

FCC RADIO TEST REPORT

Applicant's company	3Com Corporation
Applicant Address	350 Campus Drive, Marlborough , MA 01752-3064.U.S.A.
FCC ID	O9C-AP3950
Manufacturer's company	Wistron NeWeb Corporation
Manufacturer Address	No.10-1,Li-hsin Road I,Hsinchu Science Park,Hsinchu 300,Taiwan, R.O.C.

Product Name	3Com WLAN Managed AP 3950
Brand Name	3Com
Model Name	AP3950
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Feb. 01, 2008
Final Test Date	Sep. 14, 2008
Submission Type	Class II Change
Multiple Listing	Please refer to section 3.7



Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

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

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History of This Test Report

Original Issue Date: Sep. 25, 2008

Report No.: FR820103-05AD

- ☒ No additional attachment.
- ☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name : 3Com WLAN Managed AP 3950
Brand Name : 3Com
Model Name : AP3950
Applicant : 3Com Corporation
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Feb. 01, 2008 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.

Leo Huang 2008.9.26

Leo Huang / Manager

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	1.97 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	5.83 dB
4.3	15.247(e)	Power Spectral Density	Complies	4.08 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	3.18 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.72 dB
4.7	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Conducted Output Power	±0.8dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
6dB Spectrum Bandwidth	±8.5×10 ⁻⁸	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (1GHz~40GHz)	±1.9dB	Confidence levels of 95%
Radiated Band Edge Emissions (Carrier +/- 100MHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7°C	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From POE
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	11b: 15.16 MHz ; 11g: 16.37 MHz ; 11a: 16.47 MHz
Conducted Output Power	11b: 24.17 dBm ; 11g: 23.44 dBm ; 11a: 23.09 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

Antenna	Three (TX)	
Band width Mode	20 MHz	40 MHz
802.11b	V	X
802.11g	V	X
802.11a	V	X

3.2. Accessories

N/A

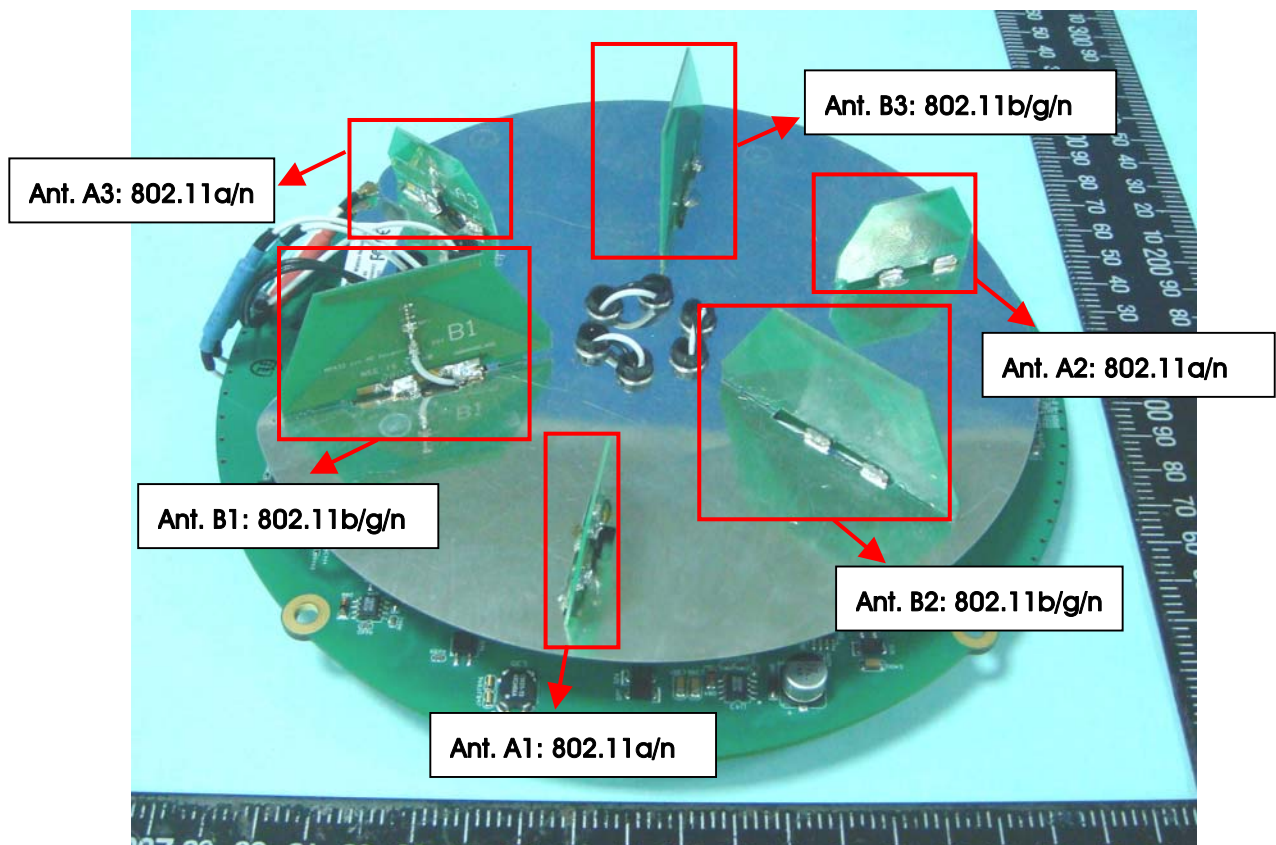
3.3. Table for Filed Antenna

For 2.4GHz Band

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
B1	WNC	MP-432	PCB Antenna	UFL	4.38	TX / RX Ant.
B2	WNC	MP-432	PCB Antenna	UFL	4.38	TX / RX Ant.
B3	WNC	MP-432	PCB Antenna	UFL	4.38	TX / RX Ant.

For 5GHz Band

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
A1	WNC	MP-432	PCB Antenna	UFL	3.75	TX / RX Ant.
A2	WNC	MP-432	PCB Antenna	UFL	3.75	TX / RX Ant.
A3	WNC	MP-432	PCB Antenna	UFL	3.75	TX / RX Ant.



3.4. Table for Carrier Frequencies

Frequency Allocation for 802.11b/g

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		

Frequency Allocation for 802.11a

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz	149	5745 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz		

3.5. Table for Test Modes

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

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Mode 1, Mode 2	Auto	-	-
Maximum Peak Conducted Output Power	11b/BPSK	1 Mbps	1/6/11	B1, B2, B3, B1+B2+B3
	11g/BPSK	6 Mbps	1/6/11	B1, B2, B3, B1+B2+B3
	11a/BPSK	6 Mbps	149/157/165	A1, A2, A3, A1+A2+A3
Power Spectral Density 6dB Spectrum Bandwidth	11b/BPSK	1 Mbps	1/6/11	B1+B2+B3
	11g/BPSK	6 Mbps	1/6/11	B1+B2+B3
	11a/BPSK	6 Mbps	149/157/165	A1+A2+A3
Radiated Emissions 9kHz~1GHz	Normal Link	Auto	-	-
Radiated Emissions 1GHz~10 th Harmonic	11b/BPSK	1 Mbps	1/6/11	B1+B2+B3
	11g/BPSK	6 Mbps	1/6/11	B1+B2+B3
	11a/BPSK	6 Mbps	149/157/165	A1+A2+A3
Radiated Band Edge Emissions	11b/BPSK	1 Mbps	1/11	B1+B2+B3
	11g/BPSK	6 Mbps	1/11	B1+B2+B3
	11a/BPSK	6 Mbps	149/157/165	A1+A2+A3

Test Mode:

Mode 1: EUT with POE 1 (Brand / Model: POWER DSINE / 7001G)

Mode 2: EUT with POE 2 (Brand / Model: POWER DSINE / 7012G)

Due to Mode 2 generated the worst test result, so it was recorded in this report.

3.6. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4088	-
CO04-HY	Conduction	Hwa Ya	101377	IC 4088	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

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

Please refer section 6 for Test Site Address.

3.7. Table for Multiple Listing & Existing Change

This product is an extension of original one reported under Sporton project number: 820103-03

This modification is only concerned with layout and change two kinds of POE power supply.; neither circuit design nor main function has been changed.

3.8. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	D520	E2KWM3945ABG
Notebook	DELL	D400	E2K24GBRL
SMARTBIT	TRAPEZE	MX200R	DOC
PoE Load Fixture	TRAPEZE	IEEE 802.3af standard 150 Ohm PoE Loader	DOC
HIPOE	POWER DSINE	7001G	DOC
HIPOE	POWER DSINE	7012G	DOC

3.9. Table for Parameters of Test Software Setting

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

Power Parameters of IEEE 802.11b/g Ant. B1 +Ant. B2+Ant. B3

Test Software Version	ART		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	18	19	18
IEEE 802.11g	14	18	14

Power Parameters of IEEE 802.11a Ant. A1 +Ant. A2+Ant. A3

Test Software Version	ART		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	18	18	18

During the test, the following programs under WIN XP were executed:

Executed "ART" to control the EUT continuously transmit RF signal.

