

*FCC PART 15, SUBPART B and C
TEST REPORT**for*

INTEL MINI PCI TYPE 802.11 BG
WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG

Prepared for

HEWLETT PACKARD COMPANY
20555 SH 249
HOUSTON, TEXAS 77070

Prepared by: *Kyle Fujimoto*

KYLE FUJIMOTO

Approved by: *Scott McCutchan*

SCOTT McCUTCHAN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: MARCH 05, 2004

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
PAGES	22	2	2	2	18	93	139

This report shall not be reproduced except in full, without the written approval of Compatible Electronics.

TABLE OF CONTENTS

Section / Title	PAGE
GENERAL REPORT SUMMARY	4
SUMMARY OF TEST RESULTS	5
1. PURPOSE	6
2. ADMINISTRATIVE DATA	7
2.1 Location of Testing	7
2.2 Traceability Statement	7
2.3 Cognizant Personnel	7
2.4 Date Test Sample was Received	7
2.5 Disposition of the Test Sample	7
2.6 Abbreviations and Acronyms	7
3. APPLICABLE DOCUMENTS	8
4. DESCRIPTION OF TEST CONFIGURATION	9
4.1 Description of Test Configuration - EMI	9
4.1.1 Cable Construction and Termination	10
5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT	11
5.1 EUT and Accessory List	11
5.2 EMI Test Equipment for Brea Facility	12
5.3 EMI Test Equipment for Agoura Facility	13
6. TEST SITE DESCRIPTION	14
6.1 Test Facility Description	14
6.2 EUT Mounting, Bonding and Grounding	14
7. CHARACTERISTICS OF THE TRANSMITTER	15
7.1 Antenna Gain	15
8. Test Procedures	16
8.1 RF Emissions	16
8.1.1 Conducted Emissions Test	16
8.1.2 Radiated Emissions (Spurious and Harmonics) Test	17
8.2 6 dB Bandwidth	19
8.3 Peak Output Power	19
8.4 RF Antenna Conducted Test	19
8.5 RF Band Edges	21
9. CONCLUSIONS	22

LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos • Test Setup Diagrams • Radiated and Conducted Emissions Photos • Antenna and Effective Gain Factors
E	Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map and Layout of 3 Meter Radiated Site

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST, or any other agency of the U.S. Government.

Device Tested: Intel Mini PCI Type 802.11BG Wireless LAN Adapter
for use in the HP Agency Series# PP2170
Model: WM3B2200BG
S/N: N/A

Product Description: The product is a wireless miniPCI card used for the Hewlett Packard Notebook Computer Series PP2170.

Modifications: The EUT was not modified during the testing.

Manufacturer: Hewlett Packard Company
20555 SH 249
Houston, Texas 77070

Test Dates: January 5; March 1, 2, and 3, 2004

Test Specifications: EMI requirements
Limits: **Class B** of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247

Test Procedure: ANSI C63.4: 2001

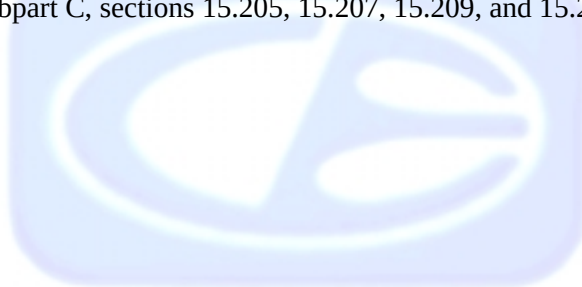
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 25000 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(c)
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(c)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209(a), and section 15.247 (c)
6	6 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(a)(2)
7	Peak Power Output	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(b)(3)
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(c)
9	Peak Power Spectral Density Conducted from the Intentional Radiator to the Antenna Port	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Intel Mini PCI Type 802.11BG Wireless LAN Adapter (for use in the HP Agency Series# PP2170). Model: WM3B2200BG. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2001. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests of the testing described herein were performed at the test facility of Compatible Electronics at the following location:

114 Olinda Drive, Brea, California 92823

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Hewlett Packard Company

David Wissel PSG Global Business Units – Mobile Computing

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer
Scott McCutchan Lab Manager, Brea Division

2.4 Date Test Sample was Received

The test sample was received on December 29, 2003.

2.5 Disposition of the Test Sample

The sample has not been returned to Hewlett Packard Company as of January 23, 2004.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2001	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The Intel Mini PCI Type 802.11BG Wireless LAN Adapter (for use in the HP Agency Series# PP2170) Model: WM3B2200BG was directly connected to the laptop's miniPCI port underneath. The laptop was also connected to the AC Adapter, printer, and modem via its power, parallel, and serial ports, respectively. The EUT was continuously transmitting and receiving. The commands for the EUT were programmed using the special test software provided.

Note: For all tests, the main antenna port was tested, with the auxiliary antenna port being spot checked to insure the readings were not higher.

The final radiated as well as the conducted data was taken in the mode above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 1.75 meter unshielded cable connecting the laptop to the AC Adapter. It has a 1/8 inch power connector at the laptop end and is hard wired into the laptop. The cable was bundled to a length of 1.1 meters.
- Cable 2** This is a 1.5 meter braid and foil shielded cable connecting the laptop to the printer. It has a D-25 pin metallic connector at the laptop end and a Centronics type metallic connector at the printer end. The cable was bundled to a length of 80 centimeters. The shield of the cable was grounded to the chassis via the connectors.
- Cable 3** This is a 1.5 meter braid and foil shielded cable connecting the laptop to the modem. It has a D-9 pin metallic connector at the laptop end and a D-25 pin metallic connector at the modem end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
Equipment Name				
Intel Mini PCI Type 802.11BG Wireless LAN Adapter (EUT)	INTEL CORPORATION	WM3B2200BG	N/A	CNTPP2170SIL
EUT Sub-Assemblies				
Auxiliary PIFA Antenna	WISTRON NeWeb CORPORATION	P/N: WN-S-1.13W- 540MM (2-4-1)	N/A	N/A
Main PIFA Antenna	WISTRON NeWeb CORPORATION	P/N: WN-S1.13B- 540MM (2-4-1)	N/A	N/A
Host Equipment List				
AC ADAPTER FOR LAPTOP	COMPAQ COMPUTER CORP.	P/N: 239427-003	F3-03020545513	N/A
LAPTOP	COMPAQ COMPUTER CORPORATION	PC89637AA000	J381651052	DoC
MODEM	HAYES	231AA	A07031003840	BFJ9D9231AA
PRINTER	CITIZEN	LSP-10	1184398-72	DLK66TLSP-10

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiate Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Conducted Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08767	June 25, 2003	June 25, 2004
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	June 25, 2003	June 25, 2004
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 24, 2003	June 24, 2004
EMI Test Receiver	Rohde & Schwarz	ESIB40	100172	July 22, 2003	July 22, 2004
RF Attenuator	Weinschel Corp.	2	BJ6396	August 7, 2003	Aug. 7, 2004
LISN	Com Power	LI-215	12078	November 22, 2003	Nov. 22, 2004
LISN	Com Power	LI-215	12082	November 22, 2003	Nov. 22, 2004
Preamplifier	Com Power	PA-102	1017	January 6, 2004	Jan. 6, 2005
Biconical Antenna	Com Power	AB-100	1548	October 8, 2003	Oct. 8, 2004
Log Periodic Antenna	Com Power	AL-100	16089	October 8, 2003	Oct. 8, 2004
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Loop Antenna	Com Power	AL-130	17070	June 19, 2002	June 19, 2004

5.3 EMI Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
RF Peak Power Meter / Analyzer	Boonton Electronics Corp.	4500A	687	November 4, 2003	Nov. 4, 2004
Peak Power Sensor	Boonton Electronics Corp.	57318	2411	April 2, 2003	April 2, 2004
Horn Antenna	Antenna Research	DRG-118/A	1053	January 13, 2002	Jan. 13, 2004
Horn Antenna	Com Power	AH-118	71005	April 8, 2002	April 8, 2004
Microwave Preamplifier	Com Power	PA-122	25195	August 19, 2003	Aug. 19, 2004
Microwave Preamplifier	Com Power	PA-840	711013	March 6, 2002	March 6, 2004
Horn Antenna	Com Power	AH826	0071957	November 5, 2003	Nov. 5, 2004

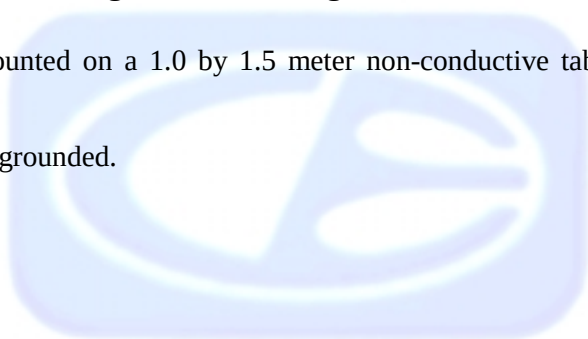
6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Antenna Gain

The antenna has a worst case gain of -0.65 dBi peak for the main antenna and 0.35 dBi peak for the auxiliary antenna.



8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2001. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Section 15.207 for conducted emissions.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies from 1 GHz to 18 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies from 18 GHz to 25 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged using the EMI Receiver's average detector.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2001. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final data.



8.2 6 dB and 20 dB Bandwidth

The 6 dB and 20 dB bandwidths were measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF out on the EUT. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (a)(2).

8.3 Peak Output Power

The Peak Output Power was measured using the power meter and power sensor. The EUT was directly connected to the power sensor, which was directly connected to the power meter. The Peak Output Power was then measured

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (b)(3).

8.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test was measured using a direct connection from the RF out on the EUT into the input of the analyzer. The resolution bandwidth was 100 kHz, and the video bandwidth 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

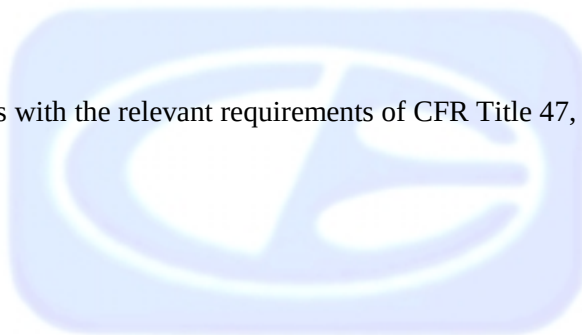
The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (c).

8.5 Spectral Density Output

The spectral density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (d).



8.6 RF Band Edges

The RF band edges were measured at the start of the restricted bands (2390 MHz and 2483.5 MHz). The readings taken were also averaged by the EMI Receiver. Data sheets are included in Appendix E, which compares the reading from the EMI Receiver to the spec limit.

Readings that were taken using the Marker Delta Method were derived as follows:

1. Set the EUT to transmit on the highest operating frequency near the edge of the restricted band. Set the EMI Receiver sweep to the edge of the restricted band and set the span wide enough to encompass the fundamental signal and the edge of the restricted band.
2. Make a radiated emissions measurement of the fundamental at 3 meters on the OATS. Maximize the level of the emission. Using MAX HOLD and Peak Search, record the highest peak and average level. (Peak: RBW = VBW = 1 MHz; AVG: RBW = 1 MHz, VBW = 10 Hz)
3. Connect a coax cable to the antenna output of the EUT and measure directly to the EMI Receiver. Use the same center frequency and span settings that were used for steps #1 and #2. Reduce the RBW to 100 kHz (this has been specified for band edge 2.4 GHz 15.247, Note: this is about 1% and 1% would probably suffice for most measurements.) Set the VBW = 1 MHz for peak, 10 Hz for AVG (identical to previous readings). Using MAX HOLD, then "Peak Search" and "Marker Delta" determine the "delta dB" from the peak of the fundamental to the maximum level within the restricted band. This dBc level is the "Delta dB" reading.
4. If the maximum level within the restricted band is within two standard BW (where a "standard" bandwidth is the bandwidth specified by ANSI C63.4: 2001 for the frequency being measured, or 1 MHz for > 1GHz) of the edge of the restricted band, measure the amount that the level of the fundamental dropped when the RBW was changed from 1 MHz to the RBW used in step 2.
5. Calculate the PEAK and Average level within the restricted band in dBuV/m using the equations below:

For readings within two standard bandwidths of the band edge:

Restricted band level (Peak) = Peak reference level – delta dB – BW delta dB (step #4)

Restricted band level (AVG) = Average reference level – delta dB – BW delta dB (step #4)

For readings that are outside the two standard bandwidths of the band edge:

Restricted band level (Peak) = Peak reference level – delta dB

Restricted band level (AVG) = AVG reference level – delta dB

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (c). The RF power at the restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz meet the limits of section 15.209. Please see the data sheets located in Appendix E.

9. CONCLUSIONS

The Intel Mini PCI Type 802.11BG Wireless LAN Adapter (for use in the HP Agency Series# PP2170) Model: WM3B2200BG meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.



APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

APPENDIX B

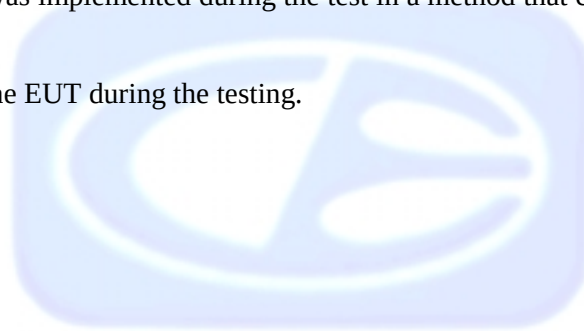
MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and Subpart C specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Intel Mini PCI Type 802.11BG Wireless LAN Adapter (for use in
the HP Agency Series# PP2170)
Model: WM3B2200BG
S/N: N/A

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

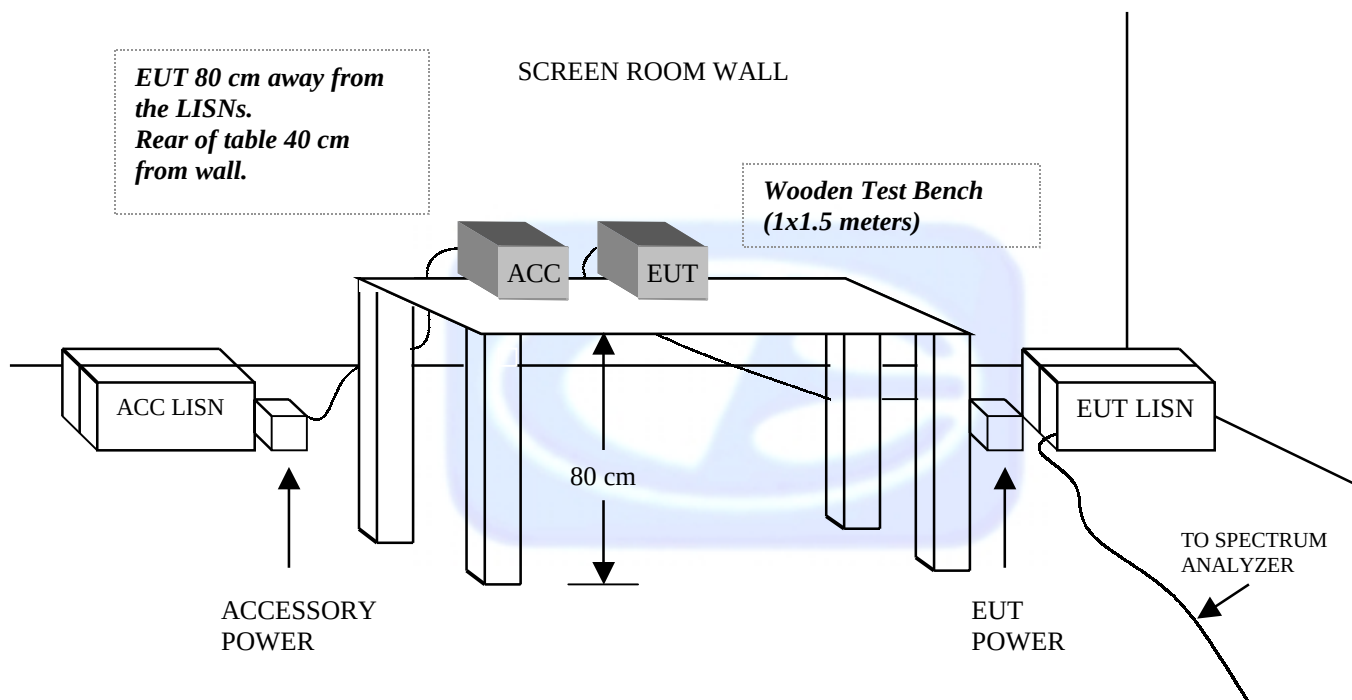
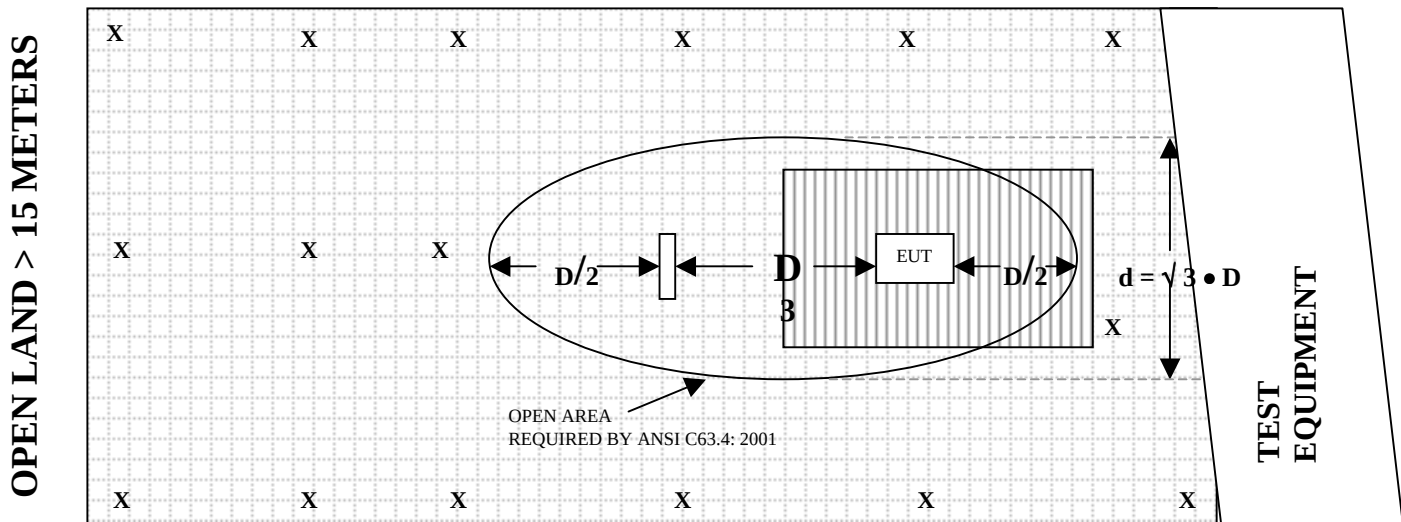


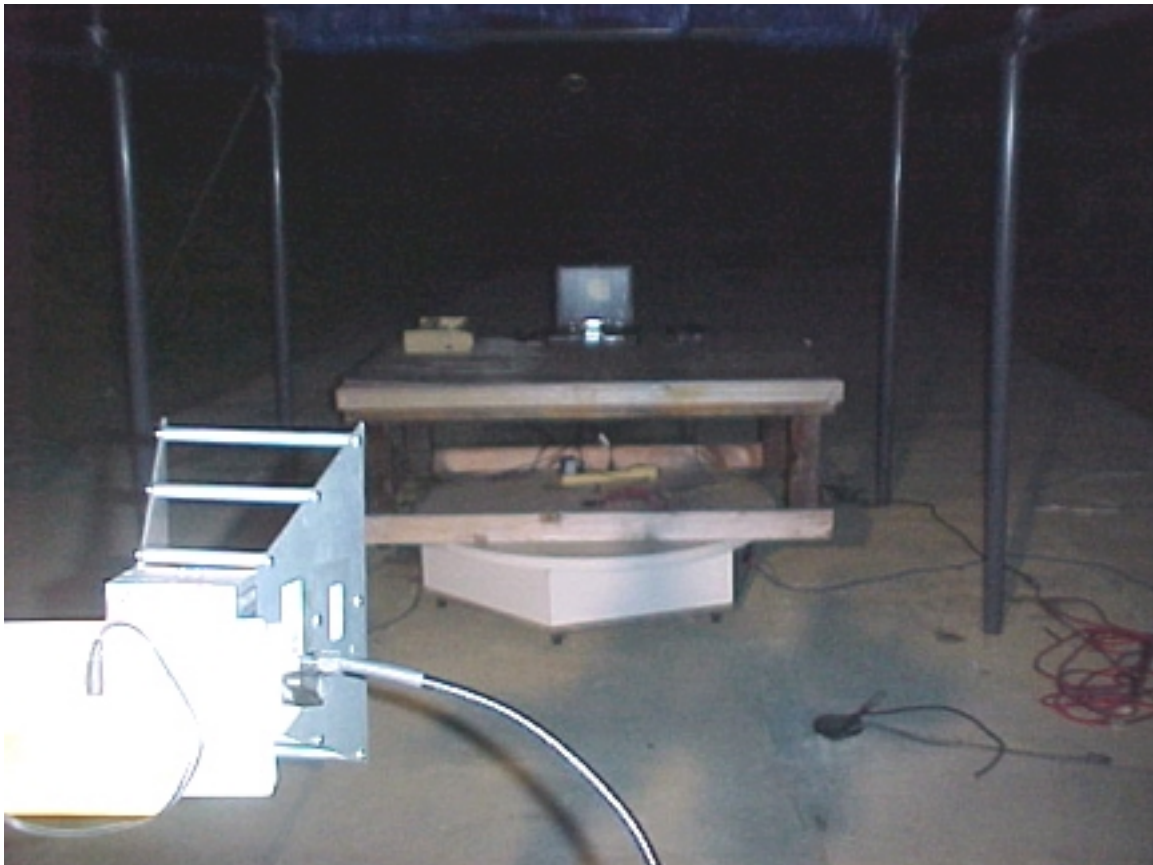
FIGURE 2: PLOT MAP AND LAYOUT OF 3 METER RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X	= GROUND RODS		= GROUND SCREEN
D	= TEST DISTANCE (meters)		= WOOD COVER



FRONT VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC SUBPART C - RADIATED EMISSIONS – 03-01-04, 03-02-04, 03-03-04

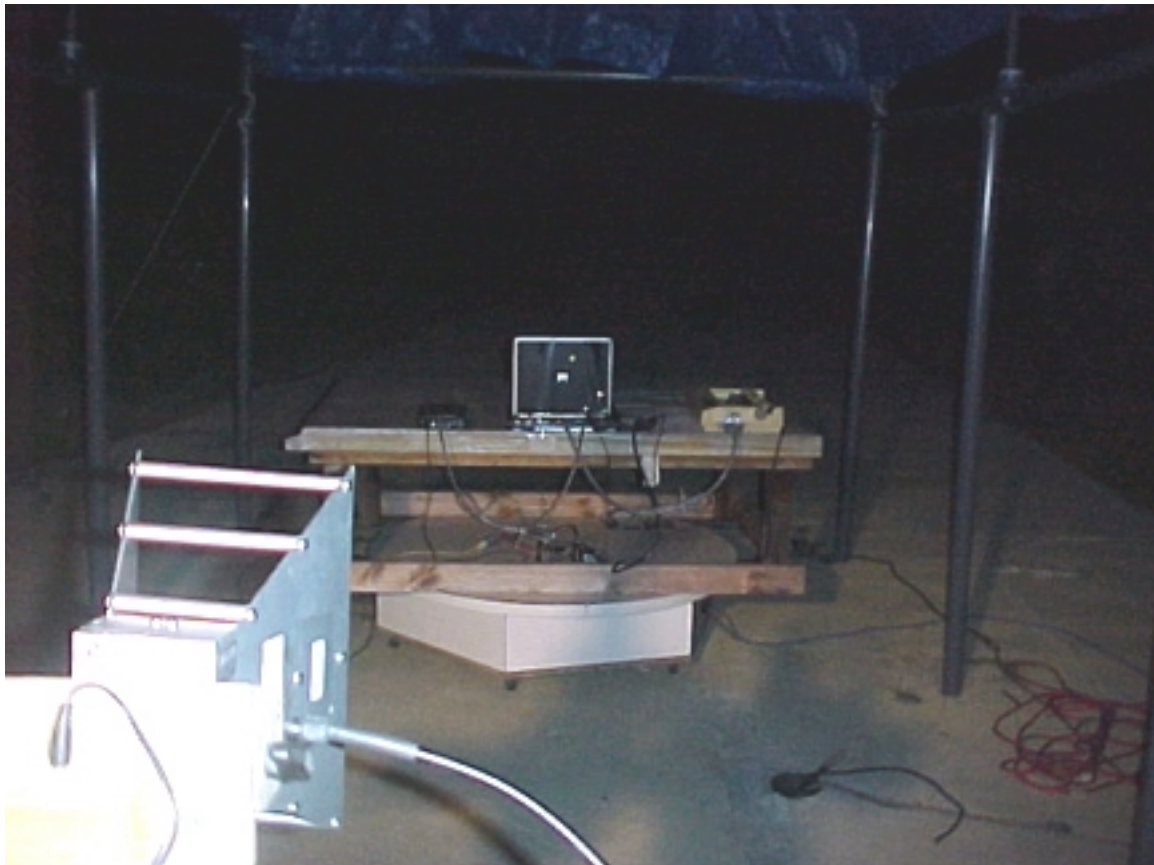
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC SUBPART C - RADIATED EMISSIONS – 03-01-04, 03-02-04, 03-03-04

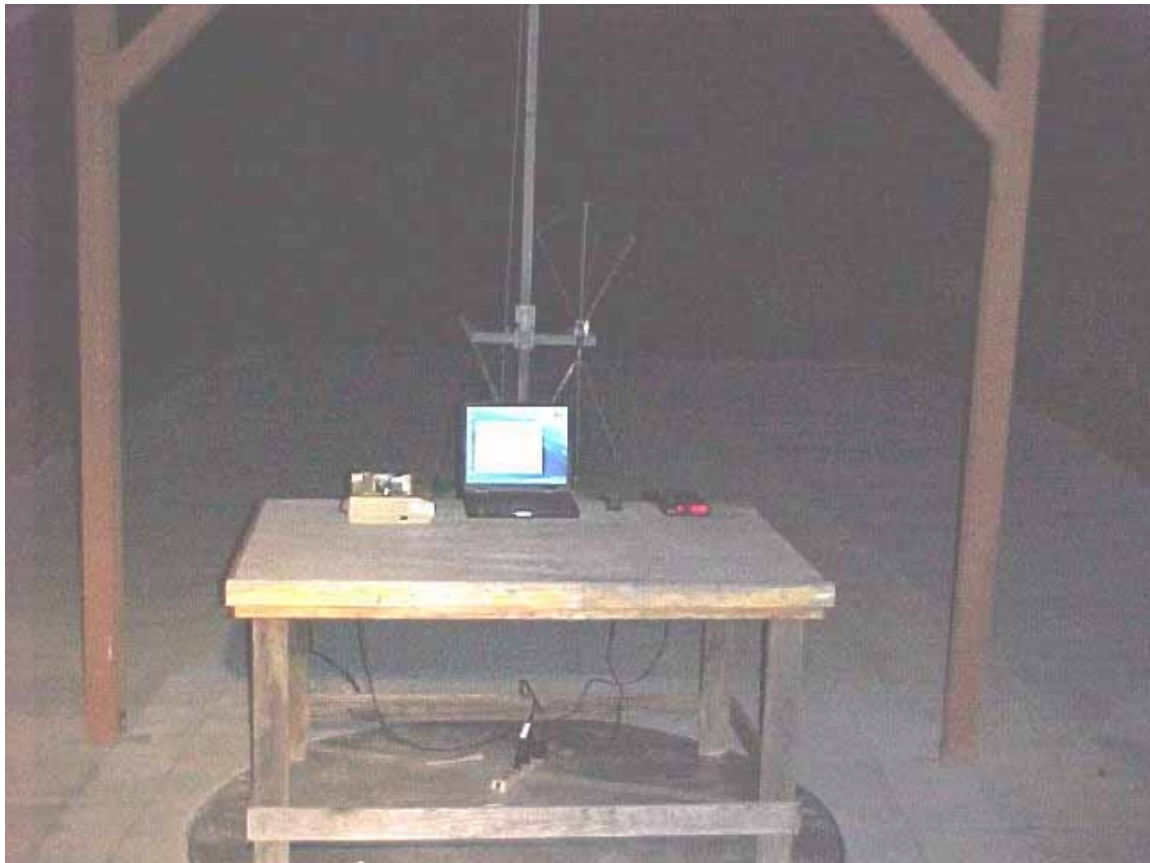
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



FRONT VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC CLASS B - RADIATED EMISSIONS – 01-05-04

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

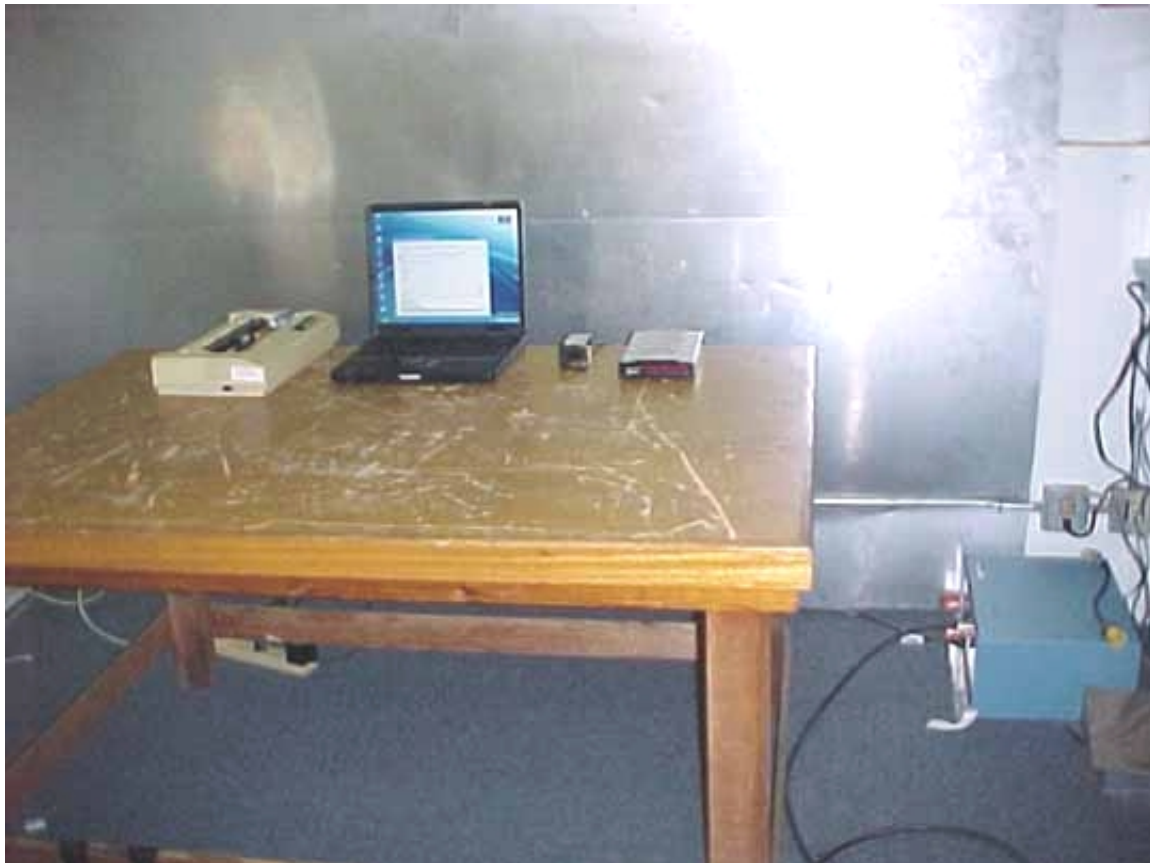
Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC CLASS B - RADIATED EMISSIONS – 01-05-04

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC CLASS B - CONDUCTED EMISSIONS – 01-05-04

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

HEWLETT PACKARD COMPANY
INTEL MINI PCI TYPE 802.11BG WIRELESS LAN ADAPTER
FOR USE IN THE HP AGENCY SERIES# PP2170
MODEL: WM3B2200BG
FCC CLASS B - CONDUCTED EMISSIONS – 01-05-04

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

COM-POWER AB-100**BICONICAL ANTENNA****S/N: 1548****CALIBRATION DATE: OCTOBER 8, 2003**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	13.1	120	9.9
35	12.9	125	11.4
40	14.6	140	12.0
45	12.8	150	13.0
50	12.9	160	13.9
60	9.3	175	14.2
70	8.2	180	14.3
80	8.0	200	14.9
90	8.1	250	16.6
100	8.8	300	19.7

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16089

CALIBRATION DATE: OCTOBER 8, 2003

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.8	700	20.0
400	14.4	800	21.2
500	16.0	900	20.8
600	17.7	1000	21.7

COM-POWER PA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 6, 2004

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	37.8	300	37.6
40	37.5	350	37.5
50	37.7	400	37.5
60	37.5	450	37.0
70	37.5	500	37.1
80	37.5	550	37.3
90	37.5	600	37.1
100	37.5	650	37.4
125	37.8	700	37.1
150	37.5	750	37.1
175	37.5	800	36.8
200	37.6	850	36.2
225	37.6	900	35.3
250	37.5	950	35.9
275	37.6	1000	35.3

COM-POWER PA-122**MICROWAVE PREAMPLIFIER**

S/N: 25195

CALIBRATION DATE: AUGUST 19, 2003

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	30.8	6.0	33.3
1.1	30.9	6.5	32.7
1.2	30.9	7.0	31.8
1.3	30.4	7.5	31.6
1.4	30.7	8.0	30.3
1.5	31.0	8.5	29.0
1.6	31.2	9.0	29.0
1.7	30.3	9.5	29.5
1.8	28.9	10.0	30.9
1.9	31.2	11.0	30.2
2.0	30.9	12.0	28.7
2.5	30.4	13.0	30.3
3.0	31.7	14.0	28.7
3.5	32.6	15.0	29.5
4.0	32.6	16.0	31.1
4.5	32.2	17.0	30.1
5.0	31.1	18.0	28.6
5.5	30.6		

COM-POWER PA-840**MICROWAVE PREAMPLIFIER****S/N: 711013****CALIBRATION DATE: MARCH 06, 2002**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	26.4	30.0	27.6
19.0	25.4	31.0	27.3
20.0	24.5	32.0	26.9
21.0	23.9	33.0	26.7
22.0	24.0	34.0	27.0
23.0	24.4	35.0	25.9
24.0	25.2	36.0	25.5
25.0	26.1	37.0	26.2
26.0	26.6	38.0	25.6
27.0	27.2	39.0	23.4
28.0	27.4	40.0	24.3
29.0	27.5		

ANTENNA RESEARCH DRG-118/A**HORN ANTENNA**

S/N: 1053

CALIBRATION DATE: JANUARY 13, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.5	9.5	39.1
1.5	26.6	10.0	39.7
2.0	29.4	10.5	40.9
2.5	30.4	11.0	40.7
3.0	31.2	11.5	42.4
3.5	32.3	12.0	42.6
4.0	32.9	12.5	42.4
4.5	33.0	13.0	41.5
5.0	34.8	13.5	41.0
5.5	35.2	14.0	40.5
6.0	36.4	14.5	43.6
6.5	36.6	15.0	43.7
7.0	38.8	15.5	43.3
7.5	38.8	16.0	42.8
8.0	38.0	16.5	43.0
8.5	38.1	17.0	42.7
9.0	39.9	17.5	44.0
		18.0	41.8

