MEASUREMENT REPORT

(FCC : Part 15 Subpart C (15.247) / ANSI C63.4-2003)

Testing Laboratory
1288

Product	:	Wireles(11n) Outdoor Camera
Trade Name	:	SerComm
Model No.	:	OC821xxxxx
Applicant	:	SerComm Corporation
Applicant Address	:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

Report Number: MLT1108P15004

Report Number	MLT1108P15004
Applicant	SerComm Corporation
Product	Wireles(11n) Outdoor Camera
Sample Received Date	2011/8/29

Report Prepared By	Jesse Tien
Signature	
Date Prepared	2011/8/29 ~ 2011/10/12

Report Authorized By	Roger Chen
Signature	
Date Authorized	2011/10/20

Test By

Max Light Technology Co., Ltd.
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Table of Contents :

CERTIFICATION

We here by verify that :

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4-2003. All test were conducted by

MLT(Max Light Technology Co.,Ltd) Room 5, 8F, No.125, Section 3 Roosevelt Road, Taipei, Taiwan, R.O.C Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247).

Applicant Name	SerComm Corporation
Applicant Address	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Manufacturer Name	SerComm Corporation
Manufacturer Address	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

Equipment	Wireles(11n) Outdoor Camera
Model No	OC821xxxxx
FCC ID	P27OC821

Report Prepared By	Jesse Tien
Signature	

Report Authorized By	Roger Chen
Signature	

1. General

1.1 Introduction

The following measurement report is submitted on behalf of SerComm Corporation In support of a Class B Digital Device certification in accordance with Part2 Subpart J and Part 15 Subpart C of the Commission's and Regulations.

1.2 Customer Details

Applicant Name	SerComm Corporation
Applicant Address	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Manufacturer Name	SerComm Corporation
Manufacturer Address	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

1.3 Technical data of EUT

Equipment	Wireles(11n) Outdoor Camera
Model No	OC821xxxxx
FCC ID	P27OC821
Power Type	Model : MU12-G120100-A1(LEI) Input : AC100~240V , 50/60Hz , 0.5A Output : DC12V , 1A
	Model : SYS1381-1212-W2 (Sunny) Input : AC100~240V , 50/60Hz , 0.5A Output : DC12V , 1A
Type of Modulation	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer rate	802.11b: 11/ 5.5/ 2/ 1Mbps 802.11g: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps 802.11n HT20: 130, 117, 104, 78, 52, 39, 26, 13Mbps 802.11n HT40: 270, 243, 216, 162, 108, 81, 54, 27Mbps
Type of Antenna	Dipole Antenna (Reverse SMA)
Frequency of Channel	See Next page

During testing the EUT was operated at Tx or Rx mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.

802.11b & 802.11g & 802.11n HT20 Frequency of Each Channel (Working Frequency)

Channel No.	Frequency (MHz)
01	2412
02	2417
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452
10	2457
11	2462

802.11n HT40 Frequency of Each Channel (Working Frequency)

Channel No.	Frequency (MHz)
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452

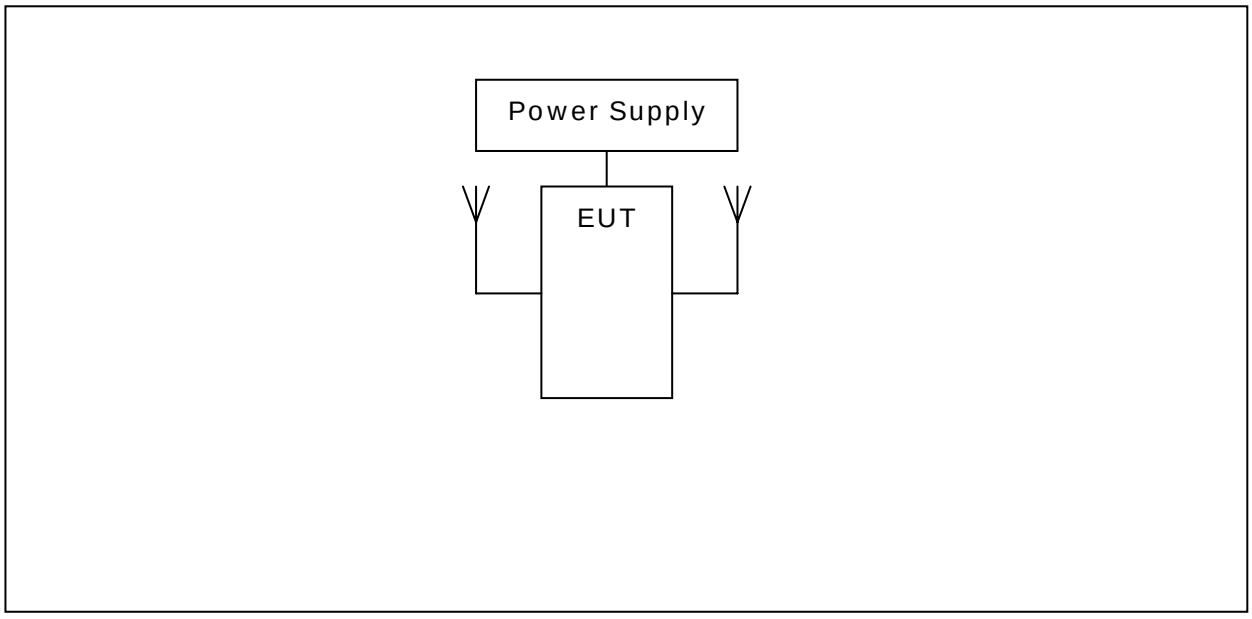
1.4 Summary Of Tests

47 CFR Part 15 Subpart C			
Reference	**Test**	**Results**	**Note**
15.207	AC Power Conducted Emission	PASS	
15.209	Radiated Emission	PASS	
15.247©	Transmitter Radiated Emissions	PASS	
15.247(b)	Max. Output Power	PASS	
15.247(a)(2)	6dB RF Bandwidth	PASS	
15.247(d)	Max. Power Density	PASS	
15.247©	Out of Band Conducted Spurious Emission	PASS	
15.247©	Band Edge Measurement	PASS	
15.203	Antenna Requirement	PASS	

1.5 Description of Support Equipment

This Wireless (11n) Outdoor Camera itself forms a system. No support equipment is required for its normal operation.

1.6 Configuration of System Under Test



1.7 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 followed KDB 558074 and KDB 662911 for this testing.

1.8 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated. The system's radiated and conducted emissions were investigated while the computer alternately transferred data to the EUT as well as to the monitor and printer. Using a test program which sent a continuous data and transferred data to and from the EUT was proven to worst case emissions. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.

This assessment of the maximum conducted output power tests is base on the minimum transfer rate will produce a maximum output power.

802.11b data rate: 1M

802.11g data rate: 1M

802.11gn HT20 data rate: 13M

802.11gn HT40 data rate: 27M

2. Conducted Emissions Requirements

2.1 General & Setup :

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3825/2 Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.5.

2.2 Test Equipment List :

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	HP	Spectrum Analyzer	73412A00110	8591EM	2011/4/24	2012/4/24
2.	EMCO	LISN	2658	3825/2	2011/3/5	2012/3/5
3.	TESEQ	ISN	24801	ISN T8	2011/4/7	2012/4/7

2.3 Test condition :

EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

2.4 Conducted Emissions Limits :

FCC Part 15

Frequency range (MHz)	Limits (dBuV)			
	Class A		Class B	
	QP	Avg.	QP	Avg.
0.15 to 0.50	79	66	66 to 56	56 to 46
0.50 to 5.0	73	60	56	46
5.0 to 30	73	60	60	50

2.5 Measurement Data Of Conducted Emissions :

2.5.1 Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions to the HOT and NEUTRAL conductor of the EUT power.

Power Adapter : LEI MU12-G120100-A1

Test Mode : 802.11b (CH01)

Conducted Emissions								
Conductor	Frequency (MHz)	Read(dBuV)		Factor	Limits (dBuV)		Amplitude (dBuV)	
		QP	AV		QP	AV	QP	AV
L1	0.595	31.39	--	1.24	56	46	32.63	--
	0.712	31.82	--	1.23	56	46	33.05	--
	1.426	28.39	--	1.38	56	46	29.77	--
	1.898	28.95	--	1.51	56	46	30.46	--
	2.225	29.12	--	1.76	56	46	30.88	--
	13.479	35.59	--	2.05	60	50	37.64	--
	16.486	33.64	--	2.11	60	50	35.75	--
L2	0.595	30.95	--	1.15	56	46	32.10	--
	0.712	31.33	--	1.18	56	46	32.51	--
	1.426	30.03	--	1.32	56	46	31.35	--
	2.678	29.49	--	1.81	56	46	31.30	--
	4.136	29.29	--	1.98	56	46	31.27	--
	13.479	36.55	--	2.06	60	50	38.61	--
	16.226	35.14	--	2.07	60	50	37.21	--

Notes : 1. L1: One end & Ground L2: The other end & Ground

2. Height of table on which the EUT was placed : 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.
5. Amplitude = Read + Factor

2.5.2 Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions to the HOT and NEUTRAL conductor of the EUT power.

Power Adapter : LEI MU12-G120100-A1

Test Mode : 802.11b (CH06)

Conducted Emissions								
Conductor	Frequency (MHz)	Read(dBuV)		Factor	Limits (dBuV)		Amplitude (dBuV)	
		QP	AV		QP	AV	QP	AV
RJ11	0.381	53.99	--	10.08	77.4	67.4	64.07	--
	0.771	53.14	--	10.32	74	64	63.46	--
	0.918	53.31	--	10.30	74	64	63.61	--
	1.249	57.29	41.70	10.35	74	64	67.64	52.05
	1.367	58.65	40.69	10.34	74	64	68.99	51.03
	1.552	53.51	--	10.39	74	64	63.90	--
	2.261	51.77	--	10.57	74	64	62.34	--
90	1.000	50.46	--	9.53	87	77	59.99	--
	1.269	58.34	--	9.54	87	77	67.88	--
	1.324	58.76	--	9.54	87	77	68.30	--
	2.608	43.72	--	9.58	87	77	53.30	--
	4.952	50.34	--	9.66	87	77	60.00	--
	6.285	49.80	--	9.71	87	77	59.51	--
	10.676	37.36	--	9.85	87	77	47.21	--

Notes : 1. L1: One end & Ground L2: The other end & Ground

2. Height of table on which the EUT was placed : 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.
5. Amplitude = Read + Factor

2.5.3 Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions to the HOT and NEUTRAL conductor of the EUT power.

Power Adapter : Sunny SYS1381-1212-W2

Test Mode : 802.11g (CH06)

Conducted Emissions								
Conductor	Frequency (MHz)	Read(dBuV)		Factor	Limits (dBuV)		Amplitude (dBuV)	
		QP	AV		QP	AV	QP	AV
XX	0.206	63.40	--	9.50	94.36	84.36	72.90	--
	0.303	59.82	--	9.51	91.15	81.15	69.33	--
	0.573	59.02	--	9.51	87	77	68.53	--
	0.839	62.53	--	9.52	87	77	72.05	--
	1.210	61.73	--	9.54	87	77	71.27	--
	1.464	64.60	--	9.54	87	77	74.14	--
	1.519	67.35	--	9.55	87	77	76.90	--
60	0.167	38.49	--	0.68	65.12	55.12	39.17	--
	0.192	38.98	--	0.66	63.93	53.93	39.64	--
	0.216	37.19	--	0.65	62.96	52.96	37.84	--
	0.246	36.95	--	0.63	61.91	51.91	37.58	--
	0.285	35.73	--	0.62	60.68	50.68	36.35	--
	9.204	34.12	--	0.23	60	50	34.35	--
	13.623	26.70	--	0.19	60	50	26.89	--

Notes : 1. L1: One end & Ground L2: The other end & Ground

2. Height of table on which the EUT was placed : 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.
5. Amplitude = Read + Factor

2.5.4 Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions to the HOT and NEUTRAL conductor of the EUT power.

Power Adapter : Sunny SYS1381-1212-W2

Test Mode : 802.11g (CH11)

Conducted Emissions								
Conductor	Frequency (MHz)	Read(dBuV)		Factor	Limits (dBuV)		Amplitude (dBuV)	
		QP	AV		QP	AV	QP	AV
EE	0.771	53.09	--	10.32	87	77	63.41	--
	0.822	56.19	--	10.31	87	77	66.50	--
	0.923	62.58	--	10.30	87	77	72.88	--
	0.974	62.56	--	10.29	87	77	72.85	--
	1.027	58.45	--	10.29	87	77	68.74	--
	2.110	51.65	--	10.57	87	77	62.22	--
	10.019	69.90	49.36	10.94	87	77	80.84	60.57
50	0.167	38.26	--	0.68	65.12	55.12	38.94	--
	0.192	37.92	--	0.66	63.93	53.93	38.58	--
	0.233	36.63	--	0.64	62.35	52.35	37.27	--
	0.255	35.79	--	0.63	61.6	51.6	36.42	--
	0.285	35.30	--	0.62	60.68	50.68	35.92	--
	0.334	32.64	--	0.60	59.35	49.35	33.24	--
	7.446	28.55	--	0.25	60	50	28.80	--

Notes : 1. L1: One end & Ground L2: The other end & Ground

2. Height of table on which the EUT was placed : 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.
5. Amplitude = Read + Factor

3. Radiated Emissions Requirement

3.1 General Configuration:

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, open-field test site. The EUT system was placed on a nonconductive turntable which was 0.8 meters height, top surface 1.0 x 1.5 meter. During the test, EUT was set to transmit continuously & measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting
the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvlt (dBuV) into field intensity in microvolts pre meter(uV/m).
The actual field intensity in decibels referenced to 1 microvolt in to field intensity in microcolts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

Amplitude (dBuV/m)= FI(dBuV)+AF(dBm)+CL(dBuV)-Gain(dB)

FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(1) For fundamental frequency : Transmitter Output < +30dBm

(2) For spurious frequency : Spurious emission limits = fundamental emission limit /10

3.2 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	Agilent	Spectrum Analyzer	US44300422	E4446A	06/10/2011	06/10/2012
2.	MLT	Pre Amplifier	20110301	PREAMP6G-02	03/05/2011	03/05/2012
3.	R&S	Spectrum Analyzer	100116	FSP40	10/18/2010	10/18/2011
4.	SCHWARZBECK	Dipole antenna	NA	VHAP&HUAP	07/17/2011	07/16/2012
5.	SCHWARZBECK	Dipole antenna	NA	UHA9105	07/17/2011	07/16/2012
6.	Agilent	Pre Amplifier	3008A2471	8449B	02/16/2011	02/15/2012
7.	EMCO	Horn Antenna	0006665	AH118	02/15/2011	02/14/2012
8.	Com-power	Horn Antenna	100A	AH-640	01/11/2011	01/10/2013
9.	Com-power	Horn Antenna	081001	AH-826	05/04/2011	05/03/2013
10.	Anritsu	Power Meter	1116010	ML2495A	04/22/2011	04/21/2012
11.	Anritsu	Power Sensor	34NKF50	MA2411B	04/22/2011	04/21/2012

3.3 Test condition:

EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

3.4 Radiated Emissions Limits:

Frequency range (MHz)	Peak(dBuV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

3.5 Measurement Data Of Radiated Emissions:

3.5.1 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11b (CH01)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4824.0	38.81	48.91	Peak	10.1	74	-25.09

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4824.0	36.17	46.27	Peak	10.1	74	-27.73

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.2 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11b (CH06)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4874.0	37.92	48.22	Peak	10.3	74	-25.78

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4874.0	38.75	49.05	Peak	10.3	74	-24.95

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.3 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11b (CH11)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1343.0	49.77	43.07	Peak	-6.7	74	-30.93
4924.0	39.83	50.34	Peak	10.51	74	-23.66

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1742.0	41.04	37.34	Peak	-3.7	74	-36.66
4924.0	40.94	51.45	Peak	10.51	74	-22.55

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.4 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11g (CH01)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4824.0	32.77	42.87	Peak	10.1	74	-31.13

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4824.0	31.74	41.84	Peak	10.1	74	-32.16

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.5 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11g (CH06)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4874.0	32.4	42.7	Peak	10.3	74	-31.3

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1343.0	44.41	37.71	Peak	-6.7	74	-36.29
4874.0	31.92	42.22	Peak	10.3	74	-31.78

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.6 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11g (CH11)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1497.0	38.6	32.76	Peak	-5.84	74	-41.24
4924.0	32.92	43.43	Peak	10.51	74	-30.57

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1350.0	47.59	40.93	Peak	-6.66	74	-33.07
4924.0	32.28	42.79	Peak	10.51	74	-31.21

Notes : 1. Margin= Amplitude – Limits

2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.7 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT20 (CH01)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4824.0	32.42	42.52	Peak	10.1	74	-31.48

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1889.0	39.8	37.37	Peak	-2.43	74	-36.63
4824.0	32.56	42.66	Peak	10.1	74	-31.34

Notes : 1. Margin= Amplitude – Limits

2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.8 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT20 (CH06)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1350.0	39.71	33.05	Peak	-6.66	74	-40.95
4874.0	31.89	42.19	Peak	10.3	74	-31.81

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
3247.0	36.27	38.67	Peak	2.4	74	-35.33
4874.0	34.02	44.32	Peak	10.3	74	-29.68

Notes : 1. Margin= Amplitude – Limits

2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.9 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT20 (CH11)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1077.0	41.31	33.07	Peak	-8.24	74	-40.93
4924.0	32.68	43.19	Peak	10.51	74	-30.81

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1357.0	39.59	32.97	Peak	-6.62	74	-41.03

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.10 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT40 (CH03)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4844.0	32.66	42.84	Peak	10.18	74	-31.16

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1875.0	39.18	36.64	Peak	-2.54	74	-37.36
4844.0	32.61	42.79	Peak	10.18	74	-31.21

Notes : 1. Margin= Amplitude – Limits

2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.11 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT40 (CH06)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1350.0	39.6	32.94	Peak	-6.66	74	-41.06
4874.0	32.41	42.71	Peak	10.3	74	-31.29

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1483.0	39.37	33.44	Peak	-5.93	74	-40.56
4874.0	32.51	42.81	Peak	10.3	74	-31.19

Notes : 1. Margin= Amplitude – Limits

2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

3.5.12 Open Field Radiated Emissions (Subpart C)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Test Mode : **802.11n HT40 (CH09)**

Radiated Emissions (HORIZONTAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
1889.0	38.14	35.71	Peak	-2.43	74	-38.29
4904.0	32.77	43.2	Peak	10.43	74	-30.8

Radiated Emissions (VERTICAL)						
Frequency (MHz)	**Read (dBuV/m)**	**Amplitude (dBuV/m)**	**Remark**	**Factor (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
4904.0	32.08	42.51	Peak	10.43	74	-31.49

Notes : 1. Margin= Amplitude – Limits
2. Distance of Measurement : 3 Meter
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Duty= Duty cycle correction factor.
6. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor (Auto calculate in spectrum analyzer)
7. The other emission levels were very low against the limit.

