



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	GODEX INTERNATIONAL CO., LTD.
Applicant Address	13F., No.168, Jiankang Rd., Zhonghe Dist., New Taipei City 235, Taiwan
FCC ID	WD6GRG013
Manufacturer's company	GODEX INTERNATIONAL CO., LTD.
Manufacturer Address	13F., No.168, Jiankang Rd., Zhonghe Dist., New Taipei City 235, Taiwan

Product Name	WLAN IP Print Server Module
Brand Name	GoDEX
Model No.	GR-G013
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Aug. 13, 2014
Final Test Date	Aug. 29, 2014
Submission Type	Original Equipment

Statement

Test result included in this report is for the IEEE 802.11n and IEEE 802.11b/g of the product.

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

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The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in ANSI C63.10-2013, 47 CFR FCC Part 15 Subpart C, KDB 558074 D01 v03r02 and KDB 662911 D01 v02r01.

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



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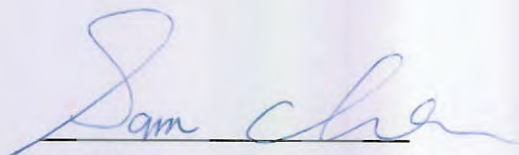
History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR461818-01	Rev. 01	Initial issue of report	Sep. 29, 2014

1. CERTIFICATE OF COMPLIANCE

Product Name : WLAN IP Print Server Module
Brand Name : GoDEX
Model No. : GR-G013
Applicant : GODEX INTERNATIONAL CO., LTD.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Aug. 13, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	11.10 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	11.93 dB
4.3	15.247(e)	Power Spectral Density	Complies	18.43 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.04 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.08 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	<u>For Ant. 1:</u> MCS0 (HT20): 17.84 MHz ; MCS0 (HT40): 39.20 MHz <u>For Ant. 2:</u> MCS0 (HT20): 17.84 MHz ; MCS0 (HT40): 35.68 MHz
Maximum Conducted Output Power	<u>For Ant. 1:</u> MCS0 (HT20): 14.57 dBm ; MCS0 (HT40): 14.14 dBm <u>For Ant. 2:</u> MCS0 (HT20): 14.16 dBm ; MCS0 (HT40): 14.14 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11b/g

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11
Channel Band Width (99%)	<u>For Ant. 1:</u> 11b: 14.88 MHz ; 11g: 17.12 MHz <u>For Ant. 2:</u> 11b: 14.40 MHz ; 11g: 17.36 MHz
Maximum Conducted Output Power	<u>For Ant. 1:</u> 11b: 18.07 dBm ; 11g: 14.70 dBm <u>For Ant. 2:</u> 11b: 16.46 dBm ; 11g: 14.40 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description
Beamforming Function	<input type="checkbox"/> With beamforming <input checked="" type="checkbox"/> Without beamforming

Antenna and Band width

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

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1	MCS 0-7
802.11n (HT40)	1	MCS 0-7
<p>Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40.</p> <p>Note 2: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n</p>		

3.2. Accessories

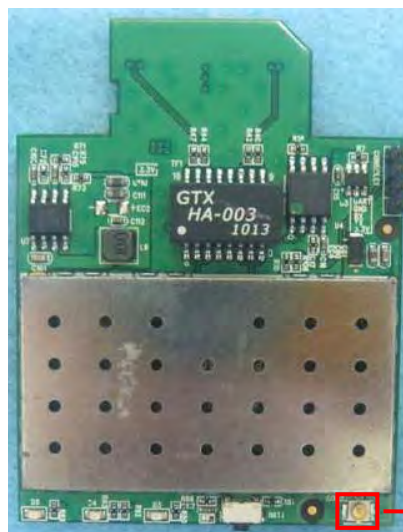
N/A

3.3. Table for Filed Antenna

Ant.	Brand	Part Number	Antenna Type	Connector	Gain (dBi)	Remark
1	TRONTEK	TDA-P2FMIPF000	PCB Antenna	I-PEX	4.61	TX / RX Ant.
2	TRONTEK	TAT280-MRSX000	Dipole Antenna	I-PEX	2.34	TX / RX Ant.

Note: The EUT has two antennas.

Only Chain 1 could transmit/receive simultaneously.



→ Chain 1 (Connect to Ant. 1 or Ant. 2)

3.4. Table for Carrier Frequencies

There are two bandwidth systems.

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

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

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

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	Chain
AC Power Line Conducted Emissions	CTX	-	-	-
Maximum Conducted Output Power	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Power Spectral Density	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
6dB Spectrum Bandwidth	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Radiated Emissions 9kHz~1GHz	CTX	-	-	-
Radiated Emissions 1GHz~10 th Harmonic	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Band Edge Emissions	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
Test fixture	Godex	WIFI Convert Board	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
Test fixture	Godex	WIFI Convert Board	N/A

For Test Site No: 03CH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	DoC
Test fixture	Godex	WIFI Convert Board	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 802.11n / Ant. 1

Test Software Version	RT5350QA V1.0.0.2		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	1F	1F	1F
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	1D	1F	1B

Power Parameters of IEEE 802.11b/g / Ant. 1

Test Software Version	RT5350QA V1.0.0.2		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	1F	1F	1F
IEEE 802.11g	1F	1F	1F

Power Parameters of IEEE 802.11n / Ant. 2

Test Software Version	RT5350QA V1.0.0.2		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	1B	1F	1B
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	1A	1F	16

Power Parameters of IEEE 802.11b/g / Ant. 2

Test Software Version	RT5350QA V1.0.0.2		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	1C	1B	1B
IEEE 802.11g	1C	1F	1C

3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

For Ant. 1:

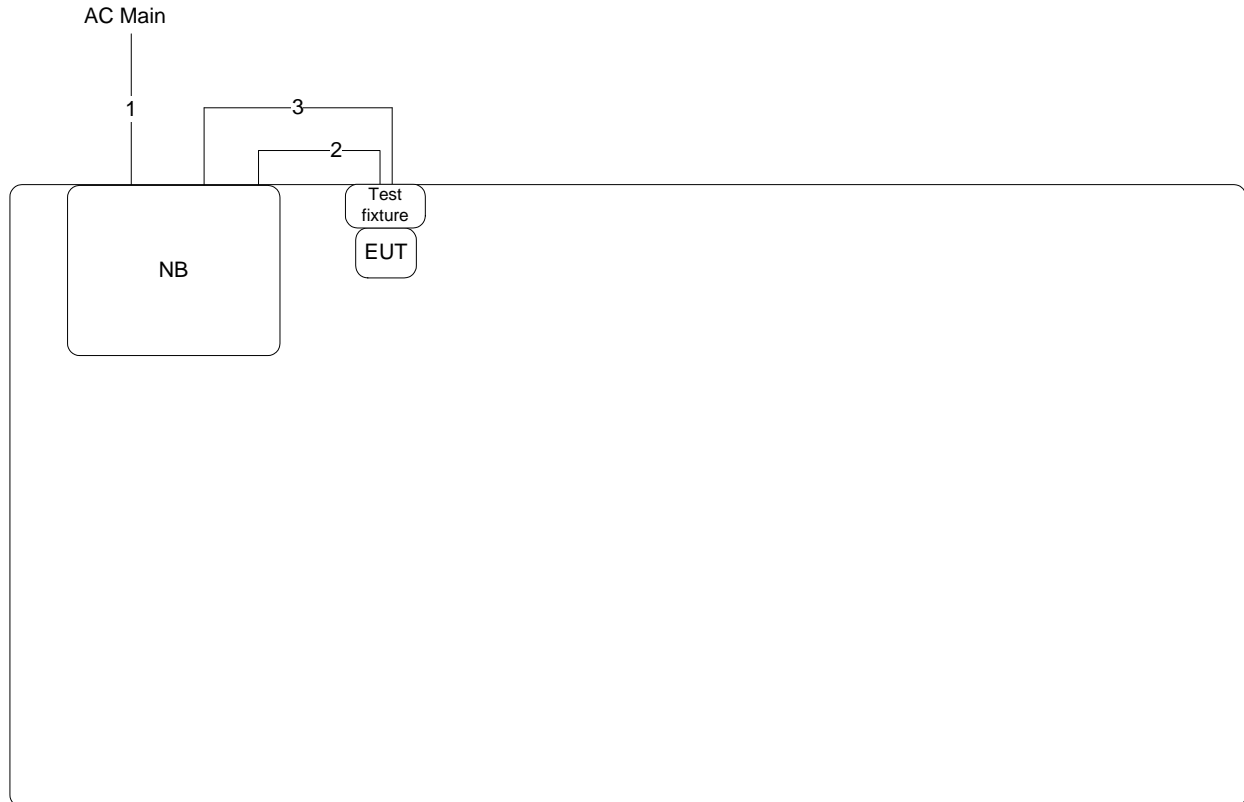
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1	1	100	0.00	0.01
802.11n MCS0 HT40	1	1	100	0.00	0.01
802.11b	1	1	100	0.00	0.01
802.11g	1	1	100	0.00	0.01

For Ant. 2:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1	1	100	0.00	0.01
802.11n MCS0 HT40	1	1	100	0.00	0.01
802.11b	1	1	100	0.00	0.01
802.11g	1	1	100	0.00	0.01

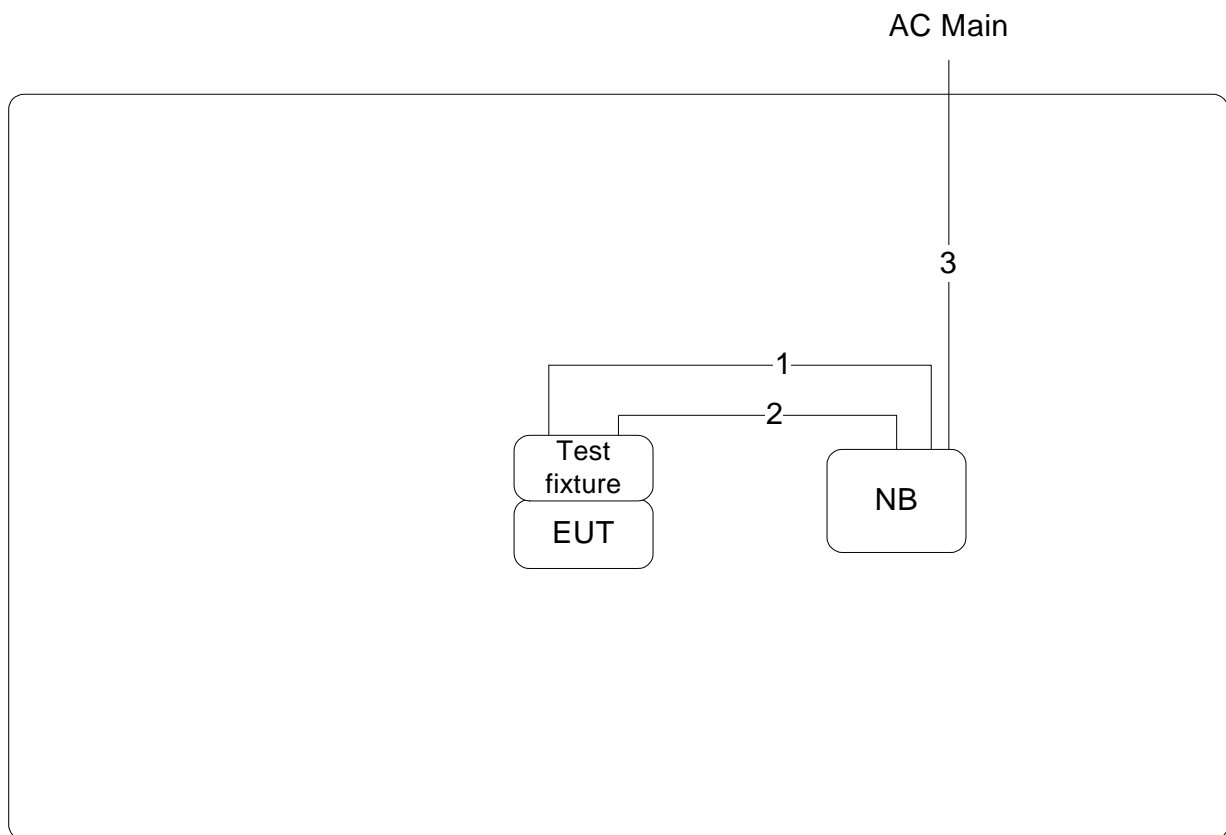
3.11. Test Configurations

3.11.1.AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power Cable	No	2.6m
2	RJ-45 Cable	No	0.5m
3	USB Cable	Yes	1.5m

3.11.2. Radiation Emissions Test Configuration



Item	Connection	Shielded	Length
1	USB Cable	No	1.5m
2	RJ-45 Cable	No	0.5m
3	Power Cable	No	1.5m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

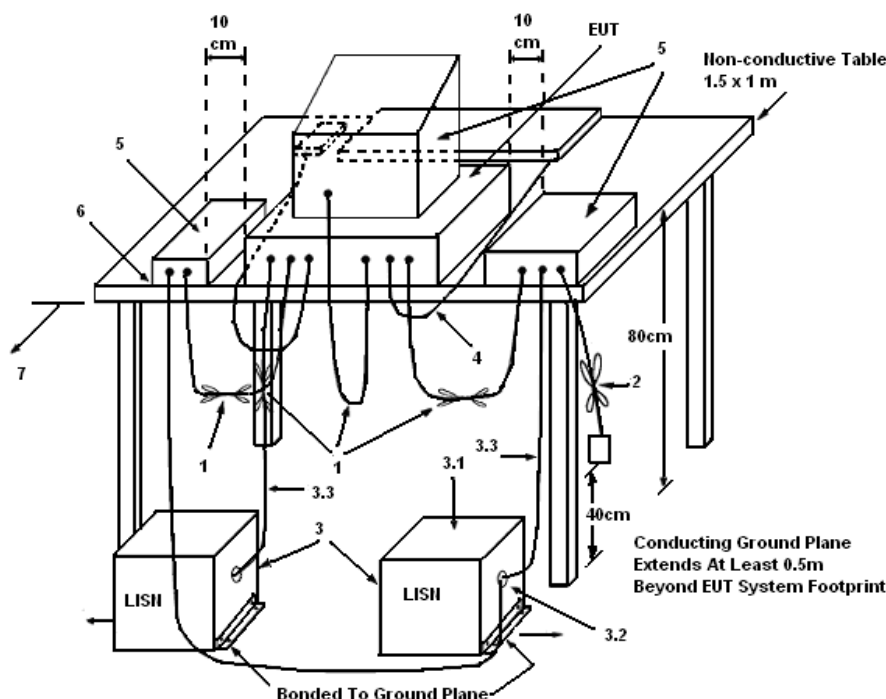
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

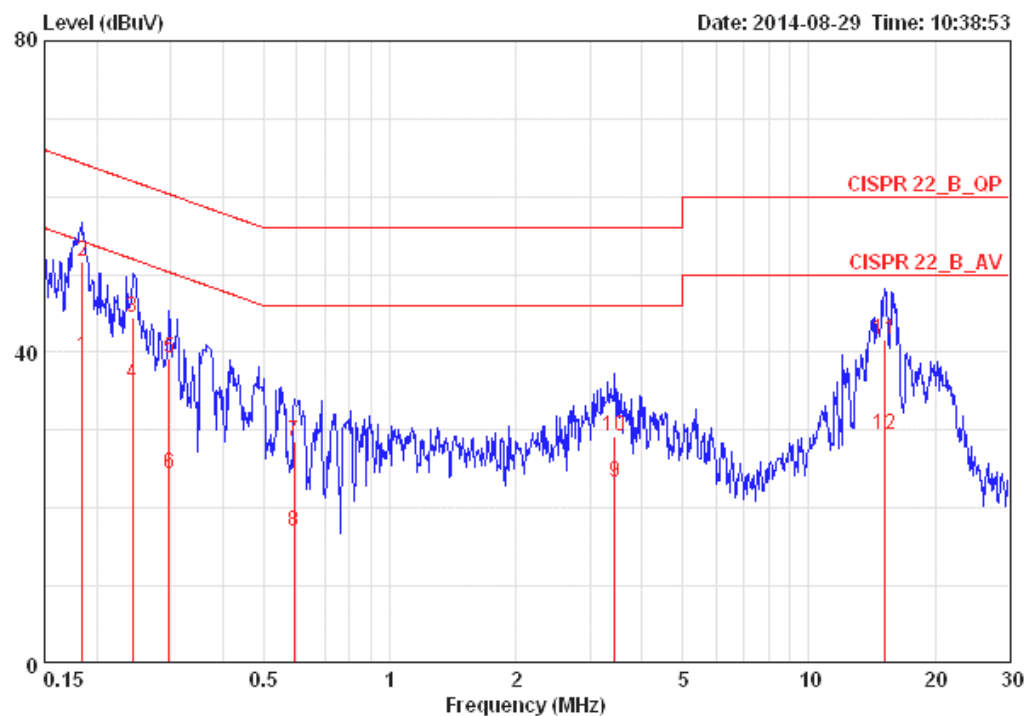
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

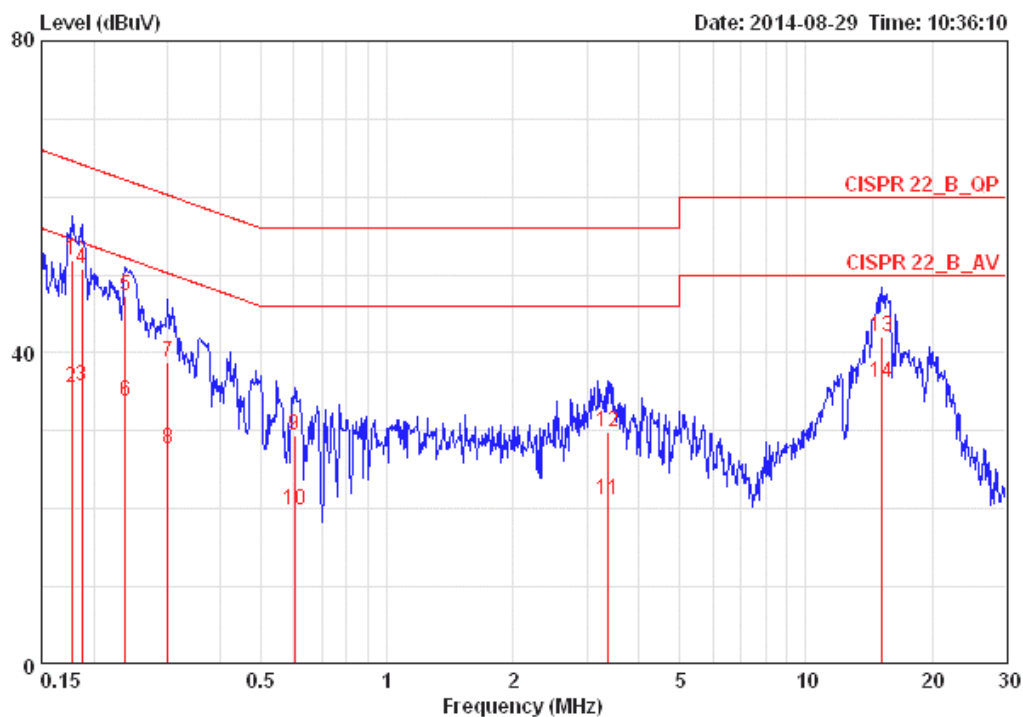
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Line
Configuration	CTX	Test Ant.	Ant. 1



