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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-AP3150**
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	WLAN Managed AP3150
Brand Name	3Com
Model Name	AP3150
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250MHz
Receive Date	Apr. 07, 2006
Test Date	Feb. 05, 2007
Submission Type	Original Equipment

Statement

Test result included is only for the 802.11a (5150 ~ 5250MHz) of the product.

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

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

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

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

Table of Contents

History of This Test Report

Original Issue Date: Mar. 13, 2007

Report No.: FR720216-01-AA

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name	:	WLAN Managed AP3150
Brand Name	:	3Com
Model Name	:	AP3150
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. 07, 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.

Wayne Hsu

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	3.54 dB
4.2	15.407(a)	26dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.08dB
4.4	15.407(a)	Power Spectral Density	Complies	11.51 dB
4.5	15.407(a)	Peak Excursion	Complies	7.12 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.90 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.03 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	±2.26dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.71dB	Confidence levels of 95%
Power Spectral Density	±0.71dB	Confidence levels of 95%
Peak Excursion	±0.71dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	±6.25×10-7	Confidence levels of 95%
Radiated Emissions/ Band Edge Emissions	±3.72dB	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 ~ 5250MHz
Channel Number	11a: 6
Channel Band Width (99%)	11a: 17.60 MHz ; 11a Turbo: 33.80MHz
Conducted Output Power	Band 1: 16.86 dBm
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	3CWE592	Omni directional Antenna	N Type	4.00
3	3Com	3CWE596	Panel Antenna	N Type	20.00
4	3Com	3CWE597	Bidirectional Antenna	N Type	6.00
5	3Com	3CWE598	Panel Antenna	N Type	10.00
6	-	FDP-ACBSMA-GG	Dipole Antenna	Reversed-SMA	5.00

Note: Ant. 3 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		

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	48	5
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Max. Conducted Output Power Power Spectral Density Peak Excursion	Band 1/BPSK	6Mbps	36/40/48	1/2/4/5/6
	Band 1 Turbo/BPSK	12Mbps	42	1/2/4/5/6
Radiated Emission Below 1GHz	BPSK	6Mbps	48	1/2/4/5/6
Radiated Emission Above 1GHz	Band 1/BPSK	6Mbps	36/40/48	1/2/4/5/6
	Band 1 Turbo/BPSK	12Mbps	42	1/2/4/5/6
Band Edge Emission	Band 1/BPSK	6Mbps	36/48	1/2/4/5/6
	Band 1 Turbo/BPSK	12Mbps	42	1/2/4/5/6
Frequency Stability	Un-modulation	-	-	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

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	5200 MHz	5240 MHz
IEEE 802.11a	12	12.5	12.5
Frequency	5210 MHz	-	
IEEE 802.11a Turbo	11		

Power Parameters of IEEE 802.11a / Ant. 2

Test Software Version	ART		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	14	14	14
Frequency	5210 MHz	-	
IEEE 802.11a Turbo	13		

Power Parameters of IEEE 802.11a / Ant. 4

Test Software Version	ART		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	13	14	14
Frequency	5210 MHz	-	
IEEE 802.11a Turbo	13		

Power Parameters of IEEE 802.11a / Ant. 5

Test Software Version	ART		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	10	10.5	10.5
Frequency	5210 MHz	-	
IEEE 802.11a Turbo	10		

Power Parameters of IEEE 802.11a / Ant. 6

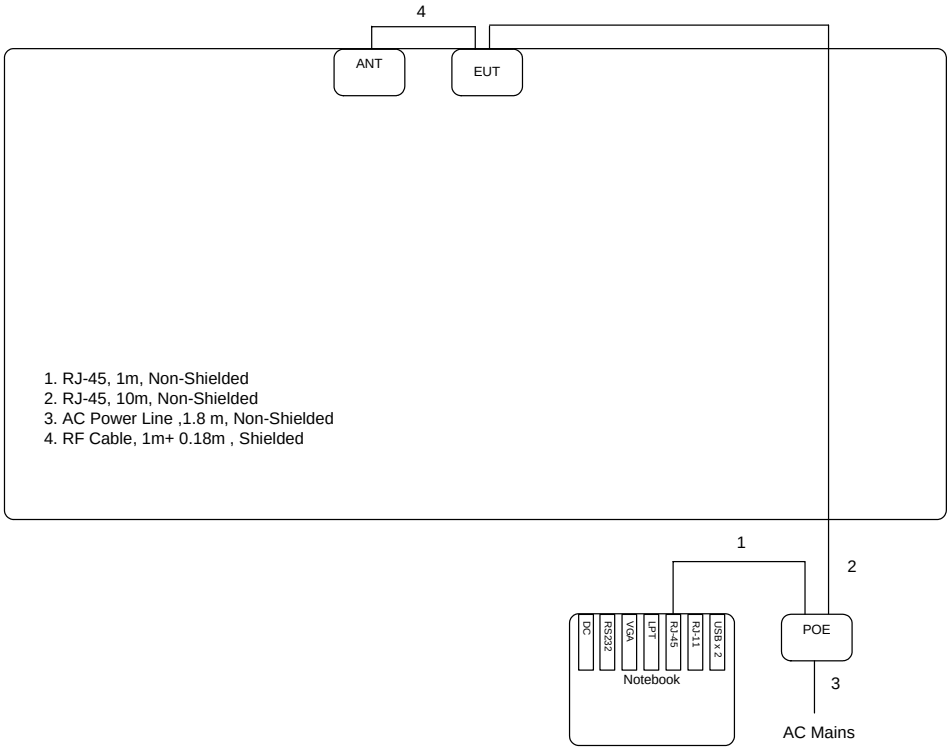
Test Software Version	ART		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	14	14	14
Frequency	5210 MHz	-	
IEEE 802.11a Turbo	13		

3.9. Test Configurations

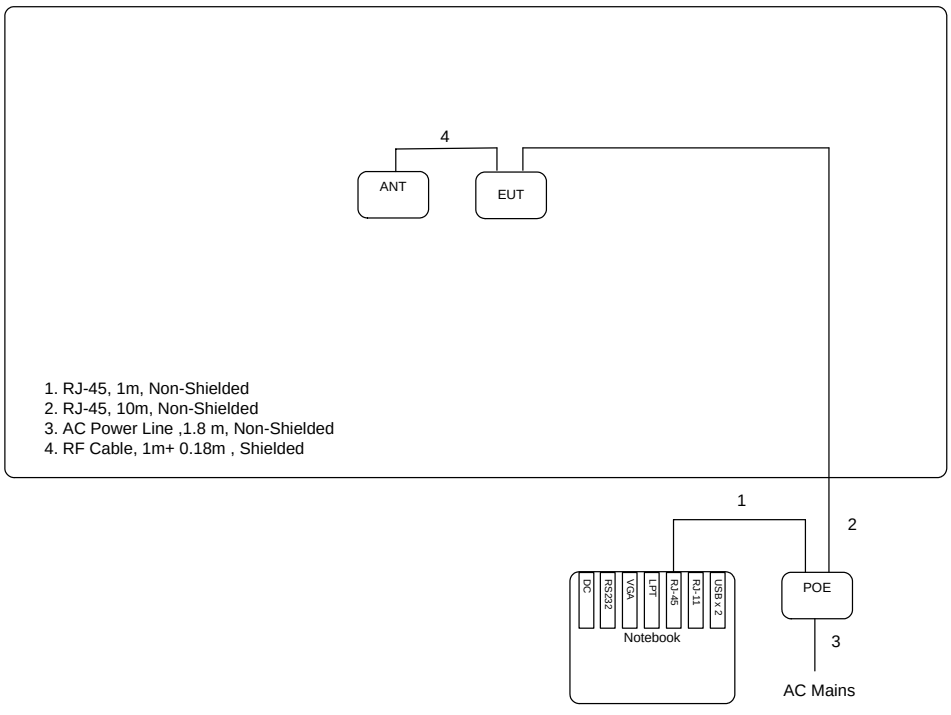
3.9.1. Radiation Emissions Test Configuration

For Ant. 1/2/4/5

Test Configuration: 30MHz~1GHz

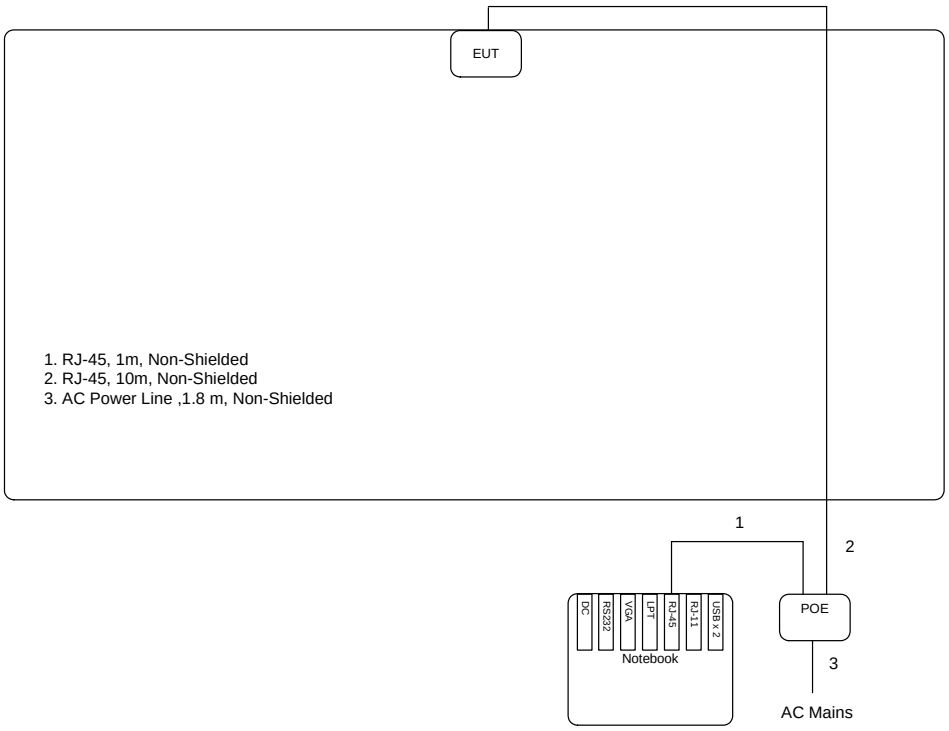


Test Configuration: above 1GHz

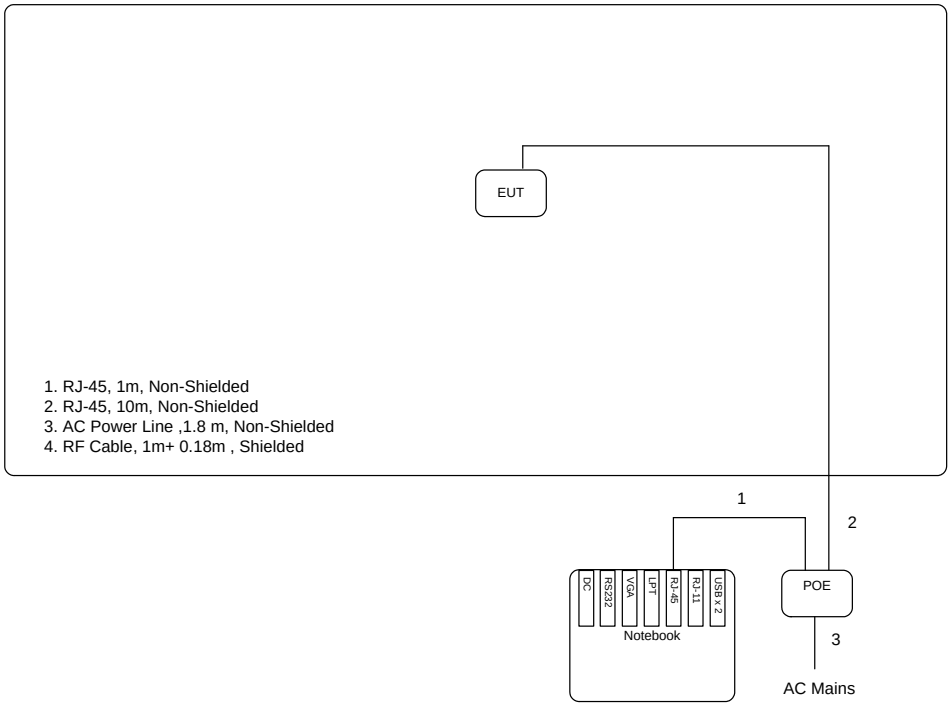


For Ant. 6

Test Configuration: 30MHz~1GHz

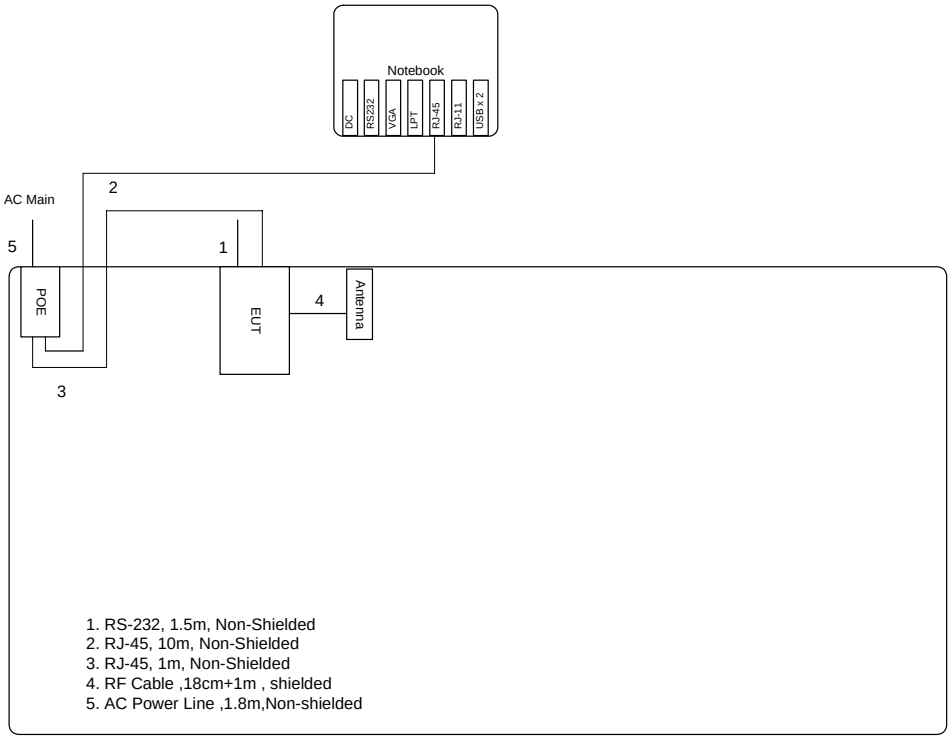


Test Configuration: above 1GHz



3.9.2. AC Power Line Conduction Emissions Test Configuration

For Ant. 5



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

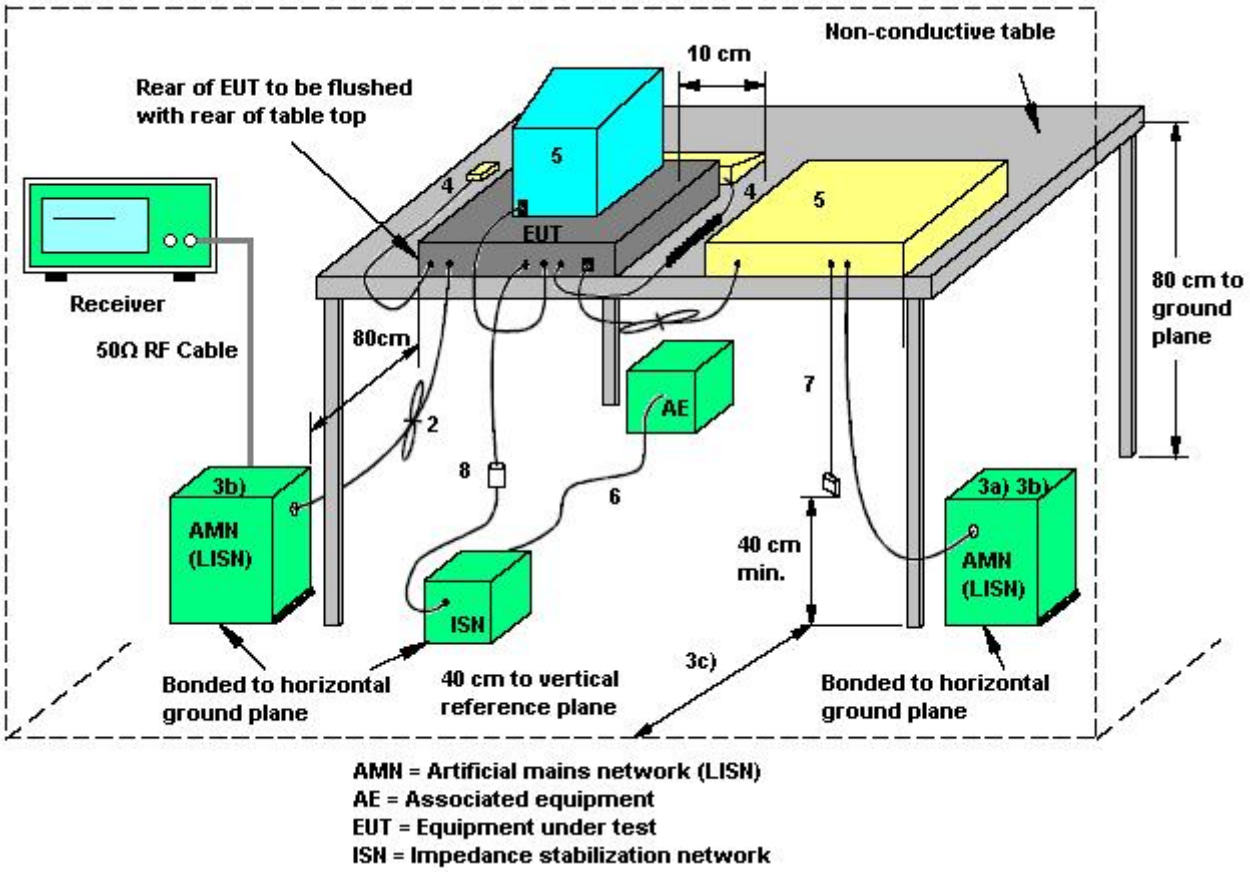
Please refer to section 5 in this report. The following table is the setting of the receiver.

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



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

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, mouses, 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

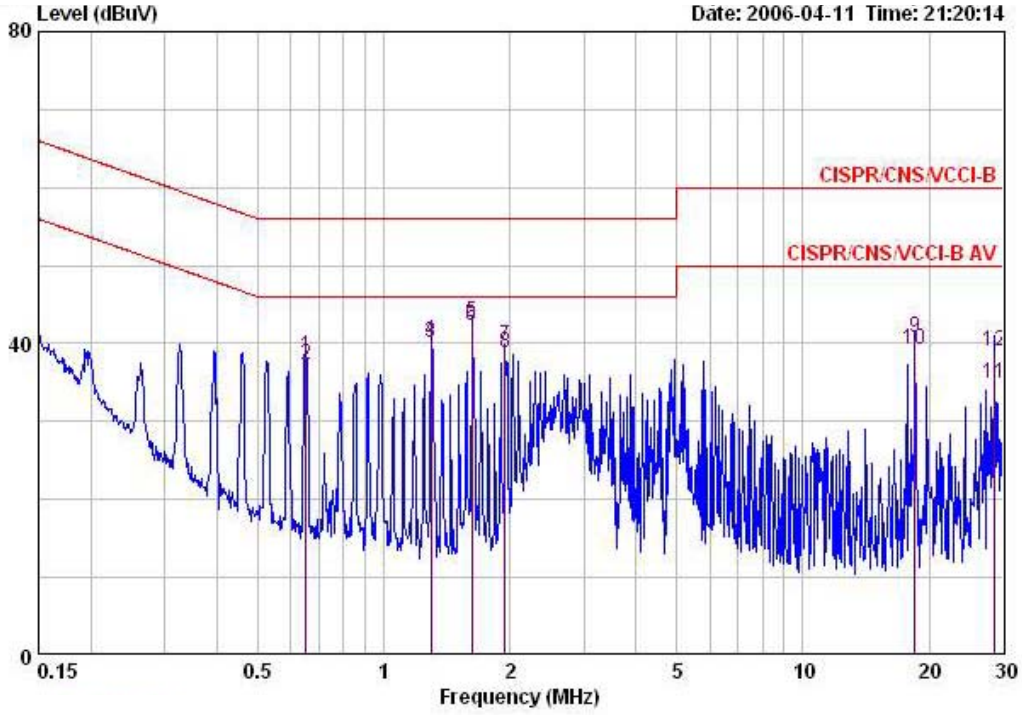
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

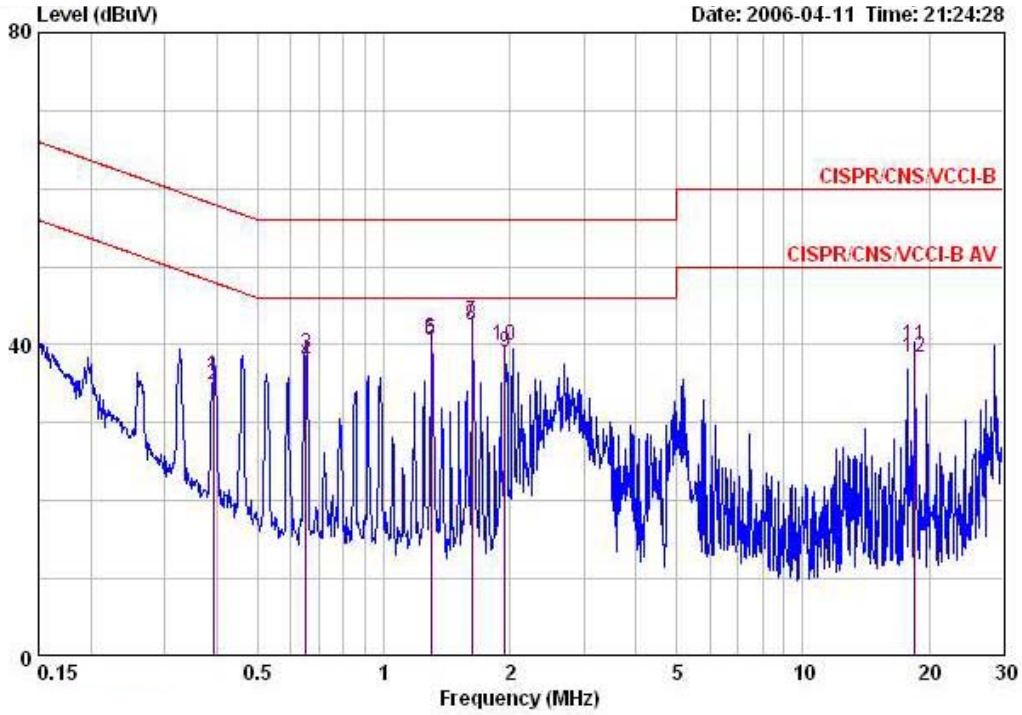
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24℃	Humidity	64%
Test Engineer	Leo Hung	Phase	Line
Configuration	Normal Link / Ant. 5		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.65084	38.26	-17.74	56.00	37.66	0.40	0.20	QP
2	0.65084	37.18	-8.82	46.00	36.58	0.40	0.20	AVERAGE
3	1.298	40.22	-5.78	46.00	39.78	0.30	0.14	AVERAGE
4	1.298	40.36	-15.64	56.00	39.92	0.30	0.14	QP
5	1.624	42.74	-13.26	56.00	42.31	0.30	0.13	QP
6 @	1.624	42.20	-3.80	46.00	41.77	0.30	0.13	AVERAGE
7	1.949	39.73	-16.27	56.00	39.24	0.30	0.19	QP
8	1.949	38.78	-7.22	46.00	38.29	0.30	0.19	AVERAGE
9	18.487	40.73	-19.27	60.00	39.83	0.40	0.50	QP
10	18.487	39.19	-10.81	50.00	38.29	0.40	0.50	AVERAGE
11	28.686	34.87	-15.13	50.00	33.92	0.35	0.60	AVERAGE
12	28.686	38.95	-21.05	60.00	38.00	0.35	0.60	QP

