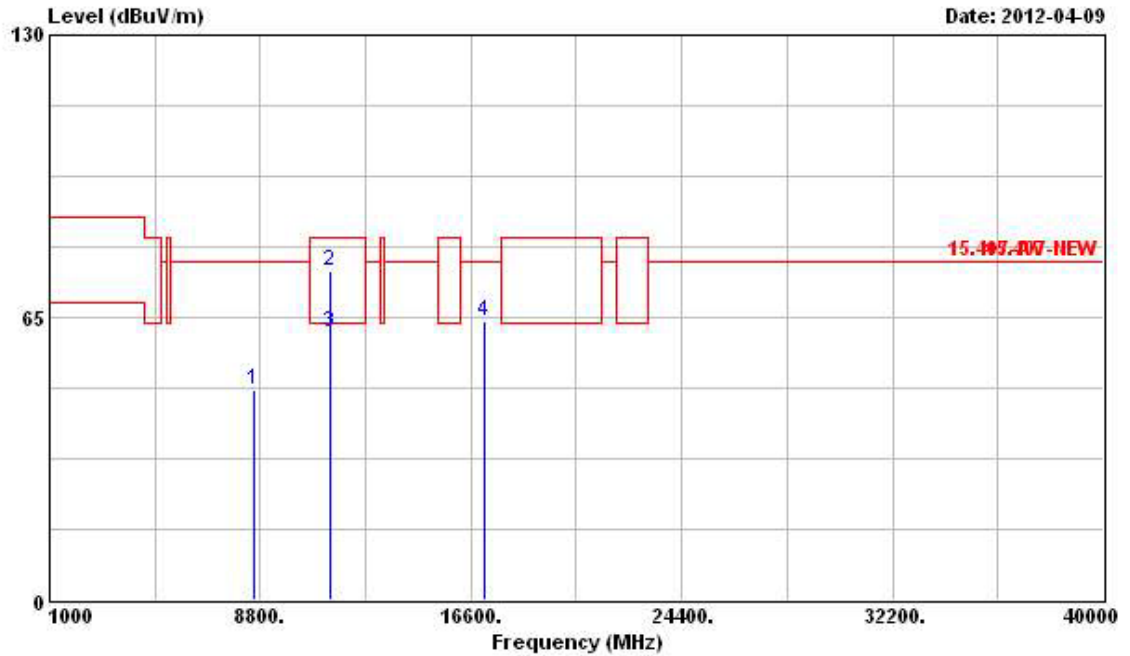


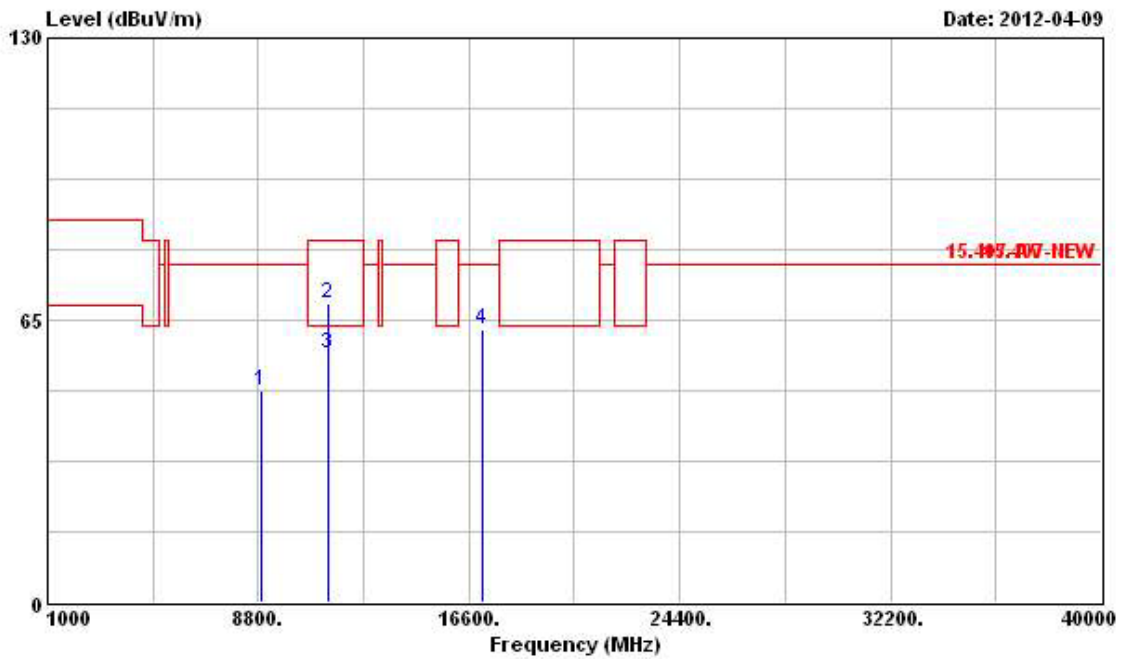
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 140 (20 MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8568.000	48.50	-29.34	77.84	41.44	36.34	5.97	35.25	Peak	---	---
2	11400.000	75.85	-7.69	83.54	65.02	38.84	6.71	34.72	Peak	---	---
3	11400.000	61.45	-2.09	63.54	50.62	38.84	6.71	34.72	Average	---	---
4	17100.000	63.98	-13.86	77.84	47.69	41.66	8.61	33.98	Peak	---	---

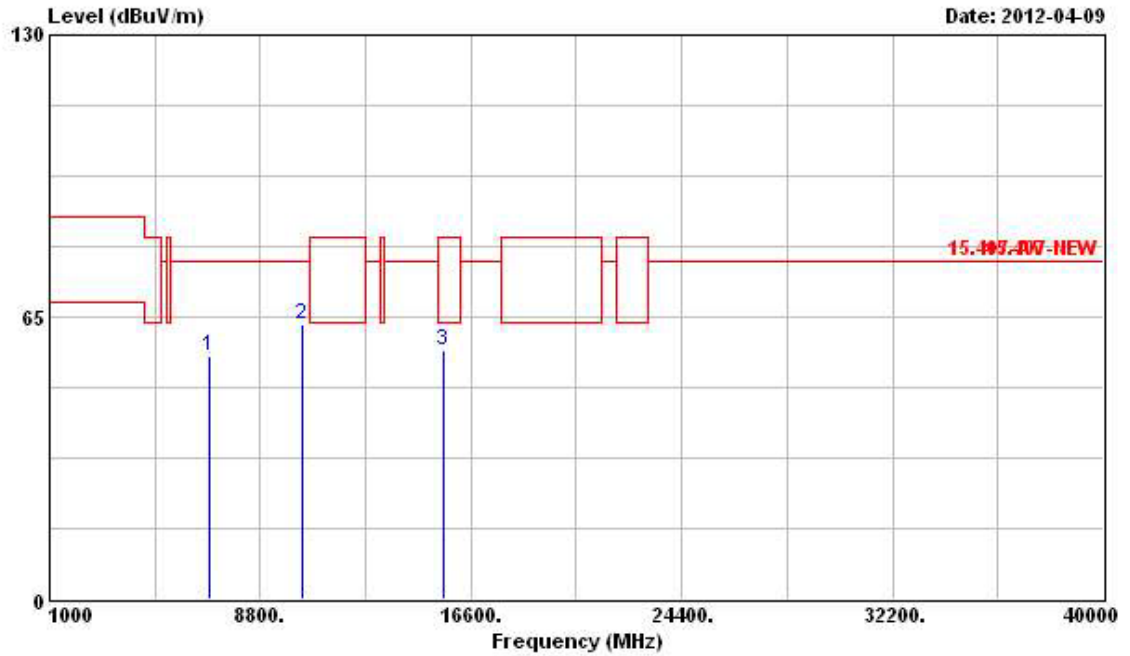
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8916.000	48.58	-29.26	77.84	41.20	36.55	6.13	35.30	Peak	---	---
2	11400.000	68.95	-14.59	83.54	58.12	38.84	6.71	34.72	Peak	---	---
3	11400.000	57.13	-6.41	63.54	46.30	38.84	6.71	34.72	Average	---	---
4	17100.000	62.71	-15.13	77.84	46.42	41.66	8.61	33.98	Peak	---	---

