Test Report

FCC Part 15.247
Industry Canada RSS210

DTS Devices Operating in range 2400-2483.5MHz

Model #: PCG-21111L

Sony Corporation
1-7-1 Konan, Minato-ku,
Tokyo, 108-0075
Japan

FCC ID: AK8PCG21111L
IC ID: 409B-PCG21111L

TEST REPORT #: EMC_SONYE_033_15_247_PCG21111L_Rev1
DATE: 2009-08-07

ilac-MRA A2LA ACCREDITED Certificate # 2135.01

Bluetooth

Bluetooth Qualification Test Facility (BQTF)

CTIA Authorized Test Lab
LAB CODE 20020328-00

FCC listed: A2LA accredited

IC recognized # 3462B

***CETECOM* Inc.**
411 Dixon Landing Road ◆ Milpitas, CA 95035 ◆ U.S.A.
Phone: + 1 (408) 586 6200 ◆ Fax: + 1 (408) 586 6299 ◆ E-mail: info@cetecomusa.com ◆ http://www.cetecom.com
CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686
Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

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 #
Sony Corporation	**Personal Computer**	**PCG-21111L**

This report is reviewed by:

Date	Section	Name	Signature
2009-08-07	**Compliance**	**Heiko Strehlow (Director Compliance Services)**	Heiko Strehlow Digitally signed by Heiko Strehlow DN: cn=Heiko Strehlow, c=US, o=CETECOM Inc., email=heiko.strehlow@cetecomusa.com Date: 2009.08.07 14:24:10 -07'00'

This report is prepared by:

Date	Section	Name	Signature
2009-08-07	**Compliance**	**Marc Douat (Test Lab Manager)**	Marc Douat 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:	**EMC**
Address:	**411 Dixon Landing Road Milpitas, CA 95035 U.S.A.**
Telephone:	**+1 (408) 586 6200**
Fax:	**+1 (408) 586 6299**
Responsible Project Leader:	**Marc Douat**
Date of test:	**2009-07-20 to 2009-07-22**

2.2 Identification of the Client

APPLICANT	
Applicant (Company Name)	**Sony Corporation**
Street Address	**1-7-1 Konan, Minato-ku,**
City/Zip Code	**Tokyo, 108-0075**
Country	**Japan**
Contact Person	**Michio Kobayashi**
Telephone	**+81-263-72-5696**
Fax	**+81-263-72-9755**
e-mail	**Michio.Kobayashi@jp.sony.com**

2.3 Identification of the Manufacturer

MANUFACTURER (If different from Applicant)	
Applicant (Firm Name):	**Sony EMCS Corporation**
Contact Person:	**Michio Kobayashi**
Telephone:	**+81-263-72-5696**
Fax:	**+81-263-72-9755**
Address Line 1:	**5432 Toyoshima,**
City:	**Azumino-shi, Nagano**
Postal Code:	**399-8282,**
Country:	**Japan**
e-mail:	**Michio.Kobayashi@jp.sony.com**

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

EUT	
Marketing Name of EUT (if not same as Model No.):	**PCG-21111L**
Description:	**Personal Computer**
Model No:	**PCG-21111L**
FCC ID:	**AK8PCG21111L**
IC ID:	**409B-PCG21111L**

Frequency Range:	**2400-2483.5MHz** **Channel 1, 6, 11 for 802.11b/g and 802.11n HT20 mode** **Channel 2, 6, 10 for 802.11n HT40 mode**
Type(s) of Modulation:	**OFDM**
Antenna Type:	**PIFA Peak Gain 2400-2483.5MHz: 2.0dBi.**
Max Output Power:	**Radiated:** **802.11b: 23.13 dBm (205.59 mW) EIRP** **802.11g: 27.21 dBm (526.02 mW) EIRP** **802.11n HT20: 27.28 dBm (534.56 mW) EIRP** **802.11n HT40: 23.95 dBm (248.31 mW) EIRP**

3.2 Identification of the Equipment under Test (EUT)

EUT #	TYPE	MANF.	MODEL	SERIAL #
1	EUT	Sony Corporation	PCG-21111L	FCC1

3.3 Identification of Accessory equipment

AE #	TYPE	MANF.	MODEL	SERIAL #
1	AC/DC ADAPTER	Sony Corporation	VGP-AC10V4	000094600 0000275

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 legacy 802.11b/g and 802,11n mode.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT operating under all operating modes as specified by Sony 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

5 Radiated Measurements

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

5.1.1 Limits

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

EIRP is calculated as EIRP = Conducted Peak Power (dBm) + Peak Antenna Gain (dBi)

5.1.2 Results:

EIRP 802.11 a/b/g Mode:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}	Channel Frequency	EIRP (dBm)	EIRP (mW)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	22.37	172.58	PASS
	2437	22.56	180.30	PASS
	2462	23.13	205.59	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	23.99	250.61	PASS
	2437	27.21	526.02	PASS
	2462	25.09	322.85	PASS

EIRP 802.11n HT20 MODE:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}	Channel Frequency	EIRP (dBm)	EIRP (mW)	Verdict
Sub-band 1: 2400-2483.5MHz	2412	23.03	200.91	PASS
	2437	27.28	534.56	PASS
	2462	23.99	250.61	PASS

EIRP 802.11n HT40 MODE:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}	Channel Frequency	EIRP (dBm)	EIRP (mW)	Margin (mW)
Sub-band 1: 2400-2483.5MHz	2422	19.58	90.78	PASS
	2437	23.95	248.31	PASS
	2452	19.53	89.74	PASS

5.2 Restricted Band Edge Compliance §15.247/15.205

5.2.1 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.

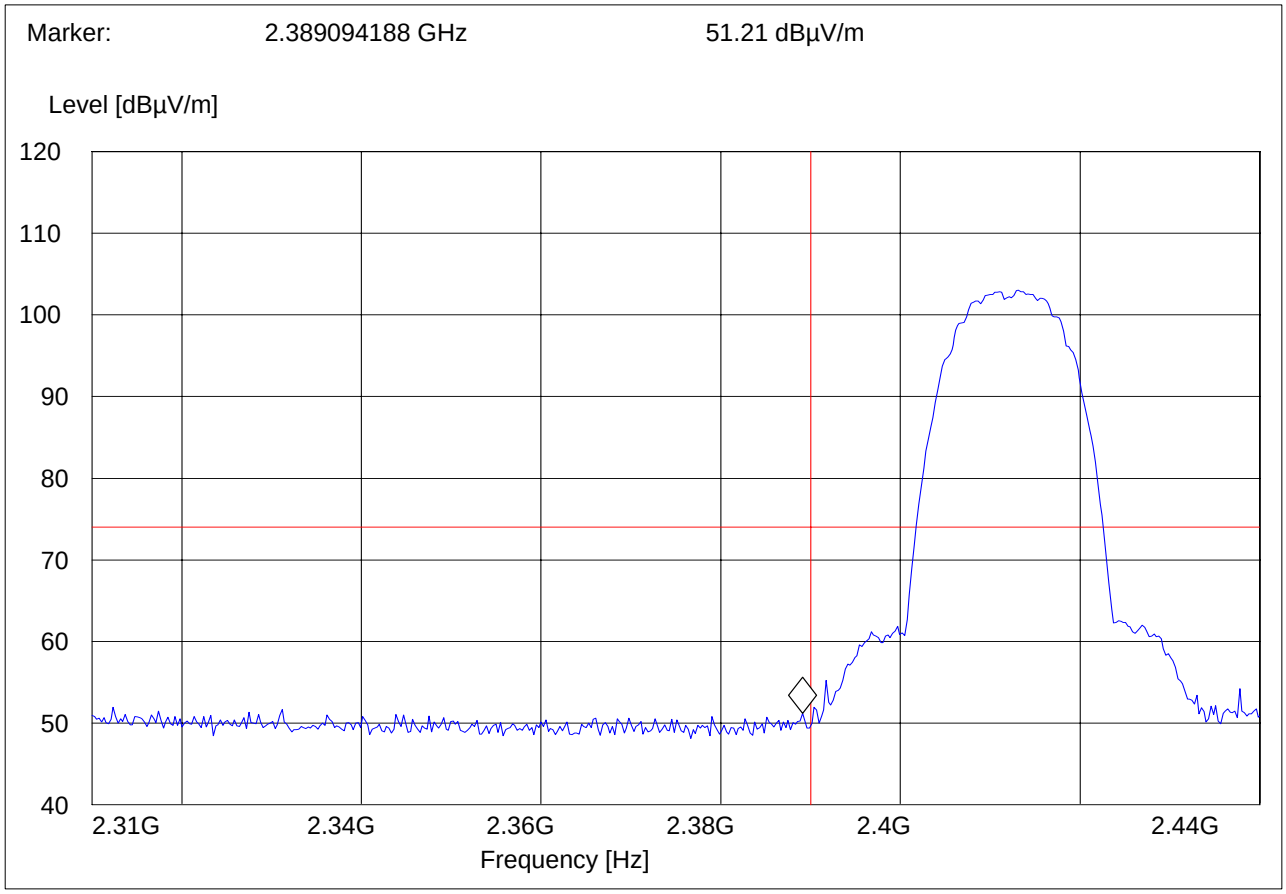
5.2.2 Sub-band 1 802.11b MODE

Lower band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11b CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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
		MaxPeak			

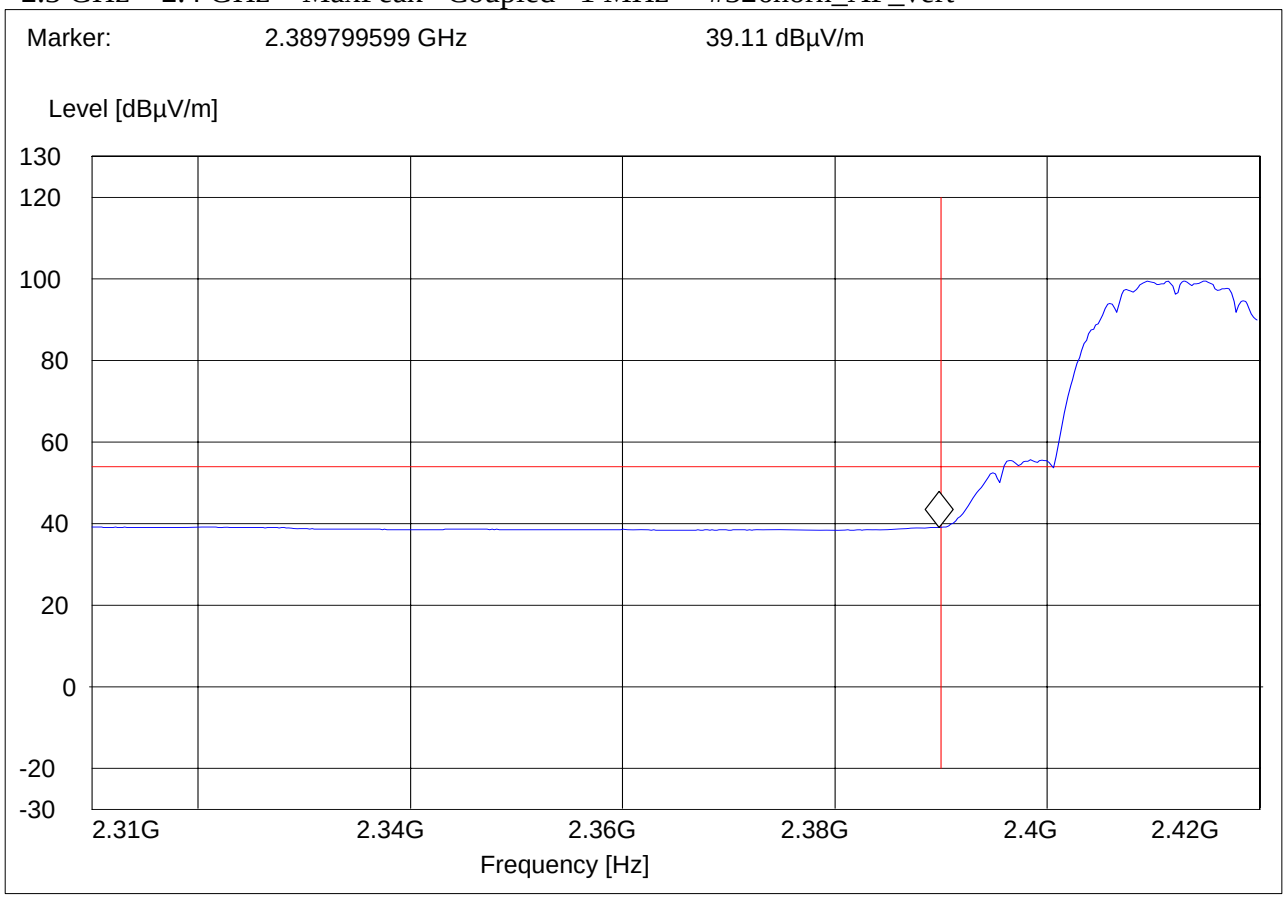


Lower band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11b CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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

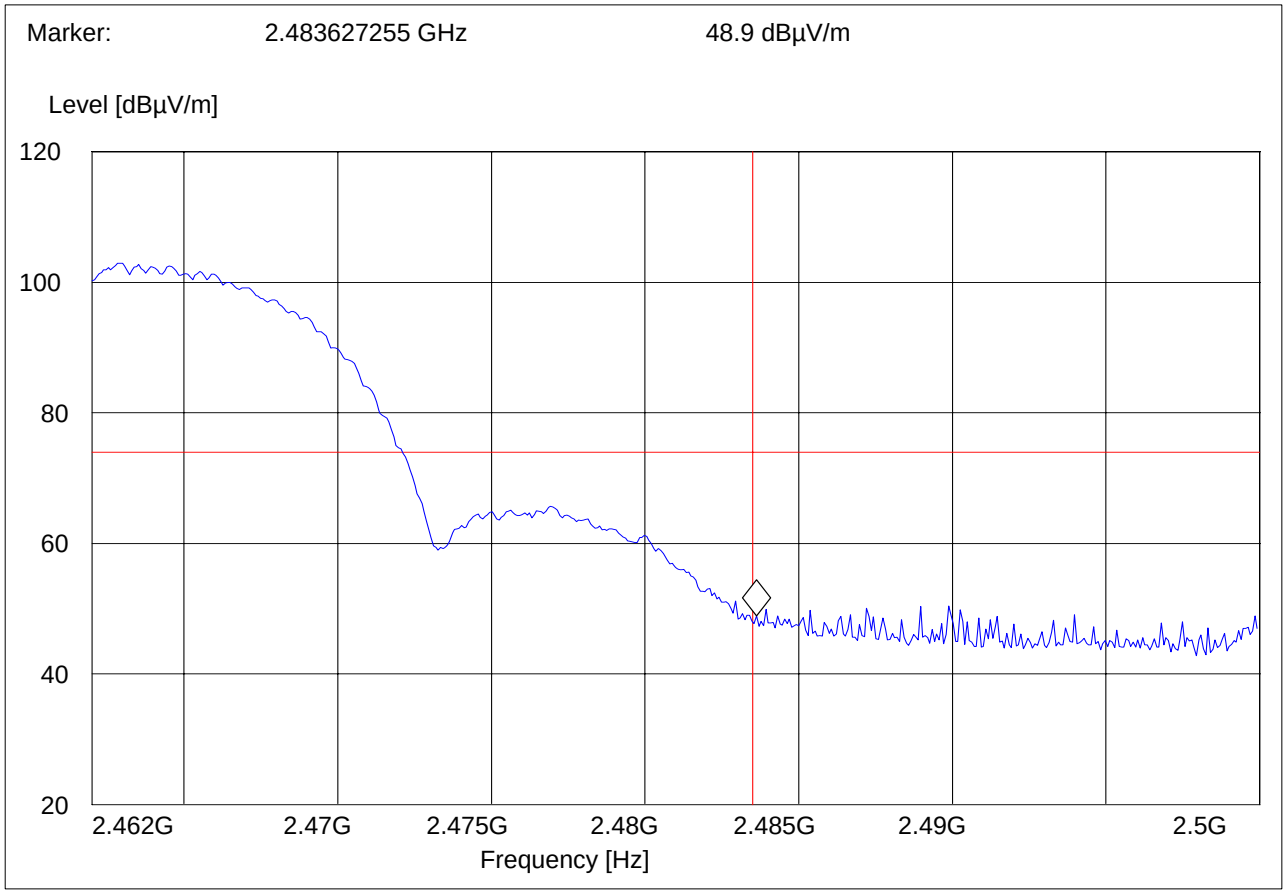


High band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11b CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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
		MaxPeak			