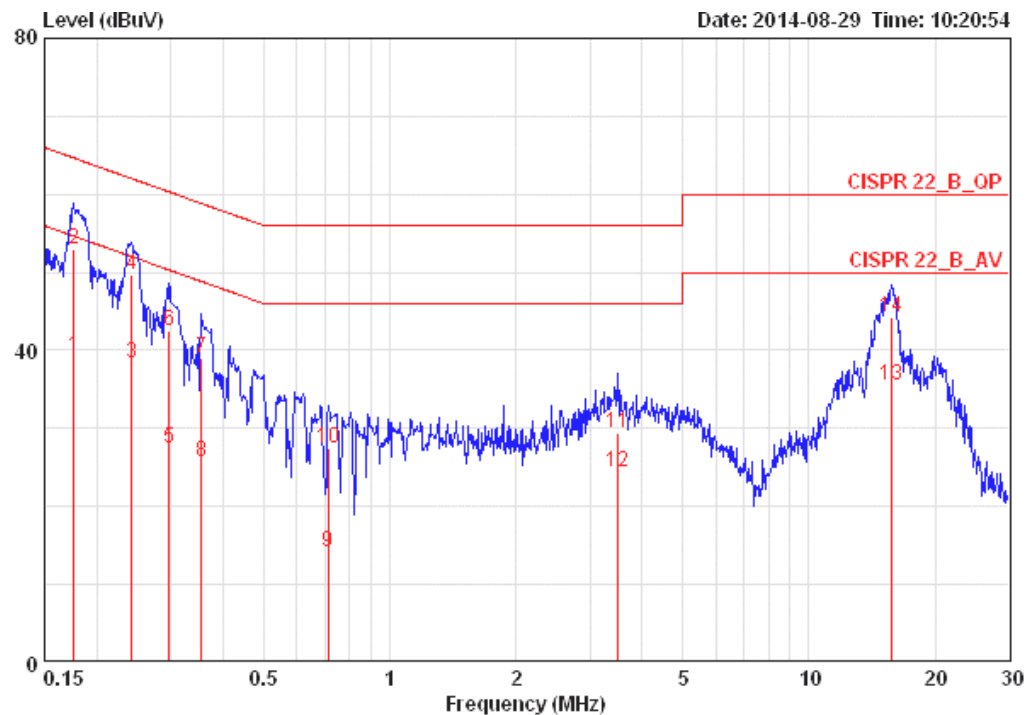
	Freq	Level	Over	Limit	LISN	Read	Cable		
	MHz	dBuV	Limit	Line	Factor	Level	Loss	Pol/Phase	Remark
			dB	dBuV	dB	dBuV	dB		
1	0.18443	39.39	-14.89	54.28	0.10	39.13	0.16	LINE	AVERAGE
2	0.18443	51.68	-12.60	64.28	0.10	51.42	0.16	LINE	QP
3	0.24293	44.47	-17.53	62.00	0.10	44.20	0.17	LINE	QP
4	0.24293	36.06	-15.94	52.00	0.10	35.79	0.17	LINE	AVERAGE
5	0.29712	39.27	-21.05	60.32	0.10	39.00	0.17	LINE	QP
6	0.29712	24.43	-25.89	50.32	0.10	24.16	0.17	LINE	AVERAGE
7	0.59164	28.57	-27.43	56.00	0.11	28.27	0.19	LINE	QP
8	0.59164	16.95	-29.05	46.00	0.11	16.65	0.19	LINE	AVERAGE
9	3.436	23.22	-22.78	46.00	0.20	22.73	0.29	LINE	AVERAGE
10	3.436	29.32	-26.68	56.00	0.20	28.83	0.29	LINE	QP
11	15.226	41.58	-18.42	60.00	0.42	40.71	0.45	LINE	QP
12	15.226	29.53	-20.47	50.00	0.42	28.66	0.45	LINE	AVERAGE

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	CTX	Test Ant.	Ant. 1



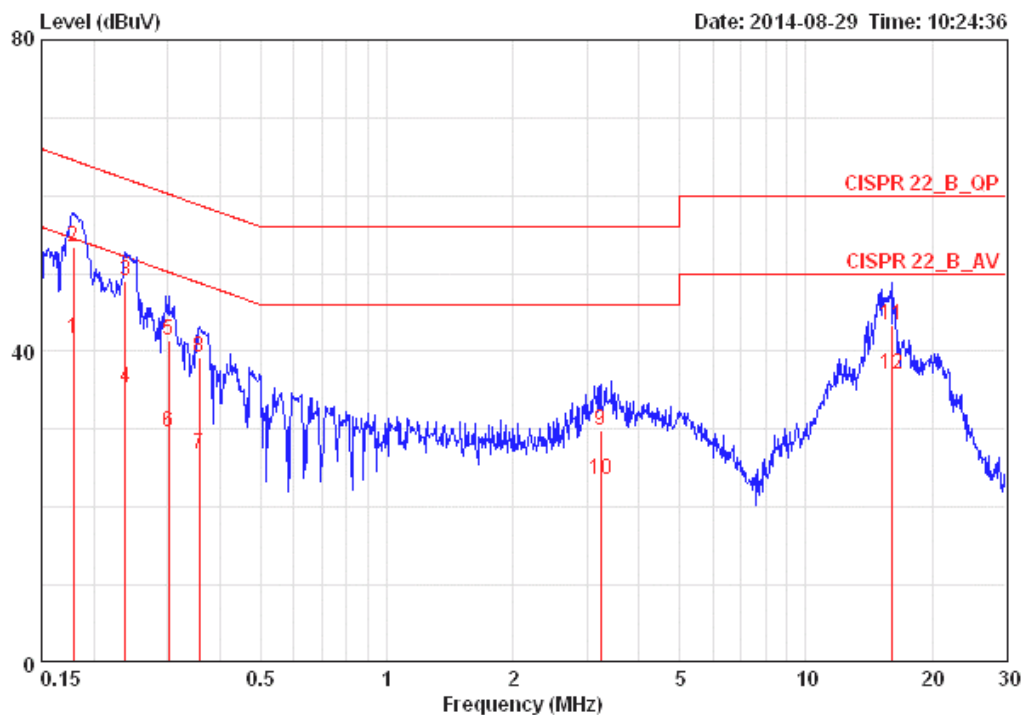
	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.17678	51.89	-12.74	64.64	0.09	51.64	0.16	NEUTRAL	QP
2	0.17678	35.49	-19.14	54.64	0.09	35.24	0.16	NEUTRAL	AVERAGE
3	0.18739	35.66	-18.49	54.15	0.09	35.41	0.16	NEUTRAL	AVERAGE
4	0.18739	50.81	-13.34	64.15	0.09	50.56	0.16	NEUTRAL	QP
5	0.23784	47.32	-14.85	62.17	0.09	47.06	0.17	NEUTRAL	QP
6	0.23784	33.89	-18.28	52.17	0.09	33.63	0.17	NEUTRAL	AVERAGE
7	0.30028	38.84	-21.39	60.24	0.09	38.58	0.17	NEUTRAL	QP
8	0.30028	27.75	-22.48	50.24	0.09	27.49	0.17	NEUTRAL	AVERAGE
9	0.60112	29.37	-26.63	56.00	0.10	29.08	0.19	NEUTRAL	QP
10	0.60112	19.85	-26.15	46.00	0.10	19.56	0.19	NEUTRAL	AVERAGE
11	3.381	21.13	-24.87	46.00	0.18	20.66	0.29	NEUTRAL	AVERAGE
12	3.381	29.97	-26.03	56.00	0.18	29.50	0.29	NEUTRAL	QP
13	15.226	42.07	-17.93	60.00	0.39	41.23	0.45	NEUTRAL	QP
14	15.226	36.29	-13.71	50.00	0.39	35.45	0.45	NEUTRAL	AVERAGE

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Line
Configuration	CTX	Test Ant.	Ant. 2



	Freq	Level	Over	Limit	LISN	Read	Cable		
	MHz	dBuV	Limit	Line	Factor	Level	Loss	Pol/Phase	Remark
			dB	dBuV	dB	dBuV	dB		
1	0.17584	39.14	-15.54	54.68	0.10	38.88	0.16	LINE	AVERAGE
2	0.17584	52.91	-11.77	64.68	0.10	52.65	0.16	LINE	QP
3	0.24165	38.36	-13.68	52.04	0.10	38.09	0.17	LINE	AVERAGE
4	0.24165	49.66	-12.38	62.04	0.10	49.39	0.17	LINE	QP
5	0.29712	27.46	-22.86	50.32	0.10	27.19	0.17	LINE	AVERAGE
6	0.29712	42.45	-17.87	60.32	0.10	42.18	0.17	LINE	QP
7	0.35576	39.08	-19.75	58.83	0.10	38.80	0.18	LINE	QP
8	0.35576	25.80	-23.03	48.83	0.10	25.52	0.18	LINE	AVERAGE
9	0.71219	14.21	-31.79	46.00	0.12	13.90	0.19	LINE	AVERAGE
10	0.71219	27.55	-28.45	56.00	0.12	27.24	0.19	LINE	QP
11	3.491	29.39	-26.61	56.00	0.20	28.90	0.29	LINE	QP
12	3.491	24.48	-21.52	46.00	0.20	23.99	0.29	LINE	AVERAGE
13	15.718	35.64	-14.36	50.00	0.43	34.75	0.46	LINE	AVERAGE
14	15.718	44.23	-15.77	60.00	0.43	43.34	0.46	LINE	QP

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	CTX	Test Ant.	Ant. 2



	Freq	Level	Over	Limit	LISN	Read	Cable		
	MHz	dBuV	Limit	Line	Factor	Level	Loss	Pol/Phase	Remark
			dB	dBuV	dB	dBuV	dB		
1	0.17866	41.67	-12.88	54.55	0.09	41.42	0.16	NEUTRAL	AVERAGE
2	0.17866	53.45	-11.10	64.55	0.09	53.20	0.16	NEUTRAL	QP
3	0.23784	49.05	-13.12	62.17	0.09	48.79	0.17	NEUTRAL	QP
4	0.23784	35.42	-16.75	52.17	0.09	35.16	0.17	NEUTRAL	AVERAGE
5	0.30188	41.49	-18.70	60.19	0.09	41.23	0.17	NEUTRAL	QP
6	0.30188	29.75	-20.44	50.19	0.09	29.49	0.17	NEUTRAL	AVERAGE
7	0.35765	26.92	-21.87	48.78	0.09	26.65	0.18	NEUTRAL	AVERAGE
8	0.35765	39.26	-19.53	58.78	0.09	38.99	0.18	NEUTRAL	QP
9	3.241	29.97	-26.03	56.00	0.17	29.51	0.28	NEUTRAL	QP
10	3.241	23.51	-22.49	46.00	0.17	23.05	0.28	NEUTRAL	AVERAGE
11	15.970	43.36	-16.64	60.00	0.40	42.50	0.46	NEUTRAL	QP
12	15.970	37.06	-12.94	50.00	0.40	36.20	0.46	NEUTRAL	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

4.2.2. Measuring Instruments and Setting

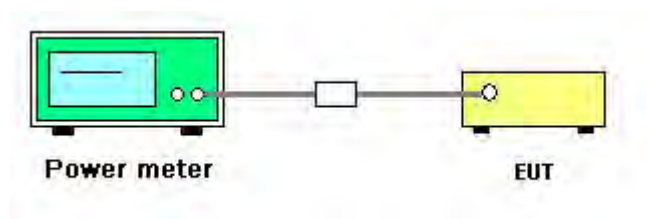
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r02 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 1
Test Date	Aug. 26, 2014		

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.57	30.00	Complies
6	2437 MHz	14.16	30.00	Complies
11	2462 MHz	13.49	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	13.60	30.00	Complies
6	2437 MHz	14.14	30.00	Complies
9	2452 MHz	12.11	30.00	Complies

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.07	30.00	Complies
6	2437 MHz	17.30	30.00	Complies
11	2462 MHz	16.60	30.00	Complies

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.70	30.00	Complies
6	2437 MHz	14.40	30.00	Complies
11	2462 MHz	14.01	30.00	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 2
Test Date	Aug. 26, 2014		

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	12.89	30.00	Complies
6	2437 MHz	14.16	30.00	Complies
11	2462 MHz	11.79	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	12.30	30.00	Complies
6	2437 MHz	14.14	30.00	Complies
9	2452 MHz	10.03	30.00	Complies

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.46	30.00	Complies
6	2437 MHz	15.38	30.00	Complies
11	2462 MHz	14.90	30.00	Complies

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	13.56	30.00	Complies
6	2437 MHz	14.40	30.00	Complies
11	2462 MHz	12.40	30.00	Complies

4.3. Power Spectral Density Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

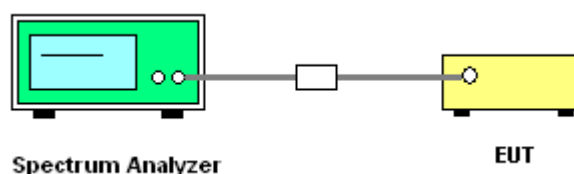
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100\text{kHz}$
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.3.3. Test Procedures

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$ (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be $\leq 8 \text{ dBm}$.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 1

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-10.84	8.00	Complies
6	2437 MHz	-11.43	8.00	Complies
11	2462 MHz	-11.28	8.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
3	2422 MHz	-11.35	8.00	Complies
6	2437 MHz	-11.80	8.00	Complies
9	2452 MHz	-13.78	8.00	Complies

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-12.17	8.00	Complies
6	2437 MHz	-11.37	8.00	Complies
11	2462 MHz	-12.11	8.00	Complies

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-10.70	8.00	Complies
6	2437 MHz	-10.98	8.00	Complies
11	2462 MHz	-10.92	8.00	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 2

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-12.40	8.00	Complies
6	2437 MHz	-11.09	8.00	Complies
11	2462 MHz	-12.85	8.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
3	2422 MHz	-12.82	8.00	Complies
6	2437 MHz	-11.48	8.00	Complies
9	2452 MHz	-15.03	8.00	Complies

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-12.36	8.00	Complies
6	2437 MHz	-14.24	8.00	Complies
11	2462 MHz	-13.64	8.00	Complies

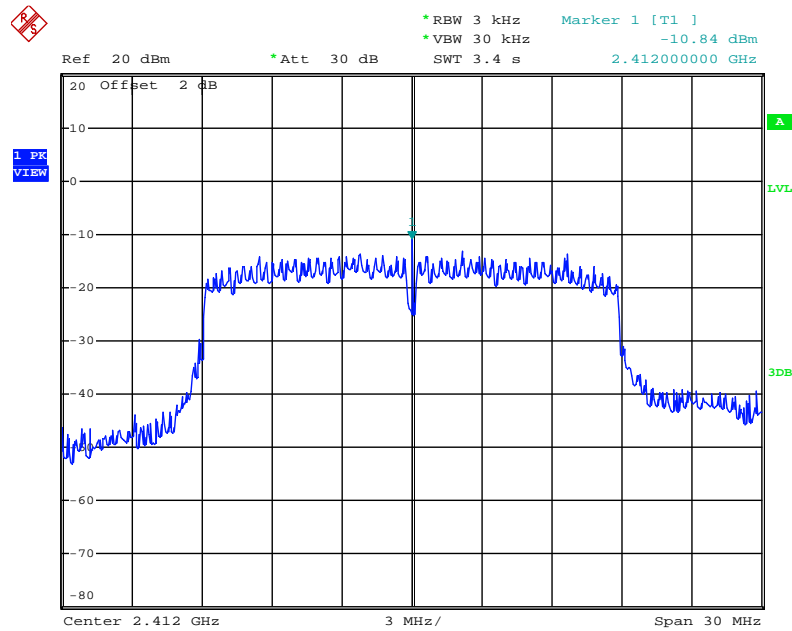
Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-10.43	8.00	Complies
6	2437 MHz	-10.87	8.00	Complies
11	2462 MHz	-10.71	8.00	Complies

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

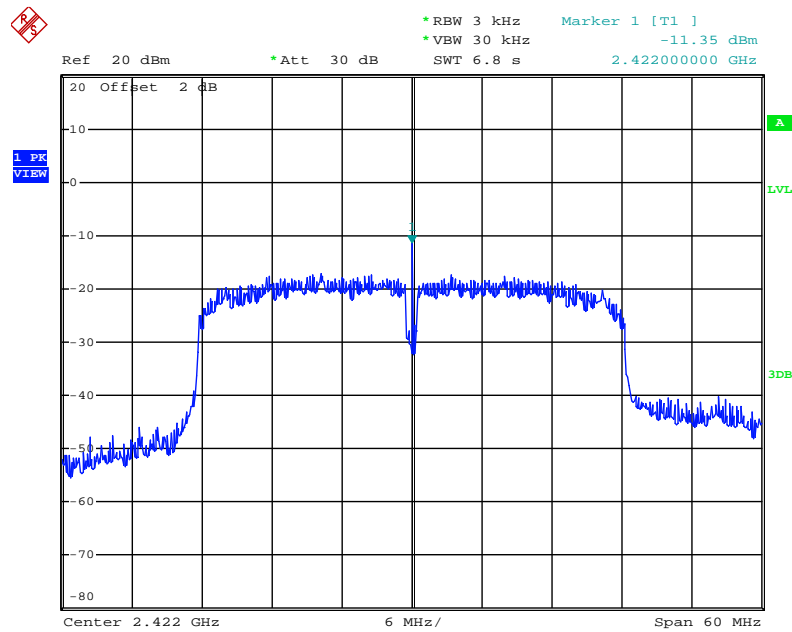
For plots, only the channel with worse result was shown.

