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FCC RADIO TEST REPORT

Applicant's company	**Realtek Semiconductor Corp.**
Applicant Address	No. 2,Innovation Road II, Hsinchu Science Park, Hsinchu 300,Taiwan
FCC ID	**TX2-RTL8821AE**
Manufacturer's company	**Realtek Semiconductor Corp.**
Manufacturer Address	No. 2,Innovation Road II, Hsinchu Science Park, Hsinchu 300,Taiwan

Product Name	802.11a/b/g/n/ac RTL8821AE Combo module
Brand Name	REALTEK
Model No.	RTL8821AE
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Apr. 26, 2013
Final Test Date	May 28, 2013
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g part and IEEE 802.11a/ac (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 v03** and **KDB 662911 D01 v01r02**.

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
FR342603AA	Rev. 01	Initial issue of report	Jul. 02, 2013

Certificate No.: CB10206134

1. CERTIFICATE OF COMPLIANCE

Product Name	:	802.11a/b/g/n/ac RTL8821AE Combo module
Brand Name	:	REALTEK
Model No.	:	RTL8821AE
Applicant	:	Realtek Semiconductor Corp.
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 Apr. 26, 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

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	10.97 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	11.55 dB
4.3	15.247(e)	Power Spectral Density	Complies	16.86 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	4.78 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.54 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n/ac
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 ; 1 for 80MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: MCS0 (20MHz): 17.76 MHz ; MCS0 (40MHz): 36.48 MHz For 5GHz Band: 802.11ac MCS0/Nss1 (20MHz): 17.76 MHz ; 802.11ac MCS0/Nss1 (40MHz): 36.48 MHz ; 802.11ac MCS0/Nss1 (80MHz): 76.16 MHz
Maximum Conducted Output Power	For 2.4GHz Band: MCS0 (20MHz): 16.32 dBm ; MCS0 (40MHz): 16.41 dBm For 5GHz Band: 802.11ac MCS0/Nss1 (20MHz): 16.42 dBm ; 802.11ac MCS0/Nss1 (40MHz): 16.22 dBm ; 802.11ac MCS0/Nss1 (80MHz): 14.13 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 (1TX, 1RX)
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%)	11b: 15.20 MHz ; 11g: 16.56 MHz ; 11a: 16.64 MHz
Maximum Conducted Output Power	11b: 18.45 dBm ; 11g: 16.33 dBm ; 11a: 16.44 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

Antenna	Single (TX)		
Band width Mode	20 MHz	40 MHz	80 MHz
IEEE 802.11a	V	X	X
IEEE 802.11b	V	X	X
IEEE 802.11g	V	X	X
IEEE 802.11n	V	V	X
IEEE 802.11ac	V	V	V

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1	MCS 0-7
802.11n (HT40)	1	MCS 0-7
802.11ac (VHT20)	1	MCS 0-8/Nss1
802.11ac (VHT40)	1	MCS 0-9/Nss1
802.11ac (VHT80)	1	MCS 0-9/Nss1

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 and VHT80.

Note 3: Modulation modes consist of below configuration:

11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	LYNwave	ALA110-222050-300011	PIFA Antenna	I-PEX MHF4	3.5	5.0
2	LYNwave	ALA110-222050-300010	PIFA Antenna	I-PEX	3.5	5.0
3	JOYMAX	TWF-614XMPXX-500	Dipole Antenna	I-PEX	3.0	5.0
4	Realtek	PANT-001	SLOT Antenna	I-PEX	3.33	4.52
5	Realtek	PANT-002	SLOT Antenna	I-PEX MHF4	3.33	4.52

There are six configurations of EUT. The more information is listed as below table.

Configuration	Type	Power Type	Antenna Variety	Type of Antenna
1	HMC	PCI-E	Diversity	PIFA with I-PEX connector
				Dipole with I-PEX connector
				SLOT with I-PEX connector
2	HMC	PCI-E	Fixed	PIFA with I-PEX connector
				Dipole with I-PEX connector
				SLOT with I-PEX connector
3	NGFF	PCI-E	Diversity	PIFA with I-PEX MHF4 connector
				SLOT with I-PEX MHF4 connector
4	NGFF	SDIO	Diversity	PIFA with I-PEX MHF4 connector
				SLOT with I-PEX MHF4 connector
5	NGFF	PCI-E	Fixed	PIFA with I-PEX MHF4 connector
				SLOT with I-PEX MHF4 connector
6	NGFF	SDIO	Fixed	PIFA with I-PEX MHF4 connector
				SLOT with I-PEX MHF4 connector

Note: The more detail information of diversity type and fixed type is listed as below.

For diversity type: (Both of those two antenna connectors can be used.)

<For 2.4GHz Band:>

The EUT supports the antenna with TX/RX diversity function for 2.4GHz WLAN and Bluetooth, but only one of them will be used at the same time.

Base on WLAN's operation mode to select the other antenna to work.

(Ex. Assume Main port was selected to conduct transmitting function in 2.4GHz WLAN, so AUX port was selected in Bluetooth Mode. Vice versa.)

<For 5GHz Band:>

The EUT supports the antenna with TX/RX diversity function for 5GHz WLAN and Bluetooth, and both them can transmit and receive signal simultaneously.

For WLAN function (1TX, 1RX):

Both of Chain 1 and Chain 2 can be used as transmitting/receiving functions, but only one antenna can be used as transmitting/receiving functions at the same time.

Chain 1 generated the worst case than Chain 2, so it is tested and recorded in the report.

For Bluetooth function (1TX, 1RX):

Both of Chain 1 and Chain 2 can be used as transmitting/receiving functions, but only one antenna can be used as transmitting/receiving functions at the same time.

Chain 1 generated the worst case than Chain 2, so it is tested and recorded in the report.

For fixed type: (Chain 1 is designated for 2.4 GHz WLAN function, Chain 2 is designated for 5GHz WLAN and Bluetooth functions.)

For 2.4GHz WLAN function (1TX, 1RX):

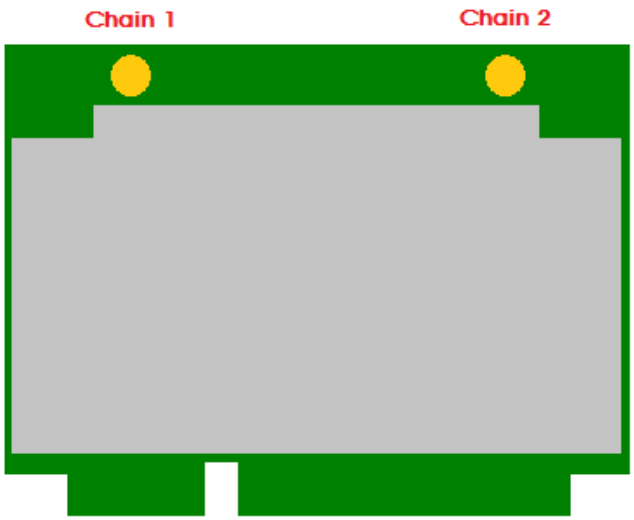
Only Chain 1 can be used as transmitting/receiving functions.

For 5GHz WLAN function (1TX, 1RX):

Only Chain 2 can be used as transmitting/receiving functions.

For Bluetooth function (1TX, 1RX):

Only Chain 2 can be used as transmitting/receiving functions.



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

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

For both 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 three bandwidth systems.

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

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

For 80MHz bandwidth systems, use Channel 155.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz	157	5785 MHz
	151	5755 MHz	159	5795 MHz
	153	5765 MHz	161	5805 MHz
	155	5775 MHz	165	5825 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	1
	11n 40MHz	MCS0	3/6/9	1
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Power Spectral Density	11n 20MHz	MCS0	1/6/11	1
	11n 40MHz	MCS0	3/6/9	1
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
6dB Spectrum Bandwidth	11n 20MHz	MCS0	1/6/11	1
	11n 40MHz	MCS0	3/6/9	1
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11n 20MHz	MCS0	1/6/11	1
	11n 40MHz	MCS0	3/6/9	1
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Band Edge Emissions	11n 20MHz	MCS0	1/6/11	1
	11n 40MHz	MCS0	3/6/9	1
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11ac 20MHz	MCS0/Nss1	149/157/165	1
	11ac 40MHz	MCS0/Nss1	151/159	1
	11ac 80MHz	MCS0/Nss1	155	1
	11a/BPSK	6 Mbps	149/157/165	1
Power Spectral Density	11ac 20MHz	MCS0/Nss1	149/157/165	1
	11ac 40MHz	MCS0/Nss1	151/159	1
	11ac 80MHz	MCS0/Nss1	155	1
	11a/BPSK	6 Mbps	149/157/165	1
6dB Spectrum Bandwidth	11ac 20MHz	MCS0/Nss1	149/157/165	1
	11ac 40MHz	MCS0/Nss1	151/159	1
	11ac 80MHz	MCS0/Nss1	155	1
	11a/BPSK	6 Mbps	149/157/165	1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11ac 20MHz	MCS0/Nss1	149/157/165	1
	11ac 40MHz	MCS0/Nss1	151/159	1
	11ac 80MHz	MCS0/Nss1	155	1
	11a/BPSK	6 Mbps	149/157/165	1
Band Edge Emissions	11ac 20MHz	MCS0/Nss1	149/157/165	1
	11ac 40MHz	MCS0/Nss1	151/159	1
	11ac 80MHz	MCS0/Nss1	155	1
	11a/BPSK	6 Mbps	149/157/165	1

The following test modes were performed for all tests:

For Conducted Emission test:

The mode “diversity + SLOT antenna” has been evaluated to be the worst case for Radiated emission below 1GHz test.

Consequently, measurement for Conducted emission test will follow this same test mode.

Mode 1. HMC + PCI-E + Diversity + SLOT antenna (I-PEX connector)

Mode 2. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 3. NGFF + SDIO + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 2 is found as the worst case among Mode 1 ~ Mode 3, so it was recorded in the report.

For Radiated Emission below 1GHz test:

Mode 1. HMC + PCI-E + Diversity + SLOT antenna (I-PEX connector)

Mode 2. HMC + PCI-E + Fixed + SLOT antenna (I-PEX connector)

Mode 1 is found as the worse case between Mode 1 and Mode 2, thus the measurement (Diversity type) for Mode 3 ~ Mode 8 will follow this same test mode.

Mode 3. HMC + PCI-E + Diversity + PIFA antenna (I-PEX connector)

Mode 4. HMC + PCI-E + Diversity + Dipole antenna (I-PEX connector)

Mode 5. NGFF + SDIO + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 6. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 7. NGFF + SDIO + Diversity + PIFA antenna (I-PEX MHF4 connector)

Mode 8. NGFF + PCI-E + Diversity + PIFA antenna (I-PEX MHF4 connector)

Mode 1 is the worst case, so it was selected to record in this test report.

For Radiated Emission above1GHz test:

Mode 1. HMC + PCI-E + Diversity + SLOT antenna (I-PEX connector)

Mode 2. HMC + PCI-E + Fixed + SLOT antenna (I-PEX connector)

Mode 3. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 4. NGFF + SDIO + Diversity + SLOT antenna (I-PEX MHF4 connector)

Mode 5. NGFF + PCI-E + Fixed + SLOT antenna (I-PEX MHF4 connector)

Mode 6. NGFF + SDIO + Fixed + SLOT antenna (I-PEX MHF4 connector)

Mode 7. HMC + PCI-E + Diversity + PIFA antenna (I-PEX connector)

Mode 8. HMC + PCI-E + Fixed + PIFA antenna (I-PEX connector)

Mode 9. NGFF + PCI-E + Diversity + PIFA antenna (I-PEX MHF4 connector)

Mode 10. NGFF + SDIO + Diversity + PIFA antenna (I-PEX MHF4 connector)

Mode 11. NGFF + PCI-E + Fixed + PIFA antenna (I-PEX MHF4 connector)

Mode 12. NGFF + SDIO + Fixed + PIFA antenna (I-PEX MHF4 connector)

Mode 13. HMC + PCI-E + Diversity + Dipole antenna (I-PEX connector)

Mode 14. HMC + PCI-E + Fixed + Dipole antenna (I-PEX connector)

Mode 3, Mode 9 and Mode 13 generated the worst test result, so these three modes were recorded in the report.

For Other Tests:

After pre-testing, the mode “Configuration 3 + SLOT antenna” has been evaluated to be the worst case for Conducted output power.

Therefore, it was selected to perform other test items and record in the report.

Mode 1. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector)

For Co-location Test:

The mode "PCI-E + diversity" has been evaluated to be the worst case for Radiated emission above 1GHz test.

Consequently, measurement for Co-location test will follow this same test mode.

Mode 1. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector) / 2.4GHz WLAN + Bluetooth

Mode 2. NGFF + PCI-E + Diversity + SLOT antenna (I-PEX MHF4 connector) / 5GHz WLAN + Bluetooth

Mode 3. NGFF + PCI-E + Diversity + PIFA antenna (I-PEX MHF4 connector) / 2.4GHz WLAN + Bluetooth

Mode 4. NGFF + PCI-E + Diversity + PIFA antenna (I-PEX MHF4 connector) / 5GHz WLAN + Bluetooth

Mode 5. HMC + PCI-E + Diversity + Dipole antenna (I-PEX connector) / 2.4GHz WLAN + Bluetooth

Mode 6. HMC + PCI-E + Diversity + Dipole antenna (I-PEX connector) / 5GHz WLAN + Bluetooth

All the test result were recorded in the report.

The EUT could be applied with WLAN function and Bluetooth function; therefore Maximum Permissible Exposure (Please refer to Appendix B) and Co-location (please refer to Appendix C) tests are added for simultaneously transmit between WLAN function and Bluetooth function.

3.6. Table for Testing Locations

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).

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

Test Site: CO01-CB

Support Unit	Brand	Model	FCC ID
Wireless AP	Planex	GW-AP54SGX	N/A
Notebook	DELL	E6430	QDS-BRCM1049LE
Notebook	DELL	E6220	QDS-BRCM1049LE
Mouse	Logitech	M-U0026	DoC
Earphone	SHYARO CHI	MIC-04	N/A
Test Fixture (For HMC type)	REALTEK	PCIE Adapter	N/A
Test Fixture (For NGFF type)	REALTEK	PCIE & SDIO Adapter	N/A

Test Site: 03CH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	QDS-BRCM1049LE
Mouse	Logitech	M-U0026	DoC
Earphone	E-BOOKI	E-EPC040	N/A
Wireless AP	Planex	GW-AP54SGX	N/A
Notebook	DELL	E6430	QDS-BRCM1049LE
Test Fixture (For HMC type)	REALTEK	PCIE Adapter	N/A
Test Fixture (For NGFF type)	REALTEK	PCIE & SDIO Adapter	N/A

Test Site: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6220	D2A62L1989V5
Test Fixture (For HMC type)	REALTEK	PCIE Adapter	N/A
Test Fixture (For NGFF type)	REALTEK	PCIE & SDIO Adapter	N/A

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

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	42	49	42

Power Parameters of IEEE 802.11n MCS0 40MHz

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	44	51	44

Power Parameters of IEEE 802.11b/g

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	38	41	38
IEEE 802.11g	47	49	47

For 5GHz Band

Power Parameters of IEEE 802.11ac MCS0/Nss1 20MHz

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 20MHz	49	50	50

Power Parameters of IEEE 802.11ac MCS0/Nss1 40MHz

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412	
Frequency	5755 MHz	5795 MHz
MCS0/Nss1 40MHz	48	51

Power Parameters of IEEE 802.11ac MCS0/Nss1 80MHz

Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412
Frequency	5775 MHz
MCS0/Nss1 80MHz	45

Power Parameters of IEEE 802.11a

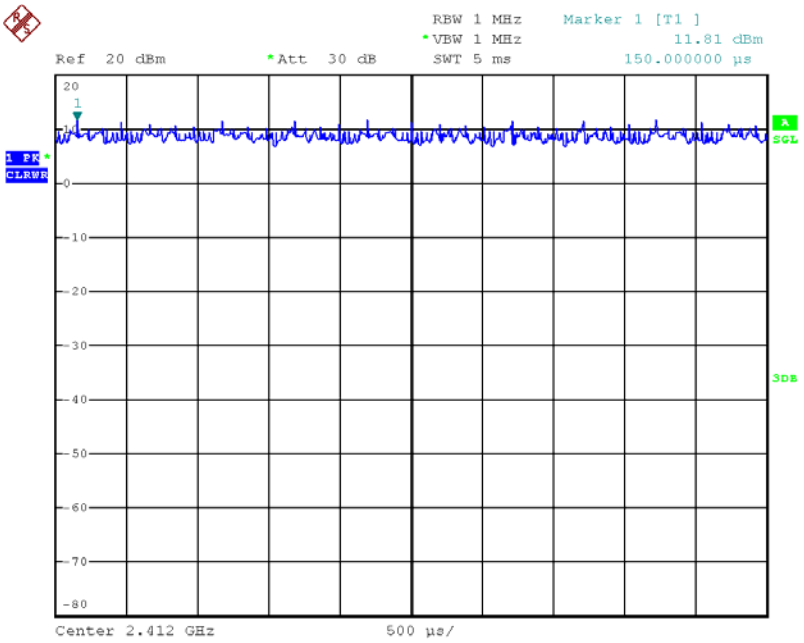
Test Software Version	Realtek 11ac 8821A PCIE WLAN MP Diagnostic Program 0.0032.20130412		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	49	50	50

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 / For 2.4GHz Band



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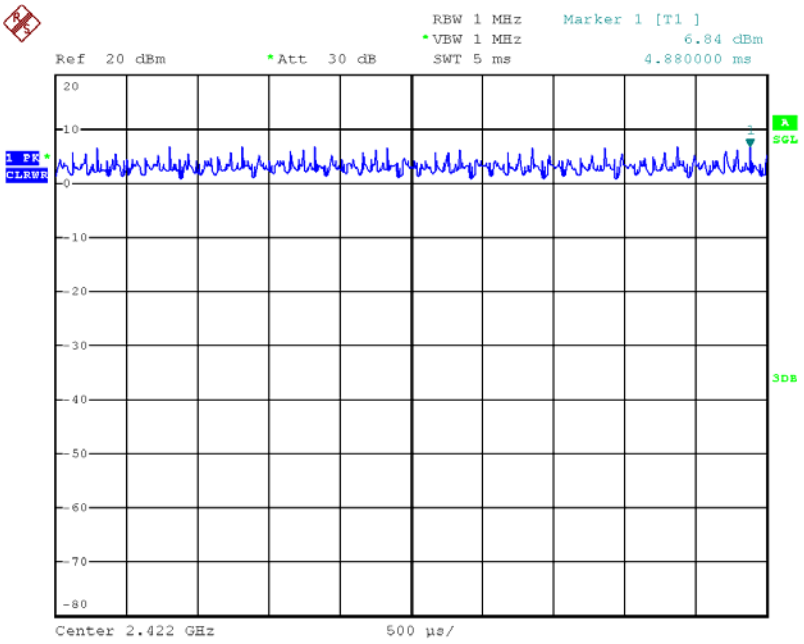
IEEE 802.11n MCS0 40MHz / For 2.4GHz Band



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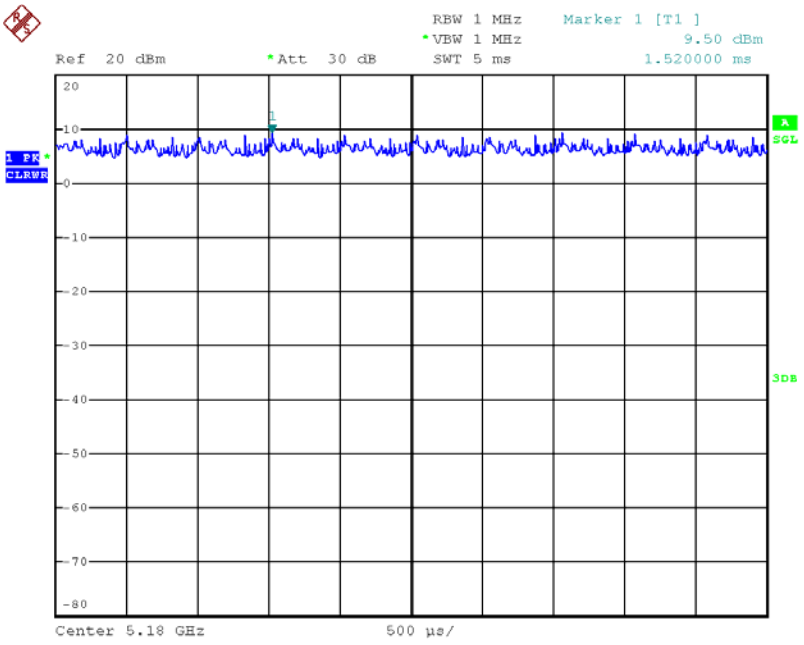
IEEE 802.11ac MCS0/Nss1 20MHz



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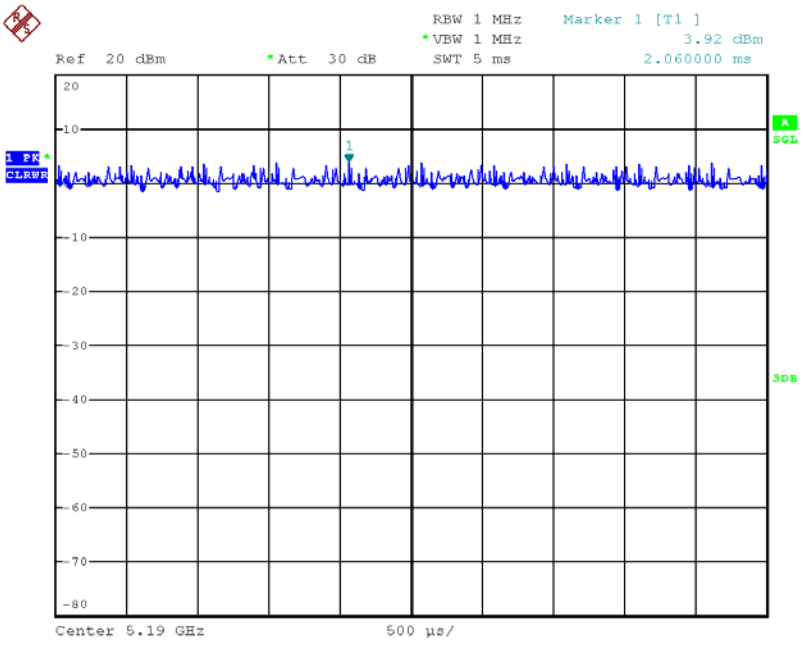

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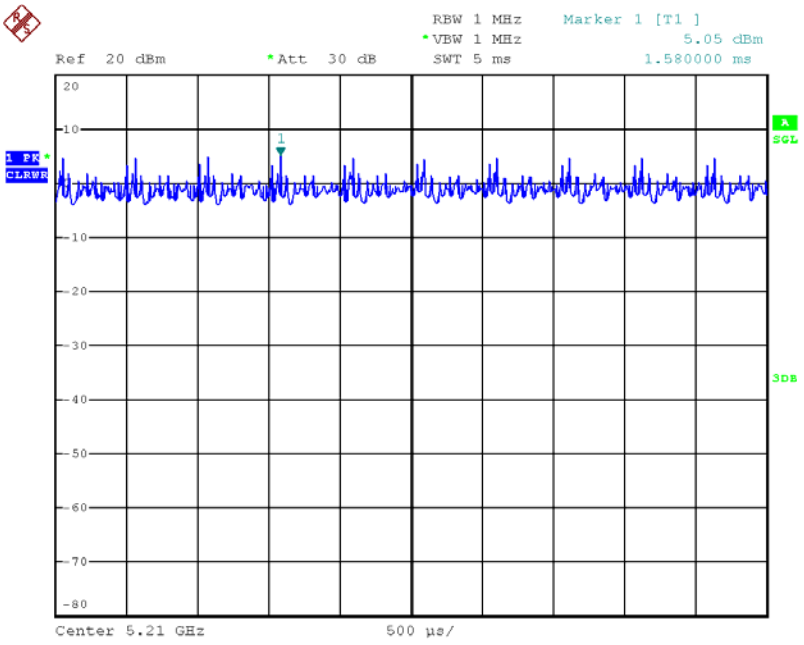
IEEE 802.11ac MCS0/Nss1 80MHz



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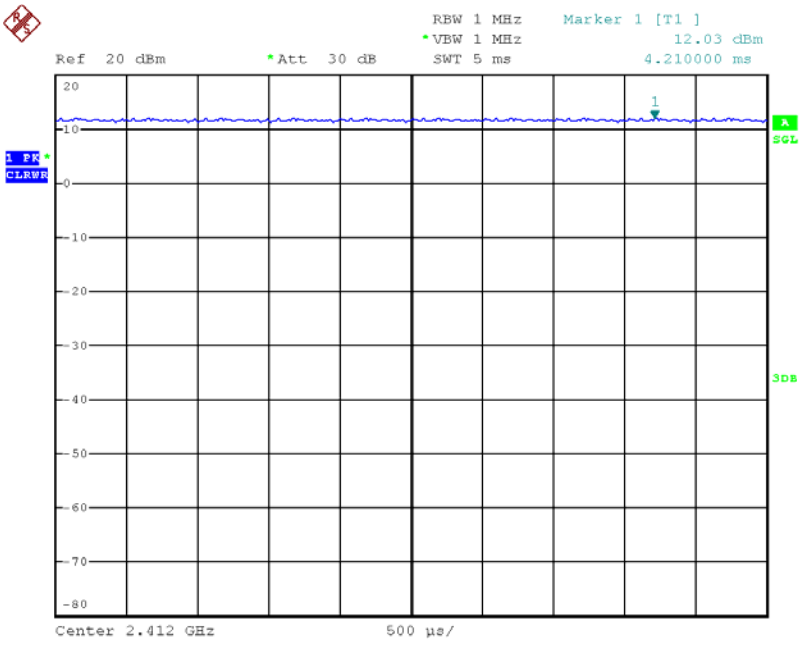
IEEE 802.11b



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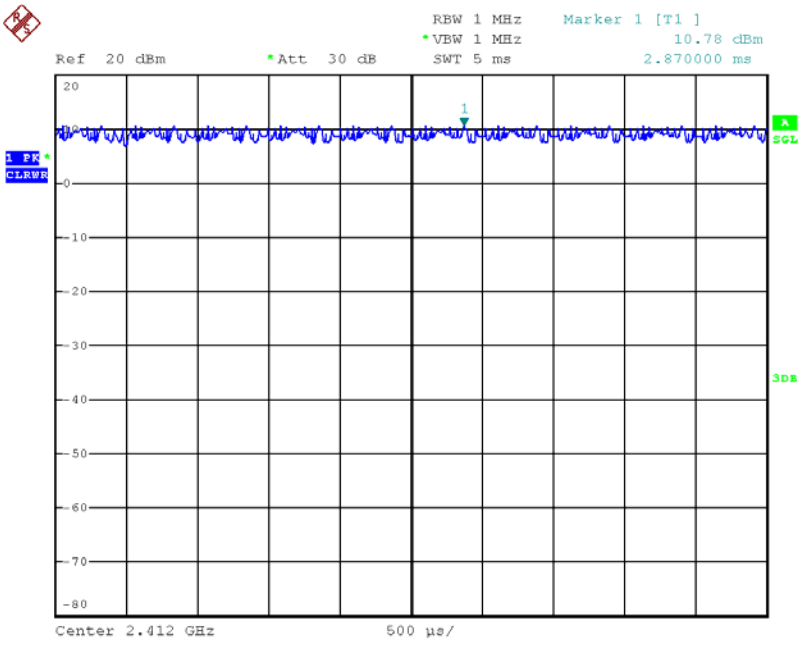
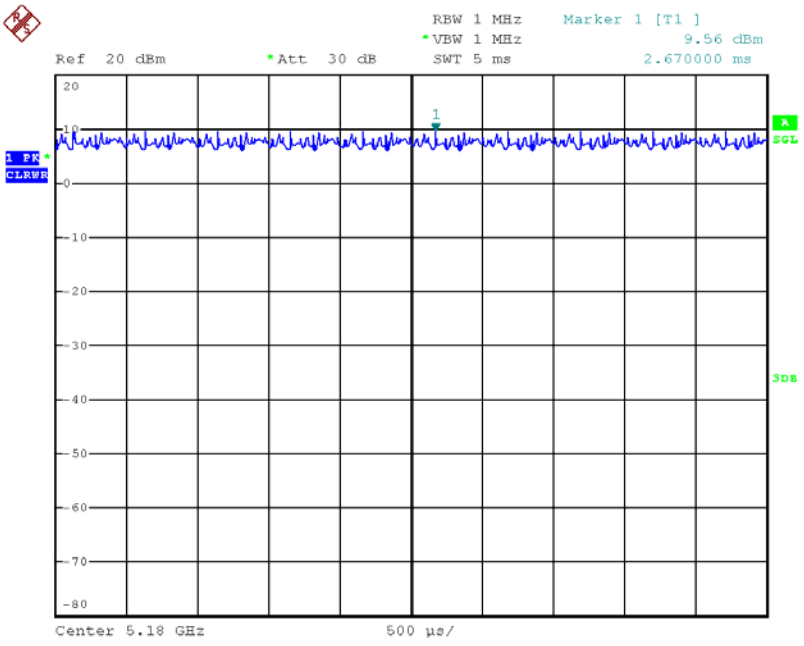
IEEE 802.11g



Date: 28.MAY.2013 22:44:01

IEEE 802.11a

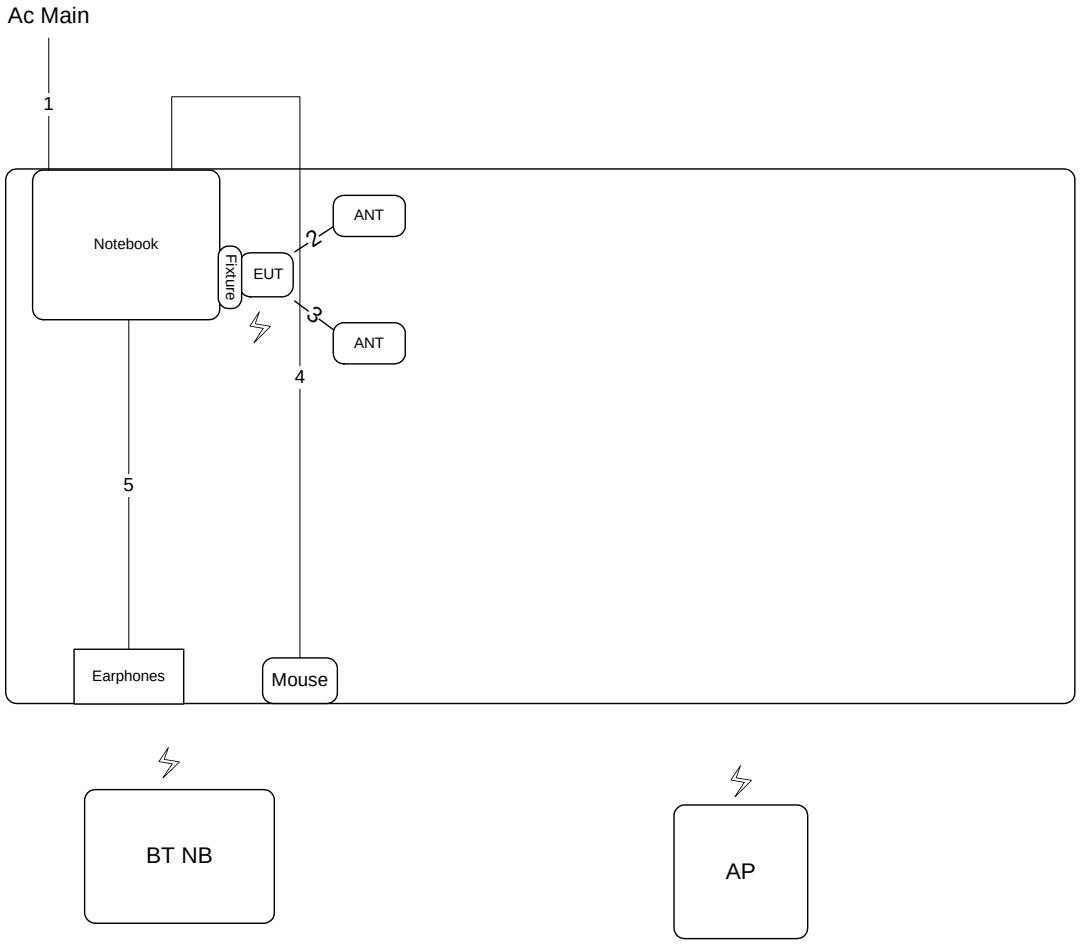


Date: 28.MAY.2013 22:44:59

3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration

Test Mode: Mode 2

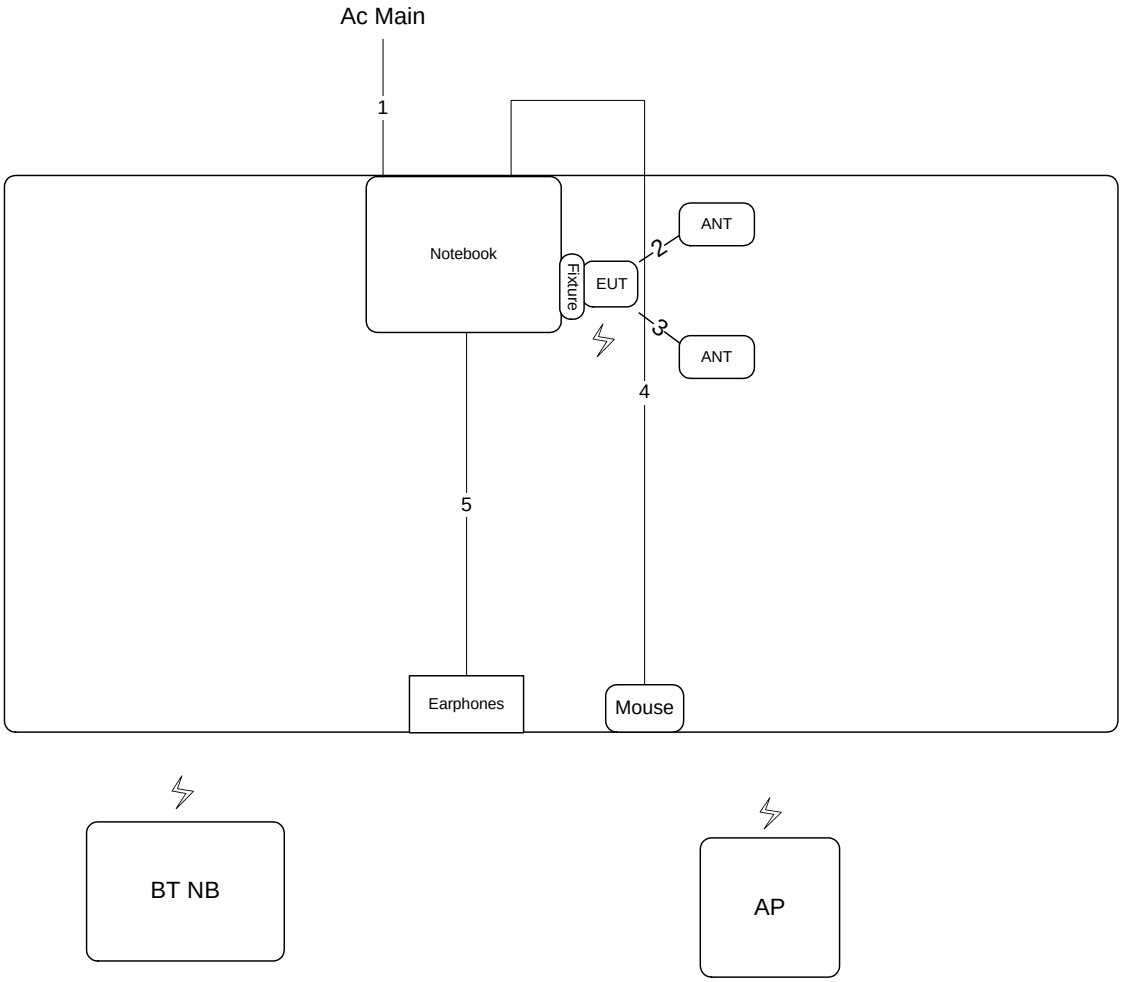


Item	Connection	Shield	Length	Remark
1	Power cable	No	2.6m	-
2	ANT cable	Yes	0.3m	-
3	ANT cable	Yes	0.3m	-
4	USB cable	No	1.8m	-
5	Audio cable	No	1.1m	-

3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz

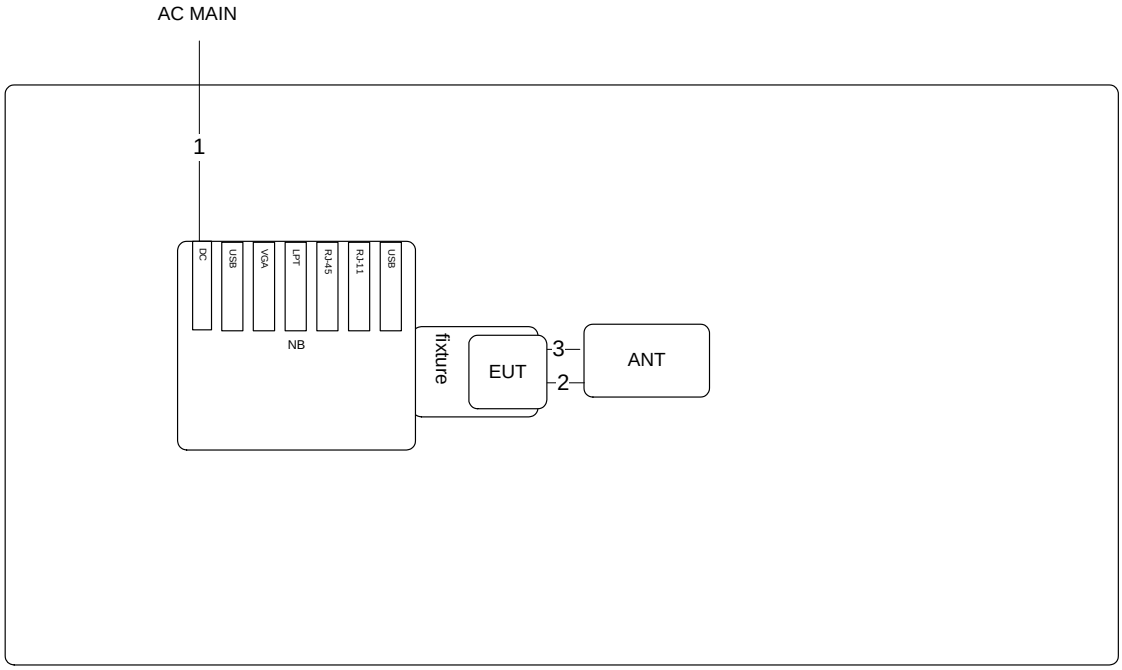
Test Mode: Mode 1



Item	Connection	Shield	Length	Remark
1	Power cable	No	2.6m	-
2	ANT cable	Yes	0.3m	-
3	ANT cable	Yes	0.3m	-
4	USB cable	No	1.8m	-
5	Audio cable	No	1.1m	-

Test Configuration: Radiated emission above 1GHz

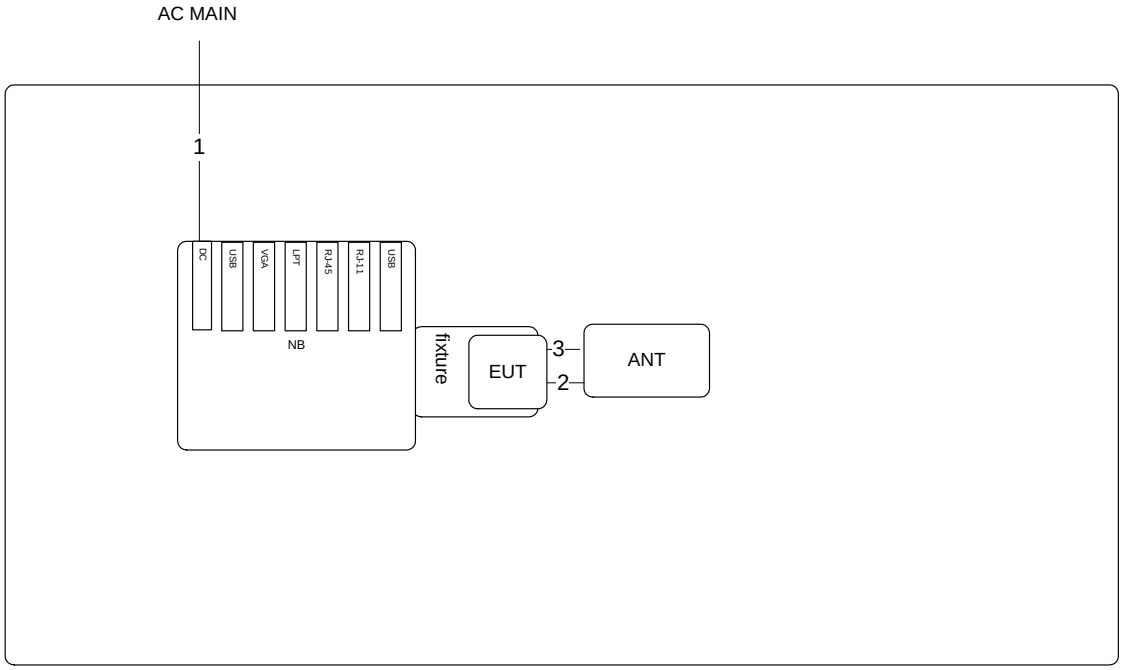
Test Mode: Mode 3 / Mode 9



Item	Connection	Shield	Length	Remark
1	Power cable	No	2.6m	-
2	ANT cable	No	0.3m	-
3	ANT cable	No	0.3m	-

Test Configuration: Radiated emission above 1GHz

Test Mode: Mode 13



Item	Connection	Shield	Length	Remark
1	Power cable	No	2.6m	-
2	ANT cable	No	0.18m	-
3	ANT cable	No	0.18m	-