Temperature	24℃	Humidity	64%
Test Engineer	Leo Hung	Phase	Neutral
Configuration	Normal Link / Ant. 5		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.39235	36.01	-22.00	58.01	35.31	0.50	0.20	QP
2	0.39235	34.79	-13.22	48.01	34.09	0.50	0.20	AVERAGE
3	0.65084	38.91	-17.09	56.00	38.41	0.30	0.20	QP
4	0.65084	37.66	-8.34	46.00	37.16	0.30	0.20	AVERAGE
5	1.298	40.50	-5.50	46.00	40.06	0.30	0.14	AVERAGE
6	1.298	40.84	-15.16	56.00	40.40	0.30	0.14	QP
7	1.623	42.93	-13.07	56.00	42.53	0.27	0.13	QP
8 @	1.623	42.46	-3.54	46.00	42.06	0.27	0.13	AVERAGE
9	1.949	39.07	-6.93	46.00	38.67	0.21	0.19	AVERAGE
10	1.949	39.80	-16.20	56.00	39.40	0.21	0.19	QP
11	18.488	39.90	-20.10	60.00	39.00	0.40	0.50	QP
12	18.488	38.34	-11.66	50.00	37.44	0.40	0.50	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 99% Occupied Bandwidth Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

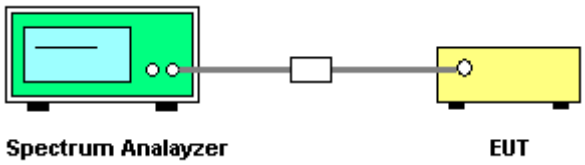
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

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℃	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	25.12	17.60
40	5200 MHz	24.48	17.30
48	5240 MHz	24.35	17.43

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	50.20	33.6

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

Configuration IEEE 802.11a

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.64	17.44
40	5200 MHz	24.48	17.43
48	5240 MHz	24.74	17.43

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	47.80	33.60

Temperature	24℃	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	25.44	17.60
40	5200 MHz	24.48	17.43
48	5240 MHz	24.74	17.43

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	49.20	33.60

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 5

Configuration IEEE 802.11a

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.48	17.60
40	5200 MHz	25.38	17.43
48	5240 MHz	24.74	17.43

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	45.60	33.60

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 6

Configuration IEEE 802.11a

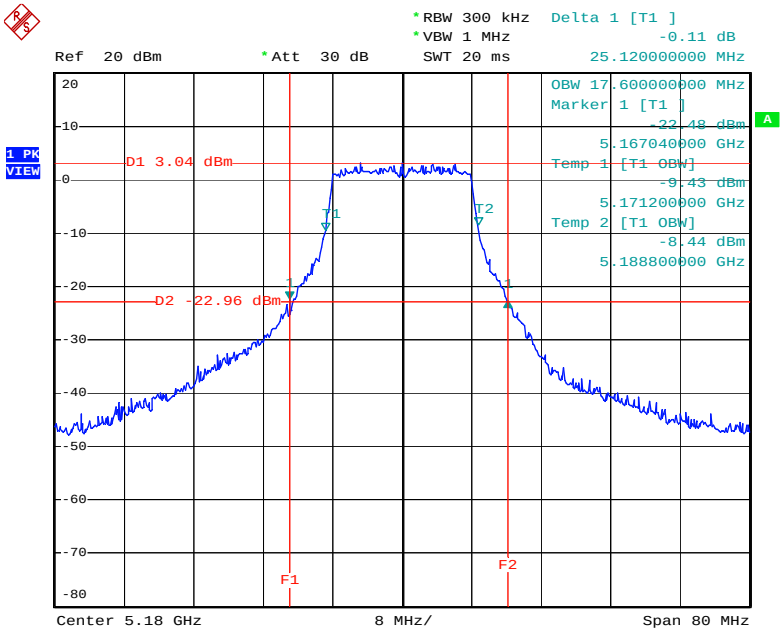
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.38	17.43
40	5200 MHz	24.48	17.43
48	5240 MHz	24.74	17.43

Configuration IEEE 802.11a Turbo

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	47.80	33.60

For Ant. 1

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



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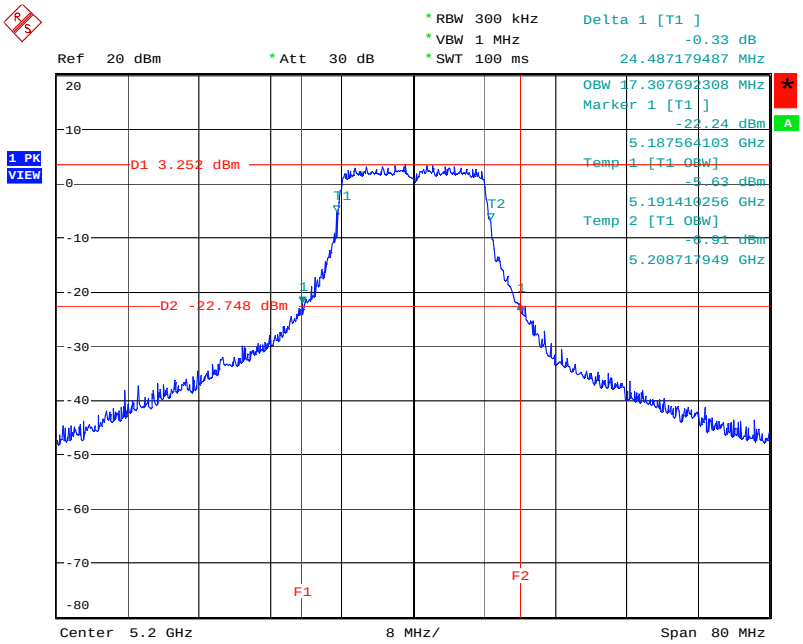

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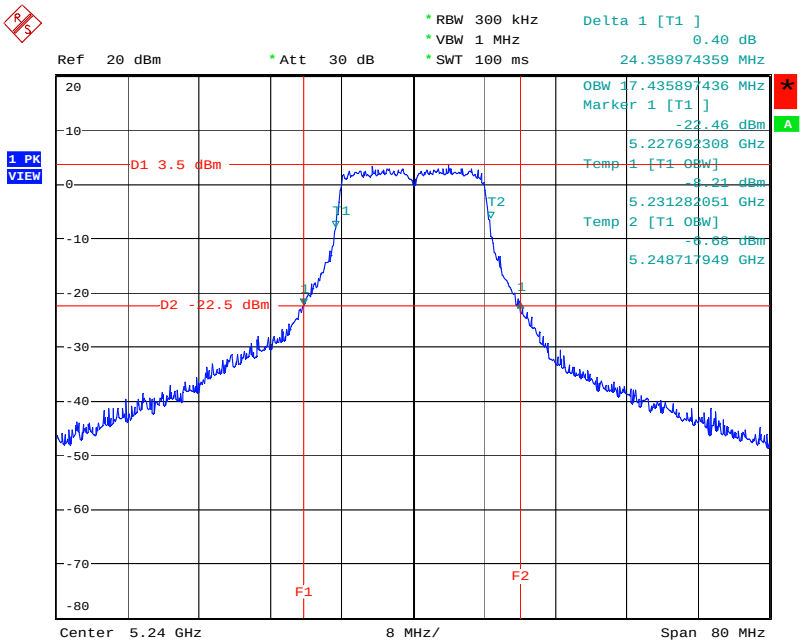
26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5240 MHz



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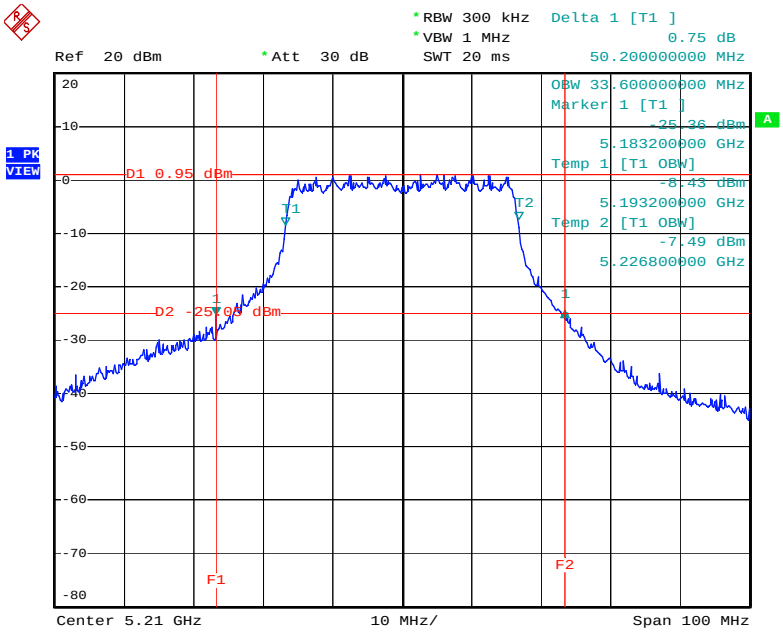
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



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For Ant. 2

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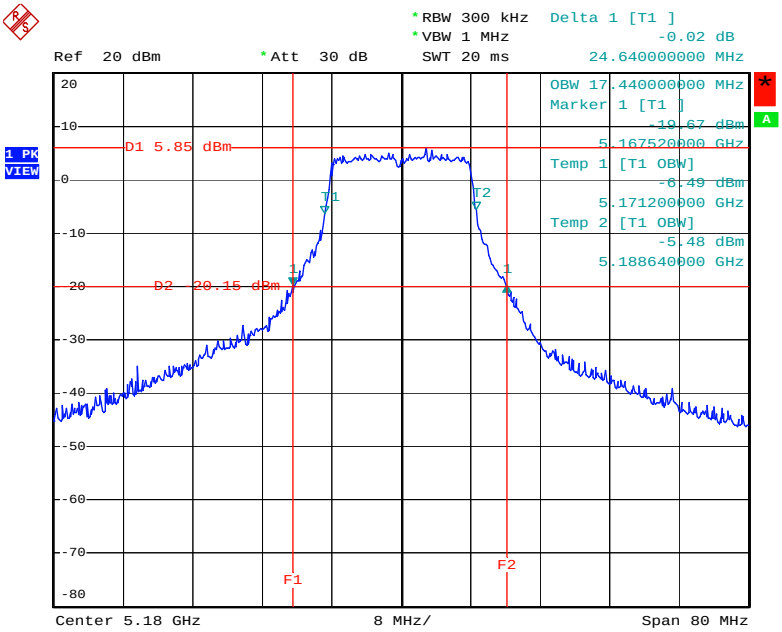

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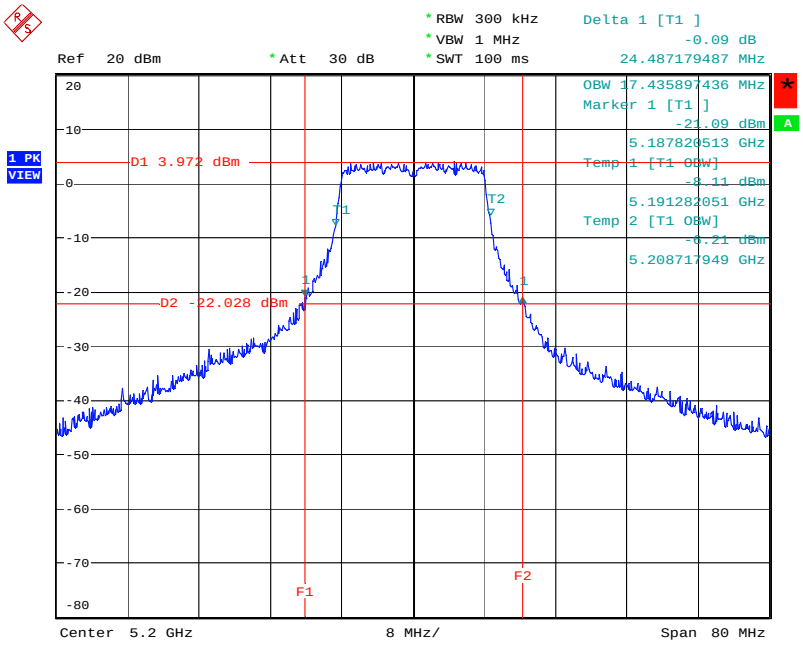

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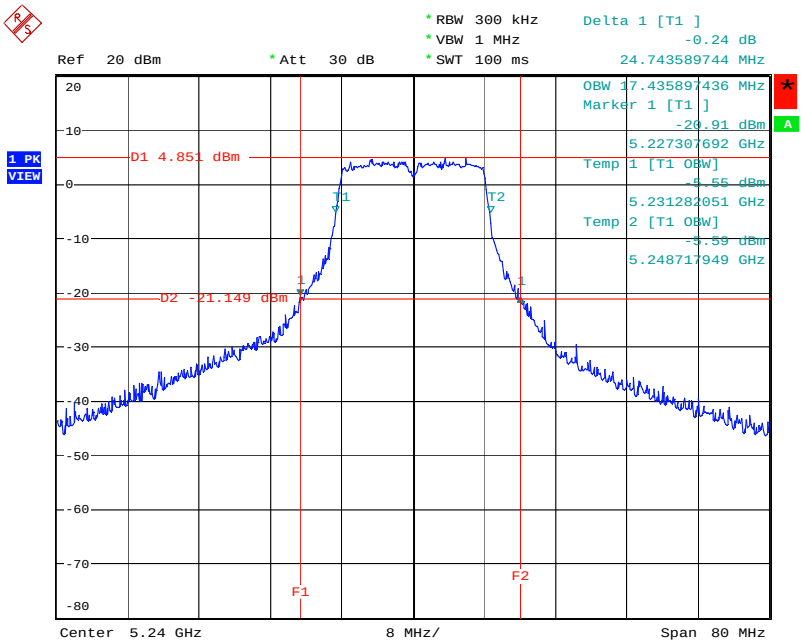

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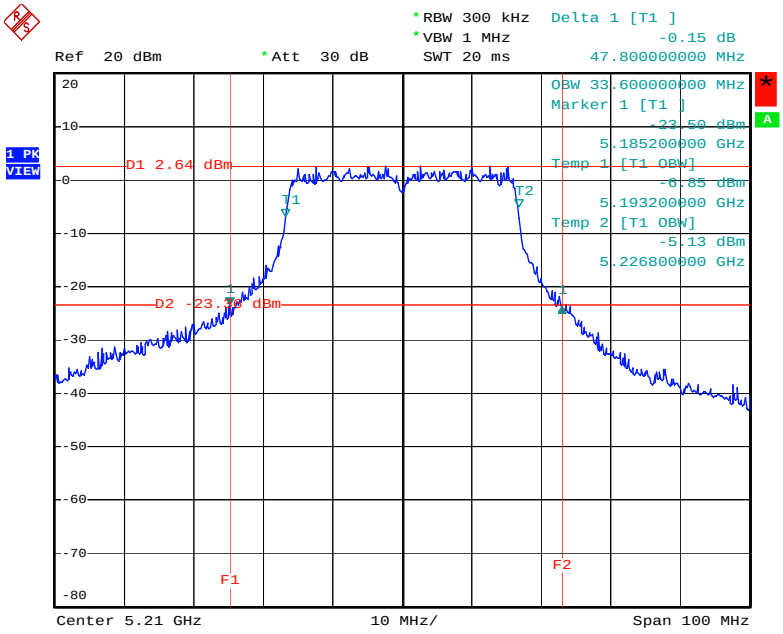
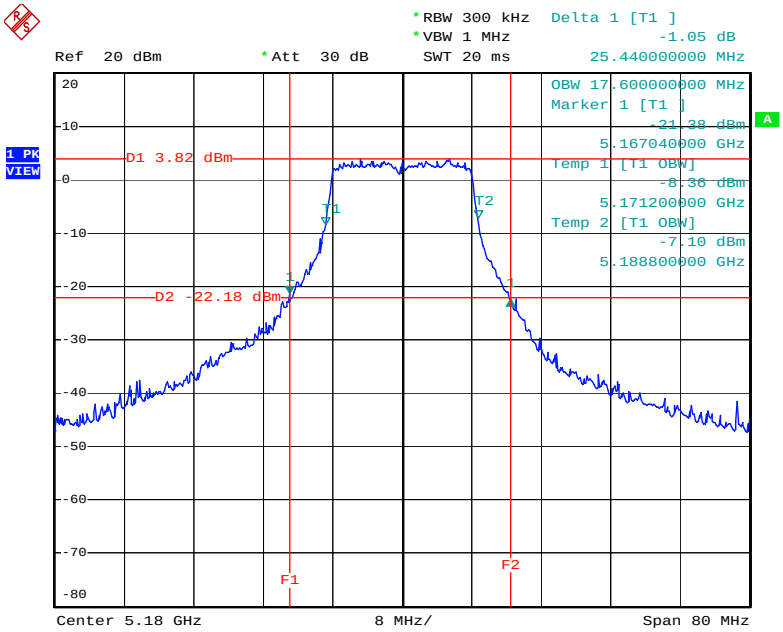
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:07:36

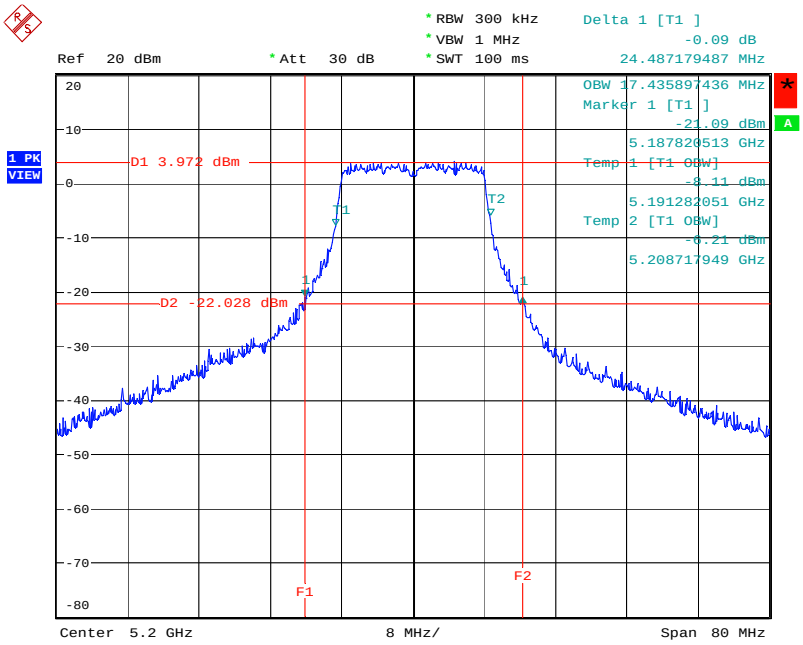
For Ant. 4

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



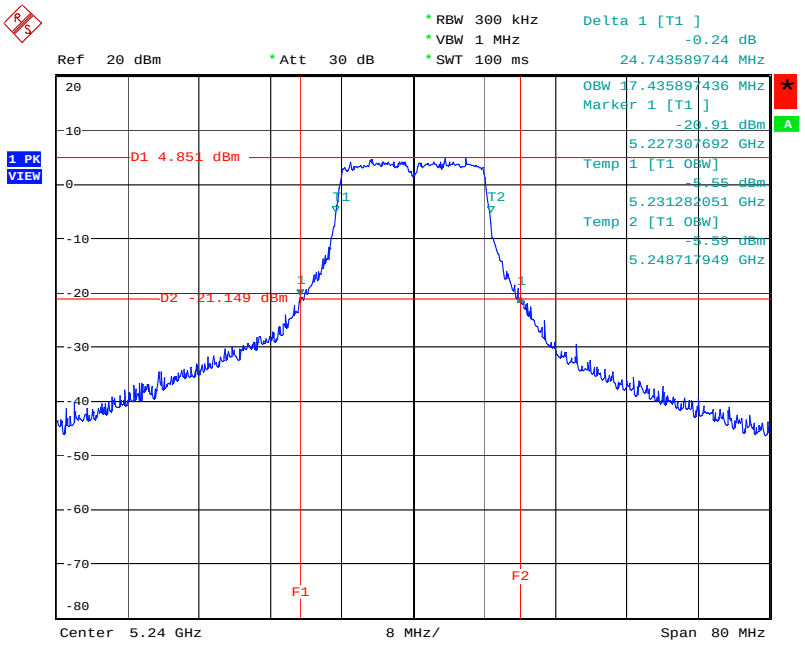
Date: 27.APR.2006 21:21:28

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5200 MHz



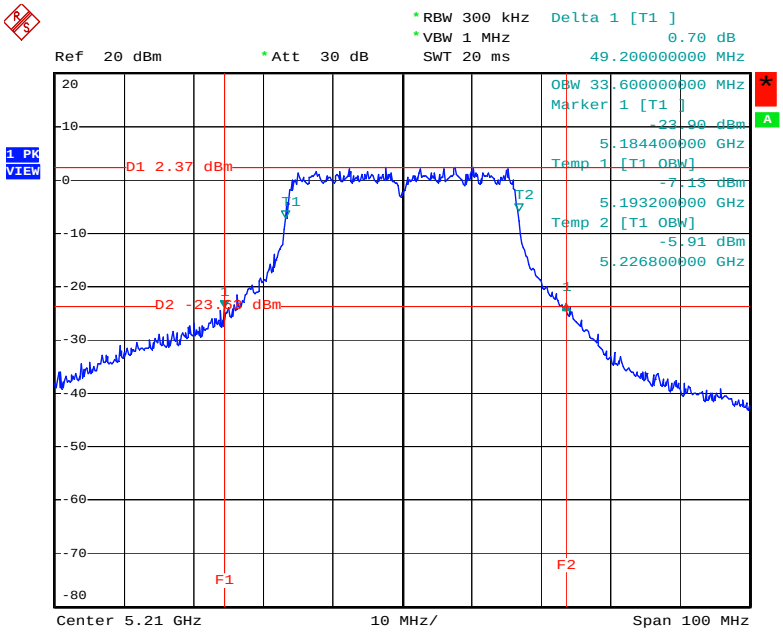
Date: 5.FEB.2007 18:16:42

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:14

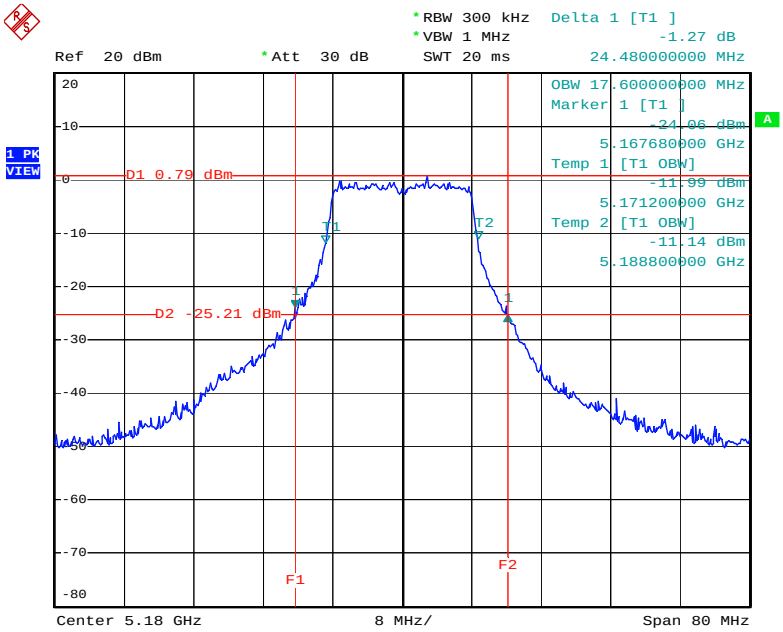
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 27.APR.2006 22:57:36