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2412 MHz / Ant. 1



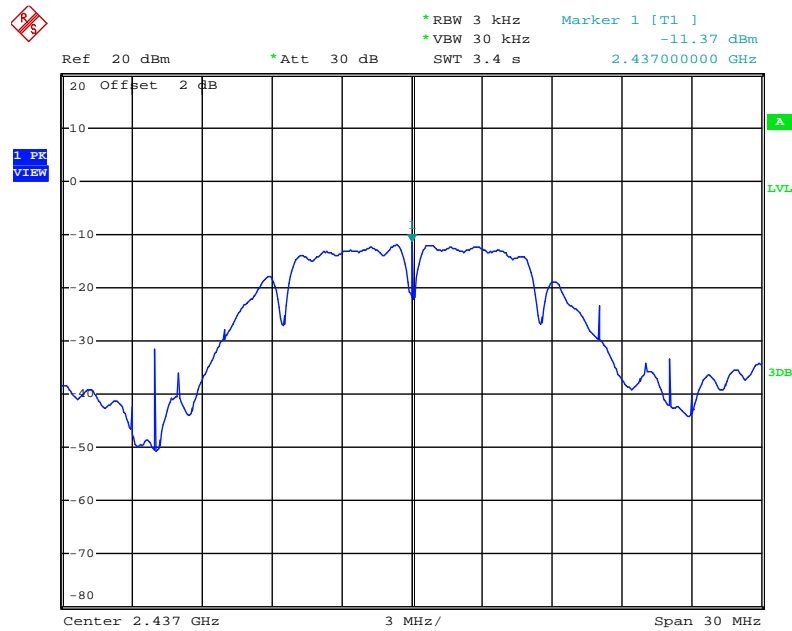
Date: 26.AUG.2014 19:49:02

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Ant. 1



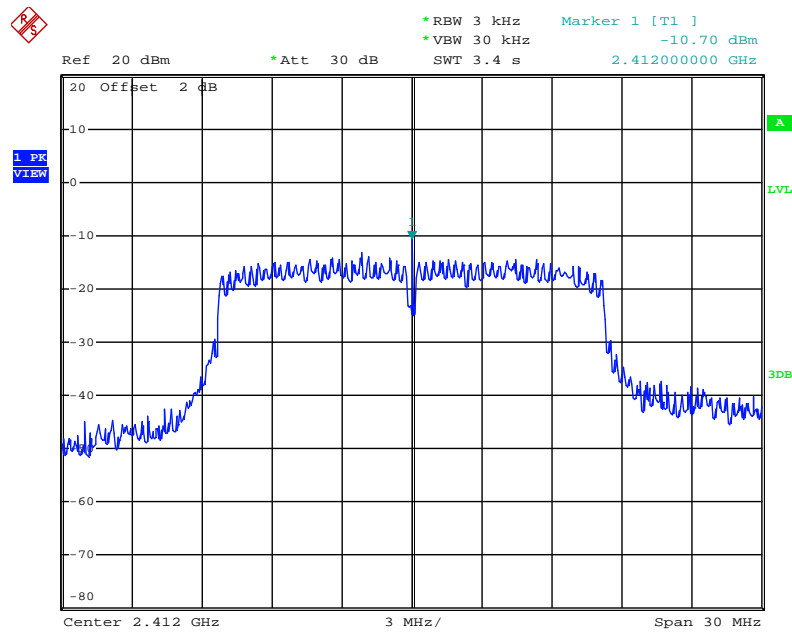
Date: 26.AUG.2014 19:53:35

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



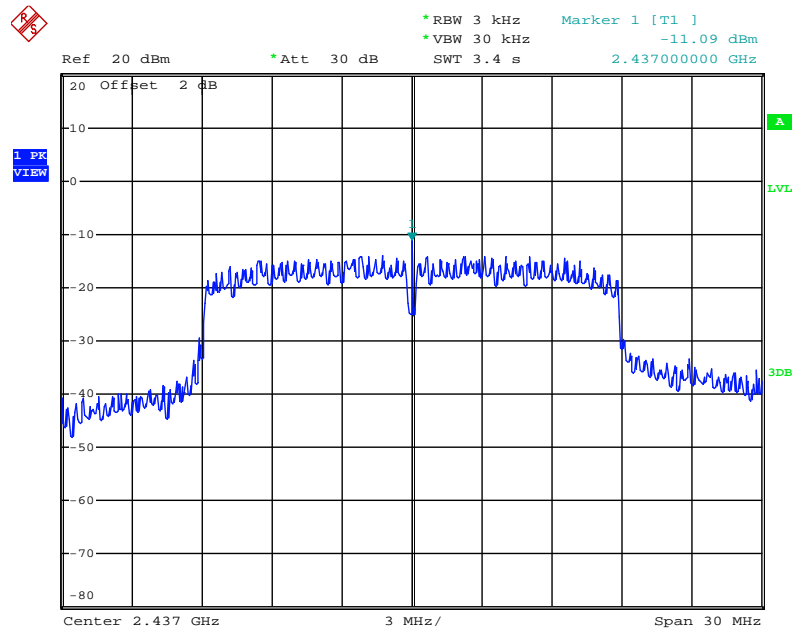
Date: 26.AUG.2014 19:42:48

Power Density Plot on Configuration IEEE 802.11g / 2412 MHz / Ant. 1



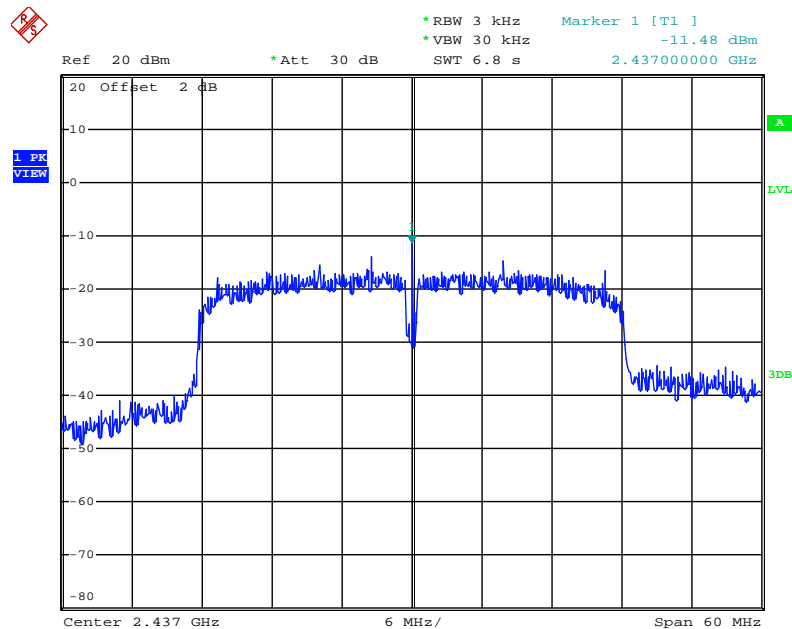
Date: 26.AUG.2014 19:45:42

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Ant. 2



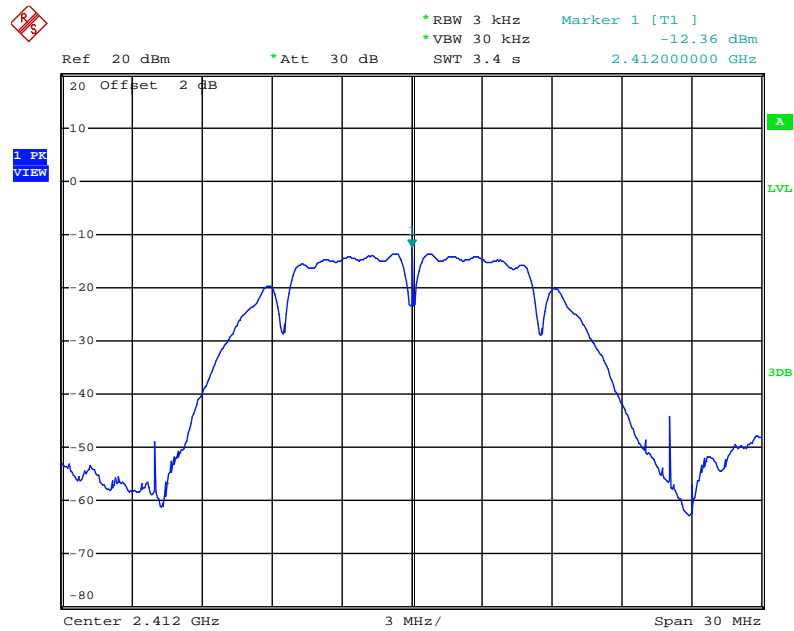
Date: 26.AUG.2014 20:48:10

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 2



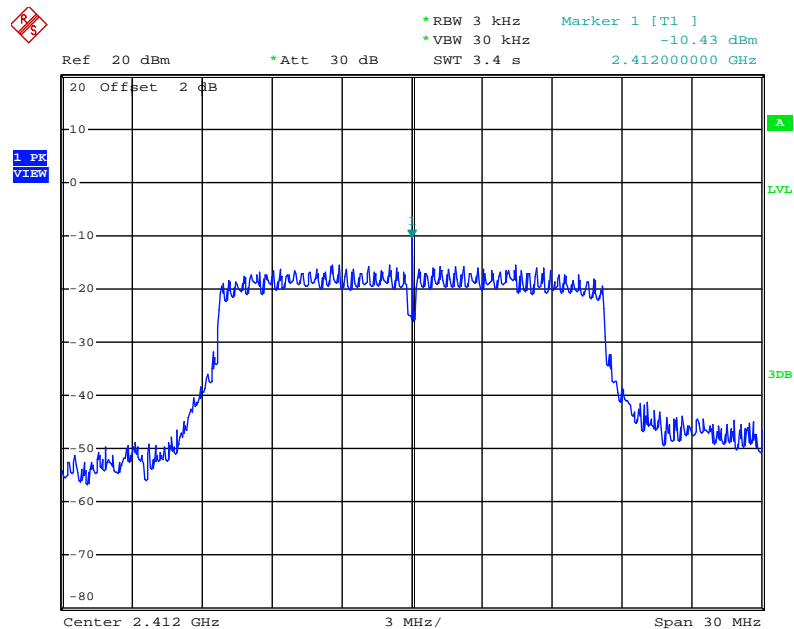
Date: 26.AUG.2014 20:51:46

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / Ant. 2



Date: 26.AUG.2014 20:38:02

Power Density Plot on Configuration IEEE 802.11g / 2412 MHz / Ant. 2



Date: 26.AUG.2014 20:41:21

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

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

4.4.2. Measuring Instruments and Setting

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

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

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

4.4.4. Test Deviation

There is no deviation with the original standard.

4.4.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.6. Test Result of 6dB Spectrum Bandwidth

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 1

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.76	500	Complies
6	2437 MHz	17.60	17.84	500	Complies
11	2462 MHz	17.28	17.76	500	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.36	36.16	500	Complies
6	2437 MHz	35.36	39.20	500	Complies
9	2452 MHz	35.20	35.84	500	Complies

Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	11.12	14.48	500	Complies
6	2437 MHz	11.12	14.64	500	Complies
11	2462 MHz	11.12	14.88	500	Complies

Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.40	16.96	500	Complies
6	2437 MHz	16.40	17.12	500	Complies
11	2462 MHz	16.40	17.04	500	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Cliff Chang	Test Ant.	Ant. 2

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.52	500	Complies
6	2437 MHz	17.60	17.84	500	Complies
11	2462 MHz	17.36	17.60	500	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.36	35.68	500	Complies
6	2437 MHz	35.52	38.56	500	Complies
9	2452 MHz	35.36	35.68	500	Complies

Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	11.12	14.32	500	Complies
6	2437 MHz	12.00	14.32	500	Complies
11	2462 MHz	11.12	14.40	500	Complies

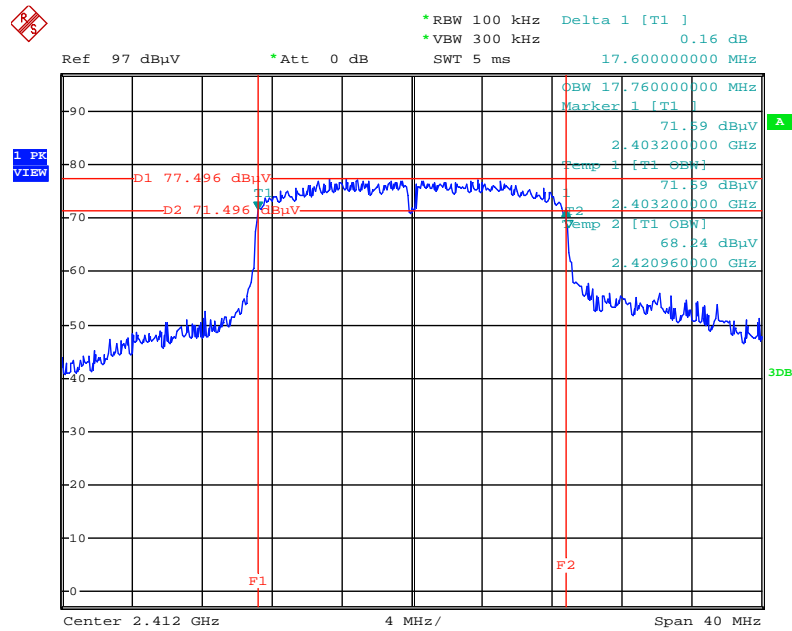
Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.40	16.48	500	Complies
6	2437 MHz	16.40	17.36	500	Complies
11	2462 MHz	16.40	16.56	500	Complies

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

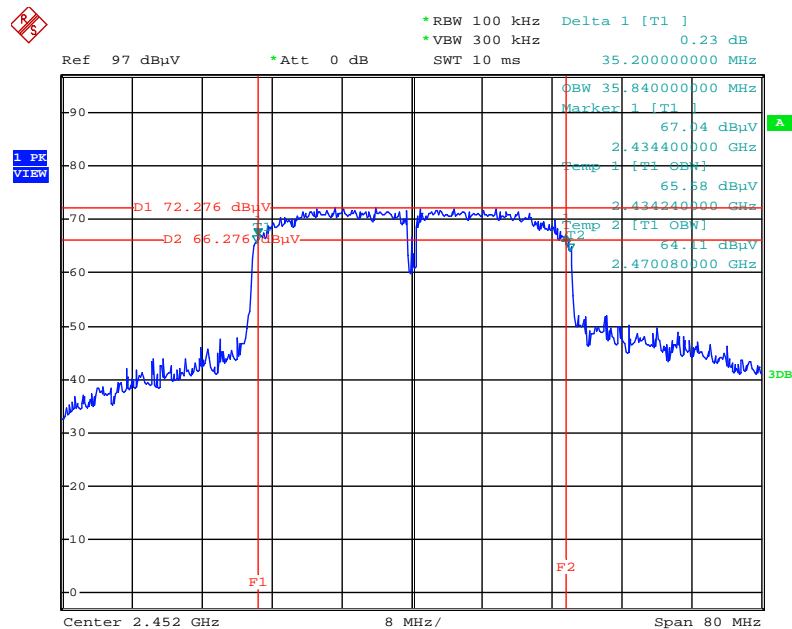
For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2412 MHz / Ant. 1



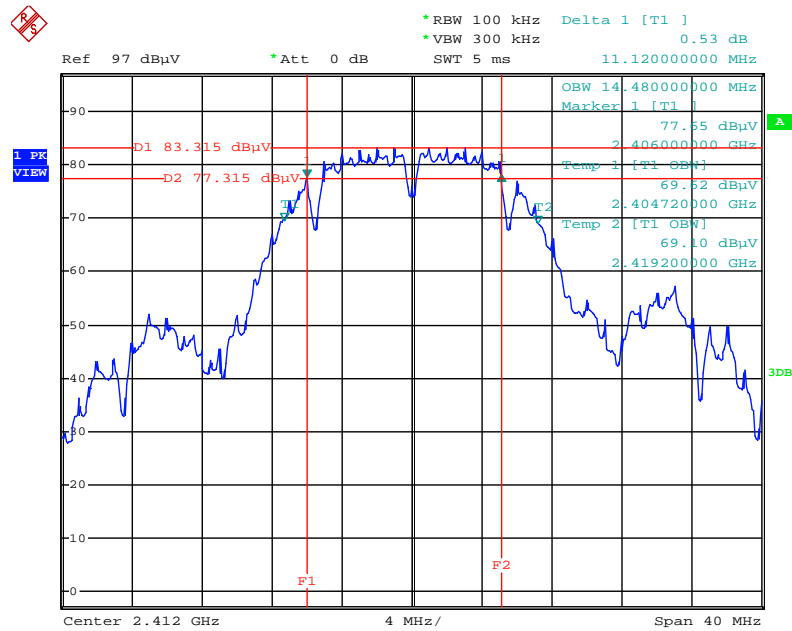
Date: 26.AUG.2014 18:20:10

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2452 MHz / Ant. 1



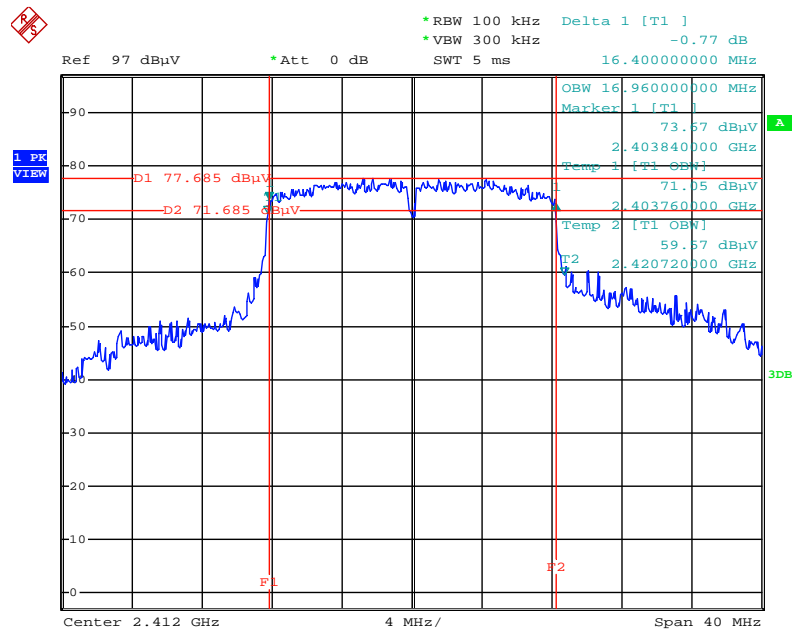
Date: 26.AUG.2014 18:26:07

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Ant. 1



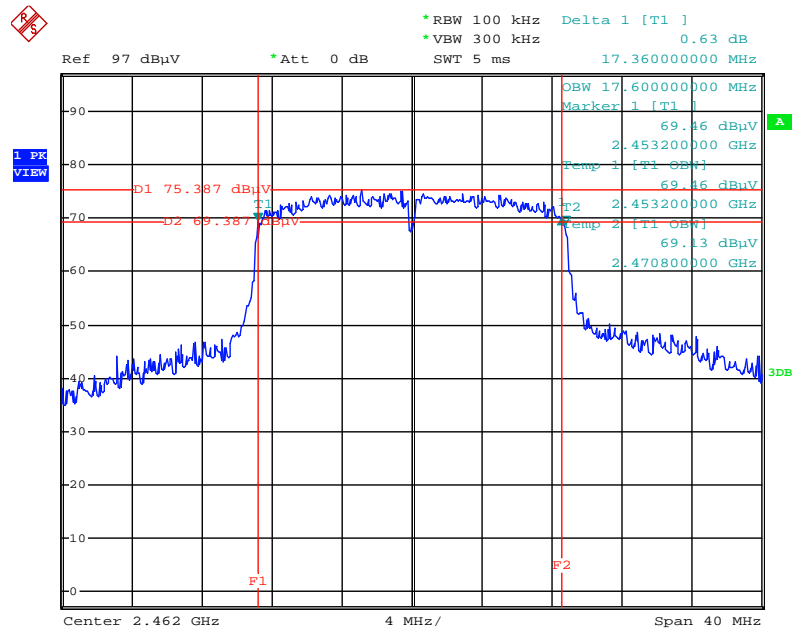
Date: 26.AUG.2014 18:10:37

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz / Ant. 1



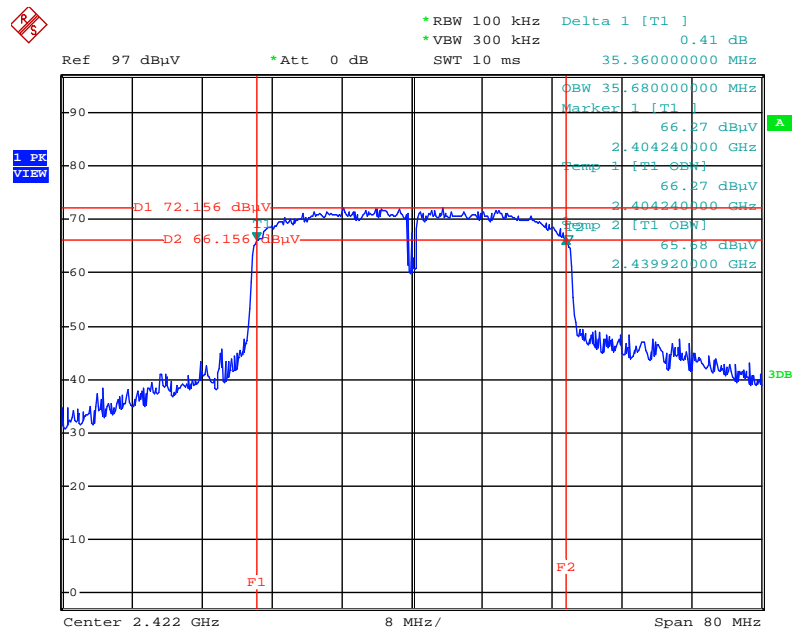
Date: 26.AUG.2014 18:16:33

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2462 MHz / Ant. 2



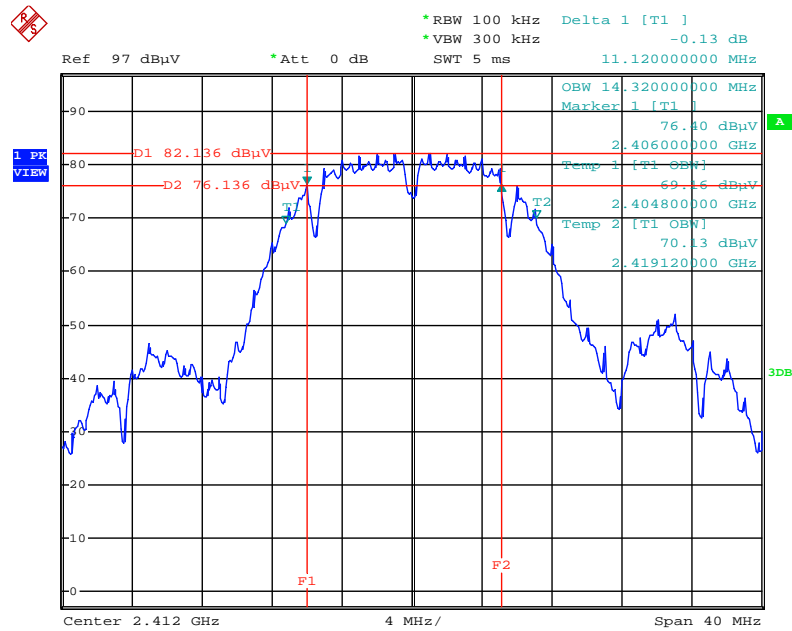
Date: 26.AUG.2014 21:03:39

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Ant. 2



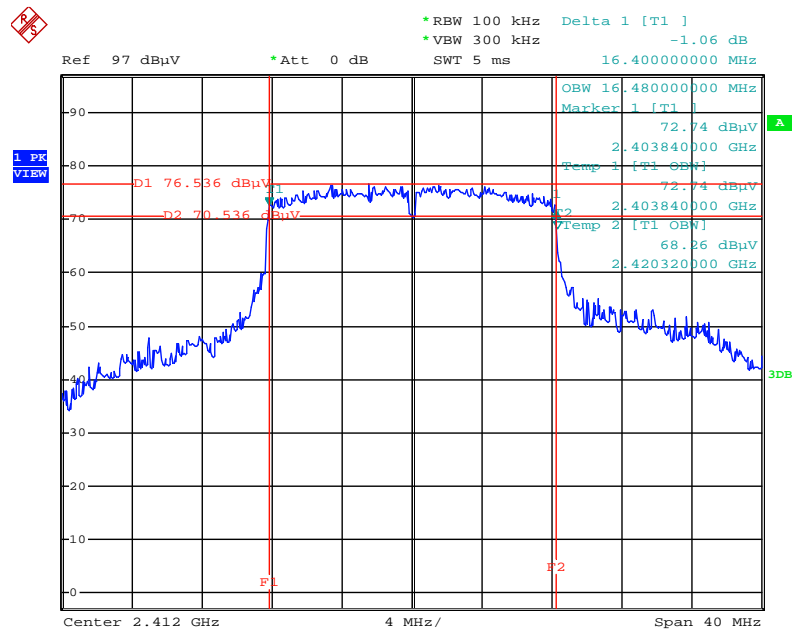
Date: 26.AUG.2014 21:05:06

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Ant. 2



Date: 26.AUG.2014 20:56:19

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz / Ant. 2



Date: 26.AUG.2014 20:59:26

4.5. Radiated Emissions Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

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

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

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

4.5.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.5.4. Test Deviation

There is no deviation with the original standard.