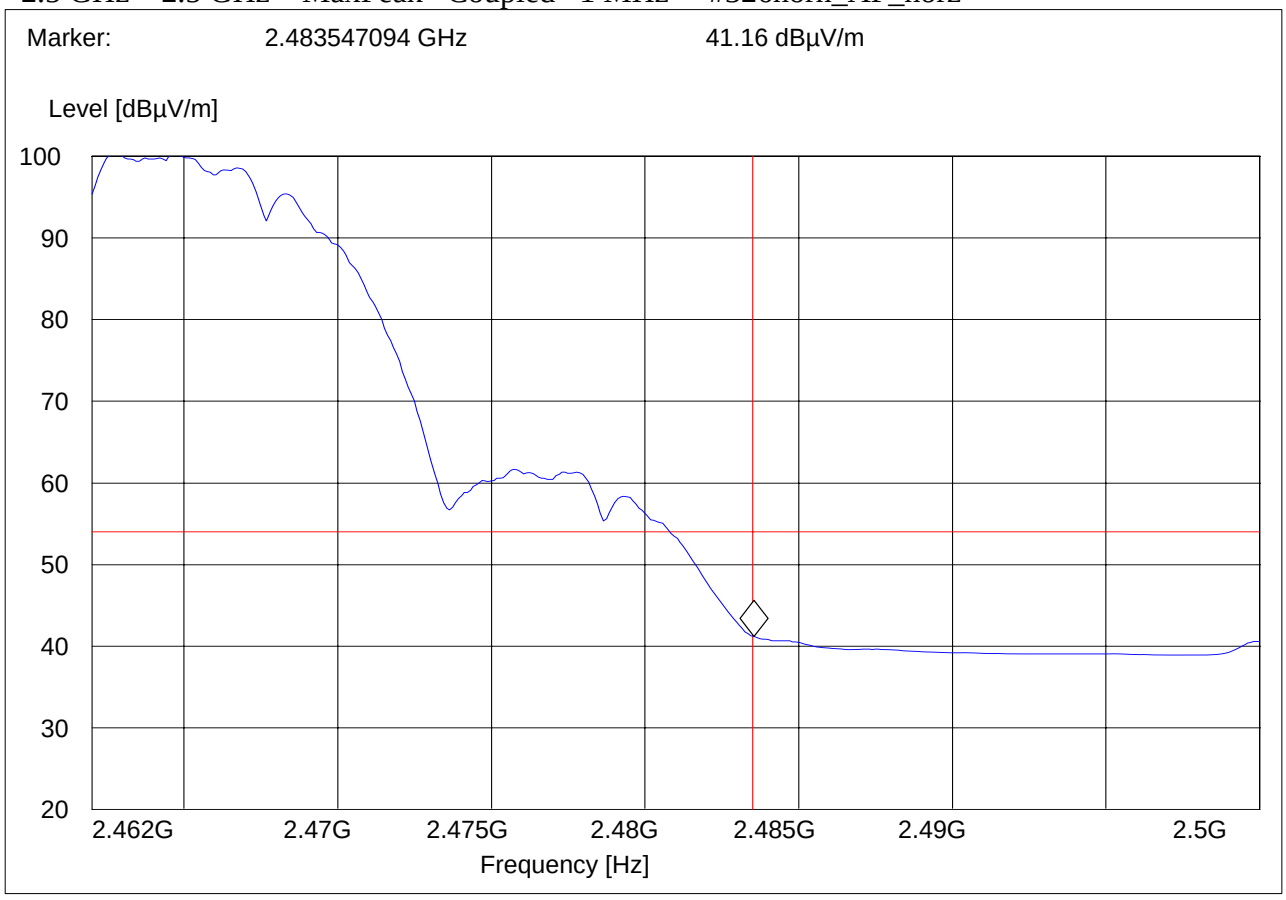


High band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11b CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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



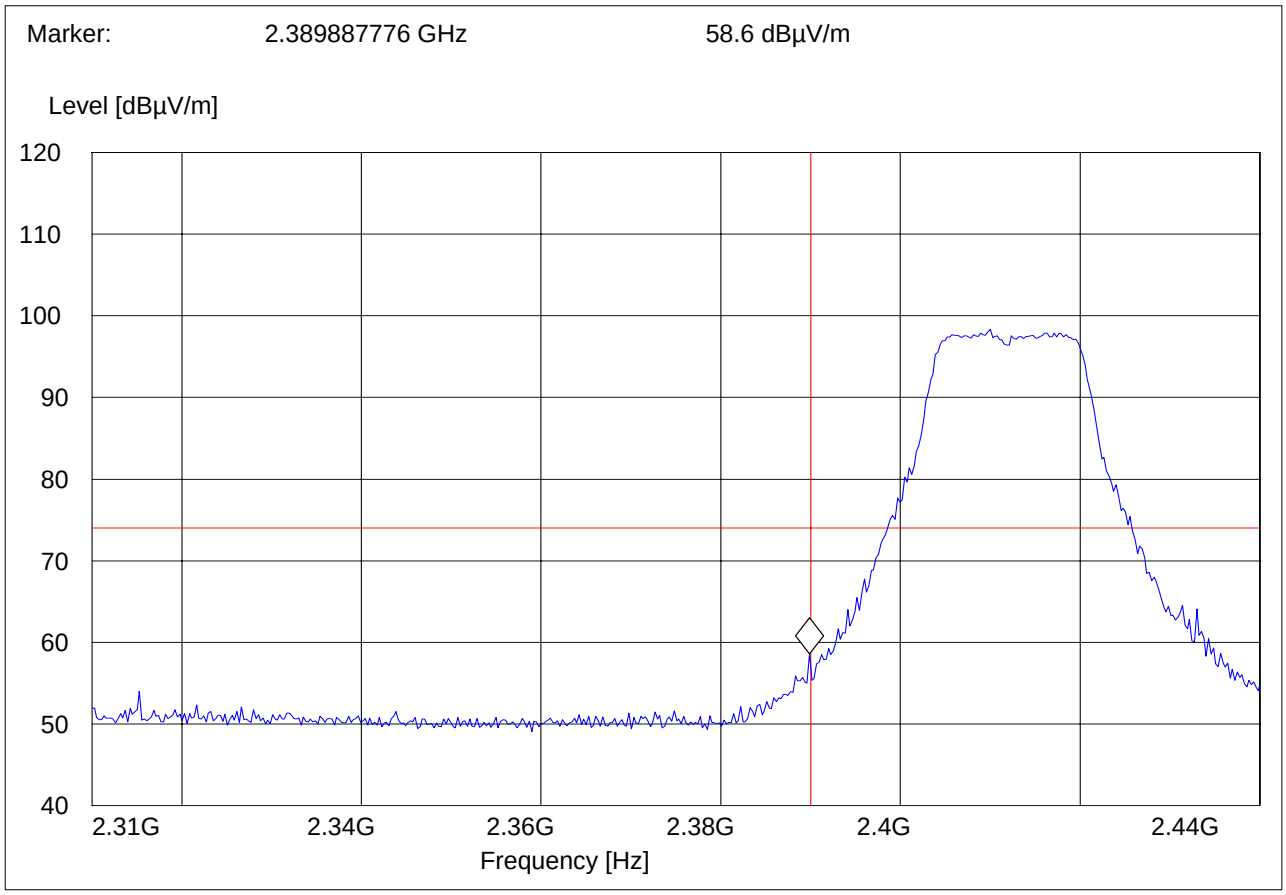
5.2.3 Sub-band 1 802.11g MODE

Lower band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11g CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

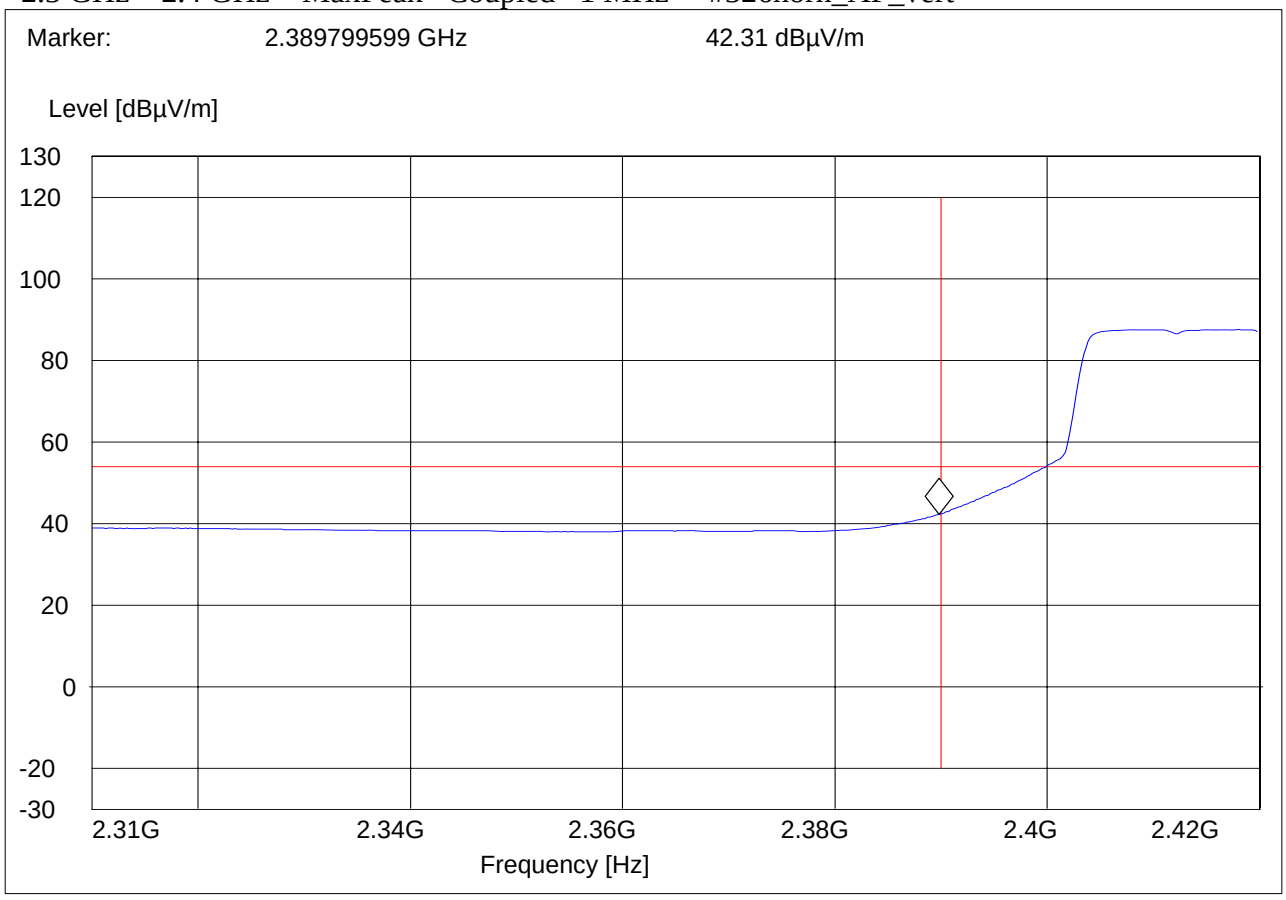


Lower band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11g CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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

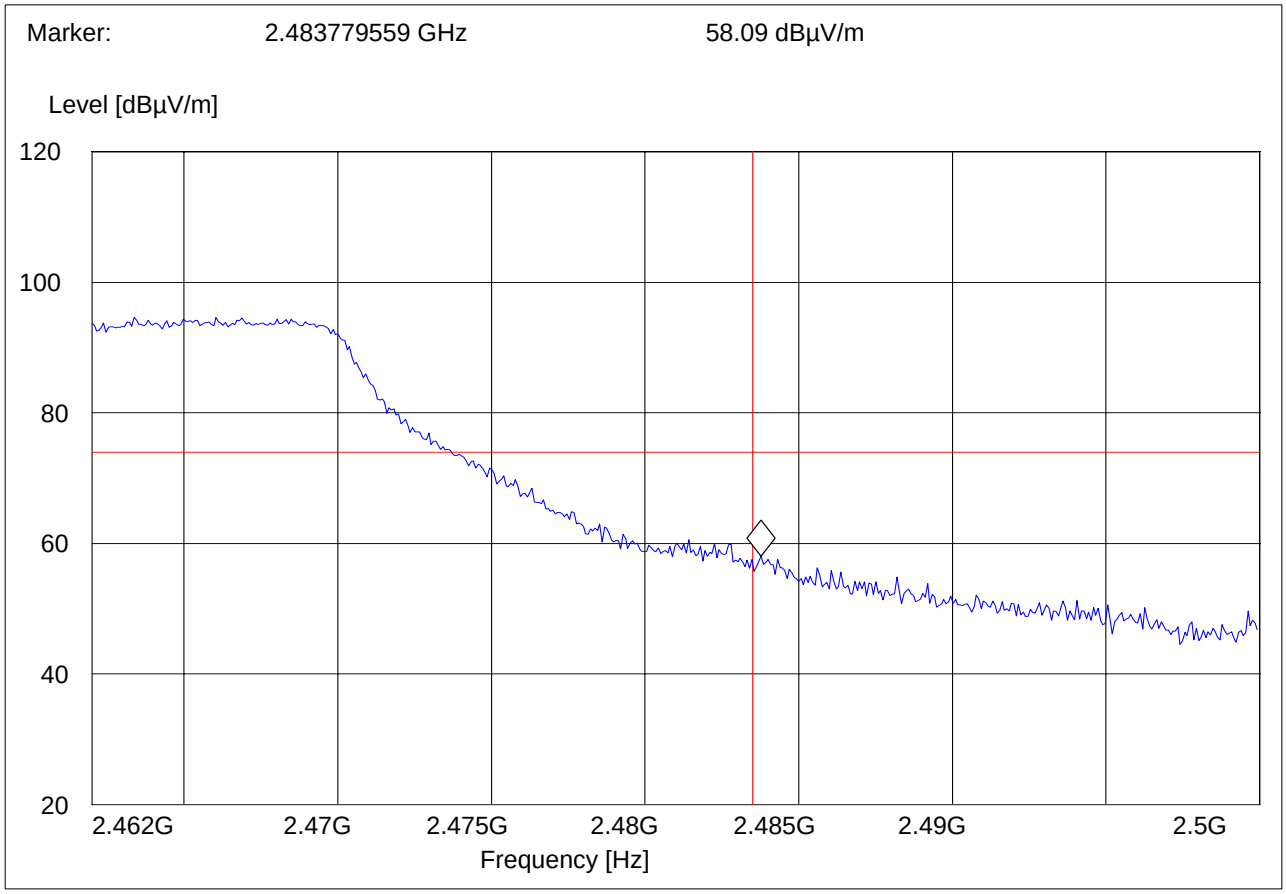


High band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11g CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