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

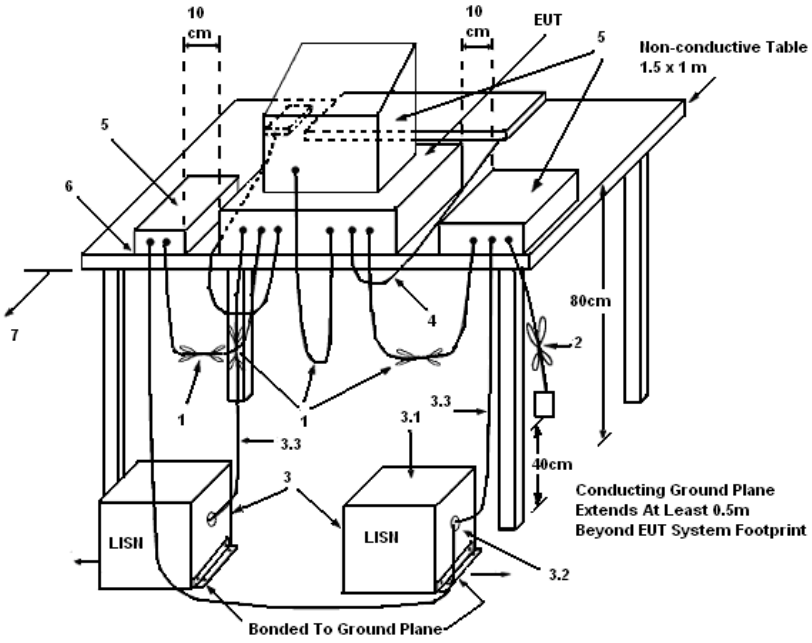
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

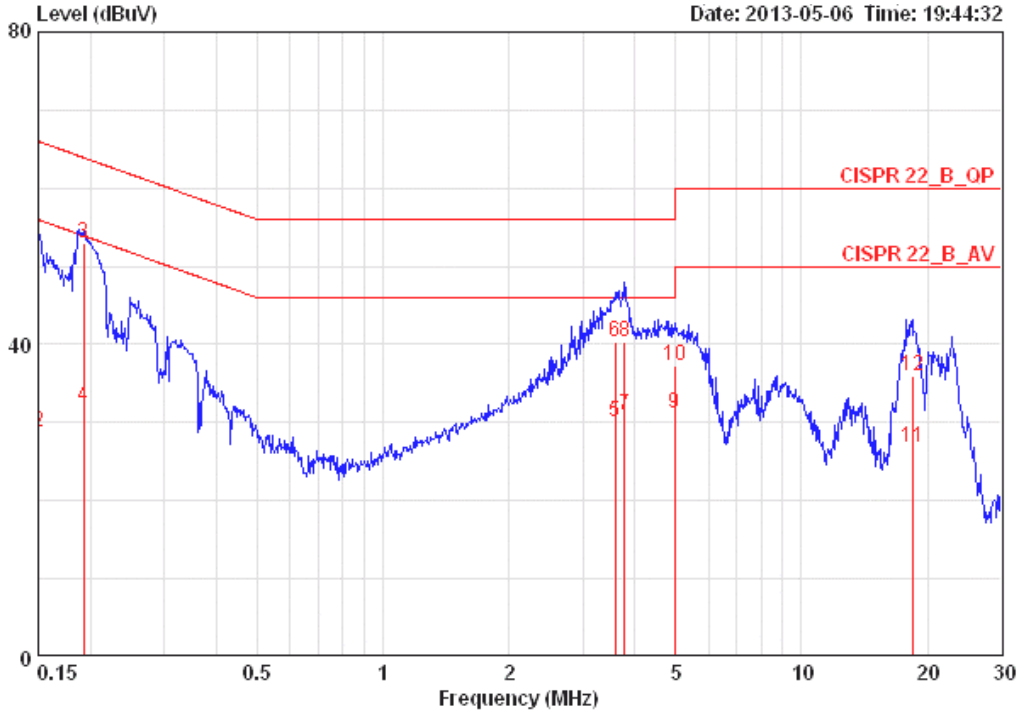
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

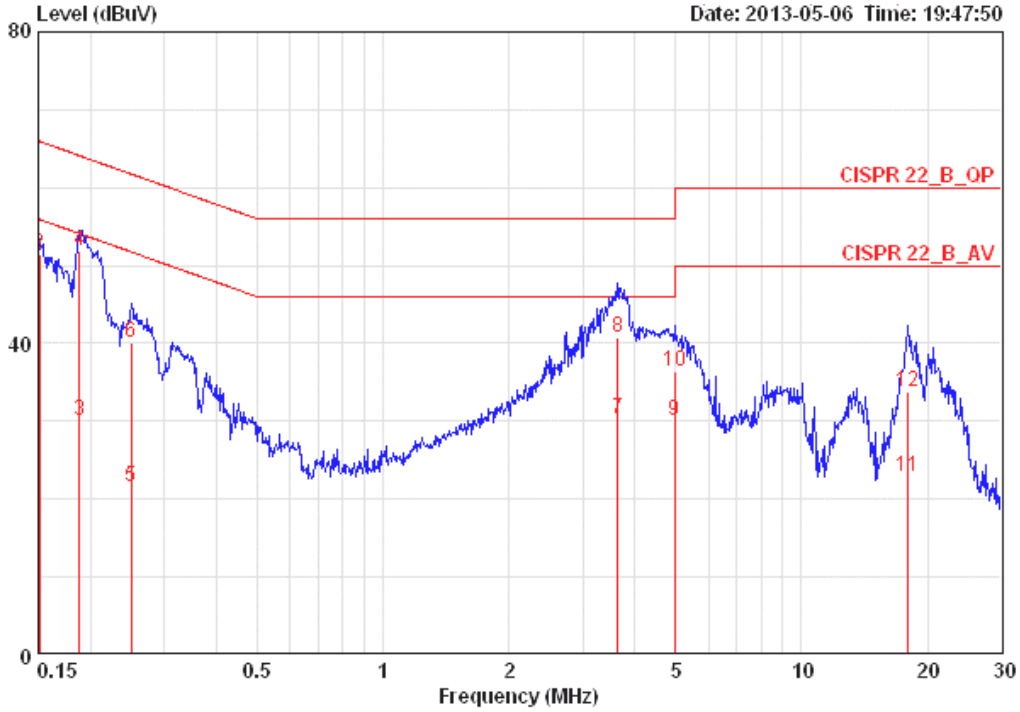
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	60%
Test Engineer	Sin Chang	Phase	Line
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15000	45.07	-20.93	66.00	44.73	0.16	0.18	LINE	QP
2	0.15000	28.87	-27.13	56.00	28.53	0.16	0.18	LINE	AVERAGE
3 @	0.19242	52.96	-10.97	63.93	52.61	0.15	0.20	LINE	QP
4	0.19242	32.06	-21.87	53.93	31.71	0.15	0.20	LINE	AVERAGE
5	3.584	30.19	-15.81	46.00	29.69	0.21	0.28	LINE	AVERAGE
6	3.584	40.30	-15.70	56.00	39.80	0.21	0.28	LINE	QP
7	3.779	30.86	-15.14	46.00	30.35	0.22	0.29	LINE	AVERAGE
8	3.779	40.36	-15.64	56.00	39.85	0.22	0.29	LINE	QP
9	4.978	31.14	-14.86	46.00	30.58	0.24	0.32	LINE	AVERAGE
10	4.978	37.27	-18.73	56.00	36.71	0.24	0.32	LINE	QP
11	18.426	26.90	-23.10	50.00	25.95	0.46	0.49	LINE	AVERAGE
12	18.426	36.01	-23.99	60.00	35.06	0.46	0.49	LINE	QP

Temperature	25°C	Humidity	60%
Test Engineer	Sin Chang	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15080	32.19	-23.77	55.96	31.93	0.08	0.18	NEUTRAL	AVERAGE
2	0.15080	51.40	-14.56	65.96	51.14	0.08	0.18	NEUTRAL	QP
3	0.18838	30.12	-23.99	54.11	29.84	0.08	0.20	NEUTRAL	AVERAGE
4	0.18838	51.89	-12.22	64.11	51.61	0.08	0.20	NEUTRAL	QP
5	0.25078	21.57	-30.16	51.73	21.29	0.08	0.20	NEUTRAL	AVERAGE
6	0.25078	40.21	-21.52	61.73	39.93	0.08	0.20	NEUTRAL	QP
7	3.642	30.28	-15.72	46.00	29.87	0.13	0.28	NEUTRAL	AVERAGE
8	3.642	40.69	-15.31	56.00	40.28	0.13	0.28	NEUTRAL	QP
9	4.978	30.11	-15.89	46.00	29.64	0.15	0.32	NEUTRAL	AVERAGE
10	4.978	36.37	-19.63	56.00	35.90	0.15	0.32	NEUTRAL	QP
11	17.944	22.89	-27.11	50.00	22.05	0.36	0.48	NEUTRAL	AVERAGE
12	17.944	33.77	-26.23	60.00	32.93	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

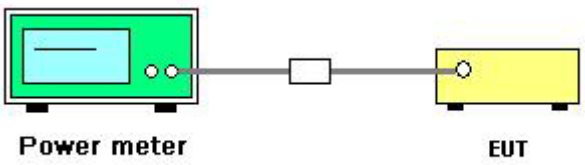
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03 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/ac
Test Date	May 28, 2013	Test Mode	Mode 1

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	13.41	30.00	Complies
6	2437 MHz	16.32	30.00	Complies
11	2462 MHz	13.28	30.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	13.49	30.00	Complies
6	2437 MHz	16.41	30.00	Complies
9	2452 MHz	13.42	30.00	Complies

For 5GHz Band

Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	16.39	30.00	Complies
157	5785 MHz	16.42	30.00	Complies
165	5825 MHz	16.31	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	15.49	30.00	Complies
159	5795 MHz	16.22	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
155	5775 MHz	14.13	30.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a/b/g
Test Date	May 28, 2013	Test Mode	Mode 1

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.28	30.00	Complies
6	2437 MHz	18.45	30.00	Complies
11	2462 MHz	16.35	30.00	Complies

Configuration IEEE 802.11g / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	15.42	30.00	Complies
6	2437 MHz	16.33	30.00	Complies
11	2462 MHz	15.36	30.00	Complies

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	16.33	30.00	Complies
157	5785 MHz	16.44	30.00	Complies
165	5825 MHz	16.28	30.00	Complies

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

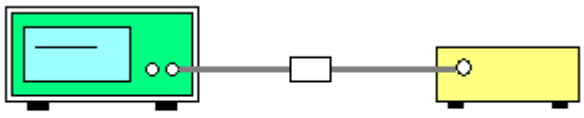
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 v03 section 10.2 Method PKPSD (peak PSD) & KDB 662911 D01 v01r02 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/ac
Test Mode	Mode 1		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	-16.02	8.00	Complies
6	2437 MHz	-11.98	8.00	Complies
11	2462 MHz	-16.04	8.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
3	2422 MHz	-11.74	8.00	Complies
6	2437 MHz	-9.38	8.00	Complies
9	2452 MHz	-13.05	8.00	Complies

For 5GHz Band

Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
149	5745 MHz	-12.05	8.00	Complies
157	5785 MHz	-11.85	8.00	Complies
165	5825 MHz	-12.18	8.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
151	5755 MHz	-15.78	8.00	Complies
159	5795 MHz	-14.21	8.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
155	5775 MHz	-18.57	8.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a/b/g
Test Mode	Mode 1		

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	-15.20	8.00	Complies
6	2437 MHz	-9.59	8.00	Complies
11	2462 MHz	-15.66	8.00	Complies

Configuration IEEE 802.11g / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	-13.56	8.00	Complies
6	2437 MHz	-8.86	8.00	Complies
11	2462 MHz	-11.90	8.00	Complies

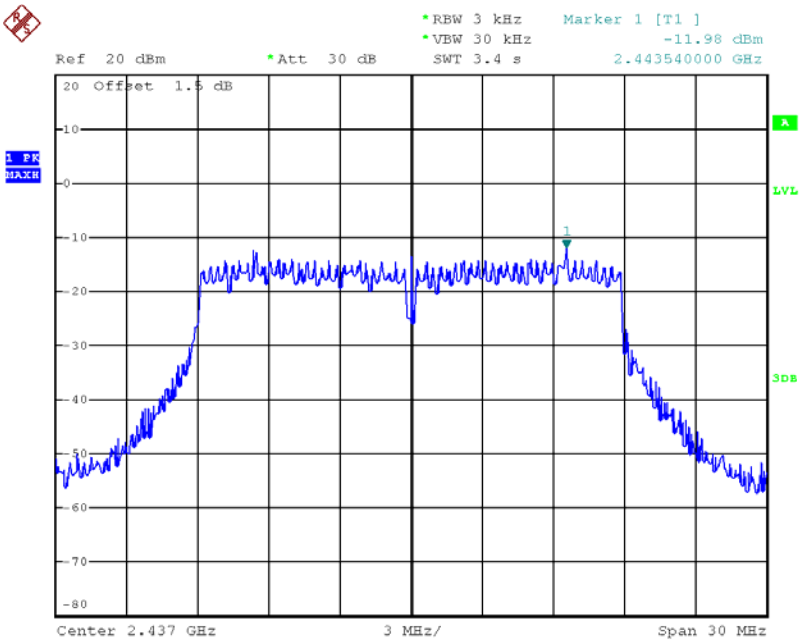
Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
149	5745 MHz	-12.51	8.00	Complies
157	5785 MHz	-11.84	8.00	Complies
165	5825 MHz	-12.26	8.00	Complies

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

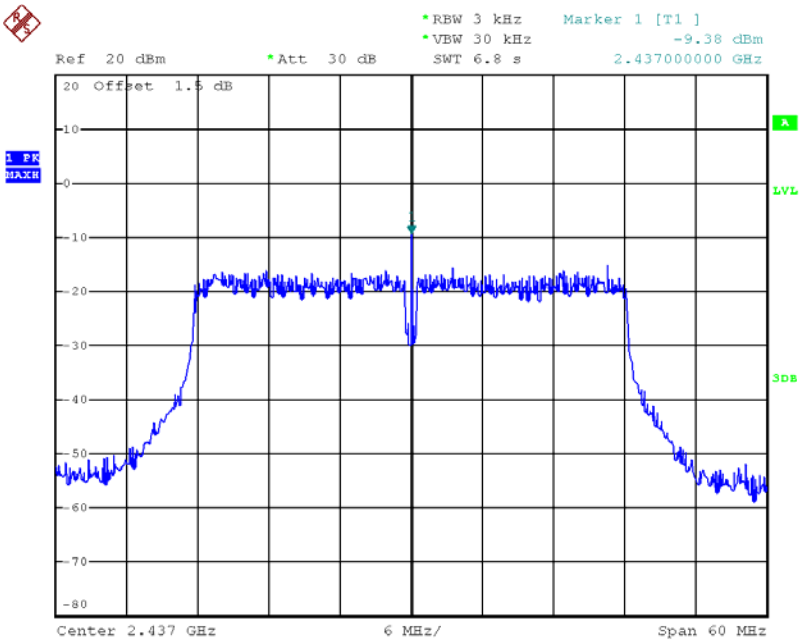
For plots, only the channel with maximum results was shown.

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 2437 MHz



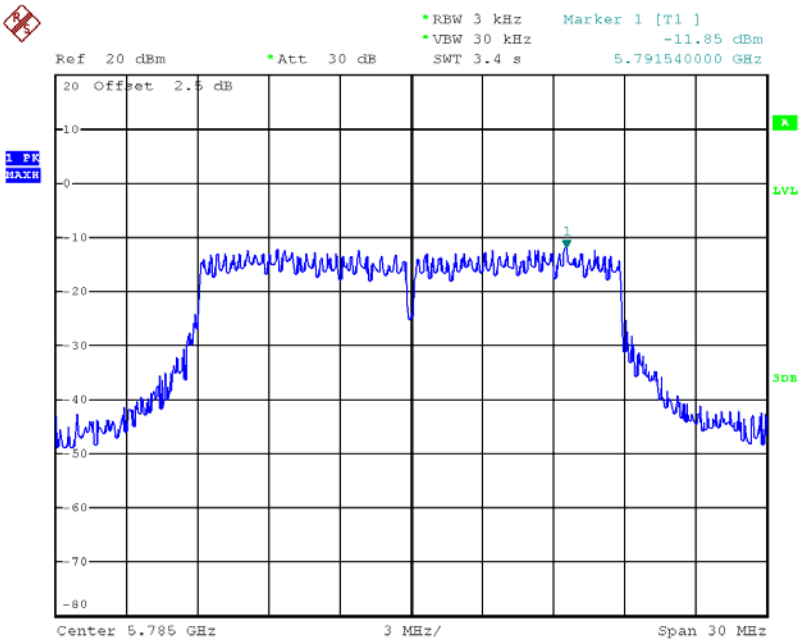
Date: 28.MAY.2013 19:39:40

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 2437 MHz



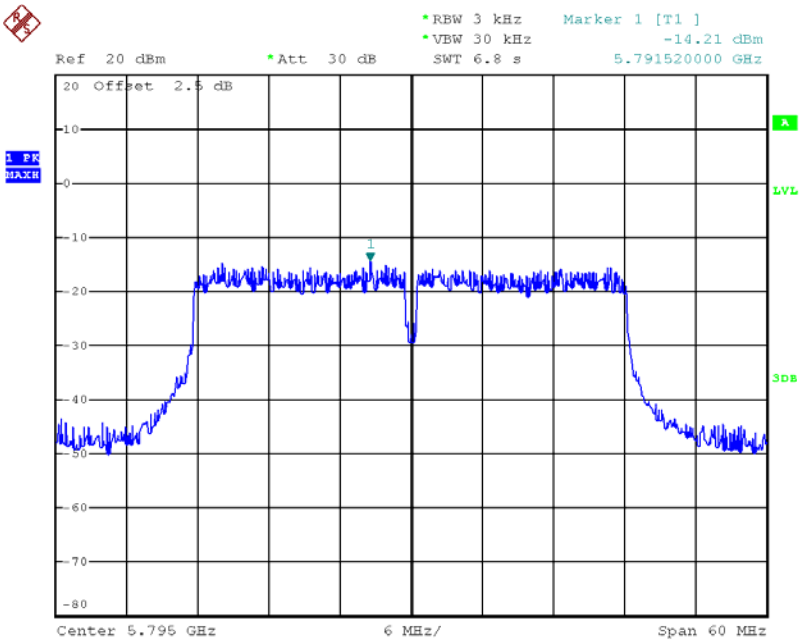
Date: 28.MAY.2013 19:41:21

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Chain 1 / 5785 MHz



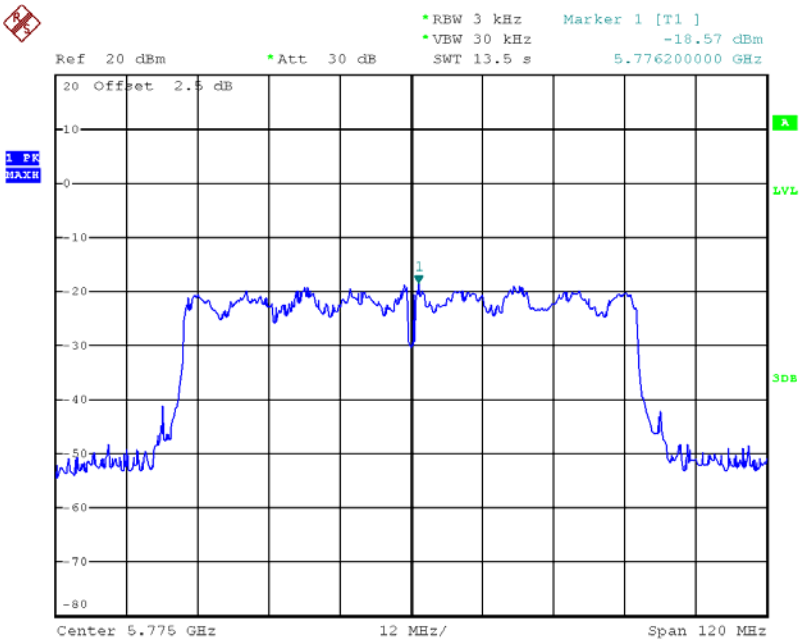
Date: 28.MAY.2013 19:45:07

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Chain 1 / 5795 MHz



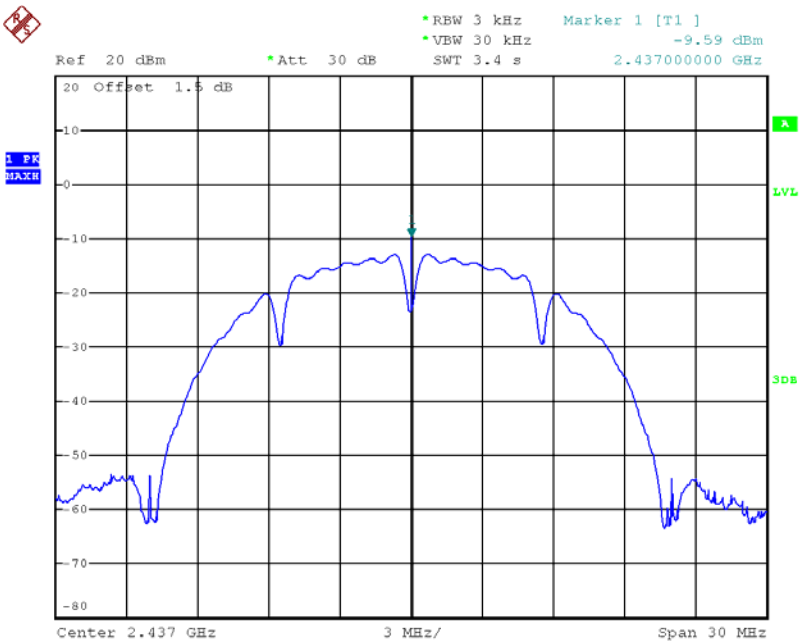
Date: 28.MAY.2013 19:46:55

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 1 / 5775 MHz



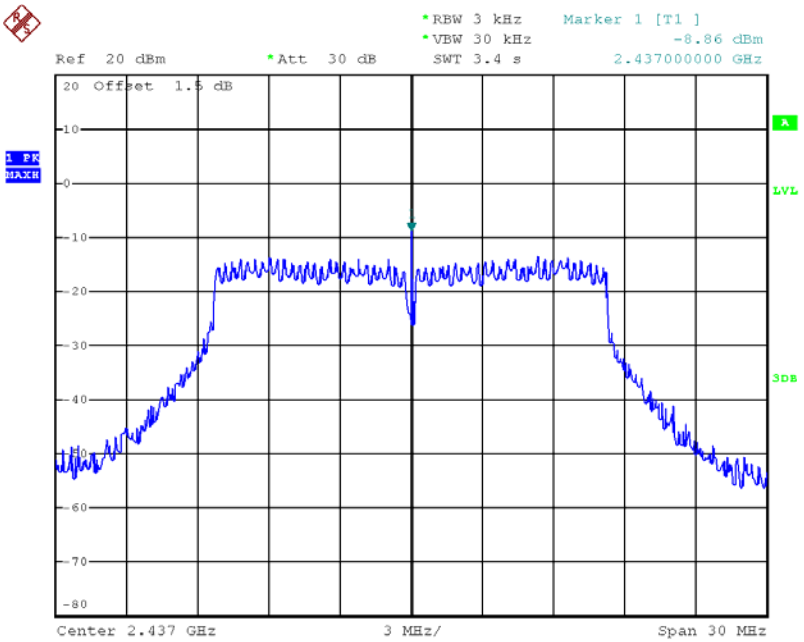
Date: 28.MAY.2013 19:48:14

Power Density Plot on Configuration IEEE 802.11b / Chain 1 / 2437 MHz



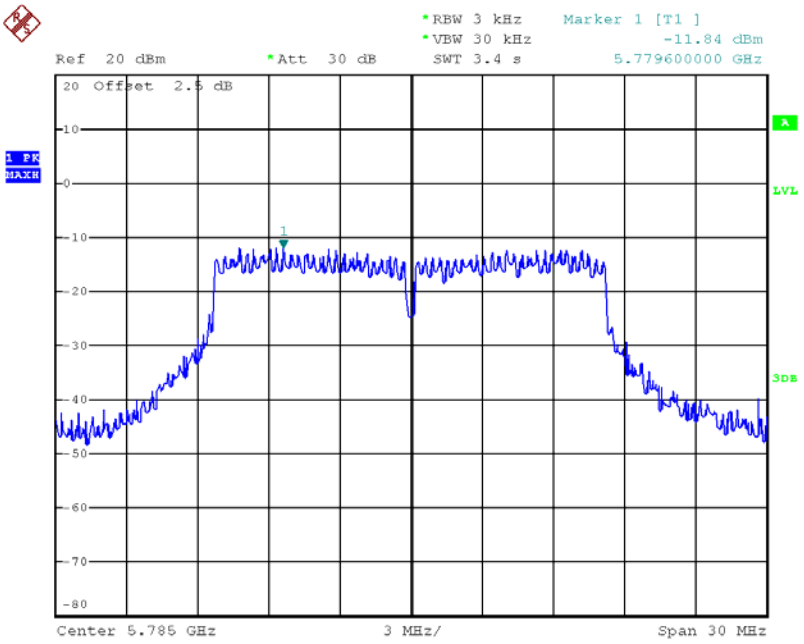
Date: 28.MAY.2013 19:34:18

Power Density Plot on Configuration IEEE 802.11g / Chain 1 / 2437 MHz



Date: 28.MAY.2013 19:36:33

Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5785 MHz



Date: 28.MAY.2013 19:43:26

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

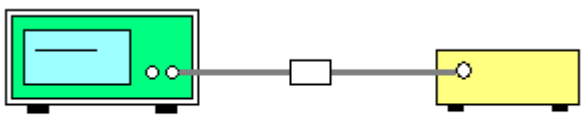
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

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 v03 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 v01r02 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/ac
Test Mode	Mode 1		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

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

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.64	36.32	500	Complies
6	2437 MHz	36.48	36.48	500	Complies
9	2452 MHz	36.48	36.32	500	Complies

For 5GHz Band

Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.68	17.76	500	Complies
157	5785 MHz	17.76	17.76	500	Complies
165	5825 MHz	17.76	17.68	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Chain 1

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

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	76.48	76.16	500	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a/b/g
Test Mode	Mode 1		

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.08	15.20	500	Complies
6	2437 MHz	10.08	15.04	500	Complies
11	2462 MHz	10.08	15.20	500	Complies

Configuration IEEE 802.11g / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.56	16.56	500	Complies
6	2437 MHz	16.56	16.56	500	Complies
11	2462 MHz	16.56	16.56	500	Complies

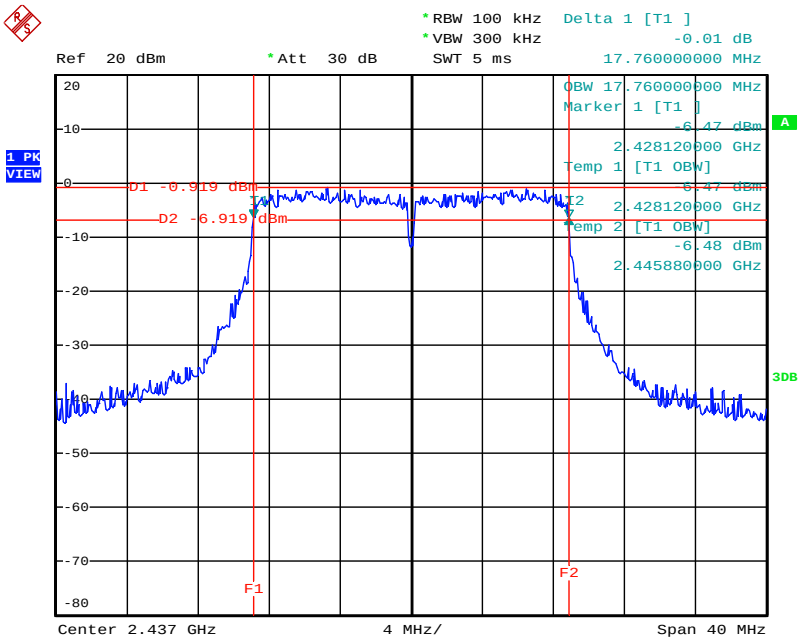
Configuration IEEE 802.11a / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.64	16.64	500	Complies
157	5785 MHz	16.56	16.56	500	Complies
165	5825 MHz	16.56	16.56	500	Complies

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

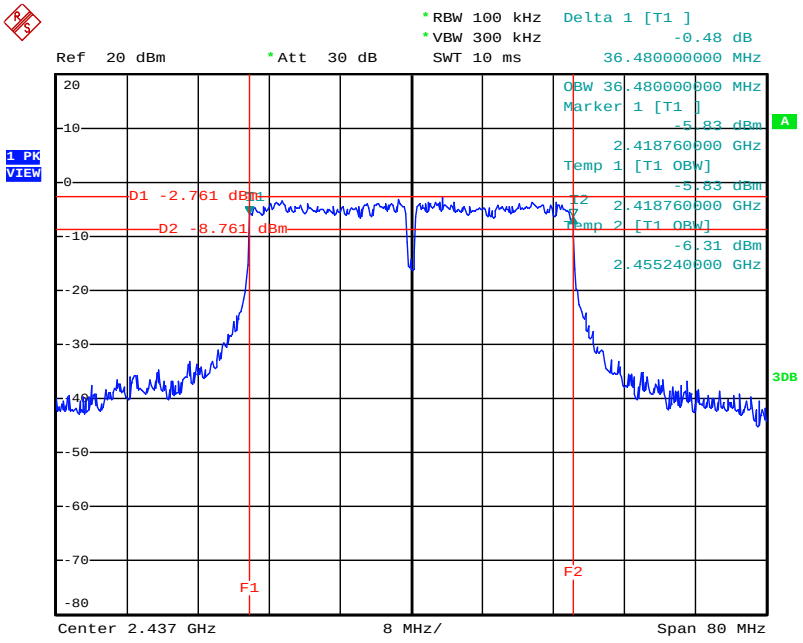
For plots, only the channel with maximum results was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 2437 MHz



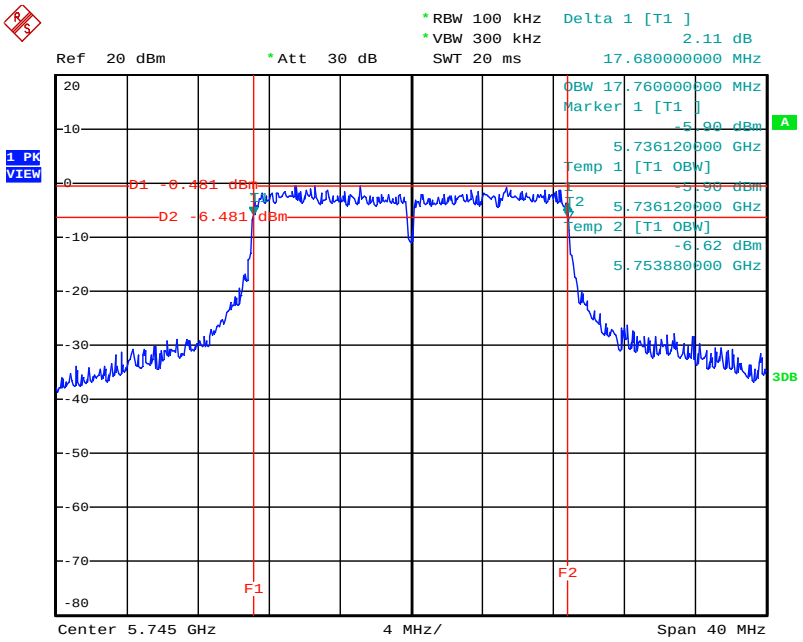
Date: 28.MAY.2013 18:31:43

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 2437 MHz



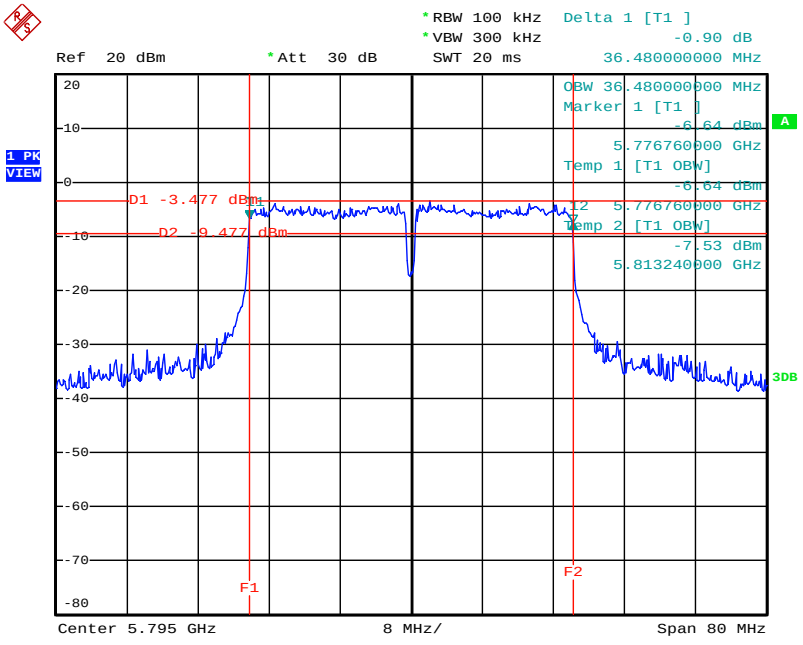
Date: 28.MAY.2013 18:33:13

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Chain 1 / 5745 MHz



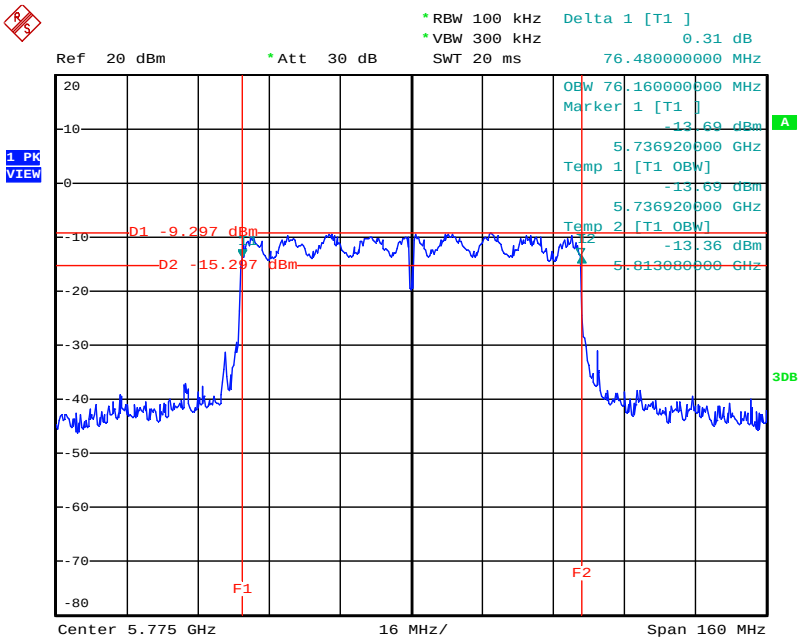
Date: 28.MAY.2013 18:38:57

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Chain 1 / 5795 MHz



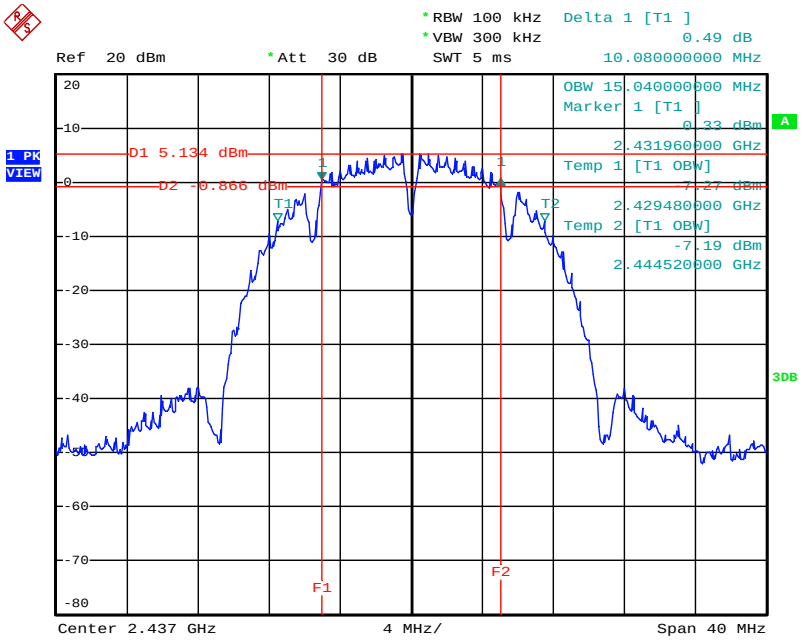
Date: 28.MAY.2013 18:40:16

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 1 / 5775 MHz



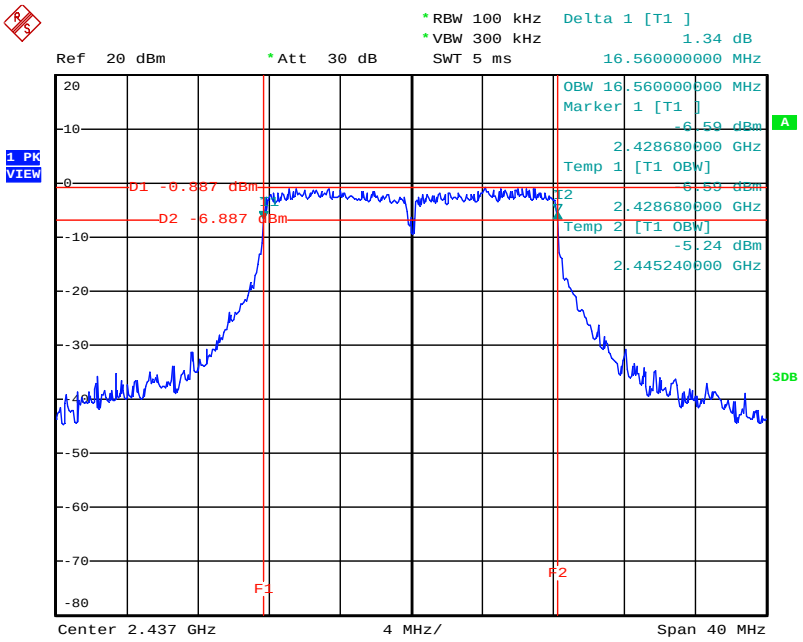
Date: 28.MAY.2013 18:40:56

6 dB Bandwidth Plot on Configuration IEEE 802.11b / Chain 1 / 2437 MHz



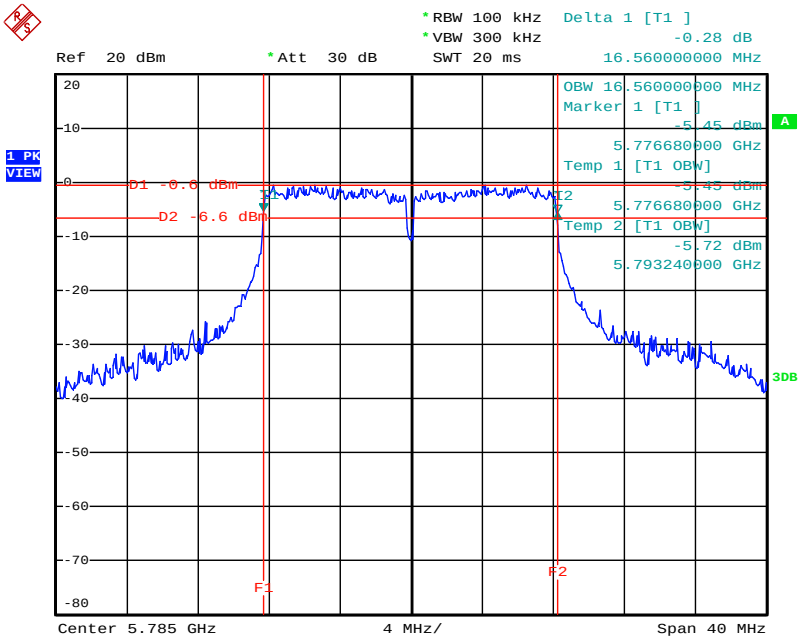
Date: 28.MAY.2013 18:28:16

6 dB Bandwidth Plot on Configuration IEEE 802.11g / Chain 1 / 2437 MHz



Date: 28.MAY.2013 18:30:21

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5785 MHz



Date: 28.MAY.2013 18:37:09

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	1GHz
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

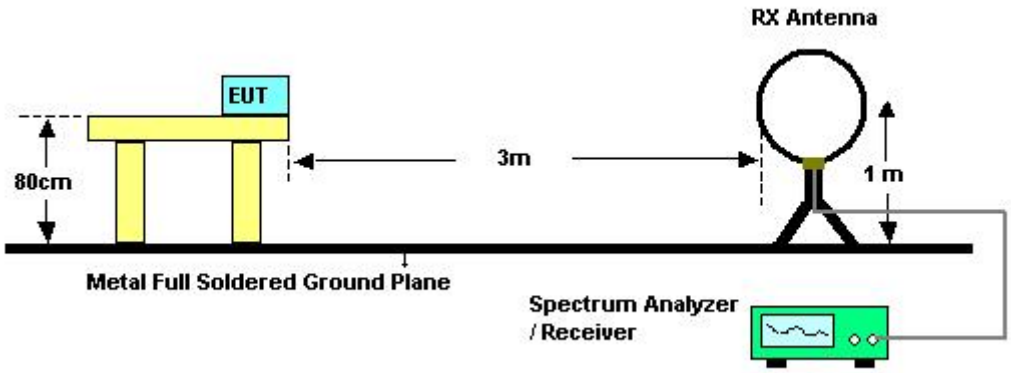
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1GHz / RBW 120kHz for QP

4.5.3. Test Procedures

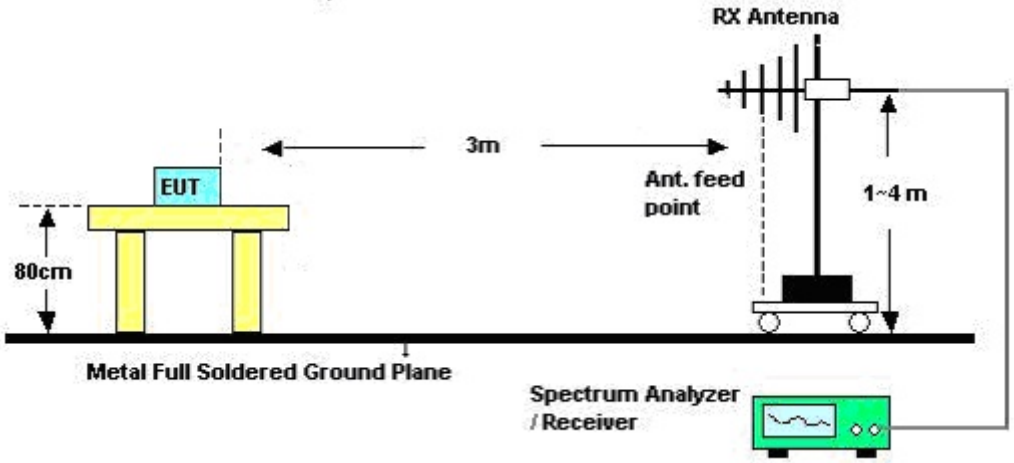
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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 below 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	24.5℃	Humidity	60%
Test Engineer	Kenneth Huang	Configurations	Normal Link
Test Date	May 23, 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.

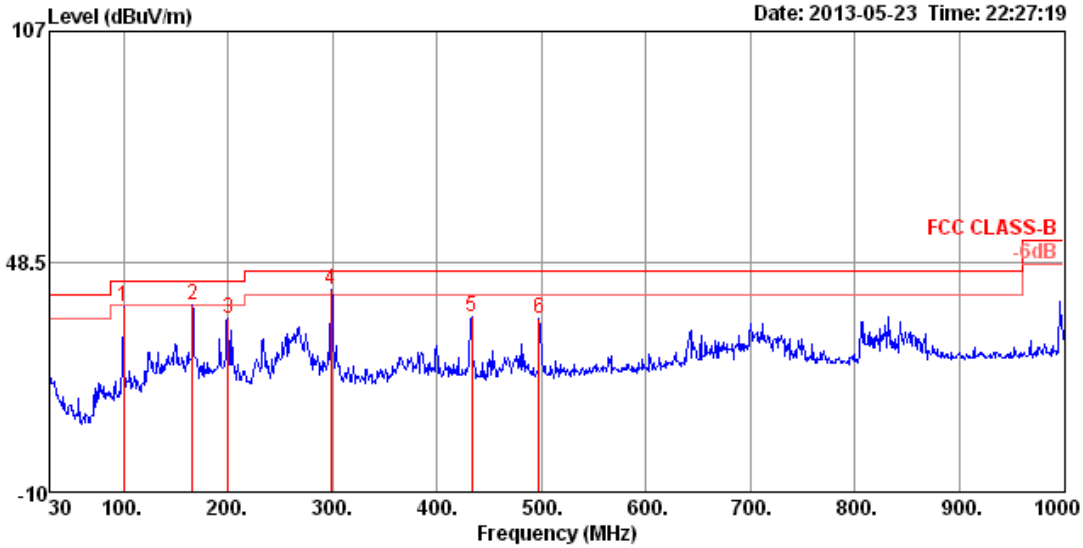
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

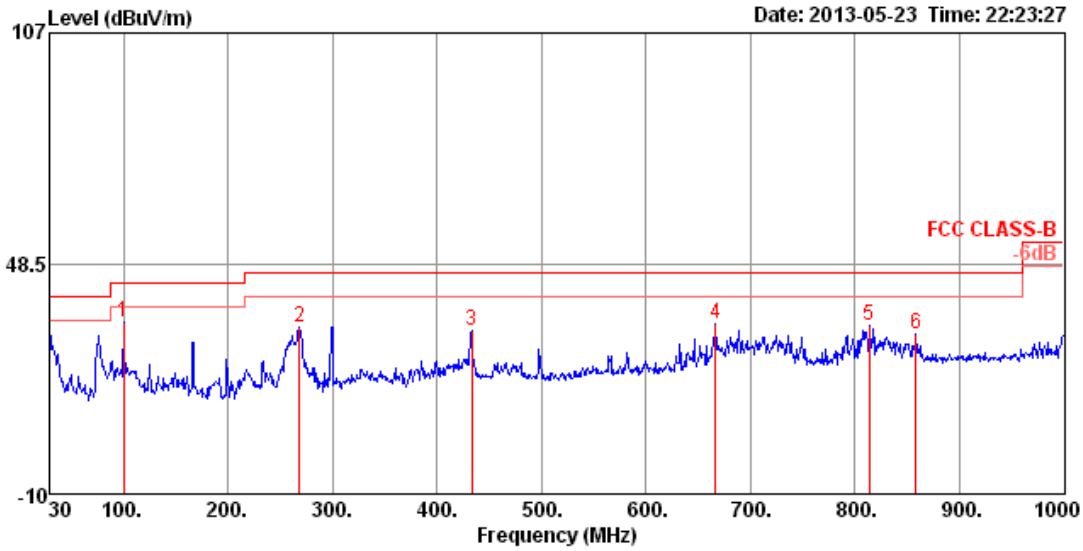
Temperature	24.5°C	Humidity	60%
Test Engineer	Kenneth Huang	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	99.84	37.13	43.50	-6.37	57.25	1.18	10.31	31.61	400	357	HORIZONTAL	Peak
2	165.80	37.46	43.50	-6.04	58.06	1.56	9.38	31.54	300	179	HORIZONTAL	Peak
3	199.75	33.95	43.50	-9.55	55.01	1.70	8.75	31.51	150	174	HORIZONTAL	Peak
4 pp	298.69	41.22	46.00	-4.78	57.55	2.12	12.98	31.43	100	126	HORIZONTAL	Peak
5	433.52	34.65	46.00	-11.35	47.04	2.59	16.17	31.15	100	285	HORIZONTAL	Peak
6	497.54	33.83	46.00	-12.17	45.53	2.81	16.88	31.39	100	130	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 pp	99.84	33.59	43.50	-9.91	53.71	1.18	10.31	31.61	150	242	VERTICAL	Peak
2	268.62	32.23	46.00	-13.77	49.39	1.98	12.41	31.55	150	2	VERTICAL	Peak
3	433.52	31.58	46.00	-14.42	43.97	2.59	16.17	31.15	125	112	VERTICAL	Peak
4	666.32	33.03	46.00	-12.97	42.31	3.31	18.81	31.40	125	315	VERTICAL	Peak
5	813.76	32.90	46.00	-13.10	40.20	3.70	20.21	31.21	100	133	VERTICAL	Peak
6	858.38	30.44	46.00	-15.56	37.51	3.84	20.28	31.19	150	121	VERTICAL	Peak

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	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4823.44	43.65	74.00	-30.35	41.57	4.21	34.69	32.56	Peak	182	100	HORIZONTAL
2 a	4823.93	31.20	54.00	-22.80	29.12	4.21	34.69	32.56	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 a	4823.14	30.86	54.00	-23.14	28.78	4.21	34.69	32.56	Average	246	100	VERTICAL
2 p	4824.36	43.09	74.00	-30.91	41.01	4.21	34.69	32.56	Peak	246	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4873.78	31.89	54.00	-22.11	29.68	4.22	34.67	32.66	Average	215	100	HORIZONTAL
2 p	4876.14	44.48	74.00	-29.52	42.27	4.22	34.67	32.66	Peak	215	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	4871.97	31.19	54.00	-22.81	28.98	4.22	34.67	32.66	Average	176	100	VERTICAL
2 p	4874.00	44.34	74.00	-29.66	42.13	4.22	34.67	32.66	Peak	176	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4922.50	44.78	74.00	-29.22	42.44	4.23	34.65	32.76	Peak	145	100	HORIZONTAL
2 a	4923.85	31.86	54.00	-22.14	29.52	4.23	34.65	32.76	Average	145	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	4922.12	44.43	74.00	-29.57	42.09	4.23	34.65	32.76	Peak	210	100	VERTICAL
2 a	4923.87	31.70	54.00	-22.30	29.36	4.23	34.65	32.76	Average	210	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4845.20	31.37	54.00	-22.63	29.25	4.21	34.68	32.59	Average	154	100	HORIZONTAL
2 p	4845.82	44.51	74.00	-29.49	42.39	4.21	34.68	32.59	Peak	154	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	4844.31	43.96	74.00	-30.04	41.84	4.21	34.68	32.59	Peak	265	100	VERTICAL
2 a	4846.00	31.25	54.00	-22.75	29.13	4.21	34.68	32.59	Average	265	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4873.44	44.63	74.00	-29.37	42.42	4.22	34.67	32.66	Peak	142	100	HORIZONTAL
2 a	4874.01	31.82	54.00	-22.18	29.61	4.22	34.67	32.66	Average	142	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	4872.77	43.92	74.00	-30.08	41.71	4.22	34.67	32.66	Peak	230	100	VERTICAL
2 a	4873.38	31.28	54.00	-22.72	29.07	4.22	34.67	32.66	Average	230	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4902.95	43.60	74.00	-30.40	41.31	4.22	34.66	32.73	Peak	137	100	HORIZONTAL
2 a	4904.04	31.43	54.00	-22.57	29.14	4.22	34.66	32.73	Average	137	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	4904.52	31.32	54.00	-22.68	29.03	4.22	34.66	32.73	Average	243	100	VERTICAL
2 p	4904.88	44.10	74.00	-29.90	41.81	4.22	34.66	32.73	Peak	243	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	11490.24	51.31	74.00	-22.69	40.89	6.74	34.82	38.50	Peak	297	100	HORIZONTAL
2 a	11492.40	38.37	54.00	-15.63	27.95	6.74	34.82	38.50	Average	297	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	11489.29	51.17	74.00	-22.83	40.75	6.74	34.82	38.50	Peak	233	100	VERTICAL
2 a	11489.62	38.18	54.00	-15.82	27.76	6.74	34.82	38.50	Average	233	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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 11567.61	38.70	54.00	-15.30	28.27	6.77	34.84	38.50	Average	240	100	HORIZONTAL
2	p 11572.39	51.47	74.00	-22.53	41.05	6.77	34.85	38.50	Peak	240	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 11568.40	51.41	74.00	-22.59	40.98	6.77	34.84	38.50	Peak	344	100	VERTICAL
2	a 11569.92	38.70	54.00	-15.30	28.28	6.77	34.85	38.50	Average	344	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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 11647.55	51.21	74.00	-22.79	40.78	6.80	34.87	38.50	Peak	264	100	HORIZONTAL
2	a 11647.65	38.99	54.00	-15.01	28.56	6.80	34.87	38.50	Average	264	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 11650.23	38.45	54.00	-15.55	28.02	6.80	34.87	38.50	Average	229	100	VERTICAL
2	p 11650.40	51.68	74.00	-22.32	41.25	6.80	34.87	38.50	Peak	229	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 151 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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 11509.11	38.52	54.00	-15.48	28.09	6.75	34.82	38.50	Average	215	100	HORIZONTAL
2	p 11510.21	51.18	74.00	-22.82	40.75	6.75	34.82	38.50	Peak	215	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 11509.52	50.70	74.00	-23.30	40.27	6.75	34.82	38.50	Peak	268	100	VERTICAL
2	a 11512.40	38.49	54.00	-15.51	28.06	6.75	34.82	38.50	Average	268	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 159 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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 11589.84	39.16	54.00	-14.84	28.73	6.78	34.85	38.50	Average	191	100	HORIZONTAL
2	p 11590.14	51.72	74.00	-22.28	41.29	6.78	34.85	38.50	Peak	191	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 11589.89	51.57	74.00	-22.43	41.14	6.78	34.85	38.50	Peak	257	100	VERTICAL
2	a 11589.93	39.45	54.00	-14.55	29.02	6.78	34.85	38.50	Average	257	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 155 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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 11548.15	38.70	54.00	-15.30	28.28	6.76	34.84	38.50	Average	231	100	HORIZONTAL
2	p 11550.06	52.24	74.00	-21.76	41.81	6.77	34.84	38.50	Peak	231	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 11547.80	38.61	54.00	-15.39	28.19	6.76	34.84	38.50	Average	280	100	VERTICAL
2	p 11551.57	51.71	74.00	-22.29	41.28	6.77	34.84	38.50	Peak	280	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4823.93	46.55	74.00	-27.45	44.47	4.21	34.69	32.56	Peak	188	126	HORIZONTAL
2 a	4823.95	39.17	54.00	-14.83	37.09	4.21	34.69	32.56	Average	188	126	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	4823.96	33.88	54.00	-20.12	31.80	4.21	34.69	32.56	Average	290	129	VERTICAL
2 p	4823.97	43.86	74.00	-30.14	41.78	4.21	34.69	32.56	Peak	290	129	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4873.80	49.03	74.00	-24.97	46.82	4.22	34.67	32.66	Peak	187	123	HORIZONTAL
2 a	4873.96	44.12	54.00	-9.88	41.91	4.22	34.67	32.66	Average	187	123	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	4873.78	46.35	74.00	-27.65	44.14	4.22	34.67	32.66	Peak	209	114	VERTICAL
2 a	4873.90	37.87	54.00	-16.13	35.66	4.22	34.67	32.66	Average	209	114	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4923.89	47.18	74.00	-26.82	44.84	4.23	34.65	32.76	Peak	189	134	HORIZONTAL
2 a	4923.95	40.28	54.00	-13.72	37.94	4.23	34.65	32.76	Average	189	134	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	4923.91	46.41	74.00	-27.59	44.07	4.23	34.65	32.76	Peak	211	100	VERTICAL
2 a	4923.99	35.31	54.00	-18.69	32.97	4.23	34.65	32.76	Average	211	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4824.15	32.01	54.00	-21.99	29.93	4.21	34.69	32.56	Average	149	100	HORIZONTAL
2 p	4825.77	43.64	74.00	-30.36	41.56	4.21	34.69	32.56	Peak	149	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	4824.52	42.85	74.00	-31.15	40.77	4.21	34.69	32.56	Peak	313	100	VERTICAL
2 a	4824.91	30.43	54.00	-23.57	28.35	4.21	34.69	32.56	Average	313	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4873.98	32.05	54.00	-21.95	29.84	4.22	34.67	32.66	Average	180	100	HORIZONTAL
2 p	4873.98	45.84	74.00	-28.16	43.63	4.22	34.67	32.66	Peak	180	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	4873.99	31.00	54.00	-23.00	28.79	4.22	34.67	32.66	Average	290	100	VERTICAL
2 p	4874.00	42.83	74.00	-31.17	40.62	4.22	34.67	32.66	Peak	180	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	4923.29	32.35	54.00	-21.65	30.01	4.23	34.65	32.76	Average	273	100	HORIZONTAL
2 p	4924.47	44.70	74.00	-29.30	42.36	4.23	34.65	32.76	Peak	273	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	4924.25	31.56	54.00	-22.44	29.22	4.23	34.65	32.76	Average	256	100	VERTICAL
2 p	4925.07	45.81	74.00	-28.19	43.47	4.23	34.65	32.76	Peak	256	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	11490.13	39.08	54.00	-14.92	28.66	6.74	34.82	38.50	Average	128	100	HORIZONTAL
2 p	11490.93	51.74	74.00	-22.26	41.32	6.74	34.82	38.50	Peak	128	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	11489.98	39.61	54.00	-14.39	29.19	6.74	34.82	38.50	Average	199	100	VERTICAL
2 p	11490.12	52.35	74.00	-21.65	41.93	6.74	34.82	38.50	Peak	199	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	11570.03	39.17	54.00	-14.83	28.75	6.77	34.85	38.50	Average	202	100	HORIZONTAL
2 p	11570.94	51.81	74.00	-22.19	41.39	6.77	34.85	38.50	Peak	202	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	11569.61	51.97	74.00	-22.03	41.54	6.77	34.84	38.50	Peak	271	100	VERTICAL
2 a	11569.97	39.77	54.00	-14.23	29.35	6.77	34.85	38.50	Average	271	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	11649.77	51.63	74.00	-22.37	41.20	6.80	34.87	38.50	Peak	226	100	HORIZONTAL
2 a	11649.98	38.87	54.00	-15.13	28.44	6.80	34.87	38.50	Average	226	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	11648.87	51.04	74.00	-22.96	40.61	6.80	34.87	38.50	Peak	301	100	VERTICAL
2 a	11650.04	38.31	54.00	-15.69	27.88	6.80	34.87	38.50	Average	301	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.

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4823.54	43.56	74.00	-30.44	41.48	4.21	34.69	32.56	Peak	35	100	HORIZONTAL
2 a	4823.87	31.27	54.00	-22.73	29.19	4.21	34.69	32.56	Average	35	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	4823.04	44.78	74.00	-29.22	42.70	4.21	34.69	32.56	Peak	11	100	VERTICAL
2 a	4824.06	32.10	54.00	-21.90	30.02	4.21	34.69	32.56	Average	11	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4873.52	43.98	74.00	-30.02	41.77	4.22	34.67	32.66	Peak	48	100	HORIZONTAL
2 a	4873.83	31.13	54.00	-22.87	28.92	4.22	34.67	32.66	Average	48	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	4873.08	44.54	74.00	-29.46	42.33	4.22	34.67	32.66	Peak	14	100	VERTICAL
2 a	4873.97	32.26	54.00	-21.74	30.05	4.22	34.67	32.66	Average	14	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4924.27	31.07	54.00	-22.93	28.73	4.23	34.65	32.76	Average	38	100	HORIZONTAL
2 p	4925.67	43.36	74.00	-30.64	41.02	4.23	34.65	32.76	Peak	38	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	4923.85	32.39	54.00	-21.61	30.05	4.23	34.65	32.76	Average	10	100	VERTICAL
2 p	4923.91	44.72	74.00	-29.28	42.38	4.23	34.65	32.76	Peak	10	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4843.95	43.97	74.00	-30.03	41.85	4.21	34.68	32.59	Peak	26	100	HORIZONTAL
2 a	4844.01	31.26	54.00	-22.74	29.14	4.21	34.68	32.59	Average	26	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	4843.95	32.19	54.00	-21.81	30.07	4.21	34.68	32.59	Average	15	100	VERTICAL
2 p	4844.02	44.89	74.00	-29.11	42.77	4.21	34.68	32.59	Peak	15	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4873.71	43.68	74.00	-30.32	41.47	4.22	34.67	32.66	Peak	28	100	HORIZONTAL
2 a	4873.96	31.13	54.00	-22.87	28.92	4.22	34.67	32.66	Average	28	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	4873.98	44.39	74.00	-29.61	42.18	4.22	34.67	32.66	Peak	9	100	VERTICAL
2 a	4874.00	32.21	54.00	-21.79	30.00	4.22	34.67	32.66	Average	9	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4904.56	31.02	54.00	-22.98	28.73	4.22	34.66	32.73	Average	42	100	HORIZONTAL
2 p	4904.86	43.41	74.00	-30.59	41.12	4.22	34.66	32.73	Peak	42	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	4903.86	31.68	54.00	-22.32	29.39	4.22	34.66	32.73	Average	10	100	VERTICAL
2 p	4904.03	44.64	74.00	-29.36	42.35	4.22	34.66	32.73	Peak	10	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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 11489.77	37.49	54.00	-16.51	27.07	6.74	34.82	38.50	Average	198	100	HORIZONTAL
2	p 11490.10	49.72	74.00	-24.28	39.30	6.74	34.82	38.50	Peak	198	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 11489.15	54.26	74.00	-19.74	43.84	6.74	34.82	38.50	Peak	40	100	VERTICAL
2	a 11489.79	40.53	54.00	-13.47	30.11	6.74	34.82	38.50	Average	40	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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 11570.02	39.25	54.00	-14.75	28.83	6.77	34.85	38.50	Average	212	100	HORIZONTAL
2	p 11570.50	52.10	74.00	-21.90	41.68	6.77	34.85	38.50	Peak	212	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 11570.06	43.72	54.00	-10.28	33.30	6.77	34.85	38.50	Average	22	100	VERTICAL
2	p 11570.35	57.66	74.00	-16.34	47.24	6.77	34.85	38.50	Peak	22	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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 11648.84	40.65	54.00	-13.35	30.22	6.80	34.87	38.50	Average	213	100	HORIZONTAL
2	p 11649.34	52.86	74.00	-21.14	42.43	6.80	34.87	38.50	Peak	213	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 11648.32	57.51	74.00	-16.49	47.08	6.80	34.87	38.50	Peak	26	100	VERTICAL
2	a 11649.98	44.03	54.00	-9.97	33.60	6.80	34.87	38.50	Average	26	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 151 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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 11509.14	37.78	54.00	-16.22	27.35	6.75	34.82	38.50	Average	198	100	HORIZONTAL
2	p 11509.93	50.94	74.00	-23.06	40.51	6.75	34.82	38.50	Peak	198	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 11510.05	40.09	54.00	-13.91	29.66	6.75	34.82	38.50	Average	39	100	VERTICAL
2	p 11510.44	53.33	74.00	-20.67	42.90	6.75	34.82	38.50	Peak	39	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 159 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	11590.22	38.89	54.00	-15.11	28.46	6.78	34.85	38.50	Average	178	100	HORIZONTAL
2 p	11590.57	51.33	74.00	-22.67	40.90	6.78	34.85	38.50	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 a	11589.85	43.56	54.00	-10.44	33.13	6.78	34.85	38.50	Average	24	100	VERTICAL
2 p	11589.95	56.48	74.00	-17.52	46.05	6.78	34.85	38.50	Peak	24	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 155 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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 11548.78	51.84	74.00	-22.16	41.41	6.77	34.84	38.50	Peak	201	100	HORIZONTAL
2	a 11551.15	38.98	54.00	-15.02	28.55	6.77	34.84	38.50	Average	201	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 11549.87	40.90	54.00	-13.10	30.47	6.77	34.84	38.50	Average	24	100	VERTICAL
2	p 11550.05	53.69	74.00	-20.31	43.26	6.77	34.84	38.50	Peak	24	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4823.97	38.32	54.00	-15.68	36.24	4.21	34.69	32.56	Average	33	100	HORIZONTAL
2 p	4824.06	46.83	74.00	-27.17	44.75	4.21	34.69	32.56	Peak	33	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	4824.00	40.22	54.00	-13.78	38.14	4.21	34.69	32.56	Average	12	103	VERTICAL
2 p	4824.00	48.24	74.00	-25.76	46.16	4.21	34.69	32.56	Peak	12	103	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4873.98	38.50	54.00	-15.50	36.29	4.22	34.67	32.66	Average	30	111	HORIZONTAL
2 p	4874.04	46.40	74.00	-27.60	44.19	4.22	34.67	32.66	Peak	30	111	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	4873.94	42.03	54.00	-11.97	39.82	4.22	34.67	32.66	Average	8	114	VERTICAL
2 p	4874.03	48.05	74.00	-25.95	45.84	4.22	34.67	32.66	Peak	8	114	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4923.84	45.36	74.00	-28.64	43.02	4.23	34.65	32.76	Peak	28	108	HORIZONTAL
2 a	4924.03	35.69	54.00	-18.31	33.35	4.23	34.65	32.76	Average	28	108	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	4923.97	37.64	54.00	-16.36	35.30	4.23	34.65	32.76	Average	12	100	VERTICAL
2 p	4924.08	46.70	74.00	-27.30	44.36	4.23	34.65	32.76	Peak	12	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4823.04	44.45	74.00	-29.55	42.37	4.21	34.69	32.56	Peak	26	100	HORIZONTAL
2 a	4824.13	31.44	54.00	-22.56	29.36	4.21	34.69	32.56	Average	26	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	4823.73	44.40	74.00	-29.60	42.32	4.21	34.69	32.56	Peak	15	100	VERTICAL
2 a	4824.10	32.48	54.00	-21.52	30.40	4.21	34.69	32.56	Average	15	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4874.01	31.36	54.00	-22.64	29.15	4.22	34.67	32.66	Average	27	100	HORIZONTAL
2 p	4874.54	44.12	74.00	-29.88	41.91	4.22	34.67	32.66	Peak	27	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	4873.68	44.85	74.00	-29.15	42.64	4.22	34.67	32.66	Peak	13	100	VERTICAL
2 a	4874.01	32.41	54.00	-21.59	30.20	4.22	34.67	32.66	Average	13	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	4924.11	31.80	54.00	-22.20	29.46	4.23	34.65	32.76	Average	47	100	HORIZONTAL
2 p	4924.17	44.58	74.00	-29.42	42.24	4.23	34.65	32.76	Peak	47	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	4924.06	32.65	54.00	-21.35	30.31	4.23	34.65	32.76	Average	8	100	VERTICAL
2 p	4924.66	44.77	74.00	-29.23	42.43	4.23	34.65	32.76	Peak	8	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	11489.69	50.74	74.00	-23.26	40.32	6.74	34.82	38.50	Peak	201	100	HORIZONTAL
2 a	11489.72	37.51	54.00	-16.49	27.09	6.74	34.82	38.50	Average	201	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	11489.83	40.41	54.00	-13.59	29.99	6.74	34.82	38.50	Average	11	100	VERTICAL
2 p	11491.63	53.32	74.00	-20.68	42.90	6.74	34.82	38.50	Peak	11	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	11569.78	38.89	54.00	-15.11	28.47	6.77	34.85	38.50	Average	192	100	HORIZONTAL
2 p	11569.94	51.70	74.00	-22.30	41.28	6.77	34.85	38.50	Peak	192	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	11570.12	43.88	54.00	-10.12	33.46	6.77	34.85	38.50	Average	17	100	VERTICAL
2 p	11570.25	57.20	74.00	-16.80	46.78	6.77	34.85	38.50	Peak	17	100	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	11648.28	41.05	54.00	-12.95	30.62	6.80	34.87	38.50	Average	265	100	HORIZONTAL
2 p	11648.62	52.51	74.00	-21.49	42.08	6.80	34.87	38.50	Peak	265	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	11649.91	44.09	54.00	-9.91	33.66	6.80	34.87	38.50	Average	46	100	VERTICAL
2 p	11650.48	56.46	74.00	-17.54	46.03	6.80	34.87	38.50	Peak	46	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.

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4823.54	30.59	54.00	-23.41	28.51	4.21	34.69	32.56	Average	219	100	HORIZONTAL
2 p	4823.63	43.12	74.00	-30.88	41.04	4.21	34.69	32.56	Peak	219	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	4823.98	44.51	74.00	-29.49	42.43	4.21	34.69	32.56	Peak	330	121	VERTICAL
2 a	4824.00	32.73	54.00	-21.27	30.65	4.21	34.69	32.56	Average	330	121	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4873.10	43.94	74.00	-30.06	41.73	4.22	34.67	32.66	Peak	228	100	HORIZONTAL
2 a	4873.47	30.36	54.00	-23.64	28.15	4.22	34.67	32.66	Average	228	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	4873.88	32.68	54.00	-21.32	30.47	4.22	34.67	32.66	Average	345	123	VERTICAL
2 p	4873.92	45.40	74.00	-28.60	43.19	4.22	34.67	32.66	Peak	345	123	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4923.51	31.52	54.00	-22.48	29.18	4.23	34.65	32.76	Average	259	100	HORIZONTAL
2 p	4924.32	44.06	74.00	-29.94	41.72	4.23	34.65	32.76	Peak	259	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	4923.72	45.93	74.00	-28.07	43.59	4.23	34.65	32.76	Peak	329	125	VERTICAL
2 a	4923.89	34.04	54.00	-19.96	31.70	4.23	34.65	32.76	Average	329	125	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4843.14	43.56	74.00	-30.44	41.44	4.21	34.68	32.59	Peak	196	100	HORIZONTAL
2 a	4843.61	30.79	54.00	-23.21	28.67	4.21	34.68	32.59	Average	196	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	4843.95	32.91	54.00	-21.09	30.79	4.21	34.68	32.59	Average	326	130	VERTICAL
2 p	4844.13	45.34	74.00	-28.66	43.22	4.21	34.68	32.59	Peak	326	130	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4874.08	31.14	54.00	-22.86	28.93	4.22	34.67	32.66	Average	204	100	HORIZONTAL
2 p	4874.82	43.63	74.00	-30.37	41.42	4.22	34.67	32.66	Peak	204	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	4873.92	45.89	74.00	-28.11	43.68	4.22	34.67	32.66	Peak	324	120	VERTICAL
2 a	4873.99	33.37	54.00	-20.63	31.16	4.22	34.67	32.66	Average	324	120	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4903.85	31.39	54.00	-22.61	29.10	4.22	34.66	32.73	Average	191	100	HORIZONTAL
2 p	4904.80	43.94	74.00	-30.06	41.65	4.22	34.66	32.73	Peak	191	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	4903.99	34.02	54.00	-19.98	31.73	4.22	34.66	32.73	Average	332	126	VERTICAL
2 p	4904.15	45.37	74.00	-28.63	43.08	4.22	34.66	32.73	Peak	332	126	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	11487.74	51.74	74.00	-22.26	41.32	6.74	34.82	38.50	Peak	80	100	HORIZONTAL
2 a	11490.00	39.36	54.00	-14.64	28.94	6.74	34.82	38.50	Average	80	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	11489.04	55.19	74.00	-18.81	44.77	6.74	34.82	38.50	Peak	278	135	VERTICAL
2 a	11489.88	42.29	54.00	-11.71	31.87	6.74	34.82	38.50	Average	278	135	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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 11569.90	39.55	54.00	-14.45	29.13	6.77	34.85	38.50	Average	86	100	HORIZONTAL
2	p 11574.32	52.78	74.00	-21.22	42.36	6.77	34.85	38.50	Peak	86	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 11569.76	54.95	74.00	-19.05	44.53	6.77	34.85	38.50	Peak	263	115	VERTICAL
2	a 11569.90	43.50	54.00	-10.50	33.08	6.77	34.85	38.50	Average	263	115	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 20MHz CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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 11647.60	52.48	74.00	-21.52	42.05	6.80	34.87	38.50	Peak	86	100	HORIZONTAL
2	a 11649.94	39.70	54.00	-14.30	29.27	6.80	34.87	38.50	Average	86	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 11649.96	43.06	54.00	-10.94	32.63	6.80	34.87	38.50	Average	262	114	VERTICAL
2	p 11650.12	54.07	74.00	-19.93	43.64	6.80	34.87	38.50	Peak	262	114	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 151 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	11510.04	39.30	54.00	-14.70	28.87	6.75	34.82	38.50	Average	76	100	HORIZONTAL
2 p	11514.60	51.81	74.00	-22.19	41.37	6.76	34.82	38.50	Peak	76	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	11510.04	41.44	54.00	-12.56	31.01	6.75	34.82	38.50	Average	279	118	VERTICAL
2 p	11510.14	53.54	74.00	-20.46	43.11	6.75	34.82	38.50	Peak	279	118	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 40MHz CH 159 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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 11589.87	52.80	74.00	-21.20	42.37	6.78	34.85	38.50	Peak	88	100	HORIZONTAL
2	a 11590.09	39.53	54.00	-14.47	29.10	6.78	34.85	38.50	Average	88	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 11589.99	42.39	54.00	-11.61	31.96	6.78	34.85	38.50	Average	261	119	VERTICAL
2	p 11590.05	53.73	74.00	-20.27	43.30	6.78	34.85	38.50	Peak	261	119	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 155 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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 11548.88	53.39	74.00	-20.61	42.96	6.77	34.84	38.50	Peak	90	100	HORIZONTAL
2	a 11551.82	39.22	54.00	-14.78	28.79	6.77	34.84	38.50	Average	90	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 11549.92	42.78	54.00	-11.22	32.35	6.77	34.84	38.50	Average	264	111	VERTICAL
2	p 11549.95	54.06	74.00	-19.94	43.63	6.77	34.84	38.50	Peak	264	111	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4823.58	44.63	74.00	-29.37	42.55	4.21	34.69	32.56	Peak	252	100	HORIZONTAL
2 a	4823.94	32.39	54.00	-21.61	30.31	4.21	34.69	32.56	Average	252	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	4823.96	45.63	54.00	-8.37	43.55	4.21	34.69	32.56	Average	335	131	VERTICAL
2 p	4823.99	50.10	74.00	-23.90	48.02	4.21	34.69	32.56	Peak	335	131	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4873.88	44.81	74.00	-29.19	42.60	4.22	34.67	32.66	Peak	253	100	HORIZONTAL
2 a	4873.98	33.02	54.00	-20.98	30.81	4.22	34.67	32.66	Average	253	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	4873.93	50.52	74.00	-23.48	48.31	4.22	34.67	32.66	Peak	333	112	VERTICAL
2 a	4873.96	45.98	54.00	-8.02	43.77	4.22	34.67	32.66	Average	333	112	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4923.96	32.74	54.00	-21.26	30.40	4.23	34.65	32.76	Average	302	100	HORIZONTAL
2 p	4924.28	45.17	74.00	-28.83	42.83	4.23	34.65	32.76	Peak	302	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	4923.94	44.41	54.00	-9.59	42.07	4.23	34.65	32.76	Average	332	111	VERTICAL
2 p	4924.02	49.87	74.00	-24.13	47.53	4.23	34.65	32.76	Peak	332	111	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4823.94	30.64	54.00	-23.36	28.56	4.21	34.69	32.56	Average	256	100	HORIZONTAL
2 p	4824.15	43.71	74.00	-30.29	41.63	4.21	34.69	32.56	Peak	256	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	4823.85	45.54	74.00	-28.46	43.46	4.21	34.69	32.56	Peak	334	121	VERTICAL
2 a	4823.87	33.73	54.00	-20.27	31.65	4.21	34.69	32.56	Average	334	121	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 6 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4874.08	43.96	74.00	-30.04	41.75	4.22	34.67	32.66	Peak	244	100	HORIZONTAL
2 a	4874.47	31.15	54.00	-22.85	28.94	4.22	34.67	32.66	Average	244	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	4873.92	45.81	74.00	-28.19	43.60	4.22	34.67	32.66	Peak	332	127	VERTICAL
2 a	4874.02	35.05	54.00	-18.95	32.84	4.22	34.67	32.66	Average	332	127	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	4923.80	31.83	54.00	-22.17	29.49	4.23	34.65	32.76	Average	270	100	HORIZONTAL
2 p	4924.29	44.89	74.00	-29.11	42.55	4.23	34.65	32.76	Peak	270	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	4924.10	35.39	54.00	-18.61	33.05	4.23	34.65	32.76	Average	332	123	VERTICAL
2 p	4924.49	47.38	74.00	-26.62	45.04	4.23	34.65	32.76	Peak	332	123	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	11485.72	51.55	74.00	-22.45	41.13	6.74	34.82	38.50	Peak	356	100	HORIZONTAL
2 a	11491.64	38.90	54.00	-15.10	28.48	6.74	34.82	38.50	Average	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 a	11489.86	44.50	54.00	-9.50	34.08	6.74	34.82	38.50	Average	283	143	VERTICAL
2 p	11492.08	57.37	74.00	-16.63	46.95	6.74	34.82	38.50	Peak	283	143	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	11569.14	52.28	74.00	-21.72	41.85	6.77	34.84	38.50	Peak	82	100	HORIZONTAL
2 a	11570.90	39.62	54.00	-14.38	29.20	6.77	34.85	38.50	Average	82	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	11569.96	54.32	74.00	-19.68	43.90	6.77	34.85	38.50	Peak	282	130	VERTICAL
2 a	11569.96	44.51	54.00	-9.49	34.09	6.77	34.85	38.50	Average	282	130	VERTICAL

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	11645.78	52.72	74.00	-21.28	42.28	6.80	34.86	38.50	Peak	83	100	HORIZONTAL
2 a	11649.86	39.44	54.00	-14.56	29.01	6.80	34.87	38.50	Average	83	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	11649.90	42.19	54.00	-11.81	31.76	6.80	34.87	38.50	Average	200	113	VERTICAL
2 p	11652.18	55.05	74.00	-18.95	44.62	6.80	34.87	38.50	Peak	200	113	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, 1 MHz / 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 v03 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	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	63.32	74.00	-10.68	32.54	2.91	0.00	27.87	Peak	196	152	HORIZONTAL
2	2390.00	47.56	54.00	-6.44	16.78	2.91	0.00	27.87	Average	196	152	HORIZONTAL
3 a	2406.20	98.35			67.59	2.92	0.00	27.84	Average	196	152	HORIZONTAL
4 p	2406.60	108.27			77.51	2.92	0.00	27.84	Peak	196	152	HORIZONTAL

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	2390.00	54.32	74.00	-19.68	23.54	2.91	0.00	27.87	Peak	194	149	HORIZONTAL
2	2390.00	43.67	54.00	-10.33	12.89	2.91	0.00	27.87	Average	194	149	HORIZONTAL
3 a	2431.20	100.84			70.10	2.93	0.00	27.81	Average	194	149	HORIZONTAL
4 p	2434.00	110.98			80.24	2.93	0.00	27.81	Peak	194	149	HORIZONTAL
5	2483.50	43.72	54.00	-10.28	13.03	2.96	0.00	27.73	Average	194	149	HORIZONTAL
6	2483.70	54.23	74.00	-19.77	23.54	2.96	0.00	27.73	Peak	194	149	HORIZONTAL

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	2455.00	107.67			76.96	2.95	0.00	27.76	Peak	197	154	HORIZONTAL
2 a	2456.20	97.95			67.24	2.95	0.00	27.76	Average	197	154	HORIZONTAL
3	2483.50	47.06	54.00	-6.94	16.37	2.96	0.00	27.73	Average	197	154	HORIZONTAL
4	2484.90	63.07	74.00	-10.93	32.38	2.96	0.00	27.73	Peak	197	154	HORIZONTAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	2386.00	61.81	74.00	-12.19	31.03	2.91	0.00	27.87	Peak	192	154	HORIZONTAL
2	2390.00	47.95	54.00	-6.05	17.17	2.91	0.00	27.87	Average	192	154	HORIZONTAL
3 a	2425.20	95.52			64.78	2.93	0.00	27.81	Average	192	154	HORIZONTAL
4 p	2436.00	105.21			74.47	2.93	0.00	27.81	Peak	192	154	HORIZONTAL

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	67.50	74.00	-6.50	36.72	2.91	0.00	27.87	Peak	198	150	HORIZONTAL
2 !	2390.00	52.07	54.00	-1.93	21.29	2.91	0.00	27.87	Average	198	150	HORIZONTAL
3 p	2435.00	107.88			77.14	2.93	0.00	27.81	Peak	198	150	HORIZONTAL
4 a	2435.00	98.25			67.51	2.93	0.00	27.81	Average	198	150	HORIZONTAL
5	2483.50	66.67	74.00	-7.33	35.98	2.96	0.00	27.73	Peak	198	150	HORIZONTAL
6 !	2483.50	52.25	54.00	-1.75	21.56	2.96	0.00	27.73	Average	198	150	HORIZONTAL

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	2450.00	104.31			73.59	2.94	0.00	27.78	Peak	199	154	HORIZONTAL
2 a	2453.60	95.16			64.45	2.95	0.00	27.76	Average	199	154	HORIZONTAL
3	2483.50	59.28	74.00	-14.72	28.59	2.96	0.00	27.73	Peak	199	154	HORIZONTAL
4 !	2483.50	48.59	54.00	-5.41	17.90	2.96	0.00	27.73	Average	199	154	HORIZONTAL

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

Note:

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

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	2385.80	58.23	74.00	-15.77	27.45	2.91	0.00	27.87	Peak	192	154	HORIZONTAL
2	2385.80	46.84	54.00	-7.16	16.06	2.91	0.00	27.87	Average	192	154	HORIZONTAL
3 p	2411.00	109.88			79.12	2.92	0.00	27.84	Peak	192	154	HORIZONTAL
4 a	2411.20	106.03			75.27	2.92	0.00	27.84	Average	192	154	HORIZONTAL

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	2388.80	55.62	74.00	-18.38	24.84	2.91	0.00	27.87	Peak	195	150	HORIZONTAL
2	2390.00	44.01	54.00	-9.99	13.23	2.91	0.00	27.87	Average	195	150	HORIZONTAL
3 a	2436.20	108.04			77.30	2.93	0.00	27.81	Average	195	150	HORIZONTAL
4 p	2438.00	112.05			81.33	2.94	0.00	27.78	Peak	195	150	HORIZONTAL
5	2483.50	43.73	54.00	-10.27	13.04	2.96	0.00	27.73	Average	195	150	HORIZONTAL
6	2485.50	55.60	74.00	-18.40	24.91	2.96	0.00	27.73	Peak	195	150	HORIZONTAL

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 p	2463.00	108.91			78.20	2.95	0.00	27.76	Peak	201	149	HORIZONTAL
2 a	2463.80	104.89			74.18	2.95	0.00	27.76	Average	201	149	HORIZONTAL
3 !	2488.10	48.12	54.00	-5.88	17.45	2.97	0.00	27.70	Average	201	149	HORIZONTAL
4	2488.50	58.29	74.00	-15.71	27.62	2.97	0.00	27.70	Peak	201	149	HORIZONTAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 3

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	66.89	74.00	-7.11	36.11	2.91	0.00	27.87	Peak	187	155	HORIZONTAL
2	!	2390.00	51.01	54.00	-2.99	20.23	2.91	0.00	27.87	Average	187	155	HORIZONTAL
3	a	2405.20	100.41			69.65	2.92	0.00	27.84	Average	187	155	HORIZONTAL
4	p	2408.20	109.88			79.12	2.92	0.00	27.84	Peak	187	155	HORIZONTAL

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		2389.80	55.40	74.00	-18.60	24.62	2.91	0.00	27.87	Peak	195	148	HORIZONTAL
2		2390.00	43.71	54.00	-10.29	12.93	2.91	0.00	27.87	Average	195	148	HORIZONTAL
3	a	2430.60	101.23			70.49	2.93	0.00	27.81	Average	195	148	HORIZONTAL
4	p	2441.20	110.55			79.83	2.94	0.00	27.78	Peak	195	148	HORIZONTAL
5		2483.50	53.21	74.00	-20.79	22.52	2.96	0.00	27.73	Peak	195	148	HORIZONTAL
6		2483.50	43.67	54.00	-10.33	12.98	2.96	0.00	27.73	Average	195	148	HORIZONTAL

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	2455.80	100.71			70.00	2.95	0.00	27.76	Average	191	179	HORIZONTAL
2	p	2458.00	110.02			79.31	2.95	0.00	27.76	Peak	191	179	HORIZONTAL
3	!	2483.50	51.49	54.00	-2.51	20.80	2.96	0.00	27.73	Average	191	179	HORIZONTAL
4	!	2484.30	68.43	74.00	-5.57	37.74	2.96	0.00	27.73	Peak	191	179	HORIZONTAL

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.