4.5.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	CTX
Test Date	Aug. 26, 2014	Test Ant.	Ant. 1

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

Note:

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

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	CTX
Test Date	Aug. 26, 2014	Test Ant.	Ant. 2

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

Note:

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

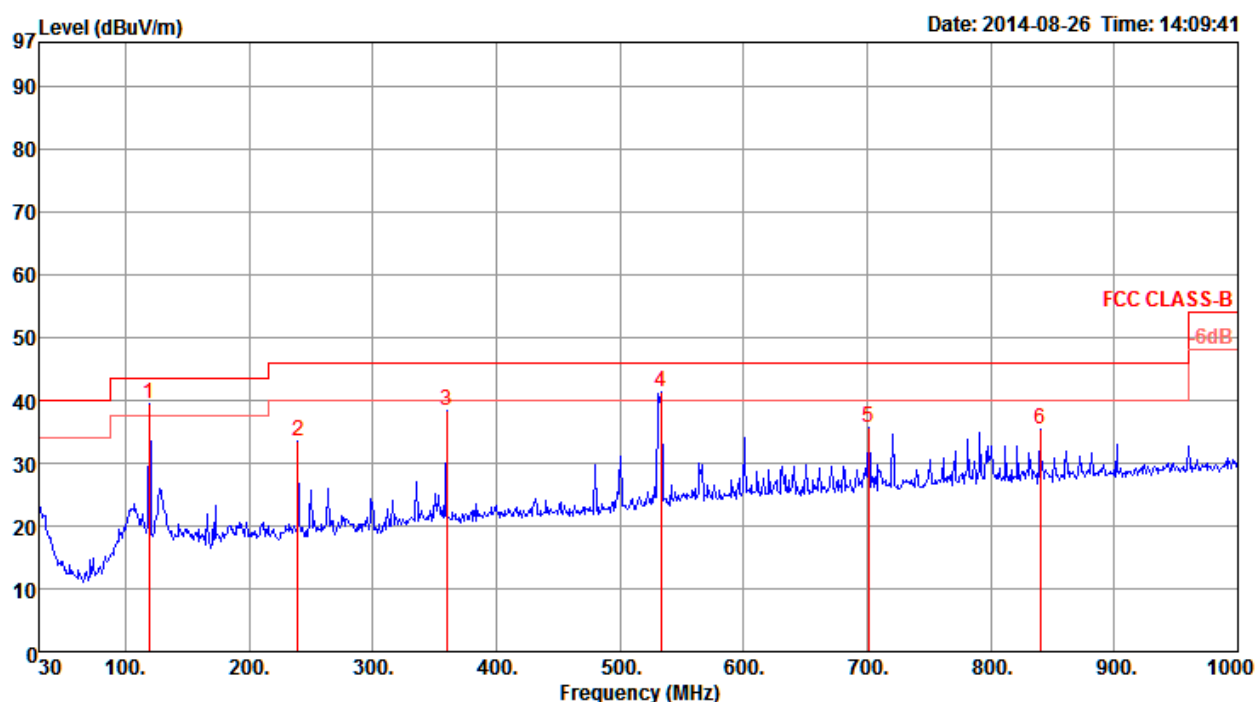
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

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

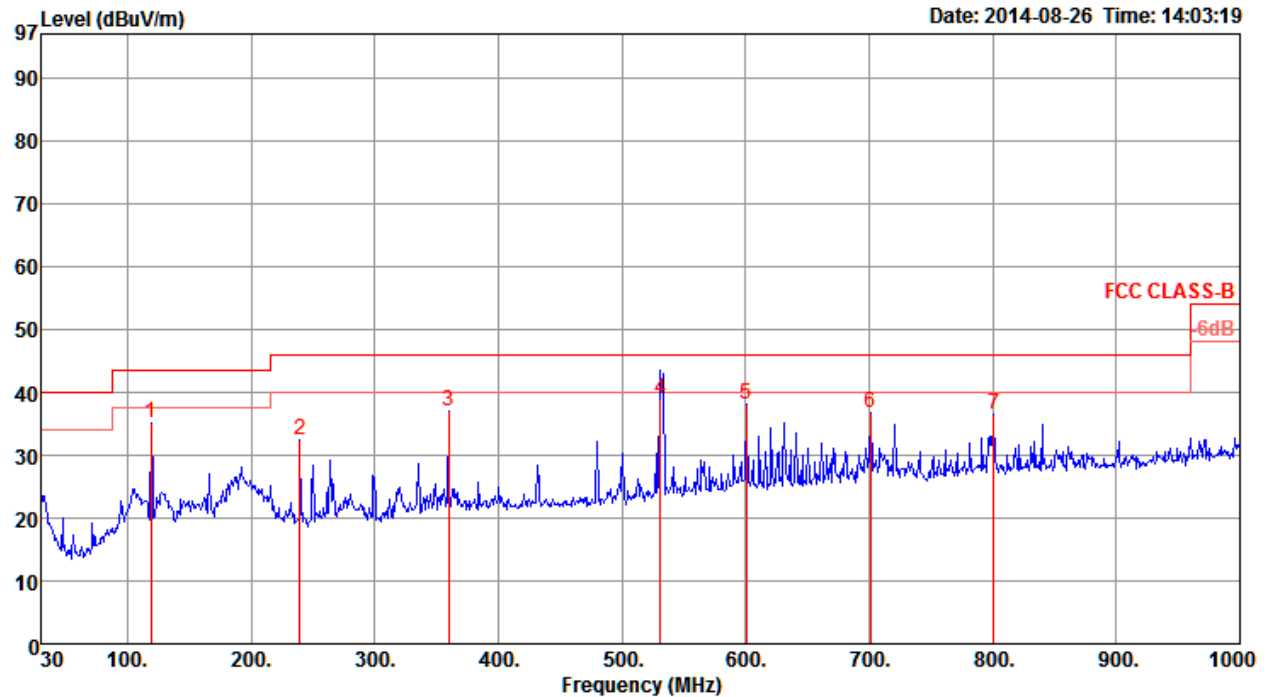
Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	CTX
Test Ant.	Ant. 1		

Horizontal



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp			T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	119.24	39.48	43.50	-4.02	53.64	0.93	12.60	27.69	Peak	0	100	HORIZONTAL
2	239.52	33.56	46.00	-12.44	46.97	1.37	12.20	26.98	Peak	0	100	HORIZONTAL
3	359.80	38.29	46.00	-7.71	47.91	1.75	15.78	27.15	Peak	0	100	HORIZONTAL
4	533.43	41.31	46.00	-4.69	48.42	2.19	18.60	27.90	Peak	0	100	HORIZONTAL
5	701.24	35.63	46.00	-10.37	40.22	2.58	19.91	27.08	Peak	0	100	HORIZONTAL
6	839.95	35.34	46.00	-10.66	37.91	2.81	21.52	26.90	Peak	0	100	HORIZONTAL

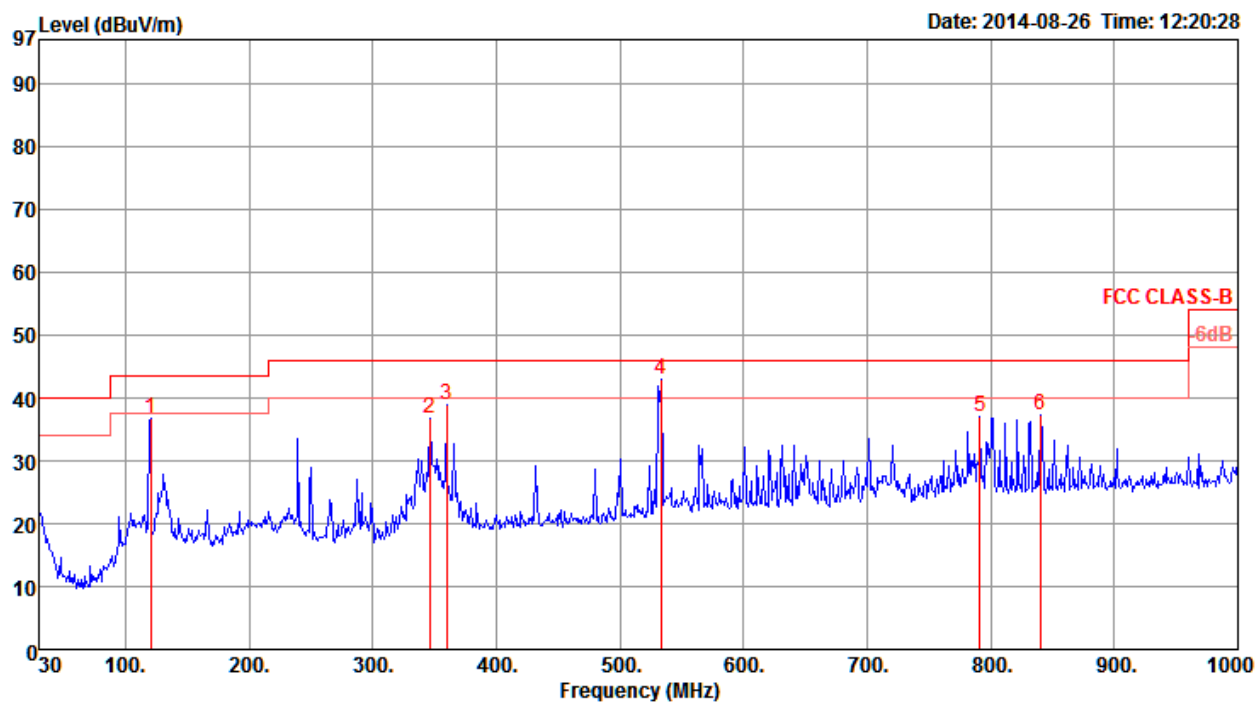
Vertical



	Freq	Level	Limit	Over	Read	CableAntenna	Preampl			T/Pos	A/Pos	
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1	119.24	35.13	43.50	-8.37	49.29	0.93	12.60	27.69	Peak	0	400	VERTICAL
2	239.52	32.50	46.00	-13.50	45.91	1.37	12.20	26.98	Peak	0	400	VERTICAL
3	359.80	37.12	46.00	-8.88	46.74	1.75	15.78	27.15	Peak	0	400	VERTICAL
4	531.49	38.96	46.00	-7.04	46.13	2.18	18.55	27.90	QP	90	114	VERTICAL
5	600.36	38.23	46.00	-7.77	43.87	2.36	19.60	27.60	Peak	0	400	VERTICAL
6	701.24	36.75	46.00	-9.25	41.34	2.58	19.91	27.08	Peak	0	400	VERTICAL
7	801.15	36.53	46.00	-9.47	39.48	2.73	21.21	26.89	Peak	0	400	VERTICAL

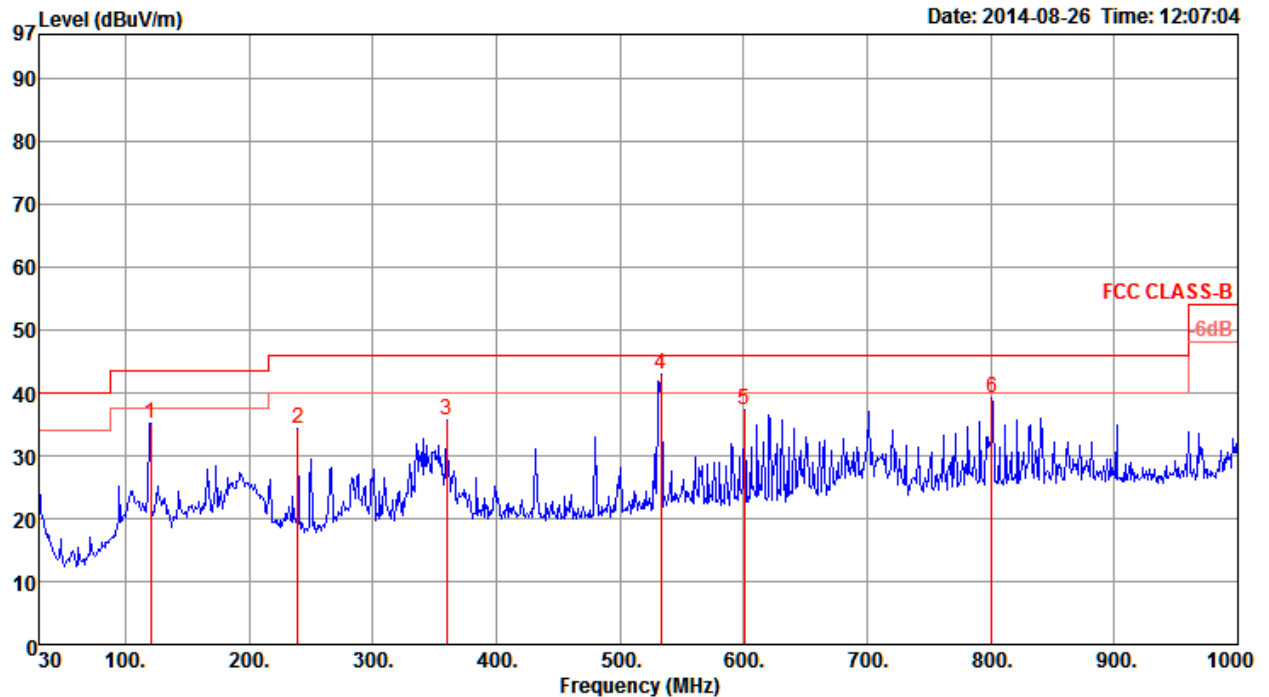
Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	CTX
Test Ant.	Ant. 2		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	120.21	36.66	43.50	-6.84	50.82	0.93	12.60	27.69	Peak	0	100	HORIZONTAL
2	346.22	36.68	46.00	-9.32	46.55	1.71	15.47	27.05	Peak	0	100	HORIZONTAL
3	359.80	38.79	46.00	-7.21	48.41	1.75	15.78	27.15	Peak	0	100	HORIZONTAL
4	533.43	42.92	46.00	-3.08	50.03	2.19	18.60	27.90	Peak	0	100	HORIZONTAL
5	791.45	37.01	46.00	-8.99	40.12	2.72	21.10	26.93	Peak	0	100	HORIZONTAL
6	839.95	37.31	46.00	-8.69	39.88	2.81	21.52	26.90	Peak	0	100	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	Remark	deg	cm	
1	120.21	35.23	43.50	-8.27	49.39	0.93	12.60	27.69	Peak	0	400	VERTICAL
2	239.52	34.44	46.00	-11.56	47.85	1.37	12.20	26.98	Peak	0	400	VERTICAL
3	359.80	35.75	46.00	-10.25	45.37	1.75	15.78	27.15	Peak	0	400	VERTICAL
4	533.43	42.99	46.00	-3.01	50.10	2.19	18.60	27.90	Peak	0	400	VERTICAL
5	600.36	37.21	46.00	-8.79	42.85	2.36	19.60	27.60	Peak	0	400	VERTICAL
6	801.15	39.19	46.00	-6.81	42.14	2.73	21.21	26.89	Peak	0	400	VERTICAL

Note:

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

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

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

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4822.05	36.75	54.00	-17.25	33.61	5.68	32.76	35.30	100	227	HORIZONTAL	Average
2	4827.84	45.04	74.00	-28.96	41.88	5.69	32.77	35.30	100	227	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4819.54	36.04	54.00	-17.96	32.90	5.68	32.76	35.30	100	172	VERTICAL	Average
2	4825.02	45.50	74.00	-28.50	42.34	5.69	32.77	35.30	100	172	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4875.03	45.45	74.00	-28.55	42.22	5.75	32.80	35.32	100	141	HORIZONTAL	Peak
2	4878.73	36.91	54.00	-17.09	33.68	5.75	32.80	35.32	100	141	HORIZONTAL	Average
3	7314.45	50.48	74.00	-23.52	41.66	7.06	37.12	35.36	100	80	HORIZONTAL	Peak
4	7315.76	41.53	54.00	-12.47	32.70	7.06	37.13	35.36	100	80	HORIZONTAL	Average

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4870.15	36.48	54.00	-17.52	33.25	5.74	32.80	35.31	100	173	VERTICAL	Average
2	4872.76	46.65	74.00	-27.35	43.41	5.75	32.80	35.31	100	173	VERTICAL	Peak
3	7307.75	50.38	74.00	-23.62	41.57	7.05	37.12	35.36	100	128	VERTICAL	Peak
4	7309.70	41.54	54.00	-12.46	32.72	7.06	37.12	35.36	100	128	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Ant. 1
Test Date	Aug. 22, 2014		

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	4922.49	46.39	74.00	-27.61	43.08	5.81	32.83	35.33	100	32	HORIZONTAL	Peak
2	4923.79	37.70	54.00	-16.30	34.38	5.81	32.84	35.33	100	32	HORIZONTAL	Average
3	7384.52	41.13	54.00	-12.87	32.20	7.09	37.16	35.32	100	101	HORIZONTAL	Average
4	7389.10	51.28	74.00	-22.72	42.34	7.09	37.16	35.31	100	101	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	4919.86	37.32	54.00	-16.68	34.02	5.80	32.83	35.33	100	167	VERTICAL	Average
2	4926.70	45.41	74.00	-28.59	42.09	5.81	32.84	35.33	100	167	VERTICAL	Peak
3	7385.18	50.45	74.00	-23.55	41.52	7.09	37.16	35.32	100	209	VERTICAL	Peak
4	7389.69	41.16	54.00	-12.84	32.22	7.09	37.16	35.31	100	209	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4819.26	36.45	54.00	-17.55	33.30	5.68	32.76	35.29	100	105	HORIZONTAL	Average
2	4822.02	44.93	74.00	-29.07	41.79	5.68	32.76	35.30	100	105	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4820.27	36.57	54.00	-17.43	33.43	5.68	32.76	35.30	100	269	VERTICAL	Average
2	4821.54	45.42	74.00	-28.58	42.28	5.68	32.76	35.30	100	269	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4874.04	37.44	54.00	-16.56	34.20	5.75	32.80	35.31	100	47	HORIZONTAL	Average
2	4876.48	46.31	74.00	-27.69	43.08	5.75	32.80	35.32	100	47	HORIZONTAL	Peak
3	7310.13	41.70	54.00	-12.30	32.88	7.06	37.12	35.36	100	138	HORIZONTAL	Average
4	7315.70	50.59	74.00	-23.41	41.76	7.06	37.13	35.36	100	138	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4872.61	45.66	74.00	-28.34	42.42	5.75	32.80	35.31	100	315	VERTICAL	Peak
2	4876.94	36.84	54.00	-17.16	33.61	5.75	32.80	35.32	100	315	VERTICAL	Average
3	7314.12	41.90	54.00	-12.10	33.08	7.06	37.12	35.36	100	20	VERTICAL	Average
4	7315.14	50.72	74.00	-23.28	41.90	7.06	37.12	35.36	100	20	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.94	37.36	54.00	-16.64	34.04	5.81	32.84	35.33	100	174	HORIZONTAL	Average
2	4928.82	46.29	74.00	-27.71	42.97	5.81	32.84	35.33	100	174	HORIZONTAL	Peak
3	7381.75	41.52	54.00	-12.48	32.60	7.08	37.16	35.32	100	70	HORIZONTAL	Average
4	7388.49	50.56	74.00	-23.44	41.62	7.09	37.16	35.31	100	70	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4920.39	48.12	74.00	-25.88	44.82	5.80	32.83	35.33	100	91	VERTICAL	Peak
2	4923.49	37.34	54.00	-16.66	34.03	5.81	32.83	35.33	100	91	VERTICAL	Average
3	7381.49	41.39	54.00	-12.61	32.47	7.08	37.16	35.32	100	164	VERTICAL	Average
4	7386.51	51.16	74.00	-22.84	42.23	7.09	37.16	35.32	100	164	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 1 / Ant. 1
Test Date	Aug. 22, 2014		

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	4823.91	50.18	74.00	-23.82	47.03	5.69	32.76	35.30	101	91	HORIZONTAL	Peak
2	4824.01	46.26	54.00	-7.74	43.11	5.69	32.76	35.30	101	91	HORIZONTAL	Average

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	4823.98	48.50	74.00	-25.50	45.35	5.69	32.76	35.30	100	9	VERTICAL	Peak
2	4824.00	44.72	54.00	-9.28	41.57	5.69	32.76	35.30	100	9	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 6 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4874.00	44.45	54.00	-9.55	41.21	5.75	32.80	35.31	100	96	HORIZONTAL	Average
2	4874.02	48.94	74.00	-25.06	45.70	5.75	32.80	35.31	100	96	HORIZONTAL	Peak
3	7308.76	50.81	74.00	-23.19	41.99	7.06	37.12	35.36	100	159	HORIZONTAL	Peak
4	7315.53	41.51	54.00	-12.49	32.69	7.06	37.12	35.36	100	159	HORIZONTAL	Average