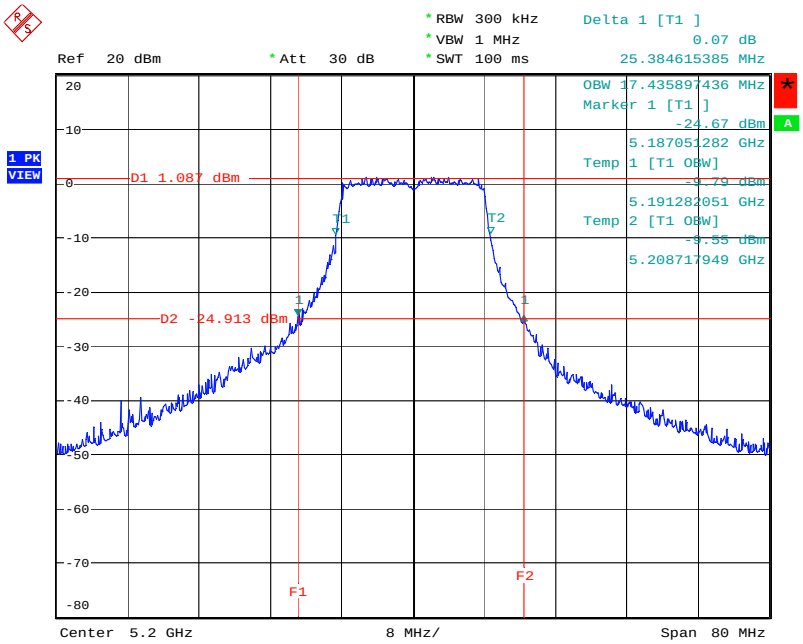
For Ant. 5

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



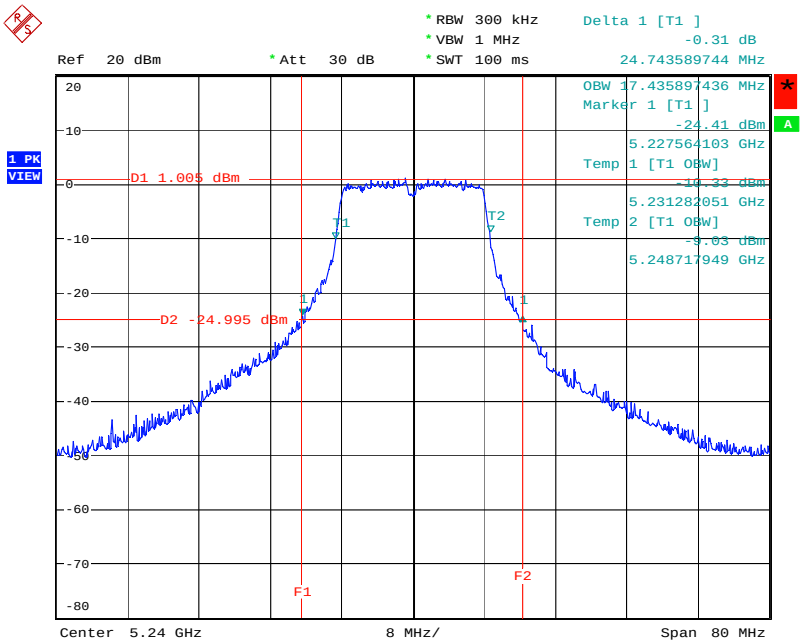
Date: 5.MAY.2006 21:28:51

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5200 MHz



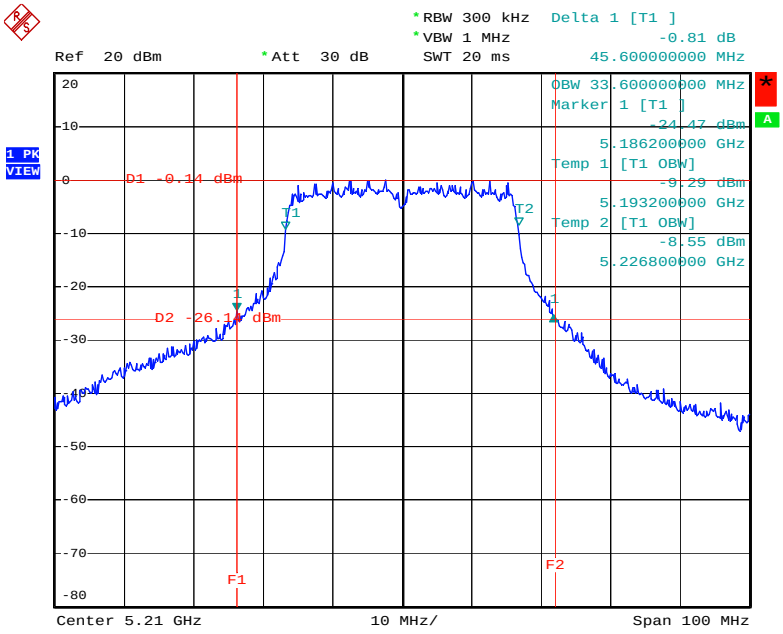
Date: 5.FEB.2007 18:28:49

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:57:54

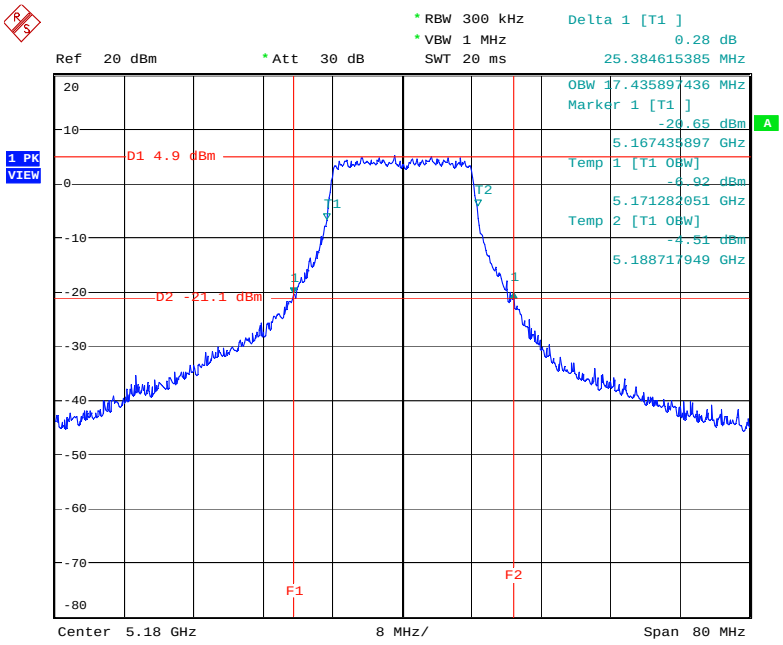
26 dB Bandwidth Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 5.MAY.2006 21:55:43

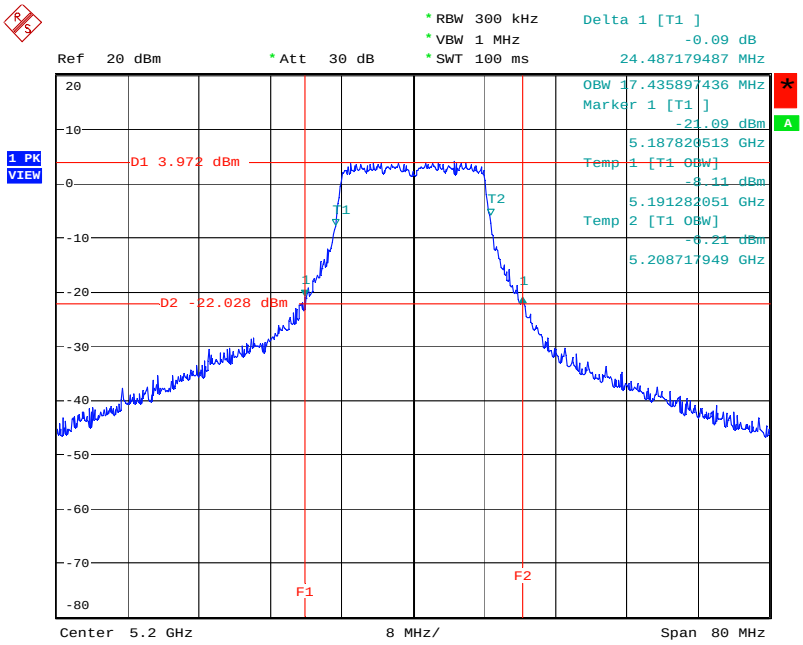
For Ant. 6

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



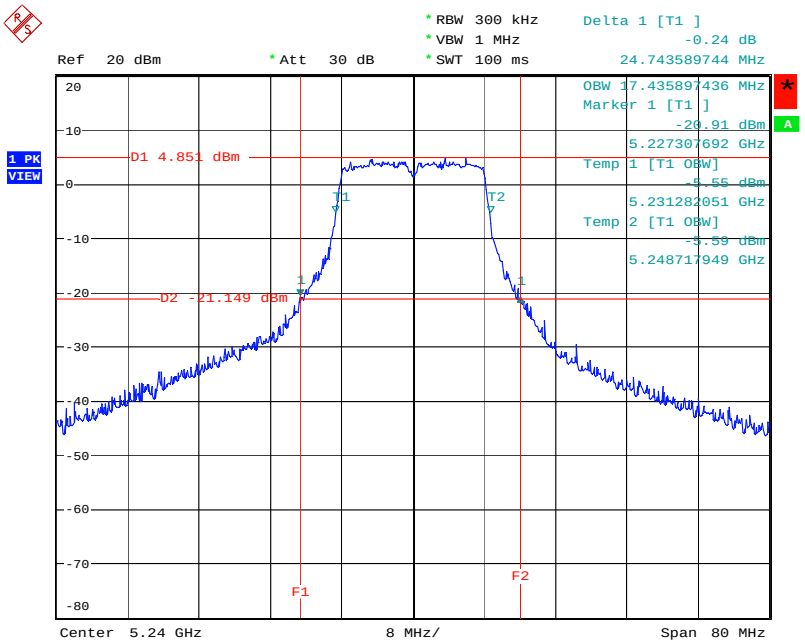
Date: 8.MAY.2006 15:43:59

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5200 MHz



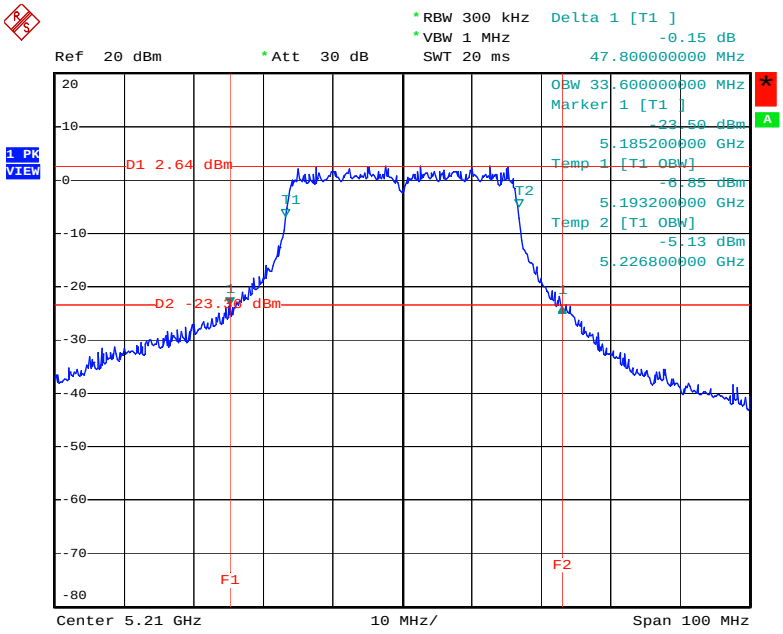
Date: 5.FEB.2007 18:16:42

26 dB Bandwidth Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:14

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



Date: 4.MAY.2006 22:07:36

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 dBm + 10log 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 dBm + 10log 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℃	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	14.92	15.00	Complies
40	5200 MHz	14.89	15.00	Complies
48	5240 MHz	14.98	15.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	13.52	15.00	Complies

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

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.82	17.00	Complies
40	5200 MHz	16.01	17.00	Complies
48	5240 MHz	16.34	17.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	15.60	17.00	Complies

Temperature	24℃	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	15.63	17.00	Complies
40	5200 MHz	16.01	17.00	Complies
48	5240 MHz	16.34	17.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	15.67	17.00	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 5

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	12.43	13.00	Complies
40	5200 MHz	12.77	13.00	Complies
48	5240 MHz	12.68	13.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	12.45	13.00	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 6

Configuration IEEE 802.11a

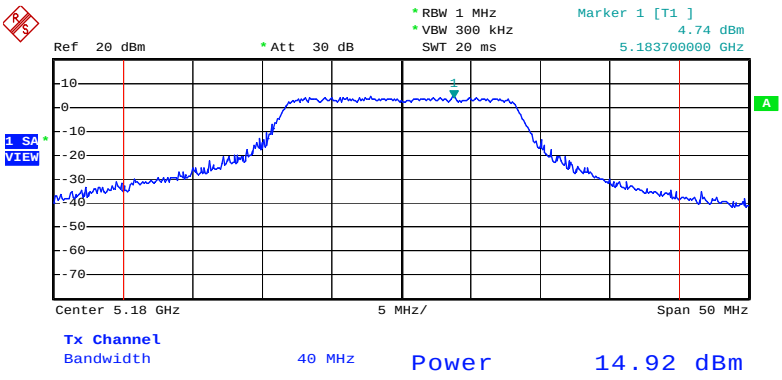
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.86	17.00	Complies
40	5200 MHz	16.01	17.00	Complies
48	5240 MHz	16.34	17.00	Complies

Configuration IEEE 802.11a Turbo

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	15.60	17.00	Complies

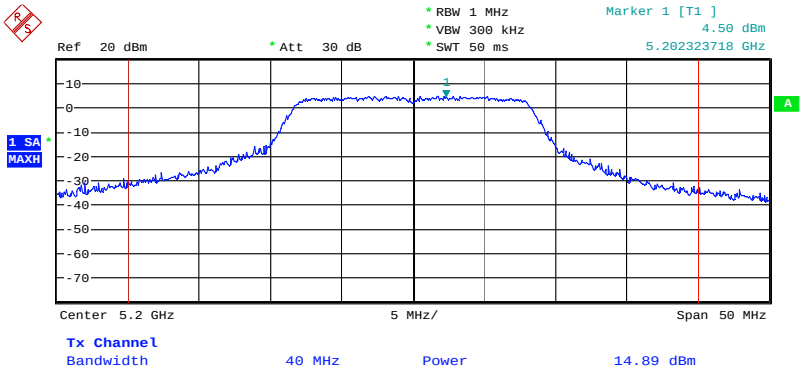
For Ant. 1

Channel Output Power Plot on Configuration IEEE 802.11a / 5180 MHz



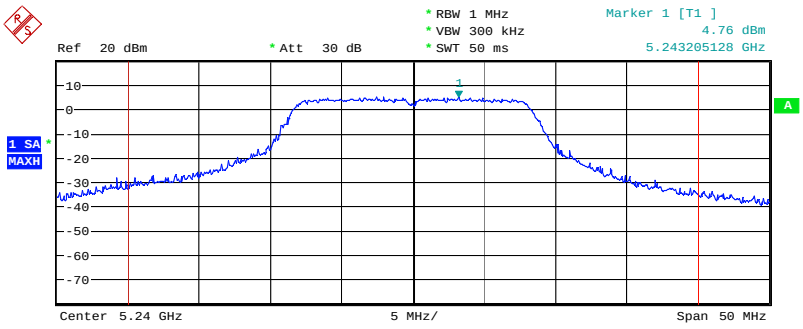
Date: 4.MAY.2006 20:21:00

Channel Output Power Plot on Configuration IEEE 802.11a / 5200 MHz



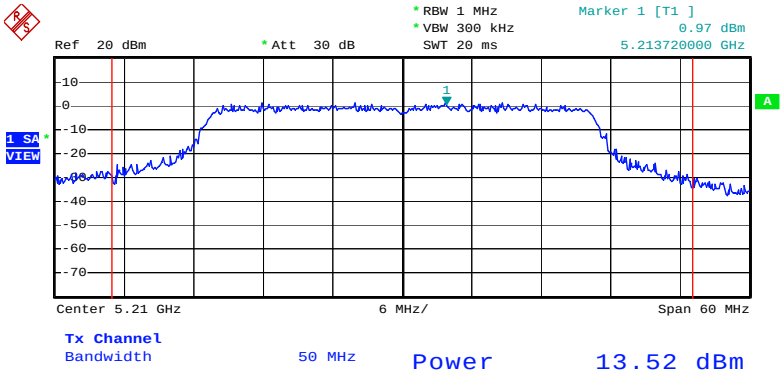
Date: 5.FEB.2007 18:05:57

Channel Output Power Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:07:14

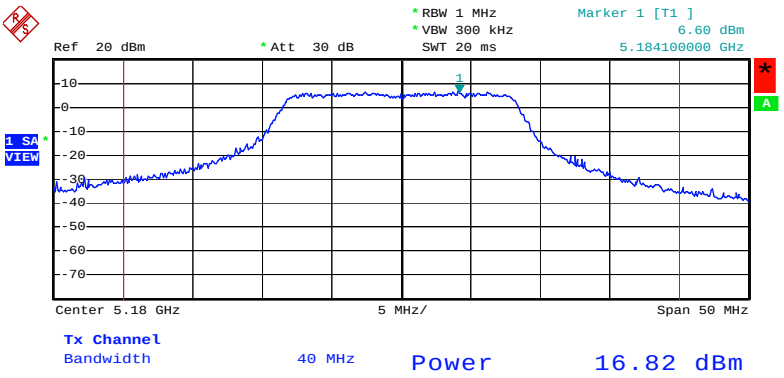
Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 21:27:21

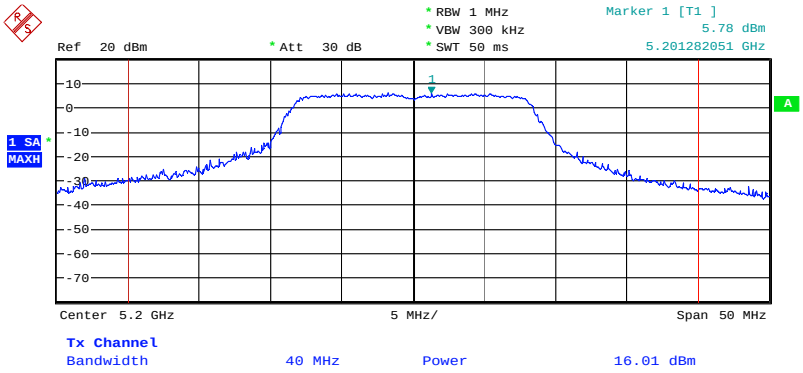
For Ant. 2

Channel Output Power Plot on Configuration IEEE 802.11a / 5180 MHz



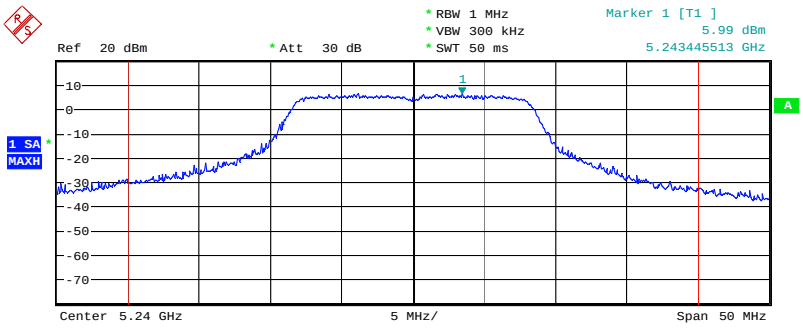
Date: 4.MAY.2006 20:30:55

Channel Output Power Plot on Configuration IEEE 802.11a / 5200 MHz



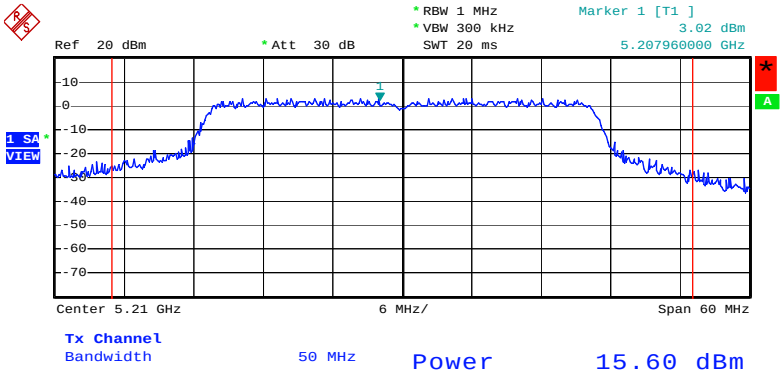
Date: 5.FEB.2007 18:17:24

Channel Output Power Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:55

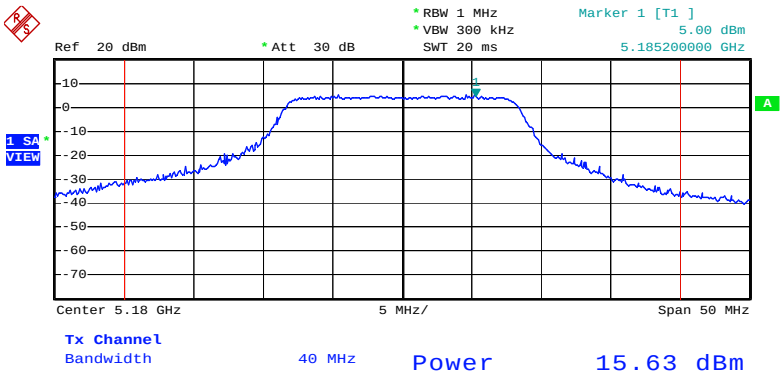
Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:18:41

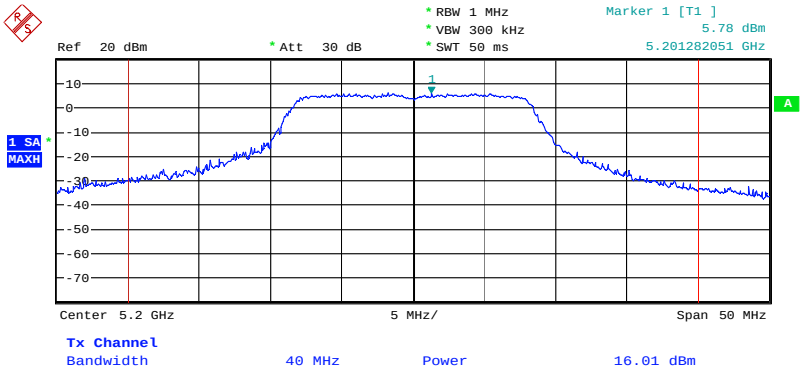
For Ant. 4

Channel Output Power Plot on Configuration IEEE 802.11a / 5180 MHz



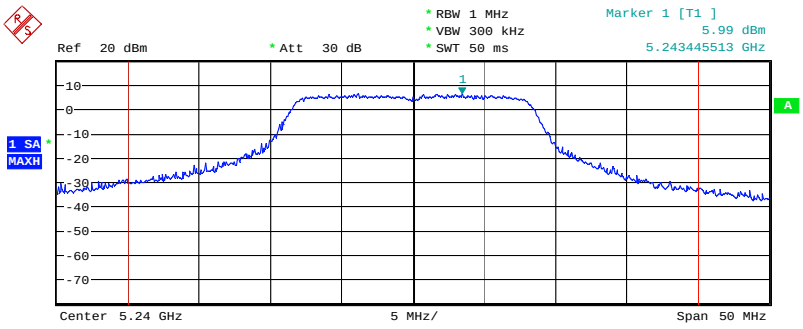
Date: 27.APR.2006 22:36:15

Channel Output Power Plot on Configuration IEEE 802.11a / 5200 MHz



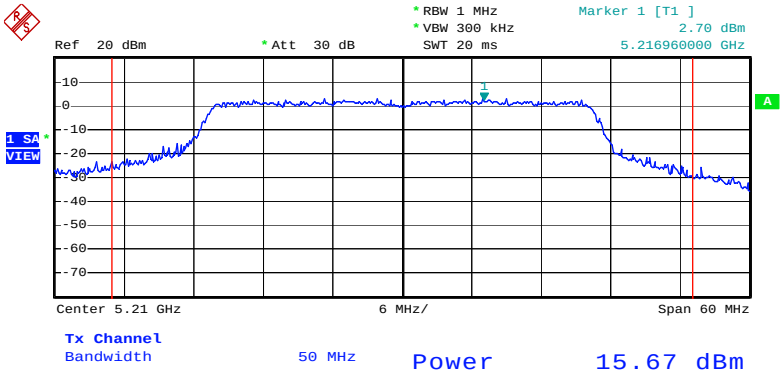
Date: 5.FEB.2007 18:17:24

Channel Output Power Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:55

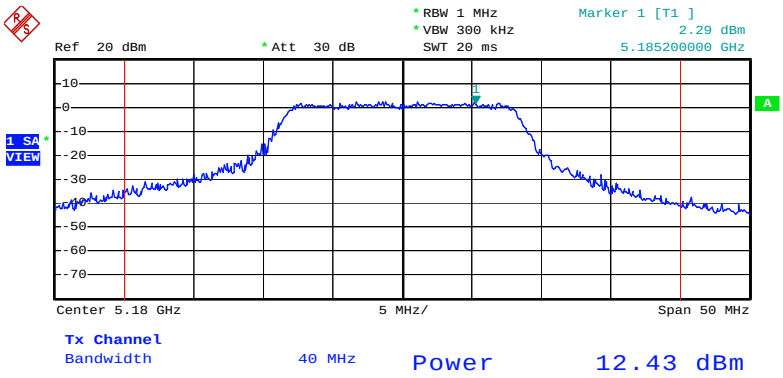
Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 27.APR.2006 23:03:45

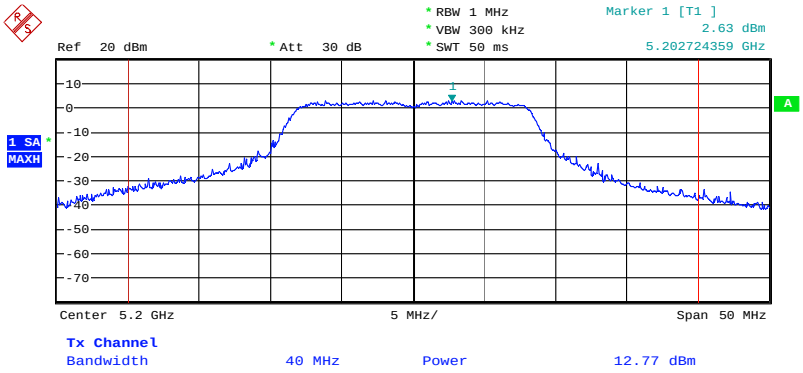
For Ant. 5

Channel Output Power Plot on Configuration IEEE 802.11a / 5180 MHz



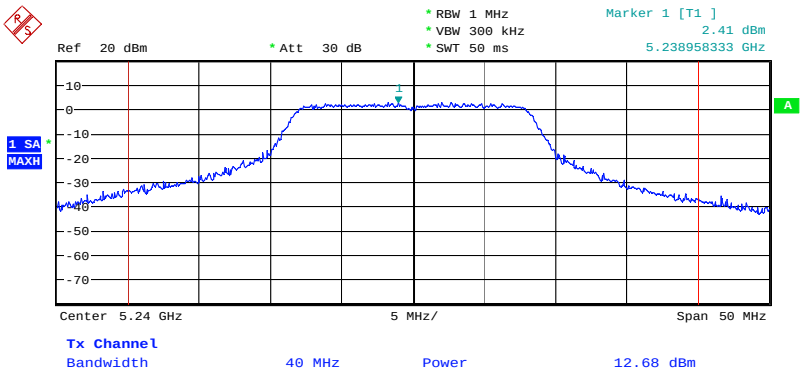
Date: 5.MAY.2006 21:39:07

Channel Output Power Plot on Configuration IEEE 802.11a / 5200 MHz



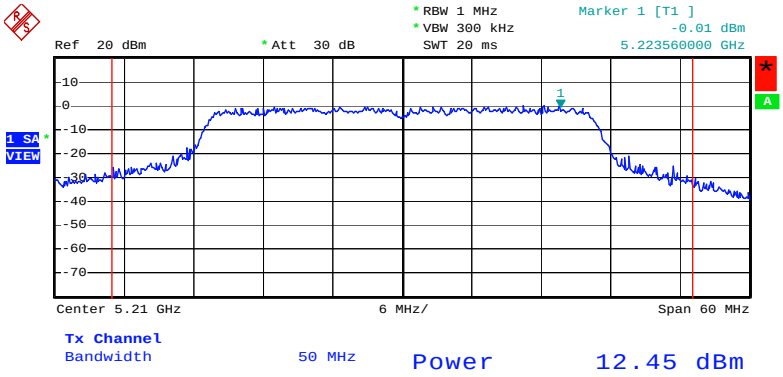
Date: 5.FEB.2007 18:29:31

Channel Output Power Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:58:35

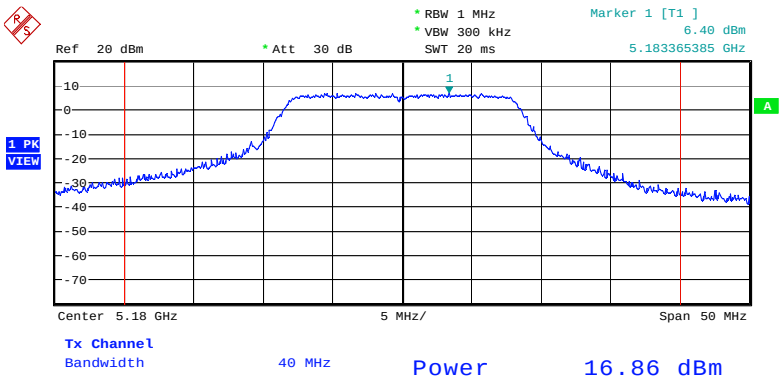
Channel Output Power Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 5.MAY.2006 21:45:13

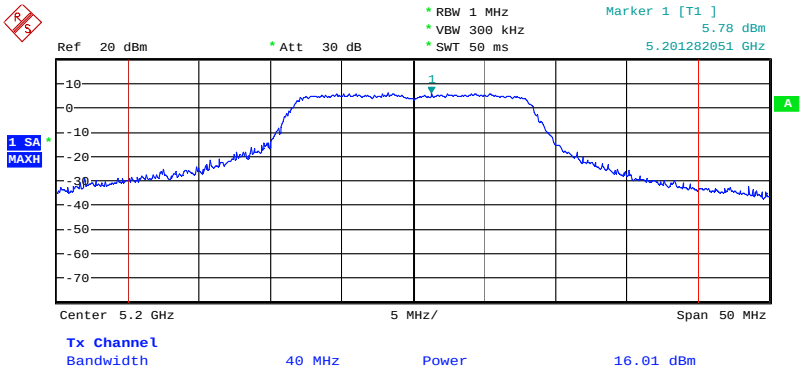
For Ant. 6

Channel Output Power Plot on Configuration IEEE 802.11a / 5180 MHz



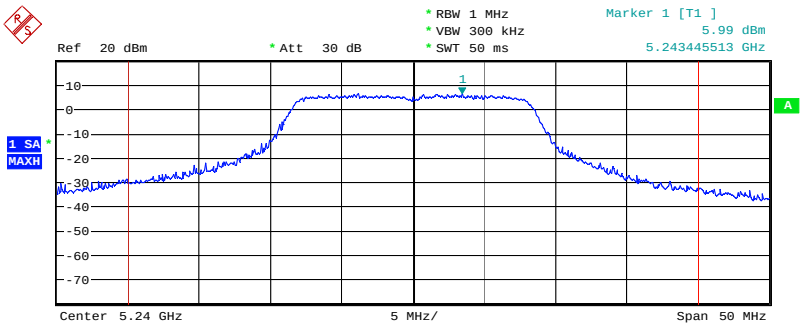
Date: 8.MAY.2006 16:02:06

Channel Output Power Plot on Configuration IEEE 802.11a / 5200 MHz



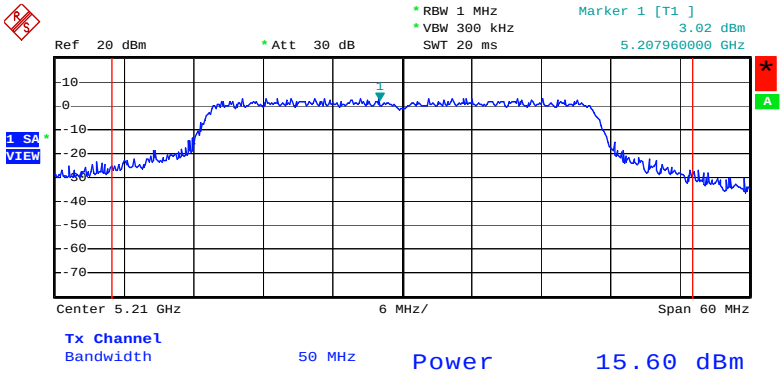
Date: 5.FEB.2007 18:17:24

Channel Output Power Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:55

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



Date: 4.MAY.2006 22:18:41

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.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak power density from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

4.4.2. Measuring Instruments and Setting

Please refer to section 5 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 analyser.
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℃	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	-2.11	2.00	Complies
5200 MHz	-1.33	9.00	Complies
5240 MHz	-1.20	9.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-4.28	2.00	Complies

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

Configuration IEEE 802.11a

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	0.39	4.00	Complies
5200 MHz	-0.51	11.00	Complies
5240 MHz	0.19	11.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-2.31	4.00	Complies

Temperature	24℃	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	-0.72	4.00	Complies
5200 MHz	-0.51	11.00	Complies
5240 MHz	0.19	11.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-2.97	4.00	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 5

Configuration IEEE 802.11a

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-4.60	0.00	Complies
5200 MHz	-2.67	7.00	Complies
5240 MHz	-3.42	7.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-4.36	0.00	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 6

Configuration IEEE 802.11a

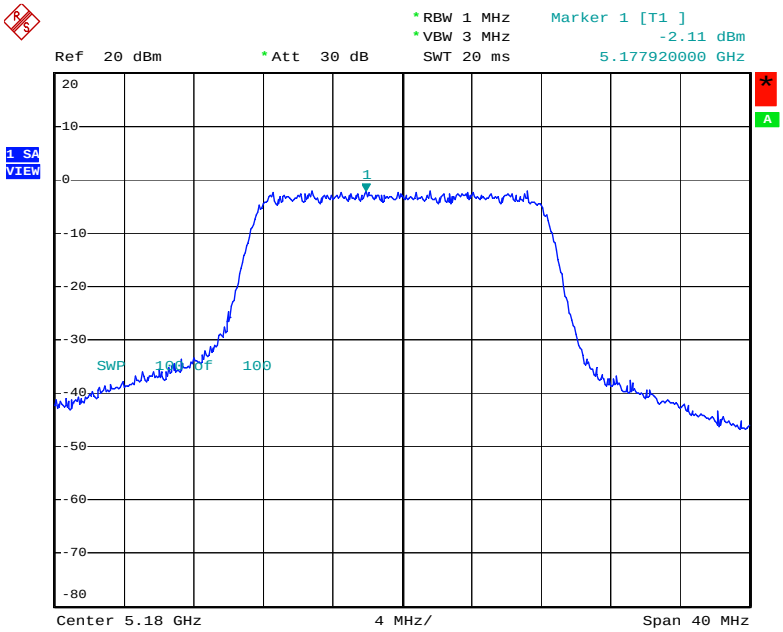
Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	0.52	4.00	Complies
5200 MHz	-0.51	11.00	Complies
5240 MHz	0.19	11.00	Complies

Configuration IEEE 802.11a Turbo

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5210 MHz	-2.31	4.00	Complies

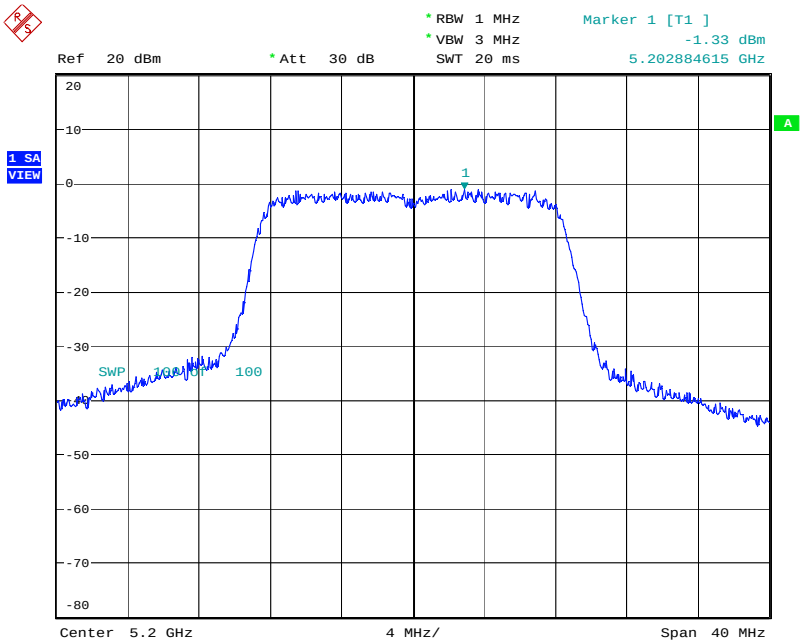
For Ant. 1

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



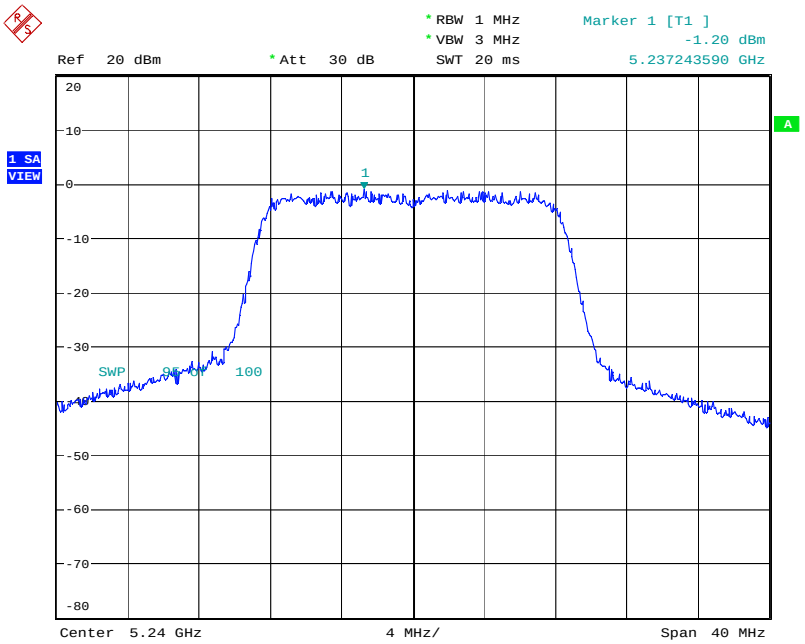
Date: 4.MAY.2006 20:19:22

Power Density Plot on Configuration IEEE 802.11a / 5200 MHz



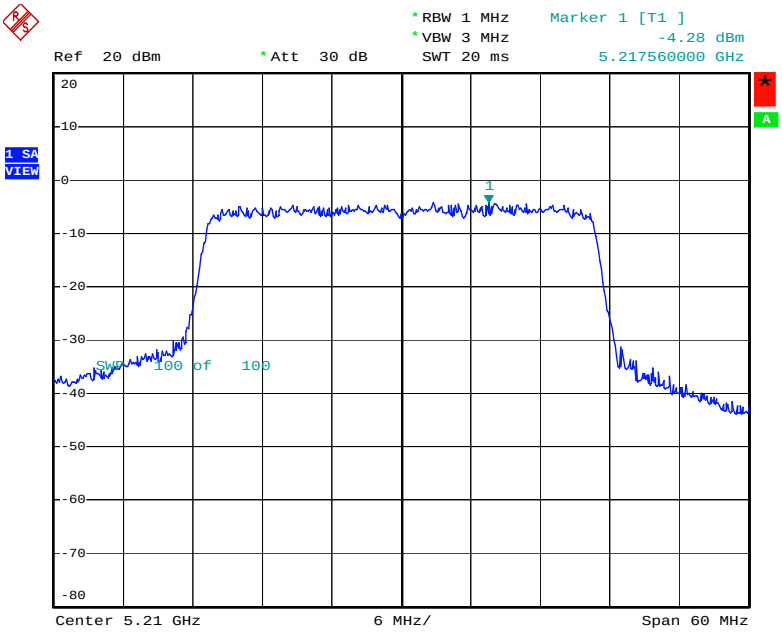
Date: 5.FEB.2007 18:05:22

Power Density Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:06:39

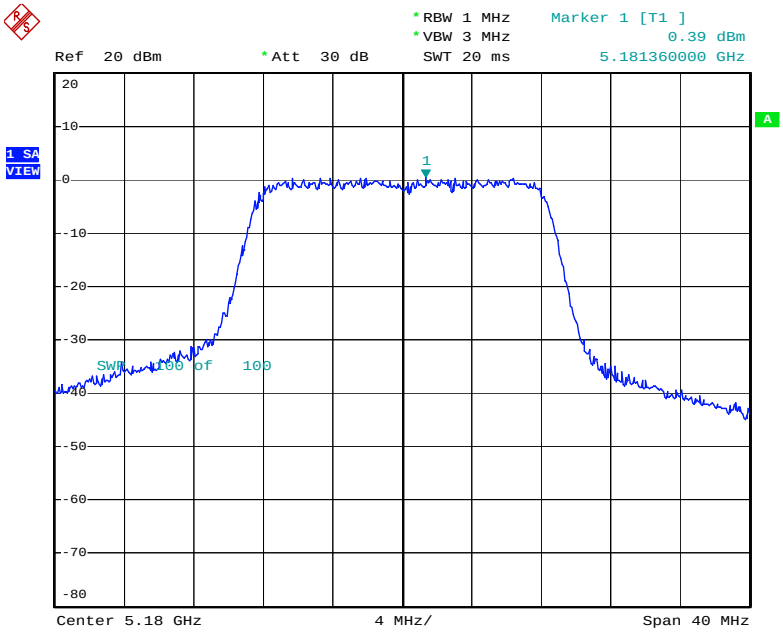
Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 21:46:21

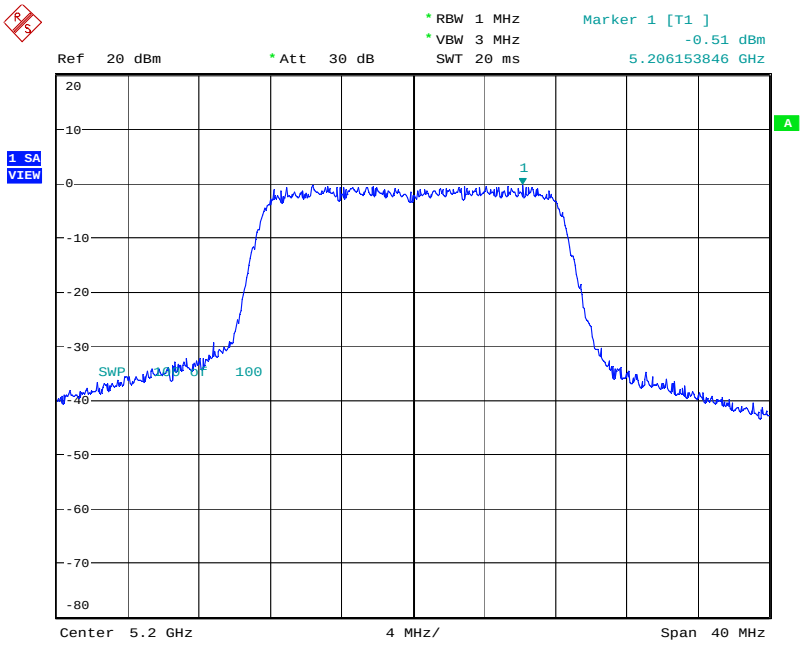
For Ant. 2

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



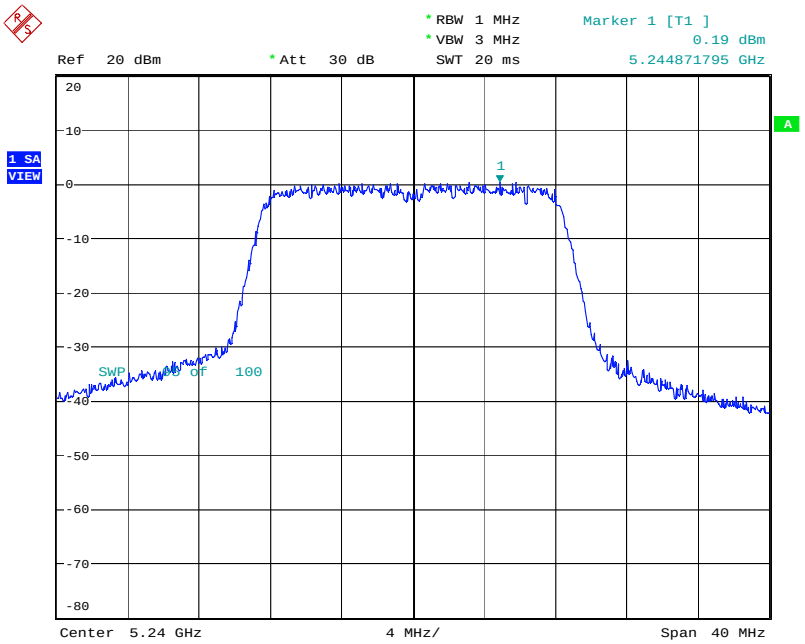
Date: 4.MAY.2006 20:31:30

Power Density Plot on Configuration IEEE 802.11a / 5200 MHz



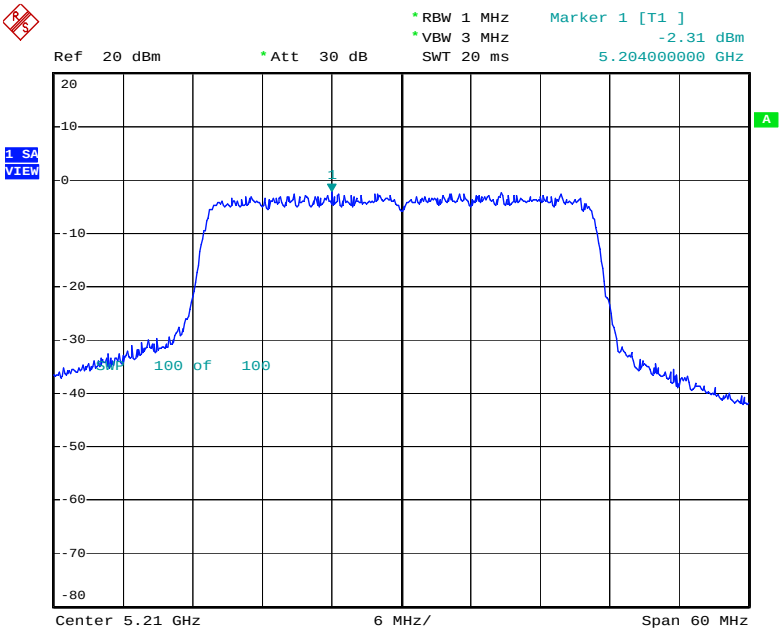
Date: 5.FEB.2007 18:16:49

Power Density Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:21

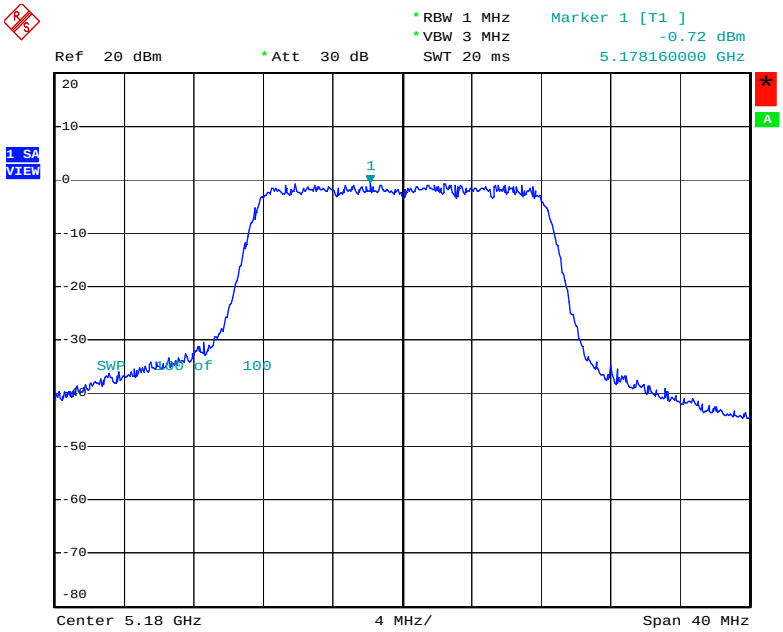
Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:13:50

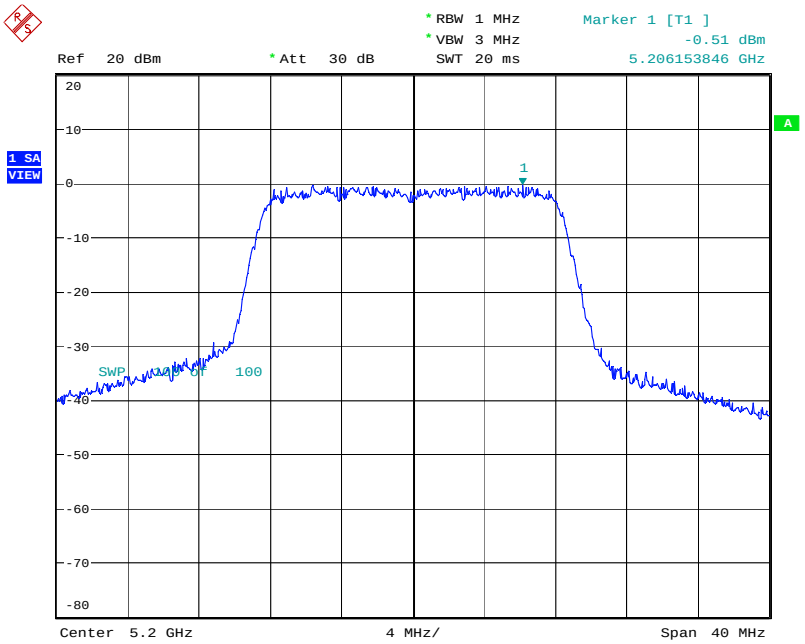
For Ant. 4

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



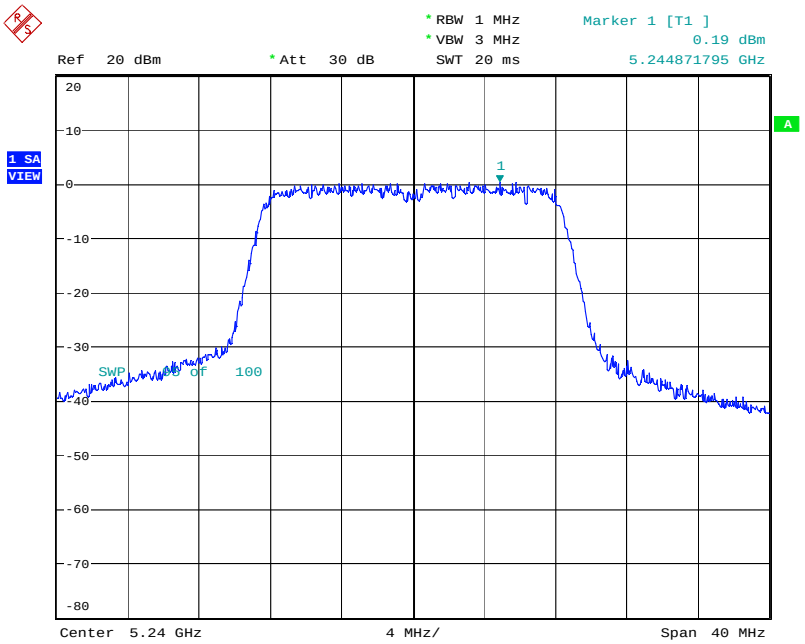
Date: 27.APR.2006 22:19:13

Power Density Plot on Configuration IEEE 802.11a / 5200 MHz



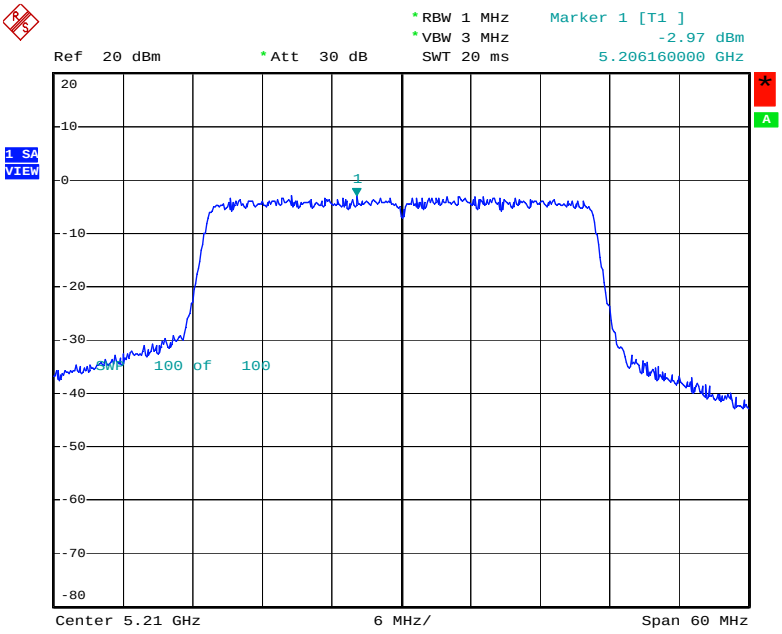
Date: 5.FEB.2007 18:16:49

Power Density Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:21

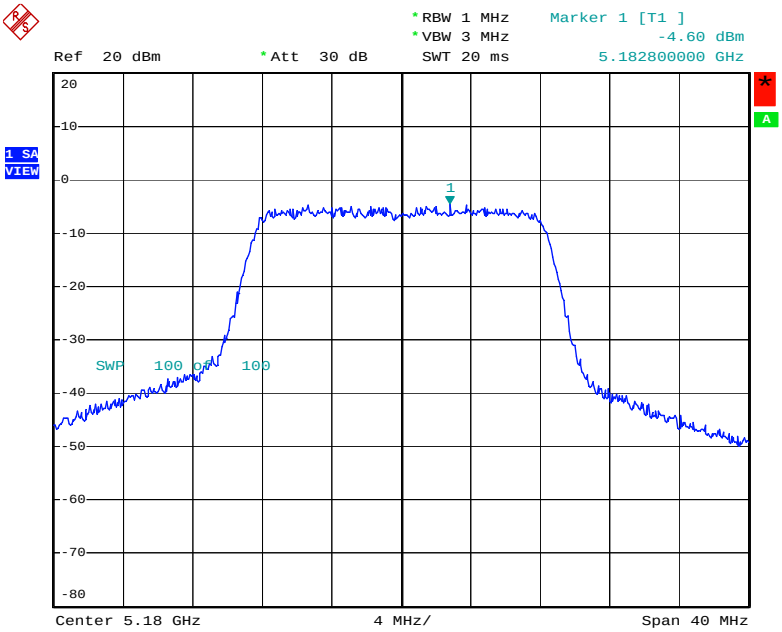
Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 27.APR.2006 23:02:24

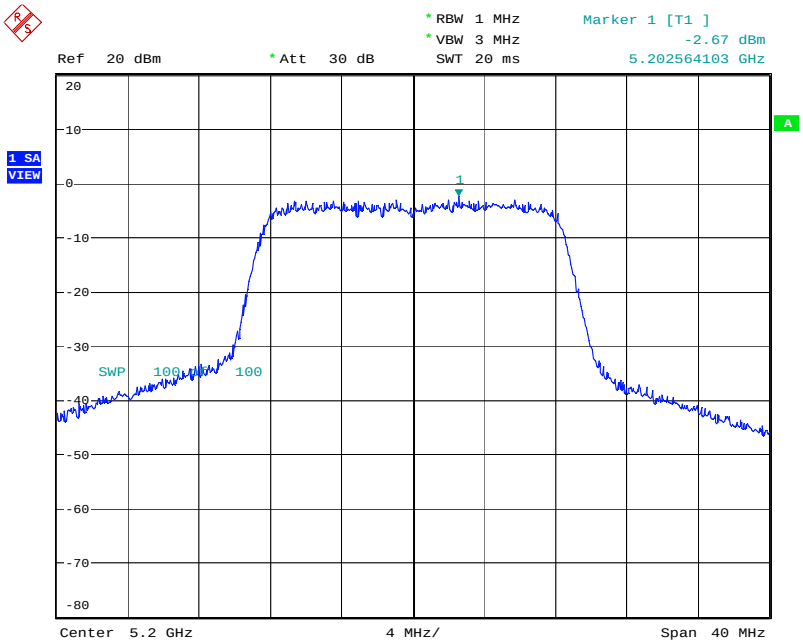
For Ant. 5

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



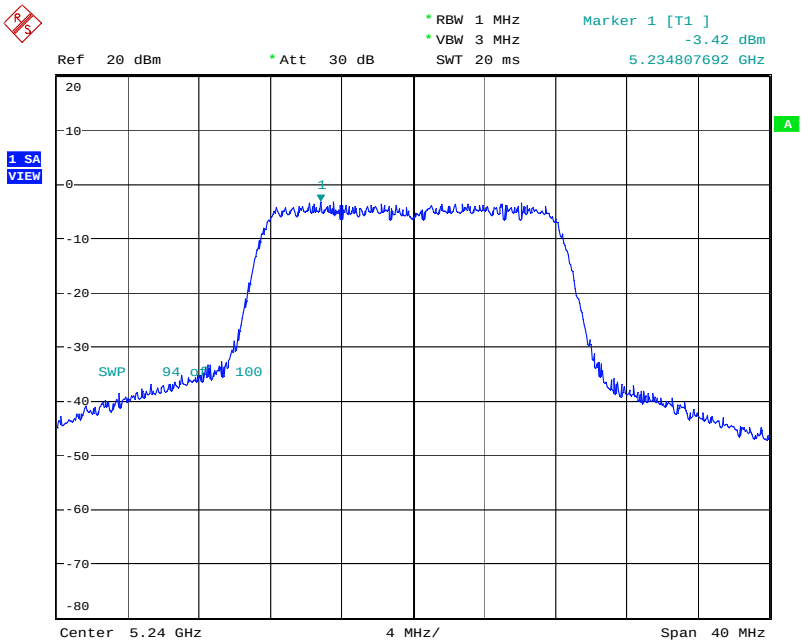
Date: 5.MAY.2006 21:38:20

Power Density Plot on Configuration IEEE 802.11a / 5200 MHz



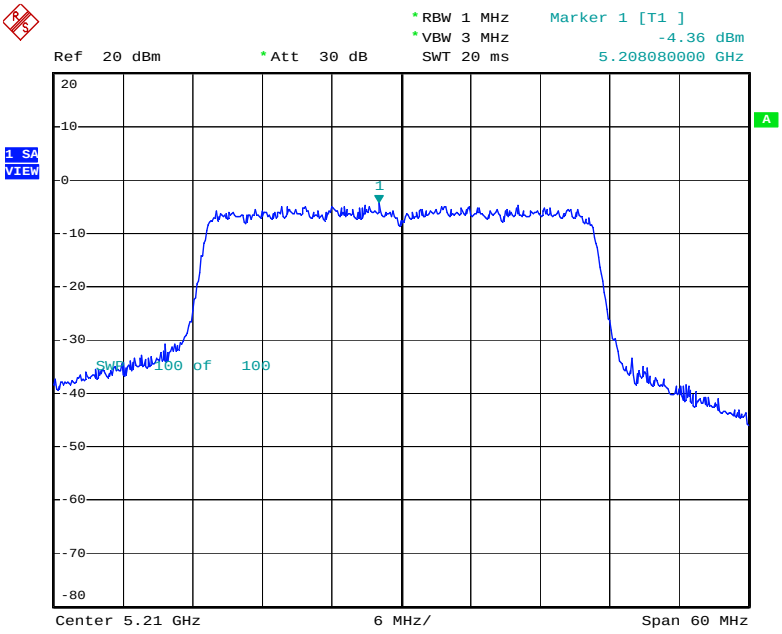
Date: 5.FEB.2007 18:28:56

Power Density Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:58:01

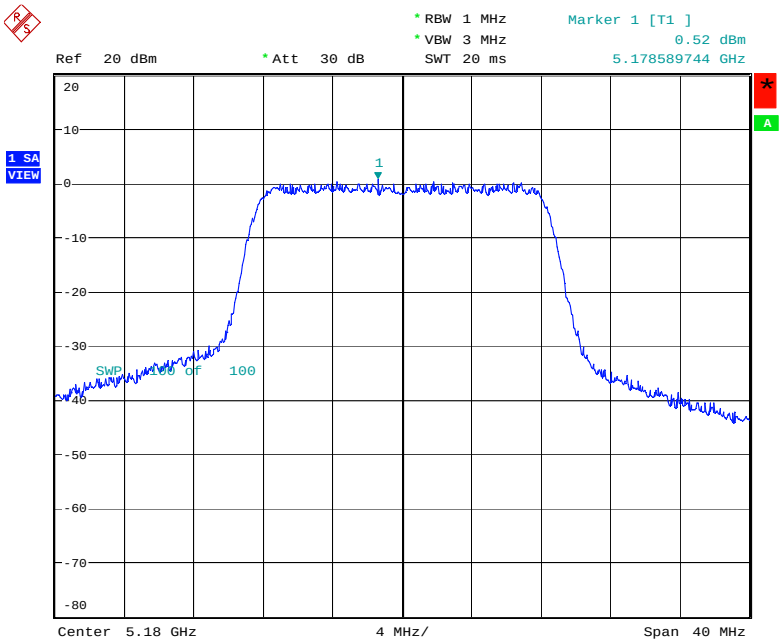
Power Density Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 5.MAY.2006 21:46:17

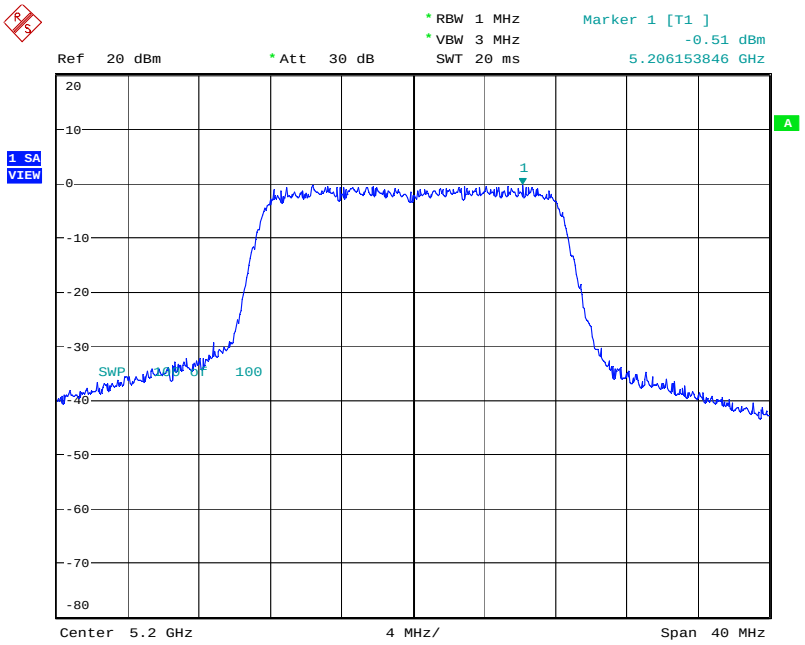
For Ant. 6

Power Density Plot on Configuration IEEE 802.11a / 5180 MHz



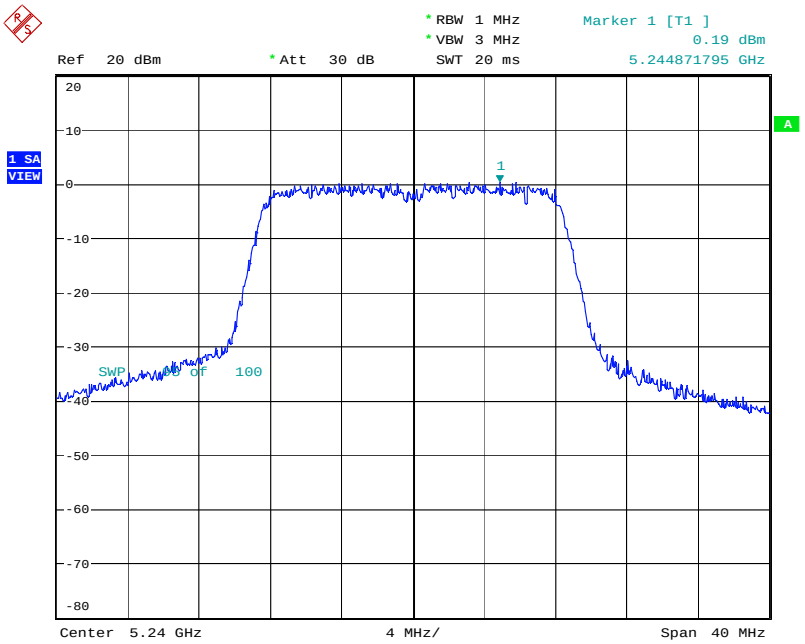
Date: 8.MAY.2006 16:01:24

Power Density Plot on Configuration IEEE 802.11a / 5200 MHz



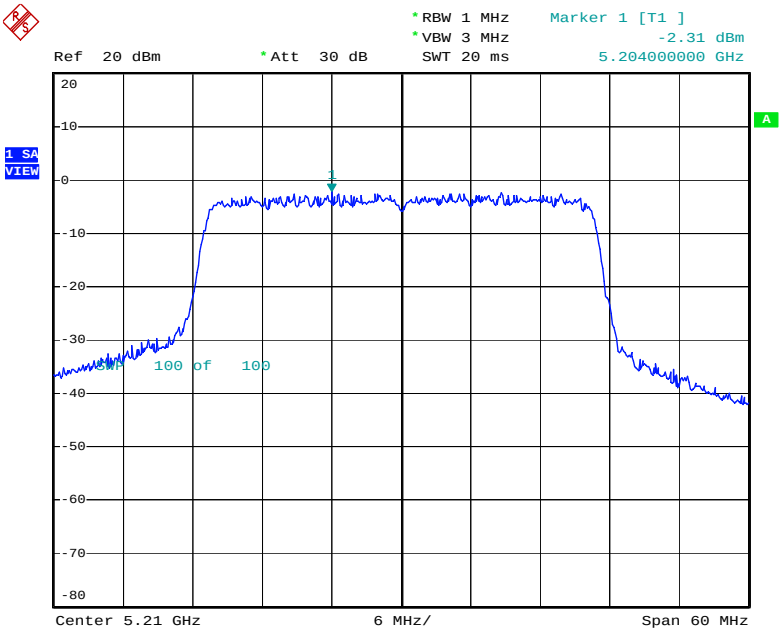
Date: 5.FEB.2007 18:16:49

Power Density Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:15:21

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



Date: 4.MAY.2006 22:13:50

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 analyser.
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 ≥ 1/T (IEEE 802.11a VBW = 300kHz ≥ 1/4 μs). 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℃	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	5.35	13	Complies
5200 MHz	5.44	13	Complies
5240 MHz	5.87	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	4.40	13	Complies

Temperature	24℃	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	4.27	13	Complies
5200 MHz	5.44	13	Complies
5240 MHz	5.87	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	4.48	13	Complies

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

Configuration IEEE 802.11a

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	3.95	13	Complies
5200 MHz	4.66	13	Complies
5240 MHz	5.87	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	4.16	13	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 5

Configuration IEEE 802.11a

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	3.93	13	Complies
5200 MHz	5.88	13	Complies
5240 MHz	6.30	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	3.91	13	Complies

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a / Ant. 6

Configuration IEEE 802.11a

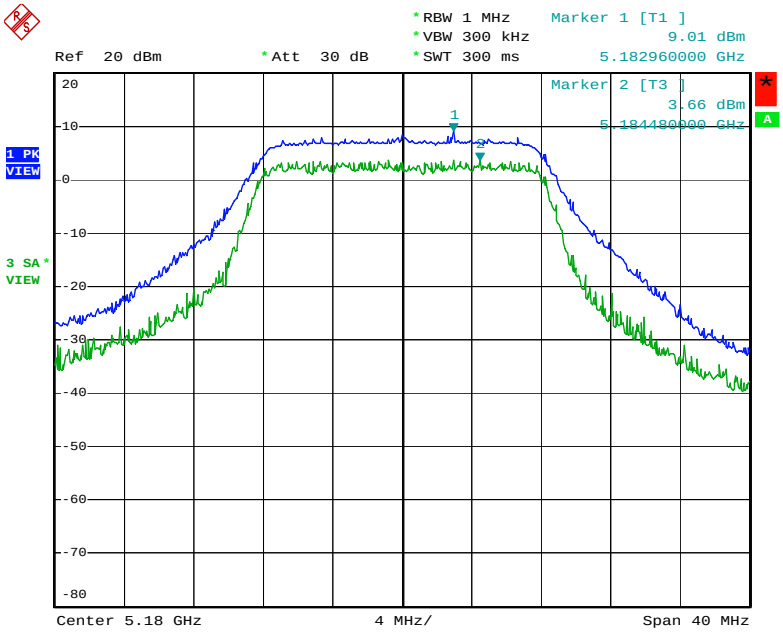
Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	4.42	13	Complies
5200 MHz	4.66	13	Complies
5240 MHz	5.87	13	Complies

