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FCC RADIO TEST REPORT

Applicant's company	**CyberTAN Technology, Inc.**
Applicant Address	No. 99, Park Avenue III, Science-based Industrial Park, Hsinchu, 308 Taiwan
FCC ID	**N89-WAP371**
Manufacturer's company	**CyberTAN Technology, Inc.**
Manufacturer Address	No. 99, Park Avenue III, Science-based Industrial Park, Hsinchu, 308 Taiwan

Product Name	Wireless-AC/N Dual Radio Point with Single Point Setup
Brand Name	Cisco
Model No.	WAP371
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Oct. 08, 2013
Final Test Date	Feb. 14, 2014
Submission Type	Original Equipment
Operating Mode	Master

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a/ac (5150 ~ 5350MHz / 5470 ~ 5725MHz) of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009, 47 CFR FCC Part 15 Subpart E, KDB 789033 D01 v01r03, KDB 662911 D01 v02r01, KDB644545 D01v01r02.**

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR3O0832AB	Rev. 01	Initial issue of report	Feb. 25, 2014

Certificate No.: CB10302073

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Wireless-AC/N Dual Radio Point with Single Point Setup
Brand Name	:	Cisco
Model No.	:	WAP371
Applicant	:	CyberTAN Technology, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Oct. 08, 2013 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	12.37 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.14 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.04 dB
4.5	15.407(a)	Peak Excursion	Complies	2.83 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.15 dB
4.7	15.407(b)	Band Edge Emissions	Complies	1.06 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter or PoE
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n/ac
Frequency Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	16 for 20MHz bandwidth ; 7 for 40MHz bandwidth 3 for 80MHz bandwidth
Channel Band Width (99%)	Band 1: 802.11ac MCS0/Nss1 (VHT20): 17.60 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz Band 2: 802.11ac MCS0/Nss1 (VHT20): 17.92 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz Band 3: 802.11ac MCS0/Nss1 (VHT20): 17.92 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.81 MHz ; 802.11ac MCS0/Nss1 (VHT80): 77.44 MHz

Maximum Conducted Output Power	Band 1: 802.11ac MCS0/Nss1 (VHT20): 15.45 dBm ; 802.11ac MCS0/Nss1 (VHT40): 16.84 dBm ; 802.11ac MCS0/Nss1 (VHT80): 16.80 dBm Band 2: 802.11ac MCS0/Nss1 (VHT20): 22.32 dBm ; 802.11ac MCS0/Nss1 (VHT40): 23.76 dBm ; 802.11ac MCS0/Nss1 (VHT80): 19.23 dBm Band 3: 802.11ac MCS0/Nss1 (VHT20): 22.21 dBm ; 802.11ac MCS0/Nss1 (VHT40): 23.86 dBm ; 802.11ac MCS0/Nss1 (VHT80): 18.64 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter or PoE
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	16
Channel Band Width (99%)	Band 1: 17.12 MHz ; Band 2: 17.28 MHz ; Band 3: 17.60 MHz
Maximum Conducted Output Power	Band 1: 15.34 dBm ; Band 2: 22.35 dBm ; Band 3: 22.42 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
TPC Function	☒ With TPC	☐ Without TPC
Weather Band (5600~5650MHz)	☐ With 5600~5650MHz	☒ Without 5600~5650MHz
Beamforming Function	☐ With beamforming	☒ Without beamforming

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	3	MCS 0-23
802.11n (HT40)	3	MCS 0-23
802.11ac (VHT20)	3	MCS 0-9/Nss1-3
802.11ac (VHT40)	3	MCS 0-9/Nss1-3
802.11ac (VHT80)	3	MCS 0-9/Nss1-3
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 and VHT80. Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac		

3.2. Accessories

RJ-45 Cable*1, Non-shielded, 1.5m

Cradle*1

3.3. Table for Filed Antenna

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
1	GALTRONICS	2365-54480001R	PIFA Antenna	NA	2.4GHz	2.94
2	GALTRONICS	2365-04610001R	PIFA Antenna	NA	2.4GHz	3.15
3	GALTRONICS	2365-51670005R	PIFA Antenna	I-PEX	5GHz	5.39
4	GALTRONICS	2365-54480002R	PIFA Antenna	I-PEX	5GHz	4.31
5	GALTRONICS	2365-51670006R	PIFA Antenna	I-PEX	5GHz	4.41

Note: The EUT has five Antennas.

For 2.4GHz function:

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

The EUT supports Ant. 1 and Ant. 2 with TX diversity function.

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

Ant. 1 and Ant. 2 could receive simultaneously.

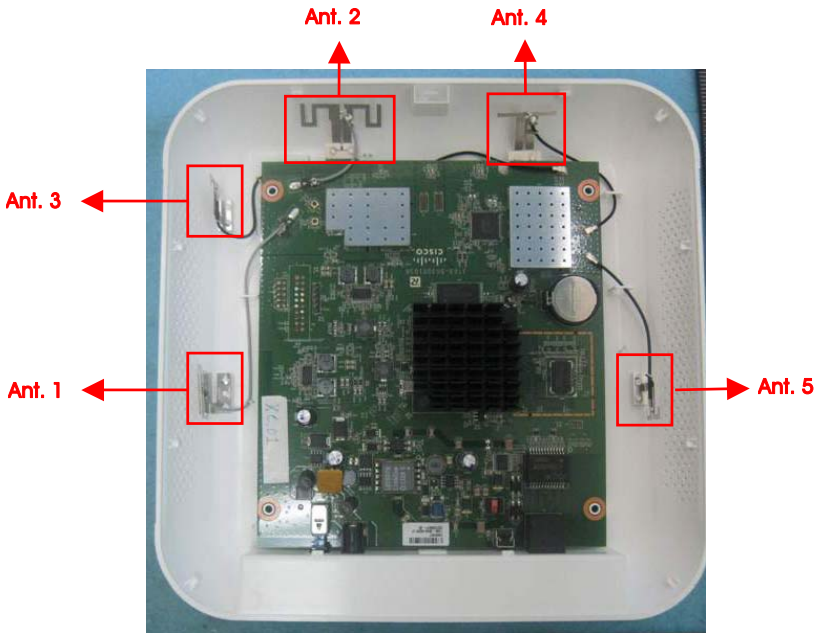
For IEEE 802.11g/n mode (2TX/2RX):

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11a/n/ac mode (3TX/3RX):

Ant. 3, Ant. 4 and Ant. 5 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 132, 136, 140.

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 134.

For 80MHz bandwidth systems, use Channel 42, 58, 106

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
	42	5210 MHz	-	-
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	112	5560 MHz
	102	5510 MHz	116	5580 MHz
	104	5520 MHz	132	5660 MHz
	106	5530 MHz	134	5670 MHz
	108	5540 MHz	136	5680 MHz
	110	5550 MHz	140	5700 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.

Test Items	Mode		Data Rate	Channel	Antenna
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5
Power Spectral Density	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5
Peak Excursion	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5

Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5
Band Edge Emission	11ac VHT20	Band 1-3	MCS0/Nss1	36/40/48/52/60/64/100/116/140	3+4+5
	11ac VHT40	Band 1-3	MCS0/Nss1	38/46/54/62/102/110/134	3+4+5
	11ac VHT80	Band 1-3	MCS0/Nss1	42/58/106	3+4+5
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64/100/116/140	3+4+5
Frequency Stability	Un-modulation		-	40/60/100	3+4+5

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT + Adapter

Mode 2. EUT + PoE

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

For Radiated Emission test below 1GHz:

Mode 1. Stand of EUT + Adapter

Mode 2. Laying of EUT + Adapter

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

Mode 3. Stand of EUT + PoE

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

For Radiated Emission test above 1GHz:

There are two test modes, one is Stand of EUT, and the other is Laying of EUT. After evaluating, Stand of EUT mode has been evaluated to be the worst case. Consequently, measurements for Radiated Emission above 1GHz test 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 Appendix B) and Radiated Emission Co-location (please refer to Appendix C) 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.**	**VCCI Reg. 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: 03CH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
NB	DELL	D420	E2KWM3945ABG
NB	DELL	E6220	DoC
PoE	PowerDsine	PD-9001GR/AC	N/A

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*3	DELL	E6430	DoC
Adapter	LEI	NU30-4120200-I3	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
Adapter	LEI	NU30-4120200-I3	N/A

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.

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Telnet								
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
MCS0/Nss1 VHT20	28	27	28	64	65	62	64	68	64

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Telnet						
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0/Nss1 VHT40	35	36	73	58	62	77	74

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Telnet		
Frequency	5210 MHz	5290 MHz	5530 MHz
MCS0/Nss1 VHT80	36	50	50

Power Parameters of IEEE 802.11a

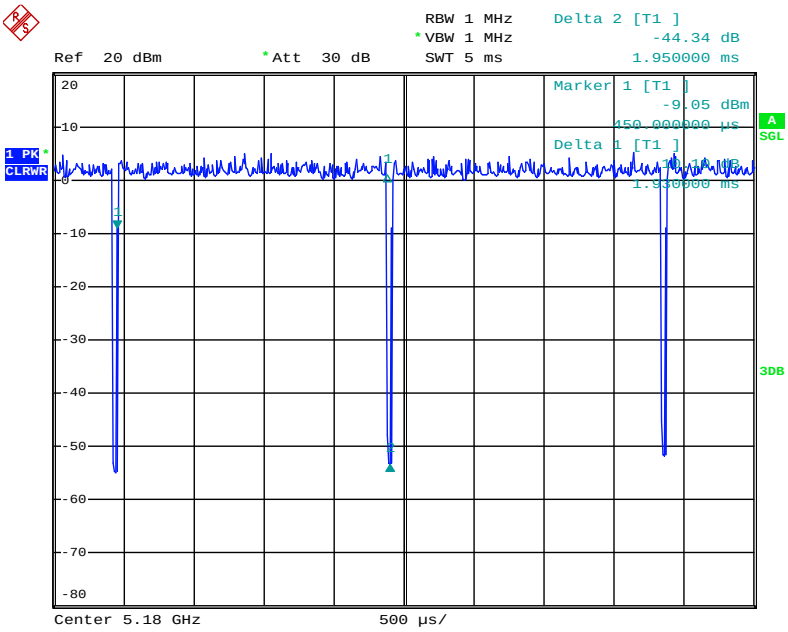
Test Software Version	Telnet								
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
802.11a	27	26	27	64	65	65	68	68	70

3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

IEEE 802.11ac MCS0/Nss1 VHT20



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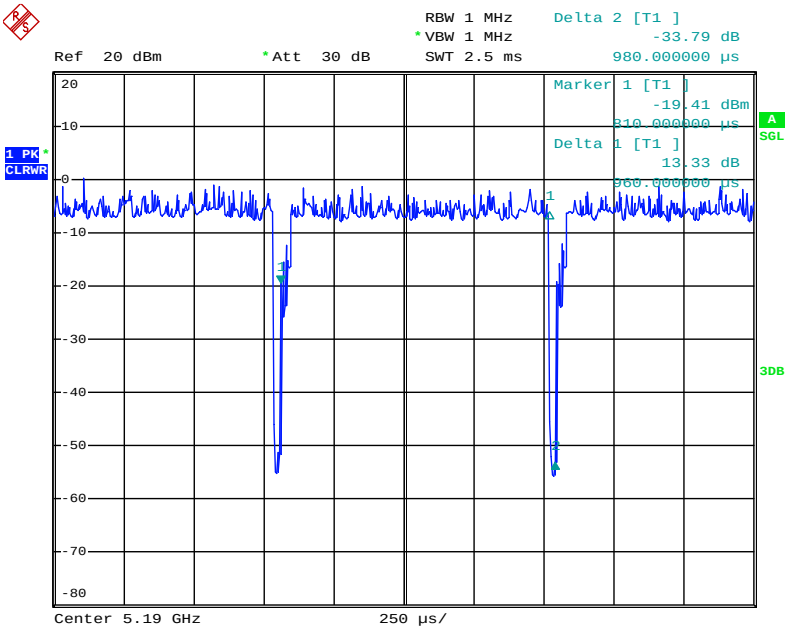
IEEE 802.11ac MCS0/Nss1 VHT40



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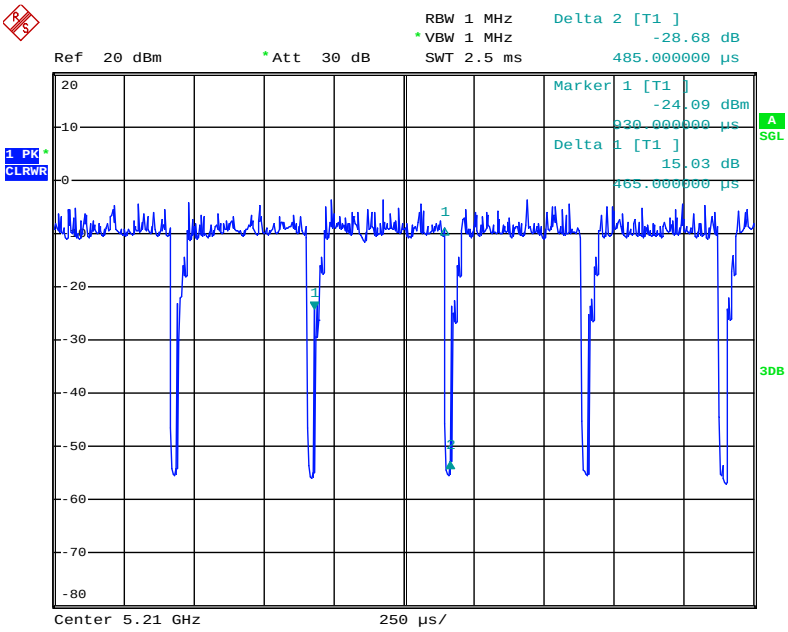
IEEE 802.11ac MCS0/Nss1 VHT80



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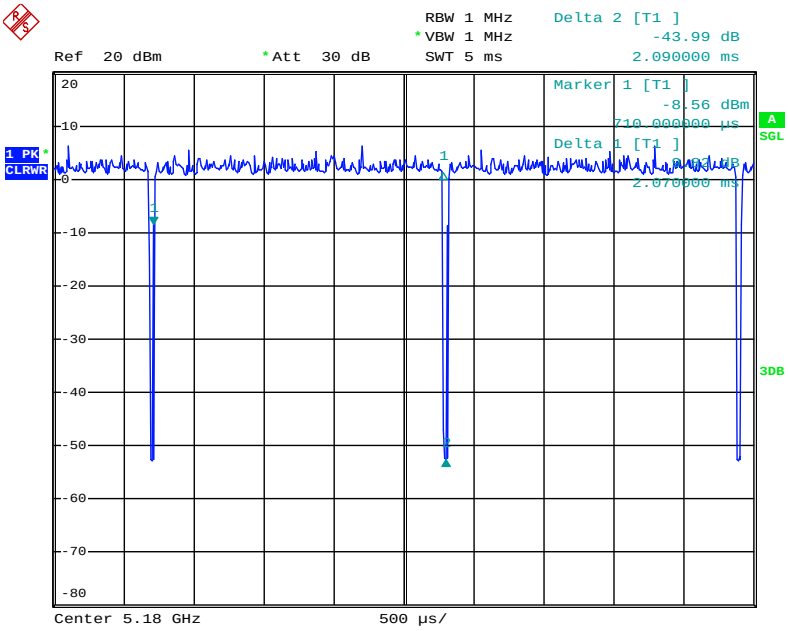
IEEE 802.11a



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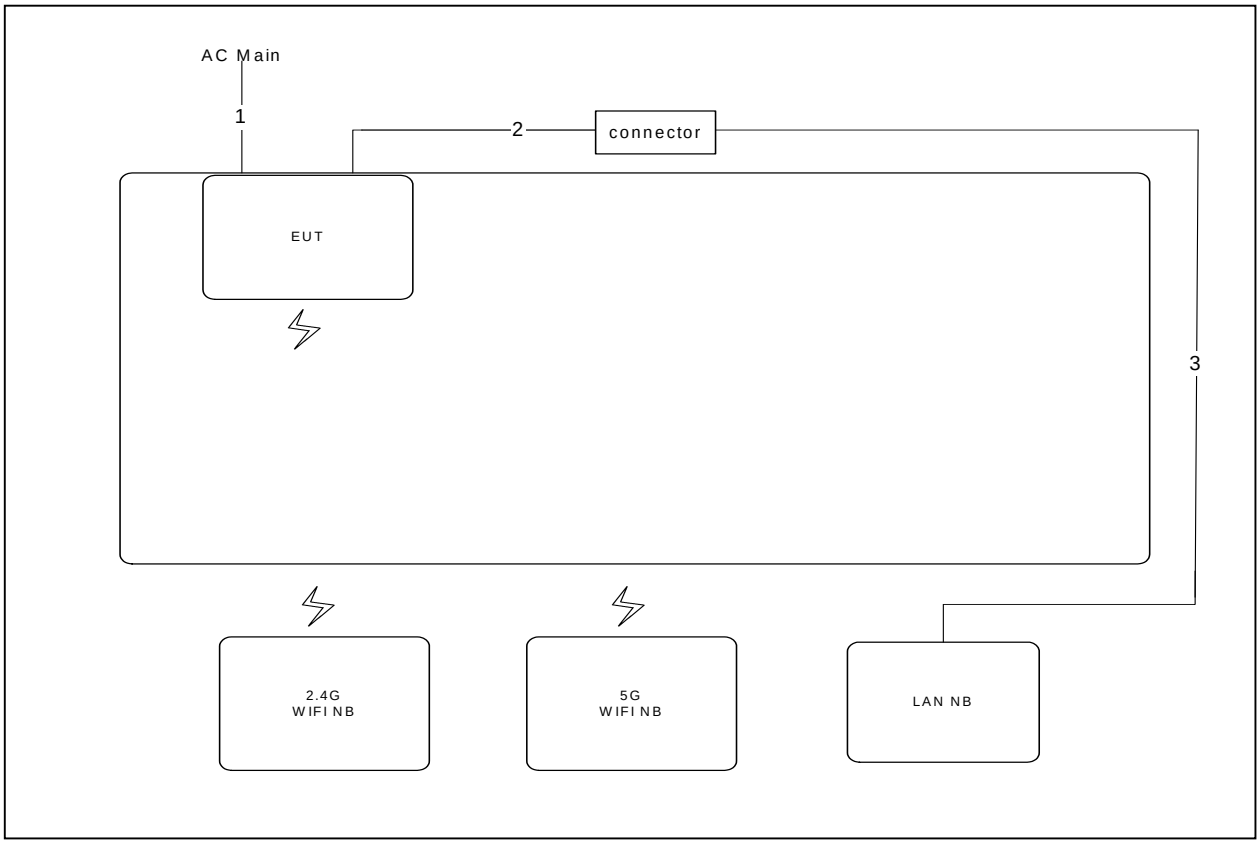
3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration

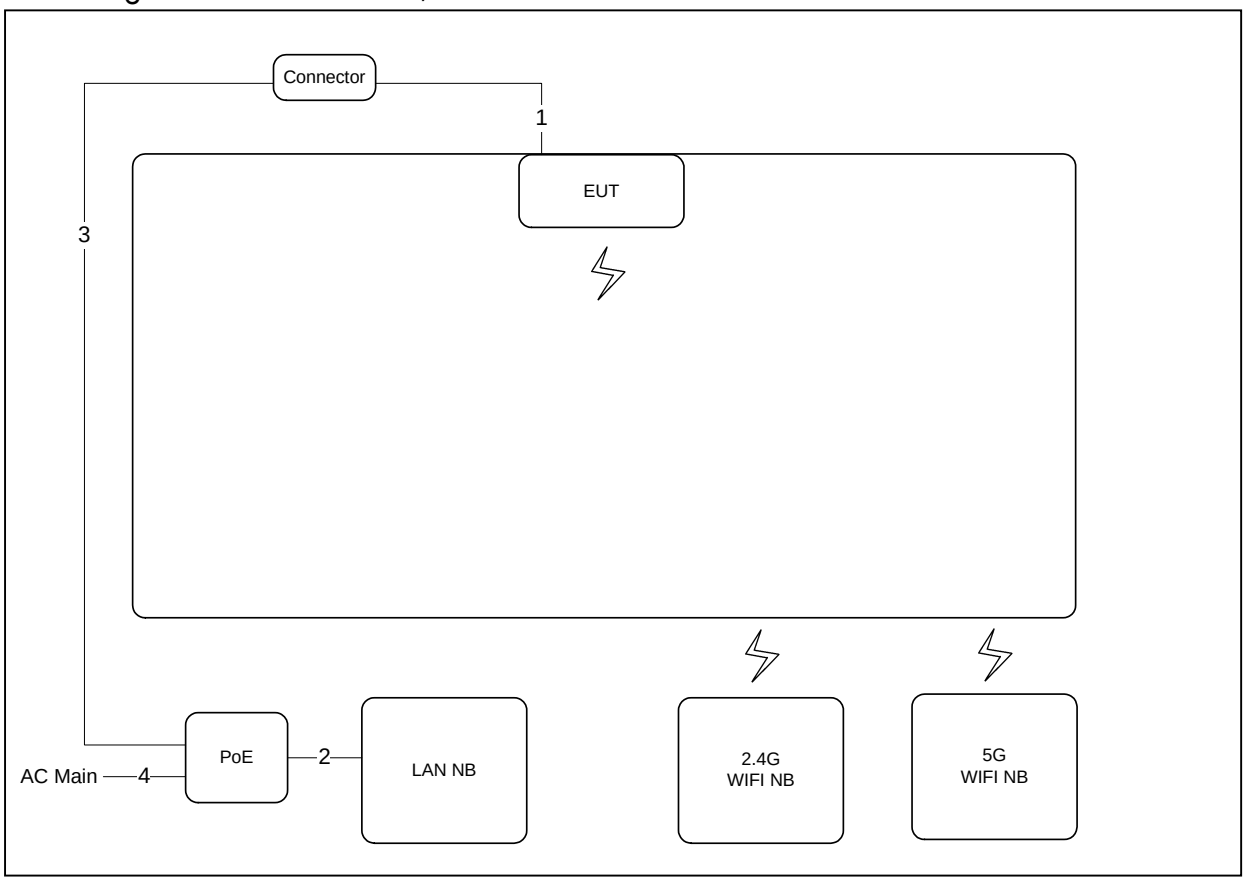
Test Mode: Mode 1



Item	Connection	Shielded	Length(m)
1	Power cable	No	3.3m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m

