



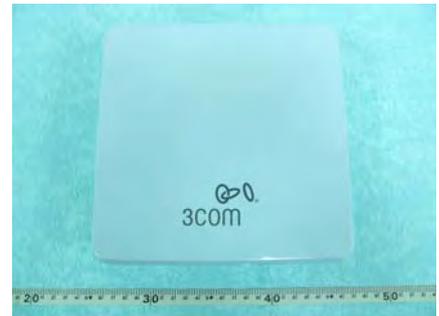
SPORTON International Inc.

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FCC RADIO TEST REPORT

Applicant's company	3Com Corporation
Applicant Address	350 Campus Drive, Marlborough , MA 01752-3064. U.S.A.
FCC ID	O9C-WL575
Manufacturer's company	Accton Technology Corporation
Manufacturer Address	No. 1 Creation Rd., III, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.

Product Name	3Com Outdoor 11a Building to Building Bridge and 11bg Access Point
Brand Name	3Com
Model Name	WL-575
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350MHz
Receive Date	Apr. 27, 2006
Test Date	Jun 8, 2006
Submission Type	Original Equipment



Statement

Test result included is only for the 802.11a (5150 ~ 5350MHz) of the product.

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

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The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** 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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1. CERTIFICATE OF COMPLIANCE

Product Name : 3Com Outdoor 11a Building to Building Bridge and 11bg Access Point
Brand Name : 3Com
Model Name : WL-575
Applicant : 3Com Corporation
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 Apr. 27, 2006 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.

Mandy Liang 9.6.2006
Prepared By:

Mandy Liang / Specialist

Steven Lu 9.6.2006
Tested By:

Steven Lu / Engineer

Wayne Hsu 9.6.06
Reviewed By:

Wayne Hsu

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	4.86 dB
4.2	15.407(a)	26dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.11 dB
4.4	15.407(a)	Power Spectral Density	Complies	3.90 dB
4.5	15.407(a)	Peak Excursion	Complies	7.42 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.08 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.51 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	± 2.26 dB	Confidence levels of 95%
Maximum Conducted Output Power	± 0.71 dB	Confidence levels of 95%
Power Spectral Density	± 0.71 dB	Confidence levels of 95%
Peak Excursion	± 0.71 dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	$\pm 6.25 \times 10^{-7}$	Confidence levels of 95%
Radiated Emissions/ Band Edge Emissions	± 3.72 dB	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN
Radio Type	Intentional Transceiver
Power Type	POE
Interface Type	POE / Console / Antenna
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54/108)
Frequency Range	5150 ~ 5350MHz
Channel Number	11a: 11
Channel Band Width (99%)	11a: 33.49 MHz ; 11a Turbo: 33.65 MHz
Conducted Output Power	Band 1: 14.89 dBm ; Band 2: 21.23dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

3.2. Accessories

Power	Brand	Model	Rating
POE	3Com	PW130	100-250VAC, 48VDC

3.3. Table for Filed Antenna

For 5GHz Band

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	3Com	3CWE591	Omni directional Antenna	N Type	8.00
2	3Com	3CWE596	Panel Antenna	N Type	20.00
3	3Com	3CWE598	Panel Antenna	N Type	10.00
4	3Com	Embedded antenna	Printed Antenna	MMCX	17.00

Note: The Ant. 2 is unsuitable to be used in Band 1 and 2.

3.4. Table for Carrier Frequencies

Frequency Allocation for 802.11a

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	Turbo 42	5210 MHz
	40	5200 MHz	Turbo 50	5250 MHz
	44	5220 MHz		
	48	5240 MHz		
5250~5350 MHz Band 2	52	5260 MHz	Turbo 58	5290 MHz
	56	5280 MHz		
	60	5300 MHz		
	64	5320 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	Normal Link	54Mbps	64	4
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Max. Conducted Output Power Power Spectral Density Peak Excursion	Band 1~2/BPSK	6Mbps	36/52/64	1/3/4
	Band 1~2 Turbo/BPSK	12Mbps	42/50/58	1/3/4
Radiated Emission Below 1GHz	BPSK	6Mbps	64	1/3/4
Radiated Emission Above 1GHz	Band 1~2/BPSK	6Mbps	36/52/64	1/3/4
	Band 1~2 Turbo/BPSK	12Mbps	42/50/58	1/3/4
Band Edge Emission	Band 1~2/BPSK	6Mbps	36/64	1/3/4
	Band 1~2 Turbo/BPSK	12Mbps	42/58	1/3/4
Frequency Stability	Un-modulation	-	52	NA

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 Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	PP01L	DoC
Printer	EPSON	LQ-300	DoC

3.8. Table for Parameters of Test Software Setting

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

Power Parameters of IEEE 802.11a / Ant. 1

Test Software Version	ART		
Frequency	5180 MHz	5260 MHz	5320 MHz
IEEE 802.11a	13	19	15
Frequency	5210 MHz	5250 MHz	5290 MHz
IEEE 802.11a Turbo	13	13	16

Power Parameters of IEEE 802.11a / Ant. 3

Test Software Version	ART		
Frequency	5180 MHz	5260 MHz	5320 MHz
IEEE 802.11a	11	17	12.5
Frequency	5210 MHz	5250 MHz	5290 MHz
IEEE 802.11a Turbo	11	11	12

Power Parameters of IEEE 802.11a / Ant. 4

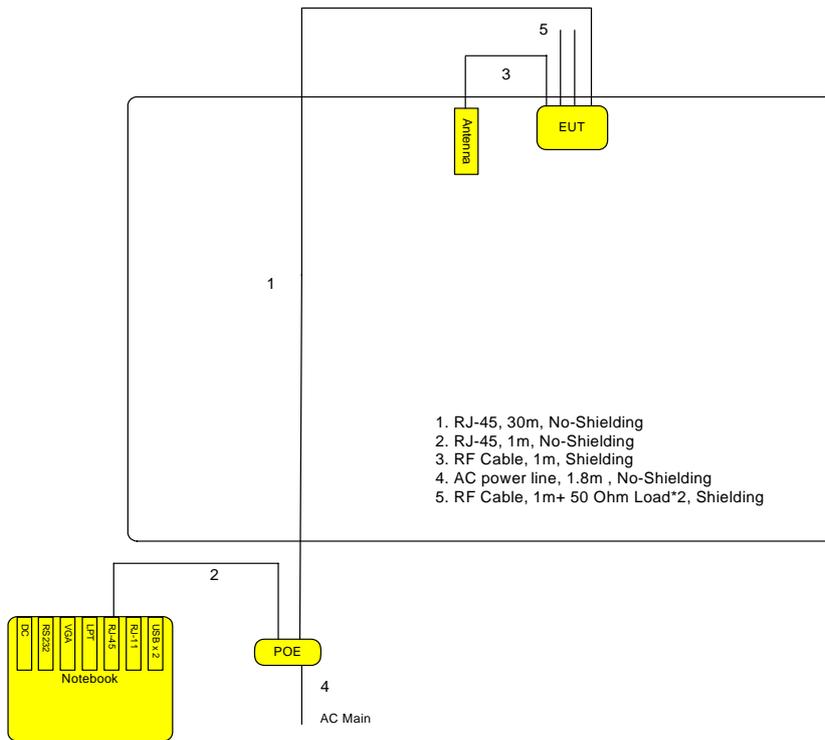
Test Software Version	ART		
Frequency	5180 MHz	5260 MHz	5320 MHz
IEEE 802.11a	4.5	6	6
Frequency	5210 MHz	5250 MHz	5290 MHz
IEEE 802.11a Turbo	4.5	7	7

3.9. Test Configurations

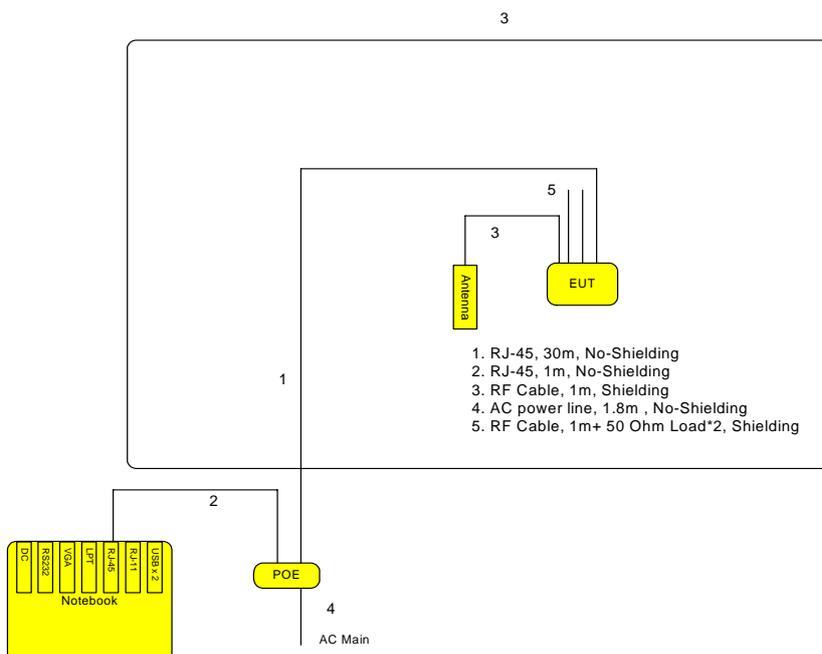
3.9.1. Radiation Emissions Test Configuration

For Ant. 1/3

Test Configuration: 9KHz~1GHz

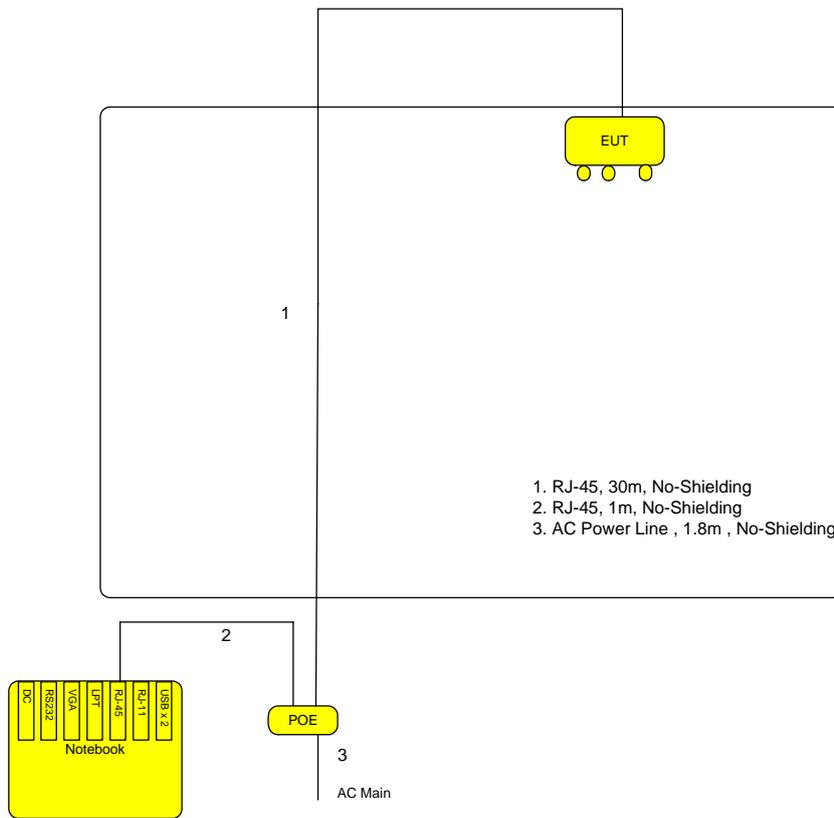


Test Configuration: above 1GHz

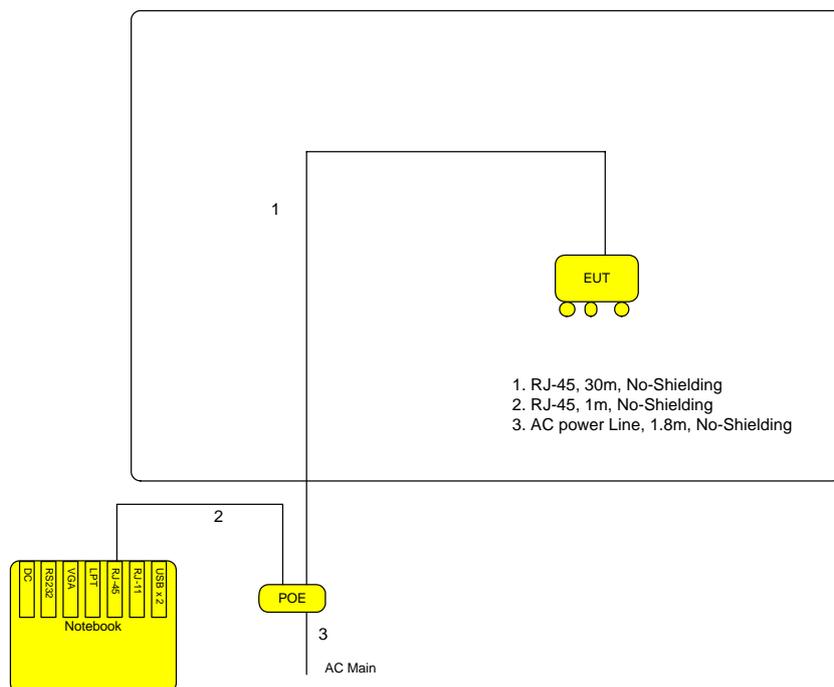


For Ant. 4

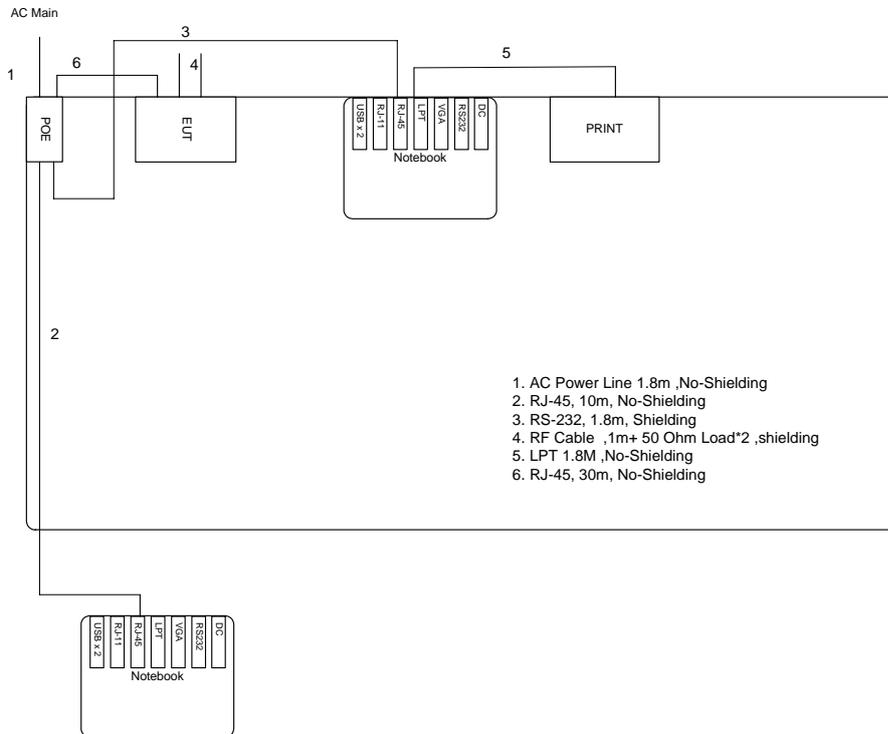
Test Configuration: 9KHz~1GHz



Test Configuration: above 1GHz



3.9.2. AC Power Line Conduction Emissions Test Configuration



4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

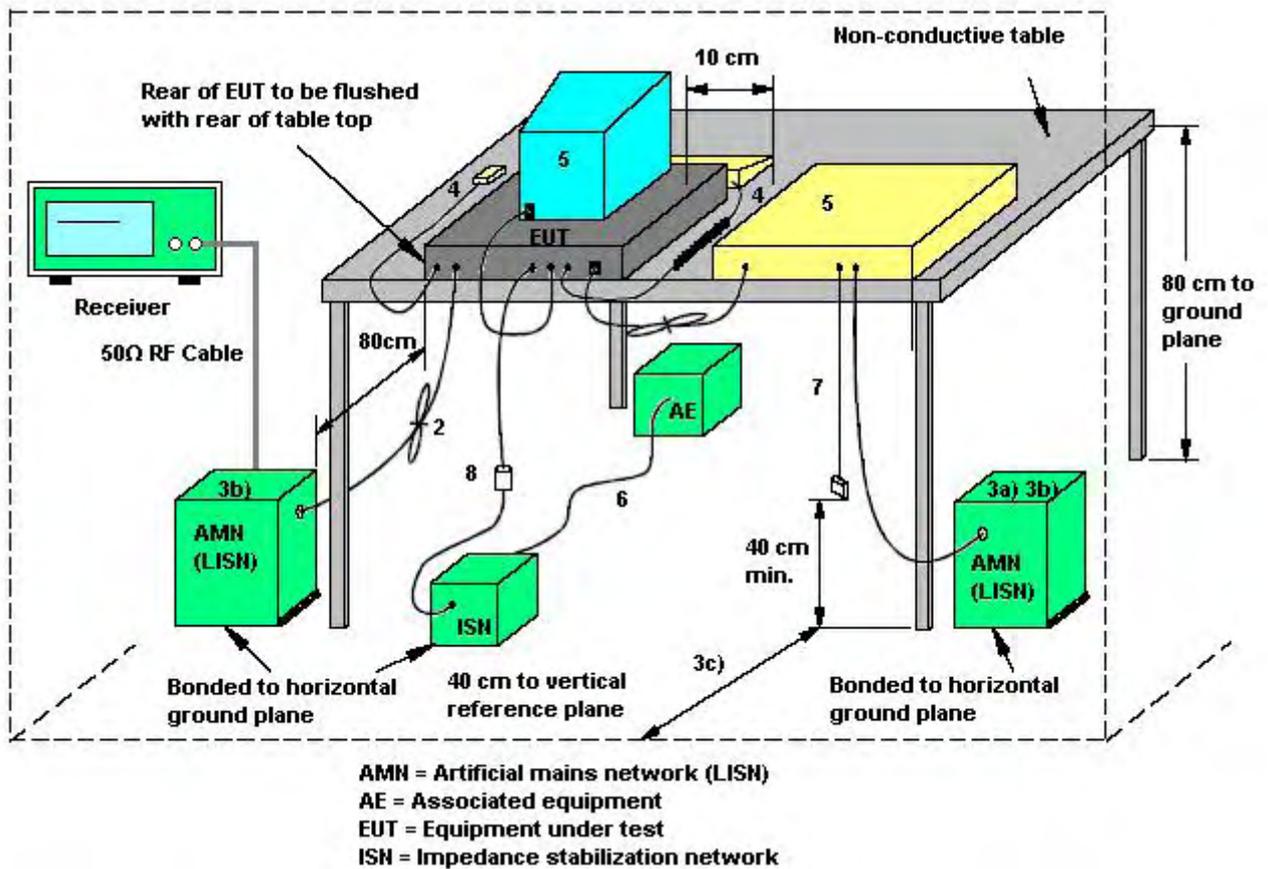
Please refer to section 5 in this report. The following table is the setting of the receiver.

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



1. If cables, which hang closer than 40 cm to the horizontal metal groundplane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
2. Excess mains cord shall be bundled in the centre or shortened to appropriate length.
3. EUT is connected to one artificial mains network (AMN). All AMNs and ISNs may alternatively be connected to a vertical reference plane or metal wall.
4. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
5. AMN and ISN are 80 cm from the EUT and at least 80 cm from other units and other metal planes.
6. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
7. Cables of hand operated devices, such as keyboards, mice, etc. shall be placed as for normal usage.
8. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
9. I/O signal cable intended for external connection.
10. The end of the I/O signal cables which are not connected to an AE may be terminated, if required, using correct terminating impedance.
11. If used, the current probe shall be placed at 0,1 m from the ISN.

