



Class II Permissive Change Test Report

FCC Part 15.247 and RSS-210, Issue 7

for the
Broadcom, Inc.

802.11g Wireless LAN PCI-E Mini Card

Model Number: BCM94311MCG

FCC ID: QDS-BRCM1020

TEST REPORT #:EMC_BROAD_041_07001_G_15.247

DATE: August 29, 2007



FCC listed#
A2LA Certified
IC recognized #
3462B

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Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May



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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 PCI-E Mini Card	BCM94311MCG

Technical responsibility for area of testing:

Lothar Schmidt

August 29, 2007 **EMC & Radio** **(Test Lab Manager)**

Date	Section	Name	Signature
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Responsible for test report and project leader:

Juan Martinez
(Project Engineer)

August 29, 2007 **EMC & Radio**

Date	Section	Name	Signature
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The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.



Administrative Data

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:	Lothar Schmidt

Identification of the Client

Applicant's Name:	Broadcom, Inc.
Address:	190 Mathilda Place Sunnyvale, CA 94086, USA
Contact Person:	Daniel Lawless
Phone No.	408-922-5870
Fax:	408-543-3399
e-mail:	dlawless@broadcom.com

Identification of the Manufacturer

Manufacturer's Name:	Broadcom, Inc.
Manufacturer's Address:	190 Mathilda Place, Sunnyvale, California 94086 USA



1 Equipment under Test (EUT)

1.1 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:	BCM94311MCG
FCC-ID:	QDS-BRCM1020
Frequency Range:	2412 - 2462MHz
Number of Channels	11
Type(s) of Modulation:	CCK & OFDM
Antenna Type:	2.4GHz Spears = PIFA Antenna Aux (3.12dBi) 2.4GHz Hawke = PIFA Antenna Aux (2.3dBi)
Output Power:	15.22dBm, 0.033 W @ 2412 MHz, 802.11b 15.96dBm, 0.039 W @ 2437 MHz, 802.11b 17.06dBm, 0.051 W @ 2462 MHz, 802.11b 20.52dBm, 0.113 W @ 2412 MHz, 802.11g 21.88dBm, 0.154 W @ 2437 MHz, 802.11g 22.01dBm, 0.159 W @ 2462 MHz, 802.11g

1.2 Class II permissive change laptops to be added

AE #	TYPE	MANF.	MODEL	SERIAL #
1	Laptop	Dell	PP28L (Hawke)	N/A
1	Laptop	Dell	PP29L (Spears)	N/A

Subject Of Investigation

All testing were performed on the PP29L (Spears) laptops with the BCM94311MCAG pre-approved module. Although the Hawke laptop was not tested it has the same type of antenna installed, but with a lower gain the Spears Aux antennas. Data, presented in this report, was collected for a Class II permissive change to add the laptops to the BCM94311MCAG (FCC ID: QDS-BRCM1019) 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.



Measurements

1.3 POWER EIRP

§ 15.247 (b) (3) & RSS-210 (A8.4)(4)

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

Notes:

1. For 802.11b & 802.11g powers were set to transmit at the specified average output power. Only the Spears laptop was tested since the antenna gain was higher than the Hawke, which uses the same antenna, but the antenna gain on the Hawke is lower.
2. Measurements were done on the Aux antenna for the 2.4GHz. EIRP values shown in this report are with the device transmitting on the Aux antenna. Both vertical and horizontal were measured. Worst case polarization was vertical for Auxiliary.

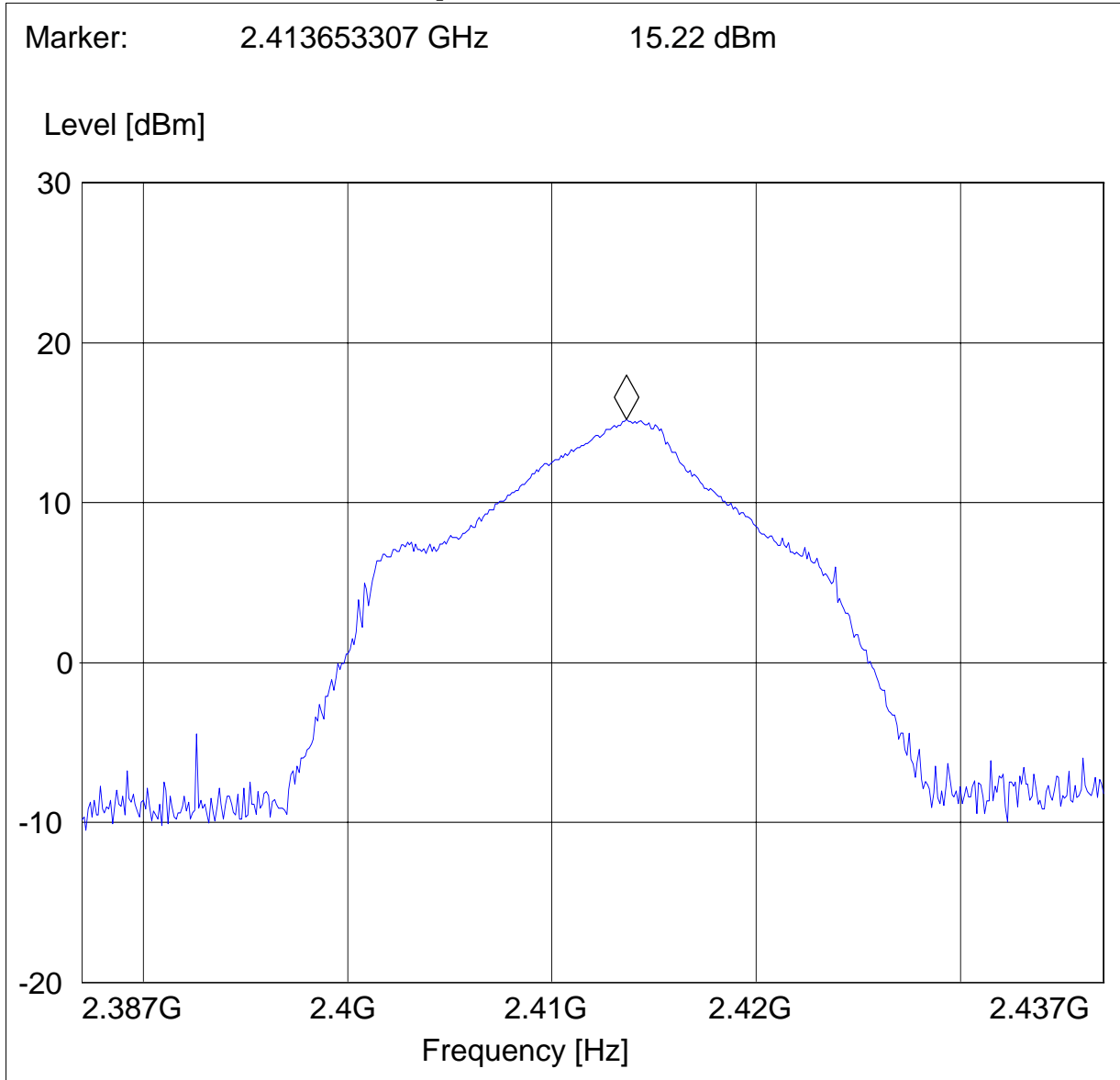


EIRP: 2412 MHz (802.11b)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 b; ch 1; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH1"

Short Description:		EIRP RLAN channel-2412 MHz			
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.4 GHz	2.4 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM





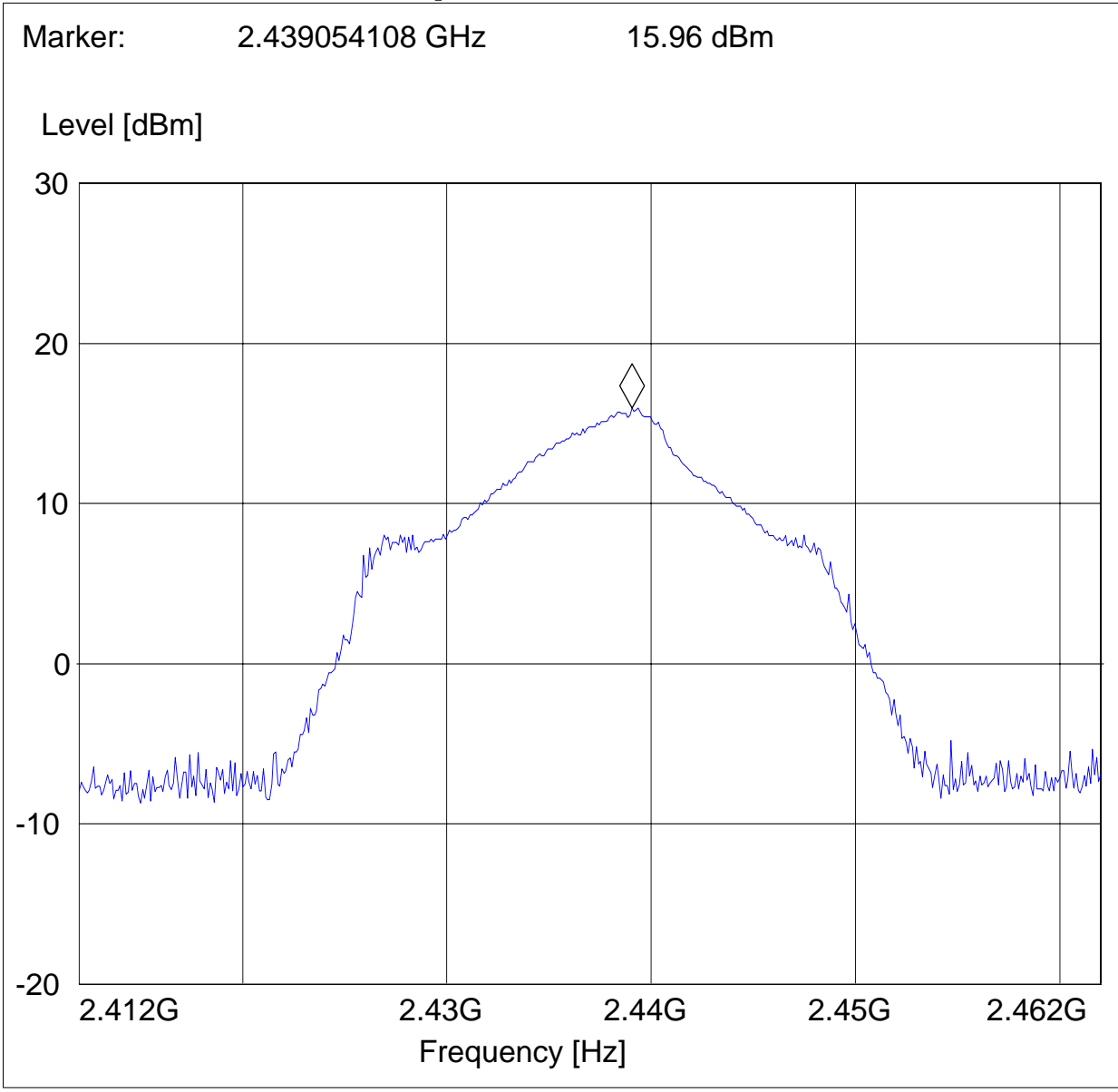
EIRP: 2437 MHz (802.11b)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 b; ch 6; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH6"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.4 GHz	2.5 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM

Short Description: EIRP RLAN channel-2437 MHz



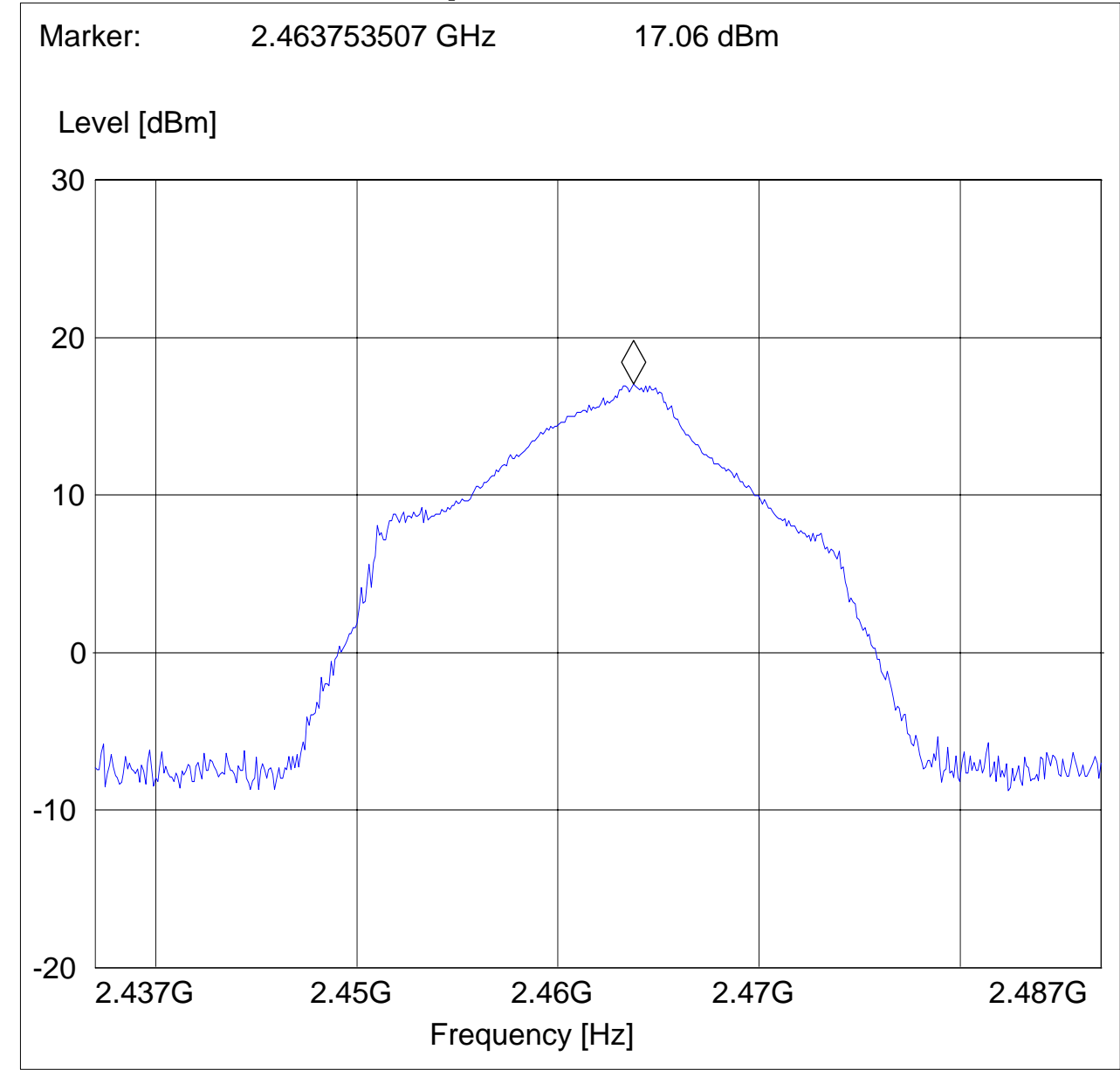


EIRP: 2462 MHz (802.11b)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 b; ch 11; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH11"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.4 GHz	2.5 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM



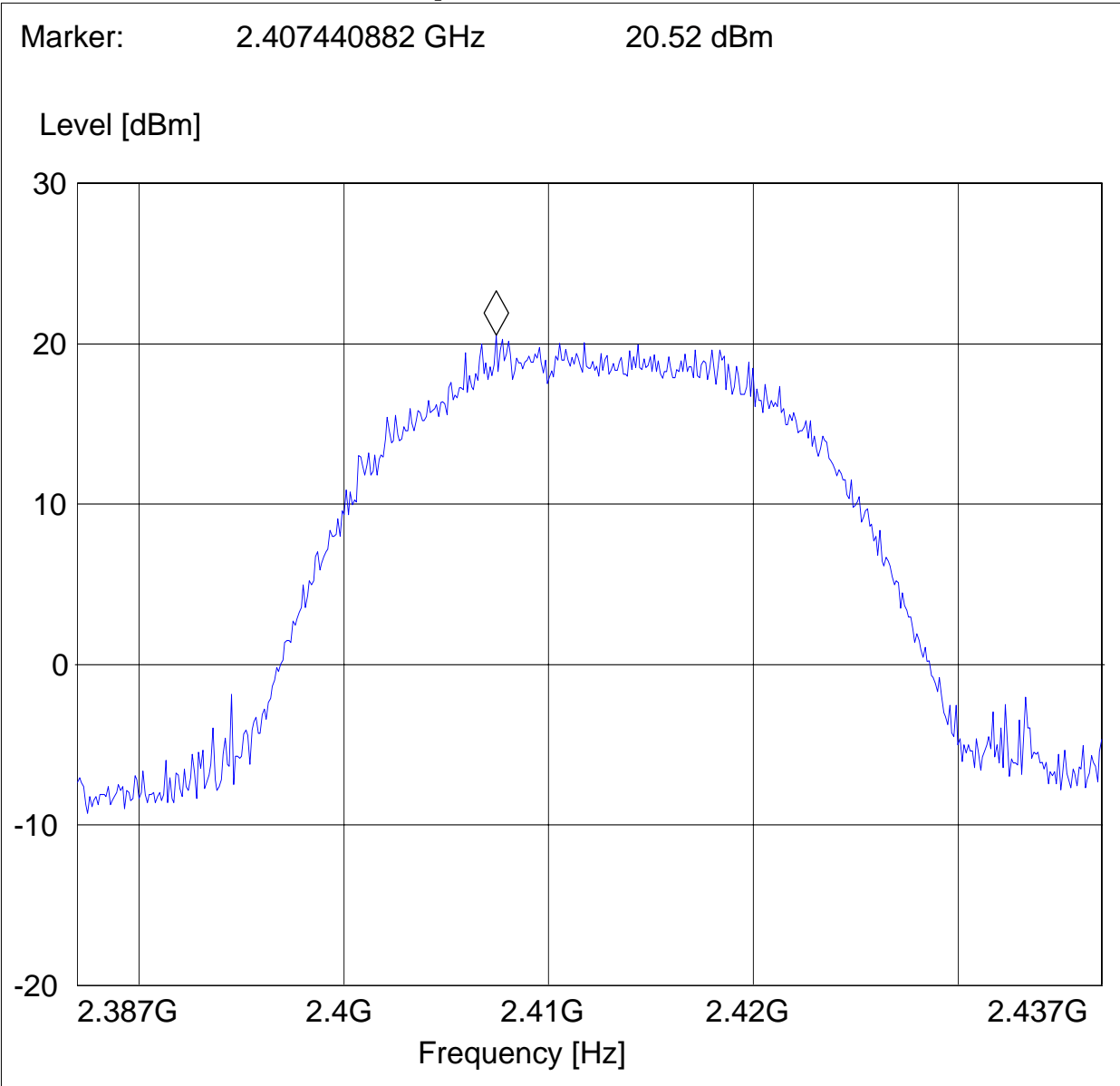


EIRP: 2412 MHz (802.11g)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 1; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH1"

Short Description:		EIRP RLAN channel-2412 MHz			
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.4 GHz	2.4 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM



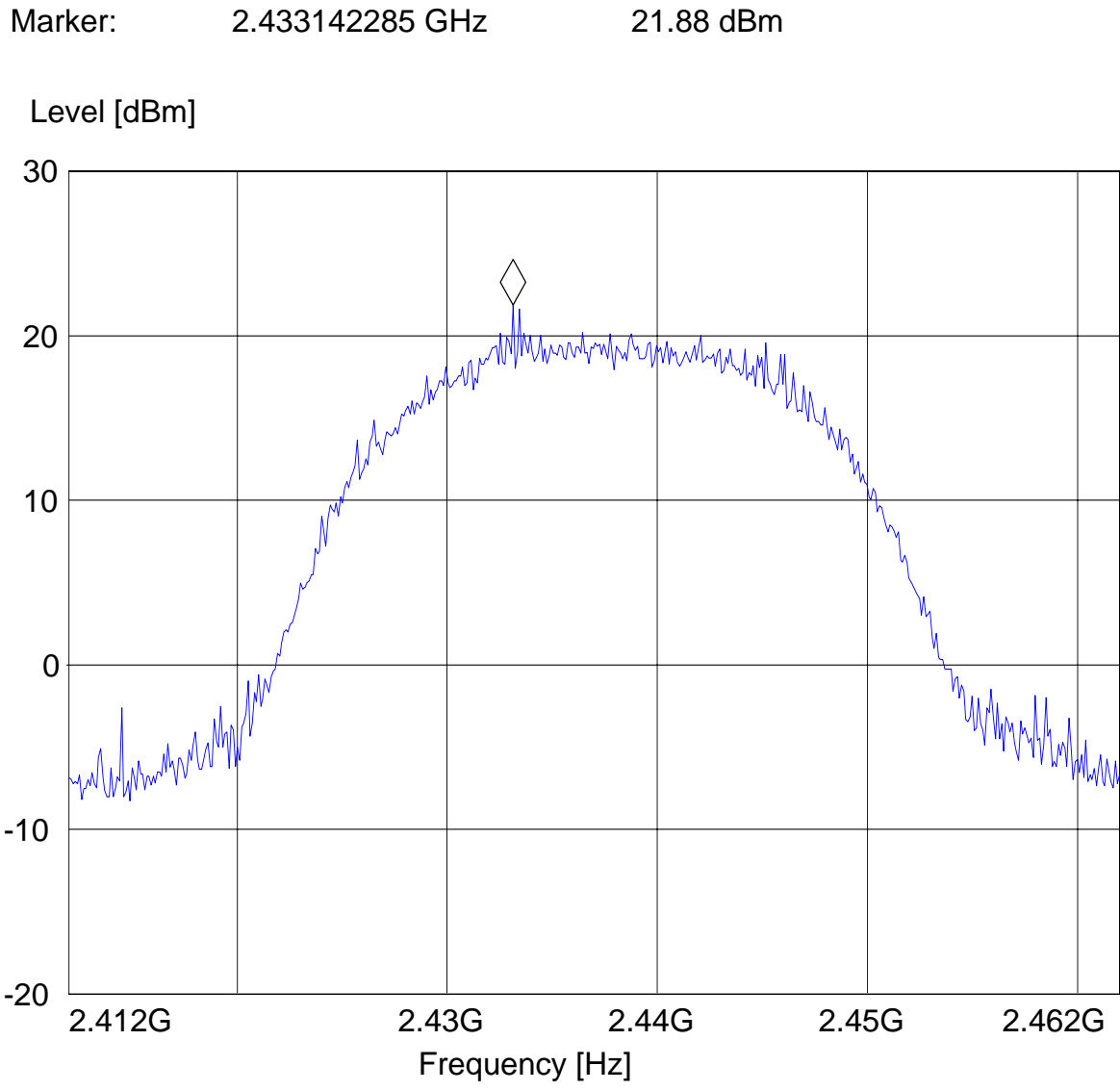


EIRP: 2437 MHz (802.11g)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 6; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH6"

Short Description:		EIRP RLAN channel-2437 MHz			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
2.4 GHz	2.5 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM





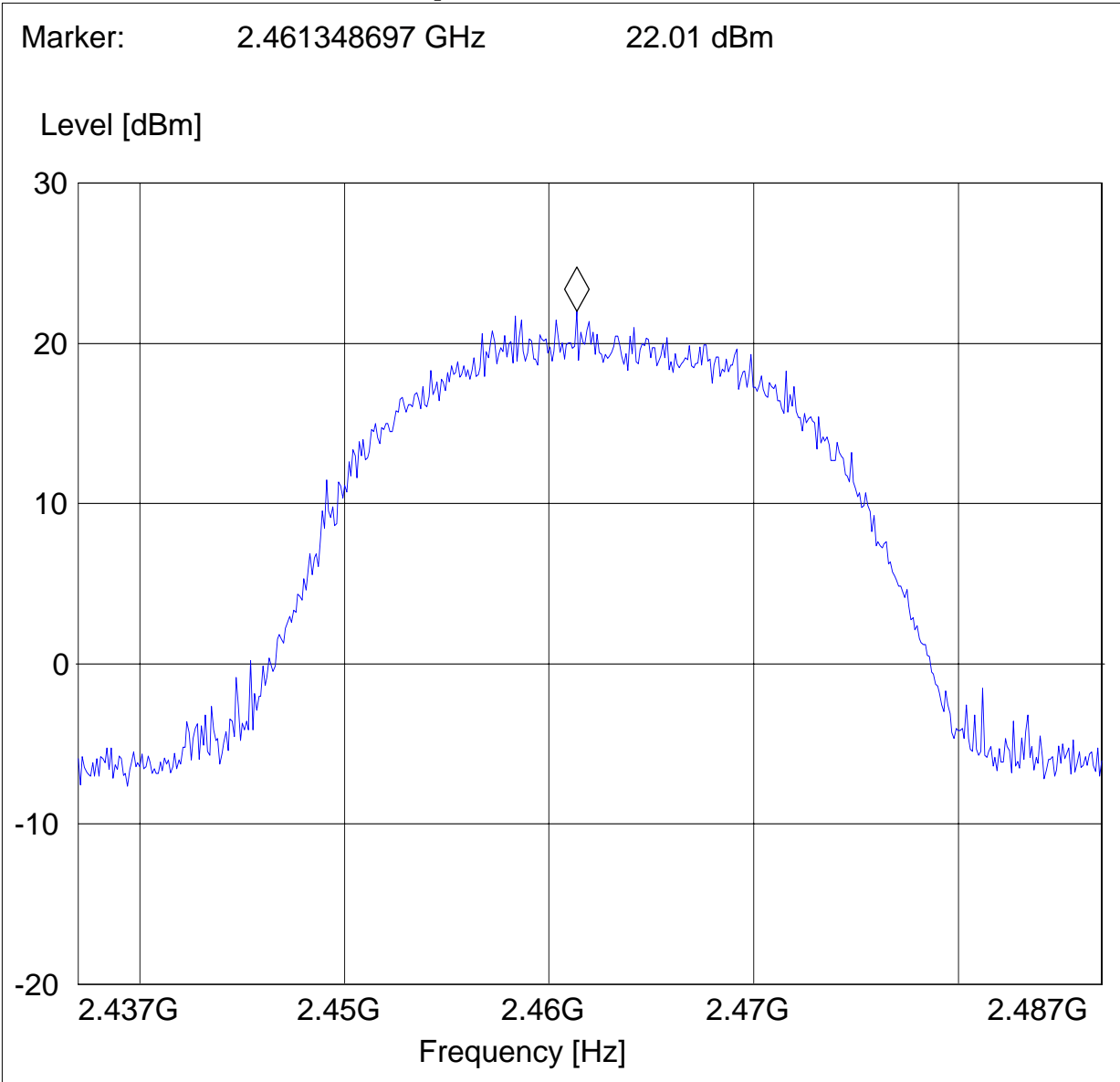
EIRP: 2462 MHz (802.11g)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 11; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "EIRP RLAN CH11"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.4 GHz	2.5 GHz	MaxPeak	Coupled	10 MHz	DUMMY-DBM

Short Description: EIRP RLAN channel-2462 MHz





1.4 BAND EDGE COMPLIANCE (802.11b)

§15.247 (d) & RSS-210(A8.5)

802.11b Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

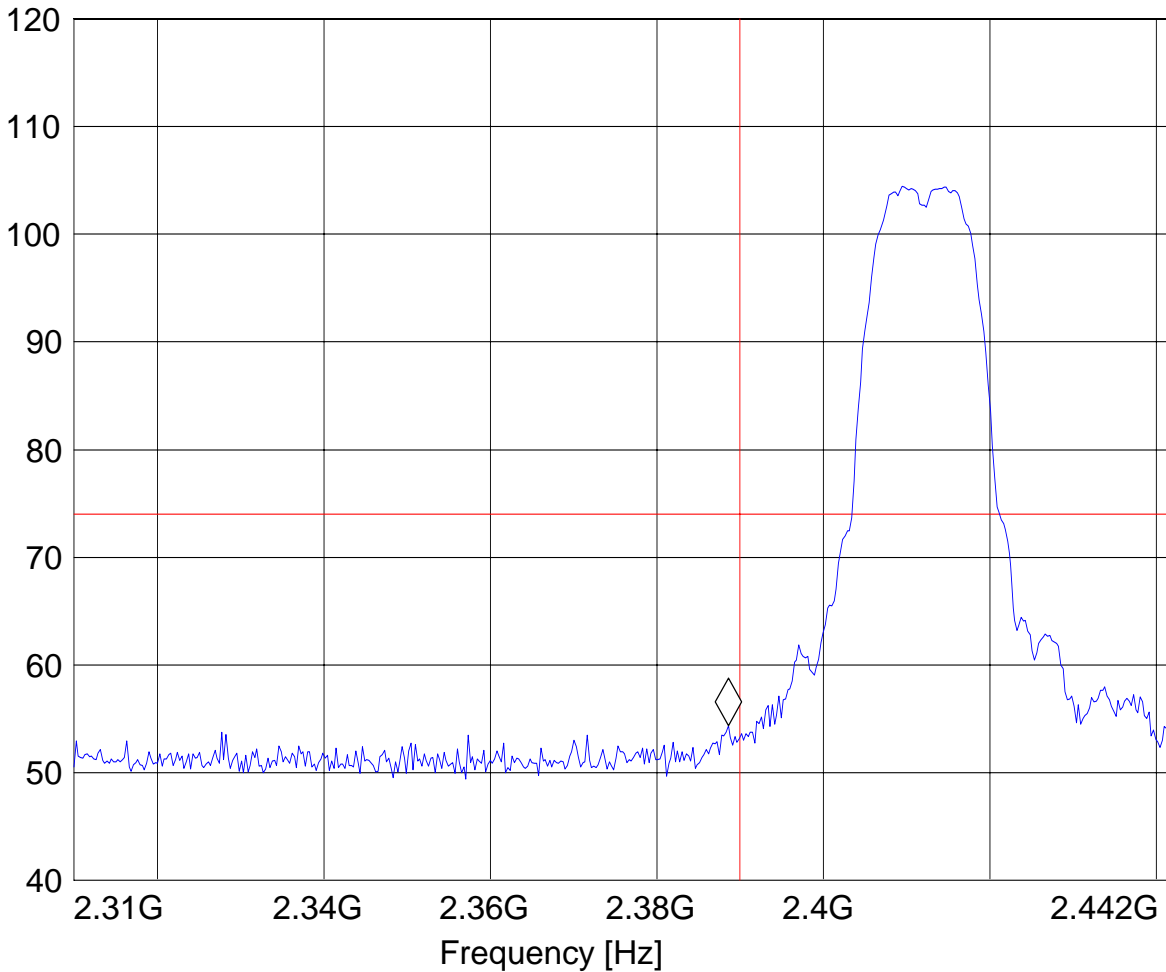
EUT: BCM94311MCG
 Customer: Broadcom
 Test Mode: 802.11 b; ch 1; Aux antenna
 ANT Orientation: V
 EUT Orientation: H
 Test Engineer: Juan
 Power Supply: AC Power Supply

