FCC Test Report

Test report no.: EMC_874FCC22-24_2005

FCC Part 22, 24 / RSS 132, 133
Model: iWM3150

FCC ID: PDC-IWM315XEG
IC ID: 5097A-IWM315XE

Deutscher Akkreditierungs Rat DAR

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.**

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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 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. does not assume responsibility for any conclusions and generalisations 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.

TEST REPORT PREPARED BY:
EMC Engineer: Neelesh Raj

1.2 Testing laboratory

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Internet: www.cetecom.com

1.3 Details of applicant

Name	**:**	At Road, Inc.
Street	**:**	47071 Bayside Pkwy
City / Zip Code	**:**	Fremont, CA 94538
Country	**:**	USA
Contact	**:**	Hung Phan
Telephone	**:**	510 870 1252
Tele-fax	**:**	510 870 1281
e-mail	**:**	hphan@road-inc.com

1.4 Application details

Date of receipt test item	:	2005-3-16
Date of test	:	2005-3-16 to 2005-3-23

1.5 Test item

Manufacturer	:	Applicant
Marketing Name	:	Mobile Hot Spot
Model No.	:	iWM3150
Description	:	QUAD-BAND GSM (850, 900, 1800 1900MHz) with 802.11b WLAN model for vehicular use
FCC-ID	**:**	**PDC-IWM315XEG**
IC-ID	**:**	**5079A-IWM315XE**

Additional information

Frequency	:	824.2MHz – 848.8MHz for GSM 850, 1850.2MHz – 1909.8MHz for PCS 1900
Type of modulation	:	GMSK
Number of channels	:	124 for GSM-850, 299 for PCS-1900
Antenna	:	External
Power supply	:	12VDC Nominal voltage (10-24VDC)
Output power	:	21.93dBm (155.96mW) max. ERP measured in GSM-850 26.92dBm (492.04mW) max. EIRP measured in PCS-1900
Extreme temp. Tolerance	:	Lower: -20°C Upper: +60°C

1.6 Test standards

FCC Part 22,24 / RSS132,133 r1

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

PROJECT OVERVIEW:

The EUT (iWM3150) carries pre-certified Siemens GSM module model# MC75 with FCC ID: QIPMC75.
This test report covers full radiated testing as per FCC 22/24 on EUT with GSM module. All conducted measurements for are covered under *test report# 4_Siem_0504_GSM_FCC*

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**

Technical responsibility for area of testing:

Date	Section	Name	Signature
2005-04-04	EMC & Radio	Lothar Schmidt (Technical Manager)	

Responsible for test report and project leader:

Date	Section	Name	Signature
2005-04-04	EMC & Radio	Neelesh Raj (EMC Engineer)	

2.2 Test report

TEST REPORT

Test report no.: EMC_874FCC22-24_2005
Model: iWM3150

TEST REPORT REFERENCE

POWER OUTPUT § 22.913(a) / § 24.232 (b)

Summary:
During the process of testing, the EUT was controlled via Rhode & Schwarz Universal Radio Communication tester (CMU 200) to ensure max. Power transmission and proper modulation.

This paragraph contains average output power, peak output power, EIRP & ERP measurements for the EUT.
In all cases, the peak output power is within the specified limits.

Method of Measurements:

The EUT was set up for the max. Output power with pseudo random data modulation.
The power was measured with R&S Spectrum Analyzer ESIB 40 (peak)
These measurements were done at 3 frequencies,
824.2 MHz, 836.6 MHz and 848.8 MHz (bottom, middle and top of operational frequency range) for GSM-850
1850.2 MHz, 1880.0 MHz and 1909.8 MHz (bottom, middle and top of operational frequency range) for PCS-1900

ERP (GSM-850) §22.913(a)

Limits:

Power Control Level	Burst Peak ERP
5	≤38.45dBm (7W)

EIRP

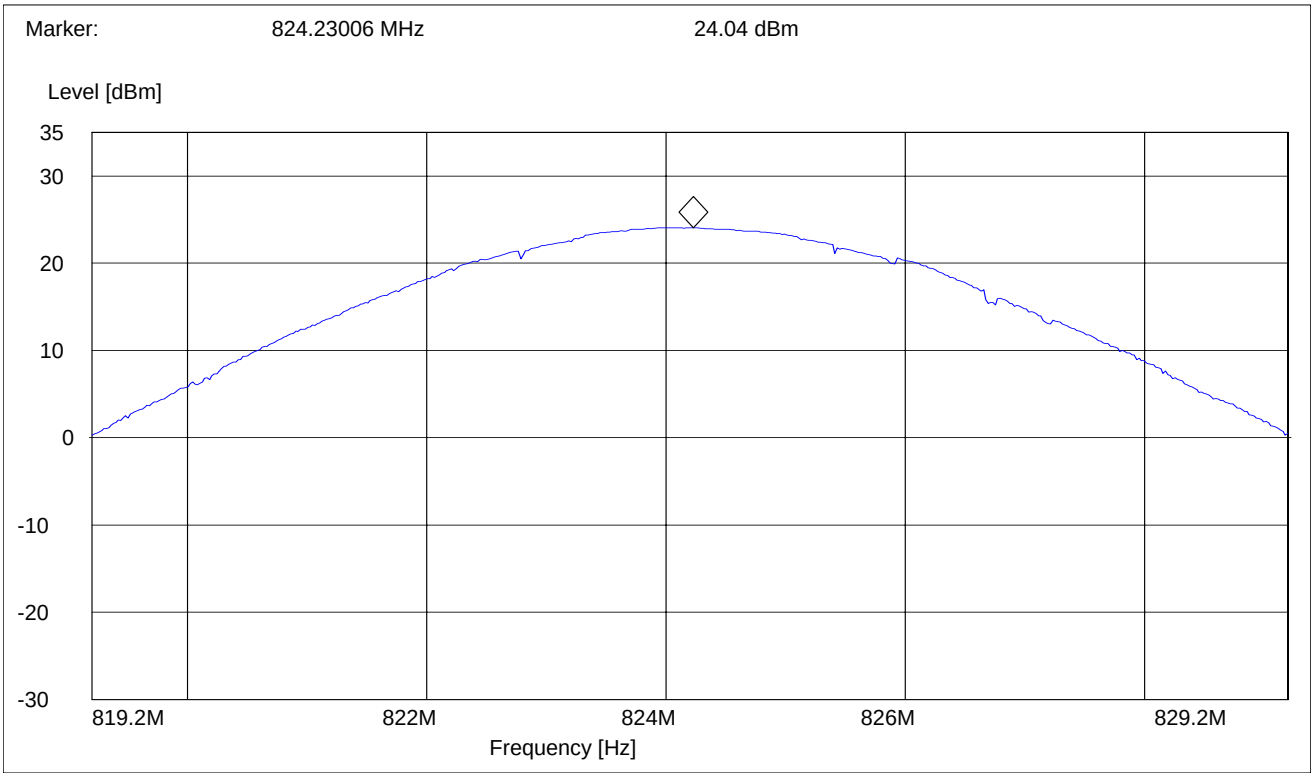
Frequency (MHz)	Power Control Level	Burst Peak (dBm)	
		EIRP	ERP
824.2	5	24.04	21.90
836.6	5	24.01	21.87
848.8	5	24.07	21.93
Measurement uncertainty	±0.5 dB		

ANALYZER SETTINGS: RBW = VBW = 3MHz

EIRP (GSM-850) §22.913(a)

CHANNEL 128

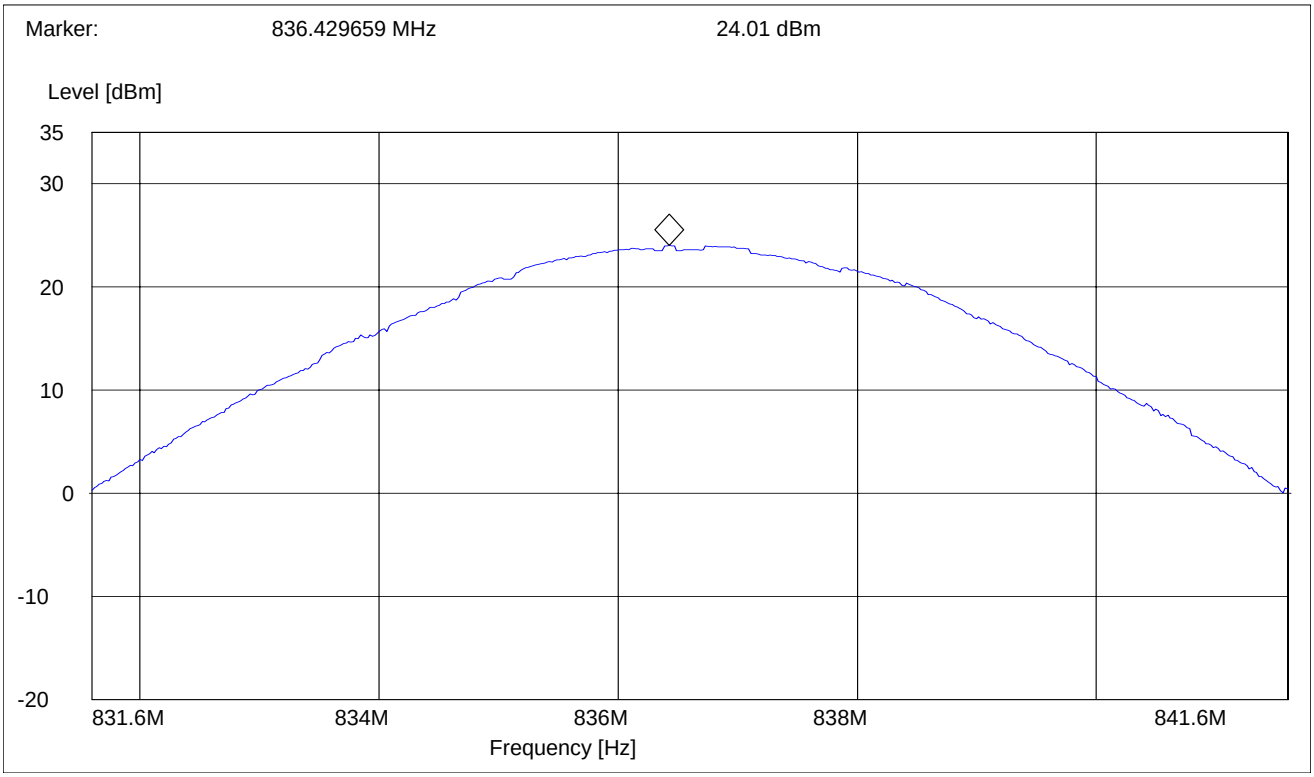
Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
819.2 MHz	829.2 MHz	Max Peak	Coupled	3 MHz



EIRP (GSM-850) §22.913(a)

CHANNEL 190

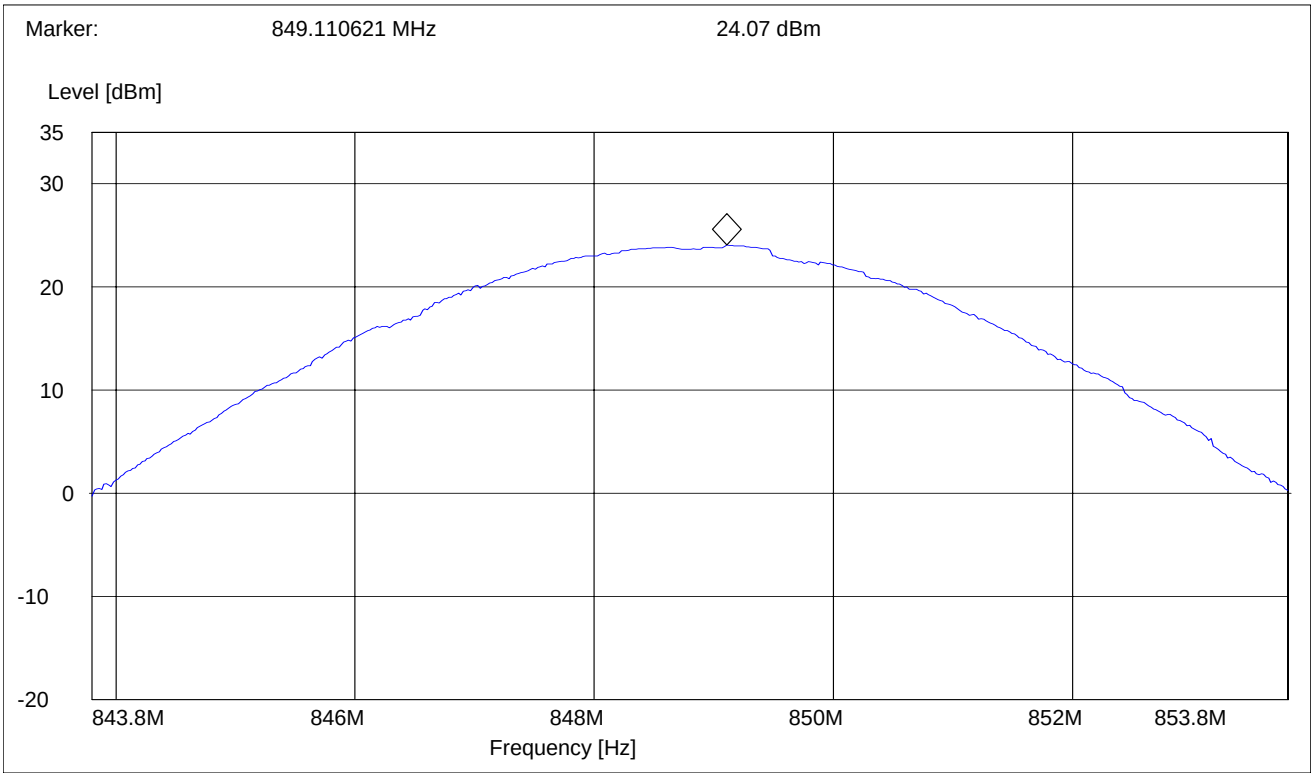
Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
831.6 MHz	841.6 MHz	Max Peak	Coupled	3 MHz



EIRP (GSM-850) §22.913(a)

CHANNEL 251

Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
843.8 MHz	853.8 MHz	Max Peak	Coupled	3 MHz



EIRP (PCS-1900) §24.232(b)

Limits:

Power Control Level	Burst Peak EIRP
0	≤33dBm (1W)

EIRP

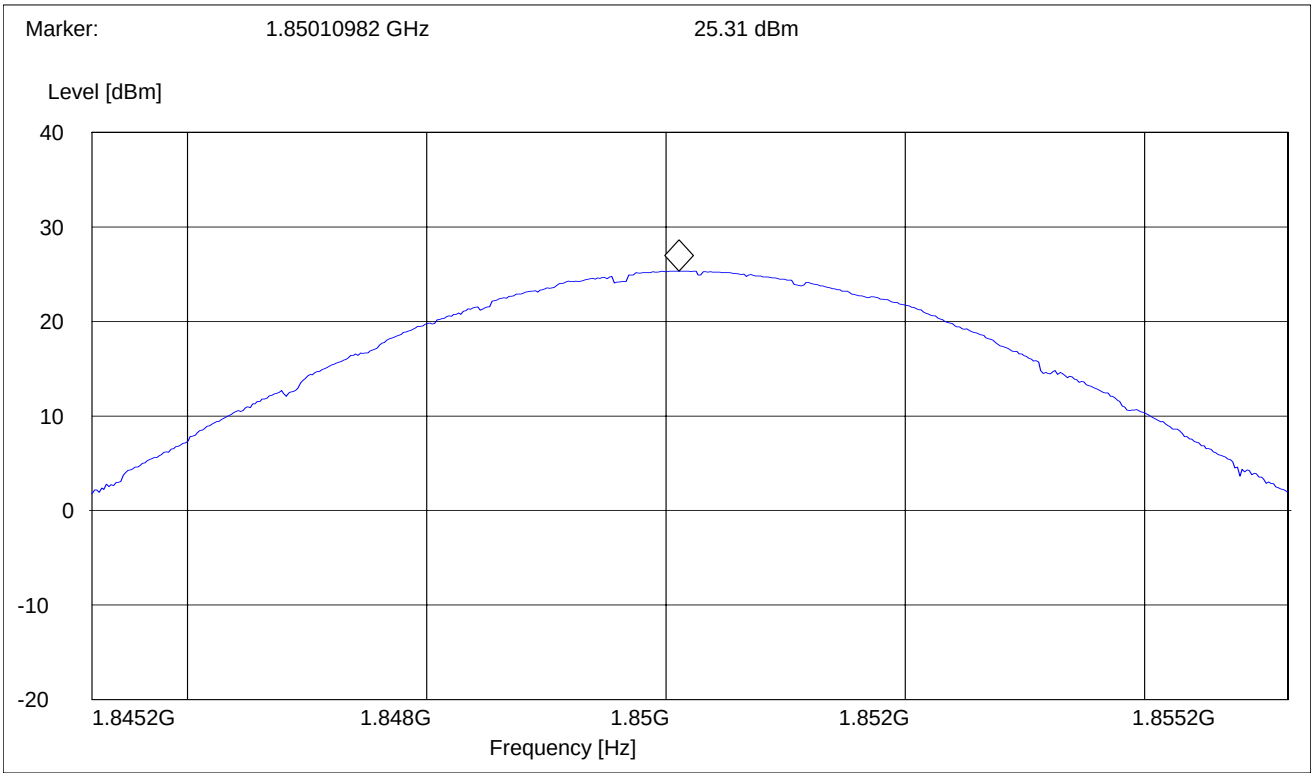
Frequency (MHz)	Power Control Level	Burst Peak (dBm)
		EIRP
1850.2	0	25.31
1880.0	0	26.92
1909.8	0	26.24
Measurement uncertainty	±0.5 dB	

ANALYZER SETTINGS: RBW = VBW = 3MHz

EIRP (PCS-1900) §24.232(b)