4. Maximum Conducted Output Power Requirements

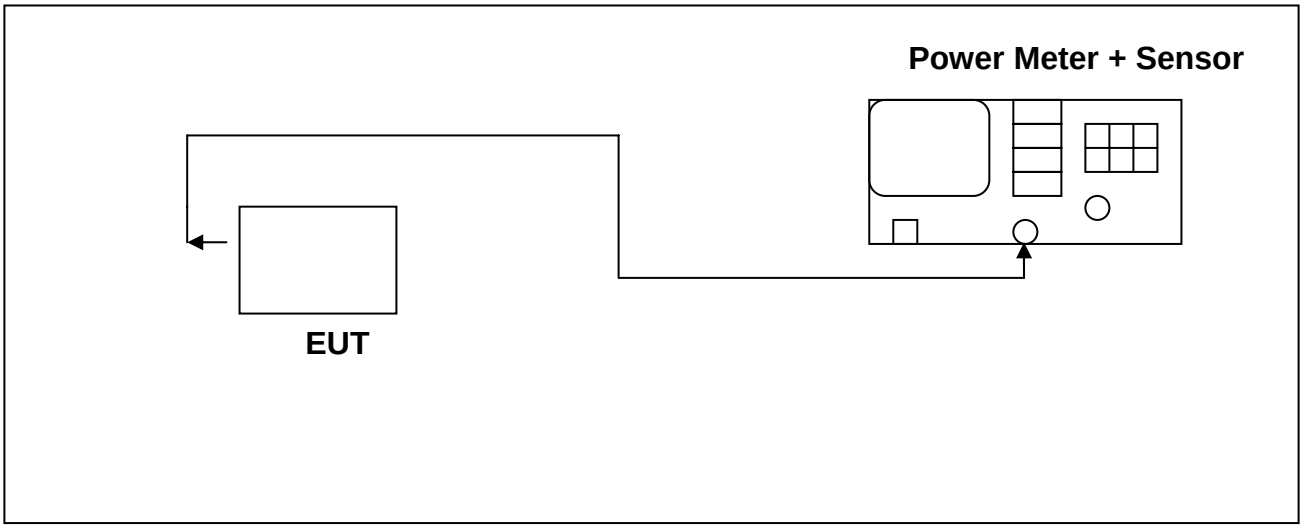
4.1 Test Condition & Setup :

The tests below are run with the EUT's transmitter set at high power in TDD mode. A RJ-45 port from a computer to the EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

The antenna port of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

For antennas with gains of 6 dBi or less , maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

4.2 Test Instruments Configuration:



4.3 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cali. Date
1.	Anritsu	Power Meter	1116010	ML2495A	04/22/2011	04/21/2012
2	Anritsu	Power Sensor	34NKF50	MA2411B	04/22/2011	04/21/2012

4.4 Test Result:

802.11b

Frequency (MHz)	Data Rate(Mbps)	Output(dBm)	Required Limit
2412	11	15.87	<30dBm
2412	5.5	16.04	<30dBm
2412	2	16.32	<30dBm
2412	1	16.47	<30dBm

Frequency (MHz)	Data Rate(Mbps)	Output(dBm)	Required Limit
2412	1	16.47	<30dBm
2437	1	16.97	<30dBm
2462	1	16.34	<30dBm

802.11g

Frequency (MHz)	Data Rate(Mbps)	Output(dBm)	Required Limit
2412	54	16.13	<30dBm
2412	48	15.96	<30dBm
2412	36	15.91	<30dBm
2412	24	16.21	<30dBm
2412	18	15.93	<30dBm
2412	12	16.36	<30dBm
2412	9	16.47	<30dBm
2412	6	16.78	<30dBm

Frequency (MHz)	Data Rate(Mbps)	Output(dBm)	Required Limit
2412	6	16.78	<30dBm
2437	6	16.94	<30dBm
2462	6	16.82	<30dBm

Note: Test result is the worst case of the different data rate.

802.11n HT20

Frequency (MHz)	Data Rate(Mbps)		Output Power(dBm)		Required Limit
	Ant 1	Ant 2	Ant 1	Ant 2	
2412	130	130	15.51	15.73	<30dBm
2412	117	117	15.70	15.79	<30dBm
2412	104	104	15.73	15.92	<30dBm
2412	78	78	15.75	15.87	<30dBm
2412	52	52	16.11	16.13	<30dBm
2412	39	39	16.12	16.18	<30dBm
2412	26	26	16.35	16.16	<30dBm
2412	13	13	16.64	16.39	<30dBm

Frequency (MHz)	Data Rate(Mbps)		Output Power(dBm)		Total Output Power(dBm)	Required Limit
	Ant 1	Ant 2	Ant 1	Ant 2		
2412	13	13	16.64	16.39	19.53	<30dBm
2437	13	13	16.84	16.58	19.72	<30dBm
2462	13	13	16.43	16.35	19.40	<30dBm

802.11n HT40

Frequency (MHz)	Data Rate(Mbps)		Output Power(dBm)		Required Limit
	Ant 1	Ant 2	Ant 1	Ant 2	
2422	270	270	15.61	15.58	<30dBm
2422	243	243	15.68	15.49	<30dBm
2422	216	216	15.61	15.53	<30dBm
2422	162	162	15.88	15.65	<30dBm
2422	108	108	16.00	15.86	<30dBm
2422	81	81	16.02	15.91	<30dBm
2422	54	54	16.38	16.20	<30dBm
2422	27	27	16.64	16.69	<30dBm

Frequency (MHz)	Data Rate(Mbps)		Output Power(dBm)		Total Output Power(dBm)	Required Limit
	Ant 1	Ant 2	Ant 1	Ant 2		
2422	27	27	16.64	16.69	19.68	<30dBm
2437	27	27	16.62	16.71	19.68	<30dBm
2452	27	27	16.21	16.75	19.50	<30dBm

Note: Test result is the worst case of the different data rate.

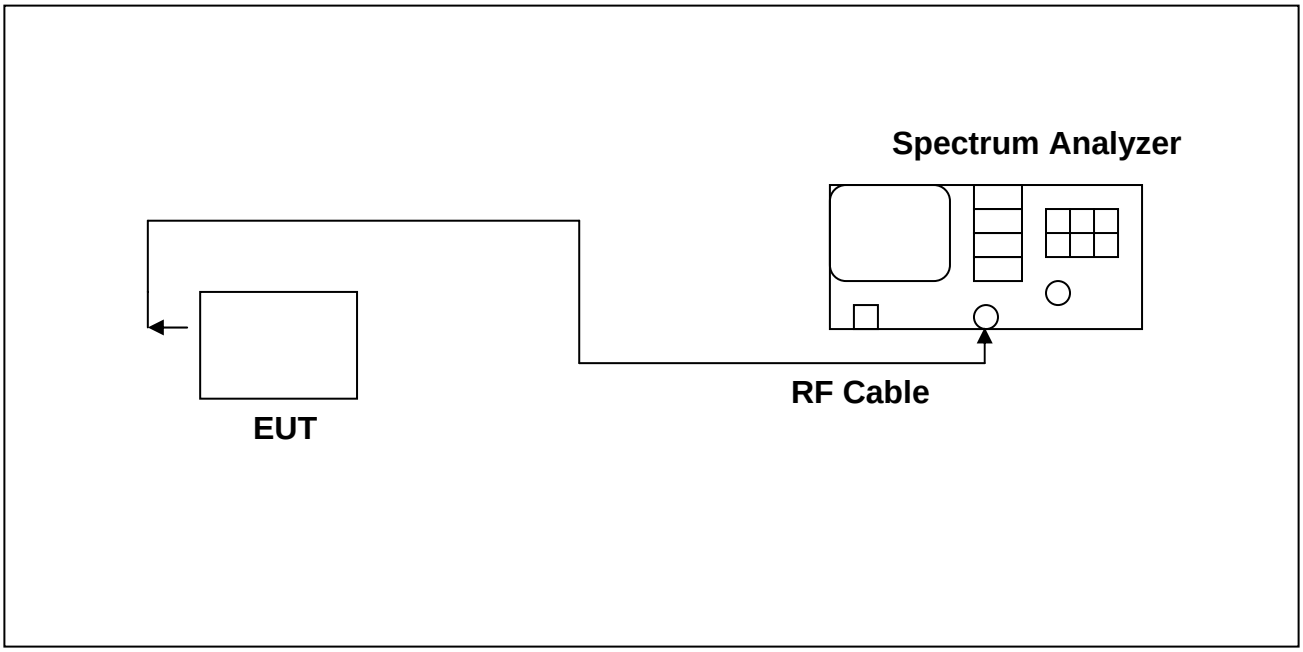
5. Minimum 6dB RF Bandwidth Requirements

5.1 Test Condition & Setup :

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel 1, 6, 11)

5.2 Test Instruments Configuration:



5.3 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	R&S	Spectrum Analyzer	100116	FSP40	10/18/2010	10/18/2011

5.4 Test Result:

802.11b

Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2412	12.100	>500KHz
2437	12.100	>500KHz
2462	12.100	>500KHz

802.11g

Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2412	15.700	>500KHz
2437	15.800	>500KHz
2462	15.700	>500KHz

802.11n HT20(Ant 1)

Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2412	15.500	>500KHz
2437	15.800	>500KHz
2462	15.776	>500KHz

802.11n HT40(Ant 1)

Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2422	35.200	>500KHz
2437	35.200	>500KHz
2452	35.100	>500KHz

802.11n HT20(Ant 2)

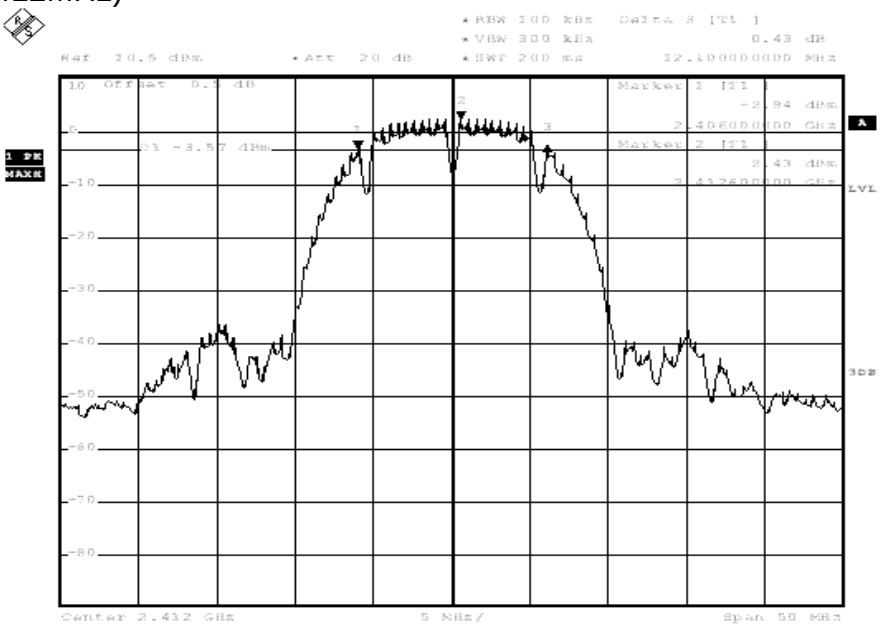
Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2412	16.440	>500KHz
2437	16.037	>500KHz
2462	16.000	>500KHz

802.11n HT40(Ant 2)

Frequency (MHz)	Min. 6dB Bandwidth (MHz)	Required Limit
2422	35.200	>500KHz
2437	35.200	>500KHz
2452	35.200	>500KHz

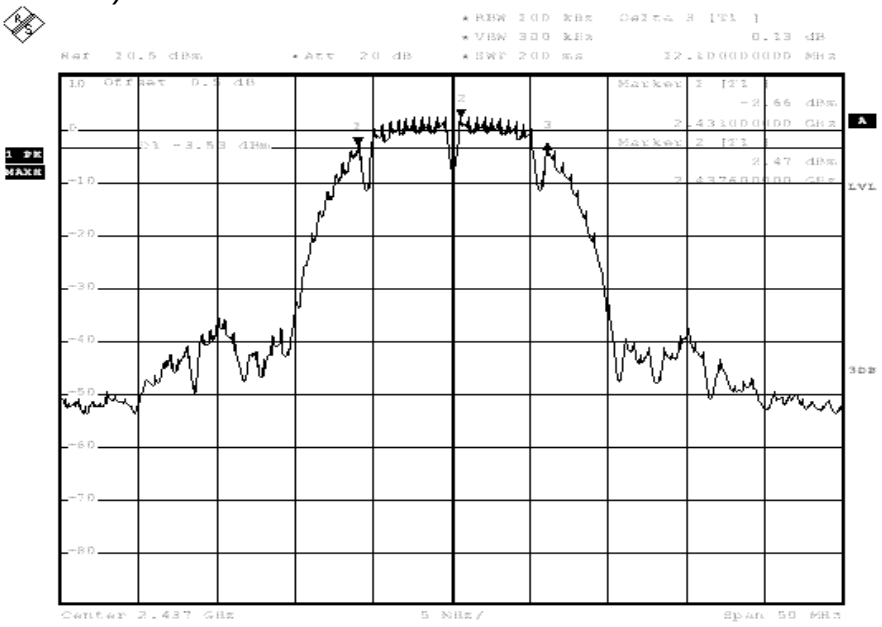
Note: Test Graphs See next page.

802.11b (2412MHz)



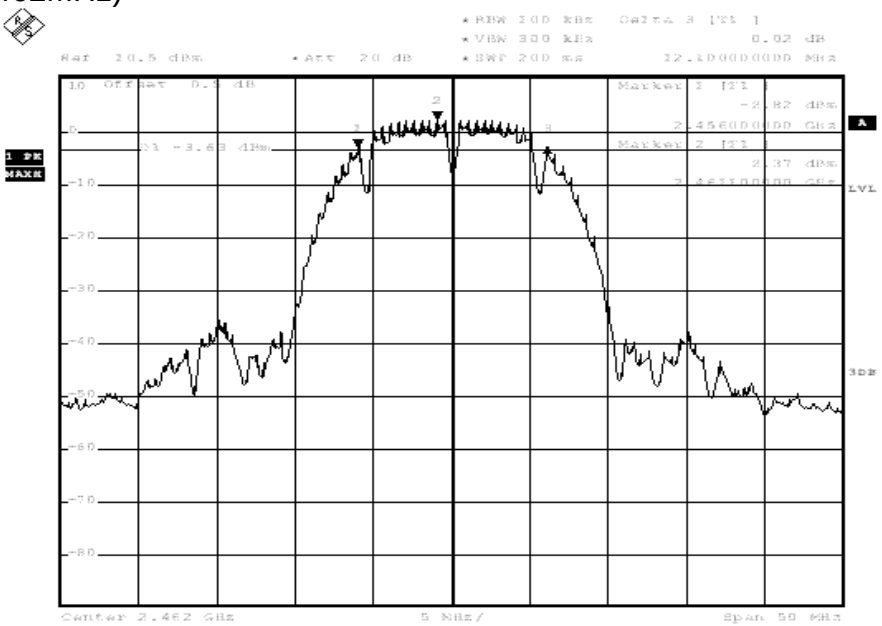
Date: 14.SEP.2011 13:23:02

802.11b (2437MHz)



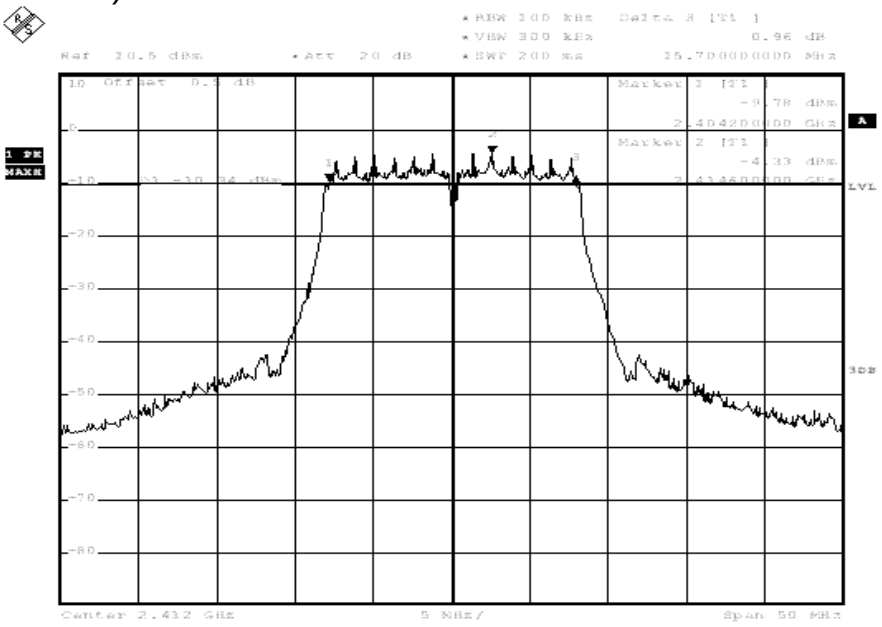
Date: 14.SEP.2011 13:24:07

802.11b (2462MHz)



Date: 14.SEP.2011 13:28:16

802.11g (2412MHz)



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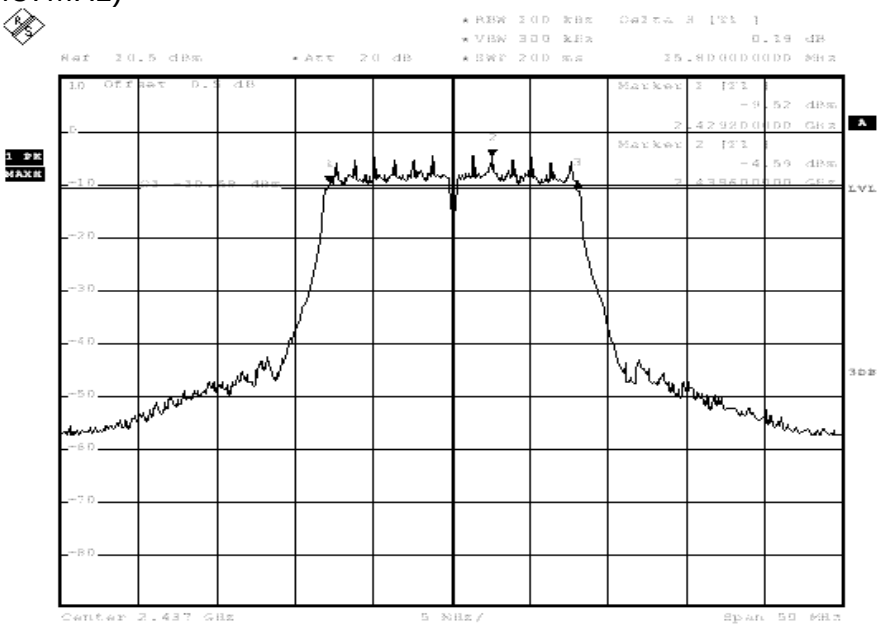
802.11g (2437MHz)



