



FCC Test Report

Test report no.: EMC_799FCC15.247_2004_C2P_PP07L

FCC Part 15.247 for DSSS systems / CANADA RSS-210

EUT: WLAN Model: BCM94318MPG
HOST LAPTOP Model: PP07L
FCC ID: QDS-BRCM1016
IC ID: 4324A-BRCM1016



TTI-P-G 081/94-A0

Accredited according to ISO/IEC 17025

Bluetooth™
Bluetooth Qualification
Test Facility
(BQTF)

CTIA Authorized Test Lab
LAB CODE 20020328-00

FCC listed # 101450

IC recognized # 3925

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

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1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5. 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.

TEST REPORT PREPARED BY:

EMC Engineer: Harpreet Sidhu

1.2 Testing laboratory

CETECOM Inc.

411 Dixon Landing Road, Milpitas, CA-95035, USA

Phone: +1 408 586 6200 Fax: +1 408 586 6299

E-mail: lothar.schmidt@cetecomusa.com

Internet: www.cetecom.com

1.3 Details of applicant

Name : **Broadcom corporation**
Street : **190 Mathilda Place**
City / Zip Code : **Sunnyvale, CA 94086**
Country : **USA**
Contact : **Daniel Lawless**
Telephone : **408-922-5870**
Tele-fax : **408-543-3399**
e-mail : **dlawless@broadcom.com**

1.4 Application details

Date of receipt test item : 2005-03-10
Date of test : 2005-03-10/11

1.5 Test item

Manufacturer : Applicant
Model No. : **BCM94318MPG**
Host : **Dell Laptop Model# PP07L, s/n 07899029300023**
Description : **Broadcom 802.11g mini PCI card**
FCC ID : **QDS-BRCM1016**
IC ID : **4324A-BRCM1016**

Additional information

Frequency : 2412MHz – 2462MHz
Type of modulation : DSSS / OFDM (orthogonal frequency division multiplexing)
Number of channels : 11
Antenna : 2.2dBi max. gain PCB ant. for 2.4GHz band
Power supply : 3.3 VDC from Host
Output power : 28.95dBm (785.24mW) conducted peak power
Extreme temp. Tolerance : 0°C to +70°C

1.6 Test standards: **FCC Part 15 §15.247 / CANADA RSS-210**

PROJECT OVERVIEW:

This test report carries all radiated measurements required as per FCC 15.247 on WLAN mini PCI card model# BCM94318MPG tested in host Dell laptop model# PP07L. For all conducted measurements please refer to test report# *EMC_799FCC15.247_2004_BCM94318MPG_rev1*

All measurements are done with 2.2dBi max. gain antenna. WLAN was tested for spurious emissions in both DSSS & OFDM modes at different data rates (1, 2, 5.5, 6, 11, and 54) to ensure compliance of the whole device. Test report shows only worst-case test results of all data rates with following power levels.

802.11g mode: 16.5dBm

802.11b mode: 18dBm

For more information on antennas and host platforms covered under this C2P change please refer to *BCM94318MPAGH_C2P_Declaration_worst_case_platform*

2 Technical test**2.1 Summary of test results**

No deviations from the technical specification(s) were ascertained in the course of the tests
Performed

Final Verdict: (Only "passed" if all single measurements are "passed")	Passed
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Technical responsibility for area of testing:

2005-03-29 **EMC & Radio** **Pete Krebill (EMC Engineer)**

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

2005-03-29 **EMC & Radio** **Harpreet Sidhu (EMC Engineer)**

**Date****Section****Name****Signature**

2.2 Test report

TEST REPORT

Test report no.: EMC_799FCC15.247_2004_C2P_PP07L

TEST REPORT REFERENCE

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**MAXIMUM PEAK OUTPUT POWER
(Conducted)****§ 15.247 (b) (1)**

TEST CONDITIONS		MAXIMUM PEAK OUTPUT POWER (dBm)			
Frequency (MHz)		2412		2437	2462
T _{nom} (23)°C	V _{nom} (3.3) VDC	Pk	28.59	28.95	28.57
Measurement uncertainty		±0.5dBm			

RBW / VBW: 10MHz

To comply with following:*RBW / VBW should be equal to or greater than the 6dB BW****All measured values are corrected by 10log 6dB BW / used BW****(Therefore correction factor of 2.18, 2.16 & 2.16 is added to low, mid& high channel measurements respectively)****LIMIT****SUBCLAUSE § 15.247 (b) (1)**

Frequency range	RF power output
2400-2483.5 MHz	1.0 Watt / 30dBm

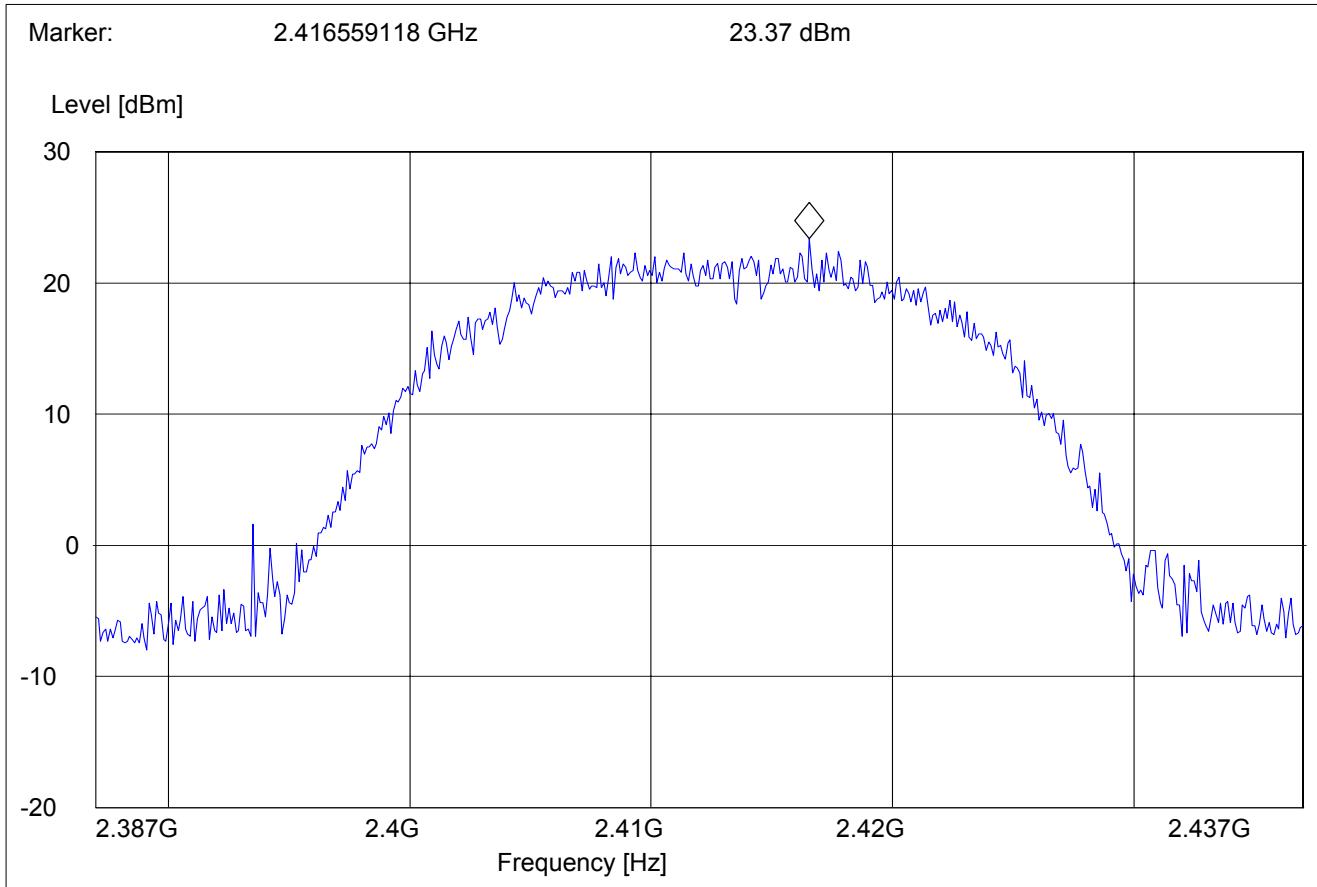
**MAXIMUM PEAK OUTPUT POWER
(RADIATED)****§ 15.247 (b) (1)****EIRP:**

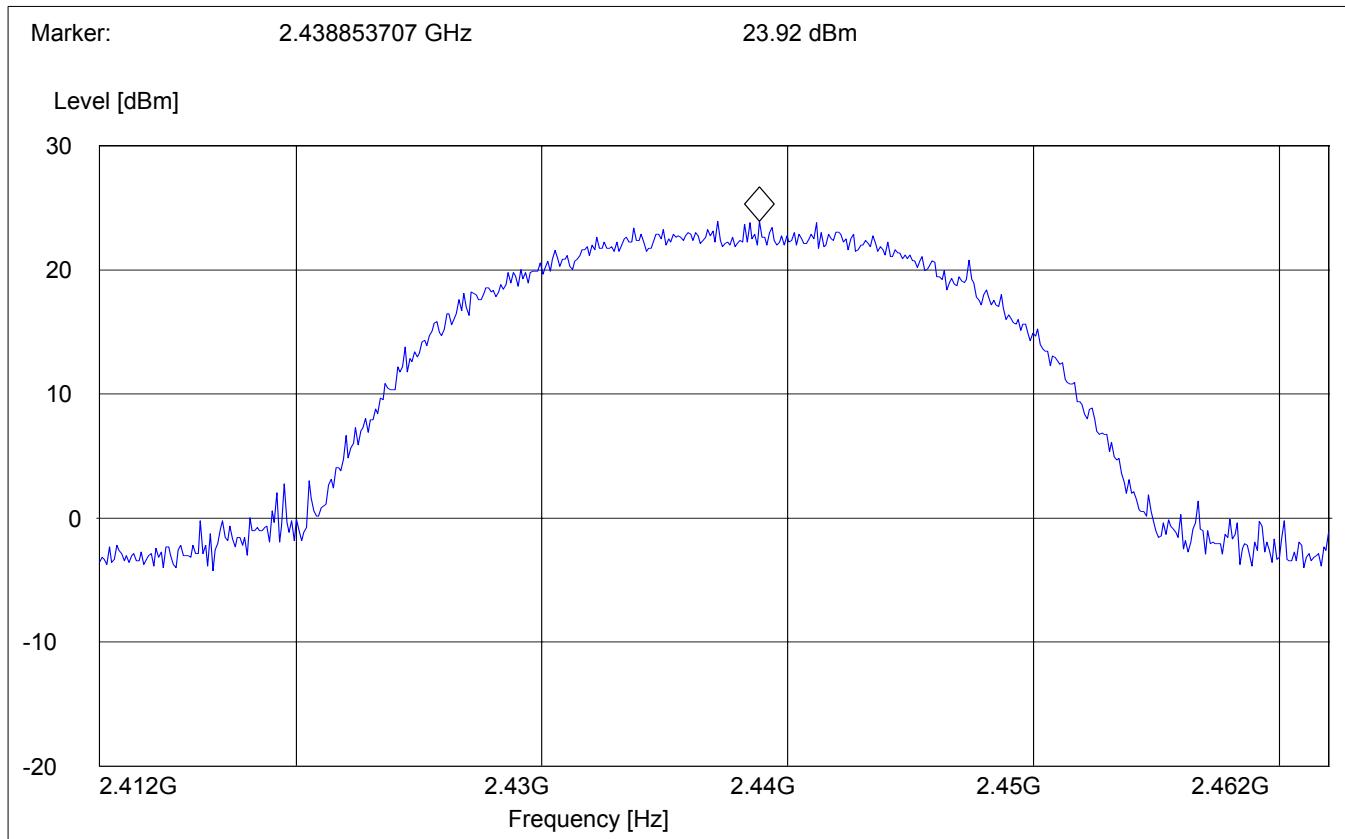
TEST CONDITIONS		MAXIMUM PEAK OUTPUT POWER (dBm)		
Frequency (MHz)		2412	2437	2462
T _{nom} (23)°C	V _{nom} (3.3) VDC	23.37	23.92	24.91
Measurement uncertainty		±0.5dBm		

