



SPORTON International Inc.

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FCC RADIO TEST REPORT

Applicant's company	Trapeze Networks, Inc.
Applicant Address	5753 W. Las Positas Blvd., Pleasanton, CA 94588 USA
FCC ID	QZE303
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	Dual Mode 2.4GHz/5GHz Access Point
Brand Name	Trapeze
Model Name	430,MP-432
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250MHz
Received Date	Feb. 01, 2008
Final Test Date	Sep. 19, 2008
Submission Type	Class II Change
Operating Mode	Master
Multiple Listing	Please refer to section 3.7



Statement

Test result included is only for the Draft n (5150 ~ 5250MHz) 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 E**.

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. 19, 2008

Report No.: FR820103-04AB

No additional attachment.

Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name : Dual Mode 2.4GHz/5GHz Access Point
Brand Name : Trapeze
Model Name : 430,MP-432
Applicant : Trapeze Networks, Inc.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on 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 2008-9-19

Leo Huang / Manager

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	1.97 dB
4.2	15.407(a)	26dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.13 dB
4.4	15.407(a)	Power Spectral Density	Complies	4.56 dB
4.5	15.407(a)	Peak Excursion	Complies	4.09 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.18 dB
4.7	15.407(b)	Radiated Band Edge Emissions	Complies	0.30 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.5dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
Peak Excursion	±0.5dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	±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	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 Adapter
Modulation	see the below table for draft n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for Draft n
Frequency Range	5150 ~ 5250MHz
Channel Number	4 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	MCS8 (20MHz) : 17.94 MHz MCS8 (40MHz) : 36.41 MHz
Conducted Output Power	Band 1: MCS8 (20MHz) : 16.87 dBm ; MCS8 (40MHz) : 16.43 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
802.11a Draft n	V	V

Draft n spec

MCS Index	Nss	Modulation	R	NBPS	NCBPS		NDBPS		Datarate(Mbps)			
					20MHz	40MHz	20MHz	40MHz	800nsGI		400nsGI	
									20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPS	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

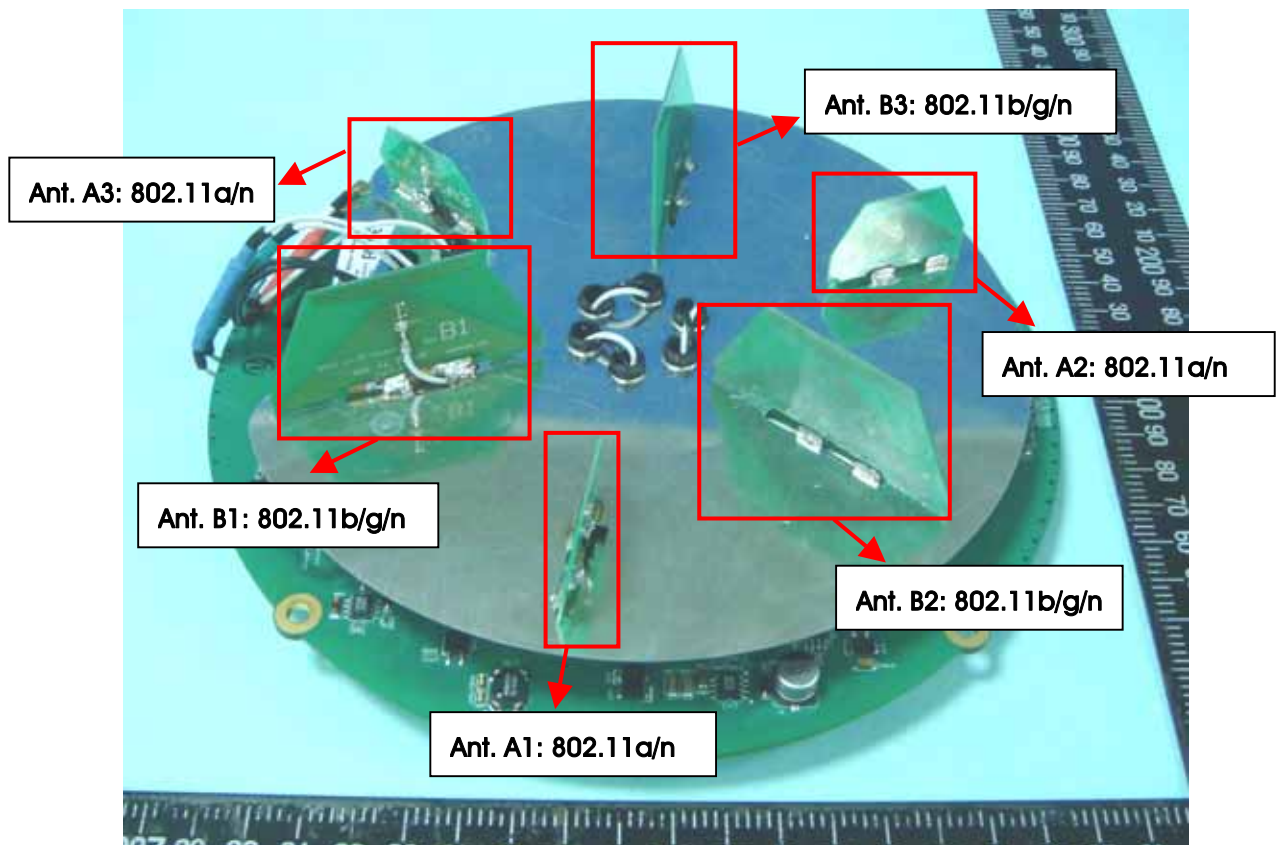
3.2. Accessories

N/A

3.3. Table for Filed Antenna

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 </td <td>UFL</td> <td>3.75</td> <td>TX / RX Ant.</td>	UFL	3.75	TX / RX Ant.



3.4. Table for Carrier Frequencies

There are two bandwidth systems for draft n.

For both 20MHz bandwidth systems, use Channel 36, 40, 44, 48.

For both 40MHz bandwidth systems, use Channel 38, 46.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Antenna
AC Power Conducted Emission	Mode 1, Mode 2		Auto	-	-
Max. Conducted Output Power	MCS8/20MHz	Band 1	13Mbps	36/40/48	A1, A2, A3, A1+A2+A3
	MCS8/40MHz	Band 1	27Mbps	38/46	A1, A2, A3, A1+A2+A3
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Power Spectral Density Peak Excursion	MCS8/20MHz	Band 1	13Mbps	36/40/48	A1+A2+A3
	MCS8/40MHz	Band 1	27Mbps	38/46	A1+A2+A3
Radiated Emission Below 1GHz	Normal Link		Auto	-	-
Radiated Emission Above 1GHz	MCS8/20MHz	Band 1	13Mbps	36/40/48	A1+A2+A3
	MCS8/40MHz	Band 1	27Mbps	38/46	A1+A2+A3
Radiated Band Edge Emission	MCS8/20MHz	Band 1	13Mbps	36/40/48	A1+A2+A3
	MCS8/40MHz	Band 1	27Mbps	38/46	A1+A2+A3
Frequency Stability	Un-modulation		-	40	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 List

The brand/model names in the following table are all refer to the identical product.

All the models are identical, the difference model for difference brand served as marketing strategy.

Brand Name	Model Name	Manufacturer
Trapeze	430	Wistron NeWeb Corporation
Trapeze	MP-432	Wistron NeWeb Corporation

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 Draft n MCS8 20MHz

Test Software Version	ART		
Frequency	5180 MHz	5200 MHz	5240 MHz
Draft n	12	12	13