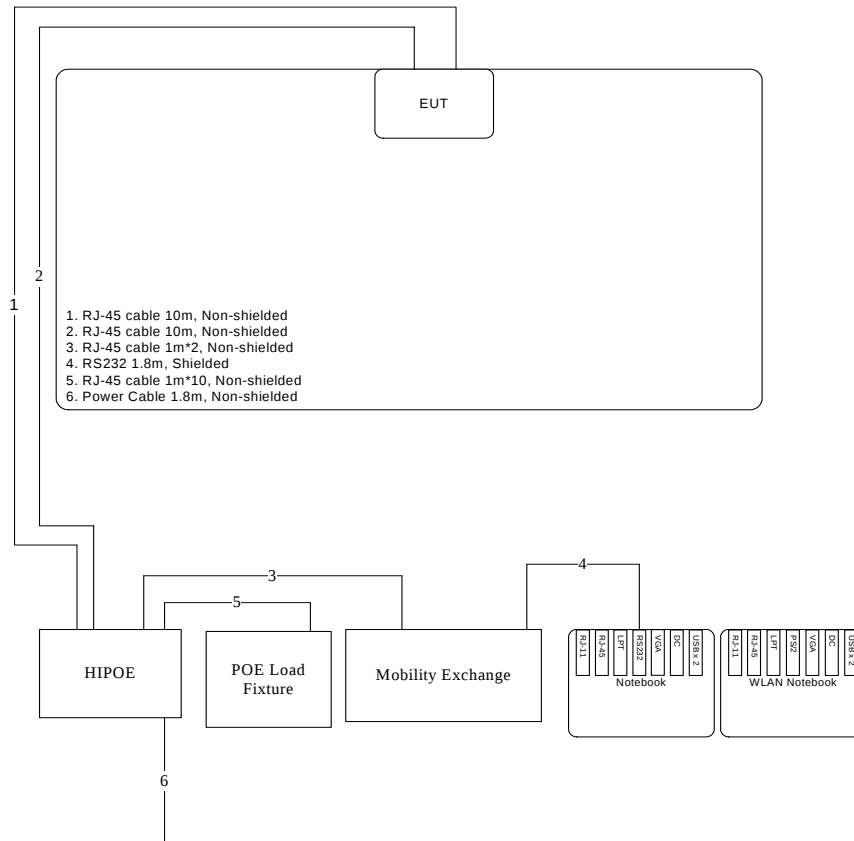
In sections 4.2, 4.3, 4.4 and 4.6 while 4.1 and 4.5 using Trapeze MX controller to control the EUT continuous transmit RF signal.

3.10. Test Configurations

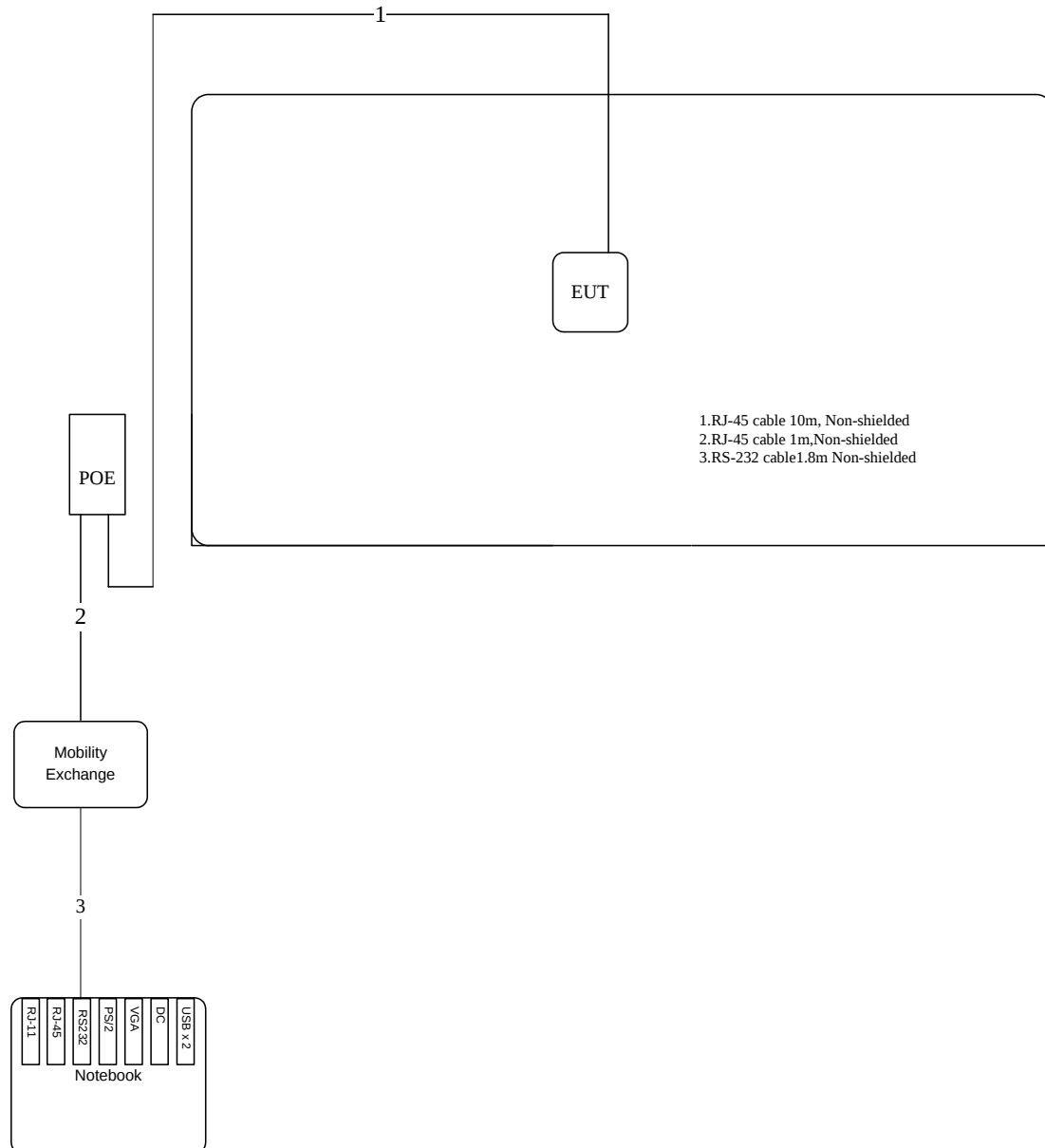
3.10.1. Radiation Emissions Test Configuration