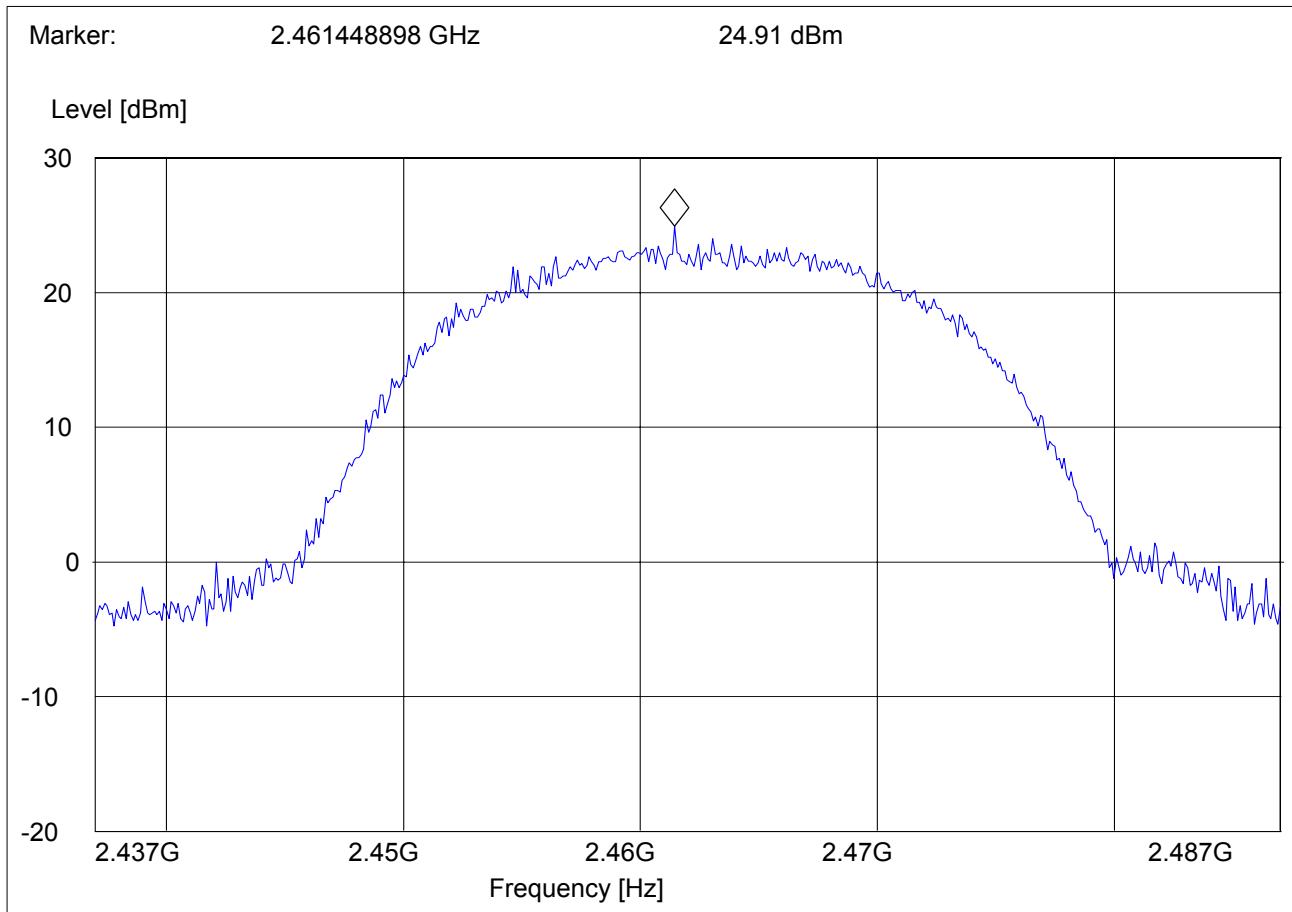
RBW / VBW: 10MHz

LIMIT**SUBCLAUSE § 15.247 (b) (1)**

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

PEAK OUTPUT POWER (RADIATED)**EIRP****Lowest Channel: 2412MHz**

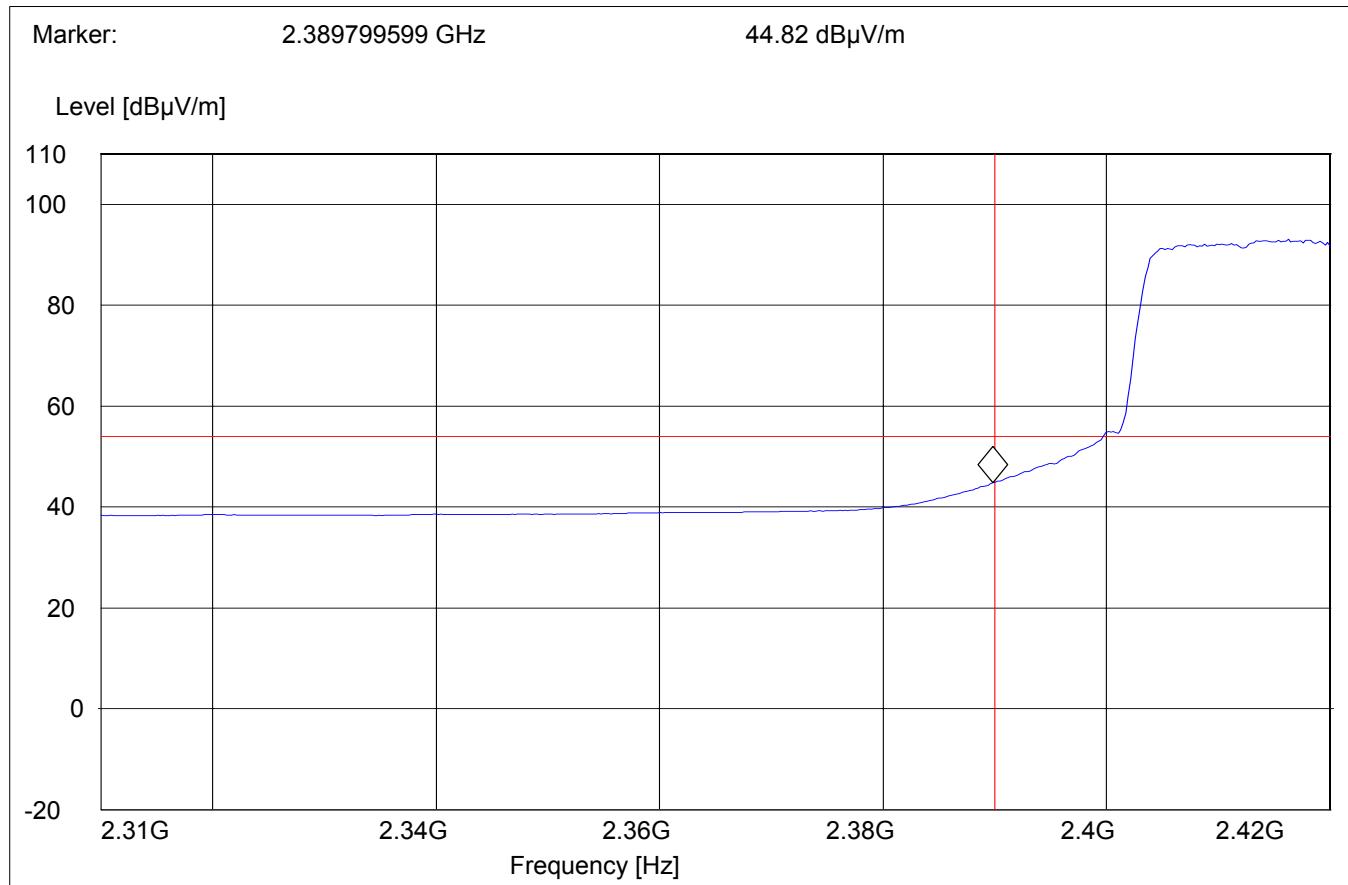
PEAK OUTPUT POWER (RADIATED)**EIRP****Mid Channel: 2437MHz**

PEAK OUTPUT POWER (RADIATED)**EIRP****Highest Channel: 2462MHz**

BAND EDGE COMPLIANCE (802.11g)**§15.247 (c)****Data rate: 6Mbps****Power Level: 16.5dBm avg. power in packet****Low frequency section (spurious in the restricted band 2310 – 2390 MHz)****(Average measurement)**

Operating condition : Tx at 2412MHz
SWEEP TABLE : "FCC15.247 LBE_AVG"
Limit Line : 54dB μ V

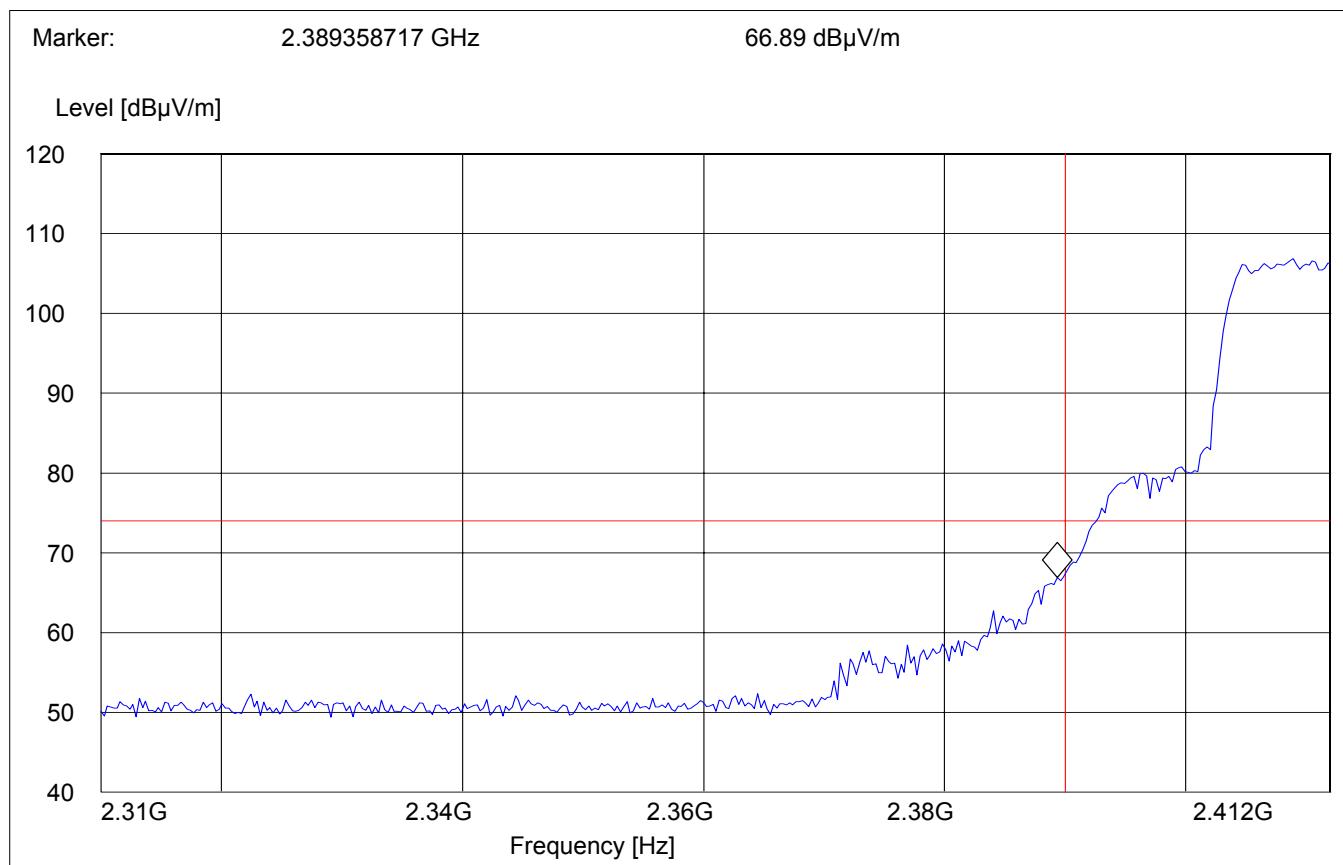
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****Low frequency section (spurious in the restricted band 2310 – 2390 MHz)****(Peak measurement)**

Operating condition : Tx at 2412MHz
SWEEP TABLE : "FCC15.247 LBE_Pk"
Limit Line : 74dB μ V

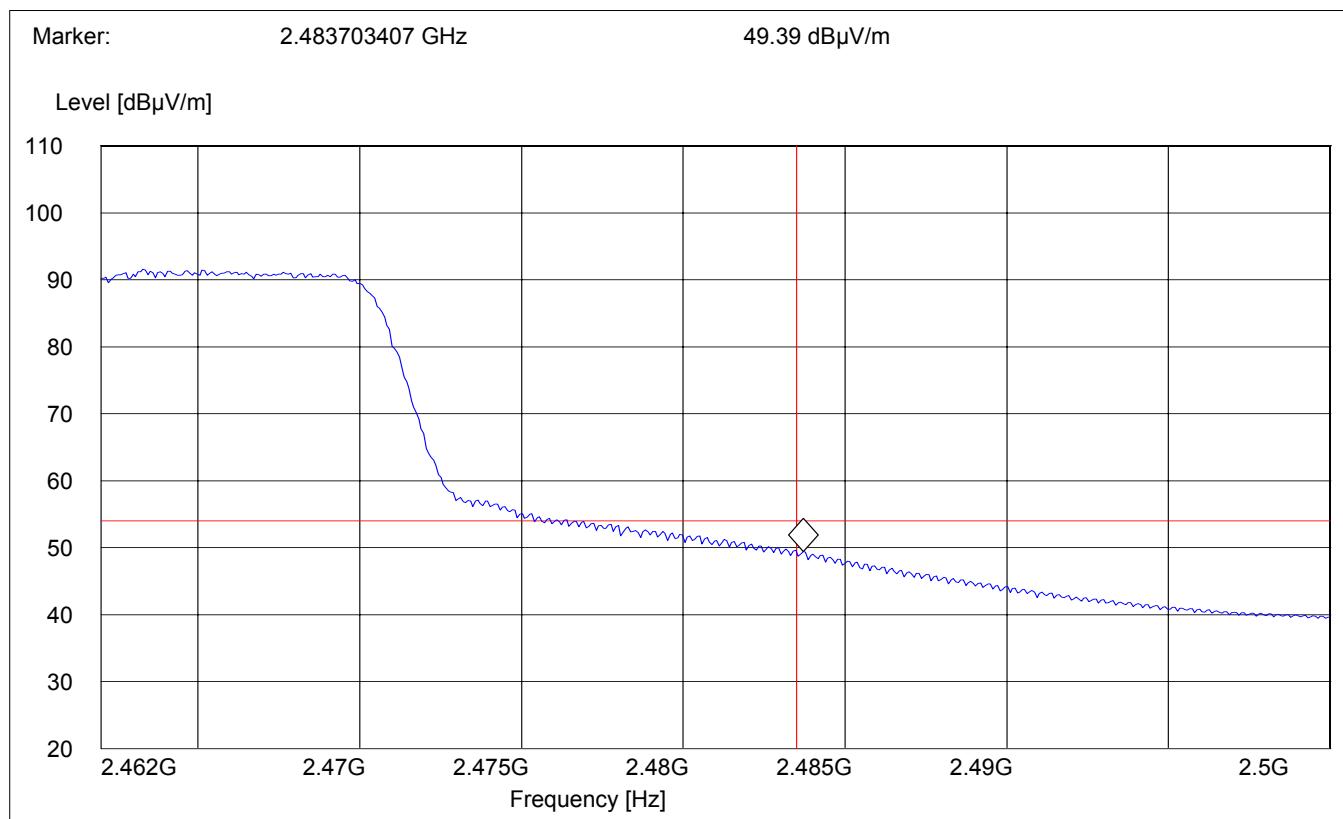
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 6Mbps****Power Level: 16.5dBm avg. power in packet****High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)****(Average measurement)**

Operating condition : Tx at 2462MHz
SWEEP TABLE : "FCC15.247 HBE_AVG"
Limit Line : 54dB μ V

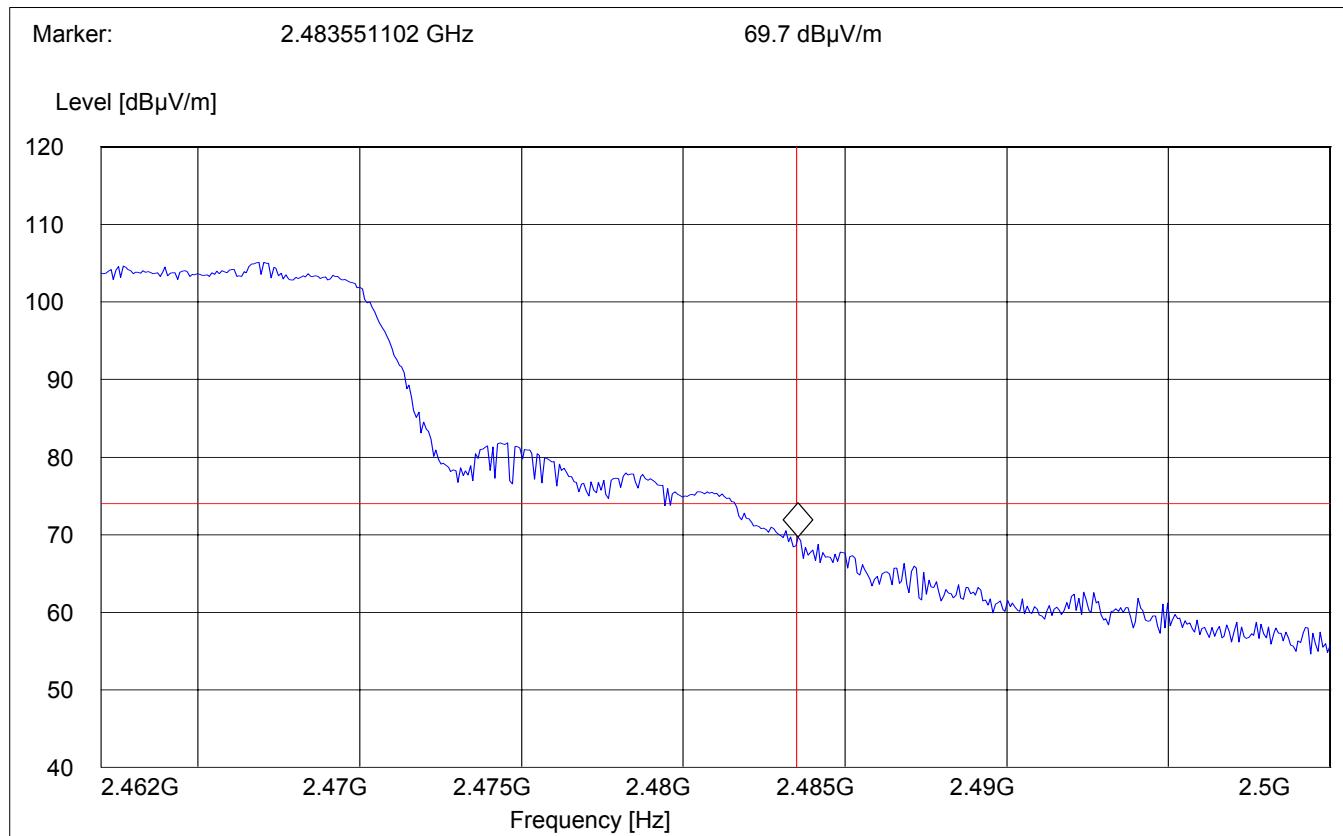
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)****(Peak measurement)**

Operating condition : Tx at 2462MHz
SWEEP TABLE : "FCC15.247 HBE_PK"
Limit Line : 74dB μ V

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



EMISSION LIMITATIONS (802.11g)**§ 15.247 (c) (1)****Transmitter (Radiated)****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****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)).

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 unless specified with the plots.