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4874.02	47.95	74.00	-26.05	44.71	5.75	32.80	35.31	100	8	VERTICAL	Peak
2	4874.03	41.31	54.00	-12.69	38.07	5.75	32.80	35.31	100	8	VERTICAL	Average
3	7307.94	51.35	74.00	-22.65	42.54	7.05	37.12	35.36	100	1	VERTICAL	Peak
4	7308.36	41.62	54.00	-12.38	32.81	7.05	37.12	35.36	100	1	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 11 / Ant. 1
Test Date	Aug. 22, 2014		

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	4923.86	50.44	74.00	-23.56	47.12	5.81	32.84	35.33	100	87	HORIZONTAL	Peak
2	4924.02	45.73	54.00	-8.27	42.41	5.81	32.84	35.33	100	87	HORIZONTAL	Average
3	7383.39	40.80	54.00	-13.20	31.88	7.08	37.16	35.32	100	180	HORIZONTAL	Average
4	7384.43	50.97	74.00	-23.03	42.05	7.08	37.16	35.32	100	180	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	4924.00	42.52	54.00	-11.48	39.20	5.81	32.84	35.33	100	8	VERTICAL	Average
2	4924.13	48.69	74.00	-25.31	45.37	5.81	32.84	35.33	100	8	VERTICAL	Peak
3	7381.31	41.13	54.00	-12.87	32.21	7.08	37.16	35.32	100	323	VERTICAL	Average
4	7381.92	49.32	74.00	-24.68	40.40	7.08	37.16	35.32	100	323	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 1 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4825.63	36.14	54.00	-17.86	32.98	5.69	32.77	35.30	100	34	HORIZONTAL	Average
2	4826.87	44.99	74.00	-29.01	41.83	5.69	32.77	35.30	100	34	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4824.08	45.00	74.00	-29.00	41.85	5.69	32.76	35.30	100	108	VERTICAL	Peak
2	4825.95	36.11	54.00	-17.89	32.95	5.69	32.77	35.30	100	108	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 6 / Ant. 1
Test Date	Aug. 22, 2014		

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	4869.97	46.07	74.00	-27.93	42.84	5.74	32.80	35.31	100	130	HORIZONTAL	Peak
2	4873.88	36.60	54.00	-17.40	33.36	5.75	32.80	35.31	100	130	HORIZONTAL	Average
3	7306.37	41.30	54.00	-12.70	32.49	7.05	37.12	35.36	100	183	HORIZONTAL	Average
4	7308.15	51.19	74.00	-22.81	42.38	7.05	37.12	35.36	100	183	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	4871.67	36.28	54.00	-17.72	33.05	5.74	32.80	35.31	100	156	VERTICAL	Average
2	4873.74	45.54	74.00	-28.46	42.30	5.75	32.80	35.31	100	156	VERTICAL	Peak
3	7313.33	41.56	54.00	-12.44	32.74	7.06	37.12	35.36	100	80	VERTICAL	Average
4	7315.01	50.27	74.00	-23.73	41.45	7.06	37.12	35.36	100	80	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 11 / Ant. 1
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4923.70	37.82	54.00	-16.18	34.50	5.81	32.84	35.33	100	127	HORIZONTAL	Average
2	4927.18	46.76	74.00	-27.24	43.44	5.81	32.84	35.33	100	127	HORIZONTAL	Peak
3	7381.96	41.13	54.00	-12.87	32.21	7.08	37.16	35.32	100	205	HORIZONTAL	Average
4	7382.10	50.04	74.00	-23.96	41.12	7.08	37.16	35.32	100	205	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4920.08	36.80	54.00	-17.20	33.50	5.80	32.83	35.33	100	302	VERTICAL	Average
2	4926.31	46.37	74.00	-27.63	43.05	5.81	32.84	35.33	100	302	VERTICAL	Peak
3	7381.96	41.13	54.00	-12.87	32.21	7.08	37.16	35.32	100	264	VERTICAL	Average
4	7383.95	50.06	74.00	-23.94	41.14	7.08	37.16	35.32	100	264	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	4826.36	37.04	54.00	-16.96	33.88	5.69	32.77	35.30	126	166	HORIZONTAL Average
2	4826.38	45.07	74.00	-28.93	41.91	5.69	32.77	35.30	126	166	HORIZONTAL Peak

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	4823.91	41.26	54.00	-12.74	38.11	5.69	32.76	35.30	126	210	VERTICAL Average
2	4824.30	48.89	74.00	-25.11	45.74	5.69	32.76	35.30	126	210	VERTICAL Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4870.15	45.87	74.00	-28.13	42.64	5.74	32.80	35.31	100	135	HORIZONTAL	Peak
2	4875.93	37.35	54.00	-16.65	34.12	5.75	32.80	35.32	100	135	HORIZONTAL	Average
3	7309.99	41.37	54.00	-12.63	32.55	7.06	37.12	35.36	100	215	HORIZONTAL	Average
4	7311.47	51.12	74.00	-22.88	42.30	7.06	37.12	35.36	100	215	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4870.89	52.76	74.00	-21.24	49.53	5.74	32.80	35.31	100	132	VERTICAL	Peak
2	4873.91	41.75	54.00	-12.25	38.51	5.75	32.80	35.31	100	132	VERTICAL	Average
3	7309.24	41.81	54.00	-12.19	32.99	7.06	37.12	35.36	100	179	VERTICAL	Average
4	7312.53	50.56	74.00	-23.44	41.74	7.06	37.12	35.36	100	179	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Ant. 2
Test Date	Aug. 22, 2014		

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	4925.67	46.37	74.00	-27.63	43.05	5.81	32.84	35.33	100	320	HORIZONTAL	Peak
2	4926.16	37.16	54.00	-16.84	33.84	5.81	32.84	35.33	100	320	HORIZONTAL	Average
3	7382.22	41.37	54.00	-12.63	32.45	7.08	37.16	35.32	100	67	HORIZONTAL	Average
4	7388.64	50.15	74.00	-23.85	41.21	7.09	37.16	35.31	100	67	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	4923.60	41.08	54.00	-12.92	37.77	5.81	32.83	35.33	147	87	VERTICAL	Average
2	4925.30	52.26	74.00	-21.74	48.94	5.81	32.84	35.33	147	87	VERTICAL	Peak
3	7381.01	50.09	74.00	-23.91	41.17	7.08	37.16	35.32	152	127	VERTICAL	Peak
4	7382.74	41.03	54.00	-12.97	32.11	7.08	37.16	35.32	152	127	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	4819.48	36.37	54.00	-17.63	33.23	5.68	32.76	35.30	100	116	HORIZONTAL Average
2	4821.03	46.12	74.00	-27.88	42.98	5.68	32.76	35.30	100	116	HORIZONTAL Peak

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	4828.03	46.11	74.00	-27.89	42.95	5.69	32.77	35.30	100	186	VERTICAL Peak
2	4828.67	37.12	54.00	-16.88	33.96	5.69	32.77	35.30	100	186	VERTICAL Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4874.09	37.42	54.00	-16.58	34.18	5.75	32.80	35.31	100	215	HORIZONTAL	Average
2	4878.70	45.57	74.00	-28.43	42.34	5.75	32.80	35.32	100	215	HORIZONTAL	Peak
3	7307.39	41.91	54.00	-12.09	33.10	7.06	37.12	35.36	100	66	HORIZONTAL	Average
4	7313.68	50.67	74.00	-23.33	41.85	7.06	37.12	35.36	100	66	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4873.91	42.67	54.00	-11.33	39.43	5.75	32.80	35.31	100	25	VERTICAL	Average
2	4874.84	52.31	74.00	-21.69	49.07	5.75	32.80	35.31	100	25	VERTICAL	Peak
3	7312.95	41.87	54.00	-12.13	33.05	7.06	37.12	35.36	100	114	VERTICAL	Average
4	7314.29	51.03	74.00	-22.97	42.21	7.06	37.12	35.36	100	114	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4922.63	46.28	74.00	-27.72	42.97	5.81	32.83	35.33	100	240	HORIZONTAL	Peak
2	4926.34	37.48	54.00	-16.52	34.16	5.81	32.84	35.33	100	240	HORIZONTAL	Average
3	7382.46	41.44	54.00	-12.56	32.52	7.08	37.16	35.32	100	35	HORIZONTAL	Average
4	7382.87	50.22	74.00	-23.78	41.30	7.08	37.16	35.32	100	35	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4921.45	37.88	54.00	-16.12	34.57	5.81	32.83	35.33	100	167	VERTICAL	Average
2	4927.45	46.19	74.00	-27.81	42.87	5.81	32.84	35.33	100	167	VERTICAL	Peak
3	7382.14	41.57	54.00	-12.43	32.65	7.08	37.16	35.32	100	88	VERTICAL	Average
4	7386.15	50.23	74.00	-23.77	41.30	7.09	37.16	35.32	100	88	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 1 / Ant. 2
Test Date	Aug. 21, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4824.01	45.90	54.00	-8.10	42.75	5.69	32.76	35.30	100	31	HORIZONTAL	Average
2	4824.17	50.64	74.00	-23.36	47.49	5.69	32.76	35.30	100	31	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4823.95	55.33	74.00	-18.67	52.18	5.69	32.76	35.30	100	25	VERTICAL	Peak
2	4824.01	53.15	54.00	-0.85	50.00	5.69	32.76	35.30	100	25	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 6 / Ant. 2
Test Date	Aug. 21, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4873.88	50.04	74.00	-23.96	46.80	5.75	32.80	35.31	100	30	HORIZONTAL	Peak
2	4874.01	44.66	54.00	-9.34	41.42	5.75	32.80	35.31	100	30	HORIZONTAL	Average
3	7309.98	50.70	74.00	-23.30	41.88	7.06	37.12	35.36	100	302	HORIZONTAL	Peak
4	7313.30	41.87	54.00	-12.13	33.05	7.06	37.12	35.36	100	302	HORIZONTAL	Average

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4873.99	53.71	54.00	-0.29	50.47	5.75	32.80	35.31	100	23	VERTICAL	Average
2	4874.04	55.86	74.00	-18.14	52.62	5.75	32.80	35.31	100	23	VERTICAL	Peak
3	7310.09	50.48	74.00	-23.52	41.66	7.06	37.12	35.36	100	260	VERTICAL	Peak
4	7311.63	43.03	54.00	-10.97	34.21	7.06	37.12	35.36	100	260	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 11 / Ant. 2
Test Date	Aug. 21, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4923.87	49.58	74.00	-24.42	46.26	5.81	32.84	35.33	100	195	HORIZONTAL	Peak
2	4924.00	44.06	54.00	-9.94	40.74	5.81	32.84	35.33	100	195	HORIZONTAL	Average
3	7381.40	41.48	54.00	-12.52	32.56	7.08	37.16	35.32	100	311	HORIZONTAL	Average
4	7388.40	49.76	74.00	-24.24	40.82	7.09	37.16	35.31	100	311	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4924.00	53.96	54.00	-0.04	50.64	5.81	32.84	35.33	100	21	VERTICAL	Average
2	4924.05	56.34	74.00	-17.66	53.02	5.81	32.84	35.33	100	21	VERTICAL	Peak
3	7388.82	49.77	74.00	-24.23	40.83	7.09	37.16	35.31	100	275	VERTICAL	Peak
4	7389.62	41.40	54.00	-12.60	32.46	7.09	37.16	35.31	100	275	VERTICAL	Average

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 1 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4824.28	45.76	74.00	-28.24	42.61	5.69	32.76	35.30	100	184	HORIZONTAL	Peak
2	4826.84	36.98	54.00	-17.02	33.82	5.69	32.77	35.30	100	184	HORIZONTAL	Average

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4825.98	42.17	54.00	-11.83	39.01	5.69	32.77	35.30	100	27	VERTICAL	Average
2	4826.39	52.41	74.00	-21.59	49.25	5.69	32.77	35.30	100	27	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 6 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4875.98	47.02	74.00	-26.98	43.79	5.75	32.80	35.32	120	149	HORIZONTAL	Peak
2	4876.29	37.67	54.00	-16.33	34.44	5.75	32.80	35.32	120	149	HORIZONTAL	Average
3	7308.58	49.80	74.00	-24.20	40.98	7.06	37.12	35.36	100	142	HORIZONTAL	Peak
4	7312.67	41.99	54.00	-12.01	33.17	7.06	37.12	35.36	100	142	HORIZONTAL	Average

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4870.87	52.49	74.00	-21.51	49.26	5.74	32.80	35.31	100	20	VERTICAL	Peak
2	4875.77	44.81	54.00	-9.19	41.58	5.75	32.80	35.32	100	20	VERTICAL	Average
3	7312.52	41.95	54.00	-12.05	33.13	7.06	37.12	35.36	100	53	VERTICAL	Average
4	7315.45	50.59	74.00	-23.41	41.77	7.06	37.12	35.36	100	53	VERTICAL	Peak

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 11 / Ant. 2
Test Date	Aug. 22, 2014		

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4922.47	45.36	74.00	-28.64	42.05	5.81	32.83	35.33	100	160	HORIZONTAL	Peak
2	4924.29	37.34	54.00	-16.66	34.02	5.81	32.84	35.33	100	160	HORIZONTAL	Average
3	7384.97	41.21	54.00	-12.79	32.28	7.09	37.16	35.32	126	218	HORIZONTAL	Average
4	7385.93	49.23	74.00	-24.77	40.30	7.09	37.16	35.32	126	218	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4920.11	51.58	74.00	-22.42	48.28	5.80	32.83	35.33	132	87	VERTICAL	Peak
2	4926.04	42.16	54.00	-11.84	38.84	5.81	32.84	35.33	132	87	VERTICAL	Average
3	7386.35	41.18	54.00	-12.82	32.25	7.09	37.16	35.32	126	147	VERTICAL	Average
4	7388.94	50.26	74.00	-23.74	41.32	7.09	37.16	35.31	126	147	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. Emissions Measurement

4.6.1. Limit

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

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

4.6.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

4.6.3. Test Procedures

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.
2. The radiated emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
Only worst data of each operating mode is presented.

4.6.4. Test Deviation

There is no deviation with the original standard.

4.6.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.6. Test Result of Band Edge and Fundamental Emissions

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Ant. 1
Test Date	Aug. 22, 2014		

Channel 1

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	50.31	54.00	-3.69	18.73	3.68	27.90	0.00	100	90	HORIZONTAL	Average
2	2390.00	65.77	74.00	-8.23	34.19	3.68	27.90	0.00	100	90	HORIZONTAL	Peak
3	2407.20	103.31			71.72	3.69	27.90	0.00	100	90	HORIZONTAL	Peak
4	2411.10	96.49			64.90	3.69	27.90	0.00	100	90	HORIZONTAL	Average

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

Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2385.00	44.44	54.00	-9.56	12.86	3.68	27.90	0.00	100	92	HORIZONTAL	Average
2	2388.40	57.04	74.00	-16.96	25.46	3.68	27.90	0.00	100	92	HORIZONTAL	Peak
3	2433.80	102.06			70.46	3.70	27.90	0.00	100	92	HORIZONTAL	Peak
4	2436.00	94.98			63.37	3.71	27.90	0.00	100	92	HORIZONTAL	Average
5	2488.50	43.78	54.00	-10.22	12.15	3.73	27.90	0.00	100	92	HORIZONTAL	Average
6	2488.50	56.84	74.00	-17.16	25.21	3.73	27.90	0.00	100	92	HORIZONTAL	Peak

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

Channel 11

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2463.10	95.08			63.46	3.72	27.90	0.00	100	76	HORIZONTAL	Average
2	2465.30	101.85			70.23	3.72	27.90	0.00	100	76	HORIZONTAL	Peak
3	2483.50	51.41	54.00	-2.59	19.78	3.73	27.90	0.00	100	76	HORIZONTAL	Average
4	2483.50	65.23	74.00	-8.77	33.60	3.73	27.90	0.00	100	76	HORIZONTAL	Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Ant. 1
Test Date	Aug. 22, 2014		

Channel 3

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.80	67.81	74.00	-6.19	36.23	3.68	27.90	0.00	100	92	HORIZONTAL	Peak
2	2390.00	53.91	54.00	-0.09	22.33	3.68	27.90	0.00	100	92	HORIZONTAL	Average
3	2412.40	92.37			60.78	3.69	27.90	0.00	100	92	HORIZONTAL	Average
4	2414.40	99.72			68.13	3.69	27.90	0.00	100	92	HORIZONTAL	Peak

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

Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	44.72	54.00	-9.28	13.14	3.68	27.90	0.00	100	75	HORIZONTAL	Average
2	2390.00	57.51	74.00	-16.49	25.93	3.68	27.90	0.00	100	75	HORIZONTAL	Peak
3	2446.60	92.29			60.68	3.71	27.90	0.00	100	75	HORIZONTAL	Average
4	2447.40	99.86			68.25	3.71	27.90	0.00	100	75	HORIZONTAL	Peak
5	2483.50	48.96	54.00	-5.04	17.33	3.73	27.90	0.00	100	75	HORIZONTAL	Average
6	2483.50	60.85	74.00	-13.15	29.22	3.73	27.90	0.00	100	75	HORIZONTAL	Peak

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

Channel 9

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2449.00	90.57			58.96	3.71	27.90	0.00	100	76	HORIZONTAL	Average
2	2450.00	98.08			66.47	3.71	27.90	0.00	100	76	HORIZONTAL	Peak
3	2483.50	53.63	54.00	-0.37	22.00	3.73	27.90	0.00	100	76	HORIZONTAL	Average
4	2487.10	64.80	74.00	-9.20	33.17	3.73	27.90	0.00	100	76	HORIZONTAL	Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant. 1
Test Date	Aug. 22, 2014		

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2387.40	44.41	54.00	-9.59	12.83	3.68	27.90	0.00	100	76	HORIZONTAL Average
2	2388.80	56.72	74.00	-17.28	25.14	3.68	27.90	0.00	100	76	HORIZONTAL Peak
3	2409.30	103.15			71.56	3.69	27.90	0.00	100	76	HORIZONTAL Peak
4	2411.10	101.09			69.50	3.69	27.90	0.00	100	76	HORIZONTAL Average

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2381.60	43.06	54.00	-10.94	11.49	3.67	27.90	0.00	100	91	HORIZONTAL Average
2	2387.40	57.24	74.00	-16.76	25.66	3.68	27.90	0.00	100	91	HORIZONTAL Peak
3	2434.40	101.98			70.38	3.70	27.90	0.00	100	91	HORIZONTAL Peak
4	2436.00	99.84			68.23	3.71	27.90	0.00	100	91	HORIZONTAL Average
5	2484.30	57.03	74.00	-16.97	25.40	3.73	27.90	0.00	100	91	HORIZONTAL Peak
6	2490.30	42.52	54.00	-11.48	10.89	3.73	27.90	0.00	100	91	HORIZONTAL Average

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2463.00	100.27			68.65	3.72	27.90	0.00	100	76	HORIZONTAL Average
2	2464.80	102.35			70.73	3.72	27.90	0.00	100	76	HORIZONTAL Peak
3	2483.50	44.36	54.00	-9.64	12.73	3.73	27.90	0.00	100	76	HORIZONTAL Average
4	2484.30	56.40	74.00	-17.60	24.77	3.73	27.90	0.00	100	76	HORIZONTAL Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant. 1
Test Date	Aug. 22, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2390.00	48.95	54.00	-5.05	17.37	3.68	27.90	0.00	100	75	HORIZONTAL Average
2	2390.00	62.44	74.00	-11.56	30.86	3.68	27.90	0.00	100	75	HORIZONTAL Peak
3	2410.40	103.51			71.92	3.69	27.90	0.00	100	75	HORIZONTAL Peak
4	2410.90	96.61			65.02	3.69	27.90	0.00	100	75	HORIZONTAL Average

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2384.80	44.19	54.00	-9.81	12.61	3.68	27.90	0.00	100	90	HORIZONTAL Average
2	2385.60	57.70	74.00	-16.30	26.12	3.68	27.90	0.00	100	90	HORIZONTAL Peak
3	2435.20	95.32			63.72	3.70	27.90	0.00	100	90	HORIZONTAL Average
4	2441.00	102.31			70.70	3.71	27.90	0.00	100	90	HORIZONTAL Peak
5	2488.90	43.64	54.00	-10.36	12.01	3.73	27.90	0.00	100	90	HORIZONTAL Average
6	2492.10	57.75	74.00	-16.25	26.11	3.74	27.90	0.00	100	90	HORIZONTAL Peak

