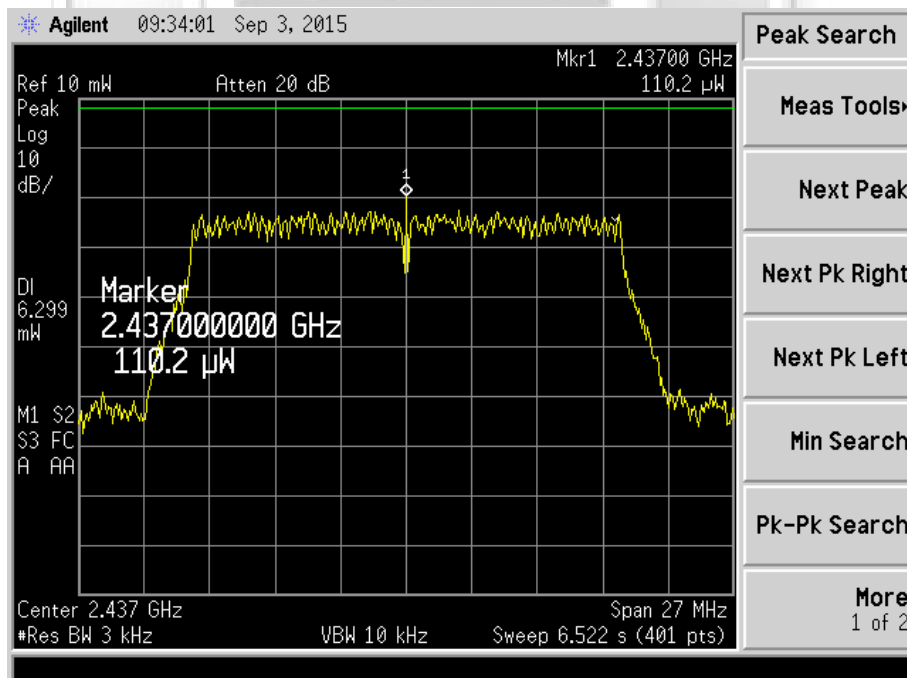
Plot 388 – Channel 6 (middle ch) @ 64QAM 54Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n



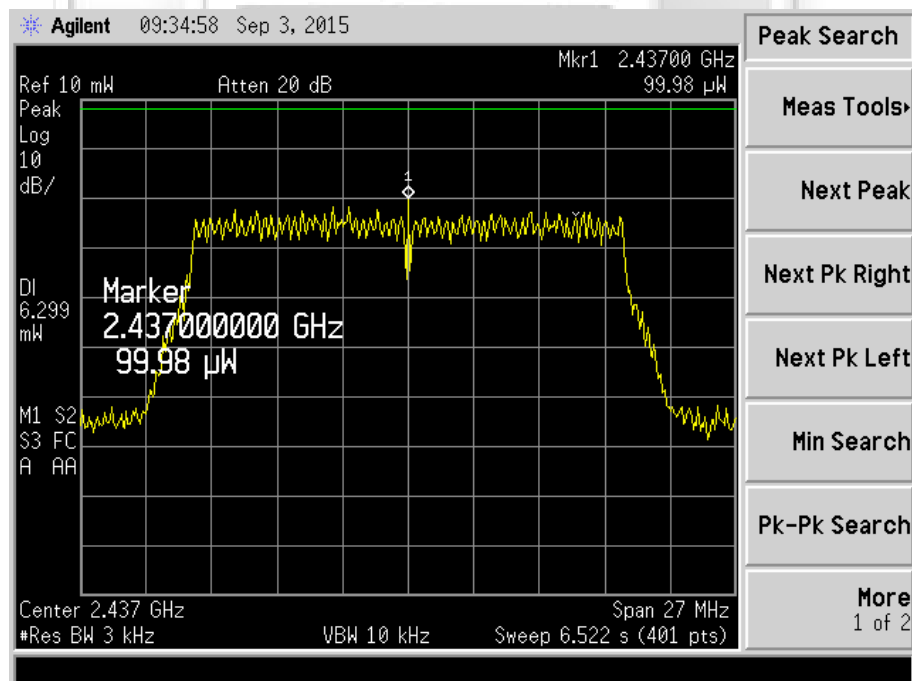
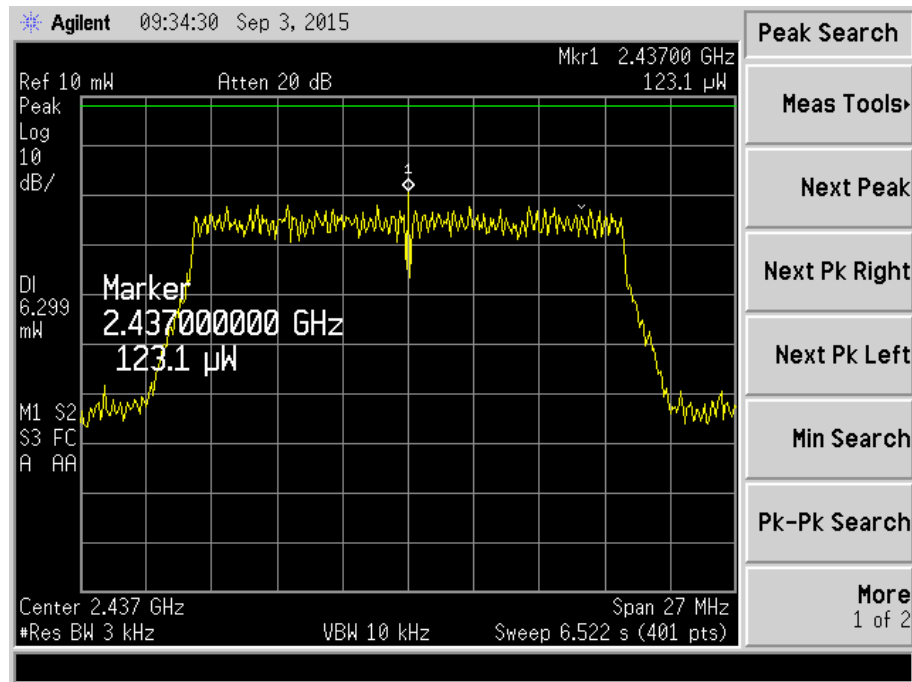
Plot 389 – Channel 6 (middle ch) @ BPSK 6.5Mbps