SWEEP TABLE: "FCC15.247 LBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.38856513 GHz 54.32 dBµV/m

Level [dBµV/m]





BAND EDGE COMPLIANCE

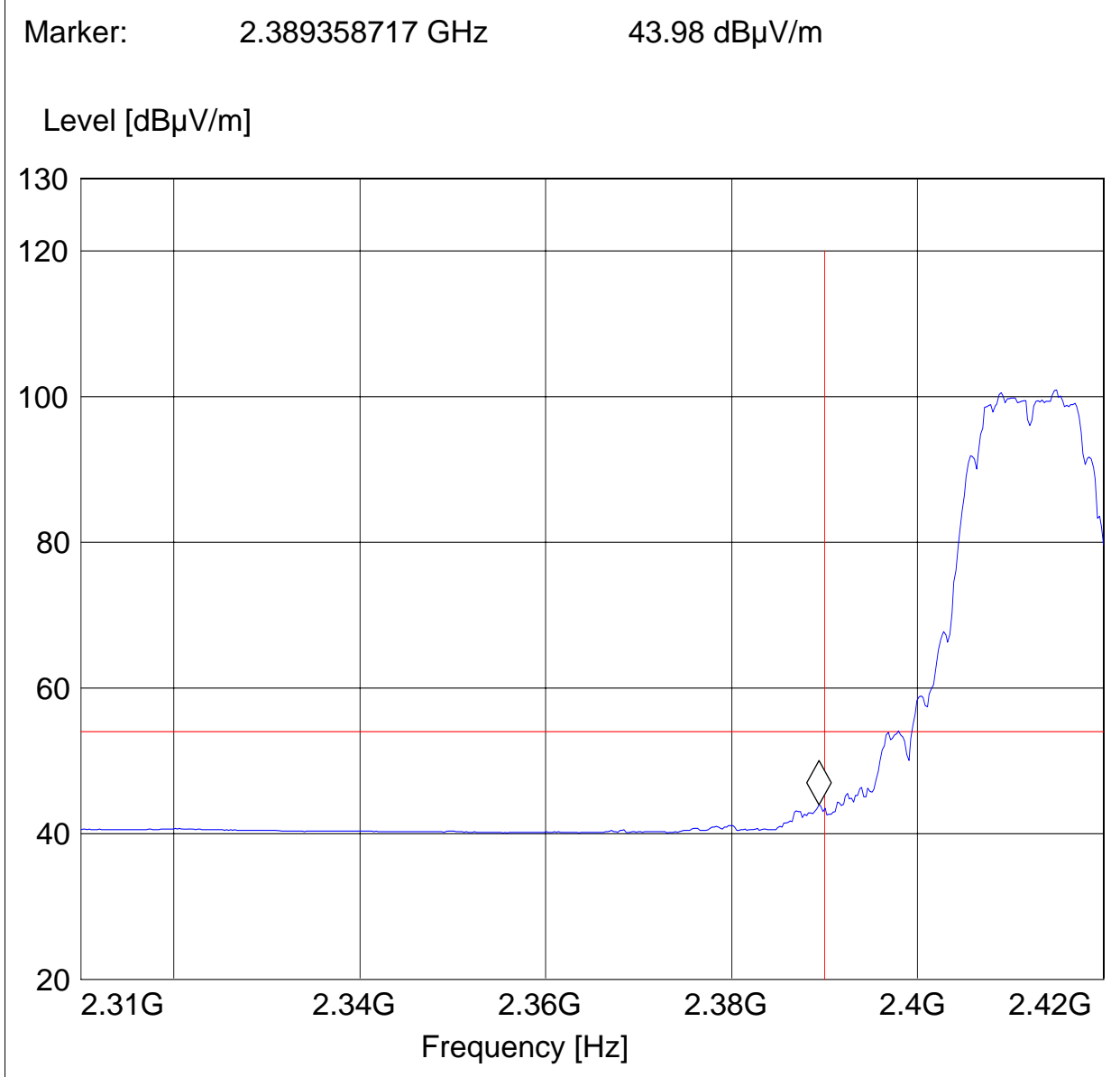
§15.247 (d) & RSS-210(A8.5)

802.11b Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

EUT: BCM94311MCG
 Customer: Broadcom
 Test Mode: 802.11 b; ch 1; Aux antenna
 ANT Orientation: V
 EUT Orientation: H
 Test Engineer: Juan
 Power Supply: AC Power Supply

SWEEP TABLE: "FCC15.247 LBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert





BAND EDGE COMPLIANCE

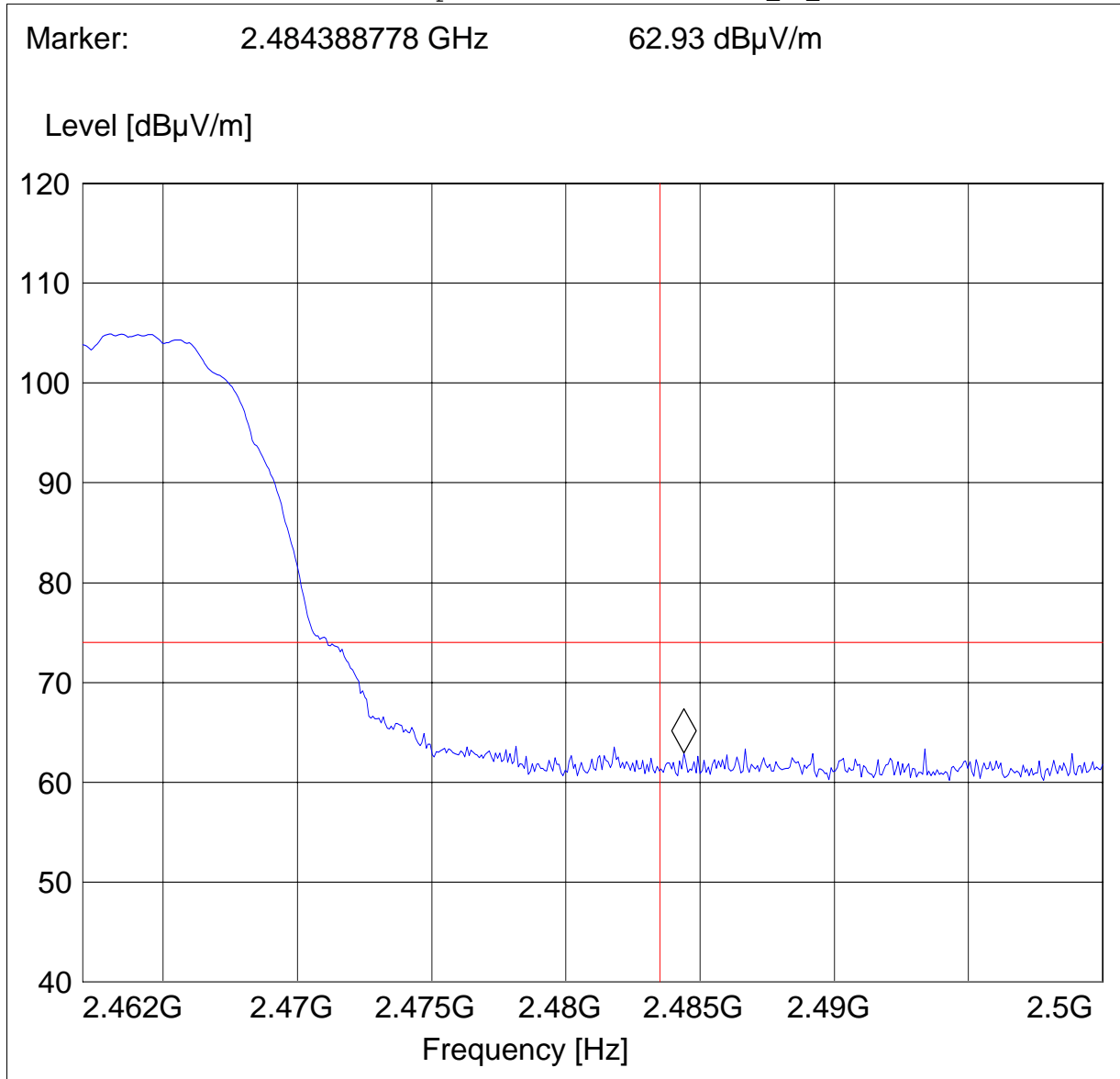
§15.247 (d) & RSS-210(A8.5)

802.11b High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

EUT: BCM94311MCG
 Customer: Broadcom
 Test Mode: 802.11 b; ch 11; Aux antenna
 ANT Orientation: V
 EUT Orientation: H
 Test Engineer: Juan
 Power Supply: AC Power Supply

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



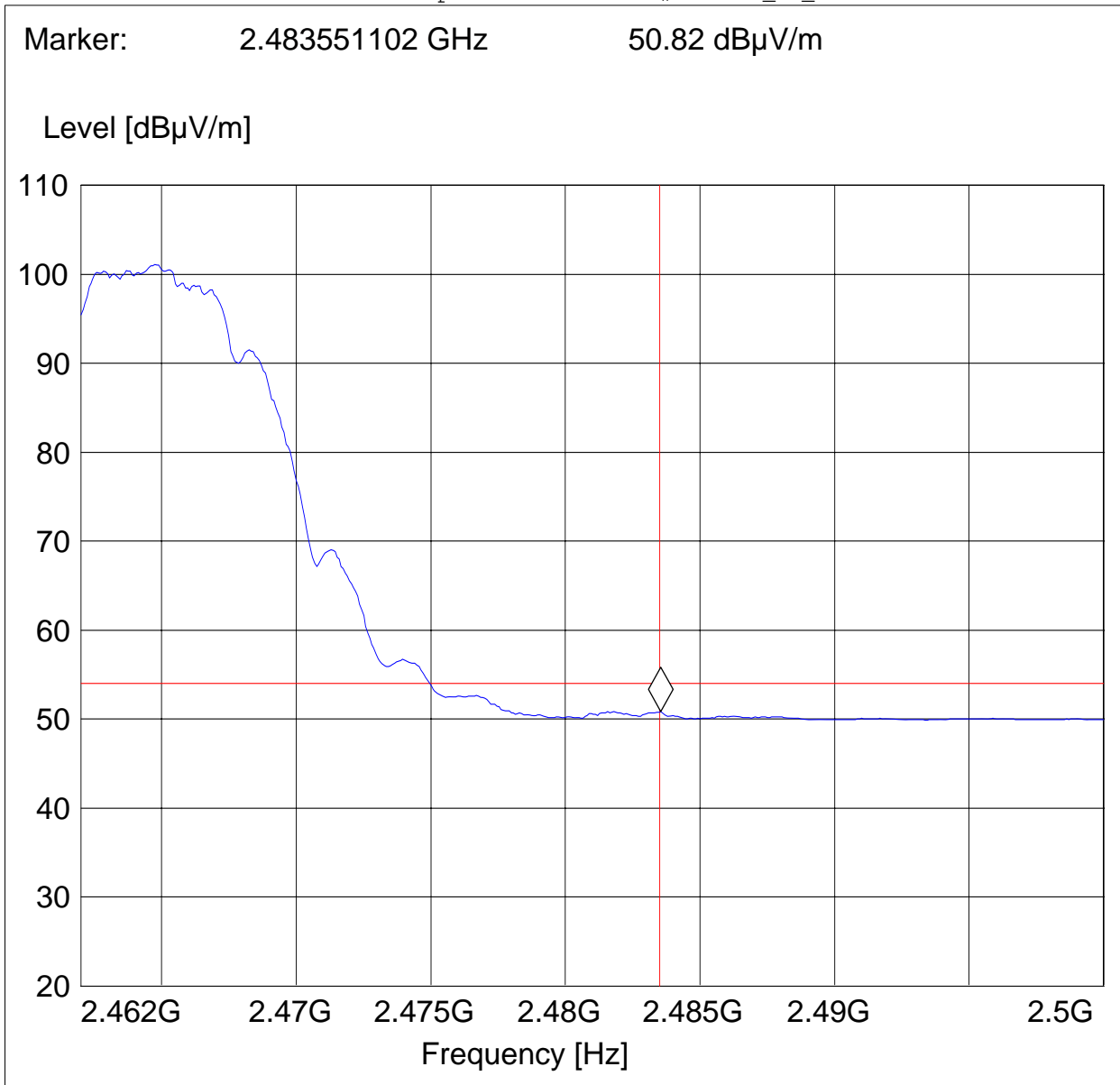


802.11b High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 b; ch 11; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