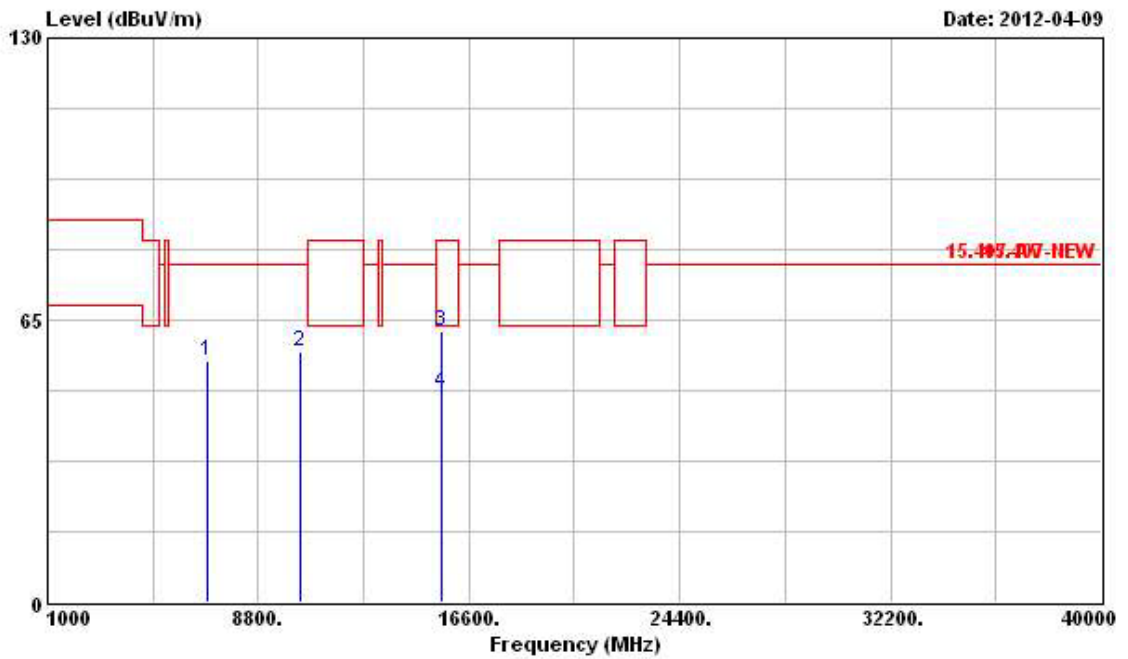
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 38 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6900.000	56.12	-21.72	77.84	49.68	35.86	5.57	34.99	Peak	---	---
2	10380.000	63.41	-14.43	77.84	53.63	38.23	6.75	35.20	Peak	---	---
3	15570.000	57.44	-6.10	63.54	43.21	40.83	8.45	35.05	PK	---	---

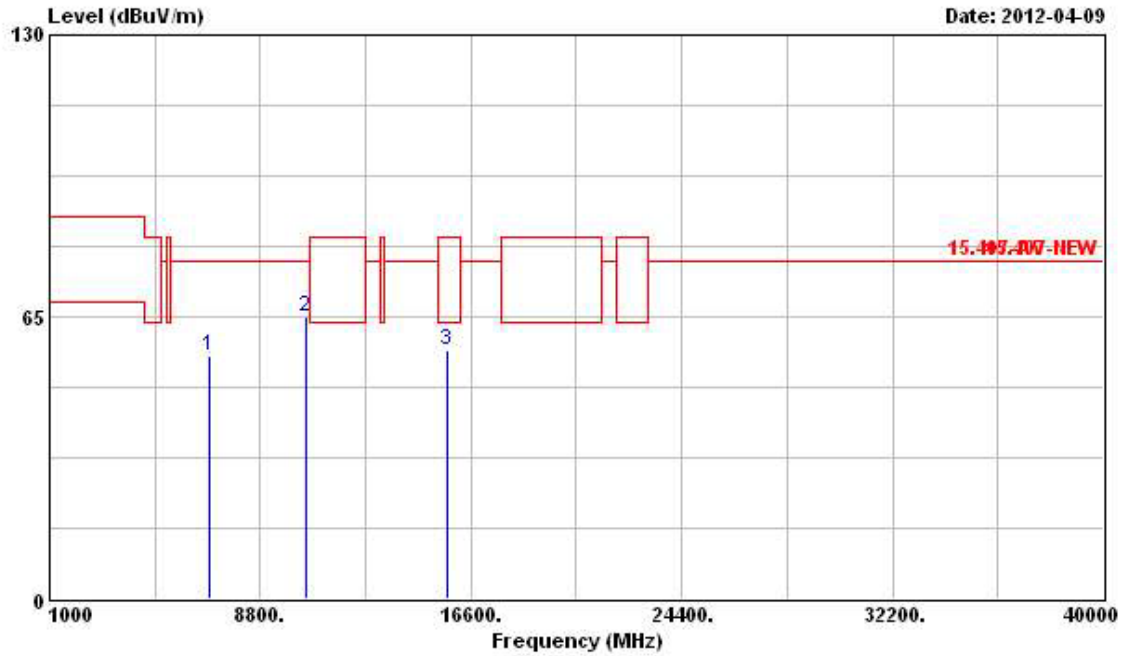
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6900.000	55.40	-22.44	77.84	48.96	35.86	5.57	34.99	Peak	---	---
2	10380.000	57.61	-20.23	77.84	47.83	38.23	6.75	35.20	Peak	---	---
3	15570.000	62.34	-21.20	83.54	48.11	40.83	8.45	35.05	Peak	---	---
4	15570.000	48.25	-15.29	63.54	34.02	40.83	8.45	35.05	Average	---	---

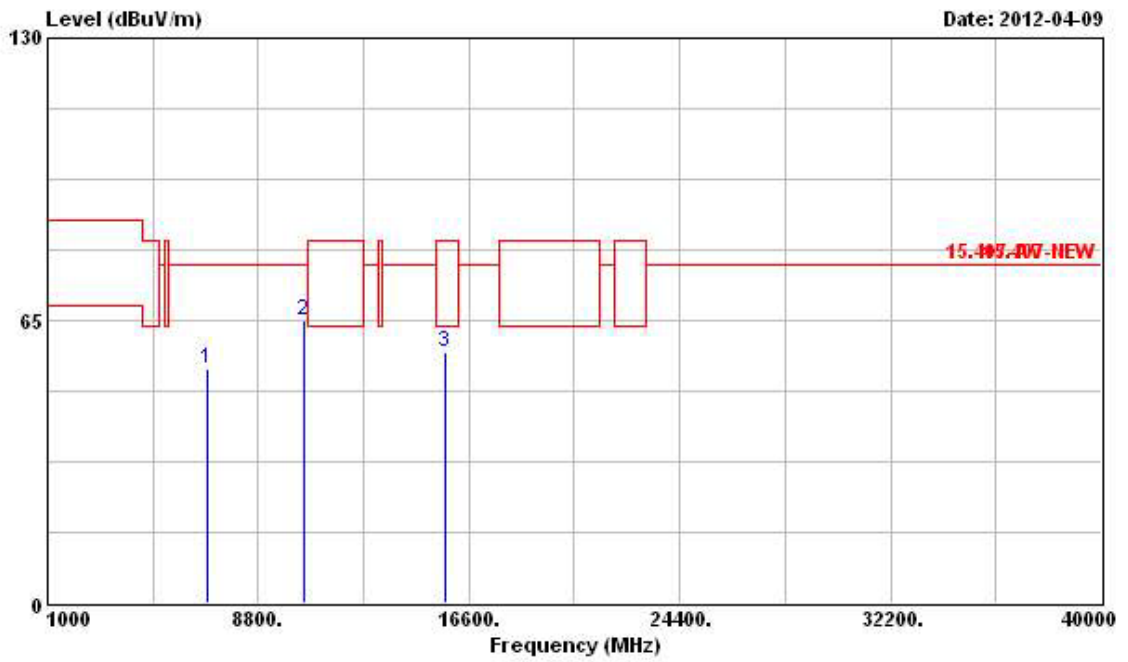
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 46 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6948.000	56.12	-21.72	77.84	49.66	35.88	5.59	35.01	Peak	---	---
2	10460.000	65.11	-12.73	77.84	55.16	38.27	6.82	35.14	Peak	---	---
3	15690.000	57.37	-6.17	63.54	43.21	40.88	8.46	35.18	PK	---	---