Plot 390 – Channel 6 (middle ch) @ QPSK 19.5Mbps

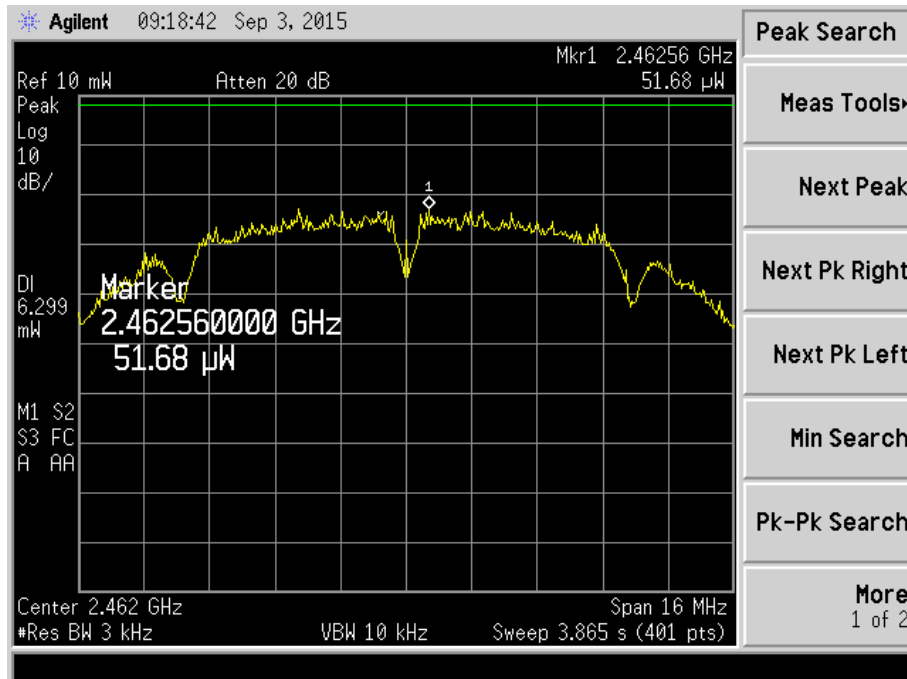
PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n