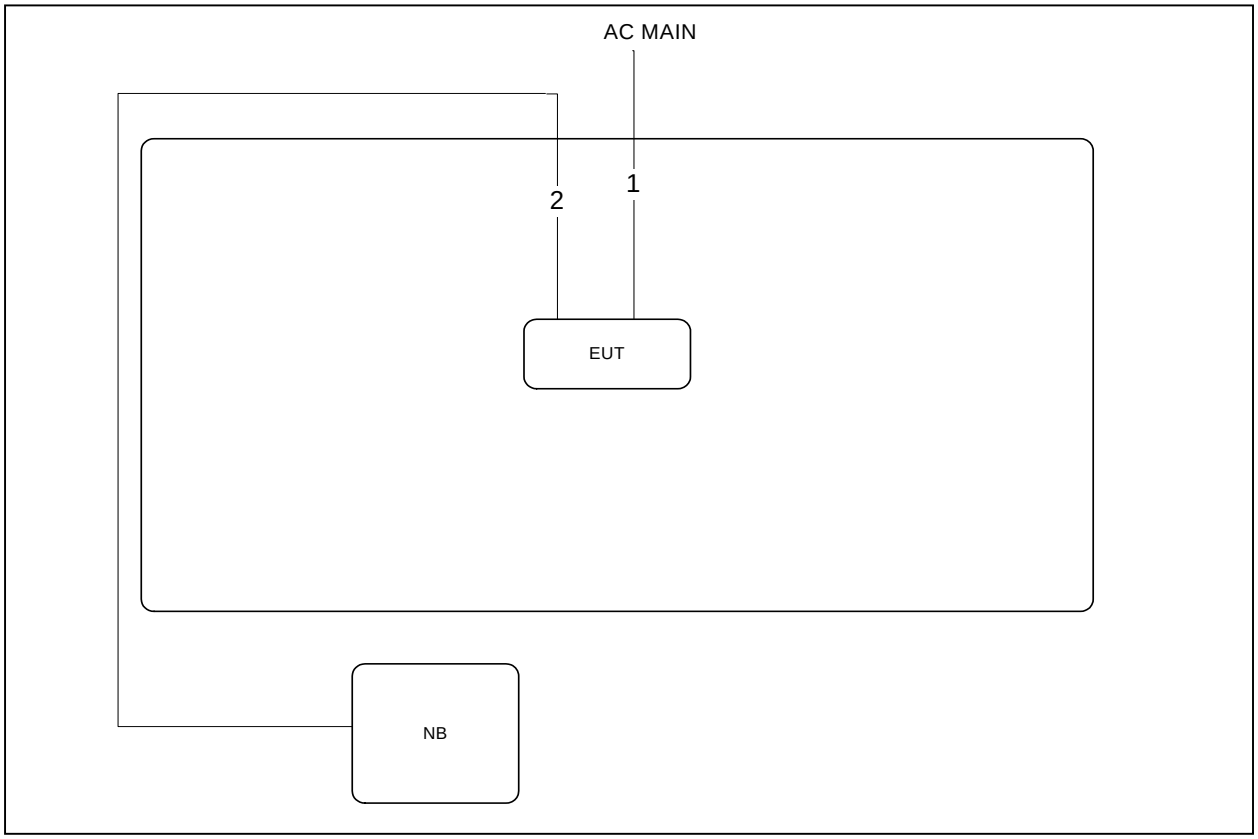
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz / Test Mode: Mode 3



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

Test Configuration: above 1GHz / Test Mode: Mode 3



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

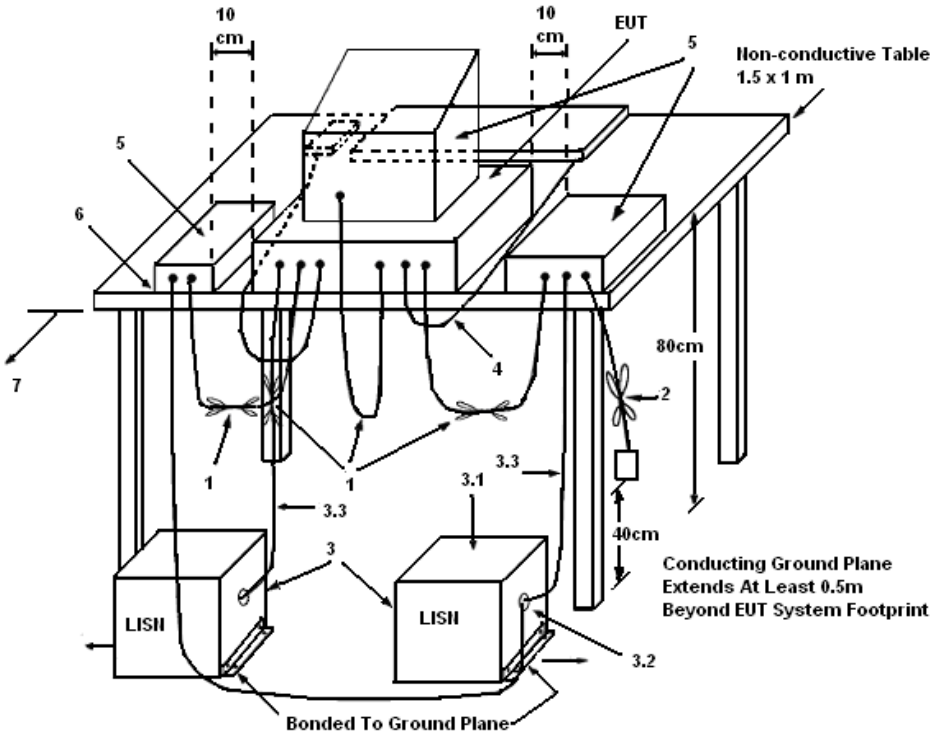
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

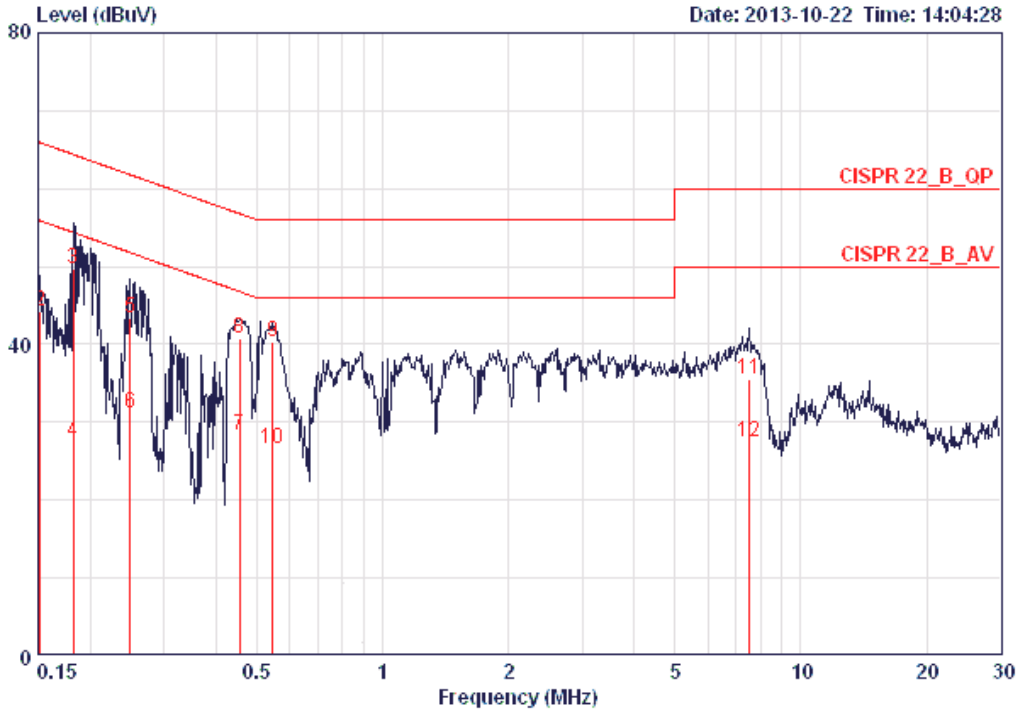
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

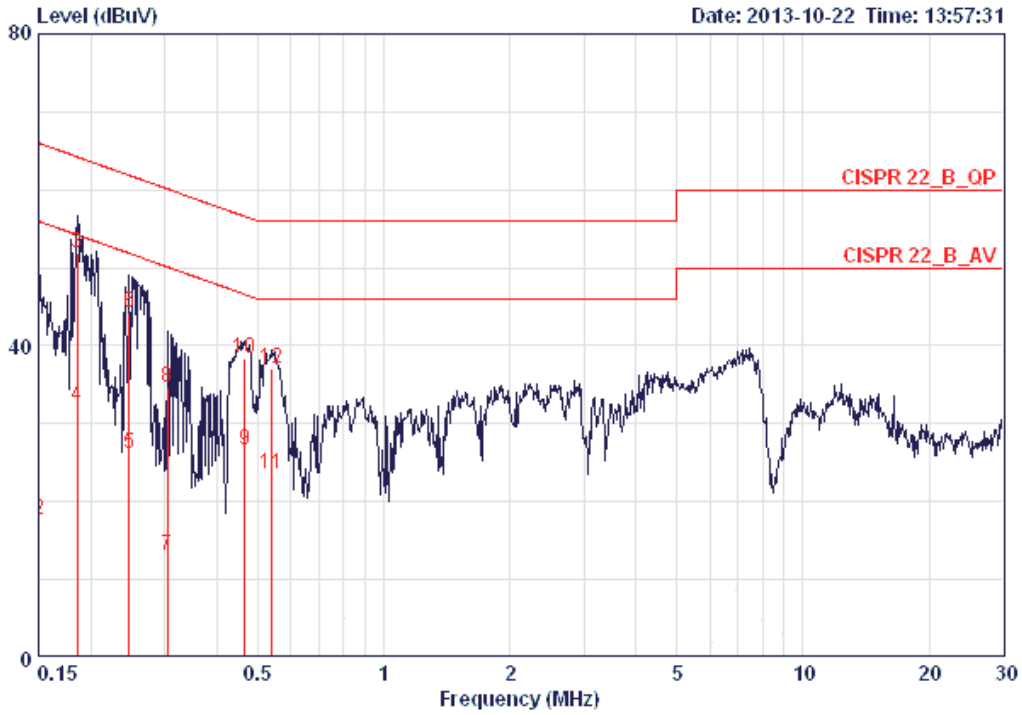
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	52%
Test Engineer	Kane Liu	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15160	18.34	-37.57	55.91	18.00	0.16	0.18	LINE	AVERAGE
2	0.15160	44.27	-21.64	65.91	43.93	0.16	0.18	LINE	QP
3	0.18249	49.72	-14.65	64.37	49.38	0.15	0.19	LINE	QP
4	0.18249	27.53	-26.84	54.37	27.19	0.15	0.19	LINE	AVERAGE
5	0.24945	43.45	-18.33	61.78	43.10	0.15	0.20	LINE	QP
6	0.24945	31.18	-20.60	51.78	30.83	0.15	0.20	LINE	AVERAGE
7	0.45395	28.33	-18.47	46.80	27.98	0.15	0.20	LINE	AVERAGE
8	0.45395	40.71	-16.09	56.80	40.36	0.15	0.20	LINE	QP
9	0.54644	40.39	-15.62	56.00	40.03	0.16	0.20	LINE	QP
10	0.54644	26.55	-19.46	46.00	26.19	0.16	0.20	LINE	AVERAGE
11	7.526	35.48	-24.52	60.00	34.89	0.29	0.30	LINE	QP
12	7.526	27.50	-22.50	50.00	26.91	0.29	0.30	LINE	AVERAGE

Temperature	24°C	Humidity	52%
Test Engineer	Kane Liu	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.15000	44.29	-21.71	66.00	44.03	0.08	0.18	NEUTRAL	QP
2	0.15000	17.55	-38.45	56.00	17.29	0.08	0.18	NEUTRAL	AVERAGE
3	0.18541	51.87	-12.37	64.24	51.60	0.08	0.19	NEUTRAL	QP
4	0.18541	32.26	-21.98	54.24	31.99	0.08	0.19	NEUTRAL	AVERAGE
5	0.24682	26.25	-25.61	51.86	25.97	0.08	0.20	NEUTRAL	AVERAGE
6	0.24682	44.33	-17.53	61.86	44.05	0.08	0.20	NEUTRAL	QP
7	0.30509	13.12	-36.98	50.10	12.84	0.08	0.20	NEUTRAL	AVERAGE
8	0.30509	34.58	-25.52	60.10	34.30	0.08	0.20	NEUTRAL	QP
9	0.46614	26.70	-19.88	46.58	26.42	0.08	0.20	NEUTRAL	AVERAGE
10	0.46614	38.41	-18.17	56.58	38.13	0.08	0.20	NEUTRAL	QP
11	0.53782	23.53	-22.47	46.00	23.25	0.08	0.20	NEUTRAL	AVERAGE
12	0.53782	37.10	-18.90	56.00	36.82	0.08	0.20	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

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 spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > 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

4.2.3. Test Procedures

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.2.4. Test Setup Layout

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.6.4.

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 26dB Bandwidth and 99% Occupied Bandwidth

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	20.00	17.60
40	5200 MHz	20.16	17.60
48	5240 MHz	20.00	17.60
52	5260 MHz	22.24	17.92
60	5300 MHz	20.16	17.76
64	5320 MHz	20.32	17.76
100	5500 MHz	20.16	17.76
116	5580 MHz	22.56	17.92
140	5700 MHz	22.24	17.76

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	39.04	36.48
46	5230 MHz	39.04	36.48
54	5270 MHz	42.24	36.48
62	5310 MHz	39.04	36.48
102	5510 MHz	39.04	36.48
110	5550 MHz	56.32	36.80
134	5670 MHz	55.04	36.81

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5

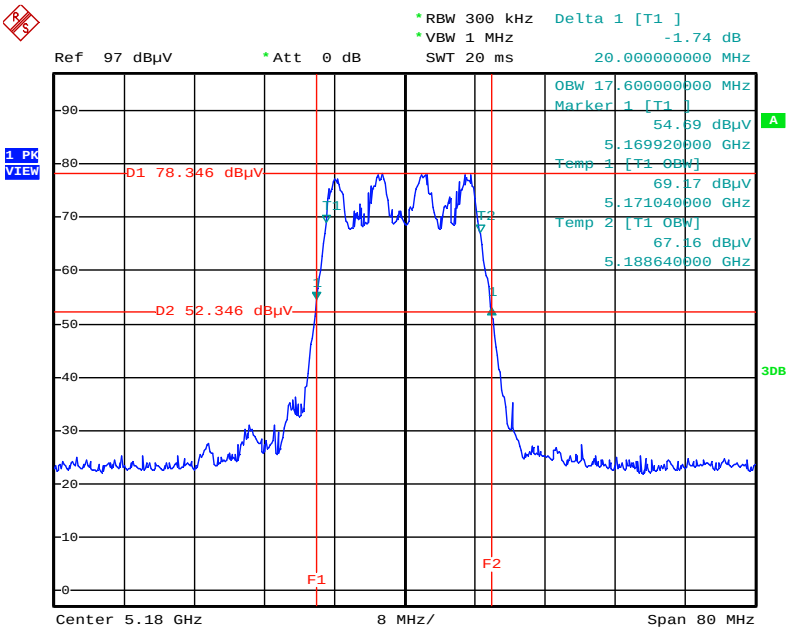
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	82.56	76.80
58	5290 MHz	81.92	76.80
106	5530 MHz	81.92	77.44

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a

Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5

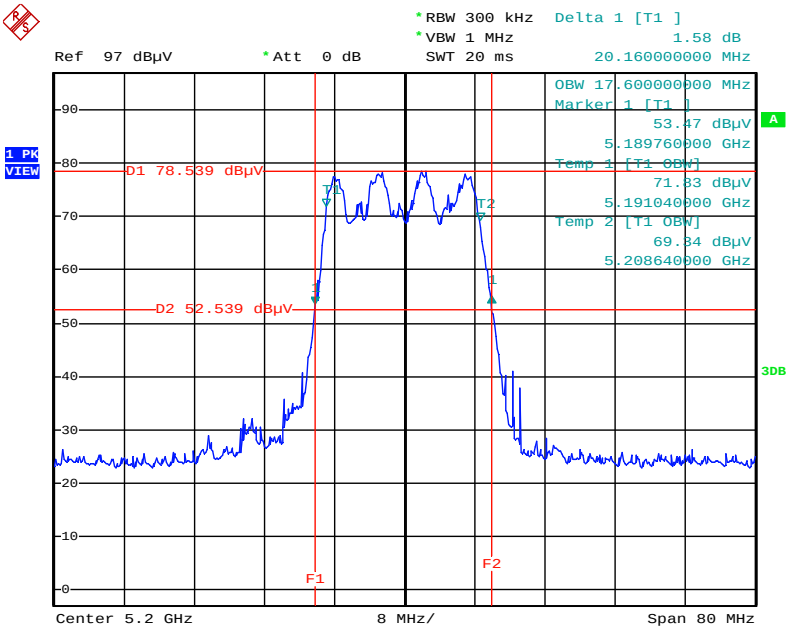
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	19.84	16.96
40	5200 MHz	20.00	17.12
48	5240 MHz	19.84	17.12
52	5260 MHz	20.16	17.12
60	5300 MHz	20.32	17.28
64	5320 MHz	20.16	17.12
100	5500 MHz	20.00	17.12
116	5580 MHz	20.16	17.12
140	5700 MHz	27.20	17.60

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5180 MHz



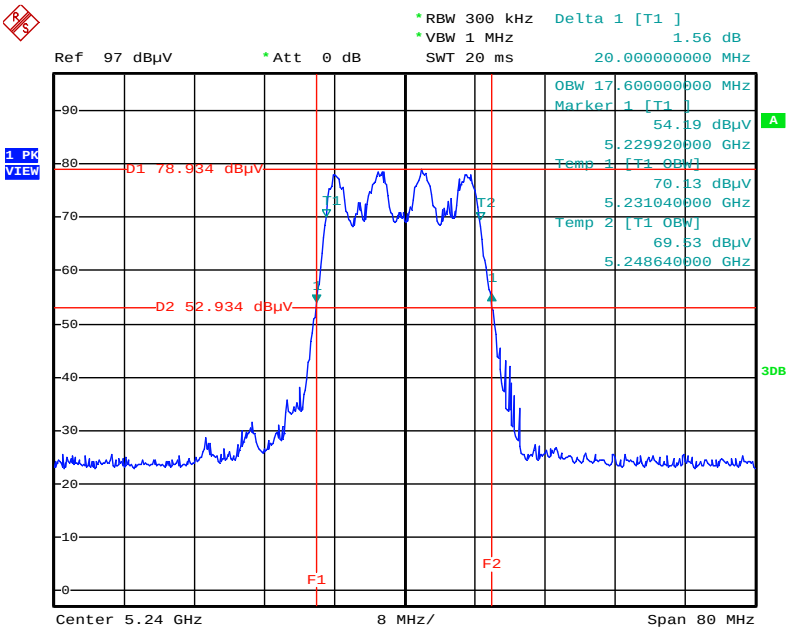
Date: 28.JAN.2014 00:04:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5200 MHz



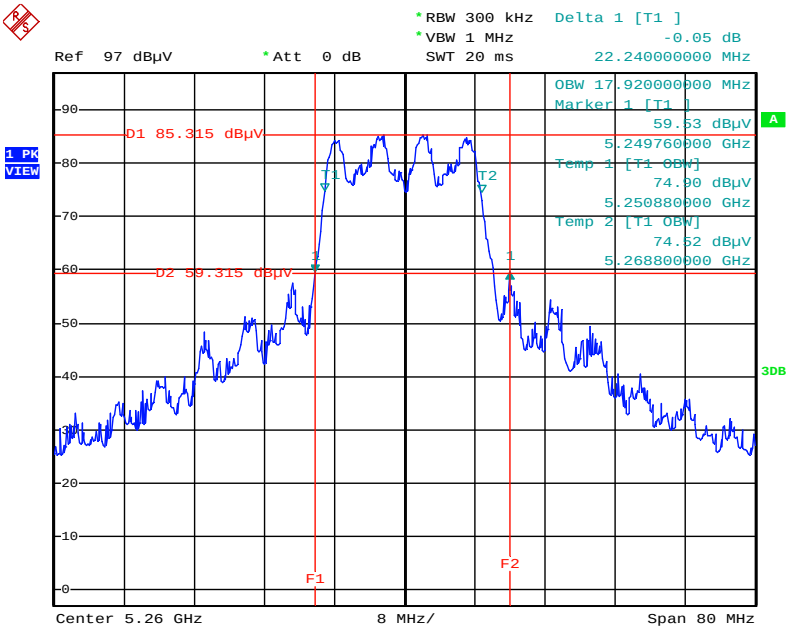
Date: 28.JAN.2014 00:34:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5240 MHz



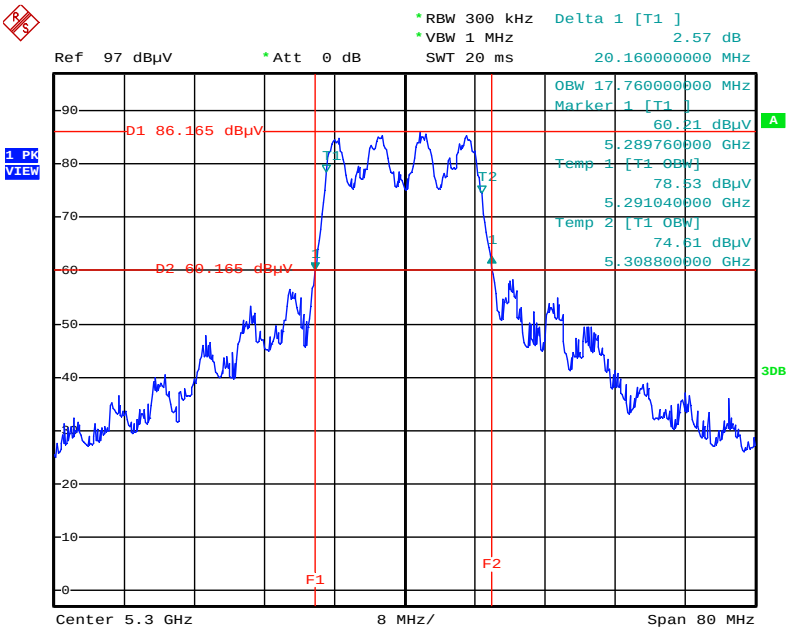
Date: 28.JAN.2014 00:34:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5260 MHz



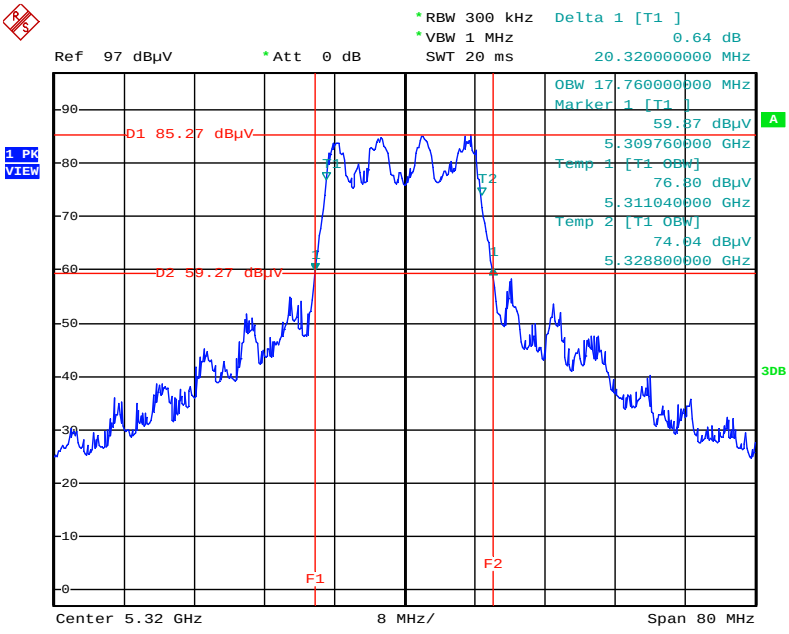
Date: 28.JAN.2014 00:36:01

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5300 MHz



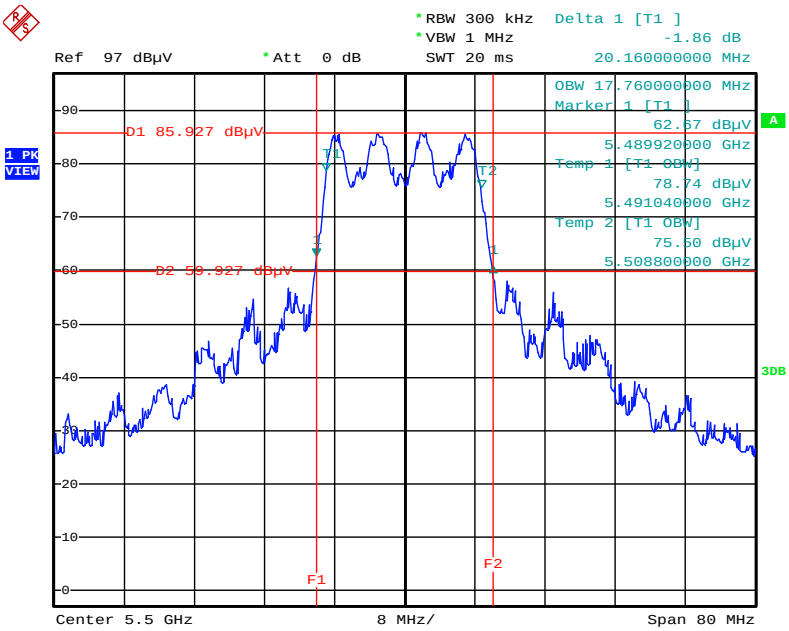
Date: 28.JAN.2014 00:36:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5320 MHz