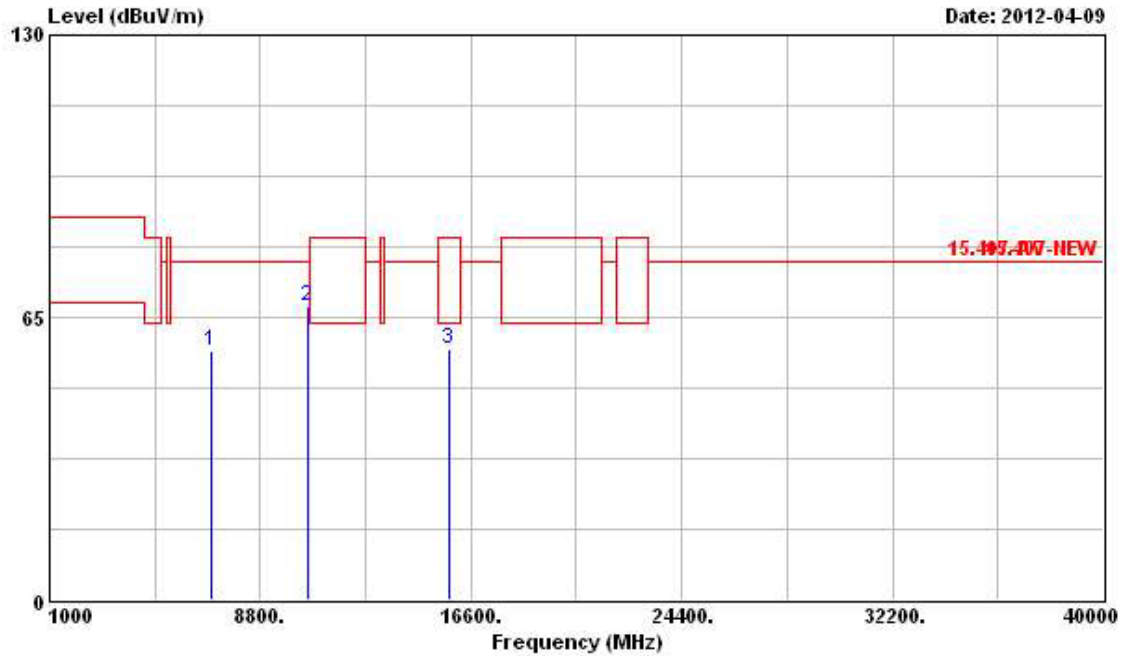
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6948.000	53.85	-23.99	77.84	47.39	35.88	5.59	35.01	Peak	---	---
2	10460.000	64.95	-12.89	77.84	55.00	38.27	6.82	35.14	Peak	---	---
3	15690.000	57.71	-5.83	63.54	43.55	40.88	8.46	35.18	PK	---	---

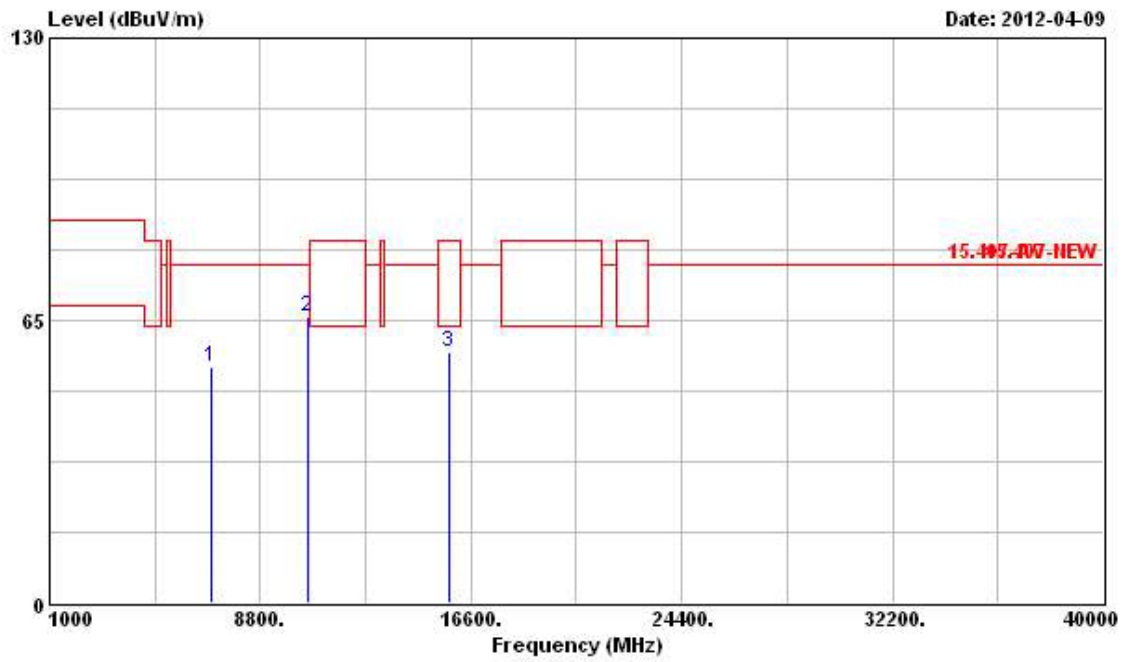
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 54 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6996.000	57.47	-20.37	77.84	50.99	35.90	5.60	35.02	Peak	---	---
2	10540.000	67.65	-10.19	77.84	57.53	38.32	6.88	35.08	Peak	---	---
3	15810.000	57.72	-5.82	63.54	43.64	40.92	8.46	35.30	PK	---	---