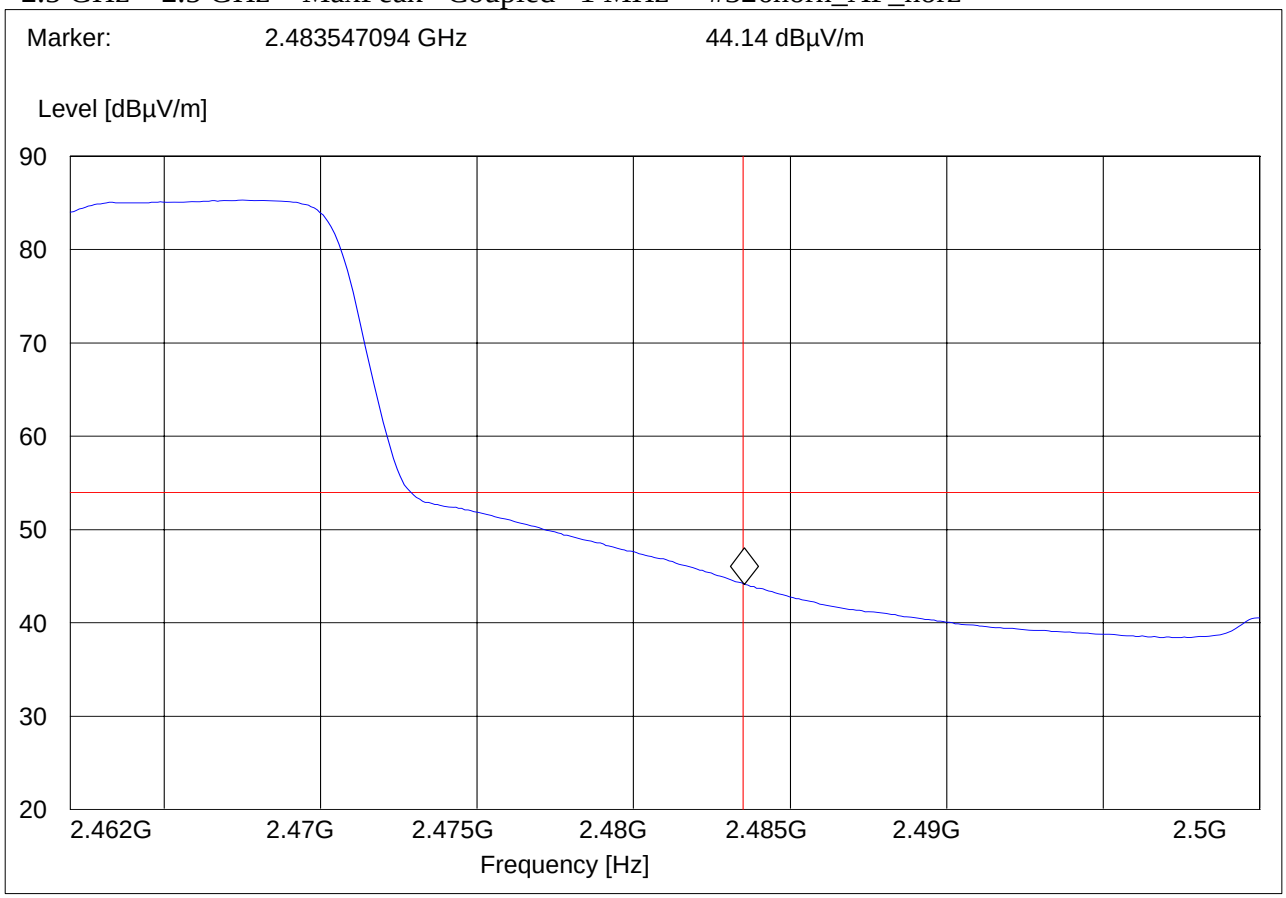


High band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11g CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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



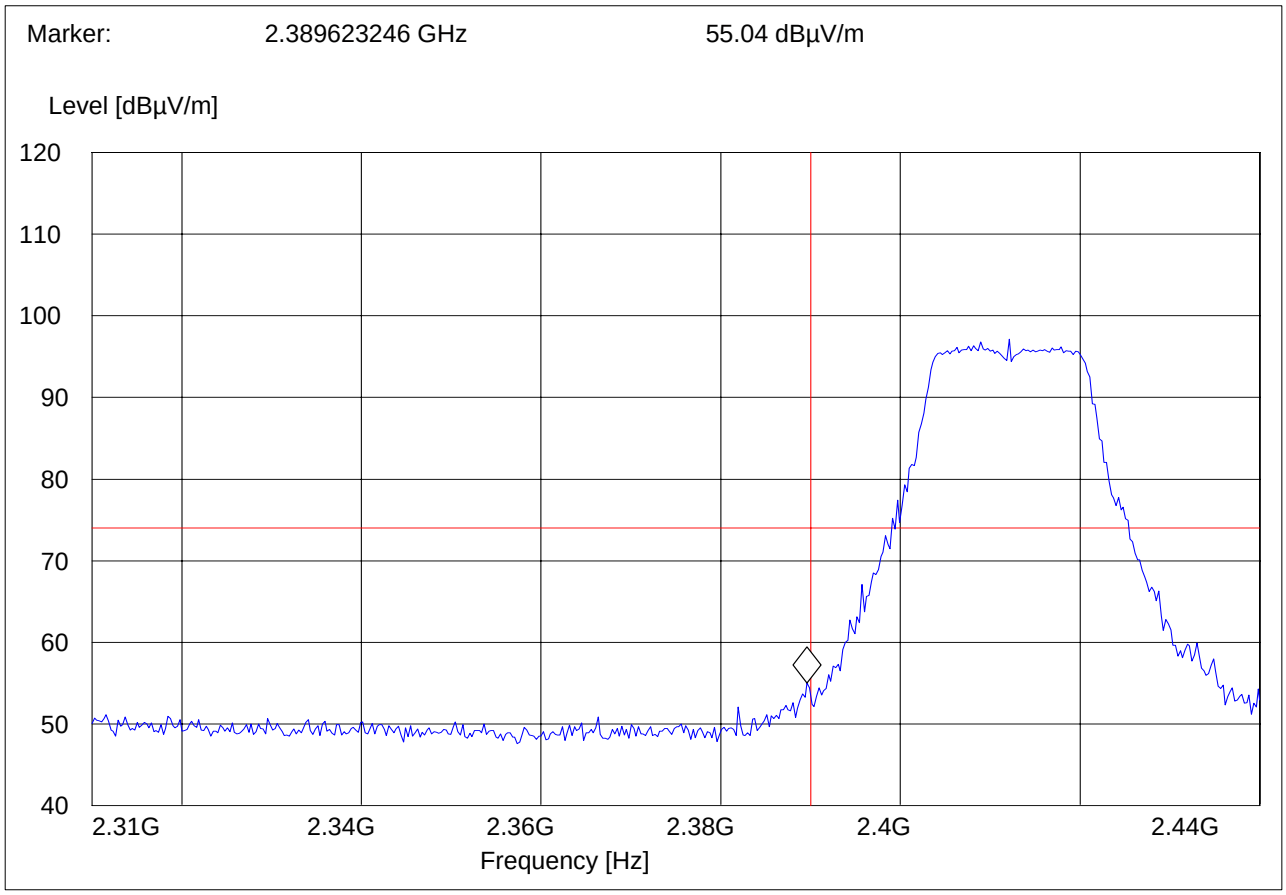
5.2.4 Sub-band 1 802.11n HT20 MODE

Lower band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT20 CH 2412MHz
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

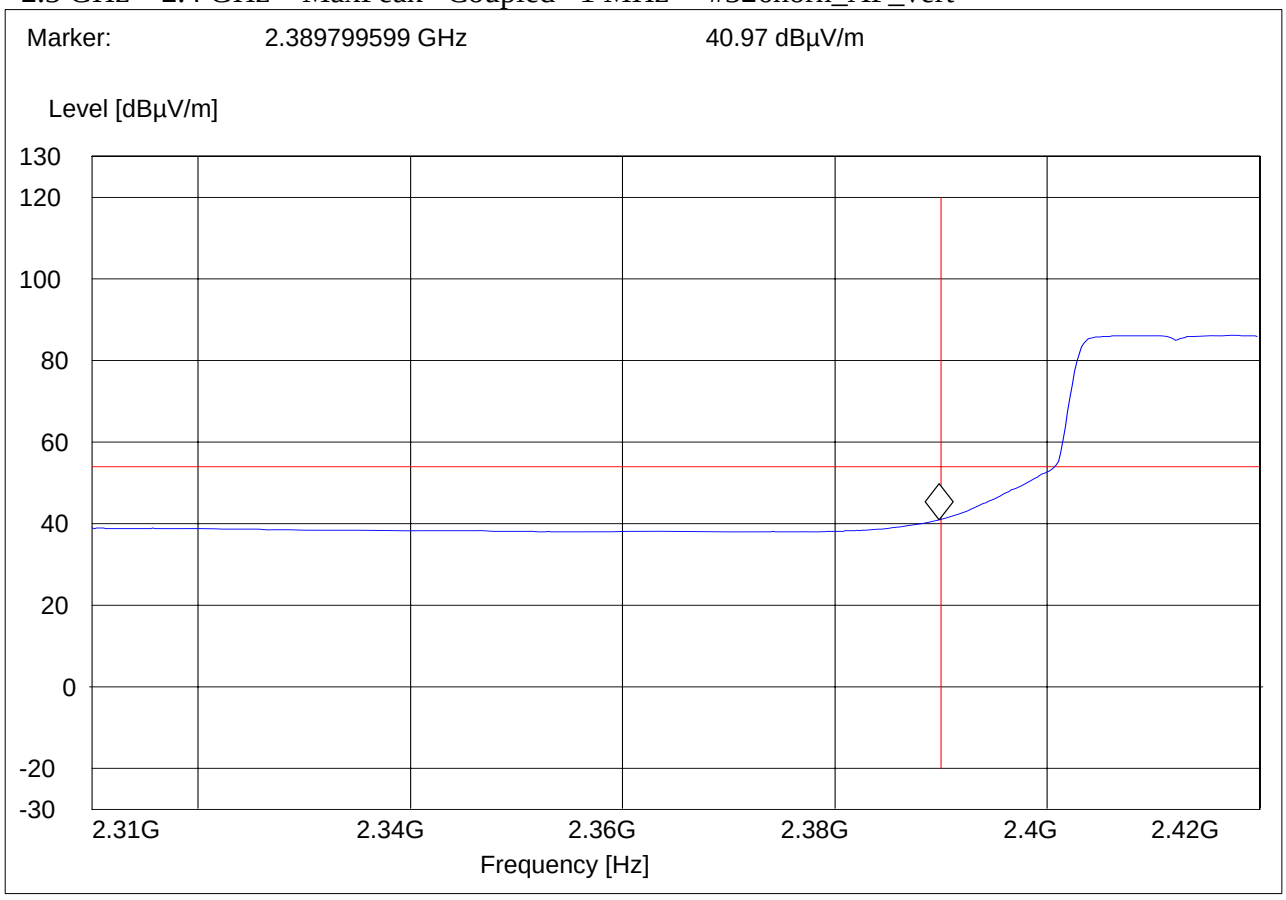


Lower band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT20 CH 2412MHz
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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

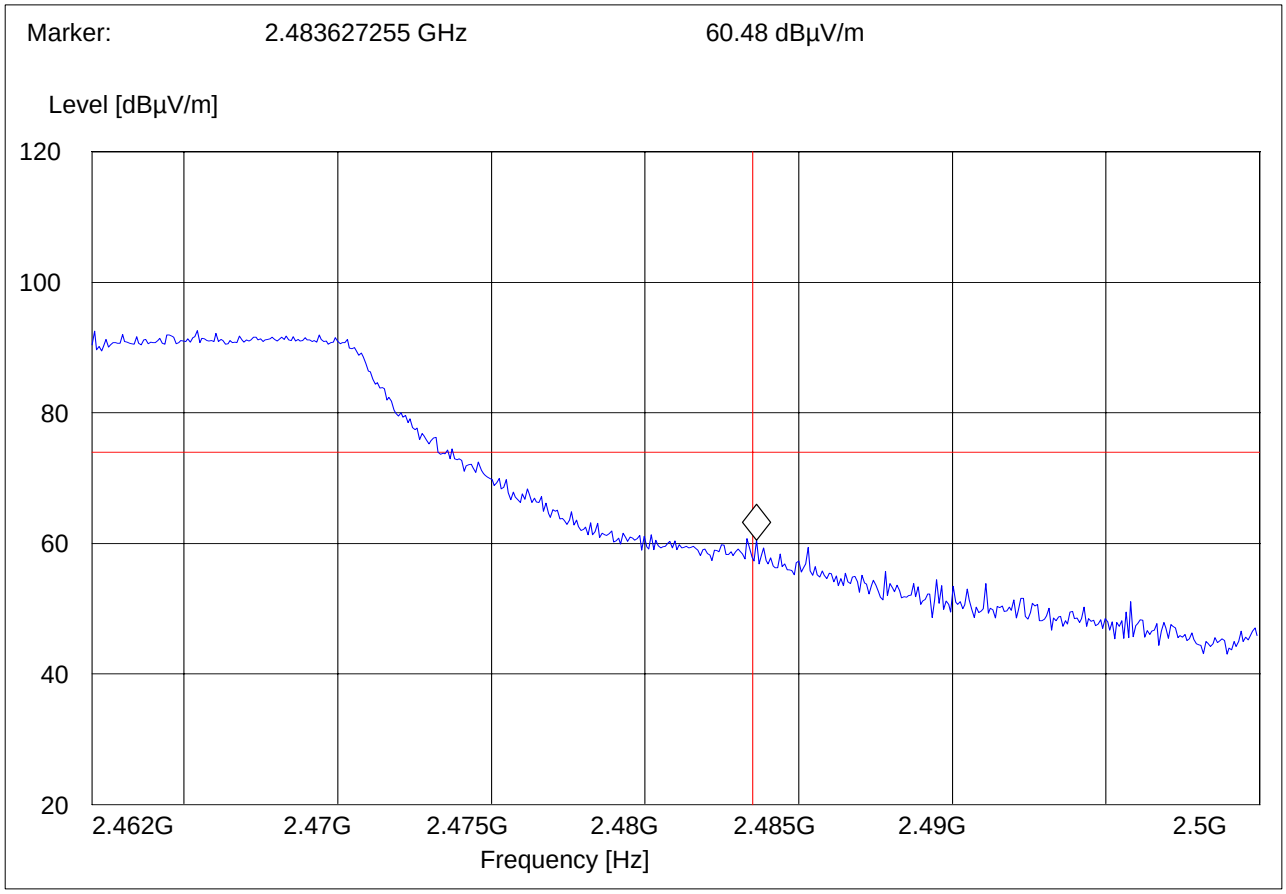


High band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT20 CH 2462MHz
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

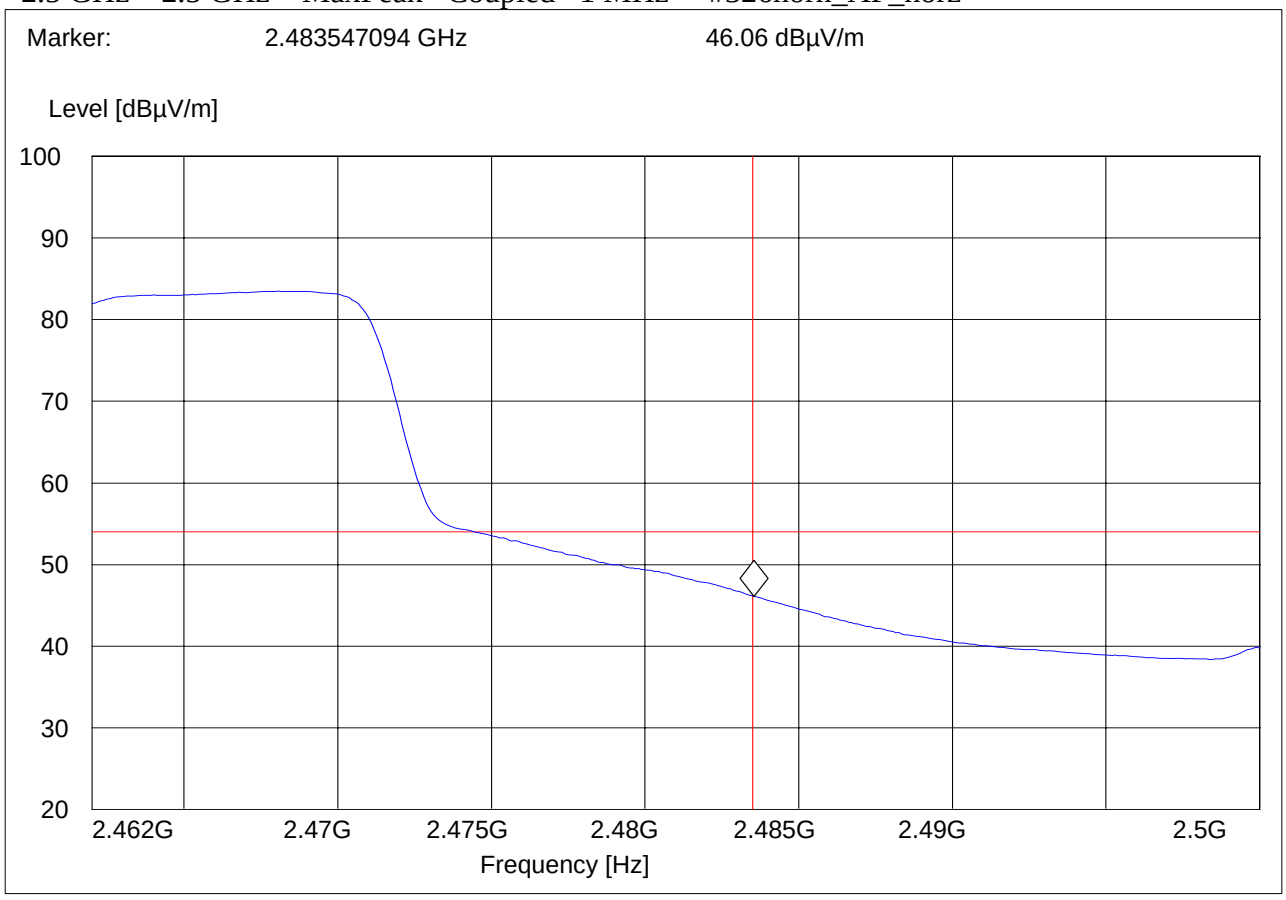


High band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT20 CH 2462MHz
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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