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 (c) (1)
Power level: 16.5dBm for 802.11g mode

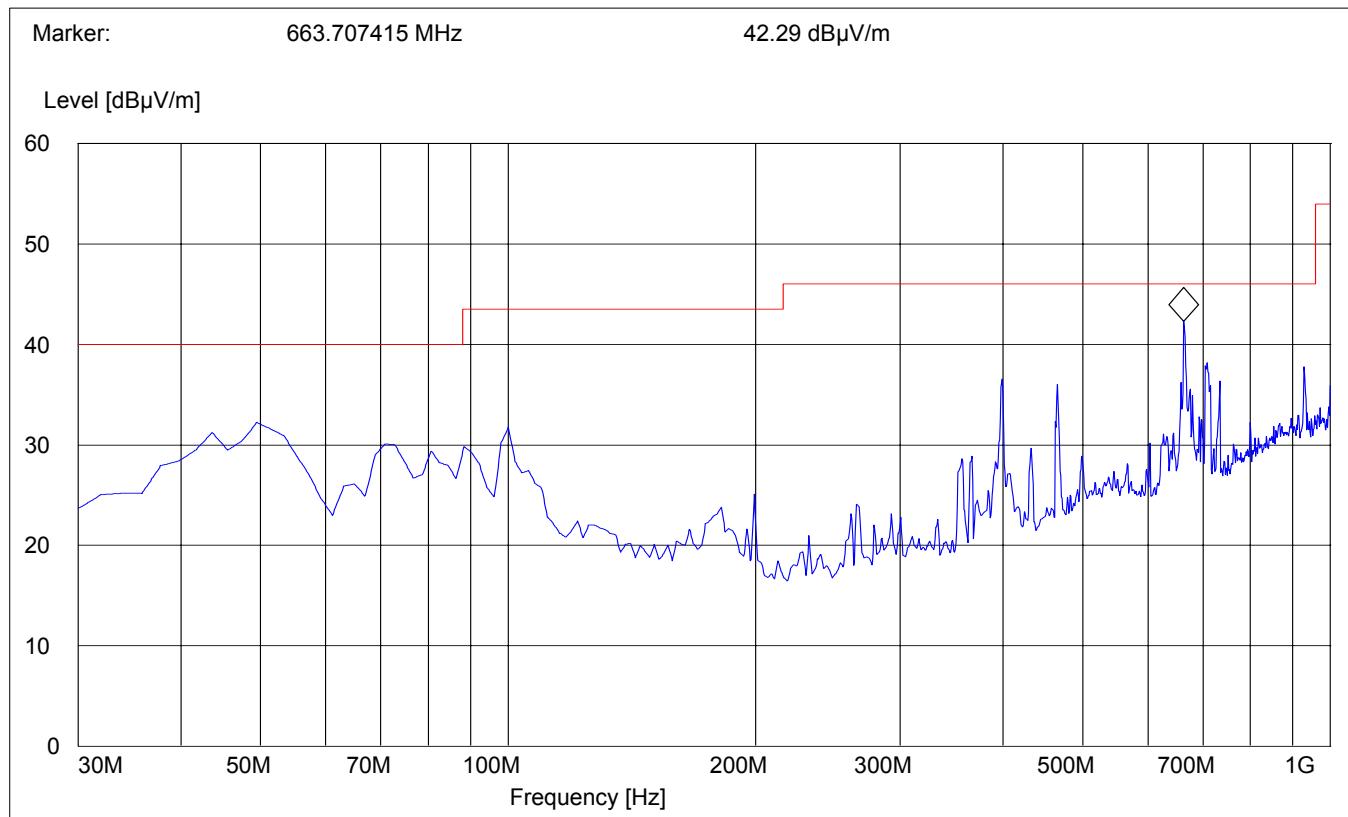
Transmit at Lowest channel Frequency 2412MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 54Mbps	Average 6Mbps
See plots			
Transmit at Middle channel Frequency 2437MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 54Mbps	Average 6Mbps
See plots			
Transmit at Highest channel Frequency 2462MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 54Mbps	Average 6Mbps
See plots			

EMISSION LIMITATIONS - Radiated (Transmitter)**§ 15.247 (c) (1)****Lowest Channel (2412MHz): 30MHz – 1GHz****Antenna: Vertical**

Note: This plot is valid for low, mid, high channels for all data rates and power levels (worst-case plot)

SWEEP TABLE: "Spuri hi 30-1G"

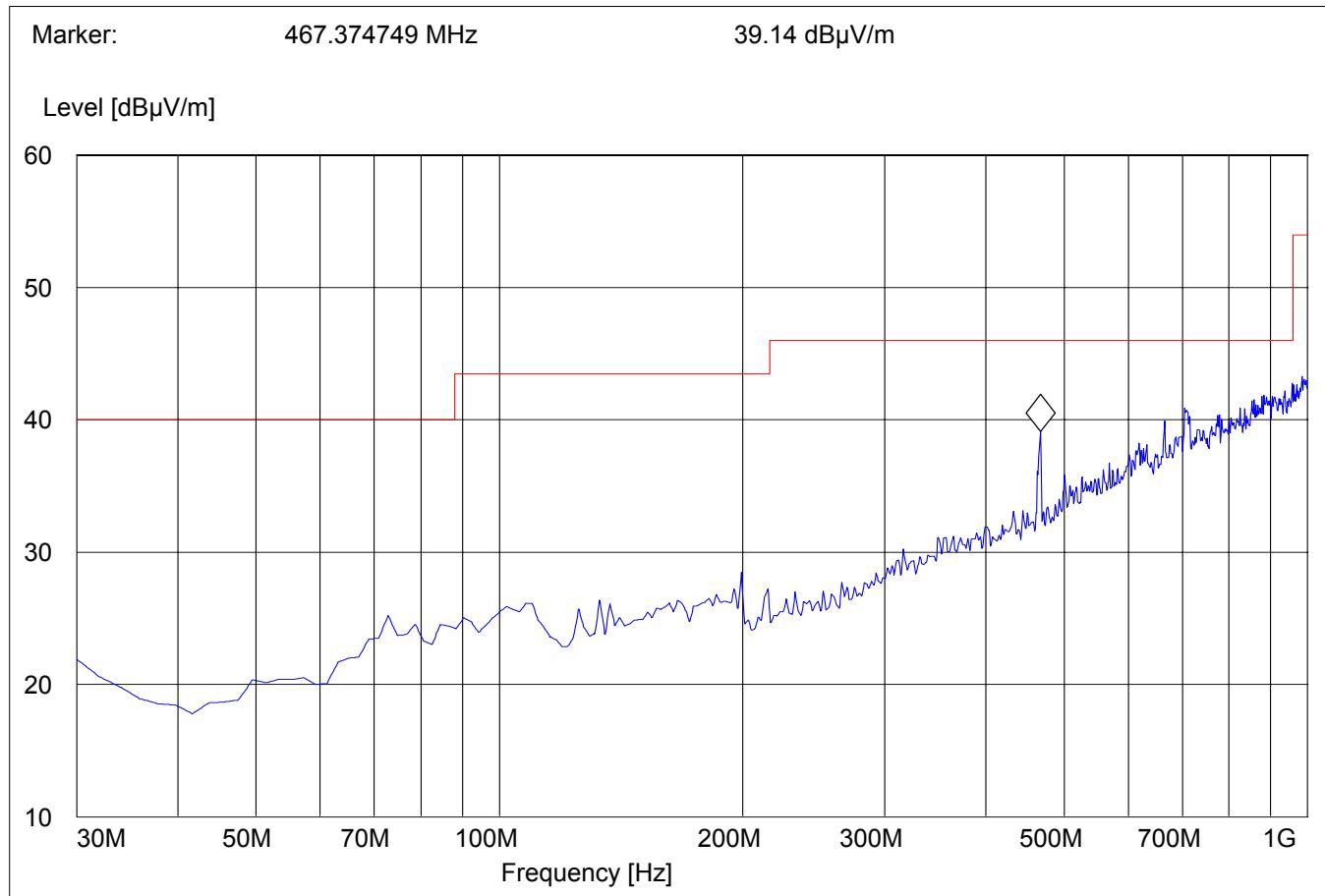
Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Lowest Channel (2412MHz): 30MHz – 1GHz****Antenna: Horizontal****Note: This plot is valid for low, mid, high channels for all data rates and power levels (worst-case plot)**

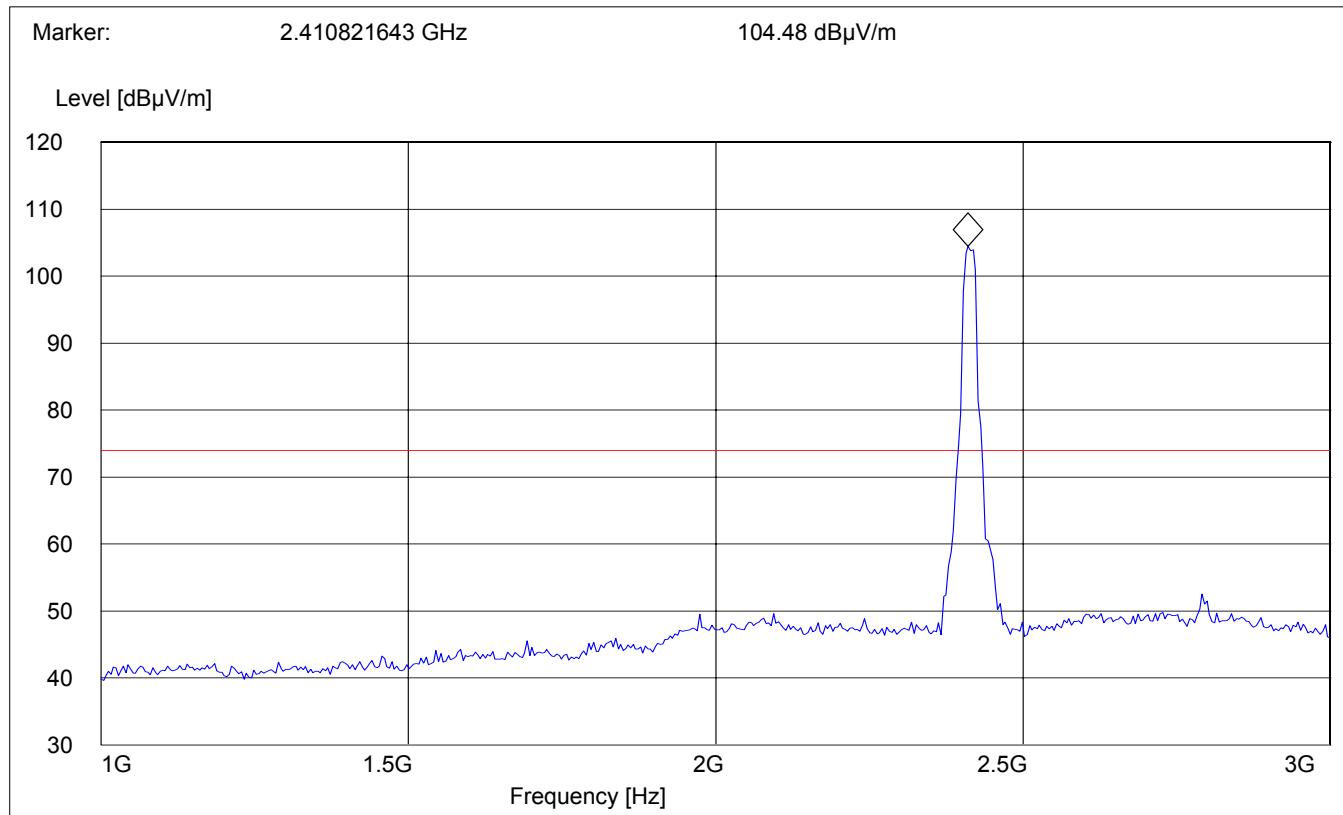
SWEEP TABLE: "Spuri hi 30-1G"

Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Lowest Channel (2412MHz): 1GHz – 3GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****Note: Peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
1.0 GHz	3.0 GHz	Time MaxPeak	Bandw. Coupled	VBW 1 MHz	#326 horn (dBi)

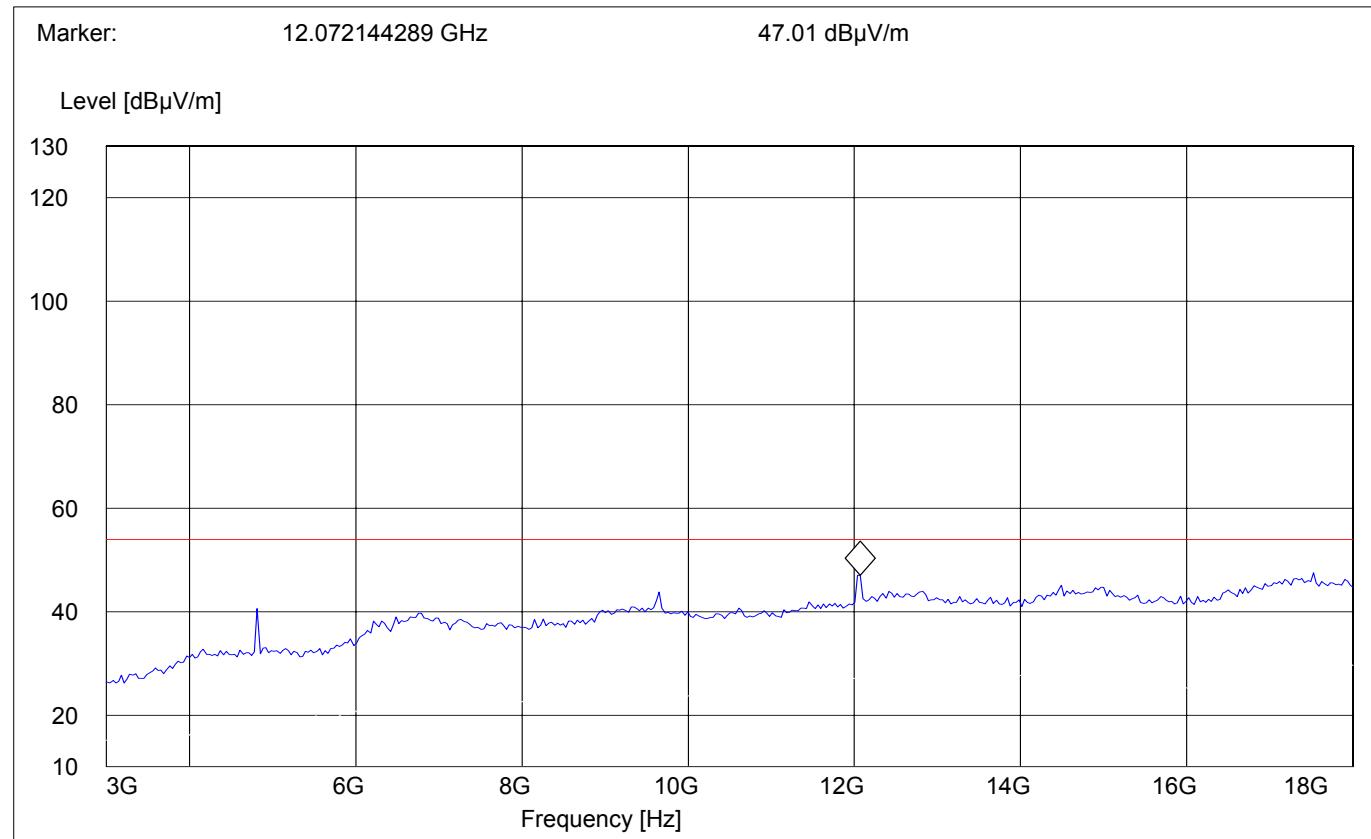


EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Lowest Channel (2412MHz): 3GHz – 18GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet**

SWEEP TABLE:

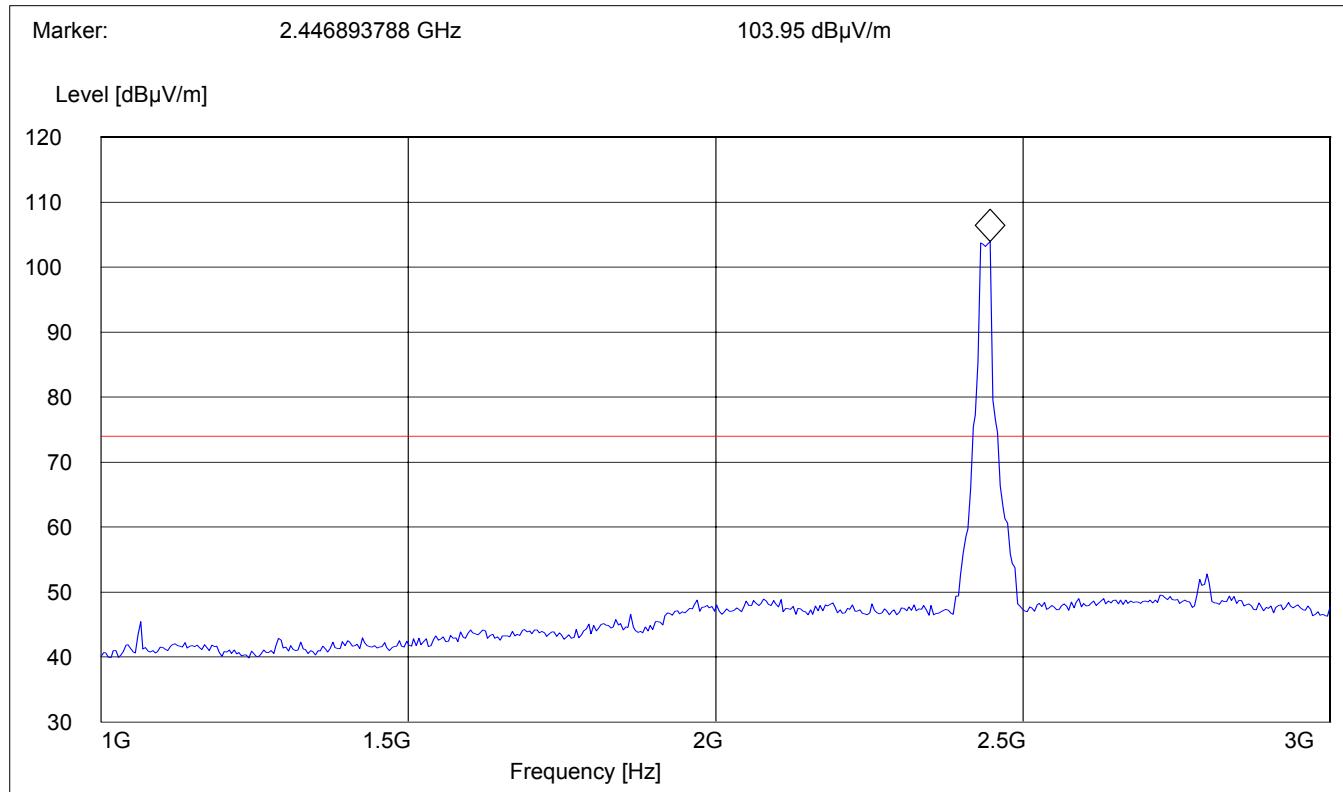
"Spuri hi 3-18G"