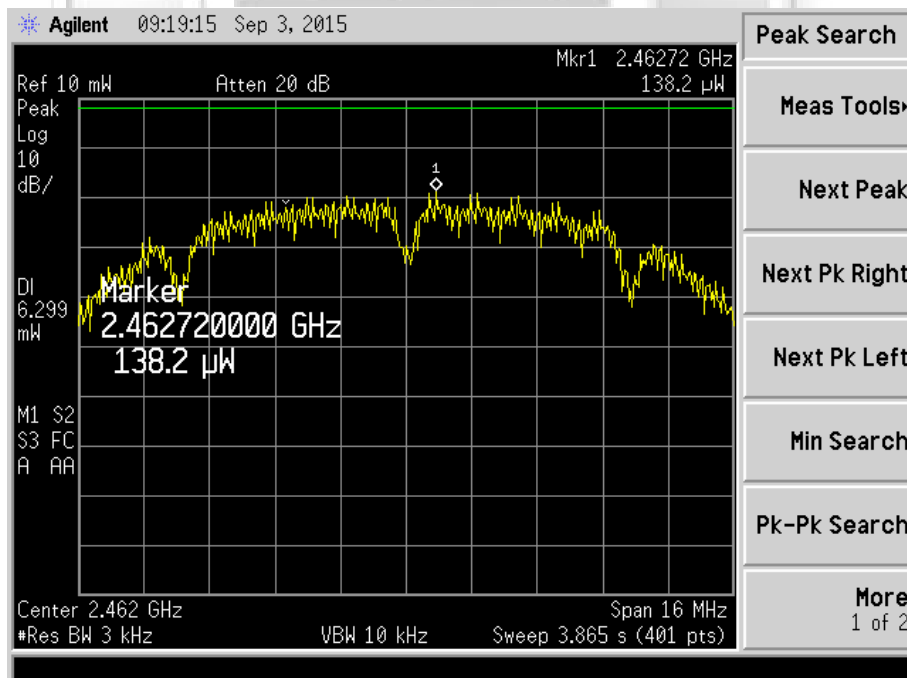


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11b



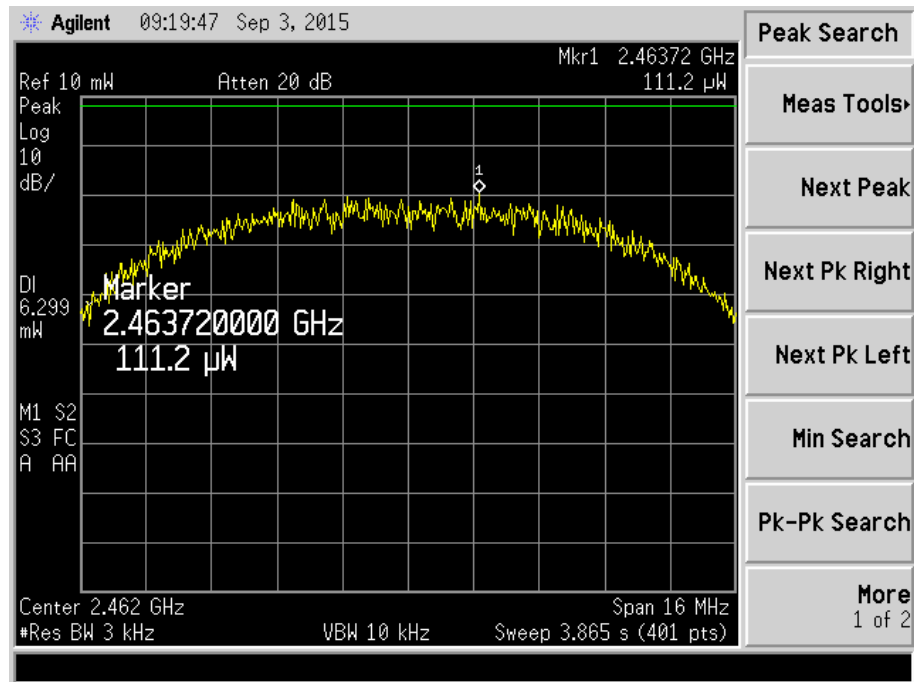
Plot 393 – Channel 11 (upper ch) @ DBPSK 1Mbps



Plot 394 – Channel 11 (upper ch) @ DQPSK 2Mbps

PEAK POWER SPECTRAL DENSITY TEST

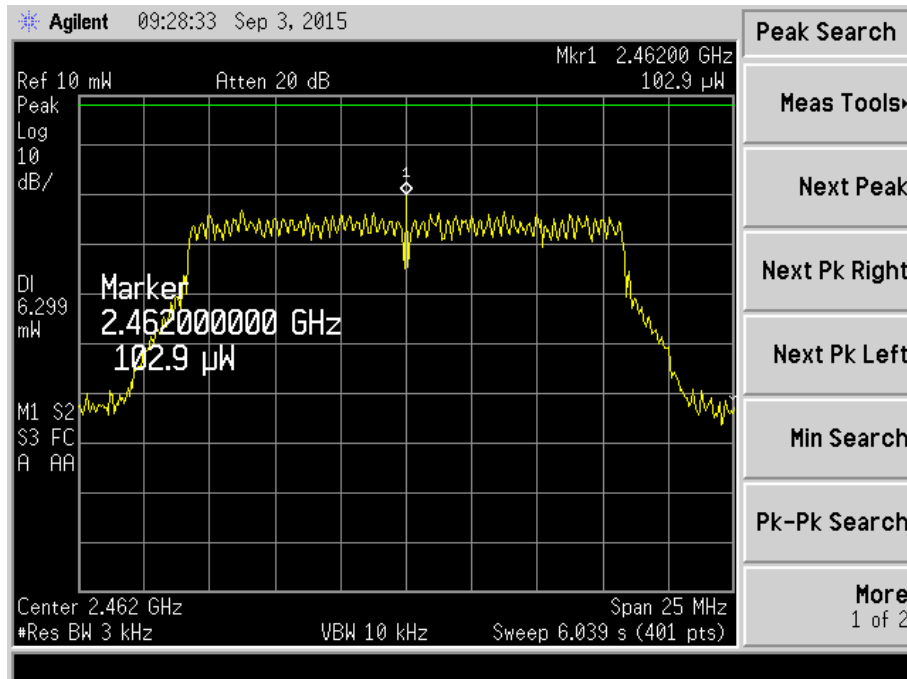
Peak Power Spectral Density Plots – 802.11b



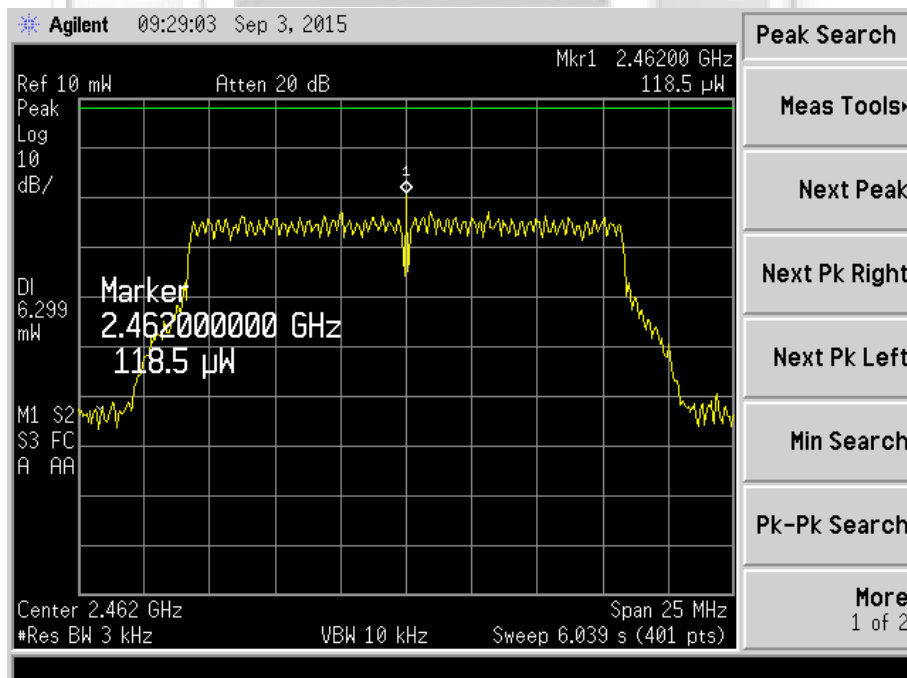
Plot 395 – Channel 11 (upper ch) @ CCK 11Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