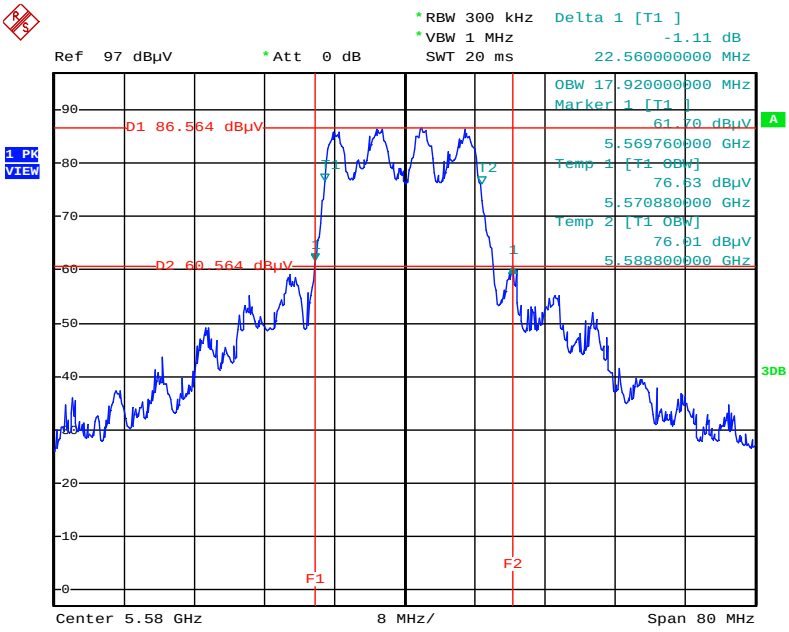
Date: 28.JAN.2014 00:37:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5500 MHz



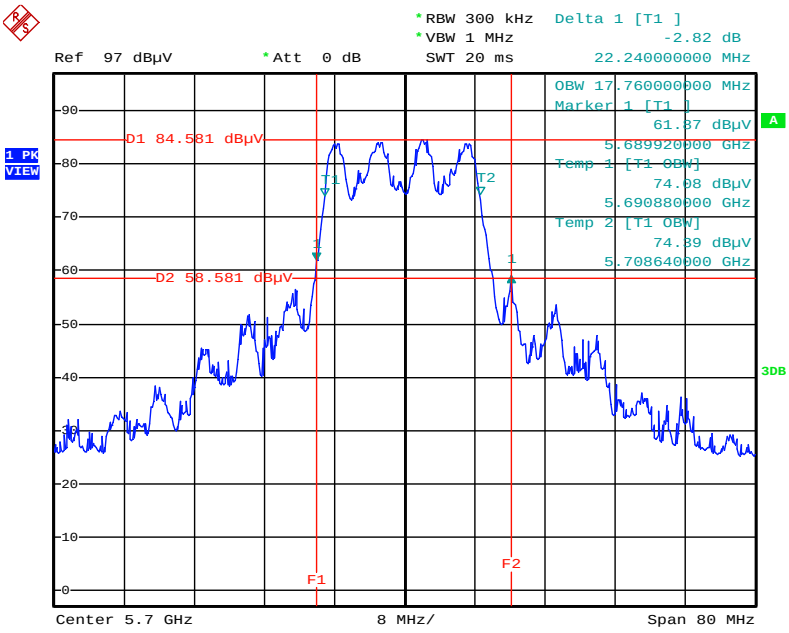
Date: 28.JAN.2014 00:38:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5580 MHz



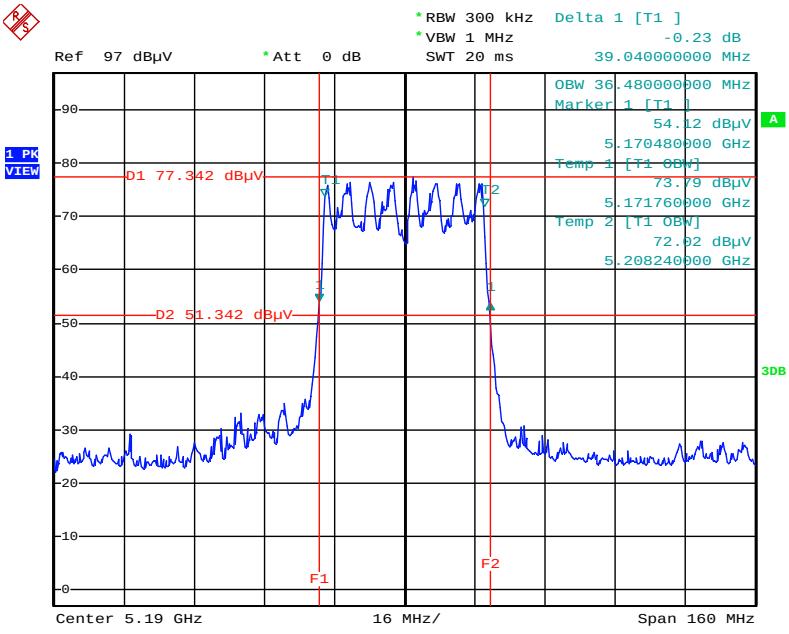
Date: 28.JAN.2014 00:38:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5700 MHz



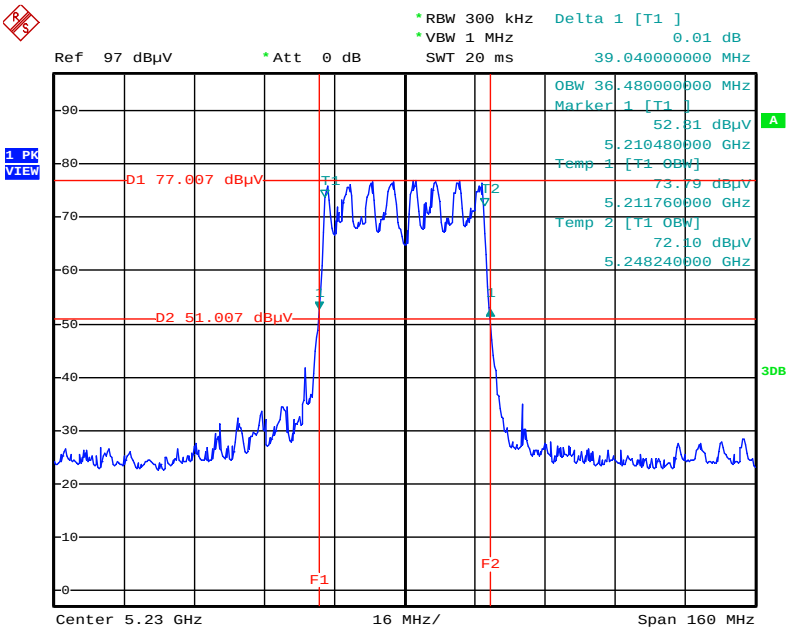
Date: 28.JAN.2014 00:39:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5190 MHz



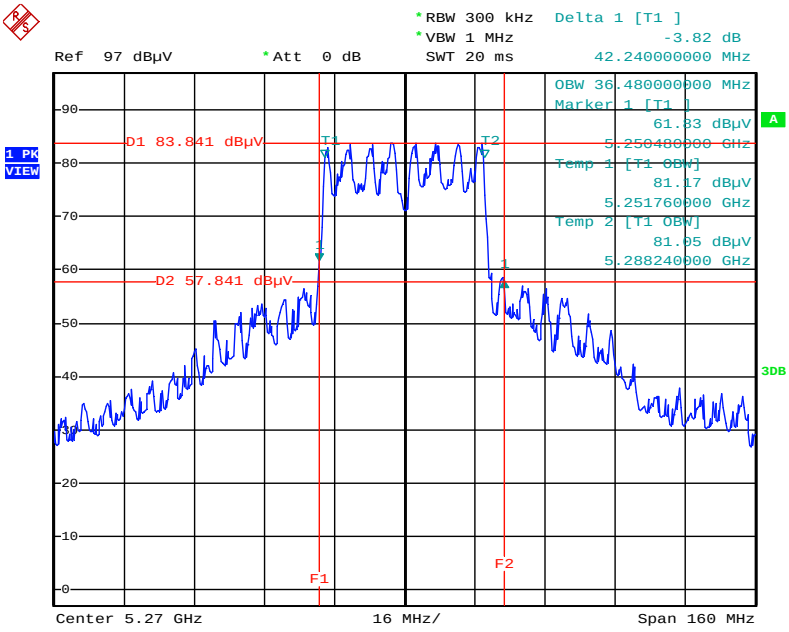
Date: 28.JAN.2014 00:40:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5230 MHz



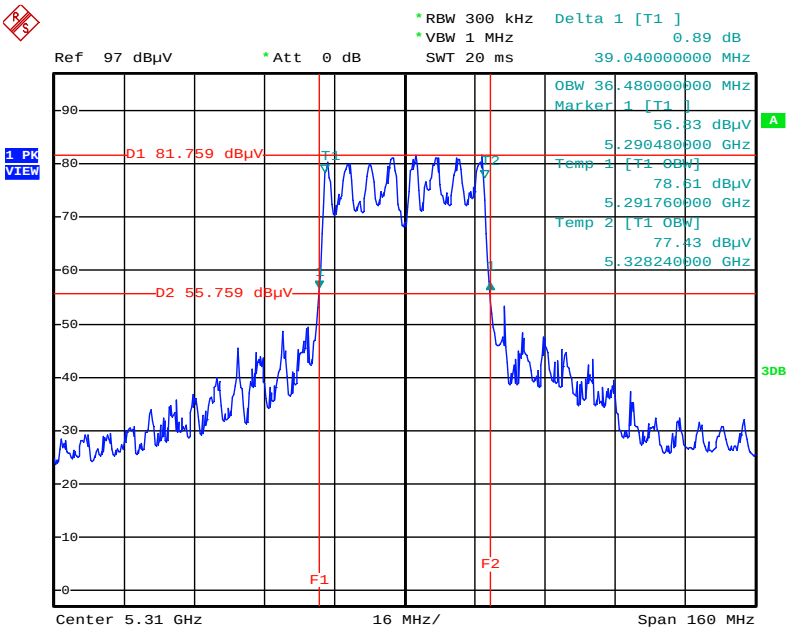
Date: 28.JAN.2014 00:41:23

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5270 MHz



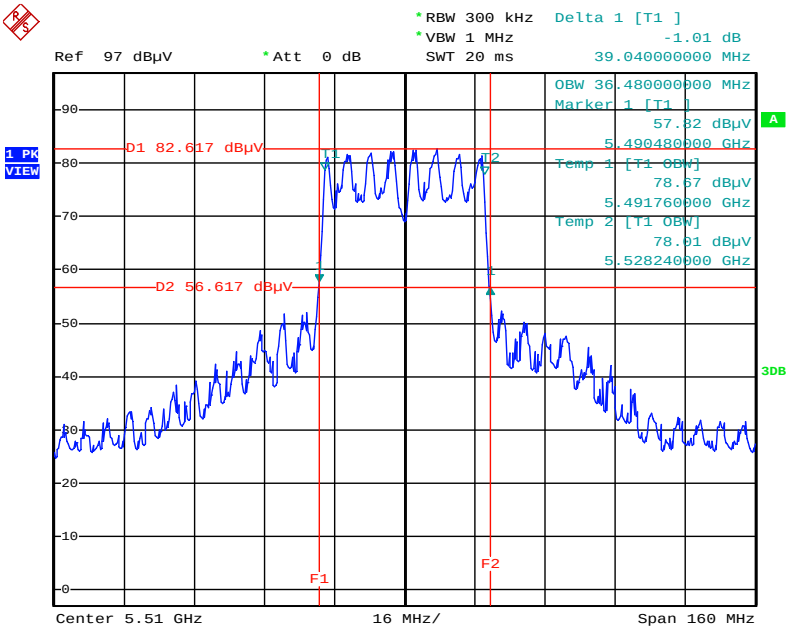
Date: 28.JAN.2014 00:42:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5310 MHz



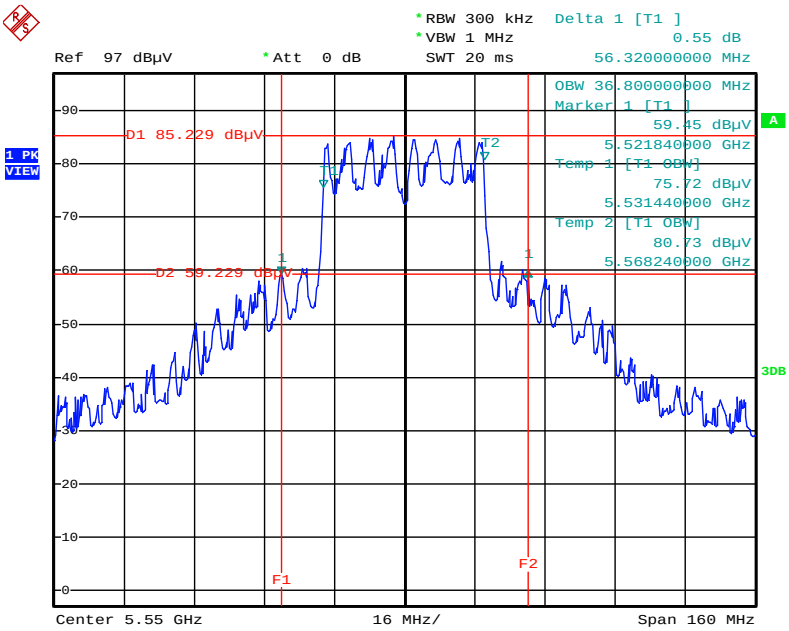
Date: 28.JAN.2014 00:43:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5510 MHz



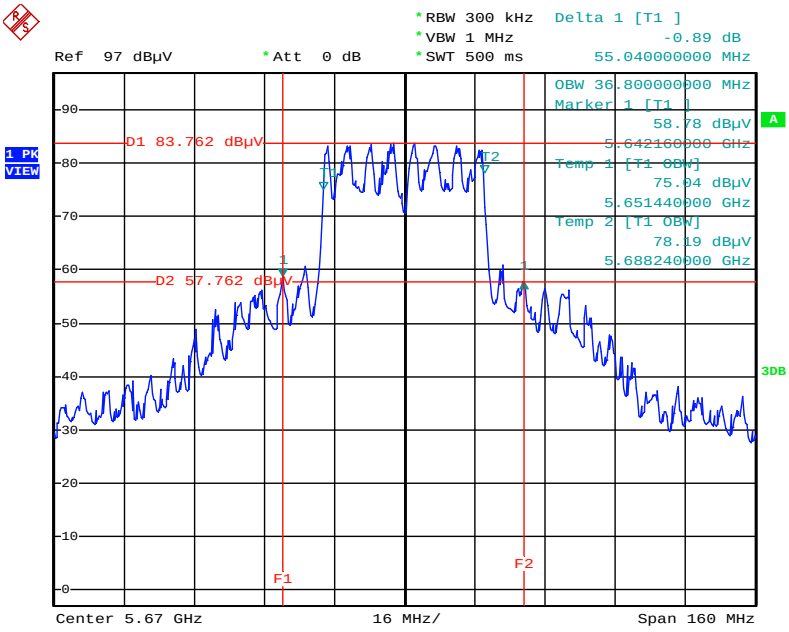
Date: 28.JAN.2014 00:44:19

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5550 MHz



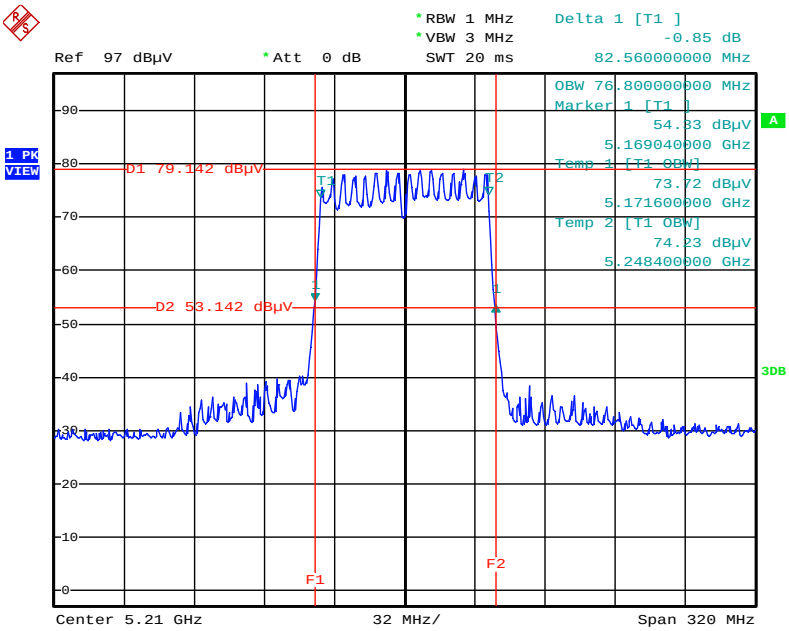
Date: 28.JAN.2014 00:45:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5670 MHz



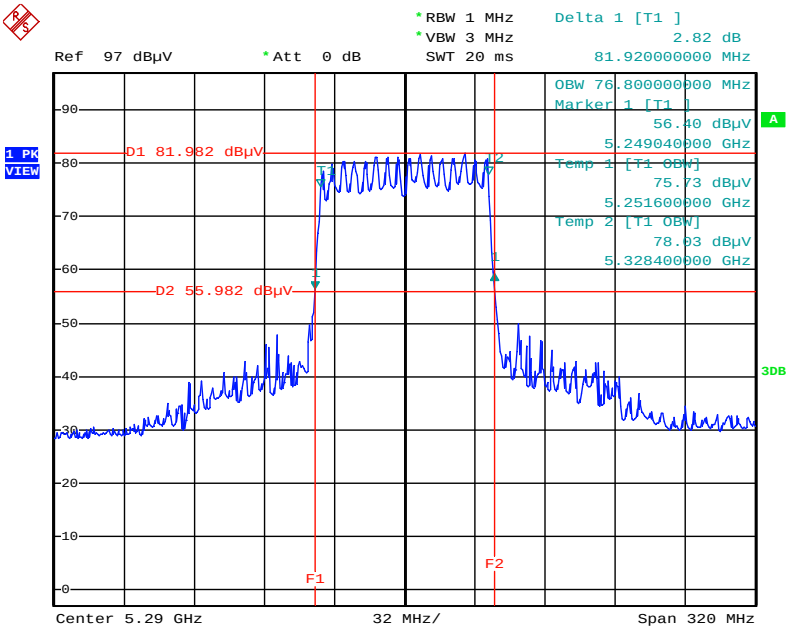
Date: 28.JAN.2014 00:46:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 5210 MHz



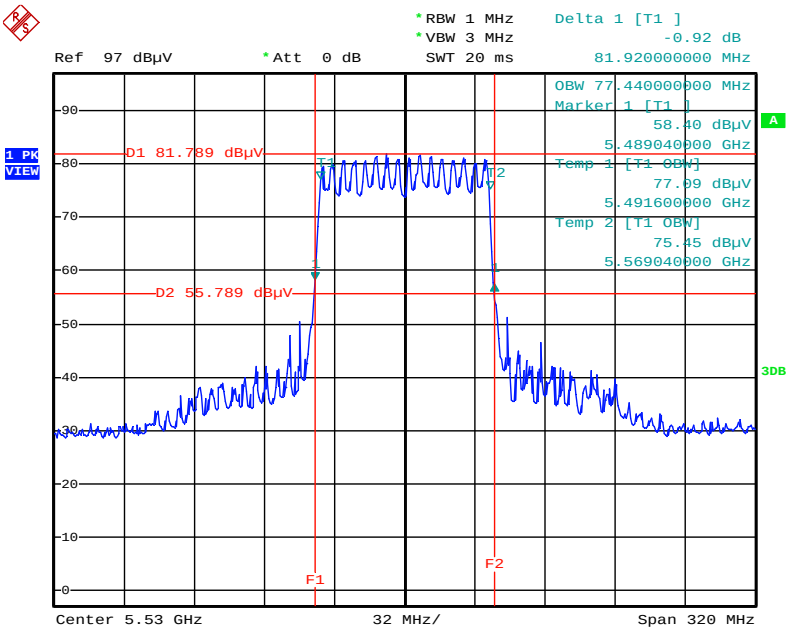
Date: 28.JAN.2014 00:47:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 5290 MHz



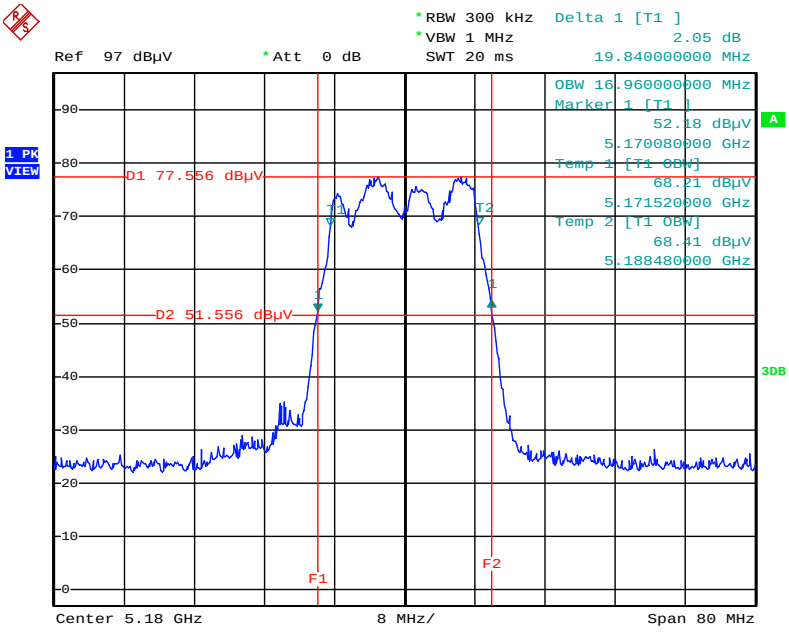
Date: 28.JAN.2014 00:48:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 5530 MHz



