

FCC PART 15 SUBPART C MEASUREMENT AND TEST REPORT

For

Measy Electronics Co., Ltd.

**Rm1506, Block B, Hai Song Building, Tai Ran 9th Road, Che Gong Miao,
Shen Zhen, China**

E.U.T.: Android Mini PC

Model Name: U4A, U4B, U4C

Brand Name: Measy

FCC ID: RB8U4AU4BU4C

Report Number: NTC1309170F

Test Date(s): August 04, 2013 to October 14, 2013

Report Date(s): October 14, 2013

Prepared by

Dongguan Nore Testing Center Co., Ltd.

**Building D, Gaosheng Science & Technology Park, Zhouxi Longxi Road,
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Prepared By

Approved & Authorized Signer



Rose Hu / Engineer



Sunm Lv / Q.A. Director

Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Dongguan Nore Testing Center Co., Ltd. The test results referenced from this report are relevant only to the sample tested.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

This device is a Android Mini PC with Media Playing, BT and WIFI functions which is powered by DC 5V come from mini USB port. For more details features, please refer to User's Manual.

Manufacturer	: Measy Electronics Co., Ltd.
Address	: Rm1506, Block B, Hai Song Building, Tai Ran 9th Road, Che Gong Miao, Shen Zhen, China
Factory	: Measy Electronics Co., Ltd.
Address	: Block A, Wan Li Industry Park, Bao An District, Shenzhen, China
Power Supply	: DC 5V(TV Input: AC 120V 60Hz)
Model name	: U4A, U4B, U4C
Model difference	: These models have the same circuit schematic, construction and critical components. Different models just stand for different model number and appearance color.
Note	: None

Technical Specification

For BT function

Bluetooth Version	: 4.0
RF Operation Frequency:	: 2402-2480MHz
Modulation	: GFSK
Number of Channel	: 40
Channel space	: 2MHz
Antenna Type	: Integral antenna
Antenna Gain	: 0.8 dBi(Declaration by applicant)

For WIFI function

RF Operation Frequency:	: 2412-2462MHz for 802.11b/g/n(HT20)
Modulation	: CCK, DQPSK, DBPSK for 802.11b OFDM for 802.11g/n
Number of Channel	: 11 for 802.11b/g/n(HT20)
Channel space	: 5MHz
Date Rate	: 802.11b:1~11Mbps, 802.11g:6~54Mbps 802.11n: 6.5~65Mbps
Antenna Type	: Integral antenna
Antenna Gain	: 0.8 dBi(Declaration by applicant)

Channel List

802.11 b/g/n(HT20)	
Channel	Frequency MHz
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

Note: According to section 15.31(m), regards to the operating frequency range over 10MHz, the Lowest, middle, and the Highest frequency of channel were selected to perform the test. The selected frequency see below:

802.11b/g/n(HT20)	
Channel	Frequency MHz
1	2412
6	2437
11	2462

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: RB8U4AU4BU4C filing to comply with Section 15.247 of the FCC Part 15(2012), Subpart C Rule.

1.3 Test Methodology

AC mains line-conducted, antenna port conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003) and KDB558074(v03). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters. All other measurements were made in accordance with the procedures in 47 CFR part 2.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

LCD TV	: Manufacturer: Express Luck Industrial Ltd. M/N: LE-2210 CE
Adapter	Model: DC12030011A Input: AC 100-240V 50/60Hz 0.9A Output: DC 12V 3A
Mouse	: Manufacturer: HP M/N: MODGUO S/N: PSA1104008298 Data Cable: 1.5m Shielded CE, FCC: DOC

1.6 Test Facility and Location

Listed by FCC, August 02, 2011
The Certificate Registration Number is 665078.

Listed by Industry Canada, July 01, 2011
The Certificate Registration Number is 46405-9743.

Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Building D, Gaosheng Science and Technology Park,
Hongtu Road, Nancheng District, Dongguan City,
Guangdong Province, China

1.7 Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207 (a)	AC Power Conducted Emission	Compliance
§15.247(b)(3)	Max. Conducted Output Power	Compliance
§15.247(a)(2)	6dB Bandwidth	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247(d)	Band Edge and Conducted Spurious Emissions	Compliance
§15.247(d), §15.209, §15.205	Radiated Spurious Emissions and Restricted Bands	Compliance
§15.203	Antenna Requirement	Compliance

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

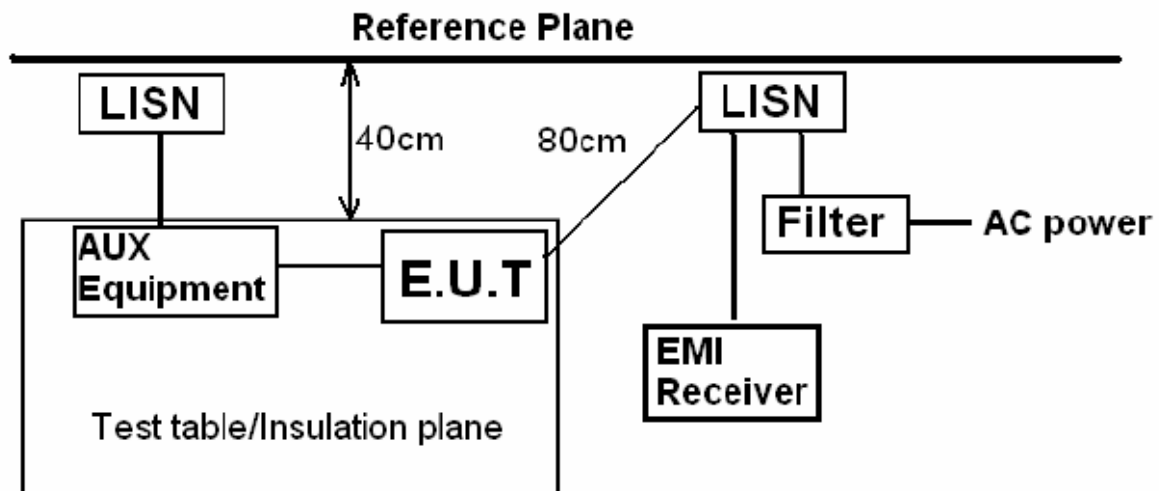
The EUT has been tested under continuous operating condition. Test program used to control the EUT staying in continuous transmitting mode. The Lowest, middle and highest channel were chosen for testing, and modulation type CCK, OFDM and GFSK were tested, but only the worst case data is shown in this report.

2.4 EUT Exercise

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

3. Conducted Emissions Test

3.1 Test SET-UP (Block Diagram of Configuration)



3.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150KHz ~ 30MHz

Detector: RBW 9KHz, VBW 30KHz

Operation Mode: BT Mode, WIFI Mode

3.3 Measurement Results

For BT Mode:
Please refer to following plots.

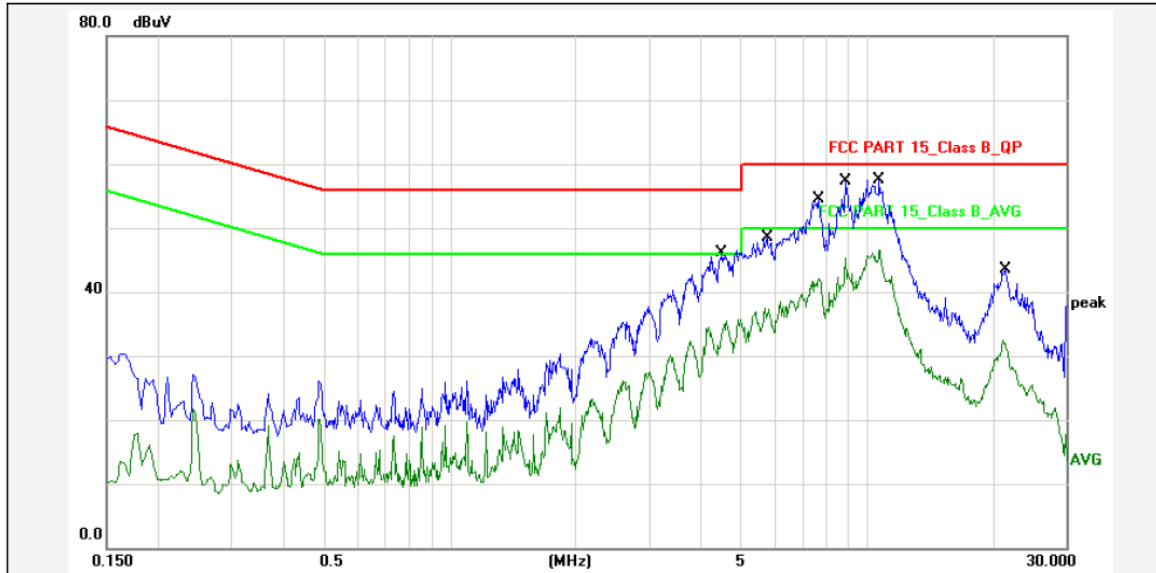
For WIFI Mode:
Please refer to following the worst case (802.11b) plots.



Dongguan NTC Co., Ltd.
Tel: +86-769-22022444 Fax: +86-769-22022799
Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Conduction

Test Time: 2013-9-9 18:09:13



Report No.: U4A

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: L1

Applicant: Measy

Temp.()/Hum.(%): 25(C) / 56 %

Product: Android Mini PC

Power Rating: AC 120V/60Hz

Model No.: U4A

Test Engineer: Sance

Test Mode: BT Mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	4.4899	10.80	32.40	43.20	56.00	-12.80	QP	P	
2	4.4899	10.80	22.80	33.60	46.00	-12.40	AVG	P	
3	5.7699	10.80	34.80	45.60	60.00	-14.40	QP	P	
4	5.7699	10.80	24.70	35.50	50.00	-14.50	AVG	P	
5	7.6539	10.80	40.60	51.40	60.00	-8.60	QP	P	
6	7.6539	10.80	29.50	40.30	50.00	-9.70	AVG	P	
7	8.8698	10.80	43.50	54.30	60.00	-5.70	QP	P	
8	8.8698	10.80	32.40	43.20	50.00	-6.80	AVG	P	
9	10.7299	10.80	43.70	54.50	60.00	-5.50	QP	P	
10	10.7299	10.80	33.90	44.70	50.00	-5.30	AVG	P	
11	21.4540	10.80	29.70	40.50	60.00	-19.50	QP	P	
12	21.4540	10.80	19.70	30.50	50.00	-19.50	AVG	P	

Note: Level=Reading+Factor.

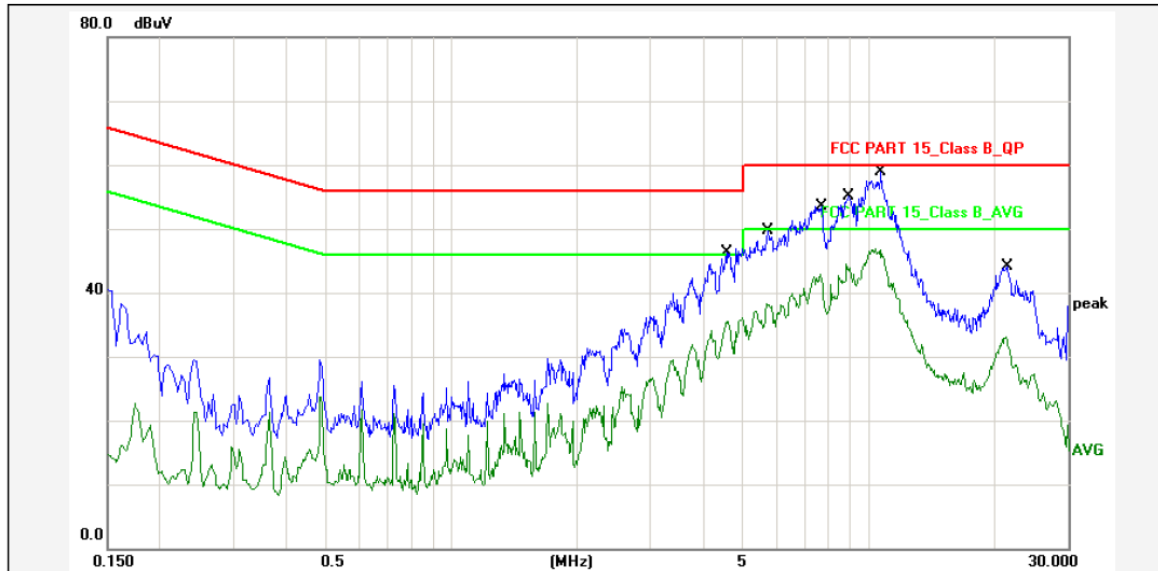
Margin=Limit-Level.



Dongguan NTC Co., Ltd.
Tel: +86-769-22022444 Fax: +86-769-22022799
Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Conduction

Test Time: 2013-9-9 18:12:27



Report No.: U4A

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: N

Applicant: Measy

Temp.()/Hum.(%): 25(C) / 56 %

Product: Android Mini PC

Power Rating: AC 120V/60Hz

Model No.: U4A

Test Engineer: Sance

Test Mode: BT Mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	4.5579	10.80	32.60	43.40	56.00	-12.60	QP	P	
2	4.5579	10.80	22.80	33.60	46.00	-12.40	AVG	P	
3	5.7139	10.80	35.90	46.70	60.00	-13.30	QP	P	
4	5.7139	10.80	30.00	40.80	50.00	-9.20	AVG	P	
5	7.6899	10.80	39.60	50.40	60.00	-9.60	QP	P	
6	7.6899	10.80	31.70	42.50	50.00	-7.50	AVG	P	
7	8.9618	10.80	41.40	52.20	60.00	-7.80	QP	P	
8	8.9618	10.80	31.70	42.50	50.00	-7.50	AVG	P	
9	10.7259	10.80	45.00	55.80	60.00	-4.20	QP	P	
10	10.7259	10.80	34.00	44.80	50.00	-5.20	AVG	P	
11	21.4260	10.80	30.50	41.30	60.00	-18.70	QP	P	
12	21.4260	10.80	20.30	31.10	50.00	-18.90	AVG	P	

Note: Level=Reading+Factor.

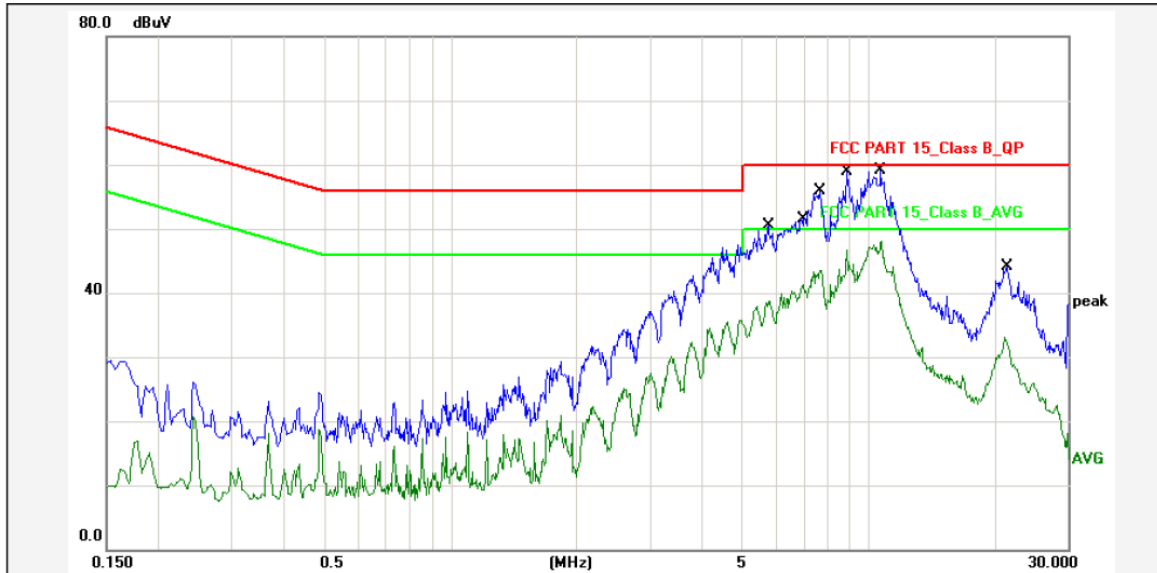
Margin=Limit-Level.



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Tel: +86-769-22022444 Fax: +86-769-22022799
Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Conduction

Test Time: 2013-9-9 18:17:42



Report No.: U4A

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: L1

Applicant: Measy

Temp.()/Hum.(%): 25(C) / 56 %

Product: Android Mini PC

Power Rating: AC 120V/60Hz

Model No.: U4A

Test Engineer: Sance

Test Mode: Wifi Mode

Remark: 802.11b

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	5.7699	10.80	36.70	47.50	60.00	-12.50	QP	P	
2	5.7699	10.80	25.90	36.70	50.00	-13.30	AVG	P	
3	6.9059	10.80	37.60	48.40	60.00	-11.60	QP	P	
4	6.9059	10.80	28.50	39.30	50.00	-10.70	AVG	P	
5	7.6540	10.80	38.80	49.60	60.00	-10.40	QP	P	
6	7.6540	10.80	32.00	42.80	50.00	-7.20	AVG	P	
7	8.8700	10.80	41.20	52.00	60.00	-8.00	QP	P	
8	8.8700	10.80	34.30	45.10	50.00	-4.90	AVG	P	
9	10.7340	10.80	42.80	53.60	60.00	-6.40	QP	P	
10	10.7340	10.80	36.40	47.20	50.00	-2.80	AVG	P	
11	21.4540	10.80	30.20	41.00	60.00	-19.00	QP	P	
12	21.4540	10.80	20.40	31.20	50.00	-18.80	AVG	P	

Note: Level=Reading+Factor.

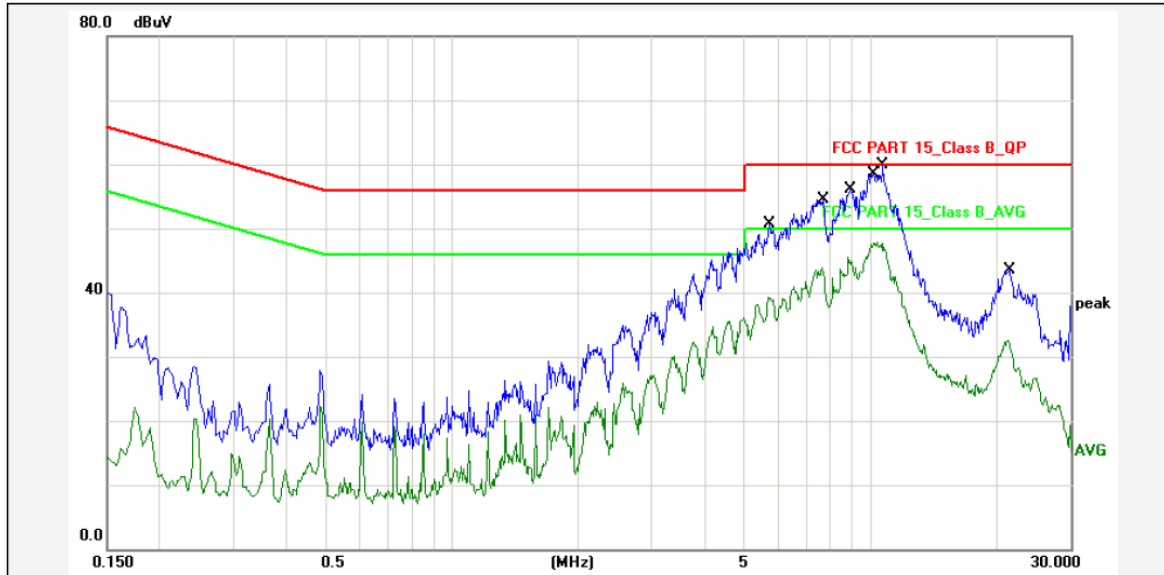
Margin=Limit-Level.