Test Configuration: 9KHz~1GHz

Test Mode: Mode 2

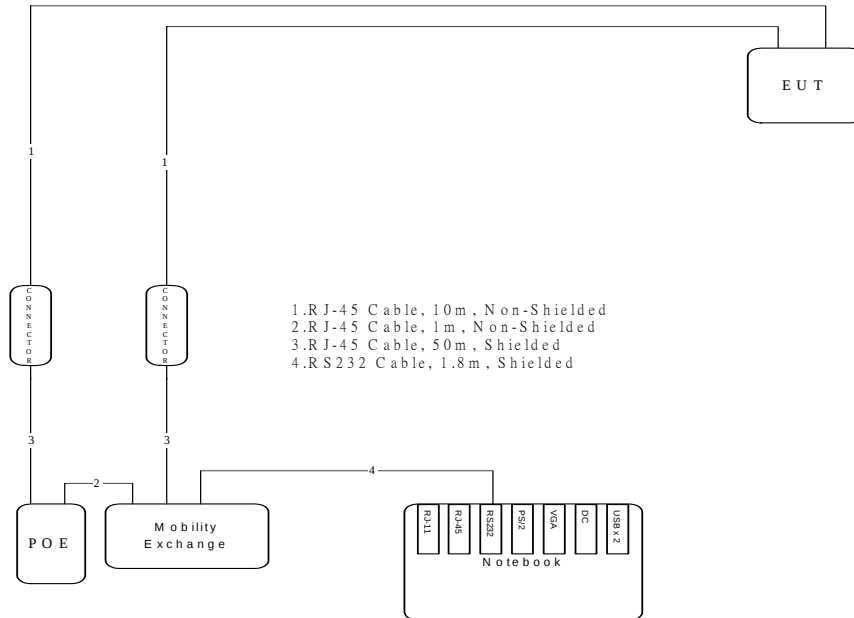


Test Configuration: above 1GHz

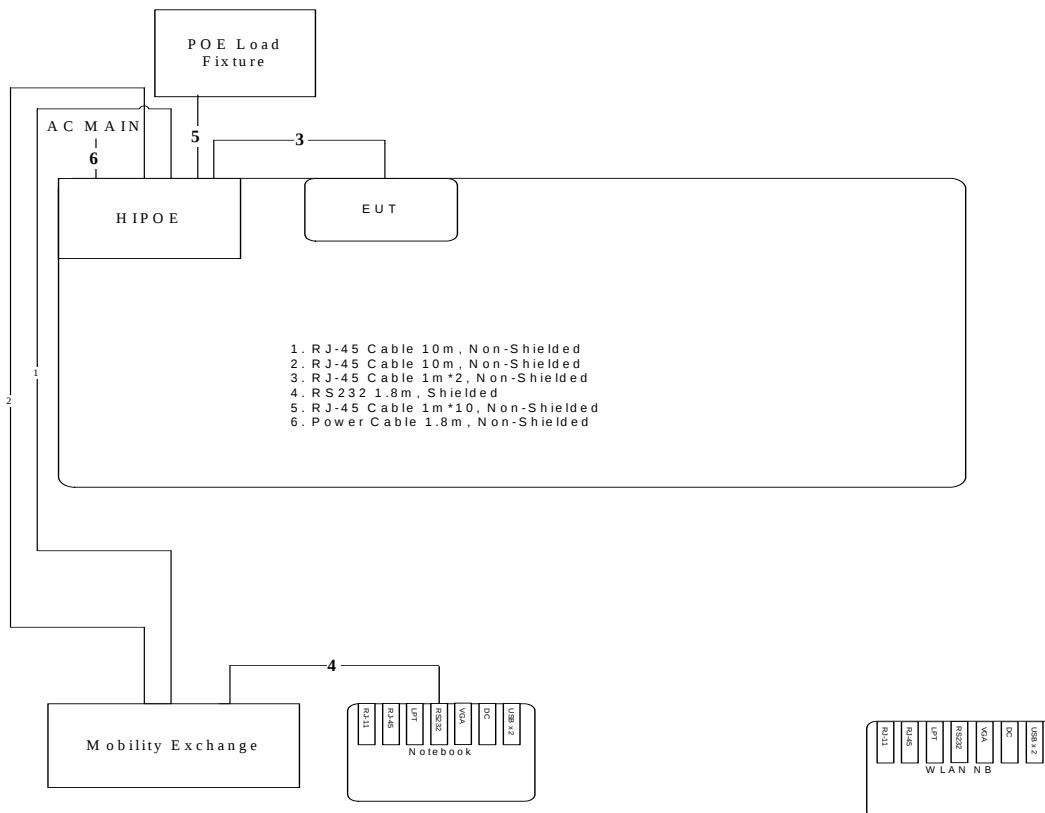


3.10.2.AC Power Line Conduction Emissions Test Configuration

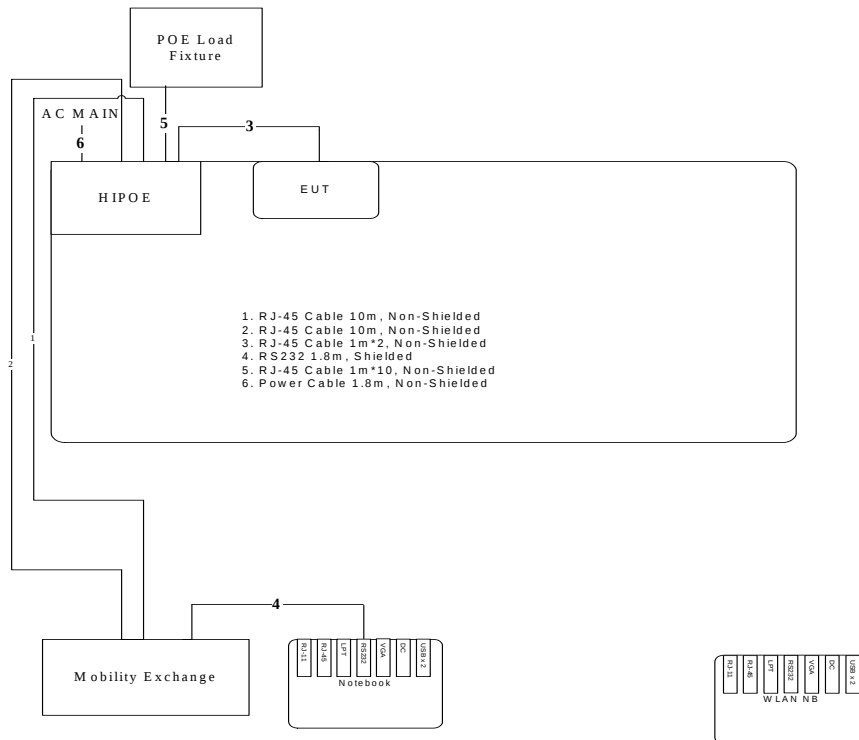
Test Configuration: ART setup for conducted RF tests



Test Mode: Mode 1



Test Mode: Mode 2



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

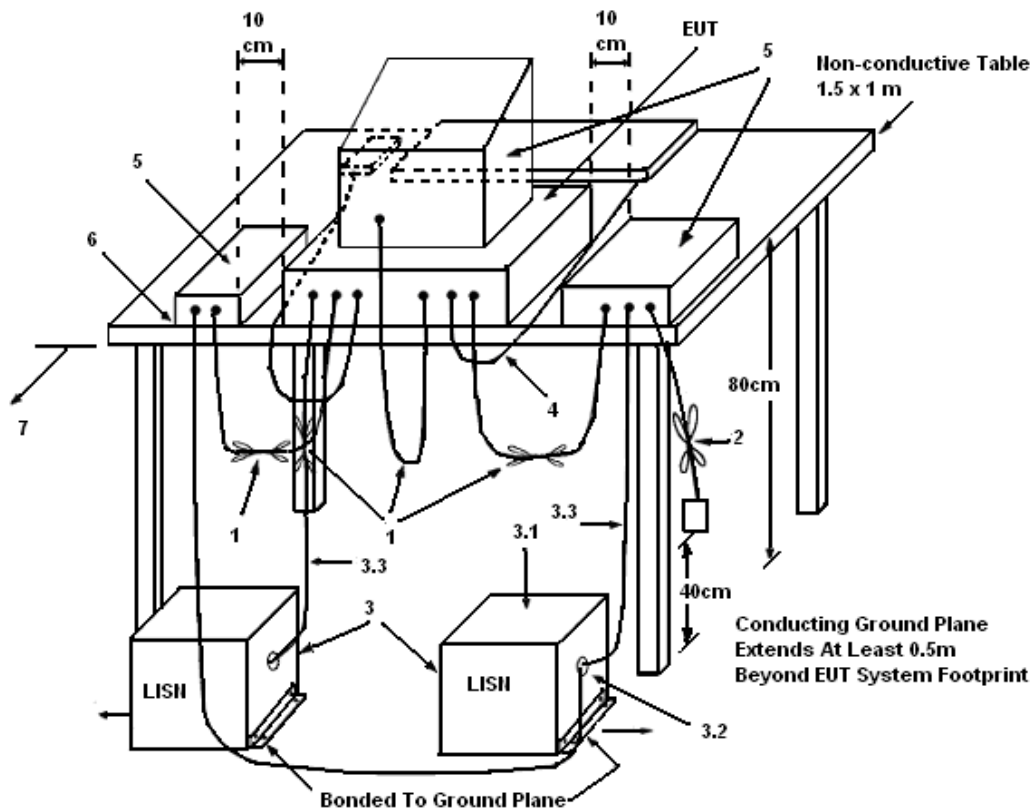
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.4. Test Setup Layout



LEGEND:

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

4.1.5. Test Deviation

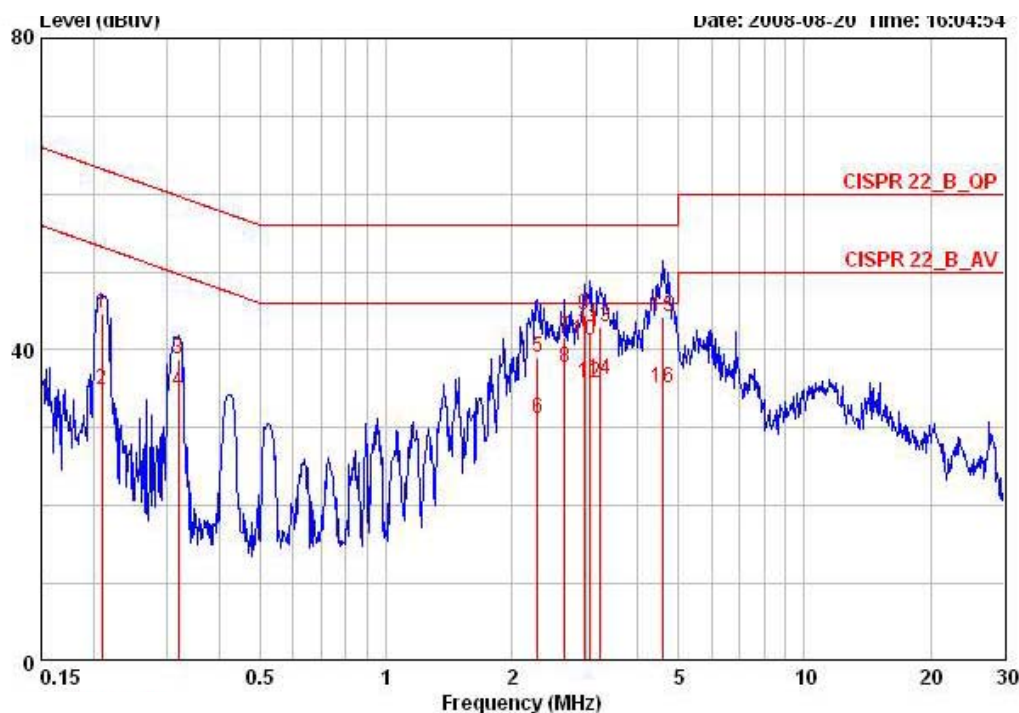
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