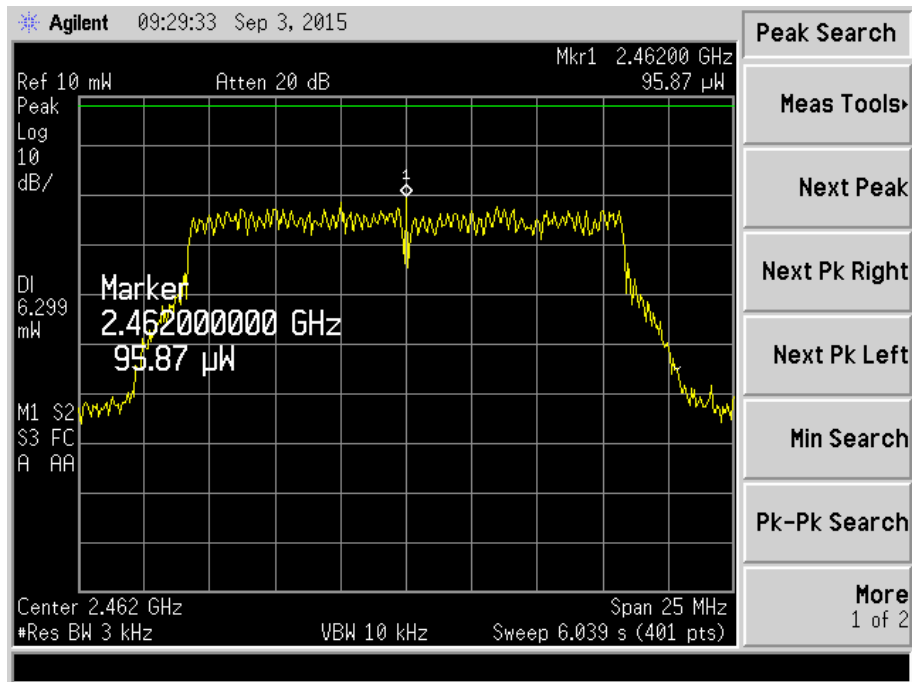
Plot 396 – Channel 11 (upper ch) @ BPSK 9Mbps



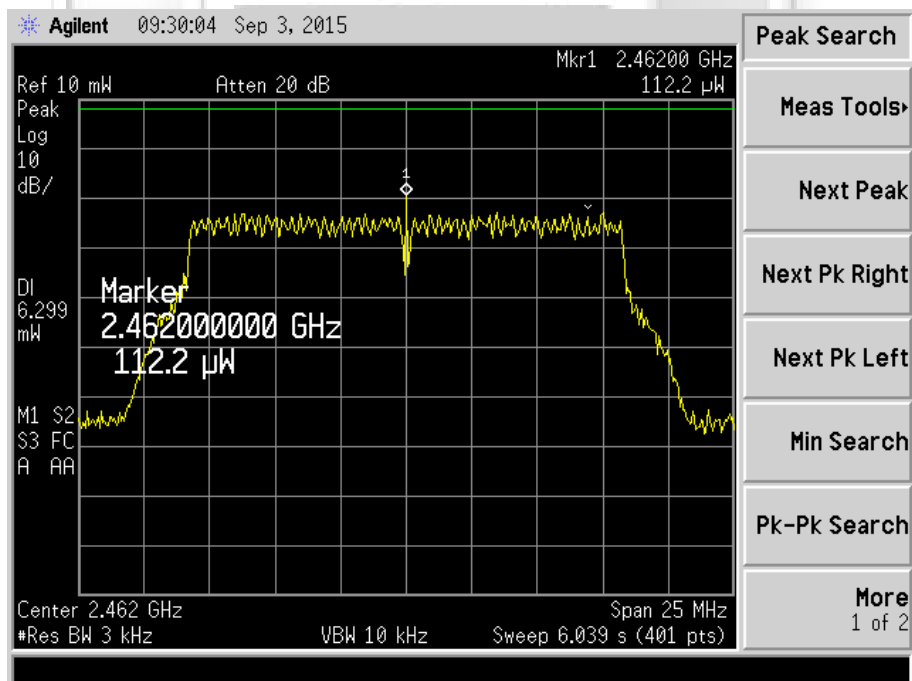
Plot 397 – Channel 11 (upper ch) @ QPSK 18Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



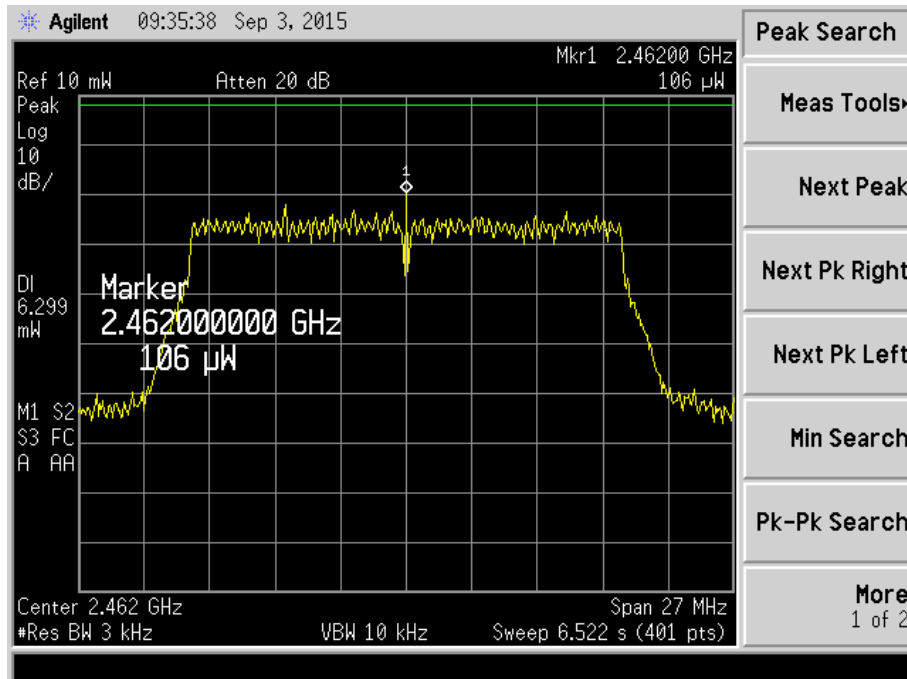
Plot 398 – Channel 11 (upper ch) @ 16QAM 36Mbps