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	63.88	74.00	-10.12	33.10	2.91	0.00	27.87	Peak	178	153	HORIZONTAL
2	!	2390.00	49.05	54.00	-4.95	18.27	2.91	0.00	27.87	Average	178	153	HORIZONTAL
3	a	2406.40	97.84			67.08	2.92	0.00	27.84	Average	178	153	HORIZONTAL
4	p	2406.60	107.50			76.74	2.92	0.00	27.84	Peak	178	153	HORIZONTAL

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		2390.00	54.74	74.00	-19.26	23.96	2.91	0.00	27.87	Peak	187	151	HORIZONTAL
2		2390.00	44.01	54.00	-9.99	13.23	2.91	0.00	27.87	Average	187	151	HORIZONTAL
3	a	2431.40	99.57			68.83	2.93	0.00	27.81	Average	187	151	HORIZONTAL
4	p	2431.60	109.18			78.44	2.93	0.00	27.81	Peak	187	151	HORIZONTAL
5		2483.50	53.01	74.00	-20.99	22.32	2.96	0.00	27.73	Peak	187	151	HORIZONTAL
6		2483.50	43.63	54.00	-10.37	12.94	2.96	0.00	27.73	Average	187	151	HORIZONTAL

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	2456.60	104.99			74.28	2.95	0.00	27.76	Peak	194	180	HORIZONTAL
2	a	2456.60	95.36			64.65	2.95	0.00	27.76	Average	194	180	HORIZONTAL
3		2483.50	44.85	54.00	-9.15	14.16	2.96	0.00	27.73	Average	194	180	HORIZONTAL
4		2484.30	58.96	74.00	-15.04	28.27	2.96	0.00	27.73	Peak	194	180	HORIZONTAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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		2383.20	61.64	74.00	-12.36	30.85	2.90	0.00	27.89	Peak	188	157	HORIZONTAL
2	!	2390.00	49.17	54.00	-4.83	18.39	2.91	0.00	27.87	Average	188	157	HORIZONTAL
3	a	2408.40	94.75			63.99	2.92	0.00	27.84	Average	188	157	HORIZONTAL
4	p	2410.80	104.32			73.56	2.92	0.00	27.84	Peak	188	157	HORIZONTAL

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	67.13	74.00	-6.87	36.35	2.91	0.00	27.87	Peak	184	154	HORIZONTAL
2	!	2390.00	51.18	54.00	-2.82	20.40	2.91	0.00	27.87	Average	184	154	HORIZONTAL
3	p	2435.80	106.85			76.11	2.93	0.00	27.81	Peak	184	154	HORIZONTAL
4	a	2438.60	97.50			66.78	2.94	0.00	27.78	Average	184	154	HORIZONTAL
5		2483.50	61.78	74.00	-12.22	31.09	2.96	0.00	27.73	Peak	184	154	HORIZONTAL
6	!	2483.50	48.46	54.00	-5.54	17.77	2.96	0.00	27.73	Average	184	154	HORIZONTAL

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	2436.40	94.22			63.48	2.93	0.00	27.81	Average	186	153	HORIZONTAL
2	p	2436.80	103.08			72.36	2.94	0.00	27.78	Peak	186	153	HORIZONTAL
3		2483.50	45.32	54.00	-8.68	14.63	2.96	0.00	27.73	Average	186	153	HORIZONTAL
4		2485.90	59.16	74.00	-14.84	28.47	2.96	0.00	27.73	Peak	186	153	HORIZONTAL

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

Note:

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

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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		2385.40	57.75	74.00	-16.25	26.96	2.90	0.00	27.89	Peak	179	156	HORIZONTAL
2	!	2386.00	48.74	54.00	-5.26	17.96	2.91	0.00	27.87	Average	179	156	HORIZONTAL
3	p	2413.00	108.95			78.19	2.92	0.00	27.84	Peak	179	156	HORIZONTAL
4	a	2413.80	104.89			74.13	2.92	0.00	27.84	Average	179	156	HORIZONTAL

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		2389.80	54.28	74.00	-19.72	23.50	2.91	0.00	27.87	Peak	184	152	HORIZONTAL
2		2390.00	44.02	54.00	-9.98	13.24	2.91	0.00	27.87	Average	184	152	HORIZONTAL
3	a	2436.20	106.96			76.22	2.93	0.00	27.81	Average	184	152	HORIZONTAL
4	p	2438.00	110.88			80.16	2.94	0.00	27.78	Peak	184	152	HORIZONTAL
5		2483.50	43.57	54.00	-10.43	12.88	2.96	0.00	27.73	Average	184	152	HORIZONTAL
6		2484.70	54.07	74.00	-19.93	23.38	2.96	0.00	27.73	Peak	184	152	HORIZONTAL

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	2460.20	102.84			72.13	2.95	0.00	27.76	Average	192	179	HORIZONTAL
2	p	2461.20	106.20			75.49	2.95	0.00	27.76	Peak	192	179	HORIZONTAL
3		2488.10	44.52	54.00	-9.48	13.85	2.97	0.00	27.70	Average	192	179	HORIZONTAL
4		2488.30	55.72	74.00	-18.28	25.05	2.97	0.00	27.70	Peak	192	179	HORIZONTAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 9

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	65.56	74.00	-8.44	34.78	2.91	0.00	27.87	Peak	177	152	HORIZONTAL
2	!	2390.00	51.58	54.00	-2.42	20.80	2.91	0.00	27.87	Average	177	152	HORIZONTAL
3	a	2406.80	100.00			69.24	2.92	0.00	27.84	Average	177	152	HORIZONTAL
4	p	2408.40	109.11			78.35	2.92	0.00	27.84	Peak	177	152	HORIZONTAL

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		2389.00	58.19	74.00	-15.81	27.41	2.91	0.00	27.87	Peak	184	156	HORIZONTAL
2		2390.00	44.05	54.00	-9.95	13.27	2.91	0.00	27.87	Average	184	156	HORIZONTAL
3	a	2441.00	99.38			68.66	2.94	0.00	27.78	Average	184	156	HORIZONTAL
4	p	2441.20	109.08			78.36	2.94	0.00	27.78	Peak	184	156	HORIZONTAL
5		2483.50	53.30	74.00	-20.70	22.61	2.96	0.00	27.73	Peak	184	156	HORIZONTAL
6		2483.50	43.45	54.00	-10.55	12.76	2.96	0.00	27.73	Average	184	156	HORIZONTAL

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	p	2456.80	107.64			76.93	2.95	0.00	27.76	Peak	194	179	HORIZONTAL
2	a	2457.00	98.48			67.77	2.95	0.00	27.76	Average	194	179	HORIZONTAL
3		2483.50	65.99	74.00	-8.01	35.30	2.96	0.00	27.73	Peak	194	179	HORIZONTAL
4	!	2483.50	49.57	54.00	-4.43	18.88	2.96	0.00	27.73	Average	194	179	HORIZONTAL

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.

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	63.48	74.00	-10.52	32.70	2.91	0.00	27.87	Peak	145	100	VERTICAL
2	!	2390.00	51.47	54.00	-2.53	20.69	2.91	0.00	27.87	Average	145	100	VERTICAL
3	a	2417.40	97.78			67.02	2.92	0.00	27.84	Average	145	100	VERTICAL
4	p	2418.20	107.25			76.49	2.92	0.00	27.84	Peak	145	100	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		2389.80	54.64	74.00	-19.36	23.86	2.91	0.00	27.87	Peak	144	100	VERTICAL
2		2390.00	43.74	54.00	-10.26	12.96	2.91	0.00	27.87	Average	144	100	VERTICAL
3	p	2431.60	109.65			78.91	2.93	0.00	27.81	Peak	144	100	VERTICAL
4	a	2442.20	100.03			69.31	2.94	0.00	27.78	Average	144	100	VERTICAL
5		2483.50	54.01	74.00	-19.99	23.32	2.96	0.00	27.73	Peak	144	100	VERTICAL
6		2483.50	43.60	54.00	-10.40	12.91	2.96	0.00	27.73	Average	144	100	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	2455.20	106.40			75.69	2.95	0.00	27.76	Peak	36	100	VERTICAL
2	a	2456.20	97.73			67.02	2.95	0.00	27.76	Average	36	100	VERTICAL
3		2483.50	61.47	74.00	-12.53	30.78	2.96	0.00	27.73	Peak	36	100	VERTICAL
4	!	2483.50	49.34	54.00	-4.66	18.65	2.96	0.00	27.73	Average	36	100	VERTICAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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	2390.00	65.64	74.00	-8.36	34.86	2.91	0.00	27.87	Peak	145	100	VERTICAL
2 !	2390.00	53.46	54.00	-0.54	22.68	2.91	0.00	27.87	Average	145	100	VERTICAL
3 a	2420.00	94.74			64.00	2.93	0.00	27.81	Average	145	100	VERTICAL
4 p	2420.40	104.25			73.51	2.93	0.00	27.81	Peak	145	100	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	2389.60	65.54	74.00	-8.46	34.76	2.91	0.00	27.87	Peak	145	100	VERTICAL
2 !	2390.00	51.74	54.00	-2.26	20.96	2.91	0.00	27.87	Average	145	100	VERTICAL
3 p	2423.40	107.14			76.40	2.93	0.00	27.81	Peak	145	100	VERTICAL
4 a	2438.60	97.75			67.03	2.94	0.00	27.78	Average	145	100	VERTICAL
5 !	2483.50	50.58	54.00	-3.42	19.89	2.96	0.00	27.73	Average	145	100	VERTICAL
6	2485.10	65.28	74.00	-8.72	34.59	2.96	0.00	27.73	Peak	145	100	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	2437.20	103.23			72.51	2.94	0.00	27.78	Peak	145	100	VERTICAL
2 a	2438.40	94.28			63.56	2.94	0.00	27.78	Average	145	100	VERTICAL
3	2483.50	61.03	74.00	-12.97	30.34	2.96	0.00	27.73	Peak	145	100	VERTICAL
4 !	2483.50	50.09	54.00	-3.91	19.40	2.96	0.00	27.73	Average	145	100	VERTICAL

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

Note:

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

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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		2386.00	59.15	74.00	-14.85	28.37	2.91	0.00	27.87	Peak	145	100	VERTICAL
2	!	2386.00	49.29	54.00	-4.71	18.51	2.91	0.00	27.87	Average	145	100	VERTICAL
3	a	2411.20	104.92			74.16	2.92	0.00	27.84	Average	145	100	VERTICAL
4	p	2413.00	108.92			78.16	2.92	0.00	27.84	Peak	145	100	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		2389.80	55.92	74.00	-18.08	25.14	2.91	0.00	27.87	Peak	145	100	VERTICAL
2		2390.00	43.96	54.00	-10.04	13.18	2.91	0.00	27.87	Average	145	100	VERTICAL
3	a	2436.20	107.22			76.48	2.93	0.00	27.81	Average	145	100	VERTICAL
4	p	2438.00	111.31			80.59	2.94	0.00	27.78	Peak	145	100	VERTICAL
5		2483.50	52.82	74.00	-21.18	22.13	2.96	0.00	27.73	Peak	145	100	VERTICAL
6		2483.50	43.39	54.00	-10.61	12.70	2.96	0.00	27.73	Average	145	100	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	p	2461.20	107.55			76.84	2.95	0.00	27.76	Peak	36	100	VERTICAL
2	a	2461.20	103.69			72.98	2.95	0.00	27.76	Average	36	100	VERTICAL
3	!	2488.10	48.48	54.00	-5.52	17.81	2.97	0.00	27.70	Average	36	100	VERTICAL
4		2488.50	57.42	74.00	-16.58	26.75	2.97	0.00	27.70	Peak	36	100	VERTICAL

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

Temperature	23°C	Humidity	64%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1
Test Date	May 23, 2013	Test Mode	Mode 13

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		2388.20	66.29	74.00	-7.71	35.51	2.91	0.00	27.87	Peak	145	100	VERTICAL
2	!	2390.00	51.64	54.00	-2.36	20.86	2.91	0.00	27.87	Average	145	100	VERTICAL
3	p	2416.60	108.85			78.09	2.92	0.00	27.84	Peak	145	100	VERTICAL
4	a	2418.20	99.86			69.10	2.92	0.00	27.84	Average	145	100	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		2388.60	55.75	74.00	-18.25	24.97	2.91	0.00	27.87	Peak	145	100	VERTICAL
2		2390.00	43.78	54.00	-10.22	13.00	2.91	0.00	27.87	Average	145	100	VERTICAL
3	p	2430.20	110.16			79.42	2.93	0.00	27.81	Peak	145	100	VERTICAL
4	a	2430.60	100.46			69.72	2.93	0.00	27.81	Average	145	100	VERTICAL
5		2483.50	54.59	74.00	-19.41	23.90	2.96	0.00	27.73	Peak	145	100	VERTICAL
6		2483.50	43.60	54.00	-10.40	12.91	2.96	0.00	27.73	Average	145	100	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	p	2455.60	107.52			76.81	2.95	0.00	27.76	Peak	37	100	VERTICAL
2	a	2468.20	99.46			68.75	2.95	0.00	27.76	Average	37	100	VERTICAL
3		2483.50	61.55	74.00	-12.45	30.86	2.96	0.00	27.73	Peak	37	100	VERTICAL
4	!	2483.50	49.75	54.00	-4.25	19.06	2.96	0.00	27.73	Average	37	100	VERTICAL

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

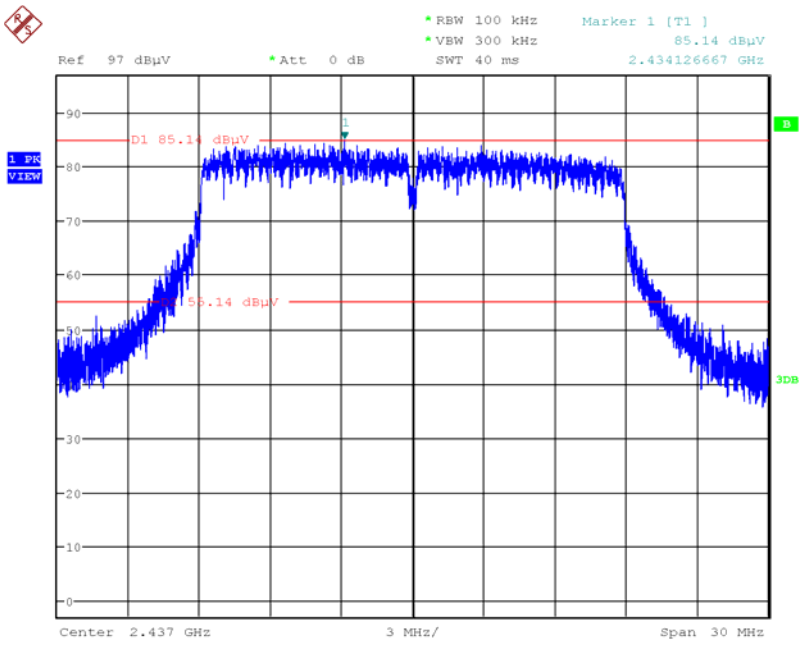
Note:

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

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

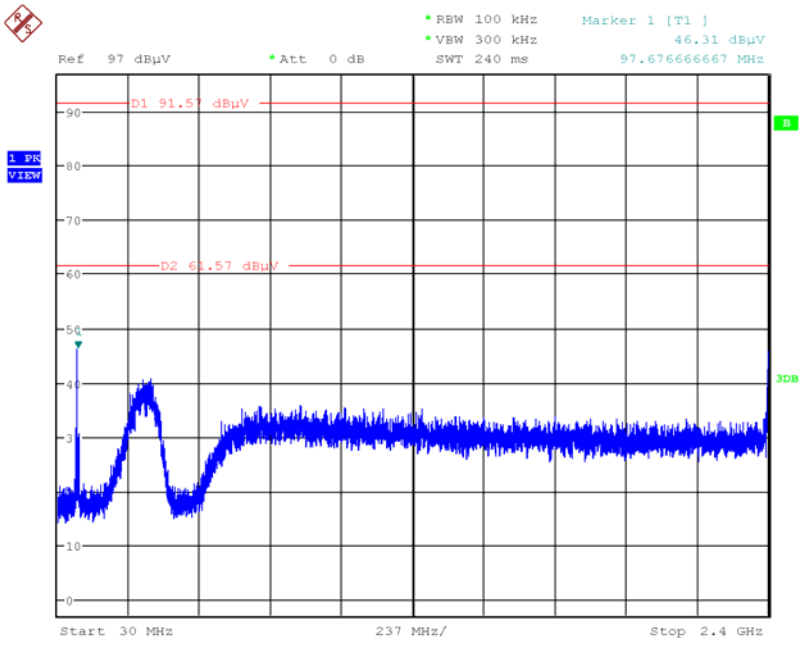
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Test Mode: Mode 3



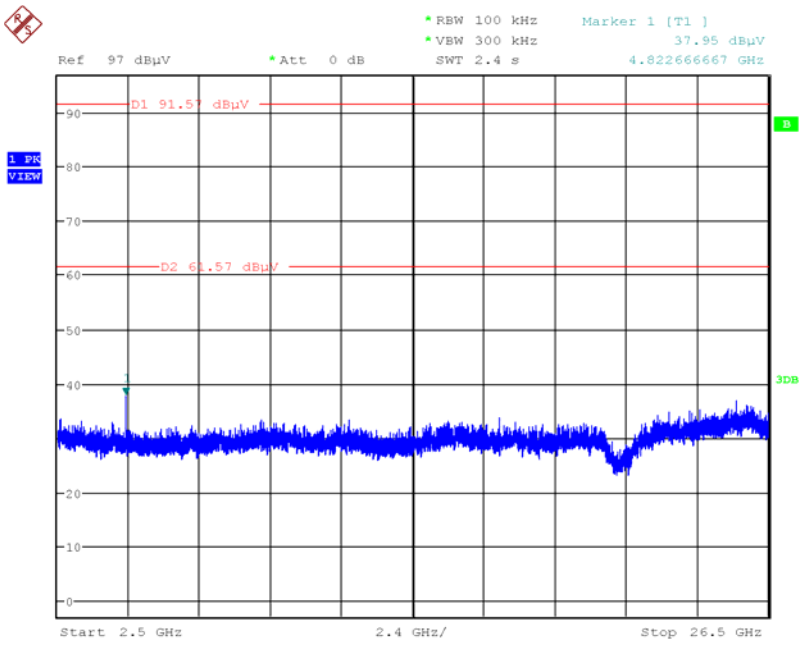
Date: 16.MAY.2013 20:27:01

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3



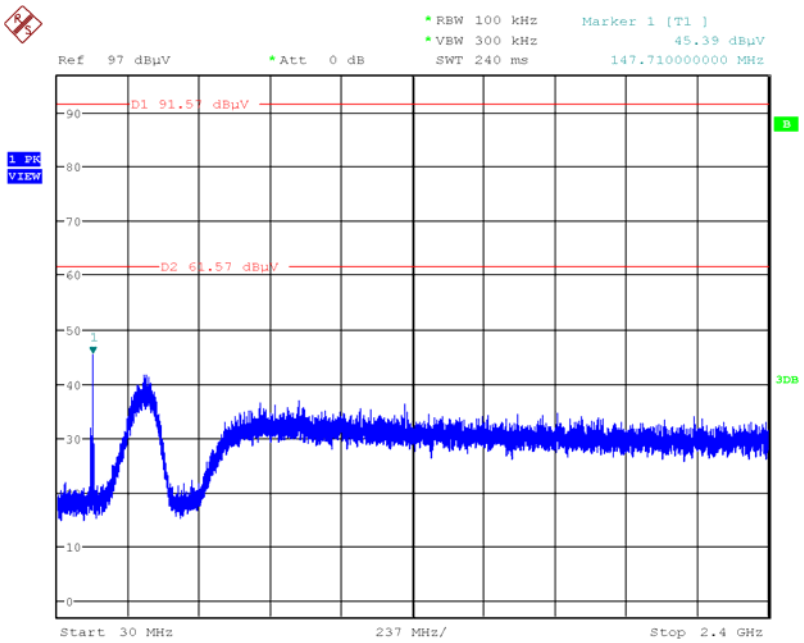
Date: 16.MAY.2013 20:18:39

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3



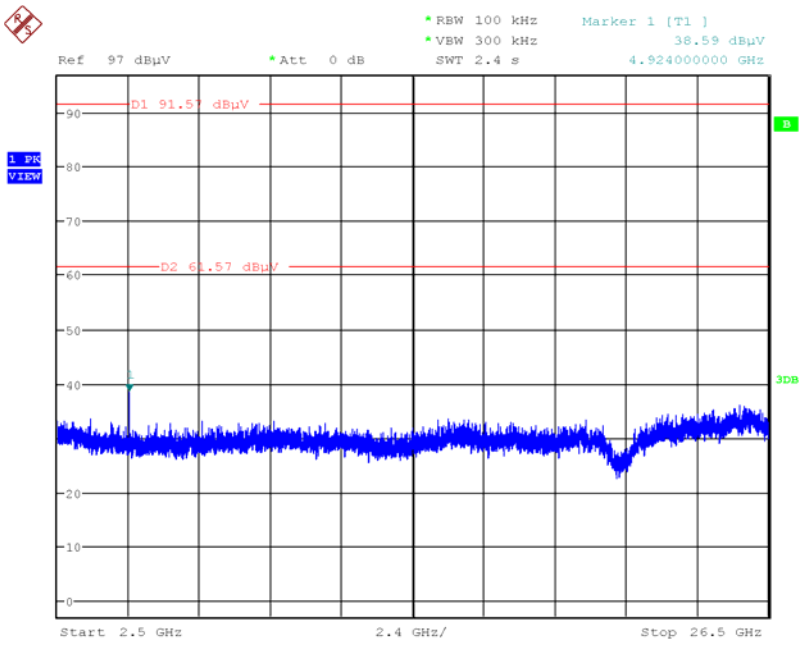
Date: 16.MAY.2013 20:19:09

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3



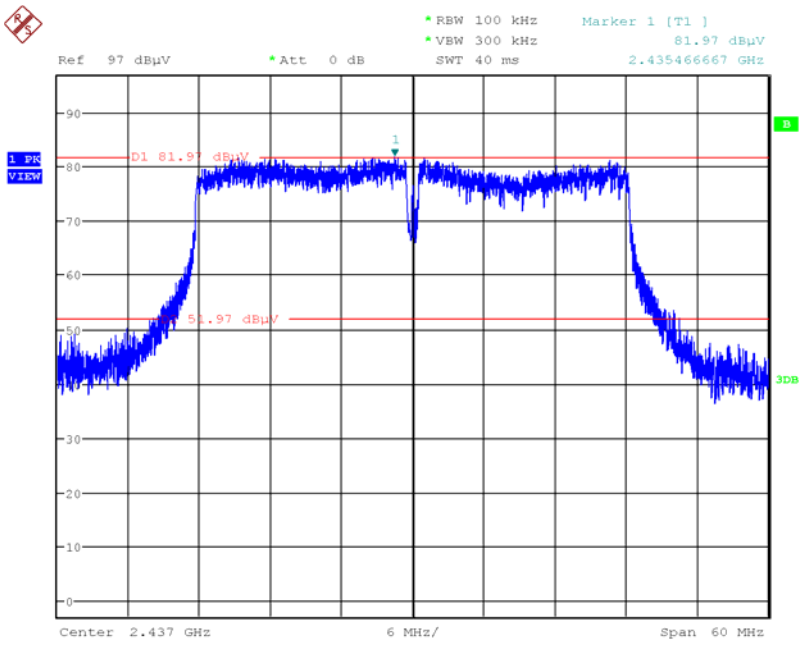
Date: 16.MAY.2013 20:21:05

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3



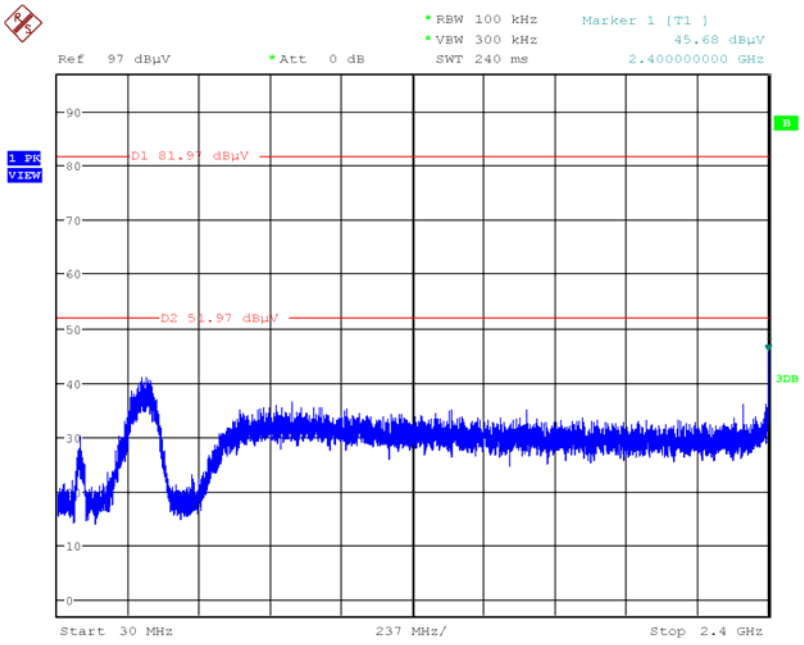
Date: 16.MAY.2013 20:20:41

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Test Mode: Mode 3



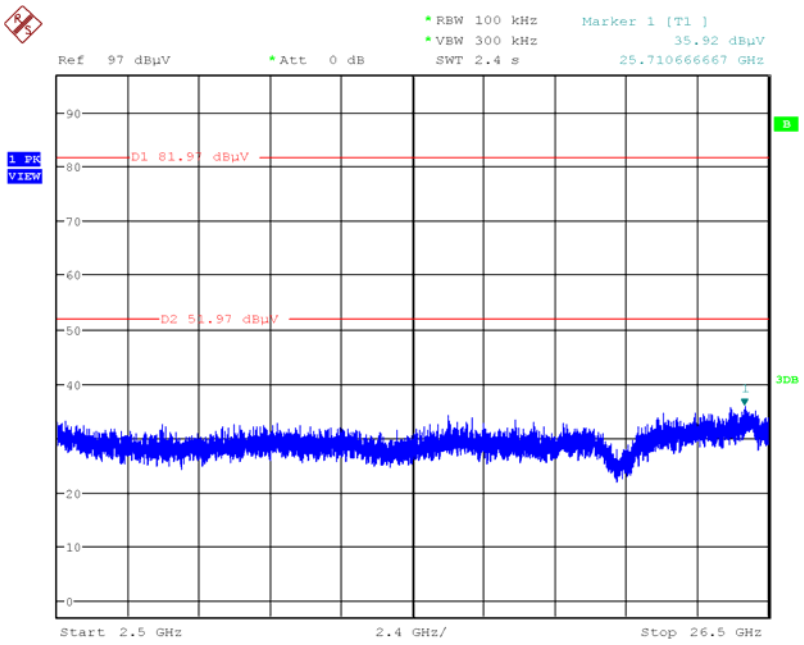
Date: 16.MAY.2013 20:29:55

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3



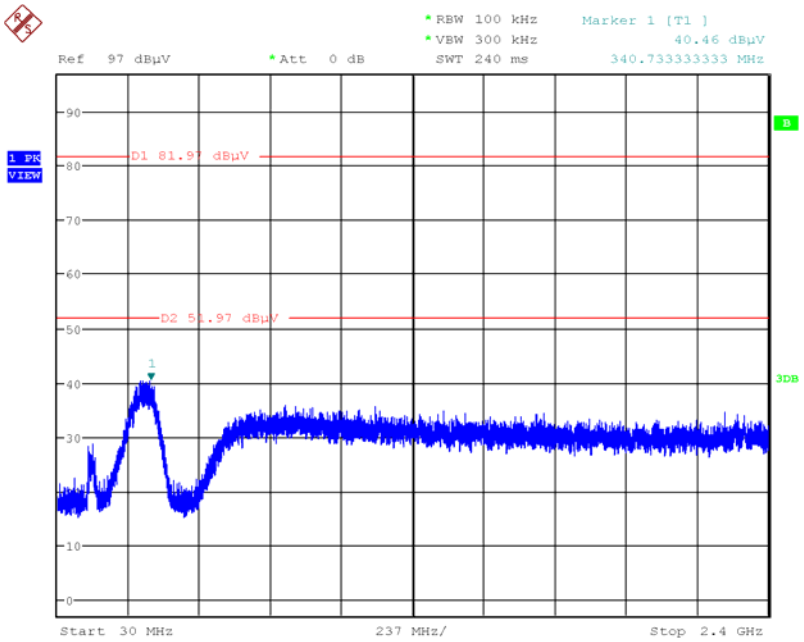
Date: 16.MAY.2013 20:30:43

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3



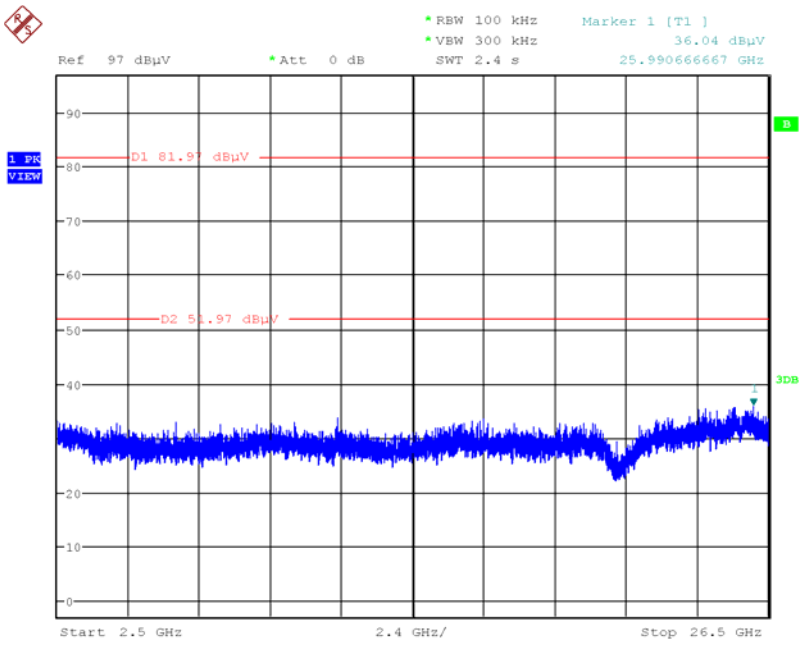
Date: 16.MAY.2013 20:31:12

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3

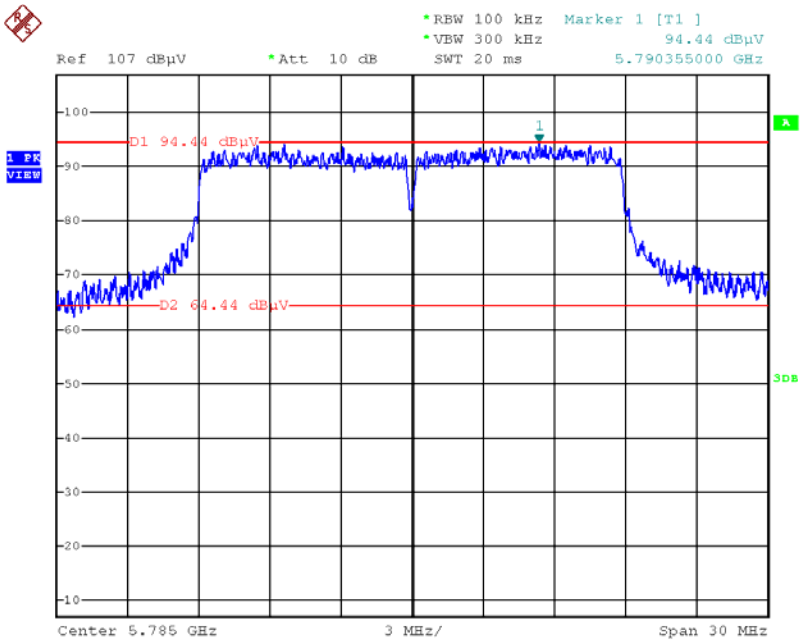


Date: 16.MAY.2013 20:32:12

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3

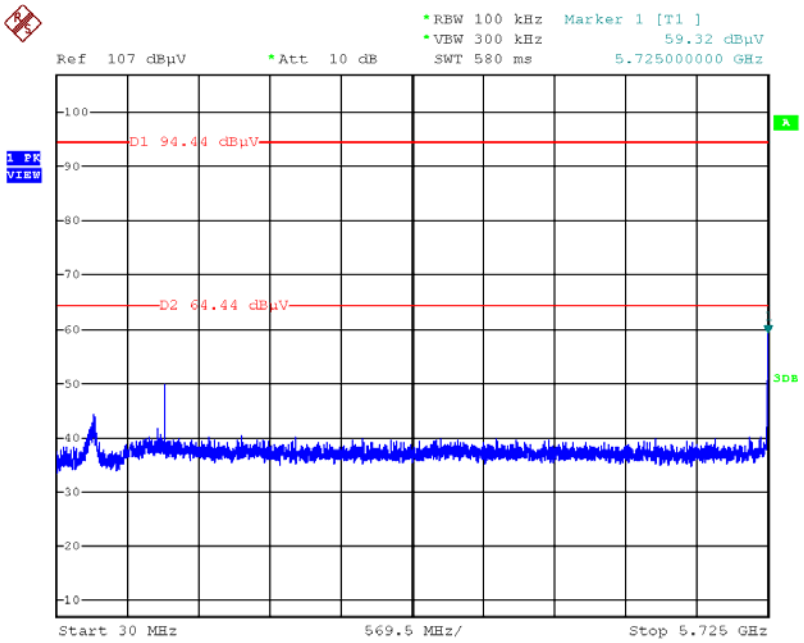


Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Reference Level / Test Mode: Mode 3



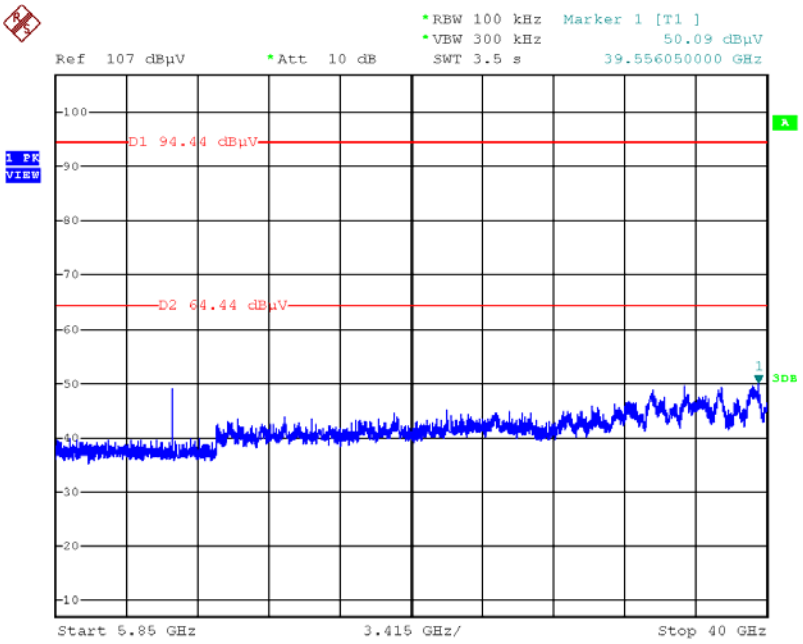
Date: 24.MAY.2013 03:11:53

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3



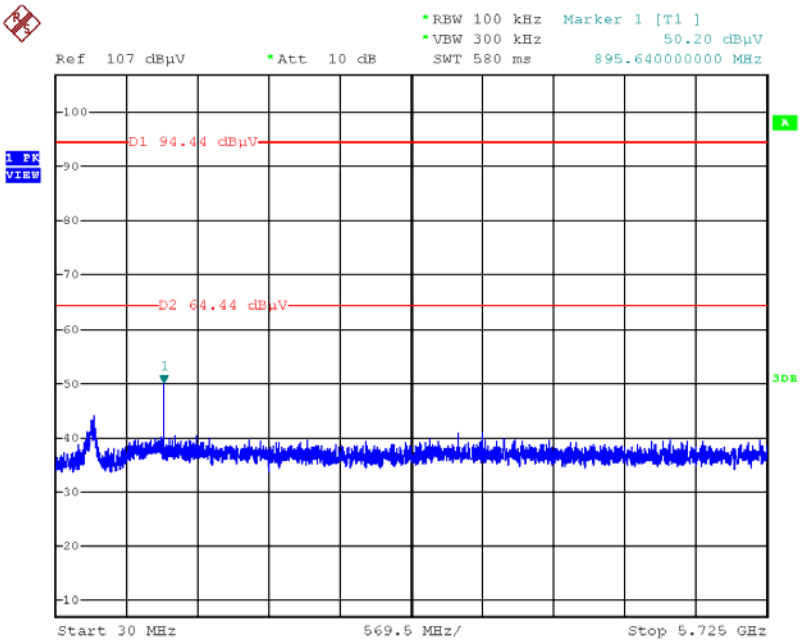
Date: 24.MAY.2013 03:12:37

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



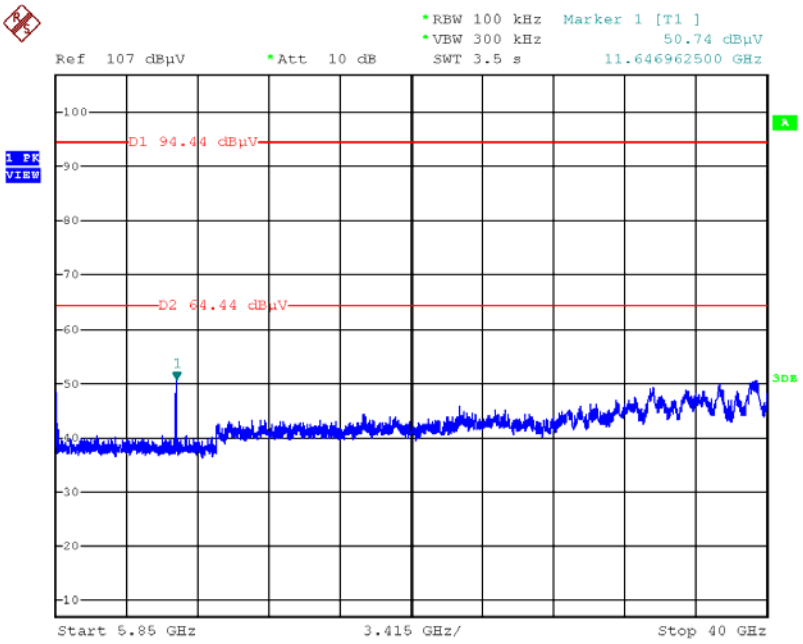
Date: 24.MAY.2013 03:13:06

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3

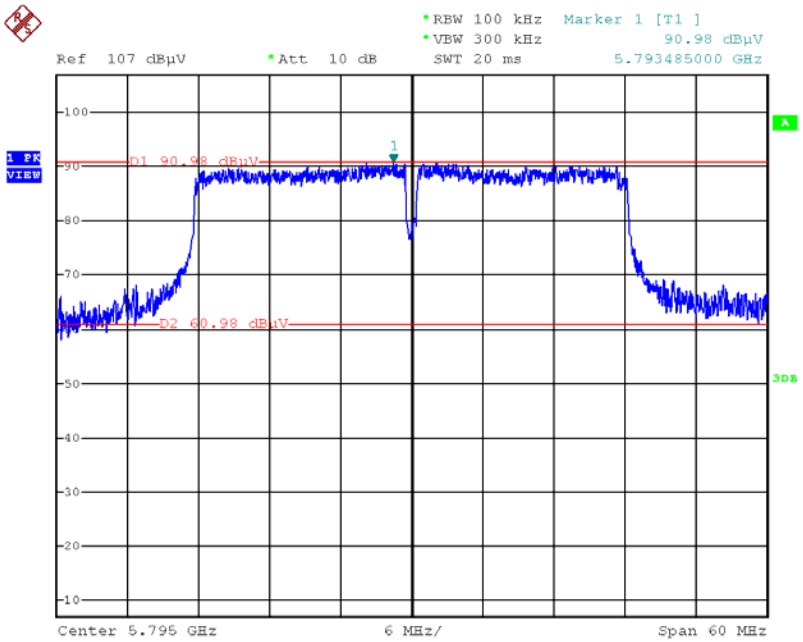


Date: 24.MAY.2013 03:14:47

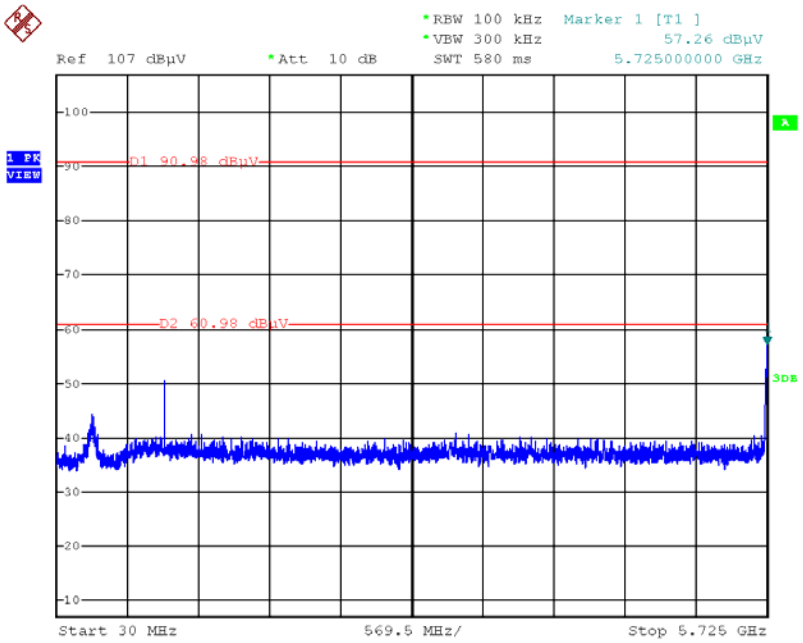
Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