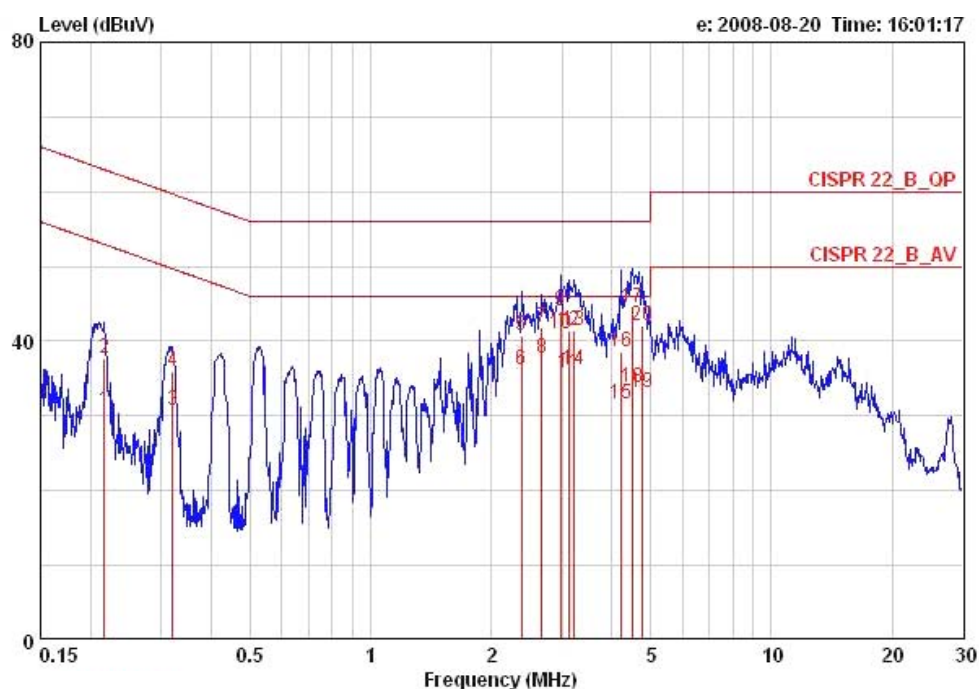
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	56%
Test Engineer	Aric Li	Phase	Line
Configuration	Mode 1 with ch.1 and 149 on continuous transmit RF signals		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.20944	44.73	-18.50	63.23	44.48	0.05	0.20	QP
2	0.20944	34.81	-18.42	53.23	34.56	0.05	0.20	AVERAGE
3	0.31830	38.82	-20.93	59.75	38.58	0.04	0.20	QP
4	0.31830	34.69	-15.06	49.75	34.45	0.04	0.20	AVERAGE
5	2.297	39.00	-17.00	56.00	38.74	0.06	0.20	QP
6	2.297	31.23	-14.77	46.00	30.97	0.06	0.20	AVERAGE
7	2.678	41.61	-14.39	56.00	41.34	0.07	0.20	QP
8	2.678	37.77	-8.23	46.00	37.50	0.07	0.20	AVERAGE
9	2.978	44.41	-11.59	56.00	44.13	0.08	0.20	QP
10	2.978	41.23	-4.77	46.00	40.95	0.08	0.20	AVERAGE
11	3.074	42.28	-13.72	56.00	41.98	0.08	0.22	QP
12	3.074	35.72	-10.28	46.00	35.42	0.08	0.22	AVERAGE
13	3.241	42.86	-13.14	56.00	42.53	0.08	0.25	QP
14	3.241	36.23	-9.77	46.00	35.90	0.08	0.25	AVERAGE
15	4.598	44.28	-11.72	56.00	43.84	0.14	0.30	QP
16	4.598	35.06	-10.94	46.00	34.62	0.14	0.30	AVERAGE

Temperature	24°C	Humidity	56%
Test Engineer	Aric Li	Phase	Neutral
Configuration	Mode 1 with ch.1 and 149 on continuous transmit RF signals		

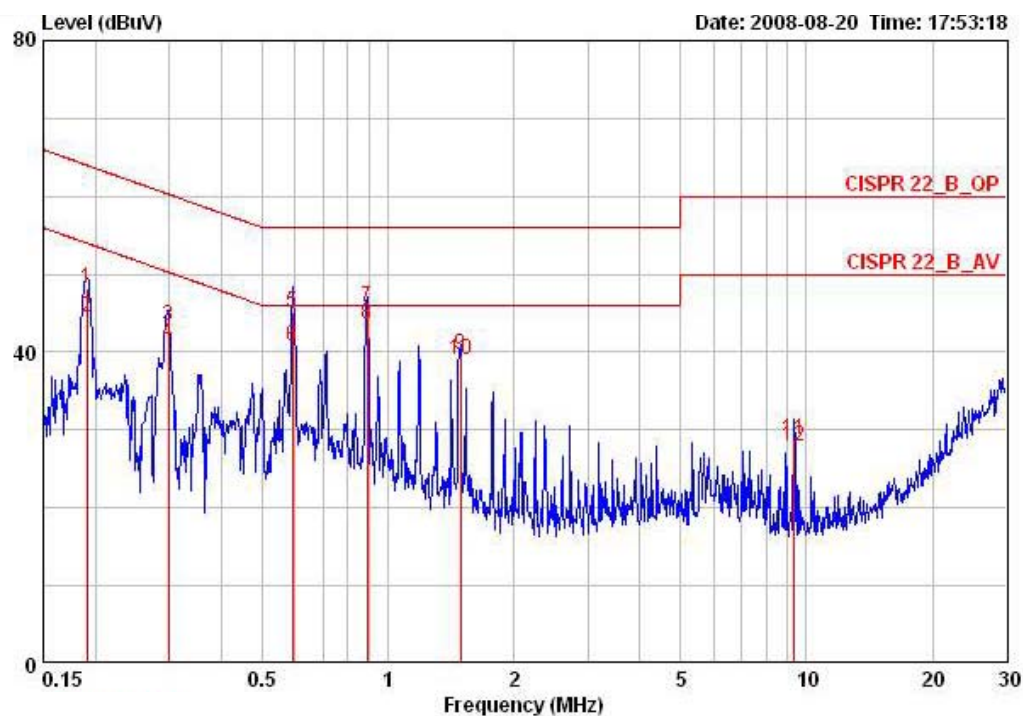


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.21620	30.66	-22.30	52.96	30.38	0.08	0.20	AVERAGE
2	0.21620	37.73	-25.23	62.96	37.45	0.08	0.20	QP
3	0.31999	30.66	-19.04	49.71	30.39	0.07	0.20	AVERAGE
4	0.31999	35.97	-23.73	59.71	35.70	0.07	0.20	QP
5	2.384	40.74	-15.26	56.00	40.44	0.10	0.20	QP
6	2.384	36.28	-9.72	46.00	35.98	0.10	0.20	AVERAGE
7	2.678	41.85	-14.15	56.00	41.54	0.11	0.20	QP
8	2.678	37.81	-8.19	46.00	37.50	0.11	0.20	AVERAGE
9	2.978	44.06	-11.94	56.00	43.74	0.12	0.20	QP
10	2.978	41.01	-4.99	46.00	40.69	0.12	0.20	AVERAGE
11	3.140	35.80	-10.20	46.00	35.45	0.12	0.23	AVERAGE
12	3.140	41.45	-14.55	56.00	41.10	0.12	0.23	QP
13	3.224	41.45	-14.55	56.00	41.08	0.12	0.25	QP
14	3.224	36.15	-9.85	46.00	35.78	0.12	0.25	AVERAGE
15	4.202	31.54	-14.46	46.00	31.09	0.15	0.30	AVERAGE
16	4.202	38.60	-17.40	56.00	38.15	0.15	0.30	QP
17	4.501	44.39	-11.61	56.00	43.92	0.17	0.30	QP
18	4.501	33.70	-12.30	46.00	33.23	0.17	0.30	AVERAGE
19	4.772	33.11	-12.89	46.00	32.62	0.19	0.30	AVERAGE
20	4.772	42.18	-13.82	56.00	41.69	0.19	0.30	QP

Note:

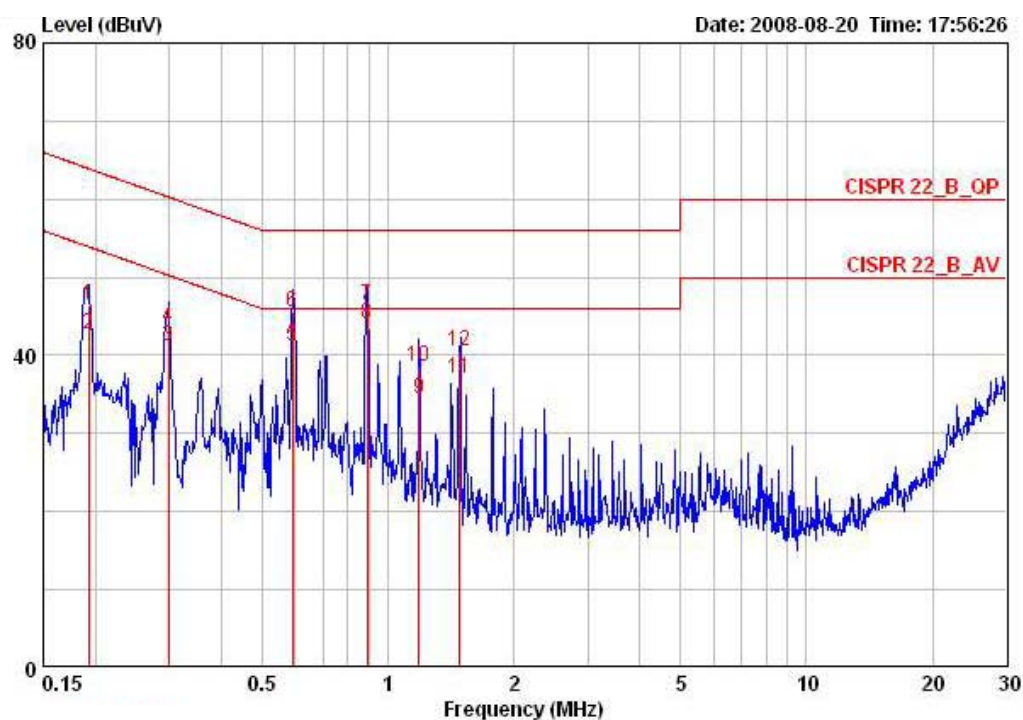
Level = Read Level + LISN Factor + Cable Loss.