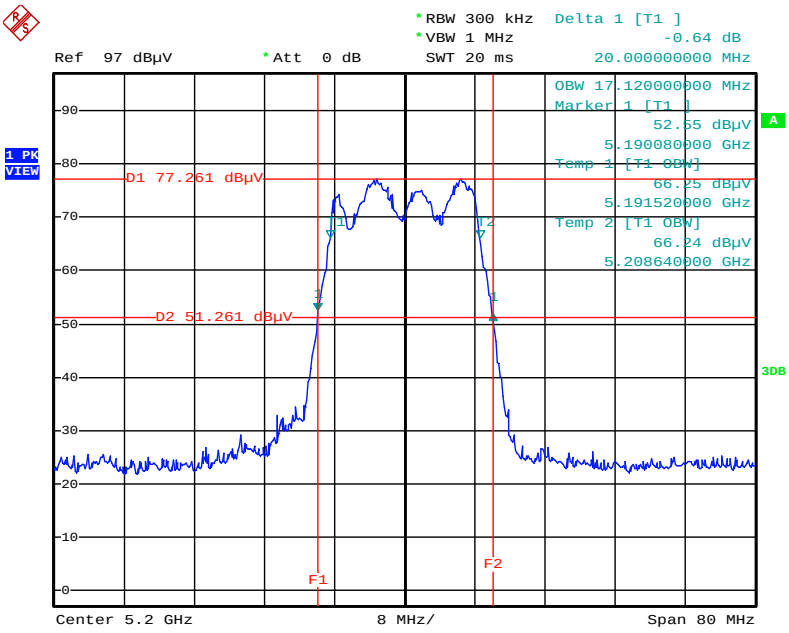
Date: 28.JAN.2014 00:49:02

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5180 MHz



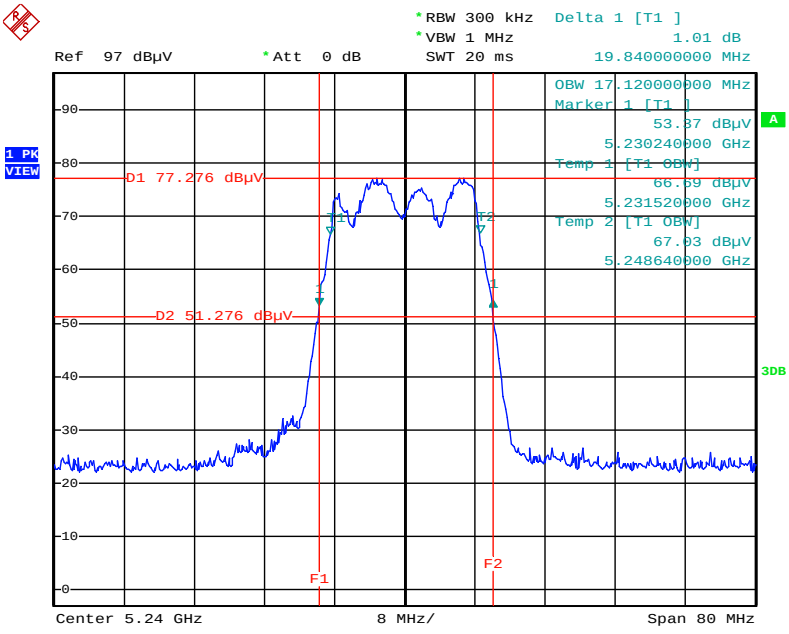
Date: 27.JAN.2014 23:56:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5200 MHz



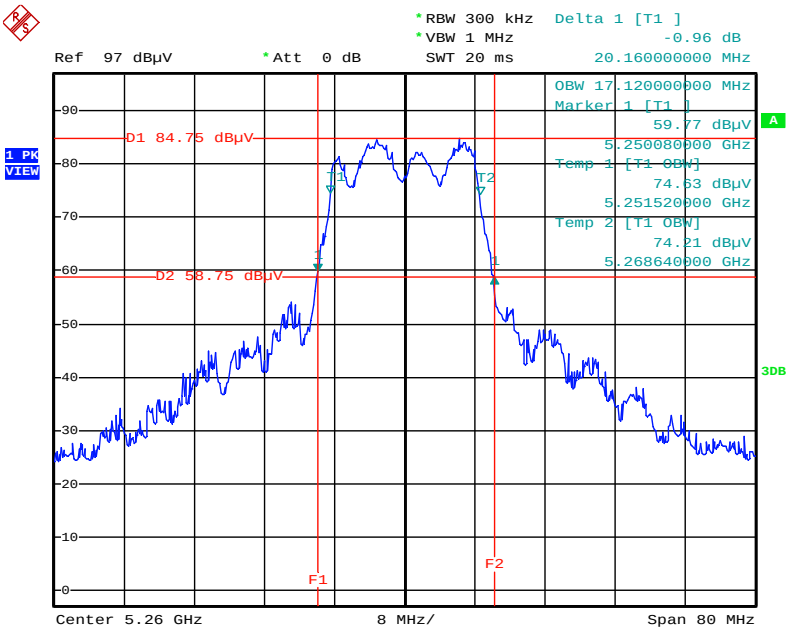
Date: 27.JAN.2014 23:57:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5240 MHz



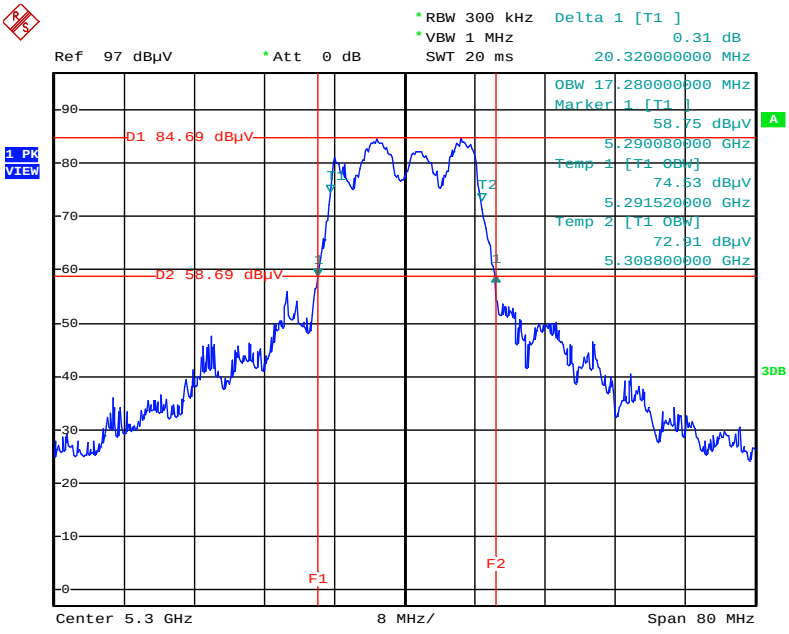
Date: 27.JAN.2014 23:57:48

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5260 MHz



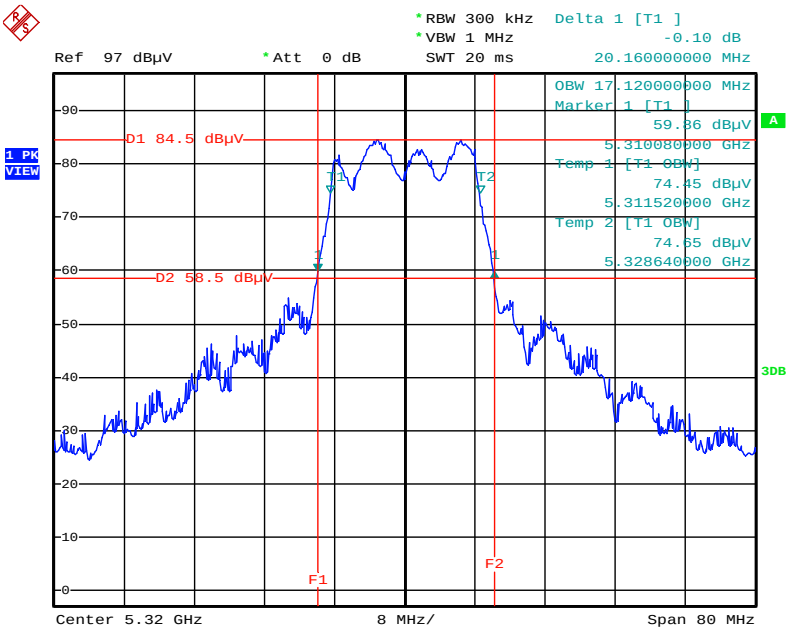
Date: 27.JAN.2014 23:58:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5300 MHz



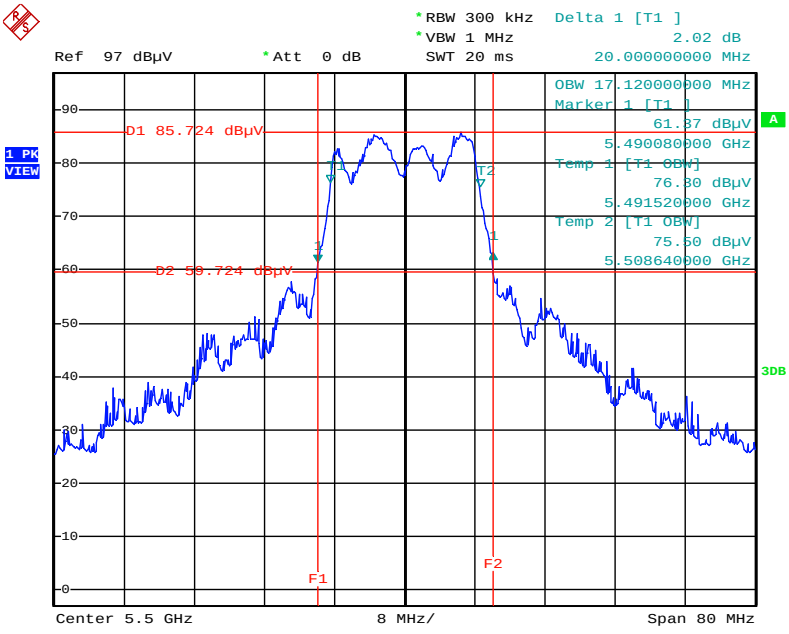
Date: 27.JAN.2014 23:59:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5320 MHz



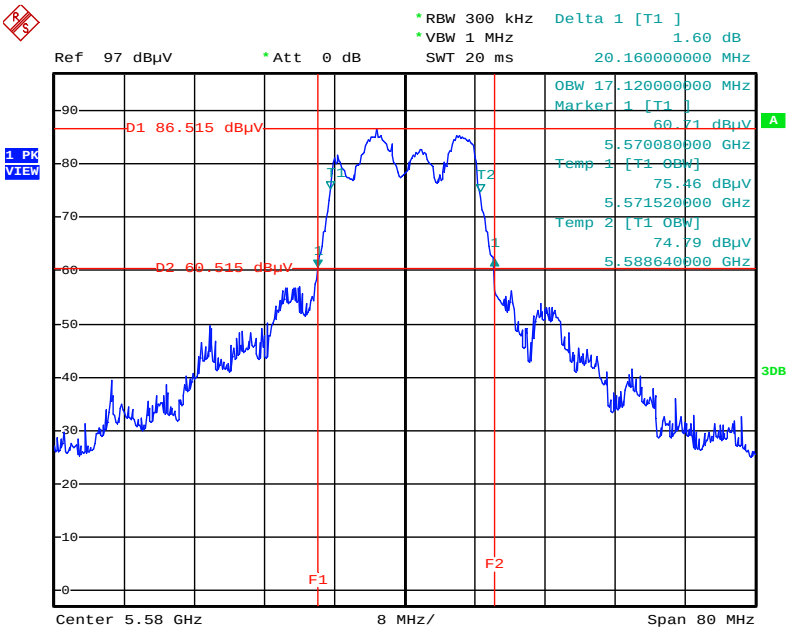
Date: 27.JAN.2014 23:59:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5500 MHz



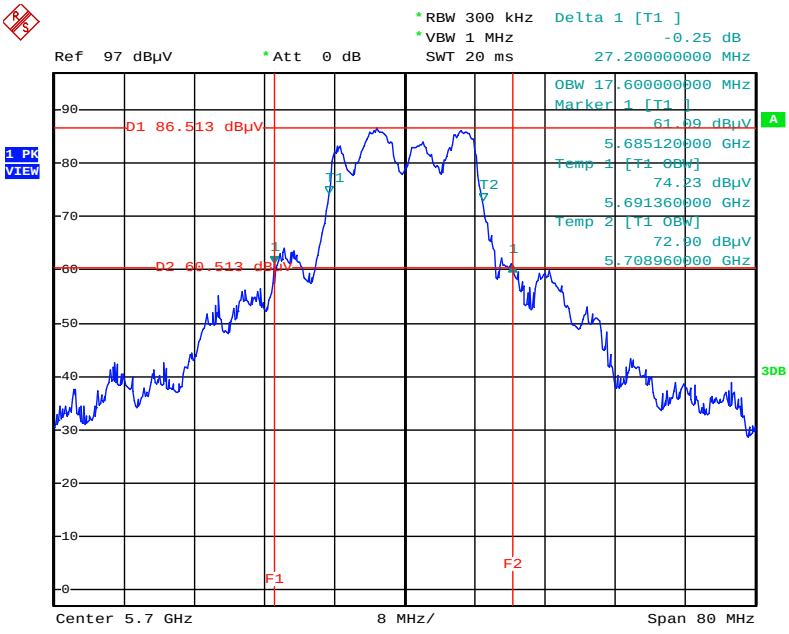
Date: 28.JAN.2014 00:00:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5580 MHz



Date: 28.JAN.2014 00:01:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5700 MHz



Date: 28.JAN.2014 00:32:53

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, where B is the 26 dB emissions bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3.2. Measuring Instruments and Setting

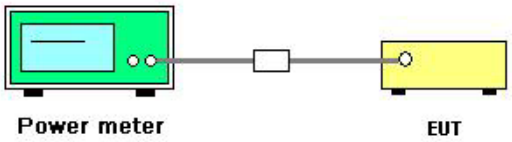
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB 789033 D01 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (E) Maximum conducted output power =>(3) Method PM (Measurement using an RF average power meter) Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

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 Maximum Conducted Output Power

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11ac
Test Date	Jan. 27, 2014		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 4	Ant. 5	Ant. 6	Total		
36	5180 MHz	10.91	10.51	10.49	15.41	17.00	Complies
40	5200 MHz	10.79	10.42	10.39	15.31	17.00	Complies
48	5240 MHz	10.95	10.38	10.69	15.45	17.00	Complies
52	5260 MHz	17.51	17.31	17.49	22.21	24.00	Complies
60	5300 MHz	17.78	17.39	17.48	22.32	24.00	Complies
64	5320 MHz	17.21	16.82	16.82	21.73	24.00	Complies
100	5500 MHz	16.91	16.74	16.71	21.56	24.00	Complies
116	5580 MHz	17.48	17.35	17.49	22.21	24.00	Complies
140	5700 MHz	16.39	16.48	16.65	21.28	24.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 4	Ant. 5	Ant. 6	Total		
38	5190 MHz	12.05	11.81	12.01	16.73	17.00	Complies
46	5230 MHz	12.15	11.75	12.28	16.84	17.00	Complies
54	5270 MHz	19.09	18.86	19.01	23.76	24.00	Complies
62	5310 MHz	16.37	16.18	16.23	21.03	24.00	Complies
102	5510 MHz	16.55	16.31	16.37	21.18	24.00	Complies
110	5550 MHz	19.21	18.98	19.08	23.86	24.00	Complies
134	5670 MHz	18.41	18.43	18.39	23.18	24.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 4	Ant. 5	Ant. 6	Total		
42	5210 MHz	12.07	11.78	12.22	16.80	17.00	Complies
58	5290 MHz	14.65	14.31	14.42	19.23	24.00	Complies
106	5530 MHz	13.97	13.71	13.92	18.64	24.00	Complies

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a
Test Date	Jan. 27, 2014		

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 4	Ant. 5	Ant. 6	Total		
36	5180 MHz	10.89	10.41	10.39	15.34	16.98	Complies
40	5200 MHz	10.81	10.31	10.29	15.25	17.00	Complies
48	5240 MHz	10.88	10.34	10.46	15.34	16.98	Complies
52	5260 MHz	17.68	17.43	17.52	22.32	24.00	Complies
60	5300 MHz	17.72	17.45	17.56	22.35	24.00	Complies
64	5320 MHz	17.65	17.43	17.51	22.30	24.00	Complies
100	5500 MHz	17.58	17.55	17.39	22.28	24.00	Complies
116	5580 MHz	17.55	17.46	17.44	22.25	24.00	Complies
140	5700 MHz	17.47	17.59	17.88	22.42	24.00	Complies

Note: Power Limit=4+10log(B) or17dBm;4+10log(19.84)=16.98dBm<17dBm,so 5180 MHz power Limit=16.98dBm.

Power Limit=4+10log(B) or17dBm;4+10log(19.84)=16.98dBm<17dBm,so 5240 MHz power Limit=16.98dBm.

4.4. Power Spectral Density Measurement

4.4.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	4
5.25-5.35 GHz	11
5.470-5.725 GHz	11

4.4.2. Measuring Instruments and Setting

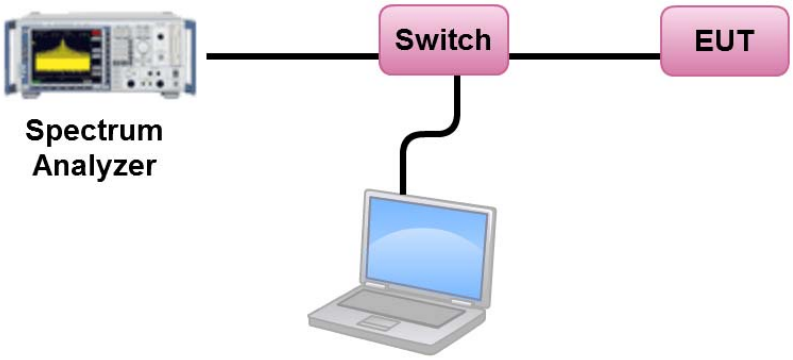
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB 789033 D01 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (C) Maximum conducted output power => (d) Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).
3. Multiple antenna systems was performed in accordance KDB 662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n
Test Date	Jan. 27, 2014		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.04	2.26	Complies
40	5200 MHz	2.21	2.26	Complies
48	5240 MHz	2.21	2.26	Complies
52	5260 MHz	9.06	9.26	Complies
60	5300 MHz	9.05	9.26	Complies
64	5320 MHz	8.53	9.26	Complies
100	5500 MHz	8.38	9.26	Complies
116	5580 MHz	9.04	9.26	Complies
140	5700 MHz	7.93	9.26	Complies

Note: Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band1 Limit =4-(7.74-6)=2.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band2 Limit =11-(7.74-6)=9.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band3 Limit =11-(7.74-6)=9.26dBm/MHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.48	2.26	Complies
46	5230 MHz	0.55	2.26	Complies
54	5270 MHz	7.58	9.26	Complies
62	5310 MHz	4.76	9.26	Complies
102	5510 MHz	4.89	9.26	Complies
110	5550 MHz	7.60	9.26	Complies
134	5670 MHz	6.78	9.26	Complies

Note: Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band1 Limit =4-(7.74-6)=2.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band2 Limit =11-(7.74-6)=9.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band3 Limit =11-(7.74-6)=9.26dBm/MHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-2.69	2.26	Complies
58	5290 MHz	-0.02	9.26	Complies
106	5530 MHz	-0.79	9.26	Complies

Note: Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band1 Limit =4-(7.74-6)=2.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band2 Limit =11-(7.74-6)=9.26dBm/MHz.

Directional gain=$10\log[(10^{G1/20}+10^{G2/20}+\ldots+10^{GN/20})^2/N_{ANT}]$=7.74dBi >6dBi,So Band3 Limit =11-(7.74-6)=9.26dBm/MHz.

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a
Test Date	Jan. 27, 2014		

Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.18	2.26	Complies
40	5200 MHz	2.14	2.26	Complies
48	5240 MHz	2.20	2.26	Complies
52	5260 MHz	9.16	9.26	Complies
60	5300 MHz	9.21	9.26	Complies
64	5320 MHz	9.16	9.26	Complies
100	5500 MHz	9.16	9.26	Complies
116	5580 MHz	9.10	9.26	Complies
140	5700 MHz	9.22	9.26	Complies

Note: Directional gain=GANT+10log(NANT/Nss)=7.74dBi >6dBi,So Band1 Limit =4-(7.74-6)=2.26dBm/MHz.

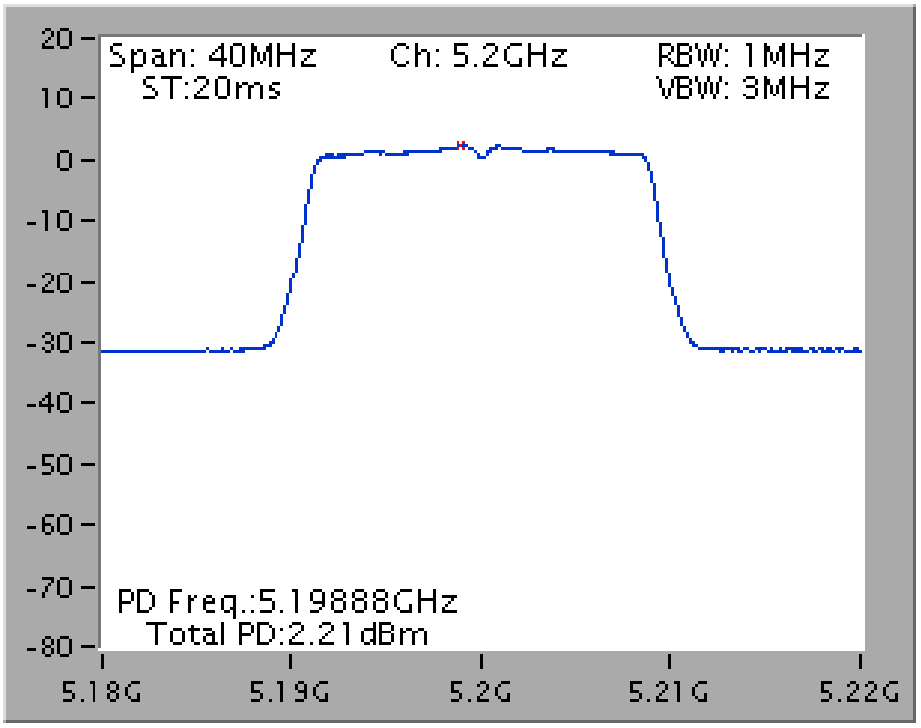
Directional gain=GANT+10log(NANT/Nss)=7.74dBi >6dBi,So Band2 Limit =11-(7.74-6)=9.26dBm/MHz.

Directional gain=GANT+10log(NANT/Nss)=7.74dBi >6dBi,So Band3 Limit =11-(7.74-6)=9.26dBm/MHz.