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





1.5 BAND EDGE COMPLIANCE (802.11g)

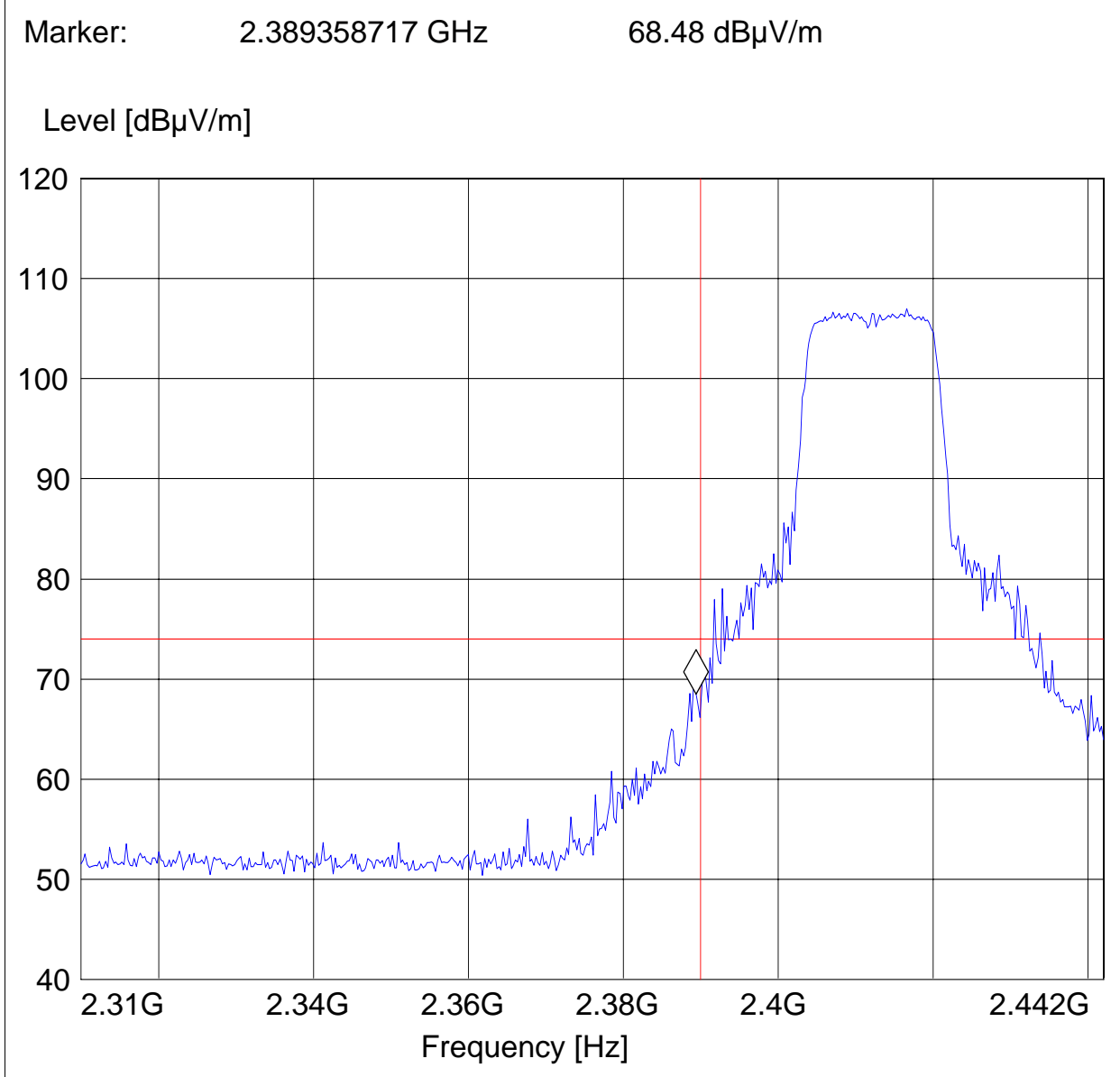
§15.247 (d) & RSS-210(A8.5)

802.11g Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 1; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "FCC15.247 LBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert





BAND EDGE COMPLIANCE

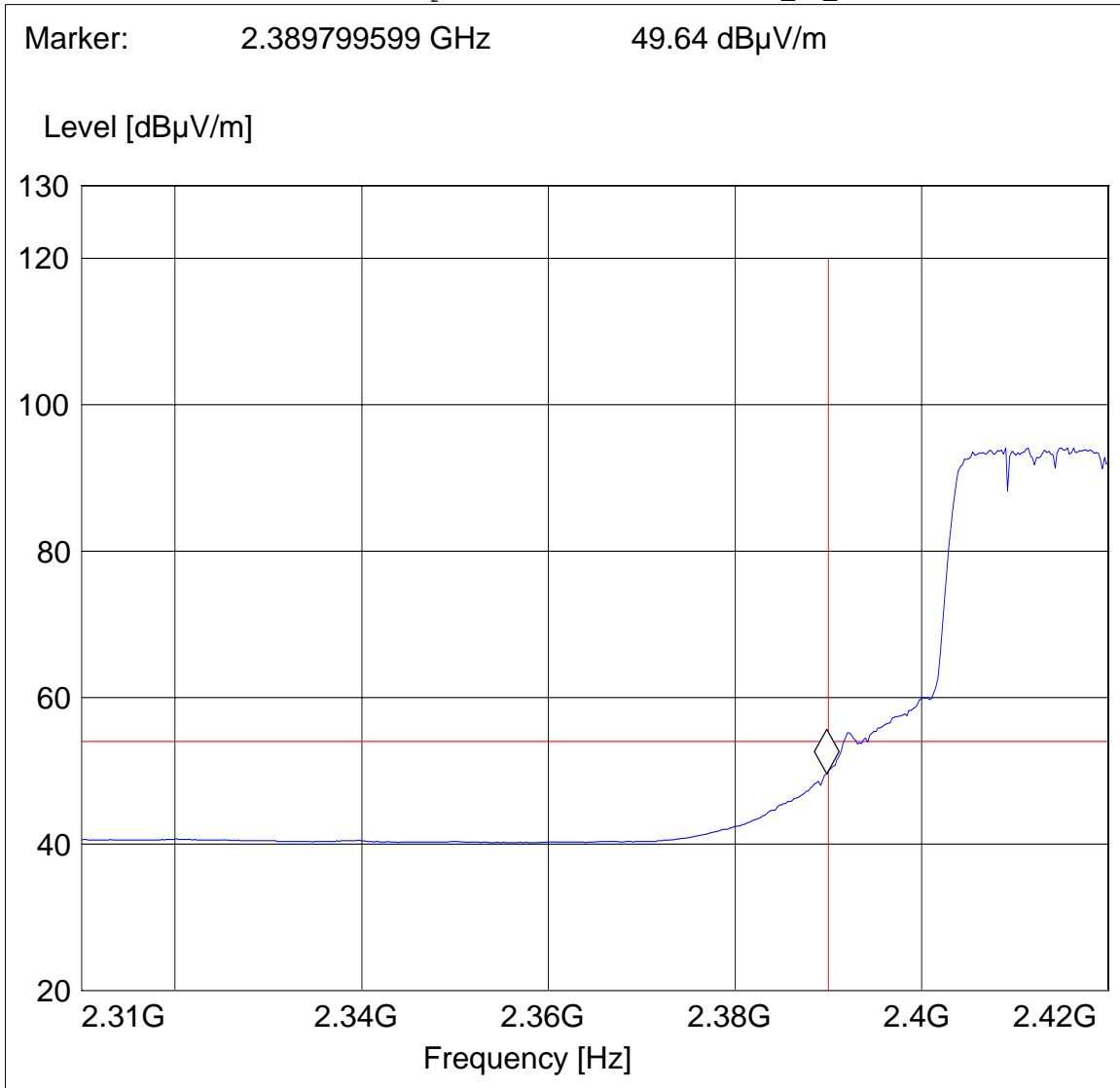
§15.247 (d) & RSS-210(A8.5)

802.11g Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 1; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

SWEEP TABLE: "FCC15.247 LBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert





BAND EDGE COMPLIANCE

§15.247 (d) & RSS-210(A8.5)

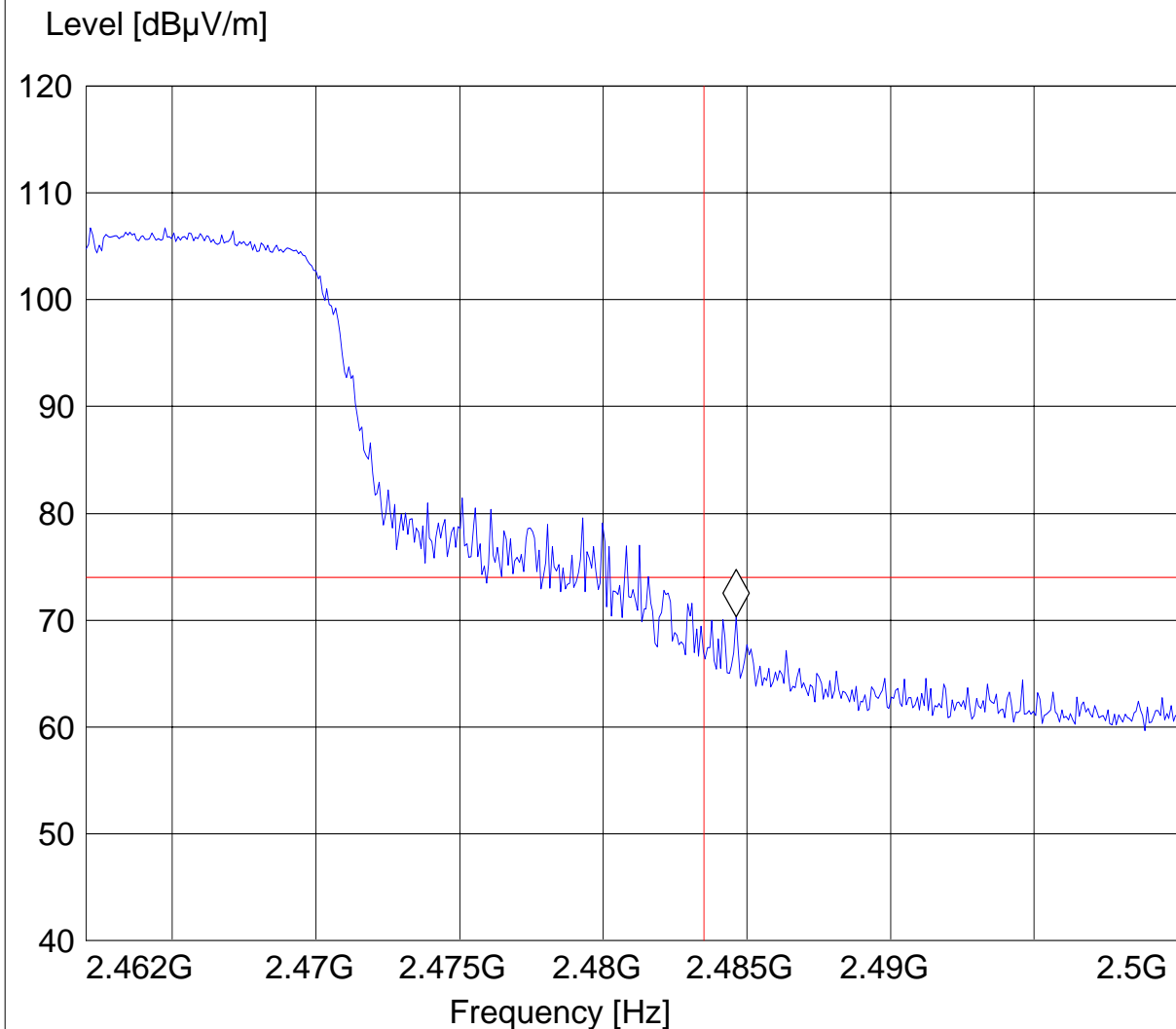
802.11g High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

EUT: BCM94311MCG
 Customer: Broadcom
 Test Mode: 802.11 g; ch 11; Aux antenna
 ANT Orientation: V
 EUT Orientation: H
 Test Engineer: Juan
 Power Supply: AC Power Supply

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

Marker: 2.484617234 GHz 70.32 dBµV/m





BAND EDGE COMPLIANCE

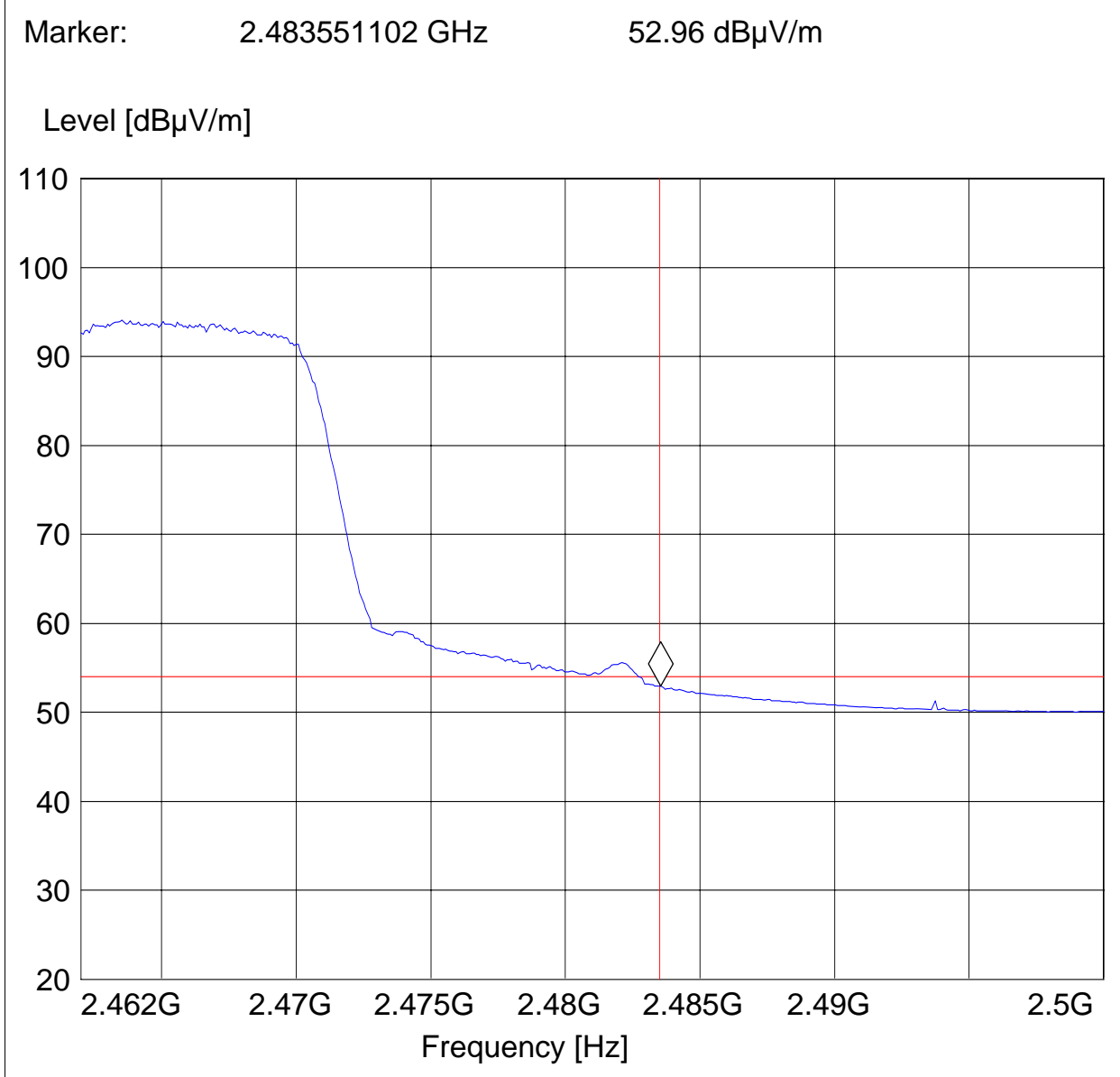
§15.247 (d) & RSS-210(A8.5)