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Tel: +86-769-22022444 Fax: +86-769-22022799
Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Conduction

Test Time: 2013-9-9 18:20:35



Report No.: U4A

Test Standard: FCC PART 15_Class B_QP

Test item: Conducted Emission

Phase: N

Applicant: Measy

Temp.()/Hum.(%): 25(C) / 56 %

Product: Android Mini PC

Power Rating: AC 120V/60Hz

Model No.: U4A

Test Engineer: Sance

Test Mode: Wifi Mode

Remark: 802.11b

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	5.7139	10.80	36.90	47.70	60.00	-12.30	QP	P	
2	5.7139	10.80	26.50	37.30	50.00	-12.70	AVG	P	
3	7.6899	10.80	40.60	51.40	60.00	-8.60	QP	P	
4	7.6899	10.80	31.10	41.90	50.00	-8.10	AVG	P	
5	8.9620	10.80	40.30	51.10	60.00	-8.90	QP	P	
6	8.9620	10.80	33.60	44.40	50.00	-5.60	AVG	P	
7	10.2020	10.80	42.70	53.50	60.00	-6.50	QP	P	
8	10.2020	10.80	36.30	47.10	50.00	-2.90	AVG	P	
9	10.7260	10.80	43.10	53.90	60.00	-6.10	QP	P	
10	10.7260	10.80	36.80	47.60	50.00	-2.40	AVG	P	
11	21.4260	10.80	29.80	40.60	60.00	-19.40	QP	P	
12	21.4260	10.80	19.70	30.50	50.00	-19.50	AVG	P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

4. Max. Conducted Output Power

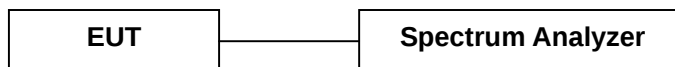
4.1 Measurement Procedure

Maximum Conducted Output power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB558074(v03):

1. Set the RBW = 1MHz.
2. Set the VBW $\geq 3 \times$ RBW
3. Set the span $\geq 1.5 \times$ DTS bandwidth
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Measurement Results

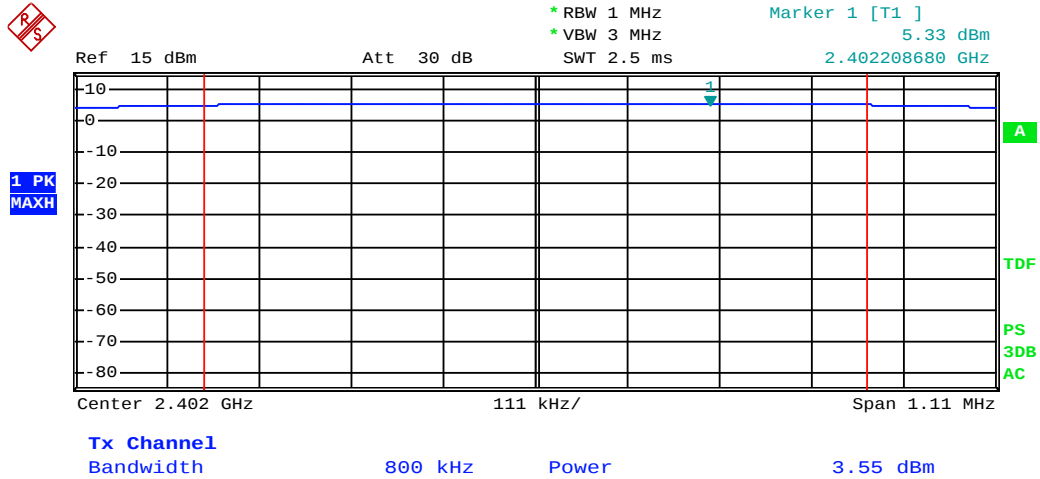
For BT Mode:

Please refer to following table and plots.

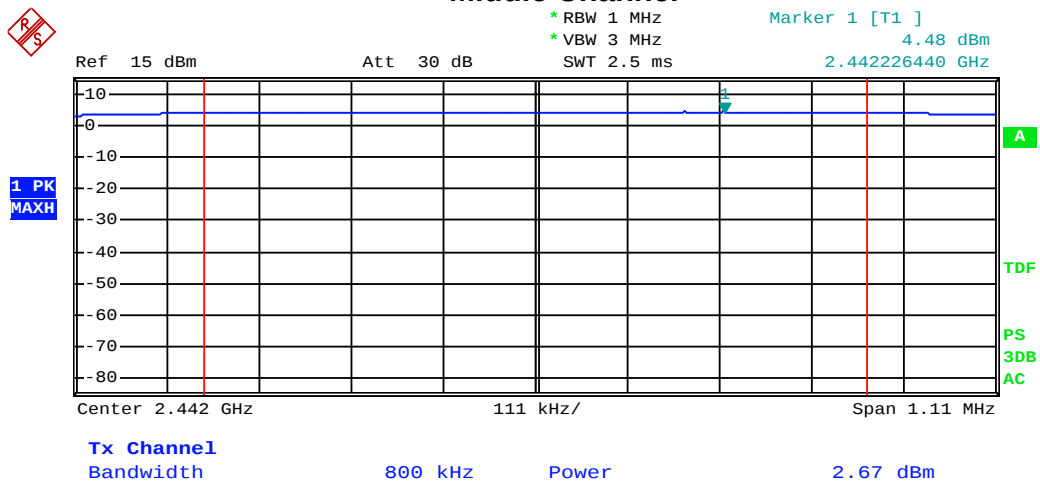
Modulation:	GFSK	Humidity :	55 %
Temperature :	27 °C	Test Date :	September 29, 2013
Test By:	Sance		
Test Result:	PASS		

Frequency MHz	Data Rate Mbps	PK Output Power dBm	Limit dBm
Low Channel: 2402	1	3.55	30
Middle Channel: 2442	1	2.67	30
High Channel: 2480	1	1.88	30

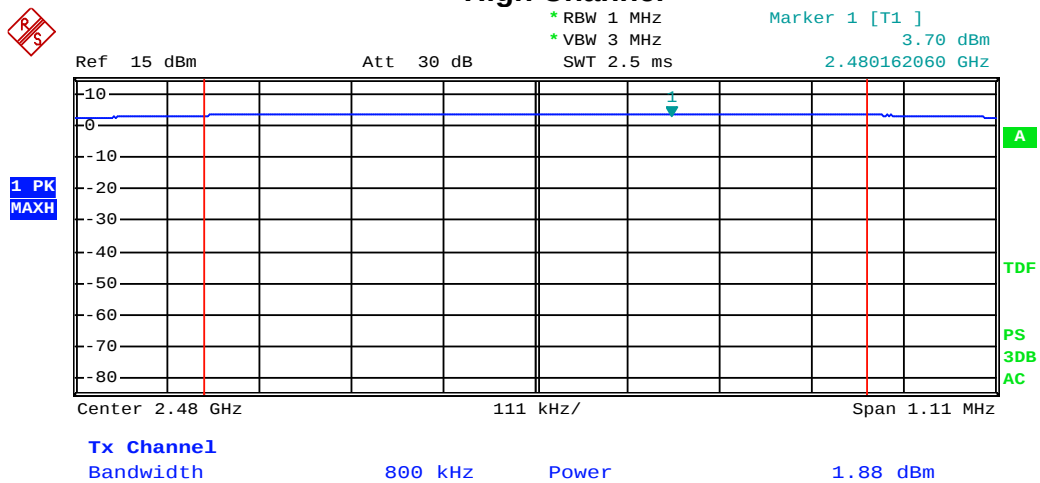
Maximum Peak Conducted Output Power Low Channel



Middle Channel



High Channel

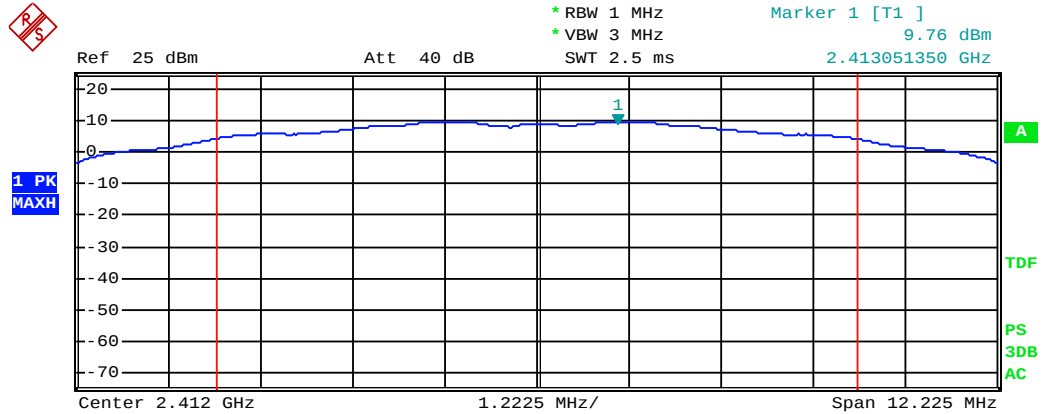


For WIFI Mode:

Please refer to following table and plots.

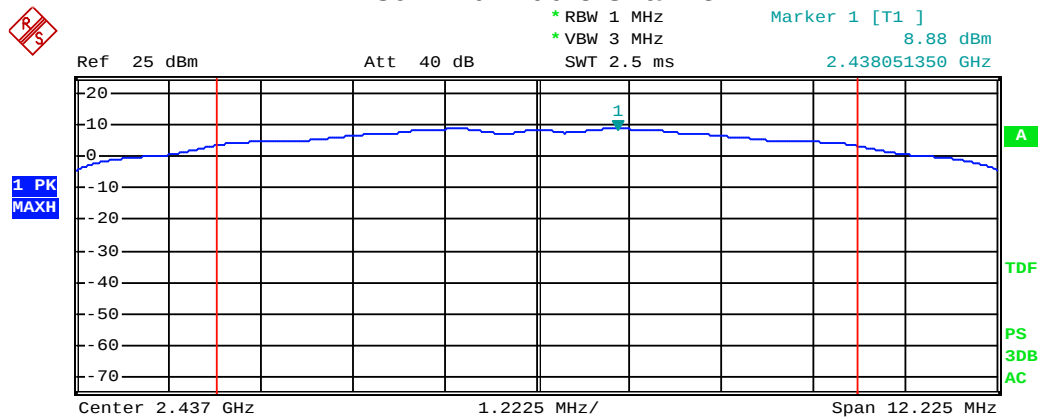
Temperature :	25 °C	Humidity :	52 %
Test By:	Think	Test Date :	September 30, 2013
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	PK Output Power dBm	Limit dBm
IEEE 802.11b Mode (CCK, Antenna Gain=0dBi)			
Low Channel: 2412	1	16.41	30
Middle Channel: 2437	1	15.52	30
High Channel: 2462	1	14.93	30
IEEE 802.11g Mode (OFDM, Antenna Gain=0dBi)			
Low Channel: 2412	6	20.70	30
Middle Channel: 2437	6	20.12	30
High Channel: 2462	6	19.44	30
IEEE 802.11n(HT20) Mode (OFDM, Antenna Gain=0dBi)			
Low Channel: 2412	6.5	19.32	30
Middle Channel: 2437	6.5	18.88	30
High Channel: 2462	6.5	18.13	30

Maximum Peak Conducted Output Power 802.11b Low Channel



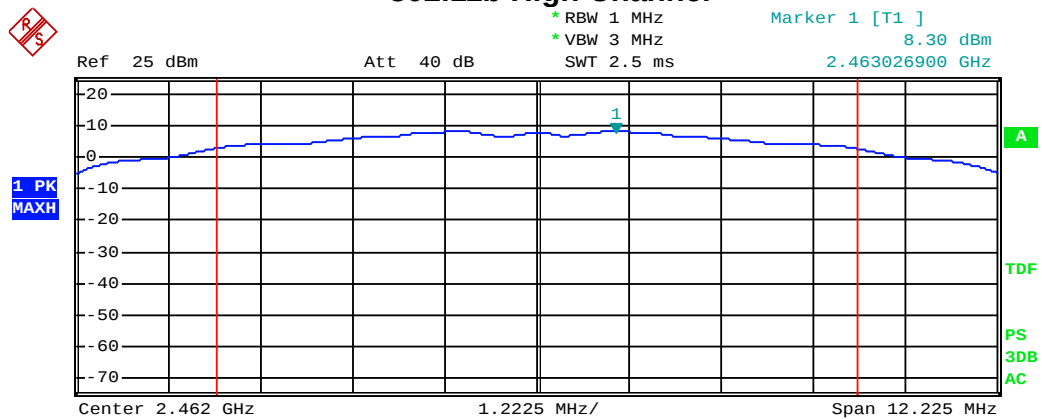
Tx Channel
Bandwidth 8.5 MHz Power 16.41 dBm

802.11b Middle Channel



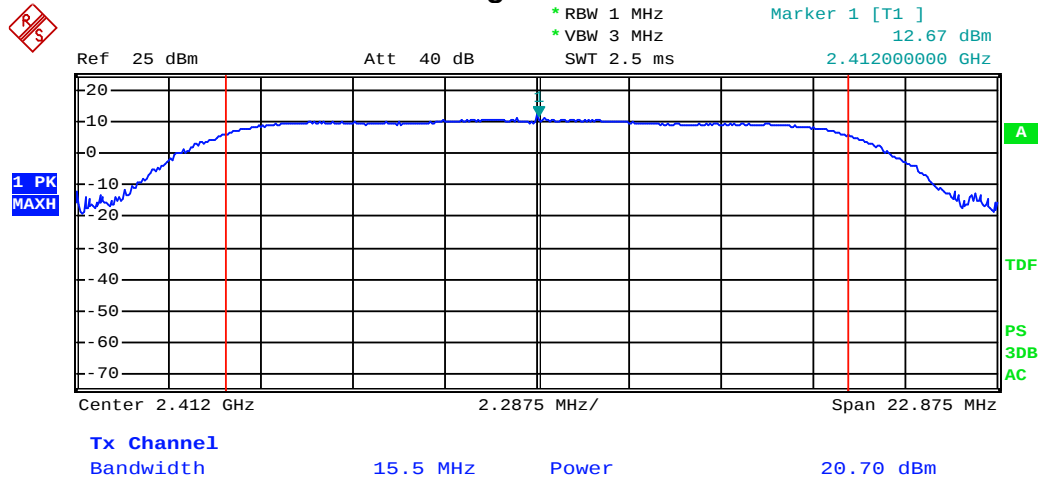
Tx Channel
Bandwidth 8.5 MHz Power 15.52 dBm