4.1.5. Test Deviation

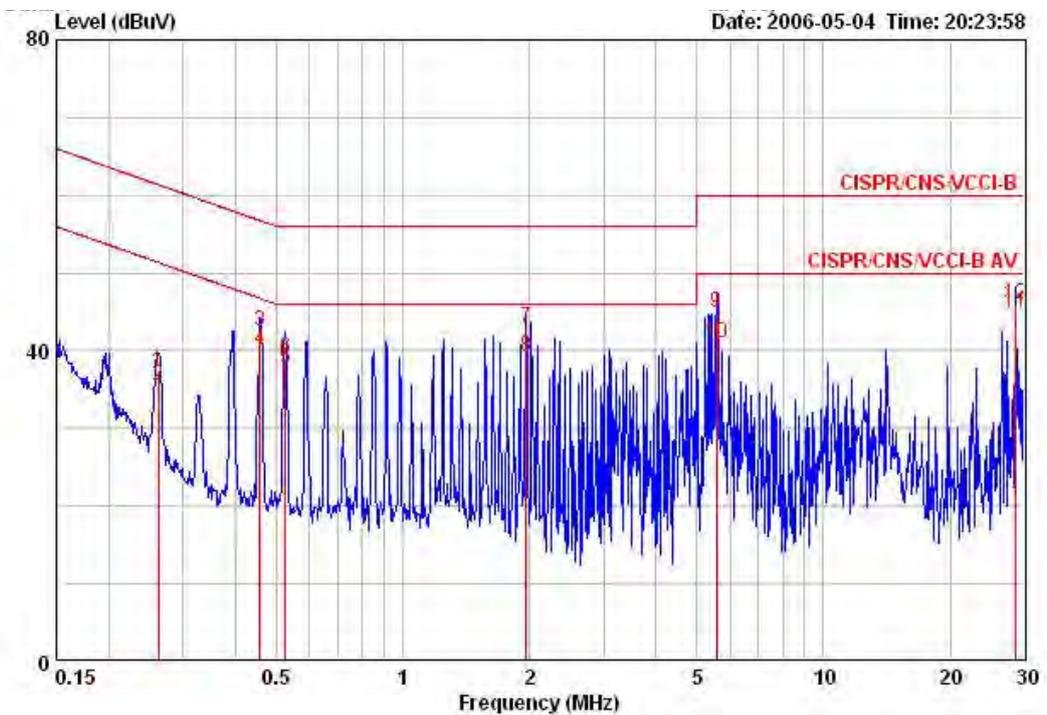
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

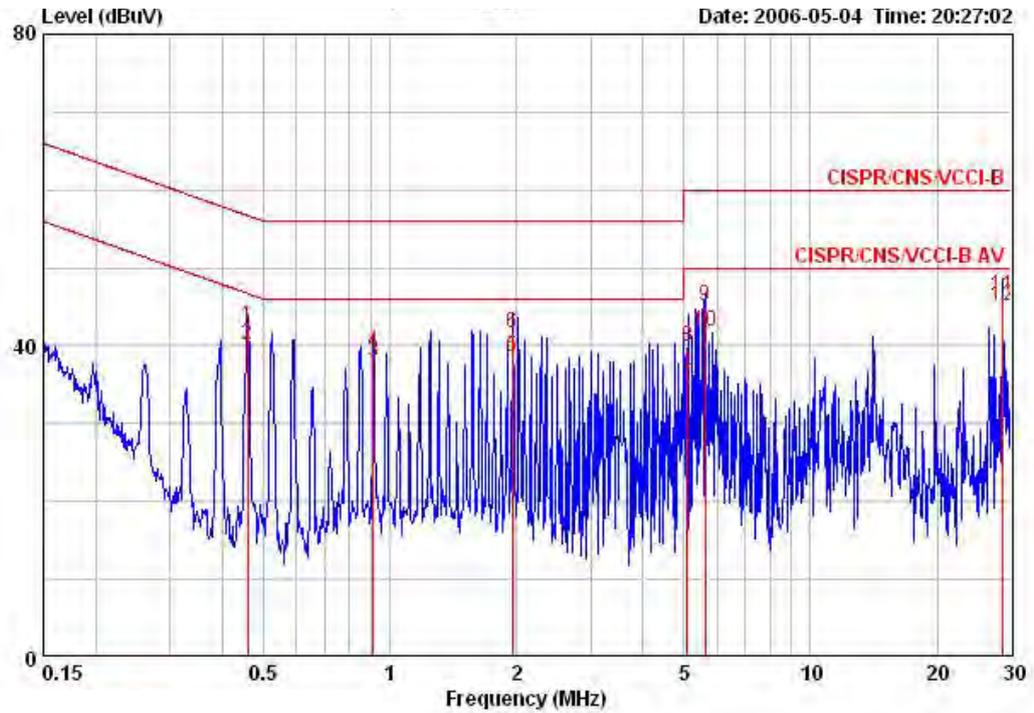
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Phase	Line
Configuration	Normal Link / Ant. 4		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	Remark
1	0.26164	37.37	-24.01	61.38	36.27	0.90	0.20	QP
2	0.26164	35.61	-15.77	51.38	34.51	0.90	0.20	AVERAGE
3	0.45728	42.59	-14.15	56.74	41.89	0.50	0.20	QP
4	0.45728	40.20	-6.54	46.74	39.50	0.50	0.20	AVERAGE
5	0.52655	37.62	-8.38	46.00	37.02	0.40	0.20	AVERAGE
6	0.52655	39.06	-16.94	56.00	38.46	0.40	0.20	QP
7	1.962	42.92	-13.08	56.00	42.43	0.30	0.19	QP
8	1.962	39.21	-6.79	46.00	38.72	0.30	0.19	AVERAGE
9	5.560	44.98	-15.02	60.00	44.38	0.30	0.30	QP
10	5.560	40.88	-9.12	50.00	40.28	0.30	0.30	AVERAGE
11	28.682	44.84	-5.16	50.00	43.89	0.35	0.60	AVERAGE
12	28.682	45.97	-14.03	60.00	45.02	0.35	0.60	QP

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Phase	Neutral
Configuration	Normal Link / Ant. 4		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.45878	42.57	-14.14	56.71	41.97	0.40	0.20	QP
2	0.45878	40.15	-6.56	46.71	39.55	0.40	0.20	AVERAGE
3	0.91357	37.97	-8.03	46.00	37.47	0.30	0.20	AVERAGE
4	0.91357	39.23	-16.77	56.00	38.73	0.30	0.20	QP
5	1.959	38.59	-7.41	46.00	38.19	0.21	0.19	AVERAGE
6	1.959	41.58	-14.42	56.00	41.18	0.21	0.19	QP
7	5.101	35.09	-14.91	50.00	34.49	0.30	0.30	AVERAGE
8	5.101	39.80	-20.20	60.00	39.20	0.30	0.30	QP
9	5.623	45.20	-14.80	60.00	44.60	0.30	0.30	QP
10	5.623	41.85	-8.15	50.00	41.25	0.30	0.30	AVERAGE
11	28.682	46.33	-13.67	60.00	45.38	0.35	0.60	QP
12	28.682	45.14	-4.86	50.00	44.19	0.35	0.60	AVERAGE

Note:

$$\text{Level} = \text{Read Level} + \text{LISN Factor} + \text{Cable Loss}$$

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

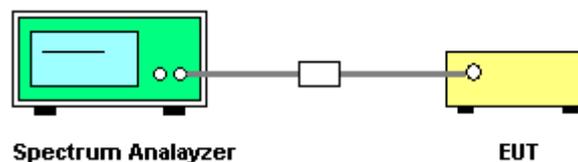
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

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 analyser 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.

4.2.4. 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	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 1

Configuration IEEE 802.11a

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.61	17.43
52	5260 MHz	30.89	17.82
64	5320 MHz	24.87	17.17

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	44.55	33.49
50	5250 MHz	44.55	33.49
58	5290 MHz	48.39	33.65

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 3

Configuration IEEE 802.11a

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.38	17.50
52	5260 MHz	24.90	17.40
64	5320 MHz	24.90	17.30

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	44.23	33.33
50	5250 MHz	45.51	33.49
58	5290 MHz	45.83	33.49

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 4

Configuration IEEE 802.11a

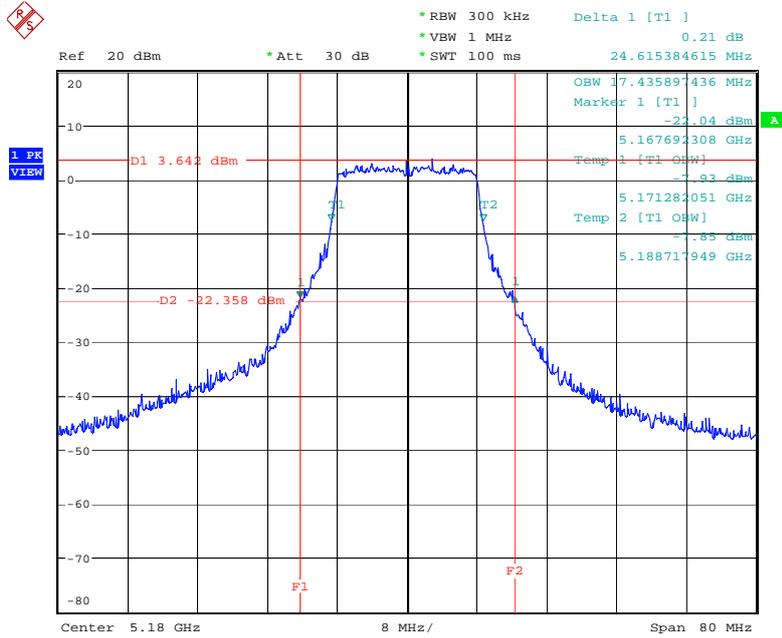
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.61	17.30
52	5260 MHz	24.71	17.30
64	5320 MHz	24.61	17.50

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	46.15	33.33
50	5250 MHz	45.67	33.33
58	5290 MHz	45.83	33.65

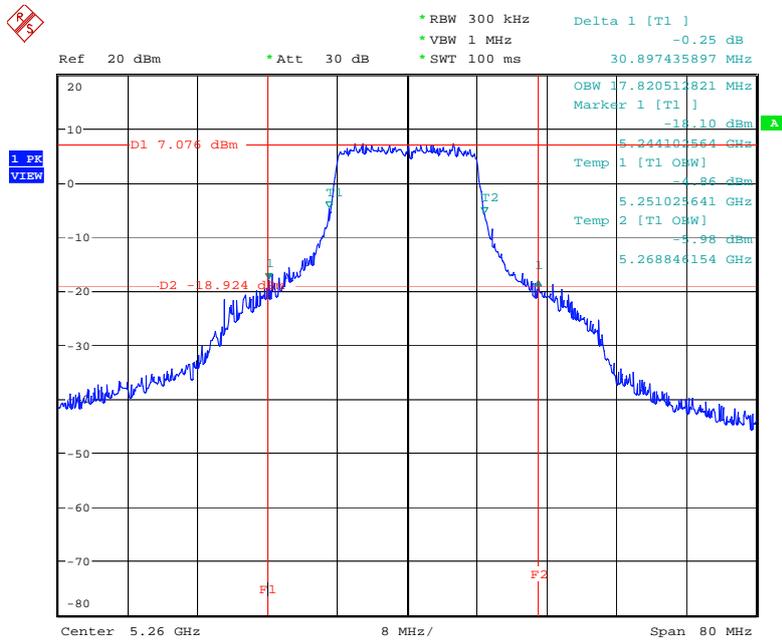
For Ant. 1

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5180 MHz



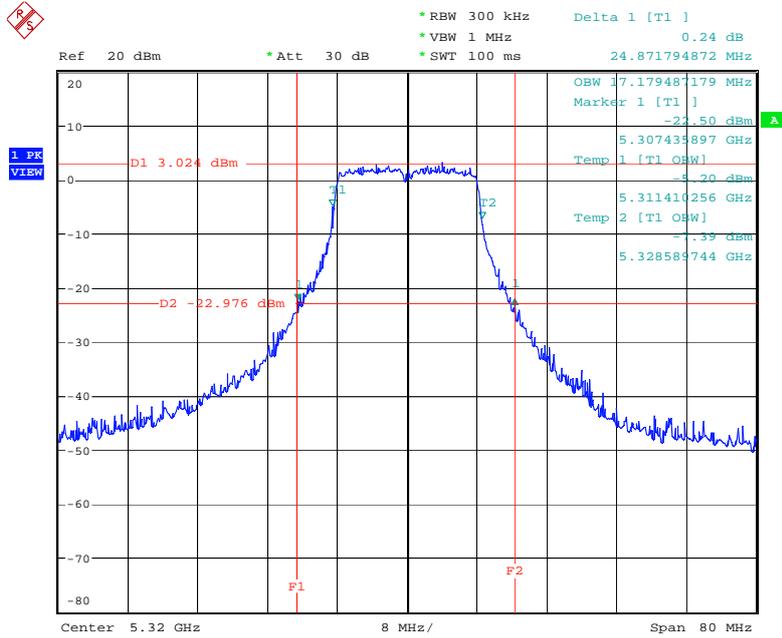
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26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5260 MHz



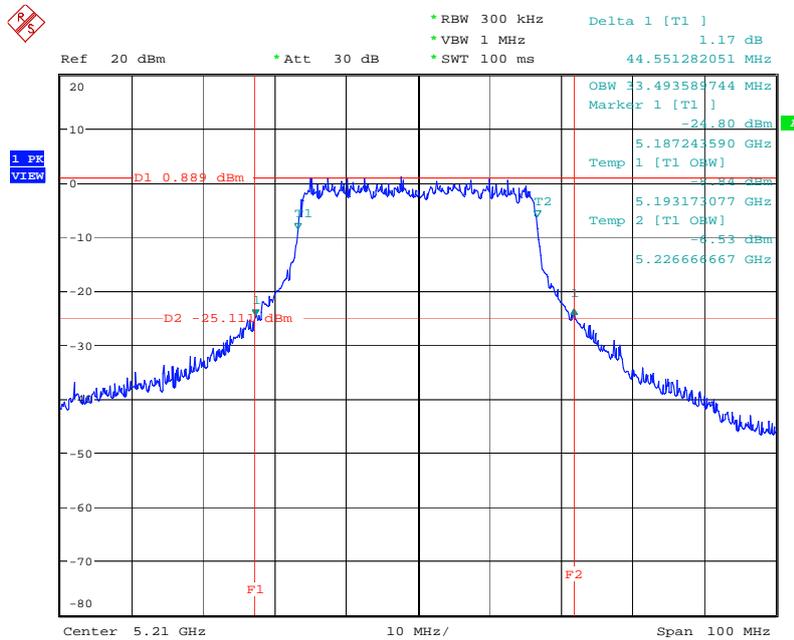
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26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5320 MHz



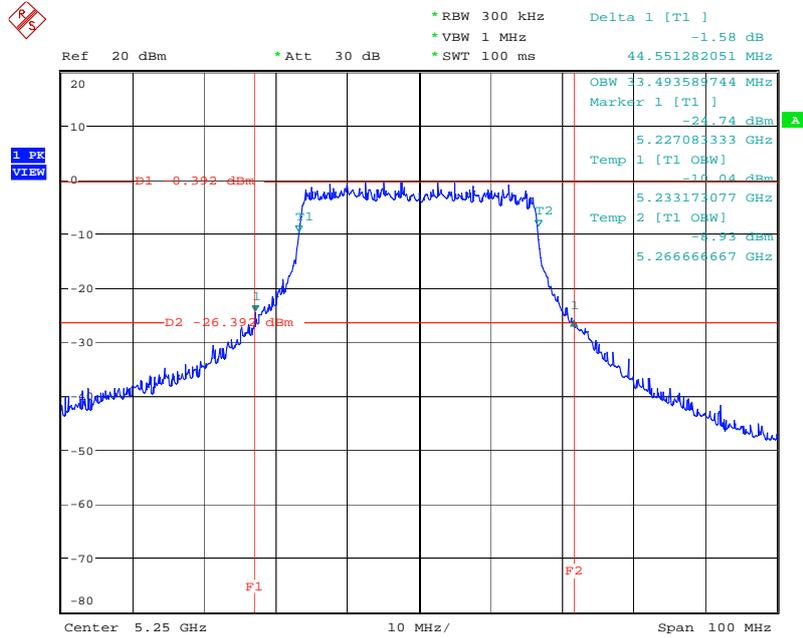
Date: 11.MAY.2006 20:41:07

26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



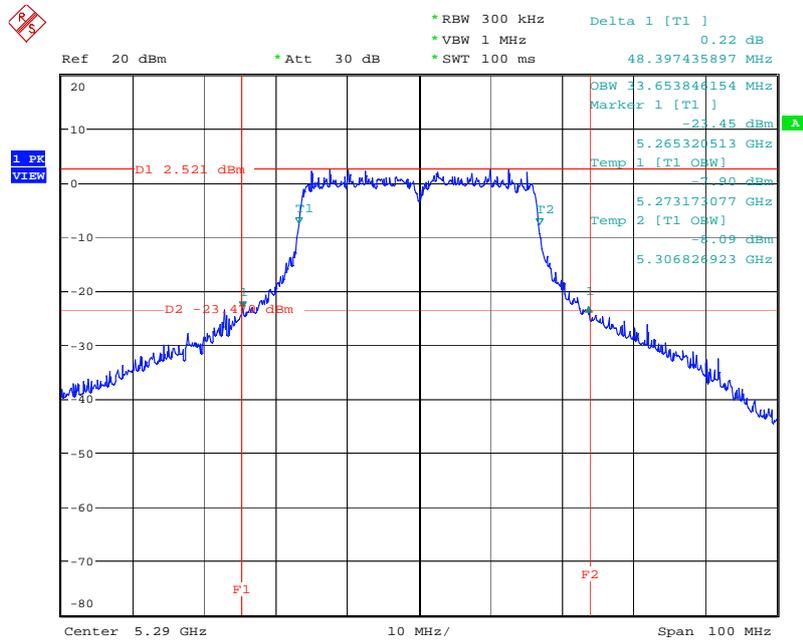
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26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



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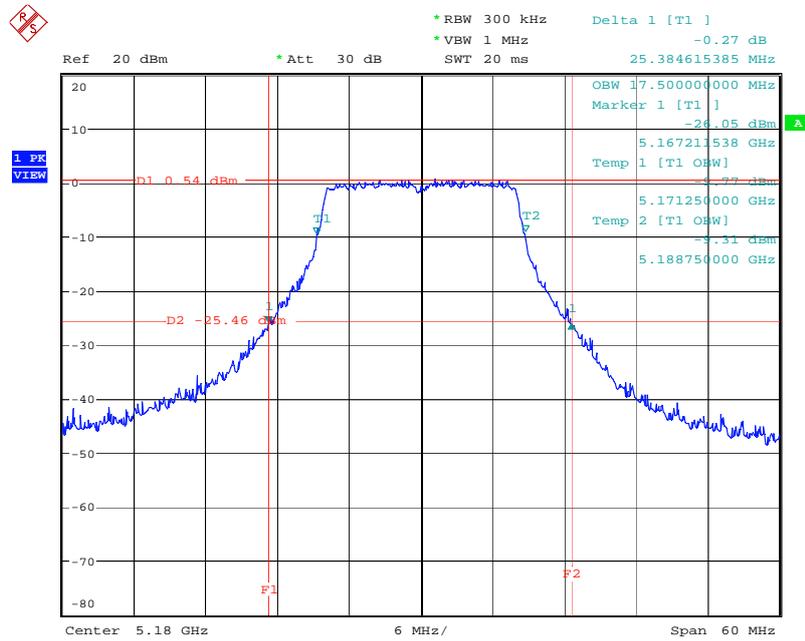
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



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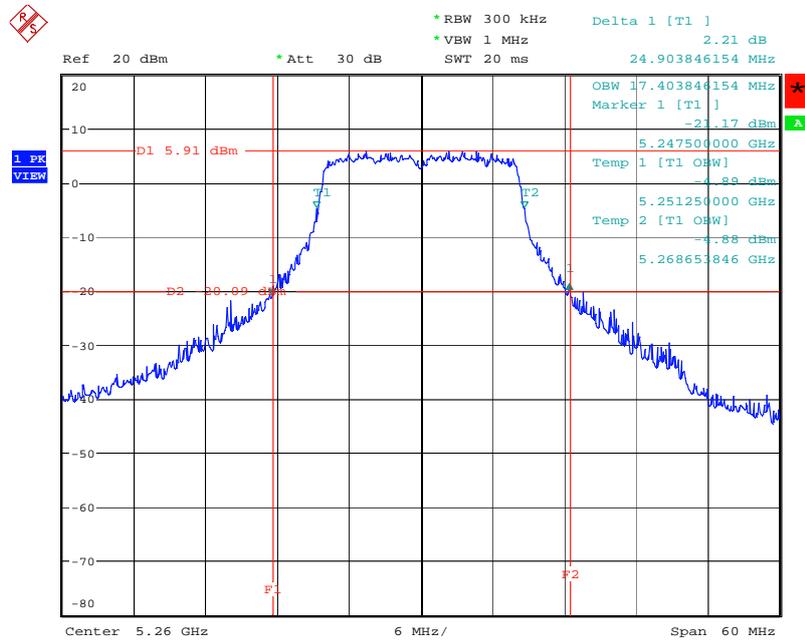
For Ant. 3

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5180 MHz



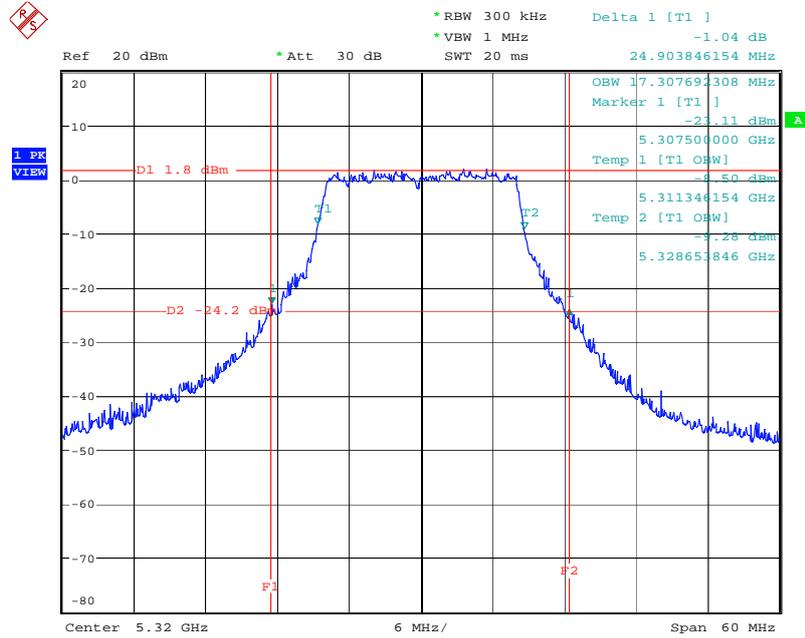
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26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5260 MHz