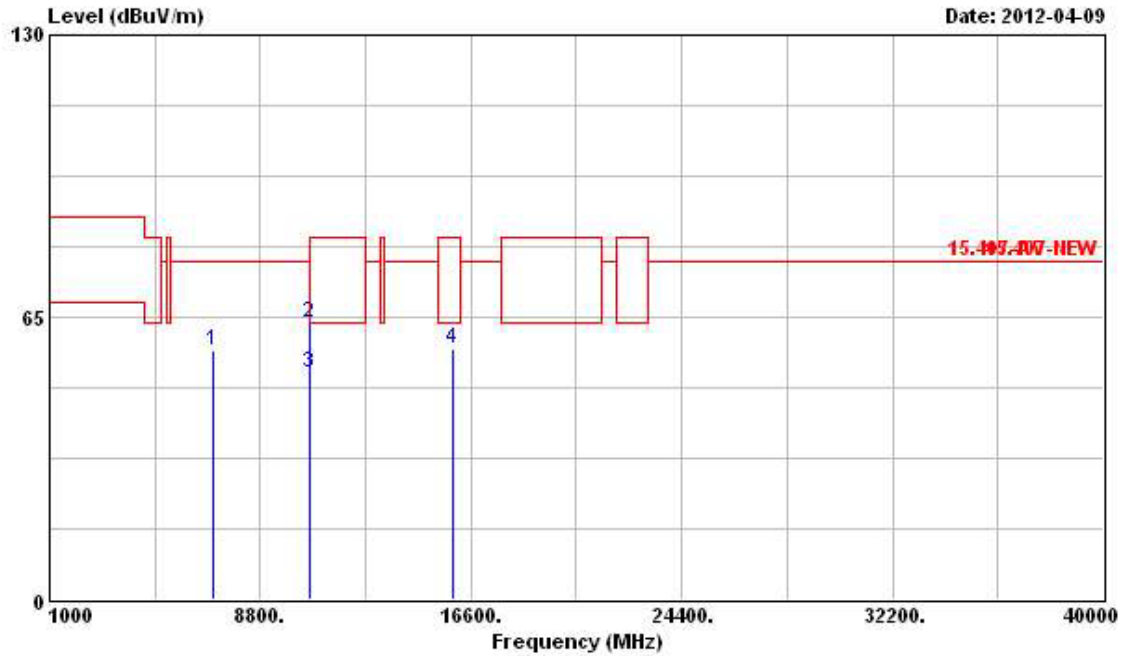
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6996.000	54.28	-23.56	77.84	47.80	35.90	5.60	35.02	Peak	---	---
2	10540.000	65.83	-12.01	77.84	55.71	38.32	6.88	35.08	Peak	---	---
3	15810.000	57.61	-5.93	63.54	43.53	40.92	8.46	35.30	PK	---	---

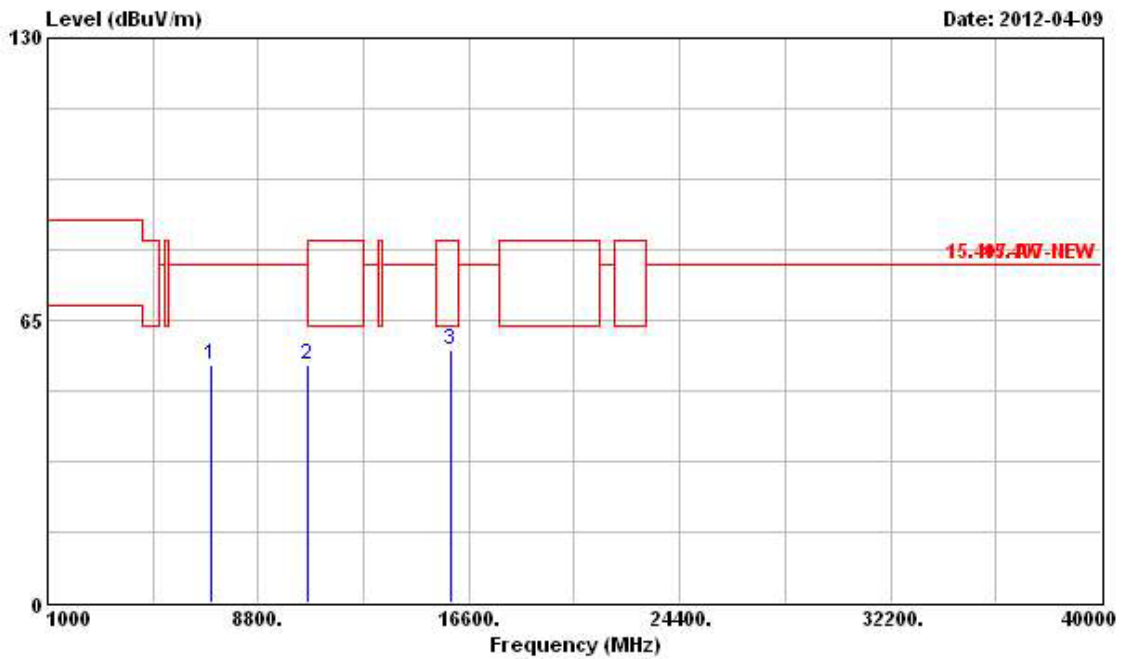
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 62 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7080.000	57.50	-20.34	77.84	51.05	35.88	5.61	35.04	Peak	---	---
2	10620.000	63.64	-19.90	83.54	53.36	38.37	6.93	35.02	Peak	---	---
3	10620.000	52.16	-11.38	63.54	41.88	38.37	6.93	35.02	Average	---	---
4	15930.000	57.81	-5.73	63.54	43.77	40.97	8.47	35.40	PK	---	---

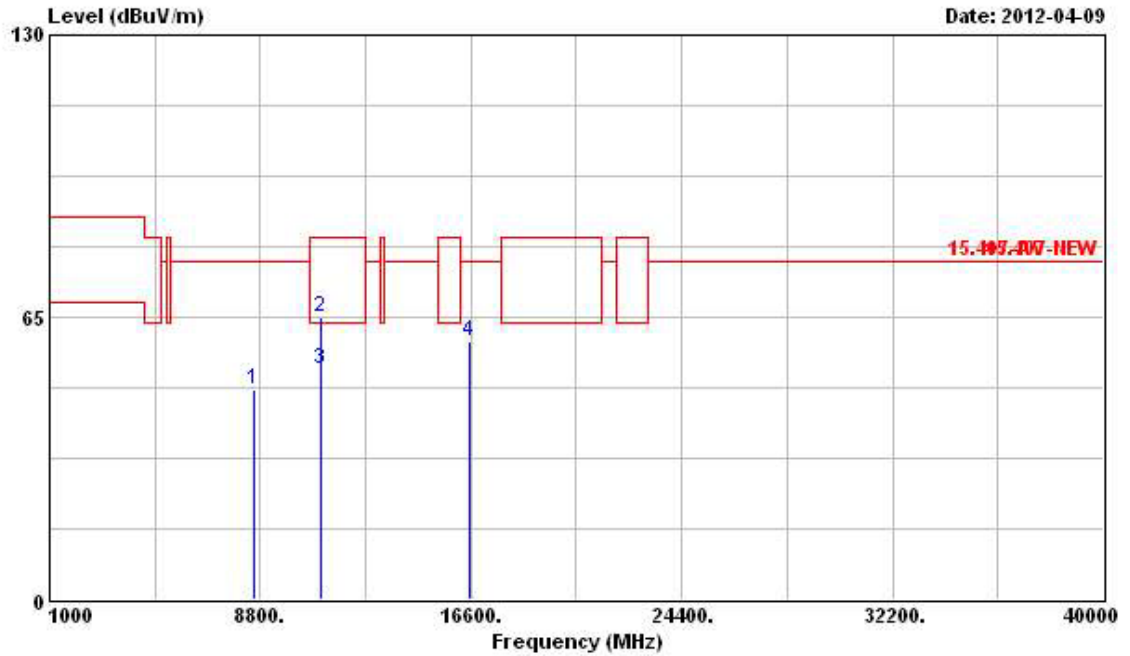
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7080.000	54.85	-22.99	77.84	48.40	35.88	5.61	35.04	Peak	---	---
2	10620.000	54.90	-8.64	63.54	44.62	38.37	6.93	35.02	PK	---	---
3	15930.000	57.97	-5.57	63.54	43.93	40.97	8.47	35.40	PK	---	---