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2463.10	95.45			63.83	3.72	27.90	0.00	100	76	HORIZONTAL Average
2	2463.80	101.90			70.28	3.72	27.90	0.00	100	76	HORIZONTAL Peak
3	2483.50	50.44	54.00	-3.56	18.81	3.73	27.90	0.00	100	76	HORIZONTAL Average
4	2483.50	65.47	74.00	-8.53	33.84	3.73	27.90	0.00	100	76	HORIZONTAL Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Ant. 2
Test Date	Aug. 22, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.60	70.13	74.00	-3.87	38.55	3.68	27.90	0.00	100	163 VERTICAL	Peak
2	2390.00	53.45	54.00	-0.55	21.87	3.68	27.90	0.00	100	163 VERTICAL	Average
3	2411.00	98.71			67.12	3.69	27.90	0.00	100	163 VERTICAL	Average
4	2411.20	105.55			73.96	3.69	27.90	0.00	100	163 VERTICAL	Peak

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.00	46.08	54.00	-7.92	14.50	3.68	27.90	0.00	100	163 VERTICAL	Average
2	2385.20	58.83	74.00	-15.17	27.25	3.68	27.90	0.00	100	163 VERTICAL	Peak
3	2432.20	95.46			63.86	3.70	27.90	0.00	100	163 VERTICAL	Average
4	2432.40	102.40			70.80	3.70	27.90	0.00	100	163 VERTICAL	Peak
5	2488.50	44.11	54.00	-9.89	12.48	3.73	27.90	0.00	100	163 VERTICAL	Average
6	2490.50	56.84	74.00	-17.16	25.21	3.73	27.90	0.00	100	163 VERTICAL	Peak

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2457.20	102.31			70.69	3.72	27.90	0.00	100	168 VERTICAL	Peak
2	2461.10	95.43			63.81	3.72	27.90	0.00	100	168 VERTICAL	Average
3	2483.50	53.81	54.00	-0.19	22.18	3.73	27.90	0.00	100	168 VERTICAL	Average
4	2483.50	68.60	74.00	-5.40	36.97	3.73	27.90	0.00	100	168 VERTICAL	Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Ant. 2
Test Date	Aug. 22, 2014		

Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2386.20	66.98	74.00	-7.02	35.40	3.68	27.90	0.00	100	164 VERTICAL	Peak
2	2390.00	52.68	54.00	-1.32	21.10	3.68	27.90	0.00	100	164 VERTICAL	Average
3	2412.60	93.46			61.87	3.69	27.90	0.00	100	164 VERTICAL	Average
4	2414.60	100.75			69.16	3.69	27.90	0.00	100	164 VERTICAL	Peak

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.80	63.81	74.00	-10.19	32.23	3.68	27.90	0.00	100	163 VERTICAL	Peak
2	2390.00	48.21	54.00	-5.79	16.63	3.68	27.90	0.00	100	163 VERTICAL	Average
3	2425.80	100.98			69.38	3.70	27.90	0.00	100	163 VERTICAL	Peak
4	2426.60	93.42			61.82	3.70	27.90	0.00	100	163 VERTICAL	Average
5	2483.50	53.92	54.00	-0.08	22.29	3.73	27.90	0.00	100	163 VERTICAL	Average
6	2484.30	66.43	74.00	-7.57	34.80	3.73	27.90	0.00	100	163 VERTICAL	Peak

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

Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2461.40	90.41			58.79	3.72	27.90	0.00	100	168 VERTICAL	Average
2	2462.40	97.84			66.22	3.72	27.90	0.00	100	168 VERTICAL	Peak
3	2483.50	53.80	54.00	-0.20	22.17	3.73	27.90	0.00	100	168 VERTICAL	Average
4	2483.50	65.85	74.00	-8.15	34.22	3.73	27.90	0.00	100	168 VERTICAL	Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant. 2
Test Date	Aug. 21, 2014		

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2386.30	45.05	54.00	-8.95	13.47	3.68	27.90	0.00	100	164 VERTICAL	Average
2	2387.10	58.70	74.00	-15.30	27.12	3.68	27.90	0.00	100	164 VERTICAL	Peak
3	2411.10	102.56			70.97	3.69	27.90	0.00	100	164 VERTICAL	Average
4	2414.80	104.52			72.93	3.69	27.90	0.00	100	164 VERTICAL	Peak

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2390.00	42.29	54.00	-11.71	10.71	3.68	27.90	0.00	100	165 VERTICAL	Average
2	2390.00	50.29	74.00	-23.71	18.71	3.68	27.90	0.00	100	165 VERTICAL	Peak
3	2434.30	99.97			68.37	3.70	27.90	0.00	100	165 VERTICAL	Peak
4	2435.10	97.77			66.17	3.70	27.90	0.00	100	165 VERTICAL	Average
5	2483.50	41.95	54.00	-12.05	10.32	3.73	27.90	0.00	100	165 VERTICAL	Average
6	2483.50	45.95	74.00	-28.05	14.32	3.73	27.90	0.00	100	165 VERTICAL	Peak

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2461.10	99.87			68.25	3.72	27.90	0.00	100	167 VERTICAL	Average
2	2464.80	101.84			70.22	3.72	27.90	0.00	100	167 VERTICAL	Peak
3	2483.50	46.76	54.00	-7.24	15.13	3.73	27.90	0.00	100	167 VERTICAL	Average
4	2483.50	56.87	74.00	-17.13	25.24	3.73	27.90	0.00	100	167 VERTICAL	Peak

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

Temperature	23°C	Humidity	62%
Test Engineer	YC Chen	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant. 2
Test Date	Aug. 21, 2014 and Aug. 22, 2014		

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2390.00	53.03	54.00	-0.97	21.45	3.68	27.90	0.00	100	164 VERTICAL	Average
2	2390.00	67.13	74.00	-6.87	35.55	3.68	27.90	0.00	100	164 VERTICAL	Peak
3	2410.40	105.70			74.11	3.69	27.90	0.00	100	164 VERTICAL	Peak
4	2413.20	98.99			67.40	3.69	27.90	0.00	100	164 VERTICAL	Average

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2384.80	45.68	54.00	-8.32	14.10	3.68	27.90	0.00	100	164 VERTICAL	Average
2	2390.00	57.56	74.00	-16.44	25.98	3.68	27.90	0.00	100	164 VERTICAL	Peak
3	2432.20	95.25			63.65	3.70	27.90	0.00	100	164 VERTICAL	Average
4	2432.60	102.21			70.61	3.70	27.90	0.00	100	164 VERTICAL	Peak
5	2488.70	56.62	74.00	-17.38	24.99	3.73	27.90	0.00	100	164 VERTICAL	Average
6	2489.10	43.90	54.00	-10.10	12.27	3.73	27.90	0.00	100	164 VERTICAL	Average

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2463.40	96.11			64.49	3.72	27.90	0.00	100	149 VERTICAL	Average
2	2466.10	102.77			71.15	3.72	27.90	0.00	100	149 VERTICAL	Peak
3	2483.50	53.42	54.00	-0.58	21.79	3.73	27.90	0.00	100	149 VERTICAL	Average
4	2483.90	65.62	74.00	-8.38	33.99	3.73	27.90	0.00	100	149 VERTICAL	Peak

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

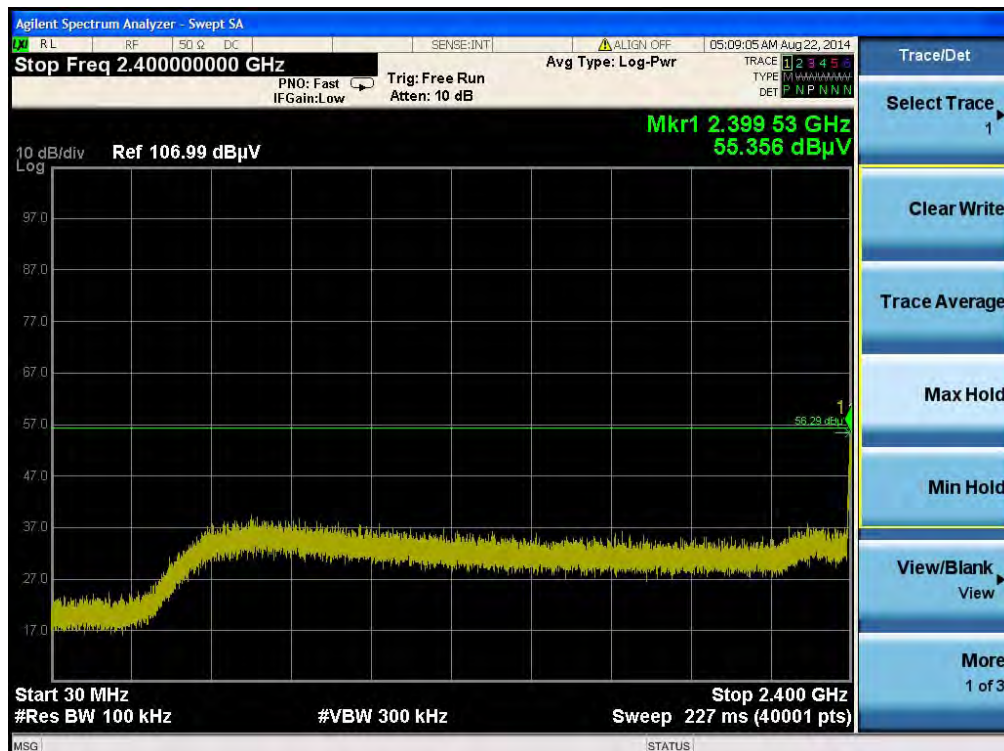
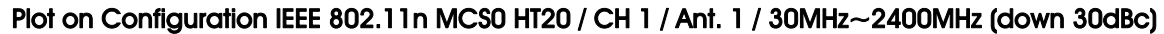
Note:

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

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



Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 / Reference Level





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 05:09:33 AM Aug 22, 2014

Stop Freq 26.50000000 GHz Avg Type: Log-Pwr

PNO: Fast IF Gain: Low Trig: Free Run Atten: 10 dB

TRACE 1 2 3 4 5 6
TYPE P P P P P P P P
DET P N P N N N

10 dB/div Log Ref 106.99 dB μ V

Mkr1 26.219 8 GHz
38.939 dB μ V

58.28 dB μ V

Start 2.50 GHz Stop 26.50 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.30 s (40001 pts)

MSG STATUS

Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank
View
More
1 of 3

Agilent Spectrum Analyzer - Swept SA

☒ R.L. RF 50 Ω DC SENSE:INT ALIGN OFF 05:10:29 AM Aug 22, 2014

Stop Freq 2.40000000 GHz Avg Type: Log-Pwr PNO: Fast IF Gain: Low Trig: Free Run Atten: 10 dB TRACE 1 2 3 4 5 TYPE: P P P P P P P P P P DET: P P P P P P P P P P

10 dB/div Ref 106.99 dBμV **Mkr1 573.56 MHz 39.694 dBμV**

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 2.400 GHz Sweep 227 ms (40001 pts)

MSG STATUS

Trace/Det
 Select Trace
 Clear Write
 Trace Average
 Max Hold
 Min Hold
 View/Blank
 View
 More
 1 of 3

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / Ant. 1 / 2500MHz~26500MHz (down 30dBc)





Agilent Spectrum Analyzer - Swept SA

☒ R.L. RF 50 Ω DC SENSE:INT ALIGN OFF 05:11:32 AM Aug22, 2014

Avg Type: Log-Pwr

PNO: Fast IF Gain: Low Trig: Free Run Atten: 10 dB

TRACE 1 2 3 4 5
TYPE P N P N N N
DET P N P N N N

Mkr1 2.446 628 5 GHz
83.090 dBμV

10 dB/div Ref 106.99 dBμV
Log

The figure displays a spectrum analyzer screen with a grid. A yellow trace shows a signal centered around 2.4466285 GHz. A green diamond marker labeled '1' points to a specific feature on the trace. The vertical axis is labeled 'Log' and ranges from 17.0 to 97.0 dBμV. The horizontal axis is labeled 'Center 2.43700 GHz' and 'Span 60.00 MHz'. Other parameters include '#Res BW 100 kHz', '#VBW 300 kHz', and 'Sweep 8.00 ms (40001 pts)'.

Center 2.43700 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 8.00 ms (40001 pts) Span 60.00 MHz

MSG STATUS

Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank View
More 1 of 3

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN:OFF 05:12:44 AM Aug 22, 2014

Stop Freq 2.40000000 GHz Avg Type: Log-Pwr

PN0: Fast IF Gain: Low Trig: Free Run Atten: 10 dB

TRACE 1 2 3 4 5
TYPE R N N N N N N N
DET P N P N N N N

10 dB/div Ref 106.99 dB μ V

Log

97.0
87.0
77.0
67.0
57.0
47.0
37.0
27.0
17.0

Mkr1 2.398 58 GHz
52.019 dB μ V

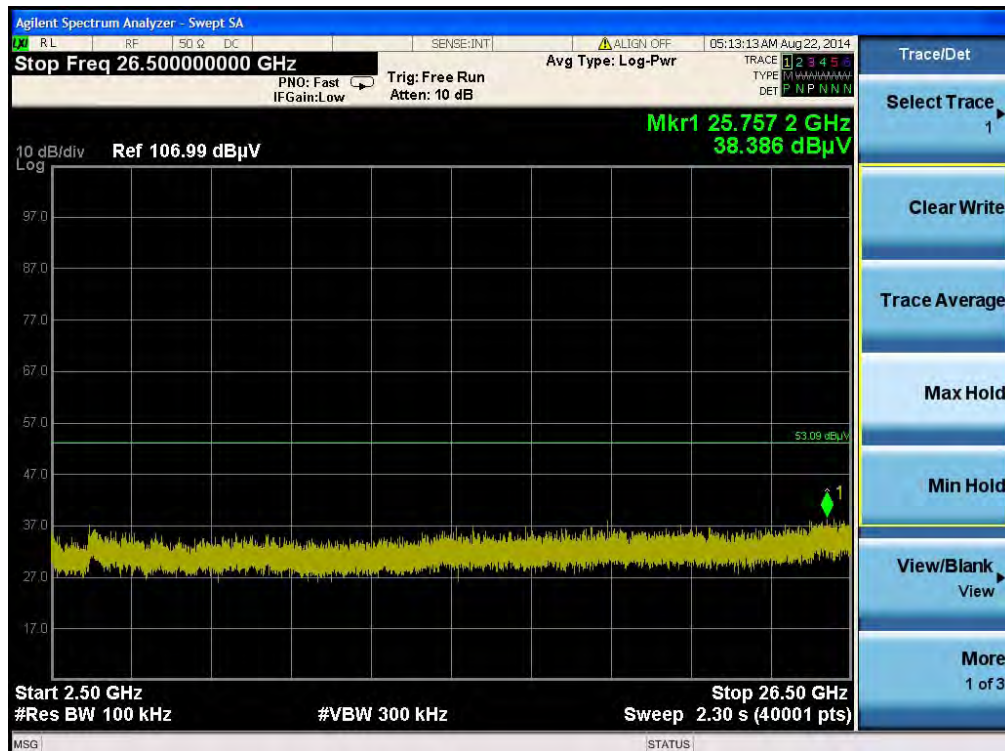
53.09 dBu

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 2.400 GHz Sweep 227 ms (40001 pts)

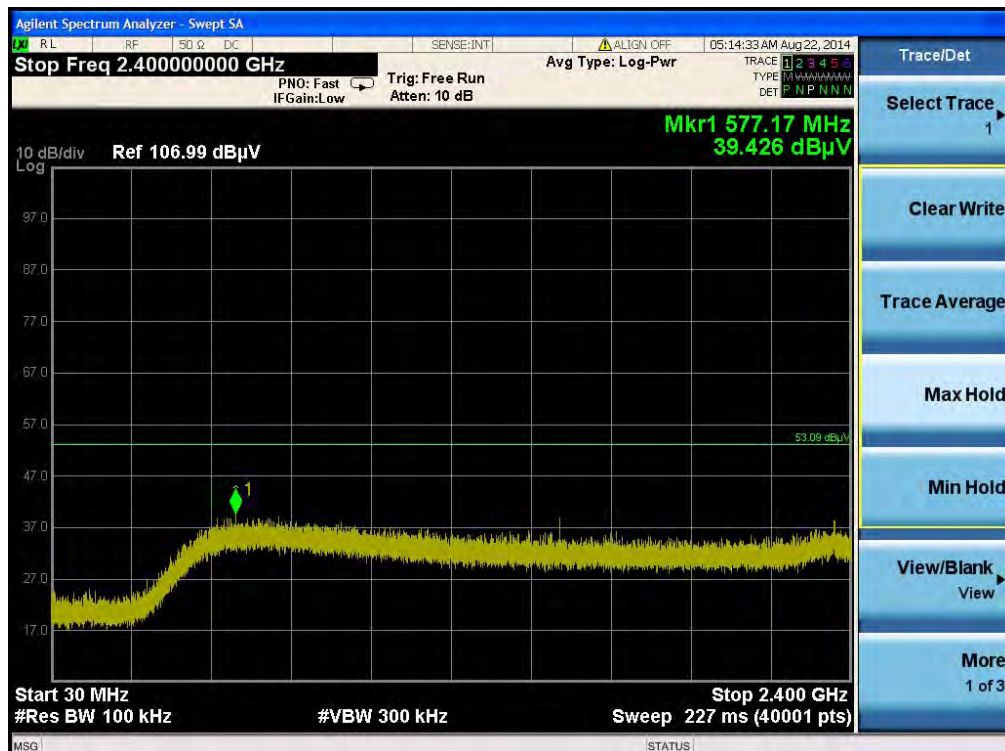
MSG STATUS

Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank
View
More
1 of 3

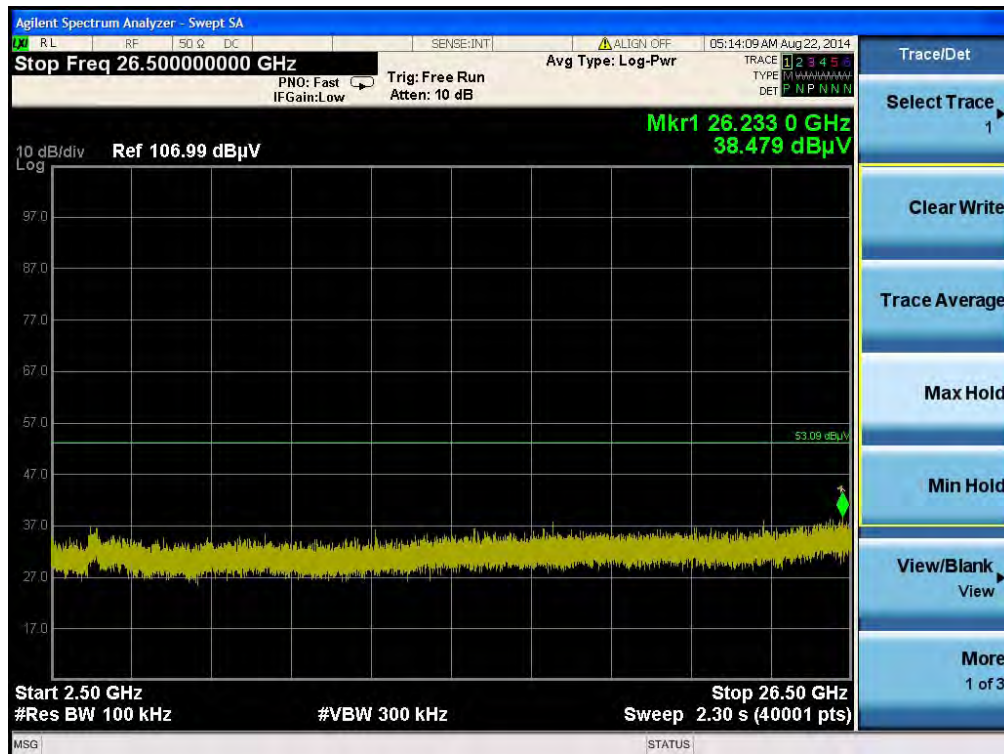
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / Ant. 1 / 2500MHz~26500MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / Ant. 1 / 30MHz~2400MHz (down 30dBc)



