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FCC RADIO TEST REPORT

Applicant's company	**Linksys LLC**
Applicant Address	121 Theory Drive, Irvine, California 92617, United States
FCC ID	**Q87-EA8500**

Product Name	LINKSYS DUAL-BAND WIRELESS-AC ROUTER
Brand Name	LINKSYS
Model No.	EA8500
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Feb. 25, 2015
Final Test Date	Mar. 17, 2015
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11b/g, IEEE 802.11n and IEEE 802.11a/ac 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 C63.10-2013**, **47 CFR FCC Part 15 Subpart C**, **KDB 558074 D01 v03r02**, **KDB 662911 D01 v02r01**, **KDB644545 D01 v01r02.**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR530324AA	Rev. 01	Initial issue of report	Mar. 30, 2015

1. VERIFICATION OF COMPLIANCE

Product Name	:	LINKSYS DUAL-BAND WIRELESS-AC ROUTER
Brand Name	:	LINKSYS
Model No.	:	EA8500
Applicant	:	Linksys LLC
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 Feb. 25, 2015 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.

Jordan Hsiao

Jordan Hsiao
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	9.72 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	0.02 dB
4.3	15.247(e)	Power Spectral Density	Complies	0.22 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	3.84 dB
4.6	15.247(d)	Band Edge Emissions	Complies	1.00 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11b: DSSS IEEE 802.11a/g: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11b: DSSS (BPSK / QPSK / CCK) IEEE 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11b: DSSS (1/ 2/ 5.5/11) IEEE 802.11a/g: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
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: IEEE 802.11b: 13.55 MHz IEEE 802.11g: 16.50 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz For 5GHz Band: IEEE 802.11a: 16.32 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.00 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz

Maximum Conducted Output Power	For 2.4GHz Band: IEEE 802.11b: 29.98 dBm IEEE 802.11g: 28.01 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.21 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.09 dBm For 5GHz Band: IEEE 802.11a: 28.59 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.55 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 28.70 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 28.42 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	☒ With beamforming	☐ Without beamforming

Note: The product only supports non-beamforming function for 802.11b, and the other modulation only supports beamforming function.

Antenna and Band width

Antenna		Four (TX)		
Band width Mode		20 MHz	40 MHz	80 MHz
2.4G	IEEE 802.11b	V	X	X
	IEEE 802.11g	V	X	X
	IEEE 802.11n	V	V	X
	IEEE 802.11ac	V	V	X
5G	IEEE 802.11a	V	X	X
	IEEE 802.11n	V	V	X
	IEEE 802.11ac	V	V	V

IEEE 802.11n/ac Spec.

Protocol		Number of Transmit Chains (NTX)	Data Rate / MCS
2.4G	802.11n (HT20)	4	MCS0-31
	802.11n (HT40)	4	MCS0-31
	802.11ac (VHT20)	4	MCS 0-9/Nss1-4
	802.11ac (VHT40)	4	MCS 0-9/Nss1-4
5G	802.11n (HT20)	4	MCS0-31
	802.11n (HT40)	4	MCS0-31
	802.11ac (VHT20)	4	MCS 0-9/Nss1-4
	802.11ac (VHT40)	4	MCS 0-9/Nss1-4
	802.11ac (VHT80)	4	MCS 0-9/Nss1-4
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT supports HT20 and HT40.			
Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, VHT40 and VHT80.			
Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac			

3.2. Accessories

Power	Brand	Model No.	Rating
Adapter 1 (Fixed plug)	HK	HK-X142-A12	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12V, 0-3.5A (SET AT 3.5A)
Adapter 2 (Fixed plug)	LINKSYS	KSAS0501200350HU	Input: 100-240Vac, 50/60Hz, 1.2A Output: 12V, 3.5A
Adapter 3 (Interchangeable plug)	Ktec	KSAS0451200350D5	Input: 100-240Vac, 50/60Hz, 1.2A Output: 12V, 3.5A
Others			
Plug*1 (Only for Adapter 3)			
RJ-45 cable*1: Non-shielded, 0.9m			

3.3. Table for Filed Antenna

Ant.	Brand	CBT Model Name (Vendor)	Type	Connector	Gain (dBi)		
					2.4GHz	5GHz Band 1	5GHz Band 4
1	Whayu	377.00004.005 (C120-510452-A)	Dipole	I-PEX	-	0.69	0.85
2	Whayu	377.00006.005 (C120-510453-A)	Dipole	I-PEX	0.55	0.89	1.15
3	Whayu	377.00003.005 (C120-510450-A)	Dipole	I-PEX	0.65	0.89	1.25
4	Whayu	377.00005.005 (C120-510451-A)	Dipole	I-PEX	0.75	1.09	1.55
5	Galtronics	2365-59600001R (02102073-05960)	PIFA	I-PEX	3.909	-	-

Note: The EUT has five antennas (4TX/4RX).

Chain 1, Chain 2, Chain 3 and Chain 4 could transmit/receive simultaneously.

3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

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

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

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

For 5GHz Band:

There are 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	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Power Spectral Density	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
6dB Spectrum Bandwidth	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Band Edge Emissions	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4

For 5GHz Band:

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
Power Spectral Density	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
6dB Spectrum Bandwidth	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
Band Edge Emissions	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4

Note: 1. The product only supports non-beamforming function for 802.11b.

2. The product only supports beamforming function for 802.11a/g/n/ac.

3. VHT20/VHT40 covers HT20/HT40, due to same modulation.

The following test modes were performed for all tests:

For AC Power Line Conducted Emissions test:

Mode 1. EUT + Adapter 1

Mode 2. EUT + Adapter 2

Mode 3. EUT + Adapter 3

Mode 3 is the worst case, so it was selected to record in this test report.

For Radiated Emissions Below 1GHz test:

Mode 1. Place EUT in X axis + Adapter 1

Mode 2. Place EUT in Y axis + Adapter 1

Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 4 will follow this same test mode.

Mode 3. Place EUT in Y axis + Adapter 2

Mode 4. Place EUT in Y axis + Adapter 3

Mode 4 is the worst case, so it was selected to record in this test report.

For Radiated Emissions Above 1GHz and Radiated Emission Co-location tests:

There are two modes of EUT, one is Place EUT in X axis, and the other is Place EUT in Y axis.

After evaluating, Place EUT in Y axis has been evaluated to be the worst case.

Consequently, measurement for Radiated Emissions Above 1GHz and Radiated Emission Co-location tests will follow this same test mode.

For Co-location MPE and Radiated Emission Co-location test:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (please refer to Sporton test report: FA530324) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6400	DoC
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
HDD	WD	WDBACY5000AWT	DoC
Flash Disk	Transcend	604108 8255	DoC

Test Site No: 03CH01-CB (below 1GHz)

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	DoC
NB	DELL	M1340	DoC
NB	DELL	E6430	DoC
NB	DELL	E6220	DoC
Flash Disk	Silicon	D33B01	DoC
Flash Disk	TDK	TF30	DoC

Test Site No: 03CH01-CB (above 1GHz)

For non-beamforming function (802.11b):

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC

For beamforming function (802.11a/g/n/ac):

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
NB	DELL	E6220	DoC
LINKSYS DUAL-BAND WIRELESS-AC ROUTER (Device)	LINKSYS	EA8500	Q87-EA8500

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	DoC

3.8. Table for Parameters of Test Software Setting

During testing, Channel and 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

Test Software Version	Qualcomm V3.0.42.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11b	24	24	24	-	-	-
802.11g	19.5	21.5	20.5	-	-	-
802.11ac MCS0/Nss1 VHT20	19	22.5	21.5	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	16	20.5	18

For 5GHz Band

Test Software Version	Qualcomm V3.0.42.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		NCB: 80MHz
	5745 MHz	5785 MHz	5825 MHz	5755 MHz	5795 MHz	5775 MHz
802.11a	22	22	22	-	-	-
802.11ac MCS0/Nss1 VHT20	22	22	22	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	22	22	-
802.11ac MCS0/Nss1 VHT80	-	-	-	-	-	22

3.9. EUT Operation during Test

For non-beamforming function (802.11b):

The EUT was programmed to be in continuously transmitting mode.

For beamforming function (802.11a/g/n/ac):

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

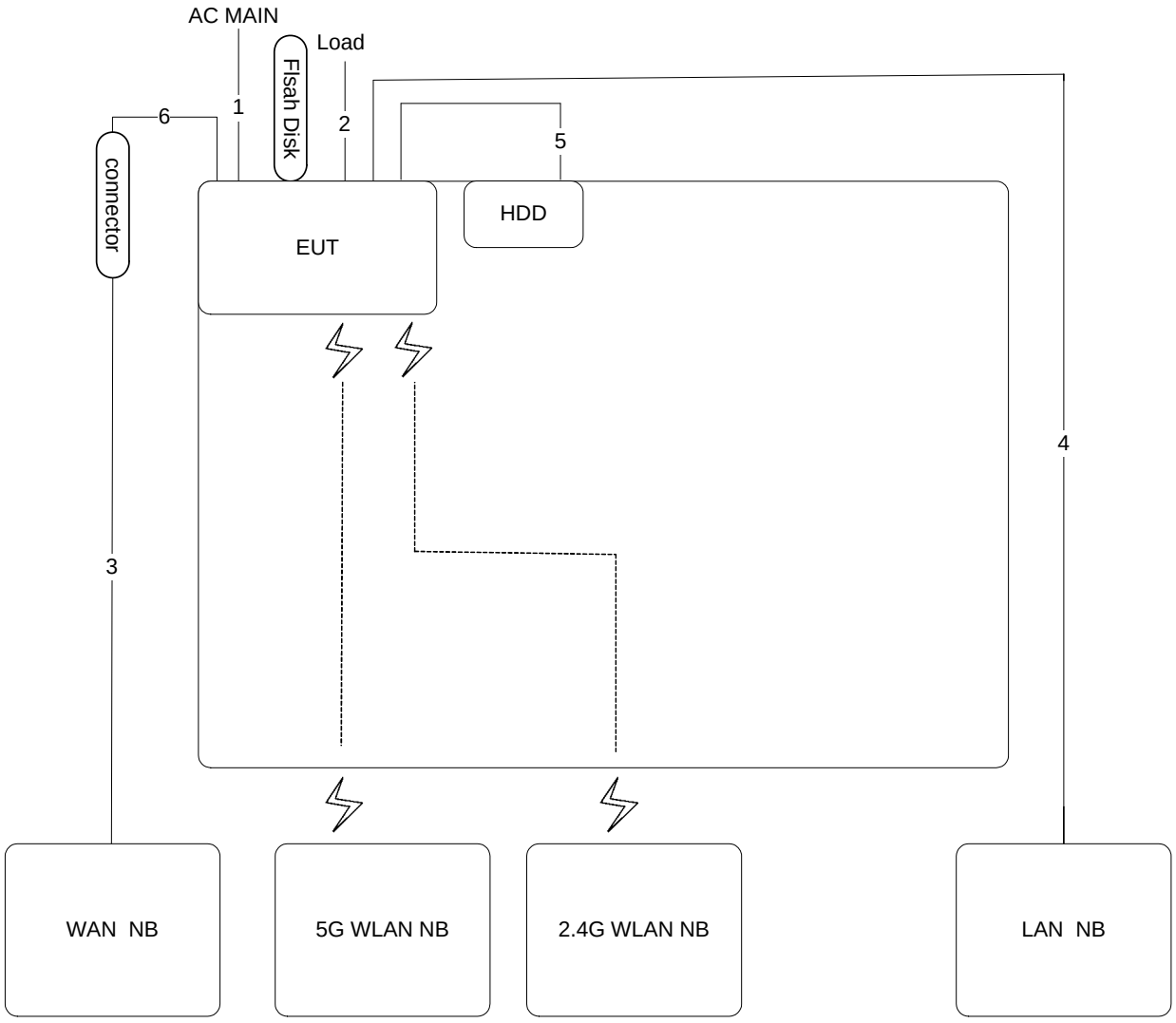
1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DOS.
3. Executed "Lantest.exe" to link with the remote workstation to receive and transmit packet by Device and transmit duty cycle no less 98%

3.10. Duty Cycle

Band	Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
2.4G	802.11b	12.435	12.493	99.54	0.02	0.01
	802.11g	2.142	2.208	97.01	0.13	0.47
	802.11ac MCS0/Nss1 VHT20	4.748	4.906	96.79	0.14	0.21
	802.11ac MCS0/Nss1 VHT40	1.735	1.910	90.84	0.42	0.58
5G	802.11a	2.232	2.376	93.94	0.27	0.45
	802.11ac MCS0/Nss1 VHT20	3.590	3.810	94.23	0.26	0.28
	802.11ac MCS0/Nss1 VHT40	3.272	3.482	93.96	0.27	0.31
	802.11ac MCS0/Nss1 VHT80	1.502	1.714	87.64	0.57	0.67

3.11. Test Configurations

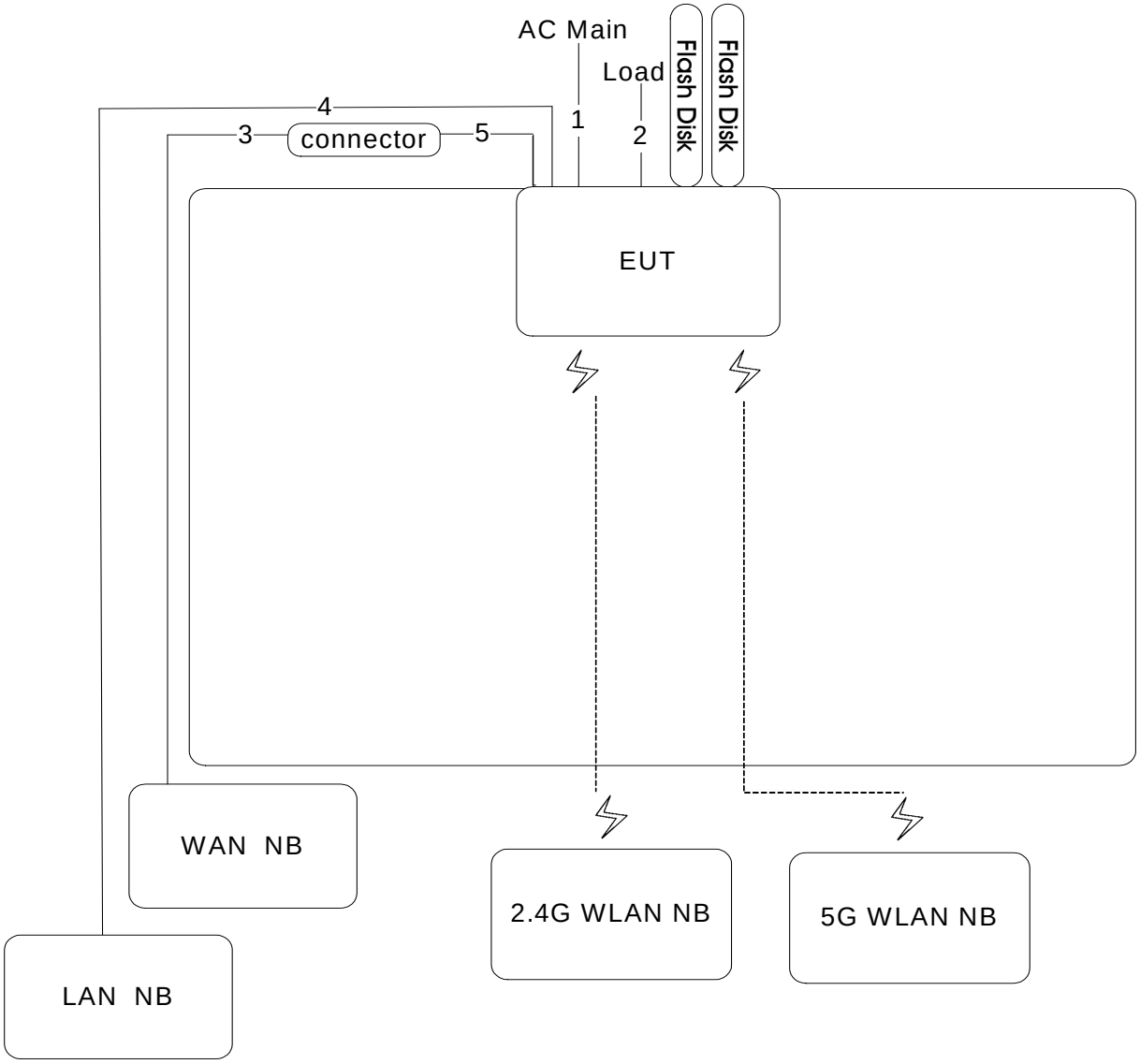
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length	Remark
1	Power cable	No	1.5m	-
2	RJ-45 cable*3	No	1.5m	Load
3	RJ-45 cable	No	10m	-
4	RJ-45 cable	No	10m	-
5	USB cable	Yes	0.2m	-
6	RJ-45 cable	No	0.9m	-

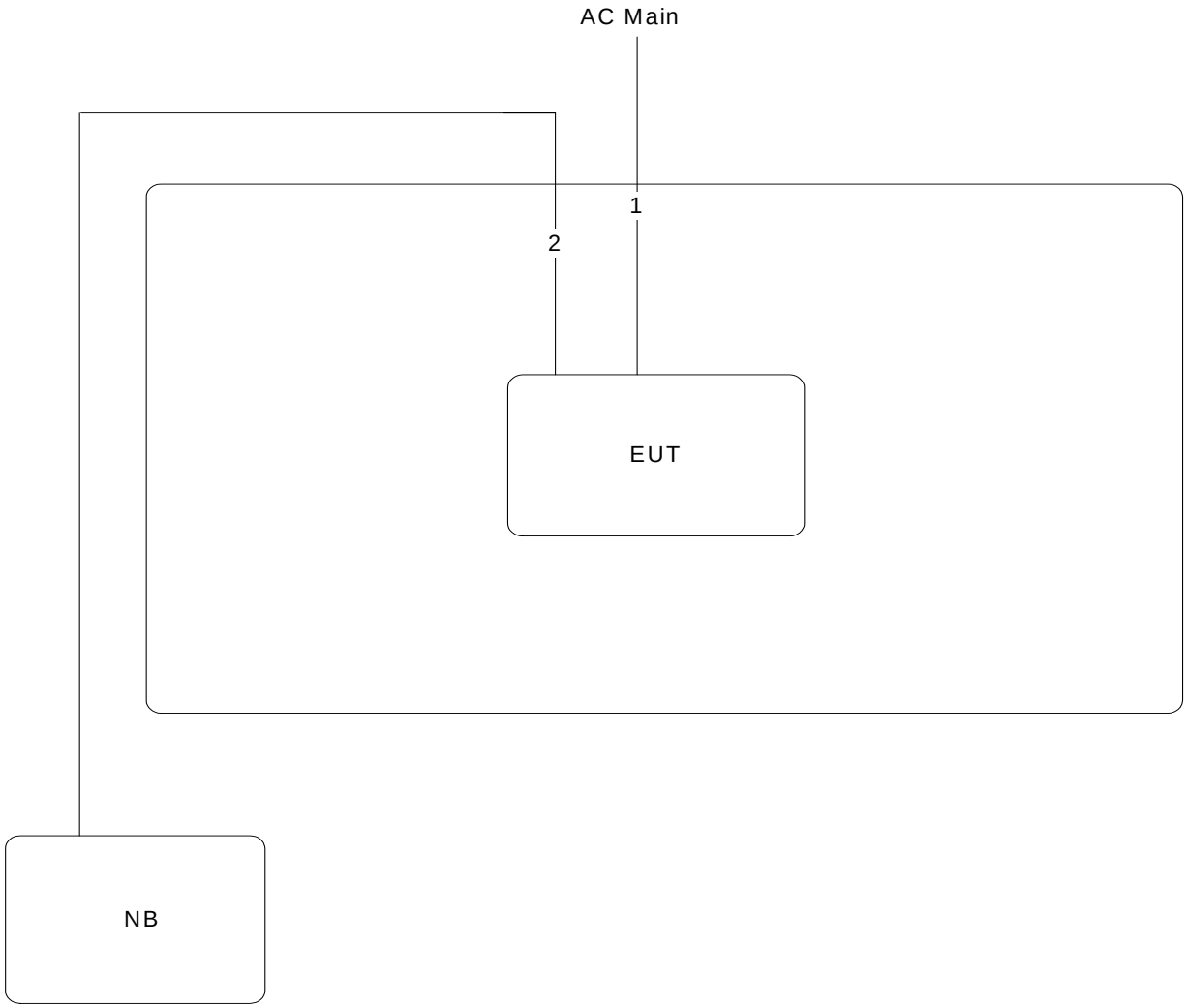
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



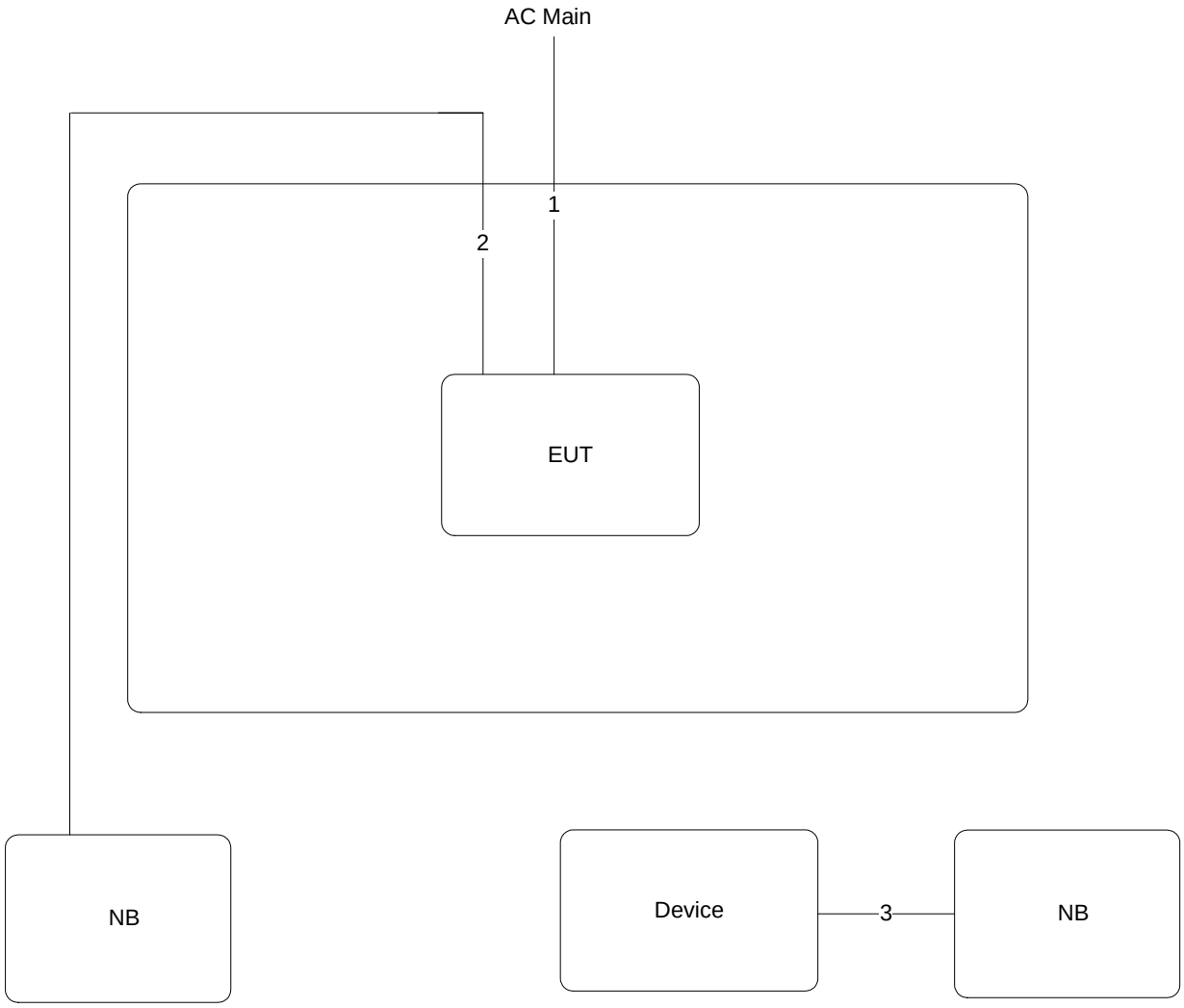
Item	Connection	Shielded	Length	Remark
1	Power cable	No	1.5m	-
2	RJ-45 cable*3	No	1.5m	Load
3	RJ-45 cable	No	10m	-
4	RJ-45 cable	No	10m	-
5	RJ-45 cable	No	0.9m	-

Test Configuration: above 1GHz / For non-beamforming function (802.11b):



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m

For beamforming function (802.11a/g/n/ac):



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m

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

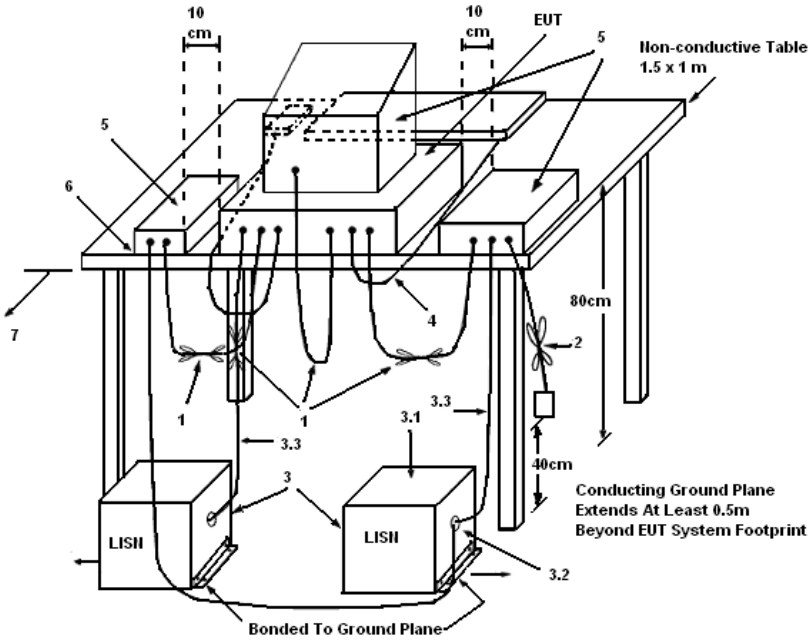
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

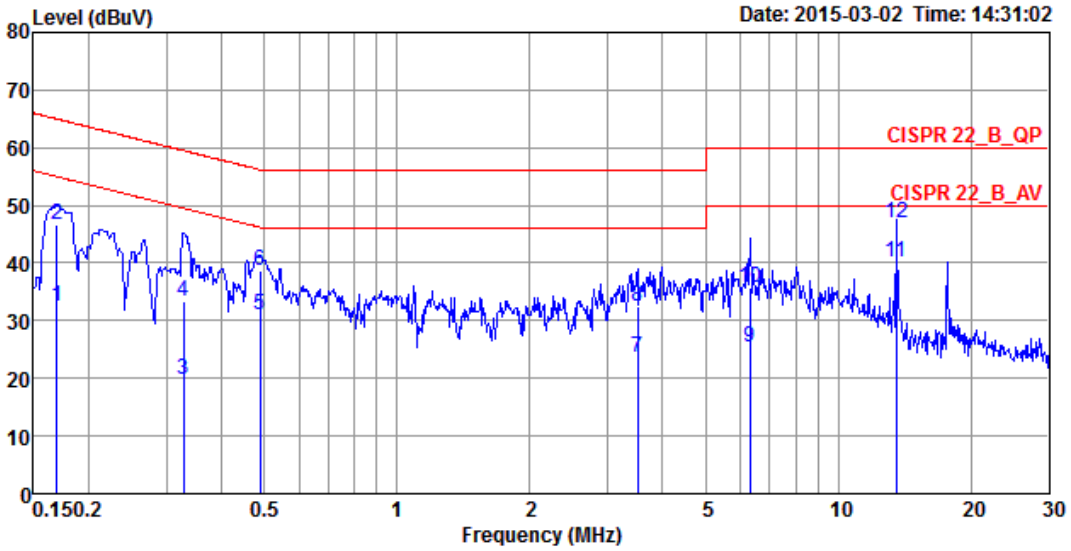
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

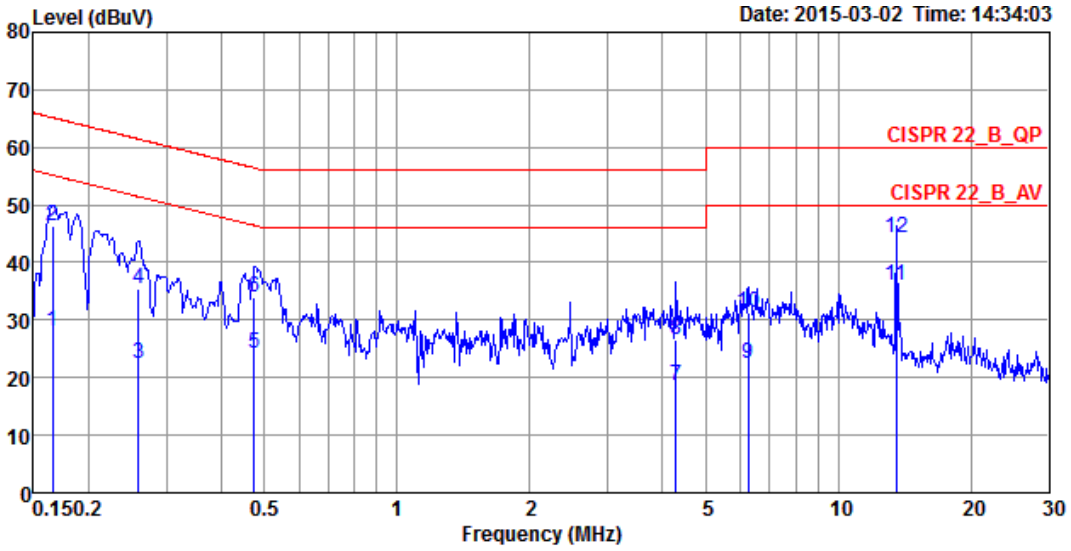
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	22°C	Humidity	52%
Test Engineer	Hank Yahg	Phase	Line
Configuration	Normal Link	Test Mode	Mode 3



		Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
		MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1		0.1694	32.56	-22.43	54.99	0.07	32.32	0.17	LINE	Average
2		0.1694	46.50	-18.49	64.99	0.07	46.26	0.17	LINE	QP
3		0.3286	19.89	-29.60	49.49	0.07	19.62	0.20	LINE	Average
4		0.3286	33.34	-26.15	59.49	0.07	33.07	0.20	LINE	QP
5		0.4889	31.05	-15.14	46.19	0.07	30.78	0.20	LINE	Average
6		0.4889	38.62	-17.57	56.19	0.07	38.35	0.20	LINE	QP
7		3.5092	23.56	-22.44	46.00	0.11	23.15	0.30	LINE	Average
8		3.5092	32.56	-23.44	56.00	0.11	32.15	0.30	LINE	QP
9		6.3186	25.45	-24.55	50.00	0.17	24.94	0.34	LINE	Average
10		6.3186	35.68	-24.32	60.00	0.17	35.17	0.34	LINE	QP
11	a	13.5599	40.28	-9.72	50.00	0.26	39.60	0.42	LINE	Average
12	q	13.5599	46.98	-13.02	60.00	0.26	46.30	0.42	LINE	QP

Temperature	22°C	Humidity	52%
Test Engineer	Hank Yahg	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.1659	28.14	-27.02	55.16	0.07	27.90	0.17	NEUTRAL	Average
2	0.1659	46.38	-18.78	65.16	0.07	46.14	0.17	NEUTRAL	QP
3	0.2589	22.52	-28.95	51.47	0.06	22.27	0.19	NEUTRAL	Average
4	0.2589	35.47	-26.00	61.47	0.06	35.22	0.19	NEUTRAL	QP
5	0.4736	24.34	-22.11	46.45	0.07	24.07	0.20	NEUTRAL	Average
6	0.4736	33.84	-22.61	56.45	0.07	33.57	0.20	NEUTRAL	QP
7	4.2918	18.74	-27.26	46.00	0.13	18.30	0.31	NEUTRAL	Average
8	4.2918	26.70	-29.30	56.00	0.13	26.26	0.31	NEUTRAL	QP
9	6.2520	22.31	-27.69	50.00	0.17	21.80	0.34	NEUTRAL	Average
10	6.2520	31.26	-28.74	60.00	0.17	30.75	0.34	NEUTRAL	QP
11 a	13.5599	36.09	-13.91	50.00	0.26	35.41	0.42	NEUTRAL	Average
12 q	13.5599	44.18	-15.82	60.00	0.26	43.50	0.42	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

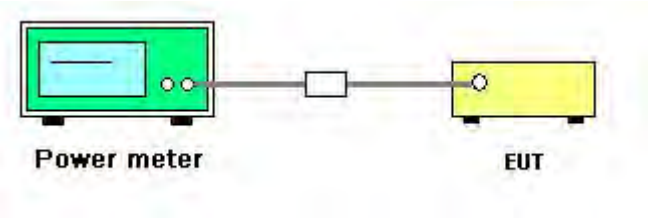
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r02 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. 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	21°C	Humidity	63%
Test Engineer	Serway Li	Test Date	Mar. 16, 2015

For 2.4GHz Band

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11b	2412 MHz	23.72	23.88	23.58	24.47	29.95	30.00	Complies
	2437 MHz	23.89	23.74	23.91	24.19	29.96	30.00	Complies
	2462 MHz	23.82	23.24	23.90	24.74	29.98	30.00	Complies
802.11g	2412 MHz	19.56	19.76	19.92	19.36	25.68	28.26	Complies
	2437 MHz	21.84	22.02	22.16	21.93	28.01	28.26	Complies
	2462 MHz	21.14	20.61	20.83	20.52	26.80	28.26	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	19.14	19.28	19.68	19.19	25.35	28.26	Complies
	2437 MHz	21.98	21.94	22.23	22.57	28.21	28.26	Complies
	2462 MHz	22.24	21.94	22.06	22.12	28.11	28.26	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	16.27	16.47	16.74	16.44	22.50	28.26	Complies
	2437 MHz	21.01	20.92	21.29	21.06	27.09	28.26	Complies
	2452 MHz	18.61	18.41	18.55	18.56	24.55	28.26	Complies

Note: For 802.11g/ac:

$$Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$ =7.74dBi >6dBi, so limit=30 – (7.74 – 6)=28.26dBm.

Temperature	21°C	Humidity	63%
Test Engineer	Nick Peng	Test Date	Mar. 12, 2015

For 5GHz Band

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5745 MHz	22.59	22.64	22.49	22.54	28.59	28.77	Complies
	5785 MHz	22.74	22.67	21.80	22.58	28.48	28.77	Complies
	5825 MHz	22.76	22.50	21.83	22.81	28.51	28.77	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	22.49	22.58	21.47	22.75	28.37	28.77	Complies
	5785 MHz	22.71	22.78	21.66	22.69	28.50	28.77	Complies
	5825 MHz	22.89	22.56	21.78	22.80	28.55	28.77	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	22.57	22.94	21.66	22.70	28.51	28.77	Complies
	5795 MHz	22.85	22.98	21.96	22.87	28.70	28.77	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	22.56	22.69	21.71	22.58	28.42	28.77	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.23dBi >6dBi, so limit=30 – (7.23 – 6)=28.77dBm.

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

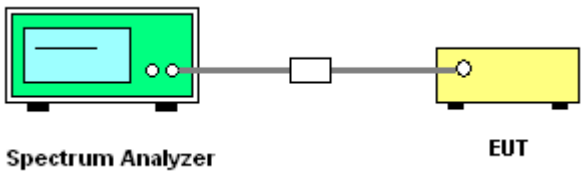
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
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	21°C	Humidity	63%
Test Engineer	Serway Li		

For 2.4GHz Band

Mode	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11b	2412 MHz	-0.43	-0.19	-0.54	0.57	5.90	6.26	Complies
	2437 MHz	-0.45	-0.91	-0.24	0.22	5.69	6.26	Complies
	2462 MHz	0.07	-0.59	0.15	0.37	6.04	6.26	Complies
802.11g	2412 MHz	-6.77	-6.39	-6.33	-6.98	-0.59	6.26	Complies
	2437 MHz	-4.80	-4.62	-4.49	-4.65	1.38	6.26	Complies
	2462 MHz	-5.45	-5.73	-5.58	-5.76	0.39	6.26	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	-7.59	-7.11	-6.89	-7.37	-1.21	6.26	Complies
	2437 MHz	-4.22	-4.52	-4.14	-3.94	1.82	6.26	Complies
	2462 MHz	-3.97	-4.46	-4.40	-4.59	1.67	6.26	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	-13.33	-12.82	-12.66	-13.12	-6.95	6.26	Complies
	2437 MHz	-8.79	-8.89	-8.26	-8.66	-2.62	6.26	Complies
	2452 MHz	-11.01	-11.42	-11.12	-11.24	-5.17	6.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi, so limit=8 – (7.74 – 6)=6.26dBm/3kHz.

Temperature	21°C	Humidity	63%
Test Engineer	Nick Peng		

For 5GHz Band

Mode	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5745 MHz	-4.75	-4.70	-5.12	-4.87	1.16	6.77	Complies
	5785 MHz	-4.43	-4.71	-4.41	-5.01	1.39	6.77	Complies
	5825 MHz	-4.28	-4.38	-4.45	-3.99	1.75	6.77	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	-5.33	-4.76	-5.39	-4.58	1.02	6.77	Complies
	5785 MHz	-4.96	-4.79	-5.26	-5.01	1.02	6.77	Complies
	5825 MHz	-4.64	-5.10	-5.06	-4.81	1.12	6.77	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	-8.07	-7.22	-7.65	-7.24	-1.51	6.77	Complies
	5795 MHz	-8.27	-7.24	-8.37	-7.45	-1.78	6.77	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	-10.92	-9.88	-11.12	-10.14	-4.46	6.77	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.23dBi >6dBi, so limit=8 – (7.23 – 6)=6.77dBm/3kHz.

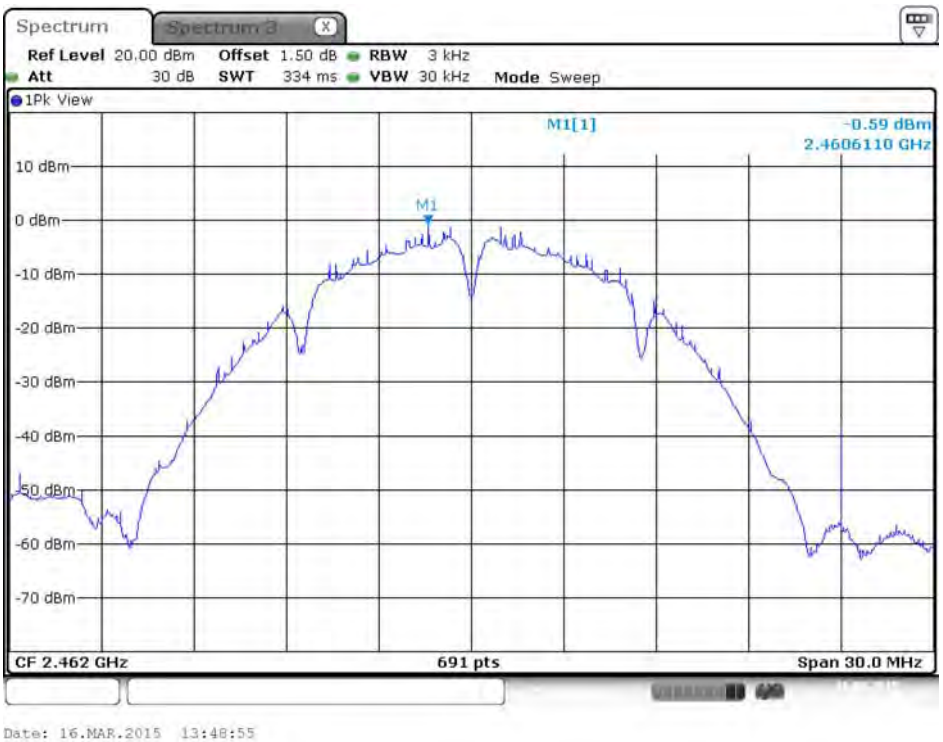
Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

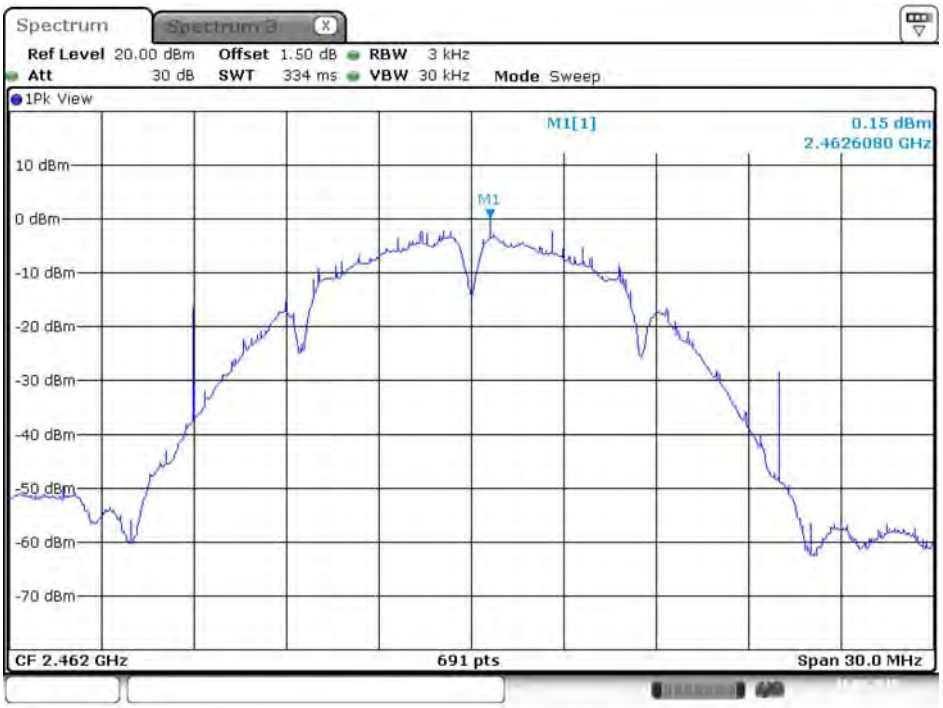
For 2.4GHz Band

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1

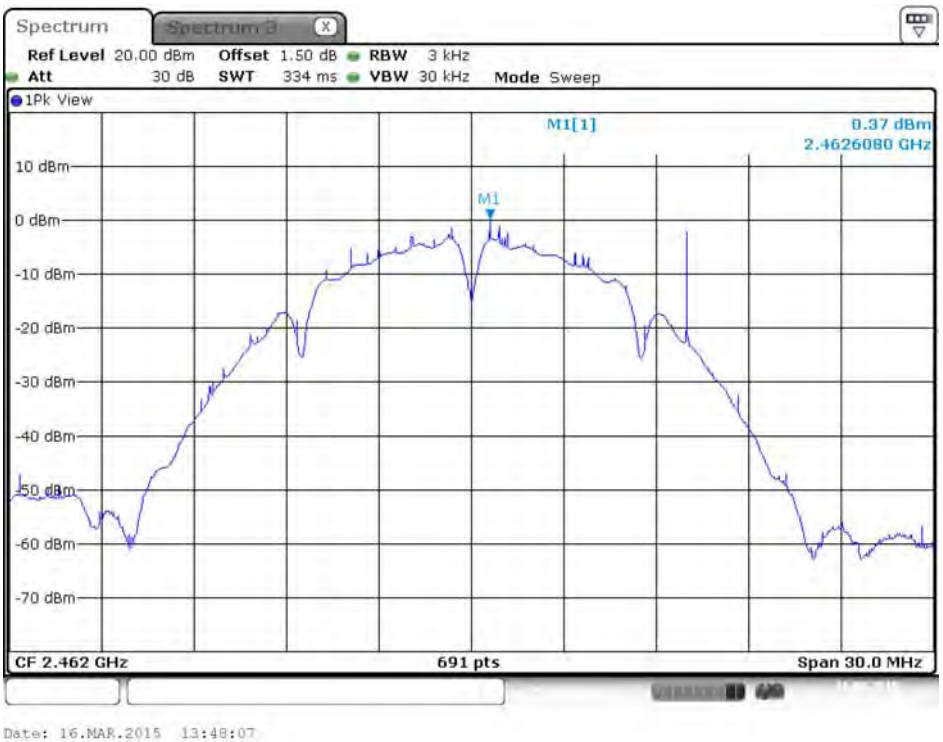
Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 2



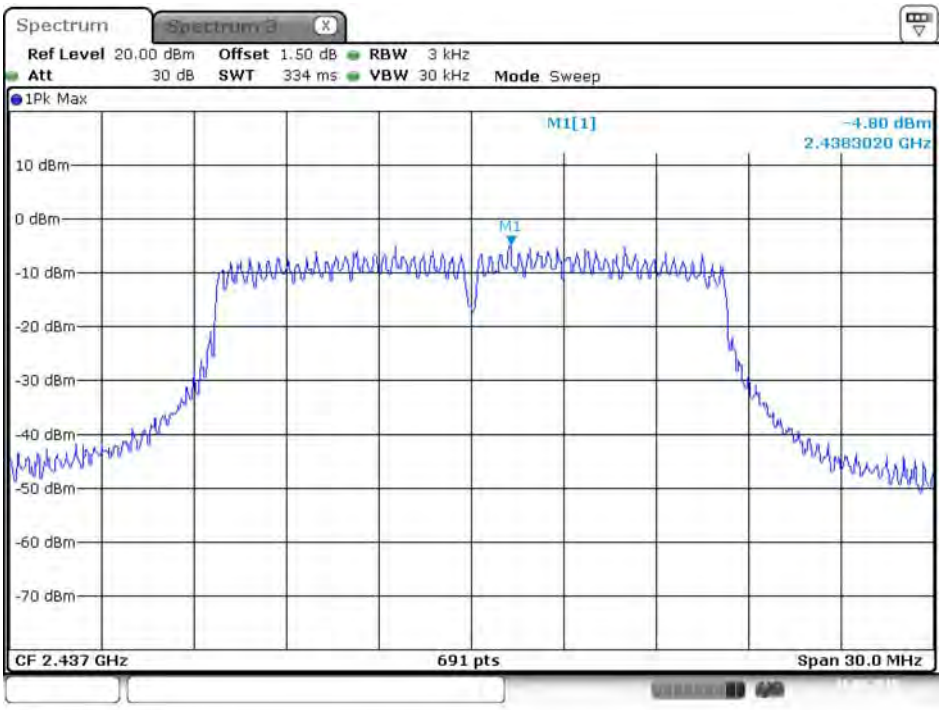
Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 3



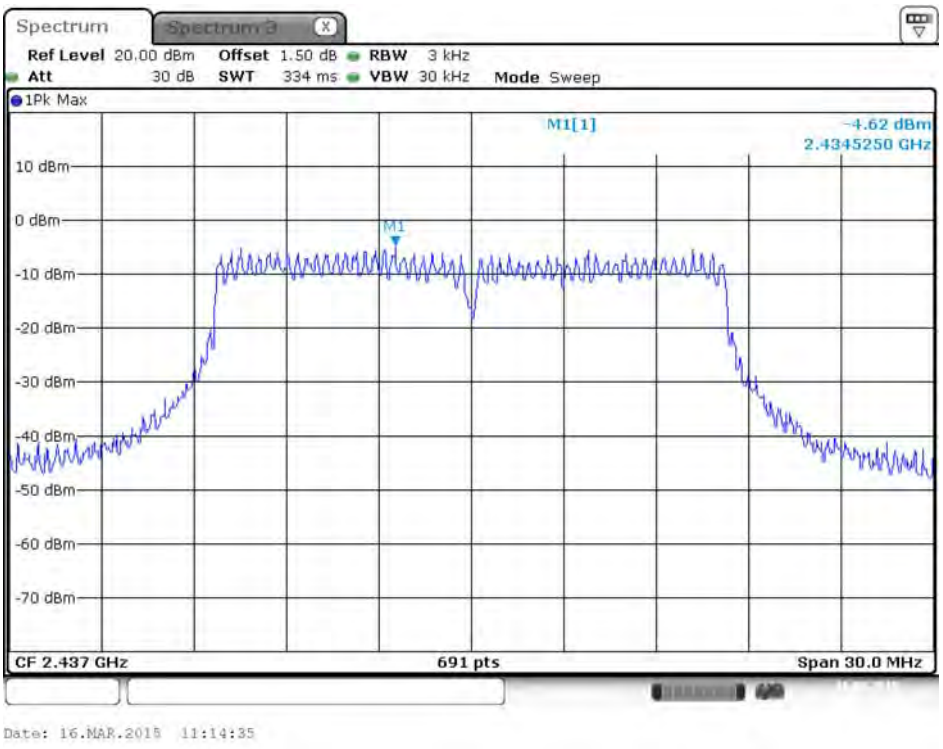
Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 4



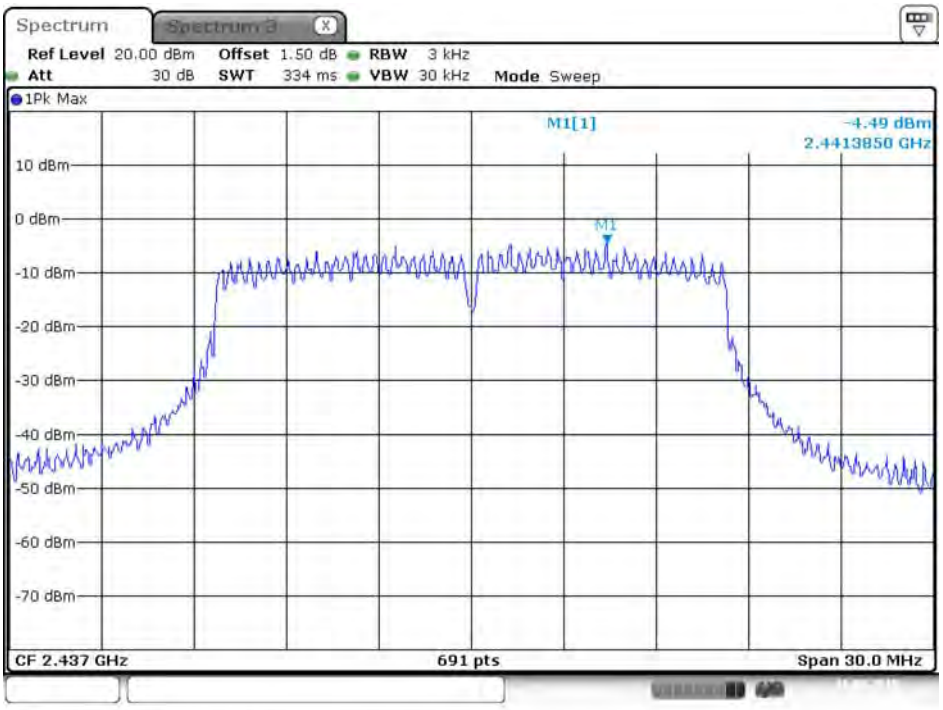
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1



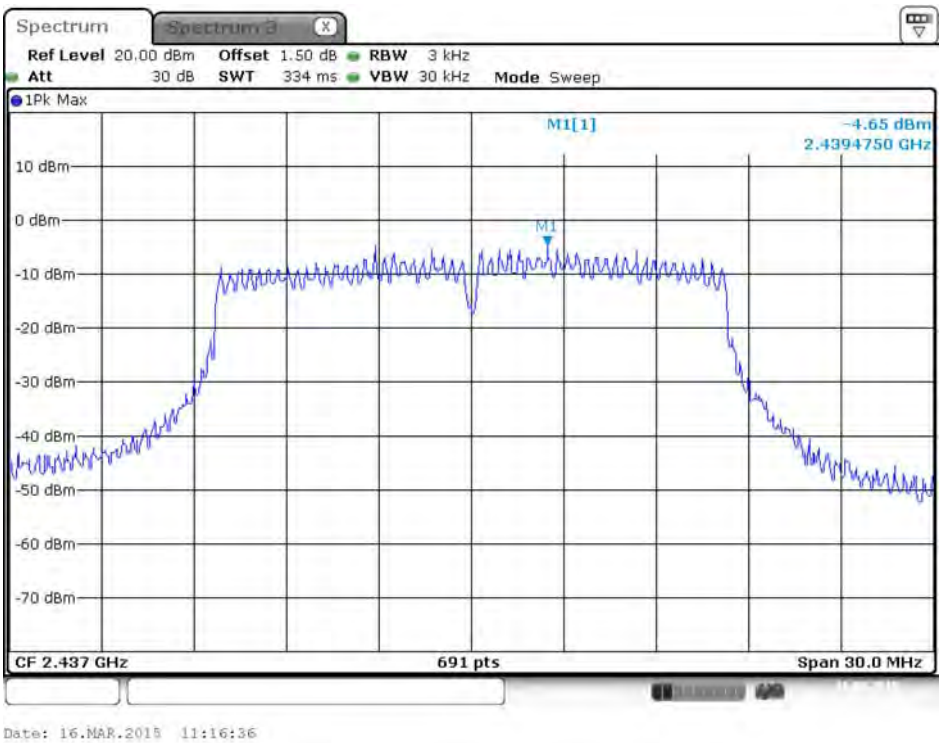
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 2



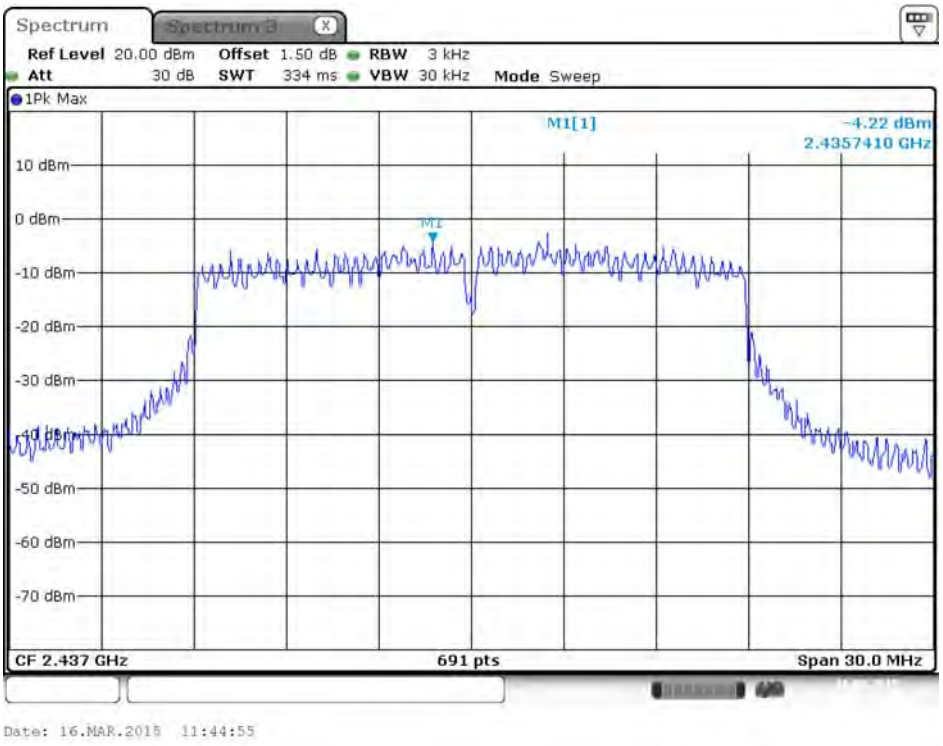
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 3



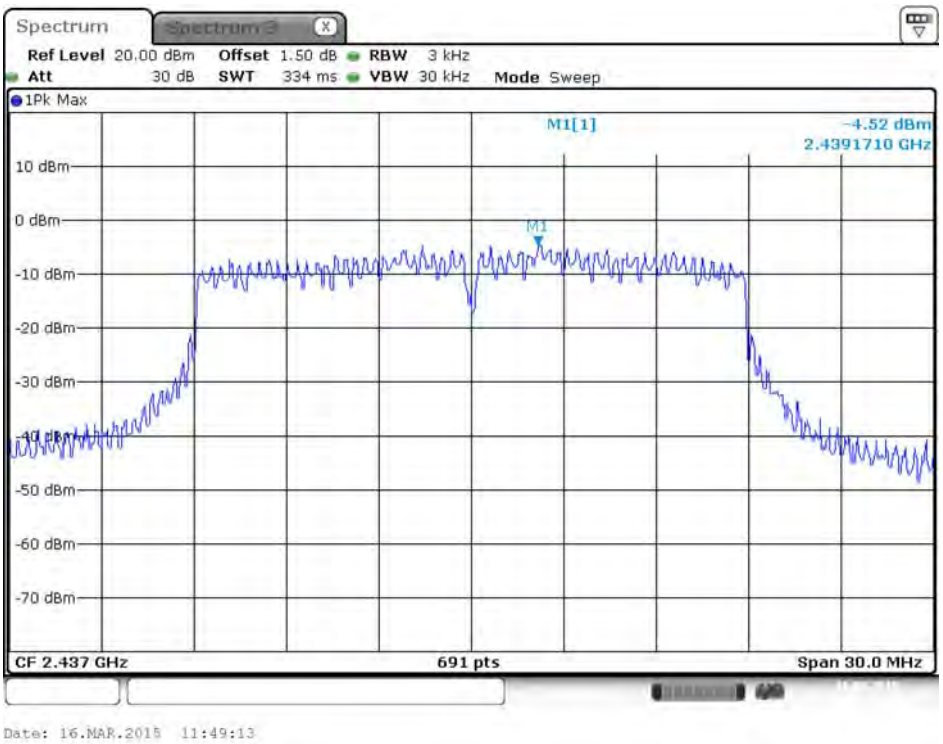
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 4



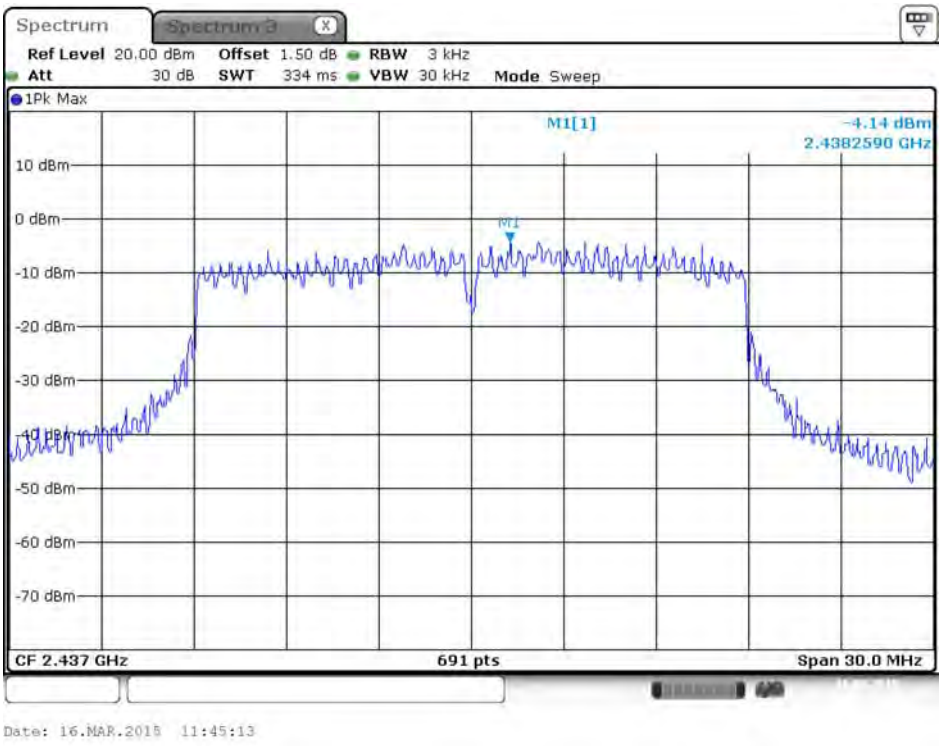
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1



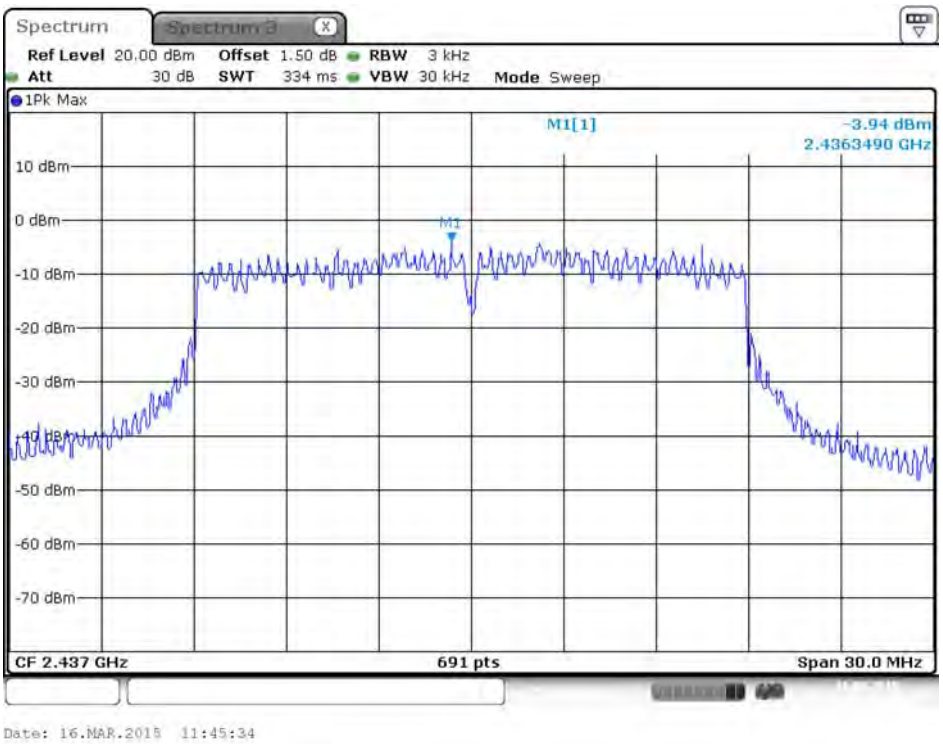
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 2



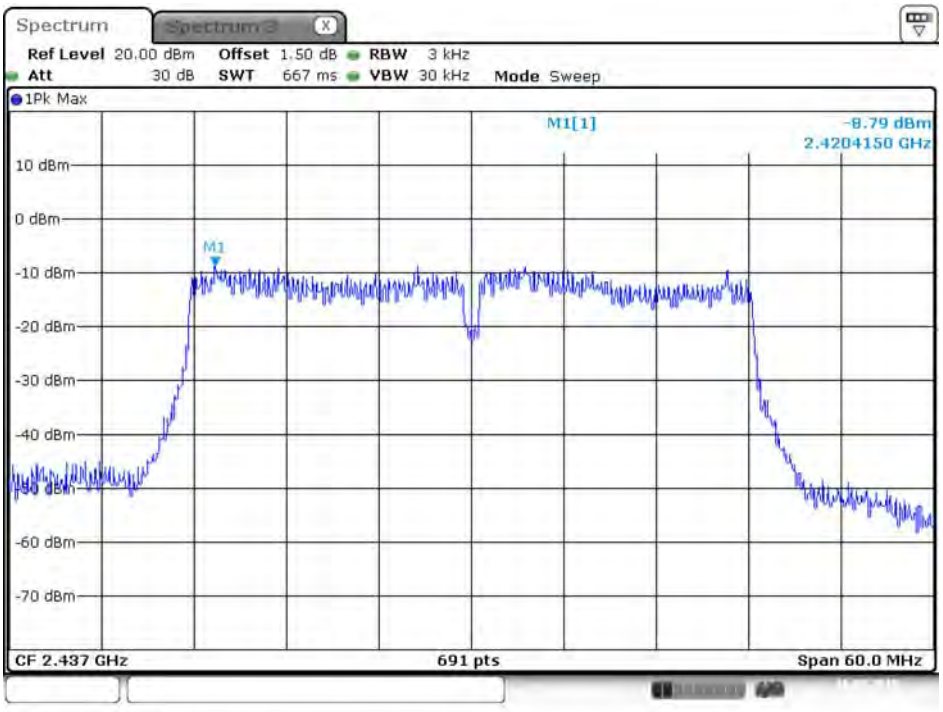
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 3



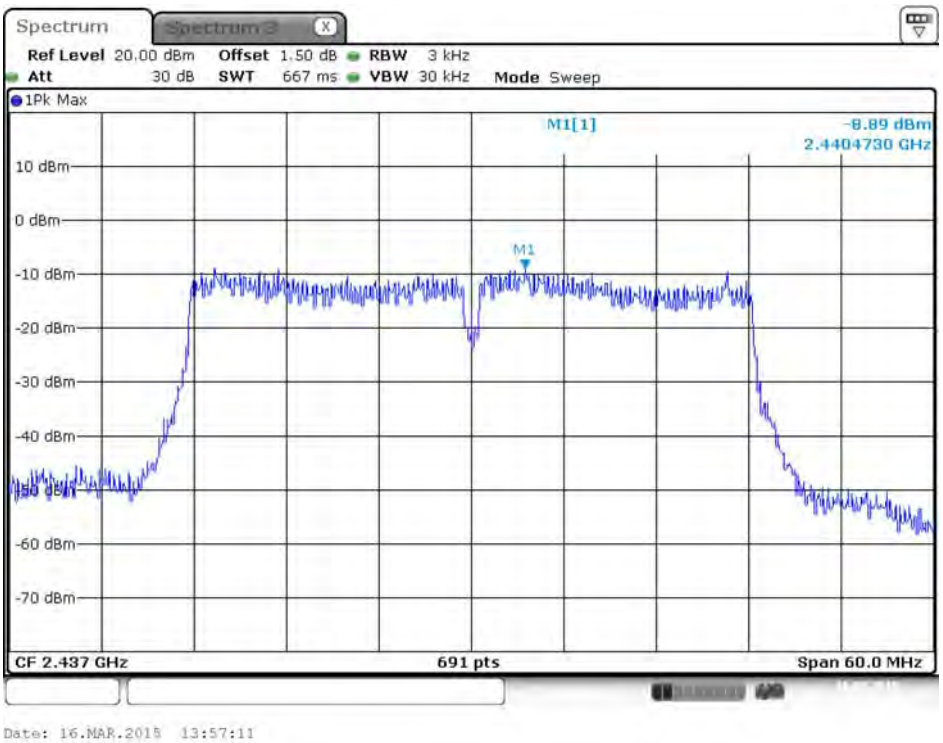
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 4



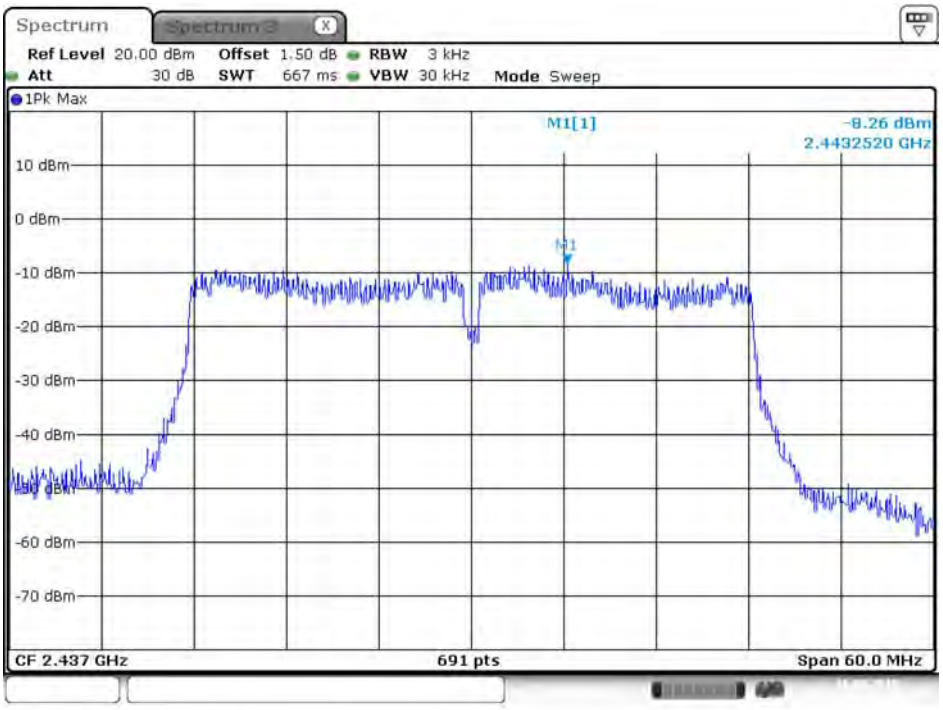
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 1



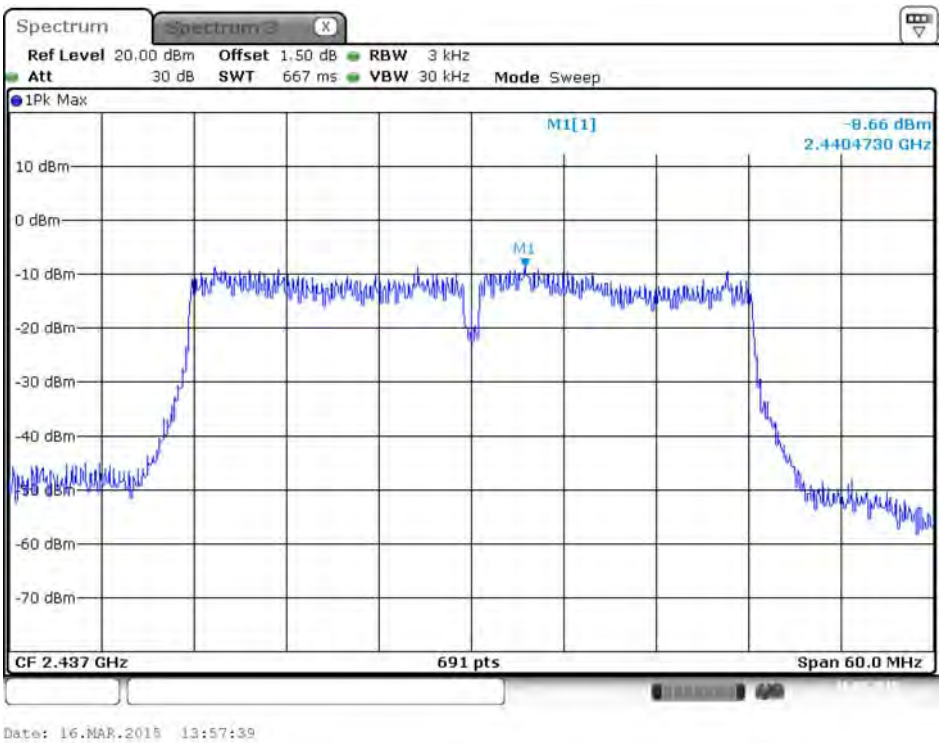
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 2



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 3

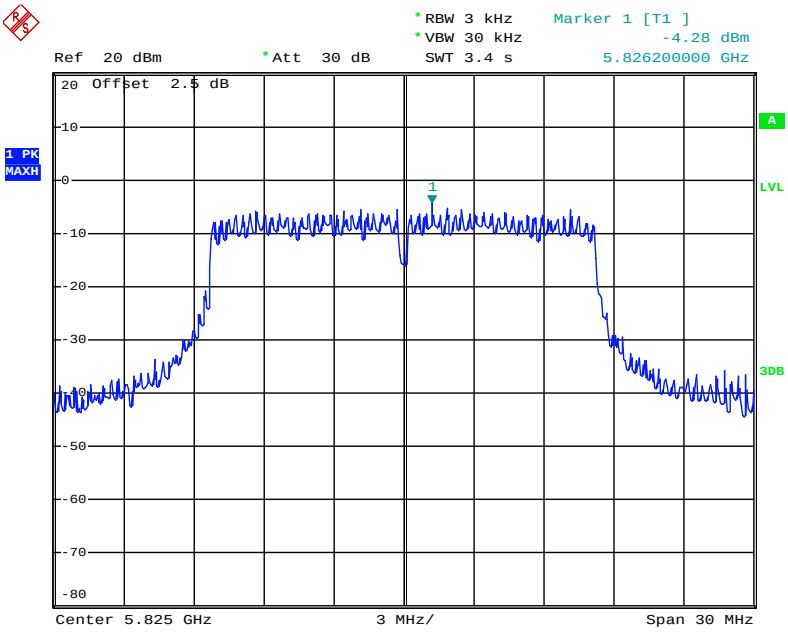


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 4



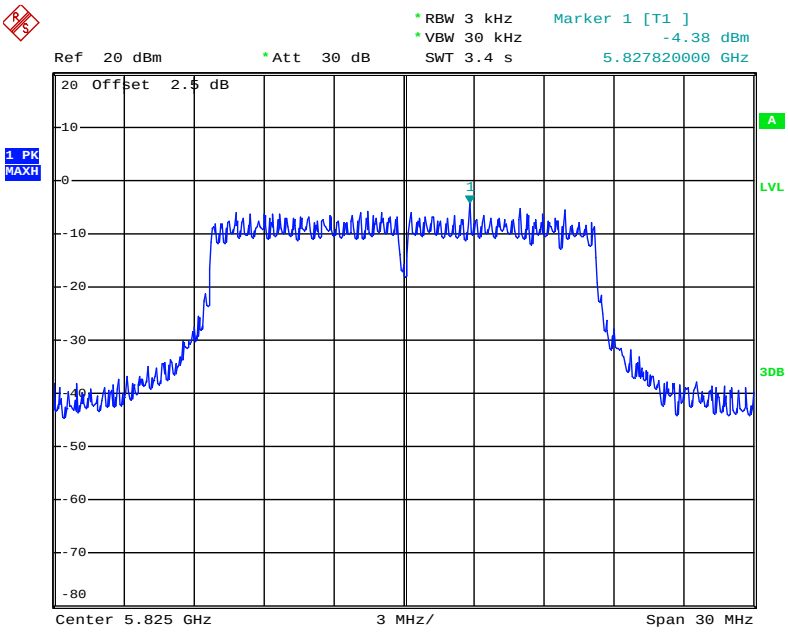
For 5GHz Band

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 1



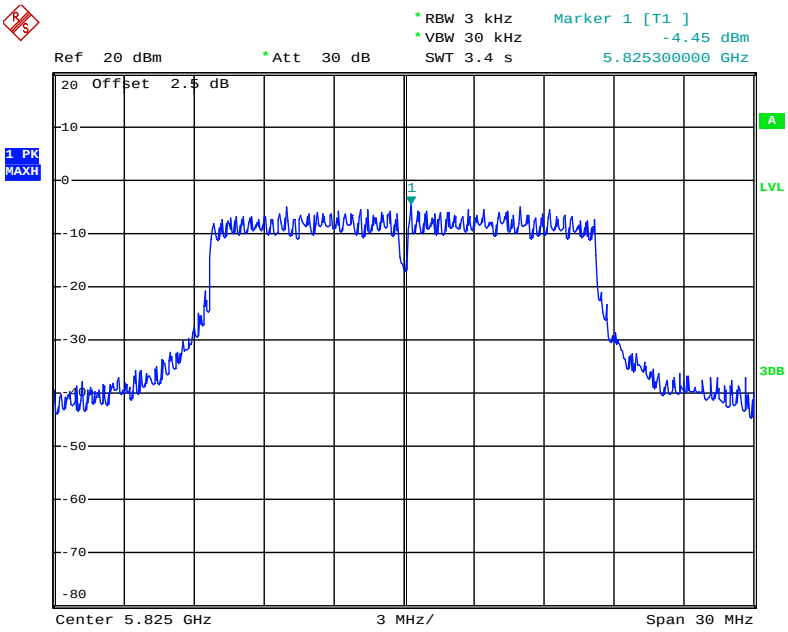
Date: 13.MAR.2015 17:13:26

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 2



Date: 13.MAR.2015 17:13:35

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 3



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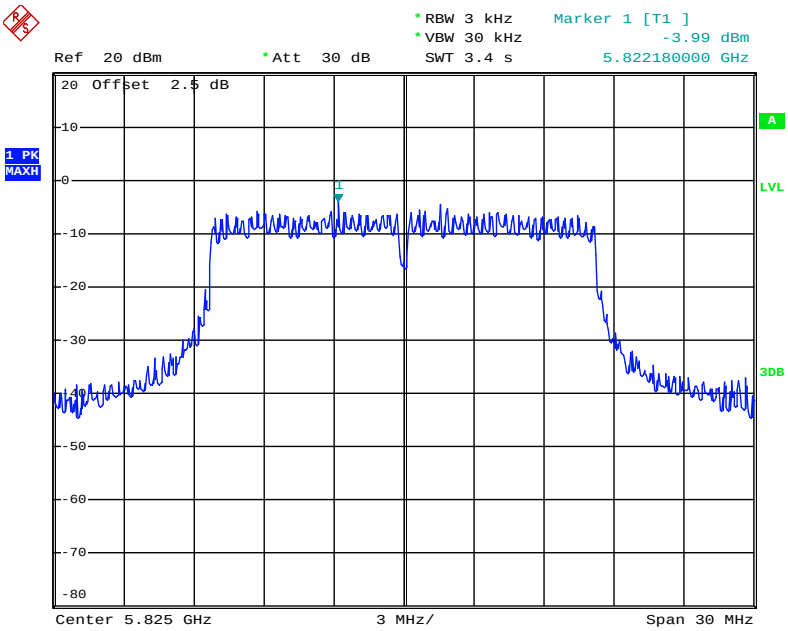
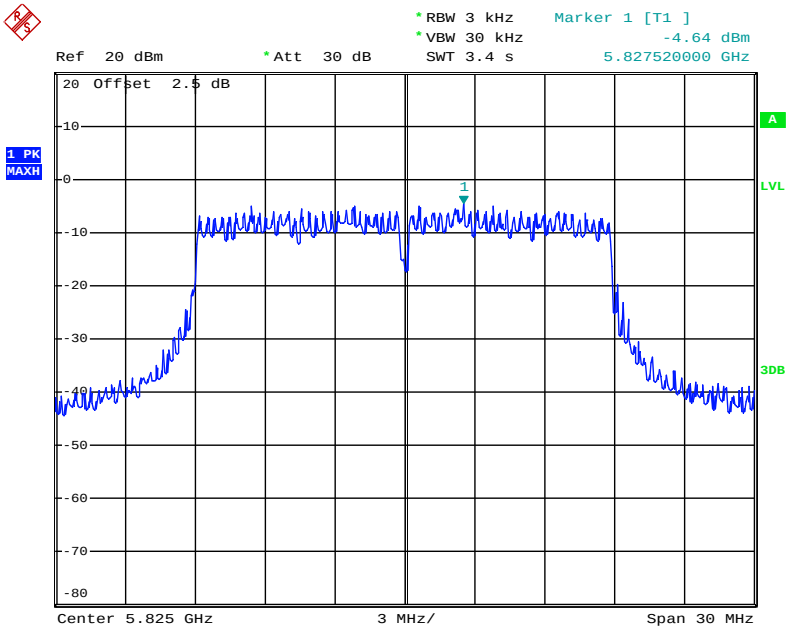
Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 4



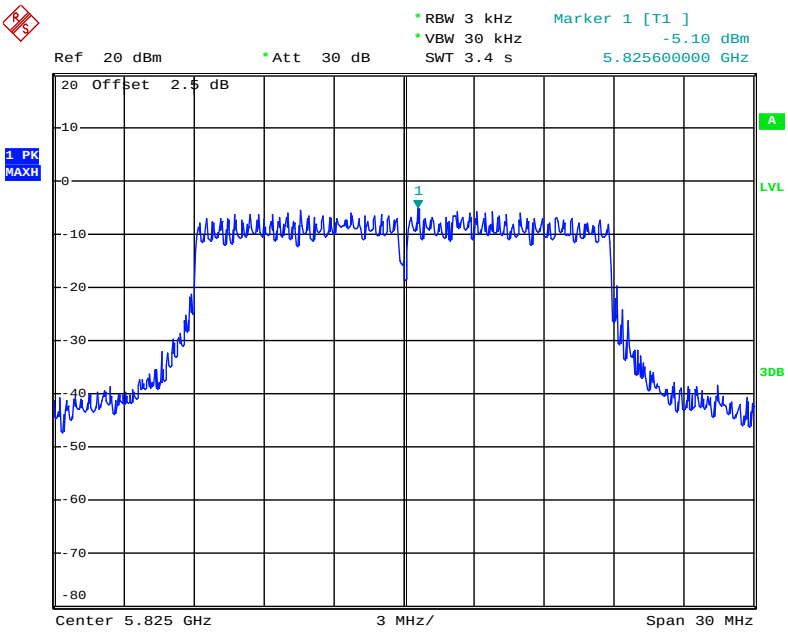
Date: 13.MAR.2015 17:14:23

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 1



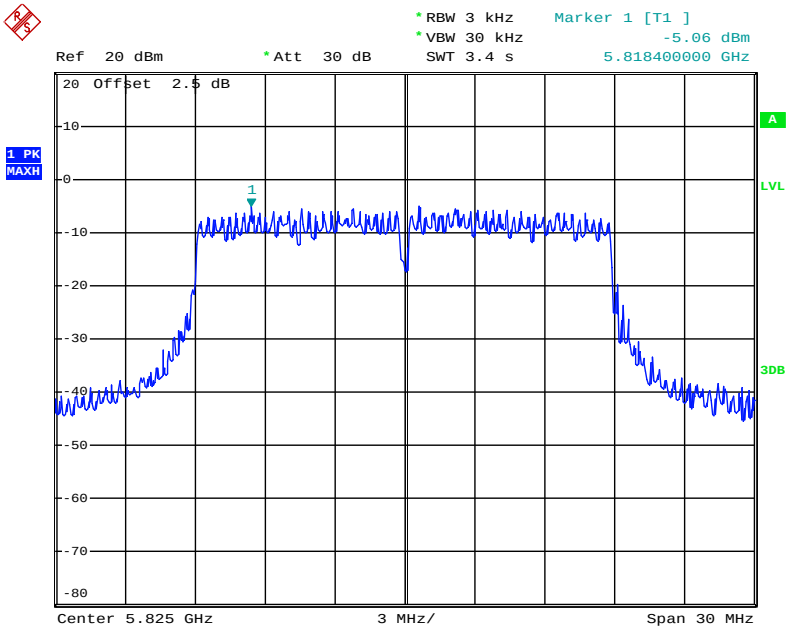
Date: 13.MAR.2015 19:13:55

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 2



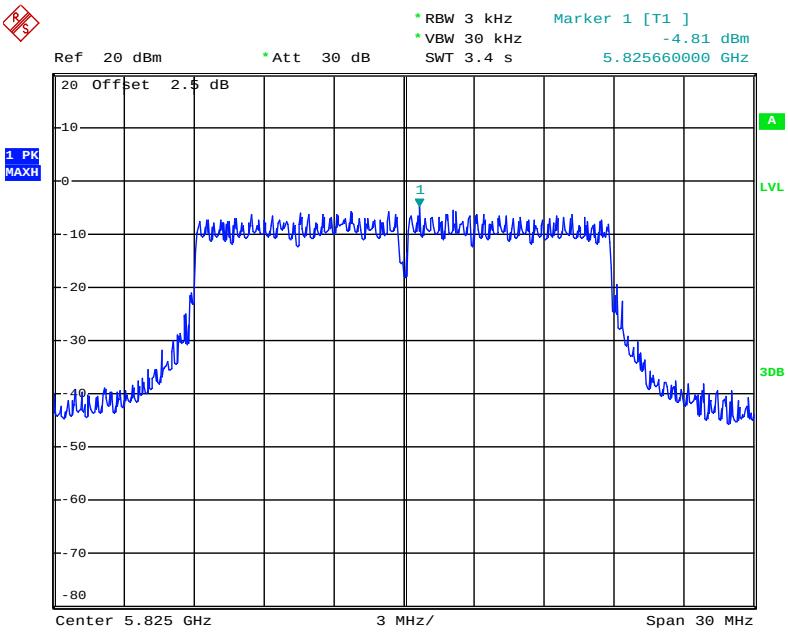
Date: 13.MAR.2015 19:13:41

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 3



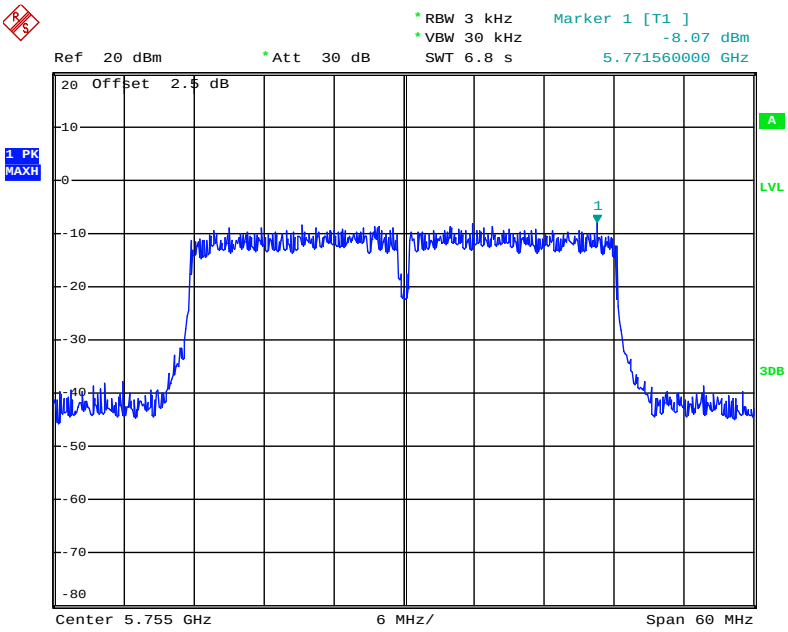
Date: 13.MAR.2015 19:13:48

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 4



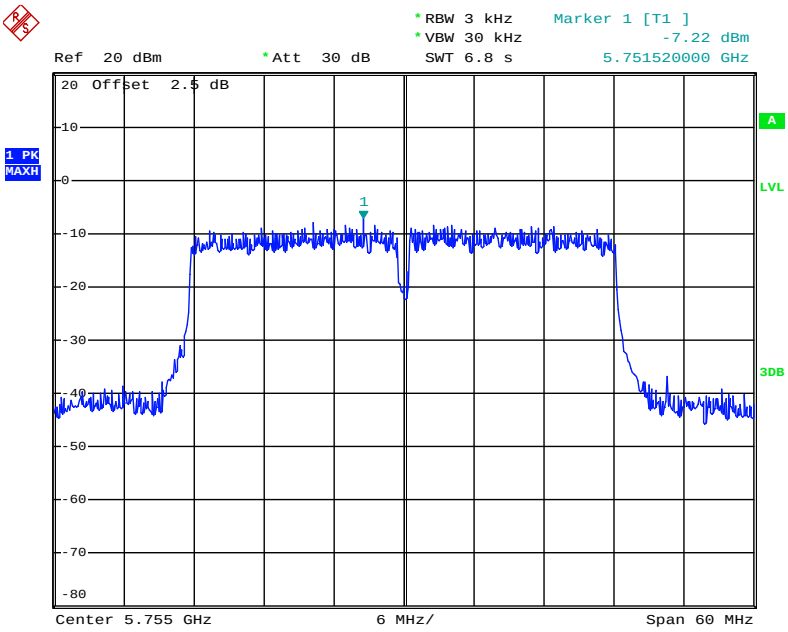
Date: 13.MAR.2015 19:14:01

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 1



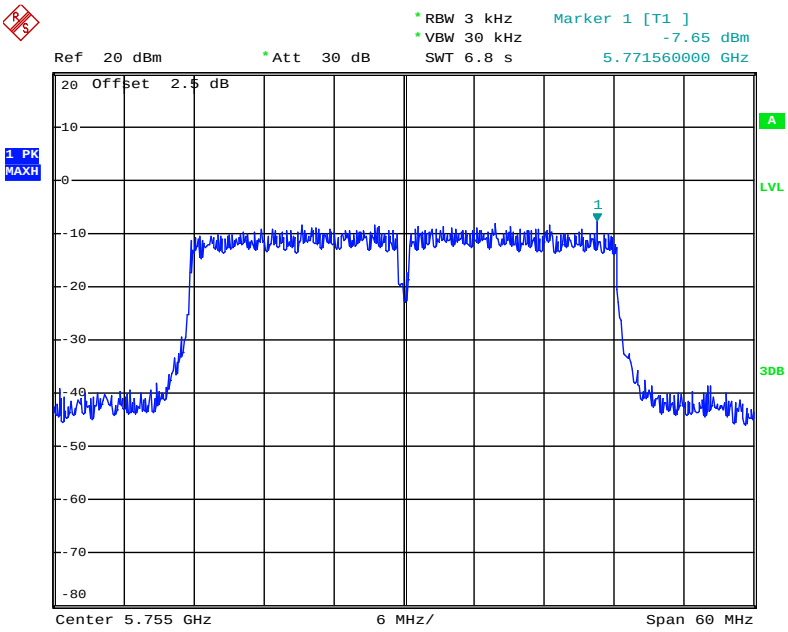
Date: 13.MAR.2015 19:16:05

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 2



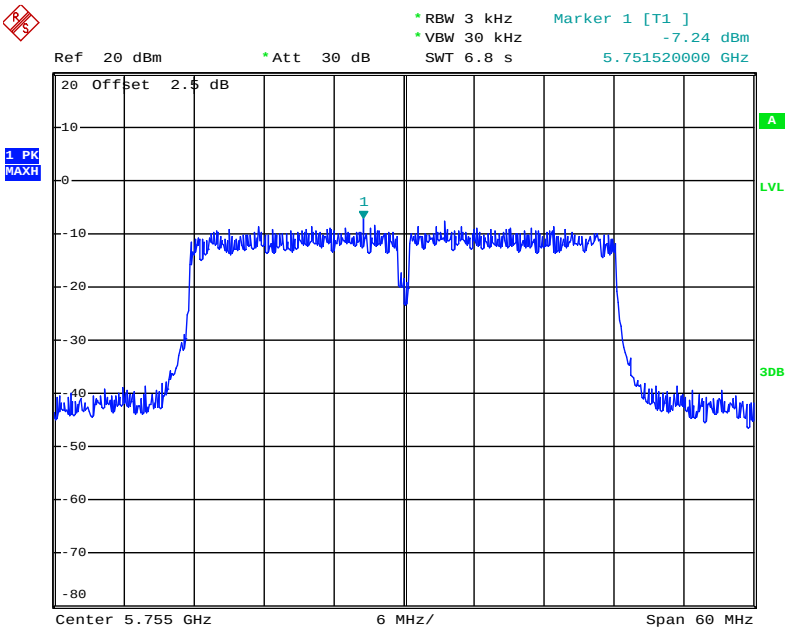
Date: 13.MAR.2015 19:16:29

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 3



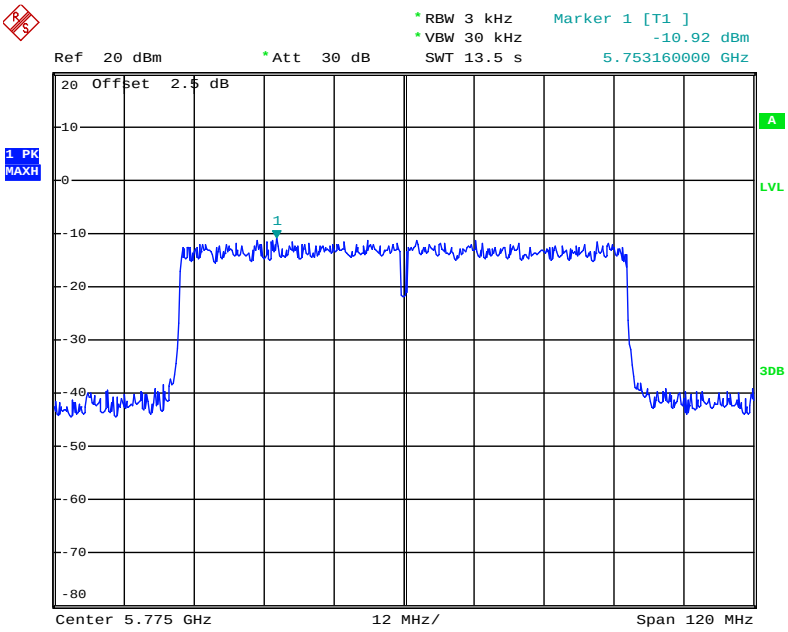
Date: 13.MAR.2015 19:16:20

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 4



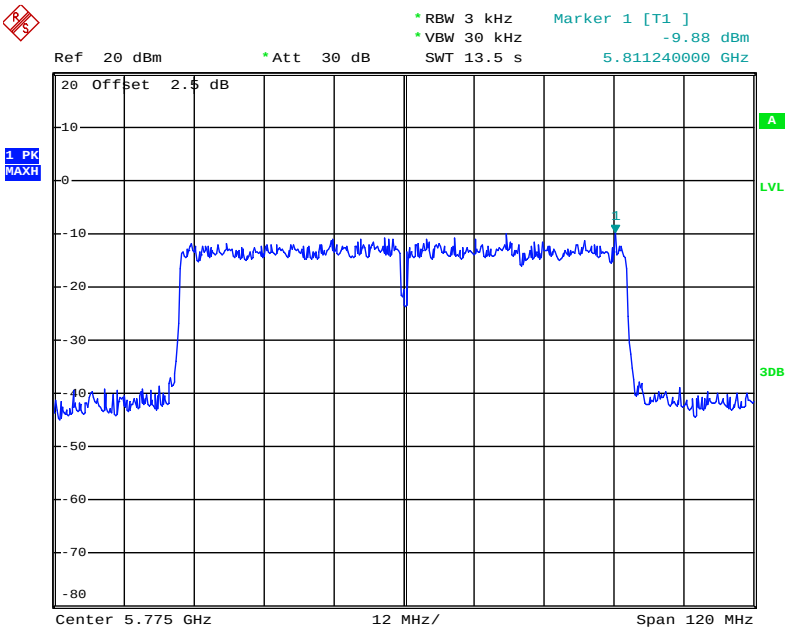
Date: 13.MAR.2015 19:15:49

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 1



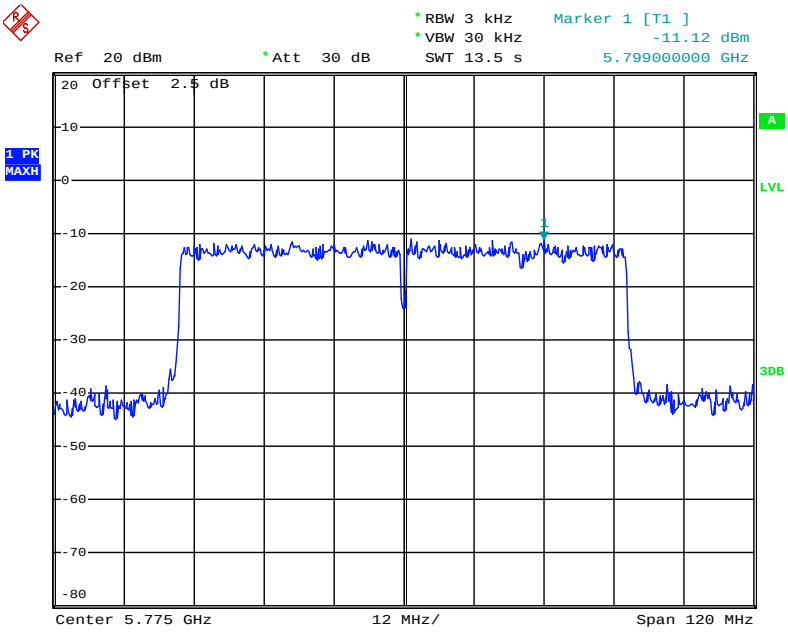
Date: 13.MAR.2015 19:21:32

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 2



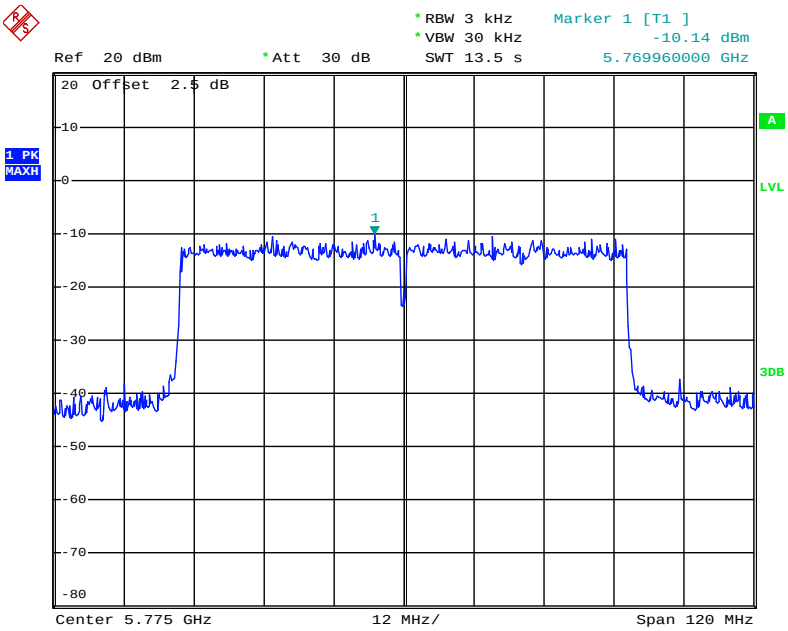
Date: 13.MAR.2015 19:21:48

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 3



Date: 13.MAR.2015 19:20:29

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 4



Date: 13.MAR.2015 19:21:03

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.

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 8.0 DTS bandwidth=> 8.1 Option 1.
3. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

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	21°C	Humidity	63%
Test Engineer	Serway Li		

For 2.4GHz Band

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11b	2412 MHz	8.12	12.94	500	Complies
	2437 MHz	7.13	12.68	500	Complies
	2462 MHz	7.13	13.55	500	Complies
802.11g	2412 MHz	14.55	15.80	500	Complies
	2437 MHz	14.49	16.32	500	Complies
	2462 MHz	15.07	16.50	500	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	14.14	17.89	500	Complies
	2437 MHz	14.09	17.89	500	Complies
	2462 MHz	15.94	17.89	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	35.36	37.05	500	Complies
	2437 MHz	35.36	37.05	500	Complies
	2452 MHz	35.83	37.05	500	Complies

Temperature	21°C	Humidity	63%
Test Engineer	Nick Peng		

For 5GHz Band

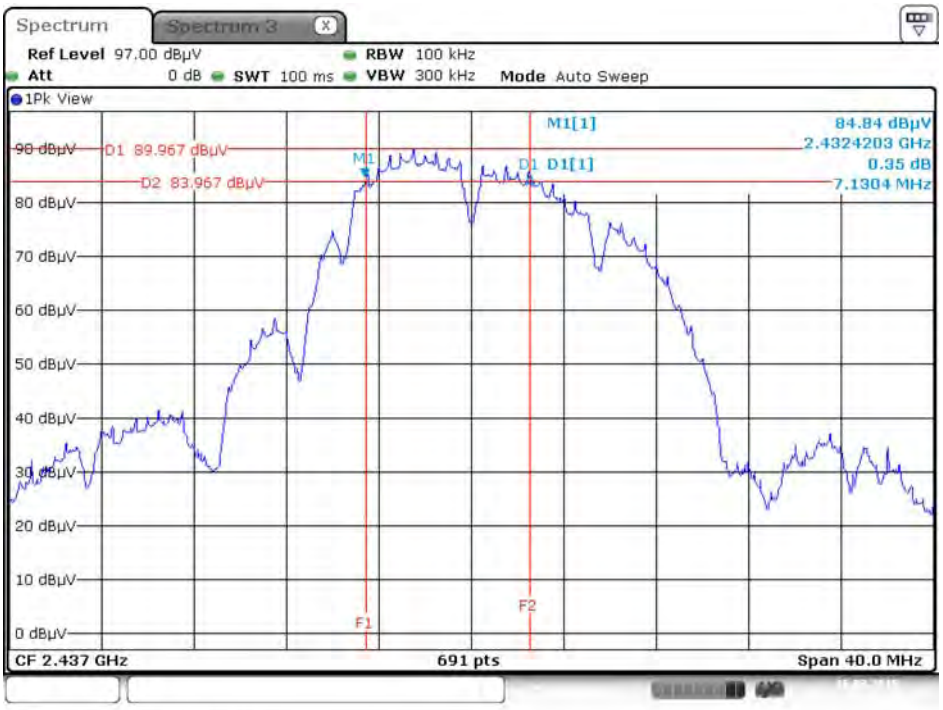
Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	15.12	16.32	500	Complies
	5785 MHz	15.12	16.20	500	Complies
	5825 MHz	15.12	16.32	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	12.32	18.00	500	Complies
	5785 MHz	12.24	18.00	500	Complies
	5825 MHz	11.28	18.00	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	30.40	37.60	500	Complies
	5795 MHz	29.12	37.80	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	69.20	76.80	500	Complies

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

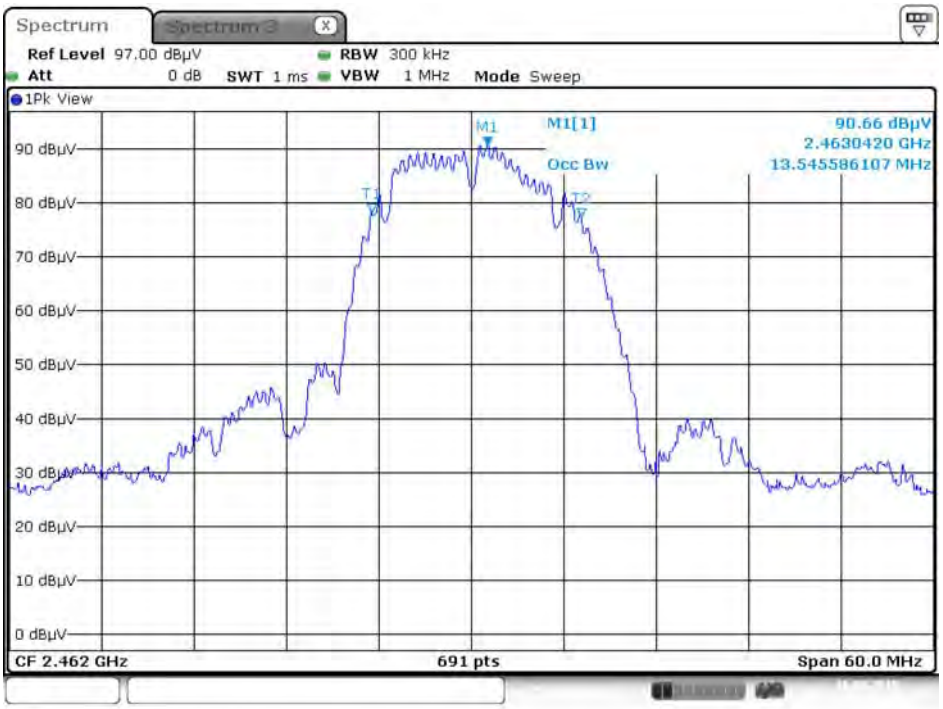
For plots, only the channel with worse result was shown.

For 2.4GHz Band

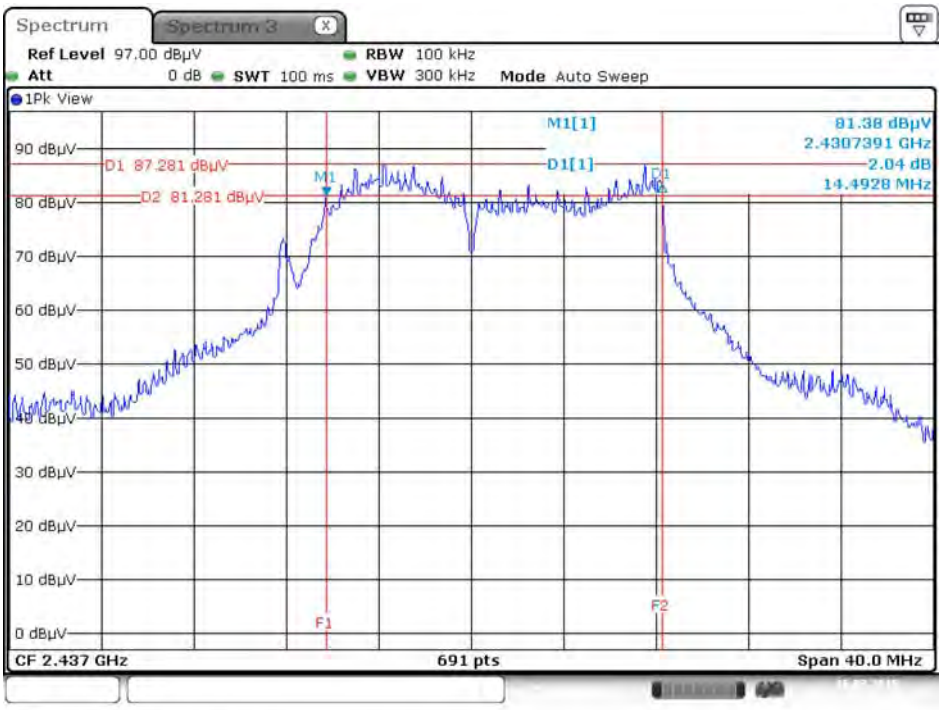
6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



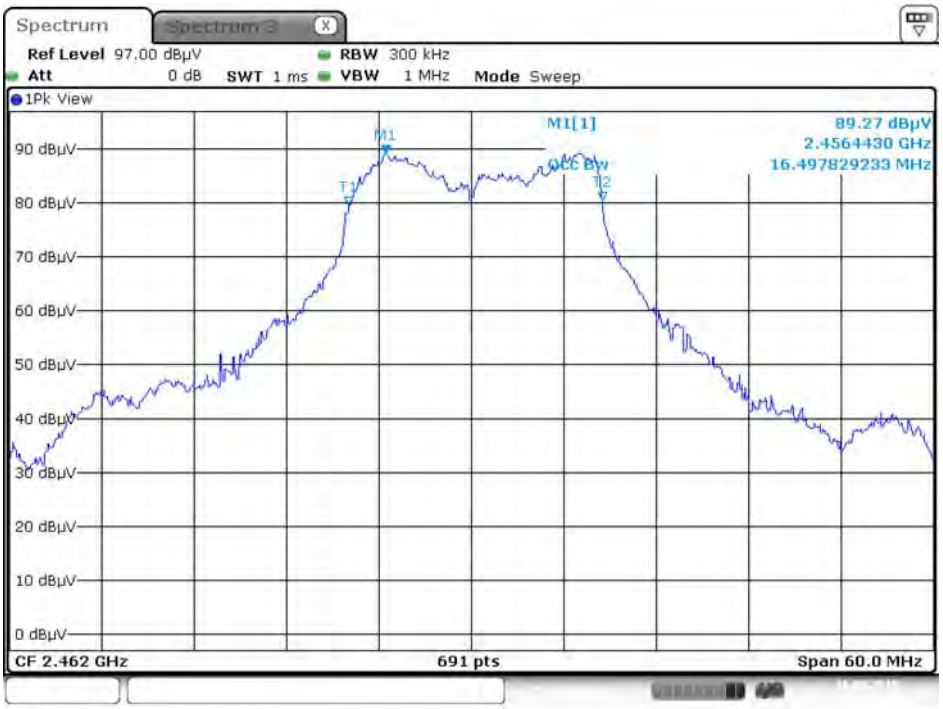
99% Occupied Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



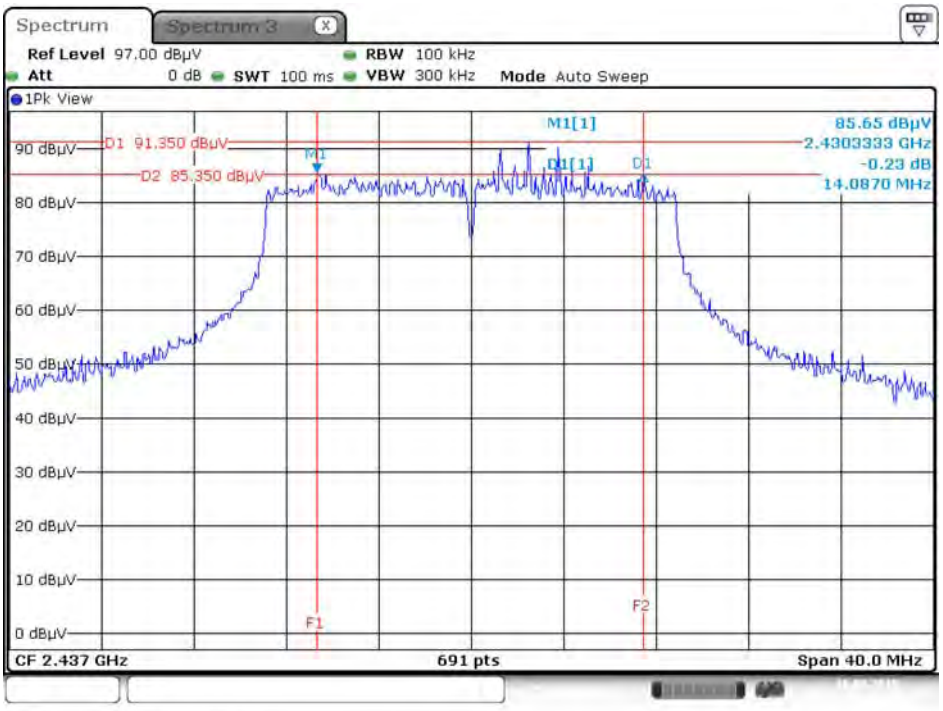
6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



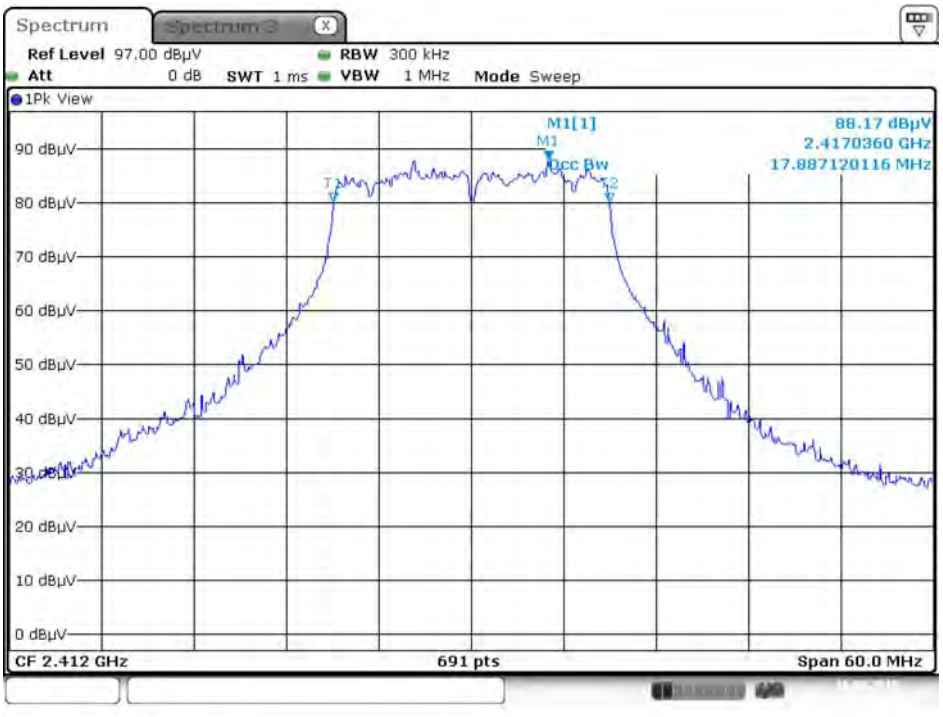
99% Occupied Bandwidth Plot on Configuration IEEE 802.11g / 2462 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



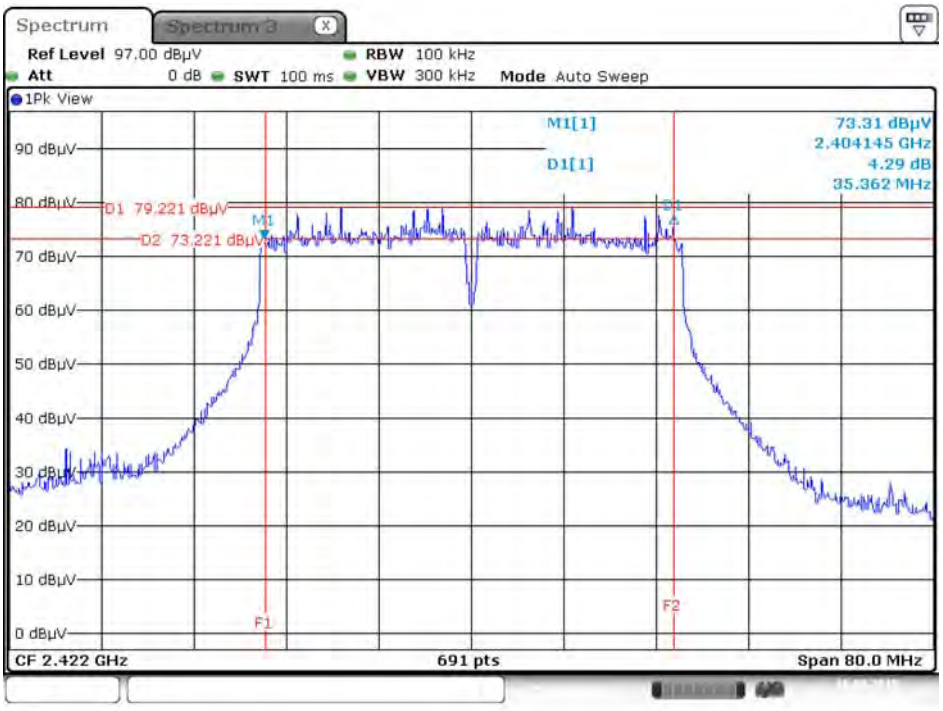
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



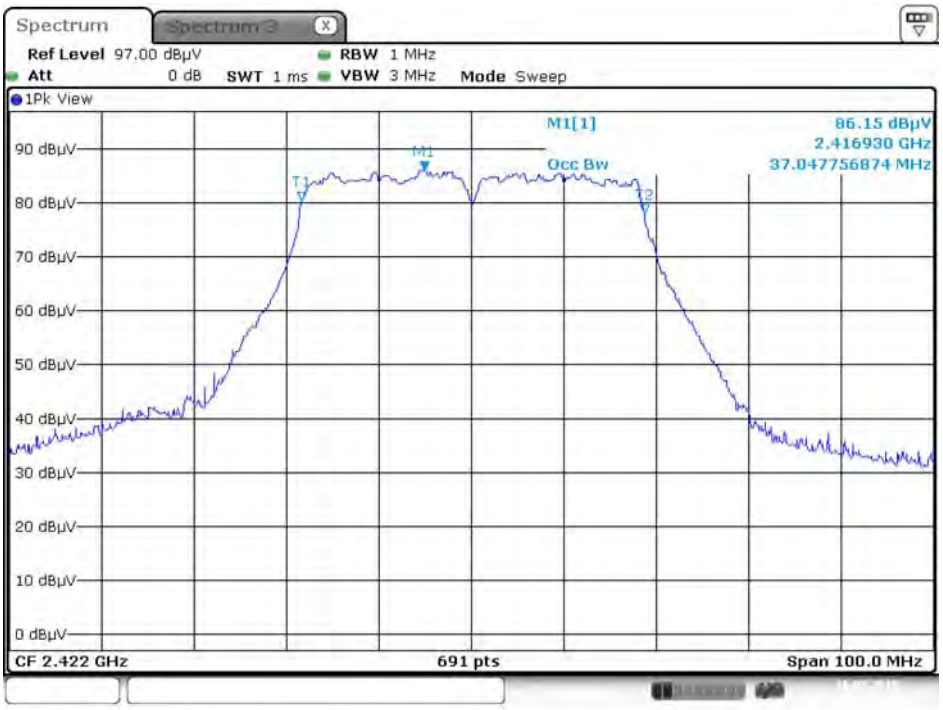
99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4

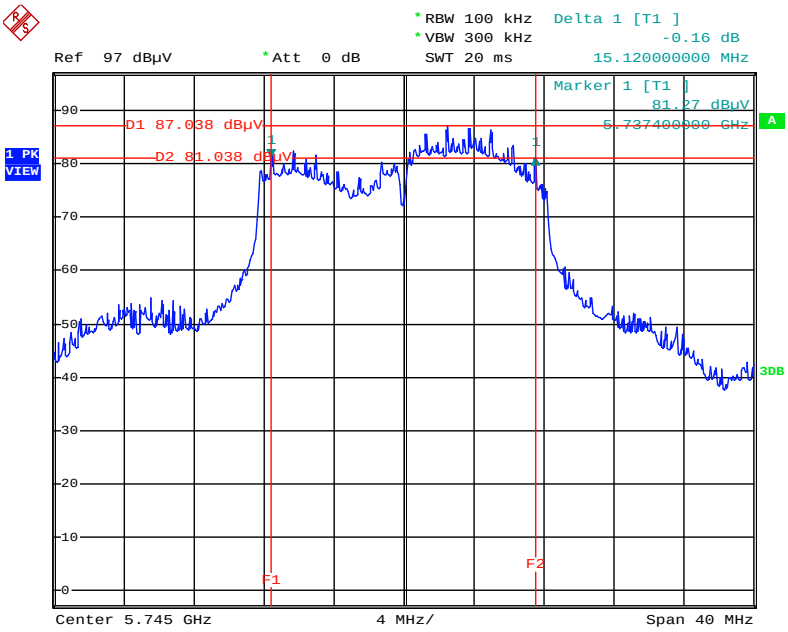


99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



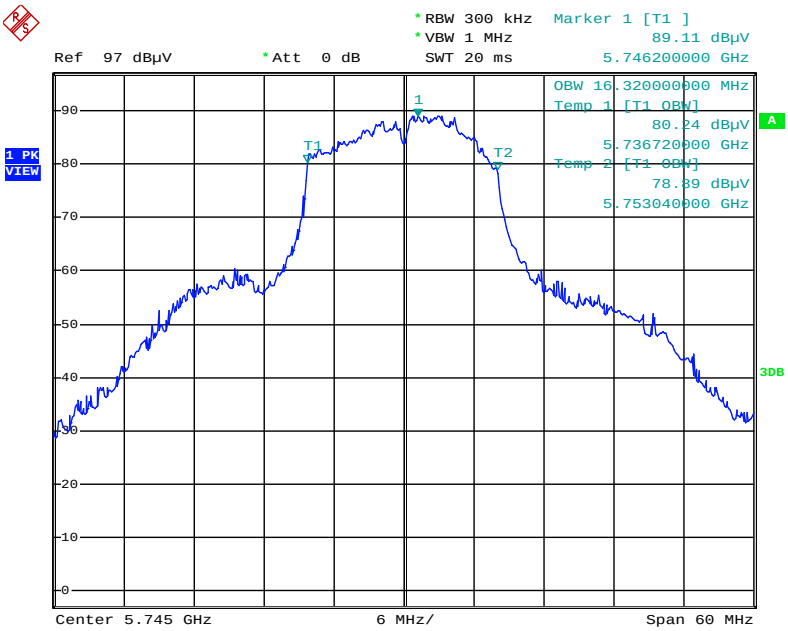
For 5GHz Band

6 dB Bandwidth Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



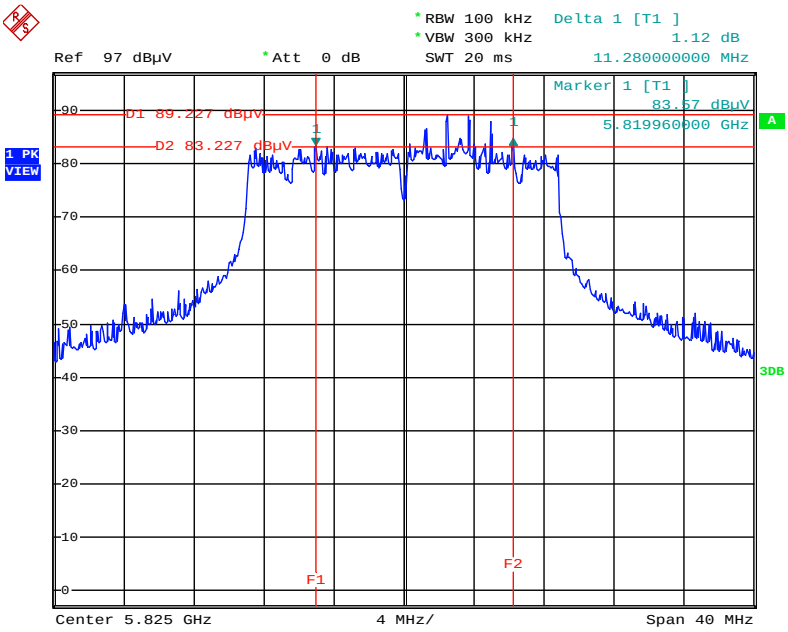
Date: 13.MAR.2015 16:17:33

99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



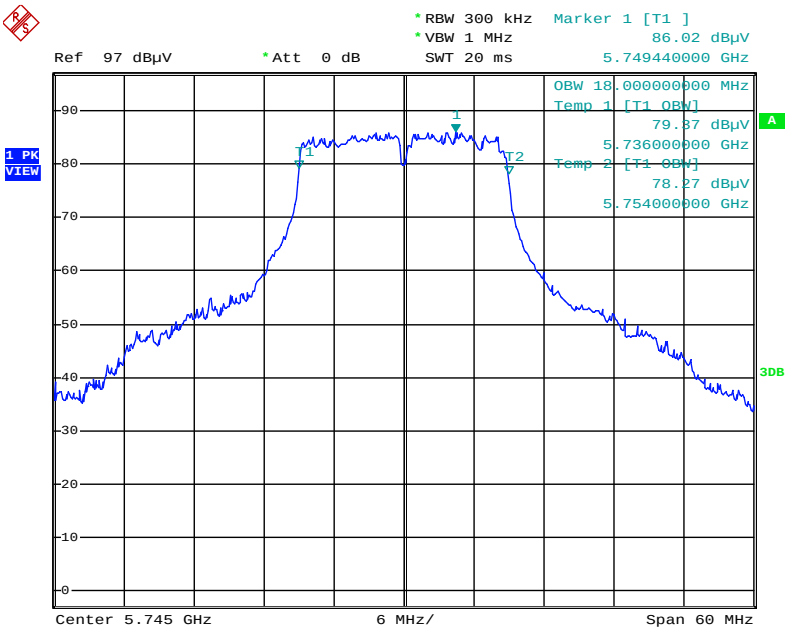
Date: 13.MAR.2015 16:36:11

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



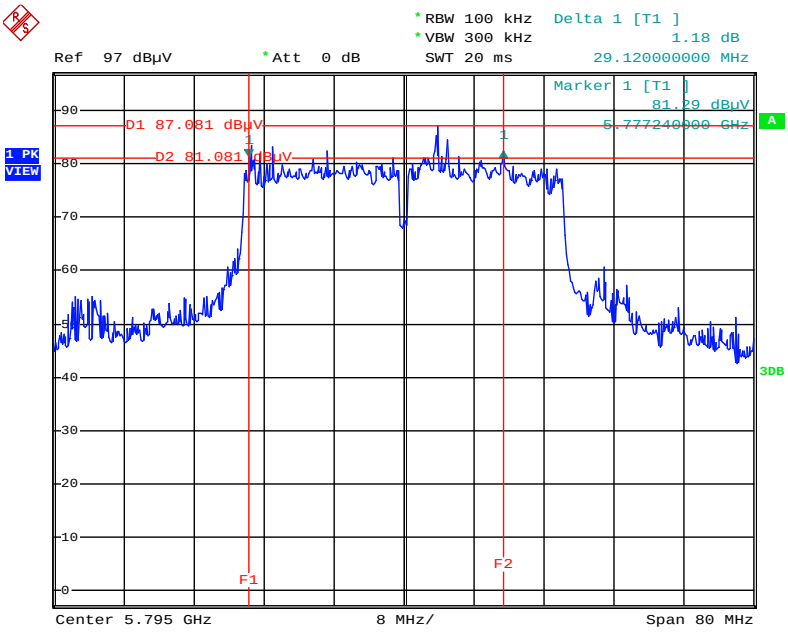
Date: 13.MAR.2015 16:02:14

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5745 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



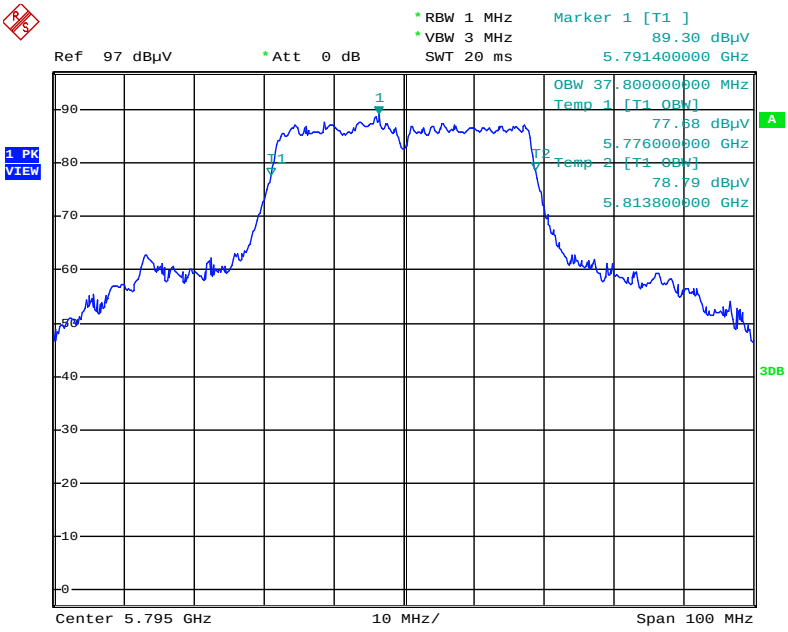
Date: 13.MAR.2015 16:38:36

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5795MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



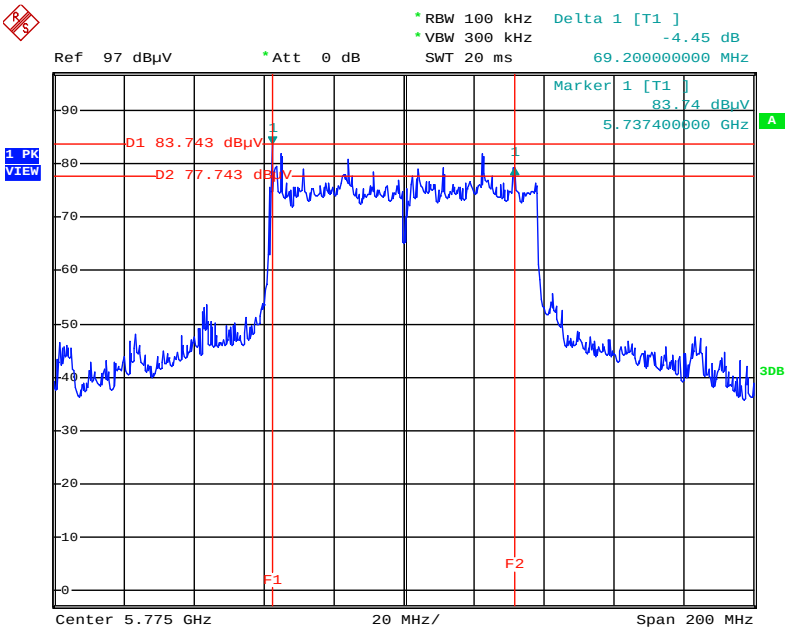
Date: 13.MAR.2015 15:53:49

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5795MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



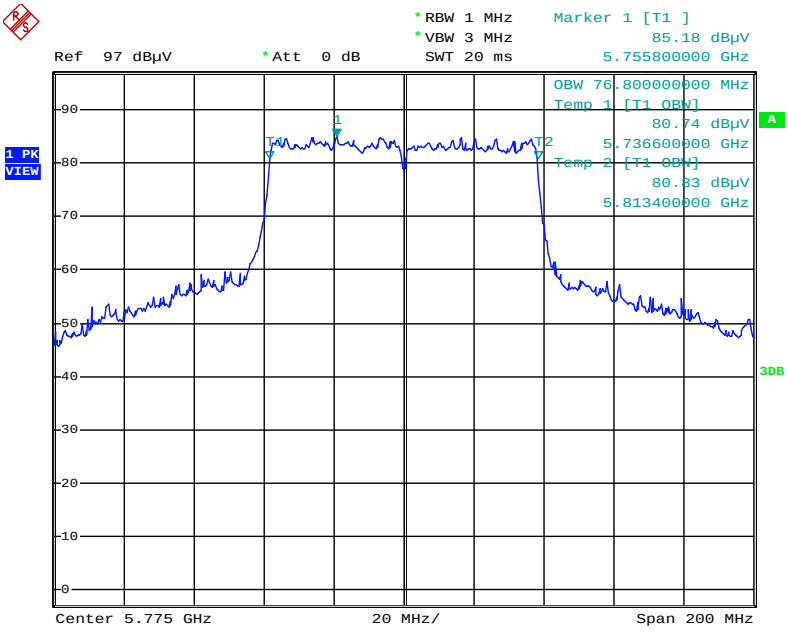
Date: 13.MAR.2015 16:42:35

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 13.MAR.2015 15:48:24

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / 5775 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 13.MAR.2015 16:43:41

4.5. Radiated Emissions Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

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

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

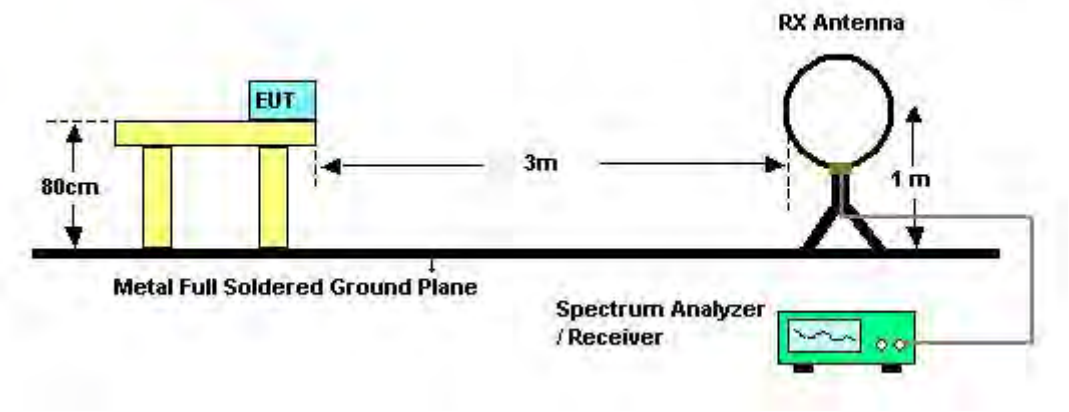
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1GHz / RBW 120kHz for QP

4.5.3. Test Procedures

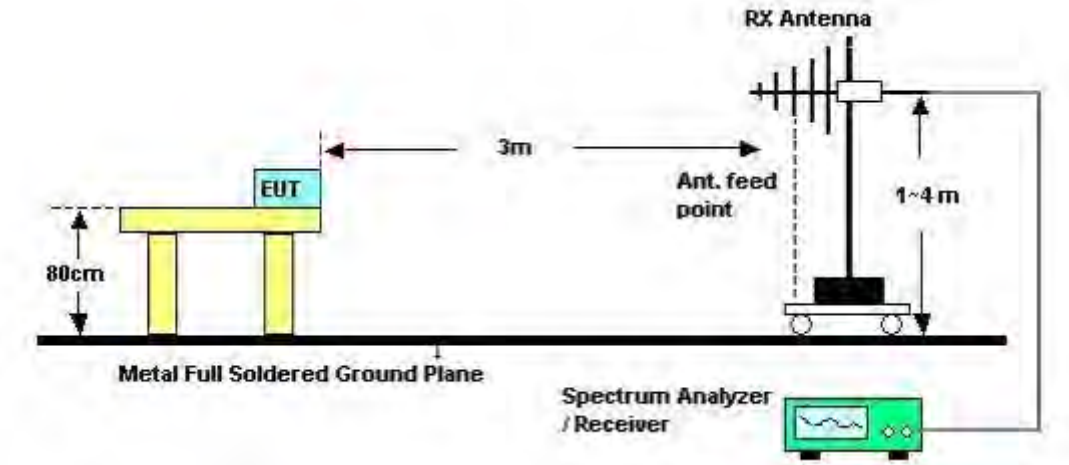
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 2.4GHz: 3 meters / 5GHz: 1 meters far away from the turntable.
2. Power on the 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 1/T VBW for average reading in spectrum analyzer.
7. 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.
8. 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.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.5.4. Test Setup Layout

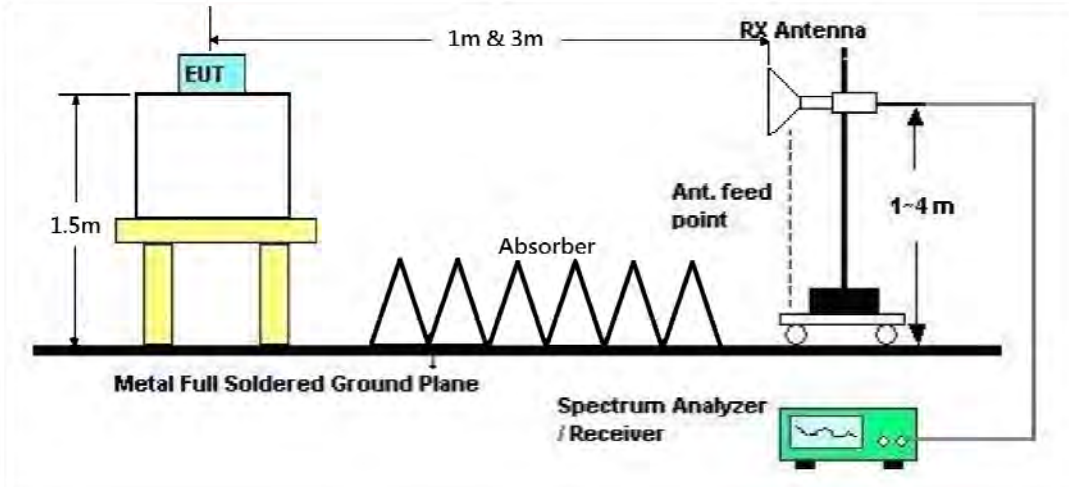
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

For non-beamforming function (802.11b):

The EUT was programmed to be in continuously transmitting mode.

For beamforming function (802.11a/g/n/ac):

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	25°C	Humidity	40%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Date	Mar. 03, 2015	Test Mode	Mode 4

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.

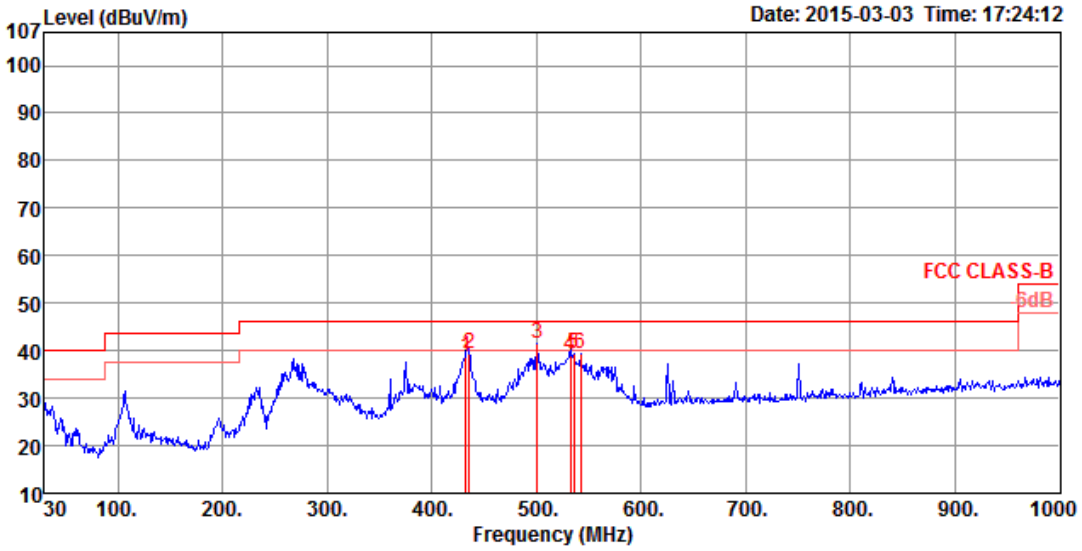
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

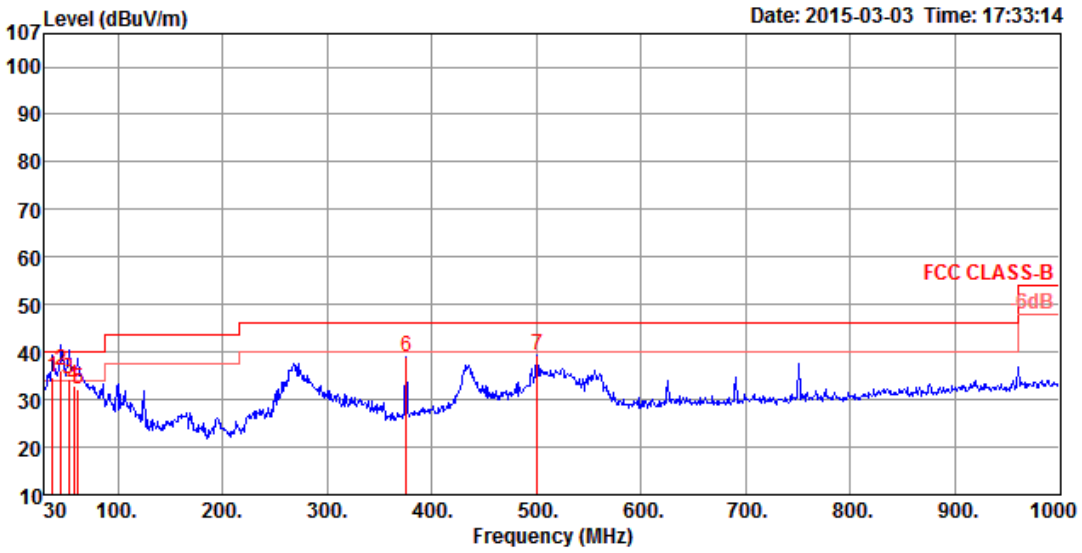
Temperature	25°C	Humidity	40%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 4		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	432.55	38.57	46.00	-7.43	51.99	16.90	2.07	32.39	100	231	HORIZONTAL	QP
2	435.46	39.46	46.00	-6.54	52.84	16.93	2.07	32.38	100	240	HORIZONTAL	QP
3	500.45	41.44	46.00	-4.56	53.83	17.81	2.21	32.41	100	344	HORIZONTAL	QP
4	532.46	38.94	46.00	-7.06	50.76	18.33	2.28	32.43	150	140	HORIZONTAL	QP
5	535.37	39.45	46.00	-6.55	51.23	18.37	2.28	32.43	150	140	HORIZONTAL	Peak
6	542.16	39.37	46.00	-6.63	51.01	18.48	2.29	32.41	150	140	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	37.76	34.79	40.00	-5.21	51.33	15.26	0.66	32.46	100	243	VERTICAL	QP
2	45.52	36.16	40.00	-3.84	57.07	10.83	0.69	32.43	100	248	VERTICAL	QP
3	53.28	34.23	40.00	-5.77	57.65	8.34	0.75	32.51	100	82	VERTICAL	QP
4	58.13	32.94	40.00	-7.06	57.43	7.24	0.77	32.50	100	131	VERTICAL	QP
5	62.01	32.26	40.00	-7.74	57.18	6.80	0.79	32.51	150	188	VERTICAL	QP
6	375.32	38.83	46.00	-7.17	53.31	15.91	1.93	32.32	100	221	VERTICAL	Peak
7	500.45	39.45	46.00	-6.55	51.85	17.80	2.21	32.41	100	227	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	25°C	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Feb. 26, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4820.96	47.44	54.00	-6.56	43.00	31.09	7.05	33.70	177	68	HORIZONTAL	Average
2	4824.07	52.06	74.00	-21.94	47.62	31.09	7.05	33.70	177	68	HORIZONTAL	Peak
3	12043.21	49.78	74.00	-24.22	34.71	38.86	11.25	35.04	150	350	HORIZONTAL	Peak
4	12060.87	35.80	54.00	-18.20	20.73	38.84	11.26	35.03	150	350	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4823.91	38.15	54.00	-15.85	33.72	31.08	7.05	33.70	160	360	VERTICAL	Average
2	4824.06	43.68	74.00	-30.32	39.25	31.08	7.05	33.70	160	360	VERTICAL	Peak
3	12054.14	49.05	74.00	-24.95	33.96	38.86	11.26	35.03	132	180	VERTICAL	Peak
4	12057.97	35.75	54.00	-18.25	20.66	38.86	11.26	35.03	132	180	VERTICAL	Average

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Feb. 26, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4874.00	55.14	74.00	-18.86	50.55	31.18	7.09	33.68	168	64	HORIZONTAL	Peak
2	4874.00	49.93	54.00	-4.07	45.34	31.18	7.09	33.68	168	64	HORIZONTAL	Average
3	7309.26	41.44	54.00	-12.56	30.53	36.05	8.86	34.00	160	300	HORIZONTAL	Average
4	7309.92	47.94	74.00	-26.06	37.03	36.05	8.86	34.00	160	300	HORIZONTAL	Peak
5	12162.42	49.12	74.00	-24.88	34.09	38.74	11.29	35.00	188	163	HORIZONTAL	Peak
6	12182.97	34.83	54.00	-19.17	19.81	38.71	11.30	34.99	188	163	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4874.00	40.42	54.00	-13.58	35.83	31.18	7.09	33.68	120	336	VERTICAL	Average
2	4874.07	45.20	74.00	-28.80	40.61	31.18	7.09	33.68	120	336	VERTICAL	Peak
3	7312.16	46.48	74.00	-27.52	35.57	36.05	8.86	34.00	158	315	VERTICAL	Peak
4	7312.16	39.53	54.00	-14.47	28.62	36.05	8.86	34.00	158	315	VERTICAL	Average
5	12186.30	35.27	54.00	-18.73	20.24	38.72	11.30	34.99	156	0	VERTICAL	Average
6	12186.52	49.02	74.00	-24.98	33.99	38.72	11.30	34.99	156	0	VERTICAL	Peak

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 13, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.66	45.21	74.00	-28.79	42.85	4.15	32.76	34.55	51	192	Peak	HORIZONTAL
2	4923.98	36.51	54.00	-17.49	34.15	4.15	32.76	34.55	51	192	Average	HORIZONTAL
3	7385.92	49.35	74.00	-24.65	41.89	5.12	37.18	34.84	172	125	Peak	HORIZONTAL
4	7387.00	37.03	54.00	-16.97	29.57	5.12	37.18	34.84	172	125	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.93	35.59	54.00	-18.41	33.23	4.15	32.76	34.55	356	157	Average	VERTICAL
2	4924.09	45.38	74.00	-28.62	43.02	4.15	32.76	34.55	356	157	Peak	VERTICAL
3	7386.69	50.15	74.00	-23.85	42.69	5.12	37.18	34.84	172	100	Peak	VERTICAL
4	7386.72	37.41	54.00	-16.59	29.95	5.12	37.18	34.84	172	100	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4823.03	49.67	74.00	-24.33	48.00	32.76	4.21	35.30	156	316	Peak	HORIZONTAL
2	4824.41	32.21	54.00	-21.79	30.54	32.76	4.21	35.30	156	316	Average	HORIZONTAL
3	7235.53	50.73	74.00	-23.27	43.75	37.10	5.28	35.40	152	355	Peak	HORIZONTAL
4	7236.70	39.15	54.00	-14.85	32.17	37.10	5.28	35.40	152	355	Average	HORIZONTAL
5	12060.70	40.40	54.00	-13.60	29.16	38.76	7.25	34.77	159	351	Average	HORIZONTAL
6	12060.70	53.40	74.00	-20.60	42.16	38.76	7.25	34.77	159	351	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4823.93	35.13	54.00	-18.87	33.46	32.76	4.21	35.30	155	302	Average	VERTICAL
2	4824.67	44.33	74.00	-29.67	42.66	32.76	4.21	35.30	155	302	Peak	VERTICAL
3	7235.86	36.45	54.00	-17.55	29.47	37.10	5.28	35.40	157	318	Average	VERTICAL
4	7236.70	50.04	74.00	-23.96	43.06	37.10	5.28	35.40	157	318	Peak	VERTICAL
5	12060.13	40.21	54.00	-13.79	28.97	38.76	7.25	34.77	157	285	Average	VERTICAL
6	12060.13	55.21	74.00	-18.79	43.97	38.76	7.25	34.77	157	285	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4873.72	31.08	54.00	-22.92	29.38	32.80	4.21	35.31	164	314	Average	HORIZONTAL
2	4873.92	45.78	74.00	-28.22	44.08	32.80	4.21	35.31	165	314	Peak	HORIZONTAL
3	7310.88	50.42	74.00	-23.58	43.34	37.12	5.32	35.36	196	5	Peak	HORIZONTAL
4	7311.18	40.93	54.00	-13.07	33.85	37.12	5.32	35.36	196	5	Average	HORIZONTAL
5	12185.72	40.60	54.00	-13.40	29.38	38.59	7.26	34.63	171	315	Average	HORIZONTAL
6	12189.92	53.61	74.00	-20.39	42.39	38.59	7.26	34.63	171	315	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4874.15	33.89	54.00	-20.11	32.19	32.80	4.21	35.31	162	350	Average	VERTICAL
2	4874.44	44.89	74.00	-29.11	43.19	32.80	4.21	35.31	162	350	Peak	VERTICAL
3	7311.35	39.92	54.00	-14.08	32.84	37.12	5.32	35.36	123	17	Average	VERTICAL
4	7311.59	50.70	74.00	-23.30	43.62	37.12	5.32	35.36	123	17	Peak	VERTICAL
5	12184.84	54.41	74.00	-19.59	43.19	38.59	7.26	34.63	164	302	Peak	VERTICAL
6	12185.14	41.41	54.00	-12.59	30.19	38.59	7.26	34.63	164	302	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4923.61	45.44	74.00	-28.56	43.72	32.84	4.21	35.33	154	360	Peak	HORIZONTAL
2	4923.94	35.22	54.00	-18.78	33.50	32.84	4.21	35.33	154	360	Average	HORIZONTAL
3	7385.58	37.01	54.00	-16.99	29.82	37.16	5.35	35.32	152	80	Average	HORIZONTAL
4	7386.15	51.12	74.00	-22.88	43.93	37.16	5.35	35.32	152	80	Peak	HORIZONTAL
5	12310.61	40.99	54.00	-13.01	29.65	38.56	7.27	34.49	159	125	Average	HORIZONTAL
6	12310.61	54.45	74.00	-19.55	43.11	38.56	7.27	34.49	159	125	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4924.00	33.55	54.00	-20.45	31.83	32.84	4.21	35.33	169	46	Average	VERTICAL
2	4924.71	44.22	74.00	-29.78	42.50	32.84	4.21	35.33	169	46	Peak	VERTICAL
3	7385.89	37.37	54.00	-16.63	30.18	37.16	5.35	35.32	153	348	Average	VERTICAL
4	7385.89	51.37	74.00	-22.63	44.18	37.16	5.35	35.32	153	348	Peak	VERTICAL
5	12310.20	41.86	54.00	-12.14	30.52	38.56	7.27	34.49	161	15	Average	VERTICAL
6	12311.11	55.16	74.00	-18.84	43.82	38.56	7.27	34.49	161	15	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4823.51	46.03	74.00	-27.97	44.36	32.76	4.21	35.30	161	62	Peak	HORIZONTAL
2	4823.97	30.52	54.00	-23.48	28.85	32.76	4.21	35.30	161	62	Average	HORIZONTAL
3	7236.32	49.91	74.00	-24.09	42.93	37.10	5.28	35.40	214	350	Peak	HORIZONTAL
4	7236.88	39.40	54.00	-14.60	32.42	37.10	5.28	35.40	214	350	Average	HORIZONTAL
5	12060.06	53.94	74.00	-20.06	42.70	38.76	7.25	34.77	154	347	Peak	HORIZONTAL
6	12060.24	41.26	54.00	-12.74	30.02	38.76	7.25	34.77	154	347	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4823.66	39.25	54.00	-14.75	37.58	32.76	4.21	35.30	159	360	Average	VERTICAL
2	4824.87	45.88	74.00	-28.12	44.21	32.76	4.21	35.30	159	360	Peak	VERTICAL
3	7235.22	38.01	54.00	-15.99	31.03	37.10	5.28	35.40	163	342	Average	VERTICAL
4	7235.39	49.14	74.00	-24.86	42.16	37.10	5.28	35.40	163	342	Peak	VERTICAL
5	12059.51	54.88	74.00	-19.12	43.64	38.76	7.25	34.77	156	328	Peak	VERTICAL
6	12059.56	40.61	54.00	-13.39	29.37	38.76	7.25	34.77	156	328	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4873.94	30.36	54.00	-23.64	28.66	32.80	4.21	35.31	154	360	Average	HORIZONTAL
2	4874.02	45.51	74.00	-28.49	43.81	32.80	4.21	35.31	154	360	Peak	HORIZONTAL
3	7310.33	36.26	54.00	-17.74	29.18	37.12	5.32	35.36	152	29	Average	HORIZONTAL
4	7311.65	48.84	74.00	-25.16	41.76	37.12	5.32	35.36	152	29	Peak	HORIZONTAL
5	12184.12	40.57	54.00	-13.43	29.35	38.59	7.26	34.63	199	310	Average	HORIZONTAL
6	12184.62	54.15	74.00	-19.85	42.93	38.59	7.26	34.63	199	310	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4874.02	46.42	74.00	-27.58	44.72	32.80	4.21	35.31	170	83	Peak	VERTICAL
2	4874.24	30.19	54.00	-23.81	28.49	32.80	4.21	35.31	170	83	Average	VERTICAL
3	7310.48	49.87	74.00	-24.13	42.79	37.12	5.32	35.36	156	295	Peak	VERTICAL
4	7310.82	36.47	54.00	-17.53	29.39	37.12	5.32	35.36	156	295	Average	VERTICAL
5	12184.92	54.56	74.00	-19.44	43.34	38.59	7.26	34.63	168	280	Peak	VERTICAL
6	12185.45	41.36	54.00	-12.64	30.14	38.59	7.26	34.63	168	280	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4923.62	44.84	74.00	-29.16	43.12	32.84	4.21	35.33	149	2	Peak	HORIZONTAL
2	4923.99	30.40	54.00	-23.60	28.68	32.84	4.21	35.33	149	2	Average	HORIZONTAL
3	7385.78	50.70	74.00	-23.30	43.51	37.16	5.35	35.32	155	54	Peak	HORIZONTAL
4	7386.81	37.13	54.00	-16.87	29.94	37.16	5.35	35.32	155	54	Average	HORIZONTAL
5	12309.55	40.39	54.00	-13.61	29.05	38.56	7.27	34.49	151	150	Average	HORIZONTAL
6	12310.68	54.80	74.00	-19.20	43.46	38.56	7.27	34.49	151	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4924.03	30.50	54.00	-23.50	28.78	32.84	4.21	35.33	190	33	Average	VERTICAL
2	4924.12	45.12	74.00	-28.88	43.40	32.84	4.21	35.33	190	33	Peak	VERTICAL
3	7385.20	50.21	74.00	-23.79	43.02	37.16	5.35	35.32	156	345	Peak	VERTICAL
4	7385.74	37.29	54.00	-16.71	30.10	37.16	5.35	35.32	156	345	Average	VERTICAL
5	12309.82	54.38	74.00	-19.62	43.04	38.56	7.27	34.49	191	74	Peak	VERTICAL
6	12310.28	41.40	54.00	-12.60	30.06	38.56	7.27	34.49	191	74	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4843.22	30.33	54.00	-23.67	28.64	32.78	4.21	35.30	159	68	Average	HORIZONTAL
2	4844.12	48.74	74.00	-25.26	47.05	32.78	4.21	35.30	159	68	Peak	HORIZONTAL
3	7266.51	50.35	74.00	-23.65	43.33	37.11	5.30	35.39	155	247	Peak	HORIZONTAL
4	7266.66	36.23	54.00	-17.77	29.21	37.11	5.30	35.39	155	247	Average	HORIZONTAL
5	12109.82	53.97	74.00	-20.03	42.76	38.67	7.26	34.72	166	234	Peak	HORIZONTAL
6	12110.22	40.24	54.00	-13.76	29.03	38.67	7.26	34.72	166	234	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4843.60	47.25	74.00	-26.75	45.56	32.78	4.21	35.30	156	102	Peak	VERTICAL
2	4844.44	30.26	54.00	-23.74	28.57	32.78	4.21	35.30	156	102	Average	VERTICAL
3	7265.83	49.04	74.00	-24.96	42.02	37.11	5.30	35.39	158	214	Peak	VERTICAL
4	7266.77	35.49	54.00	-18.51	28.47	37.11	5.30	35.39	158	214	Average	VERTICAL
5	12109.92	41.27	54.00	-12.73	30.06	38.67	7.26	34.72	163	181	Average	VERTICAL
6	12110.08	53.80	74.00	-20.20	42.59	38.67	7.26	34.72	163	181	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4872.76	33.32	54.00	-20.68	31.62	32.80	4.21	35.31	156	359	Average	HORIZONTAL
2	4873.51	49.44	74.00	-24.56	47.74	32.80	4.21	35.31	156	359	Peak	HORIZONTAL
3	7312.47	36.50	54.00	-17.50	29.42	37.12	5.32	35.36	154	27	Average	HORIZONTAL
4	7313.22	50.11	74.00	-23.89	43.03	37.12	5.32	35.36	154	27	Peak	HORIZONTAL
5	12184.36	41.27	54.00	-12.73	30.05	38.59	7.26	34.63	170	105	Average	HORIZONTAL
6	12184.54	54.78	74.00	-19.22	43.56	38.59	7.26	34.63	170	105	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4872.63	45.62	74.00	-28.38	43.92	32.80	4.21	35.31	157	124	Peak	VERTICAL
2	4872.81	31.93	54.00	-22.07	30.23	32.80	4.21	35.31	157	124	Average	VERTICAL
3	7309.36	49.77	74.00	-24.23	42.69	37.12	5.32	35.36	149	109	Peak	VERTICAL
4	7310.75	36.24	54.00	-17.76	29.16	37.12	5.32	35.36	149	109	Average	VERTICAL
5	12185.39	41.58	54.00	-12.42	30.36	38.59	7.26	34.63	152	96	Average	VERTICAL
6	12186.50	54.59	74.00	-19.41	43.37	38.59	7.26	34.63	152	96	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4902.43	44.60	74.00	-29.40	42.89	32.82	4.21	35.32	163	105	Peak	HORIZONTAL
2	4902.65	31.09	54.00	-22.91	29.38	32.82	4.21	35.32	163	105	Average	HORIZONTAL
3	7353.50	49.48	74.00	-24.52	42.34	37.14	5.33	35.33	159	177	Peak	HORIZONTAL
4	7354.95	36.40	54.00	-17.60	29.26	37.14	5.33	35.33	159	177	Average	HORIZONTAL
5	12257.70	41.39	54.00	-12.61	30.17	38.50	7.27	34.55	152	70	Average	HORIZONTAL
6	12261.44	54.99	74.00	-19.01	43.77	38.50	7.27	34.55	152	70	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	4902.39	31.18	54.00	-22.82	29.47	32.82	4.21	35.32	183	212	Average	VERTICAL
2	4902.72	44.64	74.00	-29.36	42.93	32.82	4.21	35.32	183	212	Peak	VERTICAL
3	7357.51	49.19	74.00	-24.81	42.04	37.14	5.34	35.33	160	137	Peak	VERTICAL
4	7357.58	36.43	54.00	-17.57	29.28	37.14	5.34	35.33	160	137	Average	VERTICAL
5	12257.70	41.17	54.00	-12.83	29.95	38.50	7.27	34.55	156	190	Average	VERTICAL
6	12257.76	54.71	74.00	-19.29	43.49	38.50	7.27	34.55	156	190	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015 / Mar. 07, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11487.50	66.65	83.54	-16.89	51.88	9.24	40.28	34.75	Peak	169	326	HORIZONTAL
2	11489.20	52.77	63.54	-10.77	38.00	9.24	40.28	34.75	Average	169	326	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11495.70	52.52	63.54	-11.02	37.75	9.24	40.28	34.75	Average	174	3	VERTICAL
2	11496.00	65.51	83.54	-18.03	50.74	9.24	40.28	34.75	Peak	174	3	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 07, 2015 / Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11569.00	66.38	83.54	-17.16	51.62	9.26	40.26	34.76	Peak	167	323	HORIZONTAL
2	11569.04	54.02	63.54	-9.52	39.26	9.26	40.26	34.76	Average	167	323	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11570.02	47.73	63.54	-15.81	36.56	39.01	7.01	34.85	172	146	Average	VERTICAL
2	11571.07	60.10	83.54	-23.44	48.93	39.01	7.01	34.85	172	146	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 13, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.20	62.44	83.54	-21.10	52.24	6.56	38.36	34.72	68	175	Peak	HORIZONTAL
2	11650.20	44.80	63.54	-18.74	34.60	6.56	38.36	34.72	68	175	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.60	63.98	83.54	-19.56	53.78	6.56	38.36	34.72	12	175	Peak	VERTICAL
2	11650.60	49.87	63.54	-13.67	39.67	6.56	38.36	34.72	12	175	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 07, 2015 / Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11492.40	65.45	83.54	-18.09	50.68	9.24	40.28	34.75	Peak	166	174	HORIZONTAL
2	11495.10	52.14	63.54	-11.40	37.37	9.24	40.28	34.75	Average	166	174	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11489.57	46.87	63.54	-16.67	35.67	39.10	6.95	34.85	166	186	Average	VERTICAL
2	11490.53	60.95	83.54	-22.59	49.75	39.10	6.95	34.85	166	186	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 07, 2015 / Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11568.10	65.82	83.54	-17.72	51.06	9.26	40.26	34.76	Peak	166	168	HORIZONTAL
2	11569.80	52.10	63.54	-11.44	37.35	9.26	40.26	34.77	Average	166	168	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11569.23	63.17	83.54	-20.37	52.00	39.01	7.01	34.85	165	185	Peak	VERTICAL
2	11569.72	48.43	63.54	-15.11	37.26	39.01	7.01	34.85	165	185	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 13, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11649.20	47.98	63.54	-15.56	37.78	6.56	38.36	34.72	322	162	Average	HORIZONTAL
2	11649.40	63.10	83.54	-20.44	52.90	6.56	38.36	34.72	322	162	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11654.20	48.27	63.54	-15.27	38.07	6.56	38.36	34.72	360	172	Average	VERTICAL
2	11654.60	61.71	83.54	-21.83	51.51	6.56	38.36	34.72	360	172	Peak	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11509.40	61.83	83.54	-21.71	50.62	39.10	6.96	34.85	163	134	Peak	HORIZONTAL
2	11509.86	49.55	63.54	-13.99	38.34	39.10	6.96	34.85	163	134	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11509.09	61.71	83.54	-21.83	50.50	39.10	6.96	34.85	165	183	Peak	VERTICAL
2	11509.96	49.24	63.54	-14.30	38.03	39.10	6.96	34.85	165	183	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11589.03	62.63	83.54	-20.91	51.50	38.97	7.01	34.85	163	136	Peak	HORIZONTAL
2	11589.87	49.81	63.54	-13.73	38.68	38.97	7.01	34.85	163	136	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11589.62	62.43	83.54	-21.11	51.30	38.97	7.01	34.85	169	186	Peak	VERTICAL
2	11590.10	49.95	63.54	-13.59	38.82	38.97	7.01	34.85	169	186	Average	VERTICAL

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 14, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11549.95	57.63	83.54	-25.91	46.43	39.06	6.99	34.85	150	191	Peak	HORIZONTAL
2	11549.96	46.50	63.54	-17.04	35.30	39.06	6.99	34.85	150	191	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	11549.06	59.69	83.54	-23.85	48.49	39.06	6.99	34.85	169	184	Peak	VERTICAL
2	11549.74	46.52	63.54	-17.02	35.32	39.06	6.99	34.85	169	184	Average	VERTICAL

Note:

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

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

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

4.6. Emissions Measurement

4.6.1. Limit

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

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

4.6.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	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 v03r02 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

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

For non-beamforming function (802.11b):

The EUT was programmed to be in continuously transmitting mode.

For beamforming function (802.11a/g/n/ac):

The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 13, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2330.80	49.21	54.00	-4.79	18.39	2.81	28.01	0.00	24	251	Average	VERTICAL
2	2332.40	58.84	74.00	-15.16	28.02	2.81	28.01	0.00	24	251	Peak	VERTICAL
3	2411.20	120.41			89.64	2.87	27.90	0.00	24	251	Peak	VERTICAL
4	2411.20	116.52			85.75	2.87	27.90	0.00	24	251	Average	VERTICAL
5	2493.90	57.76	74.00	-16.24	27.04	2.92	27.80	0.00	24	251	Peak	VERTICAL
6	2493.90	50.56	54.00	-3.44	19.84	2.92	27.80	0.00	24	251	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2388.40	59.62	74.00	-14.38	28.84	2.86	27.92	0.00	334	141	Peak	HORIZONTAL
2	2390.00	51.94	54.00	-2.06	21.16	2.86	27.92	0.00	334	141	Average	HORIZONTAL
3	2437.80	118.79			88.04	2.89	27.86	0.00	334	141	Peak	HORIZONTAL
4	2437.80	114.57			83.82	2.89	27.86	0.00	334	141	Average	HORIZONTAL
5	2484.30	49.00	54.00	-5.00	18.27	2.91	27.82	0.00	334	141	Average	HORIZONTAL
6	2485.90	58.25	74.00	-15.75	27.52	2.91	27.82	0.00	334	141	Peak	HORIZONTAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2379.60	60.36	74.00	-13.64	29.57	2.85	27.94	0.00	20	159	Peak	VERTICAL
2	2380.40	53.00	54.00	-1.00	22.21	2.85	27.94	0.00	20	159	Average	VERTICAL
3	2459.60	117.78			87.04	2.90	27.84	0.00	20	159	Peak	VERTICAL
4	2459.60	114.05			83.31	2.90	27.84	0.00	20	159	Average	VERTICAL
5	2484.30	46.35	54.00	-7.65	15.62	2.91	27.82	0.00	20	159	Average	VERTICAL
6	2487.50	57.40	74.00	-16.60	26.68	2.92	27.80	0.00	20	159	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015 / Mar. 13, 2015 / Mar. 16, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Aux Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	2389.71	68.27	74.00	-5.73	37.56	27.90	2.81	0.00	151	332	Peak	HORIZONTAL
2	2390.00	52.55	54.00	-1.45	21.84	27.90	2.81	0.00	151	332	Average	HORIZONTAL
3	2414.03	105.92			75.19	27.90	2.83	0.00	151	332	Average	HORIZONTAL
4	2414.03	116.06			85.33	27.90	2.83	0.00	151	332	Peak	HORIZONTAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2364.60	47.46	54.00	-6.54	16.66	2.83	27.97	0.00	326	185	Average	VERTICAL
2	2384.20	60.45	74.00	-13.55	29.66	2.85	27.94	0.00	326	185	Peak	VERTICAL
3	2443.80	121.59			90.84	2.89	27.86	0.00	326	185	Peak	VERTICAL
4	2444.60	110.14			79.39	2.89	27.86	0.00	326	185	Average	VERTICAL
5	2483.80	67.88	74.00	-6.12	37.15	2.91	27.82	0.00	326	185	Peak	VERTICAL
6	2485.00	52.81	54.00	-1.19	22.08	2.91	27.82	0.00	326	185	Average	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	2389.42	60.55	74.00	-13.45	29.84	27.90	2.81	0.00	137	358	Peak	HORIZONTAL
2	2389.71	48.05	54.00	-5.95	17.34	27.90	2.81	0.00	137	358	Average	HORIZONTAL
3	2459.97	118.31			87.55	27.90	2.86	0.00	137	358	Peak	HORIZONTAL
4	2461.42	109.99			79.23	27.90	2.86	0.00	137	358	Average	HORIZONTAL
5	2483.50	52.99	54.00	-1.01	22.22	27.90	2.87	0.00	137	358	Average	HORIZONTAL
6	2483.50	66.66	74.00	-7.34	35.89	27.90	2.87	0.00	137	358	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 06, 2015 / Mar. 13, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Antenna Factor	Cable Loss	Aux Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg		
1	2389.86	66.48	74.00	-7.52	35.77	27.90	2.81	0.00	199	356	Peak	HORIZONTAL
2	2390.00	51.08	54.00	-2.92	20.37	27.90	2.81	0.00	199	356	Average	HORIZONTAL
3	2408.96	102.07			71.34	27.90	2.83	0.00	199	356	Average	HORIZONTAL
4	2413.30	114.12			83.39	27.90	2.83	0.00	199	356	Peak	HORIZONTAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2365.00	49.10	54.00	-4.90	18.30	2.83	27.97	0.00	319	191	Average	VERTICAL
2	2390.00	61.81	74.00	-12.19	31.03	2.86	27.92	0.00	319	191	Peak	VERTICAL
3	2444.20	110.71			79.96	2.89	27.86	0.00	319	191	Average	VERTICAL
4	2444.80	125.77			95.02	2.89	27.86	0.00	319	191	Peak	VERTICAL
5	2483.50	52.88	54.00	-1.12	22.15	2.91	27.82	0.00	319	191	Average	VERTICAL
6	2484.40	72.94	74.00	-1.06	42.21	2.91	27.82	0.00	319	191	Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2453.60	106.98			76.24	2.90	27.84	0.00	355	176	Average	VERTICAL
2	2455.60	122.23			91.49	2.90	27.84	0.00	355	176	Peak	VERTICAL
3	2483.50	69.31	74.00	-4.69	38.58	2.91	27.82	0.00	355	176	Peak	VERTICAL
4	2483.50	52.63	54.00	-1.37	21.90	2.91	27.82	0.00	355	176	Average	VERTICAL

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

Temperature	25℃	Humidity	40%
Test Engineer	Mars Lin	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3+ Chain 4
Test Date	Mar. 13, 2015 / Mar. 14, 2015		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2389.20	66.35	74.00	-7.65	35.57	2.86	27.92	0.00	32	148	Peak	VERTICAL
2	2390.00	52.50	54.00	-1.50	21.72	2.86	27.92	0.00	32	148	Average	VERTICAL
3	2425.60	115.45			84.69	2.88	27.88	0.00	32	148	Peak	VERTICAL
4	2427.60	102.84			72.08	2.88	27.88	0.00	32	148	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2389.60	52.75	54.00	-1.25	21.97	2.86	27.92	0.00	349	146	Average	HORIZONTAL
2	2390.00	68.33	74.00	-5.67	37.55	2.86	27.92	0.00	349	146	Peak	HORIZONTAL
3	2424.40	117.87			87.11	2.88	27.88	0.00	349	146	Peak	HORIZONTAL
4	2428.60	105.28			74.52	2.88	27.88	0.00	349	146	Average	HORIZONTAL
5	2483.50	46.63	54.00	-7.37	15.90	2.91	27.82	0.00	349	146	Average	HORIZONTAL
6	2487.40	63.94	74.00	-10.06	33.21	2.91	27.82	0.00	349	146	Peak	HORIZONTAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2453.60	104.20			73.46	2.90	27.84	0.00	345	143	Average	VERTICAL
2	2454.40	116.14			85.40	2.90	27.84	0.00	345	143	Peak	VERTICAL
3	2483.50	52.22	54.00	-1.78	21.49	2.91	27.82	0.00	345	143	Average	VERTICAL
4	2484.80	65.04	74.00	-8.96	34.31	2.91	27.82	0.00	345	143	Peak	VERTICAL

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

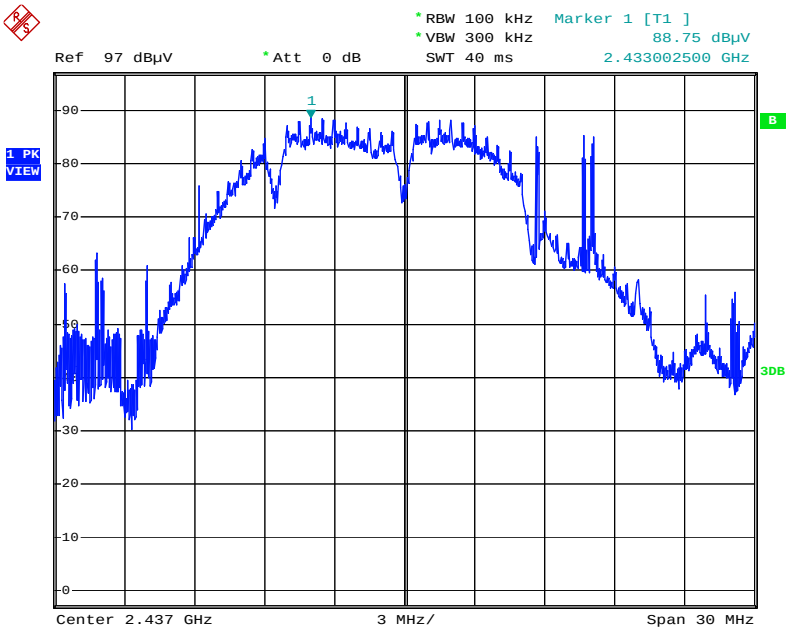
Note:

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

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

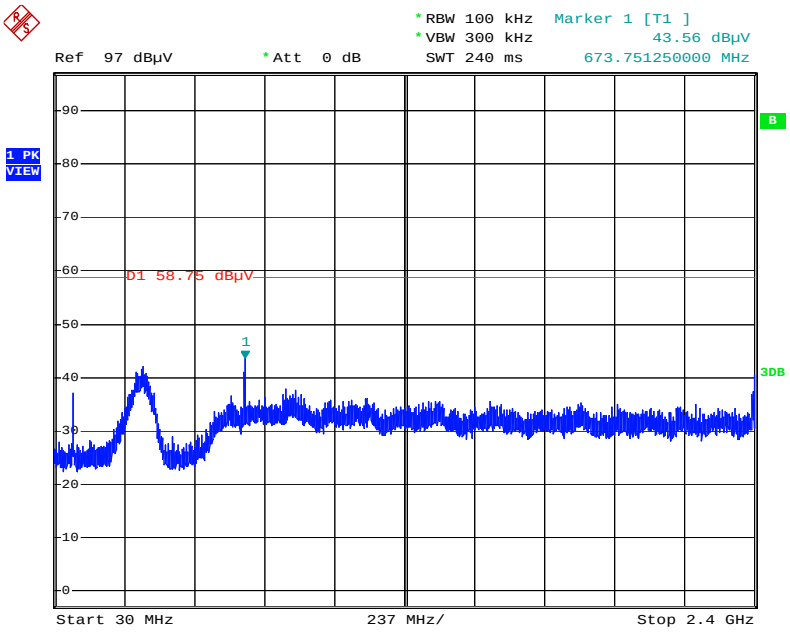
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11b / Reference Level



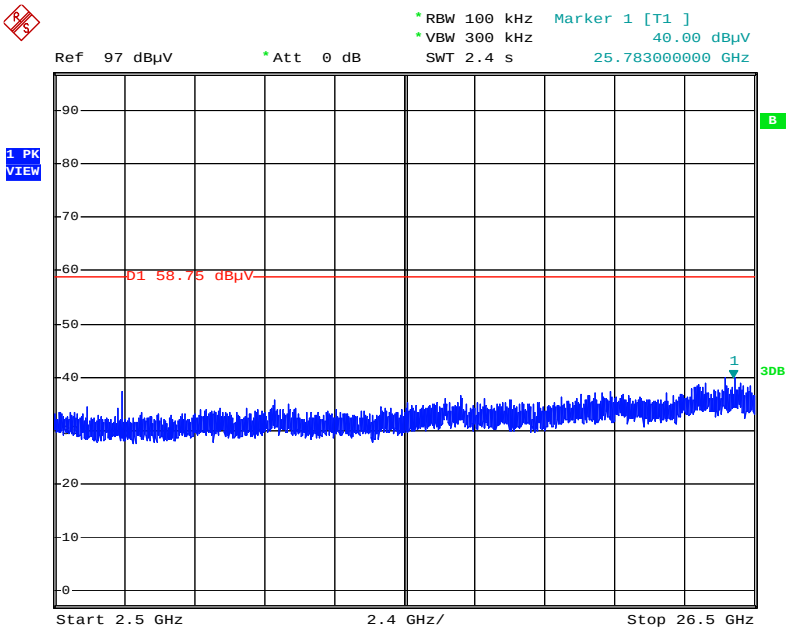
Date: 14.MAR.2015 00:34:13

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



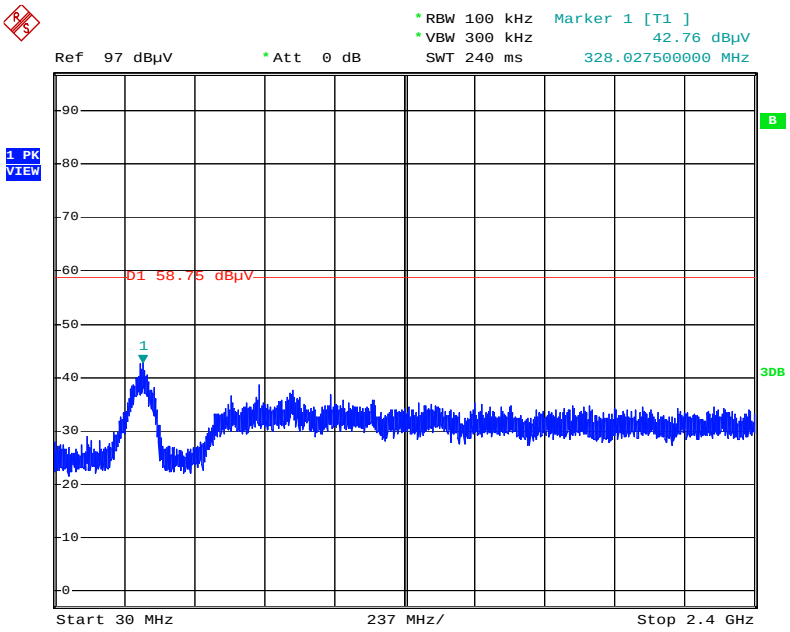
Date: 14.MAR.2015 00:37:29

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



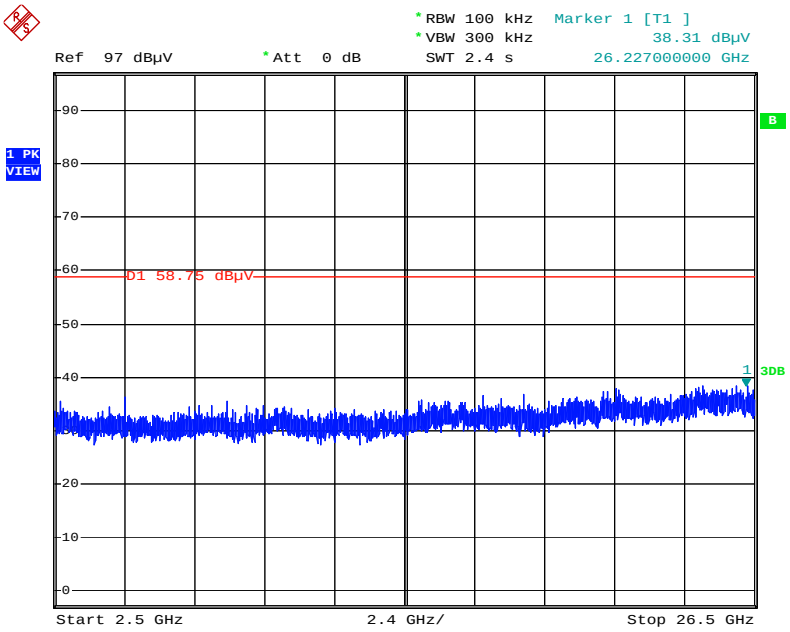
Date: 14.MAR.2015 00:38:07

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



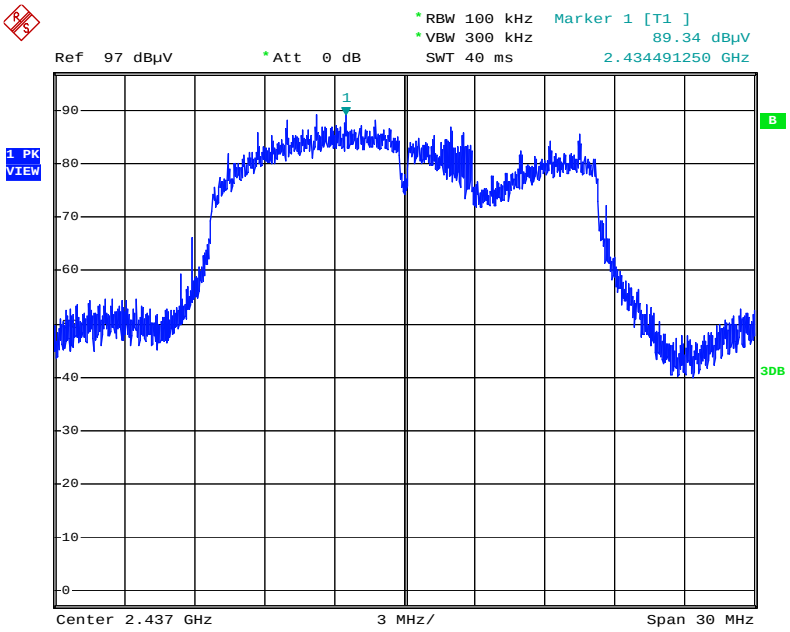
Date: 14.MAR.2015 00:42:49

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



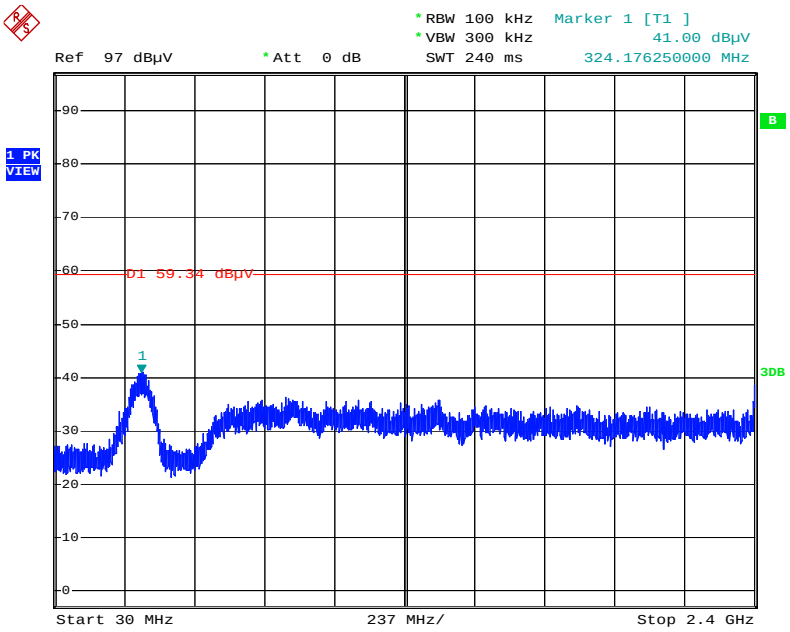
Date: 14.MAR.2015 00:42:22

Plot on Configuration IEEE 802.11g / Reference Level



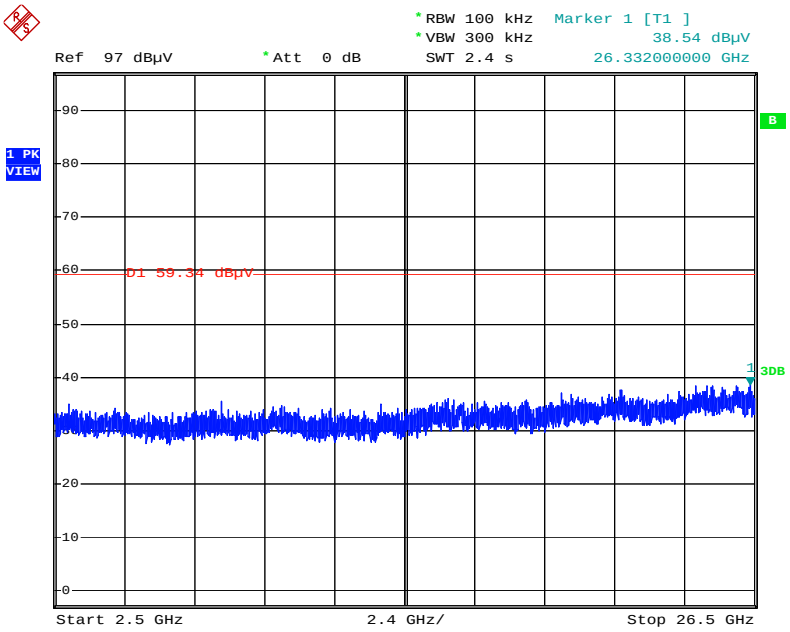
Date: 14.MAR.2015 00:47:09

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



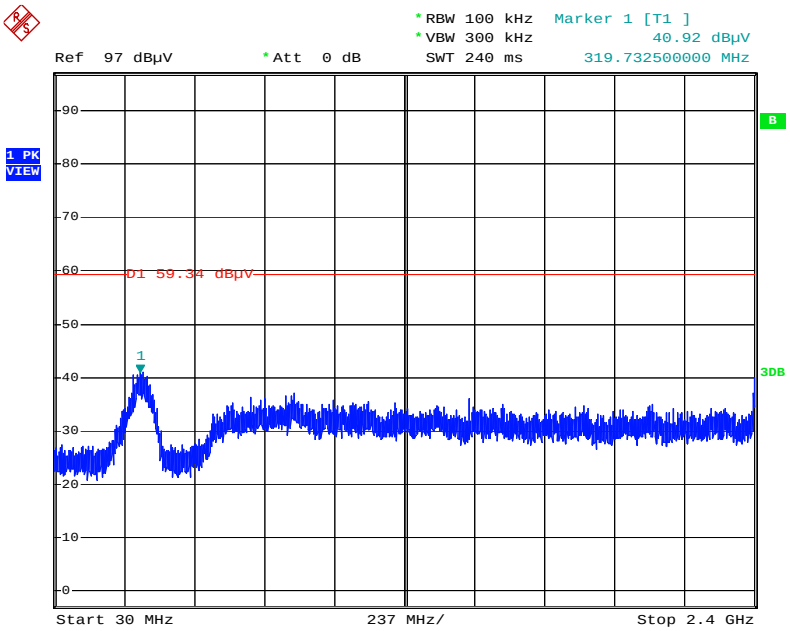
Date: 14.MAR.2015 00:50:17

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



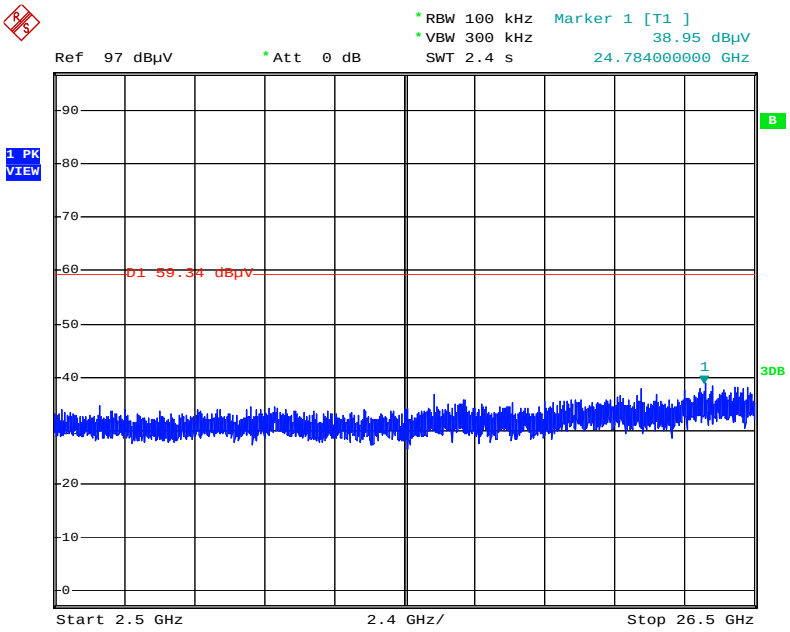
Date: 14.MAR.2015 00:51:01

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



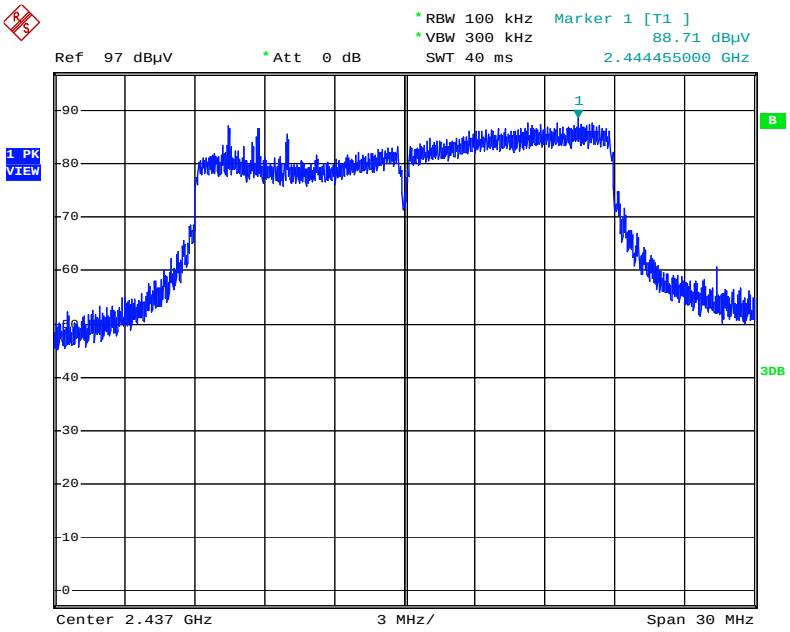
Date: 14.MAR.2015 00:51:54

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



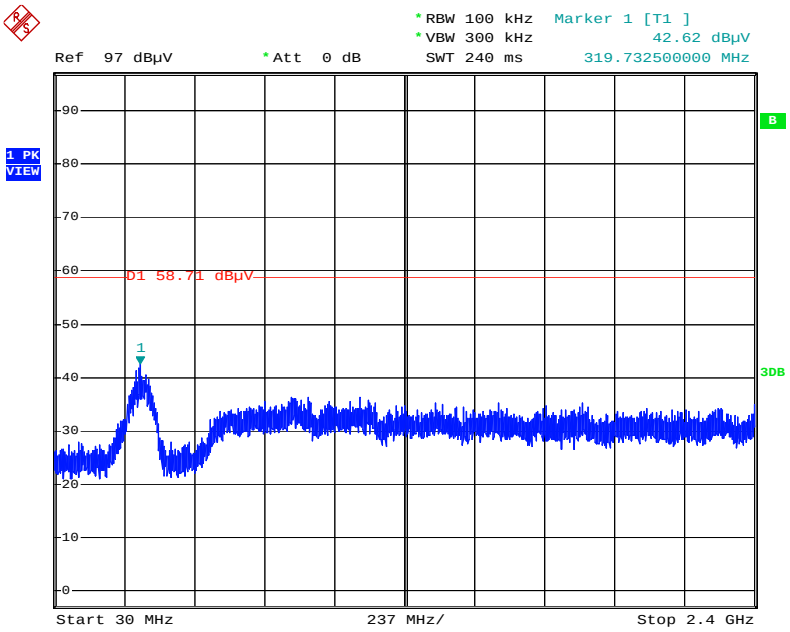
Date: 14.MAR.2015 00:51:30

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level



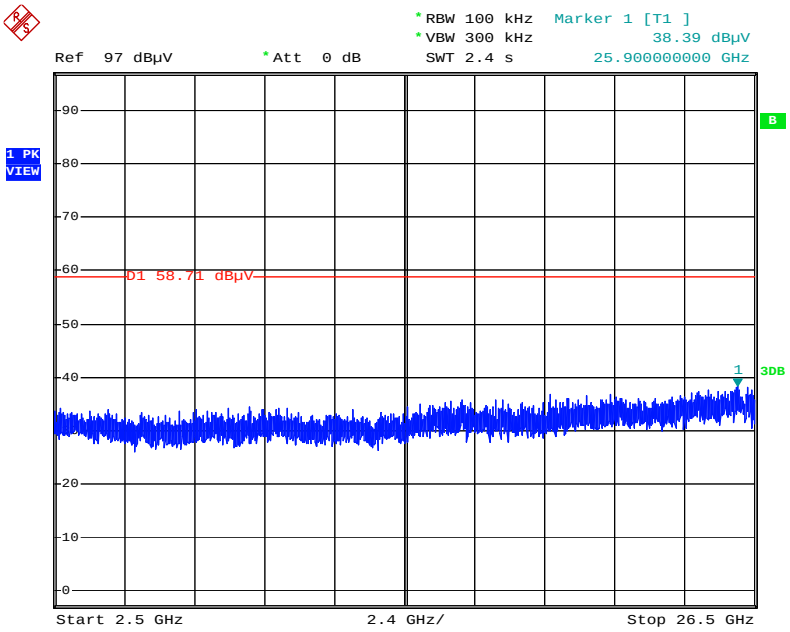
Date: 14.MAR.2015 00:57:54

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



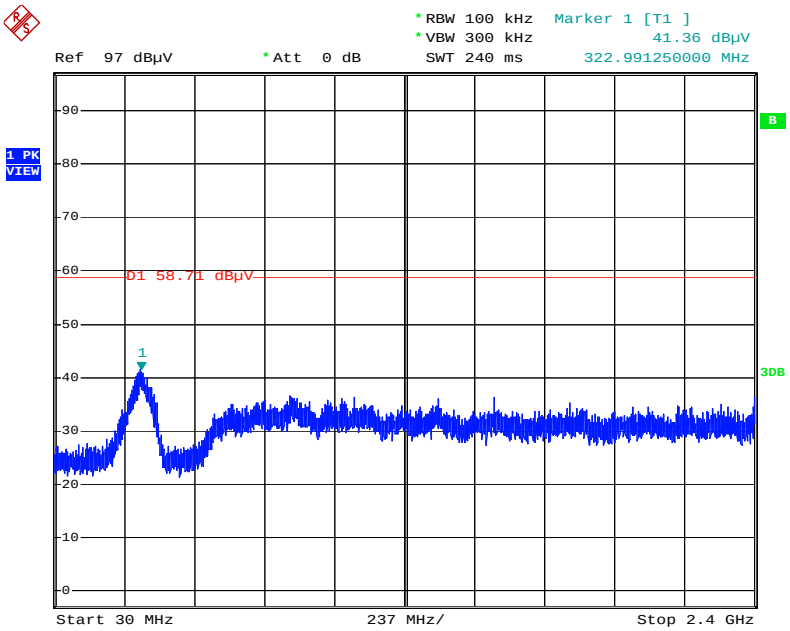
Date: 14.MAR.2015 01:01:28

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



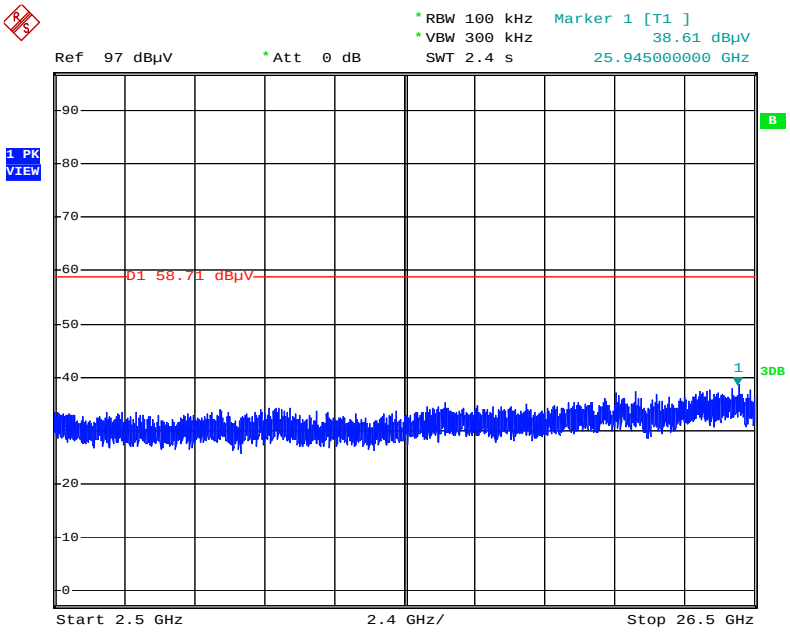
Date: 14.MAR.2015 01:02:00

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



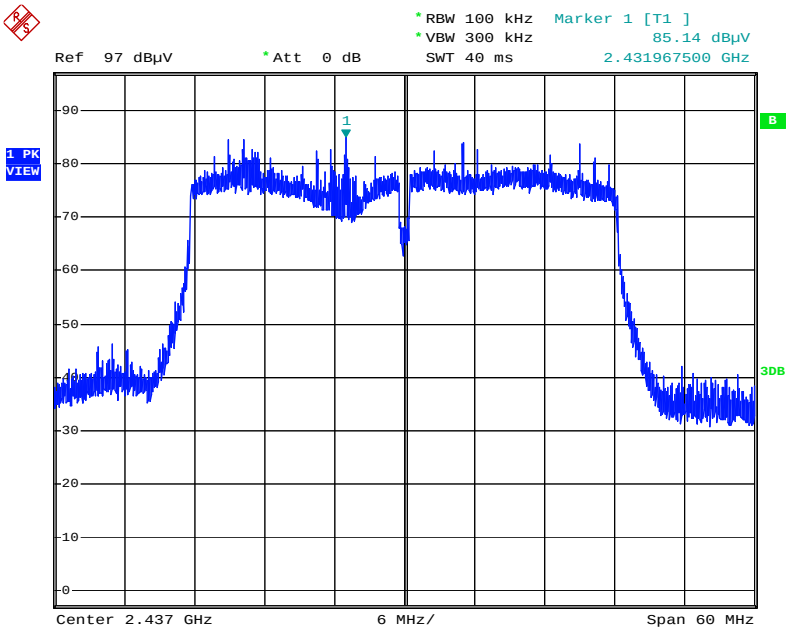
Date: 14.MAR.2015 01:03:29

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



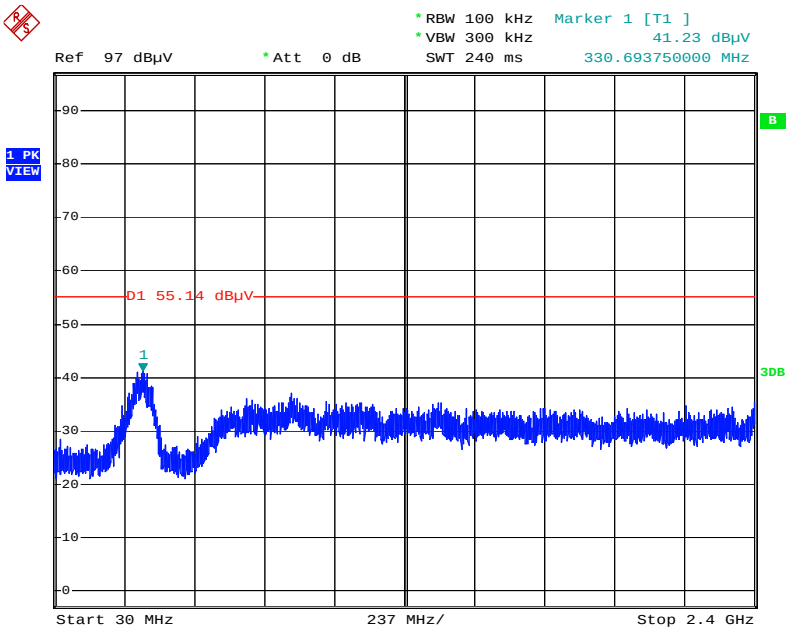
Date: 14.MAR.2015 01:03:08

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level



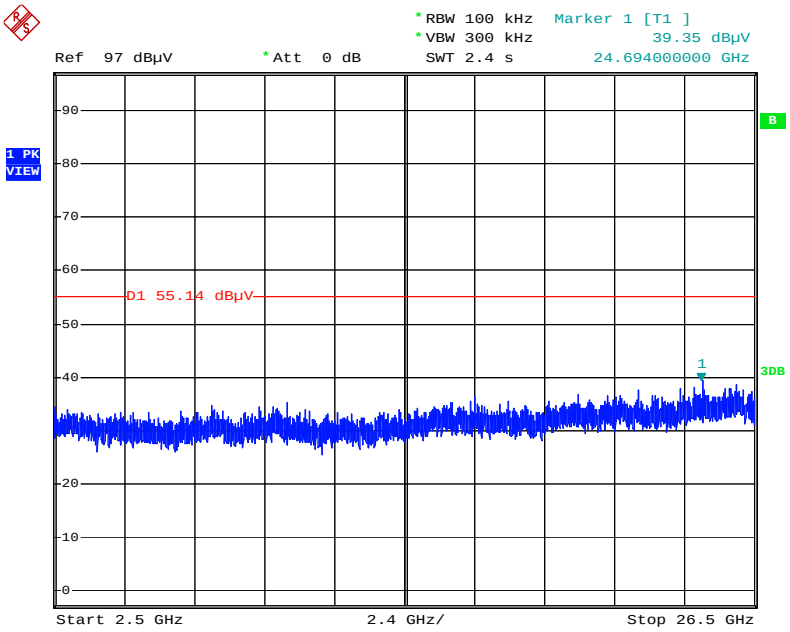
Date: 14.MAR.2015 01:07:24

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



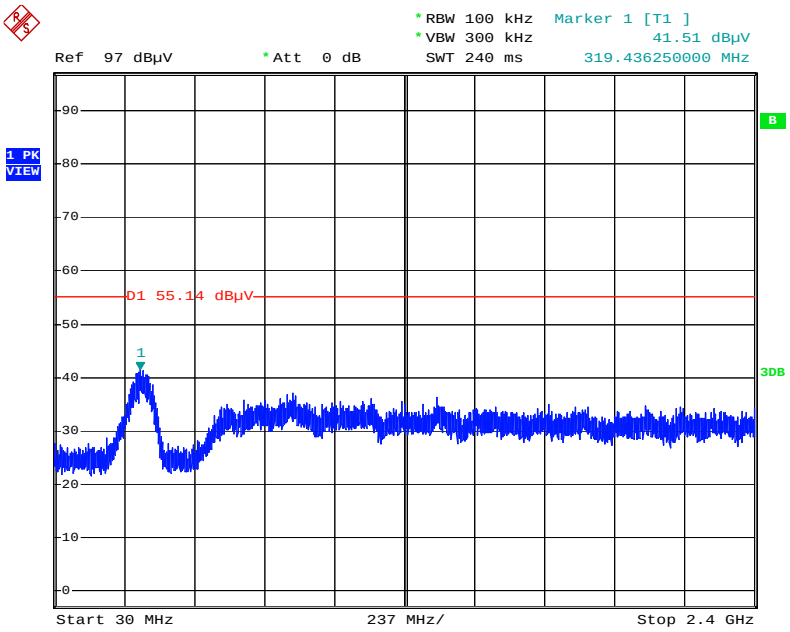
Date: 14.MAR.2015 01:12:29

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



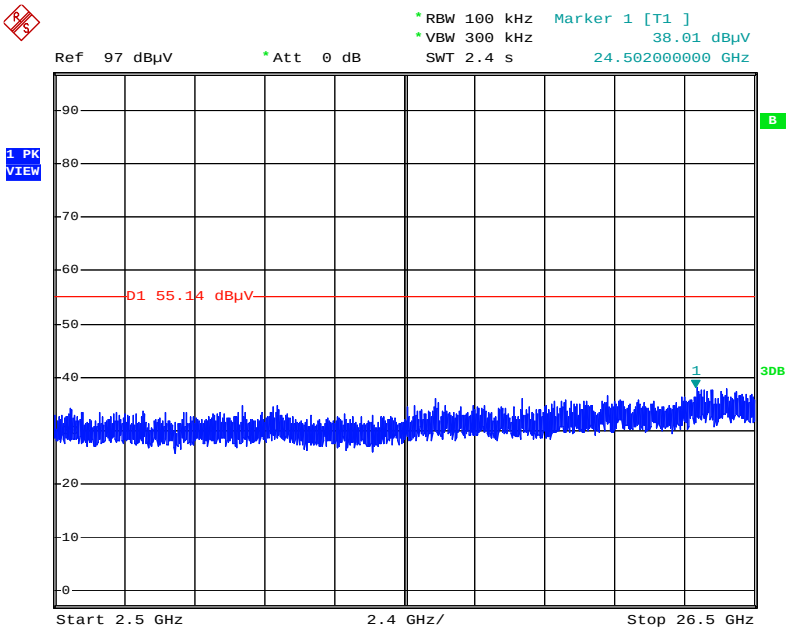
Date: 14.MAR.2015 01:12:55

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



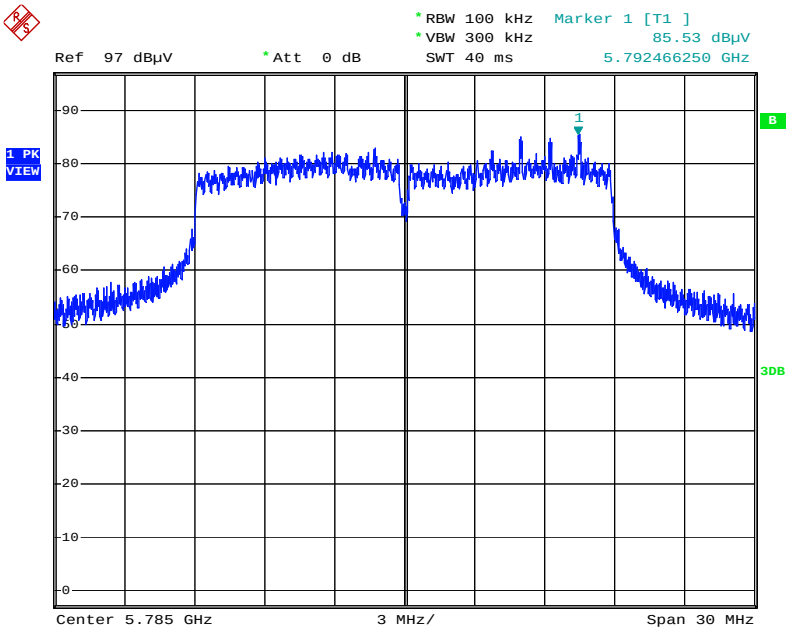
Date: 14.MAR.2015 01:15:53

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



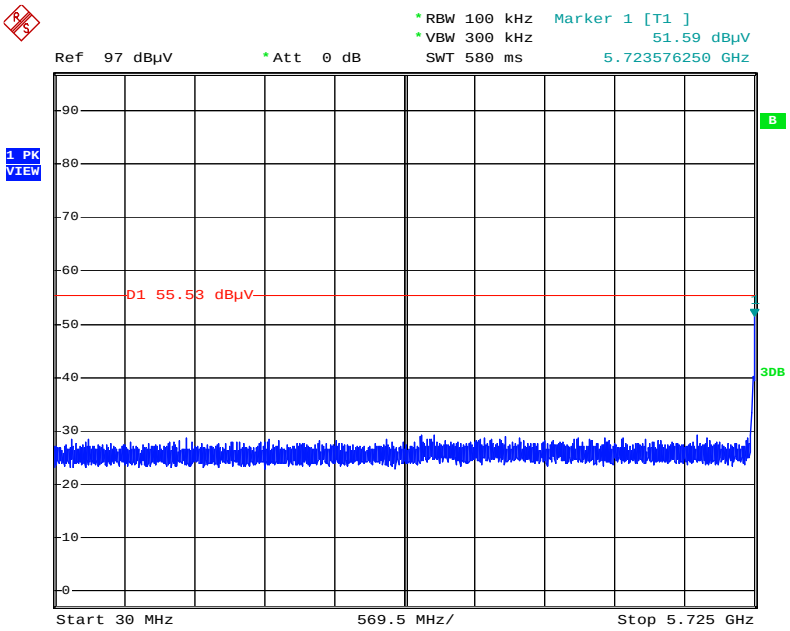
Date: 14.MAR.2015 01:15:30

Plot on Configuration IEEE 802.11a / Reference Level



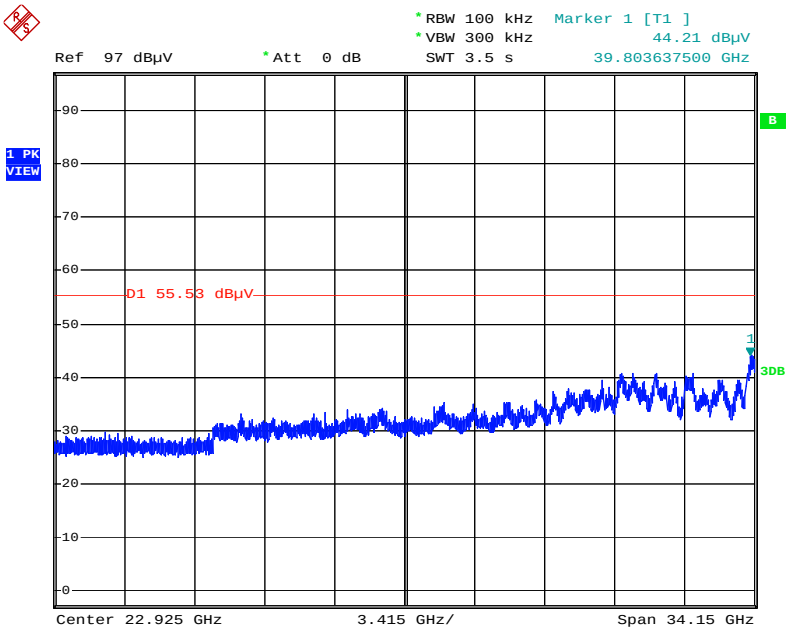
Date: 13.MAR.2015 10:38:34

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



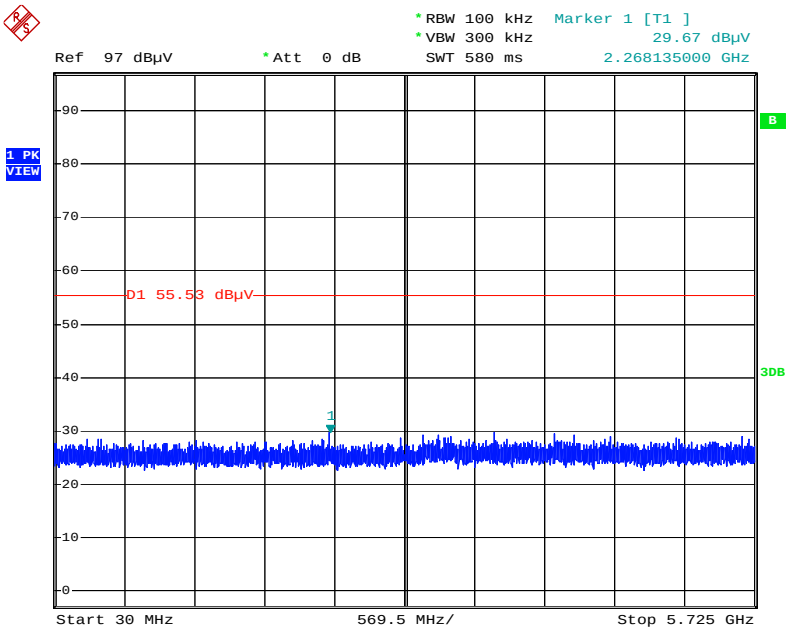
Date: 13.MAR.2015 10:46:40

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



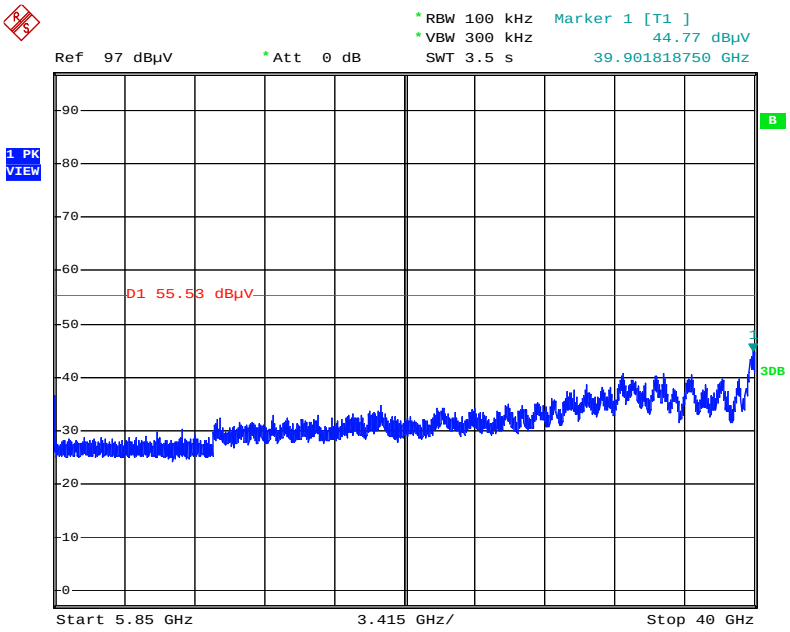
Date: 13.MAR.2015 10:49:19

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



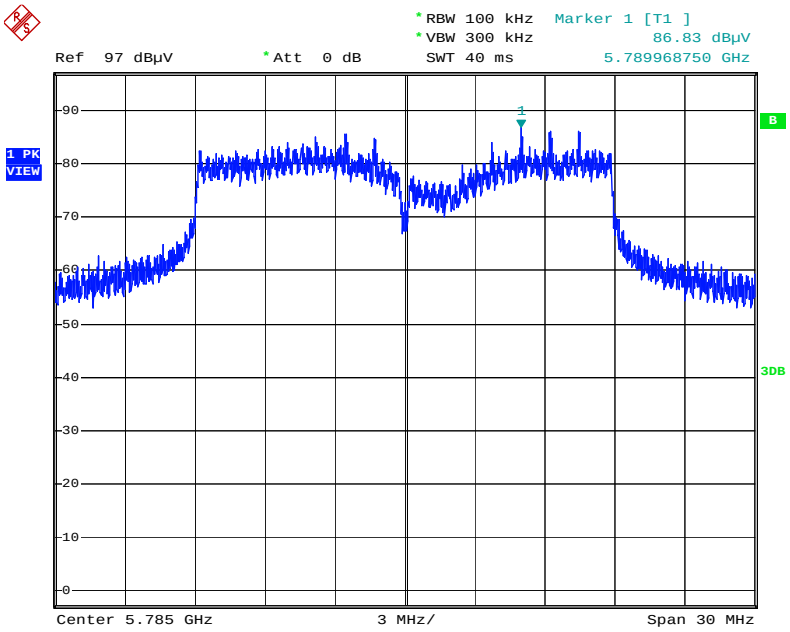
Date: 13.MAR.2015 10:52:50