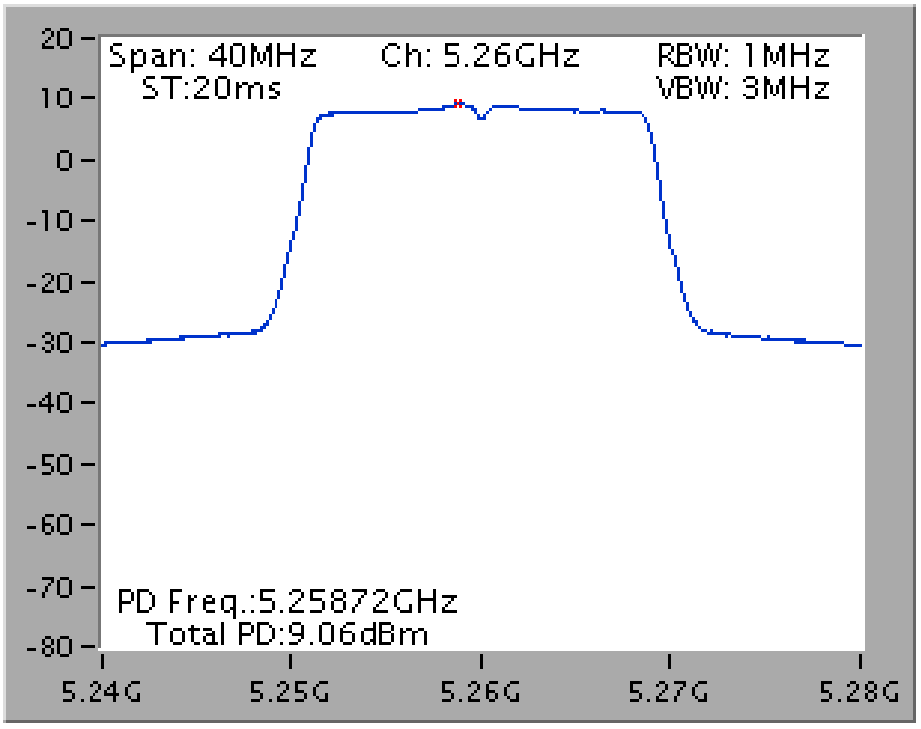
Note: All the test values were listed in the report.

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

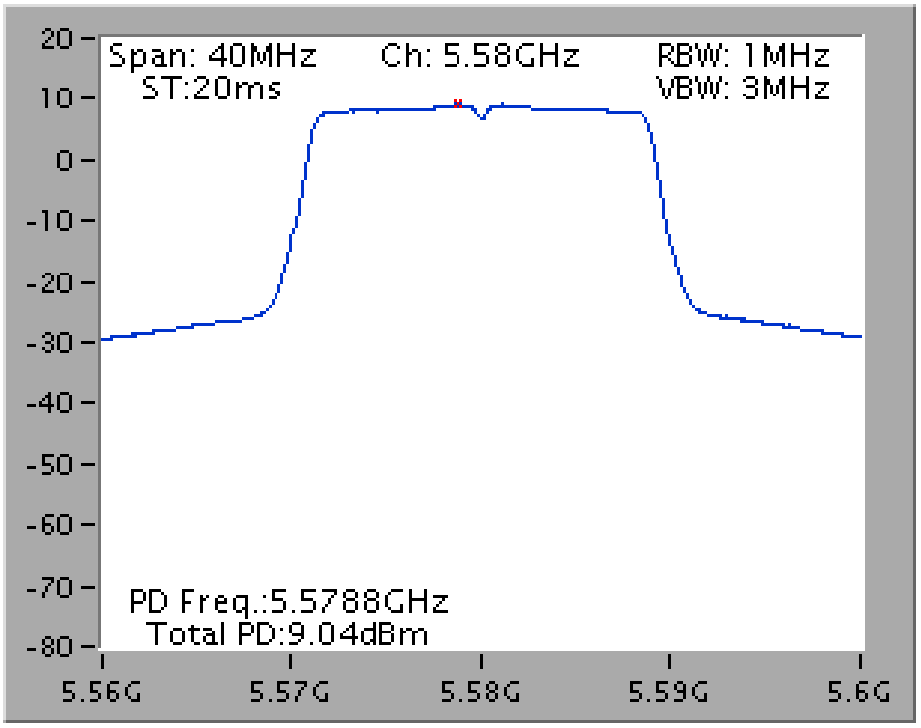
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5200 MHz



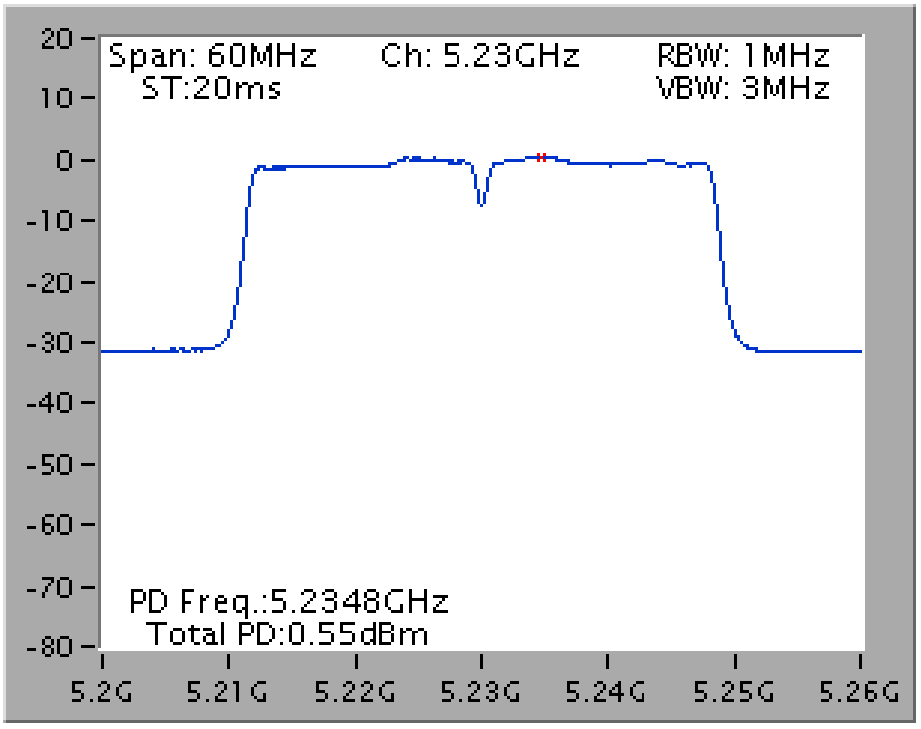
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5260 MHz



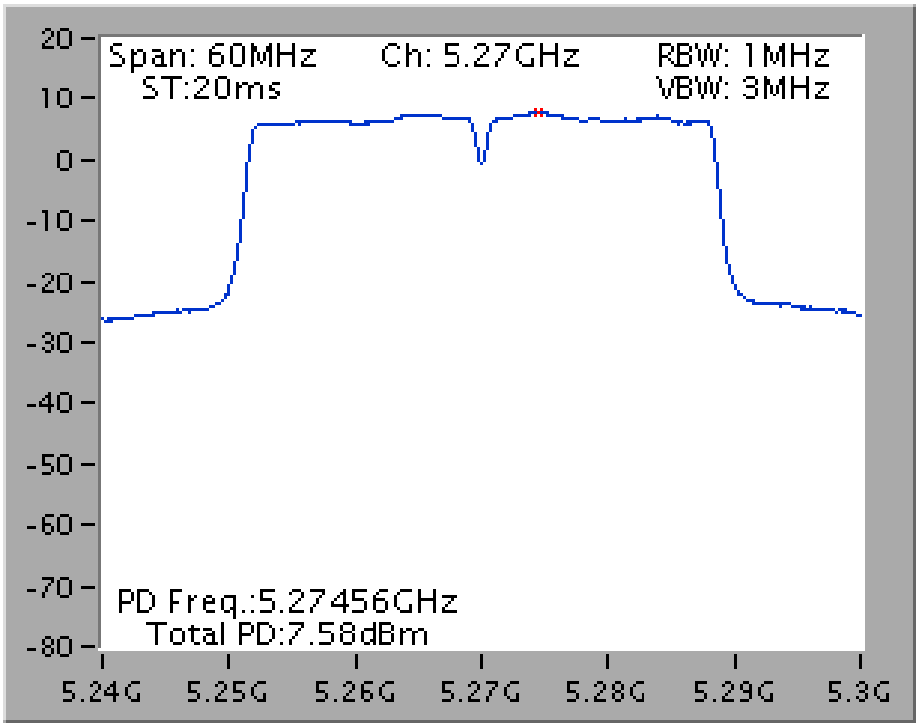
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 5580 MHz



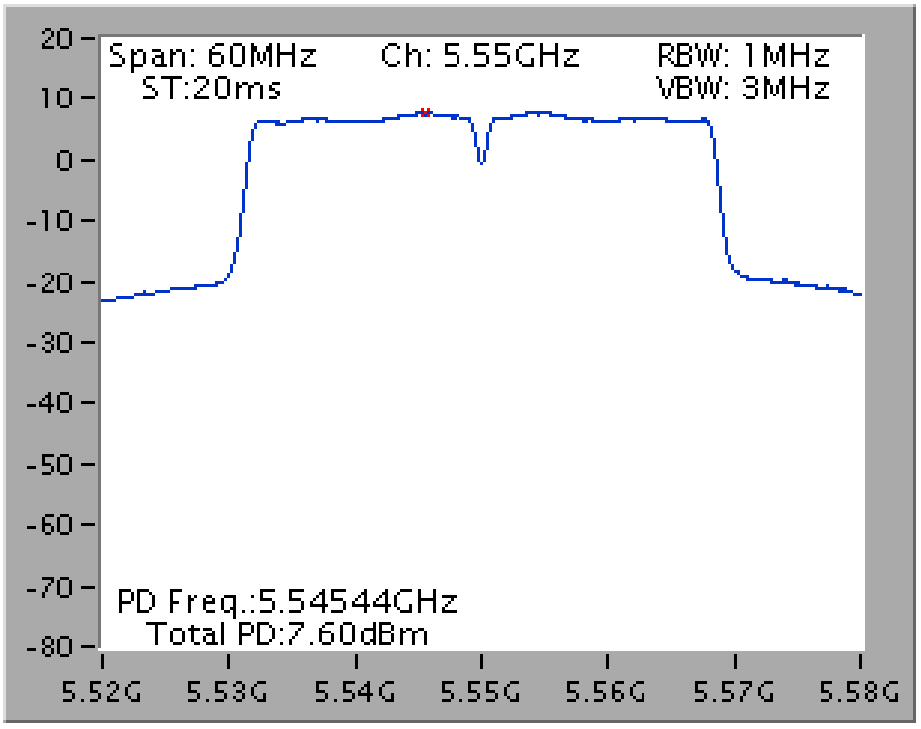
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5230 MHz



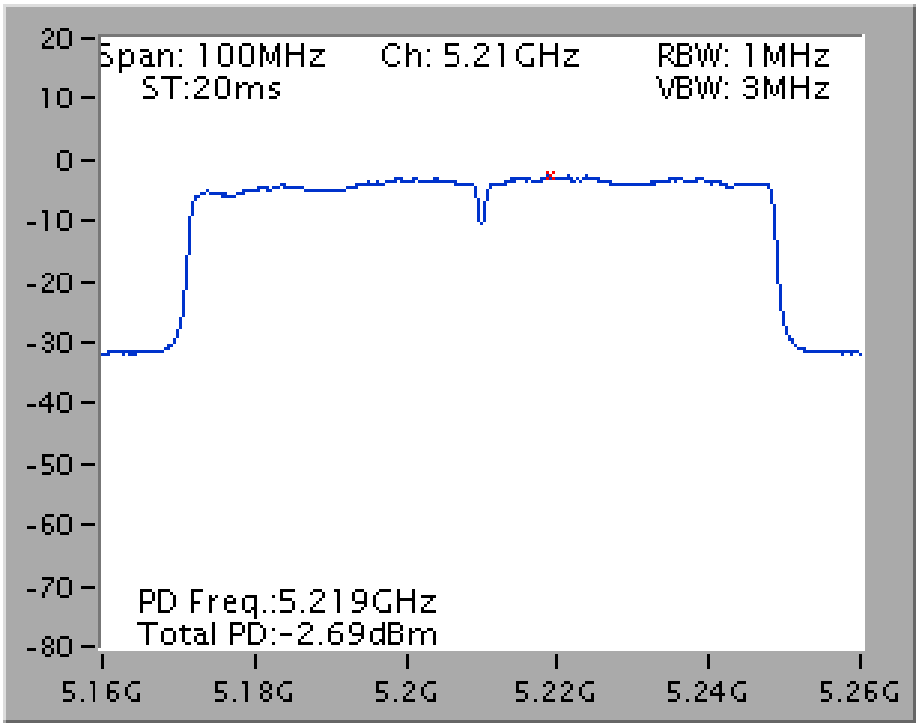
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5270 MHz



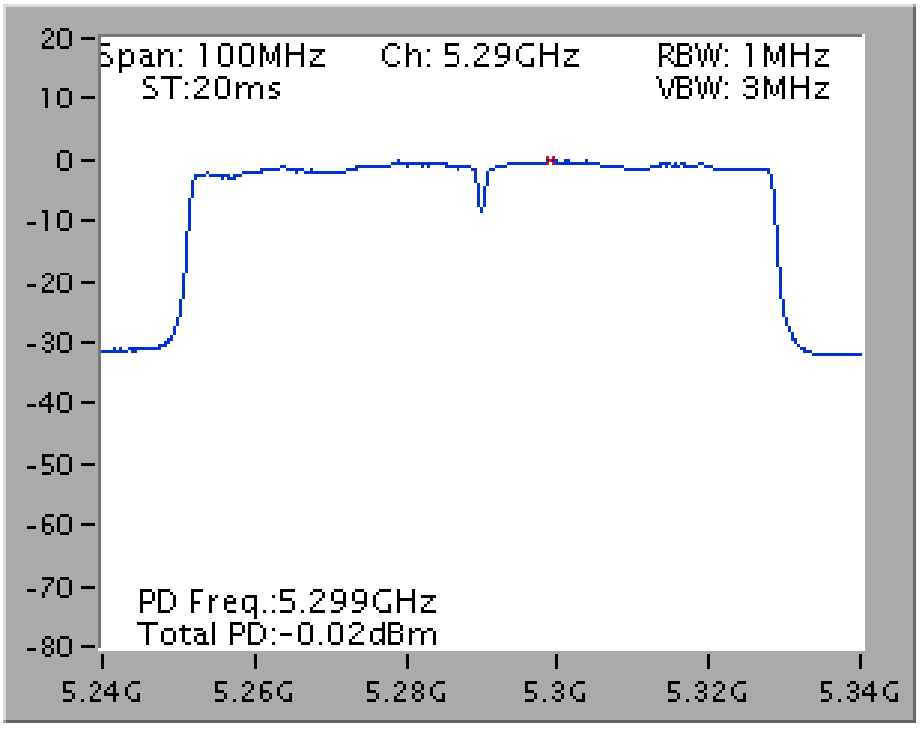
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 5550 MHz



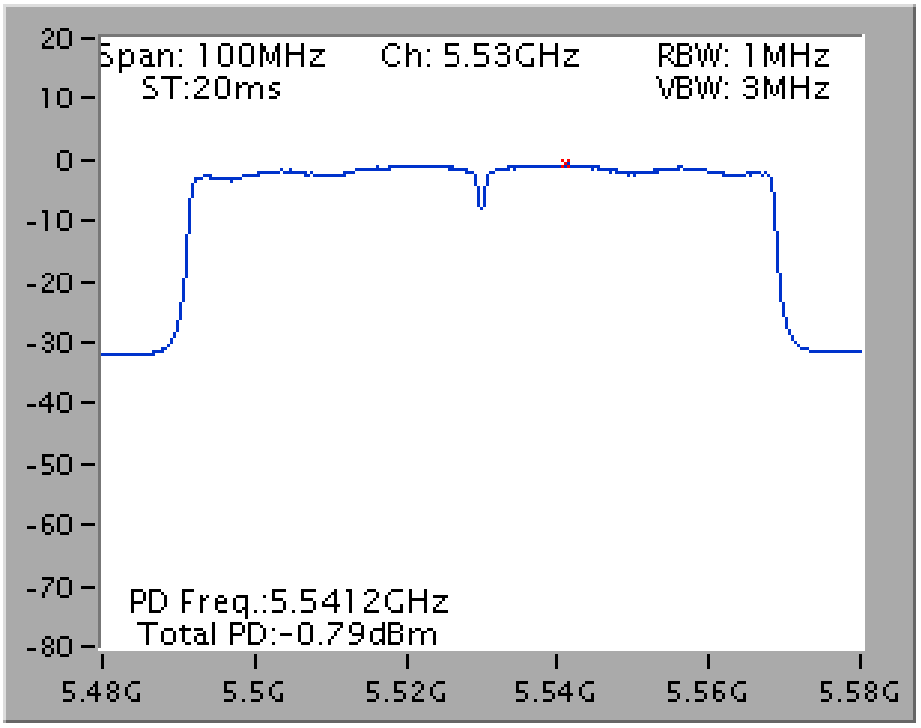
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 5210 MHz



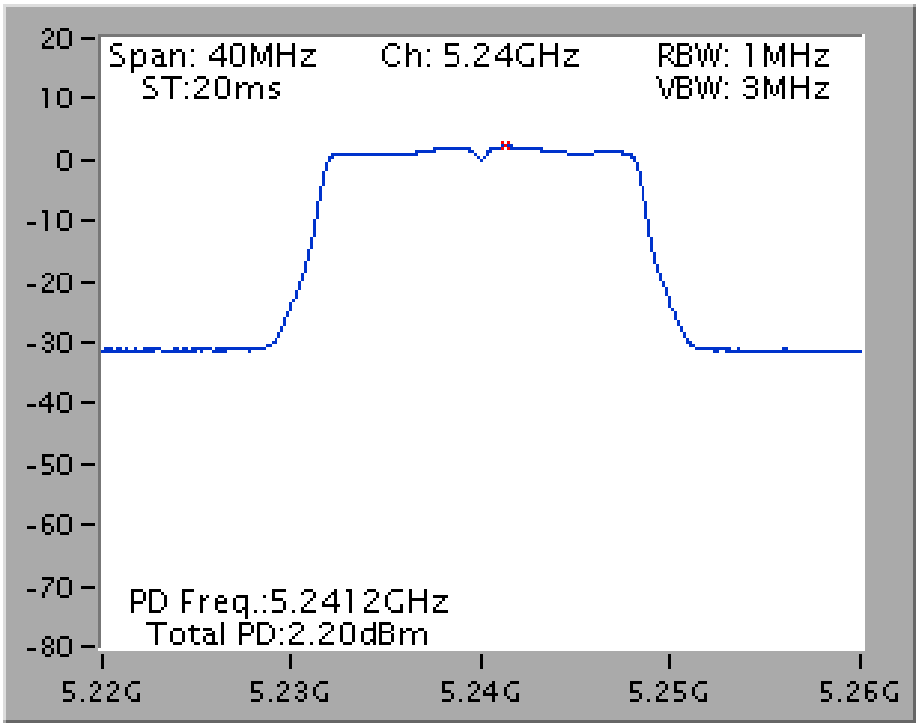
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. A + Ant. B / 5290 MHz



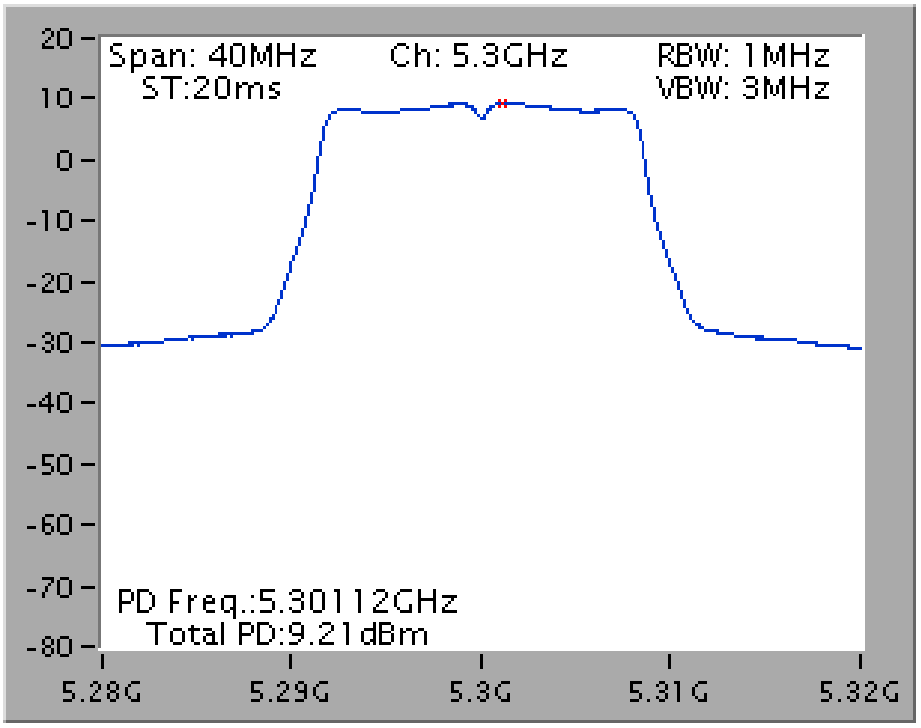
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 5530 MHz



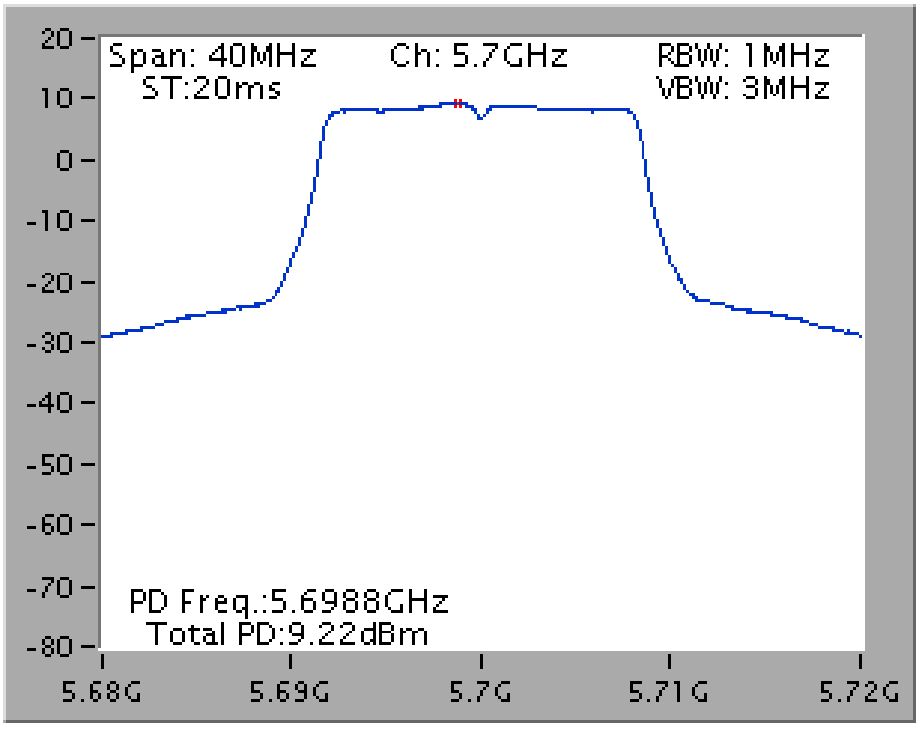
Power Density Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5240 MHz



Power Density Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5300 MHz



Power Density Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 5700 MHz



4.5. Peak Excursion Measurement

4.5.1. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.