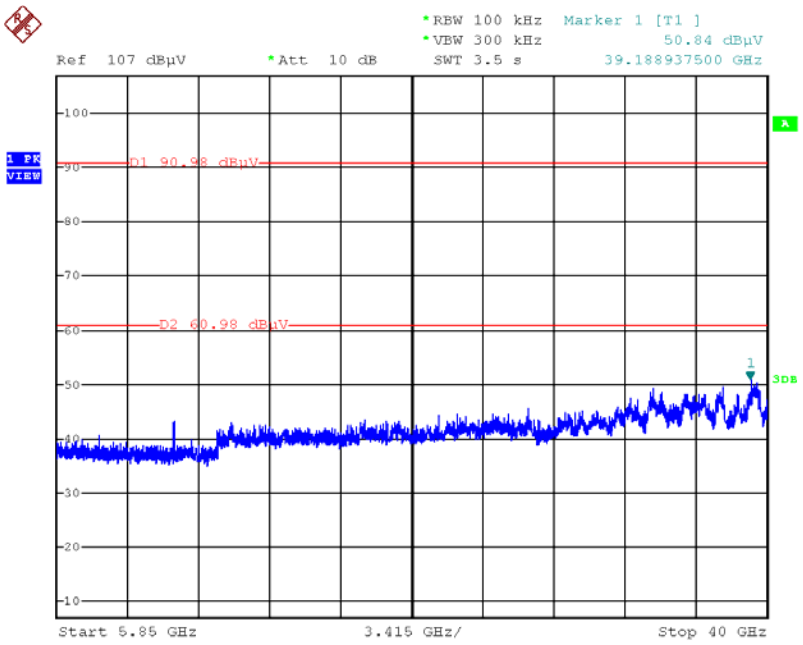
Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Reference Level / Test Mode: Mode 3



Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3

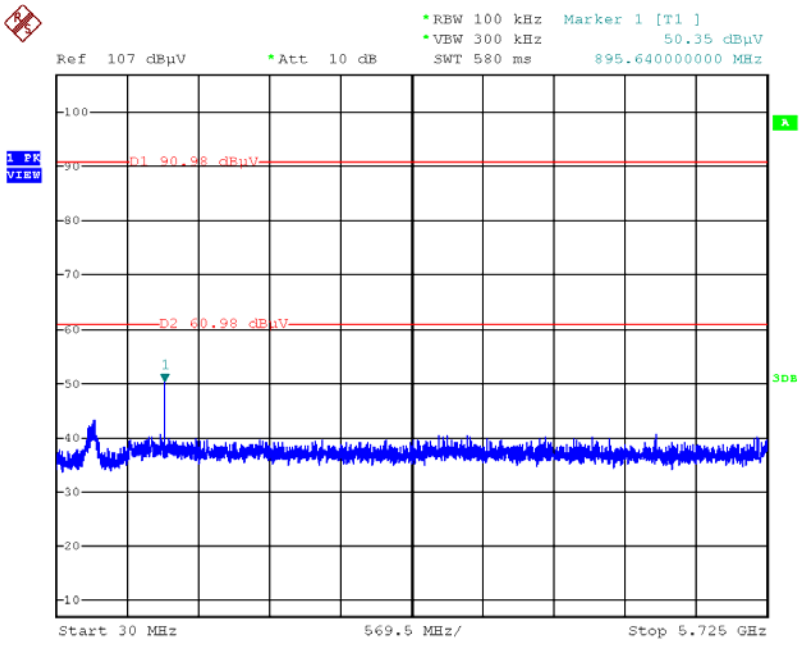


Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



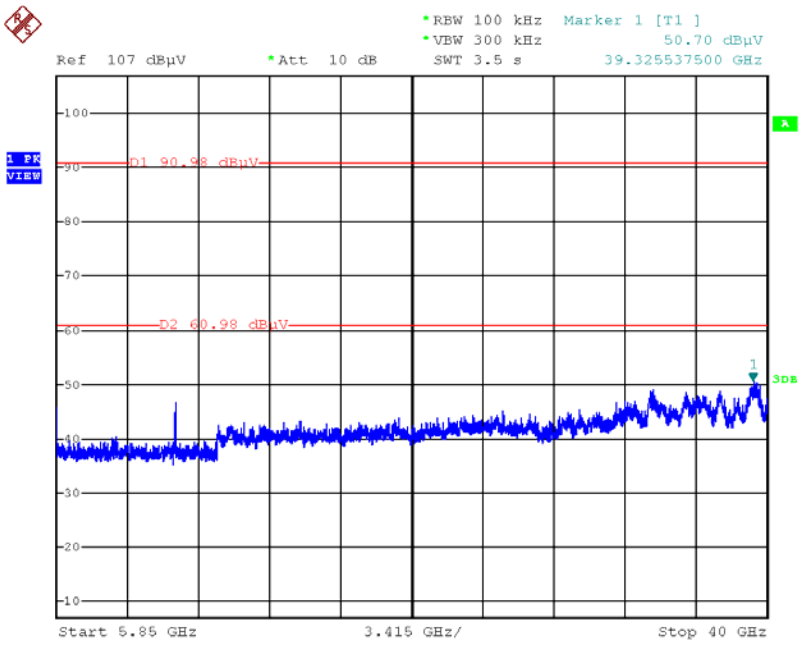
Date: 24.MAY.2013 03:28:32

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3



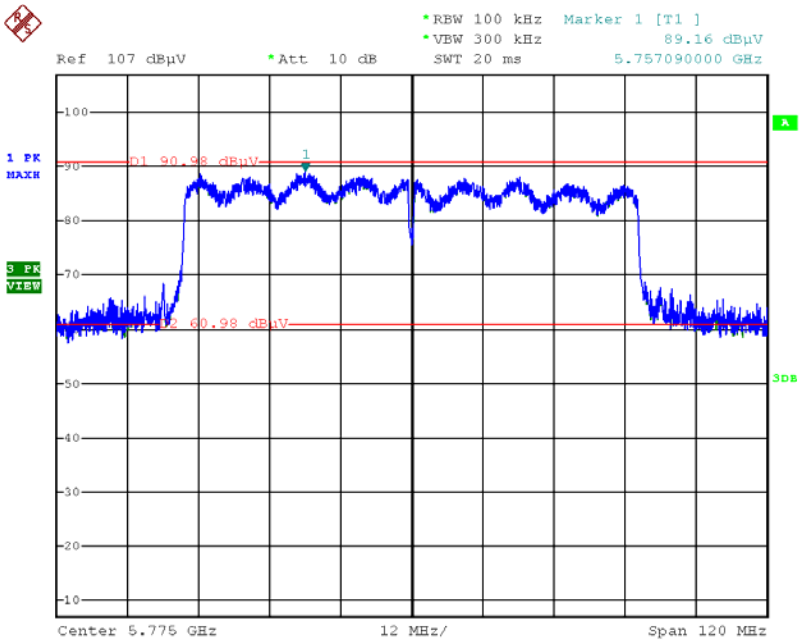
Date: 24.MAY.2013 03:17:42

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



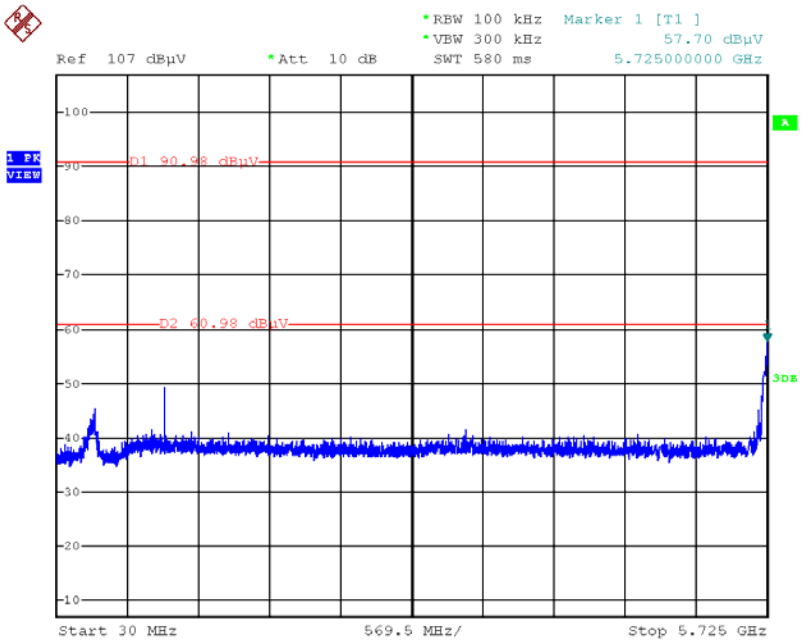
Date: 24.MAY.2013 03:18:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Reference Level / Test Mode: Mode 3