COM POWER AH-118**HORN ANTENNA****S/N: 71005****CALIBRATION DATE: APRIL 8, 2002**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.4	9.5	38.8
1.5	28.2	10.0	39.8
2.0	31.0	10.5	41.2
2.5	31.6	11.0	39.7
3.0	32.2	11.5	44.7
3.5	32.6	12.0	45.5
4.0	33.6	12.5	42.6
4.5	35.2	13.0	40.1
5.0	35.5	13.5	40.0
5.5	36.7	14.0	41.1
6.0	35.8	14.5	43.3
6.5	36.5	15.0	47.0
7.0	38.7	15.5	45.7
7.5	40.9	16.0	44.2
8.0	40.3	16.5	47.0
8.5	40.4	17.0	45.4
9.0	40.0	17.5	48.0
		18.0	44.0

COM-POWER AH826**HORN ANTENNA****S/N: 0071957****CALIBRATION DATE: NOVEMBER 05, 2003**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	32.3	22.5	32.9
18.5	32.9	23.0	33.0
19.0	32.7	23.5	33.6
19.5	32.6	24.0	33.6
20.0	32.7	24.5	33.5
20.5	33.0	25.0	33.5
21.0	33.0	25.5	33.7
21.5	33.2	26.0	34.1
22.0	32.9	26.5	34.5

COM-POWER AL-130**LOOP ANTENNA**

S/N: 17070

CALIBRATION DATE: JUNE 19, 2002

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-40.4	11.1
0.01	-40.3	11.2
0.02	-41.2	10.3
0.05	-41.6	9.9
0.07	-41.4	10.1
0.1	-41.7	9.8
0.2	-44.0	7.5
0.3	-41.6	9.9
0.5	-41.3	10.2
0.7	-41.4	10.1
1	-40.9	10.6
2	-40.6	10.9
3	-40.5	11.0
4	-40.8	10.7
5	-40.2	11.3
10	-40.7	10.8
15	-41.4	10.1
20	-41.6	9.9
25	-41.7	9.8
30	-42.9	8.6

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 1 - 802.11 b Mode

Gain : 30.5 Power Output: 17.06 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824	57.92	V	74	-16.08	Peak	2.5	90	
4824	52.88	V	54	-1.12	Avg	2.5	90	
7236	47.1	V	74	-26.9	Peak	2.5	45	
7236	36.27	V	54	-17.73	Avg	2.5	45	
9648	62.77	V	--	--	Peak	2.25	315	Not in Restricted Band
9648	60.07	V	--	--	Avg	2.25	315	Not in Restricted Band
12060	60.58	V	74	-13.42	Peak	2.25	315	
12060	52.94	V	54	-1.06	Avg	2.25	315	
14472	56.45	V	74	-17.55	Peak	2.25	225	
14472	49.31	V	54	-4.69	Avg	2.25	225	
16884	56.67	V	--	--	Peak	2.5	90	Not in Restricted Band
16884	45.73	V	--	--	Avg	2.5	90	Not in Restricted Band
19296	51.16	V	74	-22.84	Peak	2.25	225	
19296	44.94	V	54	-9.06	Avg	2.25	225	
21708	49.1	V	--	--	Peak	2	225	Not in Restricted Band
21708	34.24	V	--	--	Avg	2	225	Not in Restricted Band
24120	47.2	V	--	--	Peak	2	225	Not in Restricted Band
24120	35.69	V	--	--	Avg	2	225	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 1 - 802.11 b Mode
Transmit Mode**

Gain : 30.5 Power Output: 17.06 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824	52.15	H	74	-21.85	Peak	2.25	90	
4824	48.31	H	54	-5.69	Avg	2.25	90	
7236	45.08	H	74	-28.92	Peak	2	270	
7236	31.34	H	54	-22.66	Avg	2	270	
9648	61.39	H	--	--	Peak	2	180	Not in Restricted Band
9648	58.34	H	--	--	Avg	2	180	Not in Restricted Band
12060	59.73	H	74	-14.27	Peak	2.25	225	
12060	51.75	H	54	-2.25	Avg	2.25	225	
14472	56.03	H	74	-17.97	Peak	2.25	225	
14472	49.86	H	54	-4.14	Avg	2.25	225	
16884	55.71	H	--	--	Peak	2.25	225	Not in Restricted Band
16884	43.42	H	--	--	Avg	2.25	225	Not in Restricted Band
19296	48.54	H	74	-25.46	Peak	2.25	225	
19296	40.58	H	54	-13.42	Avg	2.25	225	
21708	48.58	H	--	--	Peak	2	225	Not in Restricted Band
21708	34.39	H	--	--	Avg	2	225	Not in Restricted Band
24120	47.96	H	--	--	Peak	2	225	Not in Restricted Band
24120	35.31	H	--	--	Avg	2	225	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 6 - 802.11 b Mode
Transmit Mode**

Gain : 31.0 Power Output: 17.03 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4874	53.93	V	74	-20.07	Peak	2.5	90	
4874	50.78	V	54	-3.22	Avg	2.5	90	
7311	47.87	V	74	-26.13	Peak	2.25	45	
7311	36.37	V	54	-17.63	Avg	2.25	45	
9748	66.14	V	--	--	Peak	2.25	315	Not in Restricted Band
9748	63.89	V	--	--	Avg	2.25	315	Not in Restricted Band
12185	57.8	V	74	-16.2	Peak	2.25	315	
12185	49.56	V	54	-4.44	Avg	2.25	315	
14622	53.9	V	--	--	Peak	2.25	225	Not in Restricted Band
14622	44.74	V	--	--	Avg	2.25	225	Not in Restricted Band
17059	55.11	V	--	--	Peak	2.25	90	Not in Restricted Band
17059	41.84	V	--	--	Avg	2.25	90	Not in Restricted Band
19496	47.98	V	74	-26.02	Peak	2.25	270	
19496	39.1	V	54	-14.9	Avg	2.25	270	
21933	51.59	V	--	--	Peak	2	270	Not in Restricted Band
21933	36.58	V	--	--	Avg	2	270	Not in Restricted Band
22001	49.42	V	74	-24.58	Peak	2	90	
22001	35.09	V	54	-18.91	Avg	2	90	
24370	48.21	V	--	--	Peak	2	270	Not in Restricted Band
24370	36.46	V	--	--	Avg	2	270	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 6 - 802.11 b Mode

Gain : 31.0 Power Output: 17.03 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4874	48.86	H	74	-25.14	Peak	2.5	135	
4874	44	H	54	-10	Avg	2.5	135	
7311	44.98	H	74	-29.02	Peak	2	225	
7311	31.89	H	54	-22.11	Avg	2	225	
9748	67.31	H	--	--	Peak	2.25	315	Not in Restricted Band
9748	64.67	H	--	--	Avg	2.25	315	Not in Restricted Band
12185	58.91	H	74	-15.09	Peak	2.25	315	
12185	50.48	H	54	-3.52	Avg	2.25	315	
14622	52.33	H	--	--	Peak	2.25	225	Not in Restricted Band
14622	41.46	H	--	--	Avg	2.25	225	Not in Restricted Band
17059	53.91	H	--	--	Peak	2	225	Not in Restricted Band
17059	39.68	H	--	--	Avg	2	225	Not in Restricted Band
19496	46.25	H	74	-27.75	Peak	2.25	315	
19496	34.36	H	54	-19.64	Avg	2.25	315	
21933	49.99	H	--	--	Peak	2	270	Not in Restricted Band
21933	36.25	H	--	--	Avg	2	270	Not in Restricted Band
22001	50.01	H	74	-23.99	Peak	2	270	
22001	36.78	H	54	-17.22	Avg	2	270	
24370	48.23	H	--	--	Peak	2	0	Not in Restricted Band
24370	36.49	H	--	--	Avg	2	0	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 11 - 802.11 b Mode
Transmit Mode**

Gain : 31.0 Power Output: 16.93 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924	52.41	V	74	-21.59	Peak	2.25	45	
4924	48.89	V	54	-5.11	Avg	2.25	45	
7386	47.17	V	74	-26.83	Peak	2.25	45	
7386	37.59	V	54	-16.41	Avg	2.25	45	
9848	65.76	V	--	--	Peak	2.25	225	Not in Restricted Band
9848	63.41	V	--	--	Avg	2.25	225	Not in Restricted Band
12310	58.37	V	74	-15.63	Peak	2.25	315	
12310	51.74	V	54	-2.26	Avg	2.25	315	
14772	53.28	V	--	--	Peak	2.5	225	Not in Restricted Band
14772	44.68	V	--	--	Avg	2.5	225	Not in Restricted Band
17234	52.04	V	--	--	Peak	2.25	225	Not in Restricted Band
17234	38.39	V	--	--	Avg	2.25	225	Not in Restricted Band
19696	47.25	V	74	-26.75	Peak	2	225	
19696	36.95	V	54	-17.05	Avg	2	225	
22158	51.56	V	74	-22.44	Peak	2	270	
22158	38.51	V	54	-15.49	Avg	2	270	
24620	46.58	V	--	--	Peak	2	315	Not in Restricted Band
24620	32.73	V	--	--	Avg	2	315	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 11 - 802.11 b Mode
Transmit Mode**

Gain : 31.0 Power Output: 16.93 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924	49.21	H	74	-24.79	Peak	2.25	135	
4924	44.15	H	54	-9.85	Avg	2.25	135	
7386	44.58	H	74	-29.42	Peak	2	270	
7386	31.37	H	54	-22.63	Avg	2	270	
9848	66.73	H	--	--	Peak	2.25	270	Not in Restricted Band
9848	64.24	H	--	--	Avg	2.25	270	Not in Restricted Band
12310	57.35	H	74	-16.65	Peak	2.25	315	
12310	49.94	H	54	-4.06	Avg	2.25	315	
14772	52.19	H	--	--	Peak	2.25	225	Not in Restricted Band
14772	39.65	H	--	--	Avg	2.25	225	Not in Restricted Band
17234	52.23	H	--	--	Peak	2	225	Not in Restricted Band
17234	39.27	H	--	--	Avg	2	225	Not in Restricted Band
19696	46.59	H	74	-27.41	Peak	2	270	
19696	32.18	H	54	-21.82	Avg	2	270	
22158	50.91	H	74	-23.09	Peak	2	270	
22158	37.89	H	54	-16.11	Avg	2	270	
24620	46.28	H	--	--	Peak	2	315	Not in Restricted Band
24620	33.09	H	--	--	Avg	2	315	Not in Restricted Band

FCC 15.247

Intel Corporation

Date: 3/01/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Ben Chavez

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

802.11 b Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2312	54.35	V	74	-19.65	Peak	2	180	103 MHz Below the Fundamental of Channel 1
2312	47.35	V	54	-6.65	Avg	2	180	
2512	48.73	V	74	-25.27	Peak	2	180	103 MHz Above the Fundamental of Channel 1
2512	36.22	V	54	-17.78	Avg	2	180	
2312	51.66	H	74	-22.34	Peak	1.5	225	103 MHz Below the Fundamental of Channel 1
2312	44.9	H	54	-9.1	Avg	1.5	225	
2512	49.05	H	74	-24.95	Peak	1.5	180	103 MHz Above the Fundamental of Channel 1
2512	40.02	H	54	-13.98	Avg	1.5	180	
2336	54.74	V	74	-19.26	Peak	1.75	225	103 MHz Below the Fundamental of Channel 6
2336	47.52	V	54	-6.48	Avg	1.75	225	
2538.7	49.74	V	74	-24.26	Peak	2	180	103 MHz Above the Fundamental of Channel 6
2538.7	38.77	V	54	-15.23	Avg	2	180	
2336	51.45	H	74	-22.55	Peak	1.5	225	103 MHz Below the Fundamental of Channel 6
2336	43.8	H	54	-10.2	Avg	1.5	225	
2538.7	50.48	H	74	-23.52	Peak	1.5	180	103 MHz Above the Fundamental of Channel 6
2538.7	39.42	H	54	-14.58	Avg	1.5	180	
2360	52.35	V	74	-21.65	Peak	1.75	225	103 MHz Below the Fundamental of Channel 11
2360	44.36	V	54	-9.64	Avg	1.75	225	
2564	48.25	V	74	-25.75	Peak	2	225	103 MHz Above the Fundamental of Channel 11
2564	35.79	V	54	-18.21	Avg	2	225	
2360	49.89	H	74	-24.11	Peak	1.5	225	103 MHz Below the Fundamental of Channel 11
2360	41.57	H	54	-12.43	Avg	1.5	225	
2564	49.46	H	74	-24.54	Peak	1.5	180	103 MHz Above the Fundamental of Channel 11
2564	36.5	H	54	-17.5	Peak	1.5	180	

Intel Corporation	Date: 3/03/04
Intel Mini PCI Type	Lab: B
802.11BG Wireless LAN Adapter	
Model: WM3B2200BG	Tested By: Arnold Gaffud
Configuration: Hewlett Packard Laptop Agency Series Number PP2170	

Lab: B

Tested By: Arnold Gaffud

Gain : 30.5 Power Output: 17.06 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
3216	41.45	V	74	-32.55	Peak	2	315	Fundamental of LO for Channel 1
3216	28.7	V	54	-25.3	Avg	2	315	
6432	52.69	V	--	--	Peak	2	45	2nd Harmonic of LO for Channel 1
6432	50.97	V	--	--	Avg	2	45	
9648	61.86	V	--	--	Peak	2	225	3rd Harmonic of LO =
9648	58.14	V	--	--	Avg	2	225	4th Harmonic of Tx for Channel 1
12864	51.79	V	--	--	Peak	2	45	4th Harmonic of LO for Channel 1
12864	43.08	V	--	--	Avg	2	45	
3216	40.18	H	74	-33.82	Peak	2	225	Fundamental of LO for Channel 1
3216	26	H	54	-28	Avg	2	225	
6432	47.87	H	--	--	Peak	2	45	2nd Harmonic of LO for Channel 1
6432	43.22	H	--	--	Avg	2	45	
9648	62.44	H	--	--	Peak	2	315	3rd Harmonic of LO =
9648	58.89	H	--	--	Avg	2	315	4th Harmonic of Tx for Channel 1
12864	50.45	H	--	--	Peak	2.25	225	4th Harmonic of LO for Channel 1
12864	39.8	H	--	--	Avg	2.25	225	
								Only the Fundamental of the LO is in the Restricted Band

Intel Corporation	Date: 3/03/04
Intel Mini PCI Type	Lab: B
802.11BG Wireless LAN Adapter	
Model: WM3B2200BG	Tested By: Arnold Gaffud
Configuration: Hewlett Packard Laptop Agency Series Number PP2170	

Lab: B

Tested By: Arnold Gaffud

Gain : 31.0 Power Output: 17.03 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
3249.33	41.41	V	74	-32.59	Peak	2	315	Fundamental of LO for Channel 6
3249.33	29.05	V	54	-24.95	Avg	2	315	
6498.67	53	V	--	--	Peak	2	90	2nd Harmonic of LO for Channel 6
6498.67	50.87	V	--	--	Avg	2	90	
9748	55.86	V	--	--	Peak	2.25	225	3rd Harmonic of LO =
9748	51.12	V	--	--	Avg	2.25	225	4th Harmonic of Tx for Channel 6
12997.3	52.59	V	--	--	Peak	2.25	225	4th Harmonic of LO for Channel 6
12997.3	46.42	V	--	--	Avg	2.25	225	
3249.33	40.02	H	74	-33.98	Peak	2	315	Fundamental of LO for Channel 6
3249.33	25.31	H	54	-28.69	Avg	2	315	
6498.67	46.56	H	--	--	Peak	2.25	135	2nd Harmonic of LO for Channel 6
6498.67	40.29	H	--	--	Avg	2.25	135	
9748	64.1	H	--	--	Peak	2.25	225	3rd Harmonic of LO =
9748	61.25	H	--	--	Avg	2.25	225	4th Harmonic of Tx for Channel 6
12997.3	51.06	H	--	--	Peak	2.25	225	4th Harmonic of LO for of Channel 6
12997.3	40.22	H	--	--	Avg	2.25	225	
								Only the Fundamental of the LO is in the Restricted Band

FCC 15.247

Intel Corporation

Date: 3/03/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 11 - 802.11 b Mode

Gain : 31.0 Power Output: 16.93 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
3282.67	42.09	V	74	-31.91	Peak	2	45	Fundamental of LO for
3282.67	27.75	V	54	-26.25	Avg	2	45	Channel 11
6565.33	51.94	V	--	--	Peak	2.25	45	2nd Harmonic of LO for
6565.33	49.6	V	--	--	Avg	2.25	45	Channel 11
9848	58.95	V	--	--	Peak	2.25	270	3rd Harmonic of LO =
9848	56.24	V	--	--	Avg	2.25	270	4th Harmonic of Tx for Channel 11
13130.7	51.29	V	--	--	Peak	2	90	4th Harmonic of LO for
13130.7	41.05	V	--	--	Avg	2	90	of Channel 11
3282.67	40.35	H	74	-33.65	Peak	2	0	Fundamental of LO for
3282.67	26.69	H	54	-27.31	Avg	2	0	Channel 11
6565.33	48.16	H	--	--	Peak	2	0	2nd Harmonic of LO for
6565.33	44.02	H	--	--	Avg	2	0	Channel 11
9848	63.33	H	--	--	Peak	2.25	225	3rd Harmonic of LO =
9848	60.85	H	--	--	Avg	2.25	225	4th Harmonic of Tx for Channel 11
13130.7	52.25	H	--	--	Peak	2.25	225	4th Harmonic of LO for
13130.7	45.33	H	--	--	Avg	2.25	225	of Channel 11
								Only the Fundamental of the LO
								is in the Restricted Band

FCC 15.247

Intel Corporation

Date: 3/01/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Ben Chavez

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 6 - 802.11 b Mode

Receive Mode

[illegible]

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 1 - 802.11 g Mode

Gain : 25.0 Power Output: 16.13 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824	47.91	V	74	-26.09	Peak	2.5	90	
4824	33.24	V	54	-20.76	Avg	2.5	90	
7236	45.54	V	74	-28.46	Peak	2.25	225	
7236	31.41	V	54	-22.59	Avg	2.25	225	
9648	57.66	V	--	--	Peak	2.25	225	Not in Restricted Band
9648	41.63	V	--	--	Avg	2.25	225	Not in Restricted Band
12060	55.2	V	74	-18.8	Peak	2.25	225	
12060	40.77	V	54	-13.23	Avg	2.25	225	
14472	51.73	V	74	-22.27	Peak	2	180	
14472	37.84	V	54	-16.16	Avg	2	180	
16884	53.52	V	--	--	Peak	2	135	Not in Restricted Band
16884	39.84	V	--	--	Avg	2	135	Not in Restricted Band
19296		V	74	-74	Peak			No emissions
19296		V	54	-54	Avg			detected
21708		V	--	--	Peak			No emissions
21708		V	--	--	Avg			detected
24120		V	--	--	Peak			No emissions
24120		V	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 1 - 802.11 g Mode
Transmit Mode**

Gain : 25.0 Power Output: 16.13 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824	43.98	H	74	-30.02	Peak	2	270	
4824	29.27	H	54	-24.73	Avg	2	270	
7236	45.38	H	74	-28.62	Peak	2	135	
7236	30.62	H	54	-23.38	Avg	2	135	
9648	57.92	H	--	--	Peak	2	225	Not in Restricted Band
9648	41.29	H	--	--	Avg	2	225	Not in Restricted Band
12060	54.79	H	74	-19.21	Peak	2	270	
12060	40.06	H	54	-13.94	Avg	2	270	
14472	54.11	H	74	-19.89	Peak	2.25	315	
14472	38.82	H	54	-15.18	Avg	2.25	315	
16884	55.69	H	--	--	Peak	2	90	Not in Restricted Band
16884	40.48	H	--	--	Avg	2	90	Not in Restricted Band
19296	46.12	H	74	-27.88	Peak	2	225	
19296	31.28	H	54	-22.72	Avg	2	225	
21708		H	--	--	Peak			No emissions
21708		H	--	--	Avg			detected
24120		H	--	--	Peak			No emissions
24120		H	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 6 - 802.11 g Mode

Gain : 25.5 Power Output: 16.27 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4874	45.6	V	74	-28.4	Peak	2.25	90	
4874	31.18	V	54	-22.82	Avg	2.25	90	
7311	45.71	V	74	-28.29	Peak	2.25	45	
7311	31.83	V	54	-22.17	Avg	2.25	45	
9748	59.01	V	--	--	Peak	2.25	315	Not in Restricted Band
9748	45.11	V	--	--	Avg	2.25	315	Not in Restricted Band
12185	54.31	V	74	-19.69	Peak	2.25	315	
12185	39.98	V	54	-14.02	Avg	2.25	315	
14622	51.21	V	--	--	Peak	2	225	Not in Restricted Band
14622	36.94	V	--	--	Avg	2	225	Not in Restricted Band
17059	53.15	V	--	--	Peak	2	225	Not in Restricted Band
17059	39.76	V	--	--	Avg	2	225	Not in Restricted Band
19496		V	74	-74	Peak			No emissions
19496		V	54	-54	Avg			detected
21933		V	--	--	Peak			No emissions
21933		V	--	--	Avg			detected
22001		V	74	-74	Peak			No emissions
22001		V	54	-54	Avg			detected
24370		V	--	--	Peak			No emissions
24370		V	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 6 - 802.11 g Mode

Gain : 25.5 Power Output: 16.27 dBm

Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4874	43.14	H	74	-30.86	Peak	2	45	
4874	27.7	H	54	-26.3	Avg	2	45	
7311	46.15	H	74	-27.85	Peak	2	90	
7311	30.97	H	54	-23.03	Avg	2	90	
9748	57.01	H	--	--	Peak	2	225	Not in Restricted Band
9748	40.45	H	--	--	Avg	2	225	Not in Restricted Band
12185	54.99	H	74	-19.01	Peak	2	315	
12185	39.75	H	54	-14.25	Avg	2	315	
14622	53.6	H	--	--	Peak	2	225	Not in Restricted Band
14622	38.38	H	--	--	Avg	2	225	Not in Restricted Band
17059	55.25	H	--	--	Peak	2	270	Not in Restricted Band
17059	39.85	H	--	--	Avg	2	270	Not in Restricted Band
19496	45.46	H	74	-28.54	Peak	2	225	
19496	30.69	H	54	-23.31	Avg	2	225	
21933	50.09	H	--	--	Peak	2	45	Not in Restricted Band
21933	35.56	H	--	--	Avg	2	45	Not in Restricted Band
22001		H	74	-74	Peak			No emissions
22001		H	54	-54	Avg			detected
24370		H	--	--	Peak			No emissions
24370		H	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 11 - 802.11 g Mode
Transmit Mode**

Gain : 25.5 Power Output: 16.11 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924	44.87	V	74	-29.13	Peak	2.25	90	
4924	30.23	V	54	-23.77	Avg	2.25	90	
7386	44.35	V	74	-29.65	Peak	2	225	
7386	30.24	V	54	-23.76	Avg	2	225	
9848	58.89	V	--	--	Peak	2.25	270	Not in Restricted Band
9848	42.31	V	--	--	Avg	2.25	270	Not in Restricted Band
12310	52.45	V	74	-21.55	Peak	2.25	135	
12310	37.71	V	54	-16.29	Avg	2.25	135	
14772	50.35	V	--	--	Peak	2	135	Not in Restricted Band
14772	36.39	V	--	--	Avg	2	135	Not in Restricted Band
17234	51.99	V	--	--	Peak	2	225	Not in Restricted Band
17234	37.9	V	--	--	Avg	2	225	Not in Restricted Band
19696	45.59	V	74	-28.41	Peak	2	225	
19696	30.97	V	54	-23.03	Avg	2	225	
22158		V	74	-74	Peak			No emissions
22158		V	54	-54	Avg			detected
24620		V	--	--	Peak			No emissions
24620		V	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/02/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Model: WM3B2200BG

Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

**Channel 11 - 802.11 g Mode
Transmit Mode**

Gain : 25.5 Power Output: 16.11 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924	42.35	H	74	-31.65	Peak	2	225	
4924	28.42	H	54	-25.58	Avg	2	225	
7386	45.03	H	74	-28.97	Peak	2	270	
7386	30.36	H	54	-23.64	Avg	2	270	
9848	50.24	H	--	--	Peak	2	225	Not in Restricted Band
9848	39.6	H	--	--	Avg	2	225	Not in Restricted Band
12310	52.49	H	74	-21.51	Peak	2	315	
12310	37.89	H	54	-16.11	Avg	2	315	
14772	52	H	--	--	Peak	2	270	Not in Restricted Band
14772	37.12	H	--	--	Avg	2	270	Not in Restricted Band
17234	53.41	H	--	--	Peak	2	270	Not in Restricted Band
17234	38.15	H	--	--	Avg	2	270	Not in Restricted Band
19696		H	74	-74	Peak			No emissions
19696		H	54	-54	Avg			detected
22158		H	74	-74	Peak			No emissions
22158		H	54	-54	Avg			detected
24620		H	--	--	Peak			No emissions
24620		H	--	--	Avg			detected

FCC 15.247

Intel Corporation

Date: 3/01/04

Intel Mini PCI Type

Lab: B

802.11BG Wireless LAN Adapter

Tested By: Ben Chavez

Model: WM3B2200BG

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

802.11 g Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2312	56.96	V	74	-17.04	Peak	2	180	103 MHz Below the Fundamental of Channel 1
2312	50.99	V	54	-3.01	Avg	2	180	
2512	52.04	V	74	-21.96	Peak	2	180	103 MHz Above the Fundamental of Channel 1
2512	42.78	V	54	-11.22	Avg	2	180	
2312	56.32	H	74	-17.68	Peak	2.25	180	103 MHz Below the Fundamental of Channel 1
2312	50.58	H	54	-3.42	Avg	2.25	180	
2512	50.32	H	74	-23.68	Peak	2.25	180	103 MHz Above the Fundamental of Channel 1
2512	40.64	H	54	-13.36	Avg	2.25	180	
2336	56.96	V	74	-17.04	Peak	2.25	180	103 MHz Below the Fundamental of Channel 6
2336	51.4	V	54	-2.6	Avg	2.25	180	
2538.7	51.63	V	74	-22.37	Peak	2.25	180	103 MHz Above the Fundamental of Channel 6
2538.7	43.71	V	54	-10.29	Avg	2.25	180	
2336	56.56	H	74	-17.44	Peak	2.25	180	103 MHz Below the Fundamental of Channel 6
2336	50.39	H	54	-3.61	Avg	2.25	180	
2538.7	50.46	H	74	-23.54	Peak	2.25	180	103 MHz Above the Fundamental of Channel 6
2538.7	42.78	H	54	-11.22	Avg	2.25	180	
2360	55.09	V	74	-18.91	Peak	2.25	180	103 MHz Below the Fundamental of Channel 11
2360	48.52	V	54	-5.48	Avg	2.25	180	
2565	51.39	V	74	-22.61	Peak	1.5	225	103 MHz Above the Fundamental of Channel 11
2565	40.48	V	54	-13.52	Avg	1.5	225	
2360	55.71	H	74	-18.29	Peak	1.75	180	103 MHz Below the Fundamental of Channel 11
2360	48.91	H	54	-5.09	Avg	1.75	180	
2564	50.11	H	74	-23.89	Peak	1.75	180	103 MHz Above the Fundamental of Channel 11
2564	39.33	H	54	-14.67	Peak	1.75	180	

Intel Corporation	Date: 3/03/04
Intel Mini PCI Type	Lab: B
802.11BG Wireless LAN Adapter	Tested By: Arnold Gaffud
Model: WM3B2200BG	
Configuration: Hewlett Packard Laptop Agency Series Number PP2170	

Lab: B

Tested By: Arnold Gaffud

Model: WM3B2200BG

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Gain : 25.0 Power Output: 16.13 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
3216	42.96	V	74	-31.04	Peak	2.25	315	Fundamental of LO for Channel 1
3216	28.99	V	54	-25.01	Avg	2.25	315	
6432	51.34	V	--	--	Peak	2	90	2nd Harmonic of LO for Channel 1
6432	49.24	V	--	--	Avg	2	90	
9648	50.46	V	--	--	Peak	2.5	315	3rd Harmonic of LO = 4th Harmonic of Tx for Channel 1
9648	36.86	V	--	--	Avg	2.5	315	
12864	53.59	V	--	--	Peak	2.25	0	4th Harmonic of LO for Channel 1
12864	47.15	V	--	--	Avg	2.25	0	
3216	41.89	H	74	-32.11	Peak	2.25	225	Fundamental of LO for Channel 1
3216	25.14	H	54	-28.86	Avg	2.25	225	
6432	46.83	H	--	--	Peak	2	0	2nd Harmonic of LO for Channel 1
6432	41.88	H	--	--	Avg	2	0	
9648	54.87	H	--	--	Peak	2.25	270	3rd Harmonic of LO = 4th Harmonic of Tx for Channel 1
9648	38.76	H	--	--	Avg	2.25	270	
12864	50.04	H	--	--	Peak	2.25	225	4th Harmonic of LO for Channel 1
12864	39.74	H	--	--	Avg	2.25	225	
								Only the Fundamental of the LO is in the Restricted Band

Intel Corporation	Date: 3/03/04
Intel Mini PCI Type	Lab: B
802.11BG Wireless LAN Adapter	Tested By: Arnold Gaffud
Model: WM3B2200BG	
Configuration: Hewlett Packard Laptop Agency Series Number PP2170	

Lab: B

Tested By: Arnold Gaffud

Model: WM3B2200BG

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Gain : 25.5 Power Output: 16.27 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
3249.33	40.02	V	74	-33.98	Peak	2	225	Fundamental of LO for Channel 6
3249.33	24.04	V	54	-29.96	Avg	2	225	
6498.67	47.1	V	--	--	Peak	2	45	2nd Harmonic of LO for Channel 6
6498.67	42.83	V	--	--	Avg	2	45	
9748	55.61	V	--	--	Peak	2.25	225	3rd Harmonic of LO =
9748	39.91	V	--	--	Avg	2.25	225	4th Harmonic of Tx for Channel 6
12997.3	52.99	V	--	--	Peak	2.25	225	4th Harmonic of LO for Channel 6
12997.3	46.95	V	--	--	Avg	2.25	225	
3249.33	42.03	H	74	-31.97	Peak	2	225	Fundamental of LO for Channel 6
3249.33	25	H	54	-29	Avg	2	225	
6498.67	47.1	H	--	--	Peak	2	45	2nd Harmonic of LO for Channel 6
6498.67	42.5	H	--	--	Avg	2	45	
9748	58.13	H	--	--	Peak	2	315	3rd Harmonic of LO =
9748	41.52	H	--	--	Avg	2	315	4th Harmonic of Tx for Channel 6
12997.3	53.25	H	--	--	Peak	2.25	225	4th Harmonic of LO for of Channel 6
12997.3	47.29	H	--	--	Avg	2.25	225	
								Only the Fundamental of the LO is in the Restricted Band

Intel Corporation	Date: 3/03/04
Intel Mini PCI Type	Lab: B
802.11BG Wireless LAN Adapter	Tested By: Arnold Gaffud
Model: WM3B2200BG	
Configuration: Hewlett Packard Laptop Agency Series Number PP2170	

Lab: B

Tested By: Arnold Gaffud

Model: WM3B2200BG

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Gain : 25.5 Power Output: 16.11 dBm

[illegible]

FCC 15.247
Intel Corporation
Mini PCI Model: Sapphire
S/N: N/A
Configuration: Mini PCI B/G Internal Antennas

Date: 3/01/04
Lab: B
Tested By: Ben Chavez

Date: 3/01/04

Lab: B

Tested By: Ben Chavez

Configuration: Mini PCI B/G Internal Antennas

Channel 6 - 802.11 g Mode
Receive Mode

Receive Mode

[illegible]

Test Location : Compatible Electronics **Page** : 1/1
Customer : Intel Corporation **Date** : 1/05/2004
Manufacturer : Intel Corporation **Time** : 18:50:02
Eut name : Mini PCI Type 802.11BG Wireless LAN Adapter **Lab** : D
Model : WM3B2200BG **Test Distance** : 3.0 Meters
Serial # :
Specification : FCC Class B
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Test Range: 30-1000 MHz - In HP Laptop Agency Series# PP2170
Horizontal and Vertical Polarizations

Tested by: Benigno Chavez

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
1V	48.044	56.00	1.00	12.86	38.32	31.54	40.00	-8.46
2V	151.222	49.40	2.22	13.11	38.39	26.34	43.50	-17.16
3H	48.062	39.80	1.00	12.86	38.32	15.34	40.00	-24.66
4H	144.054	52.00	2.16	12.41	38.40	28.17	43.50	-15.33
5H	151.217	52.80	2.22	13.11	38.39	29.74	43.50	-13.76
6H	336.098	51.40	3.52	13.43	38.30	30.05	46.00	-15.95
7V	336.102	50.80	3.52	13.43	38.30	29.45	46.00	-16.55

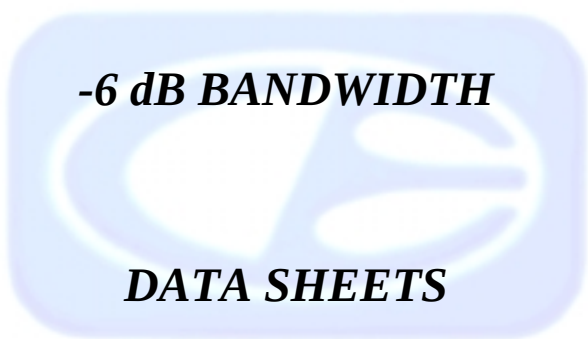
Intel Corporation
Intel Mini PCI Type 802.11BG Wireless LAN Adapter
Model: WM3B2200BG

Date: 01/05/04
Lab: B
Tested By: Arnold Gaffud

Configuration: Hewlett Packard Laptop Series Agency Number PP2170

Emissions from the Digital Portion -- 1 GHz to 25 GHz

[illegible]

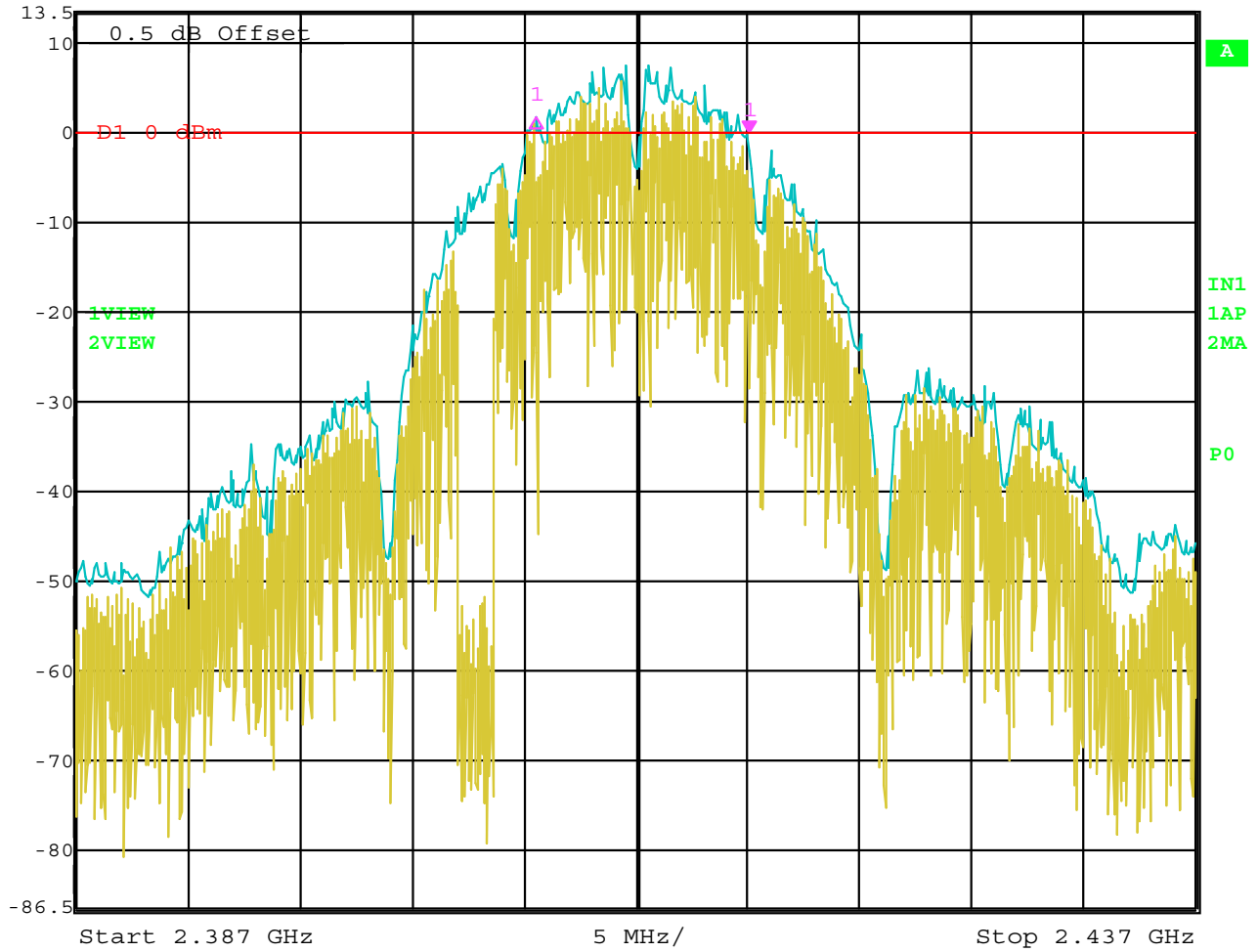


-6 dB BANDWIDTH

DATA SHEETS



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -0.11 dBm VBW 300 kHz
13.5 dBm 2.41706012 GHz SWT 12.5 ms Unit dBm