Configuration IEEE 802.11a Turbo

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5210 MHz	4.48	13	Complies

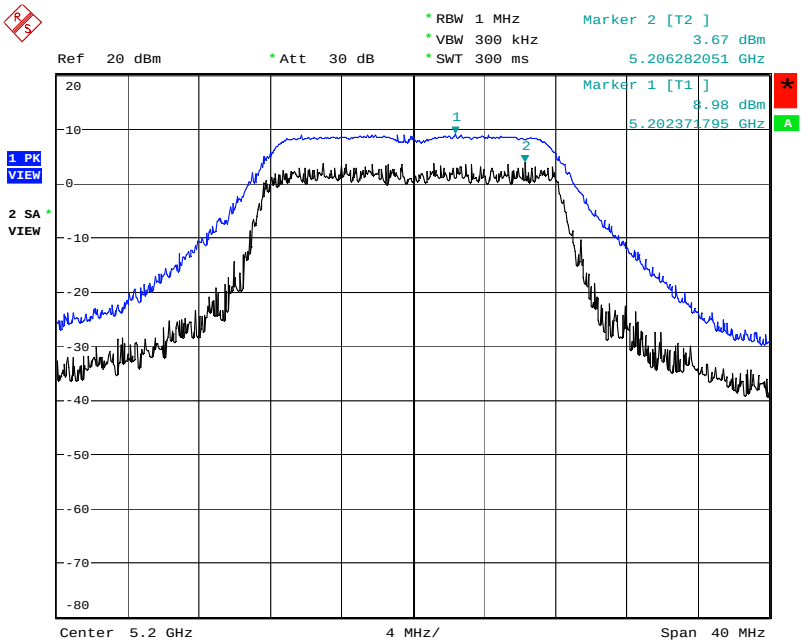
For Ant. 1

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



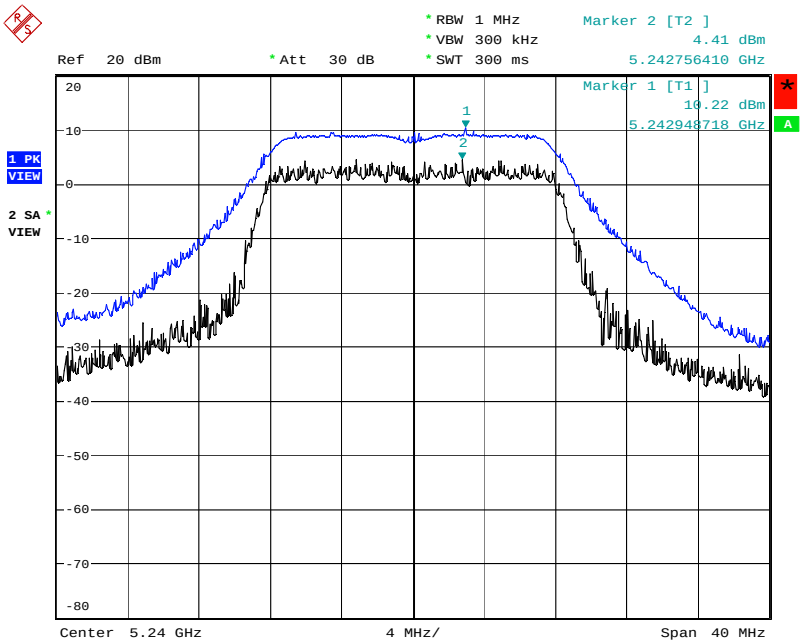
Date: 4.MAY.2006 20:14:46

Peak Excursion Plot on Configuration IEEE 802.11a / 5200 MHz



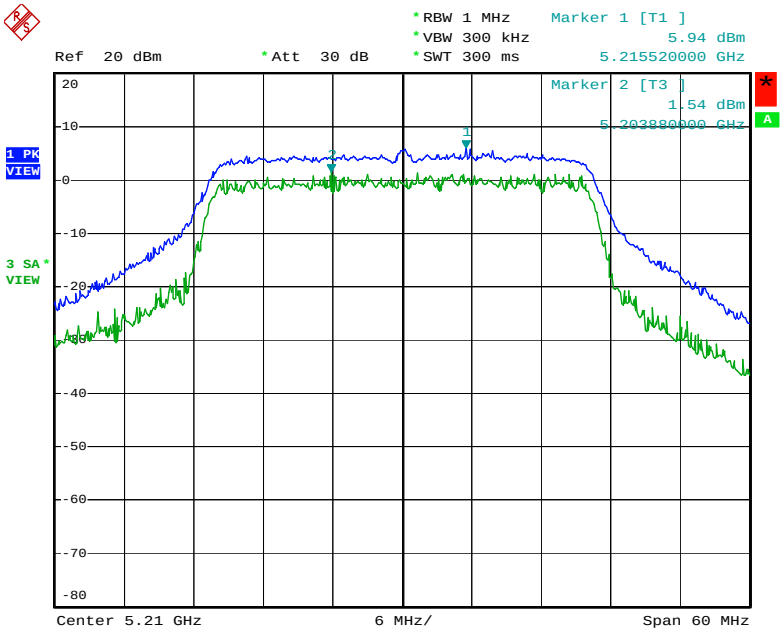
Date: 5.FEB.2007 18:06:09

Peak Excursion Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:07:26

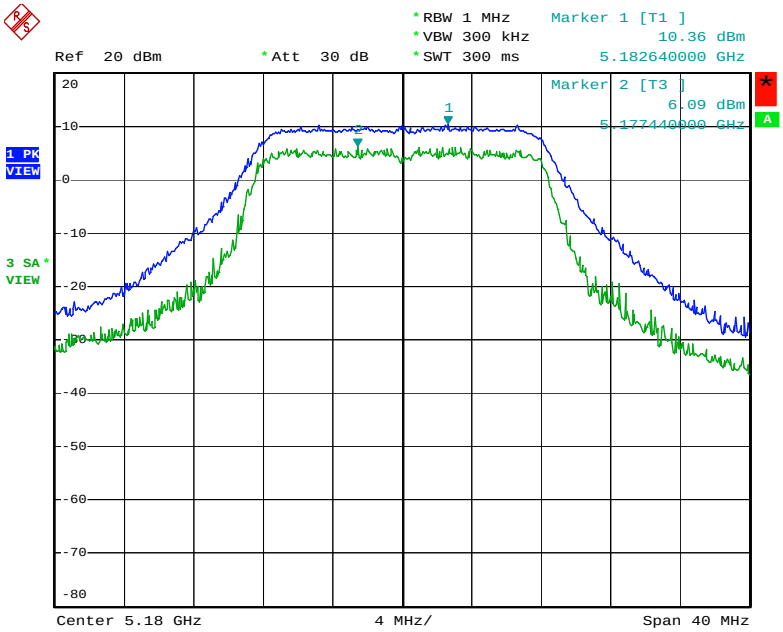
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 21:47:17

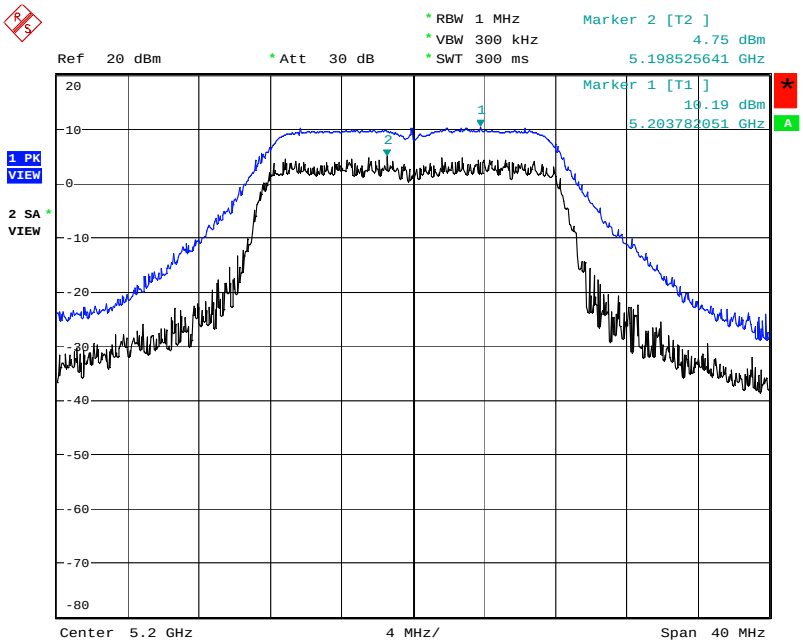
For Ant. 2

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



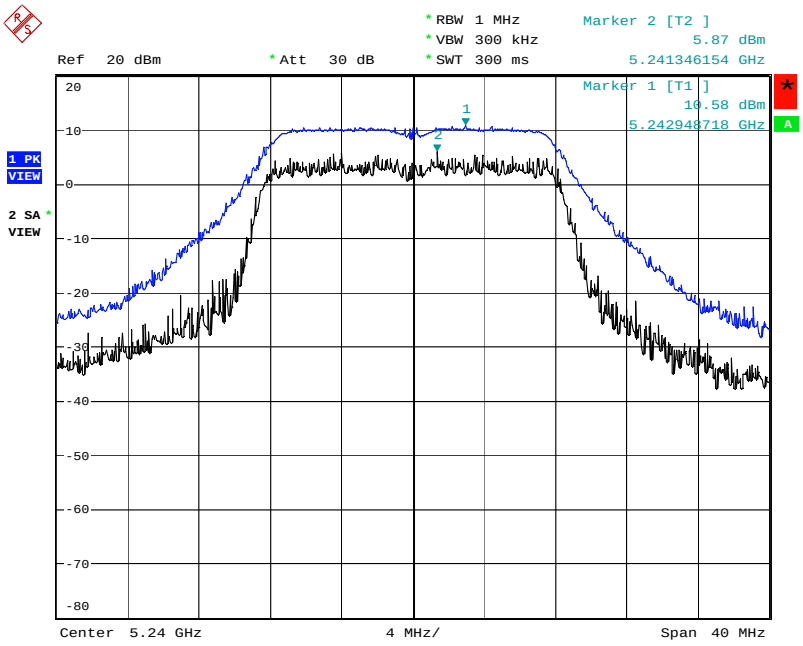
Date: 4.MAY.2006 20:32:31

Peak Excursion Plot on Configuration IEEE 802.11a / 5200 MHz



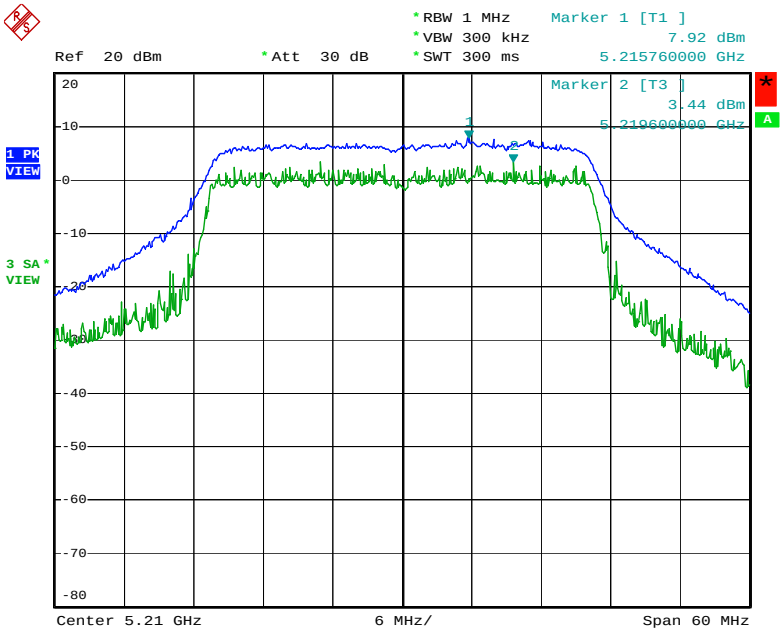
Date: 5.FEB.2007 18:17:36

Peak Excursion Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:16:08

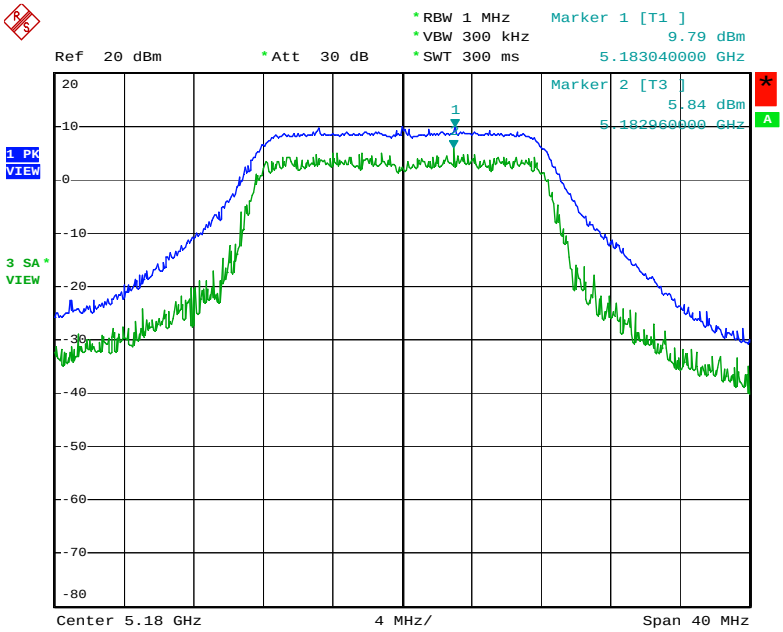
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 4.MAY.2006 22:13:12

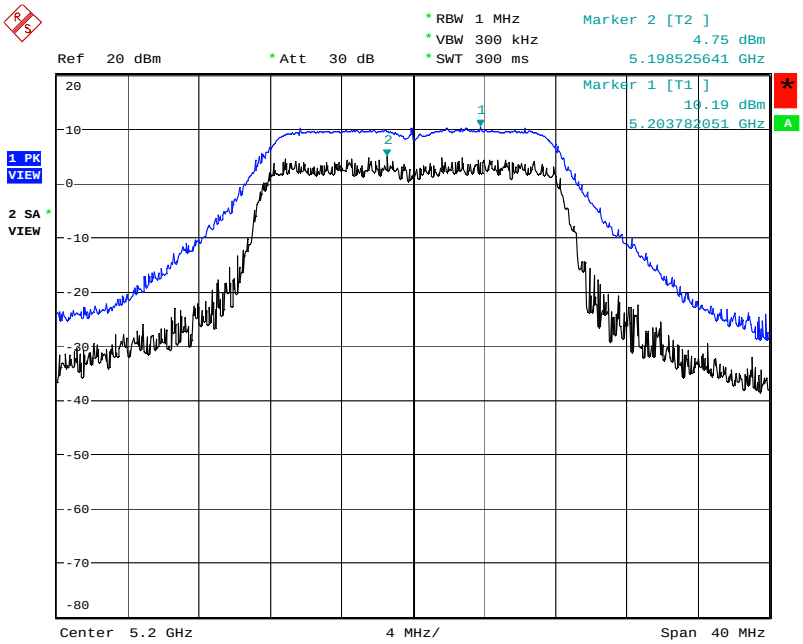
For Ant. 4

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



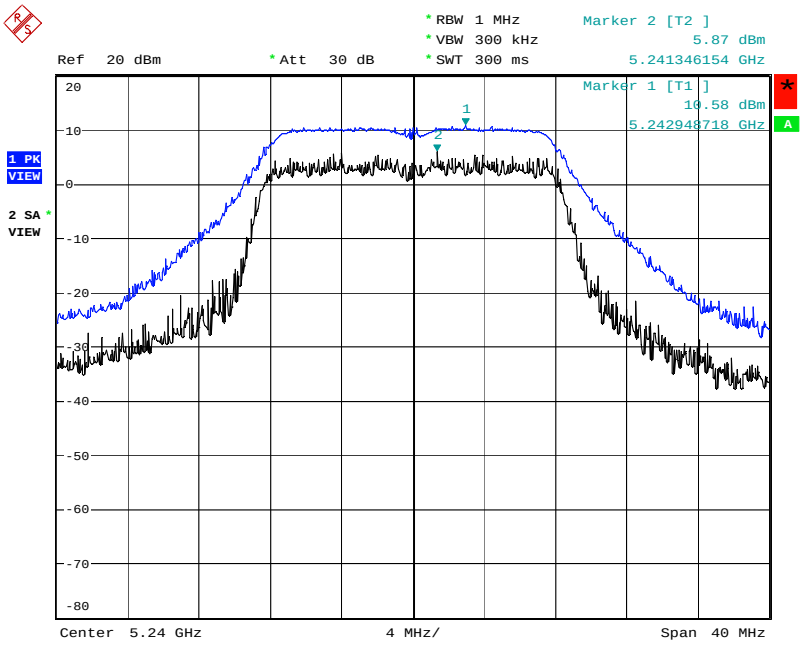
Date: 27.APR.2006 22:15:08

Peak Excursion Plot on Configuration IEEE 802.11a / 5200 MHz



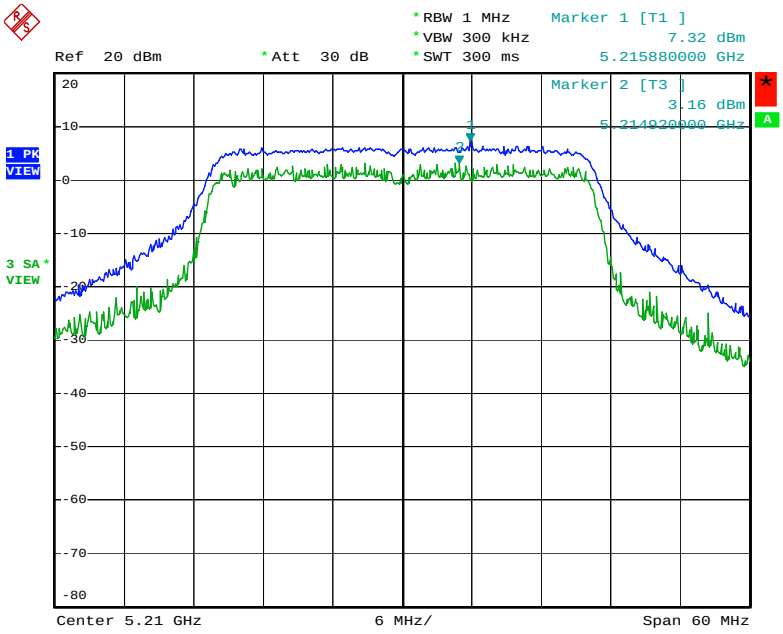
Date: 5.FEB.2007 18:17:36

Peak Excursion Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:16:08

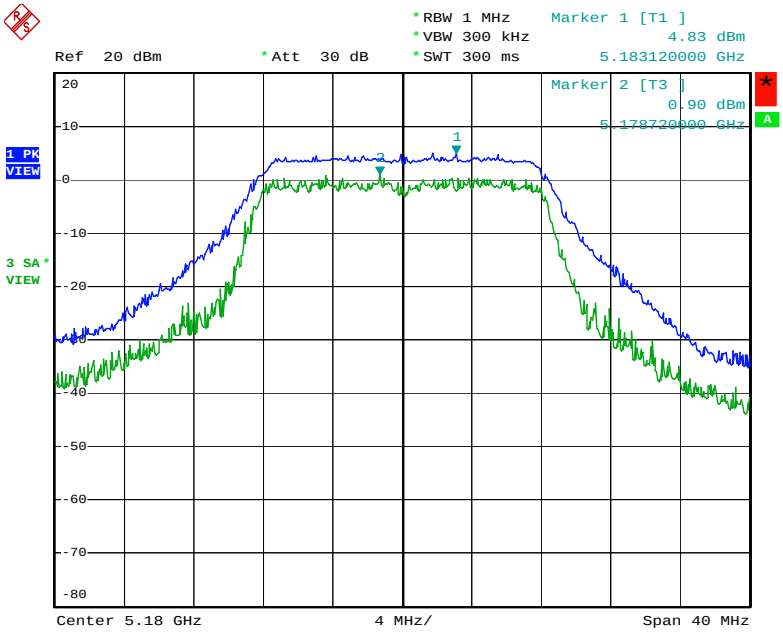
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 27.APR.2006 22:59:13

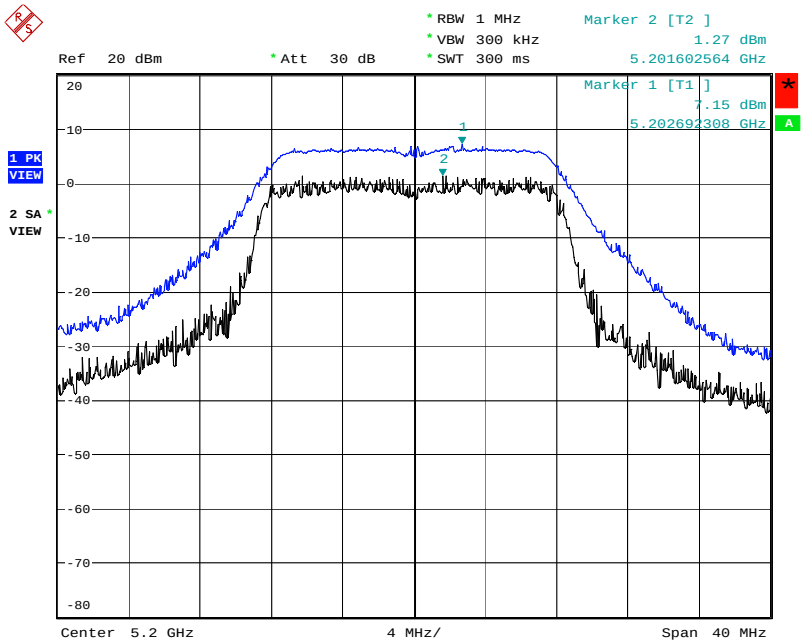
For Ant. 5

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



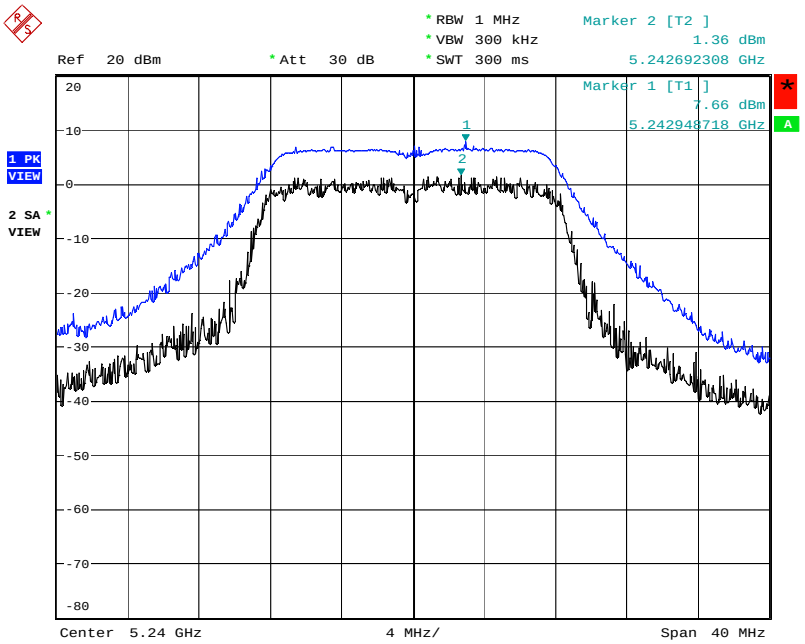
Date: 5.MAY.2006 21:34:58

Peak Excursion Plot on Configuration IEEE 802.11a / 5200 MHz



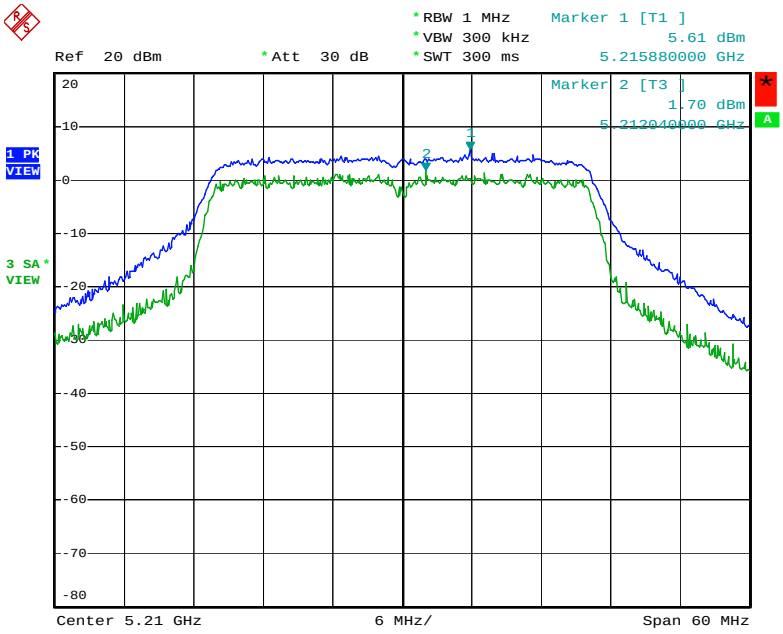
Date: 5.FEB.2007 18:29:43

Peak Excursion Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:58:48

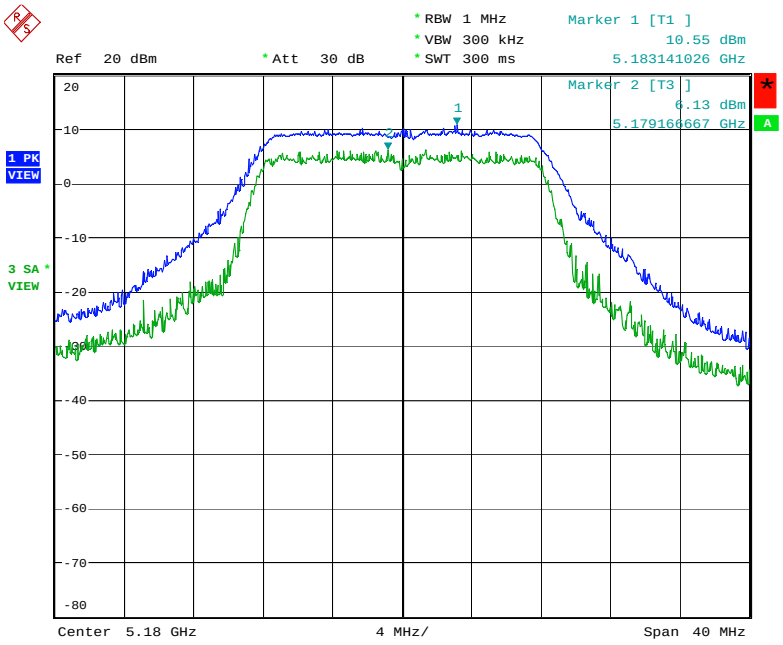
Peak Excursion Plot on Configuration IEEE 802.11a Turbo / 5210 MHz