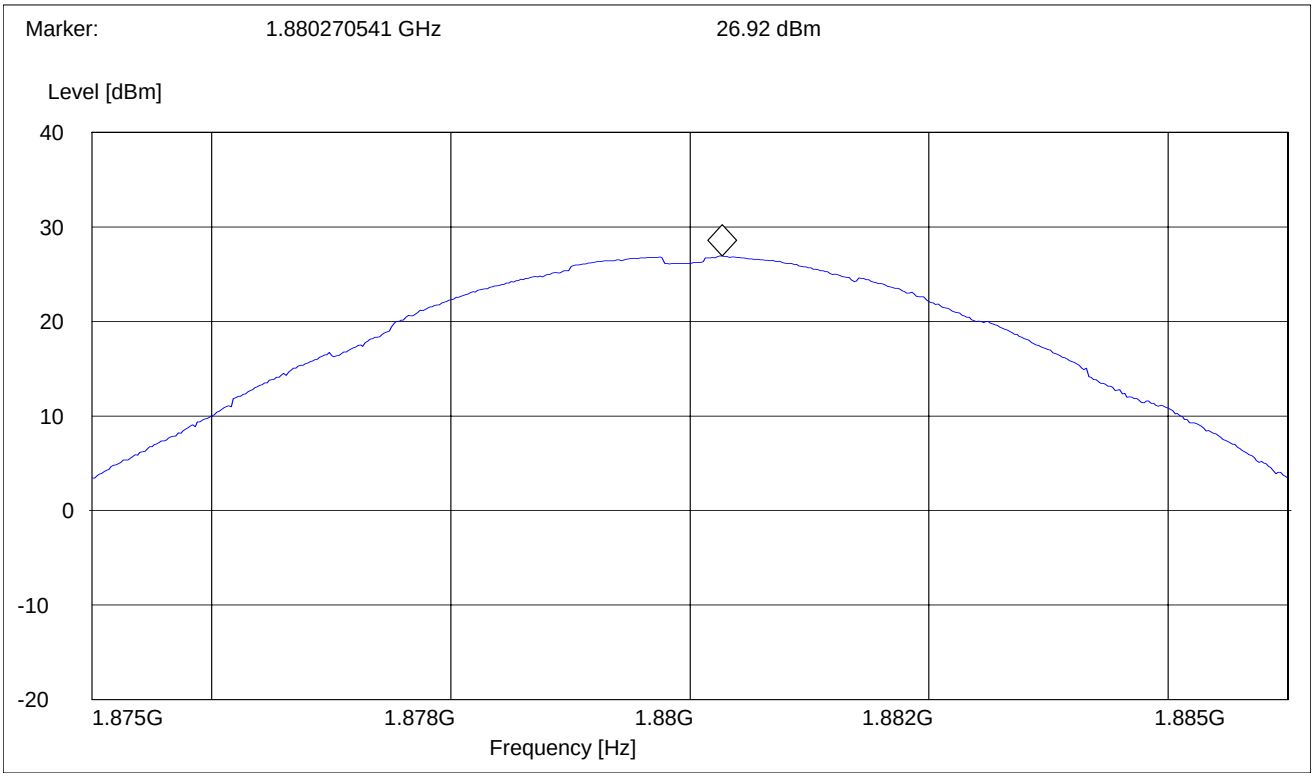
CHANNEL 512

Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
1.8452 GHz	1.8552 MHz	Max Peak	Coupled	3 MHz



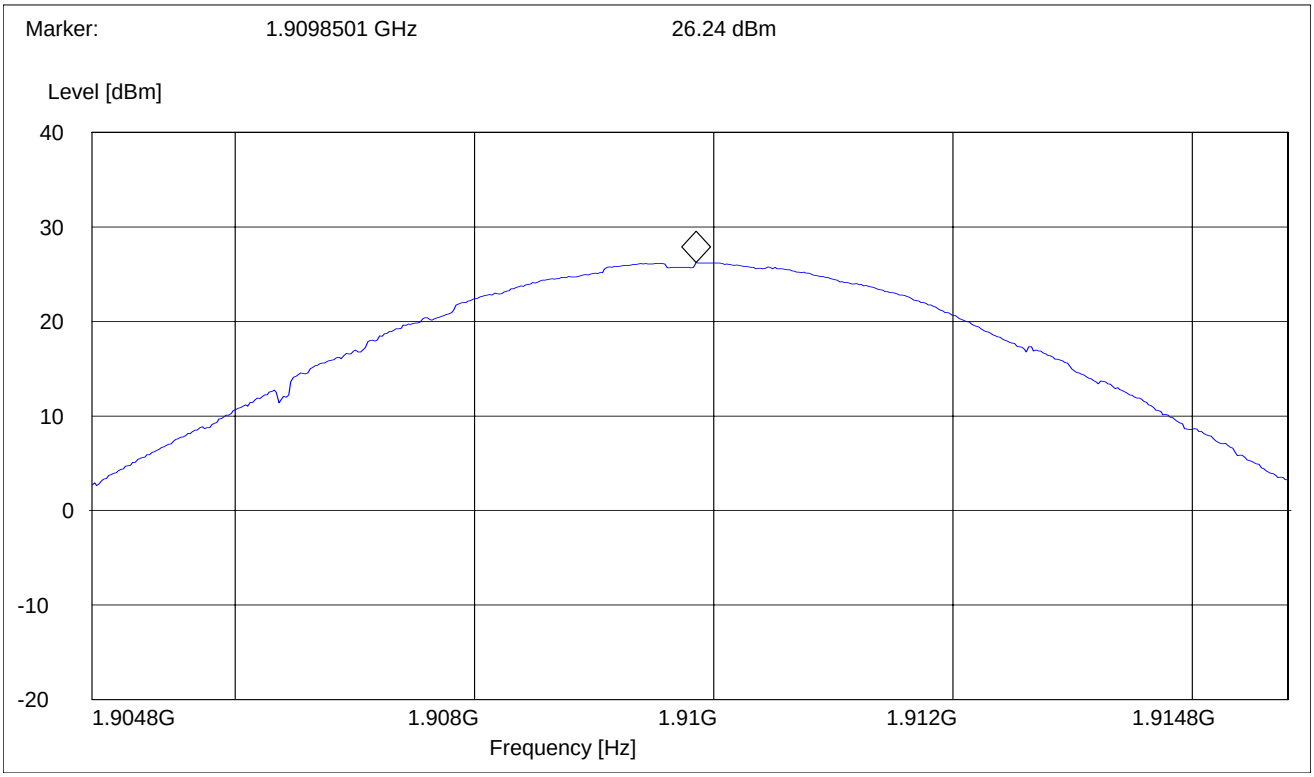
EIRP (PCS-1900) §24.232(b)
CHANNEL 661

Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
1.875 GHz	1.885 MHz	Max Peak	Coupled	3 MHz



EIRP (PCS-1900) §24.232(b)
CHANNEL 810

Start Frequency	Stop Frequency	Detector	Meas. Time	IF BW
1.9048 GHz	1.9148 MHz	Max Peak	Coupled	3 MHz



EMISSION LIMITS TRANSMITTER §2.1051 / §24.238

Measurement Procedure:

The following steps outline the procedure used to measure the radiated emissions from the EUT. The site is constructed in accordance with ANSI C63.4 – 2003 requirements and is recognised by the FCC. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 848.8MHz for GSM-850 & 1910 MHz for PCS-1900 The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the GSM-850 & PCS-1900 bands.

The final Radiated emission test procedure is as follows:
a) The test item was placed on a 0. 8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
b) The antenna output was terminated in a 50-ohm load.
c) A double-ridged wave guide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded. The equivalent power into a dipole antenna was determined by the substitution method described for ERP measurements.

Measurement Limit:
Sec. 24.238 Emission Limits.
(a) On any frequency outside a licensee' s frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Measurement Results:
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the GSM-850 & PCS-1900 bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the GSM-850 & PCS-1900 band into any of the other blocks respectively. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

RESULTS OF RADIATED TESTS GSM-850:

Harmonics	Tx ch-128 Freq. (MHz)	Level (dBm)	Tx ch-190 Freq. (MHz)	Level (dBm)	Tx ch-251 Freq. (MHz)	Level (dBm)
2	**1648.4**	-49.43	**1673.2**	-49.68	**1697.6**	-50.05
3	**2472.6**	-43.93	**2509.8**	-43.99	**2546.4**	-42.70
4	**3296.8**	NF	**3346.4**	NF	**3395.2**	NF
5	**4121**	NF	**4183**	NF	**4244**	NF
6	**4945.2**	NF	**5019.6**	NF	**5092.8**	NF
7	**5769.4**	NF	**5856.2**	NF	**5941.6**	NF
8	**6593.6**	NF	**6692.8**	NF	**6790.4**	NF
9	**7417.8**	NF	**7529.4**	NF	**7639.2**	NF
10	**8242**	NF	**8366**	NF	**8488**	NF
NF = NOISE FLOOR						

RADIATED SPURIOUS EMISSIONS (GSM-850)

30MHz - 1GHz

Spurious emission limit –13dBm

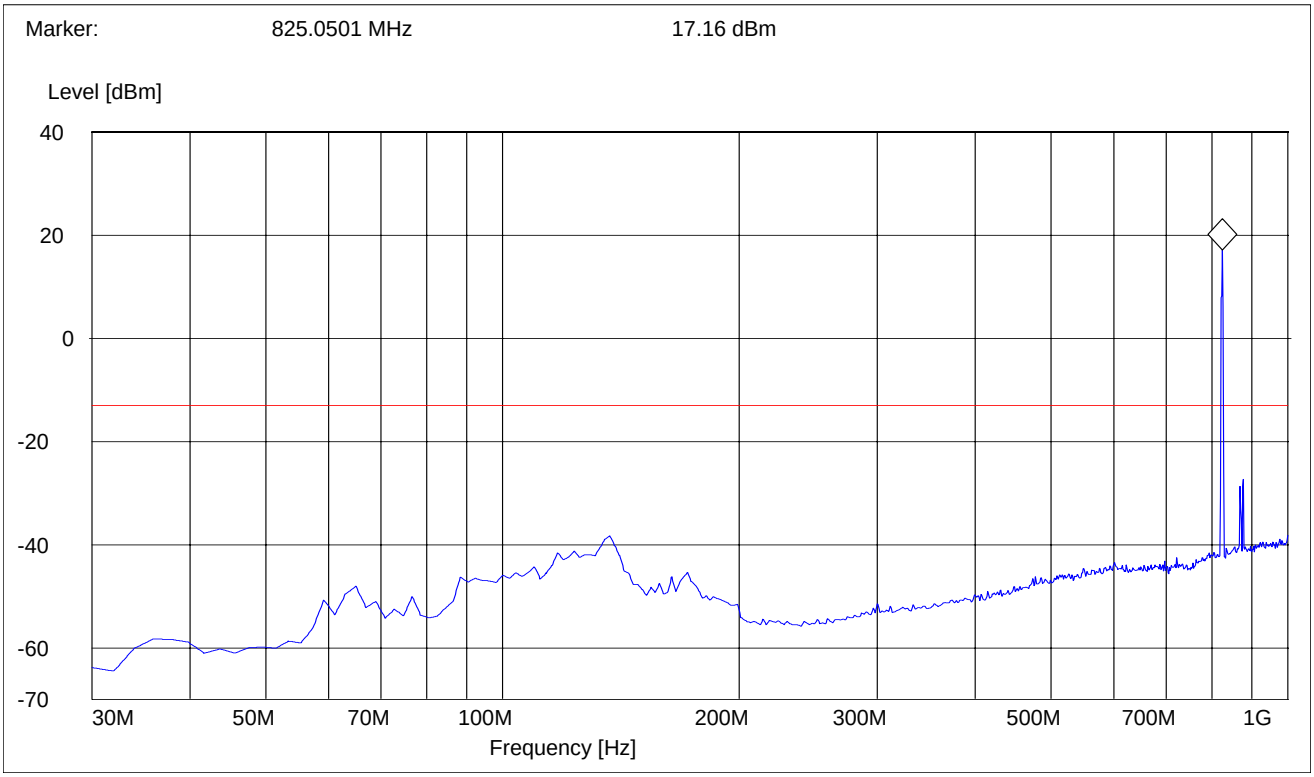
Antenna: vertical

SWEEP TABLE: "FCC 22 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz

Note:

1. **The peak above the limit line is the carrier freq.**
2. **This plot is valid for low, mid & high channels (worst-case plot)**



RADIATED SPURIOUS EMISSIONS (GSM-850)

30MHz - 1GHz

Spurious emission limit –13dBm

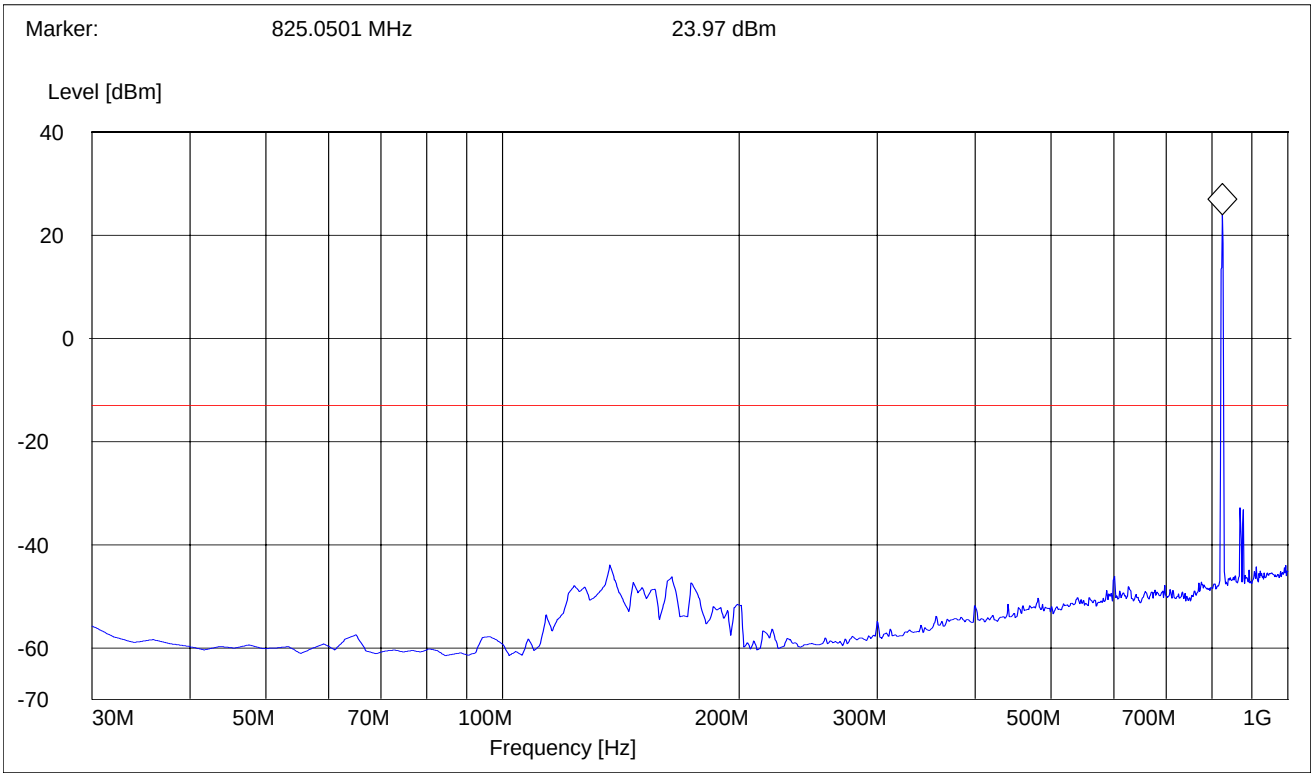
Antenna: horizontal

SWEEP TABLE: "FCC 22 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz

Note:

1. **The peak above the limit line is the carrier freq.**
2. **This plot is valid for low, mid & high channels (worst-case plot)**



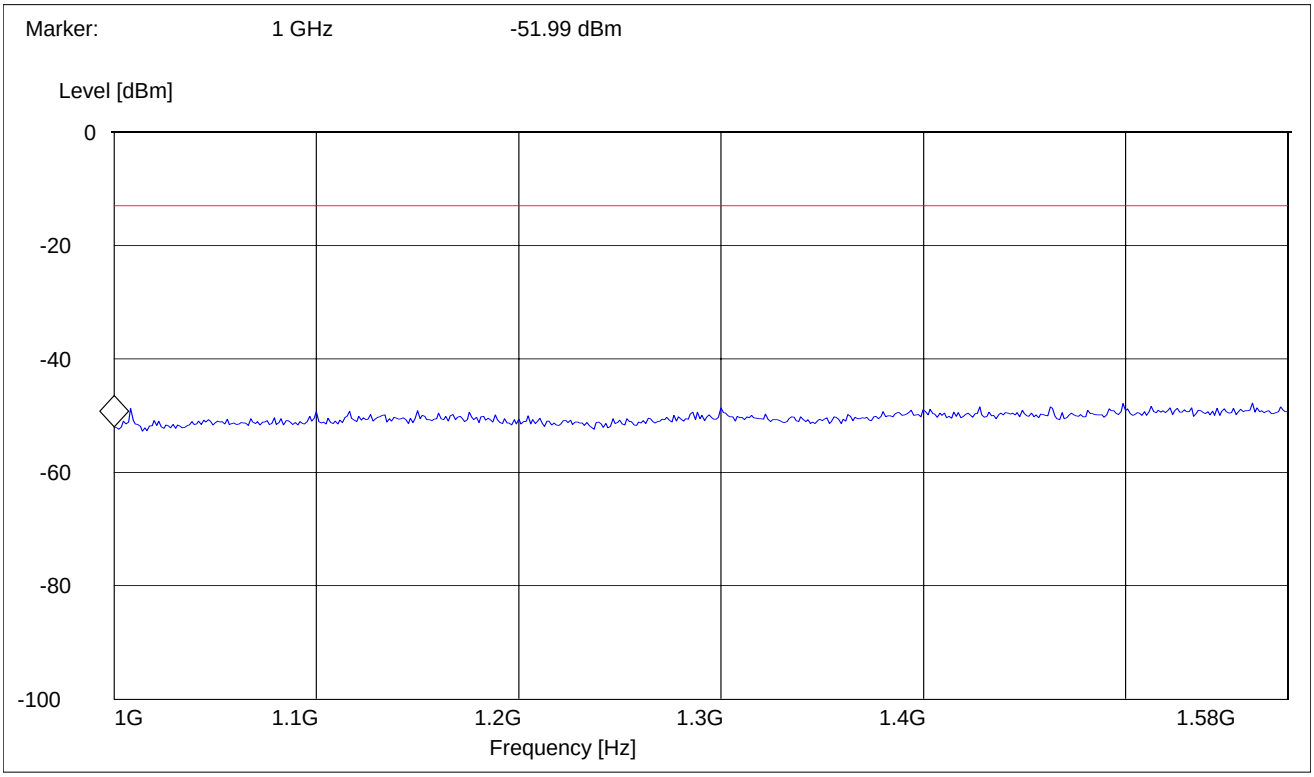
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 824.2MHz: 1GHz – 1.58GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1-1.58G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	1.58GHz	Max Peak	Coupled	1 MHz	1 MHz