Power Parameters of Draft n MCS8 40MHz

Test Software Version	ART	
Frequency	5190 MHz	5230 MHz
Draft n	12	12

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

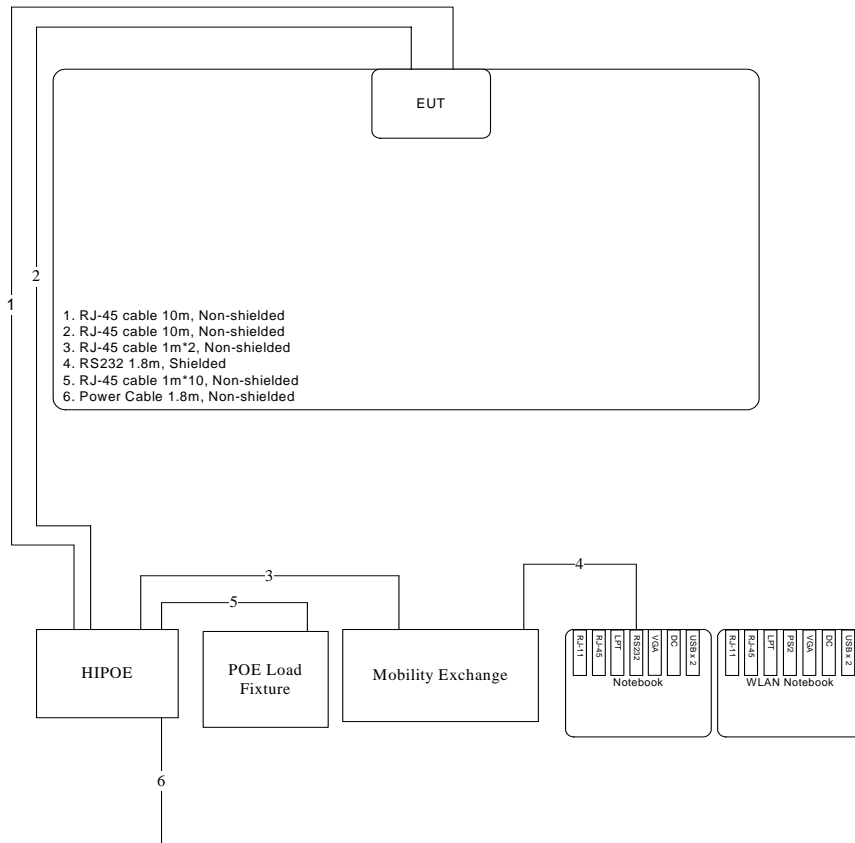
Executed "ART" to control the EUT continuously transmit RF signal. In sections 4.2, 4.3, 4.4 and 4.5, 4.7 and 4.8 while 4.1 and 4.6 using Trapeze MX controller to control the EUT continuous transmit RF signal.

3.10. Test Configurations

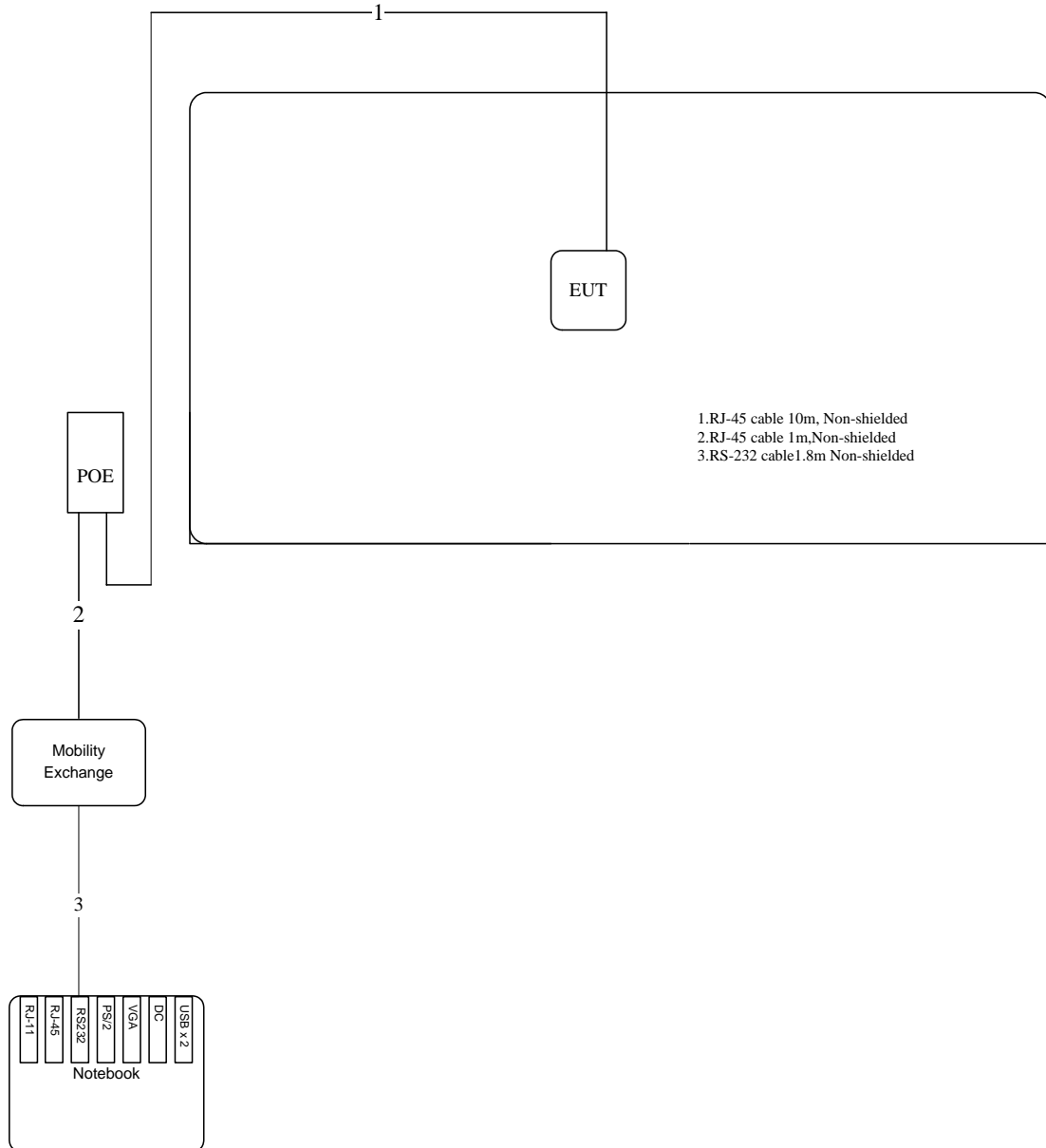
3.10.1. Radiation Emissions Test Configuration