802.11b High Channel

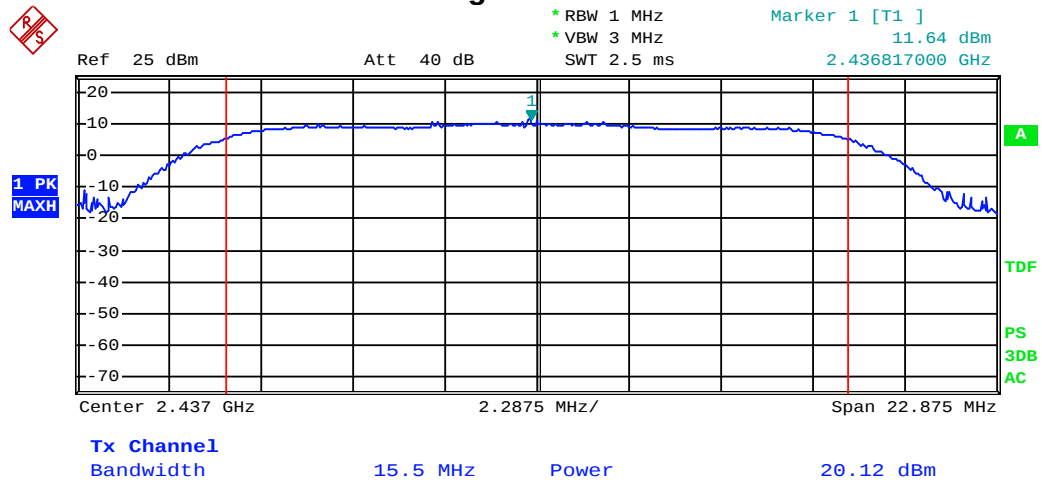


Tx Channel
Bandwidth 8.5 MHz Power 14.93 dBm

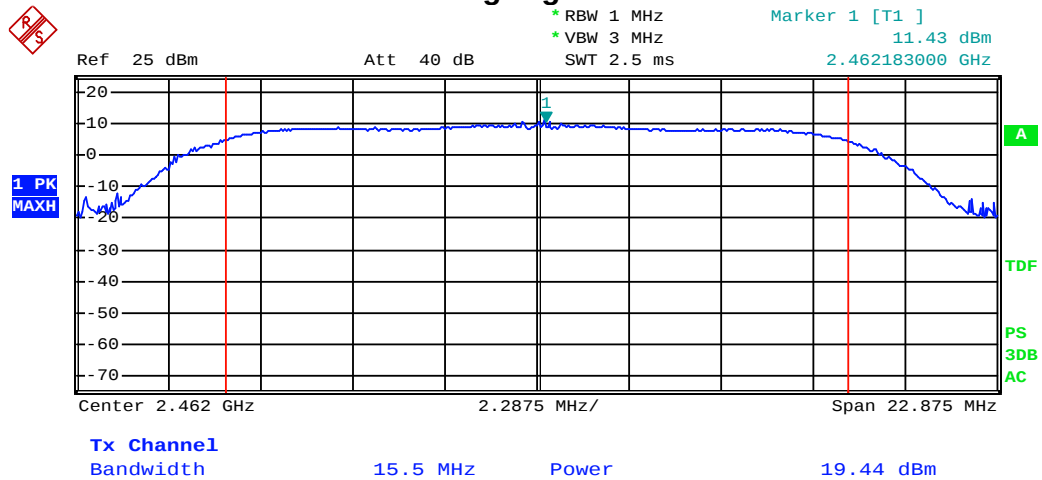
802.11g Low Channel



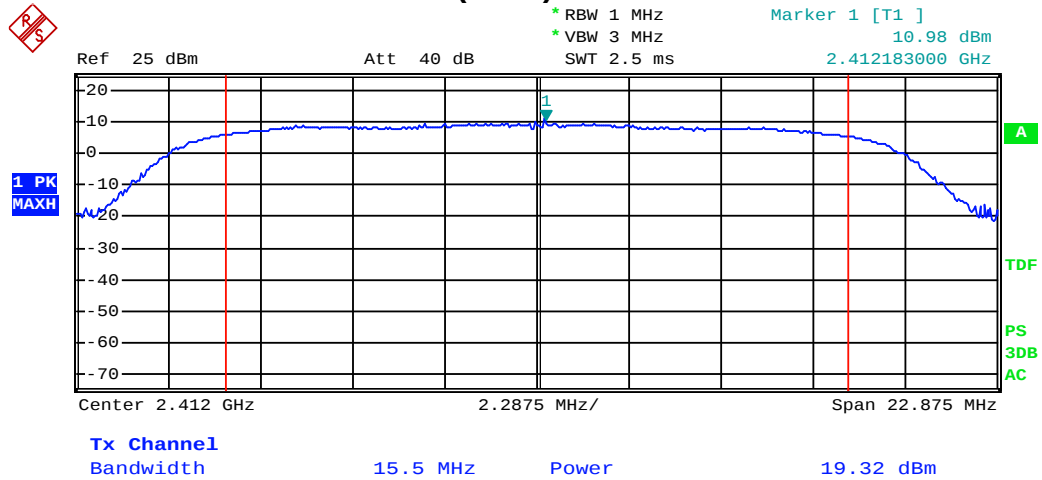
802.11g Middle Channel



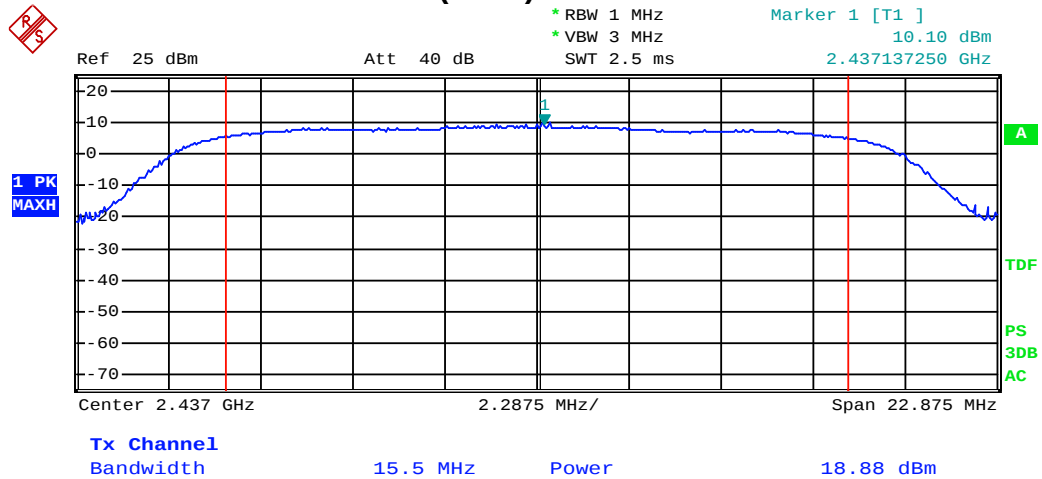
802.11g High Channel



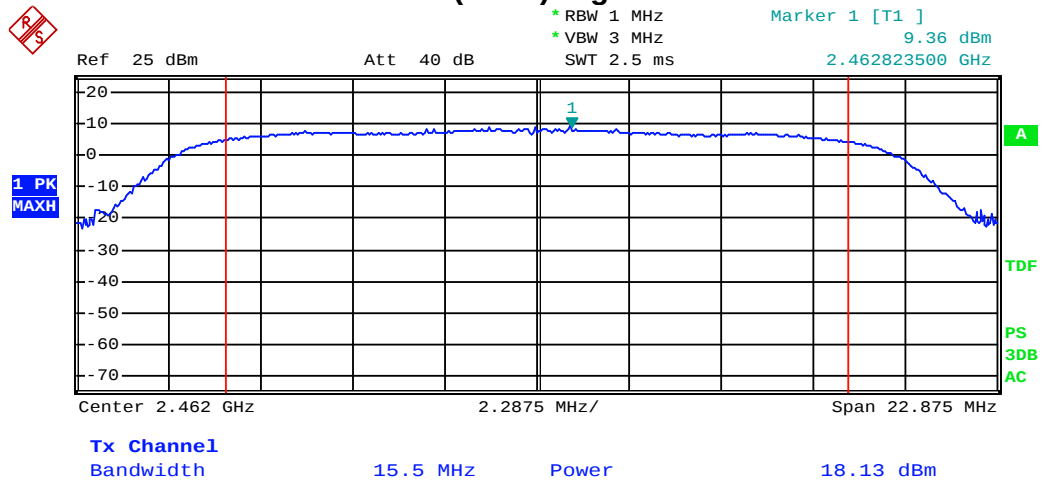
802.11n(HT20) Low Channel



802.11n(HT20) Middle Channel



802.11n(HT20) High Channel



5. 6dB Bandwidth

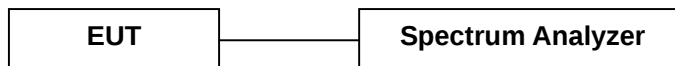
5.1 Measurement Procedure

DTS 6dB Channel Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB558074(v03):

1. Set the RBW = 100KHz.
2. Set the VBW $\geq 3 \times$ RBW
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.2 Test SET-UP (Block Diagram of Configuration)



5.3 Measurement Results

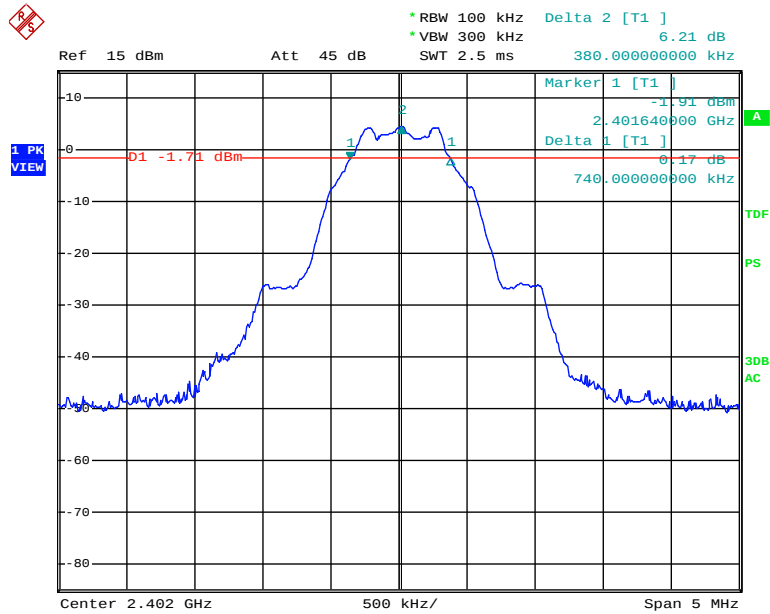
For BT Mode:

Please refer to following table and plots.

Modulation:	GFSK	Humidity :	55 %
Temperature :	27 °C	Test Date :	September 29, 2013
Test By:	Sance		
Test Result:	PASS		

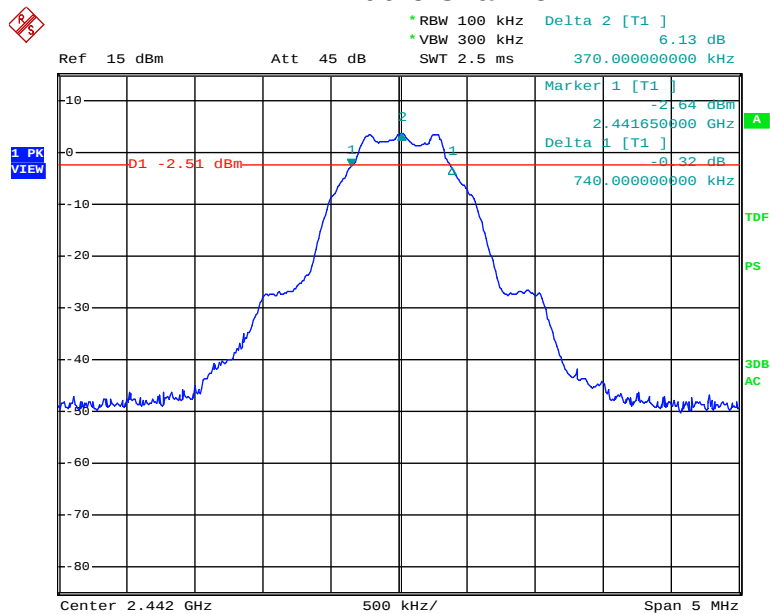
Frequency MHz	Data Rate Mbps	6dB Bandwidth KHz	Limit
Low Channel: 2402	1	740	>500KHz
Middle Channel: 2442	1	740	>500KHz
High Channel: 2480	1	740	>500KHz

Low Channel

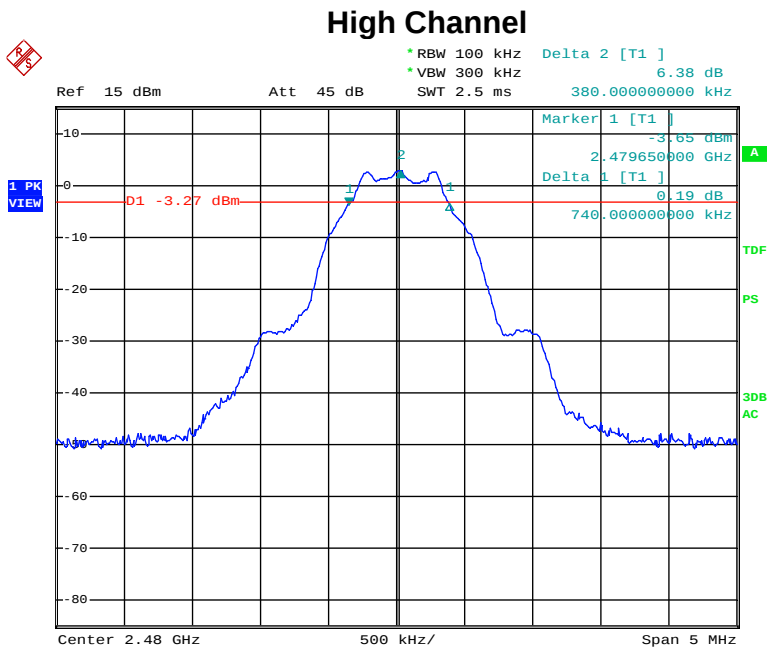


Date: 29.SEP.2013 20:59:36

Middle Channel



Date: 29.SEP.2013 20:57:02



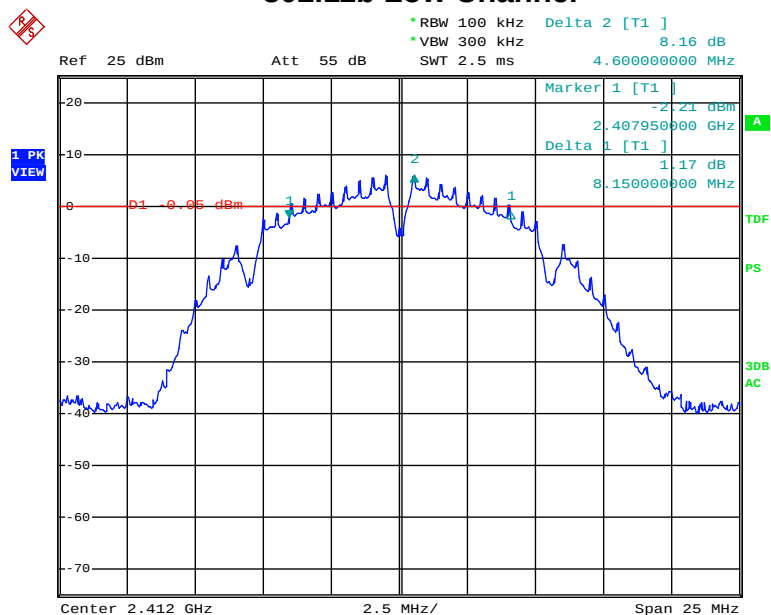
Date: 29.SEP.2013 20:58:07

For WIFI Mode:

Please refer to following table and plots.

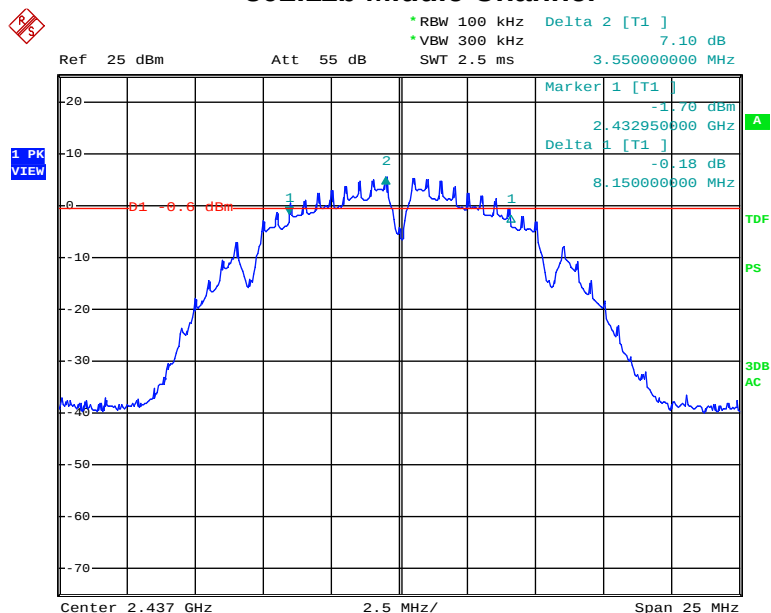
Temperature :	25 °C	Humidity :	52 %
Test By:	Think	Test Date :	September 30, 2013
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11b Mode (CCK)			
Low Channel: 2412	1	8.15	>500KHz
Middle Channel: 2437	1	8.15	>500KHz
High Channel: 2462	1	8.15	>500KHz
IEEE 802.11g Mode (OFDM)			
Low Channel: 2412	6	15.25	>500KHz
Middle Channel: 2437	6	15.25	>500KHz
High Channel: 2462	6	15.25	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 2412	6.5	15.25	>500KHz
Middle Channel: 2437	6.5	15.25	>500KHz
High Channel: 2462	6.5	15.25	>500KHz

802.11b Low Channel



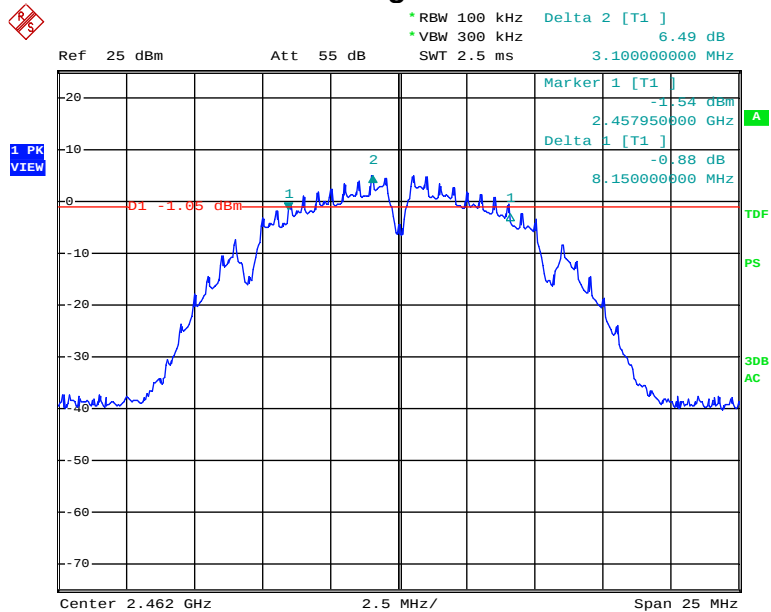
Date: 30.SEP.2013 10:57:40

802.11b Middle Channel



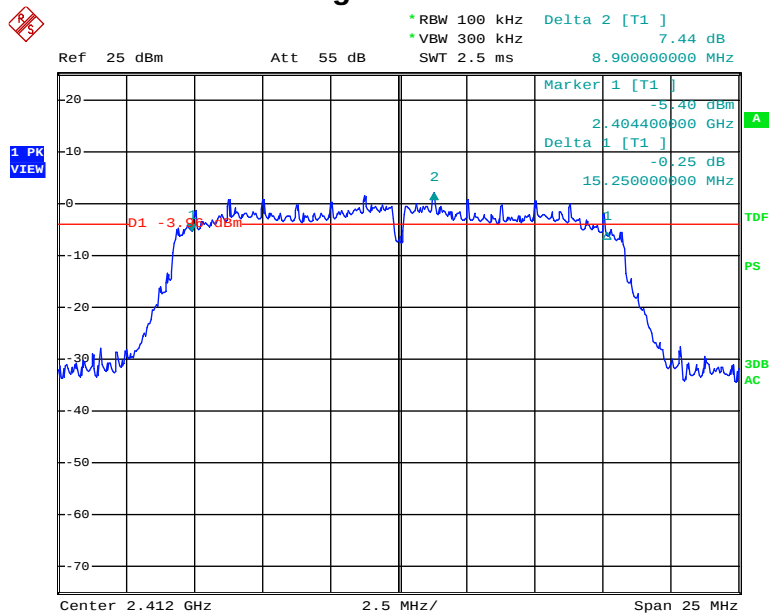
Date: 30.SEP.2013 11:04:48

802.11b High Channel



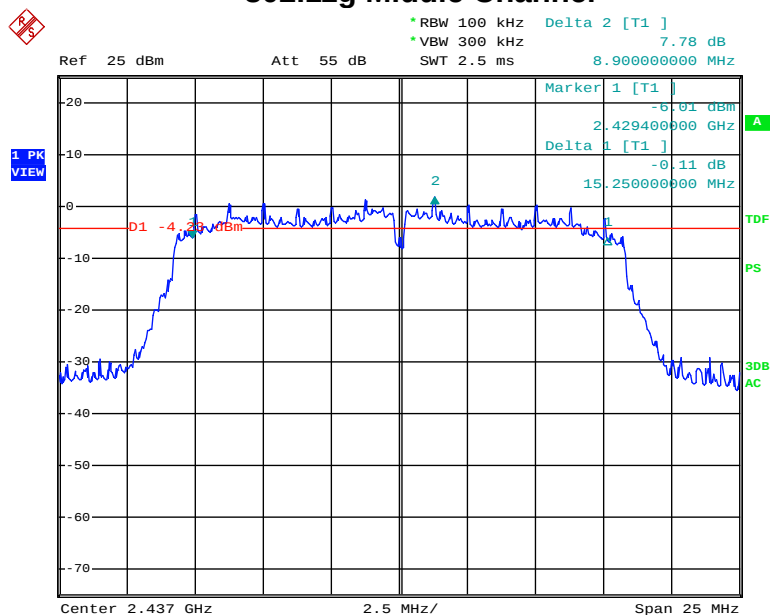
Date: 30.SEP.2013 11:06:19

802.11g Low Channel



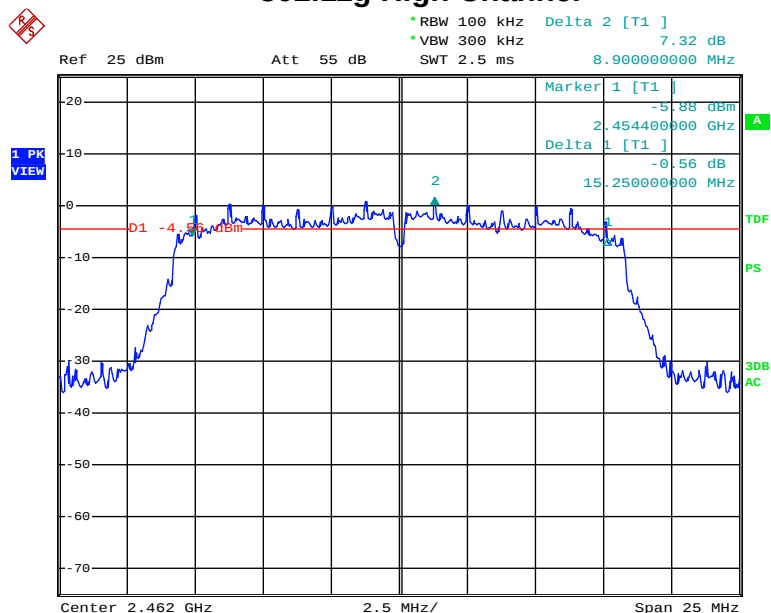
Date: 30.SEP.2013 10:49:37

802.11g Middle Channel

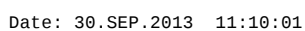
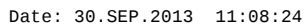


Date: 30.SEP.2013 10:51:49

802.11g High Channel



Date: 30.SEP.2013 10:53:41





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6. Power Spectral Density

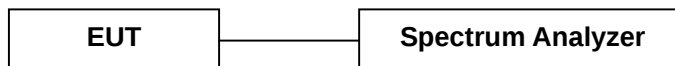
6.1 Measurement Procedure

DTS 6dB Channel Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB558074(v03):

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Results

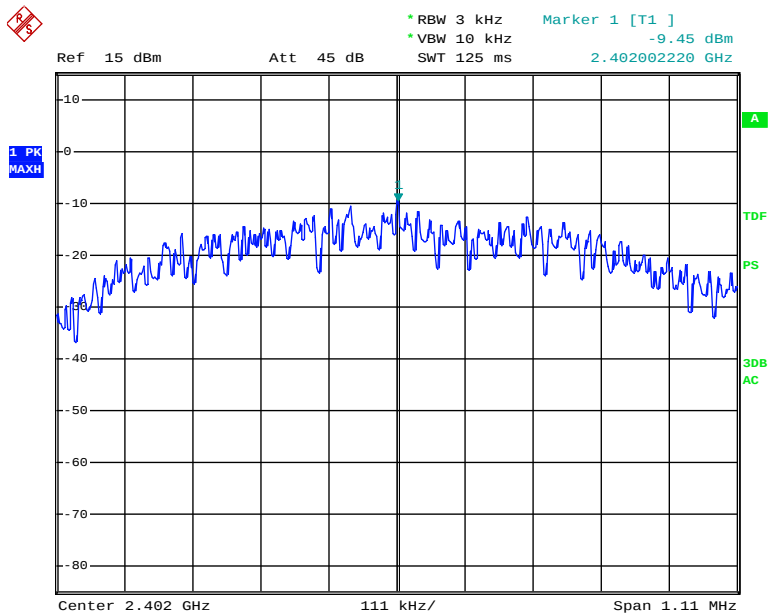
For BT Mode:

Please refer to following table and plots.