802.11g High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11 g; ch 11; Aux antenna
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Power Supply

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





**EMISSION LIMITATIONS
Transmitter (Radiated)**

§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. Emissions were measured with the device in 802.11b mode 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



1.6 EMISSION LIMITATIONS - Radiated (Transmitter), 802.11b

§15.247 (d) & RSS-210(A8.5):

Transmit at Lowest channel Frequency 2412MHz (802.11b)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			
Transmit at Middle channel Frequency 2437MHz (802.11b)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			
Transmit at Highest channel Frequency 2462MHz (802.11b)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			



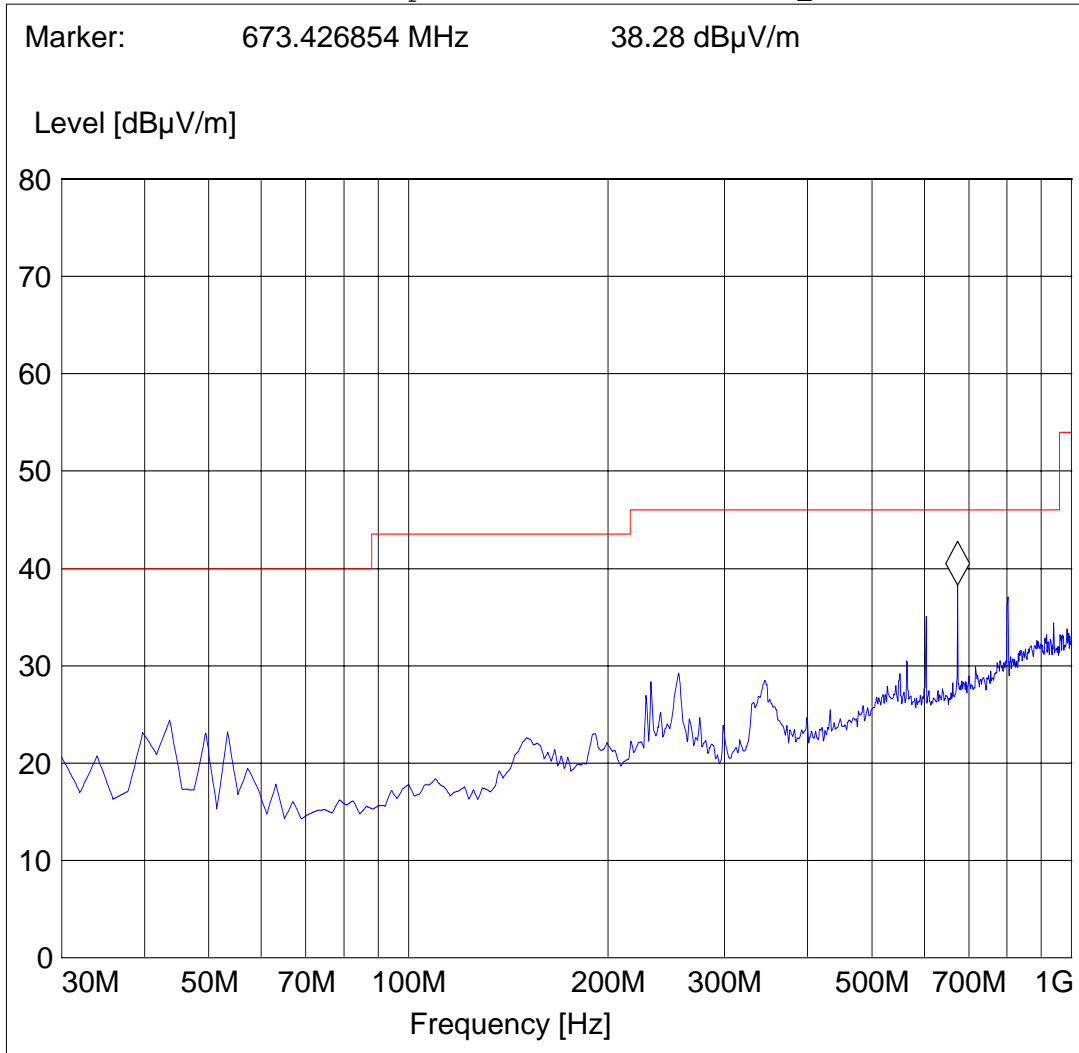
**EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Lowest Channel (2412MHz): 30MHz – 1GHz**

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

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11b, ch 1 (Aux Antenna)
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: 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)

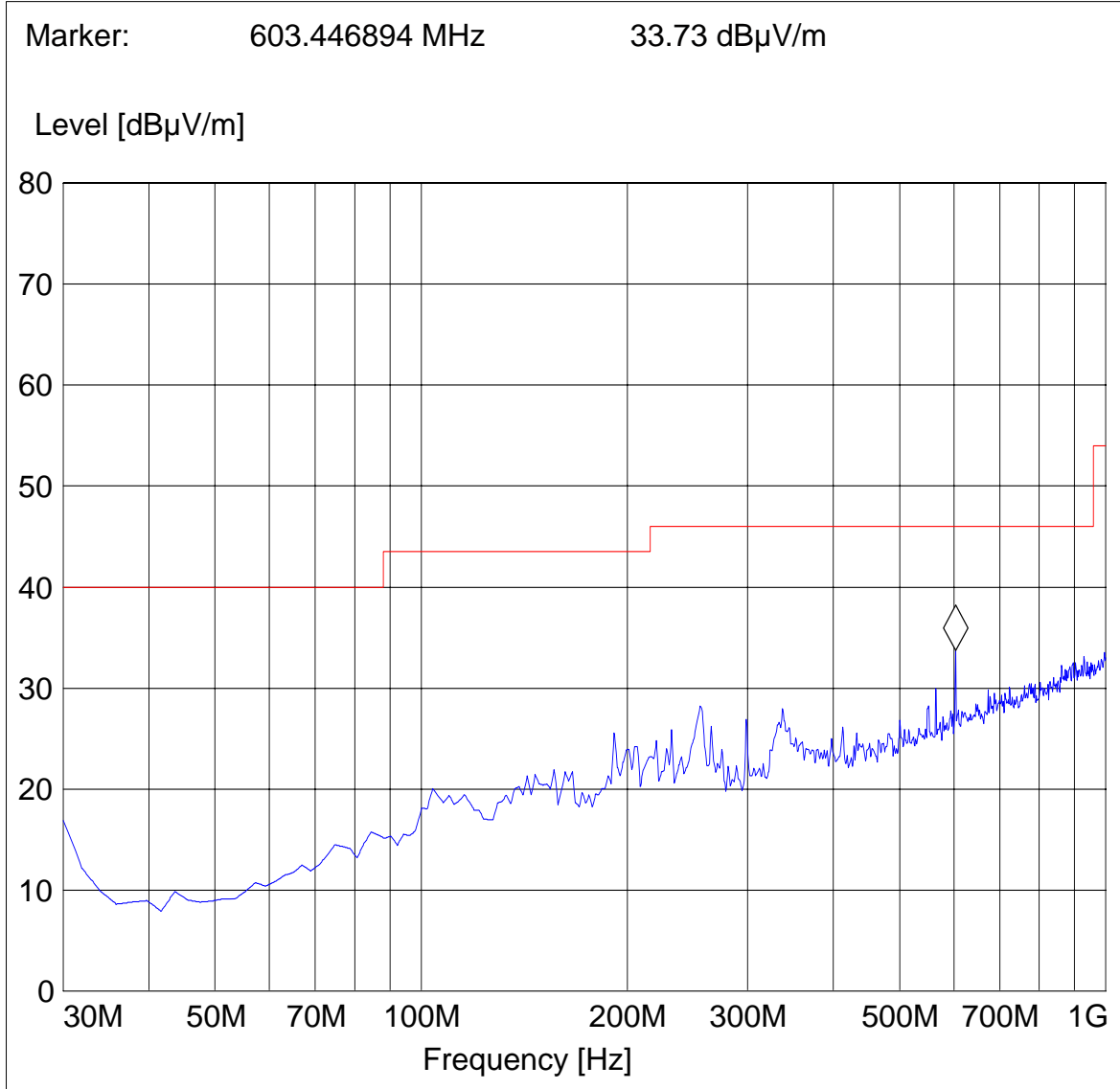
Lowest Channel (2412MHz): 30MHz – 1GHz

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

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11b, ch 1 (Aux Antenna)
ANT Orientation: H
EUT Orientation: H
Test Engineer: Juan
Power Supply: 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)

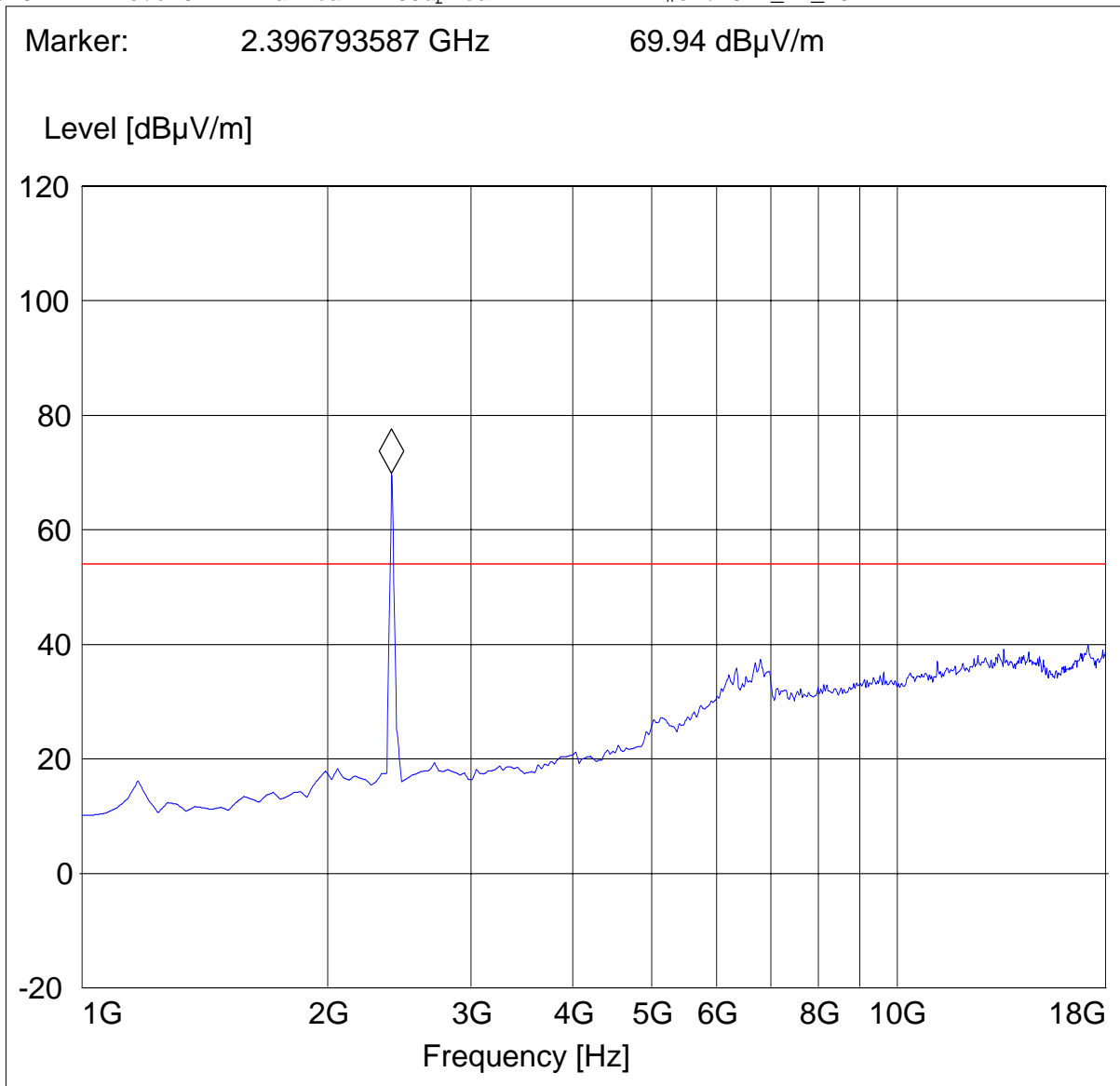
Lowest Channel (2412MHz): 1GHz – 18GHz

Note: Peak above the limit line is the carrier freq.

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11 b ; ch 1; Aux antenna
ANT Orientation: V & H
EUT Orientation: H
Test Engineer: Juan M.
Voltage: AC Power Supply

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



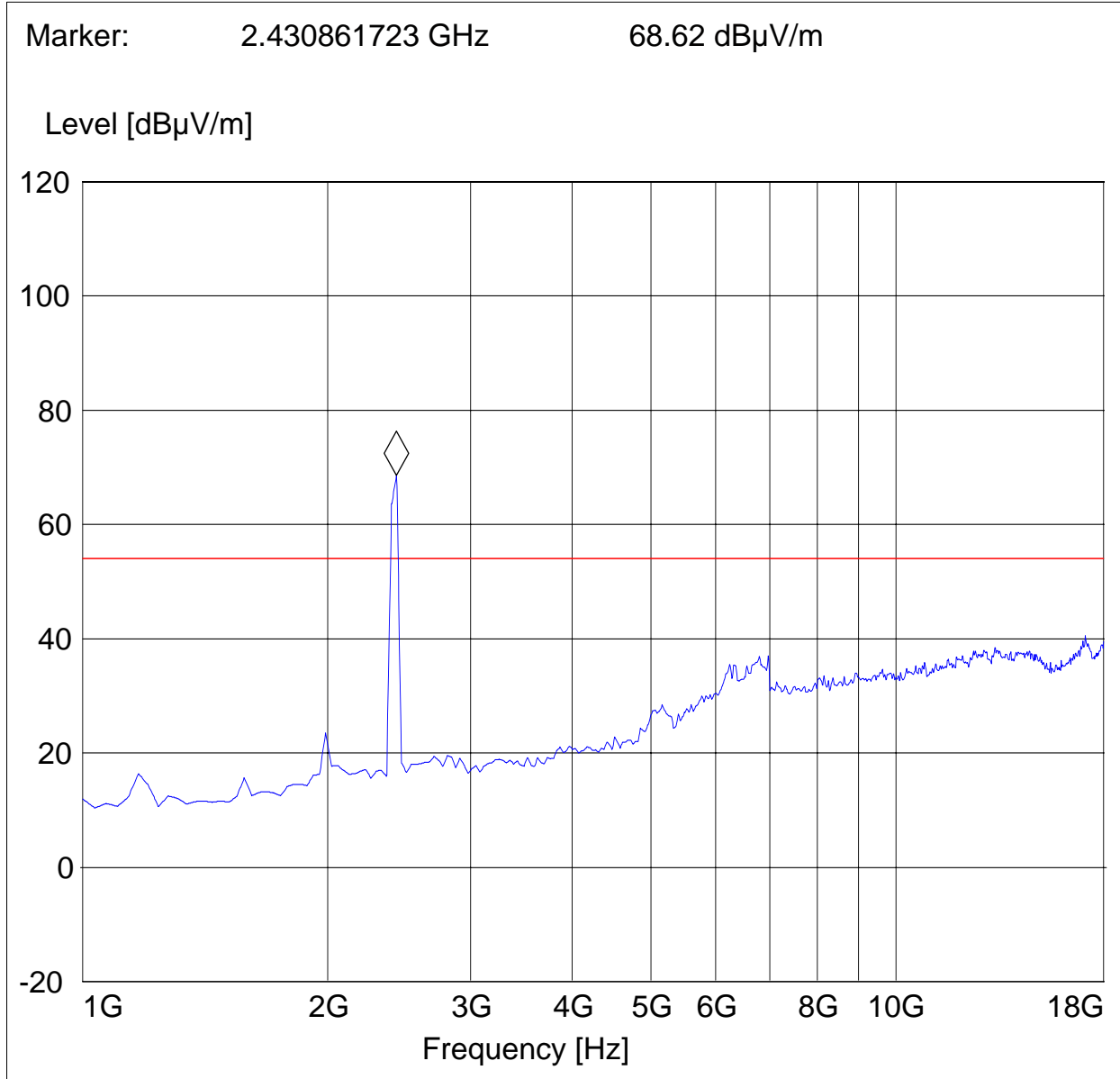


**EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Mid Channel (2437MHz): 1GHz – 18GHz**

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11 b ; ch 6; Aux antenna
ANT Orientation: V & H
EUT Orientation:: H
Test Engineer: Juan M.
Voltage: AC Power Supply

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



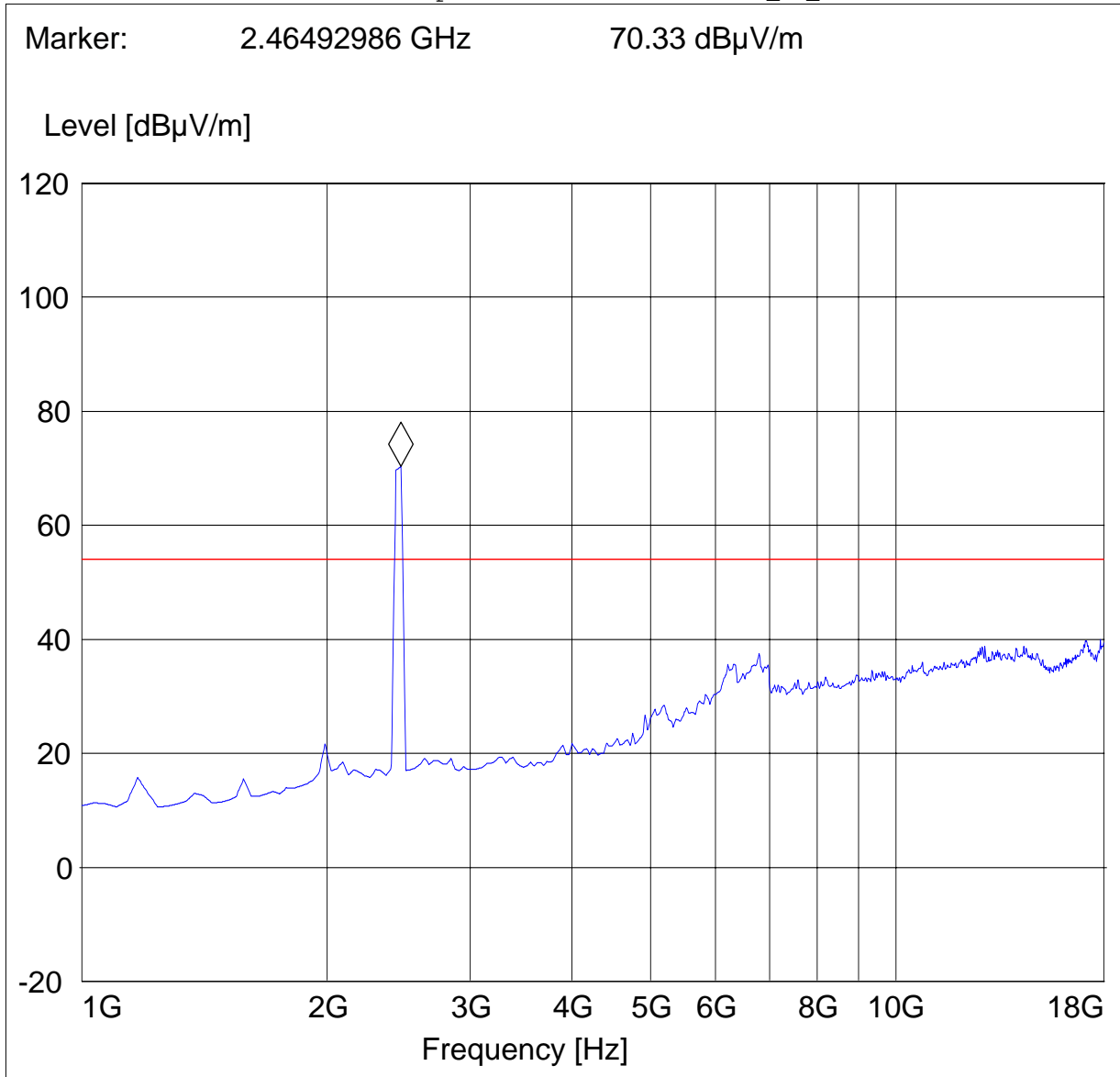


**EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
High Channel (2462MHz): 1GHz – 18GHz**

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11 b ; ch 1; Aux antenna
ANT Orientation: : V
EUT Orientation:: H
Test Engineer: Juan M.
Voltage: AC Power Supply

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





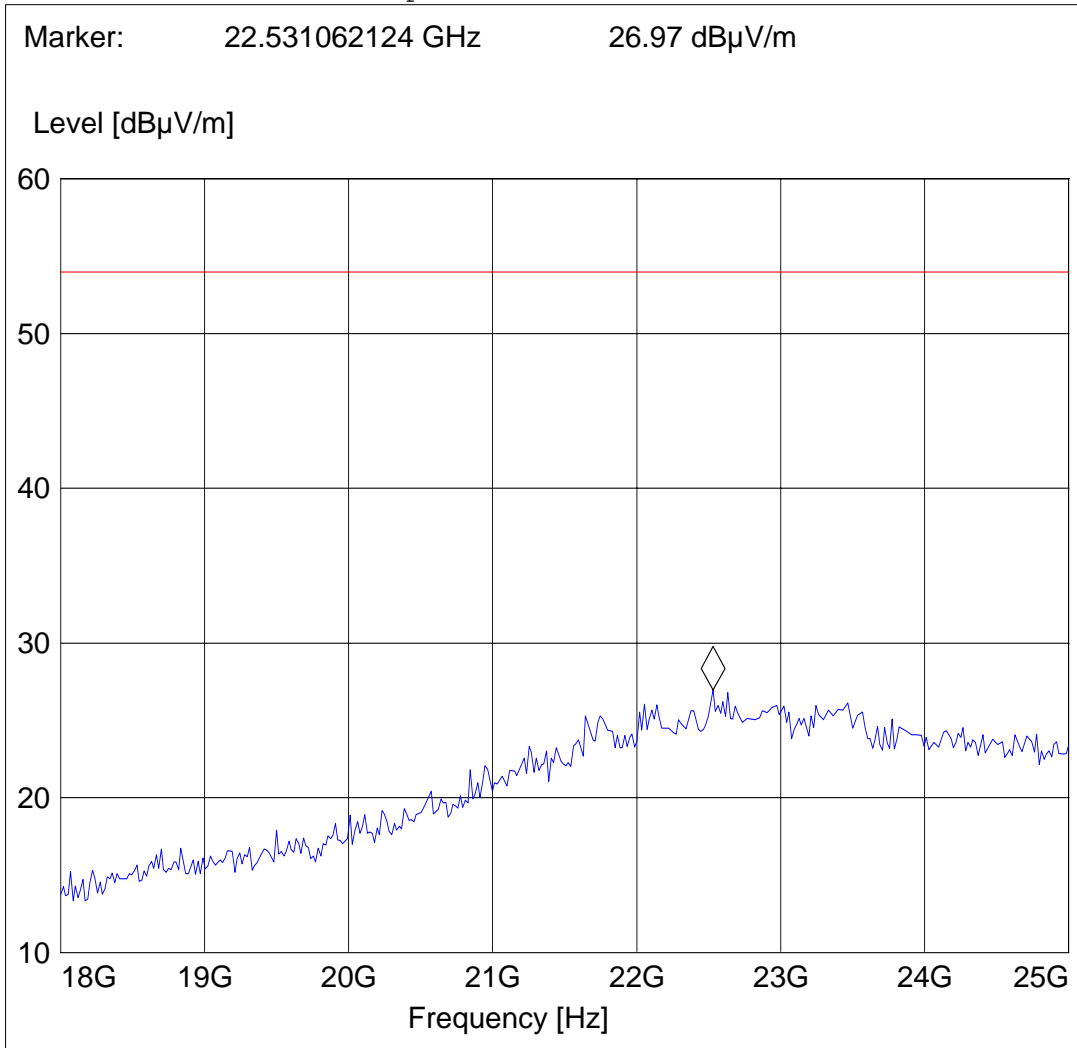
**EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
18GHz – 26.5GHz for low, middle, and high channels**

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

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test Mode: 802.11b, Measurement for low, middle, and high channels
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Adapter
Comments:

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





1.7 EMISSION LIMITATIONS - Radiated (Transmitter), 802.11g

§15.247 (d) & RSS-210(A8.5):

Transmit at Lowest channel Frequency 2412MHz (802.11g)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			
Transmit at Middle channel Frequency 2437MHz (802.11g)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			
Transmit at Highest channel Frequency 2462MHz (802.11g)			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
SEE PLOTS			



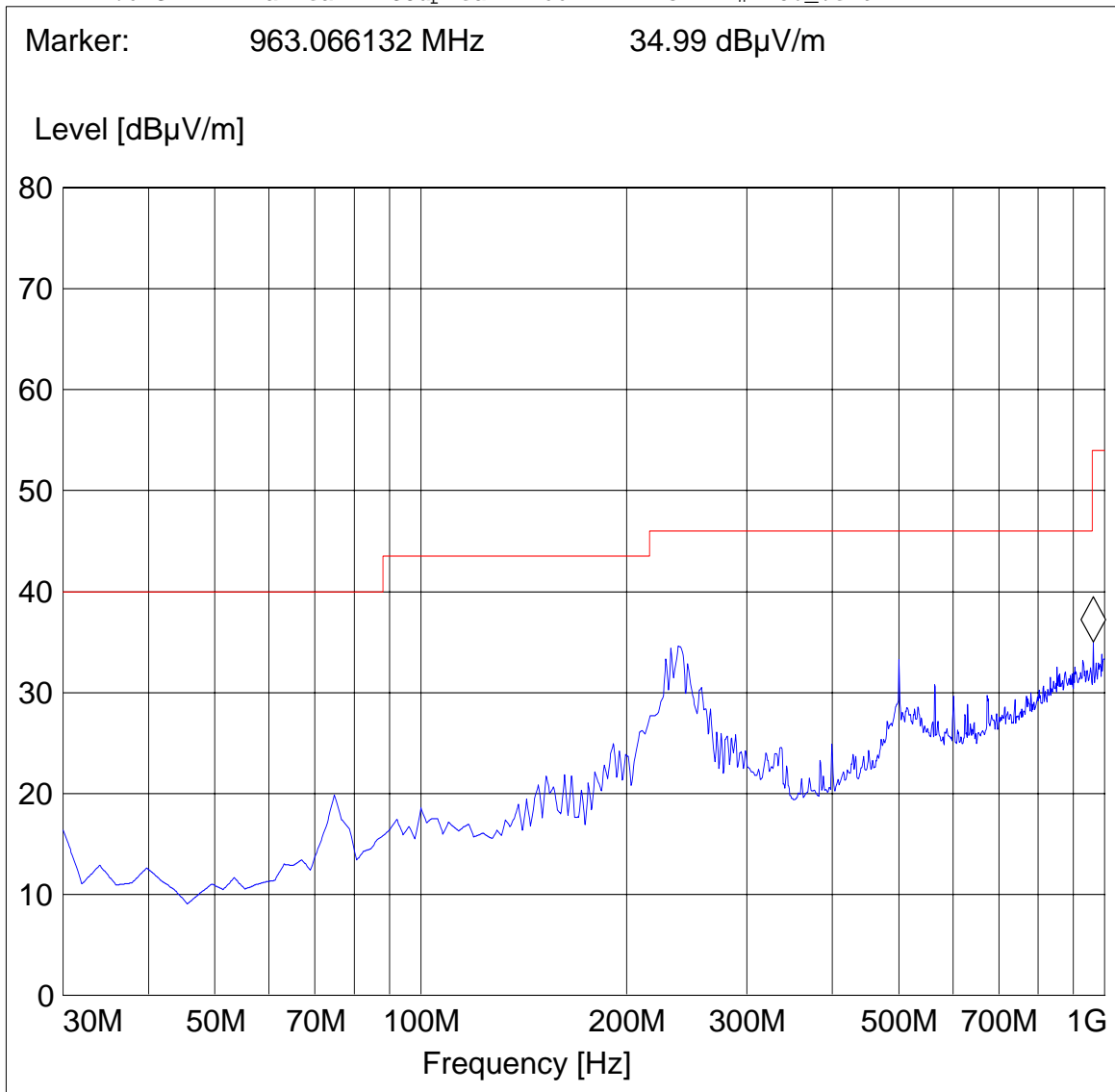
**EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
30MHz – 1GHz**

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

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11g, ch 1 (Aux Antenna)
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan M.
Power Supply: 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)
30MHz – 1GHz**

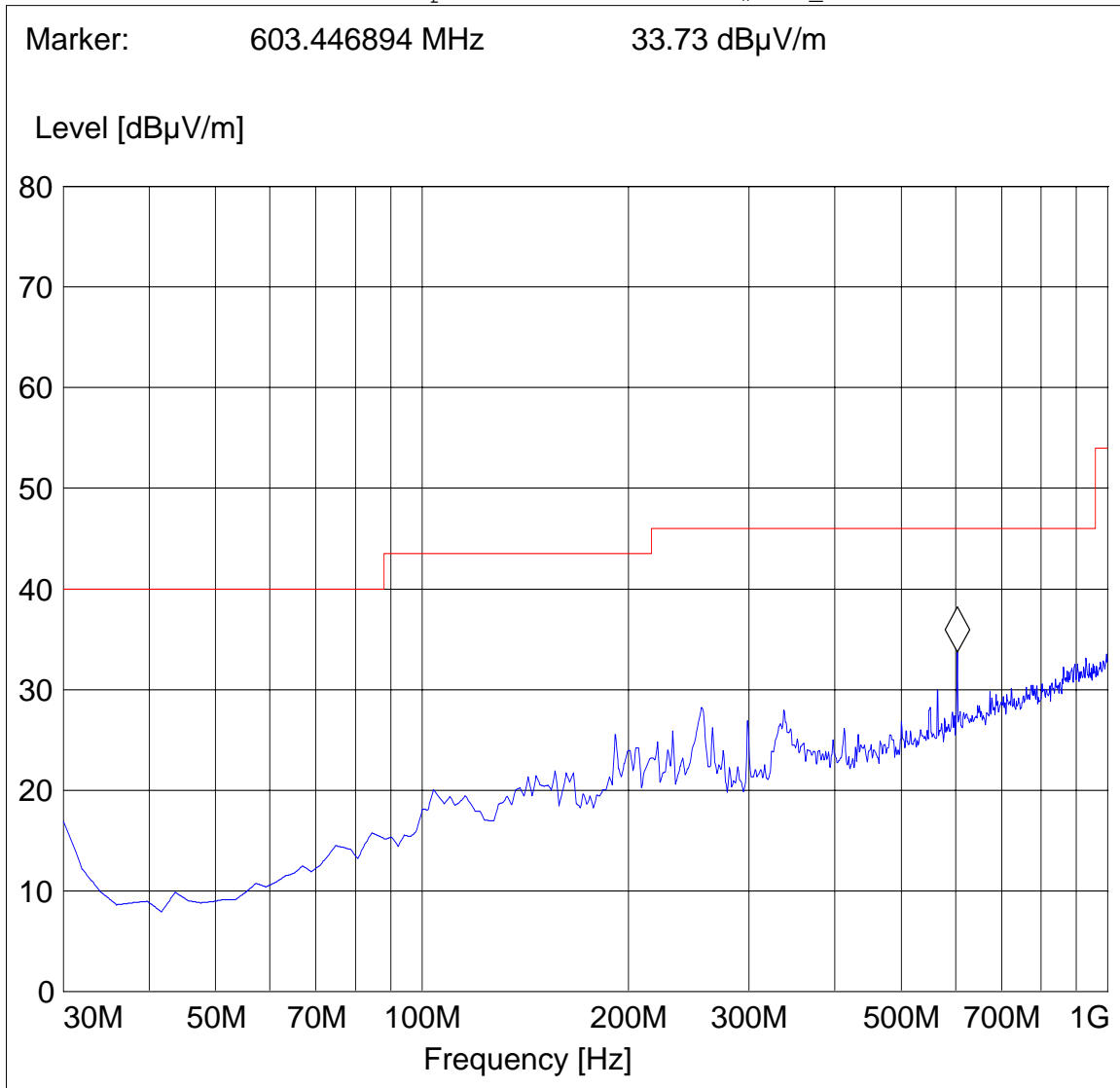
§15.247 (d) & RSS-210(A8.5)

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

EUT: BCM94311MCG
Customer: Broadcom
Test Mode: 802.11g, ch 1 (Aux Antenna)
ANT Orientation: H
EUT Orientation: H
Test Engineer: Juan M.
Power Supply: 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)

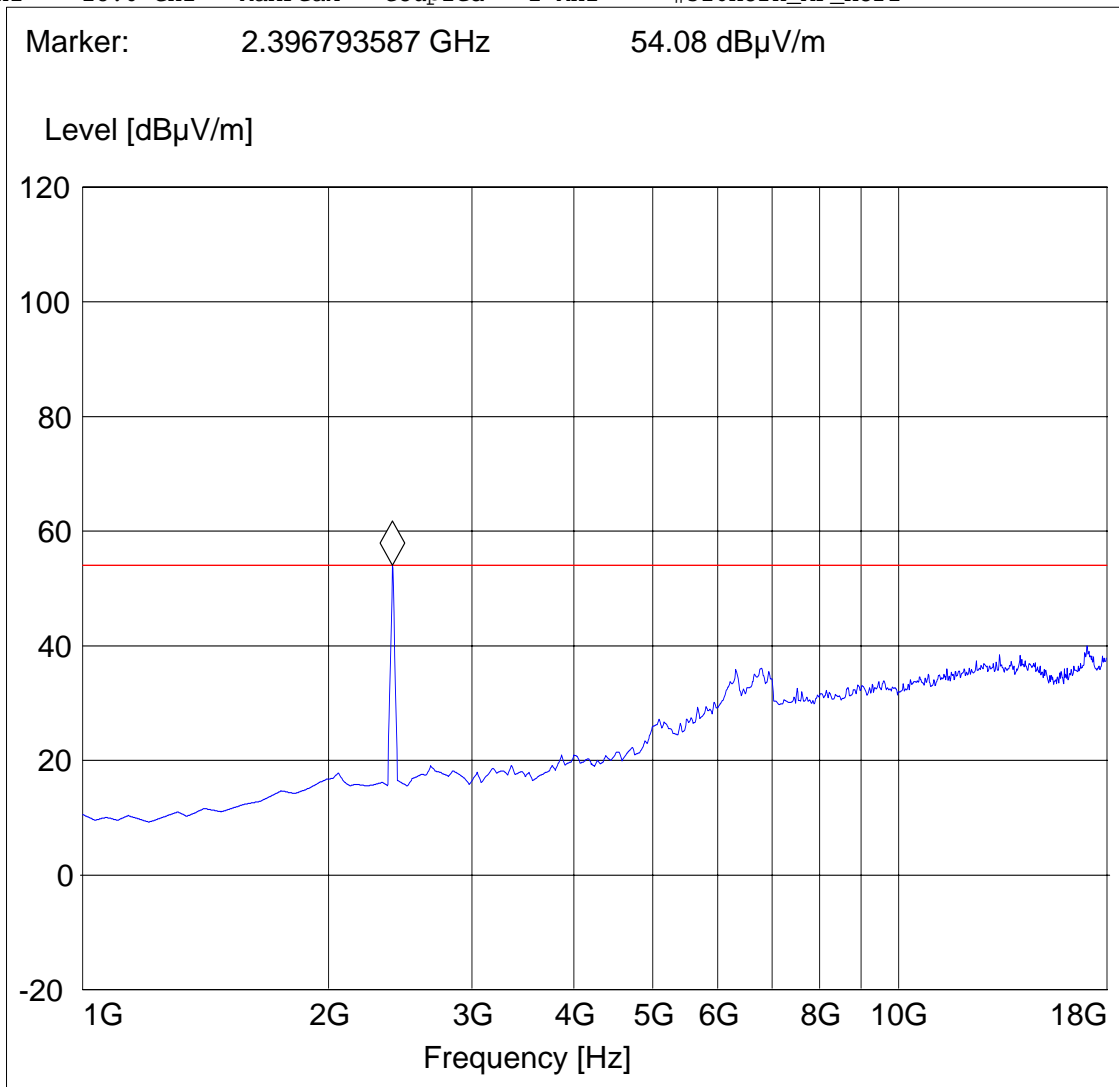
Lowest Channel (2412MHz): 1GHz – 18GHz

Note: No significant harmonic emissions detected either in Vertical or Horizontal

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11g, Ch. 1 (Aux Antenna)
ANT Orientation: H
EUT Orientation: H
Test Engineer: Juan M.
Voltage: AC Adapter
Comments: Marker on fundamental signal

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)

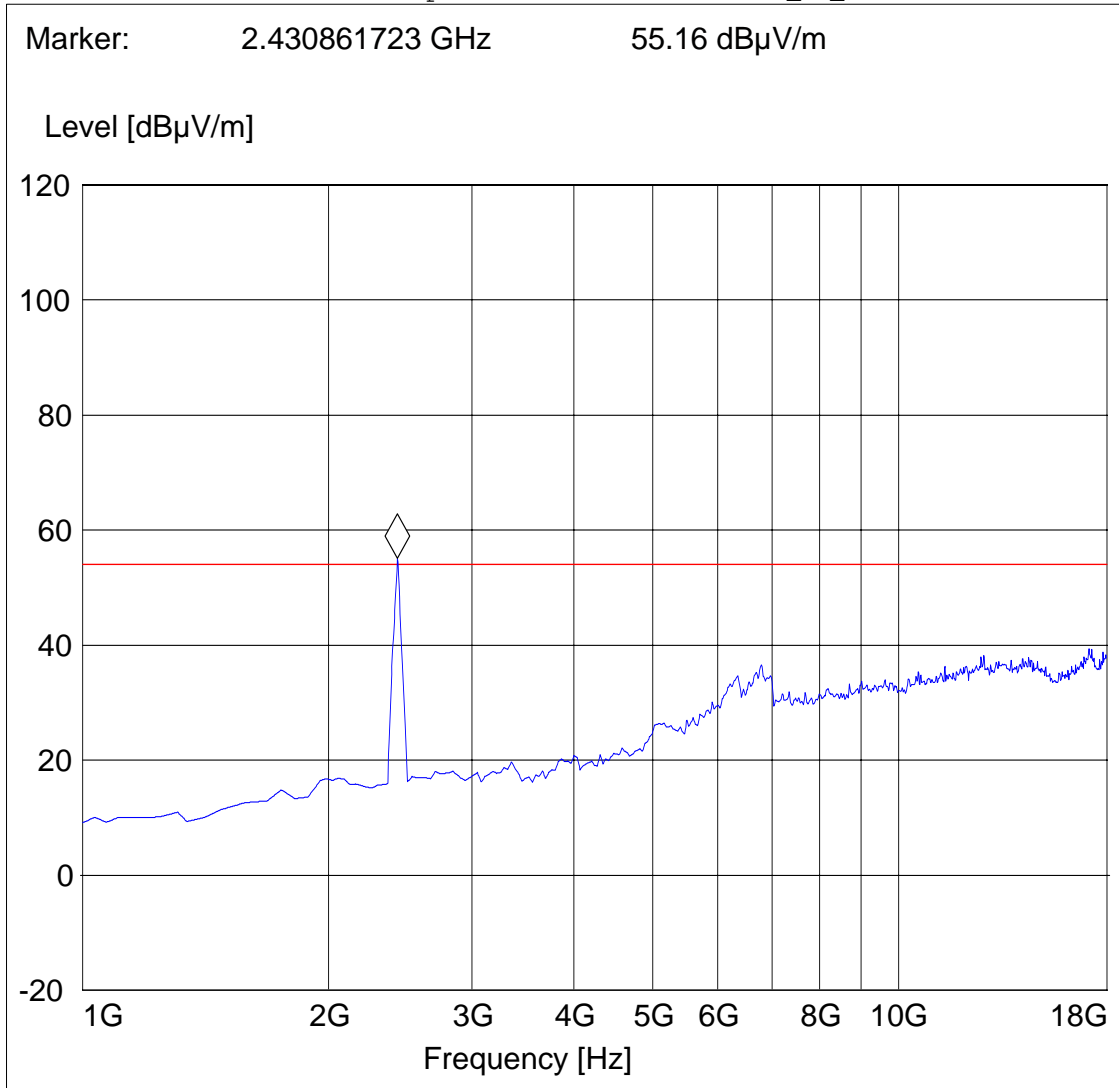
Mid Channel (2437MHz): 1GHz – 18GHz

Note: No significant harmonic emissions detected either in Vertical or Horizontal

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11g, Ch. 6 (Aux Antenna)
ANT Orientation: H
EUT Orientation: H
Test Engineer: Juan M.
Voltage: AC Adapter
Comments: Marker on fundamental signal

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)

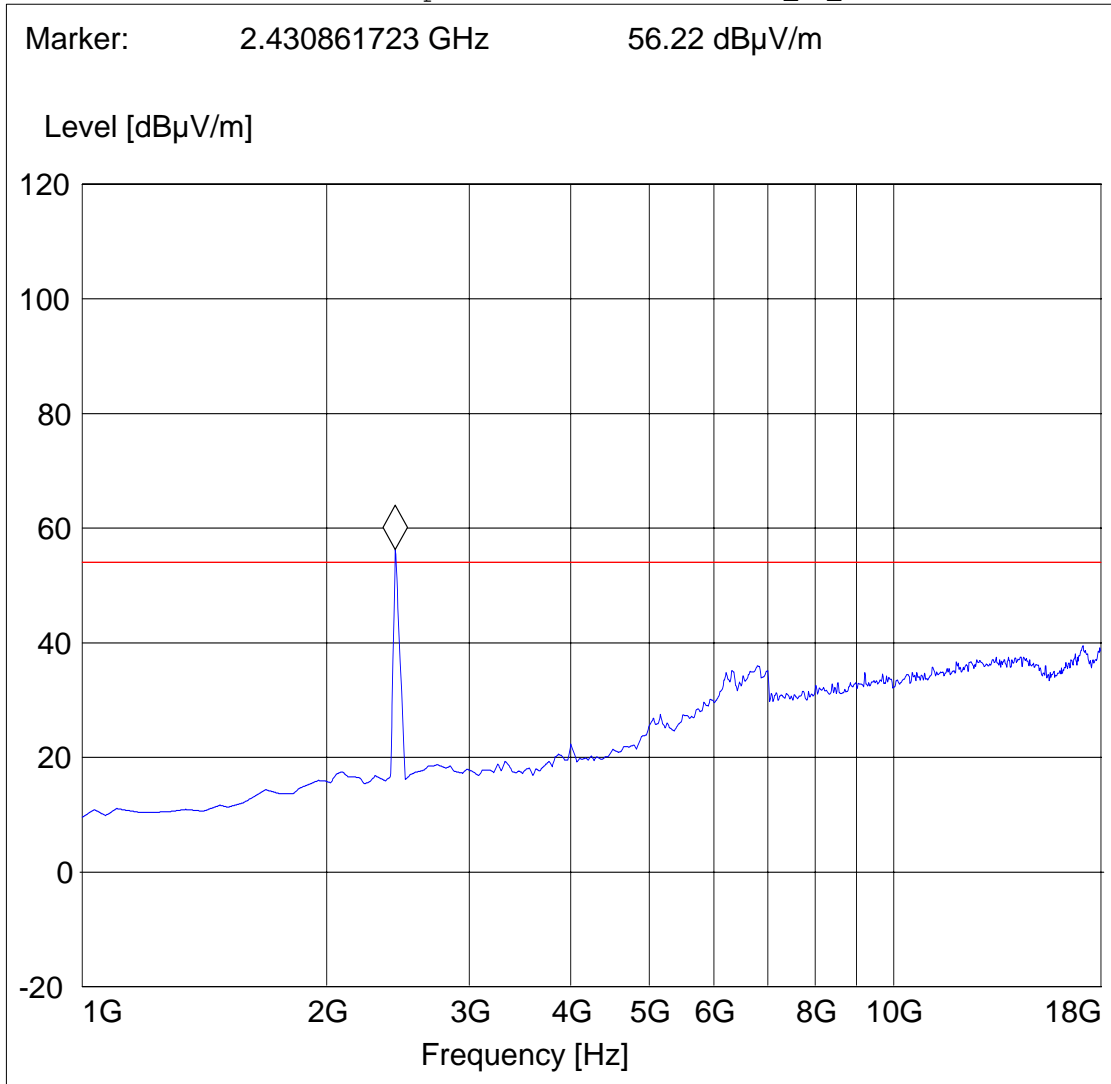
Highest Channel (2462MHz): 1GHz – 18GHz

Note: No significant harmonic emissions detected either in Vertical or Horizontal