Test Configuration: 9KHz~1GHz

Test Mode: Mode 2

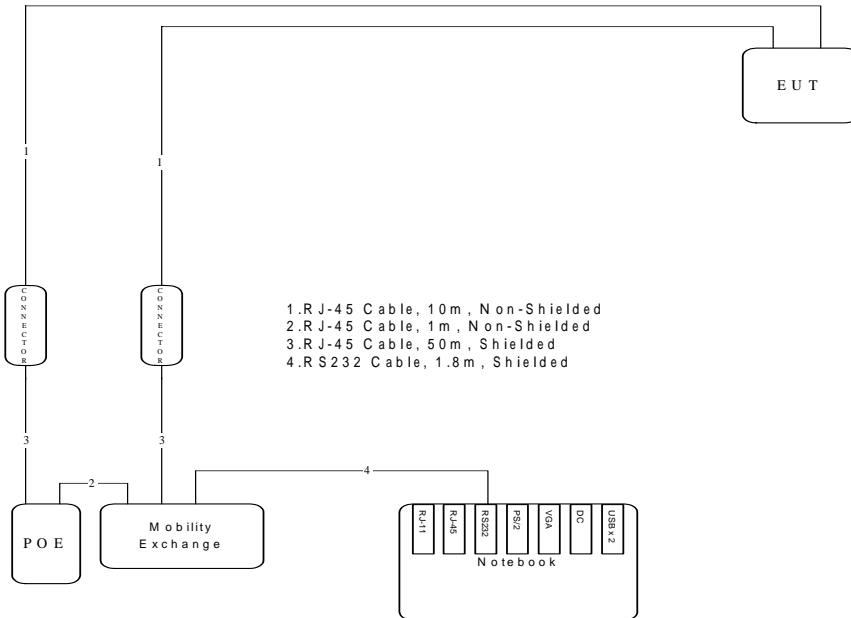


Test Configuration: above 1GHz

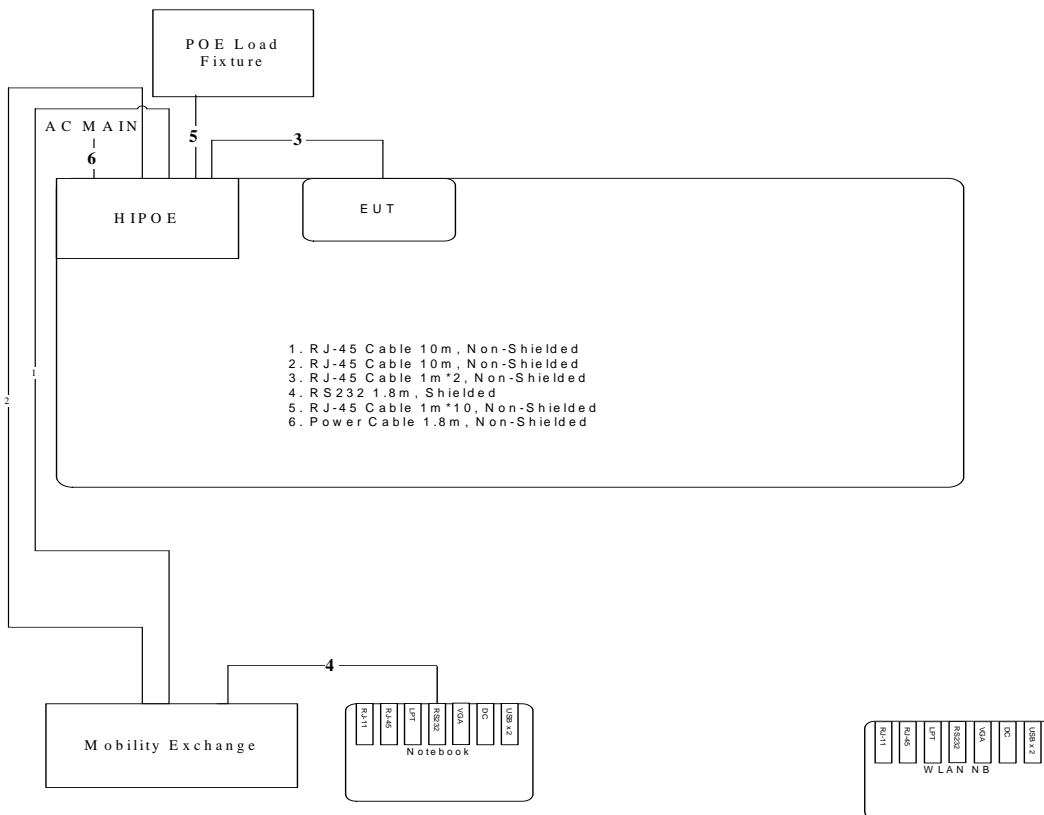


3.10.2. AC Power Line Conduction Emissions Test Configuration

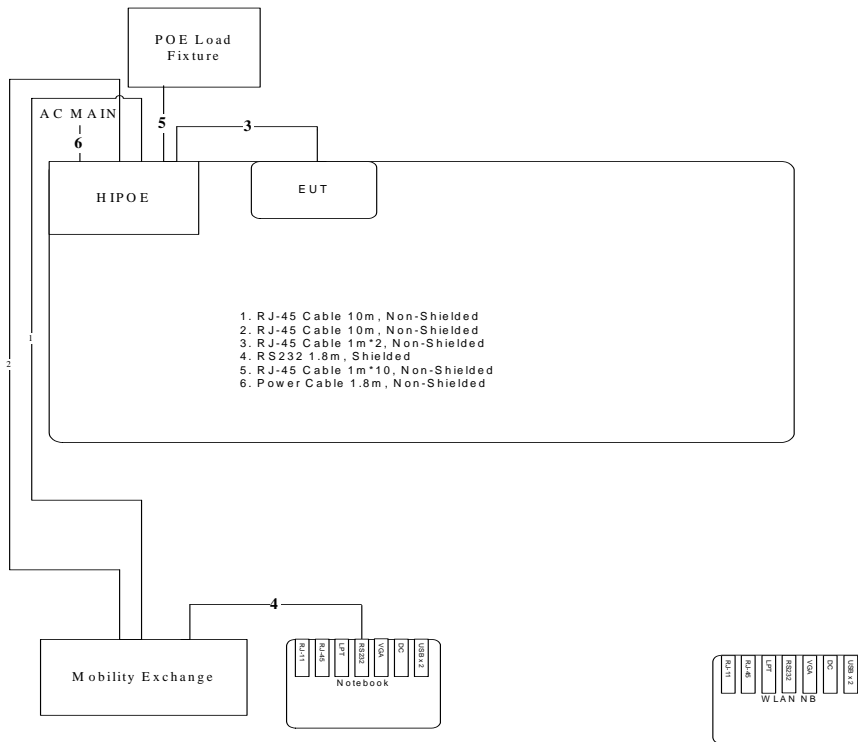
Test Configuration: ART setup for conducted RF tests



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

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

4.1.2. Measuring Instruments and Setting

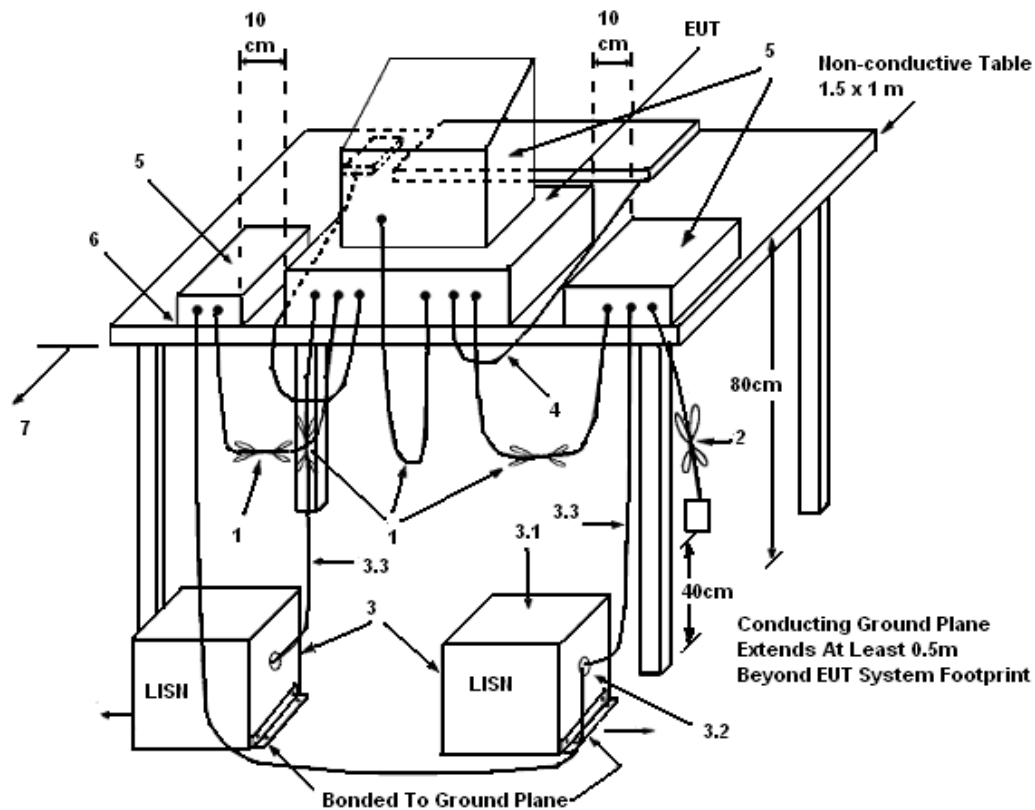
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. 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

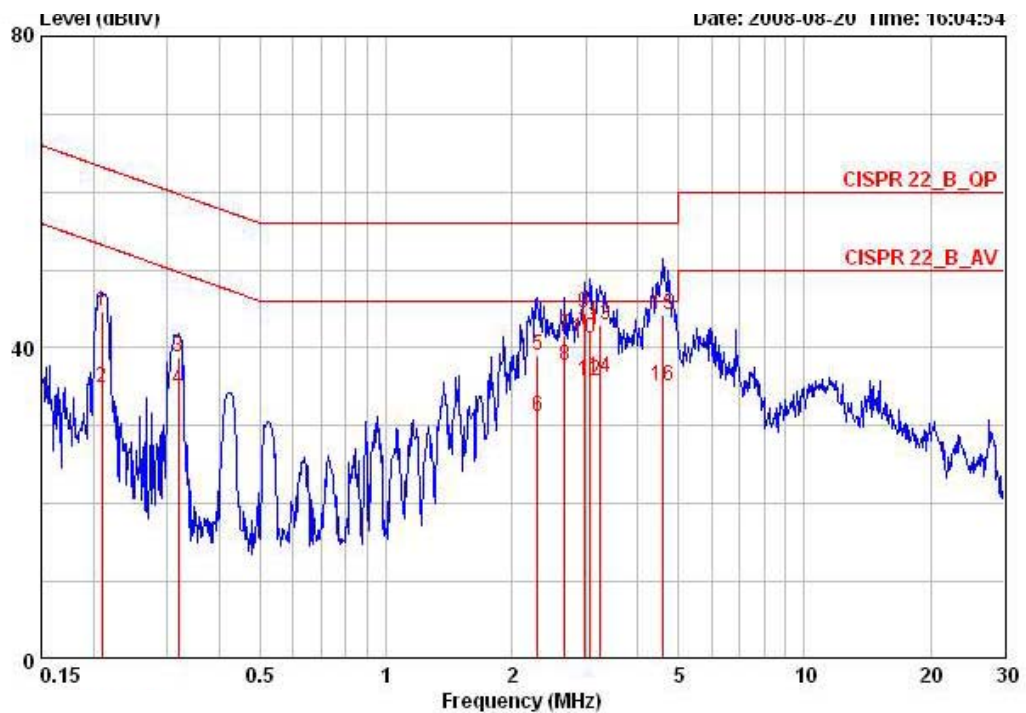
There is no deviation with the original standard.