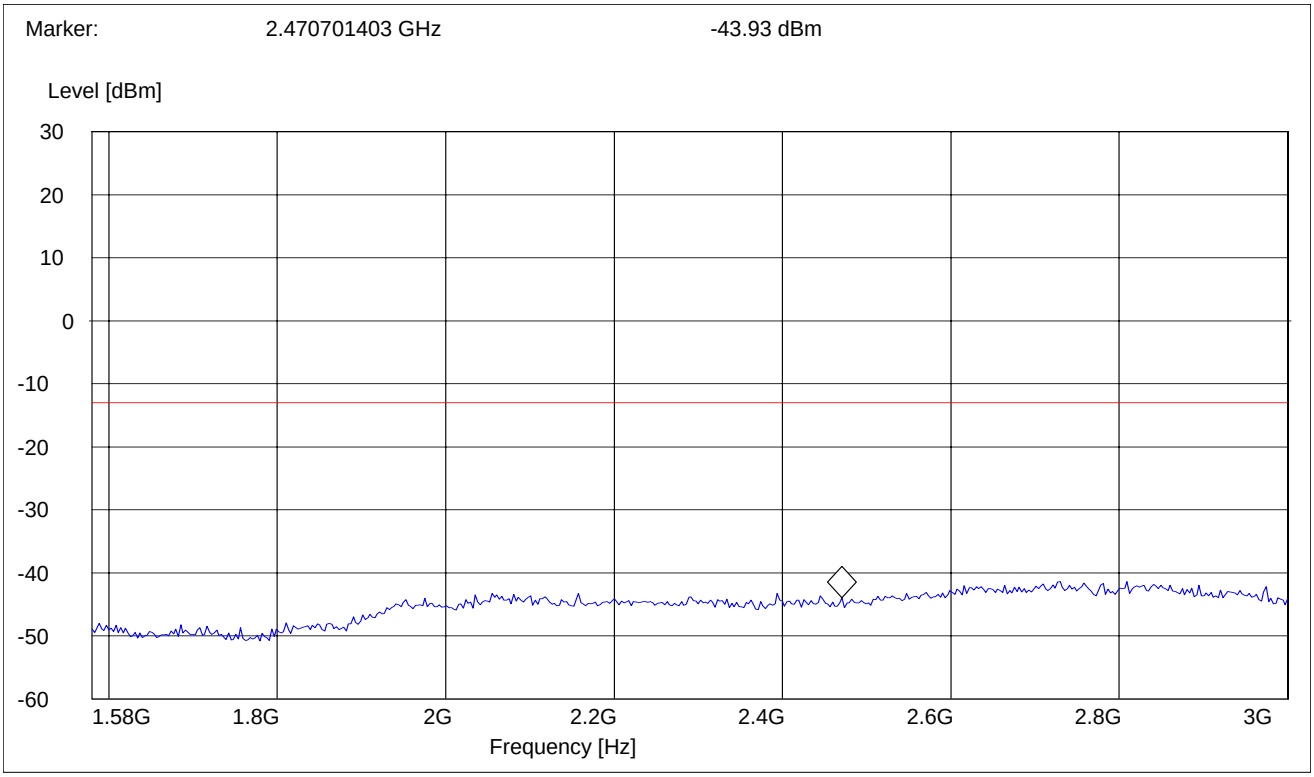
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 824.2MHz: 1.58GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1.58-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1.58GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz



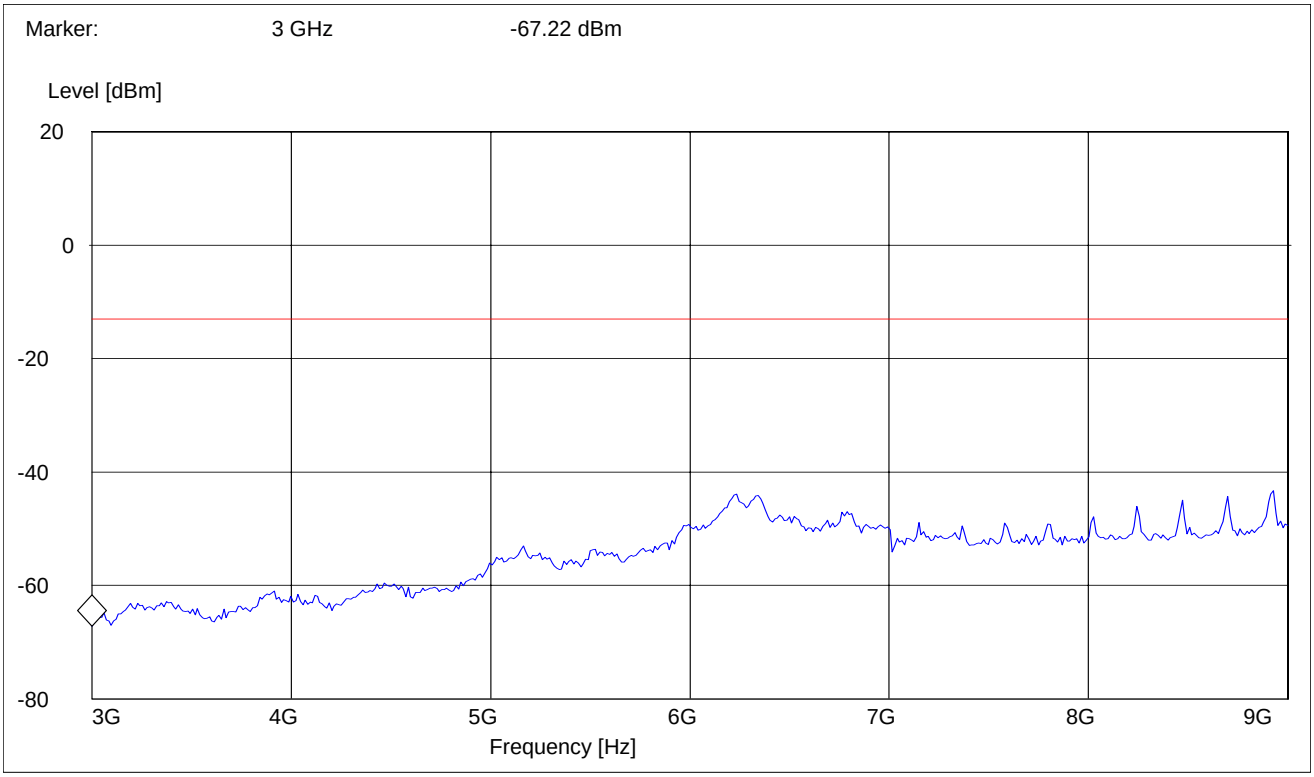
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 824.2MHz: 3GHz – 9GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 3-9G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	9GHz	Max Peak	Coupled	1 MHz	1 MHz



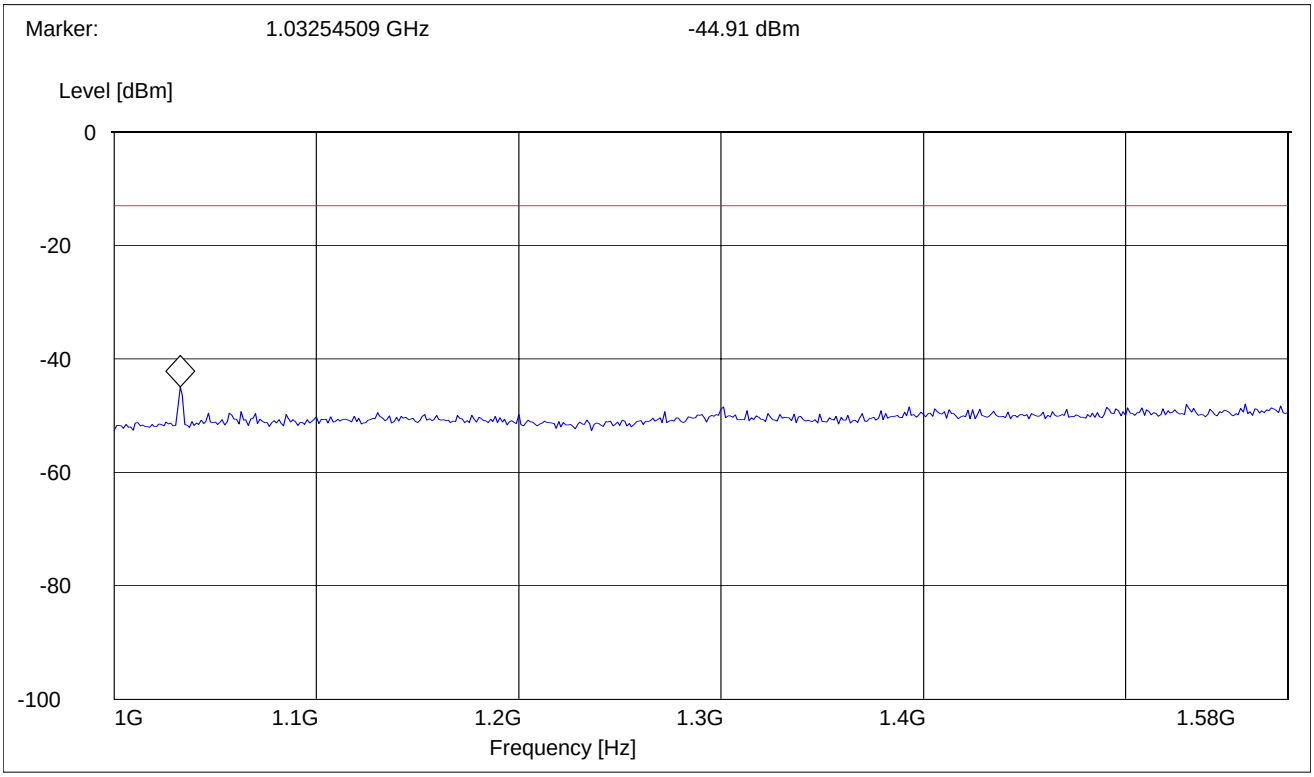
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 836.6MHz: 1GHz – 1.58GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1-1.58G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	1.58GHz	Max Peak	Coupled	1 MHz	1 MHz



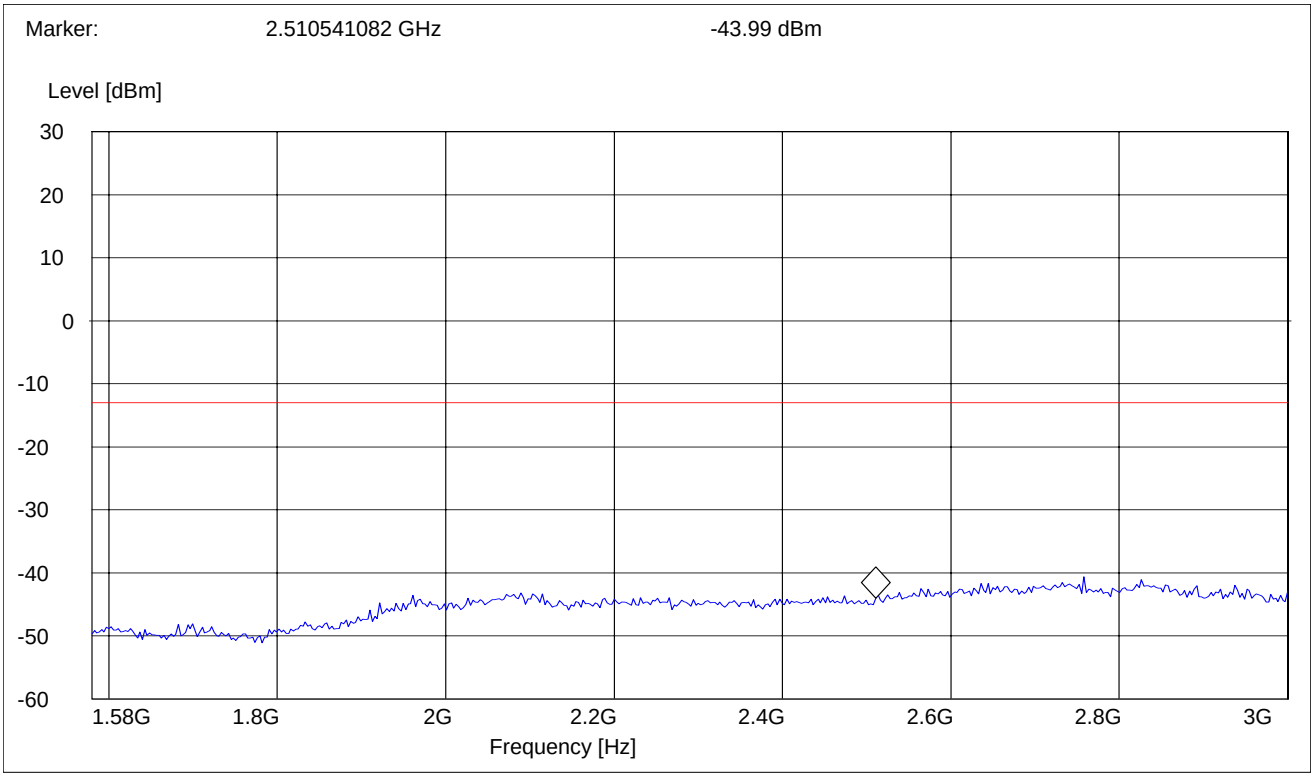
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 836.6MHz: 1.58GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1.58-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1.58GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz



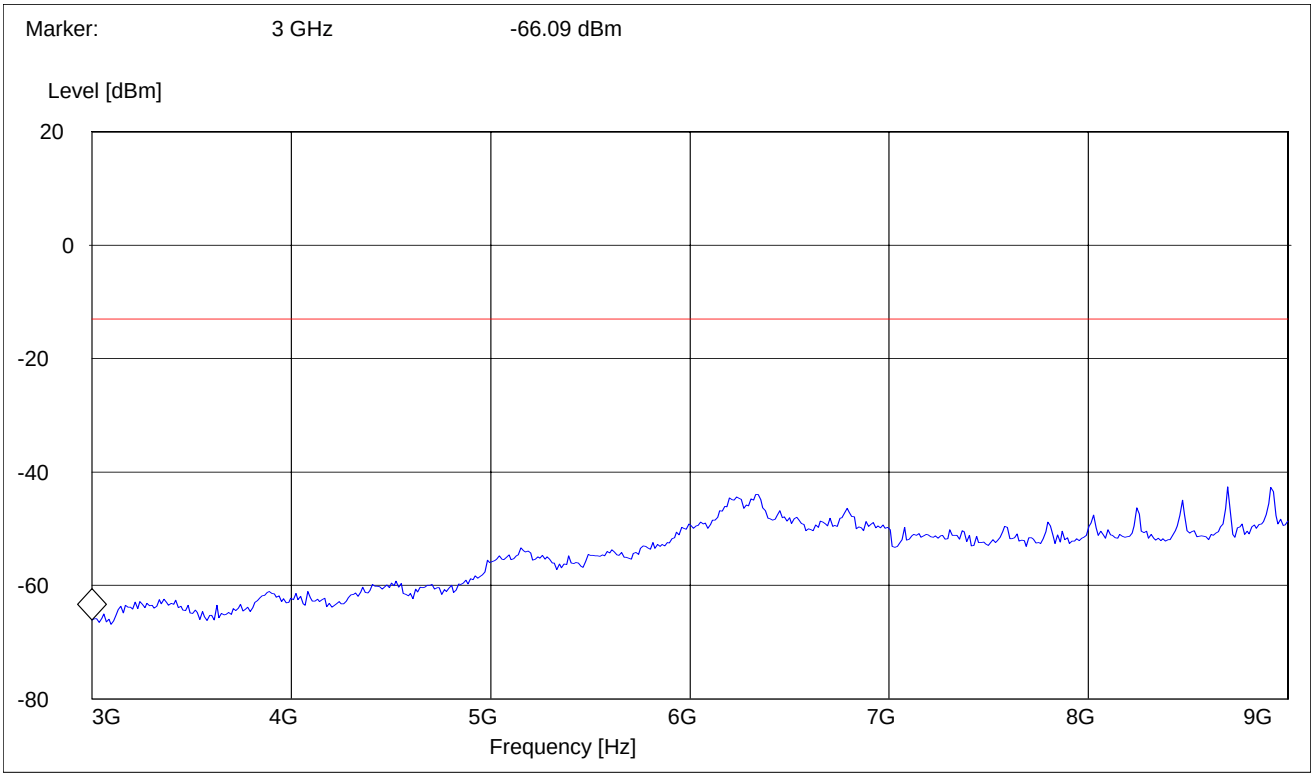
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 836.6MHz: 3GHz – 9GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 3-9G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	9GHz	Max Peak	Coupled	1 MHz	1 MHz



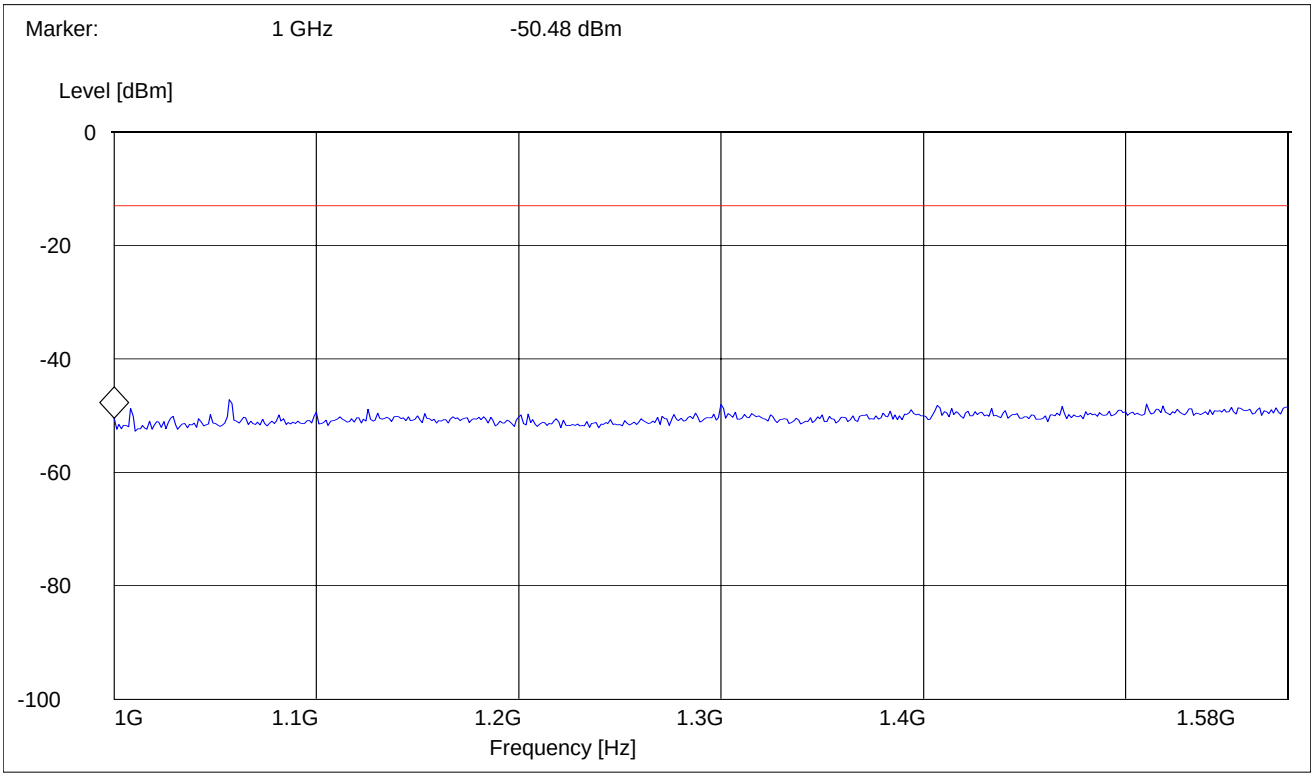
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 848.8MHz: 1GHz – 1.58GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1-1.58G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	1.58GHz	Max Peak	Coupled	1 MHz	1 MHz