Modulation:	GFSK		
Temperature :	27 °C	Humidity :	55 %
Test By:	Sance	Test Date :	September 29, 2013
Test Result:	PASS		

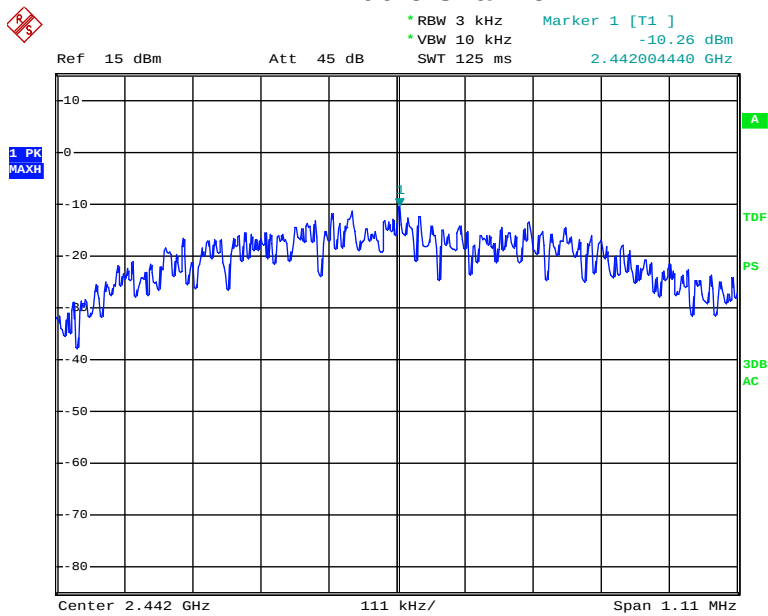
Frequency MHz	Data Rate Mbps	PSD dBm	Limit dBm
Low Channel: 2402	1	-9.45	8
Middle Channel: 2442	1	-10.26	8
High Channel: 2480	1	-11.04	8

Low Channel



Date: 29.SEP.2013 21:02:56

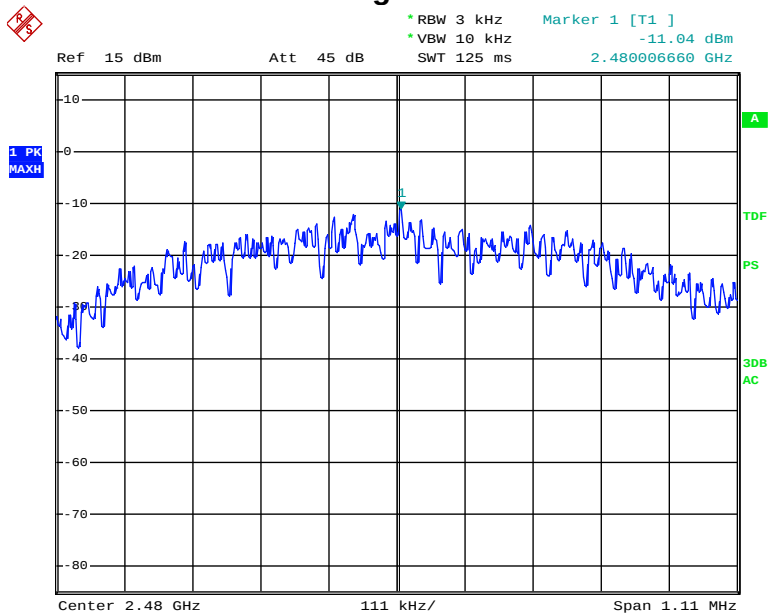
Middle Channel



Date: 29.SEP.2013 21:03:13



High Channel



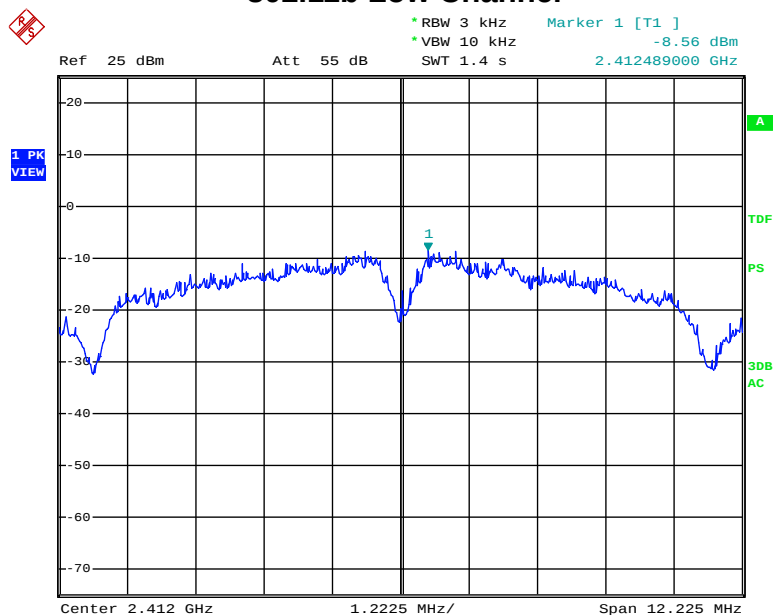
Date: 29.SEP.2013 21:03:30

For WIFI Mode:

Please refer to following table and plots.

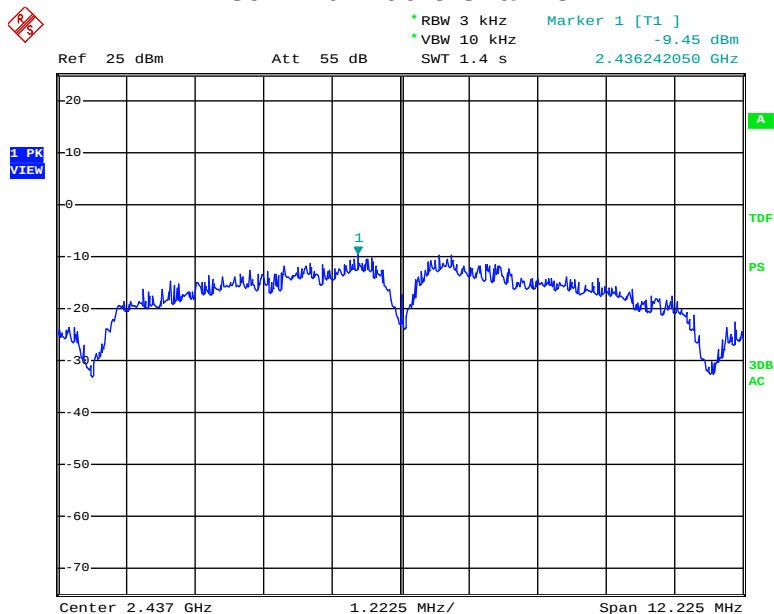
Temperature :	25 °C	Humidity :	52 %
Test By:	Think	Test Date :	September 30, 2013
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	PSD dBm	Limit dBm
IEEE 802.11b Mode (CCK)			
Low Channel: 2412	1	-8.56	8
Middle Channel: 2437	1	-9.45	8
High Channel: 2462	1	-9.53	8
IEEE 802.11g Mode (OFDM)			
Low Channel: 2412	6	-12.71	8
Middle Channel: 2437	6	-12.99	8
High Channel: 2462	6	-13.29	8
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 2412	6.5	-13.10	8
Middle Channel: 2437	6.5	-14.46	8
High Channel: 2462	6.5	-13.82	8

802.11b Low Channel



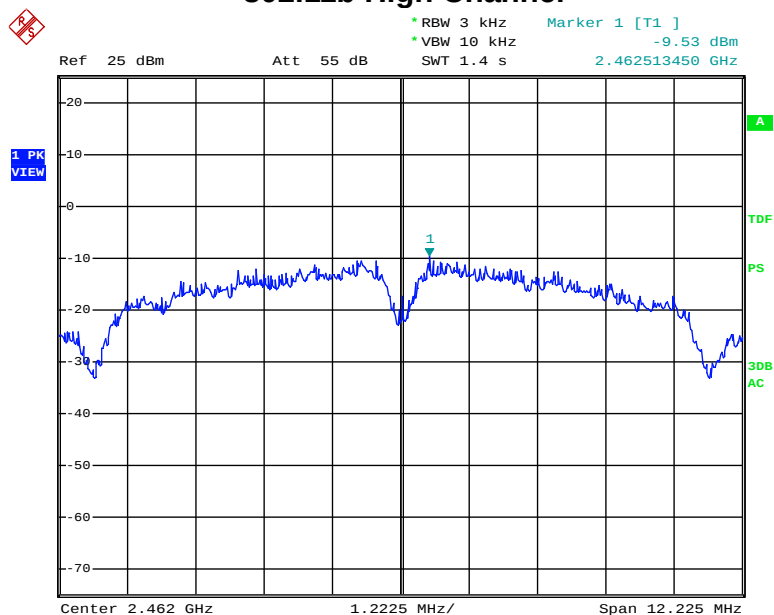
Date: 30.SEP.2013 11:28:50

802.11b Middle Channel



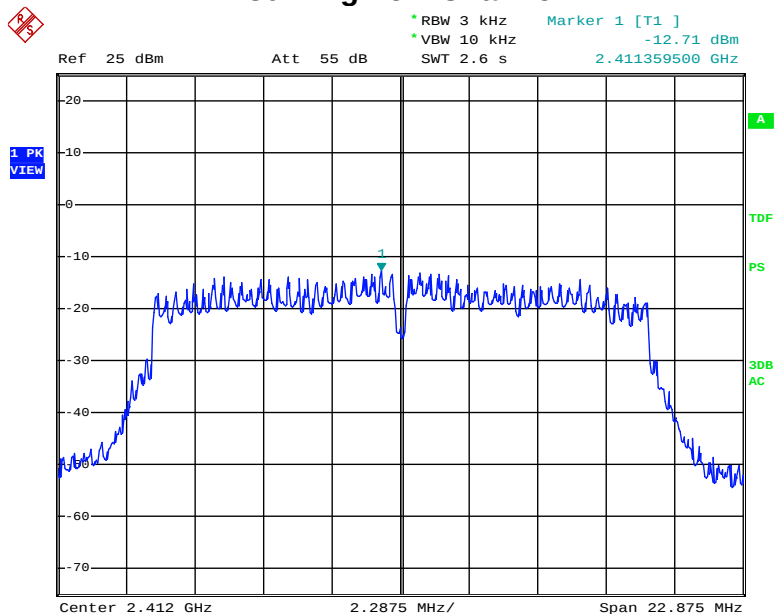
Date: 30.SEP.2013 11:29:13

802.11b High Channel



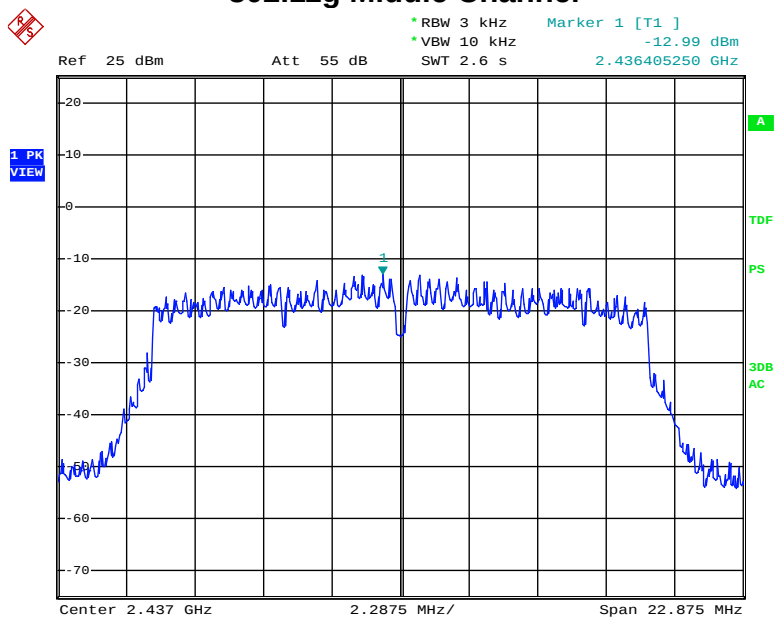
Date: 30.SEP.2013 11:29:38

802.11g Low Channel



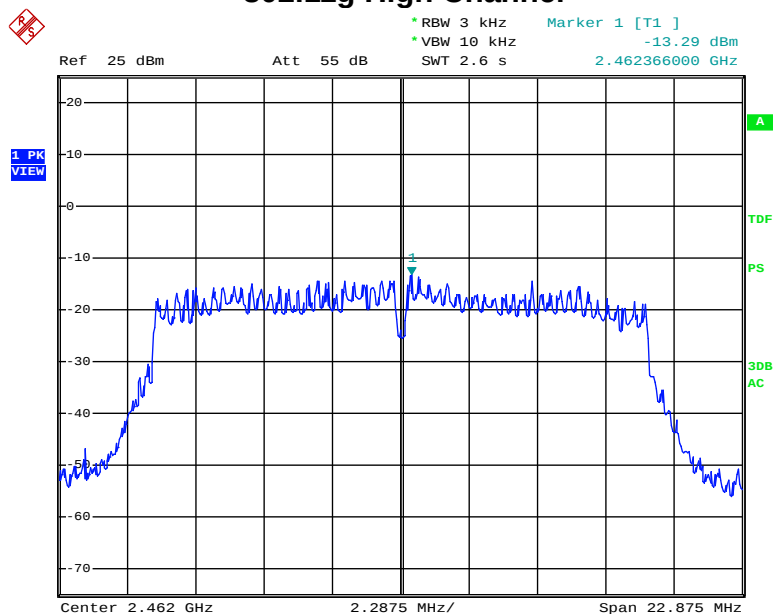
Date: 30.SEP.2013 11:30:43

802.11g Middle Channel



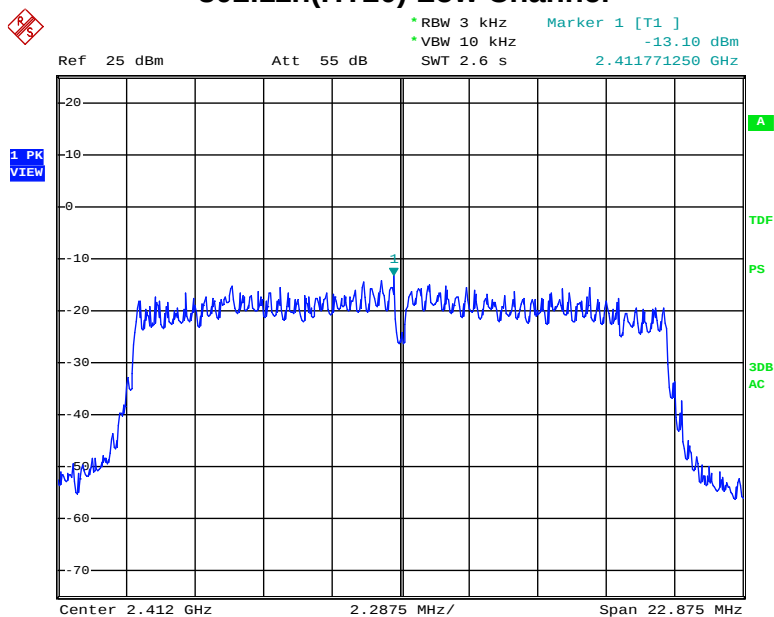
Date: 30.SEP.2013 11:31:18

802.11g High Channel



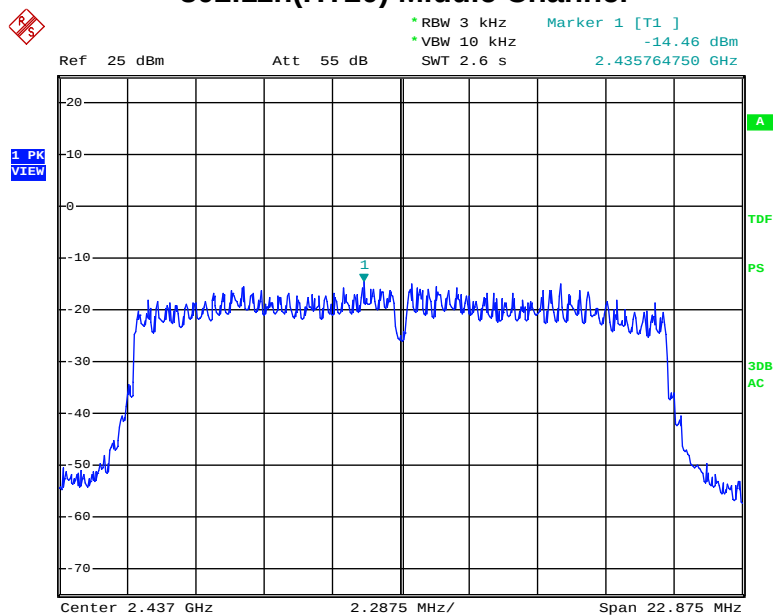
Date: 30.SEP.2013 11:31:43

802.11n(HT20) Low Channel



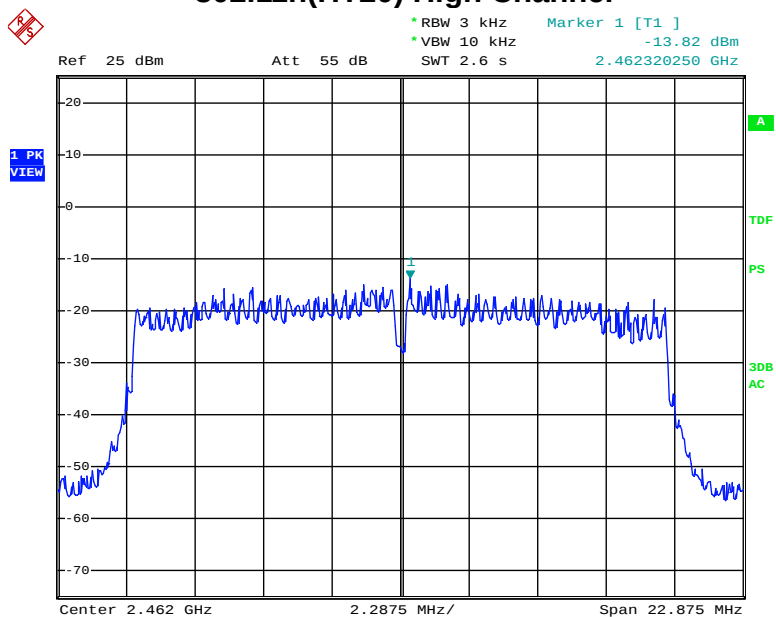
Date: 30.SEP.2013 11:32:08

802.11n(HT20) Middle Channel



Date: 30.SEP.2013 11:32:31

802.11n(HT20) High Channel



Date: 30.SEP.2013 11:32:54

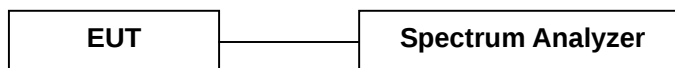
7. Band Edge and Conducted Spurious Emissions

7.1 Requirement and Measurement Procedure

In any 100KHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set according to FCC KDB558074(v03) clause 11.3.