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

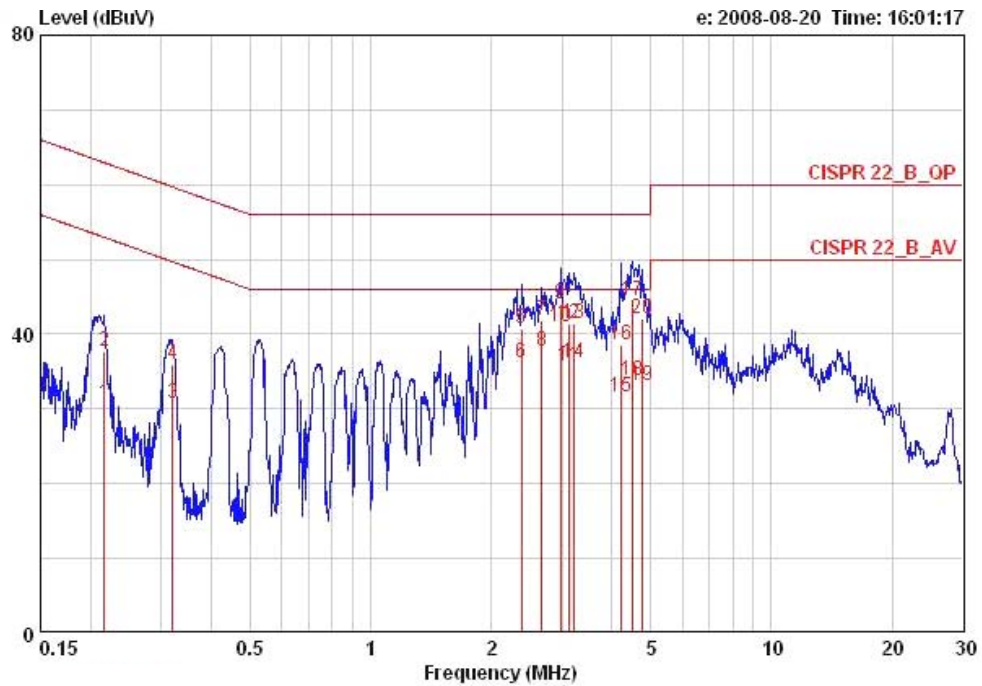
Temperature	24	Humidity	56%
Test Engineer	Aric Li	Phase	Line
Configuration	Mode 1 with ch.1 and 149 on continuous transmit RF signals		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			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	Humidity	56%
Test Engineer	Aric Li	Phase	Neutral
Configuration	Mode 1 with ch.1 and 149 on continuous transmit RF signals		



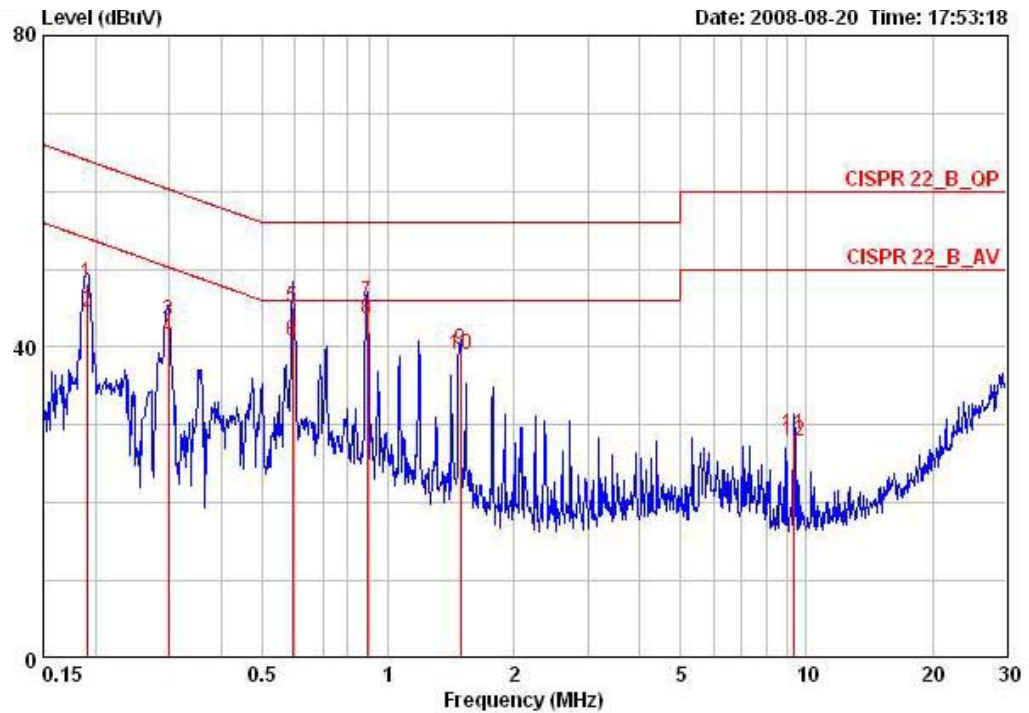
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.21620	30.66	-22.30	52.96	30.38	0.08	0.20	AVERAGE
2	0.21620	37.73	-25.23	62.96	37.45	0.08	0.20	QP
3	0.31999	30.66	-19.04	49.71	30.39	0.07	0.20	AVERAGE
4	0.31999	35.97	-23.73	59.71	35.70	0.07	0.20	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.



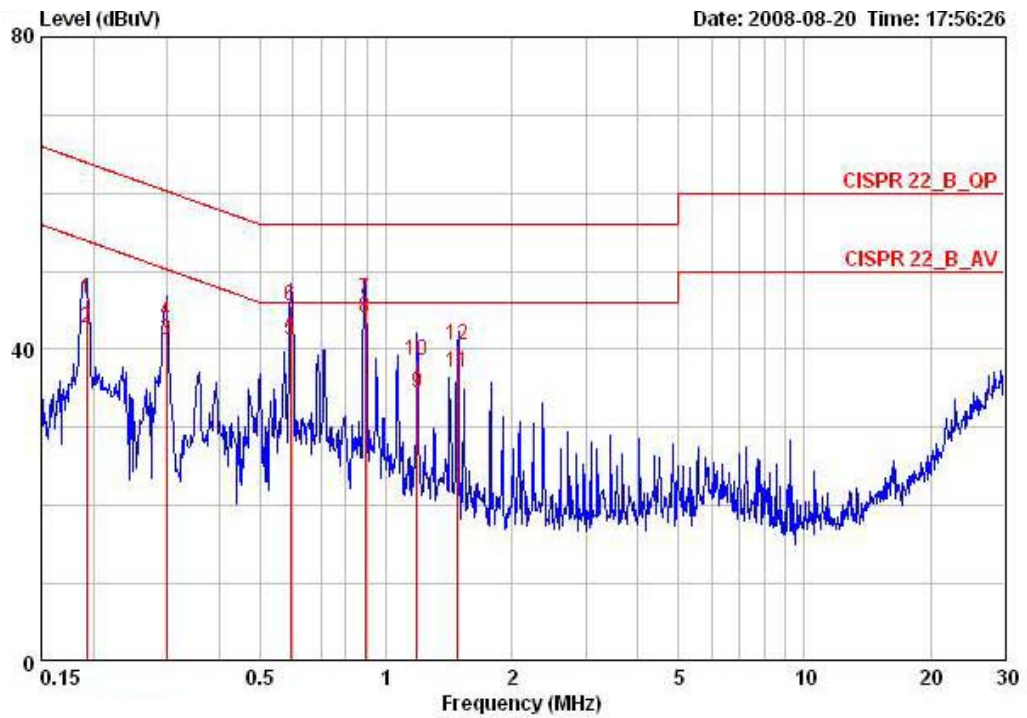
Temperature	24	Humidity	56%
Test Engineer	Aric Li	Phase	Line
Configuration	Mode 2 with ch.1 and 149 on continuous transmit RF signals		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			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	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	dB	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. 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits. But resolution bandwidth within band edge measurement is 1% of the 99% occupied bandwidth.