Temperature	24°C	Humidity	56%
Test Engineer	Aric Li	Phase	Line
Configuration	Mode 2 with ch.1 and 149 on continuous transmit RF signals		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.19039	48.11	-15.91	64.02	47.86	0.05	0.20	QP
2	0.19039	44.41	-9.61	54.02	44.16	0.05	0.20	AVERAGE
3	0.29869	43.43	-16.85	60.28	43.19	0.04	0.20	QP
4	0.29869	41.12	-9.16	50.28	40.88	0.04	0.20	AVERAGE
5	0.59164	45.18	-10.82	56.00	44.95	0.03	0.20	QP
6	0.59164	40.82	-5.18	46.00	40.59	0.03	0.20	AVERAGE
7	0.88969	45.73	-10.27	56.00	45.50	0.03	0.20	QP
8	0.88969	43.50	-2.50	46.00	43.27	0.03	0.20	AVERAGE
9	1.487	39.76	-16.24	56.00	39.62	0.04	0.10	QP
10	1.487	39.01	-6.99	46.00	38.87	0.04	0.10	AVERAGE
11	9.345	28.83	-31.17	60.00	28.20	0.33	0.30	QP
12	9.345	27.98	-22.02	50.00	27.35	0.33	0.30	AVERAGE

Temperature	24°C	Humidity	56%
Test Engineer	Aric Li	Phase	Neutral
Configuration	Mode 2 with ch.1 and 149 on continuous transmit RF signals		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV		dBuV	dBuV	dB	dB	
1	0.19242	46.51	-17.42	63.93	46.23	0.08	0.20	QP
2	0.19242	42.73	-11.20	53.93	42.45	0.08	0.20	AVERAGE
3	0.29869	41.15	-9.12	50.28	40.88	0.07	0.20	AVERAGE
4	0.29869	43.50	-16.77	60.28	43.23	0.07	0.20	QP
5	0.59164	41.18	-4.82	46.00	40.91	0.07	0.20	AVERAGE
6	0.59164	45.51	-10.49	56.00	45.24	0.07	0.20	QP
7	0.89049	46.46	-9.54	56.00	46.19	0.07	0.20	QP
8	0.89049	44.03	-1.97	46.00	43.76	0.07	0.20	AVERAGE
9	1.184	34.52	-11.48	46.00	34.29	0.07	0.16	AVERAGE
10	1.184	38.61	-17.39	56.00	38.38	0.07	0.16	QP
11	1.483	37.13	-8.87	46.00	36.94	0.08	0.10	AVERAGE
12	1.483	40.58	-15.42	56.00	40.39	0.08	0.10	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak 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

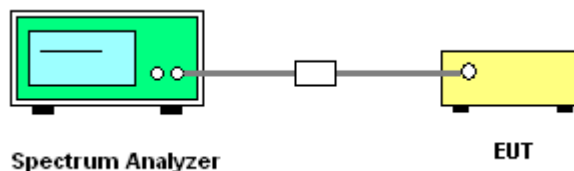
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	MAX HOLD
Sweep Time	Auto

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Test was performed in accordance with Measurement of Digital Transmission Systems Operating under Section 15.247 March 23, 2005.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

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	26°C	Humidity	60%
Test Engineer	Sam Chen	Configurations	802.11b/g

Configuration IEEE 802.11b Ant. B1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.32	30.00	Complies
6	2437 MHz	18.61	30.00	Complies
11	2462 MHz	18.48	30.00	Complies

Configuration IEEE 802.11b Ant. B2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.34	30.00	Complies
6	2437 MHz	19.77	30.00	Complies
11	2462 MHz	19.37	30.00	Complies

Configuration IEEE 802.11b Ant. B3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.31	30.00	Complies
6	2437 MHz	19.71	30.00	Complies
11	2462 MHz	19.12	30.00	Complies

Configuration IEEE 802.11b Ant. B1 +Ant. B2+Ant. B3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	23.79	30.00	Complies
6	2437 MHz	24.17	30.00	Complies
11	2462 MHz	23.78	30.00	Complies

Configuration IEEE 802.11g Ant. B1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.96	30.00	Complies
6	2437 MHz	18.16	30.00	Complies
11	2462 MHz	14.61	30.00	Complies

Configuration IEEE 802.11g Ant. B2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	15.47	30.00	Complies
6	2437 MHz	19.43	30.00	Complies
11	2462 MHz	15.36	30.00	Complies

Configuration IEEE 802.11g Ant. B3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.80	30.00	Complies
6	2437 MHz	18.30	30.00	Complies
11	2462 MHz	15.12	30.00	Complies

Configuration IEEE 802.11g Ant. B1 +Ant. B2+Ant. B3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.86	30.00	Complies
6	2437 MHz	23.44	30.00	Complies
11	2462 MHz	19.81	30.00	Complies

Temperature	26°C	Humidity	60%
Test Engineer	Sam Chen	Configurations	802.11a

Configuration IEEE 802.11a Ant. A1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	18.05	30.00	Complies
157	5875 MHz	18.02	30.00	Complies
165	5825 MHz	17.66	30.00	Complies

Configuration IEEE 802.11a Ant. A2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	18.31	30.00	Complies
157	5875 MHz	18.77	30.00	Complies
165	5825 MHz	18.82	30.00	Complies

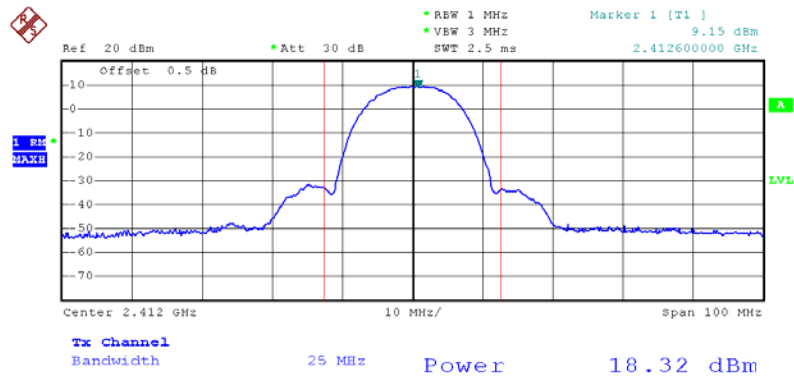
Configuration IEEE 802.11a Ant. A3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	18.56	30.00	Complies
157	5875 MHz	18.14	30.00	Complies
165	5825 MHz	17.27	30.00	Complies

Configuration IEEE 802.11a Ant. A1+Ant. A2+Ant. A3

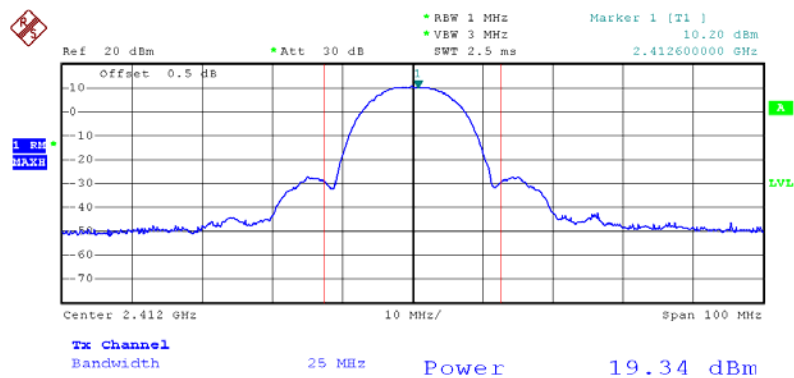
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	23.08	30.00	Complies
157	5875 MHz	23.09	30.00	Complies
165	5825 MHz	22.74	30.00	Complies

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B1 / 2412 MHz



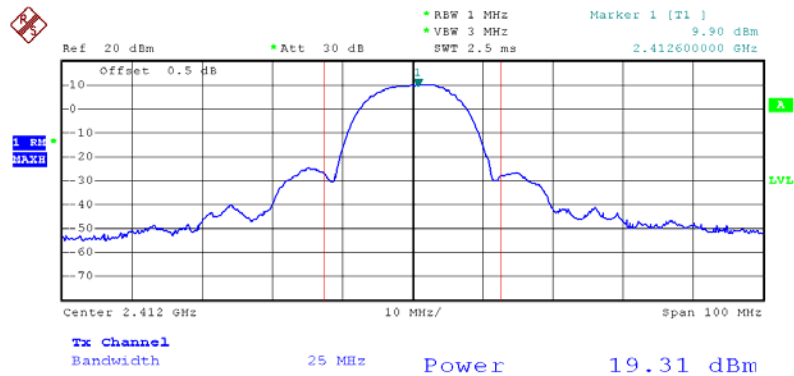
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Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B2 / 2412 MHz