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 the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1MHz (Peak Trace) / 1MHz (Average Trace)
VBW	≥ 3MHz (Peak Trace) / ≥ 3MHz (Average Trace)
Detector	Peak (Peak Trace) / RMS (Average Trace)
Trace	Trace: Max hold (Peak Trace) / Trace Average Sweep Count 100 (Average Trace)
Sweep Time	AUTO

4.5.3. Test Procedures

1. Trace A, Set RBW =1MHz, VBW = 3MHz, Span >26dB bandwidth, Max. hold.
2. Delta Mark trace A Maximum frequency and trace B same frequency.
3. Repeat the above procedure until measurements for all frequencies were complete.
4. Testing each modulation mode on a single channel in single operating band at single output port. All signal types need test (DSSS, OFDM). All modulation types need test (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM). All bandwidth modes need test.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.4.4.

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Peak Excursion

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac VHT20 / Ant. 3 + Ant. 4 + Ant. 5

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5240MHz	8.54	13	Complies
QPSK (MCS1)	5240MHz	9.29	13	Complies
16QAM (MCS3)	5240MHz	9.33	13	Complies
64QAM (MCS5)	5240MHz	9.84	13	Complies
256QAM (MCS8)	5240MHz	9.81	13	Complies
BPSK (MCS0)	5300MHz	8.25	13	Complies
QPSK (MCS1)	5300MHz	8.64	13	Complies
16QAM (MCS3)	5300MHz	8.99	13	Complies
64QAM (MCS5)	5300MHz	9.04	13	Complies
256QAM (MCS8)	5300MHz	9.63	13	Complies
BPSK (MCS0)	5580MHz	8.42	13	Complies
QPSK (MCS1)	5580MHz	8.99	13	Complies
16QAM (MCS3)	5580MHz	9.48	13	Complies
64QAM (MCS5)	5580MHz	8.93	13	Complies
256QAM (MCS8)	5580MHz	9.91	13	Complies

Configuration IEEE 802.11ac VHT40 / Ant. 3 + Ant. 4 + Ant. 5

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5230MHz	9.29	13	Complies
QPSK (MCS1)	5230MHz	10.06	13	Complies
16QAM (MCS3)	5230MHz	9.48	13	Complies
64QAM (MCS5)	5230MHz	9.36	13	Complies
256QAM (MCS8)	5230MHz	10.06	13	Complies
BPSK (MCS0)	5270MHz	8.91	13	Complies
QPSK (MCS1)	5270MHz	8.58	13	Complies
16QAM (MCS3)	5270MHz	9.24	13	Complies
64QAM (MCS5)	5270MHz	9.51	13	Complies
256QAM (MCS8)	5270MHz	9.64	13	Complies
BPSK (MCS0)	5550MHz	8.52	13	Complies
QPSK (MCS1)	5550MHz	9.00	13	Complies
16QAM (MCS3)	5550MHz	9.37	13	Complies
64QAM (MCS5)	5550MHz	9.09	13	Complies
256QAM (MCS8)	5550MHz	9.88	13	Complies

Configuration IEEE 802.11ac VHT80 / Ant. 3 + Ant. 4 + Ant. 5

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5210MHz	8.39	13	Complies
QPSK (MCS1)	5210MHz	9.19	13	Complies
16QAM (MCS3)	5210MHz	9.82	13	Complies
64QAM (MCS5)	5210MHz	9.63	13	Complies
256QAM (MCS8)	5210MHz	9.50	13	Complies
BPSK (MCS0)	5290MHz	9.20	13	Complies
QPSK (MCS1)	5290MHz	9.13	13	Complies
16QAM (MCS3)	5290MHz	9.48	13	Complies
64QAM (MCS5)	5290MHz	9.80	13	Complies
256QAM (MCS8)	5290MHz	10.17	13	Complies
BPSK (MCS0)	5530MHz	8.85	13	Complies
QPSK (MCS1)	5530MHz	9.05	13	Complies
16QAM (MCS3)	5530MHz	8.78	13	Complies
64QAM (MCS5)	5530MHz	8.96	13	Complies
256QAM (MCS8)	5530MHz	9.36	13	Complies

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a

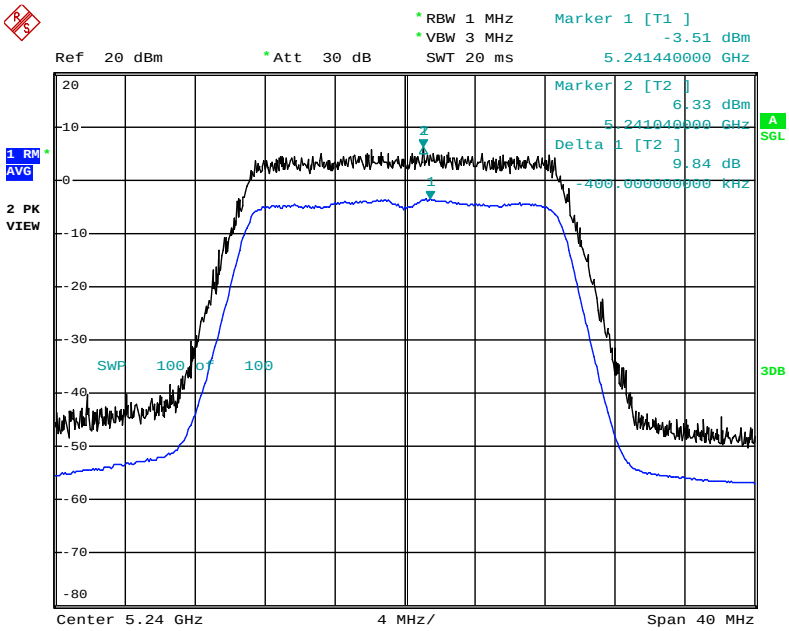
Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (6Mbps)	5180MHz	8.64	13	Complies
QPSK (12Mbps)	5180MHz	8.82	13	Complies
16QAM (24Mbps)	5180MHz	8.55	13	Complies
64QAM (48Mbps)	5180MHz	8.94	13	Complies
BPSK (6Mbps)	5300MHz	8.58	13	Complies
QPSK (12Mbps)	5300MHz	8.58	13	Complies
16QAM (24Mbps)	5300MHz	8.61	13	Complies
64QAM (48Mbps)	5300MHz	9.05	13	Complies
BPSK (6Mbps)	5700MHz	8.26	13	Complies
QPSK (12Mbps)	5700MHz	8.77	13	Complies
16QAM (24Mbps)	5700MHz	8.31	13	Complies
64QAM (48Mbps)	5700MHz	8.65	13	Complies

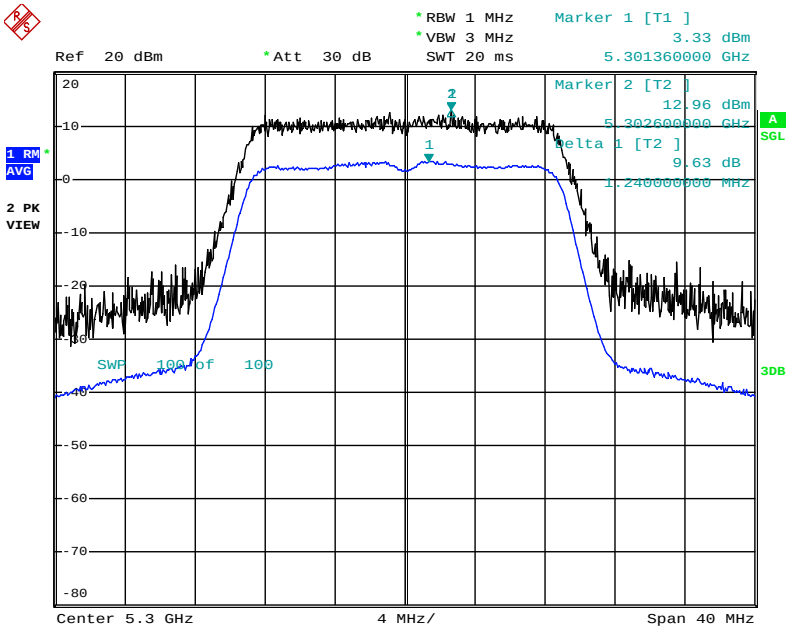
Note: All the test values were listed in the report.

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

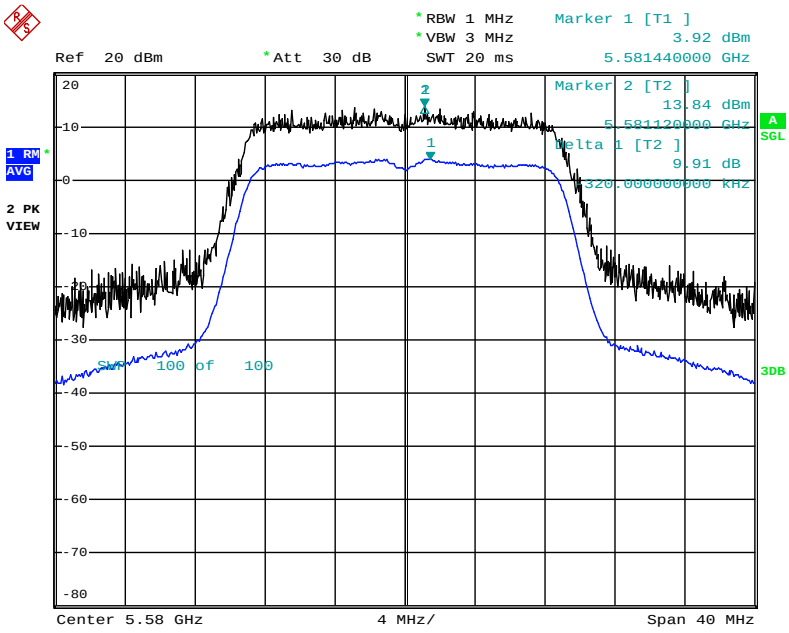
Peak Excursion Plot on Configuration IEEE 802.11ac VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 64QAM (MCS5) / 5240 MHz



Peak Excursion Plot on Configuration IEEE 802.11ac VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5300 MHz

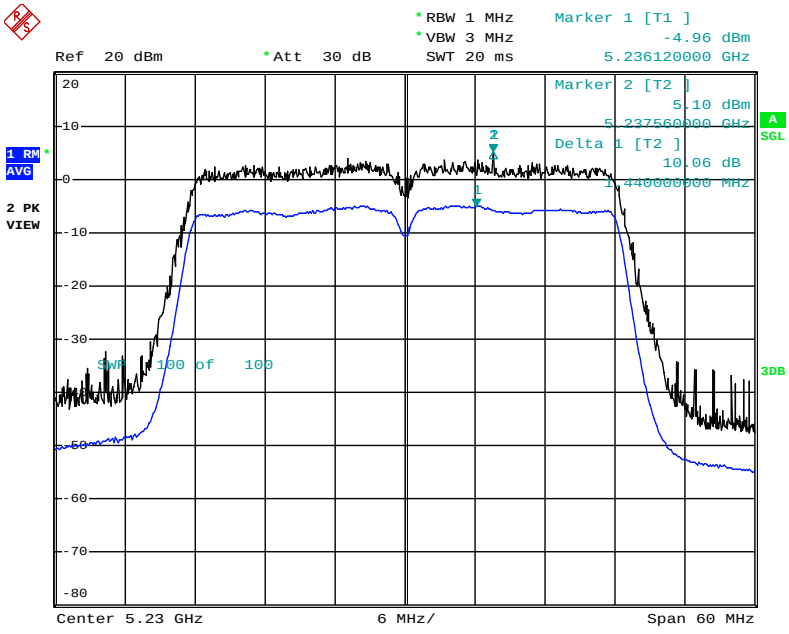


Peak Excursion Plot on Configuration IEEE 802.11ac VHT20 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5580 MHz



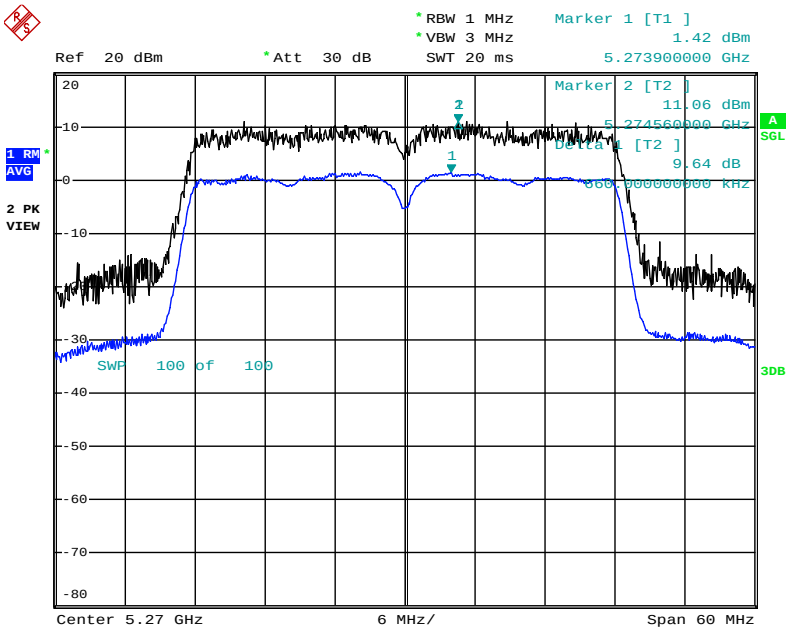
Date: 28.JAN.2014 02:25:28

Peak Excursion Plot on Configuration IEEE 802.11ac VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / QPSK (MCS1) / 5230 MHz



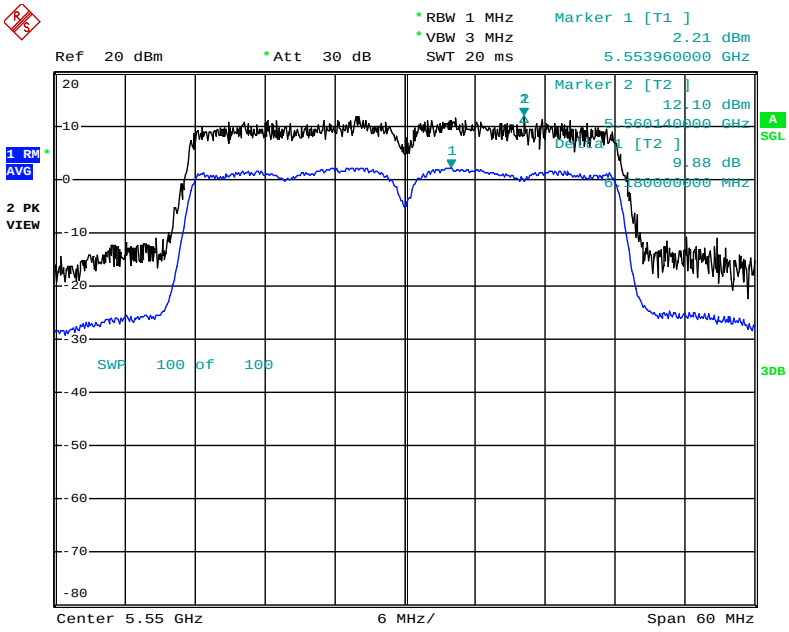
Date: 28.JAN.2014 01:34:21

Peak Excursion Plot on Configuration IEEE 802.11ac VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5270 MHz



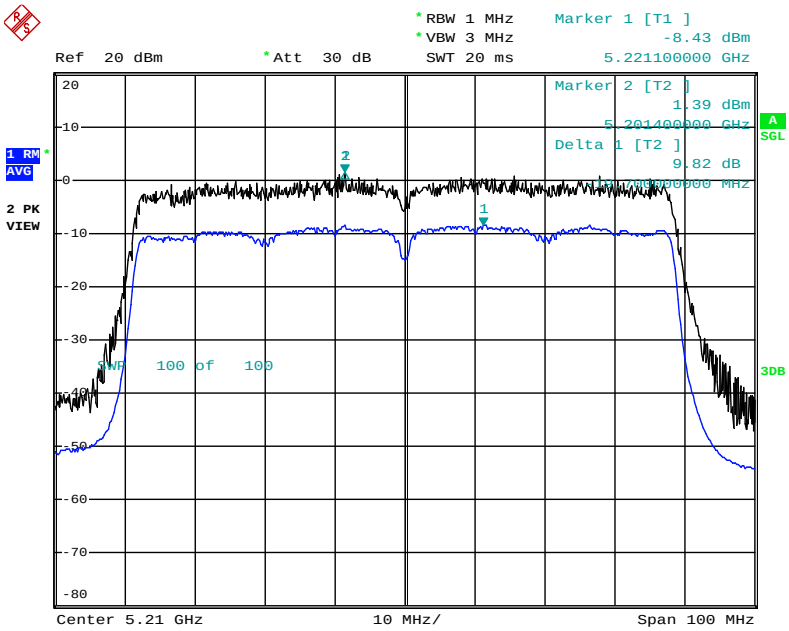
Date: 28.JAN.2014 01:37:39

Peak Excursion Plot on Configuration IEEE 802.11ac VHT40 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5550 MHz



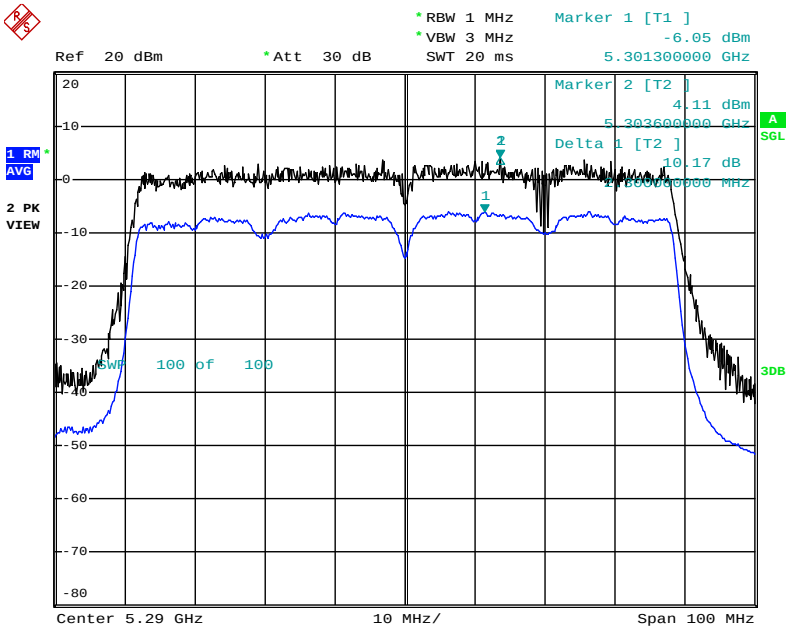
Date: 28.JAN.2014 01:44:25

Peak Excursion Plot on Configuration IEEE 802.11ac VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 16QAM (MCS3) / 5210 MHz



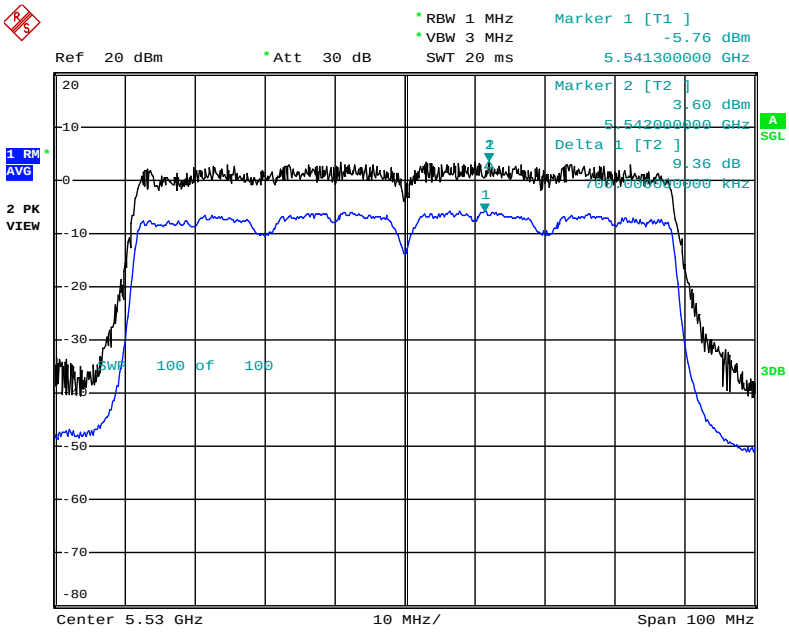
Date: 28.JAN.2014 01:58:44

Peak Excursion Plot on Configuration IEEE 802.11ac VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5290 MHz



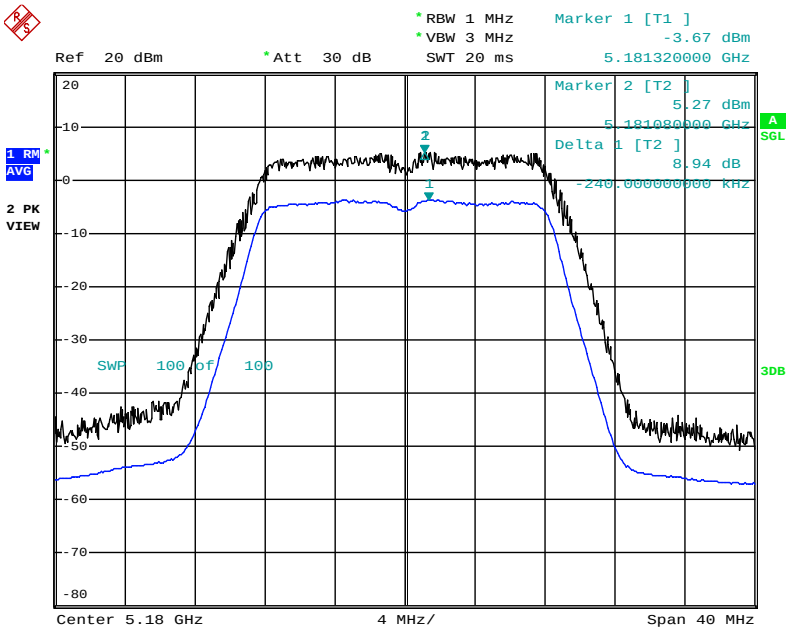
Date: 28.JAN.2014 02:02:22

Peak Excursion Plot on Configuration IEEE 802.11ac VHT80 / Ant. 3 + Ant. 4 + Ant. 5 / 256QAM (MCS8) / 5530 MHz