Date: 5.MAY.2006 22:28:52

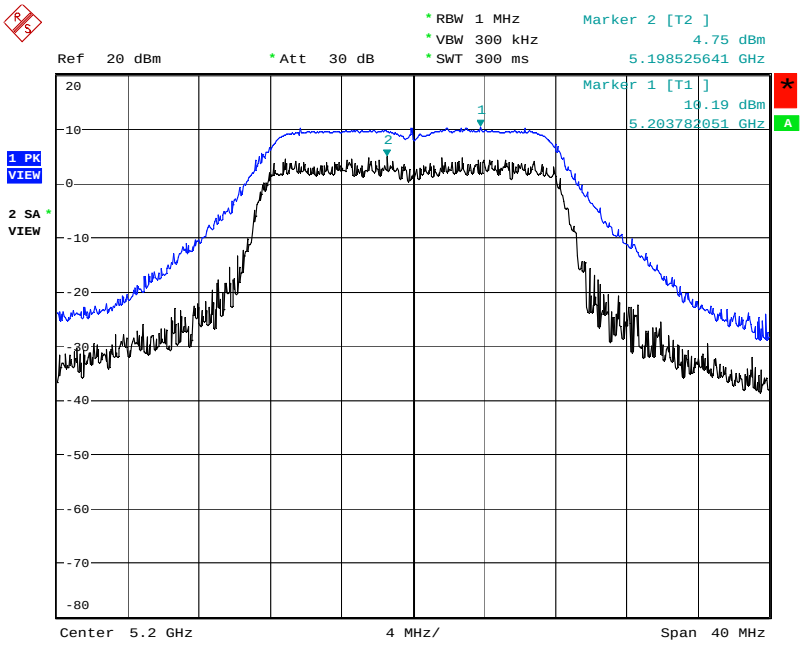
For Ant. 6

Peak Excursion Plot on Configuration IEEE 802.11a / 5180 MHz



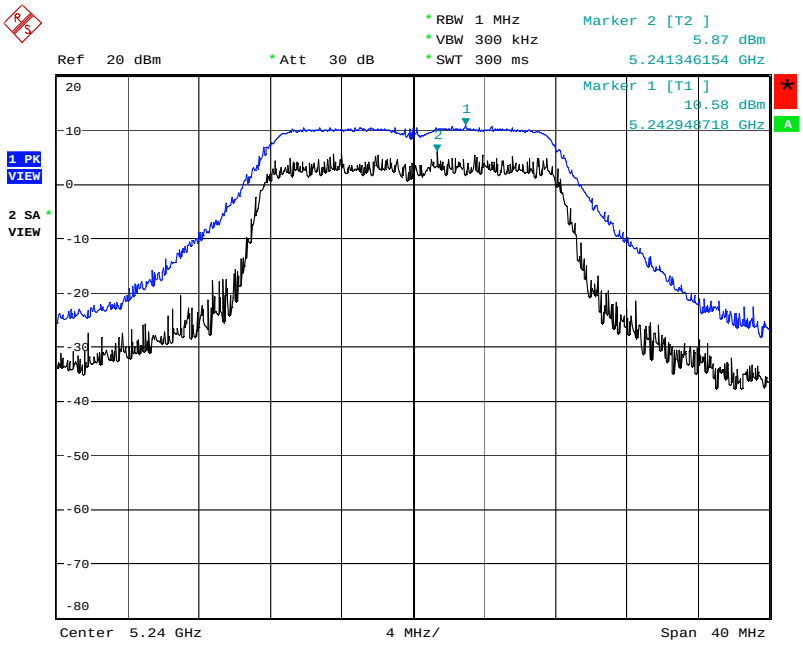
Date: 8.MAY.2006 15:51:21

Peak Excursion Plot on Configuration IEEE 802.11a / 5200 MHz



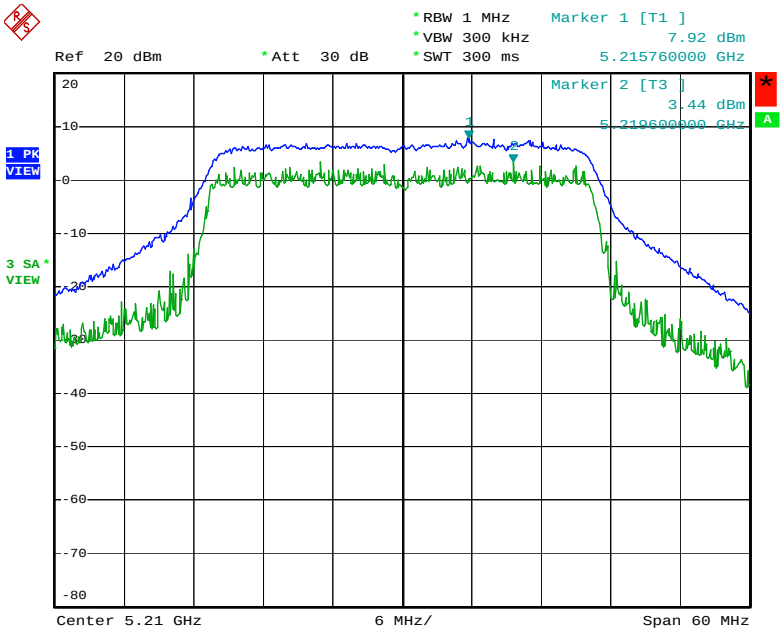
Date: 5.FEB.2007 18:17:36

Peak Excursion Plot on Configuration IEEE 802.11a / 5240 MHz



Date: 5.FEB.2007 18:16:08

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



Date: 4.MAY.2006 22:13:12

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). 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

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

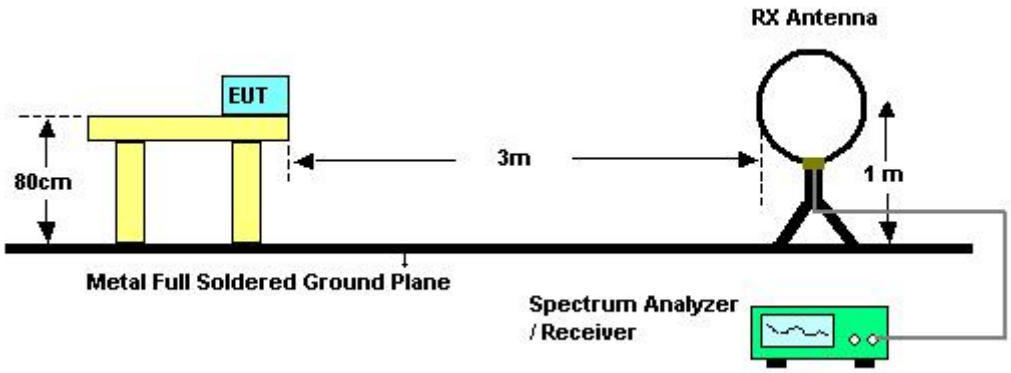
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.6.3. Test Procedures

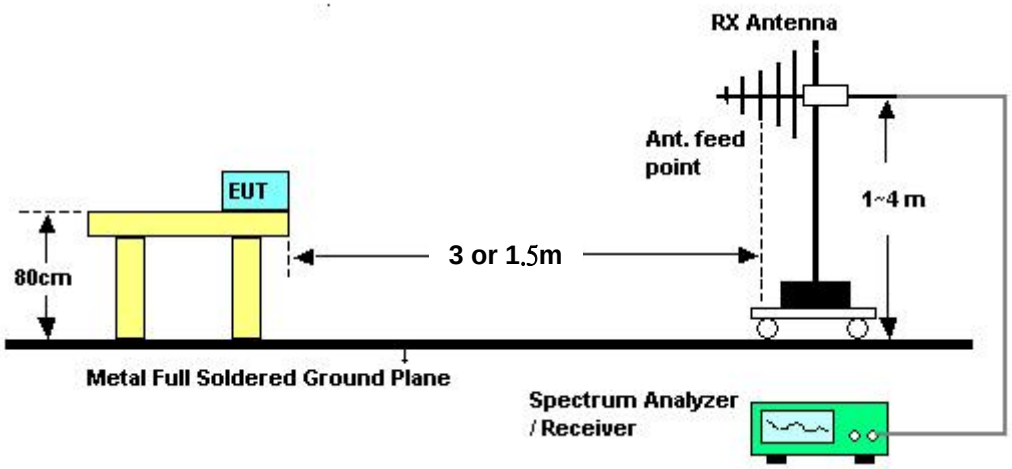
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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 form 3m to 1.5m

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5] (dB);

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

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℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48

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.

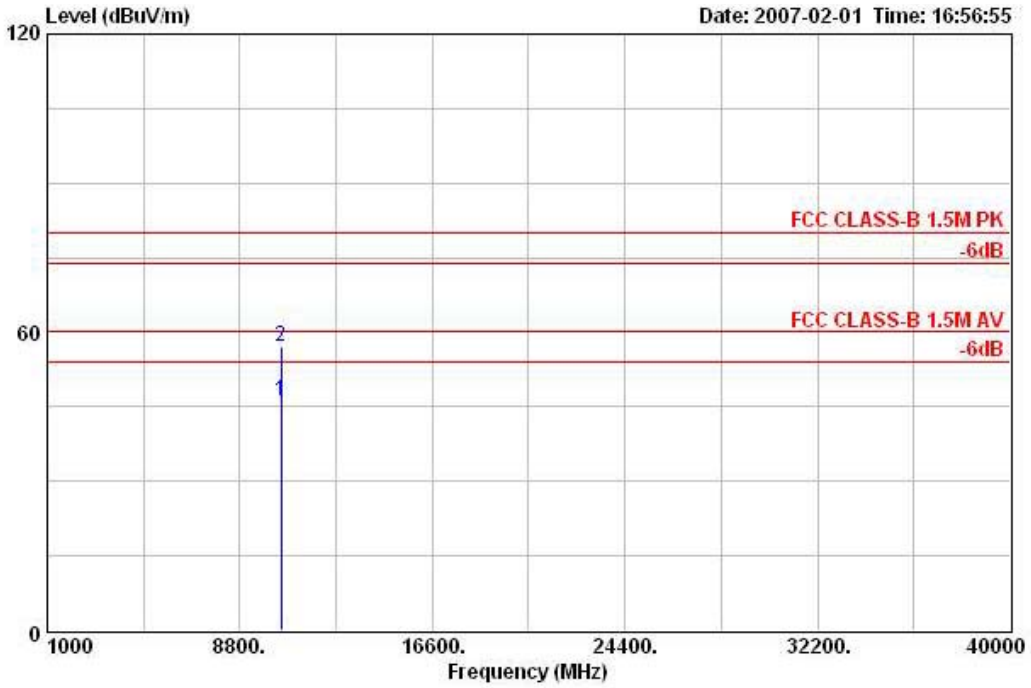
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

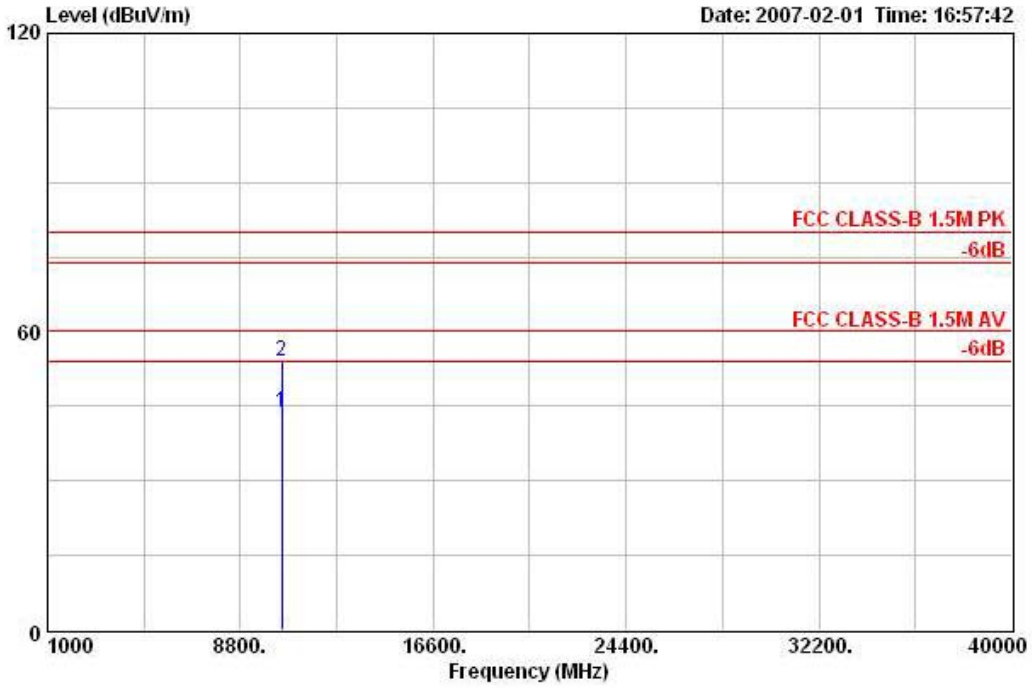
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48 / Ant. 1

Vertical



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	46.13	-13.87	60.00	3	32.00	35.21	10.35	38.99	AVERAGE	116	105	VERTIC
2	10481.210	57.11	-22.89	80.00	3	42.98	35.21	10.35	38.99	PEAK	116	105	VERTIC

Horizontal



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	43.88	-16.12	60.00	3	29.76	35.21	10.35	38.99	AVERAGE	123	105	HORIZO
2	10481.210	54.14	-25.86	80.00	3	40.02	35.21	10.35	38.99	PEAK	123	105	HORIZO

Note:

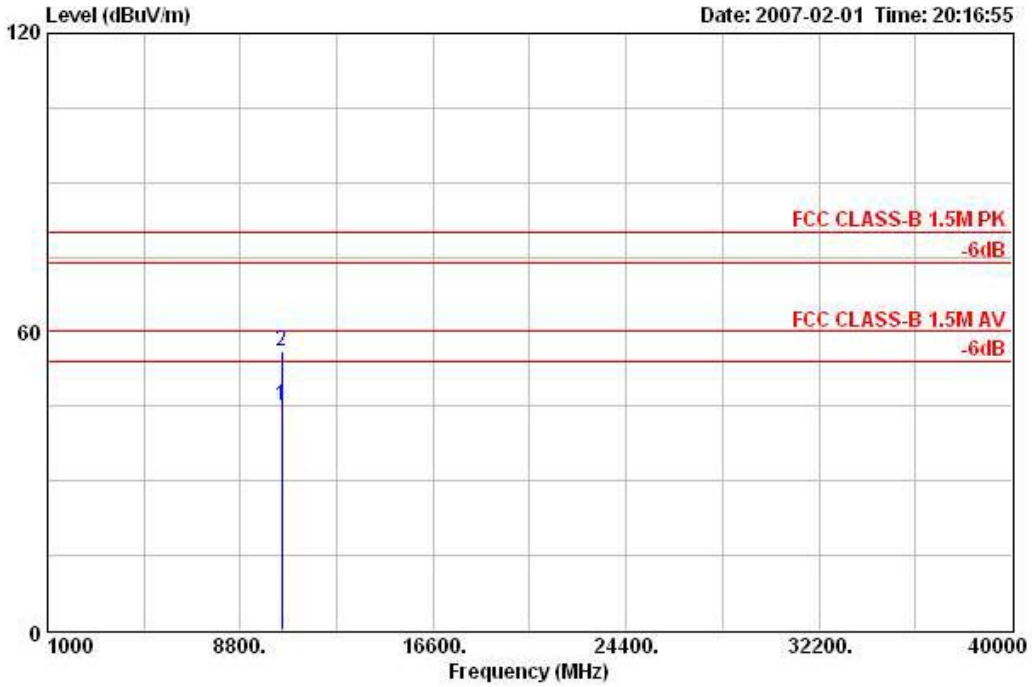
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

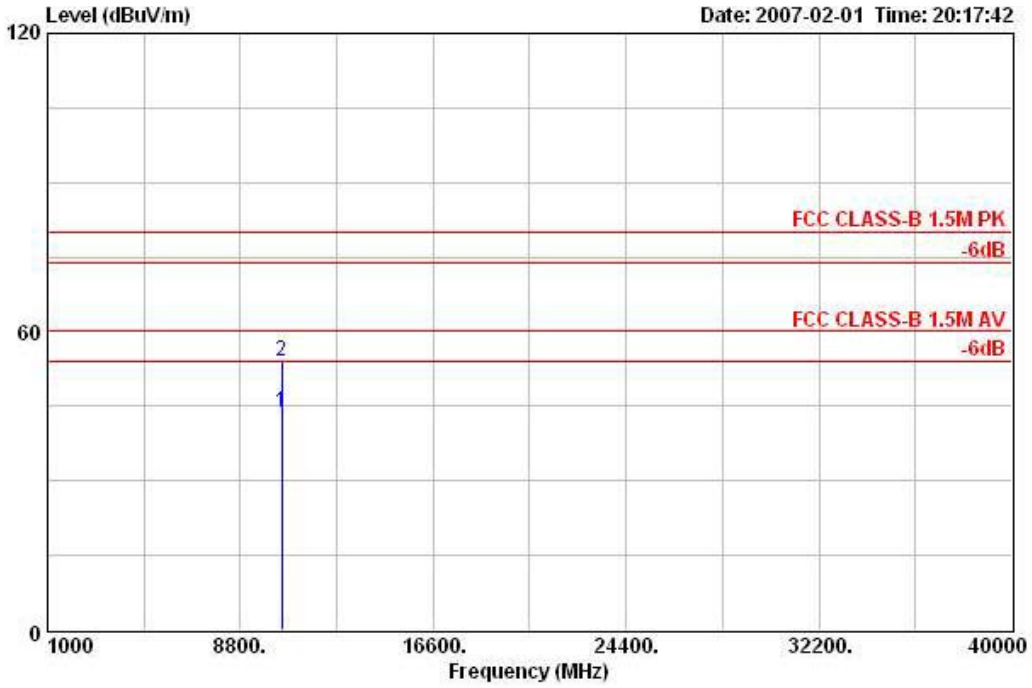
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48 / Ant. 2

Vertical



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	45.13	-14.87	60.00	3	31.00	35.21	10.35	38.99	AVERAGE	116	105	VERTIC
2	10481.210	56.11	-23.89	80.00	3	41.98	35.21	10.35	38.99	PEAK	116	105	VERTIC

Horizontal



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	43.88	-16.12	60.00	3	29.76	35.21	10.35	38.99	AVERAGE	123	105	HORIZO
2	10481.210	54.14	-25.86	80.00	3	40.02	35.21	10.35	38.99	PEAK	123	105	HORIZO

Note:

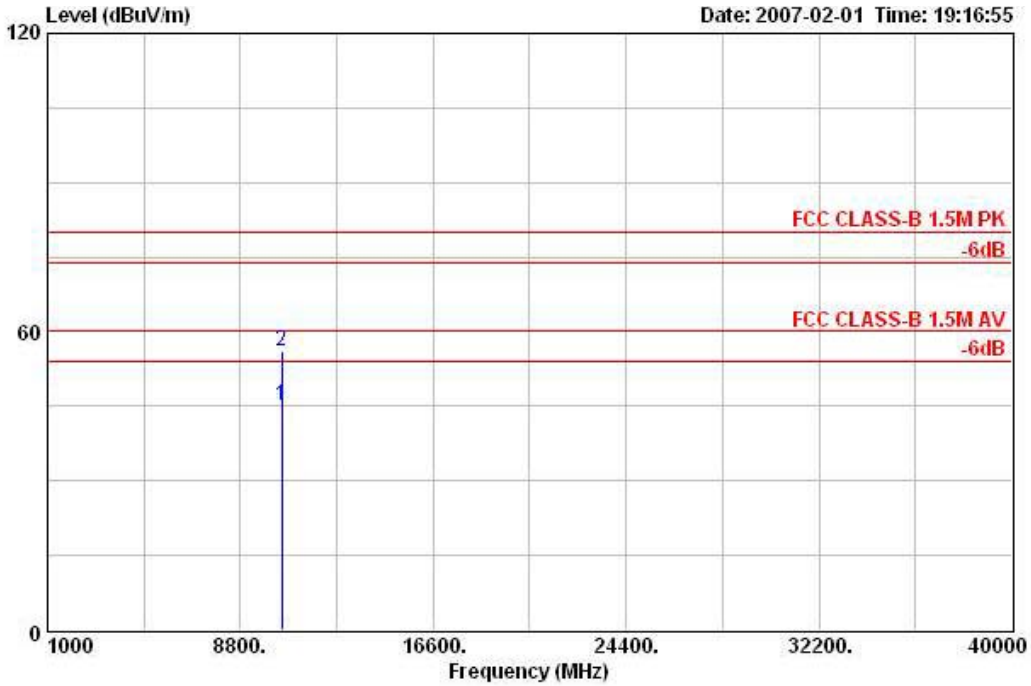
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