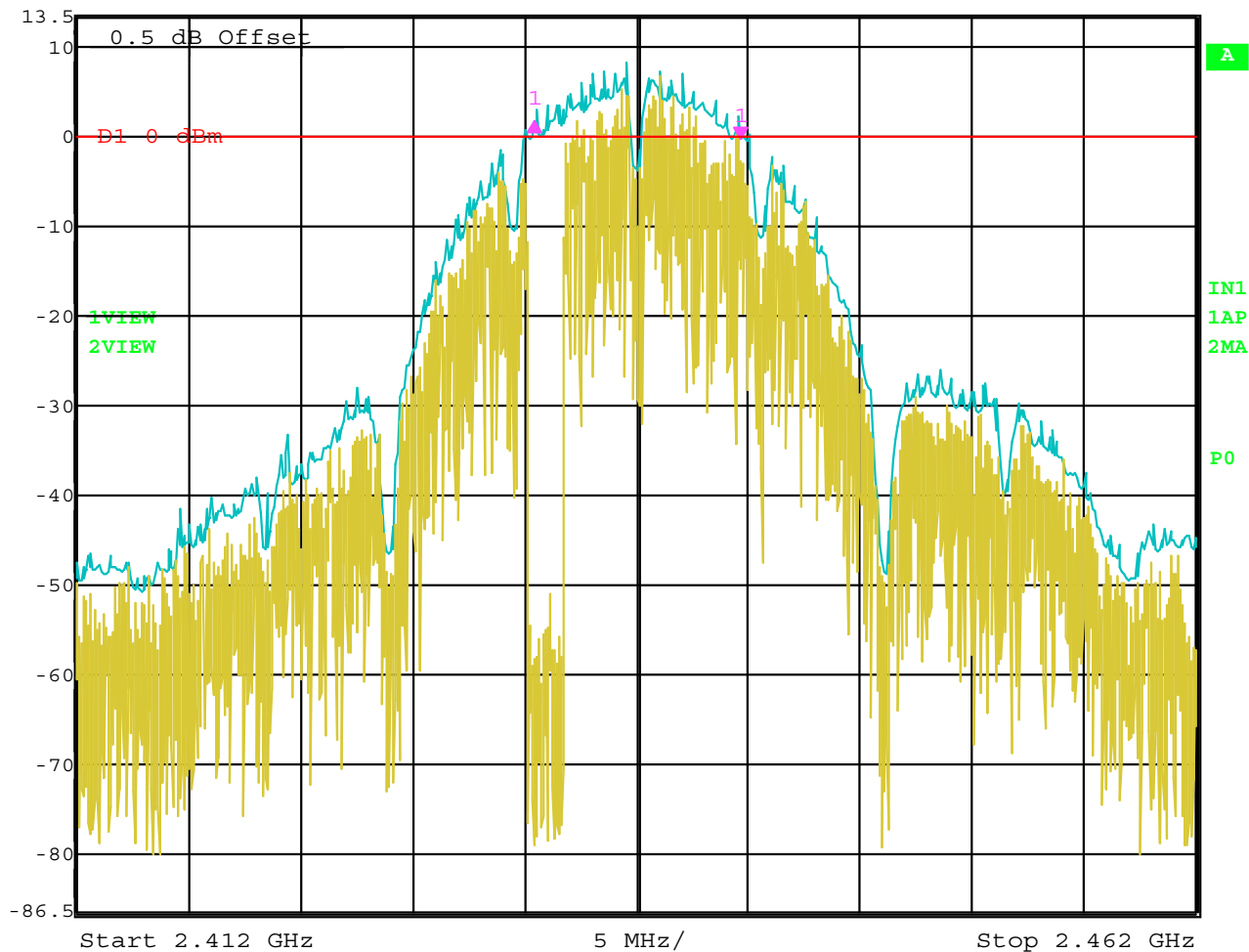


Date: 31.DEC.2003 14:31:57

-6 dB Bandwidth – Channel 1 – 802.11 b Mode



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 1.84 dB VBW 300 kHz
13.5 dBm -9.21843687 MHz SWT 12.5 ms Unit dBm

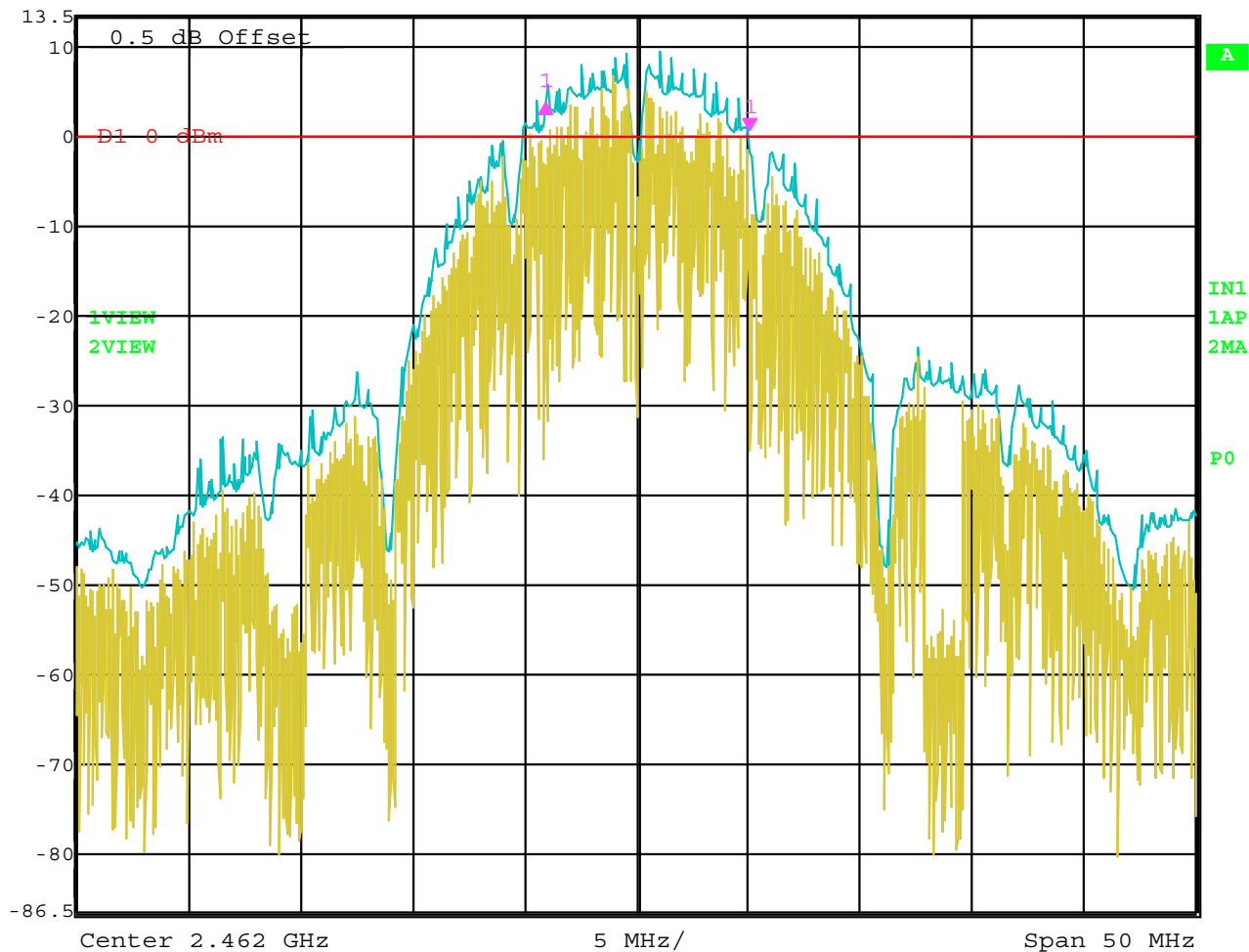


Date: 31.DEC.2003 14:39:02

-6 dB Bandwidth – Channel 6 – 802.11 b Mode



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 2.92 dB VBW 300 kHz
13.5 dBm -9.11823647 MHz SWT 12.5 ms Unit dBm

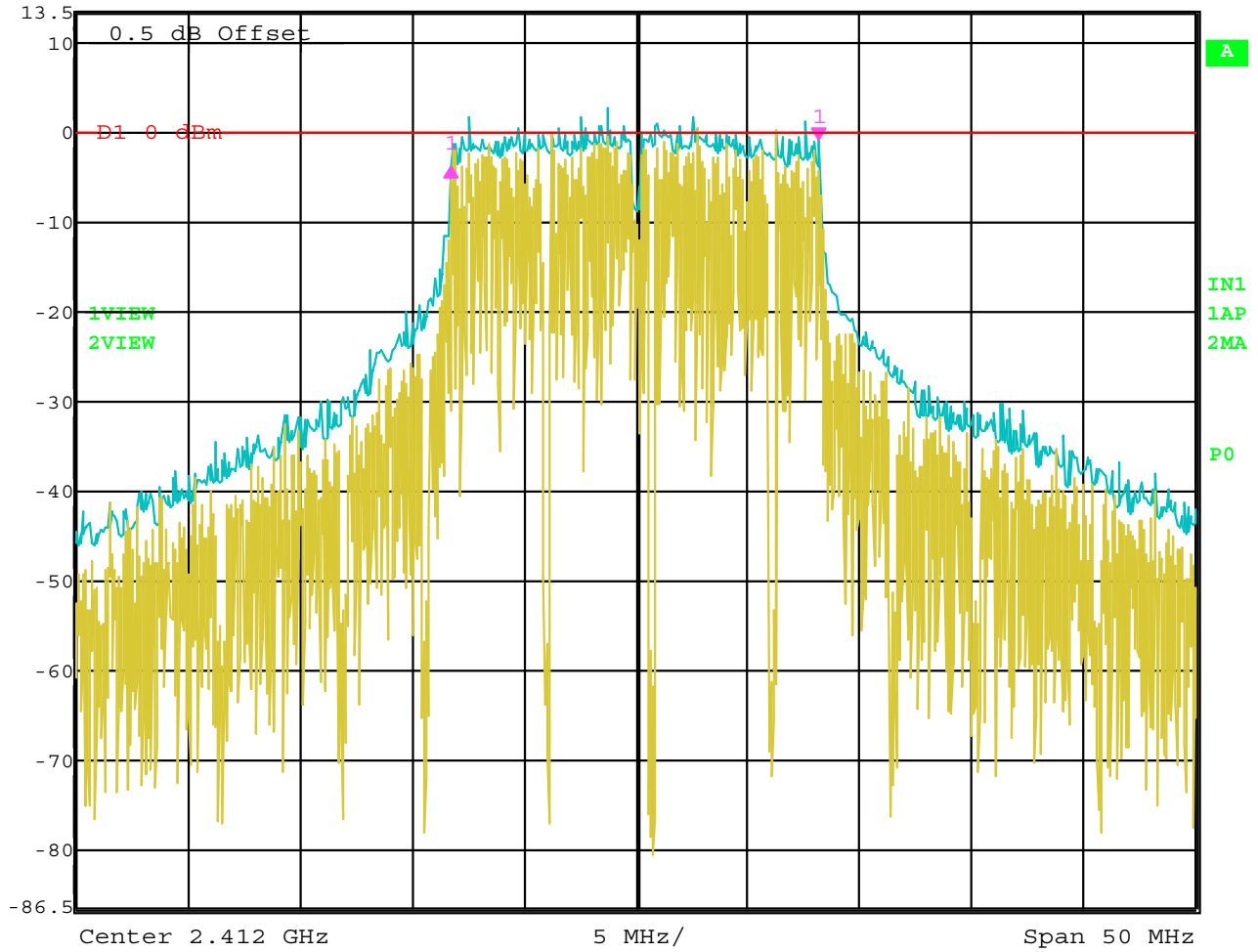


Date: 31.DEC.2003 14:44:49

-6 dB Bandwidth – Channel 11 – 802.11 b Mode



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -2.85 dB VBW 300 kHz
13.5 dBm -16.43286573 MHz SWT 12.5 ms Unit dBm

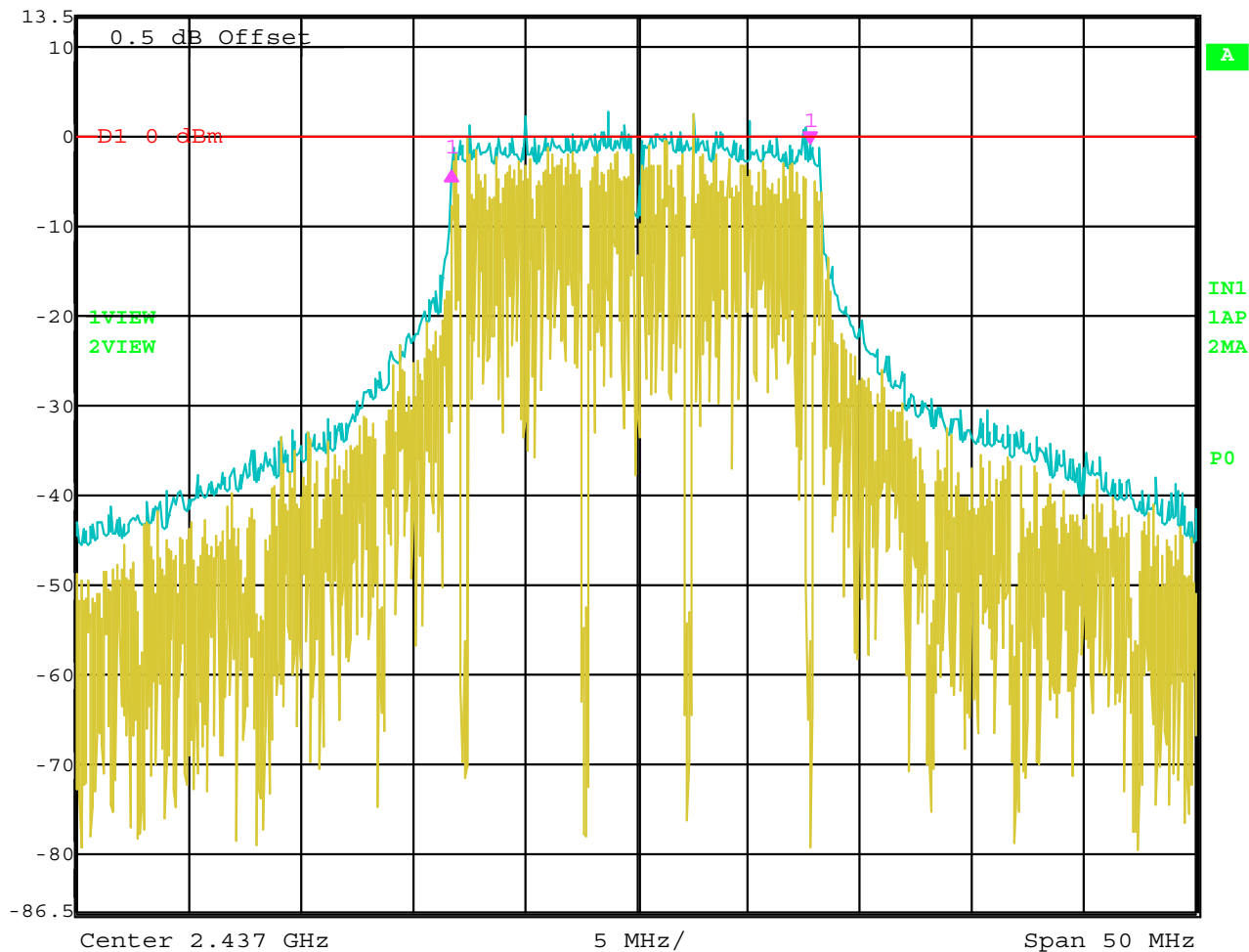


Date: 31.DEC.2003 15:02:45

-6 dB Bandwidth - Channel 1 - 802.11 g Mode



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -2.88 dB VBW 300 kHz
13.5 dBm -16.03206413 MHz SWT 12.5 ms Unit dBm

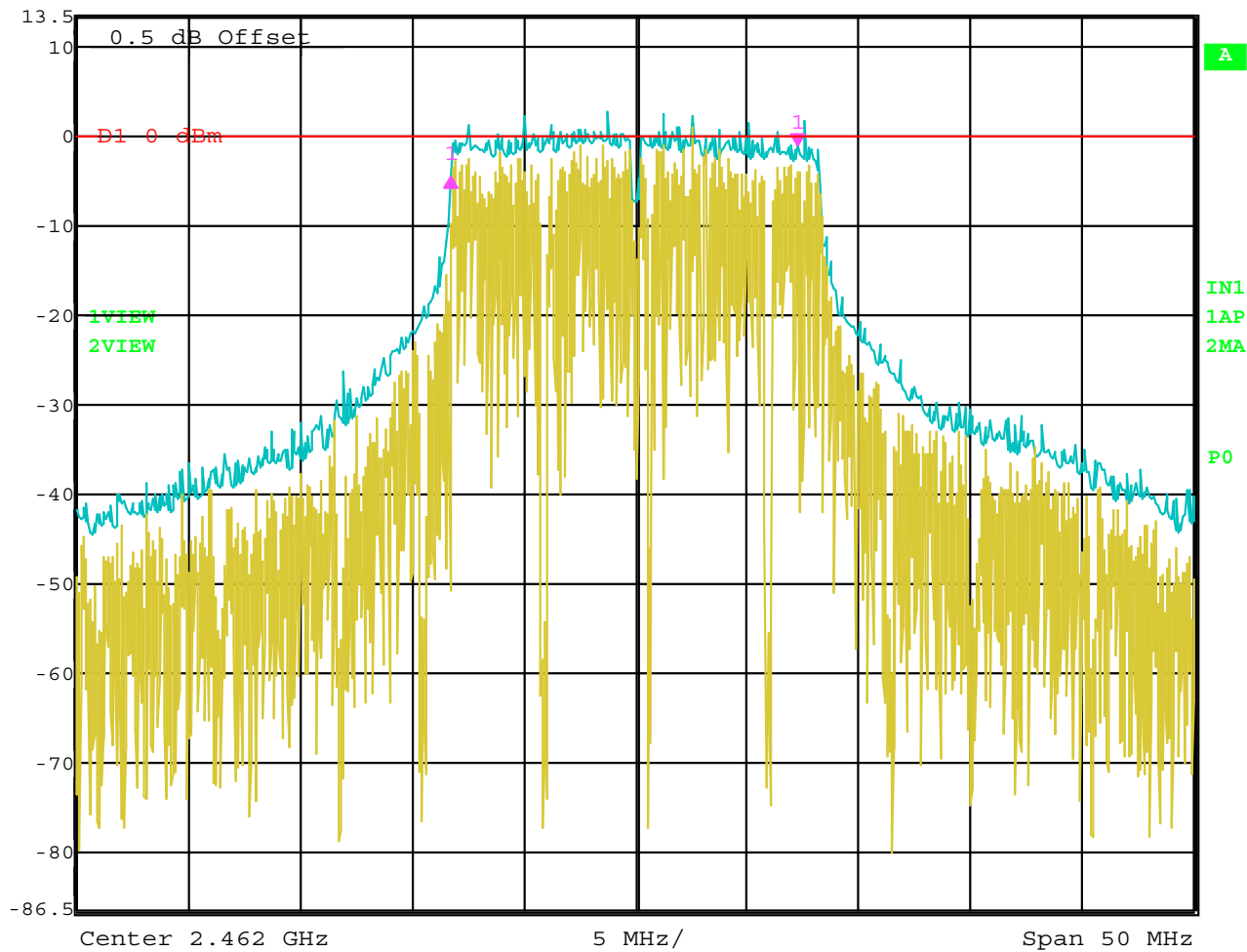


Date: 31.DEC.2003 14:57:58

-6 dB Bandwidth - Channel 6 - 802.11 g Mode



Delta 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -3.49 dB VBW 300 kHz
13.5 dBm -15.53106212 MHz SWT 12.5 ms Unit dBm



Date: 31.DEC.2003 14:53:00

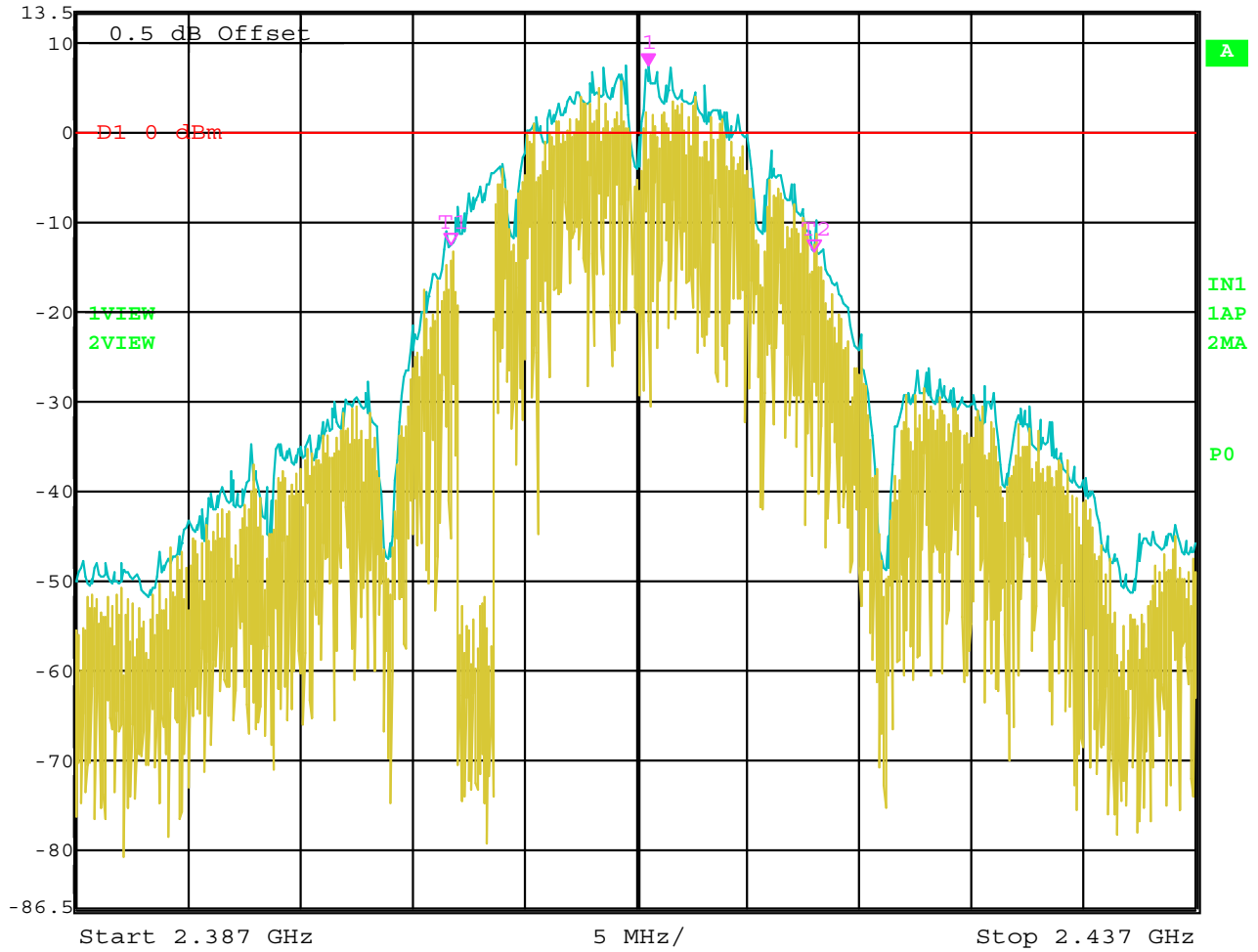
-6 dB Bandwidth - Channel 11 - 802.11 g Mode

-20 dB BANDWIDTH

DATA SHEETS



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 16.23246493 MHz	SWT	12.5 ms	Unit	dBm

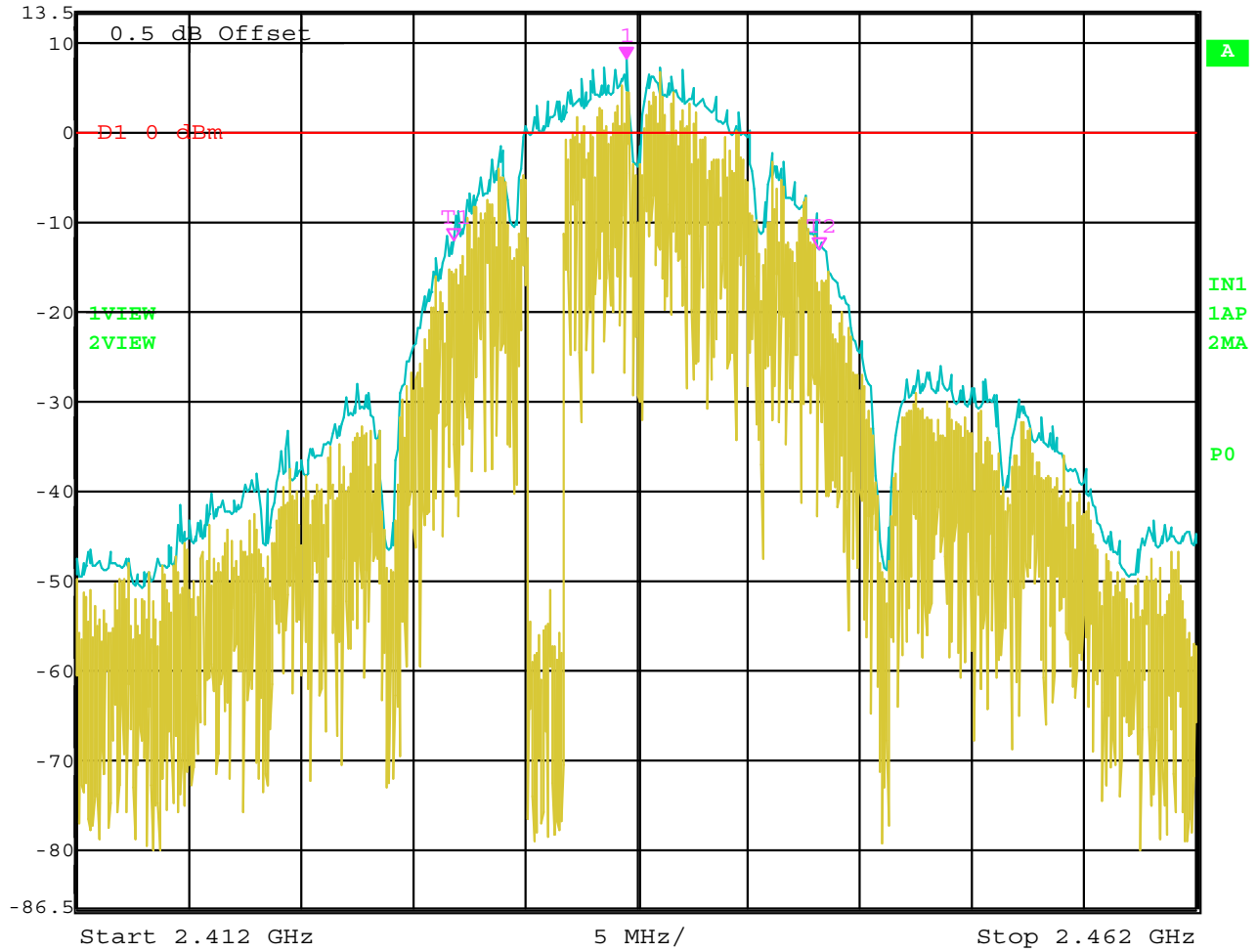


Date: 31.DEC.2003 14:34:54

-20 dB Bandwidth – Channel 1 – 802.11 b Mode



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 16.33266533 MHz	SWT	12.5 ms	Unit	dBm

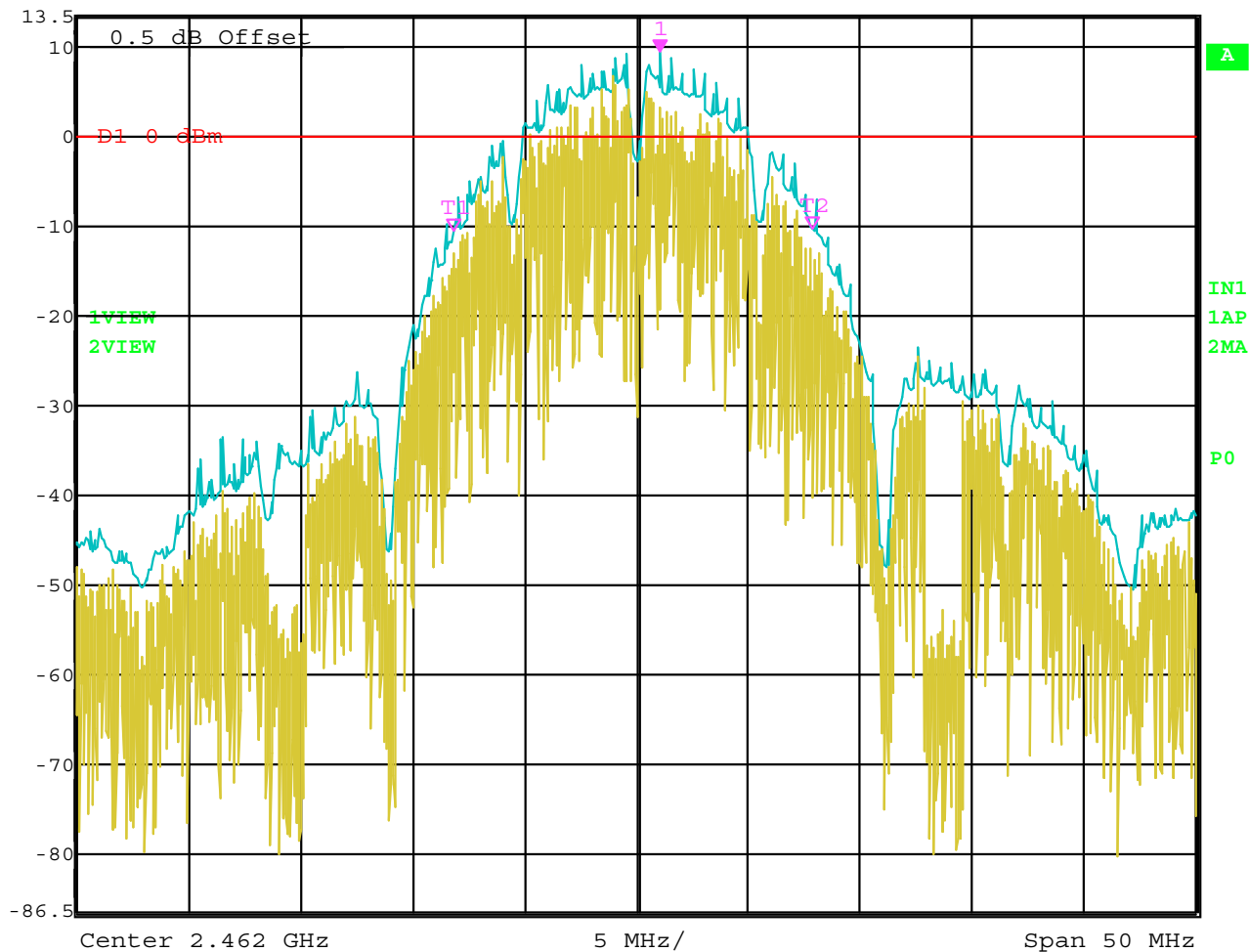


Date: 31.DEC.2003 14:40:27

-20 dB Bandwidth – Channel 6 – 802.11 b Mode



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 16.03206413 MHz	SWT	12.5 ms	Unit	dBm

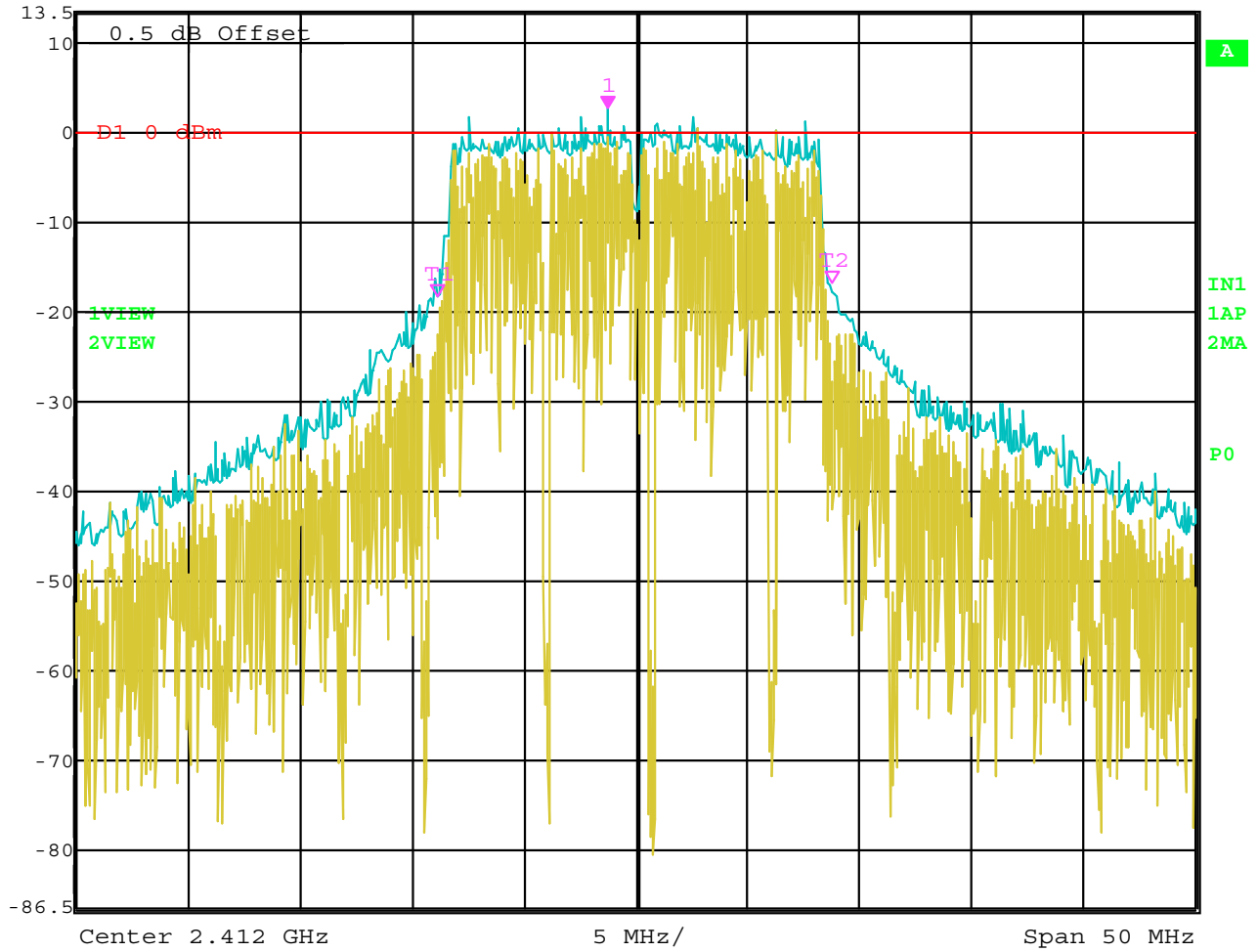


Date: 31.DEC.2003 14:48:06

-20 dB Bandwidth – Channel 11 – 802.11 b Mode



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 17.63527054 MHz	SWT	12.5 ms	Unit	dBm