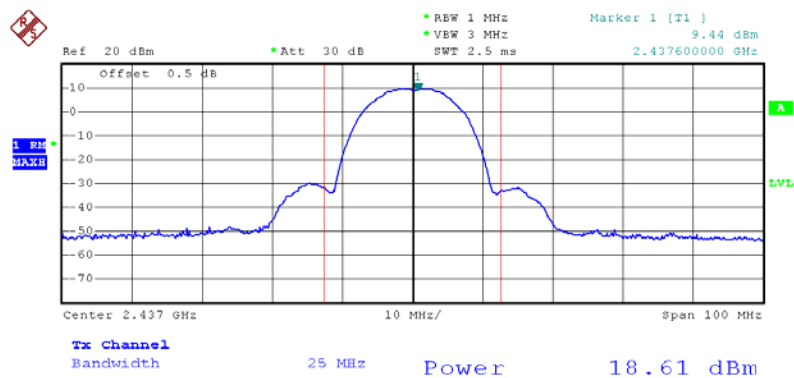
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Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B3/ 2412 MHz



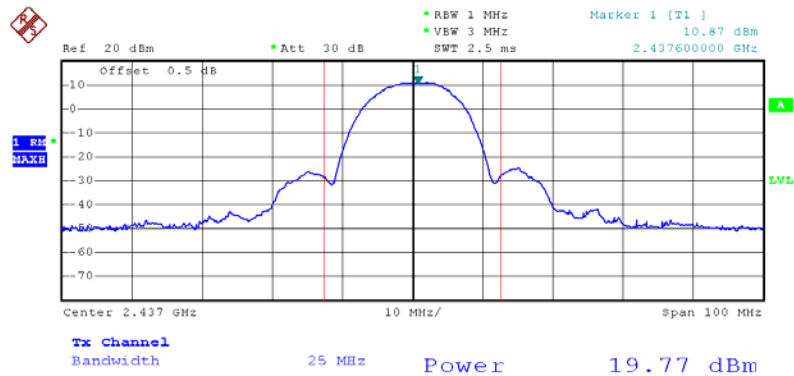
Date: 3.SEP.2008 17:36:43

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B1/ 2437 MHz



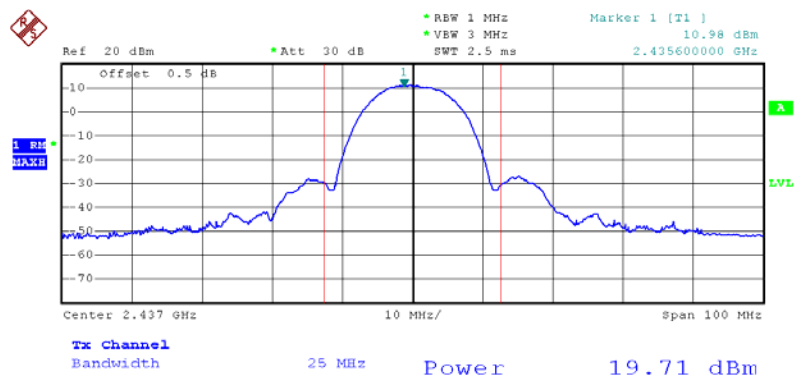
Date: 3.SEP.2008 17:48:14

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B2/ 2437 MHz



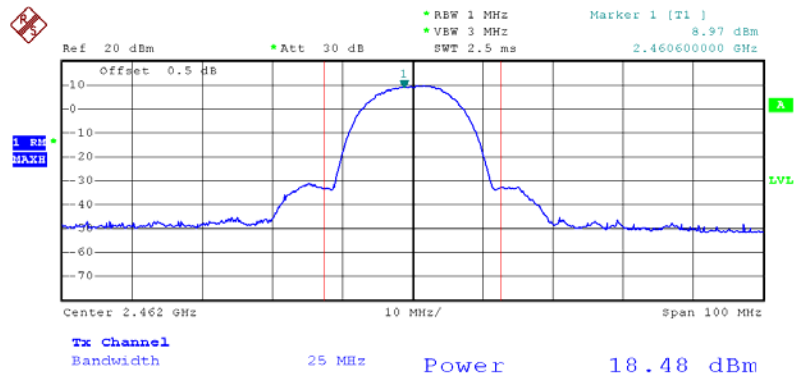
Date: 3.SEP.2008 17:46:34

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B3/ 2437 MHz



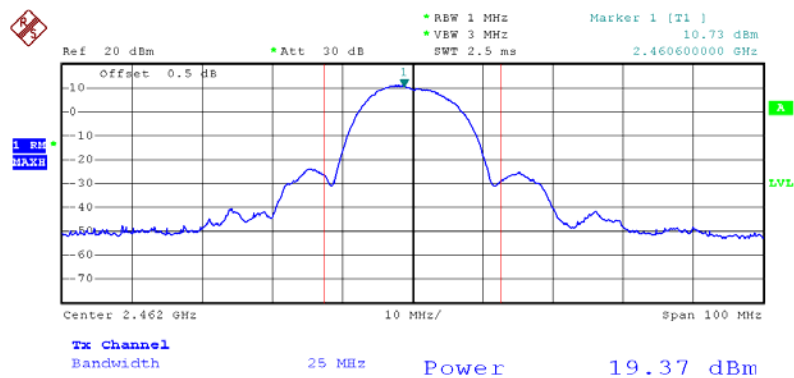
Date: 3.SEP.2008 17:44:42

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B1/ 2462 MHz



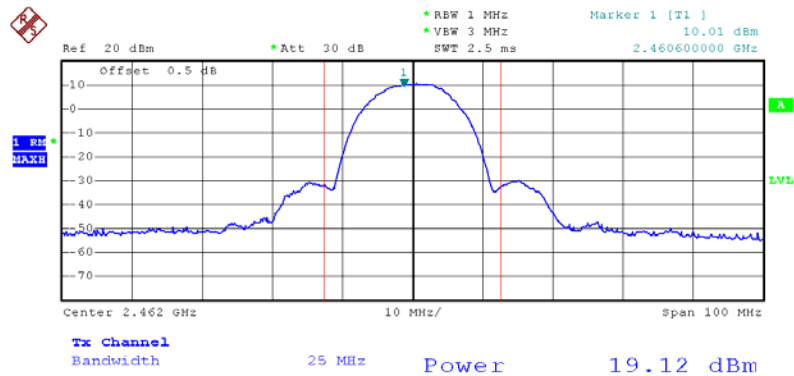
Date: 3.SEP.2008 17:49:31

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B2/ 2462 MHz



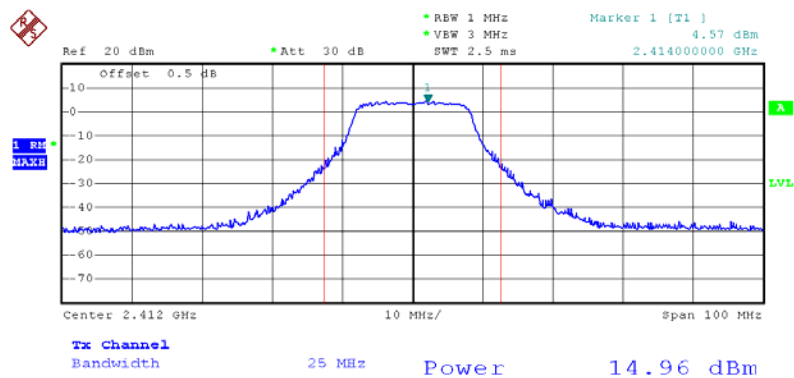
Date: 3.SEP.2008 17:50:02

Conducted Output Power Plot on Configuration IEEE 802.11b Ant. B3/ 2462 MHz



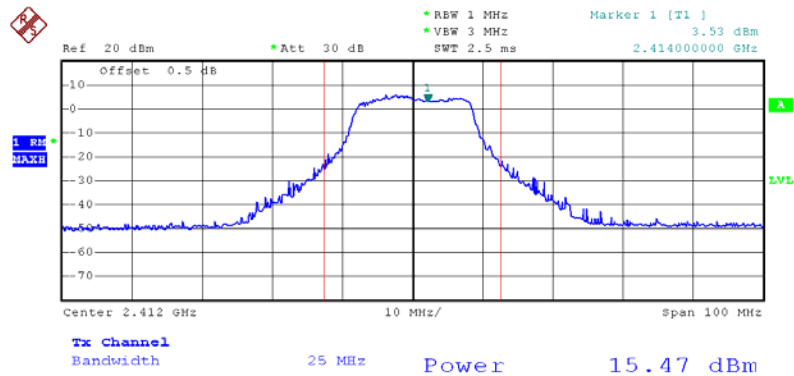
Date: 3.SEP.2008 17:50:47

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B1/ 2412 MHz



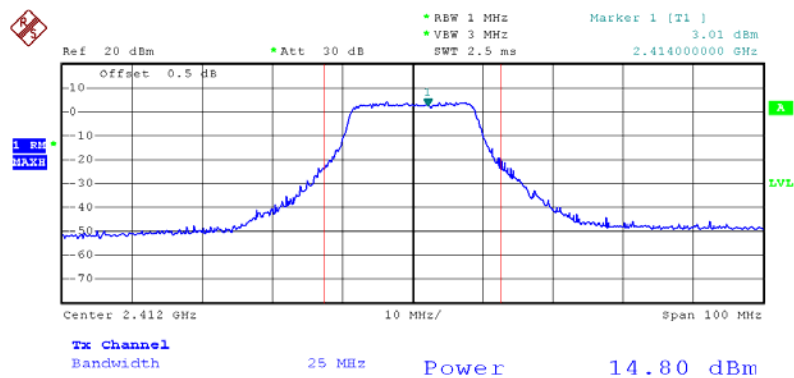
Date: 3.SEP.2008 17:53:37

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B2/ 2412 MHz



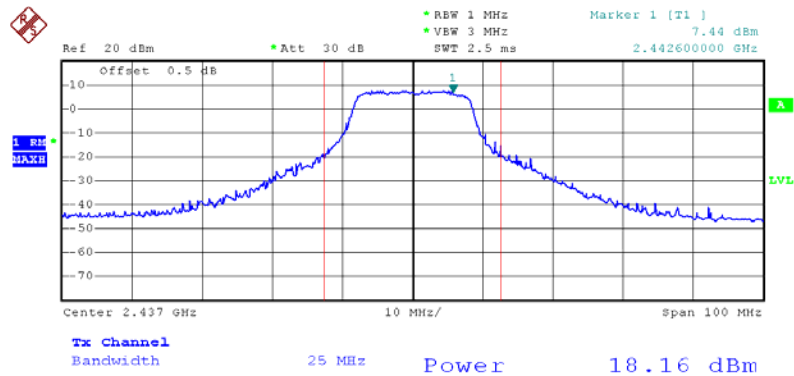
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Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B3/ 2412 MHz



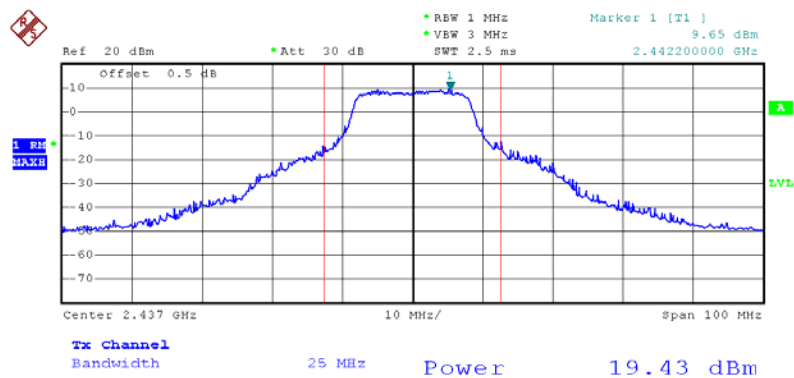
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Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B1/ 2437 MHz