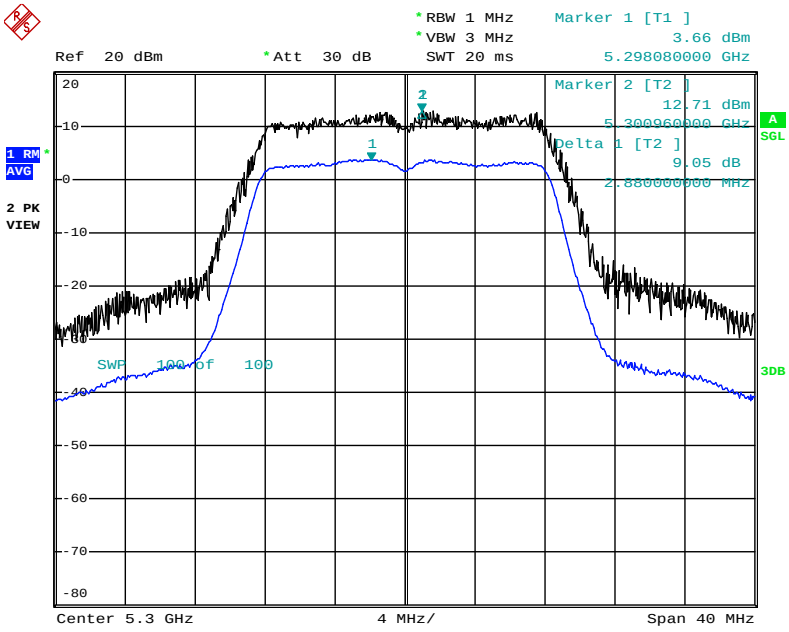
Date: 28.JAN.2014 02:08:38

Peak Excursion Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 64QAM (48Mbps) / 5180 MHz



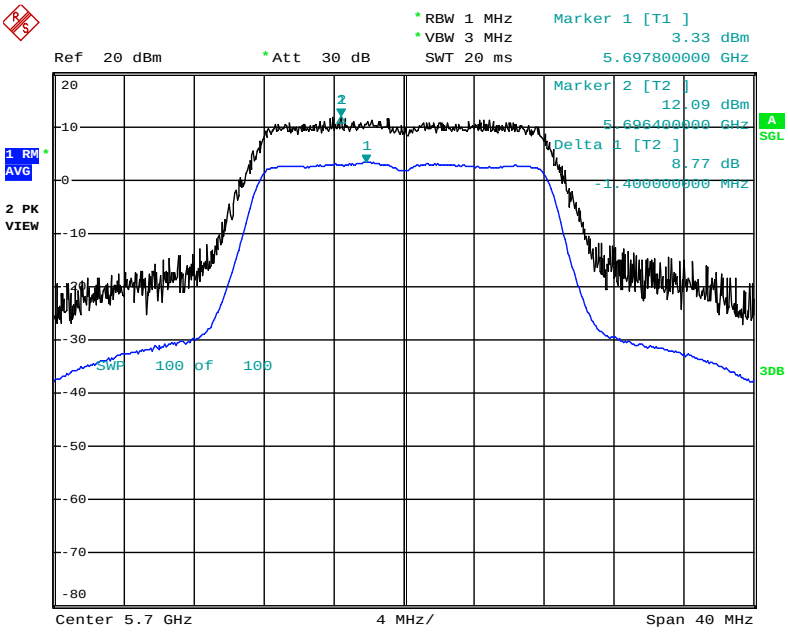
Date: 28.JAN.2014 02:12:24

Peak Excursion Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / 64QAM (48Mbps) / 5300 MHz



Date: 28.JAN.2014 02:13:17

Peak Excursion Plot on Configuration IEEE 802.11a / Ant. 3 + Ant. 4 + Ant. 5 / QPSK (12Mbps) / 5700 MHz



Date: 28.JAN.2014 01:16:16

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. In addition, 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 spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

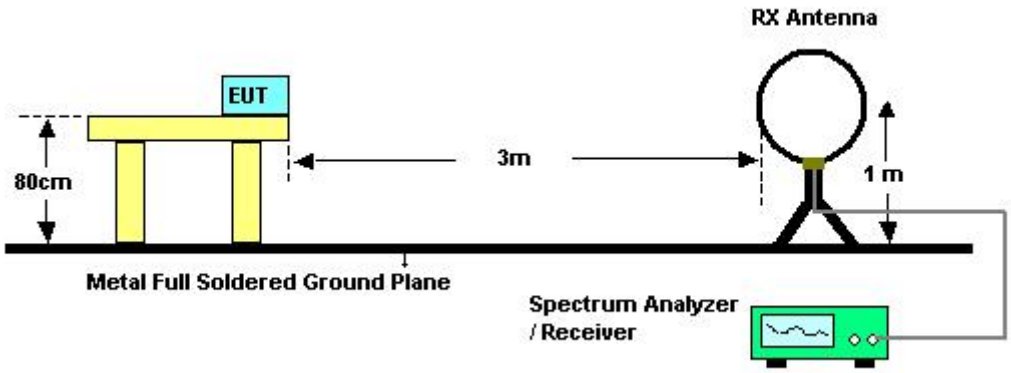
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

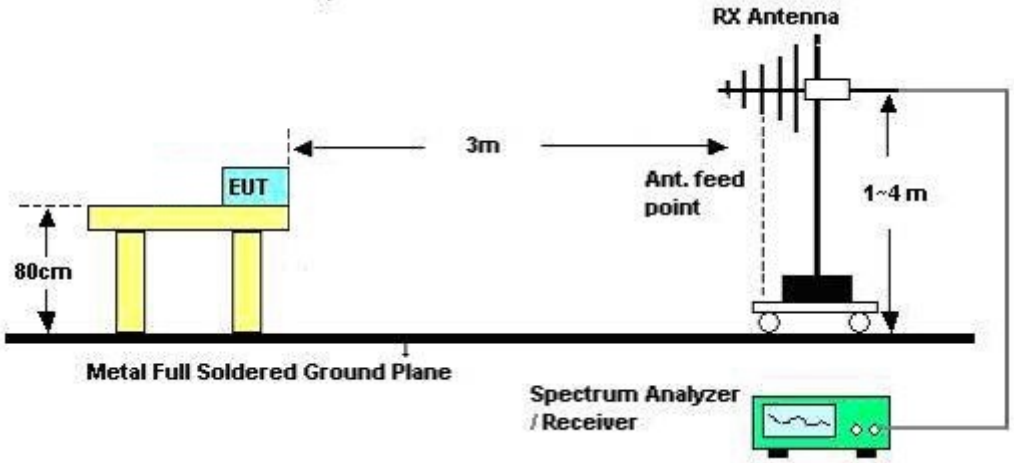
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

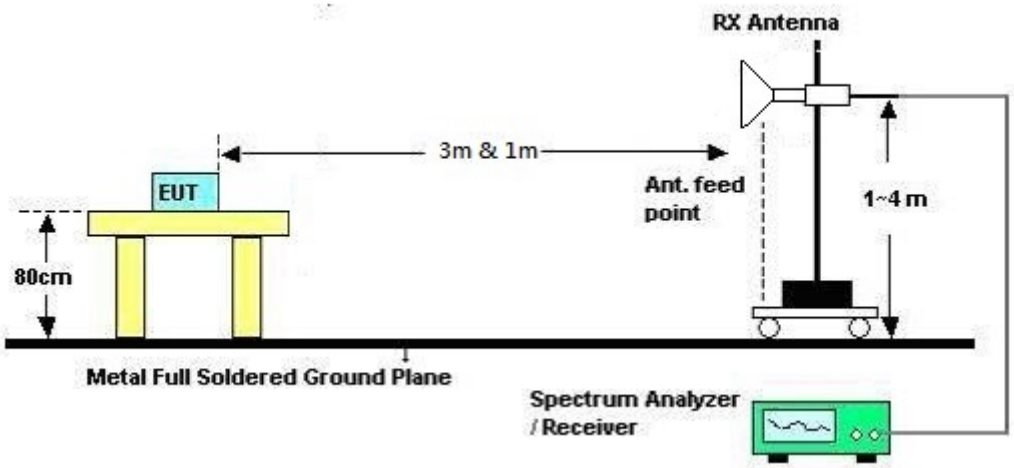
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	Normal Link
Test Date	Oct. 24, 2013	Test Mode	Mode 3

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 20dB below the permissible value has no need to be reported.

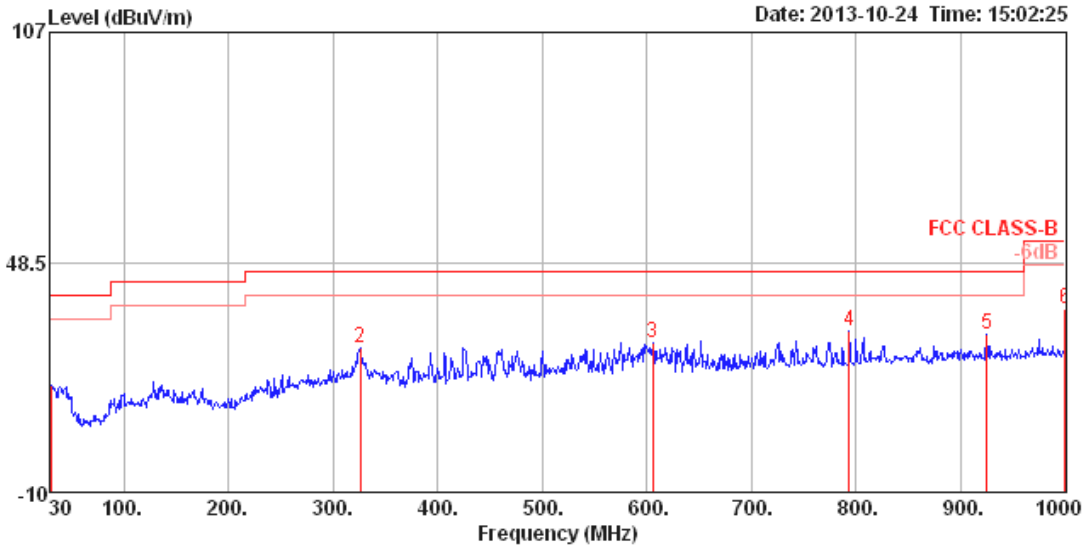
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

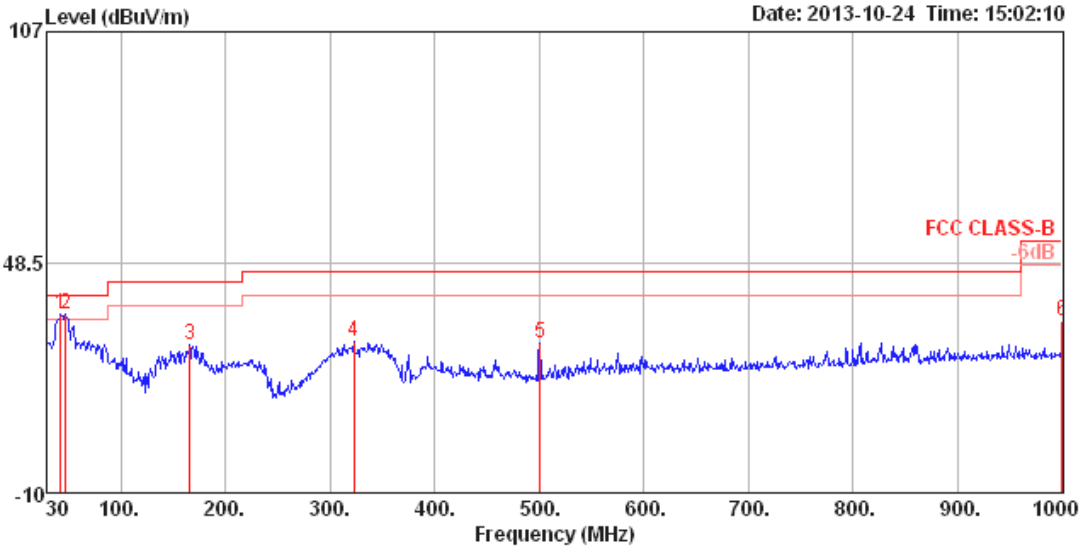
Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	17.36	40.00	-22.64	30.55	0.64	17.98	31.81	300	57	HORIZONTAL	Peak
2	325.85	26.51	46.00	-19.49	42.01	2.23	13.69	31.42	100	188	HORIZONTAL	Peak
3	605.21	27.96	46.00	-18.04	37.66	3.14	18.44	31.28	150	142	HORIZONTAL	Peak
4	793.39	30.90	46.00	-15.10	38.78	3.66	19.75	31.29	100	159	HORIZONTAL	Peak
5	925.31	29.96	46.00	-16.04	36.41	4.02	20.69	31.16	100	359	HORIZONTAL	Peak
6	1000.00	36.53	54.00	-17.47	42.06	4.21	21.44	31.18	125	221	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	42.61	35.44	40.00	-4.56	55.76	0.77	10.76	31.85	100	69	VERTICAL	Peak
2	47.46	35.40	40.00	-4.60	57.77	0.82	8.62	31.81	100	158	VERTICAL	Peak
3	165.80	27.64	43.50	-15.86	48.24	1.56	9.38	31.54	100	37	VERTICAL	Peak
4	322.94	28.24	46.00	-17.76	43.81	2.21	13.63	31.41	200	57	VERTICAL	Peak
5	500.45	27.91	46.00	-18.09	39.58	2.82	16.92	31.41	100	229	VERTICAL	Peak
6	1000.00	33.54	54.00	-20.46	39.07	4.21	21.44	31.18	150	18	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.

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10360.48	66.40	74.00	-7.60	58.68	4.97	38.37	35.62	Peak	123	293	HORIZONTAL
2	10360.96	50.85	54.00	-3.15	43.13	4.97	38.37	35.62	Average	123	293	HORIZONTAL
3	15532.72	51.62	74.00	-22.38	43.11	6.13	37.67	35.29	Peak	100	96	HORIZONTAL
4	15543.88	38.17	54.00	-15.83	29.70	6.13	37.65	35.31	Average	100	96	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	10357.05	63.25	74.00	-10.75	55.53	4.97	38.37	35.62	Peak	133	40	VERTICAL
2	10357.53	47.67	54.00	-6.33	39.95	4.97	38.37	35.62	Average	133	40	VERTICAL
3	15540.00	38.05	54.00	-15.95	29.54	6.13	37.69	35.31	Average	100	347	VERTICAL
4	15540.19	51.33	74.00	-22.67	42.82	6.13	37.69	35.31	Peak	100	347	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15599.65	41.59	54.00	-12.41	33.20	6.13	37.60	35.34	Average	100	312	HORIZONTAL
2	15600.06	53.99	74.00	-20.01	45.60	6.13	37.60	35.34	Peak	100	312	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	15590.64	50.97	74.00	-23.03	42.58	6.13	37.60	35.34	Peak	100	283	VERTICAL
2	15600.38	39.18	54.00	-14.82	30.79	6.13	37.60	35.34	Average	100	283	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15719.41	57.01	74.00	-16.99	48.78	6.14	37.48	35.39	Peak	100	313	HORIZONTAL
2	15719.78	44.18	54.00	-9.82	35.95	6.14	37.48	35.39	Average	100	313	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	15719.28	42.13	54.00	-11.87	33.90	6.14	37.48	35.39	Average	100	0	VERTICAL
2	15719.46	54.64	74.00	-19.36	46.41	6.14	37.48	35.39	Peak	100	0	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15779.73	56.71	74.00	-17.29	48.58	6.14	37.41	35.42	Peak	101	313	HORIZONTAL
2	15779.73	44.07	54.00	-9.93	35.94	6.14	37.41	35.42	Average	101	313	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	15777.48	41.27	54.00	-12.73	33.14	6.14	37.41	35.42	Average	101	39	VERTICAL
2	15778.01	53.96	74.00	-20.04	45.83	6.14	37.41	35.42	Peak	101	39	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10596.15	49.36	54.00	-4.64	41.41	5.01	38.38	35.44	Average	121	270	HORIZONTAL
2	10596.15	63.92	74.00	-10.08	55.97	5.01	38.38	35.44	Peak	121	270	HORIZONTAL
3	15890.83	36.76	54.00	-17.24	28.75	6.15	37.30	35.44	Average	100	141	HORIZONTAL
4	15902.05	50.70	74.00	-23.30	42.70	6.15	37.29	35.44	Peak	100	141	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	10600.67	59.27	74.00	-14.73	51.30	5.01	38.38	35.42	Peak	126	46	VERTICAL
2	10600.87	44.93	54.00	-9.07	36.96	5.01	38.38	35.42	Average	126	46	VERTICAL
3	15900.71	50.66	74.00	-23.34	42.66	6.15	37.29	35.44	Peak	100	282	VERTICAL
4	15905.26	36.72	54.00	-17.28	28.72	6.15	37.29	35.44	Average	100	282	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10640.54	48.39	54.00	-5.61	40.40	5.01	38.37	35.39	Average	121	271	HORIZONTAL
2	10645.87	63.05	74.00	-10.95	55.06	5.01	38.37	35.39	Peak	121	271	HORIZONTAL
3	15955.45	37.83	54.00	-16.17	29.89	6.15	37.23	35.44	Average	100	15	HORIZONTAL
4	15962.79	50.12	74.00	-23.88	42.18	6.15	37.23	35.44	Peak	100	15	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	10638.33	42.88	54.00	-11.12	34.89	5.01	38.37	35.39	Average	100	200	VERTICAL
2	10643.27	58.03	74.00	-15.97	50.04	5.01	38.37	35.39	Peak	100	200	VERTICAL
3	15956.57	37.84	54.00	-16.16	29.90	6.15	37.23	35.44	Average	100	345	VERTICAL
4	15964.36	51.12	74.00	-22.88	43.19	6.15	37.22	35.44	Peak	100	345	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11001.70	43.36	54.00	-10.64	35.13	5.01	38.32	35.10	Average	119	293	HORIZONTAL
2	11005.87	58.52	74.00	-15.48	50.29	5.01	38.33	35.11	Peak	119	293	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	10998.40	41.18	54.00	-12.82	32.97	5.01	38.30	35.10	Average	129	41	VERTICAL
2	11005.87	54.25	74.00	-19.75	46.03	5.01	38.32	35.11	Peak	129	41	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11161.22	50.01	54.00	-3.99	41.67	5.04	38.47	35.17	Average	118	269	HORIZONTAL
2	11161.33	65.25	74.00	-8.75	56.91	5.04	38.47	35.17	Peak	118	269	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	11161.52	47.84	54.00	-6.16	39.50	5.04	38.47	35.17	Average	100	137	VERTICAL
2	11161.68	60.42	74.00	-13.58	52.08	5.04	38.47	35.17	Peak	100	137	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11401.41	39.95	54.00	-14.05	31.40	5.10	38.70	35.25	Average	126	214	HORIZONTAL
2	11405.64	54.16	74.00	-19.84	45.61	5.10	38.70	35.25	Peak	126	214	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	11402.12	36.53	54.00	-17.47	27.98	5.10	38.70	35.25	Average	100	243	VERTICAL
2	11402.18	50.32	74.00	-23.68	41.77	5.10	38.70	35.25	Peak	100	243	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15573.69	36.53	54.00	-17.47	28.12	6.13	37.61	35.33	Average	100	305	HORIZONTAL
2	15575.45	50.16	74.00	-23.84	41.75	6.13	37.61	35.33	Peak	100	305	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	15568.56	50.22	74.00	-23.78	41.77	6.13	37.65	35.33	Peak	100	160	VERTICAL
2	15577.37	36.39	54.00	-17.61	27.98	6.13	37.61	35.33	Average	100	160	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15690.00	37.80	54.00	-16.20	29.52	6.14	37.51	35.37	Average	100	313	HORIZONTAL
2	15699.29	51.12	74.00	-22.88	42.87	6.14	37.49	35.38	Peak	100	313	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	15674.94	36.46	54.00	-17.54	28.18	6.14	37.51	35.37	Average	100	110	VERTICAL
2	15696.01	50.25	74.00	-23.75	42.00	6.14	37.49	35.38	Peak	100	110	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15785.72	35.66	54.00	-18.34	27.53	6.14	37.41	35.42	Average	100	293	HORIZONTAL
2	15805.99	49.54	74.00	-24.46	41.44	6.14	37.39	35.43	Peak	100	293	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	15789.57	35.60	54.00	-18.40	27.47	6.14	37.41	35.42	Average	100	122	VERTICAL
2	15814.33	49.16	74.00	-24.84	41.08	6.14	37.37	35.43	Peak	100	122	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10612.15	52.70	74.00	-21.30	44.73	5.01	38.38	35.42	Peak	100	138	HORIZONTAL
2	10617.18	39.31	54.00	-14.69	31.34	5.01	38.38	35.42	Average	100	138	HORIZONTAL
3	15929.39	49.87	74.00	-24.13	41.89	6.15	37.27	35.44	Peak	100	259	HORIZONTAL
4	15939.55	35.51	54.00	-18.49	27.55	6.15	37.25	35.44	Average	100	259	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	10618.65	38.84	54.00	-15.16	30.87	5.01	38.38	35.42	Average	100	335	VERTICAL
2	10618.97	53.11	74.00	-20.89	45.14	5.01	38.38	35.42	Peak	100	335	VERTICAL
3	15922.40	50.71	74.00	-23.29	42.73	6.15	37.27	35.44	Peak	100	180	VERTICAL
4	15939.58	35.47	54.00	-18.53	27.51	6.15	37.25	35.44	Average	100	180	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11016.79	54.58	74.00	-19.42	46.34	5.02	38.33	35.11	Peak	127	136	HORIZONTAL
2	11021.63	39.85	54.00	-14.15	31.61	5.02	38.33	35.11	Average	127	136	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	11012.44	49.09	74.00	-24.91	40.86	5.02	38.32	35.11	Peak	100	321	VERTICAL
2	11014.94	35.65	54.00	-18.35	27.42	5.02	38.32	35.11	Average	100	321	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11098.43	42.92	54.00	-11.08	34.63	5.03	38.40	35.14	Average	119	239	HORIZONTAL
2	11103.40	57.26	74.00	-16.74	48.97	5.03	38.40	35.14	Peak	119	239	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11093.56	38.60	54.00	-15.40	30.31	5.03	38.40	35.14	Average	100	46	VERTICAL
2	11098.65	52.24	74.00	-21.76	43.95	5.03	38.40	35.14	Peak	100	46	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11336.41	39.36	54.00	-14.64	30.89	5.08	38.63	35.24	Average	100	226	HORIZONTAL
2	11341.25	53.44	74.00	-20.56	44.96	5.09	38.63	35.24	Peak	100	226	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	11338.88	37.96	54.00	-16.04	29.49	5.08	38.63	35.24	Average	100	167	VERTICAL
2	11343.65	52.07	74.00	-21.93	43.59	5.09	38.63	35.24	Peak	100	167	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	16541.15	50.82	74.00	-23.18	40.86	6.25	38.66	34.95	Peak	100	328	HORIZONTAL
2	16549.87	37.29	54.00	-16.71	27.25	6.25	38.74	34.95	Average	100	328	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	16549.97	36.29	54.00	-17.71	26.24	6.25	38.75	34.95	Average	100	197	VERTICAL
2	16550.77	51.07	74.00	-22.93	41.02	6.25	38.75	34.95	Peak	100	197	VERTICAL

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15864.20	35.59	54.00	-18.41	27.58	6.14	37.32	35.45	Average	100	216	HORIZONTAL
2	15867.05	50.10	74.00	-23.90	42.09	6.14	37.32	35.45	Peak	100	216	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15860.54	49.72	74.00	-24.28	41.69	6.14	37.34	35.45	Peak	100	134	VERTICAL
2	15864.20	35.55	54.00	-18.45	27.54	6.14	37.32	35.45	Average	100	134	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 18, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11060.03	35.76	54.00	-18.24	27.49	5.03	38.37	35.13	Average	100	327	HORIZONTAL
2	11069.65	48.41	74.00	-25.59	40.14	5.03	38.37	35.13	Peak	100	327	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	11055.38	48.78	74.00	-25.22	40.53	5.02	38.35	35.12	Peak	100	121	VERTICAL
2	11069.81	34.62	54.00	-19.38	26.35	5.03	38.37	35.13	Average	100	121	VERTICAL