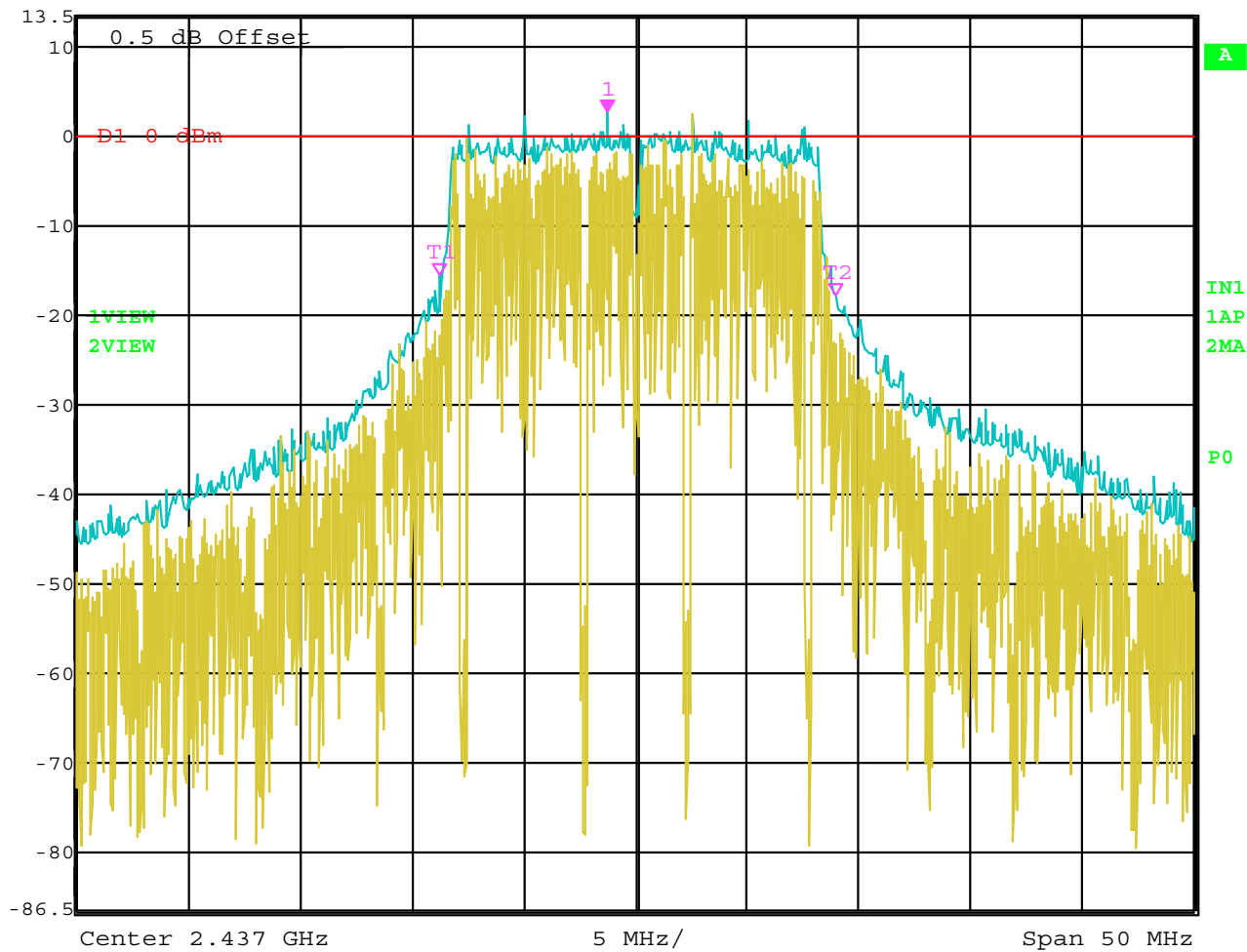


Date: 31.DEC.2003 15:03:43

-20 dB Bandwidth – Channel 1 – 802.11 g Mode



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 17.73547094 MHz	SWT	12.5 ms	Unit	dBm

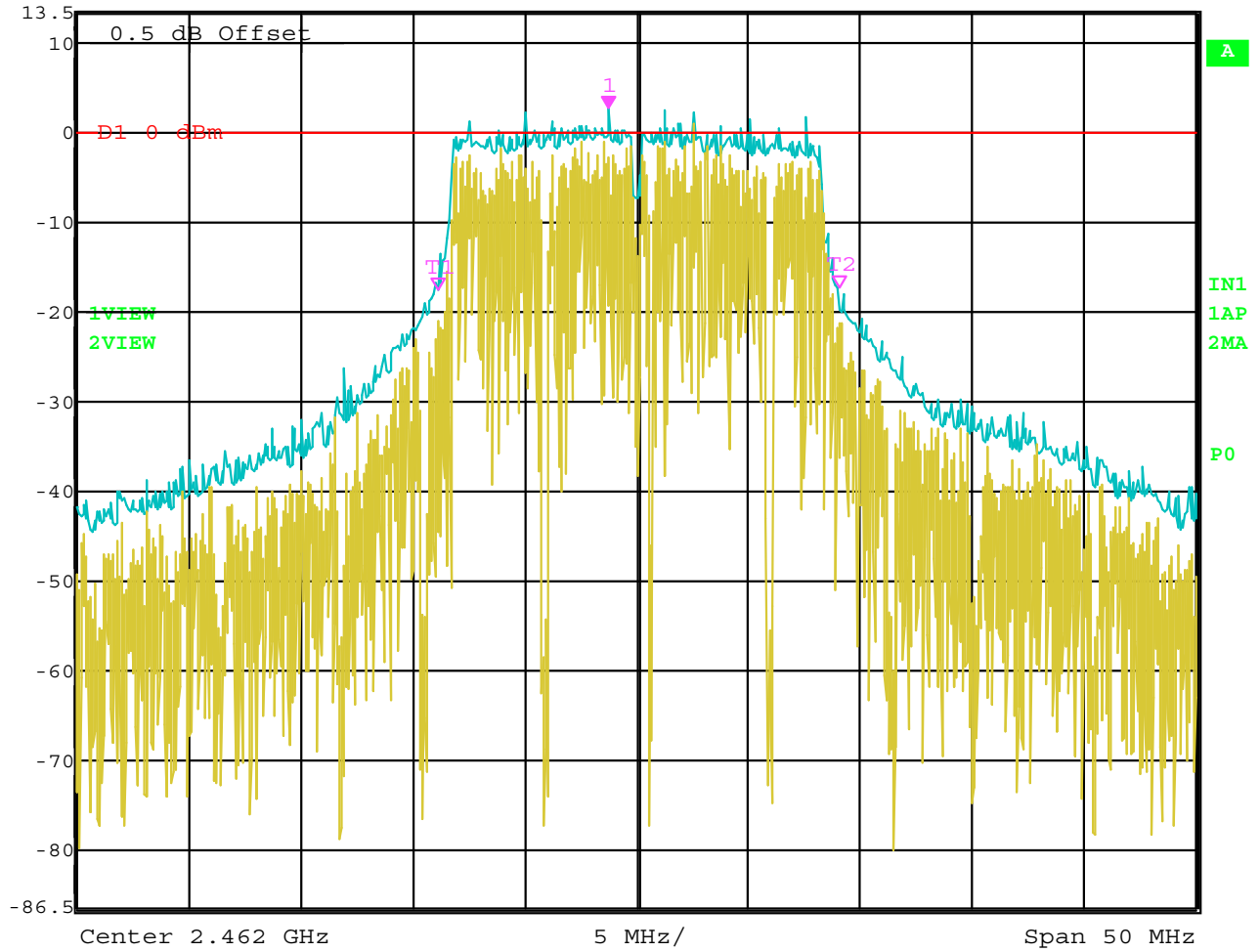


Date: 31.DEC.2003 14:58:47

-20 dB Bandwidth – Channel 6 – 802.11 g Mode



Ref Lvl	Marker 1 [T2 ndB]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	ndB 20.00 dB	VBW	300 kHz		
	BW 17.93587174 MHz	SWT	12.5 ms	Unit	dBm



Date: 31.DEC.2003 14:54:48

-20 dB Bandwidth - Channel 11 - 802.11 g Mode

PEAK POWER OUTPUT

DATA SHEETS

PEAK OUTPUT POWER

Intel Corporation

Intel Mini PCI Type 802.11BG Wireless LAN Adapter

MODEL: WM3B2200BG

For use in the HP Laptop Agency Series # PP2170

802.11 b Mode (Worst Case Rate is 1 Mbps)

CHANNEL	GAIN	PEAK POWER OUTPUT (dBm)
1 (2412 MHz)	30.5	17.19
6 (2437 MHz)	31.0	17.28
11 (2462 MHz)	31.0	17.09

802.11 g Mode (Worst Case Rate is 6 Mbps)

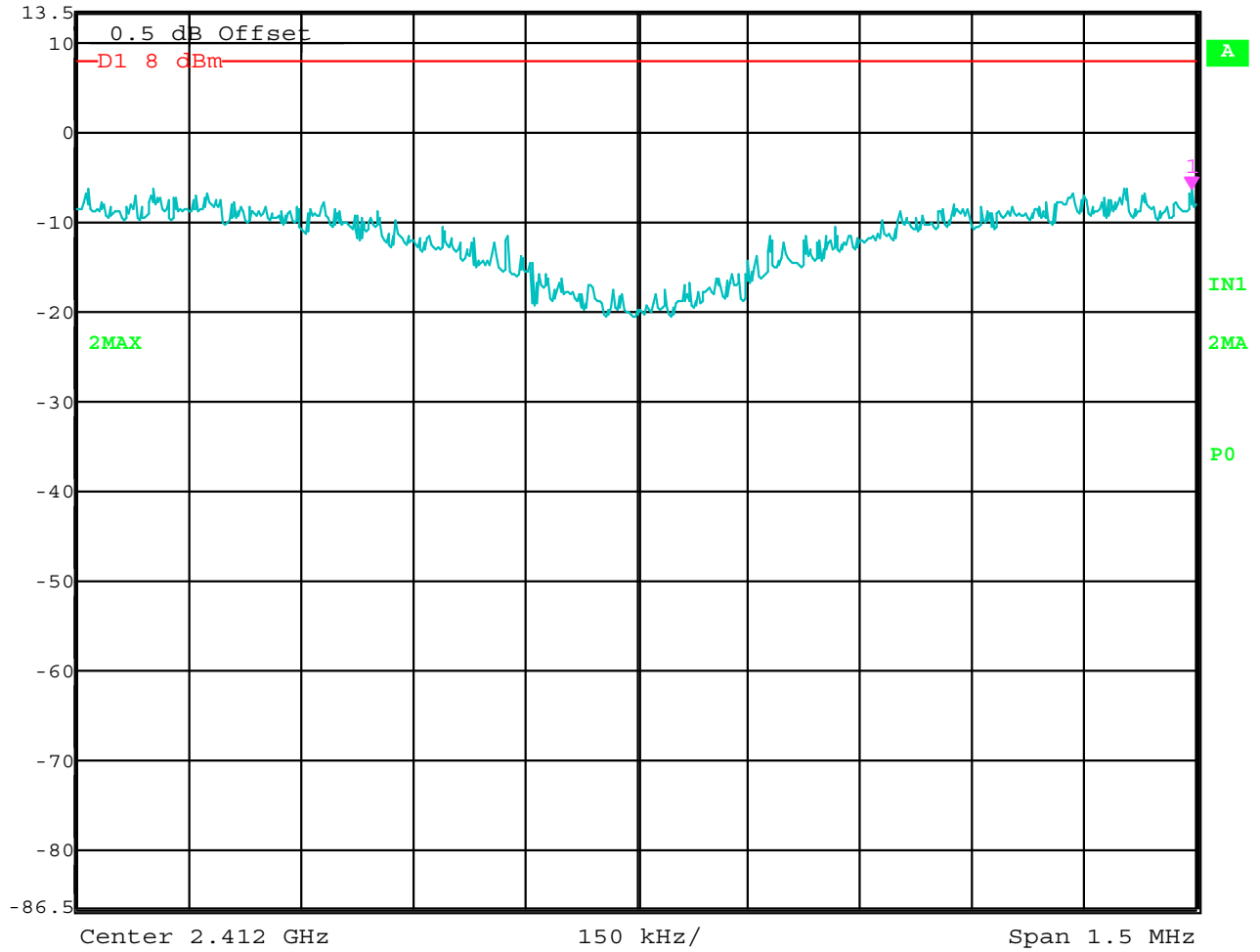
CHANNEL	GAIN	PEAK POWER OUTPUT (dBm)
1 (2412 MHz)	25	16.2
6 (2437 MHz)	25.5	16.53
11 (2462 MHz)	25.5	16.50

PEAK POWER SPECTRAL DENSITY

DATA SHEETS



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -6.31 dBm VBW 10 kHz
13.5 dBm 2.41274399 GHz SWT 500 s Unit dBm

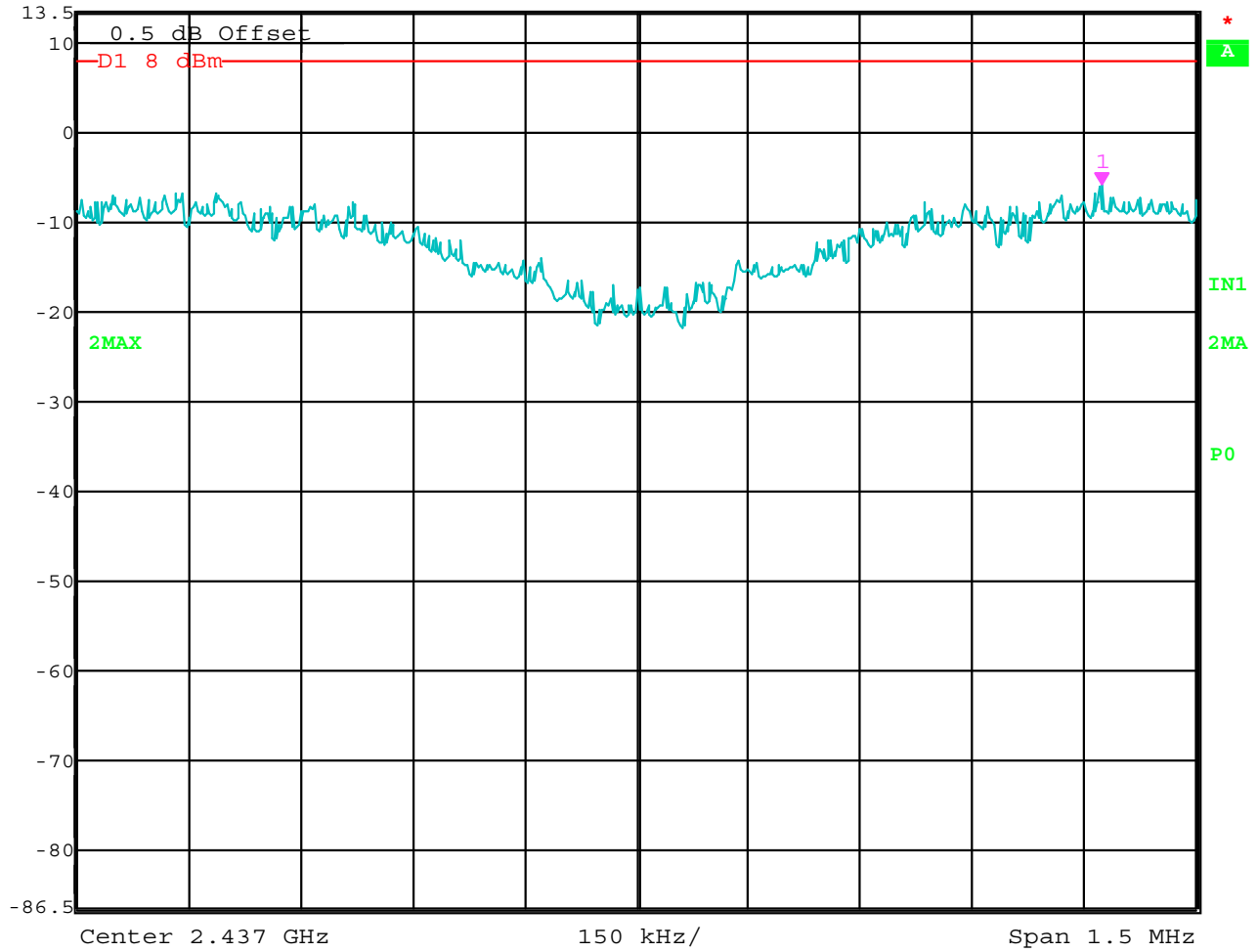


Date: 31.DEC.2003 16:08:38

Spectral Density Output – Channel 1 – 802.11 b Mode



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -6.00 dBm VBW 10 kHz
13.5 dBm 2.43762375 GHz SWT 500 s Unit dBm

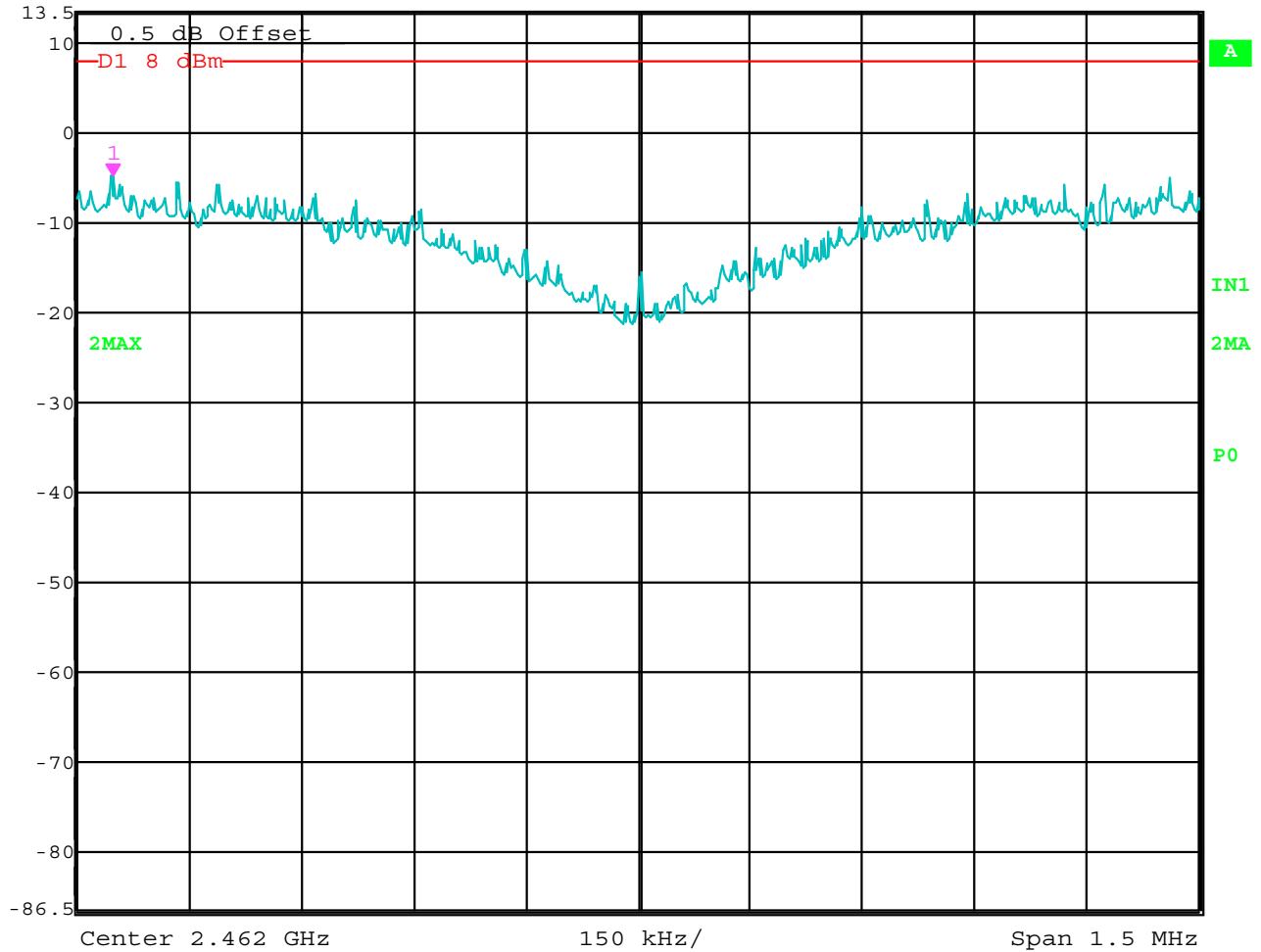


Date: 31.DEC.2003 15:57:54

Spectral Density Output – Channel 6 – 802.11 b Mode



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -4.92 dBm VBW 10 kHz
13.5 dBm 2.46129810 GHz SWT 500 s Unit dBm

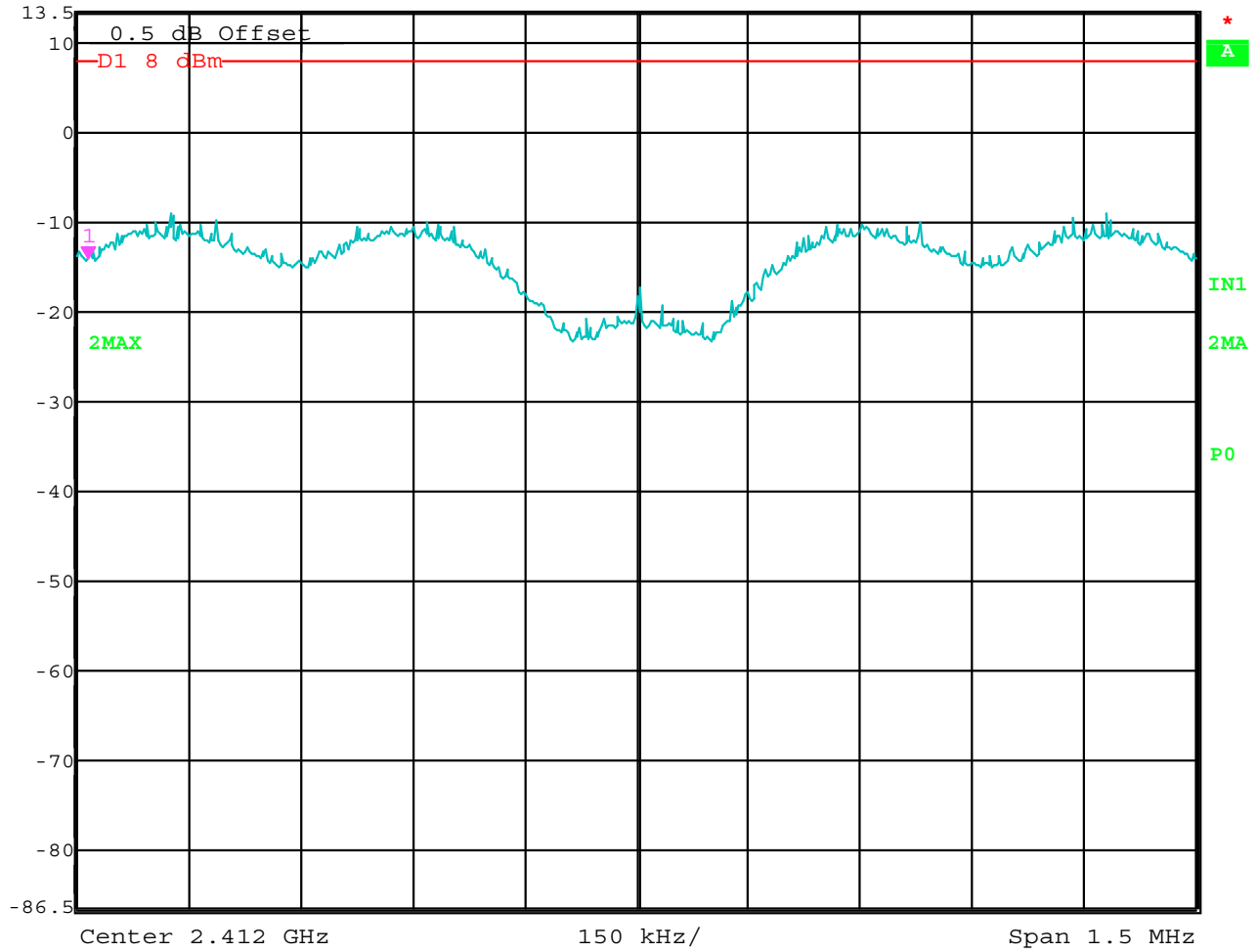


Date: 31.DEC.2003 15:45:48

Spectral Density Output – Channel 11 – 802.11 b Mode



Ref Lvl	Marker 1 [T2]	RBW	3 kHz	RF Att	40 dB
13.5 dBm	-14.22 dBm	VBW	10 kHz		
	2.41126503 GHz	SWT	500 s	Unit	dBm

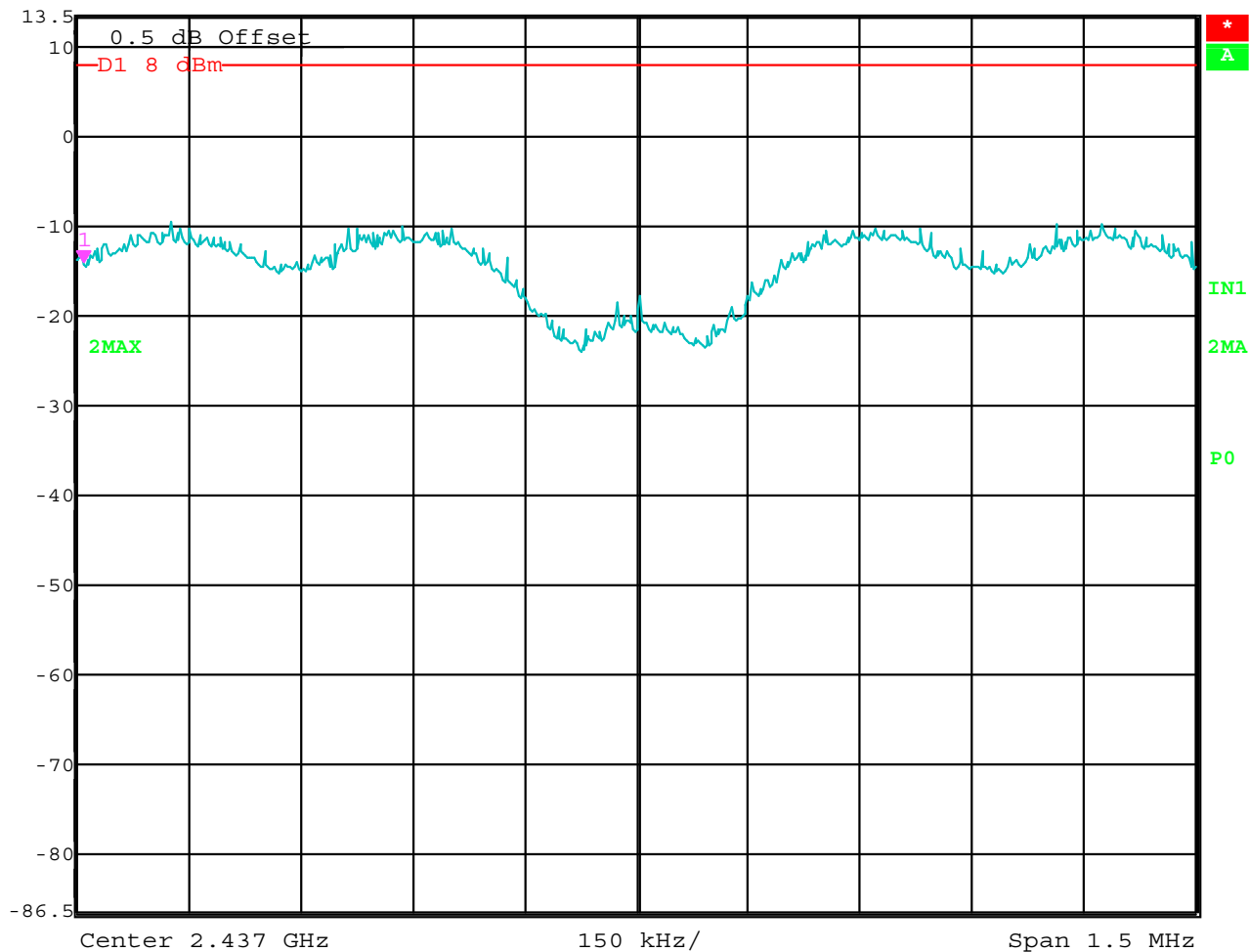


Date: 31.DEC.2003 15:14:30

Spectral Density Output – Channel 1 – 802.11 g Mode



Marker 1 [T2] RBW 3 kHz RF Att 40 dB
Ref Lvl -14.19 dBm VBW 10 kHz
13.5 dBm 2.43625902 GHz SWT 500 s Unit dBm

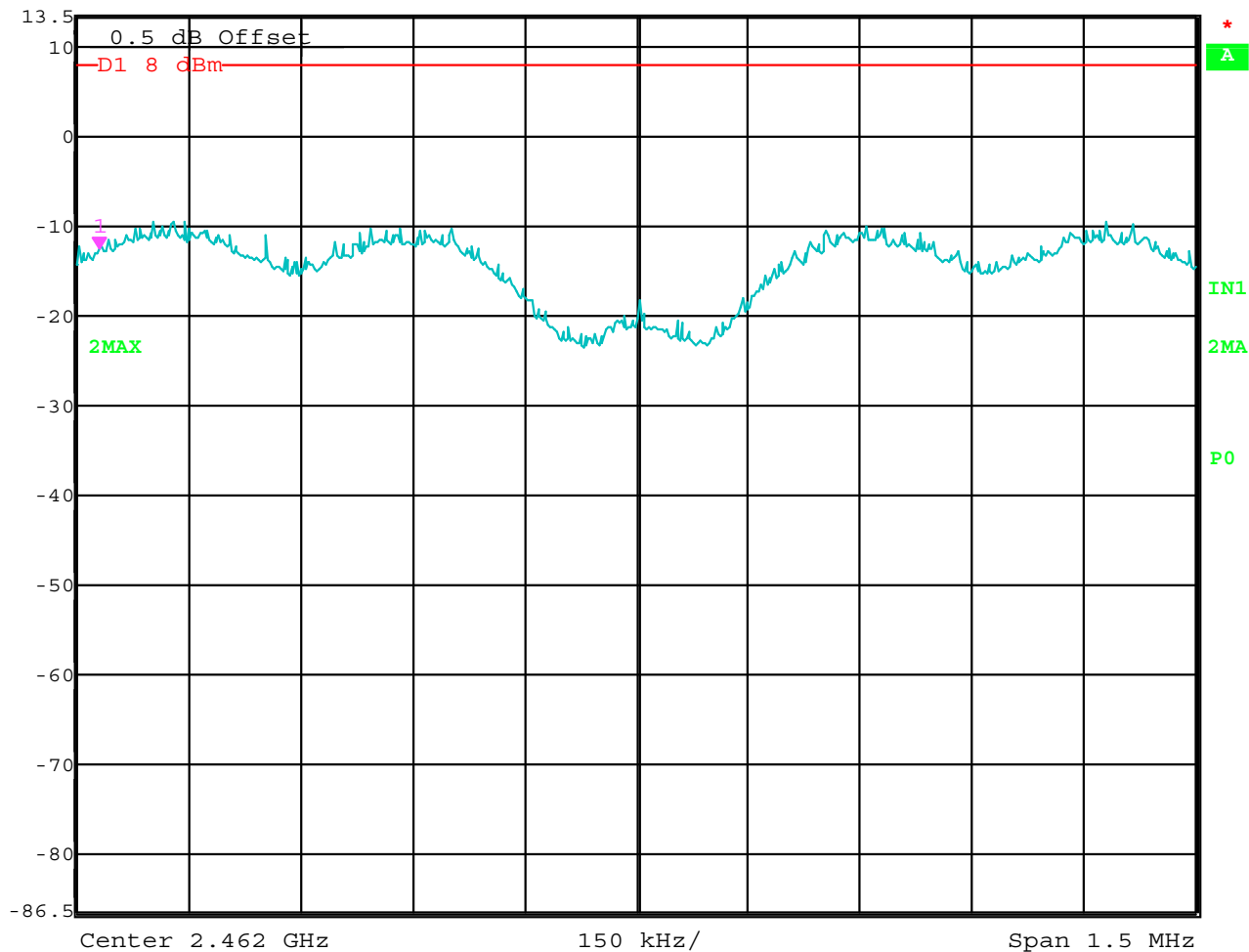


Date: 31.DEC.2003 15:24:06

Spectral Density Output – Channel 6 – 802.11 g Mode



Ref Lvl 13.5 dBm
Marker 1 [T2] -12.63 dBm
RBW 3 kHz
RF Att 40 dB
VBW 10 kHz
SWT 500 s
Unit dBm



Date: 31.DEC.2003 15:34:54

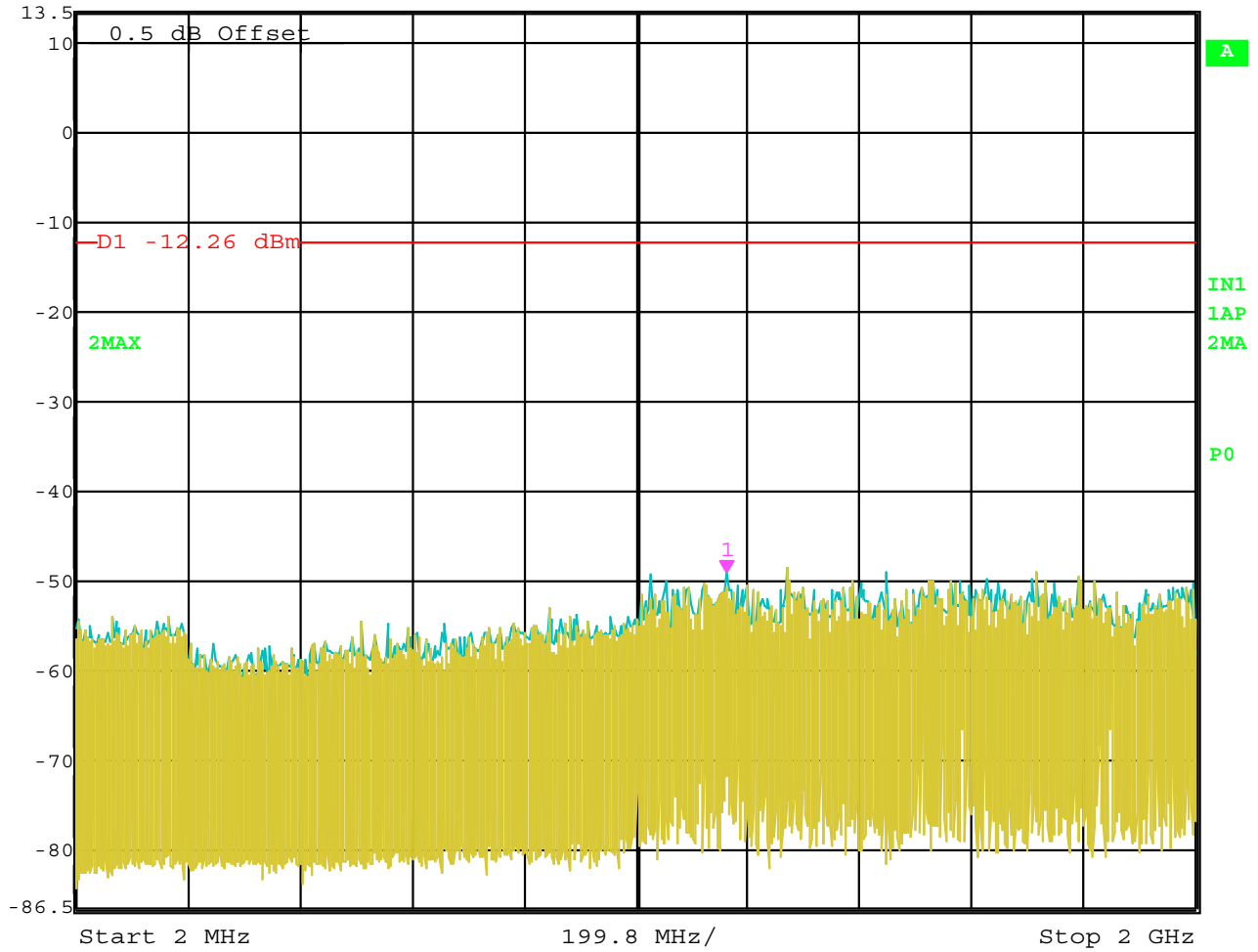
Spectral Density Output – Channel 11 – 802.11 g Mode