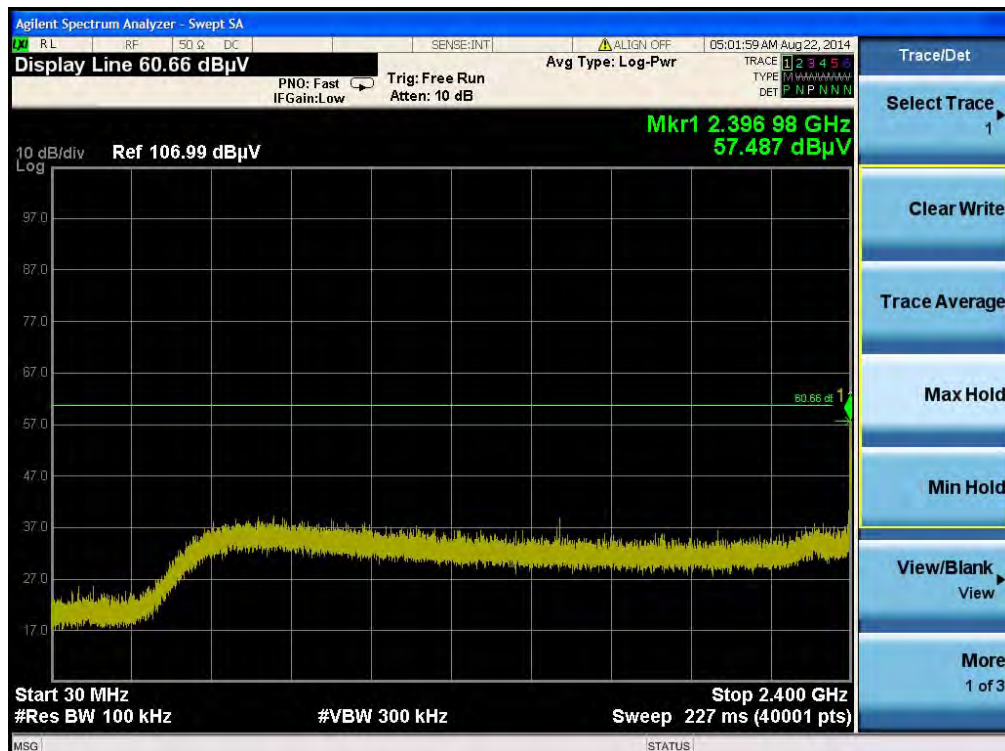
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / Ant. 1 / 2500MHz~26500MHz (down 30dBc)



Plot on Configuration IEEE 802.11b / Ant. 1 / Reference Level



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





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 05:02:26 AM Aug 22, 2014

Stop Freq 26.50000000 GHz Avg Type: Log-Pwr

PNO: Fast IFGain:Low Trig: Free Run Atten: 10 dB

TRACE 1 2 3 4 5
TYPE P P P P P P P P
DET N N N N N N N

10 dB/div Log Ref 106.99 dB μ V

Mkr1 4.823 8 GHz
47.074 dB μ V

97.0
87.0
77.0
67.0
57.0
47.0
37.0
27.0
17.0

60.66 dB μ V

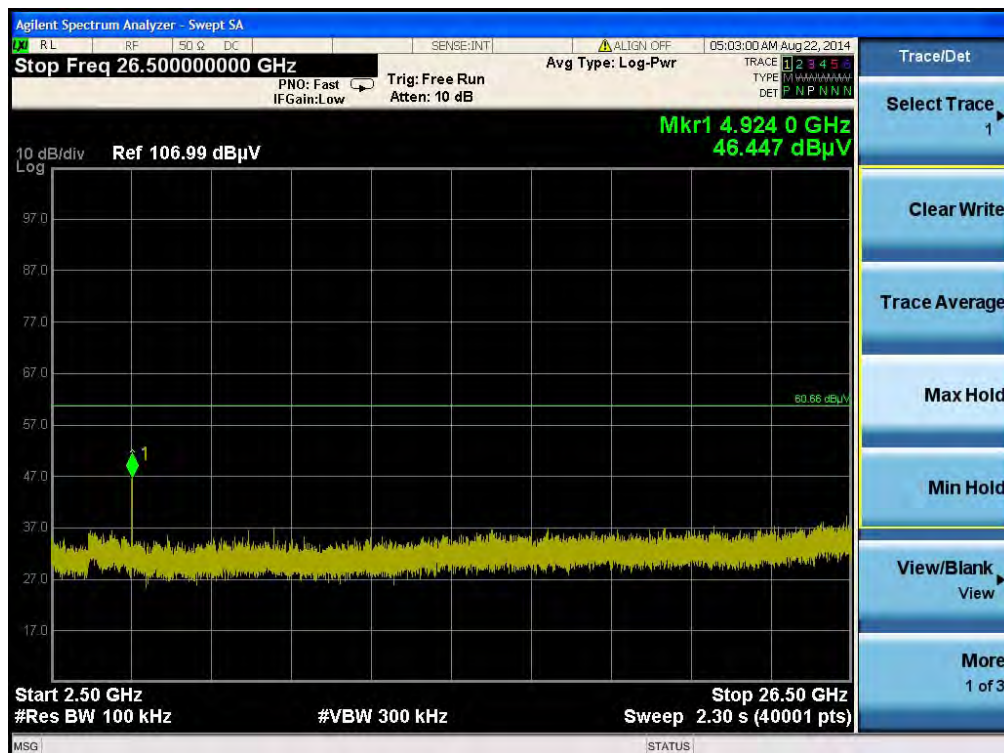
Start 2.50 GHz Stop 26.50 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.30 s (40001 pts)

MSG STATUS

Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank
View
More
1 of 3

[illegible]

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





Agilent Spectrum Analyzer - Swept SA

R/L RF 50 Ω DC SENSE:INT ALIGN OFF 05:04:32 AM Aug 22, 2014

PNO: Fast IF Gain: Low Trig: Free Run Atten: 10 dB Avg Type: Log-Pwr

TRACE 1 2 3 4 5
TYPE P N P N N N
DET P N P N N N

Select Trace

Clear Write

Trace Average

Max Hold

Min Hold

View/Blank View

More 1 of 3

10 dB/div Log Ref 106.99 dBμV

Mkr1 2.434 504 01 GHz
85.943 dBμV

The figure displays a spectrum analyzer screen with a grid background. A yellow trace shows a signal rising from approximately 47 dBμV at 2.4 GHz to a plateau around 85 dBμV between 2.43 and 2.45 GHz, before falling back down. A green marker labeled '1' points to the peak of the signal at 2.43450401 GHz. The y-axis scale is 10 dB/div, ranging from 17.0 to 97.0 dBμV. The x-axis scale is 30.00 MHz, ranging from 2.43 GHz to 2.46 GHz.

Center 2.43700 GHz #Res BW 100 kHz Span 30.00 MHz Sweep 5.33 ms (40001 pts)

[illegible]



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 05:05:51 AM Aug 22, 2014

Stop Freq 26.50000000 GHz Avg Type: Log-Pwr

PNO: Fast IF Gain: Low Trig: Free Run Atten: 10 dB

TRACE 1 2 3 4 5 6
TYPE P P P P P P P P
DET P P P P P P P P

10 dB/div Log Ref 106.99 dB μ V

Mkr1 26.106 4 GHz
39.349 dB μ V

55.94 dB μ V

Start 2.50 GHz #Res BW 100 kHz Sweep 2.30 s (4001 pts)

Stop 26.50 GHz

MSG STATUS

Select Trace

Clear Write

Trace Average

Max Hold

Min Hold

View/Blank

View

More

1 of 3

The image shows a screenshot of an Agilent Spectrum Analyzer. The main display area is a grid with a yellow trace representing a signal. The signal is noisy and centered around 26.1064 GHz. A green horizontal line is drawn across the grid at 55.94 dBμV. A green peak is visible on the right side of the grid, labeled 'Mkr1 26.106 4 GHz 39.349 dBμV'. The top of the screen shows various settings: 'Agilent Spectrum Analyzer - Swept SA', 'RL RF 50 Ω DC', 'SENSE:INT', 'ALIGN OFF', '05:05:51 AM Aug 22, 2014', 'Stop Freq 26.50000000 GHz', 'Avg Type: Log-Pwr', 'PNO: Fast IF Gain: Low', 'Trig: Free Run Atten: 10 dB', 'TRACE 1 2 3 4 5 6', 'TYPE P P P P P P P P', 'DET P P P P P P P P'. The left side of the screen shows '10 dB/div Log' and 'Ref 106.99 dBμV'. The bottom of the screen shows 'Start 2.50 GHz #Res BW 100 kHz Sweep 2.30 s (4001 pts)', 'Stop 26.50 GHz', 'MSG', and 'STATUS'. On the right side, there is a vertical menu with buttons: 'Select Trace', 'Clear Write', 'Trace Average', 'Max Hold', 'Min Hold', 'View/Blank', 'View', and 'More'. The 'More' button has a sub-menu with '1 of 3'.

Agilent Spectrum Analyzer - Swept SA

Stop Freq 2.40000000 GHz

PNO: Fast IF Gain: Low

Trig: Free Run Atten: 10 dB

Avg Type: Log-Pwr

05:07:11 AM Aug 22, 2014

TRACE 1 2 3 4 5

TYPE: P P P P P P P P P P

DET: P P P P P P P P P P

10 dB/div Log

Ref 106.99 dBμV

Mkr1 633.76 MHz 39.514 dBμV

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz

Stop 2.400 GHz Sweep 227 ms (40001 pts)

MSG STATUS

Trace/Det

Select Trace

Clear Write

Trace Average

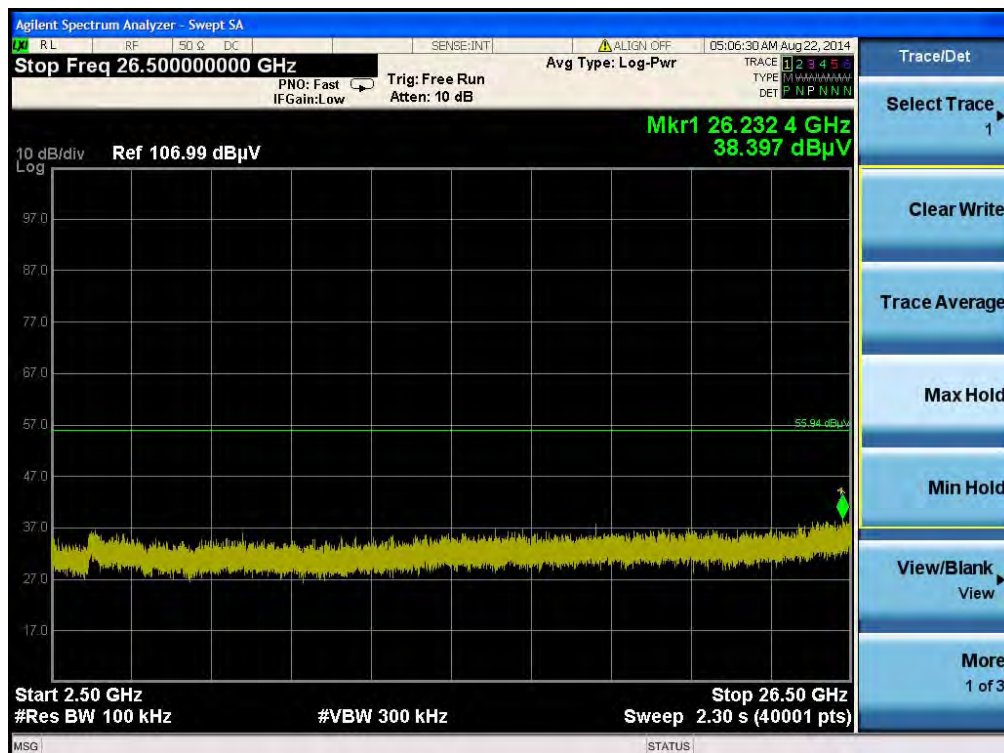
Max Hold

Min Hold

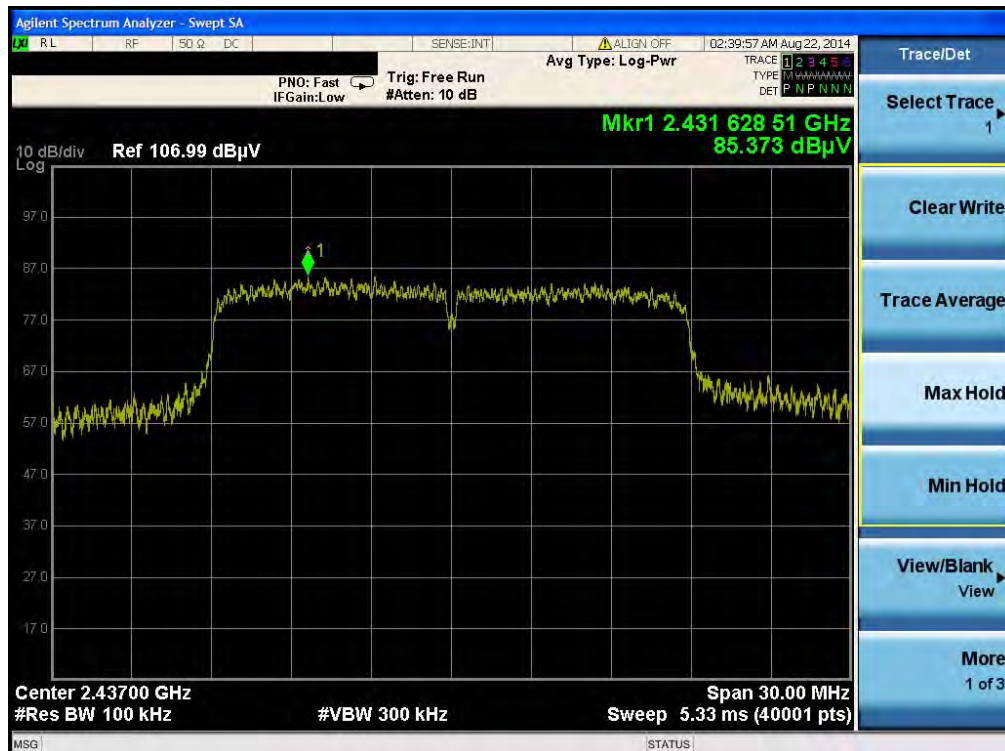
View/Blank View

More 1 of 3

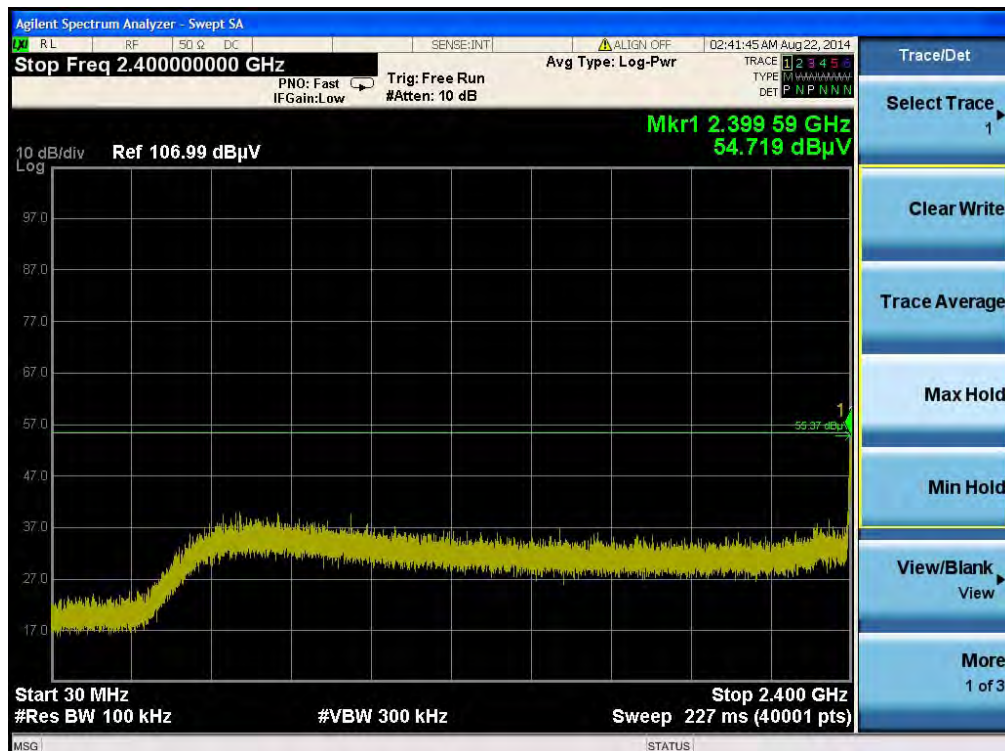
Plot on Configuration IEEE 802.11g / CH 11 / Ant. 1 / 2500MHz~26500MHz (down 30dBc)



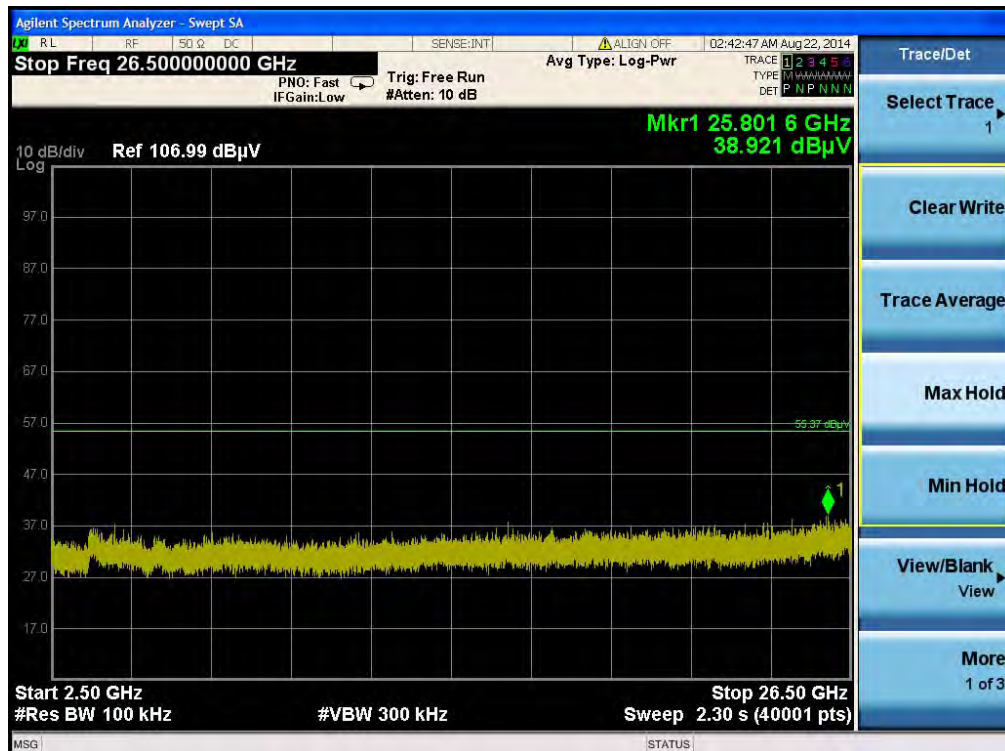
Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 2 / Reference Level



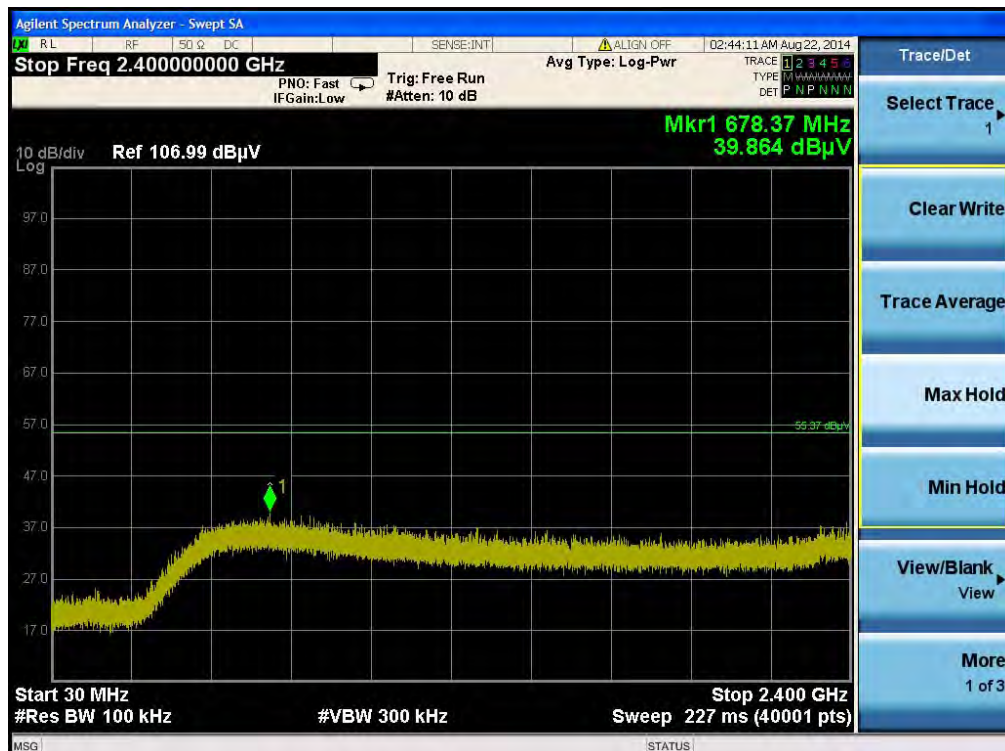
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / Ant. 2 / 30MHz~2400MHz (down 30dBc)