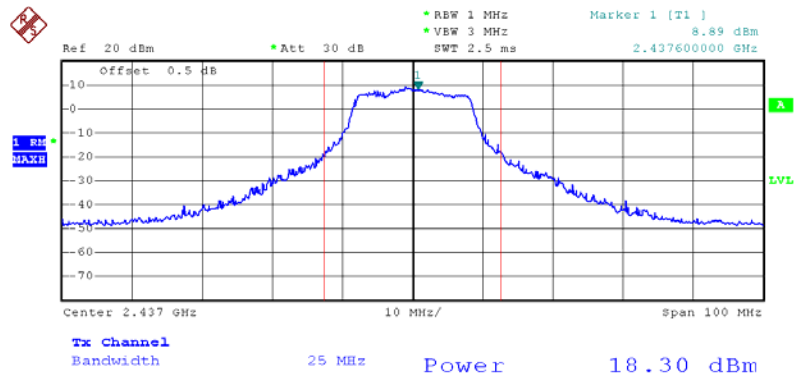
Date: 3.SEP.2008 17:56:11

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B2/ 2437 MHz



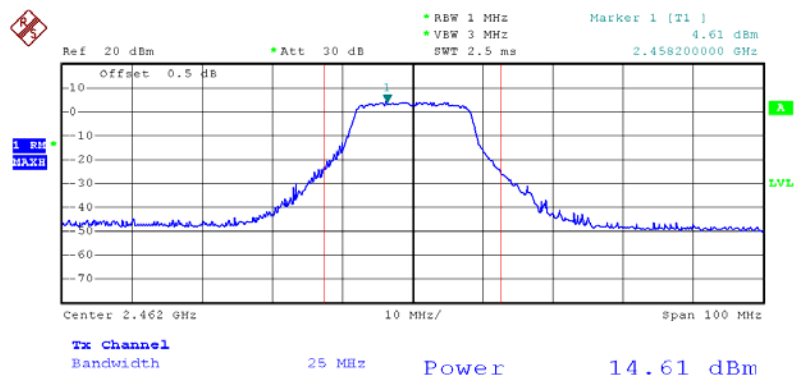
Date: 3.SEP.2008 17:56:26

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B3/ 2437 MHz



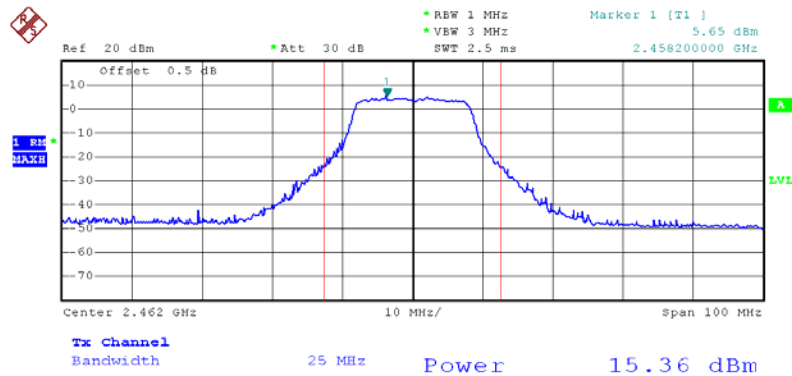
Date: 3.SEP.2008 17:57:12

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B1/ 2462 MHz



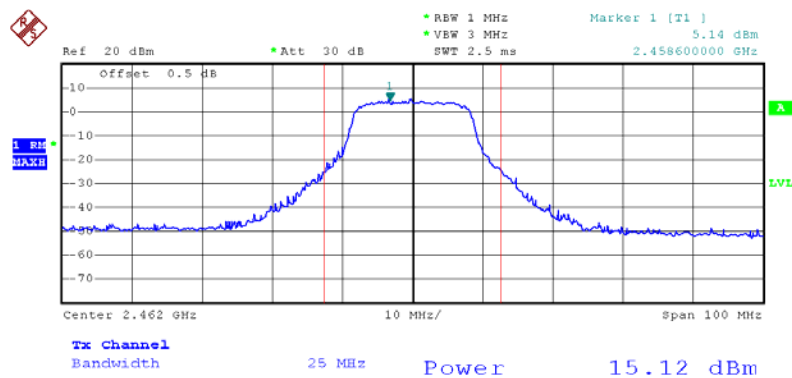
Date: 3.SEP.2008 17:59:19

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B2/ 2462 MHz



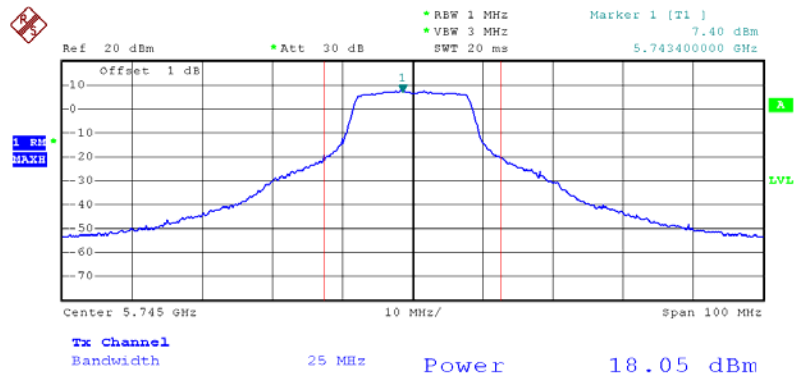
Date: 3.SEP.2008 17:59:35

Conducted Output Power Plot on Configuration IEEE 802.11g Ant. B3/ 2462 MHz



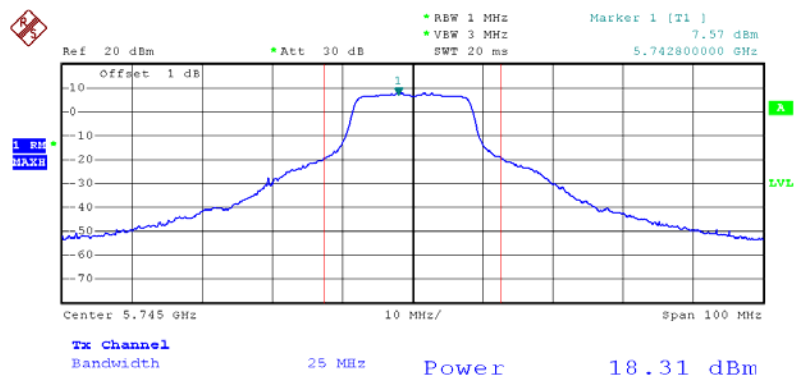
Date: 3.SEP.2008 18:01:00

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A1/ 5745 MHz



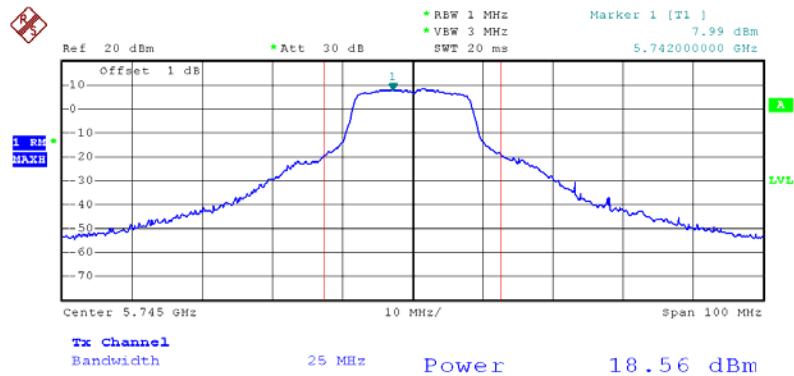
Date: 3.SEP.2008 19:43:00

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A2/ 5745 MHz



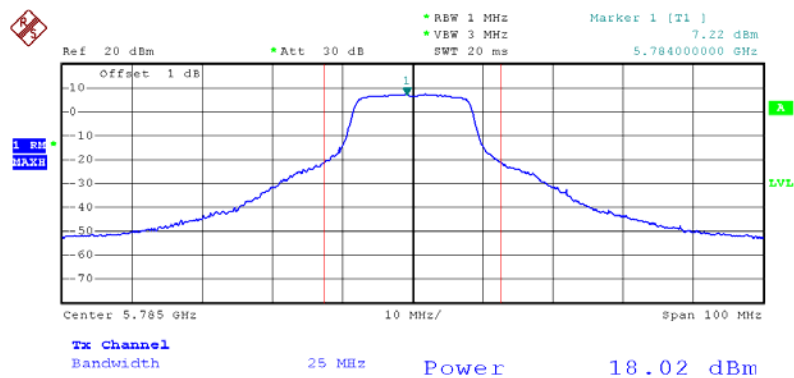
Date: 3.SEP.2008 19:44:37

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A3/ 5745 MHz



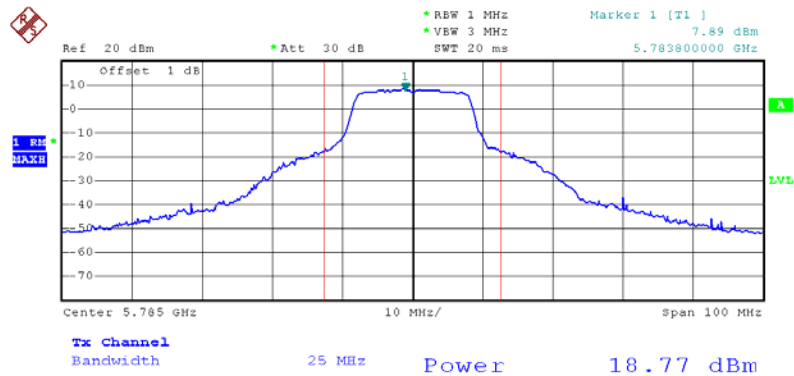
Date: 3.SEP.2008 19:46:50

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A1/ 5785 MHz



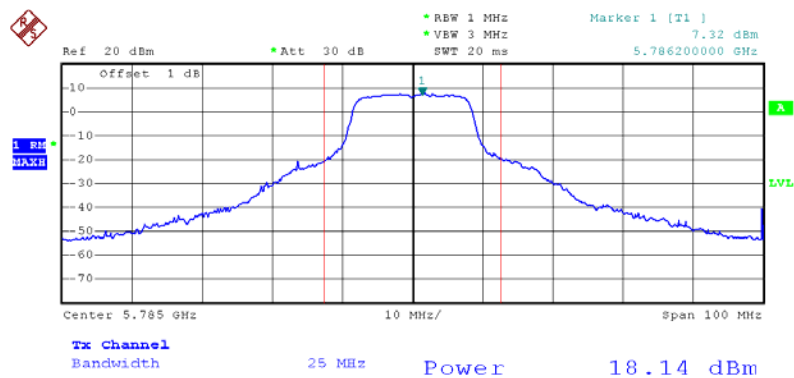
Date: 3.SEP.2008 19:48:14

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A2/ 5785 MHz



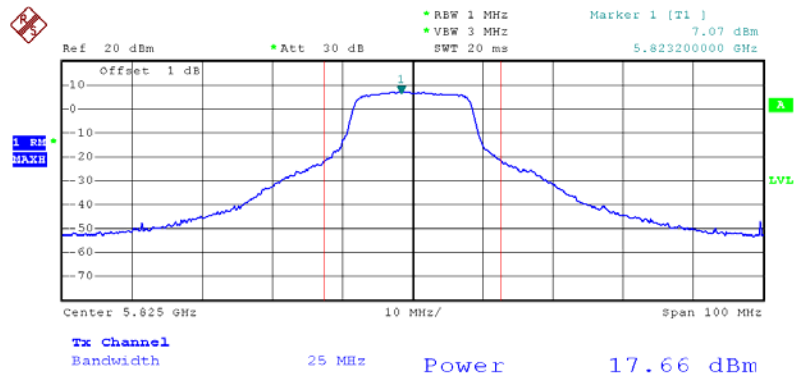
Date: 3.SEP.2008 19:48:31

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A3/ 5785 MHz



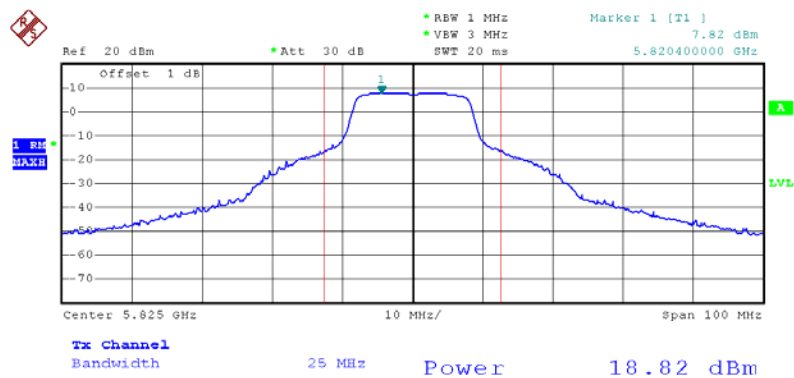