RF ANTENNA CONDUCTED

DATA SHEETS



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -49.08 dBm VBW 300 kHz
13.5 dBm 1.16316232 GHz SWT 700 ms Unit dBm

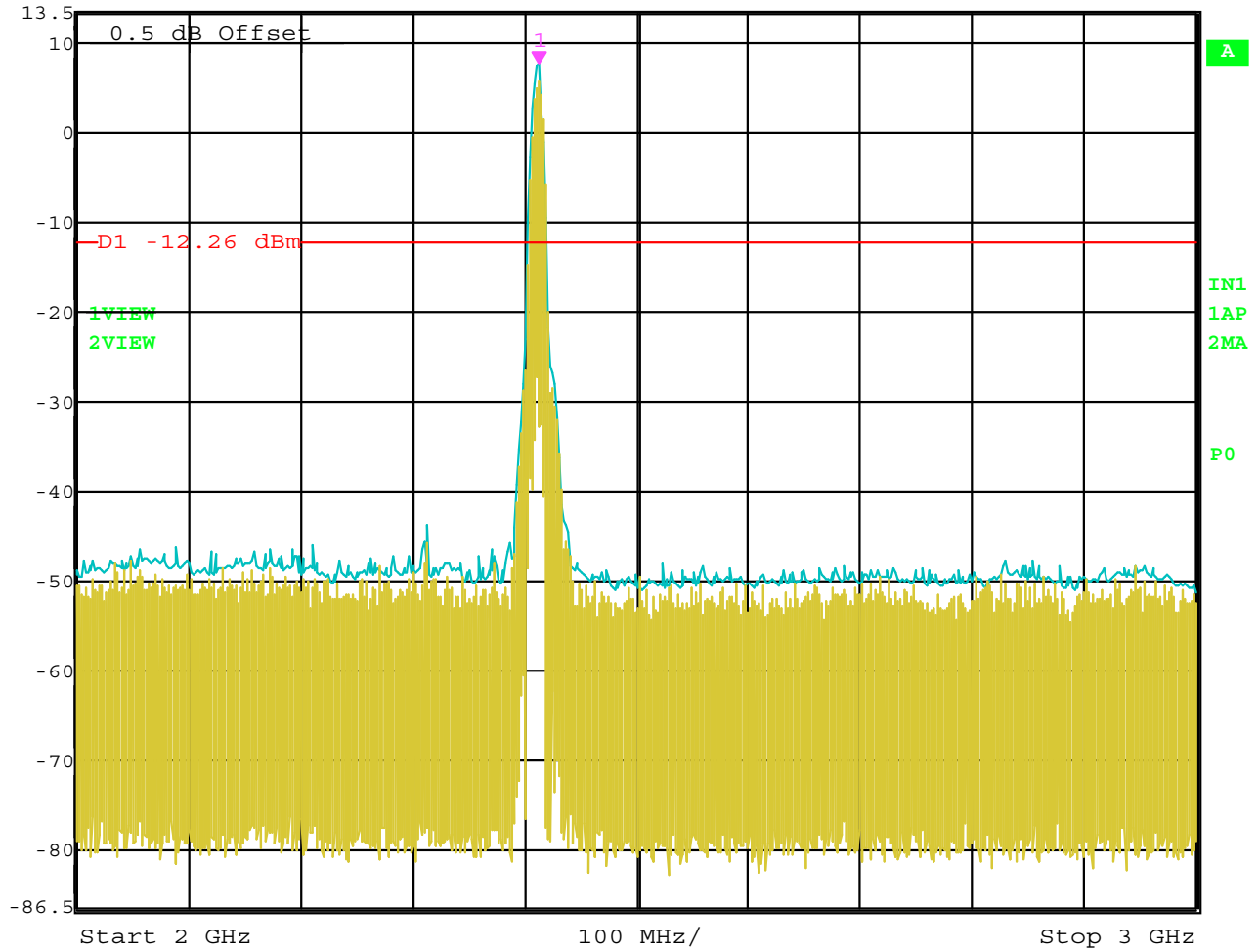


Date: 31.DEC.2003 14:16:12

RF Antenna Conducted Test – Channel 1 – 802.11 b Mode – 2 MHz to 2 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 7.74 dBm VBW 300 kHz
13.5 dBm 2.41282565 GHz SWT 250 ms Unit dBm

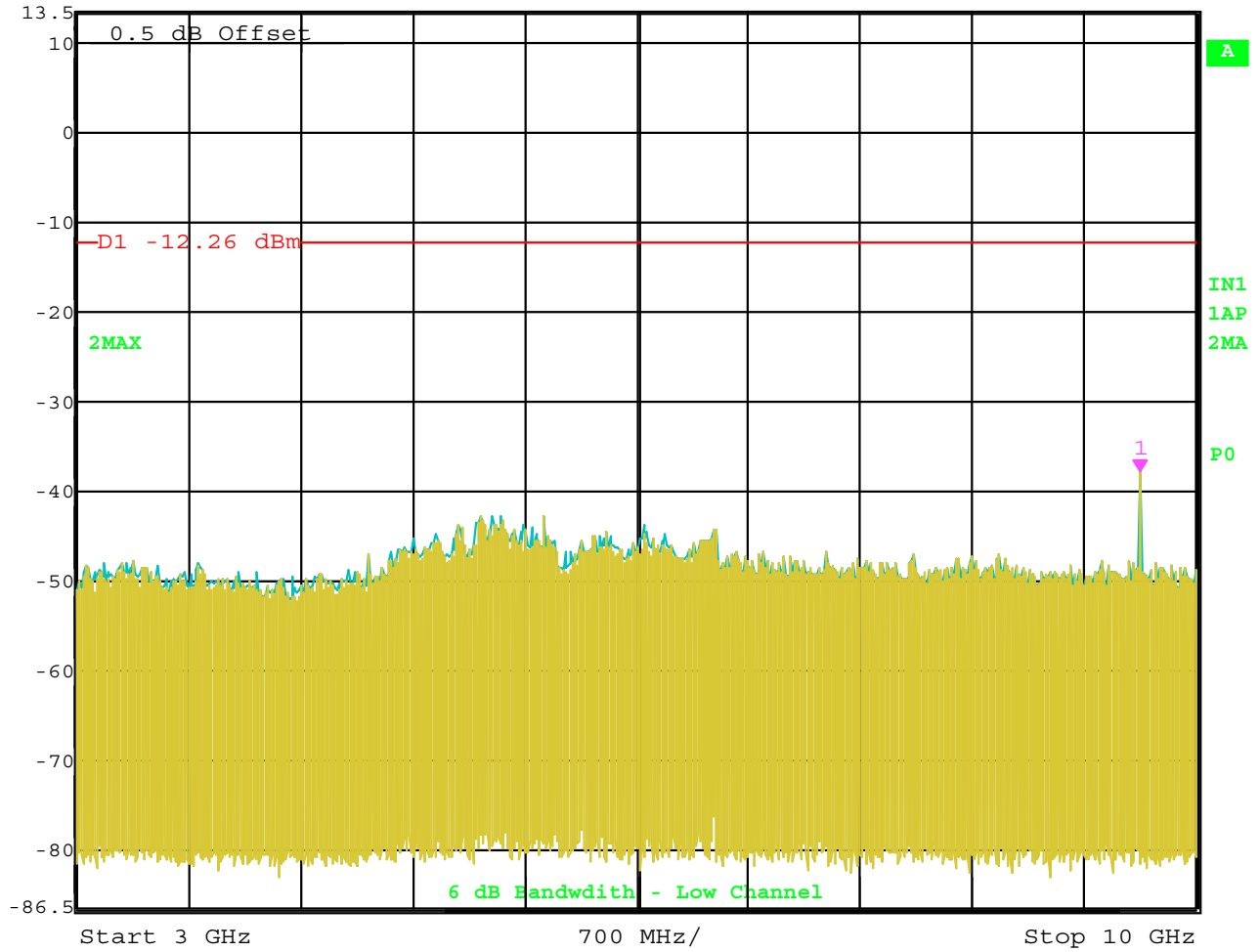


Date: 31.DEC.2003 14:15:01

RF Antenna Conducted Test – Channel 1 – 802.11 b Mode – 2 GHz to 3 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -37.87 dBm VBW 300 kHz
13.5 dBm 9.64929860 GHz SWT 1.75 s Unit dBm

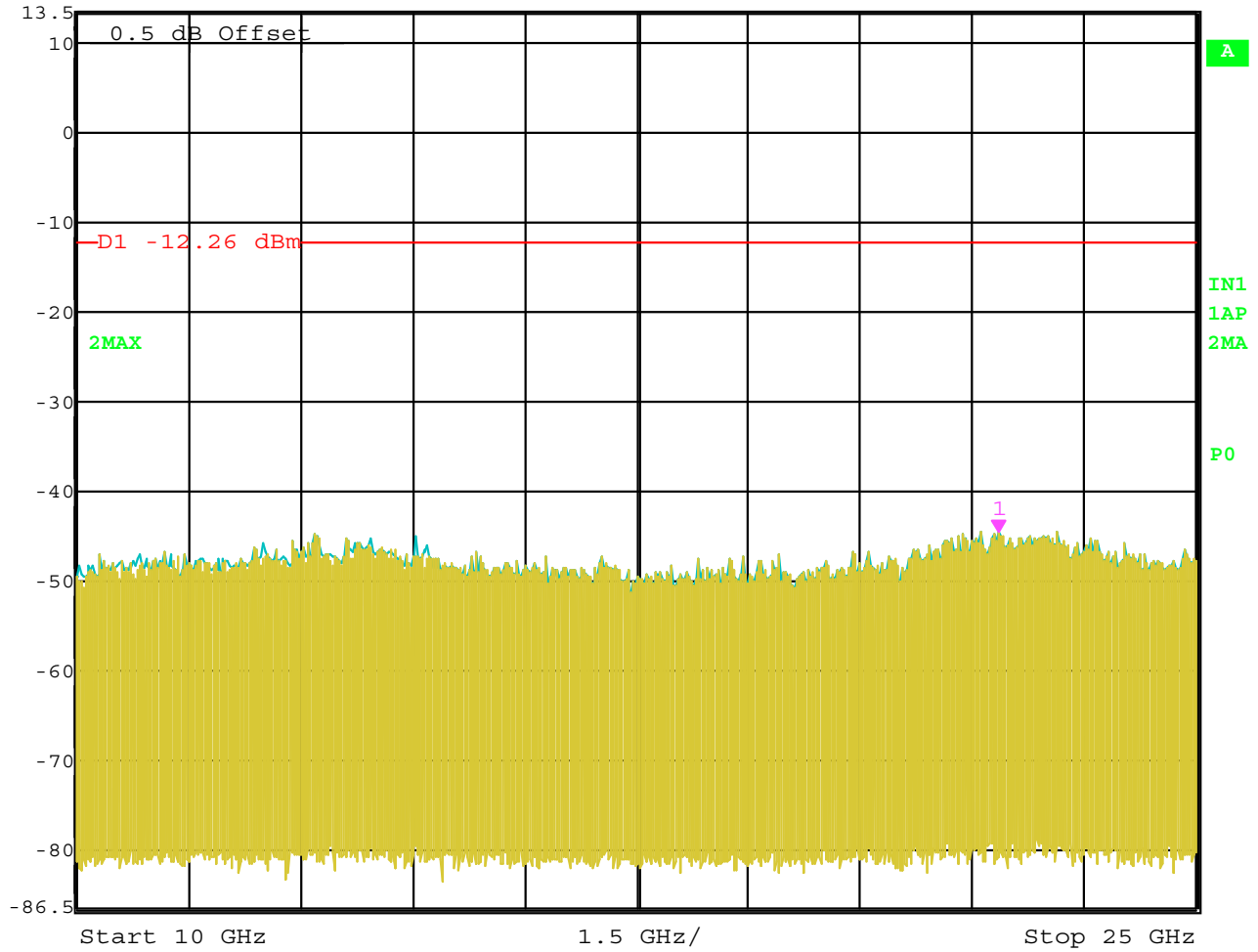


Date: 31.DEC.2003 14:17:05

RF Antenna Conducted Test – Channel 1 – 802.11 b Mode – 3 GHz to 10 GHz



Ref Lvl 13.5 dBm Marker 1 [T2] -44.52 dBm RBW 100 kHz RF Att 40 dB
22.35470942 GHz VBW 300 kHz Unit dBm
SWT 3.8 s

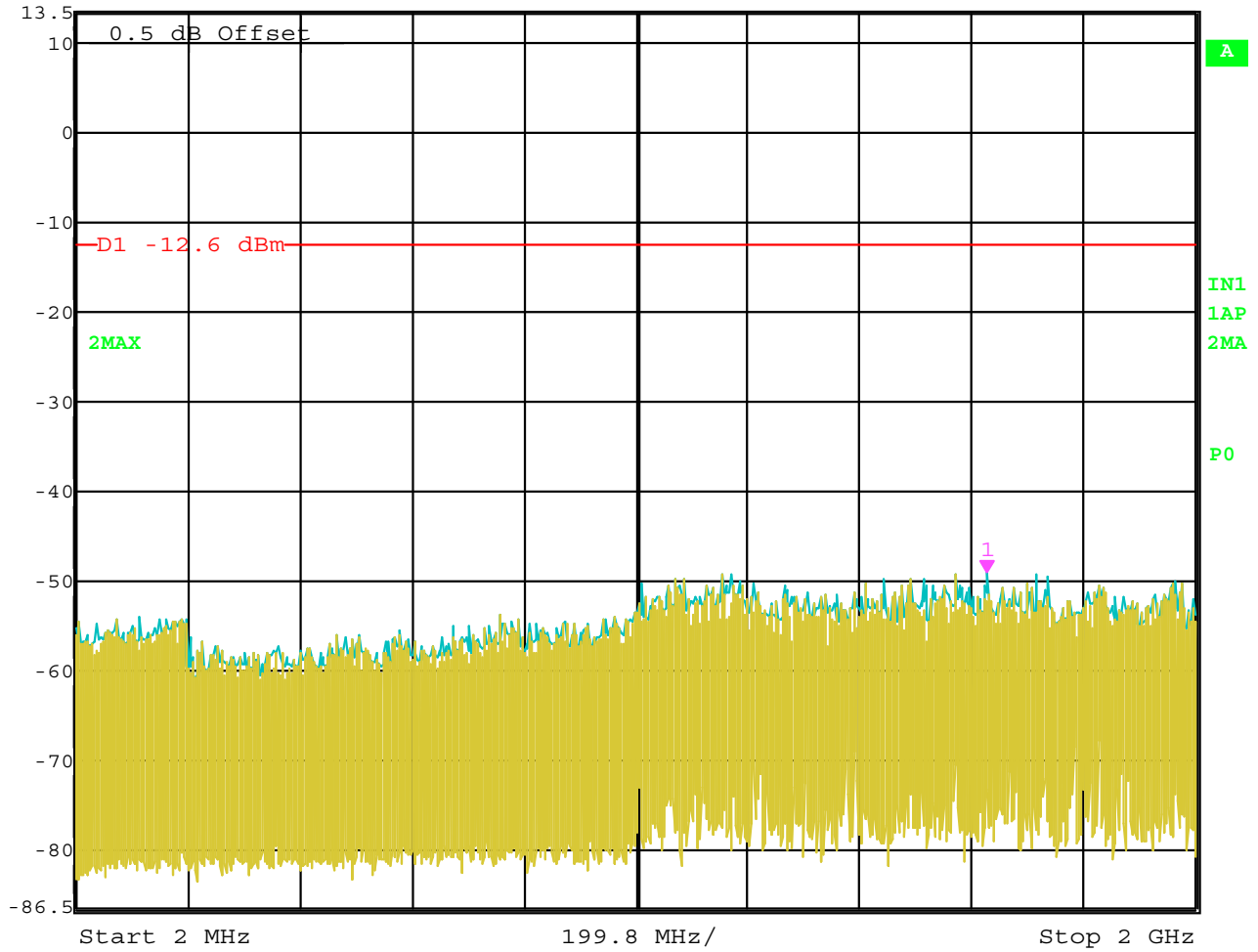


Date: 31.DEC.2003 14:18:20

RF Antenna Conducted Test – Channel 1 – 802.11 b Mode – 10 GHz to 25 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -49.04 dBm VBW 300 kHz
13.5 dBm 1.62762725 GHz SWT 700 ms Unit dBm

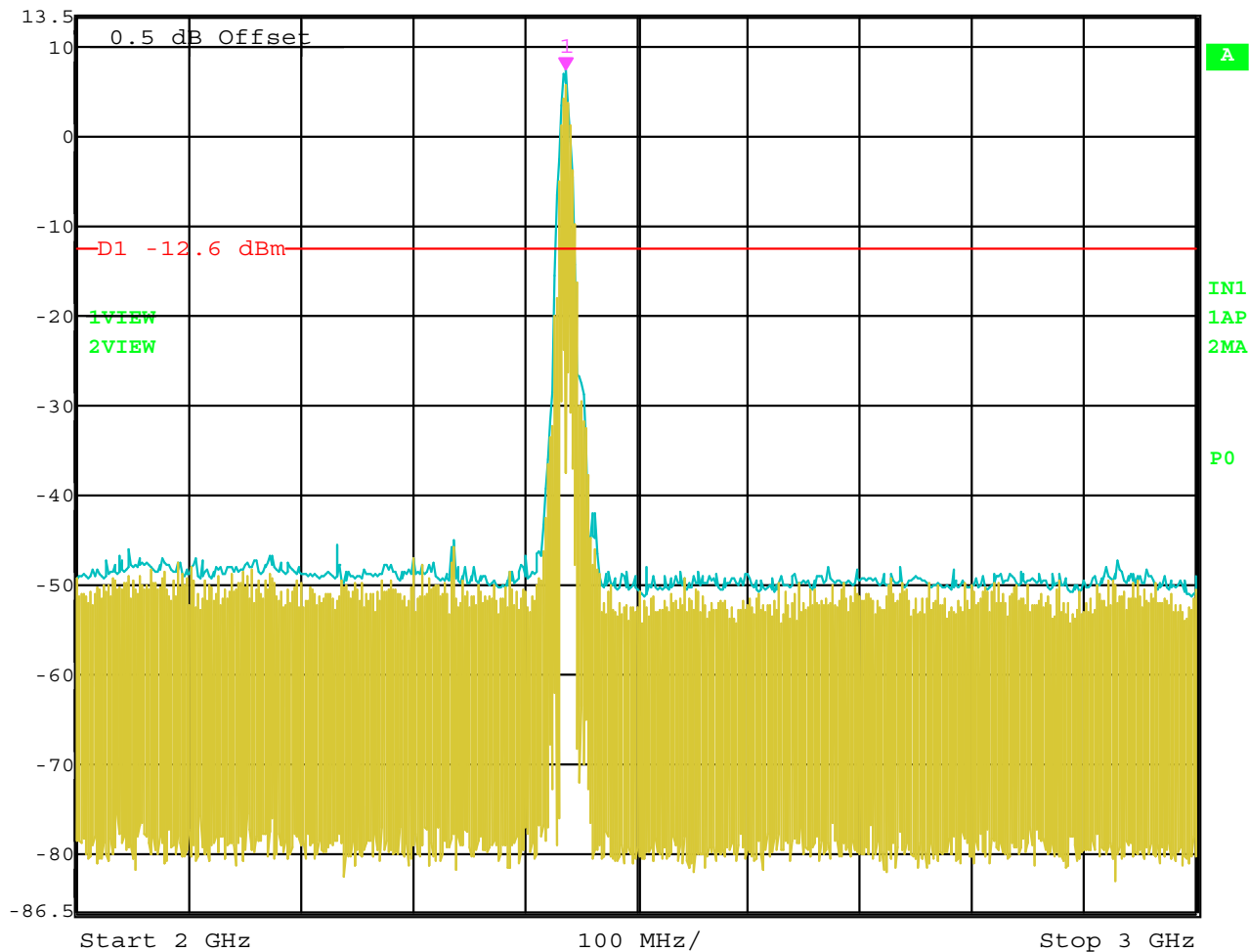


Date: 31.DEC.2003 14:09:02

RF Antenna Conducted Test – Channel 6 – 802.11 b Mode – 2 MHz to 2 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 7.40 dBm VBW 300 kHz
13.5 dBm 2.43687375 GHz SWT 250 ms Unit dBm



Date: 31.DEC.2003 14:07:48

RF Antenna Conducted Test – Channel 6 – 802.11 b Mode – 2 GHz to 3 GHz



Marker 1 [T2]

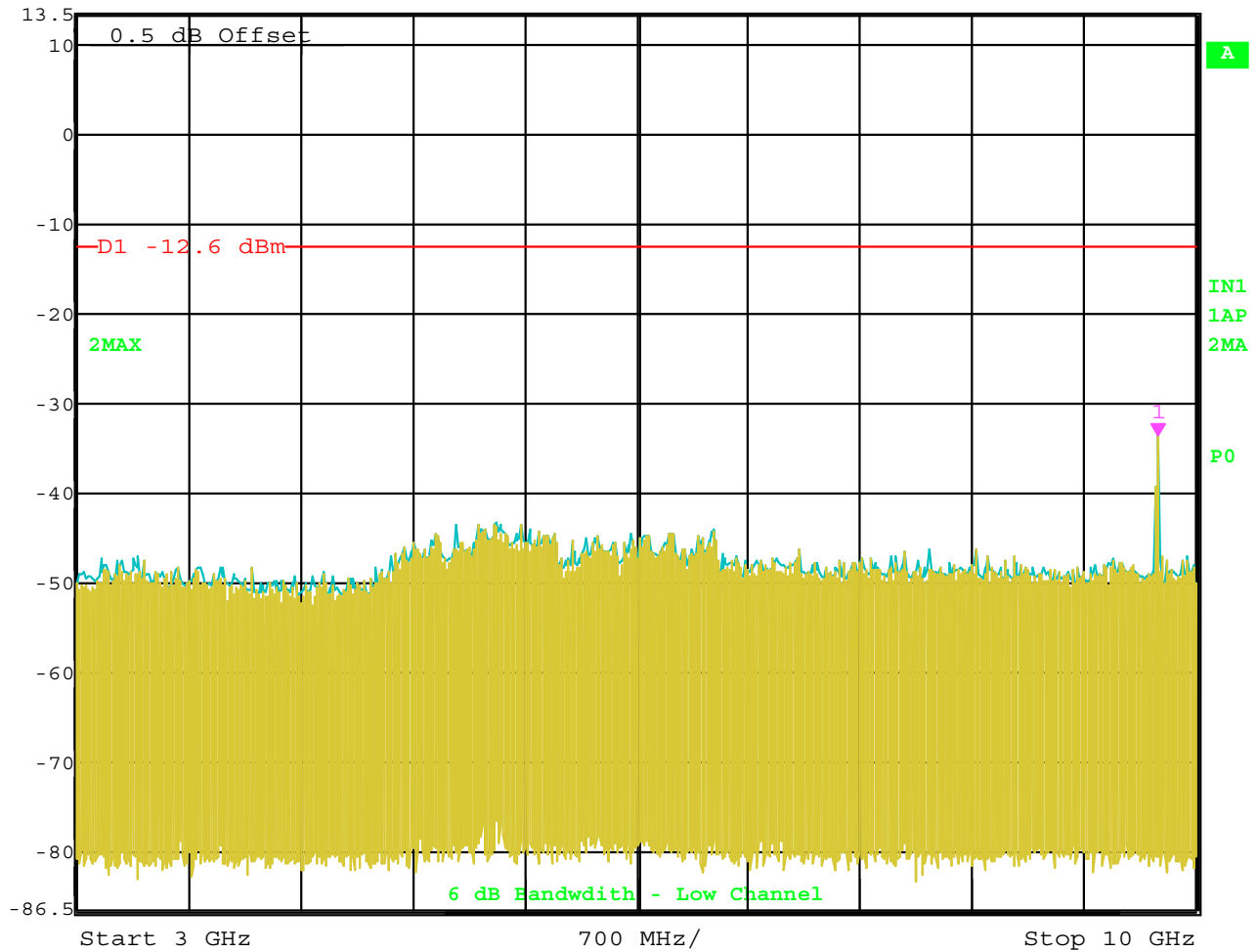
RBW 100 kHz RF Att 40 dB

Ref Lvl -33.53 dBm

VBW 300 kHz

13.5 dBm 9.76152305 GHz

SWT 1.75 s Unit dBm

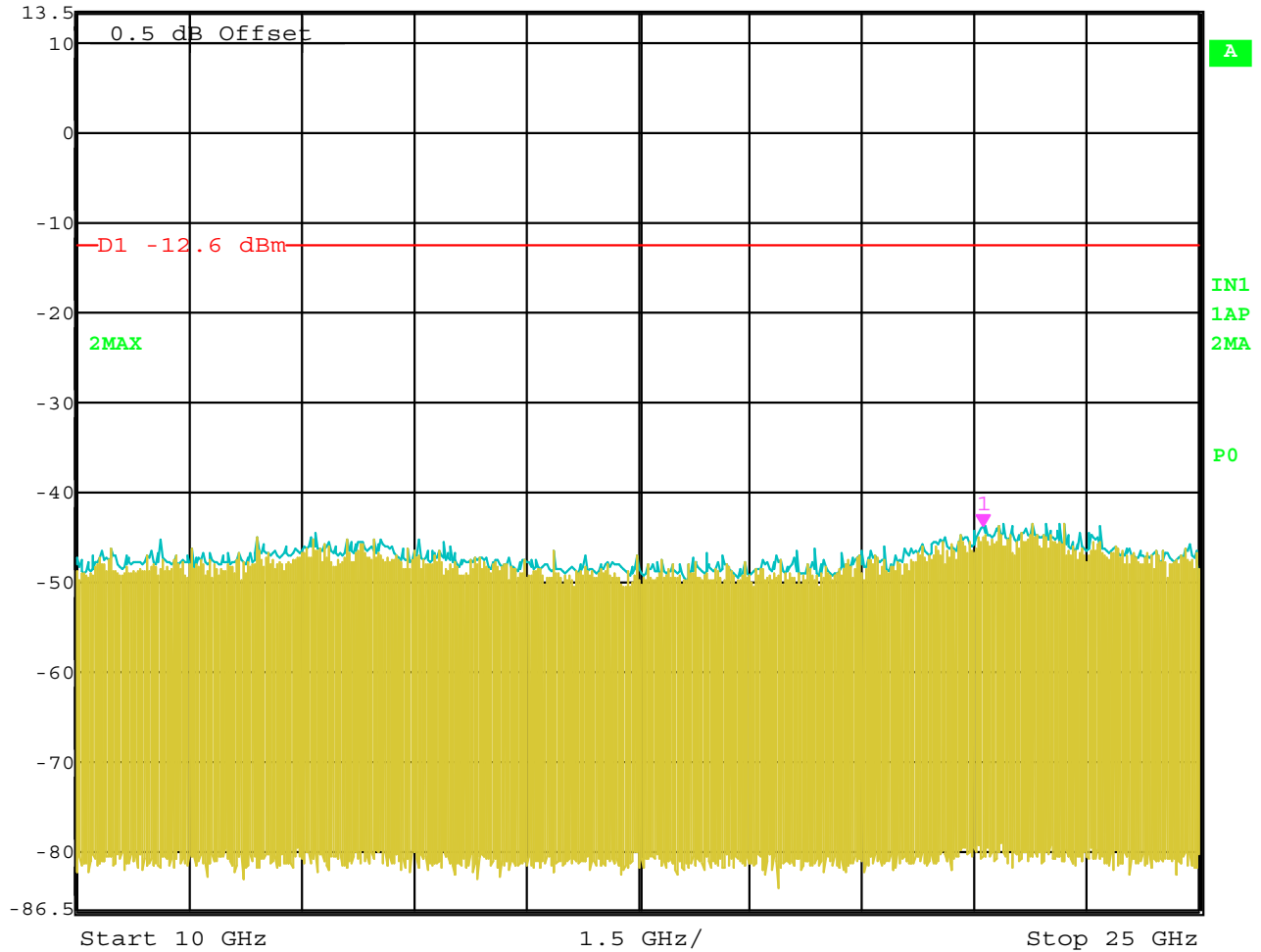


Date: 31.DEC.2003 14:10:14

RF Antenna Conducted Test – Channel 6 – 802.11 b Mode – 3 GHz to 10 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -43.75 dBm VBW 300 kHz
13.5 dBm 22.11422846 GHz SWT 3.8 s Unit dBm

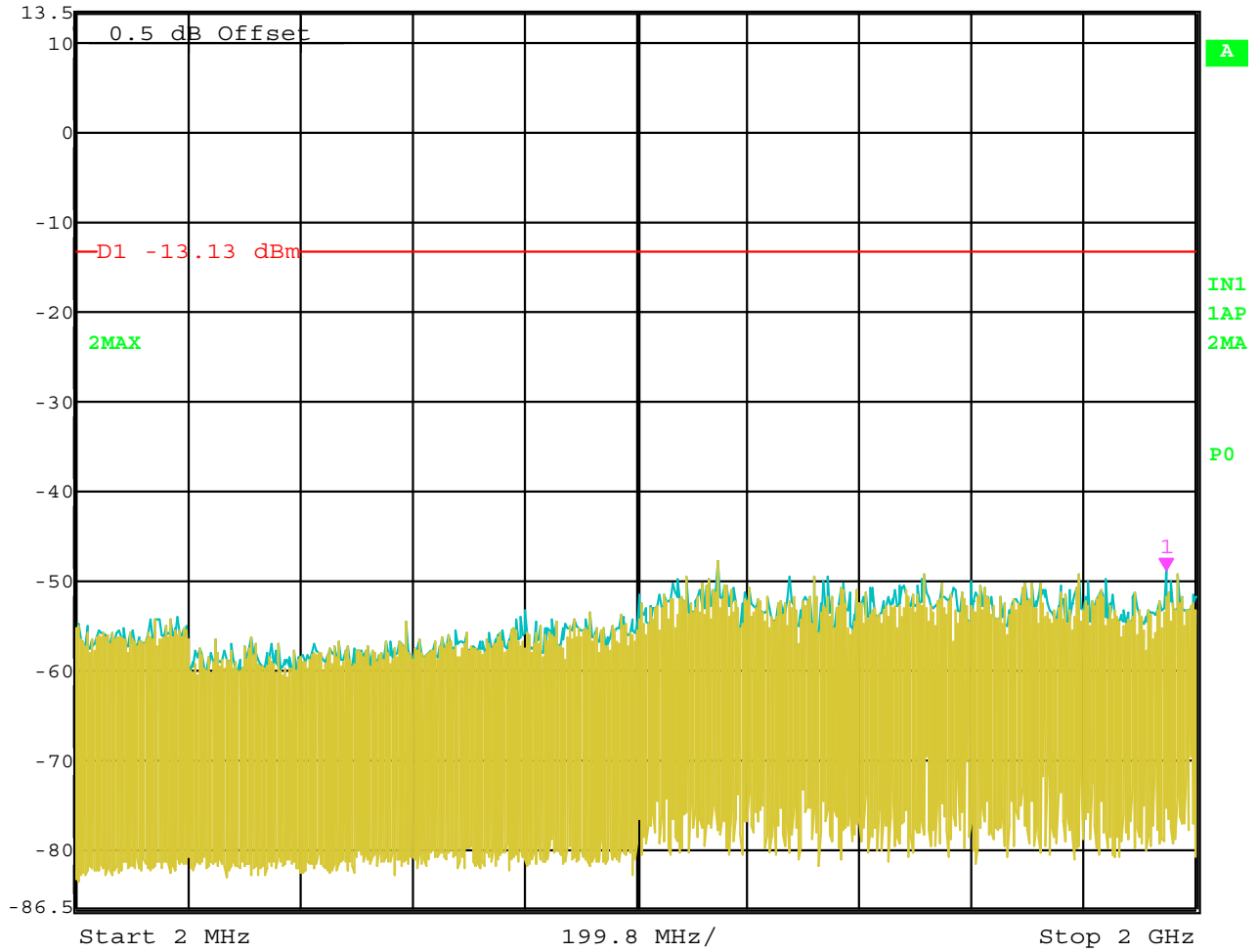


Date: 31.DEC.2003 14:12:13

RF Antenna Conducted Test – Channel 6 – 802.11 b Mode – 10 GHz to 25 GHz



Ref Lvl	Marker 1 [T2]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	-48.98 dBm	VBW	300 kHz		
	1.94794790 GHz	SWT	700 ms	Unit	dBm

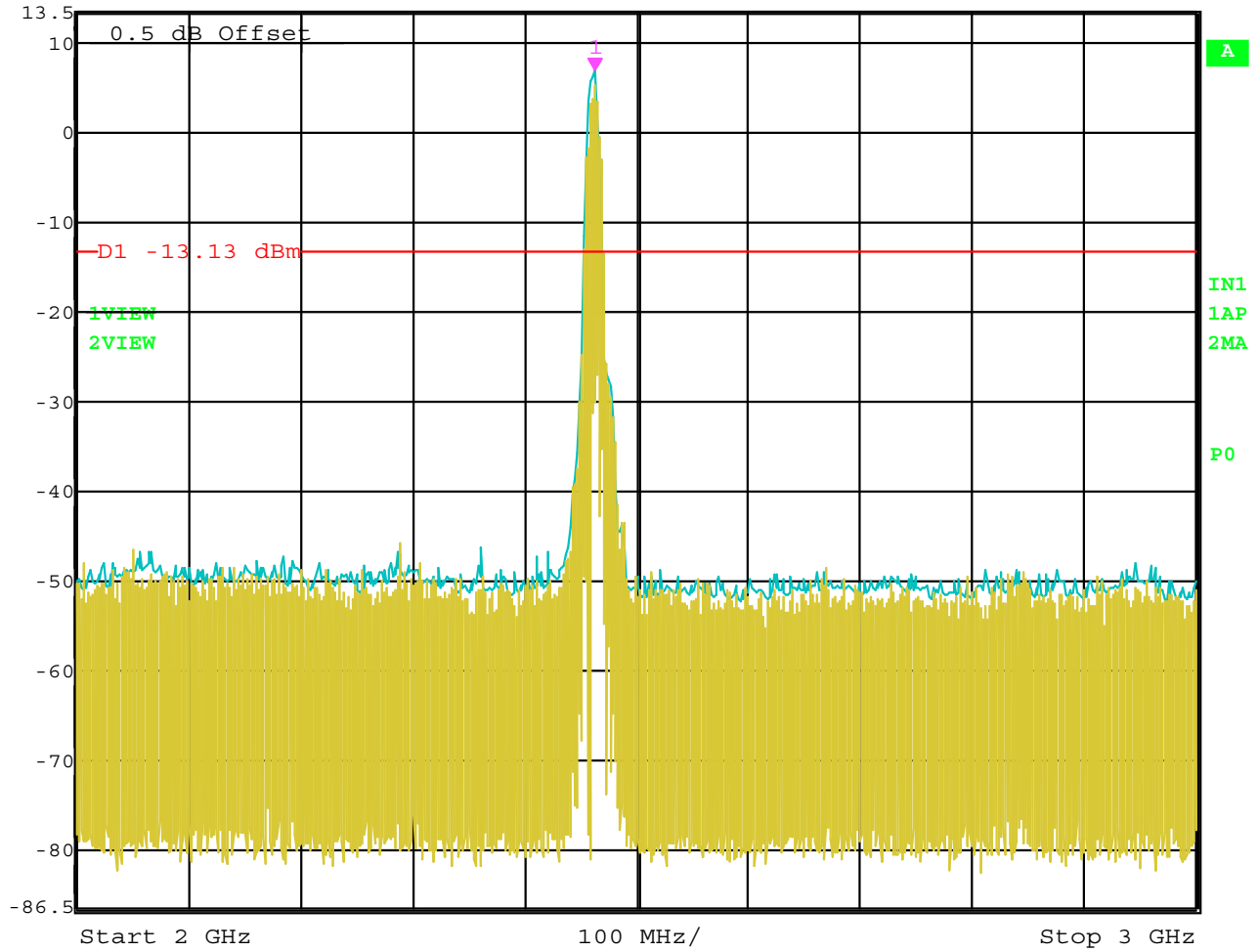


Date: 31.DEC.2003 14:03:46

RF Antenna Conducted Test – Channel 11 – 802.11 b Mode – 2 MHz to 2 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 6.87 dBm VBW 300 kHz
13.5 dBm 2.46292585 GHz SWT 250 ms Unit dBm