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Mid Channel (2437MHz): 1GHz – 3GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****Note: The peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

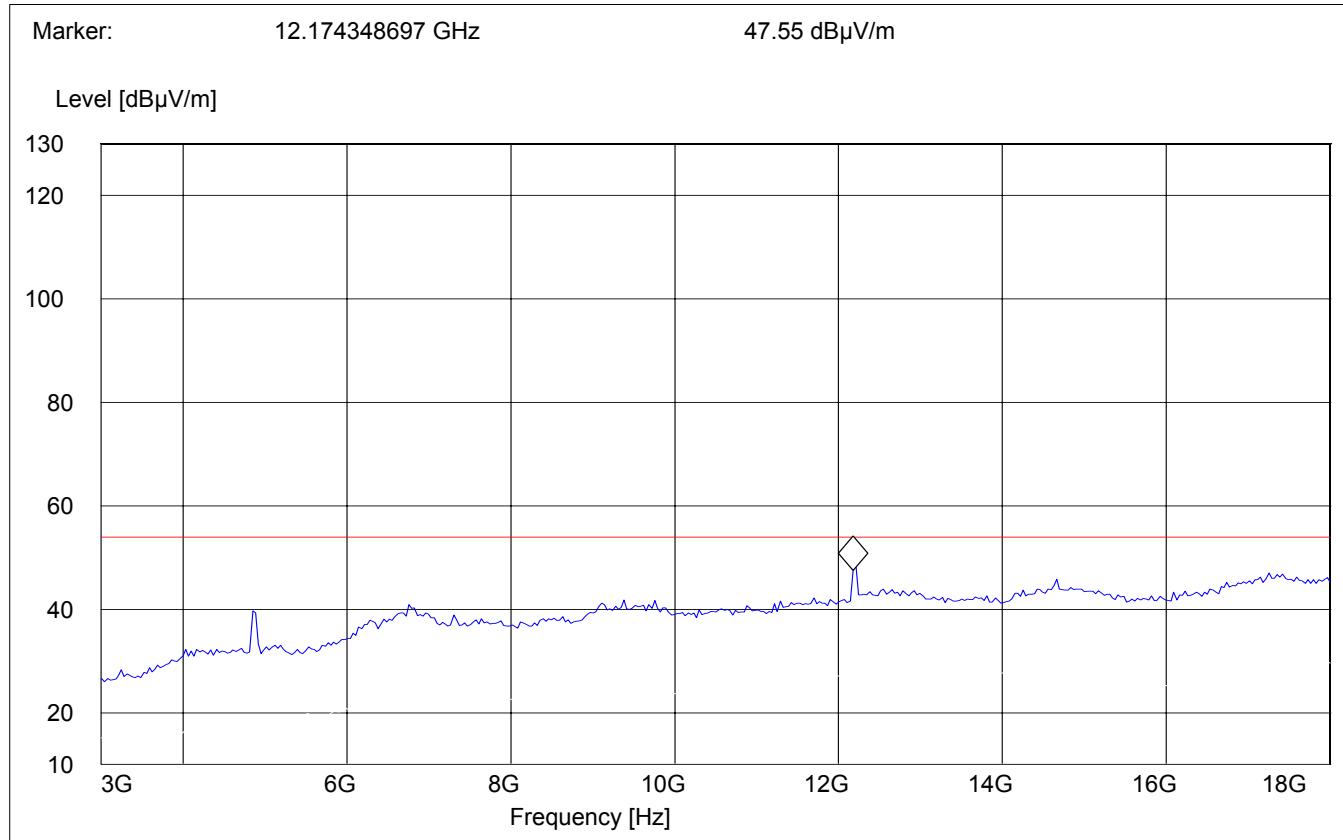
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Mid Channel (2437MHz): 3GHz – 18GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet**

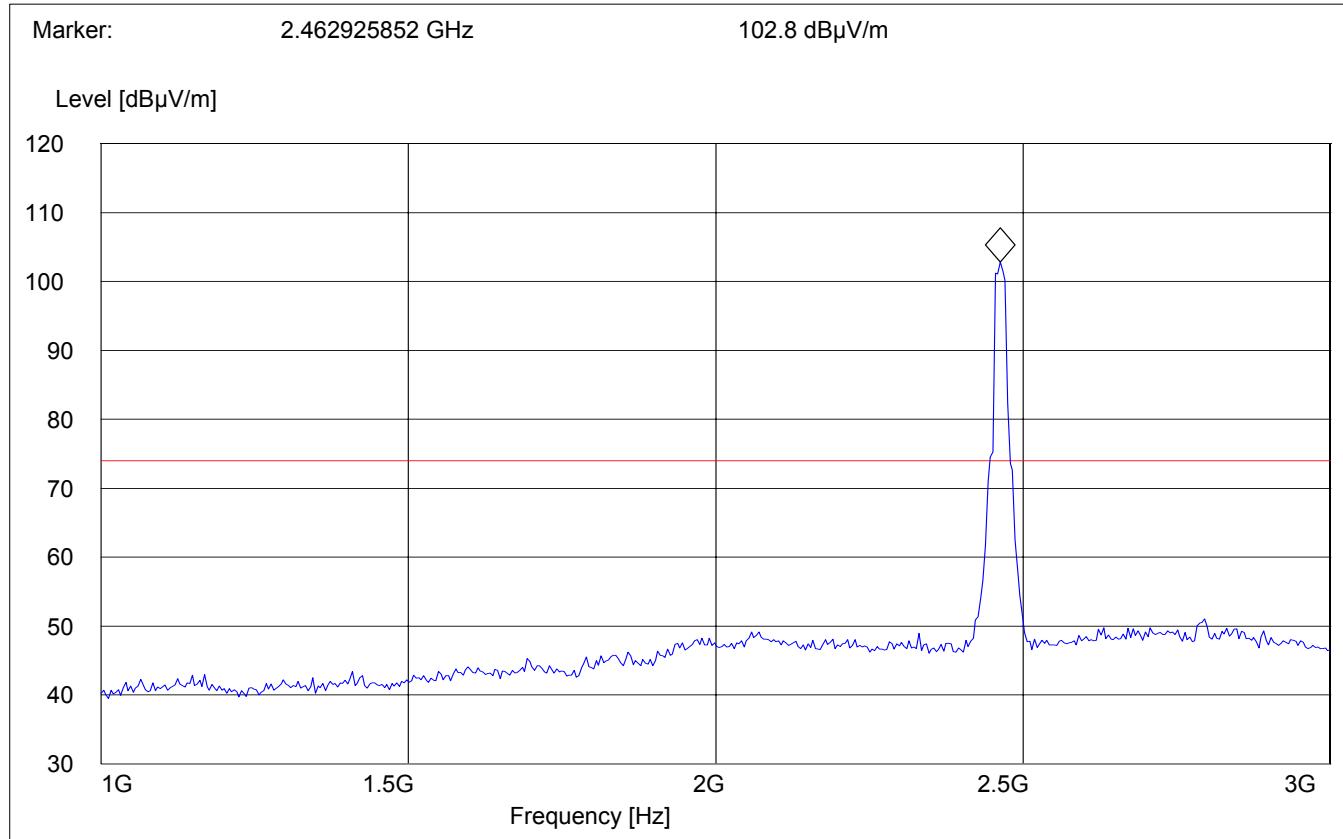
SWEEP TABLE: "Spuri hi 3-18G"

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Highest Channel (2462MHz): 1GHz – 3GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet****Note: The peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)

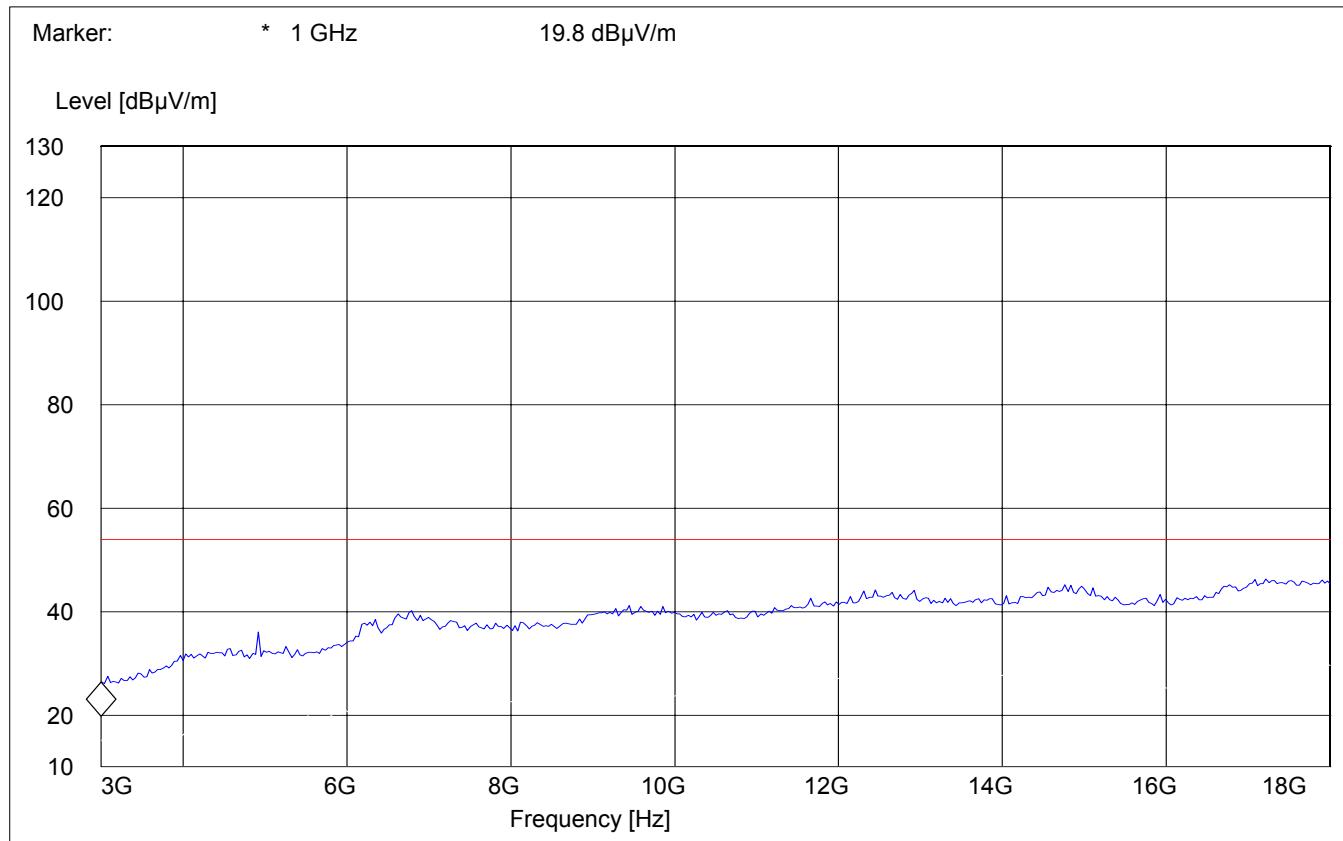


EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Highest Channel (2462MHz): 3GHz – 18GHz****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet**

SWEEP TABLE:

"Spuri hi 3-18G"

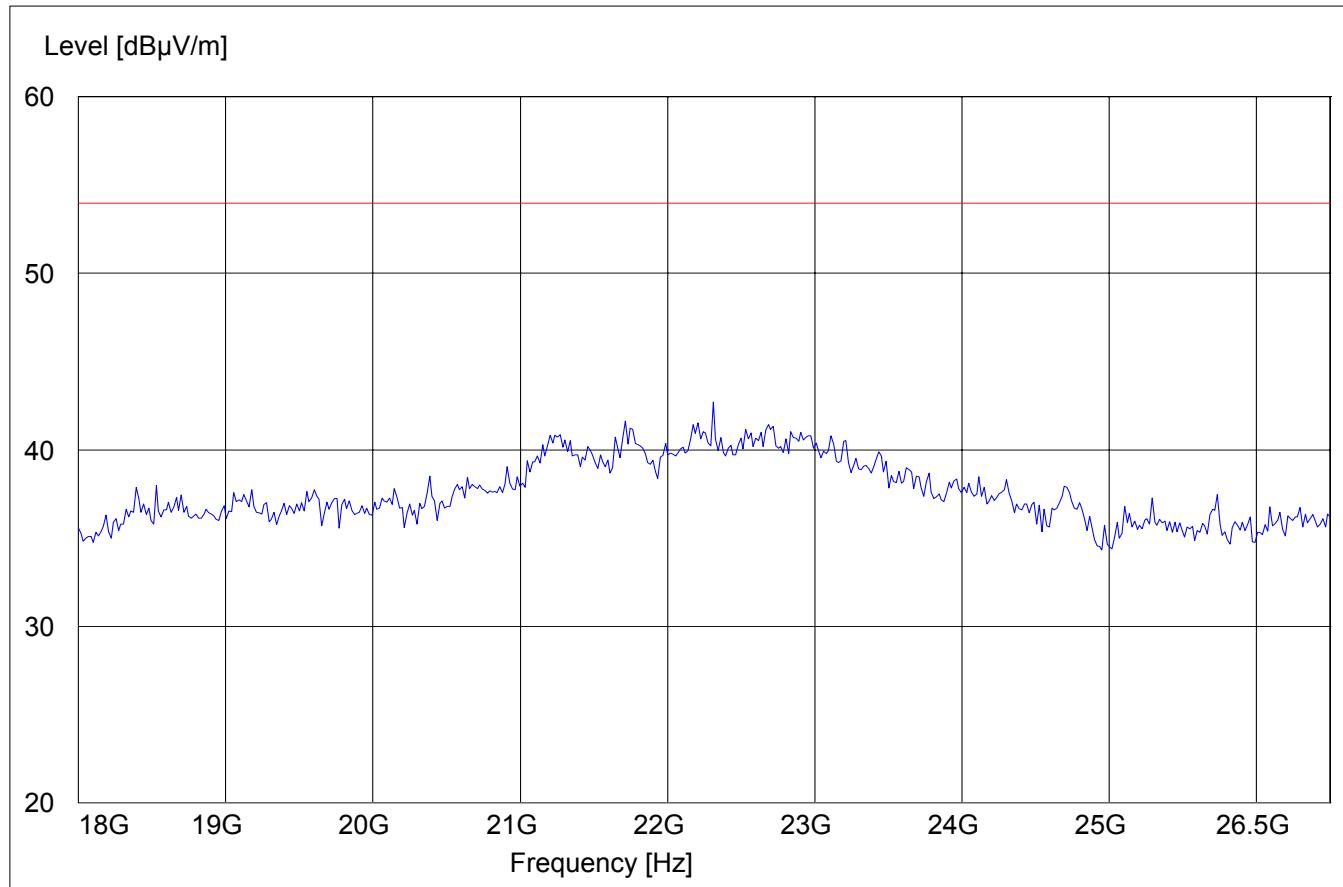
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**18GHz – 25GHz****Note: This plot is valid for low, mid, high channels (worst-case plot)****Data rate: 54Mbps****Power Level: 16.5dBm avg. power in packet**

SWEEP TABLE: "Spuri hi 18-25G"