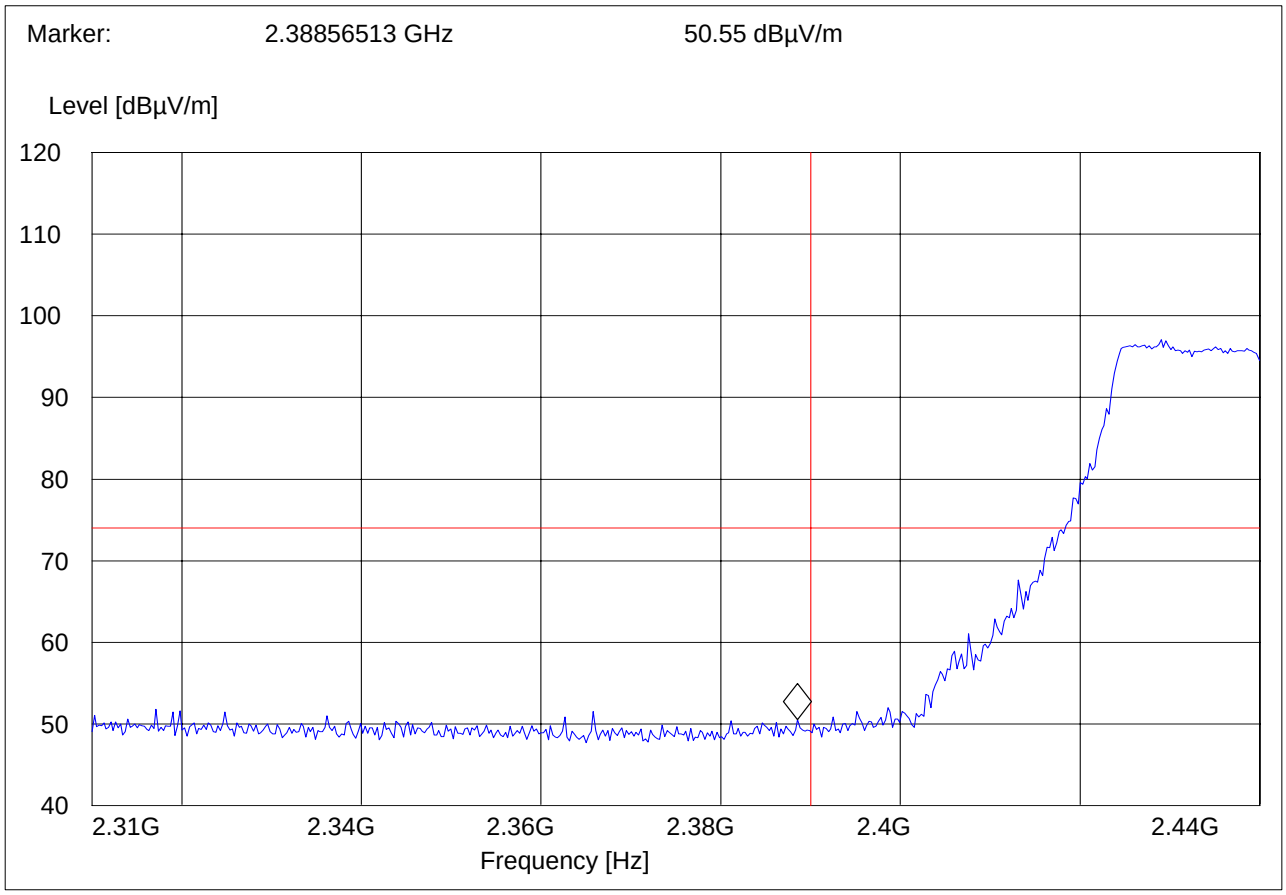
5.2.5 Sub-band 1 802.11n HT40 MODE

Lower band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT40 CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

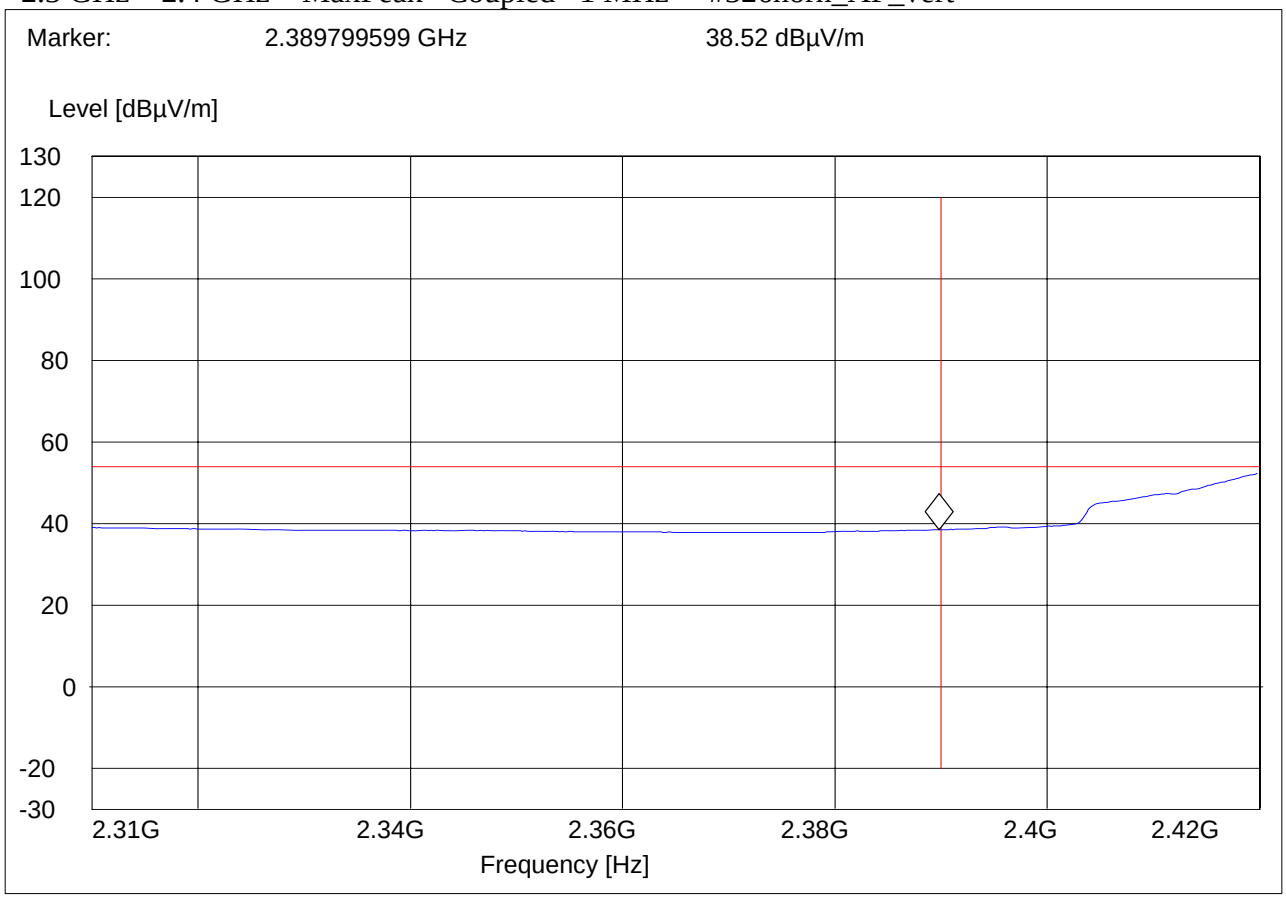


Lower band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT40 CH 1
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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

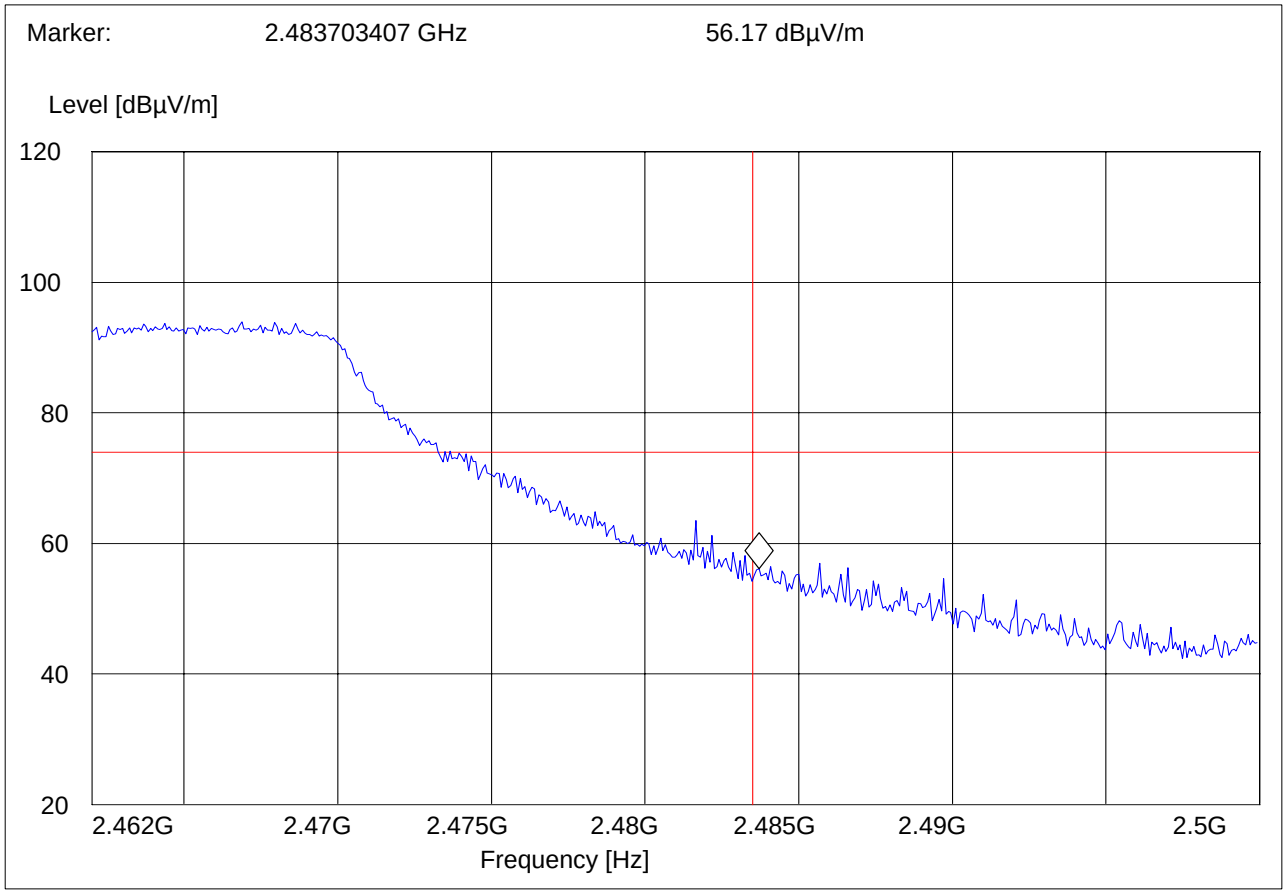


High band edge PEAK

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT40 CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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 MaxPeak

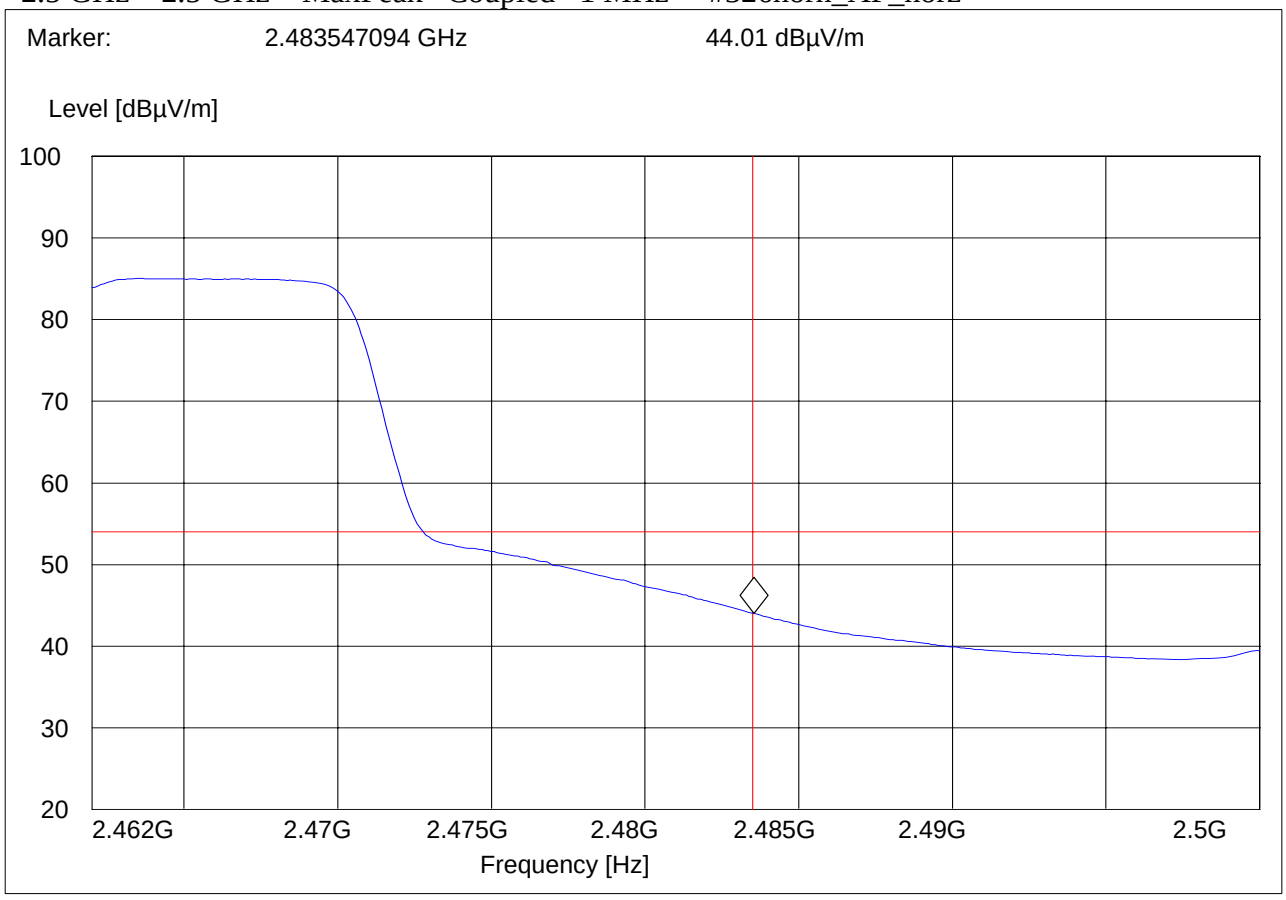


High band edge Average

EUT: PCG-21111L
Customer:: Sony
Test Mode: 802.11n HT40 CH 11
ANT Orientation: H
EUT Orientation: H
Test Engineer: Sam
Voltage: AC
Comments: TT @ 309° ANT-123cm