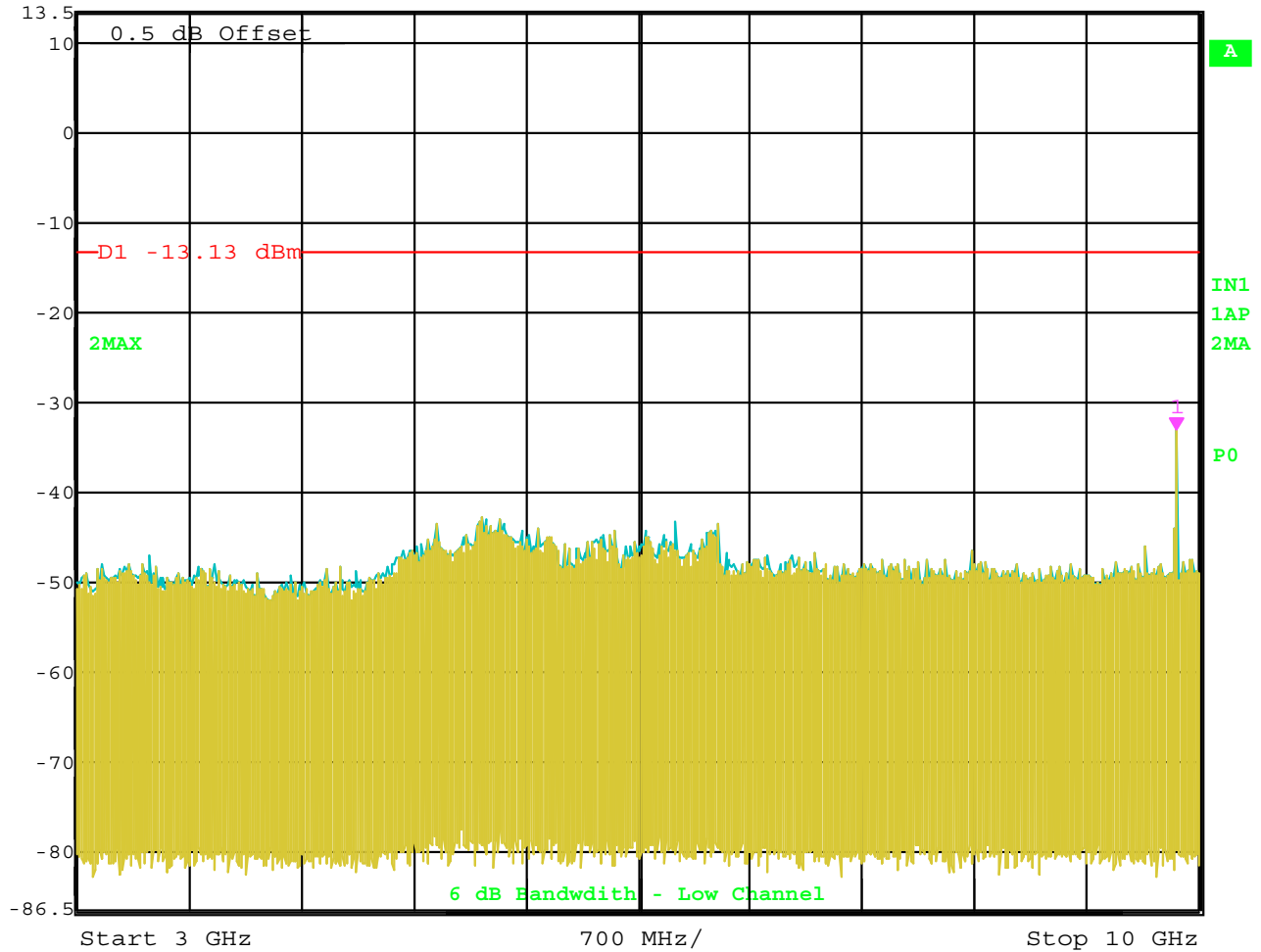


Date: 31.DEC.2003 14:00:45

RF Antenna Conducted Test – Channel 11 – 802.11 b Mode – 2 GHz to 3 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -33.01 dBm VBW 300 kHz
13.5 dBm 9.85971944 GHz SWT 1.75 s Unit dBm

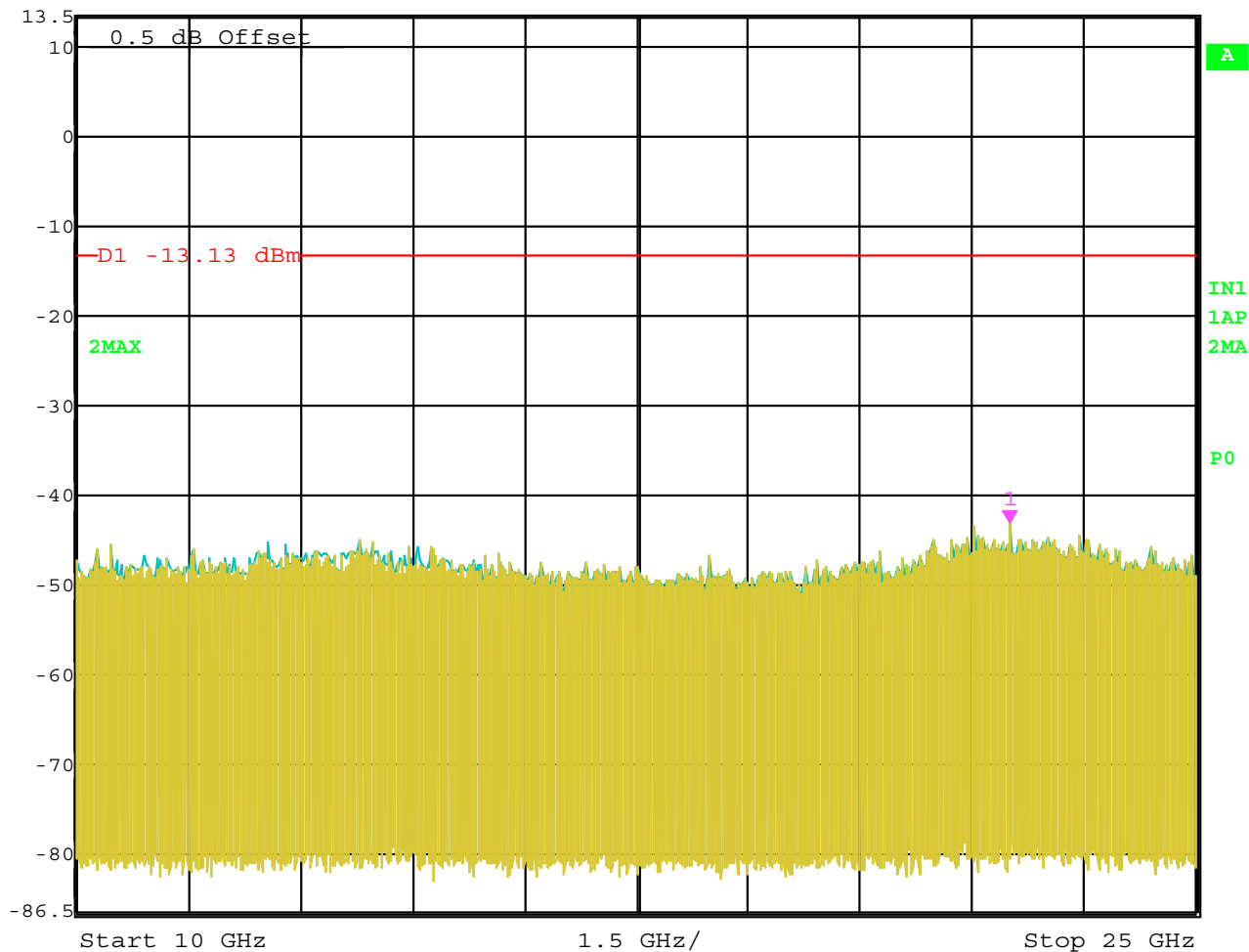


Date: 31.DEC.2003 14:05:11

RF Antenna Conducted Test - Channel 11 - 802.11 b Mode - 3 GHz to 10 GHz

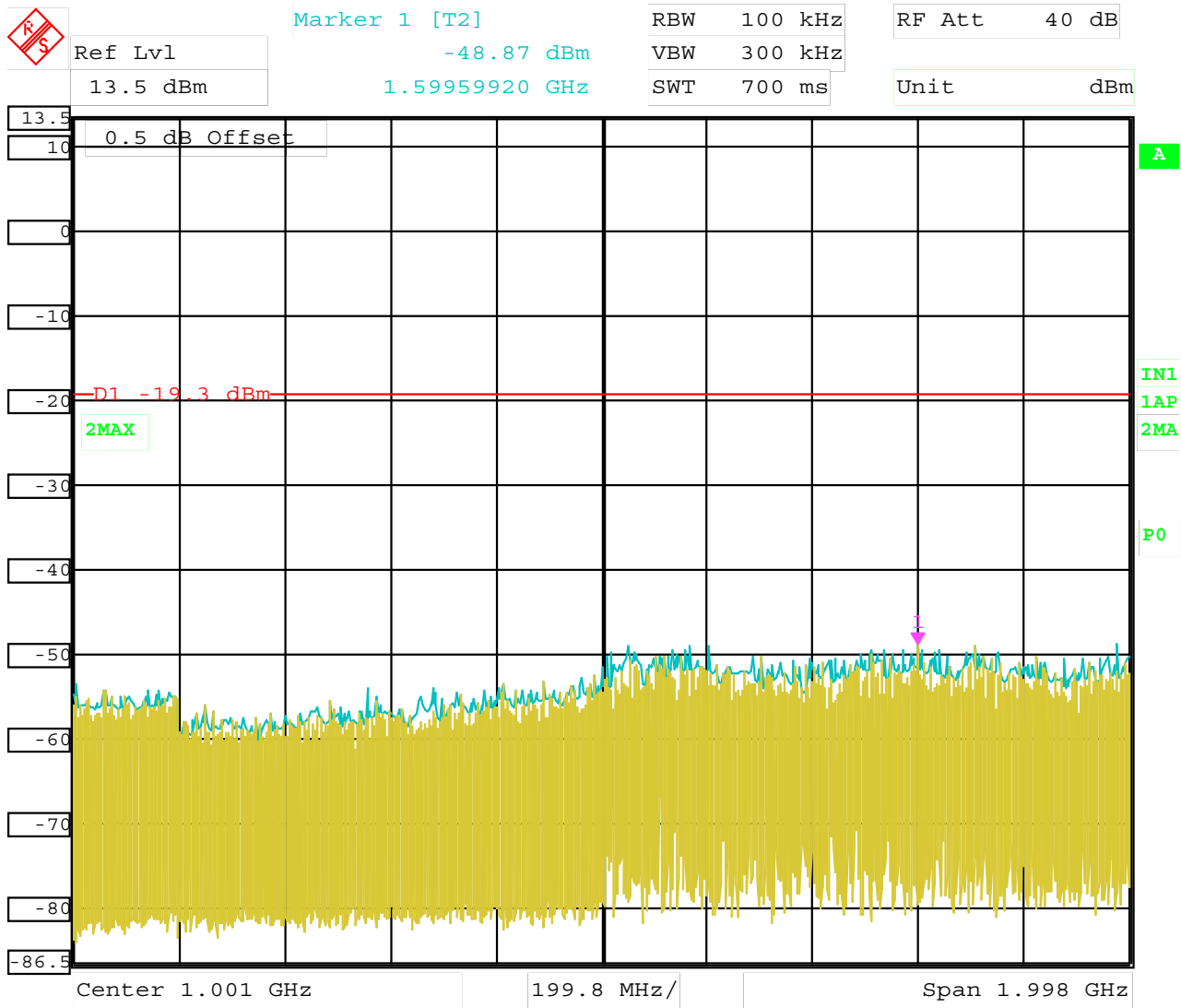


Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -43.04 dBm VBW 300 kHz
13.5 dBm 22.50501002 GHz SWT 3.8 s Unit dBm



Date: 31.DEC.2003 14:06:08

RF Antenna Conducted Test – Channel 11 – 802.11 b Mode – 10 GHz to 25 GHz

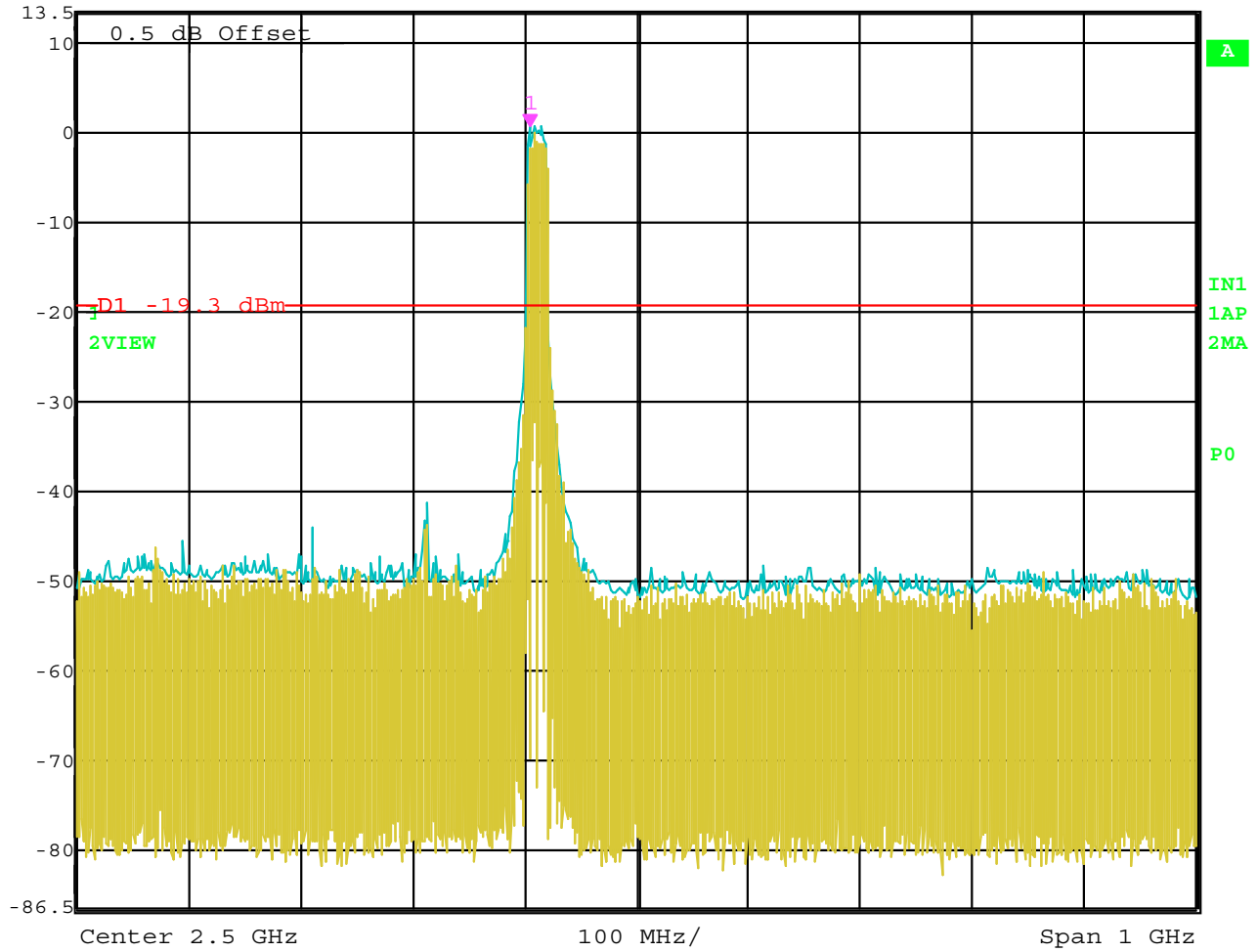


Date: 31.DEC.2003 13:45:47

RF Antenna Conducted Test – Channel 1 – 802.11 g Mode – 2 MHz to 2 GHz



Ref Lvl	Marker 1 [T2]	RBW	100 kHz	RF Att	40 dB
13.5 dBm	0.70 dBm	VBW	300 kHz		
	2.40480962 GHz	SWT	250 ms	Unit	dBm

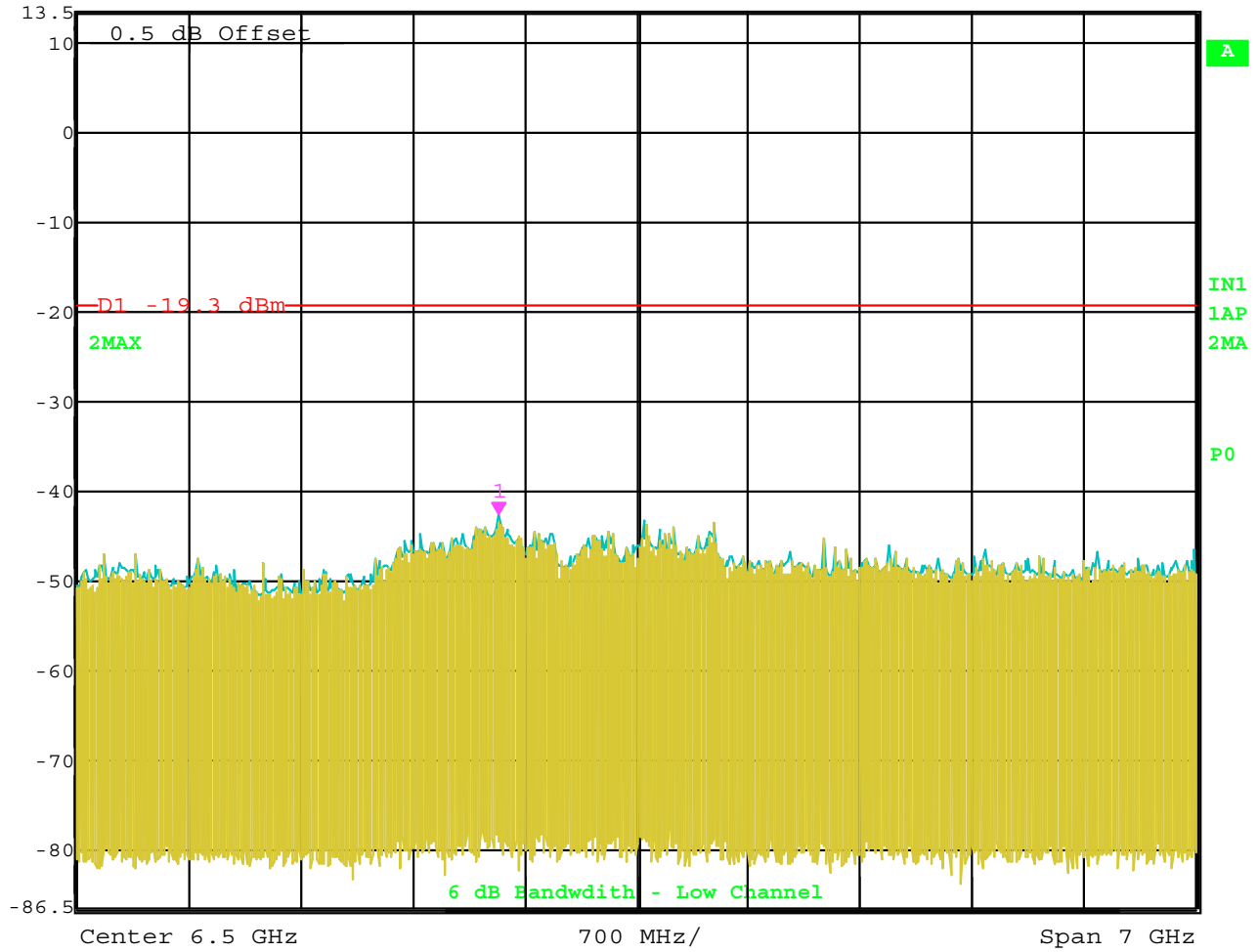


Date: 31.DEC.2003 13:40:56

RF Antenna Conducted Test – Channel 1 – 802.11 g Mode – 2 GHz to 3 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -42.58 dBm VBW 300 kHz
13.5 dBm 5.63727455 GHz SWT 1.75 s Unit dBm

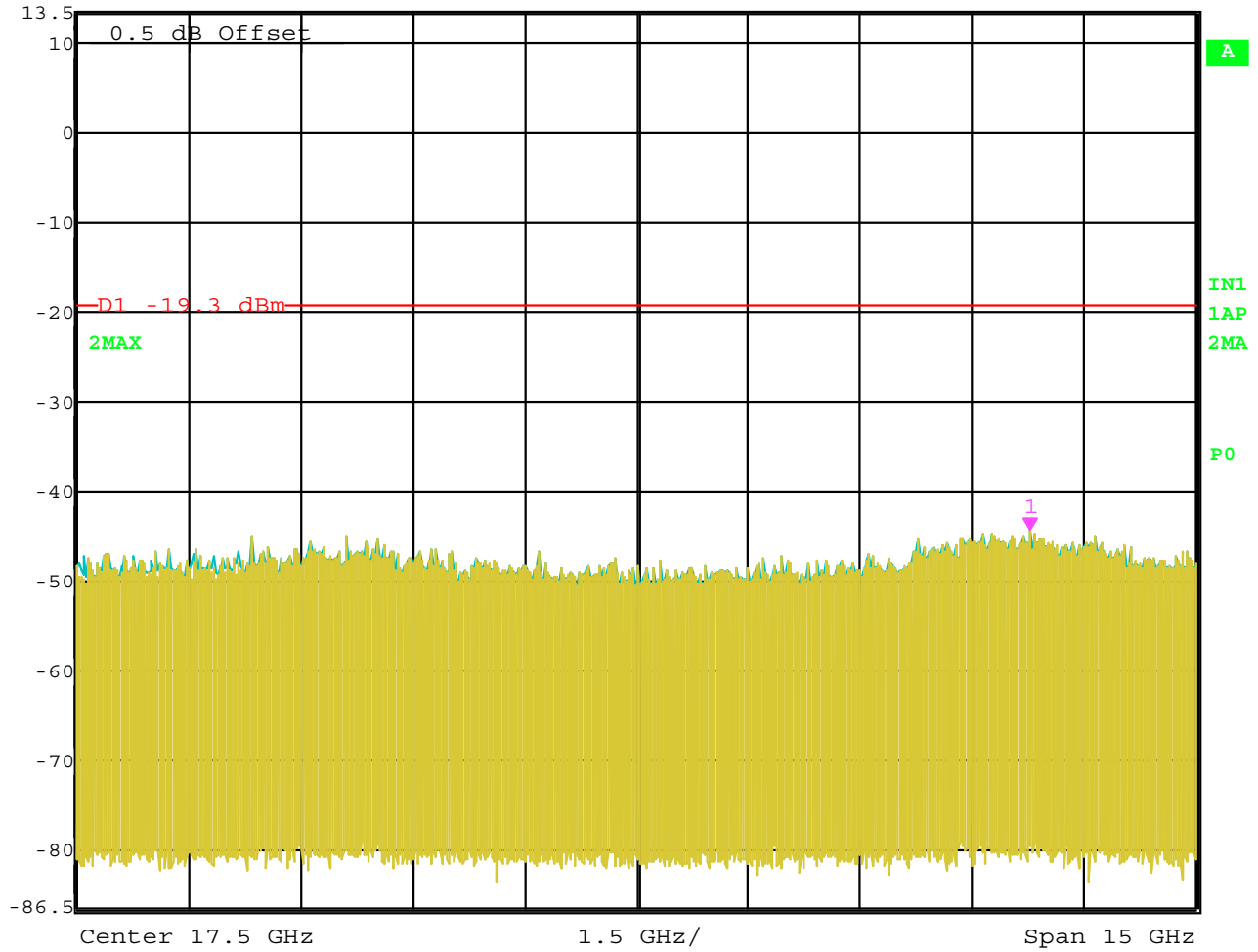


Date: 31.DEC.2003 13:46:36

RF Antenna Conducted Test – Channel 1 – 802.11 g Mode – 3 GHz to 10 GHz



Ref Lvl 13.5 dBm Marker 1 [T2] -44.39 dBm RBW 100 kHz RF Att 40 dB
22.77555110 GHz VBW 300 kHz Unit dBm
SWT 3.8 s

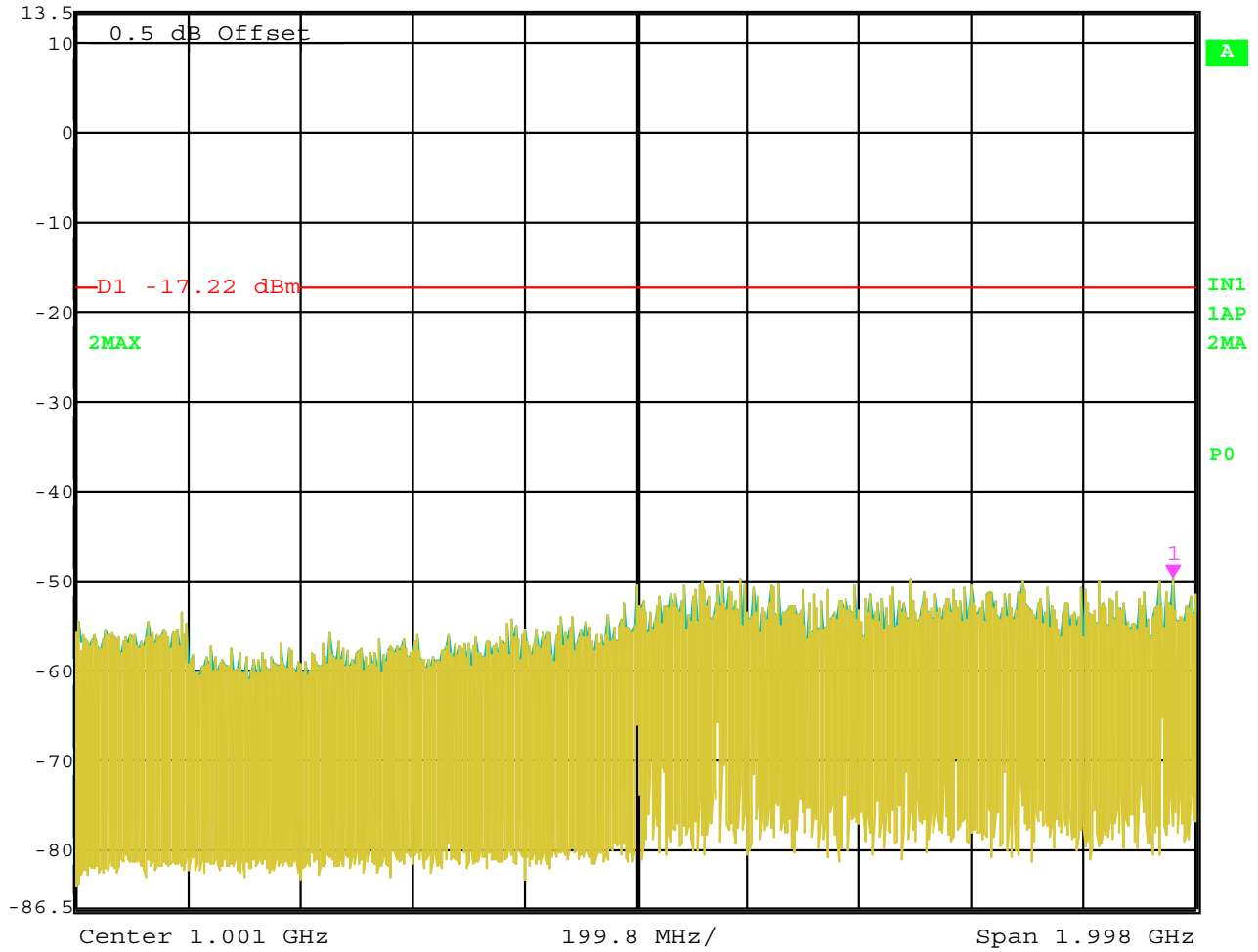


Date: 31.DEC.2003 13:47:26

RF Antenna Conducted Test – Channel 1 – 802.11 g Mode – 10 GHz to 25 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -49.52 dBm VBW 300 kHz
13.5 dBm 1.95995992 GHz SWT 700 ms Unit dBm

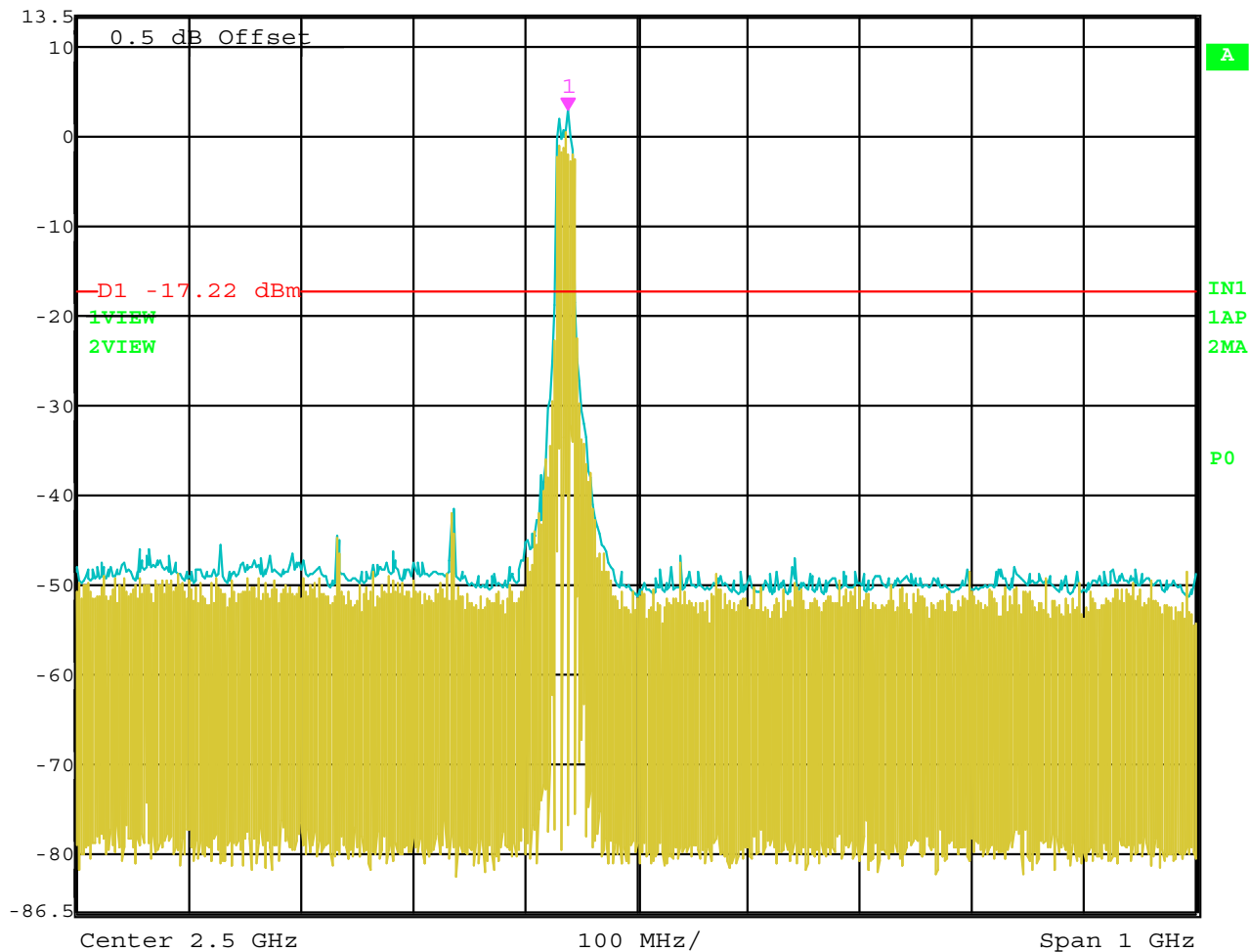


Date: 31.DEC.2003 13:50:27

RF Antenna Conducted Test – Channel 6 – 802.11 g Mode – 2 MHz to 2 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl 2.78 dBm VBW 300 kHz
13.5 dBm 2.43887776 GHz SWT 250 ms Unit dBm

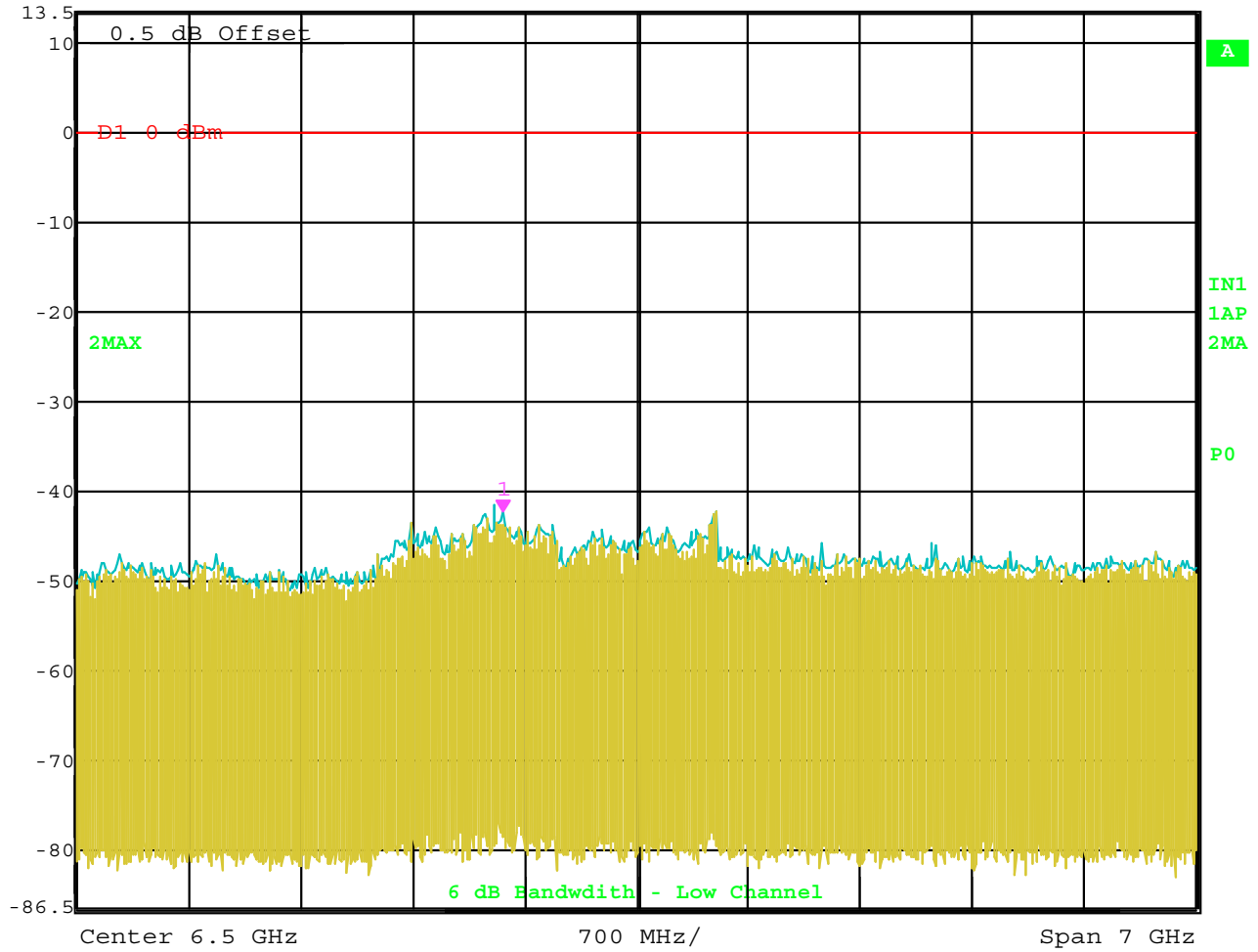


Date: 31.DEC.2003 13:49:37

RF Antenna Conducted Test – Channel 6 – 802.11 g Mode – 2 GHz to 3 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -42.41 dBm VBW 300 kHz
13.5 dBm 5.66533066 GHz SWT 1.75 s Unit dBm