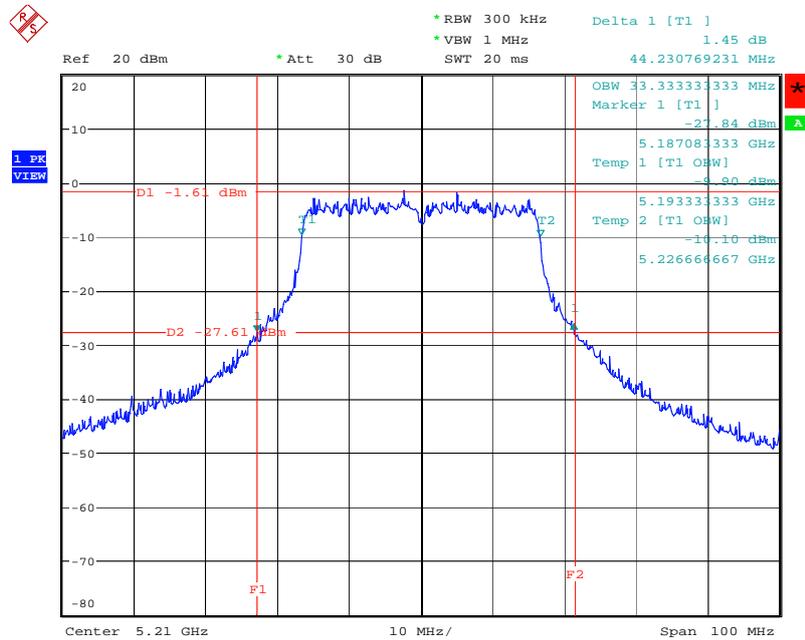
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26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5320 MHz



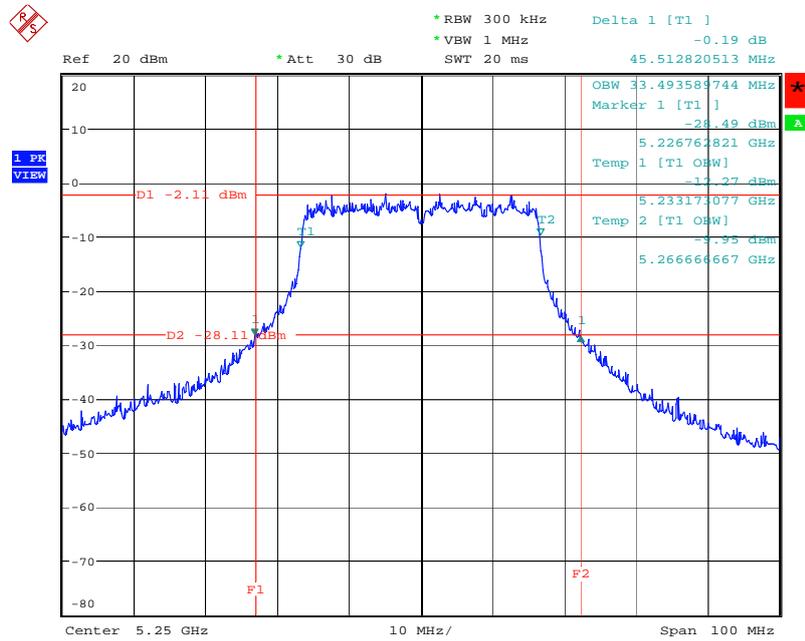
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26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



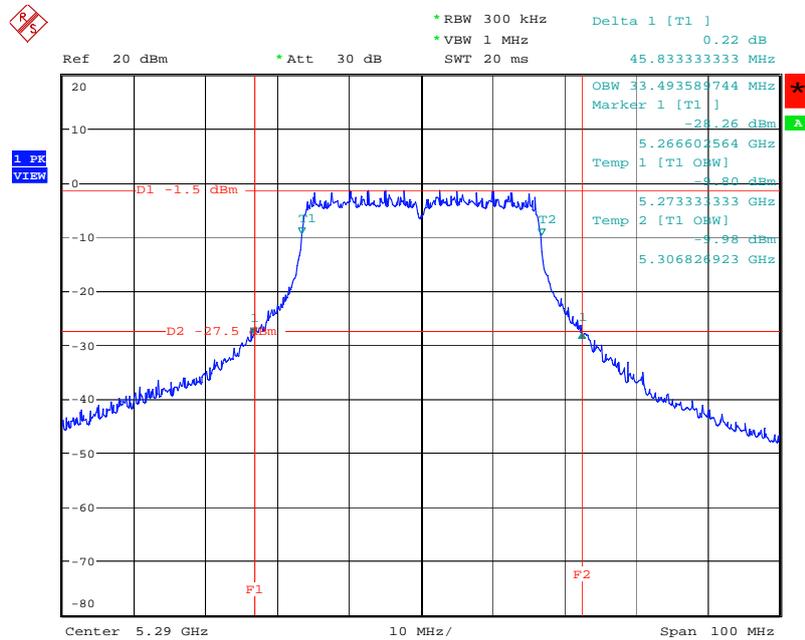
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26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 1.JUN.2006 19:31:25

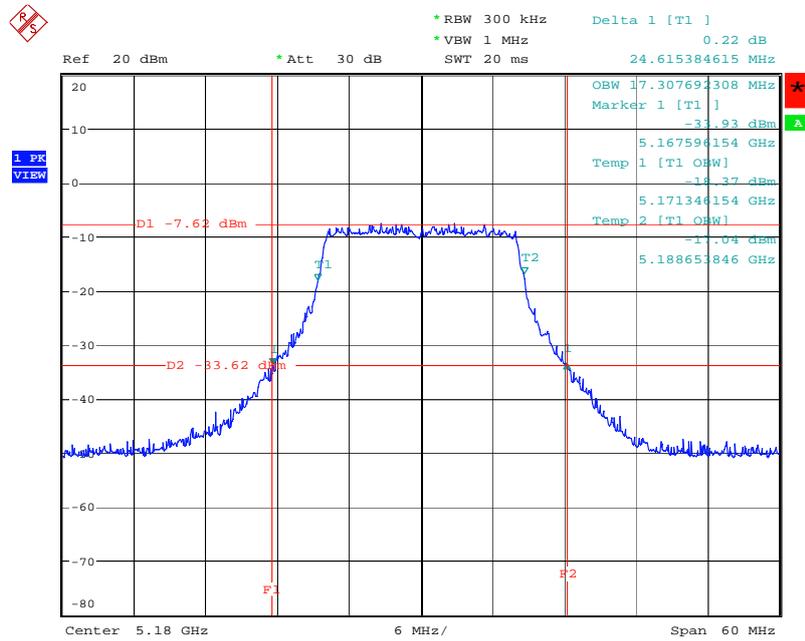
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 19:30:31

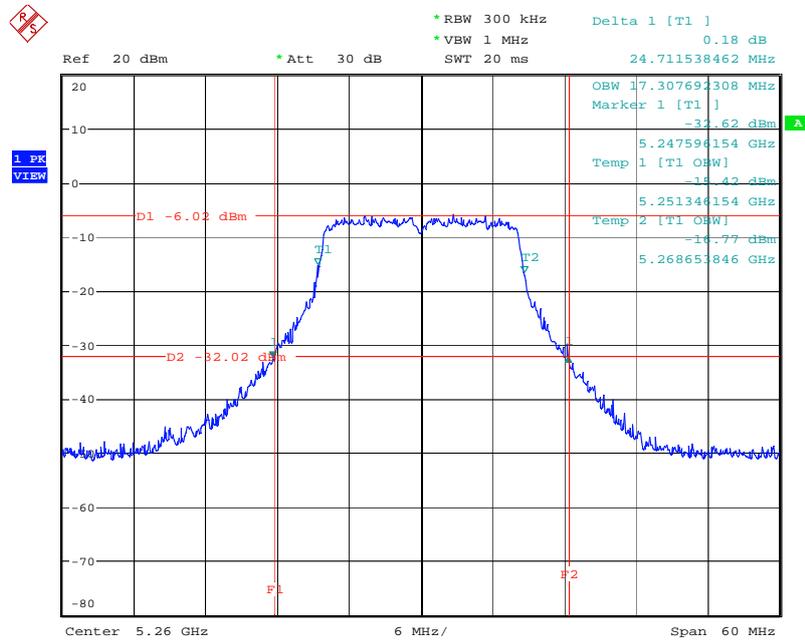
For Ant. 4

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5180 MHz



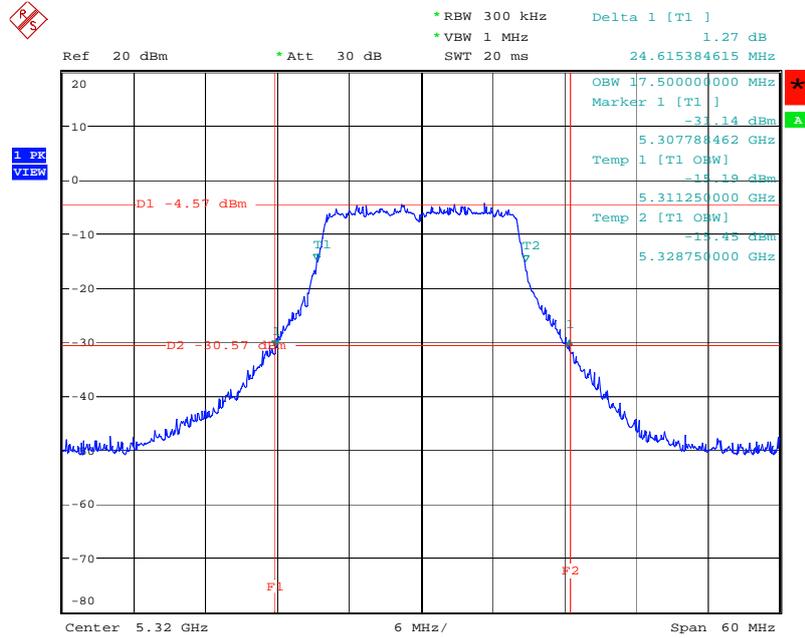
Date: 1.JUN.2006 20:10:44

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5260 MHz



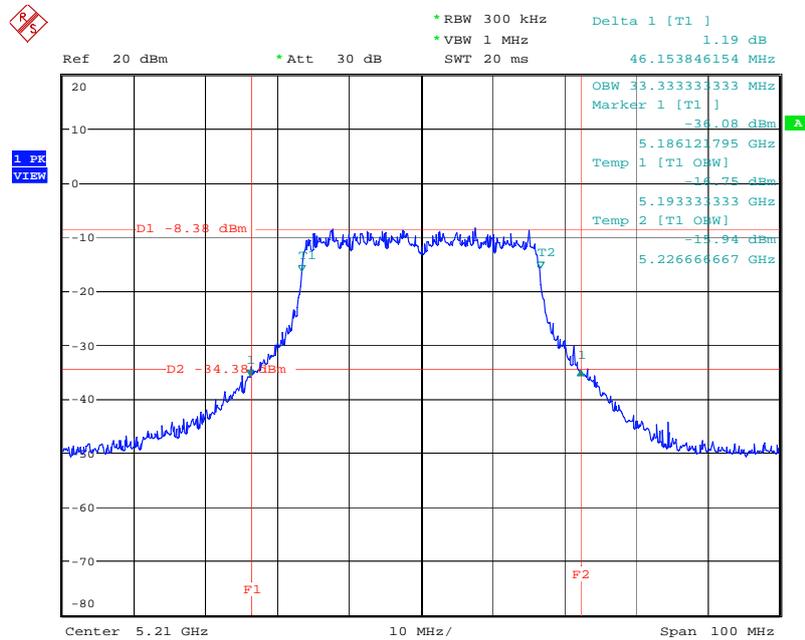
Date: 1.JUN.2006 20:09:30

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5320 MHz



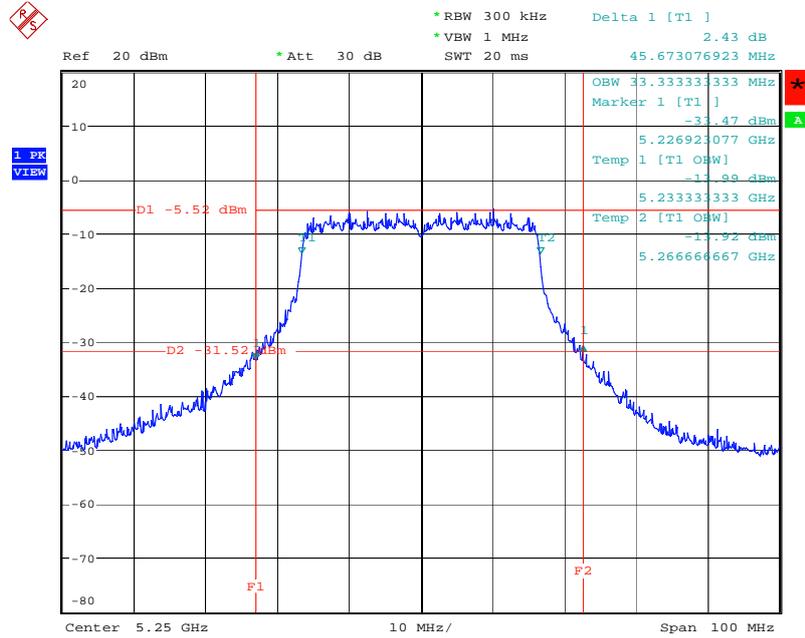
Date: 1.JUN.2006 20:11:48

26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



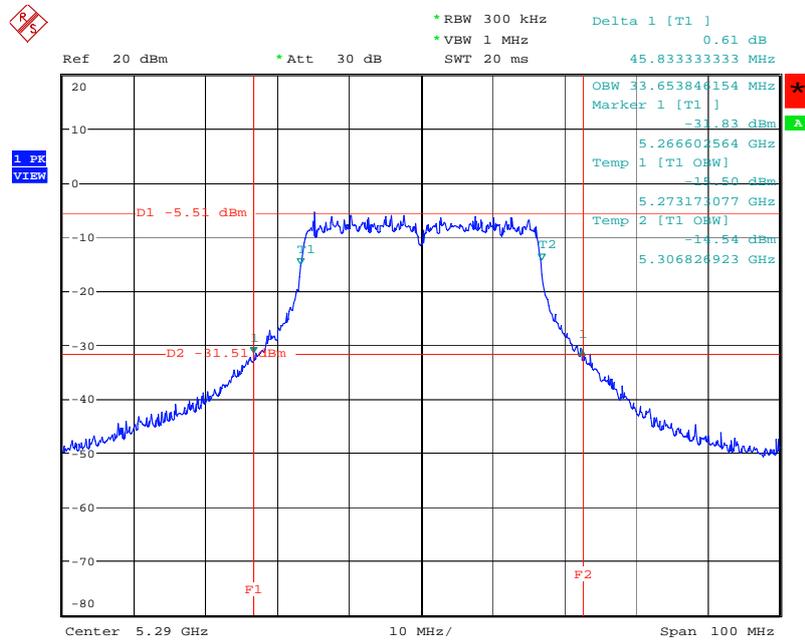
Date: 1.JUN.2006 20:25:20

26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 1.JUN.2006 20:26:17

26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 20:27:15

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 from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the and 5.25-5.35 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3.2. Measuring Instruments and Setting

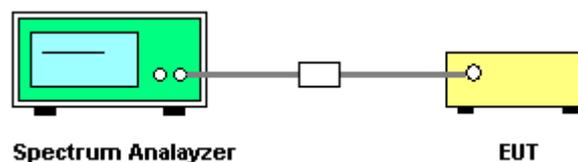
Please refer to section 5 in this report. The following table is the setting of the spectrum.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	300 kHz
Detector	Sample
Trace	Max Hold
Sweep Time	60s

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with method #3 of FCC Public Notice DA-02-2138.

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	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 1

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	14.87	15.00	Complies
52	5260 MHz	21.23	22.00	Complies
64	5320 MHz	17.95	22.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	14.89	15.00	Complies
50	5250 MHz	14.85	15.00	Complies
58	5290 MHz	18.59	22.00	Complies

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 3

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	12.16	13.00	Complies
52	5260 MHz	19.14	20.00	Complies
64	5320 MHz	14.26	20.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	12.25	13.00	Complies
50	5250 MHz	12.25	13.00	Complies
58	5290 MHz	13.15	20.00	Complies

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 4

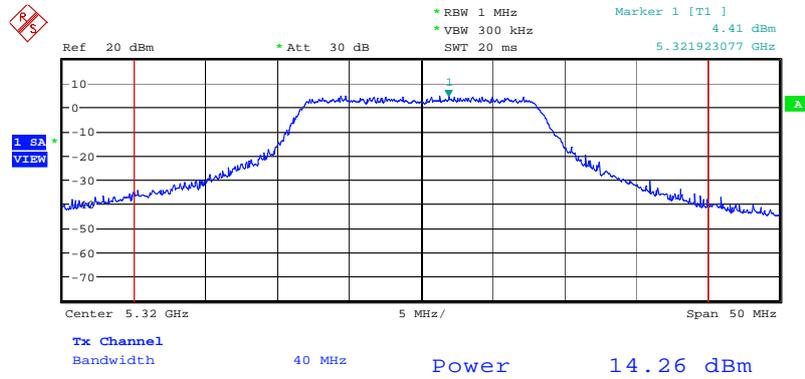
Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	5.23	6.00	Complies
52	5260 MHz	6.46	13.00	Complies
64	5320 MHz	6.54	13.00	Complies

Configuration IEEE 802.11a Turbo

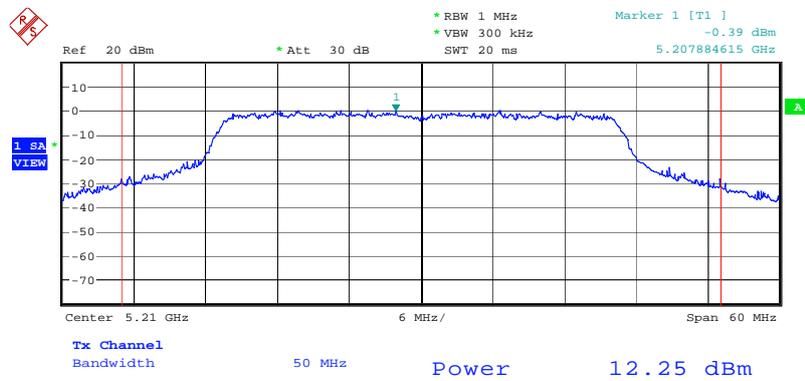
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	5.58	6.00	Complies
50	5250 MHz	5.43	6.00	Complies
58	5290 MHz	8.23	13.00	Complies

Channel Output Power Plot on Configuration IEEE 802.11 a / 5320 MHz



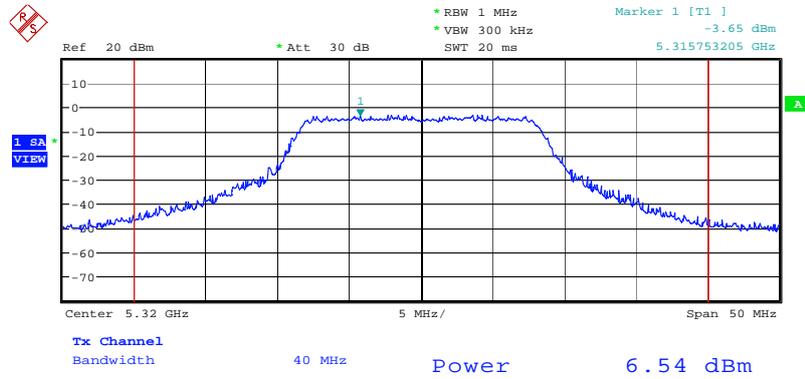
Date: 1.JUN.2006 19:02:17

Channel Output Power Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



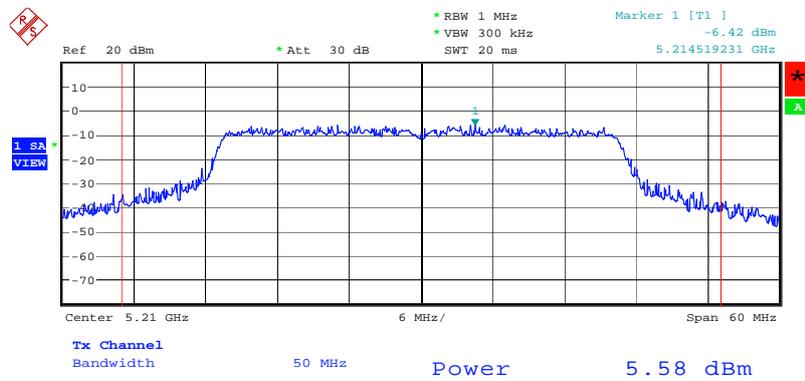
Date: 1.JUN.2006 19:37:20

Channel Output Power Plot on Configuration IEEE 802.11 a / 5320 MHz



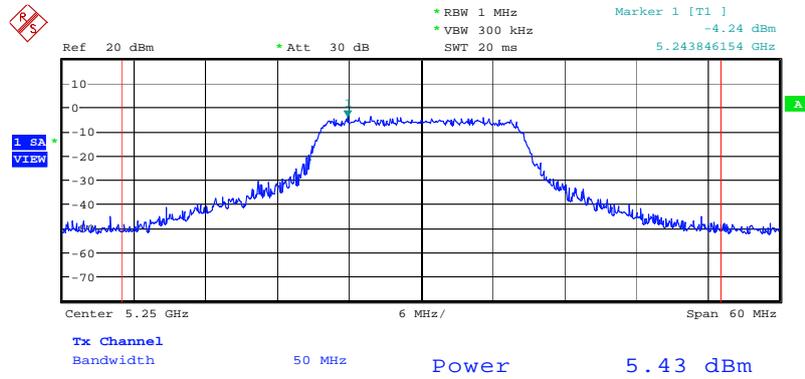
Date: 1.JUN.2006 20:17:18

Channel Output Power Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



Date: 1.JUN.2006 20:34:22

Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 8.JUN.2006 14:03:03

Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 20:32:52

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.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	2
5.25-5.35 GHz	9

4.4.2. Measuring Instruments and Setting

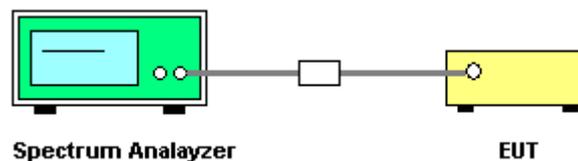
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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	Max Hold
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.