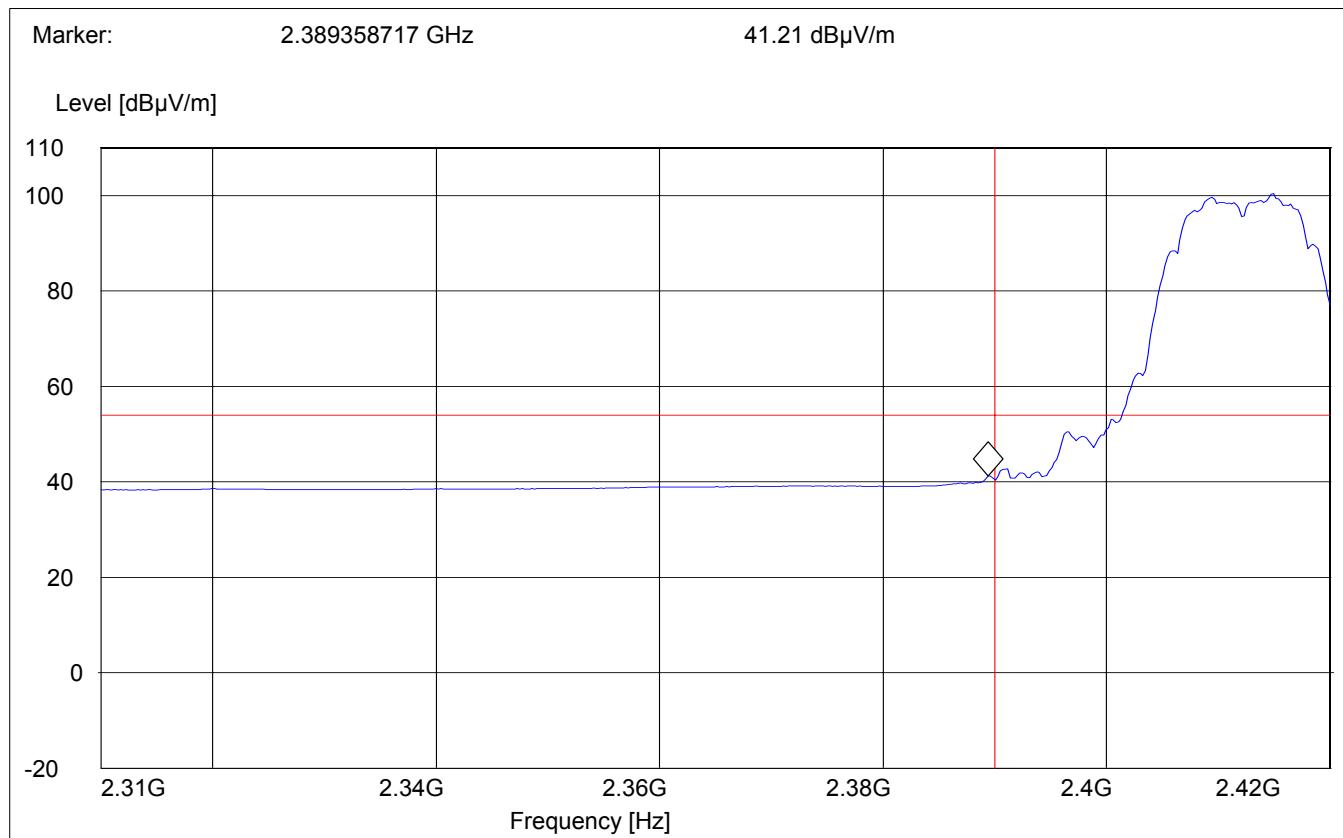
Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
18 GHz	25 GHz	Time	Bandw.	VBW	#326 horn (dBi)
		MaxPeak	Coupled	1 MHz	



BAND EDGE COMPLIANCE (802.11b)**§15.247 (c)****Data rate: 1Mbps****Power Level: 18dBm avg. power in packet****Low frequency section (spurious in the restricted band 2310 – 2390 MHz)****(Average measurement)**

Operating condition : Tx at 2412MHz
SWEEP TABLE : "FCC15.247 LBE_AVG"
Limit Line : 54dB μ V

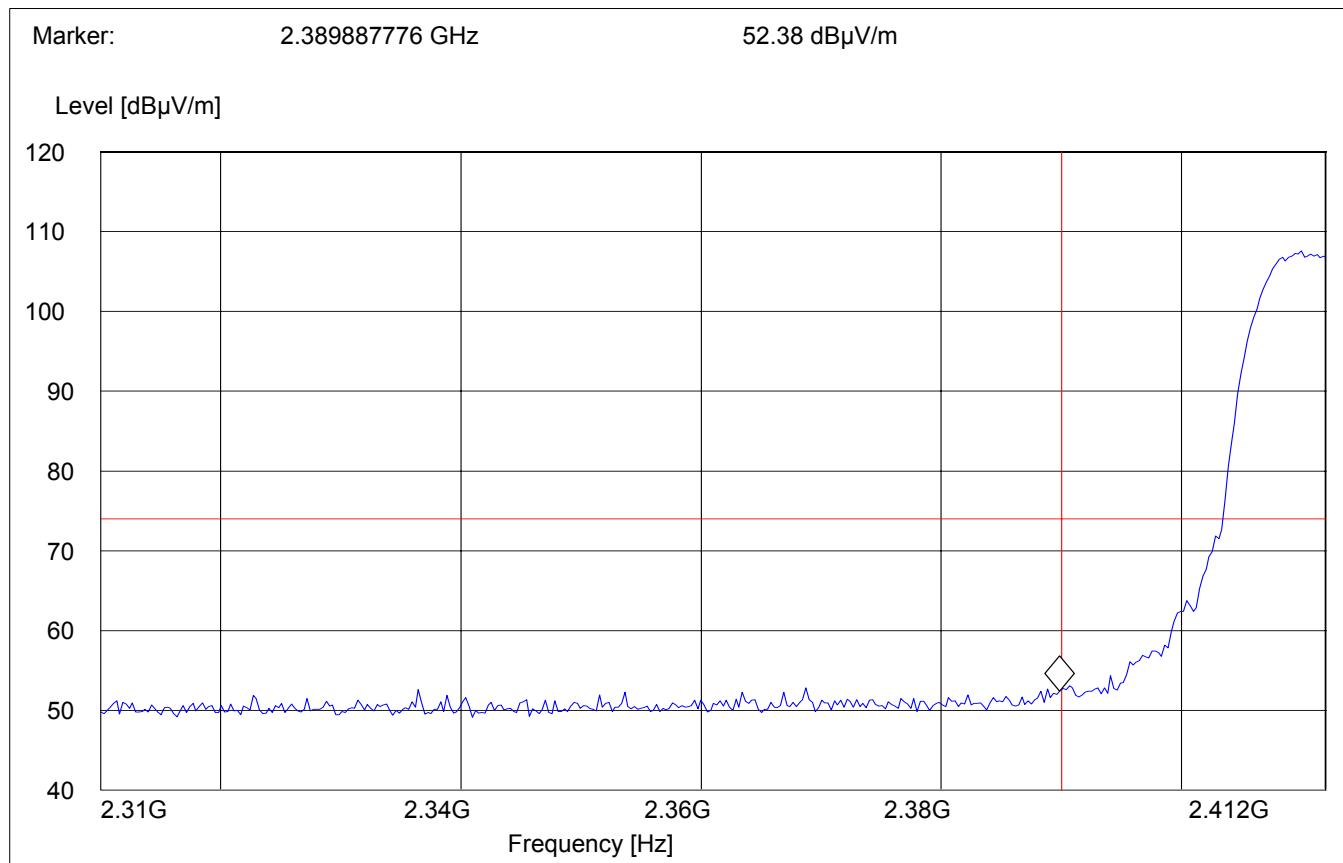
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****Low frequency section (spurious in the restricted band 2310 – 2390 MHz)****(Peak measurement)**

Operating condition : Tx at 2412MHz
SWEEP TABLE : "FCC15.247 LBE_Pk"
Limit Line : 74dB μ V

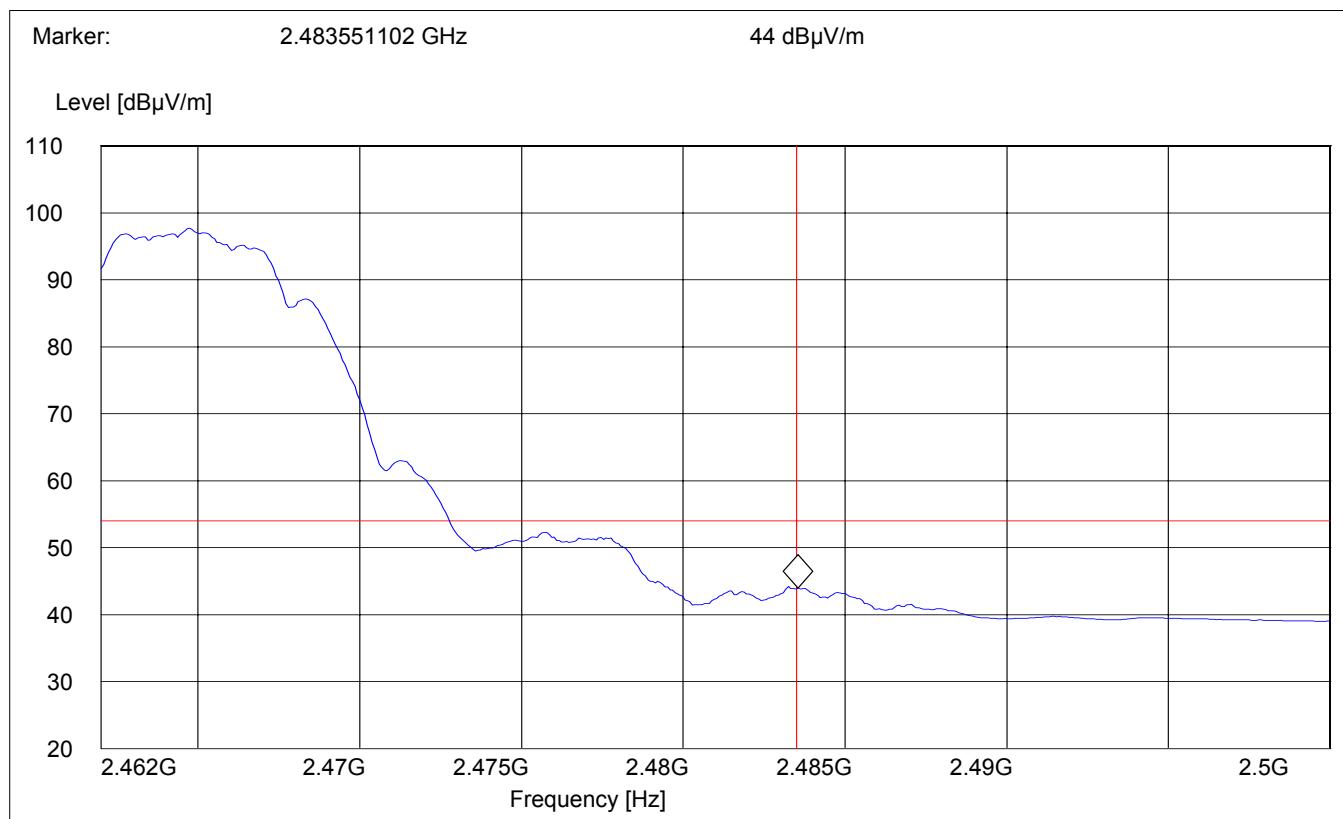
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 1Mbps****Power Level: 18dBm avg. power in packet****High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)****(Average measurement)**

Operating condition : Tx at 2462MHz
SWEEP TABLE : "FCC15.247 HBE_AVG"
Limit Line : 54dB μ V

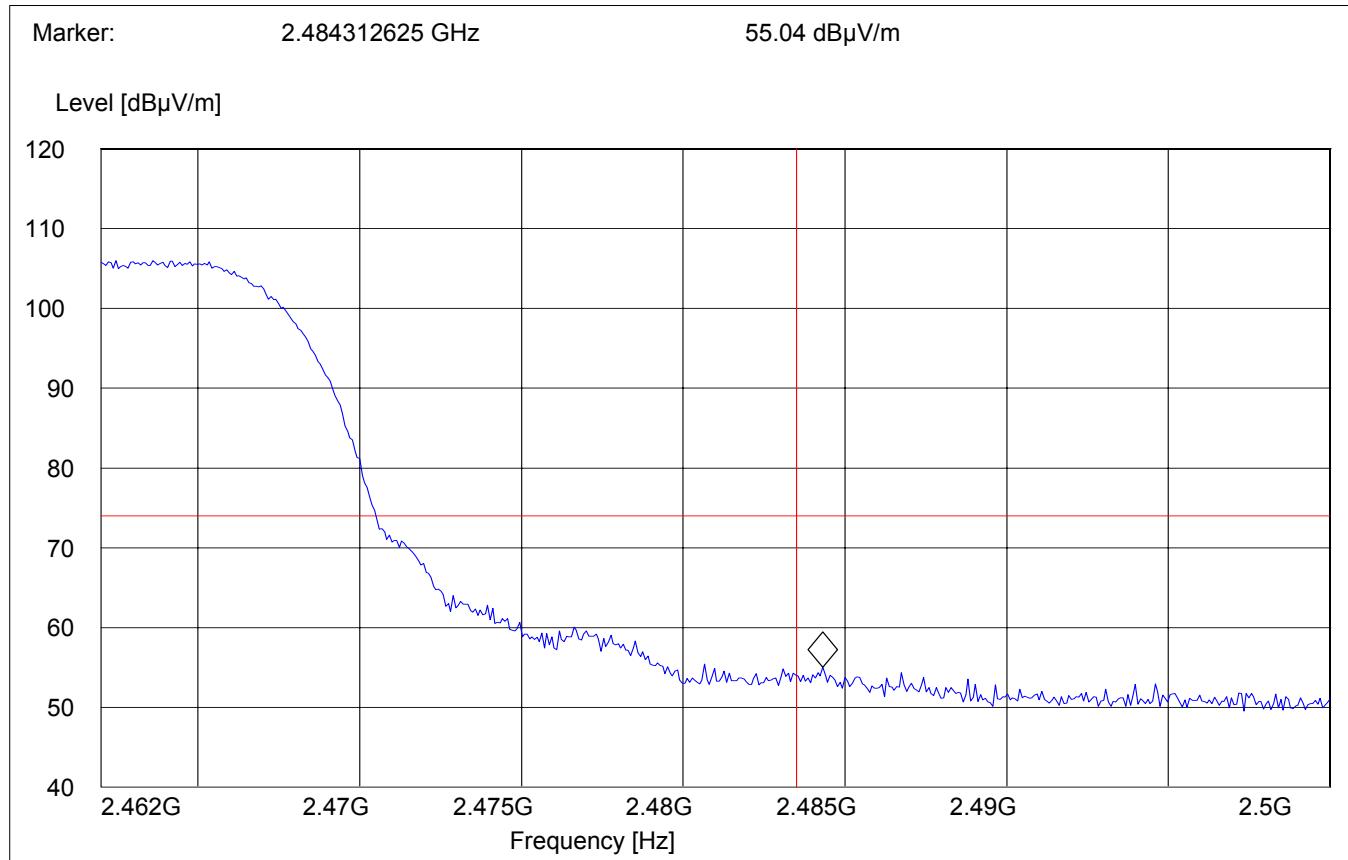
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)



BAND EDGE COMPLIANCE**§15.247 (c)****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)****(Peak measurement)**

Operating condition : Tx at 2462MHz
SWEEP TABLE : "FCC15.247 HBE_PK"
Limit Line : 74dB μ V

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)



EMISSION LIMITATIONS (802.11b)**§ 15.247 (c) (1)****Transmitter (Radiated)****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****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)).

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 unless specified with the plots.

Results for the radiated measurements below 30MHz according § 15.33

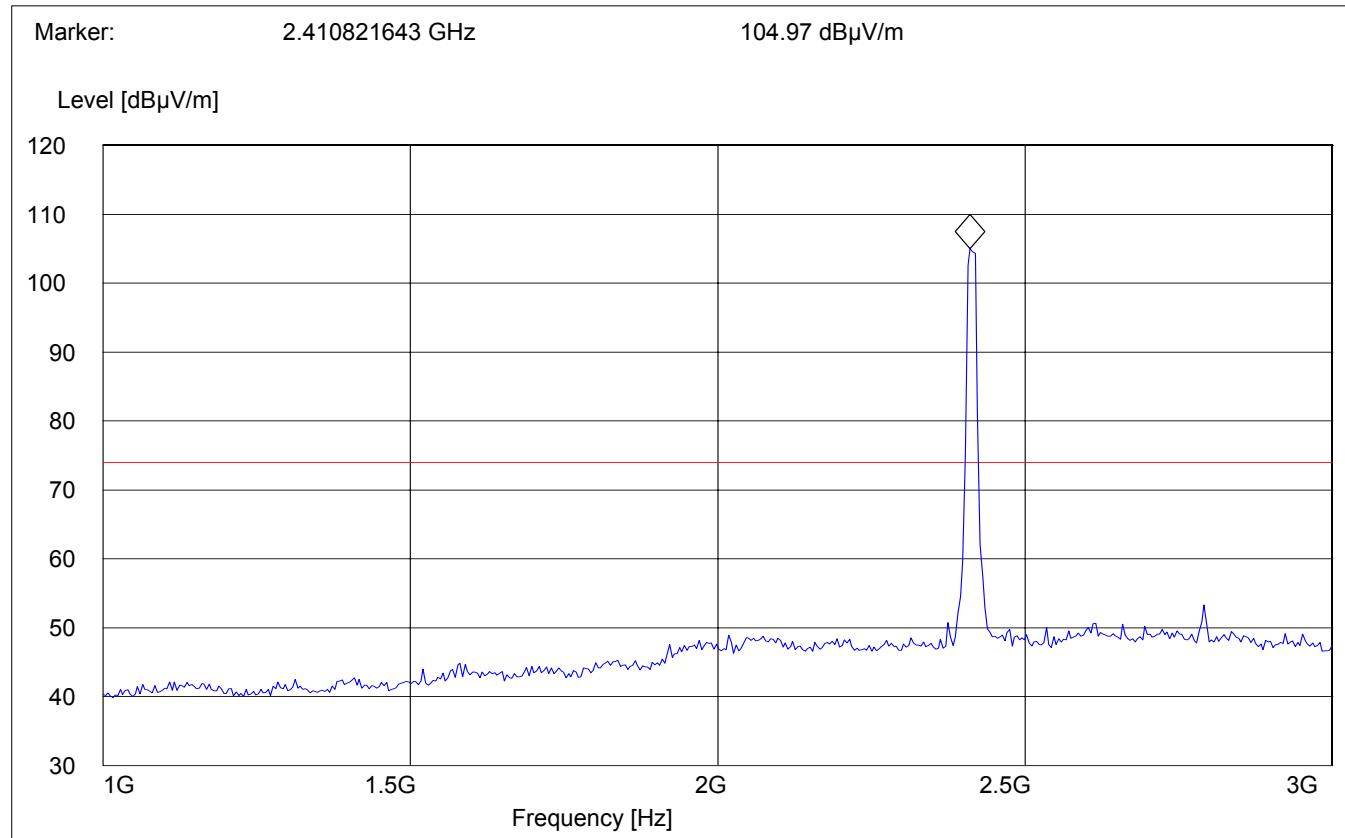
Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found, caused by the EUT	This is valid for all the tested channels

EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
Power Level: 18dBm avg. power in packet

Transmit at Lowest channel Frequency 2412MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 11Mbps	Average 1Mbps
See plots			
Transmit at Middle channel Frequency 2437MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 11Mbps	Average 1Mbps
See plots			
Transmit at Highest channel Frequency 2462MHz			
Frequency (MHz)	Level (dB μ V/m)		
	Peak	Average 11Mbps	Average 1Mbps
See plots			

EMISSION LIMITATIONS - Radiated (Transmitter)**§ 15.247 (c) (1)****Lowest Channel (2412MHz): 1GHz – 3GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****Note: Peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
1.0 GHz	3.0 GHz	Time MaxPeak	Bandw. Coupled	VBW 1 MHz	#326 horn (dBi)

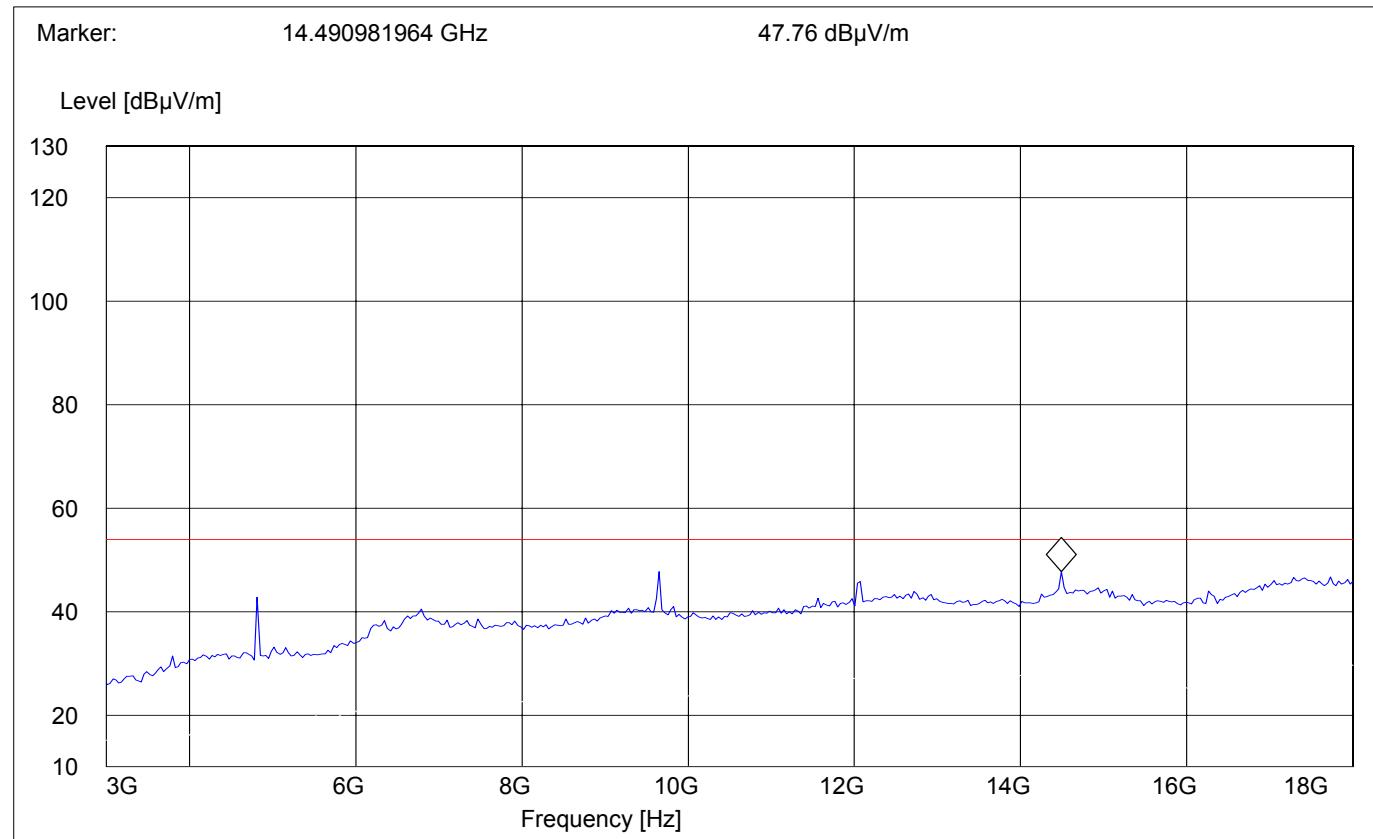


EMISSION LIMITATIONS - Radiated (Transmitter)**§ 15.247 (c) (1)****Lowest Channel (2412MHz): 3GHz – 18GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet**

SWEEP TABLE:

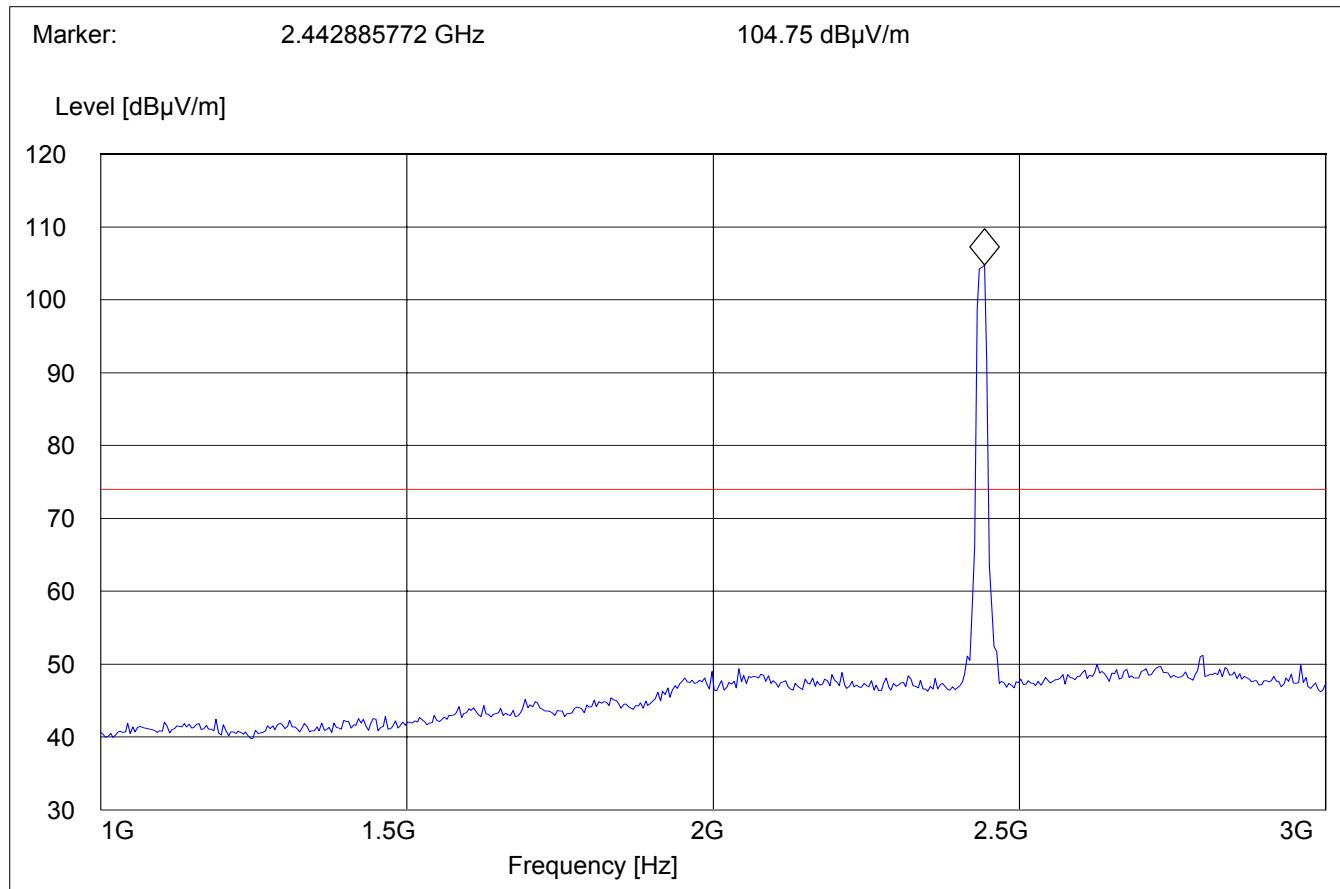
"Spuri hi 3-18G"

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Mid Channel (2437MHz): 1GHz – 3GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****Note: The peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

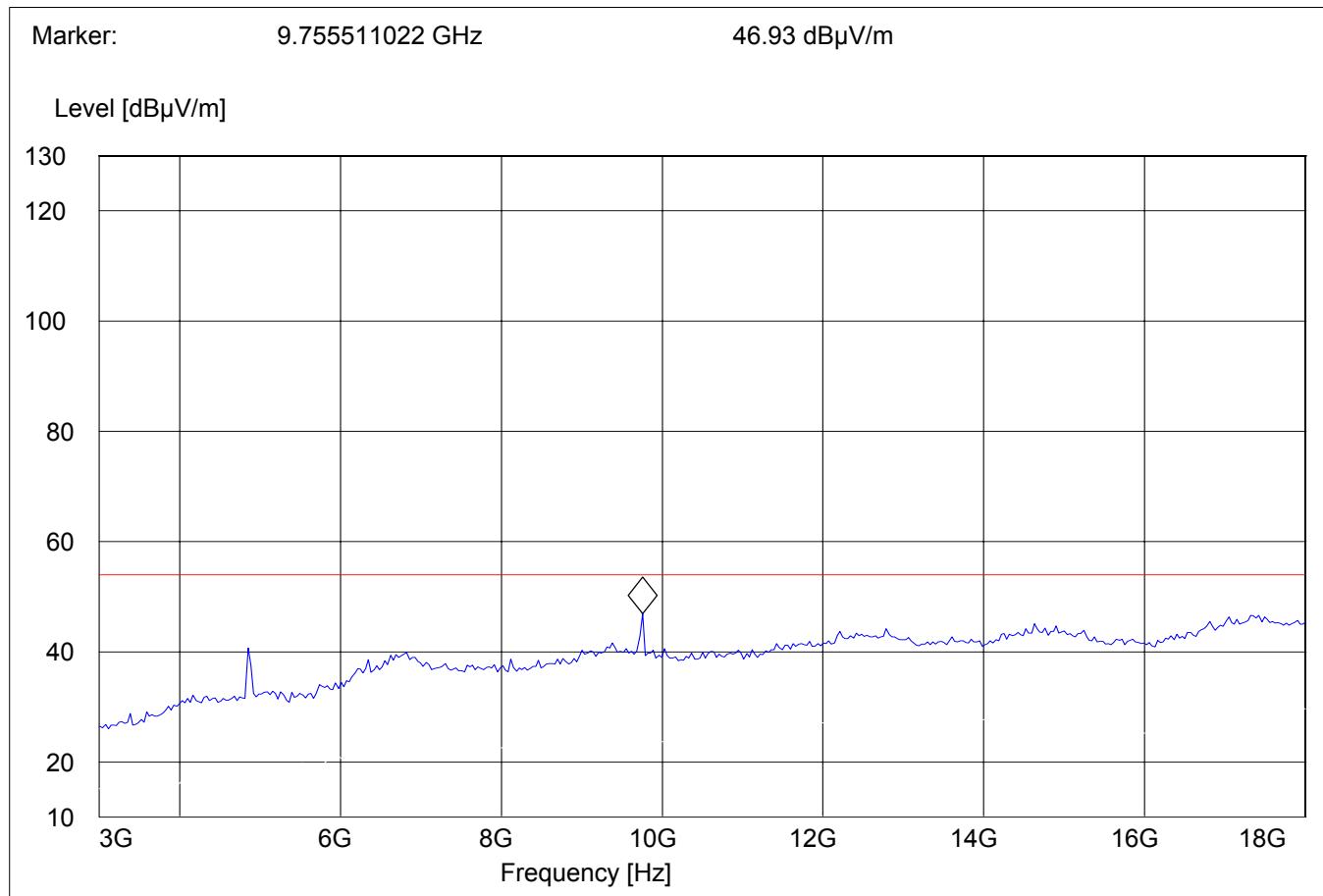
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter)**§ 15.247 (c) (1)****Mid Channel (2437MHz): 3GHz – 18GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet**

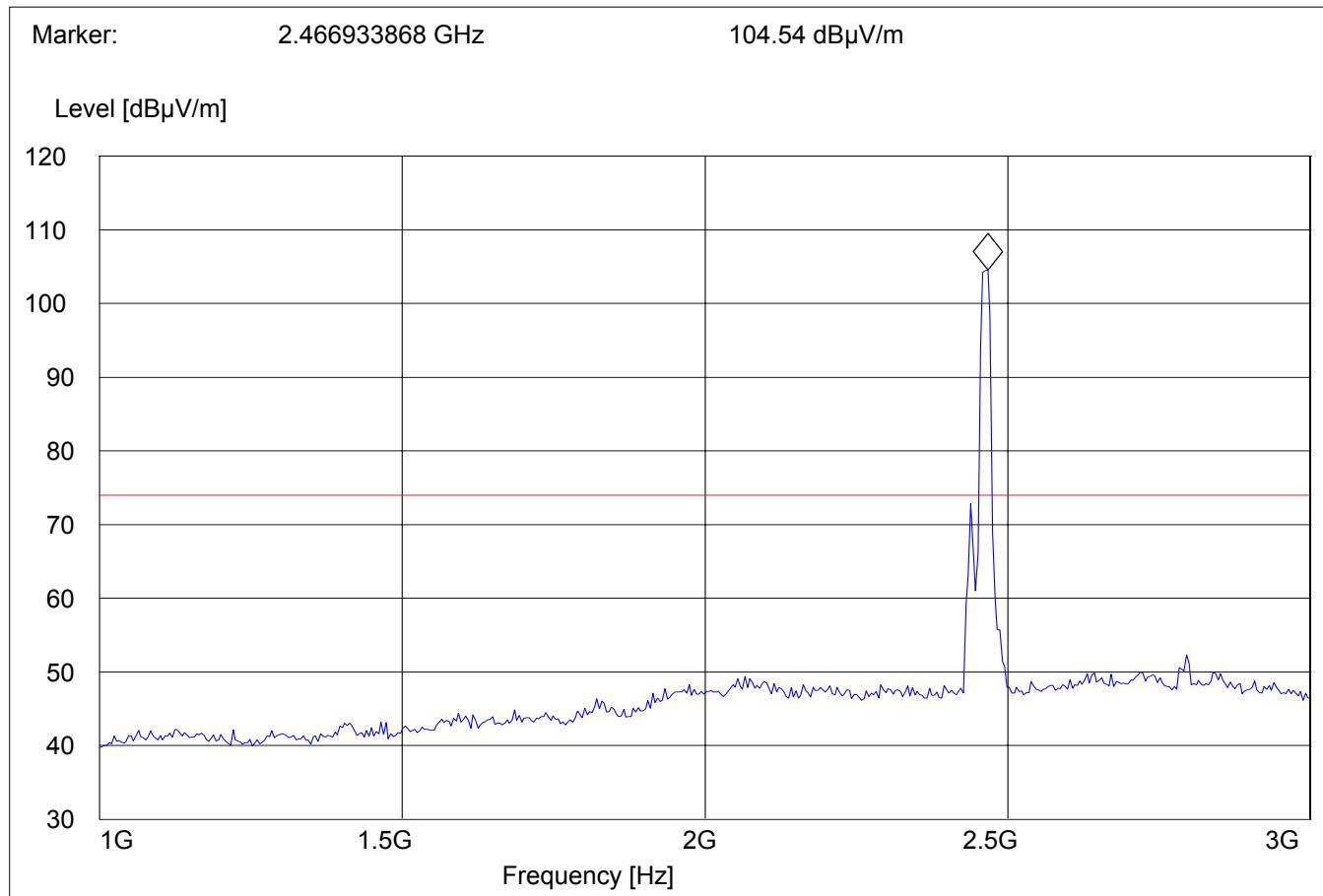
SWEEP TABLE: "Spuri hi 3-18G"

Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	VBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz		#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Highest Channel (2462MHz): 1GHz – 3GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet****Note: The peak above the limit line is the carrier freq.****SWEEP TABLE: "Spuri hi 1-3G"**

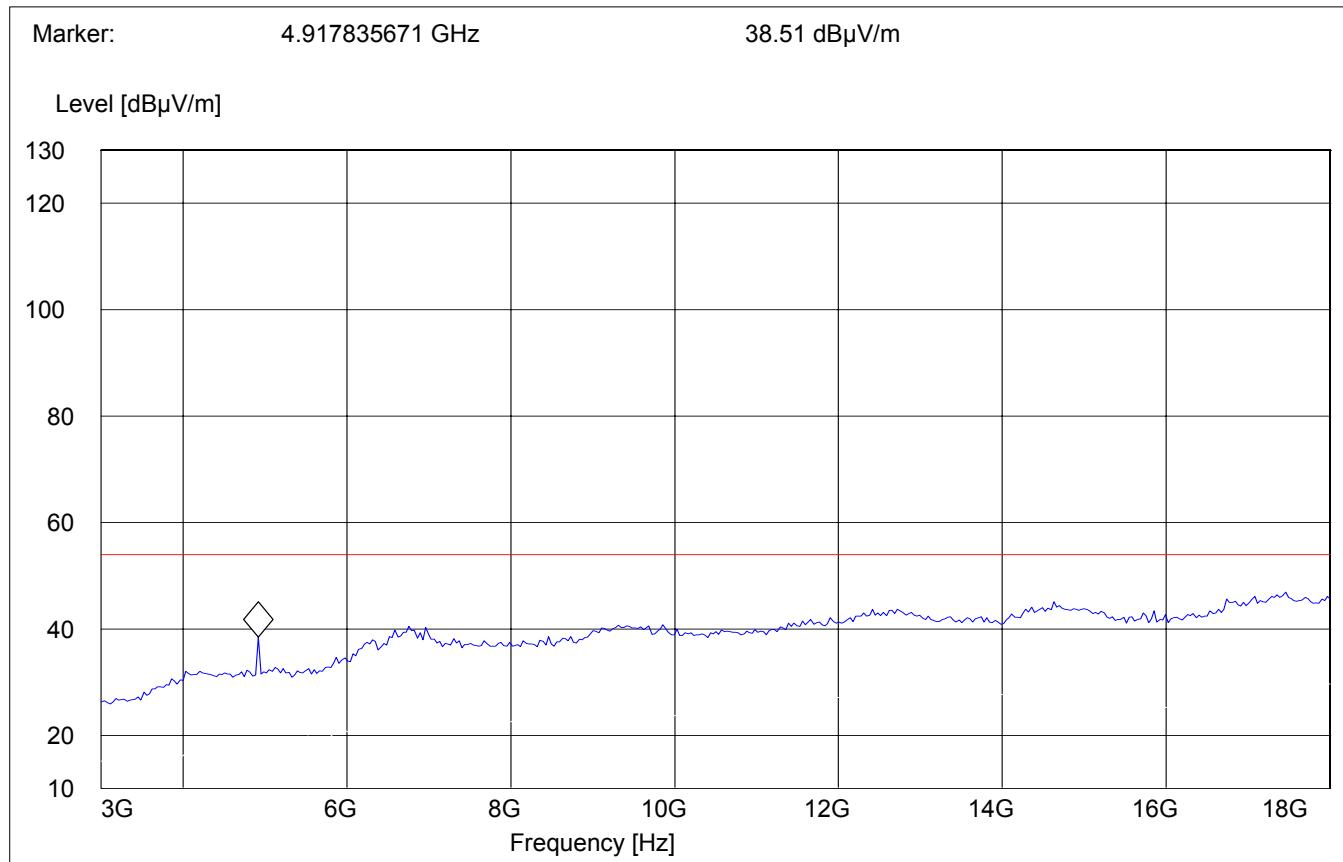
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**Highest Channel (2462MHz): 3GHz – 18GHz****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet**

SWEEP TABLE: "Spuri hi 3-18G"

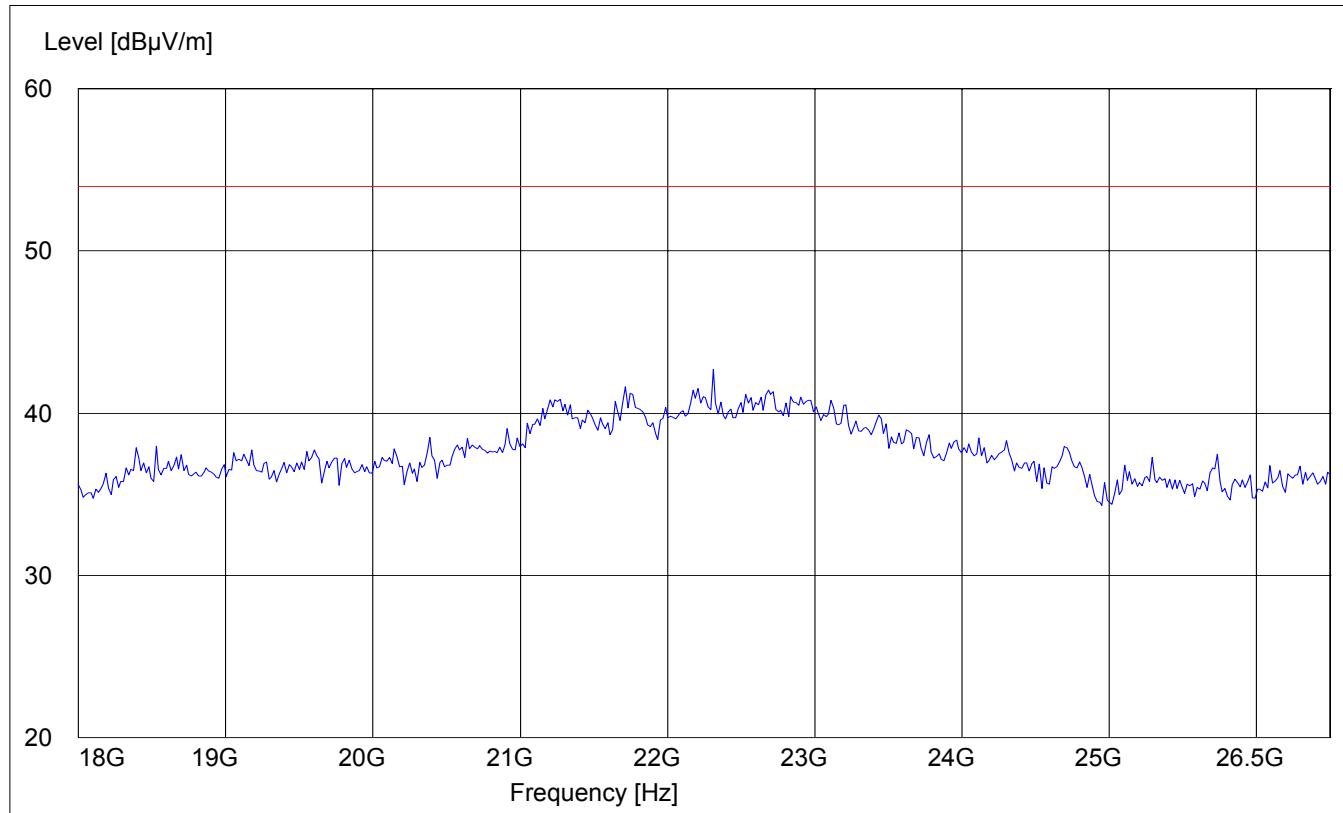
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)**18GHz – 25GHz****Note: This plot is valid for low, mid, high channels (worst-case plot)****Data rate: 11Mbps****Power Level: 18dBm avg. power in packet**

SWEEP TABLE: "Spuri hi 18-25G"

Start Frequency	Stop Frequency	Detector	Meas.	RBW	Transducer
18 GHz	25 GHz	Time	Bandw.	VBW	#326 horn (dBi)
		MaxPeak	Coupled	1 MHz	



CONDUCTED EMISSIONS**§ 15.107/207****Measured with AC/DC power adapter*****SWEEP TABLE: "55022 cond"***

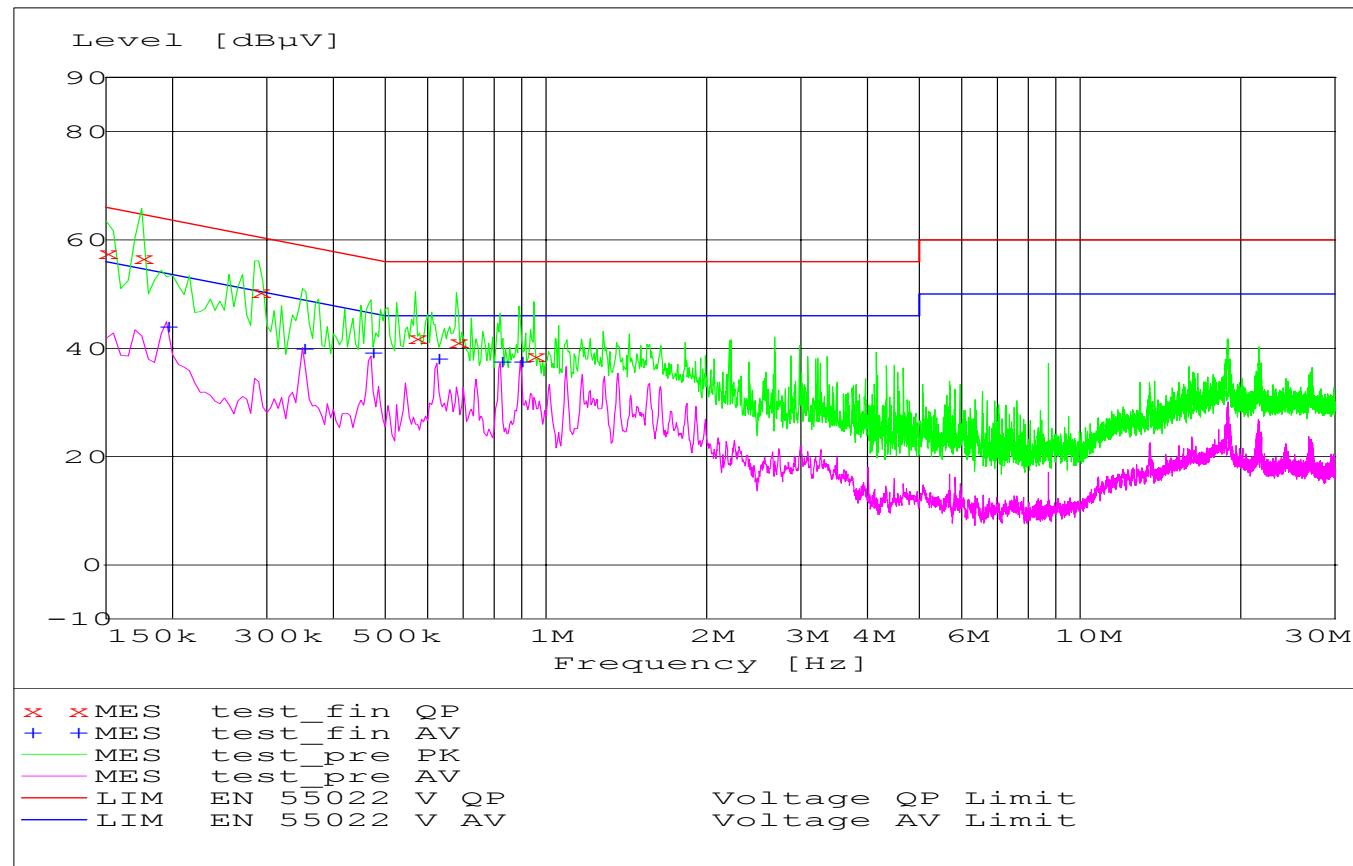
Short Description: EN 55022 for 150KHz-30MHz

Start Frequency	Stop Frequency	Detector	Meas	IF	Transducer
150.0 kHz	30.0 MHz	MaxPeak	Coupled	10 kHz	None

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

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	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**

MEASUREMENT RESULT: "test_fin_QP"

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Line	PE
0.150000	57.60	0.0	66	8.4	N	GND
0.175000	56.70	0.0	65	8.0	N	GND
0.290000	50.50	0.0	61	10.0	N	GND
0.570000	42.00	0.0	56	14.0	L1	GND
0.680000	41.10	0.0	56	14.9	N	GND
0.950000	38.70	0.0	56	17.3	N	GND

MEASUREMENT RESULT: "test_fin_AV"

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Line	PE
0.195000	44.10	0.0	54	9.7	L1	GND
0.350000	40.00	0.0	49	8.9	L1	GND
0.470000	39.10	0.0	47	7.5	L1	GND
0.625000	38.10	0.0	46	7.9	N	GND
0.820000	37.50	0.0	46	8.5	L1	GND
0.895000	37.50	0.0	46	8.5	N	GND

RECEIVER SPURIOUS RADIATION**§ 15.109****Limits**

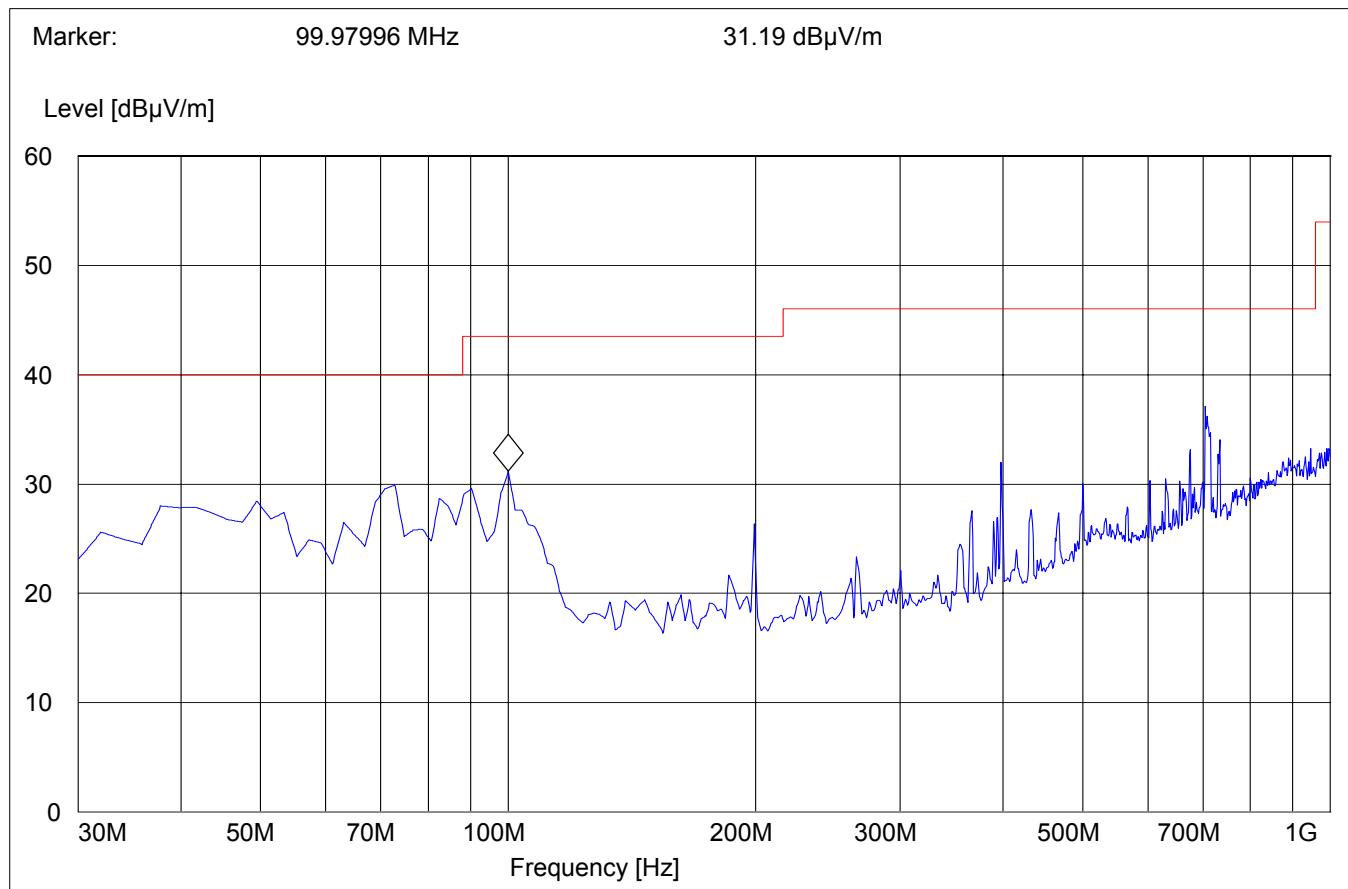
Frequency (MHz)	Field strength (μ V/m)	Measurement distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

NOTE:

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.

