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FCC RADIO TEST REPORT

Applicant's company	**Motorola Solutions, Inc.**
Applicant Address	One Motorola Plaza Holtsville, NY 11742 USA
FCC ID	**UZ7KHUSB601**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C.

Product Name	802.11 a/b/g/n USB module
Brand Name	MOTOROLA
Model No.	KHUSB601
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Jun. 20, 2013
Final Test Date	Jan. 20, 2014
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g part and IEEE 802.11a (5725 ~ 5850MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009**, **47 CFR FCC Part 15 Subpart C**, **KDB 558074 D01 v03r01** and **KDB 662911 D01 v02r01**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

TAF
Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR250705-02AA	Rev. 01	Initial issue of report	Mar. 11, 2014
FR250705-02AA	Rev. 02	1. Revising KDB to "KDB 558074 D01 v03r01" from ""KDB 558074 D01 v03r". 2. Revising KDB to "KDB 662911 D01 v02r01" from ""KDB 662911 D01 v02".	Mar. 17, 2014

Certificate No.: CB10207098

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**802.11 a/b/g/n USB module**
Brand Name	:	**MOTOROLA**
Model No.	:	**KHUSB601**
Applicant	:	**Motorola Solutions, Inc.**
Test Rule Part(s)	:	**47 CFR FCC Part 15 Subpart C § 15.247**

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jun. 20, 2013 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	14.89 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	9.51 dB
4.3	15.247(e)	Power Spectral Density	Complies	12.88 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.08 dB
4.6	15.247(d)	Band Edge Emissions	Complies	1.07 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (1/2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: 1TX : MCS0 (20MHz): 26.32 MHz ; MCS0 (40MHz): 36.48 MHz 2TX : MCS0 (20MHz) : 17.84 MHz ; MCS0 (40MHz) : 36.48 MHz MCS8 (20MHz) : 17.76 MHz ; MCS8 (40MHz) : 36.48 MHz For 5GHz Band: 1TX : MCS0 (20MHz) : 29.60 MHz ; MCS0 (40MHz) : 62.40 MHz 2TX : MCS0 (20MHz) : 24.56 MHz ; MCS0 (40MHz) : 54.72 MHz MCS8 (20MHz) : 23.04 MHz ; MCS8 (40MHz) : 49.12 MHz
Maximum Conducted Output Power	For 2.4GHz Band: 1TX : MCS0 (20MHz) : 18.72 dBm ; MCS0 (40MHz) : 11.79 dBm 2TX : MCS0 (20MHz) : 15.34 dBm ; MCS0 (40MHz) : 13.49 dBm MCS8 (20MHz) : 13.73 dBm ; MCS8 (40MHz) : 13.48 dBm For 5GHz Band: 1TX : MCS0 (20MHz) : 19.51 dBm ; MCS0 (40MHz) : 19.45 dBm 2TX : MCS0 (20MHz) : 20.13 dBm ; MCS0 (40MHz) : 19.84 dBm MCS8 (20MHz) : 19.76 dBm ; MCS8 (40MHz) : 19.79 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	WLAN (1/2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	1TX : 11b: 15.04 MHz 2TX : 11b: 12.48 MHz
Maximum Conducted Output Power	1TX : 11b: 18.42 dBm ; 11g: 19.01 dBm ; 11a: 19.35 dBm 2TX : 11b: 20.49 dBm ; 11g: 13.58 dBm ; 11a: 19.56 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

Antenna	Single (TX)		Two (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz
IEEE 802.11a	V	X	V	X
IEEE 802.11b	V	X	V	X
IEEE 802.11g	V	X	V	X
IEEE 802.11n	V	V	V	V

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1, 2	MCS 0-15
802.11n (HT40)	1, 2	MCS 0-15
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n		

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Model No.	Antenna Type	Connector	Gain (dBi)		Loss of External Cable		True Gain (dBi)	
					2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	MOTOROLA	ML-2452-HPAG5A8-01	Dipole	N male	5	8	1	1.65	4	6.35
2	MOTOROLA	ML-2452-APA2-01	Dipole	RP-SMA Male	3.17	4.60	1	1.65	2.17	2.95
3	MOTOROLA	ML-2452-HPA6M6-072	Dipole	SMA-RP-Male	2.8	6.5	1	1.65	1.8	4.85

Note: The EUT has three antennas.

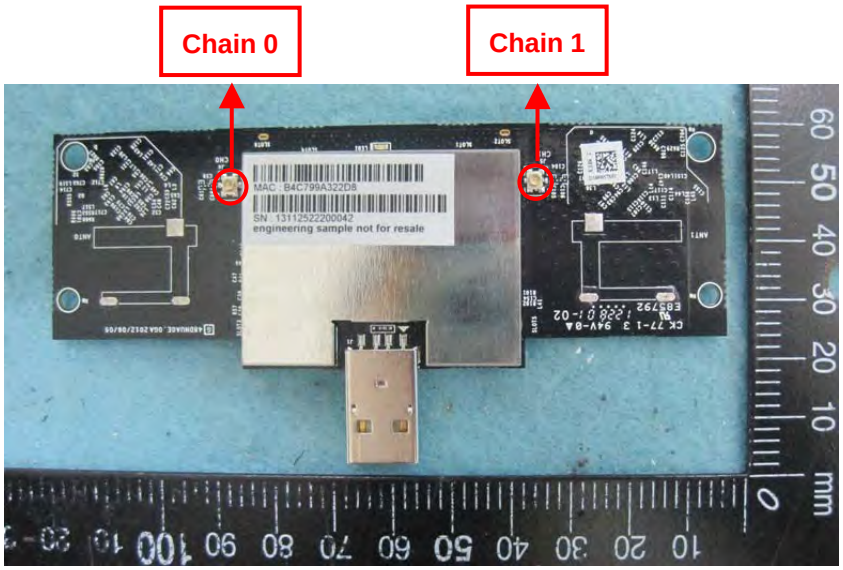
Because Ant. 1, Ant. 2 and Ant. 3 are the same type antennas, only the higher gain antenna "Ant. 1" was tested and recorded in the report.

For IEEE 802.11a/b/g/n mode (1TX/2RX):

Only Chan. 0 can be used as transmitting, but Chan. 0 and Chan. 1 could receive simultaneously.

For IEEE 802.11a/b/g/n mode (2TX/2RX):

Chain 0 and Chain 1 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 1~Channel 11.

For 40MHz bandwidth systems, use Channel 3~Channel 9.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

For 5GHz Band:

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 151, 159.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz	-	-

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

For 2.4GHz Band

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11n 20MHz	MCS0	1/6/11	0 0+1
	11n 20MHz	MCS8	1/6/11	0+1
	11n 40MHz	MCS0	3/6/9	0 0+1
	11n 40MHz	MCS8	3/6/9	0+1
	11b/CCK	1 Mbps	1/6/11	0 0+1
	11g/BPSK	6 Mbps	1/6/11	0 0+1
Power Spectral Density	11n 20MHz	MCS0	1/6/11	0 0, 1
	11n 20MHz	MCS8	1/6/11	0, 1
	11n 40MHz	MCS0	3/6/9	0 0, 1
	11n 40MHz	MCS8	3/6/9	0, 1
	11b/CCK	1 Mbps	1/6/11	0 0, 1
6dB Spectrum Bandwidth	11n 20MHz	MCS0	1/6/11	0 0+1
	11n 20MHz	MCS8	1/6/11	0+1
	11n 40MHz	MCS0	3/6/9	0 0+1
	11n 40MHz	MCS8	3/6/9	0+1
	11b/CCK	1 Mbps	1/6/11	0 0+1
Radiated Emissions Below 1GHz	Normal Link	-	-	-

Radiated Emissions Above 1GHz	11n 20MHz	MCS0	1/6/11	0 0+1
	11n 20MHz	MCS8	1/6/11	0+1
	11n 40MHz	MCS0	3/6/9	0 0+1
	11n 40MHz	MCS8	3/6/9	0+1
	11b/CCK	1 Mbps	1/6/11	0 0+1
	11g/BPSK	6 Mbps	1/6/11	0 0+1
Band Edge Emissions	11n 20MHz	MCS0	1/6/11	0 0+1
	11n 20MHz	MCS8	1/6/11	0+1
	11n 40MHz	MCS0	3/6/9	0 0+1
	11n 40MHz	MCS8	3/6/9	0+1
	11b/CCK	1 Mbps	1/6/11	0 0+1
	11g/BPSK	6 Mbps	1/6/11	0 0+1

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11n 20MHz	MCS0	149/157/165	0 0+1
	11n 20MHz	MCS8	149/157/165	0+1
	11n 40MHz	MCS0	151/159	0 0+1
	11n 40MHz	MCS8	151/159	0+1
	11a/BPSK	6 Mbps	149/157/165	0 0+1
Power Spectral Density	11n 20MHz	MCS0	149/157/165	0 0, 1
	11n 20MHz	MCS8	149/157/165	0, 1
	11n 40MHz	MCS0	151/159	0 0, 1
	11n 40MHz	MCS8	151/159	0, 1
6dB Spectrum Bandwidth	11n 20MHz	MCS0	149/157/165	0 0+1
	11n 20MHz	MCS8	149/157/165	0+1
	11n 40MHz	MCS0	151/159	0 0+1
	11n 40MHz	MCS8	151/159	0+1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11n 20MHz	MCS0	149/157/165	0 0+1
	11n 20MHz	MCS8	149/157/165	0+1
	11n 40MHz	MCS0	151/159	0 0+1
	11n 40MHz	MCS8	151/159	0+1
	11a/BPSK	6 Mbps	149/157/165	0 0+1

Band Edge Emissions	11n 20MHz	MCS0	149/157/165	0 0+1
	11n 20MHz	MCS8	149/157/165	0+1
	11n 40MHz	MCS0	151/159	0 0+1
	11n 40MHz	MCS8	151/159	0+1
	11a/BPSK	6 Mbps	149/157/165	0 0+1

Note: 1. For HT20/40 2TX, MCS8 ~ 15 (2-stream), MCS0 ~ 7 (1-stream).

2. 11a/g 1TX/2TX just test ouput power and radiated emission,the other test items are covered by 802.11n HT20 1TX/2TX(MCS0-single stream) which are same modulation,bandwidth and frequency.

Expected Array Gain Adjustment to Antenna Directivity for 2TX Configurations and Supported Operational Modes

In the FCC regulatory domain,conducted testing of systems with multiple transmitters (2TX transmitter configurations) was performed in accordance with KDB 662911 requires adjustment of antenna directivity by an array gain factor. The array gain factor is dependent on correlation of the multiple tx signals, and is therefore a function of operational mode.

The following table establishes the expected array gain for the 2TX transmitter configuration case for each supported operational mode.

Operational Mode > Tx Config ^	11b (DSSS-CCK)	11a/g (Legacy OFDM)	HT20 1 Stream (MCS0-7)	HT40 1 Stream (MCS0-7)	HT20 2 Stream (MCS8-15)	HT40 2 Stream (MCS8-15)
2TX	3 dB	3dB	3dB	3dB	N/A	N/A

For MPE and Co-location test:

The EUT (Model number: KHUSB601) could be applied install to the AP (MOTOROLA / AP-8263 and MOTOROLA / AP-8163), it verified MPE and Co-location test.

1. MOTOROLA / AP-8263:

   The EUT could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800) and Radio B (5G) RF module (FCC ID: UZ7RAAP800); therefore Maximum Permissible Exposure (Please refer to Appendix B) and Co-location (please refer to Appendix C) tests are added for simultaneously transmit between EUT (2.4G)/(5G), Radio A(2.4G) RF module (FCC ID: UZ7KHAP800) and Radio B (5G) RF module (FCC ID: UZ7RAAP800).

2. MOTOROLA / AP-8163:

   The EUT could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800) and Radio B (5G) RF module (FCC ID: UZ7KHAP800); therefore Maximum Permissible Exposure (Please refer to Appendix B) and Co-location (please refer to Appendix C) tests are added for simultaneously transmit between EUT (2.4G)/(5G), Radio A (2.4G) RF module (FCC ID: UZ7KHAP800) and Radio B (5G) RF module (FCC ID: UZ7KHAP800).

Note: The Co-location testing was performed at the highest power.

3.6. Table for Testing Locations

Test Site Location				
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.			
TEL:	886-3-656-9065			
FAX:	886-3-656-9085			
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D
TH01-CB	OVEN Room	Hsin Chu	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

3.7. Table for Supporting Units

For AC Power Line Conducted Emissions Emission and Radiated Emission below 1GHz test:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	QDS-BRCM1049LE
Module	WNC	DNXA-M1	N/A
Notebook	DELL	E6430	QDS-BRCM1049LE
Earphone	SHYARO CHI	MIC-04	N/A
Mouse	Logitech	M-U0026	DoC

For Others tests:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	M1340	E2K4965AGNM

3.8. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

For 2.4GHz Band

Power Parameters of IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	10.5	20	10

Power Parameters of IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	8.5	11	8.5

Power Parameters of IEEE 802.11b/g / Ant. 1 / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	18	17.5	16.5
IEEE 802.11g	11	20.5	10.5

Power Parameters of IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	6.5	9.5	11

Power Parameters of IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	7.5	9	7.5

Power Parameters of IEEE 802.11b/g / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	16	14.5	14.5
IEEE 802.11g	6.5	9.5	9

Power Parameters of IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS8 20MHz	6.5	9.5	9.5

Power Parameters of IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS8 40MHz	7	9	7

For 5GHz Band

Power Parameters of IEEE 802.11n MCS0 20MHz / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 20MHz	23	23.5	23.5

Power Parameters of IEEE 802.11n MCS0 40MHz / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3	
Frequency	5755 MHz	5795 MHz
MCS0 40MHz	15	23.5

Power Parameters of IEEE 802.11a / Chain 0 (1TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	23	23.5	23.5

Power Parameters of IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 20MHz	19	17	16.5

Power Parameters of IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3	
Frequency	5755 MHz	5795 MHz
MCS0 40MHz	12.5	19

Power Parameters of IEEE 802.11a / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	18	17	16

Power Parameters of IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Test Software Version	ART2-GUI Version 2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS8 20MHz	18	18	19

Power Parameters of IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

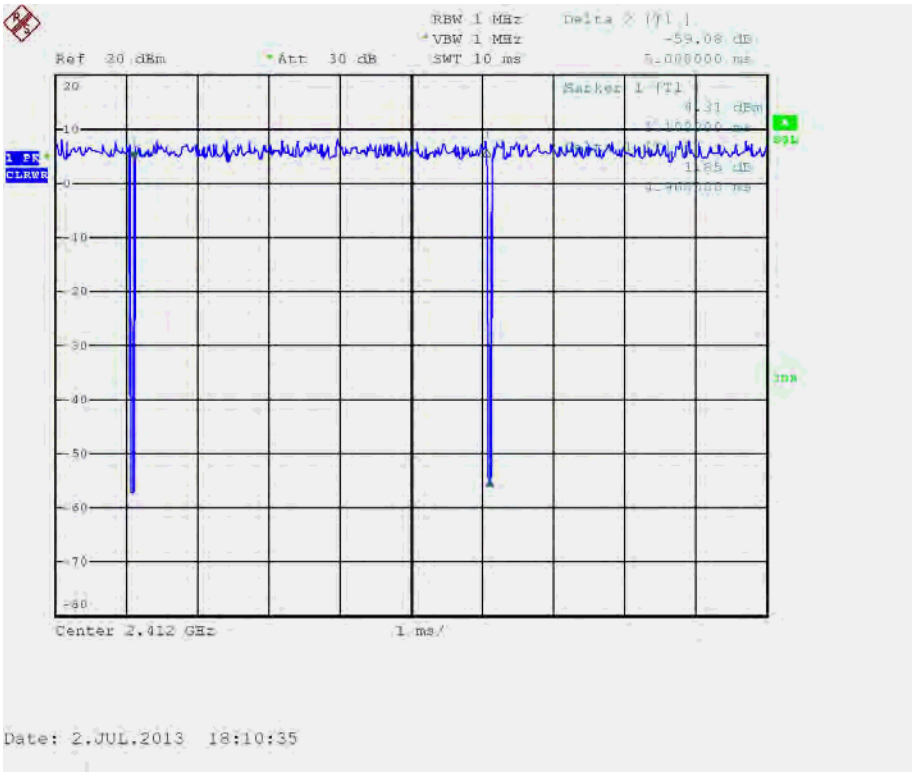
Test Software Version	ART2-GUI Version 2.3	
Frequency	5755 MHz	5795 MHz
MCS8 40MHz	13	19

3.9. EUT Operation during Test

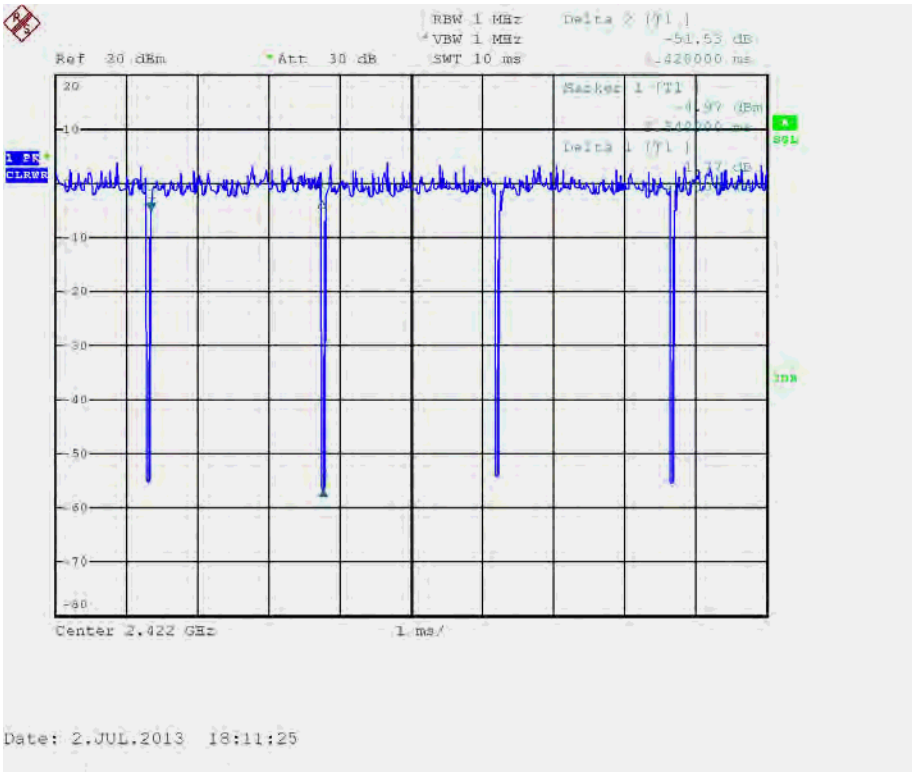
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / For 2.4GHz Band



IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / For 2.4GHz Band



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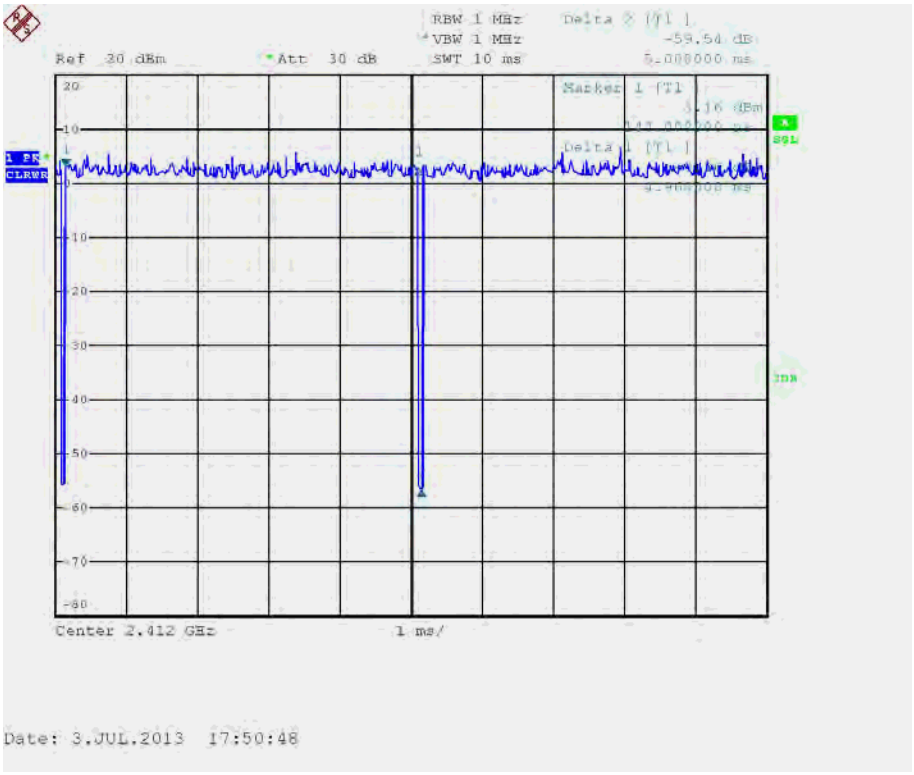

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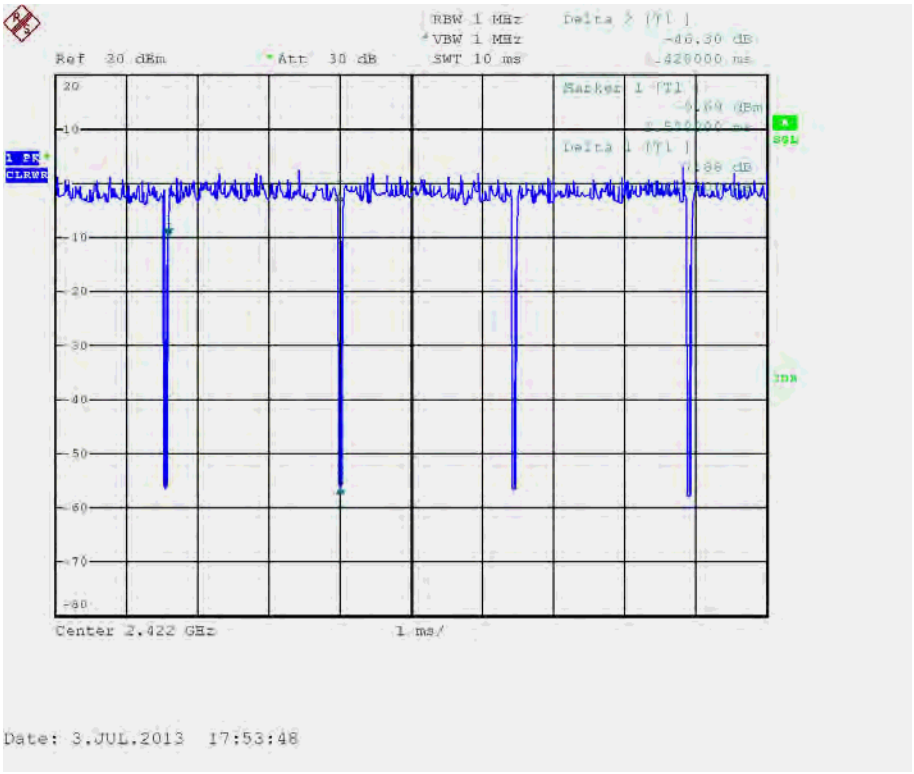

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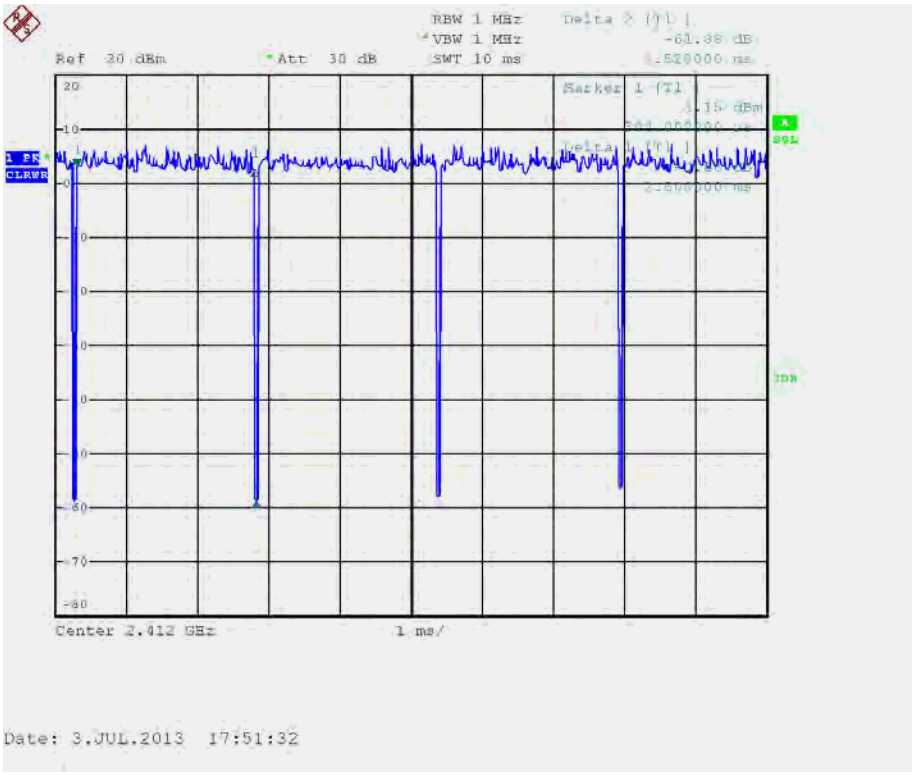
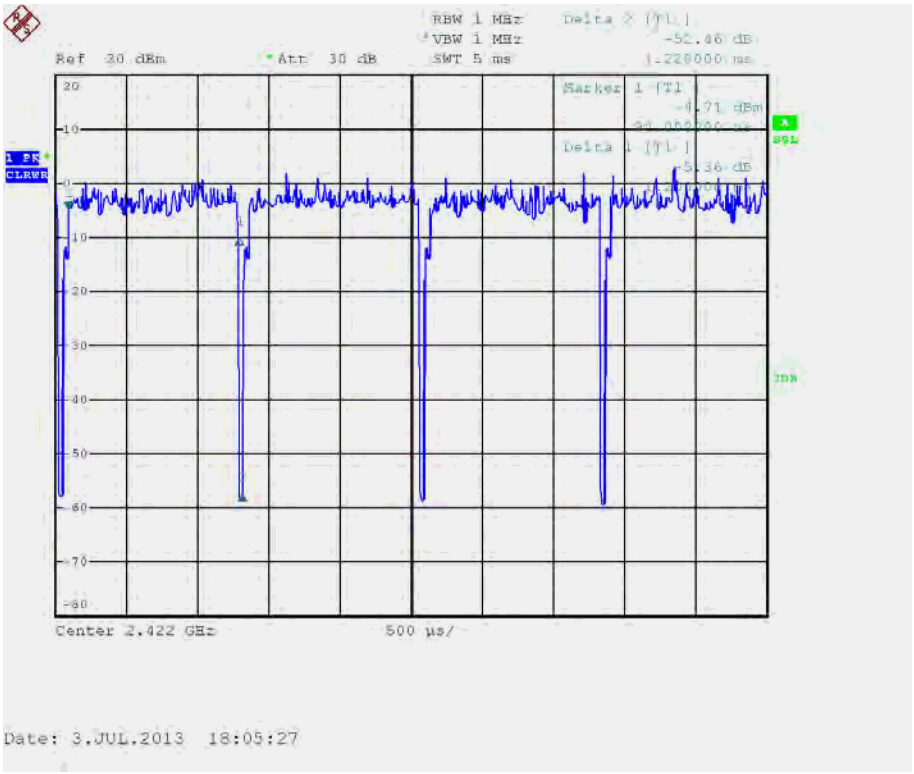
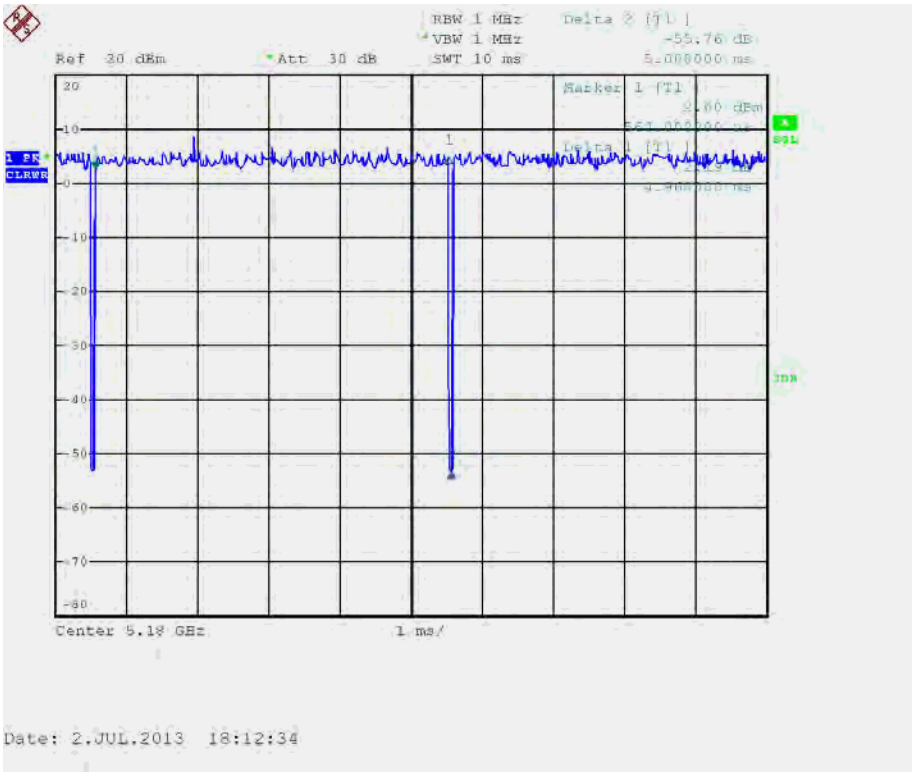


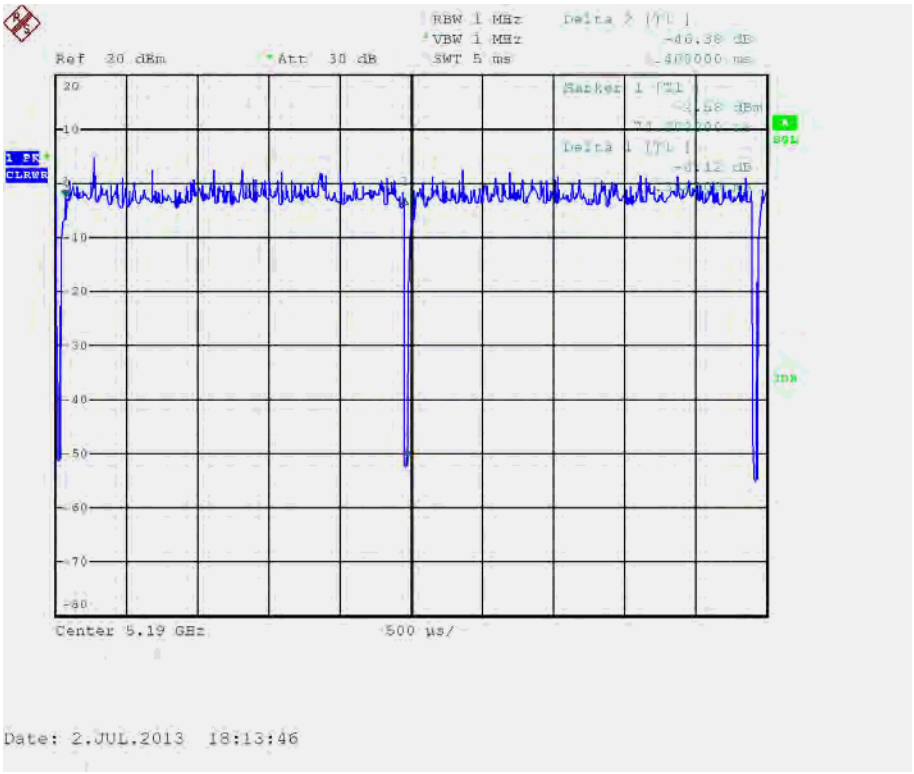
IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / For 2.4GHz Band



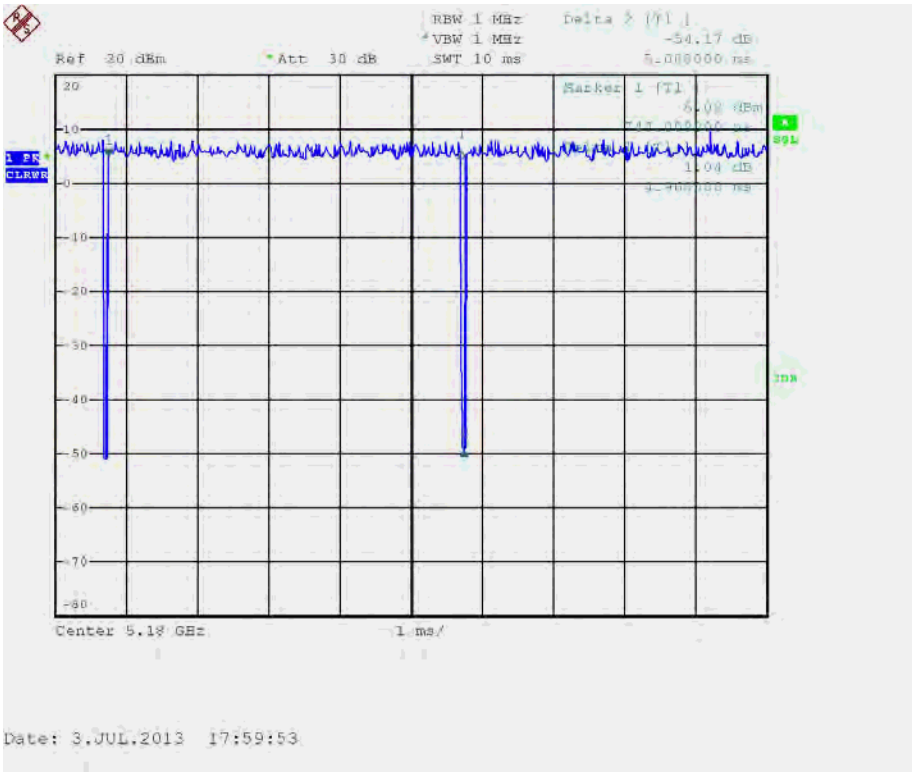
IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / For 5GHz Band



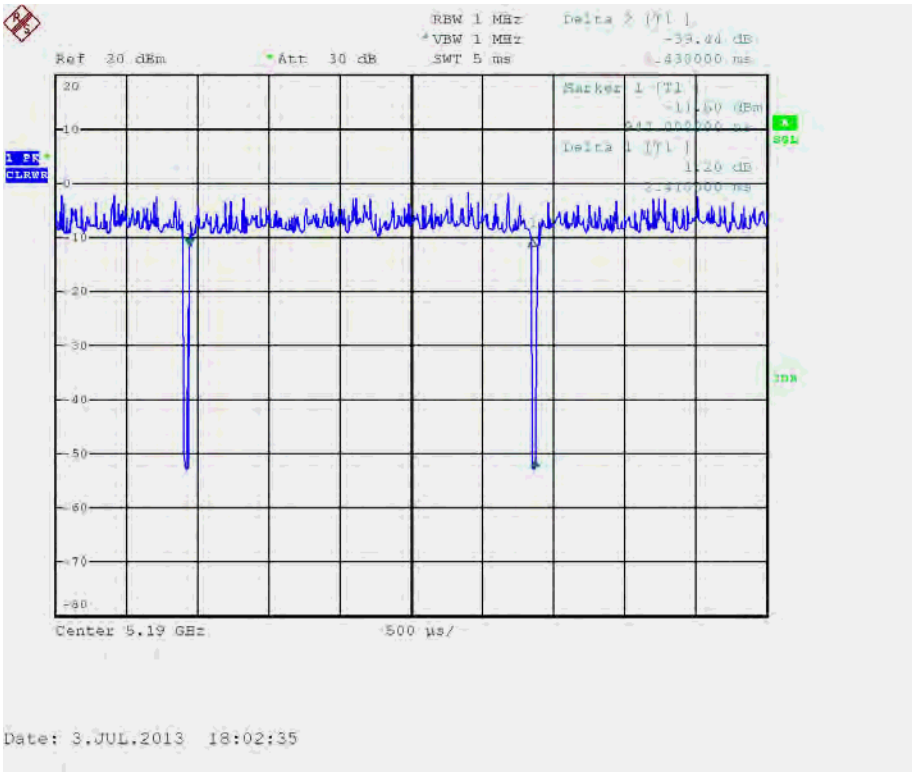
IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / For 5GHz Band



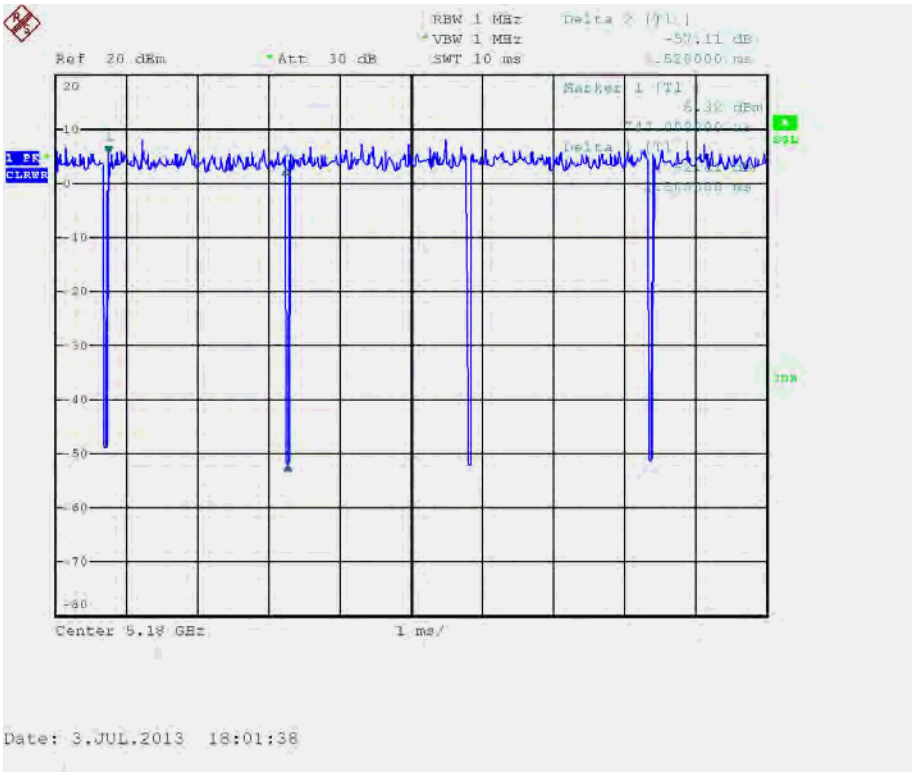
IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / For 5GHz Band



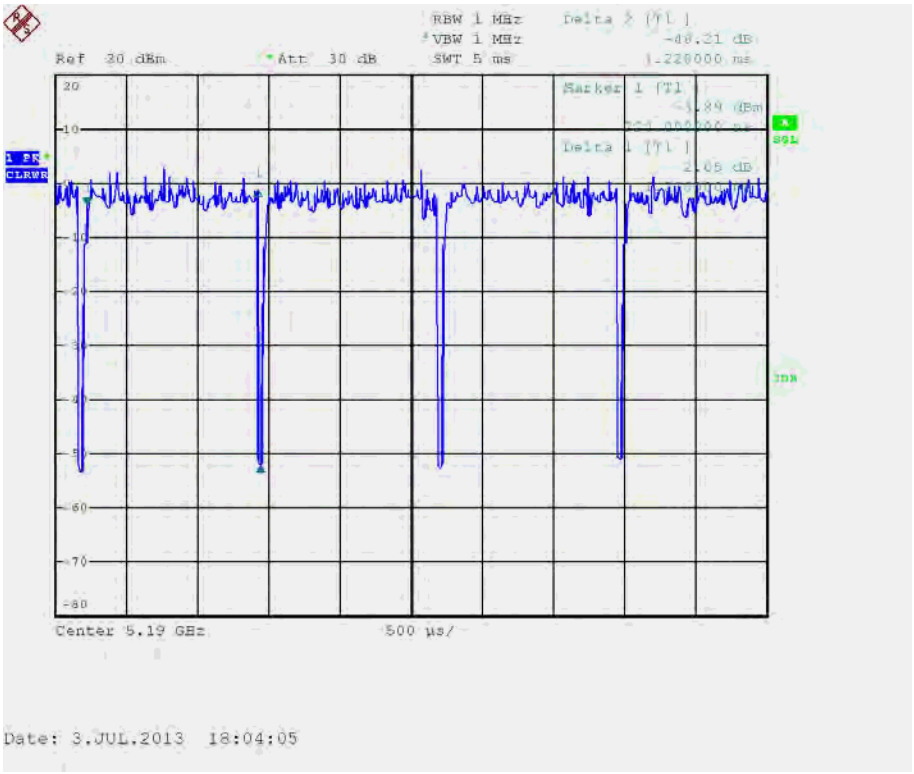
IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / For 5GHz Band



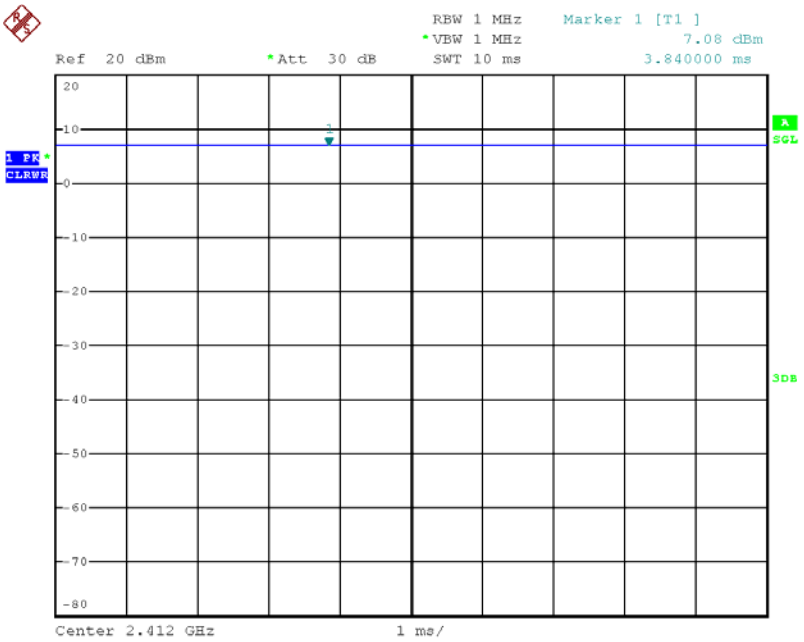
IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / For 5GHz Band



IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / For 5GHz Band

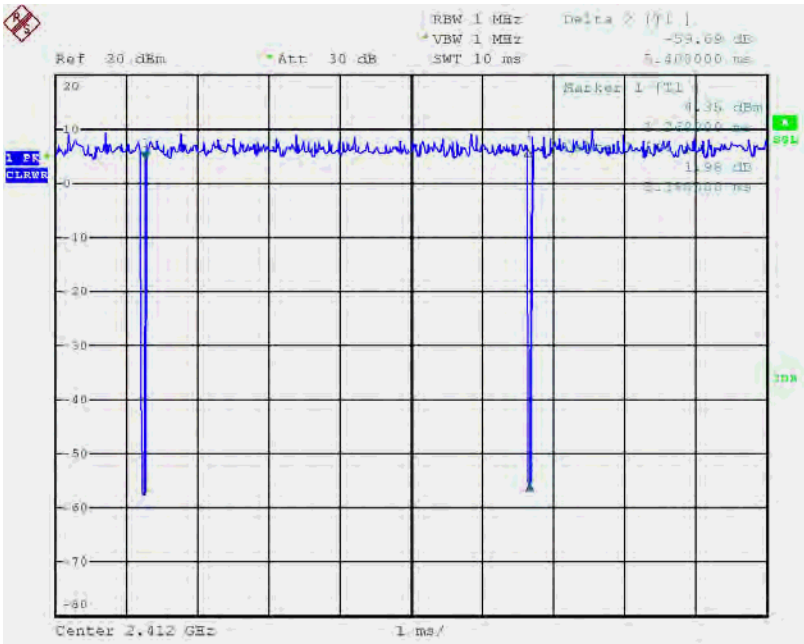


IEEE 802.11b / Ant. 1 / Chain 0 (1TX)