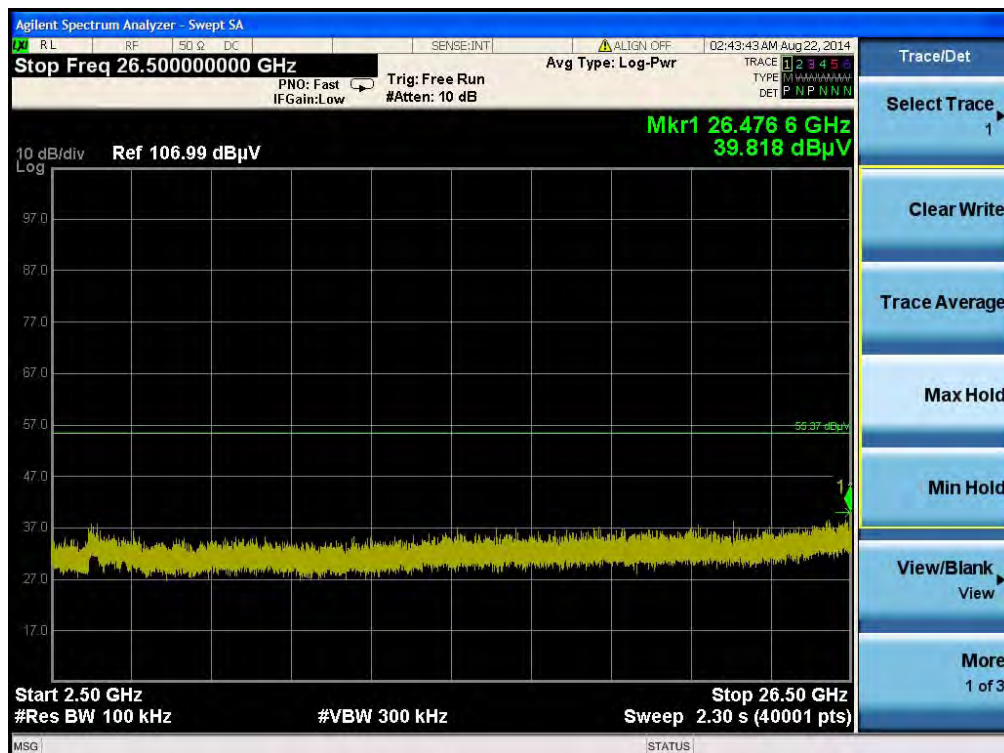
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / Ant. 2 / 2500MHz~26500MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / Ant. 2 / 30MHz~2400MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / Ant. 2 / 2500MHz~26500MHz (down 30dBc)





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 02:45:28 AM Aug 22, 2014

Avg Type: Log-Pwr

Trace 1 2 3 4 5
Type P P P P P
Det N N N N N

PN0: Fast IF Gain: Low Trig: Free Run #Atten: 10 dB

10 dB/div Log Ref 106.99 dB μ V

Mkr1 2.428 261 0 GHz 83.833 dB μ V

Center 2.43700 GHz #Res BW 100 kHz #VBW 300 kHz Span 60.00 MHz Sweep 8.00 ms (40001 pts)

MSG STATUS

Trace/Det Select Trace Clear Write Trace Average Max Hold Min Hold View/Blank View More 1 of 3

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 02:48:06 AM Aug 22, 2014

Stop Freq 2.40000000 GHz Avg Type: Log-Pwr

PNO: Fast IF Gain: Low Trig: Free Run #Atten: 10 dB

TRACE 1 2 3 4 5 TYPE P P P P P P P P DET P P P P P P P P

10 dB/div Ref 106.99 dB μ V

Log

Mkr1 2.400 00 GHz 39.478 dB μ V

53.83 dB μ V

1

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 227 ms (40001 pts)

Stop 2.400 GHz

MSG STATUS

Trace/Det

Select Trace

Clear Write

Trace Average

Max Hold

Min Hold

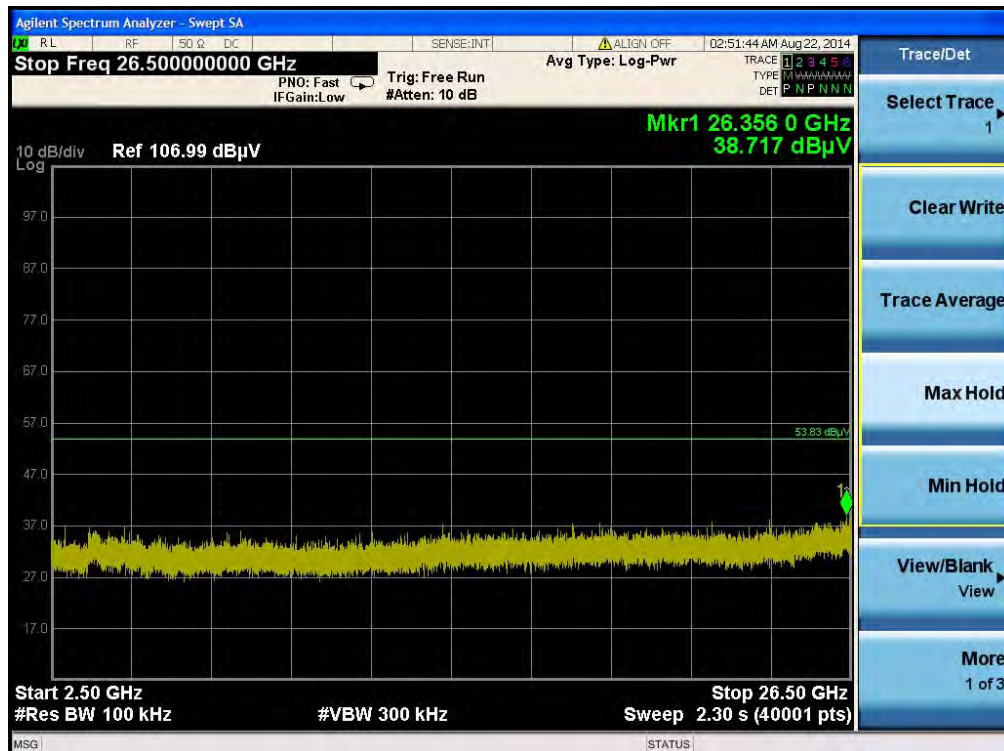
View/Blank

View

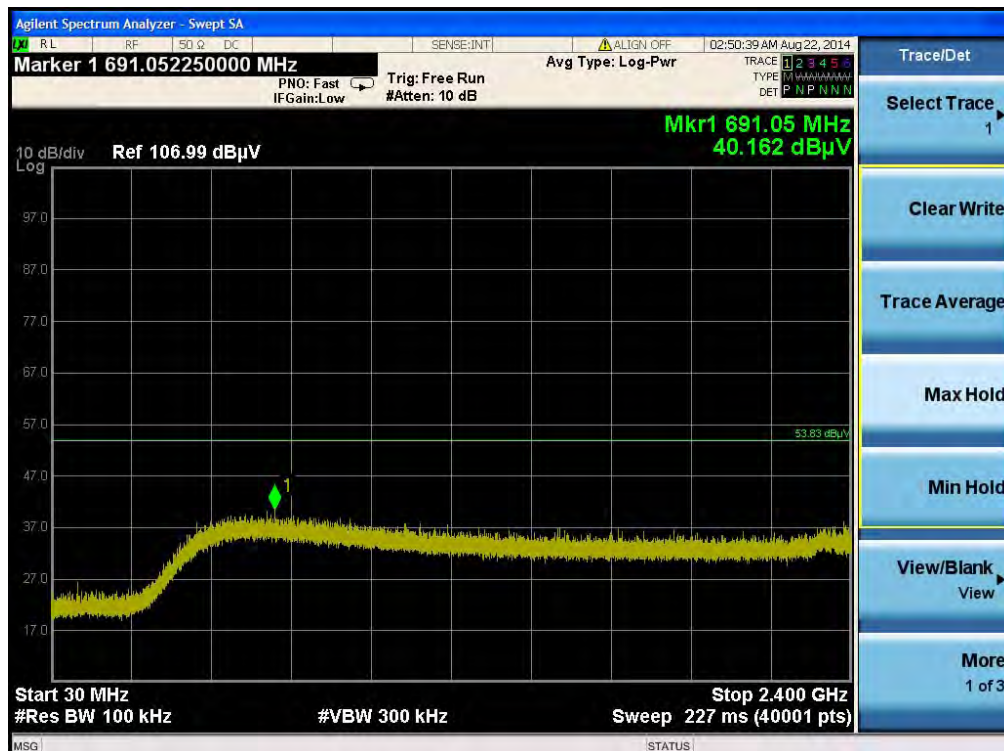
More

1 of 3

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / Ant. 2 / 2500MHz~26500MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / Ant. 2 / 30MHz~2400MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / Ant. 2 / 2500MHz~26500MHz (down 30dBc)





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 02:14:14 AM Aug 22, 2014

Span 30.000000 MHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 20 dB Avg Type: Log-Pwr

TRACE 1 2 3 4 5 TYPE P P P P P P P P DET P P P P P P P P

10 dB/div Log Ref 97.00 dB μ V

Mkr1 2.413 003 50 GHz 92.262 dB μ V

Center 2.41200 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 5.33 ms (40001 pts)

MSG STATUS

Trace/Det Select Trace Clear Write Trace Average Max Hold Min Hold View/Blank View More 1 of 3

Agilent Spectrum Analyzer - Swept SA

R.L. RF 50 Ω DC SENSE:INT ALIGN:OFF 02:15:57 AM Aug 22, 2014

Display Line 62.26 dBμV

PNO: Fast IF Gain: Low Trig: Free Run #Atten: 20 dB

Avg Type: Log-Pwr Avg/Hold: 36/100

TRACE 1 2 3 4 5
TYPE M M M M M M M M
DET P N P N N N

10 dB/div Ref 97.00 dBμV

Mkr1 2.397 04 GHz
54.624 dBμV

62.26 dBμV

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Stop 2.400 GHz Sweep 227 ms (40001 pts)

MSG STATUS

Trace/Det

Select Trace

Clear Write

Trace Average

Max Hold

Min Hold

View/Blank Trace On

More 1 of 3



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN:OFF 02:19:57 AM Aug 22, 2014

Stop Freq 26.50000000 GHz Avg Type: Log-Pwr

PNO: Fast Trig: Free Run
IFGain: Low #Atten: 20 dB

TRACE 1 2 3 4 5
TYPE P P P P P
DET N N N N N

10 dB/div Ref 97.00 dB μ V
Log

Mkr1 4.823 8 GHz
47.201 dB μ V

87.0
77.0
67.0
57.0
47.0
37.0
27.0
17.0
7.00

62.26 dB μ V

Start 2.50 GHz Stop 26.50 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.30 s (40001 pts)

MSG STATUS

Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank
View
More
1 of 3

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 02:23:11 AM Aug 22, 2014

Stop Freq 2.40000000 GHz Avg Type: Log-Pwr

PNO: Fast IF Gain: Low Trig: Free Run #Atten: 20 dB

TRACE 1 2 3 4 5
TYPE R W W W W W W W
DET P N P N N N

10 dB/div Ref 97.00 dBμV

Mkr1 576.29 MHz
41.417 dBμV

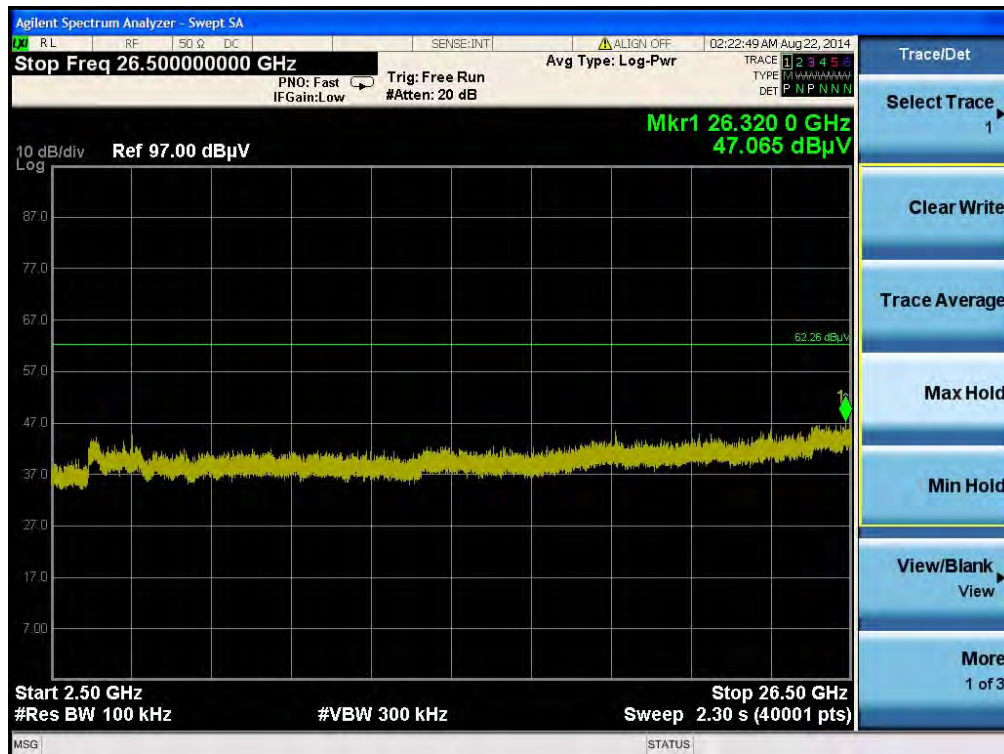
62.26 dBμV

Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 227 ms (40001 pts)

MSG STATUS

Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank View
More 1 of 3

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





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN:OFF 02:32:24 AM Aug 22, 2014

Reference Level 106.99 dB μ V PNO: Fast IFGain:Low Trig: Free Run #Atten: 10 dB Avg Type: Log-Pwr

TRACE 1 2 3 4 5
TYPE P P P P P
DET N N N N N

10 dB/div Log Ref 106.99 dB μ V

Mkr1 2.409 498 75 GHz
88.780 dB μ V

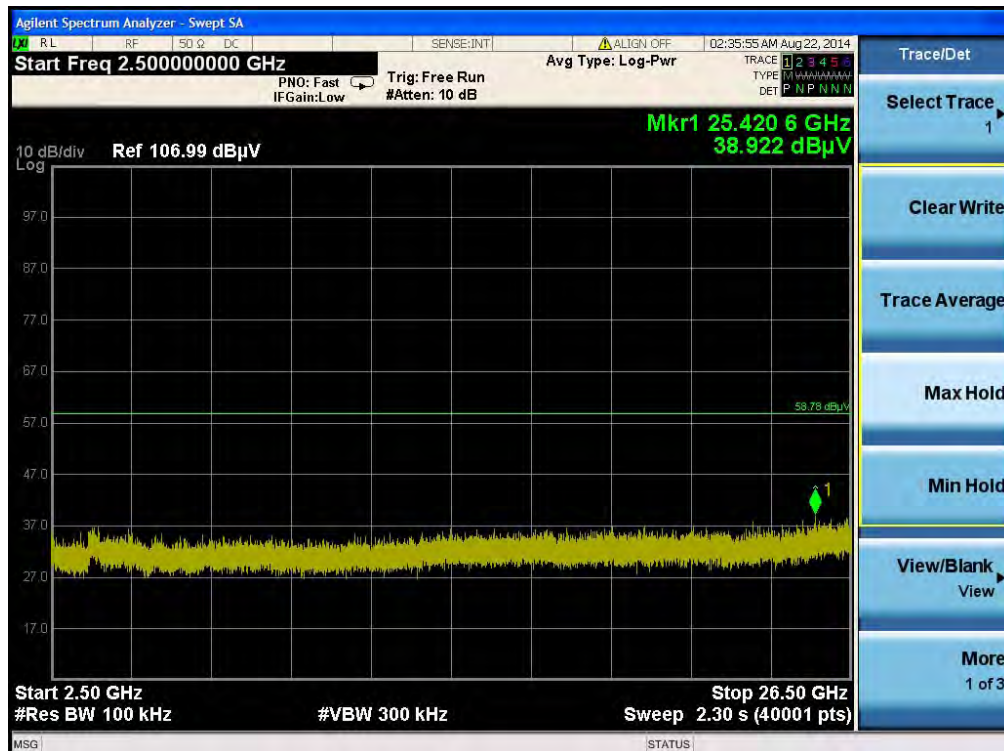
Center 2.41200 GHz Span 30.00 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 5.33 ms (40001 pts)

MSG STATUS

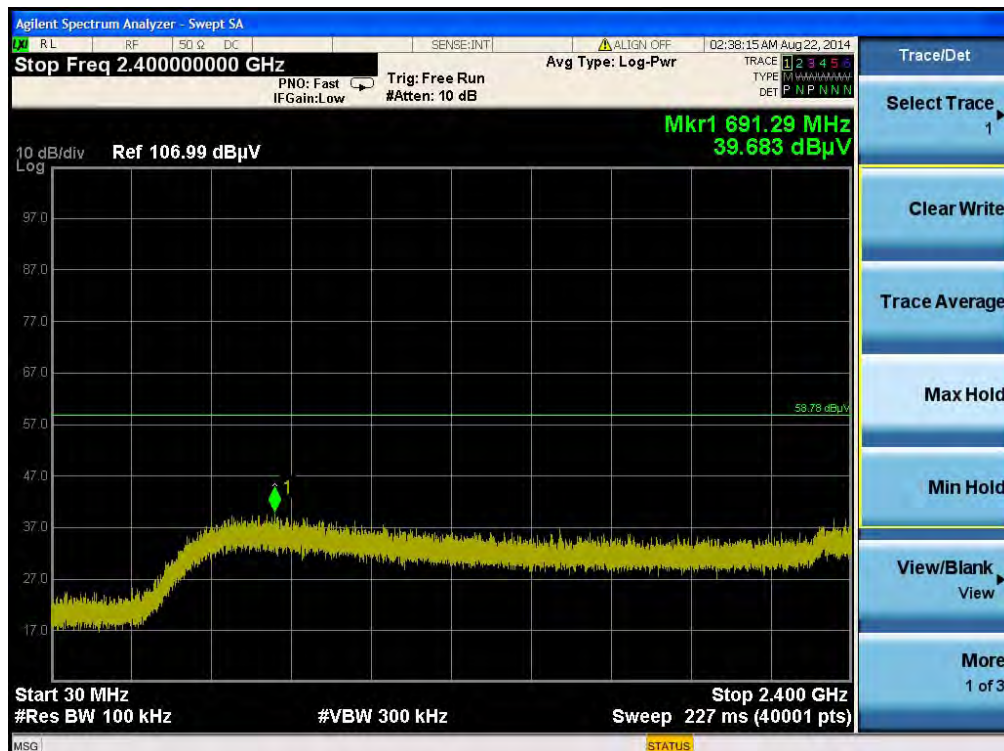
Trace/Det
Select Trace
Clear Write
Trace Average
Max Hold
Min Hold
View/Blank
View
More
1 of 3

[illegible]

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



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





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN OFF 02:37:51 AM Aug 22, 2014

Start Freq 2.50000000 GHz PNO: Fast IFGain:Low Trig: Free Run #Atten: 10 dB Avg Type: Log-Pwr AvgHld: 3/100

Trace 1 2 3 4 5 TYPE M M M M M M M M DET P P P N N N

10 dB/div Log Ref 106.99 dB μ V

Mkr1 25.856 8 GHz 38.482 dB μ V

97.0 87.0 77.0 67.0 57.0 47.0 37.0 27.0 17.0

58.78 dB μ V

1

Start 2.50 GHz #Res BW 100 kHz #VBW 300 kHz Stop 26.50 GHz Sweep 2.30 s (40001 pts)

MSG STATUS

Trace/Det Select Trace Clear Write Trace Average Max Hold Min Hold View/Blank Trace On More 1 of 3

The image shows a screenshot of an Agilent Spectrum Analyzer. The main display is a grid with a yellow noisy signal centered around 2.5 GHz. The vertical axis is labeled '10 dB/div Log' and ranges from 17.0 to 97.0 dB. The horizontal axis is labeled 'Start 2.50 GHz' and 'Stop 26.50 GHz'. A reference level 'Ref 106.99 dBμV' is shown. A marker 'Mkr1' is placed at 25.8568 GHz with a value of 38.482 dBμV. Another value '58.78 dBμV' is visible on the right side of the grid. The top of the screen shows various settings like 'RL', 'RF', '50 Ω', 'DC', 'SENSE:INT', 'ALIGN OFF', and the date '02:37:51 AM Aug 22, 2014'. The bottom of the screen shows 'MSG' and 'STATUS' indicators.

4.7. Antenna Requirements

4.7.1. Limit

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

4.7.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9 kHz ~ 2.75 GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150 kHz ~ 100 MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 11, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150 kHz ~ 30 MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Signal analyzer	Agilent	N9010A	MY52220519	10Hz~44GHz	Dec. 11, 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)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	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. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	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. 17, 2013	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. 17, 2013	Radiation (03CH01-CB)

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

“*” Calibration Interval of instruments listed above is two years.

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

6. MEASUREMENT UNCERTAINTY

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