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



5.3 Transmitter Spurious Emission § 15.247/15.205/15.209

5.3.1 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

5.3.2 RESULTS Sub-band 1 802.11b/g MODE

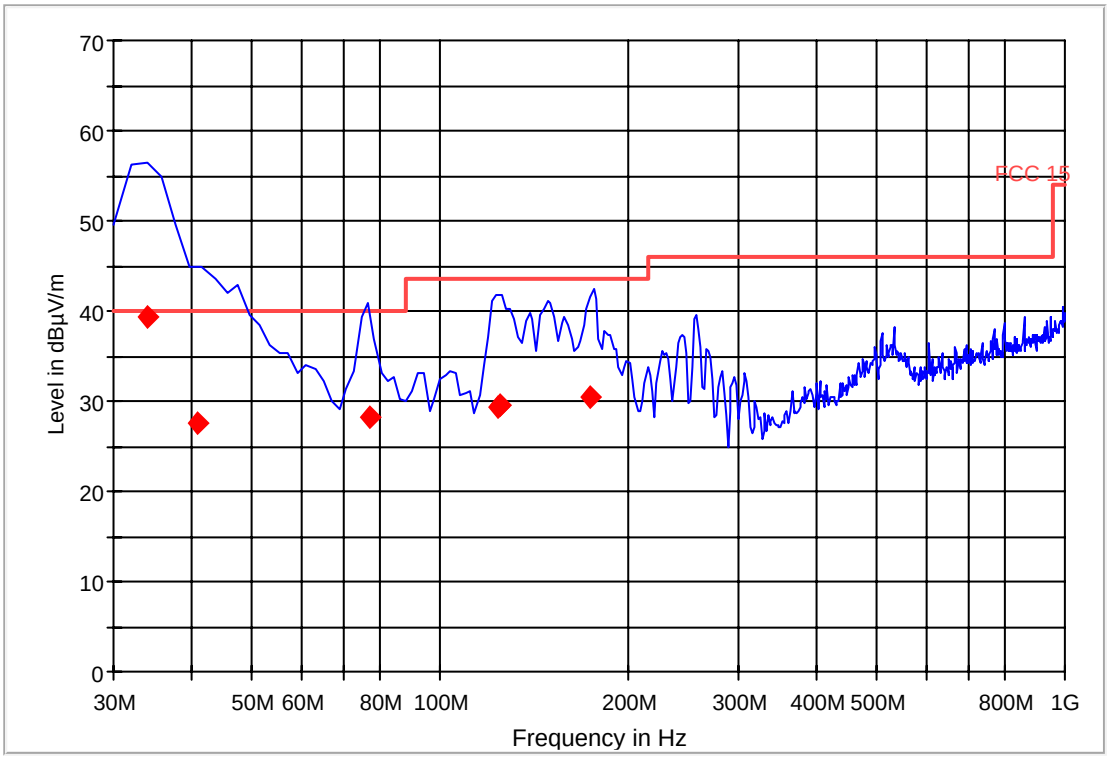
Transmitter spurious emission for 802.11b/g mode is measured in 802.11g mode, which has higher radiated power, and verified in 802.11b mode. All emissions reported here are worse cases.

30MHz – 1GHz,
Note: This plot is valid for low, mid, high channels (worst-case plot).

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.096570	39.4	20.000	120.000	139.0	V	22.0	6.6	0.6	40.0
40.811623	27.5	20.000	120.000	120.0	V	287.0	5.6	12.5	40.0
77.344690	28.2	20.000	120.000	161.0	V	277.0	9.4	11.8	40.0
123.777555	29.3	20.000	120.000	155.0	H	187.0	9.3	14.2	43.5
124.338677	29.6	20.000	120.000	139.0	H	0.0	9.3	13.9	43.5
174.218437	30.5	20.000	120.000	147.0	H	1.0	11.2	13.0	43.5

FCC 15 30-1000MHz



1-18GHz (2412MHz)

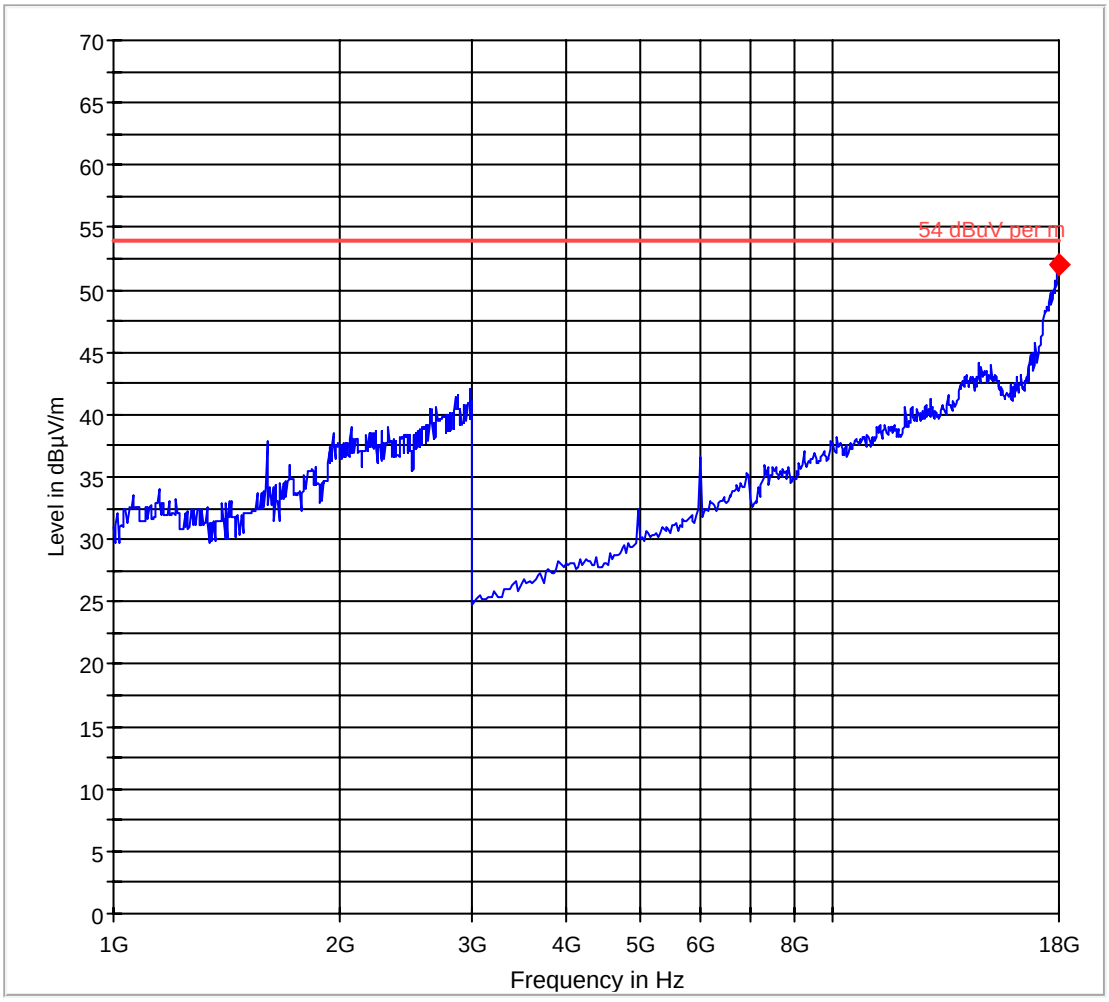
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17996.903808	52.0	20.000	1000.000	157.0	V	112.0	29.4	2.0	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17996.903808	

FCC 15 1-18GHz



1-18GHz (2437MHz)

Test

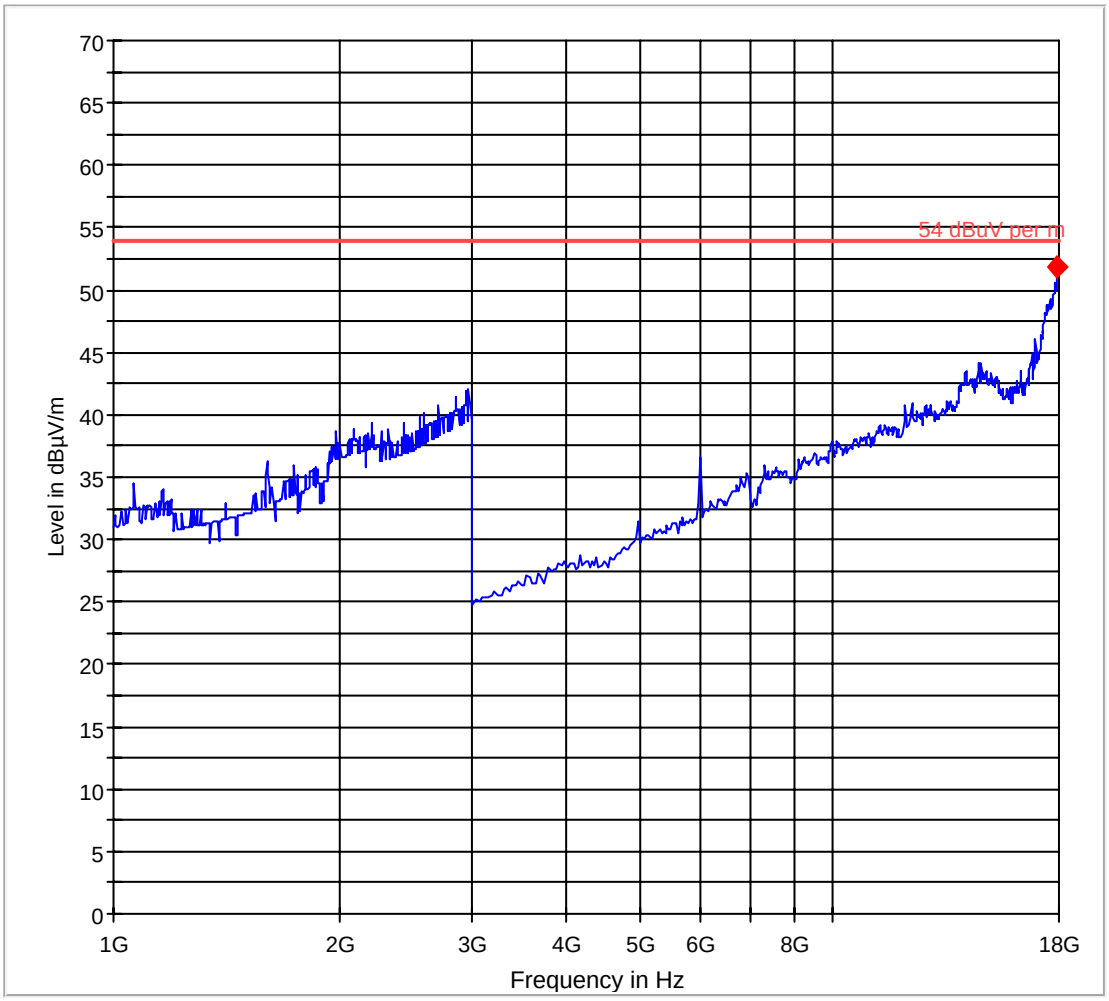
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17942.274550	51.9	20.000	1000.000	123.0	H	71.0	29.3	2.1	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17942.274550	

FCC 15 1-18GHz



1-18GHz (2462MHz)

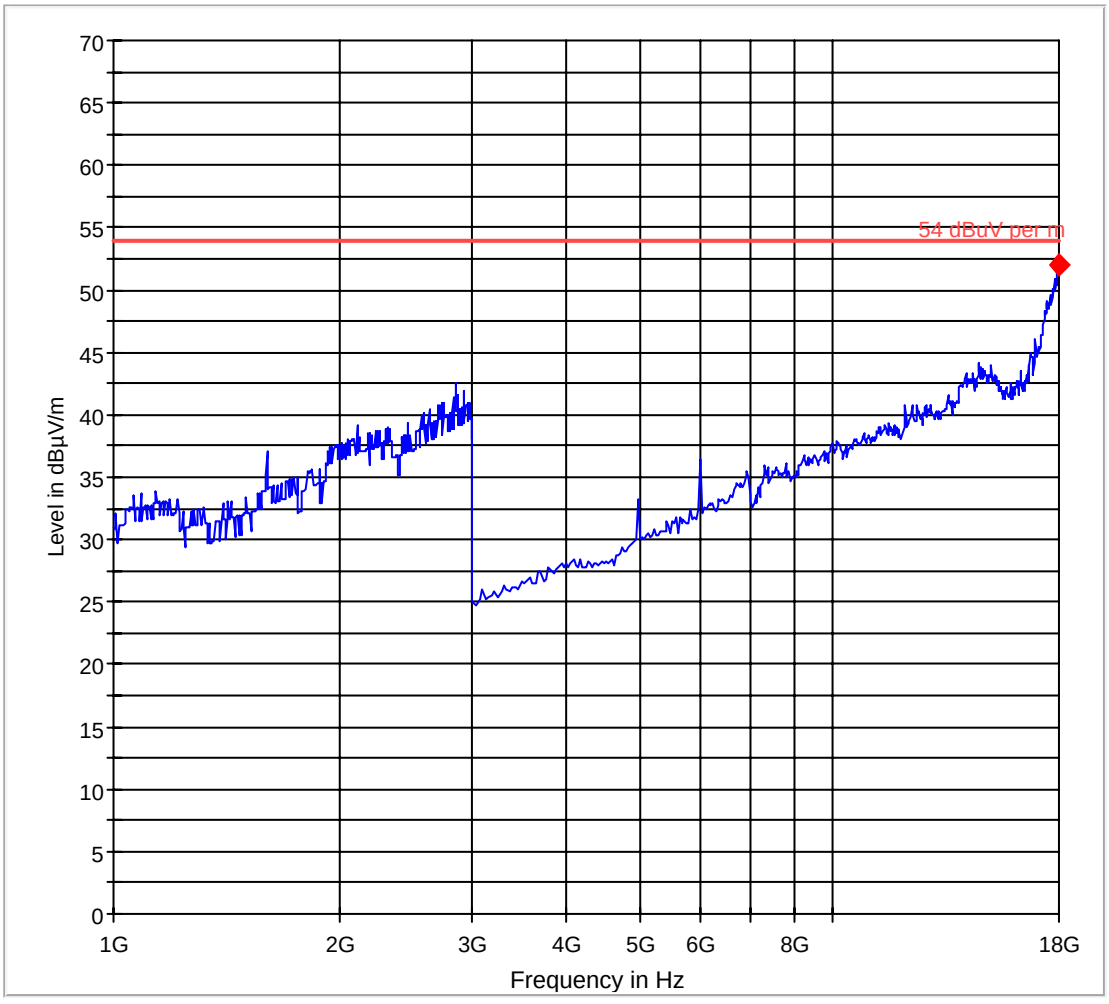
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17999.759519	52.0	20.000	1000.000	123.0	V	10.0	29.4	2.0	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17999.759519	