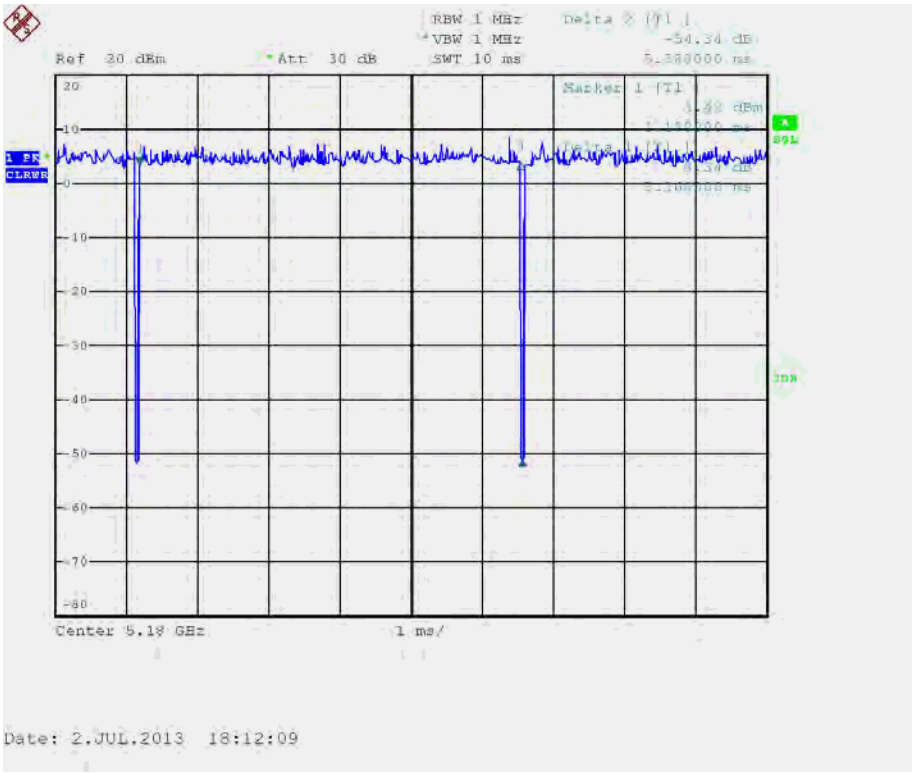
Date: 2.JUL.2013 18:09:33

IEEE 802.11g / Ant. 1 / Chain 0 (1TX)

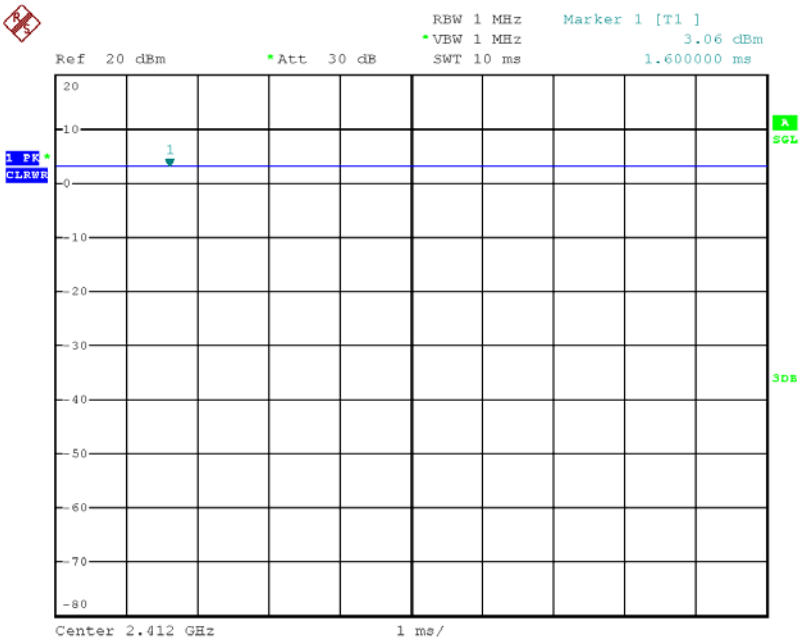


Date: 2.JUL.2013 18:10:11

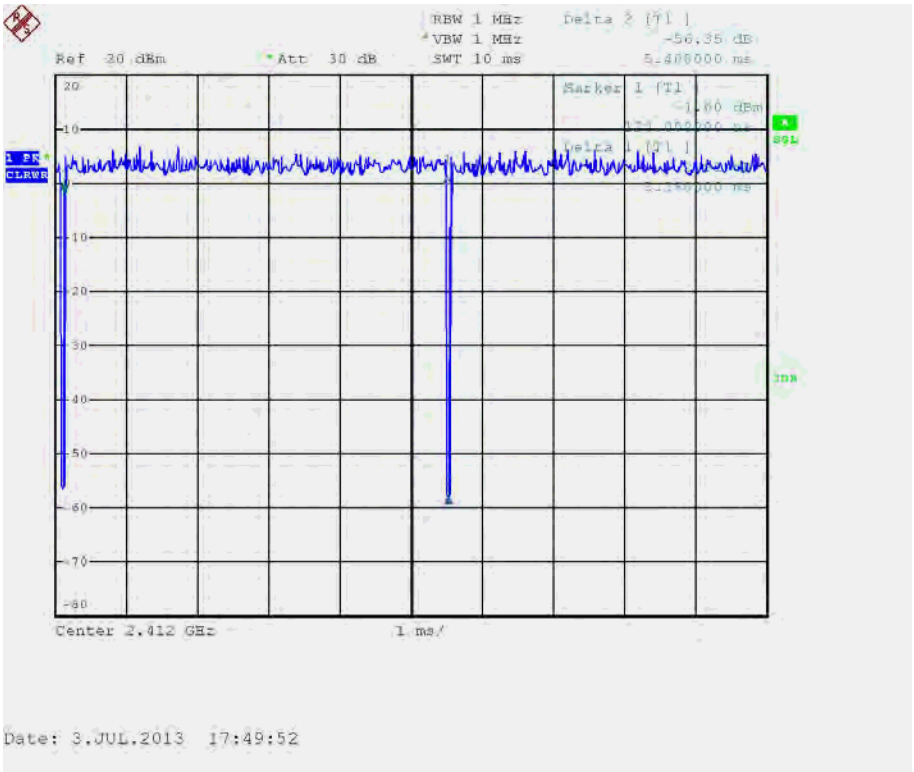
IEEE 802.11a / Ant. 1 / Chain 0 (1TX)



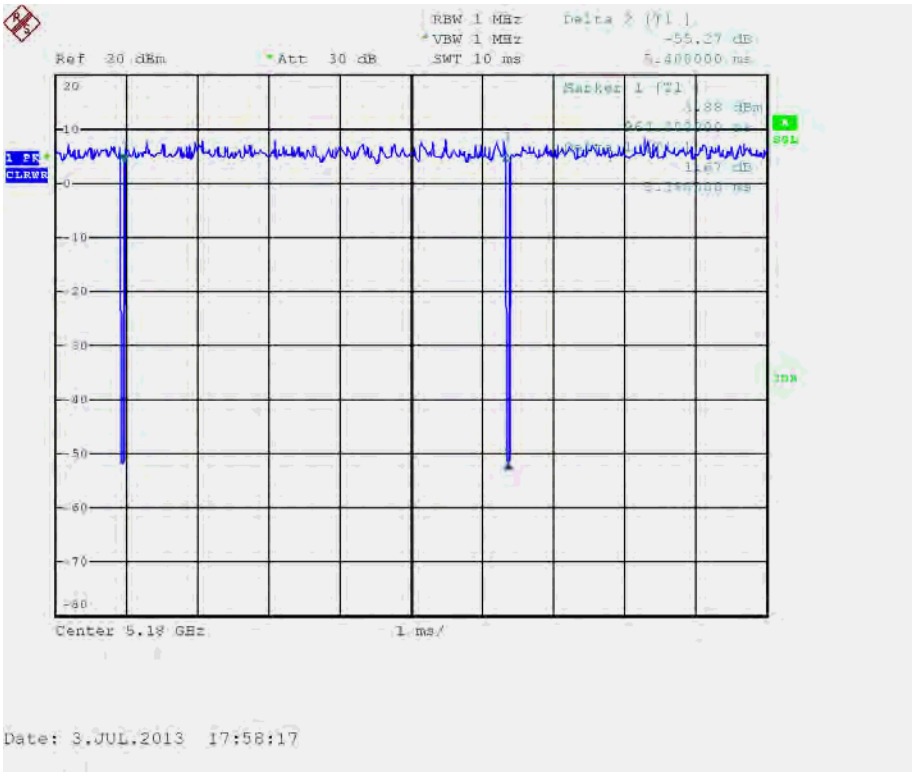
IEEE 802.11b / Ant. 1 / Chain 0 + Chain 1 (2TX)



IEEE 802.11g / Ant. 1 / Chain 0 + Chain 1 (2TX)



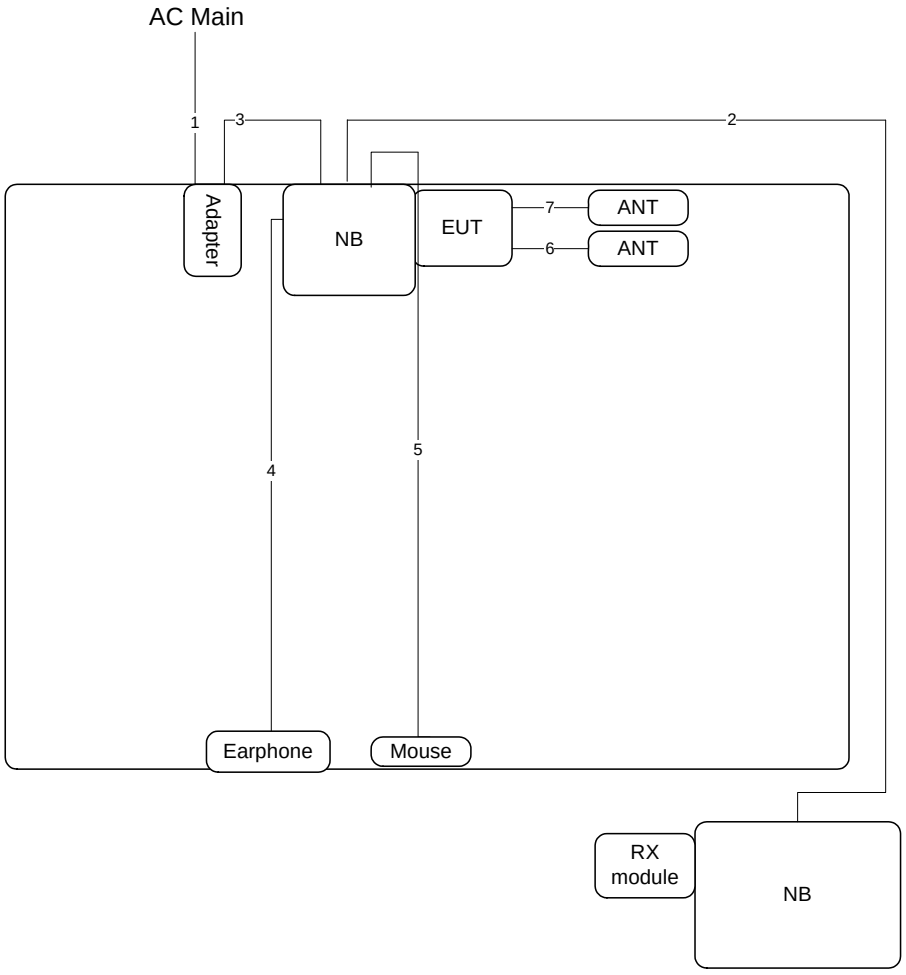
IEEE 802.11a / Ant. 1 / Chain 0 + Chain 1 (2TX)



3.11. Test Configurations

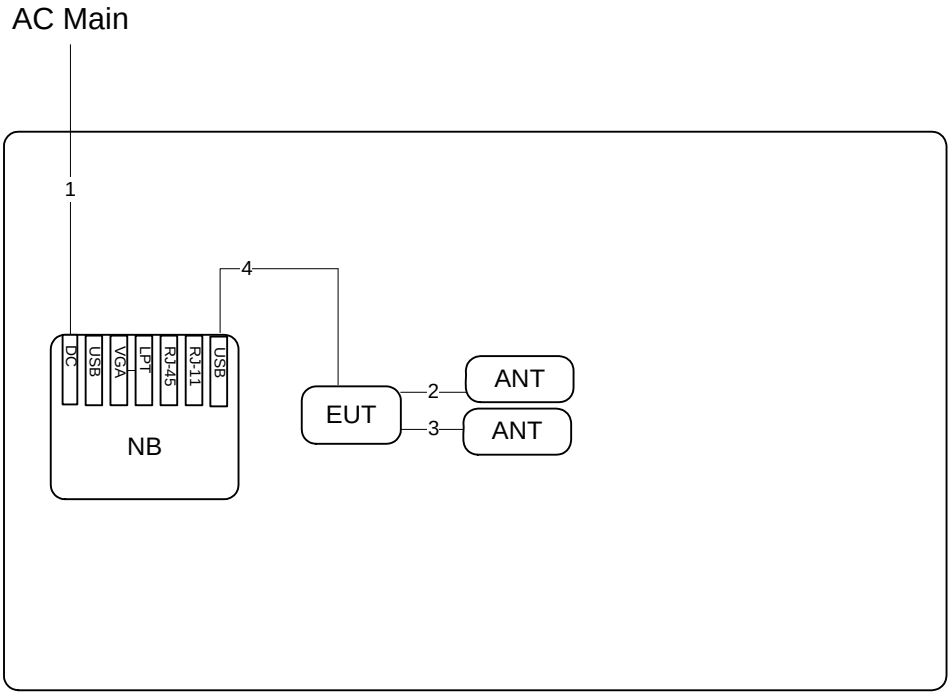
3.11.1. AC Power Line Conduction Emissions and Radiated Emission below 1GHz

Test Configuration



Item	Connection	Shielded	Length
1	AC power cable	No	1m
2	RJ-45 cable	No	10m
3	DC power cable	No	1.6m
4	Audio cable	No	1.1m
5	USB cable	No	1.8m
6	ANT cable	No	0.32m
7	ANT cable	No	0.32m

3.11.2. Radiation Emissions above 1GHz Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	ANT cable	No	0.32m
3	ANT cable	No	0.32m
4	USB cable	No	1.4m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.2. Measuring Instruments and Setting

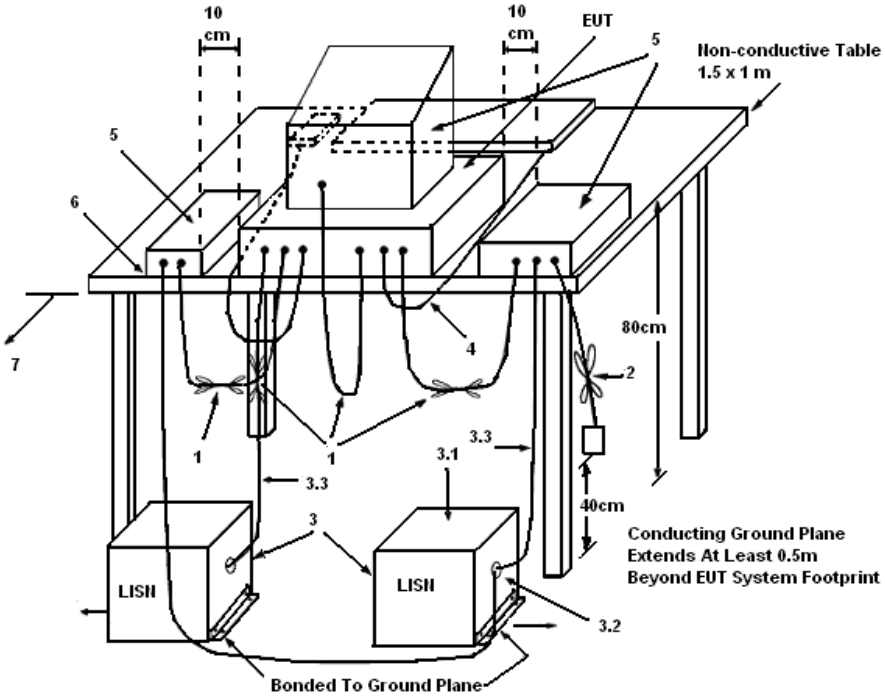
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

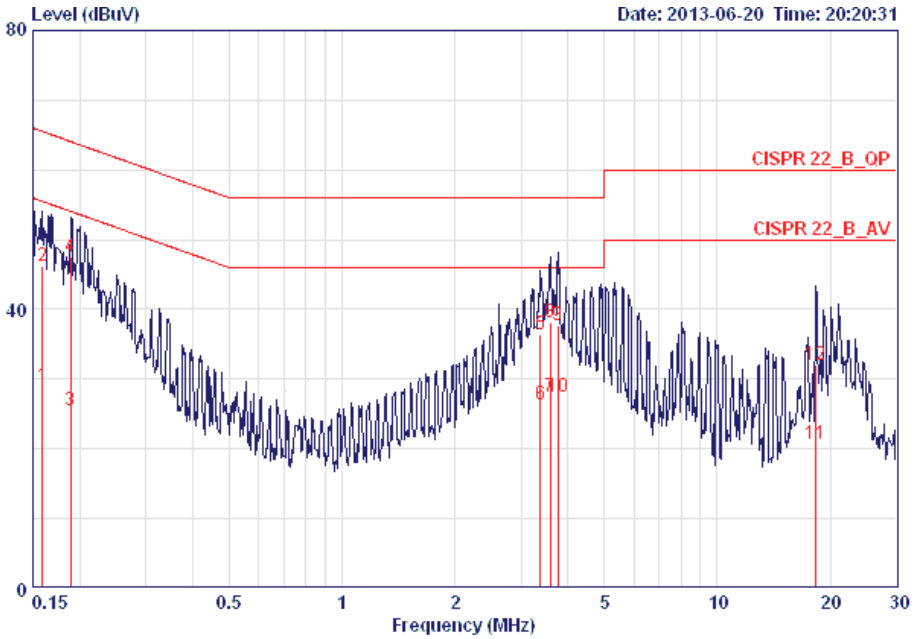
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

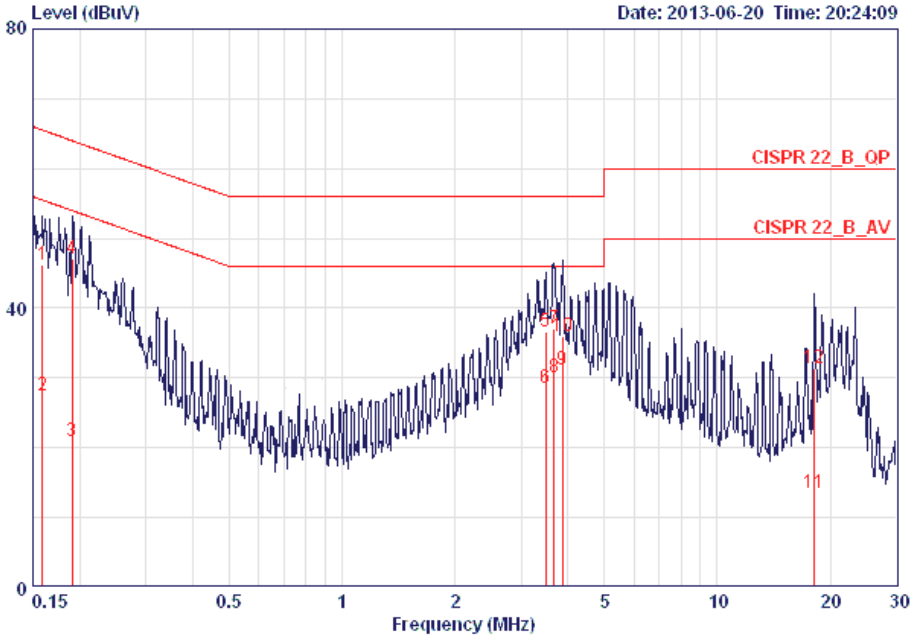
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	48%
Test Engineer	Simon Yang	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15900	29.03	-26.48	55.52	28.69	0.16	0.18	LINE	AVERAGE
2	0.15900	46.17	-19.34	65.52	45.83	0.16	0.18	LINE	QP
3	0.18938	25.51	-28.56	54.06	25.16	0.15	0.20	LINE	AVERAGE
4	0.18938	47.43	-16.64	64.06	47.08	0.15	0.20	LINE	QP
5	3.381	36.36	-19.64	56.00	35.88	0.21	0.27	LINE	QP
6	3.381	26.30	-19.70	46.00	25.82	0.21	0.27	LINE	AVERAGE
7	3.584	27.47	-18.53	46.00	26.97	0.21	0.28	LINE	AVERAGE
8	3.584	38.25	-17.75	56.00	37.75	0.21	0.28	LINE	QP
9	3.759	37.62	-18.38	56.00	37.11	0.22	0.29	LINE	QP
10	3.759	27.53	-18.47	46.00	27.02	0.22	0.29	LINE	AVERAGE
11	18.328	20.74	-29.26	50.00	19.80	0.46	0.49	LINE	AVERAGE
12	18.328	31.99	-28.01	60.00	31.05	0.46	0.49	LINE	QP

Temperature	24°C	Humidity	48%
Test Engineer	Simon Yang	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15900	46.11	-19.40	65.52	45.85	0.08	0.18	NEUTRAL	QP
2	0.15900	27.53	-27.98	55.52	27.27	0.08	0.18	NEUTRAL	AVERAGE
3	0.19039	20.88	-33.14	54.02	20.60	0.08	0.20	NEUTRAL	AVERAGE
4	0.19039	47.00	-17.02	64.02	46.72	0.08	0.20	NEUTRAL	QP
5	3.491	36.57	-19.43	56.00	36.17	0.12	0.28	NEUTRAL	QP
6	3.491	28.54	-17.46	46.00	28.14	0.12	0.28	NEUTRAL	AVERAGE
7	3.681	37.12	-18.88	56.00	36.71	0.13	0.29	NEUTRAL	QP
8	3.681	30.08	-15.92	46.00	29.67	0.13	0.29	NEUTRAL	AVERAGE
9 @	3.860	31.11	-14.89	46.00	30.69	0.13	0.29	NEUTRAL	AVERAGE
10	3.860	35.90	-20.10	56.00	35.48	0.13	0.29	NEUTRAL	QP
11	18.135	13.55	-36.45	50.00	12.70	0.36	0.48	NEUTRAL	AVERAGE
12	18.135	31.45	-28.55	60.00	30.60	0.36	0.48	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter output power.

4.2.2. Measuring Instruments and Setting

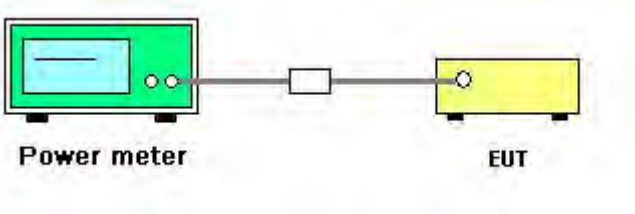
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Average

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r01 section 9.2.2 Measurement using a power meter (PM).
2. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n
Test Date	Jul. 03, 2013		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
1	2412 MHz	11.71	30.00	Complies
6	2437 MHz	18.72	30.00	Complies
11	2462 MHz	11.25	30.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
3	2422 MHz	9.36	30.00	Complies
6	2437 MHz	11.79	30.00	Complies
9	2452 MHz	9.01	30.00	Complies

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
1	2412 MHz	7.42	8.18	10.83	30.00	Complies
6	2437 MHz	10.58	10.69	13.65	30.00	Complies
11	2462 MHz	11.97	12.66	15.34	30.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
3	2422 MHz	9.49	9.66	12.59	30.00	Complies
6	2437 MHz	10.08	10.85	13.49	30.00	Complies
9	2452 MHz	8.66	9.42	12.07	30.00	Complies

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
1	2412 MHz	7.40	8.01	10.73	30.00	Complies
6	2437 MHz	10.46	10.70	13.59	30.00	Complies
11	2462 MHz	10.66	10.77	13.73	30.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
3	2422 MHz	8.89	9.18	12.05	30.00	Complies
6	2437 MHz	10.11	10.81	13.48	30.00	Complies
9	2452 MHz	7.42	8.93	11.25	30.00	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
149	5745 MHz	19.51	29.65	Complies
157	5785 MHz	19.15	29.65	Complies
165	5825 MHz	19.02	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
151	5755 MHz	15.28	29.65	Complies
159	5795 MHz	19.45	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
149	5745 MHz	17.11	17.13	20.13	29.65	Complies
157	5785 MHz	15.41	15.83	18.64	29.65	Complies
165	5825 MHz	14.62	15.54	18.11	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
151	5755 MHz	14.36	14.51	17.45	29.65	Complies
159	5795 MHz	16.66	17.00	19.84	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
149	5745 MHz	16.36	16.58	19.48	29.65	Complies
157	5785 MHz	16.06	16.55	19.32	29.65	Complies
165	5825 MHz	16.48	17.01	19.76	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
151	5755 MHz	14.62	14.66	17.65	29.65	Complies
159	5795 MHz	16.65	16.90	19.79	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a/b/g
Test Date	Jul. 03, 2013		

Configuration IEEE 802.11b / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
1	2412 MHz	18.42	30.00	Complies
6	2437 MHz	17.79	30.00	Complies
11	2462 MHz	16.79	30.00	Complies

Configuration IEEE 802.11g / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
1	2412 MHz	11.97	30.00	Complies
6	2437 MHz	19.01	30.00	Complies
11	2462 MHz	11.56	30.00	Complies

Configuration IEEE 802.11a / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Conducted Power (dBm)	Limit (dBm)	Result
149	5745 MHz	19.35	29.65	Complies
157	5785 MHz	19.26	29.65	Complies
165	5825 MHz	19.15	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

Configuration IEEE 802.11b / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
1	2412 MHz	17.22	17.73	20.49	30.00	Complies
6	2437 MHz	15.17	15.97	18.60	30.00	Complies
11	2462 MHz	15.25	16.07	18.69	30.00	Complies

Configuration IEEE 802.11g / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
1	2412 MHz	7.35	8.09	10.75	30.00	Complies
6	2437 MHz	10.54	10.59	13.58	30.00	Complies
11	2462 MHz	10.05	10.23	13.15	30.00	Complies

Configuration IEEE 802.11a / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 0	Chain 1			
149	5745 MHz	16.45	16.64	19.56	29.65	Complies
157	5785 MHz	15.43	15.80	18.63	29.65	Complies
165	5825 MHz	14.09	15.07	17.62	29.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so limit= 30 – (6.35 – 6) = 29.65dBm.

4.3. Power Spectral Density Measurement

4.3.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2. Measuring Instruments and Setting

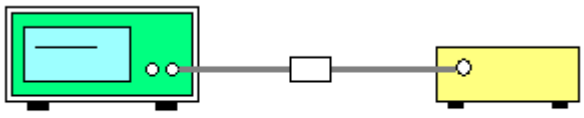
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	3 kHz ≤ RBW ≤ 100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.3.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r01 section 10.2 Method PKPSD (peak PSD) & KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (2) Measure and add 10 log(NANT) dB.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be ≤ 8 dBm.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412 MHz	-14.65	8.00	Complies
6	2437 MHz	-7.60	8.00	Complies
11	2462 MHz	-15.68	8.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422 MHz	-18.43	8.00	Complies
6	2437 MHz	-17.41	8.00	Complies
9	2452 MHz	-19.41	8.00	Complies

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
1	2412 MHz	-18.58	-18.06	4.99	Complies
6	2437 MHz	-16.49	-16.15	4.99	Complies
11	2462 MHz	-15.10	-14.81	4.99	Complies

Note: PSD Limit =(8dBm/3kHz –(10log(2))=4.99dBm/3kHz

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
3	2422 MHz	-19.98	-19.22	4.99	Complies
6	2437 MHz	-18.77	-18.29	4.99	Complies
9	2452 MHz	-20.95	-20.39	4.99	Complies

Note: PSD Limit =(8dBm/3kHz –(10log(2))=4.99dBm/3kHz

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
1	2412 MHz	-19.34	-18.54	4.99	Complies
6	2437 MHz	-16.16	-15.94	4.99	Complies
11	2462 MHz	-15.26	-15.25	4.99	Complies

Note: PSD Limit =(8dBm/3kHz –(10log(2))=4.99dBm/3kHz

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
3	2422 MHz	-20.77	-20.47	4.99	Complies
6	2437 MHz	-19.07	-18.79	4.99	Complies
9	2452 MHz	-20.75	-19.52	4.99	Complies

Note: PSD Limit =(8dBm/3kHz –(10log(2))=4.99dBm/3kHz

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
149	5745 MHz	-6.53	7.65	Complies
157	5785 MHz	-7.79	7.65	Complies
165	5825 MHz	-7.50	7.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(1)) =7.65dBm/3kHz.

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
151	5755 MHz	-13.77	7.65	Complies
159	5795 MHz	-9.77	7.65	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(1)) =7.65dBm/3kHz.

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
149	5745 MHz	-9.41	-9.13	4.64	Complies
157	5785 MHz	-11.07	-10.42	4.64	Complies
165	5825 MHz	-10.47	-9.80	4.64	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(2)) =4.64dBm/3kHz.

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
151	5755 MHz	-15.15	-14.78	4.64	Complies
159	5795 MHz	-12.12	-11.84	4.64	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(2)) =4.64dBm/3kHz.

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
149	5745 MHz	-9.33	-9.22	4.64	Complies
157	5785 MHz	-9.74	-9.56	4.64	Complies
165	5825 MHz	-9.63	-8.24	4.64	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(2)) =4.64dBm/3kHz.

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
151	5755 MHz	-15.39	-15.17	4.64	Complies
159	5795 MHz	-12.14	-11.52	4.64	Complies

Note: Antenna true gain =6.35dBi >6dBi, so the PSD Limit = (8 – (6.35 – 6)–(10log(2)) =4.64dBm/3kHz.

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11b

Configuration IEEE 802.11b / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	-5.44	8.00	Complies
6	2437 MHz	-5.15	8.00	Complies
11	2462 MHz	-7.38	8.00	Complies

Configuration IEEE 802.11b / Ant. 1 / Chain 0 + Chain 1 (2TX)

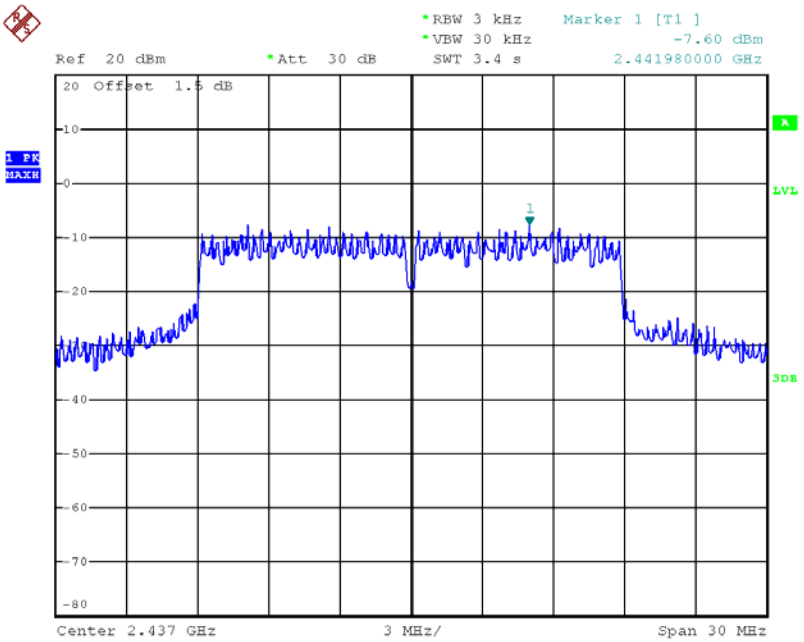
Channel	Frequency	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Chain 0	Chain 1		
1	2412 MHz	-7.03	-6.33	4.99	Complies
6	2437 MHz	-9.30	-8.59	4.99	Complies
11	2462 MHz	-8.98	-8.55	4.99	Complies

Note: PSD Limit =(8dBm/3kHz –(10log(2))=4.99dBm/3kHz

Note: All the test values were listed in the report.

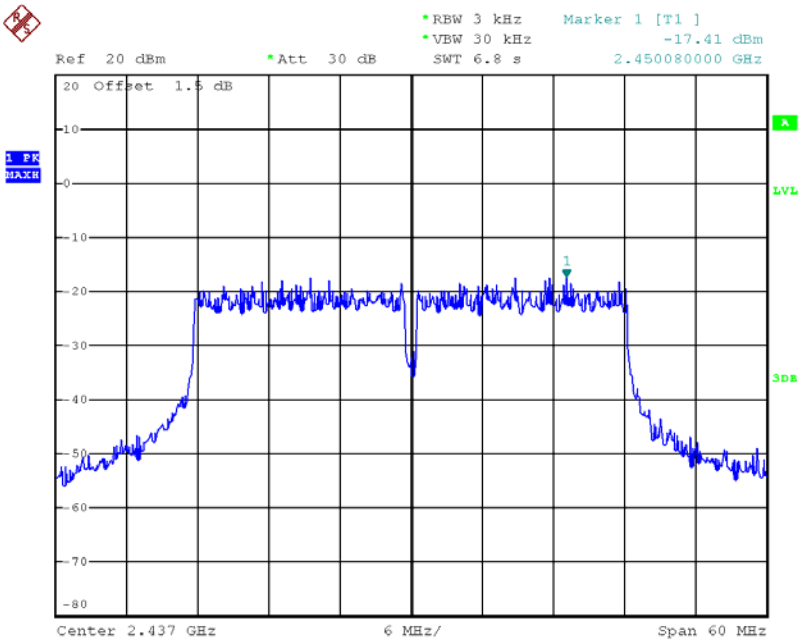
For plots, only the channel with maximum results was shown.