7.2 Test SET-UP (Block Diagram of Configuration)

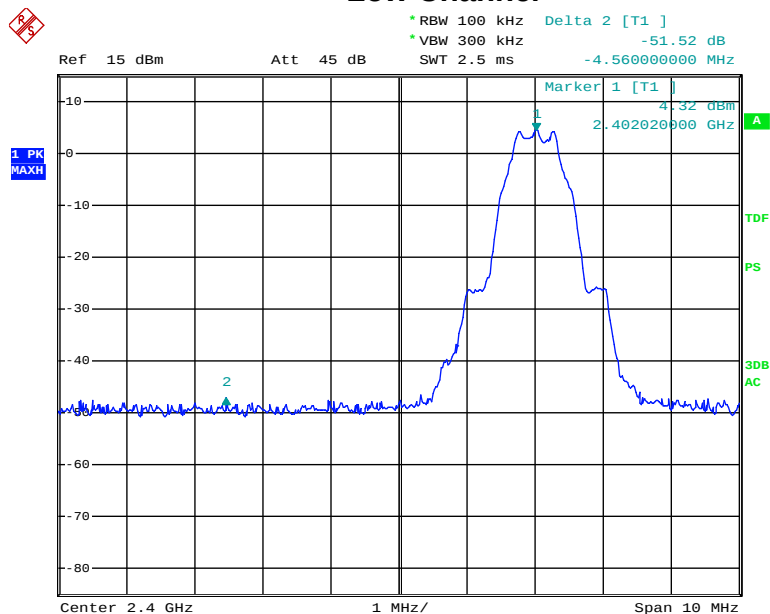


7.3 Measurement Results

The test plots showed all spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB below the highest level of the desired power in the passband. Please refer to below plots.

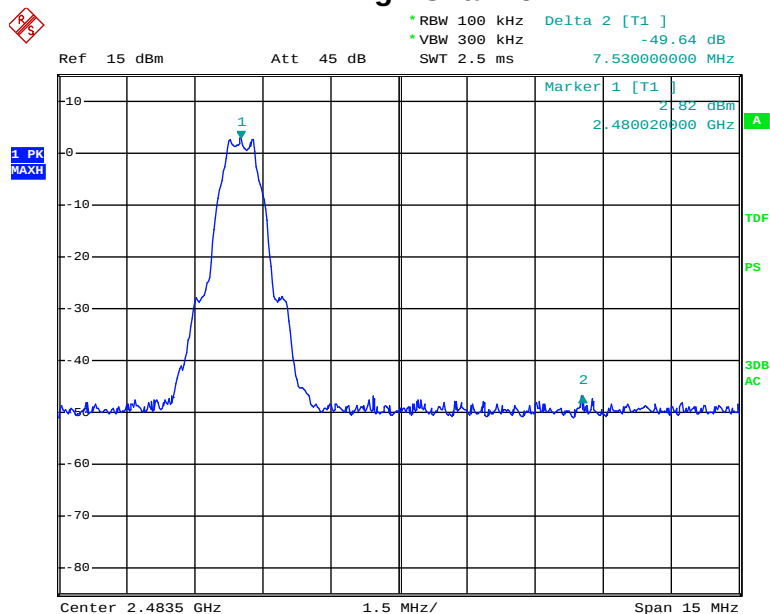
For BT Mode:

Band Edge Low Channel



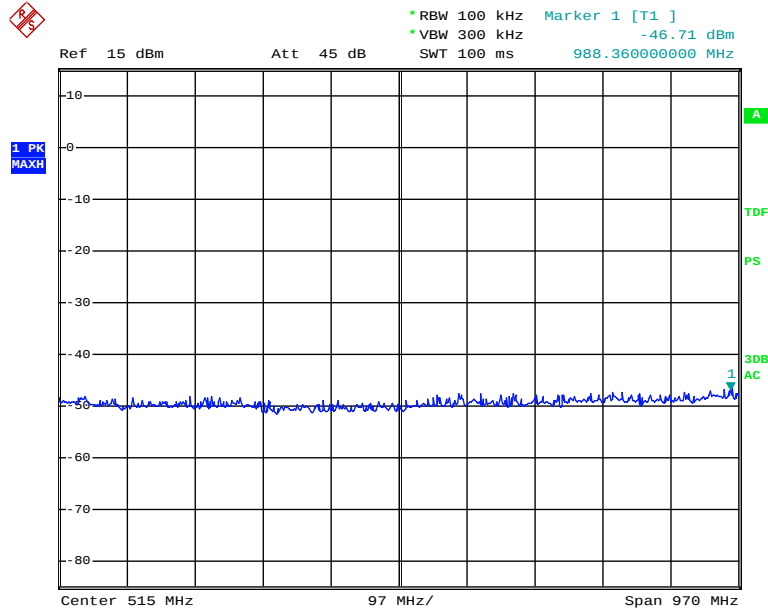
Date: 29.SEP.2013 20:51:42

High Channel

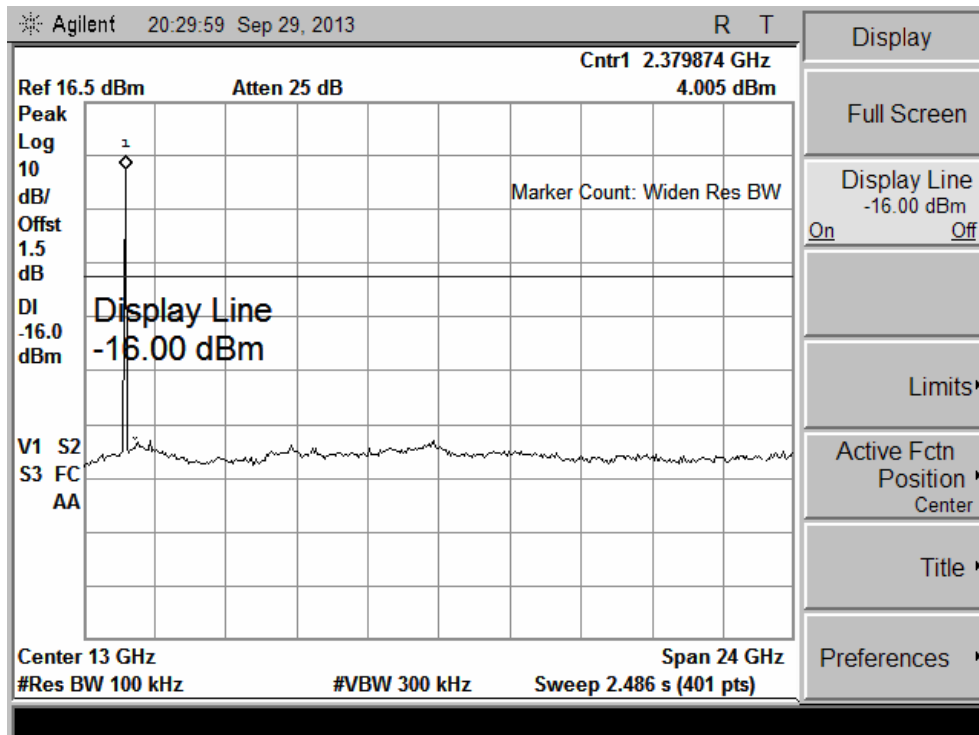


Date: 29.SEP.2013 20:52:34

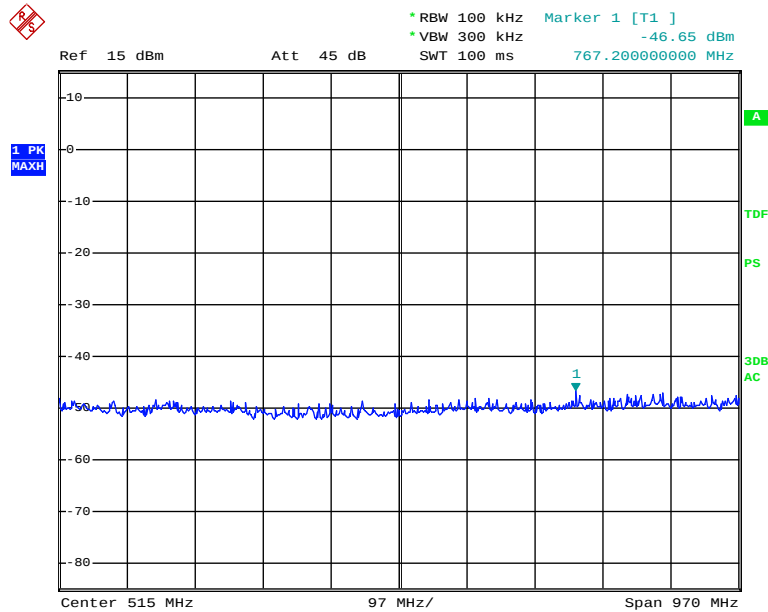
Conducted Spurious Emissions Low Channel



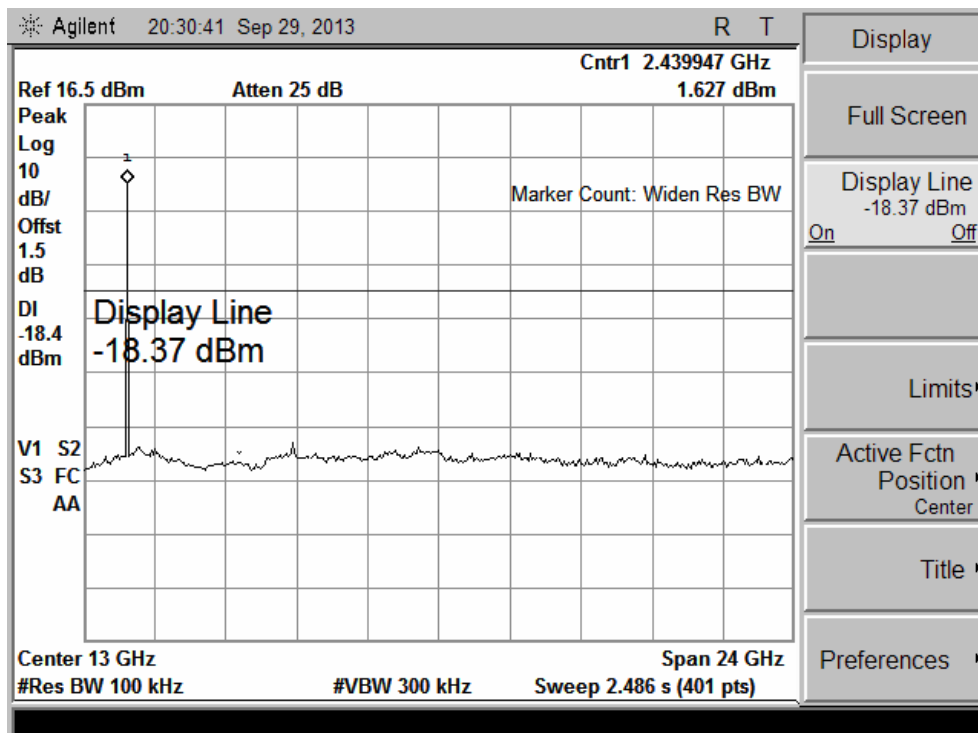
Date: 29.SEP.2013 20:42:30



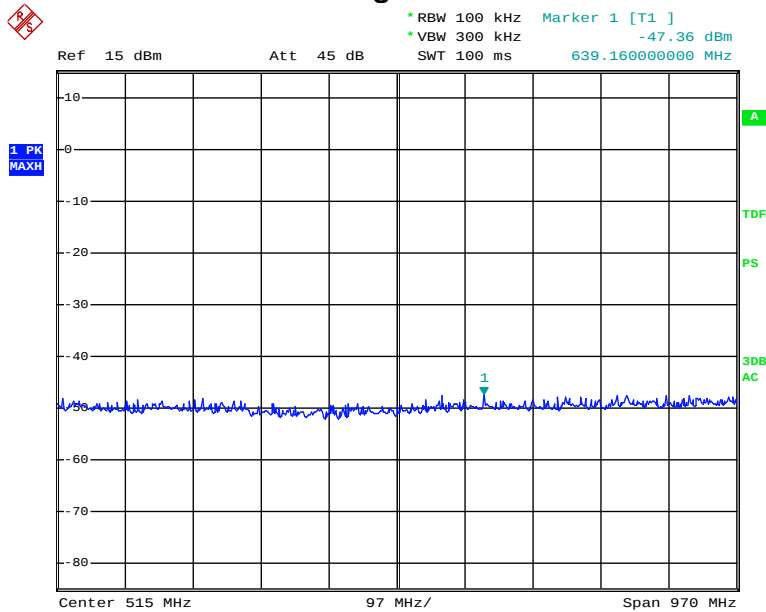
Middle Channel



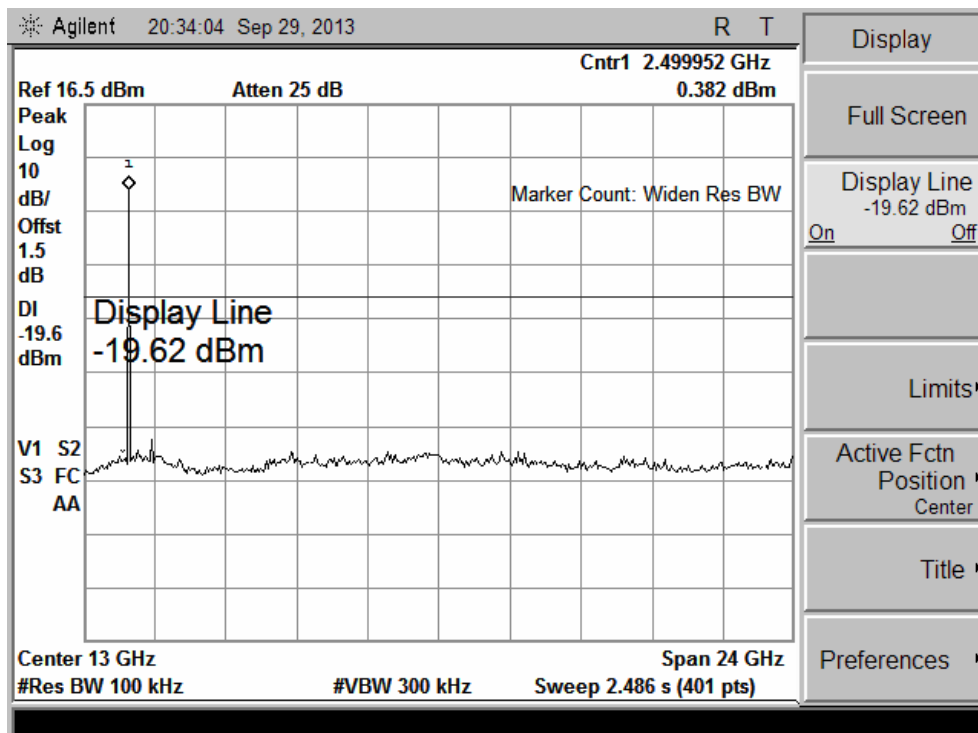
Date: 29.SEP.2013 20:42:50



High Channel

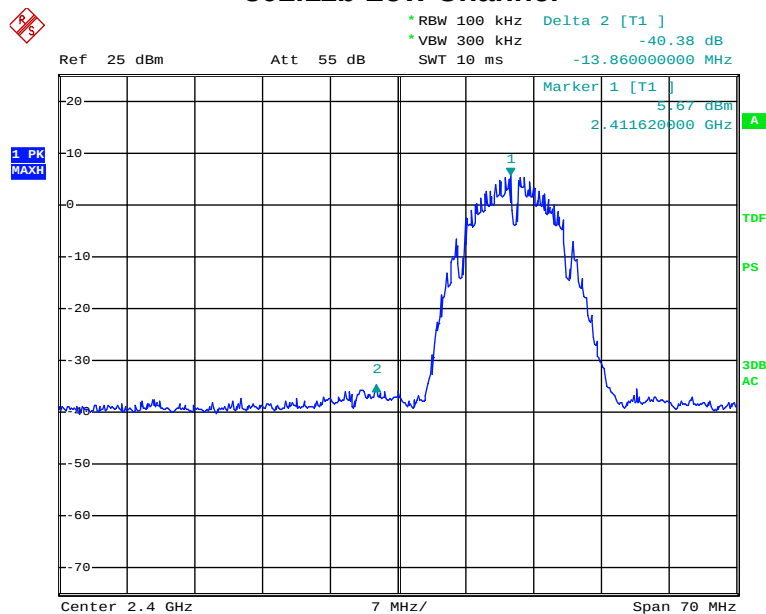


Date: 29.SEP.2013 20:43:08



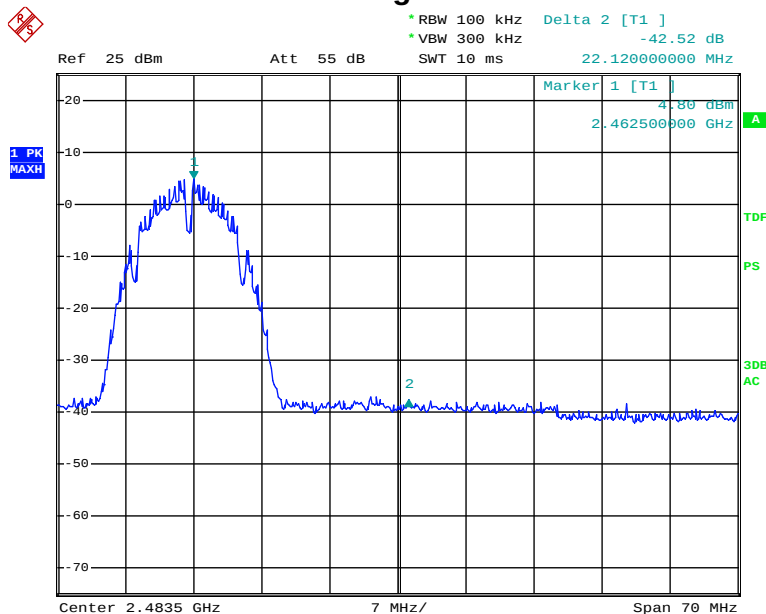
For WIFI Mode:

Band Edge 802.11b Low Channel



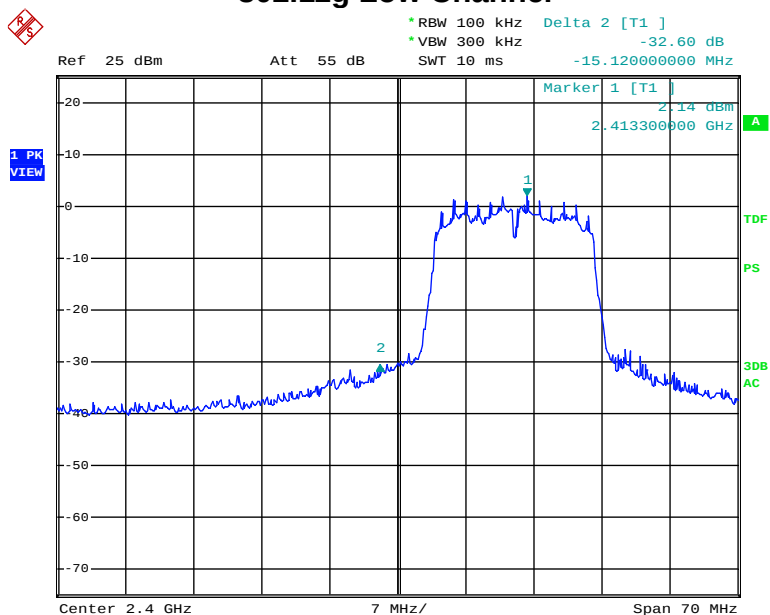
Date: 30.SEP.2013 11:34:58

802.11b High Channel



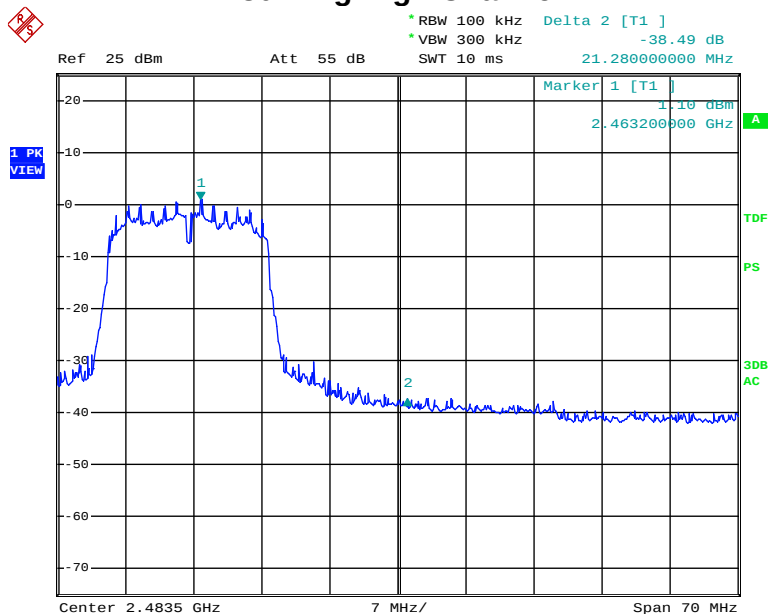
Date: 30.SEP.2013 11:36:19

802.11g Low Channel



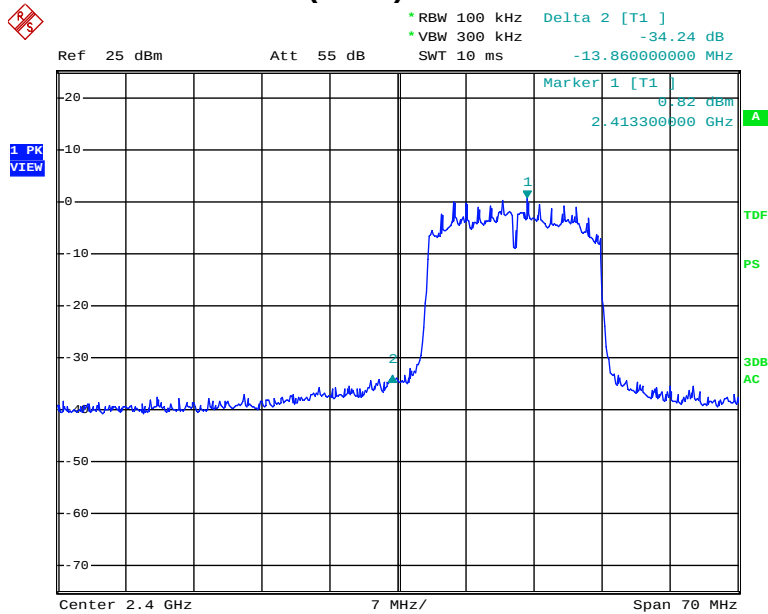
Date: 30.SEP.2013 11:38:09

802.11g High Channel



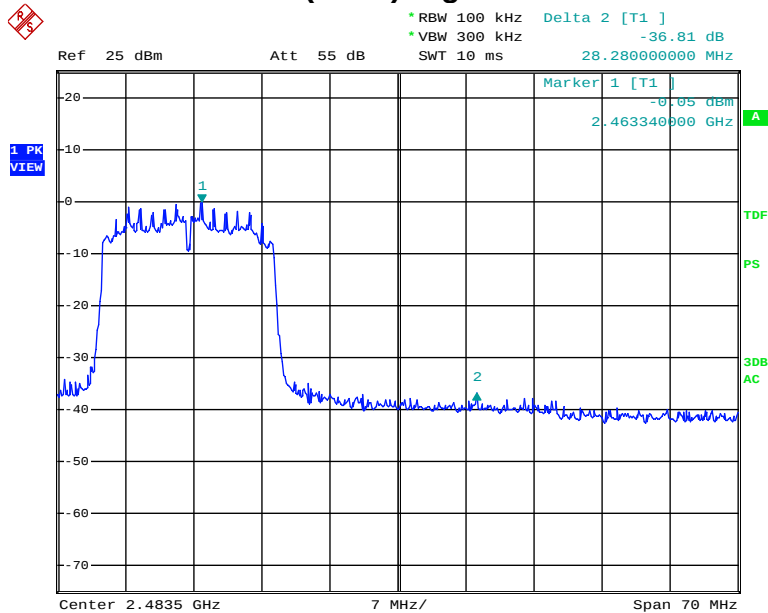
Date: 30.SEP.2013 11:39:04

802.11n(HT20) Low Channel



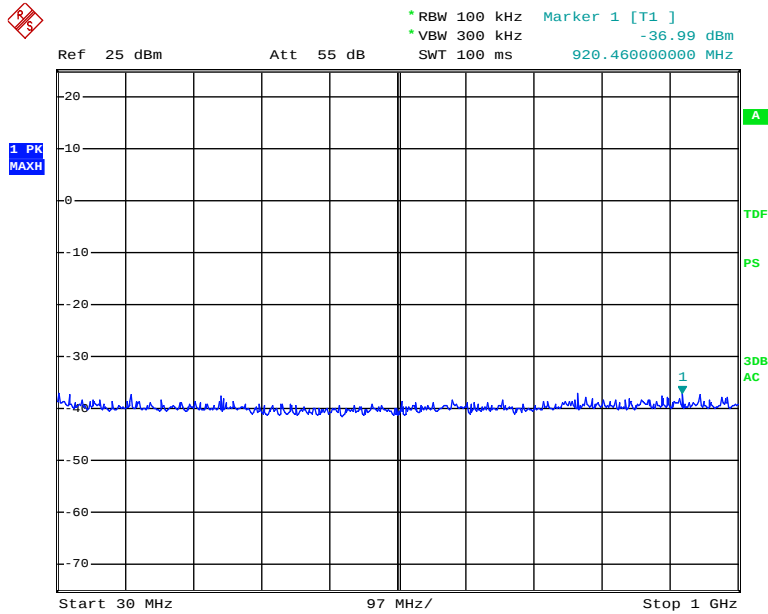
Date: 30.SEP.2013 11:39:52

802.11n(HT20) High Channel

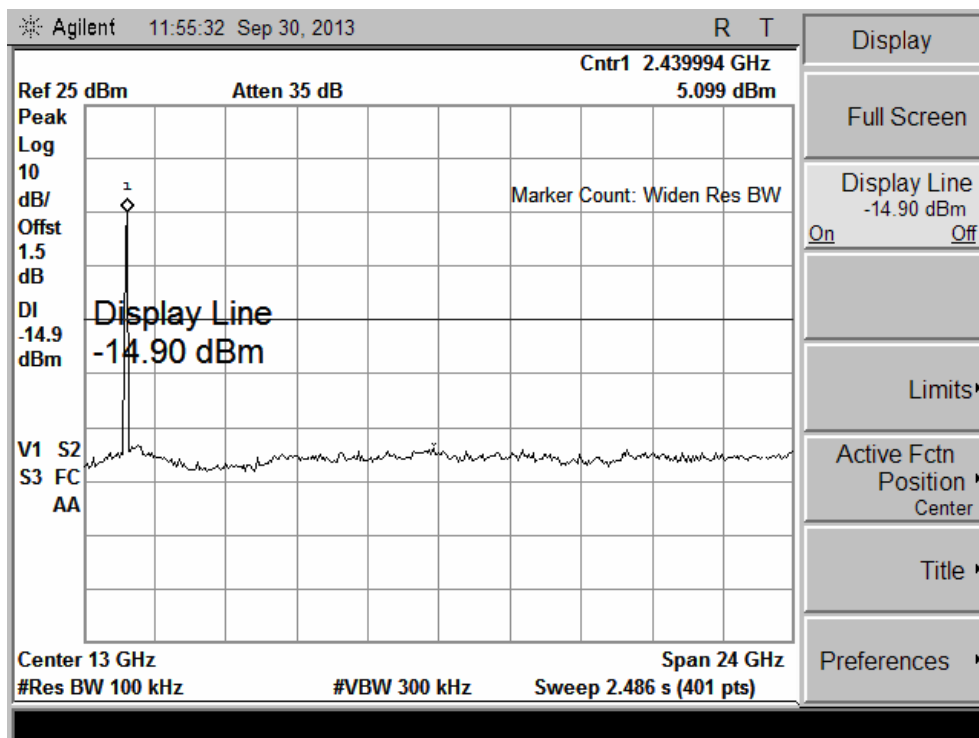


Date: 30.SEP.2013 11:40:36

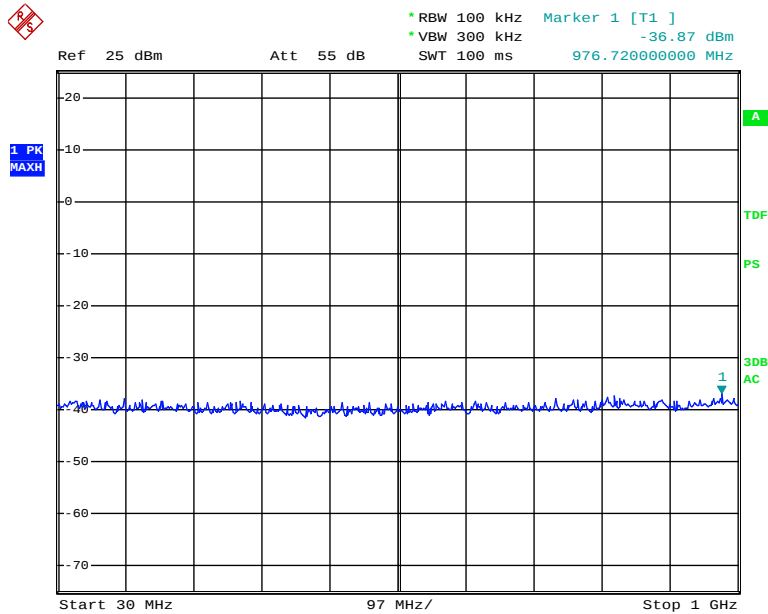
Conducted Spurious Emissions 802.11b Low Channel