FCC 15 1-18GHz



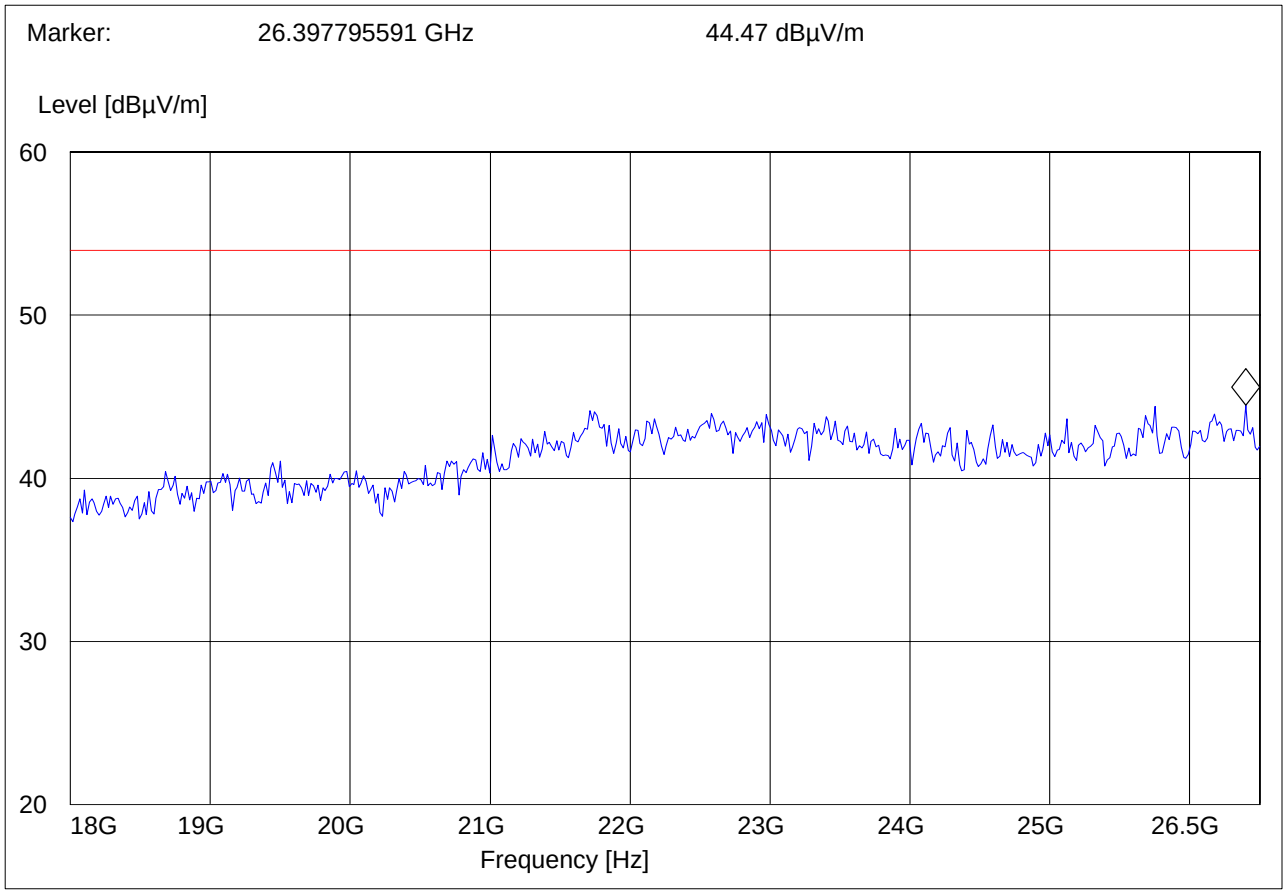
18-25GHz

Note: This plot is valid for low, mid, high channels (worst-case plot).
Note: Peak Reading vs. Average limit

```
EUT:             21111L
Customer::       Sony Electronics
Test Mode:       802.11g; Ch. 6
ANT Orientation: H
EUT Orientation: H
Test Engineer:   Chris
Voltage:         AC
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 MaxPeak	Coupled	100 kHz	Horn # 3116_18-40G



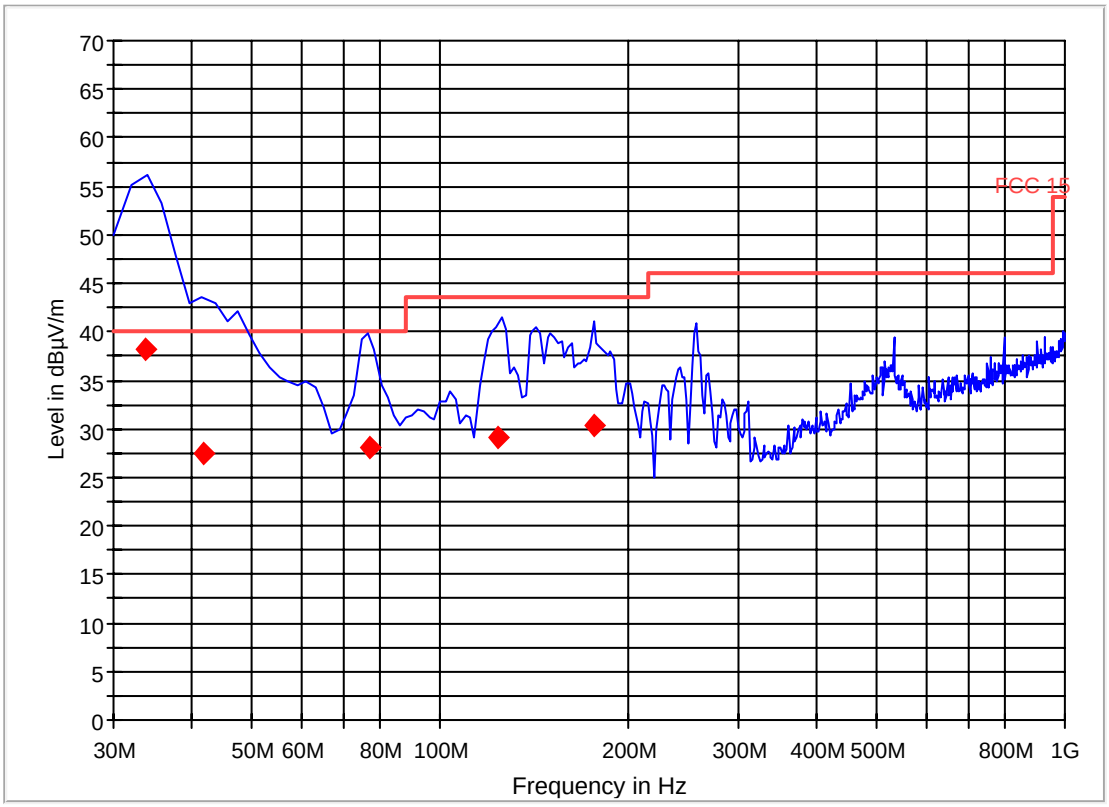
5.3.3 RESULTS Sub-band 1 802.11n HT40 MODE

30MHz – 1GHz,
Note: This plot is valid for low, mid, high channels (worst-case plot).

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.758158	38.3	20.000	120.000	120.0	V	0.0	6.7	1.7	40.0
41.873747	27.4	20.000	120.000	120.0	V	22.0	5.7	12.6	40.0
76.983968	28.1	20.000	120.000	161.0	V	277.0	9.4	11.9	40.0
123.517034	29.1	20.000	120.000	161.0	H	202.0	9.3	14.4	43.5
176.202405	30.4	20.000	120.000	155.0	H	9.0	11.2	13.1	43.5

FCC 15 30-1000MHz



1-18GHz (2422MHz)

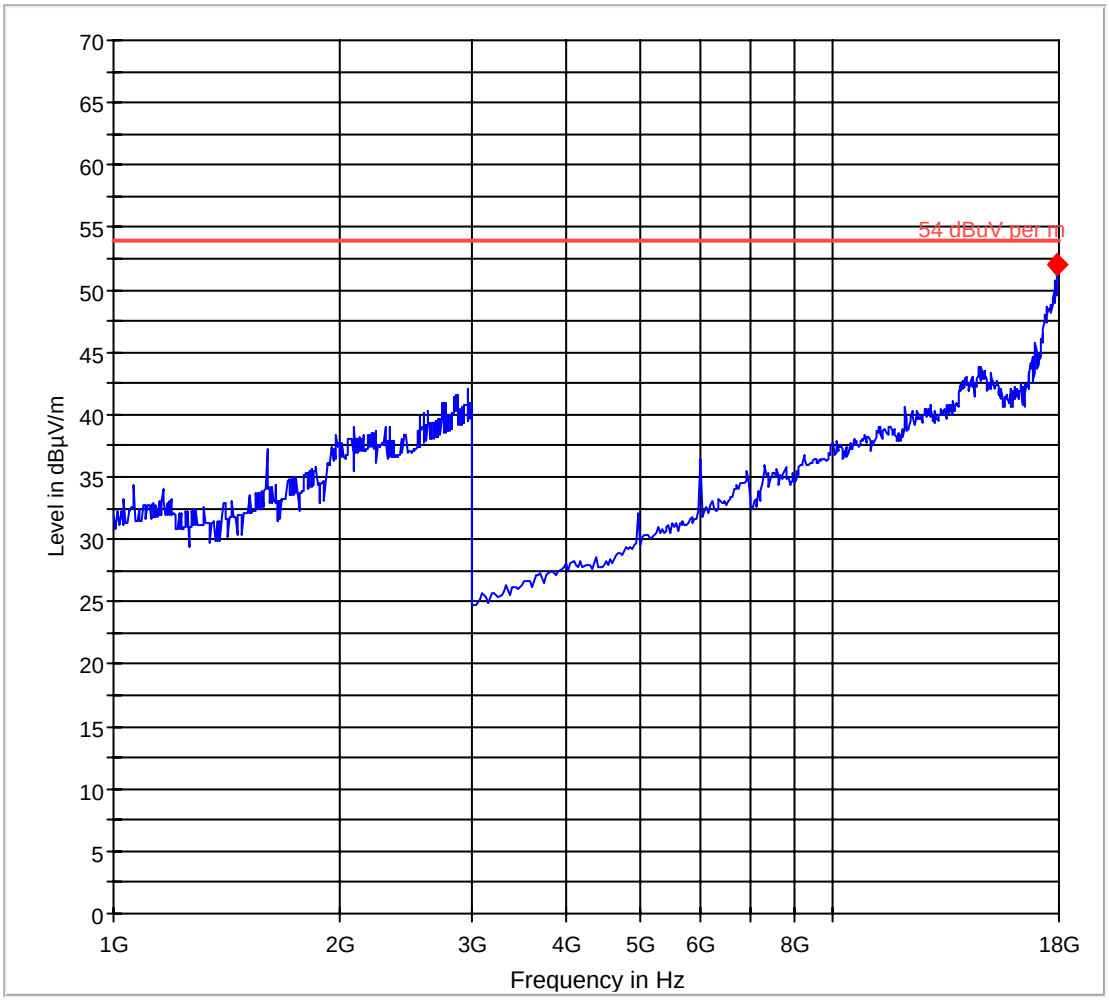
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17942.254509	52.0	20.000	1000.000	121.0	H	10.0	29.3	2.0	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17942.254509	

FCC 15 1-18GHz



1-18GHz (2437MHz)

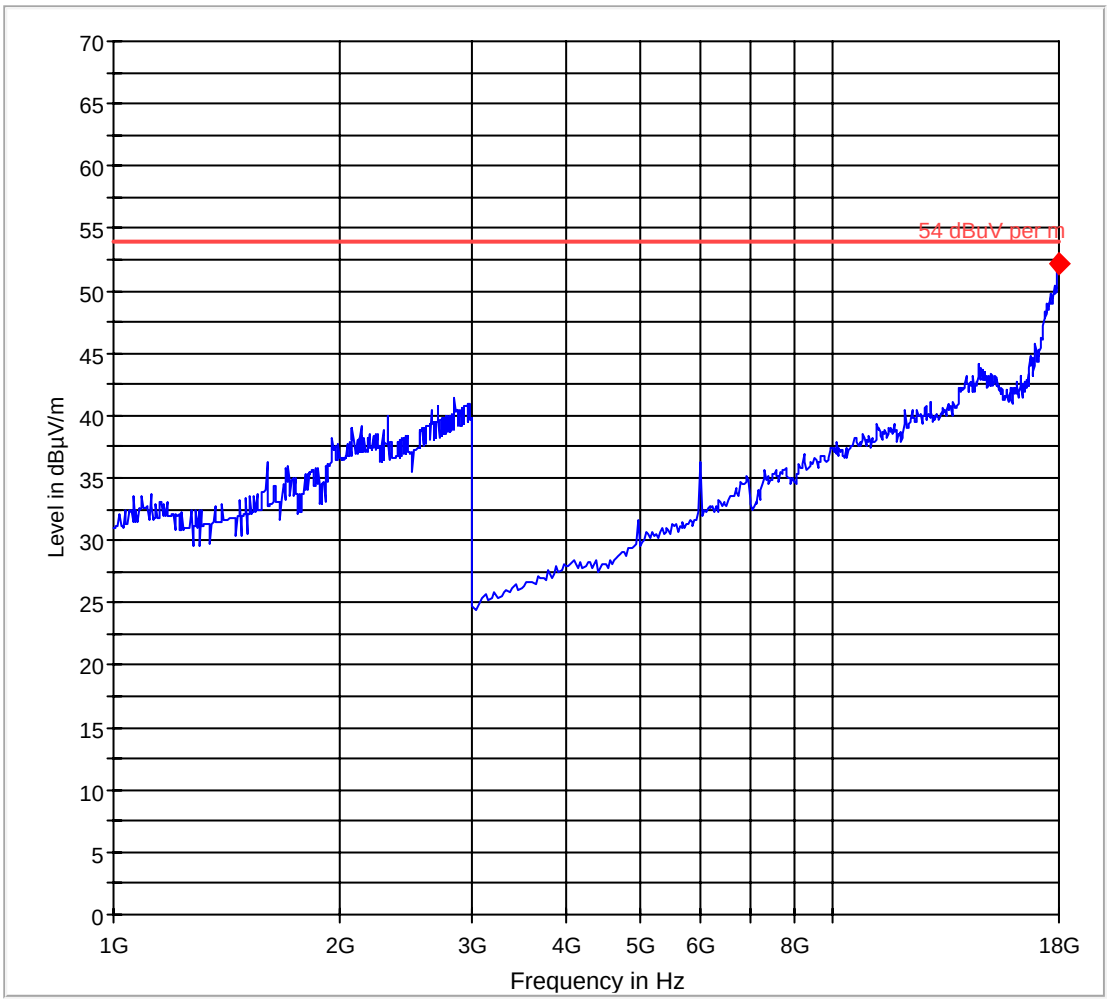
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17970.470942	52.2	20.000	1000.000	162.0	V	1.0	29.5	1.8	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17970.470942	

FCC 15 1-18GHz



1-18GHz (2452MHz)

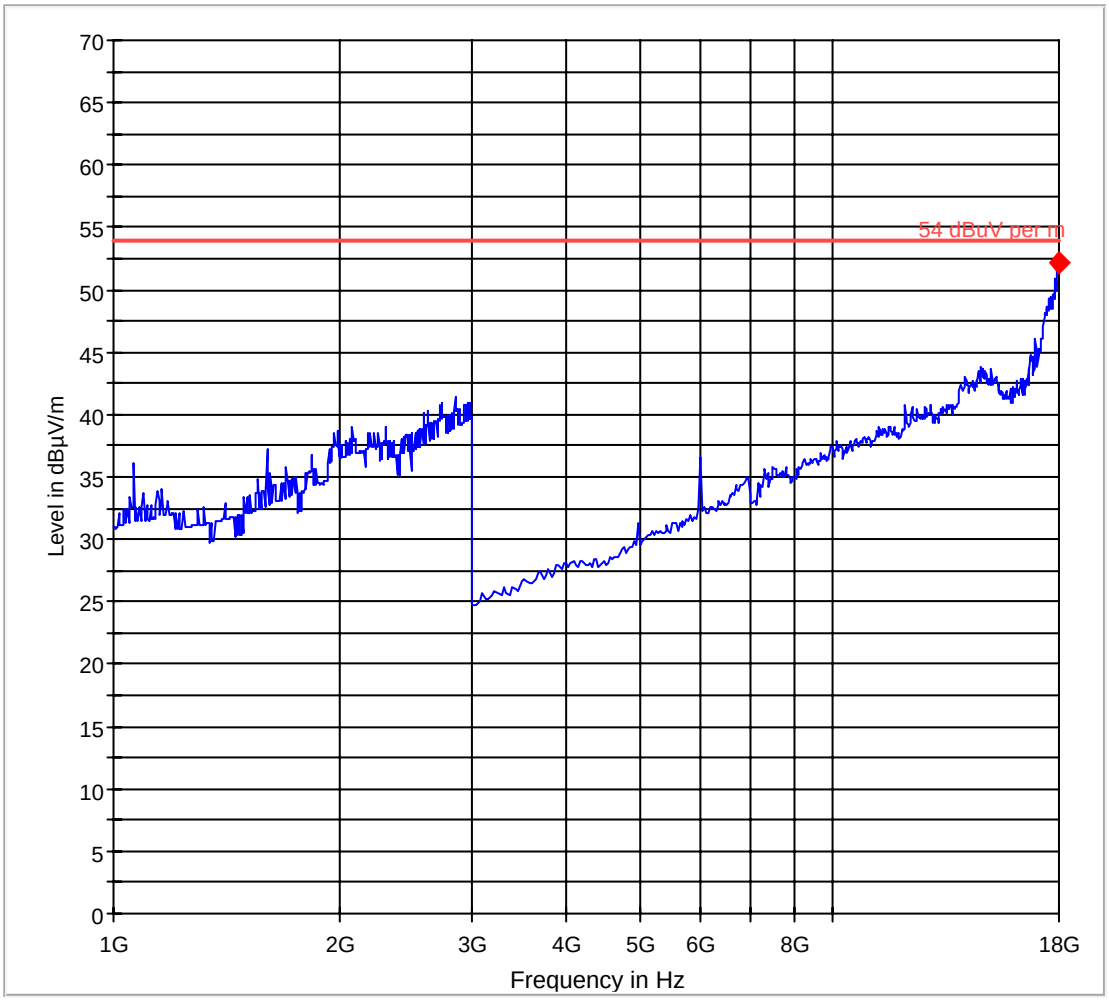
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17969.488978	52.2	20.000	1000.000	120.0	V	11.0	29.5	1.8	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17969.488978	

FCC 15 1-18GHz



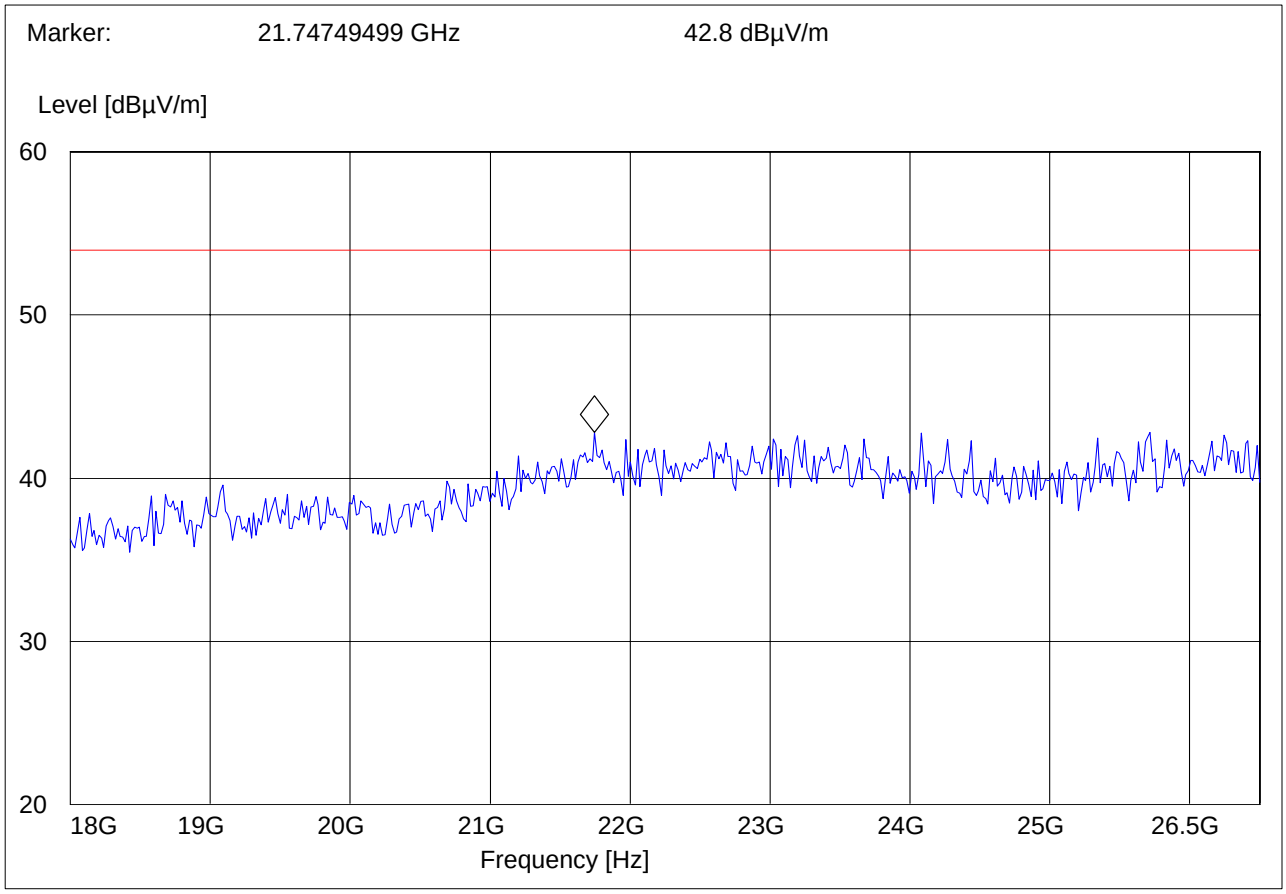
18-26.5GHz

Note: This plot is valid for low, mid, high channels (worst-case plot)
Note: Peak Reading vs. Average limit