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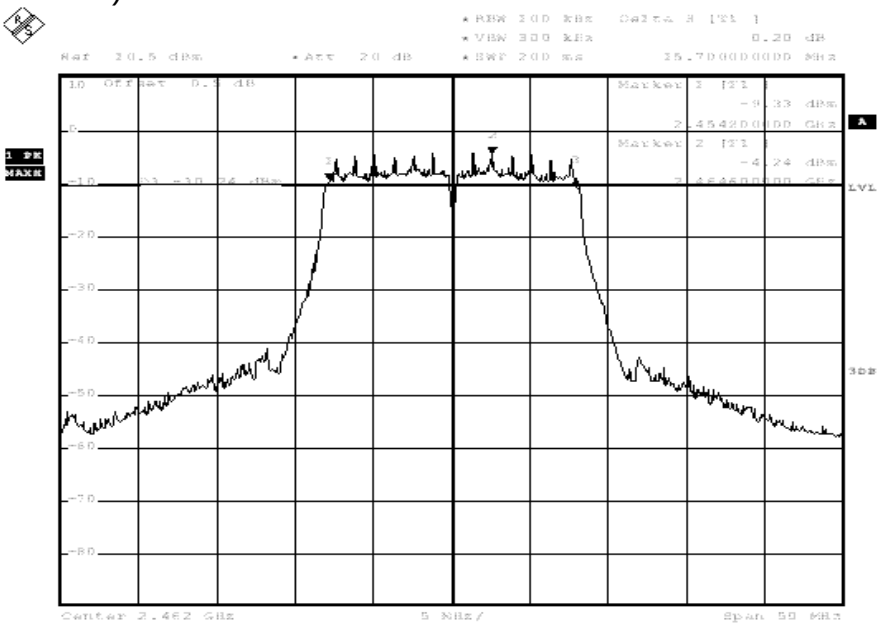
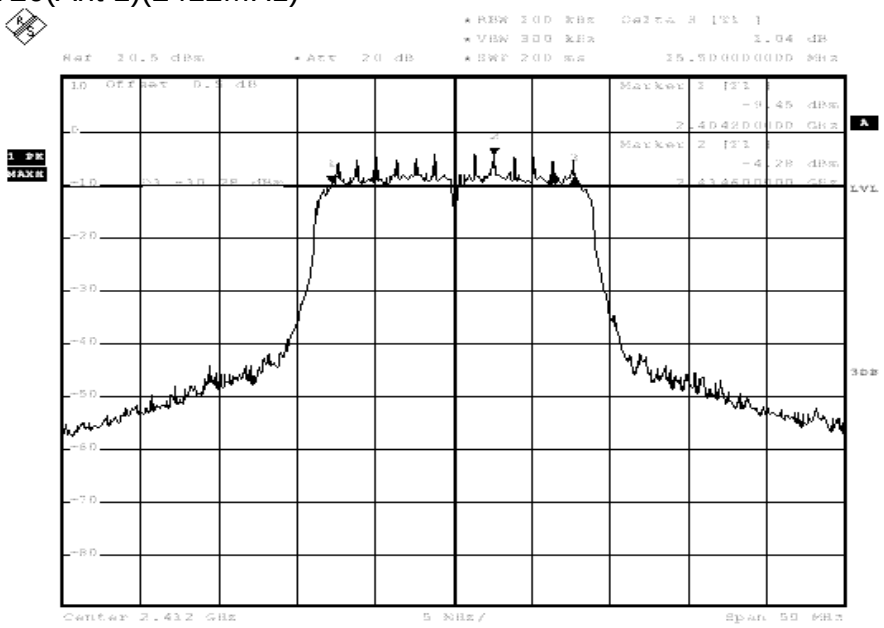
802.11g (2462MHz)



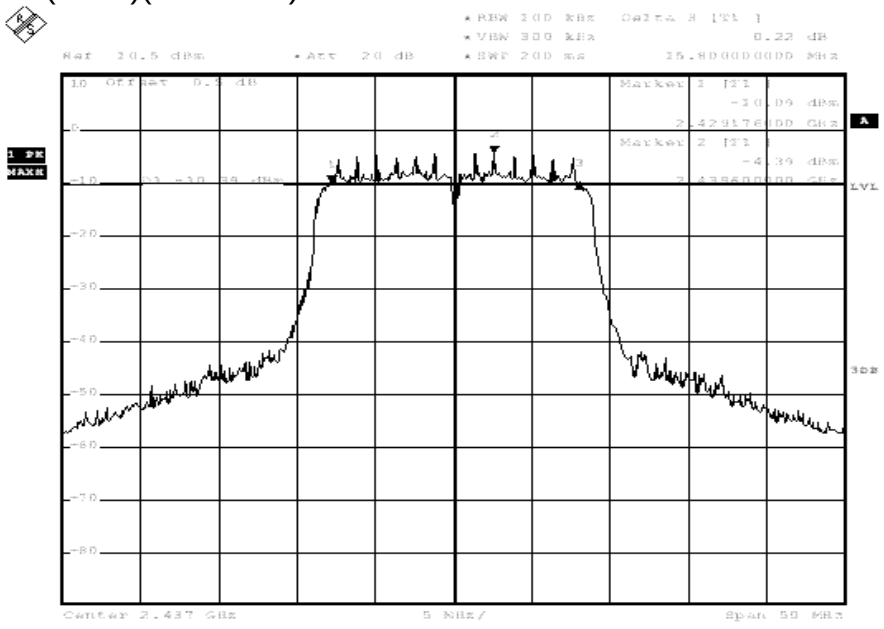
Date: 14.SEP.2011 13:32:08

802.11n HT20(Ant 1)(2412MHz)



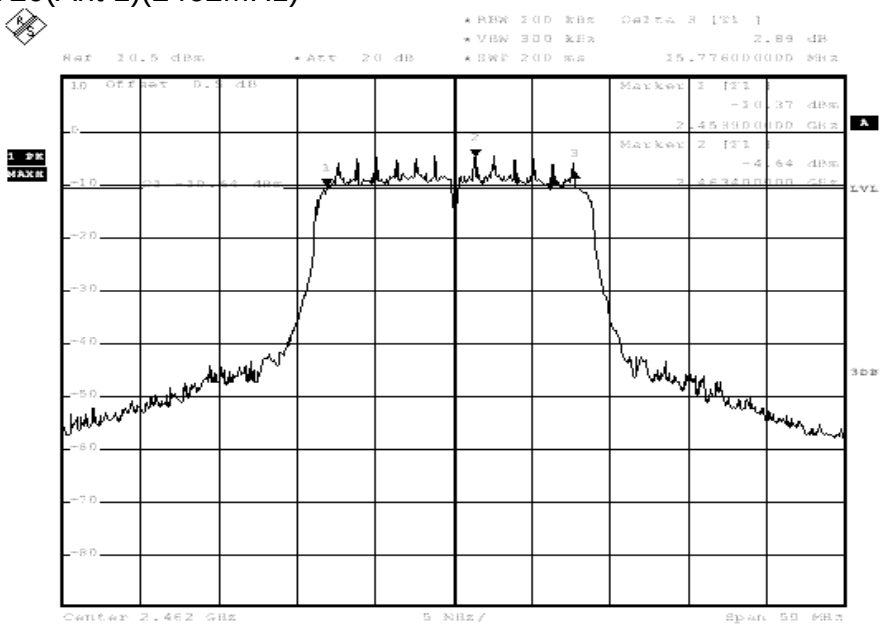
Date: 14.SEP.2011 13:33:32

802.11n HT20(Ant 1)(2437MHz)



Date: 14.SEP.2011 13:34:36

802.11n HT20(Ant 1)(2462MHz)



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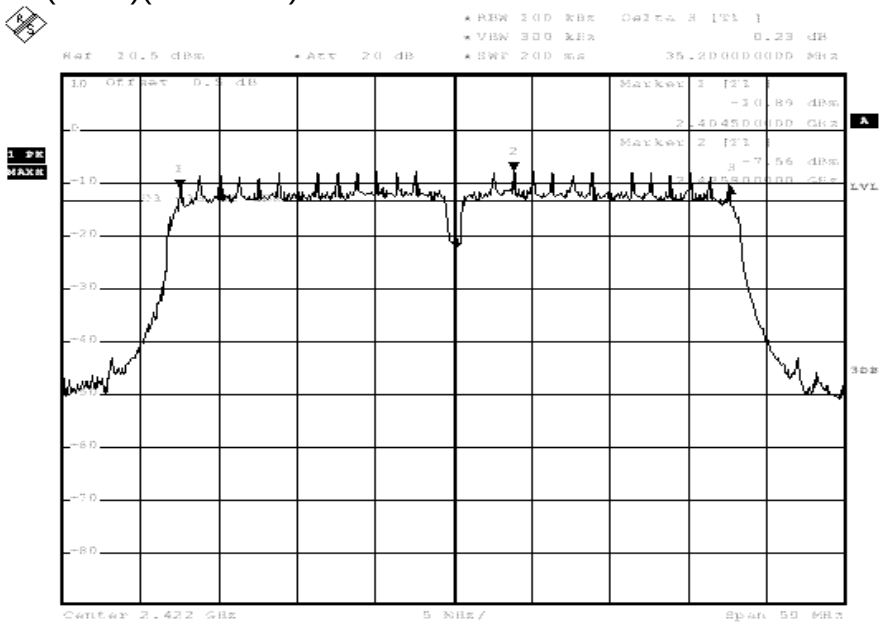
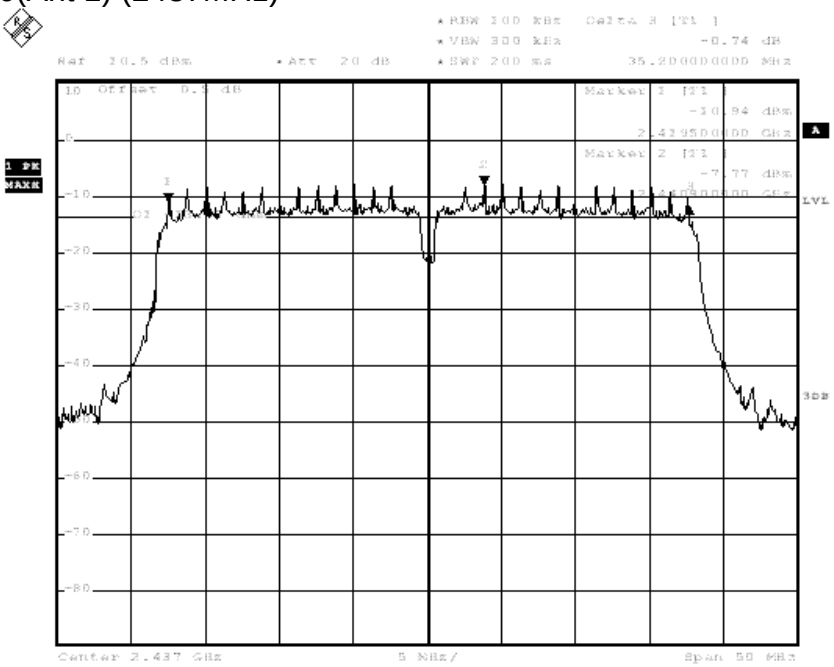
802.11n HT40(Ant 1)(2422MHz)



Date: 14.SEP.2011 13:36:45

802.11n HT40(Ant 1) (2437MHz)



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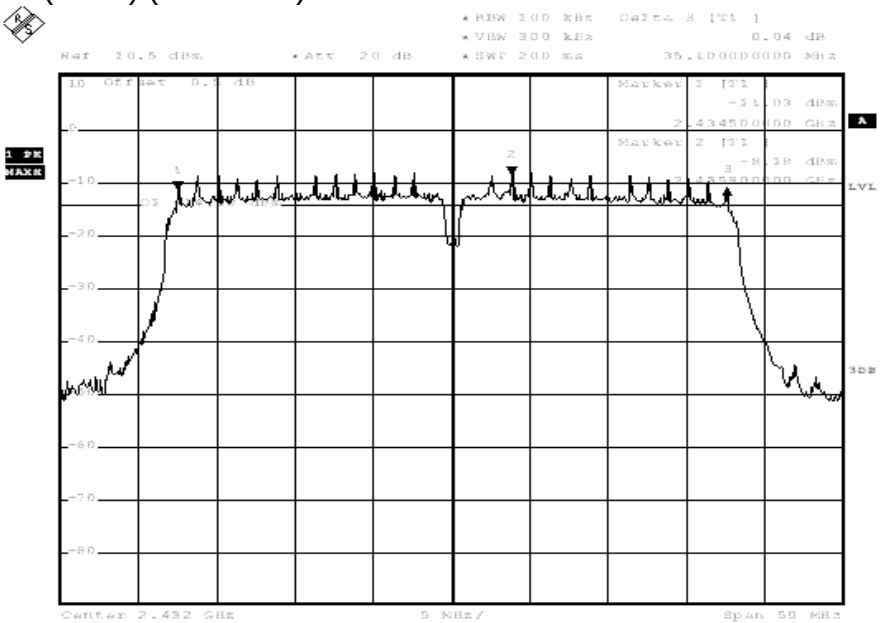
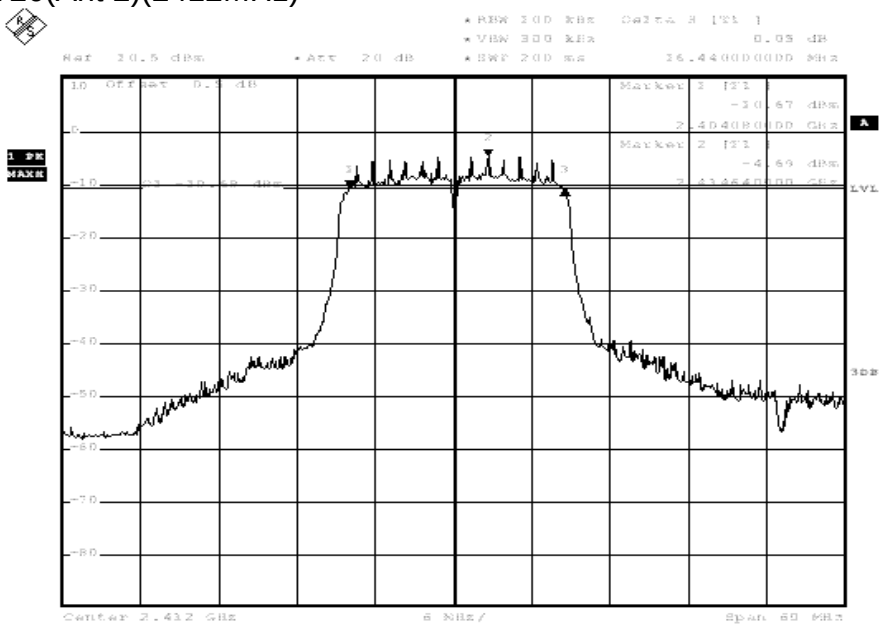
802.11n HT40(Ant 1) (2452MHz)



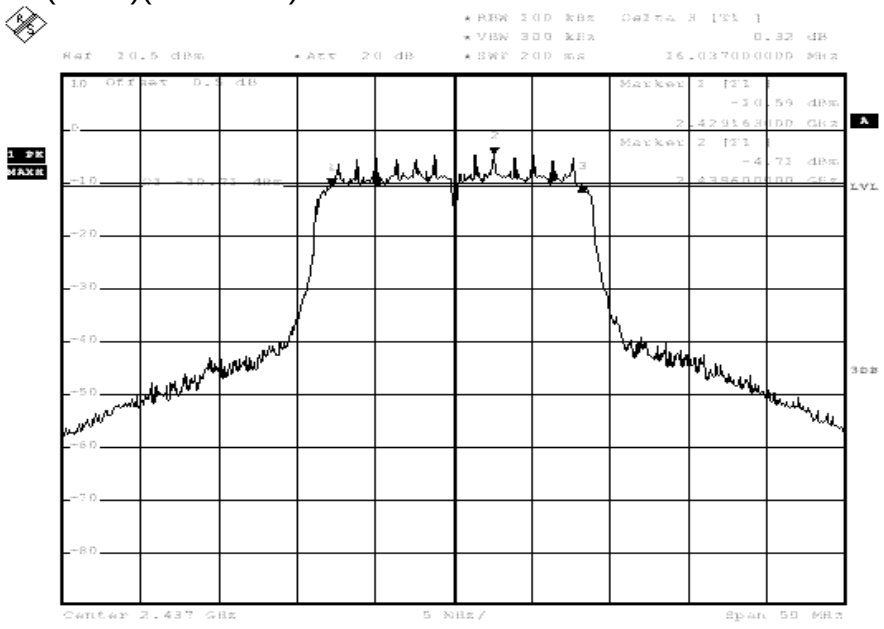
Date: 14.SEP.2011 13:40:35

802.11n HT20(Ant 2)(2412MHz)



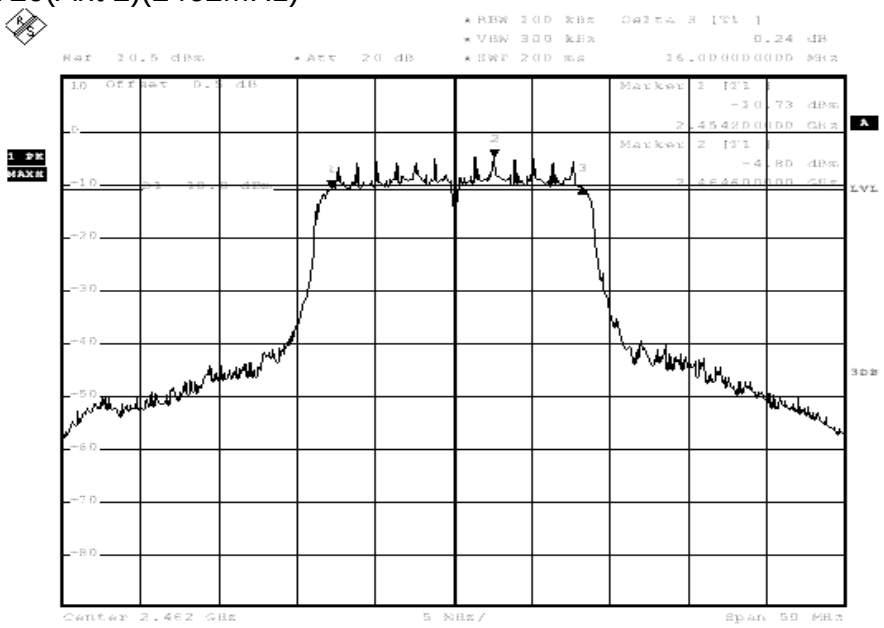
Date: 14.SEP.2011 11:29:50

802.11n HT20(Ant 2)(2437MHz)



Date: 14.SEP.2011 11:32:38

802.11n HT20(Ant 2)(2462MHz)

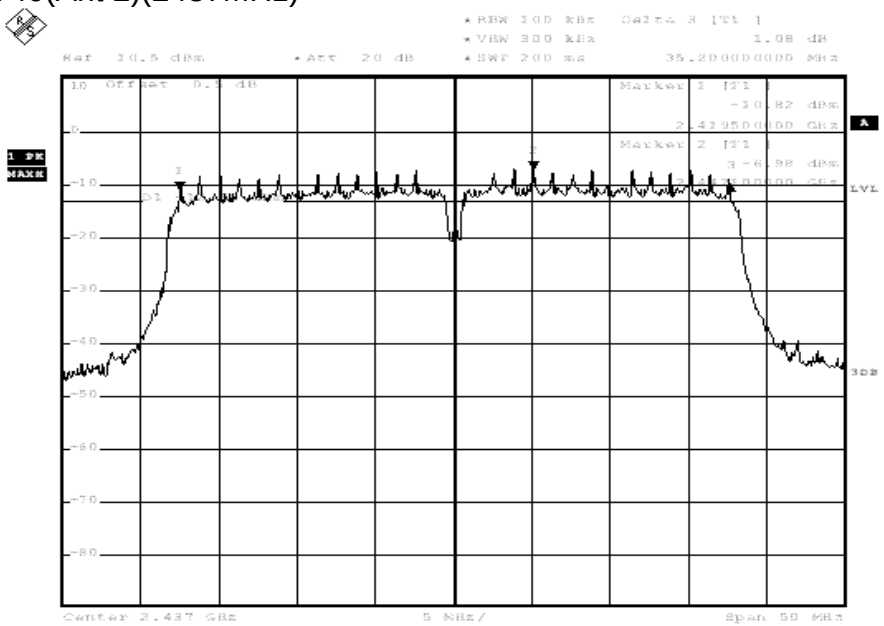


Date: 14.SEP.2011 11:33:58

802.11n HT40(Ant 2)(2422MHz)

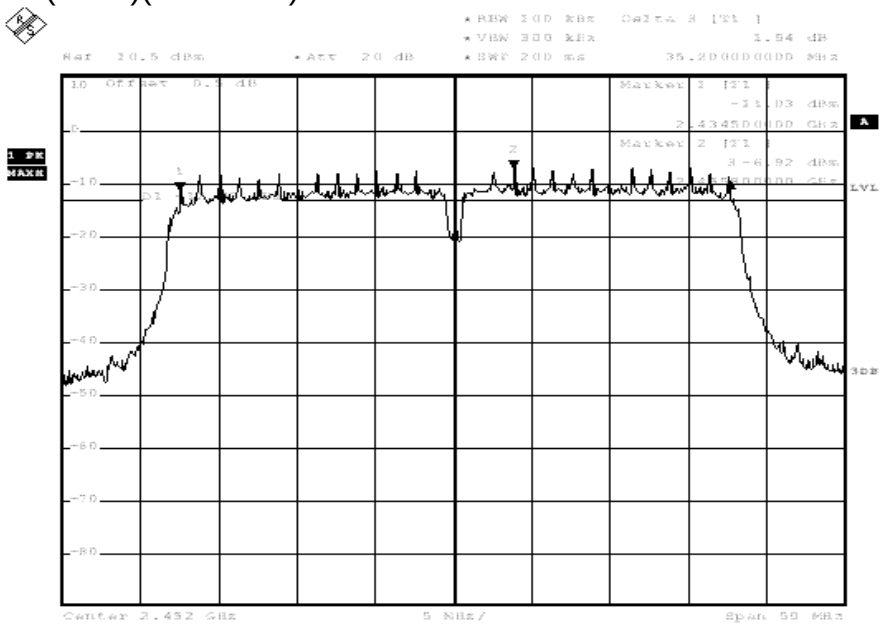
Date: 14.SEP.2011 11:35:26

802.11n HT40(Ant 2)(2437MHz)



Date: 14.SEP.2011 11:44:40

802.11n HT40(Ant 2)(2452MHz)



Date: 14.SEP.2011 11:46:24

6. Maximum Power Density Requirements

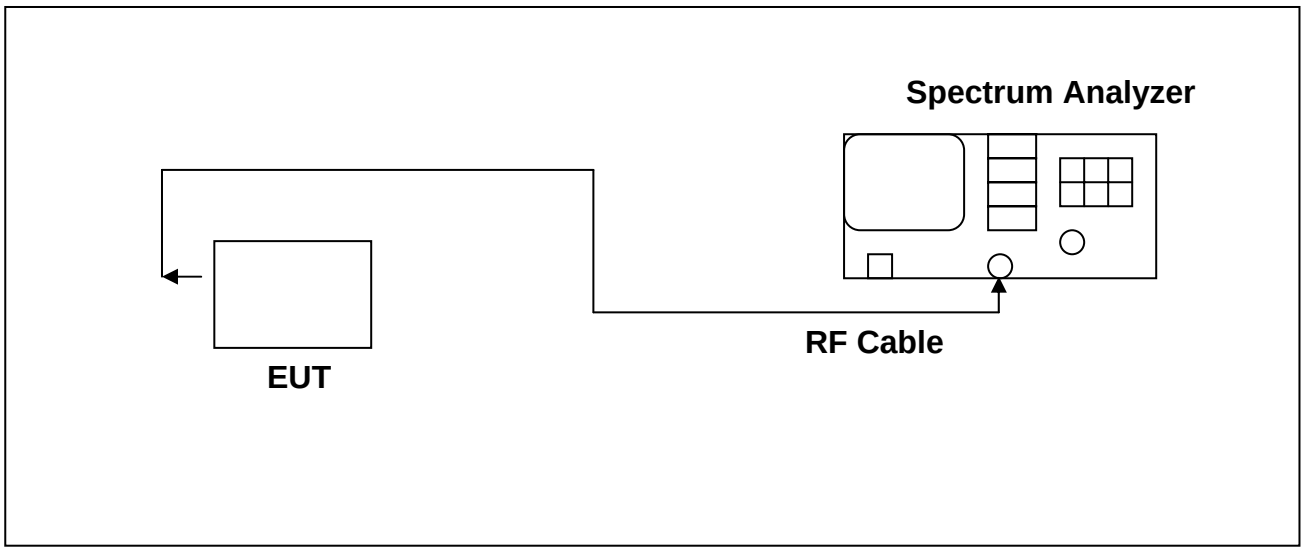
6.1 Test Condition & Setup :

The spectrum analyzer RES BW was set to 3 kHz. The START and STOP frequencies were set to the band edges of the maximum output passband. If there is no clear maximum amplitude in any given portion of the band, it may be necessary to make measurements at a number of bands defined by several START and STOP frequency pairs. The specification calls for a 1 second interval at each 3 kHz bandwidth; total SWEEP TIME is calculated as follows:

SWEEP TIME (SEC) = (Fstop, kHz - Fstart, kHz)/3 kHz

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

6.2 Test Instruments Configuration:



6.3 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	R&S	Spectrum Analyzer	100116	FSP40	10/18/2010	10/18/2011

6.4 Test Result:

802.11b

Frequency (MHz)	Power Density (dBm)	Required Limit
2412	-17.170	<8dBm
2437	-17.120	<8dBm
2462	-17.150	<8dBm

802.11g

Frequency (MHz)	Power Density (dBm)	Required Limit
2412	-23.880	<8dBm
2437	-24.220	<8dBm
2462	-23.930	<8dBm

802.11n HT20(Ant 1)

Frequency (MHz)	Power Density (dBm)	Required Limit
2412	-23.710	<8dBm
2437	-23.690	<8dBm
2462	-23.850	<8dBm

802.11n HT40(Ant 1)

Frequency (MHz)	Power Density (dBm)	Required Limit
2422	-25.550	<8dBm
2437	-25.900	<8dBm
2452	-26.280	<8dBm

802.11n HT20(Ant 2)

Frequency (MHz)	Power Density (dBm)	Required Limit
2412	-21.540	<8dBm
2437	-21.150	<8dBm
2462	-22.410	<8dBm

802.11n HT40(Ant 2)

Frequency (MHz)	Power Density (dBm)	Required Limit
2422	-21.380	<8dBm
2437	-21.090	<8dBm
2452	-20.780	<8dBm

802.11n HT20(Ant1 + Ant2)

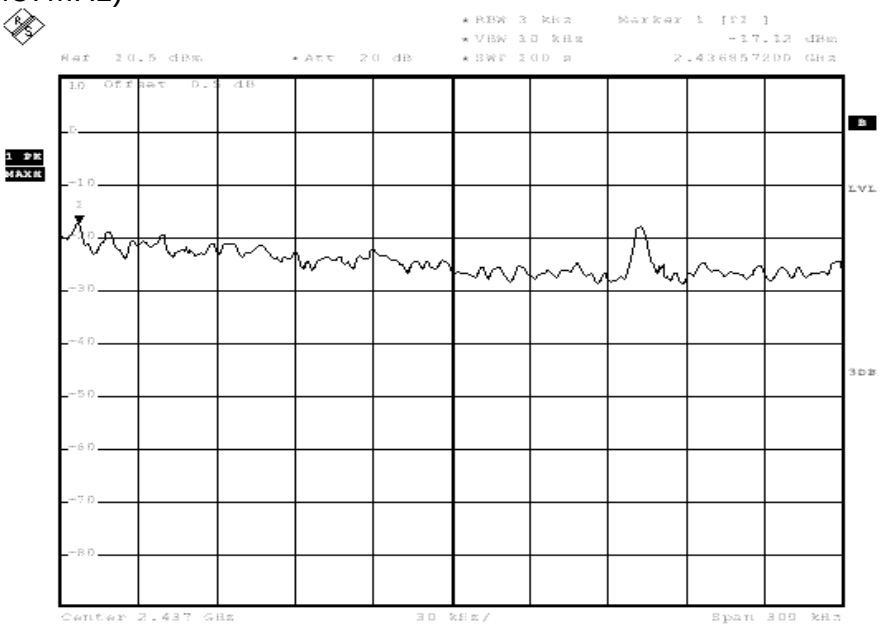
Frequency (MHz)	Power Density (dBm)	Required Limit
2412	-19.481	<8dBm
2437	-19.227	<8dBm
2462	-20.060	<8dBm

802.11n HT40(Ant1 + Ant2)

Frequency (MHz)	Power Density (dBm)	Required Limit
2422	-19.972	<8dBm
2437	-19.850	<8dBm
2452	-19.702	<8dBm

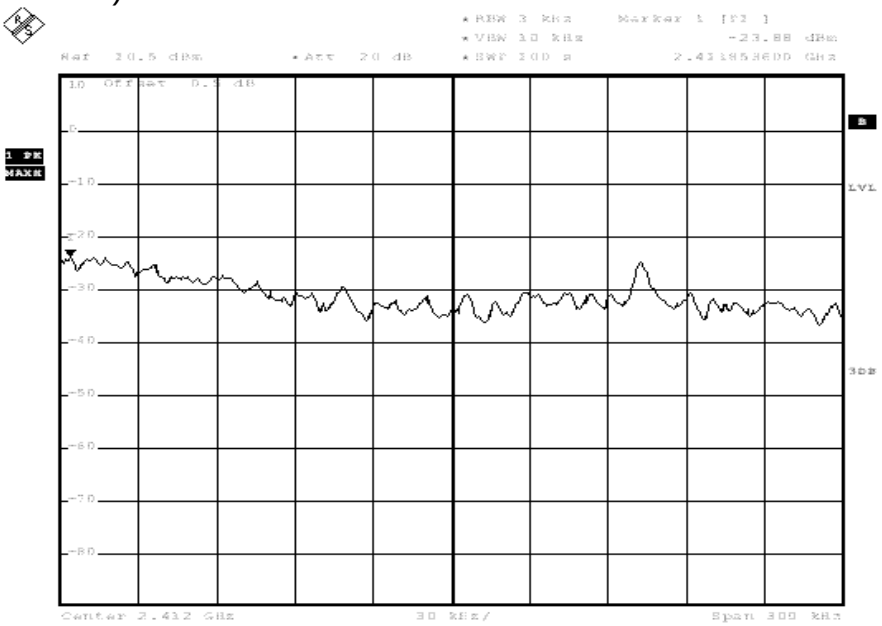
Note : 1.Frequency Span = 600KHz
2.Sweep Time = 200secs
3.Test Graphs See next page.

802.11b (2437MHz)



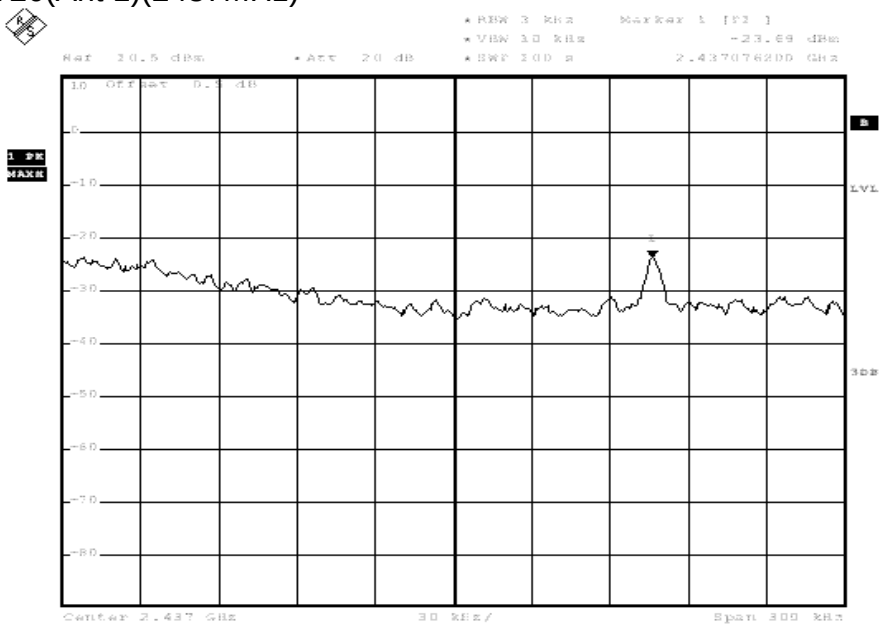
Date: 14.SEP.2011 10:30:41

802.11g (2412MHz)



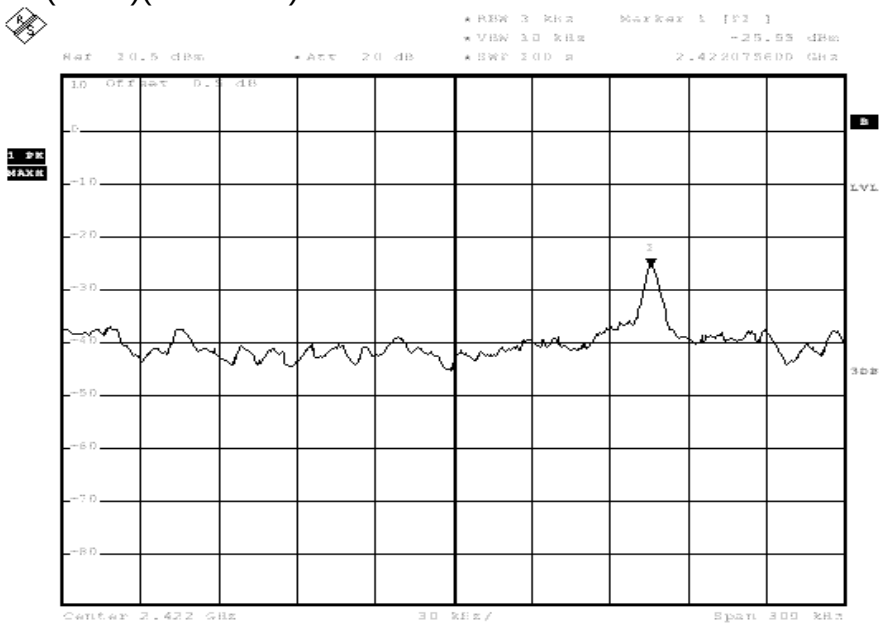
Date: 14.SEP.2011 10:41:22

802.11n HT20(Ant 1)(2437MHz)



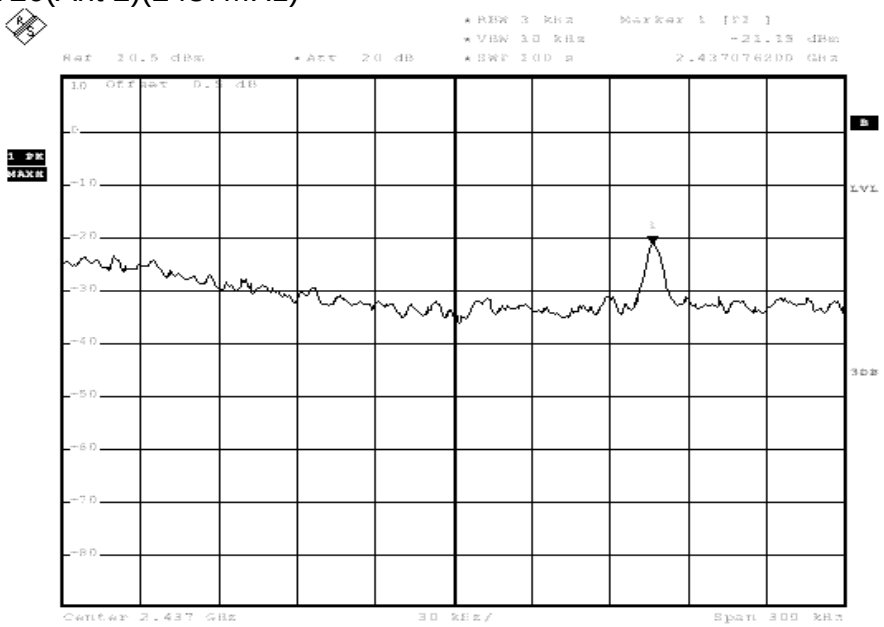
Date: 14.SEP.2011 10:57:06

802.11n HT40(Ant 1)(2422MHz)



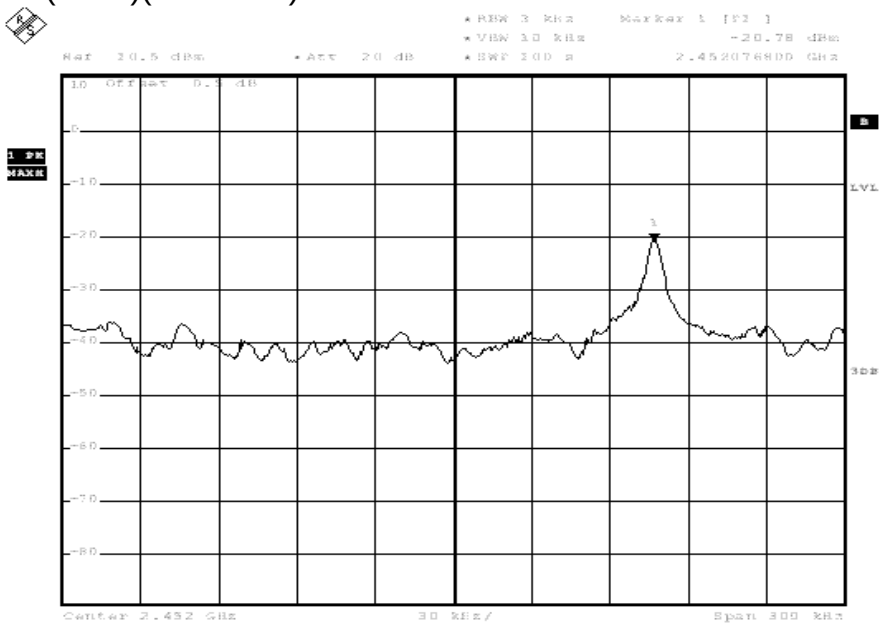
Date: 14.SEP.2011 11:02:33

802.11n HT20(Ant 2)(2437MHz)



Date: 14.SEP.2011 11:22:55

802.11n HT40(Ant 2)(2452MHz)



Date: 14.SEP.2011 11:11:37

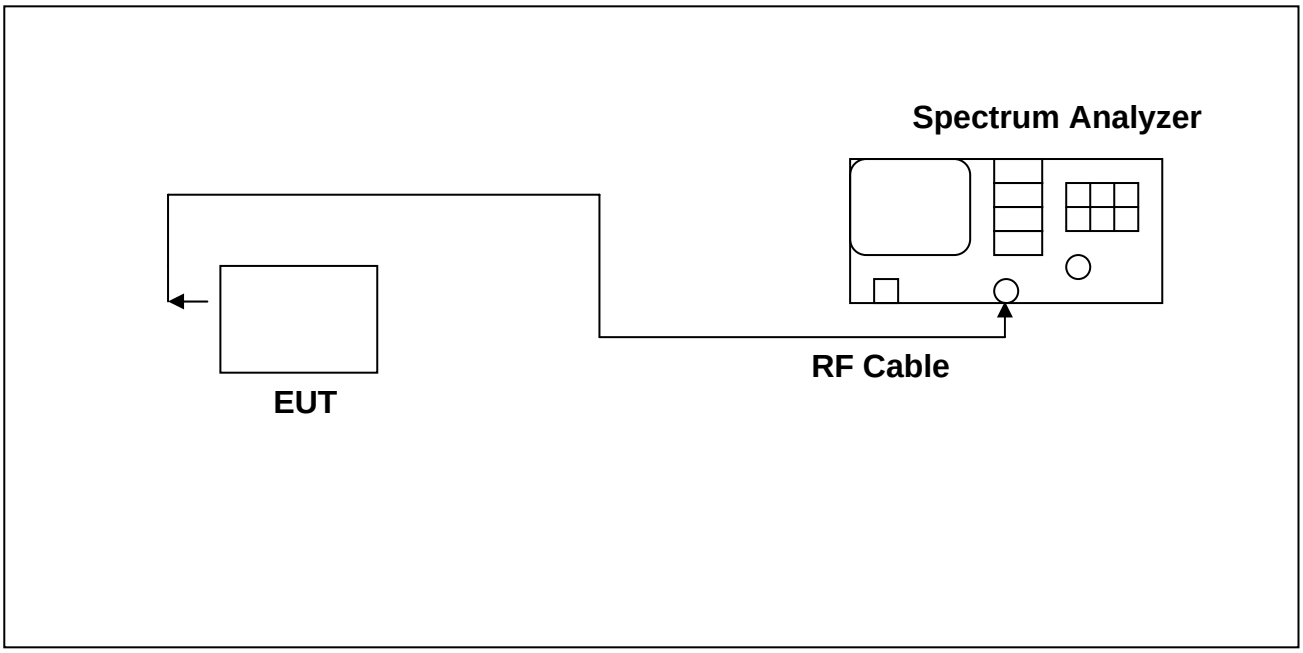
7. Out of Band Conducted Spurious Emissions Requirements

7.1 Test Condition & Setup :

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels.

7.2 Test Instruments Configuration:



7.3 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	R&S	Spectrum Analyzer	100116	FSP40	10/18/2010	10/18/2011

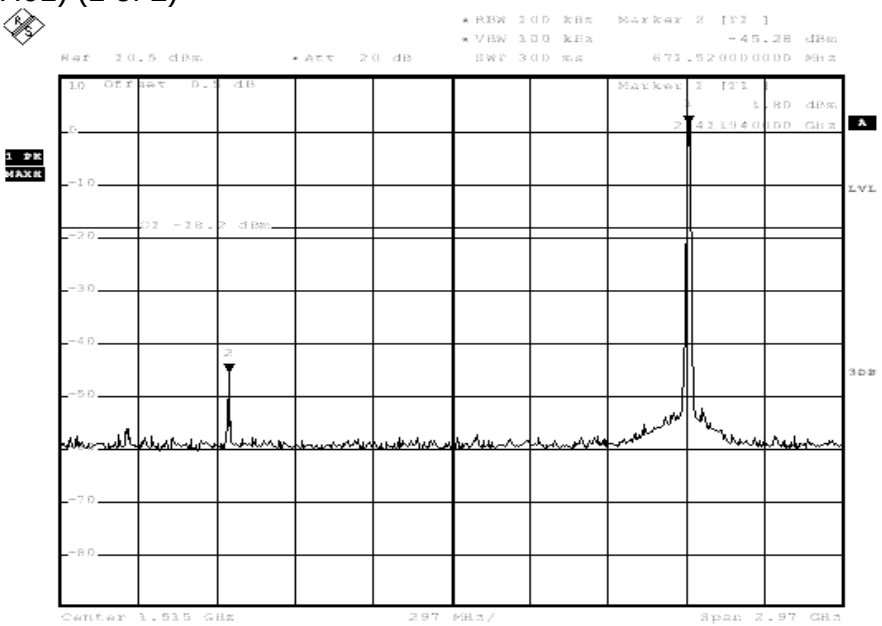
7.4 Test Result:

Refer to attached data sheets. Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules.

For the MIMO result, if the spurious emission of two antennas have the same frequency, we choice the worst one and add 3dB to be the final result, otherwise, use the graph to represent it.

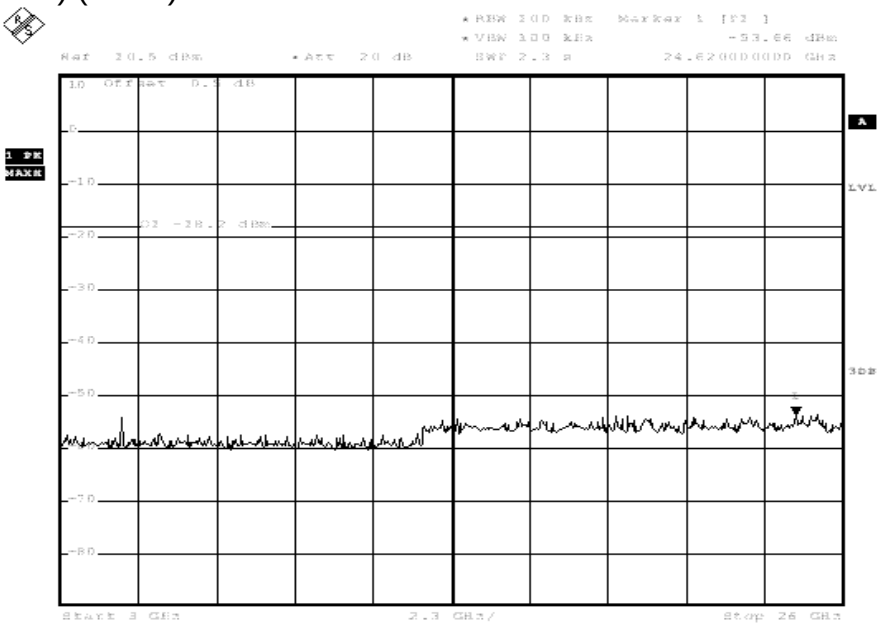
Note : Test Graphs See next page.

802.11b (CH01) (1 of 2)



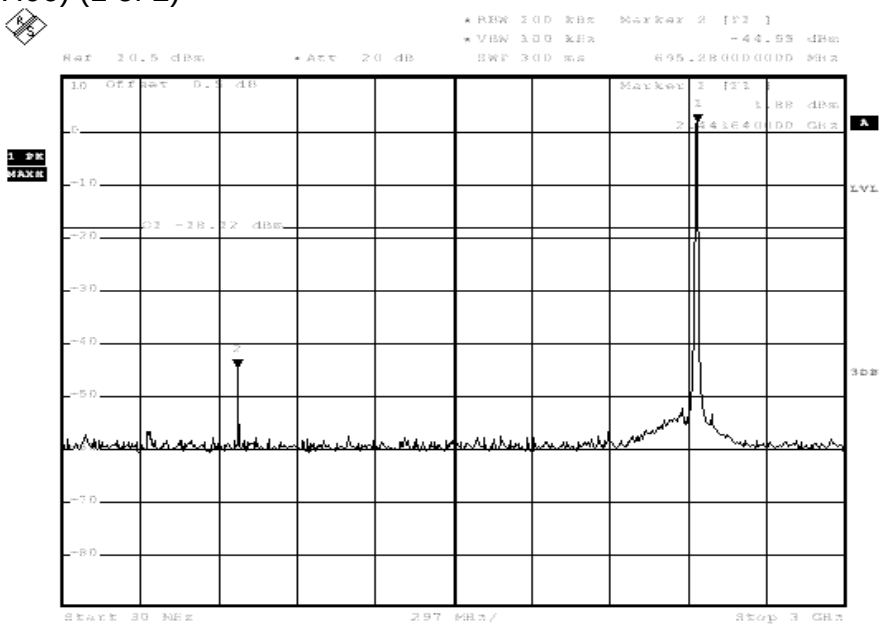
Date: 14.SEP.2011 13:43:29

802.11b (CH01) (2 of 2)



Date: 14.SEP.2011 13:44:14

802.11b (CH06) (1 of 2)



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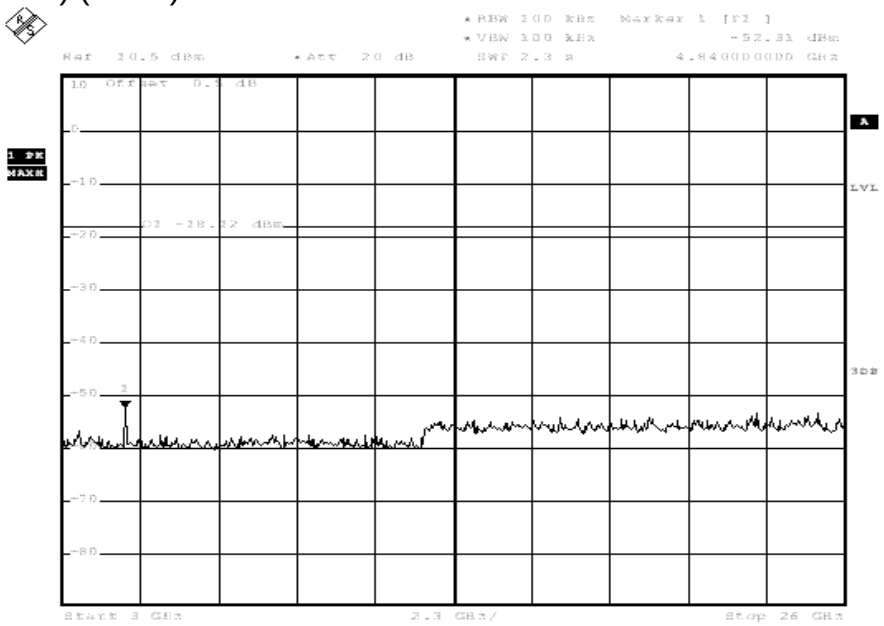
802.11b (CH06) (2 of 2)



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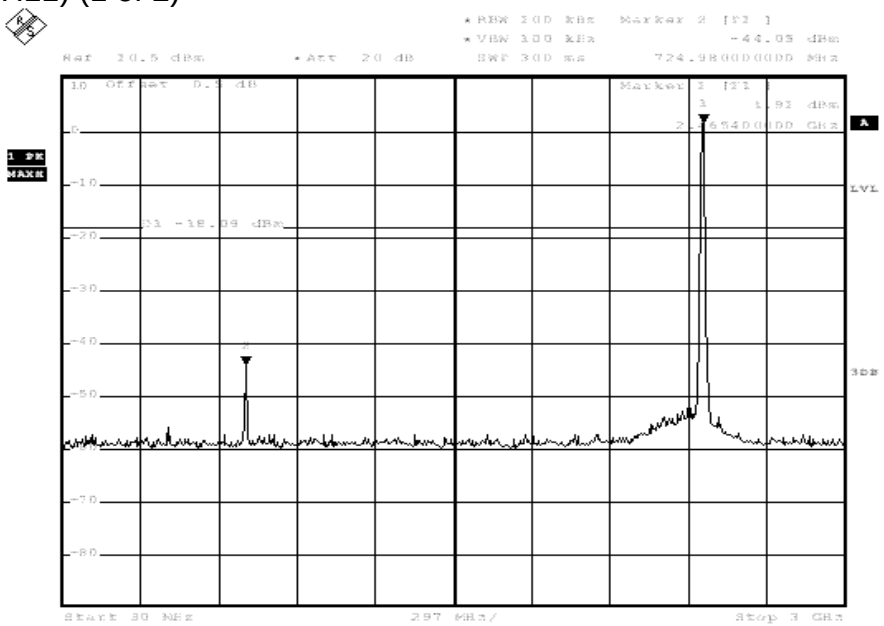
802.11b (CH11) (1 of 2)



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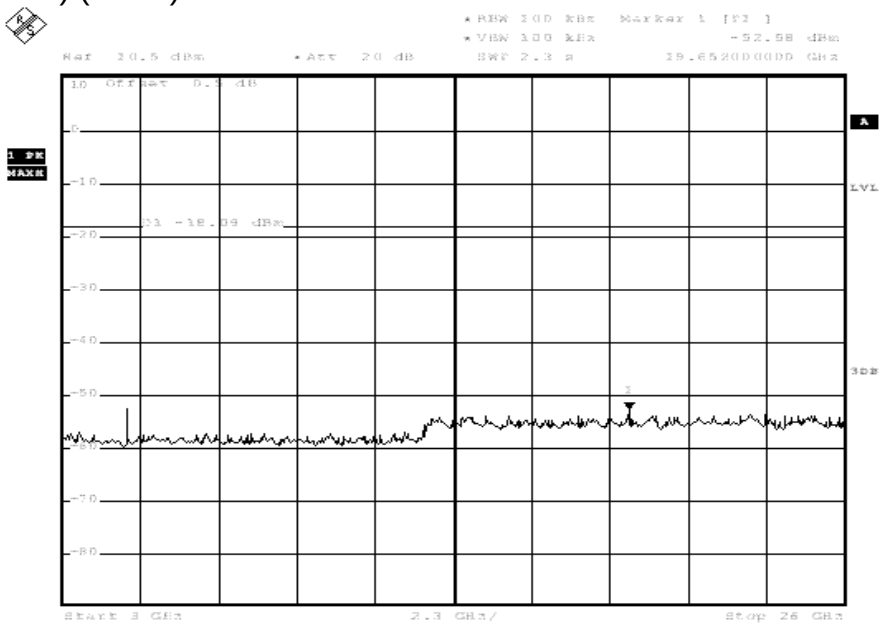
802.11b (CH11) (2 of 2)



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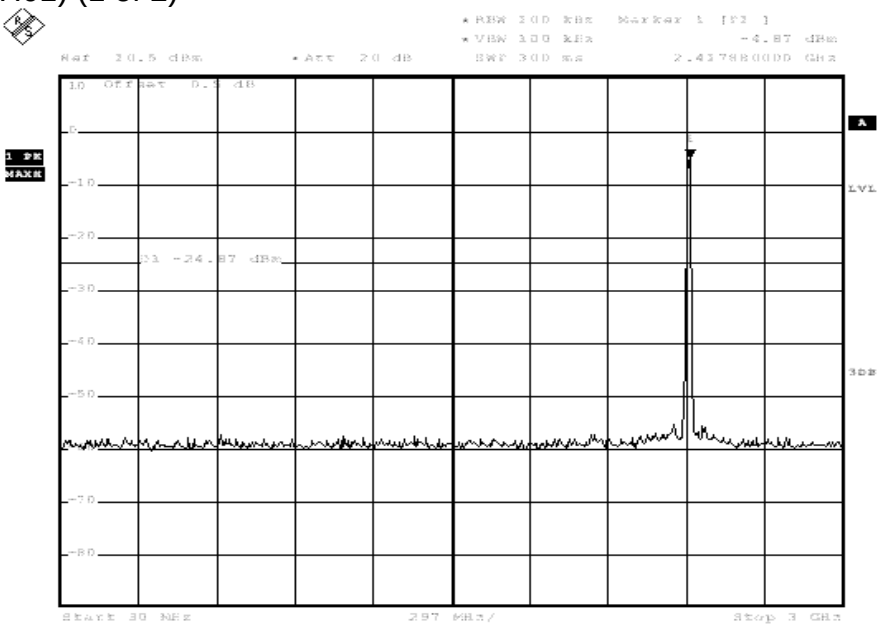
802.11g (CH01) (1 of 2)



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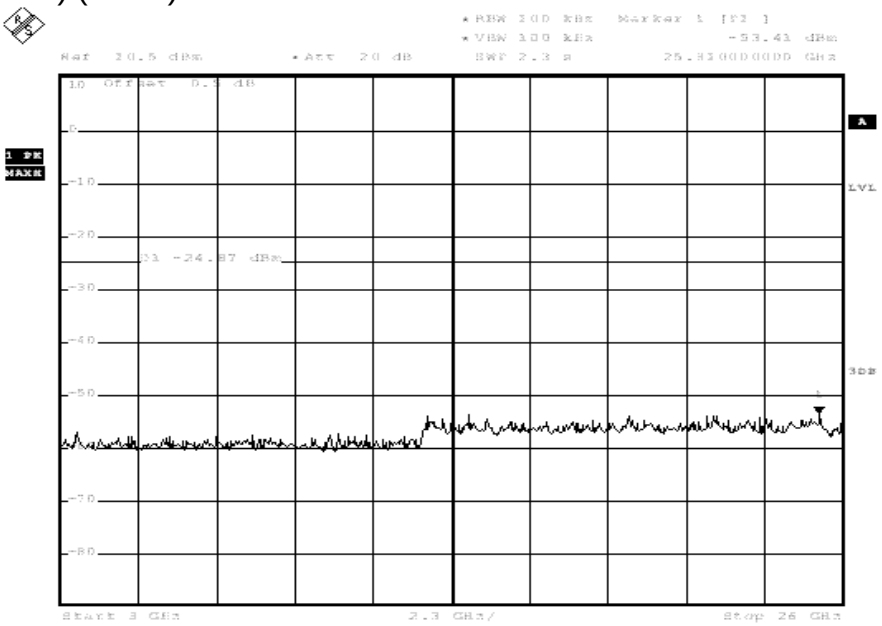
802.11g (CH01) (2 of 2)



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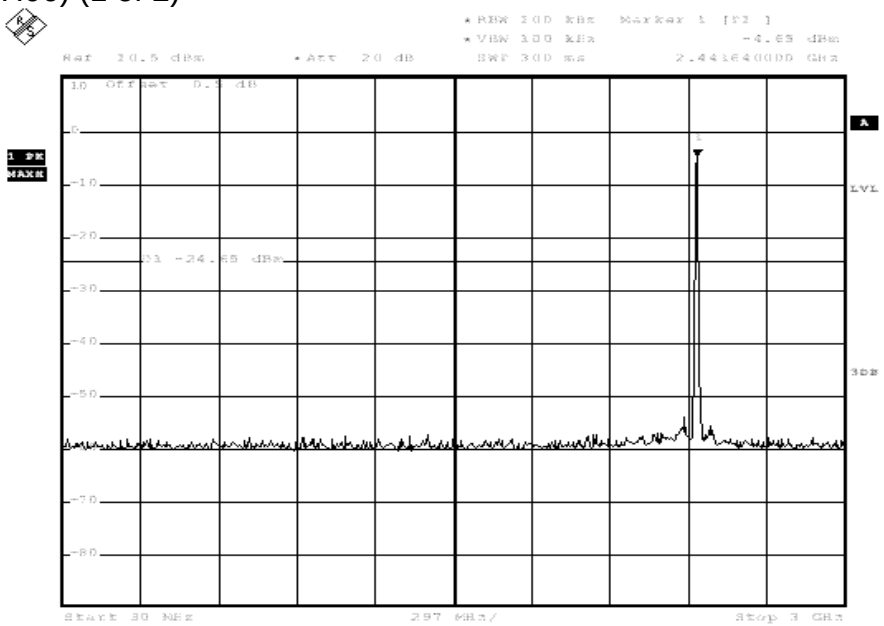
802.11g (CH06) (1 of 2)



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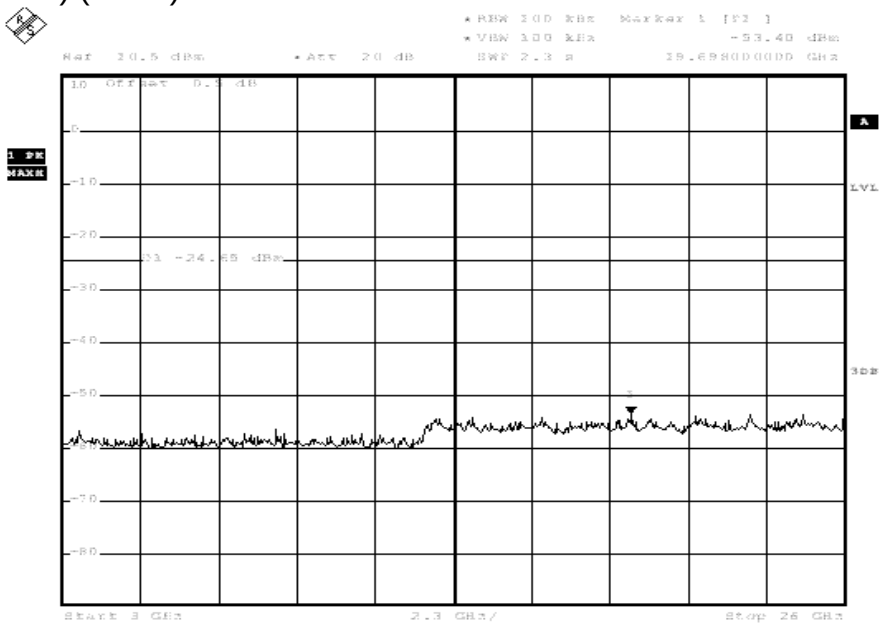
802.11g (CH06) (2 of 2)



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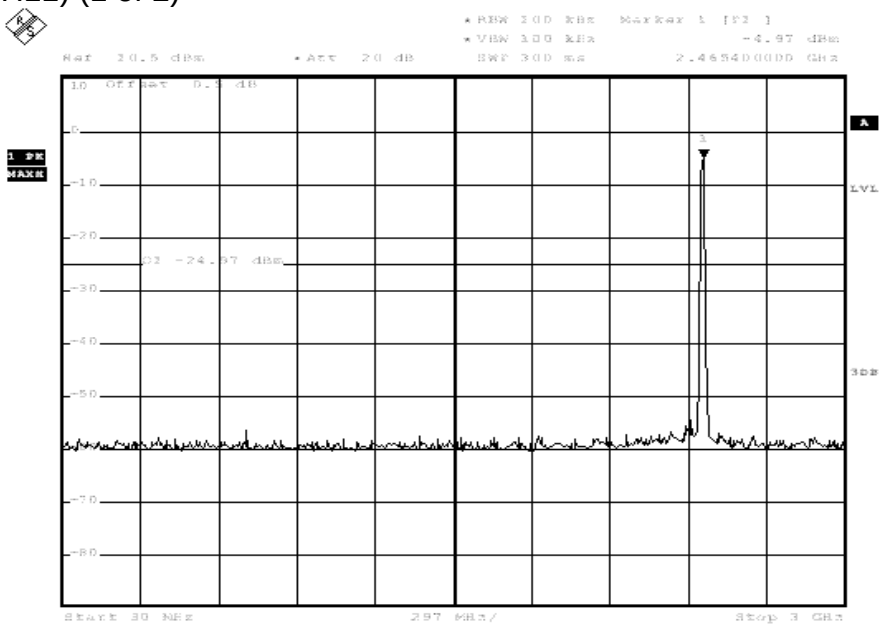
802.11g (CH11) (1 of 2)



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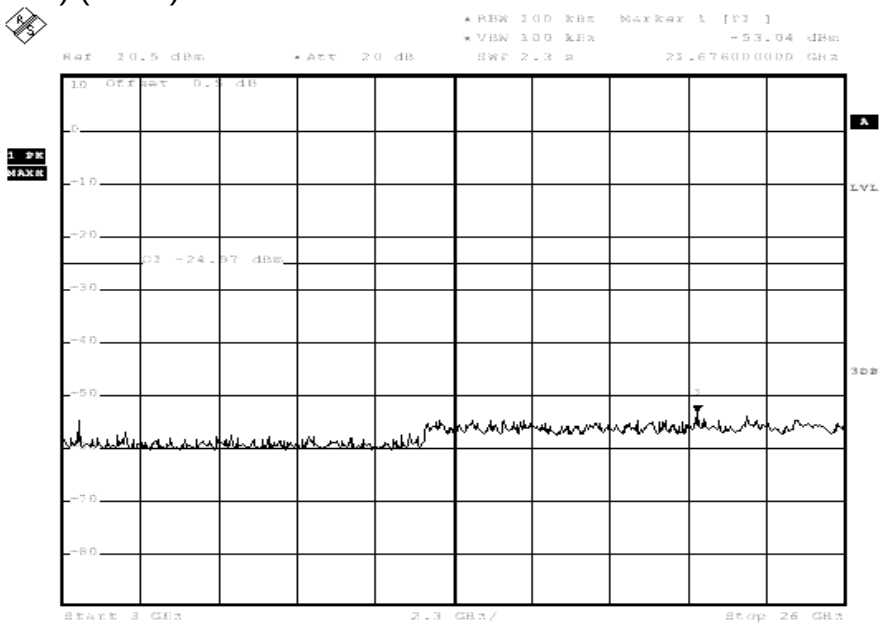
802.11g (CH11) (2 of 2)



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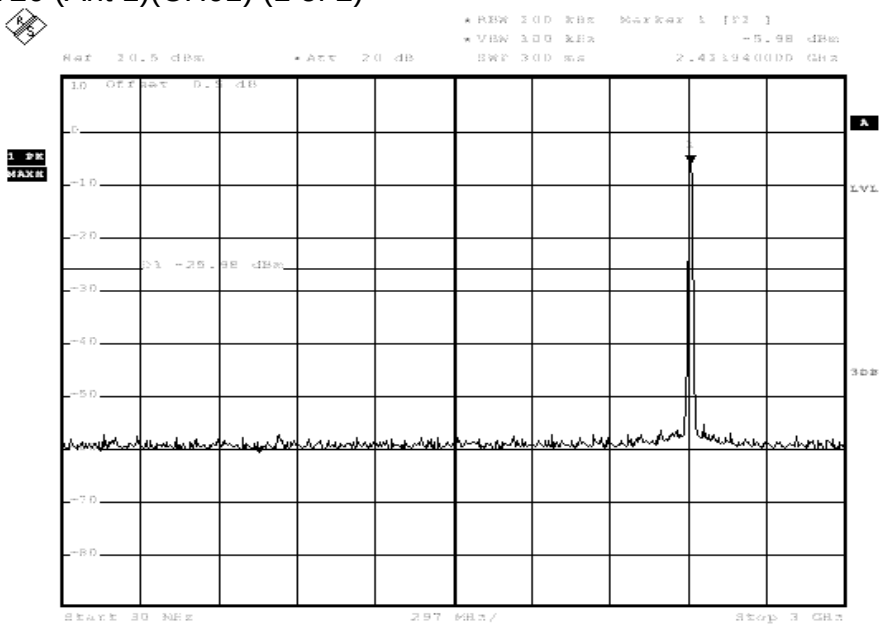
802.11n HT20 (Ant 1)(CH01) (1 of 2)



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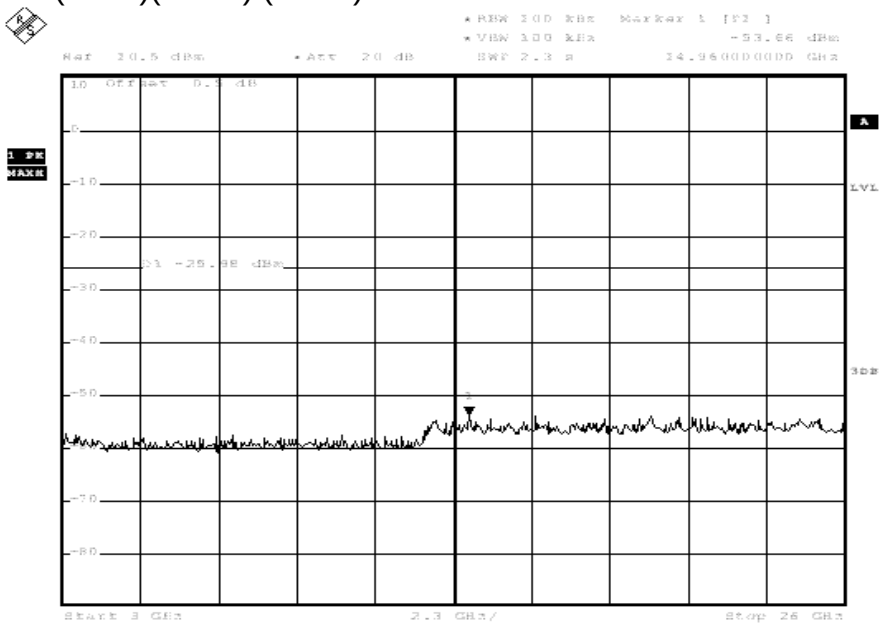
802.11n HT20 (Ant 1)(CH01) (2 of 2)



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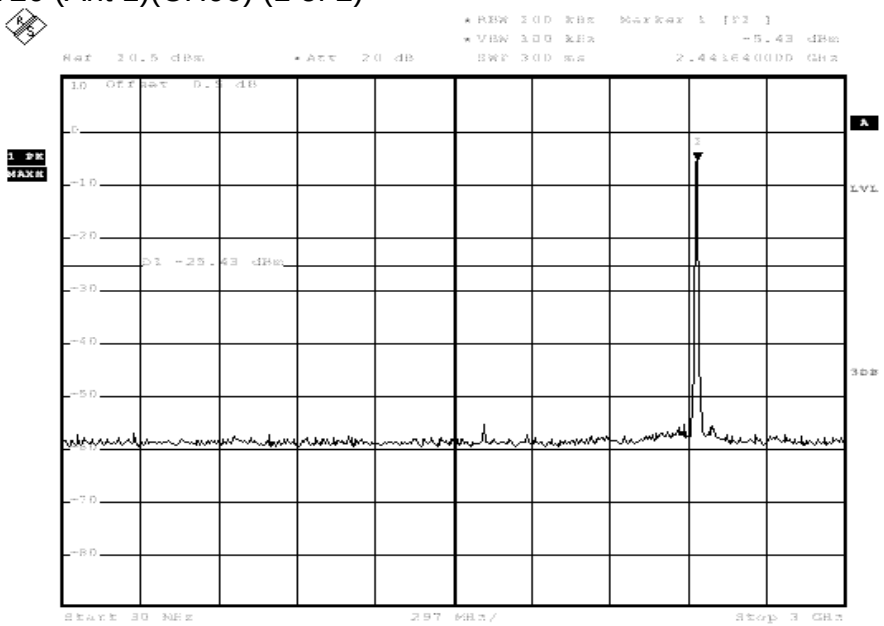
802.11n HT20 (Ant 1)(CH06) (1 of 2)



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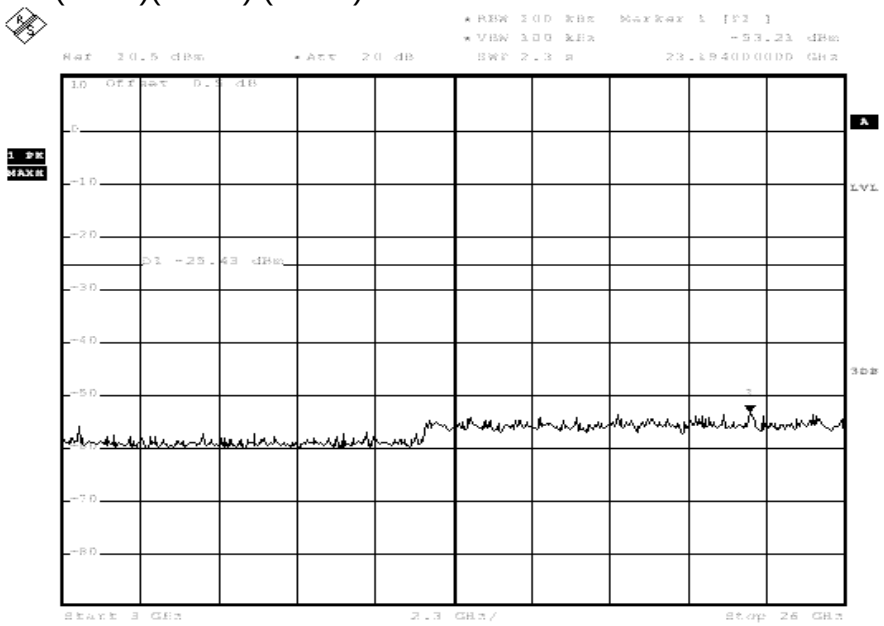
802.11n HT20 (Ant 1)(CH06) (2 of 2)



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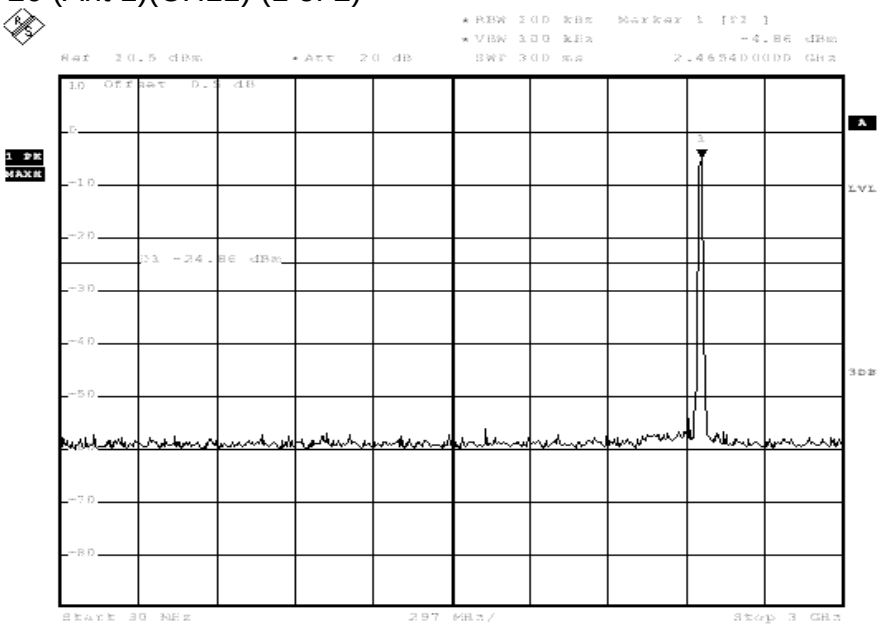
802.11n HT20 (Ant 1)(CH11) (1 of 2)



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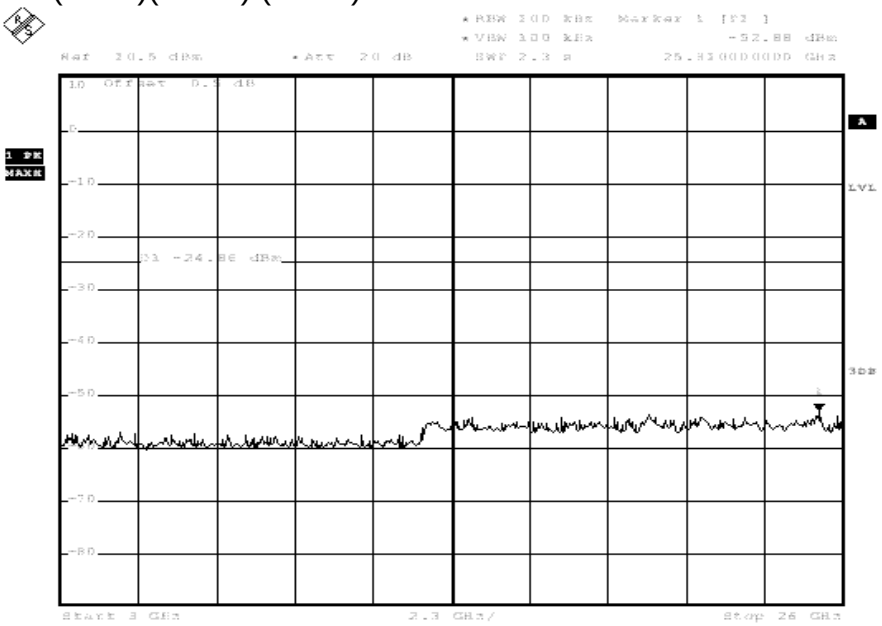
802.11n HT20 (Ant 1)(CH11) (2 of 2)



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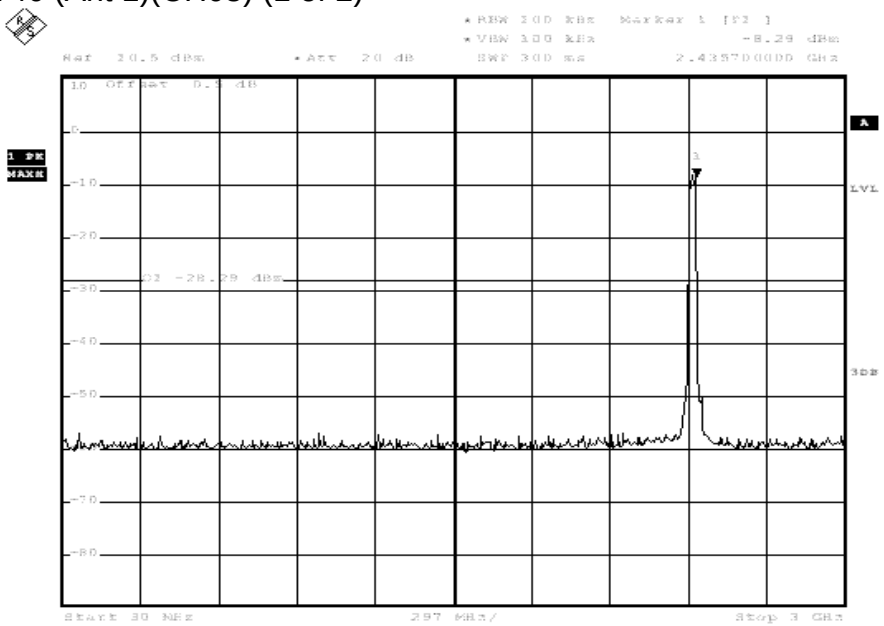
802.11n HT40 (Ant 1)(CH03) (1 of 2)



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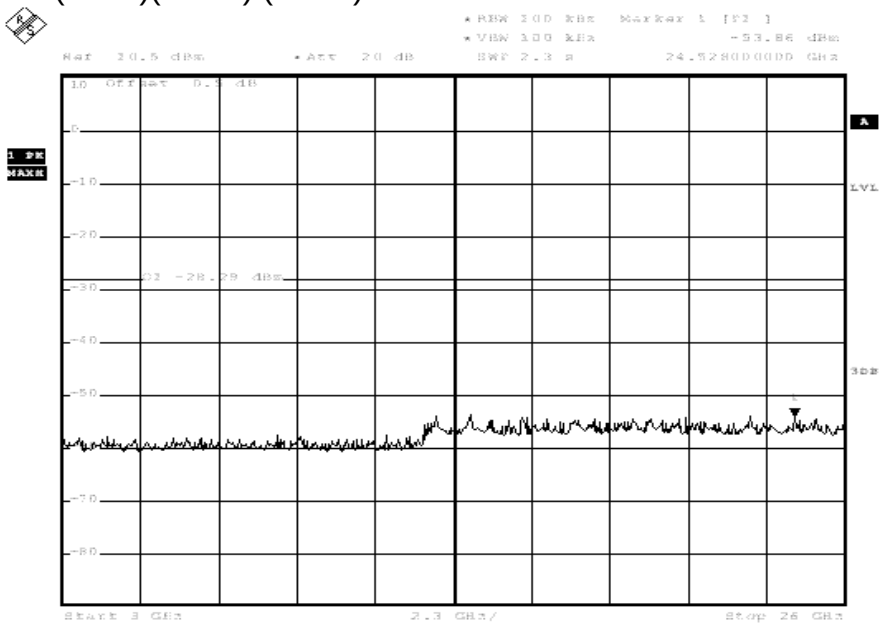
802.11n HT40 (Ant 1)(CH03) (2 of 2)



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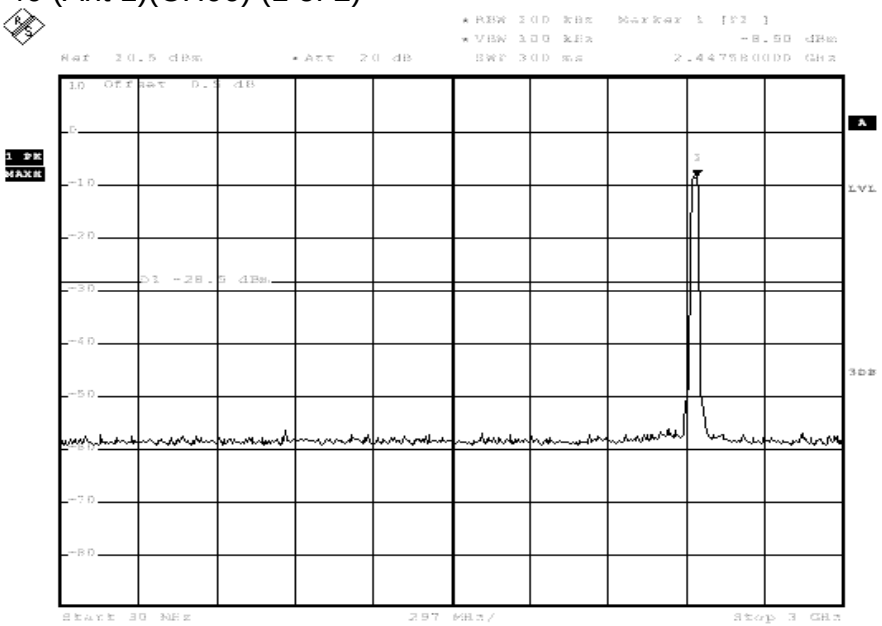
802.11n HT40 (Ant 1)(CH06) (1 of 2)



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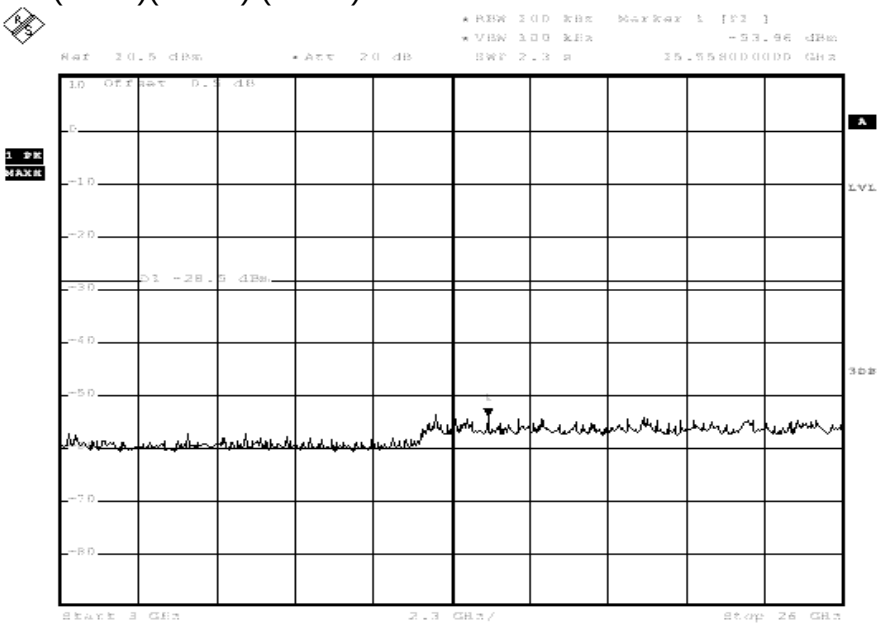
802.11n HT40 (Ant 1)(CH06) (2 of 2)



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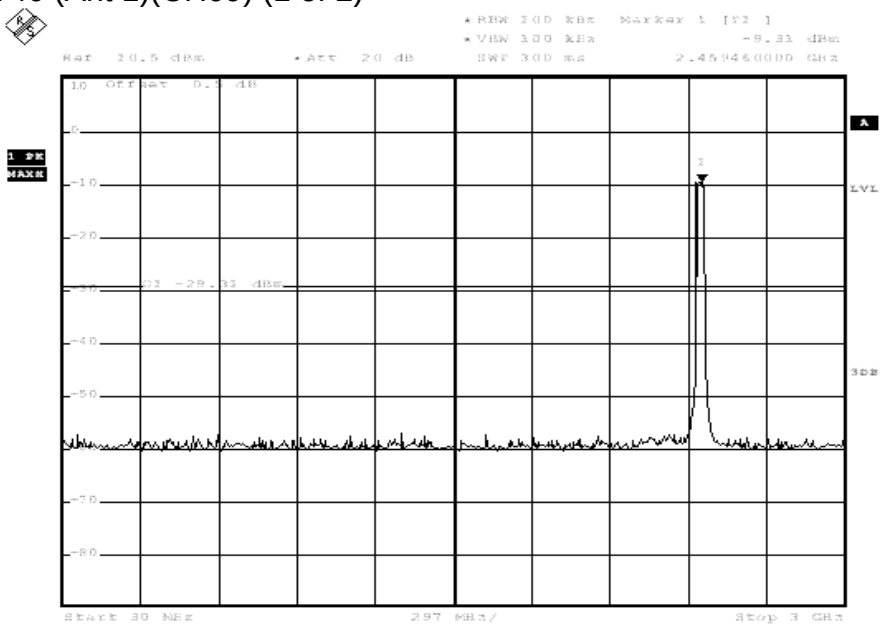
802.11n HT40 (Ant 1)(CH09) (1 of 2)



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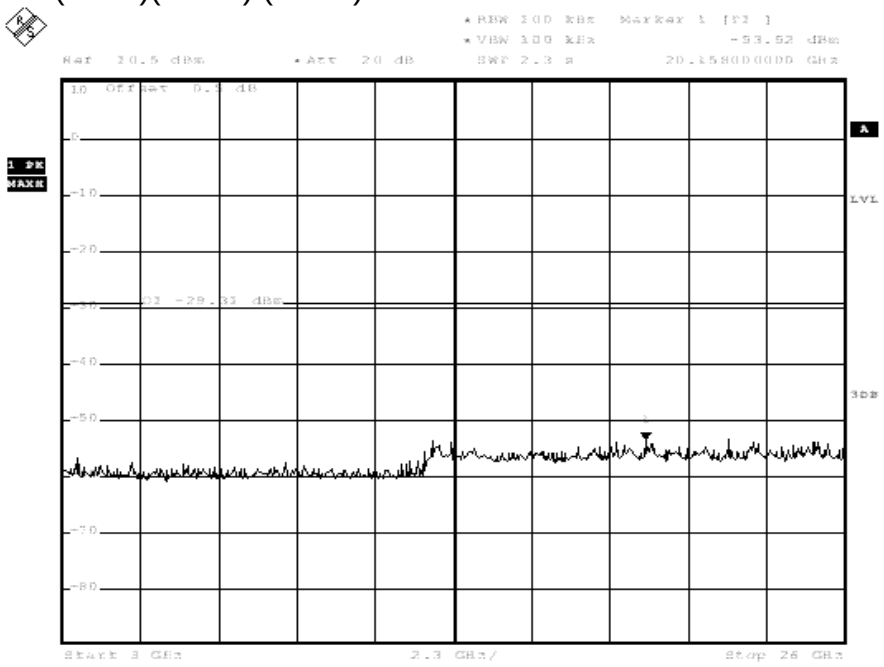
802.11n HT40 (Ant 1)(CH09) (2 of 2)



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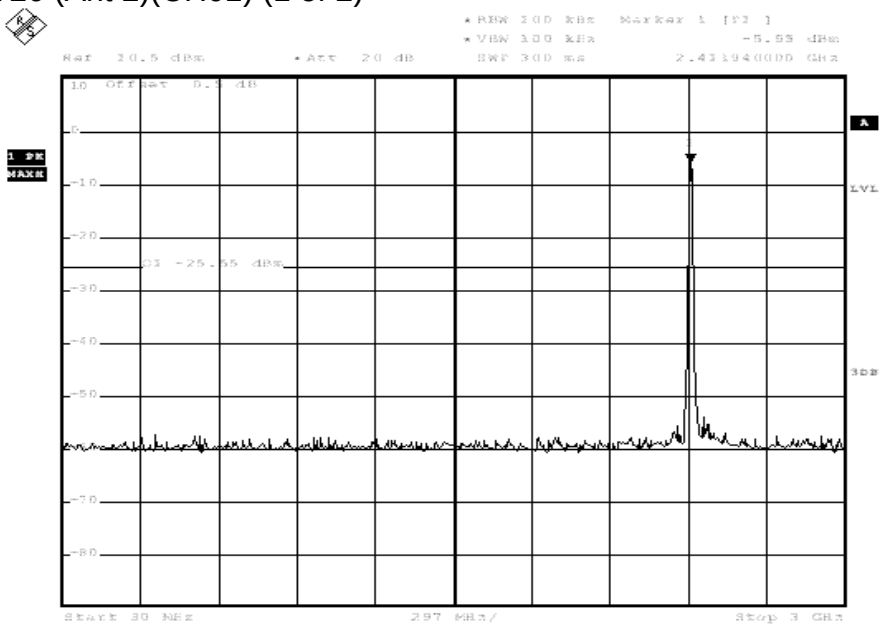
802.11n HT20 (Ant 2)(CH01) (1 of 2)



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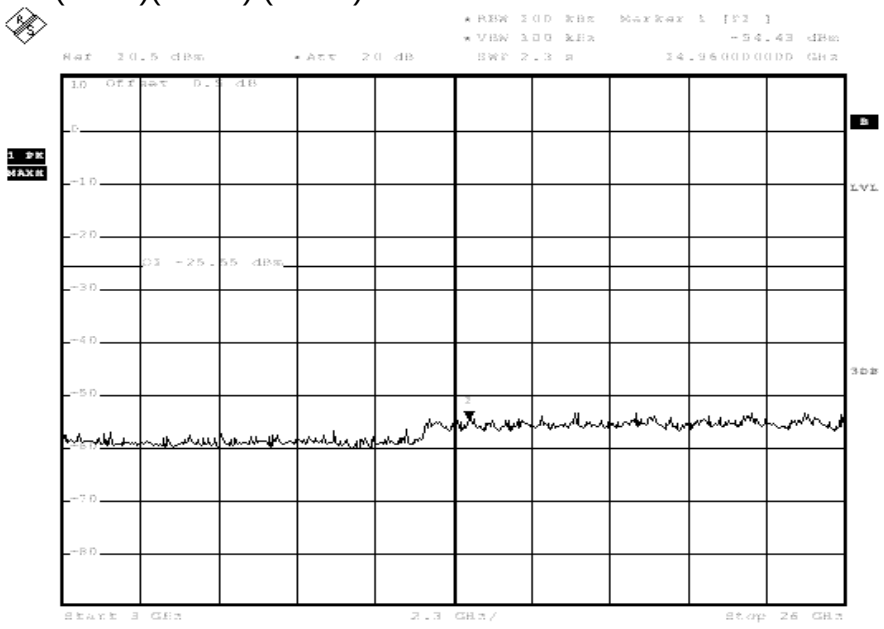
802.11n HT20 (Ant 2)(CH01) (2 of 2)



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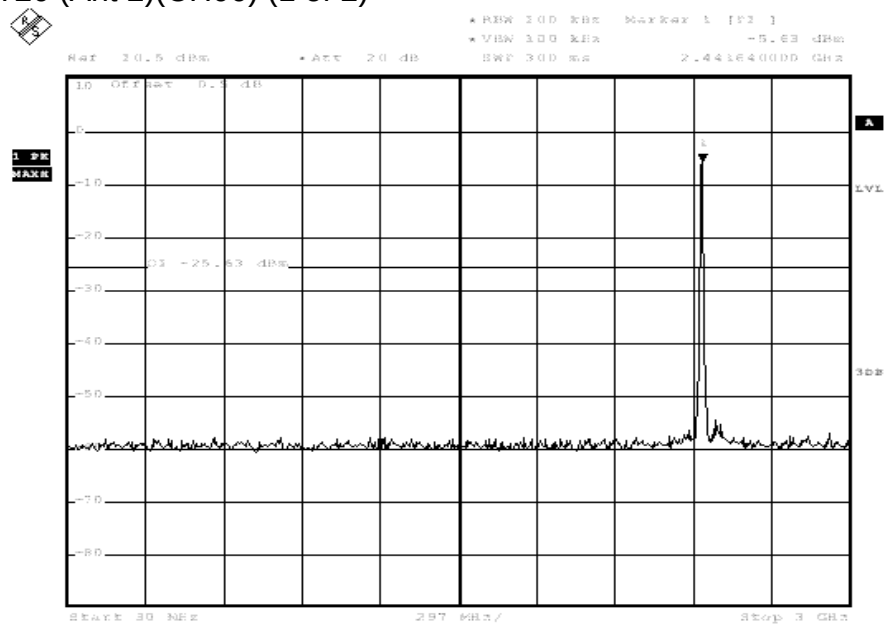
802.11n HT20 (Ant 2)(CH06) (1 of 2)



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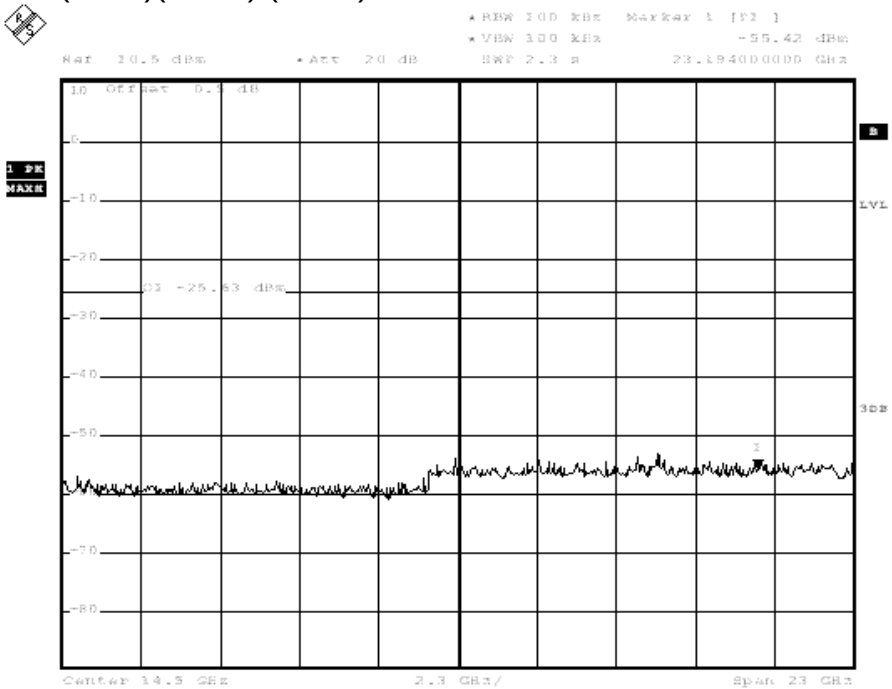
802.11n HT20 (Ant 2)(CH06) (2 of 2)



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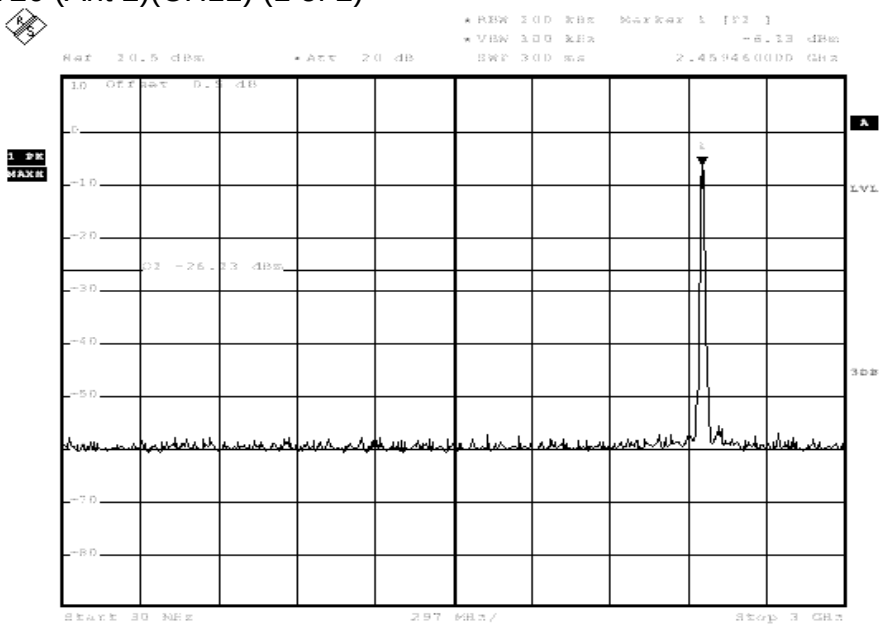
802.11n HT20 (Ant 2)(CH11) (1 of 2)



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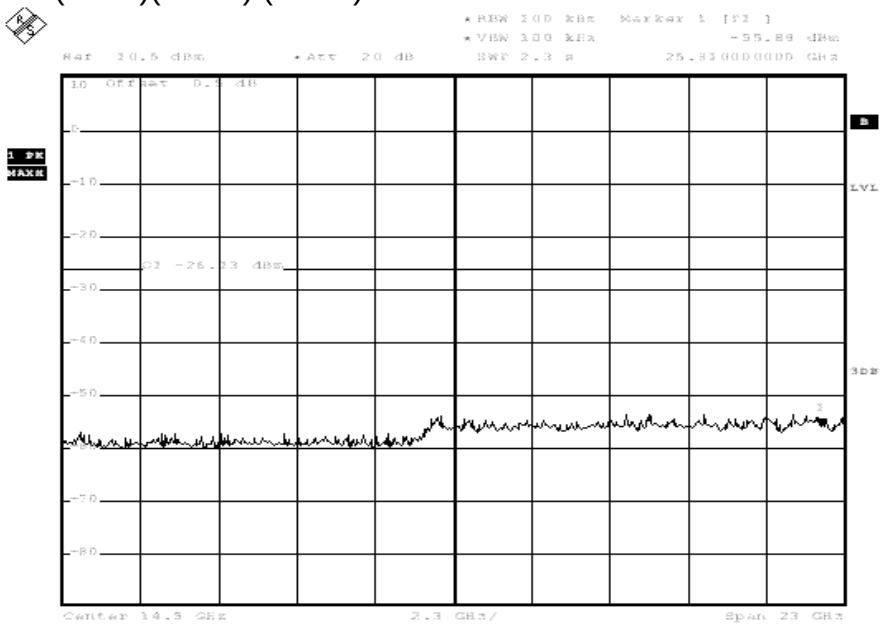
802.11n HT20 (Ant 2)(CH11) (2 of 2)



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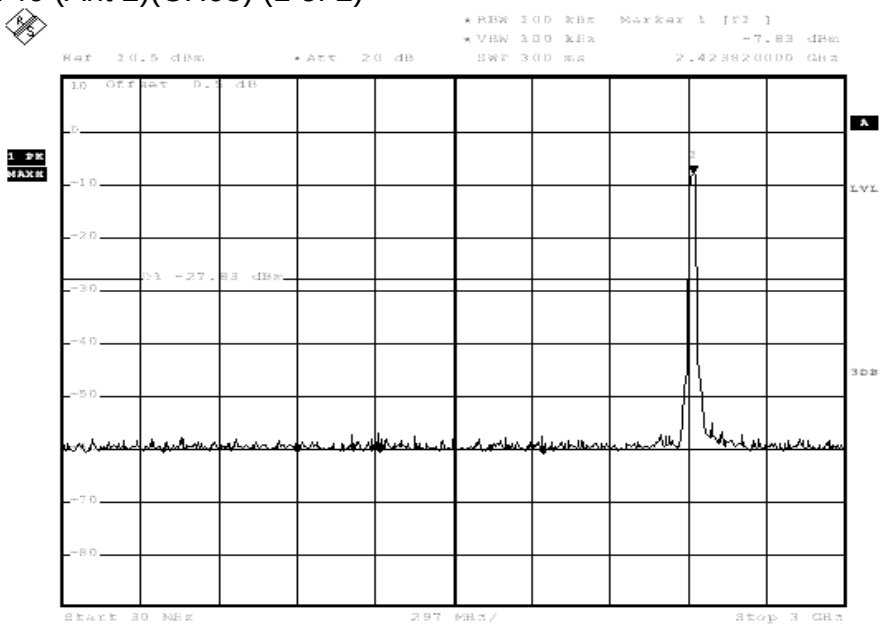
802.11n HT40 (Ant 2)(CH03) (1 of 2)



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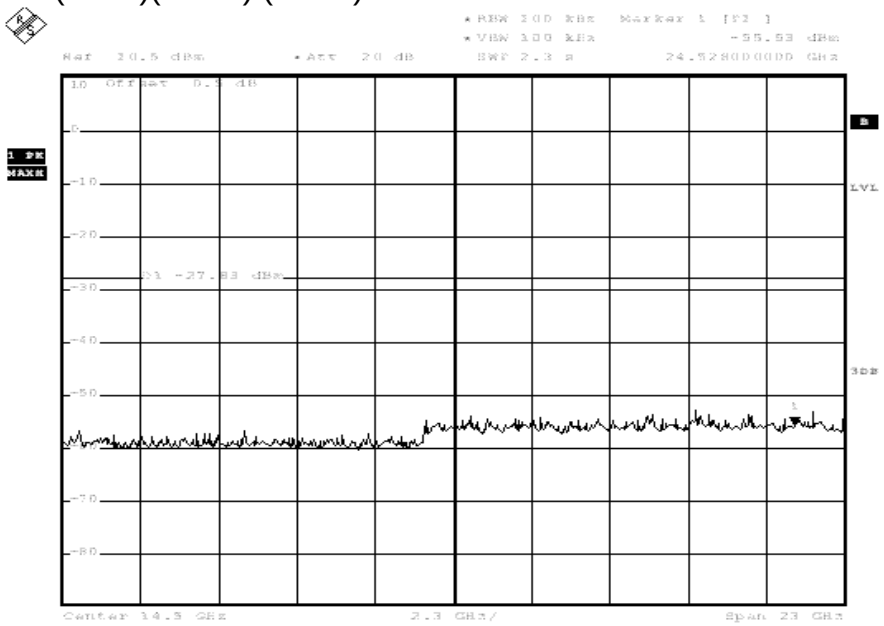
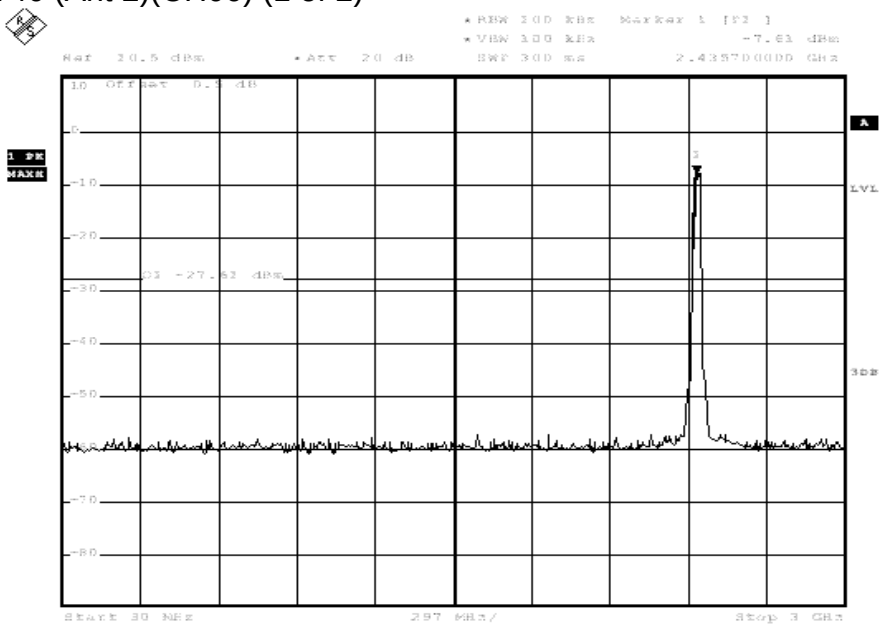
802.11n HT40 (Ant 2)(CH03) (2 of 2)



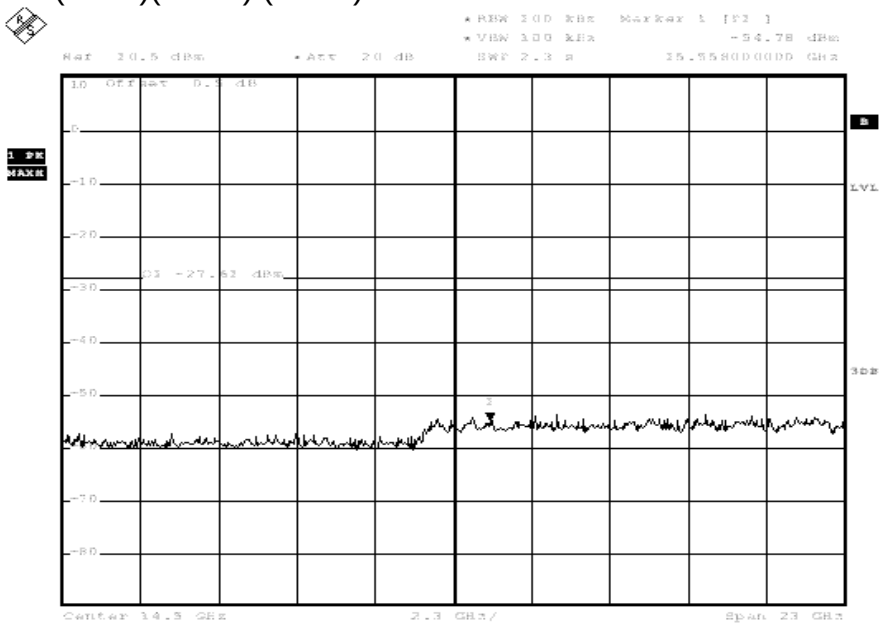
Date: 15.SEP.2011 21:41:03

802.11n HT40 (Ant 2)(CH06) (1 of 2)



Date: 14.SEP.2011 14:24:00

802.11n HT40 (Ant 2)(CH06) (2 of 2)

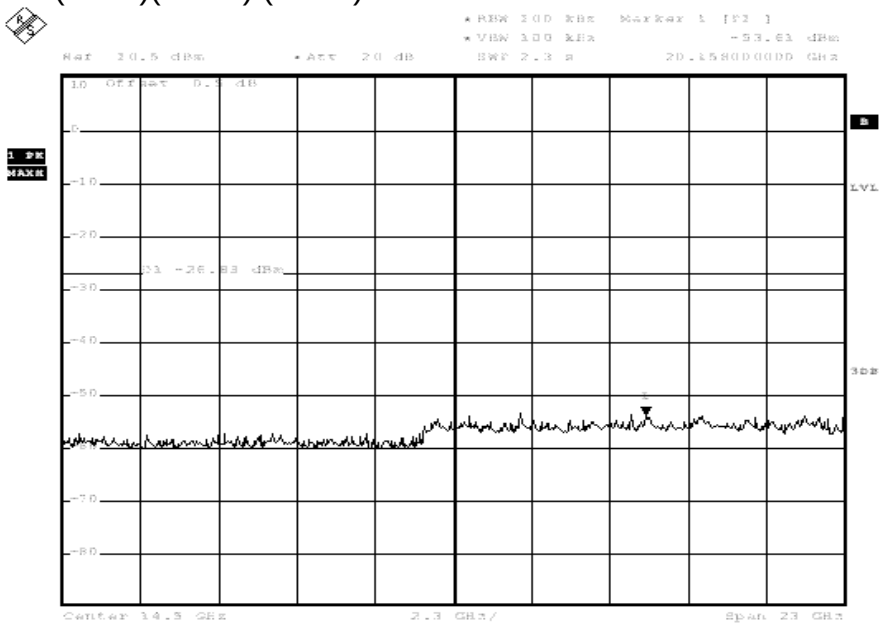


Date: 15.SEP.2011 21:44:20

802.11n HT40 (Ant 2)(CH09) (1 of 2)

Date: 14.SEP.2011 14:52:15

802.11n HT40 (Ant 2)(CH09) (2 of 2)



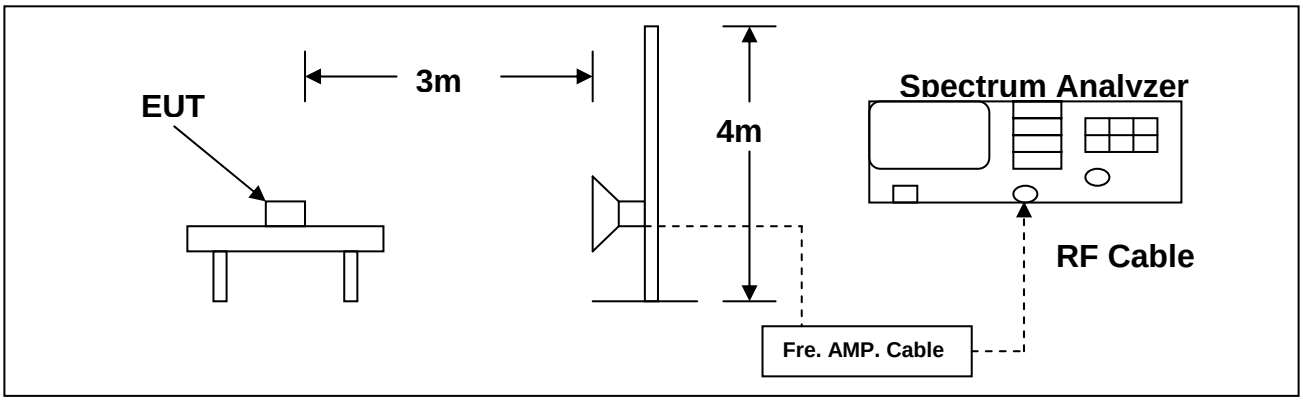
Date: 15.SEP.2011 21:45:13

8. Band Edges Requirement

8.1 Test Condition & Setup :

According to 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF con-ducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

8.2 Test Instruments Configuration:



8.3 Test Equipment List:

Item	Mfr/Brand	Instruments	Serial No.	Model/Type No.	Calibrated Date	Next Cal. Date
1.	R&S	Spectrum Analyzer	100116	FSP40	10/18/2010	10/18/2011
2.	Agilent	Pre Amplifier	3008A2471	8449B	02/16/2011	02/15/2012
3.	EMCO	Horn Antenna	0006665	AH118	02/15/2011	02/14/2012
4.	Com-power	Horn Antenna	100A	AH-640	01/11/2011	01/10/2013
5.	Com-power	Horn Antenna	081001	AH-826	05/04/2011	05/03/2013

8.4 Test Result :

(802.11b)

Radiated Emissions (HORIZONTAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2390.0	46.7 (PK)	1	220	0	74.0(PK)	-27.3
2390.0	37.3 (AV)	1	220	0	54.0(AV)	-16.7

Radiated Emissions (VERTICAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2390.0	56.3 (PK)	1	270	0	74.0(PK)	-17.7
2390.0	44.4 (AV)	1	270	0	54.0(AV)	-9.6

Radiated Emissions (HORIZONTAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2483.5	45.9 (PK)	1	300	0	74.0(PK)	-28.1
2483.5	31.0 (AV)	1	300	0	54.0(AV)	-23.0

Radiated Emissions (VERTICAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2484.2	55.1 (PK)	1	70	0	74.0(PK)	-18.9
2484.2	43.9 (AV)	1	70	0	54.0(AV)	-10.1

Notes : 1. Margin= Amplitude - Limits

2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Amplitude= Reading Amplitude – Amplifier gain+ Cable loss+ Antenna factor (Auto calculate in spectrum analyzer)

(802.11g)

Radiated Emissions (HORIZONTAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2359.7	46.9 (PK)	1	200	0	74.0(PK)	-27.1
2359.7	34.3 (AV)	1	200	0	54.0(AV)	-19.7

Radiated Emissions (VERTICAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2359.6	52.7 (PK)	1	110	0	74.0(PK)	-21.3
2359.6	41.7 (AV)	1	110	0	54.0(AV)	-12.3

Radiated Emissions (HORIZONTAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2515.1	46.1 (PK)	1	200	0	74.0(PK)	-27.9
2515.1	33.5 (AV)	1	200	0	54.0(AV)	-20.5

Radiated Emissions (VERTICAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2514.7	51.5 (PK)	1	150	0	74.0(PK)	-22.5
2514.7	41.9 (AV)	1	150	0	54.0(AV)	-12.1

Notes : 1. Margin= Amplitude - Limits

2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Amplitude= Reading Amplitude – Amplifier gain+ Cable loss+ Antenna factor (Auto calculate in spectrum analyzer)

(802.11n HT20)

Radiated Emissions (HORIZONTAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2389.2	54.1 (PK)	1	230	0	74.0(PK)	-19.9
2389.2	43.63 (AV)	1	230	0	54.0(AV)	-10.4

Radiated Emissions (VERTICAL) CH01						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2389.2	61.9 (PK)	1	250	0	74.0(PK)	-12.1
2389.2	50.3 (AV)	1	250	0	54.0(AV)	-3.7

Radiated Emissions (HORIZONTAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2483.5	51.3 (PK)	1	170	0	74.0(PK)	-22.7
2483.5	39.8 (AV)	1	170	0	54.0(AV)	-14.2

Radiated Emissions (VERTICAL) CH11						
Frequency (MHz)	Amplitude (dBuV/m)	Ant. (m)	Table (Degree)	Duty (dB)	Limit (dBuV/m)	Margin (dB)
2483.5	60.0 (PK)	1	320	0	74.0(PK)	-14.0
2483.5	50.2 (AV)	1	320	0	54.0(AV)	-3.8

Notes : 1. Margin= Amplitude - Limits

2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Amplitude= Reading Amplitude – Amplifier gain+ Cable loss+ Antenna factor (Auto calculate in spectrum analyzer)

(802.11n HT40)

Radiated Emissions (HORIZONTAL) CH01						
Frequency (MHz)	**Amplitude (dBuV/m)**	**Ant. (m)**	**Table (Degree)**	**Duty (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
2388.2	54.4 (PK)	1	110	0	74.0(PK)	-19.6
2388.2	43.2 (AV)	1	110	0	54.0(AV)	-10.8

Radiated Emissions (VERTICAL) CH01						
Frequency (MHz)	**Amplitude (dBuV/m)**	**Ant. (m)**	**Table (Degree)**	**Duty (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
2385.9	63.2 (PK)	1	270	0	74.0(PK)	-10.8
2385.9	51.8 (AV)	1	270	0	54.0(AV)	-2.2

Radiated Emissions (HORIZONTAL) CH11						
Frequency (MHz)	**Amplitude (dBuV/m)**	**Ant. (m)**	**Table (Degree)**	**Duty (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
2485.3	53.3 (PK)	1	200	0	74.0(PK)	-20.7
2485.3	41.6 (AV)	1	200	0	54.0(AV)	-12.4

Radiated Emissions (VERTICAL) CH11						
Frequency (MHz)	**Amplitude (dBuV/m)**	**Ant. (m)**	**Table (Degree)**	**Duty (dB)**	**Limit (dBuV/m)**	**Margin (dB)**
2485.3	61.1 (PK)	1	120	0	74.0(PK)	-12.9
2485.3	50.8 (AV)	1	120	0	54.0(AV)	-3.2

Notes : 1. Margin= Amplitude - Limits

2. Height of table for EUT placed: 0.8 Meter.
3. ANT= Antenna height.
4. Duty= Duty cycle correction factor.
5. Amplitude= Reading Amplitude – Amplifier gain+ Cable loss+ Antenna factor (Auto calculate in spectrum analyzer)

9. Antenna Requirements

9.1 Standard Applicable :

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

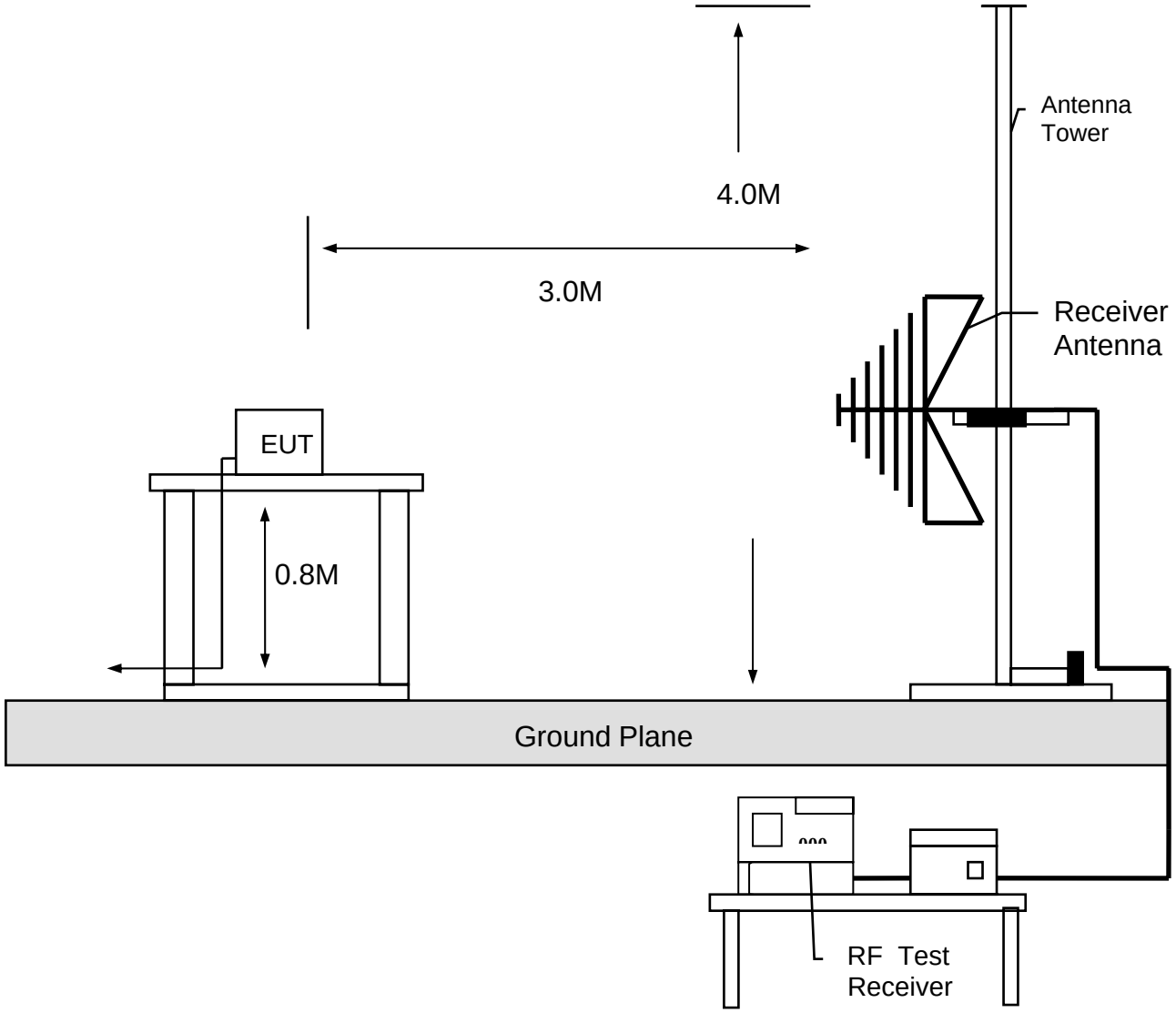
According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.2 Antenna Construction

	Model No	ANT TYPE	GAIN	type of connector
1	98152MRSX003	Dipole Antenna	4.1 dBi	Reverse SMA

Appendix I (EUT Test Setup)

MEASUREMENT OF RADIATED EMISSION



Appendix II (Brand / Trade Name & Model No. Multiple Listee)

Model No.	Trade Name
N/A	N/A