Class II Permissive Change

Test Report

FCC Part 15.247 and RSS-210, Issue 7 for DTS systems

for the

802.11g Wireless LAN PCI-E

Model Number: BCM94312MCG

FCC ID: QDS-BRCM1028

IC UPN: 4324A-BRCM1028

TEST REPORT #:EMC_BROAD_051_08001_IC_FCC_DTS
DATE: December 11, 2007

ilac-MRA ACCREDITED Certificate # 2135.01

Bluetooth

Bluetooth Qualification Test Facility (BQTF)

CTIA Authorized Test Lab
LAB CODE 20020328-00

FCC listed# A2LA Certified

IC recognized # 3462B

***CETECOM* Inc.**
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CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686
Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

TABLE OF CONTENTS

1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations and IC RSS-210, Issue 7 Standards.

Company	Description	Model #
Broadcom, Inc.	**Wireless LAN**	**BCM94312MCG**

Technical responsibility for area of testing:

Date	Section	Name	Signature
December 11, 2007	**EMC & Radio**	Ivaylo Tankov **(EMC Project Engineer)**	Ivaylo Tankov I am approving this document

Responsible for test report and project leader:

Date	Section	Name	Signature
December 11, 2007	**EMC & Radio**	Juan Martinez **(Project Engineer)**	Juan Martinez I am the author of this document

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Radio Assessment Report

Company Name:	CETECOM, Inc.
Department:	EMC
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Project Leader:	Juan Martinez
Responsible Test Lab Manager:	Ivaylo

2.2 Identification of the Client

Applicant's Name:	Broadcom, Inc.
Address:	190 Mathilda Place Sunnyvale, CA 94086 , USA
Contact Person:	Daniel Lawless
Phone No.	408 965-3346
Fax:	408 324-4840
e-mail:	dlawless@broadcom.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Broadcom, Inc.
Manufacturer's Address:	190 Mathilda Place, Sunnyvale, USA

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Product Type	Wireless LAN PCI-E Mini Card
Marketing Name:	802.11g Wireless LAN PCI-E Mini Card
Model No:	BCM94312MCG
FCC-ID:	QDS-BRCM1028
IC UPN:	4324A-BRCM1028
Frequency Range:	2412 – 2472 MHz
Number of Channels	13
Type(s) of Modulation:	CCK & OFDM
Antenna Type:	Foxcon: Main (0.57dBi) and Aux (-0.23dBi)
Conducted Output Power for Channel 13:	17.69dBm (0.059W), 802.11b 21.32dBm (0.135W), 802.11g

3.2 Host Device

AE #	TYPE	MANF.	MODEL	SERIAL #
1	Laptop	DELL	Latitude	N/A

Subject Of Investigation

The report is to add Channels 12 and 13 to the grant. Data, presented in this report, was collected for a Class II permissive change to add Channels 12 and 13 BCM94312MCG (FCC ID: QDS-BRCM1028) module application.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and to Industry Canada RSS-210, Issue 7. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

4 Measurements

5 ANTENNA PORT EMISSIONS

5.1 MAXIMUM PEAK OUTPUT POWER § 15.247 (b) (3) & RSS-210 (A8.4)(4) (CONDUCTED)

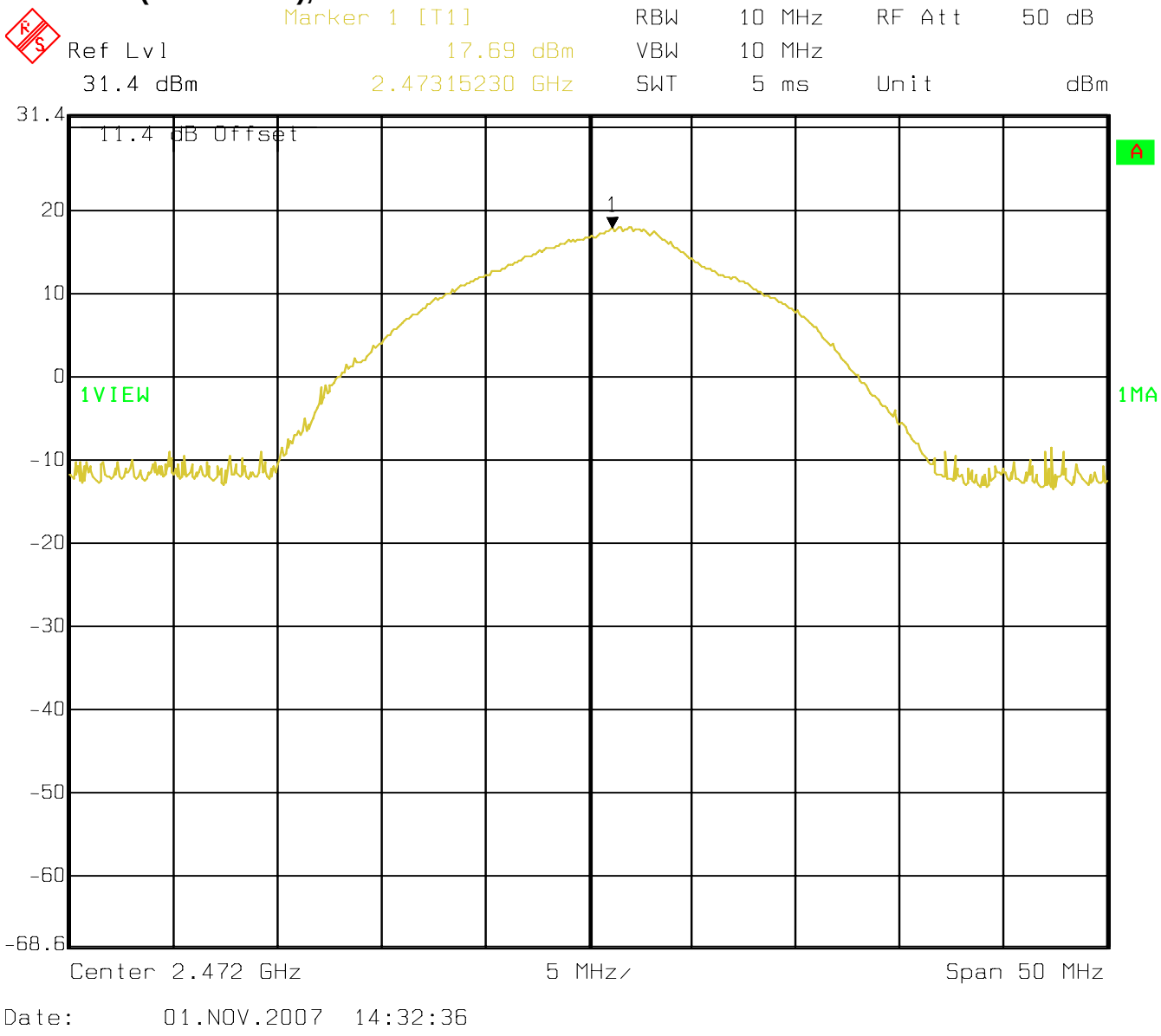
TEST CONDITIONS (802.11b)		MAXIMUM PEAK OUTPUT POWER (dBm)
Frequency (MHz)		2472
T_{nom}(23)°C	V_{nom}	17.69
Measurement uncertainty		±0.5dBm

TEST CONDITIONS (802.11g)		MAXIMUM PEAK OUTPUT POWER (dBm)
Frequency (MHz)		2472
T_{nom}(23)°C	V_{nom}	21.32
Measurement uncertainty		±0.5dBm

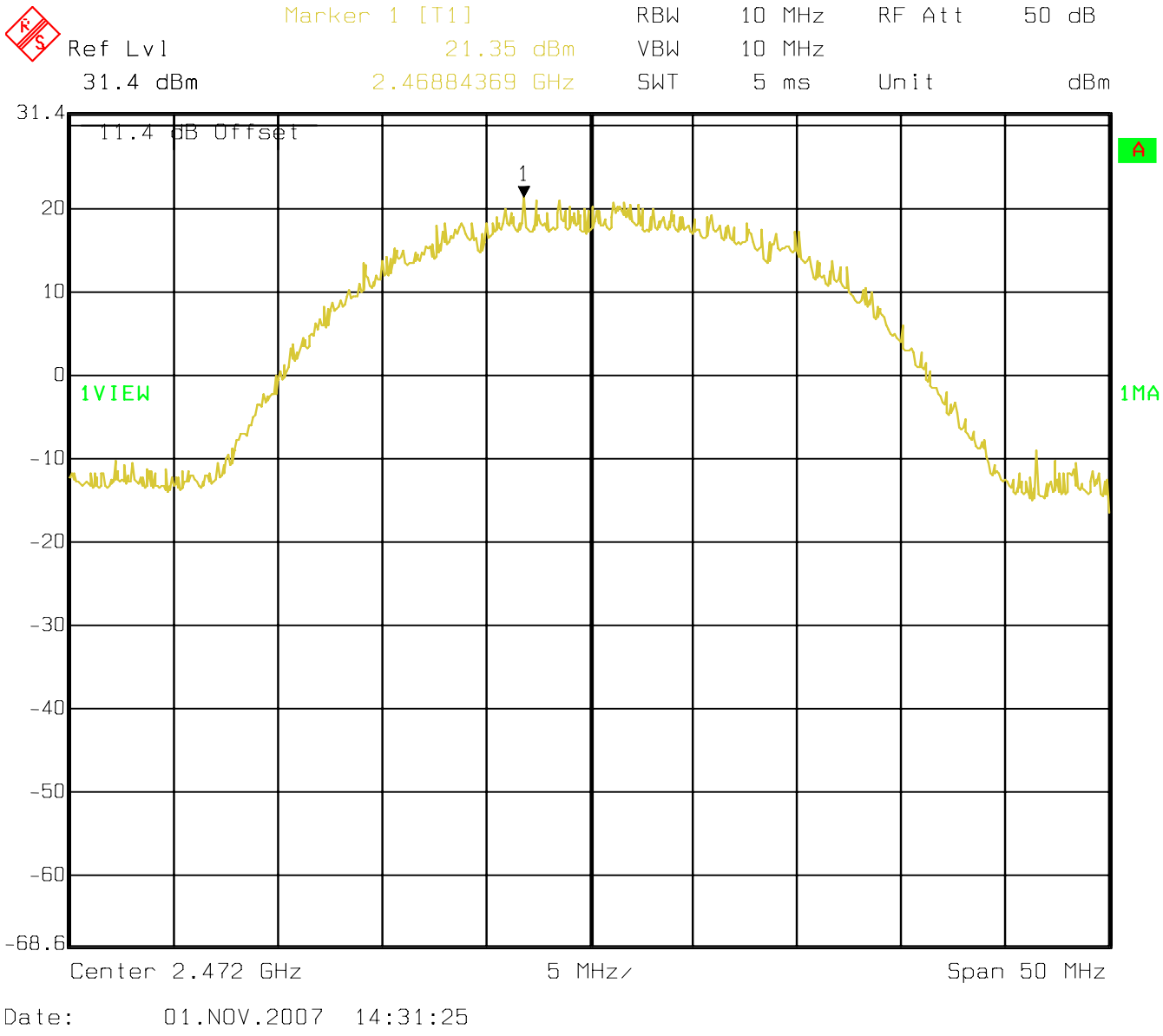
Note: Power measurements were only taken for channel 13, as this channel will be the new high channel. Also, the power was measured with the spectrum analyzer. Corrections to include external cable loss and attenuation have been included in the readings.

Frequency range	RF power output
2400-2483.5 MHz	30dBm on Conducted

2472 MHz (Channel 13), 802.11b



2472 MHz (Channel 13), 802.11g



5.2 6-dB and 99% BANDWIDTH §15.247(a)(2) & § RSS-210 (A8.2)(a) (CONDUCTED)

Limit: min. 6dB BW shall be at least 500kHz §15.247(a)(2)

ANALYZER SETTINGS: RBW: 100kHz, VBW: 100kHz SPAN: 5 MHz

802.11b

Channel No.	Frequency (MHz)	6dB BW (MHz)
13	2472	6.9

802.11g

Channel No.	Frequency (MHz)	6dB BW (MHz)
13	2472	11.1

Conducted Measurement

Limit: min. 99% BW shall be at least 500kHz § RSS-210 (A8.2)(a)

RSS GEN (4.6) = 99% analyzer settings: Resolution Bandwidth: 1% of the emission bandwidth, Video Bandwidth: 3 times RBW. Trace set to max hold then view.

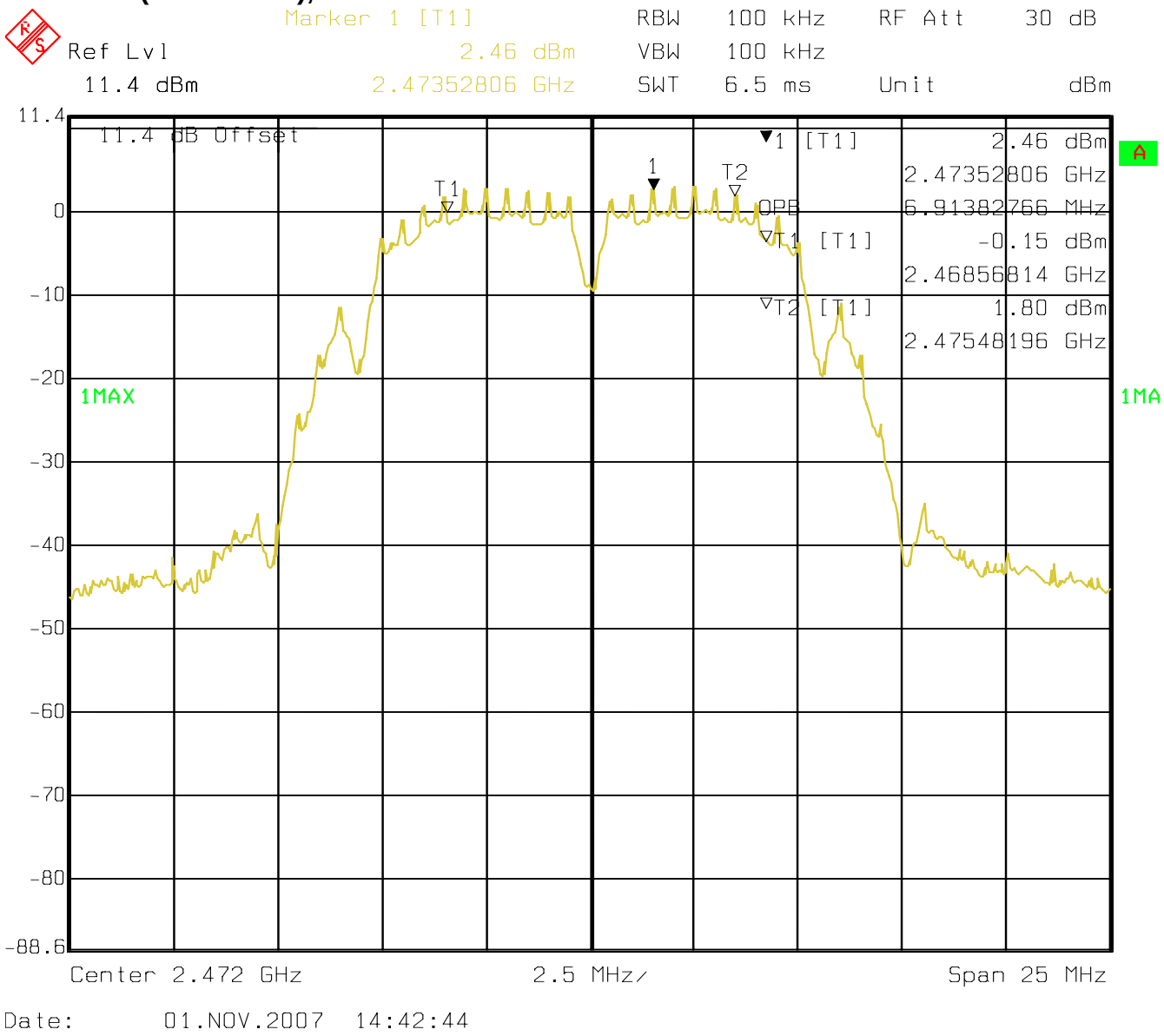
802.11b

Channel No.	Frequency (MHz)	99dB BW (MHz)
13	2472	10.5

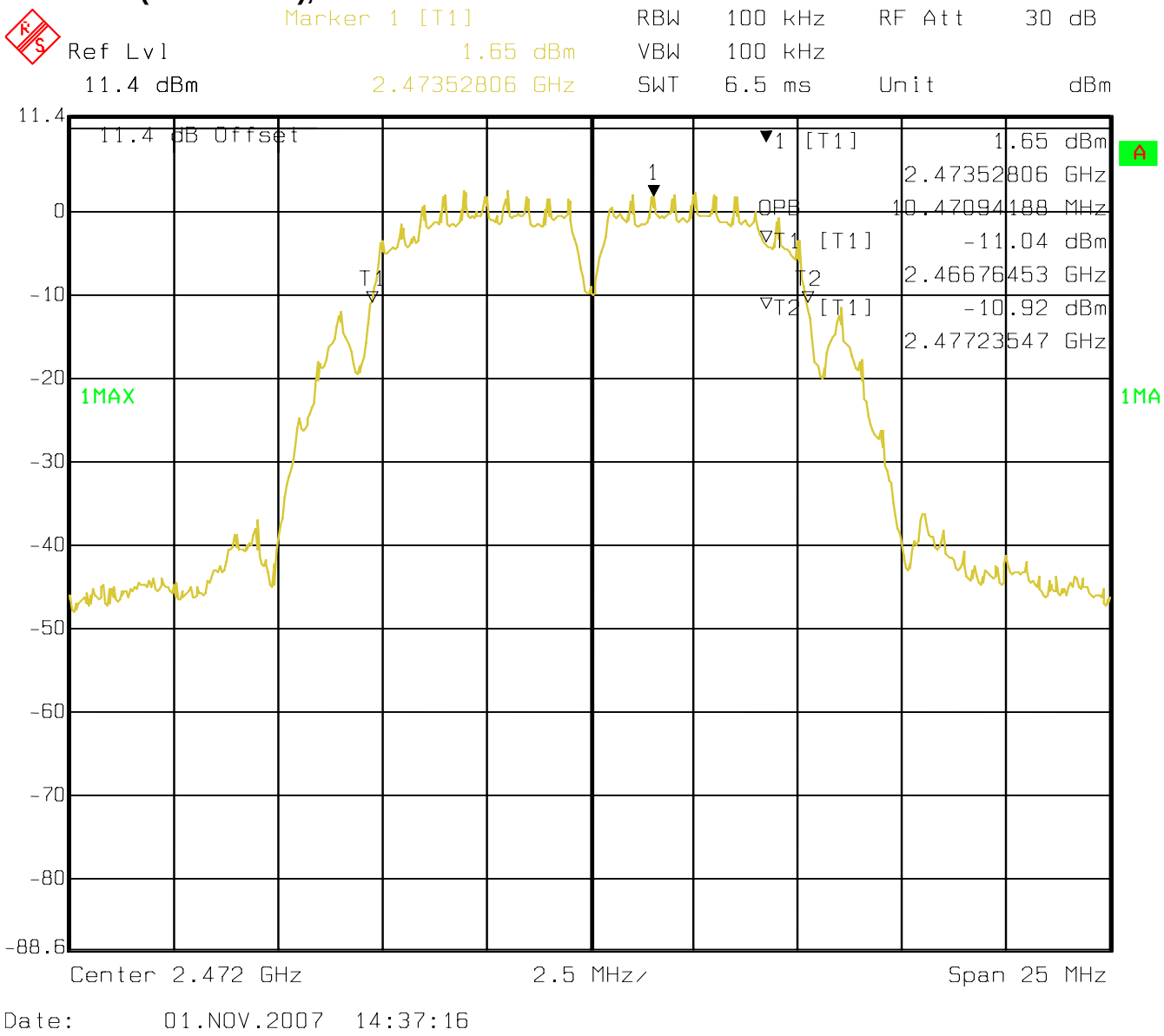
802.11g

Channel No.	Frequency (MHz)	99dB BW (MHz)
13	2472	16.3

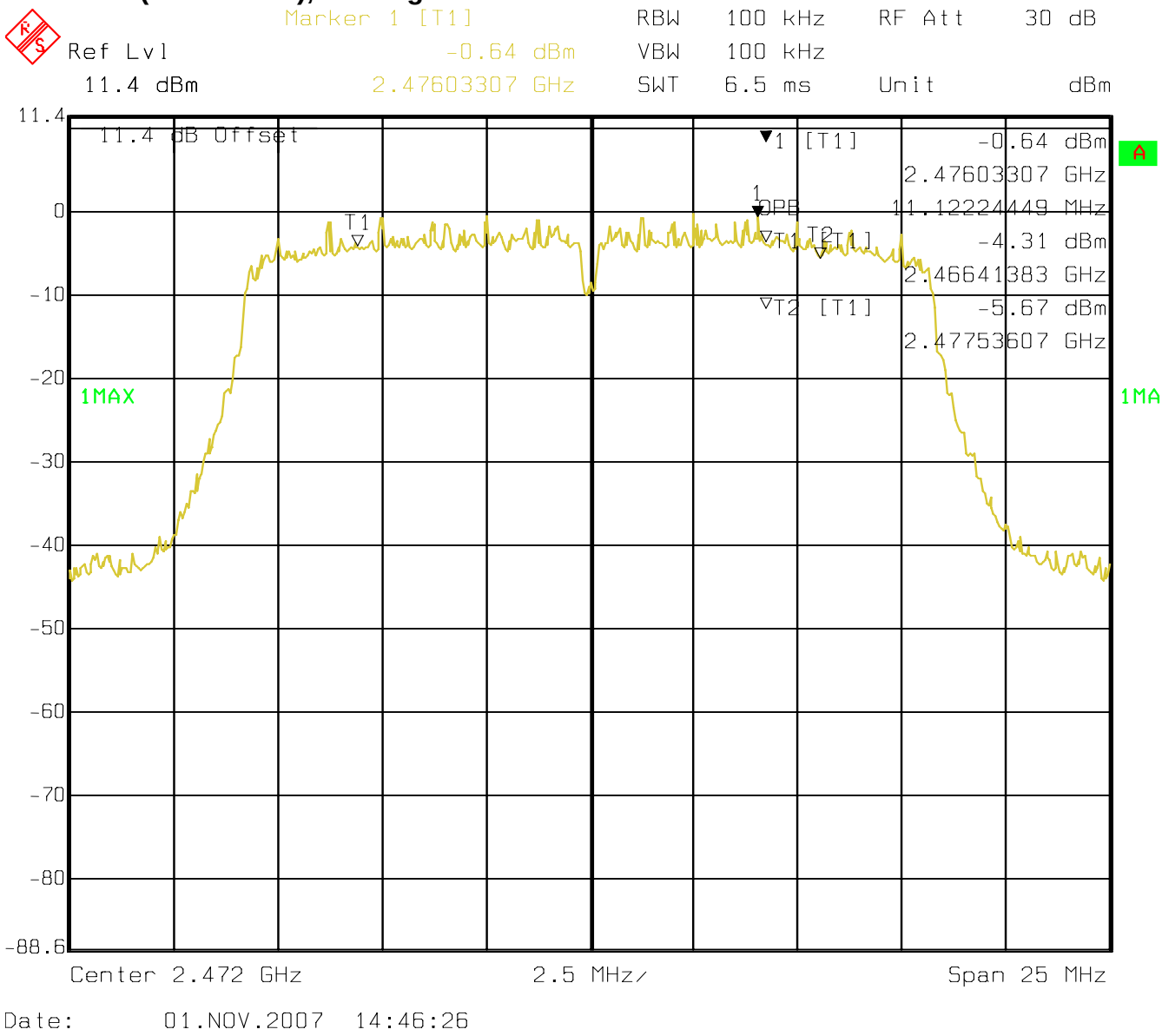
2472 MHz (Channel 13), 802.11b – 6dB BW



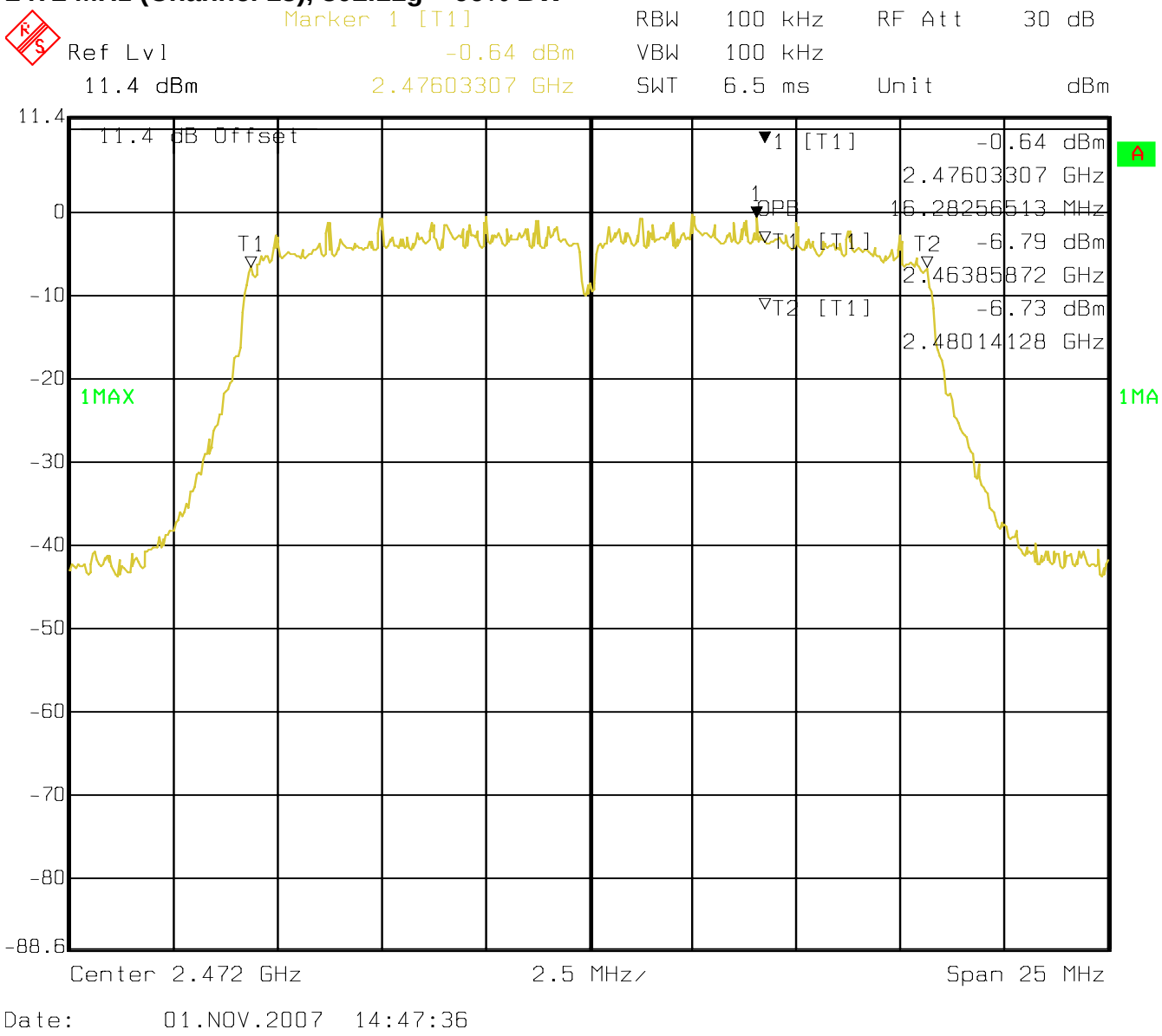
2472 MHz (Channel 13), 802.11b – 99% BW



2472 MHz (Channel 13), 802.11g – 6dB BW



2472 MHz (Channel 13), 802.11g – 99% BW



5.3 POWER SPECTRAL DENSITY §15.247(e) & RSS-210 (A8.2)(b) (CONDUCTED)

Limit: ≤ 8dBm (in 3kHz BW) **§15.247(e) & RSS-210 (A8.2)(b)**

ANALYZER SETTINGS: **RBW= 3kHz, VBW: 10kHz** **SPAN: 300kHz**

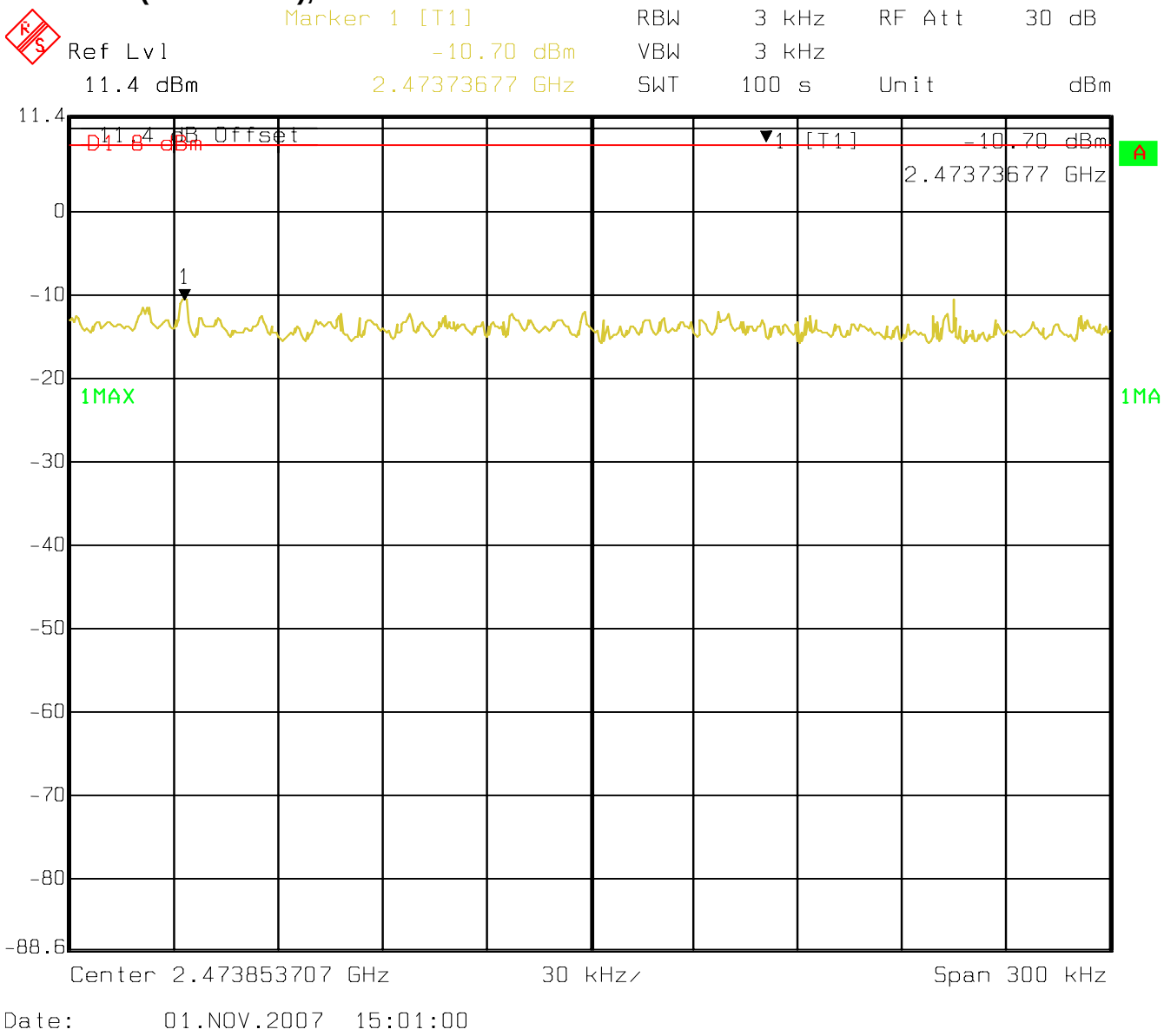
802.11b

Channel No.	Frequency (MHz)	PSD (dBm)
13	2472	-10.7

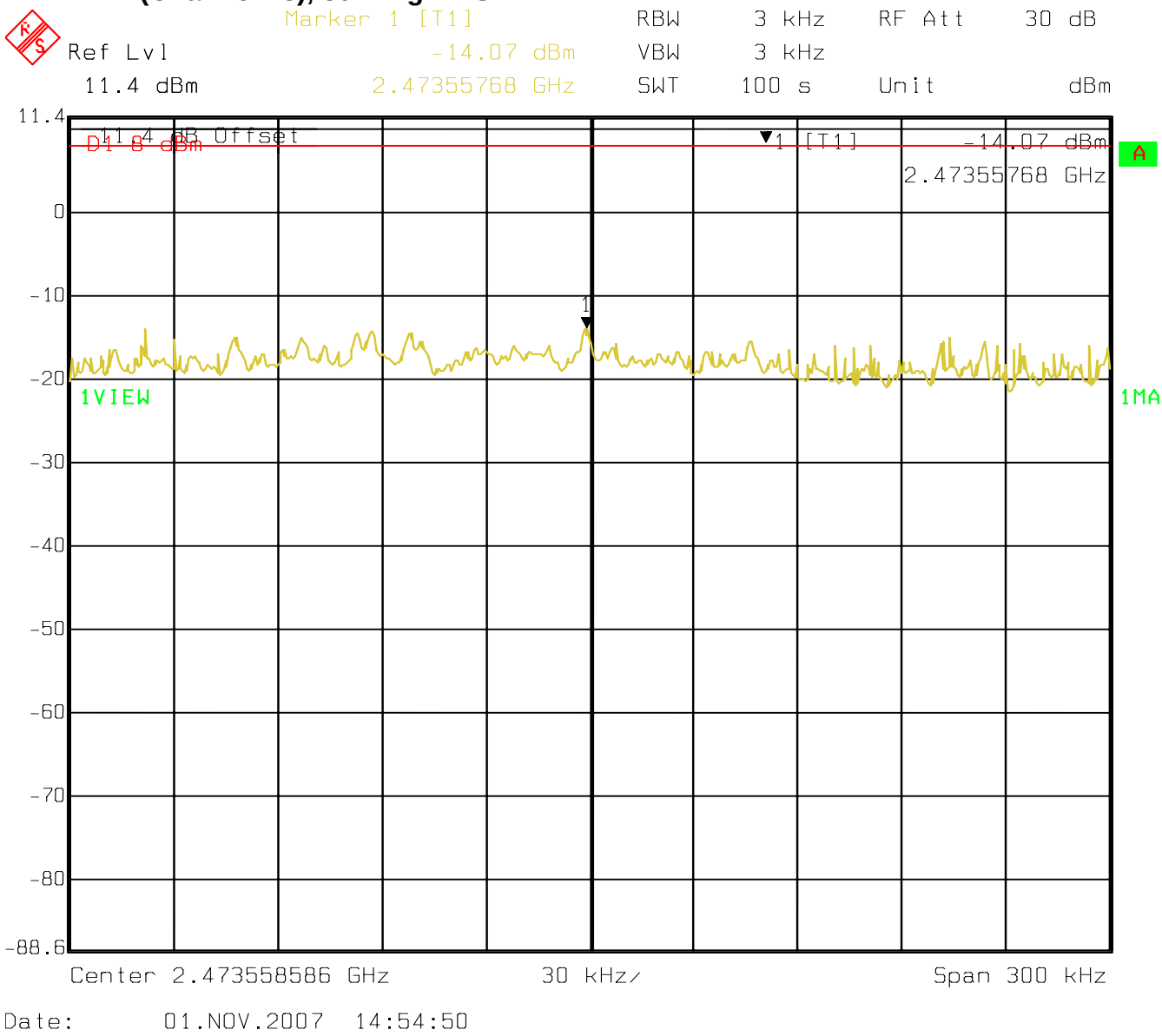
802.11g

Channel No.	Frequency (MHz)	PSD (dBm)
13	2472	-14.07

2472 MHz (Channel 13), 802.11b – PSD



2472 MHz (Channel 13), 802.11g – PSD



5.4 ANTENNA PORT EMISSIONS §15.247(d) & RSS-210 (A8.5) (CONDUCTED)

Limit: -20dBc used, §15.247(d) & RSS-210 (A8.5):

NOTE: ANALYZER SETTINGS: RBW=VBW: 100 kHz (Note: Due to the fact that the radio was set to transmit every 1ms and off for 2ms, a RBW=VBW= 500 kHz was used to increase the sweep time and capture the emissions correctly.)

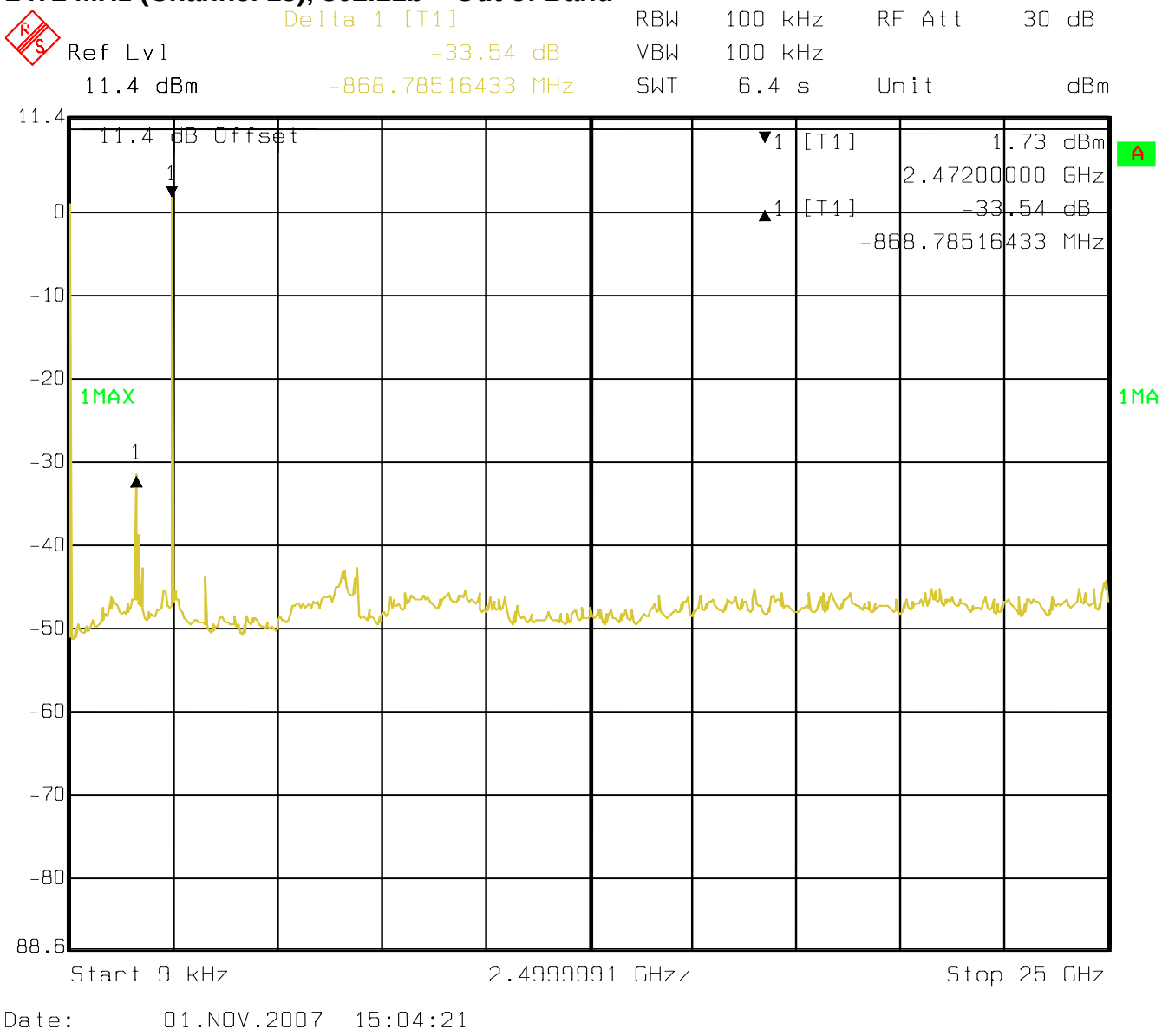
Measurements were performed on the low, middle, and high channel.

802.11b

Transmit at Highest channel Frequency 2472MHz	
Frequency (MHz)	**Level (dBm)**
	Peak
1603.214	-33.5

Measurements only performed on 802.11b. 802.11g by past results yield lower readings. Refer to the original filing.

2472 MHz (Channel 13), 802.11b – Out of Band



5.5 RADIATED EMISSIONS MEASUREMENTS

Note: The worst case power was at vertical. Only the vertical Bandedge measurements reported.

5.6 BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

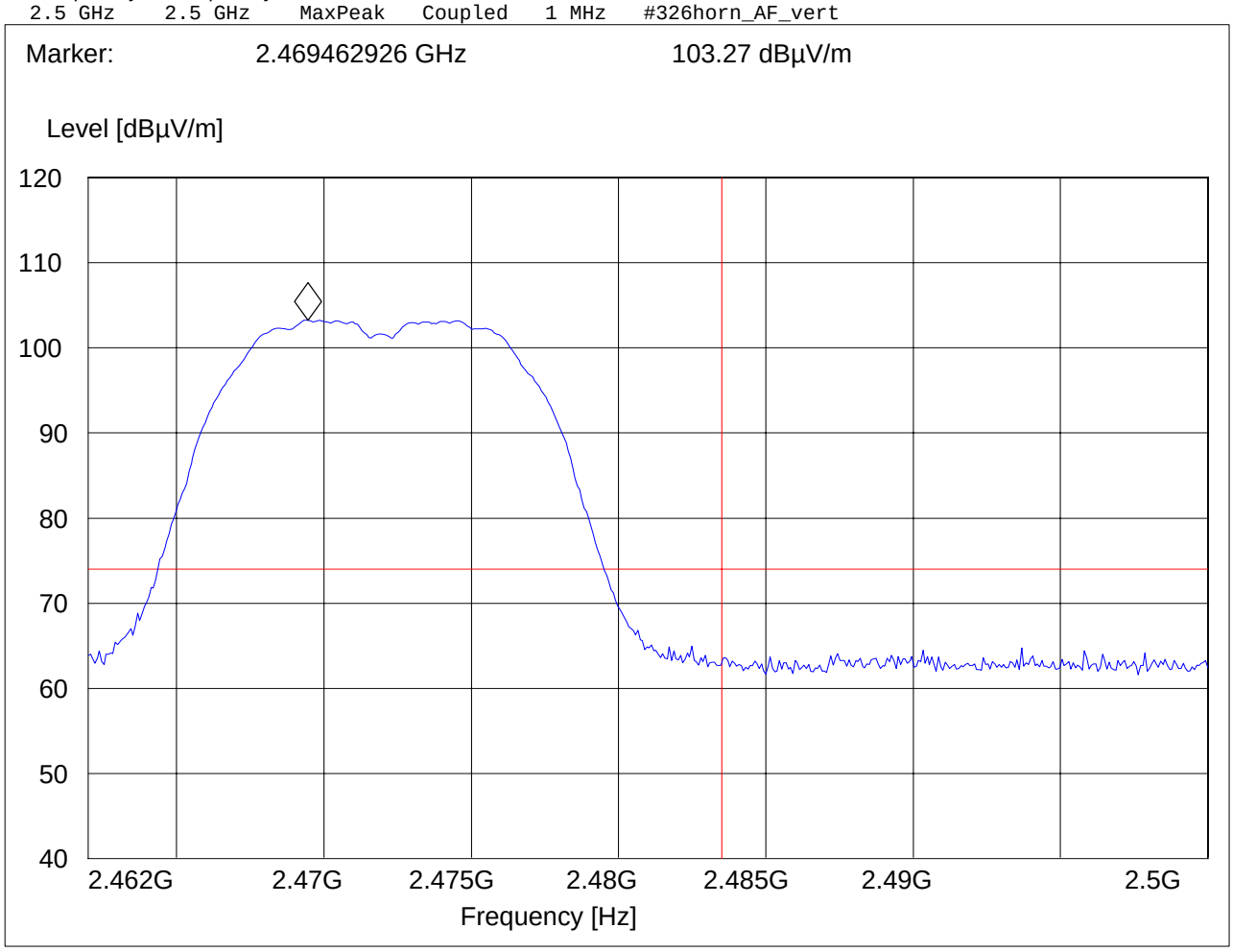
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:             BCM94312MCG
Customer:        Broadcom
Test Mode:       CH.13, 802.11b 12dBm, Main
ANT Orientation: V
EUT Orientation: H
Test Engineer:   Chris
Voltage:         AC Adapter
```

SWEEP TABLE: "FCC15.247 HBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



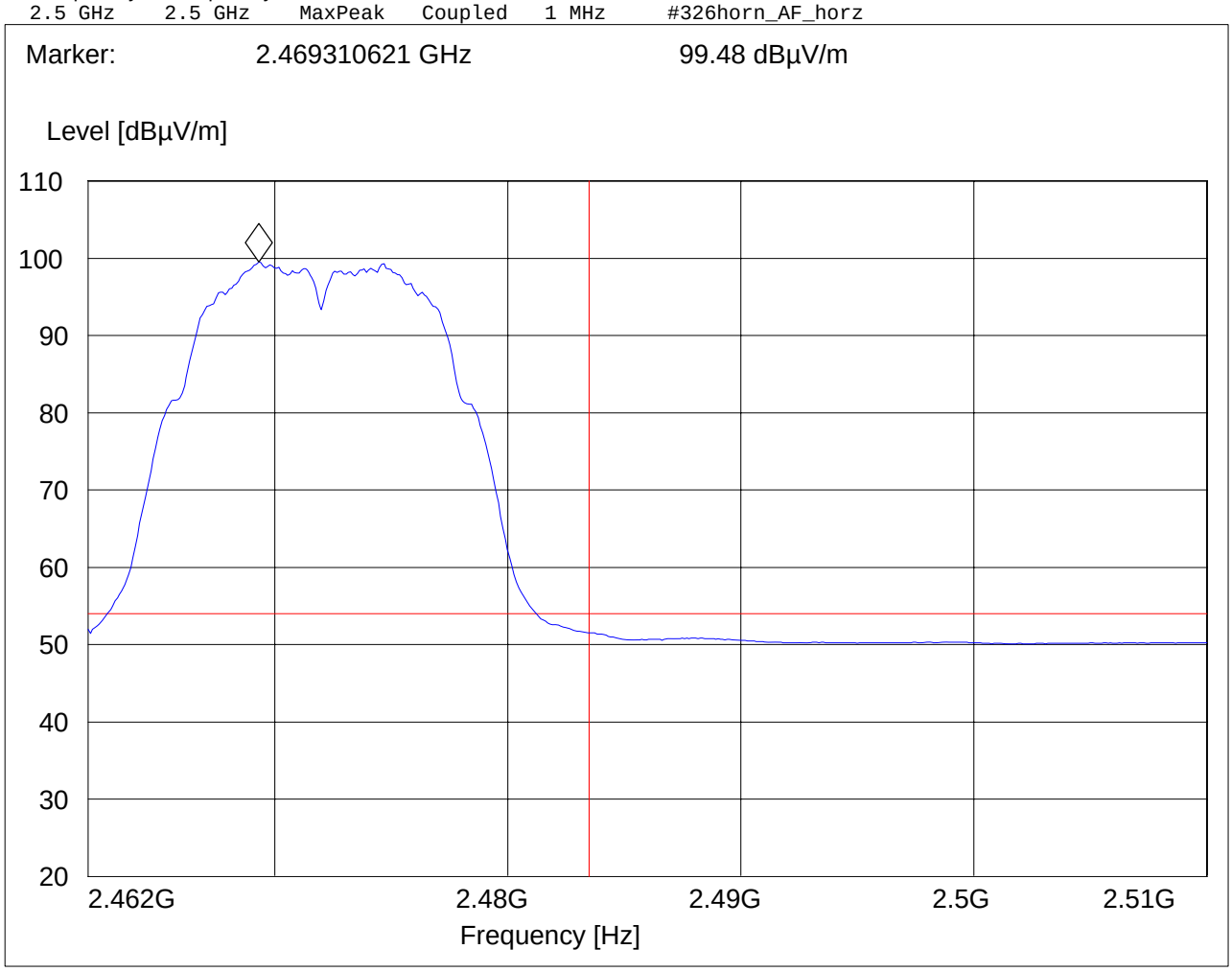
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:             BCM94312MCG
Customer:        Broadcom
Test Mode:       CH.13, 802.11b 12dBm, Main
ANT Orientation: V
EUT Orientation: H
Test Engineer:   Chris
Voltage:         AC Adapter
```

SWEEP TABLE: "FCC15.247 HBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz



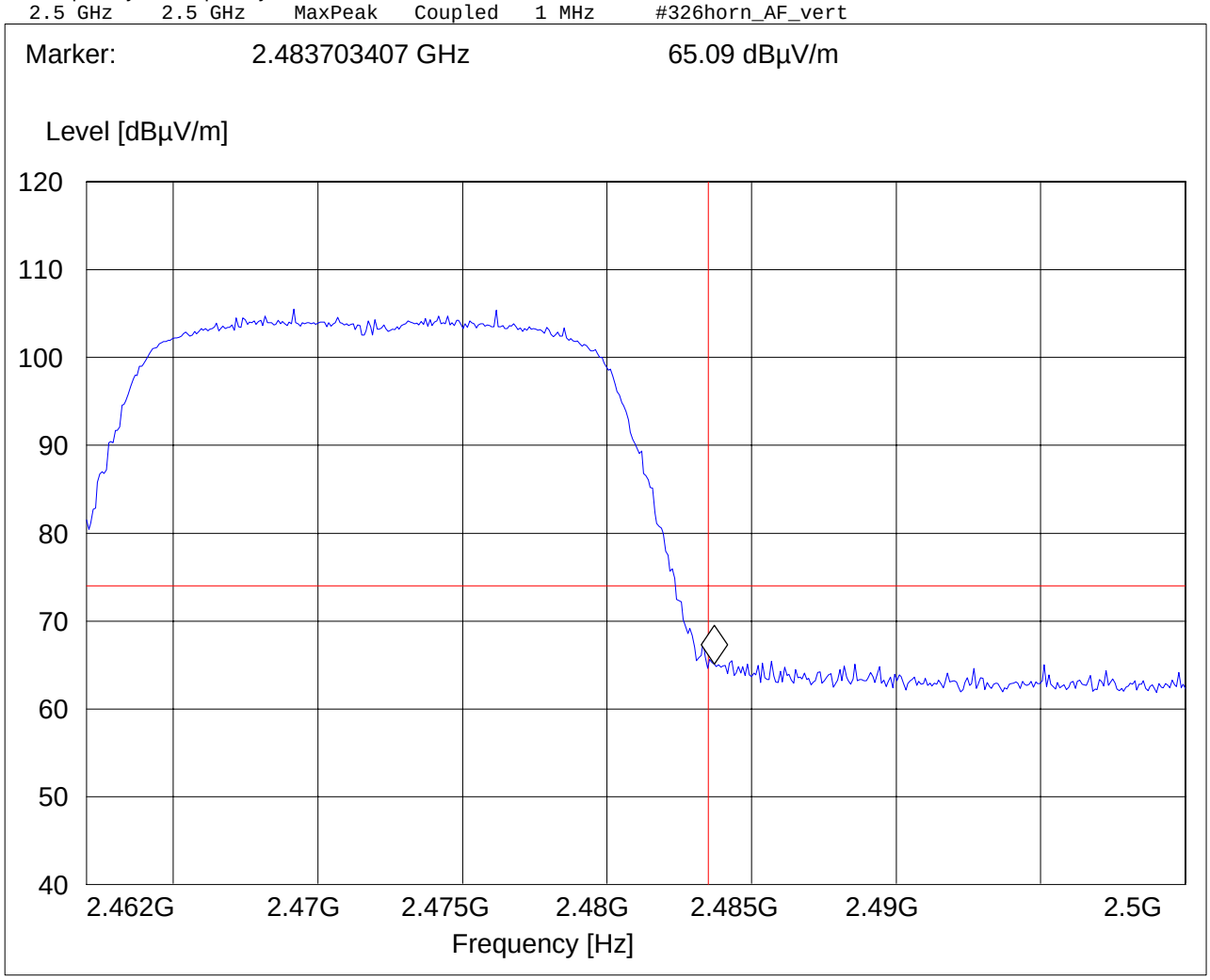
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:             BCM94312MCG
Customer:        Broadcom
Test Mode:       CH.13, 802.11g 11dBm
ANT Orientation: V
EUT Orientation: H
Test Engineer:   Chris
Voltage:         AC Adapter
```

SWEEP TABLE: "FCC15.247 HBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



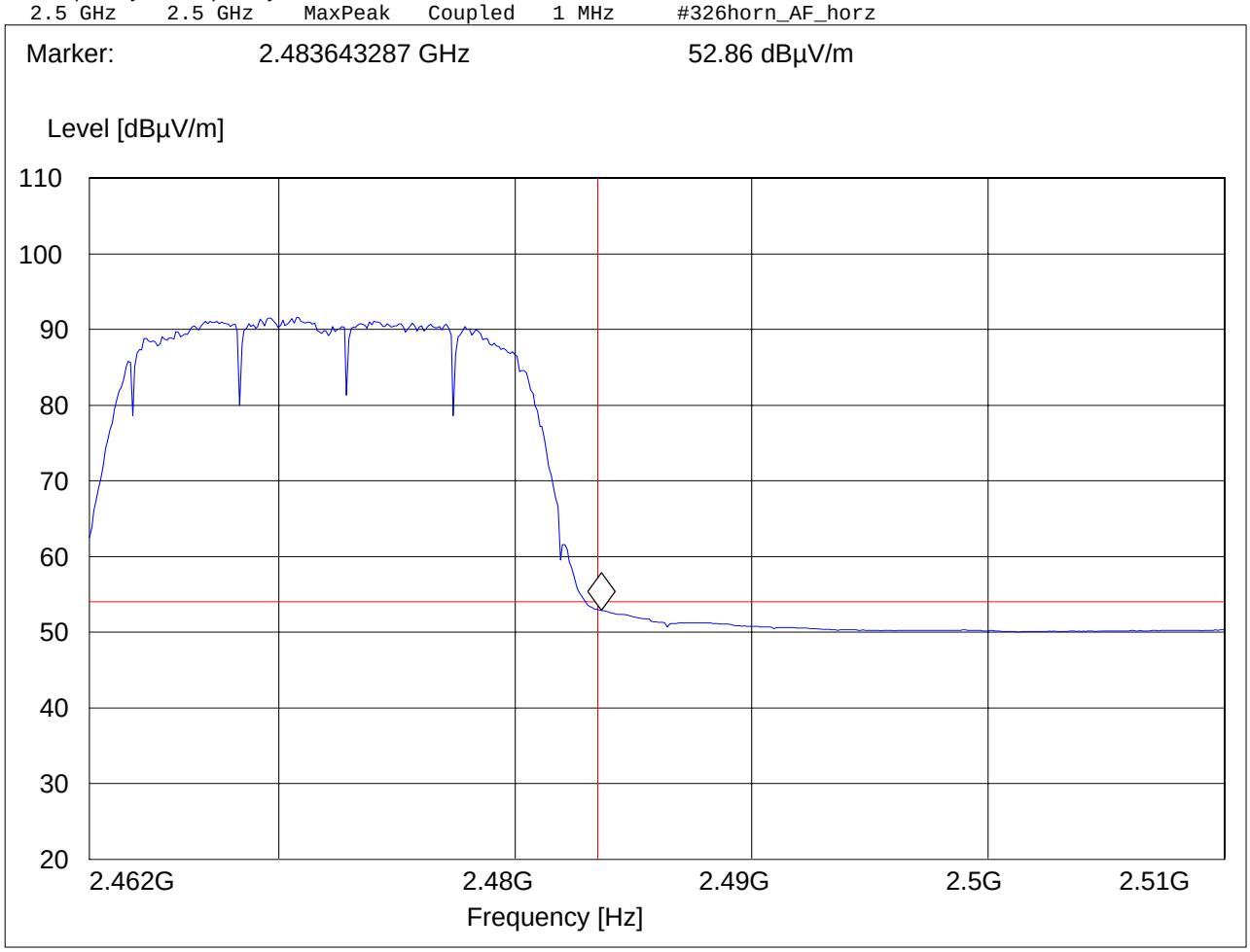
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:              BCM94312MCG
Customer:         Broadcom
Test Mode:        CH.13, 802.11g 11dBm
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
```

SWEEP TABLE: "FCC15.247 HBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz



5.7 EMISSION LIMITATIONS – Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

LIMITS

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. 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) (see §15.205(c)).

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 26.5 GHz very short cable connections to the antenna was used to minimize the noise level.

2. All measurements are done in peak mode unless specified with the plots.

3. Laptops were setup to transmit in low, middle, and high channels for both 802.11b and 802.11g mode.

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

EMISSION LIMITATIONS - Radiated (Transmitter)

§15.247 (d) & RSS-210(A8.5):

802.11B

Transmit at Highest channel Frequency 2472MHz			
Frequency (MHz)	**Level (dBµV/m)**		
	Peak	**Quasi-Peak**	**Average**
SEE PLOTS			

EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

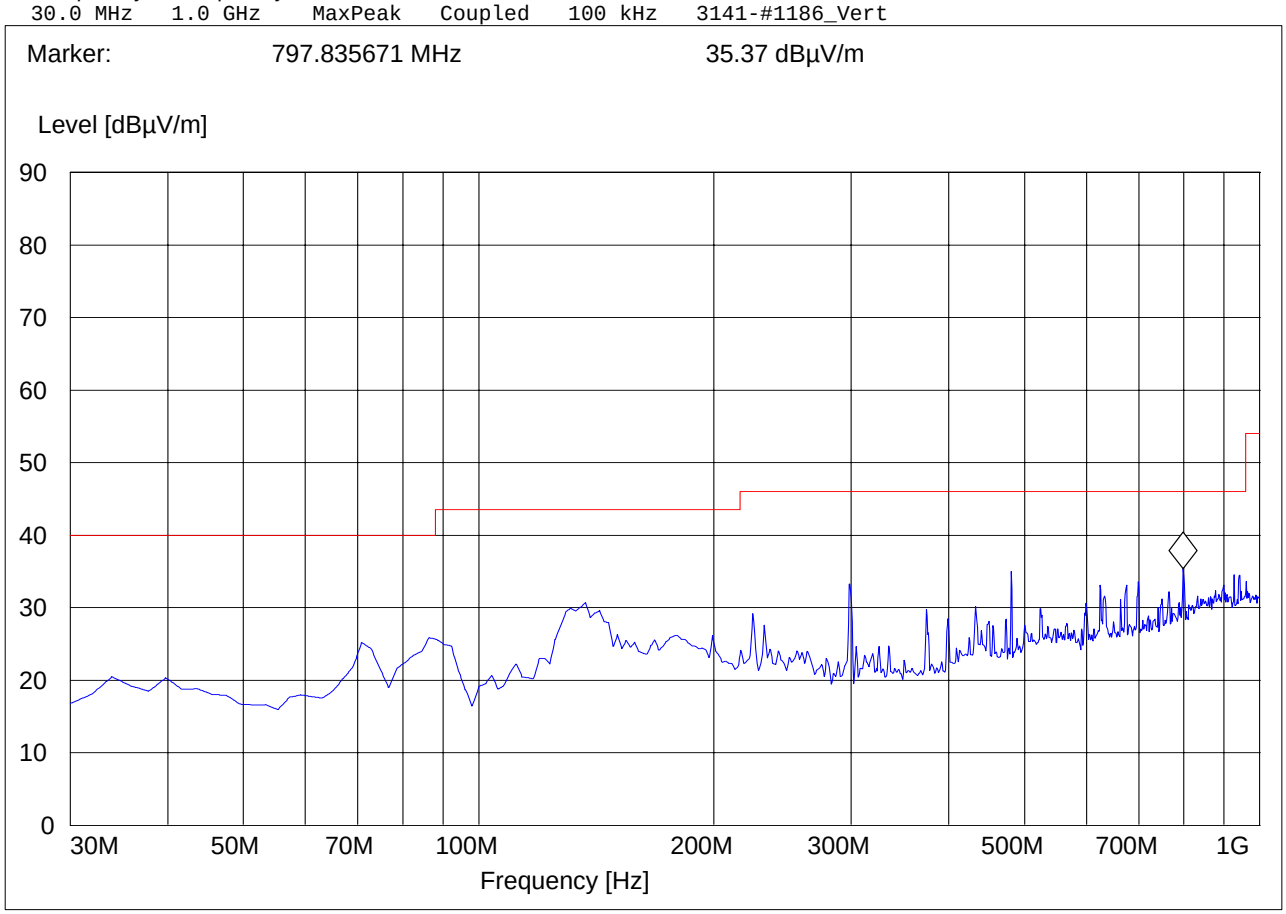
Lowest Channel (2412MHz): 30MHz – 1GHz

Note: This plot is valid for low, mid, high channels

```
EUT:             BCM94312MCG
Customer::       Broadcom
Test Mode:       802.11B, CH.13, AUX
ANT Orientation: V
EUT Orientation: H
Test Engineer:   Chris
Voltage:         AC Adapter
```

SWEEP TABLE: "FCC15.247_30M-1G_Ver"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert



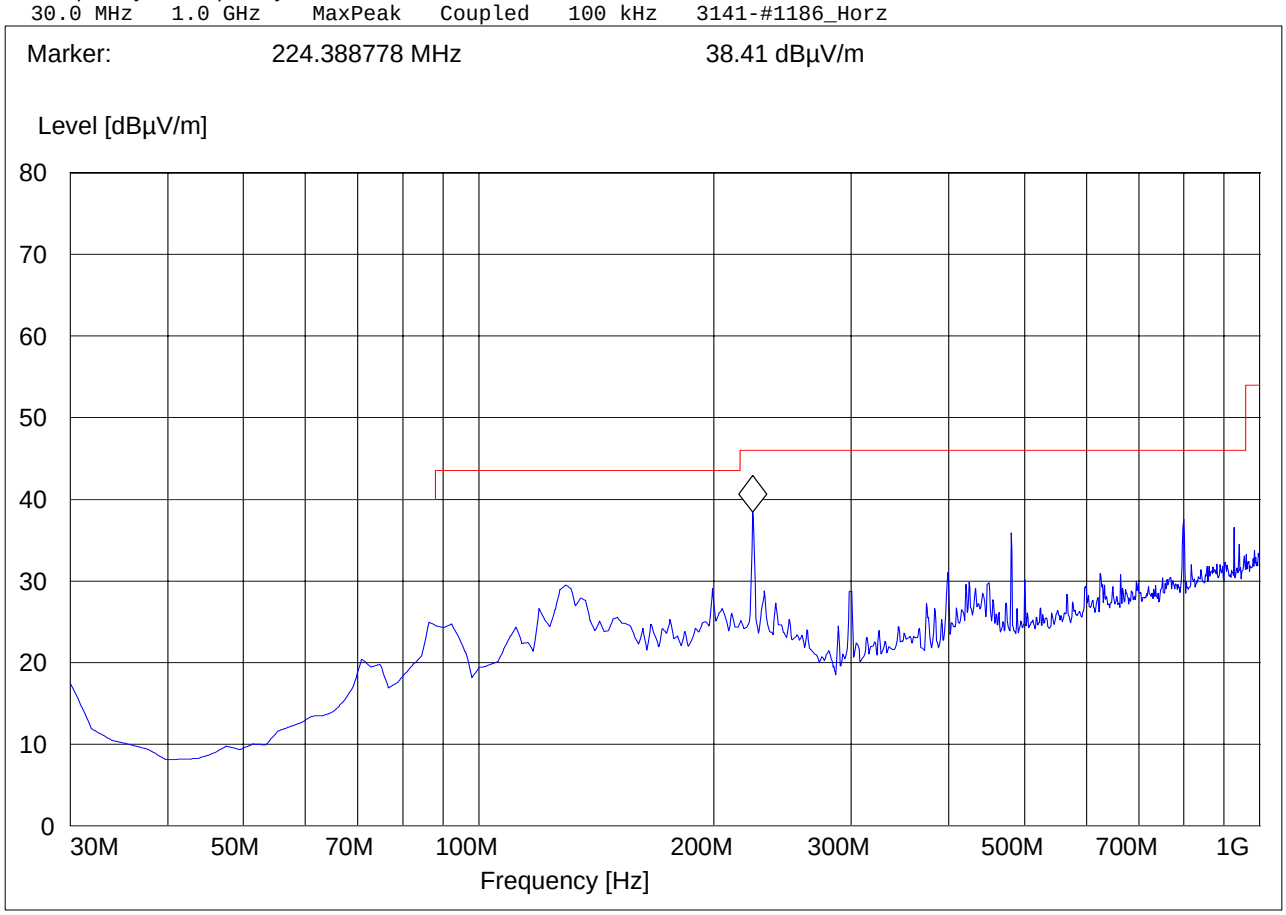
EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Lowest Channel (2412MHz): 30MHz – 1GHz

Note: This plot is valid for low, mid, high channels

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11B, CH.13
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
```

SWEEP TABLE: "FCC15.247_30M-1G_Hor"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Horz

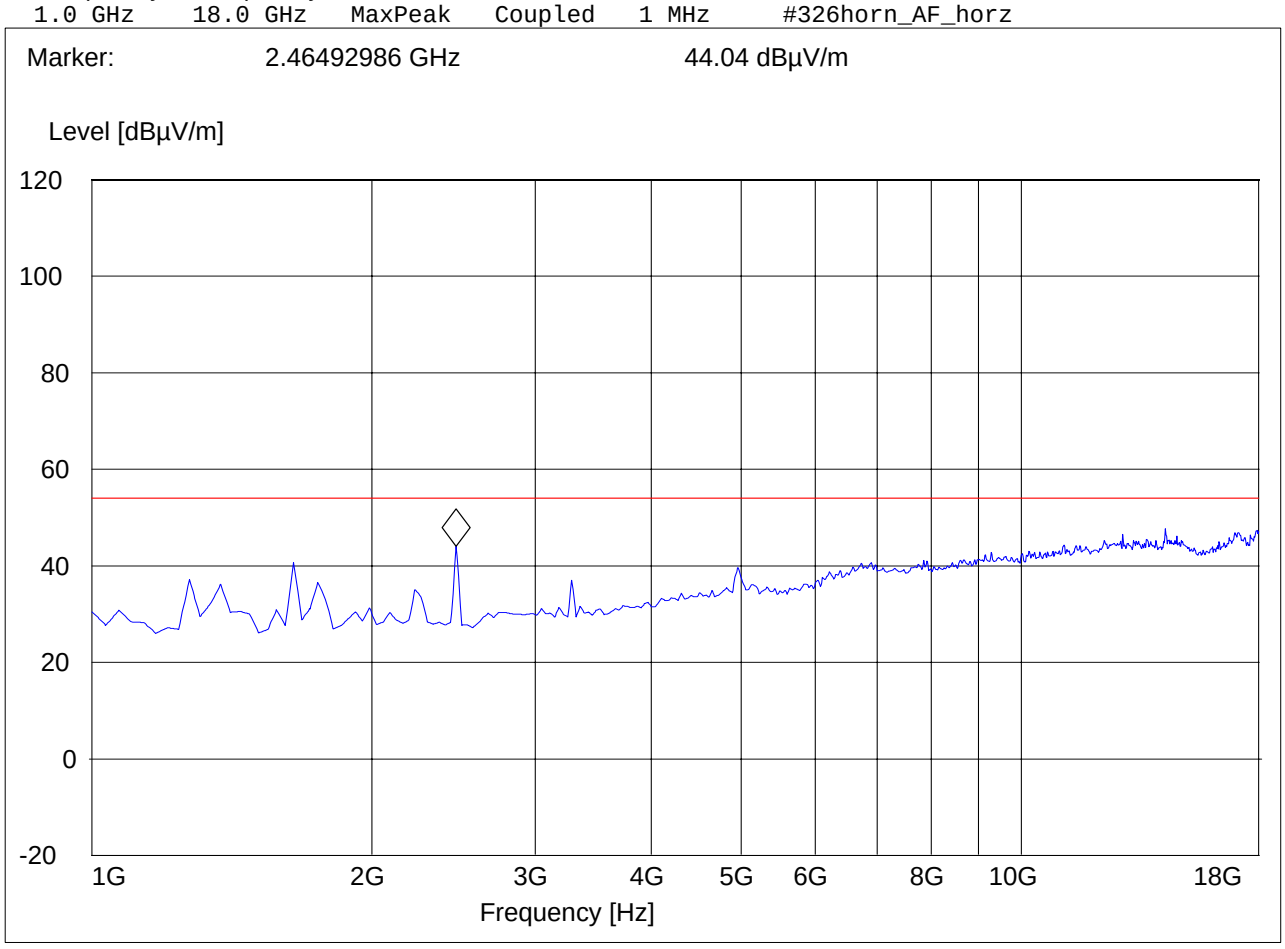


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
2472 MHz: 1GHz – 18 GHz

```
EUT / Description: BCM94312MCG
Manufacturer:      Broadcom
Operation Mode:    CH.13, 802.11b 11dBm, Main
ANT Orientation:   V & H
EUT Orientation:   H
Test Engineer:     Chris
Voltage:           AC Adapter
Comments::         Marker placed on transmit signal; with notch filter
```

SWEEP TABLE: "FCC15.247_1-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz

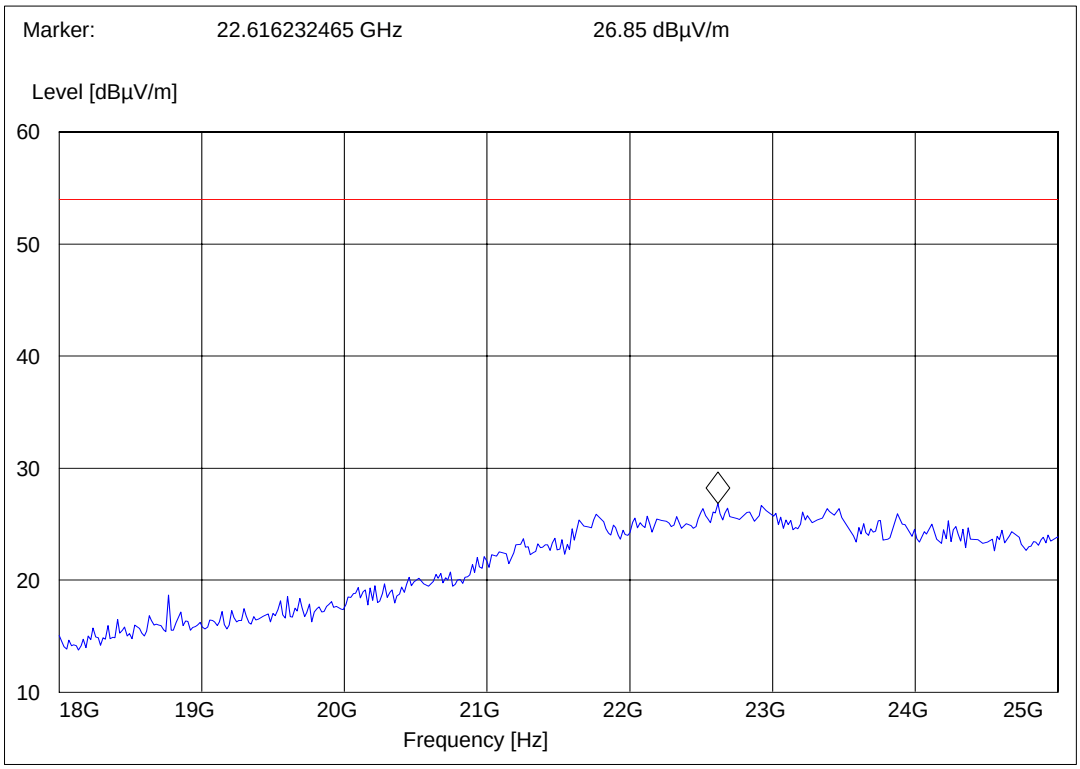


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
18GHz – 26.5GHz for low, middle, and high channels
Note: This plot is valid for low, mid, high channels (worst-case plot)

```
EUT / Description: BCM94312MCG
Manufacturer:      Broadcom
Operation Mode:    CH.13, 802.11b 11dBm, Main
ANT Orientation:   V & H
EUT Orientation:   H
Test Engineer:     Chris
Voltage:           AC Adapter
Comments::         Marker placed on transmit signal; with notch filter
```

SWEEP TABLE: "FCC15.247_18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	#572 horn AF



802.11g

Transmit at Highest channel Frequency 2472MHz			
Frequency (MHz)	**Level (dBµV/m)**		
	Peak	**Quasi-Peak**	**Average**
SEE PLOTS			

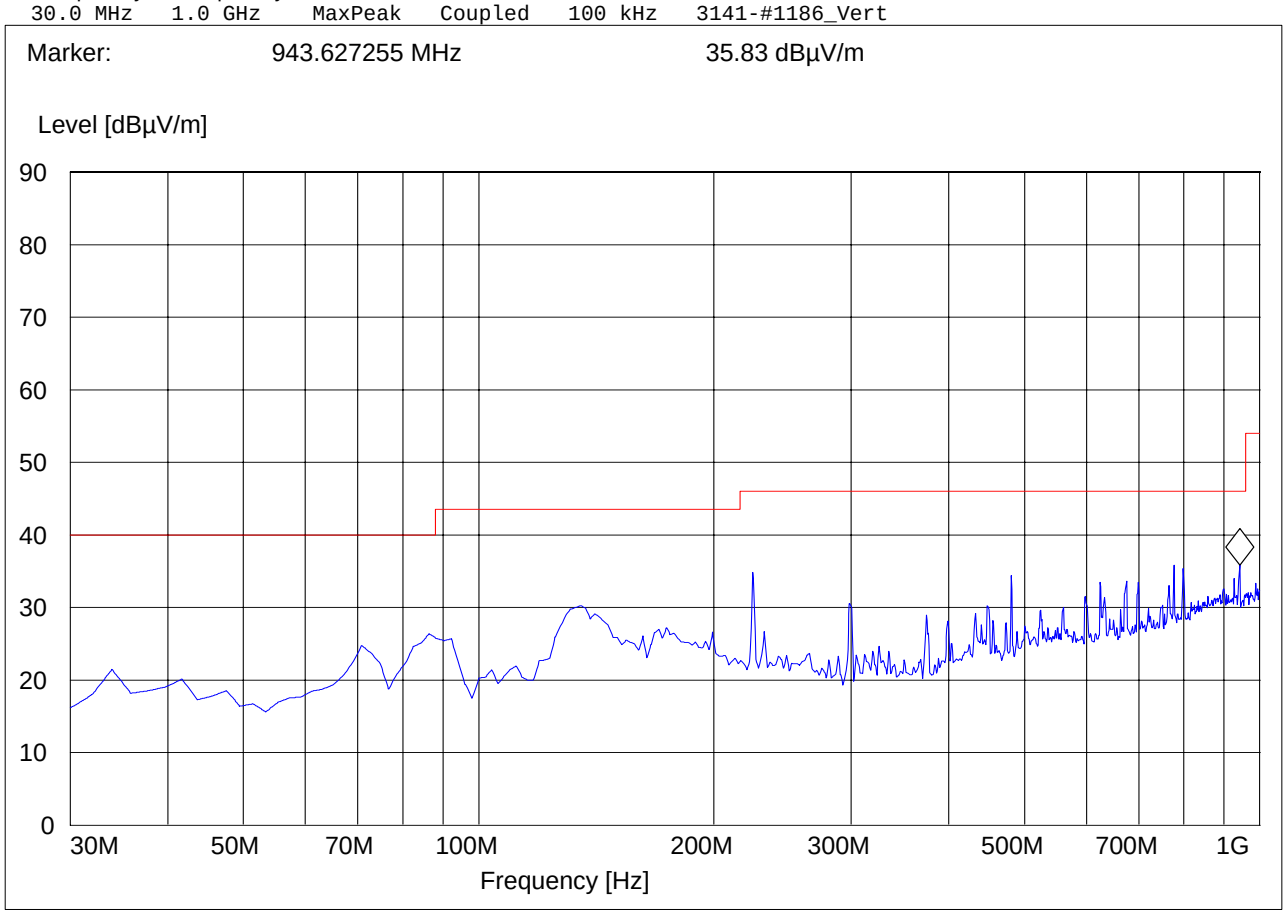
EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Lowest Channel (2412MHz): 30MHz – 1GHz

Note: This plot is valid for low, mid, high channels

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11G, CH.13
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
```

SWEEP TABLE: "FCC15.247_30M-1G_Ver"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert



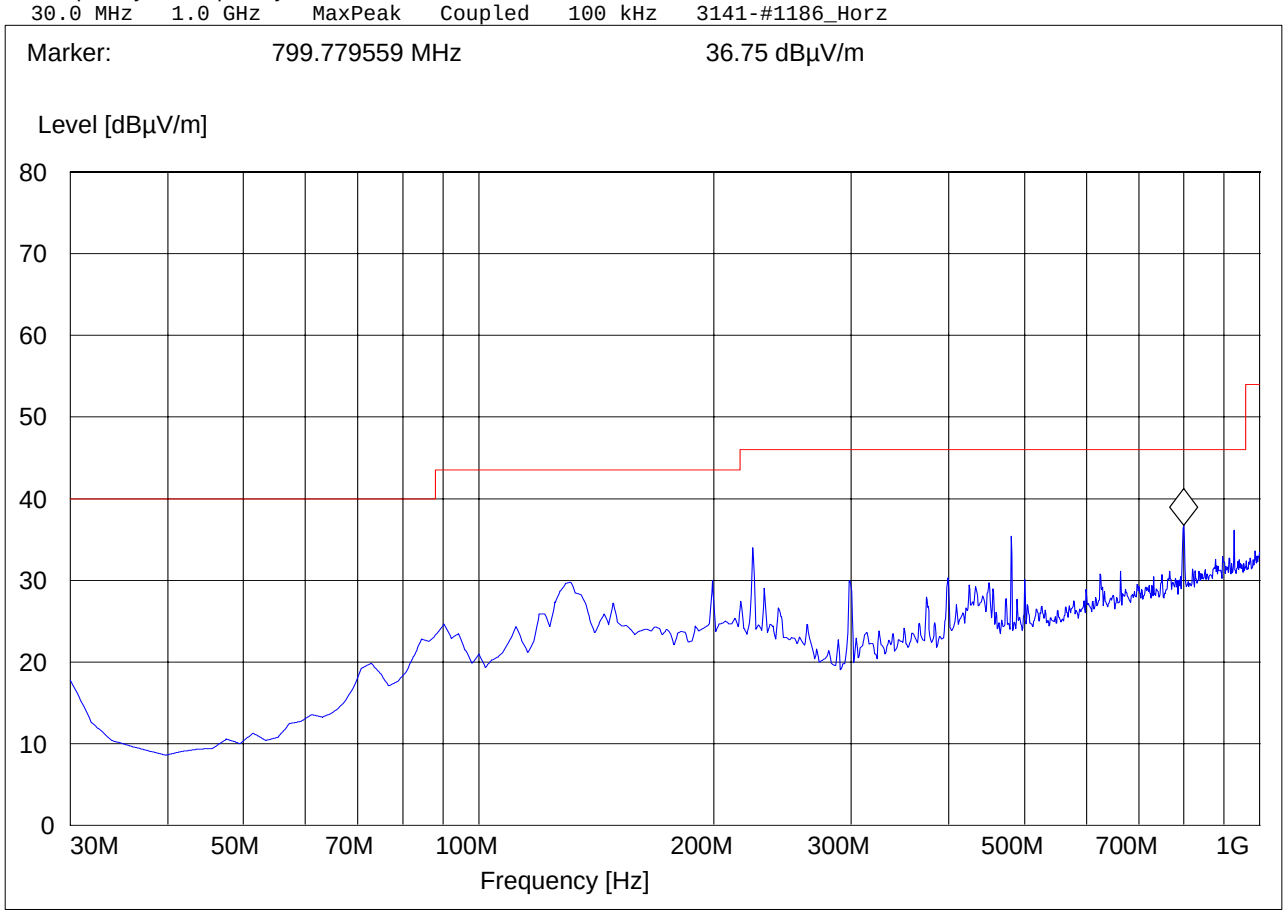
EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Lowest Channel (2412MHz): 30MHz – 1GHz

Note: This plot is valid for low, mid, high channels

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11G, CH.13
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
```

SWEEP TABLE: "FCC15.247_30M-1G_Hor"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Horz

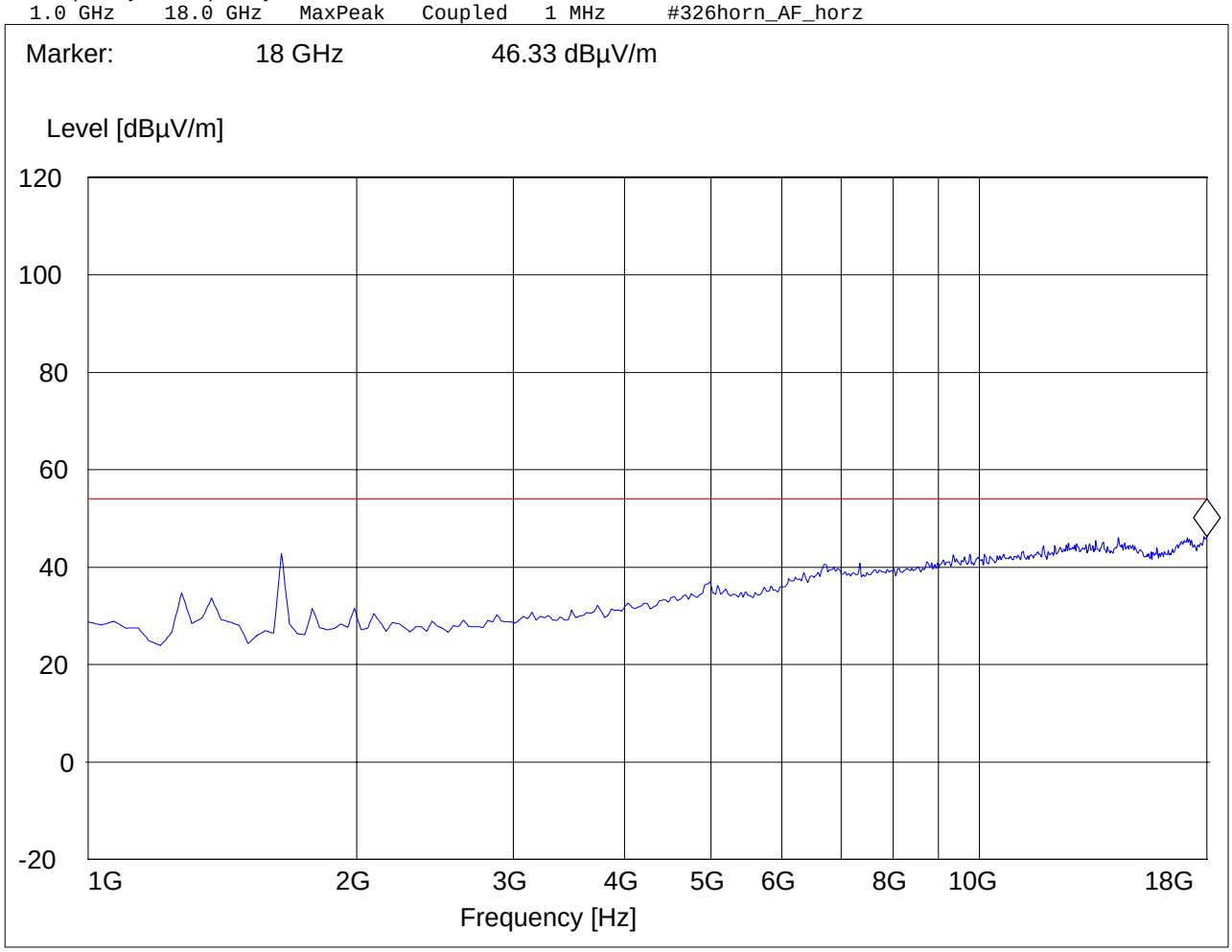


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
2472 MHz: 1GHz – 18 GHz

```
EUT / Description: BCM94312MCG
Manufacturer:      Broadcom
Operation Mode:    CH.13, 802.11g 11dBm
ANT Orientation: : V & H
EUT Orientation::  H
Test Engineer:     Chris
Voltage:           AC Adapter
Comments::         Marker placed on transmit signal; with notch filter
```

SWEEP TABLE: "FCC15.247_1-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz



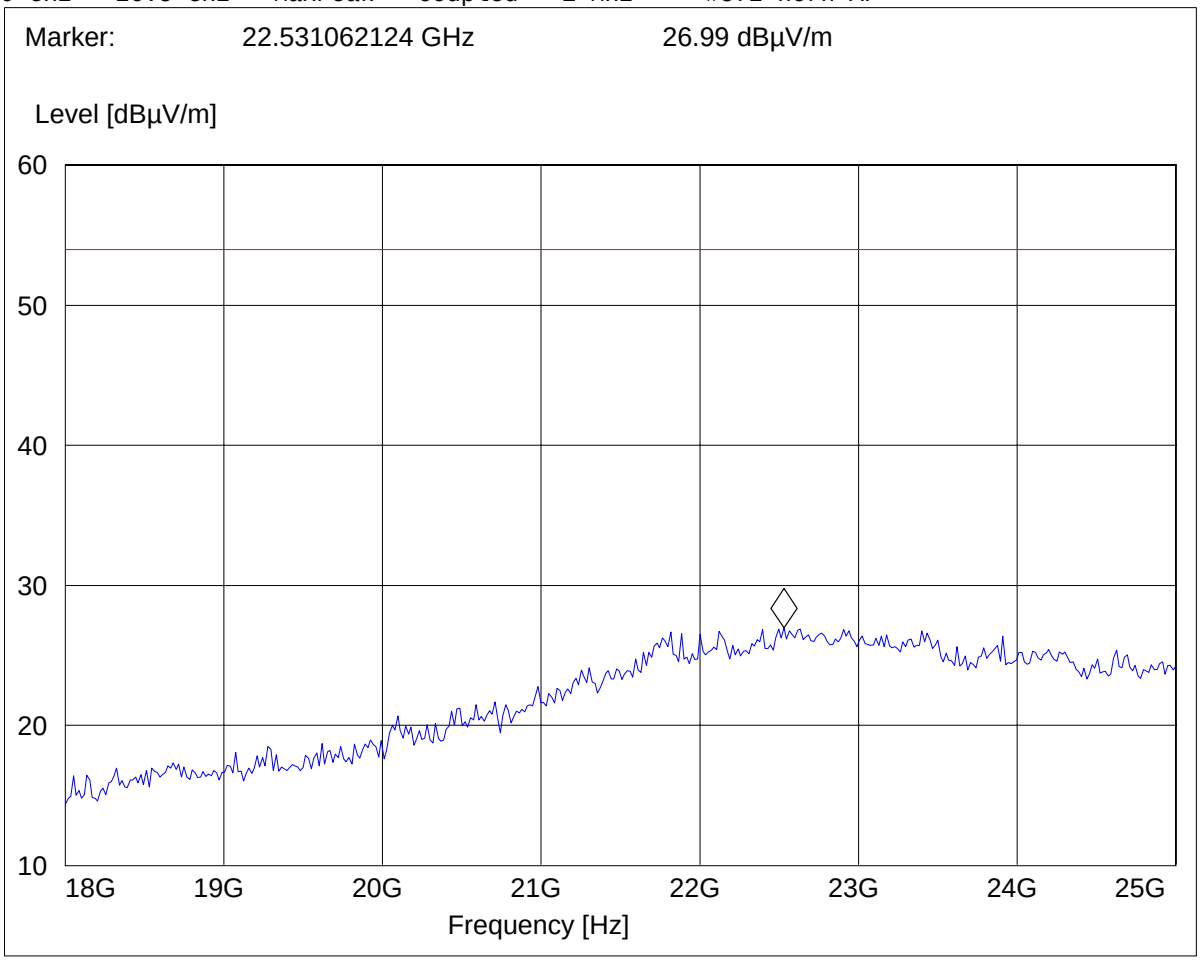
EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5) 18GHz – 26.5GHz for low, middle, and high channels

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

```
EUT:              BCM94312MCG
Customer:         Broadcom
Test Mode:        802.11g, Low, Middle, and high
ANT Orientation:  V & H
EUT Orientation:  H
Test Engineer:    Juan
Power Supply:     AC Adaptor
```

SWEEP TABLE: "FCC15.247_18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	#572 horn AF



5.8 EMISSION LIMITATIONS – Radiated (Receiver) RSS-GEN (4.10) & (6):

Limits RSS-GEN (4.10) & (6):

Frequency (MHz)	Field strength (µV/m)	Field strength (dBµV/m)
0.009 - 0.490	2400/F(kHz)	
0.490 - 1.705	24000/F(kHz)	
1.705 - 30.0	**30**	**29.54**
30 - 88	**100**	**40.00**
88 - 216	**150**	**43.52**
216 - 960	**200**	**46.02**
above 960	**500**	**53.97**

Table 1. Limits are based on a 3 meter distance

RSS-GEN (4.10) peak measurements above 1GHz are taken with a RBW=VBW= 1MHz and average measurements above 1GHz with a RBW=1MHz, VBW=10Hz or an average detector. Set the radio to receive at the middle of the operating band.

EUT in Rx/Standby mode, test setup as per ANSI C63.4 (page 32)

Frequency Range	Sweep used	Filter / Amp used
30MHz – 18GHz	CANADA_30M-18G	PASS

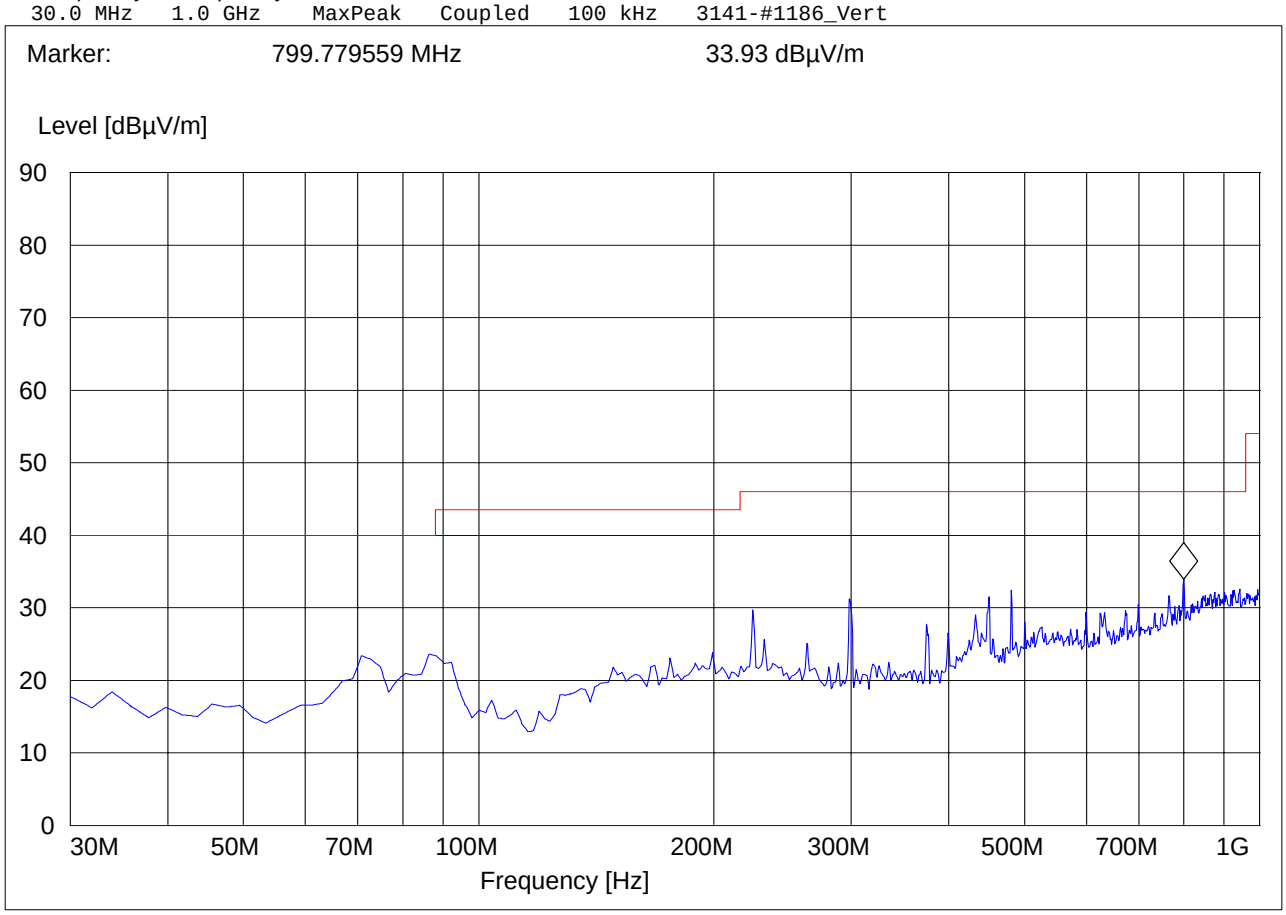
EMISSION LIMITATIONS - Radiated (Receiver) RSS-GEN (4.10) & (6)

Middle Channel (2437MHz): 30MHz – 1GHz

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11B, CH.13
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
Comments:         IDLE
```

SWEEP TABLE: "Canada _30M-1G_Ver"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert



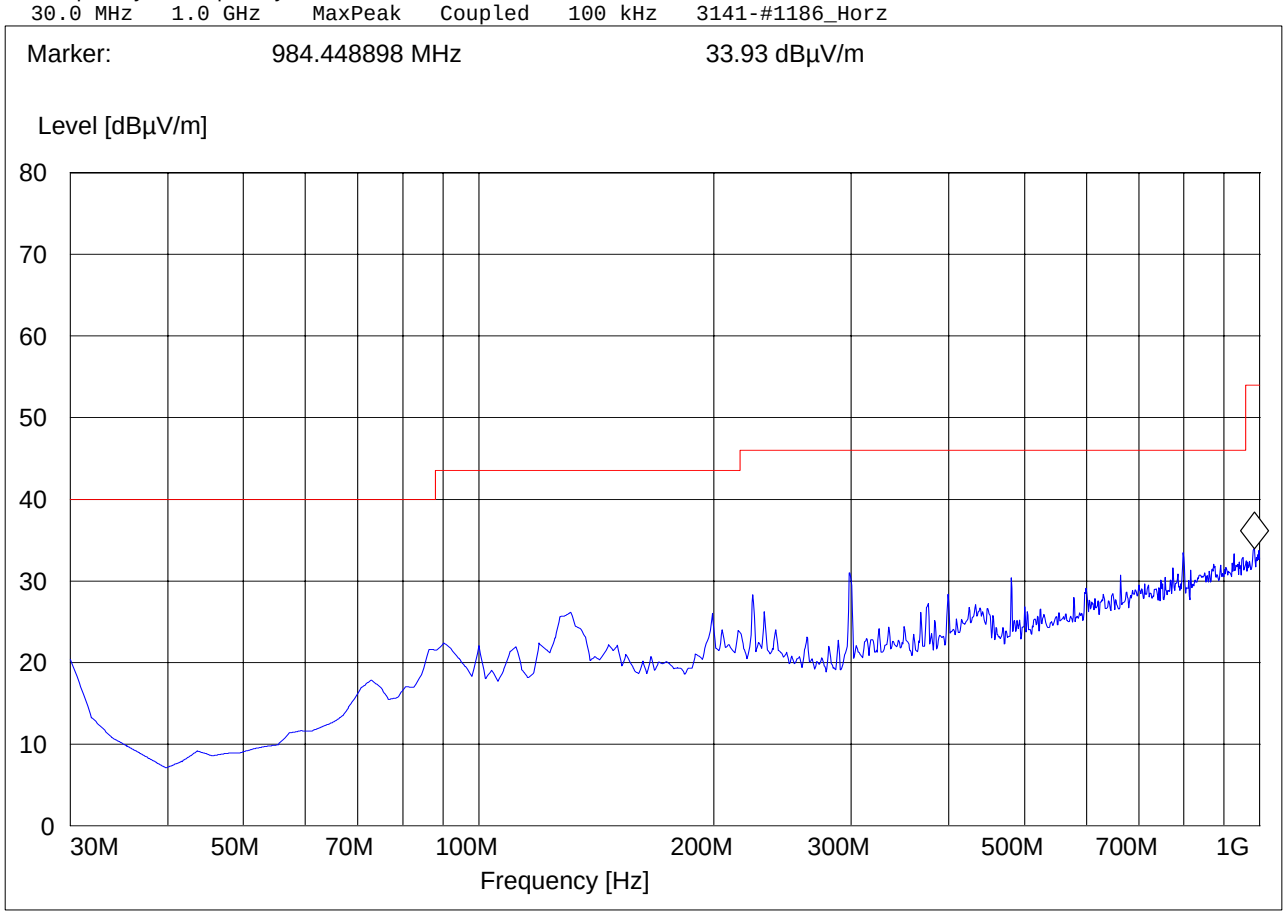
EMISSION LIMITATIONS - Radiated (Receiver) RSS-GEN (4.10) & (6)

Middle Channel (2437MHz): 30MHz – 1GHz

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11B, CH.13
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
Comments:         IDLE
```

SWEEP TABLE: "Canada _30M-1G_Hor"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Horz



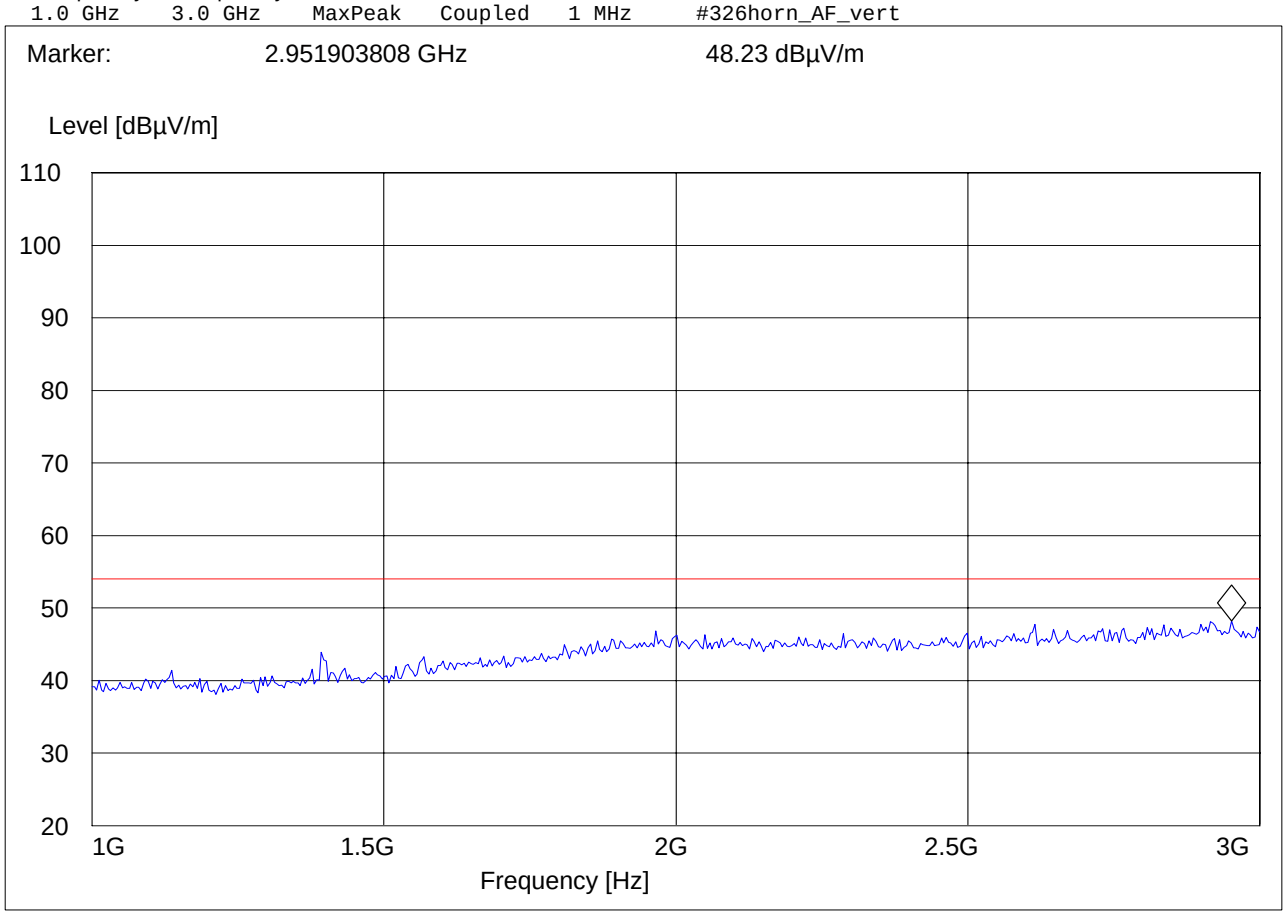
EMISSION LIMITATIONS - Radiated (Receiver) RSS-GEN (4.10) & (6)

Middle Channel (2437MHz): 1GHz – 3GHz

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11B, CH.13
ANT Orientation:  V & H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
Comments:         IDLE
```

SWEEP TABLE: "FCC15.247_1-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



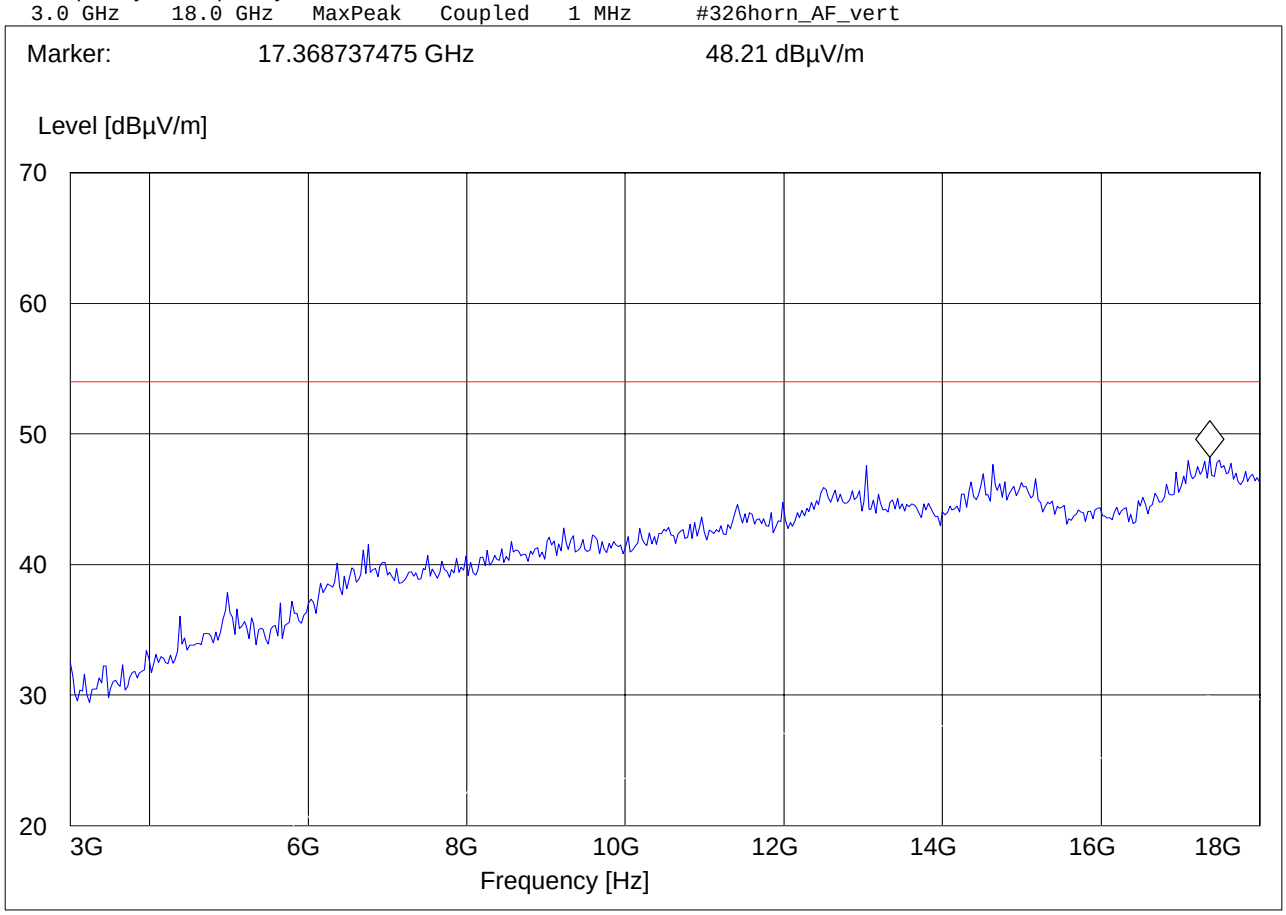
EMISSION LIMITATIONS - Radiated (Receiver) RSS-GEN (4.10) & (6)

Middle Channel (2437MHz): 3GHz – 18GHz

```
EUT:              BCM94312MCG
Customer::        Broadcom
Test Mode:        802.11B, CH.13
ANT Orientation:  V & H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC Adapter
Comments:         IDLE
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



6 AC POWER LINE CONDUCTED EMISSIONS § 15.207 & RSS-GEN (7.2.2)

LIMITS
Technical specification: 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.

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		

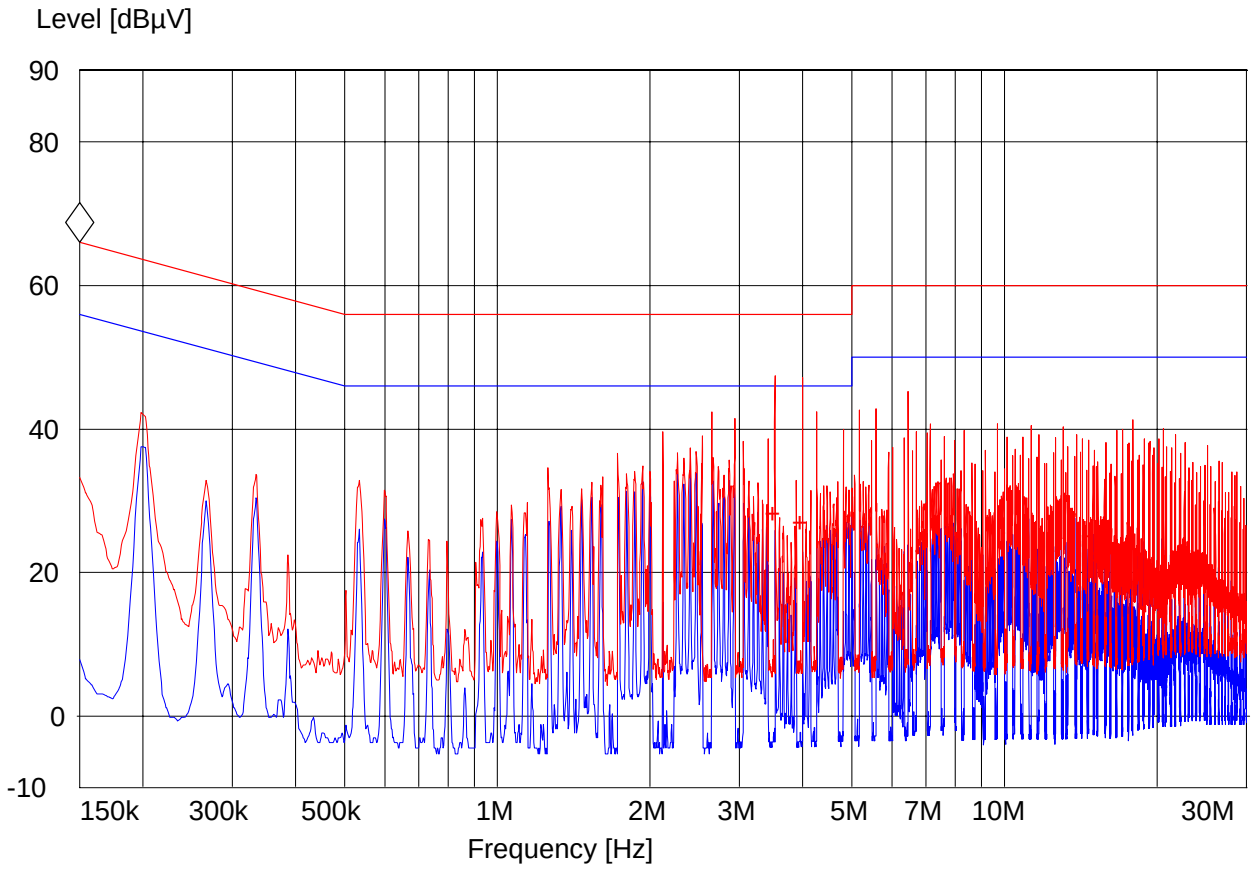
ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz

OPERATING MODE
Conducted AC emissions testing were performed with 120 VAC @ 60 Hz with the EUT in Transmit and Receiver mode.

Voltage Mains Test (Line), Transmit

```
EUT:                  BCM94312MCG
Manufacturer:         Broadcom
Operating Condition:  802.11B, CH.13
ANT Orientation::     Conducted - TX
EUT Orientation::     H
Test Engineer::       Chris
Power Supply: :       120V AC
Comments:  :          Line
```

Marker: 150 kHz 66 dBµV



\+ MES 55022 V AV QPk
MES 55022 cond MaxPk
MES 55022 cond Avg
LIM EN 55022 V QP Voltage QP Limit
LIM EN 55022 V AV Voltage AV Limit

MEASUREMENT RESULT: "55022 V QPk"

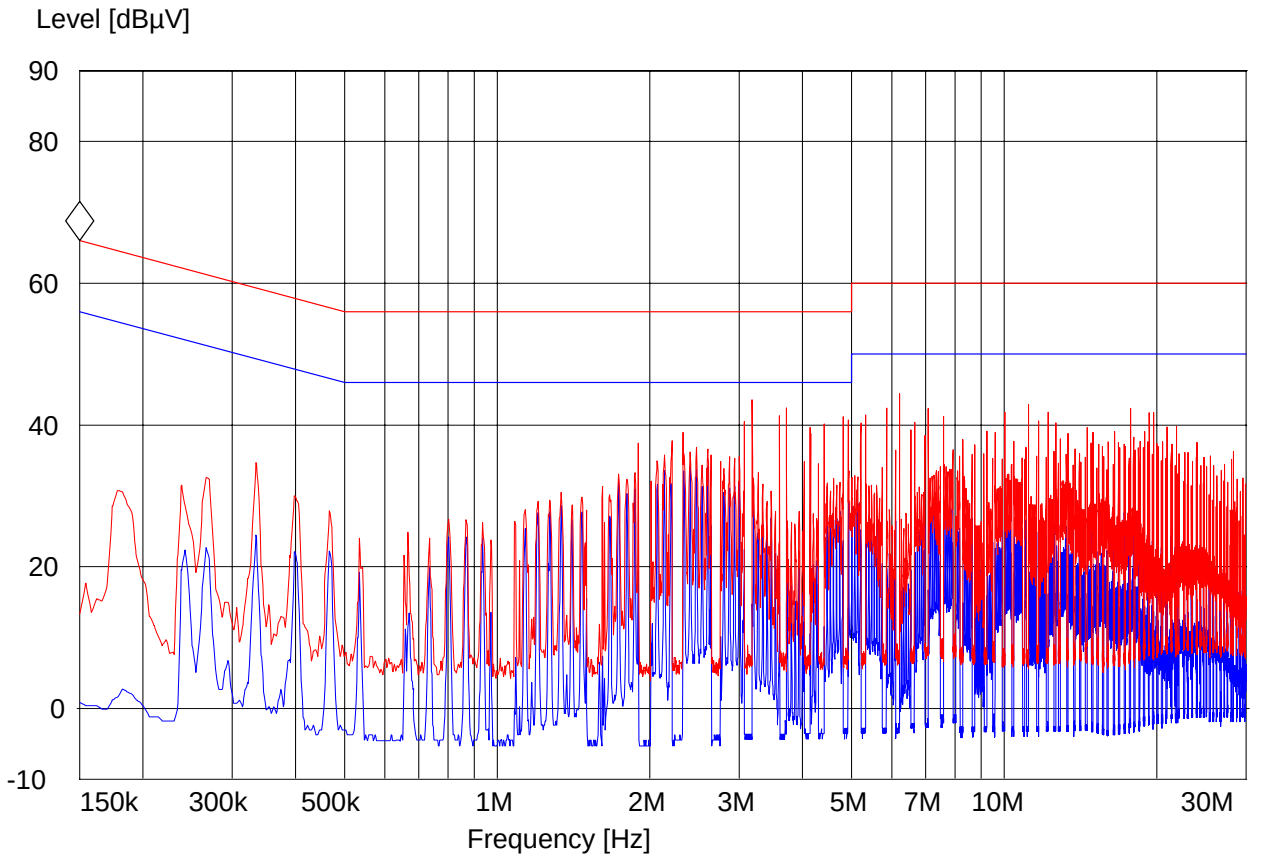
12/12/2007 8:08AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
3.530000	28.30	0.4	56	27.7	---	---
3.998000	27.00	0.4	56	29.0	---	---

Voltage Mains Test (Neutral), Transmit

```
EUT:                  BCM94312MCG
Manufacturer:         Broadcom
Operating Condition:  802.11B, CH.13
ANT Orientation::     Conducted - TX
EUT Orientation::     H
Test Engineer::       Chris
Power Supply: :       120V AC
Comments:  :          Neutral
```

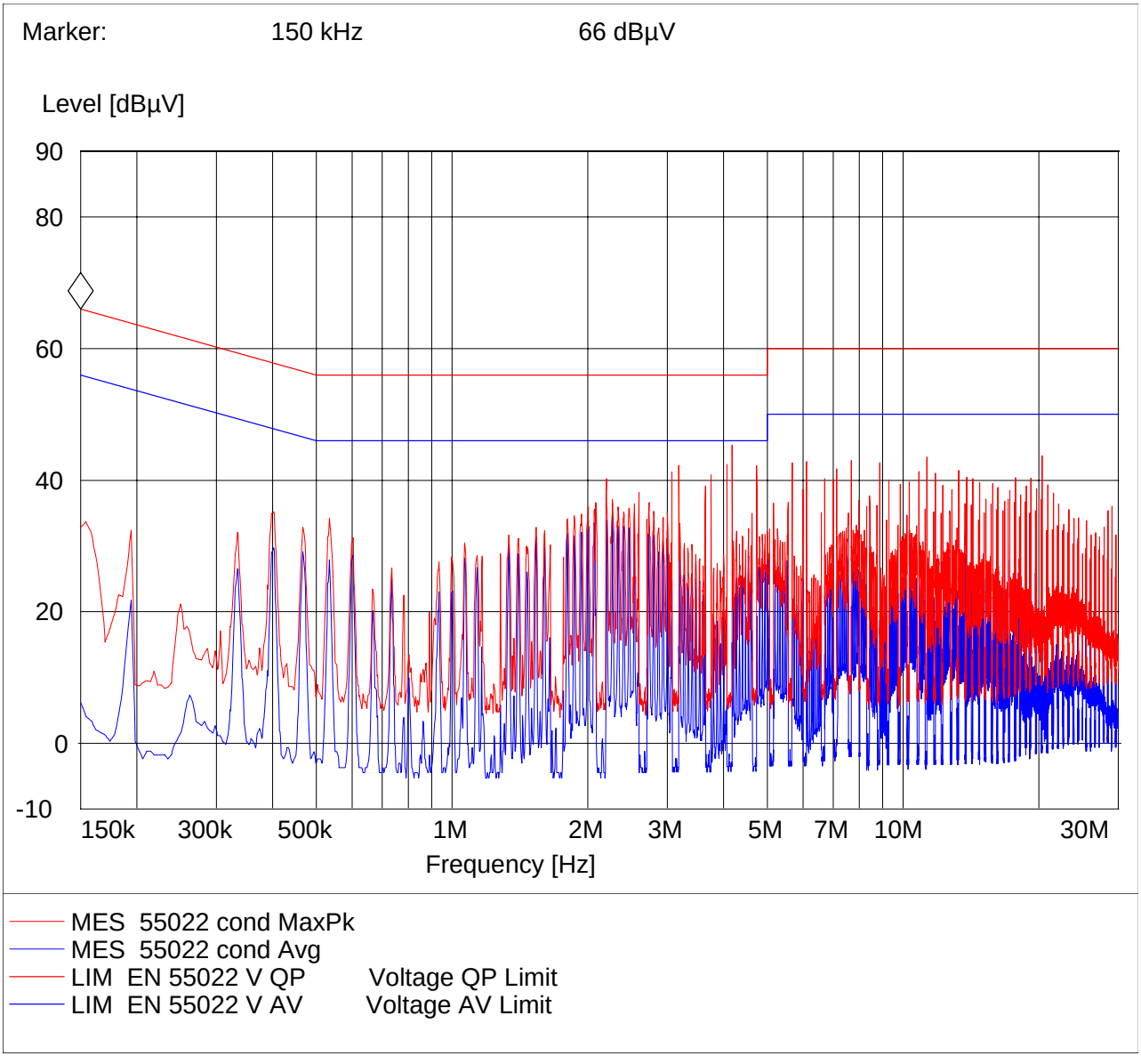
Marker: 150 kHz 66 dBµV



MES 55022 cond MaxPk
MES 55022 cond Avg
LIM EN 55022 V QP Voltage QP Limit
LIM EN 55022 V AV Voltage AV Limit

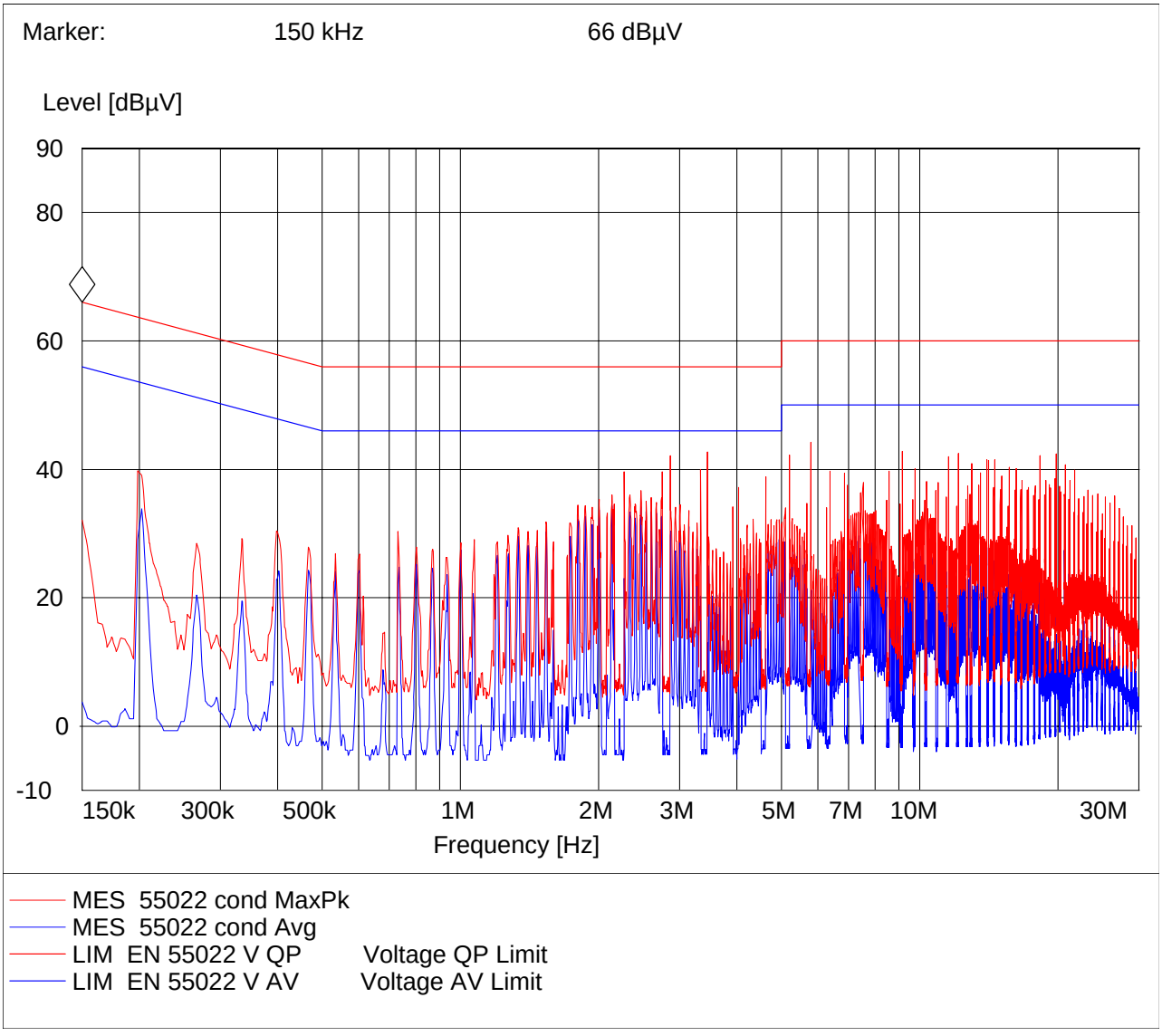
Voltage Mains Test (Line), Receive

```
EUT:                  BCM94312MCG
Manufacturer:         Broadcom
Operating Condition:  802.11B, CH.13
ANT Orientation::     Conducted - rx
EUT Orientation::     H
Test Engineer::       Chris
Power Supply: :       120V AC
Comments:  :          Line
```



Voltage Mains Test (Neutral), Receive

```
EUT:                  BCM94312MCG
Manufacturer:         Broadcom
Operating Condition:  802.11B, CH.13
ANT Orientation::     Conducted - rx
EUT Orientation::     H
Test Engineer::       Chris
Power Supply: :       120V AC
Comments:  :          Neutral
```

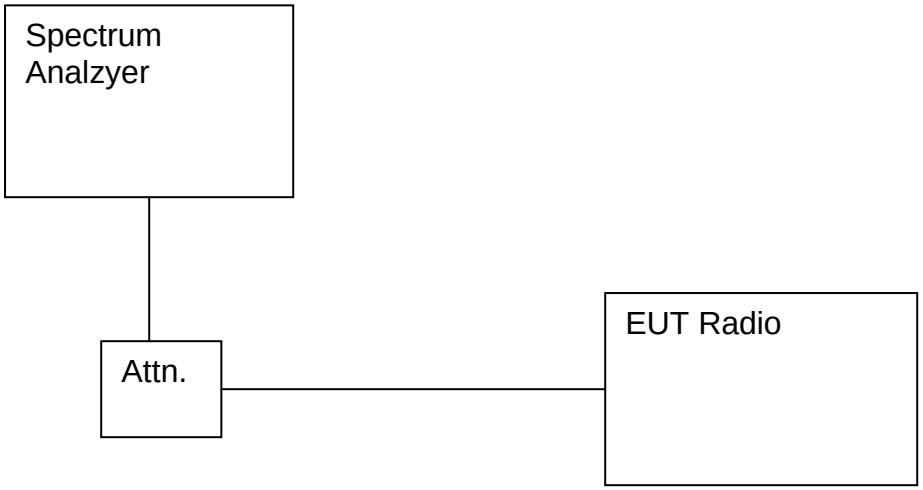


7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2008	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2008	1 year
06	Horn Antenna (1-18GHz)	3115	EMCO	N/A	June 2008	1 year
07	Horn Antenna (18-40GHz)	3116	EMCO	1240	June 2008	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
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2008	1 year

8 BLOCK DIAGRAMS

8.1 Antenna Conducted Test



8.2 Radiated Testing

Note: For measurements above 1 GHz horn is place 1 meter away from the EUT.