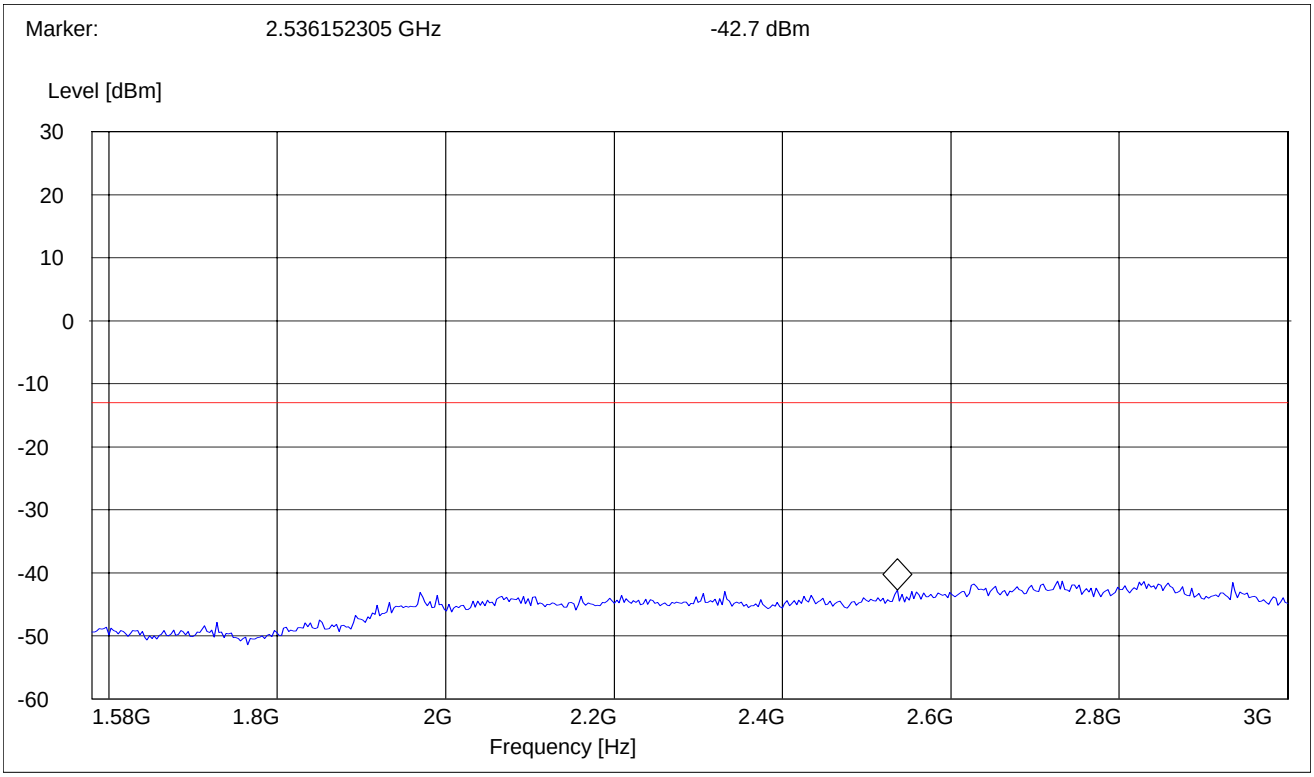
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 848.8MHz: 1.58GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 1.58-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1.58GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz



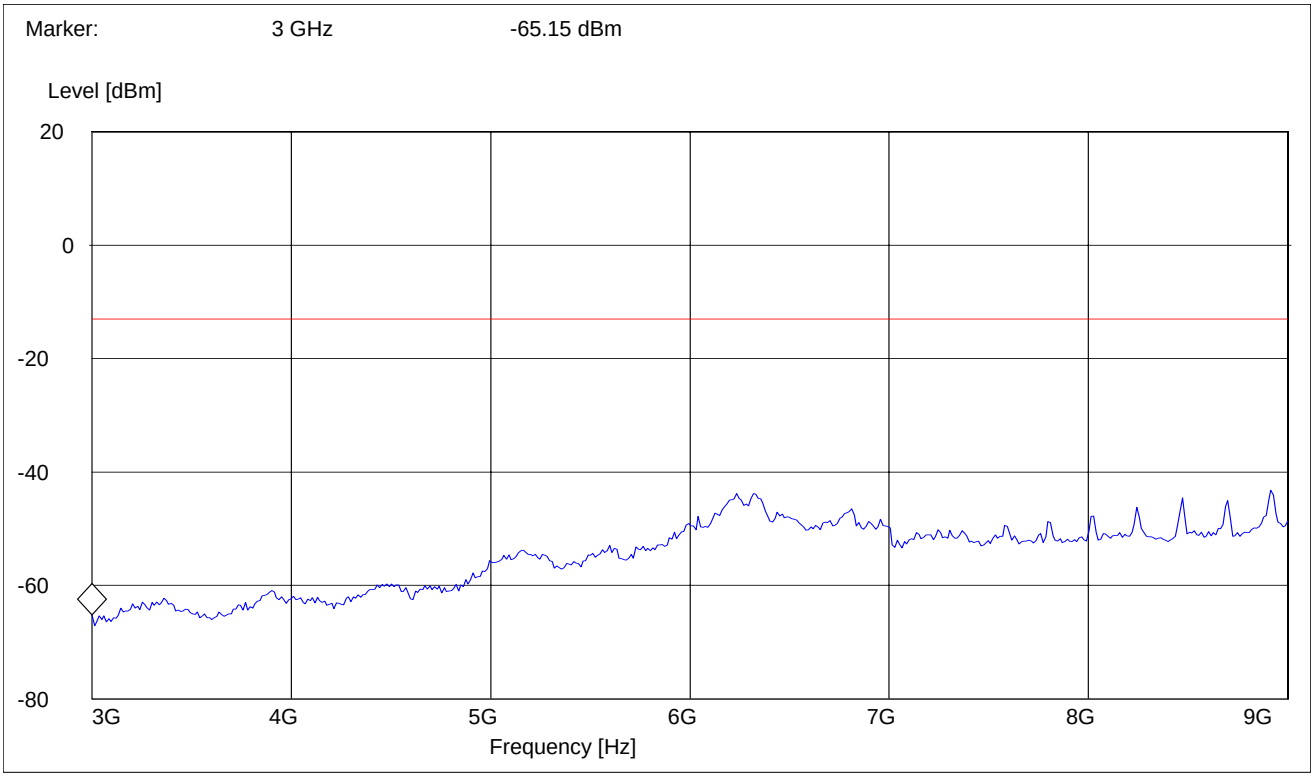
RADIATED SPURIOUS EMISSIONS (GSM-850)

Tx @ 848.8MHz: 3GHz – 9GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 22 Spur 3-9G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	9GHz	Max Peak	Coupled	1 MHz	1 MHz



RESULTS OF RADIATED TESTS PCS-1900:

Harmonic	Tx ch-512 Freq.(MHz)	Level (dBm)	Tx ch-661 Freq. (MHz)	Level (dBm)	Tx ch-810 Freq. (MHz)	Level (dBm)
2	**3700.4**	-54.29	**3760**	-50.66	**3819.6**	-51.76
3	**5550.6**	NF	**5640**	NF	**5729.4**	NF
4	**7400.8**	NF	**7520**	NF	**7639.2**	NF
5	**9251**	NF	**9400**	NF	**9549**	NF
6	**11101.2**	NF	**11280**	NF	**11458.8**	NF
7	**12951.4**	NF	**13160**	NF	**13368.6**	NF
8	**14801.6**	NF	**15040**	NF	**15278.4**	NF
9	**16651.8**	NF	**16920**	NF	**17188.2**	NF
10	**18502**	NF	**18800**	NF	**19098**	NF
NF = NOISE FLOOR						

RADIATED SPURIOUS EMISSIONS
30MHz - 1GHz

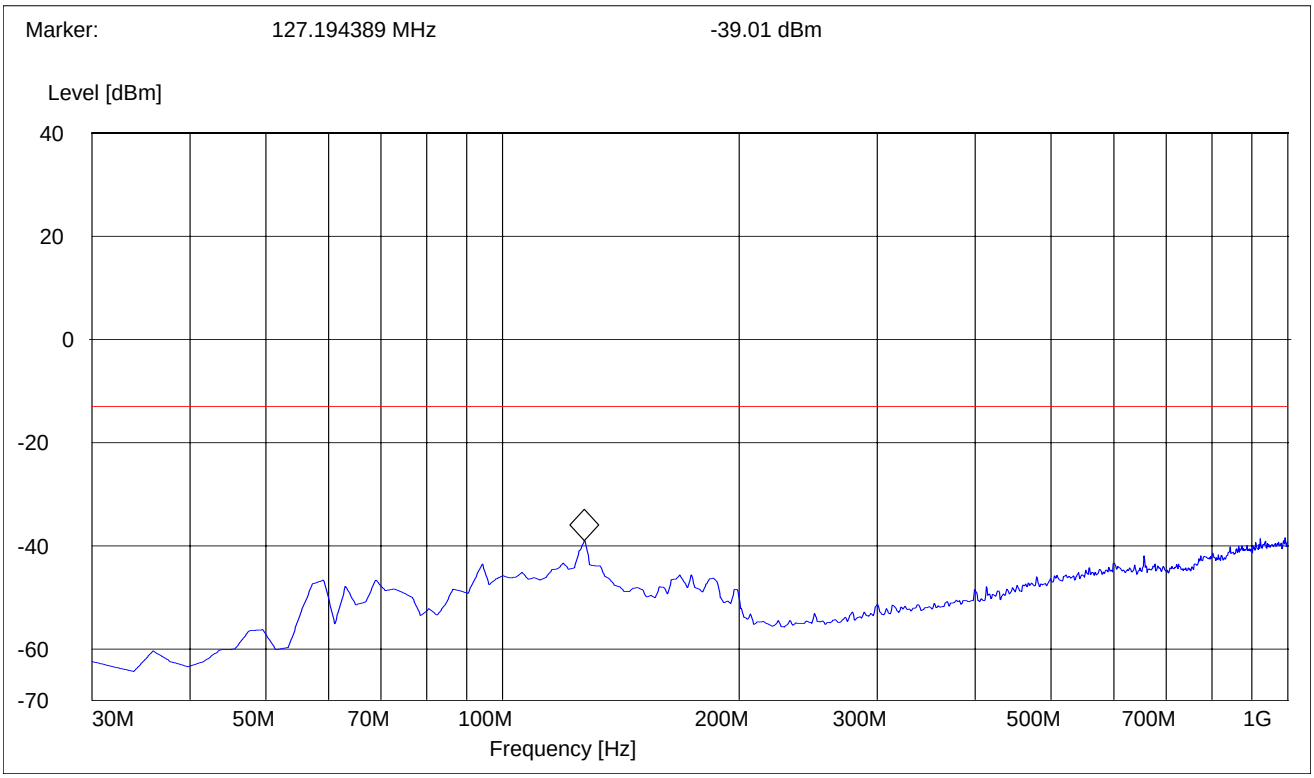
Spurious emission limit –13dBm

Antenna: vertical

SWEEP TABLE: "FCC 24 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz

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



RADIATED SPURIOUS EMISSIONS
30MHz - 1GHz

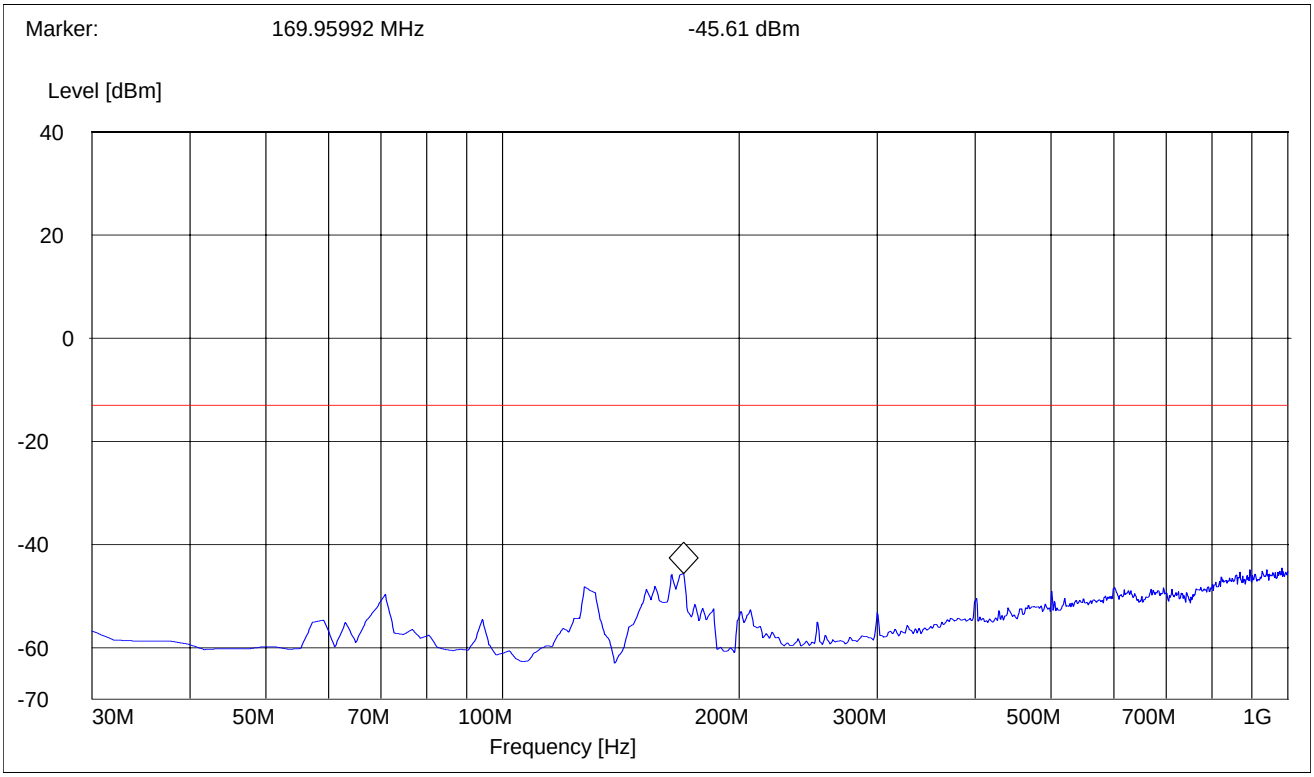
Spurious emission limit –13dBm

Antenna: horizontal

SWEEP TABLE: "FCC 24 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz

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



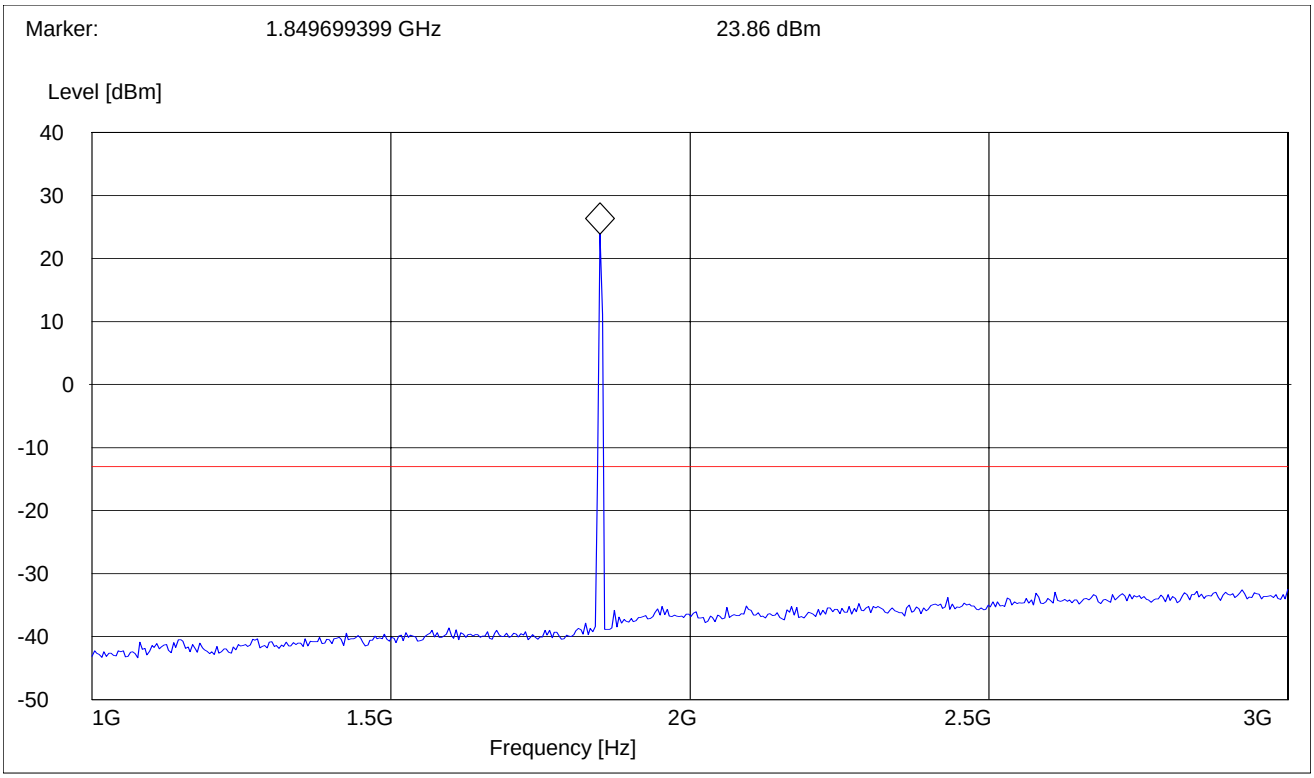
RADIATED SPURIOUS EMISSIONS
Tx @ 1850.2MHz: 1GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 1-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz

Note: The peak above the limit line is the carrier freq. at ch-512.