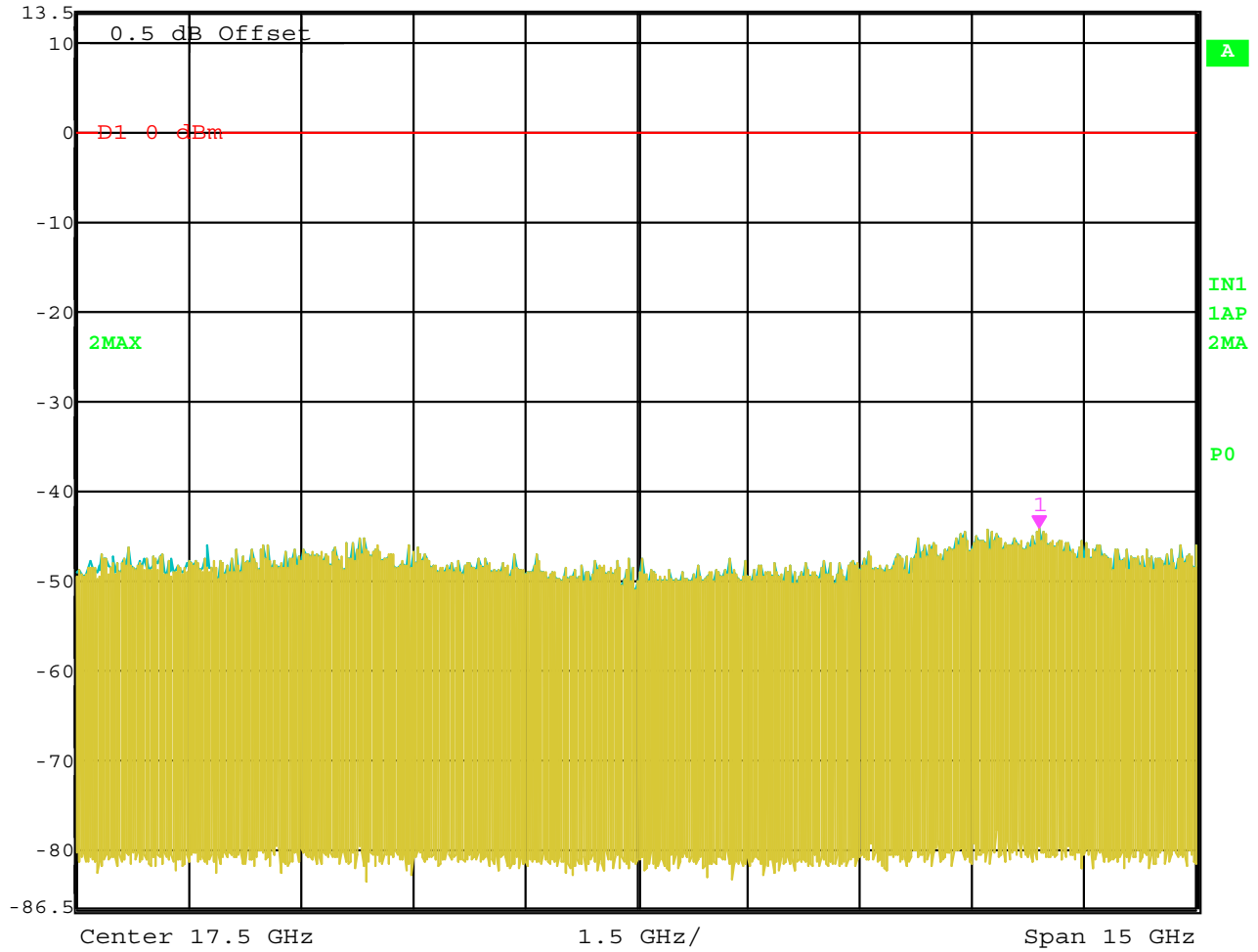


Date: 31.DEC.2003 13:51:13

RF Antenna Conducted Test – Channel 6 – 802.11 g Mode – 3 GHz to 10 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -44.14 dBm VBW 300 kHz
13.5 dBm 22.89579158 GHz SWT 3.8 s Unit dBm



Date: 31.DEC.2003 13:52:09

RF Antenna Conducted Test – Channel 6 – 802.11 g Mode – 10 GHz to 25 GHz



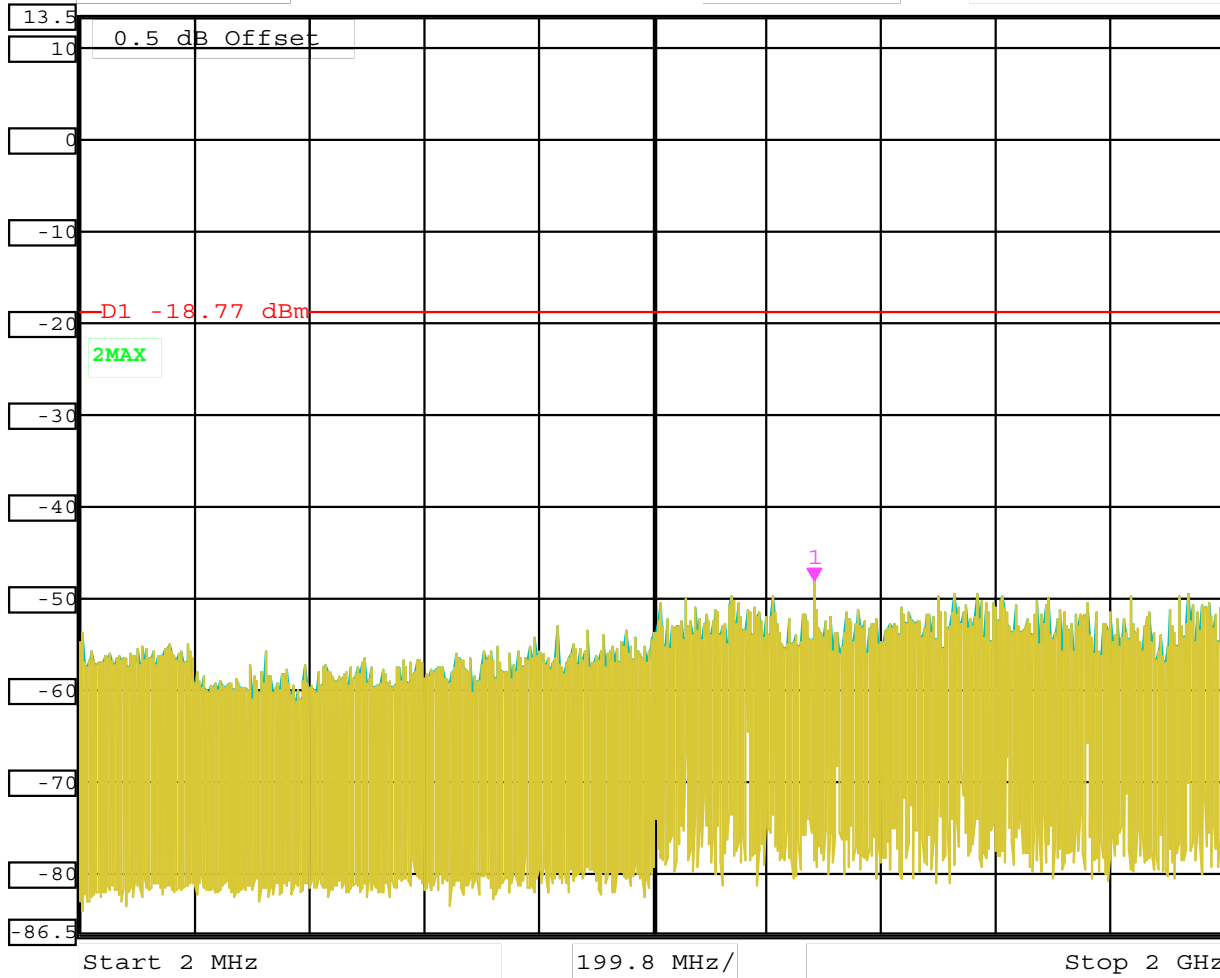
Ref Lvl
13.5 dBm

Marker 1 [T2]
-48.05 dBm
1.28328257 GHz

RBW 100 kHz
VBW 300 kHz
SWT 700 ms

RF Att 40 dB

Unit dBm



A

IN1

1AP

2MA

P0

Date: 31.DEC.2003 13:54:58

RF Antenna Conducted Test – Channel 11 – 802.11 g Mode – 2 MHz to 2 GHz



Marker 1 [T2]

RBW 100 kHz

RF Att 40 dB

Ref Lvl

1.23 dBm

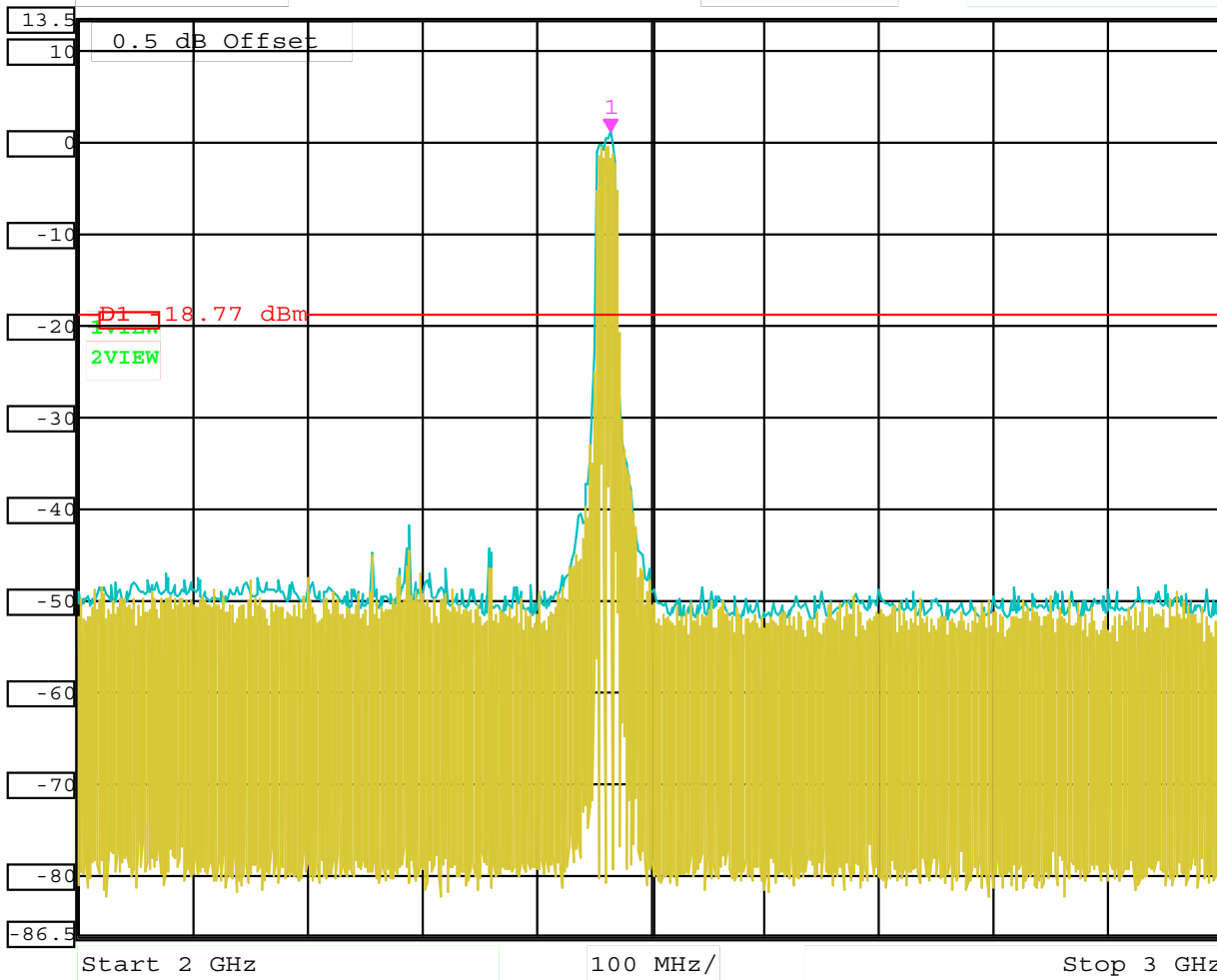
VBW 300 kHz

13.5 dBm

2.46492986 GHz

SWT 250 ms

Unit dBm

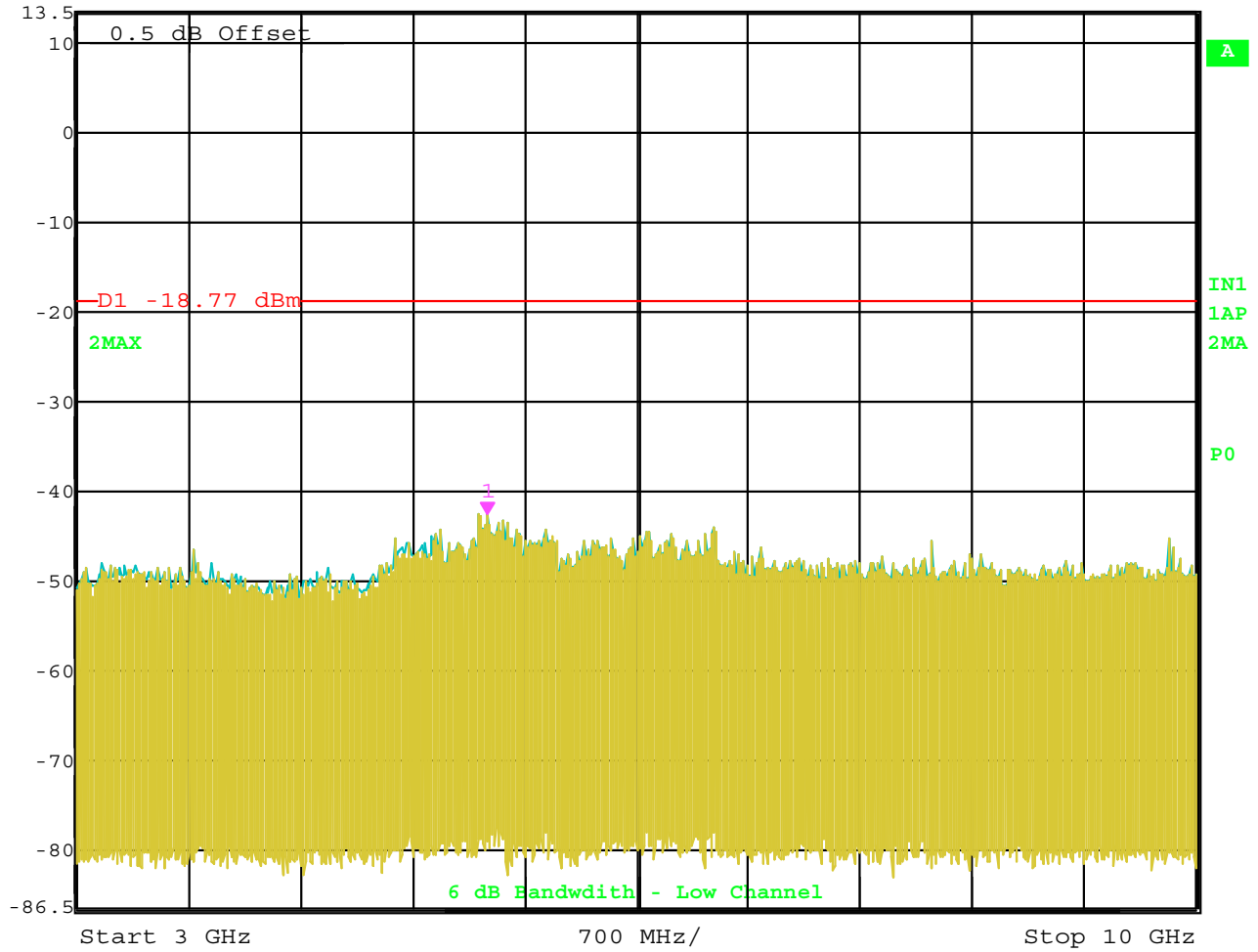


Date: 31.DEC.2003 13:54:13

RF Antenna Conducted Test – Channel 11 – 802.11 g Mode – 2 GHz to 3 GHz



Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -42.52 dBm VBW 300 kHz
13.5 dBm 5.56713427 GHz SWT 1.75 s Unit dBm

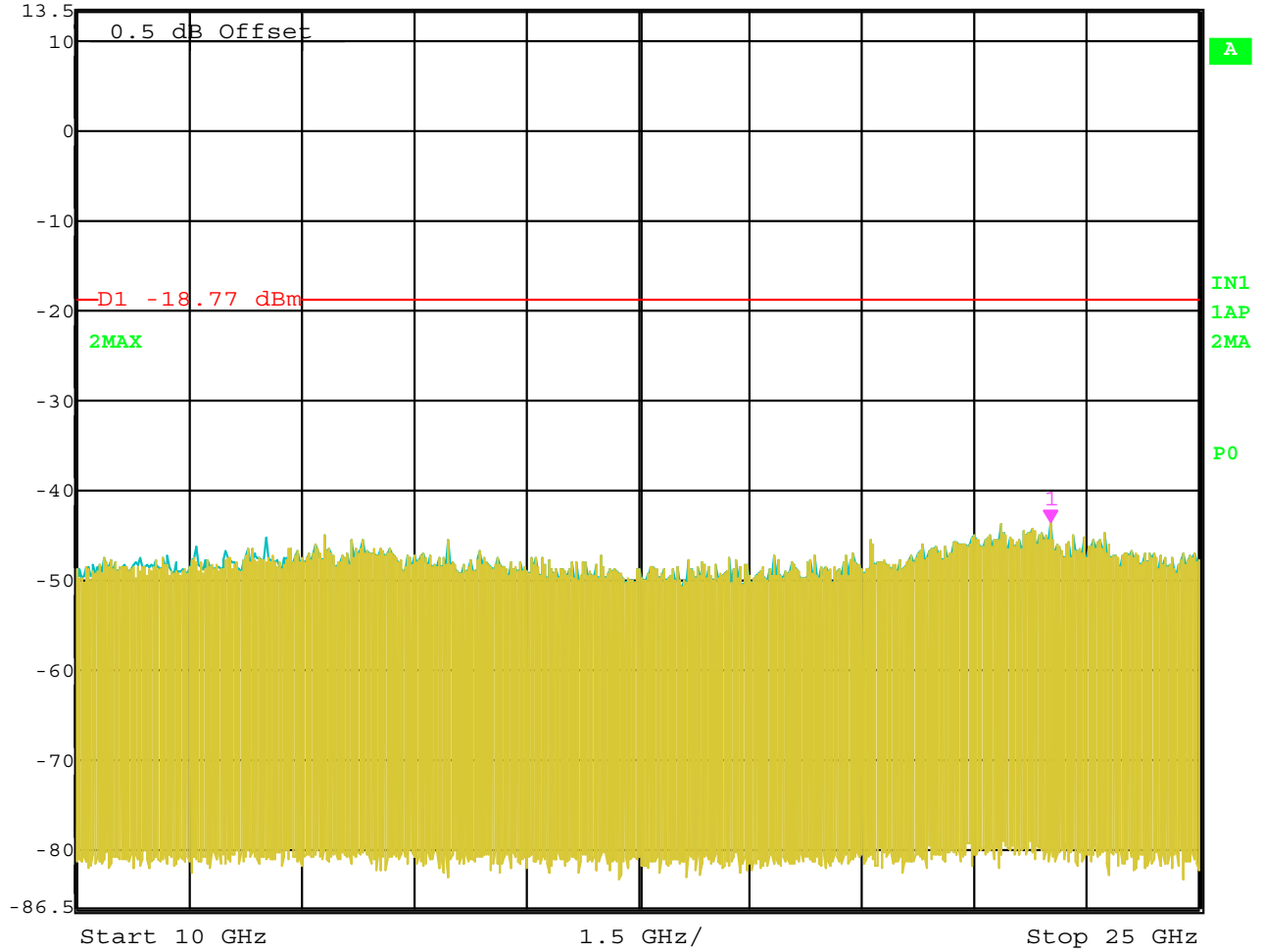


Date: 31.DEC.2003 13:55:39

RF Antenna Conducted Test – Channel 11 – 802.11 g Mode – 3 GHz to 10 GHz

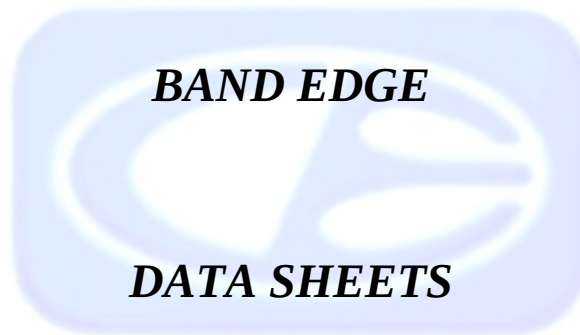


Marker 1 [T2] RBW 100 kHz RF Att 40 dB
Ref Lvl -43.64 dBm VBW 300 kHz
13.5 dBm 23.01603206 GHz SWT 3.8 s Unit dBm



Date: 31.DEC.2003 13:56:30

RF Antenna Conducted Test – Channel 11 – 802.11 g Mode – 10 GHz to 25 GHz



FCC 15.247

Intel Corporation
 Intel Mini PCI Type 802.11BG Wireless LAN Adapter
 Model: WM3B2200BG

Date: 3/03/04
 Lab: B
 Tested By: Ben Chavez

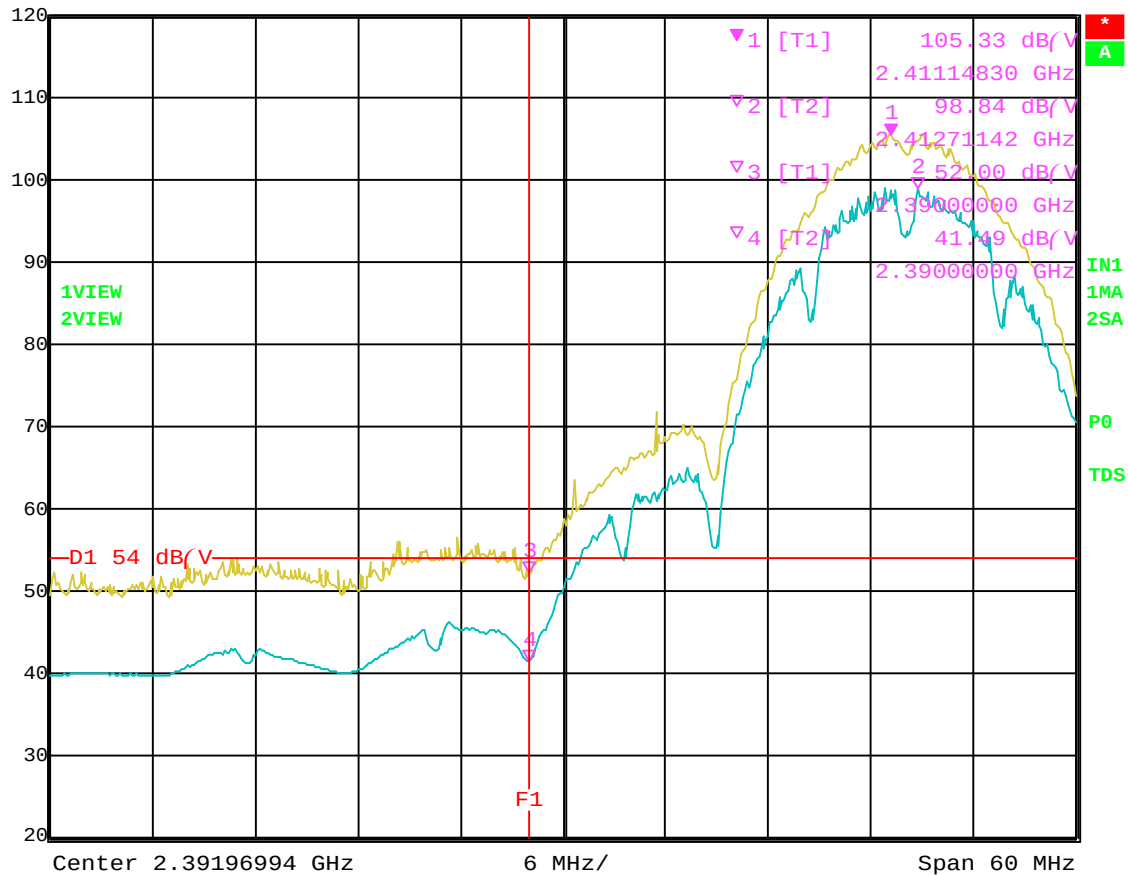
Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 1 - 802.11 b Mode	GAIN:	30.5	OUTPUT	17.06 dBm
Channel 6 - 802.11 b Mode	GAIN:	31	OUTPUT	17.03 dBm
Channel 11 - 802.11 b Mode	GAIN:	31	OUTPUT	16.93 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412	105.33	V	"--"	"--"	Peak	1.5	180	Fundamental of Channel 1
2412	98.84	V	"--"	"--"	Avg	1.5	180	at 3 Meters
2390	52	V	74	-22	Peak	1.5	180	
2390	41.49	V	54	-12.51	Avg	1.5	180	
2385.3	56.26	V	74	-17.74	Peak	1.5	180	
2385.3	46.04	V	54	-7.96	Avg	1.5	180	
2437	105.04	V	"--"	"--"	Peak	1.5	225	Fundamental of Channel 6
2437	99	V	"--"	"--"	Avg	1.5	225	at 3 Meters
2462	103.35	V	"--"	"--"	Peak	1.5	225	Fundamental of Channel 11
2462	96.72	V	"--"	"--"	Avg	1.5	225	at 3 Meters
2484.9	54.61	V	74	-19.39	Peak	1.5	225	
2484.9	45.47	V	54	-8.53	Avg	1.5	225	
2486.8	55.52	V	74	-18.48	Peak	1.5	225	
2486.8	45.5	V	54	-8.5	Avg	1.5	225	

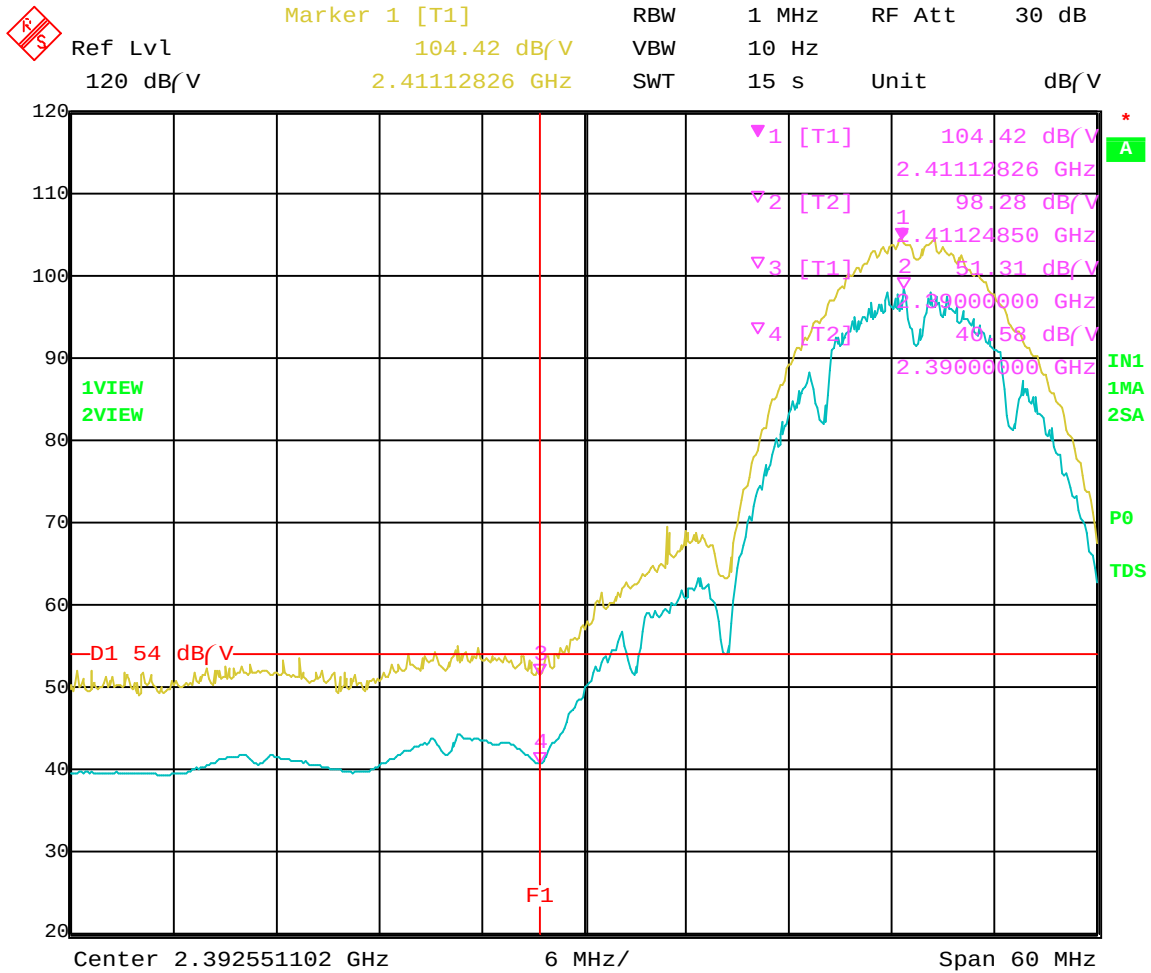


Ref Lvl 120 dB/V
Marker 1 [T1] 105.33 dB/V
2.41114830 GHz
RBW 1 MHz RF Att 30 dB
VBW 10 Hz
SWT 15 s Unit dB/V



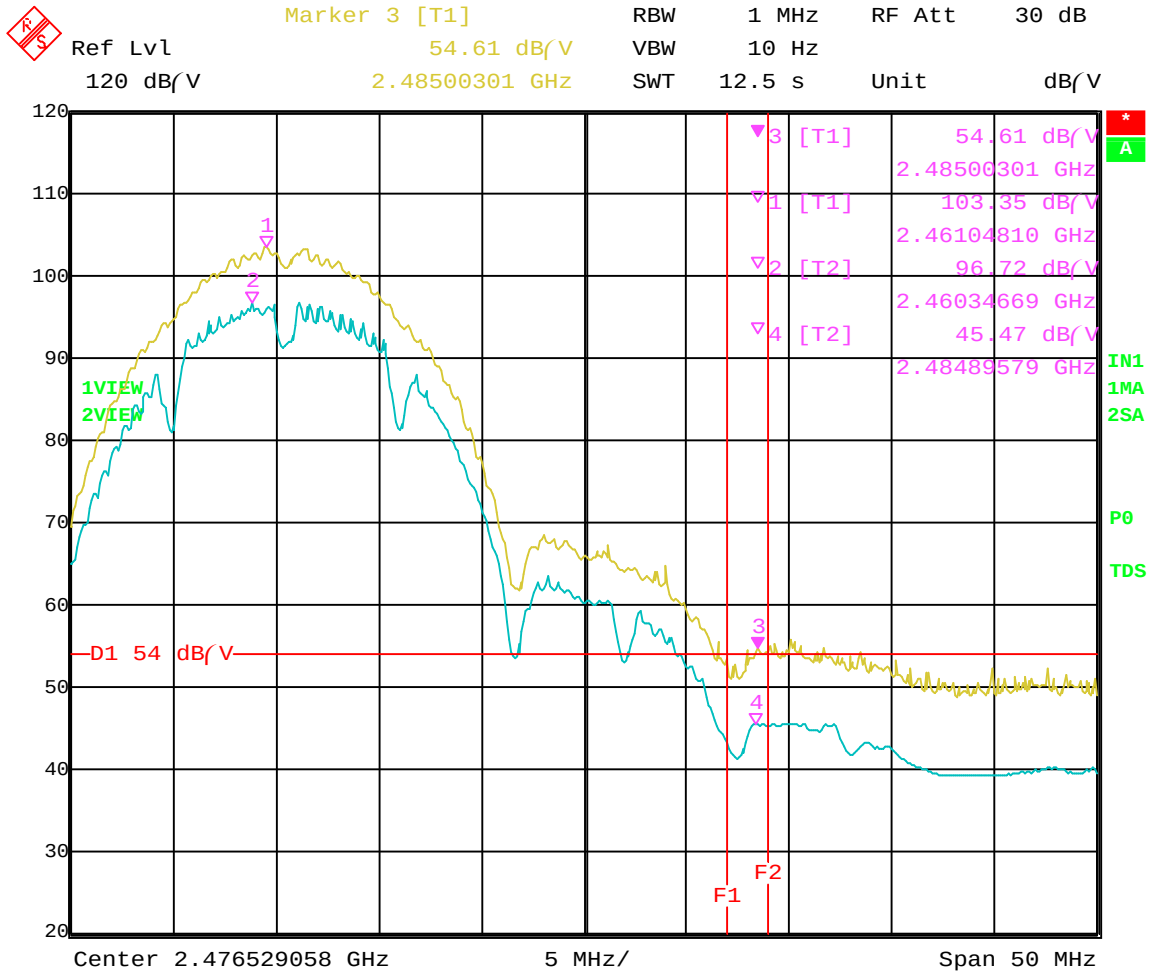
Date: 3.MAR.2004 19:02:06

Band Edge – Channel 1 – 802.11 b Mode – Vertical Polarization



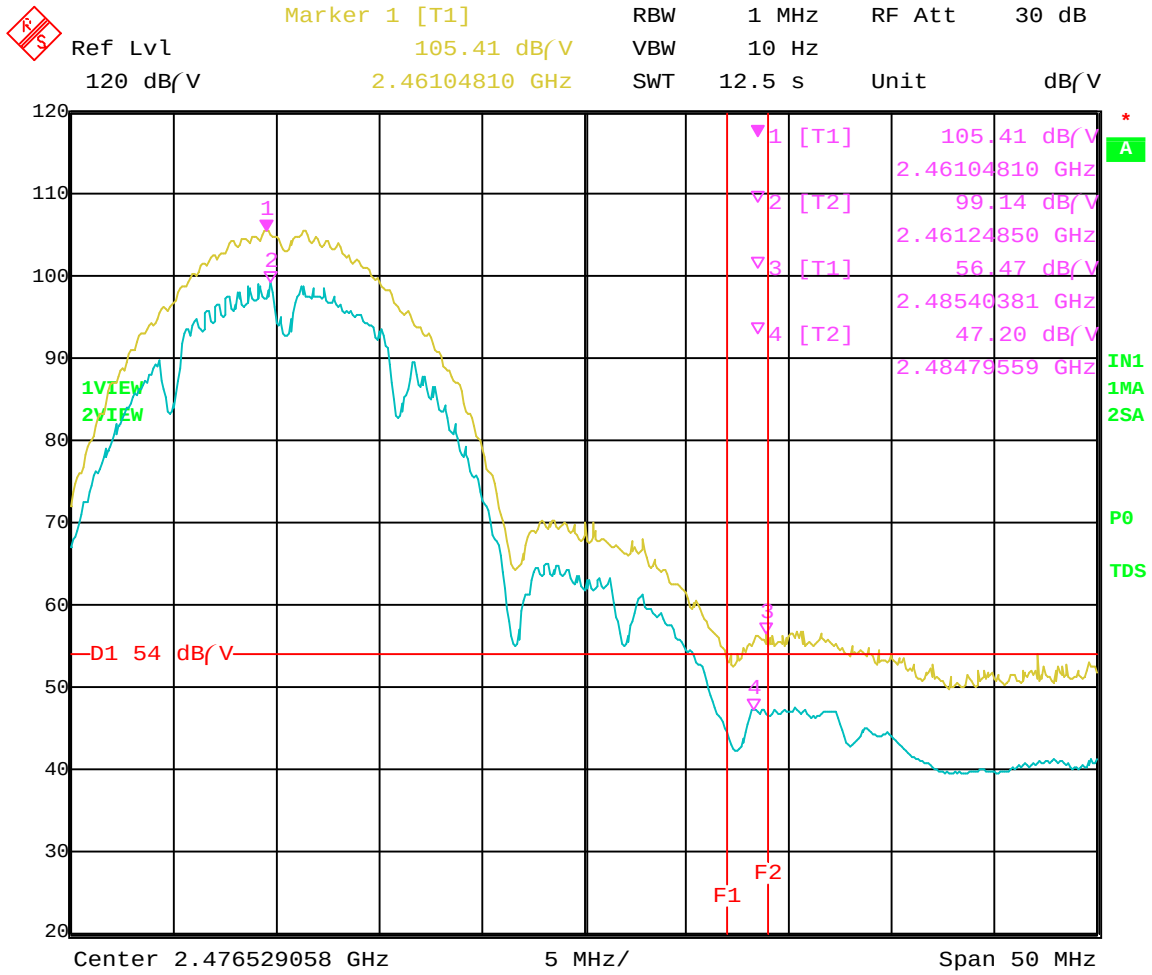
Date: 3.MAR.2004 18:06:34

Band Edge – Channel 1 – 802.11 b Mode – Horizontal Polarization



Date: 3.MAR.2004 18:50:51

Band Edge – Channel 11 – 802.11 b Mode – Vertical Polarization



Date: 3.MAR.2004 18:22:16

Band Edge – Channel 11 – 802.11 b Mode – Horizontal Polarization

FCC 15.247

Intel Corporation
Intel Mini PCI Type 802.11BG Wireless LAN Adapter
Model: WM3B2200BG