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / 2437 MHz



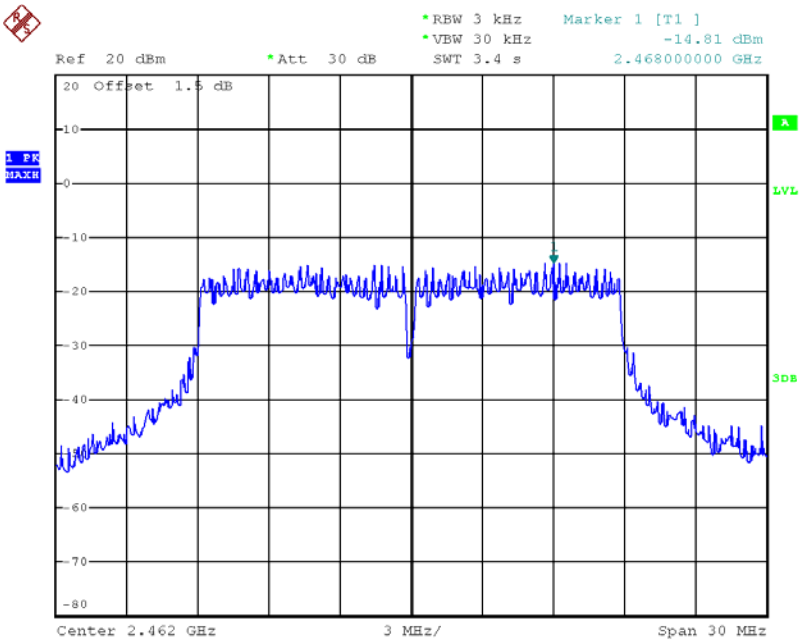
Date: 2.JUL.2013 17:28:17

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / 2437 MHz



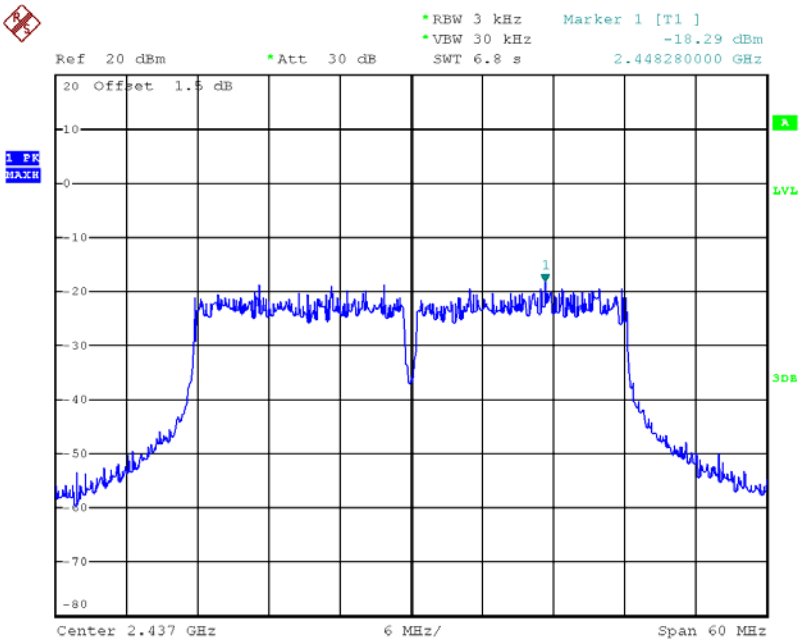
Date: 2.JUL.2013 17:30:52

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 1 (2TX) / 2462 MHz



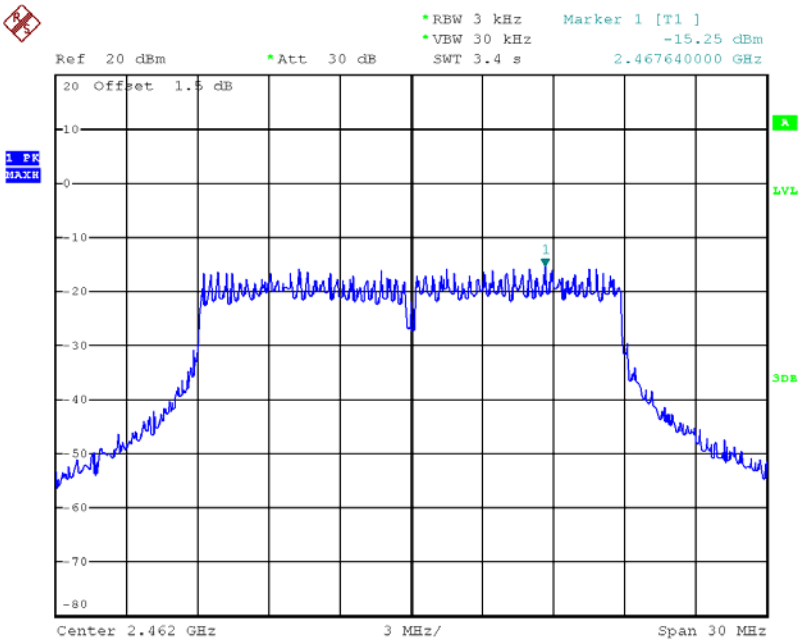
Date: 3.JUL.2013 11:51:36

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 1 (2TX) / 2437 MHz



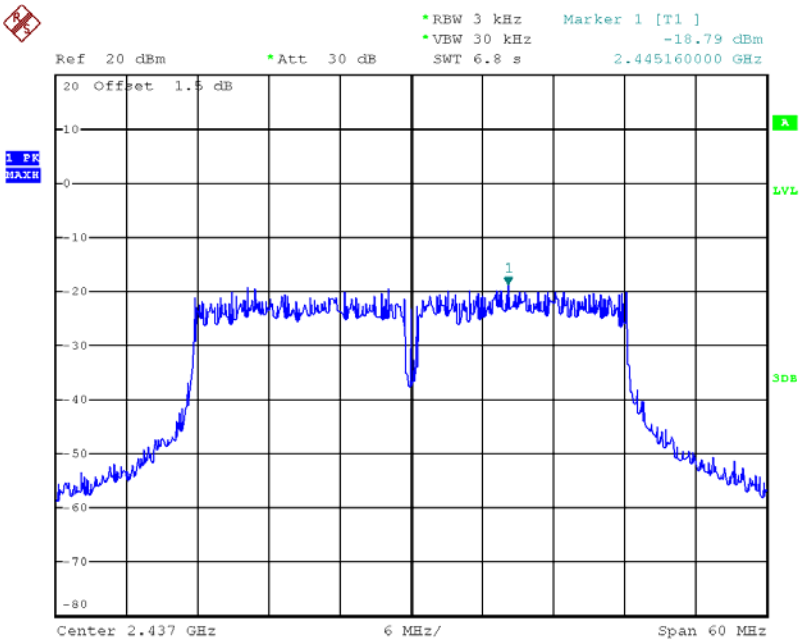
Date: 3.JUL.2013 11:44:25

Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 1 (2TX) / 2462 MHz



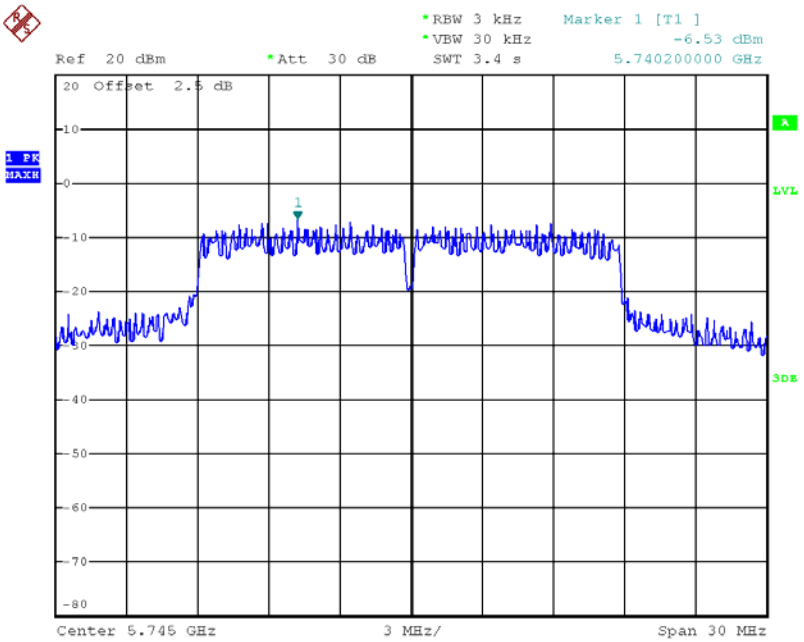
Date: 3.JUL.2013 11:33:49

Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 1 (2TX) / 2437 MHz



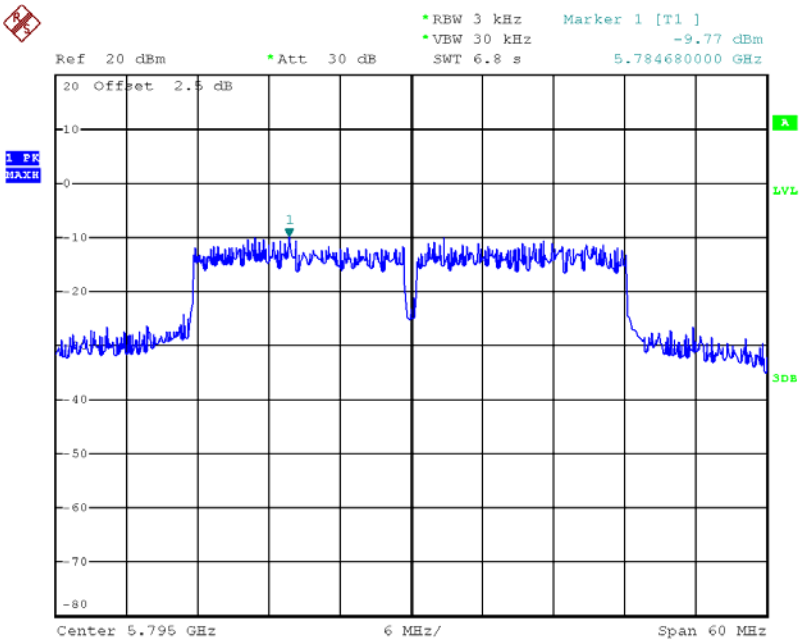
Date: 3.JUL.2013 11:37:45

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / 5745 MHz



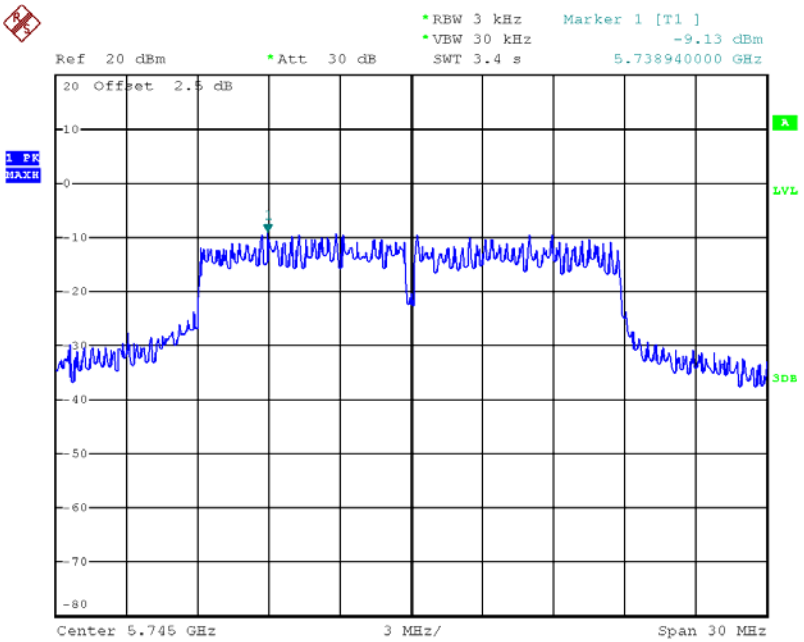
Date: 2.JUL.2013 17:35:35

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / 5795 MHz



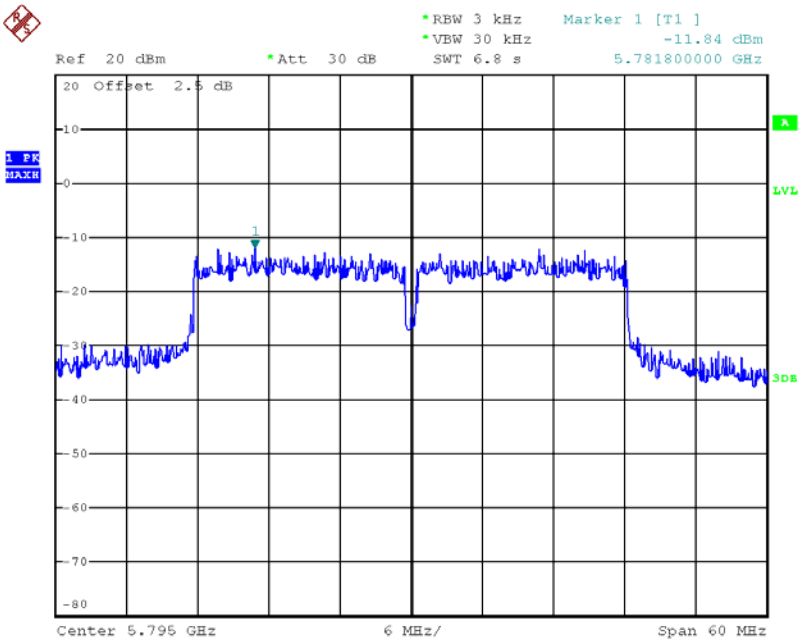
Date: 2.JUL.2013 17:34:11

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 1 (2TX) / 5745 MHz



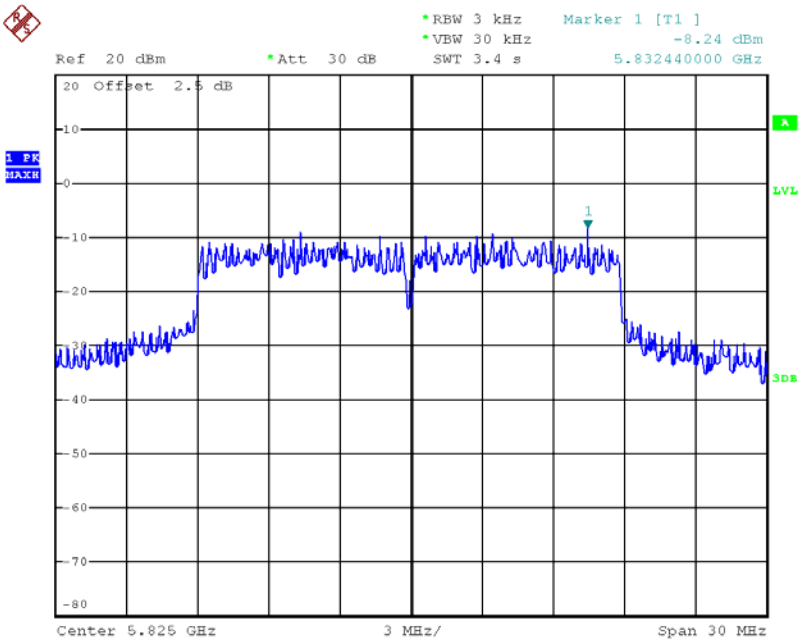
Date: 3.JUL.2013 12:01:17

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 1 (2TX) / 5795 MHz



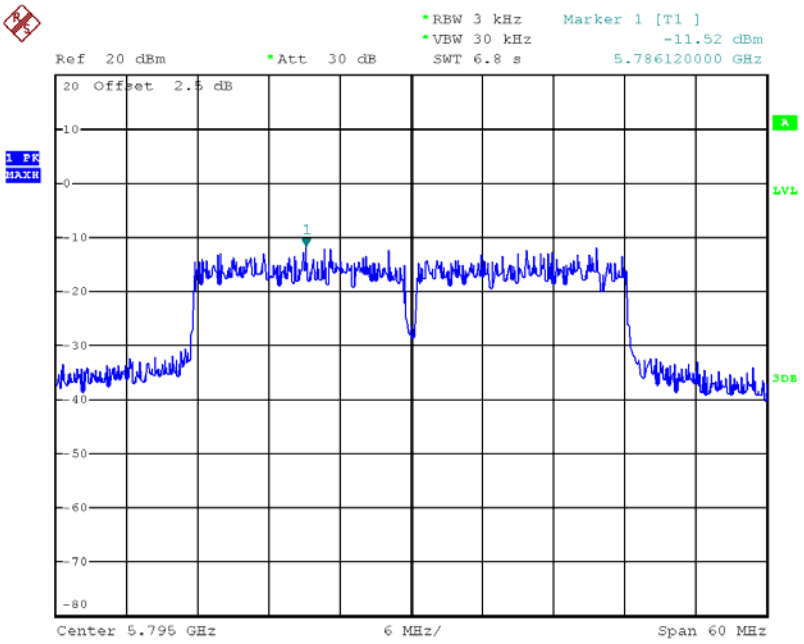
Date: 3.JUL.2013 12:03:42

Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 1 (2TX) / 5825 MHz



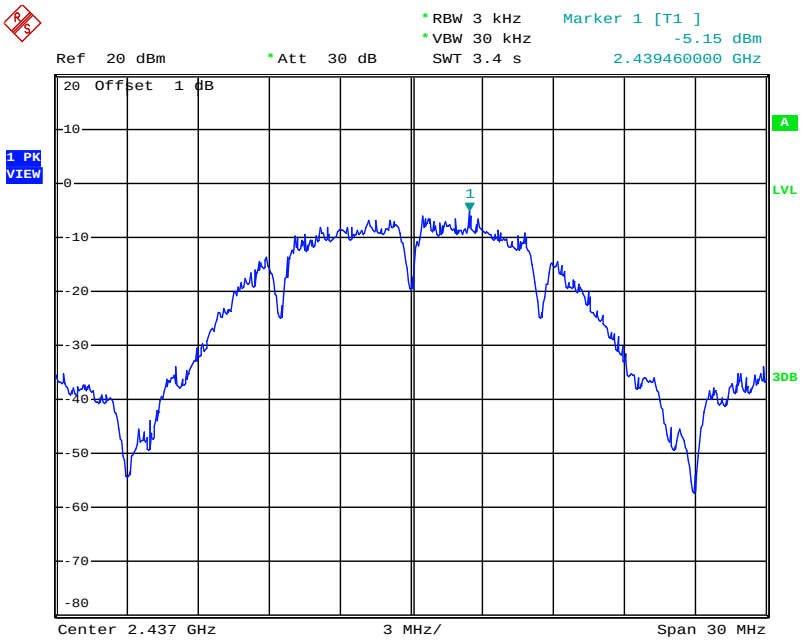
Date: 3.JUL.2013 12:17:19

Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 1 (2TX) / 5795 MHz



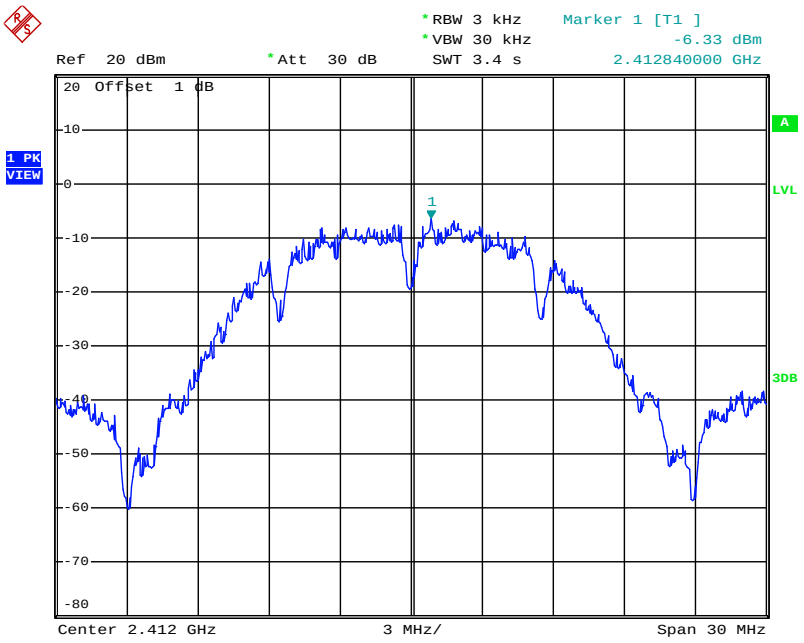
Date: 3.JUL.2013 12:15:22

Power Density Plot on Configuration IEEE 802.11b / Ant. 1 / Chain 0 (1TX) / 2437 MHz



Date: 20.JAN.2014 13:34:48

Power Density Plot on Configuration IEEE 802.11b / Ant. 1 / Chain 1 (2TX) / 2412 MHz



Date: 20.JAN.2014 13:41:26

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

4.4.2. Measuring Instruments and Setting

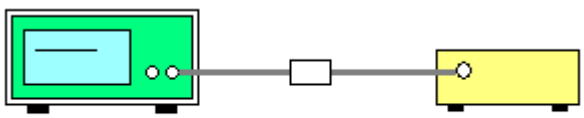
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 D01 v03r01 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8.0 DTS 6-dB signal bandwidth option 1.
3. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.76	500	Complies
6	2437 MHz	17.60	26.32	500	Complies
11	2462 MHz	17.60	17.76	500	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.48	500	Complies
6	2437 MHz	36.16	36.48	500	Complies
9	2452 MHz	36.48	36.48	500	Complies

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.68	17.76	500	Complies
6	2437 MHz	16.96	17.76	500	Complies
11	2462 MHz	17.04	17.84	500	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	34.24	36.48	500	Complies
6	2437 MHz	34.56	36.32	500	Complies
9	2452 MHz	34.24	35.84	500	Complies

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.80	17.68	500	Complies
6	2437 MHz	16.96	17.76	500	Complies
11	2462 MHz	15.68	17.76	500	Complies

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.84	36.48	500	Complies
6	2437 MHz	33.28	36.48	500	Complies
9	2452 MHz	35.04	36.32	500	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.68	29.52	500	Complies
157	5785 MHz	17.52	29.60	500	Complies
165	5825 MHz	17.52	29.52	500	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.16	37.76	500	Complies
159	5795 MHz	36.00	62.40	500	Complies

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.60	24.56	500	Complies
157	5785 MHz	16.24	22.96	500	Complies
165	5825 MHz	17.60	22.08	500	Complies

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.48	36.64	500	Complies
159	5795 MHz	34.08	54.72	500	Complies

Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.56	20.96	500	Complies
157	5785 MHz	16.40	20.96	500	Complies
165	5825 MHz	16.32	23.04	500	Complies

Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	33.28	37.60	500	Complies
159	5795 MHz	35.20	49.12	500	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11b

Configuration IEEE 802.11b / Ant. 1 / Chain 0 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.08	15.04	500	Complies
6	2437 MHz	10.08	14.40	500	Complies
11	2462 MHz	10.08	14.24	500	Complies

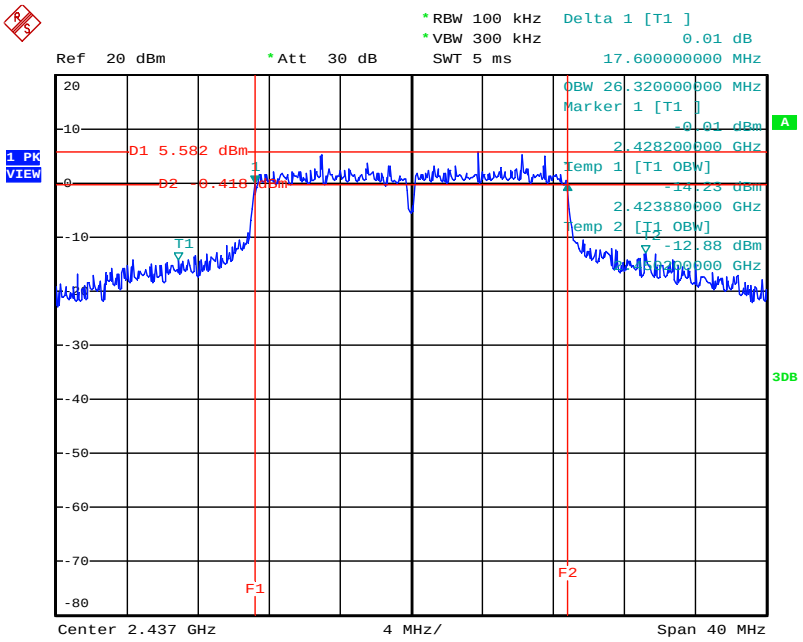
Configuration IEEE 802.11b / Ant. 1 / Chain 0 + Chain 1 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.08	12.40	500	Complies
6	2437 MHz	7.60	12.16	500	Complies
11	2462 MHz	6.56	12.48	500	Complies

Note: All the test values were listed in the report.

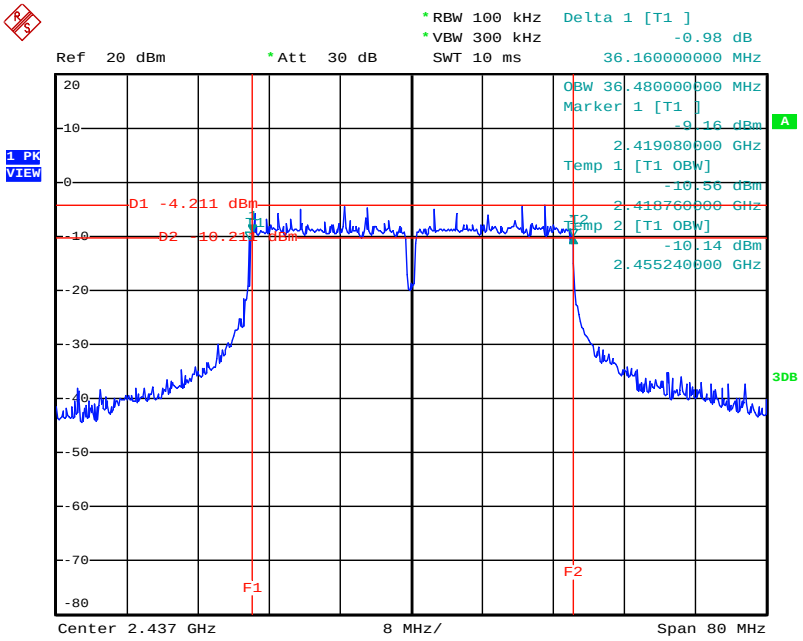
For plots, only the channel with maximum results was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / 2437 MHz



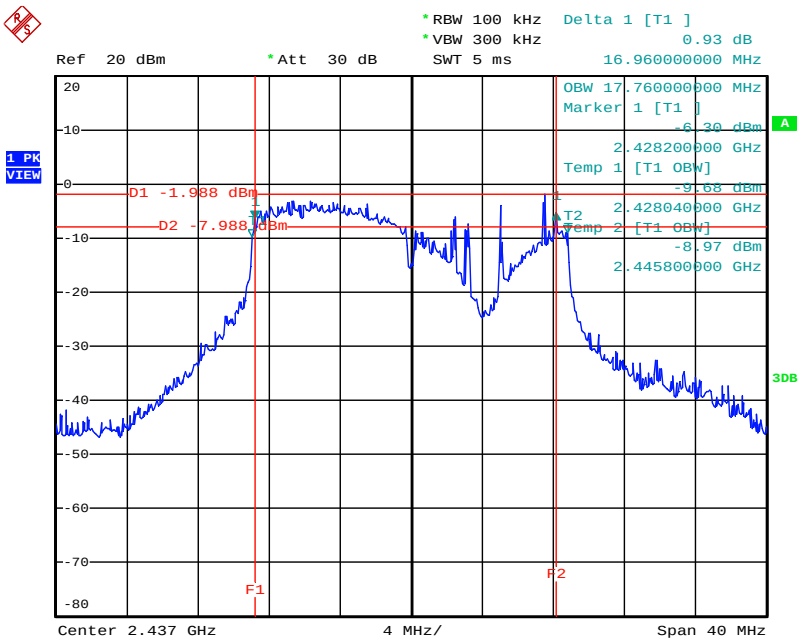
Date: 2.JUL.2013 17:45:21

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / 2437 MHz



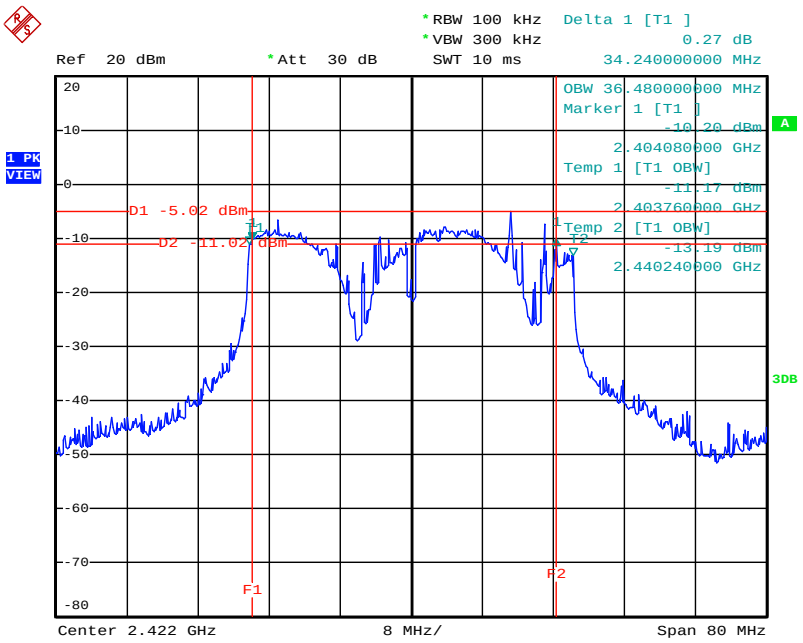
Date: 2.JUL.2013 17:47:00

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 2437 MHz



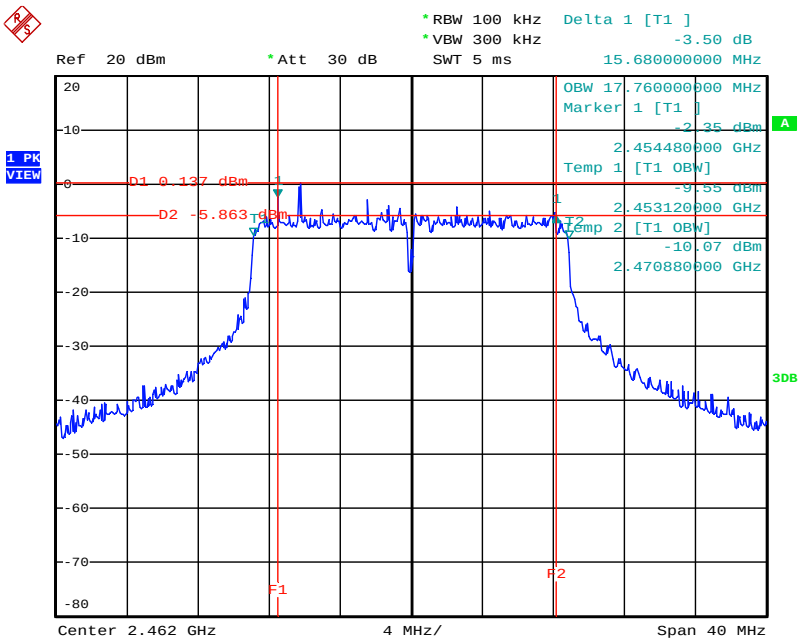
Date: 3.JUL.2013 11:06:12

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 2422 MHz



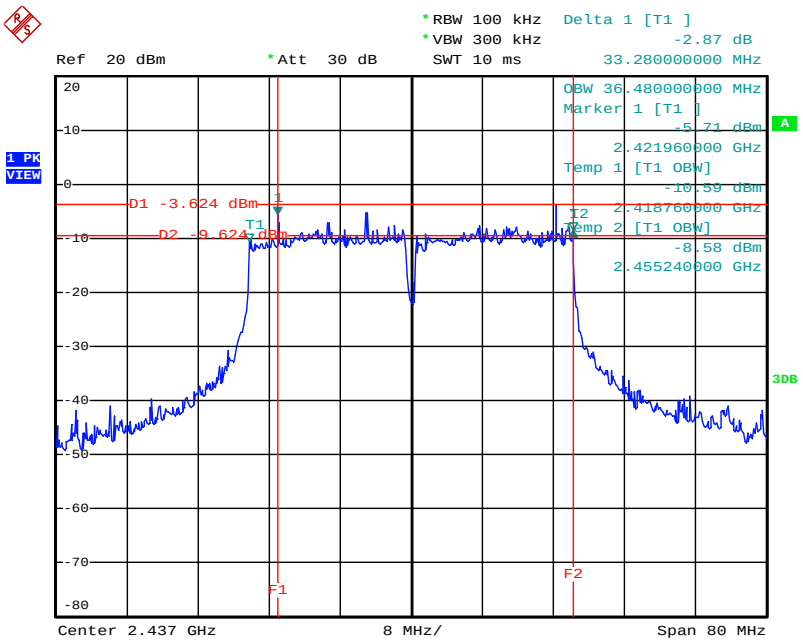
Date: 3.JUL.2013 11:07:55

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 2462 MHz



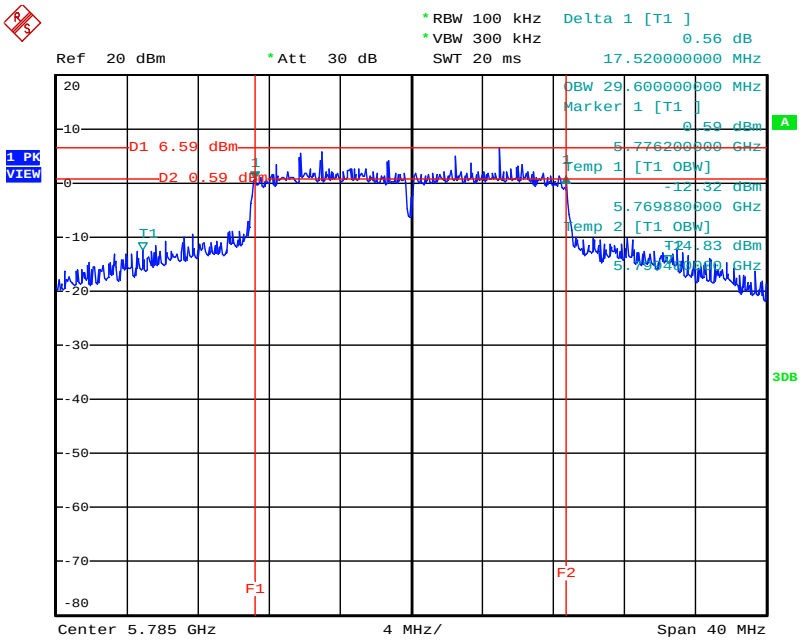
Date: 3.JUL.2013 11:20:50

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 2437 MHz



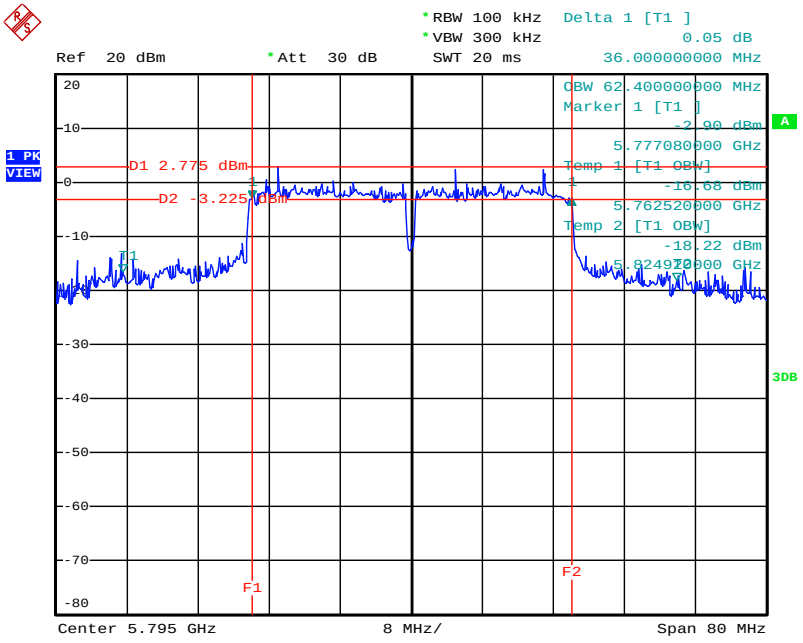
Date: 3.JUL.2013 11:22:02

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 (1TX) / 5785MHz



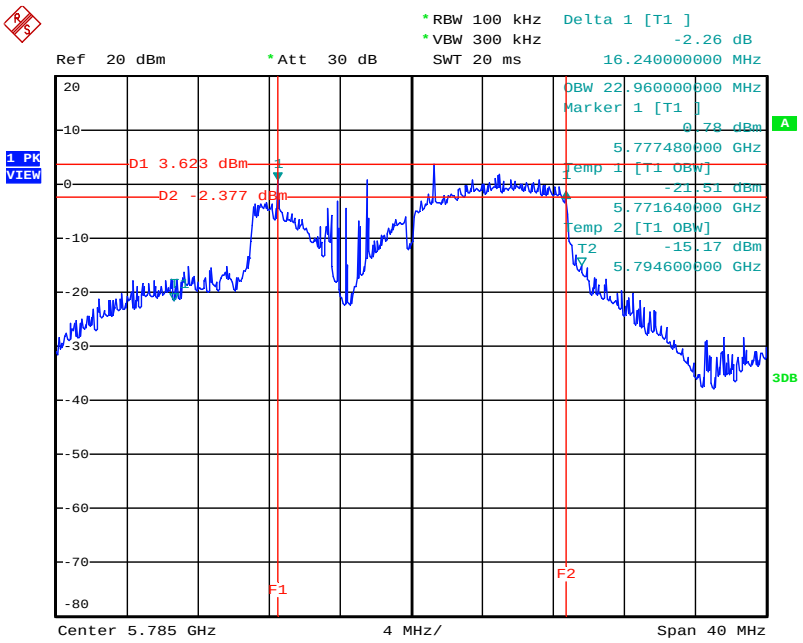
Date: 2.JUL.2013 17:40:05

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 (1TX) / 5795 MHz



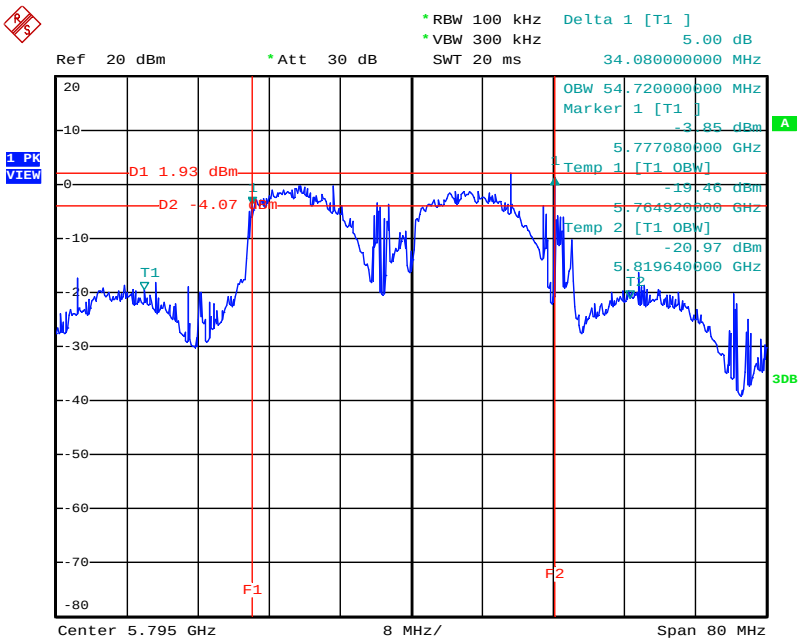
Date: 2.JUL.2013 17:42:21

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 5785MHz



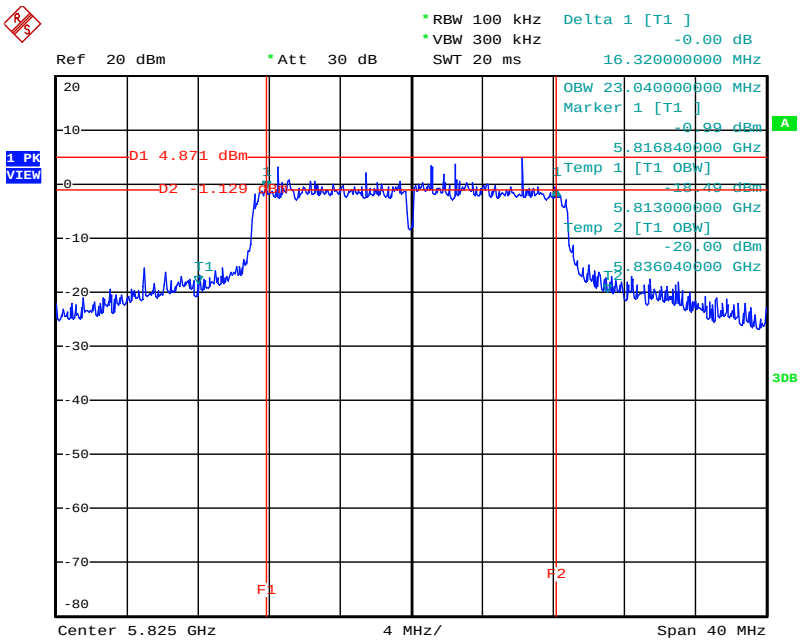
Date: 3.JUL.2013 11:10:39

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 5795 MHz



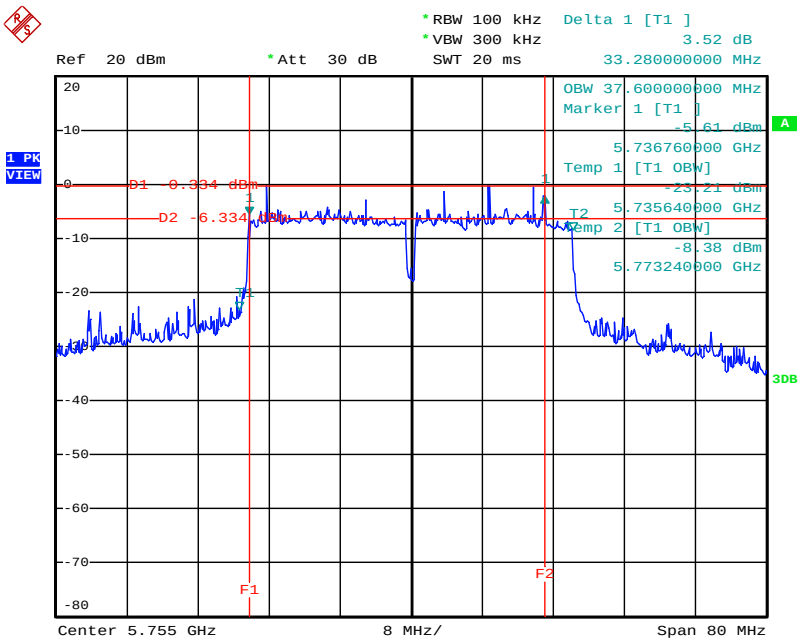
Date: 3.JUL.2013 11:12:35

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 5825 MHz



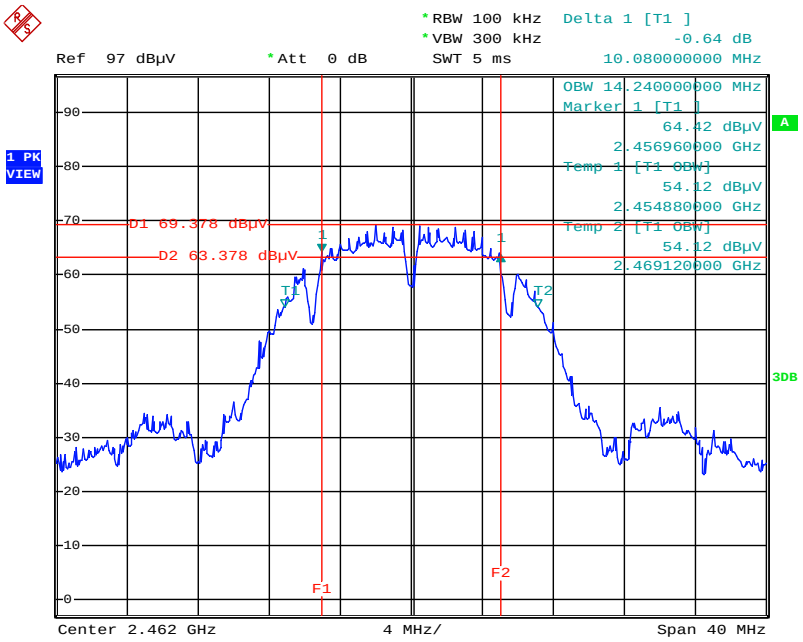
Date: 3.JUL.2013 11:19:00

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / Chain 0 + Chain 1 (2TX) / 5755MHz



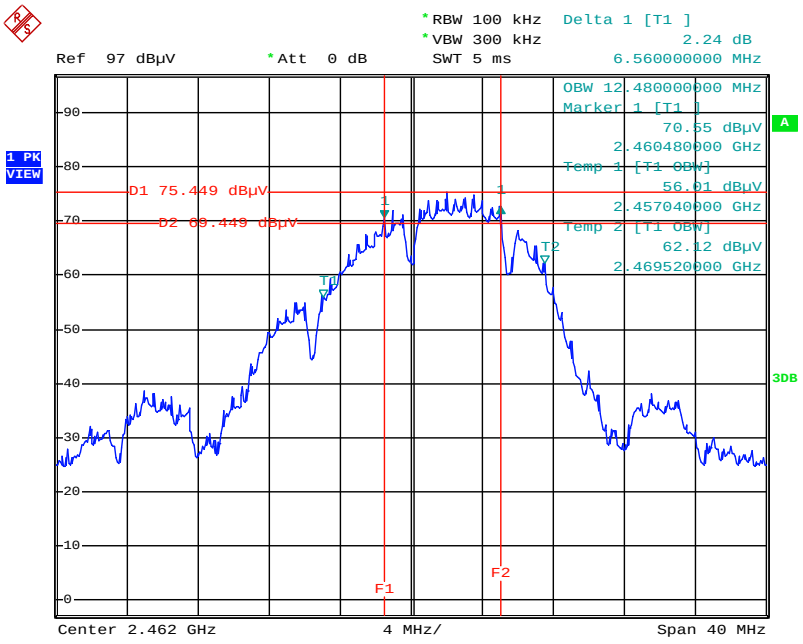
Date: 3.JUL.2013 11:17:10

6 dB Bandwidth Plot on Configuration IEEE 802.11b / Ant. 1 / Chain 0 (1TX) / 2462 MHz



Date: 20.JAN.2014 13:54:47

6 dB Bandwidth Plot on Configuration IEEE 802.11b / Ant. 1 / Chain 0 + Chain 1 (2TX) / 2462 MHz



Date: 20.JAN.2014 13:54:11

4.5. Radiated Emissions Measurement

4.5.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

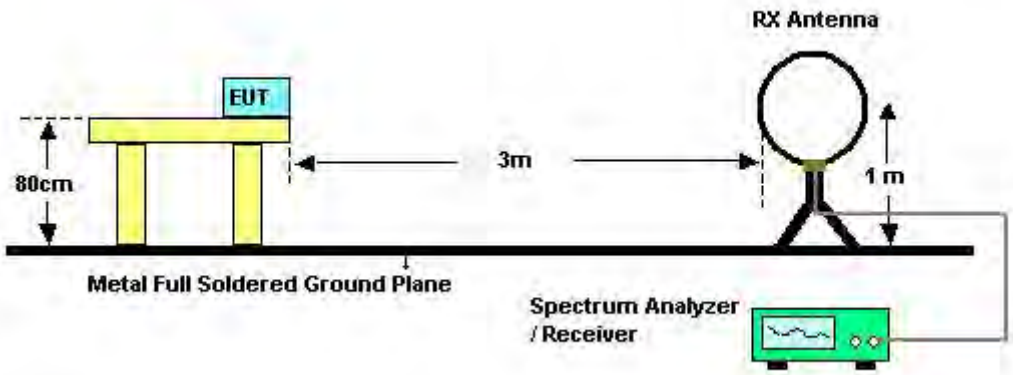
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

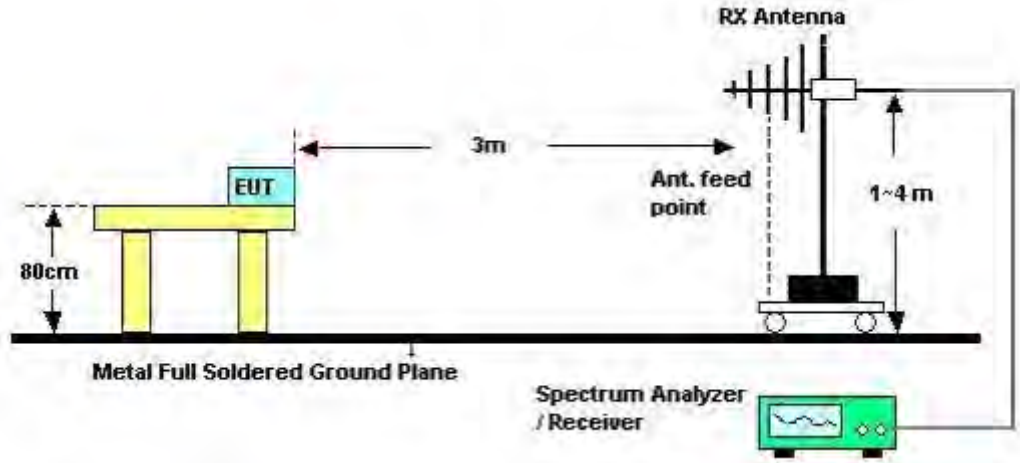
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.5.4. Test Setup Layout

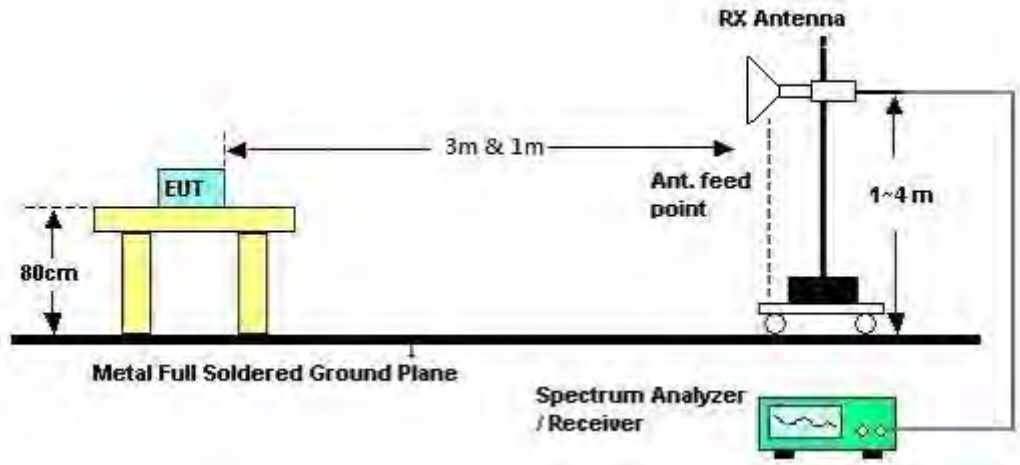
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	26°C	Humidity	55%
Test Engineer	Wen Chao	Configurations	Normal Link
Test Date	Jun. 21, 2013		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

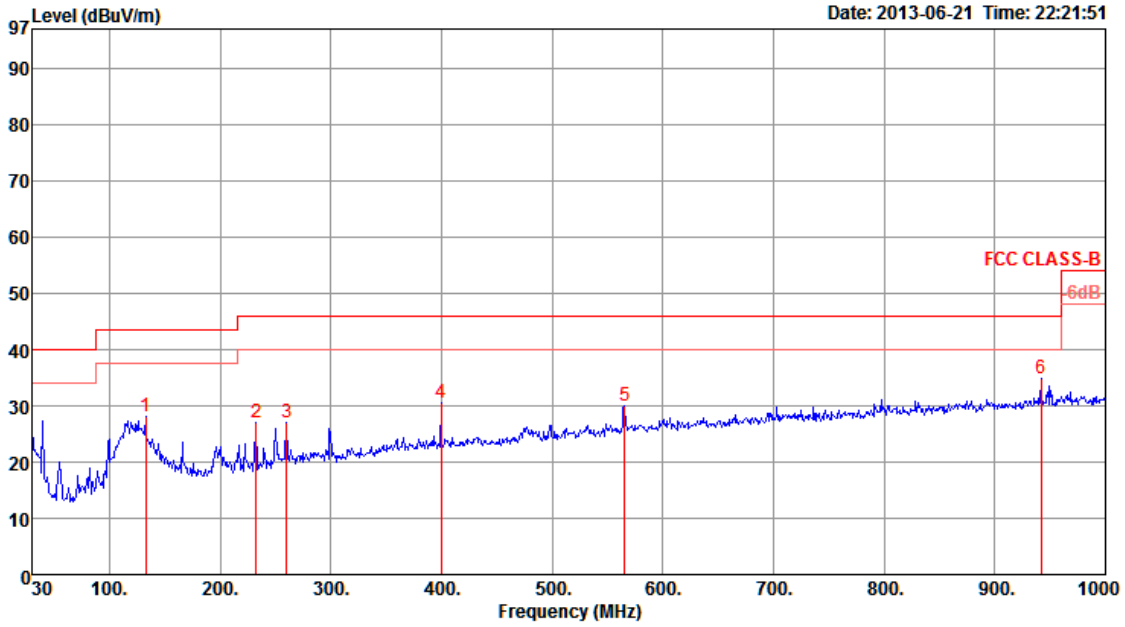
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.5.8. Results of Radiated Emissions (30MHz~1GHz)

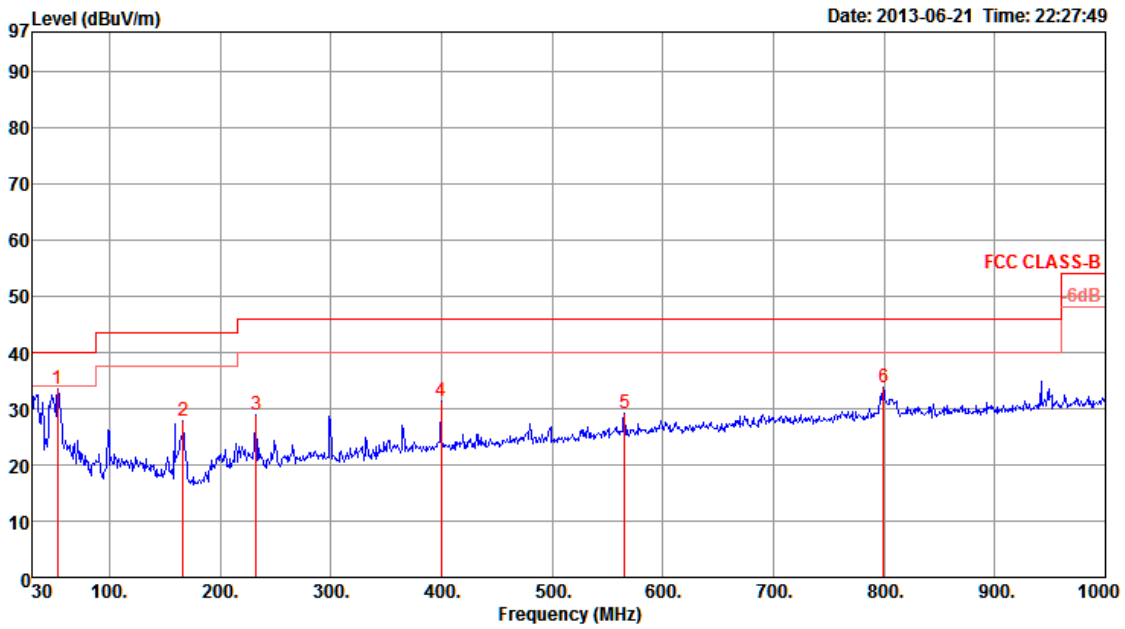
Temperature	26°C	Humidity	55%
Test Engineer	Wen Chao	Configurations	Normal Link

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	132.82	28.06	43.50	-15.44	41.40	1.68	27.61	12.59	Peak	0	400	HORIZONTAL
2	232.73	27.02	46.00	-18.98	40.20	2.29	27.01	11.54	Peak	0	400	HORIZONTAL
3	259.89	27.07	46.00	-18.93	37.96	2.44	26.93	13.60	Peak	0	400	HORIZONTAL
4	399.57	30.52	46.00	-15.48	38.49	2.99	27.46	16.50	Peak	0	400	HORIZONTAL
5	565.44	30.06	46.00	-15.94	35.30	3.60	27.79	18.95	Peak	0	400	HORIZONTAL
6 p	941.80	34.73	46.00	-11.27	34.64	4.81	26.56	21.84	Peak	0	400	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	53.28	33.43	40.00	-6.57	52.08	1.10	27.91	8.16	Peak	0	100	VERTICAL
2	166.77	27.82	43.50	-15.68	42.92	1.92	27.41	10.39	Peak	0	100	VERTICAL
3	232.73	28.86	46.00	-17.14	42.04	2.29	27.01	11.54	Peak	0	100	VERTICAL
4	399.57	31.47	46.00	-14.53	39.44	2.99	27.46	16.50	Peak	0	100	VERTICAL
5	565.44	29.10	46.00	-16.90	34.34	3.60	27.79	18.95	Peak	0	100	VERTICAL
6	799.21	33.72	46.00	-12.28	35.46	4.36	26.89	20.79	Peak	0	100	VERTICAL