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	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 1

Configuration IEEE 802.11a

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-1.90	2.00	Complies
5260 MHz	2.12	9.00	Complies
5320 MHz	-2.20	9.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-4.40	2.00	Complies
5250 MHz	-5.23	2.00	Complies
5290 MHz	-5.19	9.00	Complies

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 3

Configuration IEEE 802.11a

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-3.92	0.00	Complies
5260 MHz	1.07	7.00	Complies
5320 MHz	-3.45	7.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-7.32	0.00	Complies
5250 MHz	-5.23	0.00	Complies
5290 MHz	-7.21	7.00	Complies

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 4

Configuration IEEE 802.11a

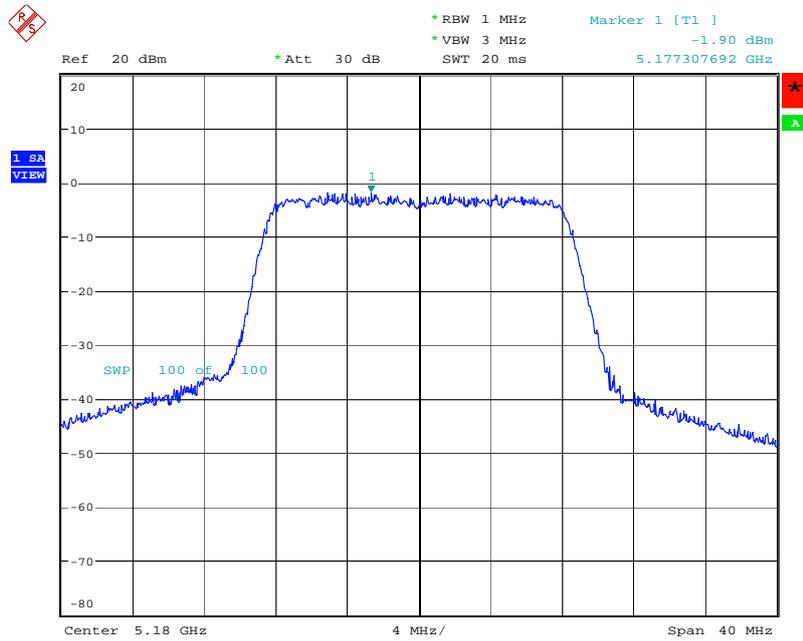
Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-12.24	-7.00	Complies
5260 MHz	-10.85	0.00	Complies
5320 MHz	-9.31	0.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-15.38	-7.00	Complies
5250 MHz	-11.87	-7.00	Complies
5290 MHz	-11.76	0.00	Complies

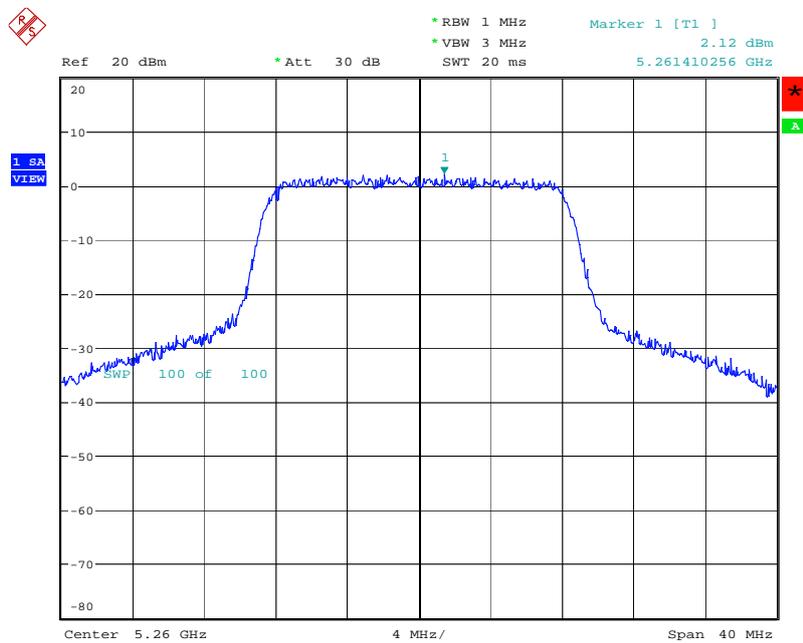
For Ant. 1

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



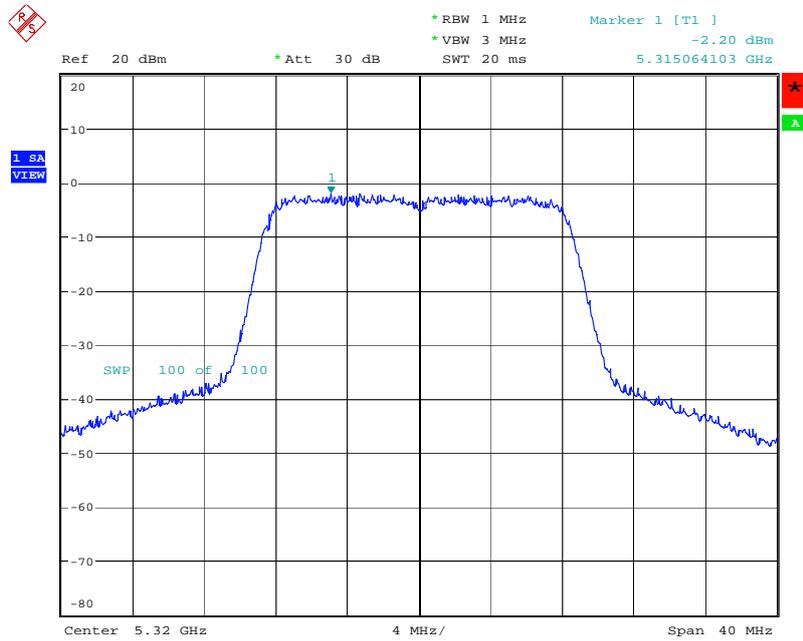
Date: 11.MAY.2006 21:12:46

Power Density Plot on Configuration IEEE 802.11a / 5260 MHz



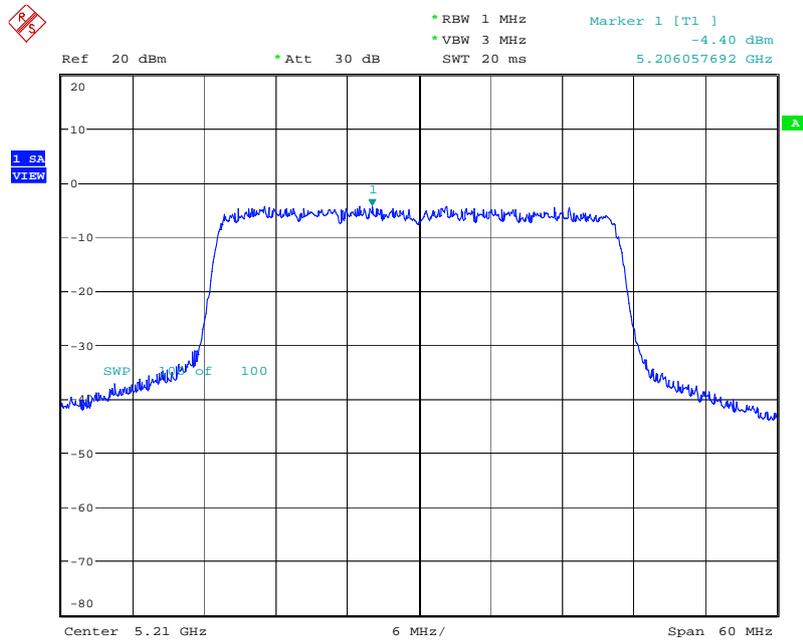
Date: 11.MAY.2006 21:08:31

Power Density Plot on Configuration IEEE 802.11a / 5320 MHz



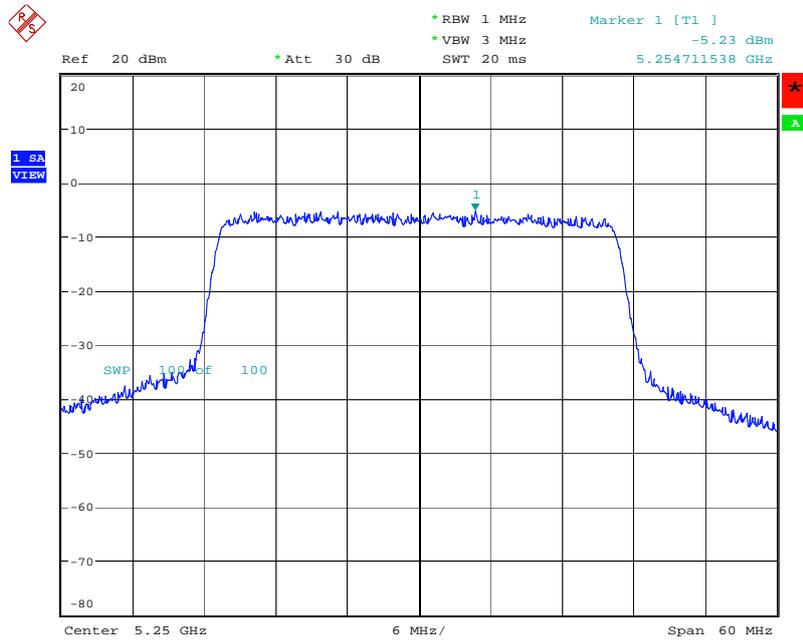
Date: 11.MAY.2006 21:15:40

Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



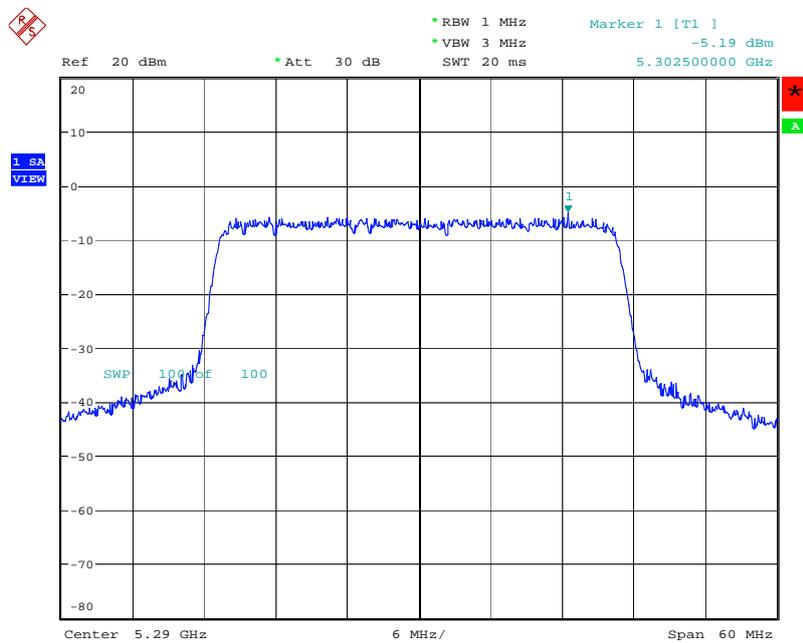
Date: 11.MAY.2006 21:10:34

Power Density Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 11.MAY.2006 21:10:58

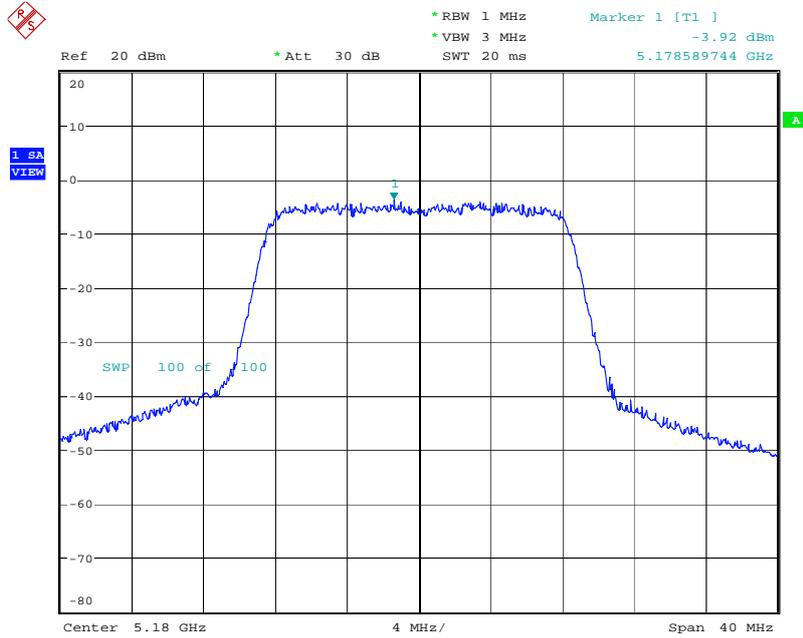
Power Density Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 11.MAY.2006 21:11:33

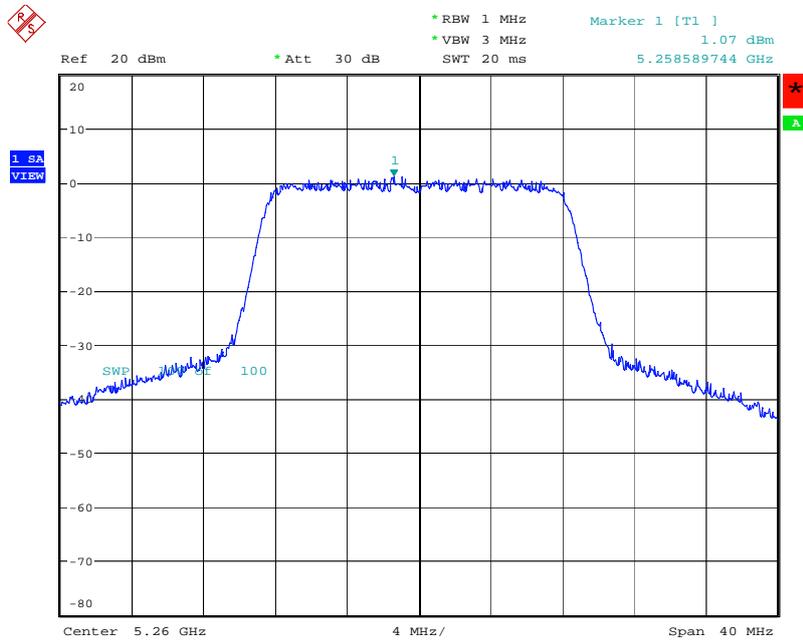
For Ant. 3

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



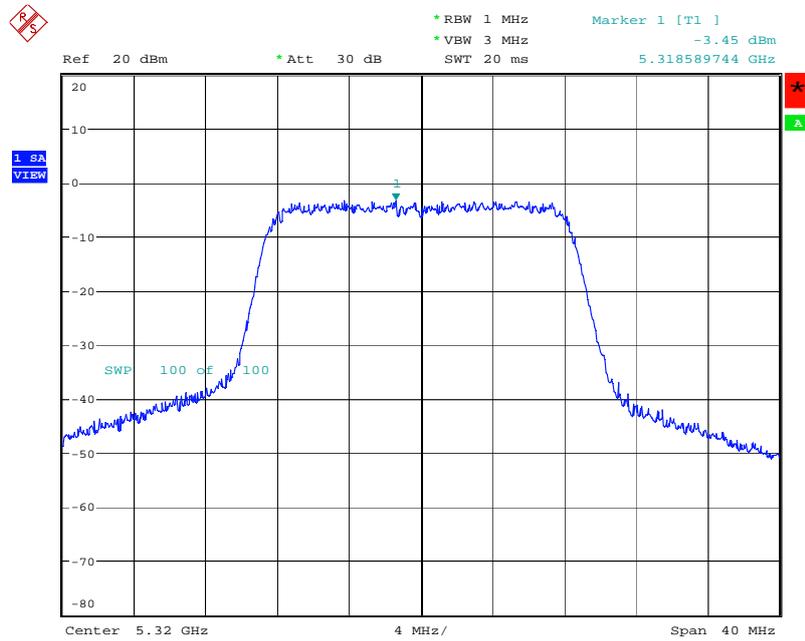
Date: 1.JUN.2006 18:59:14

Power Density Plot on Configuration IEEE 802.11a / 5260 MHz



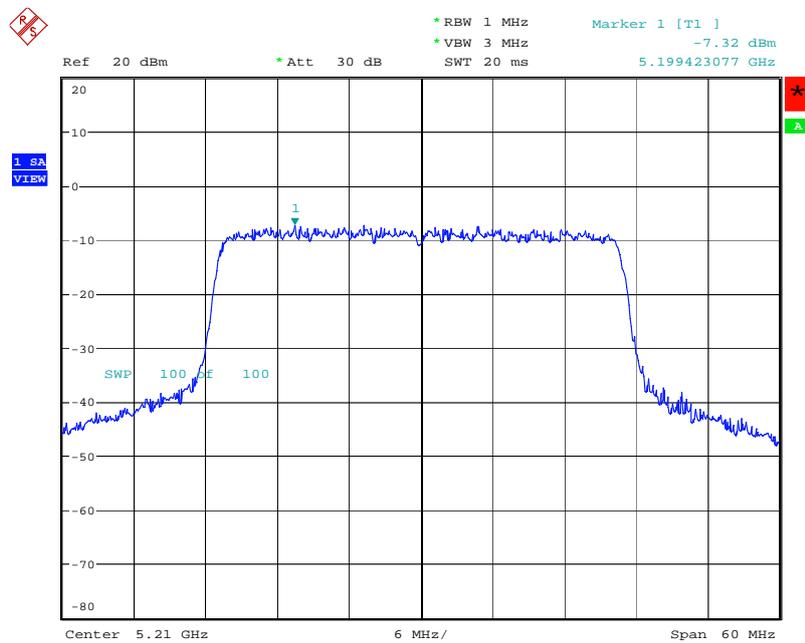
Date: 1.JUN.2006 19:00:02

Power Density Plot on Configuration IEEE 802.11a / 5320 MHz



Date: 1.JUN.2006 19:00:50

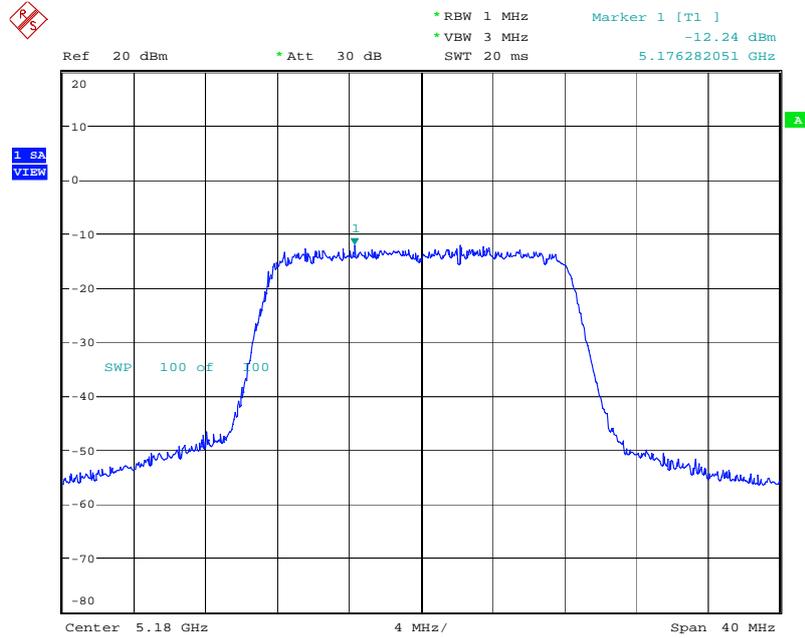
Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 1.JUN.2006 19:36:01

