

EMC TEST REPORT

Report No. : EME-060497**Model No. : DSL-2640T,
DSL-2540T****Issued Date : Jun. 16, 2006****Applicant : D-Link Corporation**
No. 289, Shinhua 3rd Rd., Neihu District, Taipei City 114,
Taiwan, R.O.C.**Test By : Intertek Testing Services Taiwan Ltd.**
No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,
Shiang-Shan District, Hsinchu City, Taiwan

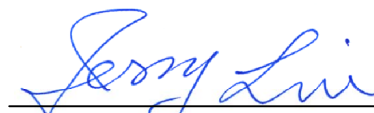
This test report consists of 62 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. It shall not be reproduced except in full, without the written approval of Intertek Laboratory. The test result(s) in this report only applies to the tested sample(s).

Project Engineer



Kevin Chen

Reviewed By



Jerry Liu

Table of Contents

Summary of Tests.....	4
1. General information	5
1.1 Identification of the EUT	5
1.2 Additional information about the EUT.....	5
1.3 Antenna description.....	6
1.4 Peripherals equipment	6
2. Test specifications	7
2.1 Test standard.....	7
2.2 Operation mode	7
2.3 Test equipment	8
3. Minimum 6dB Bandwidth test	9
3.1 Operating environment.....	9
3.2 Test setup & procedure.....	9
3.3 Measured data of Minimum 6dB Bandwidth test results	9
4. Maximum Output Power test	16
4.1 Operating environment.....	16
4.2 Test setup & procedure.....	16
4.3 Measured data of Maximum Output Power test results	16
5. RF Antenna Conducted Spurious test.....	17
5.1 Operating environment.....	17
5.2 Test setup & procedure.....	17
5.3 Measured data of the highest RF Antenna Conducted Spurious test result	17
6. Radiated Emission test	32
6.1 Operating environment.....	32
6.2 Test setup & procedure.....	32
6.3 Emission limits.....	33
6.4 Radiated spurious emission test data.....	34
6.4.1 Measurement results: frequencies equal to or less than 1 GHz.....	34
6.4.2 Measurement results: frequency above 1GHz	35
7. Power Spectrum Density test	41
7.1 Operating environment.....	41
7.2 Test setup & procedure.....	41
7.3 Measured data of Power Spectrum Density test results	41

8. Emission on the band edge.....	48
8.1 Operating environment.....	48
8.2 Test setup & procedure.....	48
8.3 Test Result	49
8.3.1 Conducted Method	49
8.3.2 Radiated Method	57
9. Power Line Conducted Emission test §FCC 15.207	59
9.1 Operating environment.....	59
9.2 Test setup & procedure.....	59
9.3 Emission limit	60
9.4 Uncertainty of Conducted Emission	60
9.5 Power Line Conducted Emission test data.....	61

Summary of Tests**Wireless ADSL2+ Router -Model: DSL-2640T
FCC ID: KA2SL2640T**

Test	Reference	Results
Minimum 6dB Bandwidth test	15.247(a)(2)	Pass
Maximum Output Power test	15.247(b)	Pass
Radiated Spurious Emission test	15.205, 15.209	Pass
Power Spectrum Density test	15.247(e)	Pass
Emission on the Band Edge test	15.247(d)	Pass
AC Power Line Conducted Emission test	15.207	Pass

1. General information**1.1 Identification of the EUT**

Applicant	: D-Link Corporation
Product	: Wireless ADSL2+ Router
Model No.	: DSL-2640T
FCC ID.	: KA2SL2640T
Frequency Range	: 2400 MHz ~ 2483.5MHz
Channel Number	: 11 Channels
Frequency of Each Channel	: 2412MHz, 2417MHz, 2422MHz, 2427MHz, 2432MHz, 2437MHz, 2442MHz, 2447MHz, 2452MHz, 2457MHz, 2462MHz
Type of Modulation	: DSSS, OFDM
Rated Power	: 100-240Vac, 50-60Hz
Power Cord	: N/A
Sample Received	: Apr. 17, 2006
Test Date(s)	: May 17, 2006 ~ Jun. 19, 2006

1.2 Additional information about the EUT

The EUT is an Wireless ADSL2+ Router, and was defined as information technology equipment.

The models listed below are identical to model DSL-2640T (EUT).
Different brand serves as marking strategy.

Trade Name	Model Number	Difference
D-Link	DSL-2640T	802.11g Wireless Router Modem
	DSL-2540T	Ethernet Router Modem

For more detail features, please refer to User's manual as file name "Installation guide.pdf"

1.3 Antenna description

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 max

Antenna Type : Dipole antenna

Connector Type : SMA Reverse

1.4 Peripherals equipment

Peripherals	Manufacturer	Product No.	Serial No.	FCC ID
Notebook PC	DELL	PP02X	8Y210A04	FCC DoC Approved

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 C63.4/2003.

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

Plug the EUT into Notebook PC via USB interface, then turn on the Notebook PC power and run the test program “Radio scpoe” under windows OS, which provide by manufacturer.

The EUT was operated under Tx, Rx and standby mode during all the tests.

2.3 Test equipment

Equipment	Brand	Frequency range	Model No.	Intertek ID No.	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	9kHz~2.75GHz	ESCS 30	EC303	04/16/2007
EMI Test Receiver	Rohde & Schwarz	20Hz~26.5GHz	ESMI	EC317	08/07/2006
Spectrum Analyzer	Rohde & Schwarz	9kHz~30GHz	FSP 30	EC353	07/24/2006
Spectrum Analyzer	Rohde & Schwarz	20Hz~40GHz	FSEK 30	EC365	11/01/2006
Horn Antenna	SCHWARZBECK	1GHz~18GHz	BBHA 9120 D	EC371	12/22/2007
Horn Antenna	SCHWARZBECK	14GHz~40GHz	BBHA 9170	EC351	07/08/2007
Bilog Antenna	SCHWARZBECK	25MHz~2GHz	VULB 9168	EC347	12/23/2007
Pre-Amplifier	MITEQ	100MHz~26.5GHz	919981	EC373	02/11/2007
Wideband Peak Power Meter/ Sensor	Anritsu	100MHz~18GHz	ML2497A/ MA2491A	EC396	11/10/2006
Controller	HDGmbH	N/A	CM 100	EP346	N/A
Antenna Tower	HDGmbH	N/A	MA 240	EP347	N/A
LISN	Rohde & Schwarz	9KHz~30MHz	ESH3-Z5	EC344	01/13/2007

Note: 1. The above equipments are within the valid calibration period.

2. The test antennas (receiving antenna) are calibration per 3 years.

3. Minimum 6dB Bandwidth test

3.1 Operating environment

Temperature: 25
Relative Humidity: 55 %
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 100kHz, 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 Mode: 802.11b (DSSS Modulation) operating mode

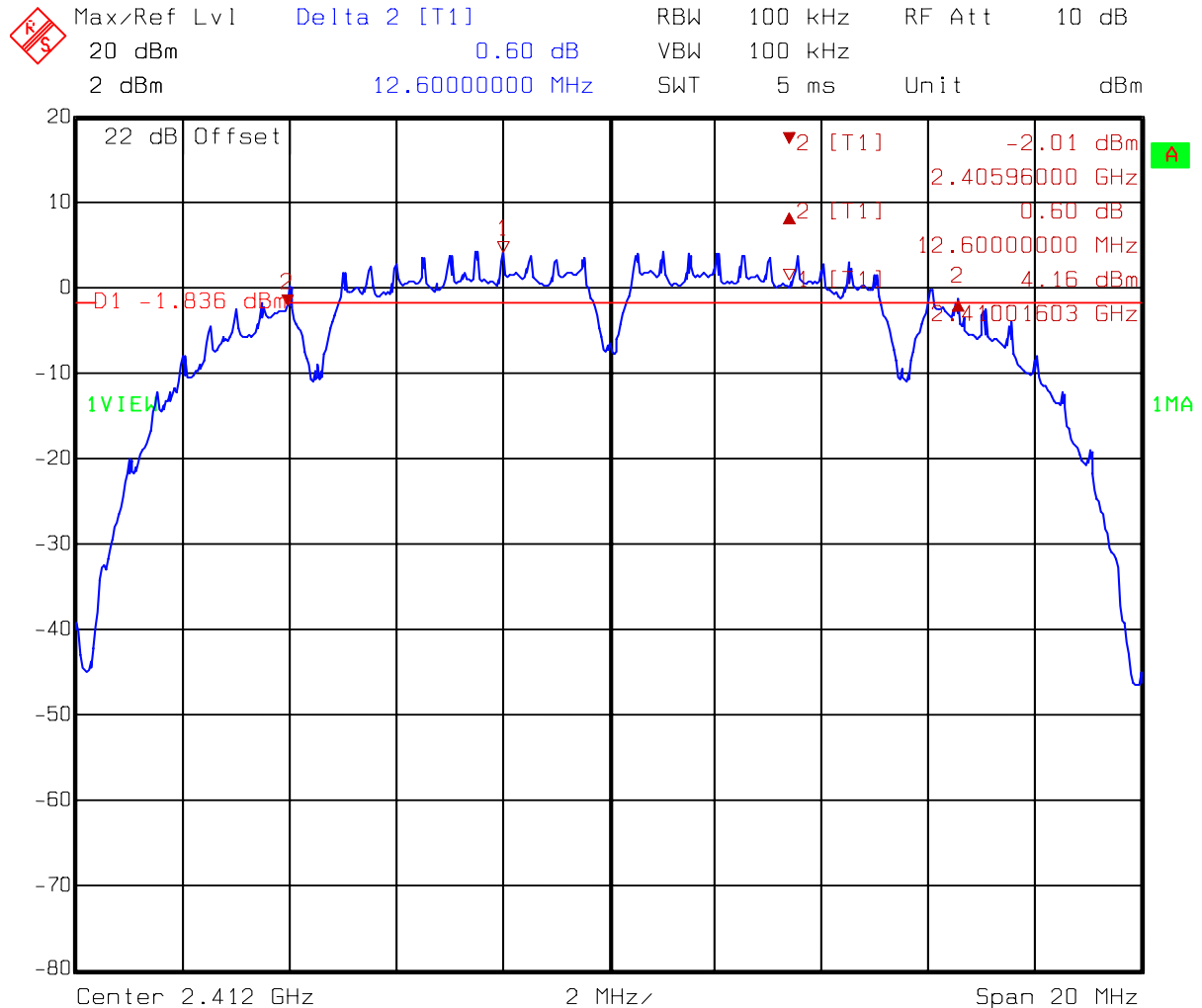
Channel	Frequency (MHz)	Bandwidth (MHz)	Limit
1 (lowest)	2412	12.60	> 500kHz
6 (middle)	2437	13.12	> 500kHz
11 (highest)	2462	13.12	> 500kHz

Test Mode: 802.11g (OFDM Modulation) operating mode

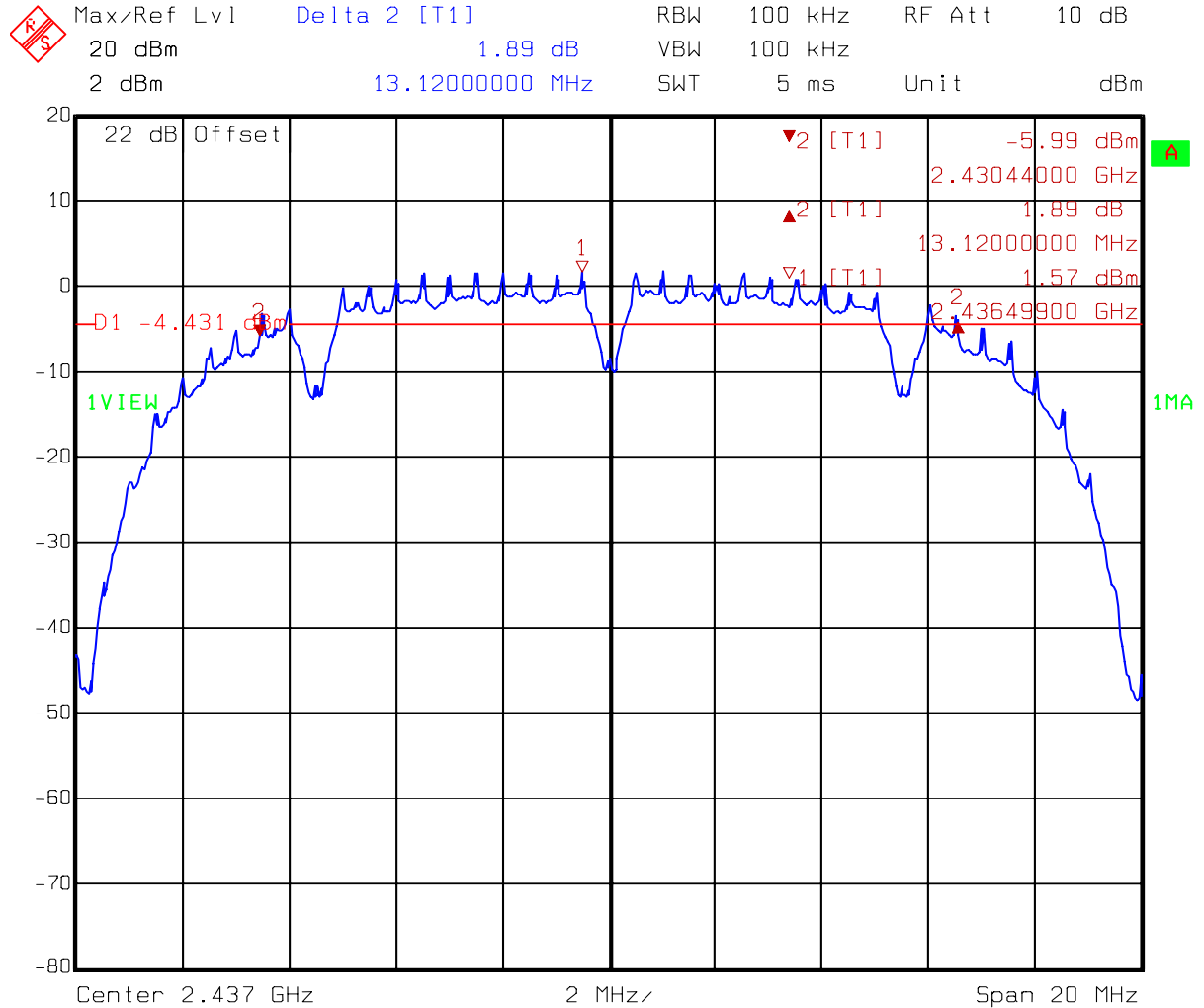
Channel	Frequency (MHz)	Bandwidth (MHz)	Limit
1 (lowest)	2412	16.56	> 500kHz
6 (middle)	2437	13.48	> 500kHz
11 (highest)	2462	16.52	> 500kHz

Please see the plot below.

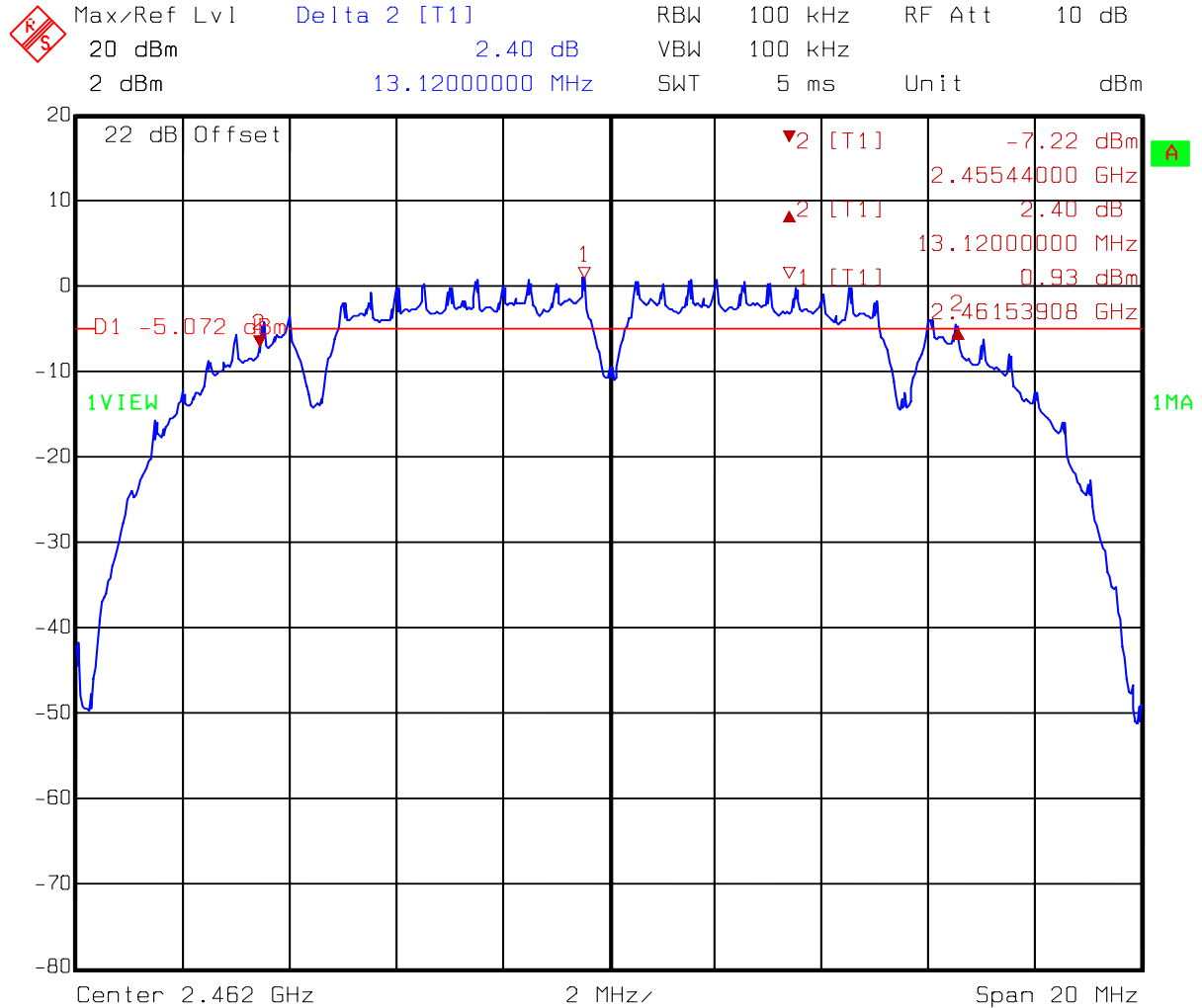
Test Mode: 802.11b(DSSS Modulation) operating mode



Title: 6dB Bandwidth
 Comment A: Channel 01 at 802.11b mode
 Date: 05.JUN.2006 14:48:51

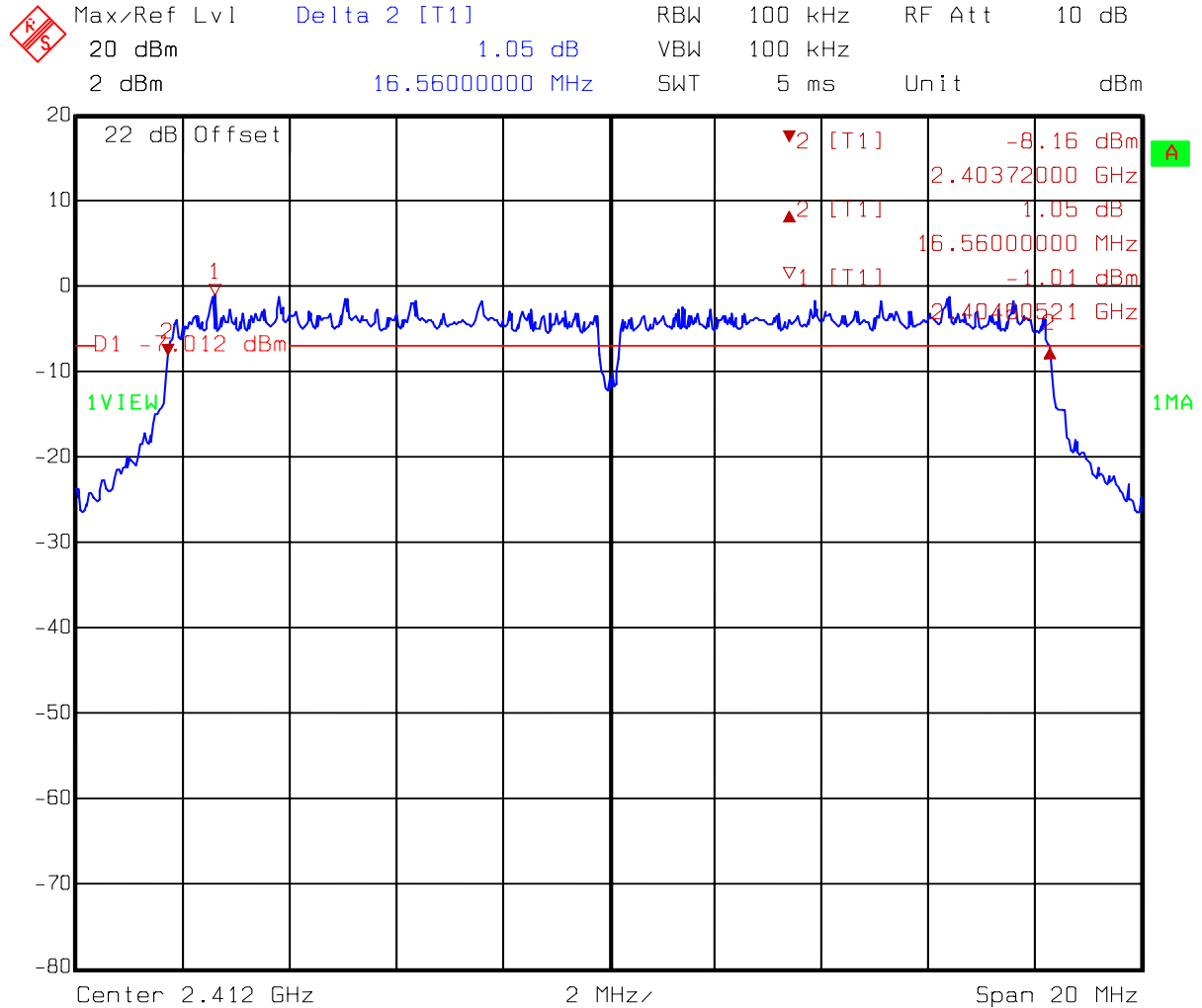


Title: 6dB Bandwidth
 Comment A: Channel 06 at 802.11b mode
 Date: 05.JUN.2006 14:52:17

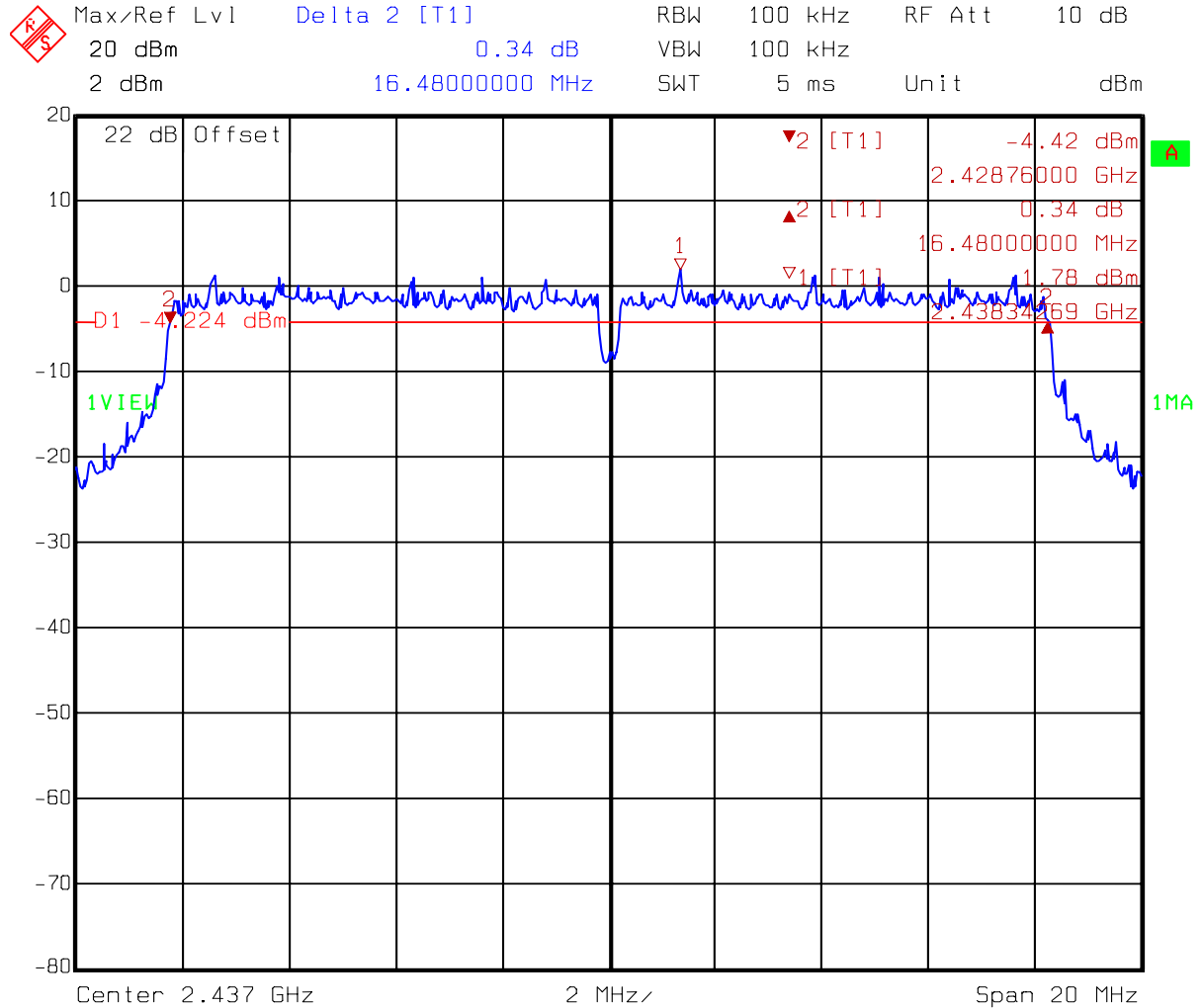


Title: 6dB Bandwidth
 Comment A: Channel 11 at 802.11b mode
 Date: 05.JUN.2006 14:53:37

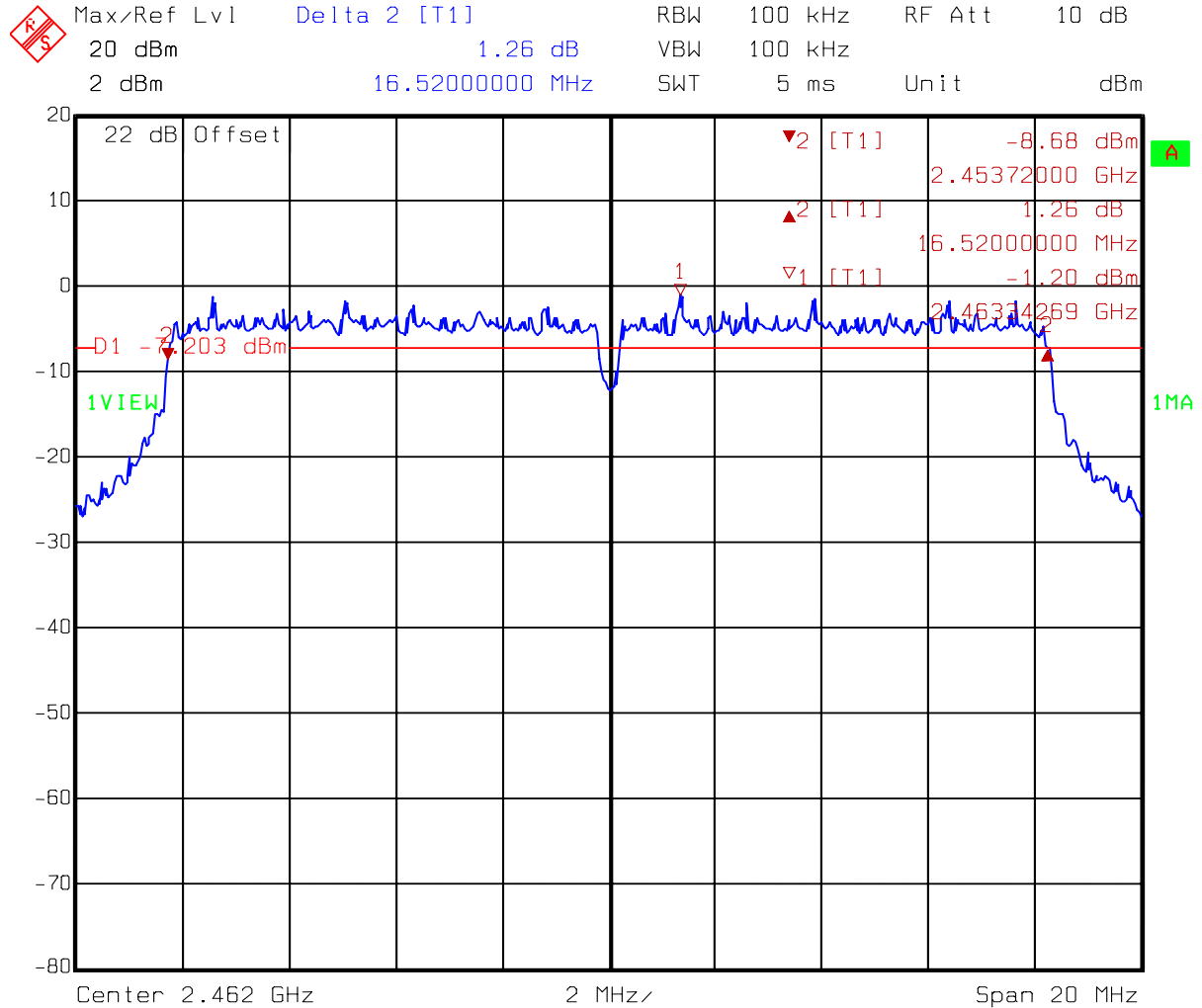
Test Mode: 802.11g(OFDM Modulation) operating mode



Title: 6dB Bandwidth
 Comment A: Channel 01 at 802.11g mode
 Date: 05.JUN.2006 14:57:20



Title: 6dB Bandwidth
 Comment A: Channel 06 at 802.11g mode
 Date: 05.JUN.2006 15:00:49



Title: 6dB Bandwidth
 Comment A: Channel 11 at 802.11g mode
 Date: 05.JUN.2006 15:02:09

4. Maximum Output Power test

4.1 Operating environment

Temperature: 24
 Relative Humidity: 52 %
 Atmospheric Pressure: 1023 hPa

4.2 Test setup & procedure

The power output per FCC §15.247(b) was measured on the EUT using a 50 ohm SMA cable connected to peak power meter via power sensor. Power was read directly and cable loss correction (2 dB) 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).

4.3 Measured data of Maximum Output Power test results

Test Mode: 802.11b (DSSS Modulation) operating mode

Channel	Freq. (MHz)	C.L. (dB)	Reading (dBm)	Conducted Peak Output Power		Limit (dBm)
				(dBm)	(mW)	
1 (lowest)	2412	2	15.92	17.92	61.94	30
6 (middle)	2437	2	16.75	18.75	74.99	30
11 (highest)	2462	2	15.63	17.63	57.94	30

Test Mode: 802.11g (OFDM Modulation) operating mode

Channel	Freq. (MHz)	C.L. (dB)	Reading (dBm)	Conducted Peak Output Power		Limit (dBm)
				(dBm)	(mW)	
1 (lowest)	2412	2	22.21	24.21	263.63	30
6 (middle)	2437	2	23.12	25.12	325.09	30
11 (highest)	2462	2	22.15	24.15	260.02	30

Remark:

Conducted Peak Output Power = Reading + C.L.

5. RF Antenna Conducted Spurious test

5.1 Operating environment

Temperature: 25
Relative Humidity: 58 %

5.2 Test setup & procedure

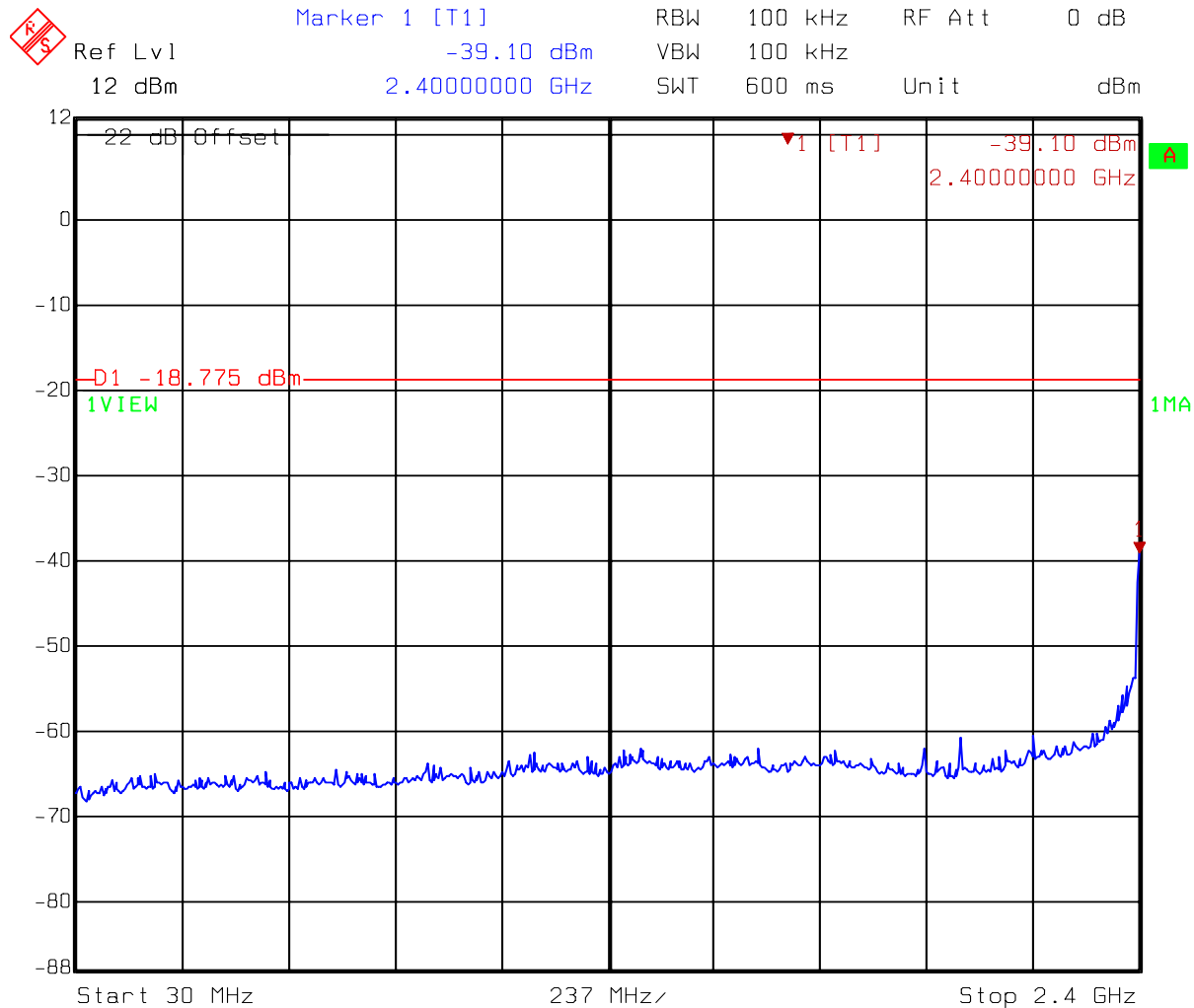
The measurements were performed from 30MHz to 25GHz RF antenna conducted per FCC 15.247 (c) was measured from the EUT antenna port using a 50ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 100 kHz.

Harmonics and spurious noise must be at least 20dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The table below is the results from the highest emission for each channel within the authorized band. This table was used to determine the spurious limits for each channel.

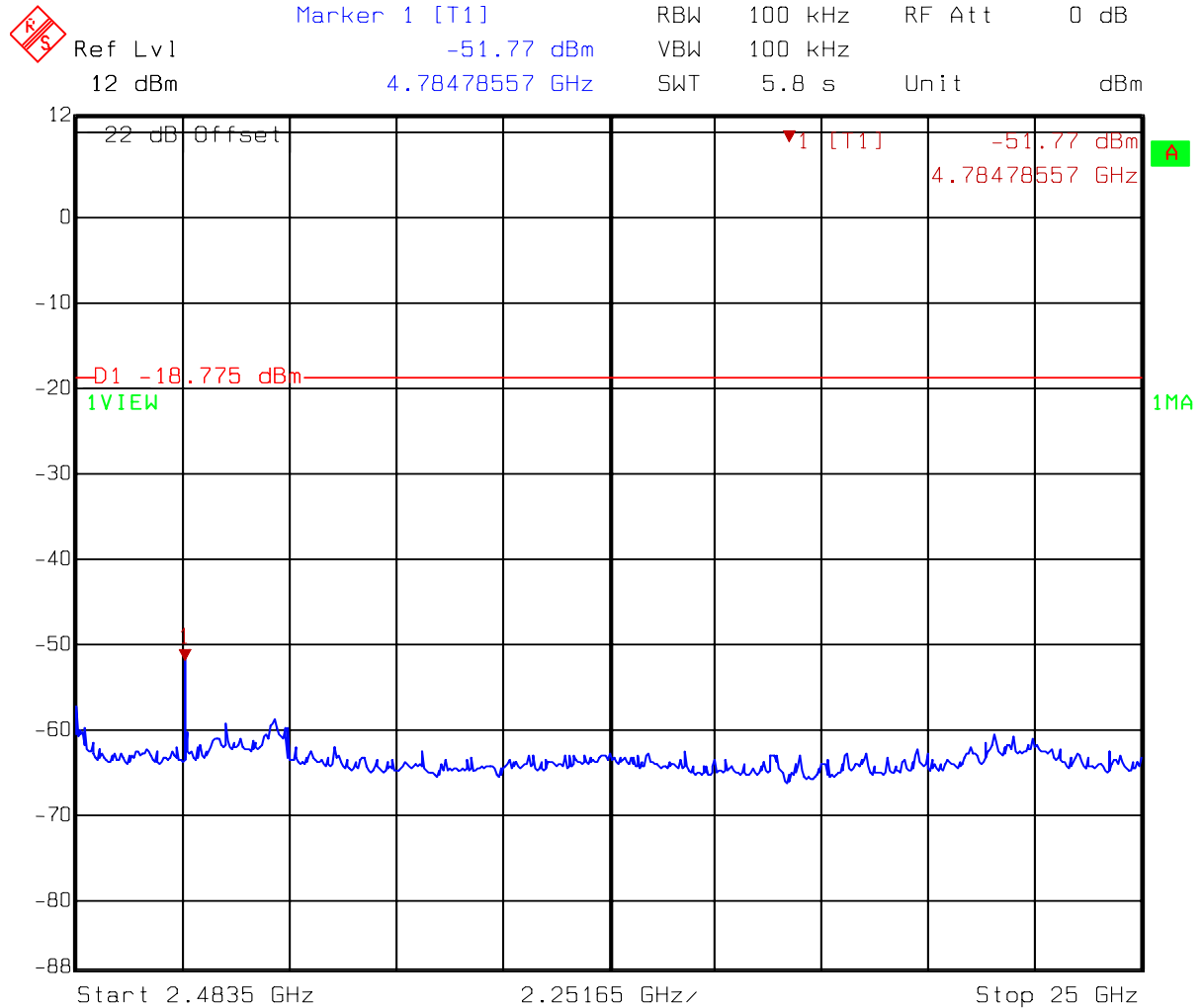
5.3 Measured data of the highest RF Antenna Conducted Spurious test result

The test results please see the plot below.

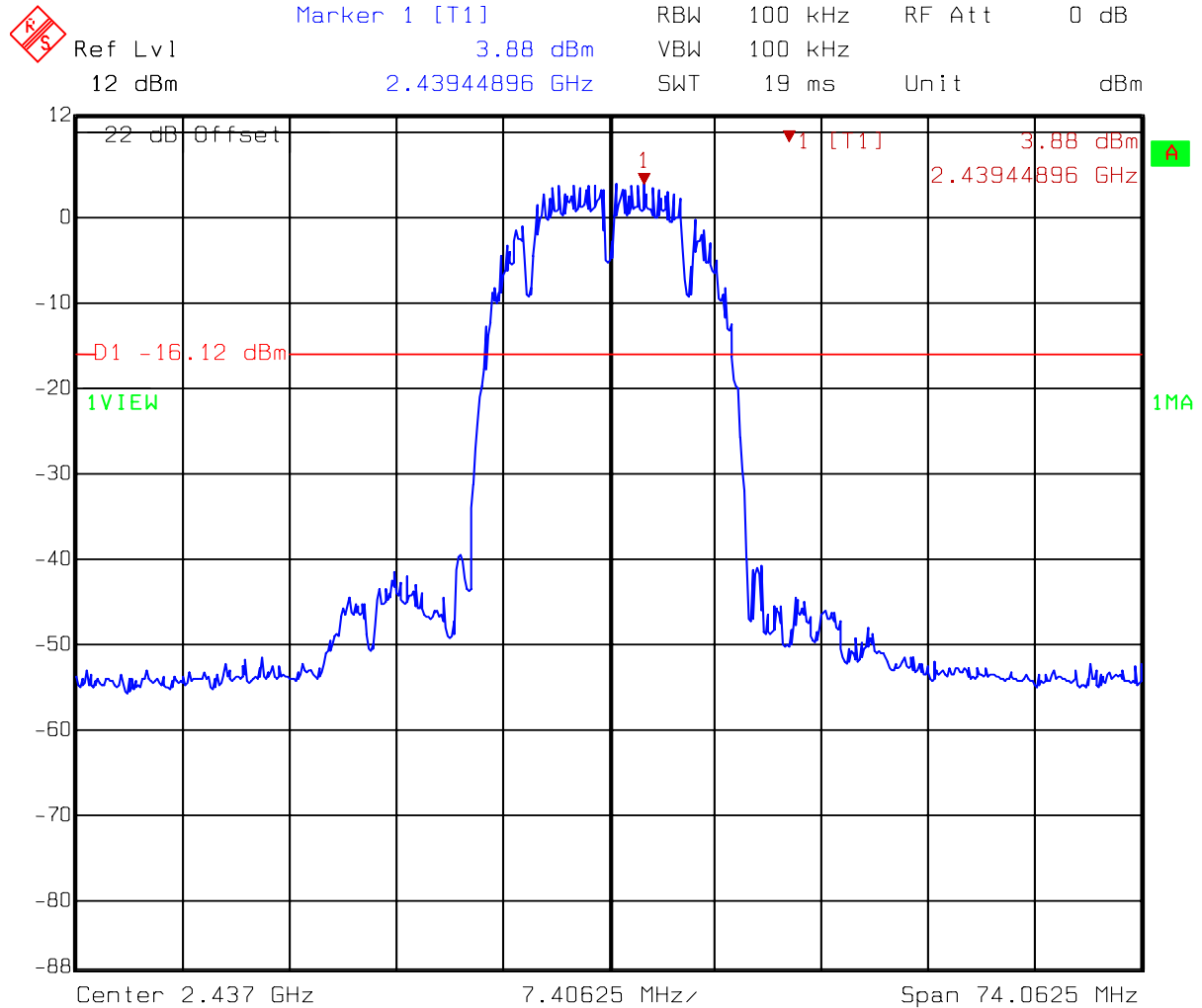
Test Mode: 802.11b(DSSS Modulation) operating mode



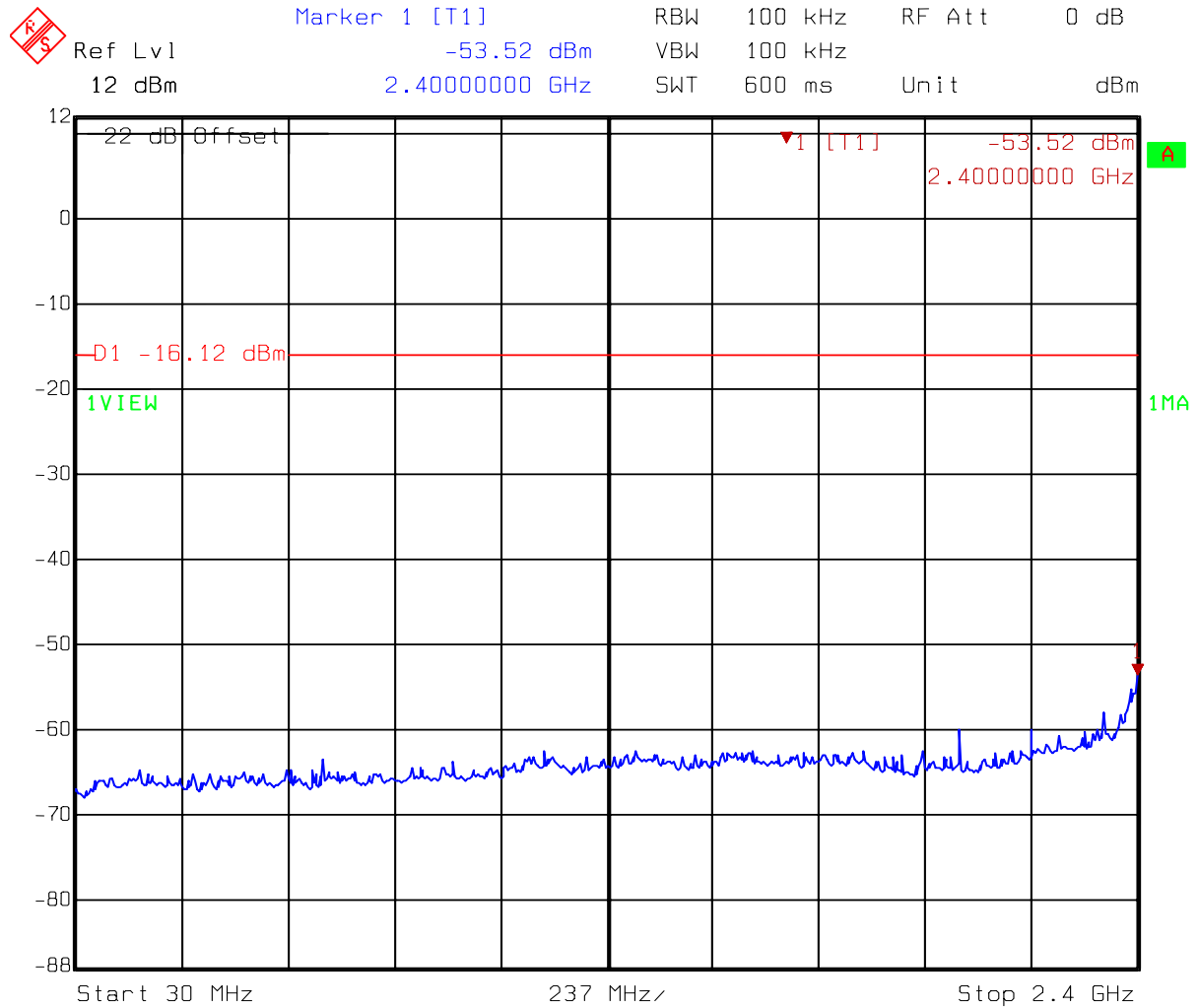
Title: Conductive Spurious
Comment A: 11b ch1 30MHz~2.4GHz
Date: 05.JUL.2006 14:33:08



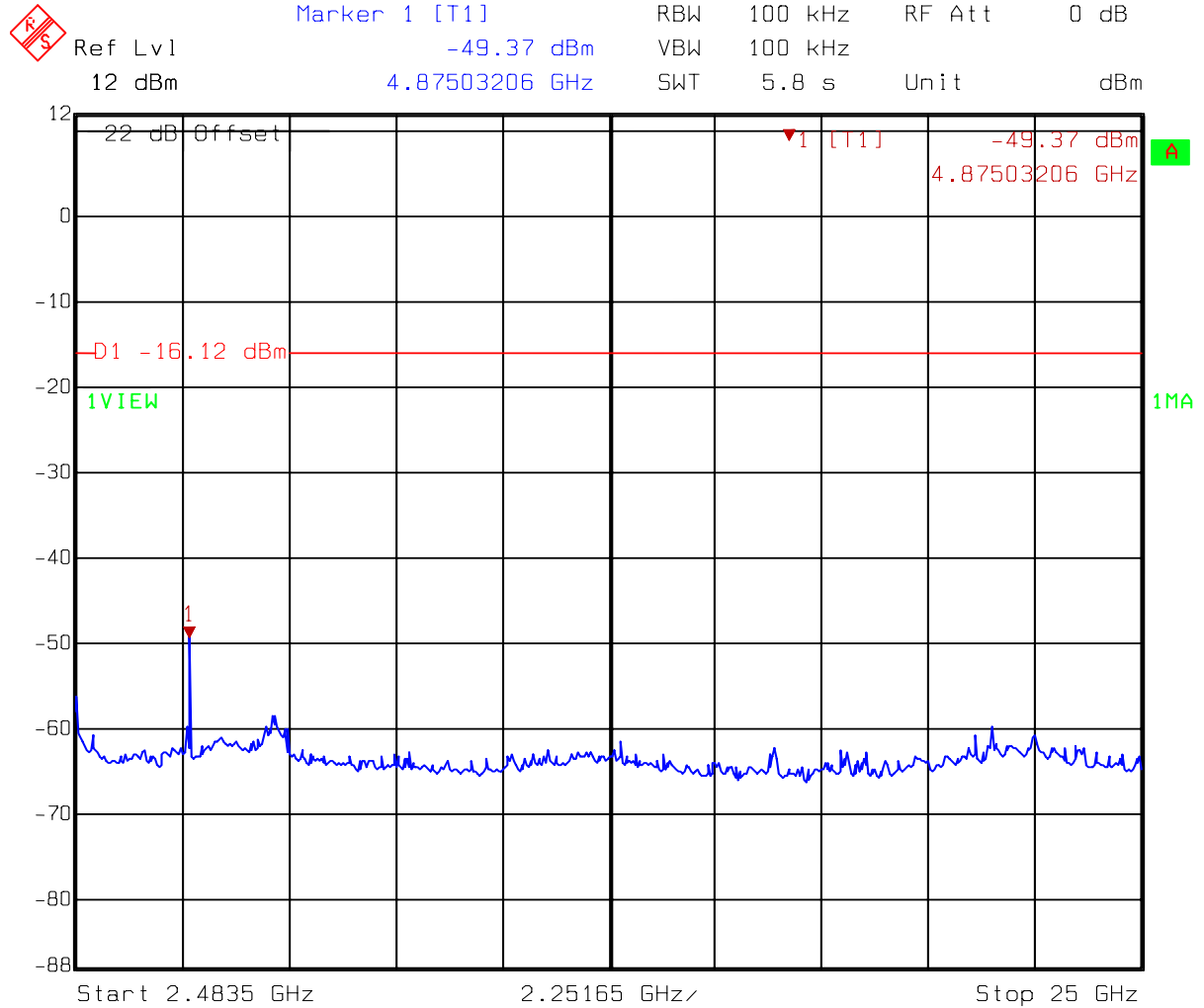
Title: Conductive Spurious
 Comment A: 11b ch1 2483.5MHz~25GHz
 Date: 05.JUL.2006 14:35:21



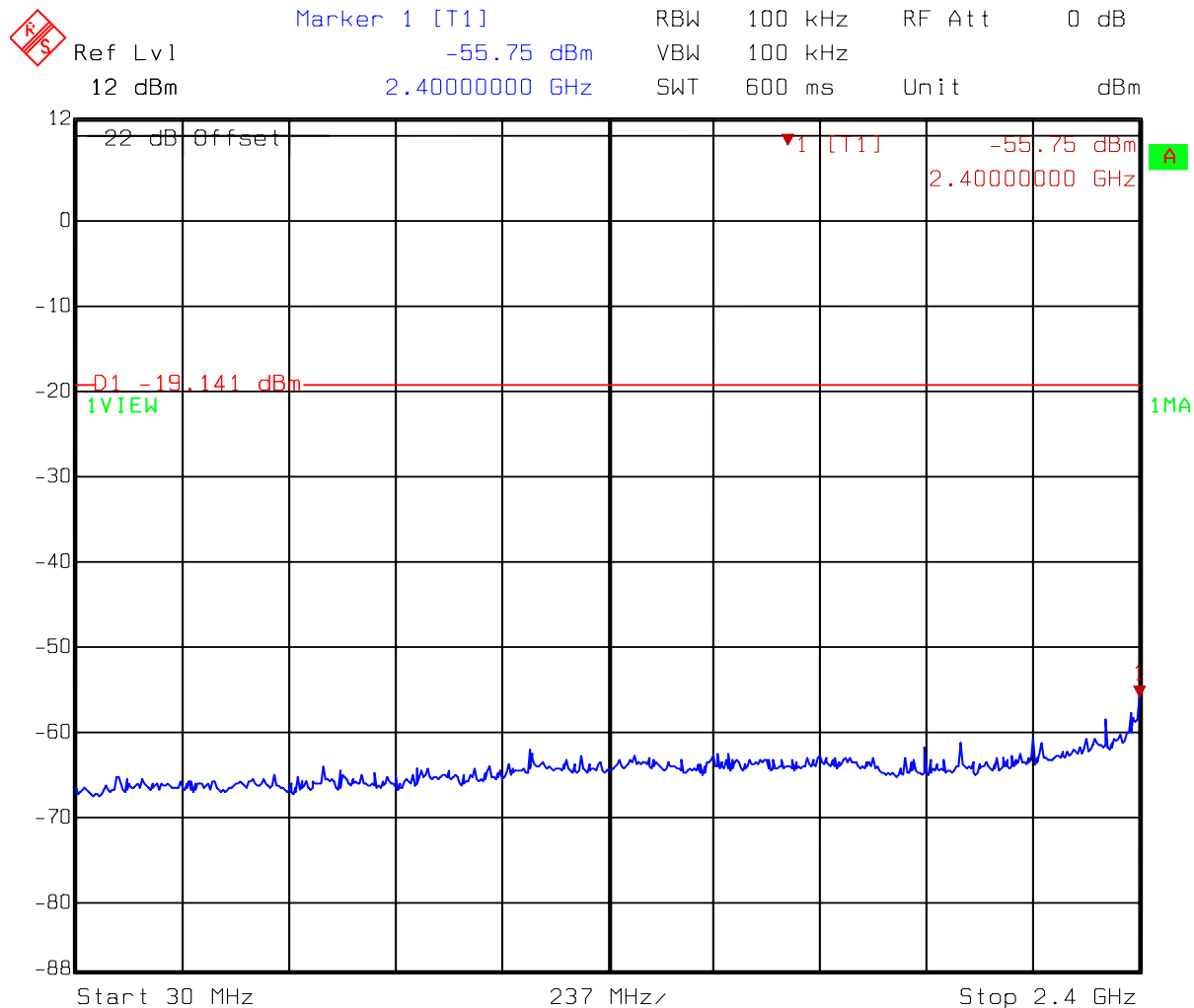
Title: Conductive Spurious
 Comment A: 11b ch6
 Date: 05.JUL.2006 14:45:47



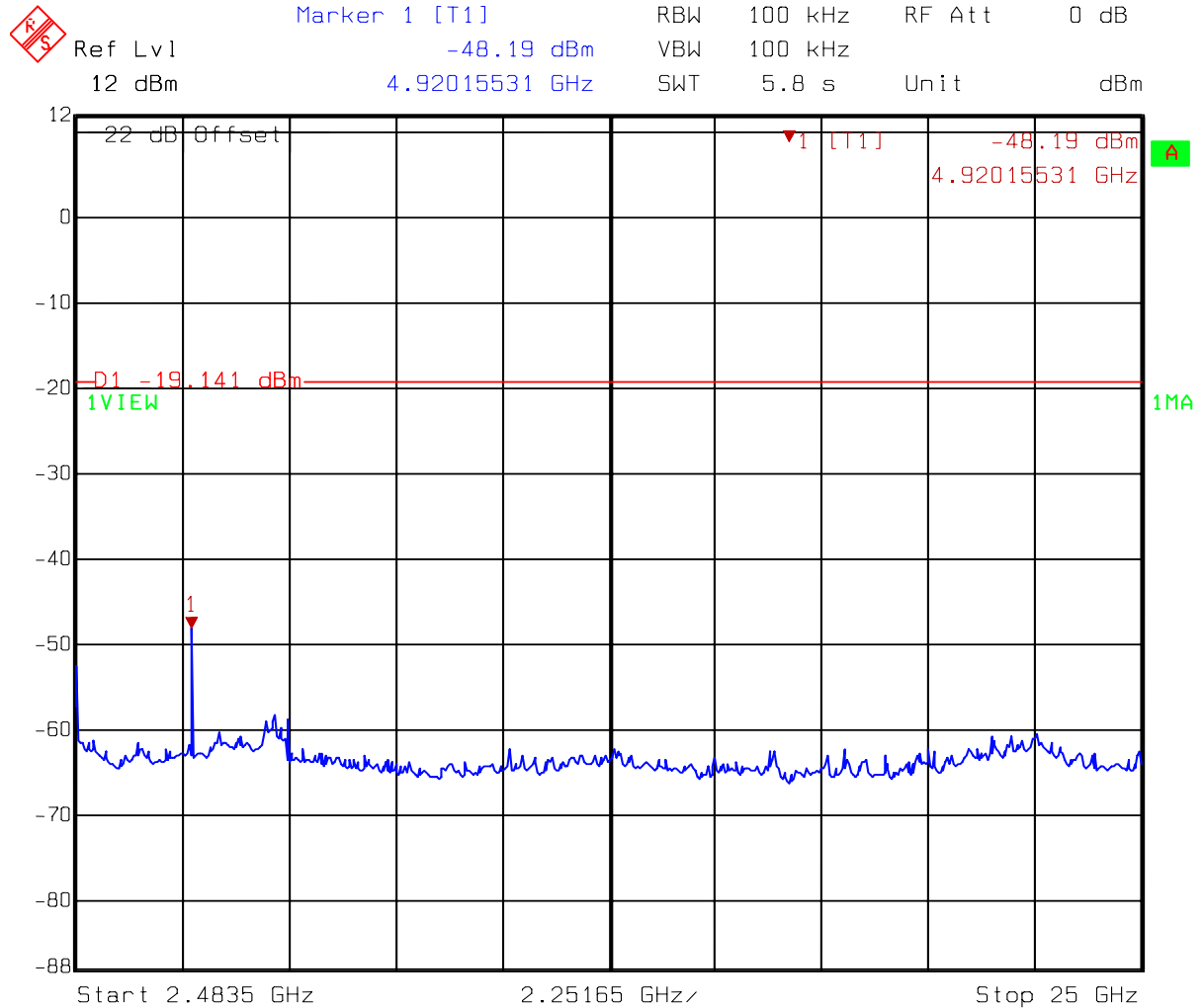
Title: Conductive Spurious
 Comment A: 11b ch6 30MHz~2.4GHz
 Date: 05.JUL.2006 14:47:33



Title: Conductive Spurious
 Comment A: 11b ch6 2483.5MHz~25GHz
 Date: 05.JUL.2006 14:49:41

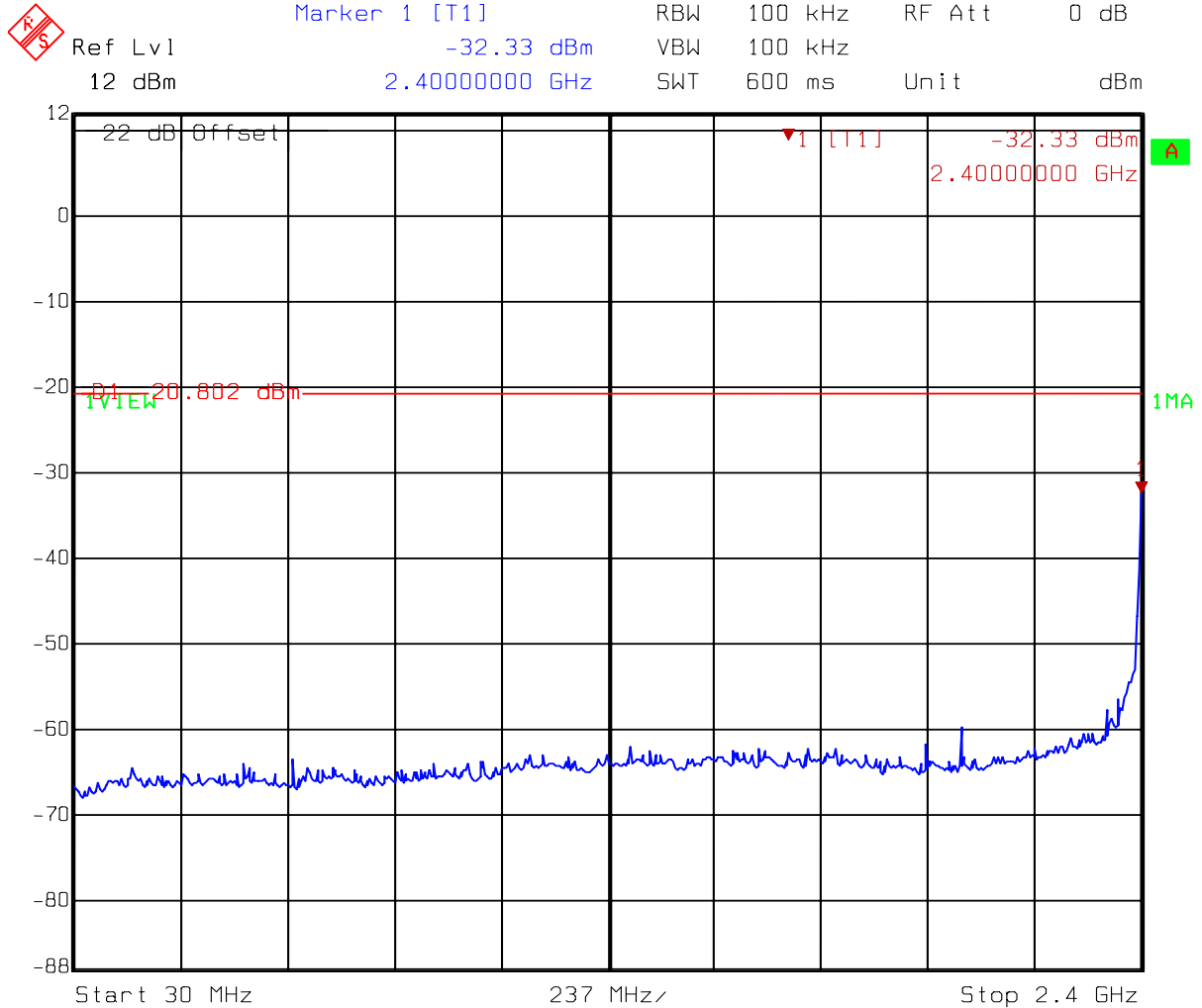


Title: Conductive Spurious
 Comment A: 11b ch11 30MHz~2.4GHz
 Date: 05.JUL.2006 14:41:53

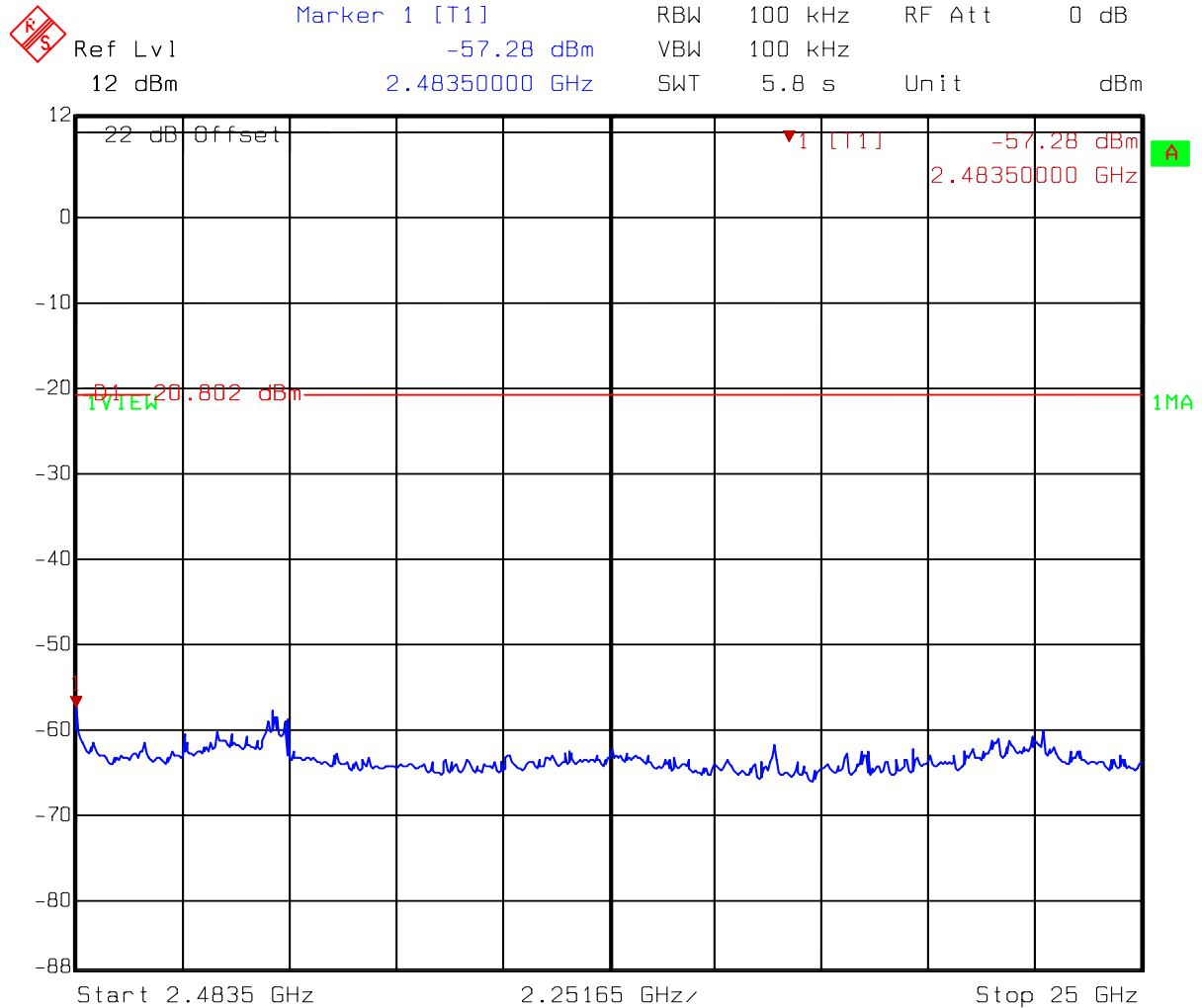


Title: Conductive Spurious
 Comment A: 11b ch11 2483.5MHz~25GHz
 Date: 05.JUL.2006 14:40:22

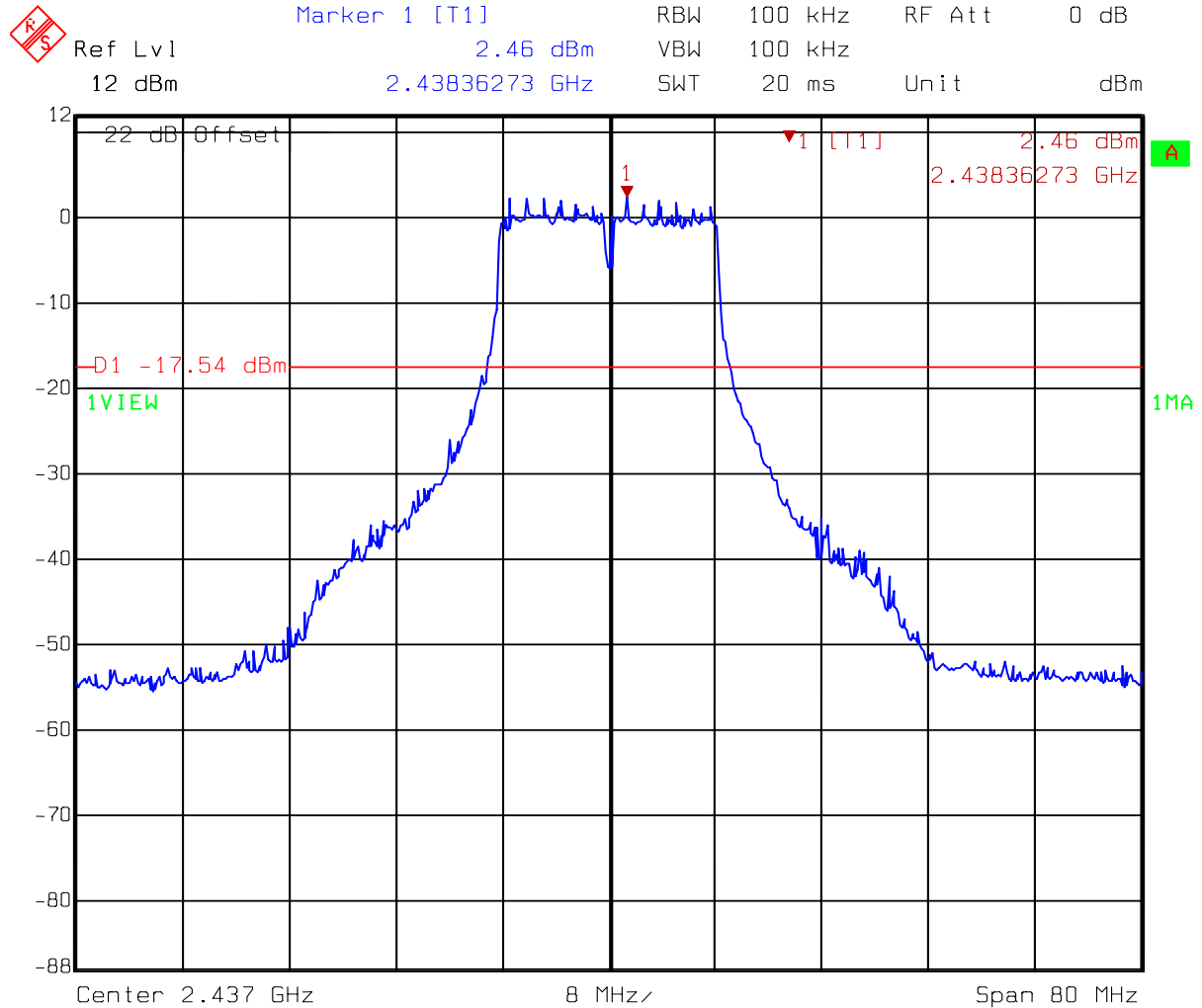
Test Mode: 802.11g(OFDM Modulation) operating mode



Title: Conductive Spurious
 Comment A: 11g ch1 30MHz~2.4GHz
 Date: 05.JUL.2006 14:52:33



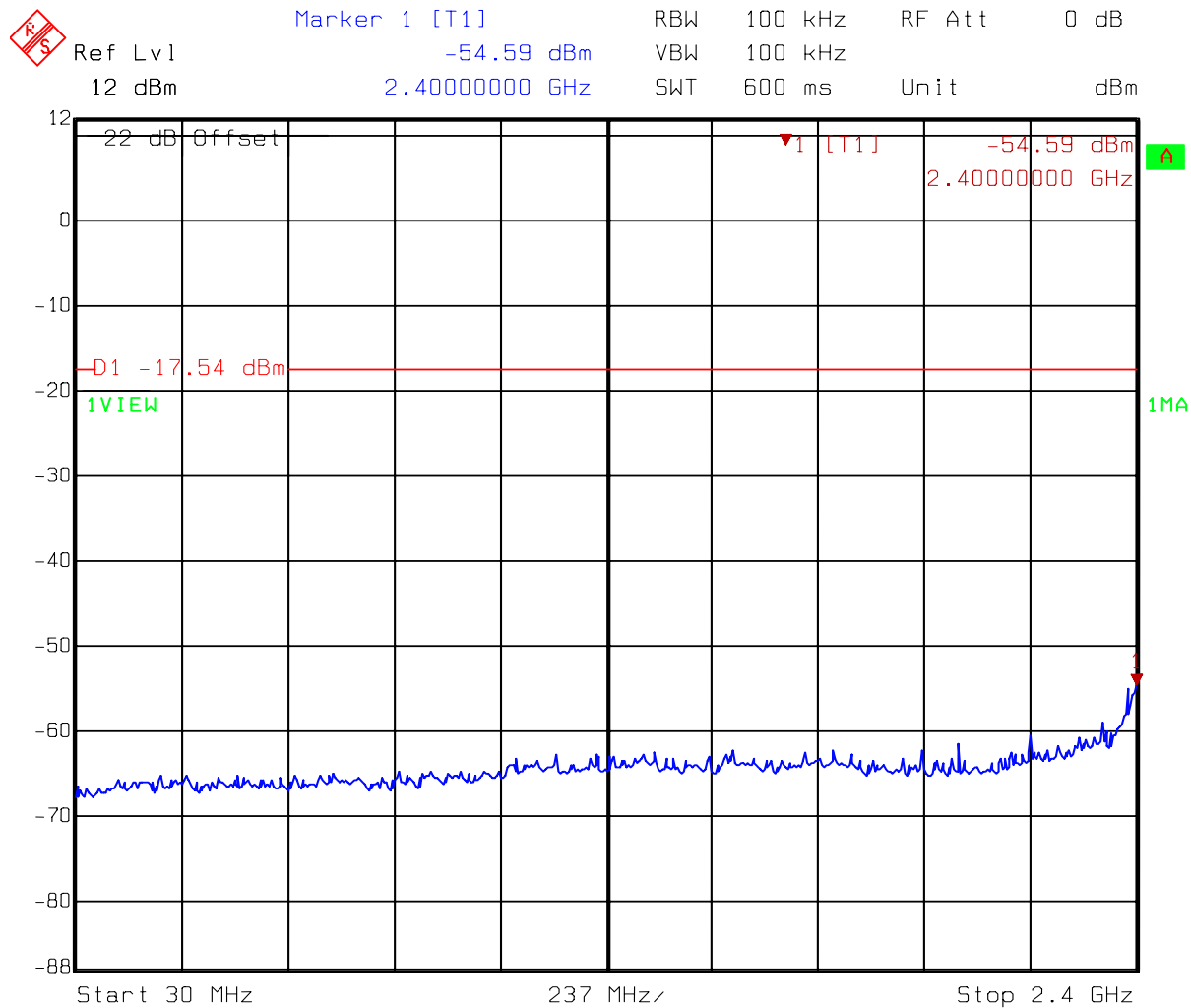
Title: Conductive Spurious
 Comment A: 11g ch1 2483.5MHz~25GHz
 Date: 05.JUL.2006 14:54:20



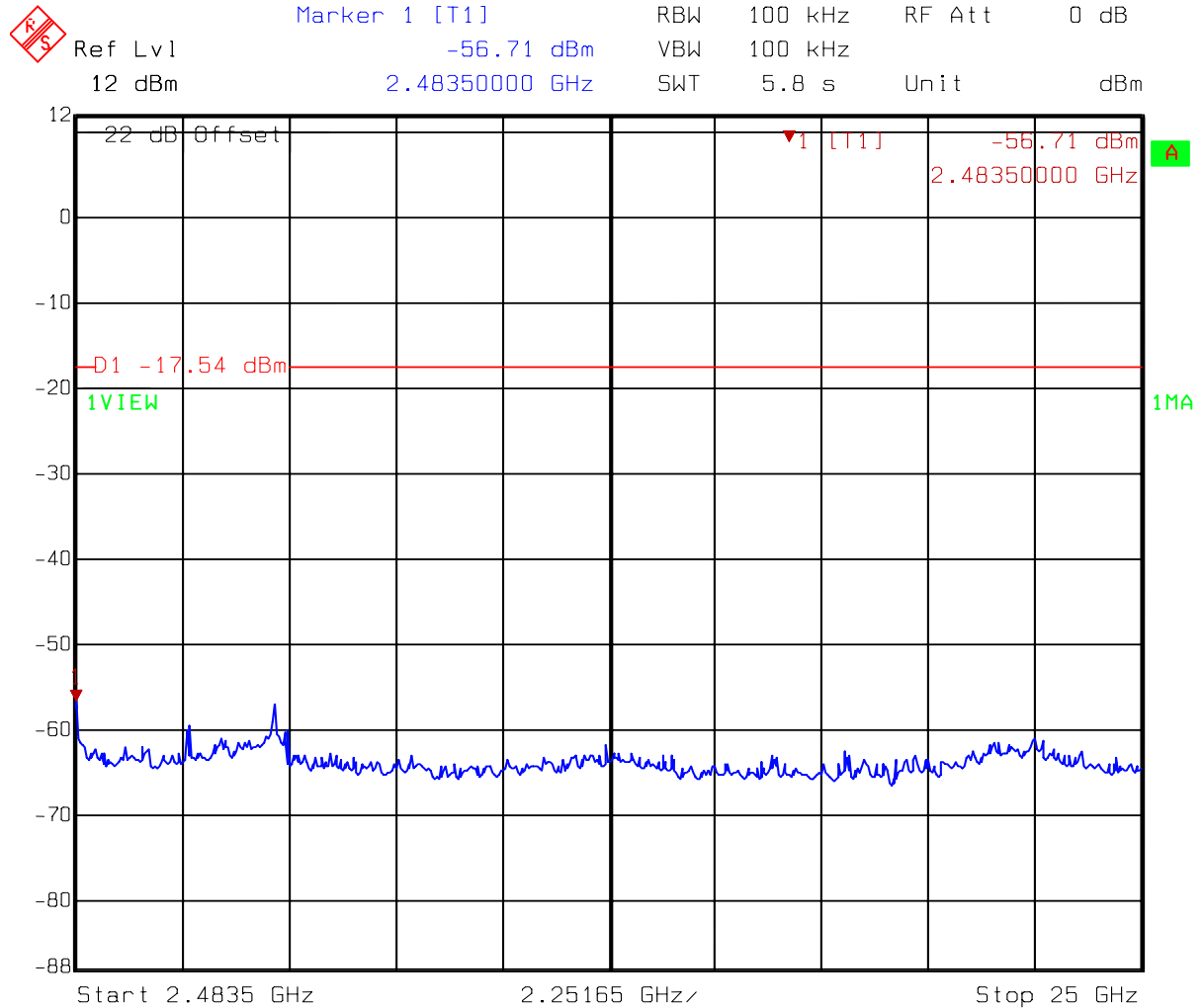
Title: Conductive Spurious

Comment A: 11g ch6

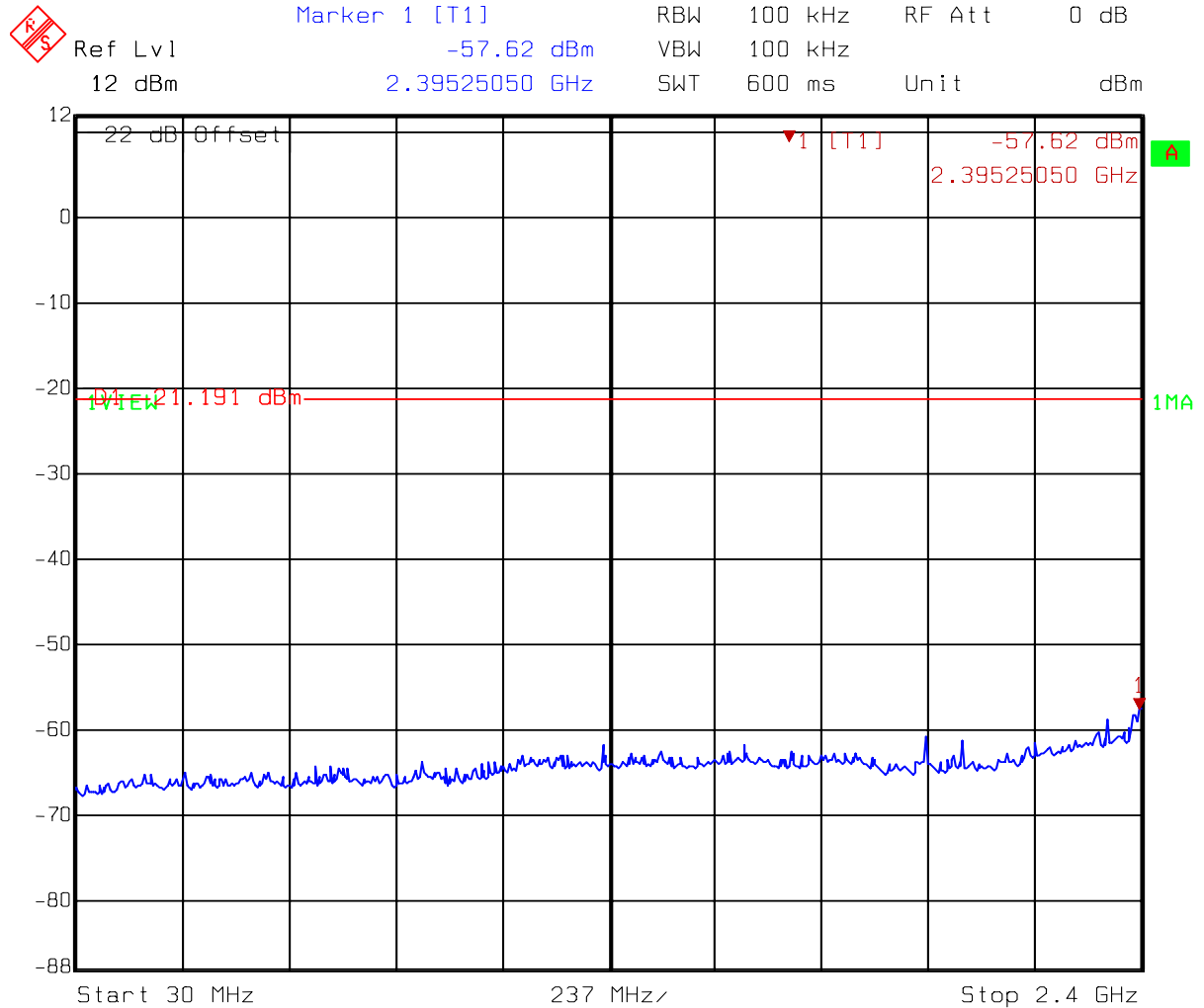
Date: 05.JUL.2006 15:02:00



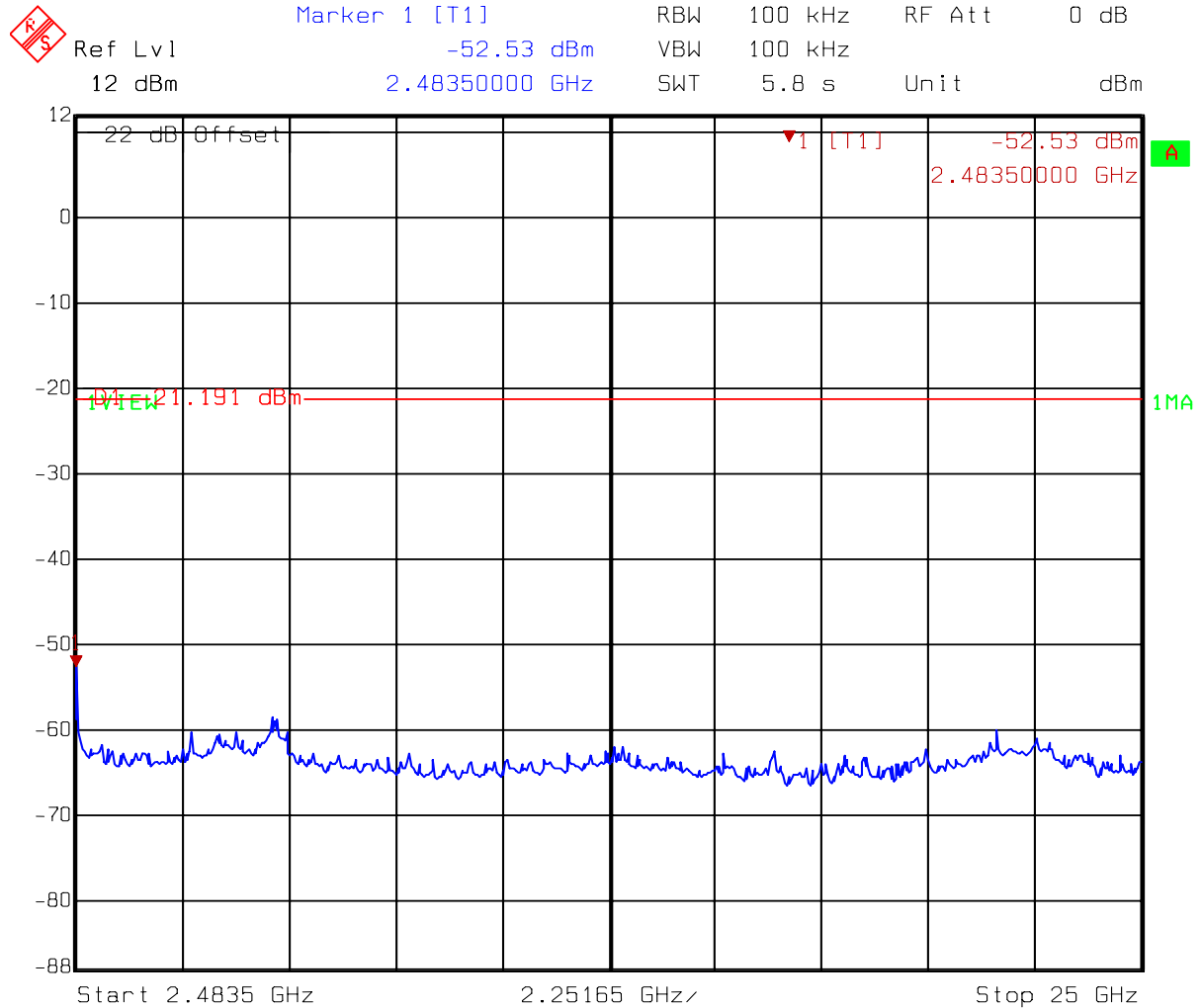
Title: Conductive Spurious
 Comment A: 11g ch6 30MHz~2.4GHz
 Date: 05.JUL.2006 15:03:06



Title: Conductive Spurious
Comment A: 11g ch6 2483.5MHz~25GHz
Date: 05.JUL.2006 15:04:17



Title: Conductive Spurious
 Comment A: 11g ch11 30MHz~2.4GHz
 Date: 05.JUL.2006 14:57:22



Title: Conductive Spurious
 Comment A: 11g ch11 2483.5MHz~25GHz
 Date: 05.JUL.2006 14:56:02

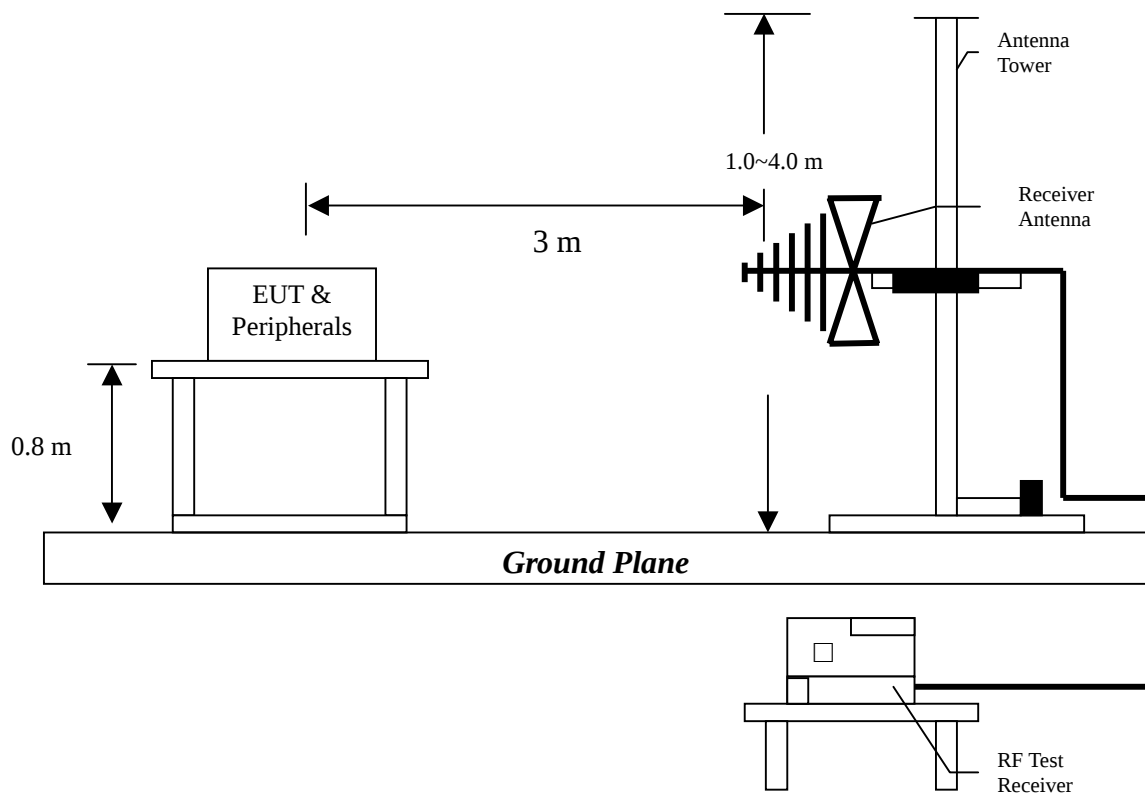
6. Radiated Emission test

6.1 Operating environment

Temperature: 24
Relative Humidity: 52 %
Atmospheric Pressure: 1023 hPa

6.2 Test setup & procedure

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



Radiated emissions were investigated 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 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 3 meter reading using inverse scaling with distance.

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

6.3 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.

6.4 Radiated spurious emission test data

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

The test was performed on EUT under 802.11b/g continuously transmitting mode. Channel 1, 6, 11 were verified. The worst case occurred at 802.11b Tx channel 1.

EUT : DSL-2640T
Worst Case : 802.11b Tx at channel 1

Antenna Polariz. (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
V	60.07000	QP	12.23	22.55	34.78	40.00	-5.22	100	184
V	249.2200	QP	12.22	23.21	35.43	46.00	-10.58	100	155
V	374.3500	QP	15.06	23.44	38.50	46.00	-7.50	168	206
V	399.5700	QP	16.40	18.28	34.68	46.00	-11.32	195	302
V	624.6100	QP	20.75	16.72	37.47	46.00	-8.53	174	225
V	749.7400	QP	22.74	15.72	38.46	46.00	-7.54	123	95
H	249.2200	QP	12.36	26.96	39.32	46.00	-6.68	254	97
H	374.3500	QP	15.48	24.93	40.41	46.00	-5.60	198	118
H	399.5700	QP	16.74	19.21	35.95	46.00	-10.05	208	63
H	624.6100	QP	20.88	15.54	36.42	46.00	-9.59	154	308
H	749.7400	QP	22.95	17.11	40.06	46.00	-5.94	113	1
H	879.7200	QP	24.62	10.82	35.44	46.00	-10.57	105	58

Remark:

1. Corr. Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Corr. Factor

6.4.2 Measurement results: frequency above 1GHz

EUT : DSL-2640T

Test Condition : 802.11b Tx at channel 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4800.00	PK	V	36.07	37.77	46.43	48.13	54	-5.87	100.00	296.00

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. “-“ means the emission is below the noise floor.

Noise floor level is :

For PK:

1GHz-3GHz: 20dBuV

3GHz-14GHz: 27dBuV

14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV

3GHz-14GHz: 16dBuV

14GHz-26.5GHz: 28dBuV

EUT : DSL-2640T
 Test Condition : 802.11b Tx at channel 6

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4860.00	PK	V	36.07	37.77	52.8	54.5	74	-19.5	100.00	118.00
4860.00	AV	V	36.07	37.77	50.77	52.47	54	-1.53	100.00	118.00
4860.00	PK	H	36.07	37.77	43.71	45.41	54	-8.59	120.00	229.00

Remark:

1. “*”: Fundamental Frequency
2. Correction Factor = Antenna Factor + Cable Loss
3. Corrected Level = Reading + Correction Factor – Preamp. Gain
4. “-“ means the emission is below the noise floor.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV
 3GHz-14GHz: 27dBuV
 14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV
 3GHz-14GHz: 16dBuV
 14GHz-26.5GHz: 28dBuV

EUT : DSL-2640T
Test Condition : 802.11b Tx at channel 11

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4920.00	PK	V	36.07	37.77	47.11	48.81	54	-5.19	105.00	163.00

Remark:

1. “*”: Fundamental Frequency
2. Correction Factor = Antenna Factor + Cable Loss
3. Corrected Level = Reading + Correction Factor – Preamp. Gain
4. “-“ means the emission is below the noise floor.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV

3GHz-14GHz: 27dBuV

14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV

3GHz-14GHz: 16dBuV

14GHz-26.5GHz: 28dBuV

EUT : DSL-2640T
Test Condition : 802.11g Tx at channel 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4800.00	PK	V	36.07	37.77	46.64	48.34	54	-5.66	135.00	174.00

Remark:

1. “*”: Fundamental Frequency
2. Correction Factor = Antenna Factor + Cable Loss
3. Corrected Level = Reading + Correction Factor – Preamp. Gain
4. “-“ means the emission is below the noise floor.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV

3GHz-14GHz: 27dBuV

14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV

3GHz-14GHz: 16dBuV

14GHz-26.5GHz: 28dBuV

EUT : DSL-2640T
 Test Condition : 802.11g Tx at channel 6

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4860.00	PK	V	36.07	37.77	54.23	55.93	74	-18.07	108.00	25.00
4860.00	AV	V	36.07	37.77	40.65	42.35	54	-11.65	108.00	25.00
4860.00	PK	H	36.07	37.77	43.25	44.95	54	-9.05	112.00	293.00

Remark:

1. “*”: Fundamental Frequency
2. Correction Factor = Antenna Factor + Cable Loss
3. Corrected Level = Reading + Correction Factor – Preamp. Gain
4. “-“ means the emission is below the noise floor.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV
 3GHz-14GHz: 27dBuV
 14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV
 3GHz-14GHz: 16dBuV
 14GHz-26.5GHz: 28dBuV

EUT : DSL-2640T
Test Condition : 802.11g Tx at channel 11

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)	Ant. high (cm)	Turn Table angle (degree)
4920.00	PK	V	36.07	37.77	45.21	46.91	54	-7.09	113.00	152.00

Remark:

1. “*”: Fundamental Frequency
2. Correction Factor = Antenna Factor + Cable Loss
3. Corrected Level = Reading + Correction Factor – Preamp. Gain
4. “-“ means the emission is below the noise floor.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV

3GHz-14GHz: 27dBuV

14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV

3GHz-14GHz: 16dBuV

14GHz-26.5GHz: 28dBuV

7. Power Spectrum Density test

7.1 Operating environment

Temperature: 24
Relative Humidity: 52 %
Atmospheric Pressure 1023 hPa

7.2 Test setup & procedure

The power spectrum density per FCC §15.247(e) 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 10kHz, a span of 300kHz, and the sweep time set at 100 seconds. Power Density was read directly 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.

7.3 Measured data of Power Spectrum Density test results

Test Mode: 802.11b (DSSS Modulation) operating mode

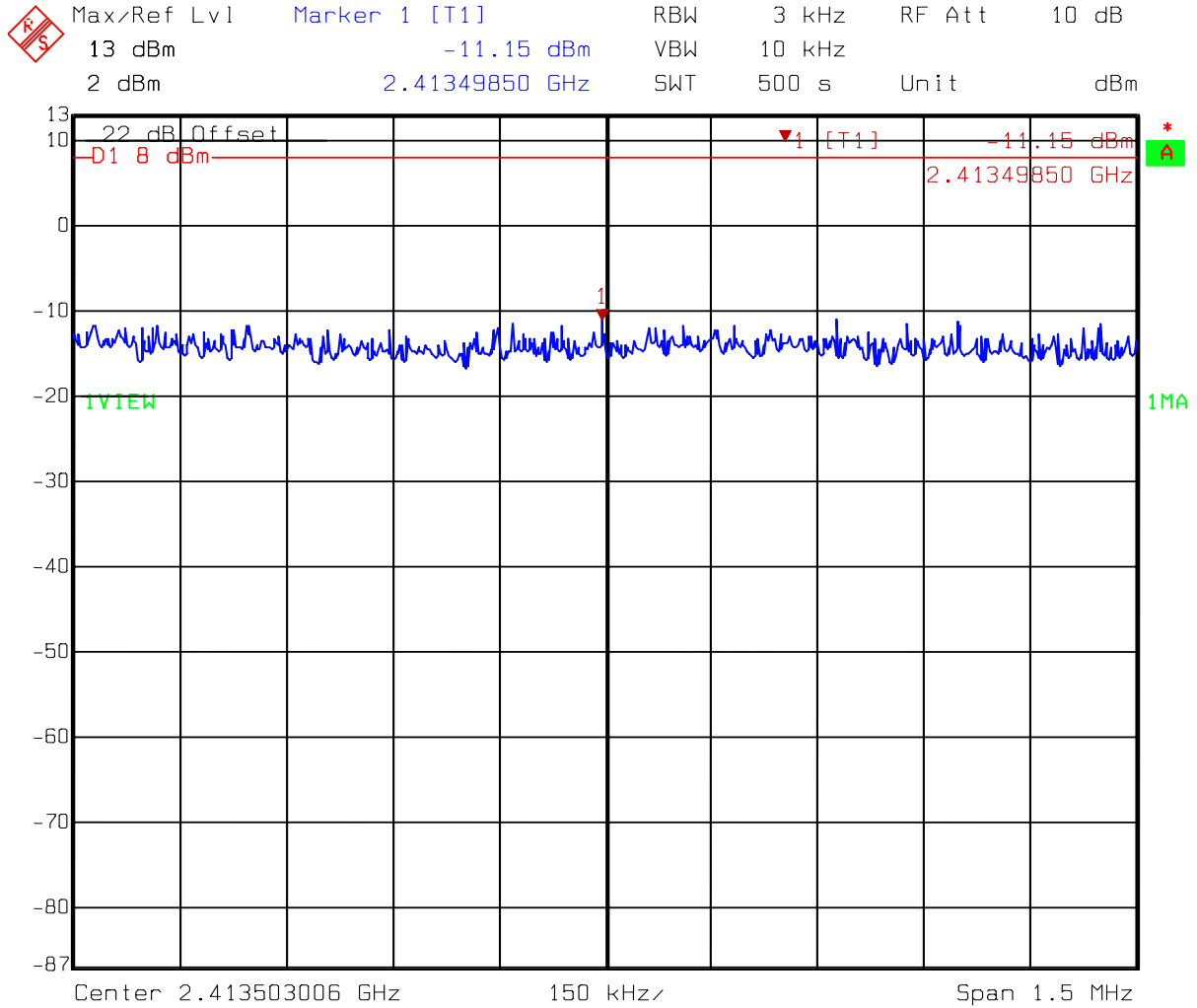
Channel	Frequency (MHz)	Power spectrum density (dBm)	Limit (dBm)
1 (lowest)	2412	2413.50	8
6 (middle)	2437	2434.00	8
11 (highest)	2462	2462.83	8

Test Mode: 802.11g (OFDM Modulation) operating mode

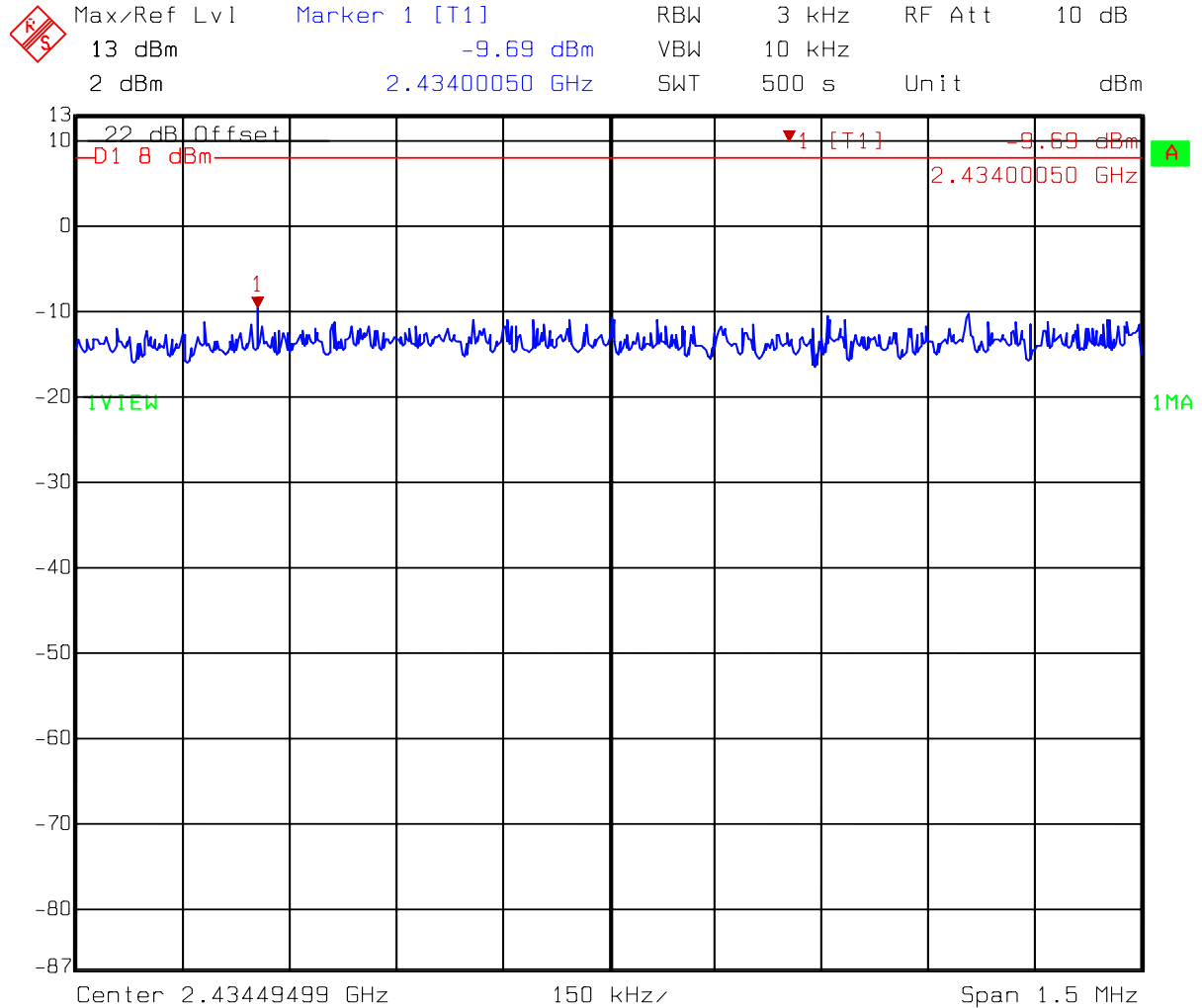
Channel	Frequency (MHz)	Power spectrum density (dBm)	Limit (dBm)
1 (lowest)	2412	2417.95	8
6 (middle)	2437	2438.23	8
11 (highest)	2462	2468.85	8

Please see the plot below.

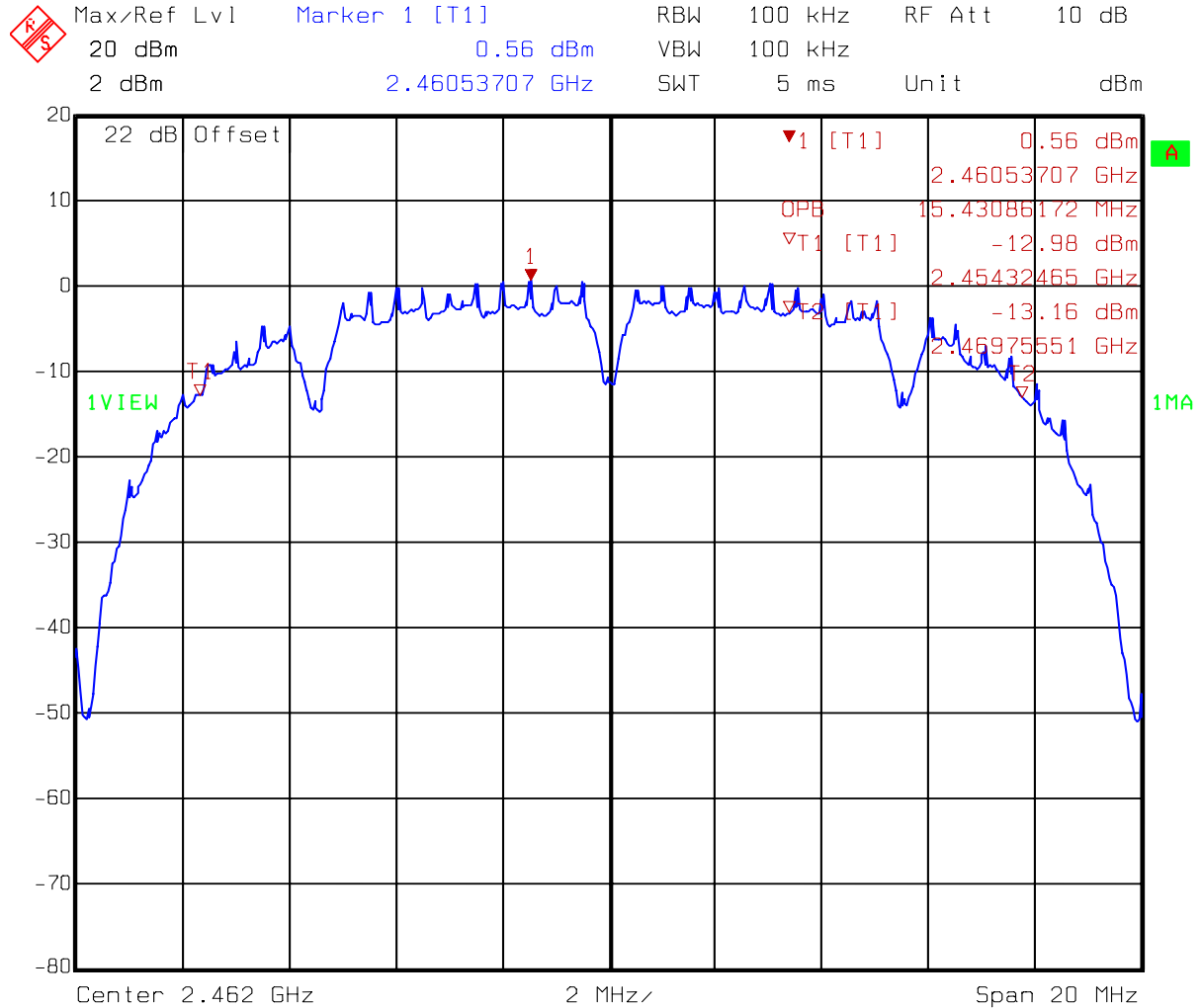
Test Mode: 802.11b (DSSS Modulation) operating mode



```
Title:      Power Spectrum Density
Comment A: Channel 01 at 802.11b mode
Date:      19.JUN.2006  09:29:12
```

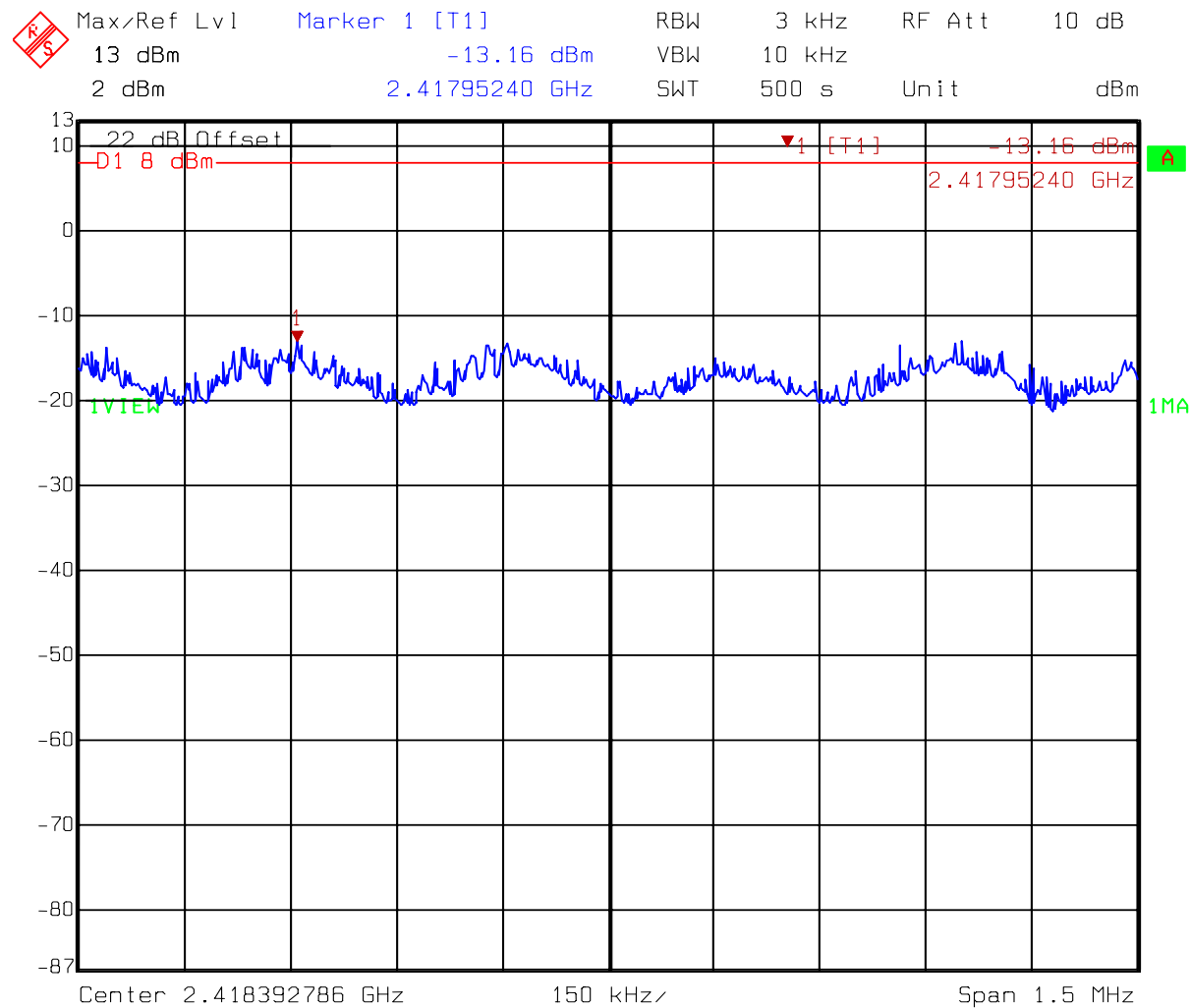


Title: Power Spectrum Density
 Comment A: Channel 06 at 802.11b mode
 Date: 19.JUN.2006 09:30:24

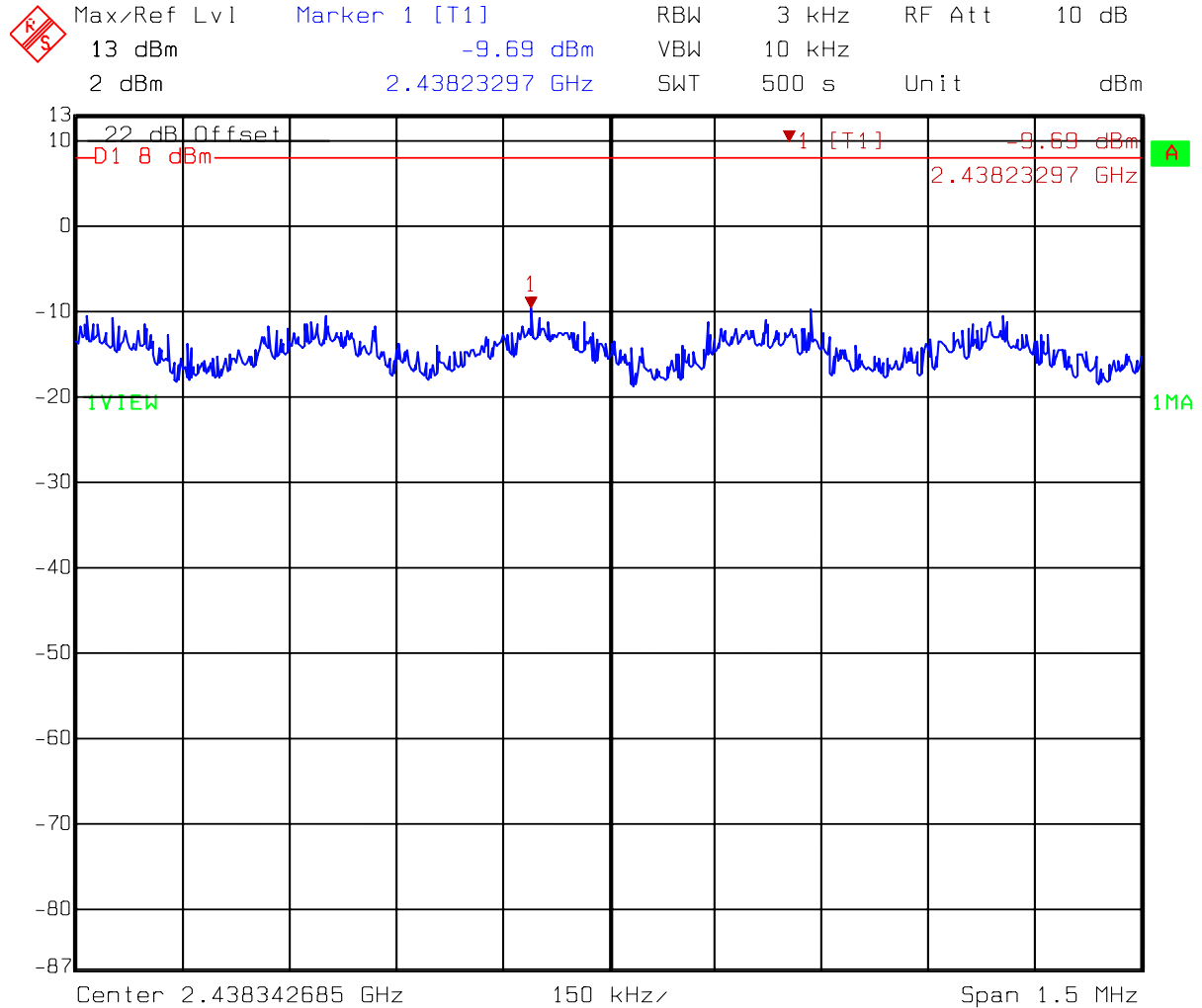


Title: Occupied Bandwidth
 Comment A: Channel 11 at 802.11b mode
 Date: 05.JUN.2006 14:54:10

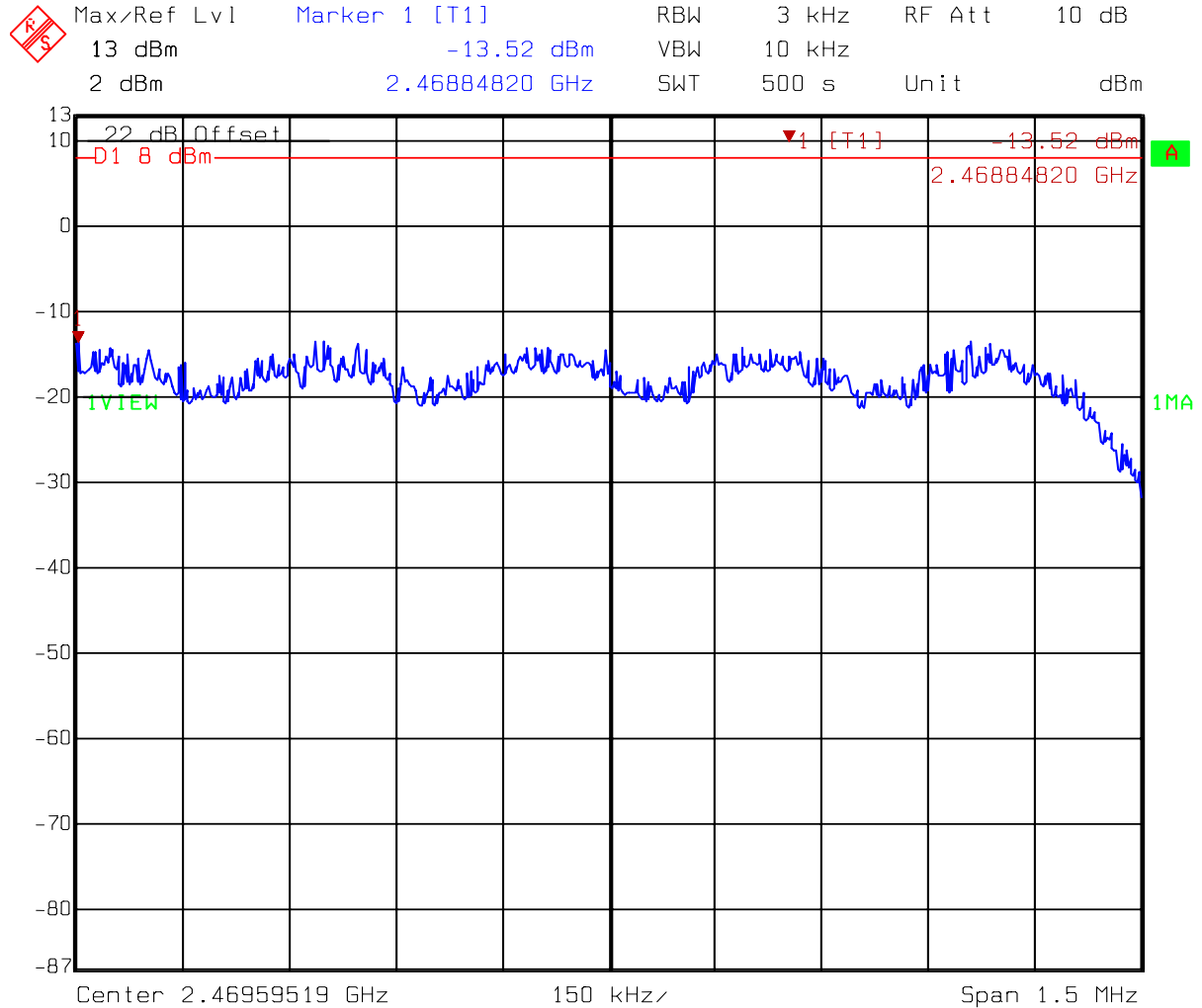
Test Mode: 802.11g (OFDM Modulation) operating mode



Title: Power Spectrum Density
Comment A: Channel 01 at 802.11g mode
Date: 19.JUN.2006 09:32:42



Title: Power Spectrum Density
 Comment A: Channel 06 at 802.11g mode
 Date: 19.JUN.2006 09:32:11



Title: Power Spectrum Density
 Comment A: Channel 11 at 802.11g mode
 Date: 19.JUN.2006 09:31:35

8. Emission on the band edge

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.

8.1 Operating environment

Temperature:	24	
Relative Humidity:	52	%
Atmospheric Pressure	1023	hPa

8.2 Test setup & procedure

The output of EUT was connected to spectrum analyzer via a 50ohm cable.

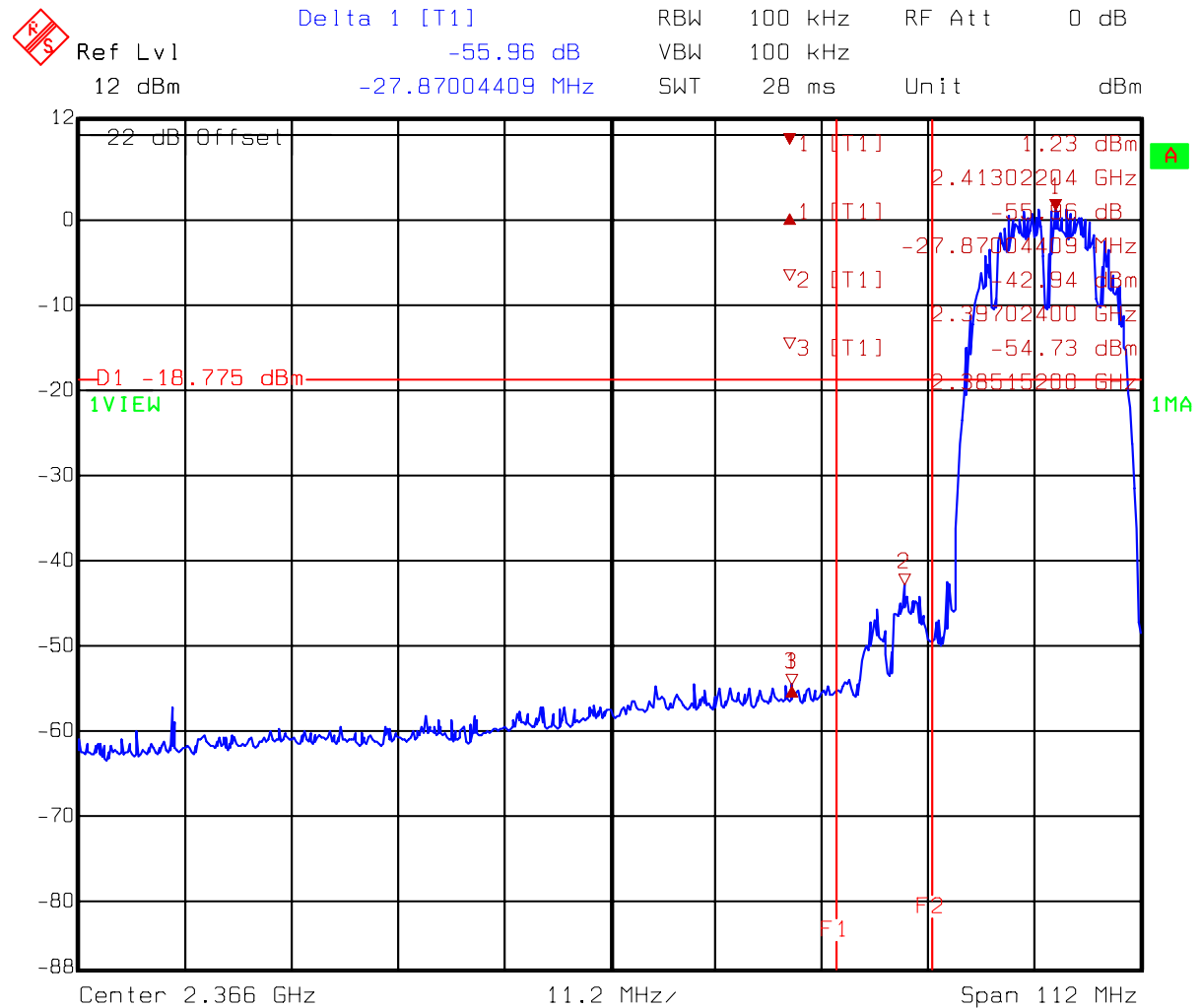
The setting of spectrum analyzer is:

Peak:	RBW = 100kHz ;	VBW = 100kHz
Average:	RBW = 1MHz ;	VBW = 10Hz

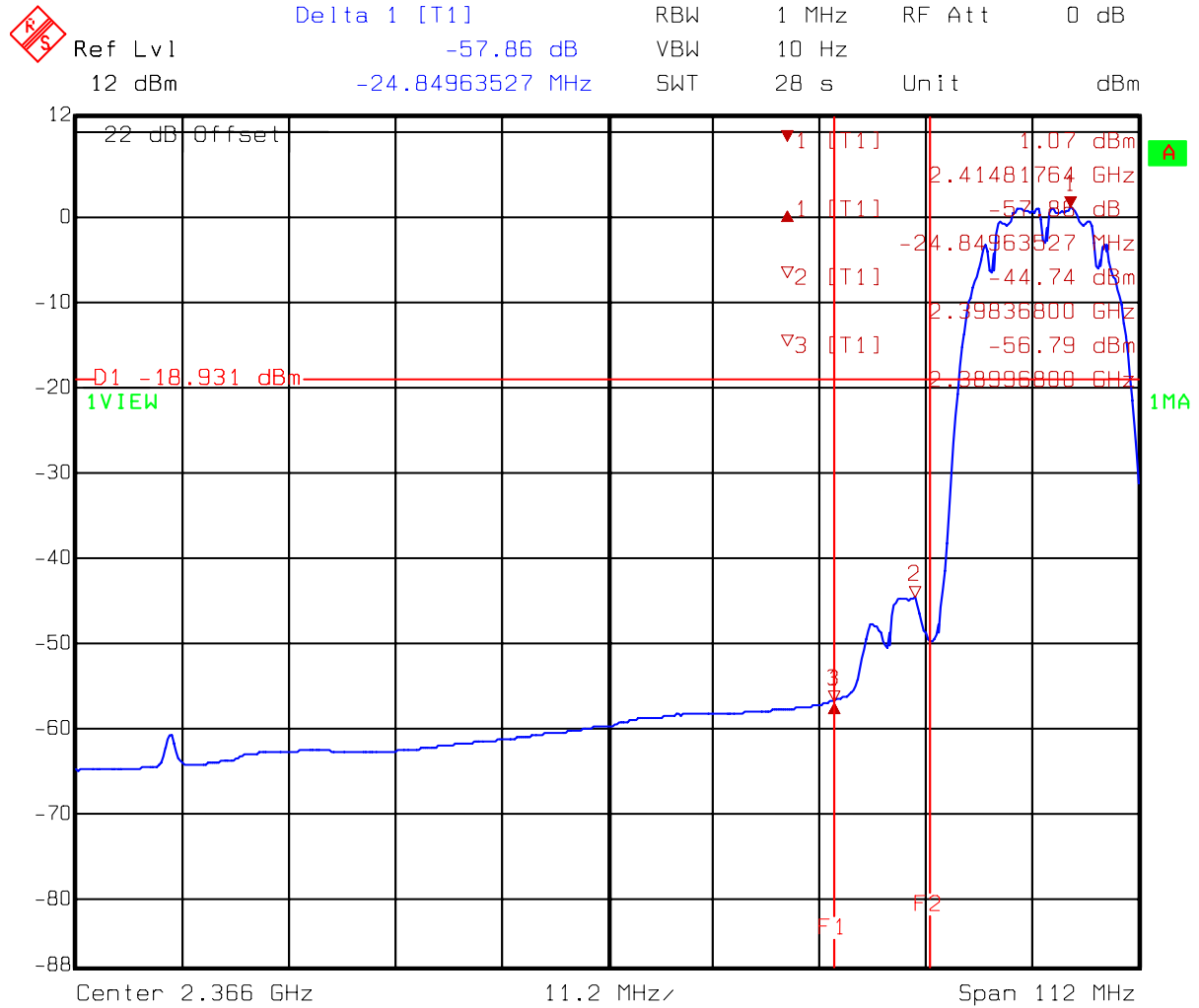
8.3 Test Result

8.3.1 Conducted Method

Test Mode: 802.11b(DSSS Modulation) operating mode



Title: Band Edge
 Comment A: Channel 01 at 802.11b mode
 F1=2390MHz F2=2400MHz (Peak Detect)
 Date: 05.JUN.2006 14:49:49

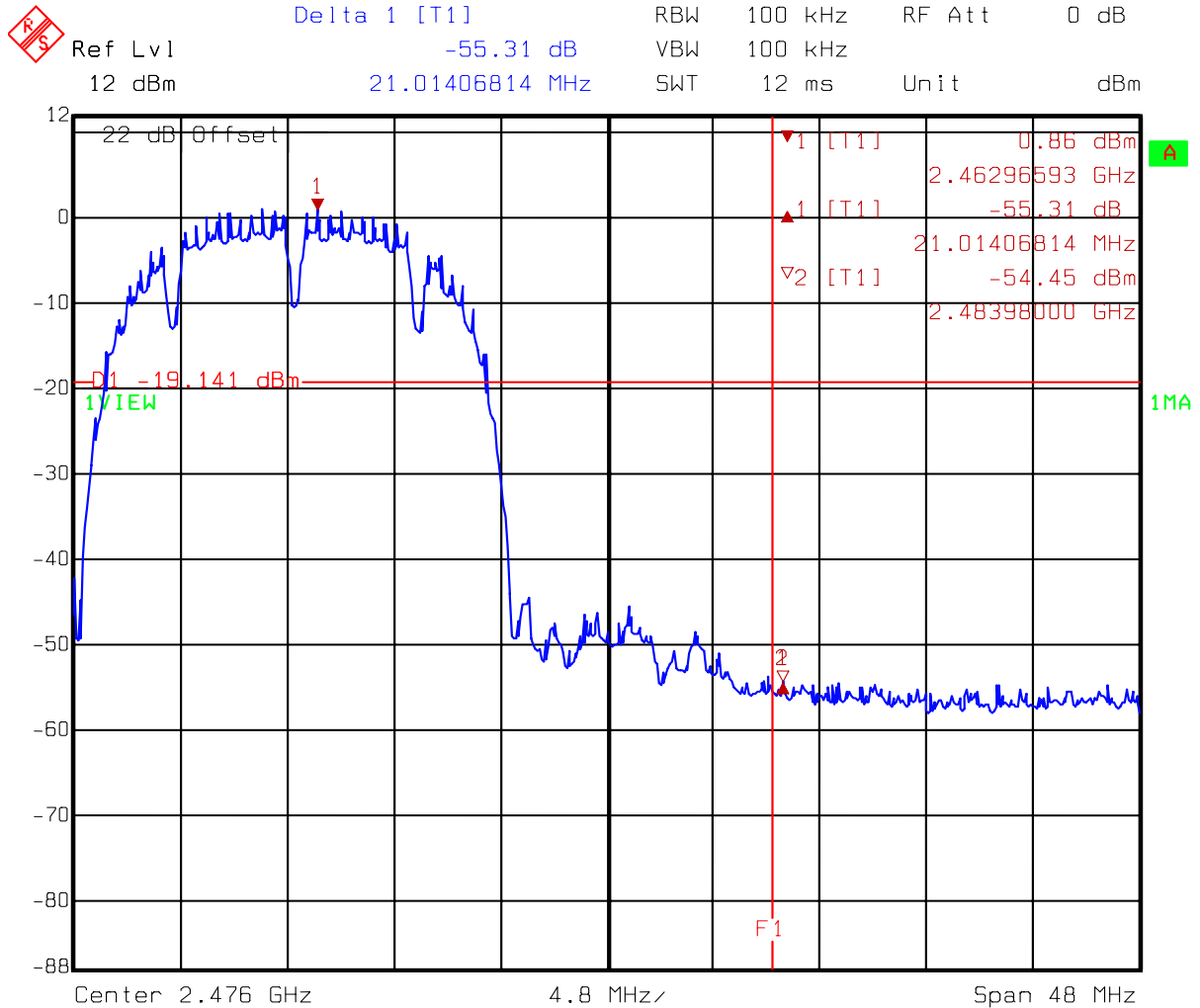


Title: Band Edge

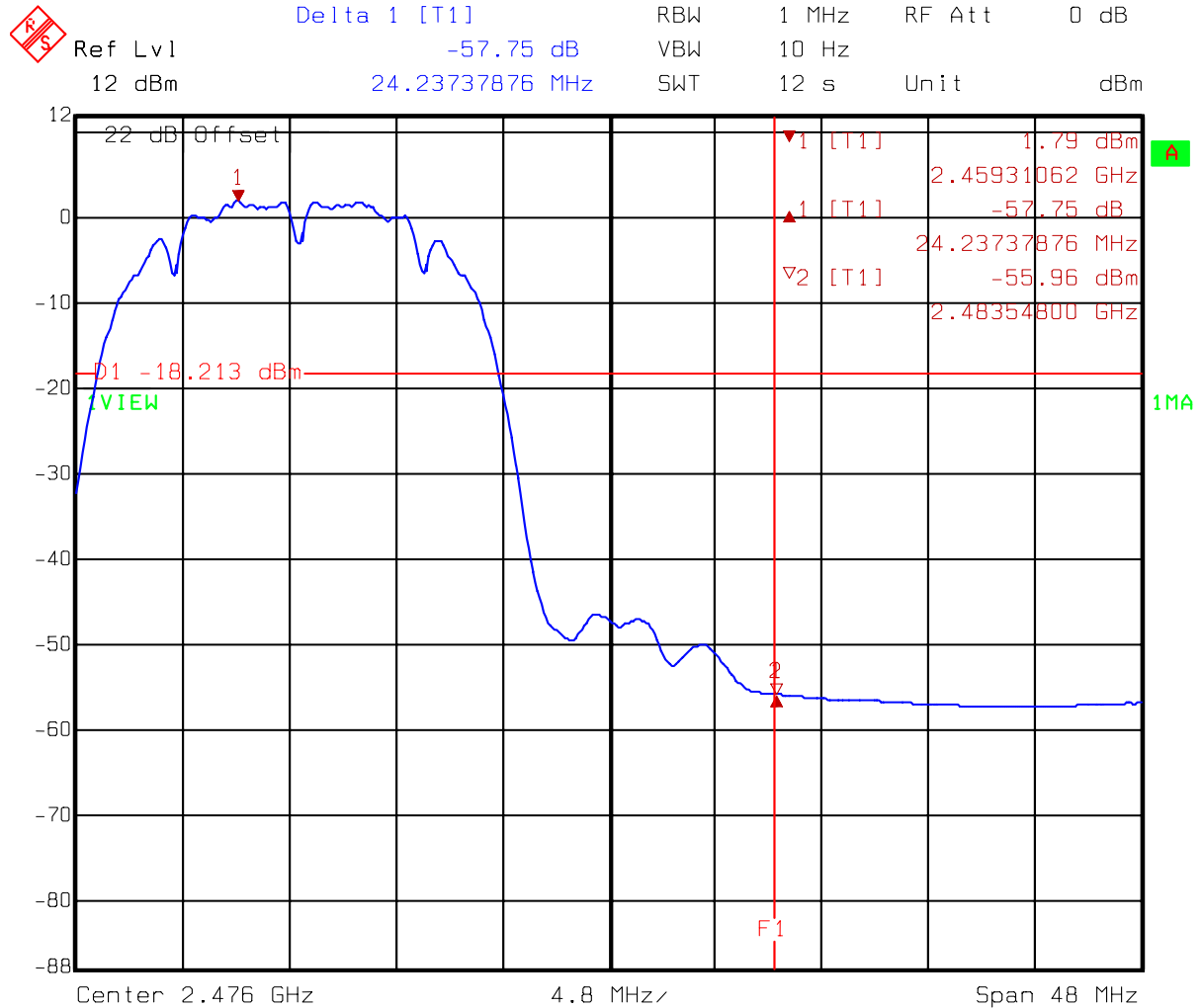
Comment A: Channel 01 at 802.11b mode

F1=2390MHz F2=2400MHz (Average Detect)

Date: 05.JUN.2006 14:50:49

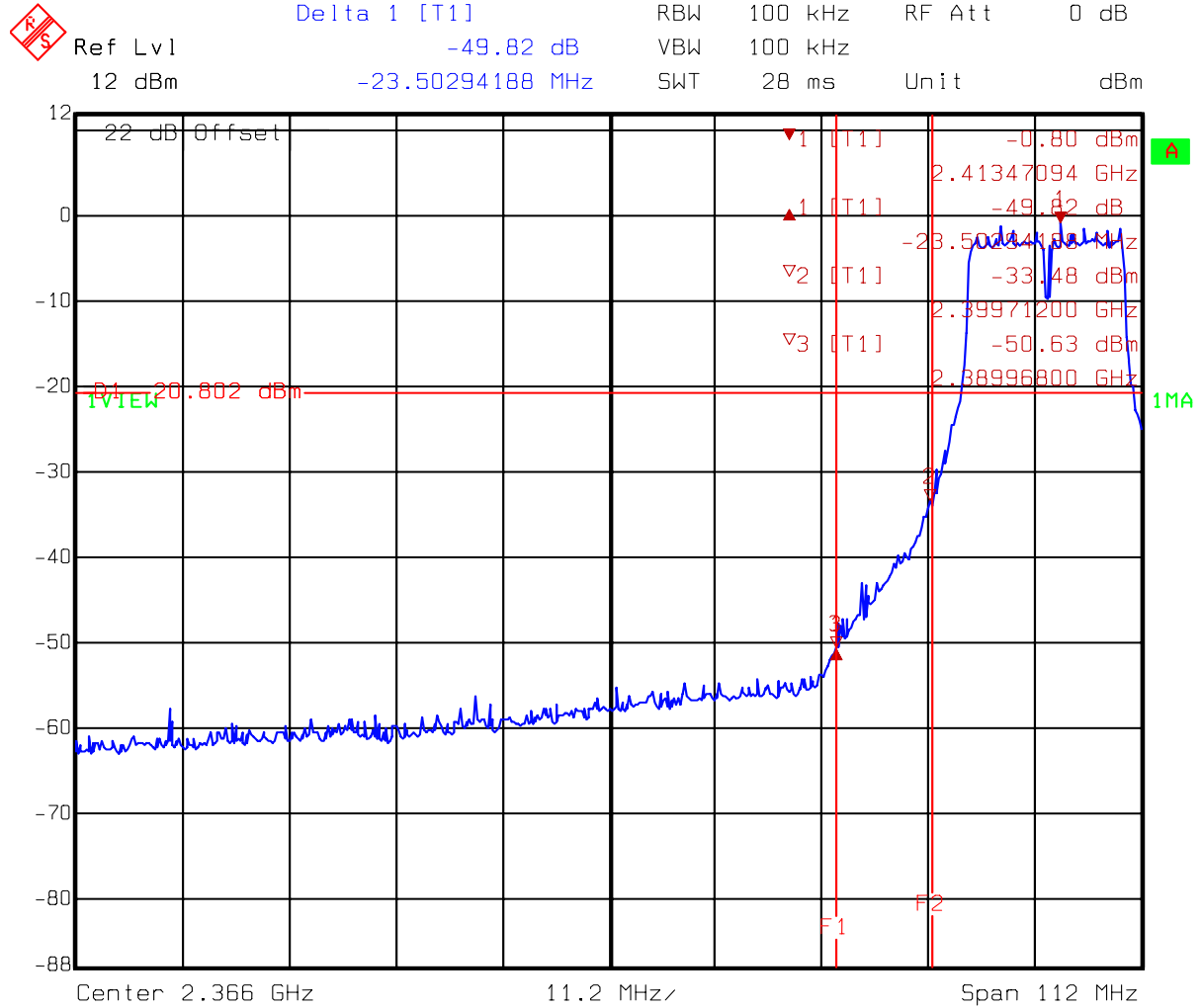


Title: Band Edge
 Comment A: Channel 11 at 802.11b mode
 F1=2483.5MHz (Peak Detect)
 Date: 05.JUN.2006 14:54:49

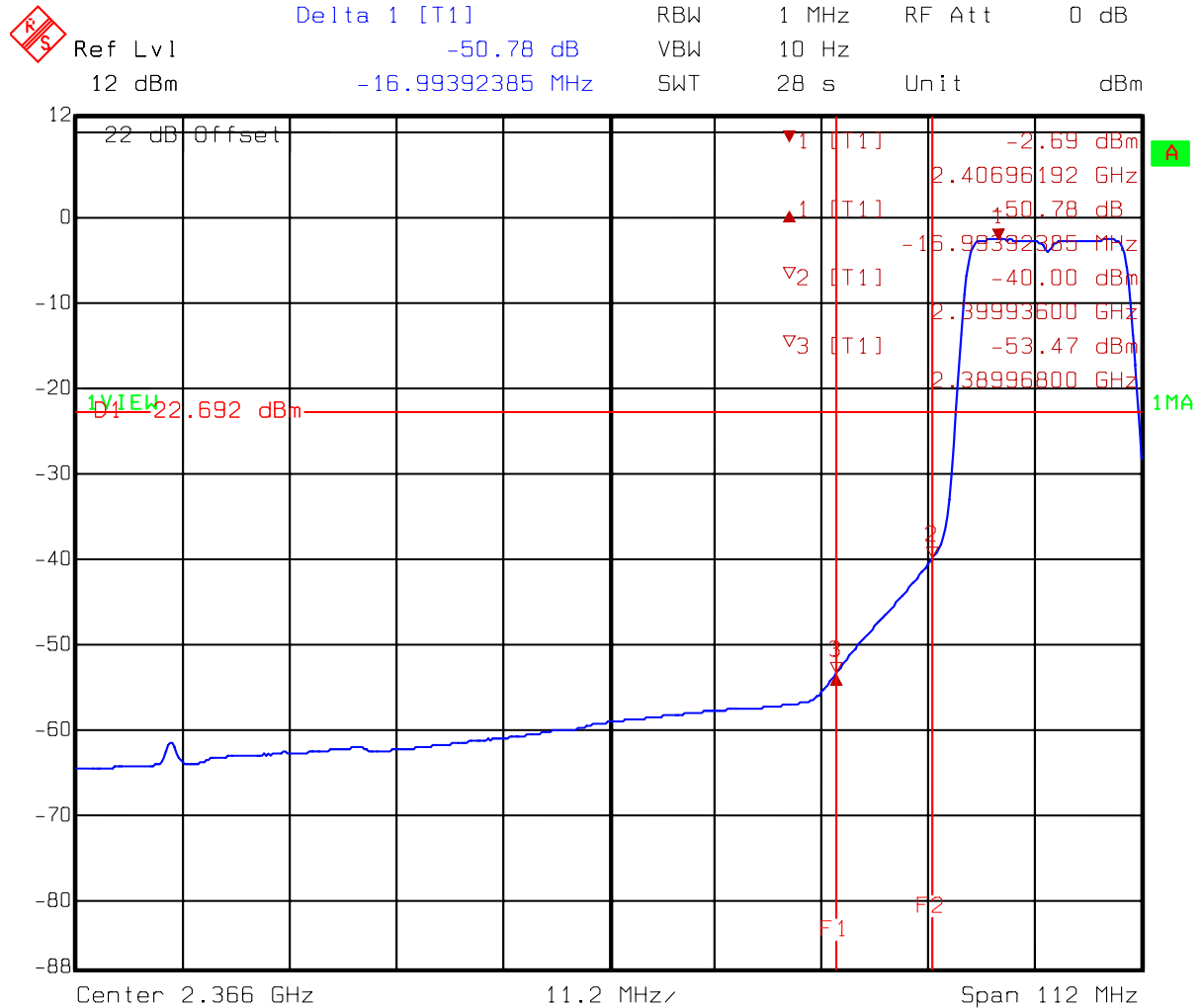


Title: Band Edge
 Comment A: Channel 11 at 802.11b mode
 F1=2483.5MHz (Average Detect)
 Date: 05.JUN.2006 14:55:42

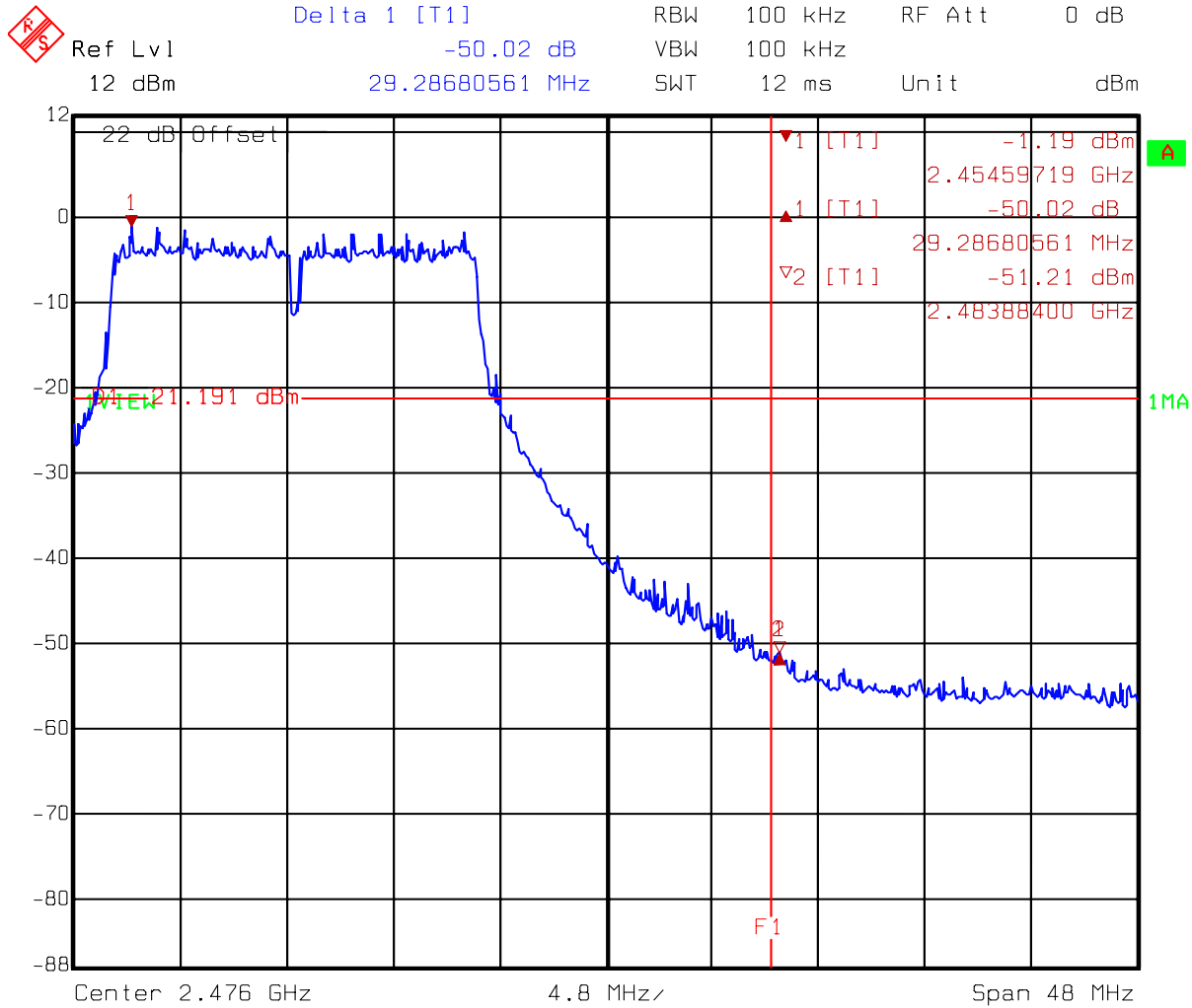
Test Mode: 802.11g(OFDM Modulation) operating mode



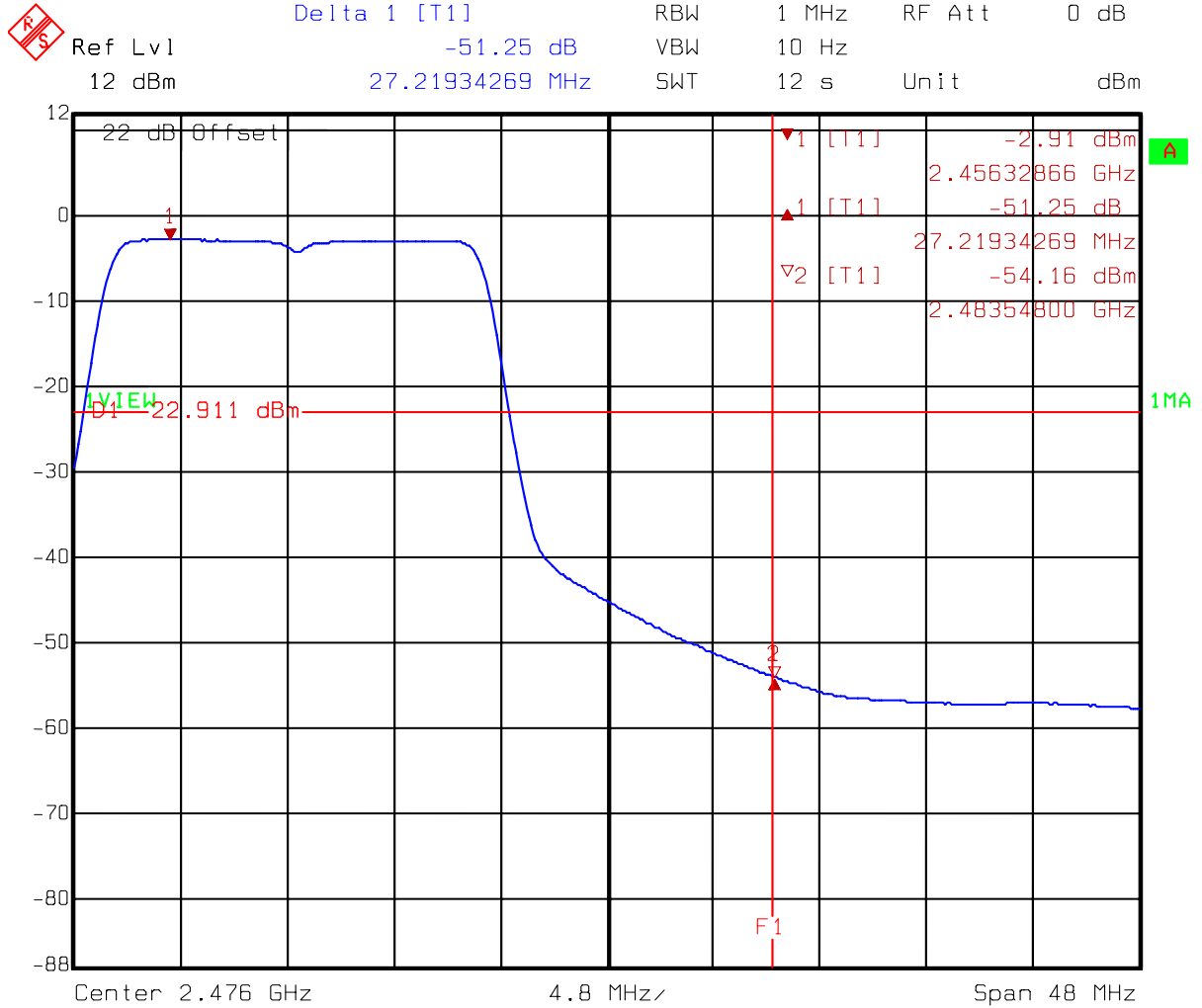
Title: Band Edge
Comment A: Channel 01 at 802.11g mode
F1=2390MHz F2=2400MHz (Peak Detect)
Date: 05.JUN.2006 14:58:12



Title: Band Edge
 Comment A: Channel 01 at 802.11g mode
 F1=2390MHz F2=2400MHz (Average Detect)
 Date: 05.JUN.2006 14:59:10



```
Title:      Band Edge
Comment A:  Channel 11 at 802.11g mode
            F1=2483.5MHz (Peak Detect)
Date:      05.JUN.2006  15:02:55
```



Title: Band Edge

Comment A: Channel 11 at 802.11g mode

F1=2483.5MHz (Average Detect)

Date: 05.JUN.2006 15:03:49

8.3.2 Radiated Method

Test Mode: 802.11b(DSSS Modulation) operating mode

Channel	Detector	Radiated Method	Conducted Method	The Max. Field Strength in Restrict Band (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
		Max. Field Strength of Fundamental @3m (dBuV/m)	Between Carrier Max. Power and Local Max. Emission in Restrict Band (dBc)			
		A	B			
1 (lowest)	PK	109.86	55.96	53.9	74	-20.1
	AV	105.8	57.86	47.94	54	-6.06
11 (highest)	PK	108.76	55.31	53.45	74	-20.55
	AV	104.7	57.75	46.95	54	-7.05

Remark: 1. $C = A - B$

2. $E = C - D$

Test Mode: 802.11g(OFDM Modulation) operating mode

Channel	Detector	Radiated Method	Conducted Method	The Max. Field Strength in Restrict Band (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
		Max. Field Strength of Fundamental @3m (dBuV/m)	Between Carrier Max. Power and Local Max. Emission in Restrict Band (dBc)			
		A	B			
1 (lowest)	PK	111.59	49.82	61.77	74	-12.23
	AV	102.05	50.78	51.27	54	-2.73
11 (highest)	PK	111.08	50.02	61.06	74	-12.94
	AV	101.21	51.25	49.96	54	-4.04

Remark: 1. $C = A - B$

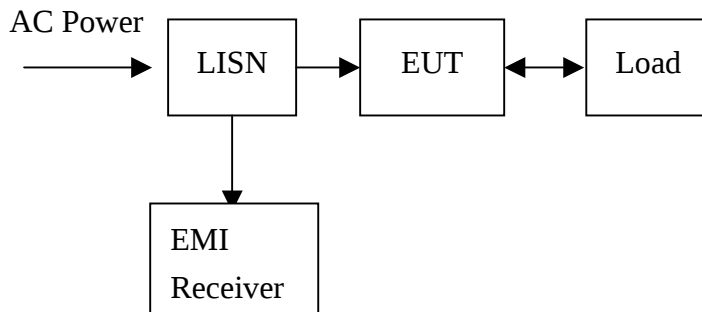
2. $E = C - D$

9. Power Line Conducted Emission test §FCC 15.207

9.1 Operating environment

Temperature:	22	
Relative Humidity:	55	%
Atmospheric Pressure	1023	hPa

9.2 Test setup & procedure



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 C63.4/2003 on conducted measurement. The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9kHz.

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

9.3 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.

9.4 Uncertainty of Conducted Emission

Expanded uncertainty (k=2) of conducted emission measurement is ± 2.6 dB.

9.5 Power Line Conducted Emission test data

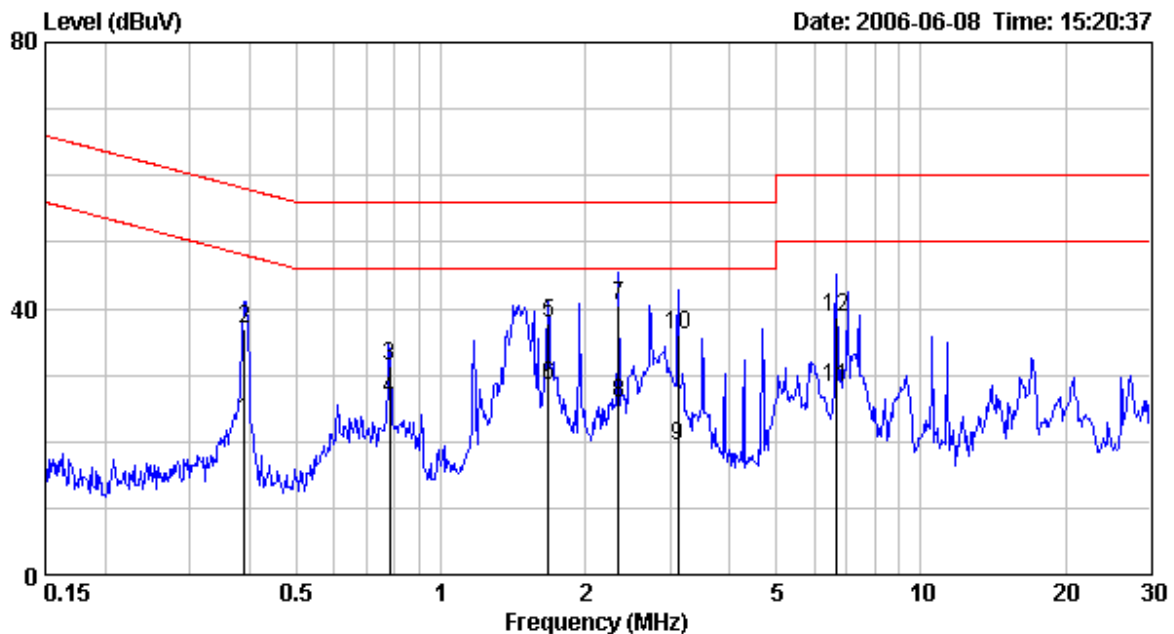
The test was performed the 802.11b and 802.11g normal operating modes, the worst case was occurred at 802.11g normal operating mode.

Phase : Line
 EUT : DSL-2640T
 Worst Case : Normal operating mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.39	0.10	36.98	58.06	23.24	48.06	-21.08	-24.82
0.78	0.10	31.24	56.00	26.26	46.00	-24.76	-19.74
1.68	0.17	37.77	56.00	28.33	46.00	-18.23	-17.67
2.34	0.21	40.30	56.00	25.69	46.00	-15.70	-20.31
3.12	0.21	35.91	56.00	19.32	46.00	-20.09	-26.68
6.66	0.40	38.77	60.00	28.11	50.00	-21.23	-21.89

Remark:

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



Phase : Neutral
 EUT : DSL-2640T
 Worst Case : Normal operating mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
2.34	0.13	42.51	56.00	28.75	46.00	-13.49	-17.25
3.90	0.22	46.27	56.00	31.42	46.00	-9.73	-14.58
4.30	0.24	48.86	56.00	36.21	46.00	-7.14	-9.79
4.69	0.26	47.44	56.00	38.90	46.00	-8.56	-7.10
5.86	0.32	47.11	60.00	39.37	50.00	-12.89	-10.63
9.38	0.43	44.75	60.00	41.38	50.00	-15.25	-8.62

Remark:

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