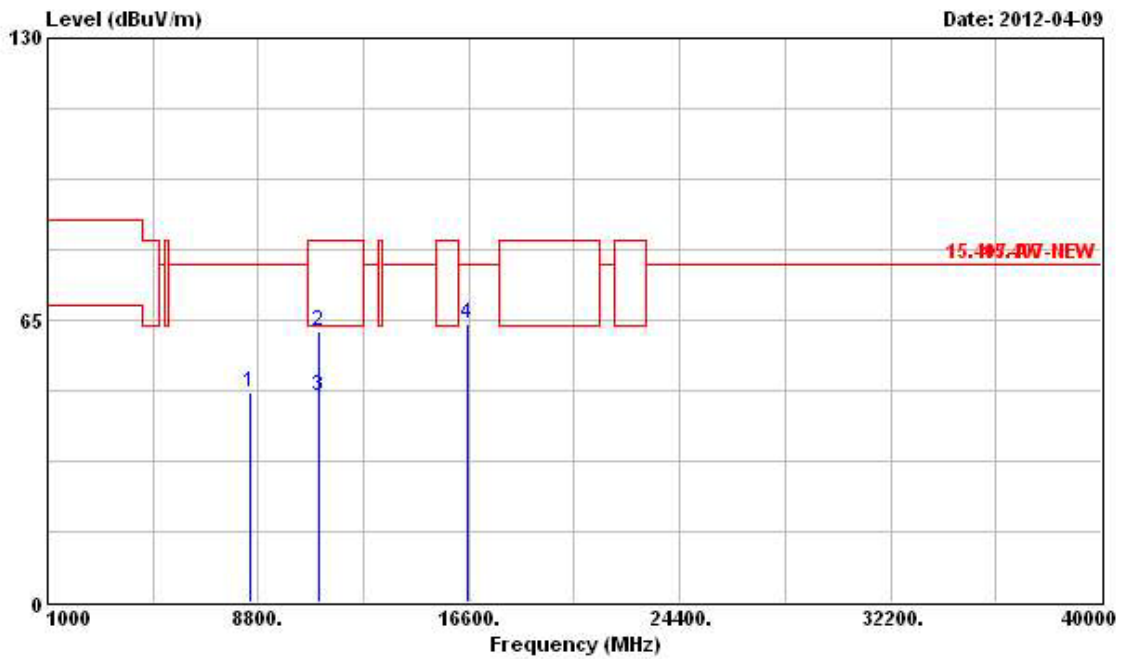
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 102 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8568.000	48.29	-29.55	77.84	41.23	36.34	5.97	35.25	Peak	---	---
2	11020.000	65.05	-18.49	83.54	54.03	38.61	7.13	34.72	Peak	---	---
3	11020.000	53.02	-10.52	63.54	42.00	38.61	7.13	34.72	Average	---	---
4	16530.000	59.33	-18.51	77.84	44.02	41.98	8.27	34.94	Peak	---	---

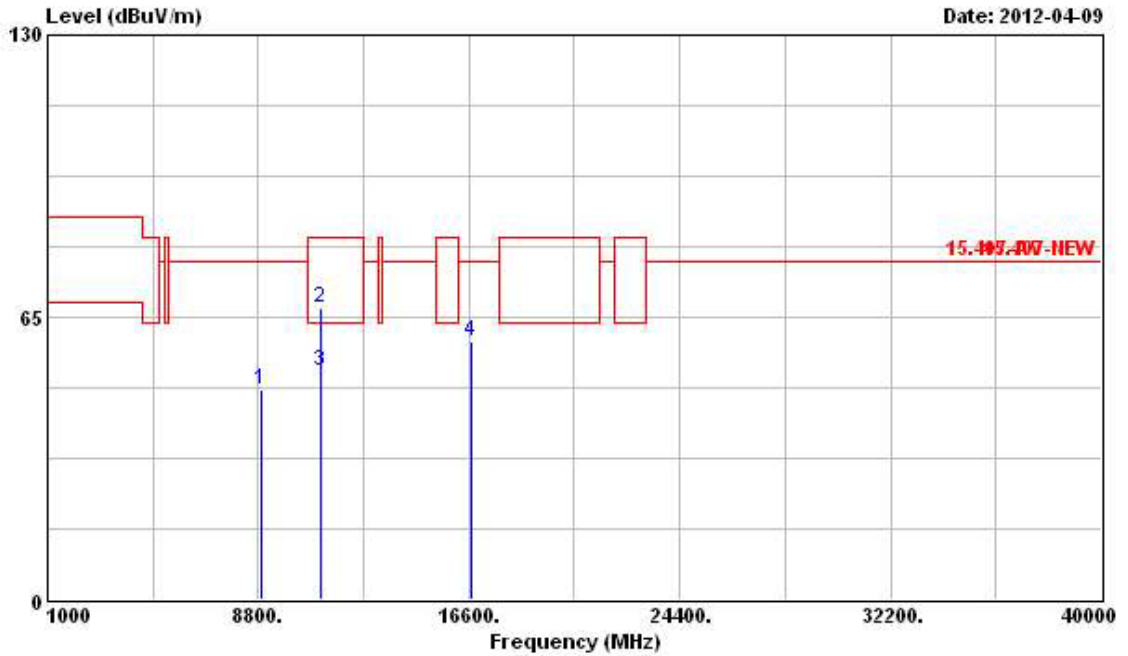
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8520.000	48.46	-29.38	77.84	41.43	36.31	5.96	35.24	Peak	---	---
2	11020.000	62.53	-21.01	83.54	51.51	38.61	7.13	34.72	Peak	---	---
3	11020.000	47.27	-16.27	63.54	36.25	38.61	7.13	34.72	Average	---	---
4	16530.000	64.20	-13.64	77.84	48.89	41.98	8.27	34.94	Peak	---	---

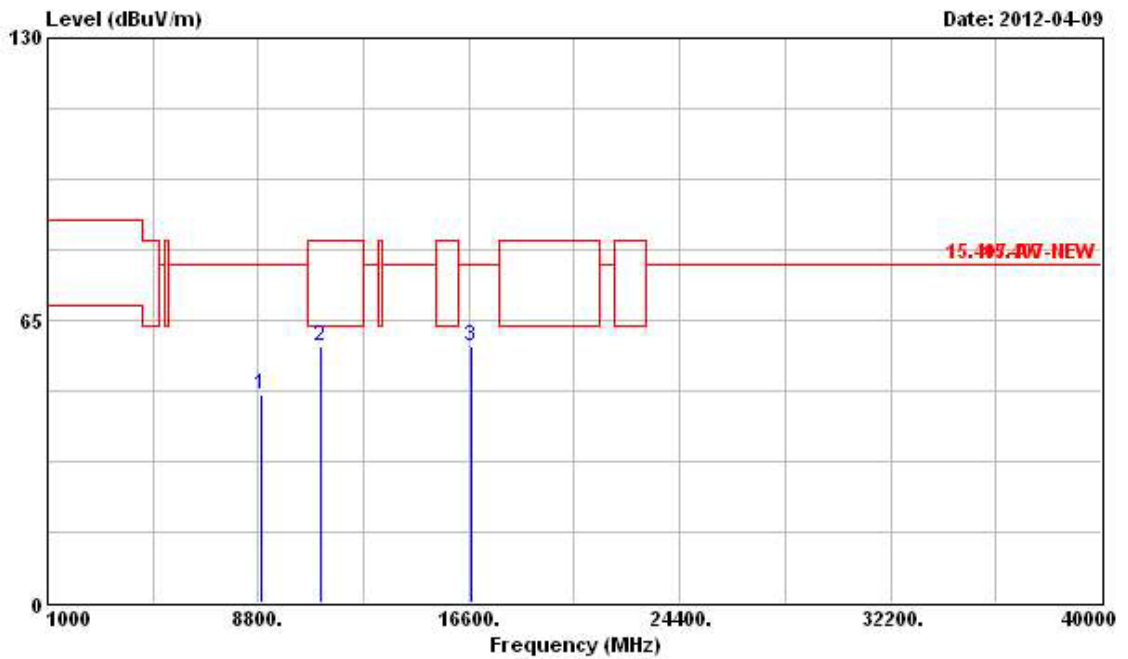
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 110 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8904.000	48.22	-29.62	77.84	40.85	36.54	6.13	35.30	Peak	---	---
2	11100.000	66.99	-16.55	83.54	56.00	38.66	7.05	34.72	Peak	---	---
3	11100.000	52.66	-10.88	63.54	41.67	38.66	7.05	34.72	Average	---	---
4	16650.000	59.27	-18.57	77.84	43.66	41.91	8.37	34.67	Peak	---	---