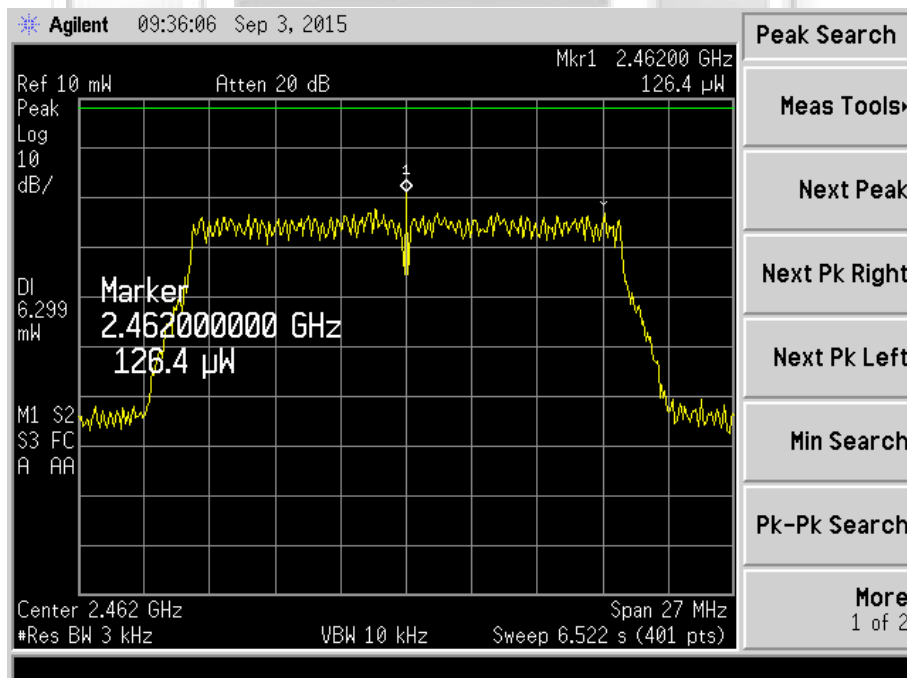
Plot 399 – Channel 11 (upper ch) @ 64QAM 54Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n



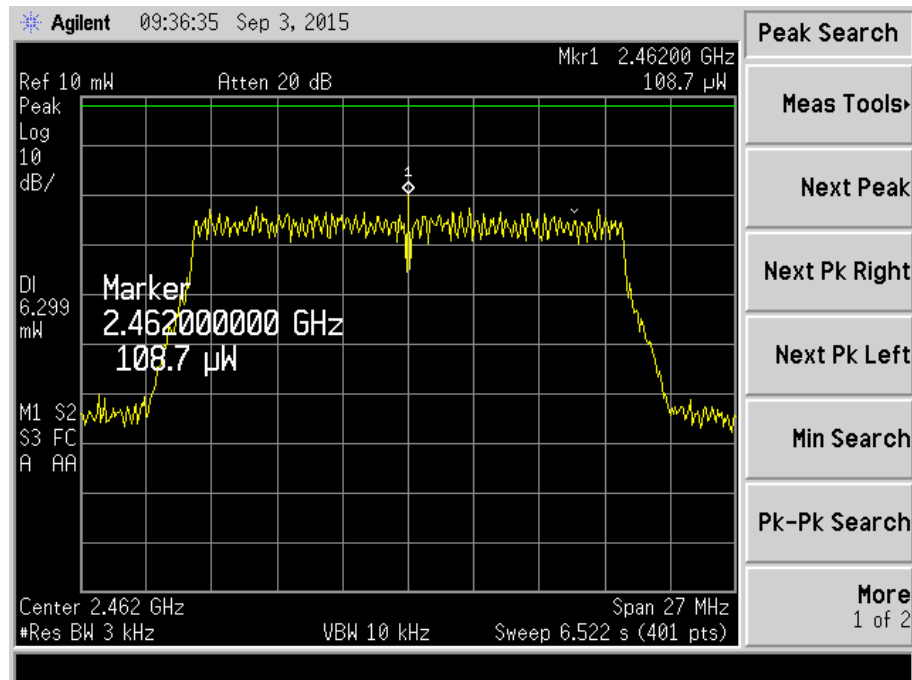
Plot 400 – Channel 11 (upper ch) @ BPSK 6.5Mbps



