EMC
TEST REPORT

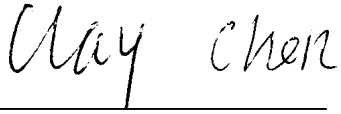
Report No.: **EME-040257**
Model No.: **ZyAIR G-110**
Issued Date: **April 8, 2004**

Applicant **ZyXEL Communications Corporation**
No. 6, Innovation Rd II, Science-Based Industrial Park,
Hsin-Chu, Taiwan

Test By: **Intertek Testing Services Taiwan Ltd.**
No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,
Shiang-Shan District, Hsinchu City, Taiwan

This test report consists of 73 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. It shall not be reproduced except in full, without the written approval of Intertek Laboratory. The test result in this report only applies to the tested sample.

Project Engineer



Clay Chen

Reviewed By

Elton Chen

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Table of Contents

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Summary of Tests

802.11g Wireless CardBus Card-Model: ZyAIR G-110
FCC ID: I88G110

Test	Reference	Results
Minimum 6dB Bandwidth test	15.247(a)(2)	Complies
Maximum Output Power test	15.247(b)	Complies
Radiated Spurious Emission test	15.205, 15.209	Complies
Power Spectrum Density test	15.247(d)	Complies
Power Line Conducted Emission test	15.207	Complies

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

1. General information

1.1 Identification of the EUT

Applicant:	ZyXEL Communications Corp.
Product:	802.11g Wireless CardBus Card
Model No.:	ZyAIR G-110
Frequency Range:	2412MHz to 2472MHz
Channel Number:	11
Frequency of Each Channel:	2412MHz, 2417MHz, 2422MHz, 2427MHz, 2432MHz, 2437MHz, 2442MHz, 2447MHz, 2452MHz, 2457MHz, 2462MHz
Type of Modulation:	DSSS, OFDM
Rated Power:	3.3Vdc
Sample Received:	Mar. 23, 2004
Test Date(s):	Mar. 24, 2004 to April 7, 2004

A FCC DoC report has been generated for the client.

1.2 Additional information about the EUT

The EUT is an IEEE 802.11g compliant wireless LAN PC card that fits into any CardBus slot. The IEEE 802.11g technology provides greater range and offers transmission rate at up to 54 Mbps.

The 802.11g Wireless Cardbus Card intend to comply with end product and modular approval.

The EUT meets special requirements for full modular approval on FCC Public Notice DA 00-1407 and the device is only for OEM integrator, please refer the test result in this report.

There are two types of antenna will be integrated with this 802.11g Wireless Cardbus Card for there two applications.

For more detail features, please refer to User's manual as file name “Installation guide.pdf” (End-product application)
For more detail features, please refer to User's manual as file name “Installation guide.pdf” (Modular approval application)

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

1.3 Antenna description

For internal antenna:

The EUT uses a permanently connected antenna.

Antenna Gain: 2dBi
Antenna Type: PCB Printed
Connector Type: N/A

For external antenna:

The antenna is affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector.

Antenna Gain: 2dBi
Antenna Type: Dipole antenna
Connector Type: M/C Card 23-301A

1.4 Peripherals equipment

Peripherals	Manufacturer	Product No.	Serial No.
Notebook 1	DELL	PP01L	CN-06P83-48643-33V-0112
Notebook 2	DELL	PP01L	CN-03P83-48643-33O-3930
Printer	HP	C2642A	TH86K1N2ZB
Modem	Dynalink	V1456VQE	00V230A00051494
54M Wireless LAN CardBus	BUFFALO	WLI-CB-G54A	0007407964D4

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Section § 15.205、§15.207、§15.209、§15.247 and ANSI C63.4/2001.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

In the conduction test, we only tested the EUT with external antenna in modular approval test configuration, and the EUT was linked with the other wireless LAN card.
During the other tests, the EUT was transmitted continuously.

After verifying the maximum output power, we found the maximum output power was occurred at 11Mbps data rate in 802.11b and 54Mbps data rate in 802.11g. The final test was executed under this condition and recorded in this report individually.

The test modes/configurations are showed below:
1. Modular approval with internal/external antenna.
2. End-product with internal antenna only.

We verified the worst-case condition was performed in modular approval test configuration.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

2.3 Test equipment

Equipment	Brand	Frequency range	Model No.	Intertek ID No.	Last Cal. Date
EMI Test Receiver	Rohde & Schwarz	9kHz~2.75GHz	ESCS 30	EC303	6/16/2003
EMI Test Receiver	Rohde & Schwarz	20Hz~26.5GHz	ESMI	EC317	6/24/2003
Spectrum Analyzer	Rohde & Schwarz	9kHz~30GHz	FSP 30	EC353	7/19/2003
Spectrum Analyzer	Rohde & Schwarz	20Hz~40GHz	FSEK 30	EC365	10/20/2003
Horn Antenna	EMCO	1GHz~18GHz	3115	EC332	10/15/2003
Horn Antenna	SCHWARZBECK	15GHz~40GHz	BBHA 9170	EC351	6/21/2001
Bilog Antenna	SCHWARZBECK	25MHz~1.7GHz	VULB 9160	EC350	6/21/2001
Turn Table	HDGmbH	N/A	DS 420S	EP317-3	N/A
Antenna Tower	HDGmbH	N/A	MA 240	EP317-2	N/A
Pre-Amplifier	MITER	100MHz~26.5GHz	919981	EC373	5/13/2003
Pre-Amplifier	MITER	26GHz~40GHz	828825	EC374	5/13/2003
Crystal Detector	Agilent	10MHz~18GHz	8472B	-	N/A
Signal Generator	Rohde & Schwarz	20MHz~27GHz	SMR27	EC354	8/16/2003
Two Channel Digital Storage Oscilloscope	Tektronix	N/A	TDS1012	-	8/16/2003
LISN	Rohde & Schwarz	9KHz~30MHz	ESH3-Z5	EC344	1/20/2004

Note: The above equipments are within the valid calibration period.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

3. Minimum 6dB Bandwidth test

3.1 Operating environment

Temperature:	20	℃
Relative Humidity:	68	%
Atmospheric Pressure	1023	hPa

3.2 Test setup & procedure

The minimum 6dB bandwidth per FCC §15.247(a)(2) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set at 300kHz, and the SPAN>>RBW. The test was performed at 3 channels (lowest, middle and highest channel). The minimum 6-dB modulation bandwidth is in the following Table.

3.3 Measured data of Minimum 6dB Bandwidth test results

Test Condition: 802.11b (DSSS Modulation)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit
Low	2412	11.67	＞500kHz
Middle	2437	11.66	＞500kHz
High	2462	11.66	＞500kHz

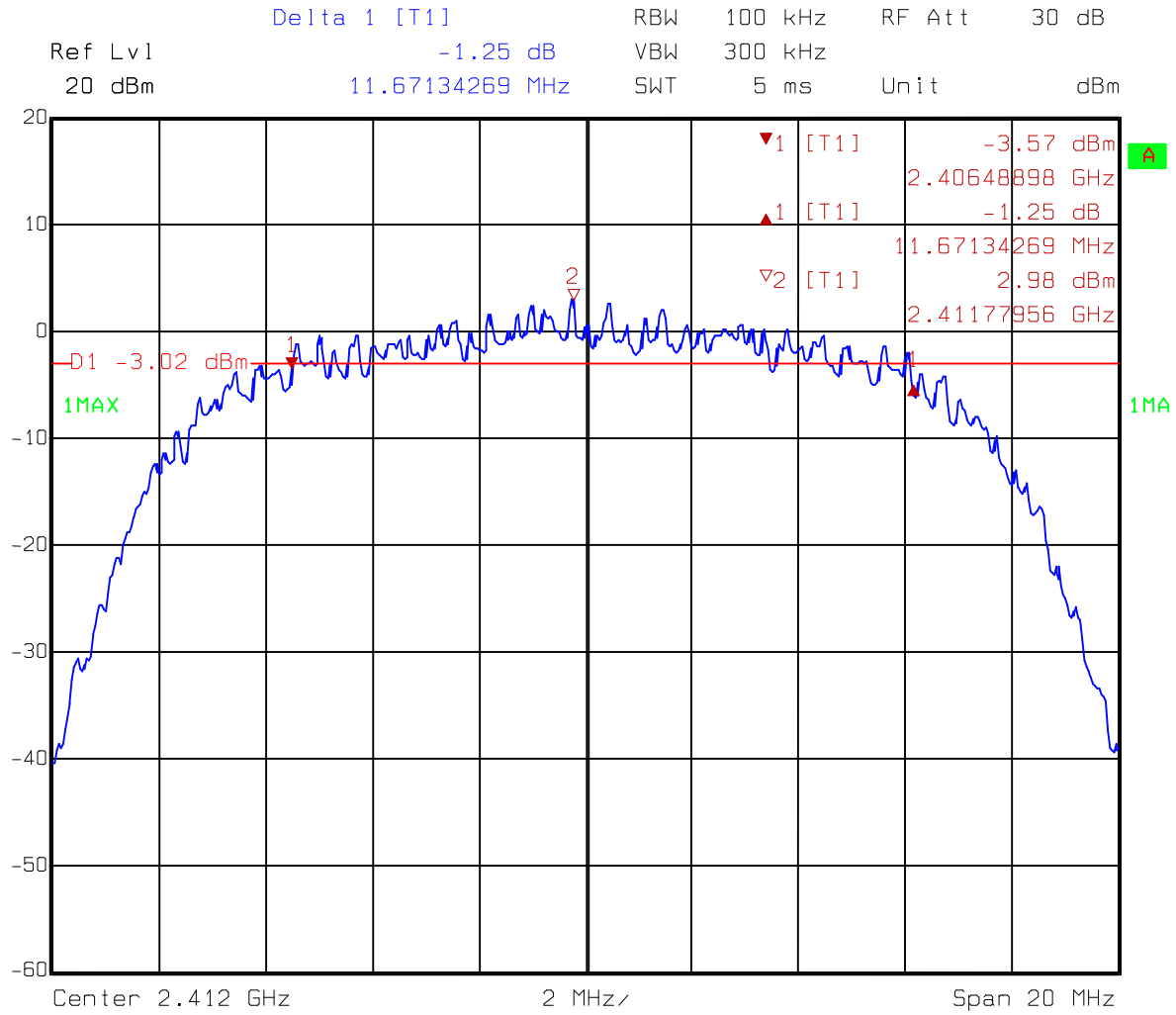
Test Condition: 802.11g (OFDM Modulation)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit
Low	2412	16.55	＞500kHz
Middle	2437	16.55	＞500kHz
High	2462	16.55	＞500kHz

Please see the plot below.

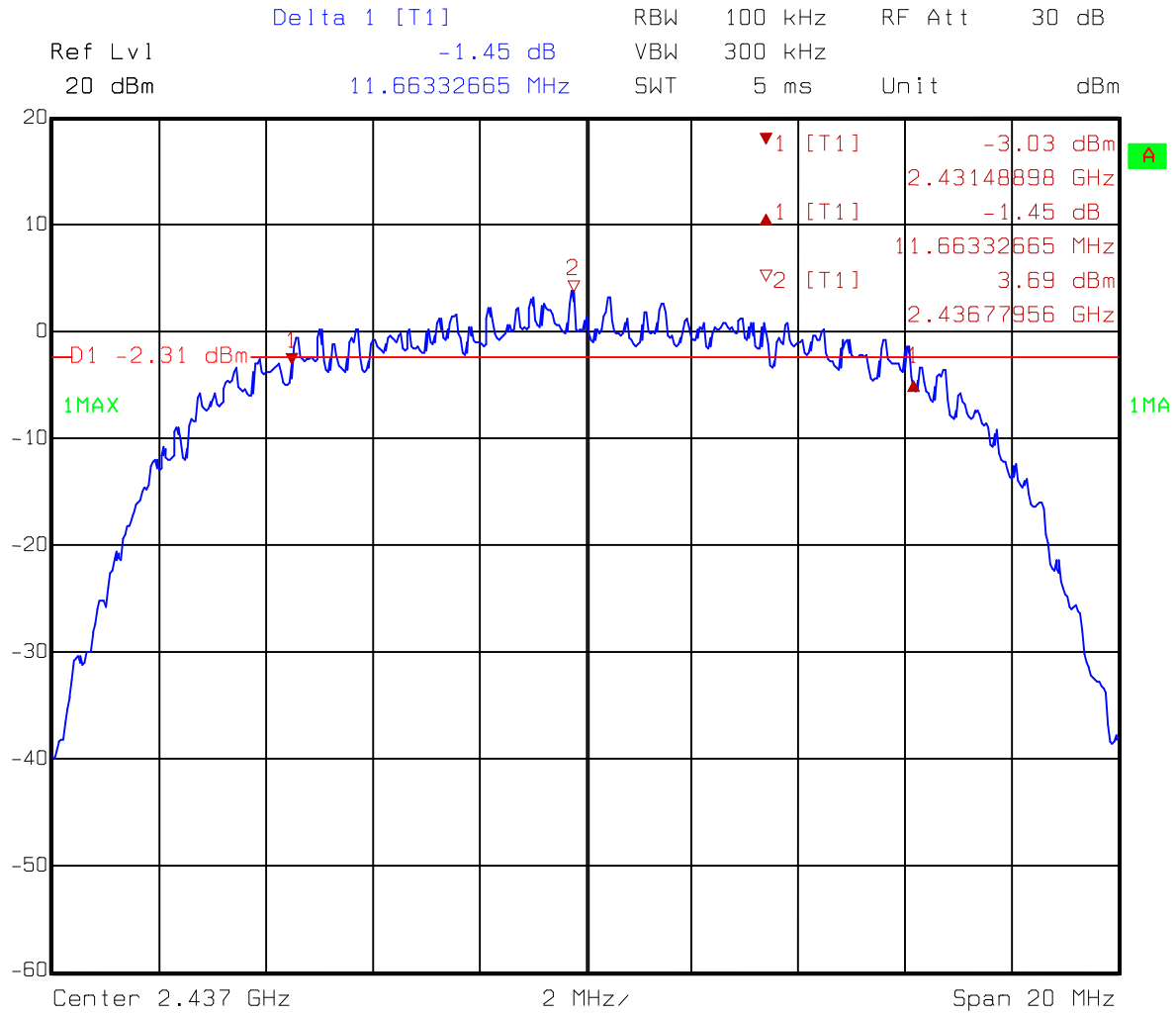
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11b (DSSS Modulation)



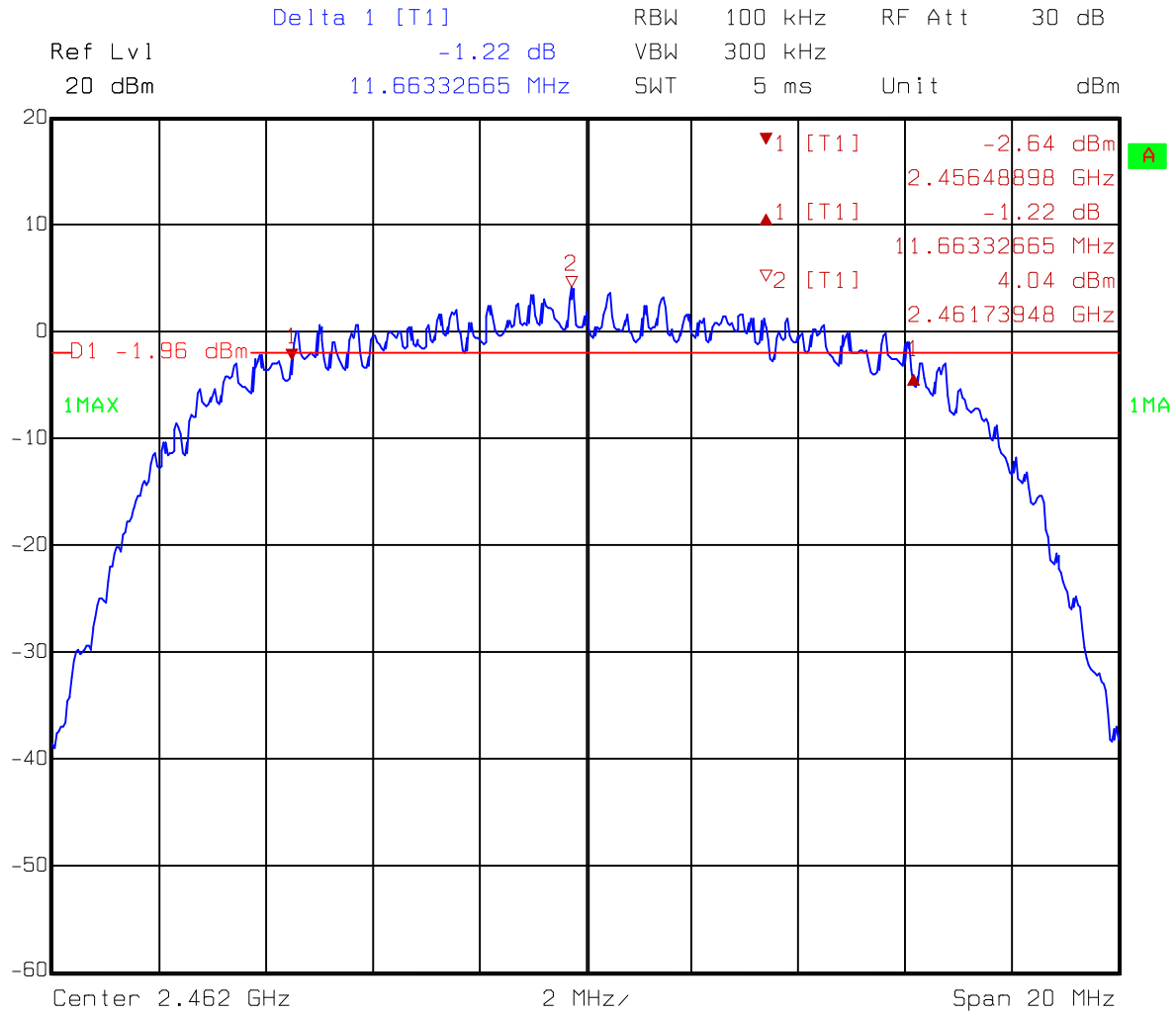
Comment A: 6dB bandwidth at low channel (EC365) 802.11b
Date: 26.MAR.2004 17:32:59

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: 6dB bandwidth at middle channel (EC365) 802.11b
Date: 26.MAR.2004 17:35:43

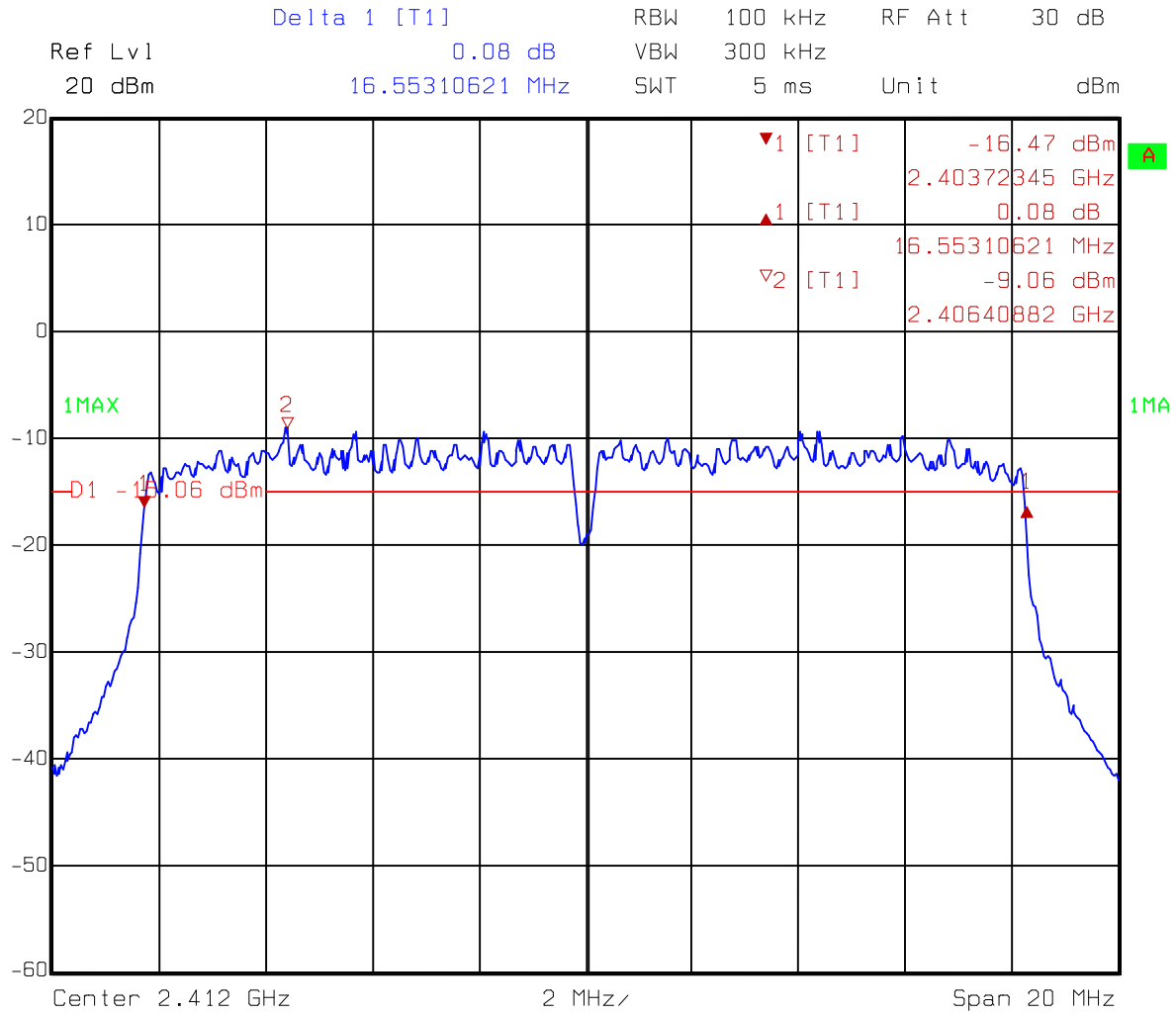
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: 6dB bandwidth at high channel (EC365) 802.11b
Date: 26.MAR.2004 17:38:22