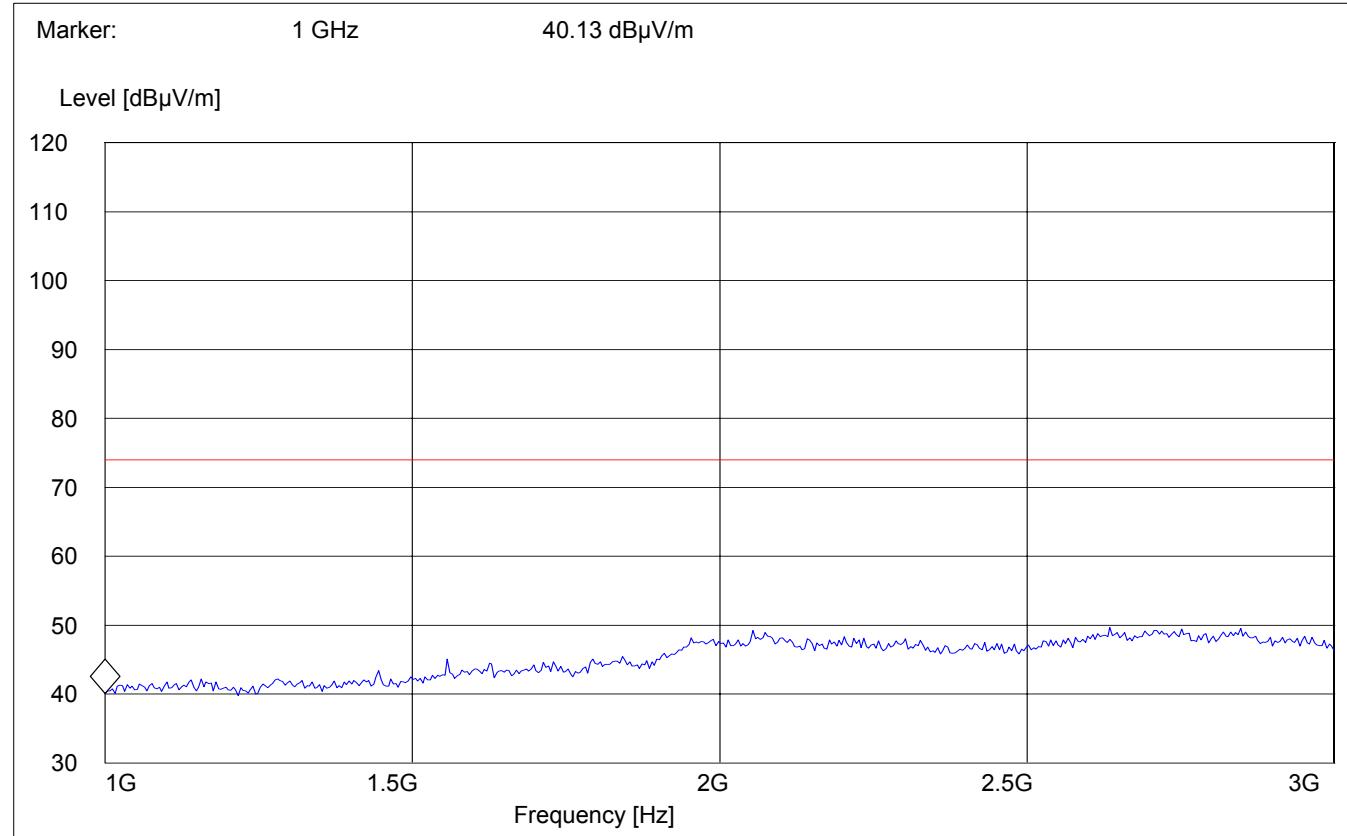
RECEIVER SPURIOUS RADIATION**§ 15.109****30MHz – 1GHz****Worst case plot for both polarities**

SWEEP TABLE: "Spuri hi 30-1G"
Start Stop Detector Meas. RBW Transducer
Frequency Frequency Time VBW
30.0 MHz 1.0 GHz MaxPeak Coupled 100 kHz 3141-#1186



**RECEIVER SPURIOUS RADIATION
1GHz – 3GHz****§ 15.109****SWEEP TABLE:****"Spuri hi 1-3G"**

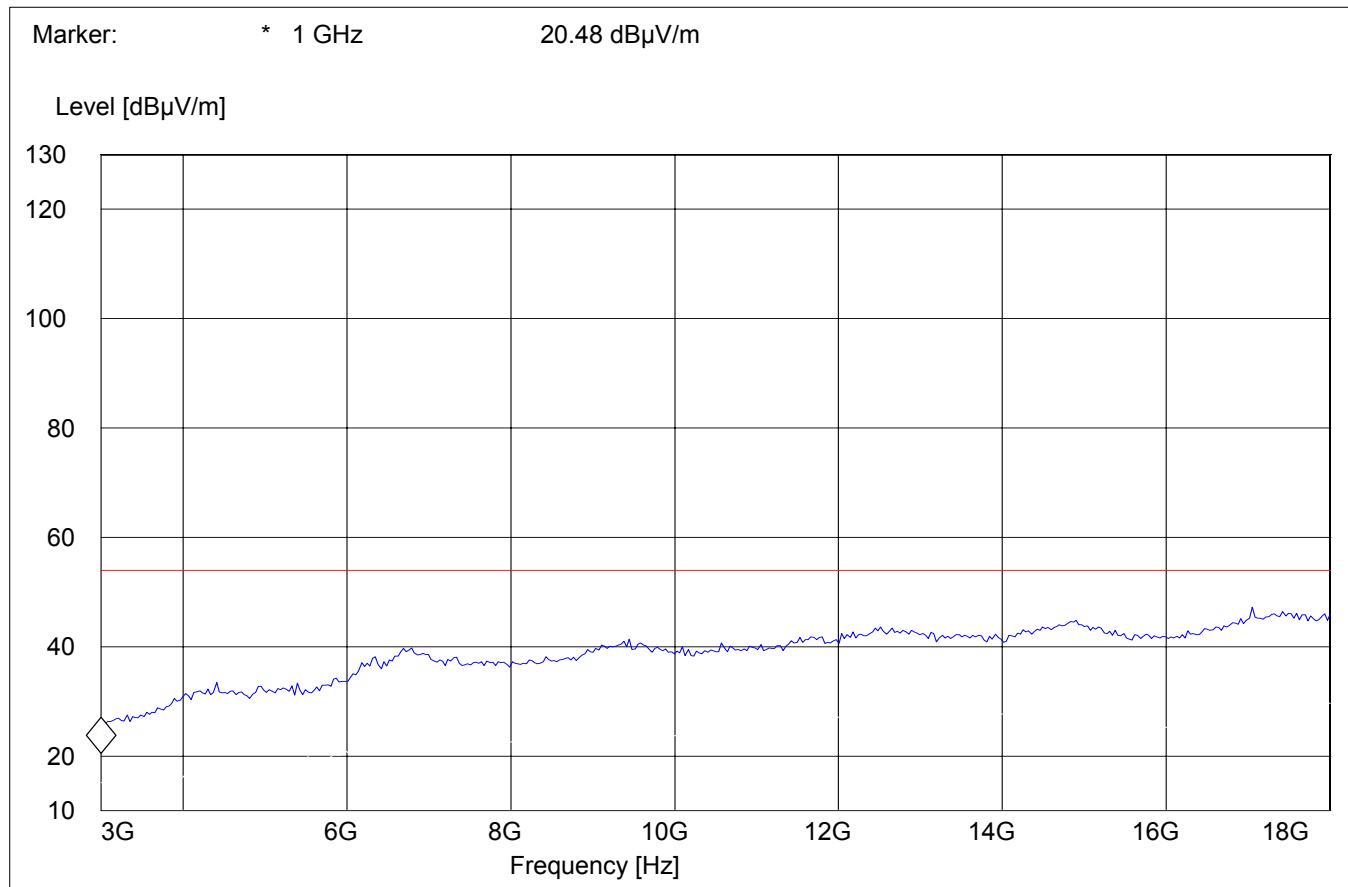
Start Frequency	Stop Frequency	Detector	Meas.	RBW	VBW	Transducer
1.0 GHz	3.0 GHz	Time MaxPeak	Bandw. Coupled	1 MHz	1MHz	#326 horn (dBi)



RECEIVER SPURIOUS RADIATION 3GHz – 18GHz

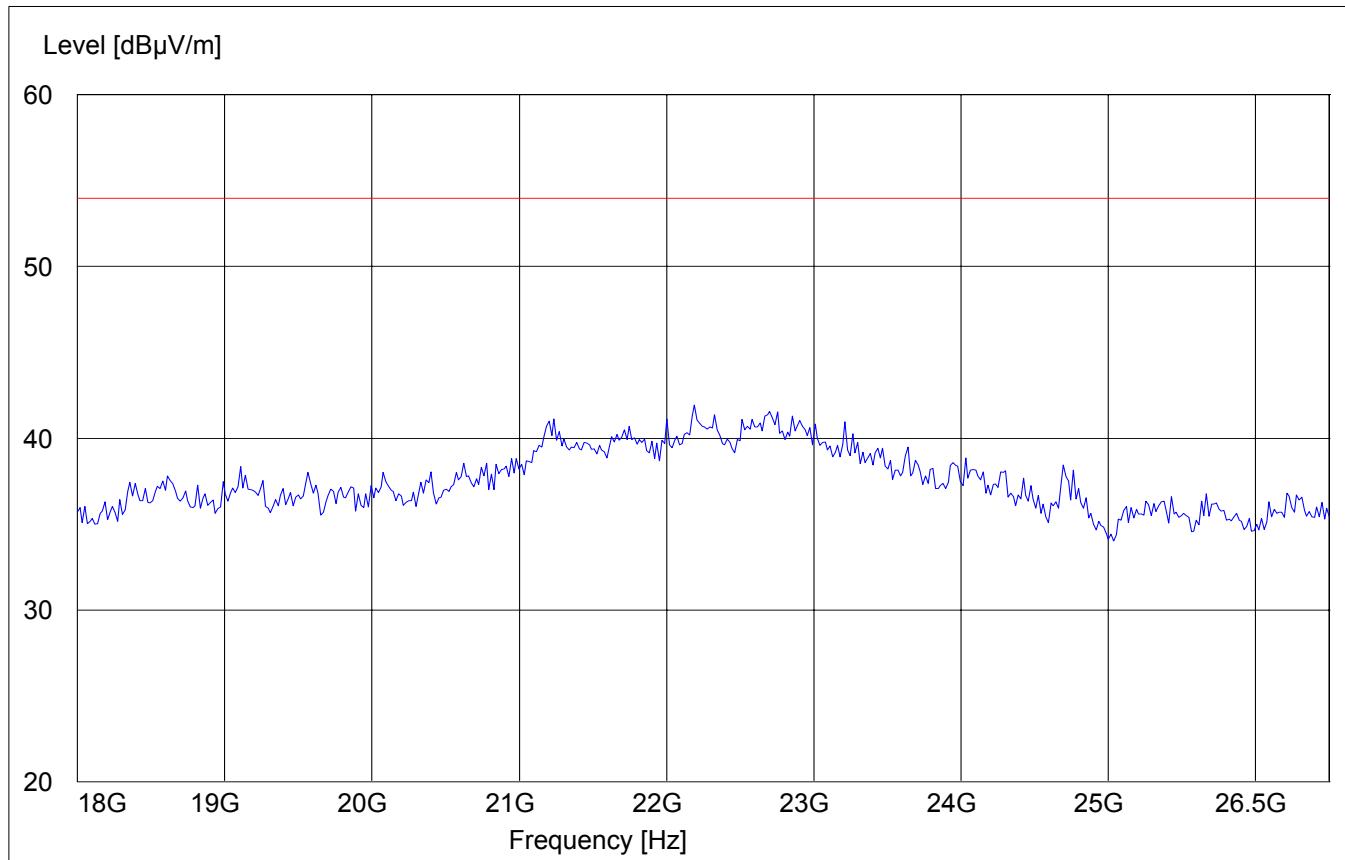
§ 15.109

SWEEP TABLE:		"Spuri hi 3-18G"			
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
3.0 GHz	18 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



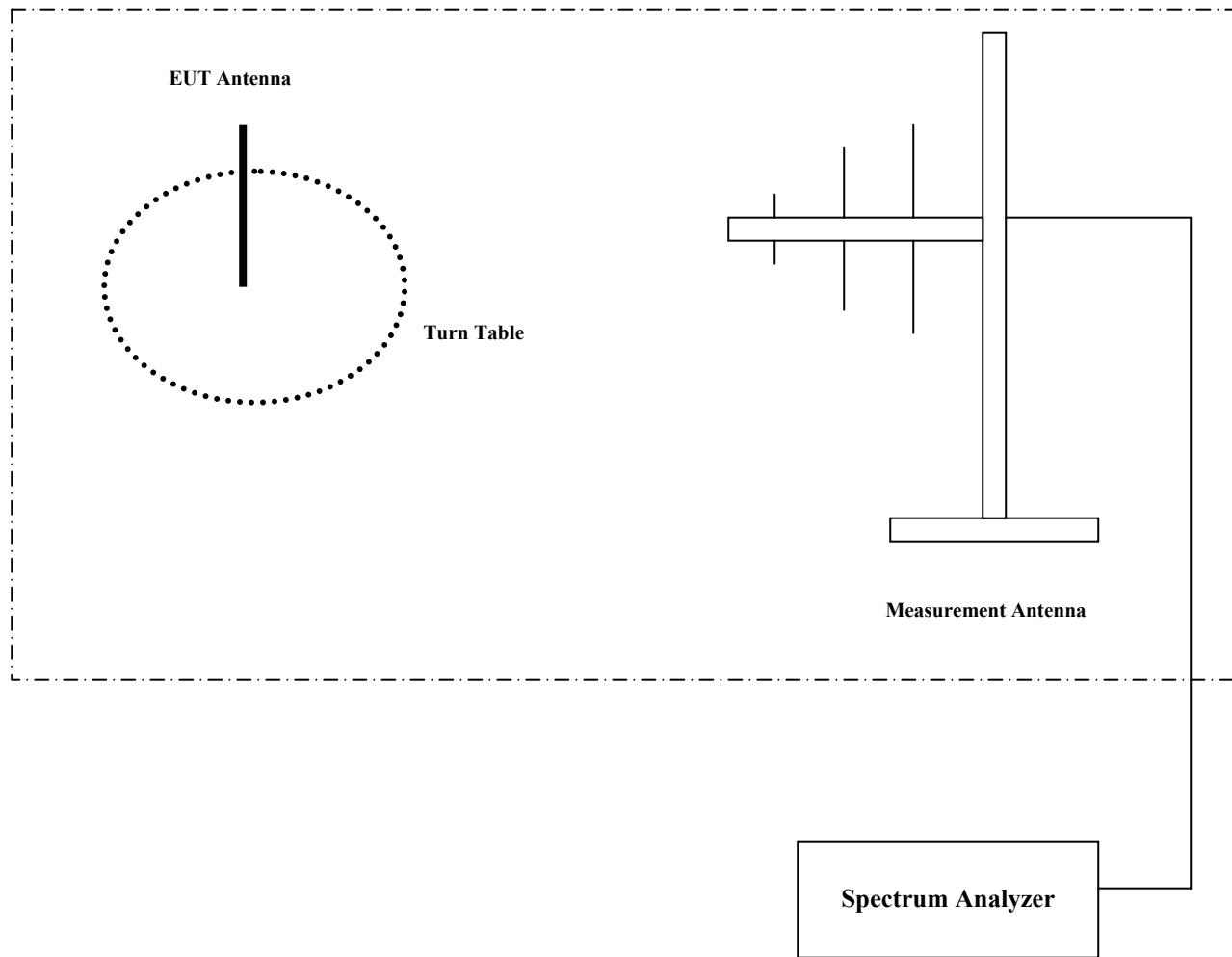
**RECEIVER SPURIOUS RADIATION
18GHz – 25GHz****§ 15.109**

SWEEP TABLE: "Spuri hi 18-25G"
Start Stop Detector Meas. RBW Transducer
Frequency Frequency Time Bandw. VBW
18 GHz 25 GHz MaxPeak Coupled 1 MHz #141 horn (dBi)



TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	826880/010
03	Biconilog Antenna	3141	EMCO	0005-1186
04	Horn Antenna (700M-18GHz)	SAS-200/571	AH Systems	325
05	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240
06	2-3GHz Band reject filter	BRM50701	Microtronics	6
07	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02
08	Pre-Amplifier	TS-ANA	Rohde & Schwarz	--
09	Pre-Amplifier	JS4-00102600	Miteq	00616

BLOCK DIAGRAMS
Radiated Testing**ANECHOIC CHAMBER**

Conducted Testing