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.5.9. Results for Radiated Emissions (1GHz~10th Harmonic)

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4822.00	30.72	54.00	-23.28	28.64	4.21	34.69	32.56	Average	126	100	HORIZONTAL
2 p	4822.64	43.39	74.00	-30.61	41.31	4.21	34.69	32.56	Peak	126	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4824.09	45.17	74.00	-28.83	43.09	4.21	34.69	32.56	Peak	16	100	VERTICAL
2 a	4825.18	32.28	54.00	-21.72	30.20	4.21	34.69	32.56	Average	16	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4871.56	34.87	54.00	-19.13	32.66	4.22	34.67	32.66	Average	214	100	HORIZONTAL
2	4871.74	47.58	74.00	-26.42	45.37	4.22	34.67	32.66	Peak	214	100	HORIZONTAL
3 a	7310.26	35.71	54.00	-18.29	28.33	5.34	34.93	36.97	Average	130	100	HORIZONTAL
4 p	7313.08	48.39	74.00	-25.61	41.02	5.34	34.94	36.97	Peak	130	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4873.16	46.16	54.00	-7.84	43.95	4.22	34.67	32.66	Average	338	100	VERTICAL
2 p	4874.56	62.97	74.00	-11.03	60.76	4.22	34.67	32.66	Peak	338	100	VERTICAL
3	7309.88	49.14	74.00	-24.86	41.76	5.34	34.93	36.97	Peak	18	100	VERTICAL
4	7315.78	36.80	54.00	-17.20	29.40	5.35	34.94	36.99	Average	18	100	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4920.40	44.19	74.00	-29.81	41.85	4.23	34.65	32.76	Peak	102	100	HORIZONTAL
2	4923.30	31.27	54.00	-22.73	28.93	4.23	34.65	32.76	Average	102	100	HORIZONTAL
3 p	7387.50	50.04	74.00	-23.96	42.56	5.36	34.96	37.08	Peak	182	100	HORIZONTAL
4 a	7390.14	36.44	54.00	-17.56	28.96	5.36	34.96	37.08	Average	182	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4923.30	45.60	74.00	-28.40	43.26	4.23	34.65	32.76	Peak	337	100	VERTICAL
2	4923.74	33.19	54.00	-20.81	30.85	4.23	34.65	32.76	Average	337	100	VERTICAL
3 a	7389.74	36.51	54.00	-17.49	29.03	5.36	34.96	37.08	Average	357	100	VERTICAL
4 p	7390.78	49.54	74.00	-24.46	42.06	5.36	34.96	37.08	Peak	357	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4841.70	30.66	54.00	-23.34	28.54	4.21	34.68	32.59	Average	251	100	HORIZONTAL
2 p	4843.19	43.31	74.00	-30.69	41.19	4.21	34.68	32.59	Peak	251	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4841.97	30.86	54.00	-23.14	28.74	4.21	34.68	32.59	Average	92	100	VERTICAL
2 p	4843.23	43.44	74.00	-30.56	41.32	4.21	34.68	32.59	Peak	92	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4874.80	31.05	54.00	-22.95	28.84	4.22	34.67	32.66	Average	168	100	HORIZONTAL
2		4876.04	43.96	74.00	-30.04	41.75	4.22	34.67	32.66	Peak	168	100	HORIZONTAL
3	p	7310.45	49.78	74.00	-24.22	42.40	5.34	34.93	36.97	Peak	56	100	HORIZONTAL
4	a	7313.00	35.70	54.00	-18.30	28.33	5.34	34.94	36.97	Average	56	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4872.44	45.92	74.00	-28.08	43.71	4.22	34.67	32.66	Peak	220	100	VERTICAL
2		4875.11	31.96	54.00	-22.04	29.75	4.22	34.67	32.66	Average	220	100	VERTICAL
3	p	7312.42	49.00	74.00	-25.00	41.63	5.34	34.94	36.97	Peak	144	100	VERTICAL
4	a	7312.57	35.60	54.00	-18.40	28.23	5.34	34.94	36.97	Average	144	100	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4903.79	43.74	74.00	-30.26	41.45	4.22	34.66	32.73	Peak	159	100	HORIZONTAL
2	4906.25	30.84	54.00	-23.16	28.55	4.22	34.66	32.73	Average	159	100	HORIZONTAL
3 a	7354.27	35.86	54.00	-18.14	28.43	5.35	34.95	37.03	Average	91	100	HORIZONTAL
4 p	7354.33	48.73	74.00	-25.27	41.30	5.35	34.95	37.03	Peak	91	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4902.26	31.24	54.00	-22.76	28.95	4.22	34.66	32.73	Average	274	100	VERTICAL
2	4903.55	45.06	74.00	-28.94	42.77	4.22	34.66	32.73	Peak	274	100	VERTICAL
3 a	7354.26	36.05	54.00	-17.95	28.62	5.35	34.95	37.03	Average	189	100	VERTICAL
4 p	7358.18	48.53	74.00	-25.47	41.10	5.35	34.95	37.03	Peak	189	100	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	1607.99	40.05	54.00	-13.95	46.57	2.35	34.99	26.12	Average	320	100	HORIZONTAL
2	p	1608.05	43.44	74.00	-30.56	49.96	2.35	34.99	26.12	Peak	320	100	HORIZONTAL
3		4822.14	43.08	74.00	-30.92	41.00	4.21	34.69	32.56	Peak	307	100	HORIZONTAL
4		4822.69	30.38	54.00	-23.62	28.30	4.21	34.69	32.56	Average	307	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	1607.92	52.37	74.00	-21.63	58.89	2.35	34.99	26.12	Peak	164	147	VERTICAL
2	a	1607.98	50.76	54.00	-3.24	57.28	2.35	34.99	26.12	Average	164	147	VERTICAL
3		4824.01	31.28	54.00	-22.72	29.20	4.21	34.69	32.56	Average	187	100	VERTICAL
4		4826.23	43.58	74.00	-30.42	41.50	4.21	34.69	32.56	Peak	187	100	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	1624.59	44.78	74.00	-29.22	51.18	2.36	34.99	26.23	Peak	313	100	HORIZONTAL
2 a	1624.64	41.99	54.00	-12.01	48.39	2.36	34.99	26.23	Average	313	100	HORIZONTAL
3	4874.23	30.94	54.00	-23.06	28.73	4.22	34.67	32.66	Average	290	100	HORIZONTAL
4	4875.60	44.57	74.00	-29.43	42.36	4.22	34.67	32.66	Peak	290	100	HORIZONTAL
5	7310.72	35.63	54.00	-18.37	28.25	5.34	34.93	36.97	Average	356	100	HORIZONTAL
6 p	7312.23	48.73	74.00	-25.27	41.36	5.34	34.94	36.97	Peak	356	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1624.59	52.35	74.00	-21.65	58.75	2.36	34.99	26.23	Peak	165	146	VERTICAL
2 a	1624.64	50.70	54.00	-3.30	57.10	2.36	34.99	26.23	Average	165	146	VERTICAL
3	4872.18	33.24	54.00	-20.76	31.03	4.22	34.67	32.66	Average	253	100	VERTICAL
4	4872.66	44.54	74.00	-29.46	42.33	4.22	34.67	32.66	Peak	253	100	VERTICAL
5	7310.30	35.64	54.00	-18.36	28.26	5.34	34.93	36.97	Average	174	100	VERTICAL
6	7313.05	48.97	74.00	-25.03	41.60	5.34	34.94	36.97	Peak	174	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4922.18	31.47	54.00	-22.53	29.13	4.23	34.65	32.76	Average	158	100	HORIZONTAL
2	4925.06	44.11	74.00	-29.89	41.77	4.23	34.65	32.76	Peak	158	100	HORIZONTAL
3 a	7383.84	36.50	54.00	-17.50	29.02	5.36	34.96	37.08	Average	294	100	HORIZONTAL
4 p	7385.18	49.83	74.00	-24.17	42.35	5.36	34.96	37.08	Peak	294	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4924.03	36.27	54.00	-17.73	33.93	4.23	34.65	32.76	Average	51	100	VERTICAL
2	4926.13	48.85	74.00	-25.15	46.51	4.23	34.65	32.76	Peak	51	100	VERTICAL
3 a	7386.59	36.79	54.00	-17.21	29.31	5.36	34.96	37.08	Average	143	100	VERTICAL
4 p	7387.70	50.31	74.00	-23.69	42.83	5.36	34.96	37.08	Peak	143	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	1614.66	42.19	54.00	-11.81	48.71	2.35	34.99	26.12	Average	312	100	HORIZONTAL
2 p	1614.70	45.43	74.00	-28.57	51.95	2.35	34.99	26.12	Peak	312	100	HORIZONTAL
3	4842.59	30.51	54.00	-23.49	28.39	4.21	34.68	32.59	Average	236	100	HORIZONTAL
4	4846.04	43.50	74.00	-30.50	41.38	4.21	34.68	32.59	Peak	236	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1614.64	52.77	74.00	-21.23	59.29	2.35	34.99	26.12	Peak	167	140	VERTICAL
2 a	1614.65	50.99	54.00	-3.01	57.51	2.35	34.99	26.12	Average	167	140	VERTICAL
3	4843.85	43.72	74.00	-30.28	41.60	4.21	34.68	32.59	Peak	132	100	VERTICAL
4	4845.03	31.82	54.00	-22.18	29.70	4.21	34.68	32.59	Average	132	100	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	1624.58	44.77	74.00	-29.23	51.17	2.36	34.99	26.23	Peak	323	100	HORIZONTAL
2 a	1624.62	41.41	54.00	-12.59	47.81	2.36	34.99	26.23	Average	323	100	HORIZONTAL
3	4873.57	31.05	54.00	-22.95	28.84	4.22	34.67	32.66	Average	154	100	HORIZONTAL
4	4874.13	44.40	74.00	-29.60	42.19	4.22	34.67	32.66	Peak	154	100	HORIZONTAL
5 p	7310.61	48.70	74.00	-25.30	41.32	5.34	34.93	36.97	Peak	72	100	HORIZONTAL
6	7313.16	35.65	54.00	-18.35	28.28	5.34	34.94	36.97	Average	72	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1624.60	52.61	74.00	-21.39	59.01	2.36	34.99	26.23	Peak	170	148	VERTICAL
2 a	1624.65	50.88	54.00	-3.12	57.28	2.36	34.99	26.23	Average	170	148	VERTICAL
3	4873.56	32.12	54.00	-21.88	29.91	4.22	34.67	32.66	Average	133	100	VERTICAL
4	4874.41	45.58	74.00	-28.42	43.37	4.22	34.67	32.66	Peak	133	100	VERTICAL
5	7309.33	48.30	74.00	-25.70	40.92	5.34	34.93	36.97	Peak	166	100	VERTICAL
6	7312.86	35.71	54.00	-18.29	28.34	5.34	34.94	36.97	Average	166	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4903.71	43.96	74.00	-30.04	41.67	4.22	34.66	32.73	Peak	241	100	HORIZONTAL
2	4906.30	30.97	54.00	-23.03	28.68	4.22	34.66	32.73	Average	241	100	HORIZONTAL
3 a	7353.56	35.87	54.00	-18.13	28.44	5.35	34.95	37.03	Average	178	100	HORIZONTAL
4 p	7354.50	49.55	74.00	-24.45	42.12	5.35	34.95	37.03	Peak	178	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4902.74	31.78	54.00	-22.22	29.49	4.22	34.66	32.73	Average	294	100	VERTICAL
2	4903.11	45.25	74.00	-28.75	42.96	4.22	34.66	32.73	Peak	294	100	VERTICAL
3 a	7354.60	36.15	54.00	-17.85	28.72	5.35	34.95	37.03	Average	238	100	VERTICAL
4 p	7355.77	49.09	74.00	-24.91	41.66	5.35	34.95	37.03	Peak	238	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz Ch 1 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1607.97	43.57	74.00	-30.43	50.09	2.35	34.99	26.12	Peak	311	105	HORIZONTAL
2 a	1608.00	40.21	54.00	-13.79	46.73	2.35	34.99	26.12	Average	311	105	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	1607.98	50.55	54.00	-3.45	57.07	2.35	34.99	26.12	Average	163	148	VERTICAL
2 p	1608.00	52.31	74.00	-21.69	58.83	2.35	34.99	26.12	Peak	163	148	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz Ch 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	1624.67	41.85	54.00	-12.15	48.25	2.36	34.99	26.23	Average	312	100	HORIZONTAL
2 p	1624.68	44.64	74.00	-29.36	51.04	2.36	34.99	26.23	Peak	312	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	1624.63	50.51	54.00	-3.49	56.91	2.36	34.99	26.23	Average	170	110	VERTICAL
2 p	1624.65	52.26	74.00	-21.74	58.66	2.36	34.99	26.23	Peak	170	110	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz Ch 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4925.89	44.18	74.00	-29.82	41.84	4.23	34.65	32.76	Peak	212	100	HORIZONTAL
2	4926.05	31.26	54.00	-22.74	28.92	4.23	34.65	32.76	Average	212	100	HORIZONTAL
3 a	7384.33	36.45	54.00	-17.55	28.97	5.36	34.96	37.08	Average	107	100	HORIZONTAL
4 p	7387.68	48.98	74.00	-25.02	41.50	5.36	34.96	37.08	Peak	107	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4923.30	32.95	54.00	-21.05	30.61	4.23	34.65	32.76	Average	126	100	VERTICAL
2	4924.00	45.87	74.00	-28.13	43.53	4.23	34.65	32.76	Peak	126	100	VERTICAL
3 a	7383.66	36.44	54.00	-17.56	28.96	5.36	34.96	37.08	Average	209	100	VERTICAL
4 p	7387.01	50.08	74.00	-23.92	42.60	5.36	34.96	37.08	Peak	209	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz Ch 3 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	1614.63	42.26	54.00	-11.74	48.78	2.35	34.99	26.12	Average	312	100	HORIZONTAL
2 p	1614.65	45.01	74.00	-28.99	51.53	2.35	34.99	26.12	Peak	312	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1614.66	52.64	74.00	-21.36	59.16	2.35	34.99	26.12	Peak	165	114	VERTICAL
2 a	1614.66	50.53	54.00	-3.47	57.05	2.35	34.99	26.12	Average	165	114	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz Ch 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1624.60	44.94	74.00	-29.06	51.34	2.36	34.99	26.23	Peak	312	100	HORIZONTAL
2 a	1624.66	41.85	54.00	-12.15	48.25	2.36	34.99	26.23	Average	312	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	1624.62	52.61	74.00	-21.39	59.01	2.36	34.99	26.23	Peak	171	112	VERTICAL
2 a	1624.66	50.51	54.00	-3.49	56.91	2.36	34.99	26.23	Average	171	112	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz Ch 9 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4904.77	30.79	54.00	-23.21	28.50	4.22	34.66	32.73	Average	78	100	HORIZONTAL
2	4905.91	43.64	74.00	-30.36	41.35	4.22	34.66	32.73	Peak	78	100	HORIZONTAL
3 a	7354.44	35.62	54.00	-18.38	28.19	5.35	34.95	37.03	Average	158	100	HORIZONTAL
4 p	7356.09	48.86	74.00	-25.14	41.43	5.35	34.95	37.03	Peak	158	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4905.08	31.05	54.00	-22.95	28.76	4.22	34.66	32.73	Average	235	100	VERTICAL
2	4906.48	43.97	74.00	-30.03	41.68	4.22	34.66	32.73	Peak	235	100	VERTICAL
3 a	7354.48	35.78	54.00	-18.22	28.35	5.35	34.95	37.03	Average	291	100	VERTICAL
4 p	7356.70	48.73	74.00	-25.27	41.30	5.35	34.95	37.03	Peak	291	100	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 149 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11490.10	48.69	74.00	-25.31	40.08	5.11	38.78	35.28	Peak	100	167	HORIZONTAL
2	11490.30	40.15	54.00	-13.85	31.54	5.11	38.78	35.28	Average	100	167	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11491.00	47.08	54.00	-6.92	38.47	5.11	38.78	35.28	Average	100	230	VERTICAL
2	11491.60	60.98	74.00	-13.02	52.37	5.11	38.78	35.28	Peak	100	230	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 157 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11566.50	54.06	74.00	-19.94	45.41	5.13	38.82	35.30	Peak	100	76	HORIZONTAL
2	11571.10	42.20	54.00	-11.80	33.53	5.14	38.83	35.30	Average	100	76	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11572.80	50.62	54.00	-3.38	41.95	5.14	38.83	35.30	Average	100	221	VERTICAL
2	11573.40	65.35	74.00	-8.65	56.68	5.14	38.83	35.30	Peak	100	221	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 165 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11652.00	43.19	54.00	-10.81	34.47	5.16	38.86	35.30	Average	100	173	HORIZONTAL
2	11656.10	54.84	74.00	-19.16	46.12	5.16	38.86	35.30	Peak	100	173	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11642.90	62.86	74.00	-11.14	54.14	5.16	38.86	35.30	Peak	100	337	VERTICAL
2	11648.80	48.35	54.00	-5.65	39.63	5.16	38.86	35.30	Average	100	337	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz CH 151 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11511.20	38.83	54.00	-15.17	30.20	5.12	38.79	35.28	Average	100	176	HORIZONTAL
2	11514.20	49.67	74.00	-24.33	41.04	5.12	38.79	35.28	Peak	100	176	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11508.20	46.73	54.00	-7.27	38.10	5.12	38.79	35.28	Average	123	334	VERTICAL
2	11509.80	60.47	74.00	-13.53	51.84	5.12	38.79	35.28	Peak	123	334	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz CH 159 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11588.40	50.79	74.00	-23.21	42.12	5.14	38.83	35.30	Peak	100	342	HORIZONTAL
2	11590.60	39.00	54.00	-15.00	30.33	5.14	38.83	35.30	Average	100	342	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11588.40	62.30	74.00	-11.70	53.63	5.14	38.83	35.30	Peak	100	225	VERTICAL
2	11589.80	48.07	54.00	-5.93	39.40	5.14	38.83	35.30	Average	100	225	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 149 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11488.40	47.67	54.00	-6.33	39.06	5.11	38.78	35.28	Average	155	213	HORIZONTAL
2	11488.40	62.69	74.00	-11.31	54.08	5.11	38.78	35.28	Peak	155	213	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11489.20	49.90	54.00	-4.10	41.29	5.11	38.78	35.28	Average	100	239	VERTICAL
2	11490.00	64.32	74.00	-9.68	55.71	5.11	38.78	35.28	Peak	100	239	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 157 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11566.10	44.60	54.00	-9.40	35.95	5.13	38.82	35.30	Average	146	256	HORIZONTAL
2	11566.80	59.00	74.00	-15.00	50.35	5.13	38.82	35.30	Peak	146	256	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11567.20	50.52	54.00	-3.48	41.87	5.13	38.82	35.30	Average	101	34	VERTICAL
2	11567.40	64.31	74.00	-9.69	55.66	5.13	38.82	35.30	Peak	101	34	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz CH 165 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11648.40	48.85	54.00	-5.15	40.13	5.16	38.86	35.30	Average	149	239	HORIZONTAL
2	11648.40	62.98	74.00	-11.02	54.26	5.16	38.86	35.30	Peak	149	239	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11648.30	50.93	54.00	-3.07	42.21	5.16	38.86	35.30	Average	100	230	VERTICAL
2	11648.70	64.95	74.00	-9.05	56.23	5.16	38.86	35.30	Peak	100	230	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz CH 151 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11508.20	43.18	54.00	-10.82	34.55	5.12	38.79	35.28	Average	164	216	HORIZONTAL
2	11510.80	57.03	74.00	-16.97	48.40	5.12	38.79	35.28	Peak	164	216	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11502.60	47.99	54.00	-6.01	39.36	5.12	38.79	35.28	Average	100	282	VERTICAL
2	11503.20	61.81	74.00	-12.19	53.18	5.12	38.79	35.28	Peak	100	282	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz CH 159 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11585.20	59.49	74.00	-14.51	50.82	5.14	38.83	35.30	Peak	158	260	HORIZONTAL
2	11587.40	46.62	54.00	-7.38	37.95	5.14	38.83	35.30	Average	158	260	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11585.60	50.55	54.00	-3.45	41.88	5.14	38.83	35.30	Average	100	37	VERTICAL
2	11586.20	64.54	74.00	-9.46	55.87	5.14	38.83	35.30	Peak	100	37	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz CH 149 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11488.40	42.40	54.00	-11.60	33.79	5.11	38.78	35.28	Average	100	211	HORIZONTAL
2	11489.00	54.27	74.00	-19.73	45.66	5.11	38.78	35.28	Peak	100	211	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11489.80	64.17	74.00	-9.83	55.56	5.11	38.78	35.28	Peak	100	284	VERTICAL
2	11490.80	48.40	54.00	-5.60	39.79	5.11	38.78	35.28	Average	100	284	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz CH 157 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11570.20	59.24	74.00	-14.76	50.57	5.14	38.83	35.30	Peak	143	261	HORIZONTAL
2	11572.50	45.18	54.00	-8.82	36.51	5.14	38.83	35.30	Average	143	261	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11569.90	65.59	74.00	-8.41	56.92	5.14	38.83	35.30	Peak	100	39	VERTICAL
2	11570.10	50.91	54.00	-3.09	42.24	5.14	38.83	35.30	Average	100	39	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz CH 165 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11650.00	62.09	74.00	-11.91	53.37	5.16	38.86	35.30	Peak	152	262	HORIZONTAL
2	11653.70	47.66	54.00	-6.34	38.94	5.16	38.86	35.30	Average	152	262	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11645.90	63.71	74.00	-10.29	54.99	5.16	38.86	35.30	Peak	100	240	VERTICAL
2	11648.80	50.74	54.00	-3.26	42.02	5.16	38.86	35.30	Average	100	240	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz CH 151 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11509.00	45.01	54.00	-8.99	36.38	5.12	38.79	35.28	Average	153	295	HORIZONTAL
2	11509.80	60.72	74.00	-13.28	52.09	5.12	38.79	35.28	Peak	153	295	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11509.80	62.82	74.00	-11.18	54.19	5.12	38.79	35.28	Peak	100	43	VERTICAL
2	11510.00	46.72	54.00	-7.28	38.09	5.12	38.79	35.28	Average	100	43	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz CH 159 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11588.80	59.28	74.00	-14.72	50.61	5.14	38.83	35.30	Peak	153	261	HORIZONTAL
2	11589.20	45.46	54.00	-8.54	36.79	5.14	38.83	35.30	Average	153	261	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11589.60	49.07	54.00	-4.93	40.40	5.14	38.83	35.30	Average	100	42	VERTICAL
2	11590.00	65.28	74.00	-8.72	56.61	5.14	38.83	35.30	Peak	100	42	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1 / Ant. 1 / Chain 0 (1TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.96	43.17	54.00	-10.83	41.83	3.31	33.06	35.03	Average	100	84	HORIZONTAL
2	4824.03	48.61	74.00	-25.39	47.27	3.31	33.06	35.03	Peak	100	84	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.96	52.81	54.00	-1.19	51.47	3.31	33.06	35.03	Average	100	155	VERTICAL
2	4824.08	55.18	74.00	-18.82	53.84	3.31	33.06	35.03	Peak	100	155	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 6 / Ant. 1 / Chain 0 (1TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.94	40.46	54.00	-13.54	39.00	3.33	33.16	35.03	Average	100	86	HORIZONTAL
2	4873.95	48.01	74.00	-25.99	46.55	3.33	33.16	35.03	Peak	100	86	HORIZONTAL
3	7308.50	32.49	54.00	-21.51	27.87	4.06	35.96	35.40	Average	100	31	HORIZONTAL
4	7309.54	45.44	74.00	-28.56	40.82	4.06	35.96	35.40	Peak	100	31	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.97	53.87	54.00	-0.13	52.41	3.33	33.16	35.03	Average	100	6	VERTICAL
2	4873.99	55.93	74.00	-18.07	54.47	3.33	33.16	35.03	Peak	100	6	VERTICAL
3	7308.69	46.16	74.00	-27.84	41.54	4.06	35.96	35.40	Peak	100	169	VERTICAL
4	7312.04	32.98	54.00	-21.02	28.36	4.06	35.96	35.40	Average	100	169	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.94	40.25	54.00	-13.75	38.65	3.35	33.26	35.01	Average	100	259	HORIZONTAL
2	4924.04	47.31	74.00	-26.69	45.71	3.35	33.26	35.01	Peak	100	259	HORIZONTAL
3	7383.66	46.65	74.00	-27.35	41.90	4.06	36.09	35.40	Peak	100	66	HORIZONTAL
4	7387.96	32.43	54.00	-21.57	27.68	4.06	36.09	35.40	Average	100	66	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.96	53.92	54.00	-0.08	52.32	3.35	33.26	35.01	Average	100	218	VERTICAL
2	4923.96	56.36	74.00	-17.64	54.76	3.35	33.26	35.01	Peak	100	218	VERTICAL
3	7386.34	46.38	74.00	-27.62	41.63	4.06	36.09	35.40	Peak	100	163	VERTICAL
4	7386.51	34.22	54.00	-19.78	29.47	4.06	36.09	35.40	Average	100	163	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4825.89	43.56	74.00	-30.44	42.22	3.31	33.06	35.03	Peak	100	352	HORIZONTAL
2	4825.97	29.35	54.00	-24.65	28.01	3.31	33.06	35.03	Average	100	352	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4822.21	32.59	54.00	-21.41	31.25	3.31	33.06	35.03	Average	100	8	VERTICAL
2	4826.04	45.78	74.00	-28.22	44.44	3.31	33.06	35.03	Peak	100	8	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 6 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.92	34.19	54.00	-19.81	32.73	3.33	33.16	35.03	Average	100	169	HORIZONTAL
2	4874.78	48.19	74.00	-25.81	46.73	3.33	33.16	35.03	Peak	100	169	HORIZONTAL
3	7311.19	32.82	54.00	-21.18	28.20	4.06	35.96	35.40	Average	100	251	HORIZONTAL
4	7312.47	45.90	74.00	-28.10	41.28	4.06	35.96	35.40	Peak	100	251	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.30	44.41	54.00	-9.59	42.95	3.33	33.16	35.03	Average	100	6	VERTICAL
2	4874.92	61.02	74.00	-12.98	59.56	3.33	33.16	35.03	Peak	100	6	VERTICAL
3	7310.90	48.84	74.00	-25.16	44.22	4.06	35.96	35.40	Peak	100	313	VERTICAL
4	7312.65	35.13	54.00	-18.87	30.51	4.06	35.96	35.40	Average	100	313	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.10	29.72	54.00	-24.28	28.12	3.35	33.26	35.01	Average	100	29	HORIZONTAL
2	4926.10	42.91	74.00	-31.09	41.31	3.35	33.26	35.01	Peak	100	28	HORIZONTAL
3	7386.41	46.04	74.00	-27.96	41.29	4.06	36.09	35.40	Peak	100	138	HORIZONTAL
4	7388.06	32.86	54.00	-21.14	28.11	4.06	36.09	35.40	Average	100	138	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.62	34.36	54.00	-19.64	32.76	3.35	33.26	35.01	Average	100	37	VERTICAL
2	4924.59	48.55	74.00	-25.45	46.95	3.35	33.26	35.01	Peak	100	37	VERTICAL
3	7385.55	45.85	74.00	-28.15	41.10	4.06	36.09	35.40	Peak	100	320	VERTICAL
4	7387.57	33.06	54.00	-20.94	28.31	4.06	36.09	35.40	Average	100	320	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11479.90	52.26	74.00	-21.74	43.66	5.11	38.77	35.28	Peak	100	340	HORIZONTAL
2	11491.70	40.34	54.00	-13.66	31.73	5.11	38.78	35.28	Average	100	340	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11490.50	62.08	74.00	-11.92	53.47	5.11	38.78	35.28	Peak	100	26	VERTICAL
2	11490.90	48.77	54.00	-5.23	40.16	5.11	38.78	35.28	Average	100	26	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11567.90	41.59	54.00	-12.41	32.93	5.13	38.83	35.30	Average	100	202	HORIZONTAL
2	11569.00	51.80	74.00	-22.20	43.14	5.13	38.83	35.30	Peak	100	202	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11570.20	50.22	54.00	-3.78	41.55	5.14	38.83	35.30	Average	100	214	VERTICAL
2	11572.90	64.18	74.00	-9.82	55.51	5.14	38.83	35.30	Peak	100	214	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11649.30	43.23	54.00	-10.77	34.51	5.16	38.86	35.30	Average	100	183	HORIZONTAL
2	11651.40	54.54	74.00	-19.46	45.82	5.16	38.86	35.30	Peak	100	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11648.10	49.65	54.00	-4.35	40.93	5.16	38.86	35.30	Average	100	267	VERTICAL
2	11648.70	61.13	74.00	-12.87	52.41	5.16	38.86	35.30	Peak	100	267	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1607.98	41.50	74.00	-32.50	49.38	1.79	25.77	35.44	Peak	132	194	HORIZONTAL
2	1608.00	37.50	54.00	-16.50	45.38	1.79	25.77	35.44	Average	132	194	HORIZONTAL
3	4823.93	48.34	74.00	-25.66	47.00	3.31	33.06	35.03	Peak	102	199	HORIZONTAL
4	4823.94	43.31	54.00	-10.69	41.97	3.31	33.06	35.03	Average	102	199	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1607.99	49.16	74.00	-24.84	57.04	1.79	25.77	35.44	Peak	136	11	VERTICAL
2	1608.00	47.25	54.00	-6.75	55.13	1.79	25.77	35.44	Average	136	11	VERTICAL
3	4823.96	53.89	54.00	-0.11	52.55	3.31	33.06	35.03	Average	100	5	VERTICAL
4	4823.96	55.63	74.00	-18.37	54.29	3.31	33.06	35.03	Peak	100	5	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1624.60	41.50	74.00	-32.50	49.30	1.79	25.83	35.42	Peak	100	179	HORIZONTAL
2	1624.63	37.94	54.00	-16.06	45.74	1.79	25.83	35.42	Average	100	179	HORIZONTAL
3	4873.89	46.95	74.00	-27.05	45.49	3.33	33.16	35.03	Peak	100	81	HORIZONTAL
4	4873.94	39.72	54.00	-14.28	38.26	3.33	33.16	35.03	Average	100	81	HORIZONTAL
5	7309.05	32.85	54.00	-21.15	28.23	4.06	35.96	35.40	Average	100	326	HORIZONTAL
6	7309.77	45.91	74.00	-28.09	41.29	4.06	35.96	35.40	Peak	100	326	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1624.65	50.53	54.00	-3.47	58.33	1.79	25.83	35.42	Average	166	5	VERTICAL
2	1624.69	51.71	74.00	-22.29	59.51	1.79	25.83	35.42	Peak	169	5	VERTICAL
3	4873.95	55.30	74.00	-18.70	53.84	3.33	33.16	35.03	Peak	103	5	VERTICAL
4	4873.96	53.43	54.00	-0.57	51.97	3.33	33.16	35.03	Average	103	5	VERTICAL
5	7310.17	33.75	54.00	-20.25	29.13	4.06	35.96	35.40	Average	100	198	VERTICAL
6	7311.89	47.38	74.00	-26.62	42.76	4.06	35.96	35.40	Peak	100	198	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Aug. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.95	46.11	74.00	-27.89	44.51	3.35	33.26	35.01	Peak	119	197	HORIZONTAL
2	4923.97	36.17	54.00	-17.83	34.57	3.35	33.26	35.01	Average	119	197	HORIZONTAL
3	7384.55	45.29	74.00	-28.71	40.54	4.06	36.09	35.40	Peak	100	352	HORIZONTAL
4	7386.32	32.37	54.00	-21.63	27.62	4.06	36.09	35.40	Average	100	352	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.90	55.89	74.00	-18.11	54.29	3.35	33.26	35.01	Peak	100	202	VERTICAL
2	4923.96	53.71	54.00	-0.29	52.11	3.35	33.26	35.01	Average	100	202	VERTICAL
3	7386.89	32.99	54.00	-21.01	28.24	4.06	36.09	35.40	Average	100	204	VERTICAL
4	7387.33	46.77	74.00	-27.23	42.02	4.06	36.09	35.40	Peak	100	204	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1607.97	43.26	74.00	-30.74	48.94	3.31	25.91	34.90	Peak	136	315	HORIZONTAL
2	1608.00	39.47	54.00	-14.53	45.15	3.31	25.91	34.90	Average	136	315	HORIZONTAL
3	4824.57	32.90	54.00	-21.10	28.84	5.87	33.39	35.20	Average	100	168	HORIZONTAL
4	4824.93	45.87	74.00	-28.13	41.81	5.87	33.39	35.20	Peak	100	168	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1607.98	50.52	54.00	-3.48	56.20	3.31	25.91	34.90	Average	152	4	VERTICAL
2	1607.99	51.37	74.00	-22.63	57.05	3.31	25.91	34.90	Peak	152	4	VERTICAL
3	4824.01	46.45	74.00	-27.55	42.39	5.87	33.39	35.20	Peak	100	232	VERTICAL
4	4824.54	33.59	54.00	-20.41	29.53	5.87	33.39	35.20	Average	100	232	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 6 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1624.60	44.81	74.00	-29.19	50.42	3.33	25.96	34.90	Peak	100	317	HORIZONTAL
2	1624.67	41.75	54.00	-12.25	47.36	3.33	25.96	34.90	Average	100	317	HORIZONTAL
3	4873.74	45.67	74.00	-28.33	41.47	5.92	33.48	35.20	Peak	100	142	HORIZONTAL
4	4874.83	33.16	54.00	-20.84	28.96	5.92	33.48	35.20	Average	100	142	HORIZONTAL
5	7310.67	36.73	54.00	-17.27	28.52	7.13	36.51	35.43	Average	100	192	HORIZONTAL
6	7310.85	49.46	74.00	-24.54	41.25	7.13	36.51	35.43	Peak	100	192	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	1624.65	50.92	54.00	-3.08	56.53	3.33	25.96	34.90	Average	146	11	VERTICAL
2	1624.66	52.59	74.00	-21.41	58.20	3.33	25.96	34.90	Peak	146	11	VERTICAL
3	4873.18	34.52	54.00	-19.48	30.32	5.92	33.48	35.20	Average	100	226	VERTICAL
4	4874.90	46.71	74.00	-27.29	42.51	5.92	33.48	35.20	Peak	100	226	VERTICAL
5	7310.86	36.76	54.00	-17.24	28.55	7.13	36.51	35.43	Average	100	279	VERTICAL
6	7311.05	49.69	74.00	-24.31	41.48	7.13	36.51	35.43	Peak	100	279	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.81	45.98	74.00	-28.02	41.63	5.97	33.58	35.20	Peak	100	172	HORIZONTAL
2	4924.16	32.82	54.00	-21.18	28.47	5.97	33.58	35.20	Average	100	172	HORIZONTAL
3	7385.21	49.94	74.00	-24.06	41.62	7.17	36.61	35.46	Peak	100	190	HORIZONTAL
4	7385.30	36.74	54.00	-17.26	28.42	7.17	36.61	35.46	Average	100	190	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.38	35.06	54.00	-18.94	30.71	5.97	33.58	35.20	Average	100	240	VERTICAL
2	4924.08	46.72	74.00	-27.28	42.37	5.97	33.58	35.20	Peak	100	240	VERTICAL
3	7385.76	50.07	74.00	-23.93	41.75	7.17	36.61	35.46	Peak	100	287	VERTICAL
4	7386.17	37.04	54.00	-16.96	28.72	7.17	36.61	35.46	Average	100	287	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11487.60	62.16	74.00	-11.84	53.55	5.11	38.78	35.28	Peak	149	281	HORIZONTAL
2	11488.50	48.68	54.00	-5.32	40.07	5.11	38.78	35.28	Average	149	281	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11488.40	50.54	54.00	-3.46	41.93	5.11	38.78	35.28	Average	105	44	VERTICAL
2	11488.60	64.79	74.00	-9.21	56.18	5.11	38.78	35.28	Peak	105	44	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11568.90	48.11	54.00	-5.89	39.45	5.13	38.83	35.30	Average	140	262	HORIZONTAL
2	11573.90	62.50	74.00	-11.50	53.83	5.14	38.83	35.30	Peak	140	262	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11568.60	64.45	74.00	-9.55	55.79	5.13	38.83	35.30	Peak	101	29	VERTICAL
2	11568.90	50.90	54.00	-3.10	42.24	5.13	38.83	35.30	Average	101	29	VERTICAL

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 29, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11649.10	43.64	54.00	-10.36	34.92	5.16	38.86	35.30	Average	100	206	HORIZONTAL
2	11655.00	51.00	74.00	-23.00	42.28	5.16	38.86	35.30	Peak	100	206	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11648.60	64.40	74.00	-9.60	55.68	5.16	38.86	35.30	Peak	100	227	VERTICAL
2	11648.80	50.65	54.00	-3.35	41.93	5.16	38.86	35.30	Average	100	227	VERTICAL

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6. Emissions Measurement

4.6.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	100 kHz / 300 kHz for Peak

4.6.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around band edges.

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB 558074 D01 v03r01 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure
2. The radiated emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit. Only worst data of each operating mode is presented.

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

This test setup layout is the same as that shown in section 4.5.4.

For Radiated Out of Band Emission Measurement:

This test setup layout is the same as that shown in section 4.5.4.