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



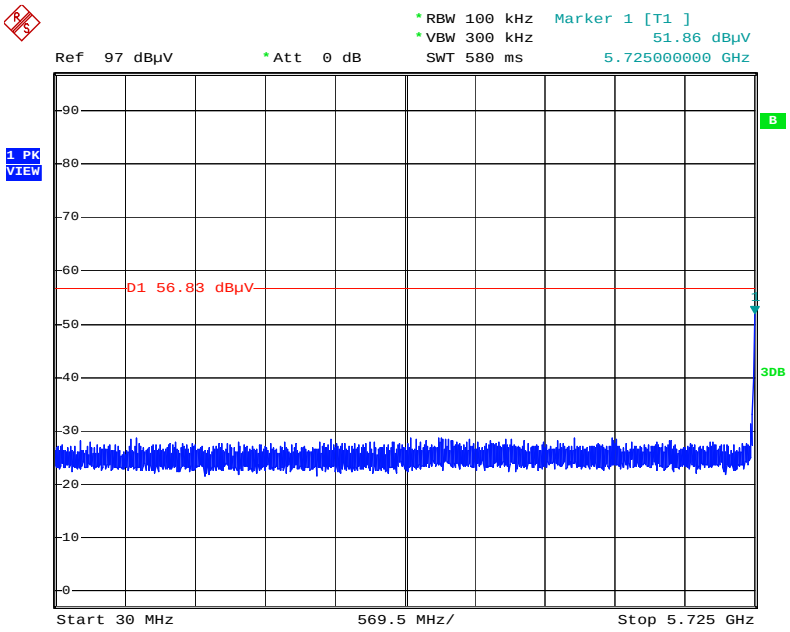
Date: 13.MAR.2015 10:55:43

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level



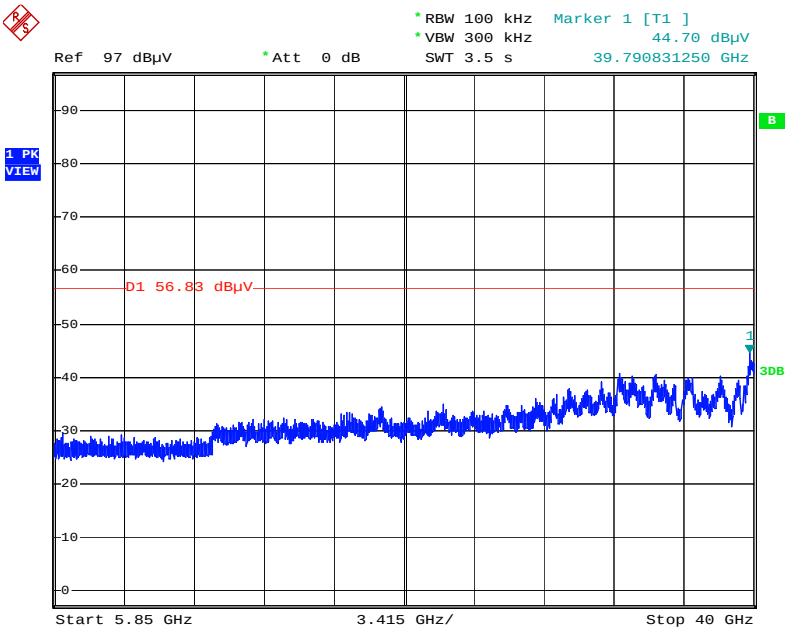
Date: 13.MAR.2015 11:05:31

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 30MHz~5725MHz (down 30dBc)



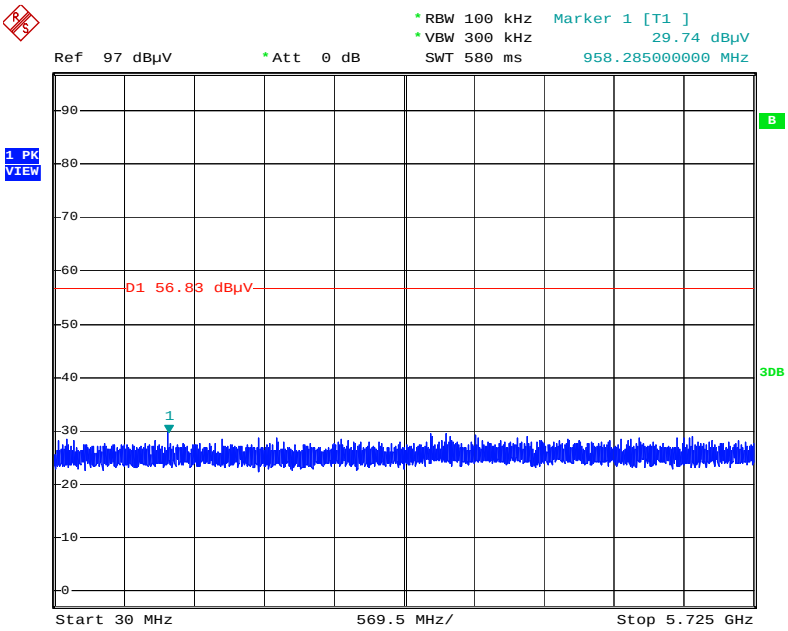
Date: 13.MAR.2015 11:10:49

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 5850MHz~40000MHz (down 30dBc)



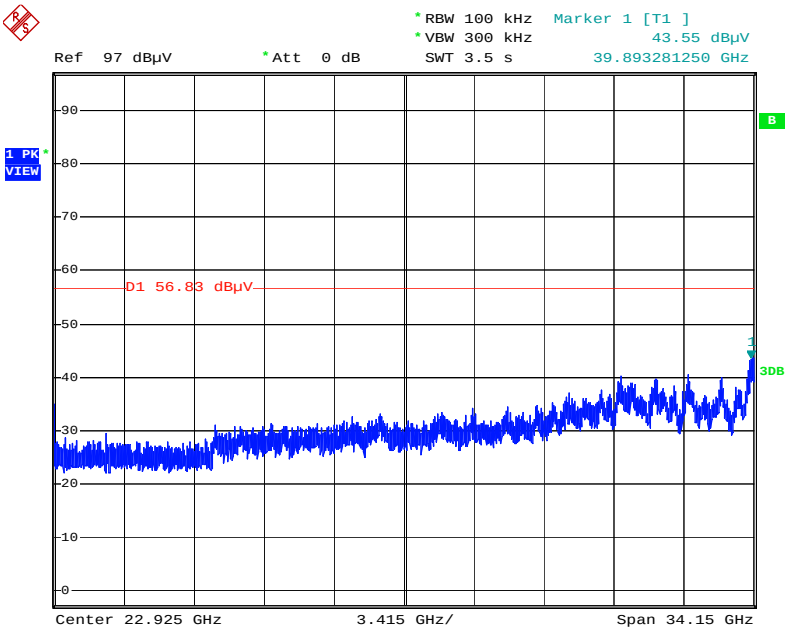
Date: 13.MAR.2015 11:12:08

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 30MHz~5725MHz (down 30dBc)



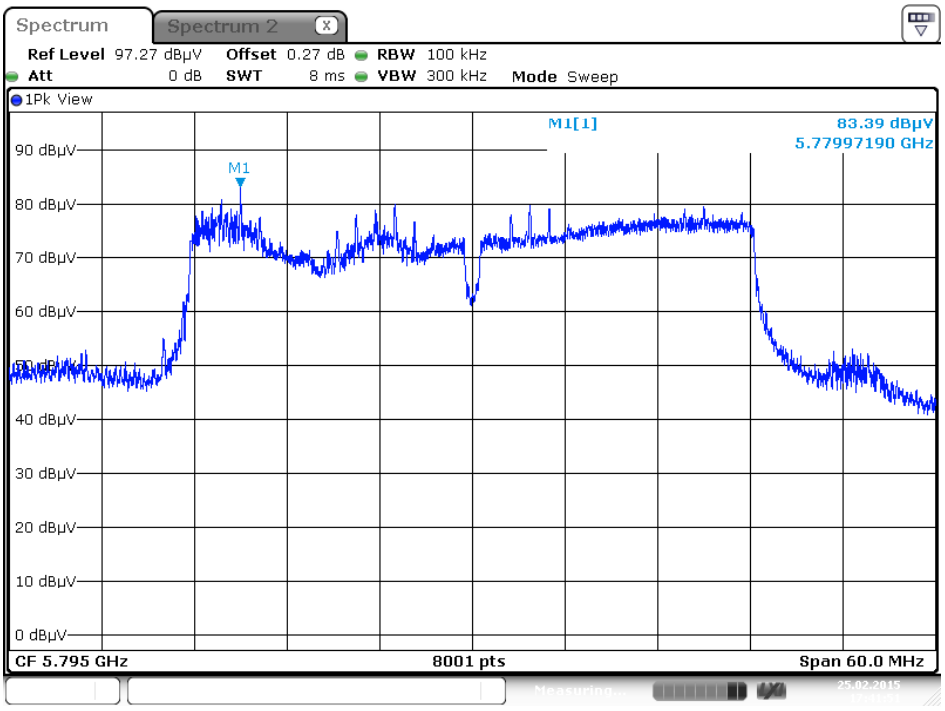
Date: 13.MAR.2015 11:16:01

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 5850MHz~40000MHz (down 30dBc)



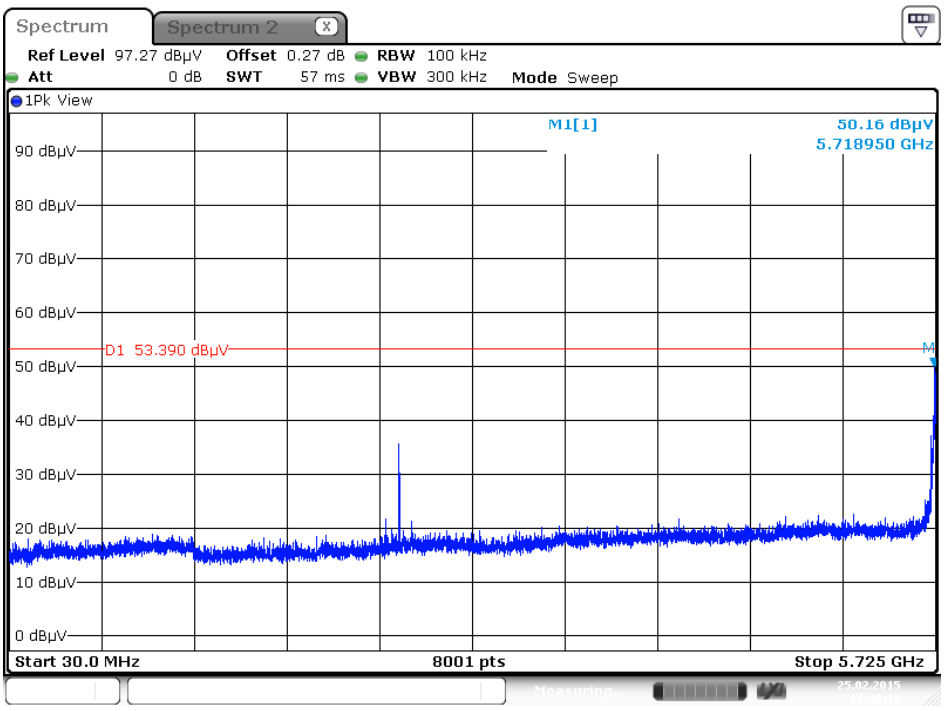
Date: 13.MAR.2015 11:14:38

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level



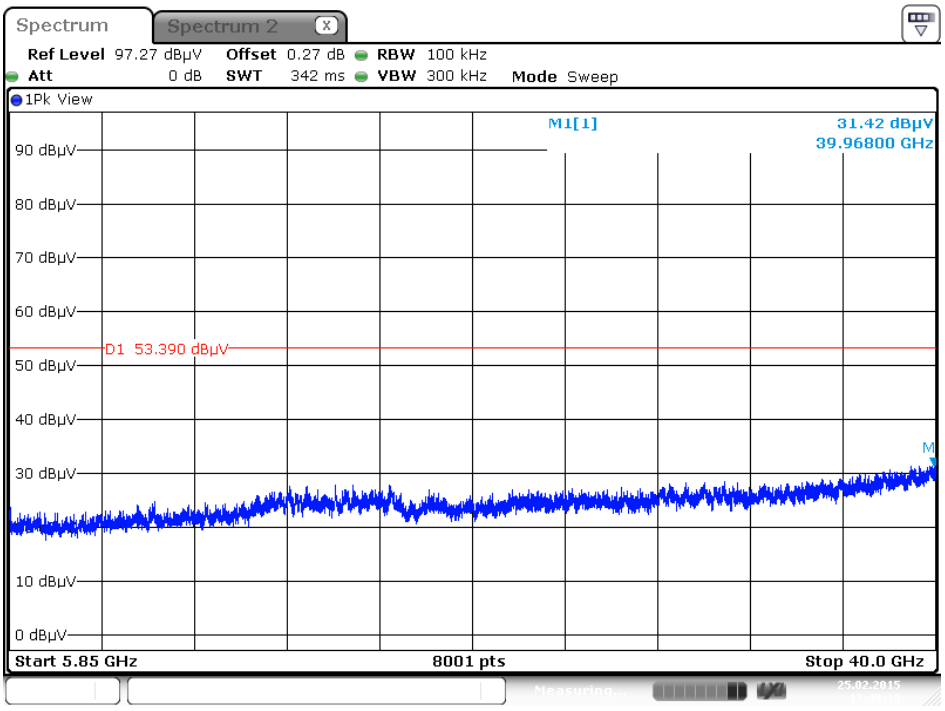
Date: 25.FEB.2015 17:41:50

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 30MHz~5725MHz (down 30dBc)



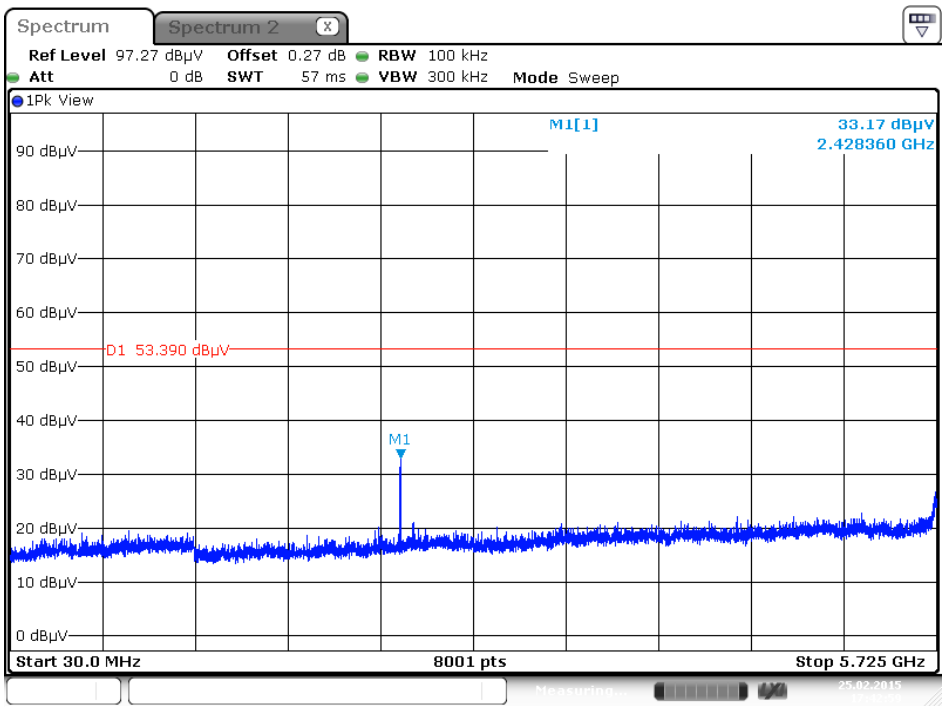
Date: 25.FEB.2015 17:48:18

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 5850MHz~40000MHz (down 30dBc)



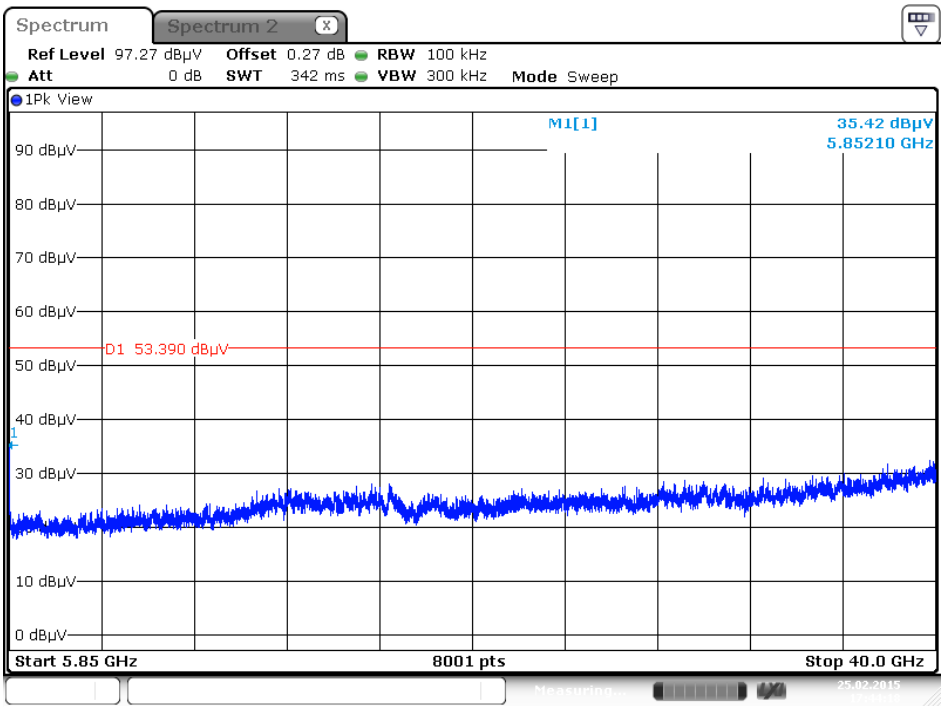
Date: 25.FEB.2015 17:49:19

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 30MHz~5725MHz (down 30dBc)



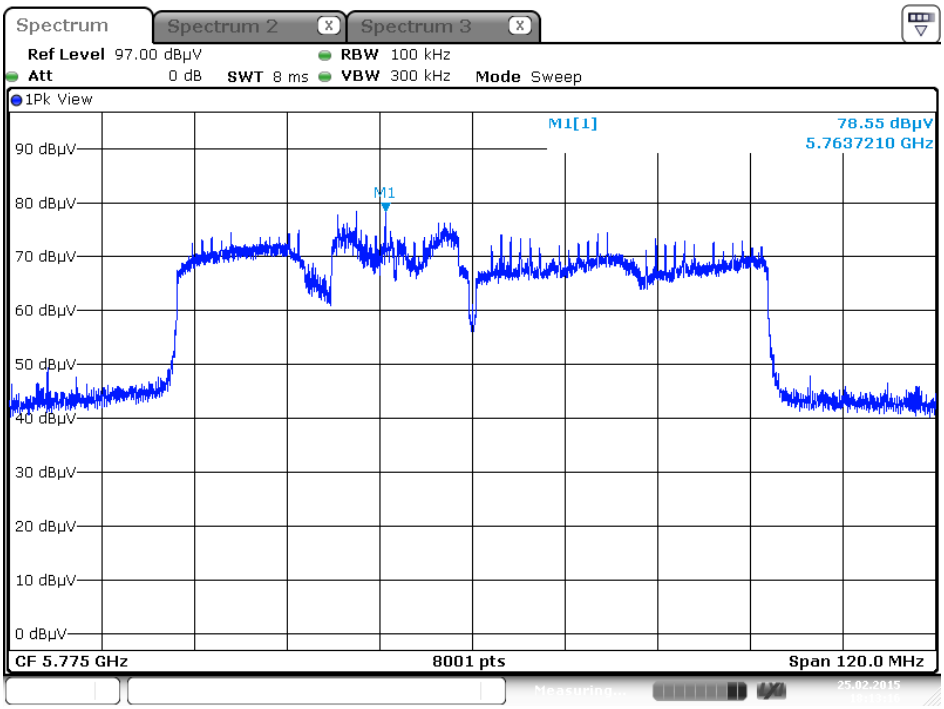
Date: 25.FEB.2015 17:42:59

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 5850MHz~40000MHz (down 30dBc)



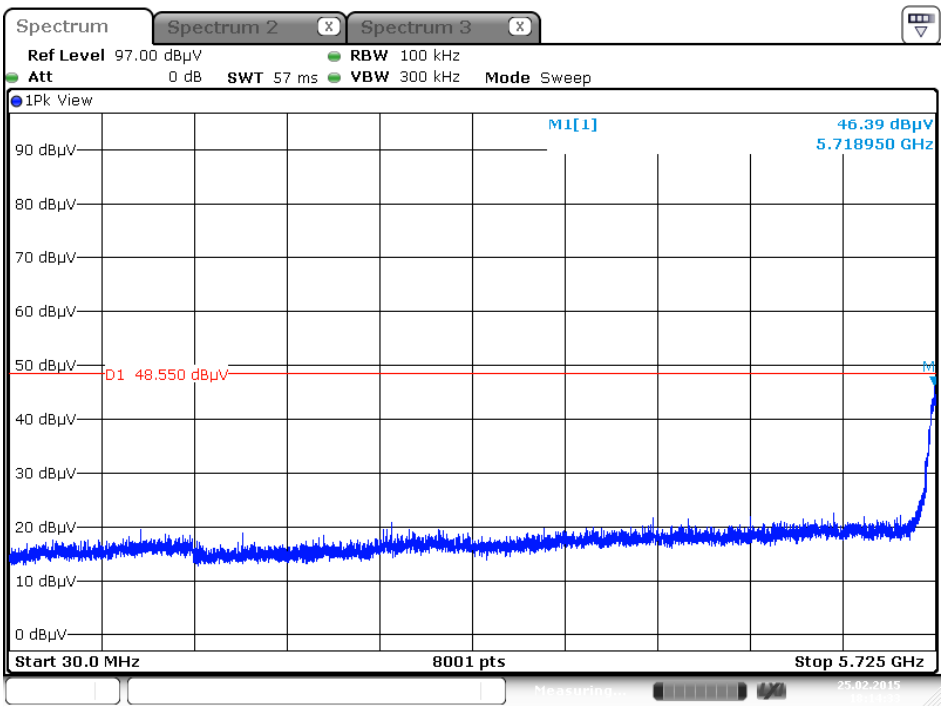
Date: 25.FEB.2015 17:44:18

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Reference Level



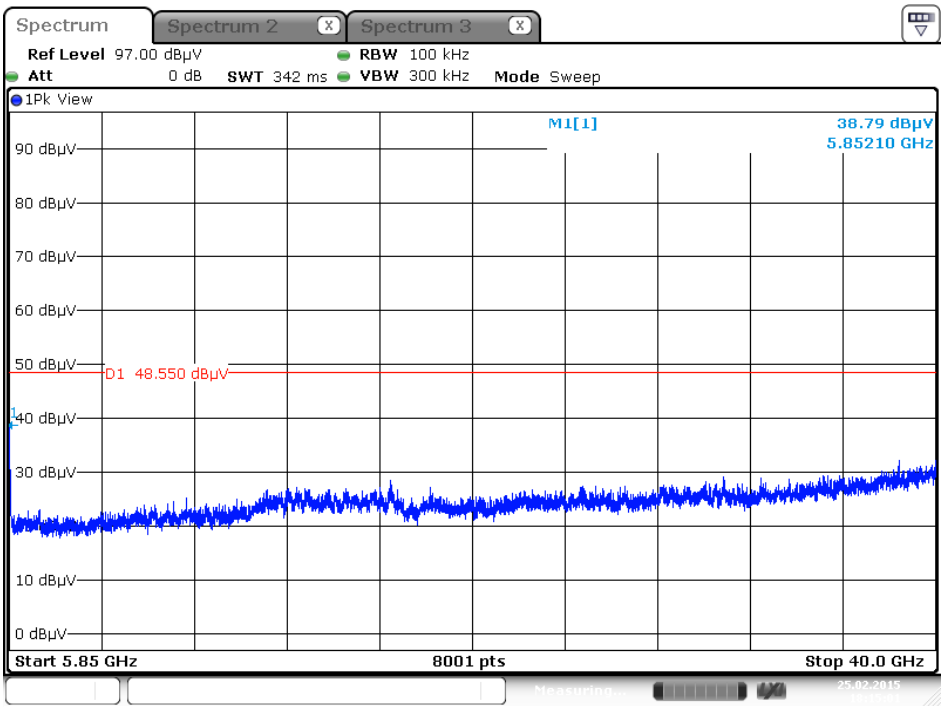
Date: 25.FEB.2015 18:13:16

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 30MHz~5725MHz (down 30dBc)



Date: 25.FEB.2015 18:14:33

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 5850MHz~40000MHz (down 30dBc)



Date: 25.FEB.2015 18:15:02

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	100355	9 kHz ~ 2.75 GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 02, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 02, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 03, 2014	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec.12, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jul. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Oct. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 25, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 06, 2014	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Jan. 21, 2015	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	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. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 15, 2014	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)

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

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

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%