

FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment : Notebook Computer
Model No. : ZG5, Aspire one
Brand Name : ACER, GATEWAY, PACKARD BELL
Filing Type : Existing Change
Applicant : Acer Incorporated.
8F, 88, Sec.1, Hsin Tai Wu Rd. Hsichih Taipei Hsien 221
Taiwan, R.O.C.
FCC ID : HLZZG5WIIM
Manufacturer : Quanta Computer Inc.
No.2, Lane 58, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
No.4, Wen Ming 1st Street, Kuei Shan Hsiang, Taoyuan Shien, Taiwan, R.O.C.333
No.8, Dongjing Rd., Songjiang Industrial Zone, Shanghai, P.R. China
No.4, Lane 58 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
North to Songsheng. Road, Songjiang Industrial Zone, Shanghai, P.R. China
B#, No.1 South Rongteng Road, Songjiang Export Processing Zone, Shanghai, P.R. China
Standard Factory, South to Valqua, Rongxin Road, Songjiang Export Processing Zone,
Shanghai, P.R. China
C#, No.1 South Rongteng Road, Songjiang Export Processing Zone, Shanghai, P.R. China
No.6, Lane 66 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
No.6, Lane 58 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
Huade Building , No.18 ChuangYe Rd., ShandDi Zone, HaiDian District, Beijing, P.R.C.
No.68 Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China
2F, C Building, XinYe Rd, Export Processing District In Torch, Zhongshan, Guangdong, P.R.C.
Received Date : Nov. 24, 2008
Final Test Date : Nov. 27, 2008

Statement

Test result included is only for the 802.11a/n (5150~5350MHz; 5470~5725MHz) part of Intel ® WIFI Link 5150 module in 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.



SPORTON International Inc.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

SPORTON International Inc.

Report Format Version: a

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History of This Test Report

Original Issue Date: Dec. 12, 2008

Report No.: FR870804-01AI

☒ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment : Notebook Computer
Model No. : ZG5, Aspire one
Brand Name : ACER, GATEWAY, PACKARD BELL
Applicant : Acer Incorporated.
8F, 88, Sec.1, Hsin Tai Wu Rd. Hsichih Taipei
Hsien 221 Taiwan, R.O.C.

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Nov. 24, 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.



Wayne Hsu

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1 SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	15.407(a)	Maximum Conducted Output Power	-	-
3.2	15.407(b)	Radiated Emissions	Complies	5.64 dB
3.3	15.203	Antenna Requirements	Complies	-

Note: Standard clause 3.1 have been done module test by Intel Module Model: 512ANXMMW. Please refer to FCC ID No. PD9512ANXM.

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 / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±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%

2 GENERAL INFORMATION

2.1 Product Details

Only the radio detail of IEEE 802.11a/n is shown in the table below. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Modulation	See the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	See the below table for IEEE 802.11n
Frequency Range	5150~5350MHz; 5470~5725MHz

2.2 Table for Filed Antenna

Antenna & Bandwidth

Antenna	Single (TX)	
Bandwidth Mode	20 MHz	40 MHz
802.11b	V	X
802.11g	V	X
802.11n (2.4GHz)	V	V

Ant.	Antenna Type	Connector	Gain (dBi)		Remark
			2.4G	5G	
A	PIFA Antenna	I-PEX	2.98	1.96	TX / RX
B	PIFA Antenna	I-PEX	2.98	1.96	RX

Antenna: 1T2R Spatial Multiplexing MIMO configuration. One antenna is for signal transmitting and two antennas are receiving.

IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Data rate(Mbps)	
									800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

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

2.3 Table for Carrier Frequencies

Frequency Allocation

For IEEE 802.11a and IEEE 802.11n (20MHz):

Use channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136 and 140.

For IEEE 802.11n (40MHz):

Use channel 38, 46, 54, 62, 102, 110, 118, 126 and 134.

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

Frequency Band	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz
	54	5270 MHz
	56	5280 MHz
	60	5300 MHz
	62	5310 MHz
	64	5320 MHz

Frequency Band	Channel No.		Frequency	
5470~5725 MHz Band 3	100	5500 MHz	120	5600 MHz
	102	5510 MHz	124	5620 MHz
	104	5520 MHz	126	5630 MHz
	108	5540 MHz	128	5640 MHz
	110	5550 MHz	132	5660 MHz
	112	5560 MHz	134	5670 MHz
	116	5580 MHz	136	5680 MHz
	118	5590 MHz	140	5700 MHz

2.4 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 Configuration 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
Radiated Emission Below 1GHz	Normal Mode	Auto	-	-
Radiated Emission Above 1GHz	11a Band 1~3/BPSK	6Mbps	36/40/48/52/56 /64/100/120/140	A
	11n Band 1~3/BPSK MCS 0 (20MHz)	6.5Mbps		
	11n Band 1~3/BPSK MCS 0 (40MHz)	13.5Mbps	38/46/54/62/102/11 8/134	

2.5 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 4086B-1	-

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

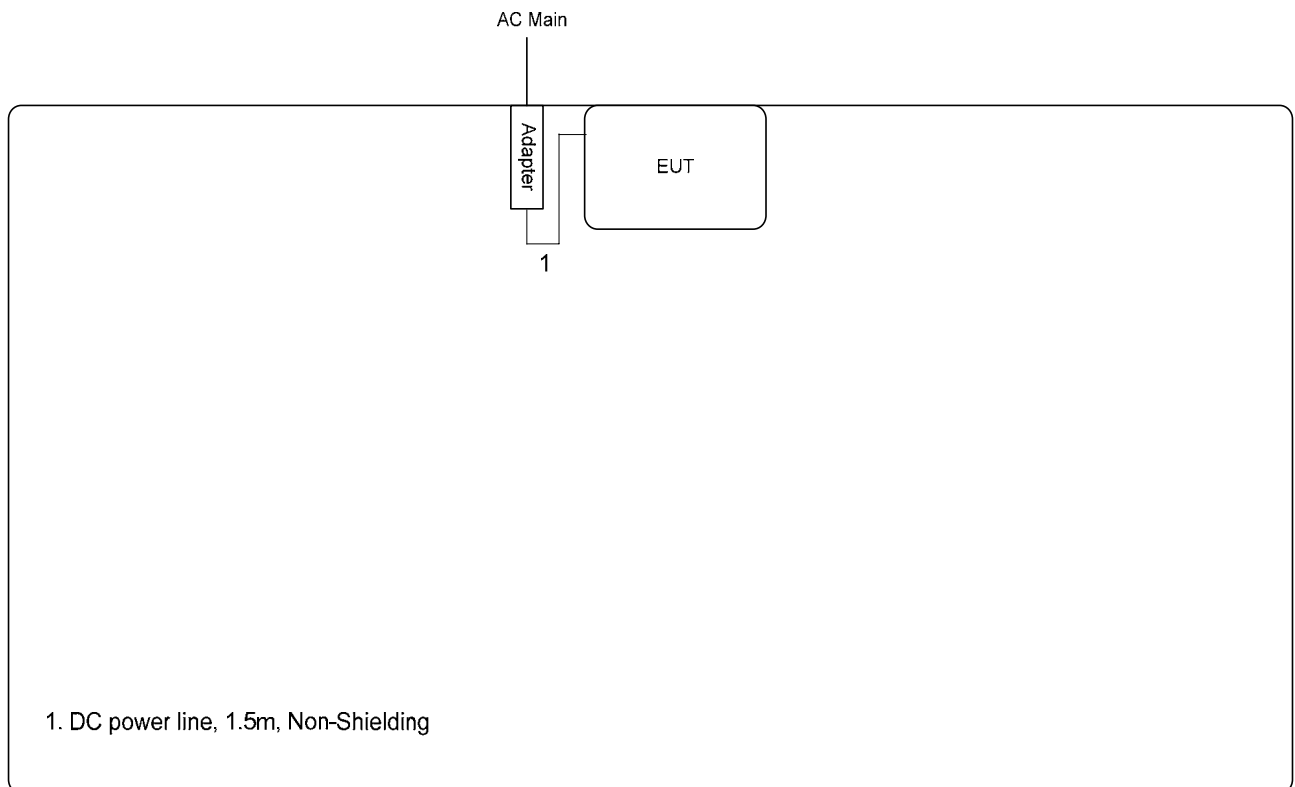
2.6 Table for Supporting Units

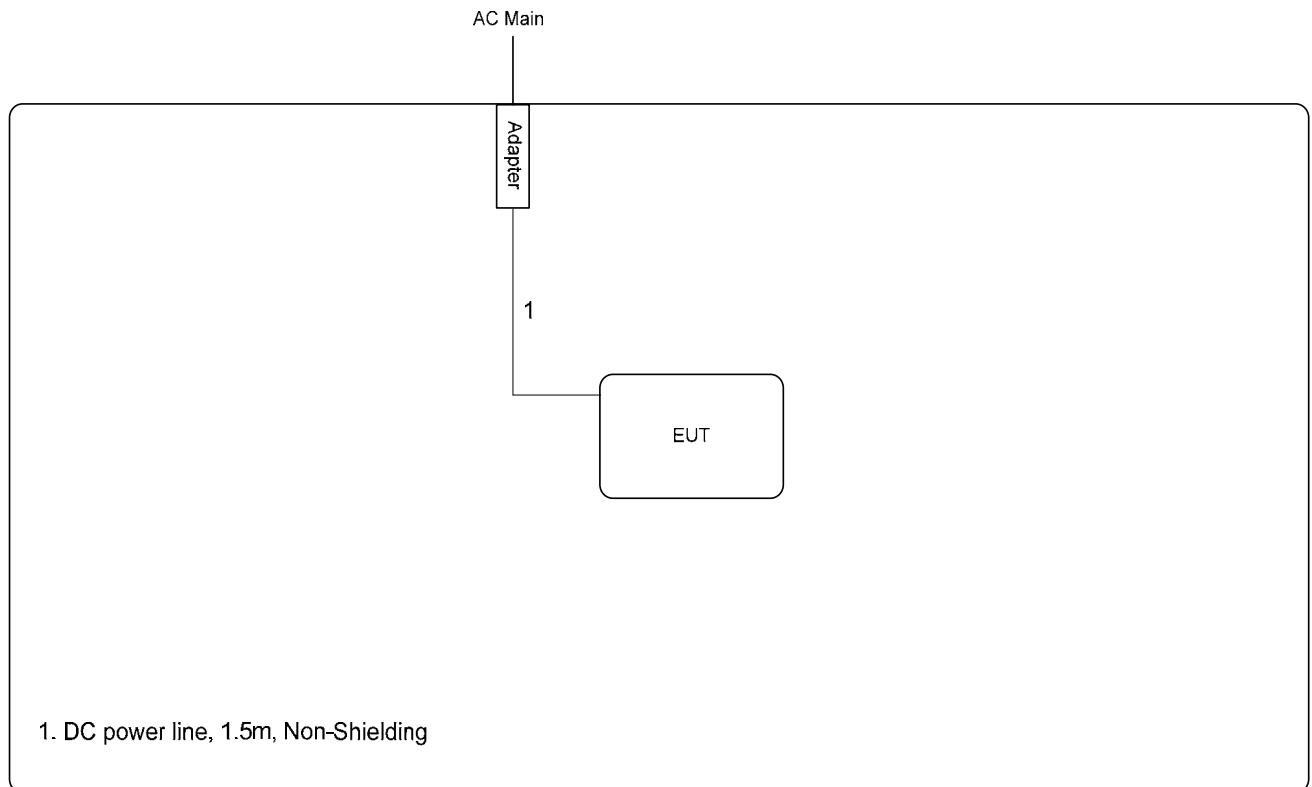
The EUT was tested alone.

2.7 Test Configuration

2.7.1 Radiation Emissions Test Configuration

For radiated emissions 9kHz~1GHz



For radiated emissions above 1GHz

3 TEST RESULT

3.1 Radiated Emissions Measurement

3.1.1 Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed 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). For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/m at 3m); for frequencies 10 MHz or greater above or below the band edge, emissions 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

3.1.2 Measuring Instruments and Setting

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

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

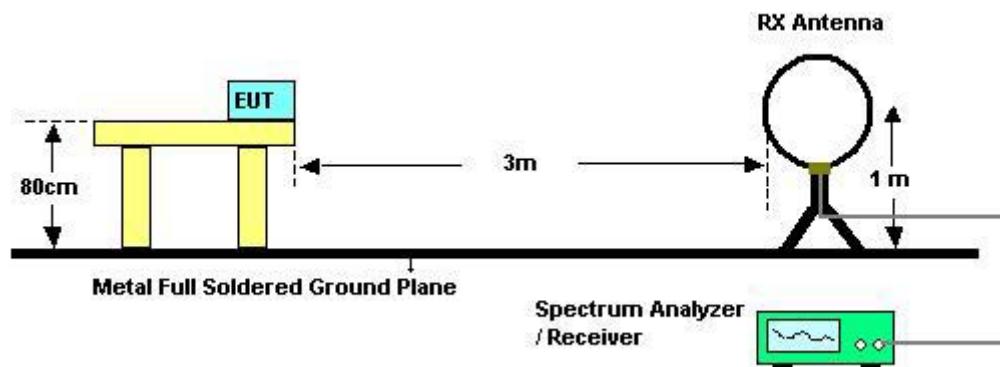
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.1.3 Test Procedures

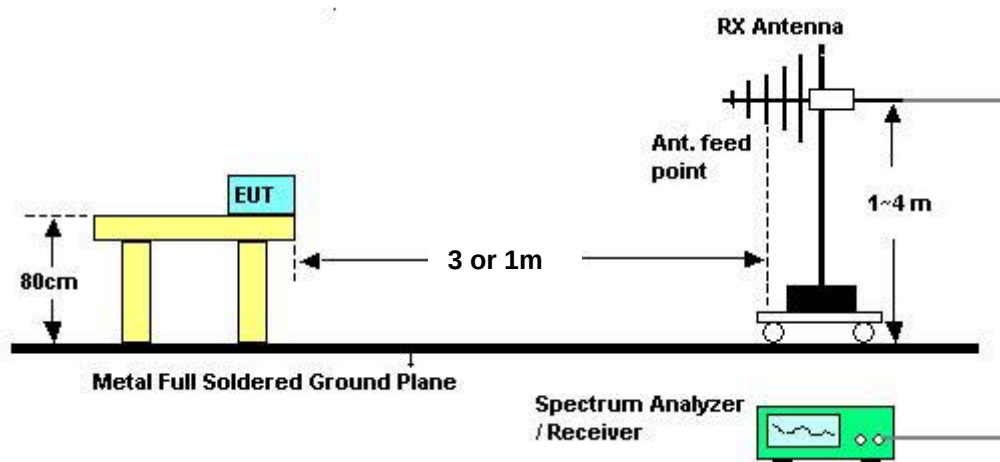
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

3.1.4 Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB);

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

3.1.5 Test Deviation

There is no deviation with the original standard.

3.1.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.1.7 Results of Radiated Emissions (9kHz~30MHz)

Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Eddie		

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

Note:

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

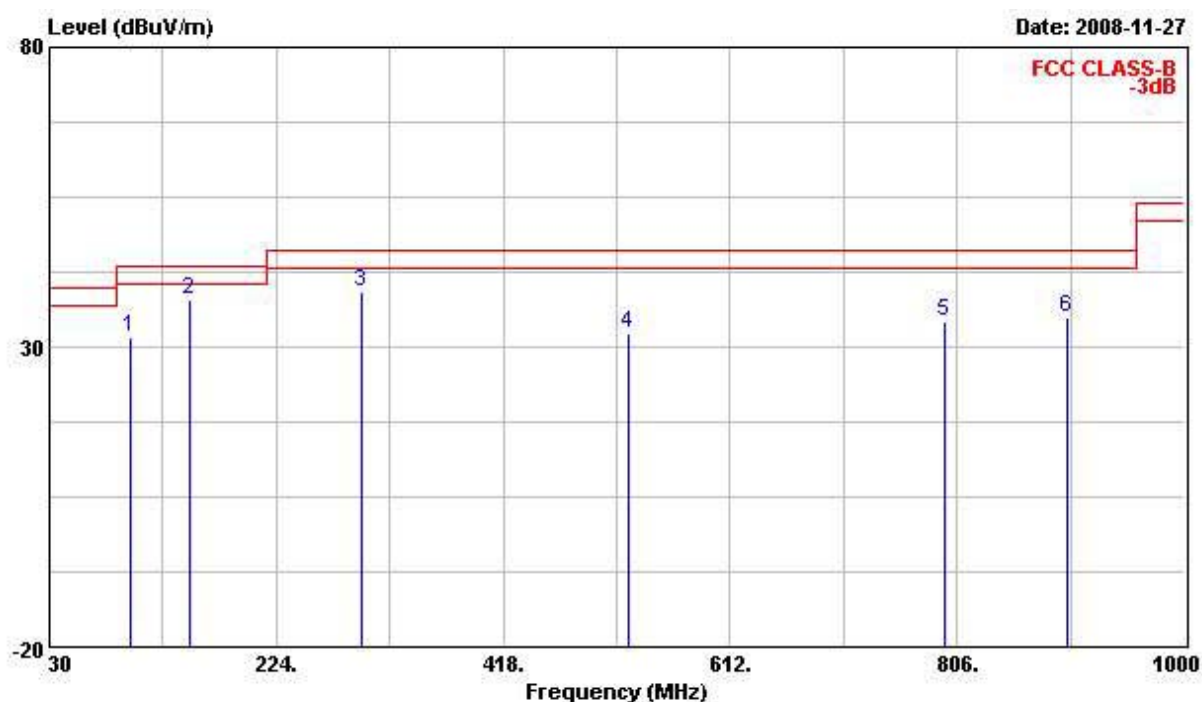
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

3.1.8 Results of Radiated Emissions (30MHz~1GHz)

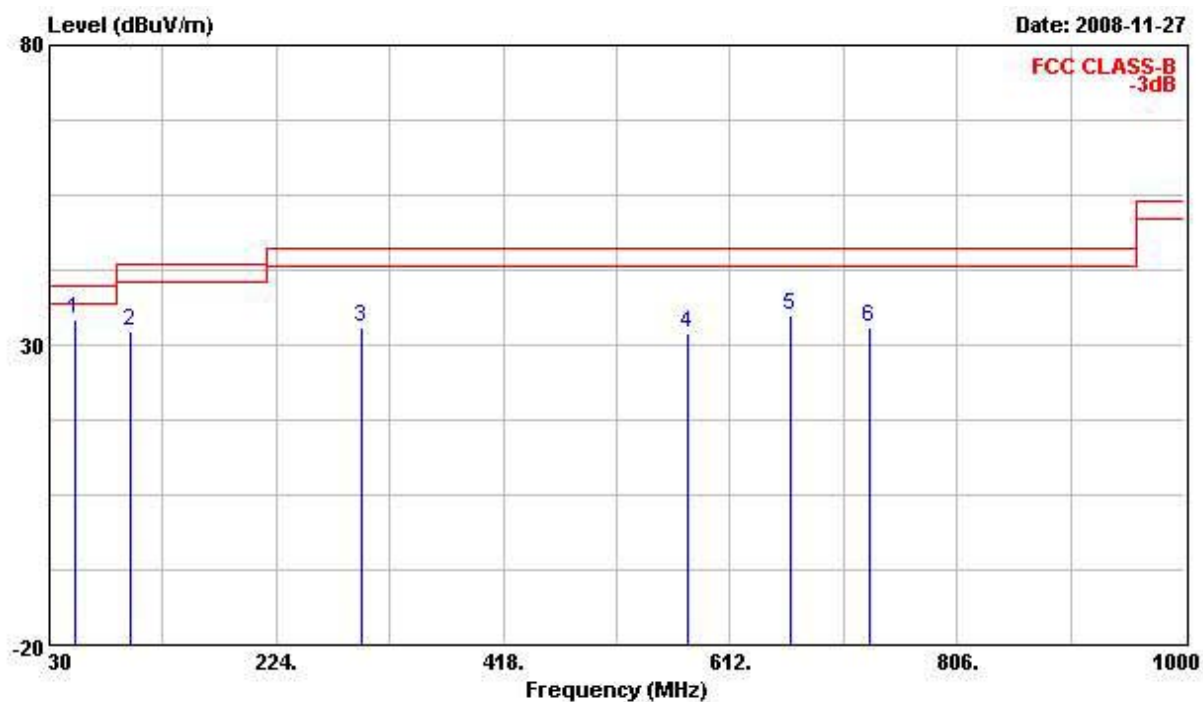
Test date	Nov. 27, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	Normal Mode

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	98.870	31.74	-11.76	43.50	46.81	11.03	1.72	27.82 Peak
2	149.310	37.86	-5.64	43.50	53.03	10.60	2.15	27.91 Peak
3	296.750	39.30	-6.70	46.00	51.27	13.53	2.90	28.39 Peak
4	524.700	32.31	-13.69	46.00	38.43	18.71	3.94	28.77 Peak
5	796.300	34.26	-11.74	46.00	38.26	20.75	4.93	29.68 Peak
6	901.060	34.98	-11.02	46.00	38.02	21.04	5.25	29.33 Peak

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	51.340	34.28	-5.72	40.00	52.98	7.86	1.25	27.81	QP
2	98.870	32.30	-11.20	43.50	47.37	11.03	1.72	27.82	Peak
3	296.750	33.09	-12.91	46.00	45.06	13.53	2.90	28.39	Peak
4	575.140	32.00	-14.00	46.00	37.62	19.30	4.08	28.99	Peak
5	664.380	35.06	-10.94	46.00	40.41	19.73	4.47	29.54	Peak
6	731.310	32.83	-13.17	46.00	37.36	20.43	4.67	29.62	Peak

Note:

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

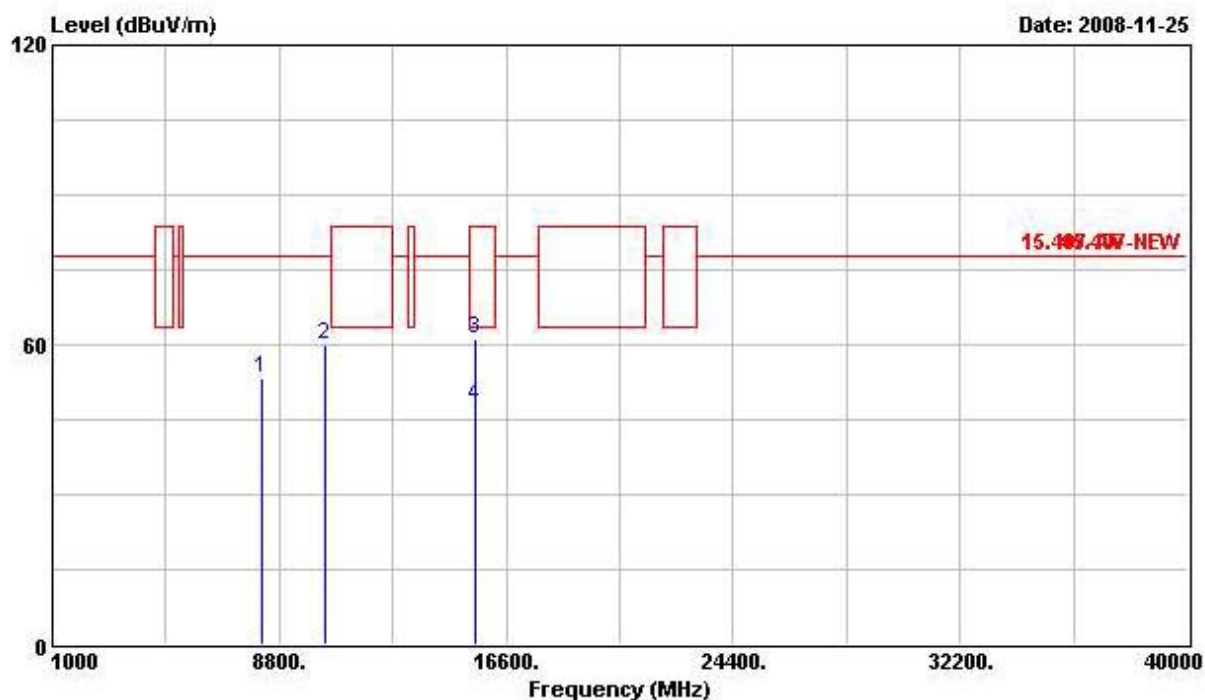
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

3.1.9 Results for Radiated Emissions (1GHz~40GHz)

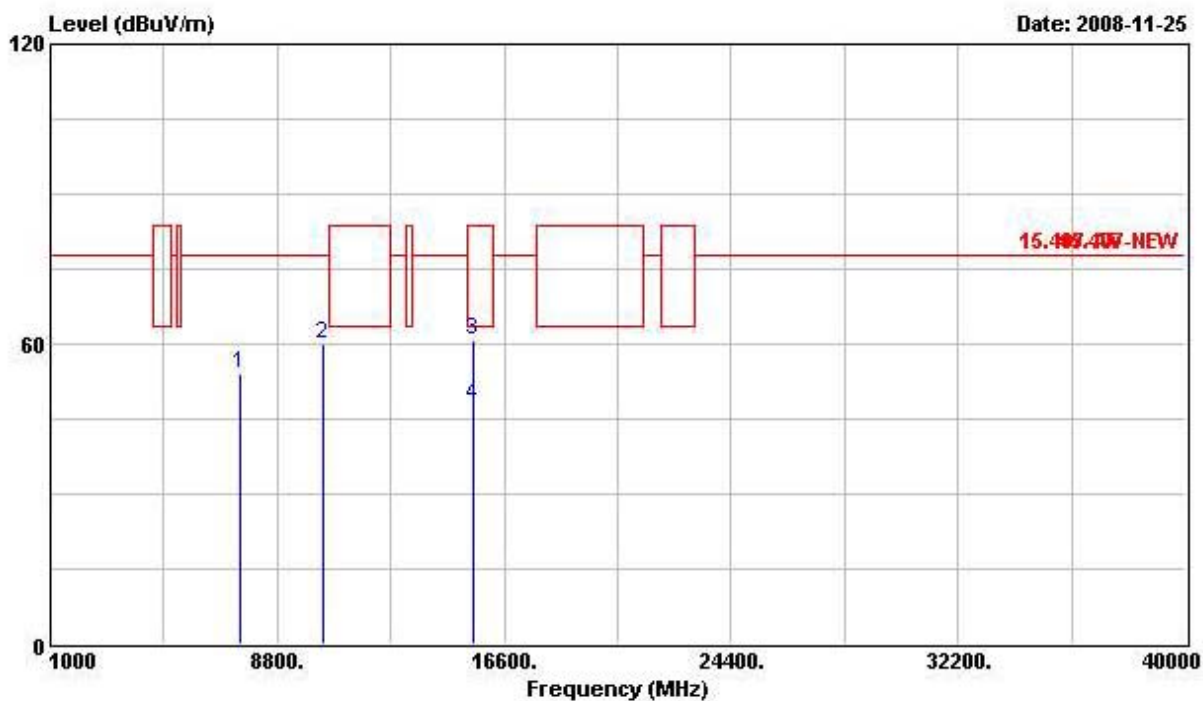
Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 36

Horizontal



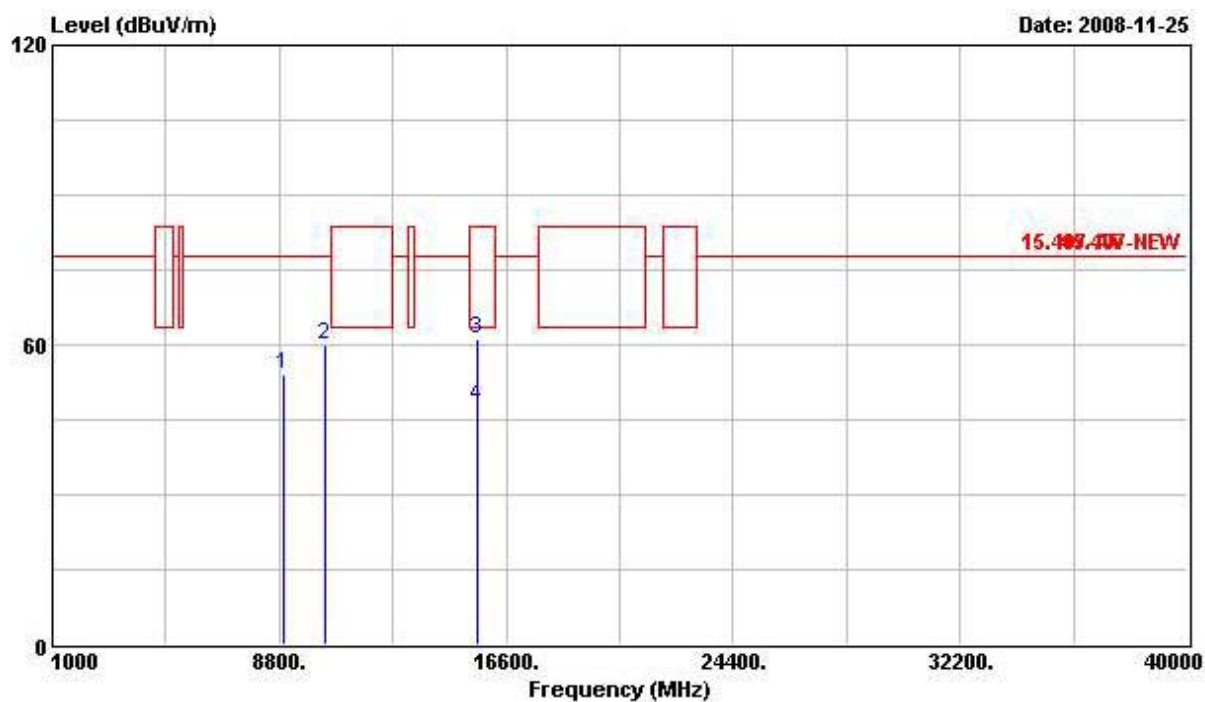
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8204.000	53.33	-24.51	77.84	43.08	38.01	5.03	32.80	PEAK
2	10360.000	60.11	-17.73	77.84	46.36	39.33	6.09	31.67	PEAK
3	15540.000	61.04	-22.50	83.54	45.84	37.51	7.37	29.69	PEAK
4	15540.000	47.93	-15.61	63.54	32.74	37.51	7.37	29.69	Average

Vertical



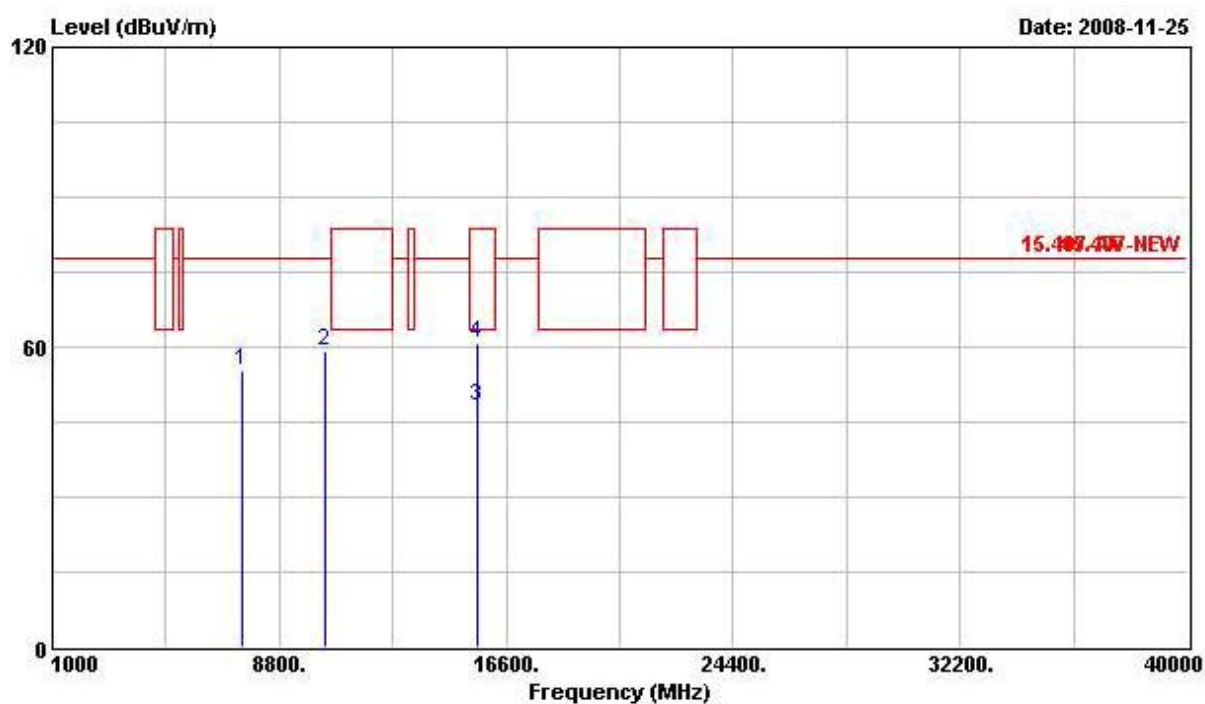
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB	dB	
1	7494.000	54.22	-23.62	77.84	45.38	37.30	4.52	32.98 Peak
2	10358.000	60.05	-17.79	77.84	46.30	39.33	6.09	31.67 Peak
3	15540.000	60.92	-22.62	83.54	45.73	37.51	7.37	29.69 Peak
4	15540.000	47.60	-15.94	63.54	32.41	37.51	7.37	29.69 Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 40

Horizontal

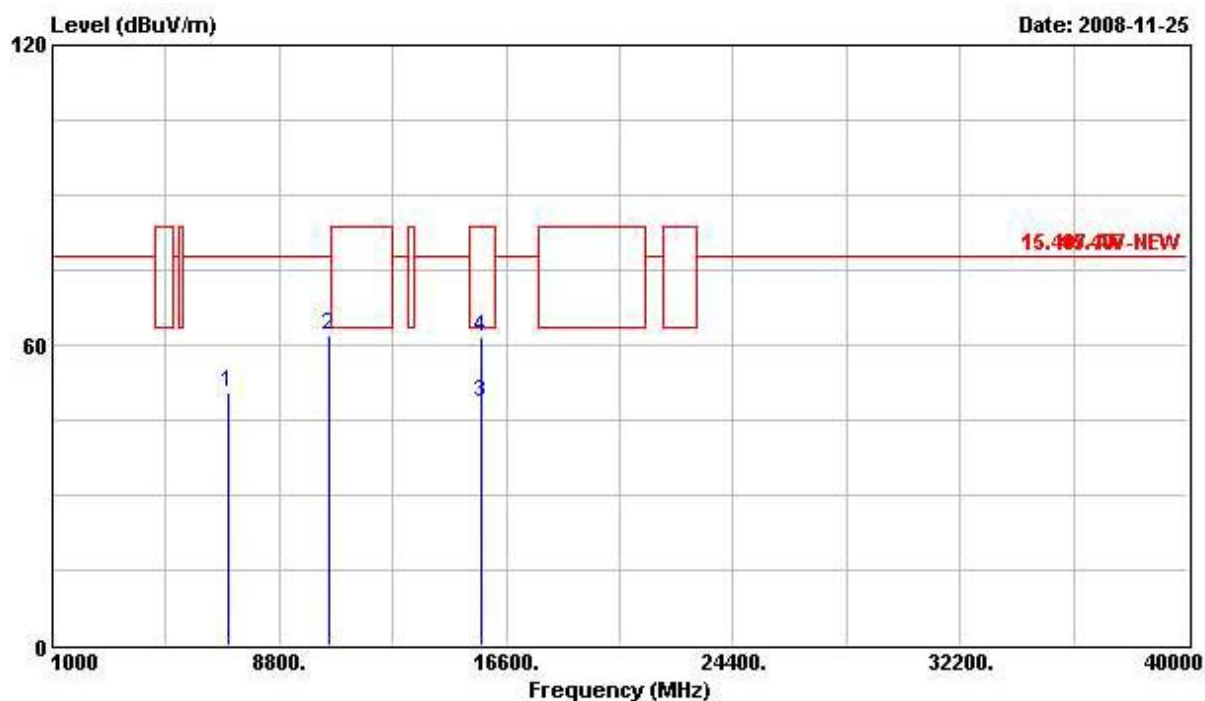
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	8936.000	53.94	-23.90	77.84	43.52	38.56	4.67	32.81 PEAK
2	10400.000	59.89	-17.95	77.84	45.94	39.32	6.14	31.51 PEAK
3	15600.000	61.08	-22.46	83.54	45.82	37.54	7.38	29.65 PEAK
4	15600.000	47.64	-15.90	63.54	32.37	37.54	7.38	29.65 Average

Vertical



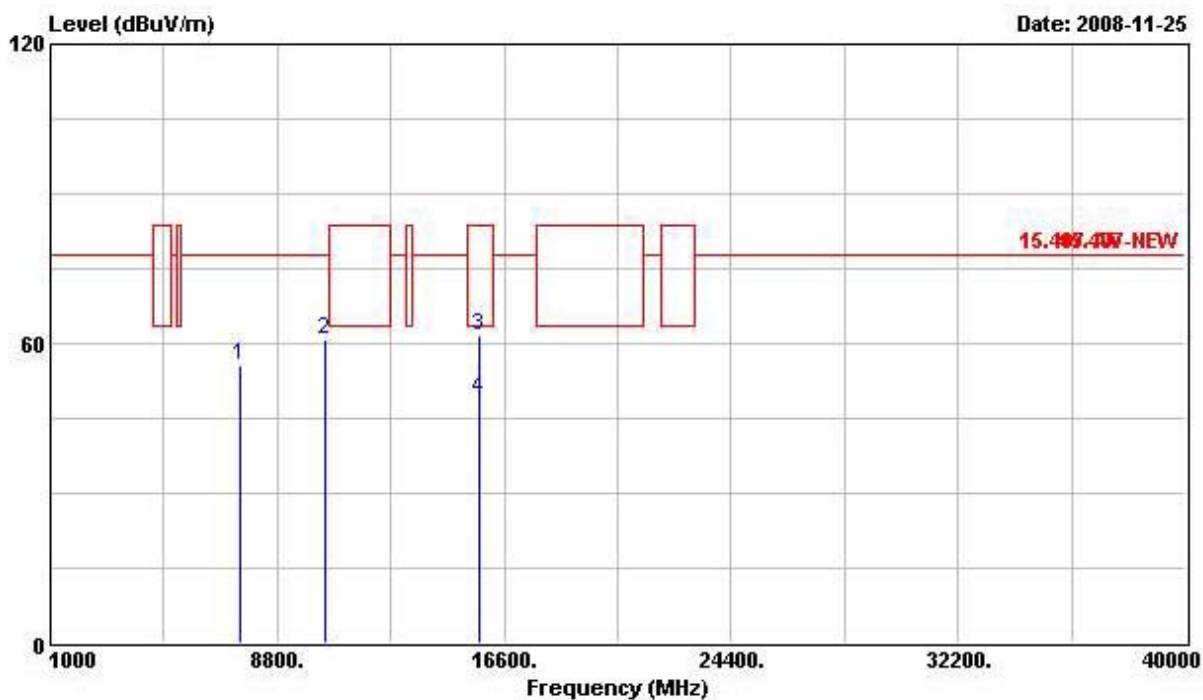
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7492.000	55.30	-22.54	77.84	46.46	37.30	4.52	32.98 PEAK
2	10396.000	59.39	-18.45	77.84	45.53	39.32	6.14	31.59 PEAK
3	15600.000	47.99	-15.55	63.54	32.72	37.54	7.38	29.65 Average
4	15600.000	60.67	-22.87	83.54	45.41	37.54	7.38	29.65 PEAK

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 48

Horizontal

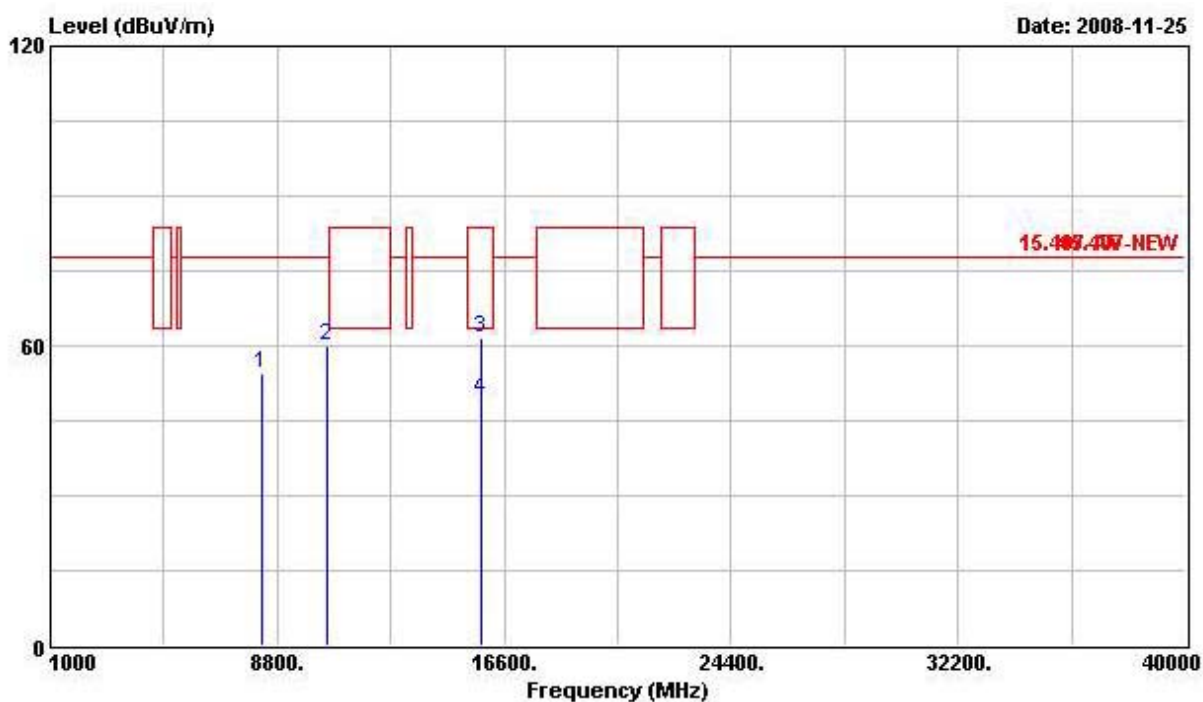
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7072.000	50.46	-27.38	77.84	43.71	36.27	3.18	32.70	PEAK
2	10480.000	62.03	-15.81	77.84	47.75	39.30	6.23	31.25	PEAK
3	15720.000	48.45	-15.09	63.54	33.05	37.59	7.41	29.60	Average
4	15720.000	61.53	-22.01	83.54	46.13	37.59	7.41	29.60	PEAK

Vertical



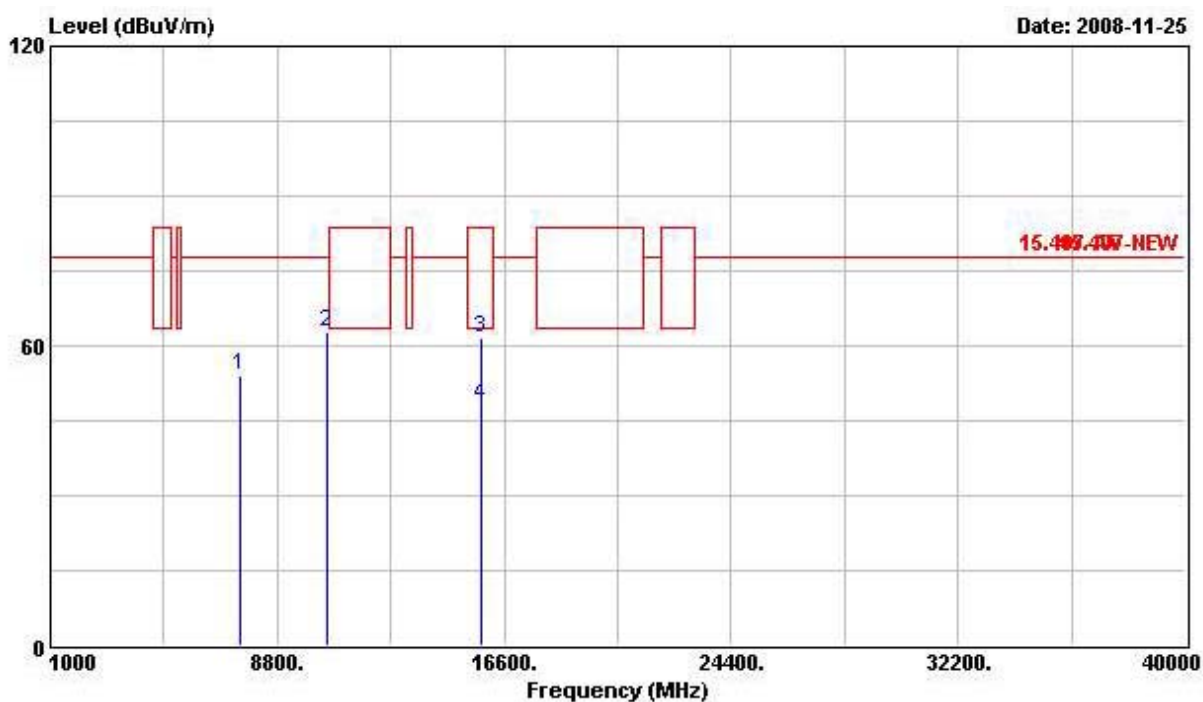
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7492.000	55.75	-22.09	77.84	46.91	37.30	4.52	32.98	PEAK
2	10476.000	60.94	-16.90	77.84	46.66	39.31	6.23	31.25	PEAK
3	15720.000	61.41	-22.13	83.54	46.01	37.59	7.41	29.60	PEAK
4	15720.000	48.85	-14.69	63.54	33.45	37.59	7.41	29.60	Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 52

Horizontal

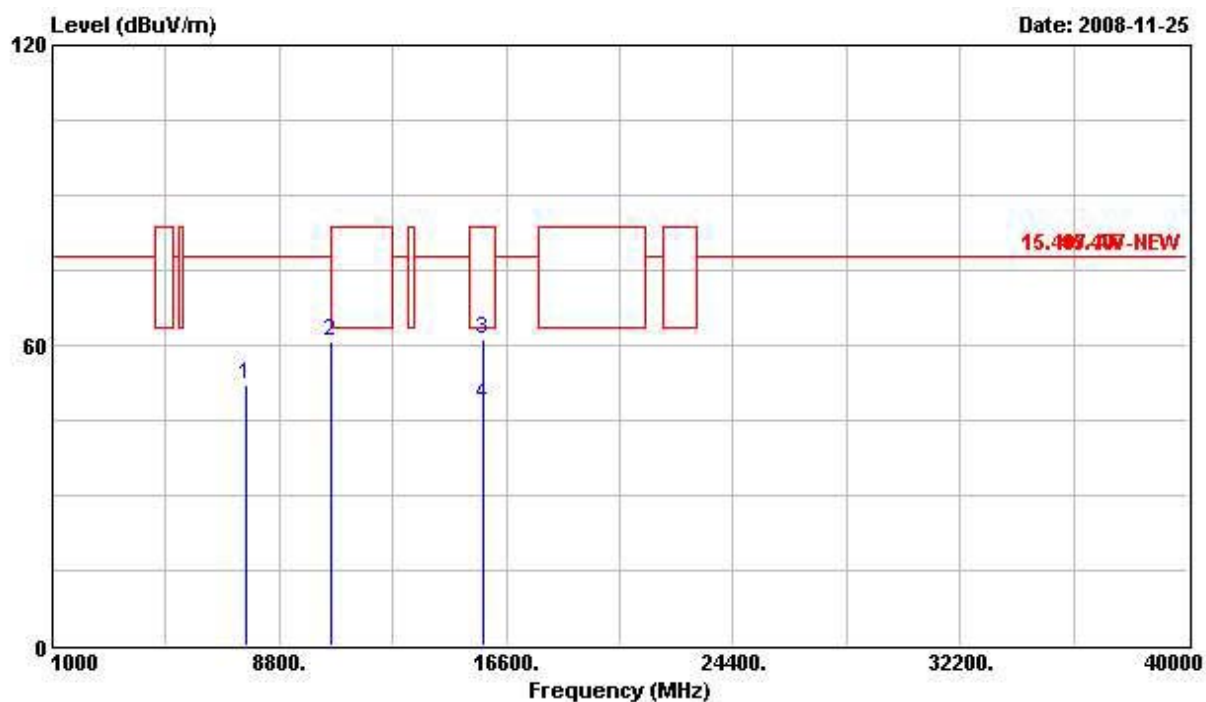
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8284.000	54.31	-23.53	77.84	43.87	38.08	5.16	32.80	PEAK
2	10520.000	59.95	-17.89	77.84	45.56	39.29	6.28	31.17	PEAK
3	15780.000	61.59	-21.95	83.54	46.12	37.61	7.42	29.56	PEAK
4	15780.000	49.29	-14.25	63.54	33.82	37.61	7.42	29.56	Average

Vertical



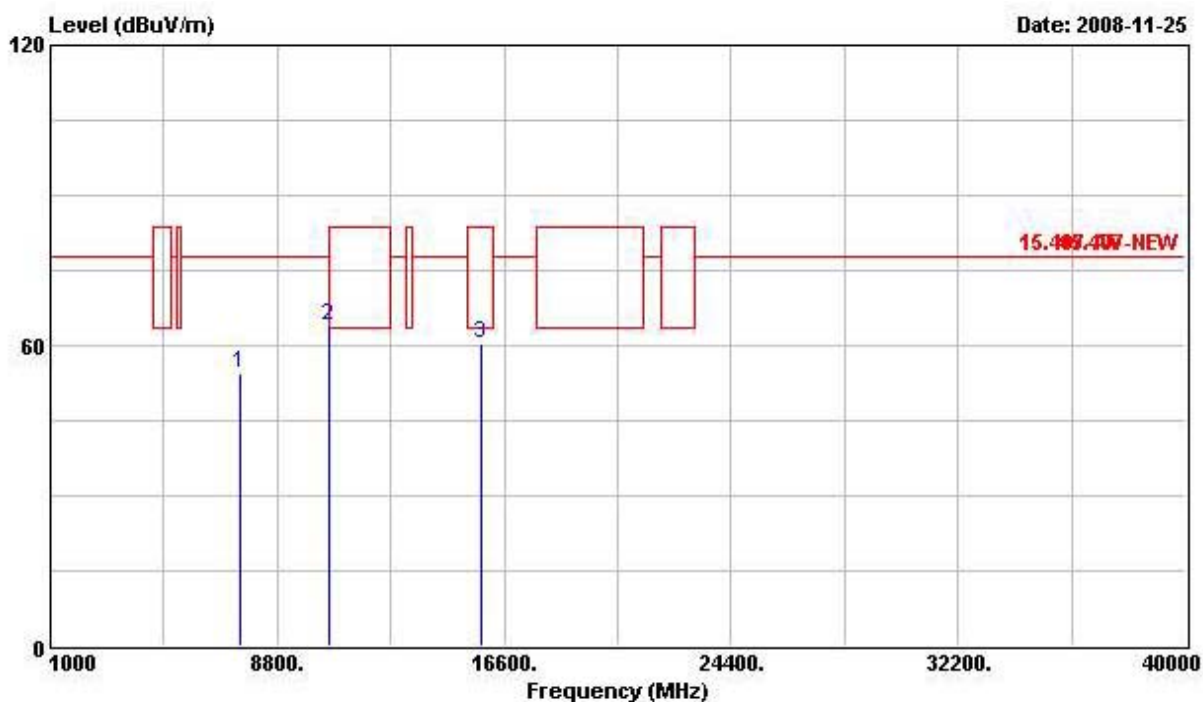
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7492.000	54.15	-23.69	77.84	45.31	37.30	4.52	32.98	PEAK
2	10520.000	62.63	-15.21	77.84	48.23	39.29	6.28	31.17	PEAK
3	15780.000	61.40	-22.14	83.54	45.93	37.61	7.42	29.56	PEAK
4	15780.000	48.19	-15.35	63.54	32.72	37.61	7.42	29.56	Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 56

Horizontal

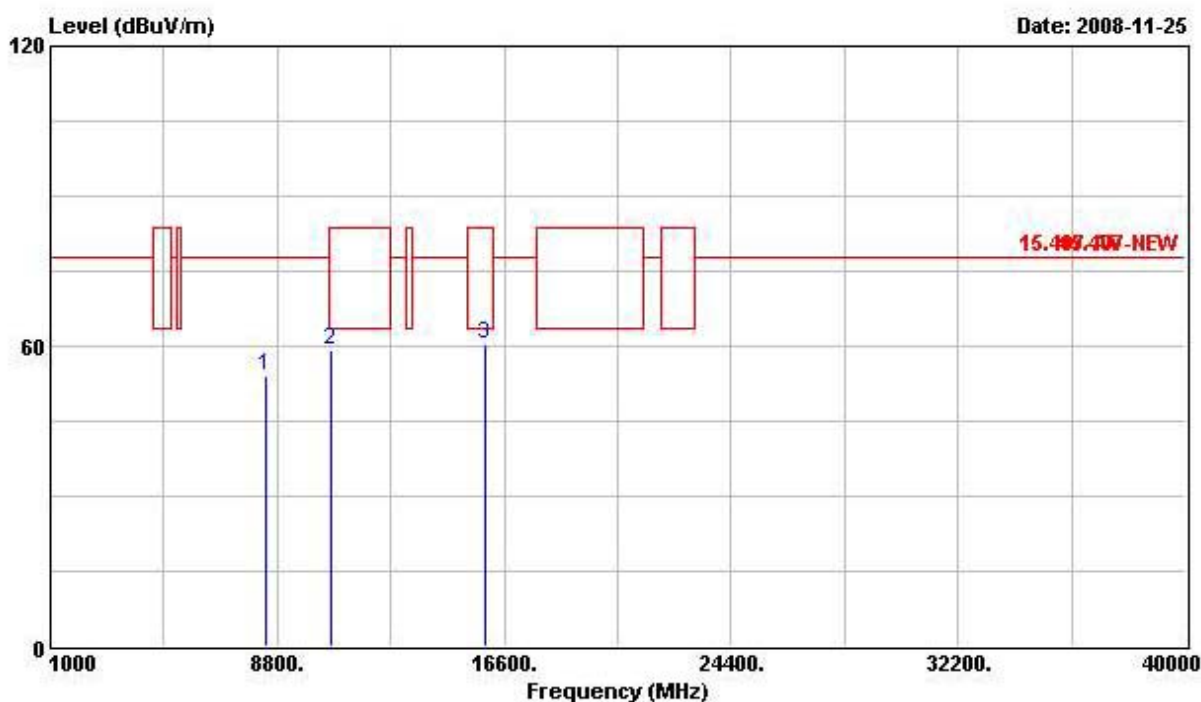
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7644.000	52.09	-25.75	77.84	43.00	37.45	4.57	32.93	PEAK
2	10560.000	60.79	-17.05	77.84	46.25	39.27	6.30	31.03	PEAK
3	15840.000	61.15	-22.39	83.54	45.61	37.64	7.43	29.53	PEAK
4	15840.000	48.21	-15.33	63.54	32.67	37.64	7.43	29.53	Average

Vertical



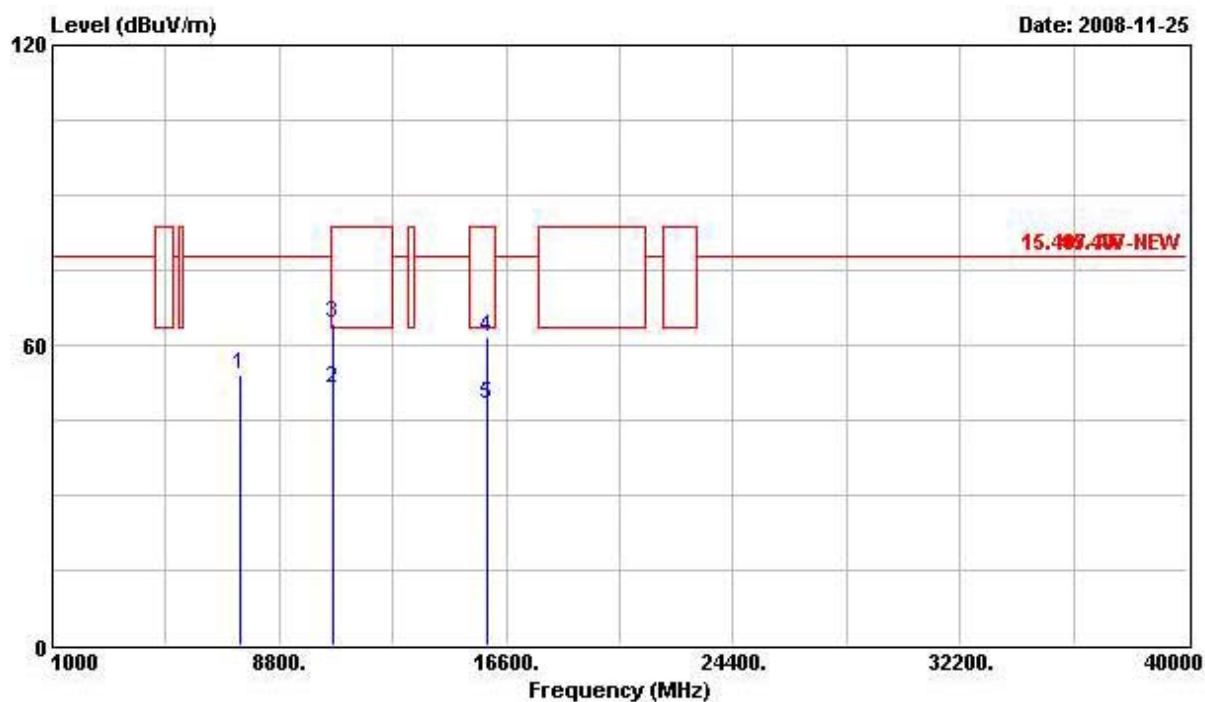
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7492.000	54.60	-23.24	77.84	45.76	37.30	4.52	32.98 PEAK
2	10560.000	63.99	-13.85	77.84	49.45	39.27	6.30	31.03 PEAK
3	15840.000	60.43	-23.11	83.54	44.89	37.64	7.43	29.53 PEAK

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 64

Horizontal

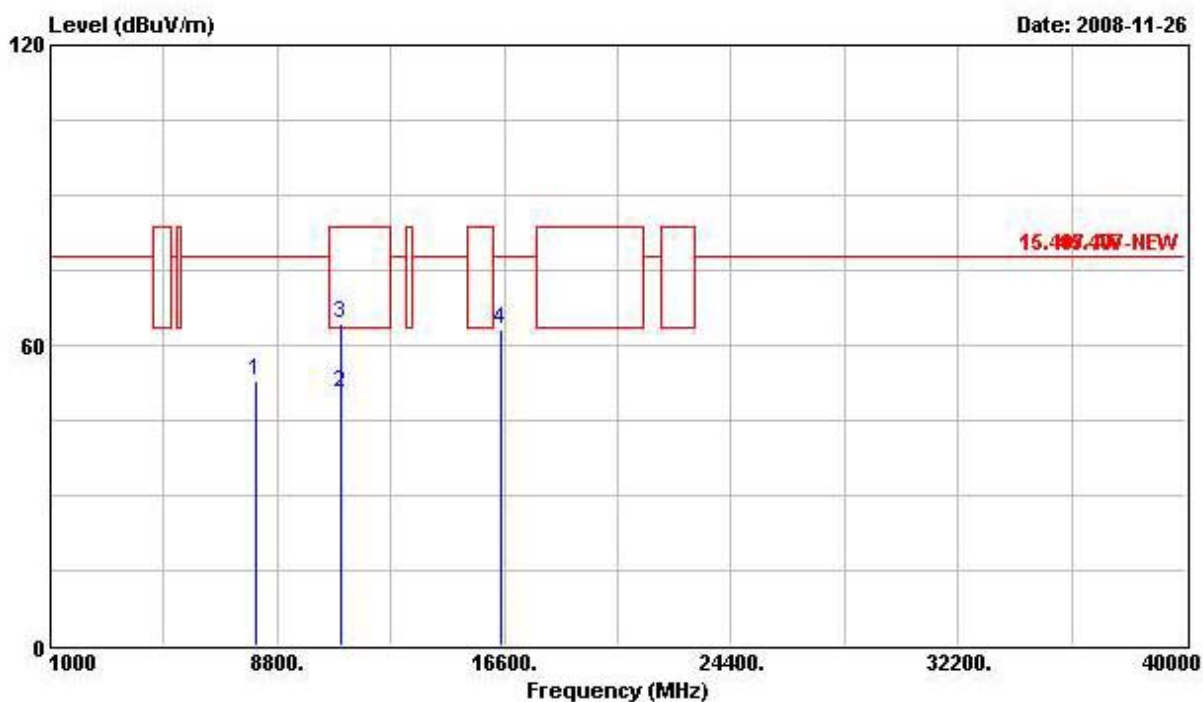
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB	dB	
1	8416.000	53.93	-23.91	77.84	43.17	38.21	5.36	32.81 PEAK
2	10640.000	59.31	-24.23	83.54	44.56	39.22	6.34	30.81 PEAK
3	15960.000	60.47	-23.07	83.54	44.80	37.69	7.46	29.46 PEAK

Vertical



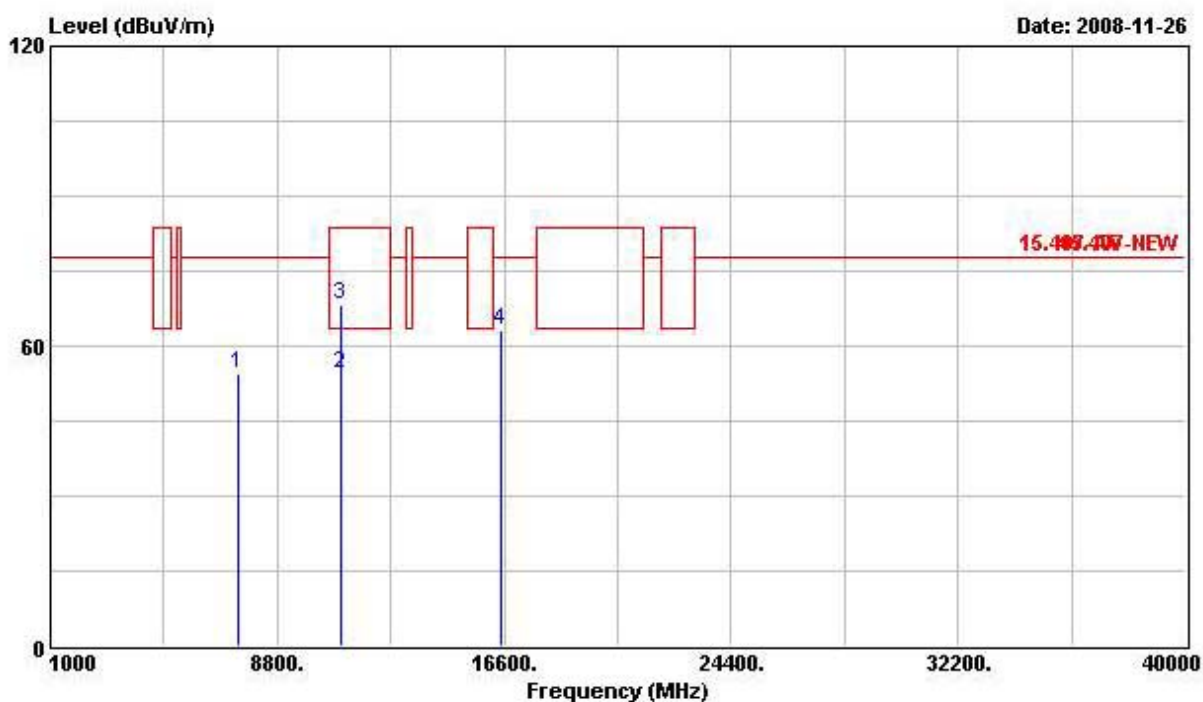
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7484.000	53.98	-23.86	77.84	45.28	37.26	4.40	32.97 PEAK
2	10644.000	51.17	-12.37	63.54	36.42	39.22	6.34	30.81 Average
3	10644.000	64.15	-19.39	83.54	49.40	39.22	6.34	30.81 PEAK
4	15960.000	61.47	-22.07	83.54	45.79	37.69	7.46	29.46 PEAK
5	15960.000	48.10	-15.44	63.54	32.42	37.69	7.46	29.46 Average

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 100

Horizontal

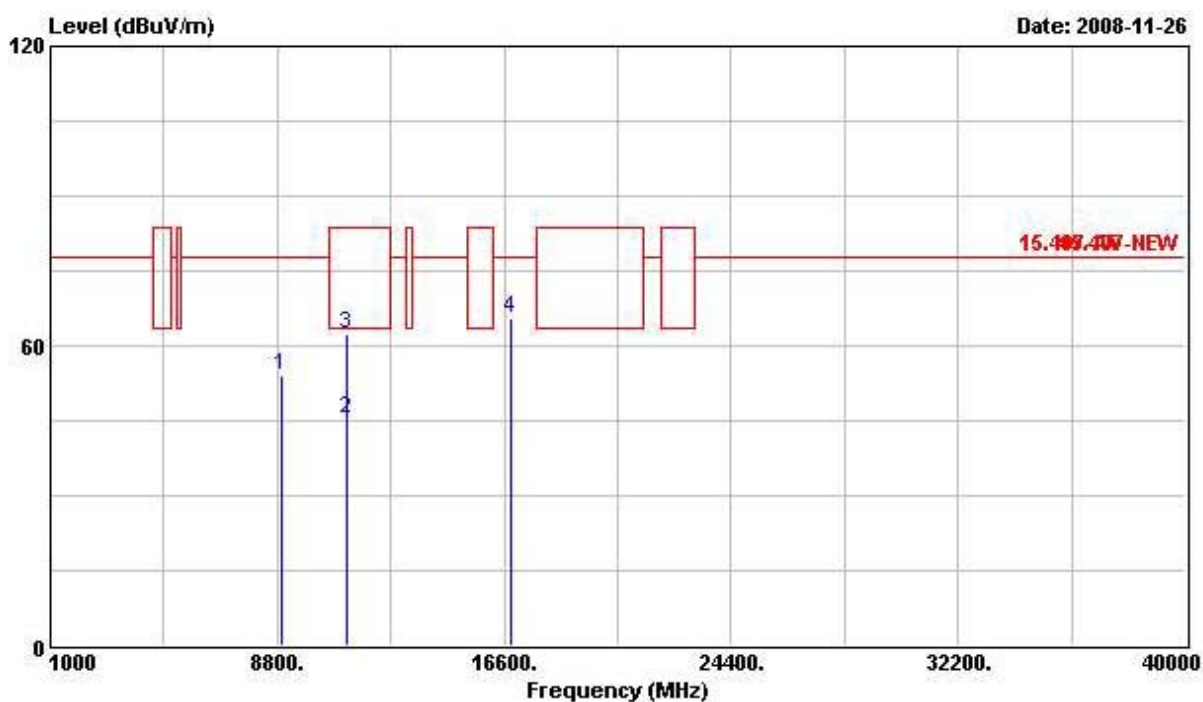
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8080.000	53.08	-24.76	77.84	43.16	37.87	4.84	32.79	PEAK
2	10999.900	50.58	-12.96	63.54	34.84	39.00	6.55	29.81	AVERAGE
3	10999.900	64.50	-19.04	83.54	48.76	39.00	6.55	29.81	Peak
4	16502.000	63.27	-14.57	77.84	46.18	39.00	7.52	29.44	PEAK

Vertical



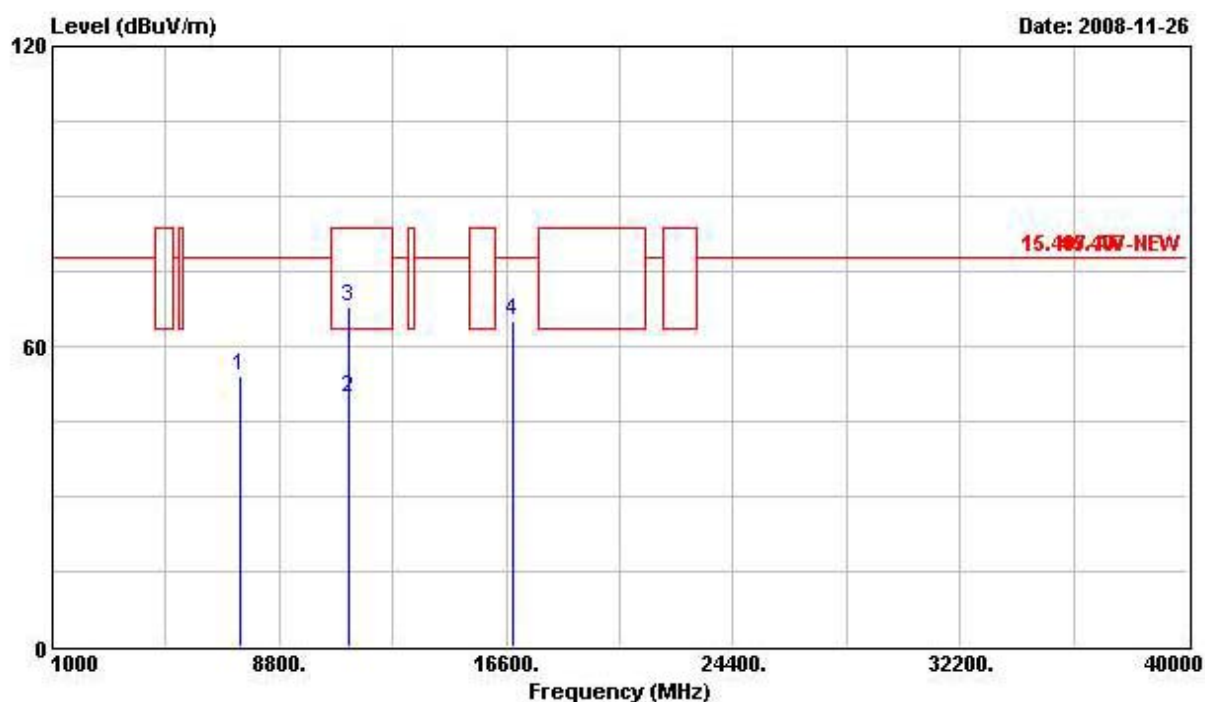
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7468.000	54.51	-23.33	77.84	45.86	37.22	4.40	32.97	PEAK
2	10999.700	54.50	-9.04	63.54	38.76	39.00	6.55	29.81	AVERAGE
3	10999.700	68.35	-15.19	83.54	52.61	39.00	6.55	29.81	Peak
4	16502.000	62.98	-14.86	77.84	45.89	39.00	7.52	29.44	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 120

Horizontal

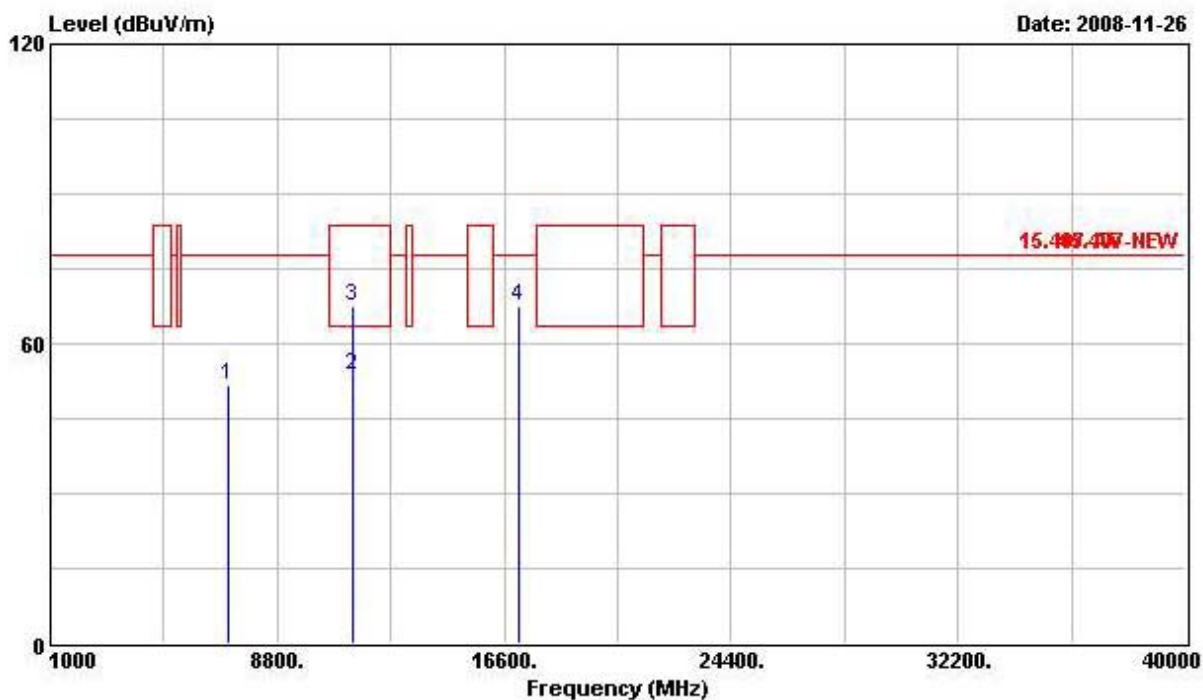
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB	dB	
1	8968.000	54.14	-23.70	77.84	43.69	38.58	4.67	32.81 PEAK
2	11198.000	45.49	-18.05	63.54	30.42	39.28	6.66	30.86 AVERAGE
3	11198.000	62.38	-21.16	83.54	47.31	39.28	6.66	30.86 Peak
4	16798.000	65.64	-12.20	77.84	46.48	40.35	7.67	28.85 PEAK

Vertical



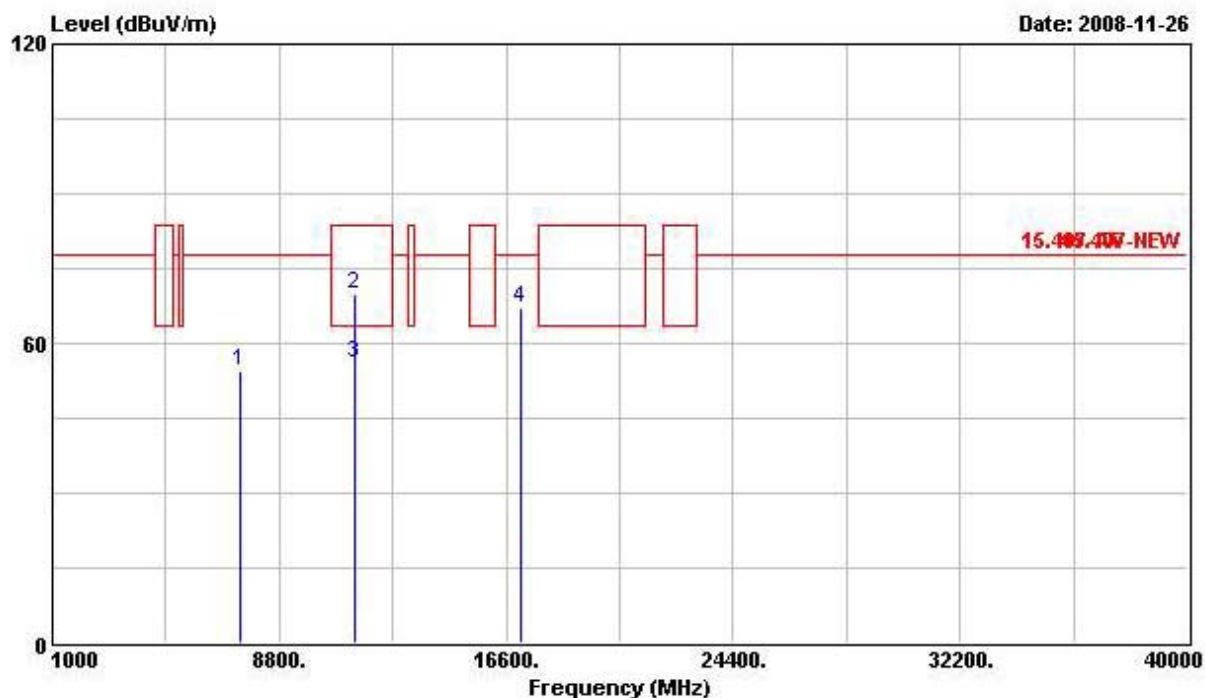
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7468.000	53.97	-23.87	77.84	45.32	37.22	4.40	32.97 PEAK
2	11199.400	49.67	-13.87	63.54	34.59	39.28	6.66	30.86 AVERAGE
3	11199.400	67.80	-15.74	83.54	52.73	39.28	6.66	30.86 Peak
4	16798.000	65.22	-12.62	77.84	46.06	40.35	7.67	28.85 PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11a CH 140

Horizontal

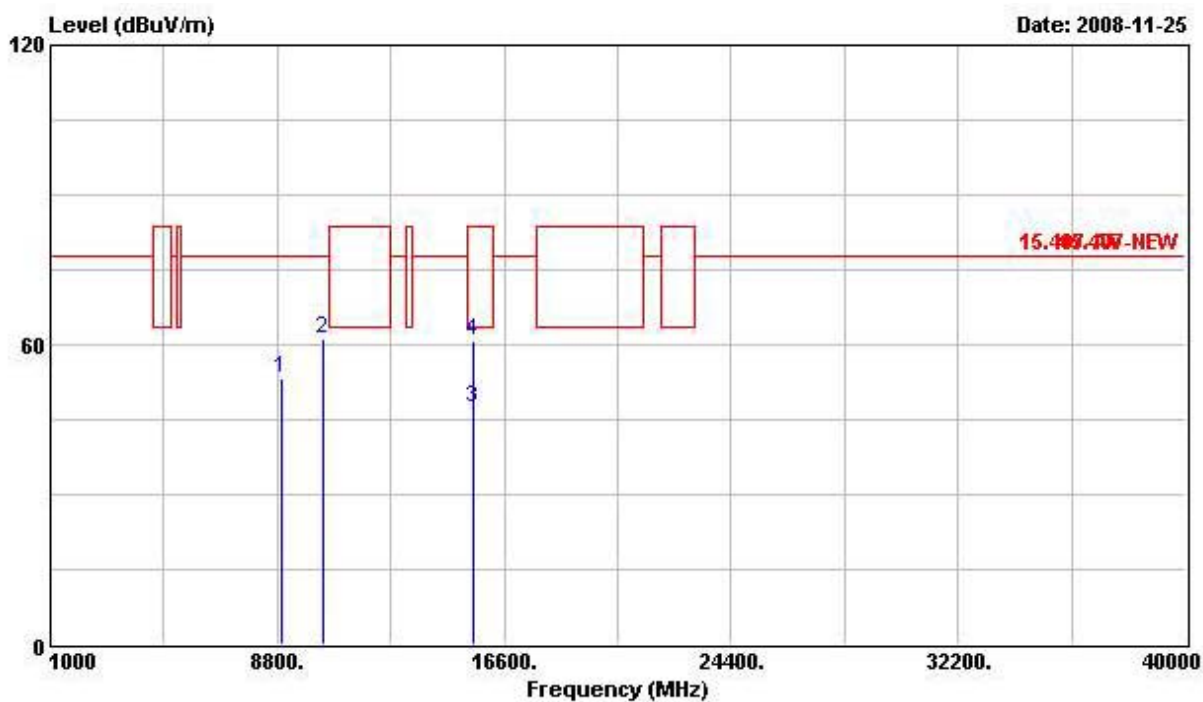
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7120.000	51.71	-26.13	77.84	44.75	36.39	3.30	32.73	PEAK
2	11399.800	53.51	-10.03	63.54	39.12	39.56	6.75	31.92	AVERAGE
3	11399.800	67.41	-16.13	83.54	53.02	39.56	6.75	31.92	Peak
4	17100.000	67.37	-10.47	77.84	45.97	42.14	7.79	28.53	PEAK

Vertical



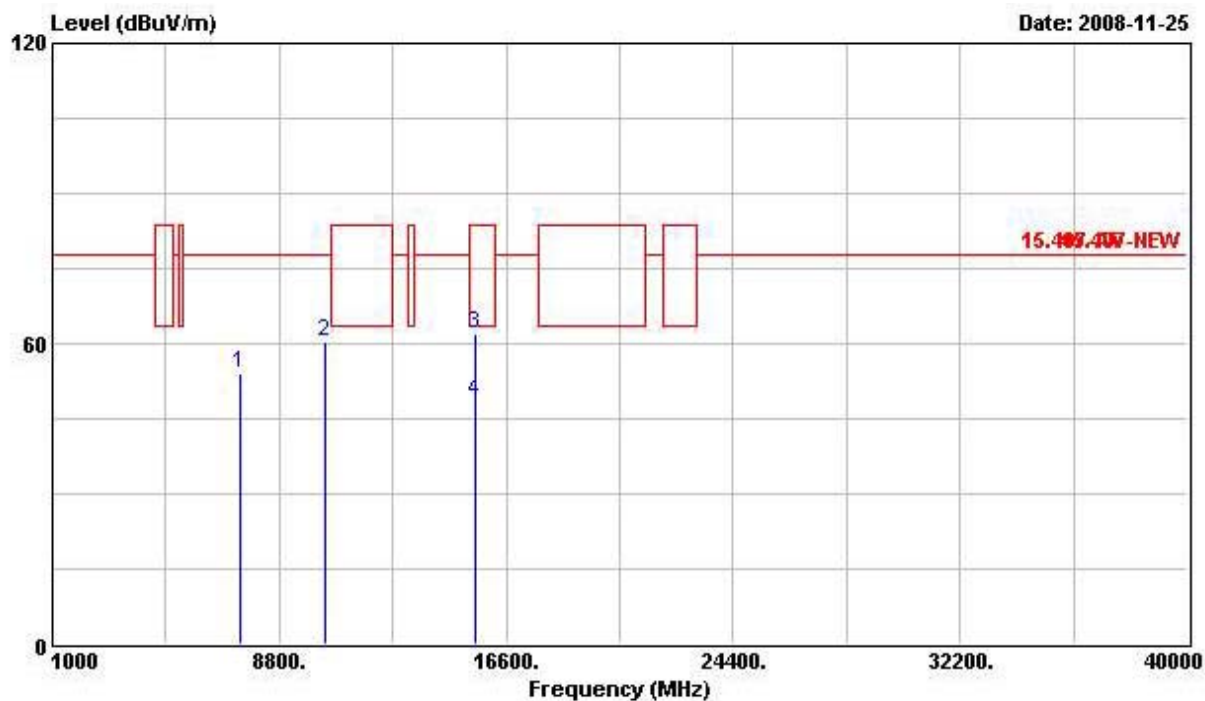
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7468.000	54.37	-23.47	77.84	45.72	37.22	4.40	32.97 PEAK
2	11399.900	69.75	-13.79	83.54	55.36	39.56	6.75	31.92 Peak
3	11399.900	56.20	-7.34	63.54	41.82	39.56	6.75	31.92 AVERAGE
4	17096.000	67.09	-10.75	77.84	45.68	42.14	7.79	28.53 PEAK

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 36 (20MHz)

Horizontal

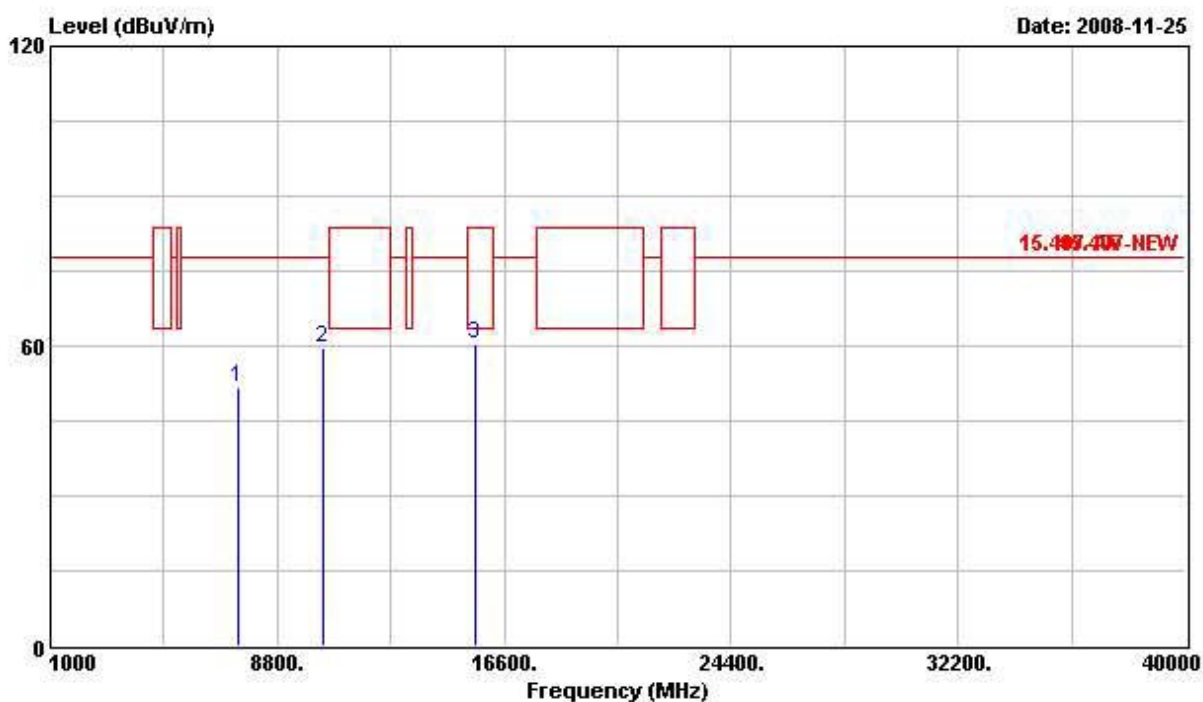
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8980.000	53.34	-24.50	77.84	42.97	38.58	4.60	32.81	PEAK
2	10356.000	61.07	-16.77	77.84	47.33	39.33	6.09	31.67	PEAK
3	15540.000	47.51	-16.03	63.54	32.32	37.51	7.37	29.69	Average
4	15540.000	60.61	-22.93	83.54	45.42	37.51	7.37	29.69	PEAK

Vertical



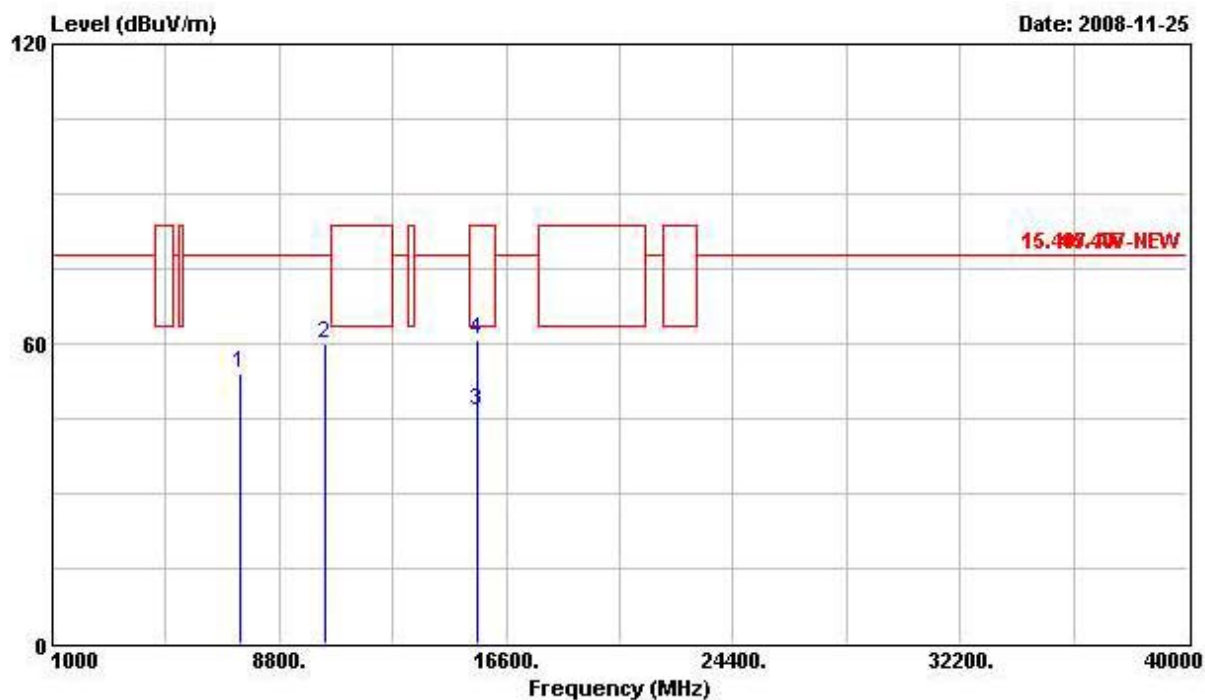
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7472.000	53.98	-23.86	77.84	45.29	37.26	4.40	32.97 PEAK
2	10360.000	60.54	-17.30	77.84	46.79	39.33	6.09	31.67 PEAK
3	15540.000	62.02	-21.52	83.54	46.82	37.51	7.37	29.69 PEAK
4	15540.000	48.37	-15.17	63.54	33.18	37.51	7.37	29.69 Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 40 (20MHz)