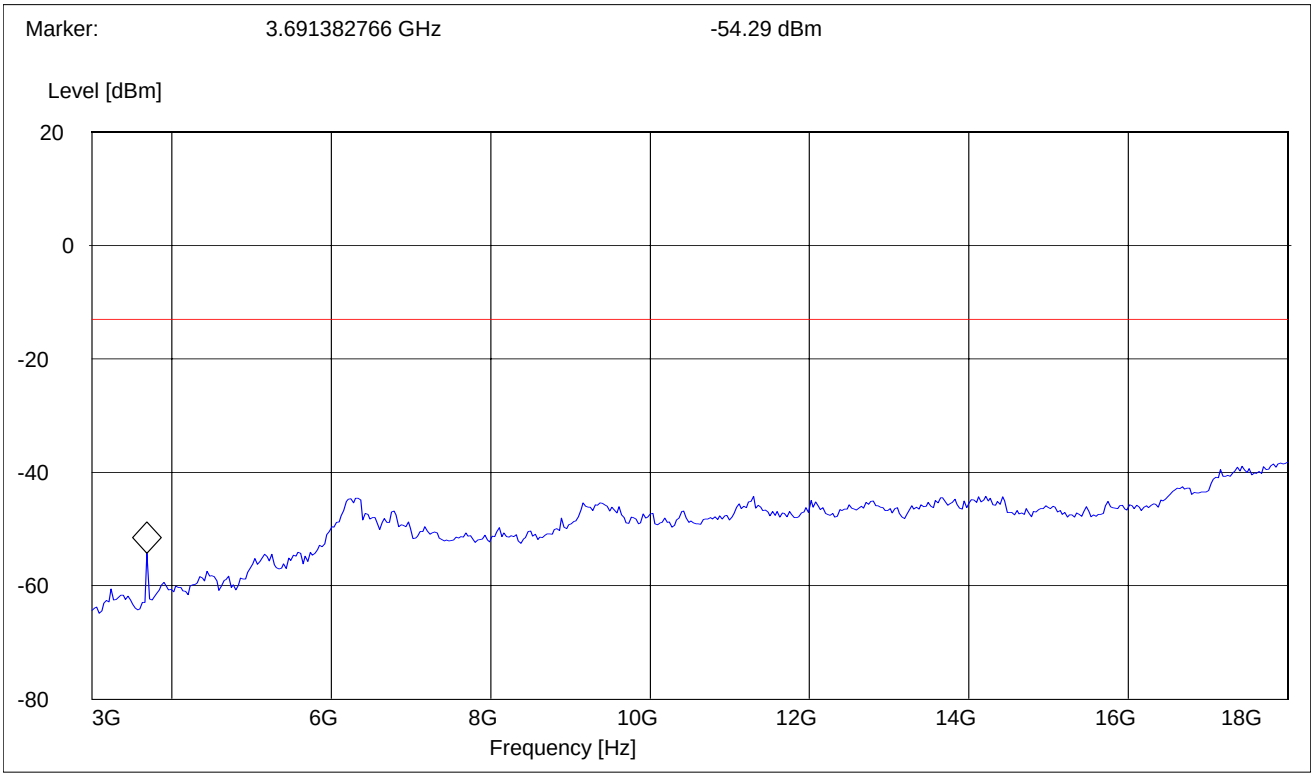


RADIATED SPURIOUS EMISSIONS
Tx @ 1850.2MHz: 3GHz – 18GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz



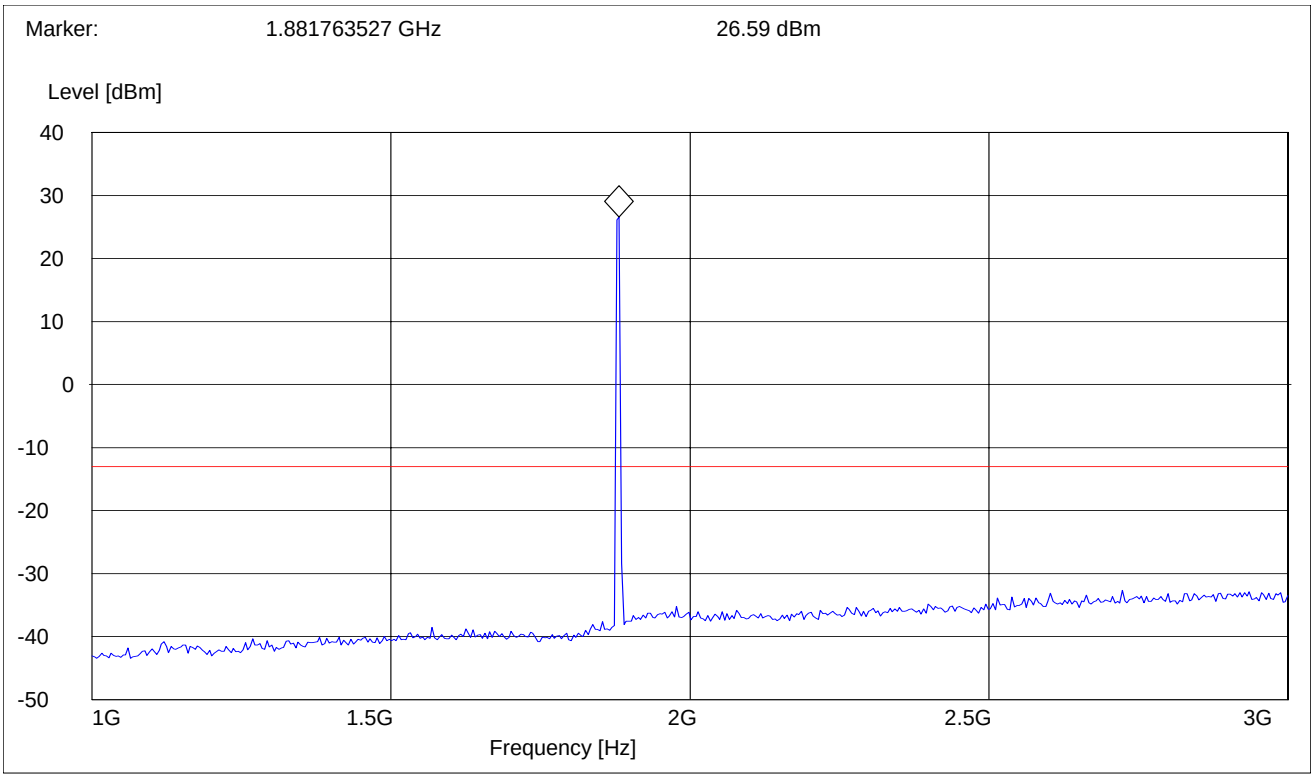
RADIATED SPURIOUS EMISSIONS
Tx @ 1880.0MHz: 1GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 1-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz

Note: The peak above the limit line is the carrier freq. at ch-661.

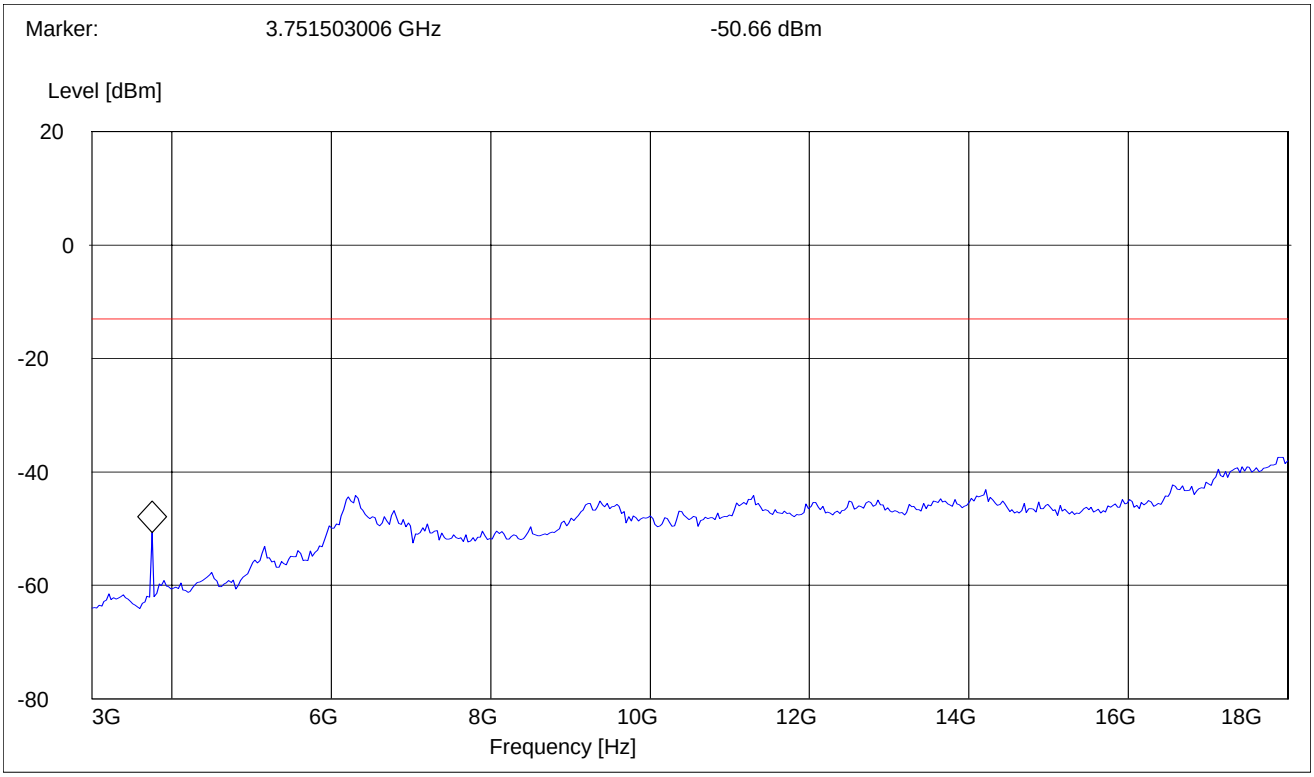


RADIATED SPURIOUS EMISSIONS
Tx @ 1880.0MHz: 3GHz – 18GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz



RADIATED SPURIOUS EMISSIONS
Tx @ 1909.8MHz: 1GHz – 3GHz

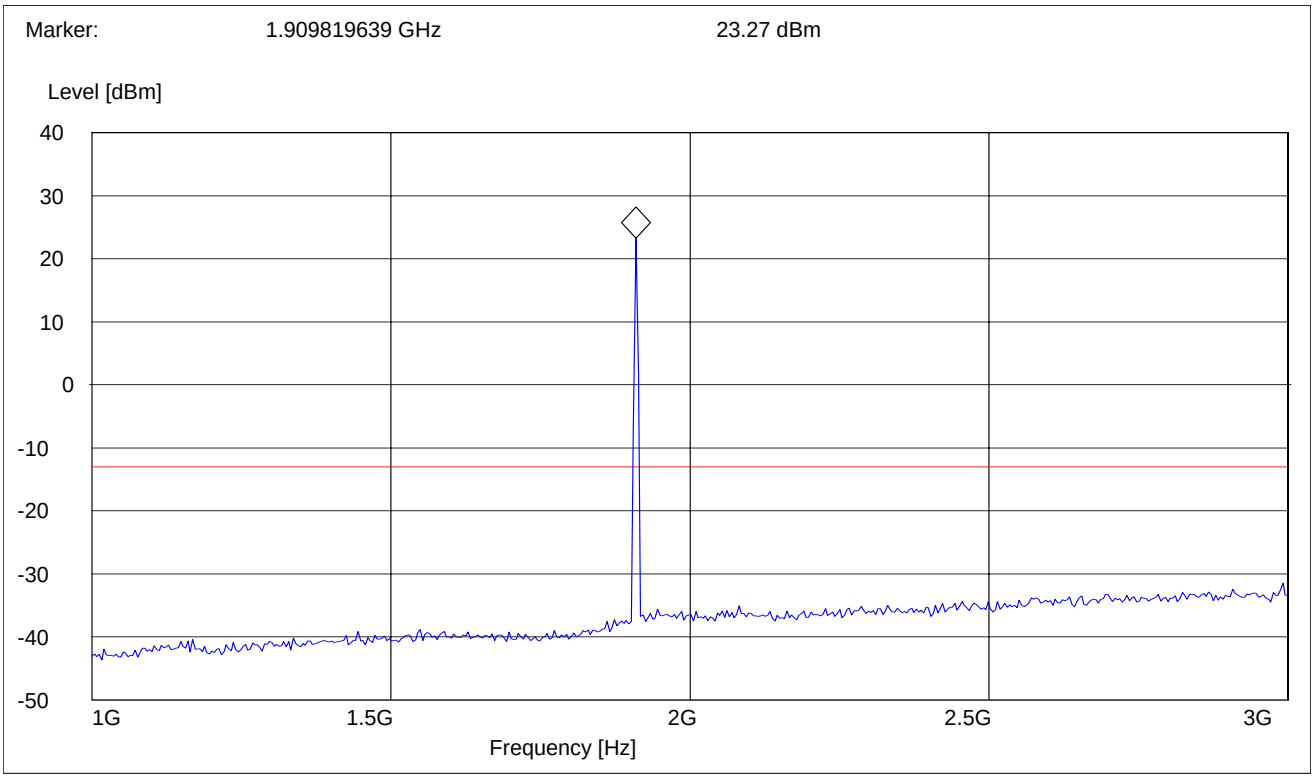
Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 1-3G"

Start Frequency	*Stop Frequency*	*Detector*	*Meas. Time*	*RBW/VBW*
1GHz	3GHz	Max Peak	Coupled	1 MHz

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz

Note: The peak above the limit line is the carrier freq. at ch-810.

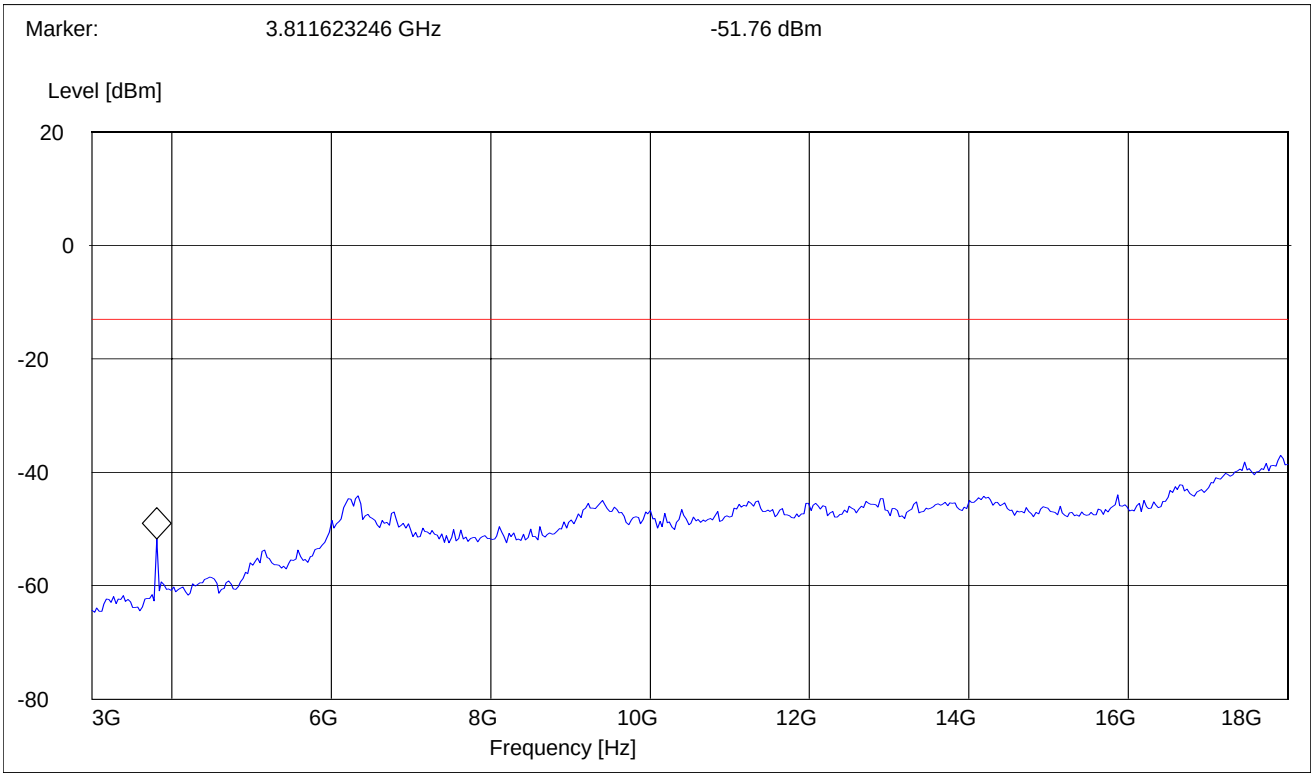


RADIATED SPURIOUS EMISSIONS
Tx @ 1909.8MHz: 3GHz – 18GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz



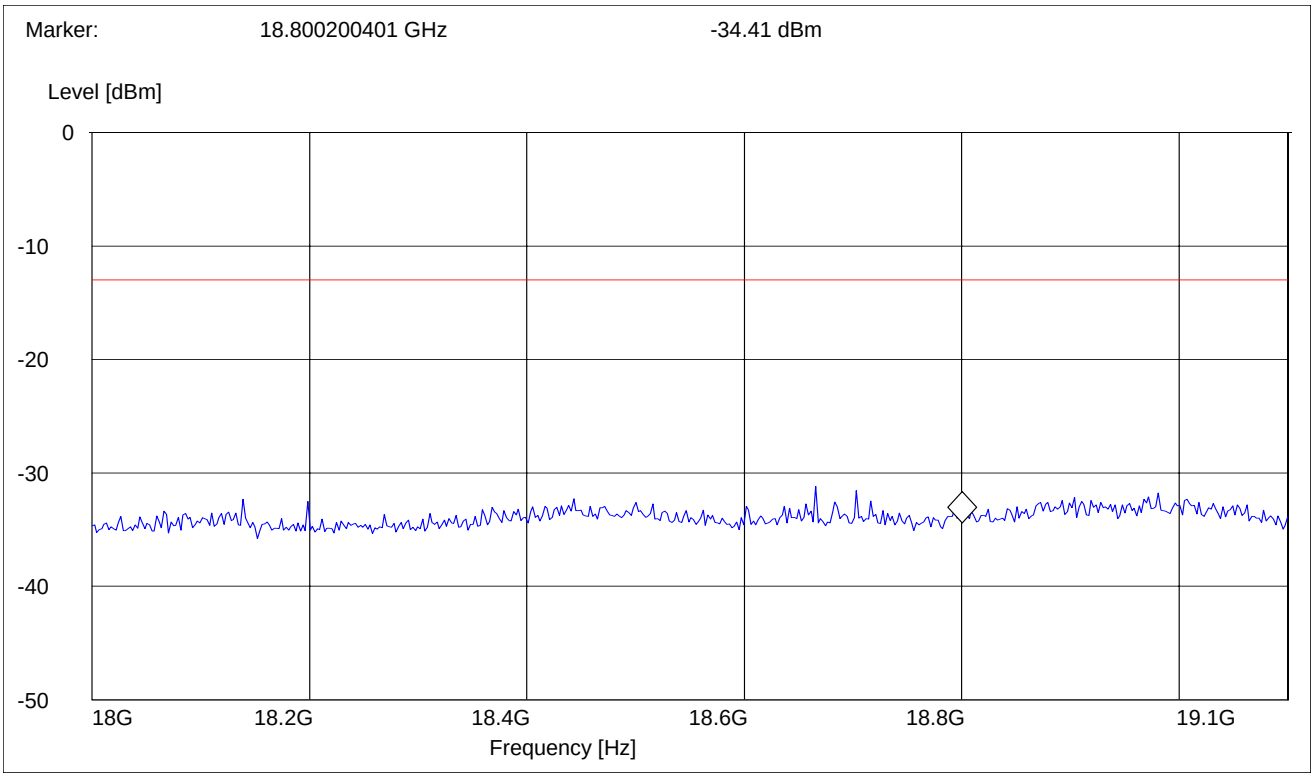
RADIATED SPURIOUS EMISSIONS
18GHz – 19.1GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 24 spuri 18-19.1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
18GHz	19.1GHz	Max Peak	Coupled	1 MHz	1 MHz

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



RADIATED SPURIOUS EMISSIONS (IDLE MODE)

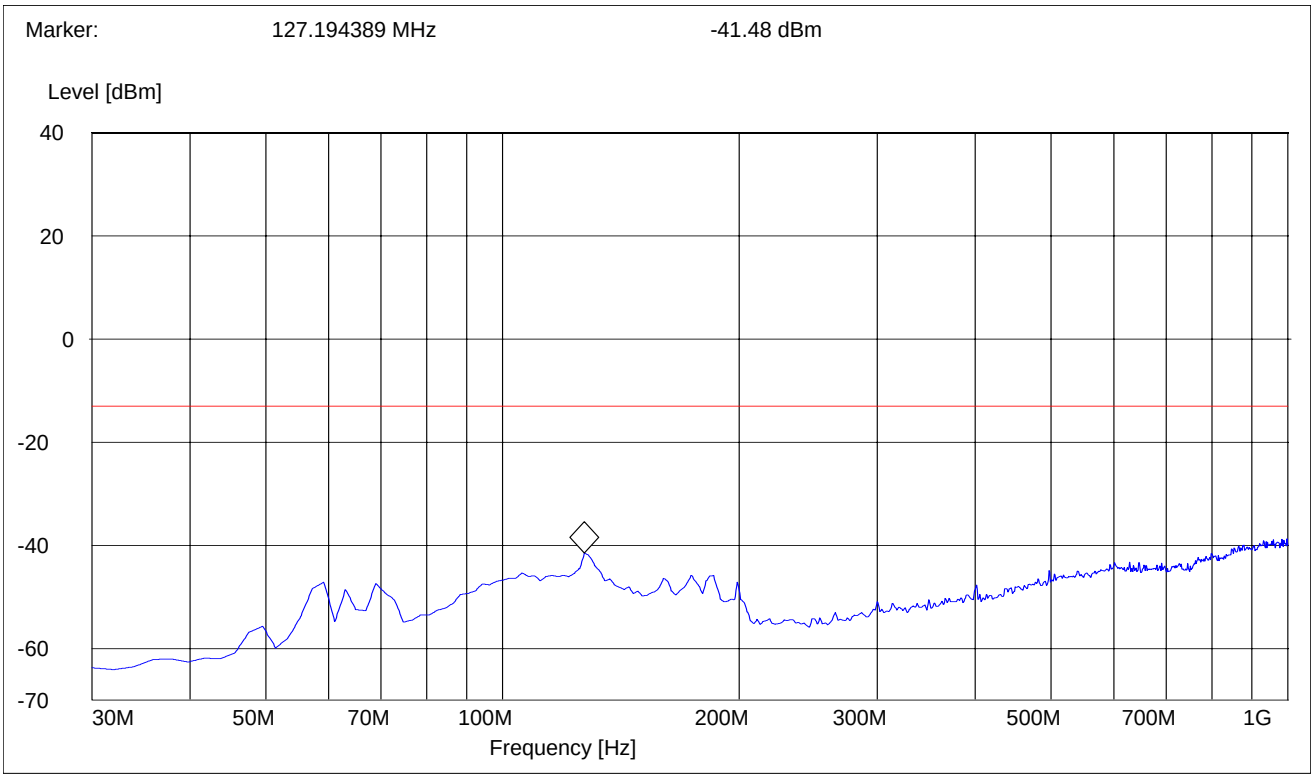
EUT in Idle Mode: 30MHz – 1GHz

Spurious emission limit –13dBm

Antenna: vertical

SWEEP TABLE: "FCC 22 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz



RADIATED SPURIOUS EMISSIONS (IDLE MODE)

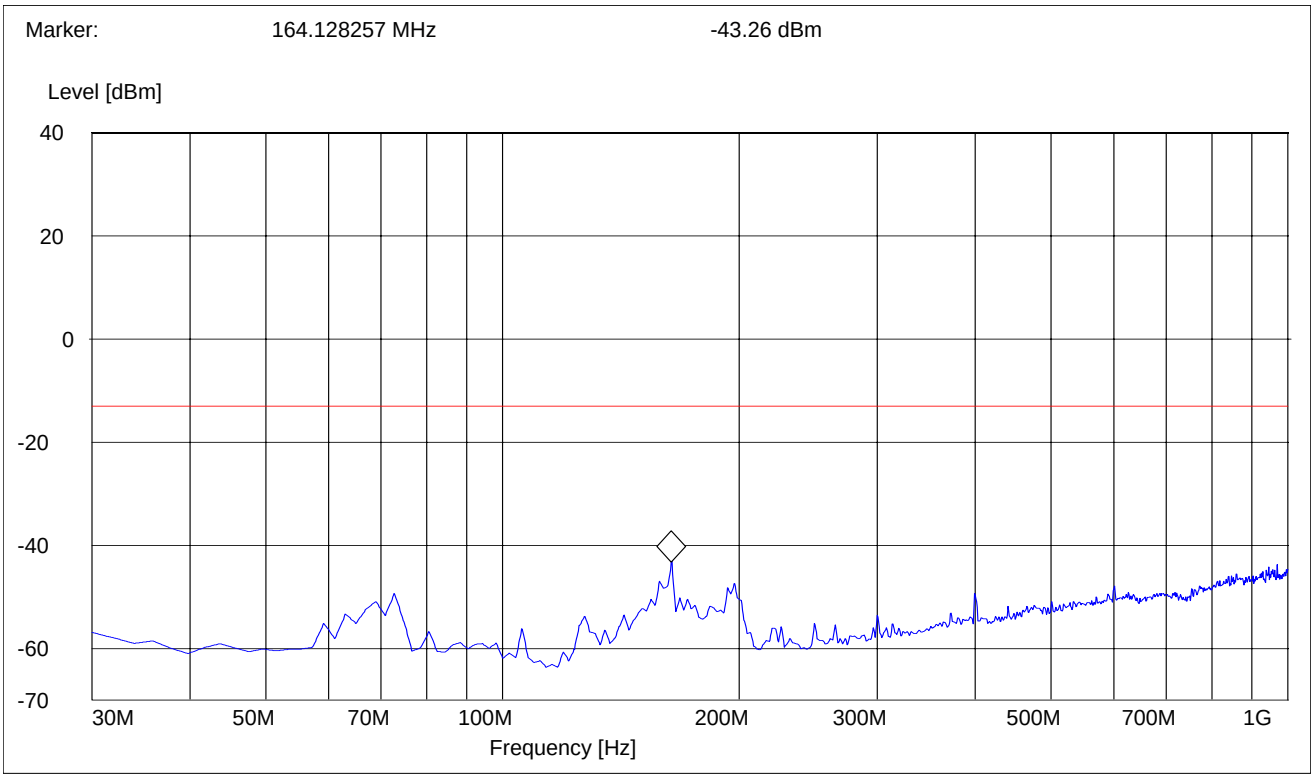
EUT in Idle Mode: 30MHz – 1GHz

Spurious emission limit –13dBm

Antenna: horizontal

SWEEP TABLE: "FCC 22 Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	1 MHz	1 MHz



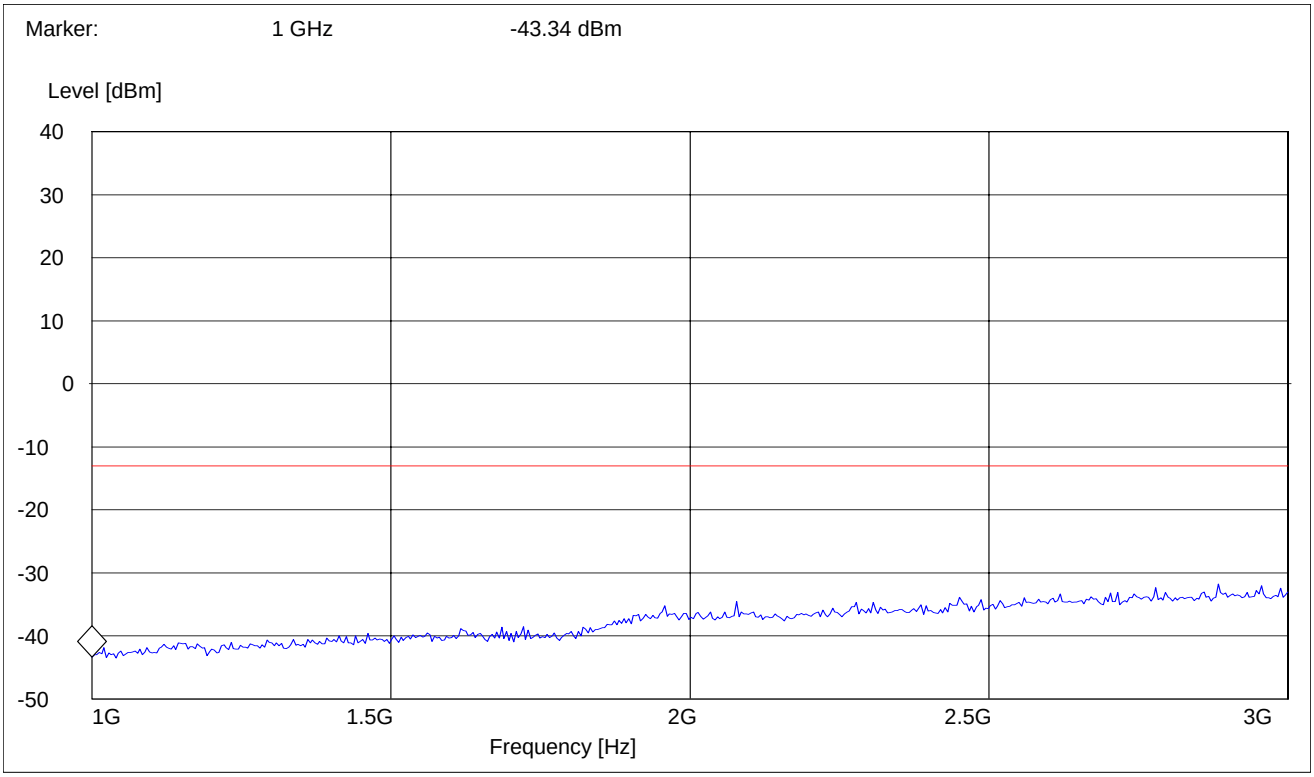
RADIATED SPURIOUS EMISSIONS (IDLE MODE)

EUT in Idle Mode: 1GHz – 3GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC Spuri 1-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz



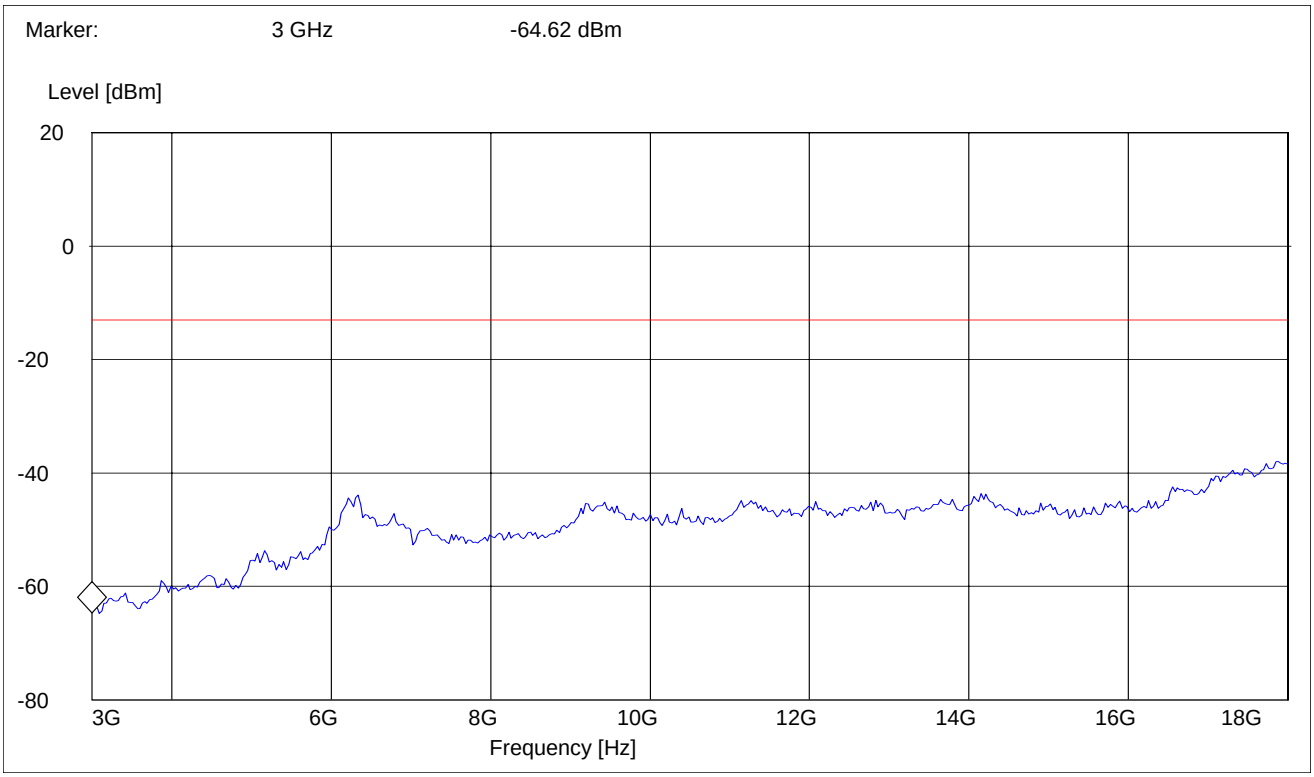
RADIATED SPURIOUS EMISSIONS (IDLE MODE)

EUT in Idle Mode: 3GHz – 18GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 24 spuri 3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz

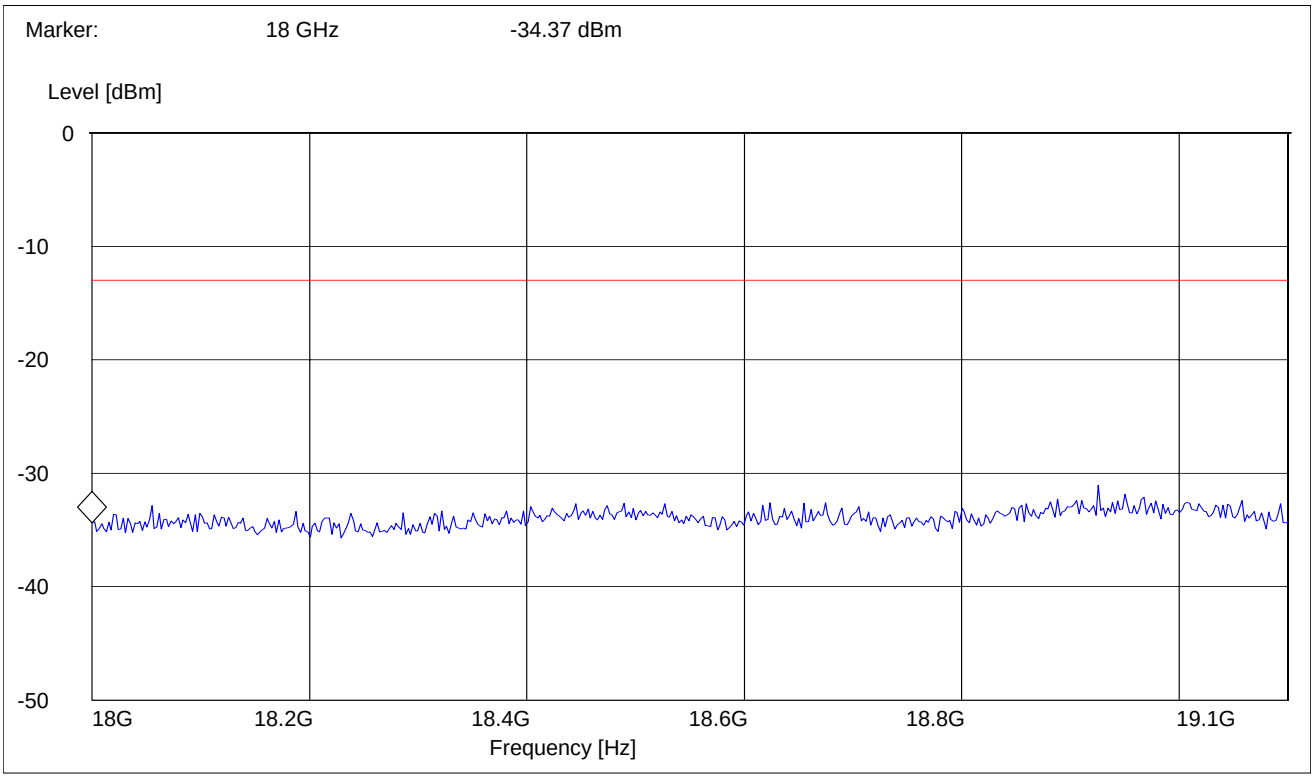


RADIATED SPURIOUS EMISSIONS (IDLE MODE)
EUT in Idle Mode: 18GHz – 19.1GHz

Spurious emission limit –13dBm

SWEEP TABLE: "FCC 24 spuri 18-19.1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
18GHz	19.1GHz	Max Peak	Coupled	1 MHz	1 MHz