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test mode: 802.11g, Ch. 11 (Aux Antenna)
ANT Orientation: H
EUT Orientation: H
Test Engineer: Juan m.
Voltage: AC Adapter
Comments: Marker on fundamental signal

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)
18GHz – 26.5GHz for low, middle, and high channels

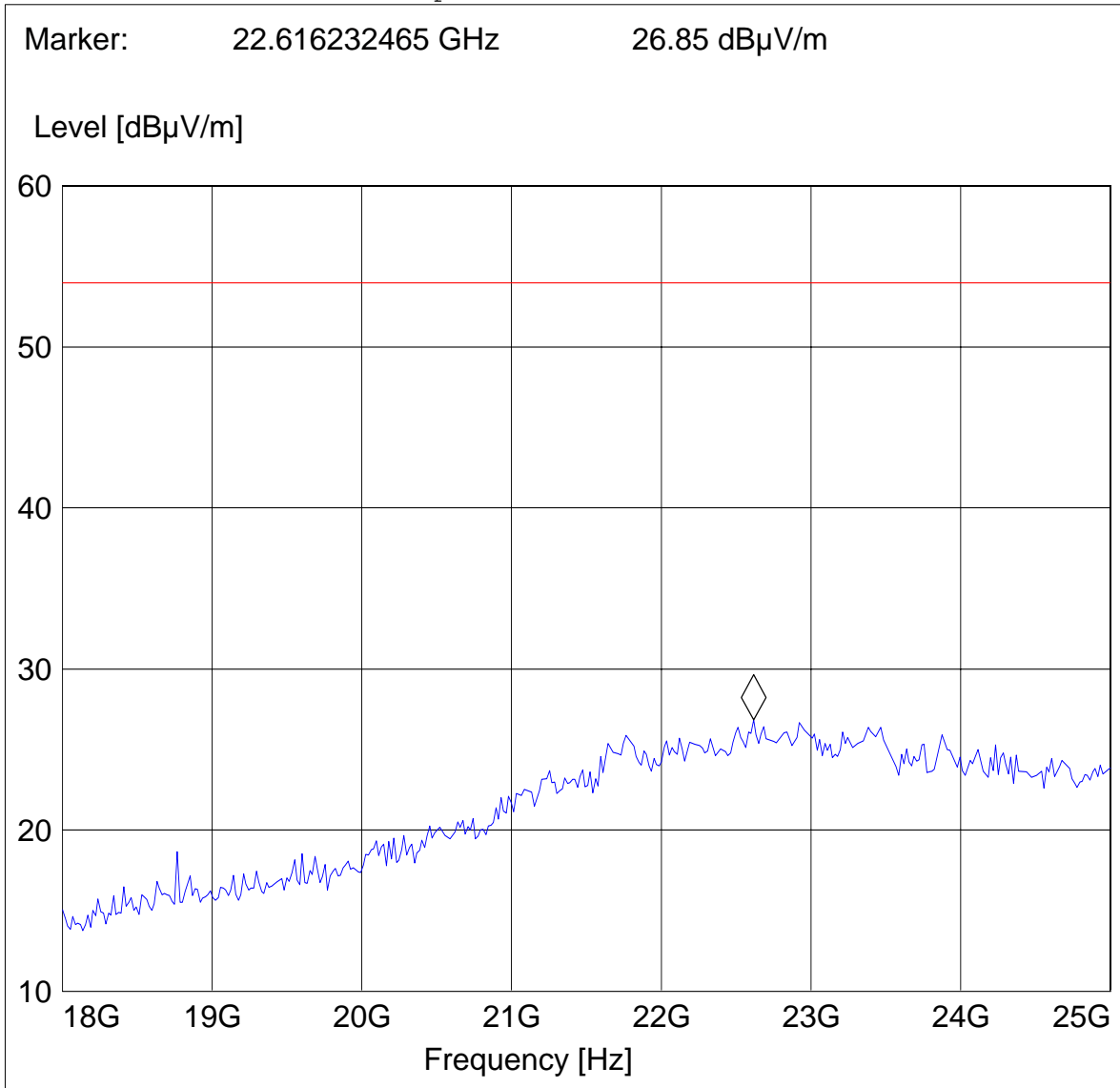
§15.247 (d) & RSS-210(A8.5)

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

EUT / Description: BCM94311MCG
Manufacturer: Broadcom
Test Mode: 802.11g, Measurement for low, middle, and high channels
ANT Orientation: V
EUT Orientation: H
Test Engineer: Juan
Power Supply: AC Adapter

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





1.8 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 110 VAC @ 60 Hz with the EUT in 802.11g mode.

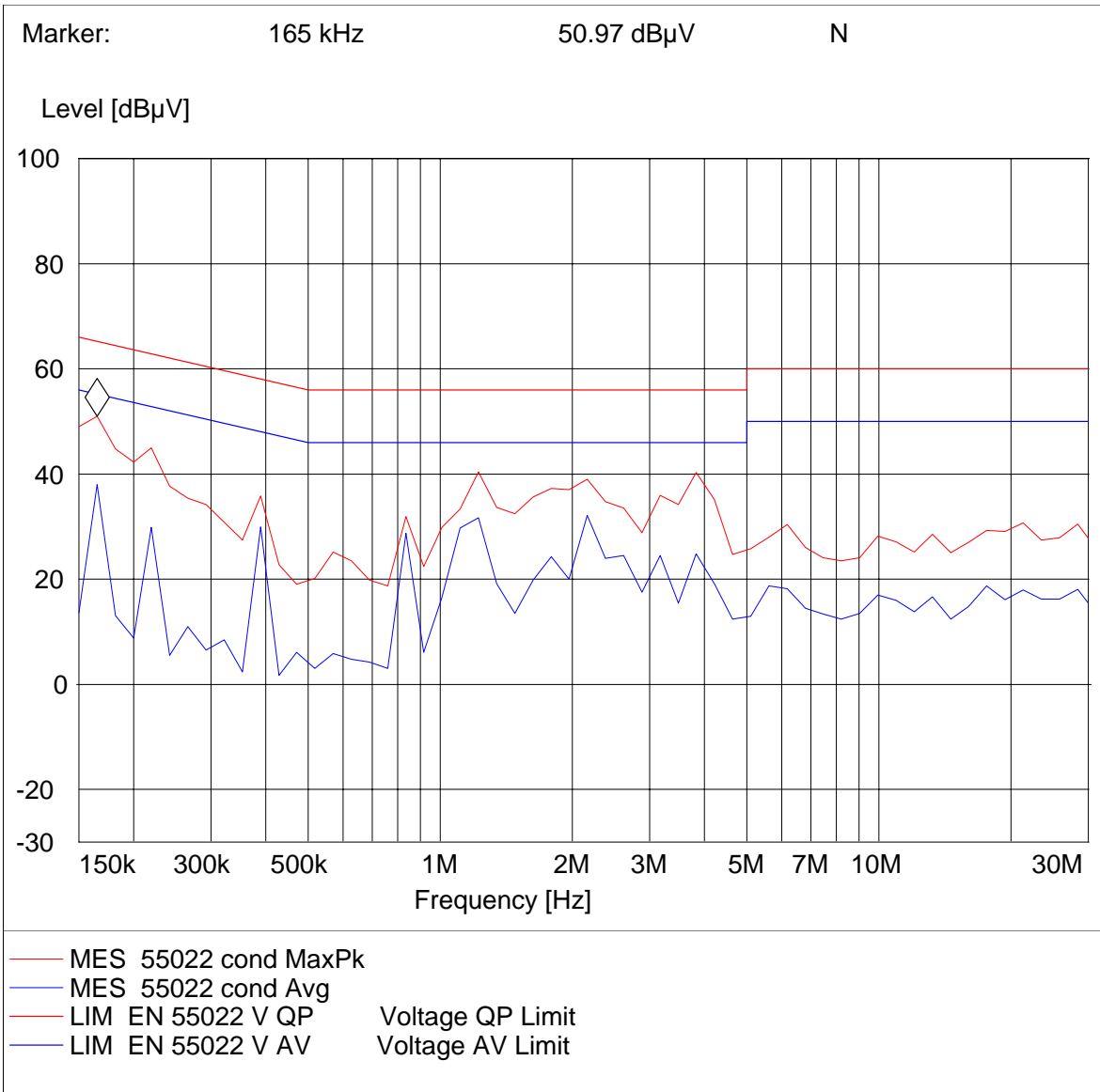


Voltage Mains Test (Line)

EUT: BCM94311MCG
Manufacturer: Broadcom
Operating Condition: Tx Mode
ANT Orientation: CONDUCTED
EUT Orientation: H
Test Engineer: Juan M.
Power Supply: AC Adaptor
Comments: 120V,60Hz (Line)

SWEEP TABLE: "55022 cond"

Short Description: EN 55022 for 150kHz-30MHz
Unit: dBμV



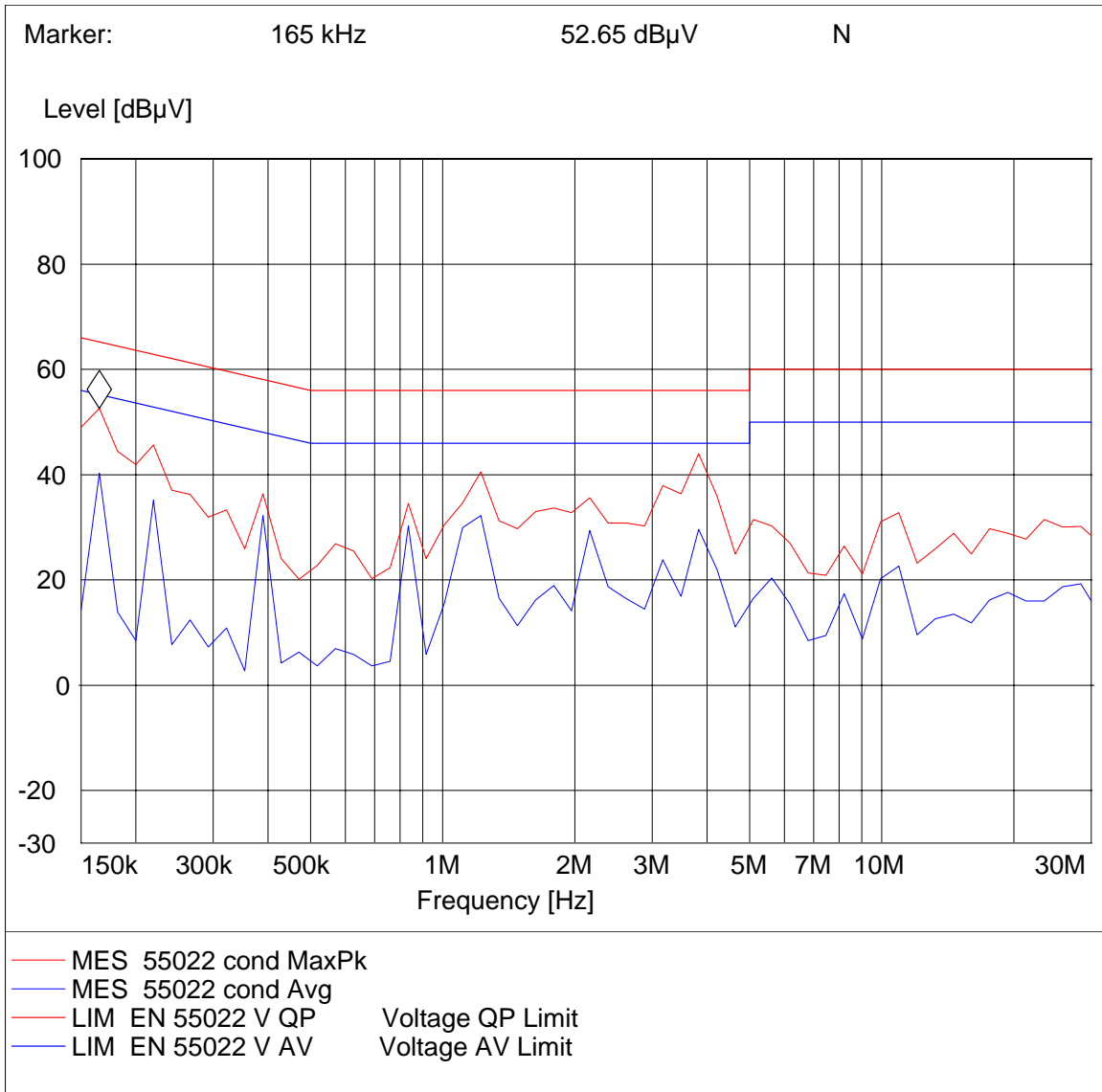


Voltage Mains Test (Neutral)

EUT: BCM94311MCG
Manufacturer: Broadcom
Operating Condition: Tx Mode
ANT Orientation: CONDUCTED
EUT Orientation: H
Test Engineer: Juan M.
Power Supply: AC Adaptor
Comments: 120V,60Hz (Neutral)

SWEEP TABLE: "55022 cond"

Short Description: EN 55022 for 150KHz-30MHz
Unit: dB μ V





2 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)	SAS-200/571	AH Systems	325	June 2008	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	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

3 BLOCK DIAGRAMS

Radiated Testing

3.1

ANECHOIC CHAMBER