Date: 3.SEP.2008 19:50:24

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A1/ 5825 MHz



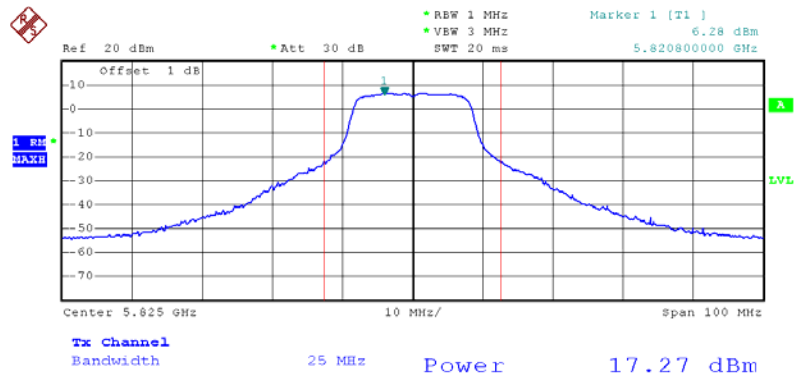
Date: 3.SEP.2008 19:51:08

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A2/ 5825 MHz



Date: 3.SEP.2008 19:51:44

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A3/ 5825 MHz



Date: 3.SEP.2008 19:54:33

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

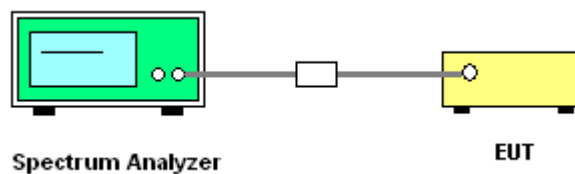
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	1.5MHz
RB	3 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	10s

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz. Set Detector to Peak, Trace to Max Hold.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum.
4. Set the span to 30kHz and the sweep time to 10s and record the maximum peak value.
5. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

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	26°C	Humidity	60%
Test Engineer	Sam Chen	Configurations	802.11a/b/g

Configuration IEEE 802.11b Ant. B1 +Ant. B2+Ant. B3

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-1.65	8.00	Complies
6	2437 MHz	2.88	8.00	Complies
11	2462 MHz	3.48	8.00	Complies

Configuration IEEE 802.11g Ant. B1 +Ant. B2+Ant. B3

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	0.54	8.00	Complies
6	2437 MHz	3.92	8.00	Complies
11	2462 MHz	0.28	8.00	Complies

Configuration IEEE 802.11a Ant. A1 +Ant. A2+Ant. A3

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	2.45	8.00	Complies
157	5785 MHz	2.49	8.00	Complies
165	5825 MHz	1.56	8.00	Complies