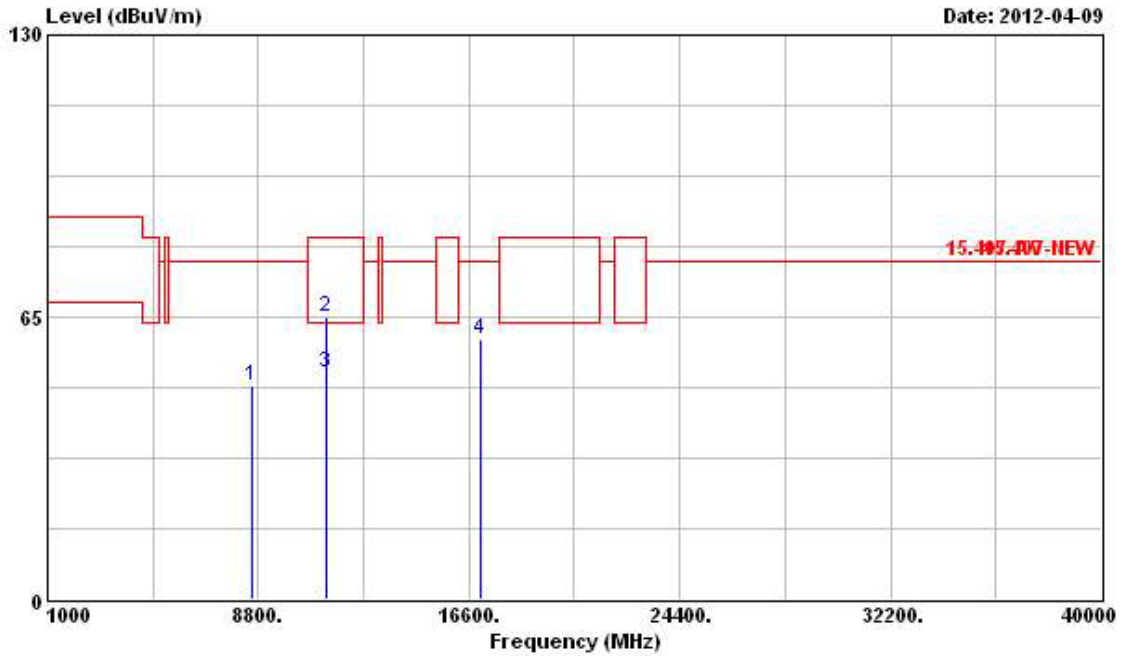
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8904.000	47.94	-29.90	77.84	40.57	36.54	6.13	35.30	Peak	---	---
2	11100.000	58.90	-4.64	63.54	47.91	38.66	7.05	34.72	PK	---	---
3	16650.000	59.21	-18.63	77.84	43.60	41.91	8.37	34.67	Peak	---	---

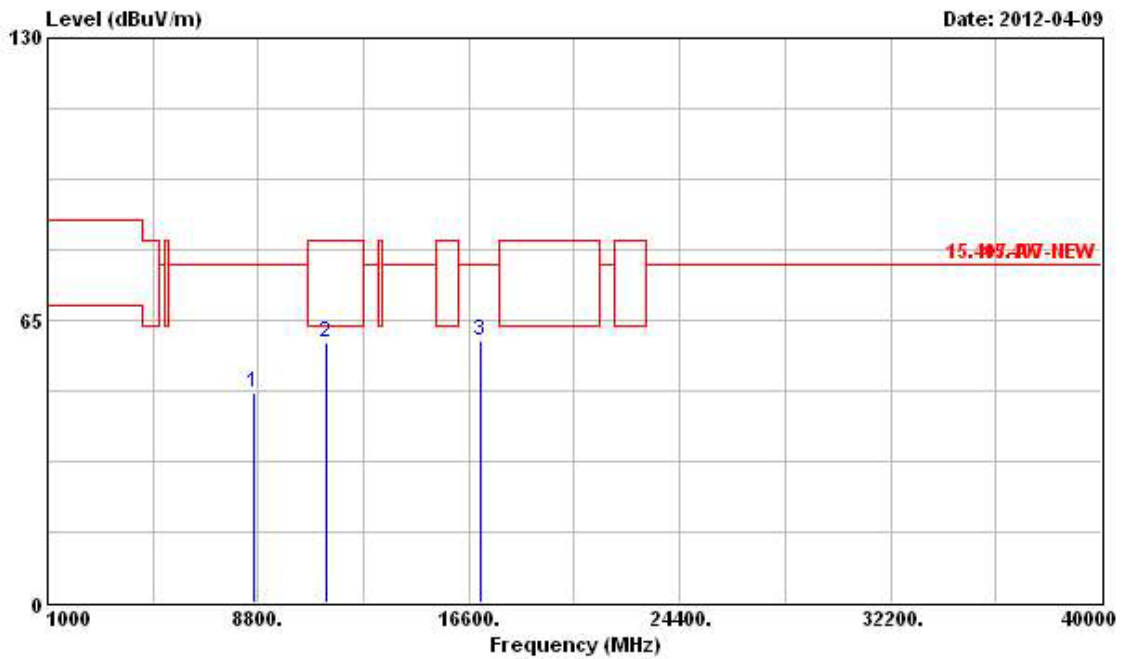
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n Ch. 134 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8568.000	49.28	-28.56	77.84	42.22	36.34	5.97	35.25	Peak	---	---
2	11340.000	64.82	-18.72	83.54	53.94	38.80	6.80	34.72	Peak	---	---
3	11340.000	52.02	-11.52	63.54	41.14	38.80	6.80	34.72	Average	---	---
4	17010.000	59.97	-17.87	77.84	43.61	41.69	8.65	33.98	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8616.000	48.21	-29.63	77.84	41.11	36.37	5.99	35.26	Peak	---	---
2	11340.000	60.05	-3.49	63.54	49.17	38.80	6.80	34.72	PK	---	---
3	17010.000	60.16	-17.68	77.84	43.80	41.69	8.65	33.98	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.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.7 Band Edge and Fundamental Emissions Measurement

3.7.1 Limit

For transmitters operating in the 5.15~5.25 GHz band: all emissions outside of the 5.15~5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.47~5.725 GHz band: all emissions outside of the 5.47~5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

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

3.7.2 Measuring Instruments and Setting

Please refer to section 4 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
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1 MHz /1 MHz for Peak

3.7.3 Test Procedures

1. The test procedure is the same as section 3.6.3; only the frequency range investigated is limited to 100MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

3.7.4 Test Setup Layout

This test setup layout is the same as that shown in section 3.6.4.

3.7.5 Test Deviation

There is no deviation with the original standard.