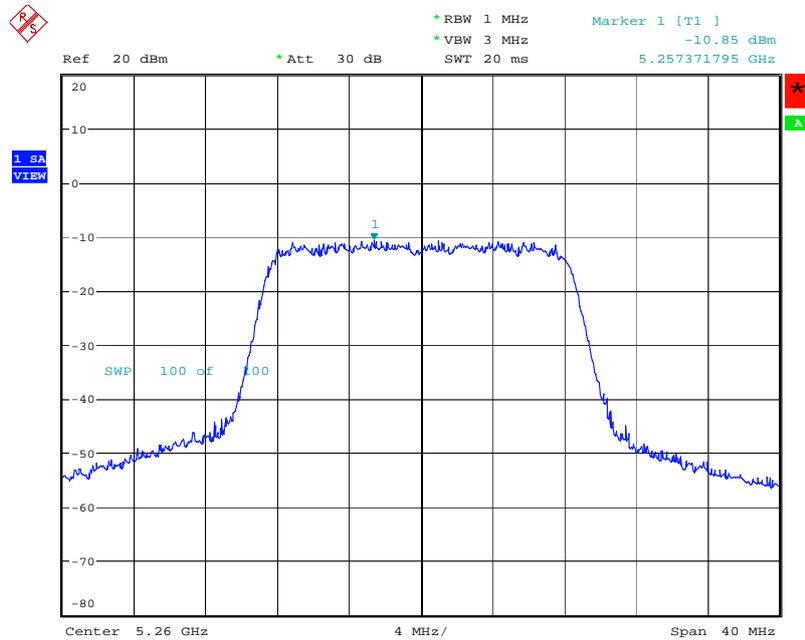
For Ant. 4

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



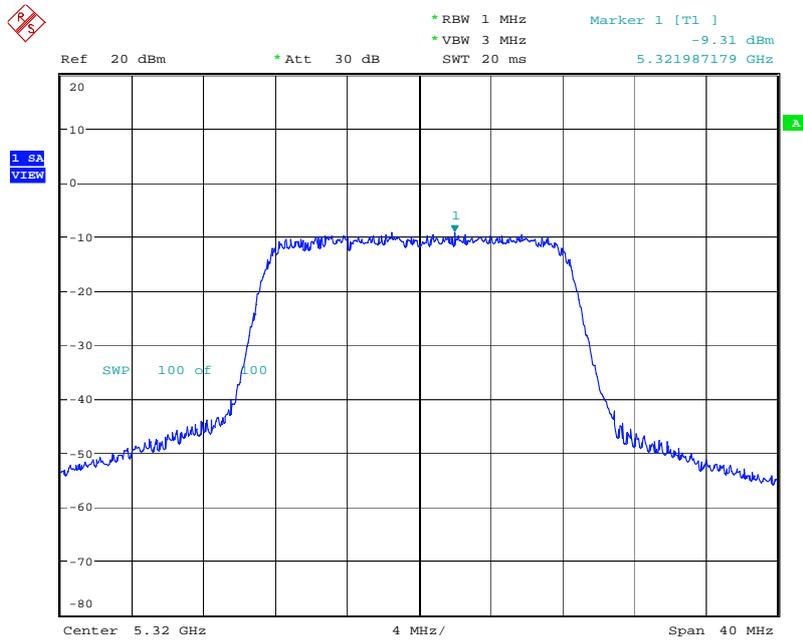
Date: 1.JUN.2006 20:14:48

Power Density Plot on Configuration IEEE 802.11a / 5260 MHz



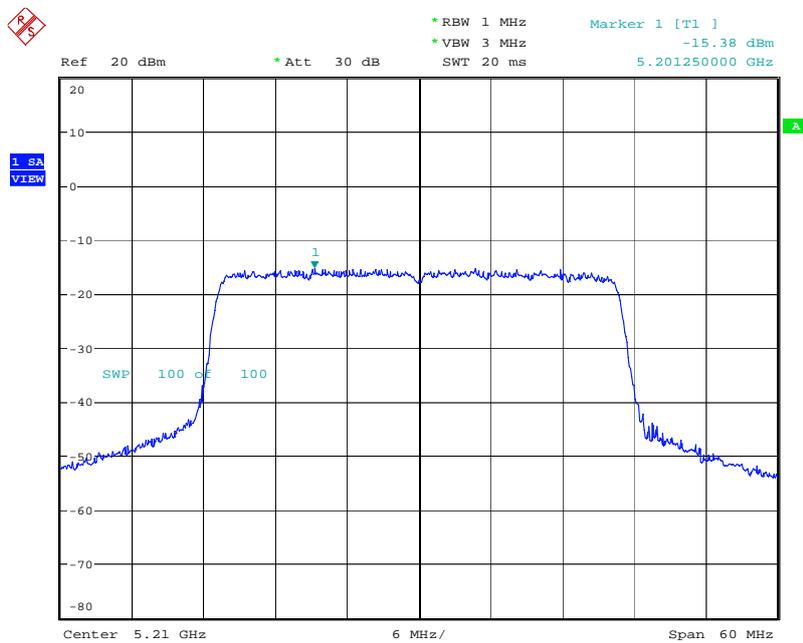
Date: 1.JUN.2006 20:15:23

Power Density Plot on Configuration IEEE 802.11a / 5320 MHz



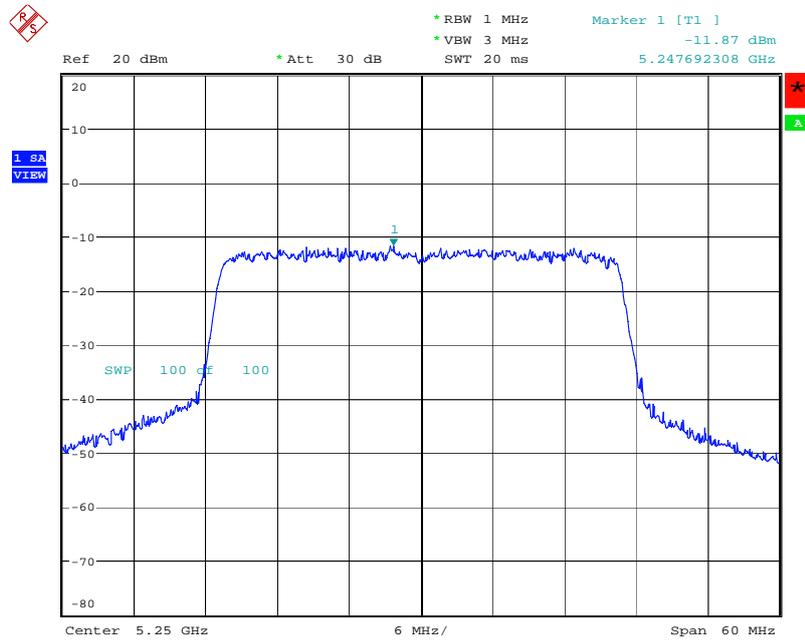
Date: 1.JUN.2006 20:21:16

Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



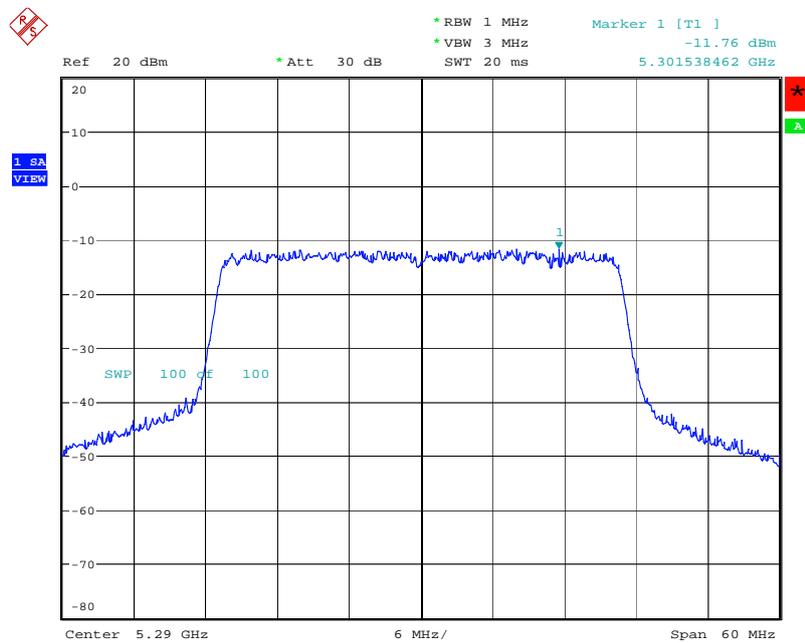
Date: 1.JUN.2006 20:31:12

Power Density Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 1.JUN.2006 20:31:39

Power Density Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 20:32:00

4.5. Peak Excursion Measurement

4.5.1. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.

4.5.2. Measuring Instruments and Setting

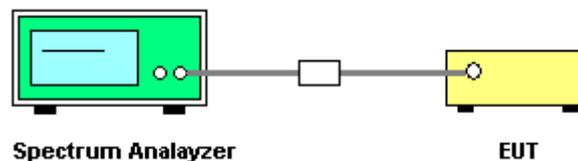
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz (Peak Trace) / 1000 kHz (Average Trace)
VB	3000 kHz (Peak Trace) / 300 kHz (Average Trace)
Detector	Peak (Peak Trace) / Sample (Average Trace)
Trace	Max Hold
Sweep Time	60s

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emissions bandwidth. The largest difference between the following two traces (Peak Trace and Average Trace) must be ≤ 13 dB for all frequencies across the emissions bandwidth. Submit a plot.
3. Peak Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.
4. Average Trace: Method #3—video averaging with max hold--and sum power across the band. Set span to encompass the entire emissions bandwidth (EBW) of the signal. Set sweep trigger to "free run". Set RBW = 1 MHz. Set VBW $\geq 1/T$ (IEEE 802.11a VBW = 300kHz $\geq 1/4 \mu s$). Use sample detector mode if bin width (i.e., span/number of points in spectrum) < 0.5 RBW. Otherwise use peak detector mode. Set max hold. Allow max hold to run for 60 seconds.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Peak Excursion

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 1

Configuration IEEE 802.11a

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	5.58	13	Complies
5260 MHz	4.34	13	Complies
5320 MHz	5.28	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	4.11	13	Complies
5250 MHz	5.08	13	Complies
5290 MHz	4.42	13	Complies

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 2

Configuration IEEE 802.11a

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	4.93	13	Complies
5260 MHz	3.99	13	Complies
5320 MHz	4.61	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	3.82	13	Complies
5250 MHz	3.89	13	Complies
5290 MHz	3.99	13	Complies
Temperature	24°C	Humidity	63%



Test Engineer	Leo Hung	Configurations	802.11a / Ant. 4
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Configuration IEEE 802.11a

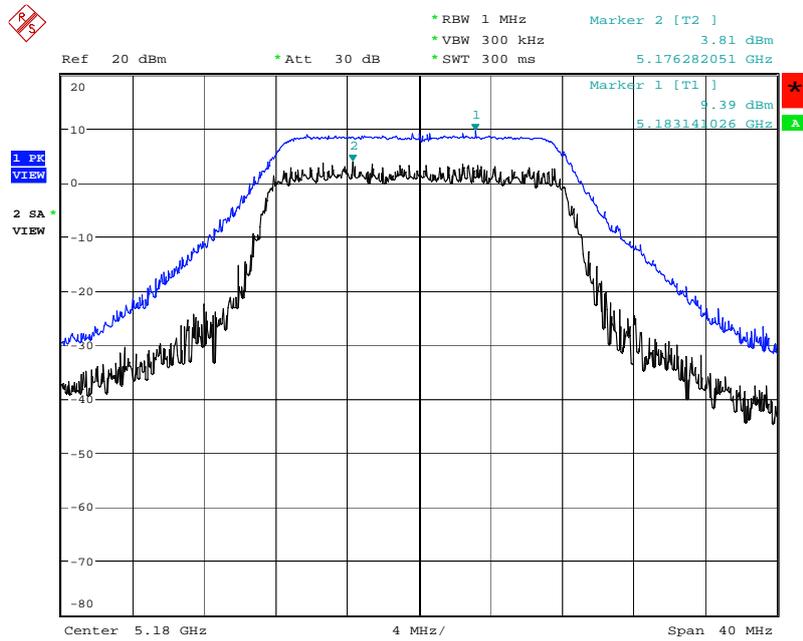
Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	4.49	13	Complies
5260 MHz	3.81	13	Complies
5320 MHz	3.98	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	2.98	13	Complies
5250 MHz	4.19	13	Complies
5290 MHz	3.82	13	Complies

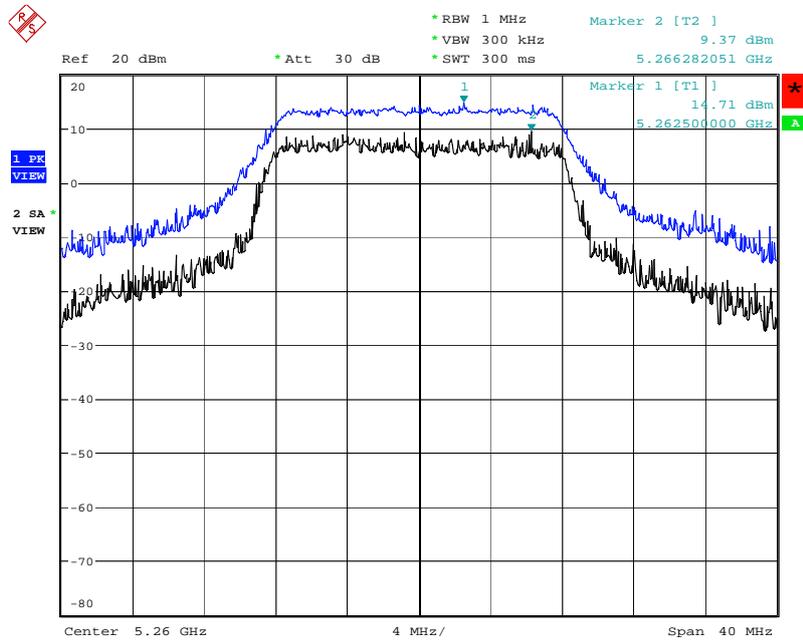
For Ant. 1

Peak Excursion Plot on Configuration IEEE 802.11 a / 5180 MHz



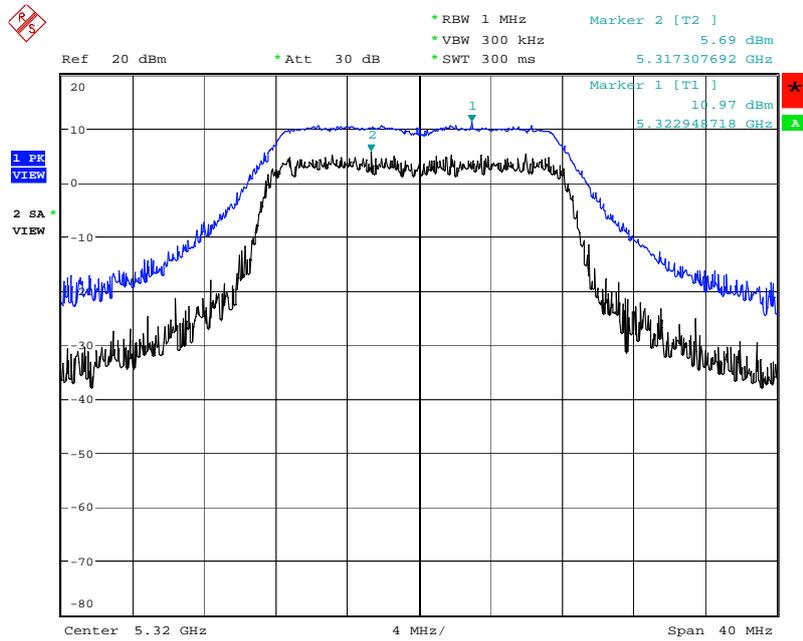
Date: 11.MAY.2006 20:38:43

Peak Excursion Plot on Configuration IEEE 802.11 a / 5260 MHz



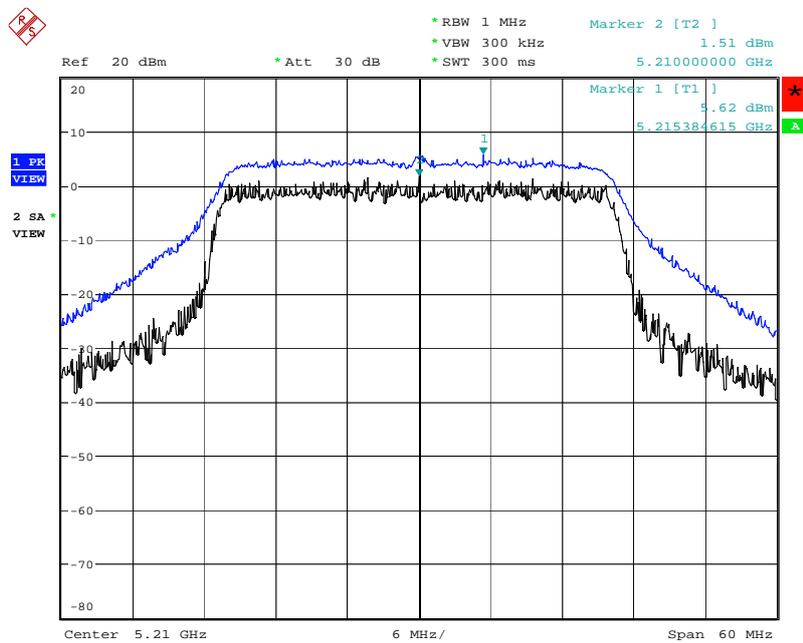
Date: 11.MAY.2006 20:40:16

Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



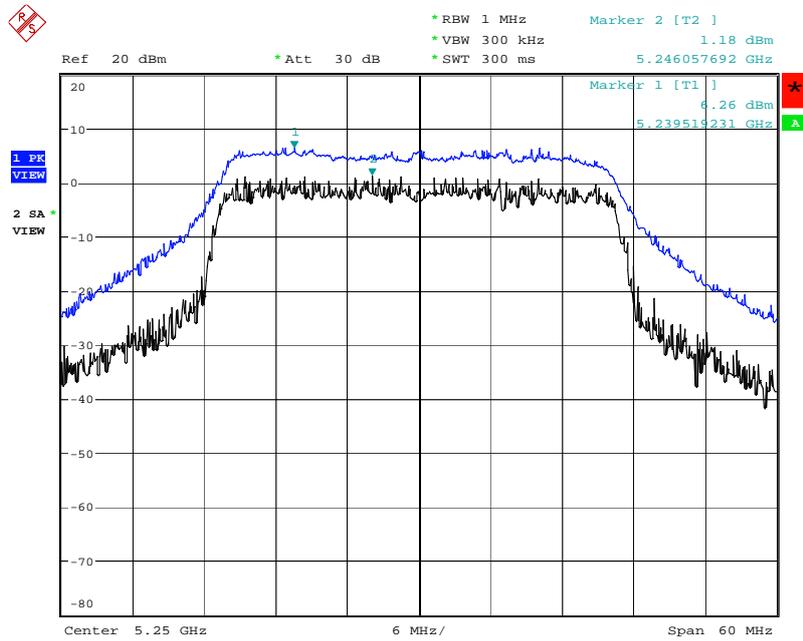
Date: 11.MAY.2006 20:42:00

Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



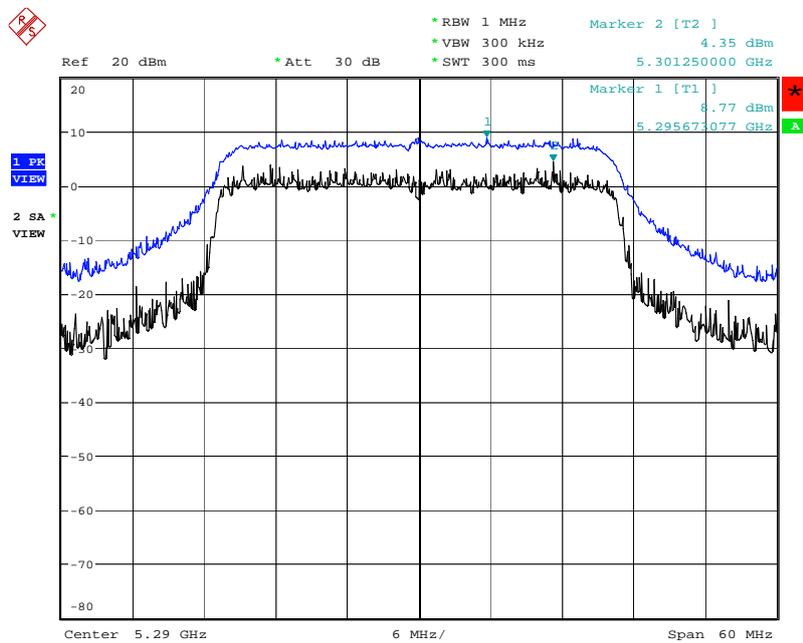
Date: 11.MAY.2006 20:43:51

Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5250 MHz



Date: 11.MAY.2006 20:45:13

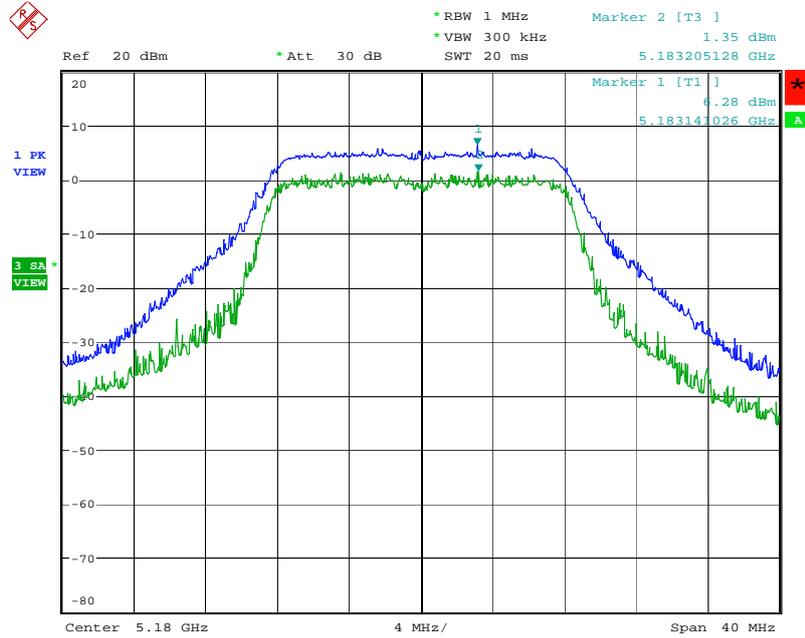
Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5290 MHz



Date: 11.MAY.2006 20:46:46

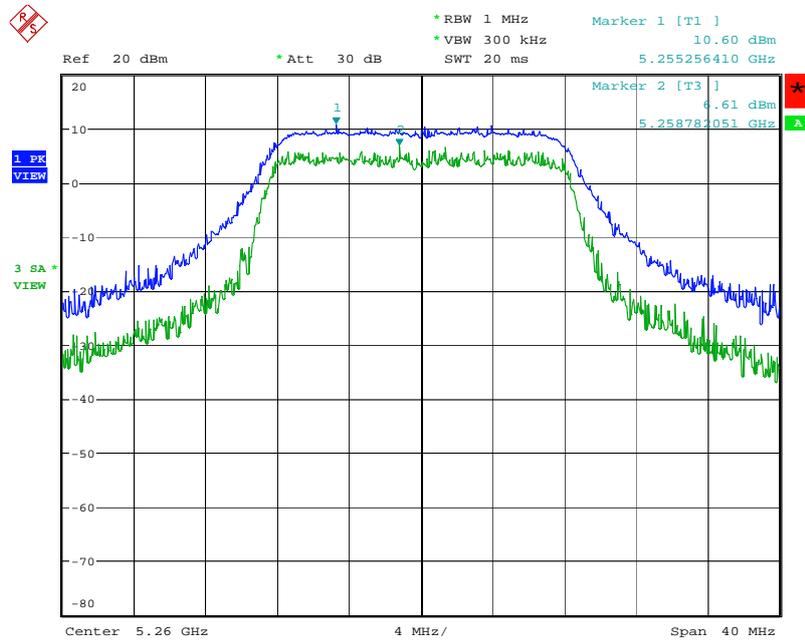
For Ant. 3

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



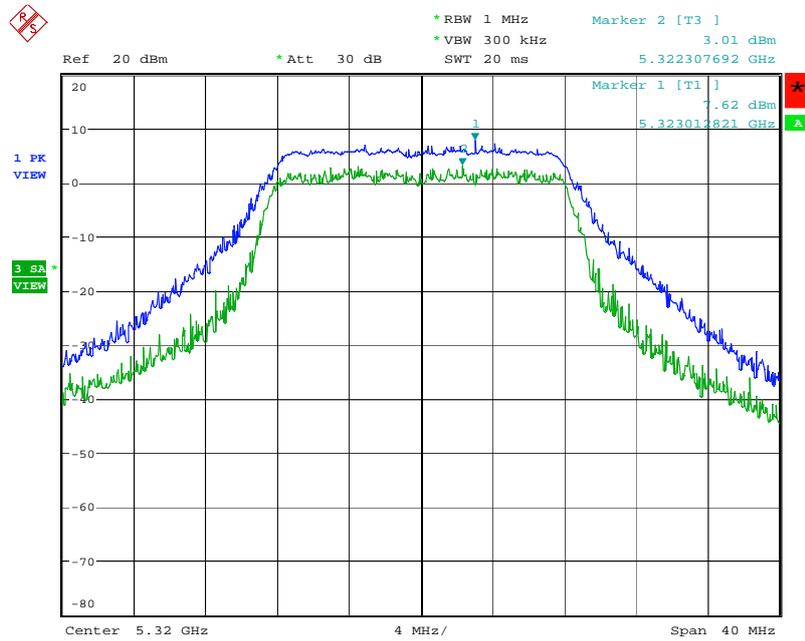
Date: 1.JUN.2006 18:58:11

Peak Excursion Plot on Configuration IEEE 802.11a / 5260 MHz



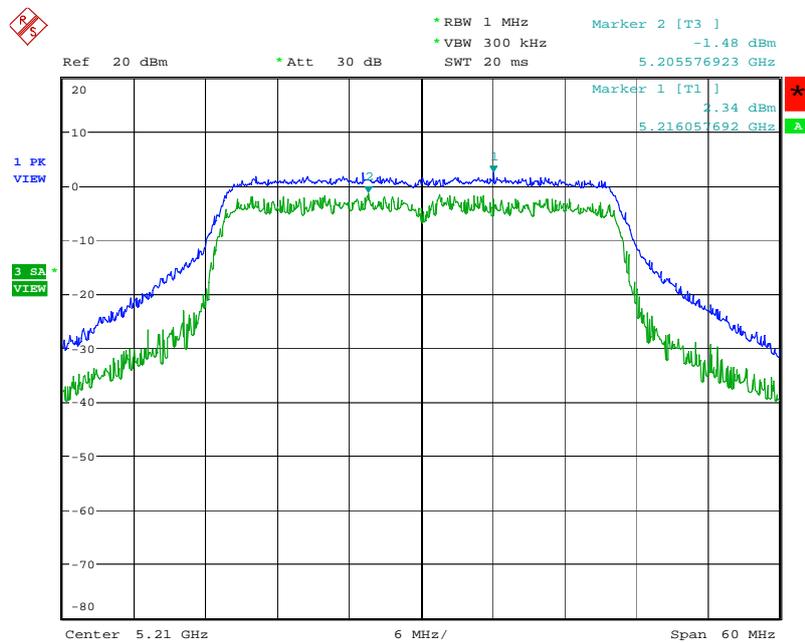
Date: 1.JUN.2006 18:57:28

Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



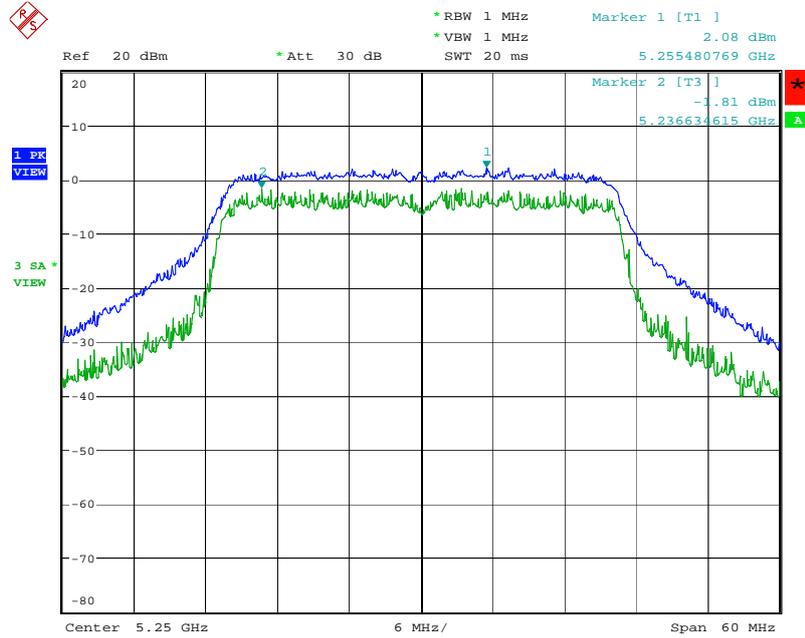
Date: 1.JUN.2006 18:56:22

Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



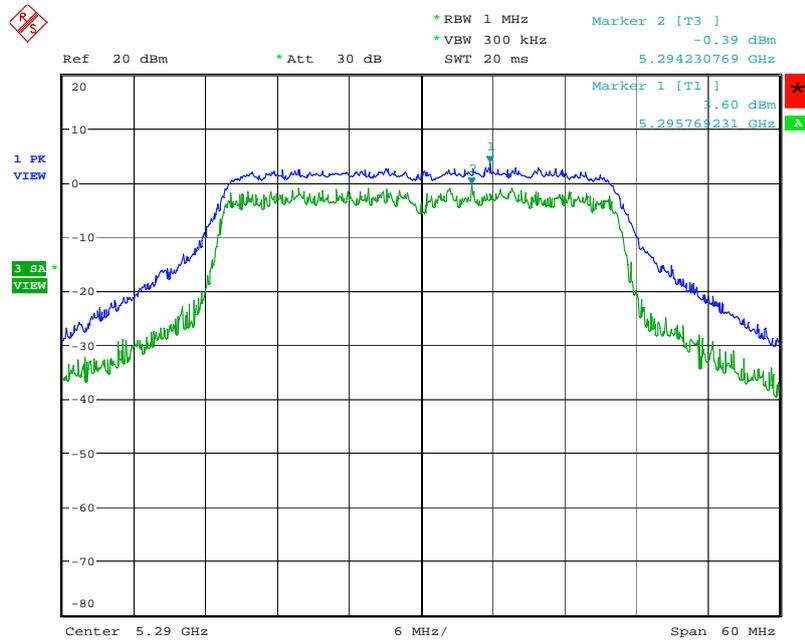
Date: 1.JUN.2006 19:33:02

Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 1.JUN.2006 19:33:44

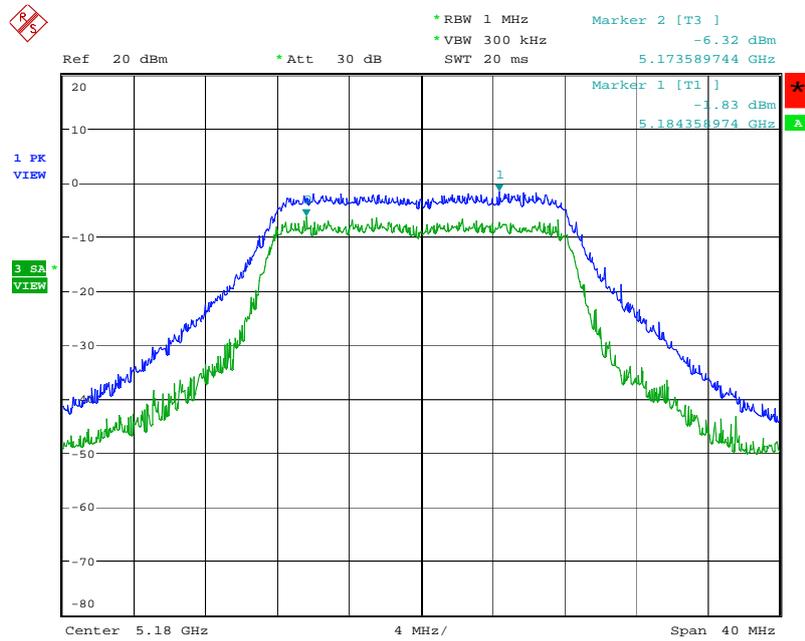
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 19:34:20

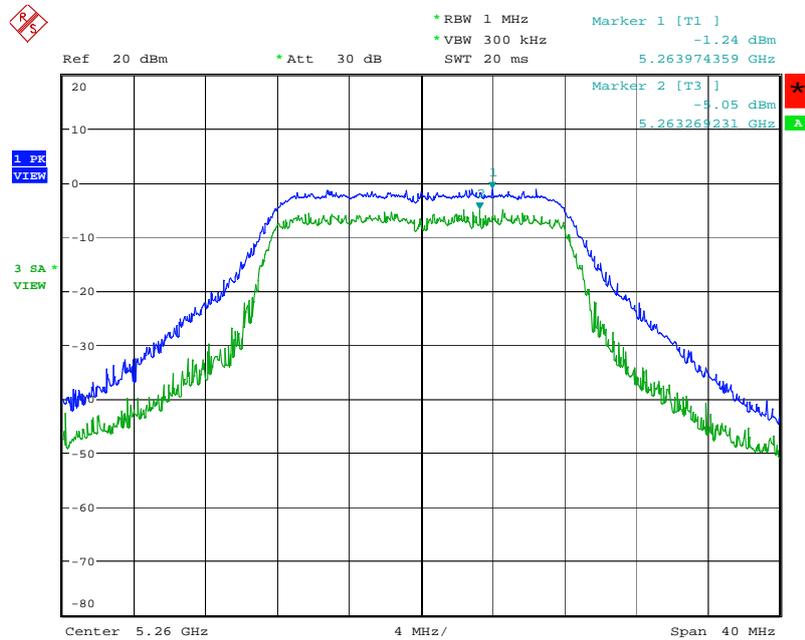
For Ant. 4

Peak Excursion Plot on Configuration IEEE 802.11 a / 5180 MHz



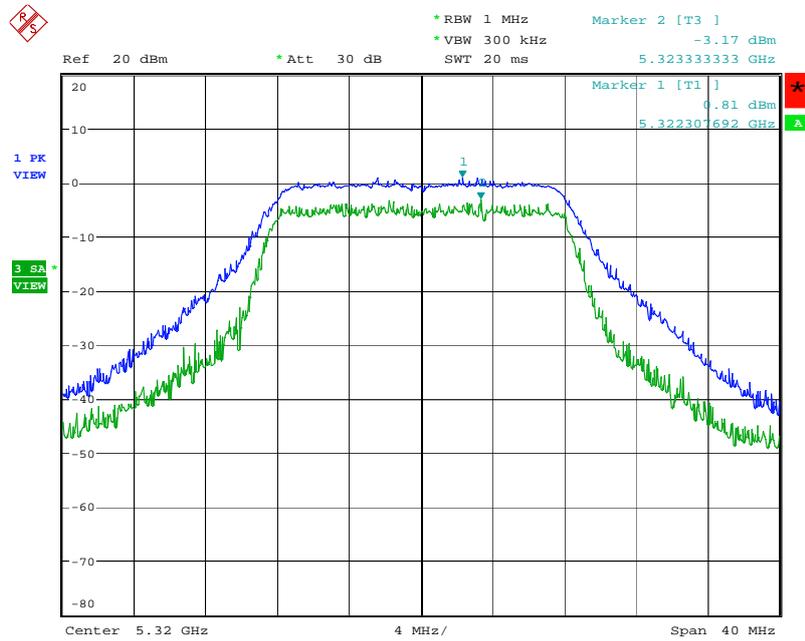
Date: 1.JUN.2006 20:13:58

Peak Excursion Plot on Configuration IEEE 802.11 a / 5260 MHz



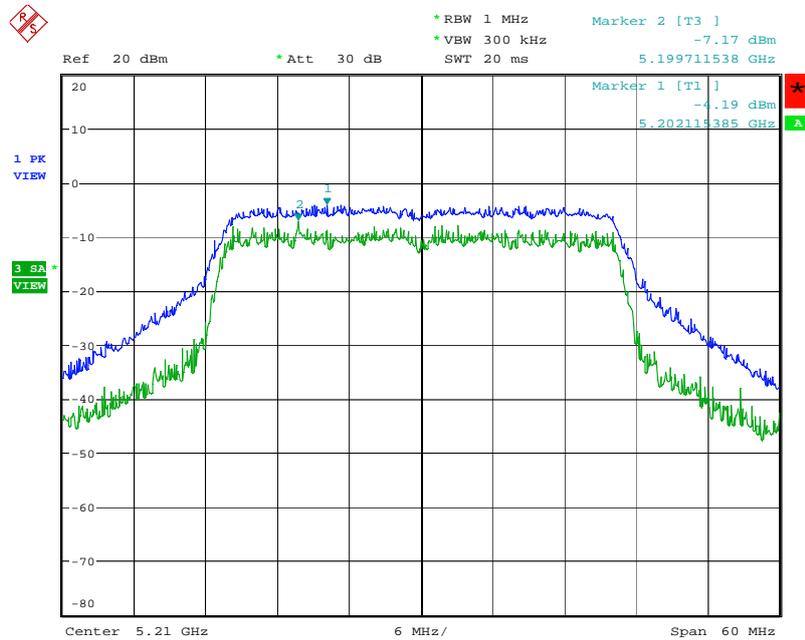
Date: 1.JUN.2006 20:13:11

Peak Excursion Plot on Configuration IEEE 802.11 a / 5320 MHz



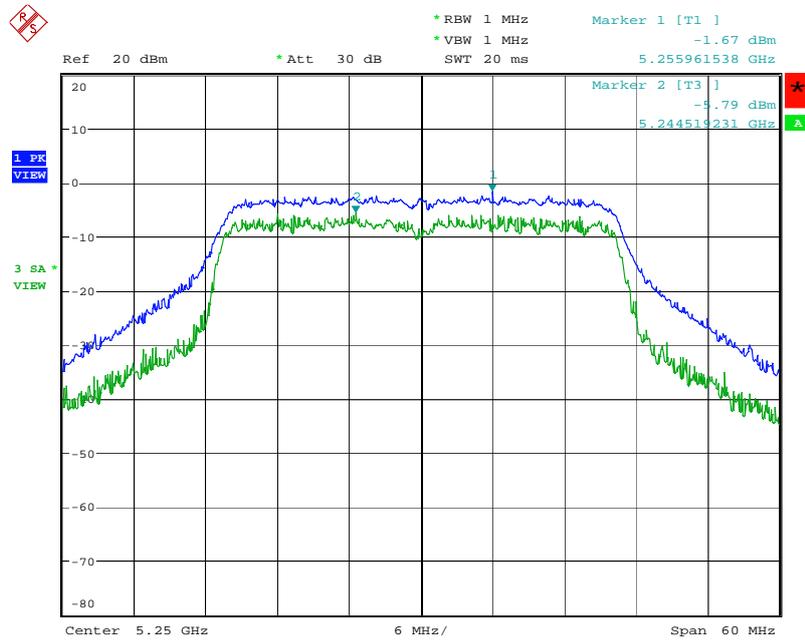
Date: 1.JUN.2006 20:12:32

Peak Excursion Plot on Configuration IEEE 802.11 a Turbo / 5210 MHz



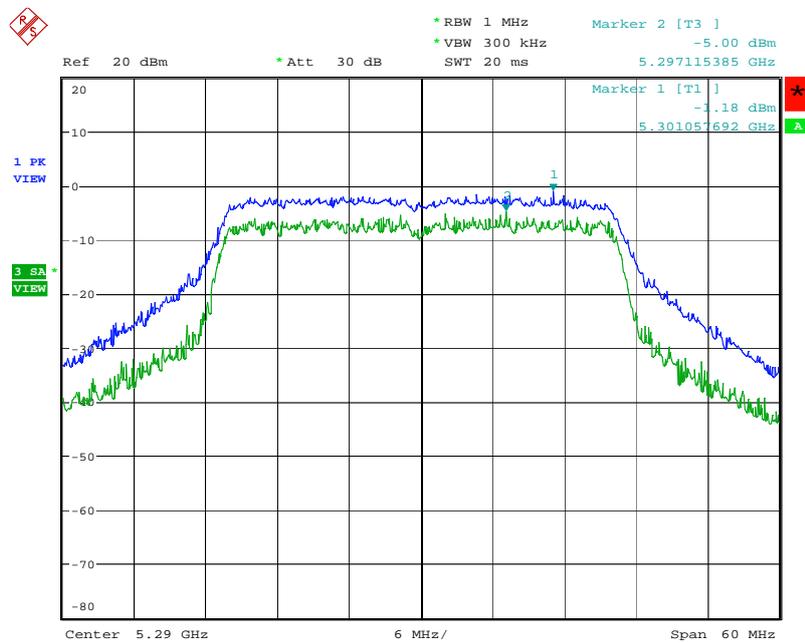
Date: 1.JUN.2006 20:30:13

Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5250 MHz



Date: 1.JUN.2006 20:29:23

Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5290 MHz



Date: 1.JUN.2006 20:28:43

4.6. Radiated Emissions Measurement

4.6.1. 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 (microrvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

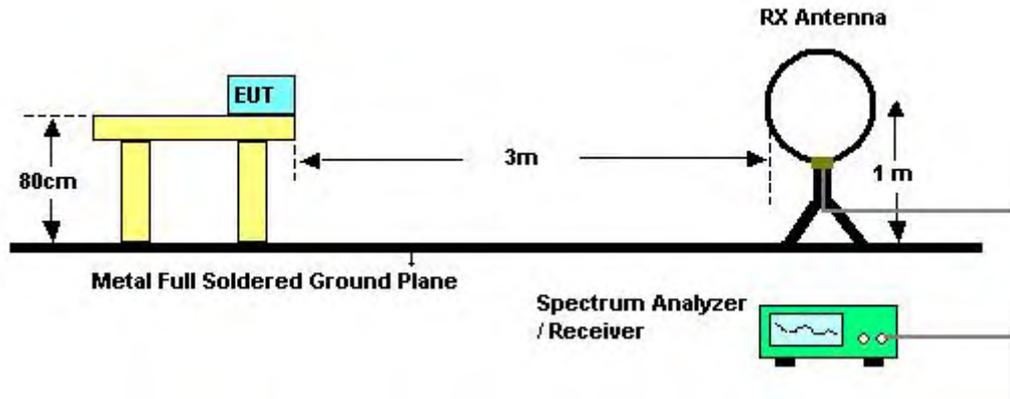
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.6.3. Test Procedures

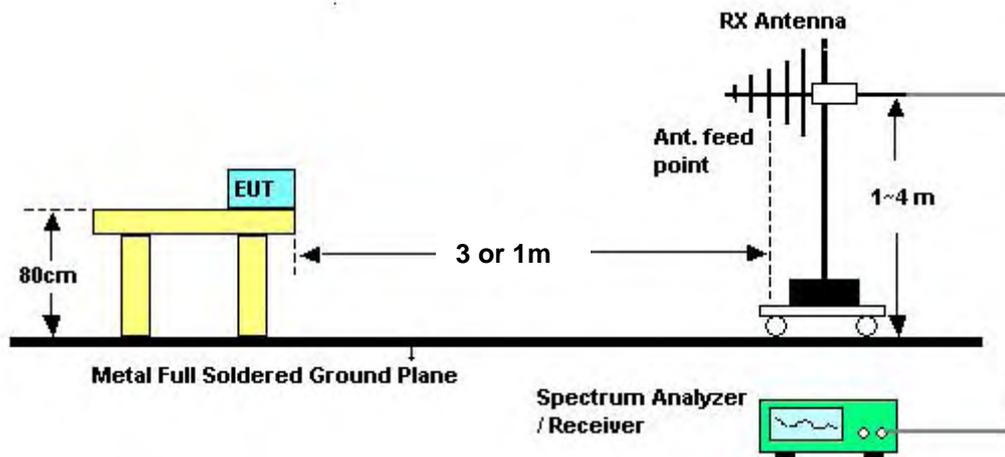
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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.

4.6.4. 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 1.5m.

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1.5m]})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64

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

Note:

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

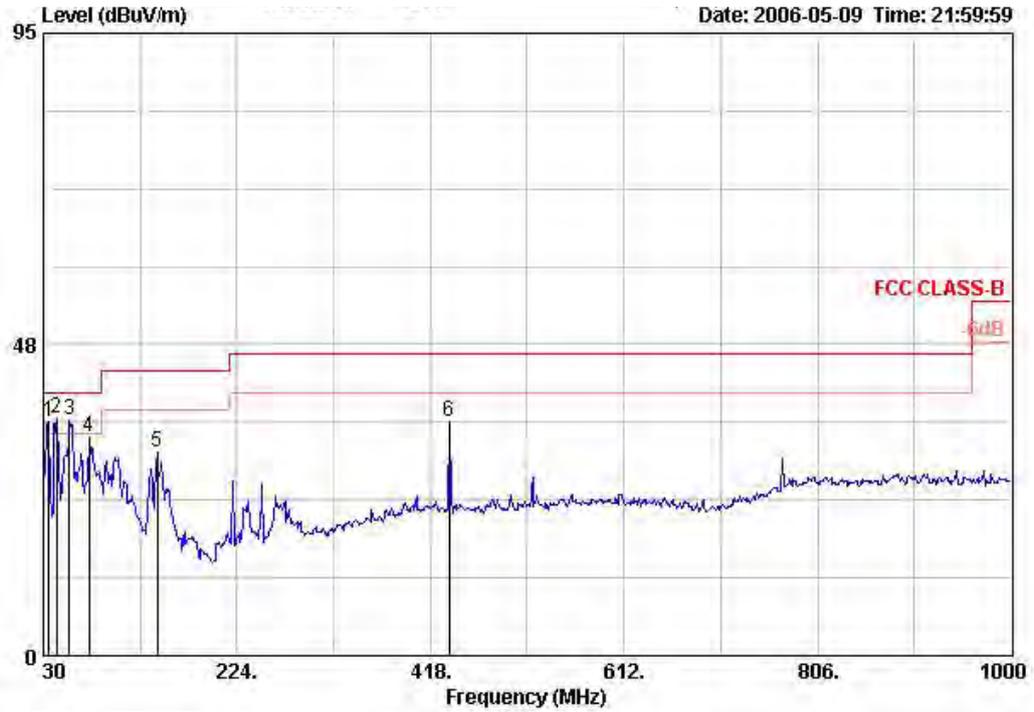
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

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

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

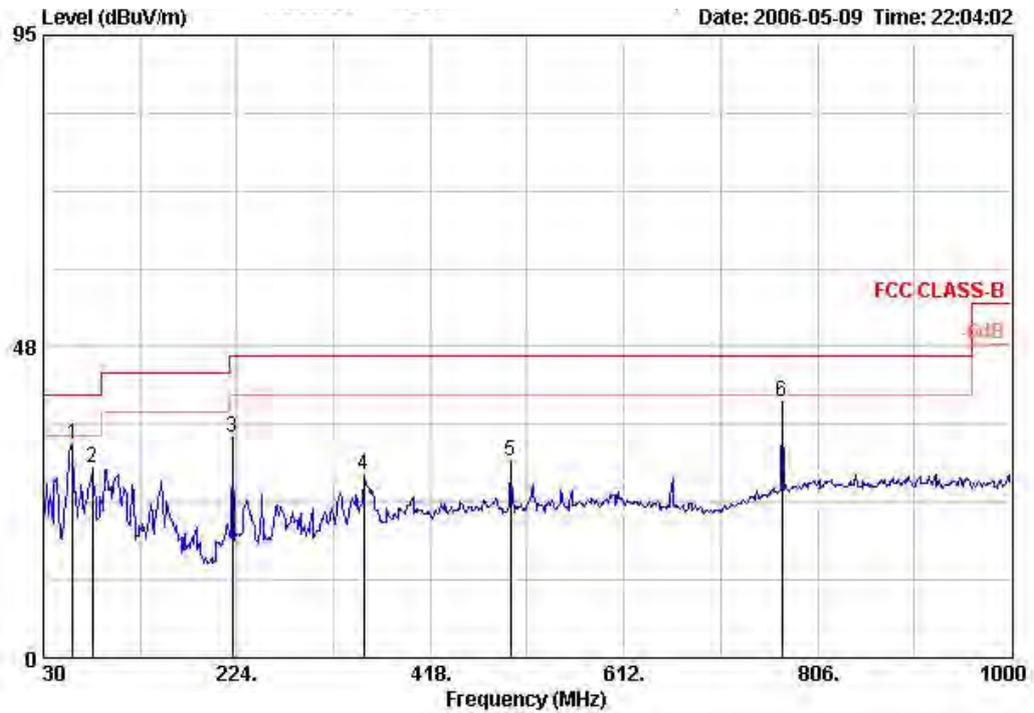
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 1

Vertical



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1 !	35.820	35.72	-4.28	40.00	50.47	15.75	1.20	31.70	Peak	VERTICAL	3
2 !	43.580	36.14	-3.86	40.00	54.37	12.42	1.10	31.75	Peak	VERTICAL	3
3 !	56.190	35.96	-4.04	40.00	57.92	8.42	1.30	31.68	Peak	VERTICAL	3
4	75.590	33.40	-6.60	40.00	56.25	7.40	1.30	31.55	Peak	VERTICAL	3
5	144.460	31.12	-12.38	43.50	49.46	11.51	1.70	31.56	Peak	VERTICAL	3
6	436.430	35.61	-10.39	46.00	46.20	17.52	2.84	30.95	Peak	VERTICAL	3

Horizontal



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Pol/Phase	Distance
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor			m
			dB	dBuV/m	dBuV	dB/m	dB	dB		
1	59.100	32.71	-7.29	40.00	55.55	7.52	1.40	31.76 Peak	HORIZONTAL	3
2	79.470	29.10	-10.90	40.00	51.62	7.94	1.30	31.75 Peak	HORIZONTAL	3
3	219.150	33.59	-12.41	46.00	51.88	11.01	2.10	31.41 Peak	HORIZONTAL	3
4	351.070	28.07	-17.93	46.00	41.00	15.89	2.41	31.24 Peak	HORIZONTAL	3
5	498.510	30.15	-15.85	46.00	40.61	17.19	3.28	30.94 Peak	HORIZONTAL	3
6	770.110	38.98	-7.02	46.00	45.48	19.87	3.86	30.23 Peak	HORIZONTAL	3

Note:

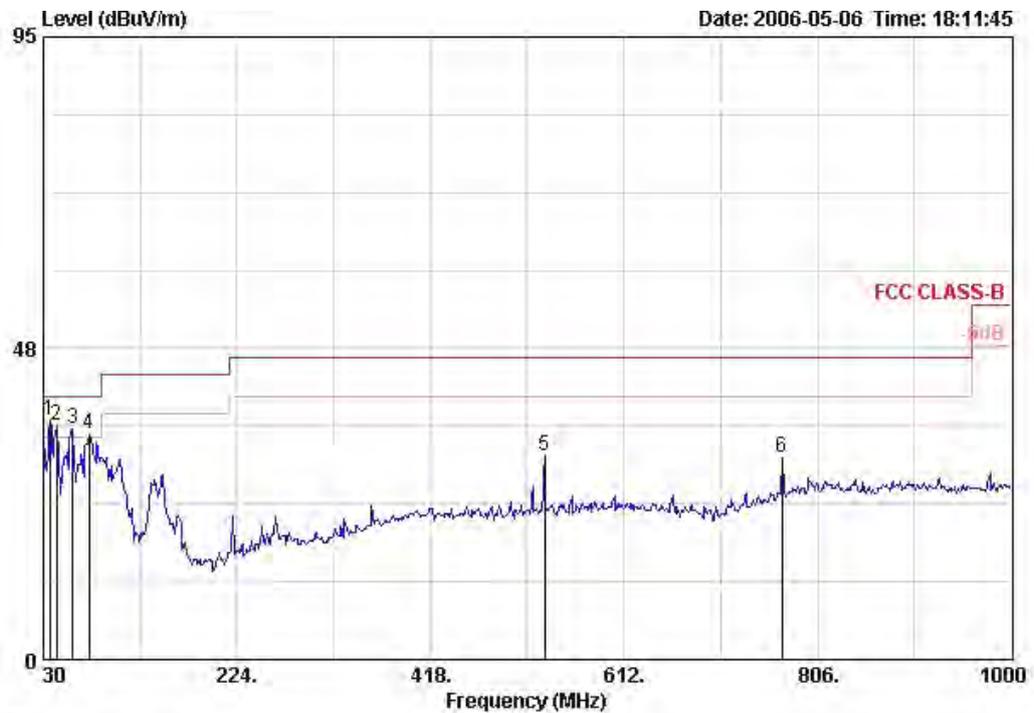
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

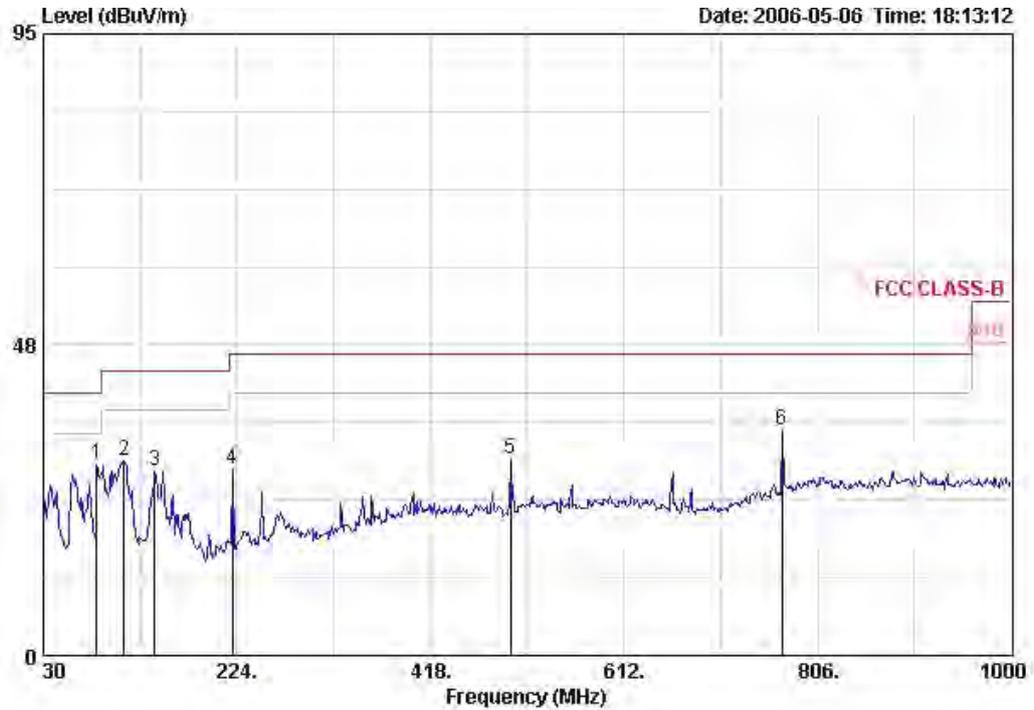
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 3

Vertical



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		m
1 !	36.790	36.38	-3.62	40.00	51.49	15.41	1.20	31.72 Peak	VERTICAL	3
2 !	43.580	35.77	-4.23	40.00	54.00	12.42	1.10	31.75 Peak	VERTICAL	3
3 !	59.100	35.33	-4.67	40.00	58.17	7.52	1.40	31.76 Peak	VERTICAL	3
4 !	75.590	34.55	-5.45	40.00	57.40	7.40	1.30	31.55 Peak	VERTICAL	3
5	532.460	30.96	-15.04	46.00	40.85	17.69	3.24	30.82 Peak	VERTICAL	3
6	770.110	30.90	-15.10	46.00	37.40	19.87	3.86	30.23 Peak	VERTICAL	3

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	83.350	29.22	-10.78	40.00	51.03	8.48	1.43	31.73	Peak	HORIZONTAL	3
2	110.510	29.78	-13.72	43.50	47.84	12.18	1.50	31.74	Peak	HORIZONTAL	3
3	141.550	28.21	-15.29	43.50	46.63	11.45	1.70	31.56	Peak	HORIZONTAL	3
4	219.150	28.53	-17.47	46.00	46.83	11.01	2.10	31.41	Peak	HORIZONTAL	3
5	498.510	30.00	-16.00	46.00	40.47	17.19	3.28	30.94	Peak	HORIZONTAL	3
6	770.110	34.31	-11.69	46.00	40.82	19.87	3.86	30.23	Peak	HORIZONTAL	3

Note:

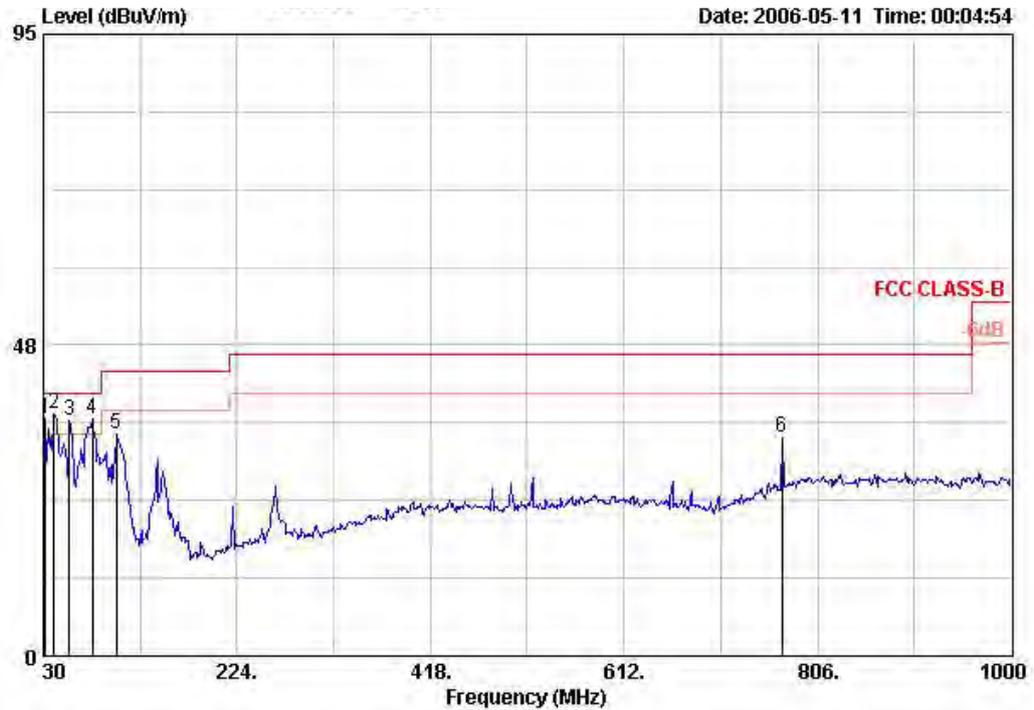
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

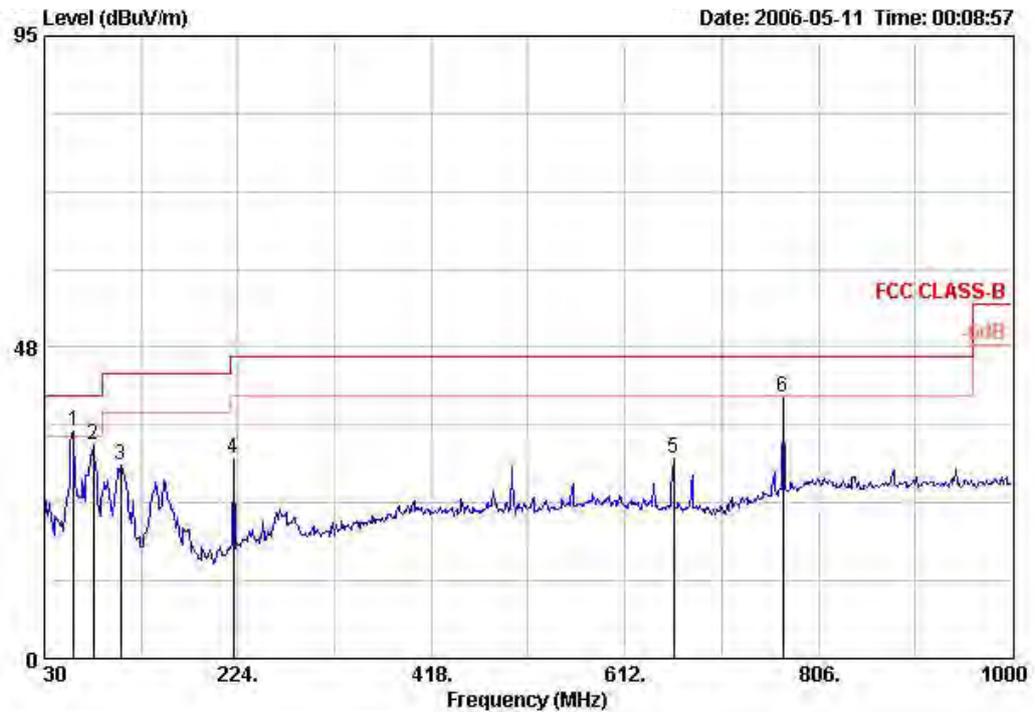
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 4

Vertical



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Pol/Phase	Distance	
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor		m	
			dB	dBUV/m	dBuV	dB/m	dB	dB			
1 !	31.940	36.21	-3.79	40.00	50.61	16.34	0.93	31.67	Peak	VERTICAL	3
2 ☑	40.670	36.92	-3.08	40.00	53.68	13.91	1.10	31.77	Peak	VERTICAL	3
3 !	56.190	35.87	-4.13	40.00	57.83	8.42	1.30	31.68	Peak	VERTICAL	3
4 !	79.470	36.28	-3.72	40.00	58.79	7.94	1.30	31.75	Peak	VERTICAL	3
5	102.750	33.80	-9.70	43.50	52.56	11.46	1.50	31.72	Peak	VERTICAL	3
6	770.110	33.31	-12.69	46.00	39.81	19.87	3.86	30.23	Peak	VERTICAL	3

Horizontal



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Pol/Phase	Distance	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		m	
			dB	dBuV/m	dBuV	dB/m	dB	dB			
1	59.100	34.57	-5.43	40.00	57.41	7.52	1.40	31.76	Peak	HORIZONTAL	3
2	79.470	32.54	-7.46	40.00	55.06	7.94	1.30	31.75	Peak	HORIZONTAL	3
3	106.630	29.39	-14.11	43.50	47.80	11.82	1.50	31.73	Peak	HORIZONTAL	3
4	219.150	30.62	-15.38	46.00	48.91	11.01	2.10	31.41	Peak	HORIZONTAL	3
5	660.500	30.55	-15.45	46.00	39.83	17.55	3.52	30.35	Peak	HORIZONTAL	3
6	770.110	39.80	-6.20	46.00	46.31	19.87	3.86	30.23	Peak	HORIZONTAL	3

Note:

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

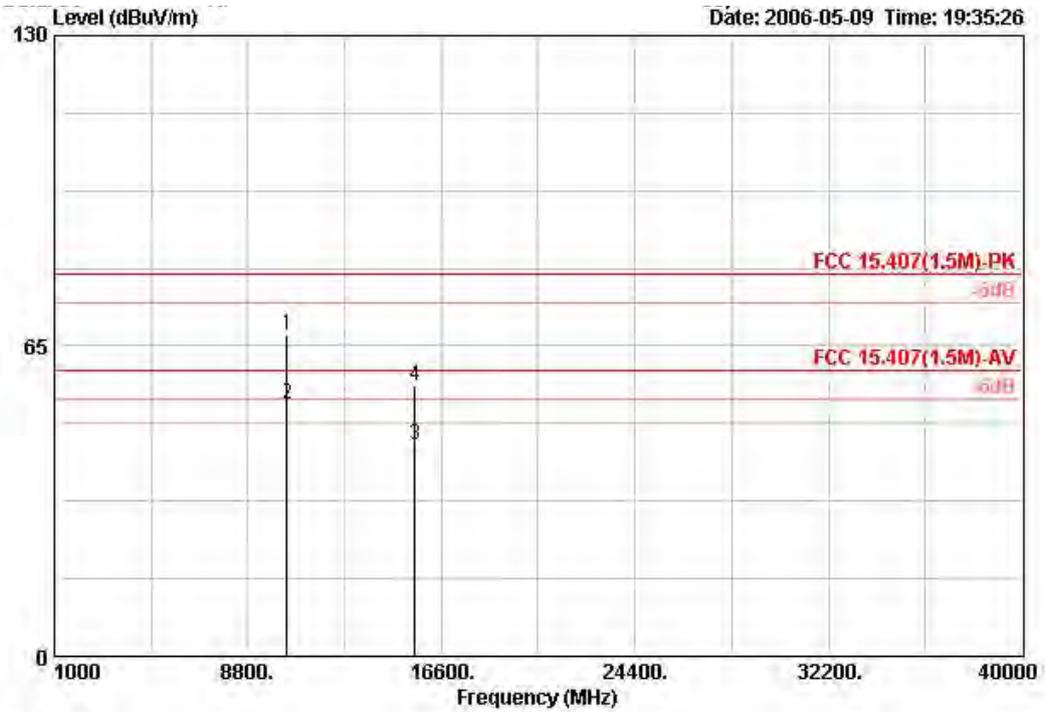
Emission level (dBUV/m) = 20 log Emission level (uV/m).