Note:

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

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

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

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 36 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15539.66	40.15	54.00	-13.85	31.68	6.13	37.65	35.31	Average	100	313	HORIZONTAL
2	15539.97	53.26	74.00	-20.74	44.79	6.13	37.65	35.31	Peak	100	313	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	15537.48	38.28	54.00	-15.72	29.71	6.13	37.73	35.29	Average	100	86	VERTICAL
2	15544.90	51.35	74.00	-22.65	42.84	6.13	37.69	35.31	Peak	100	86	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 40 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15598.96	54.48	74.00	-19.52	46.09	6.13	37.60	35.34	Peak	100	312	HORIZONTAL
2	15599.63	41.60	54.00	-12.40	33.21	6.13	37.60	35.34	Average	100	312	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	15598.86	38.99	54.00	-15.01	30.60	6.13	37.60	35.34	Average	100	41	VERTICAL
2	15601.54	50.62	74.00	-23.38	42.23	6.13	37.60	35.34	Peak	100	41	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 48 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15719.20	58.14	74.00	-15.86	49.91	6.14	37.48	35.39	Peak	100	313	HORIZONTAL
2	15719.71	43.51	54.00	-10.49	35.28	6.14	37.48	35.39	Average	100	313	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	15718.46	52.33	74.00	-21.67	44.10	6.14	37.48	35.39	Peak	100	270	VERTICAL
2	15719.02	40.79	54.00	-13.21	32.56	6.14	37.48	35.39	Average	100	270	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 52 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15779.26	43.95	54.00	-10.05	35.82	6.14	37.41	35.42	Average	100	313	HORIZONTAL
2	15779.29	57.94	74.00	-16.06	49.81	6.14	37.41	35.42	Peak	100	313	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	15778.97	42.58	54.00	-11.42	34.45	6.14	37.41	35.42	Average	100	1	VERTICAL
2	15779.18	56.80	74.00	-17.20	48.67	6.14	37.41	35.42	Peak	100	1	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 60 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10601.94	50.72	54.00	-3.28	42.75	5.01	38.38	35.42	Average	104	81	HORIZONTAL
2	10602.48	64.31	74.00	-9.69	56.34	5.01	38.38	35.42	Peak	104	81	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	10600.38	63.81	74.00	-10.19	55.84	5.01	38.38	35.42	Peak	124	38	VERTICAL
2	10601.00	48.04	54.00	-5.96	40.07	5.01	38.38	35.42	Average	124	38	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 64 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10639.89	50.81	54.00	-3.19	42.82	5.01	38.37	35.39	Average	118	88	HORIZONTAL
2	10640.29	65.49	74.00	-8.51	57.50	5.01	38.37	35.39	Peak	118	88	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	10641.94	47.29	54.00	-6.71	39.30	5.01	38.37	35.39	Average	100	35	VERTICAL
2	10642.10	60.67	74.00	-13.33	52.68	5.01	38.37	35.39	Peak	100	35	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 100 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10996.44	48.07	54.00	-5.93	39.84	5.01	38.32	35.10	Average	117	287	HORIZONTAL
2	10997.26	61.06	74.00	-12.94	52.83	5.01	38.32	35.10	Peak	117	287	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	10997.00	46.07	54.00	-7.93	37.86	5.01	38.30	35.10	Average	117	178	VERTICAL
2	10997.02	59.96	74.00	-14.04	51.75	5.01	38.30	35.10	Peak	117	178	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 116 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11156.49	48.83	54.00	-5.17	40.50	5.04	38.45	35.16	Average	117	271	HORIZONTAL
2	11157.07	63.13	74.00	-10.87	54.80	5.04	38.45	35.16	Peak	117	271	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	11156.07	59.06	74.00	-14.94	50.73	5.04	38.45	35.16	Peak	100	137	VERTICAL
2	11156.14	46.54	54.00	-7.46	38.21	5.04	38.45	35.16	Average	100	137	VERTICAL

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 140 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11395.13	43.01	54.00	-10.99	34.48	5.10	38.68	35.25	Average	113	242	HORIZONTAL
2	11404.04	55.67	74.00	-18.33	47.12	5.10	38.70	35.25	Peak	113	242	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	11397.55	39.93	54.00	-14.07	31.38	5.10	38.70	35.25	Average	100	173	VERTICAL
2	11398.29	53.14	74.00	-20.86	44.59	5.10	38.70	35.25	Peak	100	173	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.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. In addition, 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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3, only the frequency range investigated is limited to 100MHz around bandedges.

4.7.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.6.4.

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013 ~ Nov. 15, 2013		

Channel 36

	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	5098.72	50.44	54.00	-3.56	13.44	3.42	33.58	0.00	Average	164	267	HORIZONTAL
2	5150.00	63.54	74.00	-10.46	26.44	3.43	33.67	0.00	Peak	164	267	HORIZONTAL
3	5173.59	104.49			67.35	3.44	33.70	0.00	Average	164	267	HORIZONTAL
4	5173.59	114.67			77.53	3.44	33.70	0.00	Peak	164	267	HORIZONTAL
5	5394.07	59.50	74.00	-14.50	21.91	3.50	34.09	0.00	Peak	164	267	HORIZONTAL
6	5396.47	52.51	54.00	-1.49	14.92	3.50	34.09	0.00	Average	164	267	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

	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	5114.42	52.66	54.00	-1.34	15.63	3.42	33.61	0.00	Average	164	288	HORIZONTAL
2	5144.87	67.68	74.00	-6.32	30.58	3.43	33.67	0.00	Peak	164	288	HORIZONTAL
3	5199.04	107.87			70.66	3.45	33.76	0.00	Average	164	288	HORIZONTAL
4	5199.36	118.53			81.32	3.45	33.76	0.00	Peak	164	288	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

	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	5150.00	44.76	54.00	-9.24	7.66	3.43	33.67	0.00	Average	168	264	HORIZONTAL
2	5150.00	59.85	74.00	-14.15	22.75	3.43	33.67	0.00	Peak	168	264	HORIZONTAL
3	5242.89	110.30			73.02	3.46	33.82	0.00	Average	168	264	HORIZONTAL
4	5243.85	121.21			83.93	3.46	33.82	0.00	Peak	168	264	HORIZONTAL
5	5356.73	46.58	54.00	-7.42	9.06	3.49	34.03	0.00	Average	168	264	HORIZONTAL
6	5358.17	59.31	74.00	-14.69	21.79	3.49	34.03	0.00	Peak	168	264	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013 ~ Nov. 15, 2013		

Channel 52

	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	5148.56	44.65	54.00	-9.35	7.55	3.43	33.67	0.00	Average	171	274	HORIZONTAL
2	5149.52	58.77	74.00	-15.23	21.67	3.43	33.67	0.00	Peak	171	274	HORIZONTAL
3	5253.75	121.57			84.26	3.46	33.85	0.00	Peak	171	274	HORIZONTAL
4	5258.56	110.43			73.12	3.46	33.85	0.00	Average	171	274	HORIZONTAL
5	5350.00	46.43	54.00	-7.57	8.91	3.49	34.03	0.00	Average	171	274	HORIZONTAL
6	5350.00	60.62	74.00	-13.38	23.10	3.49	34.03	0.00	Peak	171	274	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	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	5293.27	115.10			77.72	3.47	33.91	0.00	Peak	171	271	HORIZONTAL
2	5298.08	104.69			67.27	3.48	33.94	0.00	Average	171	271	HORIZONTAL
3	5382.95	52.55	54.00	-1.45	14.96	3.50	34.09	0.00	Average	171	271	HORIZONTAL
4	5383.33	63.73	74.00	-10.27	26.14	3.50	34.09	0.00	Peak	171	271	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	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	5322.24	104.42			66.97	3.48	33.97	0.00	Average	155	268	HORIZONTAL
2	5322.24	114.62			77.17	3.48	33.97	0.00	Peak	155	268	HORIZONTAL
3	5350.96	64.55	74.00	-9.45	27.03	3.49	34.03	0.00	Peak	155	268	HORIZONTAL
4	5397.76	52.94	54.00	-1.06	15.35	3.50	34.09	0.00	Average	155	268	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 140 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 08, 2013		

Channel 100

	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	5426.35	49.54	54.00	-4.46	11.87	3.52	34.15	0.00	Average	157	272	HORIZONTAL
2	5426.35	61.61	74.00	-12.39	23.94	3.52	34.15	0.00	Peak	157	272	HORIZONTAL
3	5467.76	68.89	74.00	-5.11	31.16	3.52	34.21	0.00	Peak	157	272	HORIZONTAL
4	5470.00	46.99	54.00	-7.01	9.26	3.52	34.21	0.00	Average	157	272	HORIZONTAL
5	5500.64	115.43			77.67	3.53	34.23	0.00	Peak	157	272	HORIZONTAL
6	5500.96	104.78			67.01	3.54	34.23	0.00	Average	157	272	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	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	5695.19	115.03			77.10	3.59	34.34	0.00	Peak	155	266	HORIZONTAL
2	5700.64	104.48			66.55	3.59	34.34	0.00	Average	155	266	HORIZONTAL
3	5725.00	52.46	54.00	-1.54	14.52	3.60	34.34	0.00	Average	155	266	HORIZONTAL
4	5725.00	71.66	74.00	-2.34	33.72	3.60	34.34	0.00	Peak	155	266	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Channel 38

	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	5149.36	52.71	54.00	-1.29	15.61	3.43	33.67	0.00	Average	162	283	HORIZONTAL
2	5149.36	70.59	74.00	-3.41	33.49	3.43	33.67	0.00	Peak	162	283	HORIZONTAL
3	5183.91	99.13			61.96	3.44	33.73	0.00	Average	162	283	HORIZONTAL
4	5183.91	110.53			73.36	3.44	33.73	0.00	Peak	162	283	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

	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	5148.08	65.36	74.00	-8.64	28.26	3.43	33.67	0.00	Peak	169	262	HORIZONTAL
2	5148.40	51.07	54.00	-2.93	13.97	3.43	33.67	0.00	Average	169	262	HORIZONTAL
3	5232.89	104.69			67.41	3.46	33.82	0.00	Average	169	262	HORIZONTAL
4	5233.53	115.86			78.58	3.46	33.82	0.00	Peak	169	262	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5230 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Channel 54

	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	5287.31	114.94			77.56	3.47	33.91	0.00	Peak	170	263	HORIZONTAL
2	5287.63	103.65			66.27	3.47	33.91	0.00	Average	170	263	HORIZONTAL
3	5352.89	52.79	54.00	-1.21	15.27	3.49	34.03	0.00	Average	170	263	HORIZONTAL
4	5353.53	65.51	74.00	-8.49	27.99	3.49	34.03	0.00	Peak	170	263	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	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	5314.81	99.93			62.48	3.48	33.97	0.00	Average	111	262	HORIZONTAL
2	5314.81	110.70			73.25	3.48	33.97	0.00	Peak	111	262	HORIZONTAL
3	5350.00	52.58	54.00	-1.42	15.06	3.49	34.03	0.00	Average	111	262	HORIZONTAL
4	5353.53	72.23	74.00	-1.77	34.71	3.49	34.03	0.00	Peak	111	262	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Channel 102

	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	5459.68	48.34	54.00	-5.66	10.63	3.52	34.19	0.00	Average	100	50	HORIZONTAL
2	5459.68	66.74	74.00	-7.26	29.03	3.52	34.19	0.00	Peak	100	50	HORIZONTAL
3	5469.68	52.59	54.00	-1.41	14.86	3.52	34.21	0.00	Average	100	50	HORIZONTAL
4	5469.68	71.03	74.00	-2.97	33.30	3.52	34.21	0.00	Peak	100	50	HORIZONTAL
5	5514.49	110.40			72.61	3.54	34.25	0.00	Peak	100	50	HORIZONTAL
6	5514.81	99.08			61.29	3.54	34.25	0.00	Average	100	50	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	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	5456.47	51.90	54.00	-2.10	14.19	3.52	34.19	0.00	Average	163	266	HORIZONTAL
2	5457.12	65.10	74.00	-8.90	27.39	3.52	34.19	0.00	Peak	163	266	HORIZONTAL
3	5466.15	52.68	54.00	-1.32	14.97	3.52	34.19	0.00	Average	163	266	HORIZONTAL
4	5466.47	65.78	74.00	-8.22	28.07	3.52	34.19	0.00	Peak	163	266	HORIZONTAL
5	5556.09	104.38			66.52	3.55	34.31	0.00	Average	163	266	HORIZONTAL
6	5556.09	116.09			78.23	3.55	34.31	0.00	Peak	163	266	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	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	5674.81	102.52			64.60	3.59	34.33	0.00	Average	155	263	HORIZONTAL
2	5674.81	113.36			75.44	3.59	34.33	0.00	Peak	155	263	HORIZONTAL
3	5730.13	68.50	74.00	-5.50	30.56	3.60	34.34	0.00	Peak	155	263	HORIZONTAL
4	5734.94	52.55	54.00	-1.45	14.60	3.61	34.34	0.00	Average	155	263	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 58, 106 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Channel 42

	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	5148.40	52.46	54.00	-1.54	15.36	3.43	33.67	0.00	Average	172	265	HORIZONTAL
2	5148.40	66.18	74.00	-7.82	29.08	3.43	33.67	0.00	Peak	172	265	HORIZONTAL
3	5222.82	93.28			56.03	3.46	33.79	0.00	Average	172	265	HORIZONTAL
4	5224.42	105.62			68.37	3.46	33.79	0.00	Peak	172	265	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 58

	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	5143.59	53.57	74.00	-20.43	16.47	3.43	33.67	0.00	Peak	166	263	HORIZONTAL
2	5150.00	40.10	54.00	-13.90	3.00	3.43	33.67	0.00	Average	166	263	HORIZONTAL
3	5277.98	94.03			56.68	3.47	33.88	0.00	Average	166	263	HORIZONTAL
4	5282.79	107.56			70.18	3.47	33.91	0.00	Peak	166	263	HORIZONTAL
5	5352.40	52.48	54.00	-1.52	14.96	3.49	34.03	0.00	Average	166	263	HORIZONTAL
6	5356.41	70.66	74.00	-3.34	33.14	3.49	34.03	0.00	Peak	166	263	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5290 MHz.

Channel 106

	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	5455.99	51.83	54.00	-2.17	14.12	3.52	34.19	0.00	Average	164	264	HORIZONTAL
2	5460.00	66.06	74.00	-7.94	28.35	3.52	34.19	0.00	Peak	164	264	HORIZONTAL
3	5466.80	52.37	54.00	-1.63	14.66	3.52	34.19	0.00	Average	164	264	HORIZONTAL
4	5467.60	67.45	74.00	-6.55	29.72	3.52	34.21	0.00	Peak	164	264	HORIZONTAL
5	5541.22	94.36			56.52	3.55	34.29	0.00	Average	164	264	HORIZONTAL
6	5546.83	106.82			68.98	3.55	34.29	0.00	Peak	164	264	HORIZONTAL
7	5725.00	43.38	54.00	-10.62	5.44	3.60	34.34	0.00	Average	164	264	HORIZONTAL
8	5725.00	54.42	74.00	-19.58	16.48	3.60	34.34	0.00	Peak	164	264	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5530 MHz.

Note:

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

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

Temperature	25°C	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 14, 2013 ~ Nov. 15, 2013		

Channel 36

	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	5146.80	72.69	74.00	-1.31	35.59	3.43	33.67	0.00	Peak	100	286	HORIZONTAL
2	5150.00	52.74	54.00	-1.26	15.64	3.43	33.67	0.00	Average	100	286	HORIZONTAL
3	5181.60	106.71			69.54	3.44	33.73	0.00	Average	100	286	HORIZONTAL
4	5181.92	116.86			79.69	3.44	33.73	0.00	Peak	100	286	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

	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	5122.44	63.53	74.00	-10.47	26.49	3.43	33.61	0.00	Peak	100	286	HORIZONTAL
2	5126.92	52.44	54.00	-1.56	15.37	3.43	33.64	0.00	Average	100	286	HORIZONTAL
3	5196.47	107.26			70.05	3.45	33.76	0.00	Average	100	286	HORIZONTAL
4	5196.80	117.19			79.98	3.45	33.76	0.00	Peak	100	286	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

	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	5150.00	44.08	54.00	-9.92	6.98	3.43	33.67	0.00	Average	168	276	HORIZONTAL
2	5150.00	57.04	74.00	-16.96	19.94	3.43	33.67	0.00	Peak	168	276	HORIZONTAL
3	5233.27	120.35			83.07	3.46	33.82	0.00	Peak	168	276	HORIZONTAL
4	5242.89	109.52			72.24	3.46	33.82	0.00	Average	168	276	HORIZONTAL
5	5352.89	46.31	54.00	-7.69	8.79	3.49	34.03	0.00	Average	168	276	HORIZONTAL
6	5352.89	58.48	74.00	-15.52	20.96	3.49	34.03	0.00	Peak	168	276	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 52, 60, 64 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 14, 2013		

Channel 52

	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	5147.12	56.56	74.00	-17.44	19.46	3.43	33.67	0.00	Peak	100	278	HORIZONTAL
2	5150.00	43.09	54.00	-10.91	5.99	3.43	33.67	0.00	Average	100	278	HORIZONTAL
3	5260.96	109.90			72.59	3.46	33.85	0.00	Average	100	278	HORIZONTAL
4	5261.44	120.42			83.11	3.46	33.85	0.00	Peak	100	278	HORIZONTAL
5	5350.00	44.74	54.00	-9.26	7.22	3.49	34.03	0.00	Average	100	278	HORIZONTAL
6	5350.00	56.42	74.00	-17.58	18.90	3.49	34.03	0.00	Peak	100	278	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	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	5301.28	105.92			68.50	3.48	33.94	0.00	Average	100	286	HORIZONTAL
2	5301.28	116.75			79.33	3.48	33.94	0.00	Peak	100	286	HORIZONTAL
3	5381.41	52.90	54.00	-1.10	15.34	3.50	34.06	0.00	Average	100	286	HORIZONTAL
4	5381.41	63.55	74.00	-10.45	25.99	3.50	34.06	0.00	Peak	100	286	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	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	5320.96	117.62			80.17	3.48	33.97	0.00	Peak	100	287	HORIZONTAL
2	5321.28	107.01			69.56	3.48	33.97	0.00	Average	100	287	HORIZONTAL
3	5400.96	52.36	54.00	-1.64	14.73	3.51	34.12	0.00	Average	100	287	HORIZONTAL
4	5407.37	62.38	74.00	-11.62	24.75	3.51	34.12	0.00	Peak	100	287	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25℃	Humidity	62%
Test Engineer	David Tseng	Configurations	IEEE 802.11a CH 100, 140 / Ant. 3 + Ant. 4 + Ant. 5
Test Date	Nov. 15, 2013		

Channel 100

	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	5419.30	48.75	54.00	-5.25	11.09	3.51	34.15	0.00	Average	100	47	HORIZONTAL
2	5459.04	63.16	74.00	-10.84	25.45	3.52	34.19	0.00	Peak	100	47	HORIZONTAL
3	5469.36	67.90	74.00	-6.10	30.17	3.52	34.21	0.00	Peak	100	47	HORIZONTAL
4	5470.00	52.27	54.00	-1.73	14.54	3.52	34.21	0.00	Average	100	47	HORIZONTAL
5	5499.04	105.59			67.83	3.53	34.23	0.00	Average	100	47	HORIZONTAL
6	5499.04	115.51			77.75	3.53	34.23	0.00	Peak	100	47	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	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	5700.96	106.14			68.21	3.59	34.34	0.00	Average	167	273	HORIZONTAL
2	5700.96	115.60			77.67	3.59	34.34	0.00	Peak	167	273	HORIZONTAL
3	5725.00	67.72	74.00	-6.28	29.78	3.60	34.34	0.00	Peak	167	273	HORIZONTAL
4	5781.09	52.89	54.00	-1.11	14.91	3.62	34.36	0.00	Average	167	273	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

4.8.2. Measuring Instruments and Setting

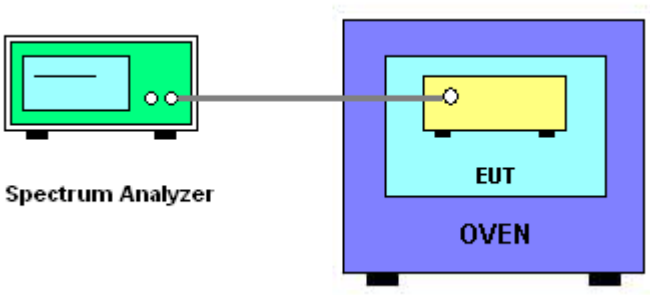
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is 0°C~40°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

Temperature	20°C	Humidity	56%
Test Engineer	Wen Chao	Test Date	Jan. 27, 2014

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)		
(V)	5200 MHz	5300 MHz	5500 MHz
126.50	5199.9896	5299.9886	5499.9885
110.00	5199.9898	5299.9886	5499.9886
93.50	5199.9898	5299.9884	5499.9886
Max. Deviation (MHz)	**0.010400**	**0.011600**	**0.011500**
Max. Deviation (ppm)	**2.00**	**2.19**	**2.09**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)		
(°C)	5200 MHz	5300 MHz	5500 MHz
0	5199.9900	5299.9888	5499.9888
10	5199.9898	5299.9886	5499.9886
20	5199.9898	5299.9886	5499.9886
30	5199.9896	5299.9886	5499.9886
40	5199.9896	5299.9888	5499.9885
Max. Deviation (MHz)	**0.010400**	**0.011400**	**0.011500**
Max. Deviation (ppm)	**2.00**	**2.15**	**2.09**

4.9. Antenna Requirements

4.9.1. 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.

4.9.2. 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	9kHz ~ 2.75GHz	Apr. 12, 2013	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 26, 2012	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Jul. 17, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	Dec. 04, 2012	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	-	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Apr. 16, 2013	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Nov. 27, 2012	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Nov. 26, 2012	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 04, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)

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

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

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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

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

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

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.173	dB	K=1	0.086
Cable loss	±0.174	dB	K=2	0.087
Antenna gain	±0.169	dB	K=2	0.084
Site imperfection	±0.433	dB	Triangular	0.214
Pre-amplifier gain	±0.366	dB	K=2	0.183
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.778
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.555

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

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.191	dB	K=1	0.095
Cable loss	±0.169	dB	K=2	0.084
Antenna gain	±0.191	dB	K=2	0.096
Site imperfection	±0.582	dB	Triangular	0.291
Pre-amplifier gain	±0.304	dB	K=2	0.152
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.839
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.678

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

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.186	dB	K=1	0.093
Cable loss	±0.167	dB	K=2	0.083
Antenna gain	±0.190	dB	K=2	0.095
Site imperfection	±0.488	dB	Triangular	0.244
Pre-amplifier gain	±0.269	dB	K=2	0.134
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.771
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.541

Uncertainty of Conducted Emission Measurement

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Cable loss	±0.038	dB	K=2	0.019
Attenuator	±0.047	dB	K=2	0.024
Power Meter specification	±0.300	dB	Triangular	0.150
Power Sensor specification	±0.300	dB	Rectangular	0.150
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				0.863
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				1.726