RECEIVER RADIATED EMISSIONS § 2.1053 / RSS-133

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 3GHz and 26.5GHz very short cable connections to the antenna was used to minimize the noise level.**

2. **Receiver radiated emissions were done on both 850/1900 bands, but only worst-case plots are submitted in the test reports.**

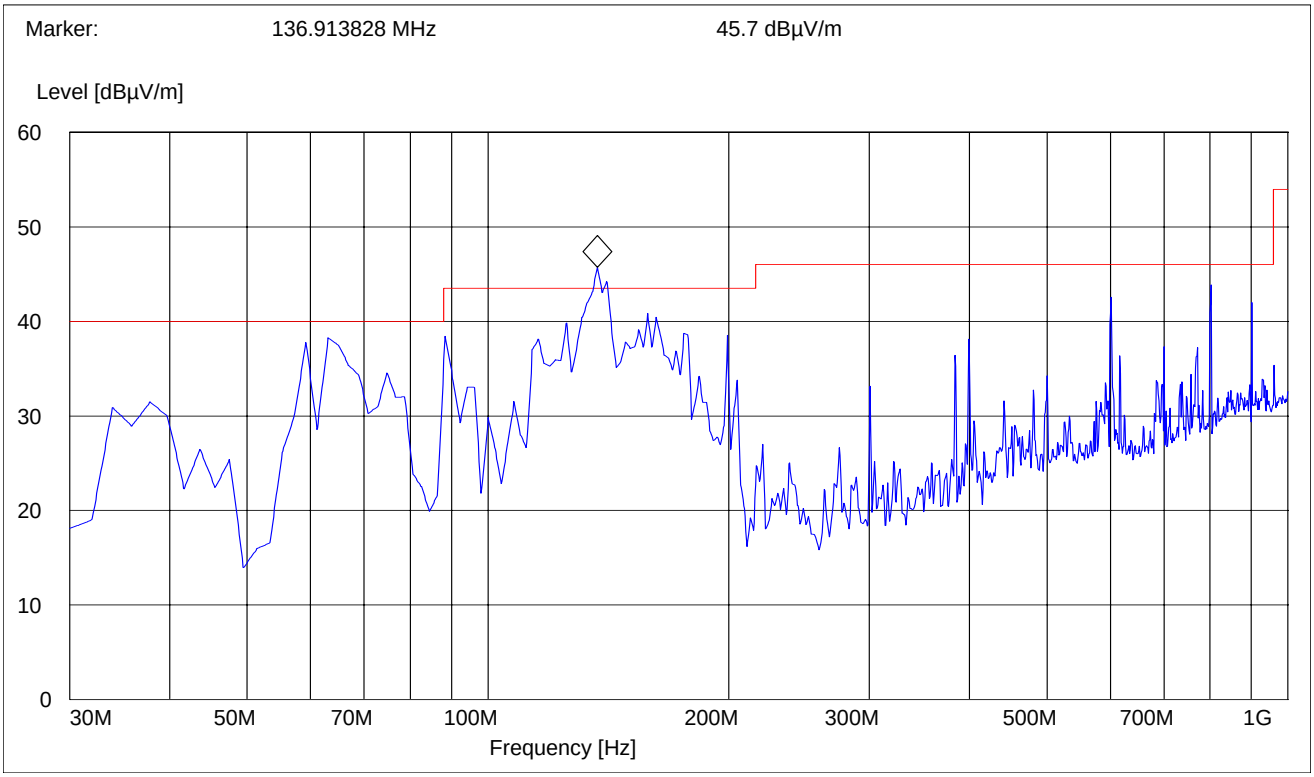
Limits **SUBCLAUSE § RSS-133**

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

RECEIVER RADIATED EMISSIONS
EUT in Idle Mode: 30MHz – 1GHz
Antenna: vertical

SWEEP TABLE: "FCC Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	100 KHz	100 KHz

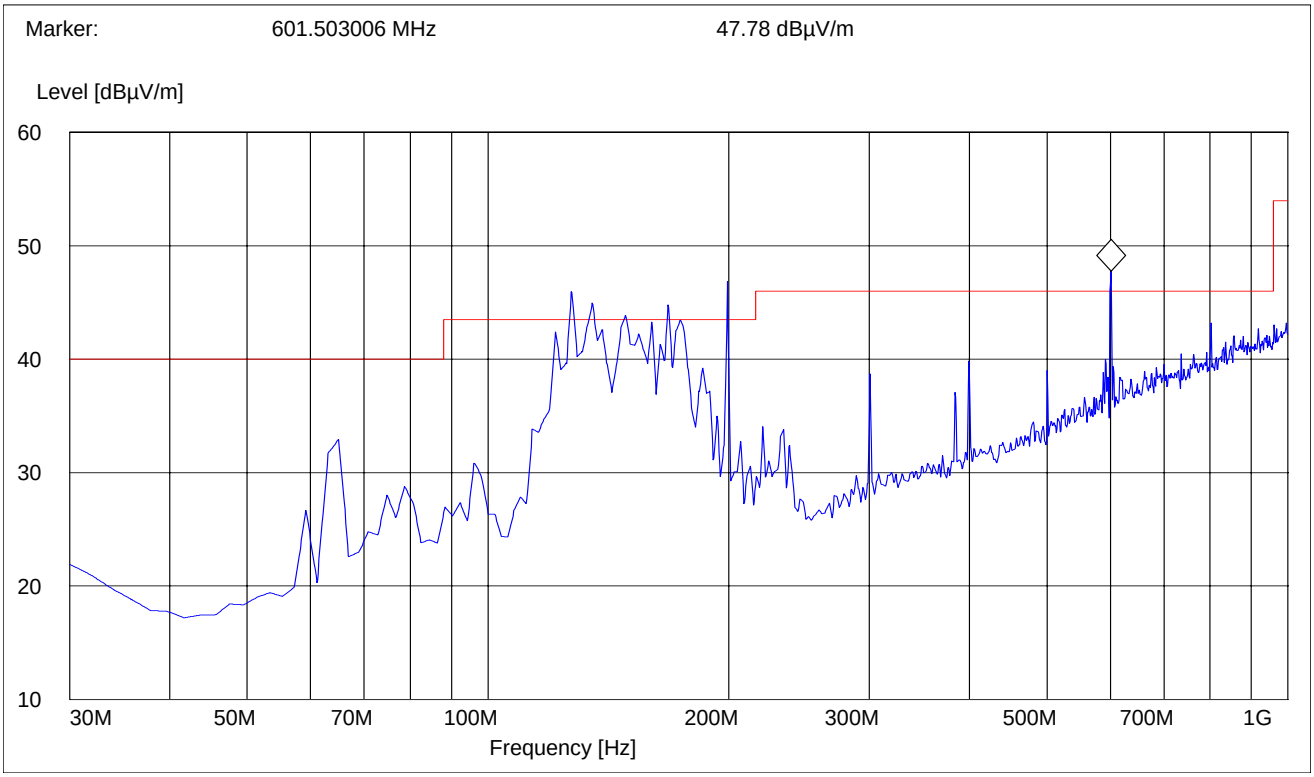


Frequency (MHz)	Peak Reading (dBuV)	Quasi-Peak Reading (dBuV)	Quasi-Peak Limit (dBuV)	Margin (dB)
136.913828	45.7	37.7	43.5	-5.8

RECEIVER RADIATED EMISSIONS
EUT in Idle Mode: 30MHz – 1GHz
Antenna: horizontal

SWEEP TABLE: "FCC Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	100 KHz	100 KHz



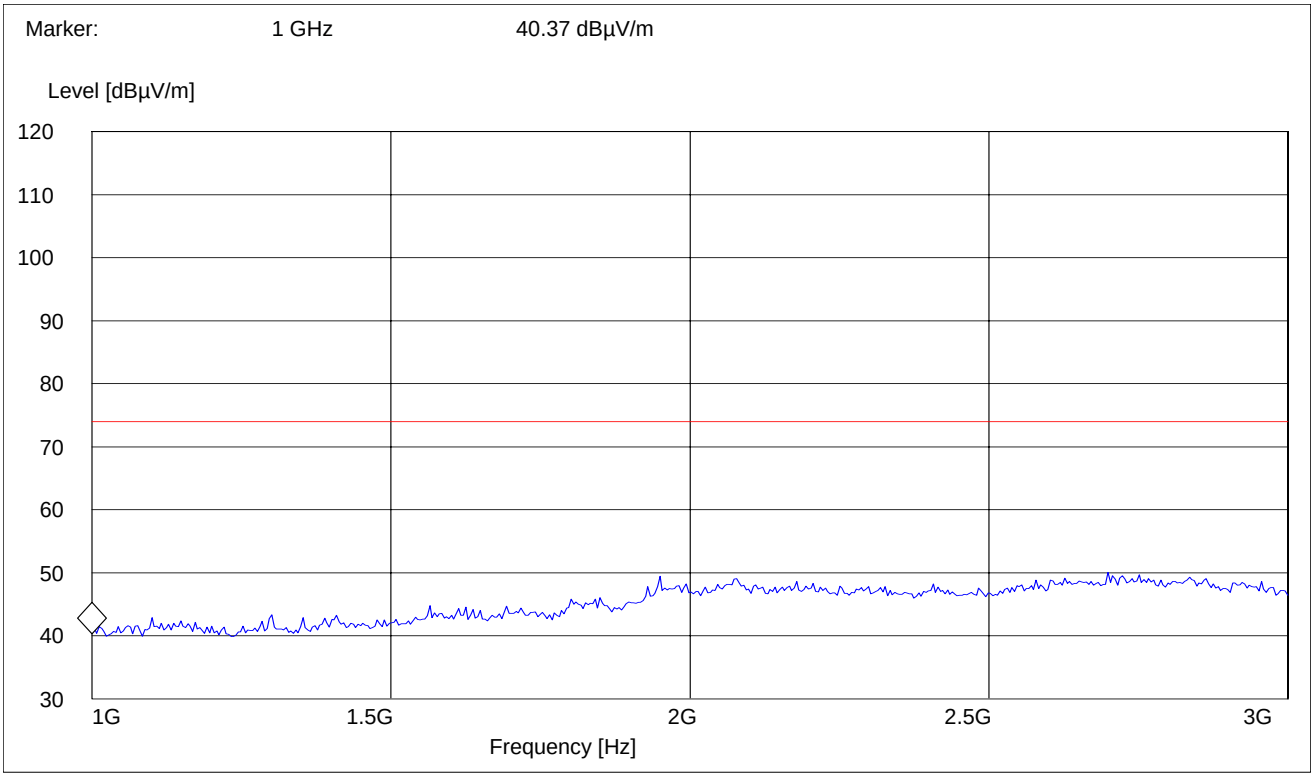
Frequency (MHz)	Peak Reading (dBuV)	Quasi-Peak Reading (dBuV)	Quasi-Peak Limit (dBuV)	Margin (dB)
127.194365	45.67	38.67	43.5	-4.83
136.913828	44.78	38.28	43.5	-5.22
150.521042	43.66	37.41	43.5	-6.09
171.903808	44.05	37.52	43.5	-5.98
177.735476	43.40	35.5	43.5	-8
199.118852	46.69	41.73	43.5	-1.77
601.503006	47.78	43.23	46	-2.77

RECEIVER RADIATED EMISSIONS
EUT in Idle Mode: 1GHz – 3GHz

Note: marked peak is downlink from the base station

SWEEP TABLE: "FCC Spuri 1-3G"

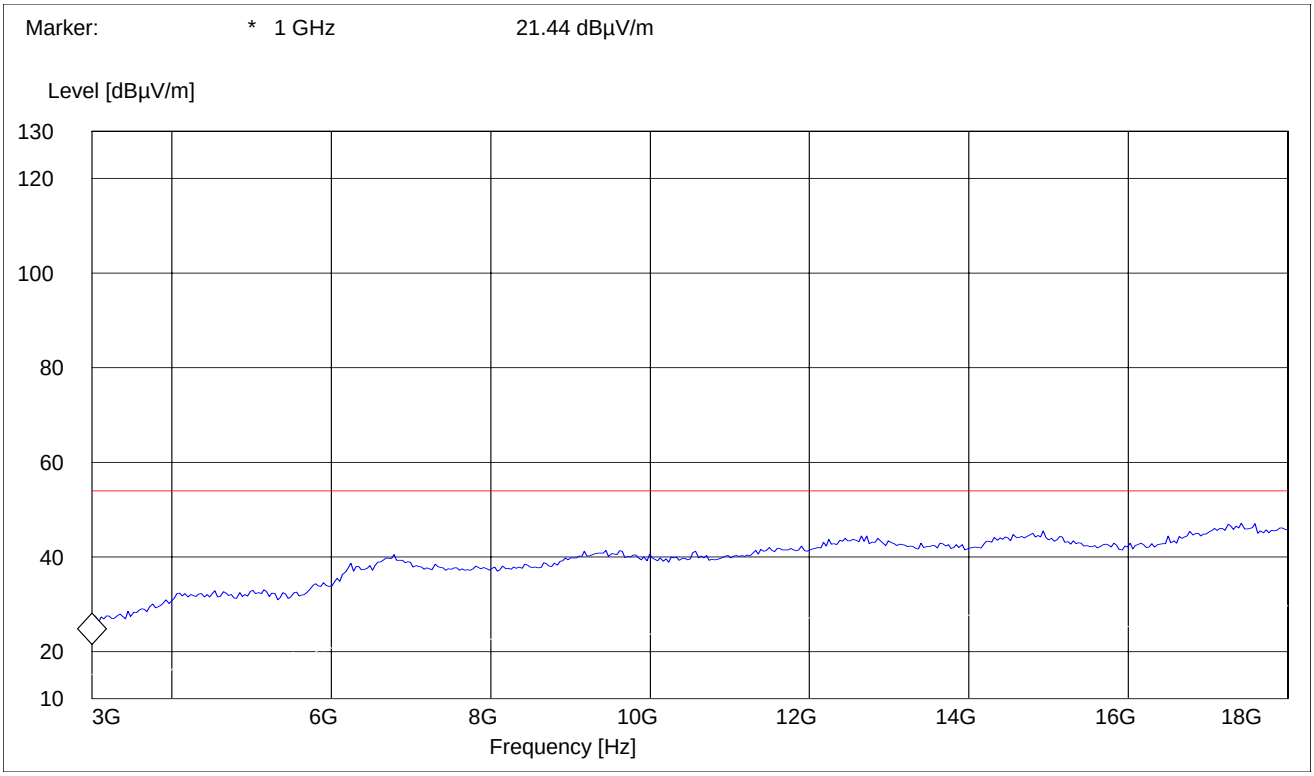
Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz



RECEIVER RADIATED EMISSIONS
EUT in Idle Mode: 3GHz – 18GHz

SWEEP TABLE: "FCC spuri 3-18G"

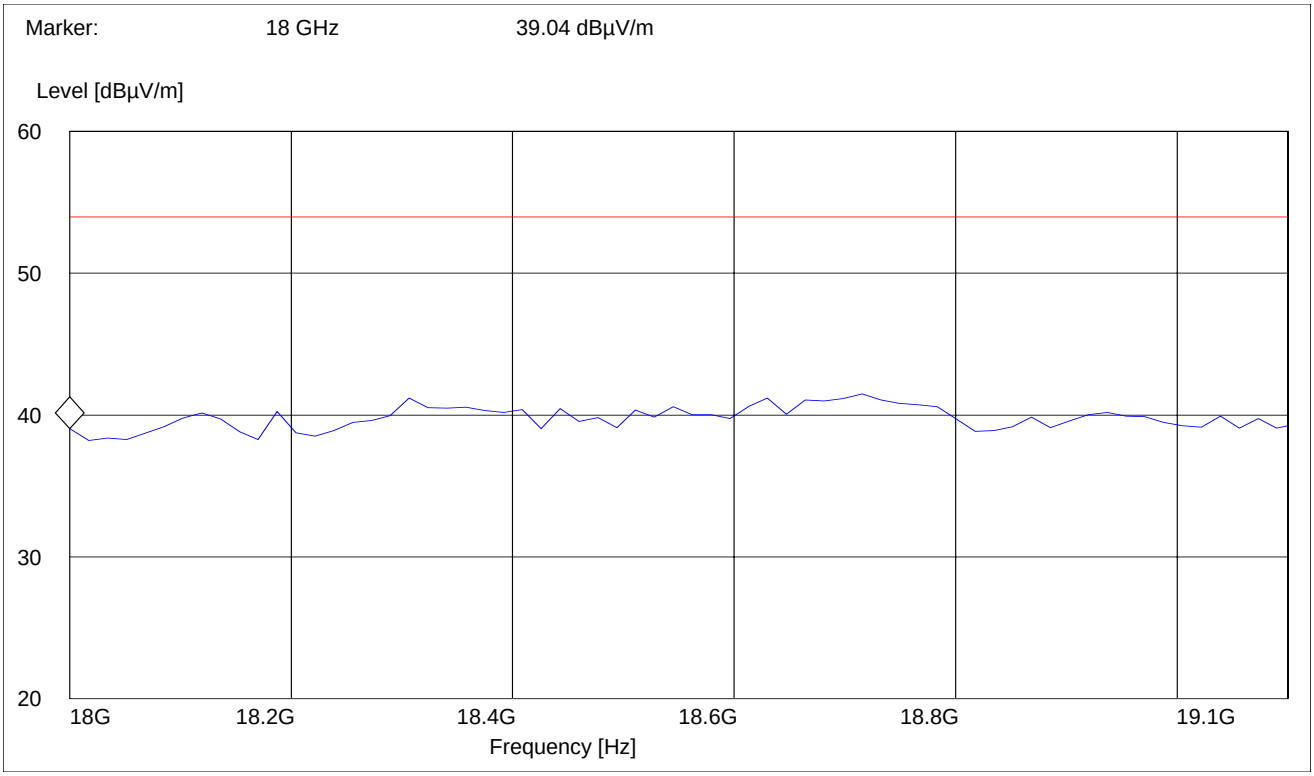
Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz



RECEIVER RADIATED EMISSIONS
EUT in Idle Mode: 18GHz – 19.1GHz

SWEEP TABLE: "FCC spuri 18-19.1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
18GHz	19.1GHz	Max Peak	Coupled	1 MHz	1 MHz



CONDUCTED EMISSIONS § 15.107/207

This test is not applicable for the EUT.