4.2.2. Measuring Instruments and Setting

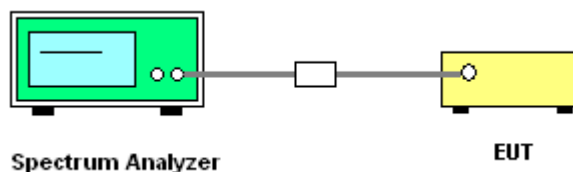
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RB	300 kHz
VB	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 300 kHz and the video bandwidth of 1000 kHz were used.
3. Measured the spectrum width with power higher than 26dB below carrier.
4. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

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 99% Occupied Bandwidth

Temperature	26	Humidity	60%
Test Engineer	Sam Chen	Configurations	Draft n

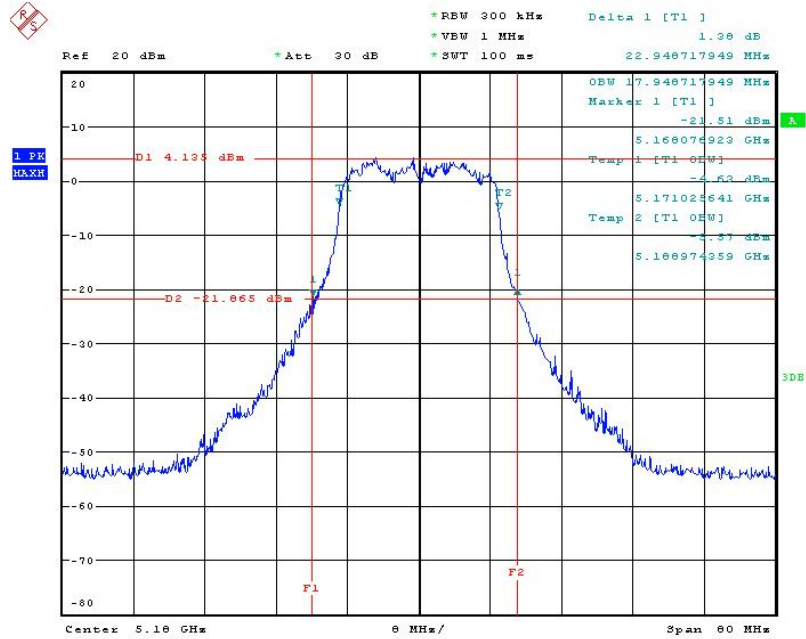
Configuration Draft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.94	17.94
40	5200 MHz	23.20	17.94
48	5240 MHz	22.94	17.94

Configuration Draft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3

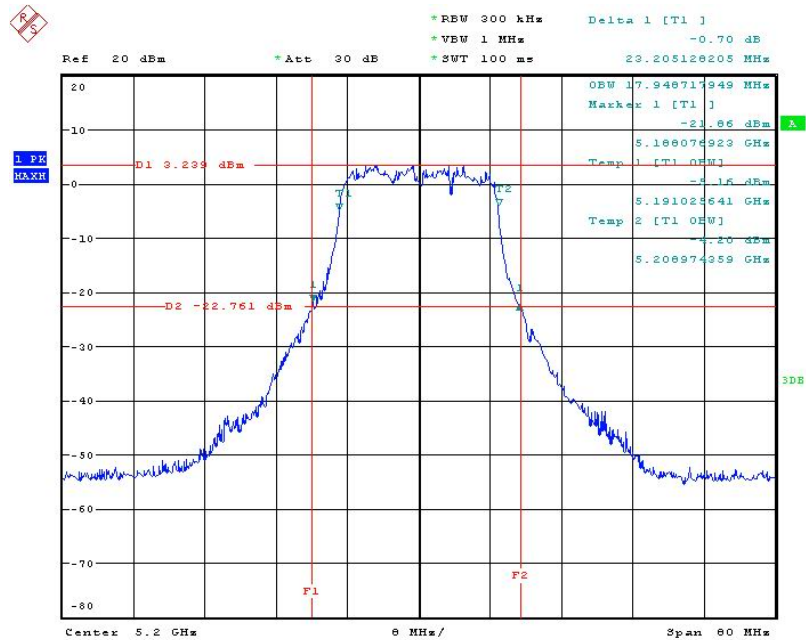
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	43.84	36.41
46	5230 MHz	43.58	36.41

26 dB Bandwidth Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5180 MHz



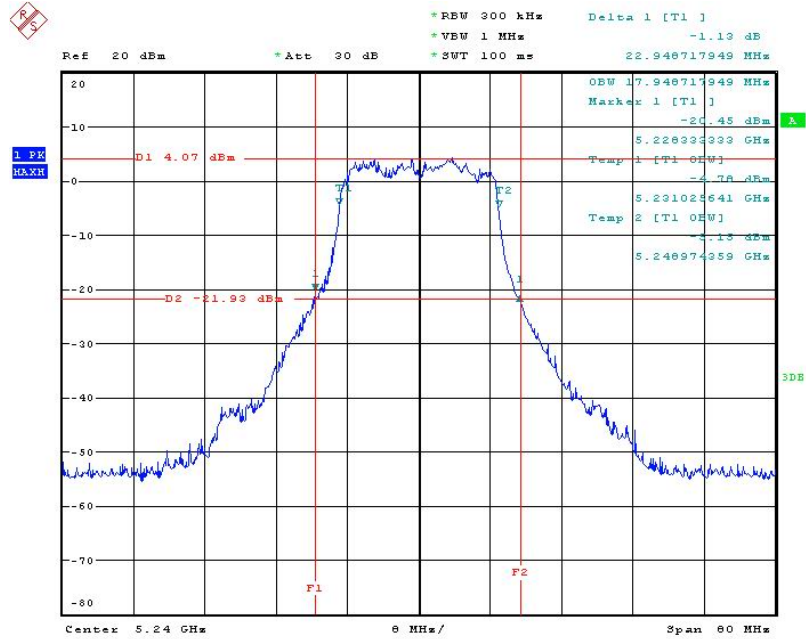
Date: 14.SEP.2008 15:37:16

26 dB Bandwidth Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5200 MHz



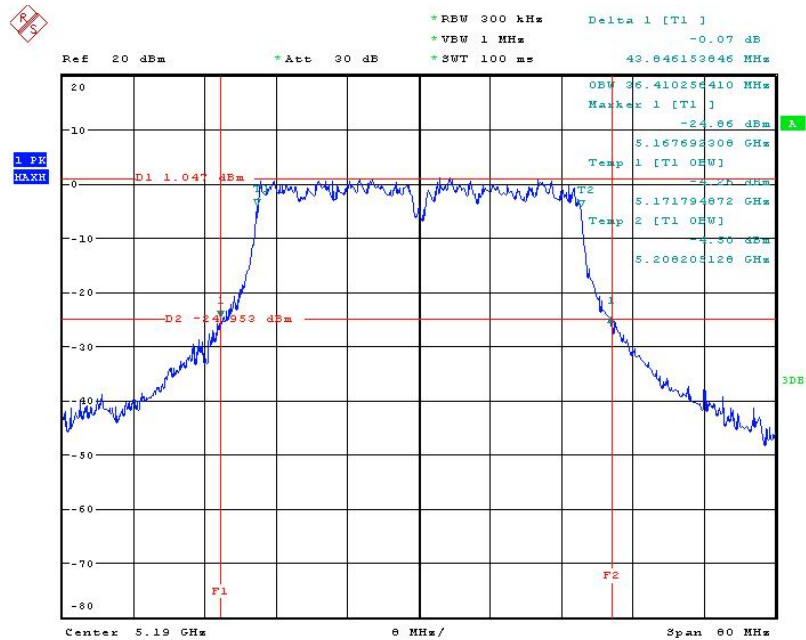
Date: 14.SEP.2008 15:38:05

26 dB Bandwidth Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5240 MHz



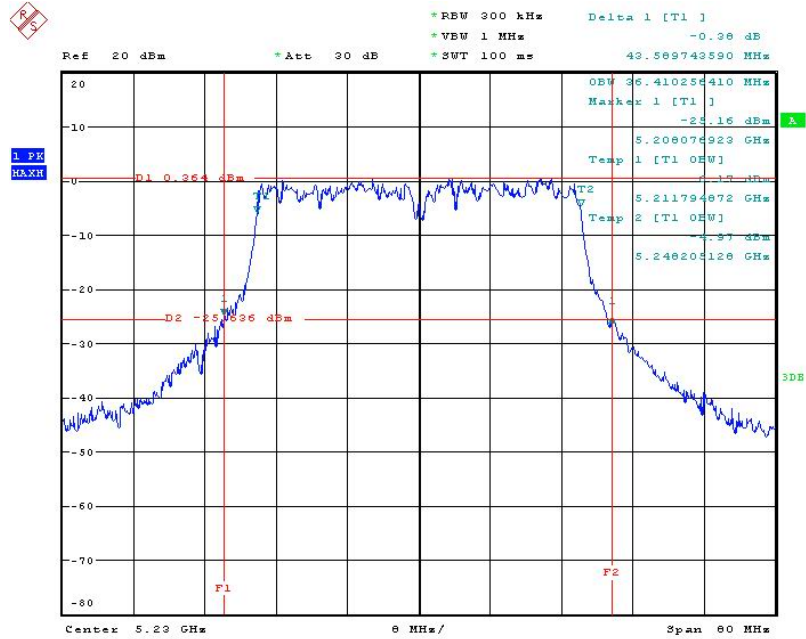
Date: 14.SEP.2008 15:38:31

26 dB Bandwidth Plot on Configuration Drafft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3 / 5190 MHz



Date: 14.SEP.2008 15:41:41

26 dB Bandwidth Plot on Configuration Draft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3 / 5230 MHz



Date: 14.SEP.2008 15:42:30

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

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

However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without any corresponding reduction in the transmitter peak output power and peak power spectral density. For fixed, point-to-point U-NII transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in peak transmitter power and peak power spectral density for each 1 dB of antenna gain in excess of 23 dBi would be required.