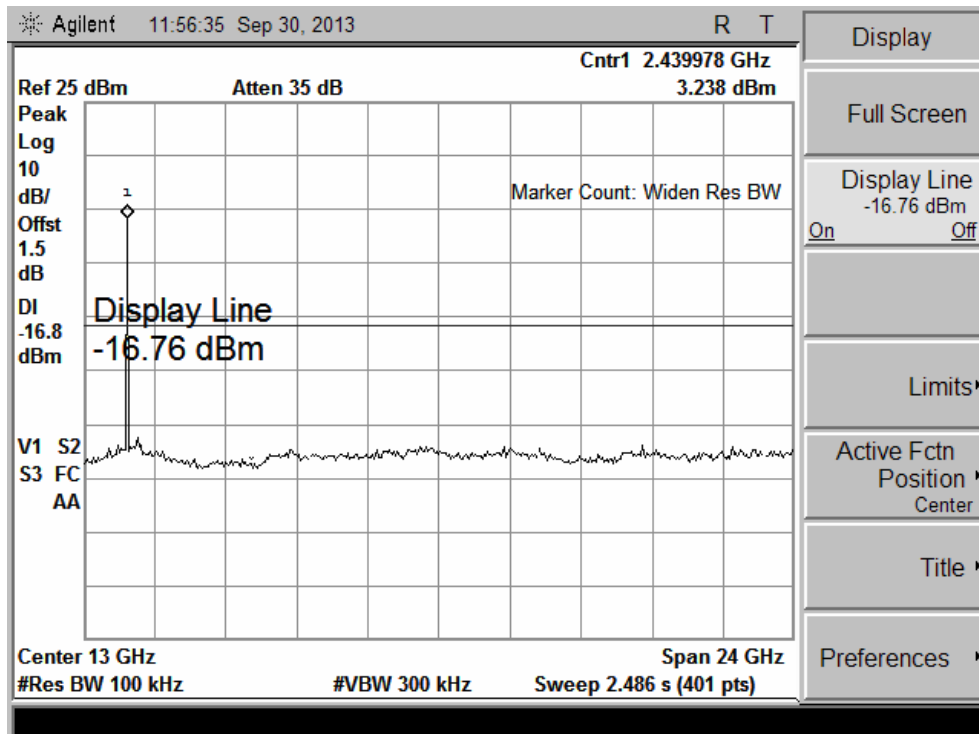
Date: 30.SEP.2013 11:41:13



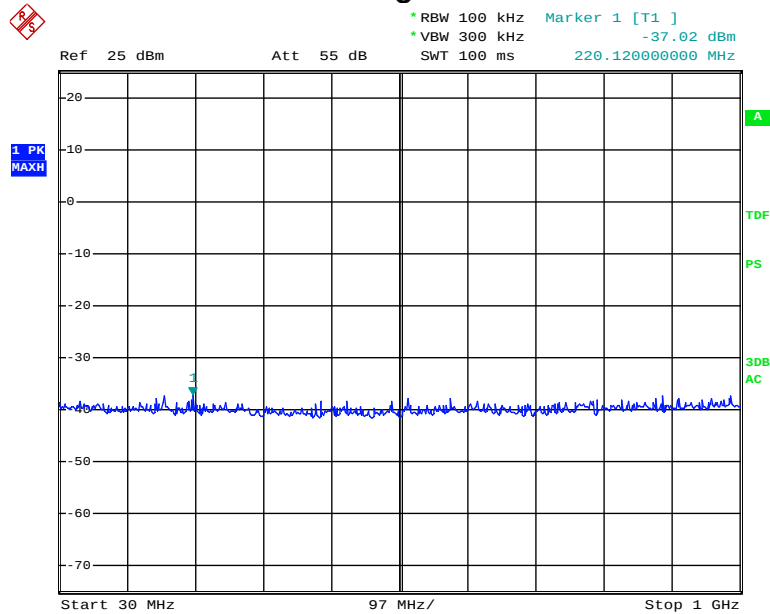
802.11b Middle Channel



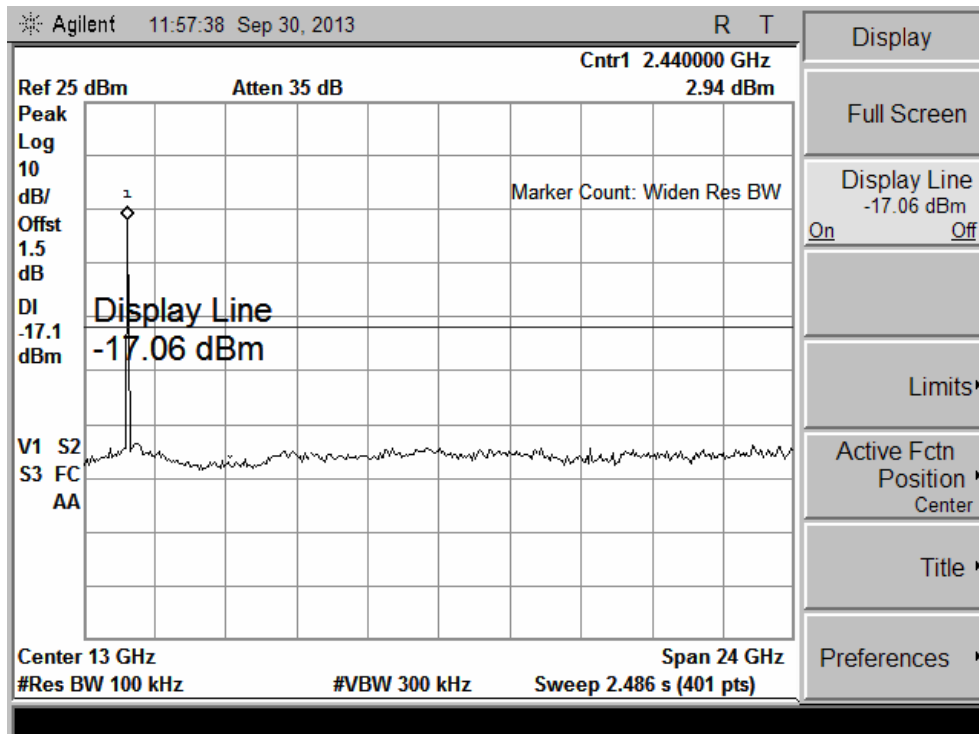
Date: 30.SEP.2013 11:41:35



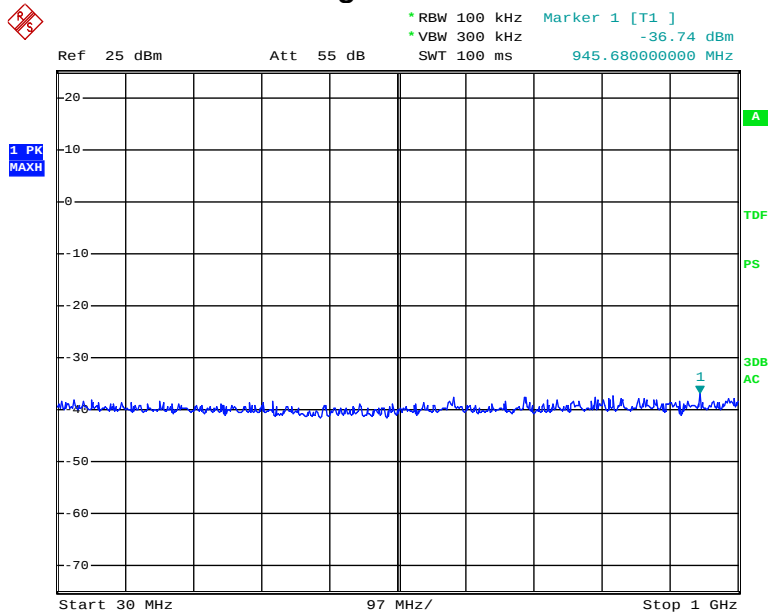
802.11b High Channel



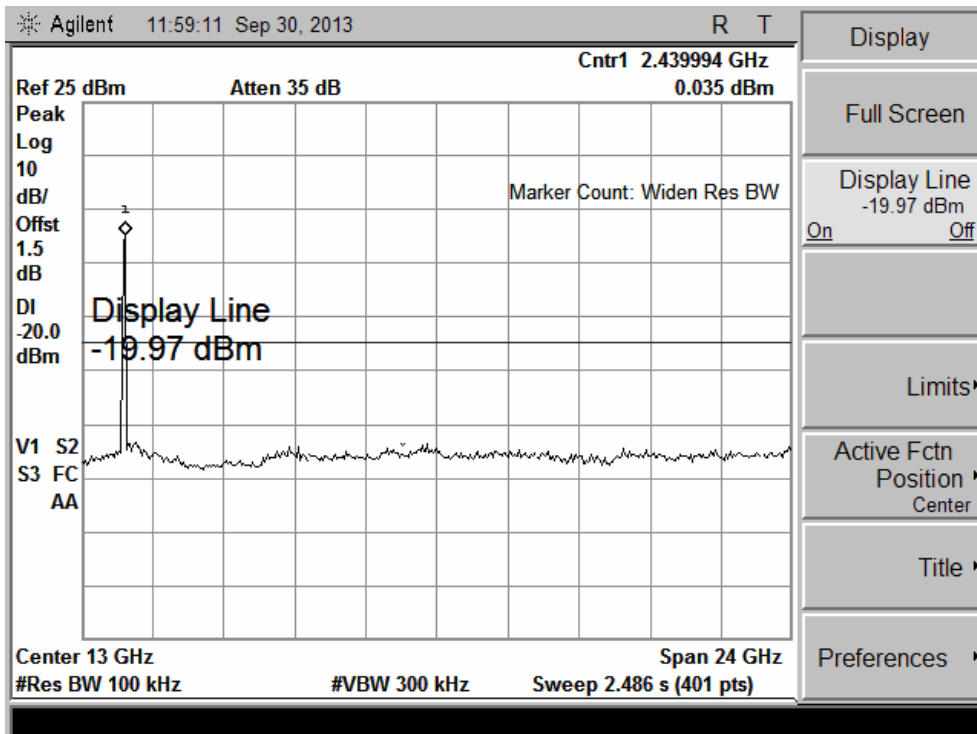
Date: 30.SEP.2013 11:41:50



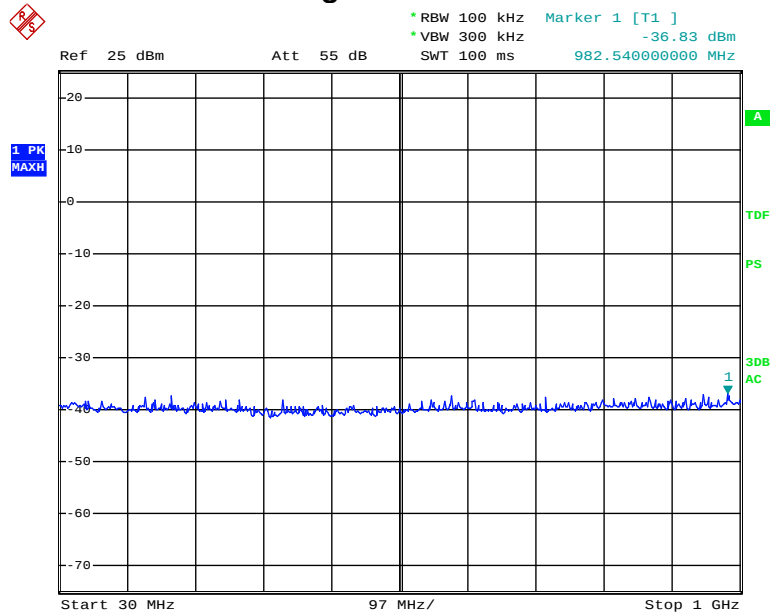
802.11g Low Channel



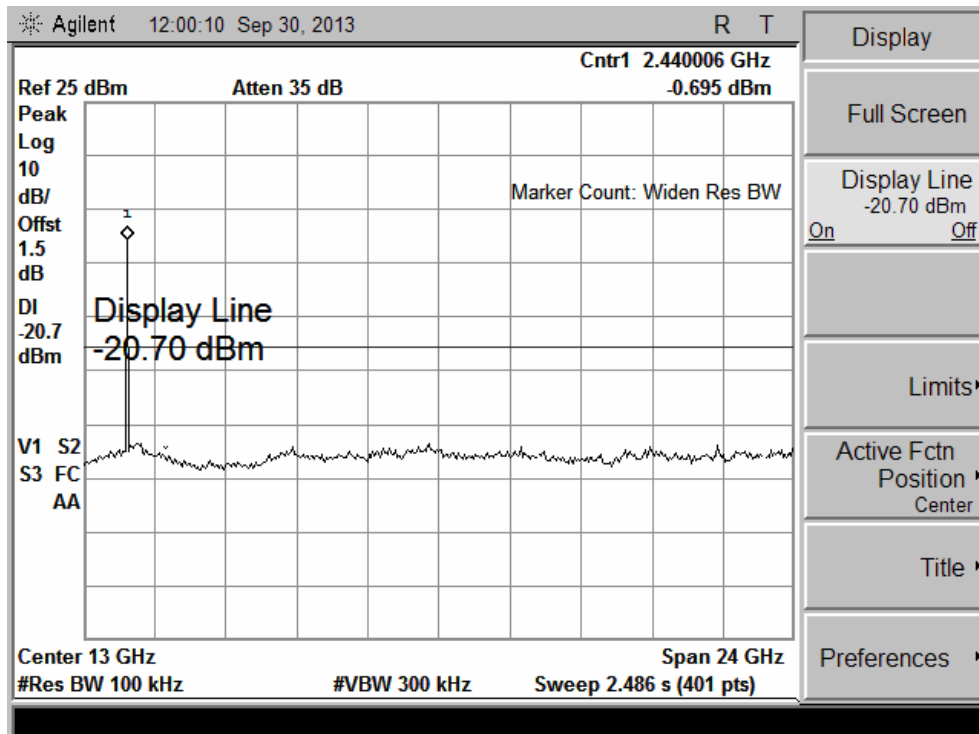
Date: 30.SEP.2013 11:42:09



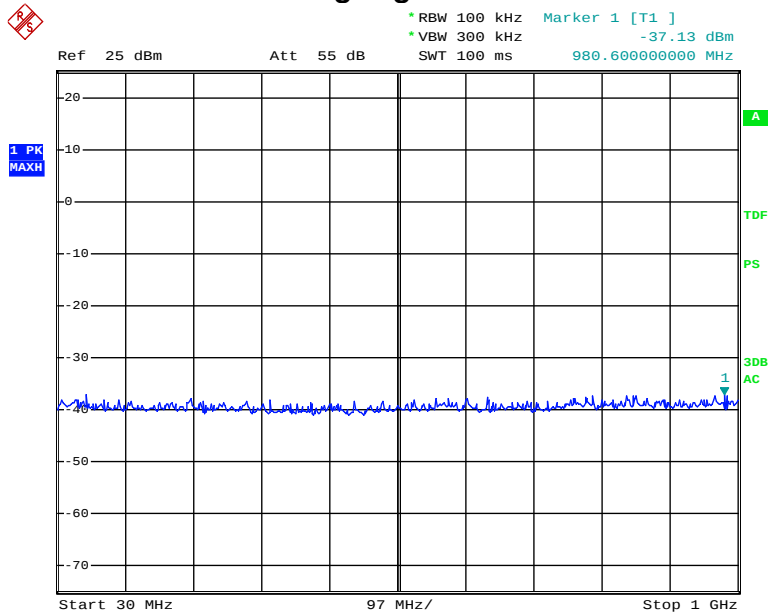
802.11g Middle Channel



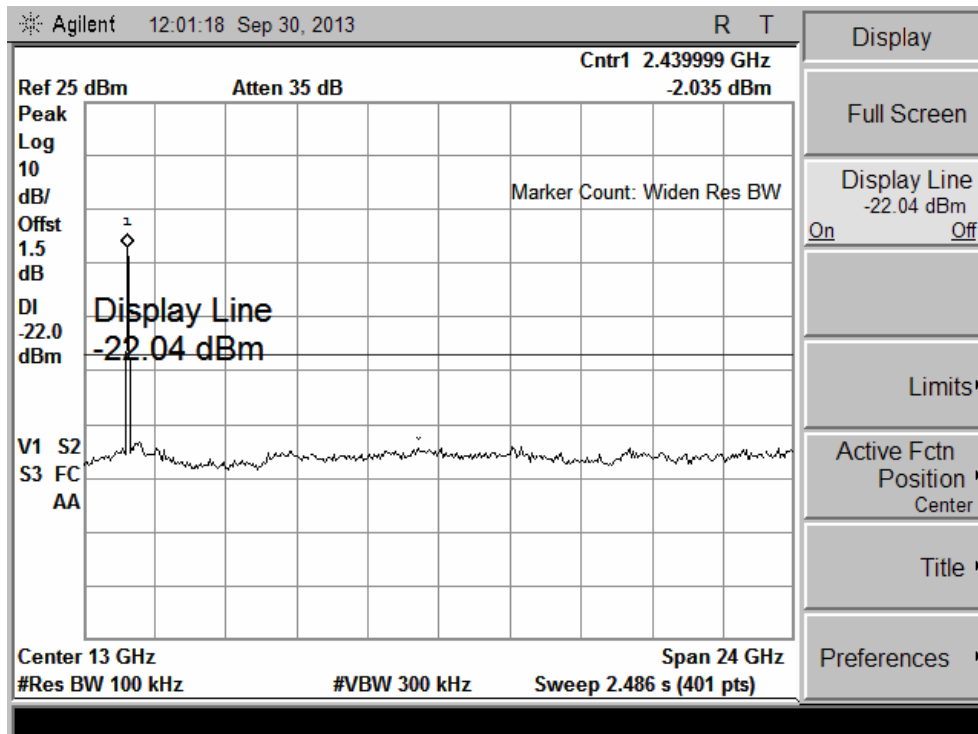
Date: 30.SEP.2013 11:42:31



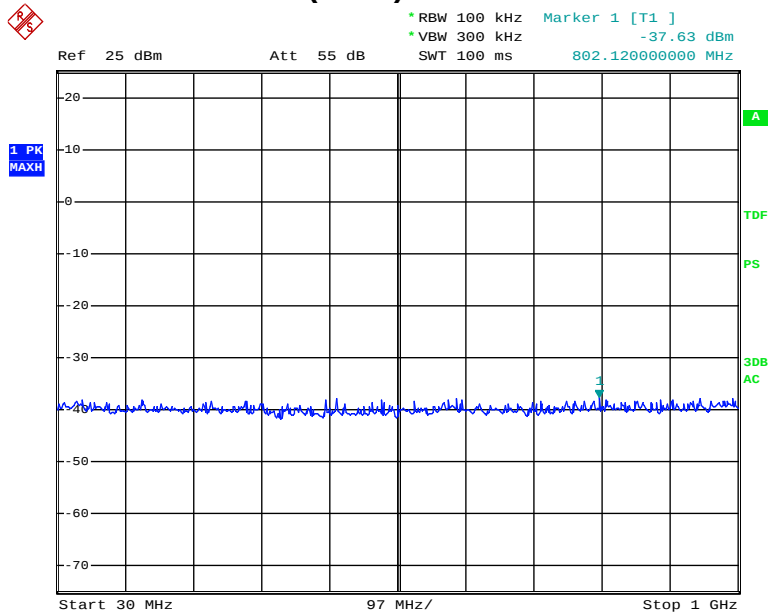
802.11g High Channel



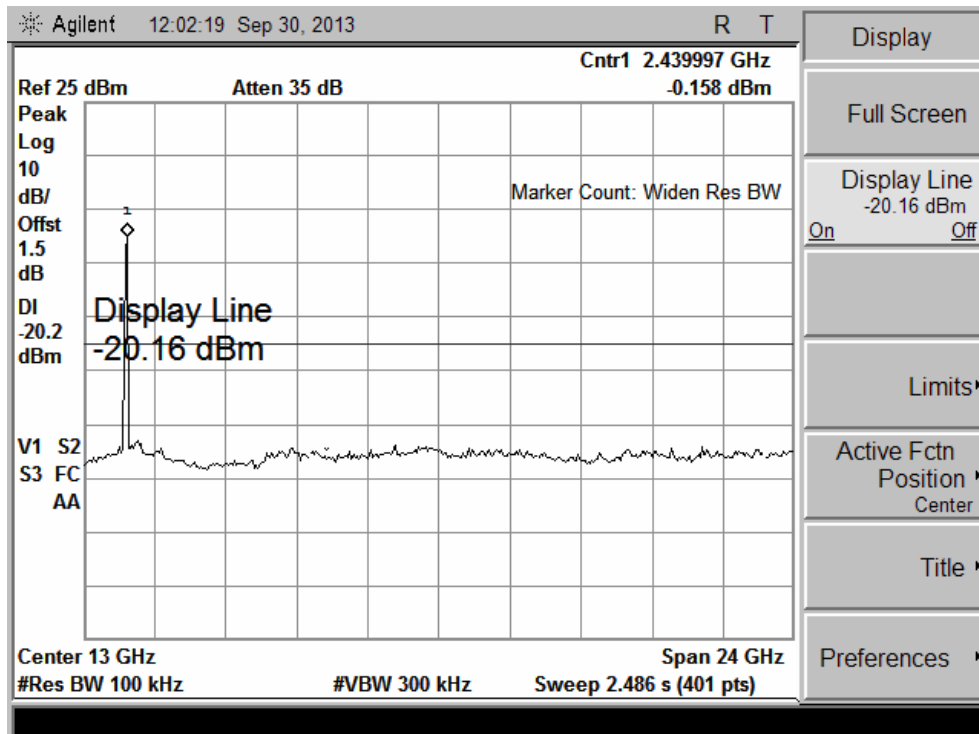
Date: 30.SEP.2013 11:43:01



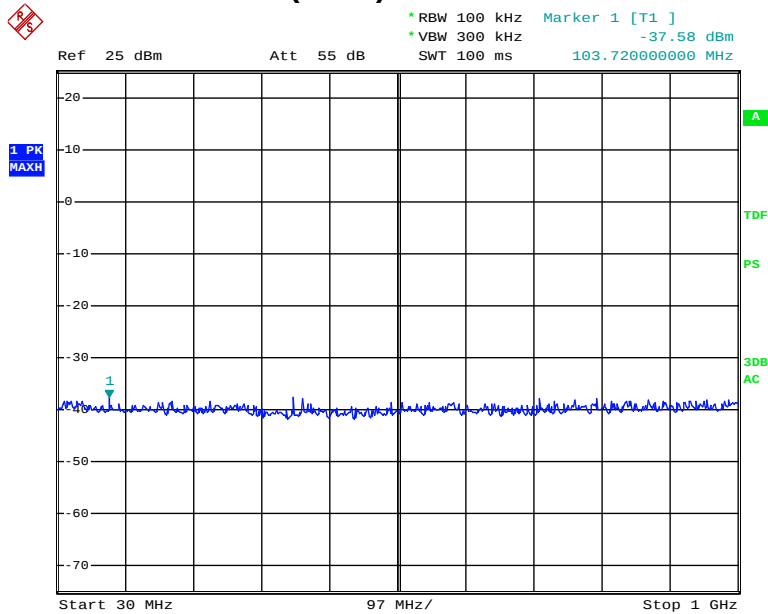
802.11n(HT20) Low Channel



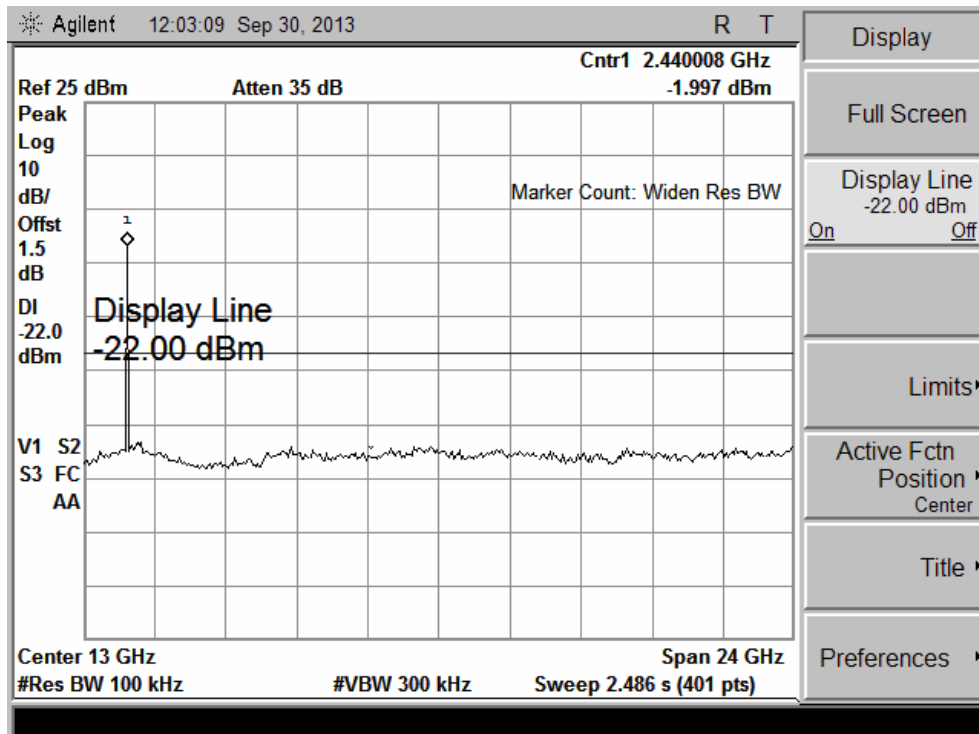
Date: 30.SEP.2013 11:43:16



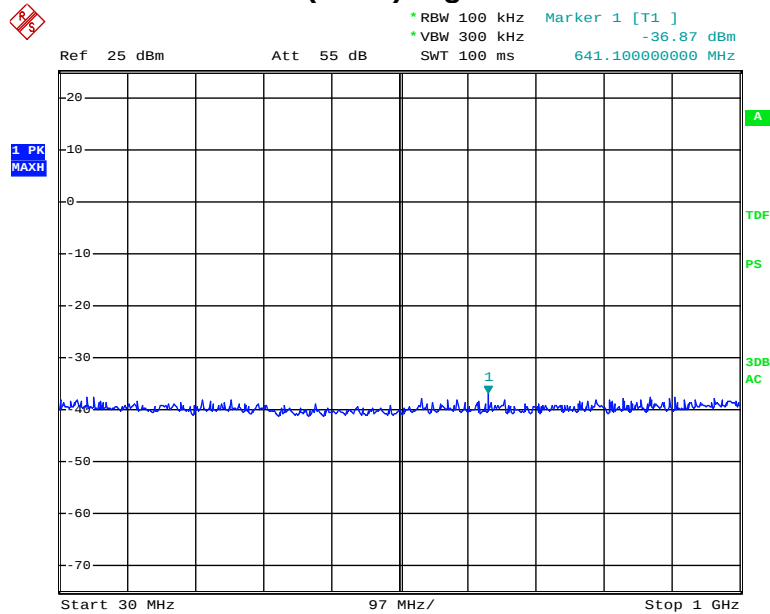
802.11n(HT20) Middle Channel



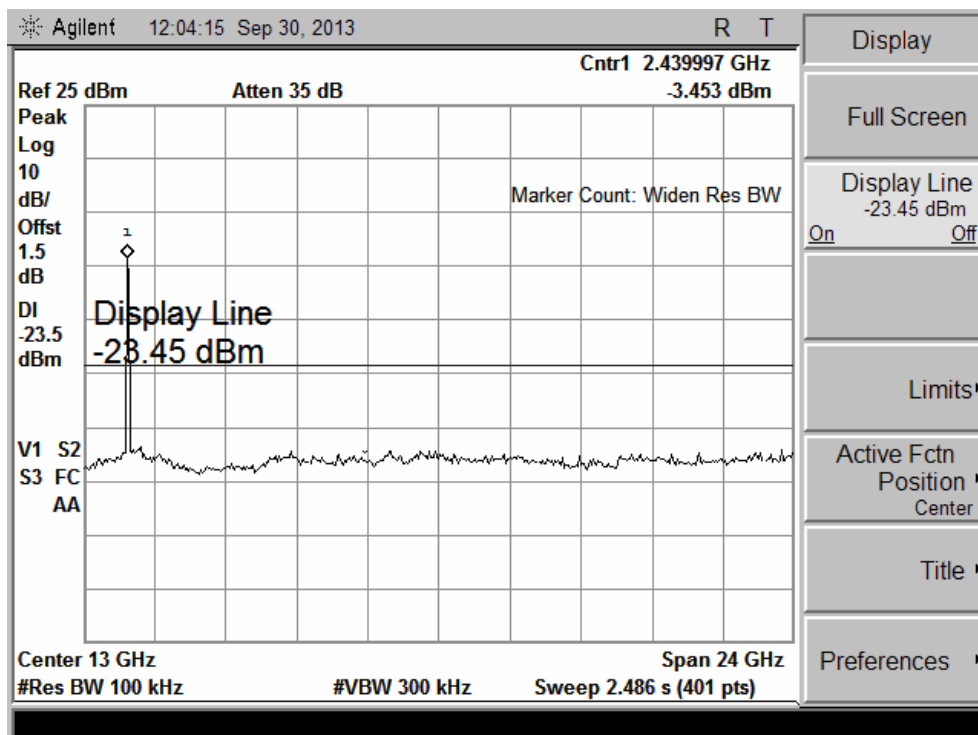
Date: 30.SEP.2013 11:43:33



802.11n(HT20) High Channel



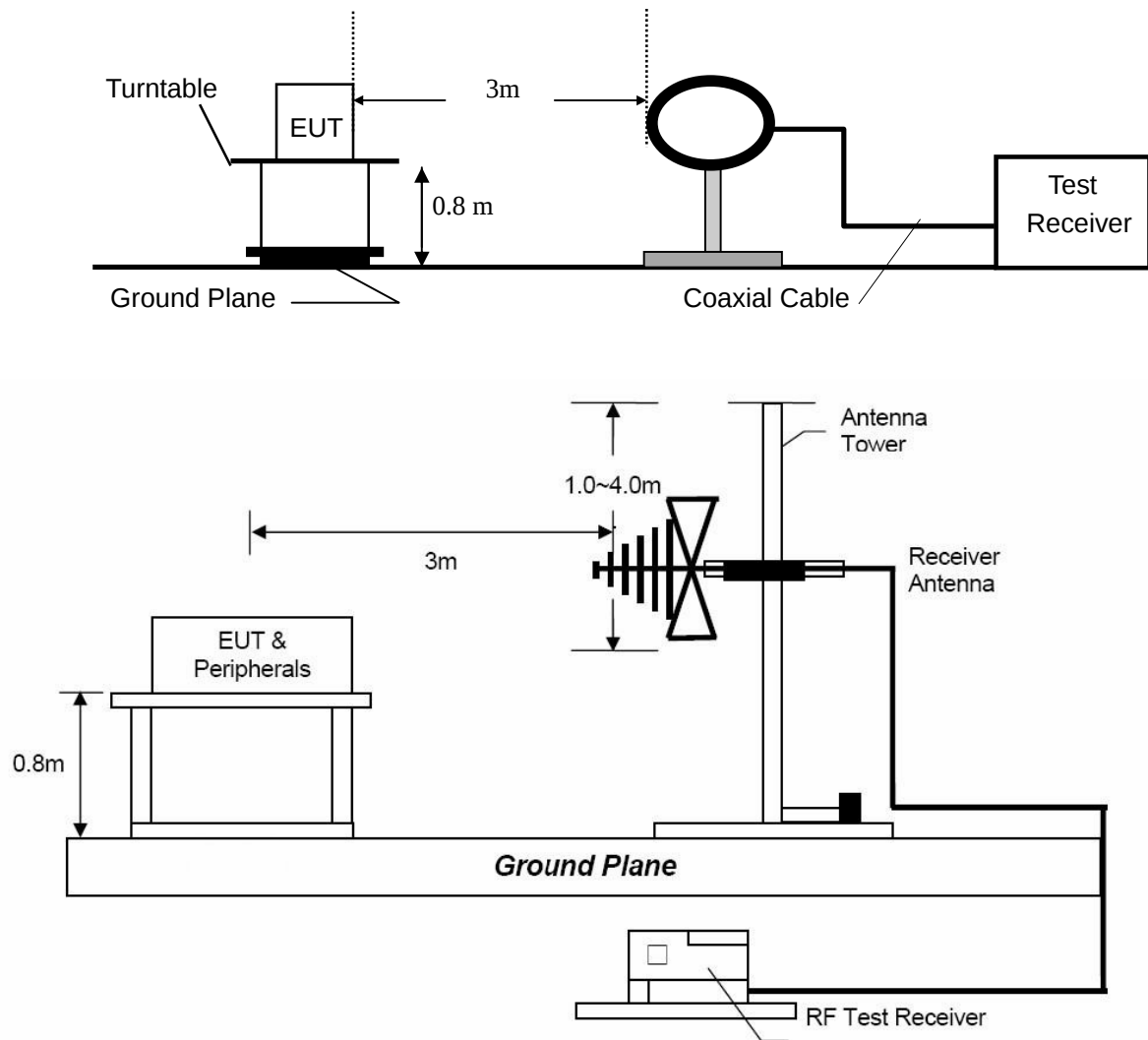
Date: 30.SEP.2013 11:43:52



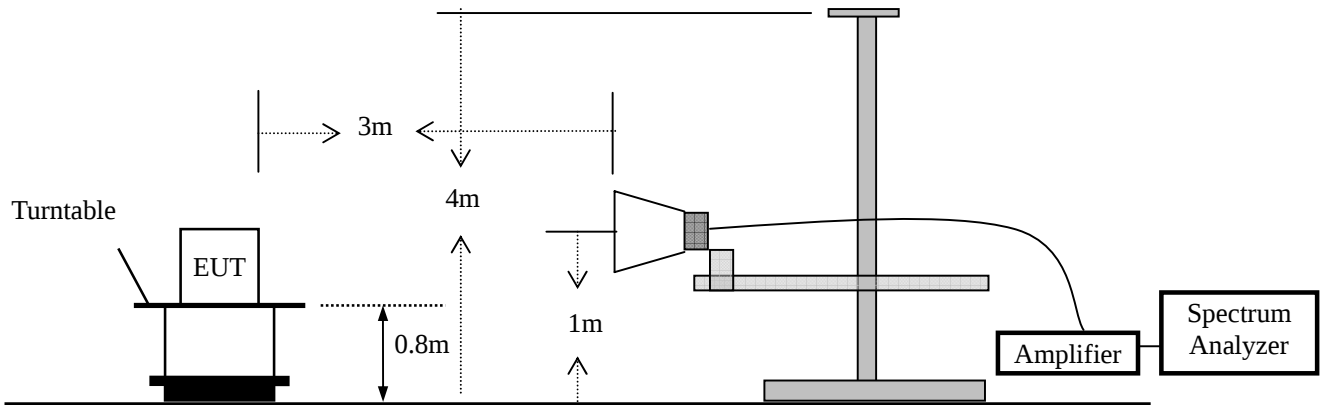
8. Radiated Spurious Emissions and Restricted Bands

8.1 Test SET-UP (Block Diagram of Configuration)

8.1.1 Radiated Emission Test Set-Up, Frequency Below 30MHz



8.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



8.2 Measurement Procedure

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.

8.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209)
		$\mu\text{V/m}$
0.009 ~ 0.490	300	$2400/F(\text{kHz})$
0.490 ~ 1.705	30	$24000/F(\text{kHz})$
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

- Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
 (5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

8.4 Measurement Results

For BT Mode:

Operation Mode: TX
Frequency Range: 9KHz~1GHz
Test Result: PASS
Measured Distance: 3m
Test Date : September 27, 2013

Temperature : 25 °C
Humidity : 54 %
Test By: Sance

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
30.9699	V	35.60	40.00	-4.40	QP
49.3999	V	36.70	40.00	-3.30	QP
88.2000	V	32.40	43.50	-11.10	QP
397.6299	V	37.10	46.00	-8.90	QP
433.5199	V	38.20	46.00	-7.80	QP
442.2500	V	38.80	46.00	-7.20	QP
78.5000	H	35.40	40.00	-4.60	QP
86.2600	H	35.70	40.00	-4.30	QP
167.7400	H	35.90	43.50	-7.60	QP
216.2400	H	37.20	46.00	-8.80	QP
415.0899	H	38.30	46.00	-7.70	QP
433.5199	H	38.90	46.00	-7.10	QP

Other emissions are lower than 10dB below the allowable limit.

Note: (1) Quasi-Peak detector is used except for others stated.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB.

Modulation: GFSK
(Low Frequency: 2402MHz)
Operation Mode: TX Mode (Low) Test Date : September 27, 2013
Frequency Range: 1-25GHz Temperature : 25 °C
Test Result: PASS Humidity : 54 %
Measured Distance: 3m Test By: Sance

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4804	H	55.51	41.55	74.00	54.00	-18.49	-12.45
7206	H	53.89	40.90	74.00	54.00	-20.11	-13.10
9608	H	54.26	41.46	74.00	54.00	-19.74	-12.54
12010	H	54.62	39.70	74.00	54.00	-19.38	-14.30
4804	V	55.56	42.21	74.00	54.00	-18.44	-11.79
7206	V	54.70	41.83	74.00	54.00	-19.30	-12.17
9608	V	53.73	40.82	74.00	54.00	-20.27	-13.18
12010	V	53.58	41.45	74.00	54.00	-20.42	-12.55

Modulation: GFSK
(Mid Frequency: 2442MHz)
Operation Mode: TX Mode (Mid) Test Date : September 27, 2013
Frequency Range: 1-25GHz Temperature : 25 °C
Test Result: PASS Humidity : 54 %
Measured Distance: 3m Test By: Sance

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4884	V	55.60	41.94	74.00	54.00	-18.40	-12.06
7326	V	53.44	39.88	74.00	54.00	-20.56	-14.12
9768	V	55.15	41.66	74.00	54.00	-18.85	-12.34
12210	V	55.55	41.62	74.00	54.00	-18.45	-12.38
4884	H	56.42	41.77	74.00	54.00	-17.58	-12.23
7326	H	55.85	41.43	74.00	54.00	-18.15	-12.57
9768	H	56.00	41.75	74.00	54.00	-18.00	-12.25
12210	H	55.63	41.61	74.00	54.00	-18.37	-12.39

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB

Modulation: GFSK
(High Frequency: 2480MHz)
Operation Mode: TX Mode (High) Test Date : September 27, 2013
Frequency Range: 1-25GHz Temperature : 25 °C
Test Result: PASS Humidity : 54 %
Measured Distance: 3m Test By: Sance

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4960	V	56.55	42.17	74.00	54.00	-17.45	-11.83
7440	V	55.71	43.78	74.00	54.00	-18.29	-10.22
9920	V	55.80	43.54	74.00	54.00	-18.20	-10.46
12400	V	55.95	41.21	74.00	54.00	-18.05	-12.79
4960	H	56.26	41.64	74.00	54.00	-17.74	-12.36
7440	H	56.43	41.76	74.00	54.00	-17.57	-12.24
9920	H	55.43	41.65	74.00	54.00	-18.57	-12.35
12400	H	55.54	41.38	74.00	54.00	-18.46	-12.62

Spurious Emission in restricted band:

Operation Mode: TX Test Date : September 27, 2013
Frequency Range: Above 1GHz Temperature : 25 °C
Test Result: PASS Humidity : 54 %
Measured Distance: 3m Test By: Sance

Frequency (MHz)	Polarity	Level		Limited		Margin		Result
		PK	AV	PK	AV	PK	AV	
GFSK								
2397.800	H	41.75	29.21	74.00	54.00	-32.25	-24.79	PASS
2396.280	V	41.57	29.37	74.00	54.00	-32.43	-24.63	PASS
2487.370	H	41.65	29.72	74.00	54.00	-32.35	-24.28	PASS
2487.100	V	41.55	29.27	74.00	54.00	-32.45	-24.73	PASS

Other harmonics emissions are lower than 10dB below the allowable limit.

- Note:** (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB

For WIFI Mode:

Test Mode: 802.11b(the worst case)
Frequency Range: Below 1GHz Temperature : 25 °C
Test Result: PASS Humidity : 54 %
Measured Distance: 3m Test By: Think
Test Date : September 23, 2013

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBUV)	Limit 3m (dBUV/m)	Margin (dB)	Note
35.8200	V	36.50	40.00	-3.50	QP
49.4000	V	37.00	40.00	-3.00	QP
88.2000	V	30.40	43.50	-13.10	QP
263.7699	V	29.10	46.00	-16.90	QP
408.3000	V	35.40	46.00	-10.60	QP
442.2500	V	36.20	46.00	-9.80	QP
86.2600	H	35.20	40.00	-4.80	QP
129.9100	H	33.20	43.50	-10.30	QP
167.7400	H	36.70	43.50	-6.80	QP
216.2400	H	36.20	46.00	-9.80	QP
408.3000	H	37.30	46.00	-8.70	QP
441.2800	H	35.40	46.00	-10.60	QP

Test Mode: 802.11b
Operation Mode: TX Mode (Low) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBUV)		Limit 3m(dBUV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4824	V	55.97	42.23	74.00	54.00	-18.03	-11.77
7236	V	56.42	42.14	74.00	54.00	-17.58	-11.86
9648	V	56.79	42.51	74.00	54.00	-17.21	-11.49