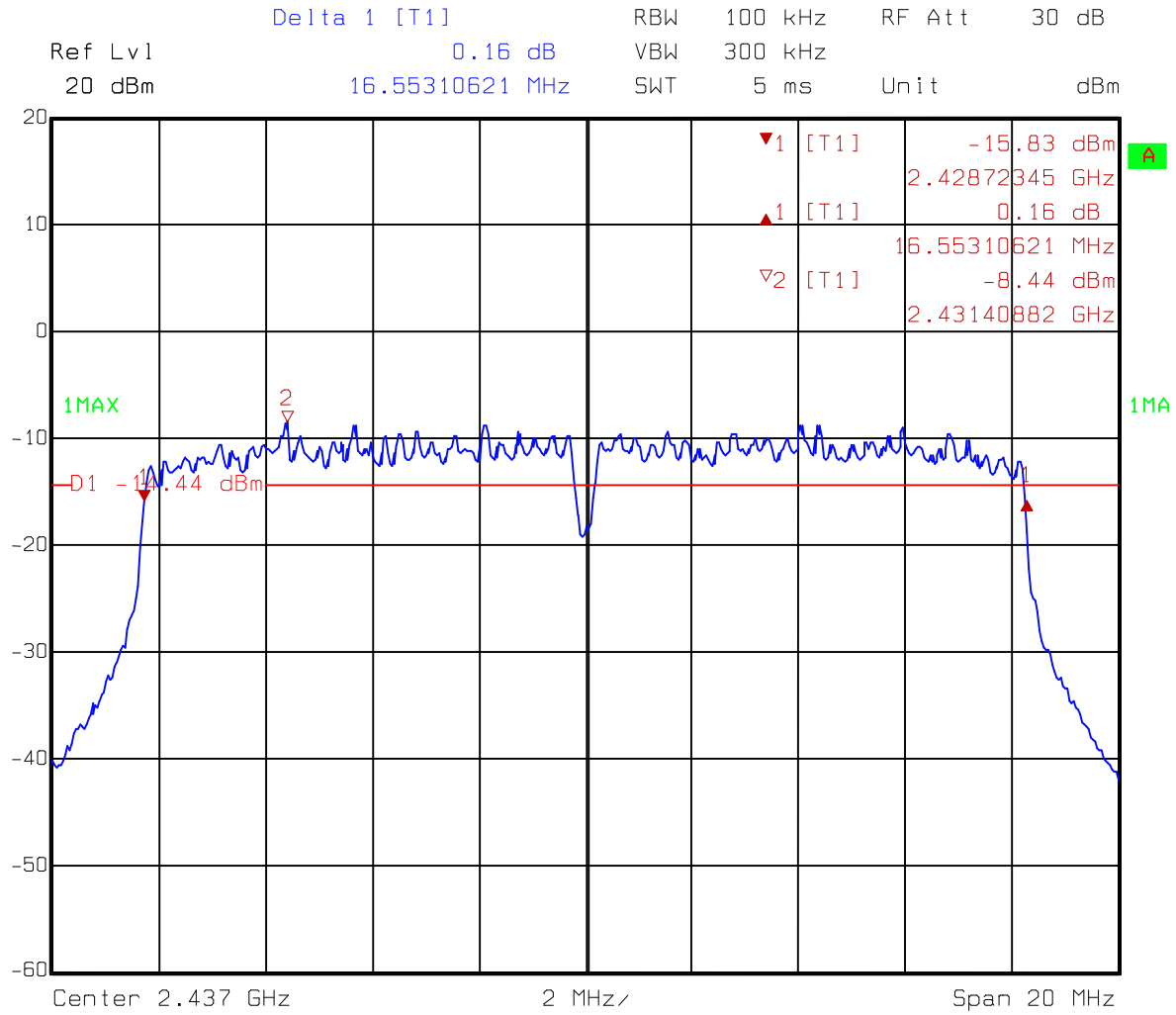
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



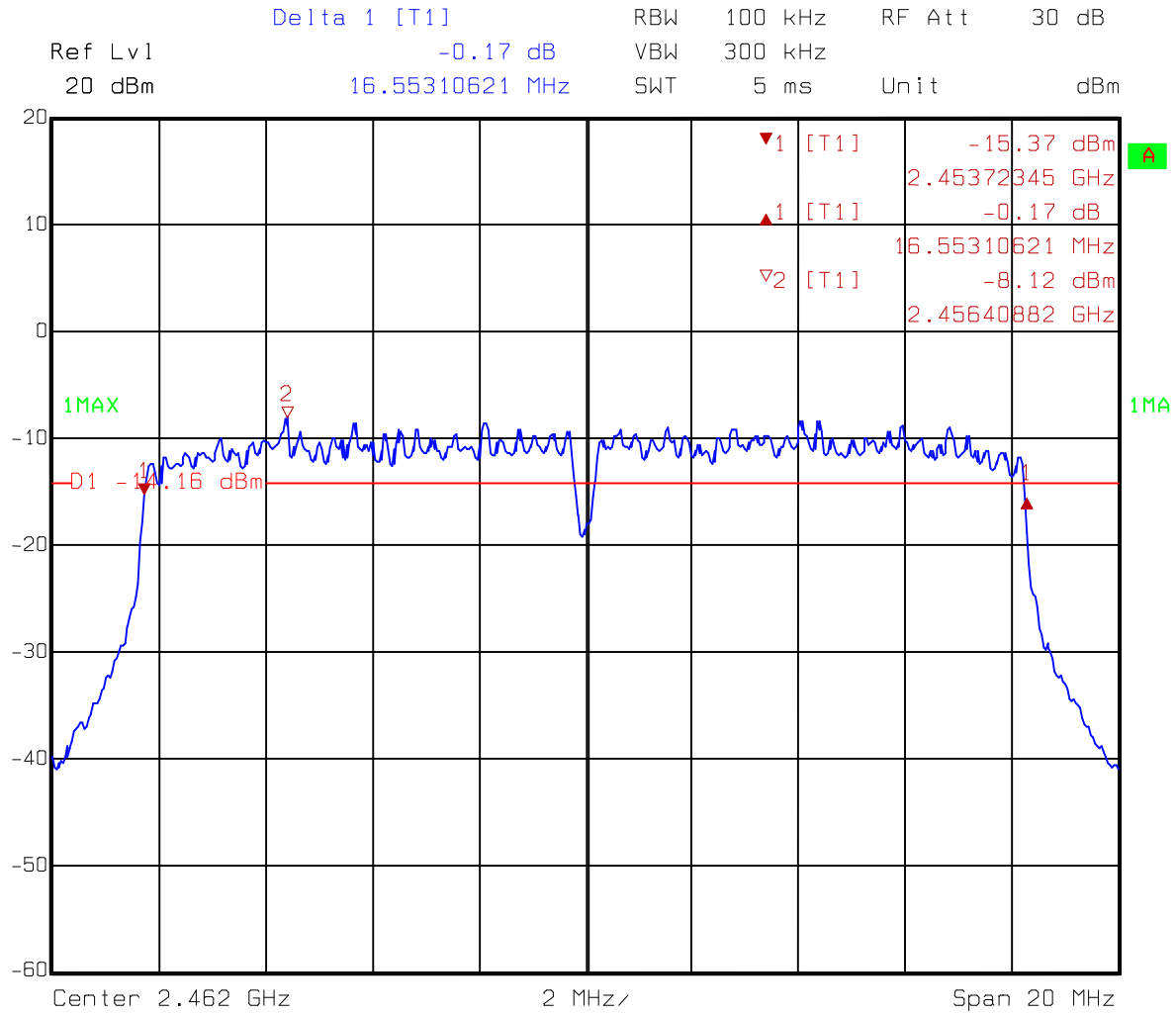
Comment A: 6dB bandwidth at low channel (EC365) 802.11g
Date: 26.MAR.2004 17:19:24

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: 6dB bandwidth at middle channel (EC365) 802.11g
Date: 26.MAR.2004 17:24:39

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: 6dB bandwidth at high channel (EC365) 802.11g
Date: 26.MAR.2004 17:26:15

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

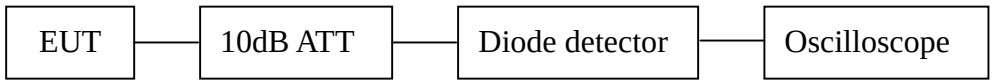
4. Maximum Output Power test

4.1 Operating environment

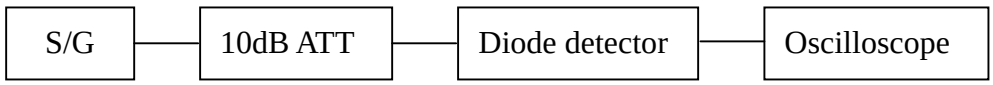
Temperature:	22	℃
Relative Humidity:	68	%
Atmospheric Pressure	1023	hPa

4.2 Test setup & procedure

A:



B:



1. The output of the transmitter via a 10 dB attenuator and coupled to a diode detector.
2. The output of the diode detector connected to the vertical channel of and oscilloscope. The observed trace of the oscilloscope shall be recorded as “A”.
3. The transmitter replaced by a signal generator. The output frequency of the signal made equal to the center of the frequency range occupied by the transmitter and unmodulated.
4. The output of the signal generator raised to reach the peak of trace “A” named X.
5. The signal generator output level X (dBm) is the transmitter peak output power.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

4.3 Measured data of Maximum Output Power test results

Test Condition: 802.11b (DSSS Modulation)

Channel	Frequency (MHz)	Reading (dBm)	Output Power		Limit (W)
			(dBm)	(mW)	
Lowest	2412	19.05	19.05	80.35	1
Middle	2437	19.87	19.87	97.05	1
Highest	2462	19.86	19.86	96.83	1

Test Condition: 802.11g (OFDM Modulation)

Channel	Frequency (MHz)	Reading (dBm)	Output Power		Limit (W)
			(dBm)	(mW)	
Lowest	2412	18.18	18.18	65.77	1
Middle	2437	18.67	18.67	73.62	1
Highest	2462	19.14	19.14	82.04	1

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

5. Radiated Emission test

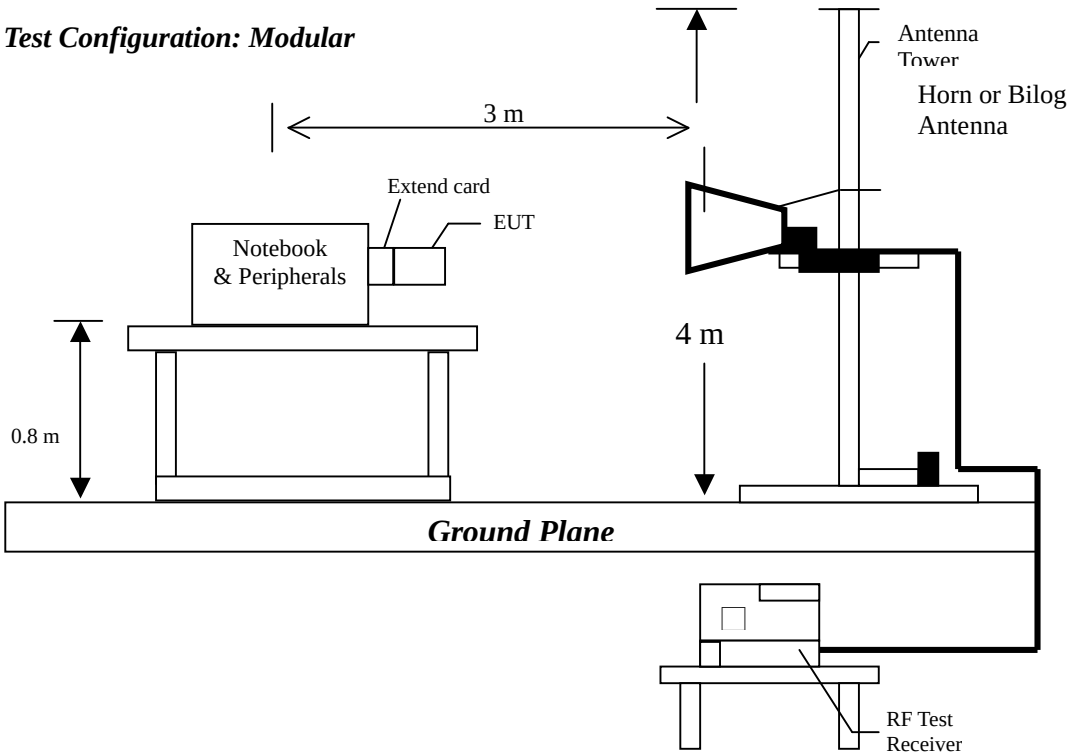
5.1 Operating environment

Temperature:	20	℃	(10-40℃)
Relative Humidity:	68	%	(10-90%)
Atmospheric Pressure	1023	hPa	(860-1060hPa)

5.2 Test setup & procedure

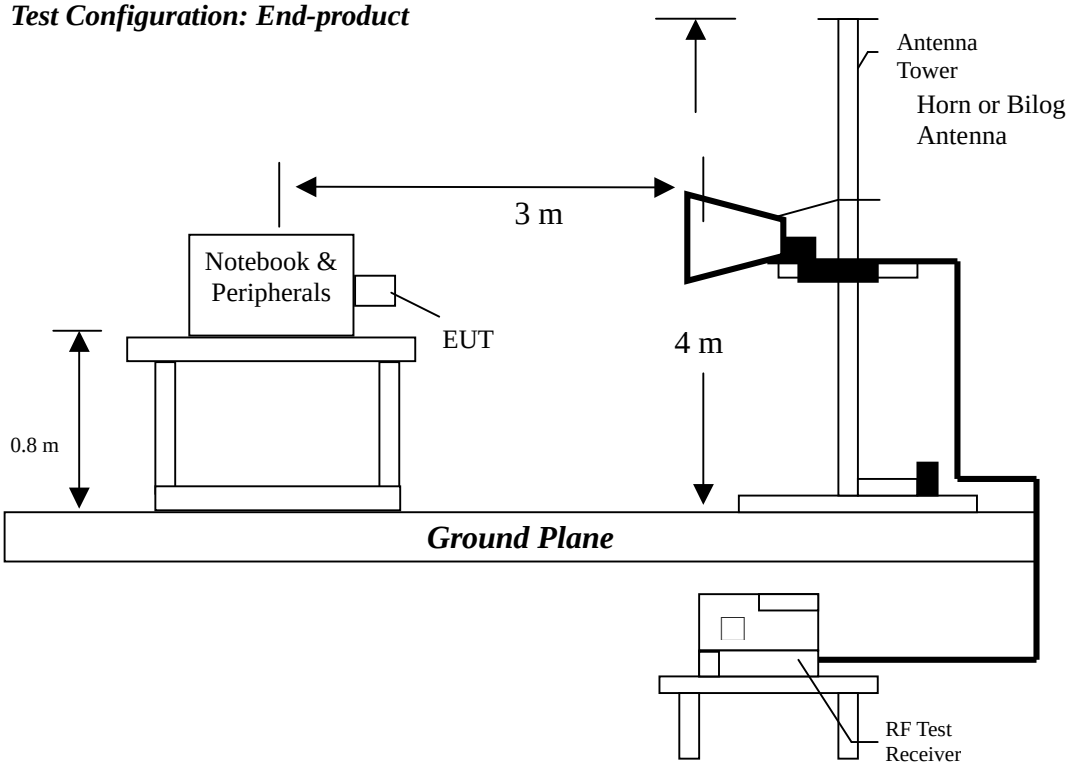
Radiated emissions were invested cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1MHz RBW/VBW) recorded also on the report.
The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The Diagram below shows the test setup, which is utilized to make these measurements.



PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Configuration: End-product



The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

The EUT configuration please refer to the "Spurious set-up photo.pdf".

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

5.3 Emission limits

The spurious Emission shall test through the 10th harmonic. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

Frequency (MHz)	Limits (dB μ V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:
1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

Uncertainty was calculated in accordance with NAMAS NIS 81.
Expanded uncertainty (k=2) of radiated emission measurement is ±4.98 dB.
Expanded uncertainty (k=2) of conducted emission measurement is ±2.02 dB.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

5.4 Radiated spurious emission test data

5.4.1 Measurement results: frequencies equal to or less than 1 GHz

EUT: ZyAIR G-110 (with internal antenna)
Test Configuration: Modular
Worst Case Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
66.13000	QP	V	12.94	17.58	30.52	40.00	-9.48	122	360
132.80000	QP	V	13.34	21.70	35.04	43.50	-8.46	258	25
231.80000	QP	V	11.82	19.20	31.02	46.00	-14.98	241	147
332.60000	QP	V	14.99	17.70	32.69	46.00	-13.31	297	360
398.60000	QP	V	16.40	18.90	35.30	46.00	-10.70	144	258
664.40000	QP	V	21.72	11.20	32.92	46.00	-13.08	167	149
132.80000	QP	H	13.34	23.50	36.84	43.50	-6.66	157	25
264.70000	QP	H	13.38	26.20	39.58	46.00	-6.42	139	147
332.60000	QP	H	14.99	23.50	38.49	46.00	-7.51	362	256
398.19000	QP	H	16.40	16.71	33.11	46.00	-12.89	258	254
408.30000	QP	H	16.94	21.80	38.74	46.00	-7.26	198	22
662.40000	QP	H	21.72	14.00	35.72	46.00	-10.28	222	78

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with internal antenna)
Test Configuration: Modular
Worst Case Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
58.42000	QP	V	12.90	16.33	29.23	40.00	-10.77	225	33
130.90000	QP	V	13.34	21.70	35.04	43.50	-8.46	232	58
231.80000	QP	V	11.82	20.50	32.32	46.00	-13.68	157	145
398.60000	QP	V	16.40	18.50	34.90	46.00	-11.10	198	325
662.40000	QP	V	21.72	15.10	36.82	46.00	-9.18	166	258
798.20000	QP	V	23.49	11.70	35.19	46.00	-10.81	145	144
132.69000	QP	H	13.34	17.75	31.09	43.50	-12.41	289	230
231.80000	QP	H	11.82	24.60	36.42	46.00	-9.58	111	251
264.70000	QP	H	13.38	24.80	38.18	46.00	-7.82	259	25
332.60000	QP	H	14.99	23.80	38.79	46.00	-7.21	148	147
398.21000	QP	H	16.40	18.92	35.32	46.00	-10.68	100	296
662.40000	QP	H	21.72	13.20	34.92	46.00	-11.08	122	200

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with external antenna)
Test Configuration: Modular
Worst Case Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
65.89000	QP	V	12.94	15.52	28.46	40.00	-11.54	100	180
132.80000	QP	V	13.34	22.10	35.44	43.50	-8.06	152	254
396.70000	QP	V	16.40	20.90	37.30	46.00	-8.70	177	147
530.50000	QP	V	19.15	12.40	31.55	46.00	-14.45	169	168
662.40000	QP	V	21.72	14.60	36.32	46.00	-9.68	235	360
930.20000	QP	V	25.46	10.60	36.06	46.00	-9.94	158	251
99.53000	QP	H	10.44	21.64	32.08	43.50	-11.42	325	188
133.08000	QP	H	13.34	18.90	32.24	43.50	-11.26	228	201
332.60000	QP	H	14.99	18.90	33.89	46.00	-12.11	154	178
398.61000	QP	H	16.40	16.15	32.55	46.00	-13.45	235	187
664.40000	QP	H	21.72	12.10	33.82	46.00	-12.18	188	224
930.20000	QP	H	25.46	11.20	36.66	46.00	-9.34	147	254

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with external antenna)
Test Configuration: Modular
Worst Case Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
66.19400	QP	V	12.94	16.15	29.09	40.00	-10.91	133	98
132.68000	QP	V	13.34	15.32	28.66	43.50	-14.84	100	104
332.80000	QP	V	14.99	16.50	31.49	46.00	-14.51	111	125
396.80000	QP	V	16.40	19.20	35.60	46.00	-10.40	169	176
662.40000	QP	V	21.72	12.80	34.52	46.00	-11.48	225	134
796.30000	QP	V	23.49	8.20	31.69	46.00	-14.31	298	58
99.81000	QP	H	10.44	20.01	30.45	43.50	-13.05	101	175
132.68000	QP	H	13.34	20.52	33.86	43.50	-9.64	214	191
165.80000	QP	H	14.92	20.00	34.92	43.50	-8.58	178	254
332.60000	QP	H	14.99	18.70	33.69	46.00	-12.31	257	187
398.00000	QP	H	16.40	15.44	31.84	46.00	-14.16	254	188
664.40000	QP	H	21.72	11.00	32.72	46.00	-13.28	305	198

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110
Test Configuration: End-product
Worst Case Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
68.57000	QP	V	12.94	16.98	29.92	40.00	-10.08	109	54
132.80000	QP	V	13.34	19.22	32.56	43.50	-10.94	174	41
164.55000	QP	V	14.92	18.71	33.63	43.50	-9.87	152	198
398.54000	QP	V	16.40	16.74	33.14	46.00	-12.86	199	352
432.65000	QP	V	17.37	17.65	35.02	46.00	-10.98	222	144
576.98000	QP	V	19.99	16.77	36.76	46.00	-9.24	154	178
131.89000	QP	H	13.34	21.54	34.88	43.50	-8.62	110	205
166.22000	QP	H	14.92	20.98	35.90	43.50	-7.60	147	148
332.54000	QP	H	14.99	17.22	32.21	46.00	-13.79	208	35
398.57000	QP	H	16.40	22.49	38.89	46.00	-7.11	333	199
530.44000	QP	H	19.15	10.65	29.80	46.00	-16.20	200	57
796.12000	QP	H	23.49	10.58	34.07	46.00	-11.93	154	264

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110
Test Configuration: End-product
Worst Case Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
68.55000	QP	V	12.94	17.21	30.15	40.00	-9.85	100	66
131.99000	QP	V	13.34	19.88	33.22	43.50	-10.28	169	152
164.98000	QP	V	14.92	20.21	35.13	43.50	-8.37	205	244
399.54000	QP	V	16.40	17.45	33.85	46.00	-12.15	104	54
431.88000	QP	V	17.37	17.22	34.59	46.00	-11.41	298	198
569.44000	QP	V	19.99	16.98	36.97	46.00	-9.03	178	245
130.97000	QP	H	13.34	19.58	32.92	43.50	-10.58	302	54
164.89000	QP	H	14.92	19.33	34.25	43.50	-9.25	198	287
200.21000	QP	H	11.52	16.26	27.78	43.50	-15.72	155	321
330.18000	QP	H	14.99	17.35	32.34	46.00	-13.66	209	111
400.19000	QP	H	16.94	20.51	37.45	46.00	-8.55	188	58
798.82000	QP	H	23.49	9.98	33.47	46.00	-12.53	169	241

Remark:
1.Corrected Level = Reading Level + Correction Factor
2.Correction Factor = Antenna Factor + Cable Loss

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

5.4.2 Measurement results: frequency above 1GHz

EUT: ZyAIR G-110 (with internal antenna)
Test Configuration: Modular
Test Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4823.95	PK	V	32.265	35.742	37.513	40.99	74	-33.01	176	294
4823.95	AV	V	32.265	35.742	26.663	30.14	54	-23.86	176	294

Test Condition: 802.11b Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4873.95	PK	V	32.265	35.742	37.943	41.42	74	-32.58	185	187
4873.95	AV	V	32.265	35.742	28.873	32.35	54	-21.65	185	187

Test Condition: 802.11b Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4923.97	PK	V	32.265	35.742	37.863	41.34	74	-32.66	179	279
4923.97	AV	V	32.265	35.742	28.843	32.32	54	-21.68	179	279

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with internal antenna)
Test Configuration: Modular
Test Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4823.96	PK	V	32.265	35.742	35.293	38.77	74	-35.23	182	295
4823.96	AV	V	32.265	35.742	24.313	27.79	54	-26.21	182	295

Test Condition: 802.11g Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4873.95	PK	V	32.265	35.742	36.333	39.81	74	-34.19	198	286
4873.95	AV	V	32.265	35.742	26.033	29.51	54	-24.49	198	286

Test Condition: 802.11g Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4923.95	PK	V	32.265	35.742	36.853	40.33	74	-33.67	191	287
4923.95	AV	V	32.265	35.742	27.483	30.96	54	-23.04	191	287

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with external antenna)
Test Configuration: Modular
Test Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4823.97	PK	V	32.265	35.742	38.783	42.26	74	-31.74	100	56
4823.97	AV	V	32.265	35.742	25.793	29.27	54	-24.73	100	56

Test Condition: 802.11b Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4873.93	PK	V	32.265	35.742	38.843	42.32	74	-31.68	155	58
4873.93	AV	V	32.265	35.742	28.443	31.92	54	-22.08	155	58

Test Condition: 802.11b Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4923.91	PK	V	32.265	35.742	40.543	44.02	74	-29.98	154	92
4923.91	AV	V	32.265	35.742	29.253	32.73	54	-21.27	154	92

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110 (with external antenna)
Test Configuration: Modular
Test Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4823.91	PK	V	32.265	35.742	36.203	39.68	74	-34.32	100	240
4823.91	AV	V	32.265	35.742	24.343	27.82	54	-26.18	100	240

Test Condition: 802.11g Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4873.90	PK	V	32.265	35.742	36.543	40.02	74	-33.98	100	168
4873.90	AV	V	32.265	35.742	26.313	29.79	54	-24.21	100	168

Test Condition: 802.11g Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
4923.95	PK	V	32.265	35.742	28.053	31.53	74	-42.47	145	89
4923.95	AV	V	32.265	35.742	37.643	41.12	54	-12.88	145	89

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110
Test Configuration: End-product
Test Condition: 802.11b Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9647.91	PK	V	35.753	43.384	38.2685	45.90	74	-28.1	170	306
9647.91	AV	V	35.753	43.384	28.7585	36.39	54	-17.61	170	306
9647.97	PK	H	35.753	43.384	40.3885	48.02	74	-25.98	169	311
9647.97	AV	H	35.753	43.384	32.3485	39.98	54	-14.02	169	311

Test Condition: 802.11b Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9747.85	PK	V	35.753	43.384	40.6685	48.30	74	-25.7	155	281
9747.85	AV	V	35.753	43.384	34.2385	41.87	54	-12.13	155	281
9747.65	PK	H	35.753	43.384	39.9185	47.55	74	-26.45	139	251
9747.65	AV	H	35.753	43.384	33.1885	40.82	54	-13.18	139	251

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11b Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9847.89	PK	V	35.753	43.384	42.3385	49.97	74	-24.03	150	283
9847.89	AV	V	35.753	43.384	37.0585	44.69	54	-9.31	150	283
9847.75	PK	H	35.753	43.384	43.4585	51.09	74	-22.91	158	307
9847.75	AV	H	35.753	43.384	38.3085	45.94	54	-8.06	158	307

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

EUT: ZyAIR G-110
Test Configuration: End-product
Test Condition: 802.11g Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9647.94	PK	V	35.753	43.384	38.9585	46.59	74	-27.41	182	247
9647.94	AV	V	35.753	43.384	29.3385	36.97	54	-17.03	182	247
9648.01	PK	H	35.753	43.384	39.9985	47.63	74	-26.37	171	308
9648.01	AV	H	35.753	43.384	31.8985	39.53	54	-14.47	171	308

Test Condition: 802.11g Tx at middle channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9747.92	PK	V	35.753	43.384	40.6385	48.27	74	-25.73	147	283
9747.92	AV	V	35.753	43.384	34.6785	42.31	54	-11.69	147	283
9747.69	PK	H	35.753	43.384	41.4285	49.06	74	-24.94	173	307
9747.69	AV	H	35.753	43.384	35.7785	43.41	54	-10.59	173	307

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
9847.81	PK	V	35.753	43.384	42.2885	49.92	74	-24.08	156	282
9847.81	AV	V	35.753	43.384	37.9385	45.57	54	-8.43	156	282
9847.87	PK	H	35.753	43.384	43.3085	50.94	74	-23.06	157	306
9847.87	AV	H	35.753	43.384	38.8785	46.51	54	-7.49	157	306

Remark:
1. Corrected Level = Reading Level + Correction Factor－Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz.The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

	For PK	For AV
1GHz-3GHz	20dBuV	10dBuV
3GHz-14GHz	27dBuV	16dBuV
14GHz-26.5GHz	39dBuV	28dBuV

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

6. Power Spectrum Density test

6.1 Operating environment

Temperature:	20	℃
Relative Humidity:	68	%
Atmospheric Pressure	1023	hPa

6.2 Test setup & procedure

The power spectrum density per FCC §15.247(d) was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 3kHz, the video bandwidth set at 30kHz, a span of 1.5 MHz, and the sweep time set at 500 seconds. Power Density was read directly and cable loss (2.13dB) correction was added to the reading to obtain power at the EUT antenna terminals. The test was performed at 3 channels (lowest, middle and highest channel). The Power Spectral Density measured result is in the following table.

6.3 Measured data of Power Spectrum Density test results

Test Condition: 802.11b (DSSS Modulation)

Channel	Frequency (MHz)	Measured level (dBm)	Limit (dBm)
Low	2411.31	-9.53	8
Middle	2435.71	-8.76	8
High	2461.31	-8.36	8

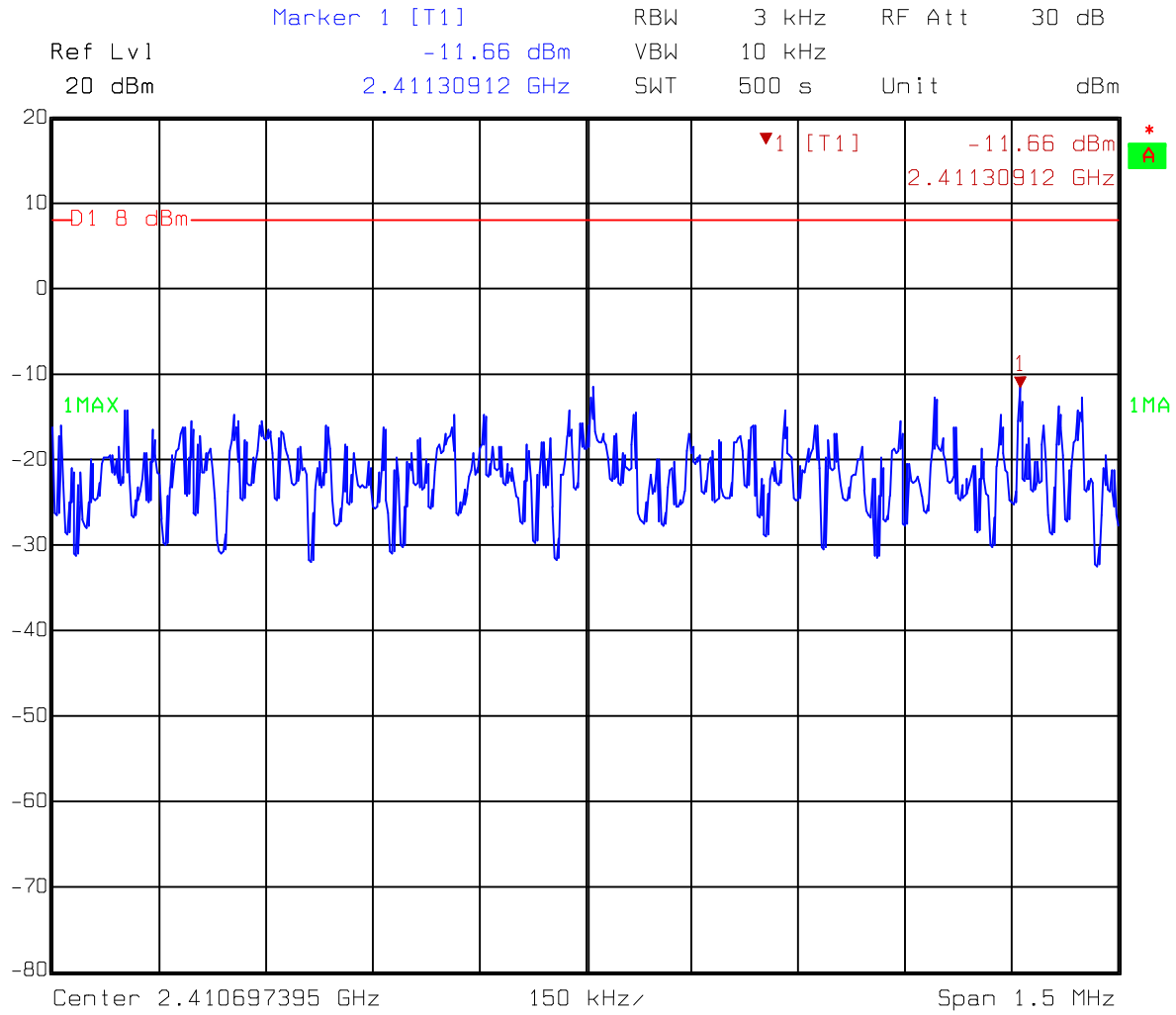
Test Condition: 802.11g (OFDM Modulation)

Channel	Frequency (MHz)	Measured level (dBm)	Limit (dBm)
Low	2416.35	-22.01	8
Middle	2440.16	-21.21	8
High	2466.35	-20.65	8

Please see the plot below.

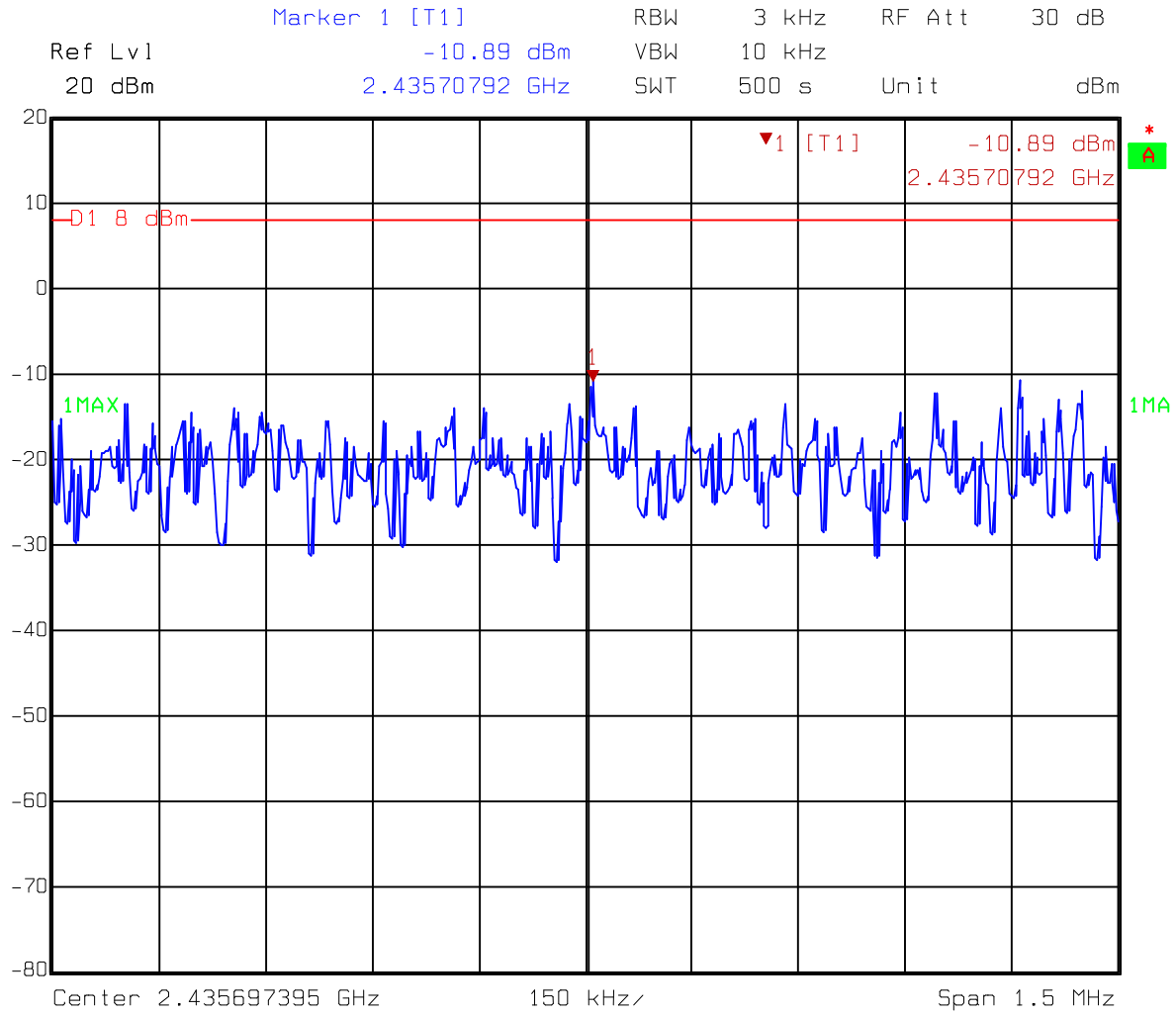
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11b (DSSS Modulation)



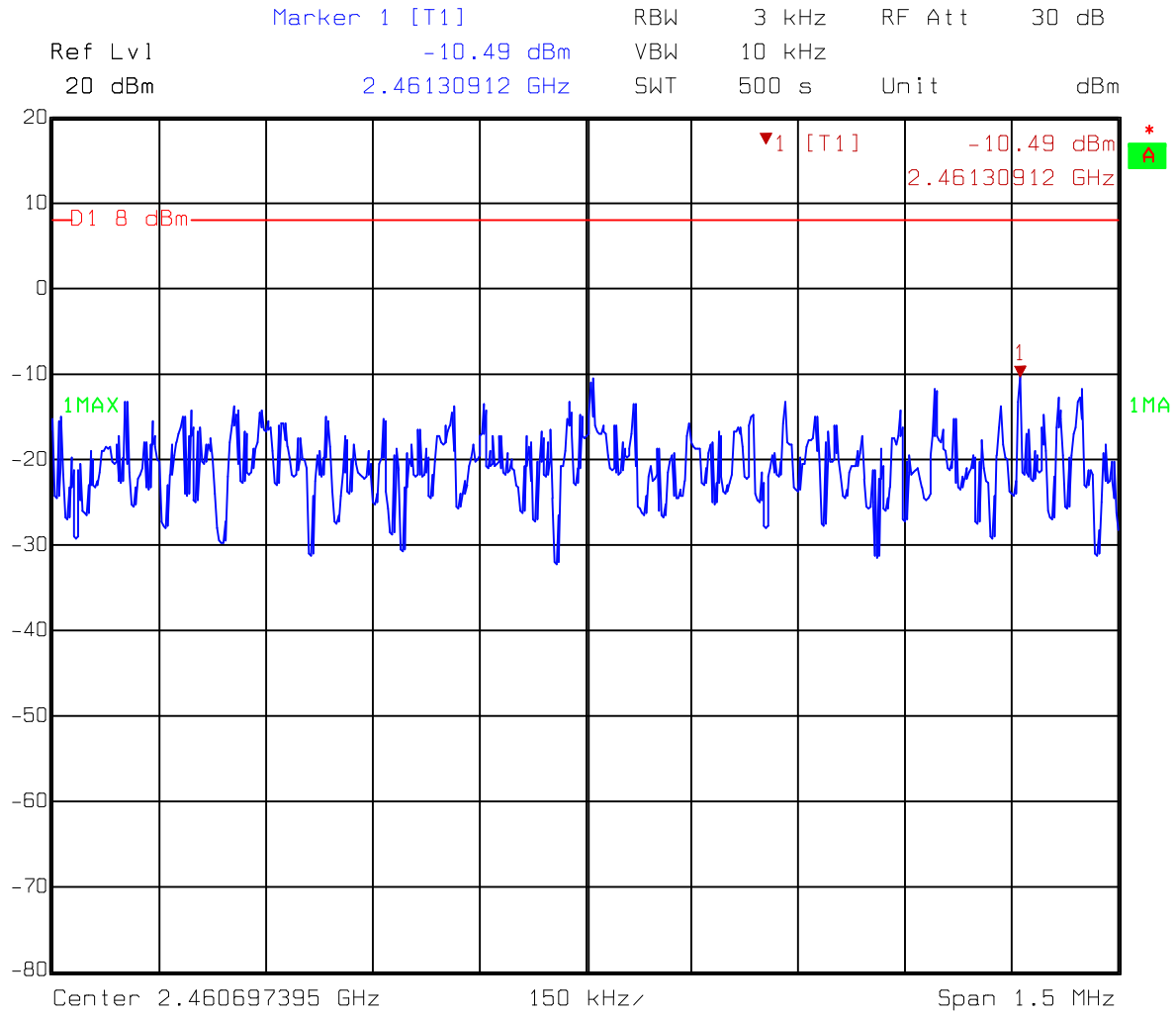
Comment A: Power spectrum density at low channel
CL=2.13dB 802.11b
Date: 26.MAR.2004 17:56:44

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: Power spectrum density at middle channel
CL=2.13dB 802.11b
Date: 26.MAR.2004 17:58:43

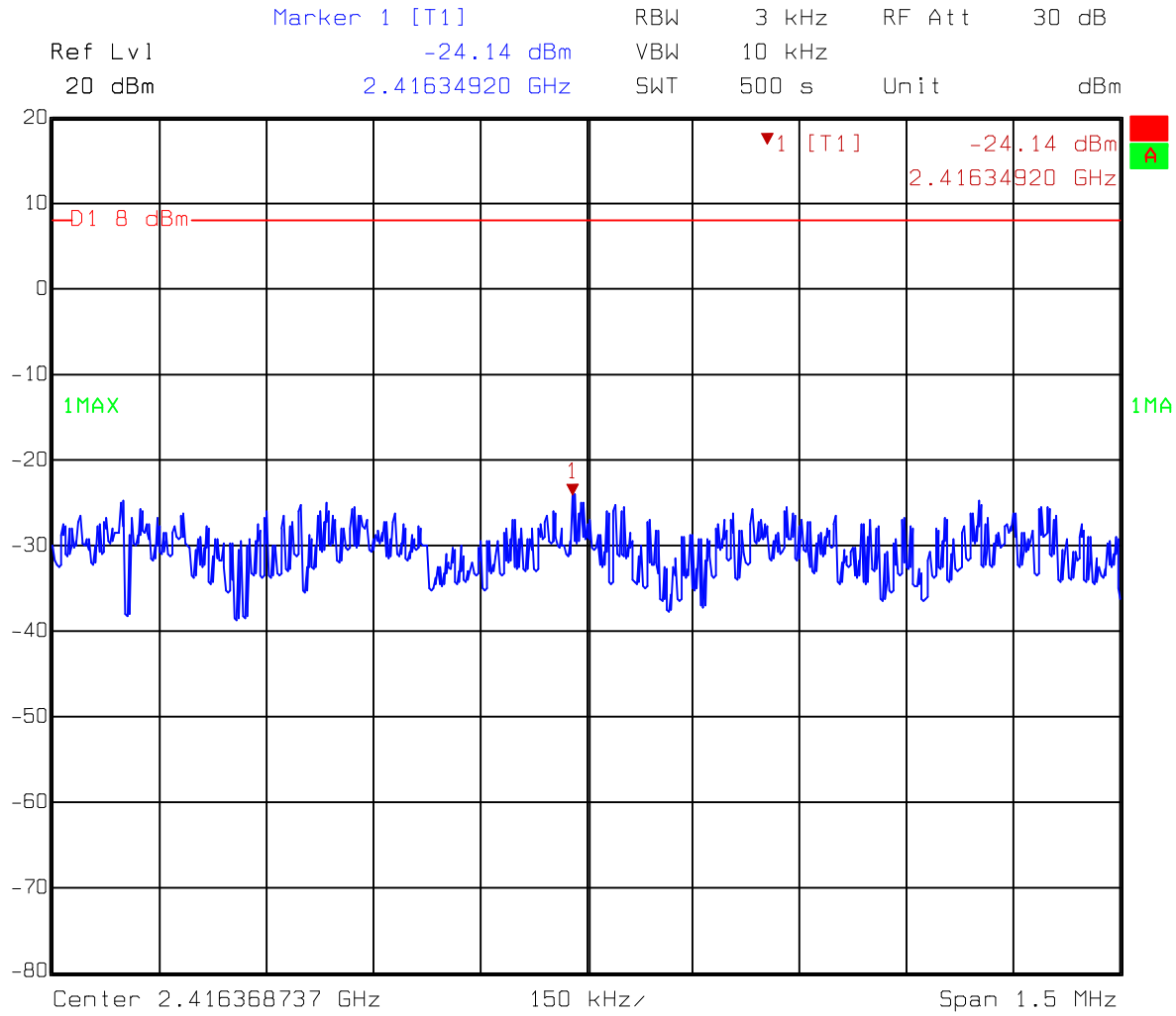
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: Power spectrum density at high channel
CL=2.13dB 802.11b
Date: 26.MAR.2004 18:00:47

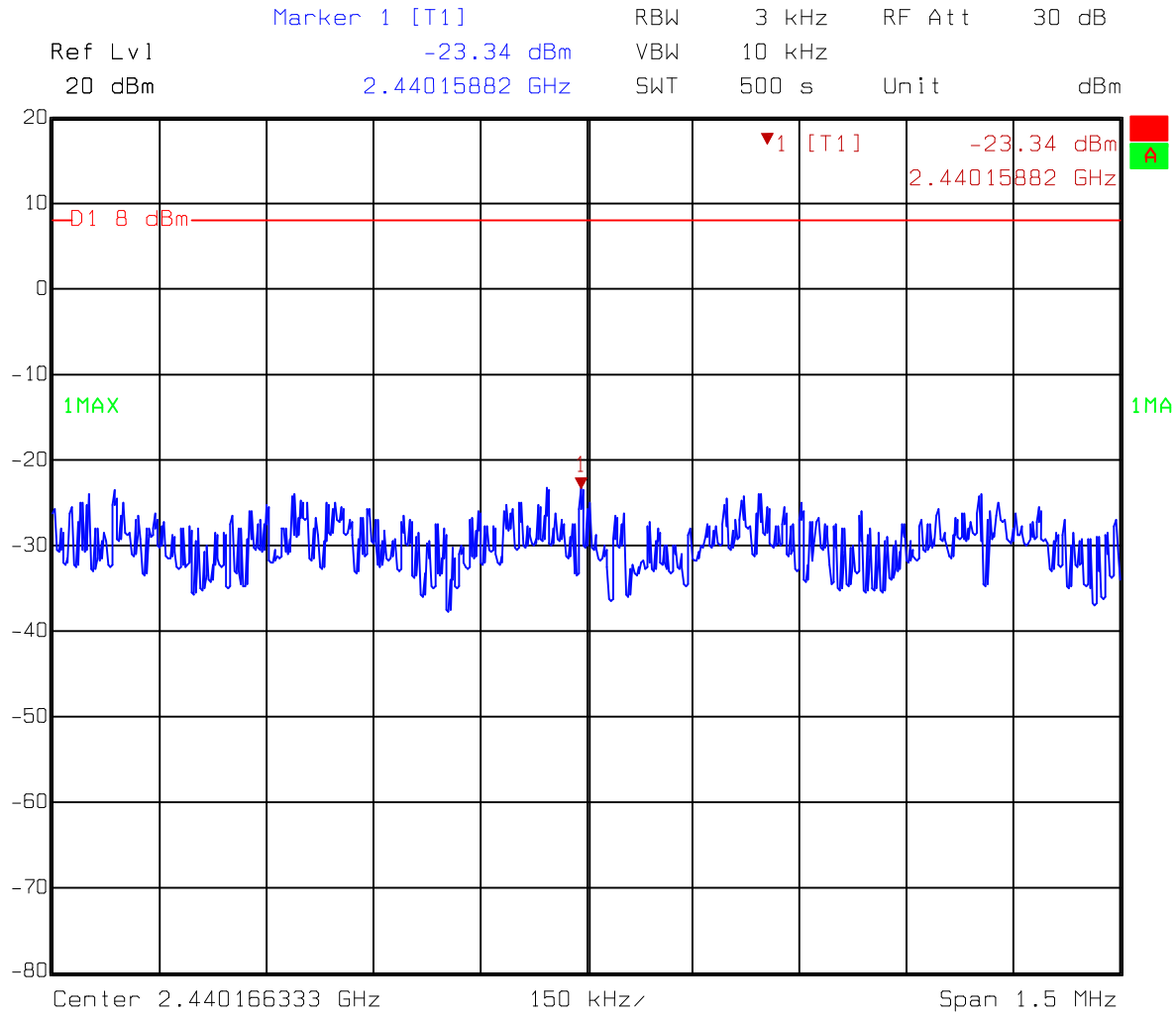
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



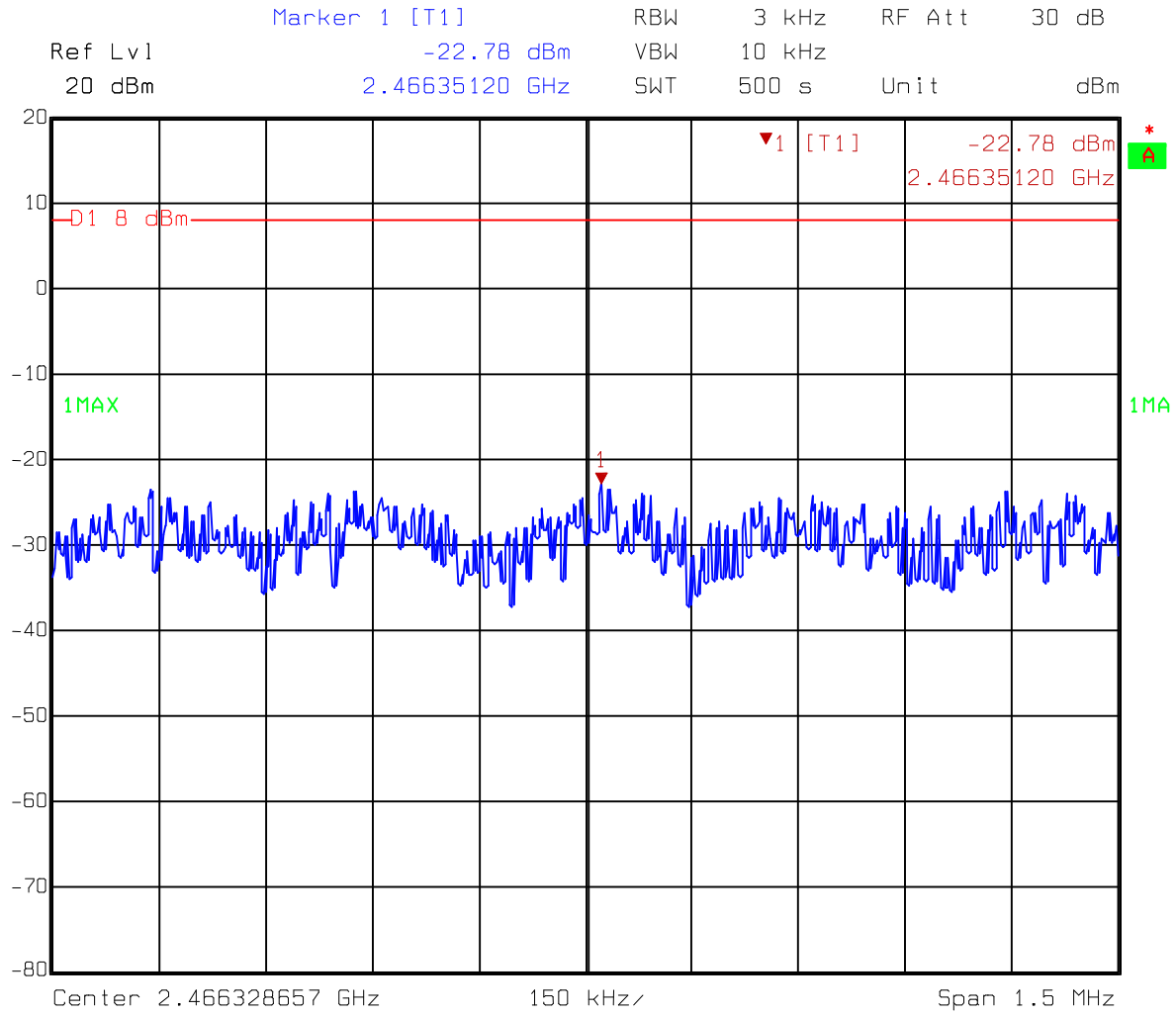
Comment A: Power spectrum density at low channel
CL=2.13dB 802.11g
Date: 26.MAR.2004 17:55:23

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: Power spectrum density at middle channel
CL=2.13dB 802.11g
Date: 26.MAR.2004 17:53:17

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: Power spectrum density at high channel
CL=2.13dB 802.11g
Date: 26.MAR.2004 17:49:37

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

7. Emission on the band edge §FCC 15.247(C)

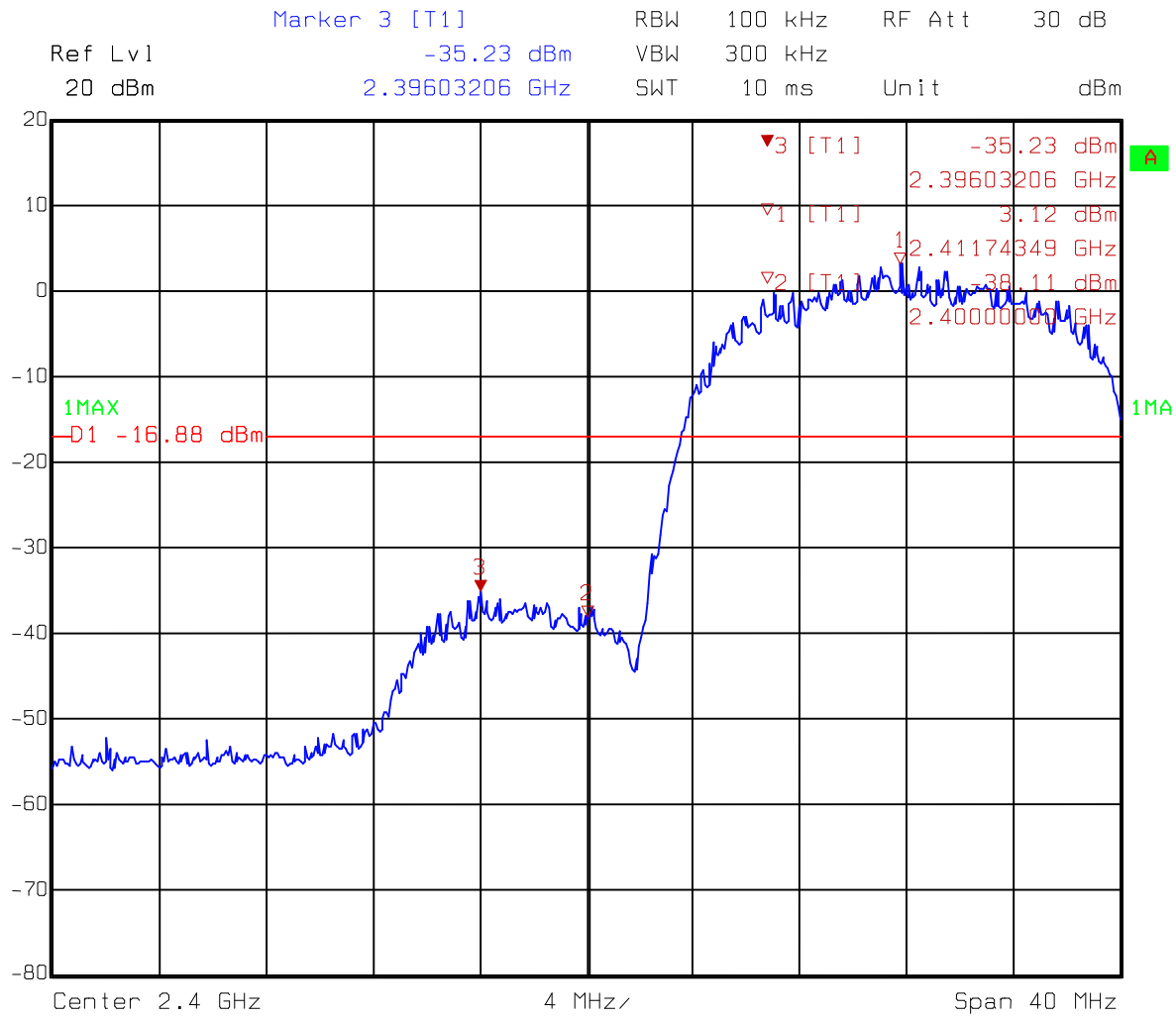
In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Please see the plot below.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

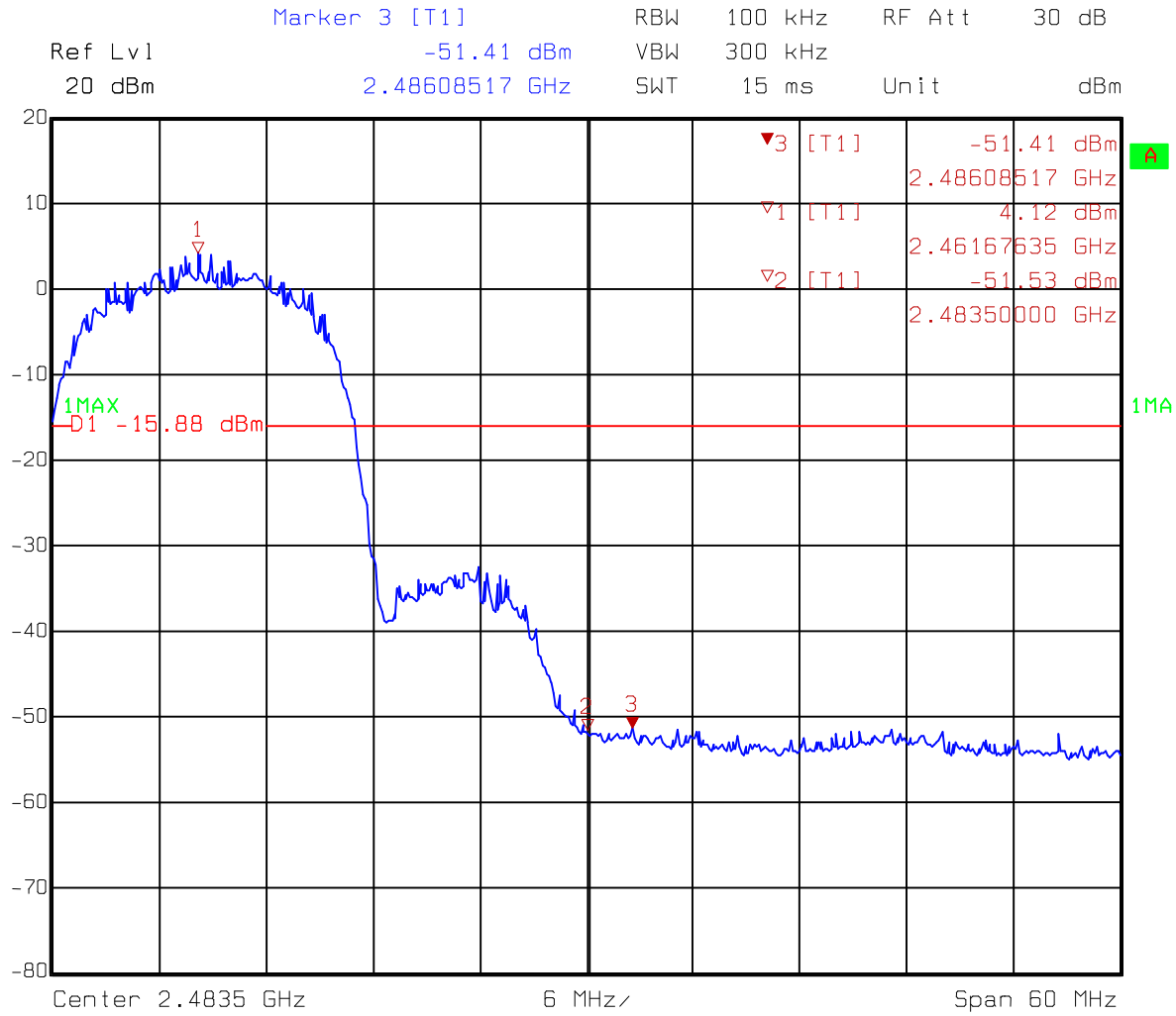
7.1 Band-edge (Conducted method)

Test Condition: 802.11b (DSSS Modulation)



Comment A: Band-edge at low channel 802.11b
Date: 26.MAR.2004 17:42:44

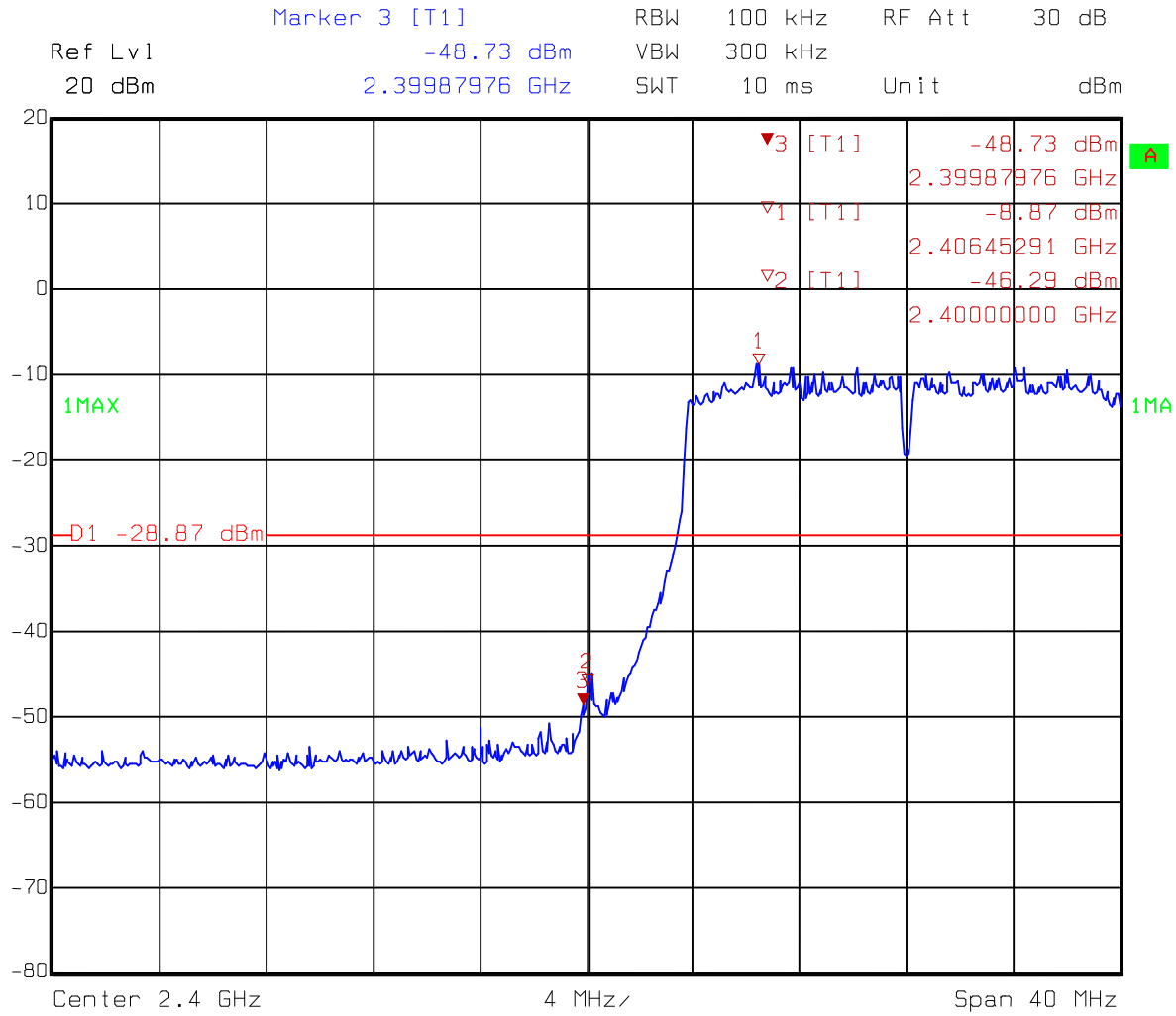
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment A: Band-edge at high channel 802.11b
Date: 26.MAR.2004 17:40:36

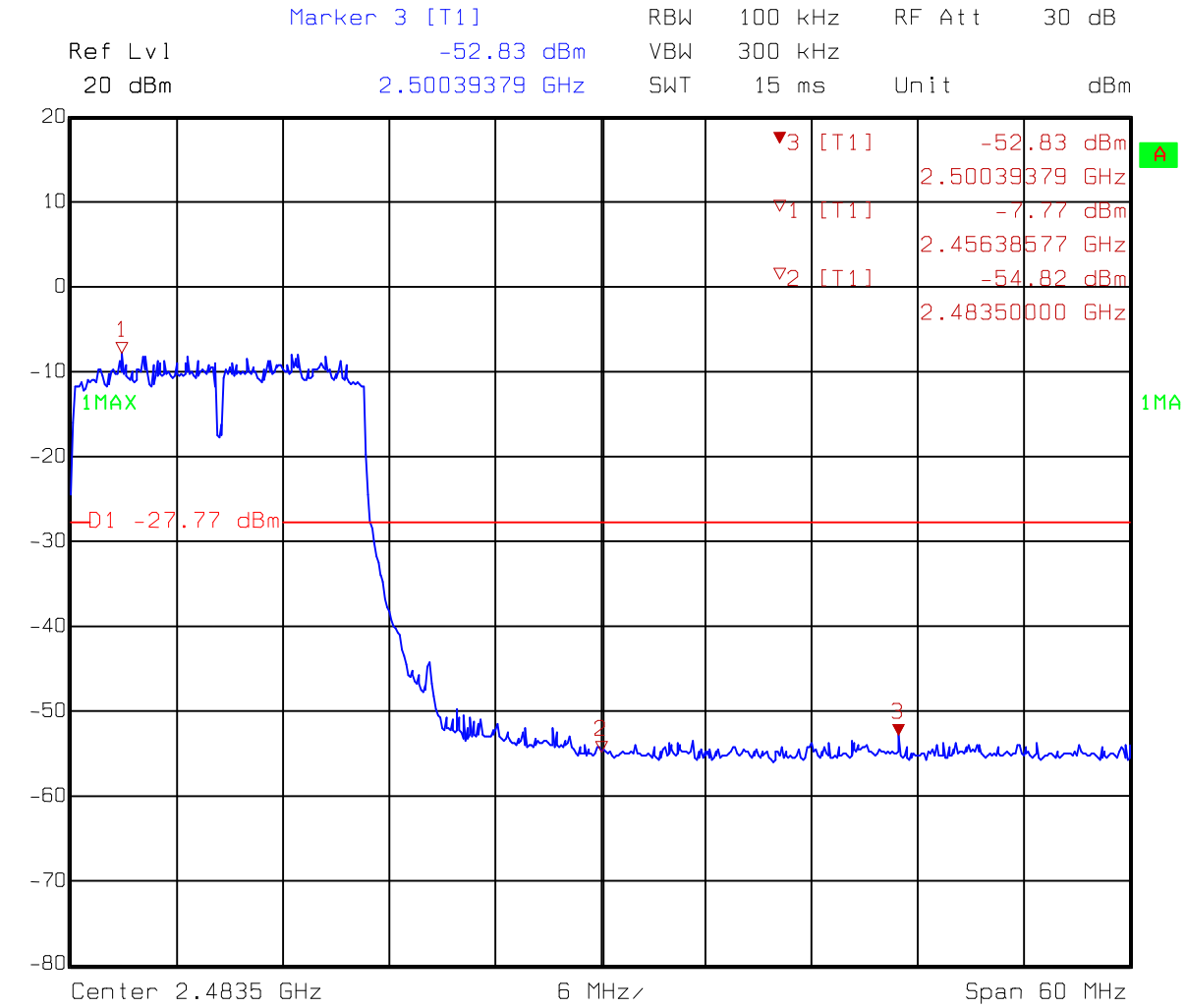
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



Comment A: Band-edge at low channel 802.11g
Date: 26.MAR.2004 17:45:13

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



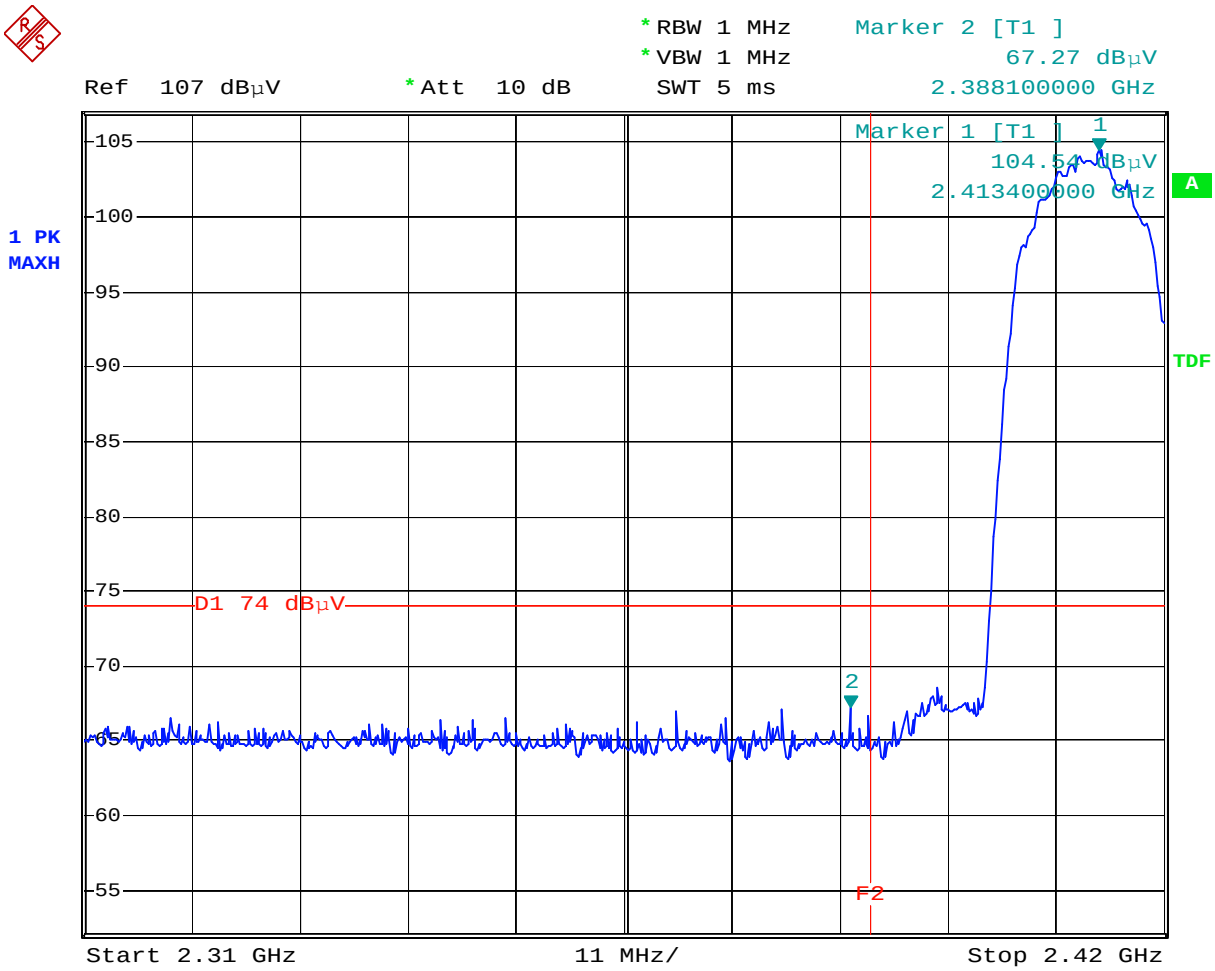
Comment A: Band-edge at high channel 802.11g
Date: 26.MAR.2004 17:47:25

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

7.2 Band-edge (Radiated method)

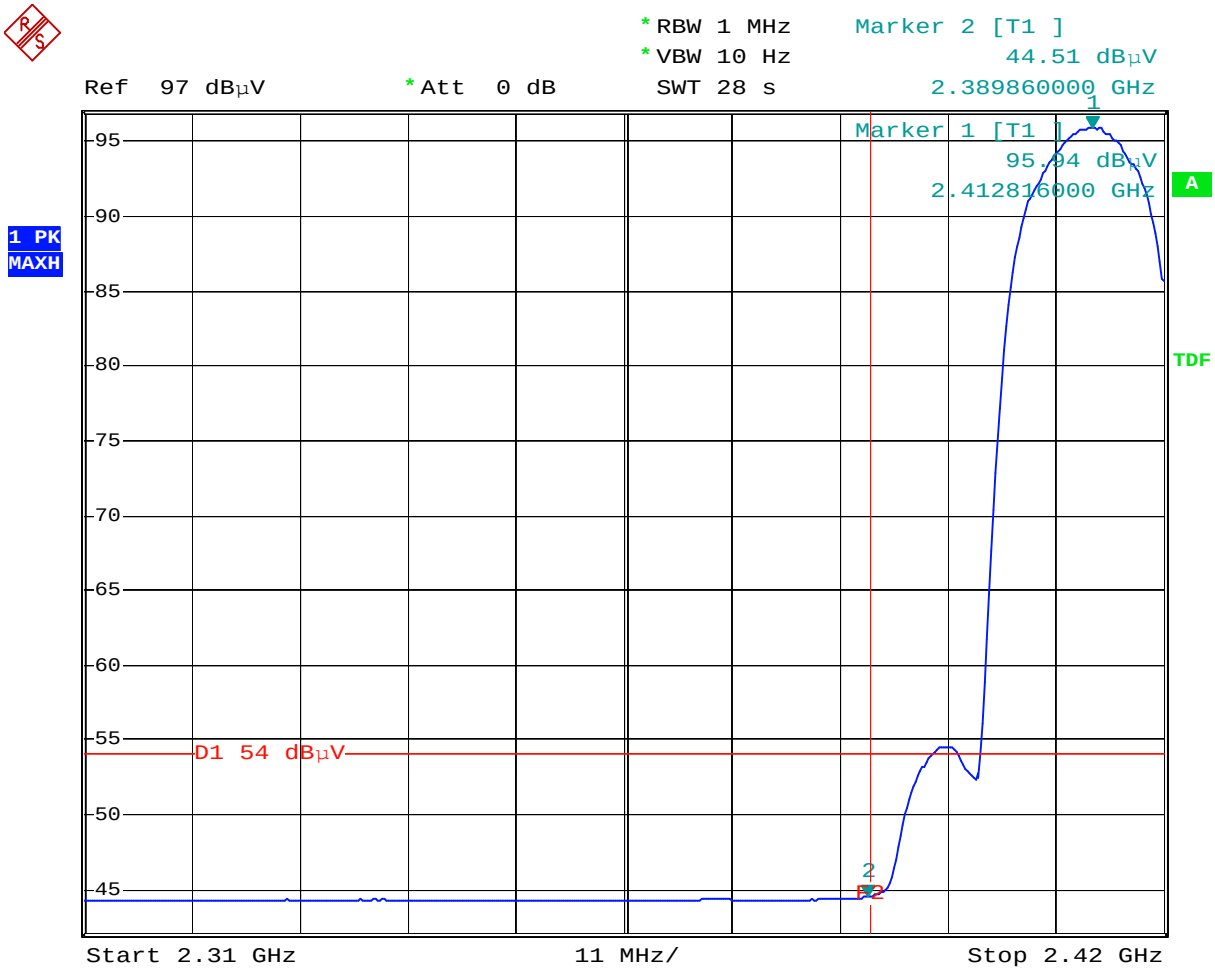
Test Configuration: Modular

Test Condition: 802.11b (DSSS Modulation)-internal antenna



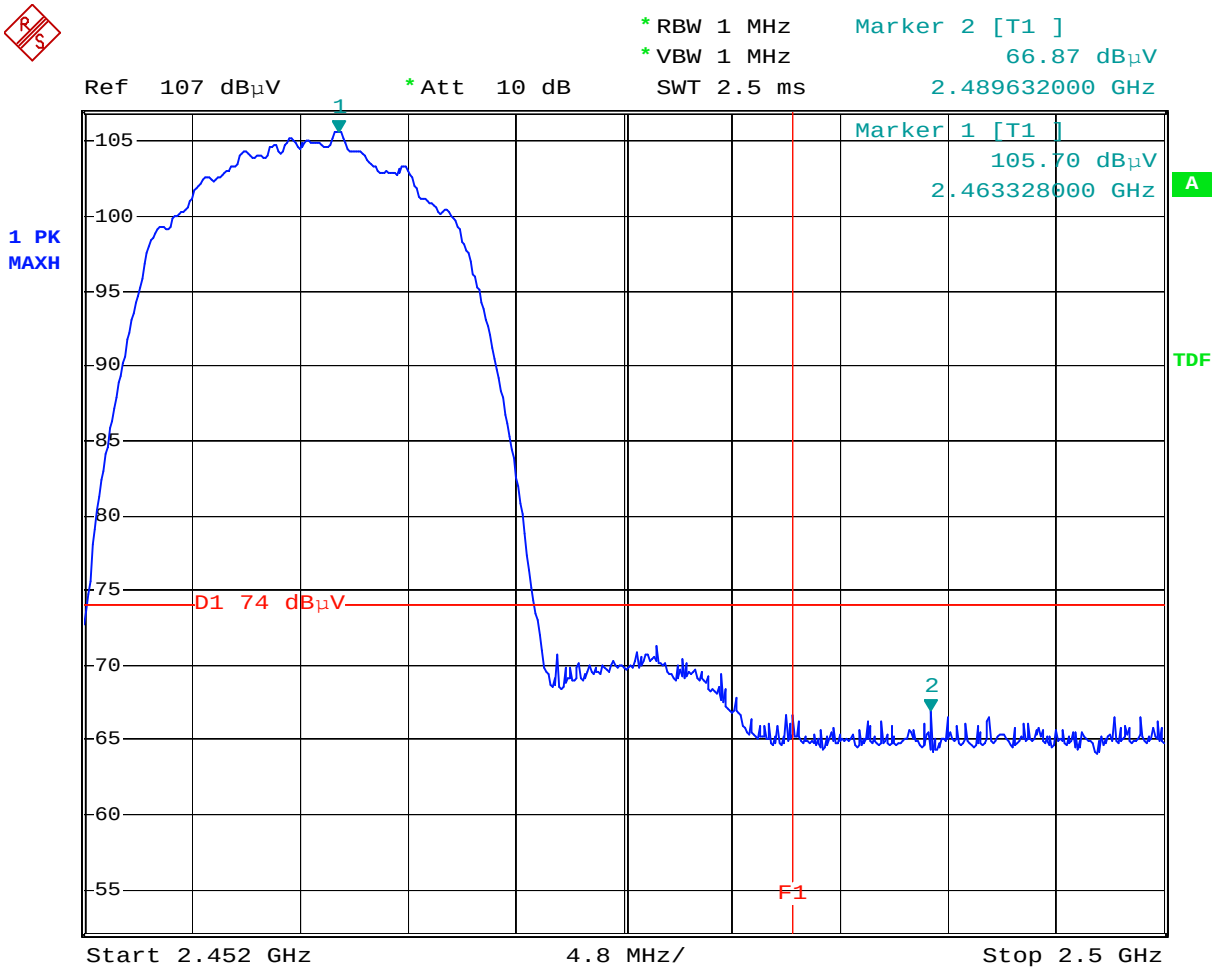
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11b
Date: 29.MAR.2004 20:59:50

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



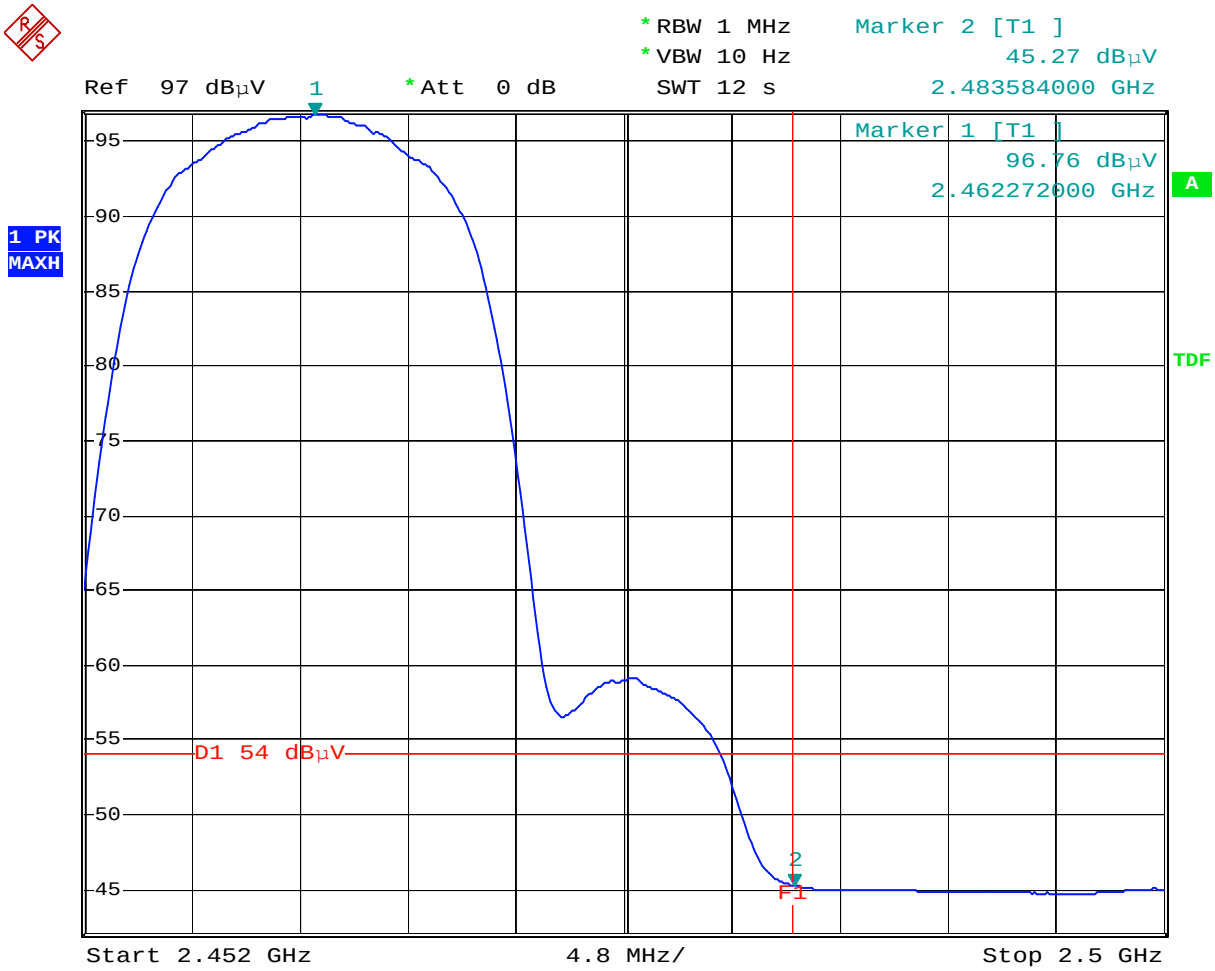
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11b
Date: 29.MAR.2004 21:07:45

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11b
Date: 29.MAR.2004 21:03:13

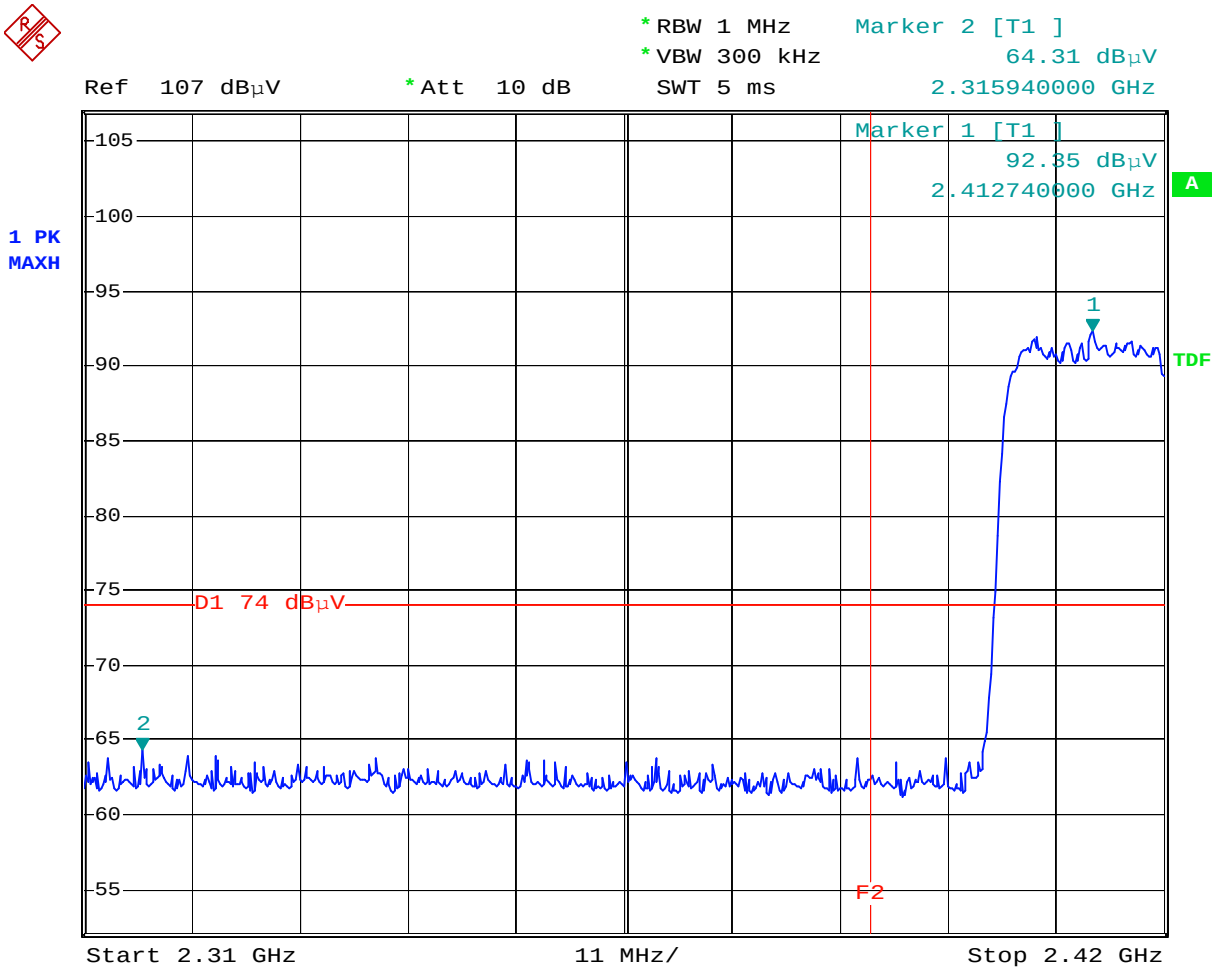
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11b
Date: 29.MAR.2004 21:04:55

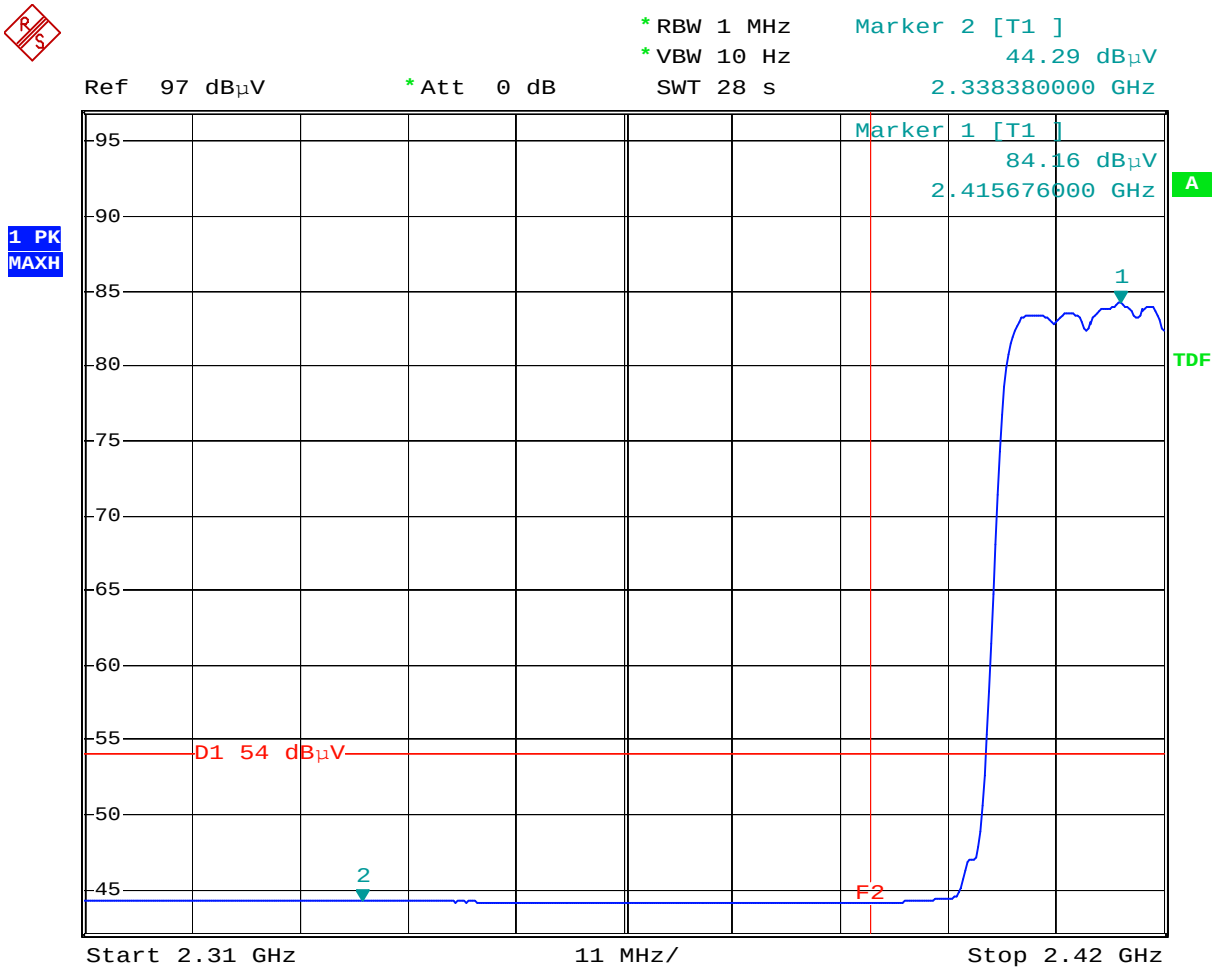
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



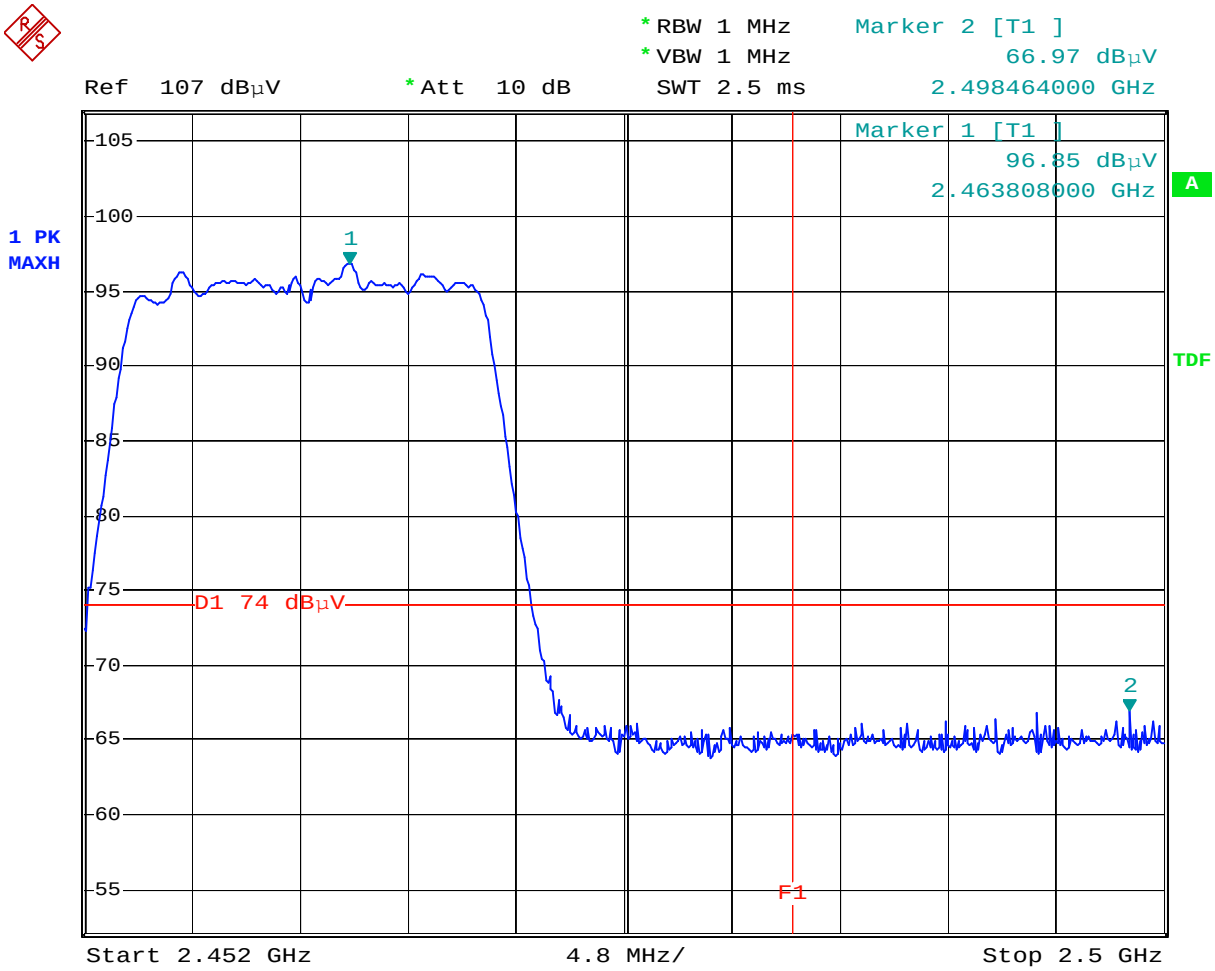
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11g
Date: 29.MAR.2004 20:53:07

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



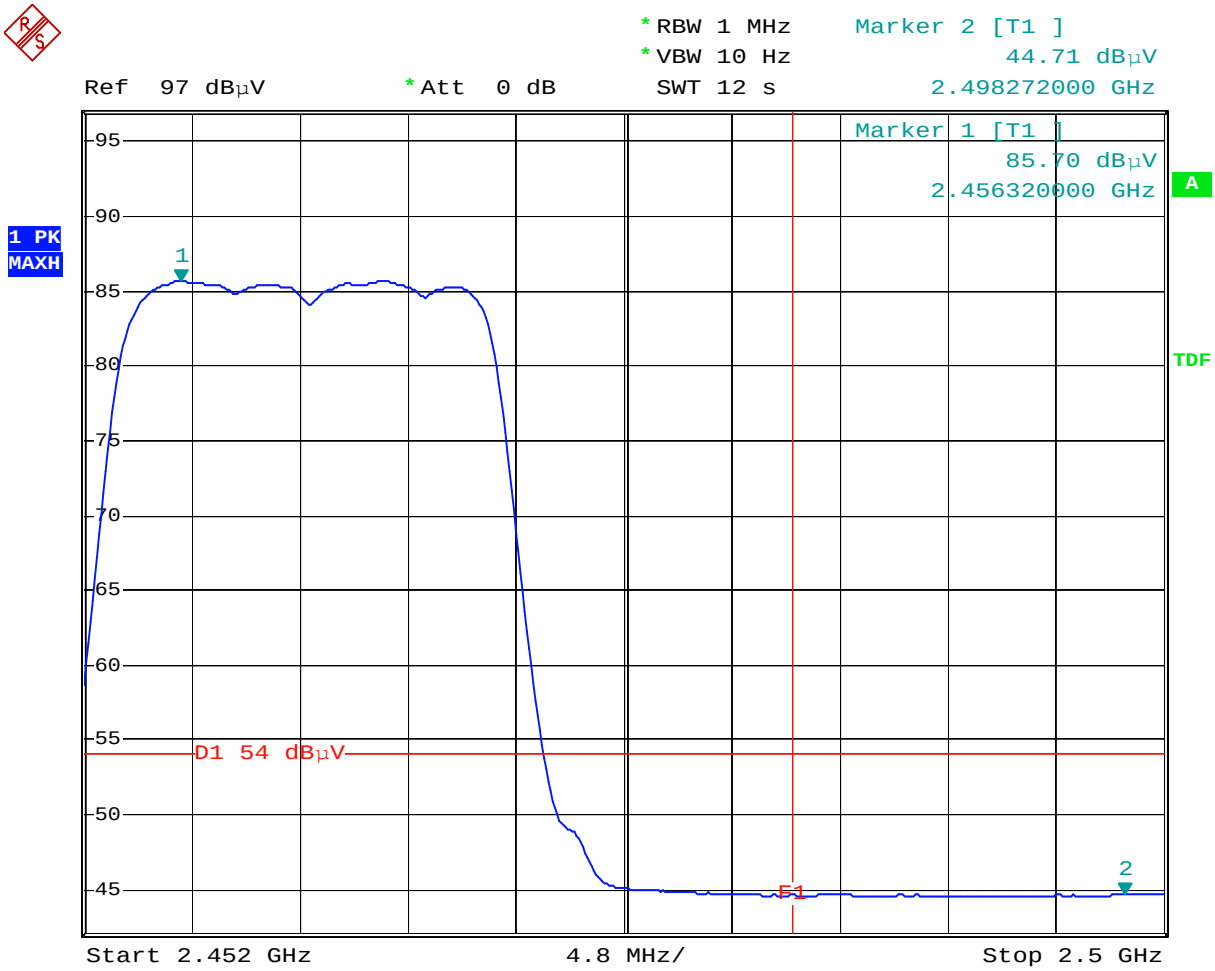
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11g
Date: 29.MAR.2004 20:54:25

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11g
Date: 29.MAR.2004 20:48:40

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

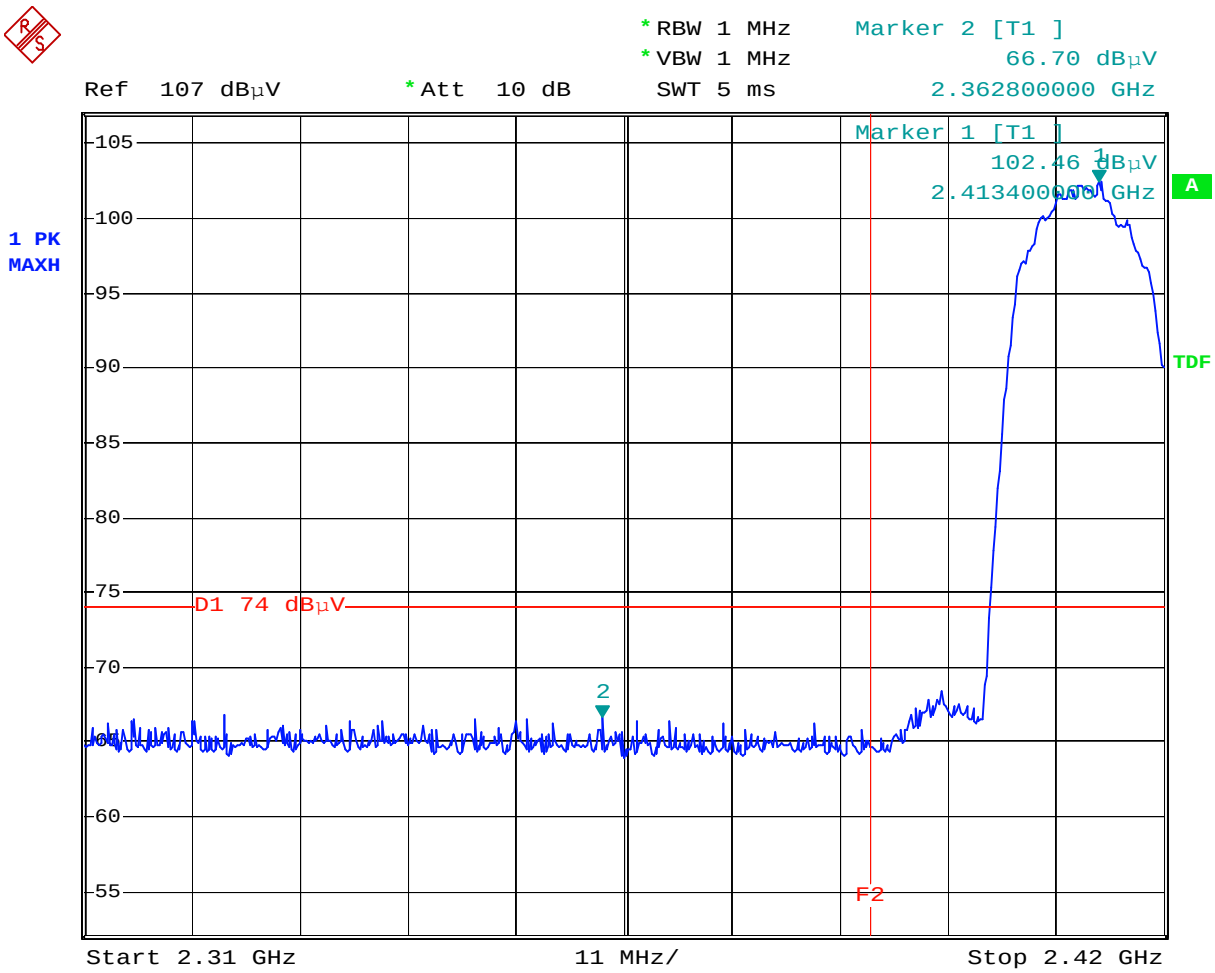


Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11g
Date: 29.MAR.2004 20:56:16

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

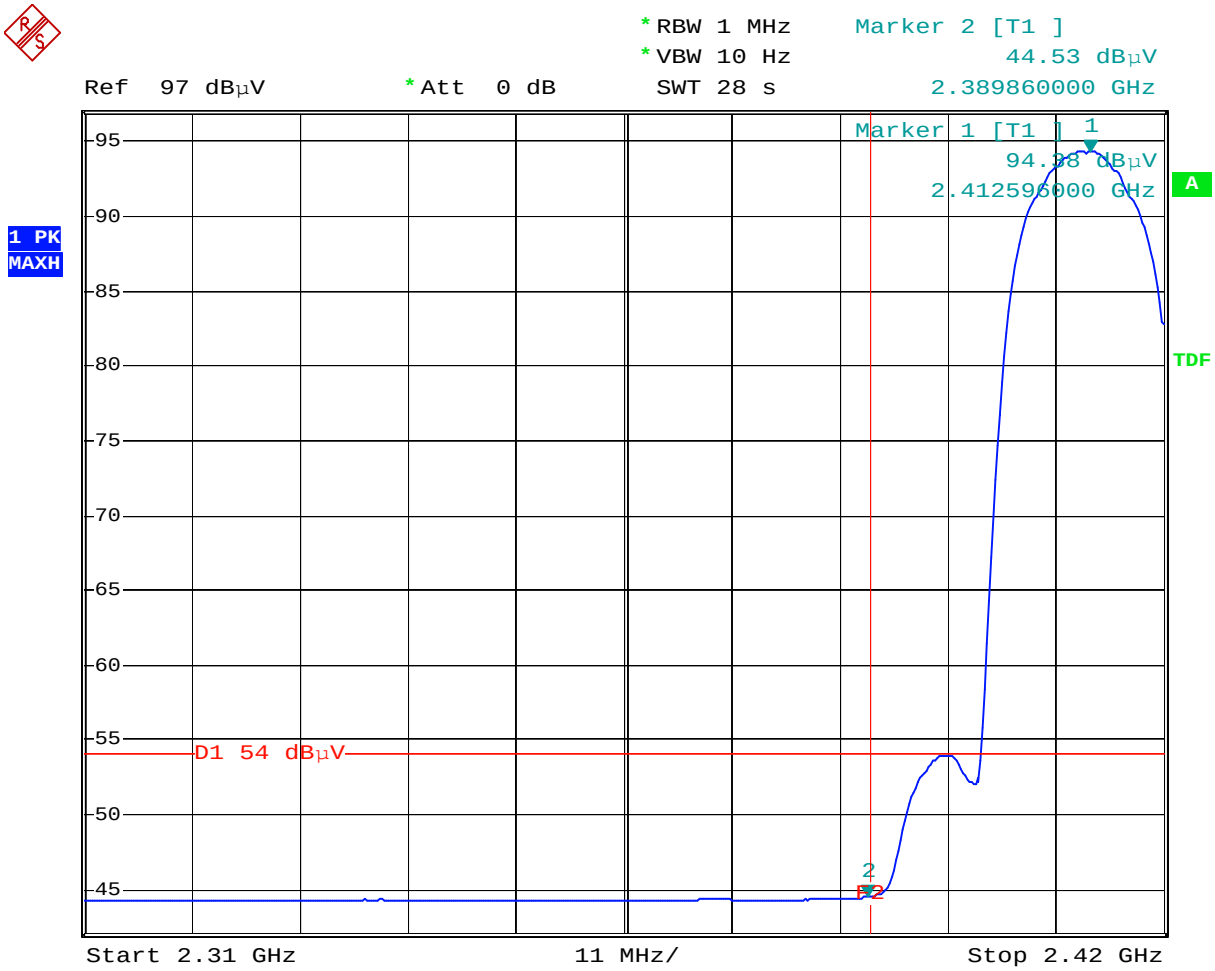
Test Configuration: Modular

Test Condition: 802.11b (DSSS Modulation)-external antenna



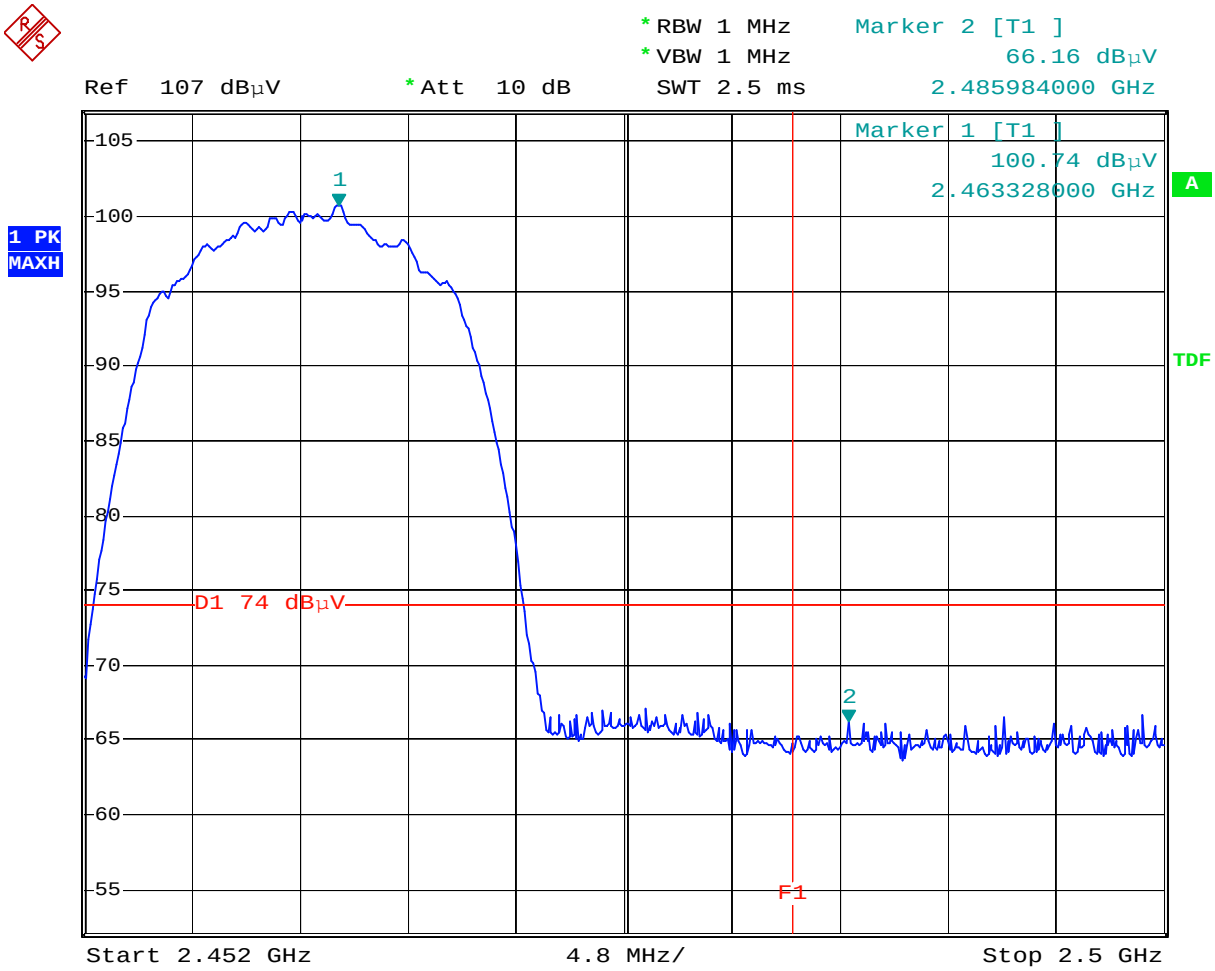
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11b
Date: 29.MAR.2004 21:34:43

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



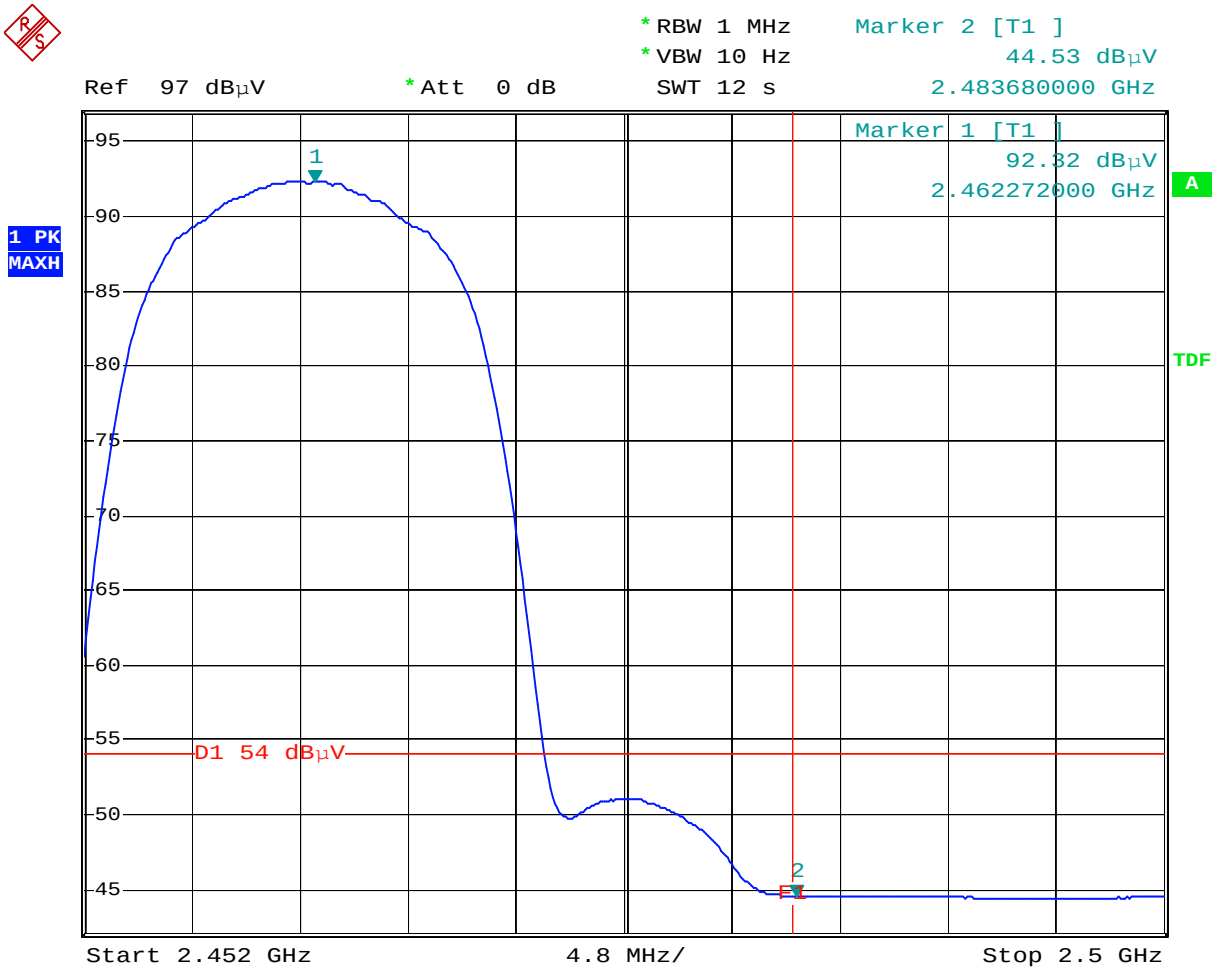
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11b
Date: 29.MAR.2004 21:36:12

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11b
Date: 29.MAR.2004 21:22:54

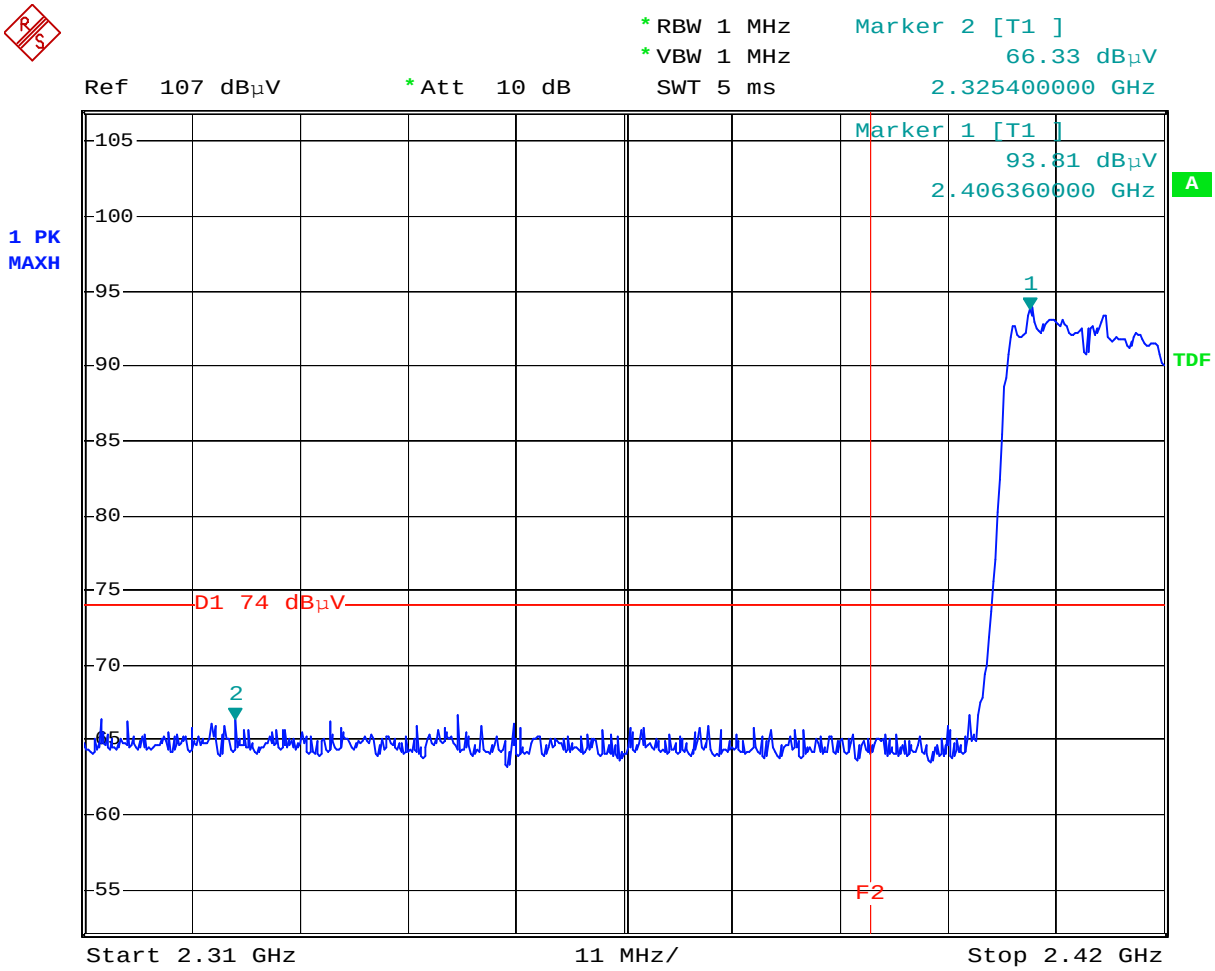
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11b
Date: 29.MAR.2004 21:24:01

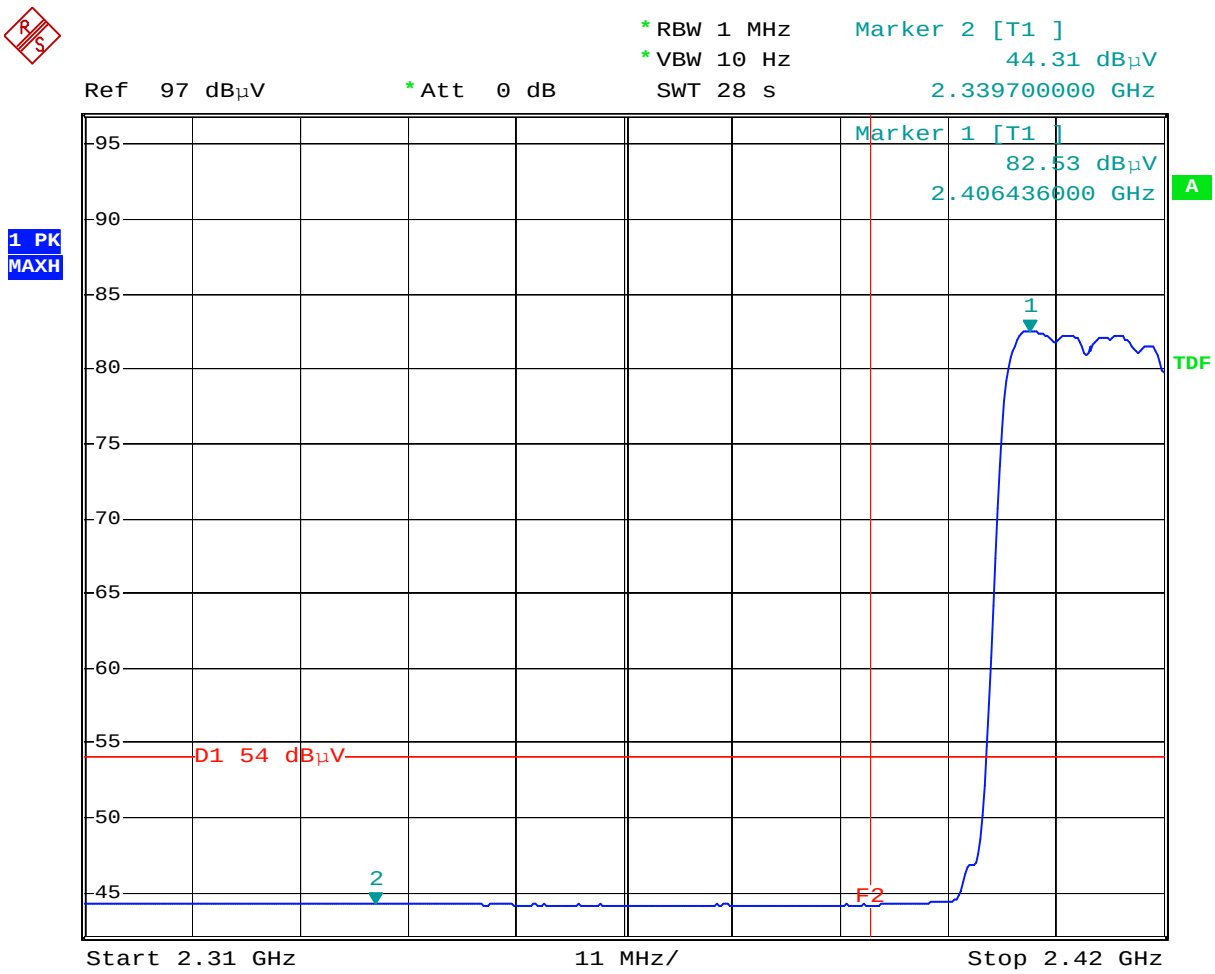
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



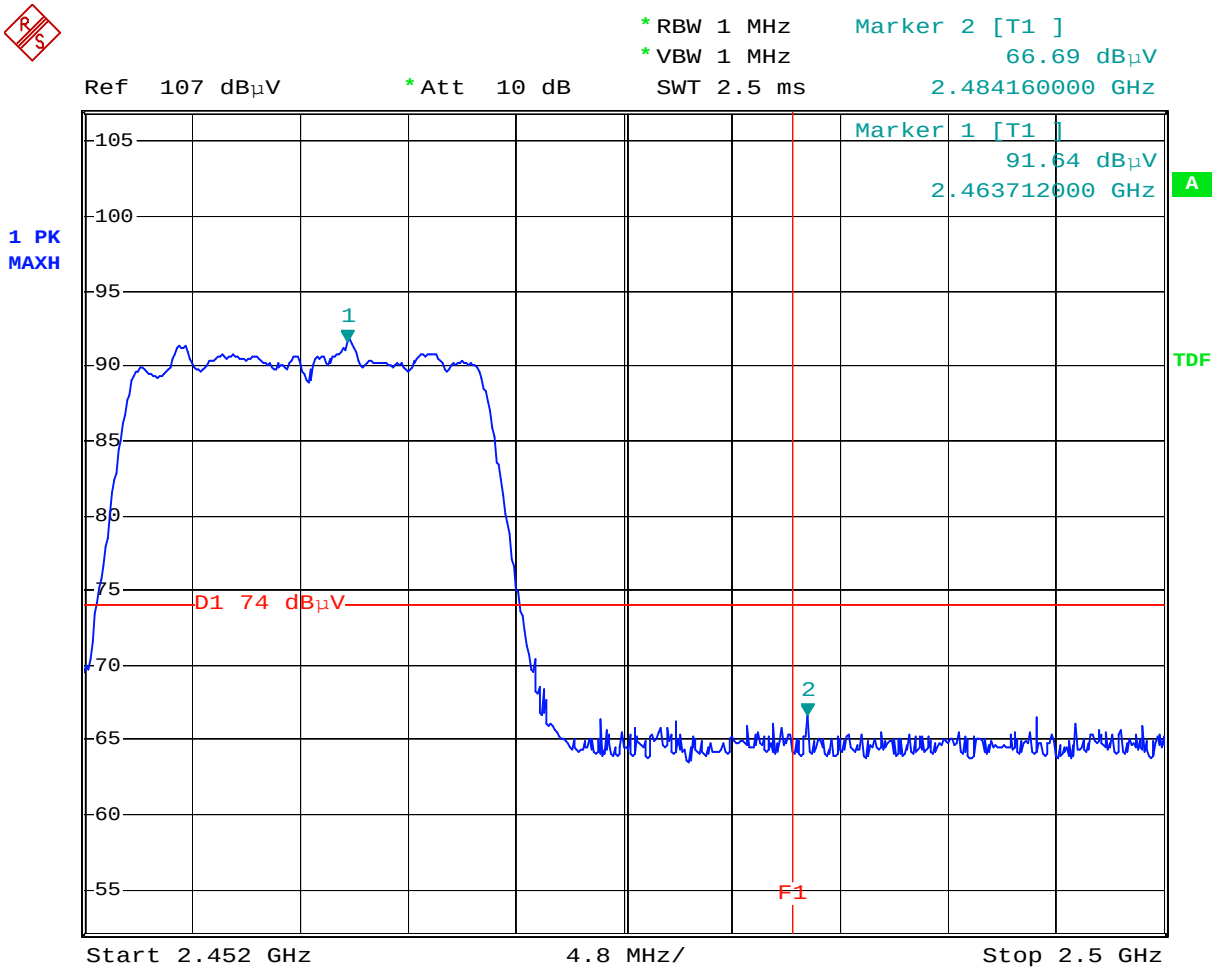
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11g
Date: 29.MAR.2004 21:31:03

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



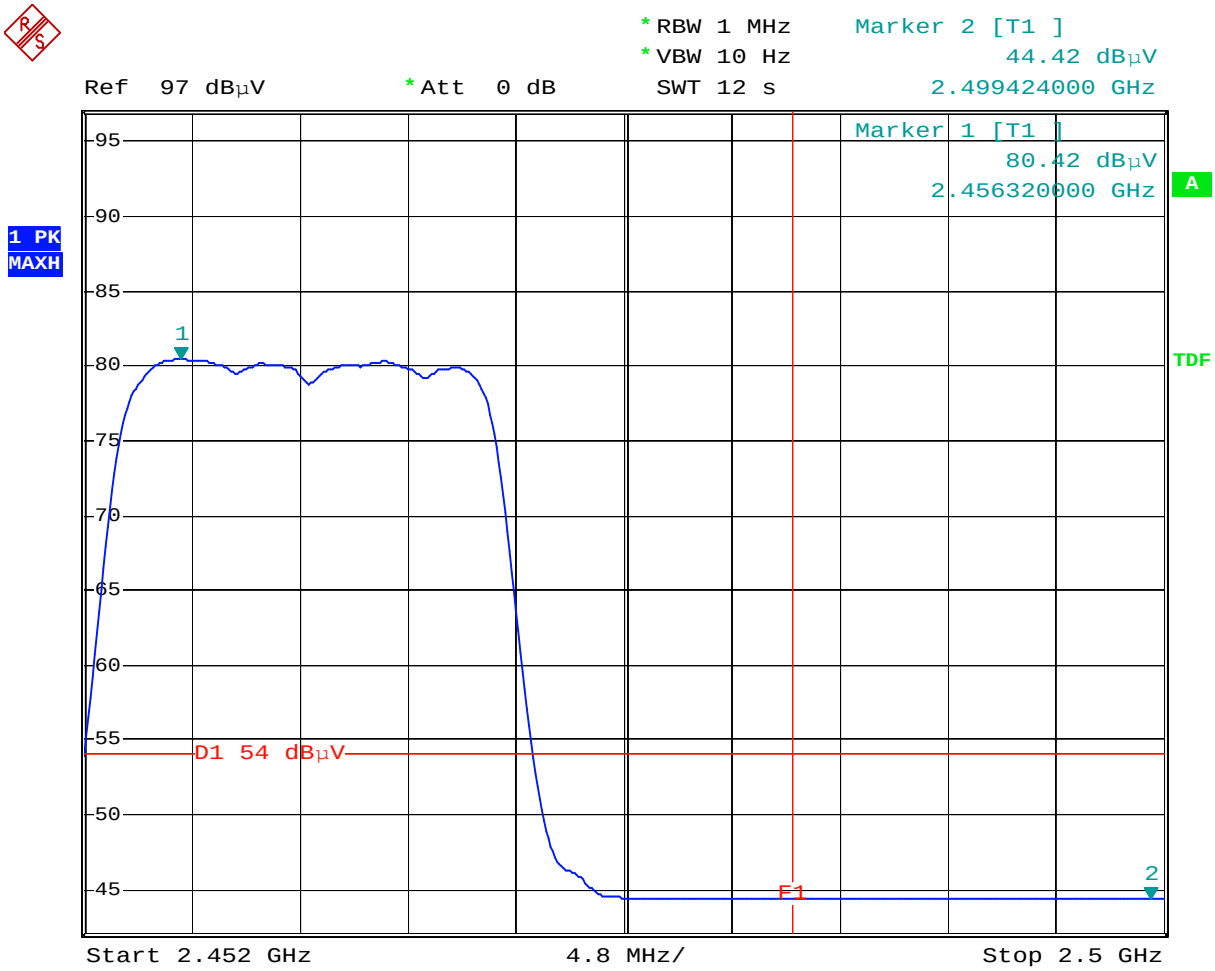
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11g
Date: 29.MAR.2004 21:33:05

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11g
Date: 29.MAR.2004 21:26:39

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

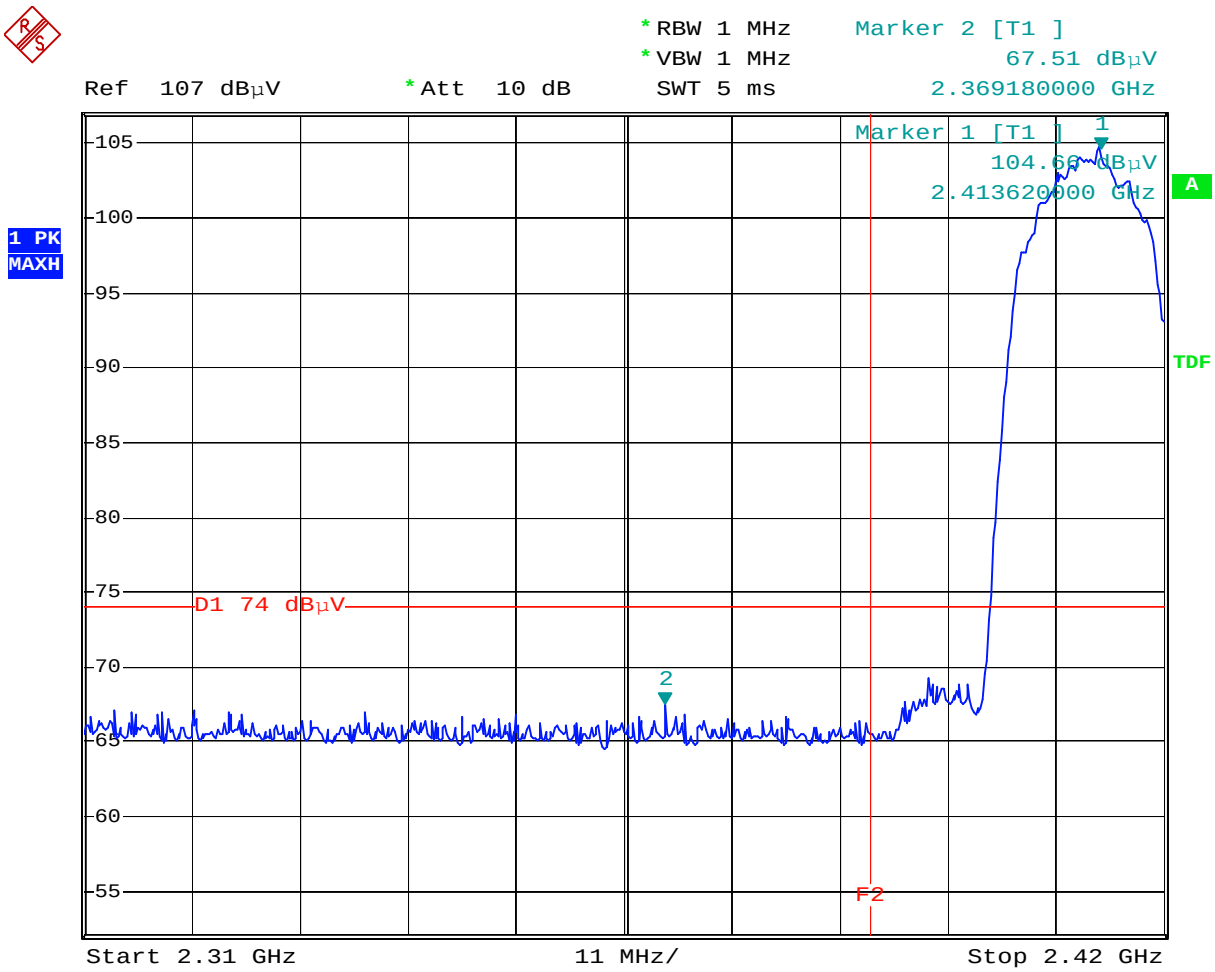


Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11g
Date: 29.MAR.2004 21:28:39

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

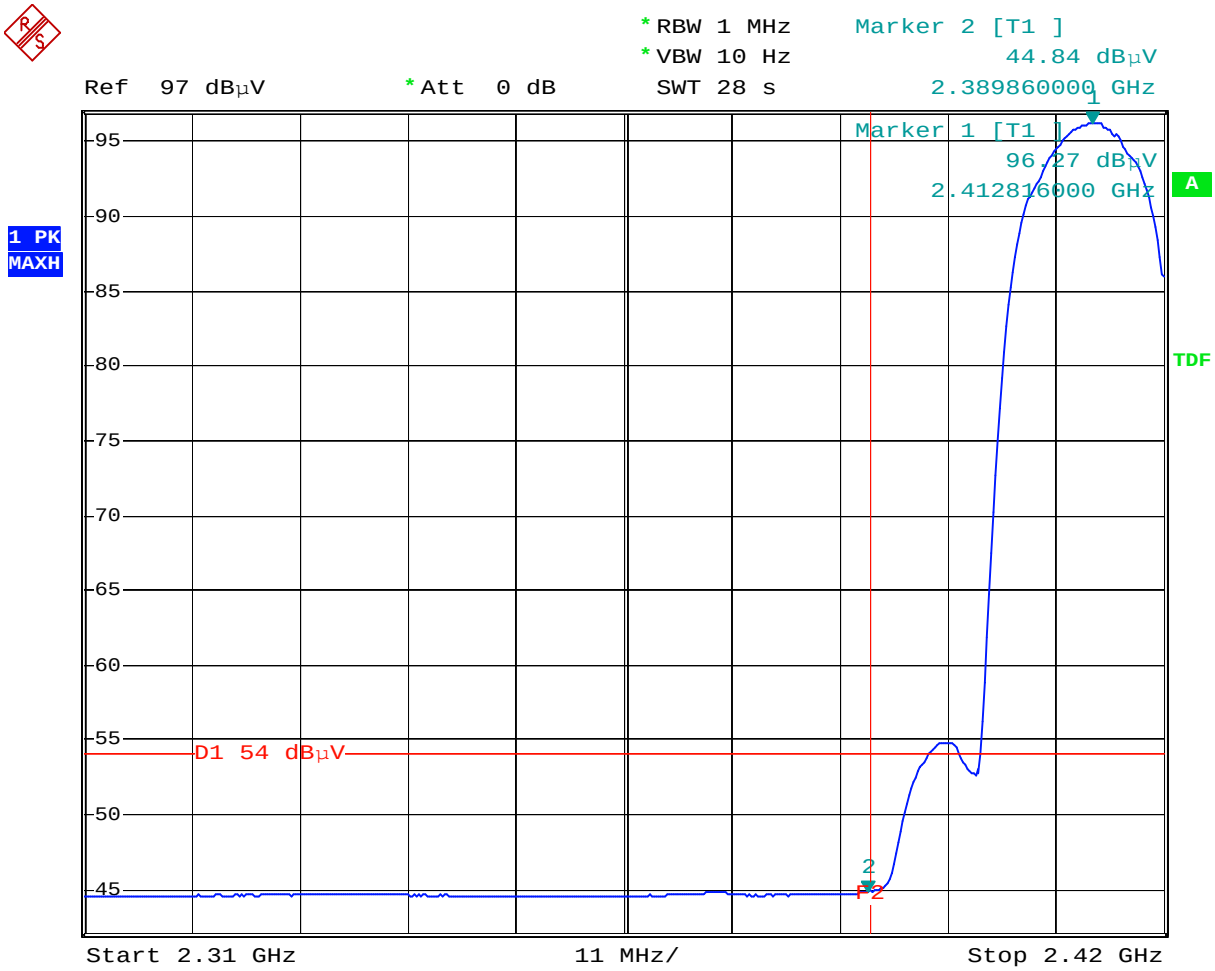
Test Configuration: End-product

Test Condition: 802.11b (DSSS Modulation)



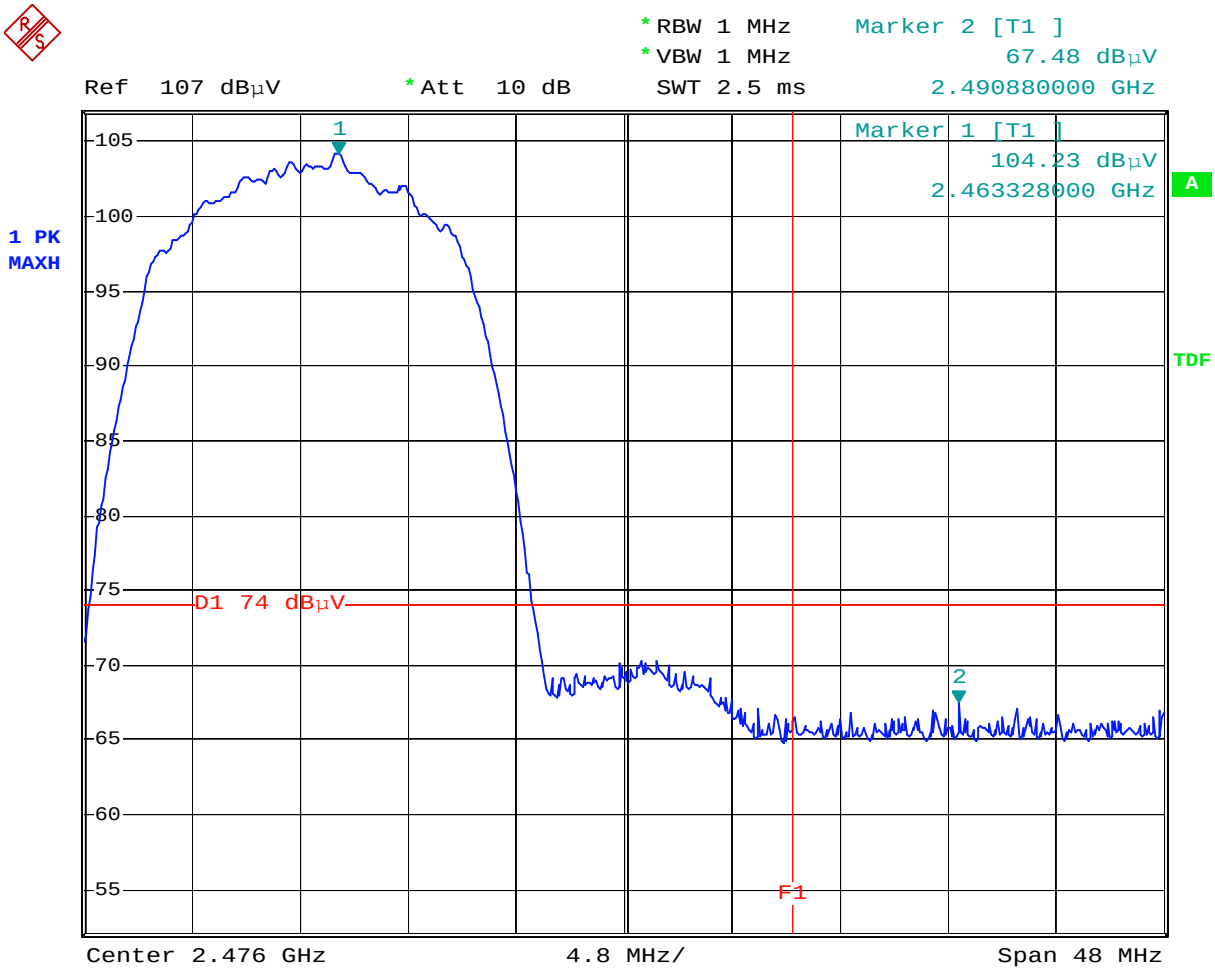
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11b
Date: 5.APR.2004 12:45:47

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



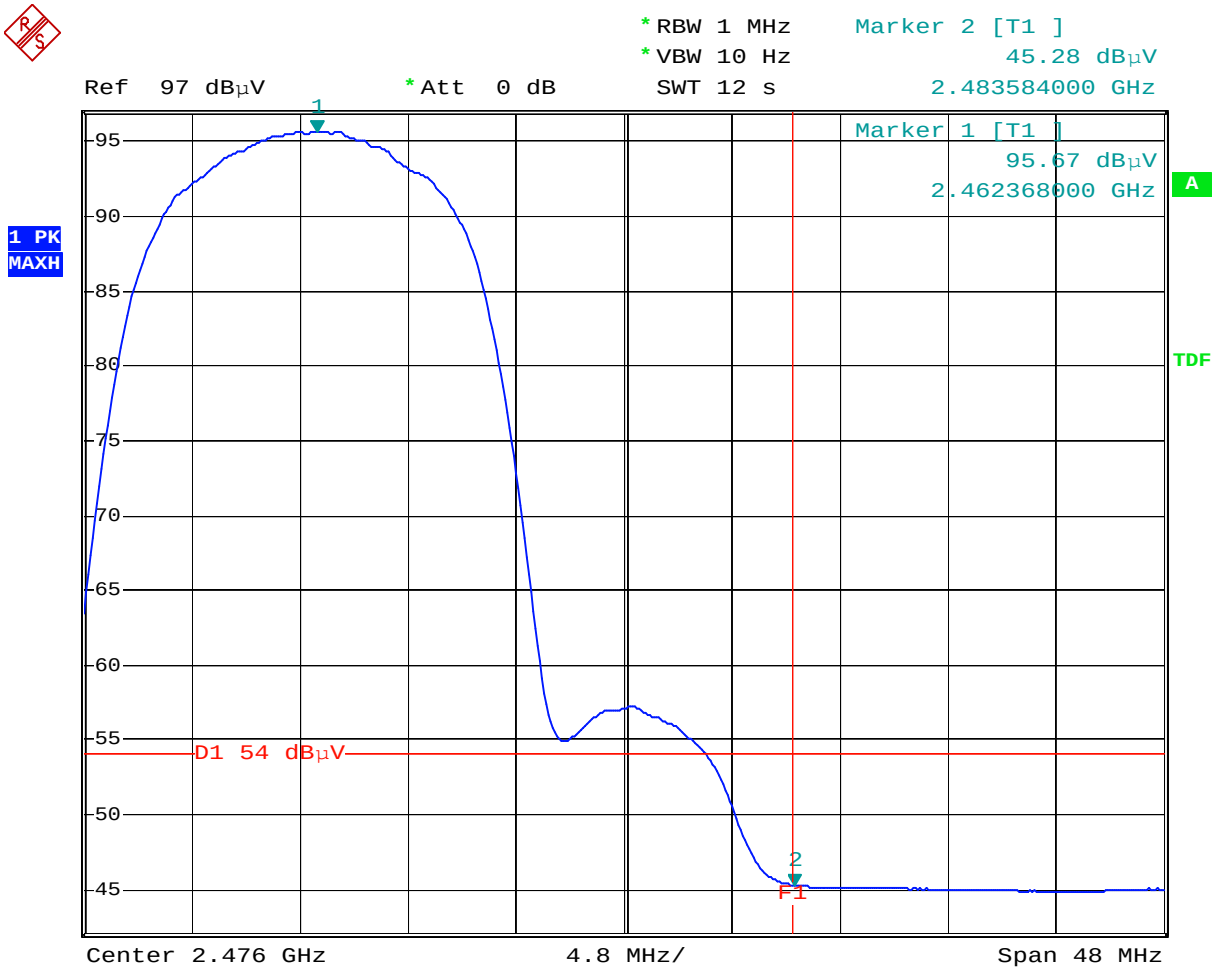
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11b
Date: 5.APR.2004 12:44:40

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11b
Date: 6.APR.2004 14:27:26

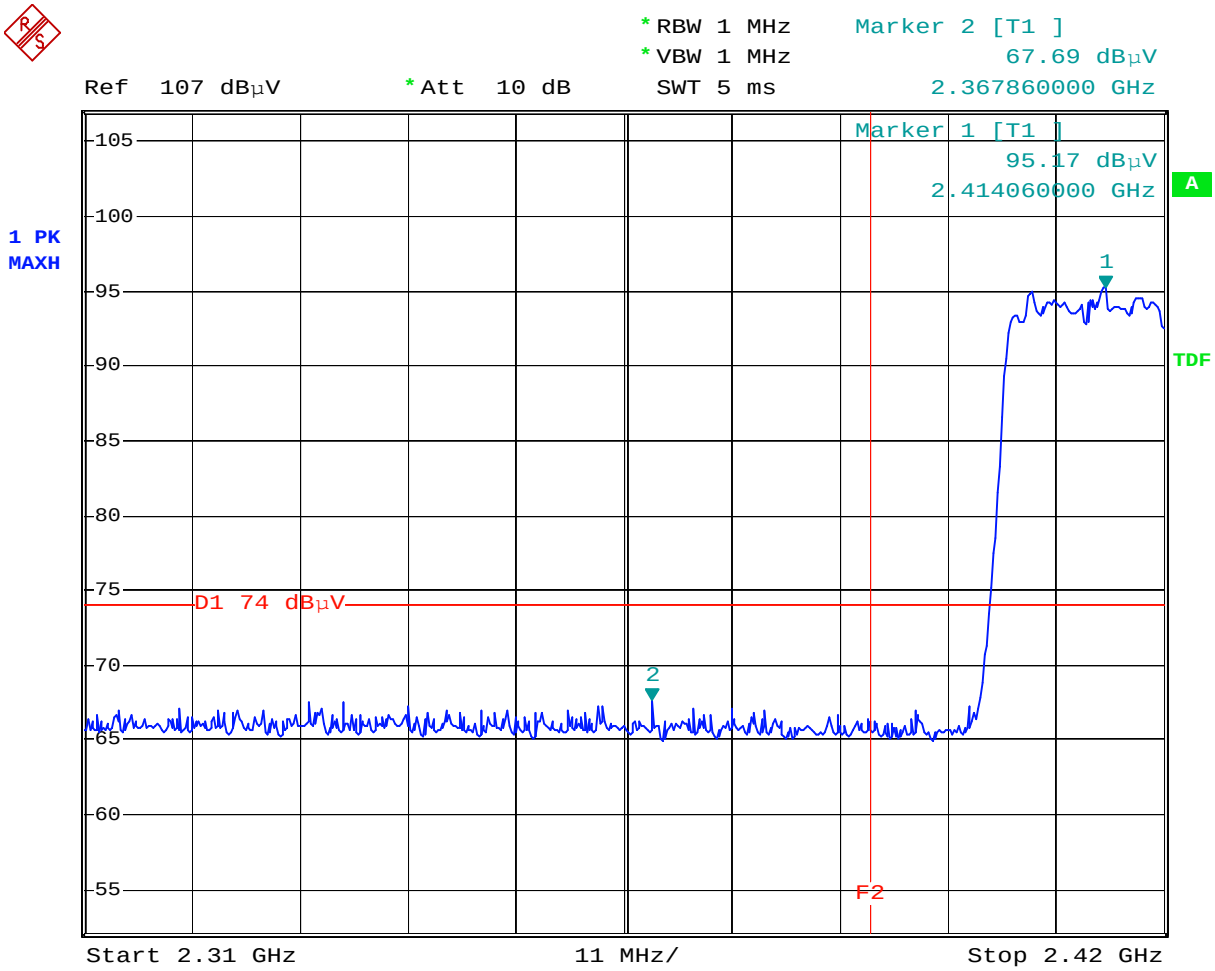
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11b
Date: 6.APR.2004 14:29:06

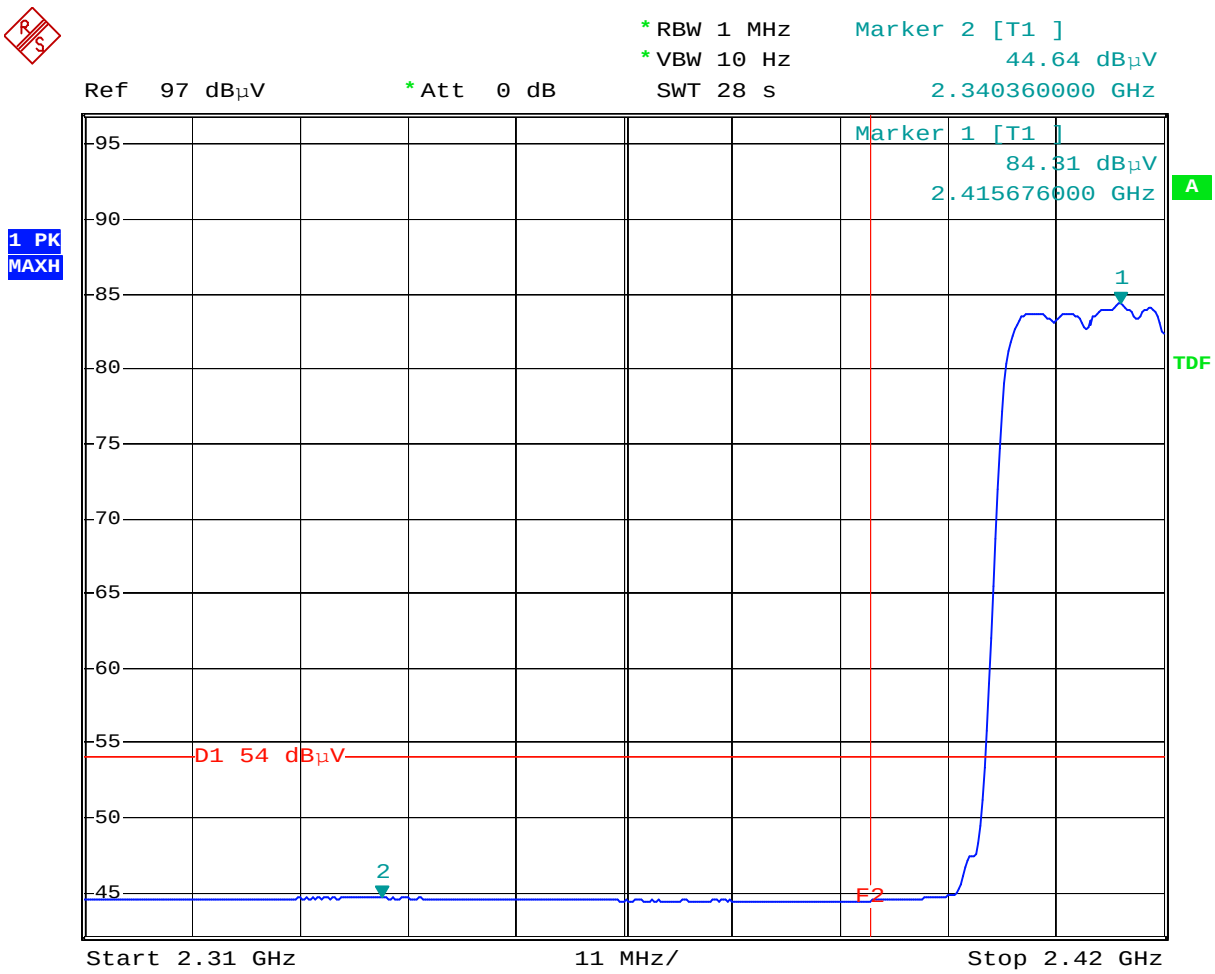
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Test Condition: 802.11g (OFDM Modulation)



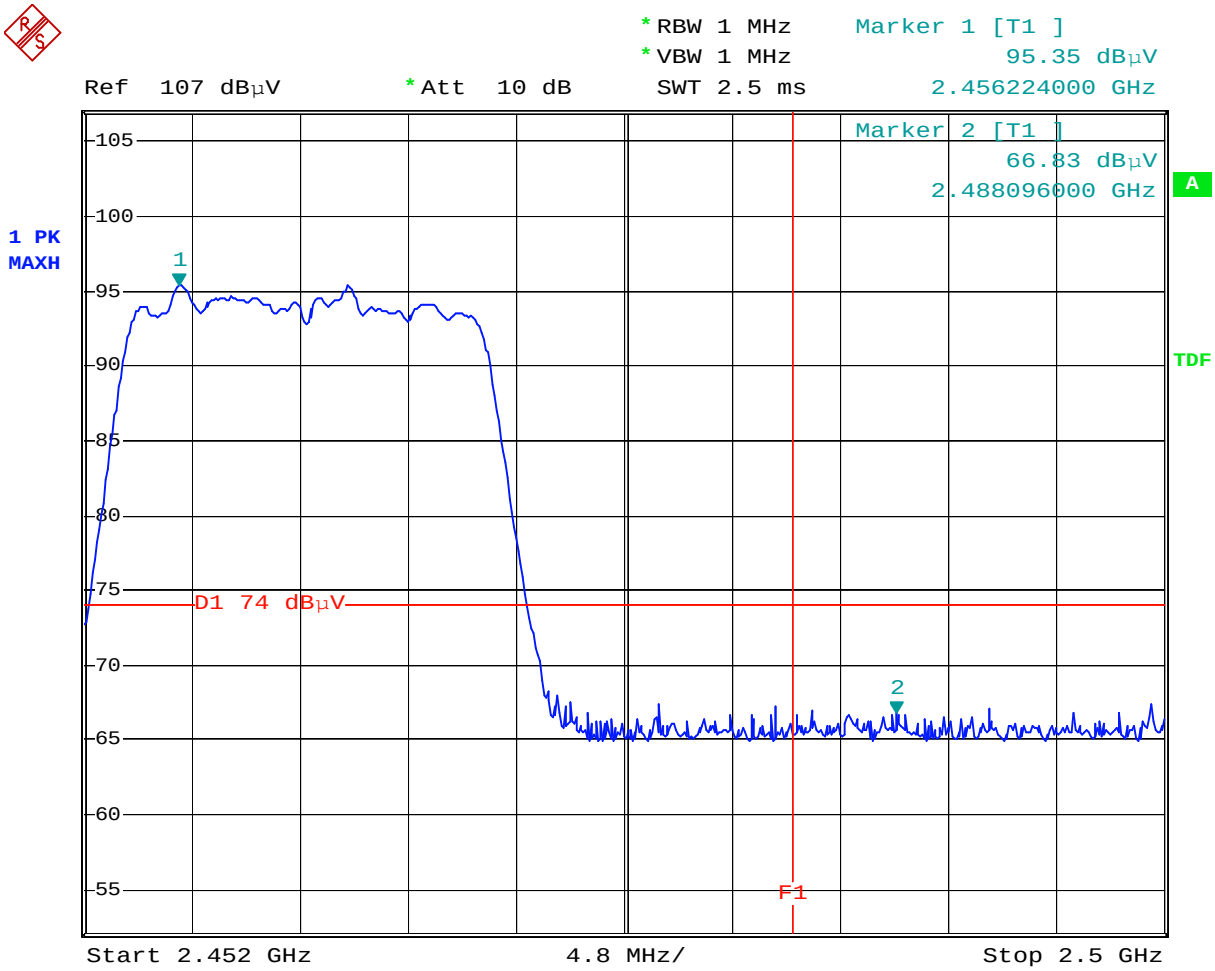
Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz 802.11g
Date: 5.APR.2004 12:38:08

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



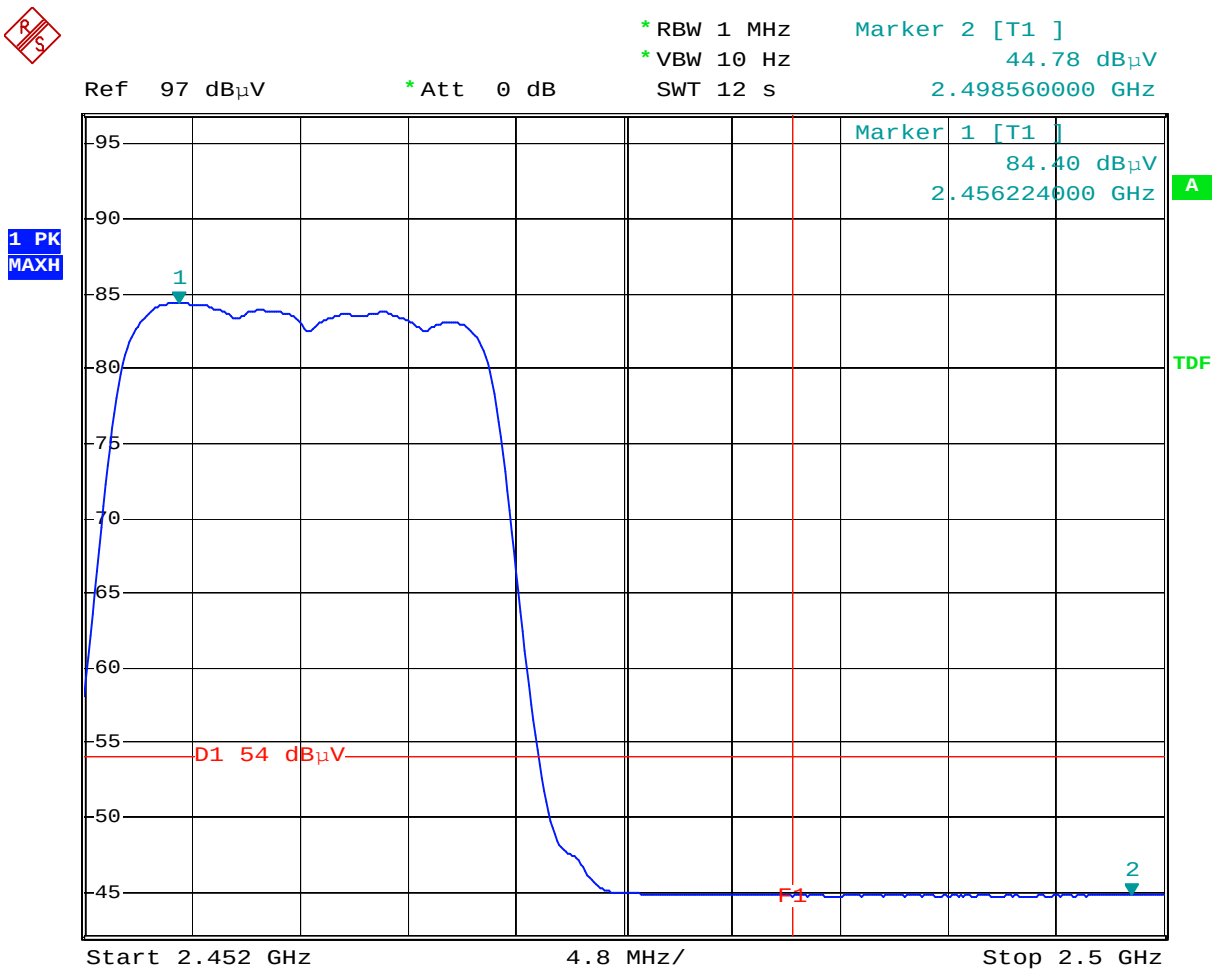
Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz 802.11g
Date: 5.APR.2004 12:40:13

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz 802.11g
Date: 5.APR.2004 12:29:35

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com



Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz 802.11g
Date: 5.APR.2004 12:31:45

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

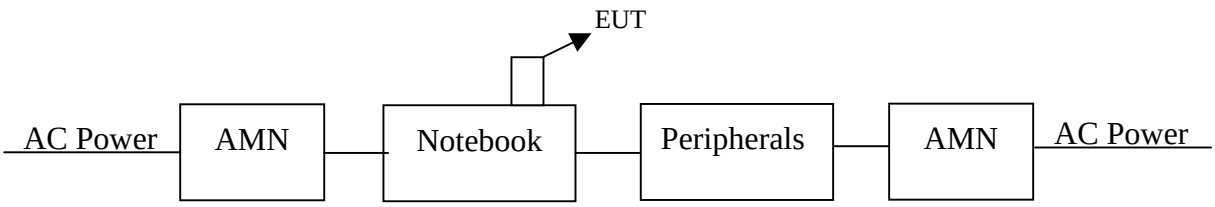
8. Power Line Conducted Emission test §FCC 15.207

8.1 Operating environment

Temperature:	20	℃	(10-40℃)
Relative Humidity:	65	%	(10-90%)
Atmospheric Pressure	1023	hPa	(860-1061hPa)

8.2 Test setup & procedure

Test Configuration: Modular



The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.
Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/1992 on conducted measurement. The AC power conducted emissions was invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz. (15.207 paragraph)

The EUT configuration please refer to the “Conducted set-up photo.pdf”.

Please see the plot below.

PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Emission Limit

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

*Decreases with the logarithm of the frequency.

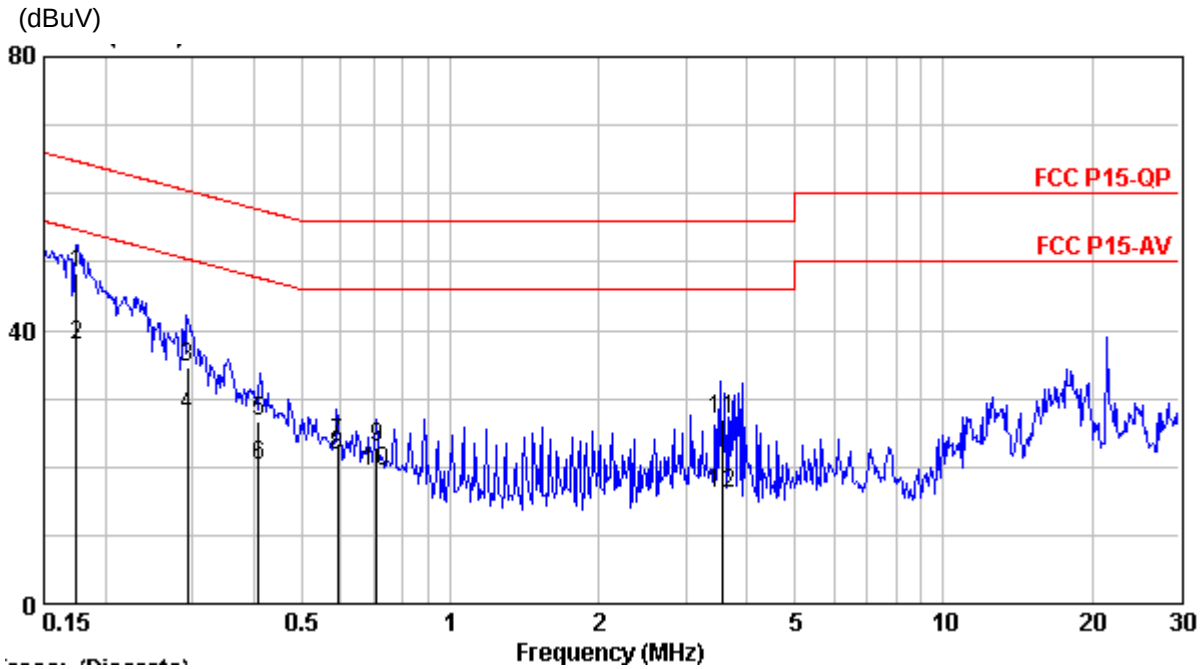
PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

8.3 Power Line Conducted Emission test data

Phase: Line
Model No.: ZyAIR G-110
Test Condition: Normal operation
Worst case configuration: Modular configuration

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.175	0.1	48.25	64.74	-16.49	QP
0.175	0.1	37.71	54.74	-17.03	AVERAGE
0.293	0.1	34.7	60.44	-25.74	QP
0.293	0.1	27.44	50.44	-23	AVERAGE
0.409	0.1	26.81	57.66	-30.85	QP
0.409	0.1	20.2	47.66	-27.46	AVERAGE
0.591	0.1	23.52	56	-32.48	QP
0.591	0.1	21.82	46	-24.18	AVERAGE
0.709	0.1	22.87	56	-33.13	QP
0.709	0.1	19.37	46	-26.63	AVERAGE
3.548	0.18	27	56	-29	QP
3.548	0.18	16.2	46	-29.8	AVERAGE

Remark:
1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)

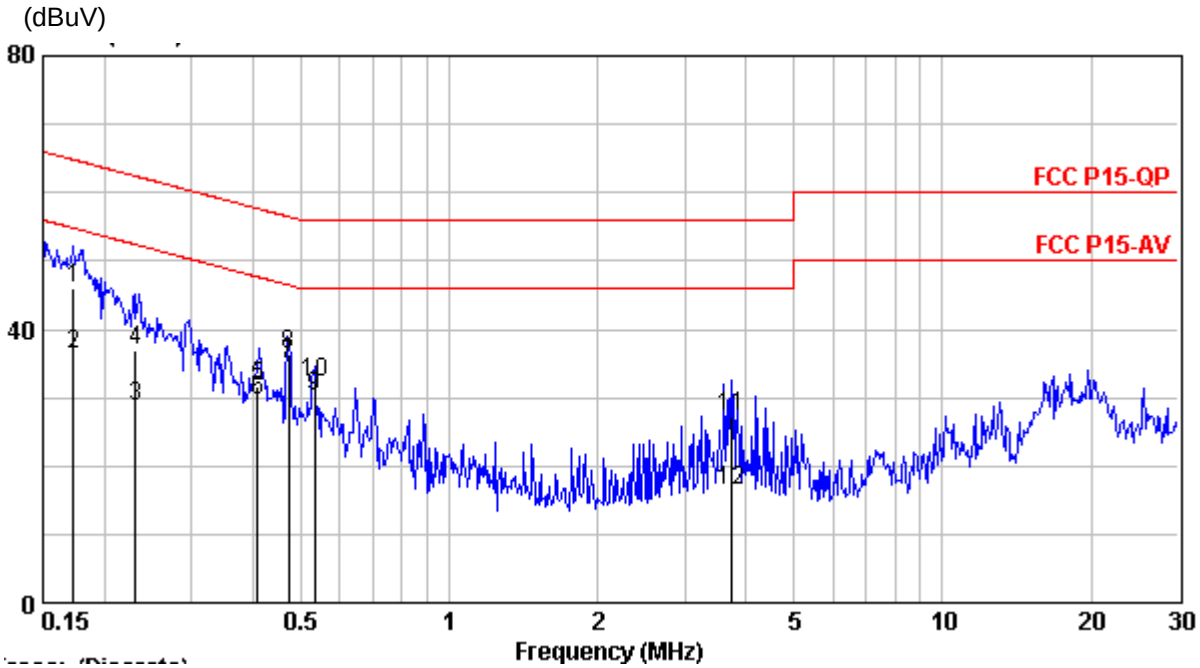


PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com

Phase: Neutral
Model No.: ZyAIR G-110
Test Condition: Normal operation
Worst case configuration: Modular configuration

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.173	0.1	46.04	64.81	-18.77	QP
0.173	0.1	36.42	54.81	-18.39	AVERAGE
0.231	0.1	28.7	52.43	-23.73	AVERAGE
0.231	0.1	37.06	62.43	-25.37	QP
0.409	0.1	31.66	57.66	-26	QP
0.409	0.1	29.46	47.66	-18.2	AVERAGE
0.473	0.1	34.82	46.47	-11.65	AVERAGE
0.473	0.1	36.28	56.47	-20.19	QP
0.533	0.1	30.11	46	-15.89	AVERAGE
0.533	0.1	32.17	56	-23.83	QP
3.721	0.19	27.3	56	-28.7	QP
3.721	0.19	16.55	46	-29.45	AVERAGE

Remark:
1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



PDF created with FinePrint pdfFactory Pro trial version http://www.pdffactory.com