Horizontal

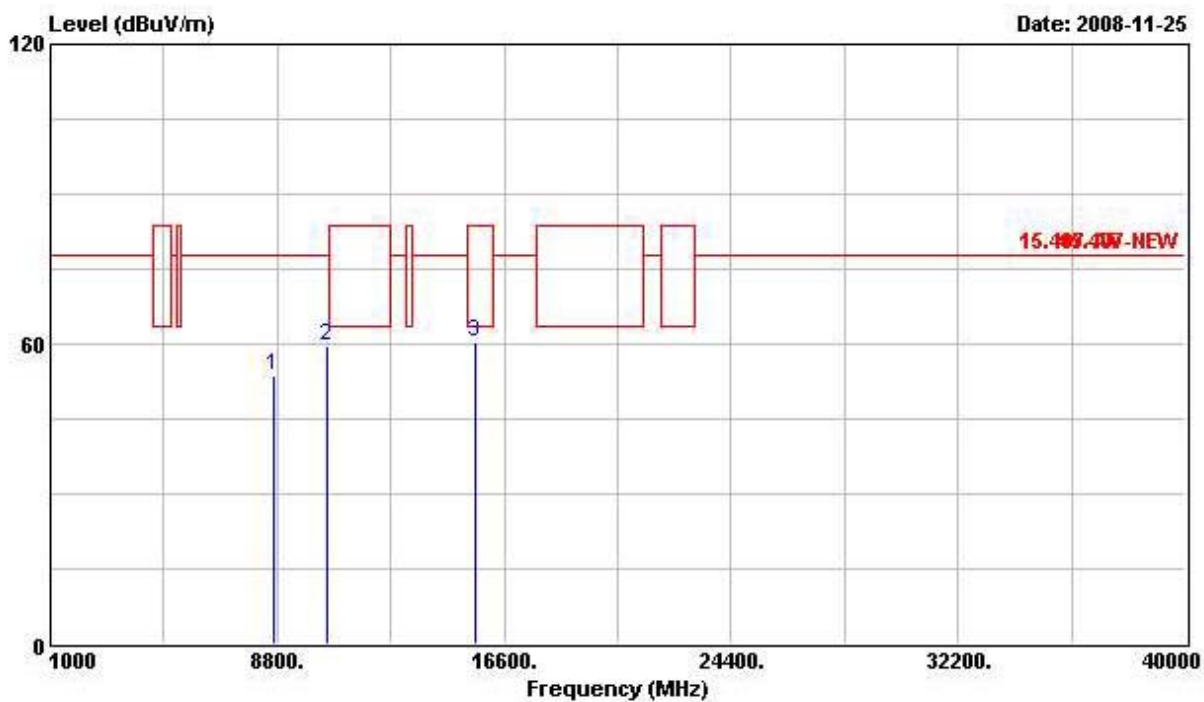
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	7480.000	51.66	-26.18	77.84	42.96	37.26	4.40	32.97 PEAK
2	10408.000	59.64	-18.20	77.84	45.69	39.32	6.14	31.51 PEAK
3	15600.000	60.21	-23.33	83.54	44.94	37.54	7.38	29.65 PEAK

Vertical



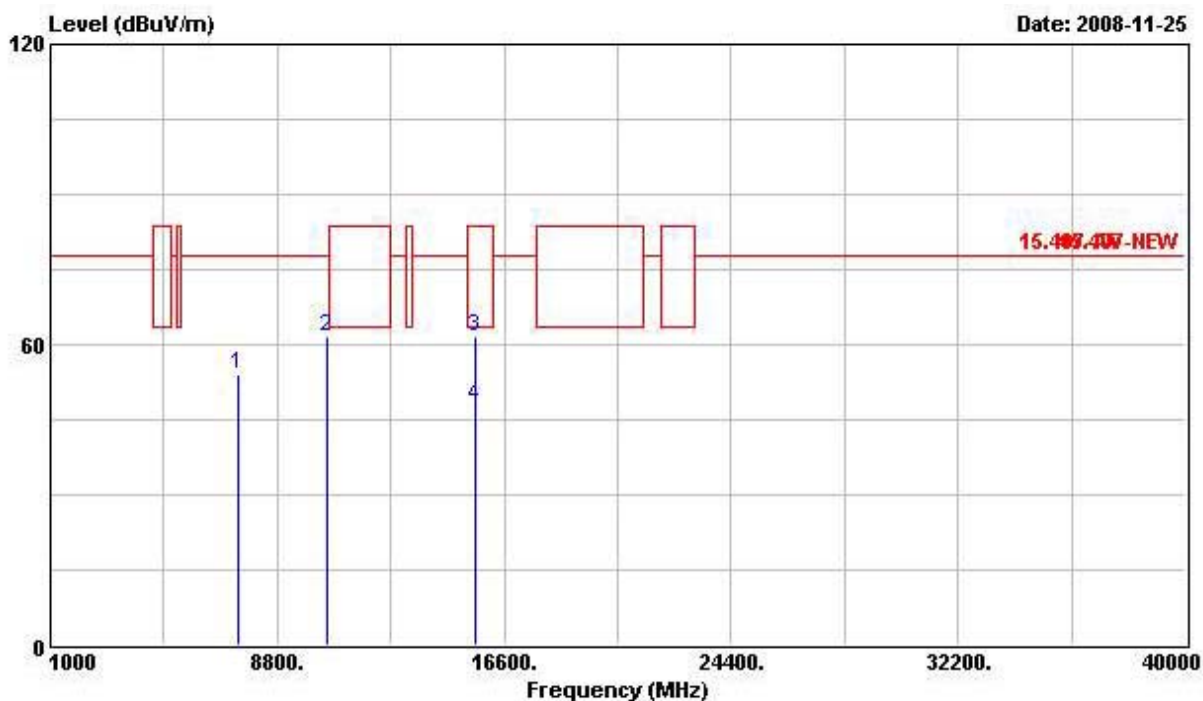
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7484.000	53.89	-23.95	77.84	45.20	37.26	4.40	32.97 PEAK
2	10404.000	59.94	-17.90	77.84	45.99	39.32	6.14	31.51 PEAK
3	15600.000	46.50	-17.04	63.54	31.23	37.54	7.38	29.65 Average
4	15600.000	60.91	-22.63	83.54	45.64	37.54	7.38	29.65 PEAK

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 48 (20MHz)

Horizontal

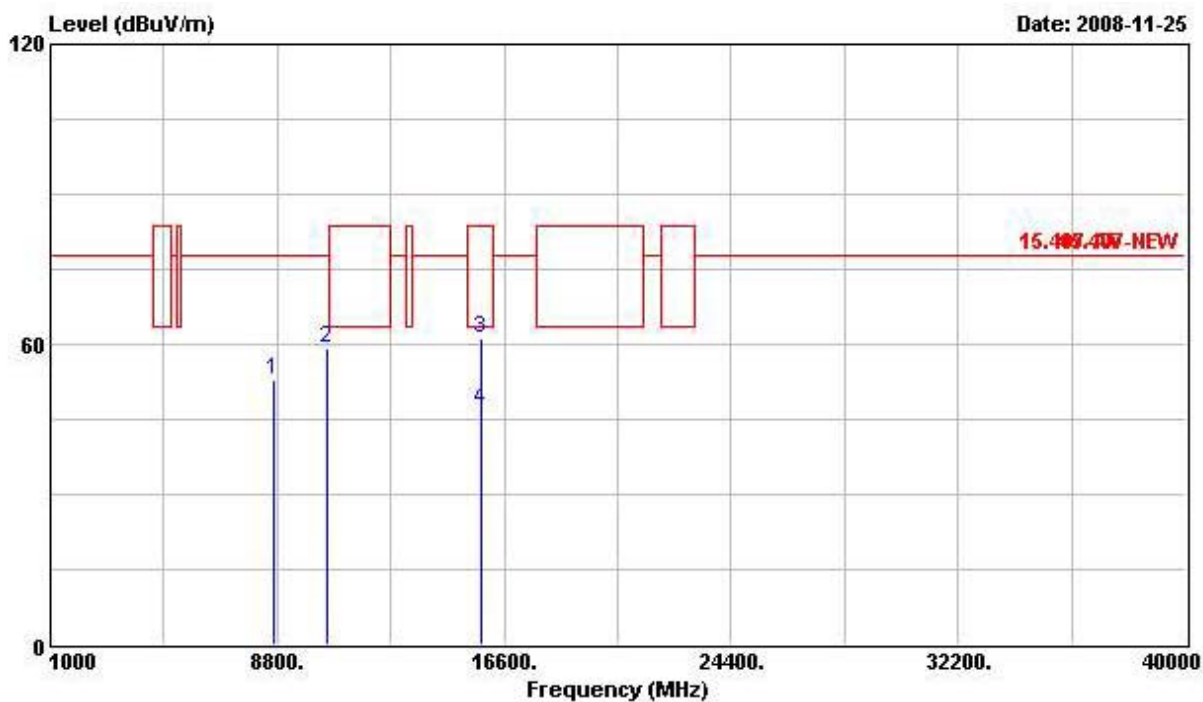
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	8652.000	53.77	-24.07	77.84	42.97	38.39	5.21	32.81 PEAK
2	10484.000	59.60	-18.24	77.84	45.32	39.30	6.23	31.25 PEAK
3	15600.000	60.42	-23.12	83.54	45.15	37.54	7.38	29.65 PEAK

Vertical



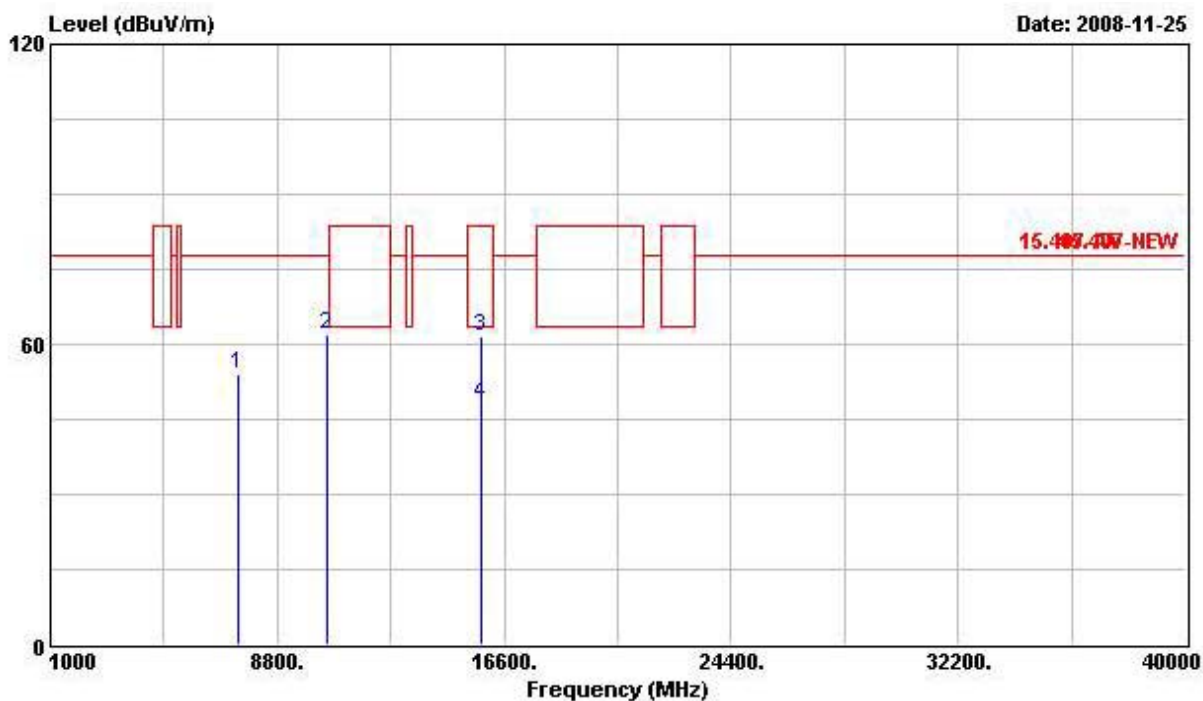
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7480.000	54.08	-23.76	77.84	45.39	37.26	4.40	32.97	PEAK
2	10480.000	61.72	-16.12	77.84	47.44	39.30	6.23	31.25	PEAK
3	15600.000	61.51	-22.03	83.54	46.24	37.54	7.38	29.65	PEAK
4	15600.000	47.69	-15.85	63.54	32.42	37.54	7.38	29.65	Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 52 (20MHz)

Horizontal

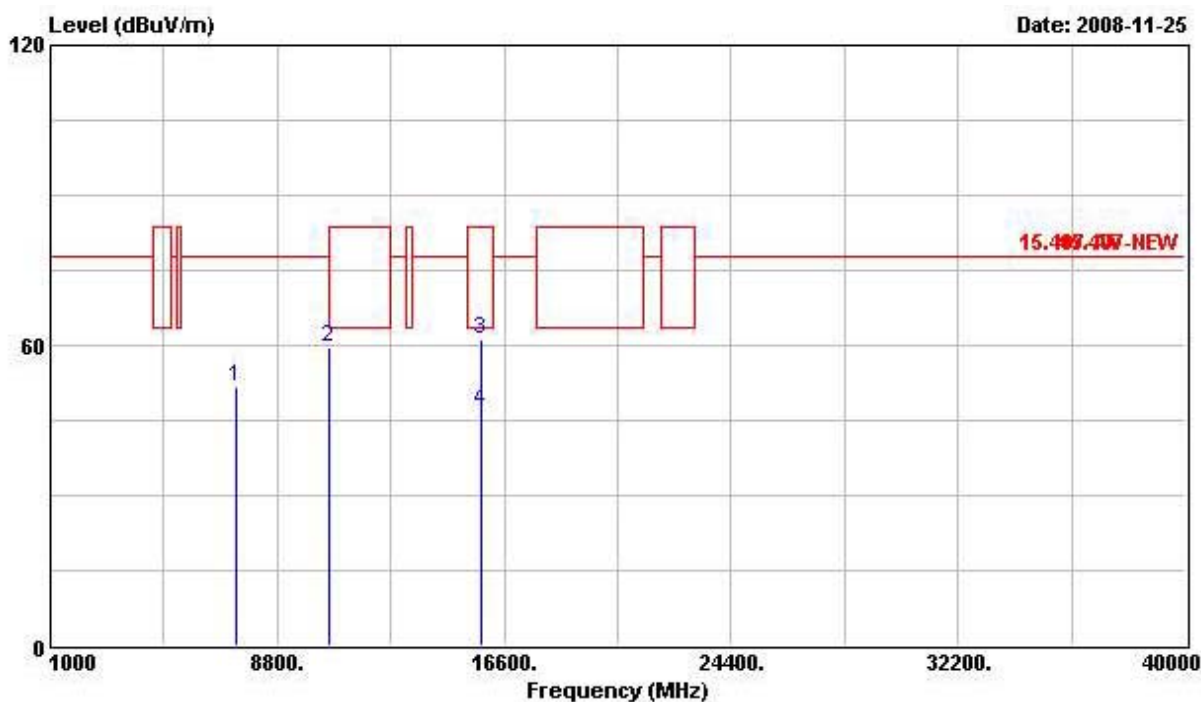
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8652.000	52.96	-24.88	77.84	42.16	38.39	5.21	32.81	PEAK
2	10520.000	59.29	-18.55	77.84	44.89	39.29	6.28	31.17	PEAK
3	15780.000	61.28	-22.26	83.54	45.81	37.61	7.42	29.56	PEAK
4	15780.000	47.11	-16.43	63.54	31.64	37.61	7.42	29.56	Average

Vertical



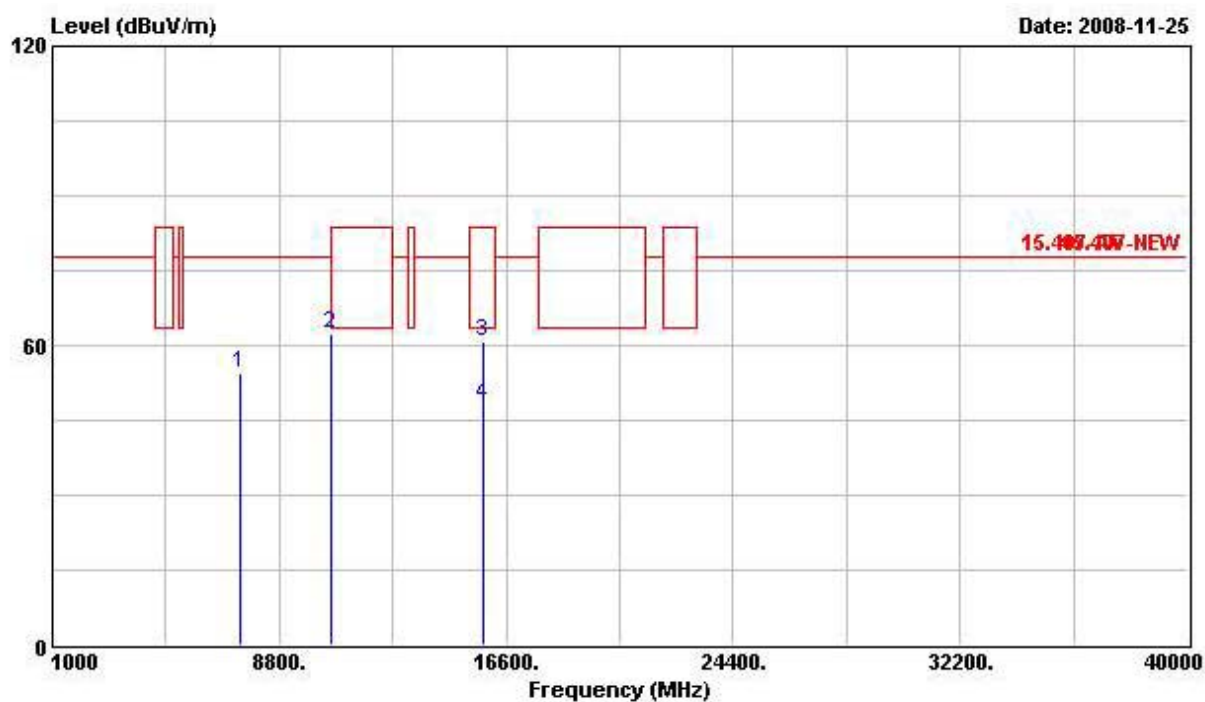
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7468.000	54.24	-23.60	77.84	45.58	37.22	4.40	32.97	PEAK
2	10520.000	62.02	-15.82	77.84	47.62	39.29	6.28	31.17	PEAK
3	15780.000	61.42	-22.12	83.54	45.95	37.61	7.42	29.56	PEAK
4	15780.000	48.01	-15.53	63.54	32.54	37.61	7.42	29.56	Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 56 (20MHz)

Horizontal

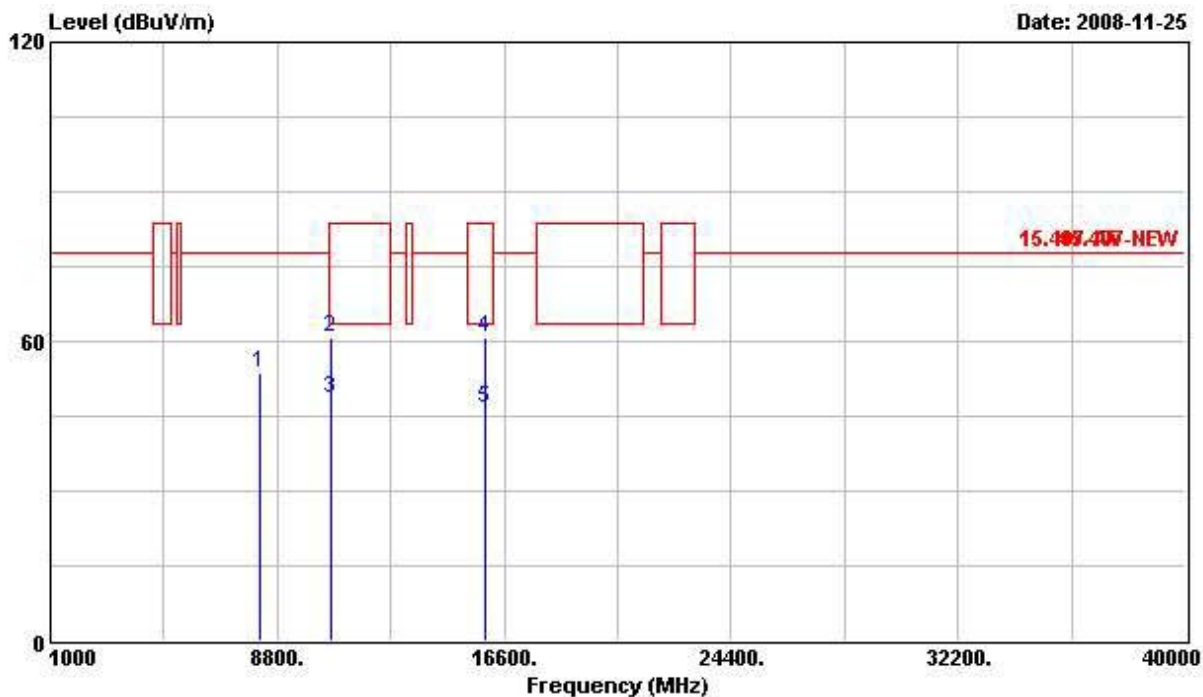
	Freq	Level	Over Limit	Limit Line	Read Antenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7416.000	51.72	-26.12	77.84	43.28	37.09	4.28	32.93	PEAK
2	10564.000	59.48	-18.36	77.84	44.95	39.26	6.30	31.03	PEAK
3	15840.000	61.18	-22.36	83.54	45.64	37.64	7.43	29.53	PEAK
4	15840.000	47.09	-16.45	63.54	31.55	37.64	7.43	29.53	Average

Vertical



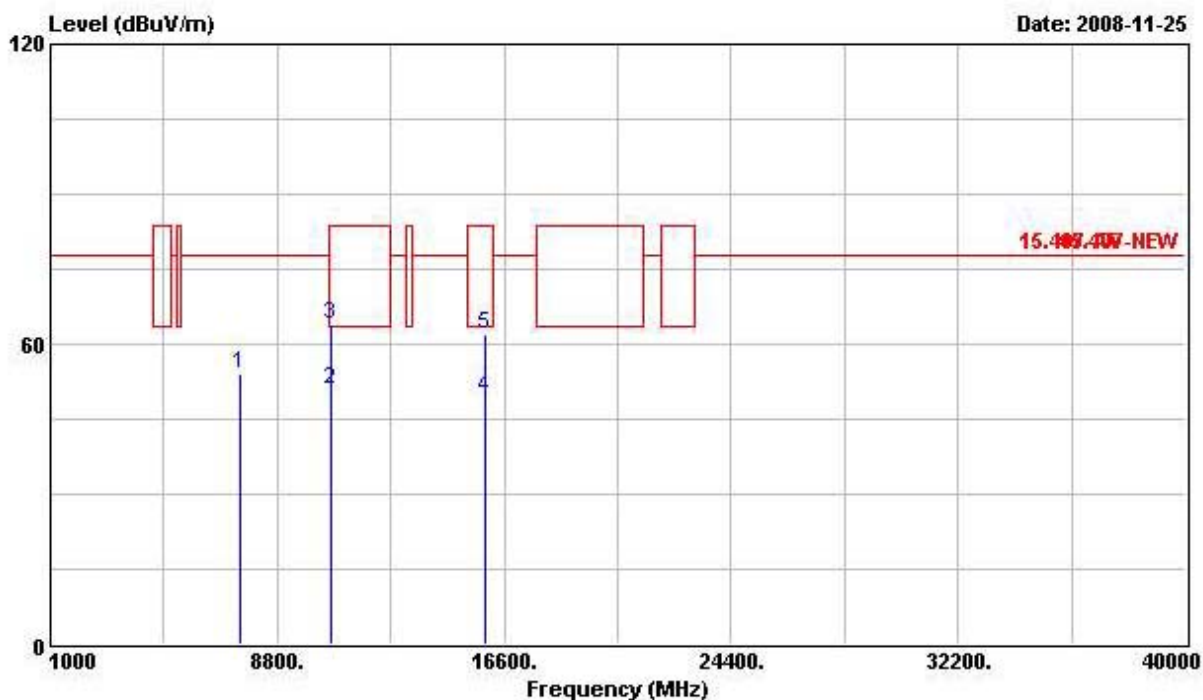
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7484.000	54.59	-23.25	77.84	45.89	37.26	4.40	32.97	PEAK
2	10564.000	62.47	-15.37	77.84	47.94	39.26	6.30	31.03	PEAK
3	15840.000	60.65	-22.89	83.54	45.11	37.64	7.43	29.53	PEAK
4	15840.000	48.02	-15.52	63.54	32.48	37.64	7.43	29.53	Average

Test date	Nov. 25, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 64 (20MHz)

Horizontal

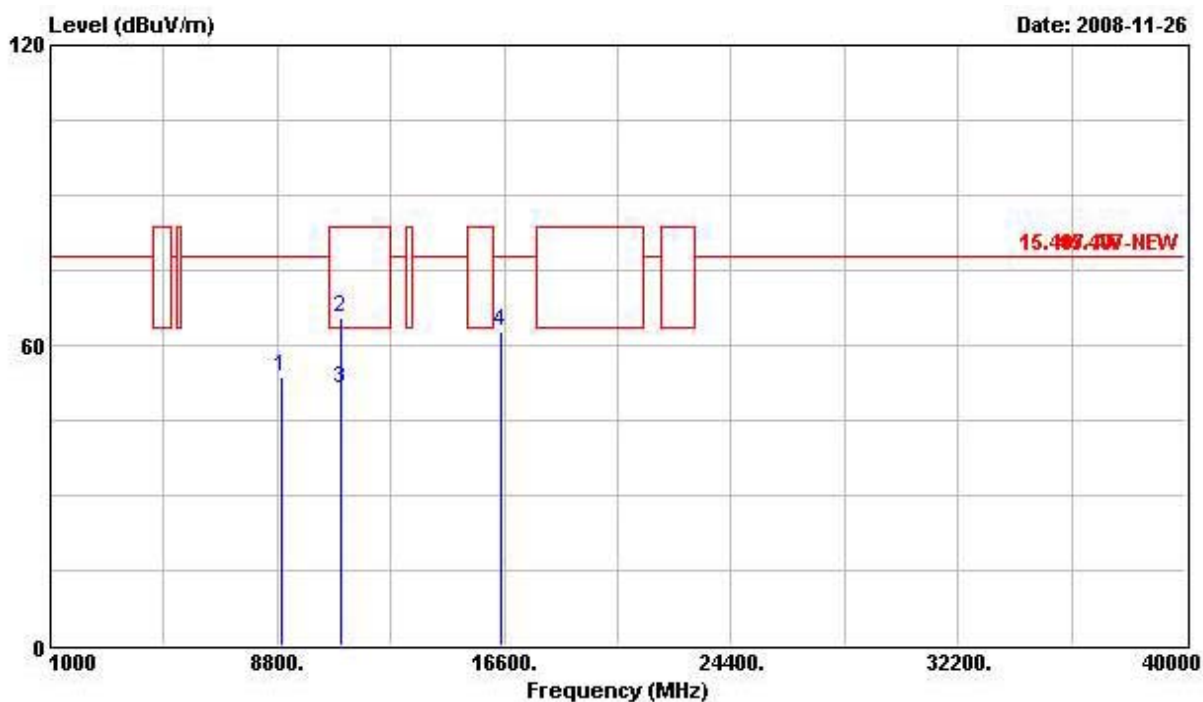
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	8208.000	53.85	-23.99	77.84	43.61	38.01	5.03	32.80 PEAK
2	10640.000	60.75	-22.79	83.54	46.00	39.22	6.34	30.81 PEAK
3	10640.000	48.64	-14.90	63.54	33.89	39.22	6.34	30.81 Average
4	15960.000	60.61	-22.93	83.54	44.93	37.69	7.46	29.46 PEAK
5	15960.000	46.77	-16.77	63.54	31.09	37.69	7.46	29.46 Average

Vertical



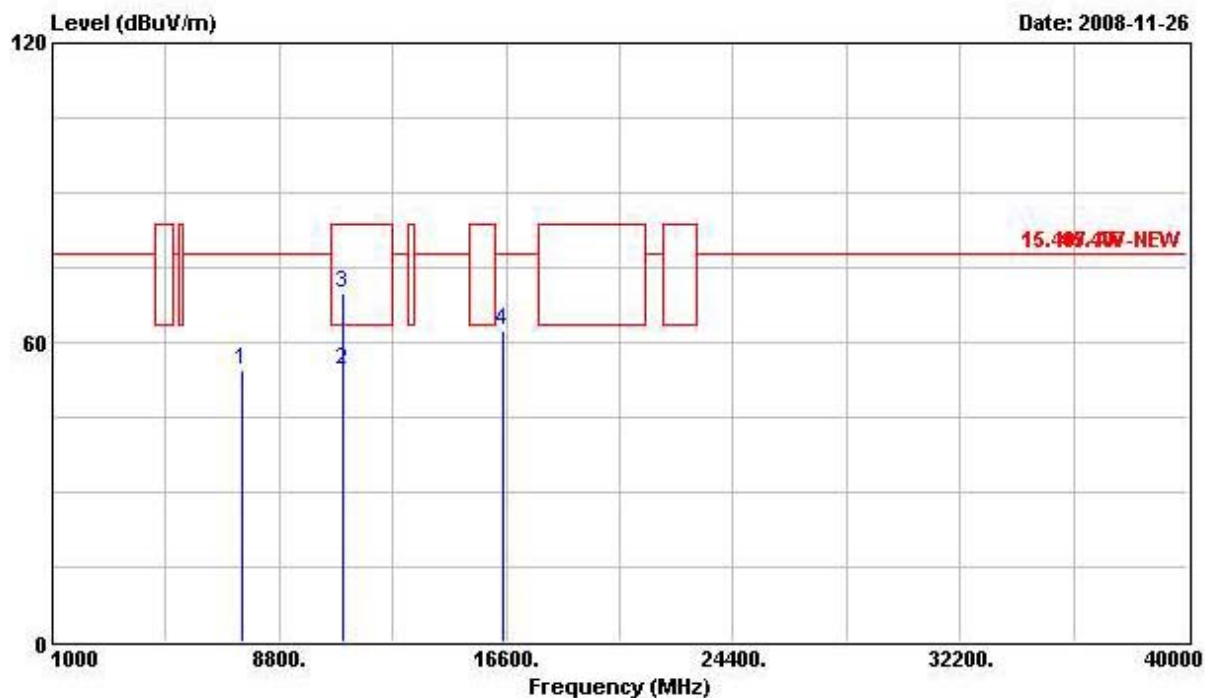
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7496.000	54.13	-23.71	77.84	45.29	37.30	4.52	32.98 PEAK
2	10640.000	50.83	-12.71	63.54	36.08	39.22	6.34	30.81 Average
3	10640.000	64.08	-19.46	83.54	49.33	39.22	6.34	30.81 PEAK
4	15960.000	49.16	-14.38	63.54	33.48	37.69	7.46	29.46 Average
5	15960.000	61.81	-21.73	83.54	46.13	37.69	7.46	29.46 PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 100 (20MHz)

Horizontal

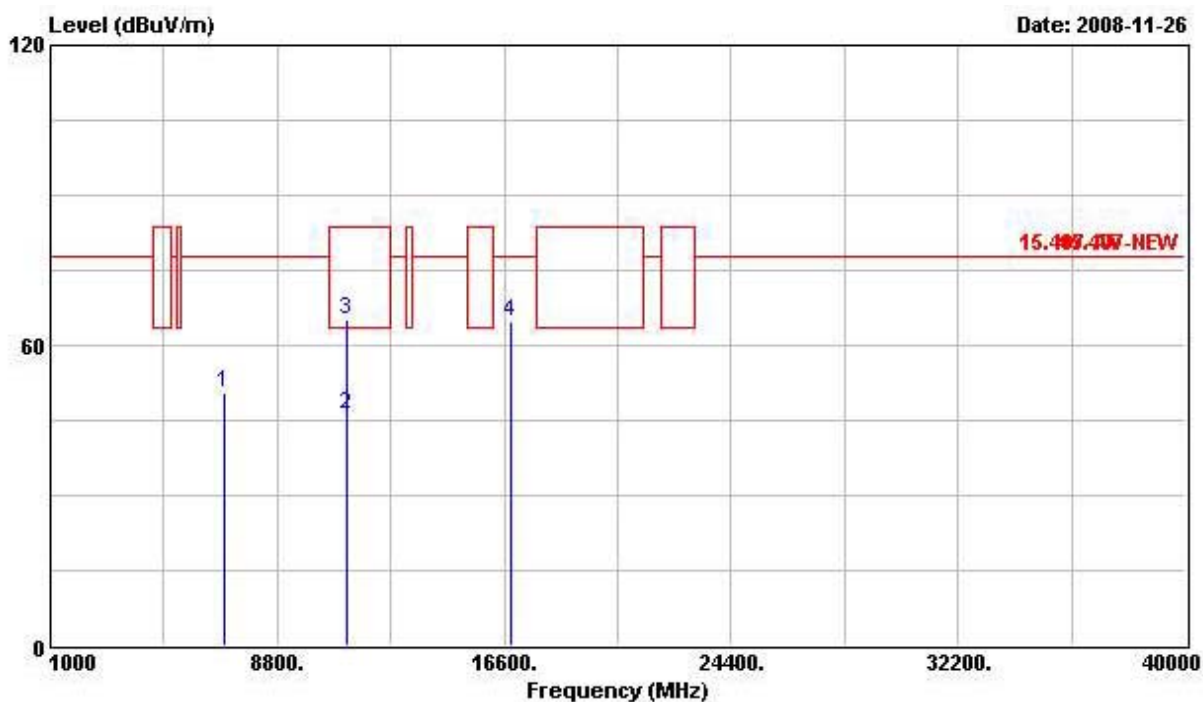
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	8976.000	53.58	-24.26	77.84	43.20	38.58	4.60	32.81 PEAK
2	11000.100	65.62	-17.92	83.54	49.88	39.00	6.55	29.81 Peak
3	11000.100	51.25	-12.29	63.54	35.51	39.00	6.55	29.81 AVERAGE
4	16502.000	62.70	-15.14	77.84	45.62	39.00	7.52	29.44 PEAK

Vertical



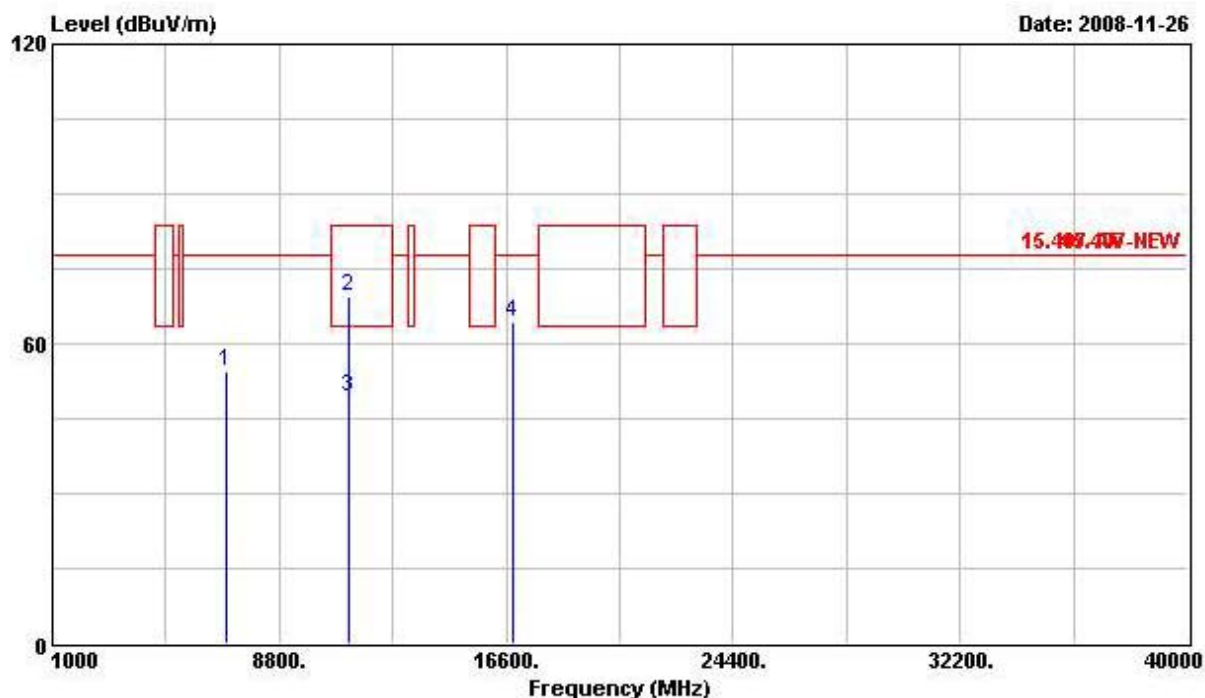
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	7496.000	54.52	-23.32	77.84	45.68	37.30	4.52	32.98 PEAK
2	11000.300	54.54	-9.00	63.54	38.80	39.00	6.55	29.81 AVERAGE
3	11000.300	69.70	-13.84	83.54	53.96	39.00	6.55	29.81 Peak
4	16498.000	62.49	-15.35	77.84	45.41	39.00	7.52	29.44 PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 120 (20MHz)

Horizontal

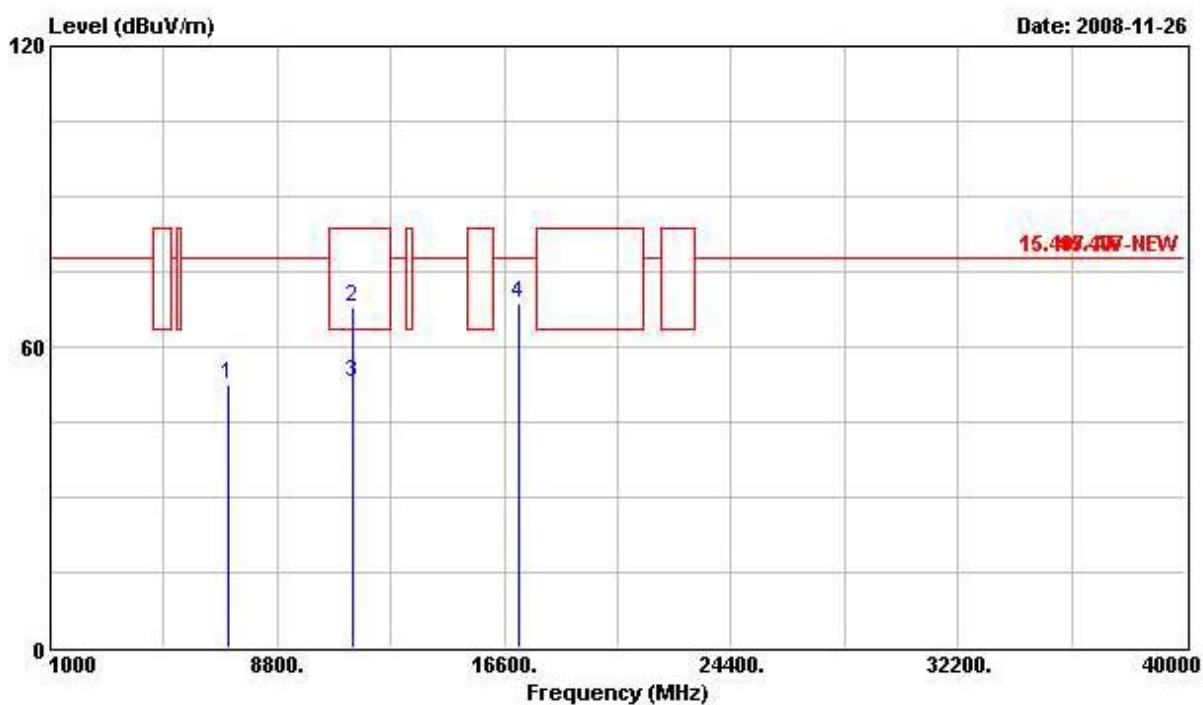
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7004.000	50.38	-27.46	77.84	43.99	36.10	2.93	32.65	PEAK
2	11204.200	46.05	-17.49	63.54	30.97	39.28	6.66	30.86	AVERAGE
3	11204.200	64.96	-18.58	83.54	49.89	39.28	6.66	30.86	Peak
4	16798.000	64.83	-13.01	77.84	45.67	40.35	7.67	28.85	PEAK

Vertical



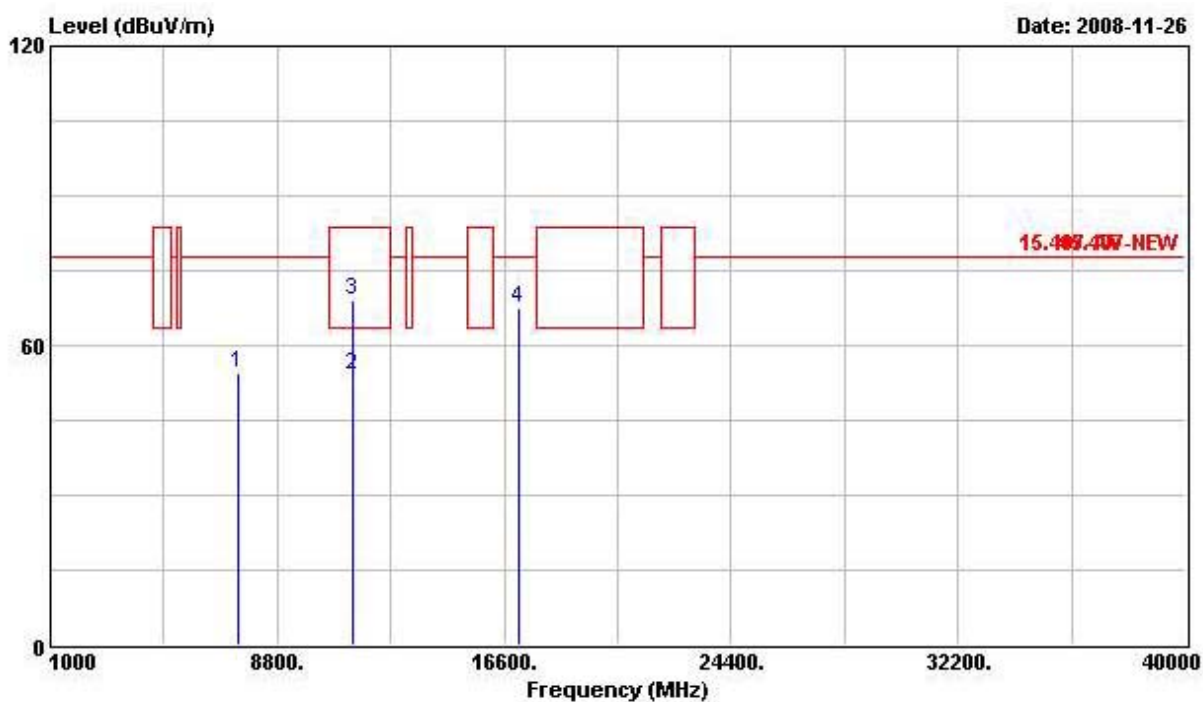
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7004.000	54.39	-23.45	77.84	48.01	36.10	2.93	32.65	PEAK
2	11197.300	69.52	-14.02	83.54	54.45	39.28	6.66	30.86	Peak
3	11197.300	49.28	-14.26	63.54	34.20	39.28	6.66	30.86	AVERAGE
4	16798.000	64.51	-13.33	77.84	45.35	40.35	7.67	28.85	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 140 (20MHz)

Horizontal

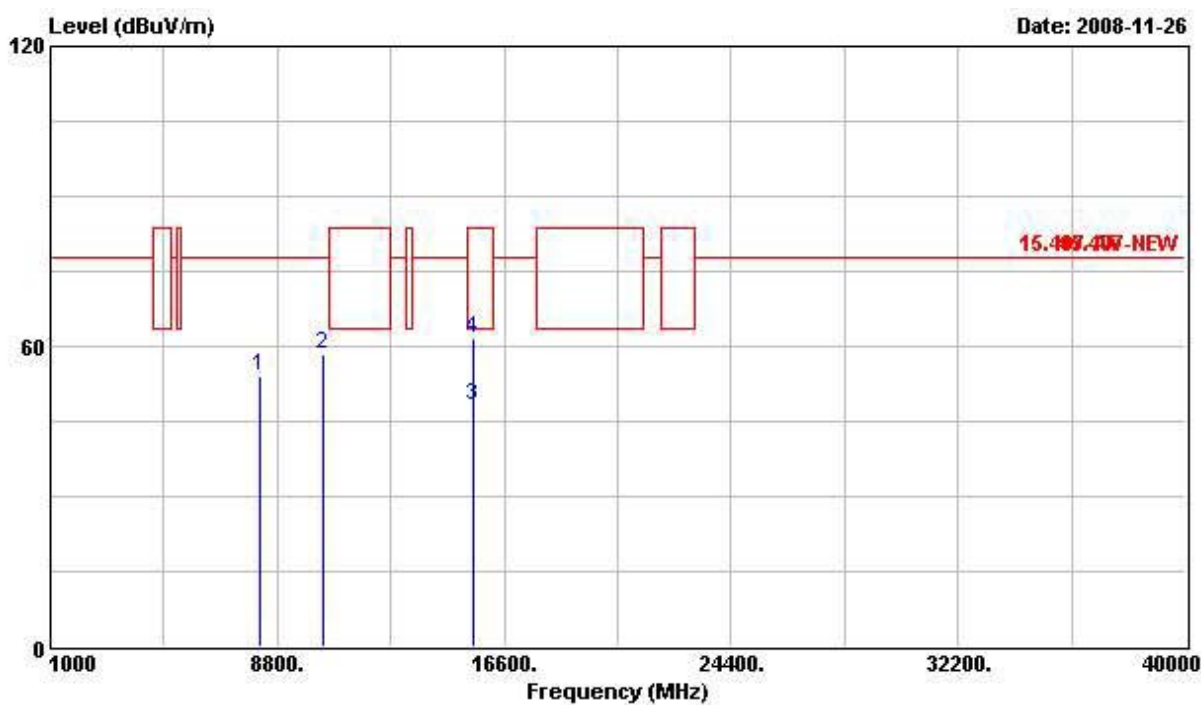
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7128.000	52.33	-25.51	77.84	45.37	36.39	3.30	32.73	PEAK
2	11401.100	68.00	-15.54	83.54	53.61	39.56	6.75	31.92	Peak
3	11401.100	52.73	-10.81	63.54	38.34	39.56	6.75	31.92	AVERAGE
4	17104.000	68.70	-9.14	77.84	47.30	42.14	7.79	28.53	PEAK

Vertical



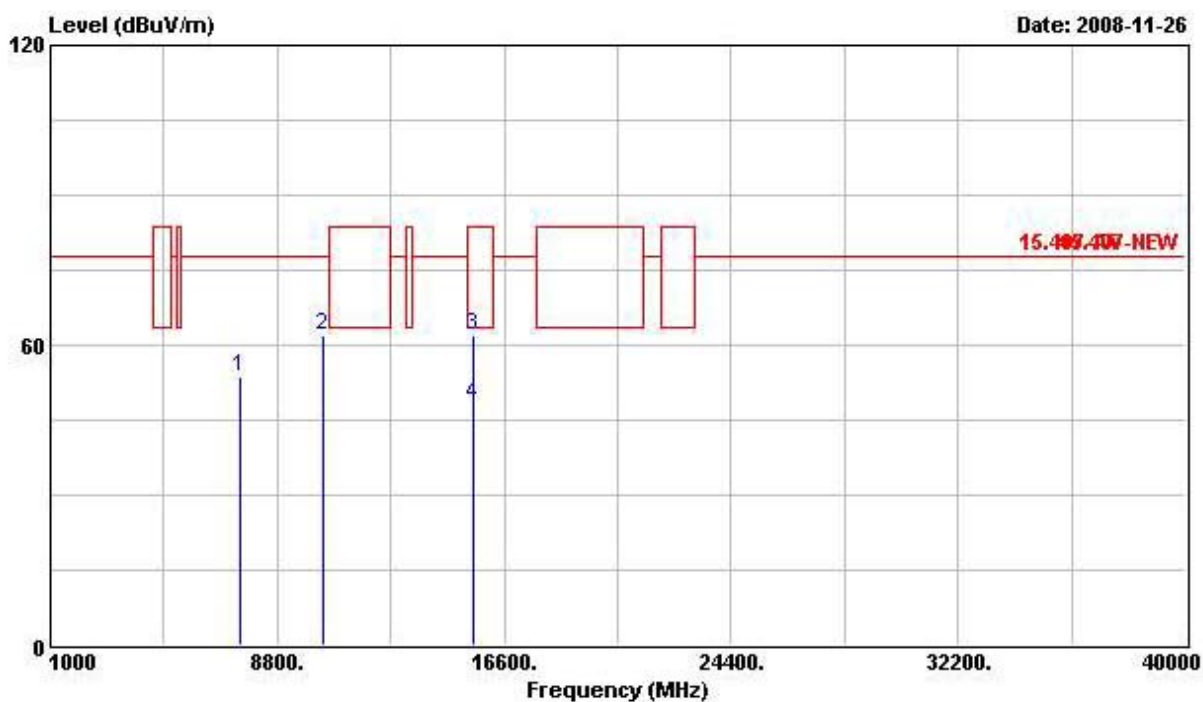
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7464.000	54.51	-23.33	77.84	45.85	37.22	4.40	32.95	PEAK
2	11400.900	54.01	-9.53	63.54	39.63	39.56	6.75	31.92	AVERAGE
3	11400.900	68.93	-14.61	83.54	54.54	39.56	6.75	31.92	Peak
4	17100.000	67.32	-10.52	77.84	45.92	42.14	7.79	28.53	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 38 (40MHz)

Horizontal

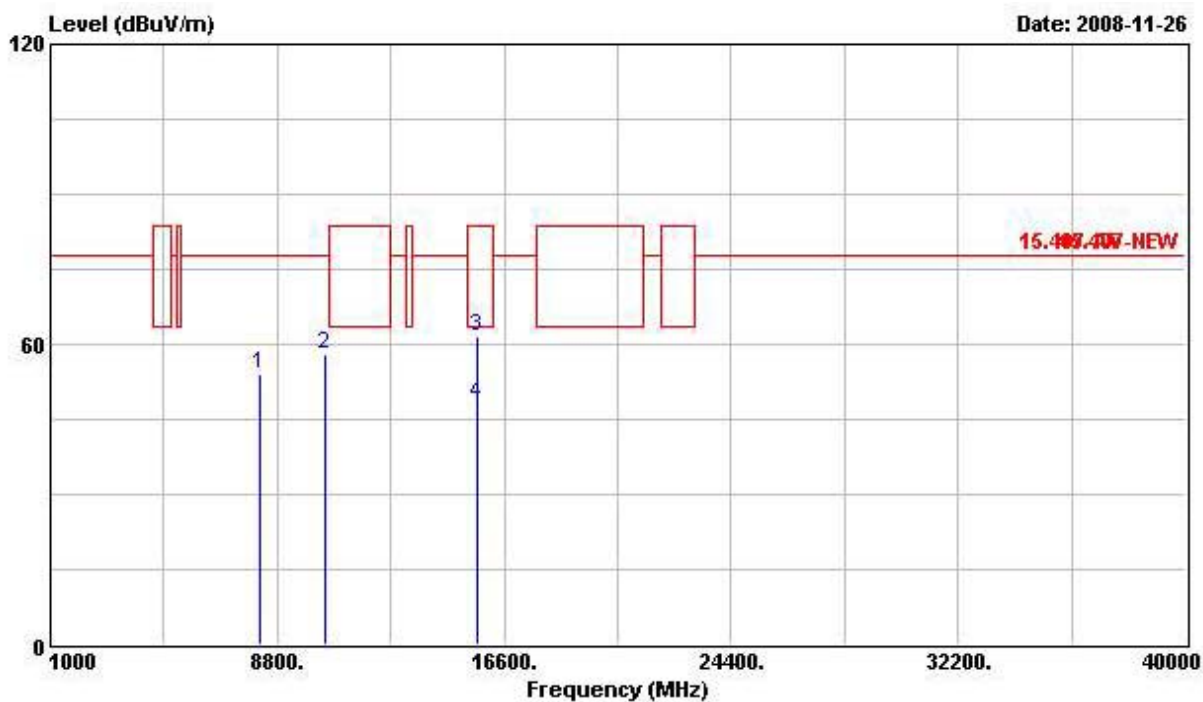
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8188.000	53.92	-23.92	77.84	43.75	37.99	4.97	32.80	PEAK
2	10380.000	58.31	-19.53	77.84	44.44	39.32	6.14	31.59	PEAK
3	15570.000	48.01	-15.53	63.54	32.78	37.53	7.38	29.68	Average
4	15570.000	61.51	-22.03	83.54	46.28	37.53	7.38	29.68	PEAK

Vertical



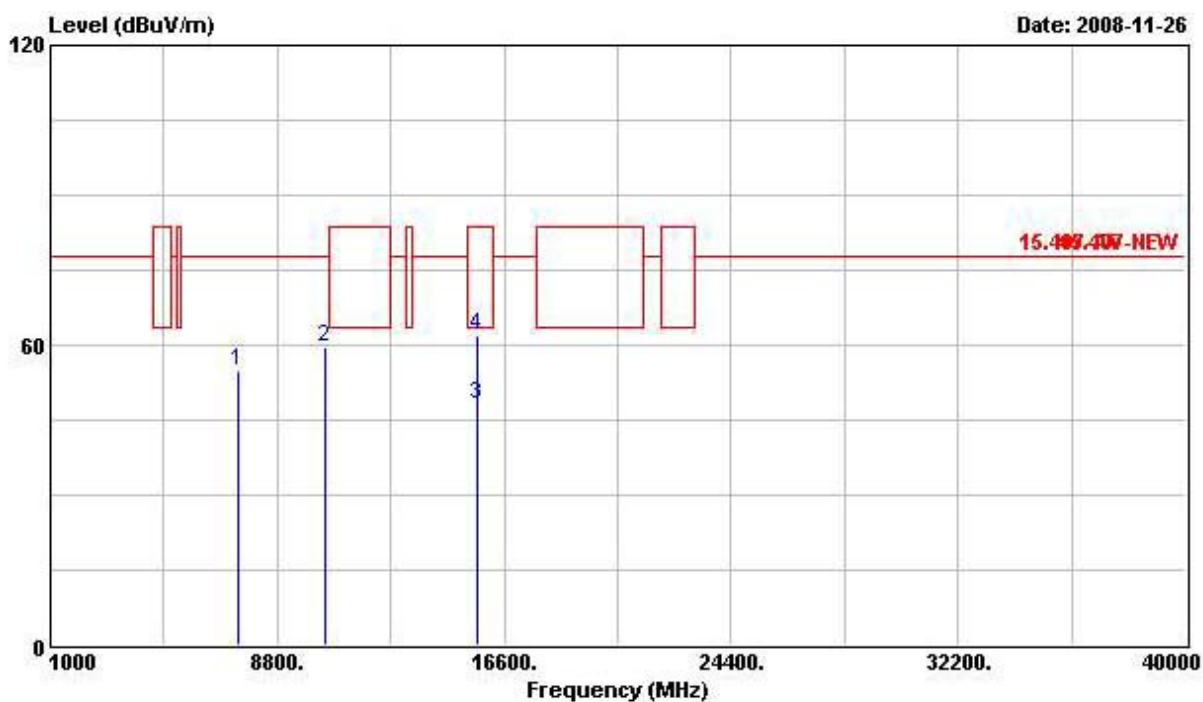
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7492.000	53.86	-23.98	77.84	45.02	37.30	4.52	32.98	PEAK
2	10384.000	61.89	-15.95	77.84	48.02	39.32	6.14	31.59	PEAK
3	15574.000	61.85	-21.69	83.54	46.61	37.53	7.38	29.67	PEAK
4	15574.000	47.99	-15.55	63.54	32.75	37.53	7.38	29.67	Average

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 46 (40MHz)

Horizontal

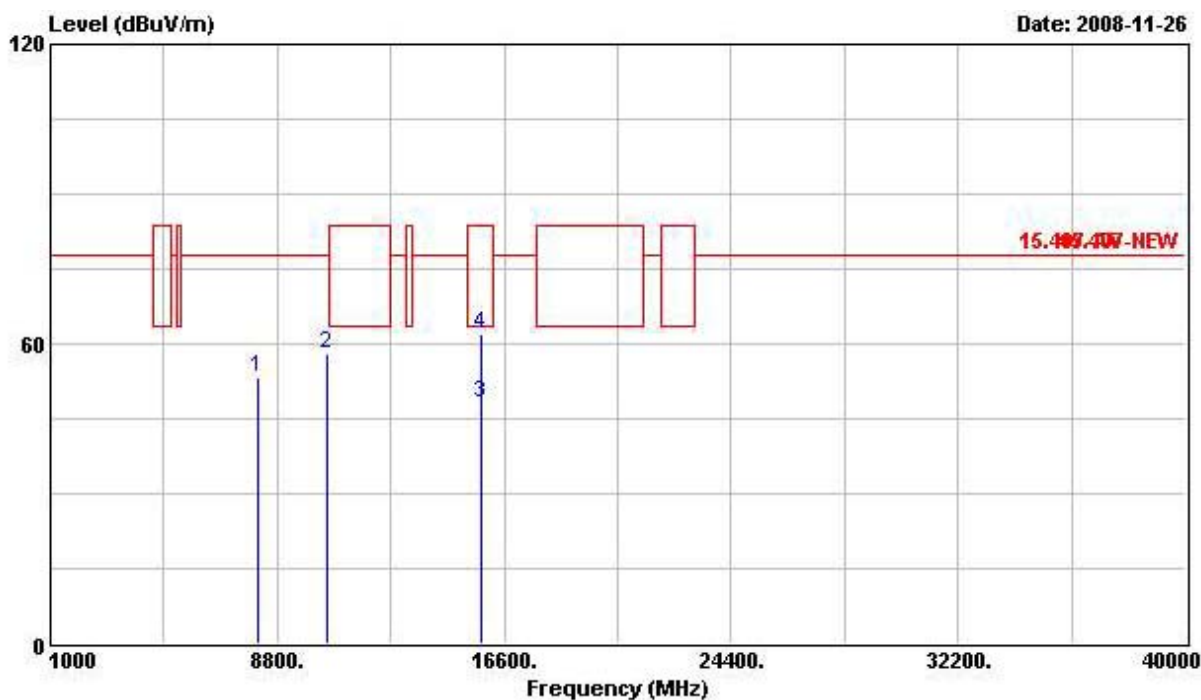
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB	dB	
1	8228.000	54.26	-23.58	77.84	44.00	38.02	5.03	32.80 PEAK
2	10454.000	58.01	-19.83	77.84	43.86	39.31	6.18	31.34 PEAK
3	15688.000	61.63	-21.91	83.54	46.26	37.58	7.40	29.61 PEAK
4	15688.000	48.14	-15.40	63.54	32.77	37.58	7.40	29.61 Average

Vertical



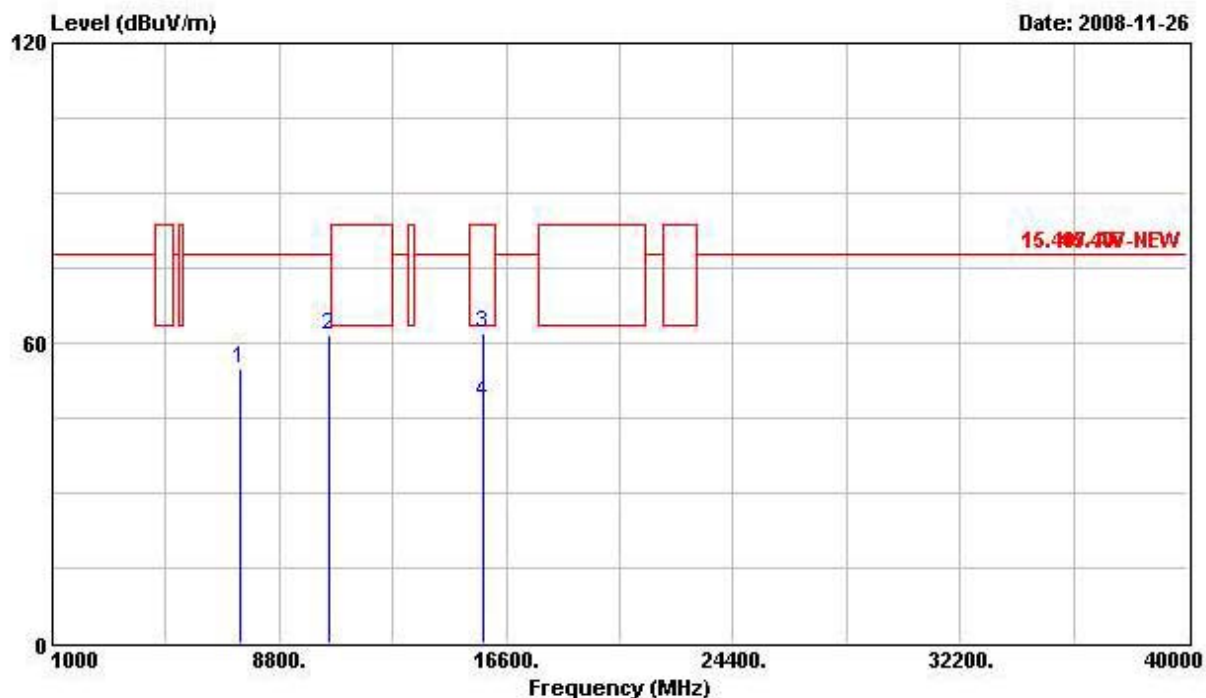
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7488.000	54.82	-23.02	77.84	46.08	37.30	4.40	32.97	PEAK
2	10462.000	59.45	-18.39	77.84	45.25	39.31	6.23	31.34	PEAK
3	15688.000	48.18	-15.36	63.54	32.81	37.58	7.40	29.61	Average
4	15688.000	62.07	-21.47	83.54	46.70	37.58	7.40	29.61	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 54 (40MHz)

Horizontal

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8120.000	53.23	-24.61	77.84	43.20	37.92	4.91	32.79	PEAK
2	10540.000	58.02	-19.82	77.84	43.54	39.28	6.30	31.10	PEAK
3	15810.000	48.20	-15.34	63.54	32.69	37.62	7.43	29.54	Average
4	15810.000	62.04	-21.50	83.54	46.54	37.62	7.43	29.54	PEAK

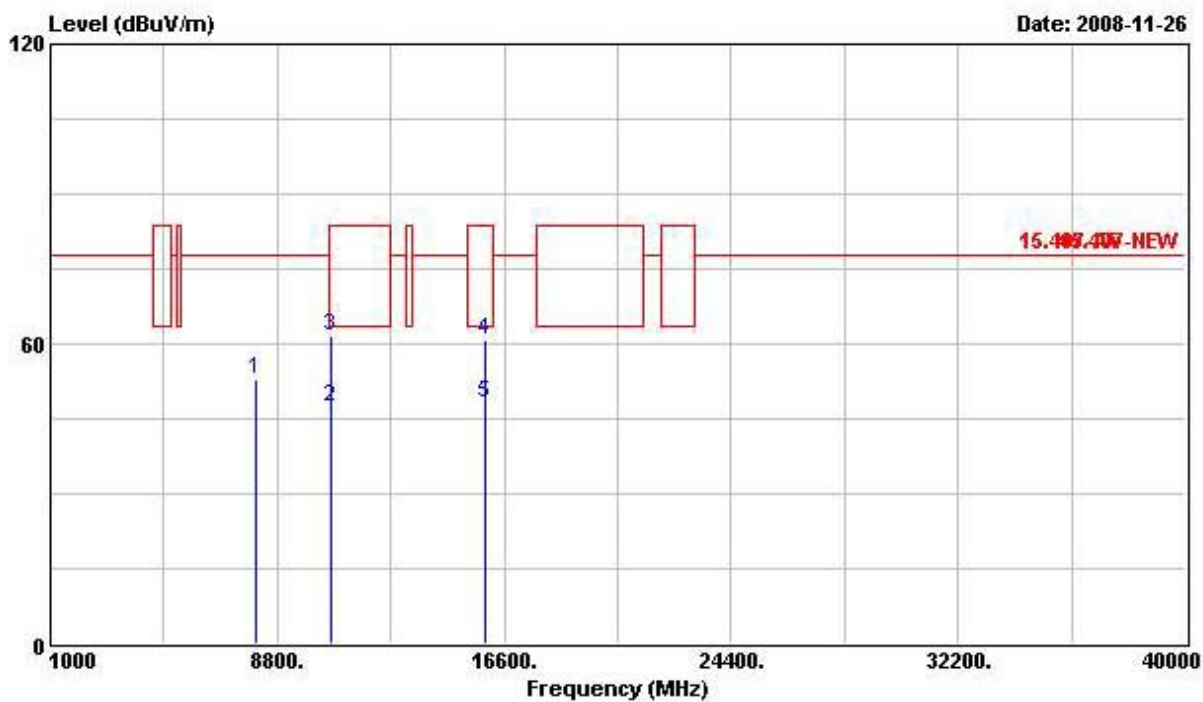
Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	7484.000	54.78	-23.06	77.84	46.09	37.26	4.40	32.97 PEAK
2	10540.000	61.68	-16.16	77.84	47.20	39.28	6.30	31.10 PEAK
3	15810.000	61.79	-21.75	83.54	46.29	37.62	7.43	29.54 PEAK
4	15810.000	48.18	-15.36	63.54	32.67	37.62	7.43	29.54 Average

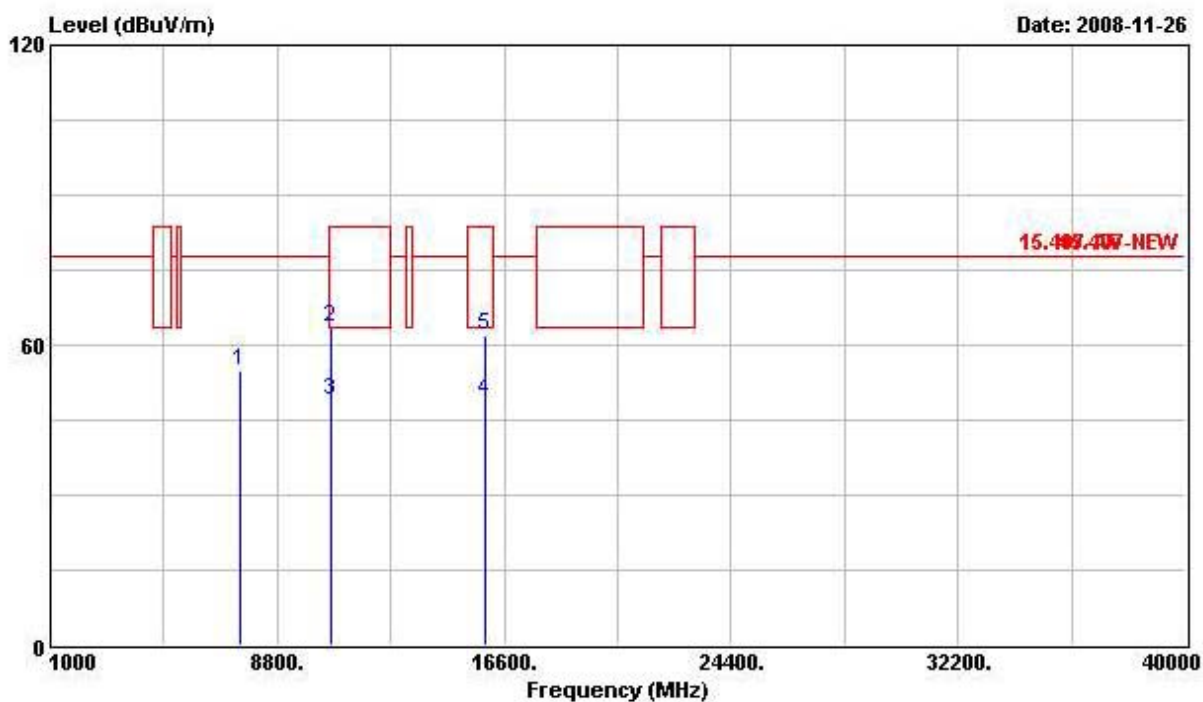
Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 62 (40MHz)

Horizontal



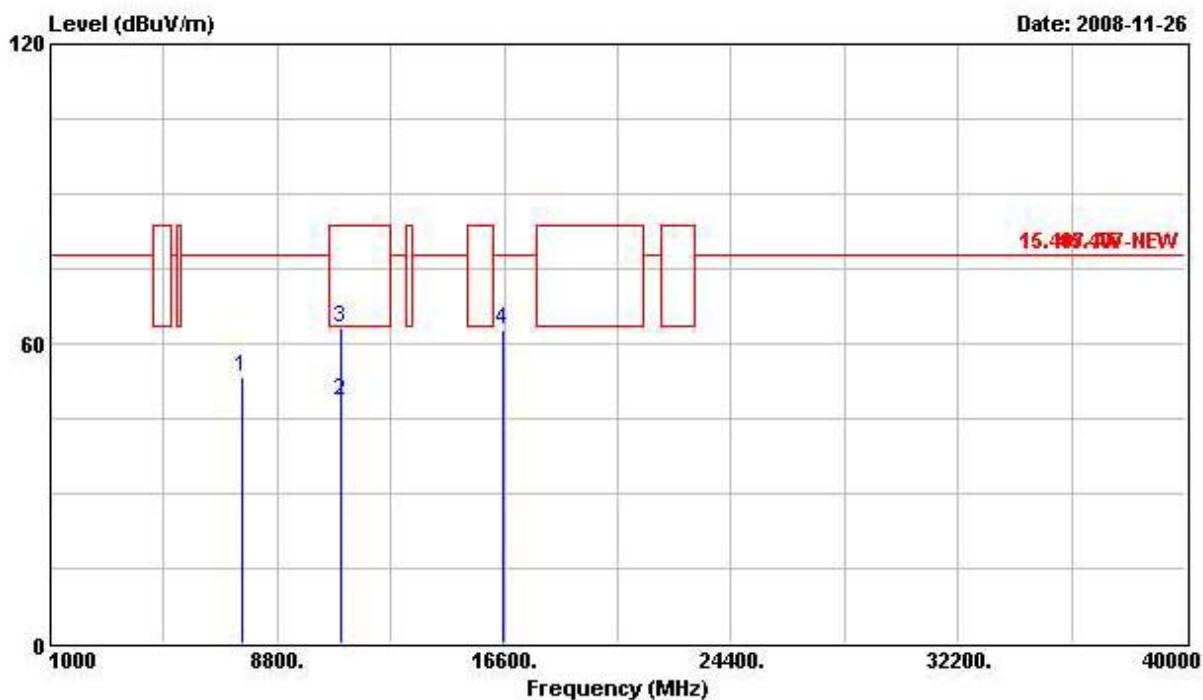
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8056.000	53.03	-24.81	77.84	43.19	37.85	4.78	32.79	PEAK
2	10620.100	47.36	-16.18	63.54	32.67	39.23	6.34	30.88	AVERAGE
3	10620.100	61.57	-21.97	83.54	46.88	39.23	6.34	30.88	Peak
4	15930.000	60.85	-22.69	83.54	45.22	37.67	7.45	29.49	PEAK
5	15930.000	48.03	-15.51	63.54	32.40	37.67	7.45	29.49	Average

Vertical



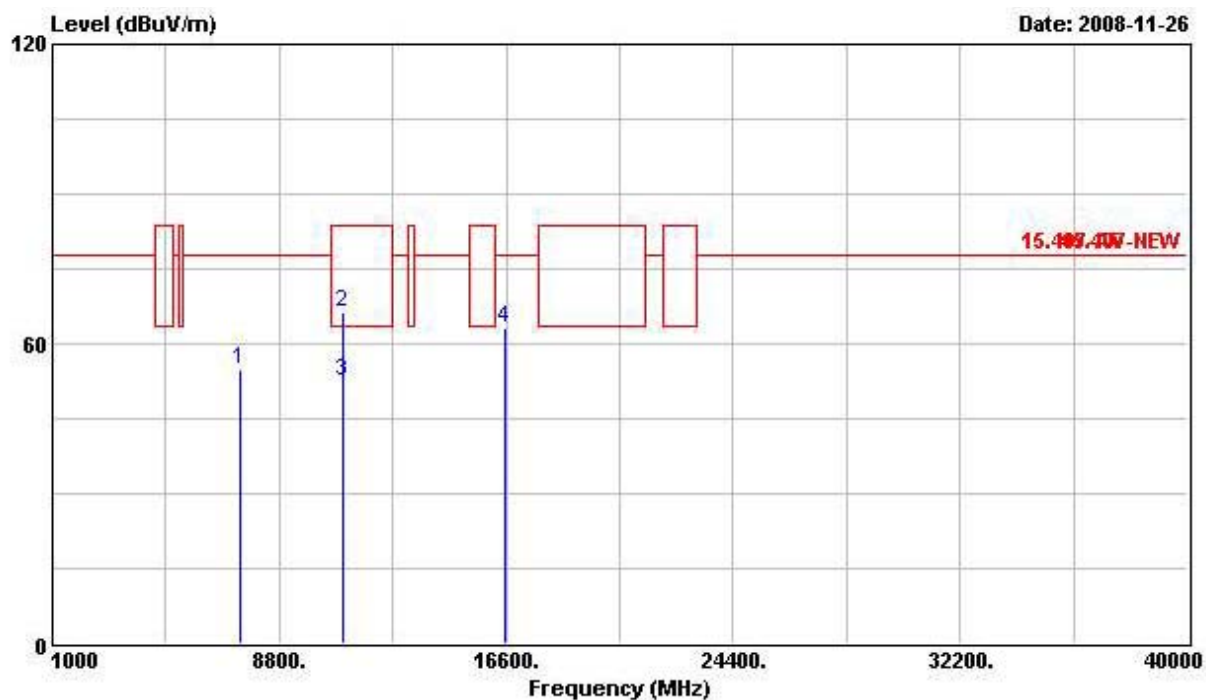
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7496.000	54.80	-23.04	77.84	45.96	37.30	4.52	32.98	PEAK
2	10627.800	63.52	-20.02	83.54	48.76	39.23	6.34	30.81	Peak
3	10627.800	48.87	-14.67	63.54	34.11	39.23	6.34	30.81	AVERAGE
4	15930.000	48.90	-14.64	63.54	33.27	37.67	7.45	29.49	Average
5	15930.000	62.04	-21.50	83.54	46.41	37.67	7.45	29.49	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 102 (40MHz)

Horizontal

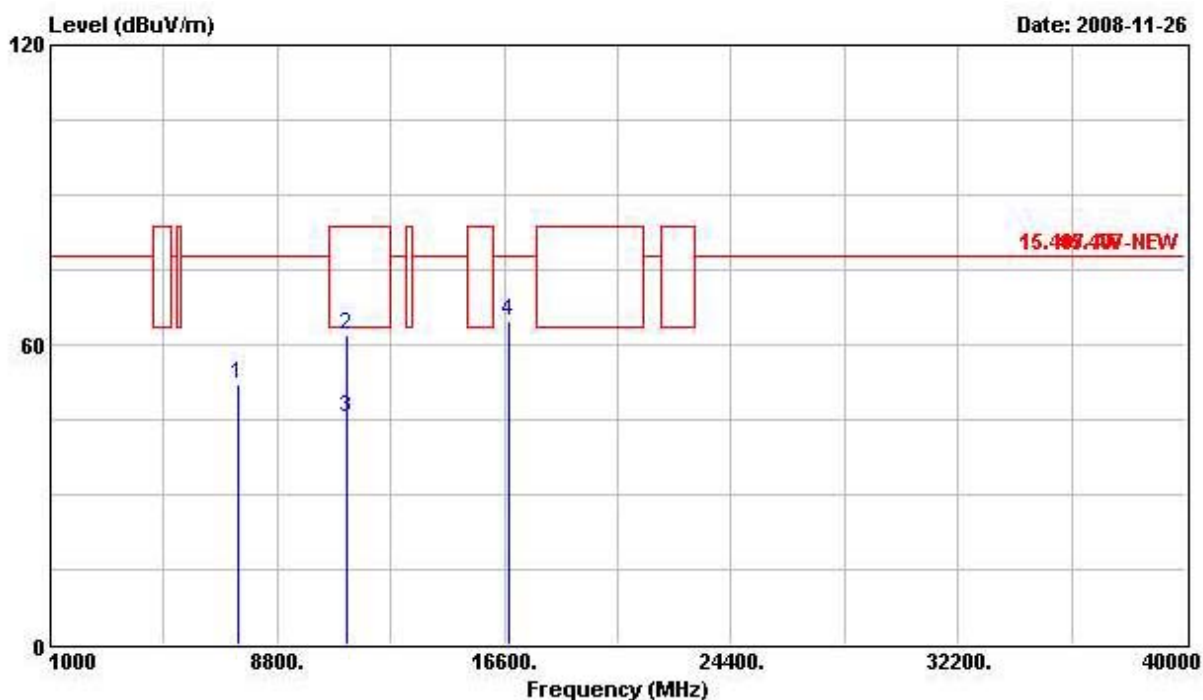
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7600.000	53.30	-24.54	77.84	44.29	37.40	4.55	32.95	PEAK
2	11020.000	48.71	-14.83	63.54	33.06	39.02	6.57	29.94	AVERAGE
3	11020.000	63.01	-20.53	83.54	47.36	39.02	6.57	29.94	Peak
4	16532.000	62.69	-15.15	77.84	45.40	39.16	7.52	29.39	PEAK

Vertical



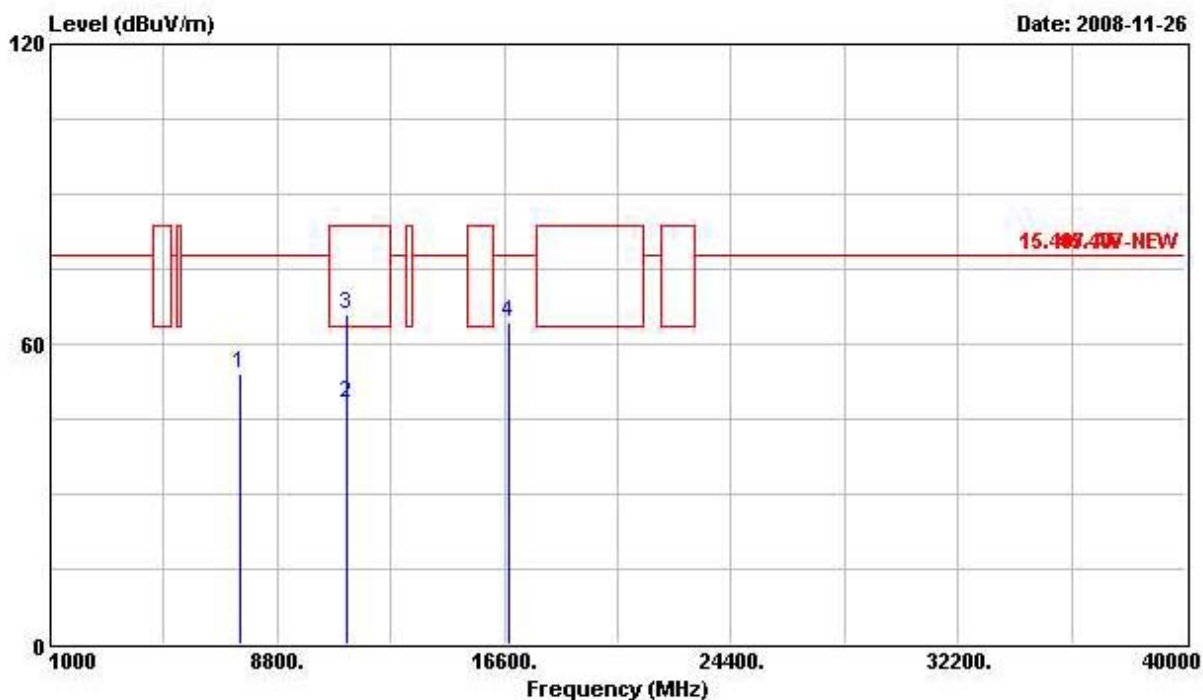
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB	dB	
1	7468.000	54.84	-23.00	77.84	46.19	37.22	4.40	32.97 PEAK
2	11019.900	66.14	-17.40	83.54	50.49	39.02	6.57	29.94 Peak
3	11019.900	52.35	-11.19	63.54	36.70	39.02	6.57	29.94 AVERAGE
4	16530.000	63.07	-14.77	77.84	45.78	39.16	7.52	29.39 PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 118 (40MHz)

Horizontal

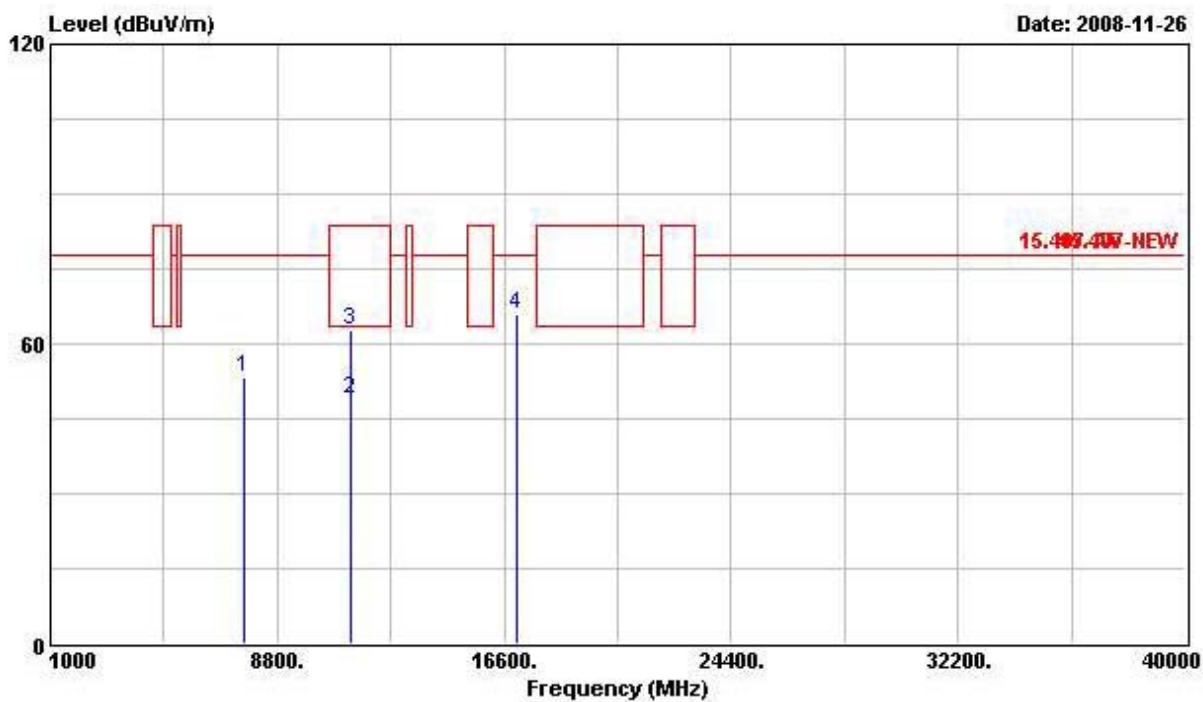
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7464.000	52.27	-25.57	77.84	43.60	37.22	4.40	32.95	PEAK
2	11173.000	61.88	-21.66	83.54	46.74	39.23	6.64	30.73	Peak
3	11173.000	45.50	-18.04	63.54	30.36	39.23	6.64	30.73	AVERAGE
4	16768.000	64.75	-13.09	77.84	45.78	40.27	7.65	28.95	PEAK

Vertical

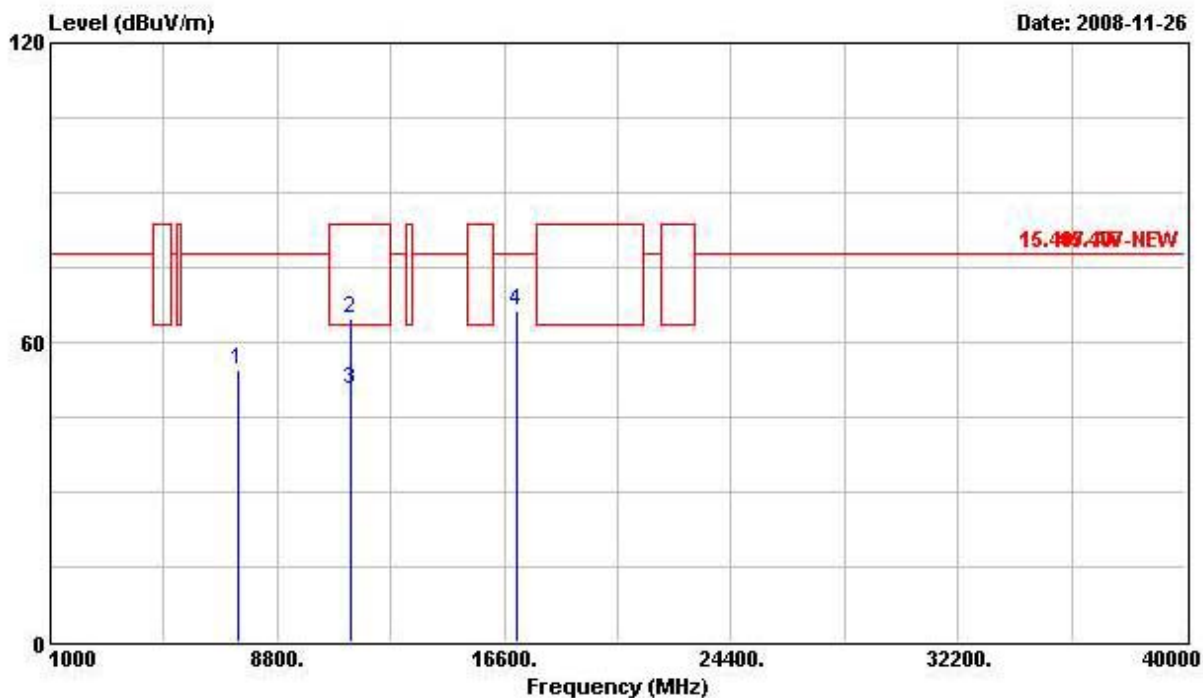


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7496.000	54.00	-23.84	77.84	45.16	37.30	4.52	32.98	PEAK
2	11175.100	48.25	-15.29	63.54	33.09	39.26	6.64	30.73	AVERAGE
3	11175.100	65.75	-17.79	83.54	50.59	39.26	6.64	30.73	Peak
4	16770.000	64.53	-13.31	77.84	45.57	40.27	7.65	28.95	PEAK

Test date	Nov. 26, 2008	Test Site No.	03CH03-HY
Temperature	27.4°C	Humidity	41%
Test Engineer	Duncan	Configuration	802.11n CH 134 (40MHz)

Horizontal

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	7644.000	53.15	-24.69	77.84	44.06	37.45	4.57	32.93 PEAK
2	11340.200	48.81	-14.73	63.54	34.16	39.47	6.71	31.52 AVERAGE
3	11340.200	62.75	-20.79	83.54	48.10	39.47	6.71	31.52 Peak
4	17014.000	65.99	-11.85	77.84	45.29	41.44	7.78	28.52 PEAK

Vertical

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	7484.000	54.65	-23.19	77.84	45.96	37.26	4.40	32.97 PEAK
2	11340.100	64.55	-18.99	83.54	49.90	39.47	6.71	31.52 Peak
3	11340.100	50.39	-13.15	63.54	35.74	39.47	6.71	31.52 AVERAGE
4	17010.000	66.15	-11.69	77.84	45.45	41.44	7.78	28.52 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 form 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].

3.2 Antenna Requirements

3.2.1 Limit

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

3.2.2 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
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 14, 2008	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2008	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9 kHz - 30 GHz	Jan. 10, 2008	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz - 1 GHz	Jul. 12, 2008	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 04, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.18, 2008	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 03, 2008	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 03, 2008	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 - 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2007*	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul 28, 2008*	Radiation (03CH03-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	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)

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

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, 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 : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, 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 728, 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. : L1190-070110

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, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix Accreditation Program for Designated Testing Laboratory
Specific Accreditation Program	: for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

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