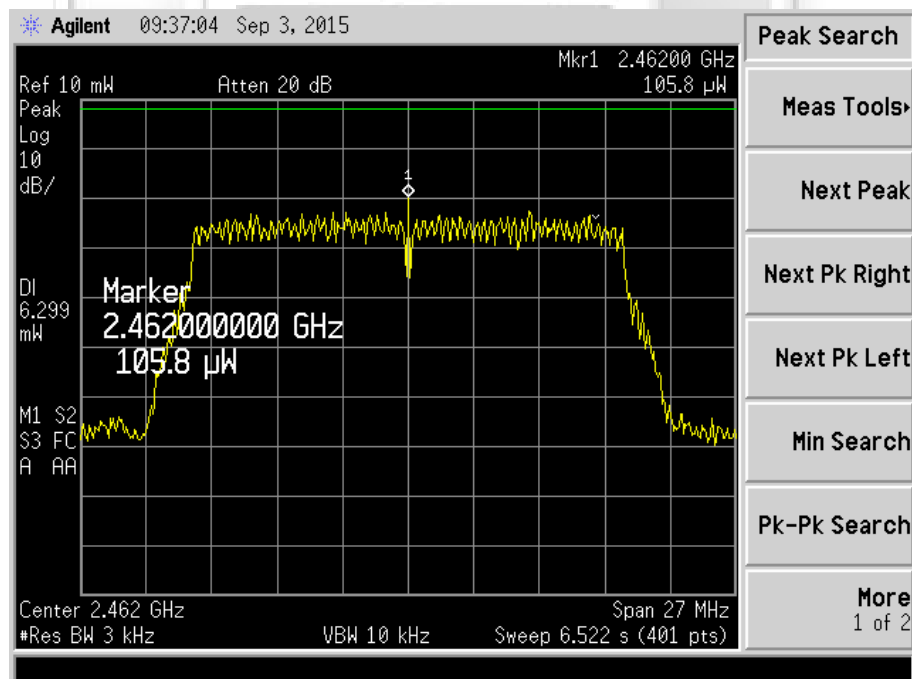
Plot 401 – Channel 11 (upper ch) @ QPSK 19.5Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11n



Plot 402 – Channel 11 (upper ch) @ 16QAM 39Mbps



Plot 403 Channel 11 (upper ch) @ 64QAM 65Mbps

MAXIMUM PERMISSIBLE EXPOSURE (MPE) TEST

47 CFR FCC Part 1.1310, RSS-102 4.0 and RSS-GEN 3.2 Maximum Permissible Exposure (MPE) Limits

The EUT shows compliance to the requirements of this section, which states the MPE limits for general population / uncontrolled exposure are as shown below:

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (min)
0.3 - 1.34	614	1.63	100 ^{Note 2}	30
1.34 - 30	824 / f	2.19 / f	180 / f ² ^{Note 2}	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f / 1500	30
1500 - 100000	-	-	1.0	30
Notes				
1. f = frequency in MHz				
2. Plane wave equivalent power density				

47 CFR FCC Part 1.1310, RSS-102 4.0 and RSS-GEN 3.2 Maximum Permissible Exposure Computation

The power density at 20cm distance was computed from the following formula:

$$\begin{aligned}
 S &= (30GP) / (377d^2) \\
 \text{where } S &= \text{Power density in W/m}^2 \\
 P &= 0.017W \\
 d &= \text{Test distance at 0.2m} \\
 G &= \text{Numerical isotropic gain, 2.51 (4.0dBi)}
 \end{aligned}$$

Substituting the relevant parameters into the formula:

$$\begin{aligned}
 S &= [(30GP) / 377d^2] \\
 &= 0.0849 \text{ W/m}^2 \\
 &= 0.0085 \text{ mW/cm}^2
 \end{aligned}$$

∴ The power density of the EUT at 20cm distance is 0.0085mW/cm² based on the above computation and found to be lower than the power density limit of 1.0mW/cm².



Please note that this Report is issued under the following terms :

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.
2. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD PSB therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.
3. Nothing in this report shall be interpreted to mean that TÜV SÜD PSB has verified or ascertained any endorsement or marks from any other testing authority or bodies that may be found on that sample.
4. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to TÜV SÜD PSB or to the report or results furnished by TÜV SÜD PSB in any advertisements or sales promotion.
5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

July 2011



ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

ANNEX A
TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP



Conducted Emissions Test Setup (Front View)



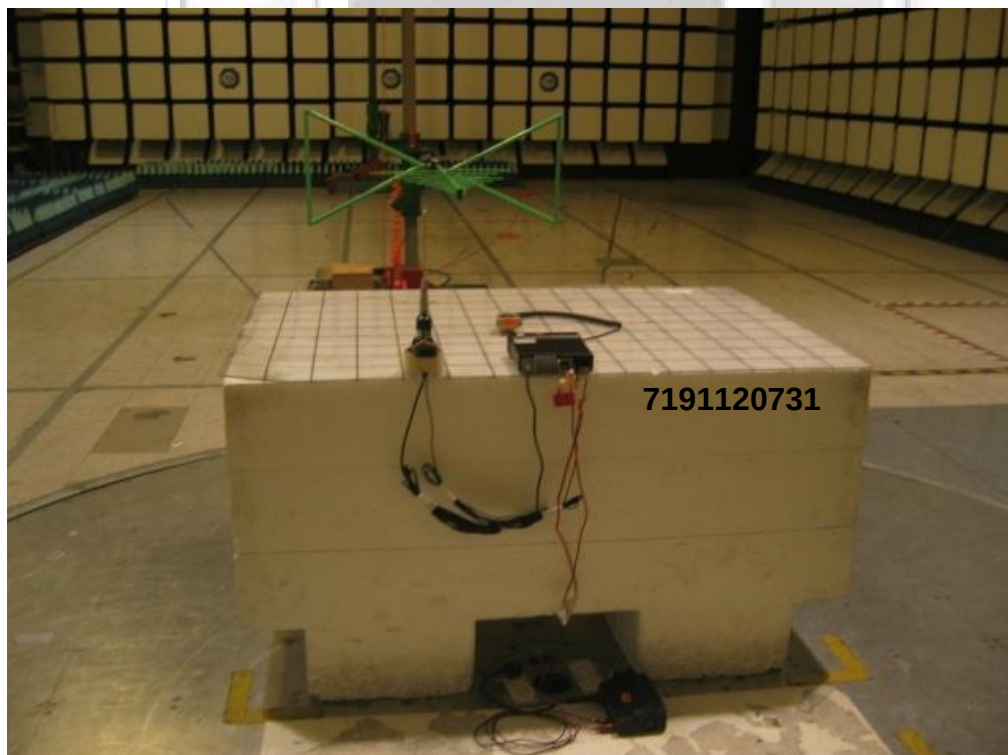
Conducted Emissions Test Setup (Rear View)