4.3.2. Measuring Instruments and Setting

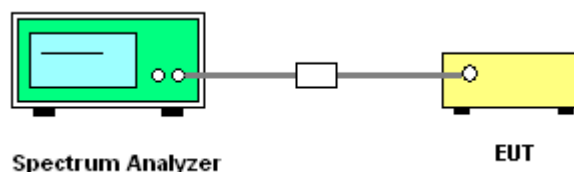
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

Temperature	26	Humidity	60%
Test Engineer	Sam Chen	Configurations	Draft n

Configuration Draft n MCS8 20MHz Ant. A1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	11.12	17.00	Complies
40	5200 MHz	10.89	17.00	Complies
48	5240 MHz	12.08	17.00	Complies

Configuration Draft n MCS8 20MHz Ant. A2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	12.39	17.00	Complies
40	5200 MHz	12.41	17.00	Complies
48	5240 MHz	12.56	17.00	Complies

Configuration Draft n MCS8 20MHz Ant. A3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	11.18	17.00	Complies
40	5200 MHz	10.35	17.00	Complies
48	5240 MHz	11.60	17.00	Complies

Configuration Draft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.38	17.00	Complies
40	5200 MHz	16.08	17.00	Complies
48	5240 MHz	16.87	17.00	Complies

Configuration Draft n MCS8 40MHz Ant. A1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	11.08	17.00	Complies
46	5230 MHz	11.28	17.00	Complies

Configuration Draft n MCS8 40MHz Ant. A2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	12.00	17.00	Complies
46	5230 MHz	12.57	17.00	Complies

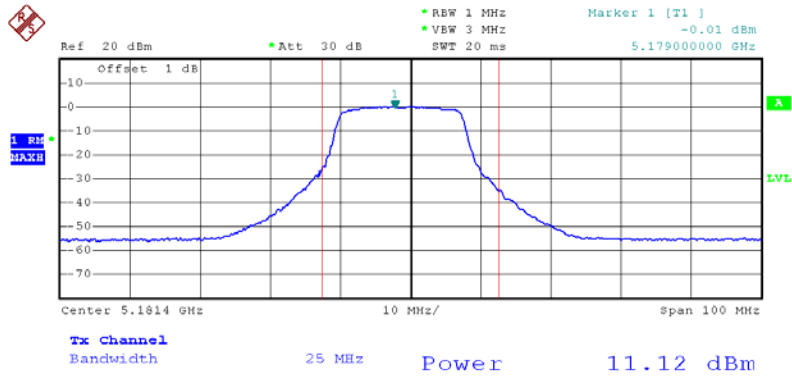
Configuration Draft n MCS8 40MHz Ant. A3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	10.70	17.00	Complies
46	5230 MHz	10.97	17.00	Complies

Configuration Draft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3

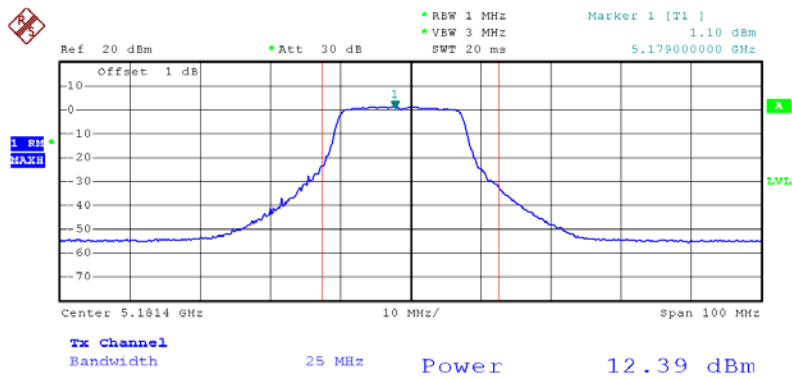
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	16.07	17.00	Complies
46	5230 MHz	16.43	17.00	Complies