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

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

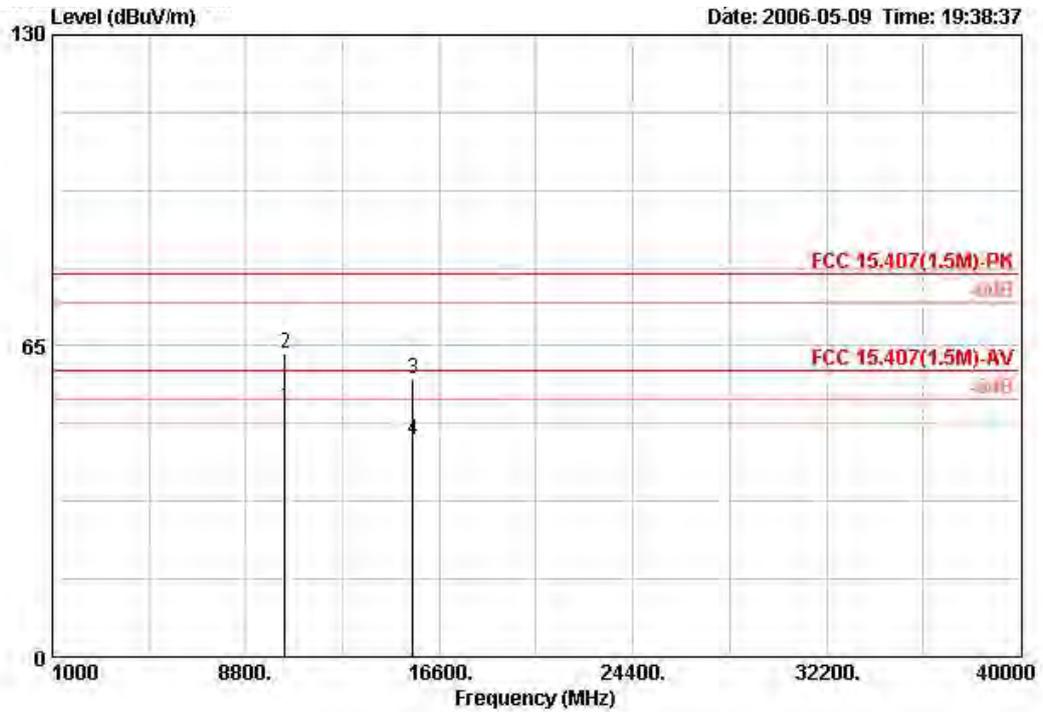
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 36 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	10358.280	67.18	-12.82	80.00	56.04	38.58	7.67	35.12	PEAK	VERTICAL	3
2	10359.200	52.94	-7.06	60.00	41.86	38.53	7.67	35.12	AVERAGE	VERTICAL	3
3	15526.100	44.35	-15.65	60.00	33.13	38.08	8.42	35.28	AVERAGE	VERTICAL	3
4	15529.200	56.76	-23.24	80.00	45.56	38.06	8.42	35.28	PEAK	VERTICAL	3

Horizontal

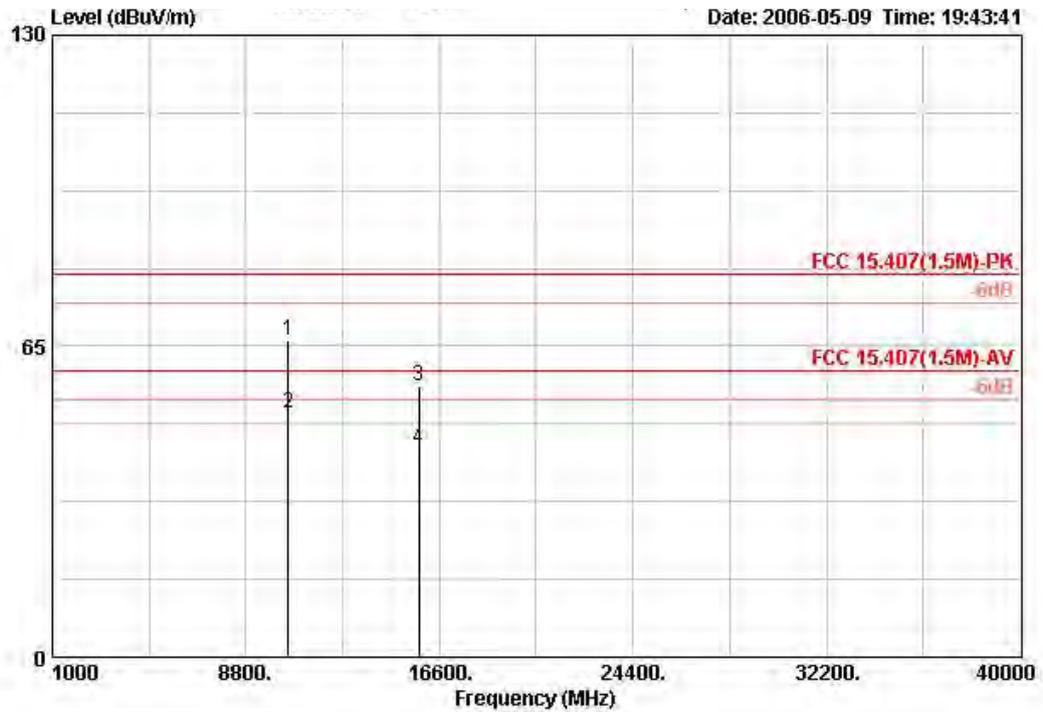


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	10361.500	51.98	-8.02	60.00	40.90	38.53	7.67	35.12	AVERAGE	HORIZONTAL	3
2	10361.500	63.25	-16.75	80.00	52.17	38.53	7.67	35.12	PEAK	HORIZONTAL	3
3	15539.500	58.07	-21.93	80.00	46.87	38.06	8.43	35.28	PEAK	HORIZONTAL	3
4	15540.600	45.21	-14.79	60.00	34.01	38.06	8.43	35.28	AVERAGE	HORIZONTAL	3



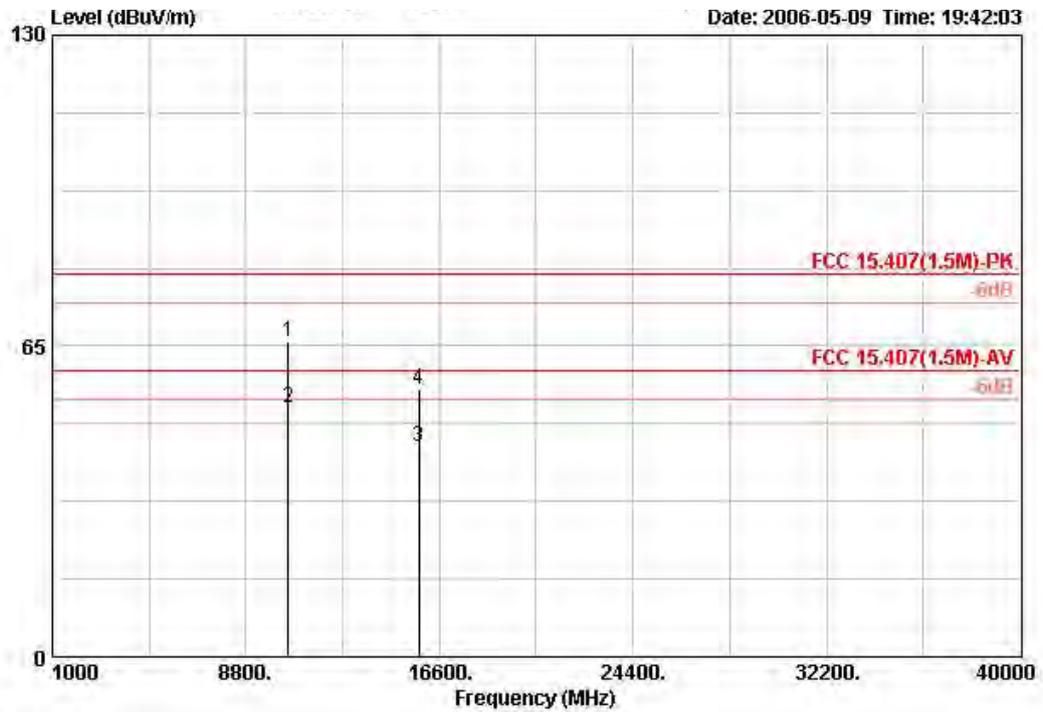
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 52 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	10522.350	66.26	-13.74	80.00	55.32	38.11	7.75	34.93	PEAK	VERTICAL	3
2	10522.490	51.15	-8.85	60.00	40.21	38.11	7.75	34.93	AVERAGE	VERTICAL	3
3	15779.680	56.53	-23.47	80.00	45.63	37.77	8.50	35.37	PEAK	VERTICAL	3
4	15782.100	43.53	-16.47	60.00	32.66	37.75	8.50	35.37	AVERAGE	VERTICAL	3

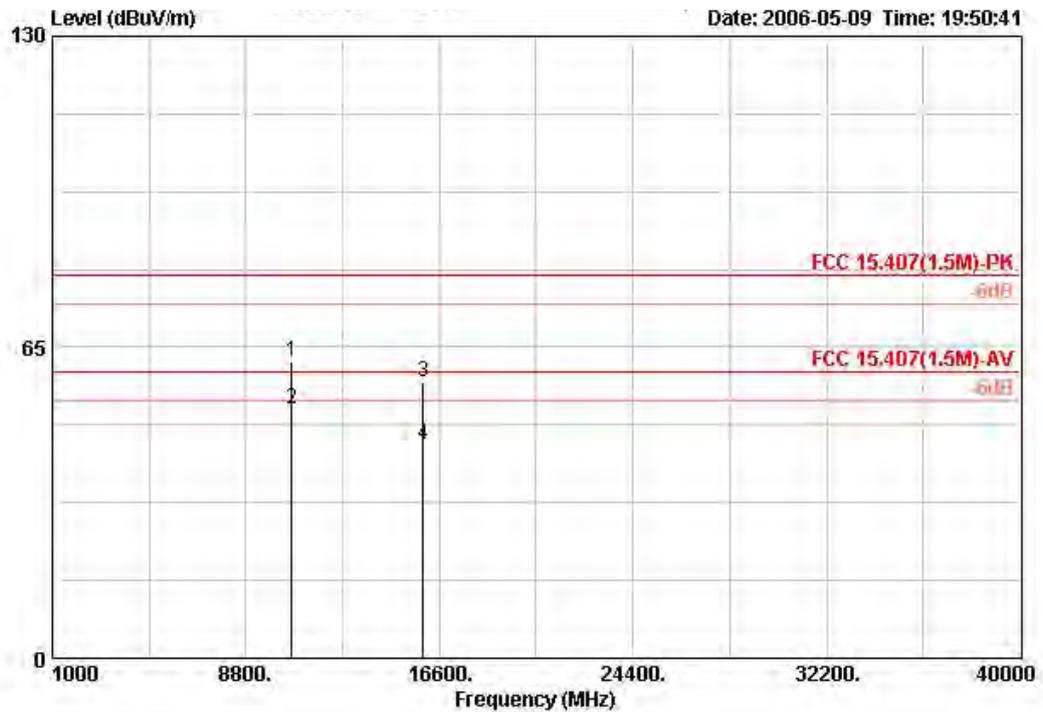
Horizontal



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Pol/Phase	Distance	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	m	
			dB	dBuV/m	dBuV	dB/m	dB	dB			
1	10520.820	65.78	-14.22	80.00	54.84	38.11	7.75	34.93	PEAK	HORIZONTAL	3
2	10522.420	51.96	-8.04	60.00	41.02	38.11	7.75	34.93	AVERAGE	HORIZONTAL	3
3	15777.770	44.07	-15.93	60.00	33.18	37.77	8.50	35.37	AVERAGE	HORIZONTAL	3
4	15779.640	56.14	-23.86	80.00	45.25	37.77	8.50	35.37	PEAK	HORIZONTAL	3

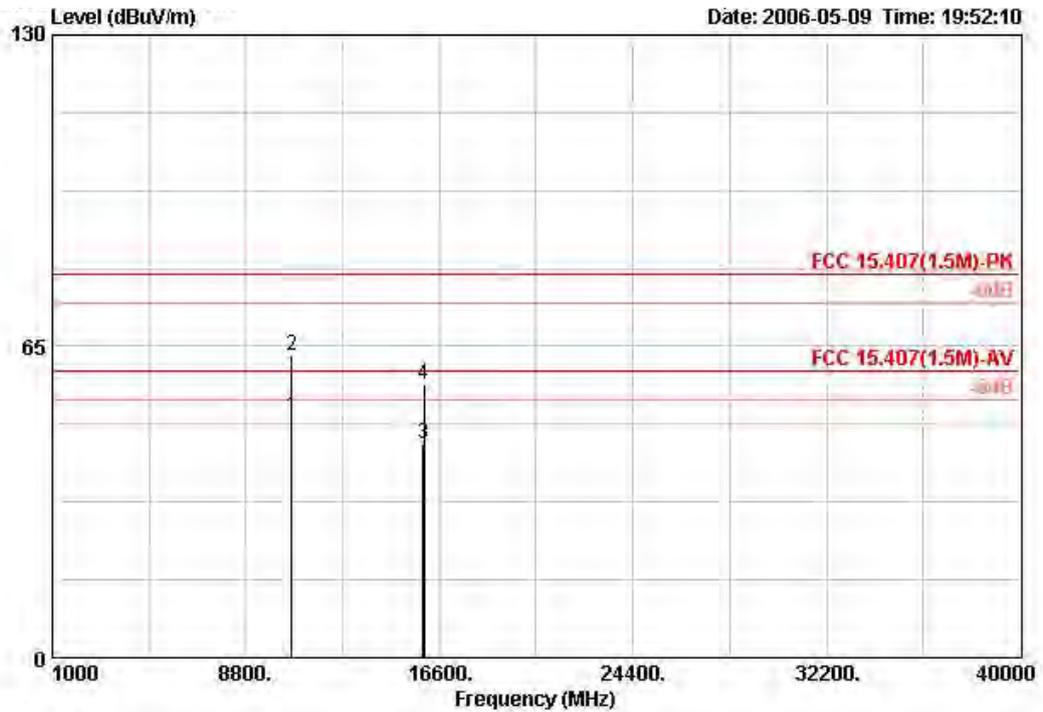
Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 64 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	10637.300	61.97	-18.03	80.00	50.90	38.21	7.74	34.88	PERK	VERTICAL	3
2	10638.000	51.94	-8.06	60.00	40.87	38.21	7.74	34.88	AVERAGE	VERTICAL	3
3	15947.500	57.81	-22.19	80.00	47.13	37.56	8.54	35.43	PERK	VERTICAL	3
4	15952.600	44.58	-15.42	60.00	33.93	37.54	8.54	35.43	AVERAGE	VERTICAL	3

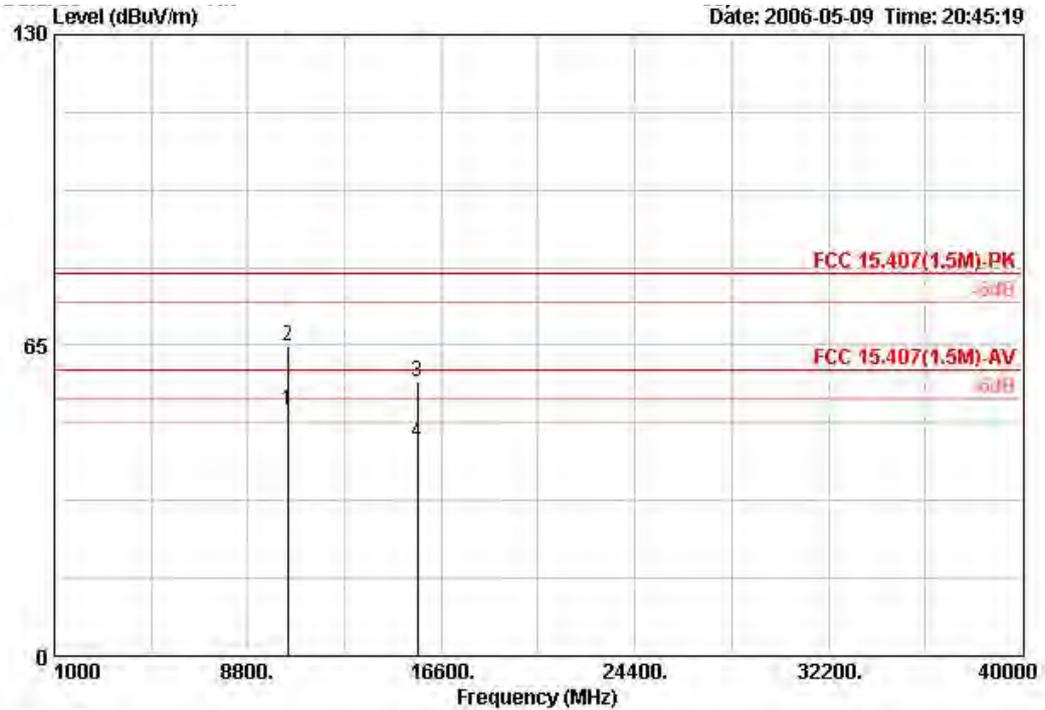
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB			m
1	10640.100	50.20	-9.80	60.00	39.13	38.21	7.74	34.88	AVERAGE	HORIZONTAL	3
2	10641.100	63.03	-16.97	80.00	51.96	38.21	7.74	34.88	PEAK	HORIZONTAL	3
3	15943.400	44.47	-15.53	60.00	33.80	37.56	8.54	35.43	AVERAGE	HORIZONTAL	3
4	15975.900	57.03	-22.97	80.00	46.40	37.52	8.55	35.44	PEAK	HORIZONTAL	3

Temperature	24°C	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Turbo Channel 42 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			m
1	10419.120	51.37	-8.63	60.00	40.35	38.37	7.71	35.05	AVERAGE	VERTICAL	3
2	10421.160	64.84	-15.16	80.00	53.82	38.37	7.71	35.05	PEAK	VERTICAL	3
3	15621.480	57.42	-22.58	80.00	46.32	37.96	8.45	35.31	PEAK	VERTICAL	3
4	15628.720	44.72	-15.28	60.00	33.66	37.93	8.45	35.32	AVERAGE	VERTICAL	3