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP (30MHz to 1GHz)



Radiated Emissions Test Setup (Front View)



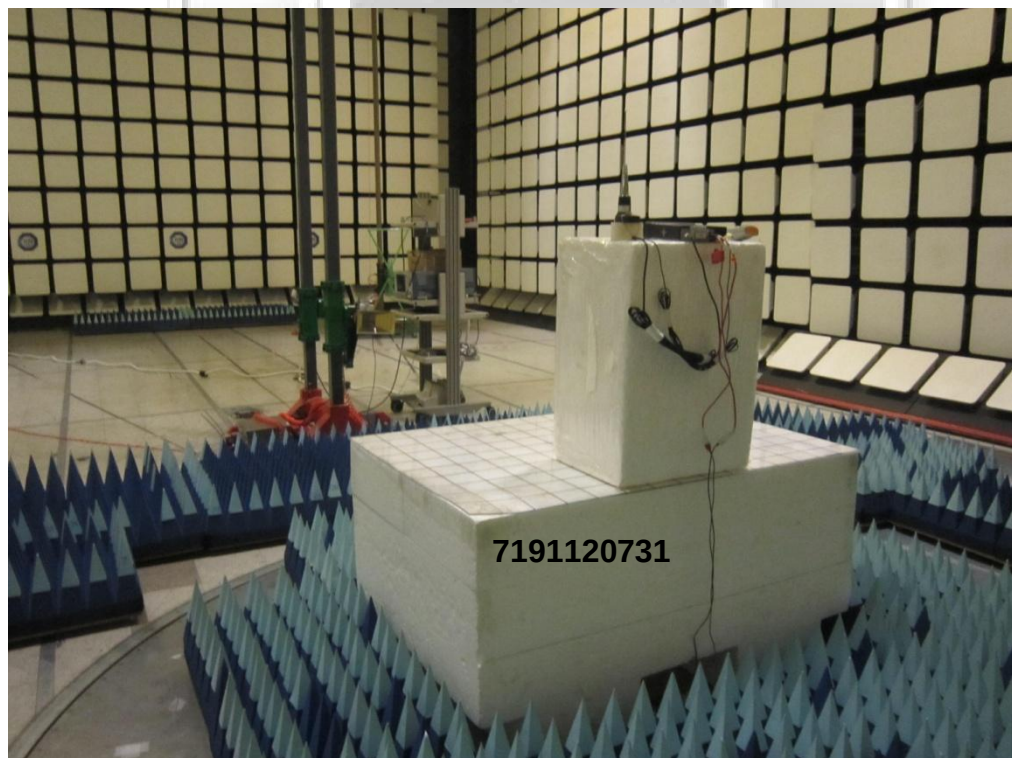
Radiated Emissions Test Setup (Rear View)

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP (Above 1GHz)



Radiated Emissions Test Setup (Front View)



Radiated Emissions Test Setup (Rear View)

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP



Spectrum Bandwidth (6dB Bandwidth Measurement) Test Setup



Maximum Peak Power Test Setup

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP



RF Conducted Spurious Emissions (Non-Restricted Bands) Test Setup



RF Conducted Spurious Emissions (Restricted Bands) Test Setup

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP



Band Edge Compliance (Conducted) Test Setup



Band Edge Compliance (Radiated) Test Setup

ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

TEST SETUP



Peak Power Spectral Density Test Setup



ANNEX A TEST SETUP / EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS



Front View



Rear View

ANNEX B USER MANUAL TECHNICAL DESCRIPTION BLOCK & CIRCUIT DIAGRAMS



ANNEX C FCC LABEL, IC LABEL & POSITION

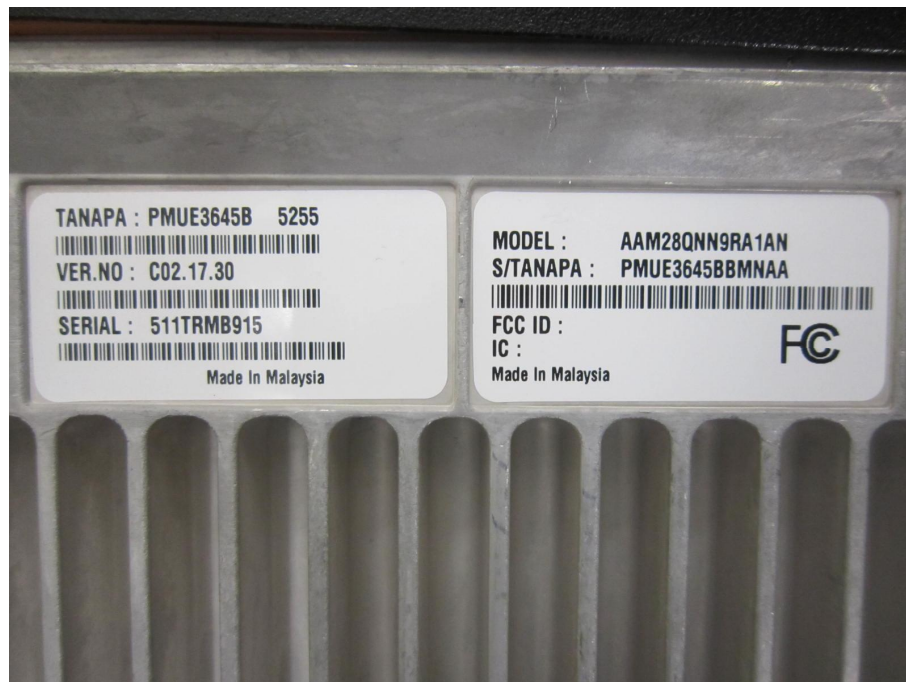
A large, light gray watermark of the TUV SUD logo is centered on the page. It features a large octagon with a smaller octagon inside. The text 'TUV' is in the upper part of the inner octagon, and 'SUD' is in the lower part. The text 'ANNEX C' and 'FCC LABEL, IC LABEL & POSITION' is overlaid on the watermark.

ANNEX C
FCC LABEL, IC LABEL & POSITION

ANNEX C FCC LABEL, IC LABEL & POSITION

Labelling requirements per Section 2.925, 15.19 & RSS-GEN 2.1

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.



Sample Label



Physical Location of FCC, IC Label on EUT

ANNEX D TEST SITE DESCRIPTION



ANNEX D TEST SITE DESCRIPTION

Radiated Emission Test Site Description

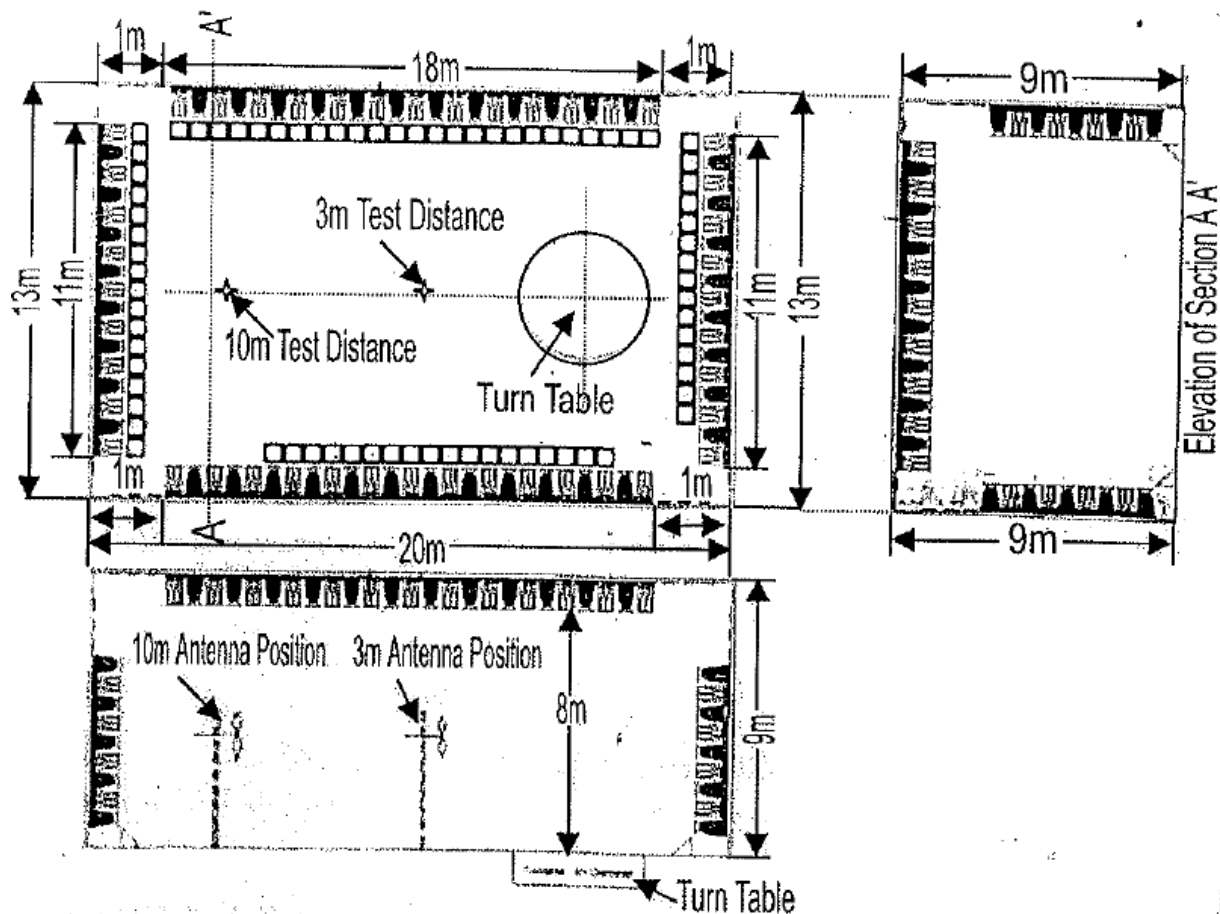
The Radiated Emission test facility consists of a RF-shielded enclosure (Model: 04" x 07") manufactured by Lindgren whose dimensions are shown below. The exterior of the chamber is made of rigid steel panels while the interior is covered with RF absorbing panels on the 4 walls and ceiling. The steel-clad ground plane is covered with vinyl flooring.

The Turntable (Model: FM4044) is manufactured by Sunol Sciences Corporation and is mounted flushed with the chamber floor and is driven by a pneumatic motor, which is capable of supporting 4,000 kg.

The Boresight Antenna mast (Model: TLT2) is manufactured by Sunol Sciences Corporation and is driven by a pneumatic motor with heights variation from 1m- 4m for both vertical and horizontal polarity and with tilt capability.

Both turntable and antenna mast in the chamber are controlled by Sunol Science System Controller SC104V stationed outside the chamber.

The physical layout of the chamber is show below:



ANNEX D TEST SITE DESCRIPTION

Conducted Emission Test Site Description

The Conducted Emission facility consists of an RF-shielded enclosure measuring 4.3m x 3.7m x 2.45m manufactured by Universal Shielding Corporation. The Conducted Emission data were taken using two LISN; Schaffner NNB42 & EMCO 3825/2.

The physical layout of the test site is show below:

