Test Report

FCC Part 15.247
Industry Canada RSS210

DTS Devices operating in range 2400-2483.5MHz

FOR:

Model Name: P121UNA
FCC ID: O8F-PIXUW
IC ID: 3905A-PIXUW

TEST REPORT #: EMC_ PALMO_070_09001_15.247_WLAN_rev1
DATE: 2010-02-12

ilac-MRA ACCREDITED TESTING LABORATORY CERTIFICATE # 2135.01

Bluetooth

Bluetooth Qualification Test Facility (BQTF)

CTIA Authorized Test Lab
LAB CODE 20020328-00

FCC listed: A2LA accredited

IC recognized # 3462B

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1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations.

Company	Description	Model #
Palm, Inc	GSM/UMTS Phone with 802.11 b/g and Bluetooth	P121UNA

This report is reviewed by:

Date	Section	Name	Signature
2010-02-12	EMC & Radio	Marc Douat (Test Lab Manager)	Marc Douat I am approving this document

This report is prepared by:

Date	Section	Name	Signature
2010-02-12	EMC & Radio	Josie Sabado (EMC Project Engineer)	Josie Sabado I am the author of this document

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Responsible Test Lab Manager:	Heiko Strehlow
Responsible Project Leader:	Josie Sabado

2.2 Identification of the Client

Applicant's Name:	Palm, Inc.
Street Address:	950 W. Maude Ave
City/Zip Code	Sunnyvale, CA 94085-2801
Country	USA
Contact Person:	Julia Luke
Phone No.	(408) 617-8597
e-mail:	Julia.Luke@palm.com

2.3 Identification of the Manufacturer

Same as above client.

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Model No:	P121UNA
Product Type:	GSM/UMTS Cellular Phone
Hardware Revision :	DVT2B
Software Revision :	Utility Software Build: 920
FCC-ID:	O8F-PIXUW
IC-ID :	3905A-PIXUW
Frequency:	2400-2483.5 MHz
Type(s) of Modulation:	CCK, OFDM
Number of channels:	11
Antenna Type:	Integral
Equipment Classification:	☐Fixed ☐Vehicular ■Portable ☐Module

3.2 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Comments
1	PD2BNBR98115	DVT2B	Utility Software Build: 920	Radiated sample
2	PD2BNBR98112	DVT2B	Utility Software Build: 920	Conducted sample

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number	Part Number
1	Battery	Palm	N/A	D298AW18D1BDC090810	157-10119-00
2	Inductive Charging Dock	Palm	N/A	N/A	157-10123-00
3	Inductive Back Cover	Palm	N/A	P29BJ0L4C4A	180-10763-00
4	Headset	Palm	N/A	N/A	180-10632-00
5	AC Adapter #24	Palm	N/A	2B9840MTP2A	157-10124-00
6	AC Adapter #30	Palm	N/A	F298R03TP34	157-10130-00
7	USB Cable	Palm	N/A	N/A	180-10646-00

4 Subject Of Investigation

All testing was performed on the product referred to in Section 3 as EUT. EUT operates in the band 2400-2483.5MHz in 802.11b/g mode. All measurements were made with transmit power set to 13.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT operating under all operating modes as per requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4

Replace report number **EMC_ PALMO_070_09001_15.247_WLAN**.

5 Conducted Measurements

5.1 6dB bandwidth and 99% bandwidth

5.1.1 Limit

FCC15.247(a)(2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

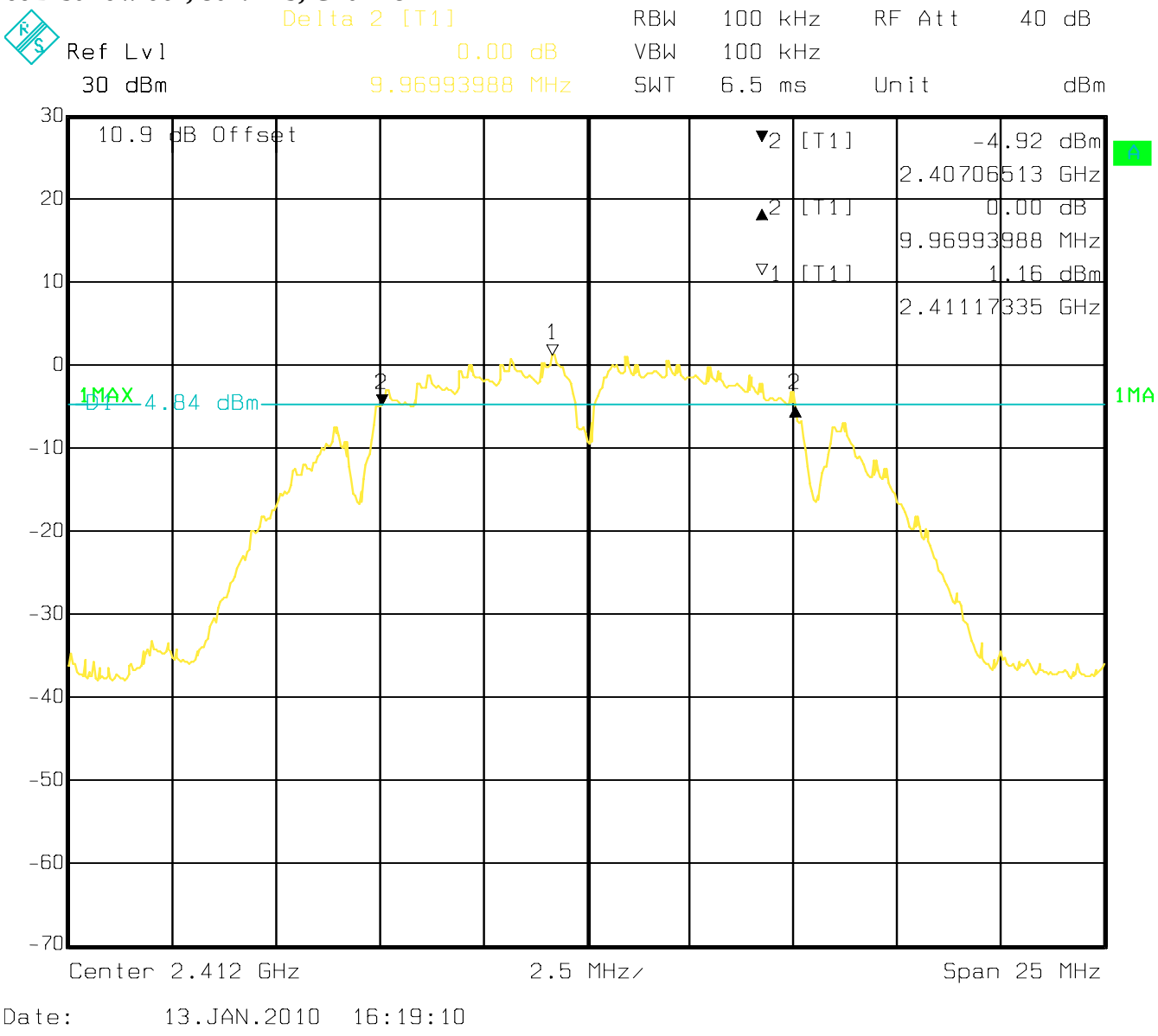
RSS210 A8.2 (a): The minimum 6 dB bandwidth shall be at least 500 kHz.

5.1.2 Measurement Result:

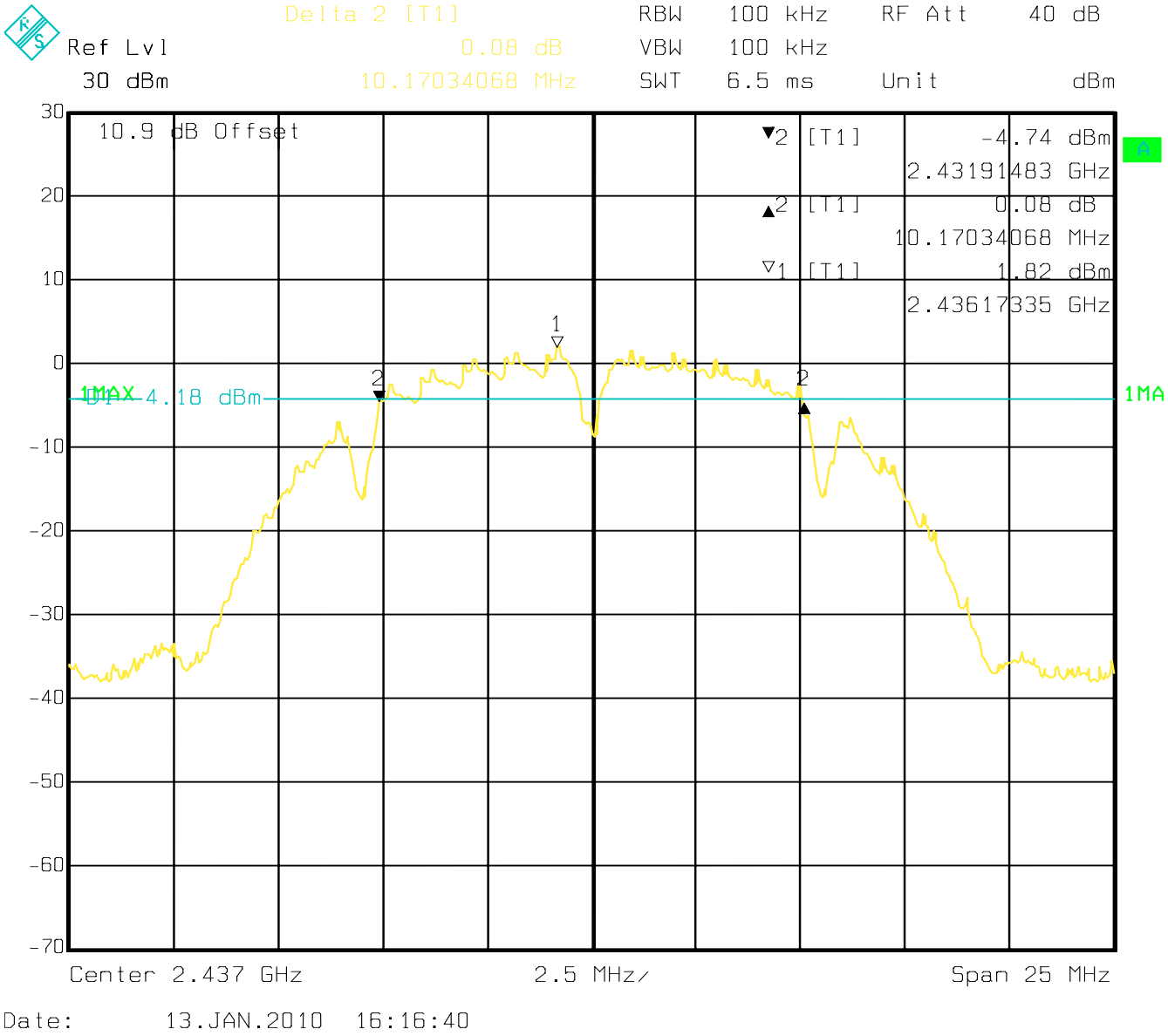
	Channel Frequency (MHz)	6dB Bandwidth (MHz)	20dB/99% Bandwidth (MHz)
2400-2483.5 MHz (802.11 b)	2412	9.97	13.83
	2437	10.17	13.73
	2462	10.12	13.78
2400-2483.5 MHz (802.11 g)	2412	16.63	16.78
	2437	16.63	16.78
	2462	16.68	16.78

5.1.3 Plots:

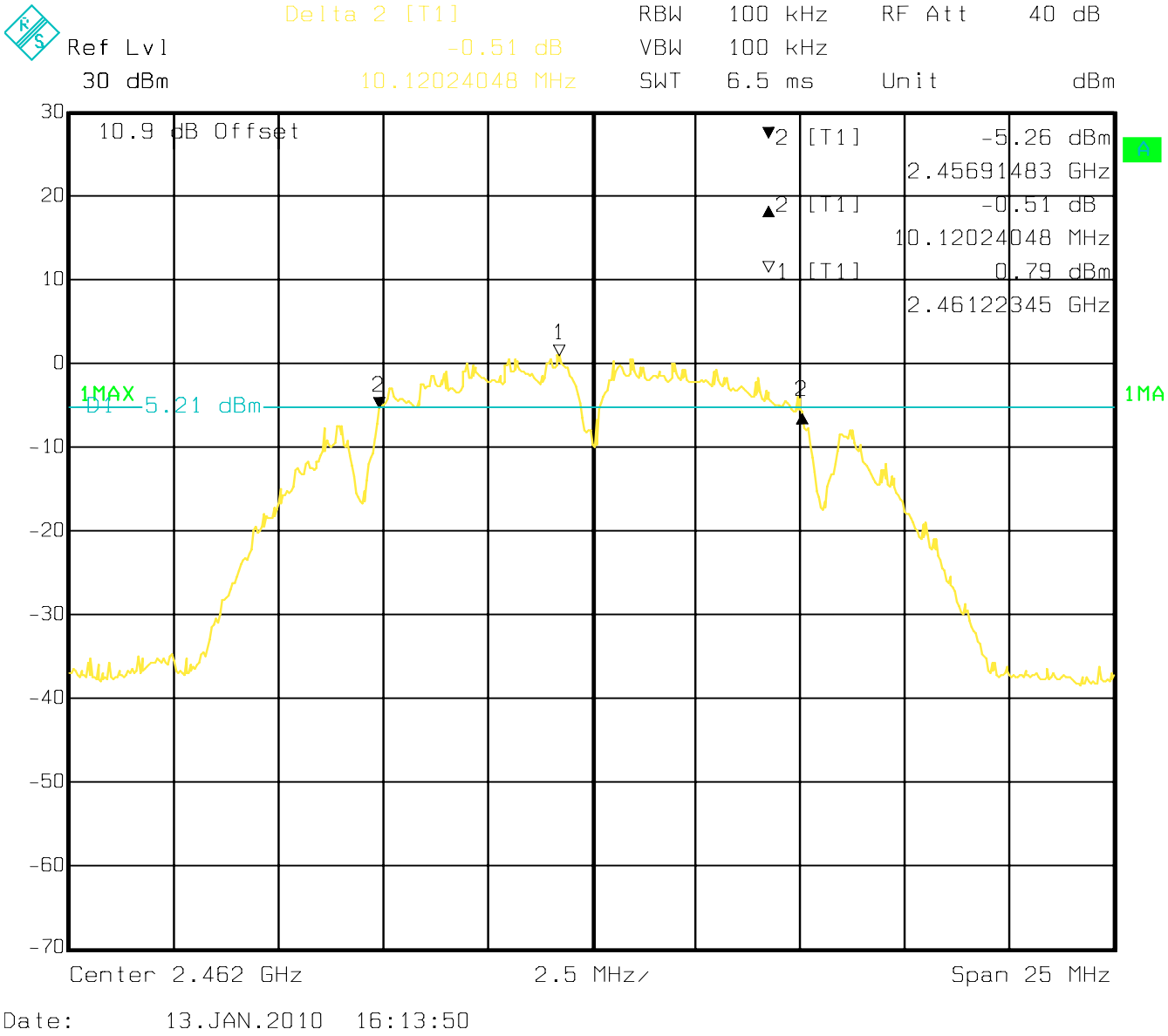
6dB bandwidth, 802.11 b, Channel 1



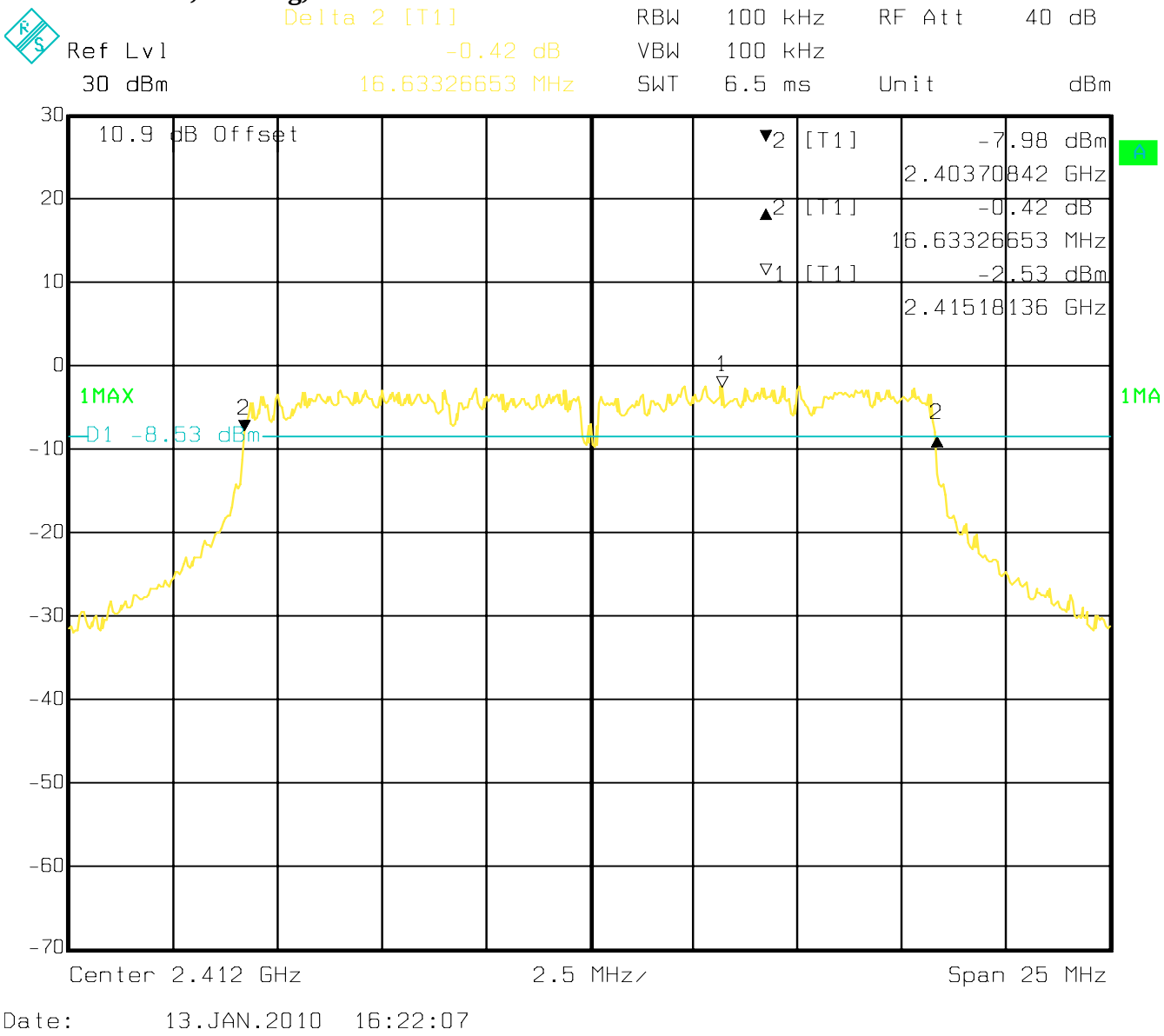
6dB bandwidth, 802.11 b, Channel 6



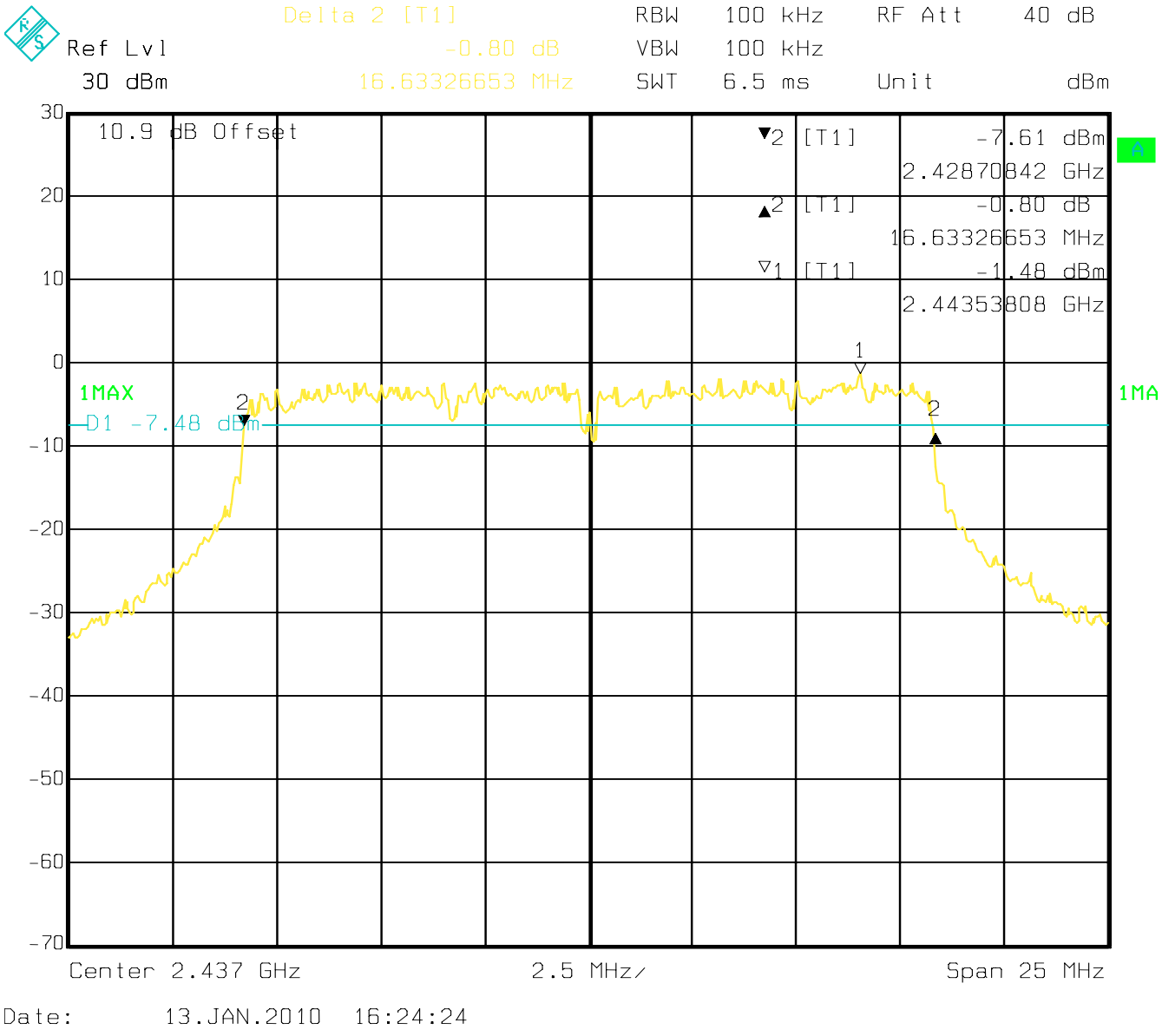
6dB Bandwidth, 802.11 b, Channel 11



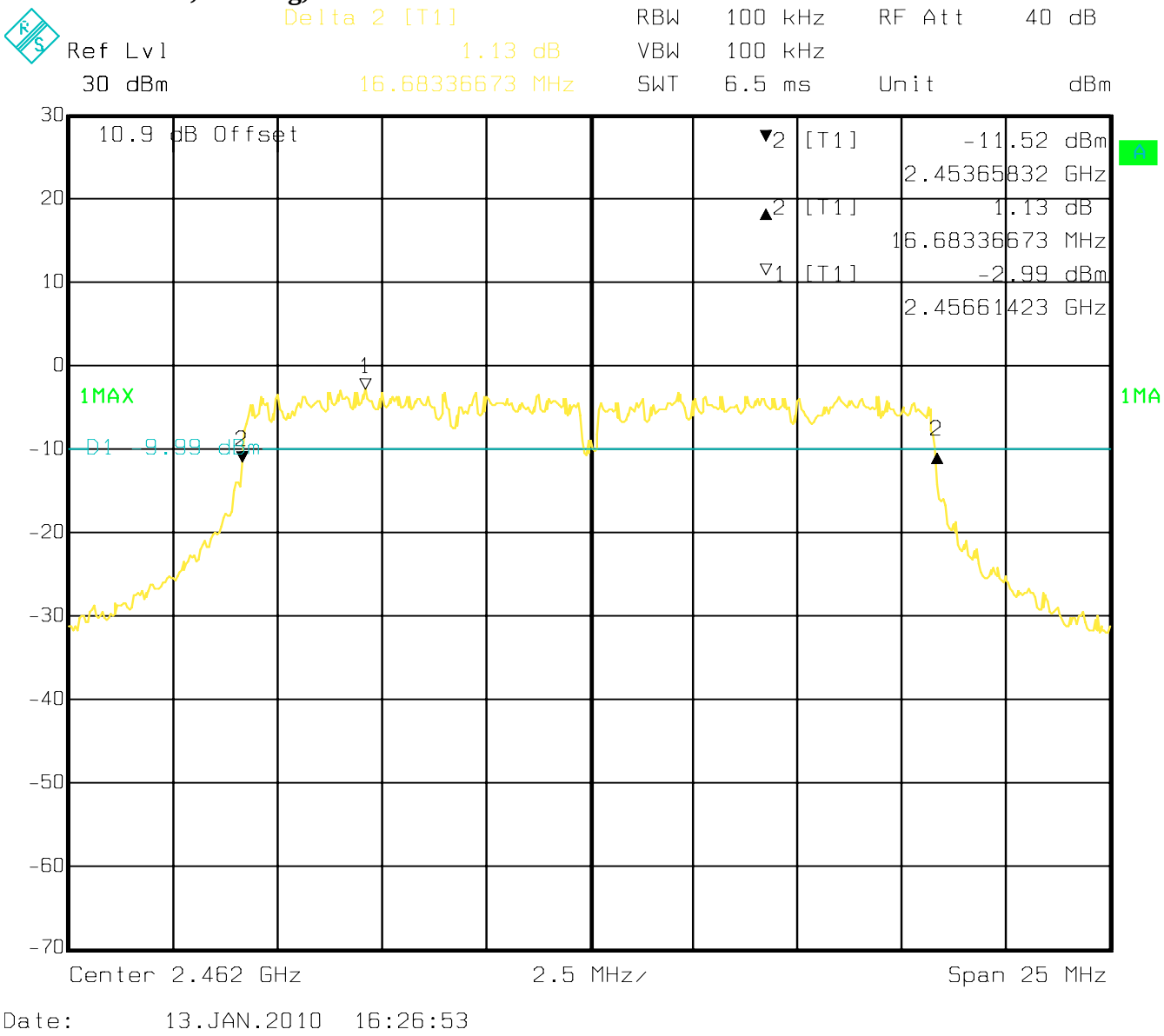
6dB Bandwidth, 802.11 g, Channel 1



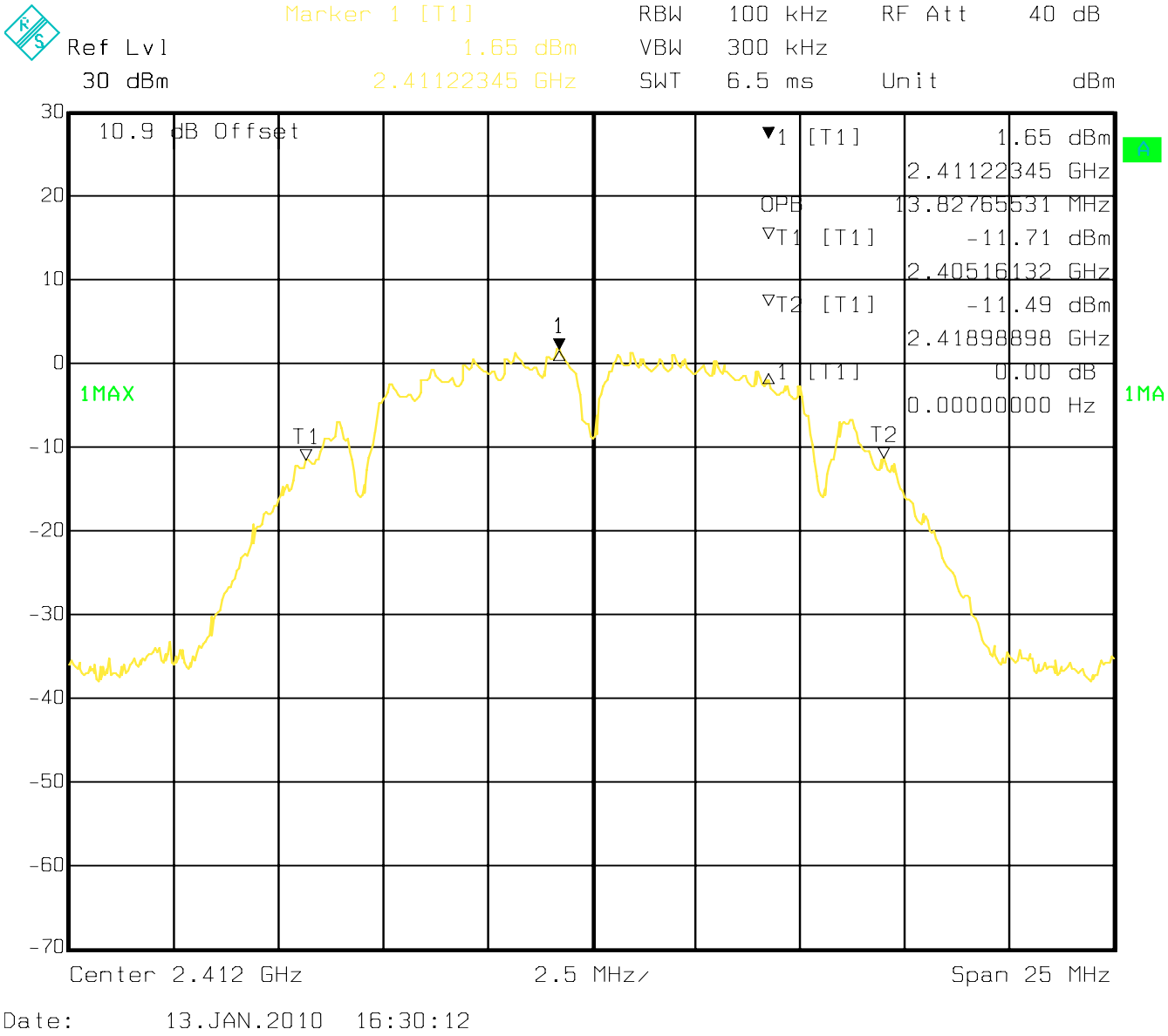
6dB Bandwidth, 802.11 g, Channel 6



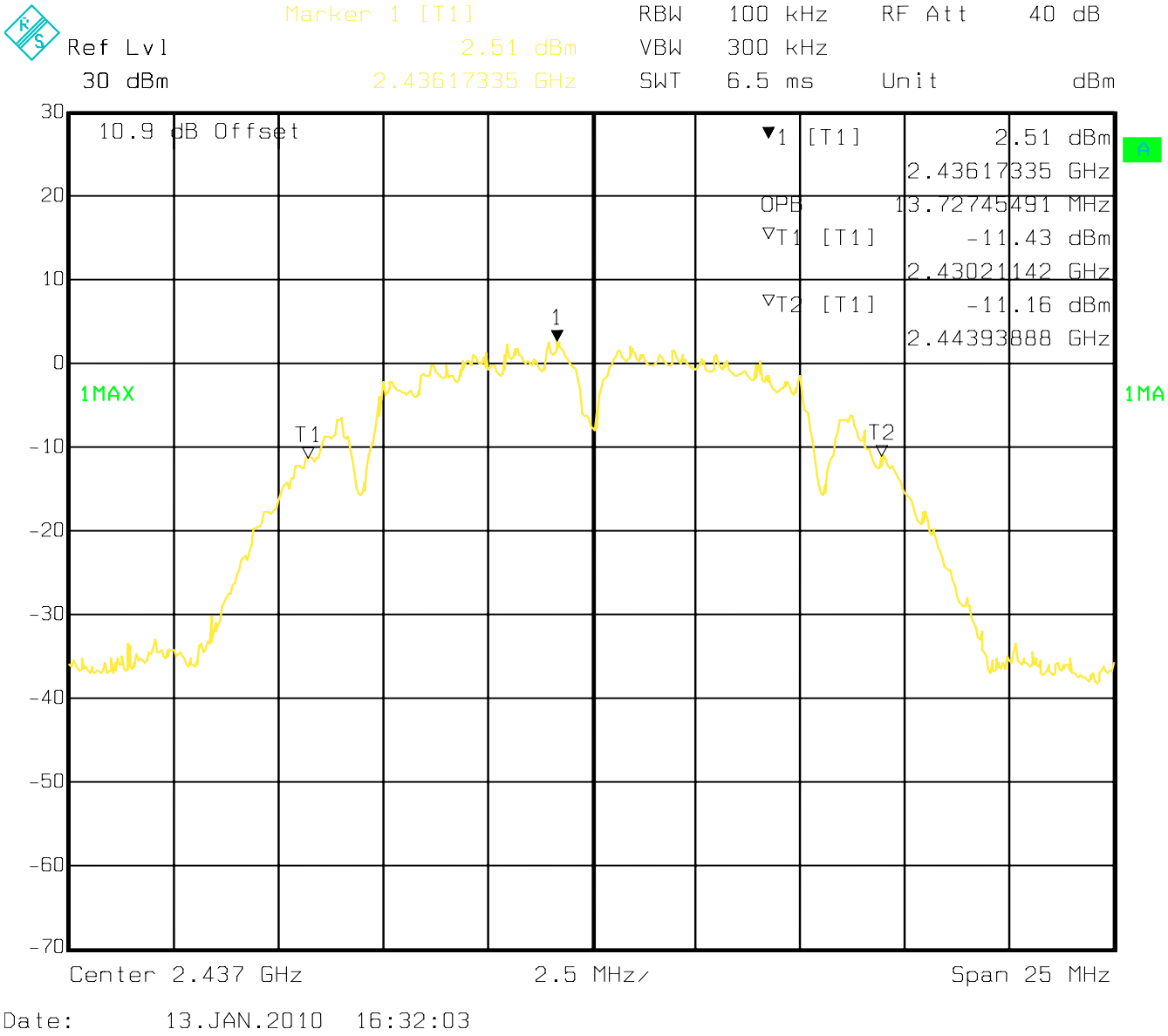
6dB Bandwidth, 802.11 g, Channel 11



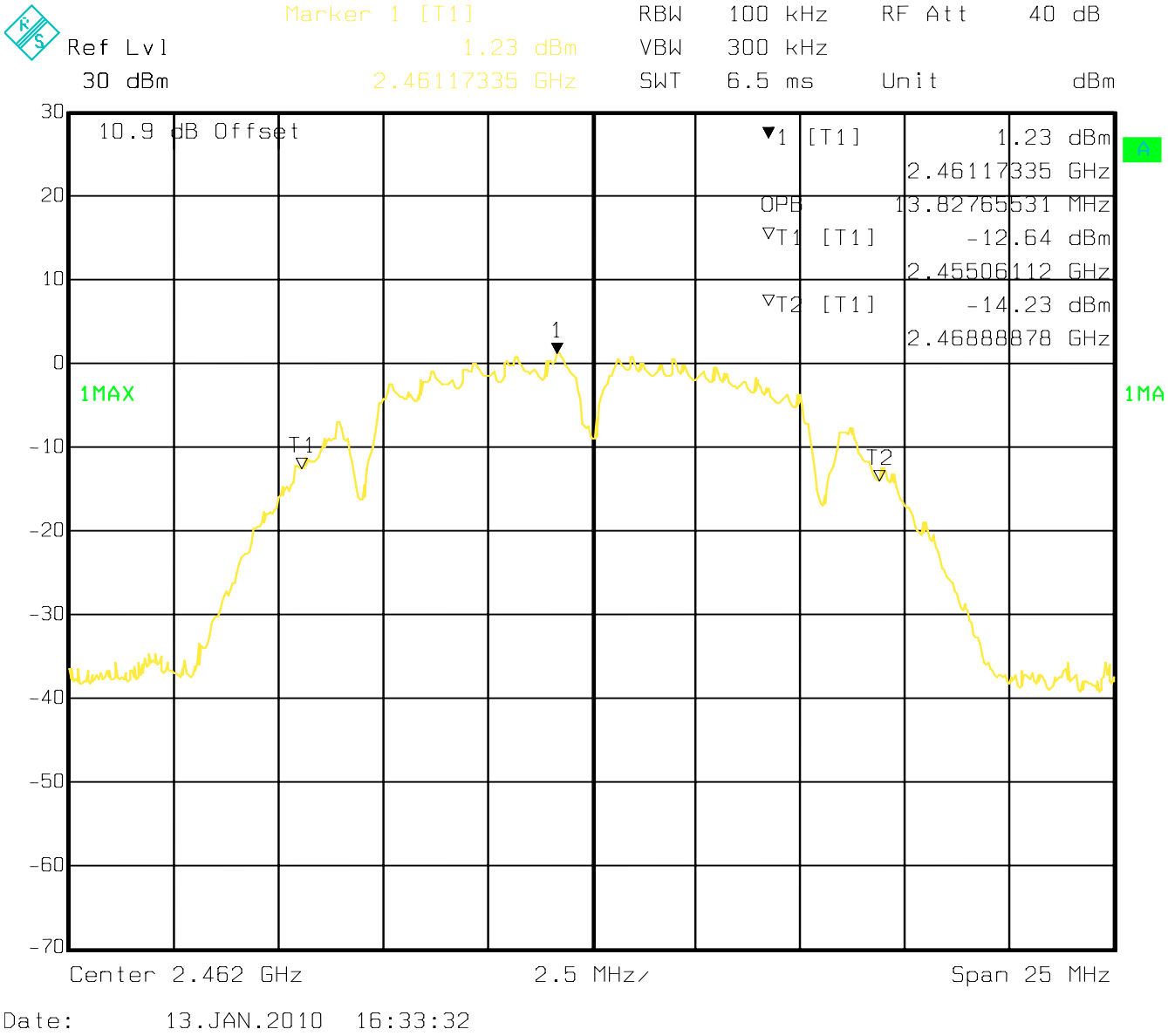
99% Bandwidth, 802.11 b, Channel 1



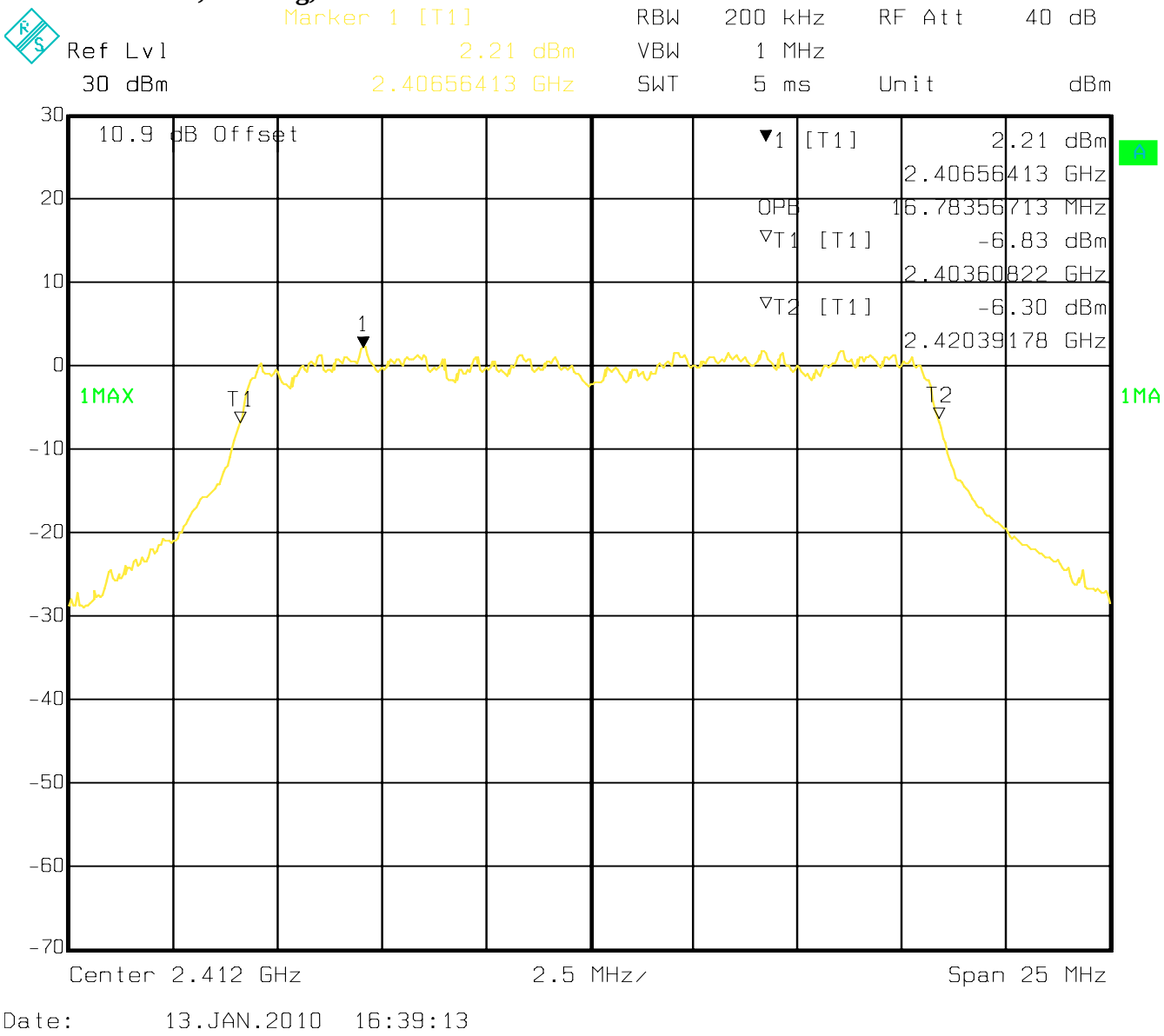
99% Bandwidth, 802.11 b, Channel 6



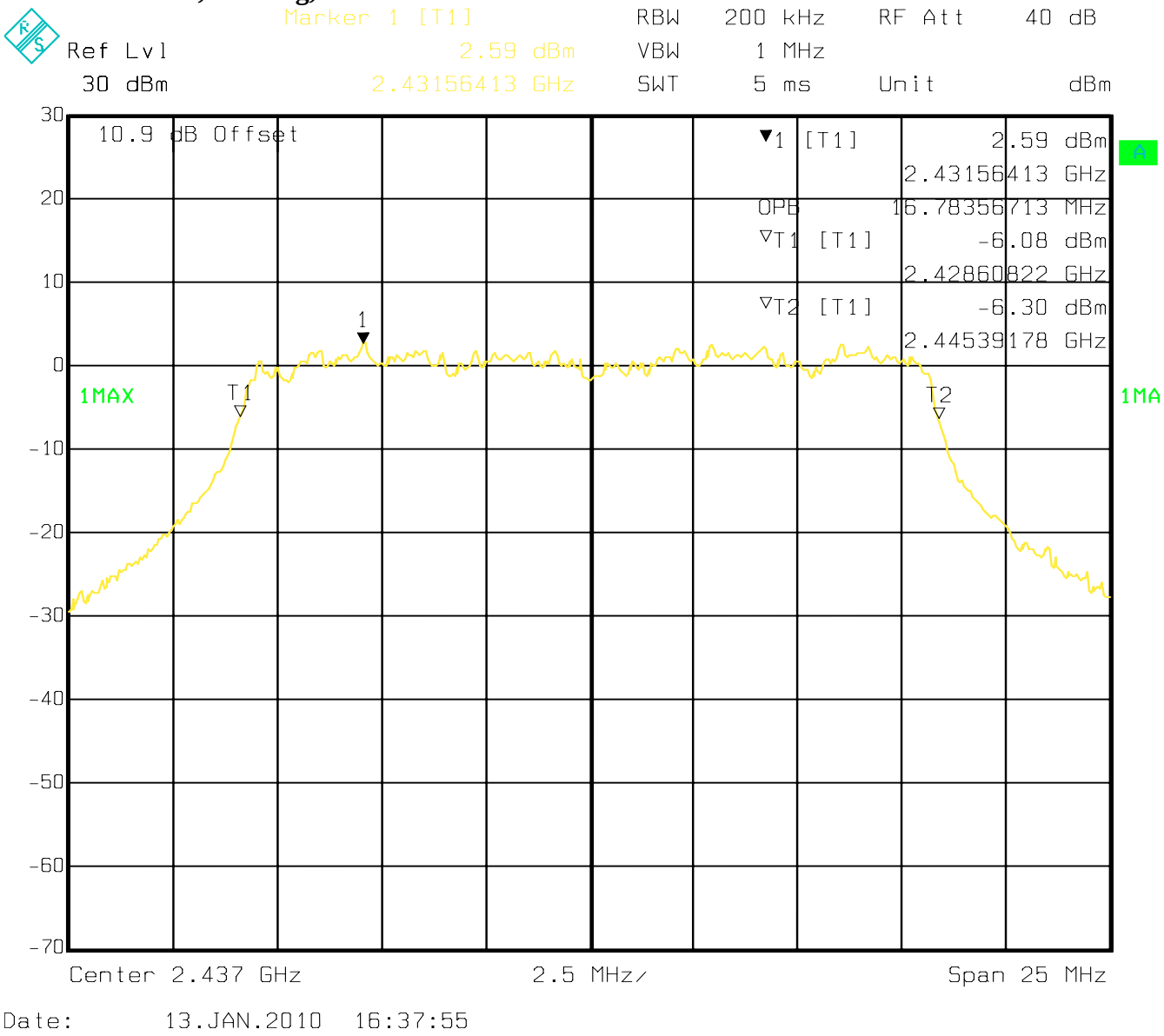
99% Bandwidth, 802.11 b, Channel 11



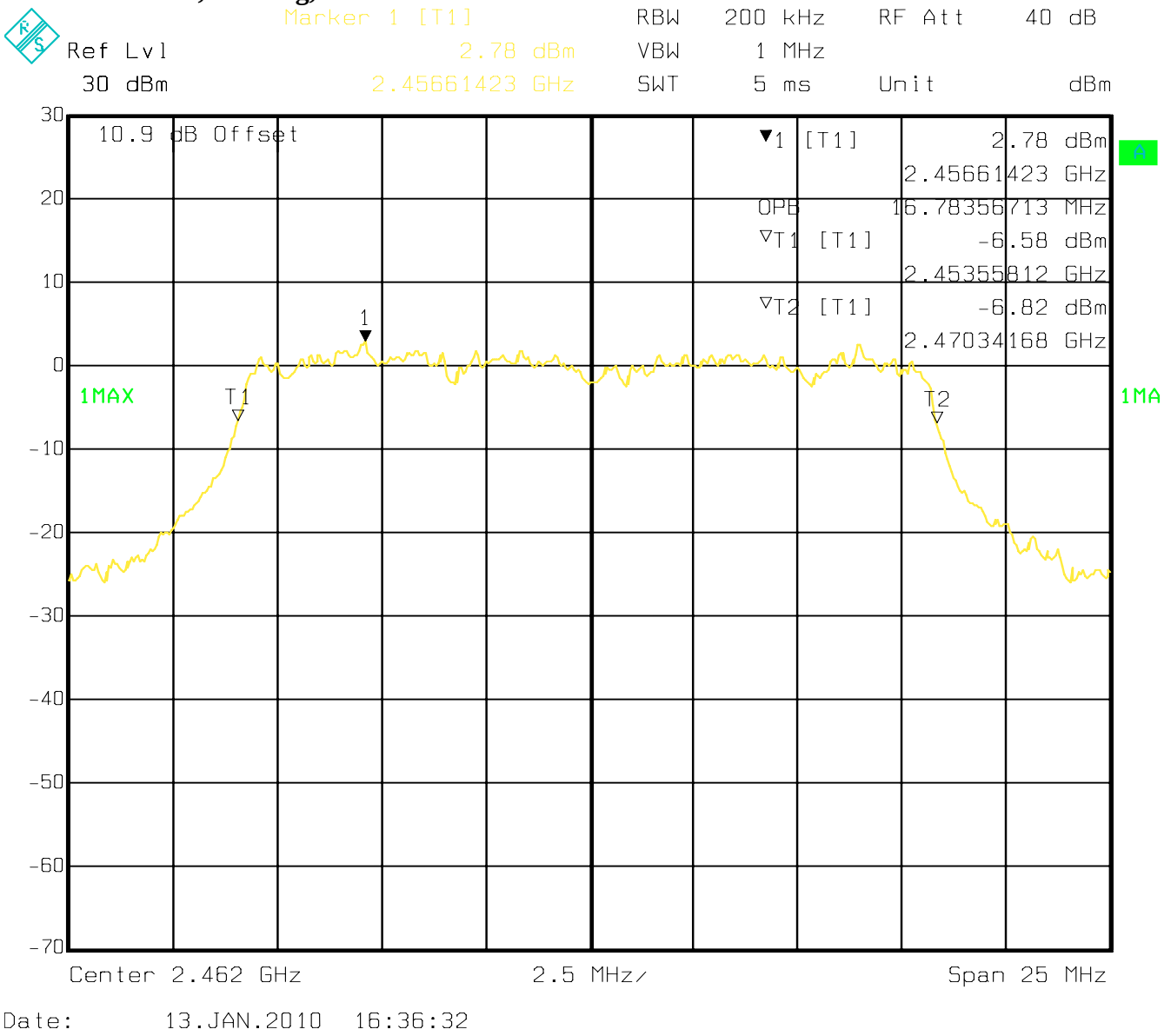
99% Bandwidth, 802.11 g, Channel 1



99% Bandwidth, 802.11 g, Channel 6



99% Bandwidth, 802.11 g, Channel 11



5.2 Conducted Power Measurement

5.2.1 Limit

FCC15.247 (b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt

RSS210 A8.4(4): For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4(5), the e.i.r.p. shall not exceed 4 W.

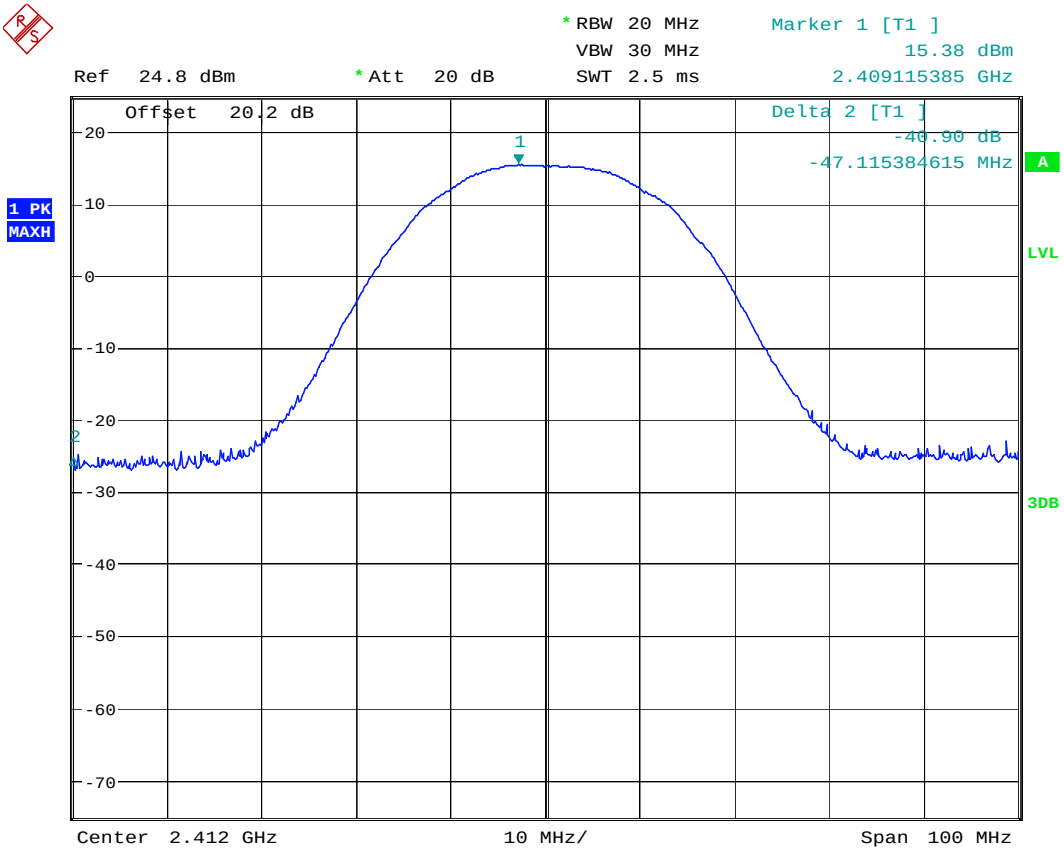
5.2.2 Results

Conducted power measurements were made using a spectrum analyzer and a peak power meter.

TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	Peak (dBm)	Peak (mW)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	**15.38**	**34.51**	PASS
	2437	**16.33**	**42.95**	PASS
	2462	**15.45**	**35.08**	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	**20.60**	**114.82**	PASS
	2437	**21.28**	**134.28**	PASS
	2462	**20.21**	**104.95**	PASS

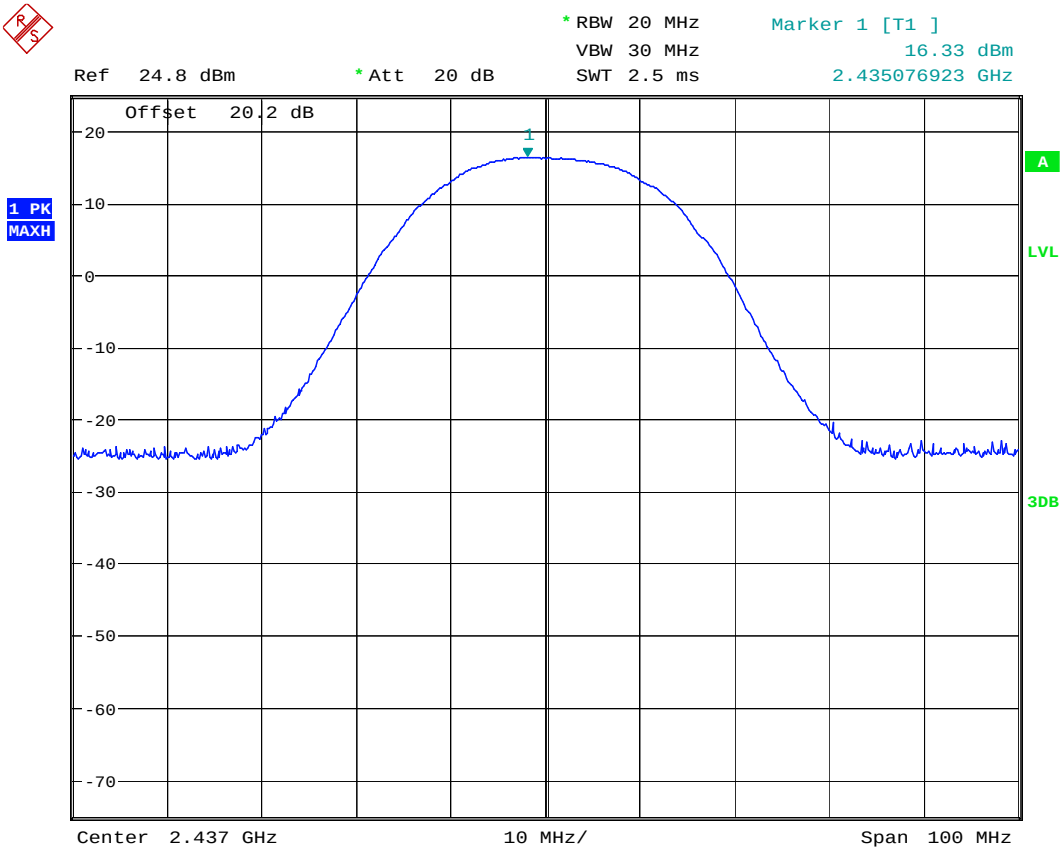
5.2.3 Test Plots:

802.11b 2412MHz



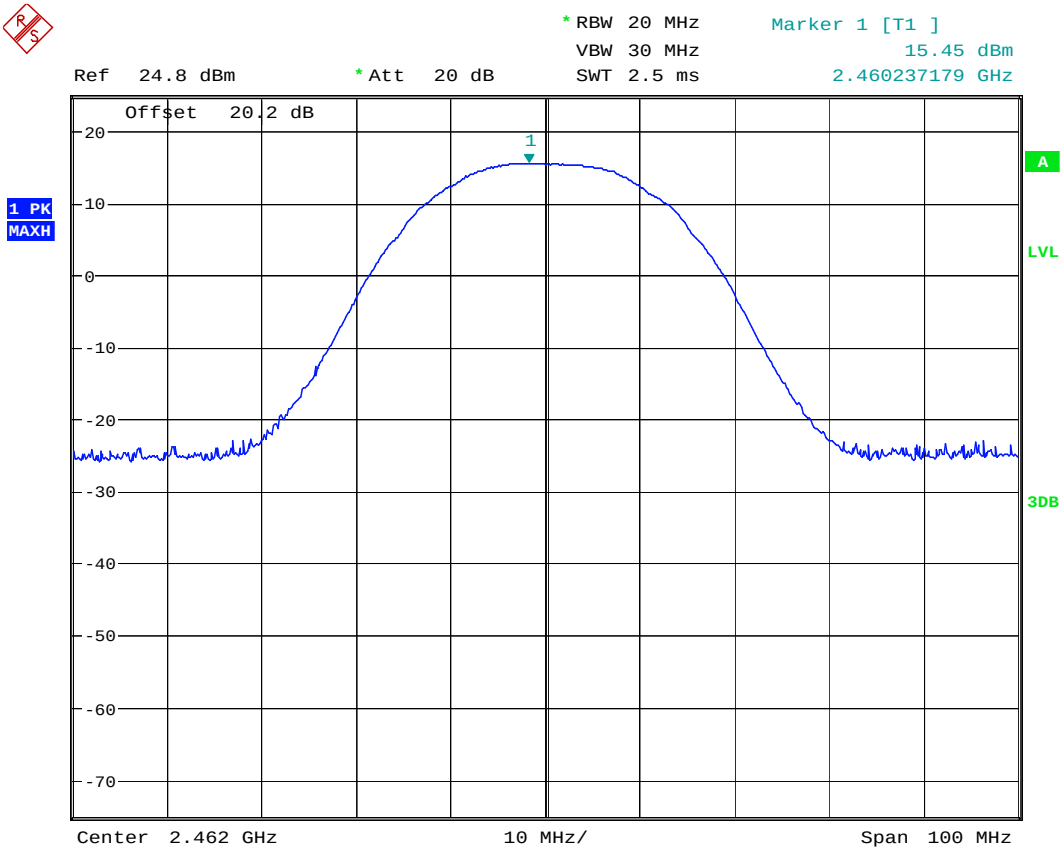
Date: 9.FEB.2010 10:20:18

802.11b 2437MHz



Date: 9.FEB.2010 10:22:17

802.11b 2462MHz



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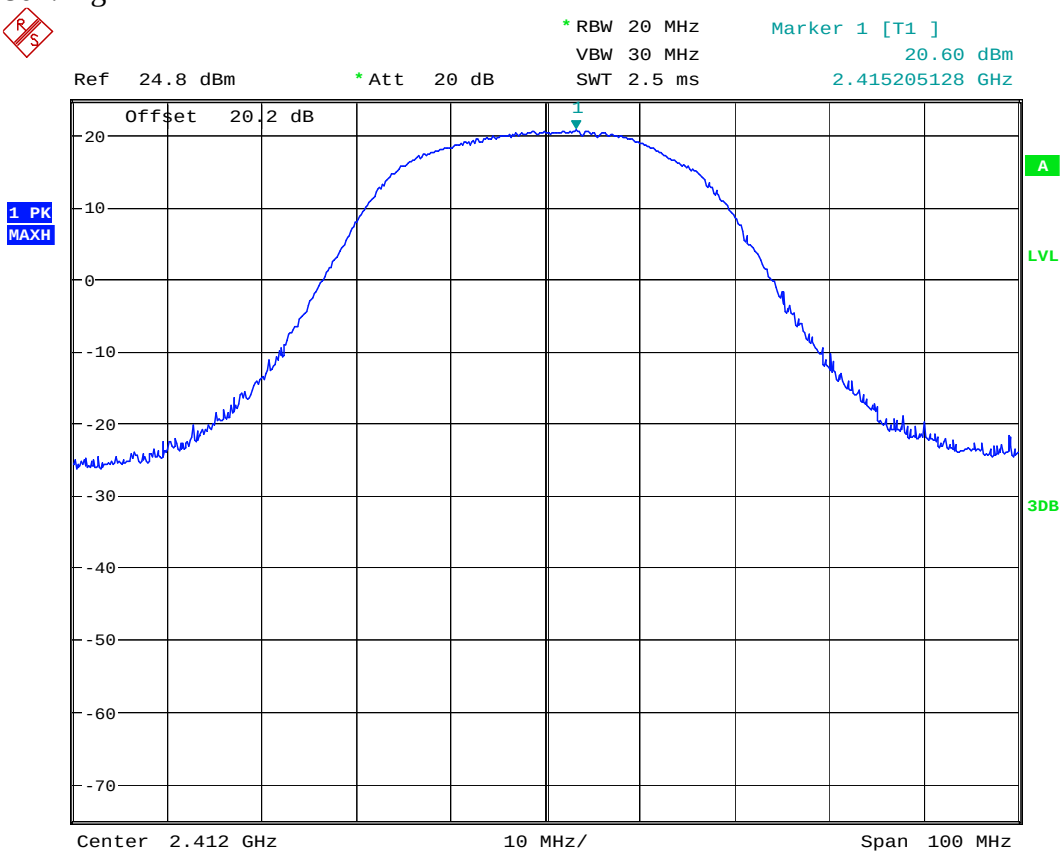
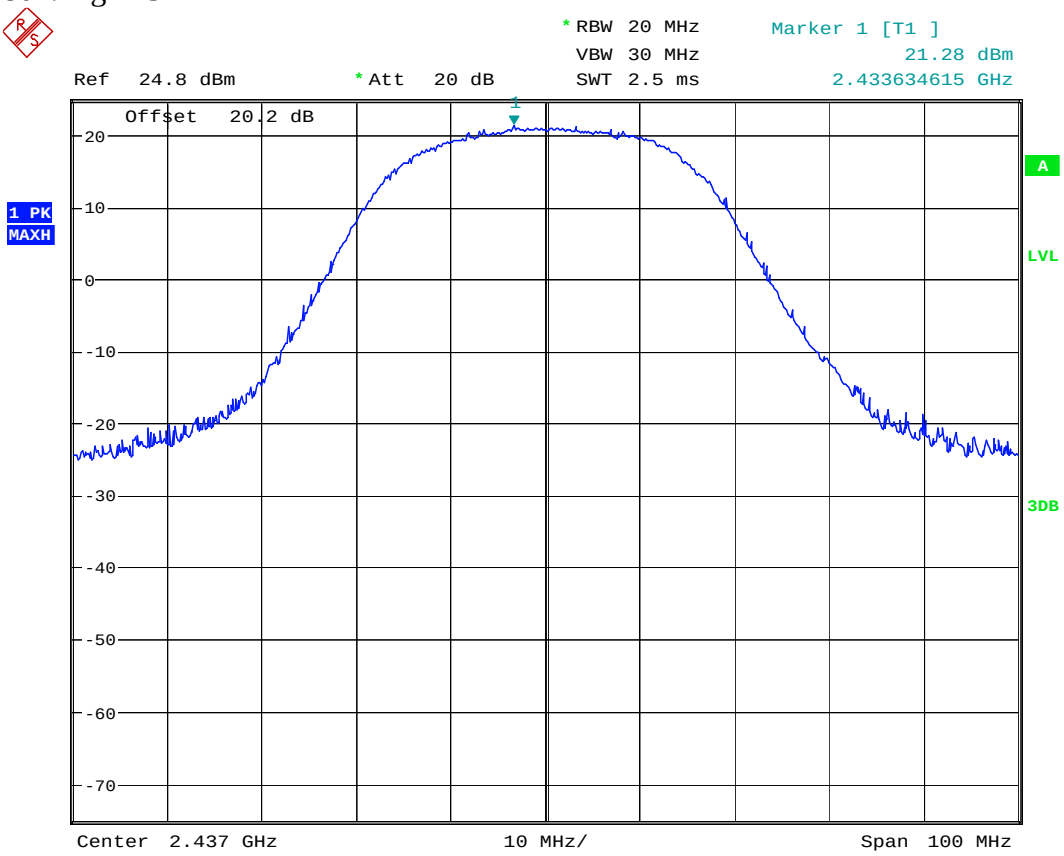
802.11g 2412MHz



Date: 9.FEB.2010 10:25:21

802.11g 2437MHz



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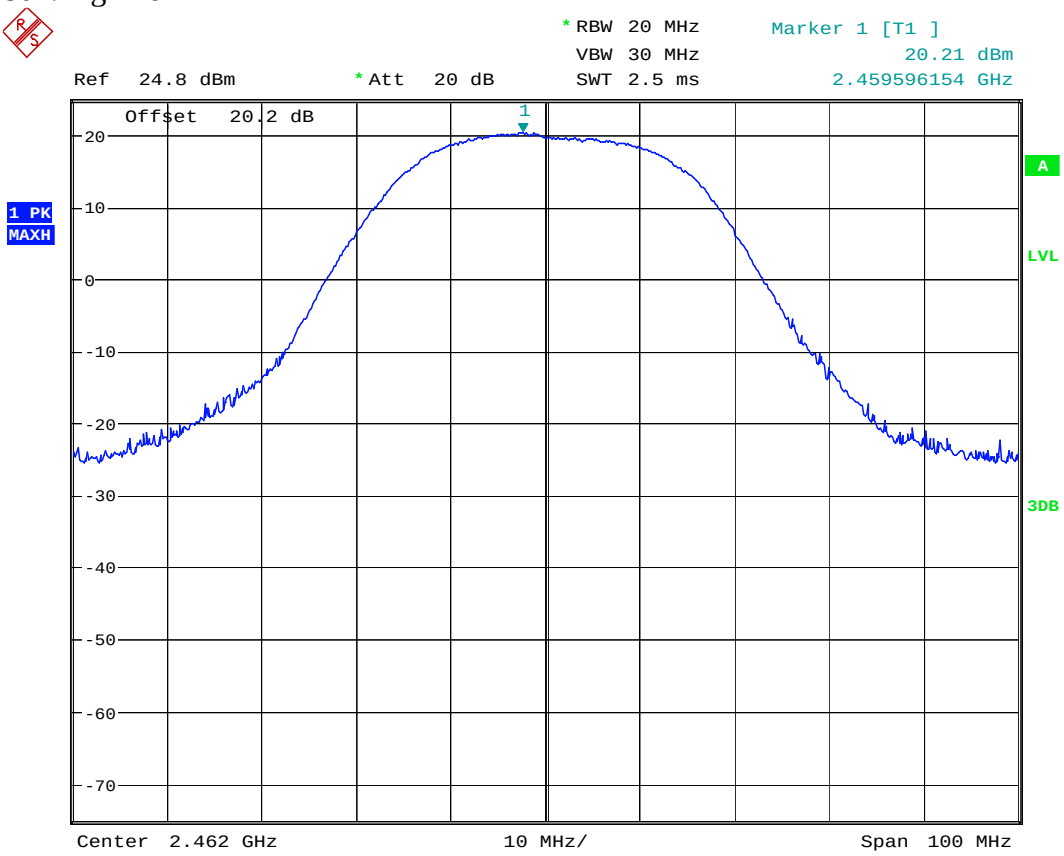
802.11g 2462MHz



Date: 9.FEB.2010 10:24:13

5.3 Power Spectral Density

5.3.1 Limit

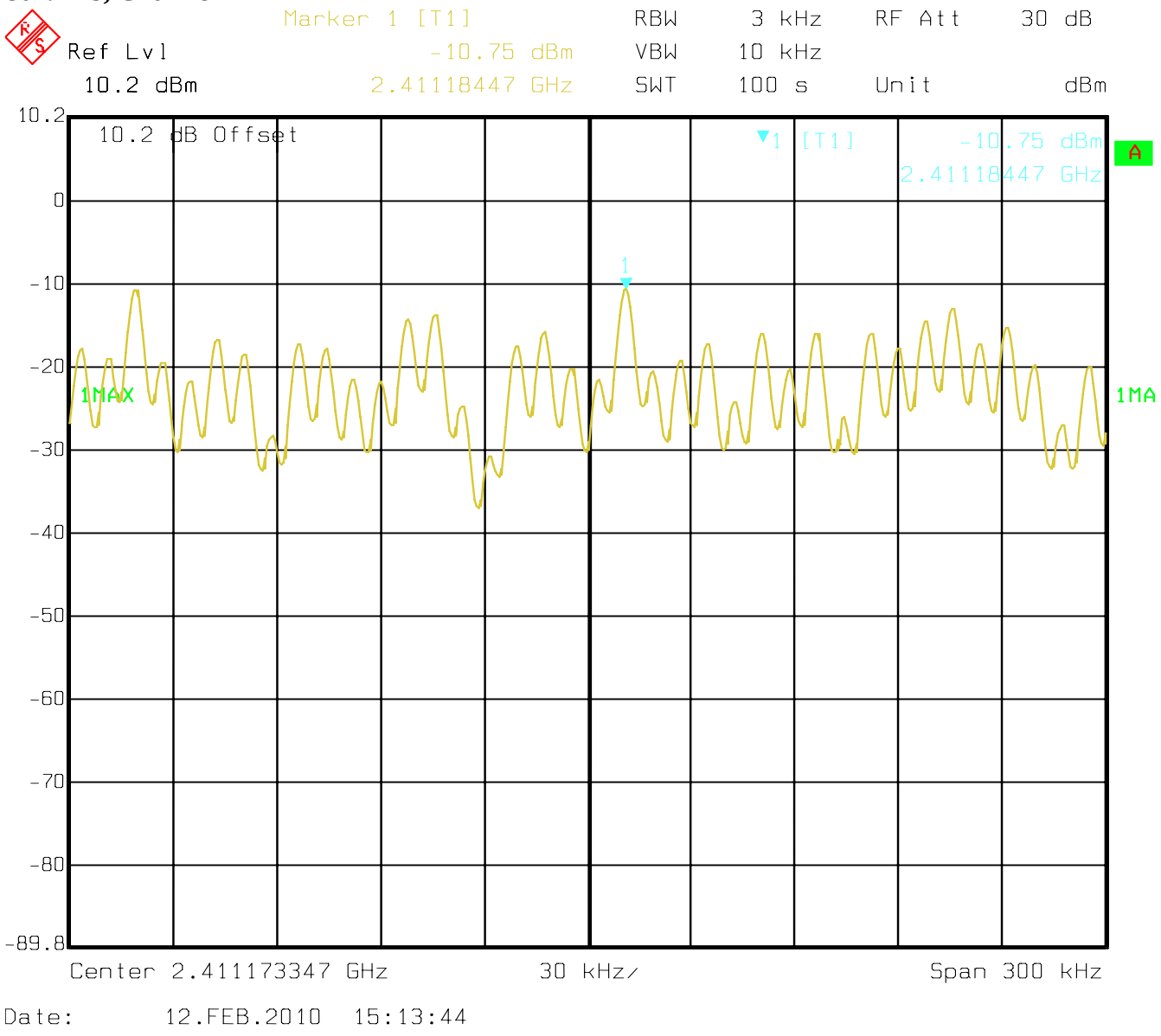
FCC 15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.3.2 Results

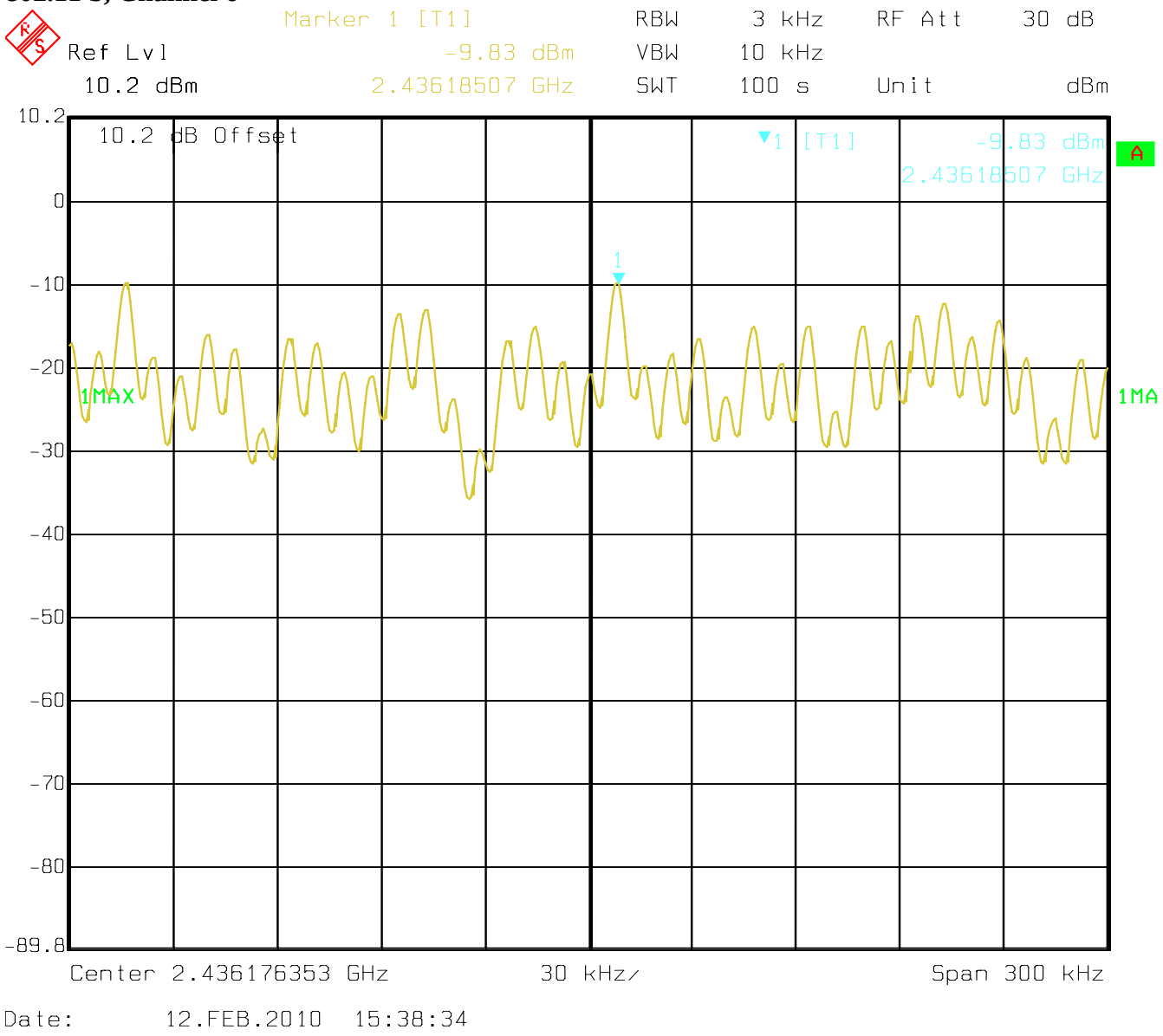
TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	PSD (dBm)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	**-10.75**	PASS
	2437	**-9.83**	PASS
	2462	**-10.85**	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	**-16.39**	PASS
	2437	**-17.58**	PASS
	2462	**-17.70**	PASS

5.3.3 Plots

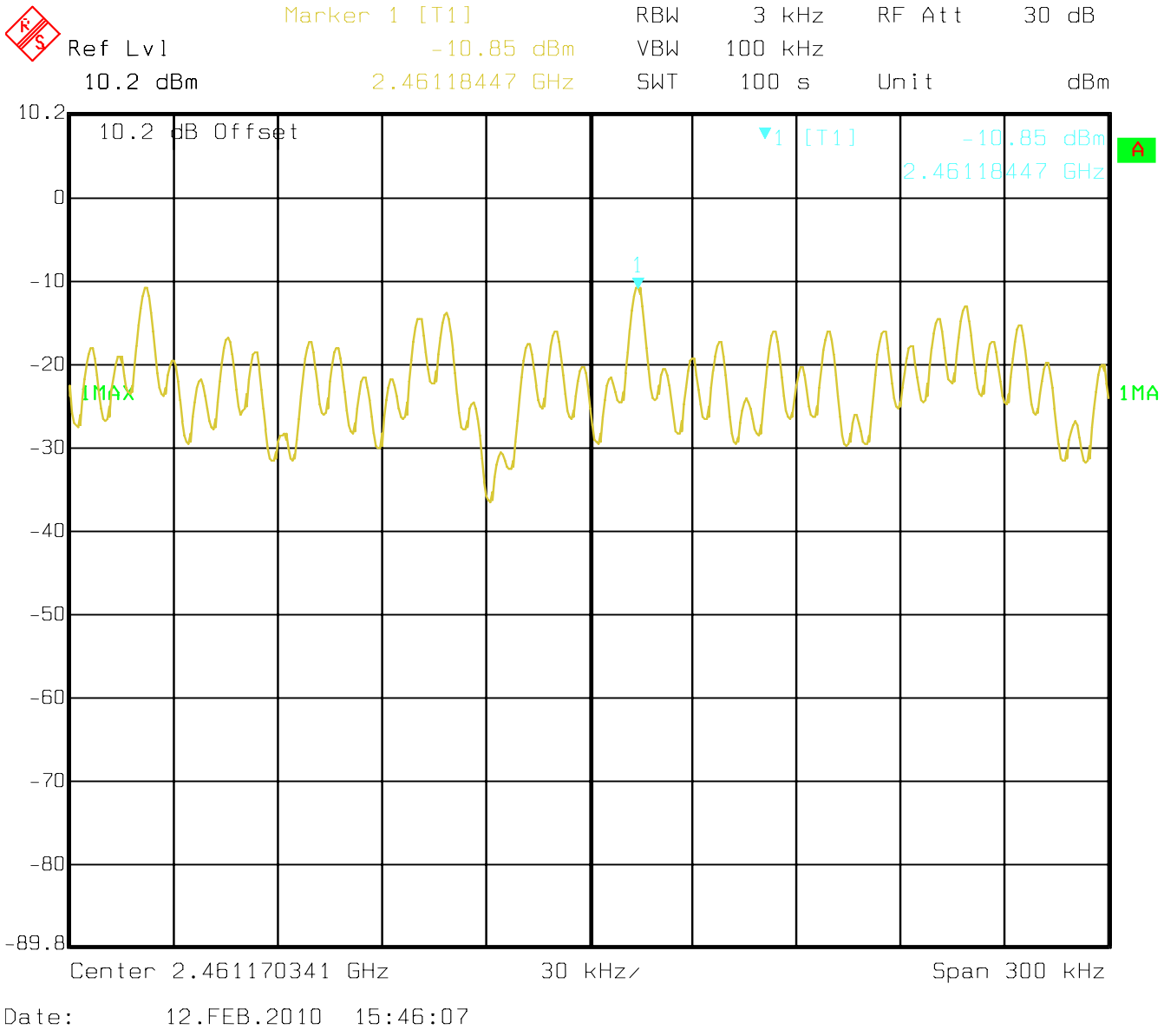
802.11 b, Channel 1



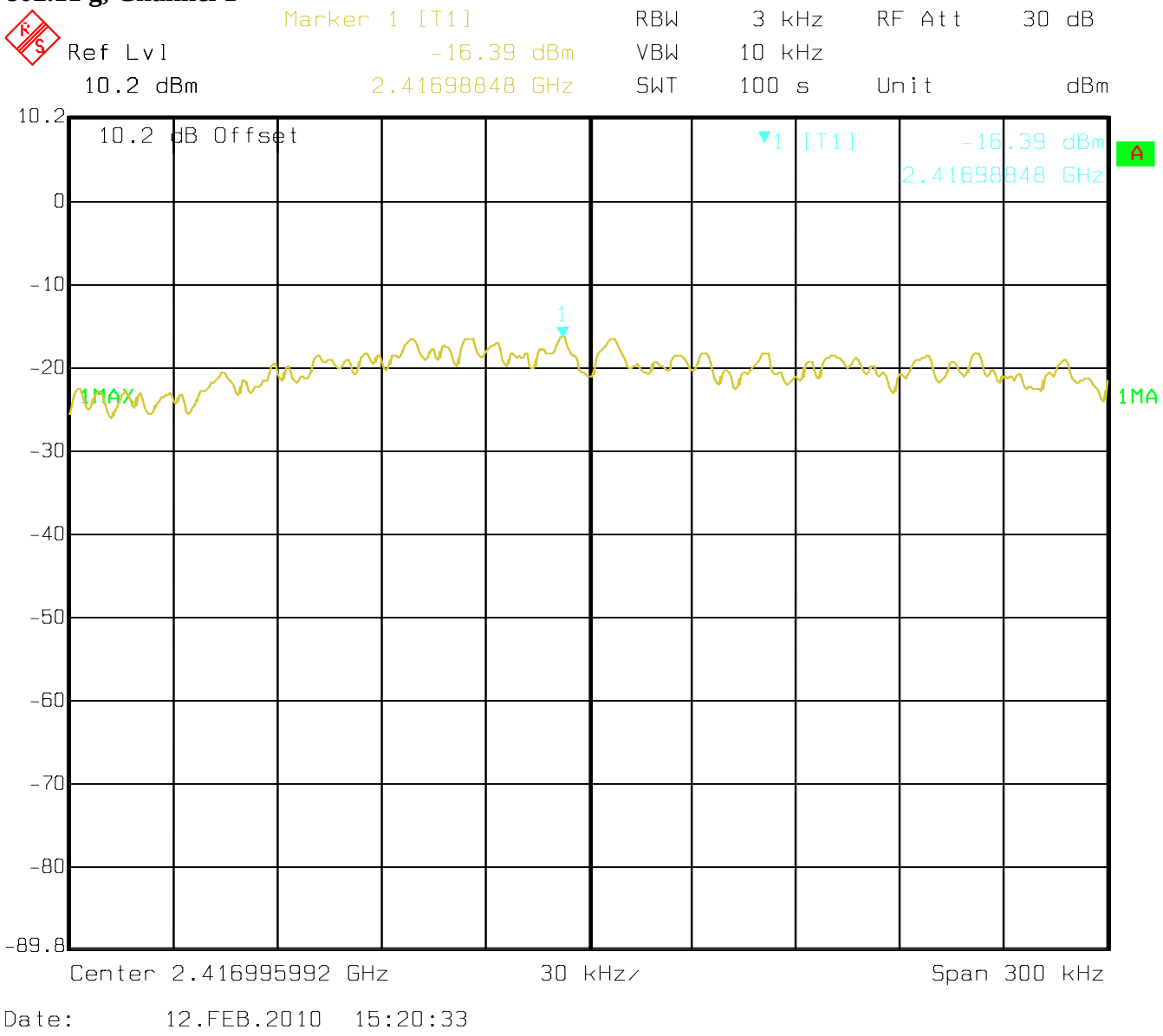
802.11 b, Channel 6



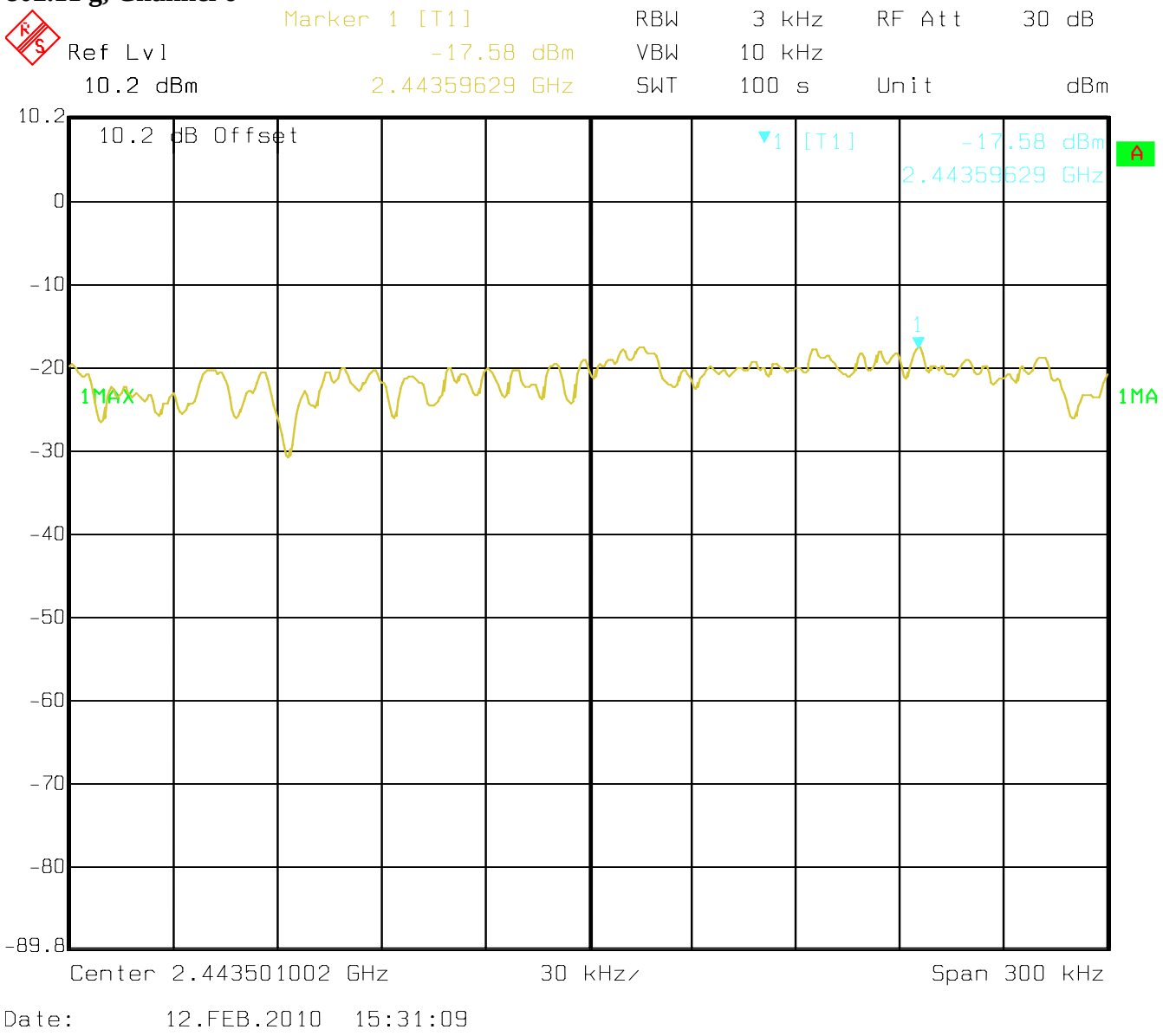
802.11 b, Channel 11



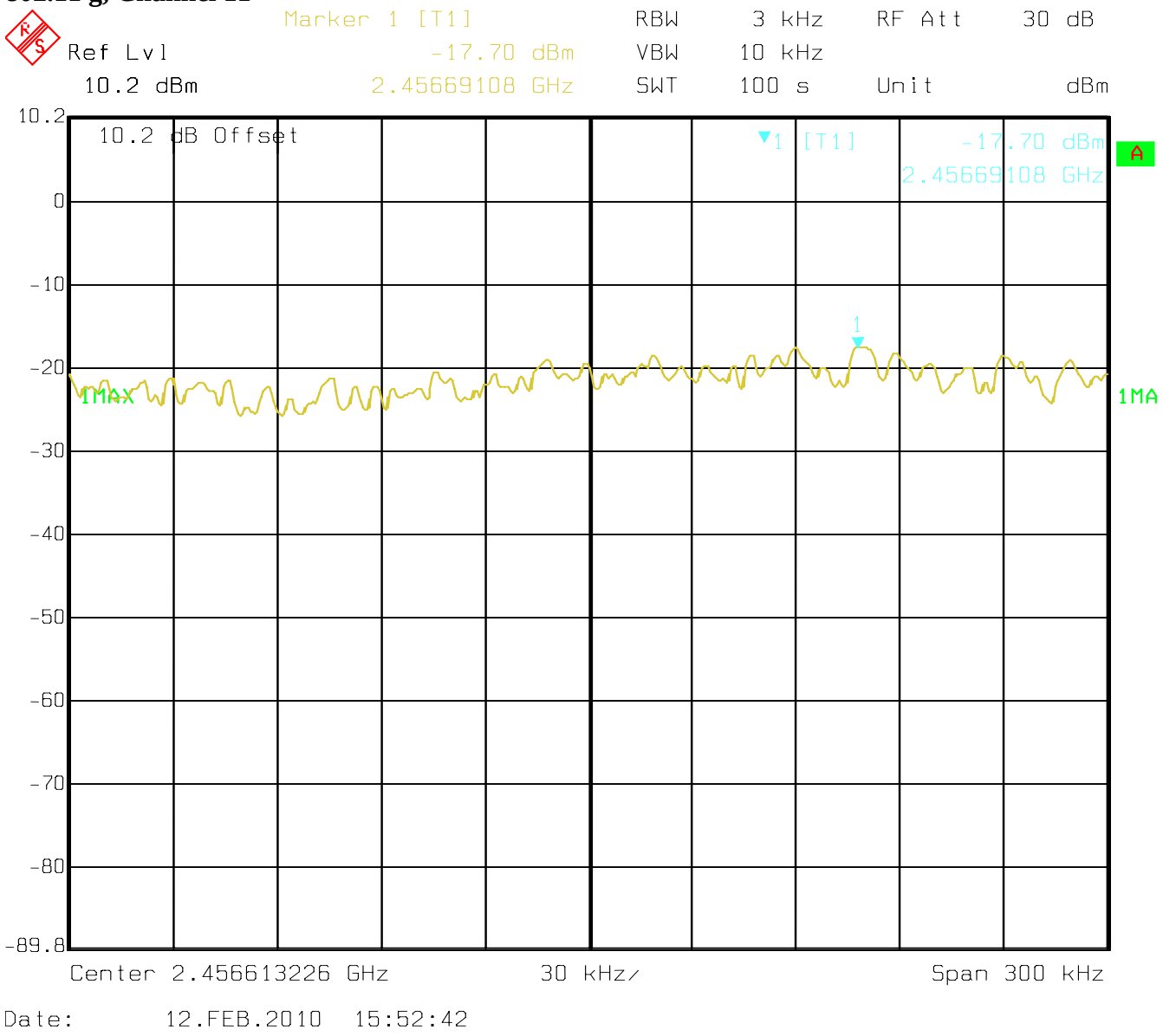
802.11 g, Channel 1



802.11 g, Channel 6



802.11 g, Channel 11



5.4 Conducted Spurious Emission

5.4.1 Limit

§15.247(d) & RSS-210 (A8.5): -30dBc

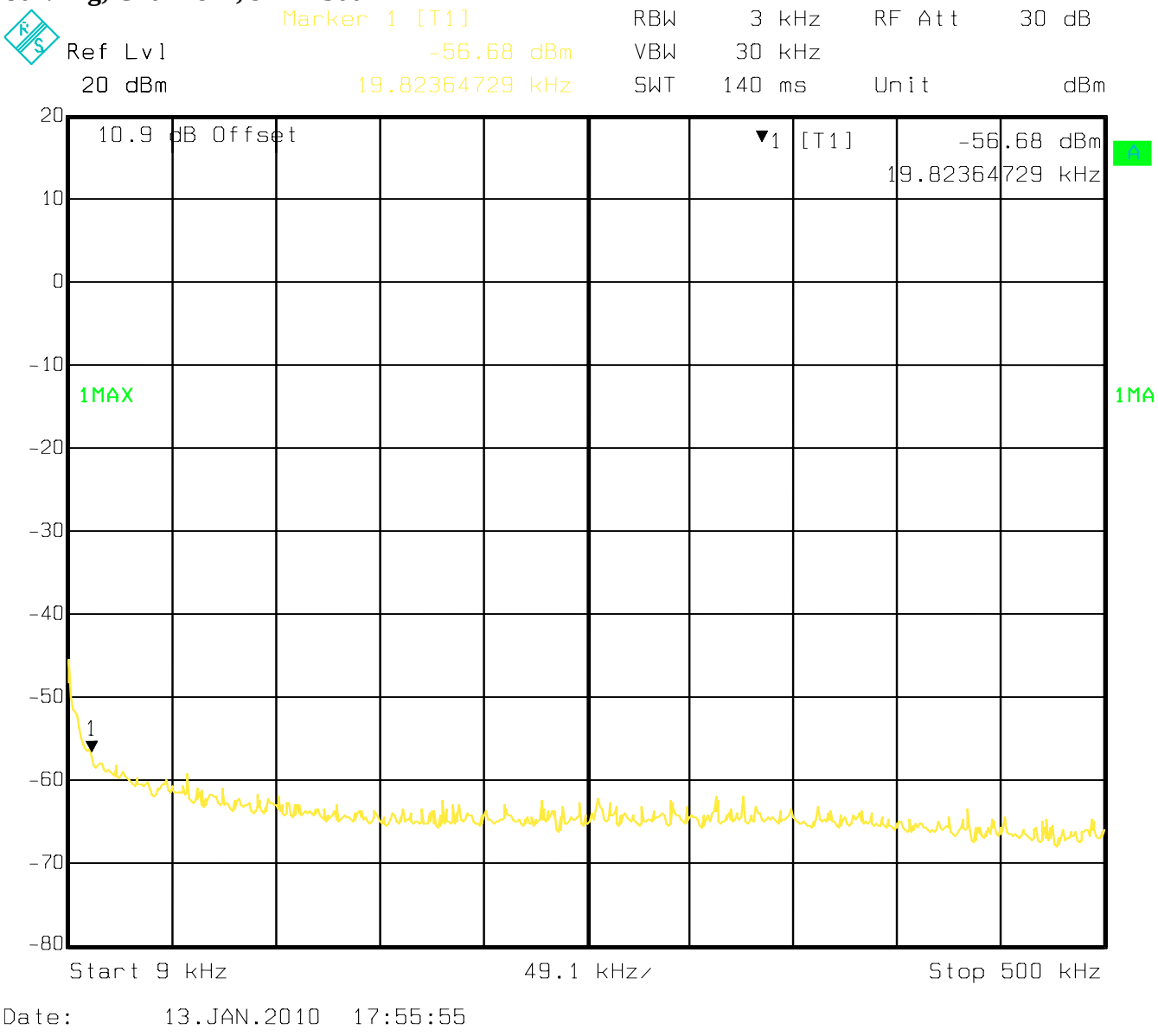
5.4.2 Results:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	Verdict
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	PASS
	2437	PASS
	2462	PASS
Co-location with Bluetooth	BT: 2442 WLAN: 2412	PASS

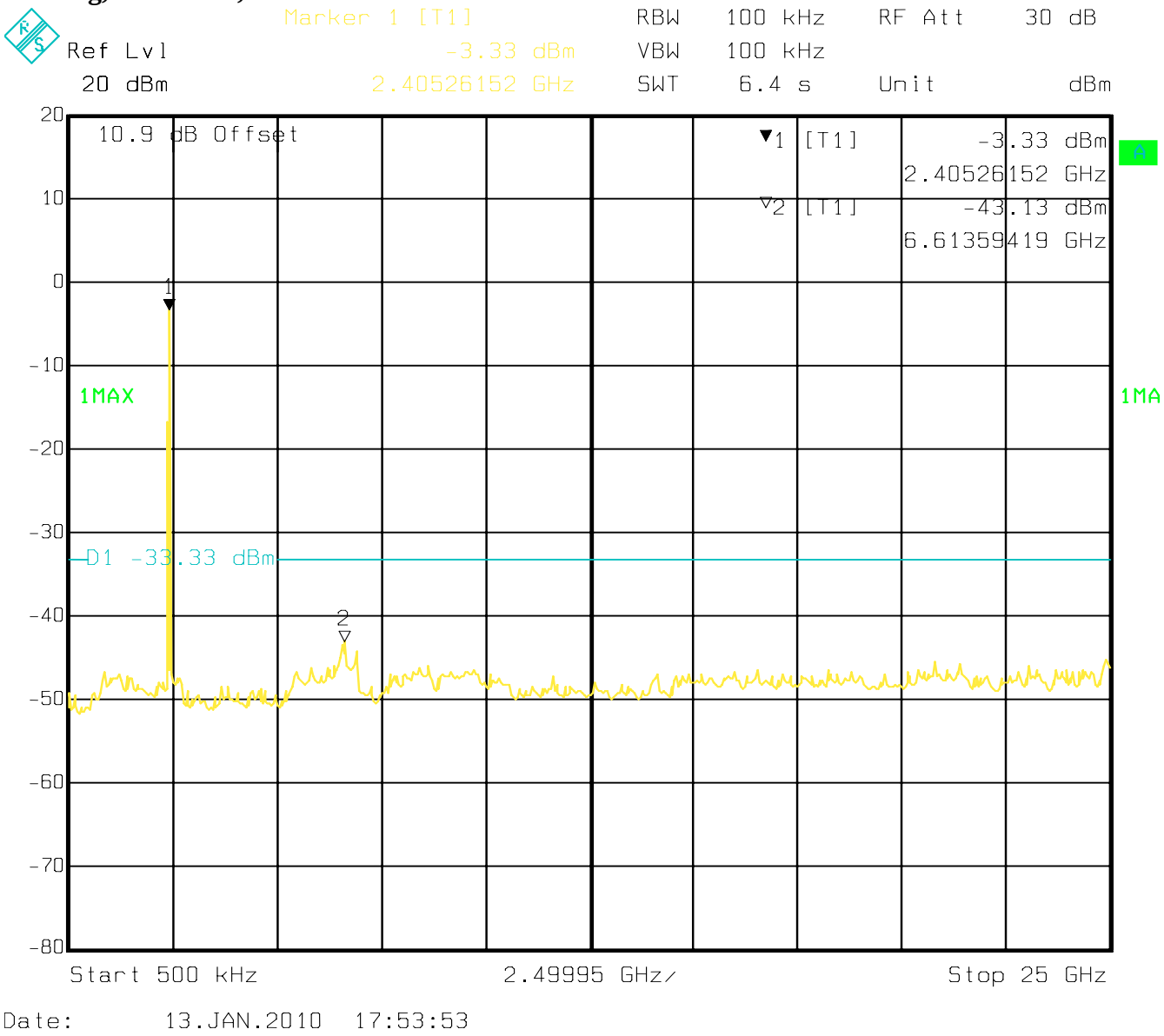
Plots represent worst case of all modes.

5.4.3 Plots

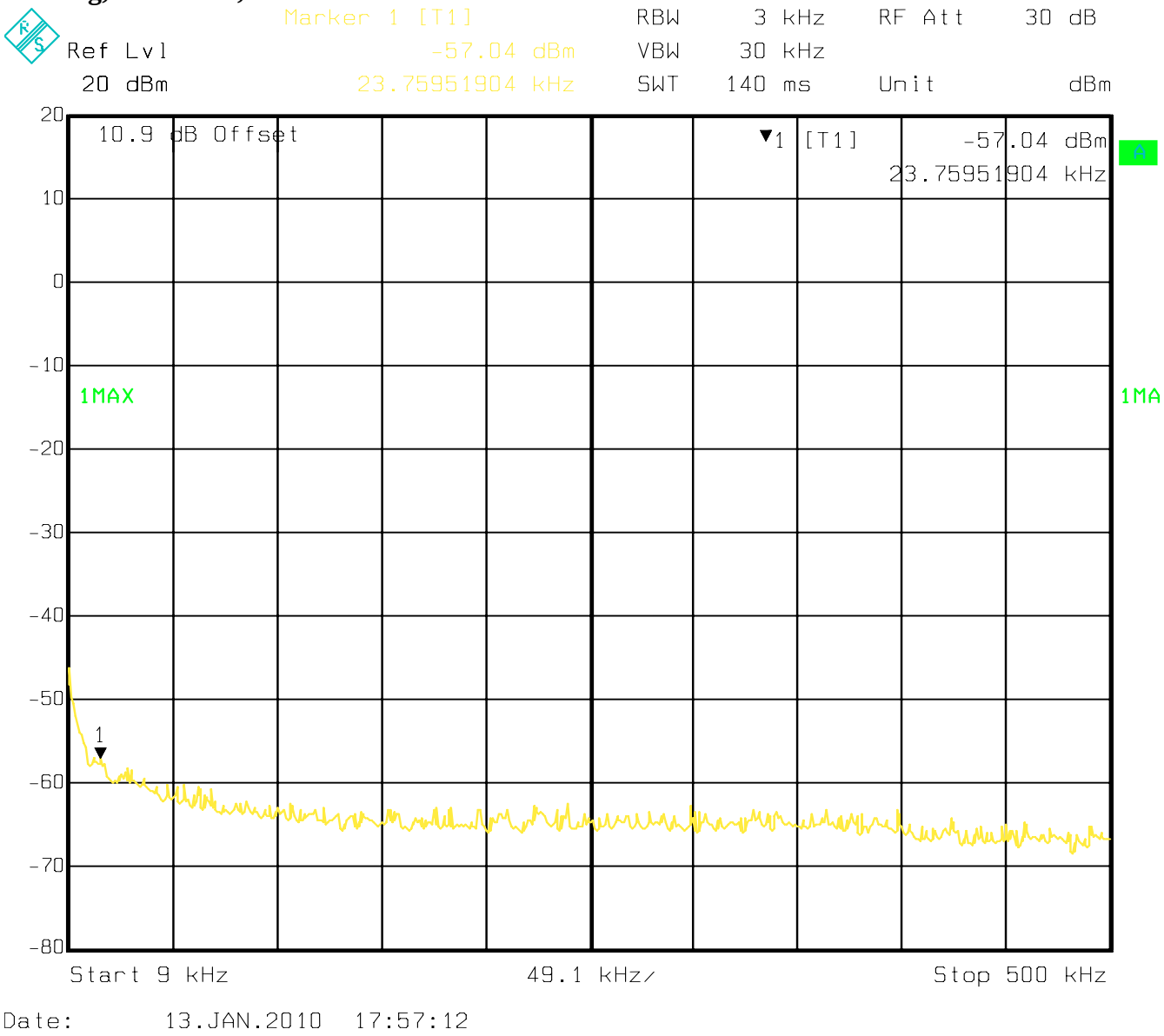
802.11 g, Channel 1, 9kHz-500kHz



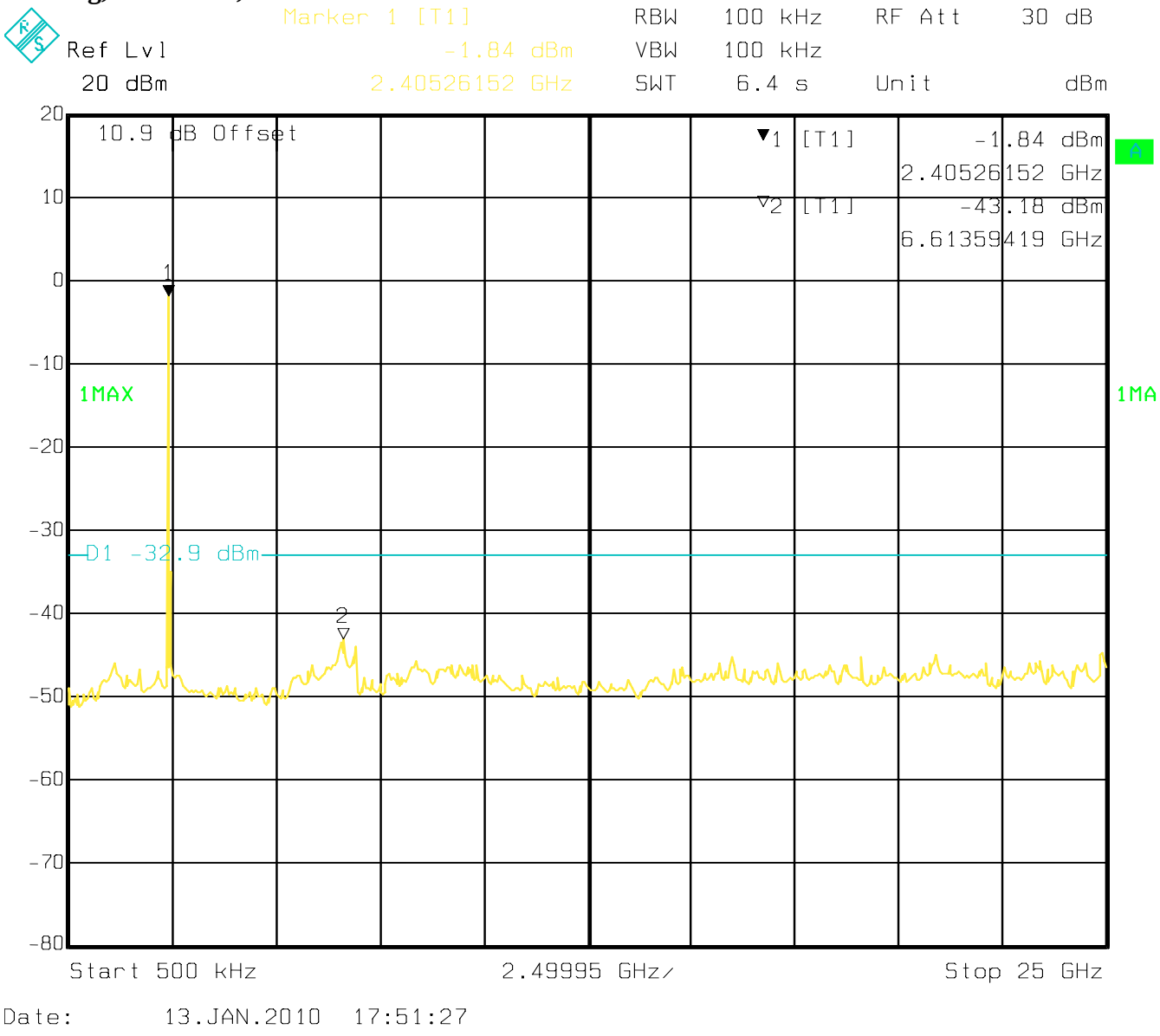
802.11 g, Channel 1, 500kHz-25GHz



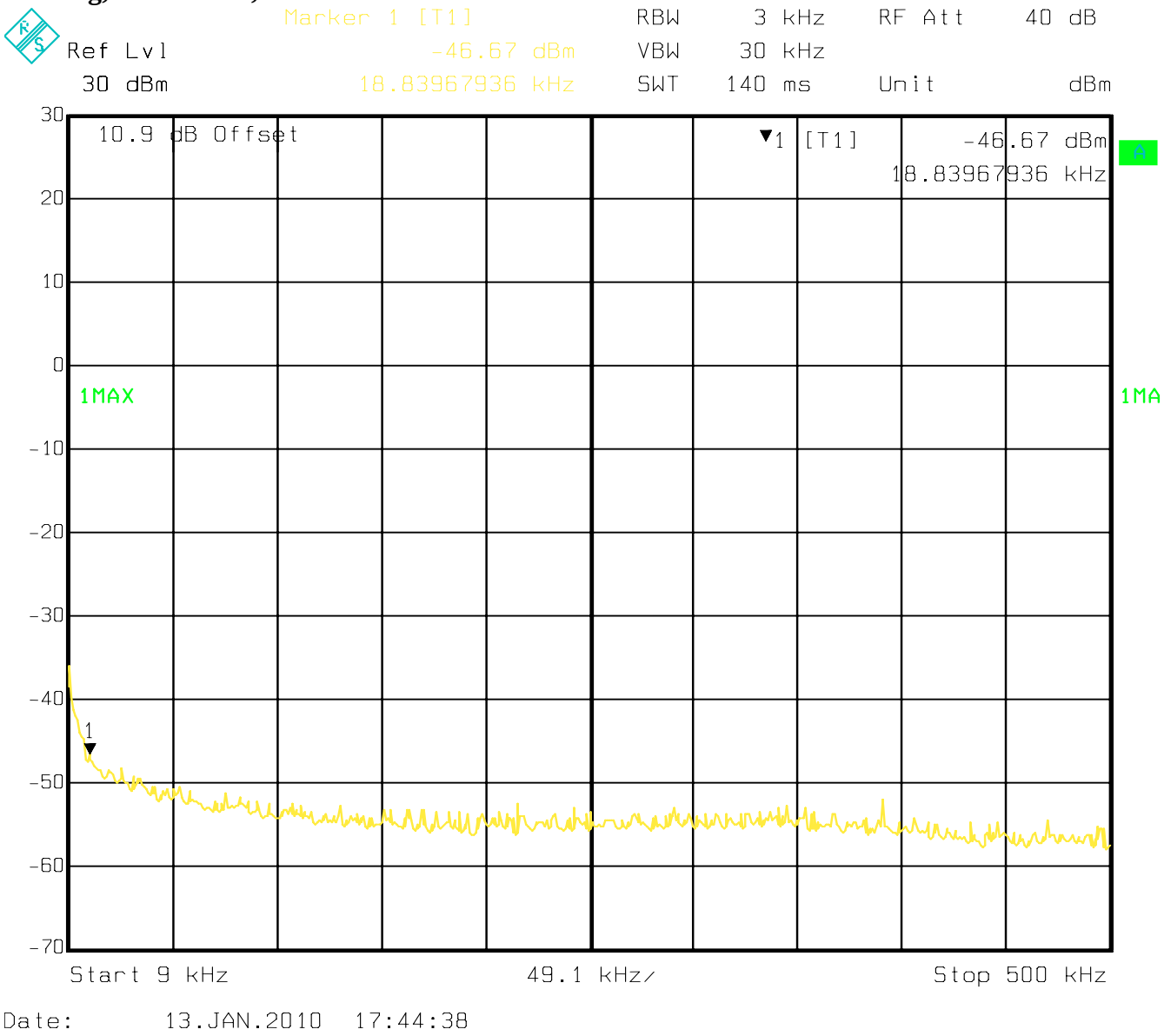
802.11 g, Channel 6, 9kHz-500kHz



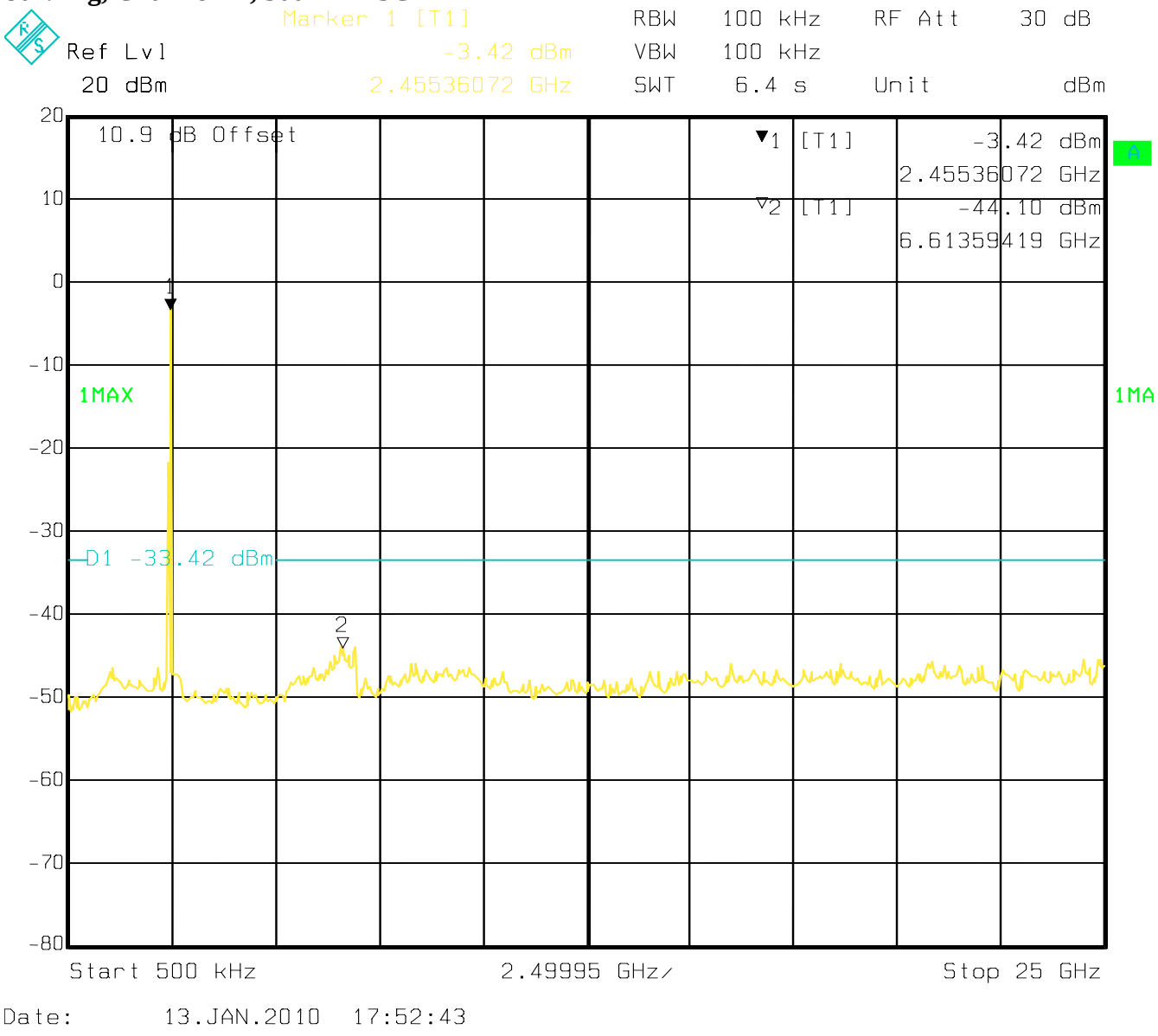
802.11 g, Channel 6, 500kHz-25GHz



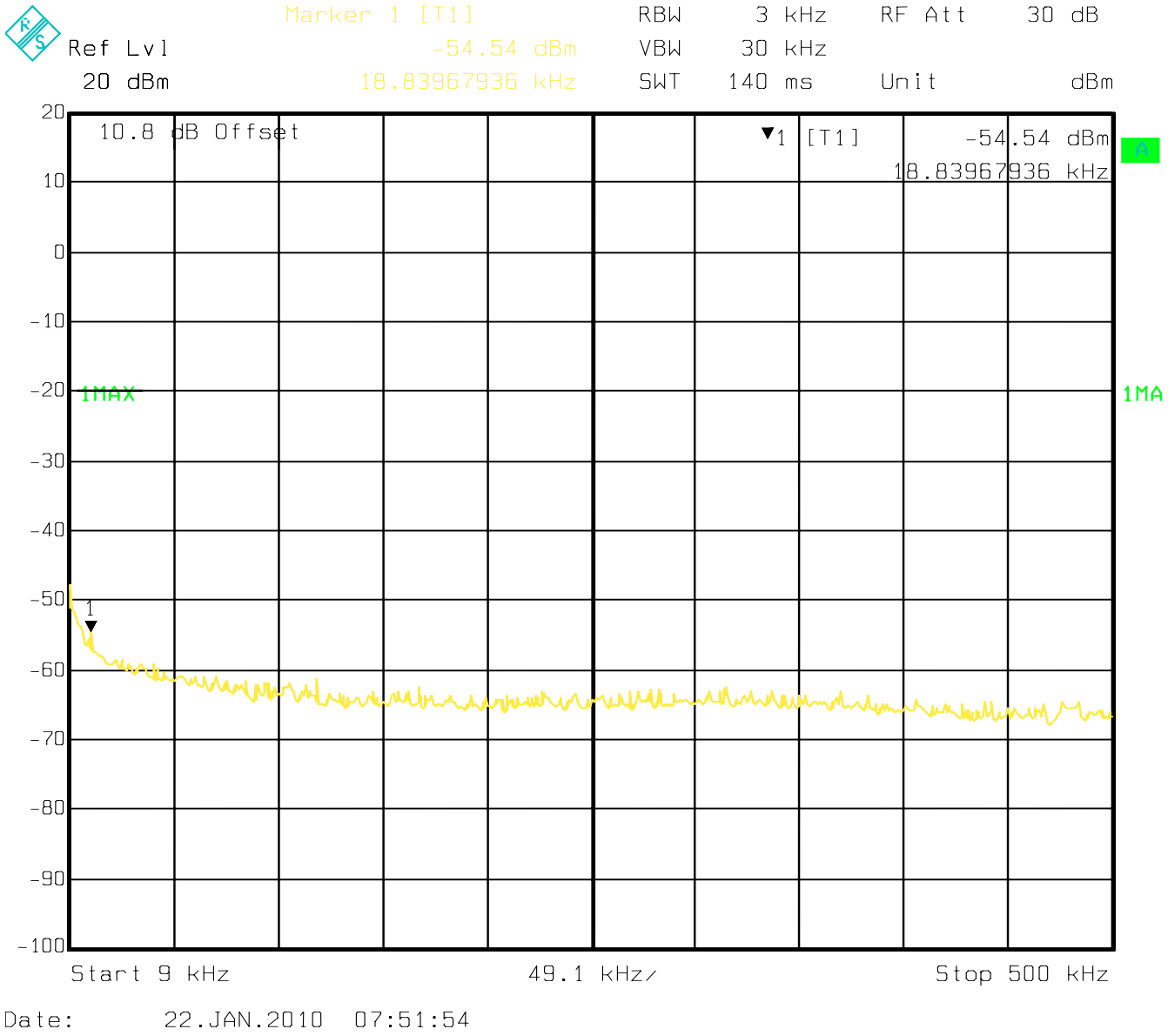
802.11 g, Channel 11, 9kHz-500kHz



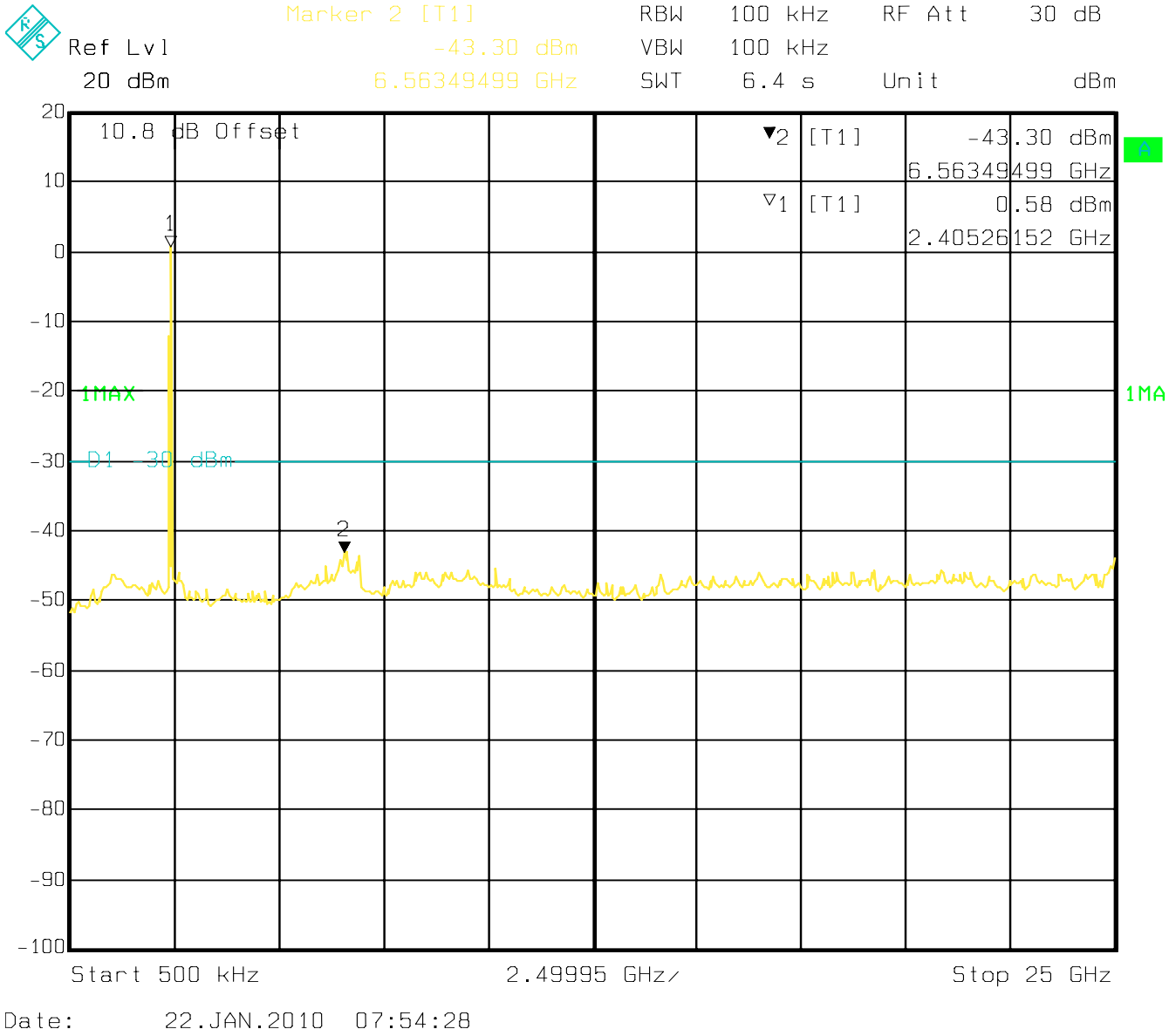
802.11 g, Channel 11, 500kHz-25GHz



Co-location, BT: 2442 MHz, WLAN 2412 MHz, 9kHz-500kHz



Co-location, BT: 2442 MHz, WLAN 2412 MHz, 500kHz-25GHz



5.5 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207

5.5.1 LIMITS

Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Limit

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50
* Decreases with logarithm of the frequency		

ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz

Note: AC Line Conducted Emission reported here are the worse cases among all operating modes.

5.5.2 RESULT:

No significant emissions measurable. Plots reported here represent the worse case emissions for all modes.

5.5.3 PLOTS
Standard Cover with AC Adapter #24

EMI Auto Test(1) 1 / 1

EMI Auto Test(1)

EUT Information

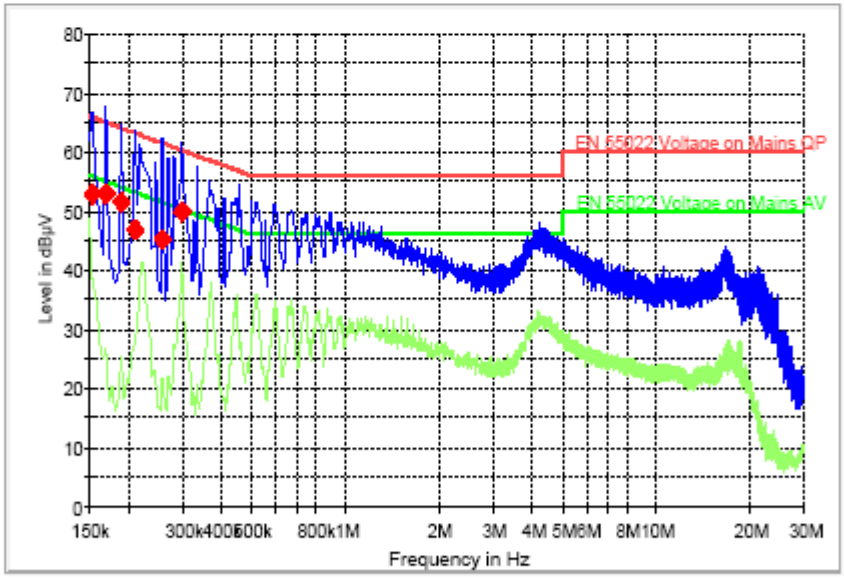
Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Standard Cover and AC adapter #24
Comment:	Wi-Fi and BT Enabled

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154000	52.9	5000.000	9.000	GND	N	1.0	12.9	65.8	
0.170000	52.9	5000.000	9.000	GND	N	1.0	12.1	65.0	
0.190000	51.5	5000.000	9.000	GND	L1	0.9	12.5	64.0	
0.210000	46.9	5000.000	9.000	GND	N	0.9	16.3	63.2	
0.258000	45.1	5000.000	9.000	GND	N	0.8	16.4	61.5	
0.298000	50.0	5000.000	9.000	GND	L1	0.6	10.3	60.3	

CISPR 22 Mains Conducted



1/8/2010 knavares EMC32 V8.10.10 10:01:49

Standard Cover with AC Adapter #30

EMI Auto Test(1) 1 / 1

EMI Auto Test(1)

EUT Information

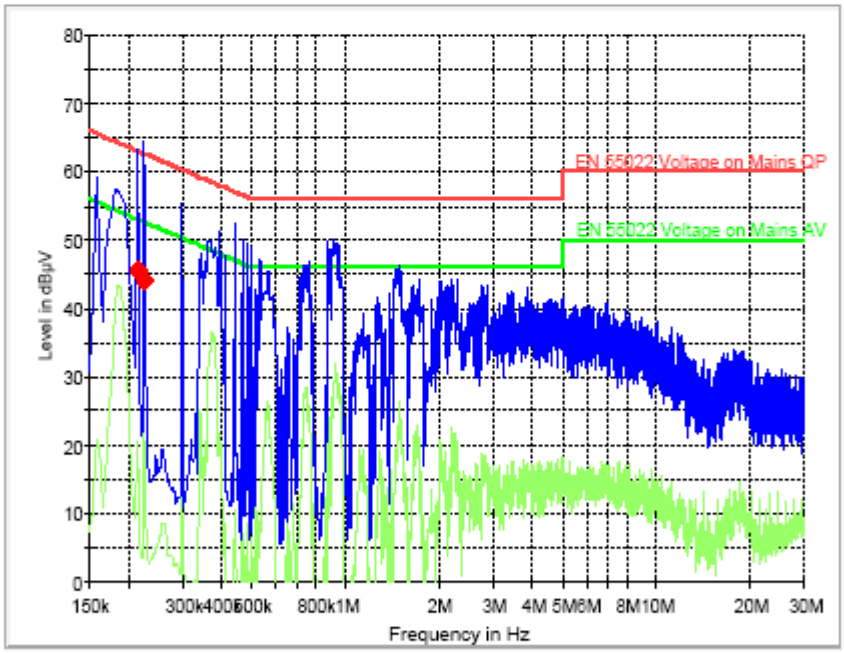
Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Standard Cover and AC adapter #30
Comment:	Wi-Fi and BT Enabled

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.214000	45.6	5000.000	9.000	GND	N	0.9	17.4	63.0	
0.226000	44.1	5000.000	9.000	GND	N	0.8	18.5	62.6	

CISPR 22 Mains Conducted



1/8/2010 knavares EMC32 V8.10.10 9:51:15

Inductive Cover with Inductive Dock and AC Adapter #24

EMI Auto Test(1) 1 / 1

EMI Auto Test(1)

EUT Information

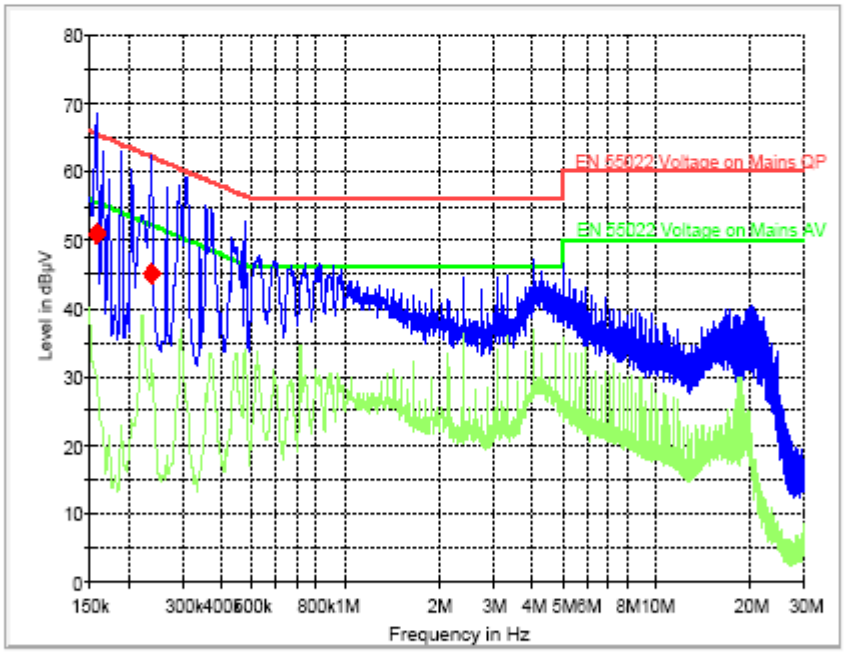
Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Inductive Cover with Inductive Dock and AC adapter #24
Comment:	Wi-Fi and BT Enabled

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.158000	51.0	5000.000	9.000	GND	L1	1.0	14.6	65.6	
0.238000	45.1	5000.000	9.000	GND	N	0.8	17.1	62.2	

CISPR 22 Mains Conducted



1/8/2010 knavares EMC32 V8.10.10 10:32:16

Inductive Cover with Inductive Dock and AC Adapter #30

EMI Auto Test(1) 1 / 1

EMI Auto Test(1)

EUT Information

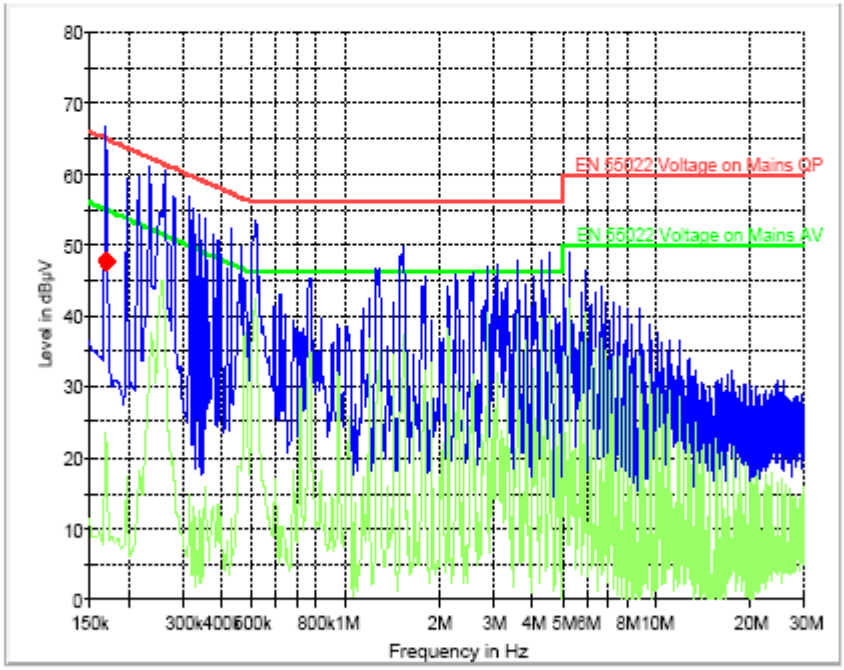
Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Inductive Cover with Inductive Dock and AC adapter #30
Comment:	Wi-Fi and BT Enabled

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.170000	47.7	5000.000	9.000	GND	N	1.0	17.3	65.0	

CISPR 22 Mains Conducted



1/8/2010 knavares EMC32 V8.10.10 10:22:20

Idle Mode – Inductive Cover with AC adapter #30
This represents worst case emissions of all configurations.

RX_Inductive Cover; dock; ac 30 1 / 1

RX_Inductive Cover; dock; ac 30

EUT Information

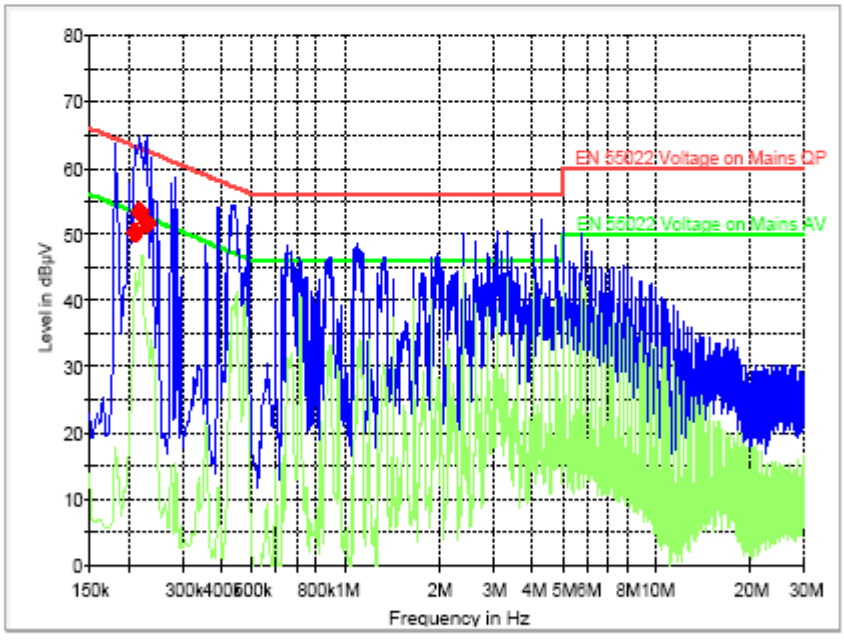
Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	GSM/UMTS SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	RX

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.210000	50.2	5000.000	9.000	GND	L1	0.9	13.0	63.2	
0.218000	53.4	5000.000	9.000	GND	L1	0.9	9.5	62.9	
0.230000	51.7	5000.000	9.000	GND	N	0.8	10.7	62.4	

CISPR 22 Mains Conducted



1/8/2010 smoon EMC32 V8.10.10 6:20:44

6 Radiated Measurements

6.1 Maximum Peak Output Power § 15.247 (b)(1) (Radiated)

6.1.1 Limits

FCC15.247 (b) (1): 4W (36dBm), with antenna gain < 6dBi.
RSS-210 A8.4 (4): 4W (36dBm)

6.1.2 Results:

EIRP 802.11 b/g Mode:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	EIRP (dBm)	EIRP (mW)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	**12.971**	**19.820**	PASS
	2437	**13.563**	**22.714**	PASS
	2462	**12.299**	**16.979**	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	**20.180**	**104.232**	PASS
	2437	**20.804**	**120.337**	PASS
	2462	**18.605**	**72.527**	PASS

6.1.3 Plots:

b mode Channel 1

CH1 1 / 1

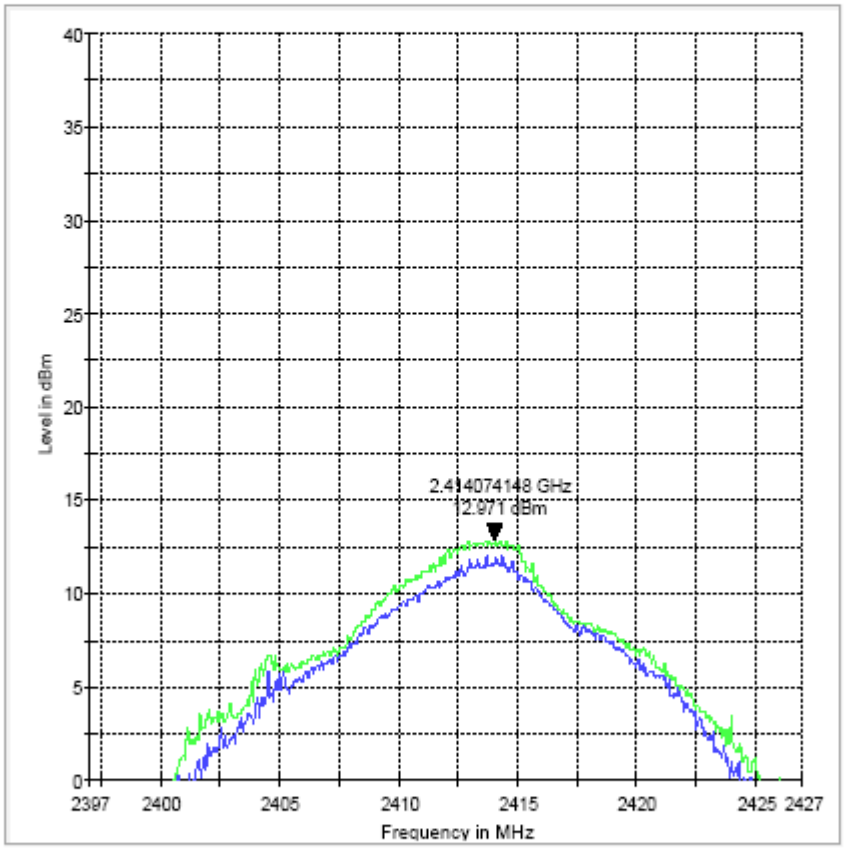
EMC32 Report

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample2)
Configuration:	Standard Cover and AC adapter #30
Comment:	Ant H 119.8cm; TT 223.5; EUT H; TX PWR @ 13

EIRP 2412 20MHz



1/5/2010 jsabado EMC32 V8.10.10 7:00:07

b mode Channel 6

CH 6_H 1 / 1

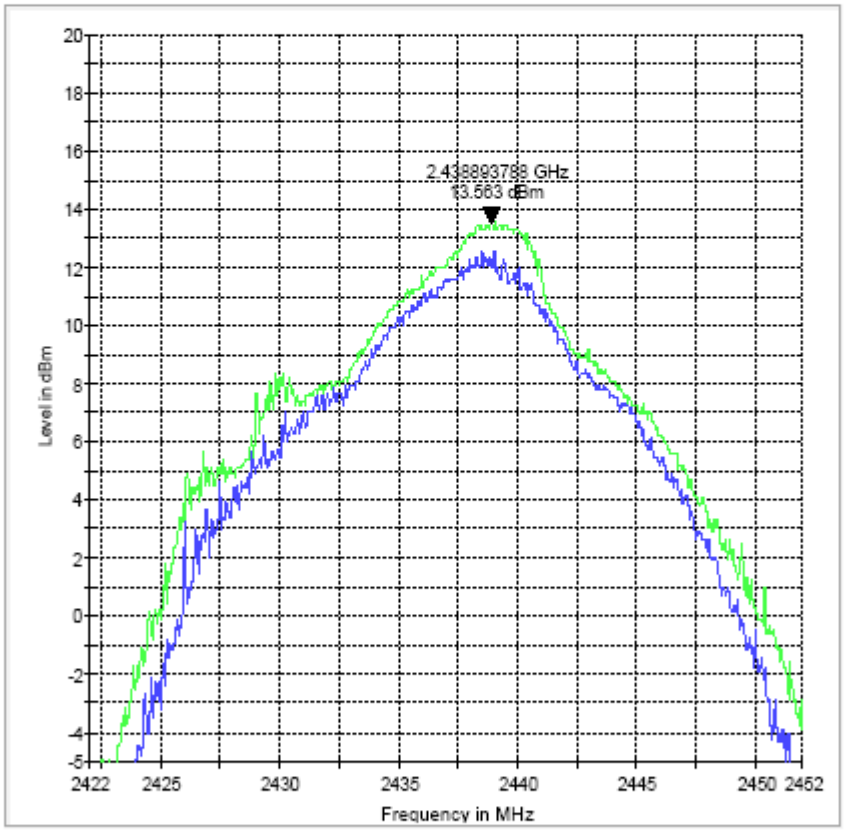
CH 6_H

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	b mode ch 6; tt@ 200° ant-117

EIRP 2437 20MHz



1/7/2010 smoon EMC32 V8.10.10 11:13:27

b mode Channel 11

CH11 1 / 1

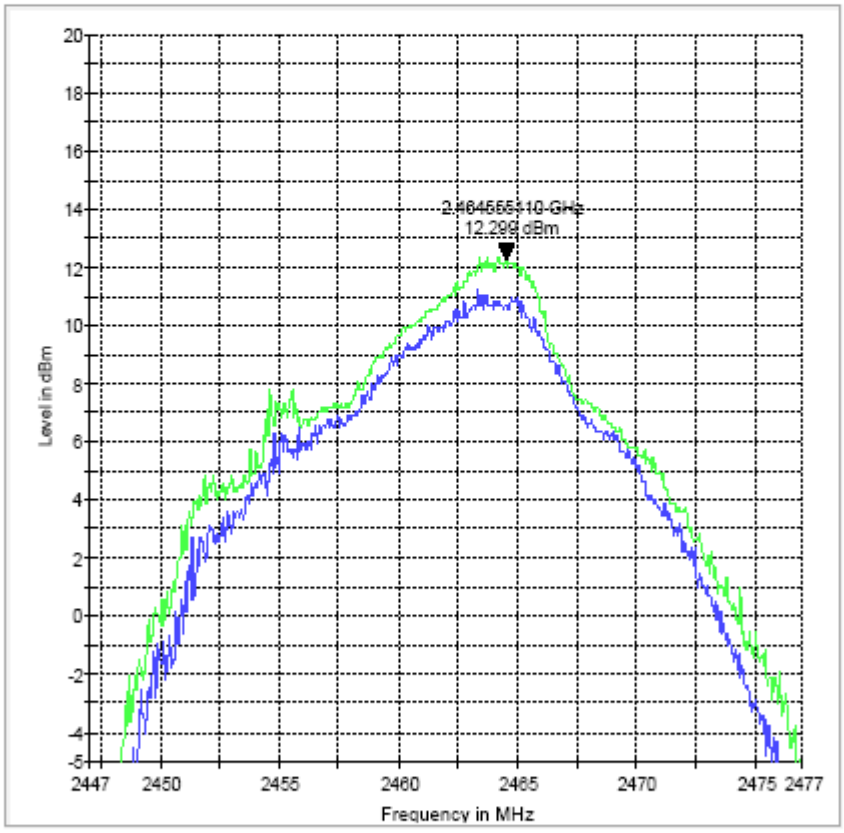
CH11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	b mode ch 11

EIRP 2462 20MHz



1/7/2010 smoon EMC32 V8.10.10 2:36:16

g mode Channel 1

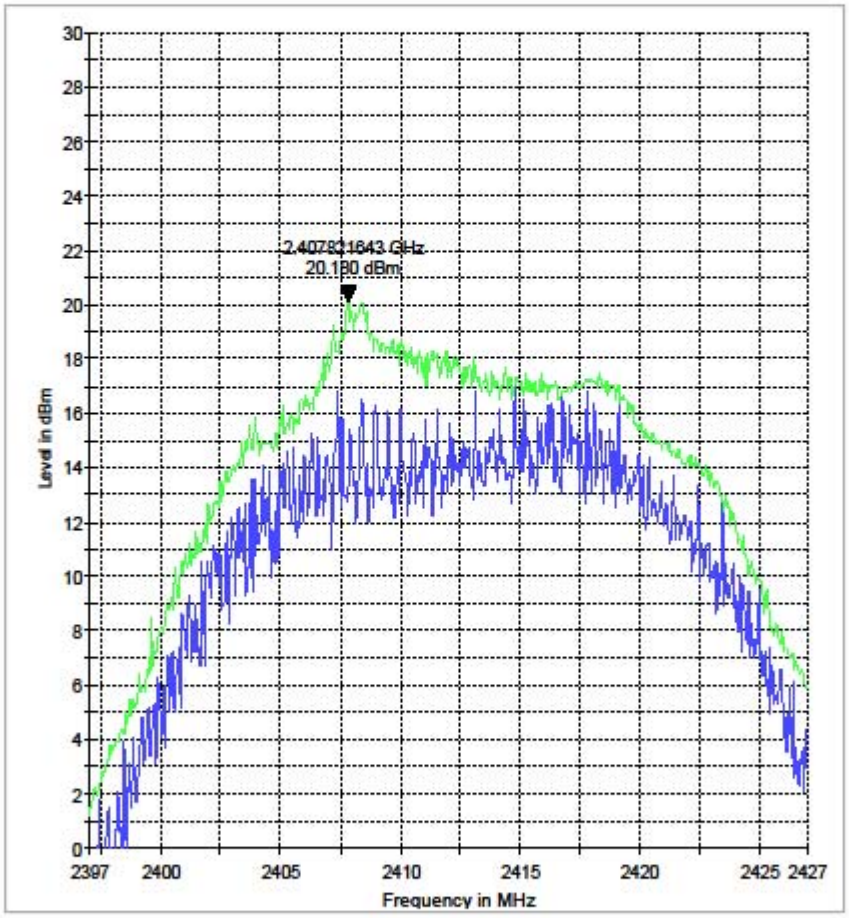
Test 1 / 1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 1

EIRP 2412 20MHz



1/19/2010 EMC32 EMC32 V8.30.0 10:17:10 AM

g mode Channel 6

Test 1 / 1

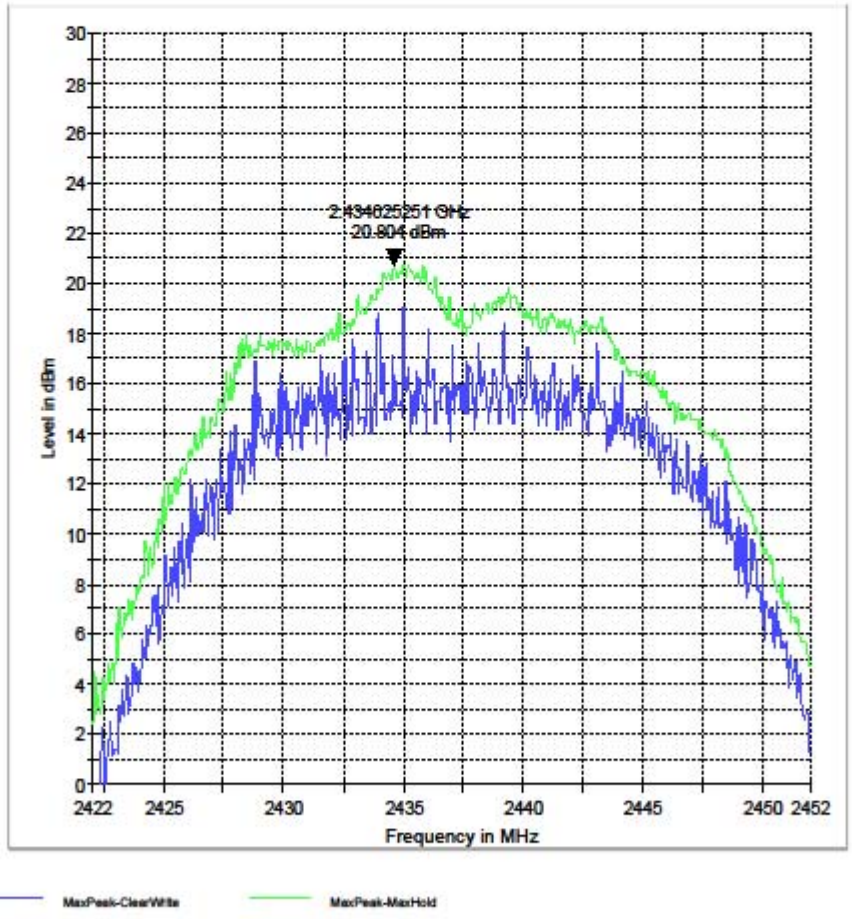
EMC32 Report

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 6; tt@ 195° ant-117

EIRP 2437 20MHz



1/19/2010 EMC32 V8.30.0 10:18:54 AM

g mode Channel 11

EIRP-CH 11 1 / 1

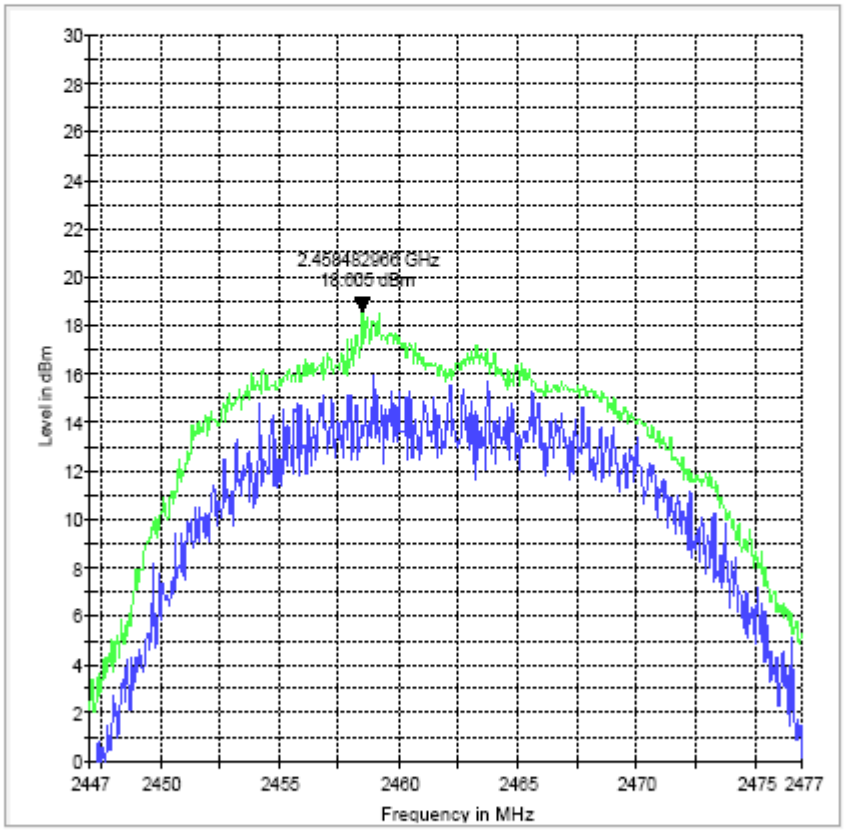
EIRP-CH 11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 11

EIRP 2462 20MHz



1/7/2010 smoon EMC32 V8.10.10 2:53:48

6.2 Restricted Band Edge Compliance §15.247/15.205

6.2.1 Limits

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

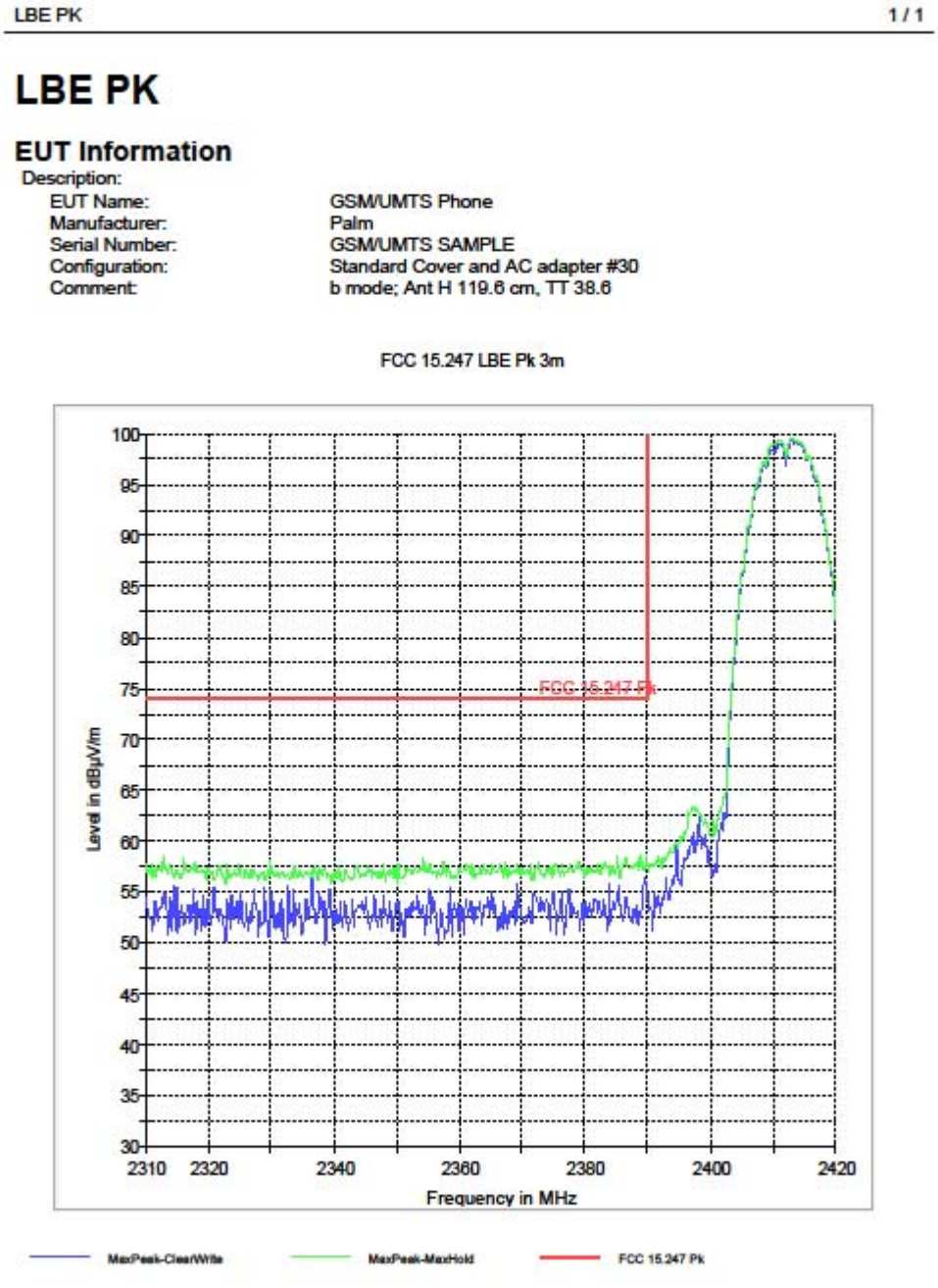
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

***PEAK LIMIT= 74dBuV/m**
***AVG. LIMIT= 54dBuV/m**

Notes:

1. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
2. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity.

6.2.2 Sub-band 1 802.11b
Lower band edge PEAK



Lower band edge Average

LBE AV 1 / 1

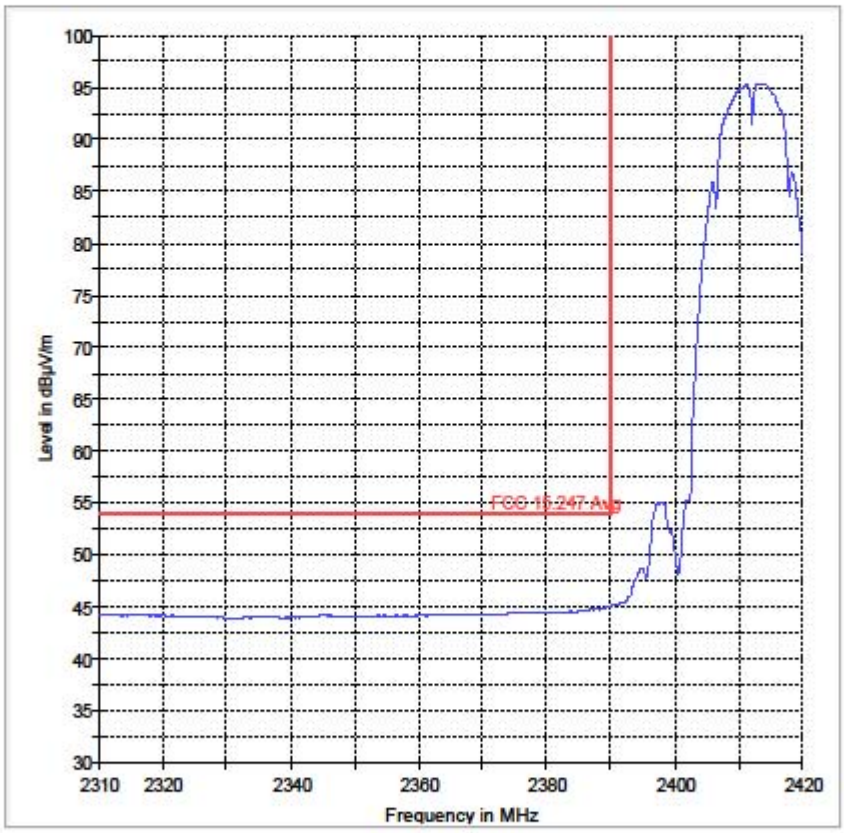
LBE AV

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	GSM/UMTS SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	b mode; Ant H 119.6 cm, TT 38.6

FCC 15.247 LBE Avg 3m



1/19/2010 knavares EMC32 V8.10.10 8:01:51

High band edge PEAK

HBE PK 1 / 1

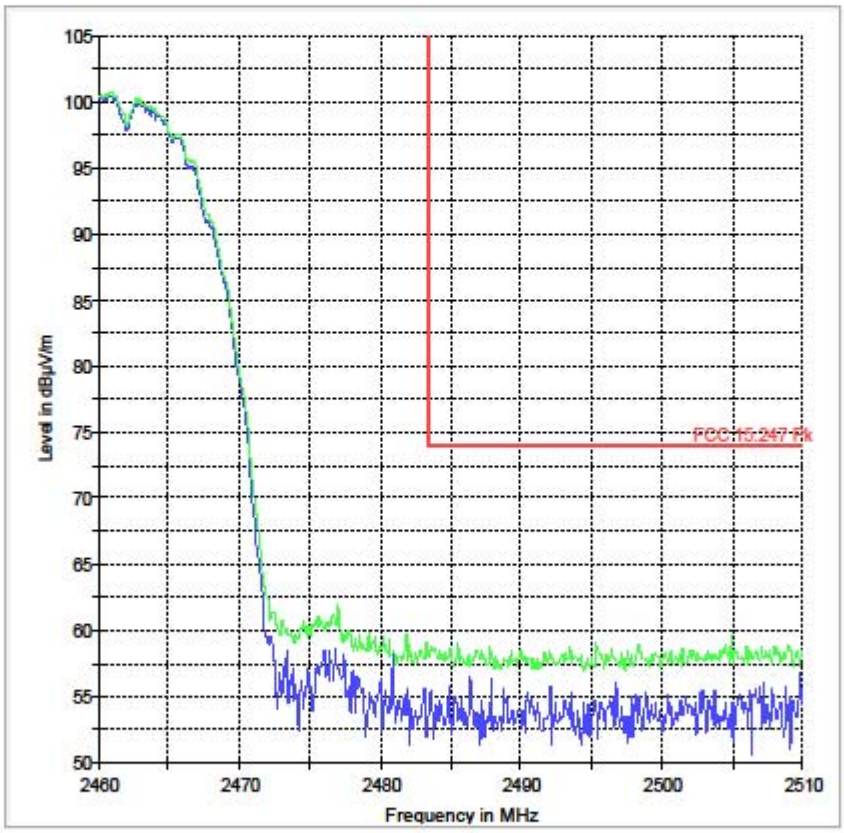
HBE PK

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Standard Cover and AC adapter #30
Comment:	b mode; Ant H 119.6 cm, TT 38.6

FCC 15.247 HBE Pk 3m



1/19/2010 knavares EMC32 V8.10.10 7:53:21

High band edge Average

HBE AV 1 / 1

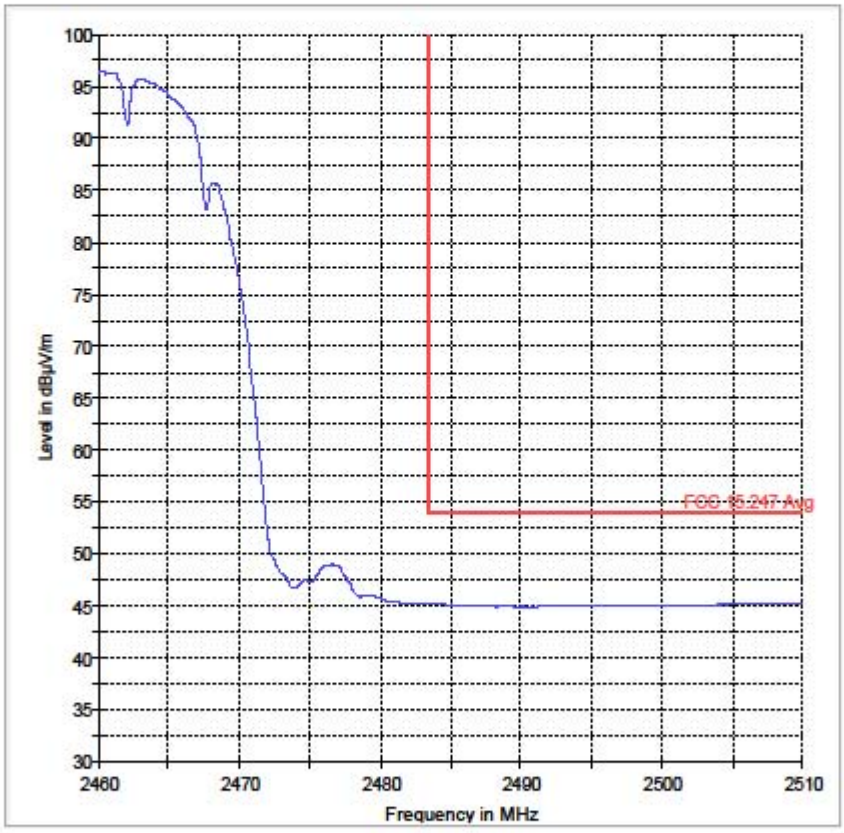
HBE AV

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	GSM/UMTS SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	b mode; Ant H 119.6 cm, TT 38.6

FCC 15.247 HBE Avg 3m



1/19/2010 knavares EMC32 V8.10.10 7:57:23

6.2.3 Sub-band 1 802.11g

Lower band edge PEAK

LBE_PK 1 / 1

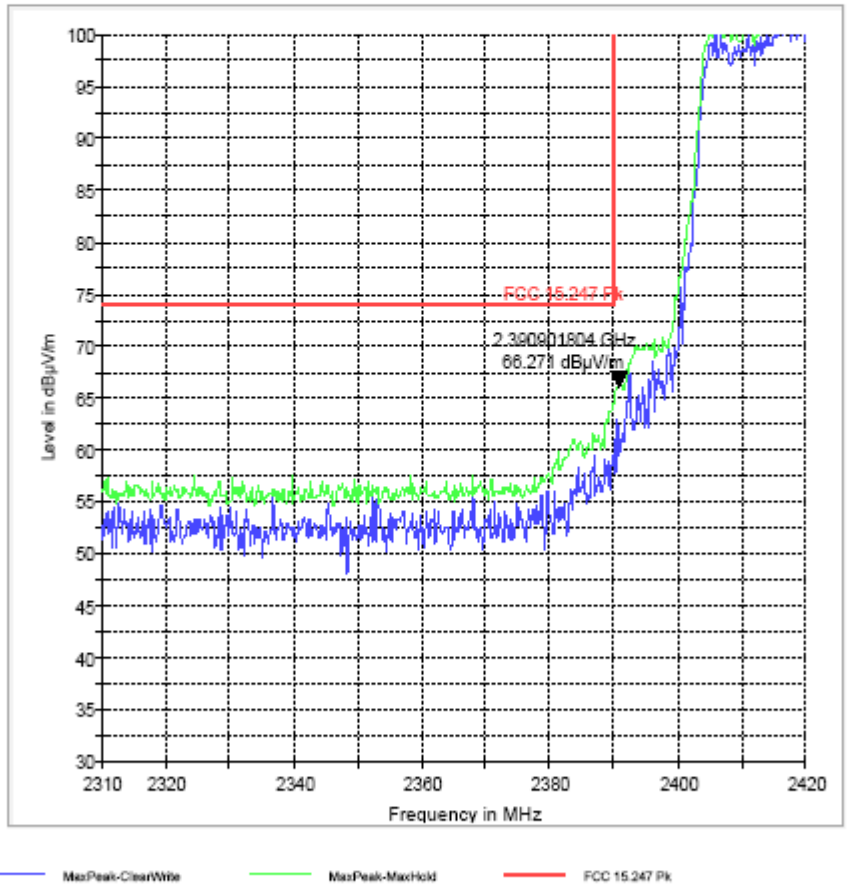
LBE_PK

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 1

FCC 15.247 LBE Pk 3m



1/7/2010 smoon EMC32 V8.10.10 3:07:39

Lower band edge Average

LBE_AVG 1 / 1

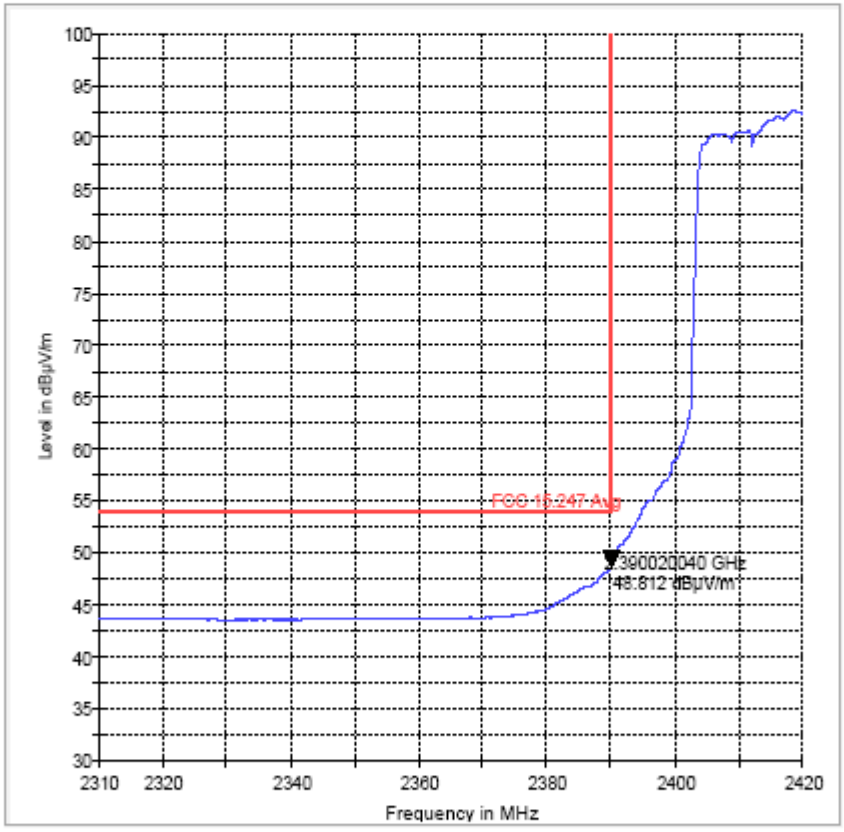
LBE_AVG

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 1

FCC 15.247 LBE Avg 3m



1/7/2010 smoon EMC32 V8.10.10 3:09:20

High band edge PEAK

HBE_PK 1 / 1

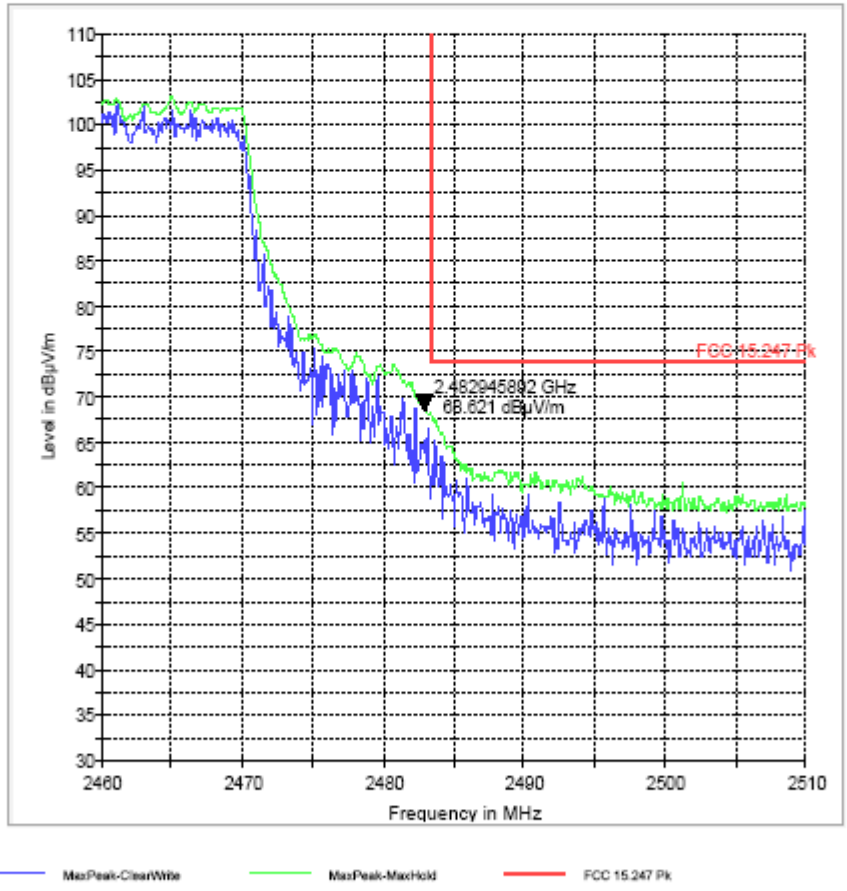
HBE_PK

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 11

FCC 15.247 HBE Pk 3m



1/7/2010 smoon EMC32 V8.10.10 2:59:58

High band edge Average

HBE_AVG 1 / 1

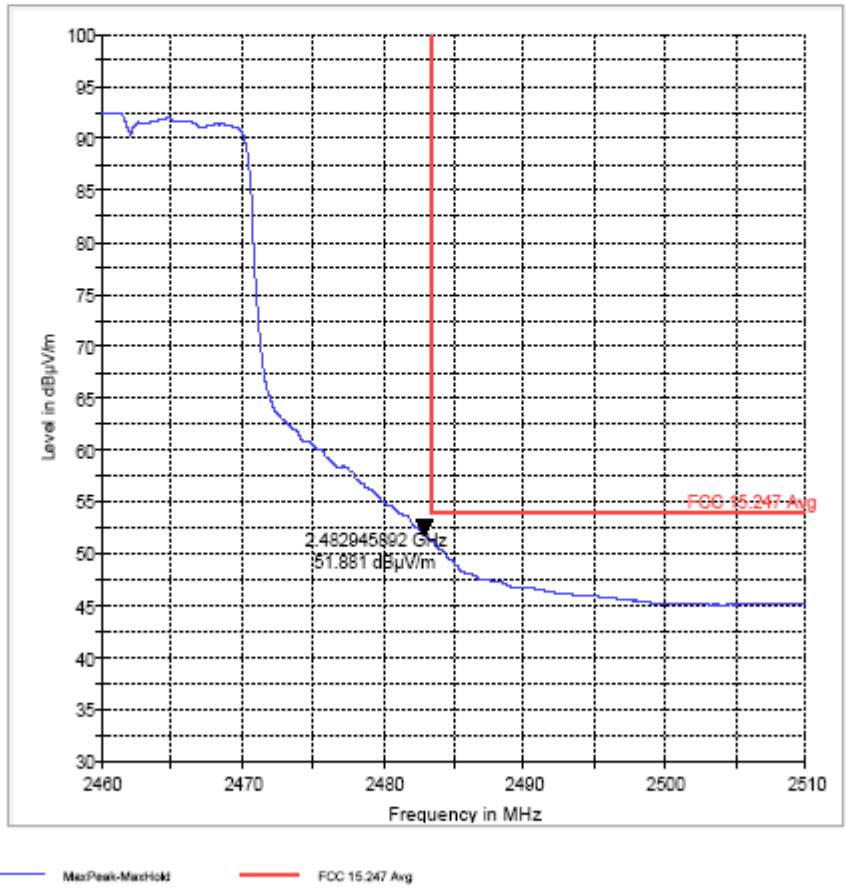
HBE_AVG

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 11

FCC 15.247 HBE Avg 3m



1/7/2010 smoon EMC32 V8.10.10 3:04:45

6.3 Transmitter Spurious Emission § 15.247/15.205/15.209

6.3.1 Limits

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

***PEAK LIMIT= 74dBuV/m**
***AVG. LIMIT= 54dBuV/m**

Notes:

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All measurements are done in peak mode using an average limit , unless specified with the plots.
3. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
4. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity

Results for the radiated measurements below 30MHz according § 15.33

Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found, caused by the EUT	This is valid for all the tested channels

6.3.2 RESULTS Sub-band 1 802.11b/g MODE: Standard Cover with AC Adapter #30

Emissions reported here are worse cases emissions for all operation modes.

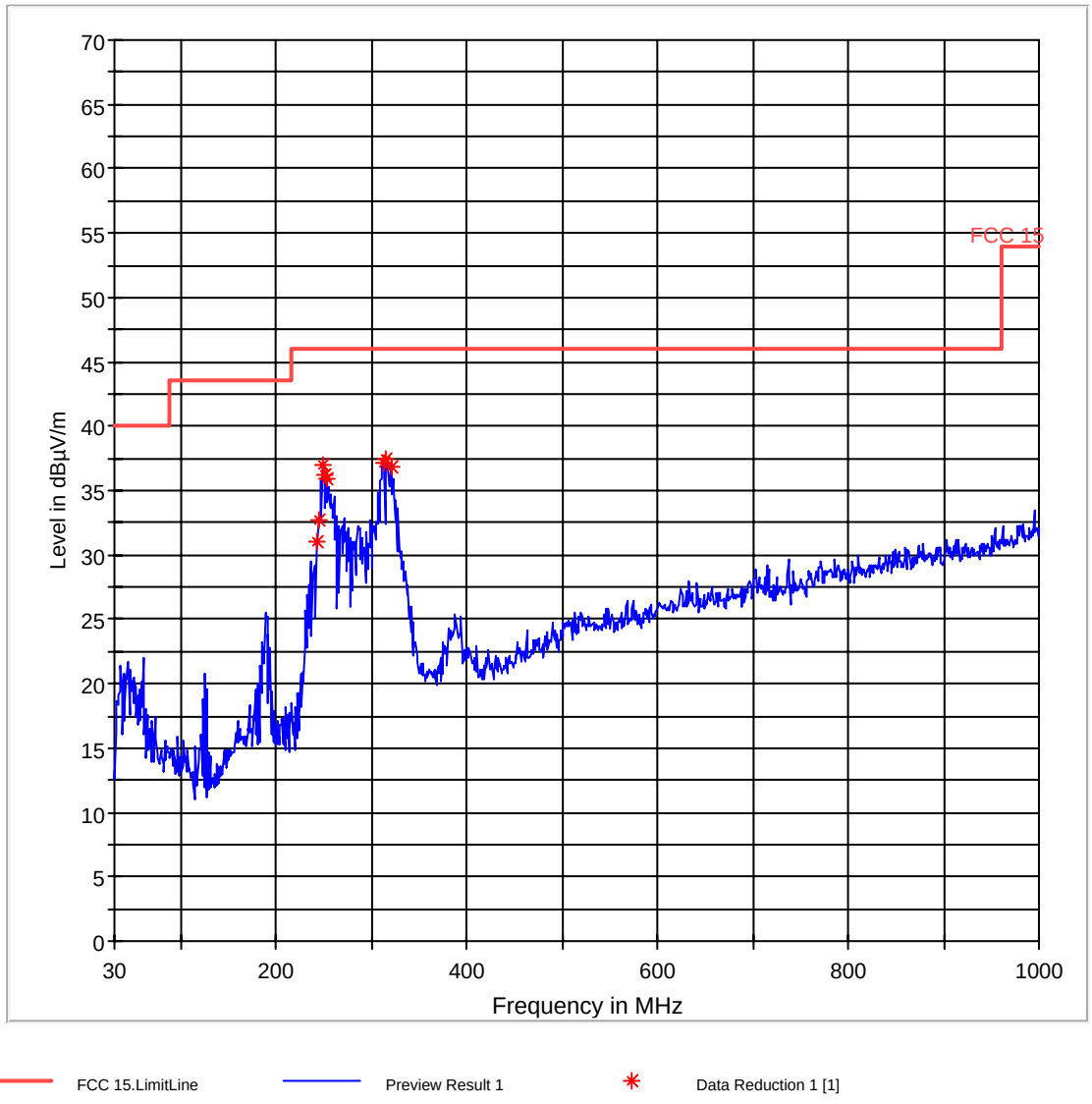
30MHz – 1GHz, Channel 1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 1

FCC 15 30-1000MHz



30MHz – 1GHz, Channel 6

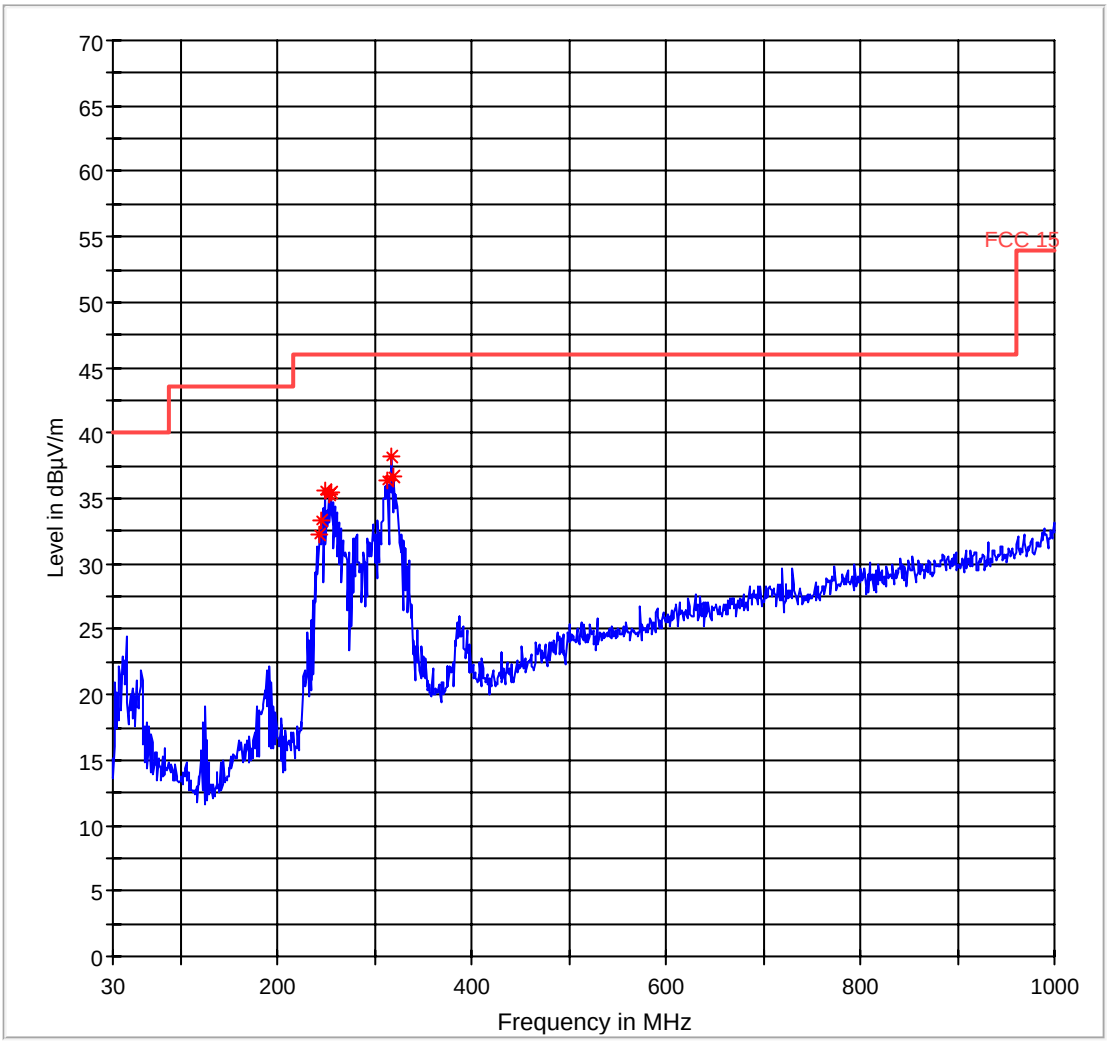
30-1 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 6

FCC 15 30-1000MHz



30MHz – 1GHz, Channel 11

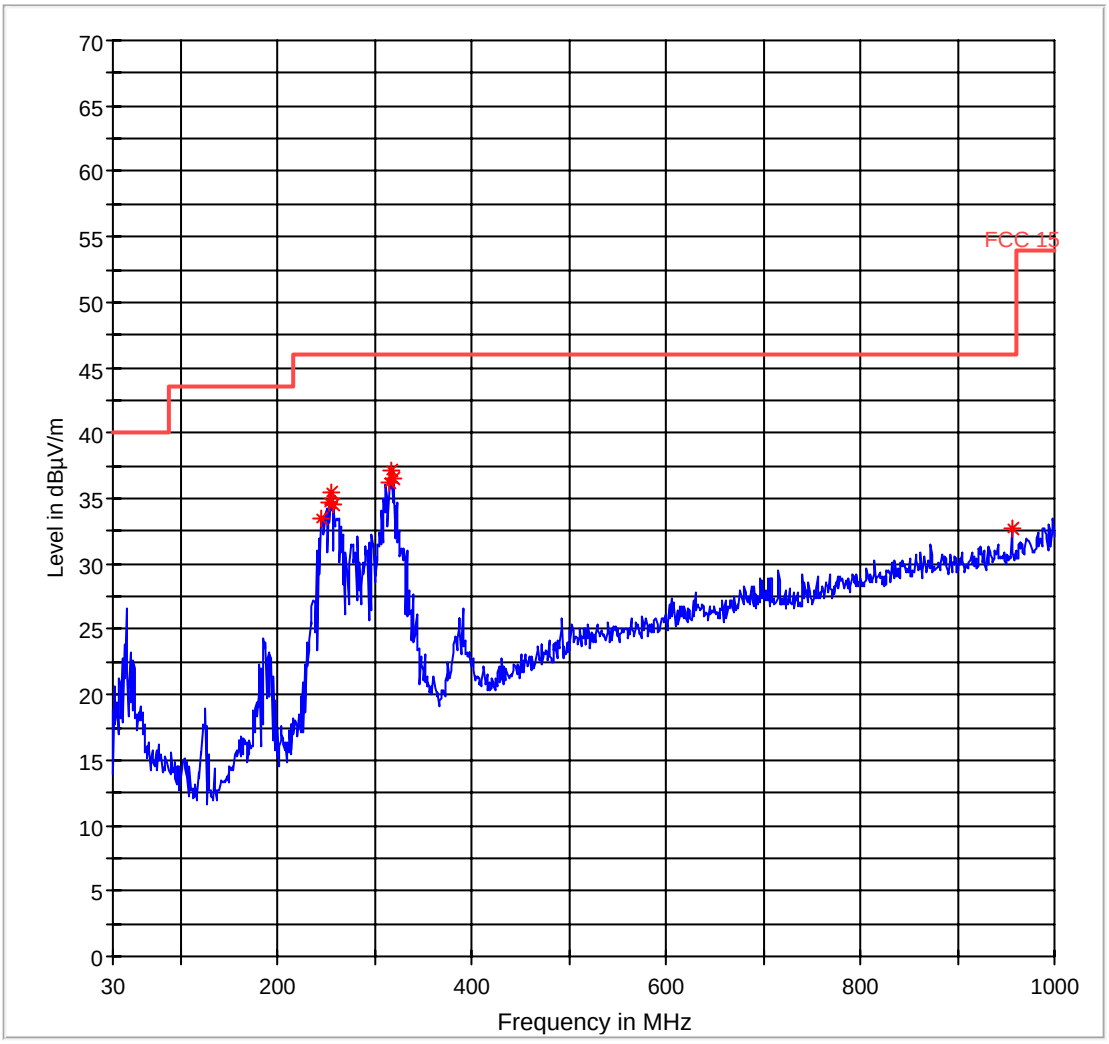
30-1 CH 11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 11

FCC 15 30-1000MHz



1-18GHz Channel 1
Note: The peak above the limit line is the carrier freq.

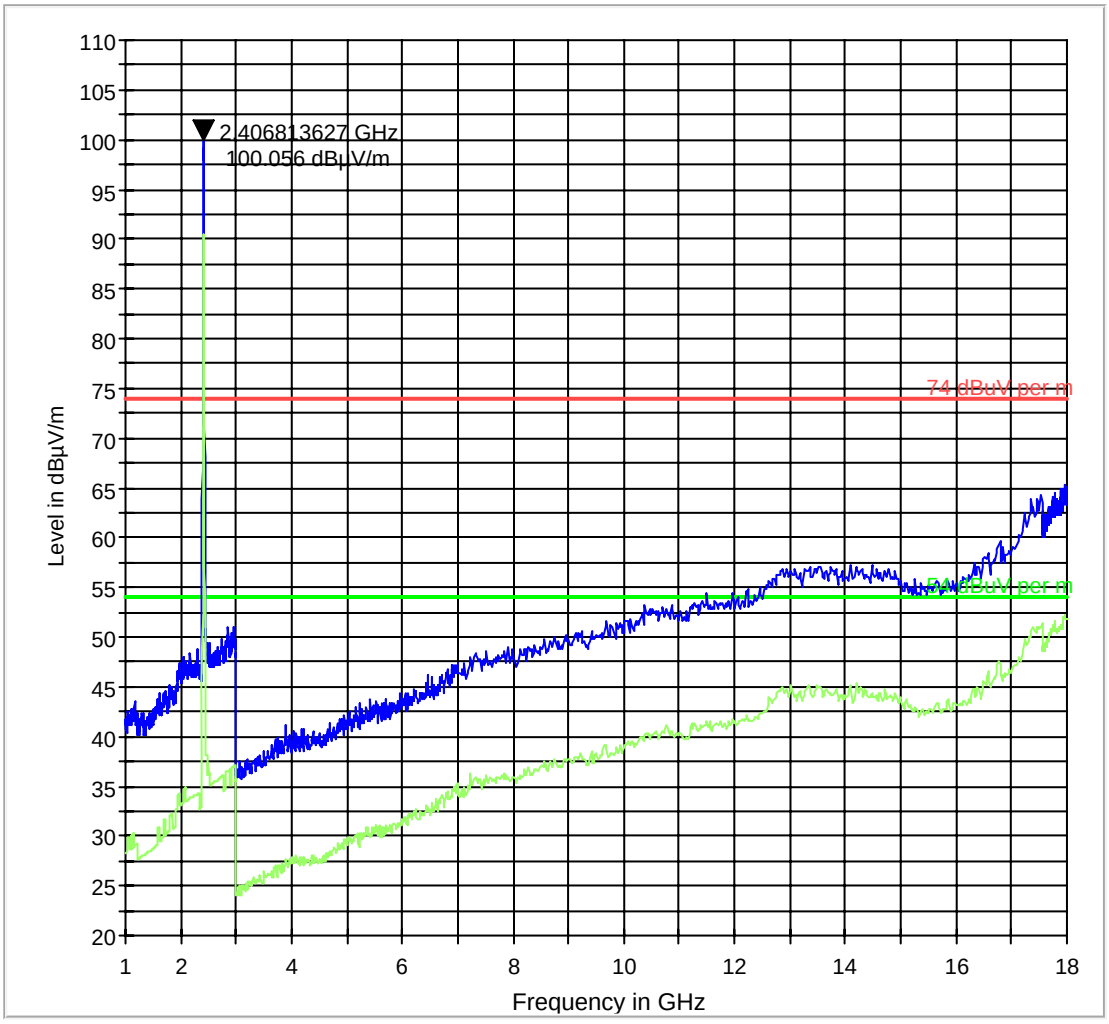
1-18 CH 1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 1

FCC 15 1-18GHz



1-18GHz Channel 6
Note: The peak above the limit line is the carrier freq.

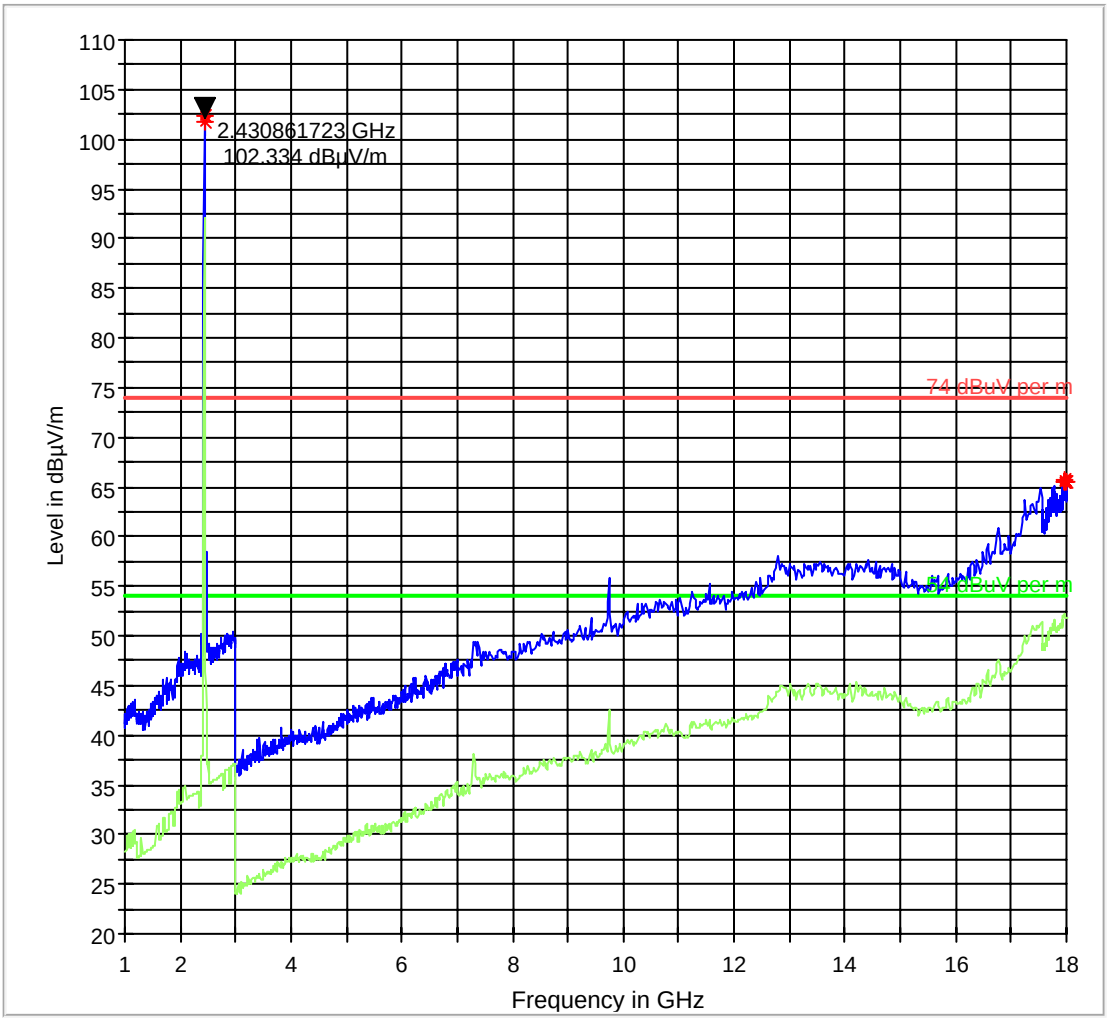
1-18 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 6

FCC 15 1-18GHz



1-18GHz Channel 11
Note: The peak above the limit line is the carrier freq.

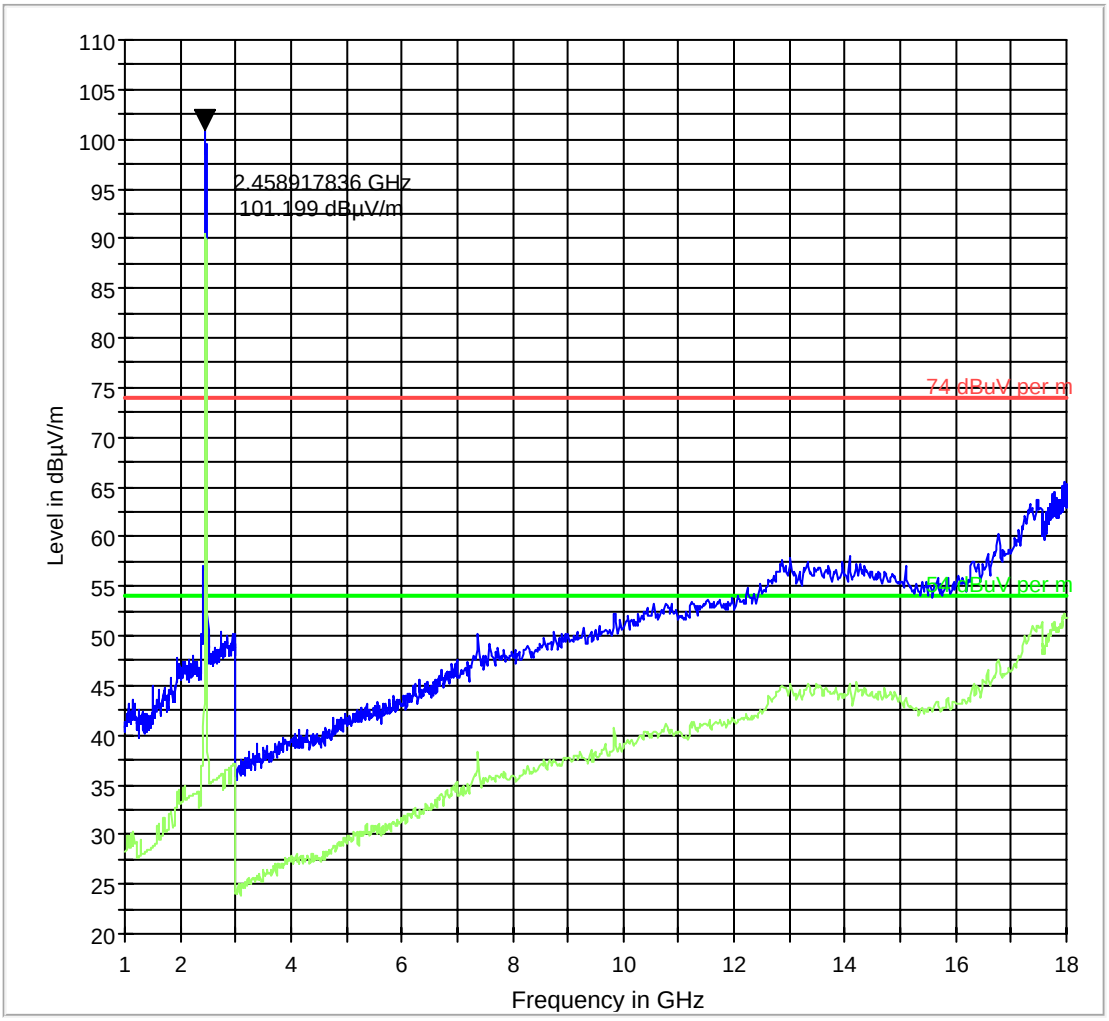
1-18 CH 11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 11

FCC 15 1-18GHz



18-26.5GHz
Note: This plot is valid for low, mid, high channels (worst-case plot).

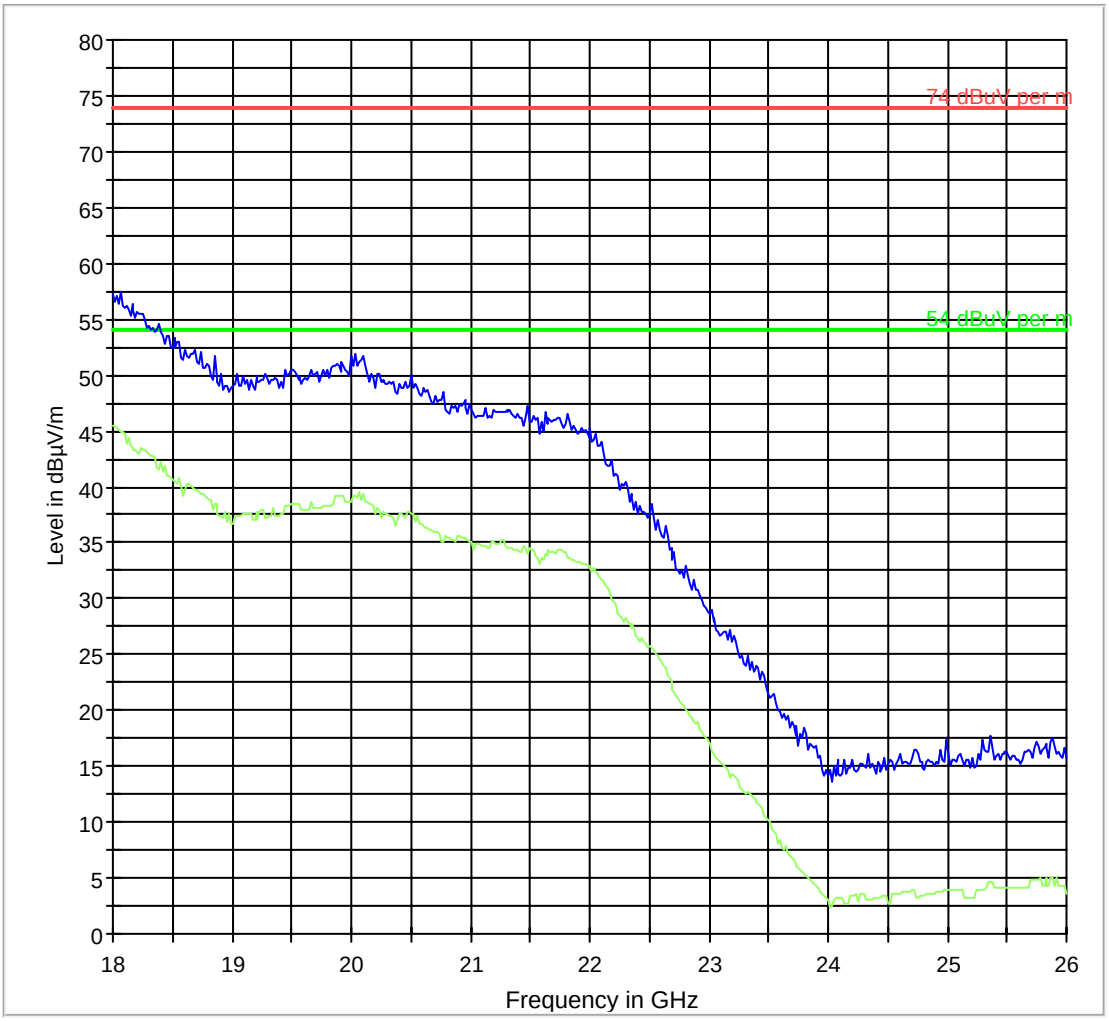
18-25 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Standard Cover and AC adapter #30
Comment:	g mode ch 6

FCC 15 18-26GHz



6.3.3 RESULTS Sub-band 1 802.11b/g MODE: Inductive Cover with Inductive Dock and AC Adapter #30

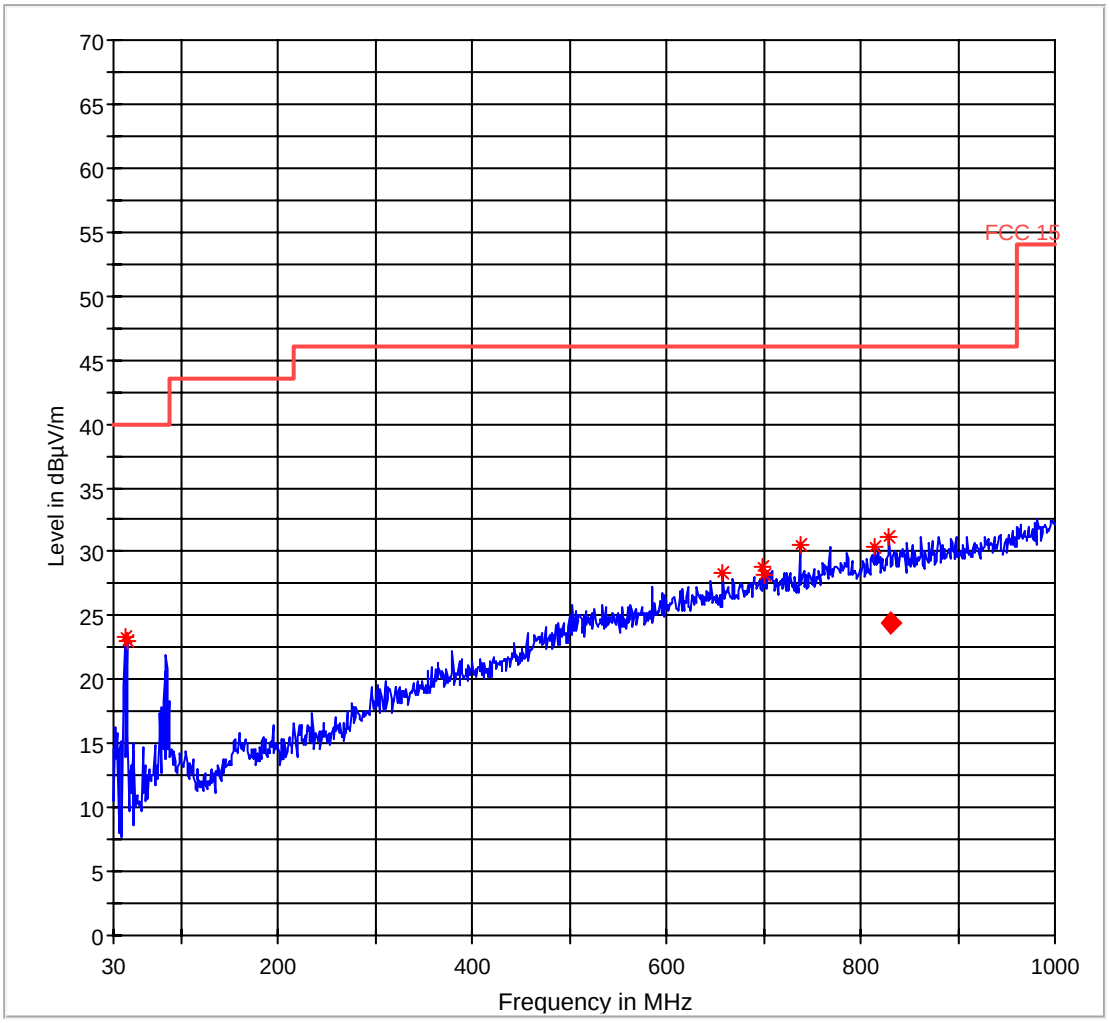
Emissions reported here are worse cases emissions for all operation modes.
30MHz – 1GHz, Channel 1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	g mode ch 1

FCC 15 30-1000MHz



30MHz – 1GHz, Channel 6

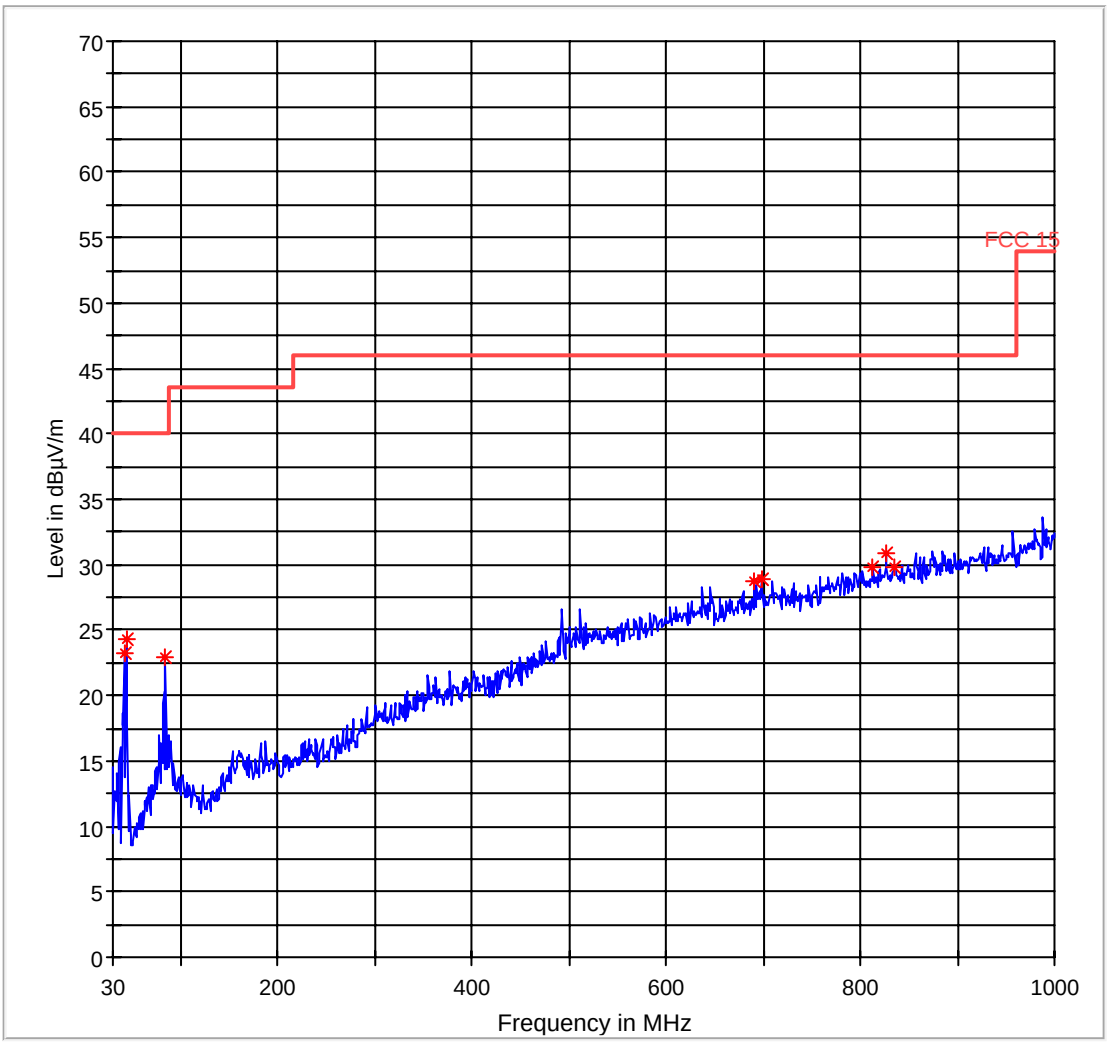
30-1 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	g mode ch 6

FCC 15 30-1000MHz



30MHz – 1GHz, Channel 11

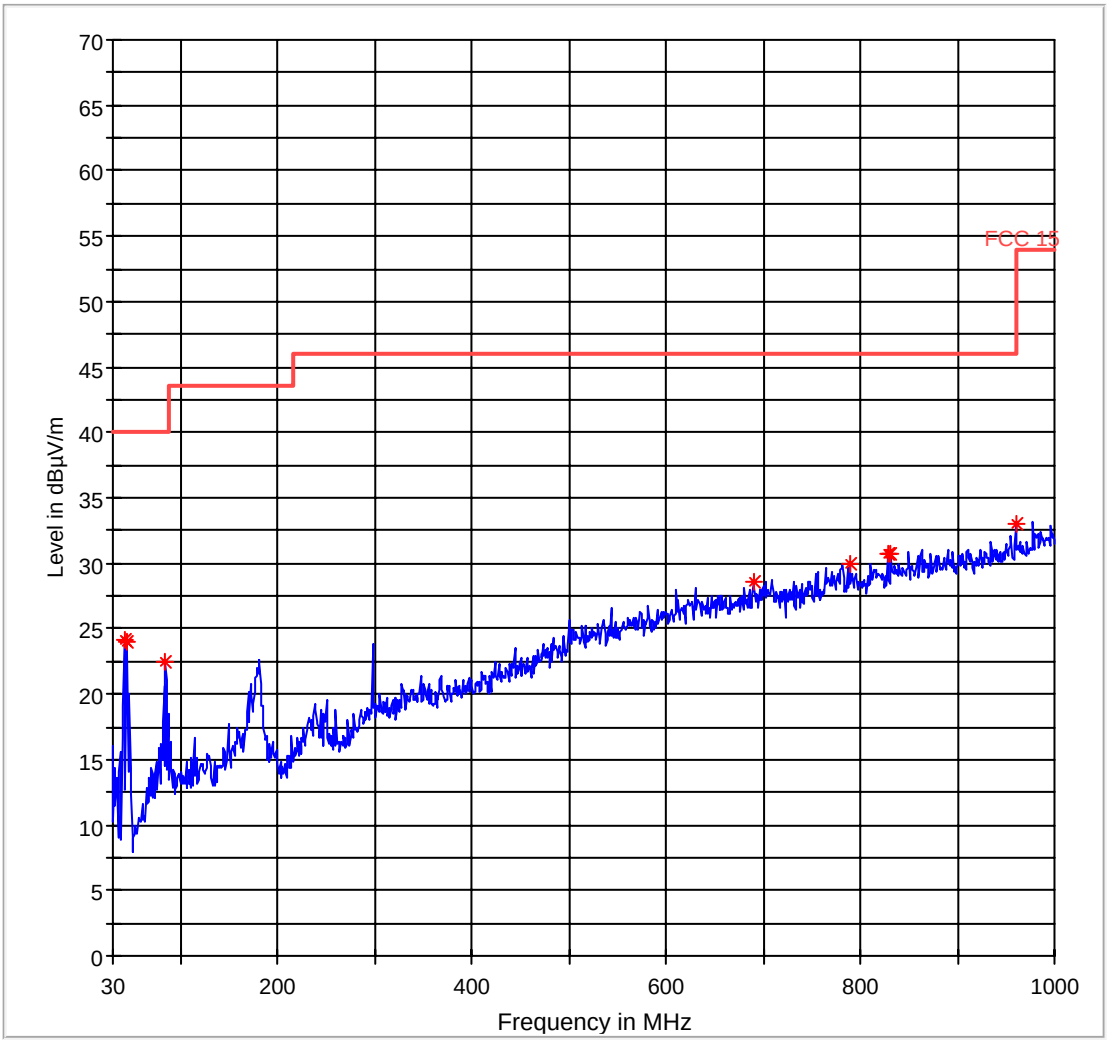
30-1 CH 11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	g mode ch 11

FCC 15 30-1000MHz



1GHz – 18GHz, Channel 1

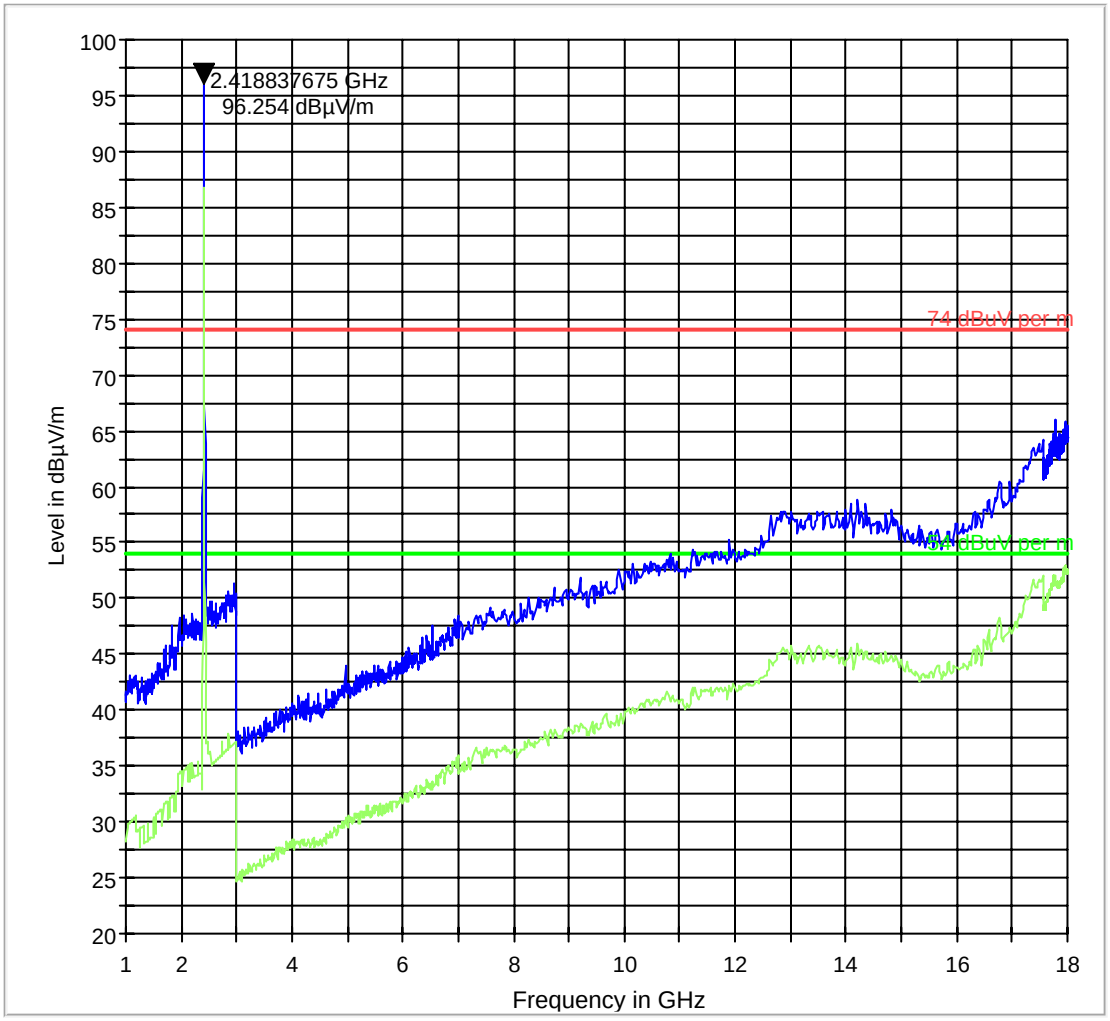
1-18 CH 1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	g mode ch 1

FCC 15 1-18GHz



1GHz – 18GHz, Channel 6

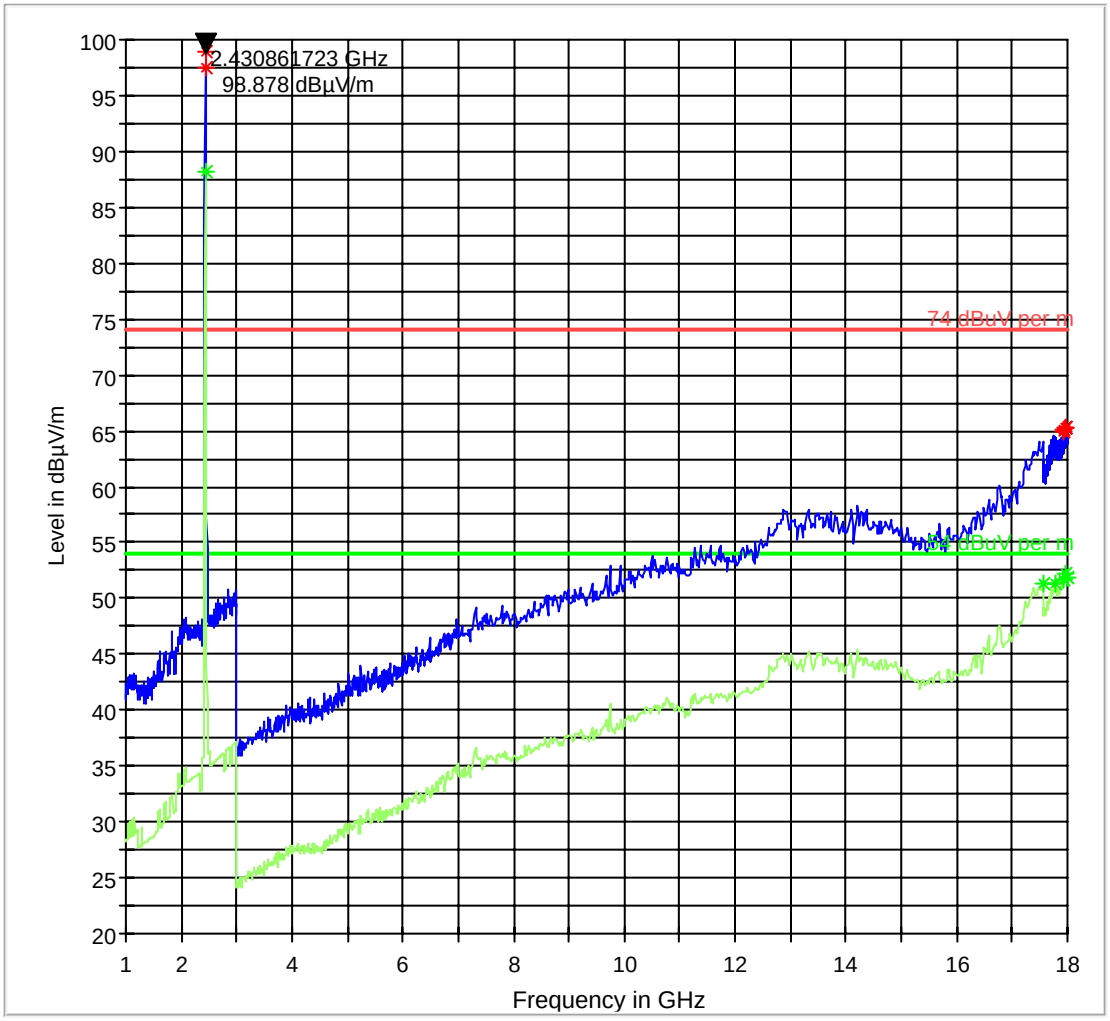
1-18 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Inductive Cover with Inductive Dock and AC adapter #30
Comment:	

FCC 15 1-18GHz



1GHz – 18GHz, Channel 11

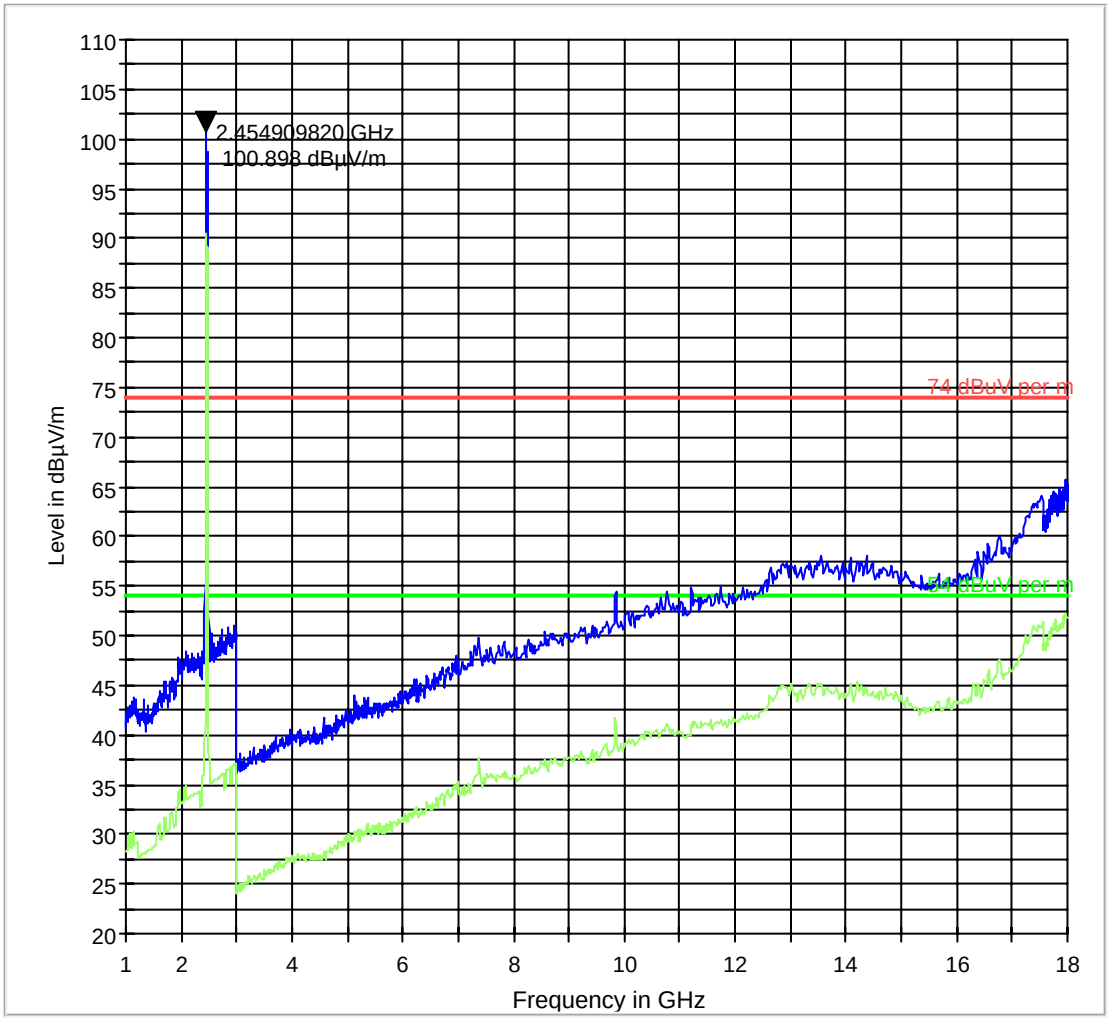
1-18 CH 11

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Inductive Cover with Inductive Dock and AC adapter #24
Comment:	

FCC 15 1-18GHz



18GHz - 26GHz
Note: This plot represents worst case for all channels.

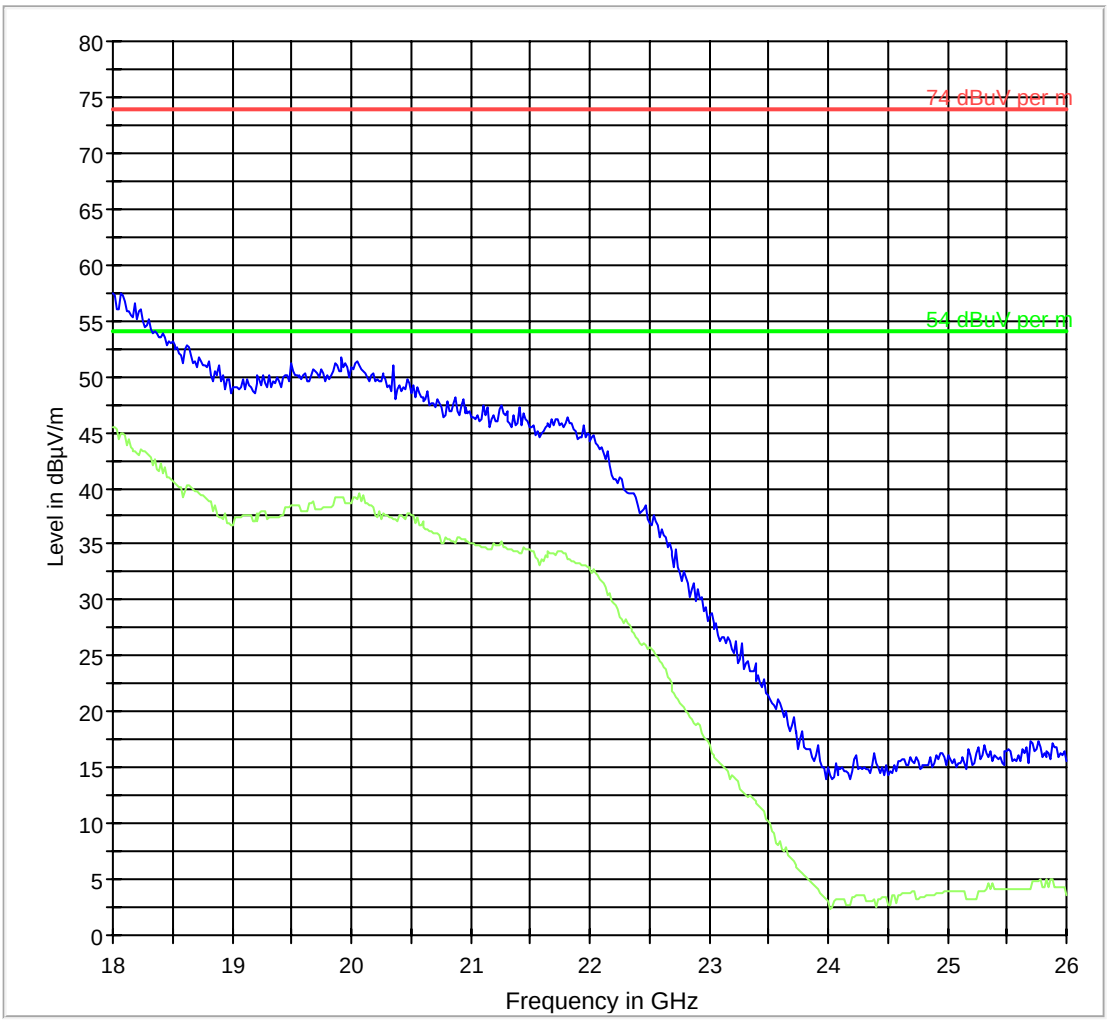
18-25 CH 6

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	WLAN SAMPLE
Configuration:	Inductive Cover w dock and AC adapter #30
Comment:	g mode ch 6

FCC 15 18-26GHz



6.3.4 RESULTS Co-location: Inductive Cover with Inductive Dock and AC Adapter #30

NOTE: Plots represent worst case for all operating modes, channels, and configurations.

30MHz – 1GHz: BT 2442MHz, WLAN 2412 MHz

30-1 1 / 1

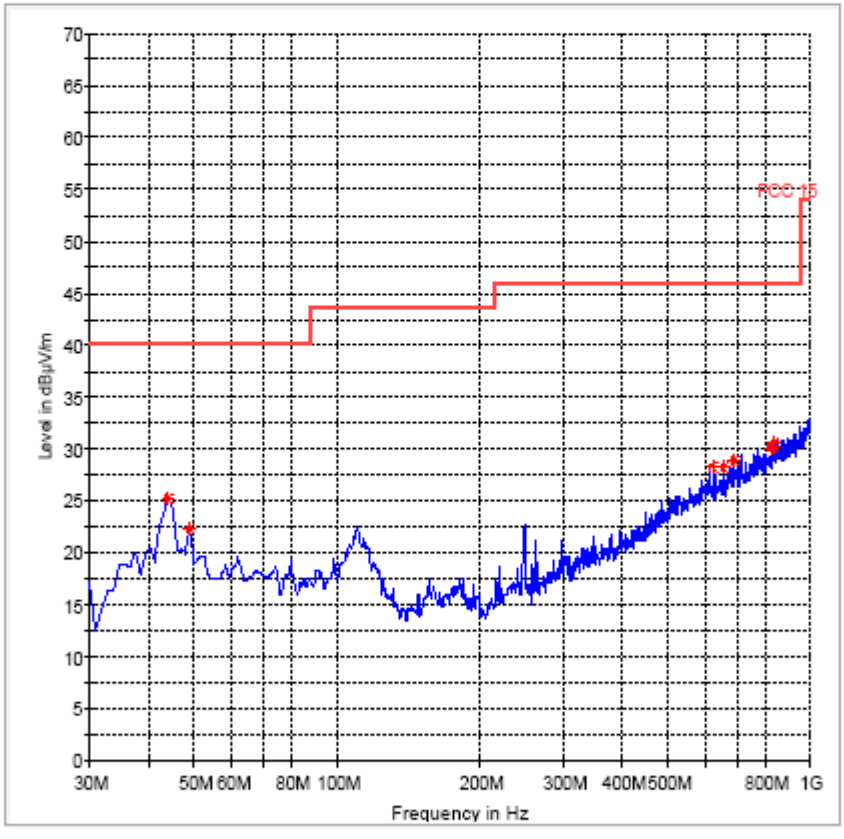
30-1

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	GSM/UMTS SAMPLE
Configuration:	Inductive Cover with Inductive Dock and AC adapter #30
Comment:	Co-location

FCC 15 30-1000MHz



1/22/2010 knavares EMC32 V8.10.10 7:46:19

1Hz – 18GHz: BT 2442MHz, WLAN 2412 MHz

1-18 1 / 1

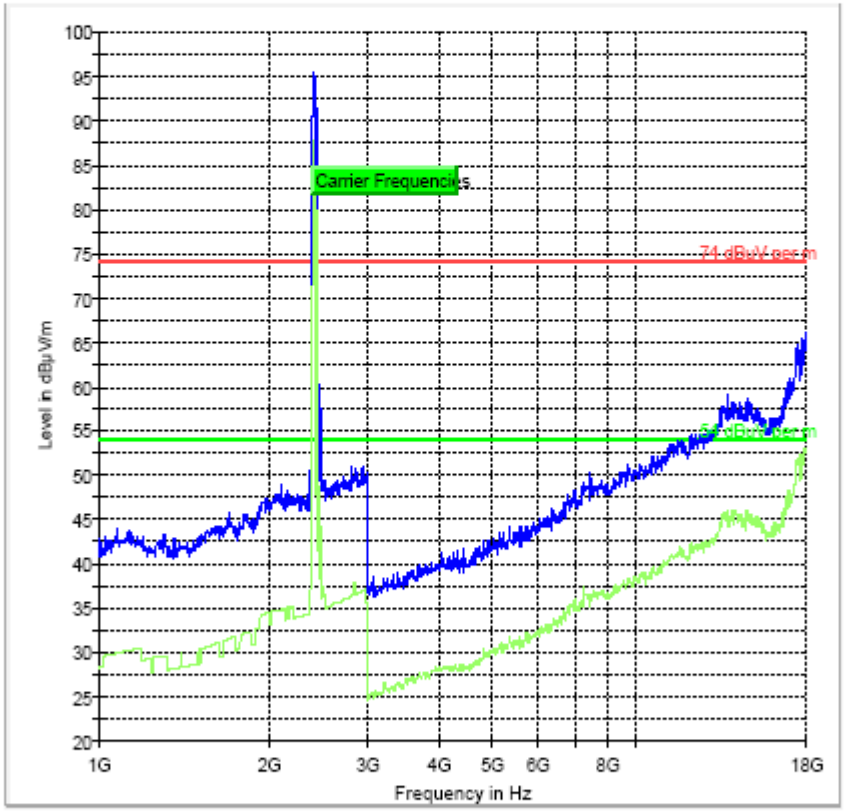
1-18

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(FCC 15.247 Sample)
Configuration:	Inductive Cover with Inductive Dock and AC adapter #30
Comment:	Co-location

FCC 15 1-18GHz



1/22/2010 knavares EMC32 V8.10.10 7:30:26

18GHz – 26GHz: BT 2442MHz, WLAN 2412 MHz

EMI Auto Test(1) 1 / 1

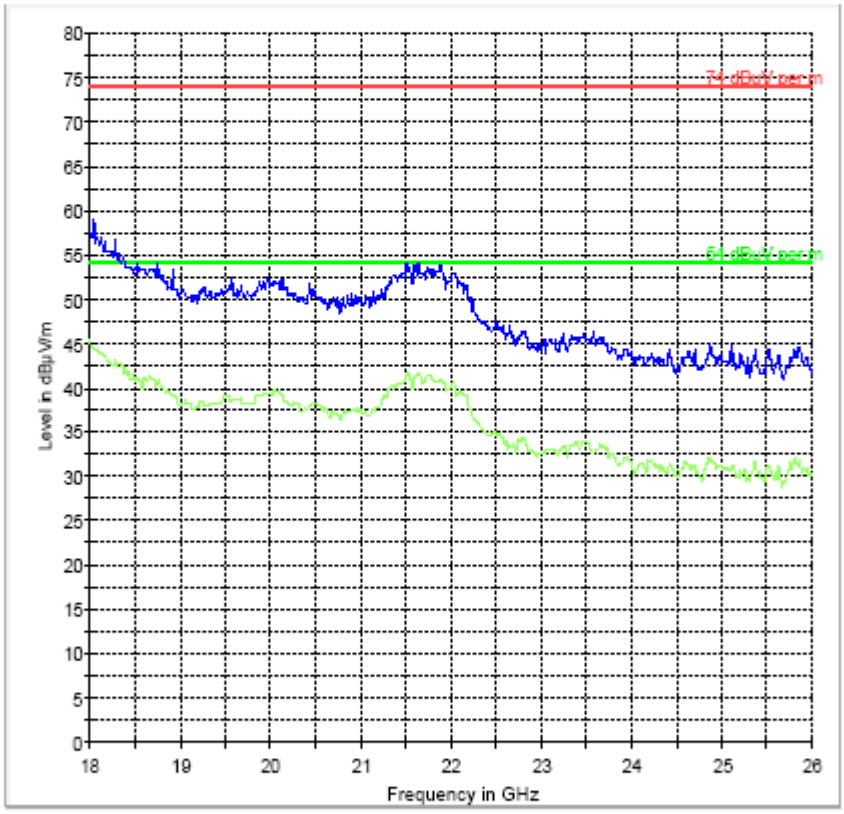
EMI Auto Test(1)

EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	GSM/UMTS SAMPLE
Configuration:	Inductive Cover with Inductive Dock and AC adapter #30
Comment:	Co-location

FCC 15 18-26GHz



1/22/2010 knavares EMC32 V8.10.10 8:01:27

6.4 Receiver Spurious Emission § 15.209/RSS210

6.4.1 Limits

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

NOTE:

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All measurements are done in peak mode using an average limit unless specified with the plots.
3. There are no measurable emissions up to 18GHz in Rx mode.
4. Receiver spurious emissions reported here are the worse case emissions for all receiver modes and between two receiving chains.

6.4.2 RESULTS

30MHz – 1GHz

Note: This plot is valid for low, mid, high channels (worst-case plot).

EMI Auto Test(1)

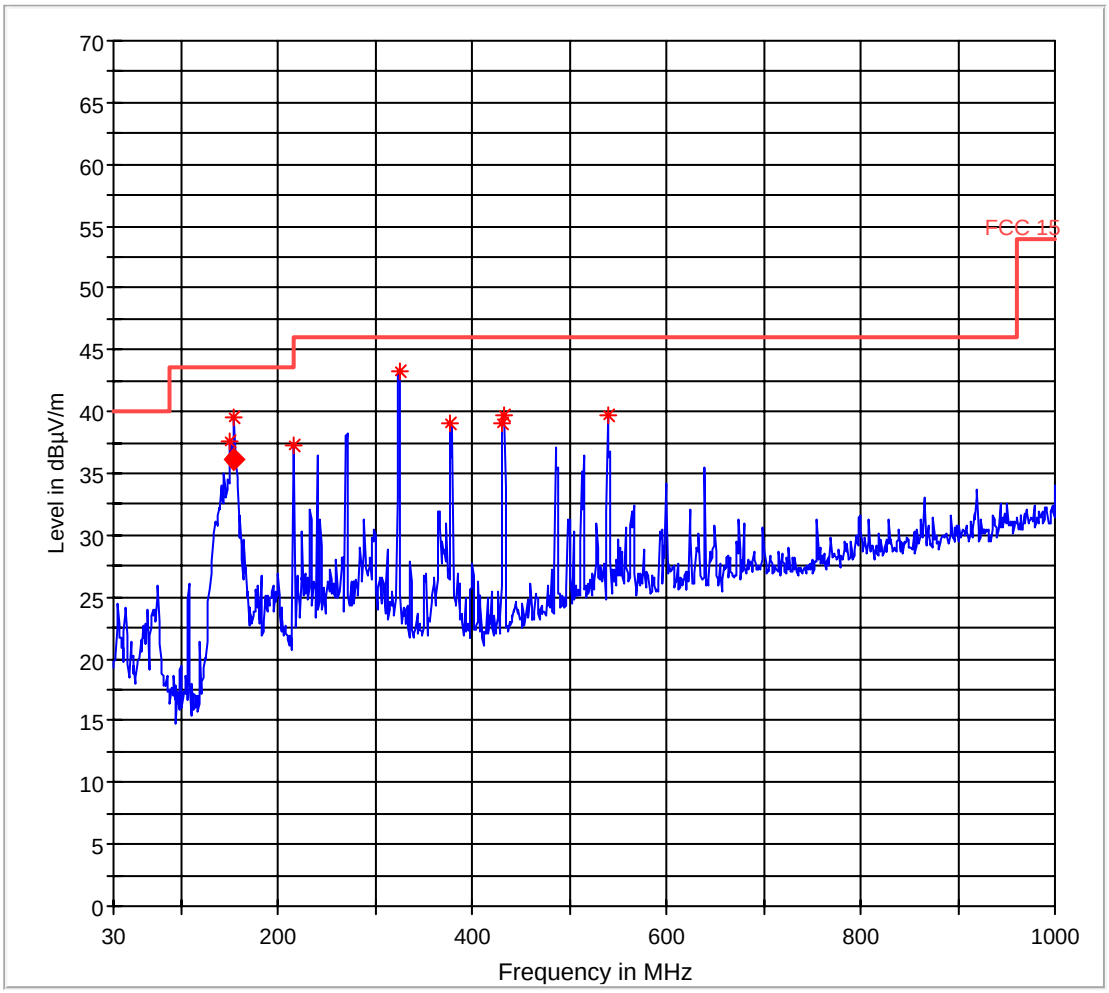
EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(GSM/UMTS Sample)
Configuration:	Inductive Cover with Inductive Dock with AC Adapter #24 with Laptop

Comment:

FCC 15 30-1000MHz



1-18GHz

EMI Auto Test(1)

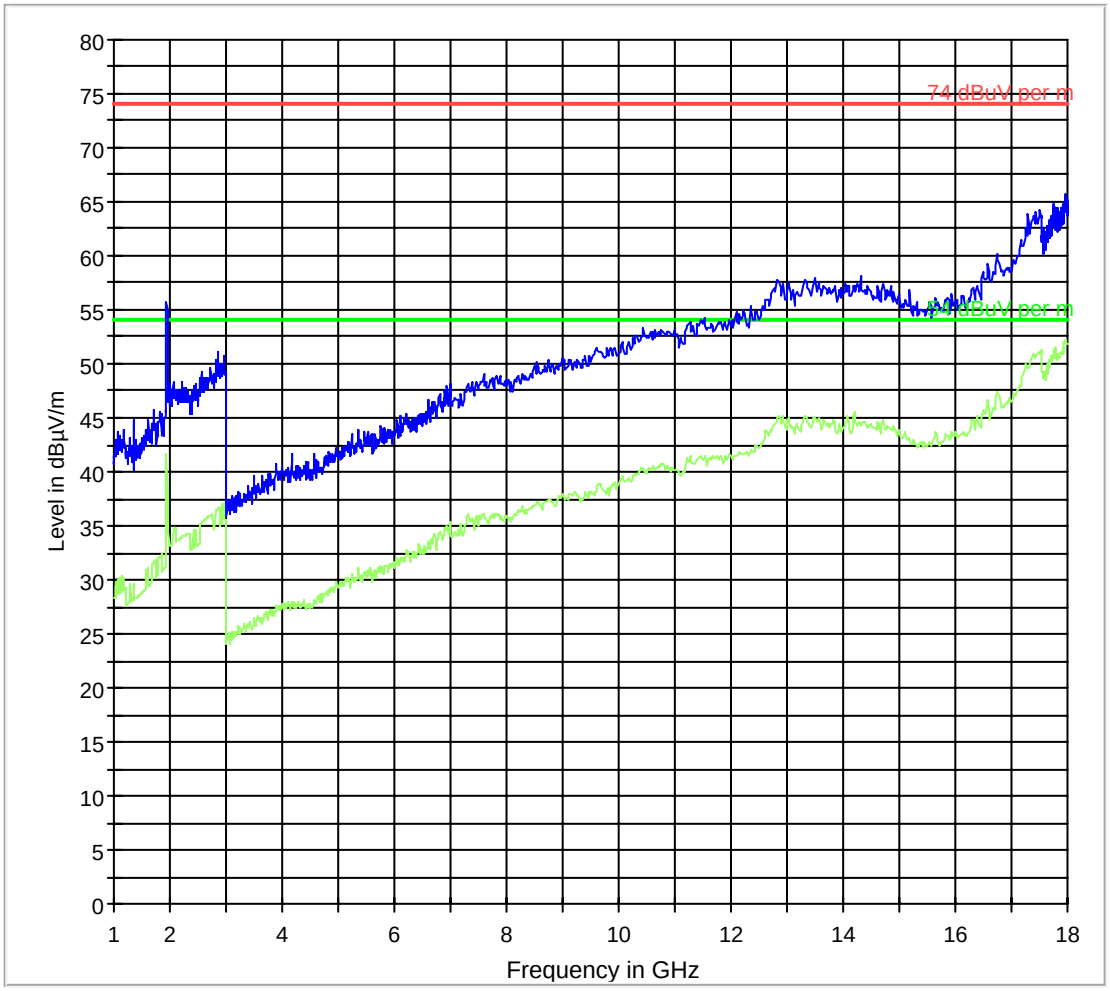
EUT Information

Description:

EUT Name:	GSM/UMTS Phone
Manufacturer:	Palm
Serial Number:	(GSM/UMTS Sample)
Configuration:	Inductive Cover with Inductive Dock with AC Adapter #24 with Laptop

Comment:

FCC 15 1-18GHz

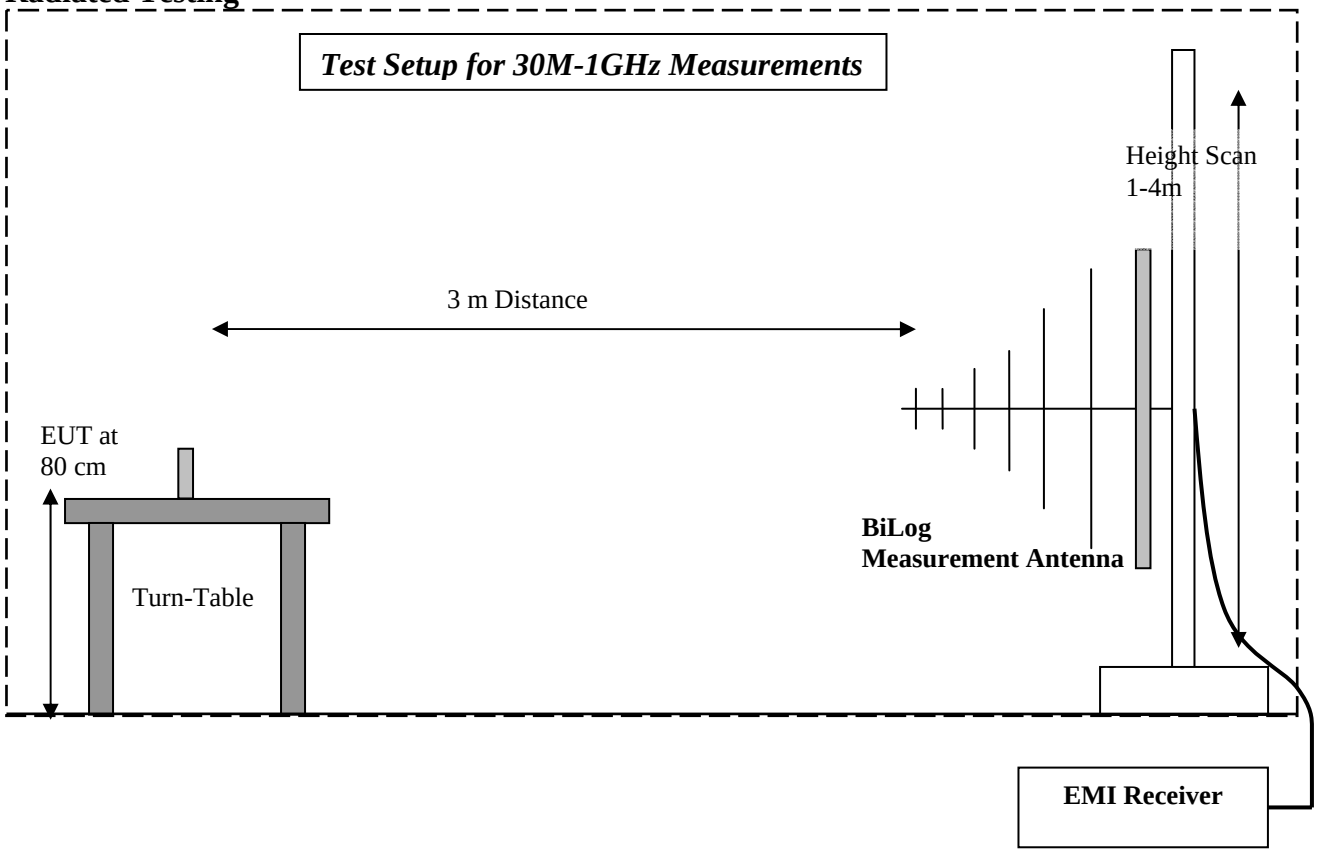


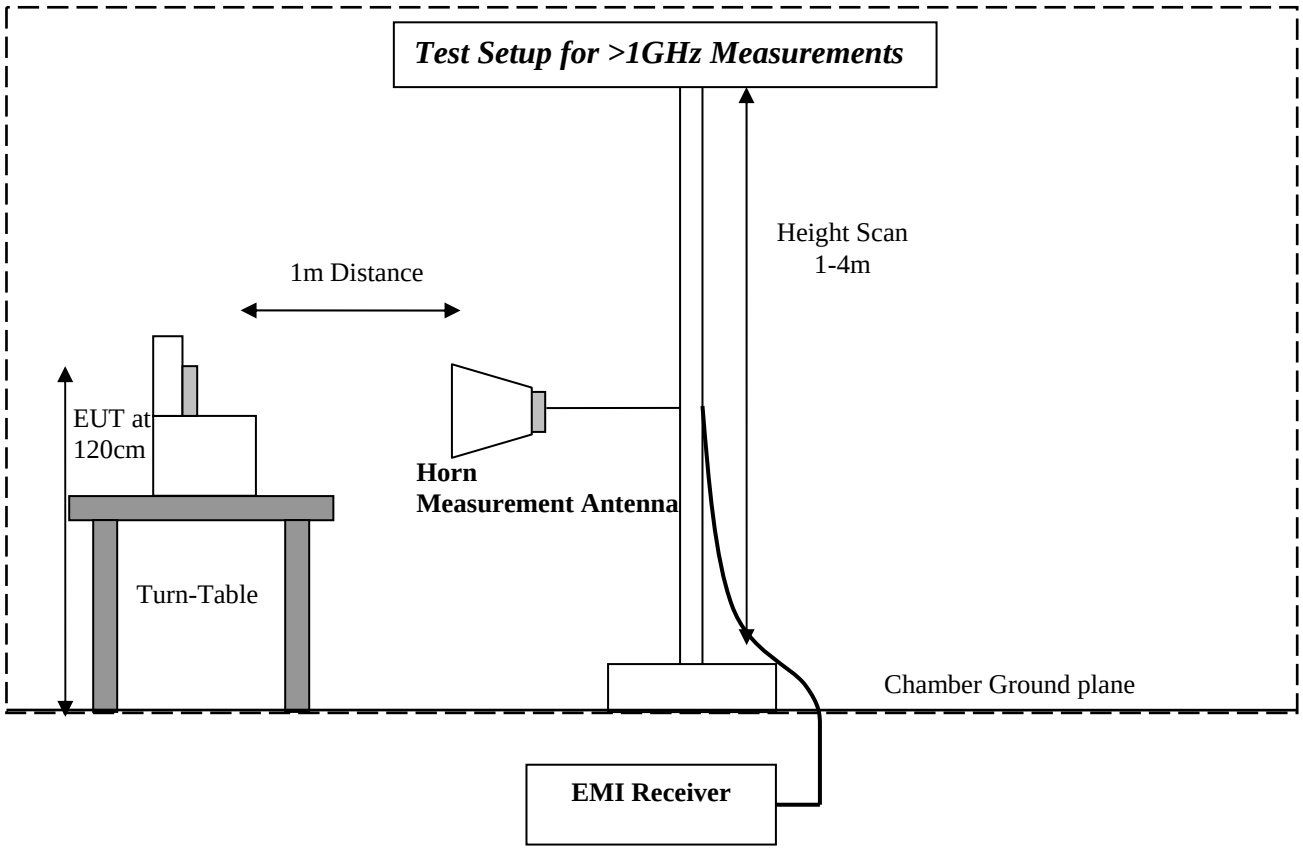
7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2010	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	August 2010	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2010	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2010	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2010	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2010	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2010	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2010	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2010	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2010	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2010	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2010	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2010	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2011	2 years

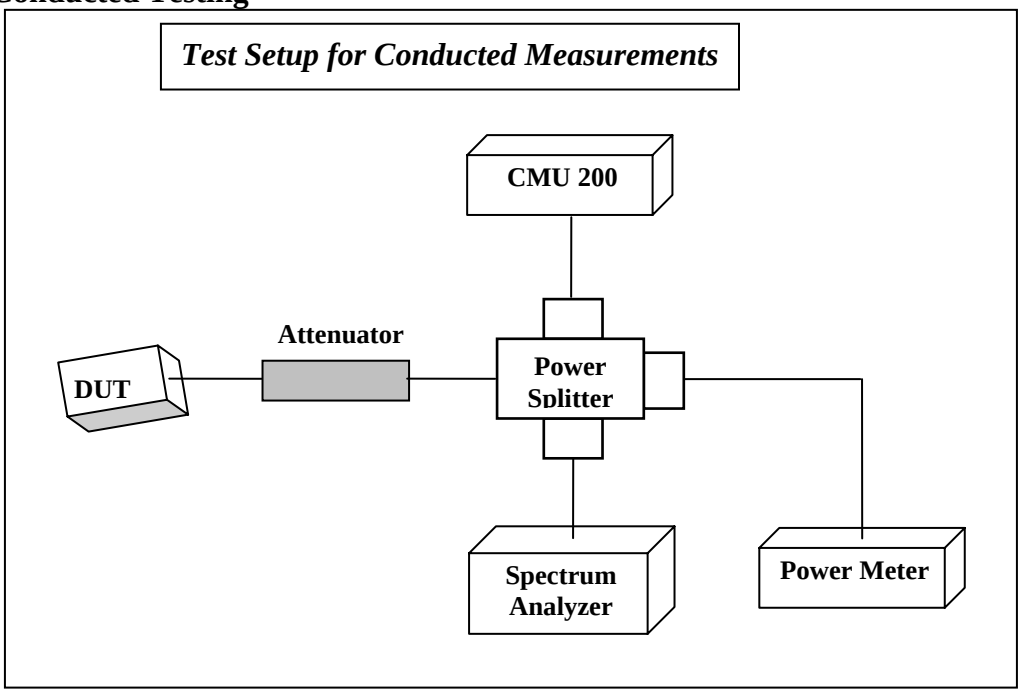
8 BLOCK DIAGRAMS

Radiated Testing




Test Setup for >1GHz Measurements
Height Scan
1-4m
1m Distance
EUT at
120cm
Horn
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver

Conducted Testing



9 Revision History

2010-01-22: First Issue
2010-02-12: Updated conducted power measurements and PSD measurements. Replaces previous report number.