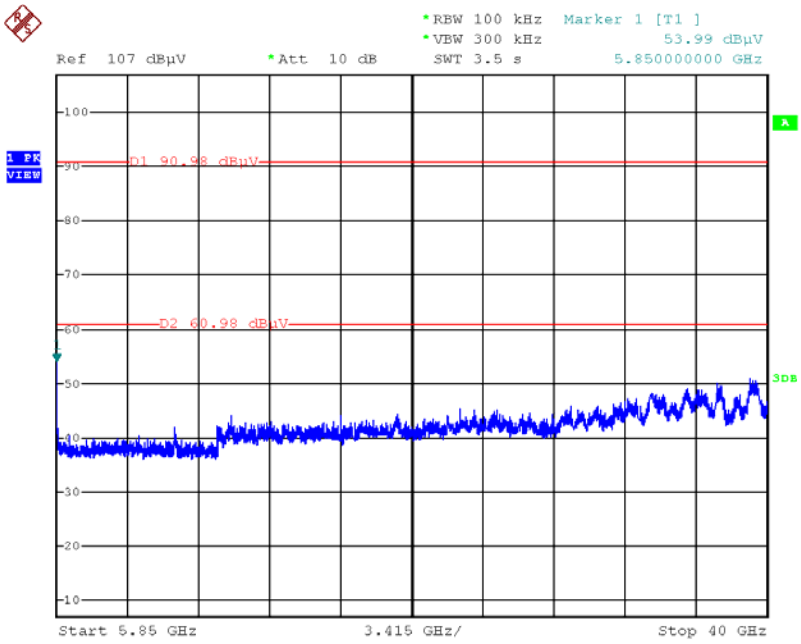
Date: 24.MAY.2013 03:31:21

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3



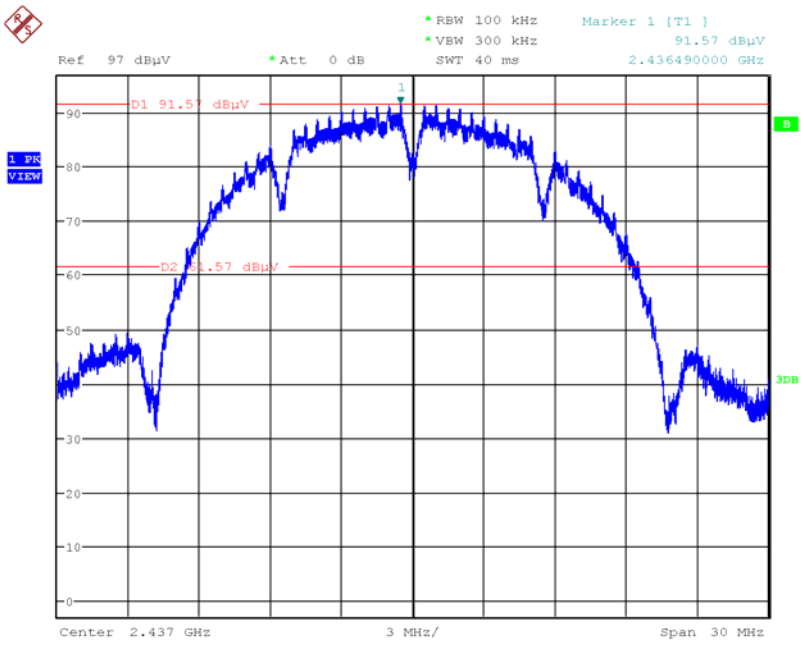
Date: 24.MAY.2013 03:34:25

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



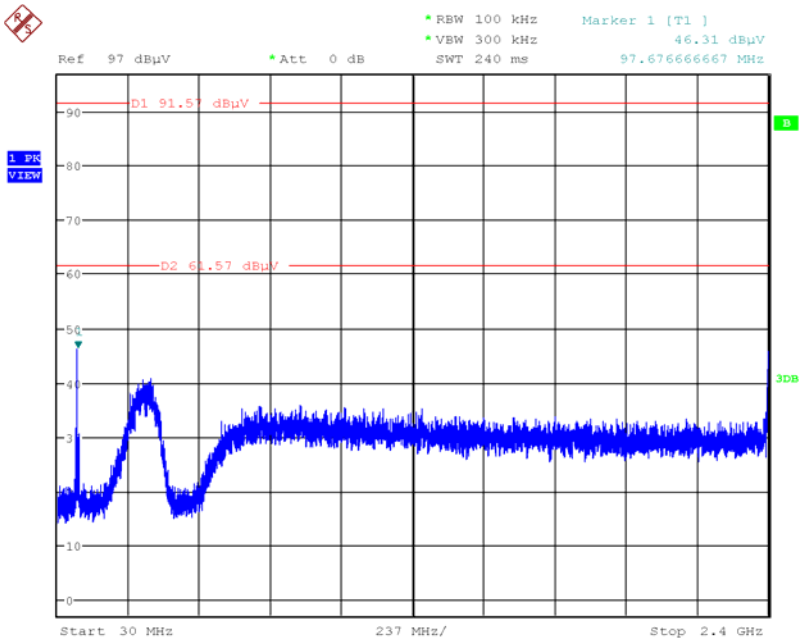
Date: 24.MAY.2013 03:35:00

Plot on Configuration IEEE 802.11b / Reference Level / Test Mode: Mode 3



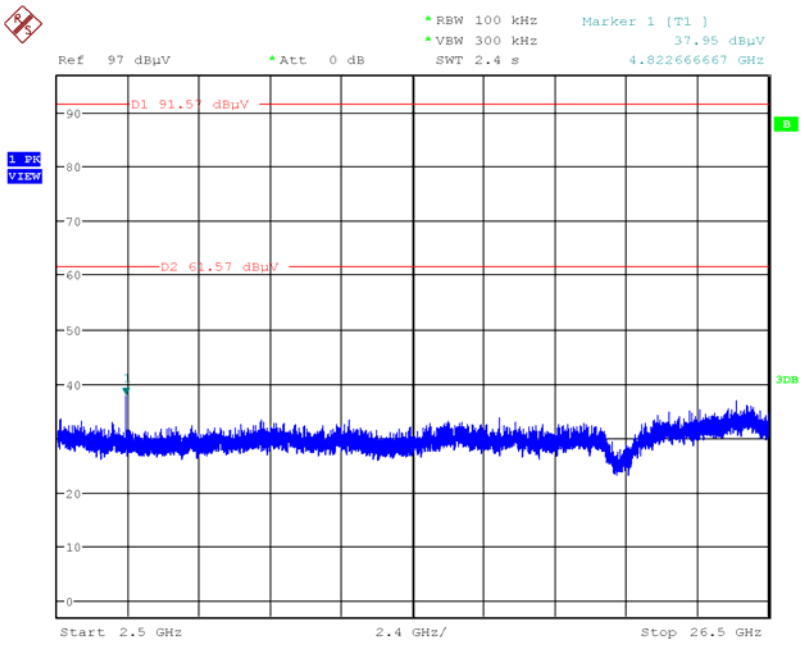
Date: 16.MAY.2013 20:17:31

Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3



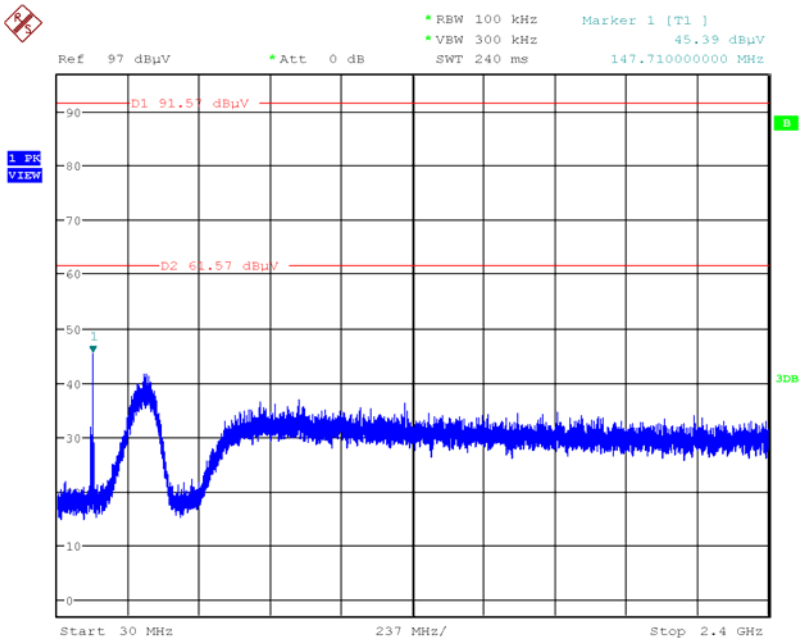
Date: 16.MAY.2013 20:18:39

Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3



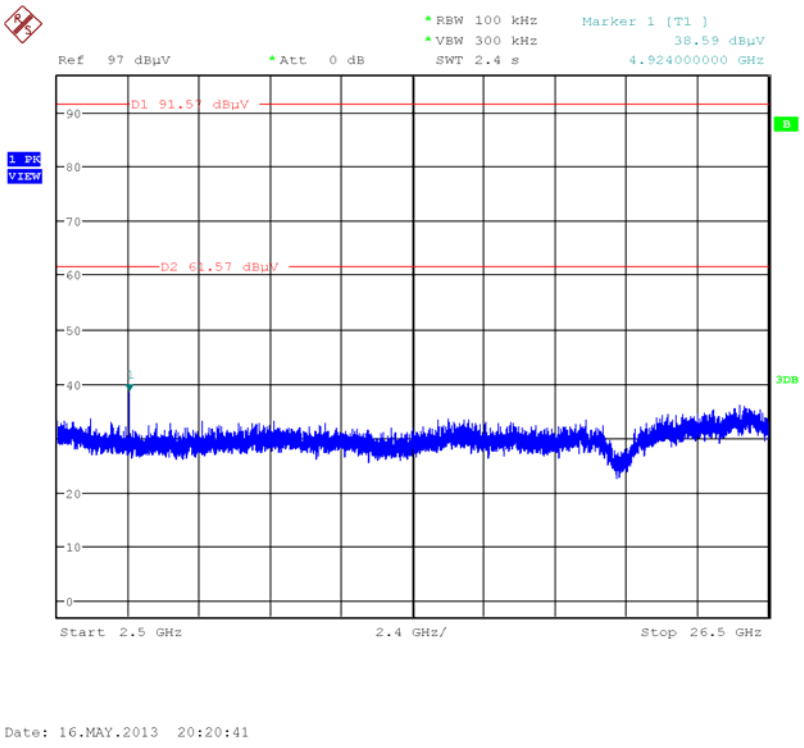
Date: 16.MAY.2013 20:19:09

Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3

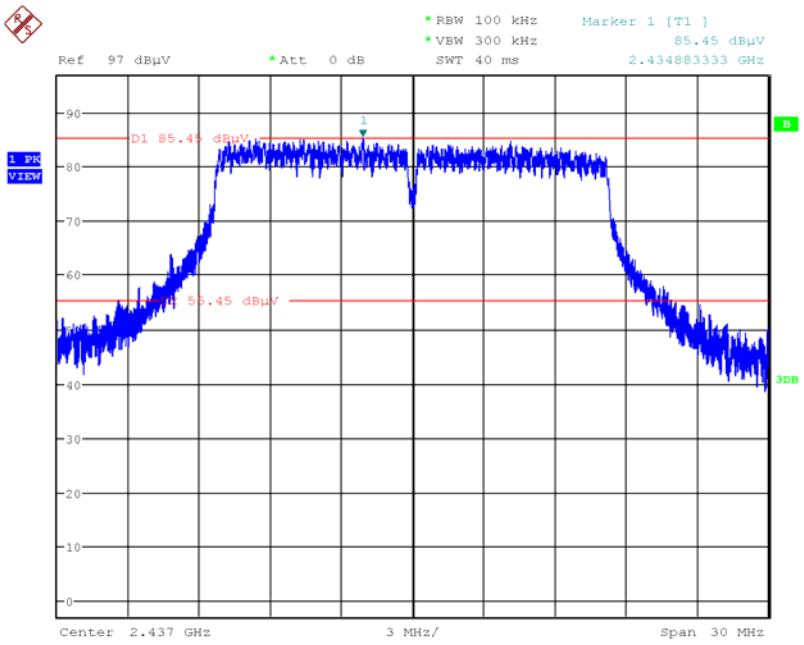


Date: 16.MAY.2013 20:21:05

Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3

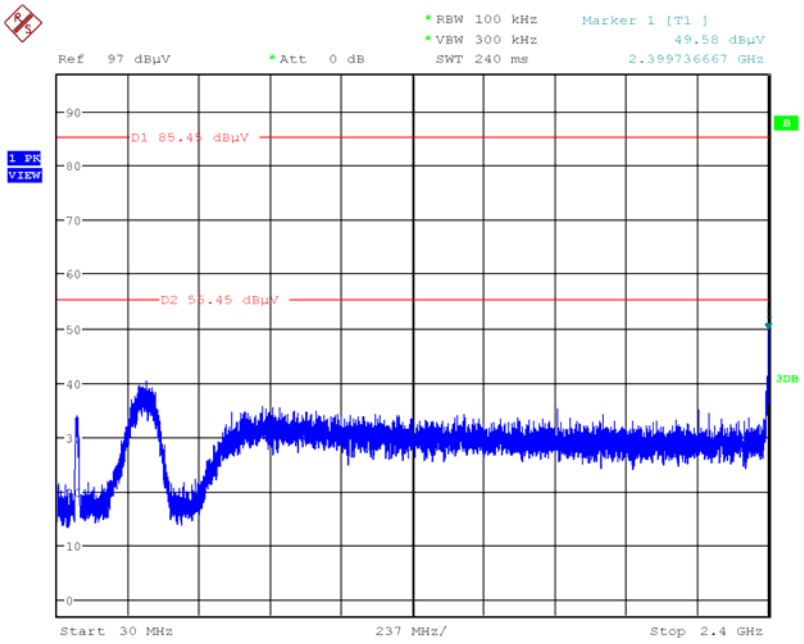


Plot on Configuration IEEE 802.11g / Reference Level / Test Mode: Mode 3



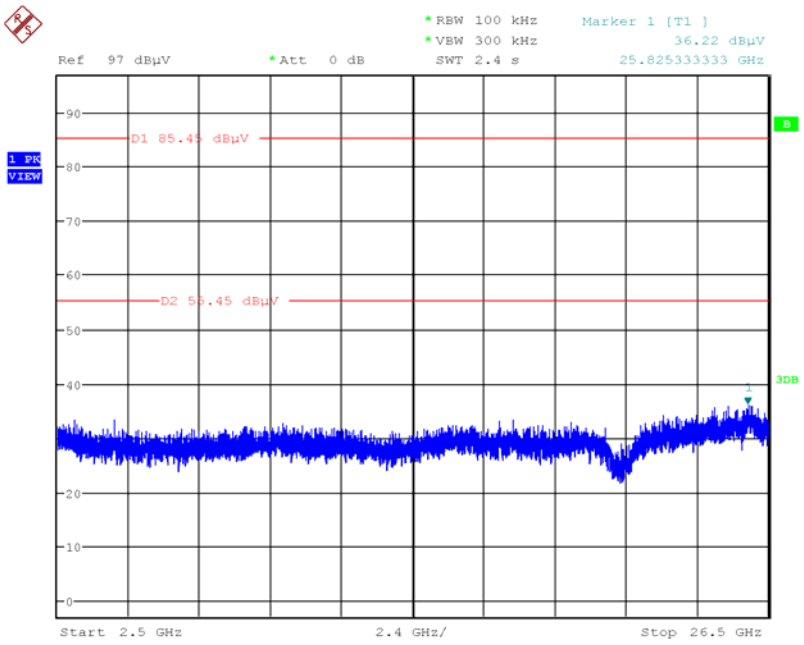
Date: 16.MAY.2013 20:23:33

Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3



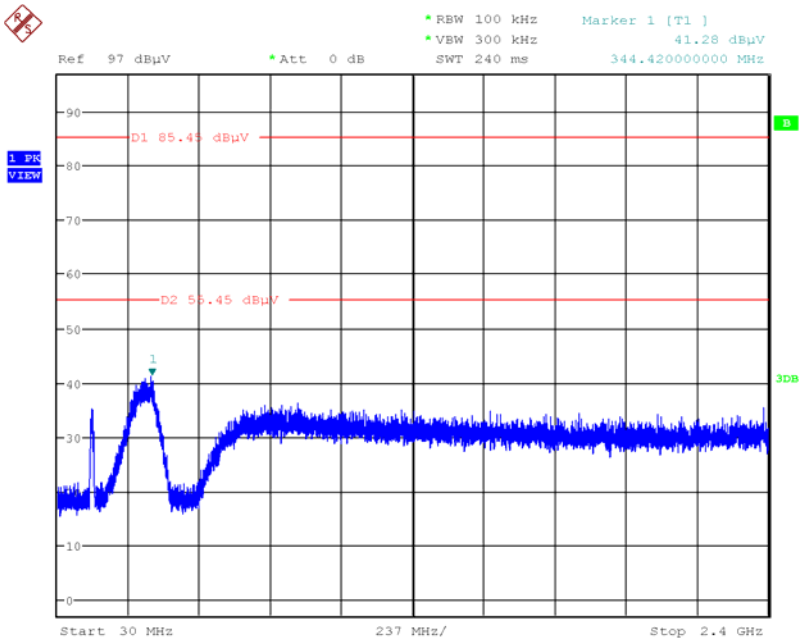
Date: 16.MAY.2013 20:24:21

Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3



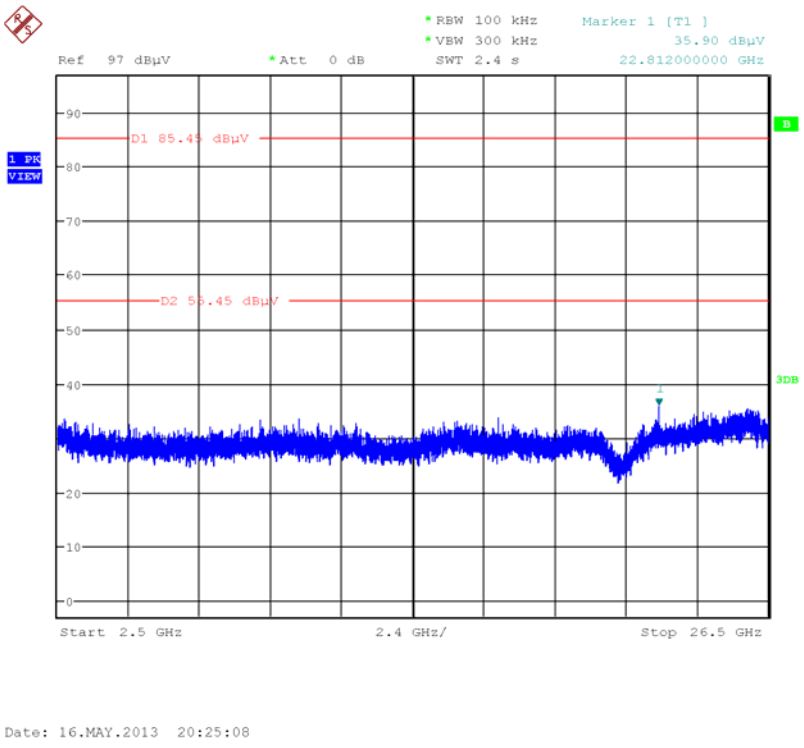
Date: 16.MAY.2013 20:24:47

Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 3

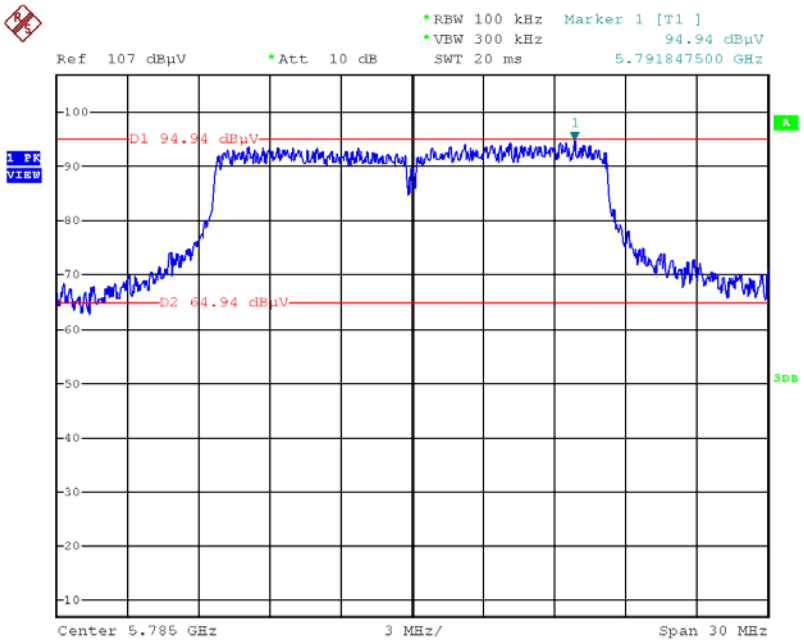


Date: 16.MAY.2013 20:25:34

Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 3

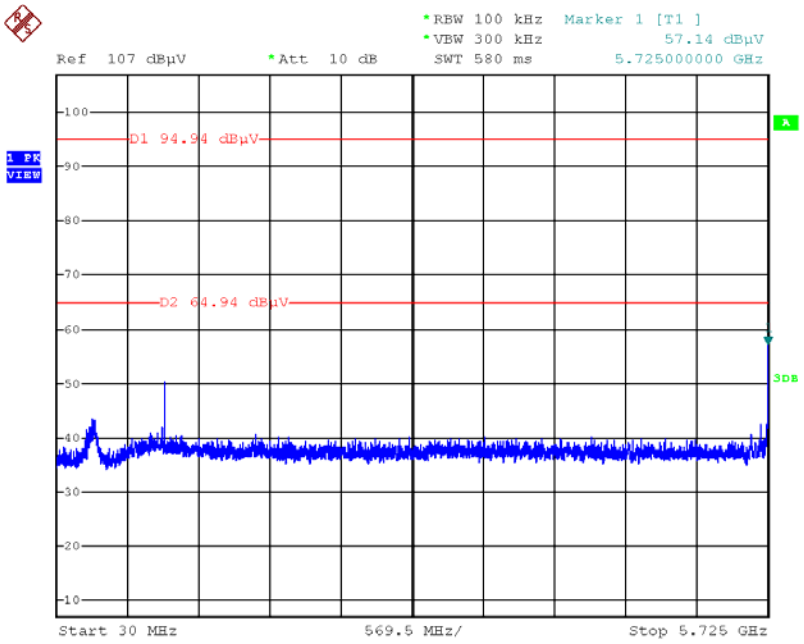


Plot on Configuration IEEE 802.11a / Reference Level / Test Mode: Mode 3



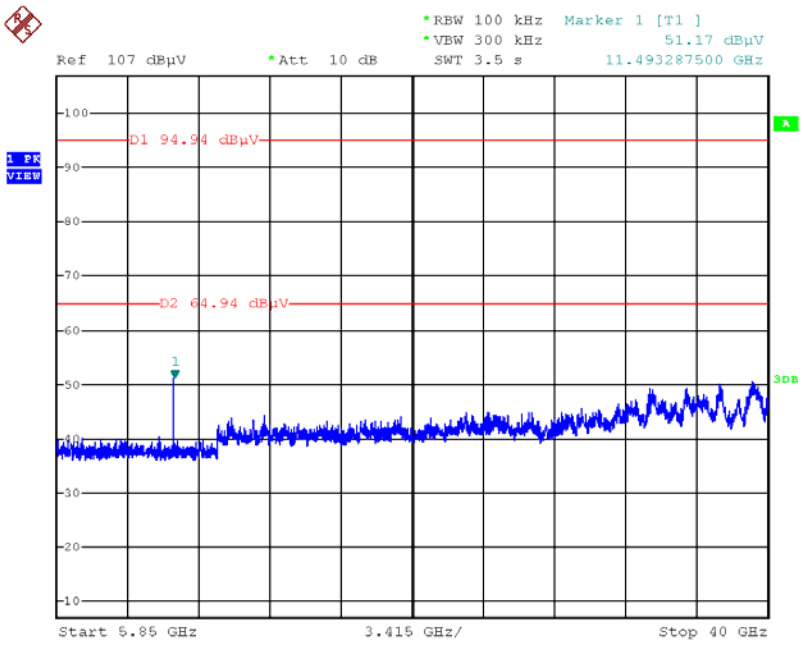
Date: 24.MAY.2013 03:07:34

Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3



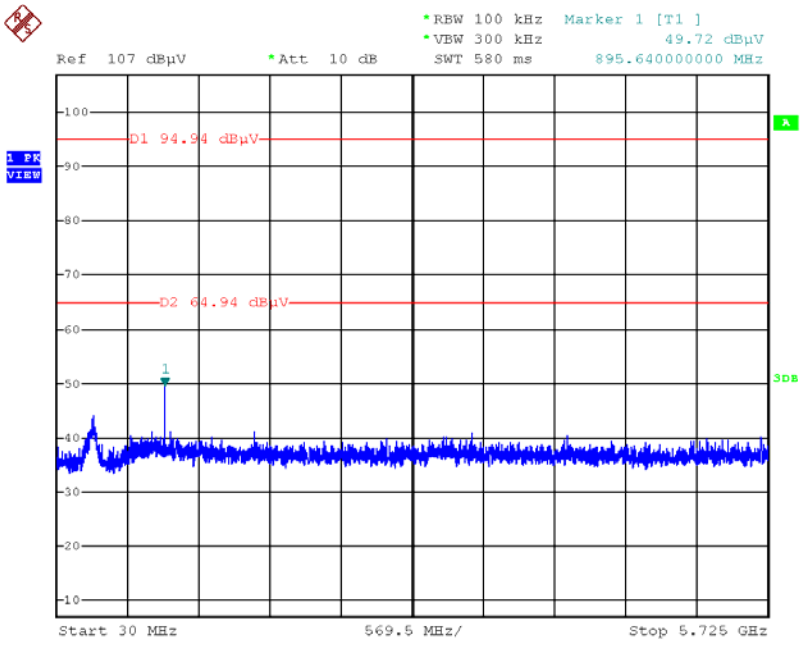
Date: 24.MAY.2013 03:08:36

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



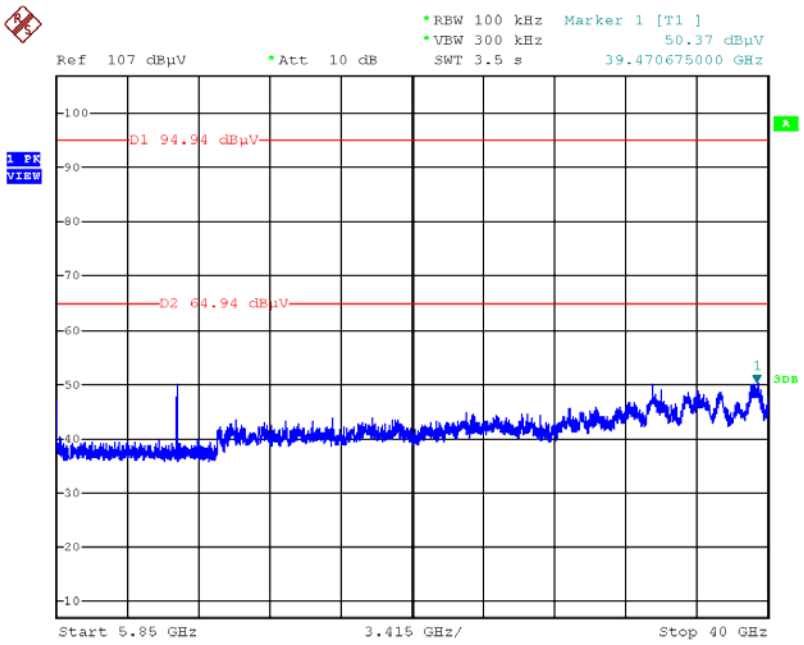
Date: 24.MAY.2013 03:09:08

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 3



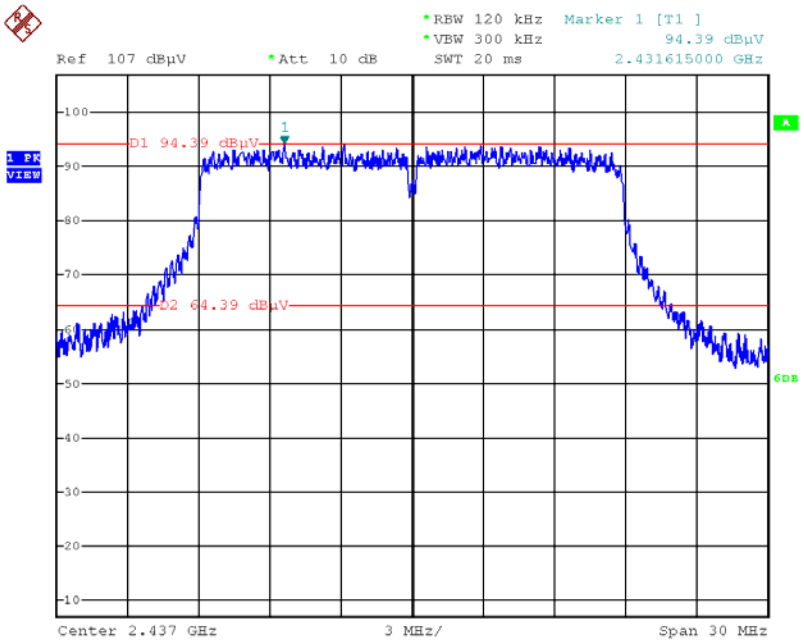
Date: 24.MAY.2013 03:10:14

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 3



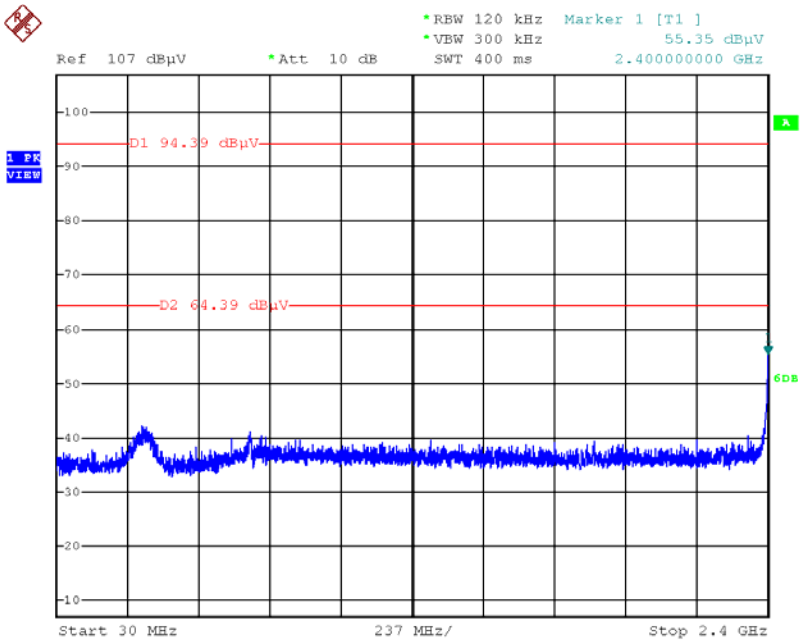
Date: 24.MAY.2013 03:09:52

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Test Mode: Mode 9



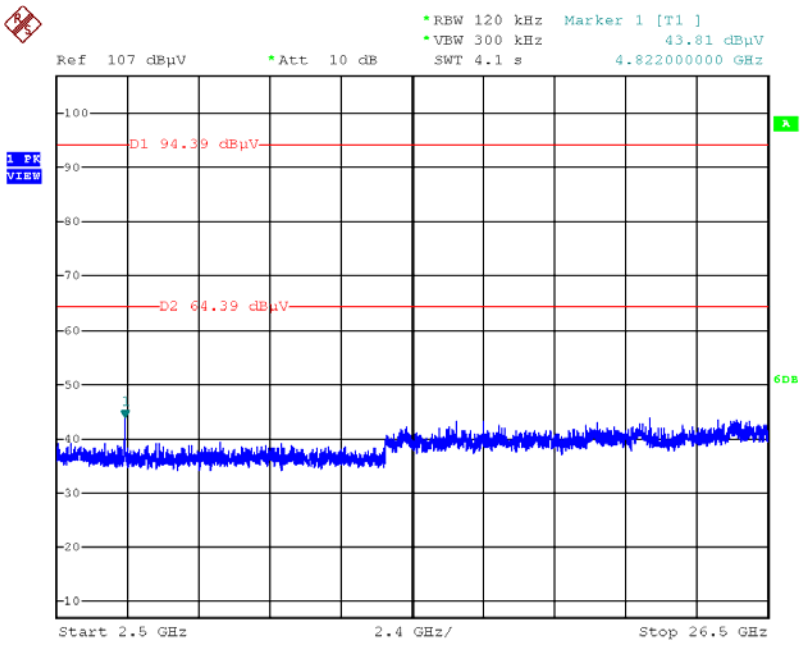
Date: 23.MAY.2013 05:22:59

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



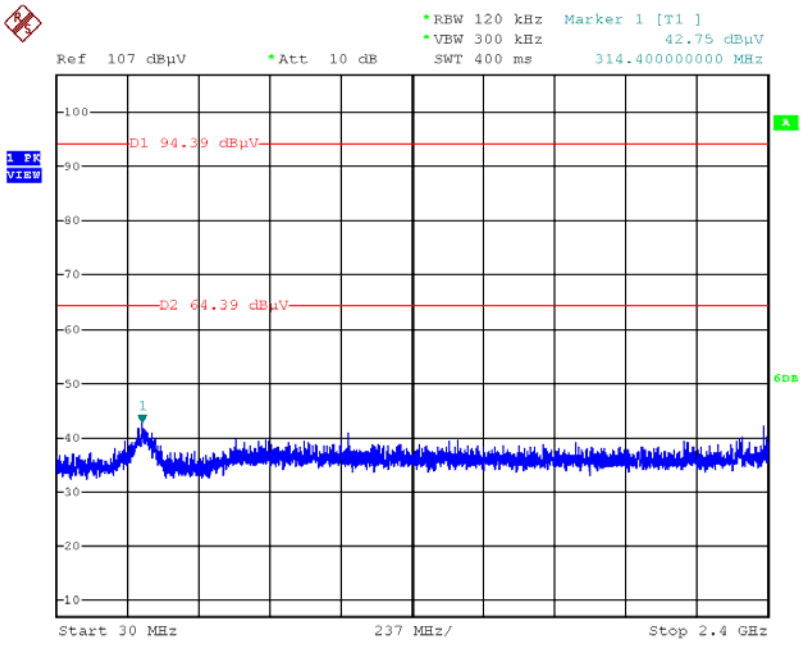
Date: 23.MAY.2013 05:23:33

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



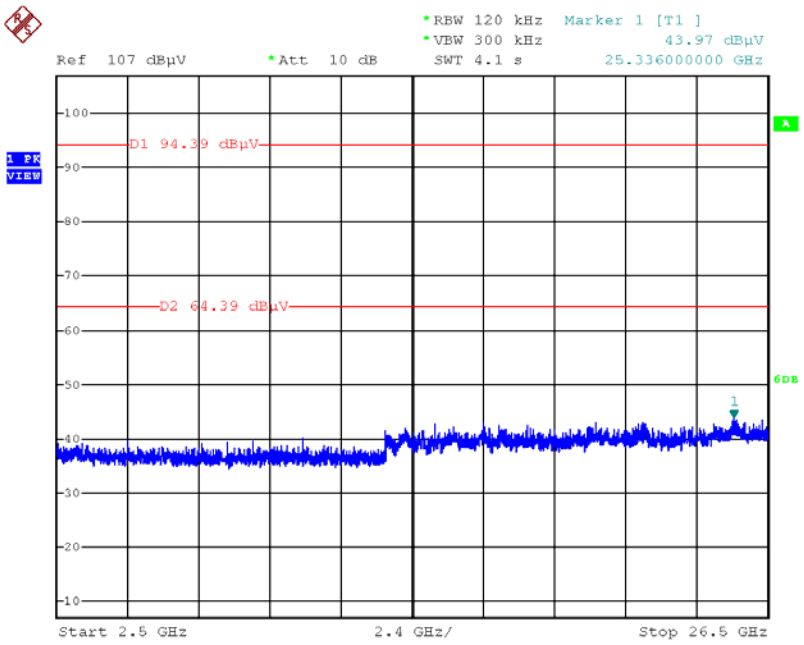
Date: 23.MAY.2013 05:23:56

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



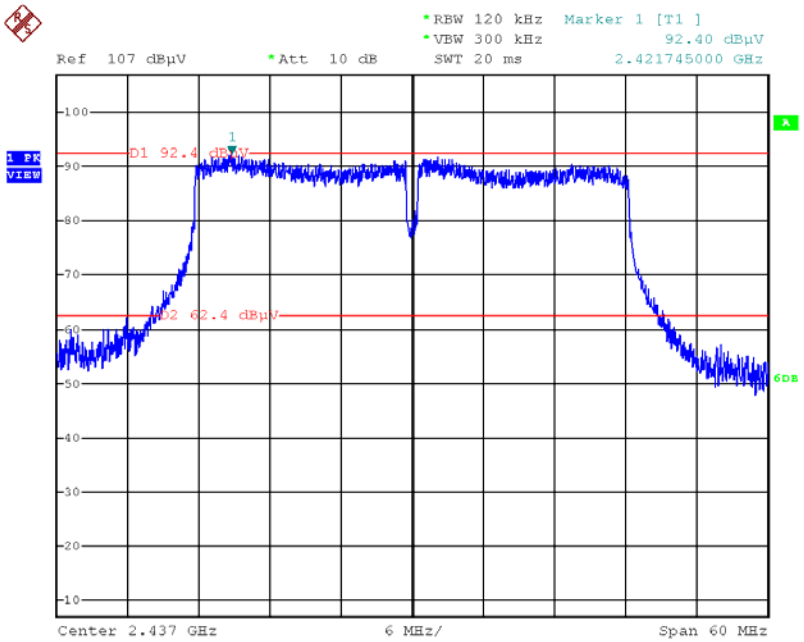
Date: 23.MAY.2013 05:24:20

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



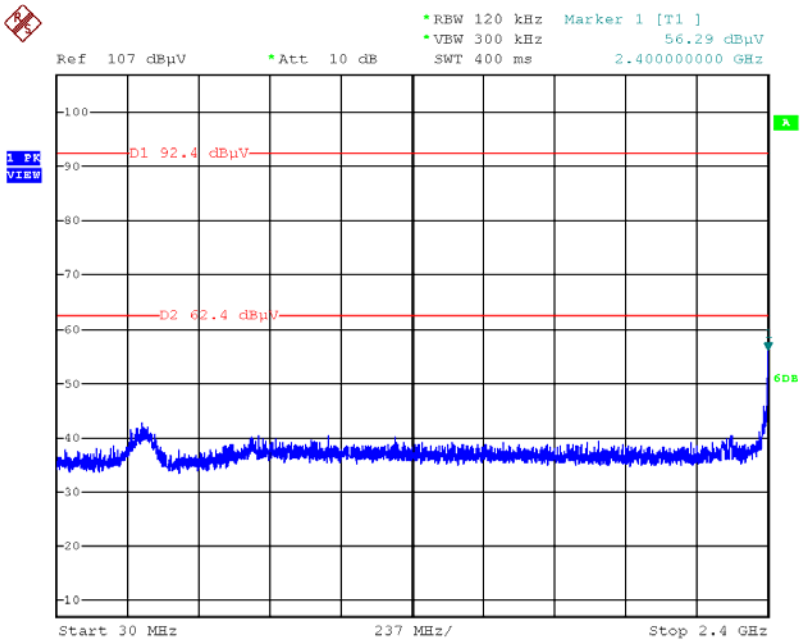
Date: 23.MAY.2013 05:24:42

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Test Mode: Mode 9



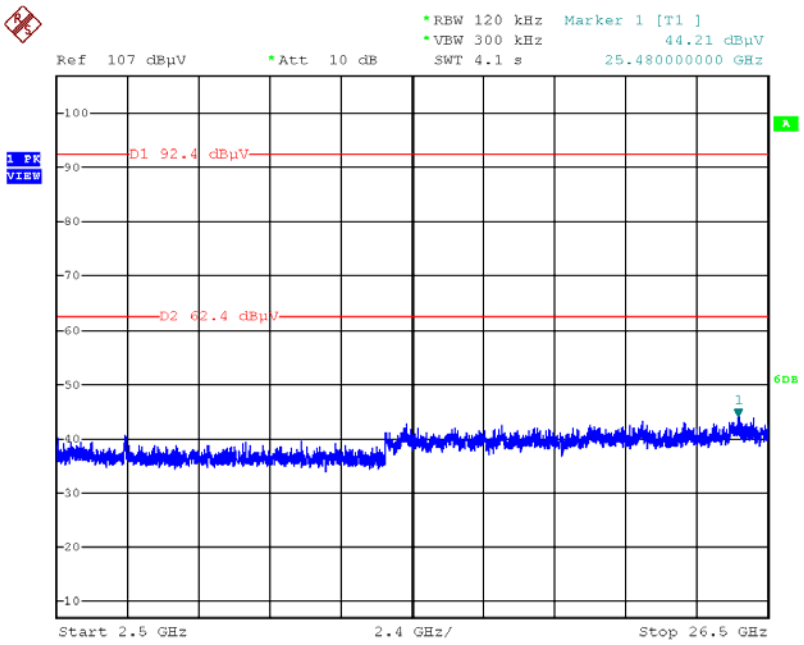
Date: 23.MAY.2013 05:26:29

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



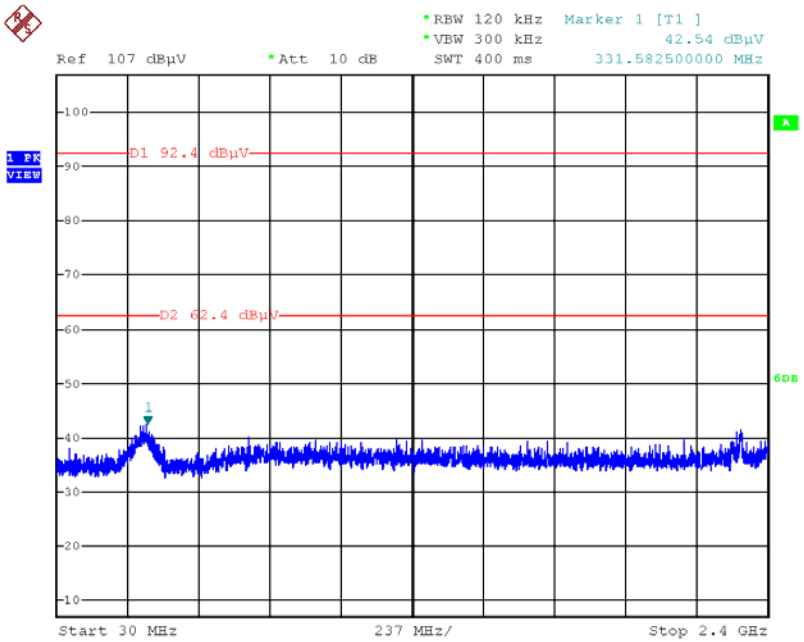
Date: 23.MAY.2013 05:27:10

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



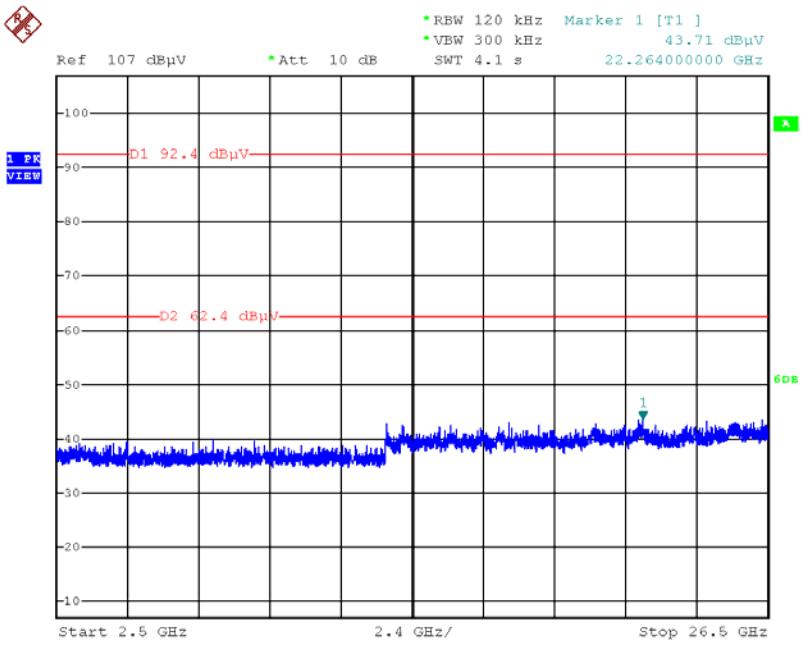
Date: 23.MAY.2013 05:27:41

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



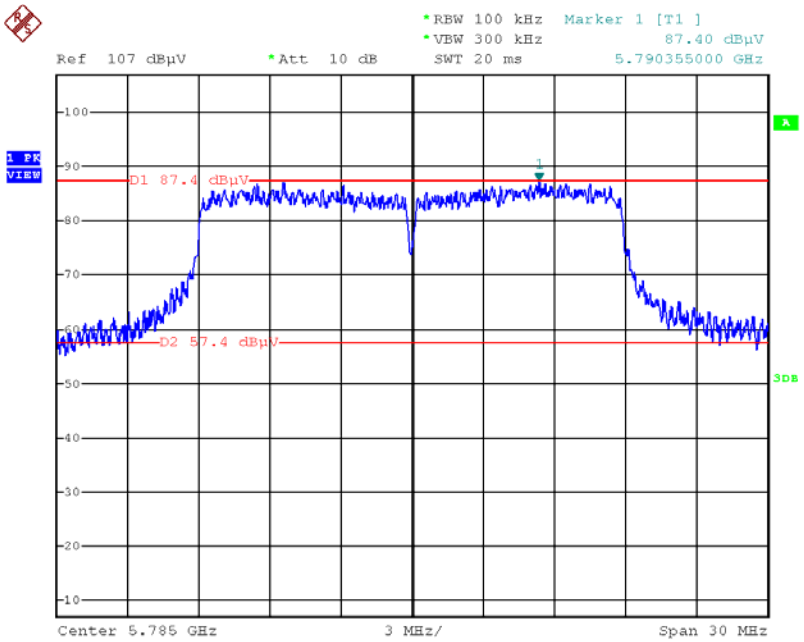
Date: 23.MAY.2013 05:28:08

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



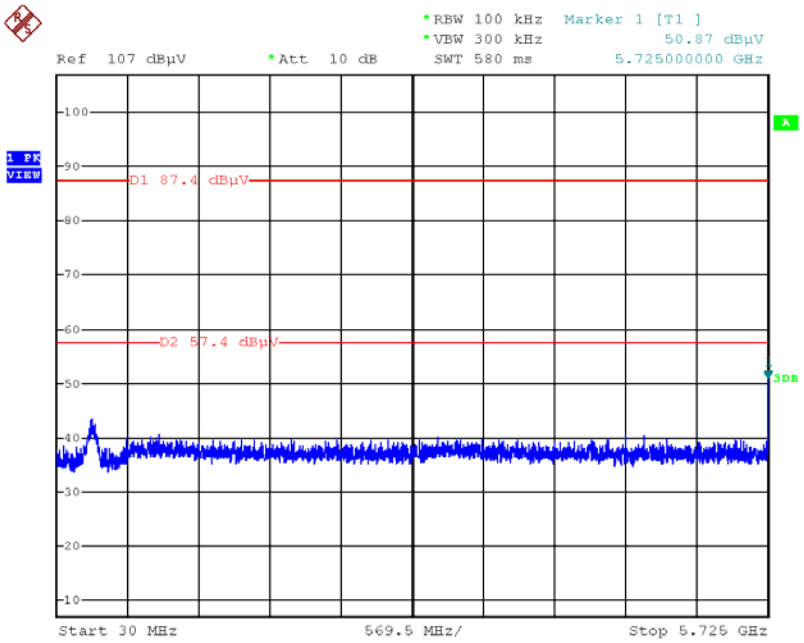
Date: 23.MAY.2013 05:28:32

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Reference Level / Test Mode: Mode 9



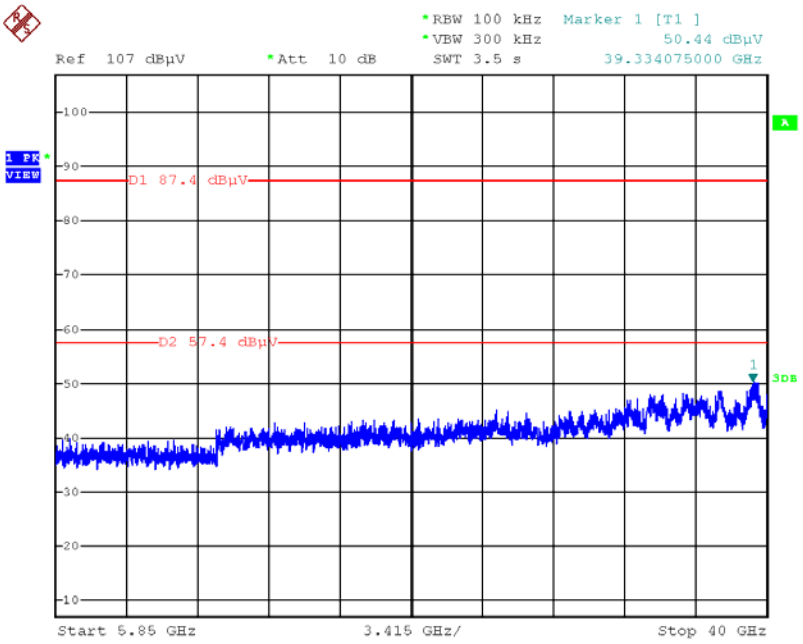
Date: 24.MAY.2013 04:04:33

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



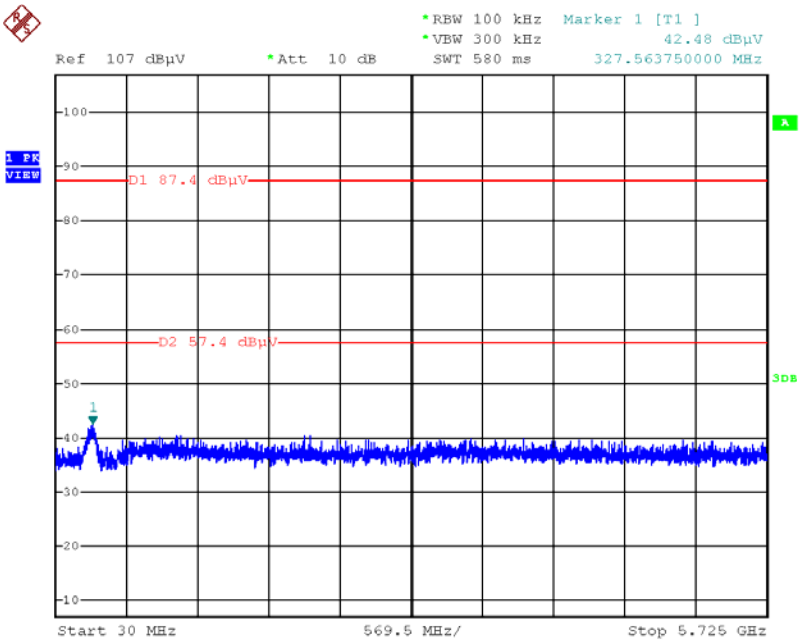
Date: 24.MAY.2013 04:05:16

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



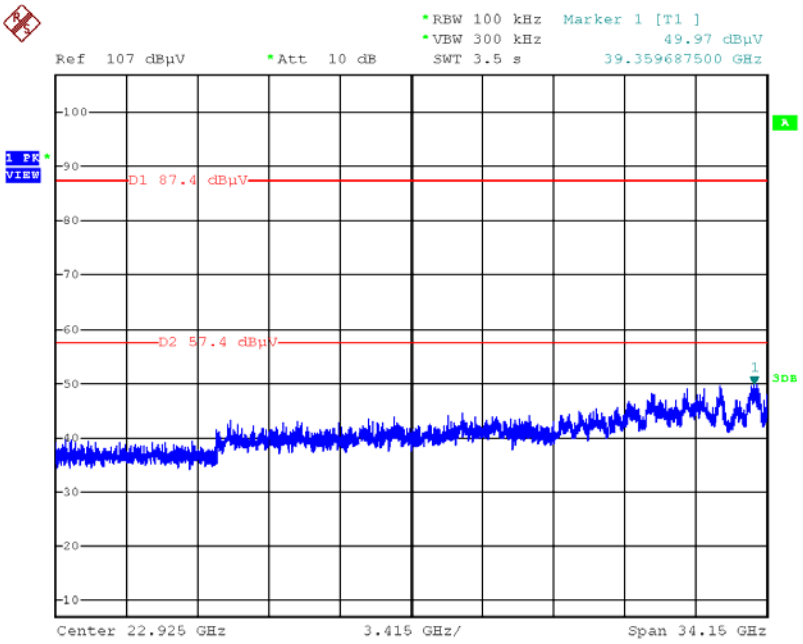
Date: 24.MAY.2013 04:05:51

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



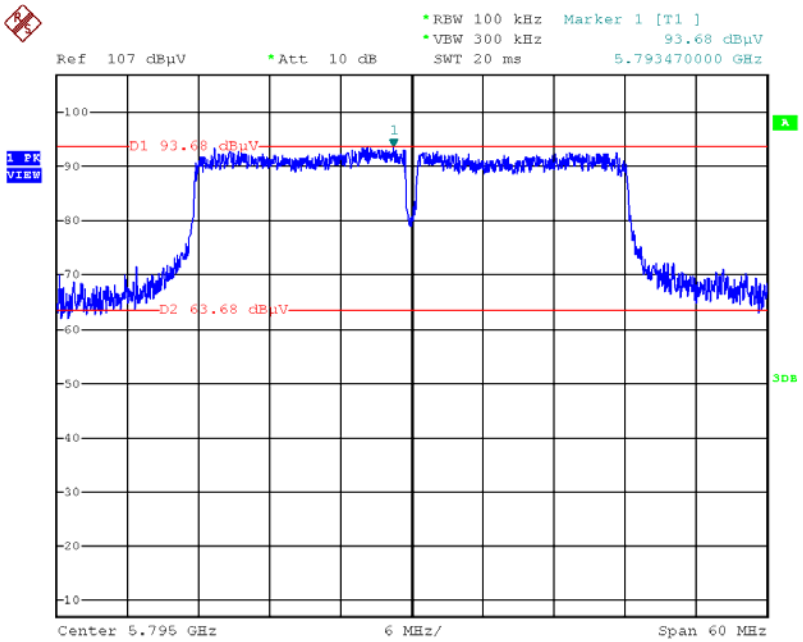
Date: 24.MAY.2013 04:06:56

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



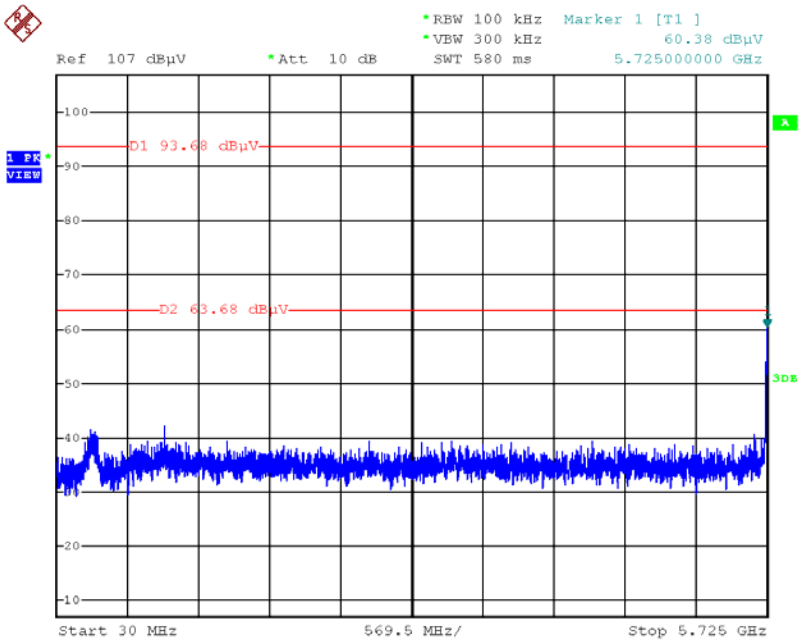
Date: 24.MAY.2013 04:06:29

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Reference Level / Test Mode: Mode 9



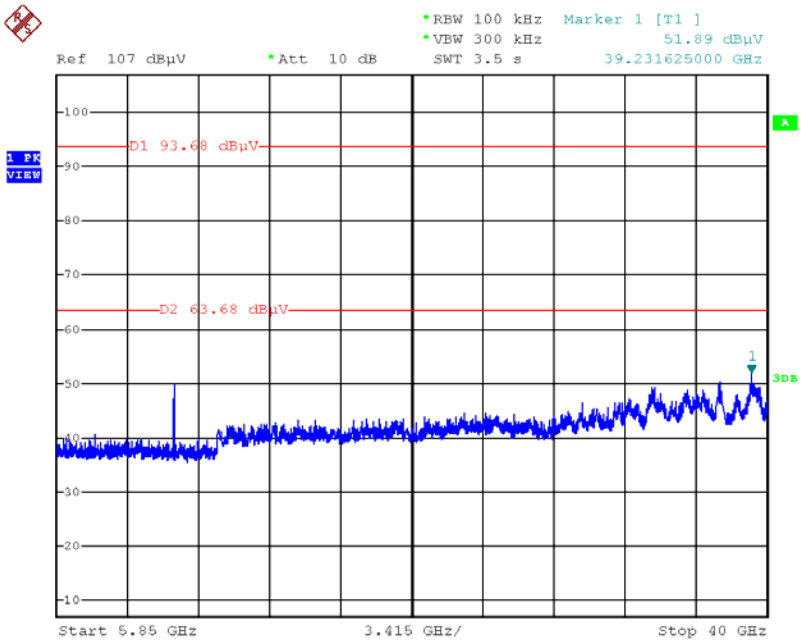
Date: 24.MAY.2013 03:56:17

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



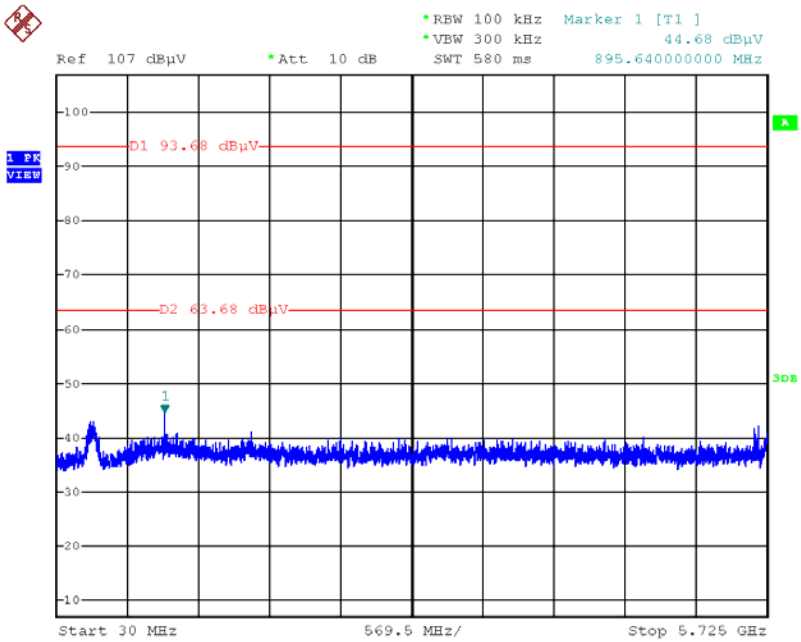
Date: 24.MAY.2013 03:59:43

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



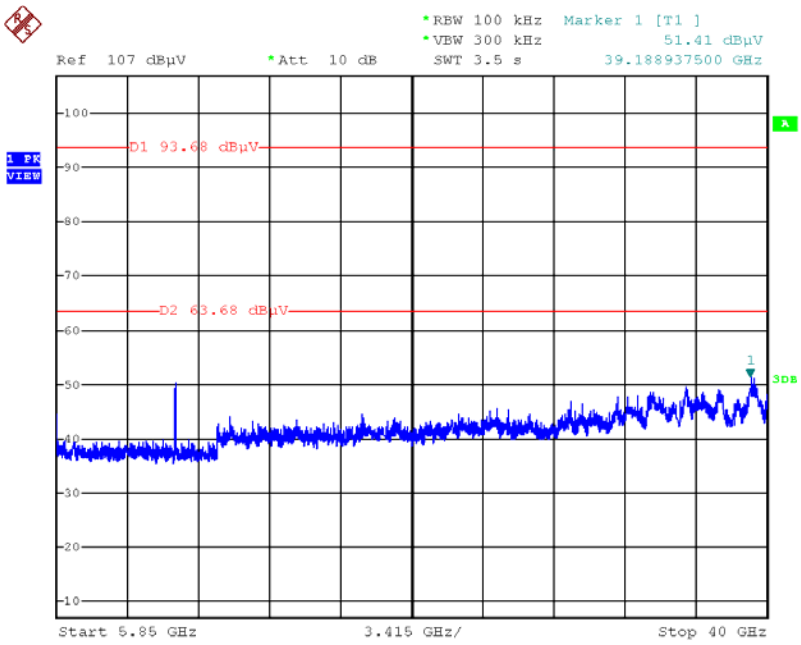
Date: 24.MAY.2013 04:00:12

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



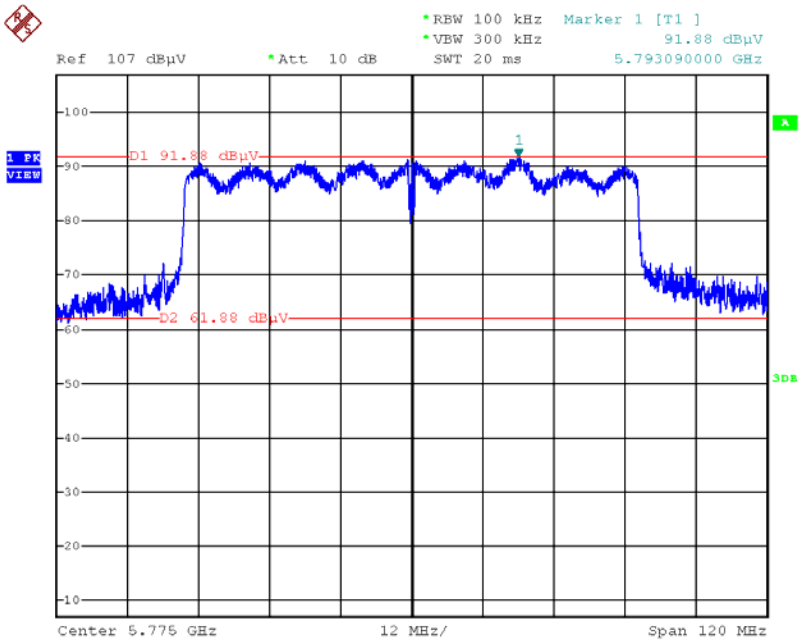
Date: 24.MAY.2013 03:56:40

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



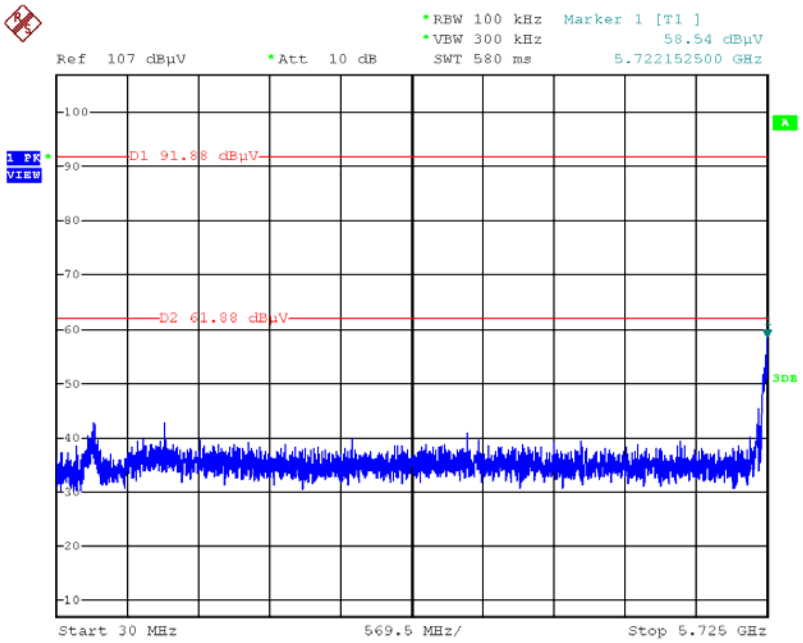
Date: 24.MAY.2013 03:57:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Reference Level / Test Mode: Mode 9



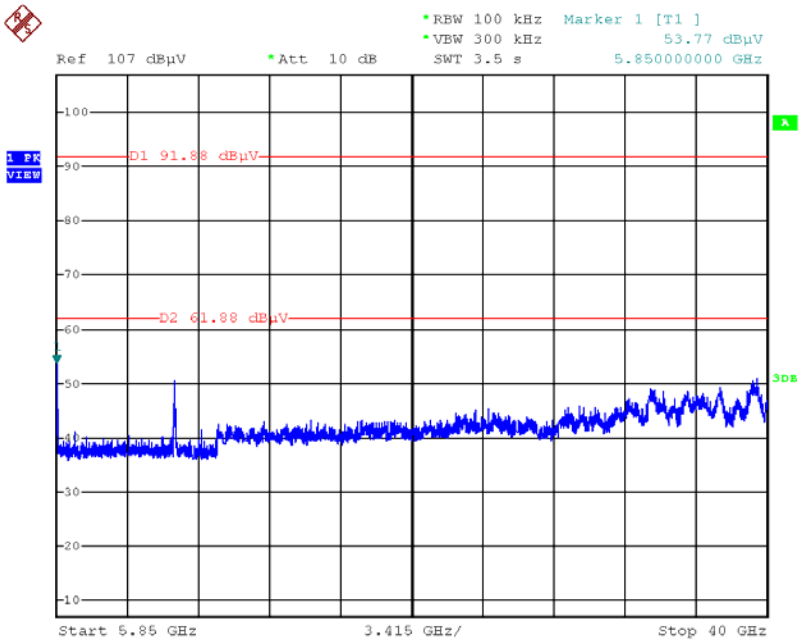
Date: 24.MAY.2013 03:50:32

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



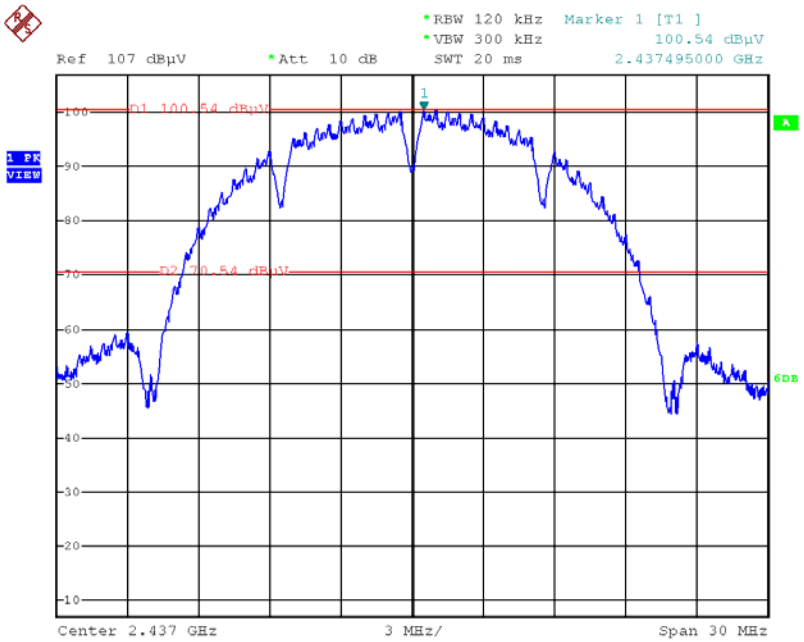
Date: 24.MAY.2013 03:52:26

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



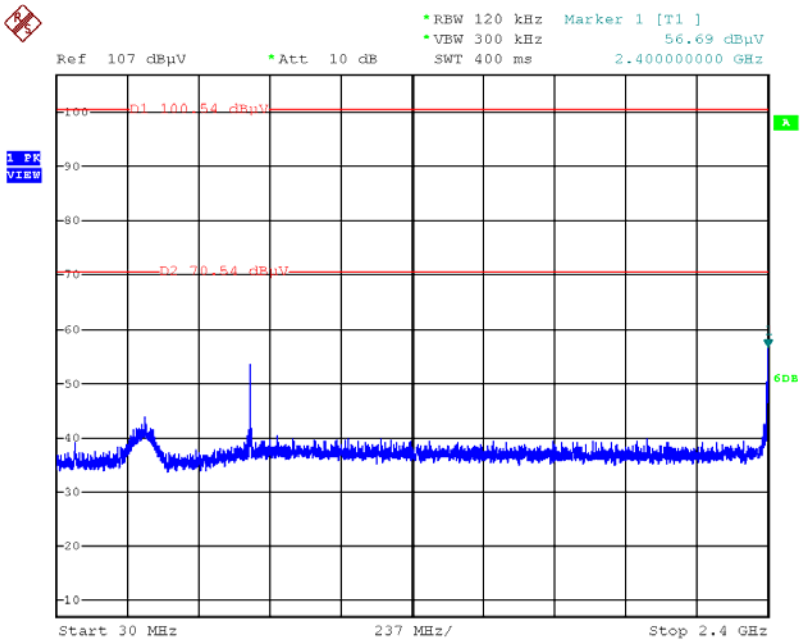
Date: 24.MAY.2013 03:53:04

Plot on Configuration IEEE 802.11b / Reference Level / Test Mode: Mode 9



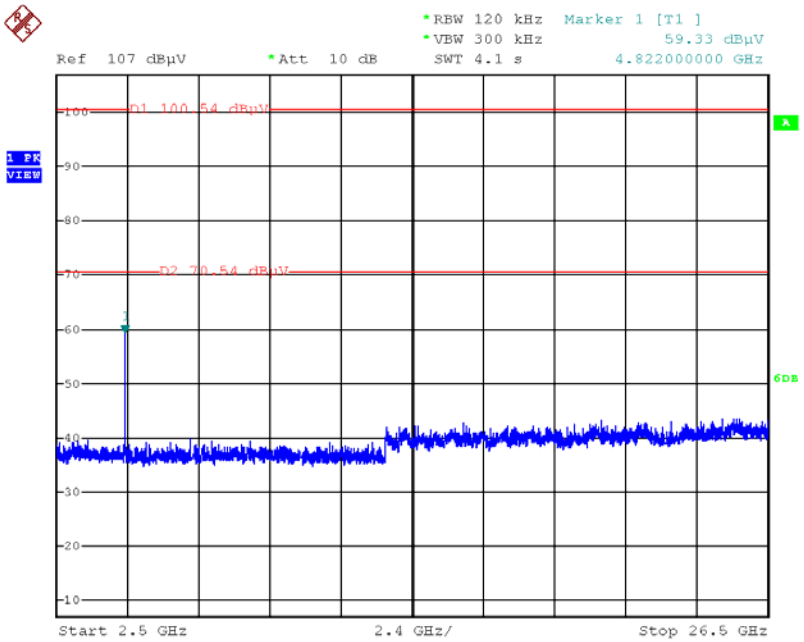
Date: 23.MAY.2013 05:16:06

Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



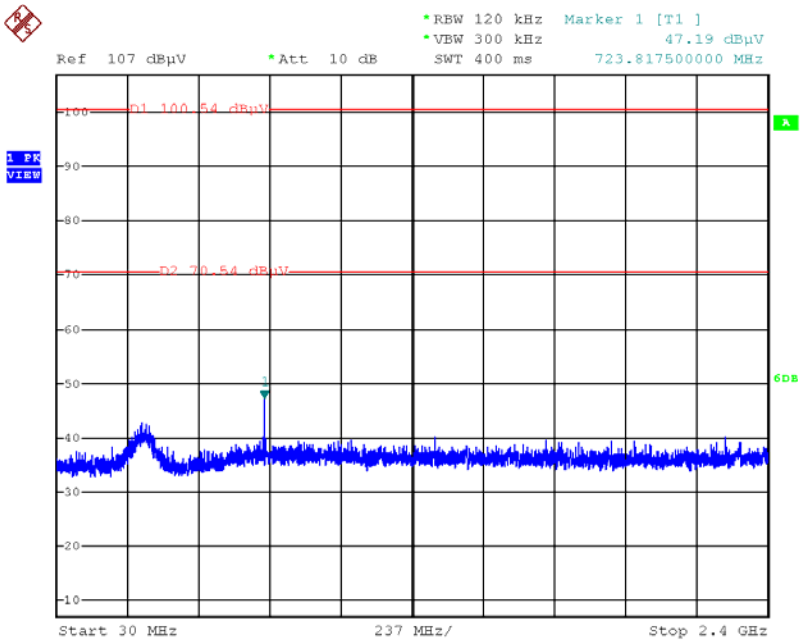
Date: 23.MAY.2013 05:17:08

Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



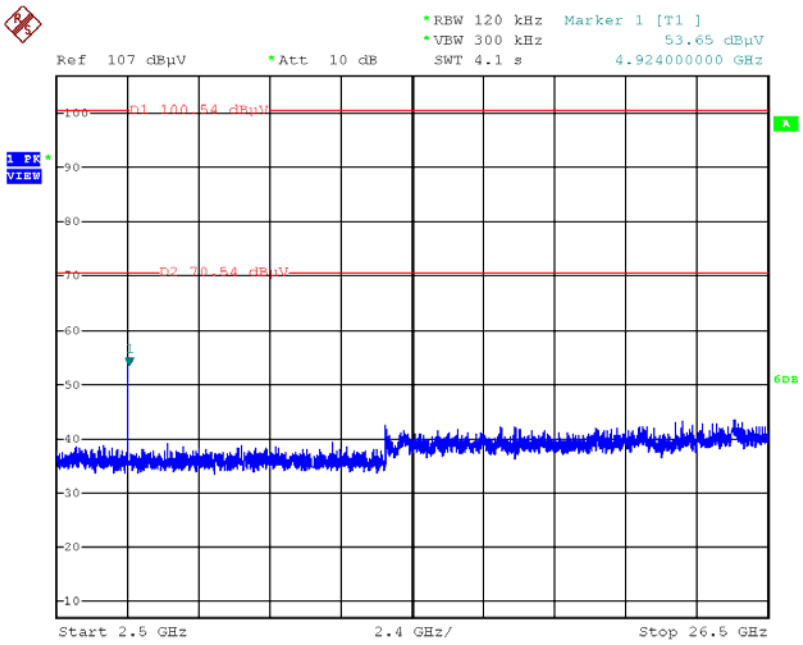
Date: 23.MAY.2013 05:17:35

Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



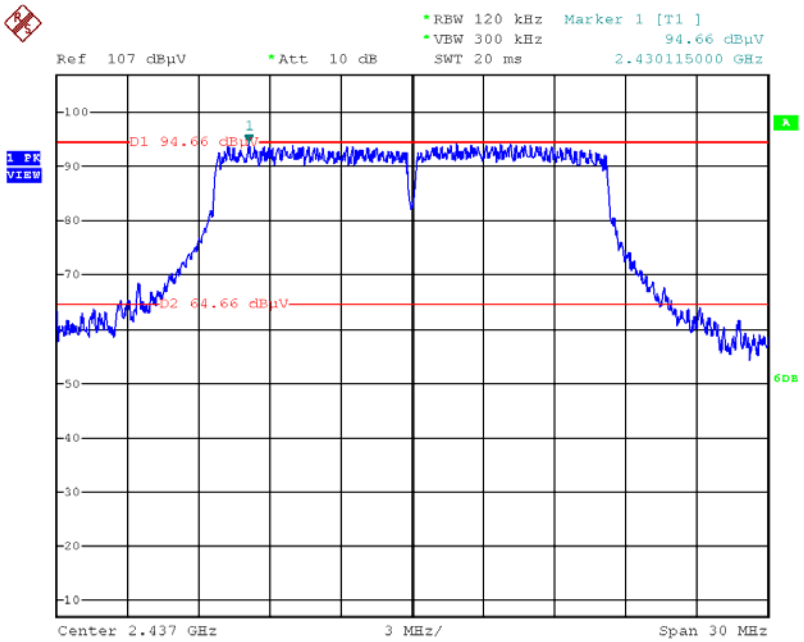
Date: 23.MAY.2013 05:18:03

Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



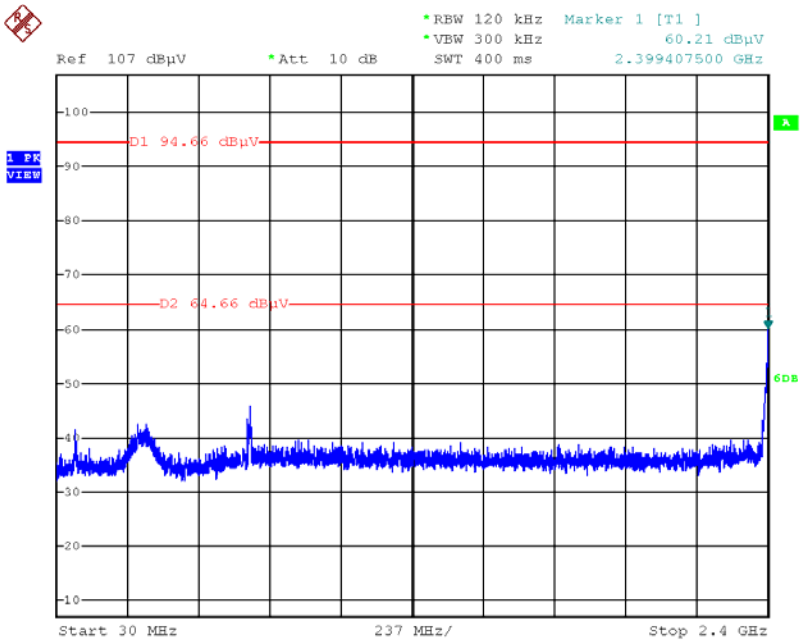
Date: 23.MAY.2013 05:18:21

Plot on Configuration IEEE 802.11g / Reference Level / Test Mode: Mode 9



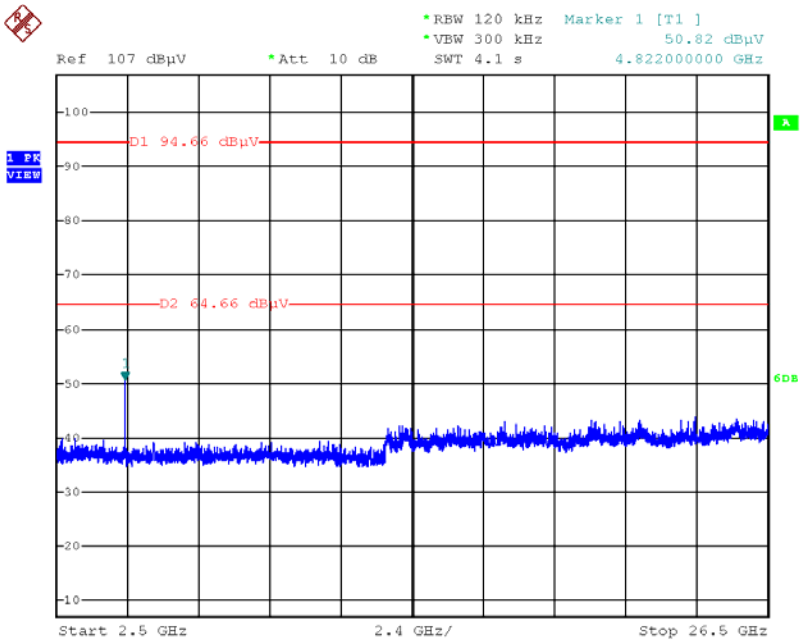
Date: 23.MAY.2013 05:19:47

Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



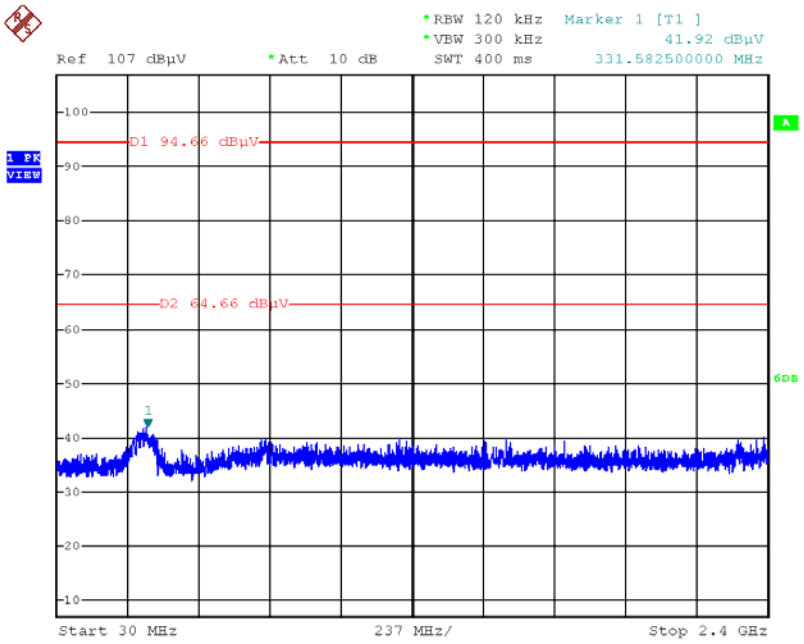
Date: 23.MAY.2013 05:20:54

Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



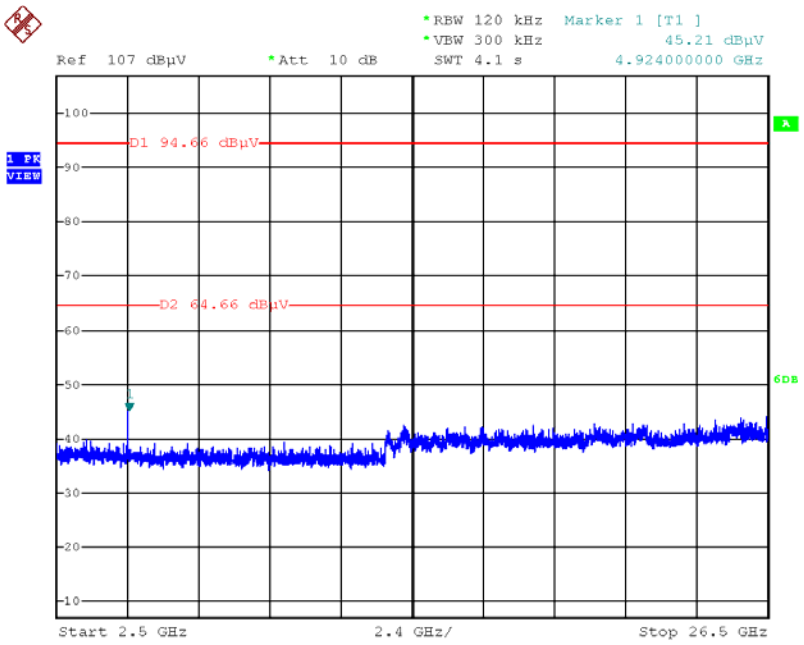
Date: 23.MAY.2013 05:21:16

Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 9



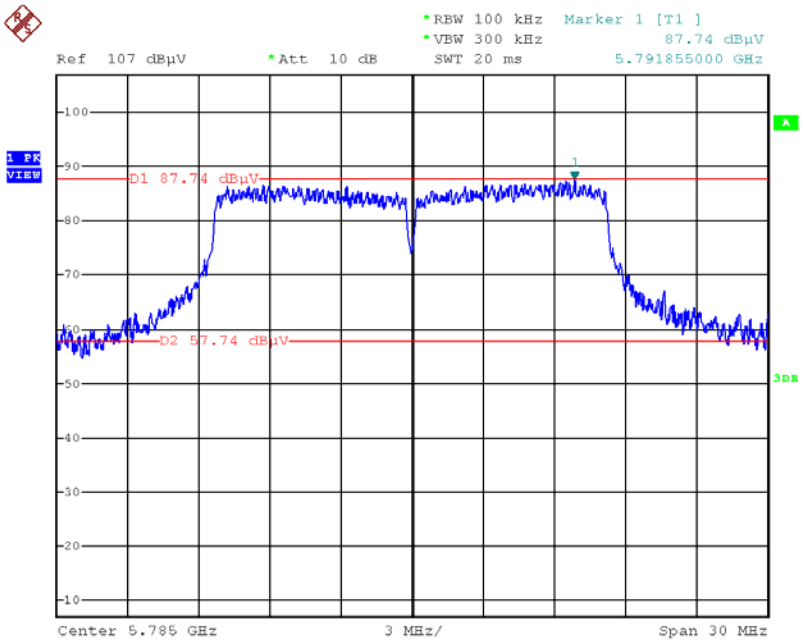
Date: 23.MAY.2013 05:21:40

Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 9



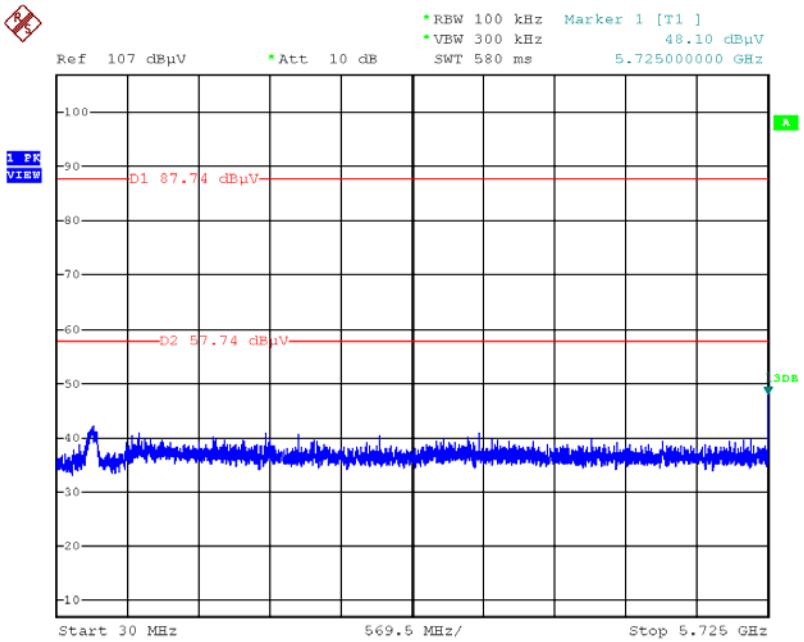
Date: 23.MAY.2013 05:22:03

Plot on Configuration IEEE 802.11a / Reference Level / Test Mode: Mode 9



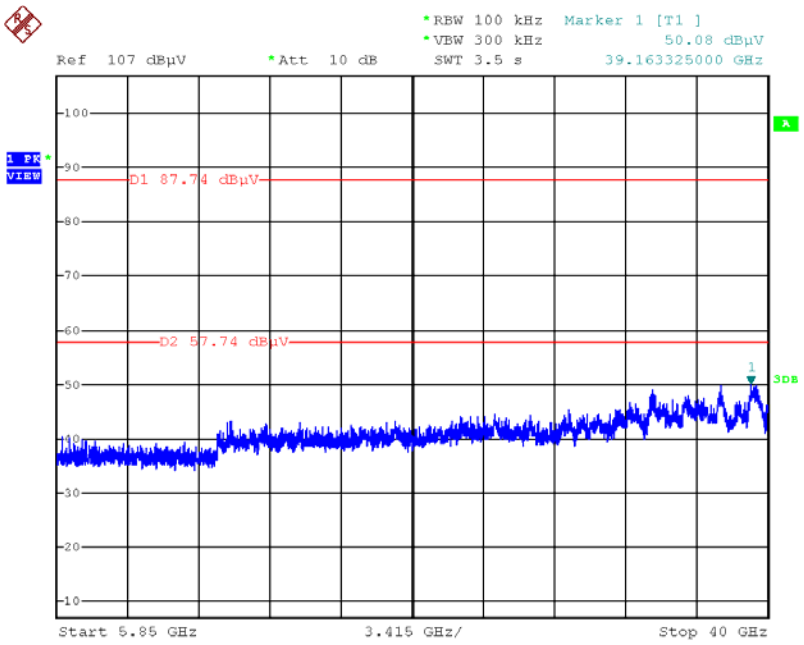
Date: 24.MAY.2013 04:08:00

Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



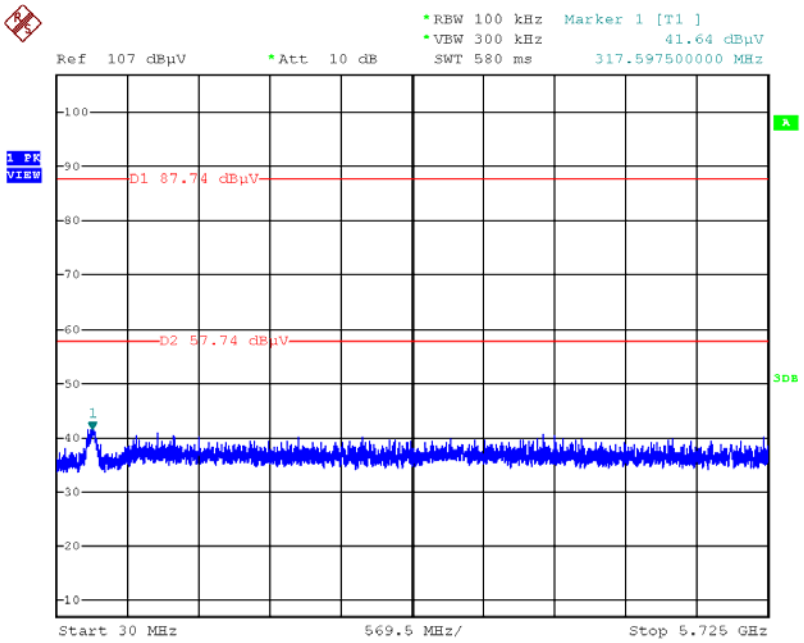
Date: 24.MAY.2013 04:08:29

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



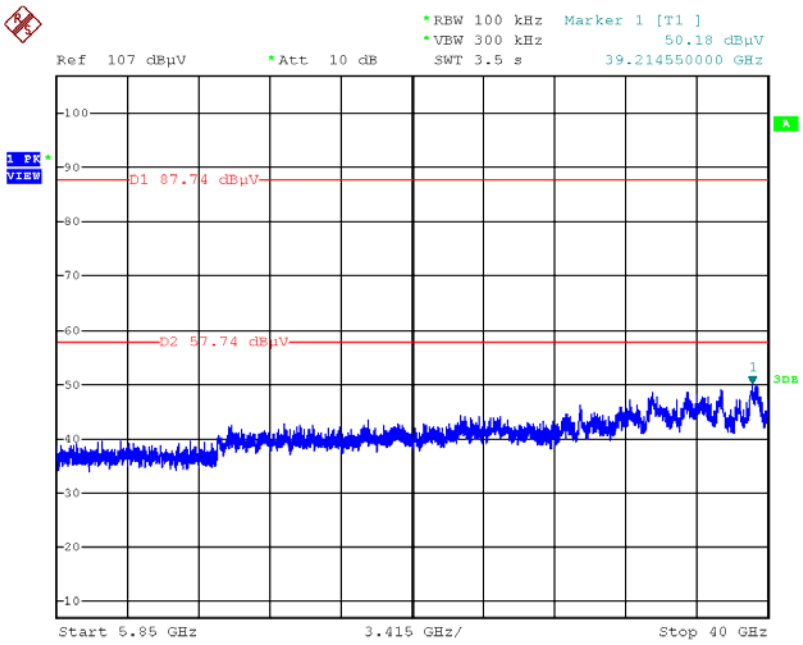
Date: 24.MAY.2013 04:08:57

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 9



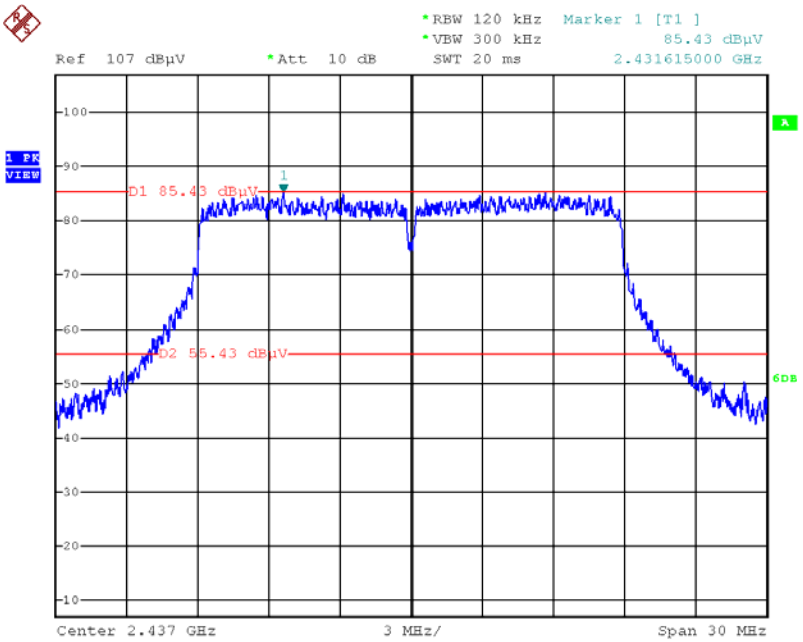
Date: 24.MAY.2013 04:09:23

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 9



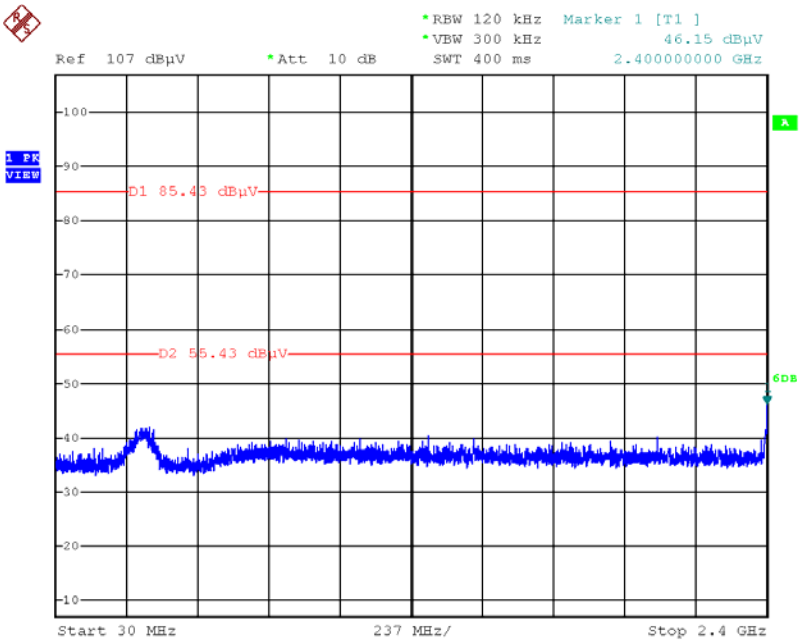
Date: 24.MAY.2013 04:09:48

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Test Mode: Mode 13



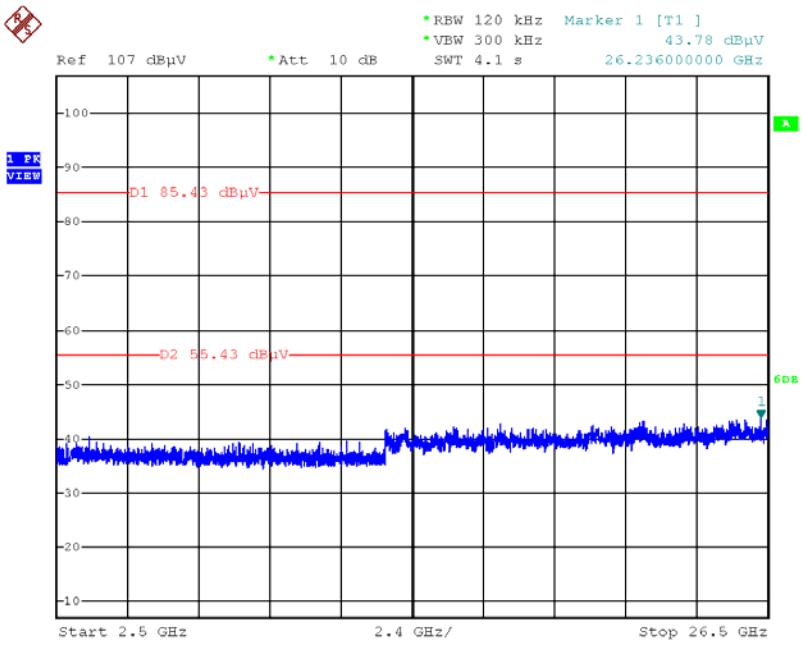
Date: 23.MAY.2013 04:02:31

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



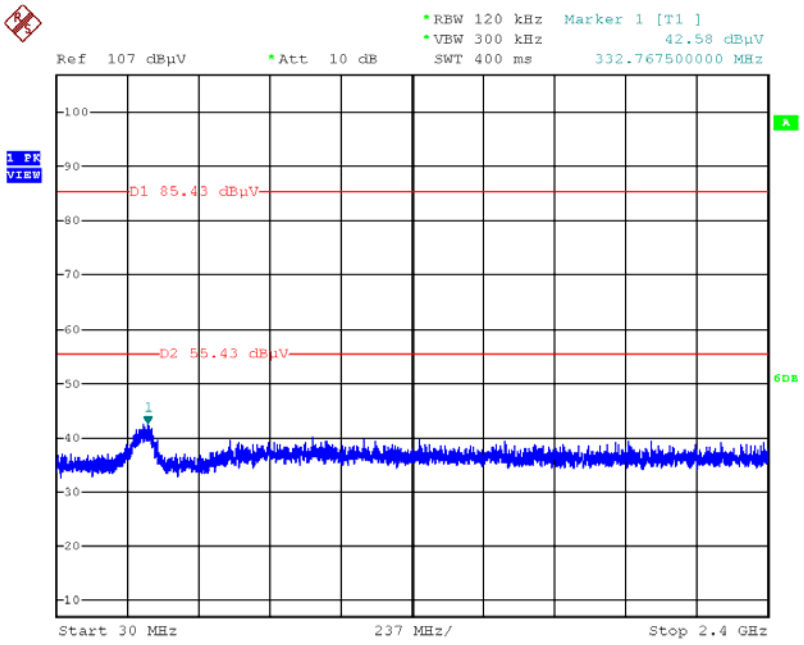
Date: 23.MAY.2013 04:03:21

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



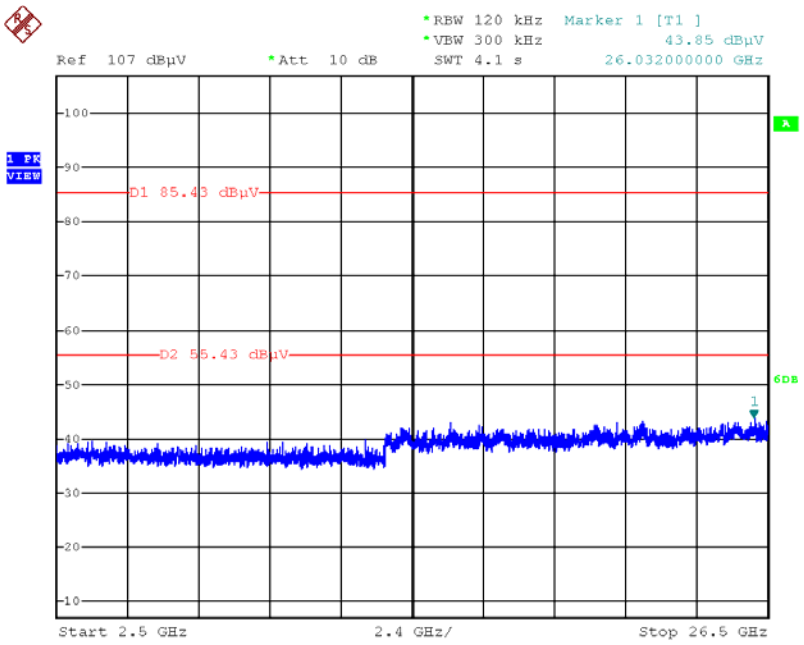
Date: 23.MAY.2013 04:03:44

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



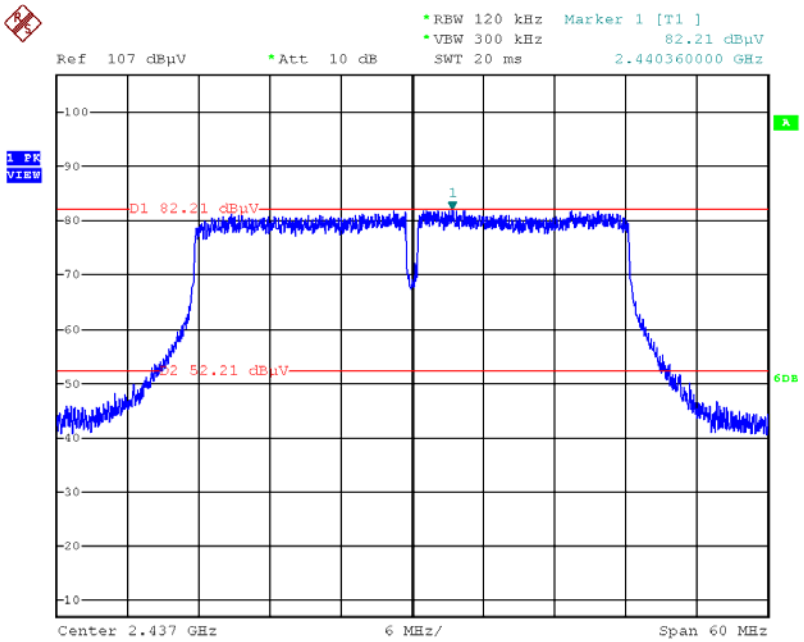
Date: 23.MAY.2013 04:04:55

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



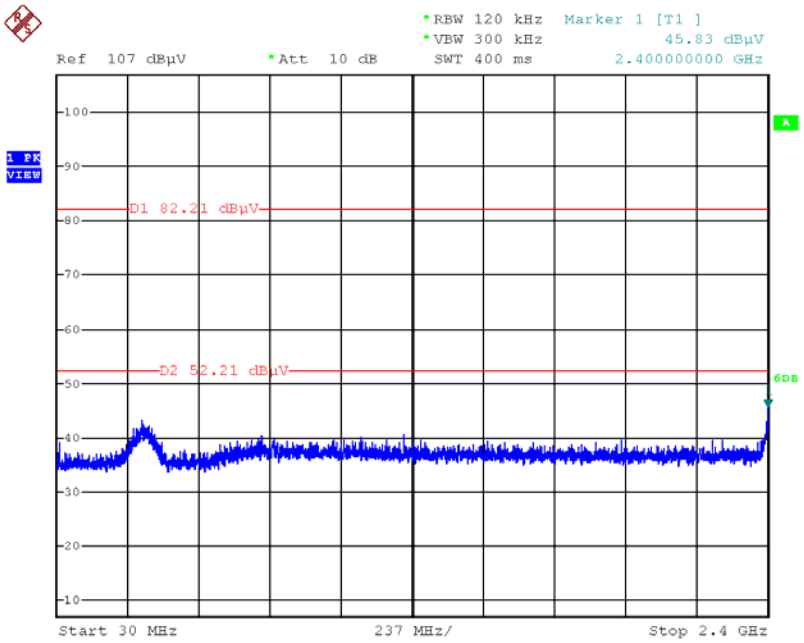
Date: 23.MAY.2013 04:04:36

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Test Mode: Mode 13



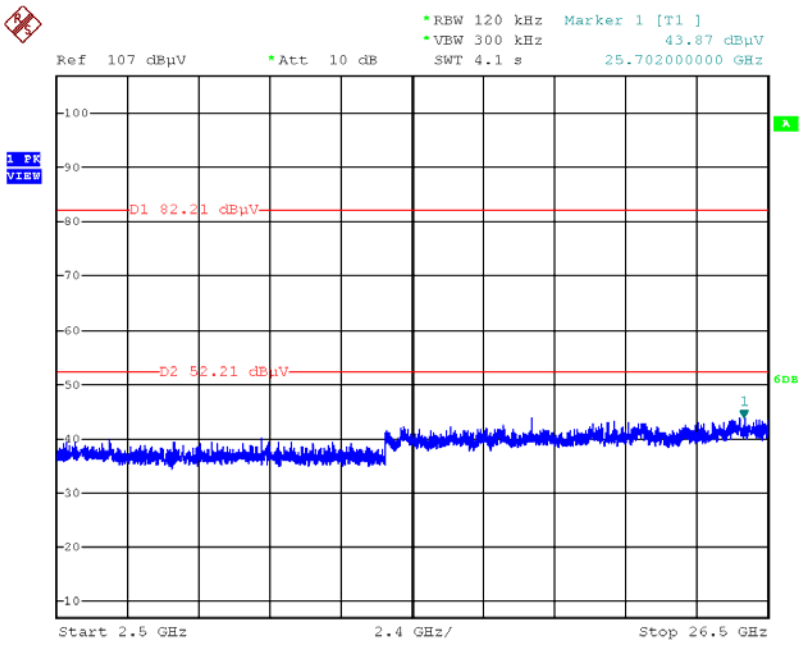
Date: 23.MAY.2013 04:06:19

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



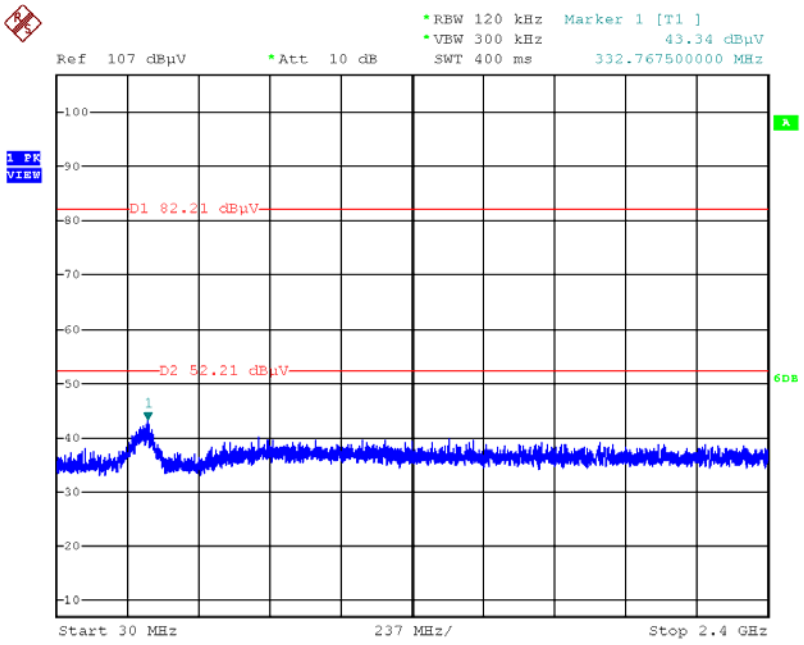
Date: 23.MAY.2013 04:07:15

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



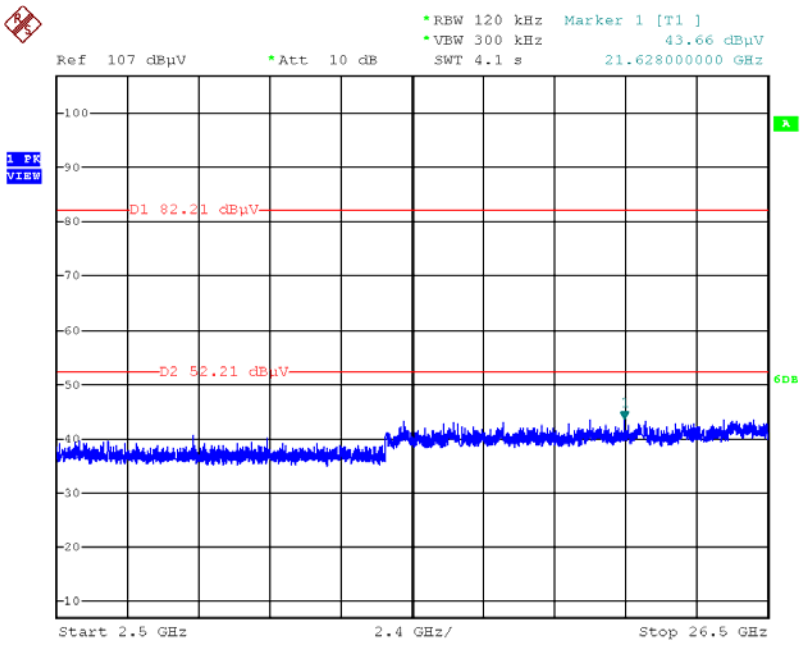
Date: 23.MAY.2013 04:07:45

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



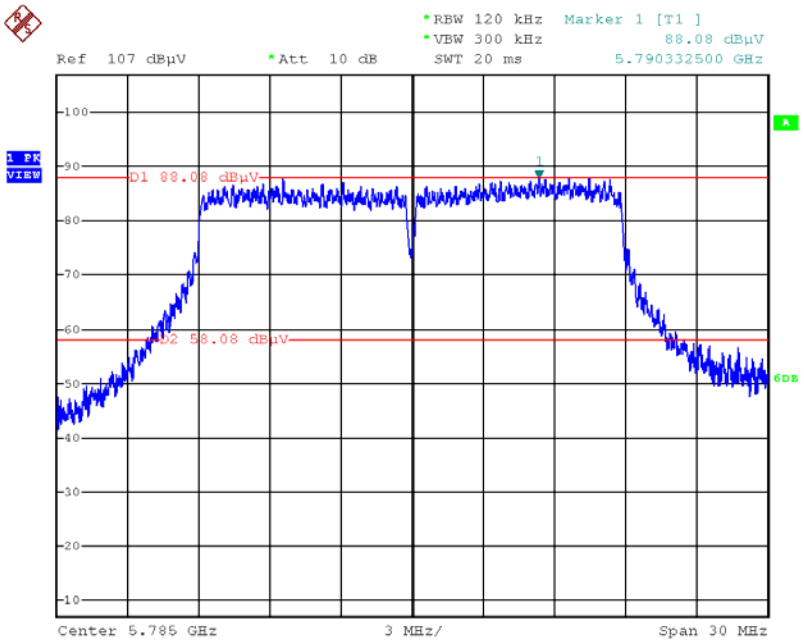
Date: 23.MAY.2013 04:08:55

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



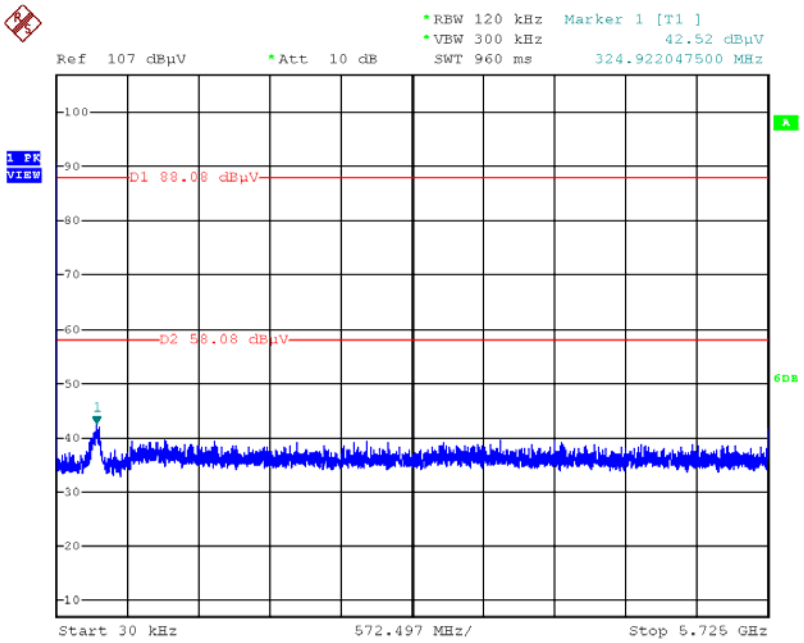
Date: 23.MAY.2013 04:08:31

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / Reference Level / Test Mode: Mode 13



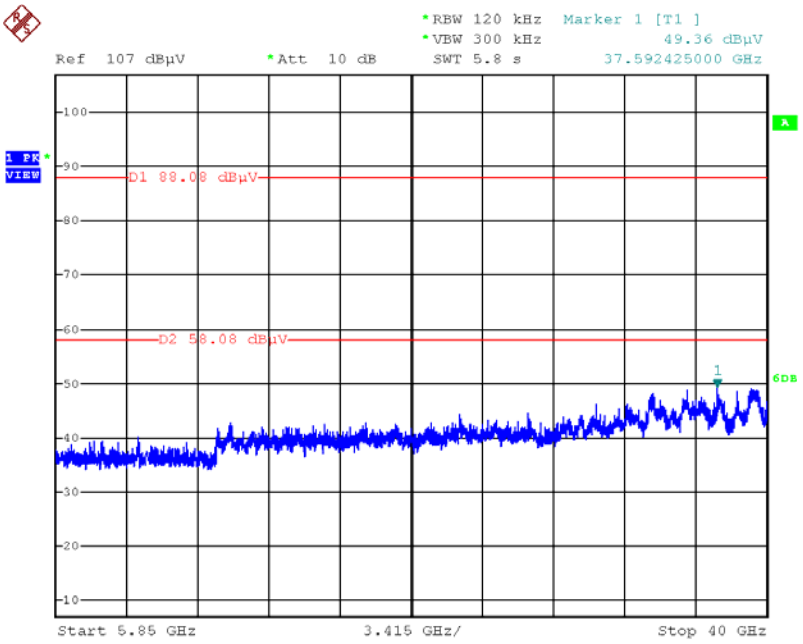
Date: 23.MAY.2013 04:38:15

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



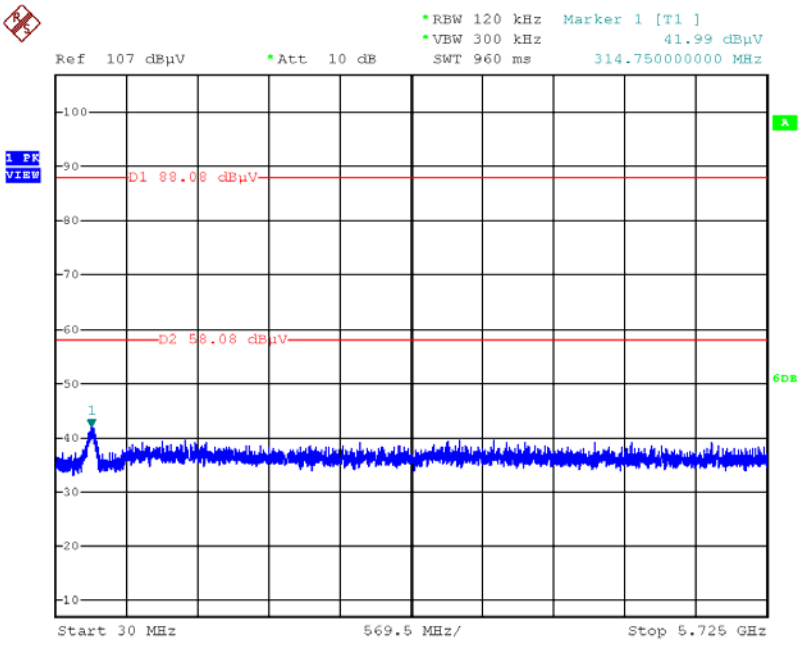
Date: 23.MAY.2013 04:39:04

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



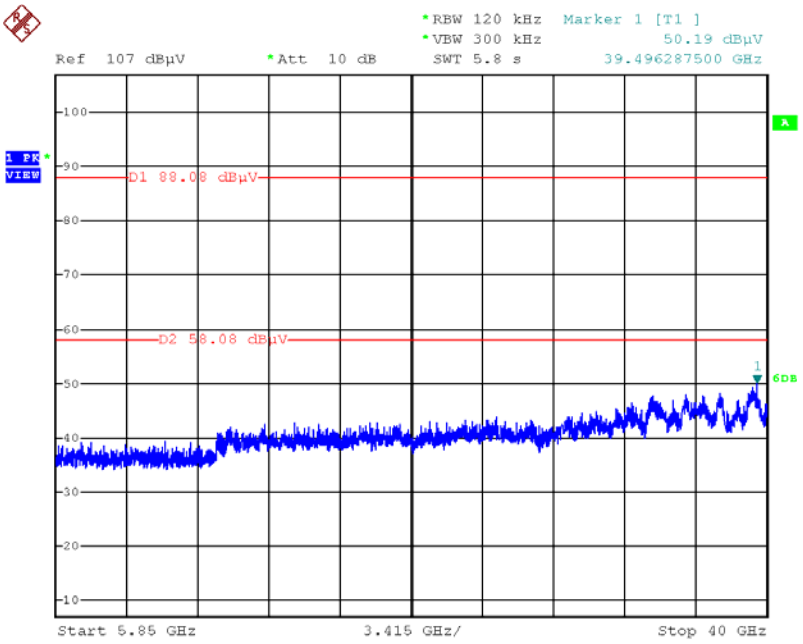
Date: 23.MAY.2013 04:39:40

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



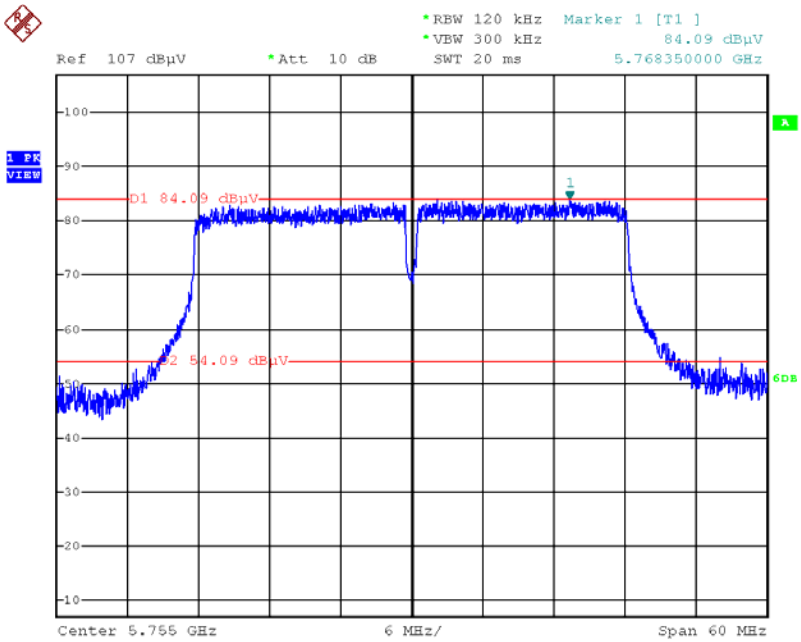
Date: 23.MAY.2013 04:40:31

Plot on Configuration IEEE 802.11ac MCS0/Nss1 20MHz / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13

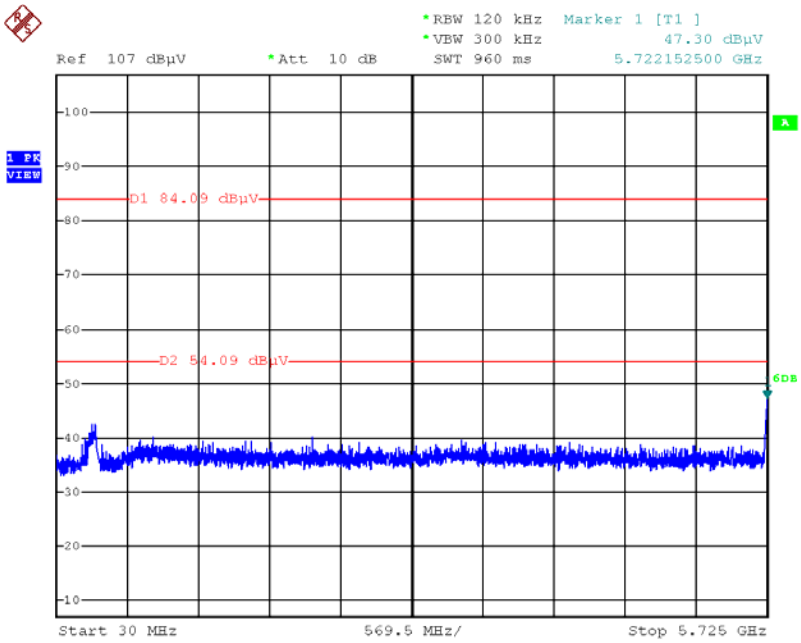


Date: 23.MAY.2013 04:40:11

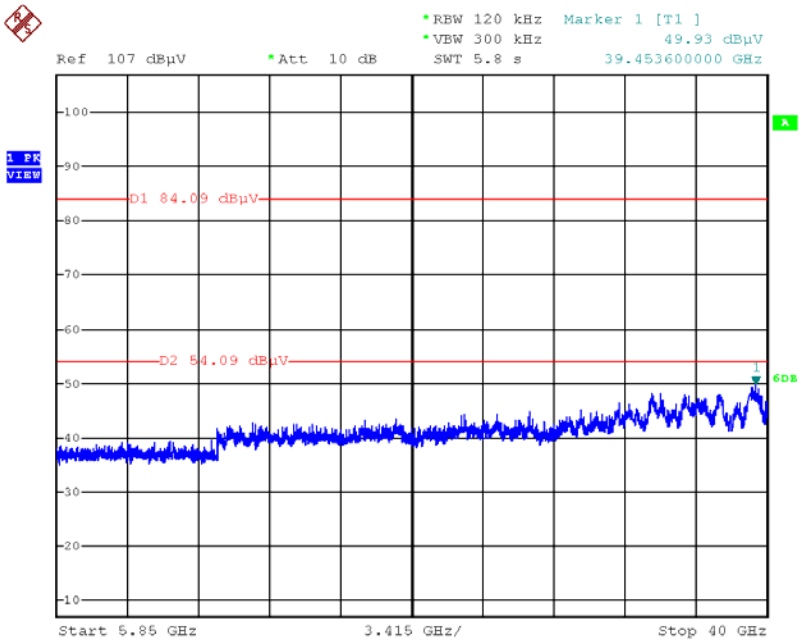
Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / Reference Level / Test Mode: Mode 13



Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13

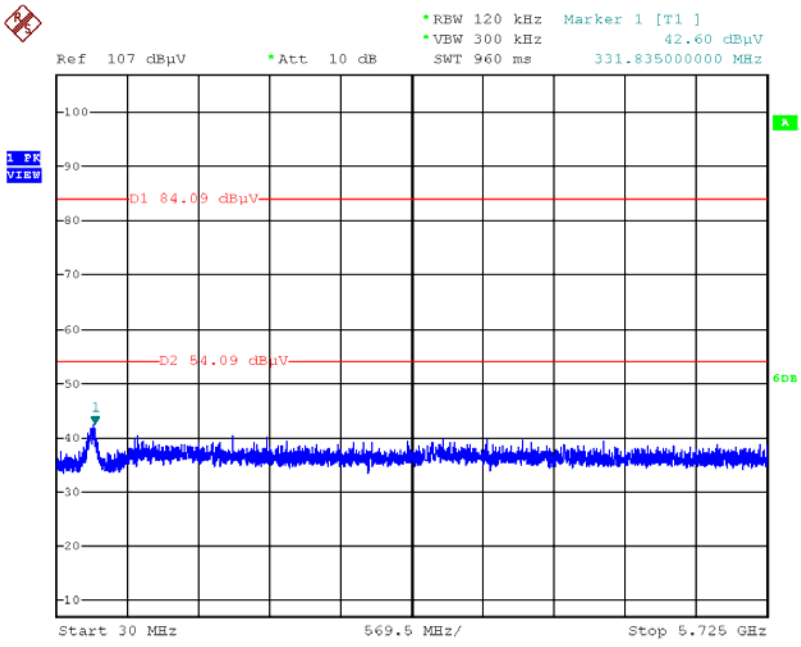


Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 151 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



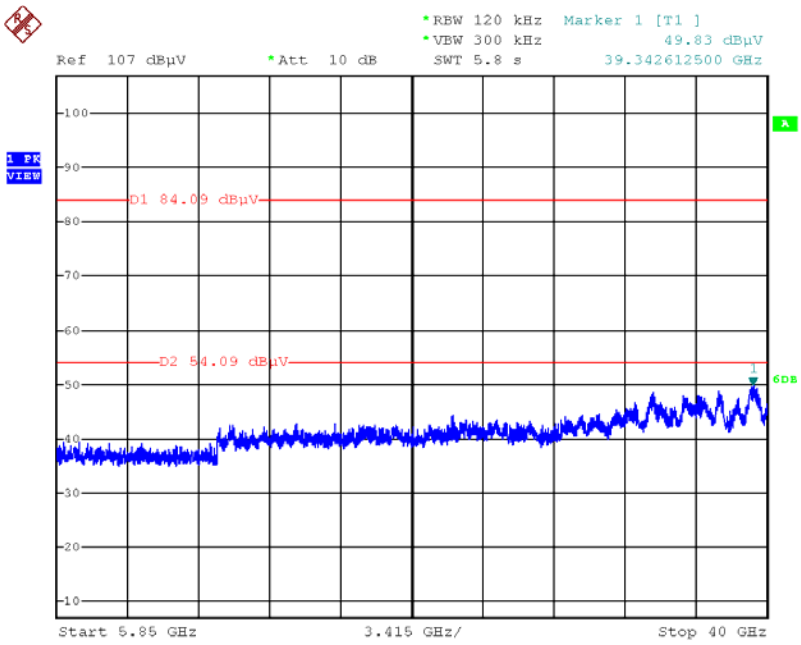
Date: 23.MAY.2013 04:35:46

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



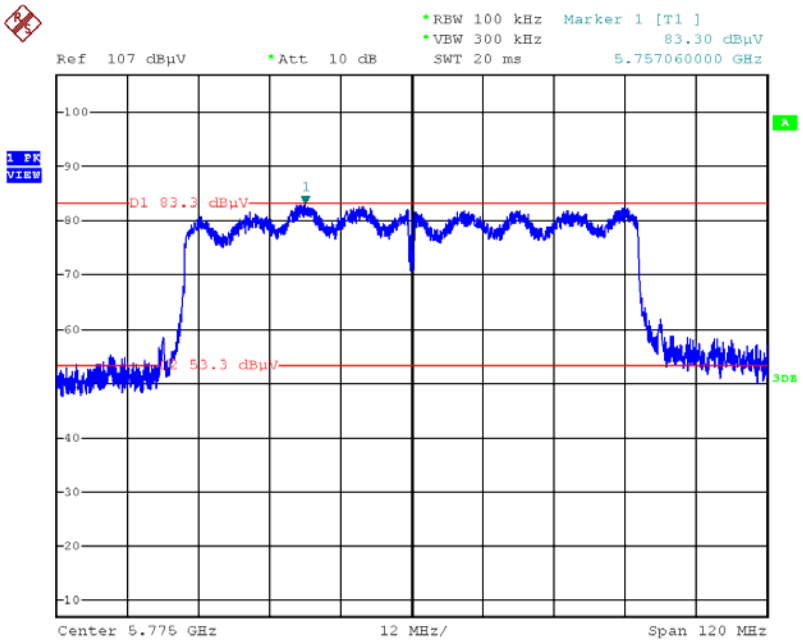
Date: 23.MAY.2013 04:37:05

Plot on Configuration IEEE 802.11ac MCS0/Nss1 40MHz / CH 159 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



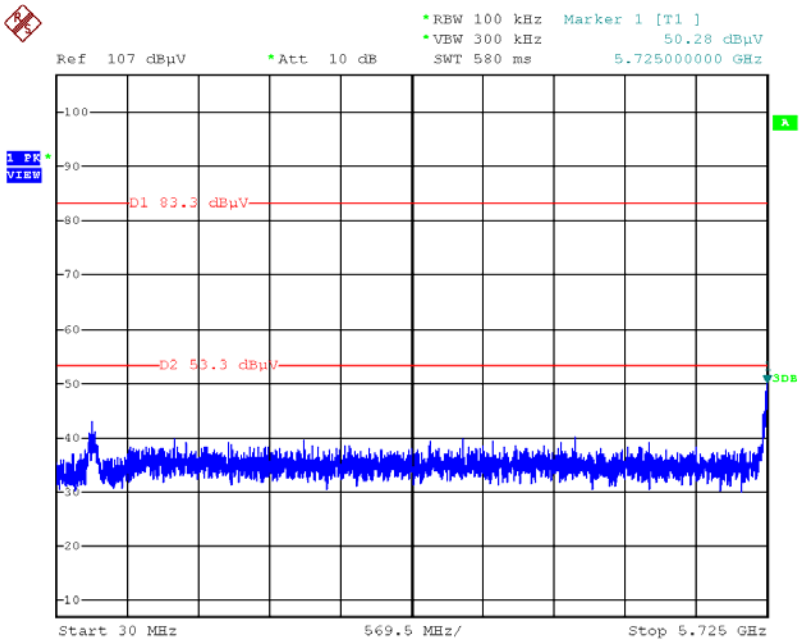
Date: 23.MAY.2013 04:36:44

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Reference Level / Test Mode: Mode 13



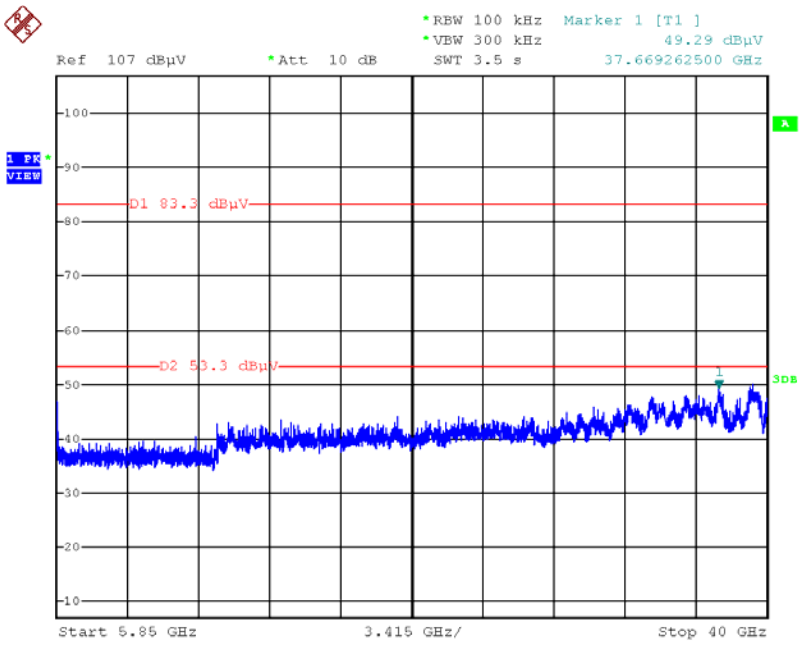
Date: 24.MAY.2013 05:00:37

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



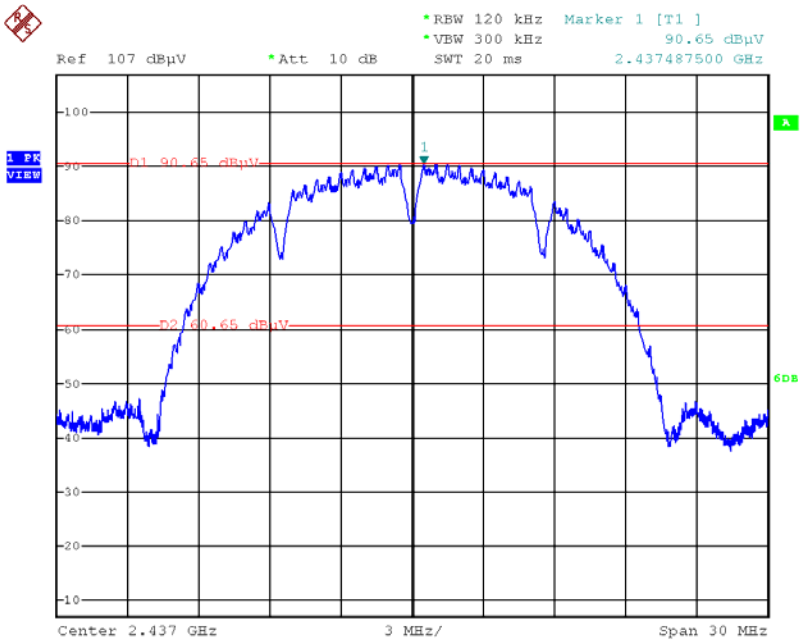
Date: 24.MAY.2013 05:02:39

Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / CH 155 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



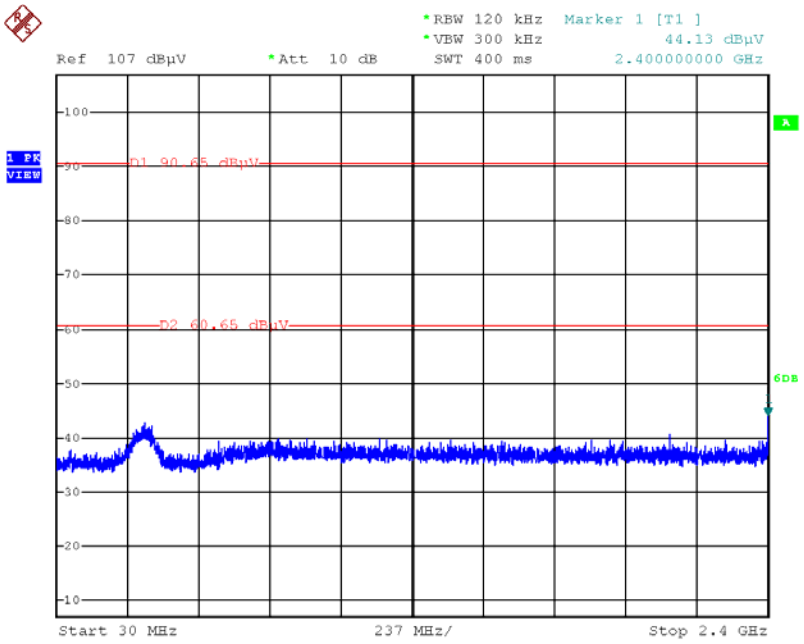
Date: 24.MAY.2013 05:04:29

Plot on Configuration IEEE 802.11b / Reference Level / Test Mode: Mode 13



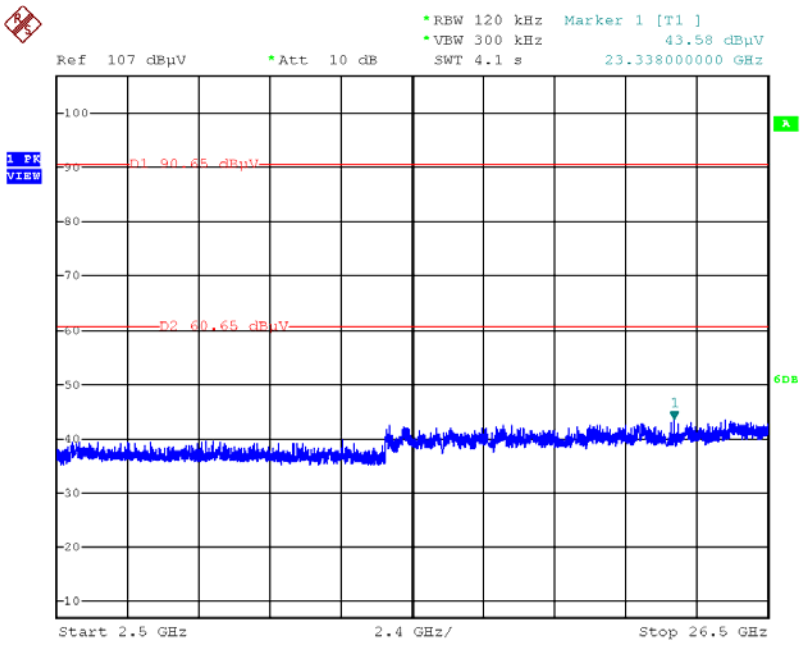
Date: 23.MAY.2013 03:52:55

Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



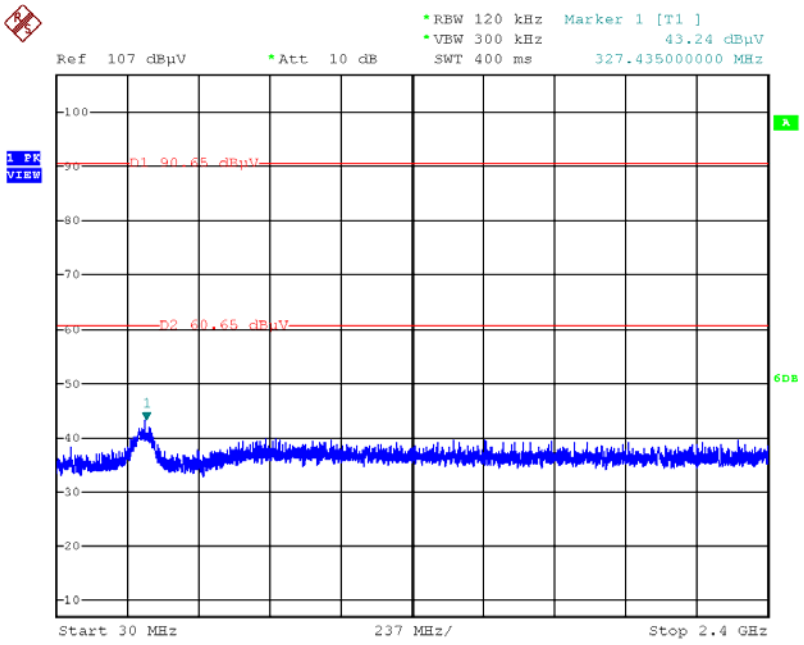
Date: 23.MAY.2013 03:53:58

Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



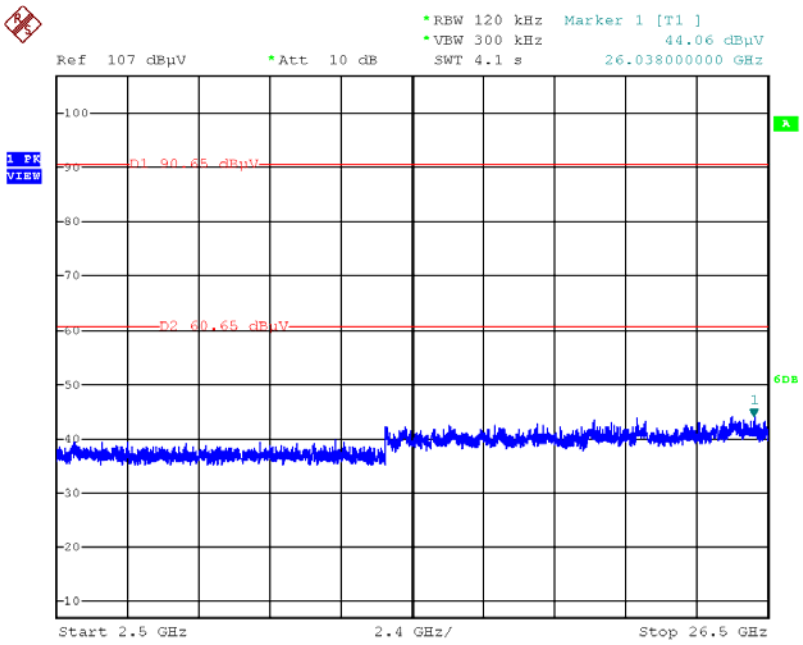
Date: 23.MAY.2013 03:54:28

Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



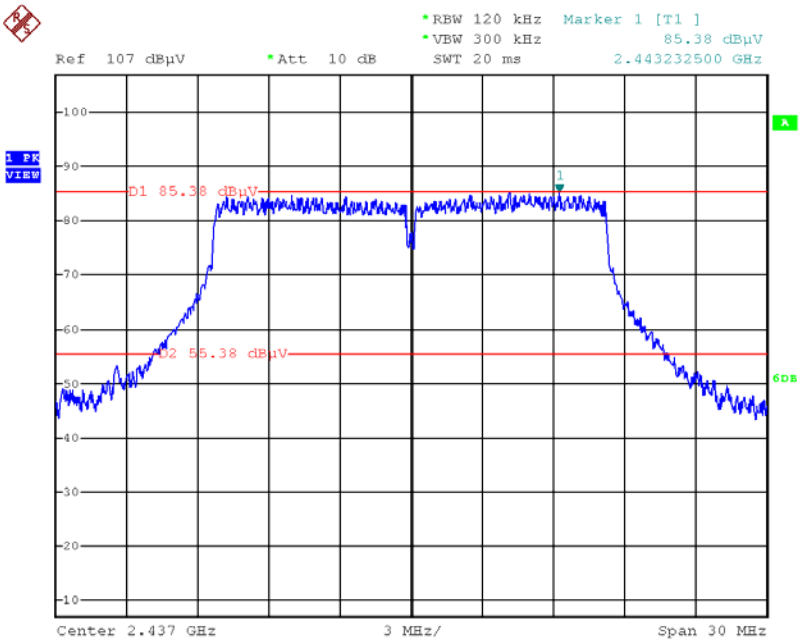
Date: 23.MAY.2013 03:55:47

Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



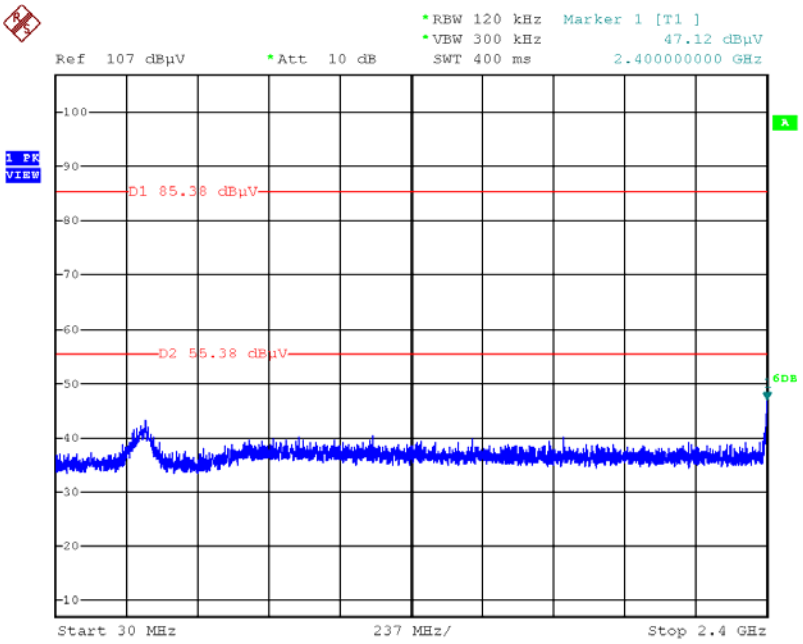
Date: 23.MAY.2013 03:55:25

Plot on Configuration IEEE 802.11g / Reference Level / Test Mode: Mode 13



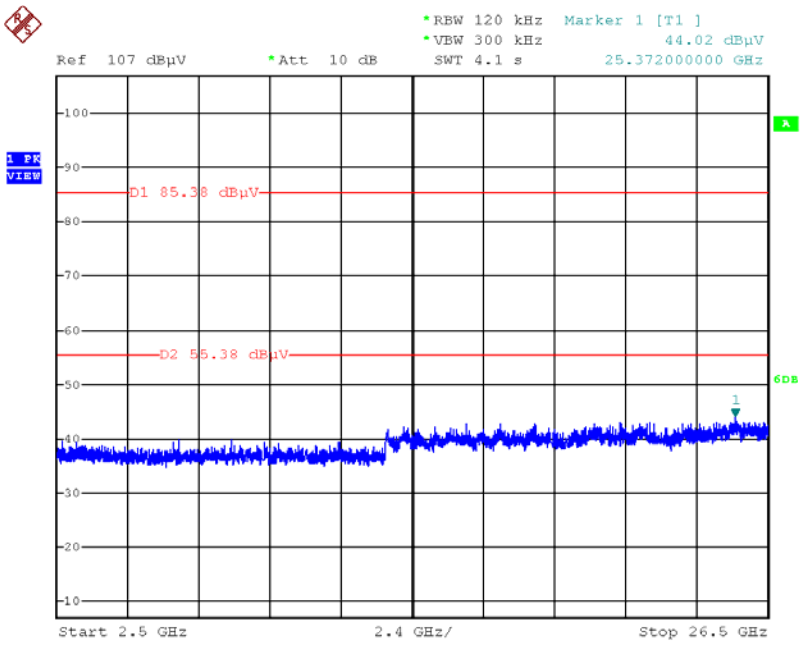
Date: 23.MAY.2013 03:57:54

Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



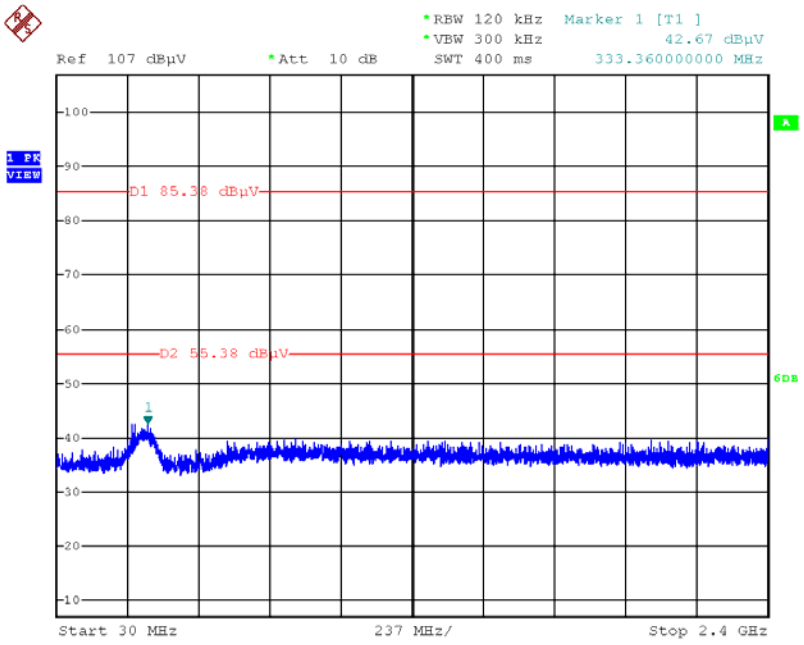
Date: 23.MAY.2013 03:58:47

Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



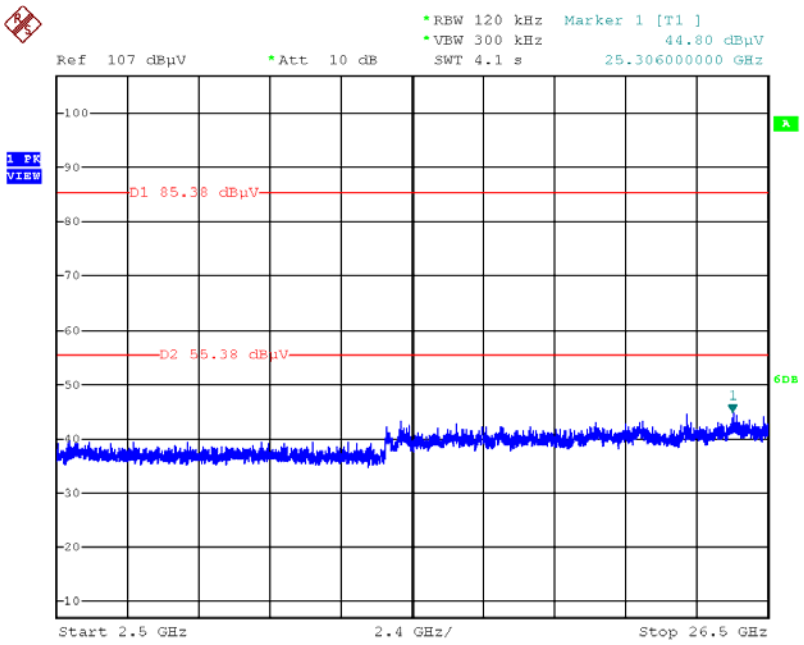
Date: 23.MAY.2013 03:59:15

Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) / Test Mode: Mode 13



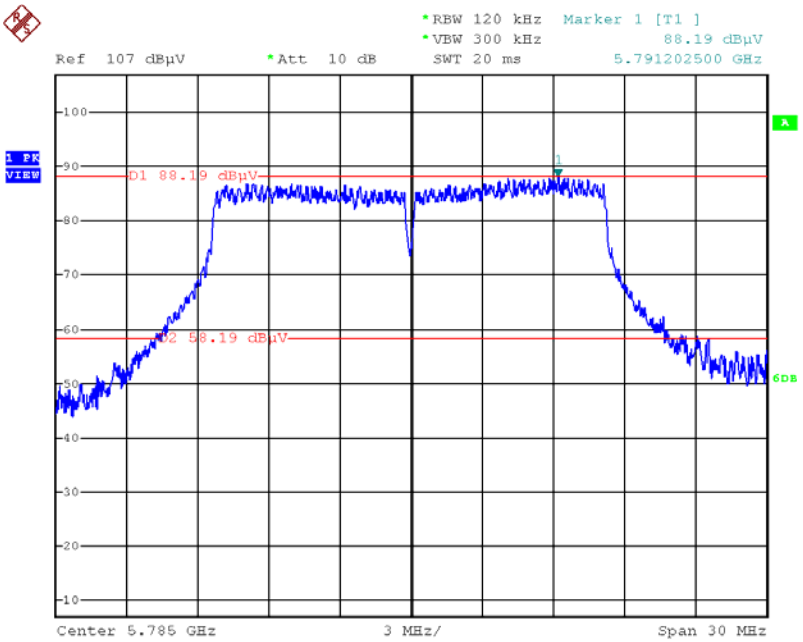
Date: 23.MAY.2013 04:00:24

Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc) / Test Mode: Mode 13



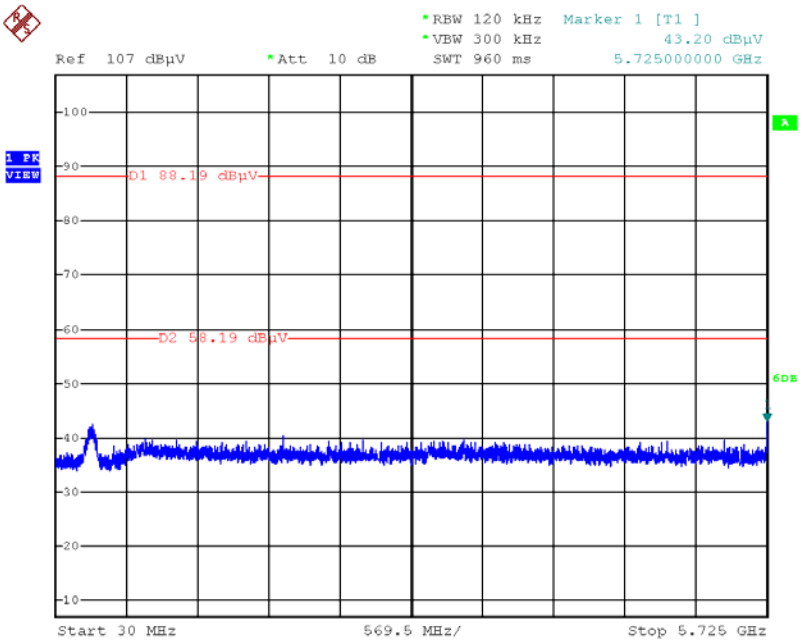
Date: 23.MAY.2013 03:59:57

Plot on Configuration IEEE 802.11a / Reference Level / Test Mode: Mode 13



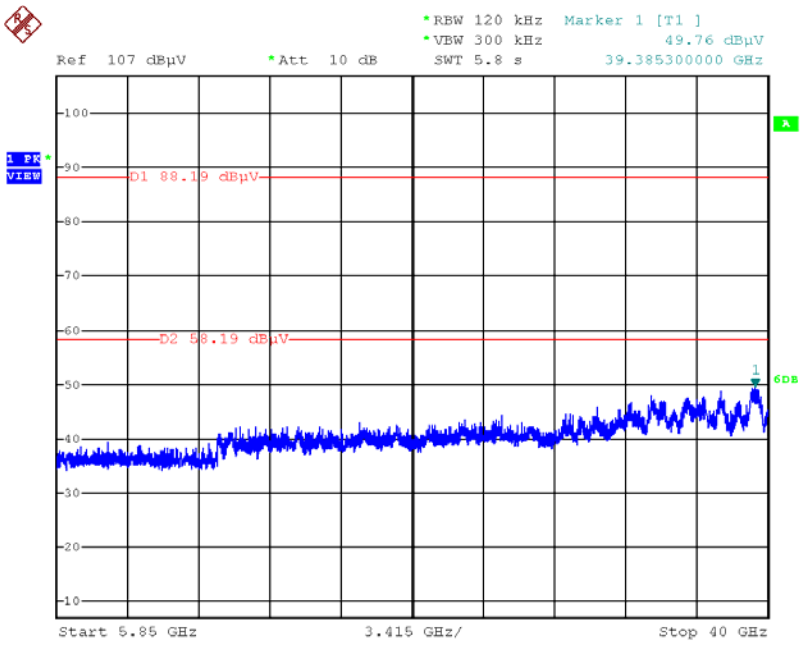
Date: 23.MAY.2013 04:42:18

Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



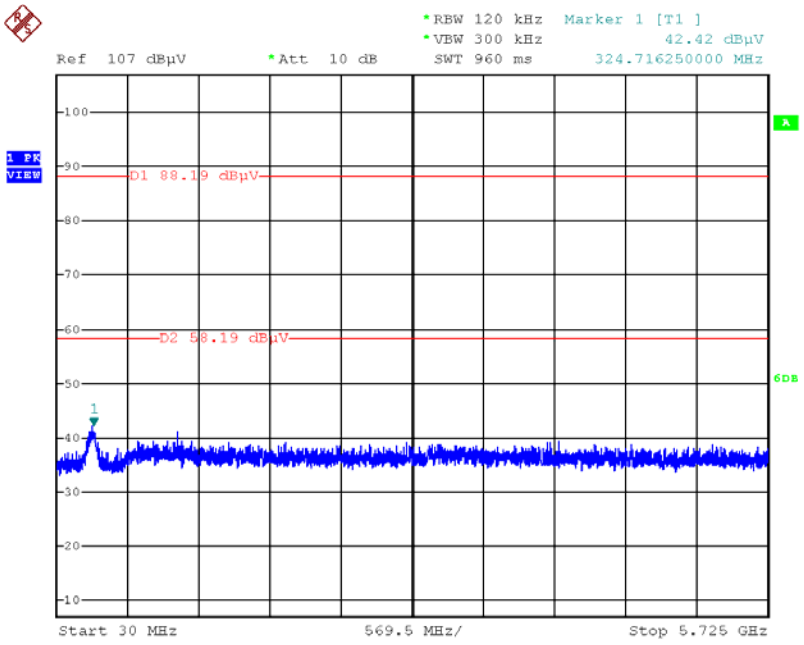
Date: 23.MAY.2013 04:43:00

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



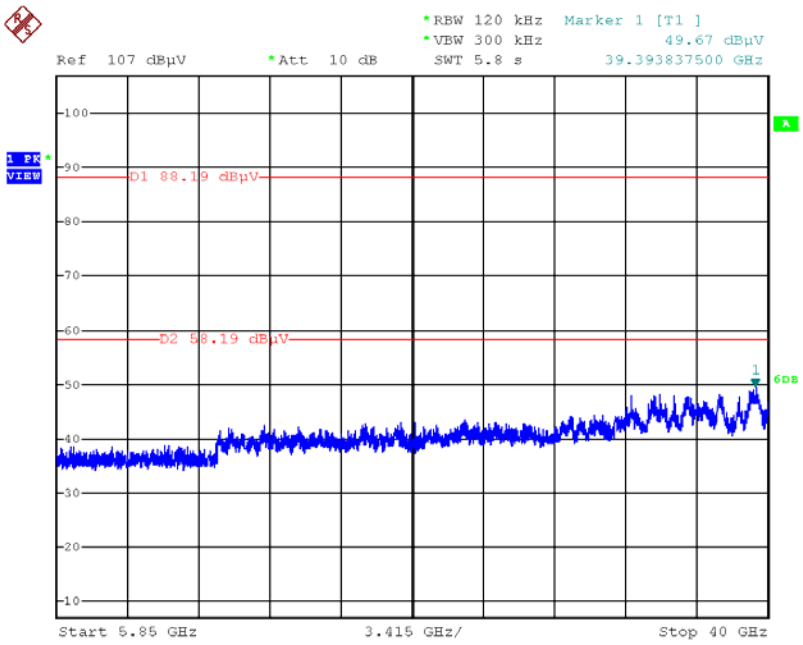
Date: 23.MAY.2013 04:43:25

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) / Test Mode: Mode 13



Date: 23.MAY.2013 04:44:11

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) / Test Mode: Mode 13



Date: 23.MAY.2013 04:43:52

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	8127-478	9kHz ~ 30MHz	Jun. 22, 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	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 16, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Apr. 15, 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)
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-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	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-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Oct. 08, 2012	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-8	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	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-10	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Nov. 28, 2012	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Nov. 27, 2012	Conducted (TH01-CB)

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

* Calibration Interval of instruments listed above is two years.

6. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	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

7. 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			