4824	H	56.29	42.01	74.00	54.00	-17.71	-11.99
7236	H	56.35	41.97	74.00	54.00	-17.65	-12.03
9648	H	57.32	42.18	74.00	54.00	-16.68	-11.82

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB

Test Mode: 802.11b
Operation Mode: TX Mode (Mid) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4874	V	56.21	42.10	74.00	54.00	-17.79	-11.90
7311	V	56.05	41.79	74.00	54.00	-17.95	-12.21
9748	V	56.86	42.60	74.00	54.00	-17.14	-11.40
4874	H	56.45	41.87	74.00	54.00	-17.55	-12.13
7311	H	56.74	42.45	74.00	54.00	-17.26	-11.55
9748	H	57.64	41.37	74.00	54.00	-16.36	-12.63

Test Mode: 802.11b
Operation Mode: TX Mode (High) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4924	V	57.21	41.91	74.00	54.00	-16.79	-12.09
7386	V	56.96	42.02	74.00	54.00	-17.04	-11.98
9848	V	56.84	42.49	74.00	54.00	-17.16	-11.51
4924	H	56.37	42.50	74.00	54.00	-17.63	-11.50
7386	H	57.02	41.81	74.00	54.00	-16.98	-12.19
9848	H	57.67	41.22	74.00	54.00	-16.33	-12.78

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB

Spurious Emission in restricted band:

Test Mode:	802.11b	Test Date :	September 23, 2013
Operation Mode:	TX	Temperature :	54 %
Frequency Range:	Above 1GHz	Humidity :	25 °C
Test Result:	PASS	Test By:	Think
Measured Distance:	3m		

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2393.360	H	57.71	49.58	74.00	54.00	-16.29	-4.42
2397.280	V	48.05	34.83	74.00	54.00	-25.95	-19.17
2484.800	H	48.32	34.77	74.00	54.00	-25.68	-19.23
2484.730	V	47.05	33.38	74.00	54.00	-26.95	-20.62

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss
 (3) Measurement uncertainty : $\pm 3.7\text{dB}$

Test Mode: 802.11g
Operation Mode: TX Mode (Low) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4824	V	55.94	41.51	74.00	54.00	-18.06	-12.49
7236	V	55.13	41.30	74.00	54.00	-18.87	-12.70
9648	V	54.88	41.51	74.00	54.00	-19.12	-12.49
4824	H	54.64	41.57	74.00	54.00	-19.36	-12.43
7236	H	53.47	41.25	74.00	54.00	-20.53	-12.75
9648	H	54.34	41.78	74.00	54.00	-19.66	-12.22

Test Mode: 802.11g
Operation Mode: TX Mode (Mid) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4874	V	56.56	41.65	74.00	54.00	-17.44	-12.35
7311	V	56.44	41.07	74.00	54.00	-17.56	-12.93
9748	V	56.75	41.35	74.00	54.00	-17.25	-12.65
4874	H	56.37	41.66	74.00	54.00	-17.63	-12.34
7311	H	56.39	40.01	74.00	54.00	-17.61	-13.99
9748	H	55.11	40.81	74.00	54.00	-18.89	-13.19

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ±3.7dB

Test Mode: 802.11g
Operation Mode: TX Mode (High) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4924	V	56.37	41.56	74.00	54.00	-17.63	-12.44
7386	V	56.58	42.27	74.00	54.00	-17.42	-11.73
9848	V	56.67	42.39	74.00	54.00	-17.33	-11.61
4924	H	56.43	42.12	74.00	54.00	-17.57	-11.88
7386	H	56.06	42.75	74.00	54.00	-17.94	-11.25
9848	H	55.61	41.43	74.00	54.00	-18.39	-12.57

Spurious Emission in restricted band:

Test Mode: 802.11g
Operation Mode: TX Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2390.0	H	56.96	43.14	74.00	54.00	-17.04	-10.86
2390.0	V	57.32	43.66	74.00	54.00	-16.68	-10.34
2483.5	H	48.62	35.78	74.00	54.00	-25.38	-18.22
2483.5	V	47.49	34.03	74.00	54.00	-26.51	-19.97

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ± 3.7 dB

Test Mode: 802.11n(HT20)
Operation Mode: TX Mode (Low) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4824	V	56.21	41.72	74.00	54.00	-17.79	-12.28
7236	V	56.47	42.12	74.00	54.00	-17.53	-11.88
9648	V	56.95	41.04	74.00	54.00	-17.05	-12.96
4824	H	57.17	41.69	74.00	54.00	-16.83	-12.31
7236	H	56.63	41.29	74.00	54.00	-17.37	-12.71
9648	H	57.42	42.72	74.00	54.00	-16.58	-11.28

Test Mode: 802.11n(HT20)
Operation Mode: TX Mode (Mid) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4874	V	56.66	41.63	74.00	54.00	-17.34	-12.37
7311	V	56.09	41.96	74.00	54.00	-17.91	-12.04
9748	V	55.78	40.30	74.00	54.00	-18.22	-13.70
4874	H	56.33	41.62	74.00	54.00	-17.67	-12.38
7311	H	56.62	41.29	74.00	54.00	-17.38	-12.71
9748	H	55.47	40.86	74.00	54.00	-18.53	-13.14

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ±3.7dB

Test Mode: 802.11n(HT20)
Operation Mode: TX Mode (High) Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
4924	V	56.52	41.93	74.00	54.00	-17.48	-12.07
7386	V	56.44	42.05	74.00	54.00	-17.56	-11.95
9848	V	55.13	41.43	74.00	54.00	-18.87	-12.57
4924	H	56.85	41.97	74.00	54.00	-17.15	-12.03
7386	H	56.65	41.46	74.00	54.00	-17.35	-12.54
9848	H	56.18	41.60	74.00	54.00	-17.82	-12.40

Spurious Emission in restricted band:

Test Mode: 802.11n(HT20)
Operation Mode: TX Test Date : September 23, 2013
Frequency Range: Above 1GHz Temperature : 54 %
Test Result: PASS Humidity : 25 °C
Measured Distance: 3m Test By: Think

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2390.0	H	56.72	43.10	74.00	54.00	-17.28	-10.90
2390.0	V	58.50	44.98	74.00	54.00	-15.50	-9.02
2483.5	H	48.95	36.04	74.00	54.00	-25.05	-17.96
2483.5	V	48.23	35.12	74.00	54.00	-25.77	-18.88

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ±3.7dB

9. Antenna Application

9.1 Antenna requirement

According to of FCC part 15C section 15.203 and 15.240:

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

Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

9.2 Measurement Results

The antenna is integral antenna that no antenna other than that furnished by the responsible party shall be used with the device, and the best case gain of the antenna is 0.8dBi. So, the antenna is consider meet the requirement.

10. Test Equipment List

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	Nov. 25, 2012	Nov. 24, 2013
Antenna	Schwarzbeck	VULB9162	9162-010	Nov. 28, 2012	Nov. 27, 2013
Positioning Controller	UC	UC 3000	N/A	N/A	N/A
Color Monitor	SUNSP0	SP-140A	N/A	N/A	N/A
Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
Cable	Huber+Suhner	CBL2-NN-1M	22390001	Nov. 09, 2012	Nov. 08, 2013
Cable	Huber+Suhner	CIL02	N/A	Nov. 09, 2012	Nov. 08, 2013
Power Amplifier	HP	HP 8447D	1145A00203	Nov. 09, 2012	Nov. 08, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-372	Oct. 24, 2012	Oct. 23, 2013
Horn Antenna	EMCO	3117	00062558	Oct. 19, 2012	Oct. 18, 2013
Loop antenna	Daze	ZA30900A	0708	Oct.16, 2012	Oct.15, 2013
Spectrum Analyzer	Agilent	E4408B	MY41440717	Apr. 29, 2013	Apr 28, 2014
Pre-Amplifier	Agilent	8449B	3008A02964	Apr. 19, 2013	Apr 18, 2014
L.I.S.N	Rohde & Schwarz	ENV 216	101317	Nov. 09, 2012	Nov. 08, 2013

---End of report---