```
EUT:              21111L
Customer::        Sony Electronics
Test Mode:        802.11n40; CH. 6
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          AC
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 MaxPeak	Coupled	100 kHz	Horn # 3116_18-40G



5.4 Receiver Spurious Emission § 15.209/RSS210

5.4.1 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.

5.4.2 RESULTS

30MHz – 1GHz,

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

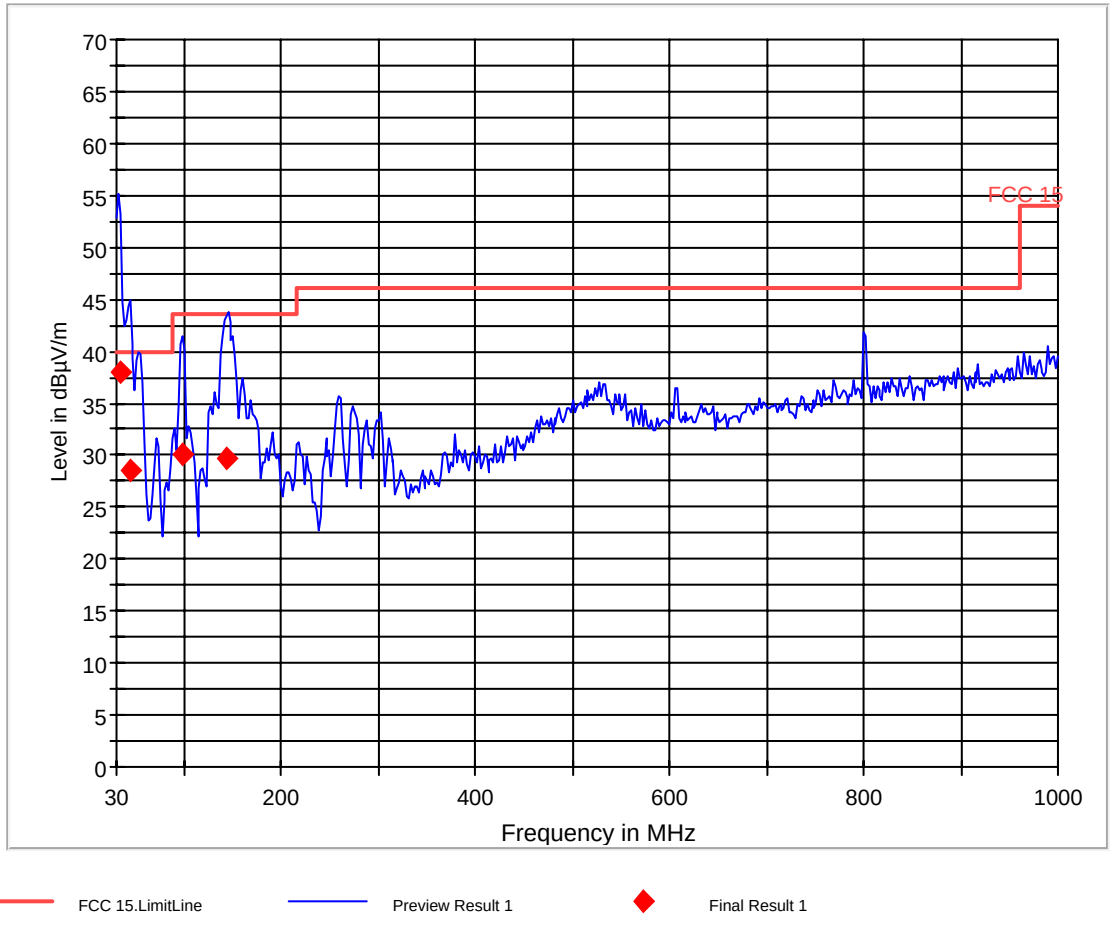
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.228421	37.9	20.000	120.000	121.0	V	1.0	6.8	2.1	40.0
43.997996	28.5	20.000	120.000	121.0	V	69.0	6.0	11.5	40.0
98.206413	30.0	20.000	120.000	121.0	V	278.0	9.9	13.5	43.5
144.358718	29.6	20.000	120.000	121.0	V	292.0	9.6	13.9	43.5

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
33.228421	
43.997996	
98.206413	
144.358718	

FCC 15 30-1000MHz



1-18GHz

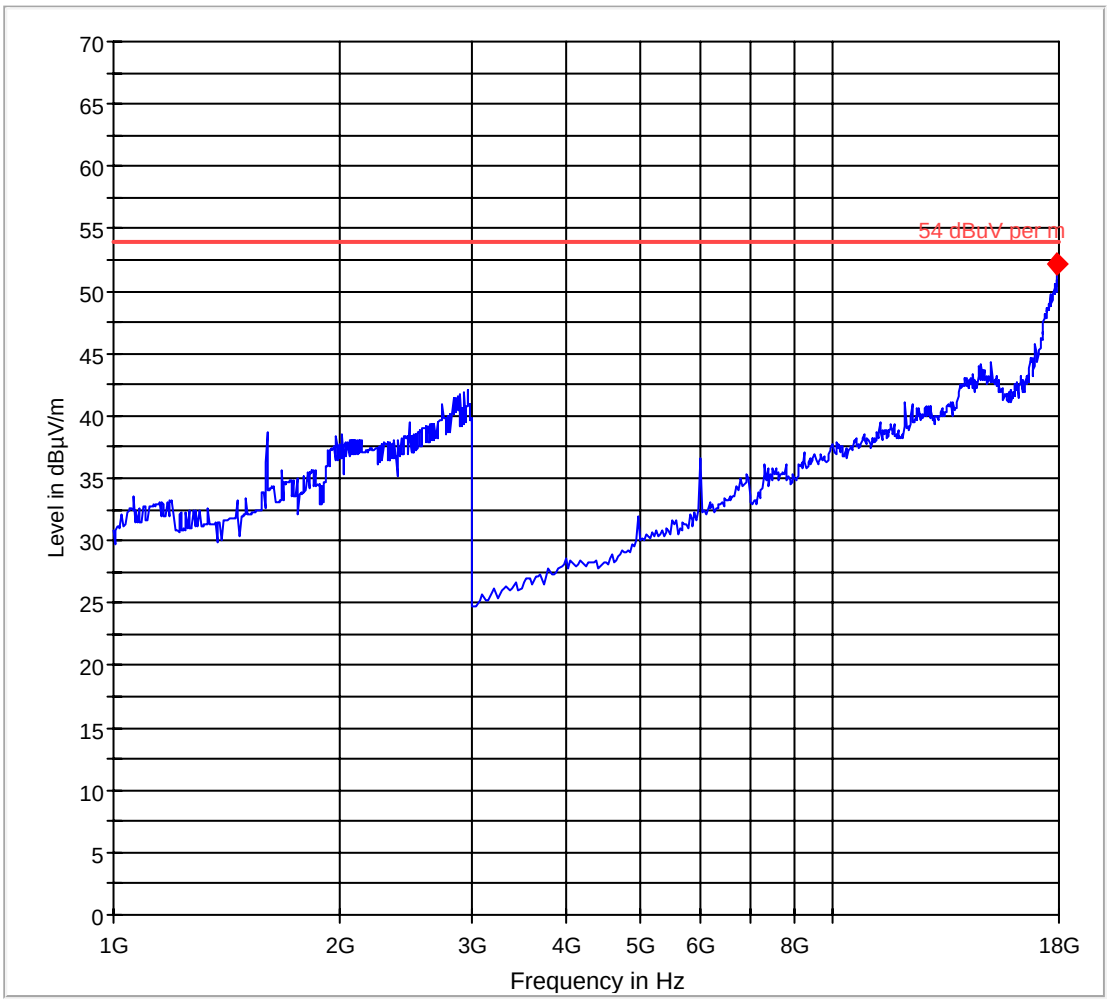
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17944.058117	52.1	20.000	1000.000	120.0	V	108.0	29.5	1.9	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17944.058117	

FCC 15 1-18GHz



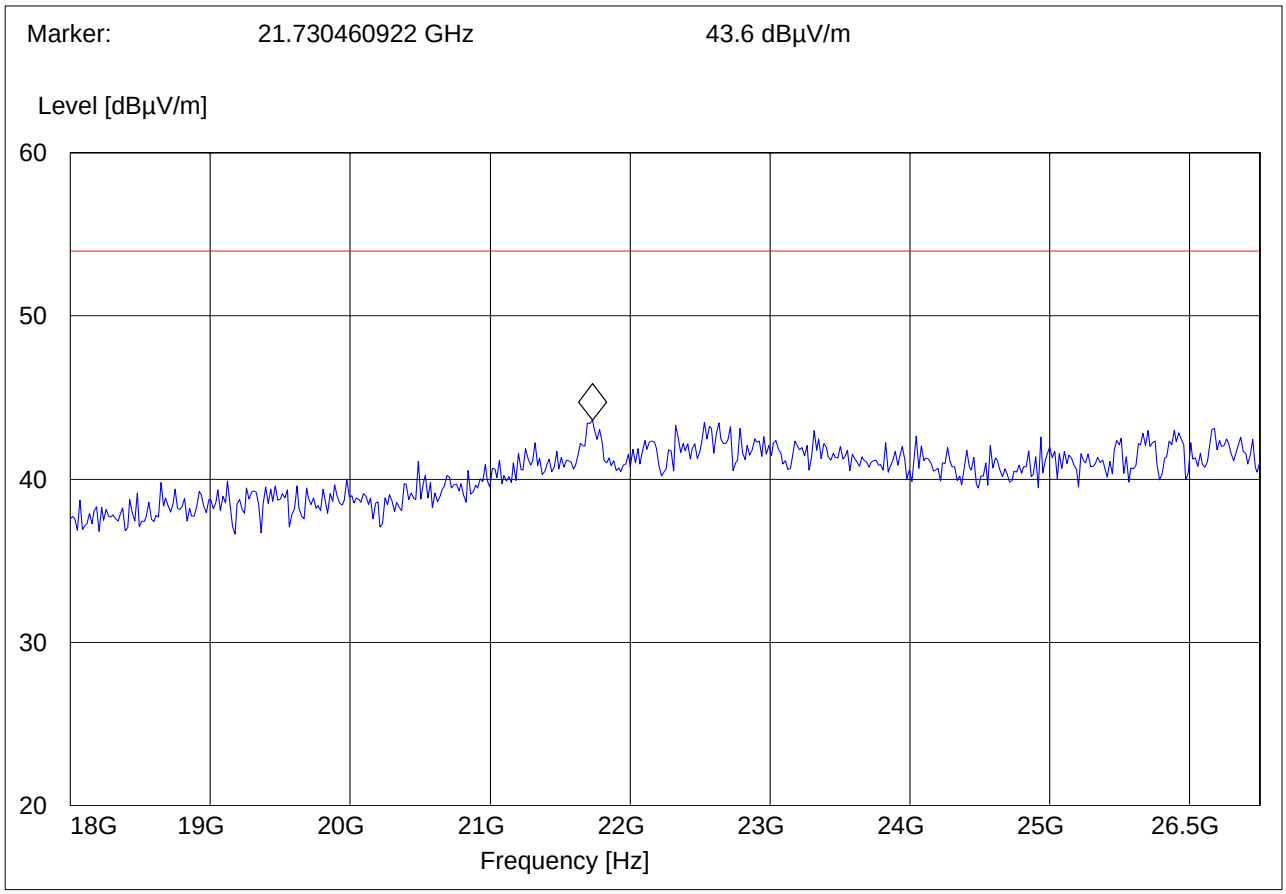
18-26.5GHz

Note: Peak Reading vs. Average limit

EUT: 21111L
Customer:: Sony Electronics
Test Mode: 802.11 RX
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris
Voltage: AC
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 MaxPeak	Coupled	100 kHz	Horn # 3116_18-40G