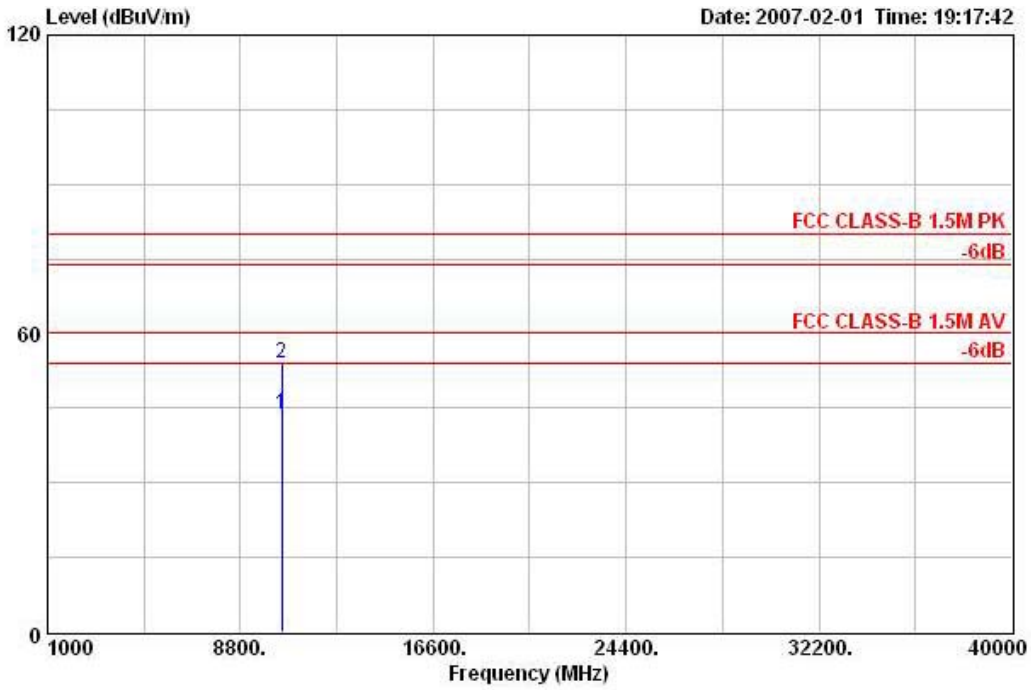
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48 / Ant. 4

Vertical



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	45.13	-14.87	60.00	3	31.00	35.21	10.35	38.99	AVERAGE	116	105	VERTIC
2	10481.210	56.11	-23.89	80.00	3	41.98	35.21	10.35	38.99	PEAK	116	105	VERTIC

Horizontal



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	43.88	-16.12	60.00	3	29.76	35.21	10.35	38.99	AVERAGE	123	105	HORIZO
2	10481.210	54.14	-25.86	80.00	3	40.02	35.21	10.35	38.99	PEAK	123	105	HORIZO

Note:

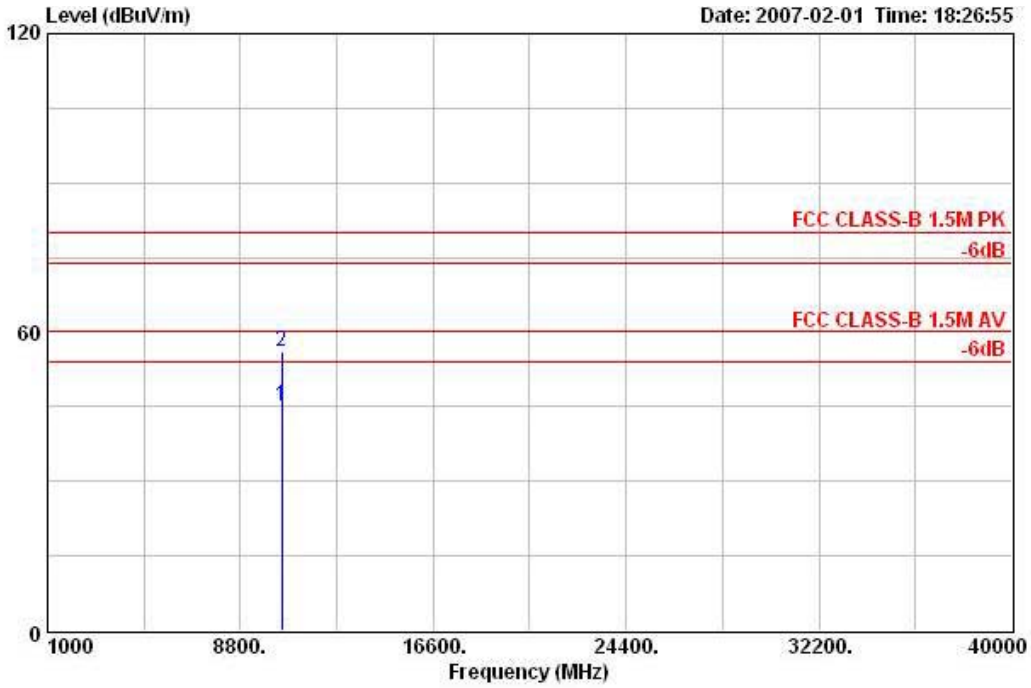
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

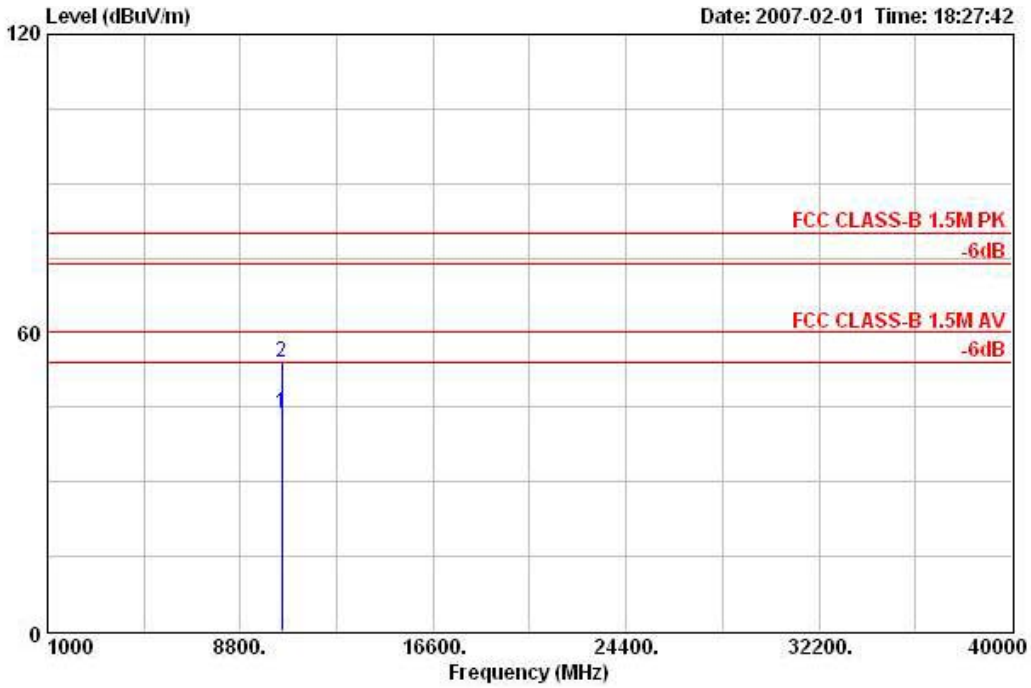
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48 / Ant. 5

Vertical



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	45.13	-14.87	60.00	3	31.00	35.21	10.35	38.99	AVERAGE	116	105	VERTIC
2	10481.210	56.11	-23.89	80.00	3	41.98	35.21	10.35	38.99	PEAK	116	105	VERTIC

Horizontal



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10481.210	43.88	-16.12	60.00	3	29.76	35.21	10.35	38.99	AVERAGE	123	105	HORIZO
2	10481.210	54.14	-25.86	80.00	3	40.02	35.21	10.35	38.99	PEAK	123	105	HORIZO

Note:

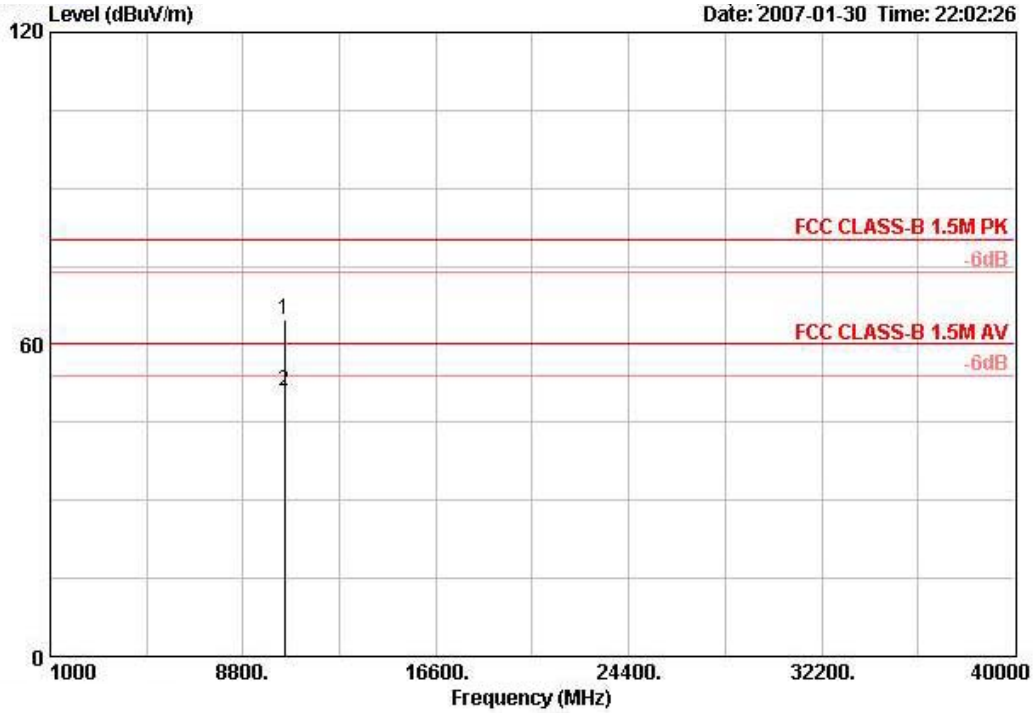
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

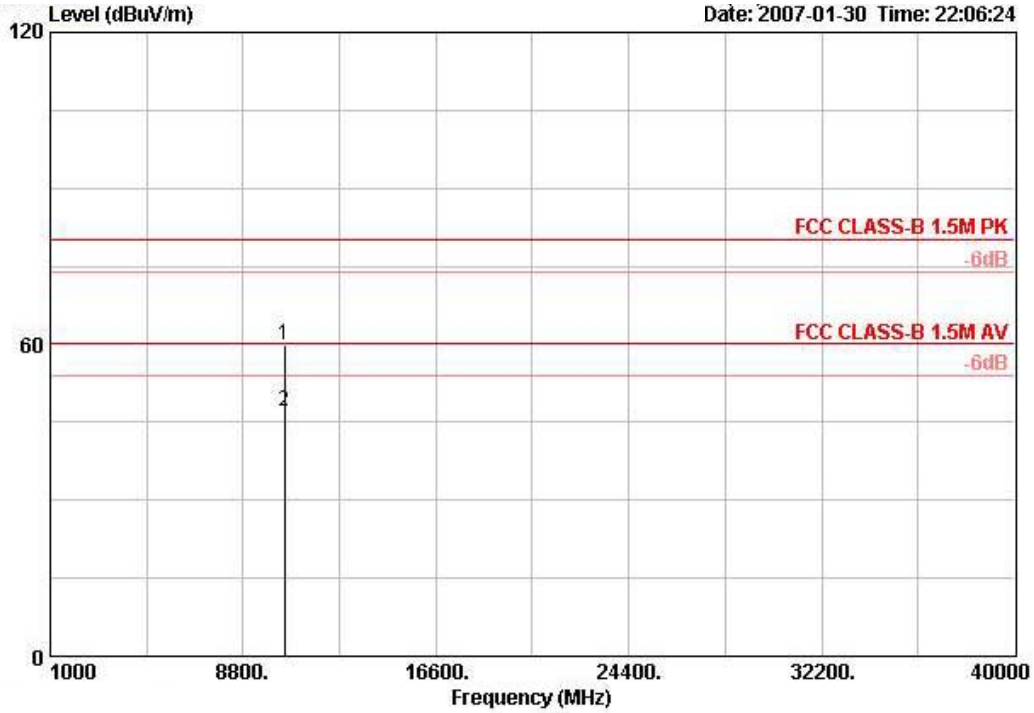
Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 48 / Ant. 6

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	10478.800	64.81	-15.19	80.00	47.30	39.28	11.55	33.32	PEAK	110	177
2 @	10479.000	50.85	-9.15	60.00	33.34	39.28	11.55	33.32	AVERAGE	110	177

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	10471.280	59.74	-20.26	80.00	42.29	39.26	11.53	33.34	PEAK	100	300
2	10481.520	47.24	-12.76	60.00	29.74	39.28	11.55	33.32	AVERAGE	100	300

Note:

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

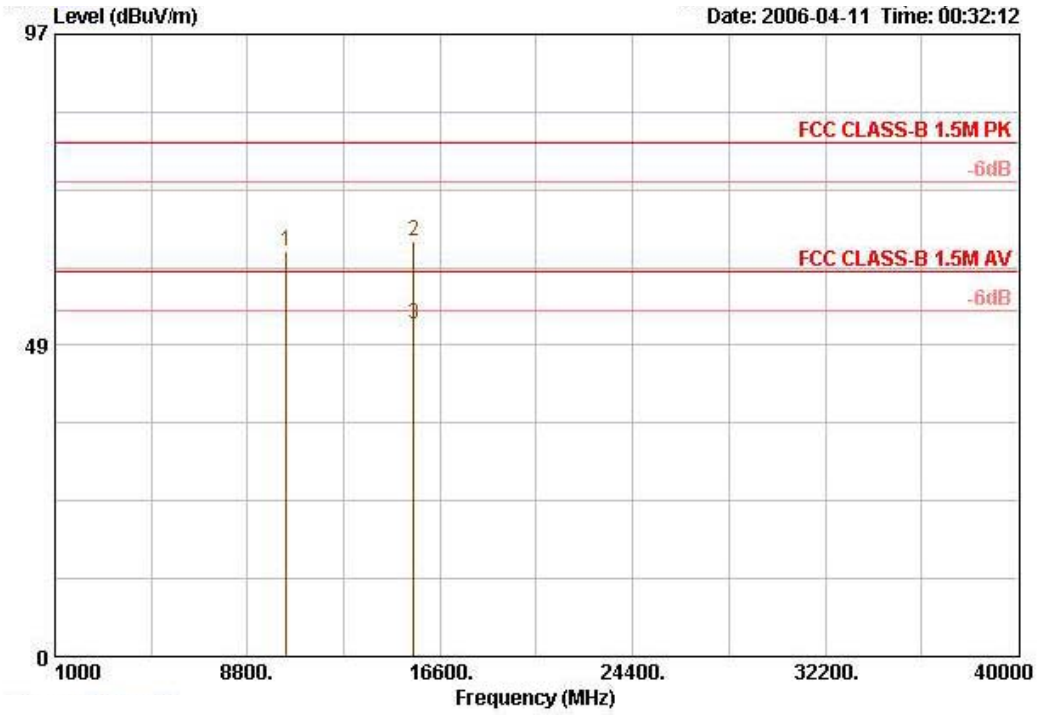
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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

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

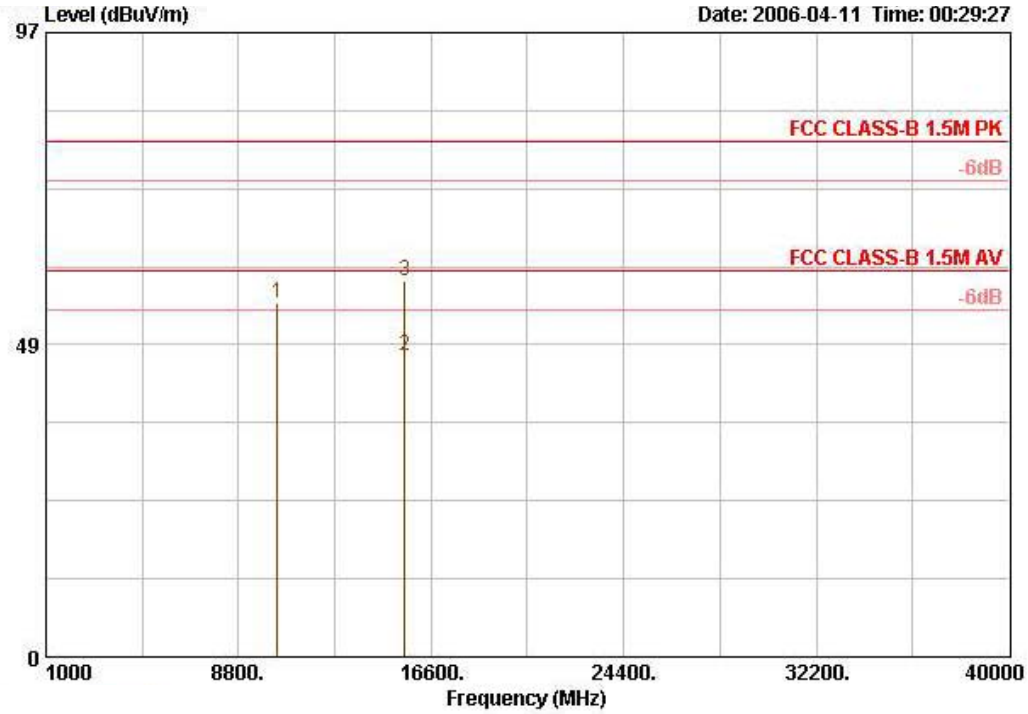
Vertical



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1 @	10360.240	63.14			39.34	5.80	35.55	53.56	PEAK	109	298
2 @	15541.040	64.69	-15.31	80.00	38.15	9.26	35.68	52.97	PEAK	115	304
3 @	15544.360	51.84	-8.16	60.00	38.13	9.26	35.68	40.14	AVERAGE	115	304

Note: Item 1 is on un-restricted band, so the limit is the EIRP of -27dBm/MHz (74.25 **dBuV/m** at 1.5m).

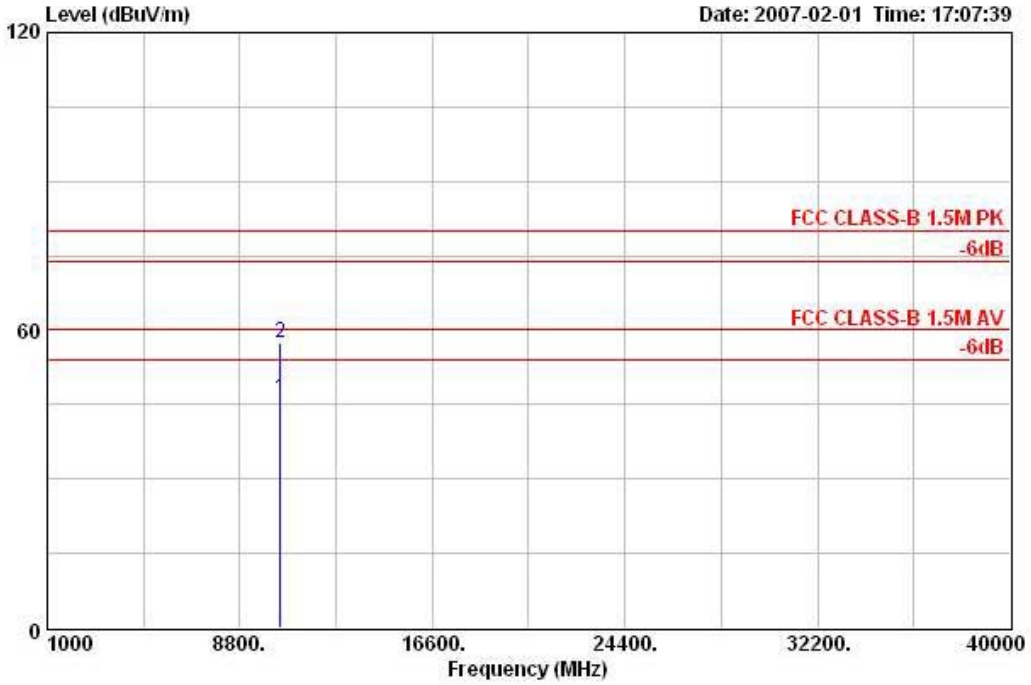
Horizontal



	Freq	Level	Over Limit	Limit Line	Antenna Factor	Cable Loss	Preamp Factor	Read Level	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	dBuV		cm	deg
1 @	10359.160	54.92	-25.08	80.00	39.34	5.80	35.55	45.33	PEAK	109	4
2 @	15541.280	46.89	-13.11	60.00	38.15	9.26	35.68	35.16	AVERAGE	119	303
3 @	15541.280	58.31	-21.69	80.00	38.15	9.26	35.68	46.59	PEAK	119	303

Temperature	24℃	Humidity	63%
Test Engineer	Leo Hung	Configurations	802.11a Channel 40 / Ant. 1

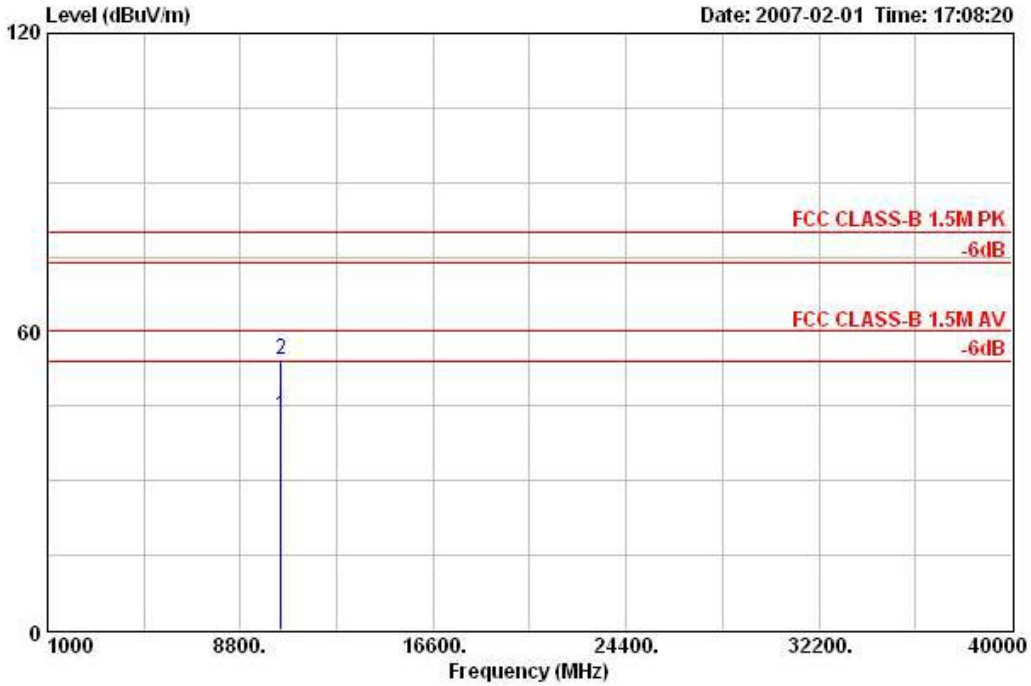
Vertical



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10441.020	46.25	-13.75	60.00	3	32.24	35.27	10.30	38.98	AVERAGE	127	117	VERTIC
2	10441.020	57.28	-22.72	80.00	3	43.28	35.27	10.30	38.98	PEAK	127	117	VERTIC

Note: Item 1 is on un-restricted band, so the limit is the EIRP of -27dBm/MHz (74.25 **dBuV/m** at 1.5m).

Horizontal



	Freq	Level	Over Limit	Limit Line	Distance	Read Level	Preamp Factor	Cable Loss	Antenna Factor	Remark	Ant Pos	Table Pos	Pol/Ph
	MHz	dBuV/m	dB	dBuV/m	m	dBuV	dB	dB	dB/m		cm	deg	
1	10441.020	43.22	-16.78	60.00	3	29.21	35.27	10.30	38.98	AVERAGE	135	94	HORIZO
2	10441.020	54.27	-25.73	80.00	3	40.27	35.27	10.30	38.98	PEAK	135	94	HORIZO