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.60	69.62	74.00	-4.38	38.84	2.91	0.00	27.87	Peak	49	123	VERTICAL
2	!	2390.00	52.20	54.00	-1.80	21.42	2.91	0.00	27.87	Average	49	123	VERTICAL
3	a	2409.60	98.62			67.86	2.92	0.00	27.84	Average	49	123	VERTICAL
4	p	2413.20	108.70			77.94	2.92	0.00	27.84	Peak	49	123	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.40	72.54	74.00	-1.46	41.76	2.91	0.00	27.87	Peak	48	118	VERTICAL
2	!	2390.00	49.67	54.00	-4.33	18.89	2.91	0.00	27.87	Average	48	118	VERTICAL
3	a	2431.40	103.31			72.57	2.93	0.00	27.81	Average	48	118	VERTICAL
4	p	2432.20	114.53			83.79	2.93	0.00	27.81	Peak	48	118	VERTICAL
5	!	2483.50	72.22	74.00	-1.78	41.53	2.96	0.00	27.73	Peak	48	118	VERTICAL
6	!	2483.50	51.10	54.00	-2.90	20.41	2.96	0.00	27.73	Average	48	118	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2466.60	105.89			75.18	2.95	0.00	27.76	Peak	191	103	VERTICAL
2	a	2468.60	96.44			65.73	2.95	0.00	27.76	Average	191	103	VERTICAL
3	!	2483.50	52.50	54.00	-1.50	21.81	2.96	0.00	27.73	Average	191	103	VERTICAL
4	!	2483.70	70.03	74.00	-3.97	39.34	2.96	0.00	27.73	Peak	191	103	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2388.00	67.09	74.00	-6.91	36.31	2.91	0.00	27.87	Peak	51	125	VERTICAL
2	!	2390.00	52.91	54.00	-1.09	22.13	2.91	0.00	27.87	Average	51	125	VERTICAL
3	p	2408.00	104.35			73.59	2.92	0.00	27.84	Peak	51	125	VERTICAL
4	a	2409.60	93.06			62.30	2.92	0.00	27.84	Average	51	125	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2390.00	67.23	74.00	-6.77	36.45	2.91	0.00	27.87	Peak	49	120	VERTICAL
2	!	2390.00	50.45	54.00	-3.55	19.67	2.91	0.00	27.87	Average	49	120	VERTICAL
3	p	2421.40	105.15			74.41	2.93	0.00	27.81	Peak	49	120	VERTICAL
4	a	2421.40	94.70			63.96	2.93	0.00	27.81	Average	49	120	VERTICAL
5	!	2483.50	68.83	74.00	-5.17	38.14	2.96	0.00	27.73	Peak	49	120	VERTICAL
6	!	2483.50	52.21	54.00	-1.79	21.52	2.96	0.00	27.73	Average	49	120	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2465.20	101.06			70.35	2.95	0.00	27.76	Peak	189	102	VERTICAL
2	a	2467.20	91.05			60.34	2.95	0.00	27.76	Average	189	102	VERTICAL
3	!	2483.50	52.21	54.00	-1.79	21.52	2.96	0.00	27.73	Average	189	102	VERTICAL
4	!	2485.50	68.76	74.00	-5.24	38.07	2.96	0.00	27.73	Peak	189	102	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	2389.80	57.34	74.00	-16.66	26.56	2.91	0.00	27.87	Peak	205	129	VERTICAL
2	2390.00	44.71	54.00	-9.29	13.93	2.91	0.00	27.87	Average	205	129	VERTICAL
3 p	2415.60	106.69			75.93	2.92	0.00	27.84	Peak	205	129	VERTICAL
4 a	2418.00	96.64			65.88	2.92	0.00	27.84	Average	205	129	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	2359.60	44.39	54.00	-9.61	13.58	2.89	0.00	27.92	Average	167	123	VERTICAL
2	2390.00	55.31	74.00	-18.69	24.53	2.91	0.00	27.87	Peak	167	123	VERTICAL
3 a	2444.20	100.19			69.47	2.94	0.00	27.78	Average	167	123	VERTICAL
4 p	2444.60	109.89			79.17	2.94	0.00	27.78	Peak	167	123	VERTICAL
5	2483.50	44.16	54.00	-9.84	13.47	2.96	0.00	27.73	Average	167	123	VERTICAL
6	2487.10	56.35	74.00	-17.65	25.66	2.96	0.00	27.73	Peak	167	123	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	2454.80	110.98			80.27	2.95	0.00	27.76	Peak	153	128	VERTICAL
2 a	2455.00	100.89			70.18	2.95	0.00	27.76	Average	153	128	VERTICAL
3 !	2483.50	52.90	54.00	-1.10	22.21	2.96	0.00	27.73	Average	153	128	VERTICAL
4 !	2483.90	69.31	74.00	-4.69	38.62	2.96	0.00	27.73	Peak	153	128	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2383.60	69.27	74.00	-4.73	38.48	2.90	0.00	27.89	Peak	170	126	VERTICAL
2	!	2385.60	52.93	54.00	-1.07	22.15	2.91	0.00	27.87	Average	170	126	VERTICAL
3	a	2437.60	96.10			65.38	2.94	0.00	27.78	Average	170	126	VERTICAL
4	p	2438.80	106.47			75.75	2.94	0.00	27.78	Peak	170	126	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2389.20	59.47	74.00	-14.53	28.69	2.91	0.00	27.87	Peak	172	101	VERTICAL
2		2390.00	45.82	54.00	-8.18	15.04	2.91	0.00	27.87	Average	172	101	VERTICAL
3	p	2452.60	106.72			76.00	2.94	0.00	27.78	Peak	172	101	VERTICAL
4	a	2452.60	96.76			66.04	2.94	0.00	27.78	Average	172	101	VERTICAL
5		2483.50	46.52	54.00	-7.48	15.83	2.96	0.00	27.73	Average	172	101	VERTICAL
6		2485.50	61.83	74.00	-12.17	31.14	2.96	0.00	27.73	Peak	172	101	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2450.00	94.49			63.77	2.94	0.00	27.78	Average	168	101	VERTICAL
2	p	2450.40	105.15			74.43	2.94	0.00	27.78	Peak	168	101	VERTICAL
3	!	2488.70	52.86	54.00	-1.14	22.19	2.97	0.00	27.70	Average	168	101	VERTICAL
4	!	2491.50	70.94	74.00	-3.06	40.27	2.97	0.00	27.70	Peak	168	101	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 20MHz Ch 1, 6, 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	2389.20	60.14	74.00	-13.86	29.36	2.91	0.00	27.87	Peak	315	124	VERTICAL
2	2390.00	46.53	54.00	-7.47	15.75	2.91	0.00	27.87	Average	315	124	VERTICAL
3 a	2409.40	93.23			62.47	2.92	0.00	27.84	Average	315	124	VERTICAL
4 p	2414.60	106.07			75.31	2.92	0.00	27.84	Peak	315	124	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	2358.80	55.98	74.00	-18.02	25.17	2.89	0.00	27.92	Peak	168	126	VERTICAL
2	2359.60	44.57	54.00	-9.43	13.76	2.89	0.00	27.92	Average	168	126	VERTICAL
3 p	2439.80	109.32			78.60	2.94	0.00	27.78	Peak	168	126	VERTICAL
4 a	2443.00	97.79			67.07	2.94	0.00	27.78	Average	168	126	VERTICAL
5	2483.50	44.21	54.00	-9.79	13.52	2.96	0.00	27.73	Average	168	126	VERTICAL
6	2485.10	55.30	74.00	-18.70	24.61	2.96	0.00	27.73	Peak	168	126	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	2468.40	96.35			65.64	2.95	0.00	27.76	Average	188	100	VERTICAL
2 p	2469.20	108.70			77.99	2.95	0.00	27.76	Peak	188	100	VERTICAL
3 !	2483.50	52.90	54.00	-1.10	22.21	2.96	0.00	27.73	Average	188	100	VERTICAL
4 !	2484.50	70.97	74.00	-3.03	40.28	2.96	0.00	27.73	Peak	188	100	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS8 40MHz Ch 3, 6, 9 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.40	69.06	74.00	-4.94	38.28	2.91	0.00	27.87	Peak	302	140	VERTICAL
2	!	2390.00	52.61	54.00	-1.39	21.83	2.91	0.00	27.87	Average	302	140	VERTICAL
3	p	2437.20	104.61			73.89	2.94	0.00	27.78	Peak	302	140	VERTICAL
4	a	2438.00	91.57			60.85	2.94	0.00	27.78	Average	302	140	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2390.00	62.46	74.00	-11.54	31.68	2.91	0.00	27.87	Peak	170	128	VERTICAL
2		2390.00	47.76	54.00	-6.24	16.98	2.91	0.00	27.87	Average	170	128	VERTICAL
3	a	2450.60	93.94			63.22	2.94	0.00	27.78	Average	170	128	VERTICAL
4	p	2451.00	106.58			75.86	2.94	0.00	27.78	Peak	170	128	VERTICAL
5		2483.50	61.64	74.00	-12.36	30.95	2.96	0.00	27.73	Peak	170	128	VERTICAL
6	!	2483.50	49.45	54.00	-4.55	18.76	2.96	0.00	27.73	Average	170	128	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2438.40	91.75			61.03	2.94	0.00	27.78	Average	159	124	VERTICAL
2	p	2442.00	105.68			74.96	2.94	0.00	27.78	Peak	159	124	VERTICAL
3	!	2483.50	52.55	54.00	-1.45	21.86	2.96	0.00	27.73	Average	159	124	VERTICAL
4	!	2487.50	69.03	74.00	-4.97	38.36	2.97	0.00	27.70	Peak	159	124	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Aug. 21, 2013		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.20	52.14	54.00	-1.86	21.76	2.21	28.17	0.00	Average	117	347	VERTICAL
2	2386.20	59.62	74.00	-14.38	29.24	2.21	28.17	0.00	Peak	117	347	VERTICAL
3	2413.00	112.57			82.14	2.22	28.21	0.00	Peak	117	347	VERTICAL
4	2413.60	108.89			78.46	2.22	28.21	0.00	Average	117	347	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	43.12	54.00	-10.88	12.73	2.22	28.17	0.00	Average	100	194	VERTICAL
2	2390.00	53.63	74.00	-20.37	23.24	2.22	28.17	0.00	Peak	100	194	VERTICAL
3	2435.40	105.73			75.21	2.23	28.29	0.00	Average	100	194	VERTICAL
4	2435.40	109.41			78.89	2.23	28.29	0.00	Peak	100	194	VERTICAL
5	2483.50	43.94	54.00	-10.06	13.31	2.26	28.37	0.00	Average	100	194	VERTICAL
6	2483.50	55.14	74.00	-18.86	24.51	2.26	28.37	0.00	Peak	100	194	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2463.00	110.56			79.99	2.24	28.33	0.00	Peak	106	52	VERTICAL
2	2463.60	106.86			76.29	2.24	28.33	0.00	Average	106	52	VERTICAL
3	2483.50	51.10	54.00	-2.90	20.47	2.26	28.37	0.00	Average	106	52	VERTICAL
4	2483.50	58.79	74.00	-15.21	28.16	2.26	28.37	0.00	Peak	106	52	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6℃	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant. 1 / Chain 0 (1TX)
Test Date	Jun. 21, 2013		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2390.00	68.22	74.00	-5.78	37.44	2.91	0.00	27.87	Peak	50	124	VERTICAL
2	!	2390.00	52.33	54.00	-1.67	21.55	2.91	0.00	27.87	Average	50	124	VERTICAL
3	p	2406.20	109.42			78.66	2.92	0.00	27.84	Peak	50	124	VERTICAL
4	a	2409.00	99.69			68.93	2.92	0.00	27.84	Average	50	124	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.60	72.43	74.00	-1.57	41.65	2.91	0.00	27.87	Peak	48	121	VERTICAL
2	!	2390.00	49.28	54.00	-4.72	18.50	2.91	0.00	27.87	Average	48	121	VERTICAL
3	a	2432.20	104.11			73.37	2.93	0.00	27.81	Average	48	121	VERTICAL
4	p	2433.40	115.33			84.59	2.93	0.00	27.81	Peak	48	121	VERTICAL
5	!	2483.50	50.39	54.00	-3.61	19.70	2.96	0.00	27.73	Average	48	121	VERTICAL
6	!	2483.90	72.37	74.00	-1.63	41.68	2.96	0.00	27.73	Peak	48	121	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2467.20	96.39			65.68	2.95	0.00	27.76	Average	49	120	VERTICAL
2	p	2468.00	107.19			76.48	2.95	0.00	27.76	Peak	49	120	VERTICAL
3	!	2483.50	70.38	74.00	-3.62	39.69	2.96	0.00	27.73	Peak	49	120	VERTICAL
4	!	2483.50	52.76	54.00	-1.24	22.07	2.96	0.00	27.73	Average	49	120	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Aug. 21, 2013		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2387.20	46.02	54.00	-7.98	15.64	2.21	28.17	0.00	Average	112	54	VERTICAL
2	2387.40	57.15	74.00	-16.85	26.77	2.21	28.17	0.00	Peak	112	54	VERTICAL
3	2410.20	110.20			79.77	2.22	28.21	0.00	Average	112	54	VERTICAL
4	2411.00	114.15			83.72	2.22	28.21	0.00	Peak	112	54	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	43.33	54.00	-10.67	12.94	2.22	28.17	0.00	Average	113	226	VERTICAL
2	2390.00	53.32	74.00	-20.68	22.93	2.22	28.17	0.00	Peak	113	226	VERTICAL
3	2435.40	110.65			80.13	2.23	28.29	0.00	Average	113	226	VERTICAL
4	2436.20	114.50			83.98	2.23	28.29	0.00	Peak	113	226	VERTICAL
5	2483.50	44.23	54.00	-9.77	13.60	2.26	28.37	0.00	Average	113	226	VERTICAL
6	2483.50	54.86	74.00	-19.14	24.23	2.26	28.37	0.00	Peak	113	226	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2460.20	107.21			76.64	2.24	28.33	0.00	Average	113	153	VERTICAL
2	2461.00	110.83			80.26	2.24	28.33	0.00	Peak	113	153	VERTICAL
3	2483.50	44.10	54.00	-9.90	13.47	2.26	28.37	0.00	Average	113	153	VERTICAL
4	2483.50	54.56	74.00	-19.44	23.93	2.26	28.37	0.00	Peak	113	153	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25.6°C	Humidity	56%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant. 1 / Chain 0 + Chain 1 (2TX)
Test Date	Jun. 21, 2013		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	47.37	54.00	-6.63	15.23	4.09	28.05	0.00	Average	100	4	VERTICAL
2	2390.00	62.92	74.00	-11.08	30.78	4.09	28.05	0.00	Peak	100	4	VERTICAL
3	2418.40	99.33			67.09	4.11	28.13	0.00	Average	100	4	VERTICAL
4	2418.40	109.38			77.14	4.11	28.13	0.00	Peak	100	4	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	45.04	54.00	-8.96	12.90	4.09	28.05	0.00	Average	123	356	VERTICAL
2	2390.00	55.89	74.00	-18.11	23.75	4.09	28.05	0.00	Peak	123	356	VERTICAL
3	2432.00	110.25			78.00	4.12	28.13	0.00	Peak	123	356	VERTICAL
4	2432.60	100.06			67.81	4.12	28.13	0.00	Average	123	356	VERTICAL
5	2483.50	46.06	54.00	-7.94	13.64	4.16	28.26	0.00	Average	123	356	VERTICAL
6	2484.70	57.05	74.00	-16.95	24.63	4.16	28.26	0.00	Peak	123	356	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2468.20	100.03			67.63	4.14	28.26	0.00	Average	100	2	VERTICAL
2	2468.40	109.48			77.08	4.14	28.26	0.00	Peak	100	2	VERTICAL
3	2483.50	52.58	54.00	-1.42	20.16	4.16	28.26	0.00	Average	100	2	VERTICAL
4	2483.50	70.22	74.00	-3.78	37.80	4.16	28.26	0.00	Peak	100	2	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

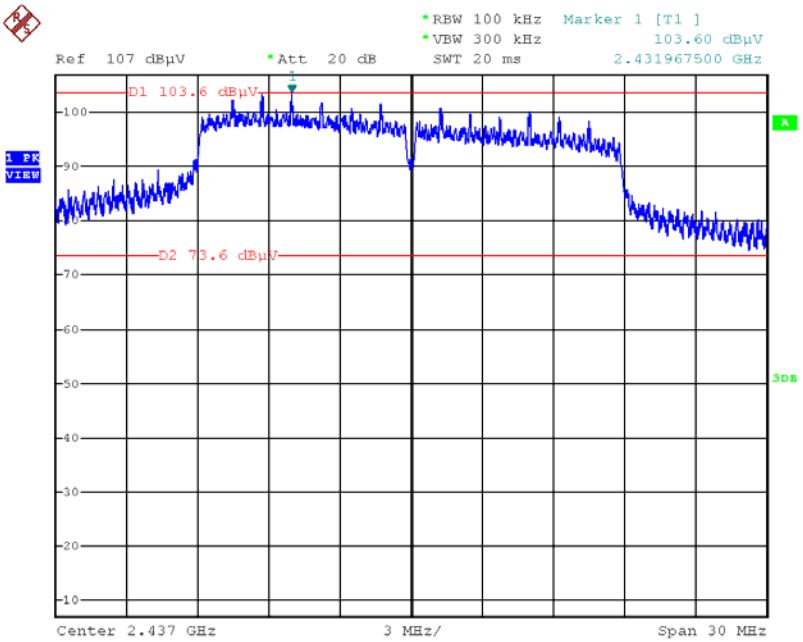
Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

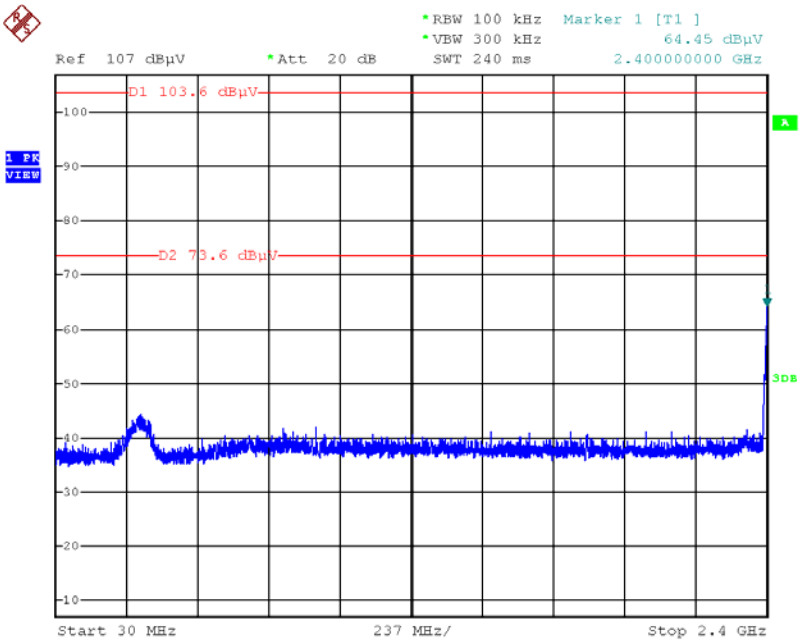
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Ant. 1 / Chain 0 (1TX)



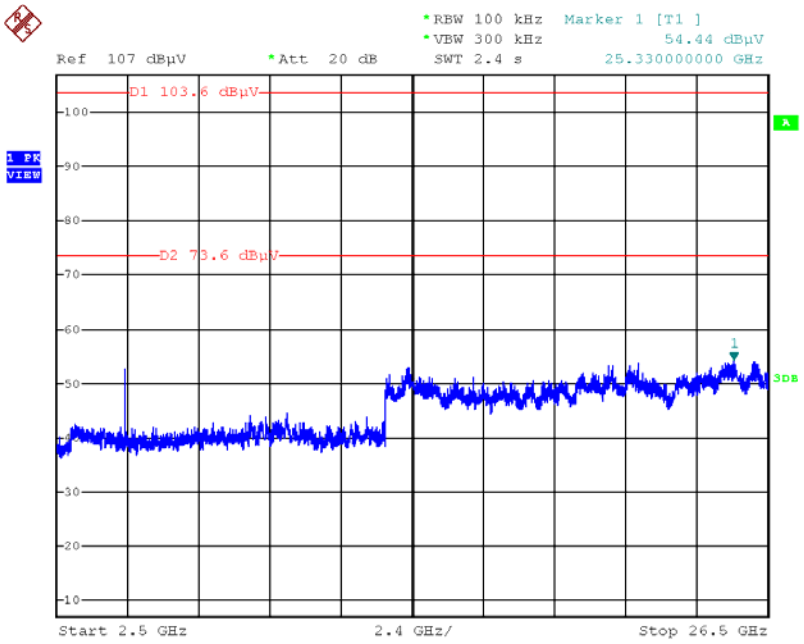
Date: 1.JUL.2013 13:27:06

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



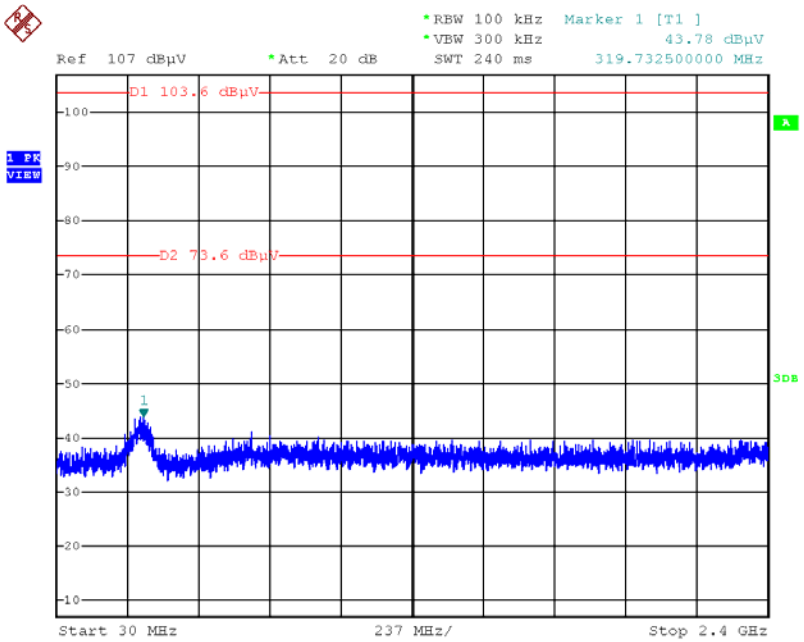
Date: 1.JUL.2013 13:28:24

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



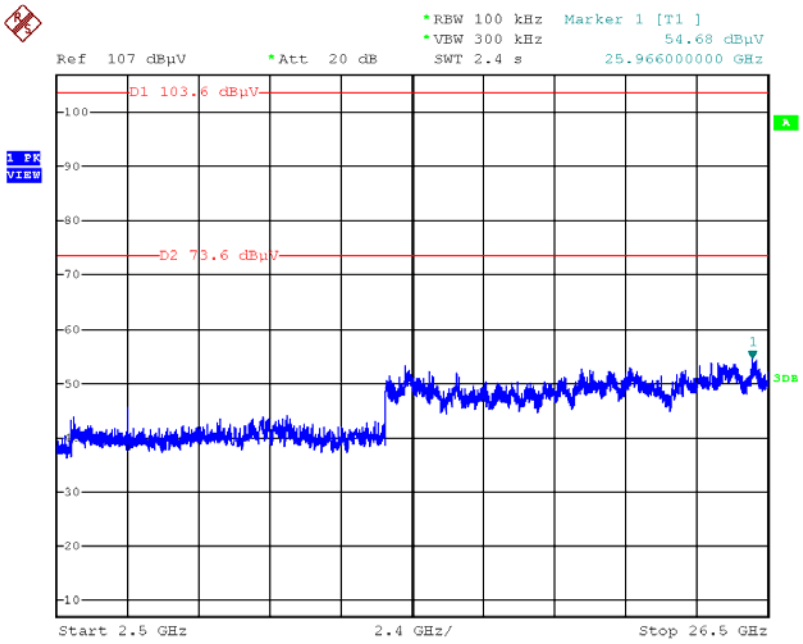
Date: 1.JUL.2013 13:28:44

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



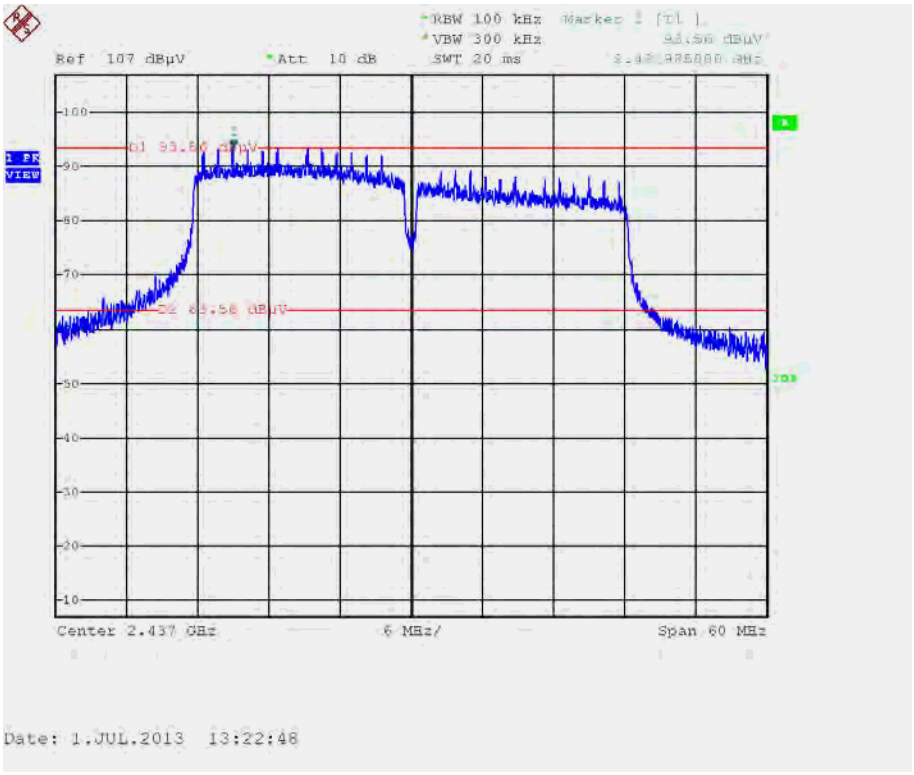
Date: 1.JUL.2013 13:29:41

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

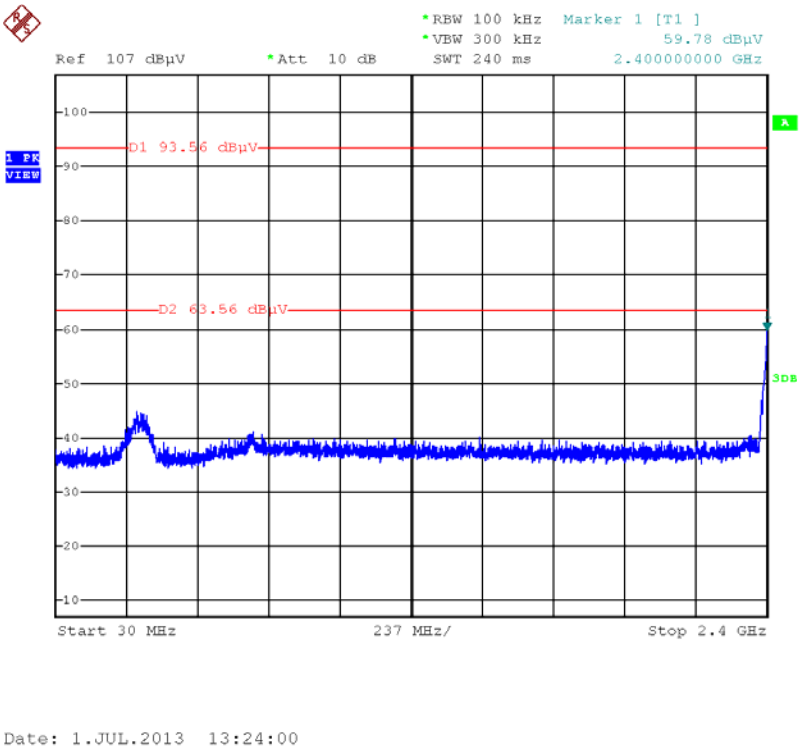


Date: 1.JUL.2013 13:29:28

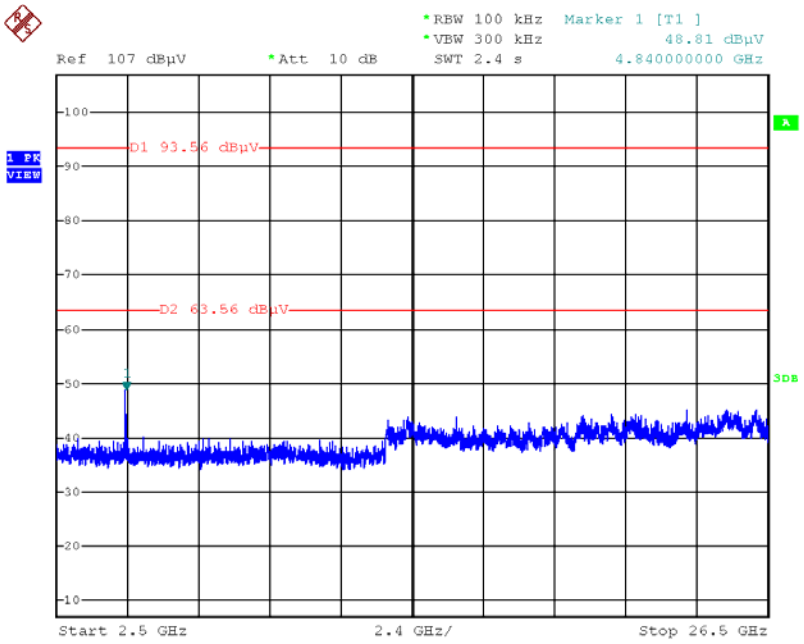
Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Ant. 1 / Chain 0 (1TX)



Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

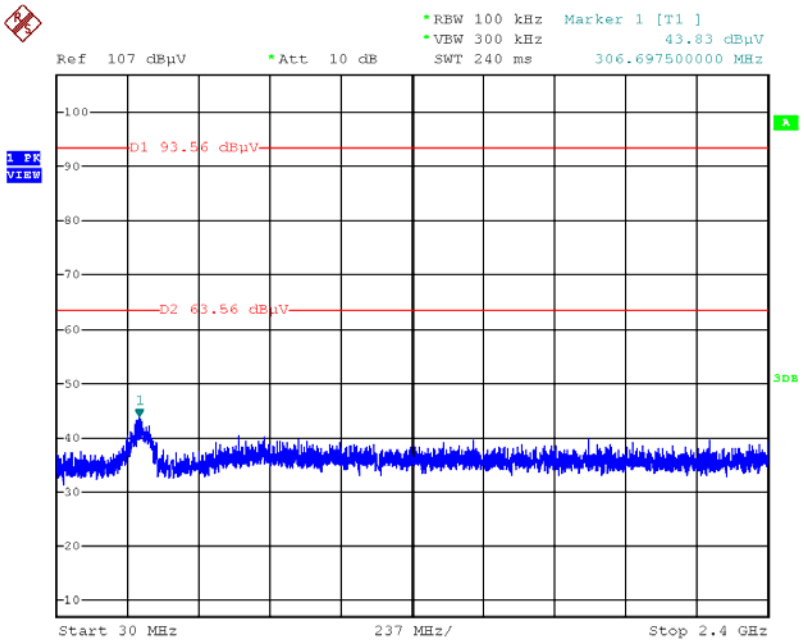


Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



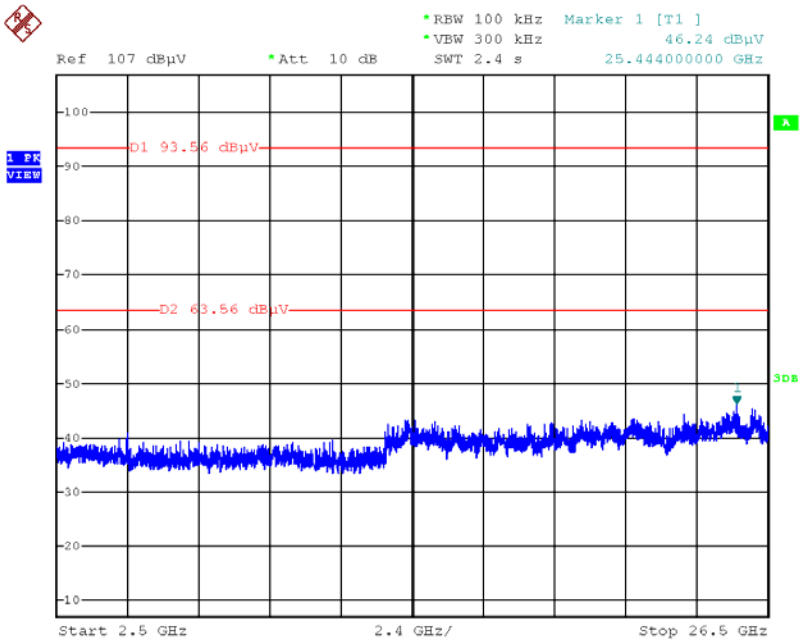
Date: 1.JUL.2013 13:24:25

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

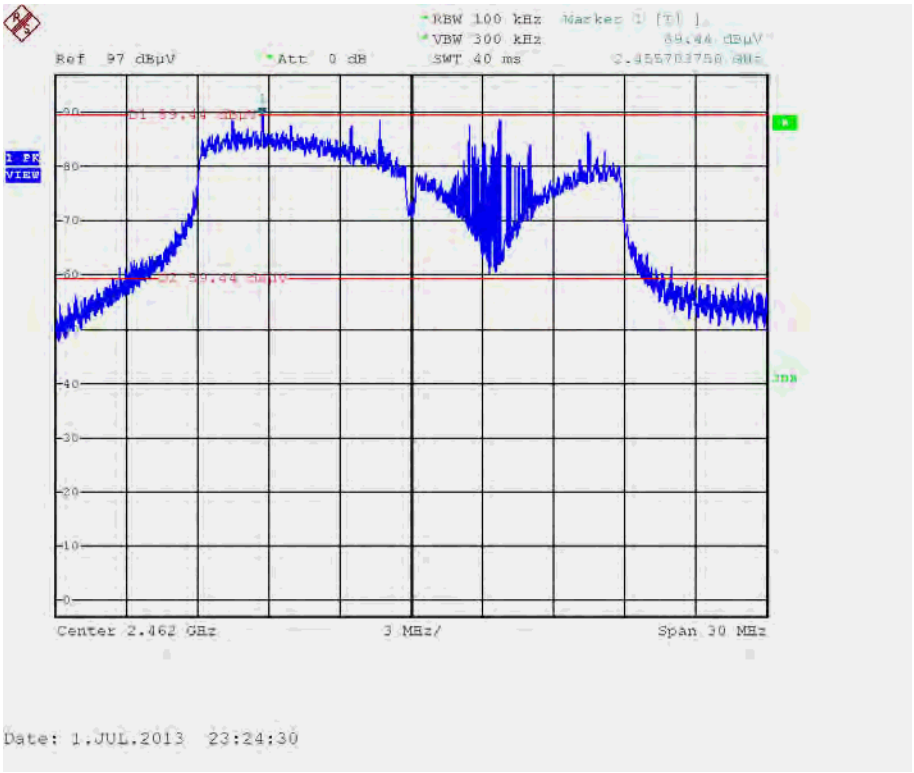


Date: 1.JUL.2013 13:25:20

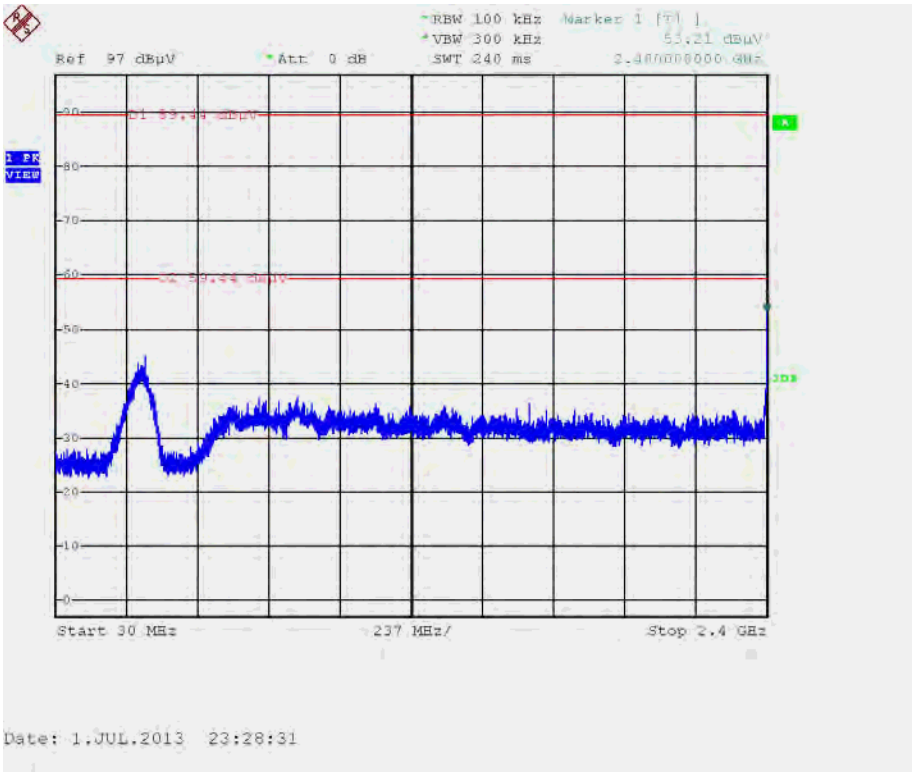
Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



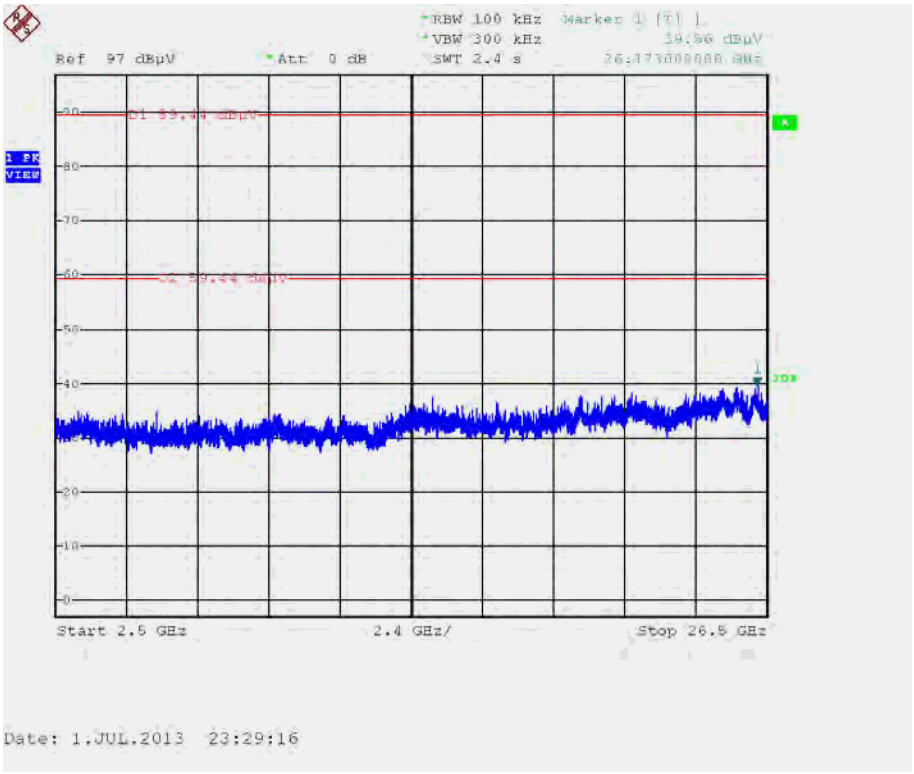
Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



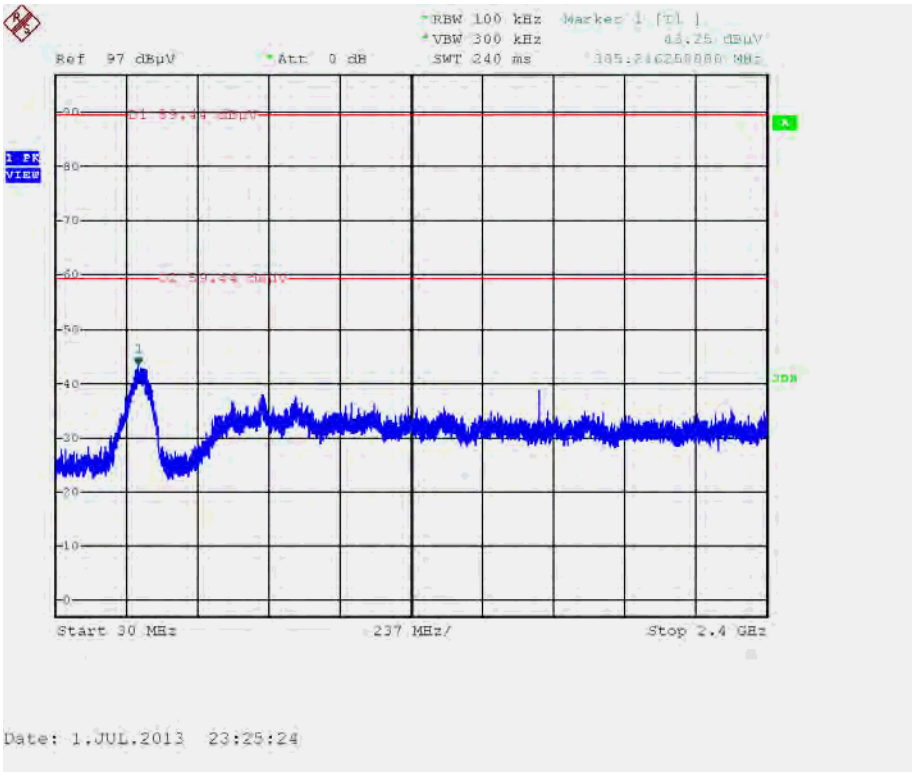
Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



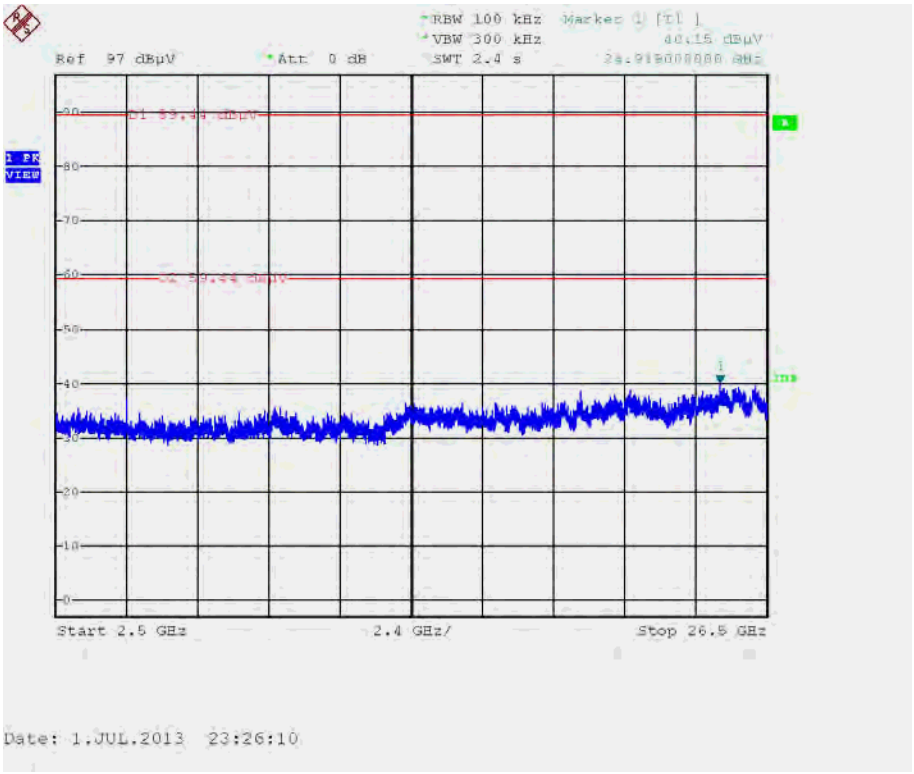
Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



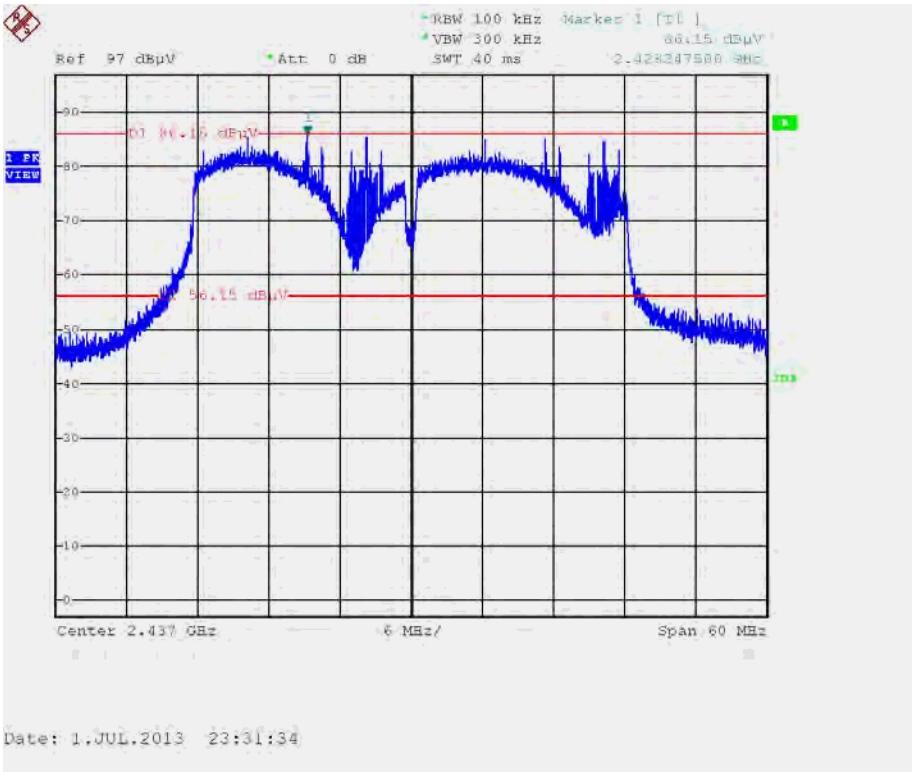
Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



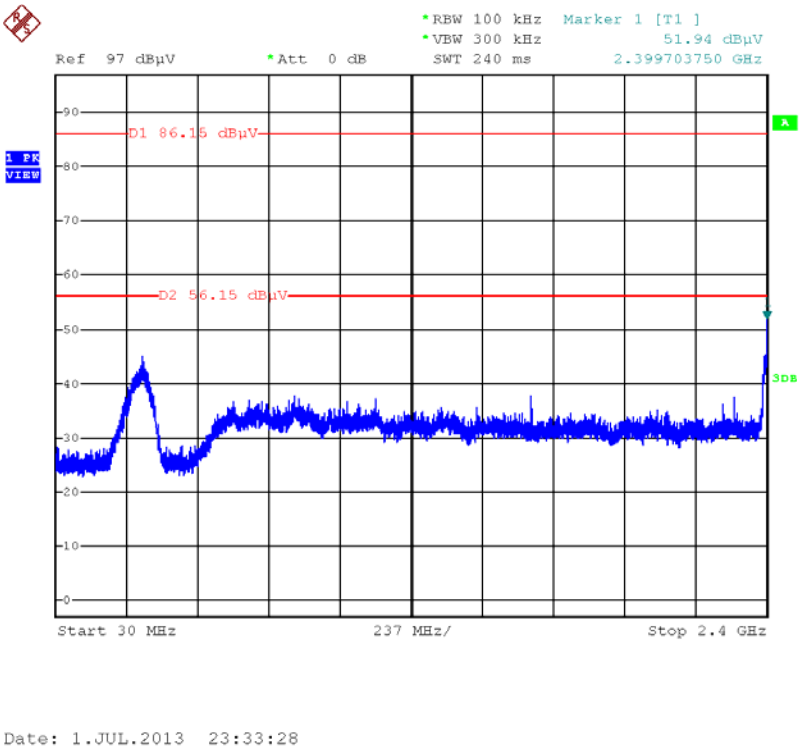
Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



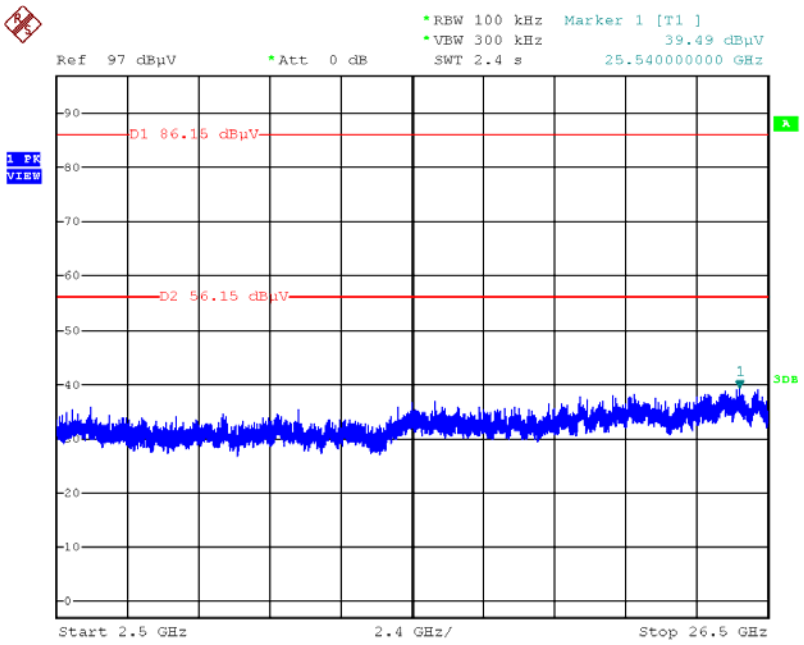
Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

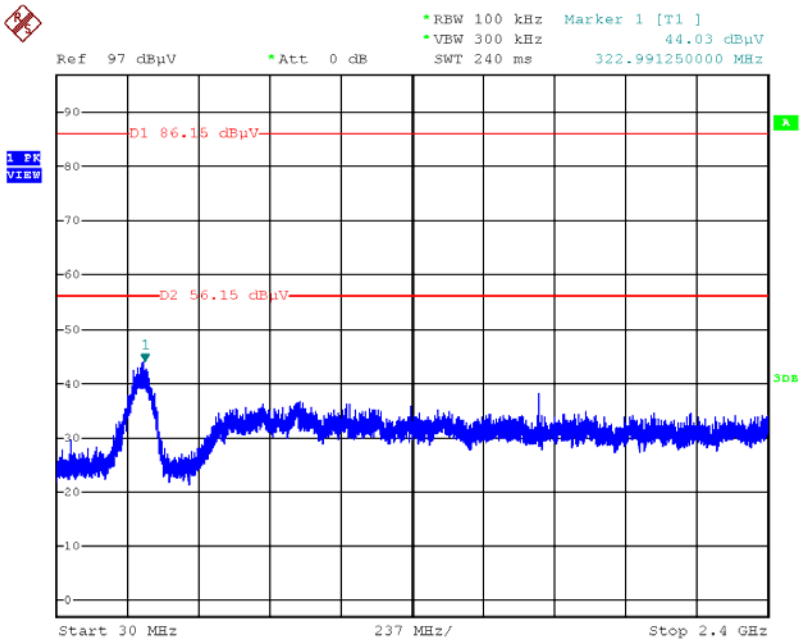


Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



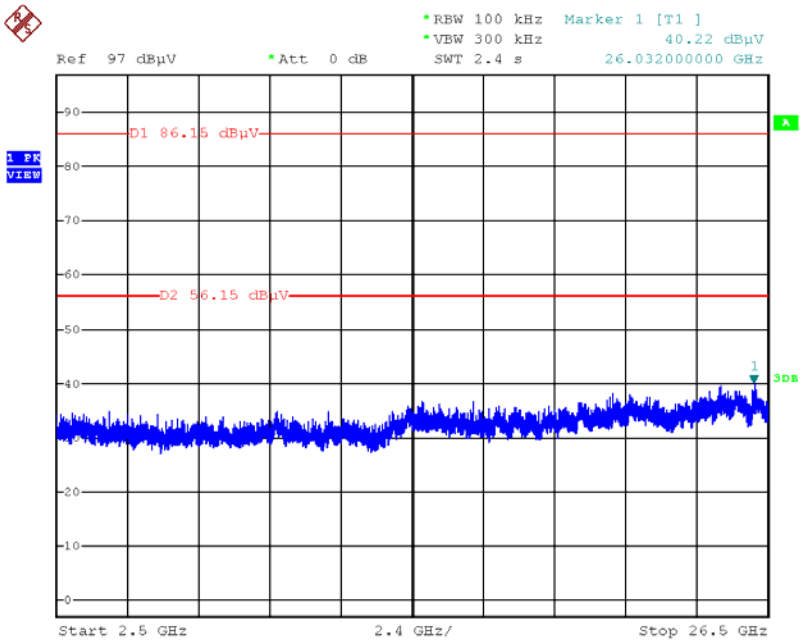
Date: 1.JUL.2013 23:33:59

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



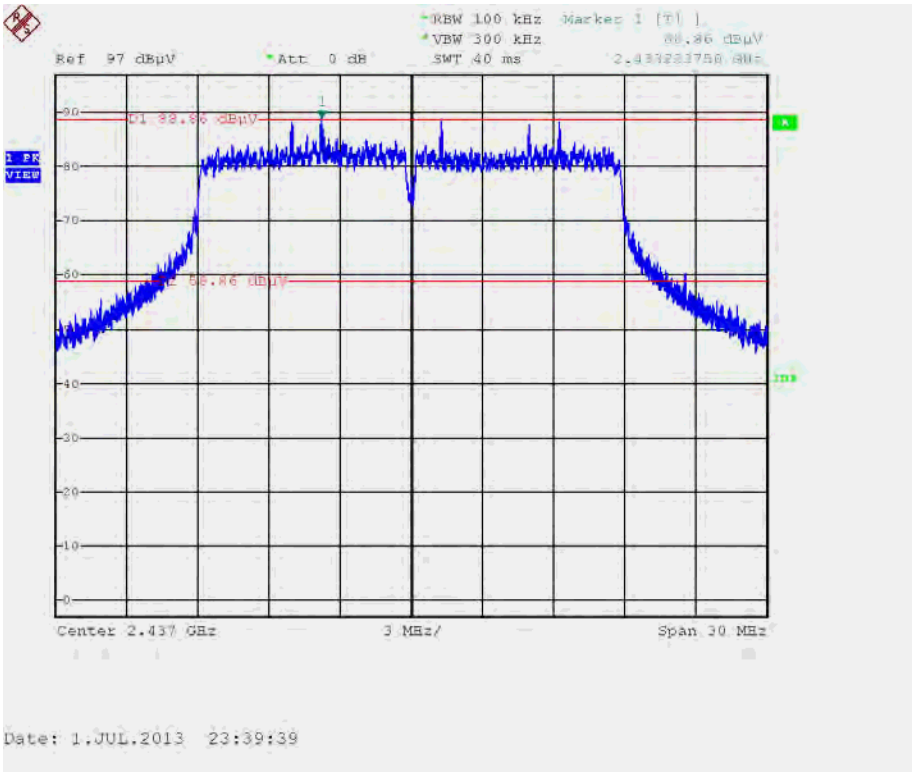
Date: 1.JUL.2013 23:35:57

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

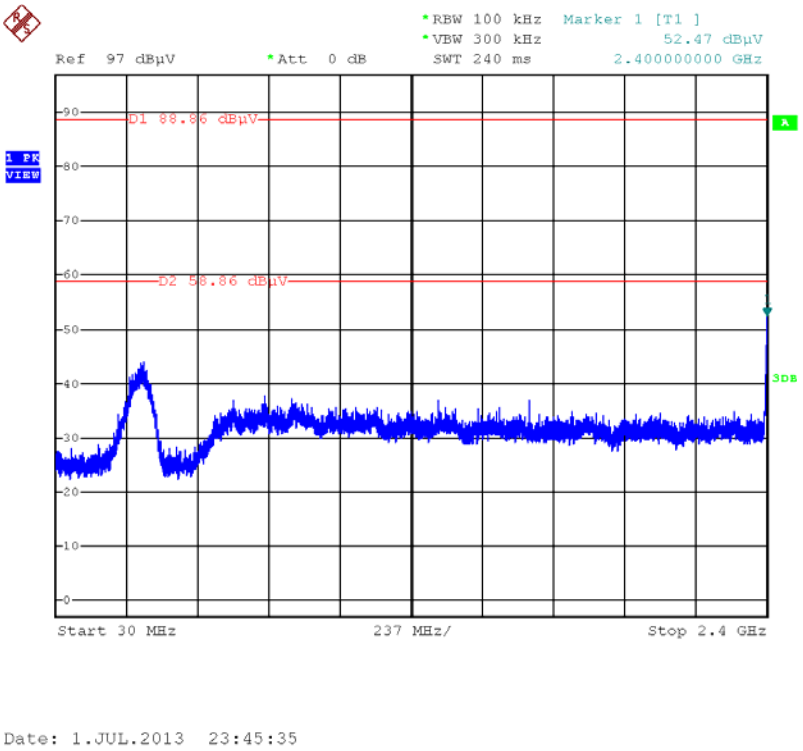


Date: 1.JUL.2013 23:36:26

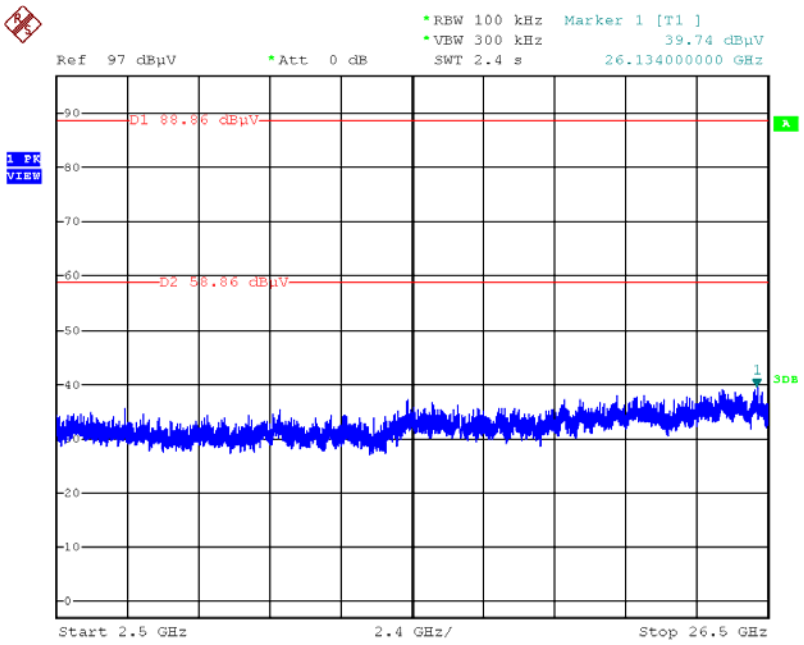
Plot on Configuration IEEE 802.11n MCS8 20MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

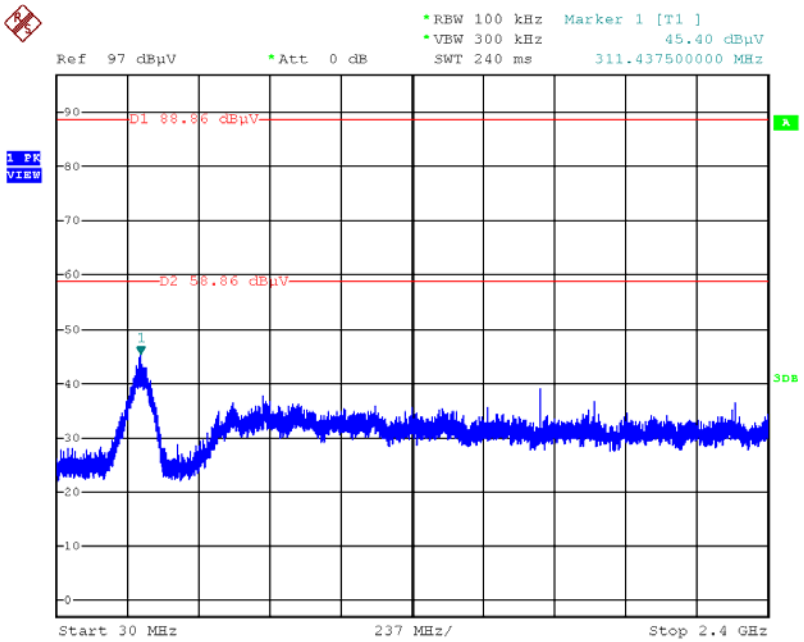


Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



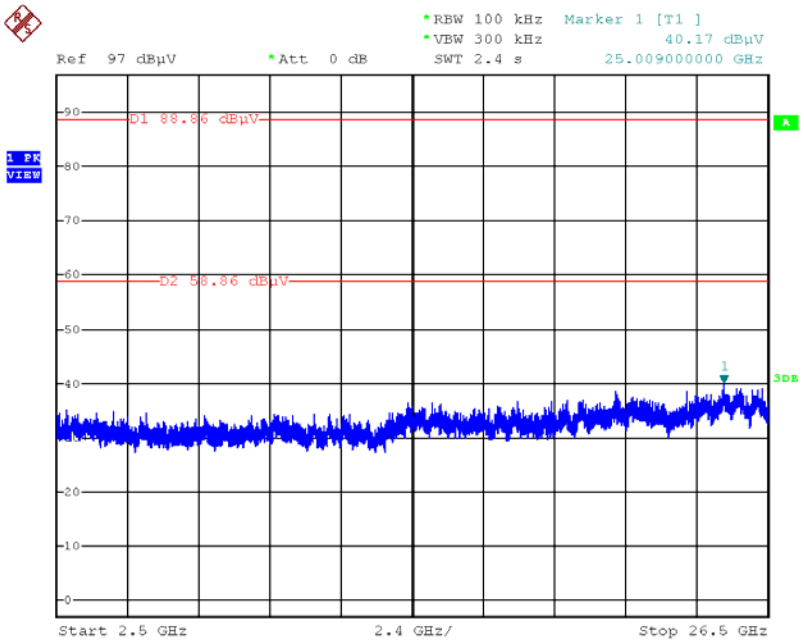
Date: 1.JUL.2013 23:46:03

Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



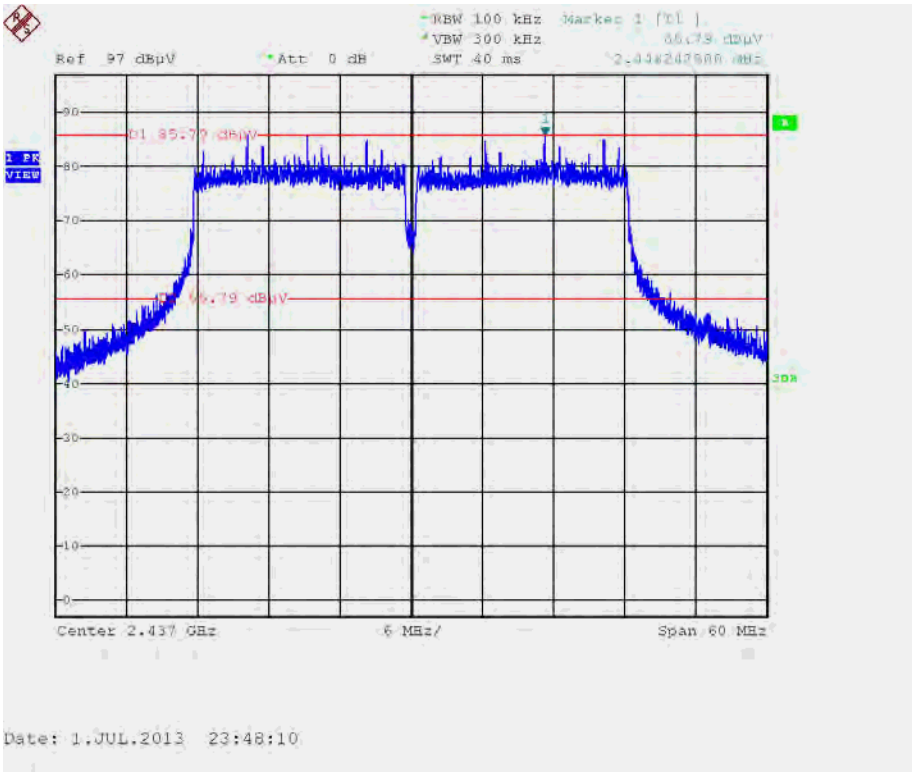
Date: 1.JUL.2013 23:42:49

Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

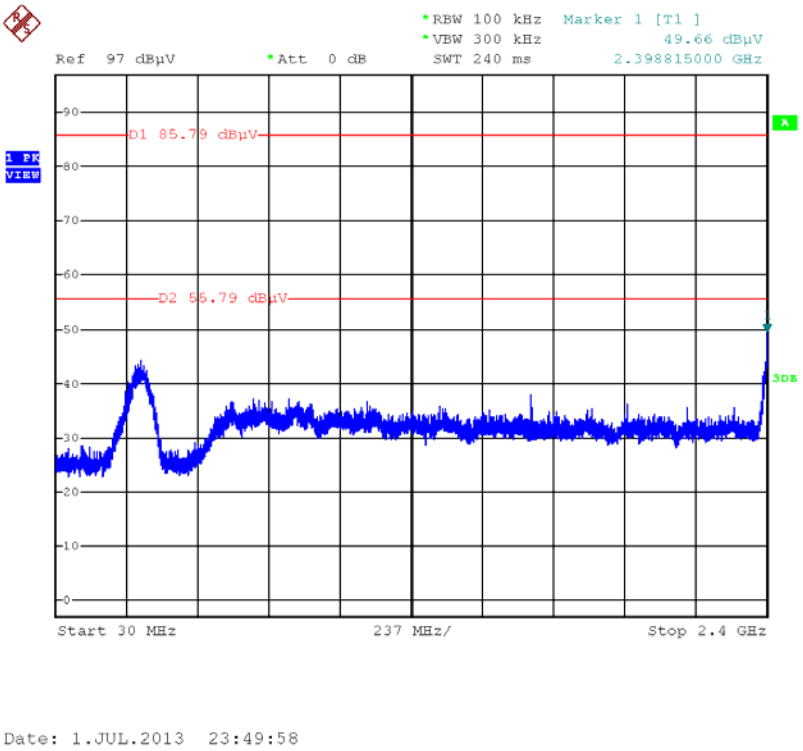


Date: 1.JUL.2013 23:43:16

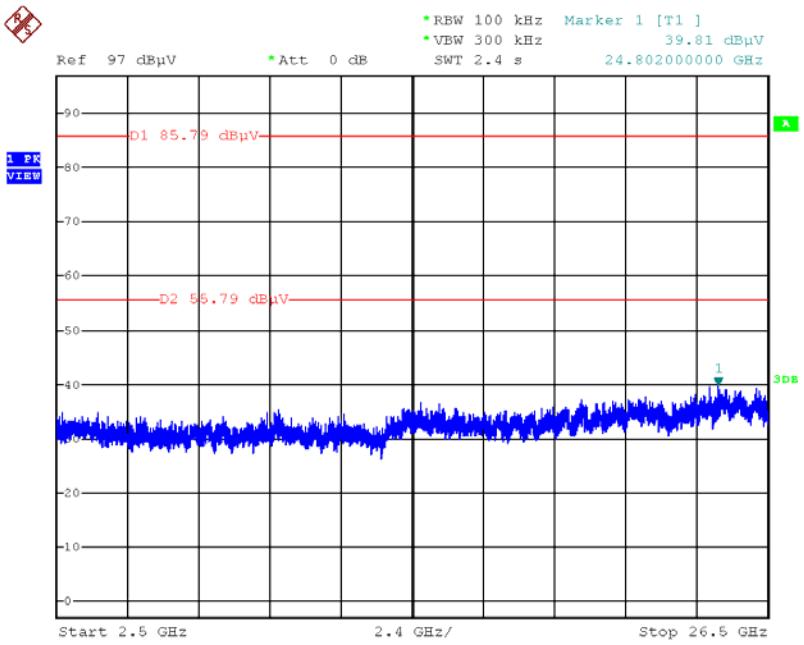
Plot on Configuration IEEE 802.11n MCS8 40MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

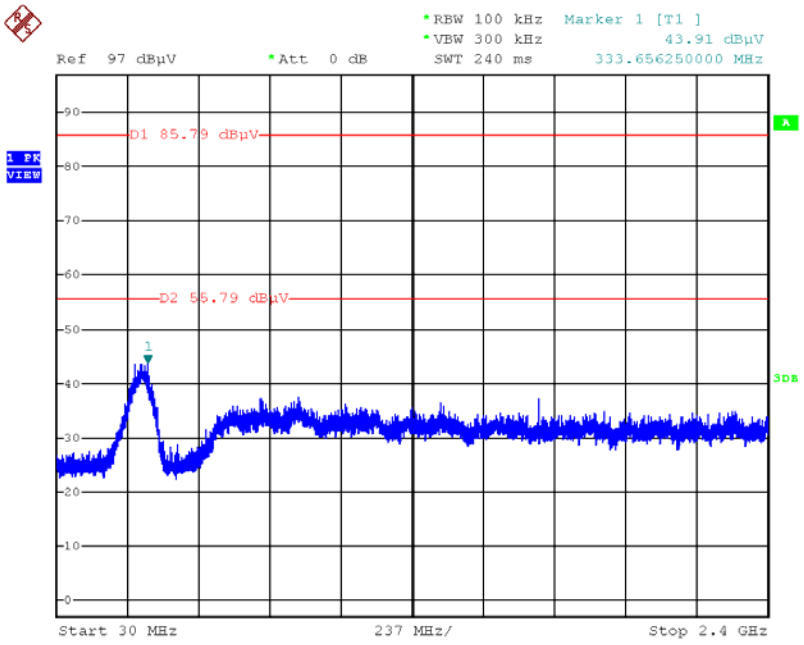


Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



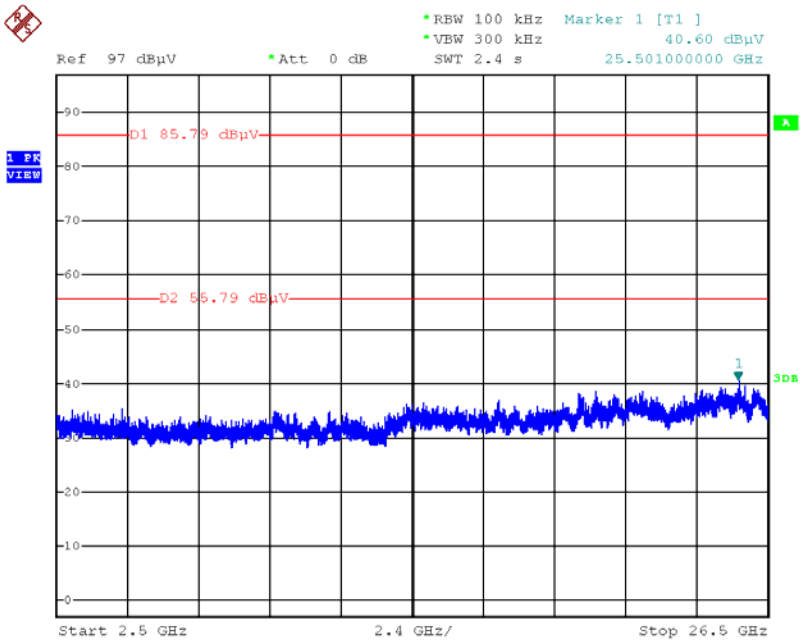
Date: 1.JUL.2013 23:50:25

Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



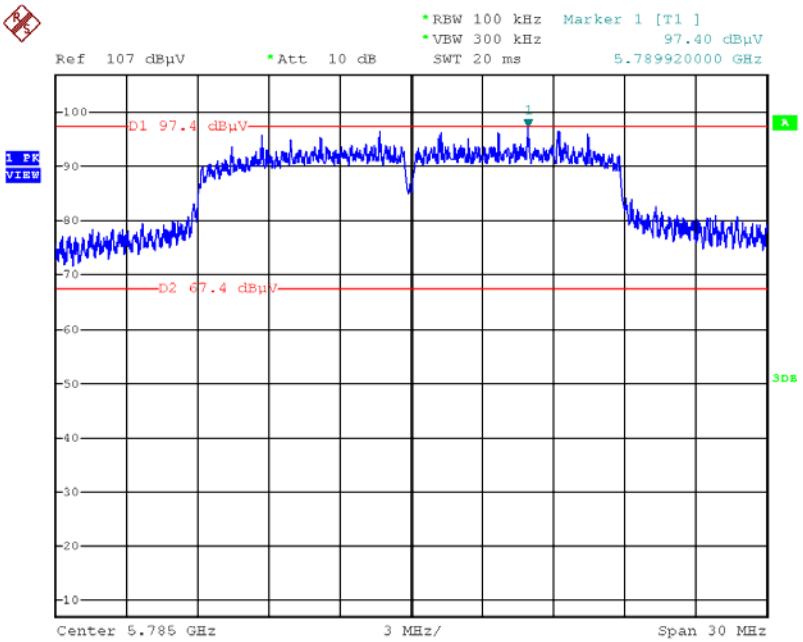
Date: 1.JUL.2013 23:52:53

Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



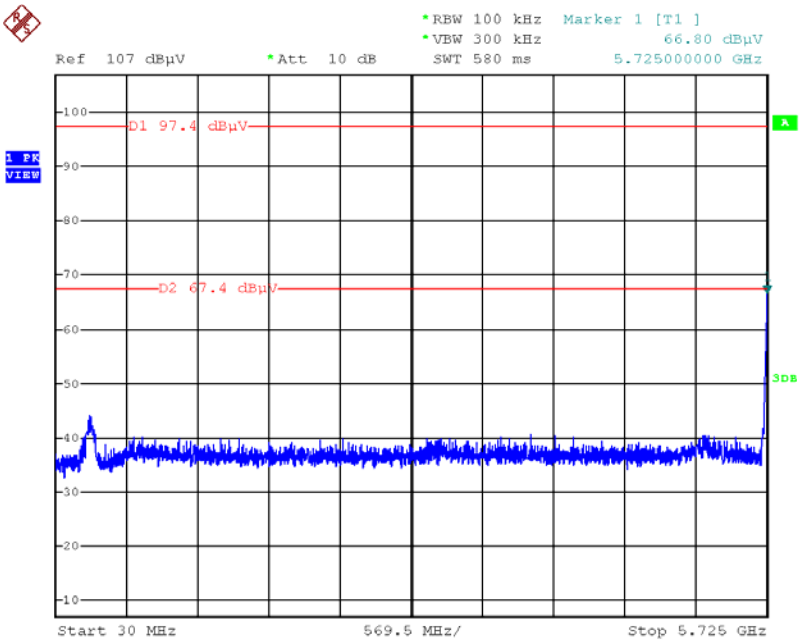
Date: 1.JUL.2013 23:53:33

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Ant. 1 / Chain 0 (1TX)



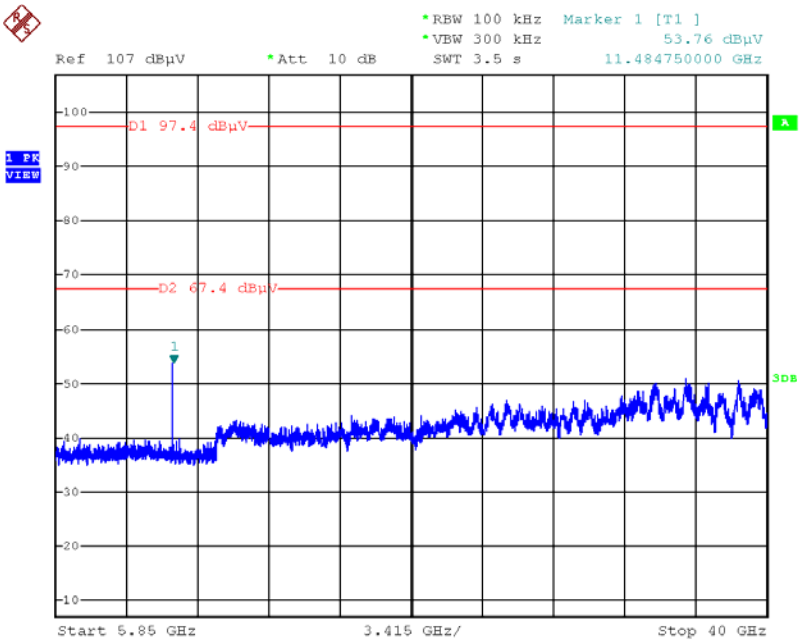
Date: 1.JUL.2013 13:14:13

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



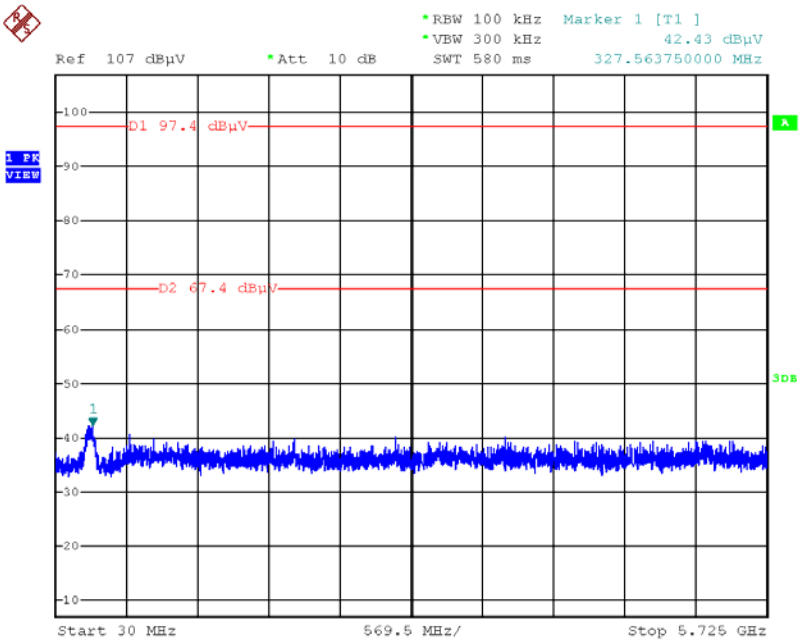
Date: 1.JUL.2013 13:15:37

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



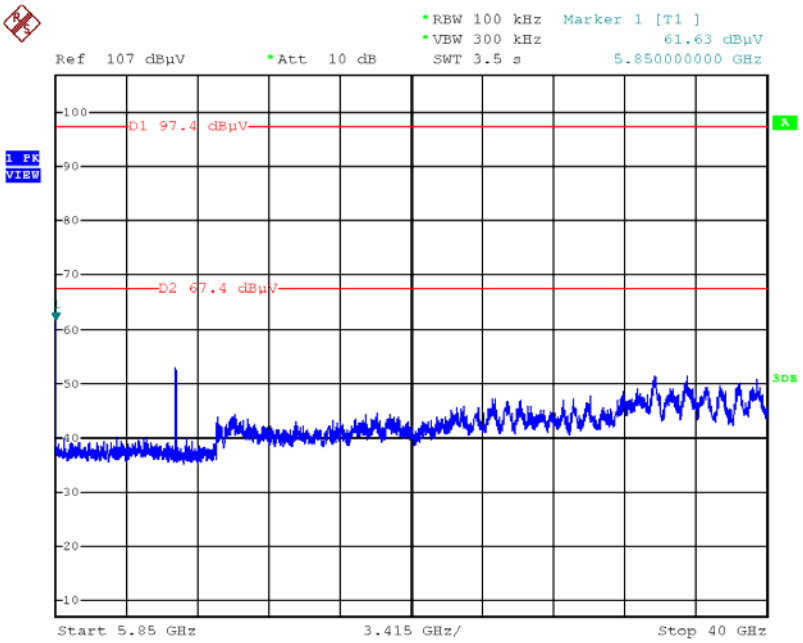
Date: 1.JUL.2013 13:16:16

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



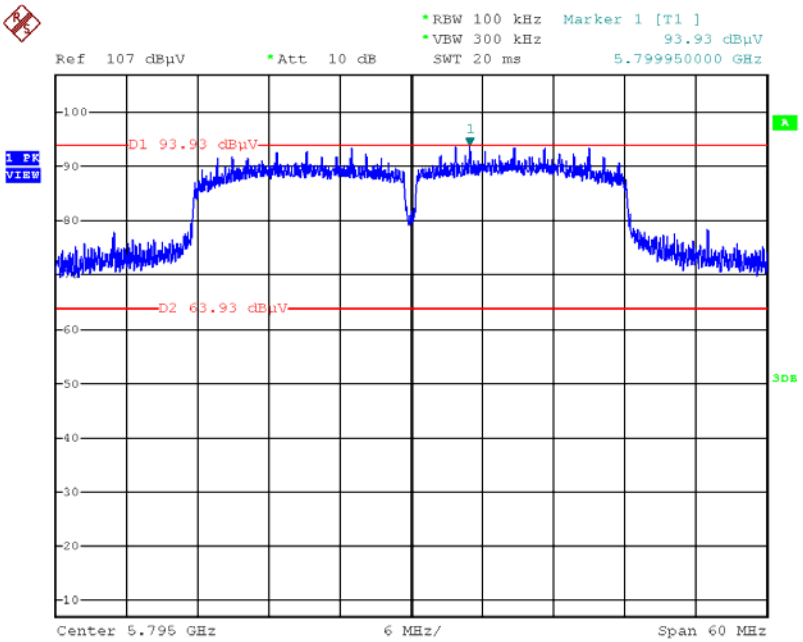
Date: 1.JUL.2013 13:17:20

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



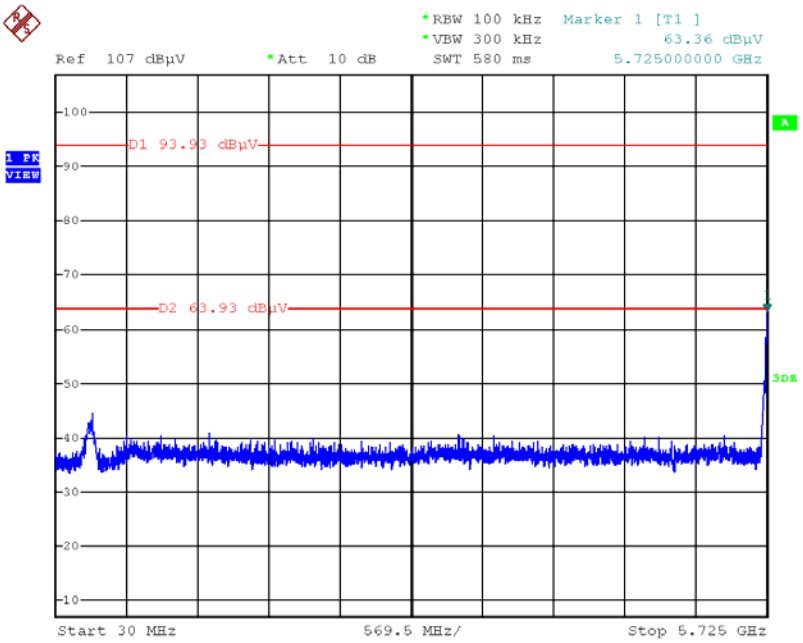
Date: 1.JUL.2013 13:17:04

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Ant. 1 / Chain 0 (1TX)



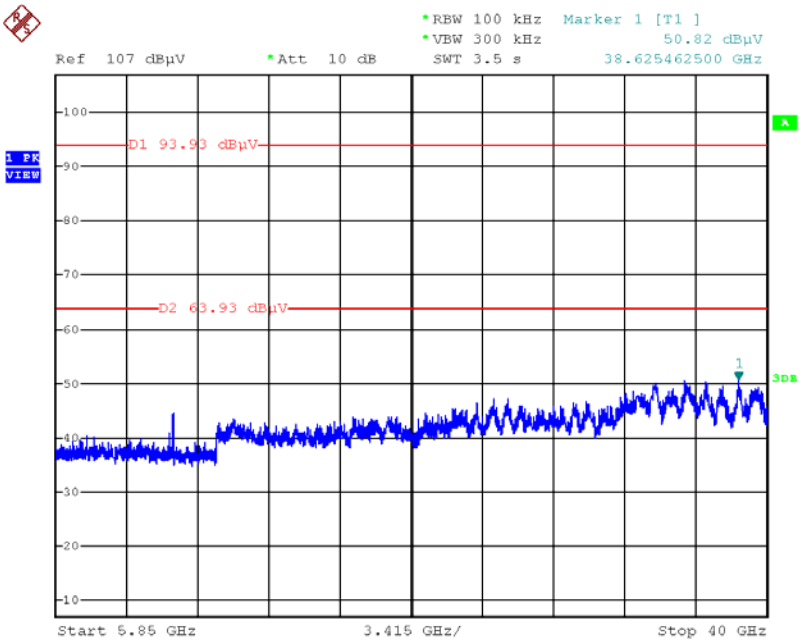
Date: 1.JUL.2013 12:59:46

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



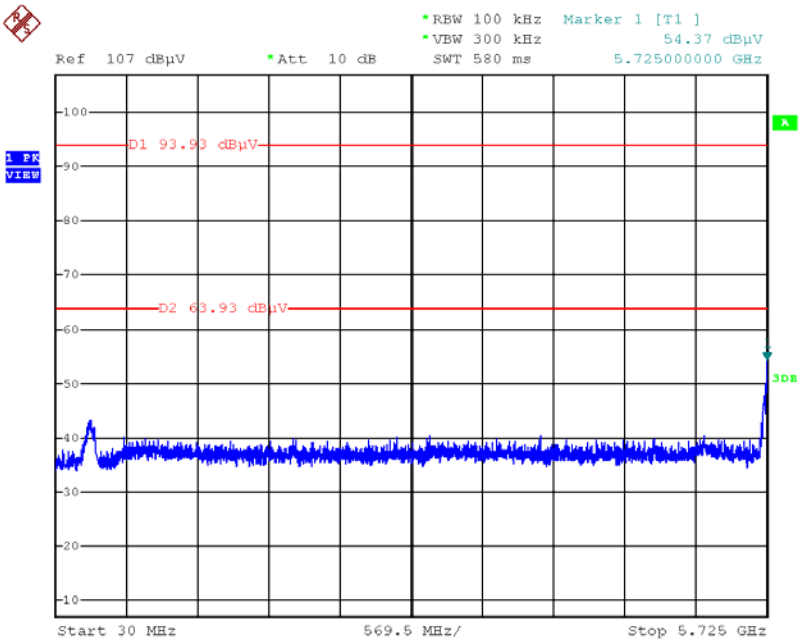
Date: 1.JUL.2013 13:04:26

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



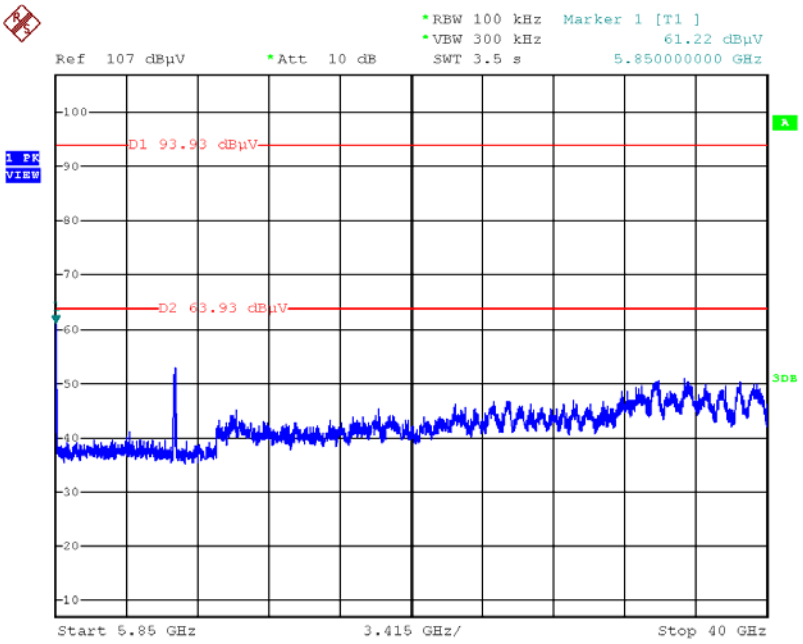
Date: 1.JUL.2013 13:04:53

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



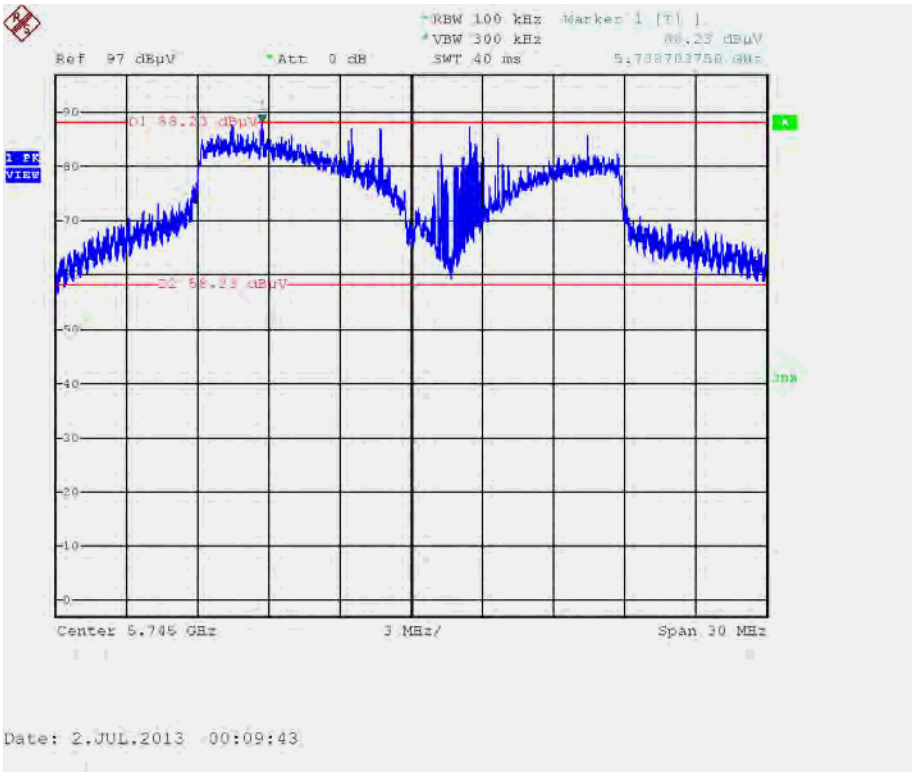
Date: 1.JUL.2013 13:00:13

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

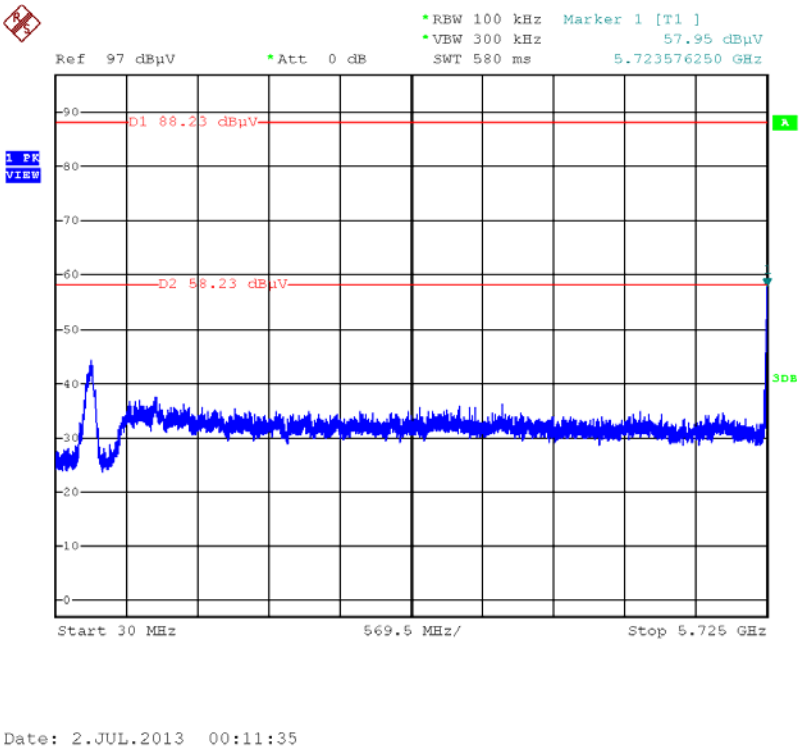


Date: 1.JUL.2013 13:00:48

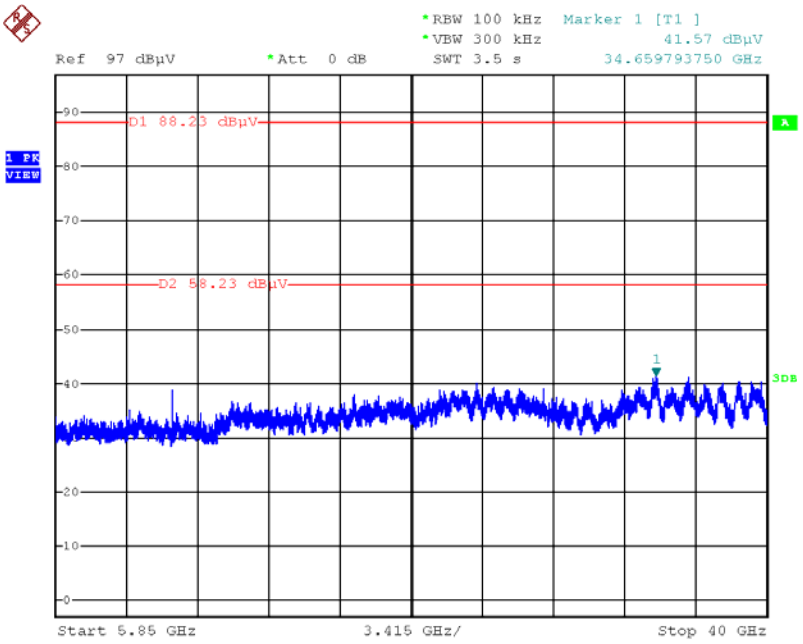
Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

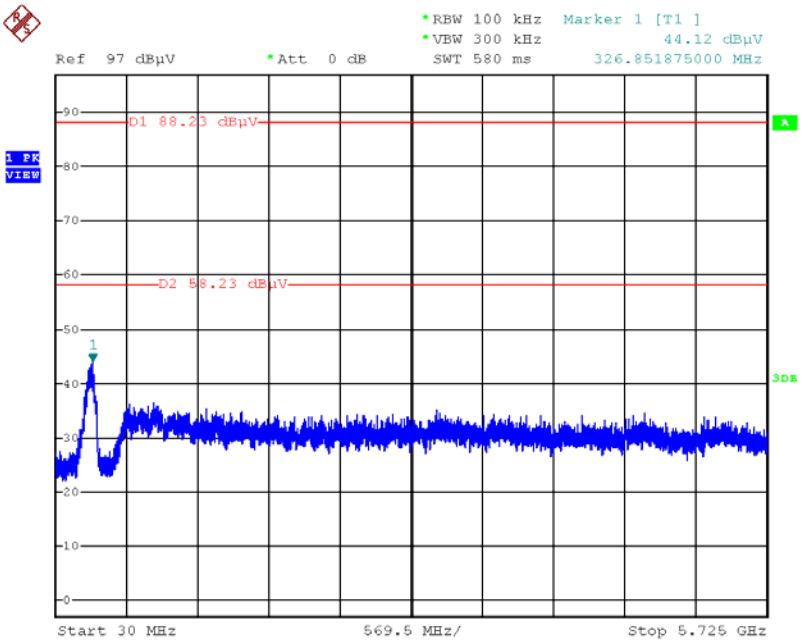


Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



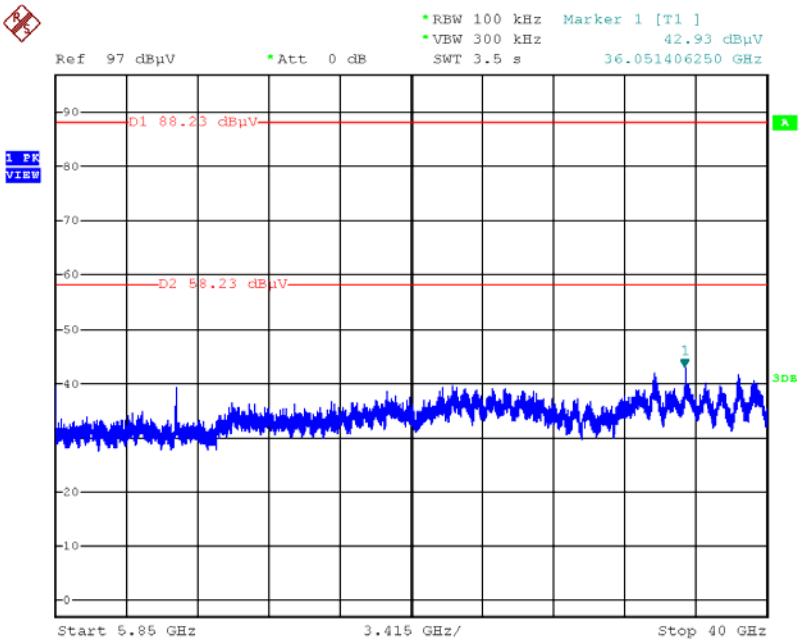
Date: 2.JUL.2013 00:12:22

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



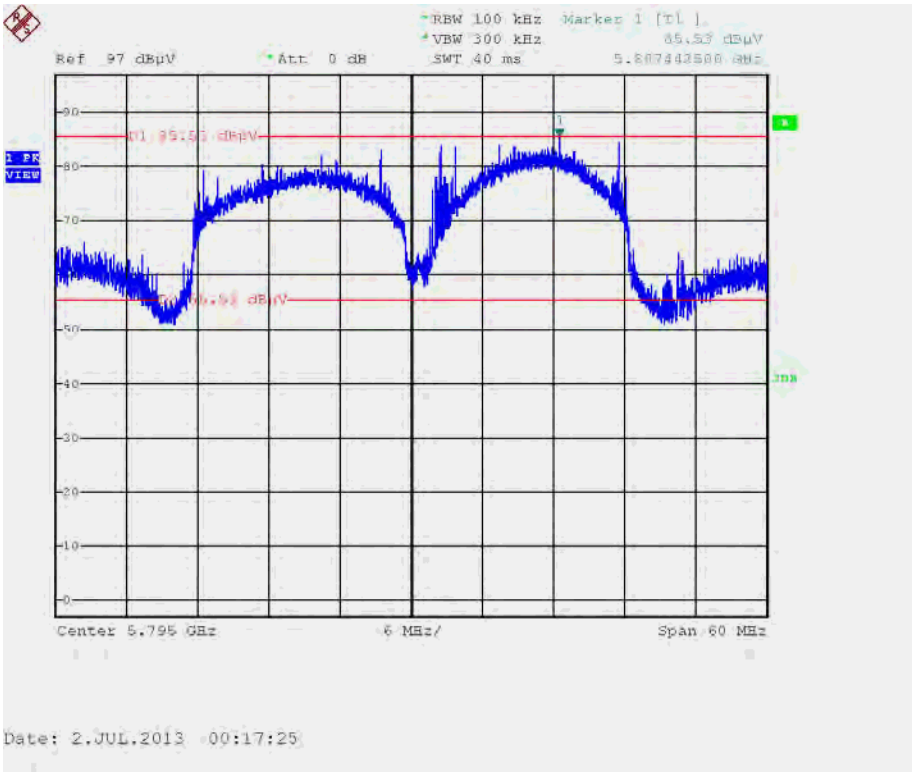
Date: 2.JUL.2013 00:14:44

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

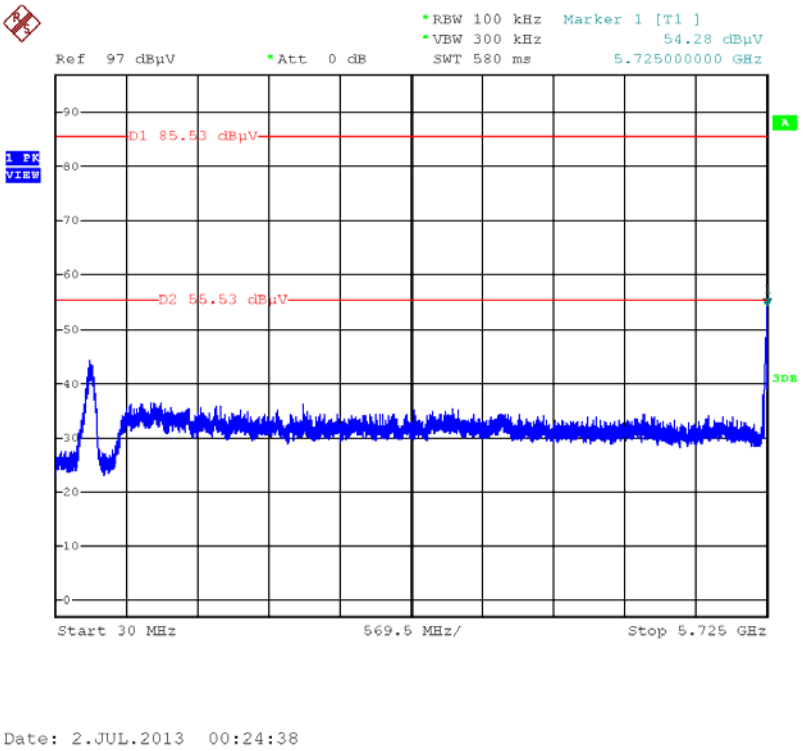


Date: 2.JUL.2013 00:15:13

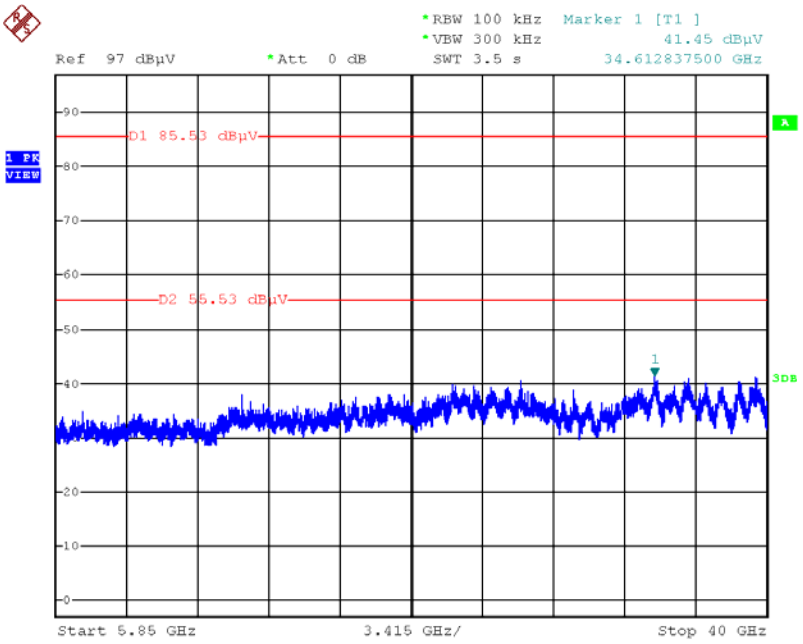
Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

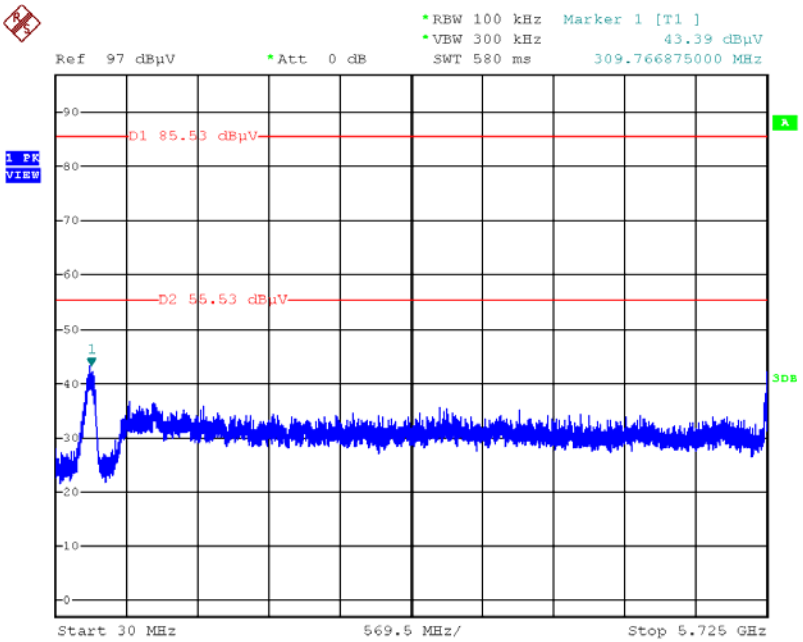


Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



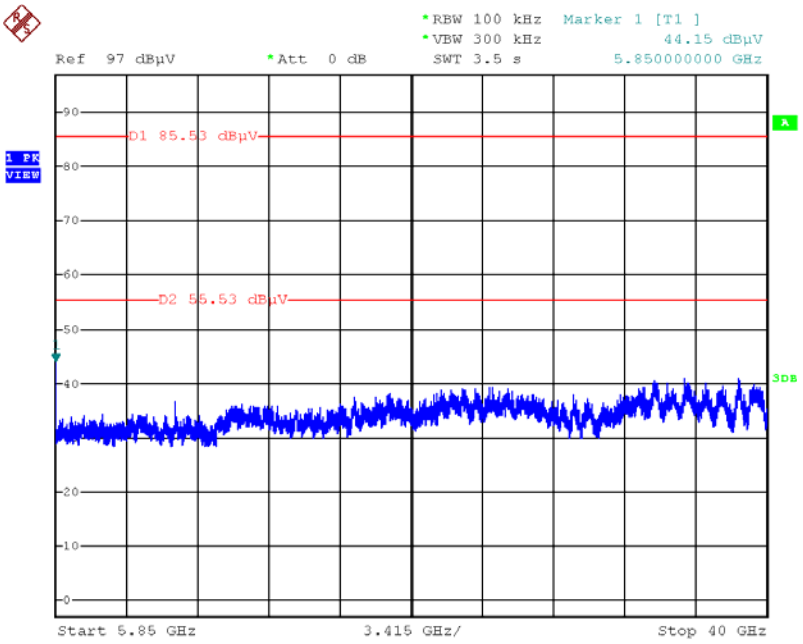
Date: 2.JUL.2013 00:25:41

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



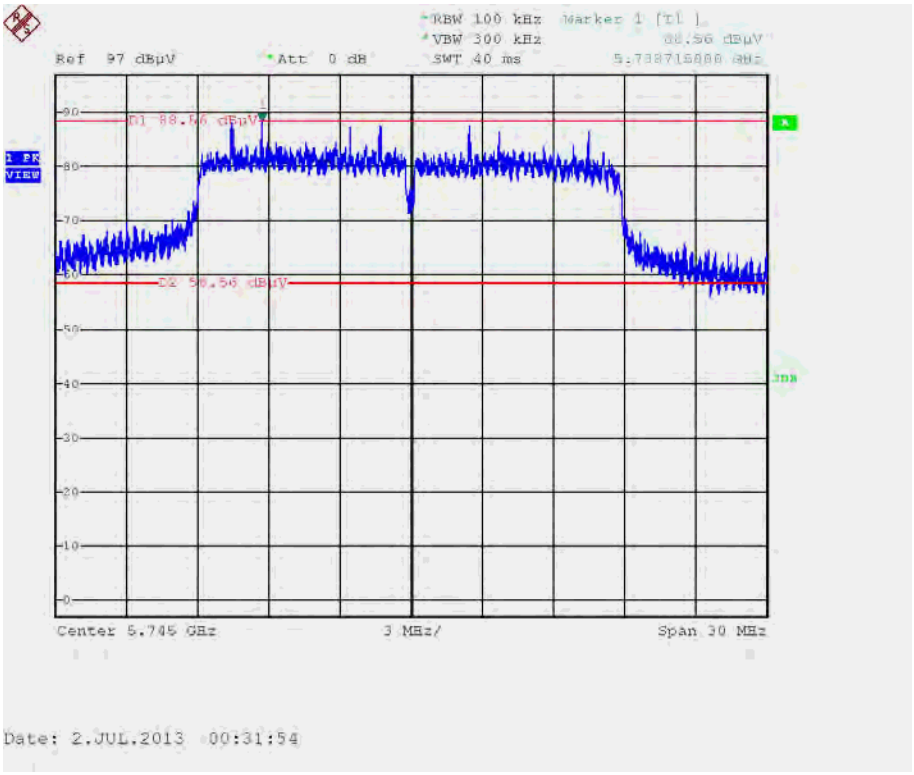
Date: 2.JUL.2013 00:17:54

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

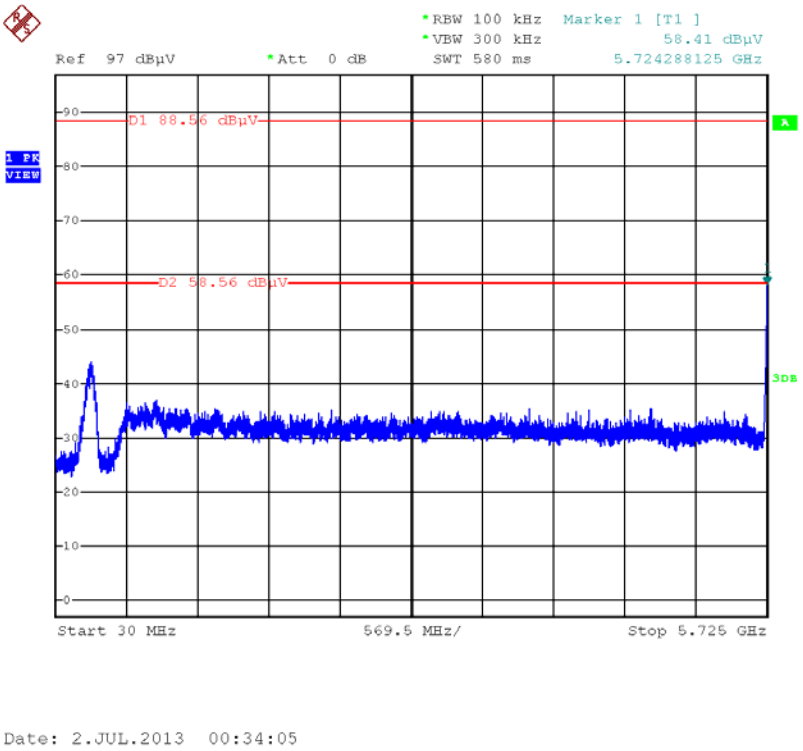


Date: 2.JUL.2013 00:18:38

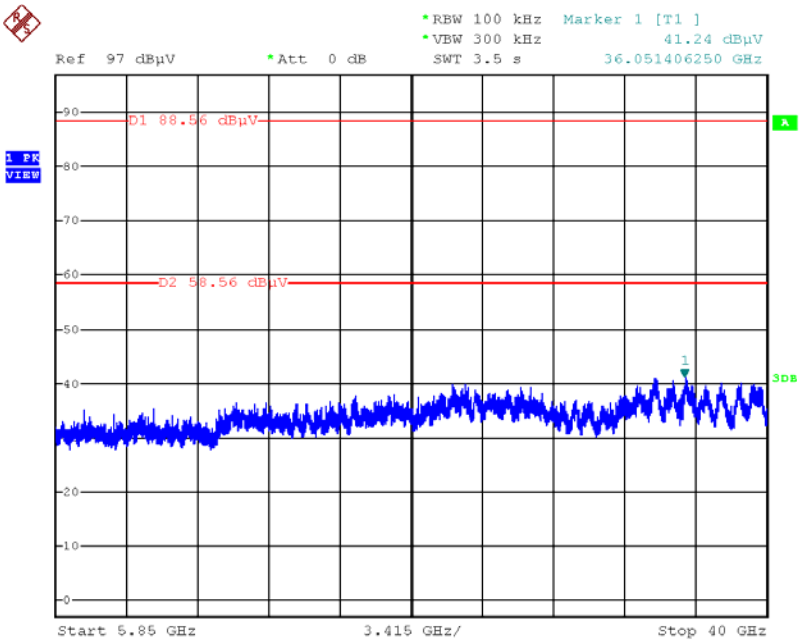
Plot on Configuration IEEE 802.11n MCS8 20MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

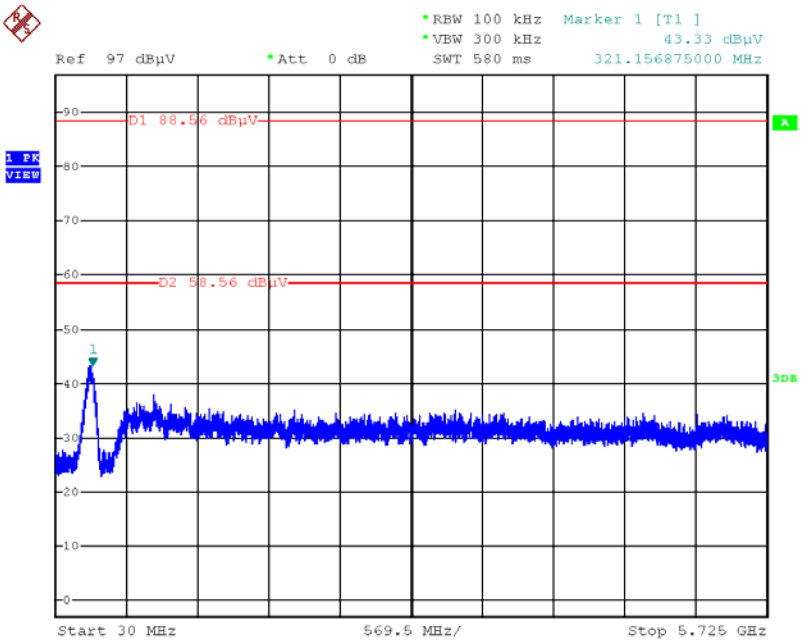


Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



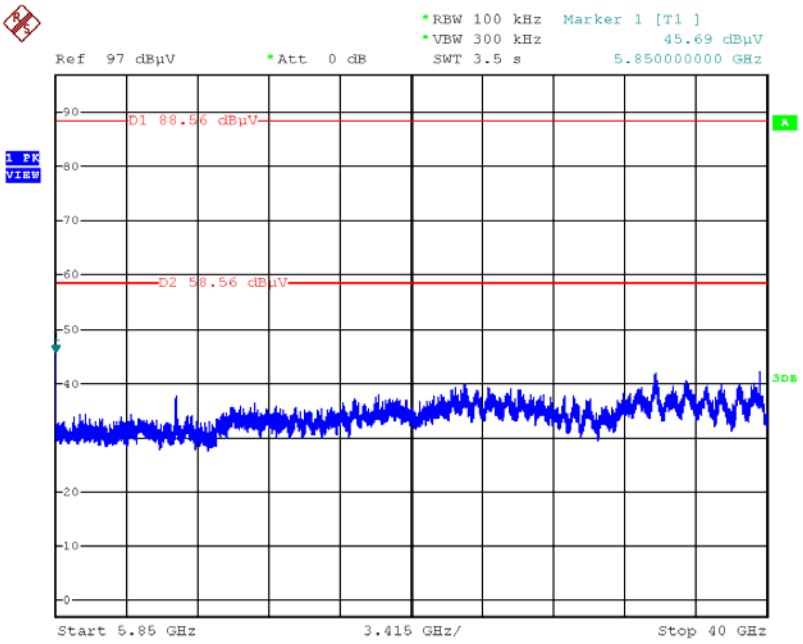
Date: 2.JUL.2013 00:34:53

Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



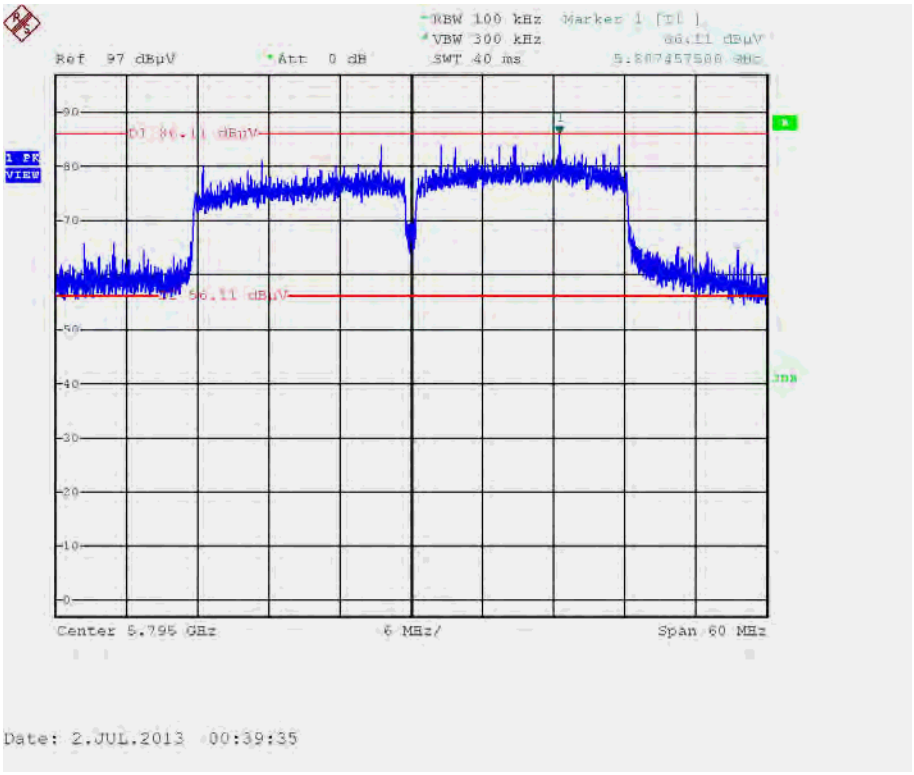
Date: 2.JUL.2013 00:36:32

Plot on Configuration IEEE 802.11n MCS8 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

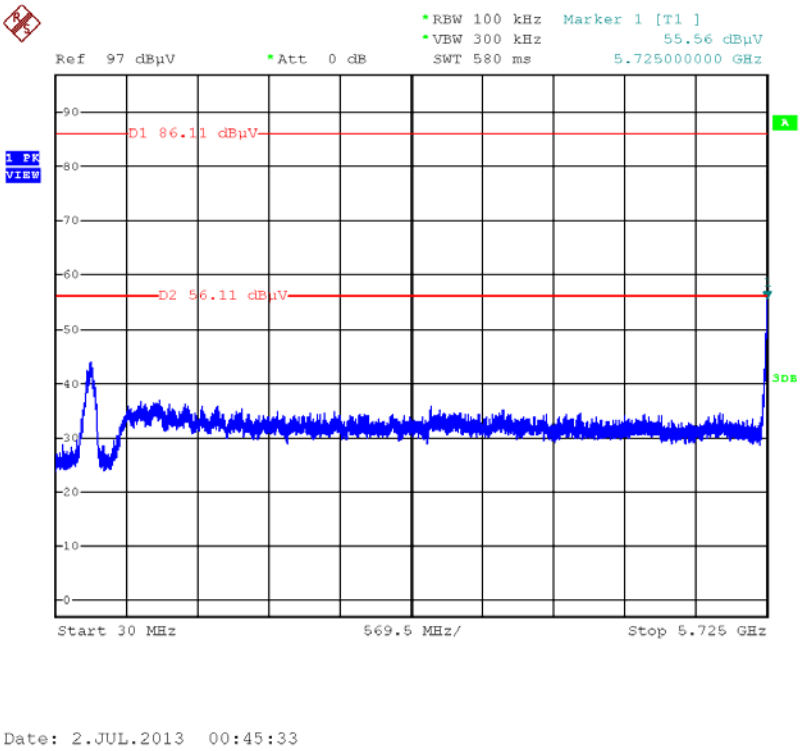


Date: 2.JUL.2013 00:37:04

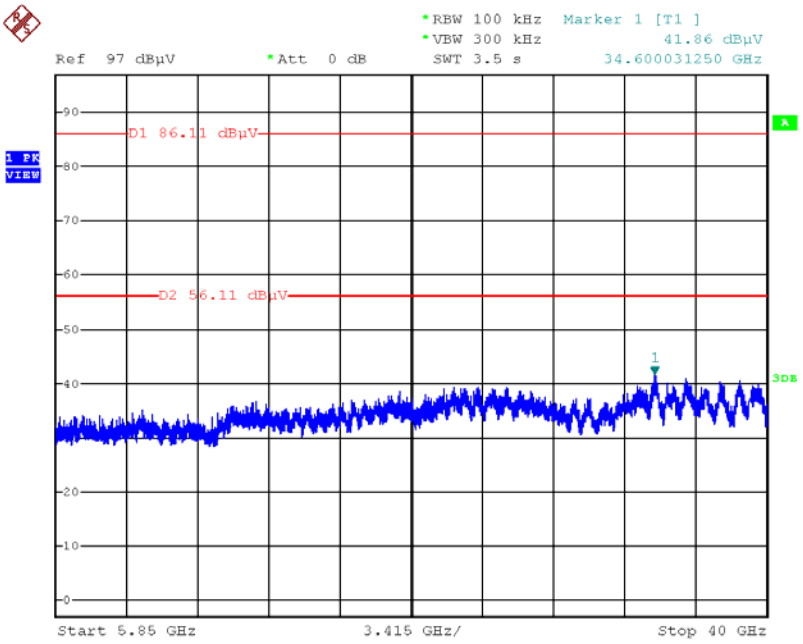
Plot on Configuration IEEE 802.11n MCS8 40MHz / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

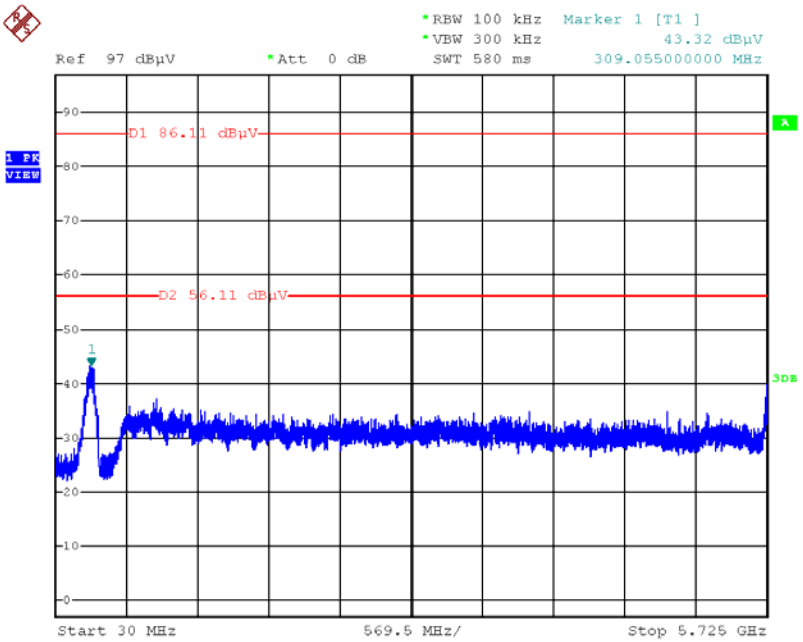


Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



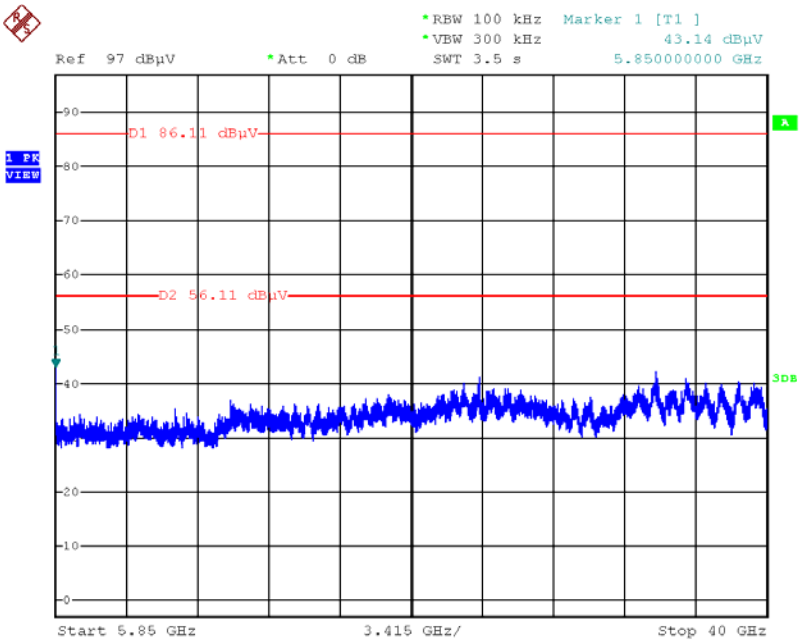
Date: 2.JUL.2013 00:46:15

Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



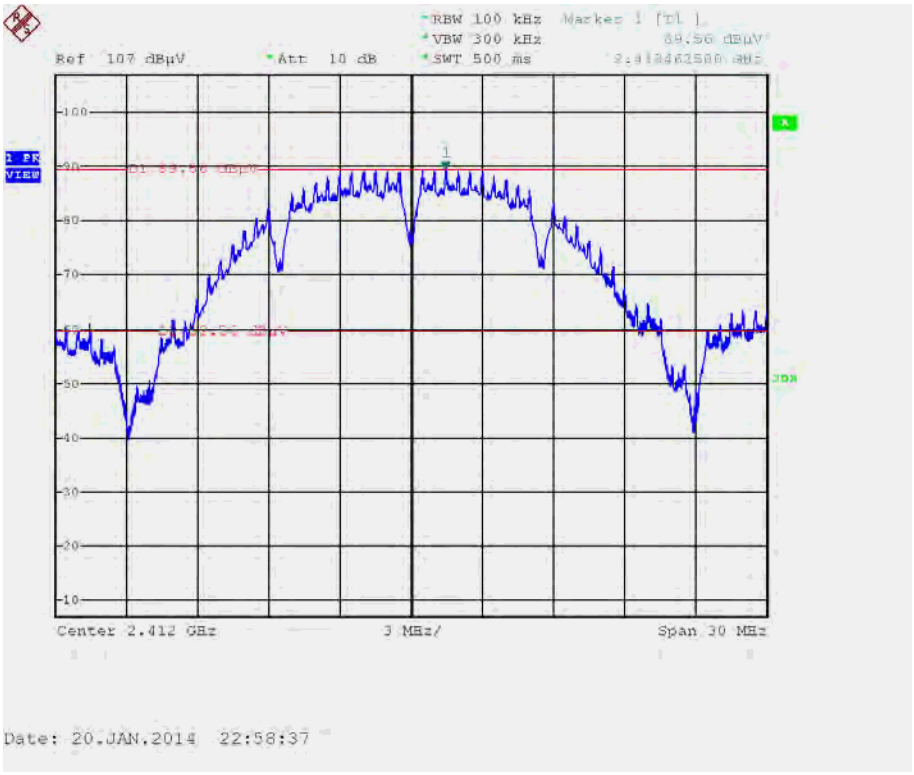
Date: 2.JUL.2013 00:40:00

Plot on Configuration IEEE 802.11n MCS8 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

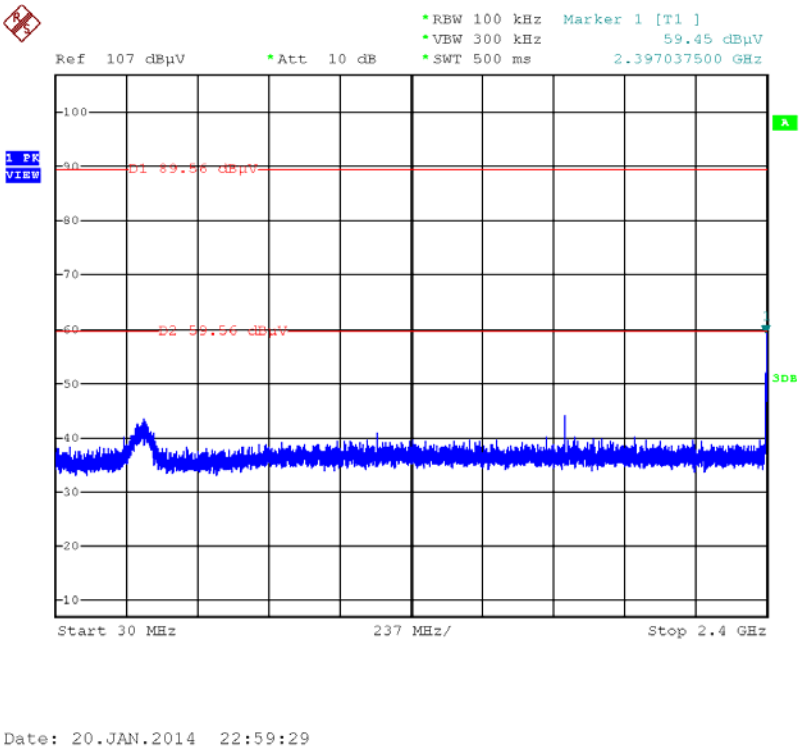


Date: 2.JUL.2013 00:40:28

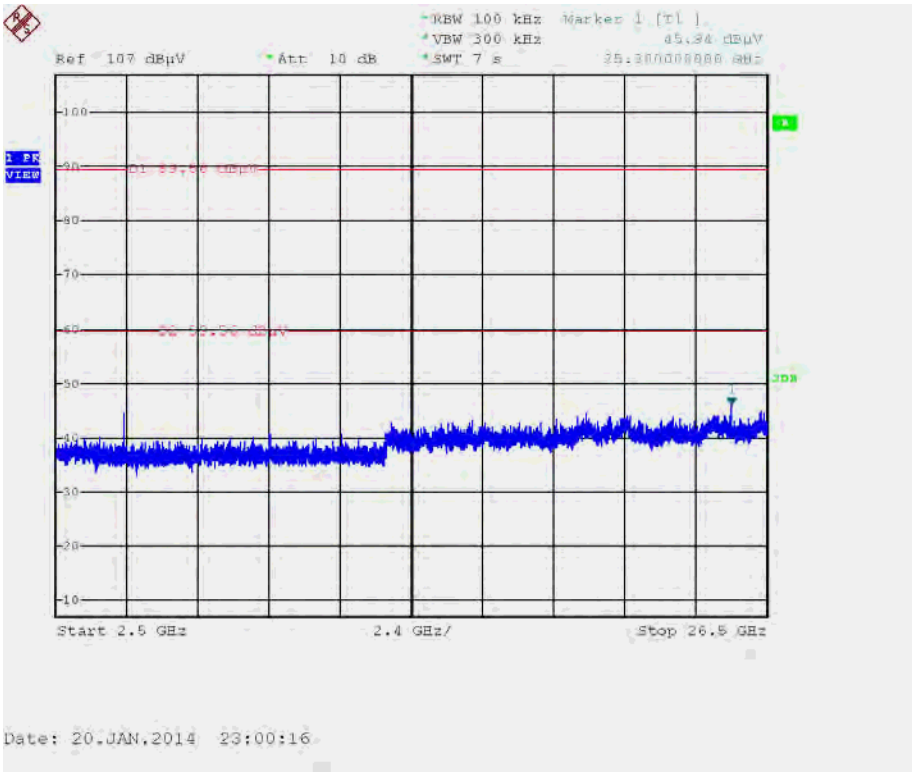
Plot on Configuration IEEE 802.11b / Reference Level / Ant. 1 / Chain 0 (1TX)



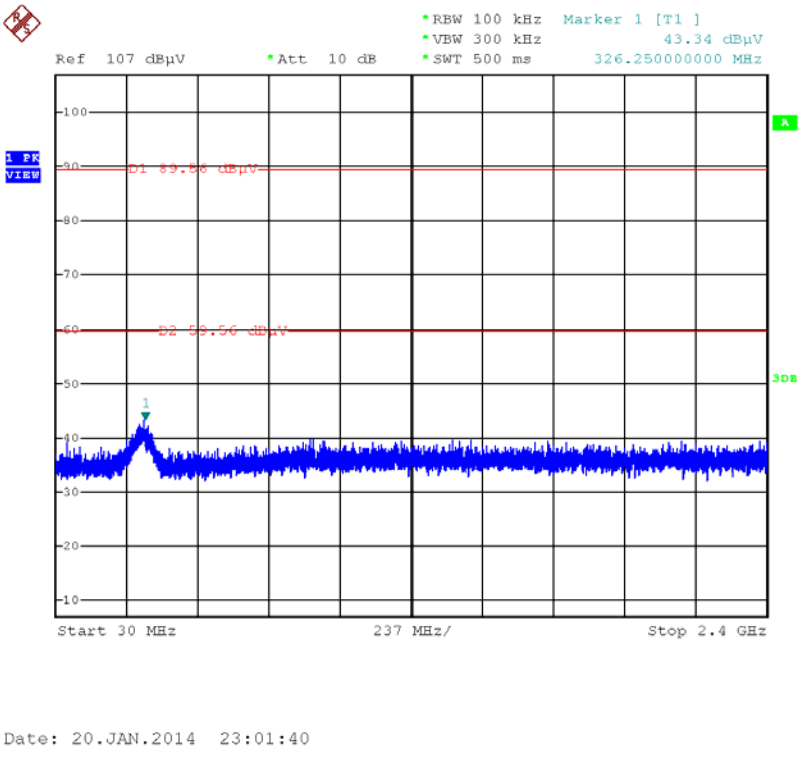
Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



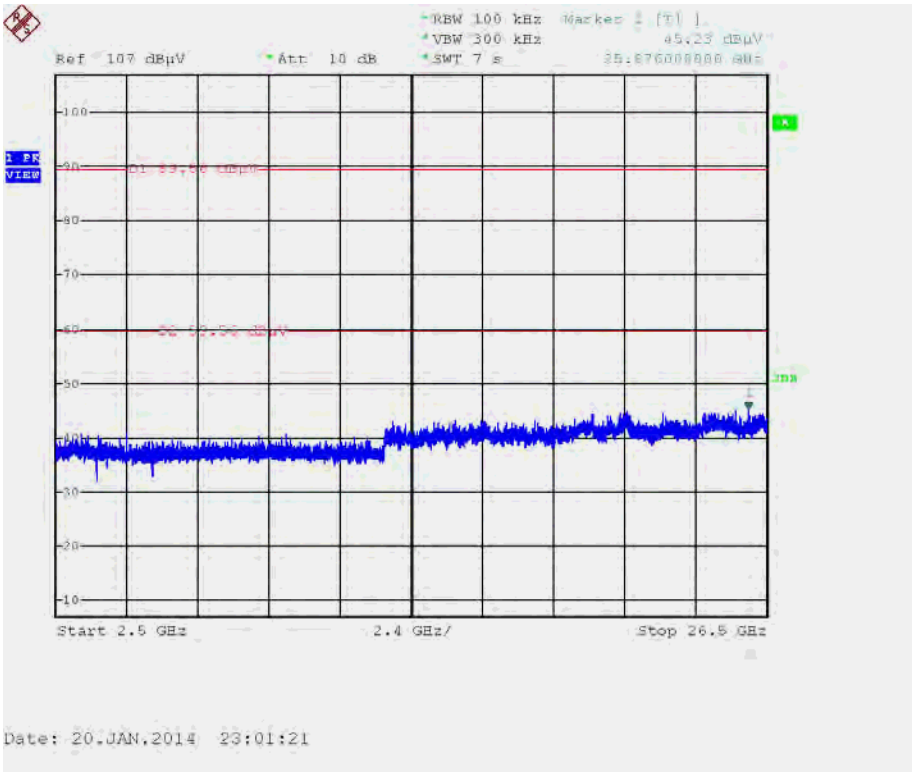
Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



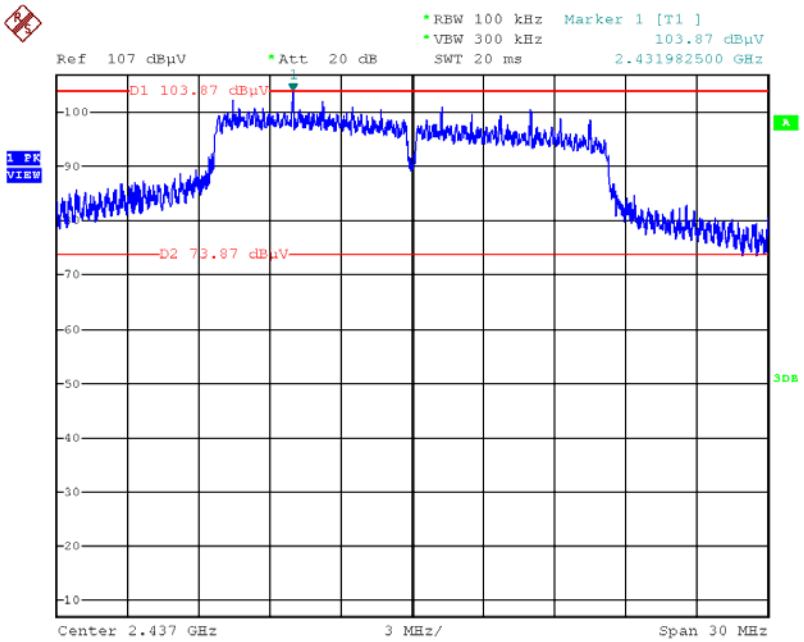
Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

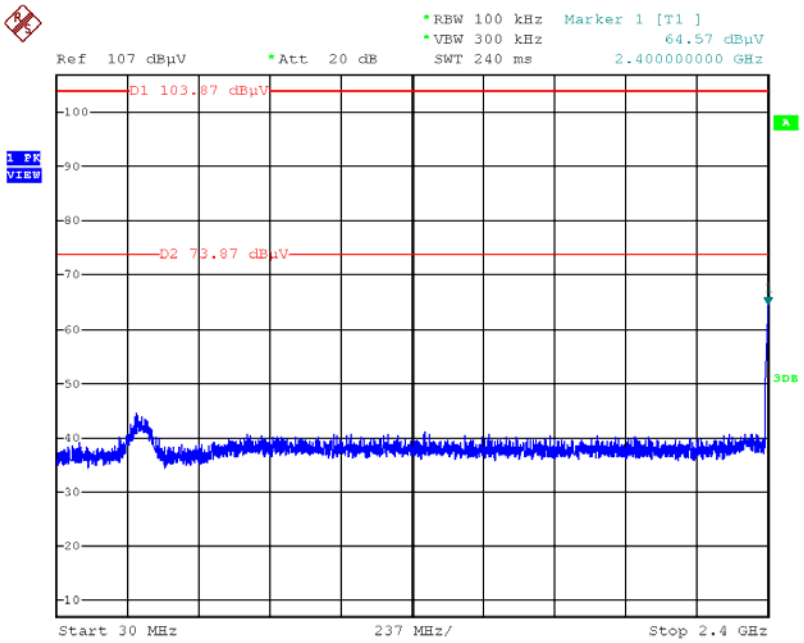


Plot on Configuration IEEE 802.11g / Reference Level / Ant. 1 / Chain 0 (1TX)