Date: 3/03/04
Lab: B
Tested By: Ben Chavez

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

Channel 1 - 802.11 g Mode	GAIN:	25	OUTPUT	16.13 dBm
Channel 6 - 802.11 g Mode	GAIN:	25.5	OUTPUT	16.27 dBm
Channel 11 - 802.11 g Mode	GAIN:	25.5	OUTPUT	16.11 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412	99.79	V	"--"	"--"	Peak	1.5	180	Fundamental of Channel 1
2412	86.4	V	"--"	"--"	Avg	1.5	180	at 3 Meters
2390	56.94	V	74	-17.06	Peak	1.5	180	
2390	43.79	V	54	-10.21	Avg	1.5	180	
2437	101.72	V	"--"	"--"	Peak	2	180	Fundamental of Channel 6
2437	87.8	V	"--"	"--"	Avg	2	180	at 3 Meters
2462	103.16	V	"--"	"--"	Peak	1.75	180	Fundamental of Channel 11
2462	89.54	V	"--"	"--"	Avg	1.75	180	at 3 Meters
2483.5	62.36	V	74	-11.64	Peak	1.75	180	
2483.5	47.1	V	54	-6.9	Avg	1.75	180	
2486.6	60.89	V	74	-13.11	Peak	1.75	180	
2486.6	46.59	V	54	-7.41	Avg	1.75	180	

FCC 15.247

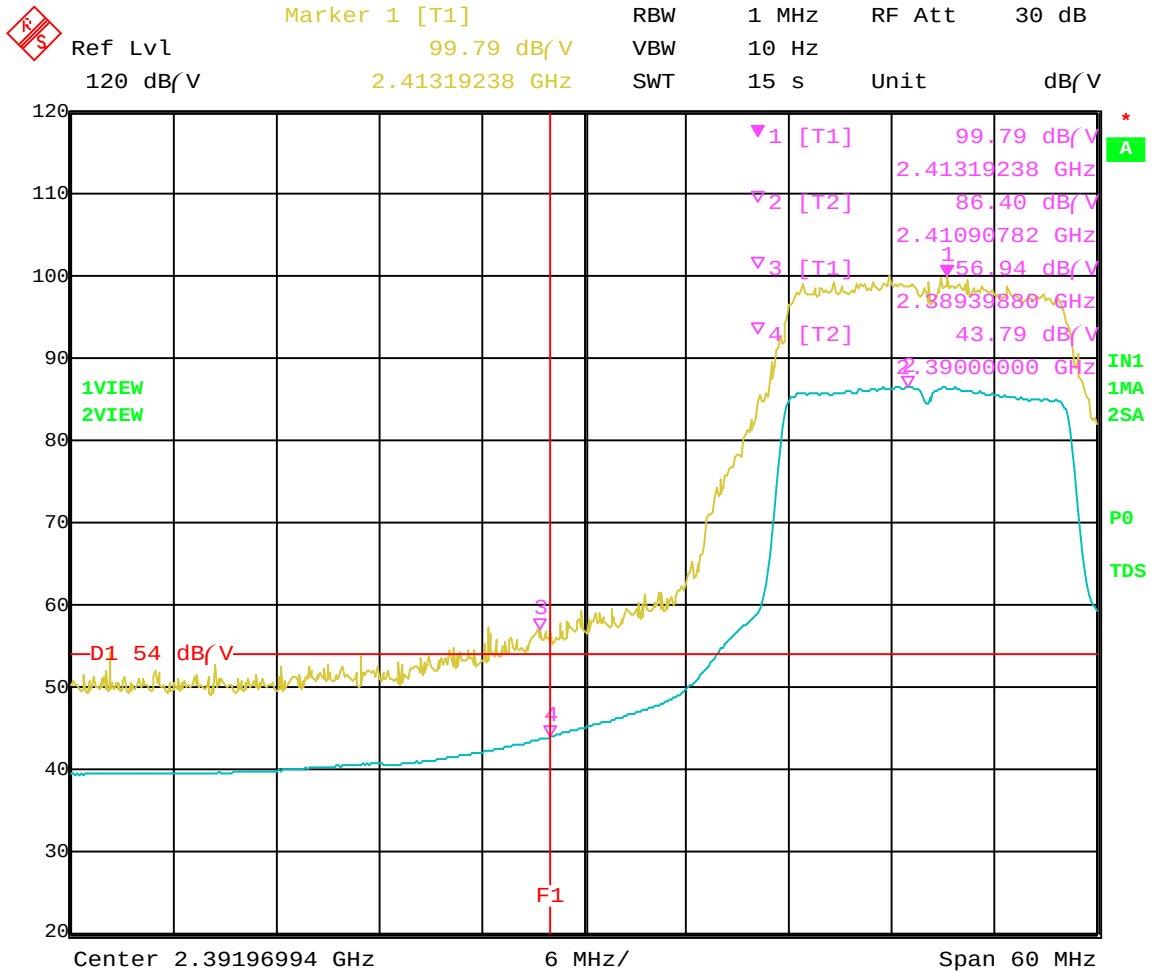
Intel Corporation
 Intel Mini PCI Type 802.11BG Wireless LAN Adapter
 Model: WM3B2200BG

Date: 3/03/04
 Lab: B
 Tested By: Ben Chavez

Configuration: Hewlett Packard Laptop Agency Series Number PP2170

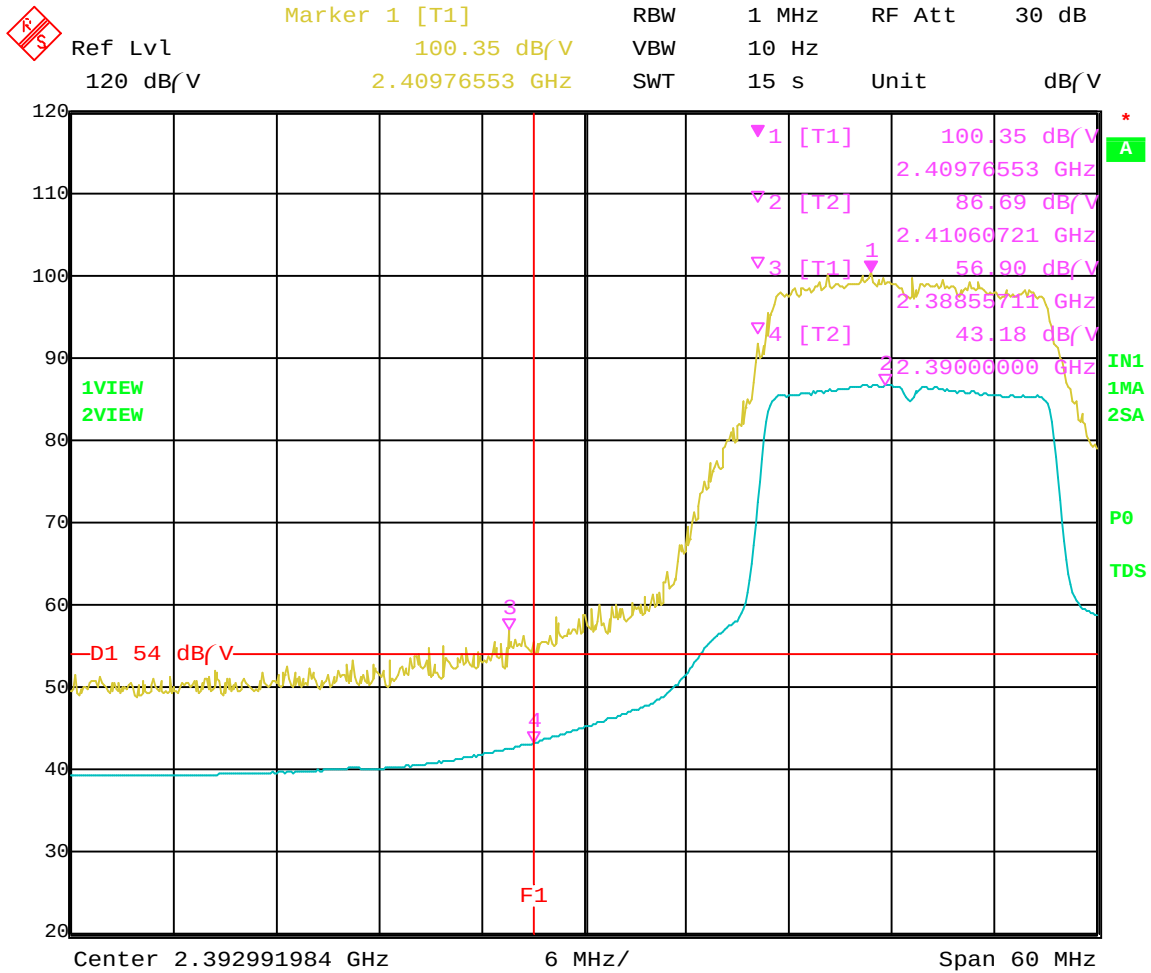
Channel 1 - 802.11 g Mode	GAIN:	25	OUTPUT	16.13 dBm
Channel 6 - 802.11 g Mode	GAIN:	25.5	OUTPUT	16.27 dBm
Channel 11 - 802.11 g Mode	GAIN:	25.5	OUTPUT	16.11 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412	100.35	H	"--"	"--"	Peak	1	135	Fundamental of Channel 1
2412	89.69	H	"--"	"--"	Avg	1	135	at 3 Meters
2390	56.9	H	74	-17.1	Peak	1	135	
2390	43.18	H	54	-10.82	Avg	1	135	
2437	101.23	H	"--"	"--"	Peak	1	135	Fundamental of Channel 6
2437	87.65	H	"--"	"--"	Avg	1	135	at 3 Meters
2462	101.18	H	"--"	"--"	Peak	1	135	Fundamental of Channel 11
2462	87.51	H	"--"	"--"	Avg	1	135	at 3 Meters
2483.5	61.72	H	74	-12.28	Peak	1	135	
2483.5	46.38	H	54	-7.62	Avg	1	135	
2486.7	58.96	H	74	-15.04	Peak	1	135	
2486.7	45.75	H	54	-8.25	Avg	1	135	



Date: 3.MAR.2004 19:09:34

Band Edge – Channel 1 – 802.11 g Mode – Vertical Polarization

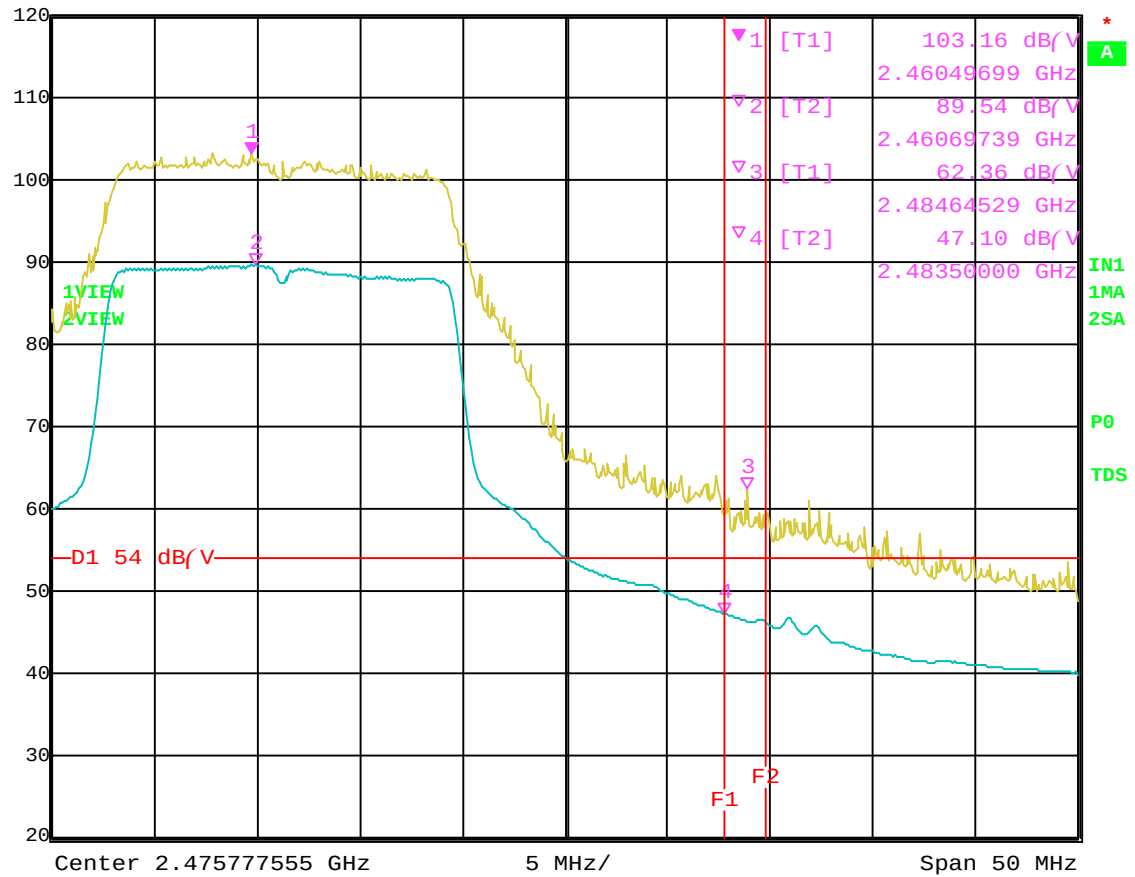


Date: 3.MAR.2004 19:43:46

Band Edge – Channel 1 – 802.11 g Mode – Horizontal Polarization



Ref Lvl 120 dB/V
Marker 1 [T1] 103.16 dB/V
2.46049699 GHz
RBW 1 MHz
VBW 10 Hz
SWT 12.5 s
RF Att 30 dB
Unit dB/V

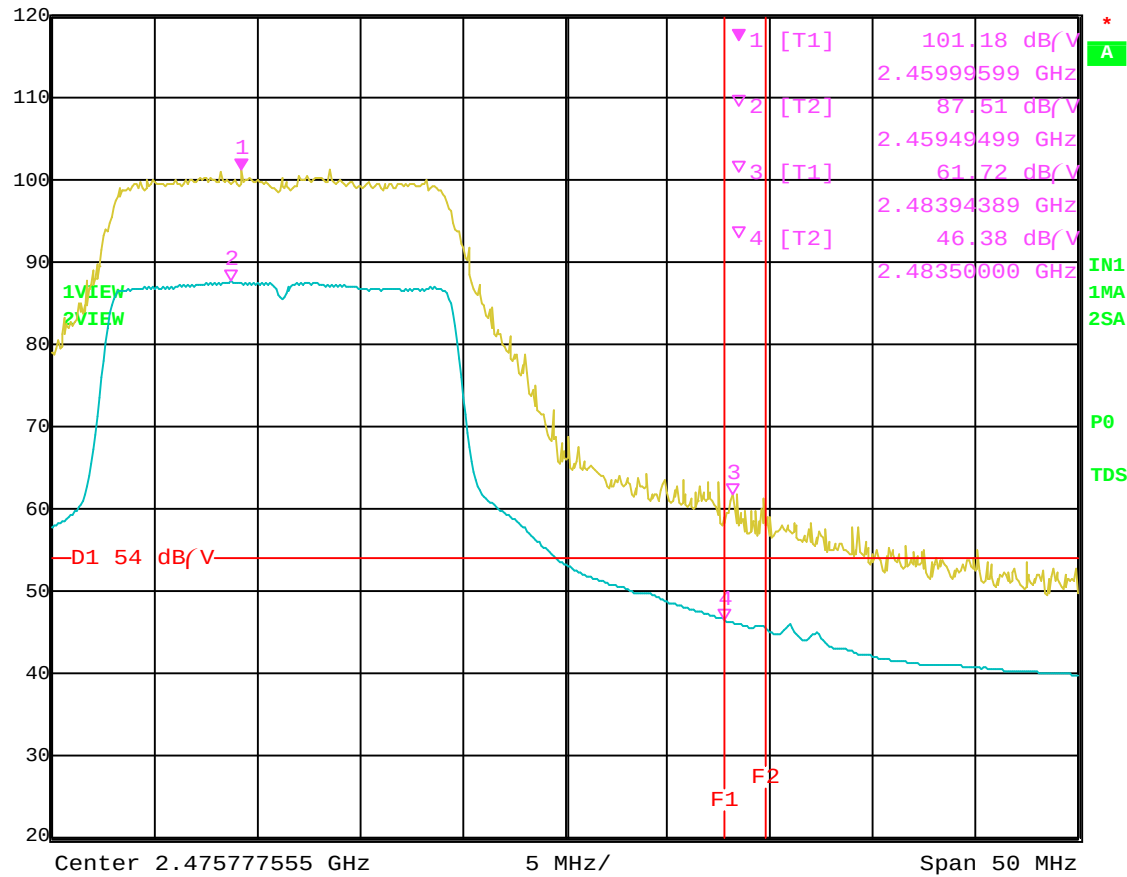


Date: 3.MAR.2004 19:18:16

Band Edge – Channel 11 – 802.11 g Mode – Vertical Polarization



Ref Lvl 120 dB/V
Marker 1 [T1] 101.18 dB/V
2.45999599 GHz
RBW 1 MHz RF Att 30 dB
VBW 10 Hz
SWT 12.5 s Unit dB/V



Date: 3.MAR.2004 19:25:00

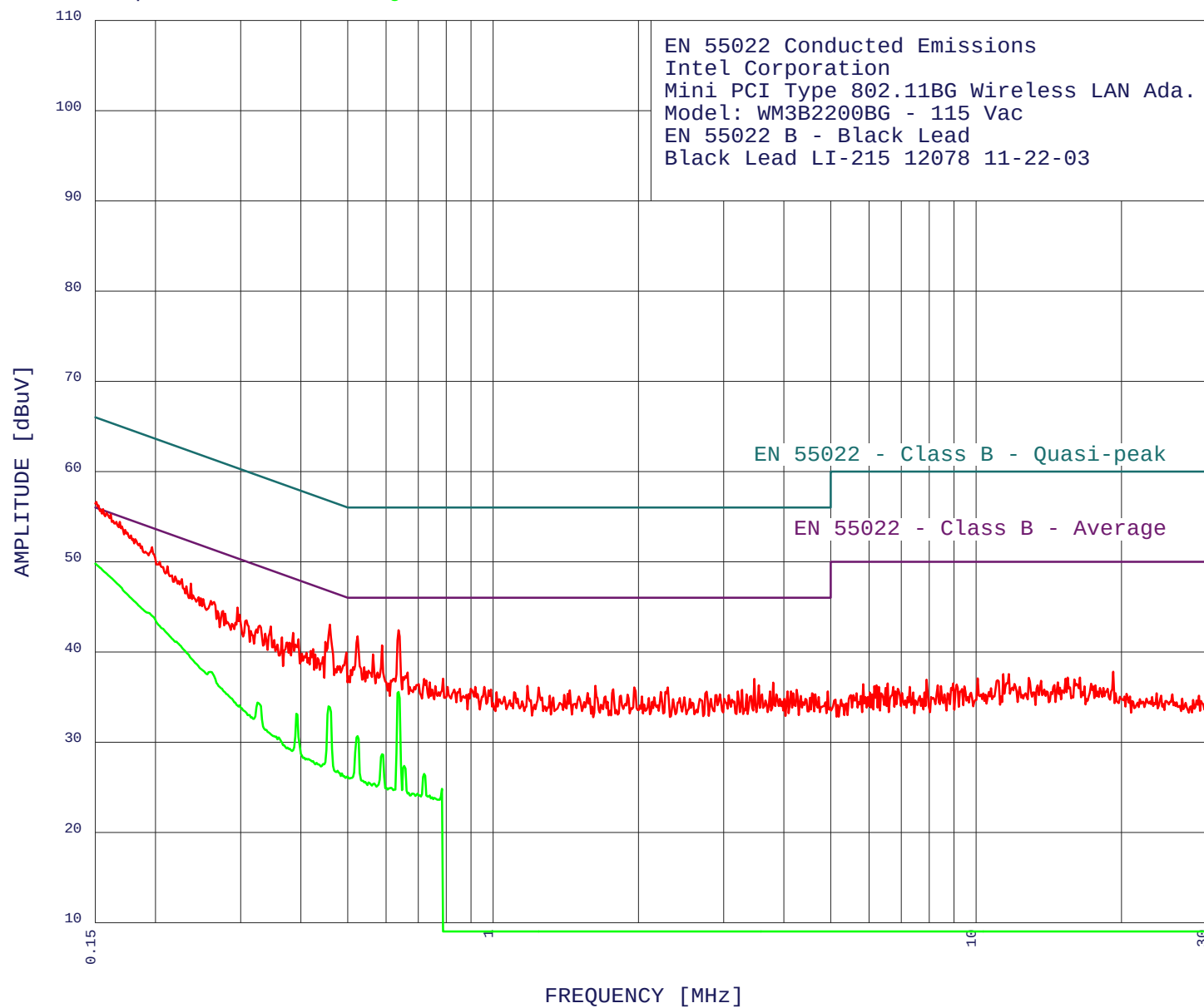
Band Edge – Channel 11 – 802.11 g Mode – Horizontal Polarization

CONDUCTED EMISSIONS

DATA SHEETS

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

1/05/2004 15:14:19




**COMPATIBLE
ELECTRONICS**

1/05/2004

15:14:19

EN 55022 Conducted Emissions

Intel Corporation

Intel Mini PCI Type 802.11BG Wireless LAN Adapter

Model: WM3B2200BG - 115 Vac

EN 55022 B - Black Lead

BlackLead LI-215 12078 11-22-03

TEST ENGINEER : Arnold Gaffud

42 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.151	56.63	55.95	0.68**
2	0.150	56.43	56.00	0.43**
3	0.156	55.83	55.69	0.14**
4	0.158	55.43	55.56	-0.13**
5	0.162	55.22	55.38	-0.16**
6	0.169	54.42	55.03	-0.61**
7	0.166	54.42	55.16	-0.74**
8	0.170	53.92	54.94	-1.03**
9	0.173	53.51	54.81	-1.30**
10	0.178	52.91	54.59	-1.68**
11	0.182	52.51	54.41	-1.91**
12	0.197	51.60	53.75	-2.16**
13	0.185	52.00	54.24	-2.23**
14	0.187	51.70	54.15	-2.45**
15	0.204	49.99	53.44	-3.45**
16	0.637	42.42	46.00	-3.58**
17	0.212	49.48	53.14	-3.66**
18	0.459	43.01	46.71	-3.70**
19	0.524	41.71	46.00	-4.29**
20	0.220	48.38	52.83	-4.45**
21	0.227	48.07	52.57	-4.50**
22	0.237	47.56	52.21	-4.65**
23	0.223	47.87	52.70	-4.82**
24	0.232	47.27	52.39	-5.12**
25	0.589	40.72	46.00	-5.28**
26	0.296	44.92	50.36	-5.45**
27	0.265	45.54	51.29	-5.75**
28	0.260	45.64	51.42	-5.78**
29	0.449	41.11	46.89	-5.78**
30	0.246	46.06	51.90	-5.85**
31	0.248	45.95	51.82	-5.86**
32	0.239	46.26	52.12	-5.86**
33	0.251	45.85	51.73	-5.87**
34	0.385	42.11	48.16	-6.05**
35	0.497	39.91	46.05	-6.14**
36	0.299	44.11	50.28	-6.16**
37	0.347	42.81	49.04	-6.24**
38	0.564	39.71	46.00	-6.29**
39	0.276	44.53	50.94	-6.40**
40	0.309	43.51	50.01	-6.50**
41	0.396	41.41	47.95	-6.54**
42	30.000	34.73	50.00	-15.27**

** Please See the Average Readings on the Next Page and on the Plot



EN 55022 Conducted Emissions

Intel Corporation

Intel Mini PCI Type 802.11BG Wireless LAN Adapter

Model: WM3B2200BG - 115 Vac

EN 55022 B - Black Lead

Black Lead LI-215 12078 11-22-03

TEST ENGINEER : Arnold Gaffud

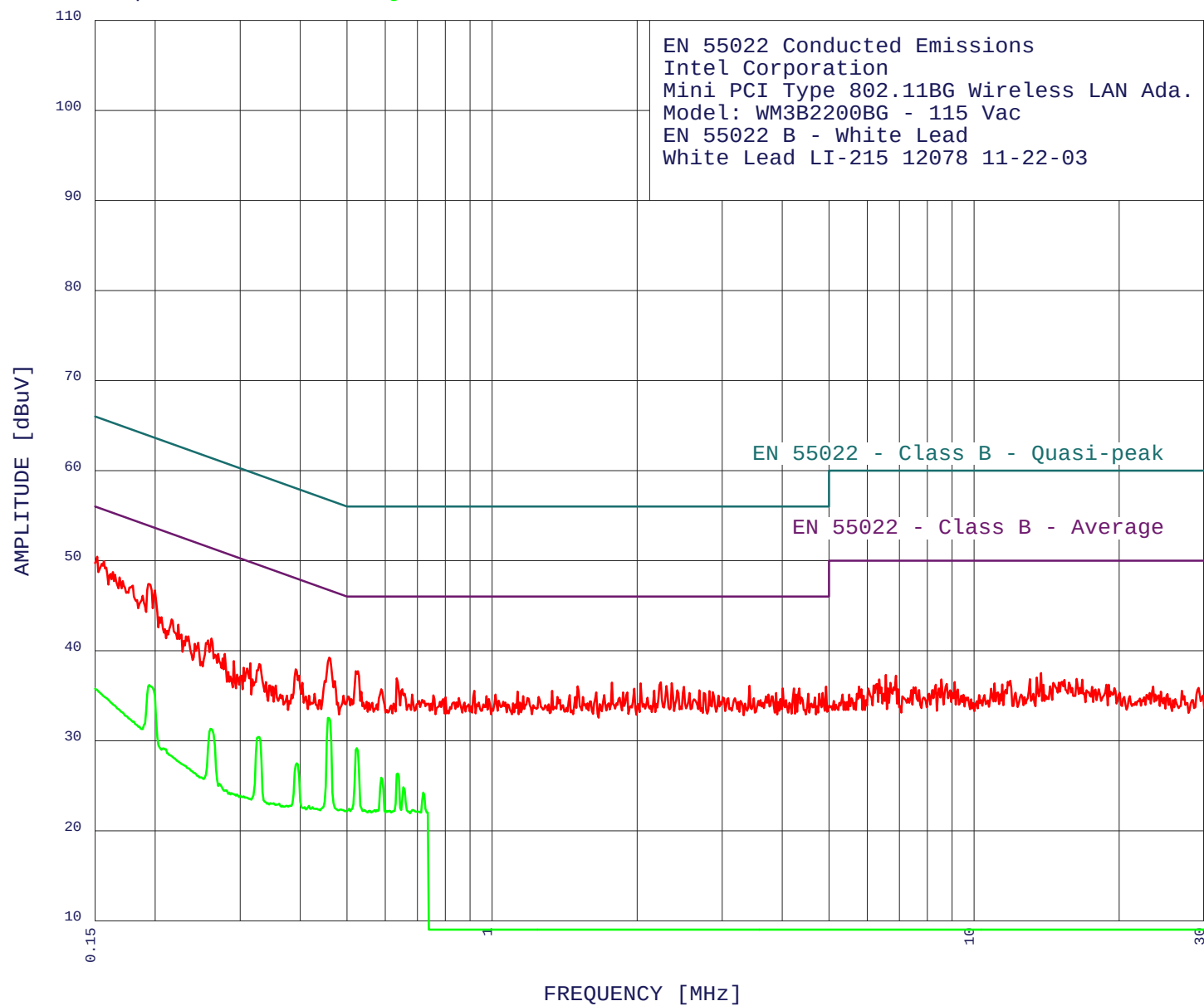
 26 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.150	49.79	56.00	-6.21**
2	0.637	35.55	46.00	-10.45
3	0.457	33.96	46.76	-12.80
4	0.259	37.79	51.47	-13.68
5	0.391	33.14	48.03	-14.90
6	0.325	34.37	49.57	-15.21
7	0.524	30.67	46.00	-15.33
8	0.299	34.07	50.28	-16.20
9	0.589	28.67	46.00	-17.33
10	0.360	30.51	48.73	-18.23
11	0.655	27.36	46.00	-18.64
12	0.720	26.47	46.00	-19.53
13	0.431	27.68	47.24	-19.56
14	0.476	26.82	46.40	-19.58
15	0.486	26.52	46.23	-19.71
16	0.500	26.20	46.01	-19.80
17	0.552	25.53	46.00	-20.47
18	0.567	25.42	46.00	-20.58
19	0.614	24.94	46.00	-21.06
20	0.783	24.82	46.00	-21.18
21	0.698	24.30	46.00	-21.70
22	0.683	24.30	46.00	-21.70
23	0.739	24.09	46.00	-21.91
24	0.747	23.89	46.00	-22.11
25	0.755	23.82	46.00	-22.18
26	30.000	0.00	50.00	-50.00

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

1/05/2004 15:55:39




**COMPATIBLE
ELECTRONICS**

1/05/2004

15:55:39

EN 55022 Conducted Emissions

Intel Corporation

Intel Mini PCI Type 802.11BG Wireless LAN Adapter

Model: WM3B2200BG - 115 Vac

EN 55022 B - White Lead

White Lead LI-215 12078 11-22-03

TEST ENGINEER : Arnold Gaffud

42 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.157	49.93	55.64	-5.72**
2	0.150	49.73	56.00	-6.27
3	0.194	47.40	53.88	-6.49**
4	0.163	48.72	55.29	-6.57**
5	0.169	48.12	55.03	-6.91**
6	0.200	46.69	53.62	-6.93**
7	0.459	39.21	46.71	-7.50**
8	0.188	46.10	54.10	-8.00**
9	0.527	37.71	46.00	-8.29**
10	0.634	36.92	46.00	-9.08**
11	0.216	43.48	52.96	-9.48**
12	2.238	36.47	46.00	-9.53
13	1.772	36.46	46.00	-9.54
14	2.358	36.38	46.00	-9.62
15	2.034	36.37	46.00	-9.63
16	0.204	43.69	53.44	-9.75**
17	0.223	42.87	52.70	-9.82**
18	3.419	36.11	46.00	-9.89
19	2.298	36.07	46.00	-9.93
20	1.504	36.05	46.00	-9.95
21	4.928	36.01	46.00	-9.99
22	2.501	35.98	46.00	-10.02
23	0.262	41.34	51.38	-10.03**
24	0.391	37.91	48.03	-10.13**
25	4.339	35.81	46.00	-10.19
26	4.227	35.81	46.00	-10.19
27	4.008	35.81	46.00	-10.19
28	1.971	35.76	46.00	-10.24
29	0.651	35.72	46.00	-10.28**
30	0.589	35.72	46.00	-10.28**
31	0.258	41.15	51.51	-10.36**
32	2.693	35.59	46.00	-10.41
33	2.423	35.58	46.00	-10.42
34	2.168	35.57	46.00	-10.43
35	1.331	35.54	46.00	-10.46
36	0.919	35.53	46.00	-10.47
37	2.826	35.49	46.00	-10.51
38	1.130	35.43	46.00	-10.57
39	0.535	35.41	46.00	-10.59**
40	2.870	35.39	46.00	-10.61
41	1.908	35.36	46.00	-10.64
42	30.000	33.63	50.00	-16.37

** Please See the Average Readings on the Next Page and on the Plot



EN 55022 Conducted Emissions
 Intel Corporation
 Intel Mini PCI Type 802.11BG Wireless LAN Adapter
 Model: WM3B2200BG - 115 Vac
 EN 55022 B - White Lead
 White Lead LI-215 12078 11-22-03
 TEST ENGINEER : Arnold Gaffud

27 highest peaks above -50.00 dB of EN 55022 - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.457	32.51	46.76	-14.25
2	0.524	29.17	46.00	-16.83
3	0.195	36.17	53.84	-17.67
4	0.329	30.41	49.48	-19.08
5	0.637	26.37	46.00	-19.63
6	0.260	31.32	51.42	-20.10
7	0.589	25.88	46.00	-20.12
8	0.150	35.77	56.00	-20.23
9	0.393	27.49	47.99	-20.50
10	0.655	24.82	46.00	-21.18
11	0.720	24.23	46.00	-21.77
12	0.505	22.43	46.00	-23.57
13	0.686	22.28	46.00	-23.72
14	0.570	22.27	46.00	-23.73
15	0.614	22.19	46.00	-23.81
16	0.558	22.18	46.00	-23.82
17	0.207	29.13	53.31	-24.18
18	0.417	22.76	47.50	-24.74
19	0.424	22.60	47.37	-24.77
20	0.362	22.99	48.69	-25.70
21	0.352	23.07	48.91	-25.84
22	0.272	25.21	51.07	-25.86
23	0.296	24.03	50.36	-26.34
24	0.300	23.88	50.23	-26.35
25	0.288	24.16	50.58	-26.42
26	0.285	24.24	50.67	-26.44
27	30.000	0.00	50.00	-50.00