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

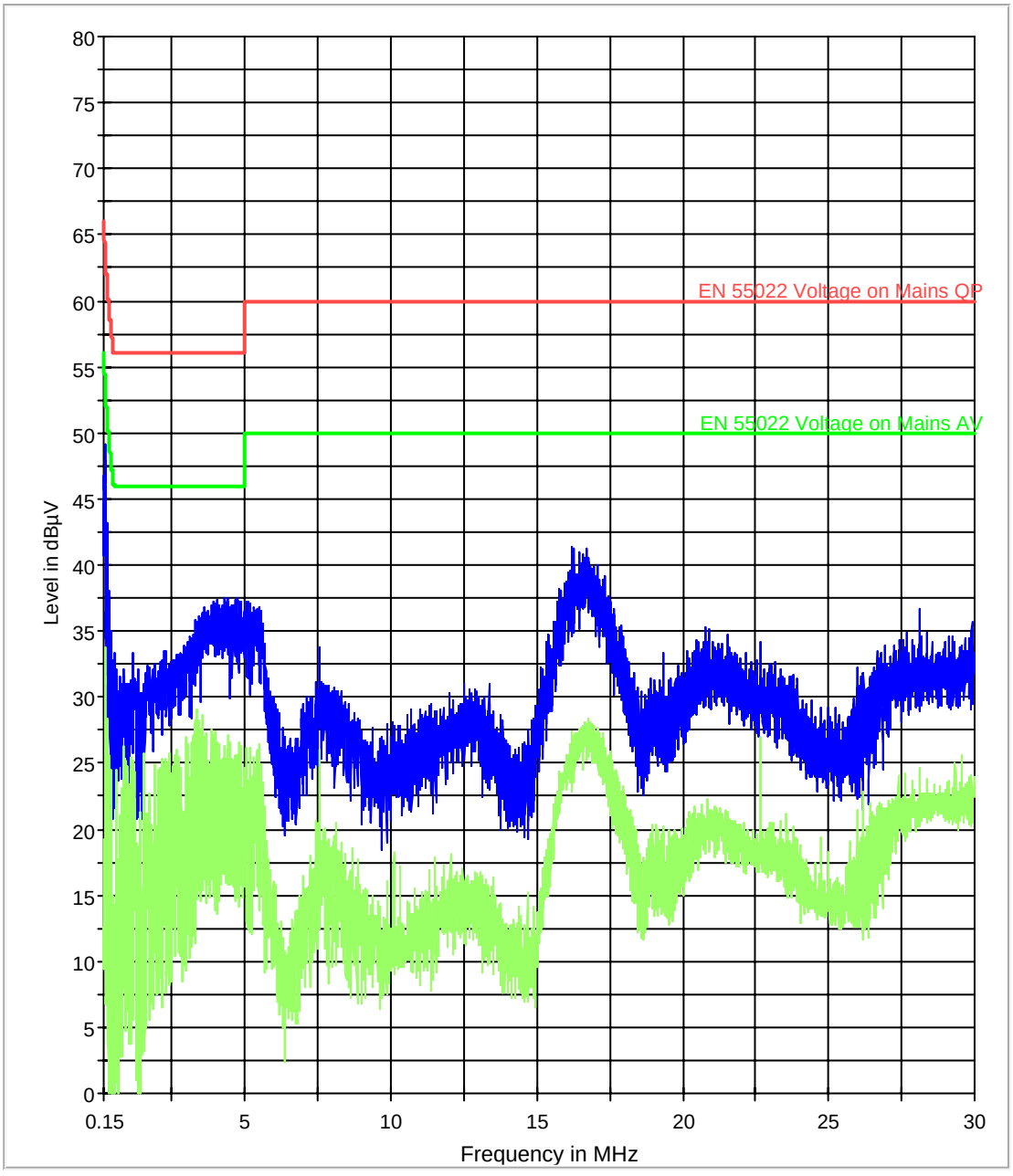
Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50
* Decreases with logarithm of the frequency		

ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz

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

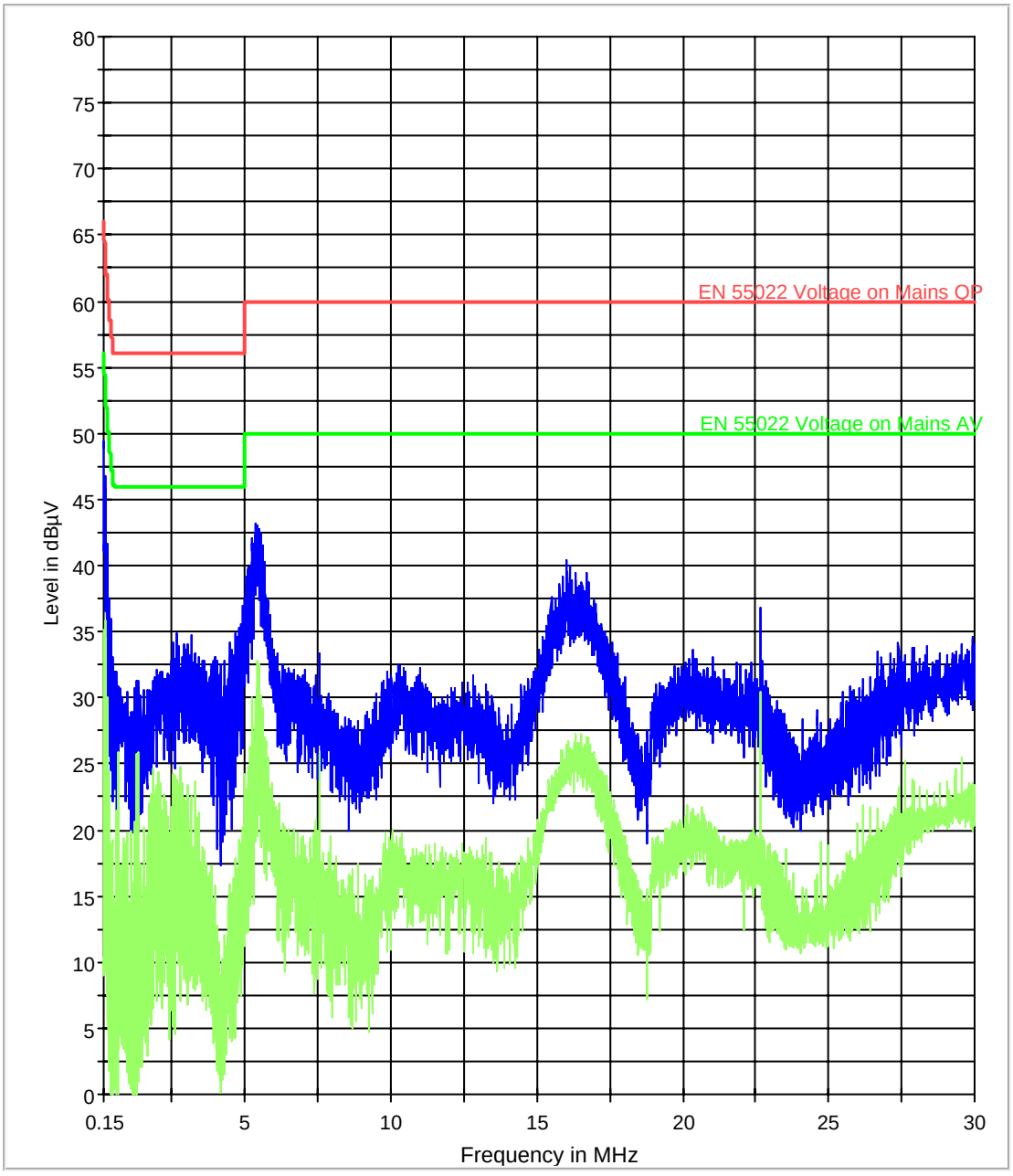
5.5.2 RESULTS Sub-band 1 802.11g:

Line



Neutral

CISPR 22 Mains Conducted - N

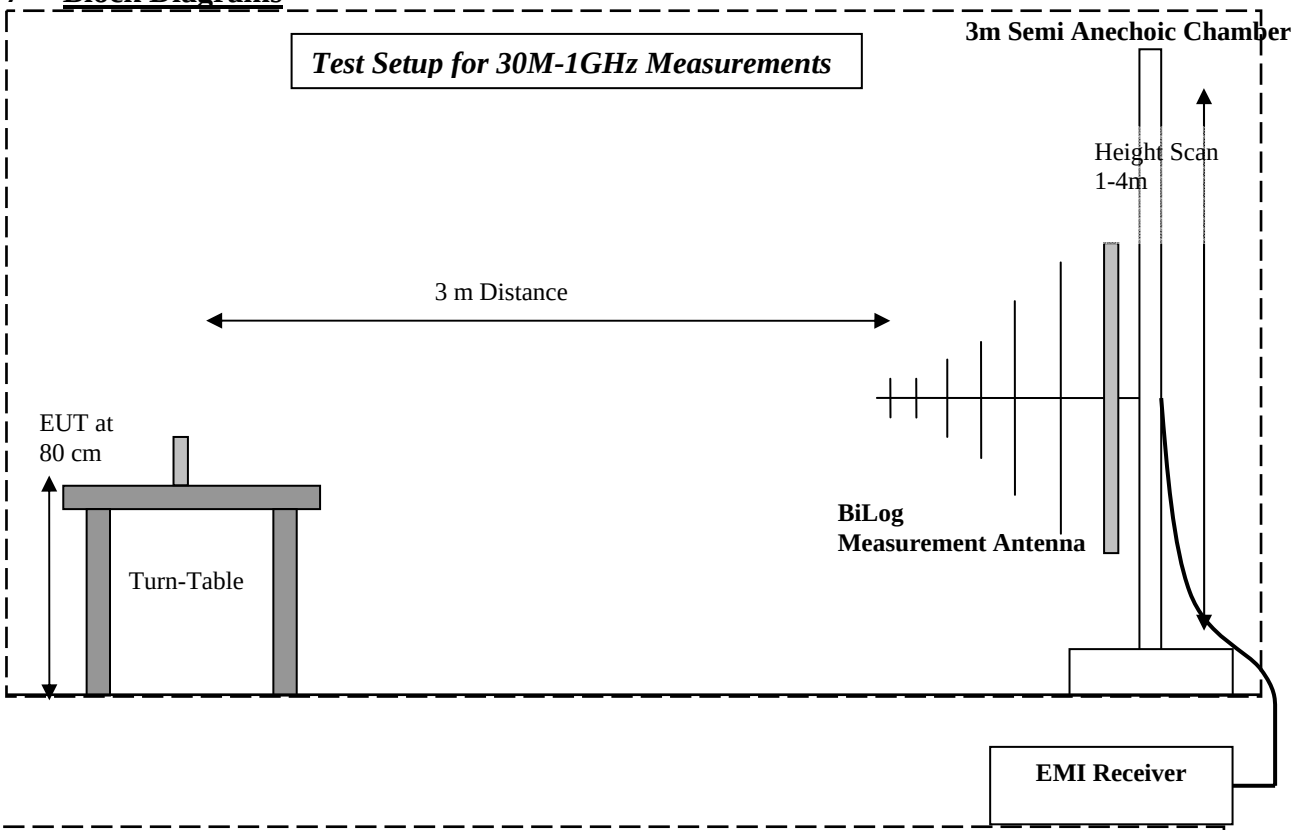


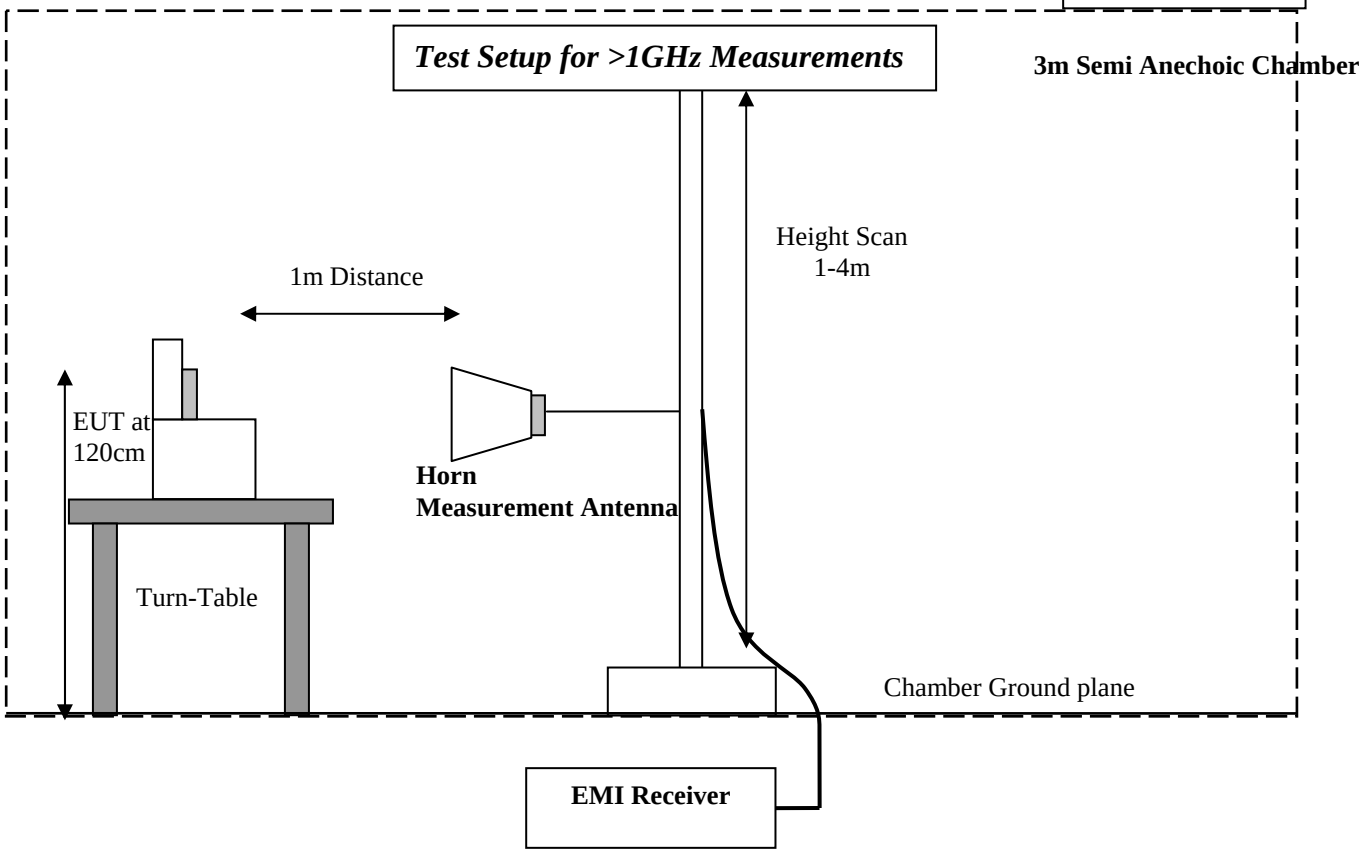
EN 55022 Voltage on Mains QP.LimitLine
Preview Result 1
EN 55022 Voltage on Mains AV.LimitLine
Preview Result 2

6 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	May 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 2011	2 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2011	2 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2011	2 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
10	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
11	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2010	1 year
12	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2010	1 year
13	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2010	1 year
14	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2010	1 year
15	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2010	1 year
16	Loop Antenna	6512	EMCO	00049838	July 2011	2 years

7 Block Diagrams





8 Revision History

2009-07-30	First Issue
2009-08-07	Rev1, Updated EUT description