CO-LOCATION – (Radiated) Transmitter

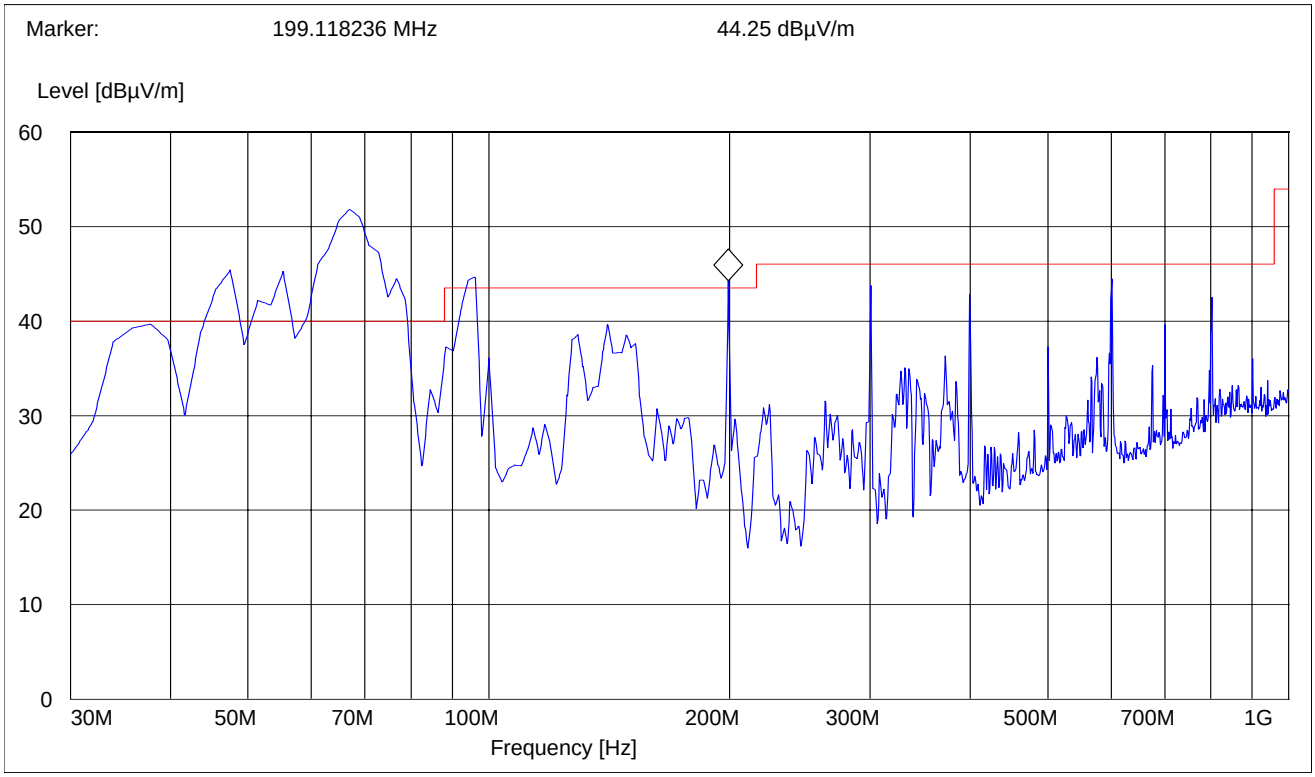
The WLAN transmitter was co-located with the GSM transmitter. The GSM transmitter was the dominant transmitter. FCC 15.247 limits/test method were used due to the fact FCC 15.247 limits are more stringent. The channels were selected according to the highest EIRP/Field strength readings of each transmitter.

WLAN	GSM
2437MHz	1880MHz

EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
30MHz – 1GHz
Antenna: vertical

SWEEP TABLE: "FCC Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	100 KHz	100 KHz

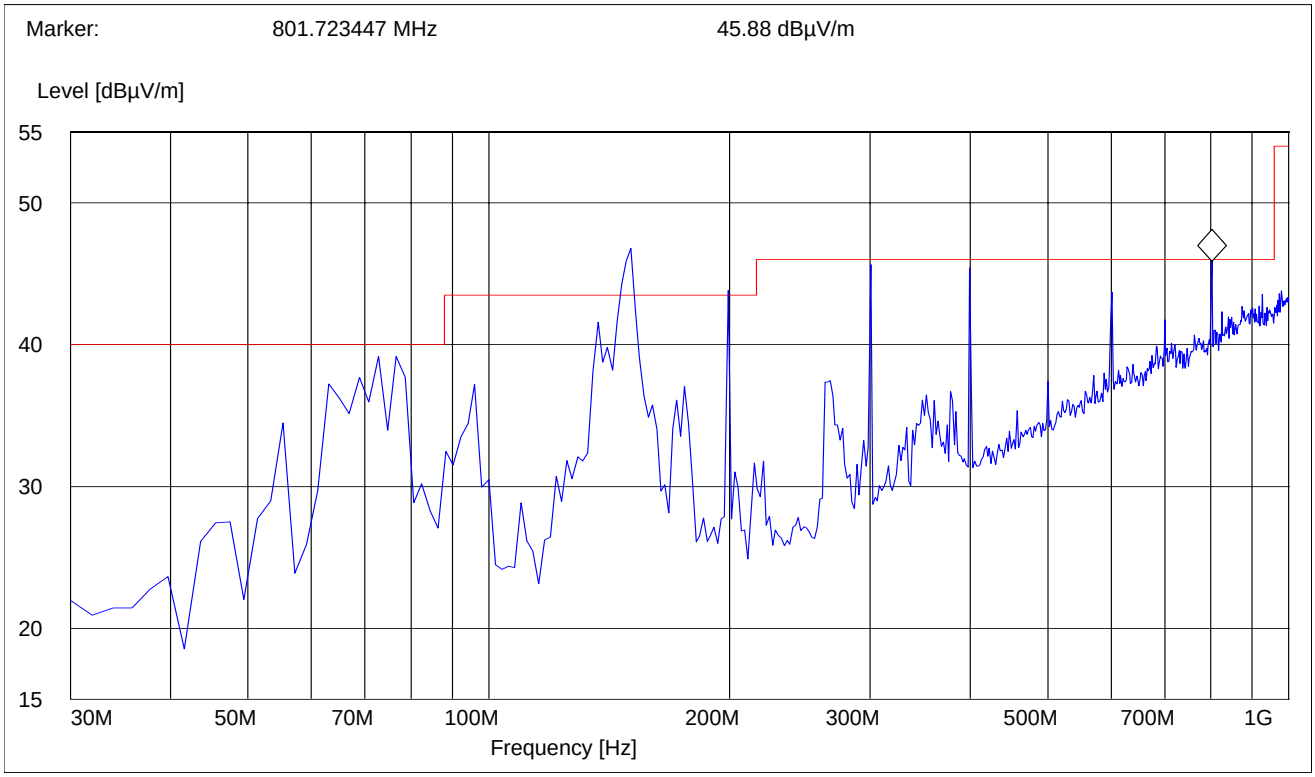


Frequency (MHz)	Peak Reading (dBuV)	Quasi-Peak Reading (dBuV)	Quasi-Peak Limit (dBuV)	Margin (dB)
37.775551	39.69	27.31	40	-12.69
47.494990	45.41	32.00	40	-8.00
51.382766	42.19	30.01	40	-9.99
55.27054	45.25	32.75	40	-7.25
66.933868	51.83	39.21	40	-0.79
76.653307	44.44	31.99	40	-8.01
96.092184	44.67	32.13	43.5	-11.37
199.118236	44.25	41.13	43.5	-2.37

EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
30MHz – 1GHz
Antenna: horizontal

SWEEP TABLE: "FCC Spur 30M-1G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
30MHz	1GHz	Max Peak	Coupled	100 KHz	100 KHz



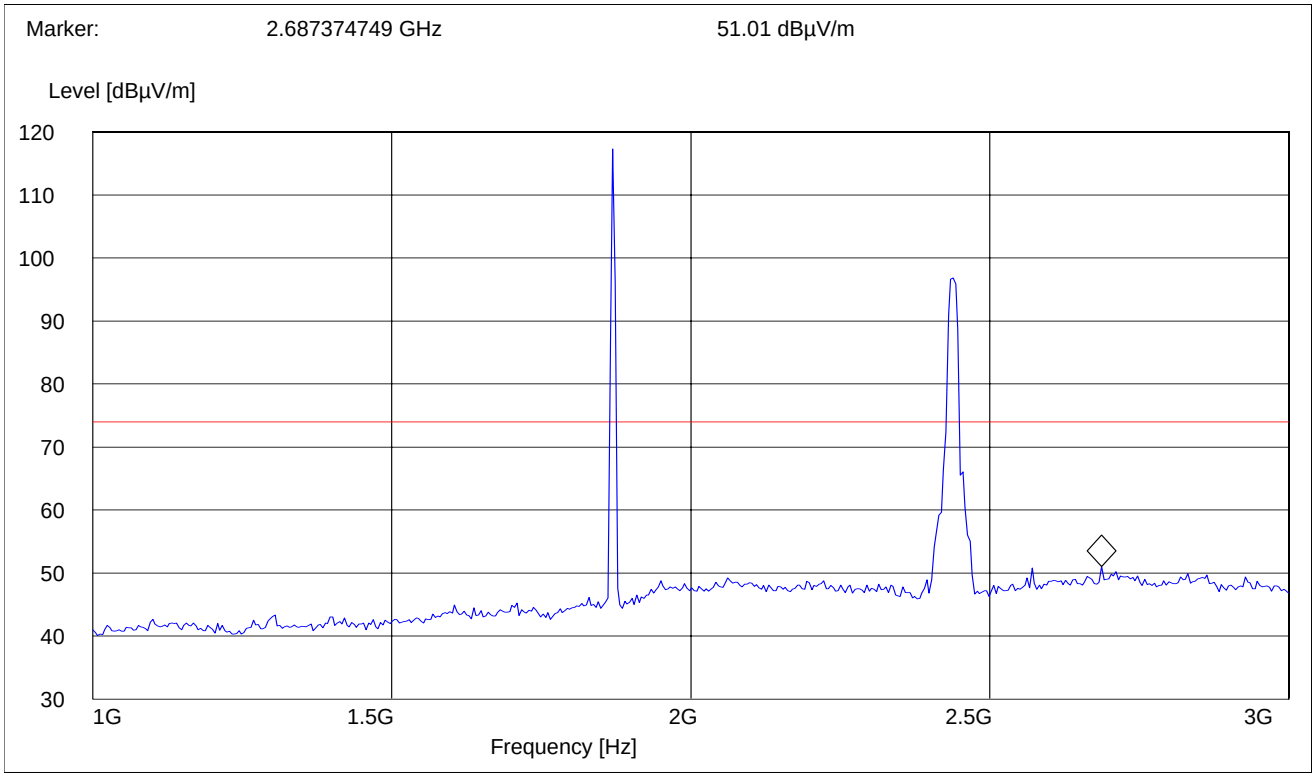
Frequency (MHz)	Peak Reading (dBuV)	Quasi-Peak Reading (dBuV)	Quasi-Peak Limit (dBuV)	Margin (dB)
150.521042	46.77	40.63	43.5	-2.87
199.118326	43.84	40.22	43.5	-3.28
300.200401	45.64	42.55	46	-3.45
399.338677	45.43	42.33	46	-3.67
801.723447	45.88	42.62	46	-3.38

EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
1GHz – 3GHz

SWEEP TABLE: "FCC Spuri 1-3G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
1GHz	3GHz	Max Peak	Coupled	1 MHz	1 MHz

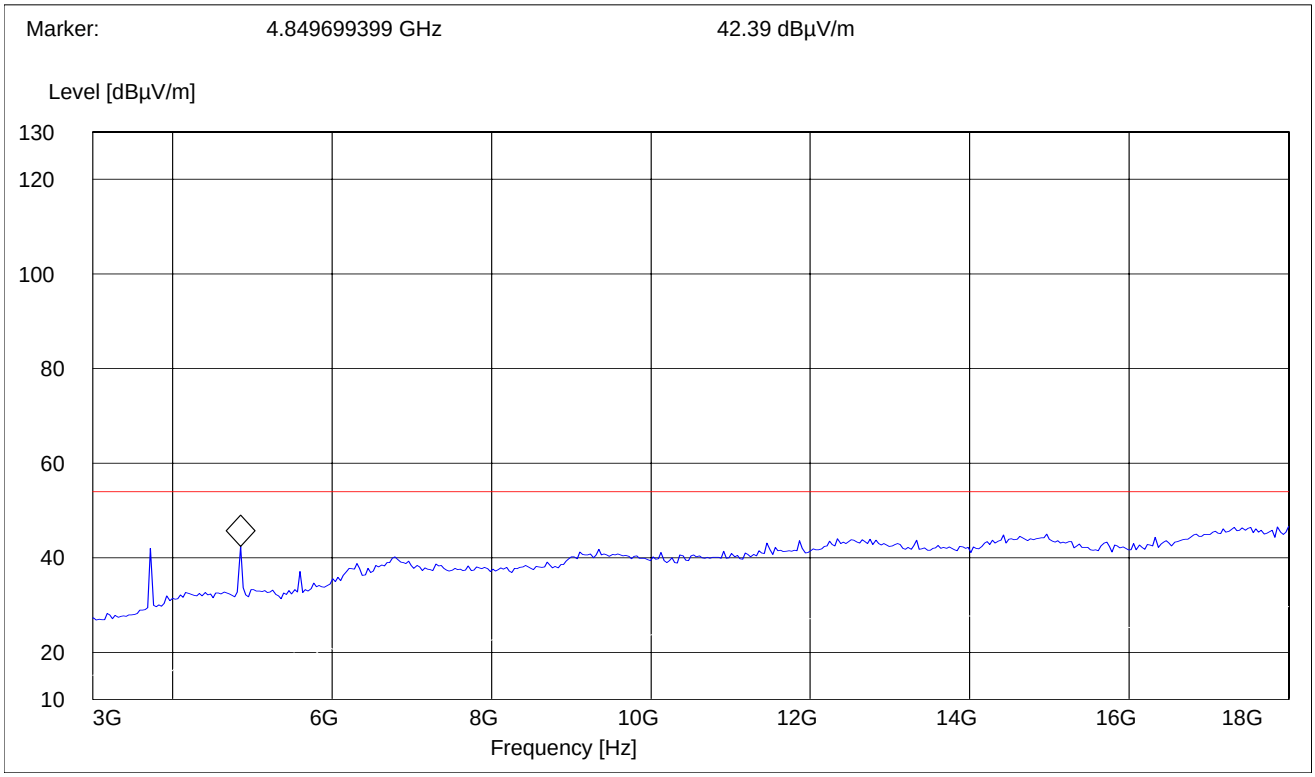
Note: Peaks above limit is GSM transmitter and WLAN transmitter.



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
3GHz – 18GHz

SWEEP TABLE: "FCC spuri 3-18G"

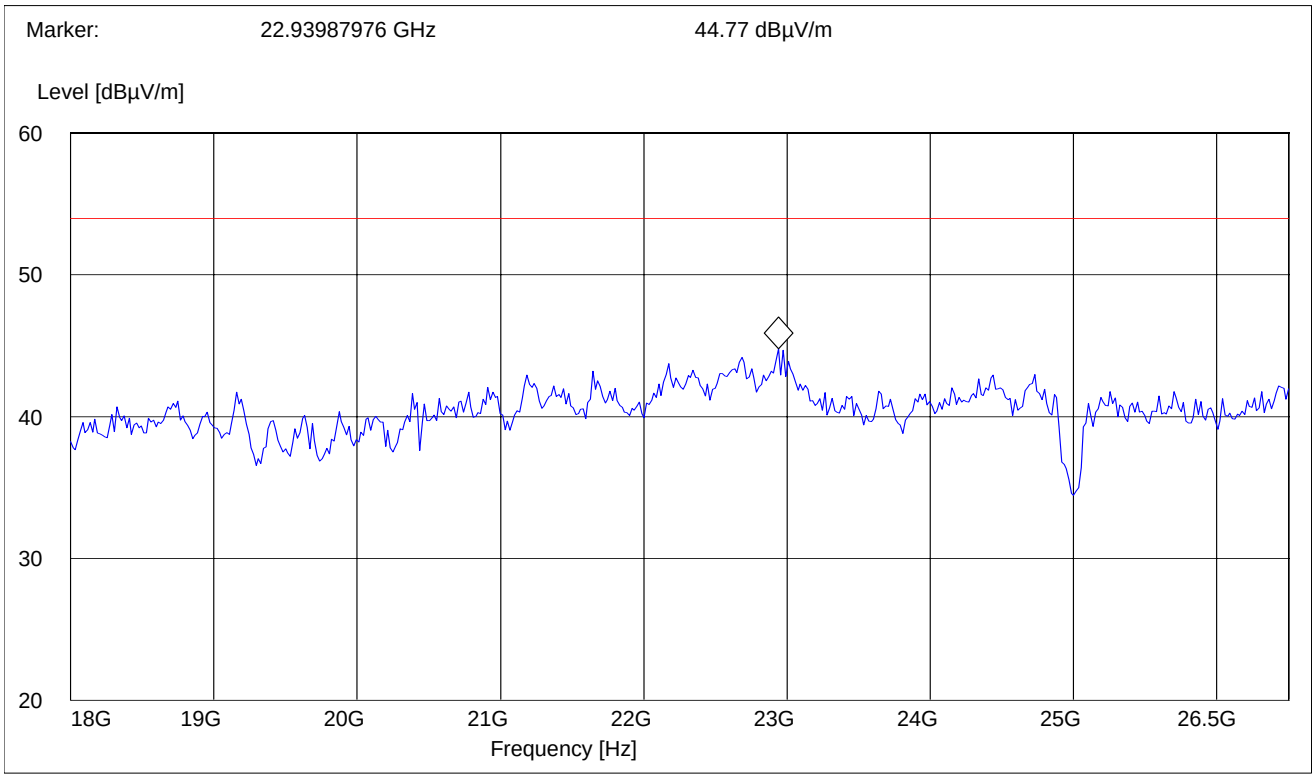
Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
3GHz	18GHz	Max Peak	Coupled	1 MHz	1 MHz



EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
18GHz – 26.5GHz

SWEEP TABLE: "FCC spuri 18-26G"

Start Frequency	Stop Frequency	Detector	Meas. Time	RBW	VBW
18GHz	26.5GHz	Max Peak	Coupled	1 MHz	1 MHz



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	Signal Generator	SMY02	Rohde & Schwarz	836878/011
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02
05	Biconilog Antenna	3141	EMCO	0005-1186
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240
08	Power Splitter	11667B	Hewlett Packard	645348
09	Climatic Chamber	VT4004	Voltsch	G1115
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307
12	Pre-Amplifier	JS4-00102600	Miteq	00616
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06

BLOCK DIAGRAMS
Radiated Testing