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A1 / 5180 MHz



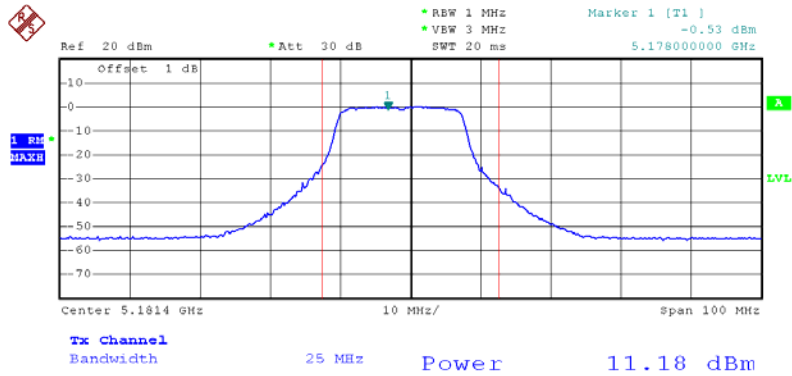
Date: 3.SEP.2008 19:23:54

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A2 / 5180 MHz



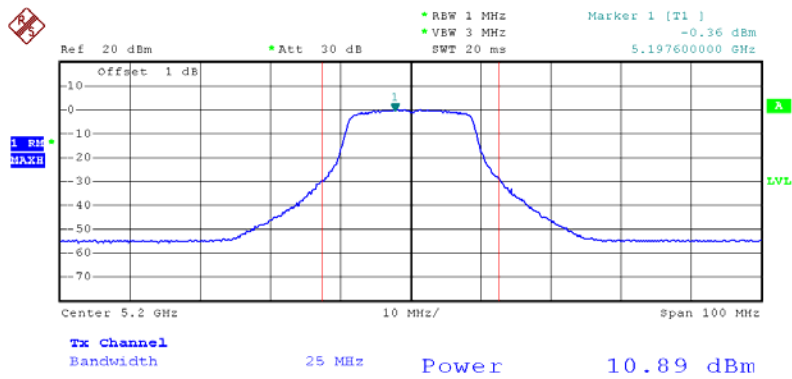
Date: 3.SEP.2008 19:24:45

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A3 / 5180 MHz



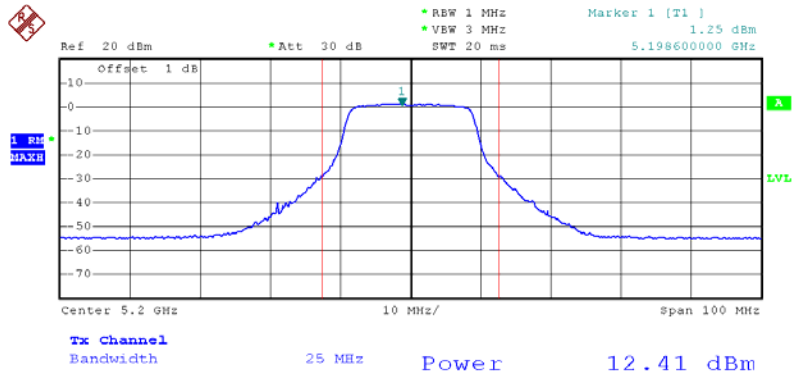
Date: 3.SEP.2008 19:25:20

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A1/ 5200 MHz



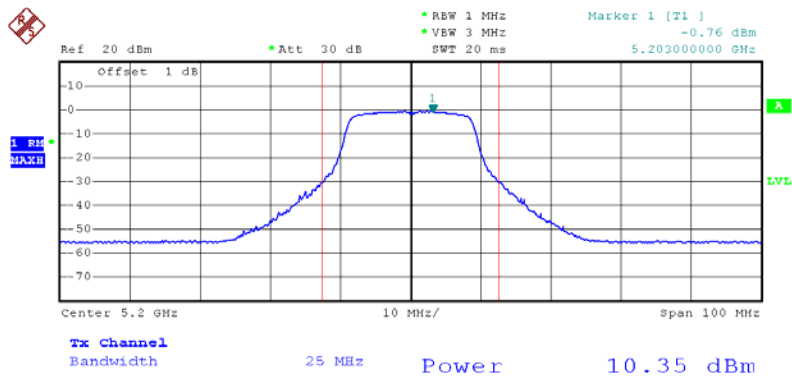
Date: 3.SEP.2008 19:26:48

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A2 / 5200 MHz



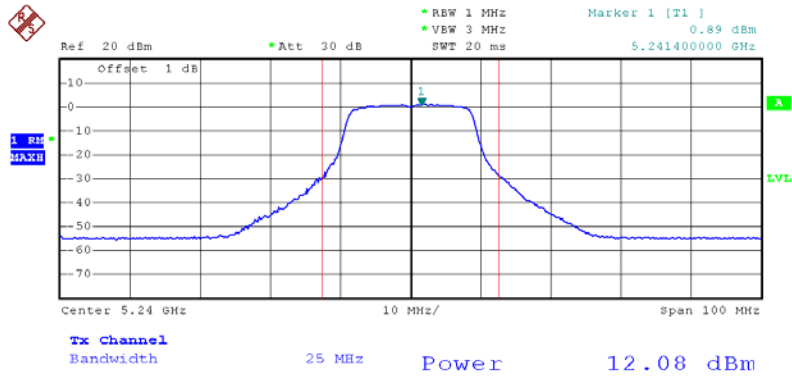
Date: 3.SEP.2008 19:27:40

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A3 / 5200 MHz



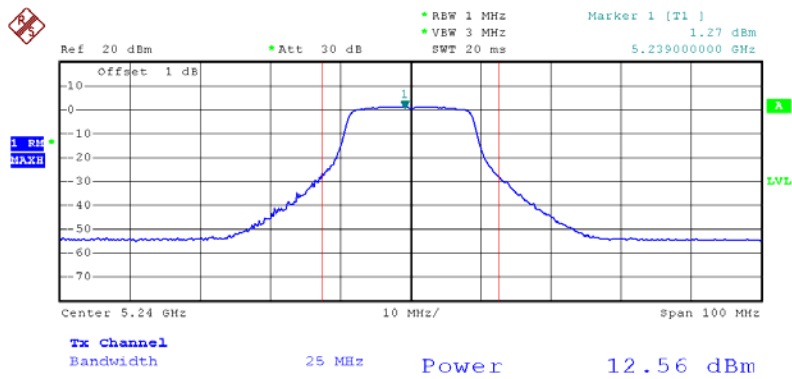
Date: 3.SEP.2008 19:29:02

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A1 / 5240 MHz



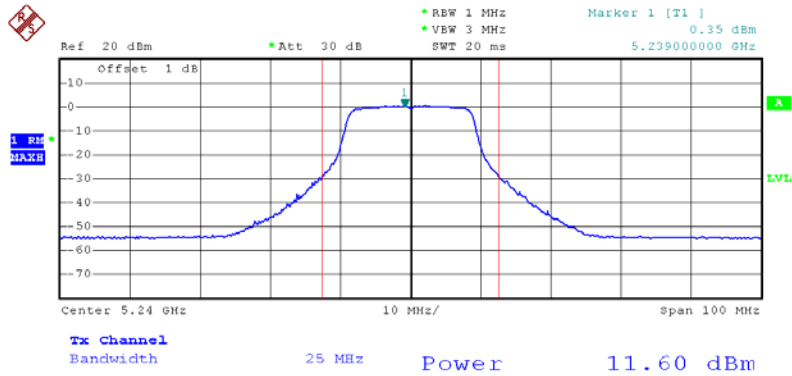
Date: 3.SEP.2008 19:30:49

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A2 / 5240 MHz



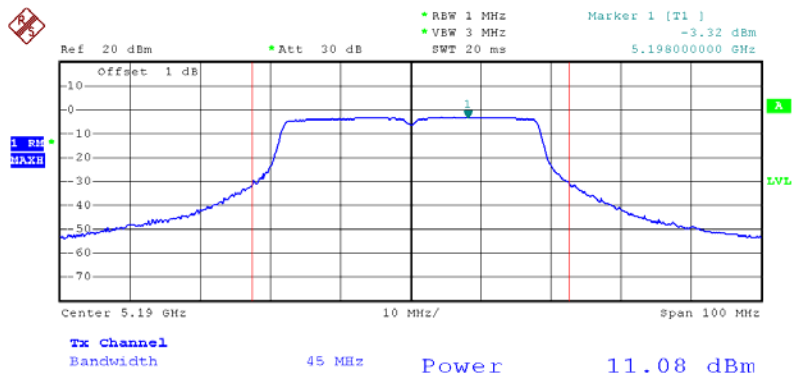
Date: 3.SEP.2008 19:33:47

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A3 / 5240 MHz



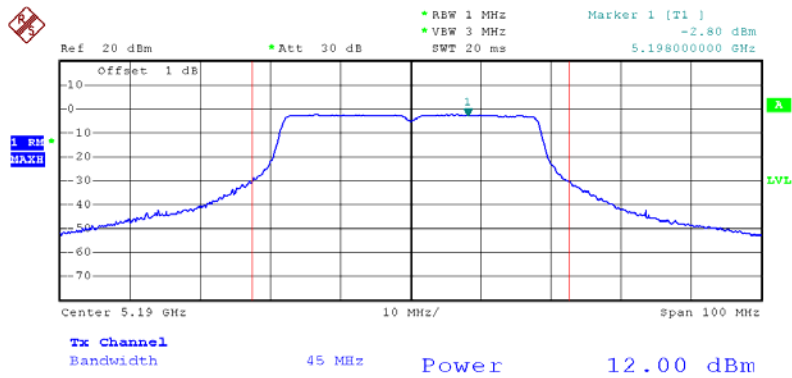
Date: 3.SEP.2008 19:34:11

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A1 / 5190 MHz



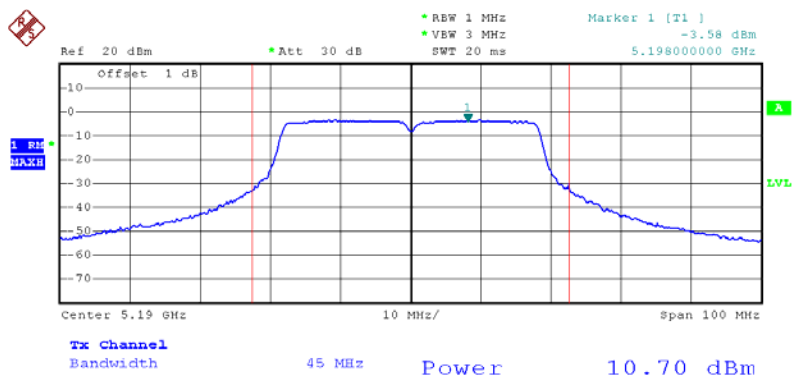
Date: 3.SEP.2008 19:36:23

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A2 / 5190 MHz



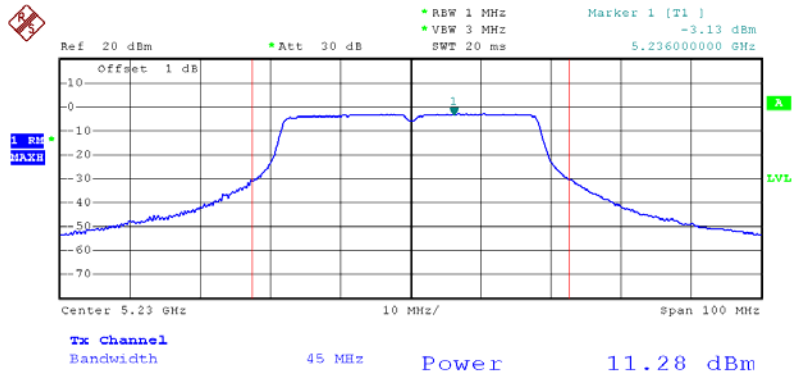
Date: 3.SEP.2008 19:37:06

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A3 / 5190 MHz



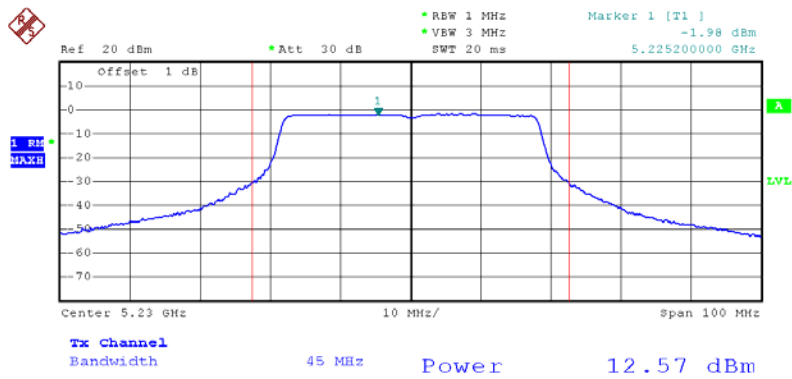
Date: 3.SEP.2008 19:37:39

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A1 / 5230 MHz



Date: 3.SEP.2008 19:39:34

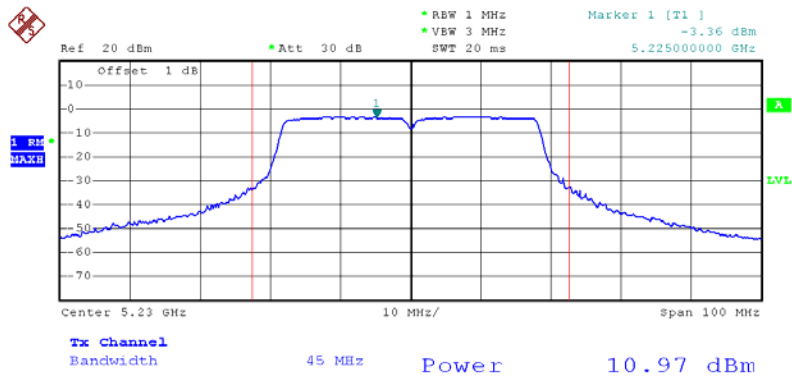
Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A2 / 5230 MHz



Date: 3.SEP.2008 19:40:10



Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A3 / 5230 MHz



Date: 3.SEP.2008 19:40:47

4.4. Power Spectral Density Measurement

4.4.1. Limit

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

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	4

4.4.2. Measuring Instruments and Setting

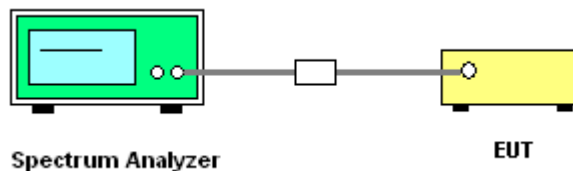
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz. Set Detector to Peak, Trace to Max Hold. Mark the frequency with maximum peak power as the center of the display of the spectrum.
3. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	26	Humidity	60%
Test Engineer	Sam Chen	Configurations	Draft n

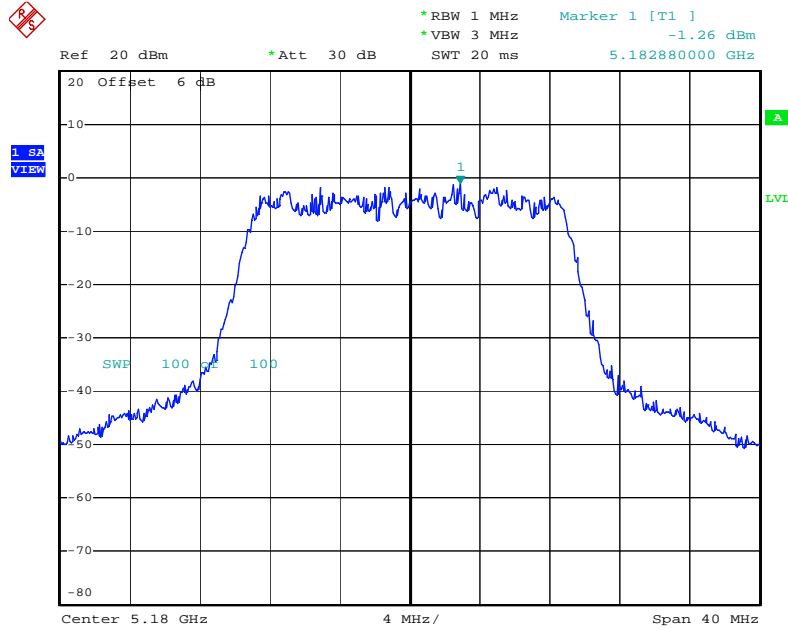
Configuration Draft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	-1.26	4.00	Complies
40	5200 MHz	-0.66	4.00	Complies
48	5240 MHz	-0.53	4.00	Complies

Configuration Draft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3

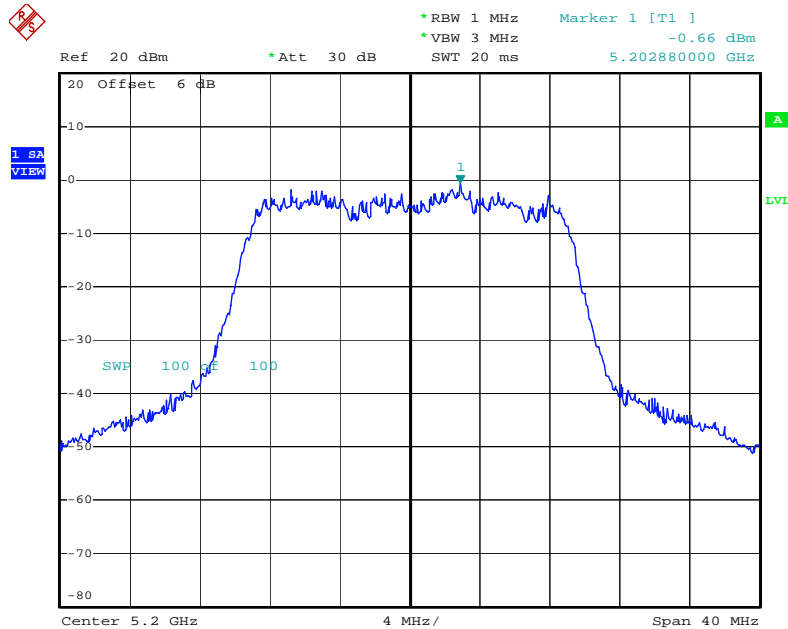
Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	-5.39	4.00	Complies
46	5230 MHz	-4.89	4.00	Complies

Power Density Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5180 MHz



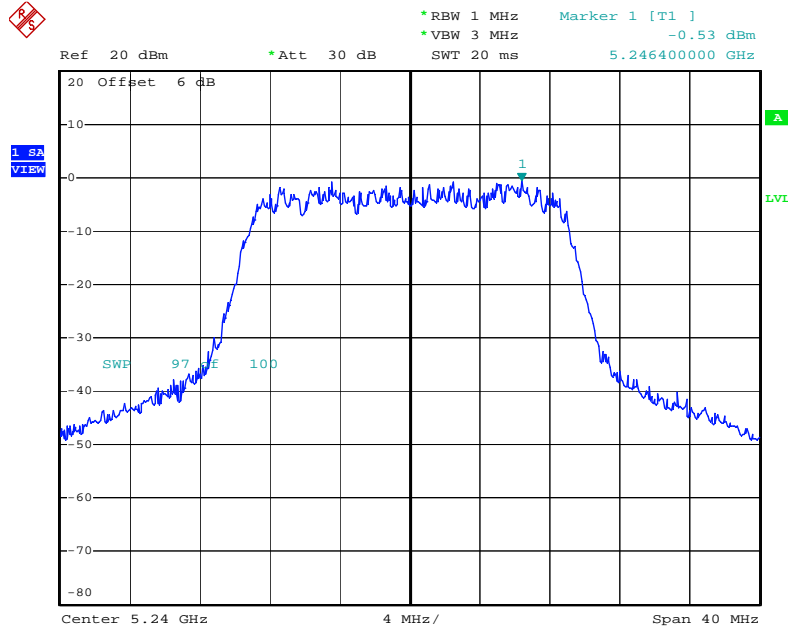
Date: 13.FEB.2008 10:14:13

Power Density Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5200 MHz



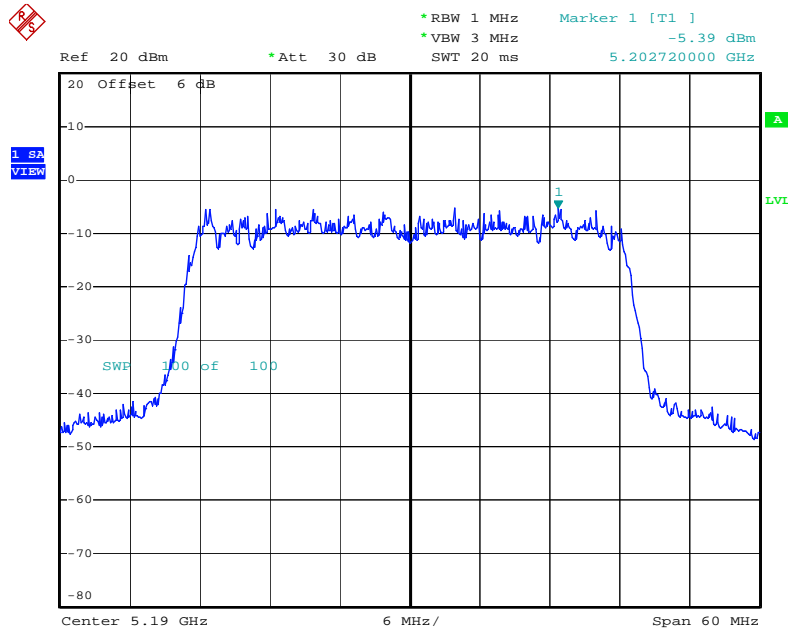
Date: 13.FEB.2008 10:14:57

Power Density Plot on Configuration Drafft n MCS8 20MHz Ant. A1 + Ant. A2 + Ant. A3 / 5240 MHz



Date: 13.FEB.2008 10:15:42

Power Density Plot on Configuration Drafft n MCS8 40MHz Ant. A1 + Ant. A2 + Ant. A3 / 5190 MHz



Date: 13.FEB.2008 10:19:25