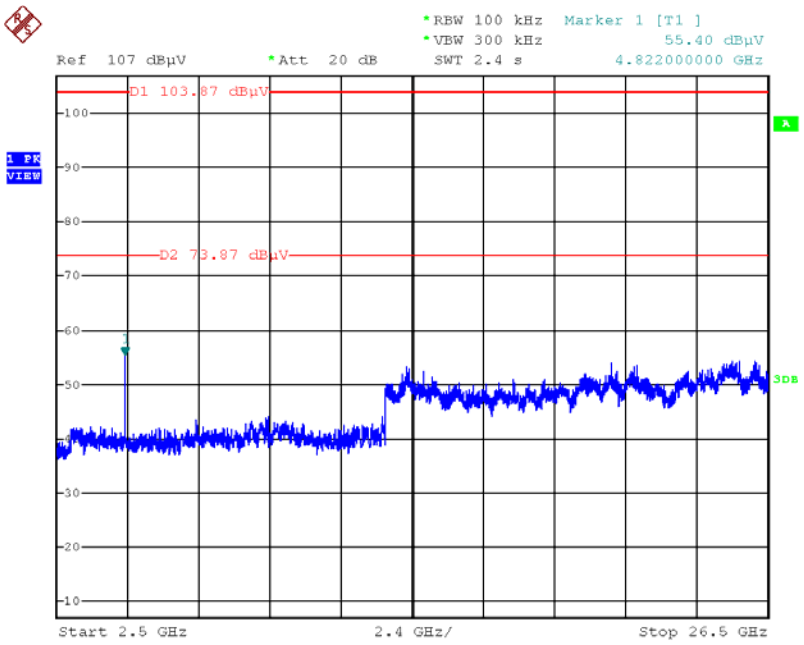
Date: 1.JUL.2013 13:30:48

Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



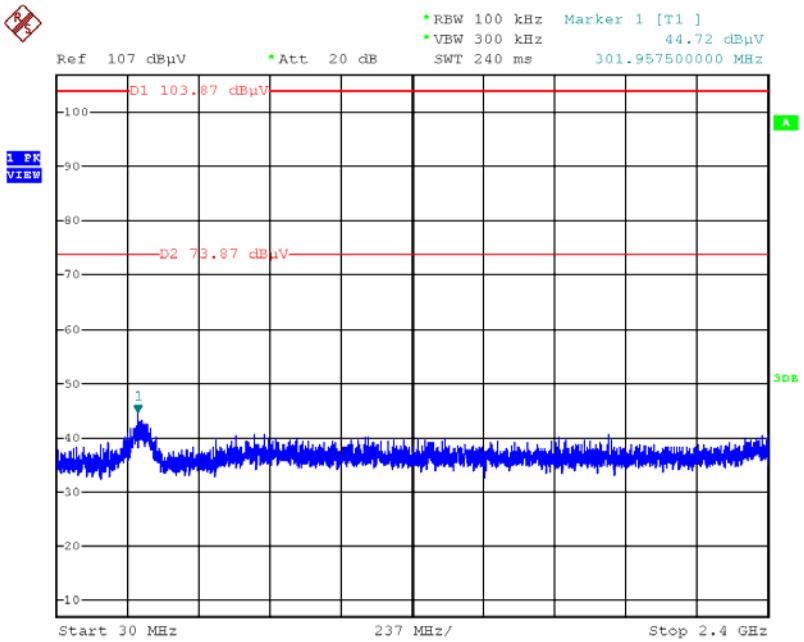
Date: 1.JUL.2013 13:31:44

Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



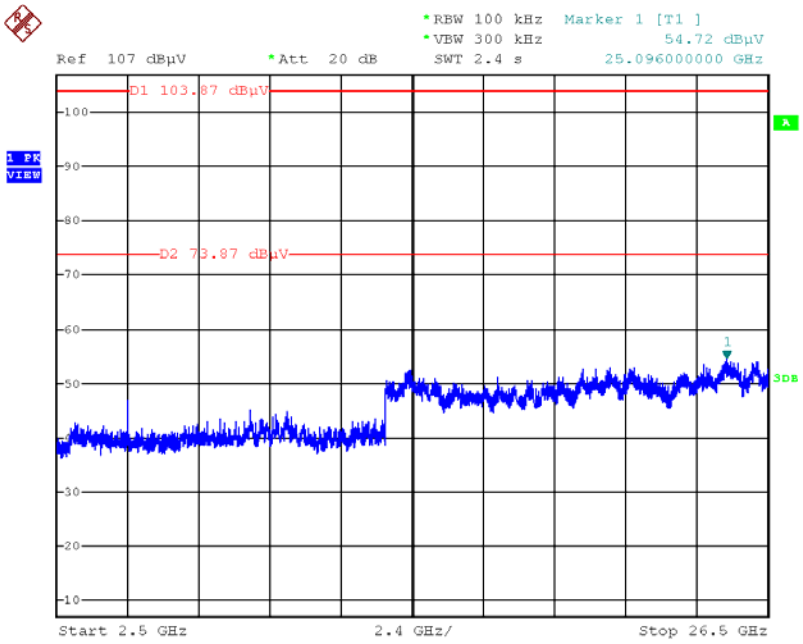
Date: 1.JUL.2013 13:32:07

Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



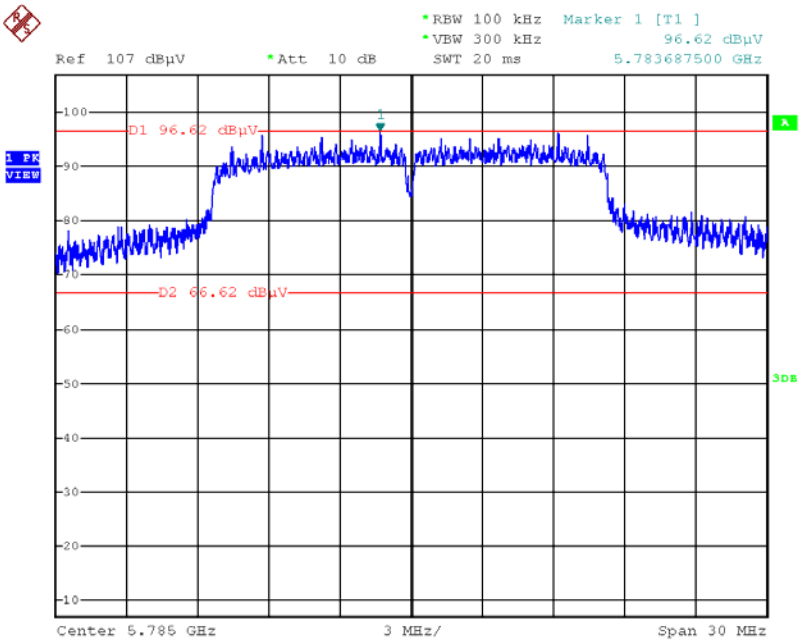
Date: 1.JUL.2013 13:32:51

Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



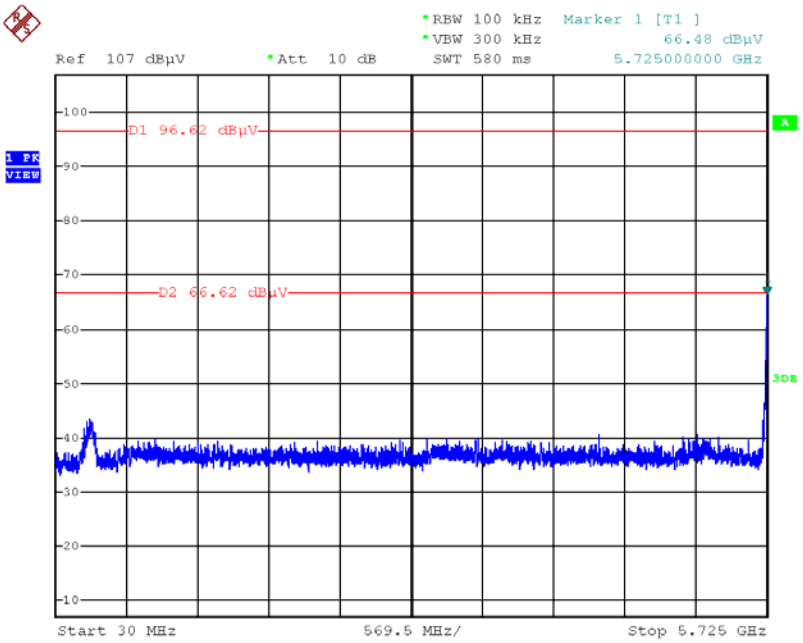
Date: 1.JUL.2013 13:32:38

Plot on Configuration IEEE 802.11a / Reference Level / Ant. 1 / Chain 0 (1TX)



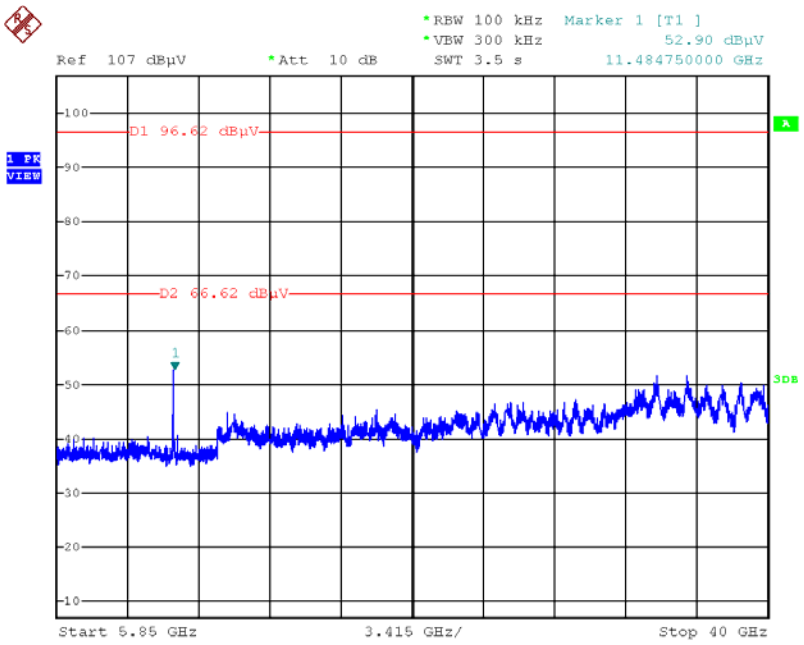
Date: 1.JUL.2013 13:06:14

Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



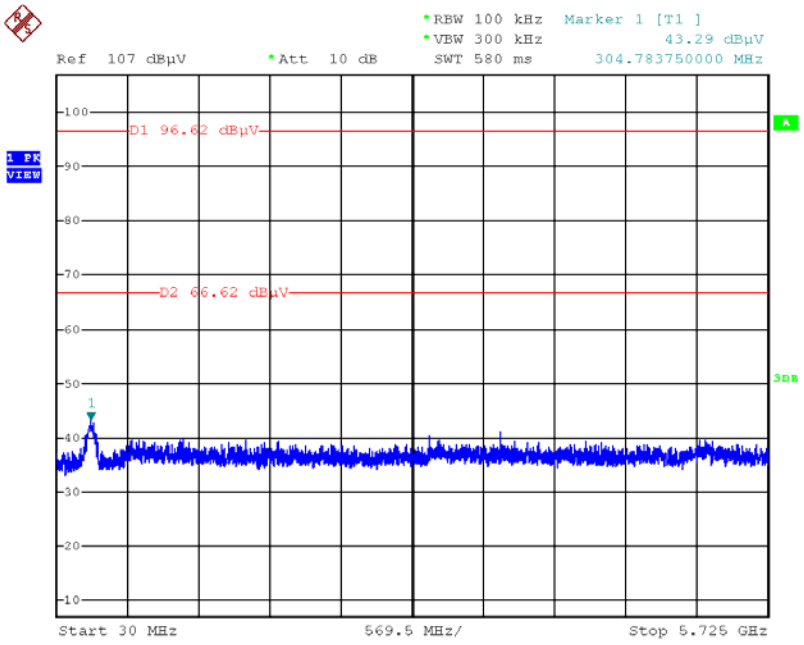
Date: 1.JUL.2013 13:08:35

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



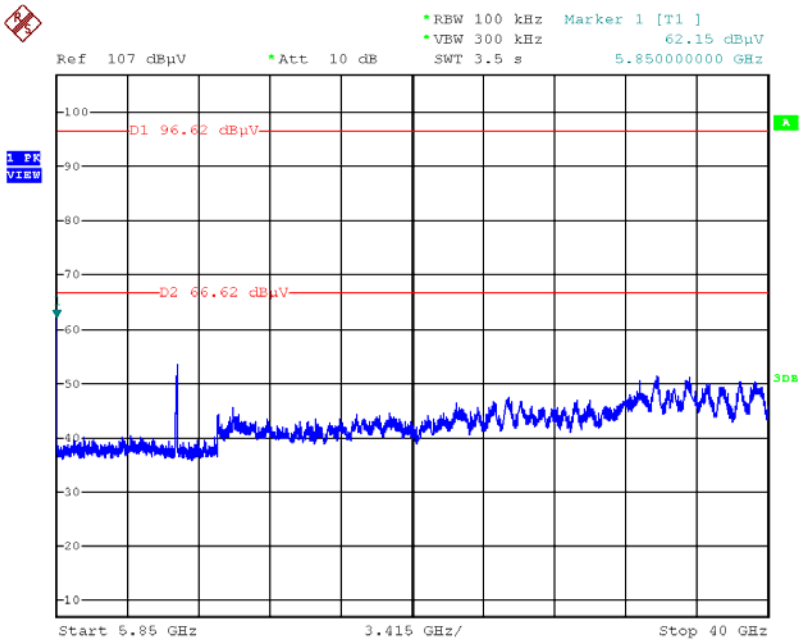
Date: 1.JUL.2013 13:09:13

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)



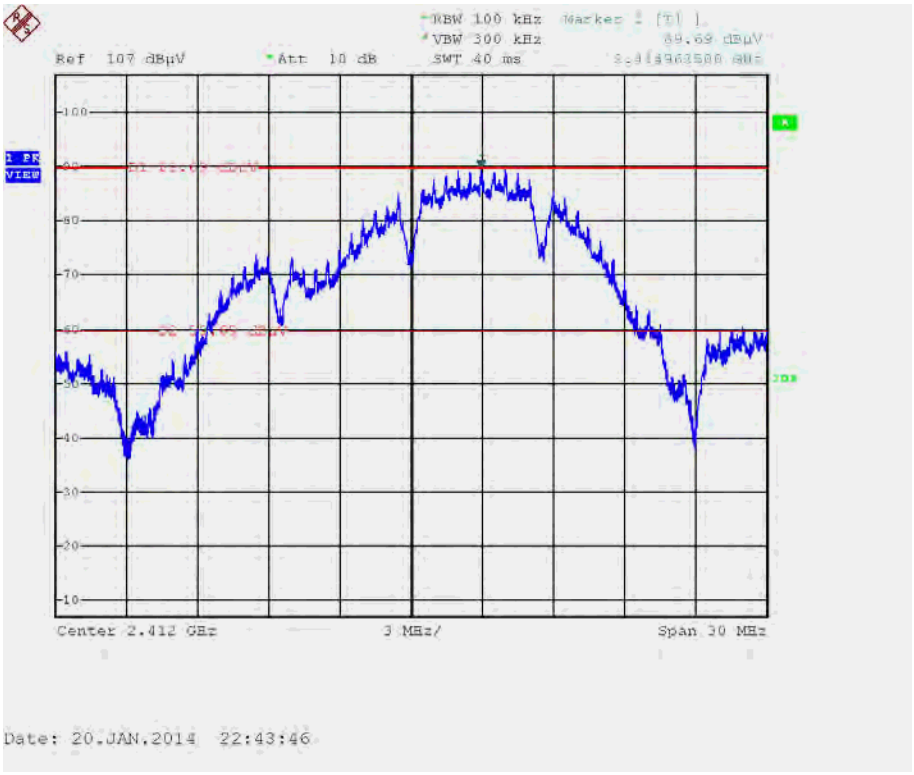
Date: 1.JUL.2013 13:10:51

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 (1TX)

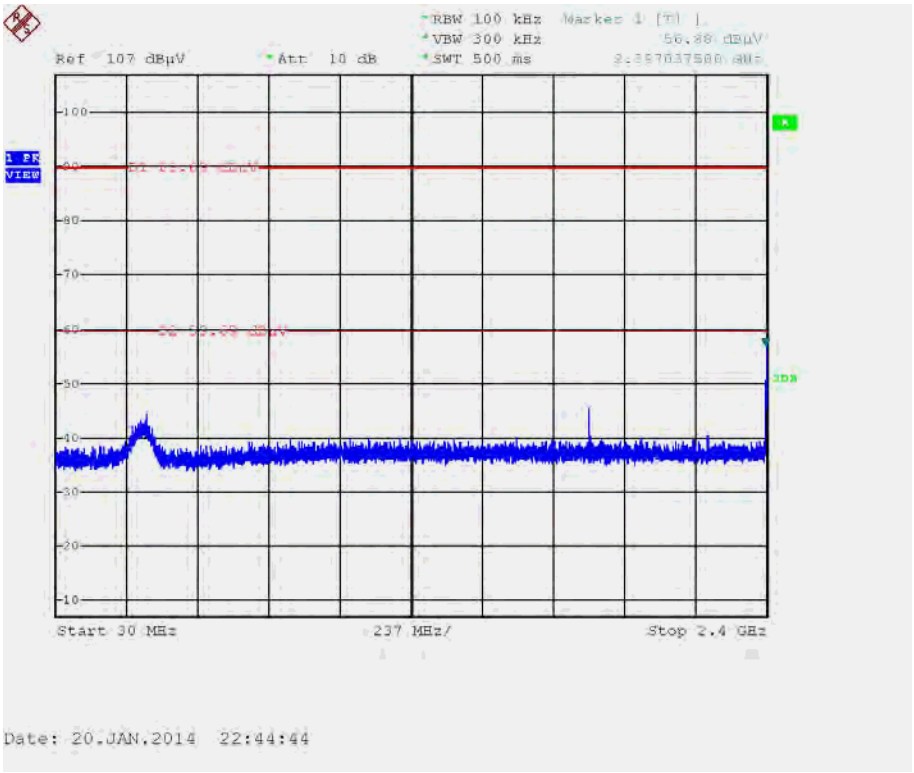


Date: 1.JUL.2013 13:10:27

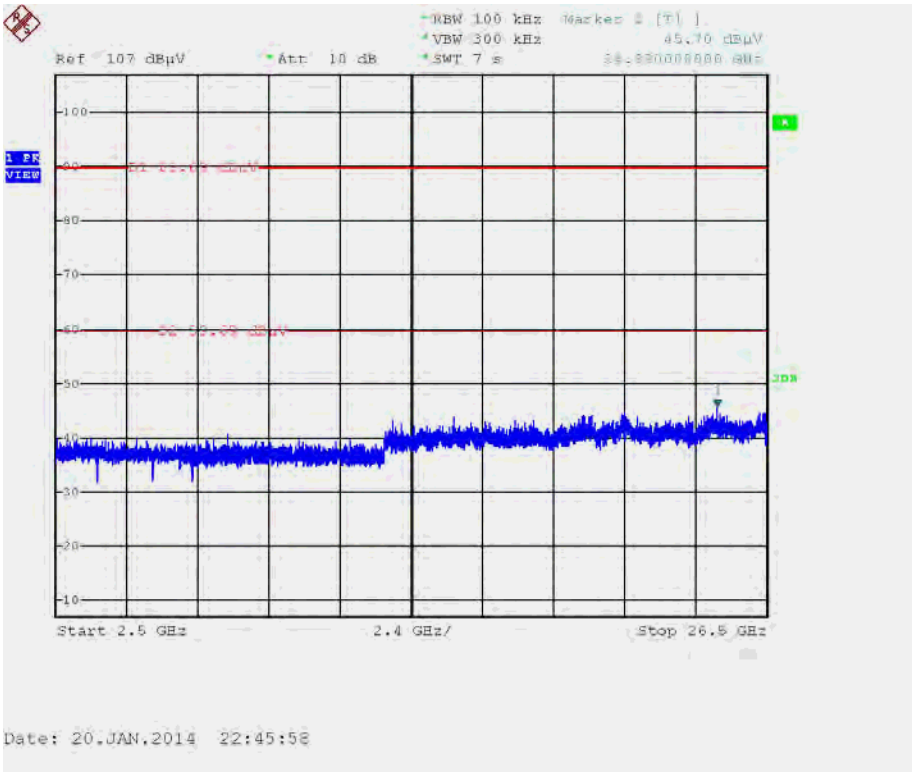
Plot on Configuration IEEE 802.11b / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



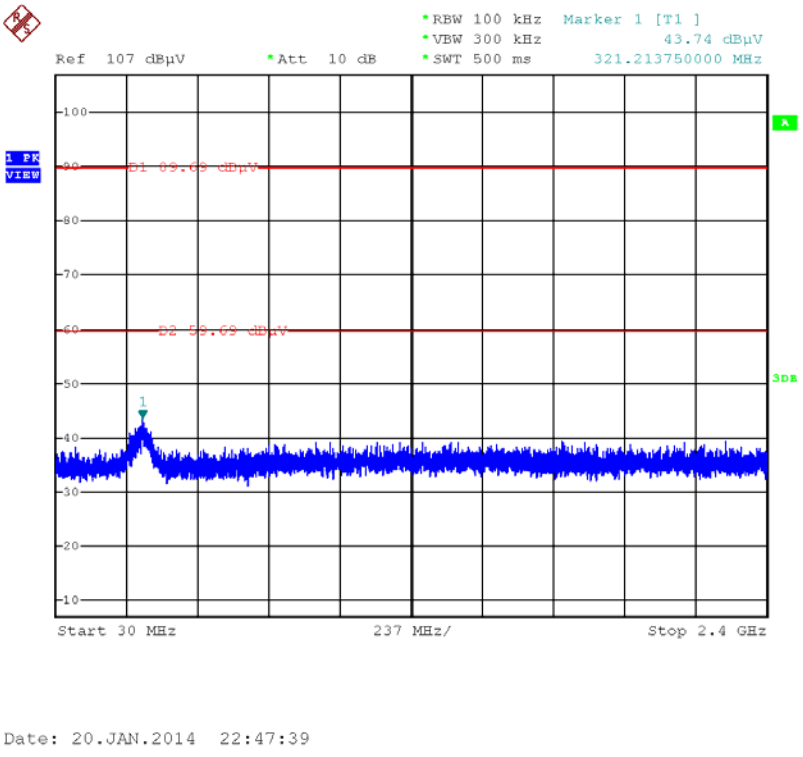
Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



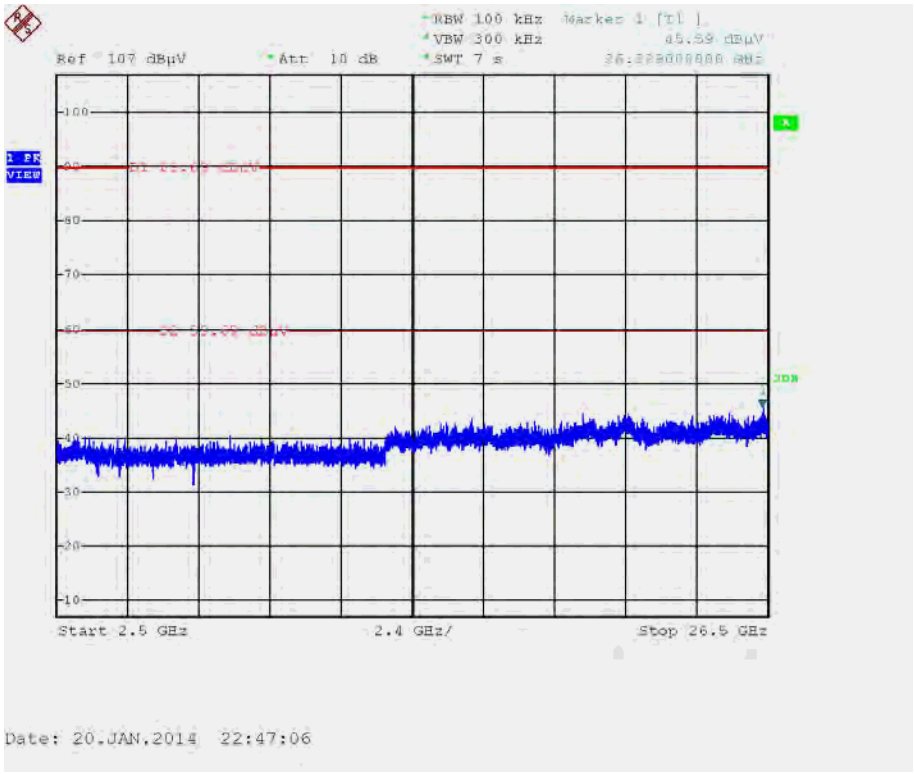
Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



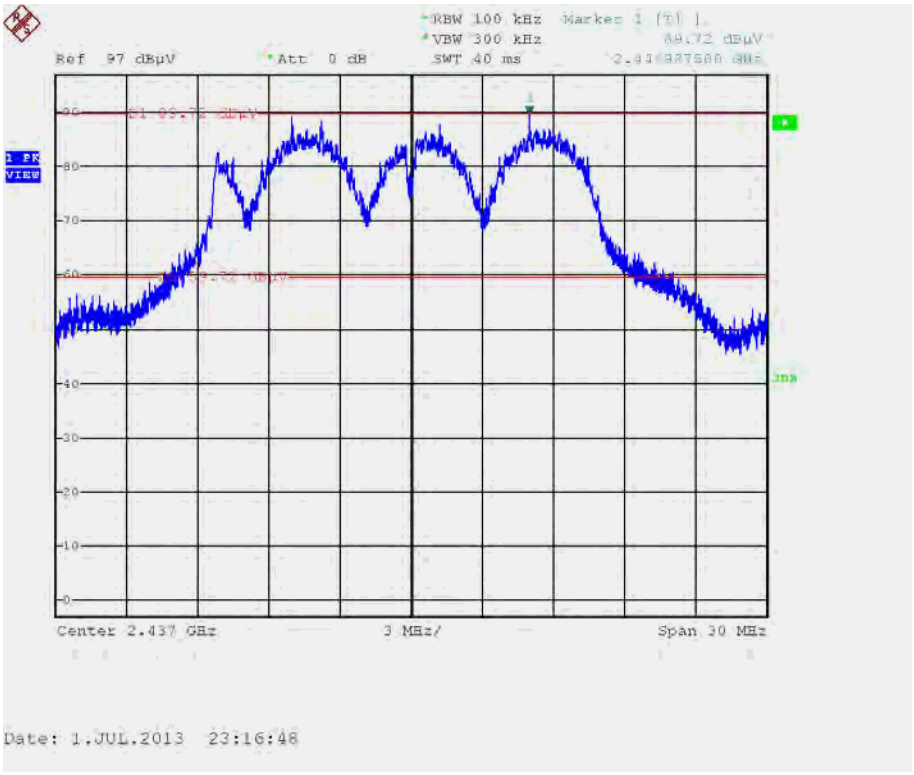
Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



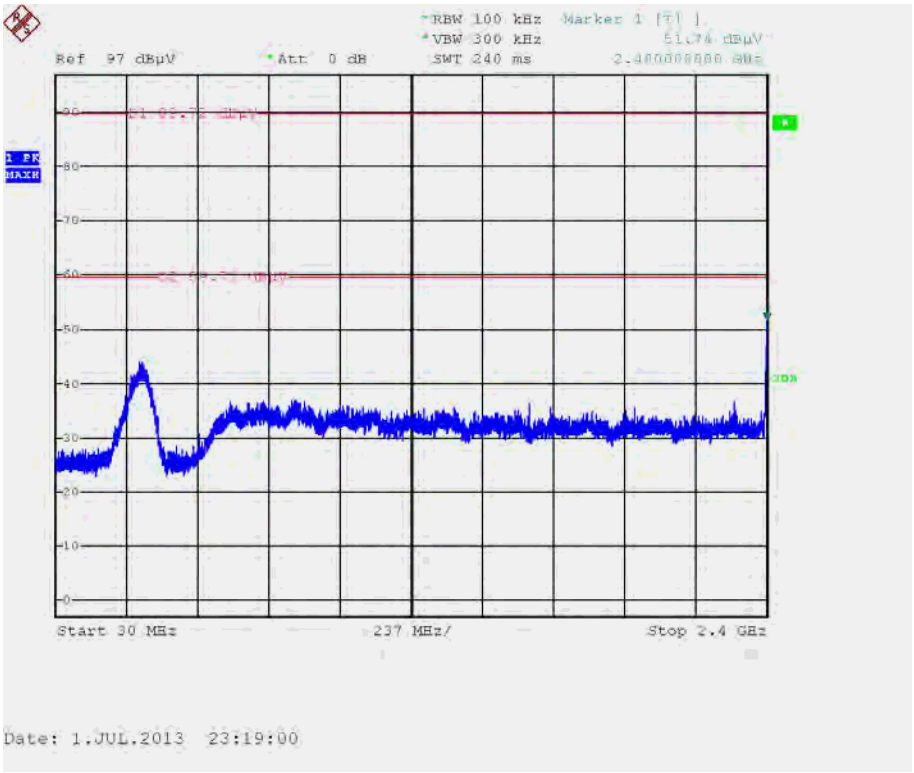
Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



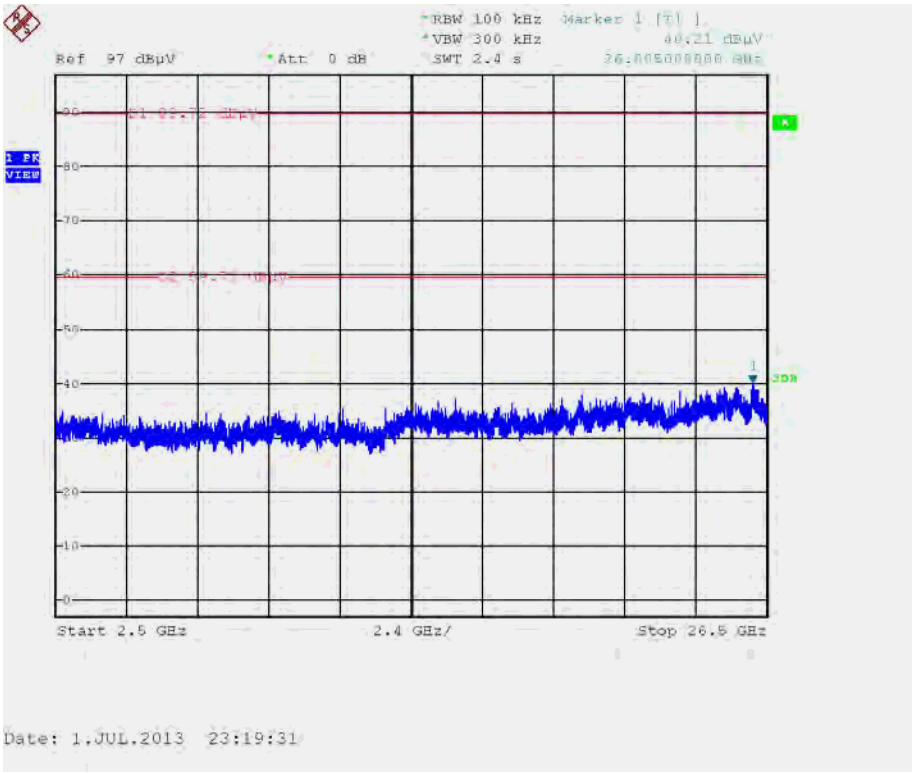
Plot on Configuration IEEE 802.11g / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



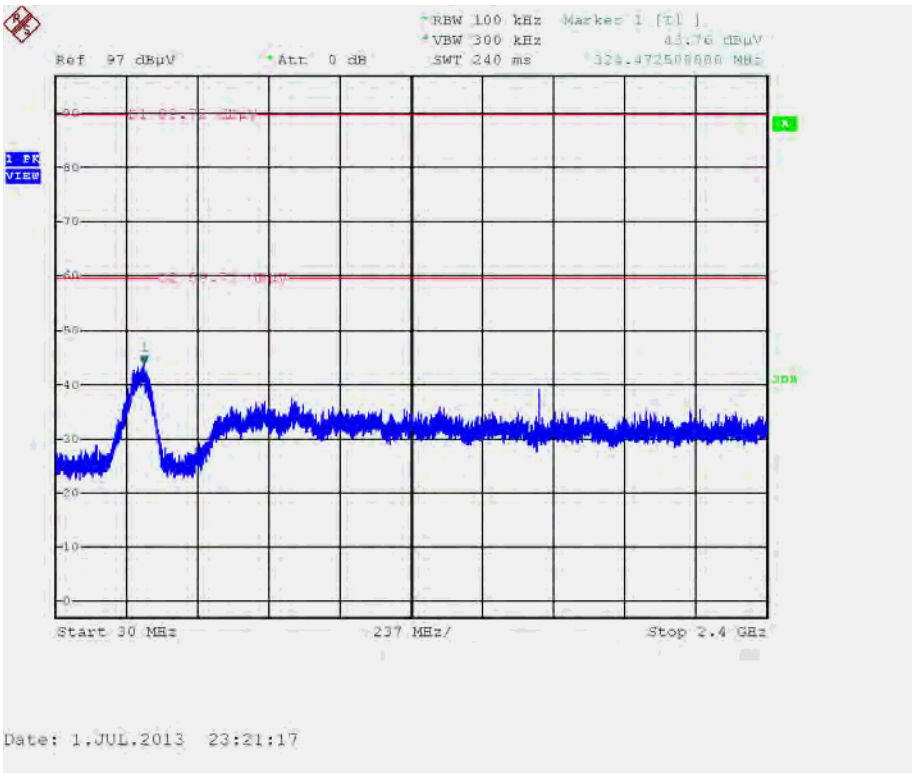
Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



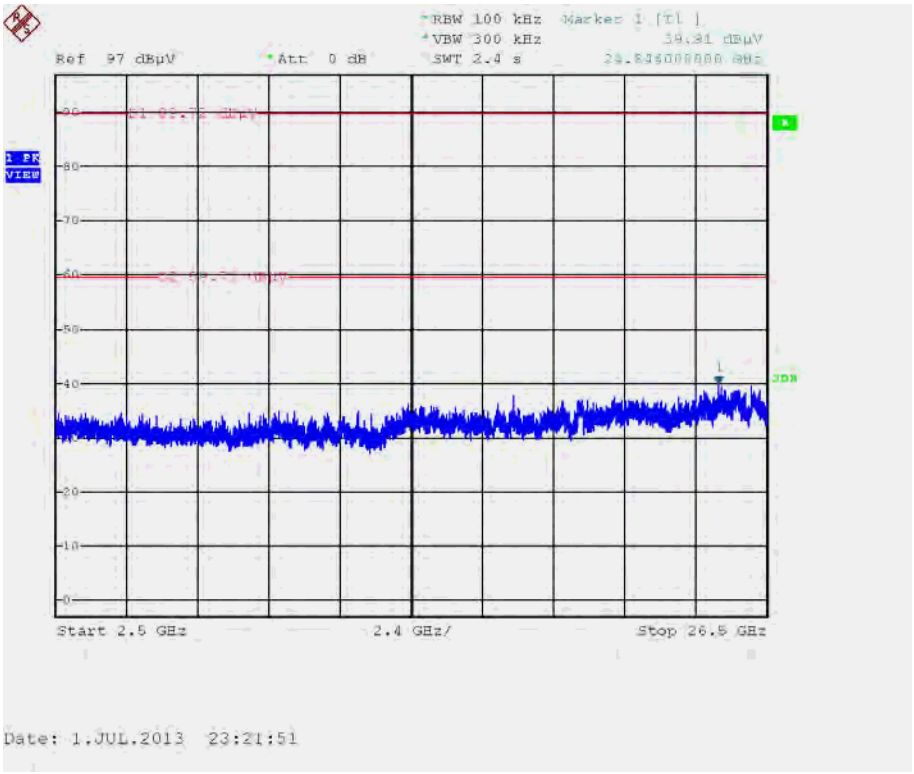
Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



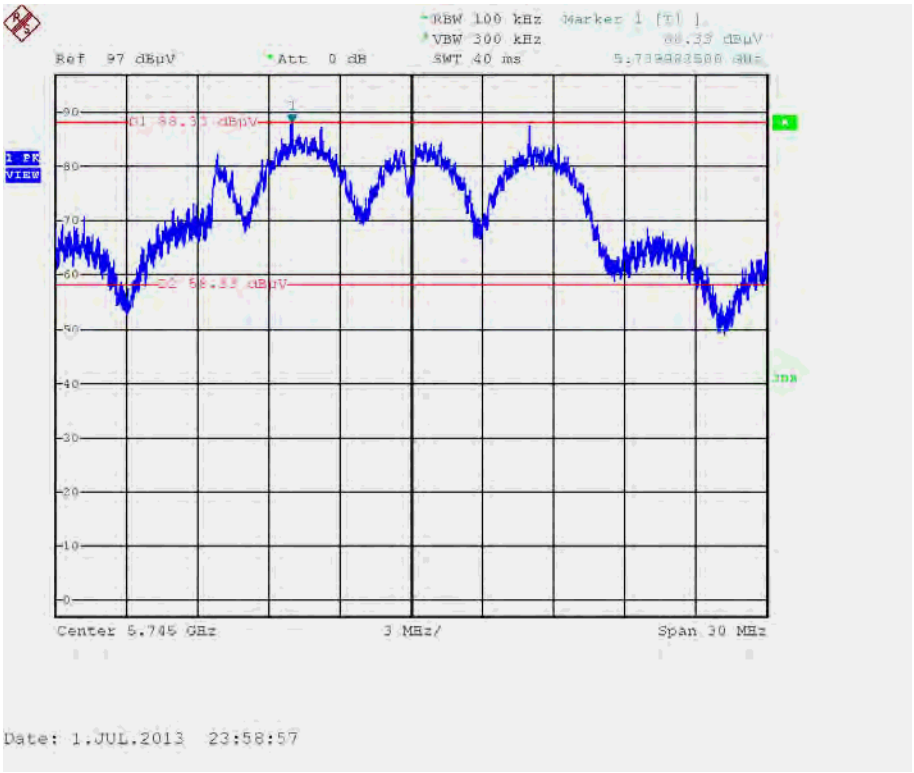
Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



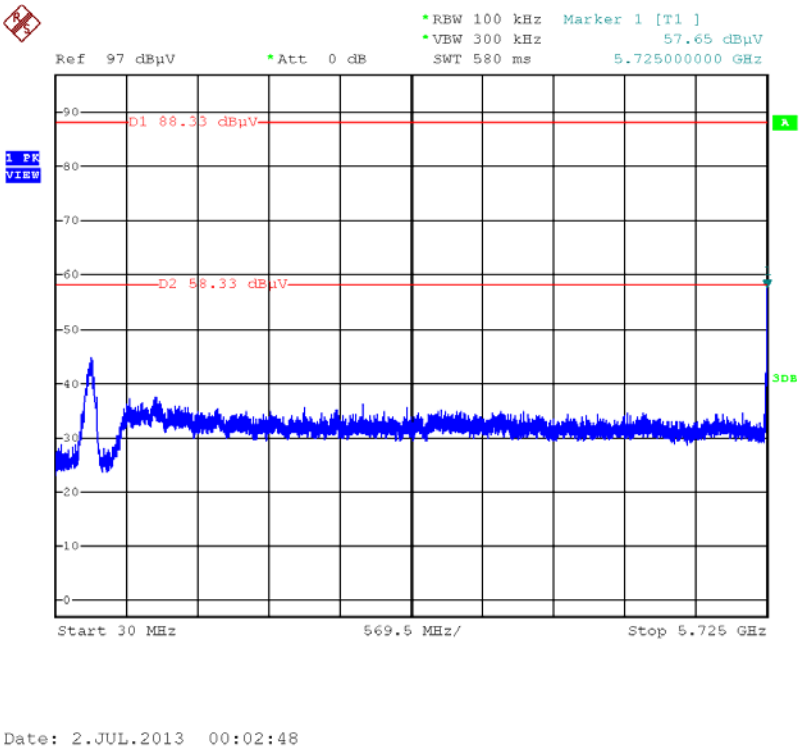
Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



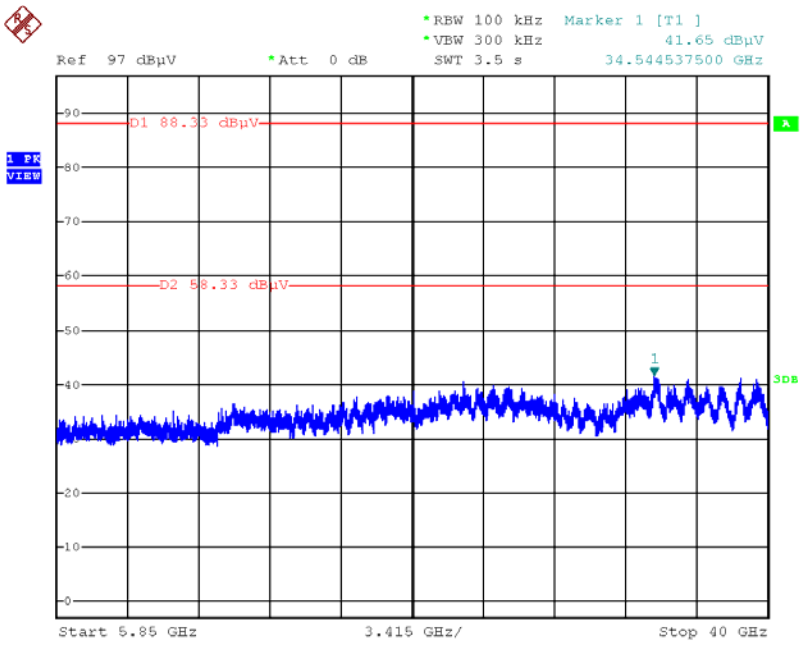
Plot on Configuration IEEE 802.11a / Reference Level / Ant. 1 / Chain 0 + Chain 1 (2TX)



Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)

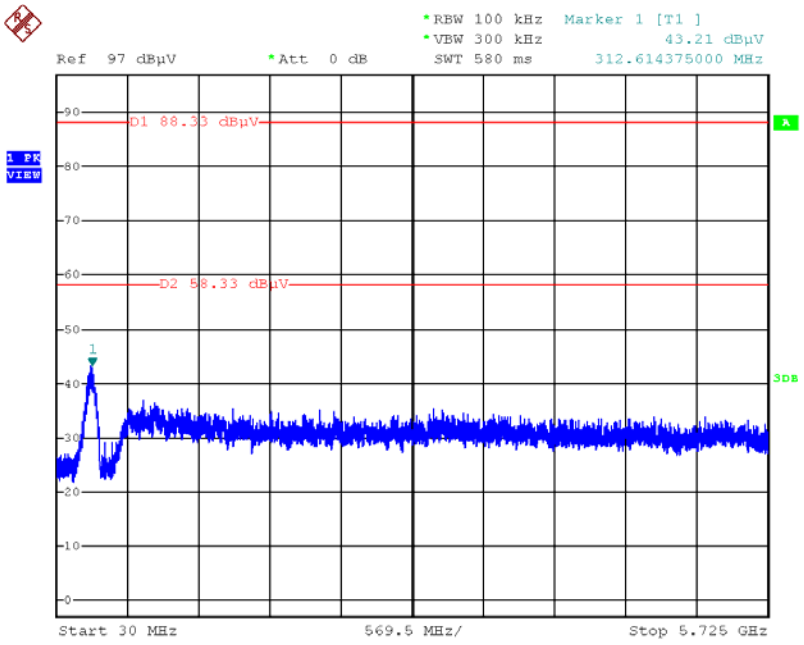


Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



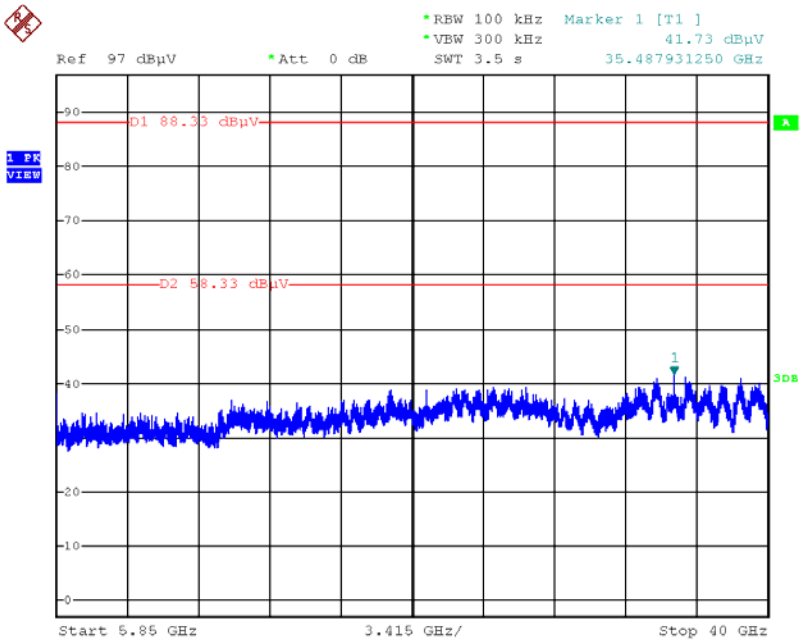
Date: 2.JUL.2013 00:03:45

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



Date: 2.JUL.2013 00:06:26

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) / Ant. 1 / Chain 0 + Chain 1 (2TX)



Date: 2.JUL.2013 00:07:01

4.7. Antenna Requirements

4.7.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.7.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100377	9kHz ~ 2.75GHz	Oct. 23, 2012	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 26, 2012	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Jun. 26, 2012	Conduction (CO01-CB)
Impulsbegrenzer Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz~30MHz	Feb. 21, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	Dec. 04, 2012	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	-	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Apr. 16, 2013	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 16, 2012	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Apr. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2012	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Nov. 28, 2012	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Nov. 27, 2012	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

"*" Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.026	dB	normal(k=2)	0.013
Cable loss	0.002	dB	normal(k=2)	0.001
AMN/LISN specification	1.200	dB	normal(k=2)	0.600
Mismatch Receiver VSWR 1= AMN/LISN VSWR 2=	-0.080	dB	U-shaped	0.060
combined standard uncertainty Ue(y)	1.2			
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	2.4			

Uncertainty of Conducted Emission Measurement

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Cable loss	0.038	dB	normal(k=2)	0.019
Attenuator	0.047	dB	normal(k=2)	0.024
Power Meter specification	0.300	dB	normal(k=2)	0.150
Power Sensor specification	0.300	dB	normal(k=2)	0.150
Mismatch Receiver VSWR 1= Antenna VSWR 2= Pre Amplifier VSWR 3=	-0.080	dB	U-shaped	0.060
combined standard uncertainty Ue(y)	0.403			
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	0.806			

Uncertainty of Radiated Emission Measurement (30MHz ~ 1,000MHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.1727	dB	normal(k=1)	0.1727
Cable loss	0.1736	dB	normal(k=2)	0.0868
Antenna gain	0.1687	dB	normal(k=2)	0.0843
Site imperfection	0.4898	dB	Triangular	0.2
Pre-amplifier gain	0.3661	dB	normal(k=2)	0.183
Transmitter antenna	1.7	dB	rectangular	0.9815
Signal generator	0.5	dB	rectangular	0.2887
Mismatch	0.08	dB	u-shape	0.244
Spectrum analyzer	0.5	dB	rectangular	0.2887
combined standard uncertainty Ue(y)	1.1434			
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	2.2869			

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.1908	dB	normal(k=1)	0.1908
Cable loss	0.1685	dB	normal(k=2)	0.0843
Antenna gain	0.1912	dB	normal(k=2)	0.0956
Site imperfection	1.3091	dB	Triangular	0.5344
Pre-amplifier gain	0.3043	dB	normal(k=2)	0.1521
Transmitter antenna	1.7	dB	rectangular	0.9815
Signal generator	0.5	dB	rectangular	0.2887
Mismatch	0.08	dB	u-shape	0.244
Spectrum analyzer	0.8	dB	rectangular	0.4619
combined standard uncertainty Ue(y)	1.2965			
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	2.593			

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.1864	dB	normal(k=1)	0.1864
Cable loss	0.1666	dB	normal(k=2)	0.0833
Antenna gain	0.1904	dB	normal(k=2)	0.0952
Site imperfection	0.4882	dB	Triangular	0.1993
Pre-amplifier gain	0.2688	dB	normal(k=2)	0.1344
Transmitter antenna	1.7	dB	rectangular	0.9815
Signal generator	0.5	dB	rectangular	0.2887
Mismatch	0.08	dB	u-shape	0.244
Spectrum analyzer	0.8	dB	rectangular	0.4619
combined standard uncertainty Ue(y)	1.1874			
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	2.3749			