3.7.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.7.7 Test Result of Band Edge and Fundamental Emissions

For Single Chain:

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11a Ch. 36, 40, 48

Channel 36

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5149.900	57.94	-5.60	63.54	18.27	34.89	4.78	0.00	Average	---	---
2 X	5181.900	103.09			63.38	34.91	4.80	0.00	Average	---	---
1	5149.900	73.00	-10.54	83.54	33.33	34.89	4.78	0.00	Peak	---	---
2 X	5183.400	112.89			73.18	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5147.400	56.06	-7.48	63.54	16.39	34.89	4.78	0.00	Average	---	---
2 X	5196.900	103.78			64.05	34.92	4.81	0.00	Average	---	---
3	5350.000	54.65	-8.89	63.54	14.77	35.01	4.87	0.00	Average	---	---
1	5147.400	68.47	-15.07	83.54	28.80	34.89	4.78	0.00	Peak	---	---
2 X	5202.900	113.14			73.41	34.92	4.81	0.00	Peak	---	---
3	5397.000	67.91	-15.63	83.54	27.99	35.04	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5117.400	54.94	-8.60	63.54	15.29	34.87	4.78	0.00	Average	---	---
2 X	5242.200	103.76			63.99	34.95	4.82	0.00	Average	---	---
3	5351.700	54.61	-8.93	63.54	14.73	35.01	4.87	0.00	Average	---	---
1	5140.500	68.06	-15.48	83.54	28.39	34.89	4.78	0.00	Peak	---	---
2 X	5243.400	113.47			73.70	34.95	4.82	0.00	Peak	---	---
3	5388.600	67.86	-15.68	83.54	27.95	35.03	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11a Ch. 52, 56, 64

Channel 52

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5143.800	54.92	-8.62	63.54	15.25	34.89	4.78	0.00	Average	---	---
2 X	5256.900	104.61			64.84	34.95	4.82	0.00	Average	---	---
3	5360.100	54.68	-8.86	63.54	14.80	35.01	4.87	0.00	Average	---	---
1	5114.100	68.24	-15.30	83.54	28.60	34.87	4.77	0.00	Peak	---	---
2 X	5253.300	114.19			74.42	34.95	4.82	0.00	Peak	---	---
3	5374.200	68.99	-14.55	83.54	29.10	35.02	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 56

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5143.800	54.93	-8.61	63.54	15.26	34.89	4.78	0.00	Average	---	---
2 X	5283.000	104.15			64.34	34.97	4.84	0.00	Average	---	---
3	5353.800	54.76	-8.78	63.54	14.88	35.01	4.87	0.00	Average	---	---
1	5112.600	68.72	-14.82	83.54	29.08	34.87	4.77	0.00	Peak	---	---
2 X	5284.200	113.62			73.81	34.97	4.84	0.00	Peak	---	---
3	5352.900	68.07	-15.47	83.54	28.19	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 64

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	5317.420	101.95			62.11	34.99	4.85	0.00	Average	---	---
2	5372.300	55.11	-8.43	63.54	15.22	35.02	4.87	0.00	Average	---	---
1 X	5316.020	111.74			71.90	34.99	4.85	0.00	Peak	---	---
2	5370.900	67.29	-16.25	83.54	27.40	35.02	4.87	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11a Ch. 100, 116, 140

Channel 100

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5447.840	55.62	-7.92	63.54	15.65	35.07	4.90	0.00	Average	---	---
2 X	5498.320	102.88			62.87	35.10	4.91	0.00	Average	---	---
1	5446.480	69.12	-14.42	83.54	29.15	35.07	4.90	0.00	Peak	---	---
2 X	5497.440	112.13			72.12	35.10	4.91	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 116

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5450.160	55.48	-8.06	63.54	15.51	35.07	4.90	0.00	Average	---	---
2 X	5576.880	92.14			52.03	35.16	4.95	0.00	Average	---	---
3	5726.640	56.13	-21.71	77.84	15.81	35.28	5.04	0.00	Average	---	---
1	5457.840	68.41	-15.13	83.54	28.44	35.07	4.90	0.00	Peak	---	---
2 X	5575.600	101.20			61.09	35.16	4.95	0.00	Peak	---	---
3	5738.160	68.51	-9.33	77.84	28.18	35.29	5.04	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 140

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	5697.320	100.57			60.30	35.25	5.02	0.00	Average	---	---
2	5725.000	55.81	-22.03	77.84	15.49	35.28	5.04	0.00	Average	---	---
1 X	5703.140	110.40			70.09	35.27	5.04	0.00	Peak	---	---
2	5725.940	70.13	-7.71	77.84	29.81	35.28	5.04	0.00	Peak	---	---

The item 1 is fundamental emissions.

For Two Chains:

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (20MHz) Ch. 36, 40, 48

Channel 36

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5128.300	55.41	-8.13	63.54	15.75	34.88	4.78	0.00	Average	---	---
2 X	5181.800	98.42			58.71	34.91	4.80	0.00	Average	---	---
1	5105.100	68.63	-14.91	83.54	29.00	34.86	4.77	0.00	Peak	---	---
2 X	5182.700	110.25			70.54	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5147.700	55.02	-8.52	63.54	15.35	34.89	4.78	0.00	Average	---	---
2 X	5197.800	97.96			58.23	34.92	4.81	0.00	Average	---	---
3	5358.600	54.49	-9.05	63.54	14.61	35.01	4.87	0.00	Average	---	---
1	5148.900	67.47	-16.07	83.54	27.80	34.89	4.78	0.00	Peak	---	---
2 X	5202.600	109.11			69.38	34.92	4.81	0.00	Peak	---	---
3	5351.400	68.10	-15.44	83.54	28.22	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5128.200	54.60	-8.94	63.54	14.94	34.88	4.78	0.00	Average	---	---
2 X	5241.300	97.99			58.23	34.94	4.82	0.00	Average	---	---
3	5351.400	54.41	-9.13	63.54	14.53	35.01	4.87	0.00	Average	---	---
1	5127.300	67.92	-15.62	83.54	28.26	34.88	4.78	0.00	Peak	---	---
2 X	5243.400	109.28			69.51	34.95	4.82	0.00	Peak	---	---
3	5352.900	67.43	-16.11	83.54	27.55	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (20MHz) Ch. 52, 56, 64

Channel 52

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5142.600	54.72	-8.82	63.54	15.05	34.89	4.78	0.00	Average	---	---
2 X	5257.800	100.25			60.48	34.95	4.82	0.00	Average	---	---
3	5351.400	54.62	-8.92	63.54	14.74	35.01	4.87	0.00	Average	---	---
1	5141.400	67.81	-15.73	83.54	28.14	34.89	4.78	0.00	Peak	---	---
2 X	5262.600	111.25			71.47	34.96	4.82	0.00	Peak	---	---
3	5355.000	67.91	-15.63	83.54	28.03	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 56

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5140.500	54.68	-8.86	63.54	15.01	34.89	4.78	0.00	Average	---	---
2 X	5281.800	98.96			59.15	34.97	4.84	0.00	Average	---	---
3	5362.200	54.42	-9.12	63.54	14.53	35.02	4.87	0.00	Average	---	---
1	5127.000	68.04	-15.50	83.54	28.38	34.88	4.78	0.00	Peak	---	---
2 X	5283.000	109.91			70.10	34.97	4.84	0.00	Peak	---	---
3	5362.500	67.84	-15.70	83.54	27.95	35.02	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 64

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	5319.170	97.61			57.77	34.99	4.85	0.00	Average	---	---
2	5372.370	54.60	-8.94	63.54	14.71	35.02	4.87	0.00	Average	---	---
1 X	5317.420	108.74			68.90	34.99	4.85	0.00	Peak	---	---
2	5365.930	68.09	-15.45	83.54	28.20	35.02	4.87	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Apr. 11, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (20MHz) Ch. 100, 116, 140

Channel 100

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5448.160	55.60	-7.94	63.54	15.63	35.07	4.90	0.00	Average	---	---
2 X	5501.280	100.22			60.21	35.10	4.91	0.00	Average	---	---
1	5448.400	68.38	-15.16	83.54	28.41	35.07	4.90	0.00	Peak	---	---
2 X	5502.880	112.12			72.11	35.10	4.91	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 116

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5446.000	56.12	-7.42	63.54	16.15	35.07	4.90	0.00	Average	---	---
2 X	5579.120	102.97			62.86	35.16	4.95	0.00	Average	---	---
3	5725.360	56.37	-21.47	77.84	16.05	35.28	5.04	0.00	Average	---	---
1	5457.520	69.19	-14.35	83.54	29.22	35.07	4.90	0.00	Peak	---	---
2 X	5578.160	112.82			72.71	35.16	4.95	0.00	Peak	---	---
3	5738.160	69.62	-8.22	77.84	29.29	35.29	5.04	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 140

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	5701.160	100.10			59.79	35.27	5.04	0.00	Average	---	---
2	5725.000	56.01	-21.83	77.84	15.69	35.28	5.04	0.00	Average	---	---
1 X	5702.840	112.34			72.03	35.27	5.04	0.00	Peak	---	---
2	5728.100	70.12	-7.72	77.84	29.80	35.28	5.04	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (40MHz) Ch. 38, 46

Channel 38

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	59.25	-4.29	63.54	19.58	34.89	4.78	0.00	Average	---	---
2 X	5196.030	94.32			54.59	34.92	4.81	0.00	Average	---	---
1	5147.730	74.25	-9.29	83.54	34.58	34.89	4.78	0.00	Peak	---	---
2 X	5195.450	106.30			66.57	34.92	4.81	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 46

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5138.750	54.74	-8.80	63.54	15.08	34.88	4.78	0.00	Average	---	---
2 X	5241.750	94.46			54.69	34.95	4.82	0.00	Average	---	---
3	5357.750	54.53	-9.01	63.54	14.65	35.01	4.87	0.00	Average	---	---
1	5120.750	68.40	-15.14	83.54	28.75	34.87	4.78	0.00	Peak	---	---
2 X	5235.500	106.19			66.43	34.94	4.82	0.00	Peak	---	---
3	5369.500	67.70	-15.84	83.54	27.81	35.02	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (40MHz) Ch. 54, 62

Channel 54

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5145.000	54.71	-8.83	63.54	15.04	34.89	4.78	0.00	Average	---	---
2 X	5254.200	95.33			55.56	34.95	4.82	0.00	Average	---	---
3	5351.700	54.59	-8.95	63.54	14.71	35.01	4.87	0.00	Average	---	---
1	5116.500	67.81	-15.73	83.54	28.16	34.87	4.78	0.00	Peak	---	---
2 X	5256.600	106.73			66.96	34.95	4.82	0.00	Peak	---	---
3	5365.800	67.75	-15.79	83.54	27.86	35.02	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 62

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 X	5294.300	95.38			55.56	34.98	4.84	0.00	Average	---	---
2	5350.000	56.89	-6.65	63.54	17.01	35.01	4.87	0.00	Average	---	---
1 X	5315.400	106.88			67.04	34.99	4.85	0.00	Peak	---	---
2	5355.100	71.06	-12.48	83.54	31.18	35.01	4.87	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configuration	802.11n (40MHz) Ch. 102, 110, 134

Channel 102

Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	5459.800	55.64	-7.90	63.54	15.67	35.07	4.90	0.00	Average	---	---
2 X	5499.900	96.40			56.39	35.10	4.91	0.00	Average	---	---
1	5459.800	68.67	-14.87	83.54	28.70	35.07	4.90	0.00	Peak	---	---
2 X	5496.600	107.43			67.42	35.10	4.91	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 110

Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	5447.800	54.93	-8.61	63.54	14.96	35.07	4.90	0.00	Average	---	---
2 X	5539.300	95.57			55.51	35.13	4.93	0.00	Average	---	---
3	5725.000	55.03	-22.81	77.84	14.71	35.28	5.04	0.00	Average	---	---
1	5446.900	67.67	-15.87	83.54	27.70	35.07	4.90	0.00	Peak	---	---
2 X	5551.300	107.11			67.02	35.14	4.95	0.00	Peak	---	---
3	5725.300	68.01	-9.83	77.84	27.69	35.28	5.04	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 134

Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 X	5659.400	94.05			53.83	35.22	5.00	0.00	Average	---	---
2	5726.300	55.04	-22.80	77.84	14.72	35.28	5.04	0.00	Average	---	---
1 X	5675.400	105.62			65.36	35.24	5.02	0.00	Peak	---	---
2	5748.700	68.82	-9.02	77.84	28.46	35.29	5.07	0.00	Peak	---	---

The item 1 is fundamental emissions.

3.8 Frequency Stability Measurement

3.8.1 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user’s manual or ±20ppm (IEEE 802.11a specification).

3.8.2 Measuring Instruments and Setting

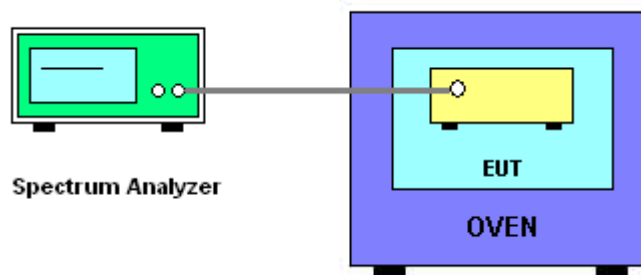
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

3.8.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c-f)/f_c \times 10^6$ ppm and the limit is less than ±20ppm (IEEE 802.11a specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is -20°C~50°C.
8. Measuring multiple antennas, the connectors are required to link with Spectrum Analyzer through a combiner.

3.8.4 Test Setup Layout



3.8.5 Test Deviation

There is no deviation with the original standard.

3.8.6 EUT Operation during Test

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

3.8.7 Test Result of Frequency Stability

Voltage vs. Frequency Stability

Voltage (V)	Measurement Frequency (MHz)
	5180 MHz
110.00	5180.0000
93.50	5179.9994
126.50	5179.9994
Max. Deviation (MHz)	0.0006
Max. Deviation (ppm)	0.12

Temperature vs. Frequency Stability

Temperature (°C)	Measurement Frequency (MHz)
	5180 MHz
50	5179.9526
40	5179.9640
30	5179.9796
20	5180.0006
10	5180.0198
0	5180.0252
-10	5180.0288
-20	5180.0282
Max. Deviation (MHz)	0.0474
Max. Deviation (ppm)	9.15

3.9 Antenna Requirements

3.9.1 Limit

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

3.9.2 Antenna Connector Construction

Please refer to section 2.2 in this test report; antenna connector complied with the requirements.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz ~ 2.75GHz	Feb. 08, 2012	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz ~ 30MHz	Jan. 12, 2012	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz ~ 30MHz	Feb. 20, 2012	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 ~ 60Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz ~ 30MHz	Mar. 02, 2012	Conduction (CO01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 40	100305	9KHz ~ 40GHz	Feb. 21, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 03, 2011	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100°C	Dec. 07, 2011	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 07, 2011	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Jun. 16, 2011	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Jun. 20, 2011	Conducted (TH01-HY)
RF Cable-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 03, 2011	Conducted (TH01-HY)
RF Cable-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 03, 2011	Conducted (TH01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Jun. 09, 2011*	Conducted (TH01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Aug. 08, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 Hz ~ 26.5GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 06, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	Jul. 29, 2010*	Radiation (03CH02-HY)

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

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
LINKOU	ADD : No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C. TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : 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

6 TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-111208

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.**EMC & Wireless Communications Laboratory**

No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria : ISO/IEC 17025:2005
Accreditation Number : 1190
Originally Accredited : December 15, 2003
Effective Period : January 10, 2010 to January 09, 2013
Accredited Scope : Testing Field, see described in the Appendix
Specific Accreditation Program : Accreditation Program for Designated Testing Laboratory for Commodities Inspection
Accreditation Program for Telecommunication Equipment Testing Laboratory
Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 08, 2011

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The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix