Advanced
Compliance Laboratory

6 Randolph Way
Hillsborough, NJ 08844
Tel: (908) 927 9288
Fax: (908) 927 0728

FCC CFR47 PART 15 SUBPART C & IC RSS-210

TEST REPORT

For

Ultra Compact SD COFDM Transmitter

Model Number: 25VST

FCC ID: I4U-25VST
IC: 9479A-25VST

Report Number: 0048-111123-01

Prepared for
Intergrated Microwave Technologies, LLC.
101 Bilby Road, Suite 1
Hackettstown, NJ 07840
USA

Prepared by
Advanced Compliance Laboratory, Inc.
6 Randolph Way
Hillsborough, NJ 08844
Tel: (908) 927 9288
Fax: (908) 927 0728

Date: 1/26/2012

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION

COMPANY NAME: INTERGRATED MICROWAVE TECHNOLOGIES, LLC.
101 Bilby Road, Suite 1
Hackettstown, NJ 07840, USA

EUT DESCRIPTION: Ultra Compact SD COFDM Transmitter

MODEL: 25VST

DATE TESTED: Nov. 04, 2011 to January 26, 2012

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC Part 15.247 & IC RSS-210:Issue 8	NO NON-COMPLIANCE NOTED

Advanced Compliance Laboratory, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Advanced Compliance Laboratory, Inc. (ACL) and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by ACL, Advanced Compliance Laboratory, Inc. will constitute fraud and shall nullify the document.

Approved & Released For ACL By:

Wei Li
Manager
Advanced Compliance Laboratory, Inc.

Tested By:

Edward Lee
EMC Engineer

2. EUT DESCRIPTION

The EUT is a low power transmitter module, using digital modulation & operating in the 2400-2483.5 MHz band.

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Rated Power Selection	Tested Average Power (dBm/W)	Tested Peak Power (dBm/W)
2401.25-2480.25	Low=10dBm	10.24 /0.011	21.34 /0.136
2401.25-2478.25	High=20dBm	20.09 /0.102	28.59 /0.722

The EUT can use a detachable antenna with Reversed Polarity SMA connector. The requirement for the antenna is specified by the applicant , i.e. max. output peak power at antenna shall be less than +36dBm. Qualified antenna type to be used:
Low Gain Dipole Antenna :
1. AIR802 LLC, Model ANRD245X05-RSP: 2.4GHz Band, RP-SMA, 5 dBi, Vertical Polarization
2. Antenna Factor, Model ANT-2.4-CW-HWR-RPS: 2.4GHz Band, RP-SMA, 5 dBi, Vertical Polarization

Also the EUT module comes with two different length interface cables: 2” and 6”.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4/2003, FCC CFR 47 Part 2 & 15 and IC RSS-210.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at Hillsborough, New Jersey, USA The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1,
"Radio Interference Measuring Apparatus and Measurement Methods."

ACL is accredited by NVLAP, Laboratory Code 200101-0. The full accreditation can be viewed at http://www.ac-lab.com

No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

5. CALIBRATION AND UNCERTAINTY

5.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2. MEASUREMENT UNCERTAINTY

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty u_c	norm.	±2.36	±2.99	±1.83

5.3. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/ yy	Cal Due dd/mm/ yy
Agilent	E4440A	US40420700	3Hz-26.5GHz Spec. Analyzer	4/08/11	4/08/12
R &S	ESPI7	6001	9KHz-7GHz EMI Receiver	17/06/11	17/06/12
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	5/01/11	5/01/13
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	15/01/11	15/01/13
EMCO	6502	2665	10KHz-30MHz Active Loop Antenna	27/02/11	27/02/12
EMCO	3115	4945	Double Ridge Guide Horn Antenna	12/03/11	12/03/12
HP	E8254A	US42110367	Signal Generator	23/03/11	23/03/12
Scientific-Atlanta	12A-18	441	Wave Guide Horn Antenna	04/08/11	04/08/12
Agilent	E4448A	MY45300108	3Hz-50GHz Spectrum Analyzer	05/09/11	05/09/11
Agilent	83650B	3844A01114	50G Swept Signal Generator	27/01/11	27/01/13
HP	5361B	3023A01322	20G Pulse/CW Microwave Counter	10/06/11	10/06/12
HP	4419A	US37292112	RF Power Meter w/ Sensor Probe	29/06/11	29/06/12
EMCO	3116	4943	Double Ridge Guide Horn Antenna	11/01/11	11/01/13
SUNSYS	EC127	96025	Temperature Test Chamber	30/06/11	30/06/12
Lorch Microwave	5NF-800/1000-S	AC3	Notch Filter		
Lorch Microwave	5NF-1800/2200-S	AE10	Notch Filter		
RES-NET	RFA500NFF30	0108	30dB in-line Power Attenuator		
Narda	3022	80986	Directional Coupler		

All Test Equipment Used are Calibrated Traceable to NIST Standards.

6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

n/a

TEST SETUP

Testing Frequency/Channel/Port Selection:

- Conducted measurement performed at EUT's antenna port.
- Using internal Color Bar generator as testing signal source
- Professional Video Camera Battery powered (fully charged) via interface board
- Modulation: QPSK, 16QAM & 64QAM
- Signal BW: 1.25MHz, 2.5MHz, 6MHz and 8MHz
- Prestest data shows that modulation has no significant effect on testing results. Worst case scenario based on pretest results is applied.
- L(owest), M(iddle), H(ighest) Channels of 2.4G Band were selected based on different Signal Channel Bandwidth & Power Level Settings, given as following:

Table 1: 25VST at **10dBm** Setting				
Channel BW (MHz)	Lowest Channel Fc (MHz)	Middle Cahnnel Fc (MHz)	Highest Channel Fc (MHz)	Modulation
1.25	2401.25	2441.00	2480.25	QPSK
2.50	2401.50	2441.00	2480.25	QPSK
6	2403.25	2441.00	2479.25	QPSK/16QAM/64QAM
8	2404.25	2441.00	2478.25	QPSK/16QAM/64QAM

Table 1: 25VST at **20dBm** Setting				
Channel BW (MHz)	Lowest Channel Fc (MHz)	Middle Cahnnel Fc (MHz)	Highest Channel Fc (MHz)	Modulation
1.25	2401.25	2441.00	2478.25	QPSK
2.50	2401.50	2441.00	2477.50	QPSK
6	2403.25	2441.00	2473.50	QPSK/16QAM/64QAM
8	2404.25	2441.00	2471.25	QPSK/16QAM/64QAM

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. 6dB &99% BANDWIDTH

LIMIT

§15.247 (a) (2) & RSS-210 A8.2(1): Min. 6dB bandwidth should be no less than 500KHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 6dB bandwidth. The VBW/RBW is set to one or three. The sweep time is coupled.

RESULTS

No non-compliance noted.

Summary of Bandwidth Testing Data (narrowest BW to widest BW):

QPSK Modulation

Channel BW (MHZ)	Channel	6dB Bandwidth (KHz)	99% Bandwidth (KHz)
1.25	L	1160	1246.1
1.25	M	1201	1244.0
1.25	H	1198	1262.2
8	L	7608	7549.1
8	M	7599	7532.7
8	H	7600	7542.1

16QAM Modulation

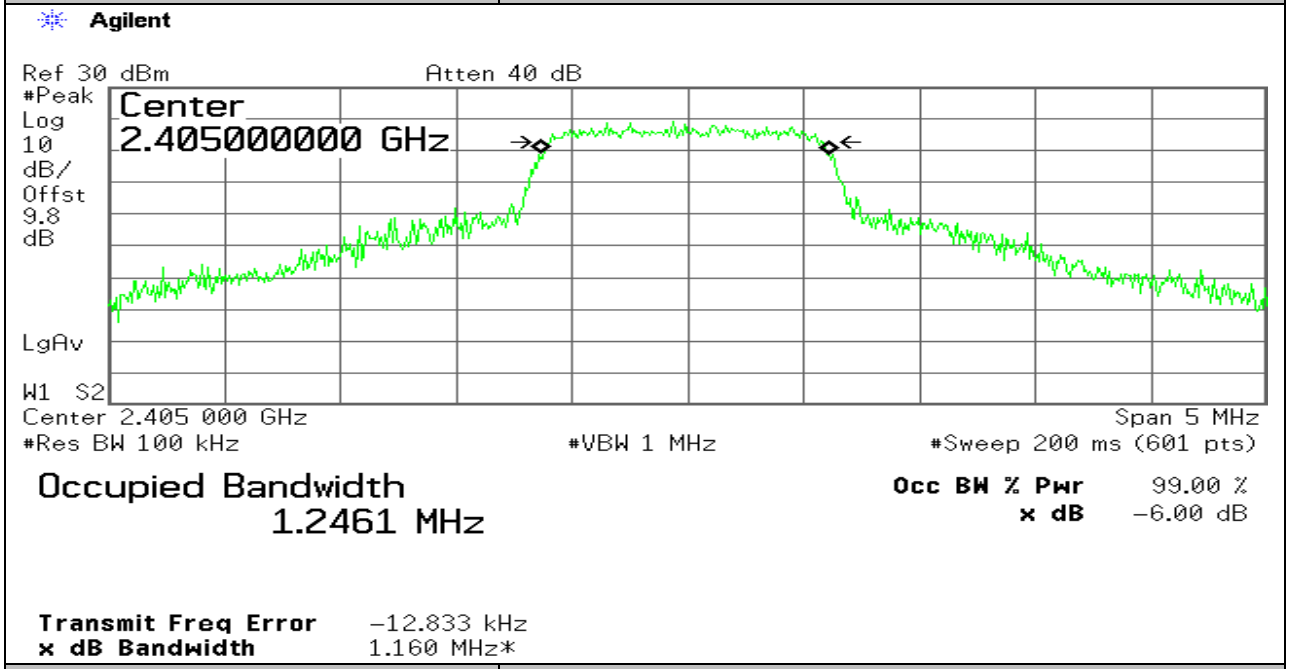
Channel BW (MHZ)	Channel	6dB Bandwidth (KHz)	99% Bandwidth (KHz)
6	L	5703	5678.1
6	M	5740	5672.2
6	H	5702	5675.9
8	L	7622	7564.3
8	M	7621	7557.4
8	H	7556	7557.5

64QAM Modulation

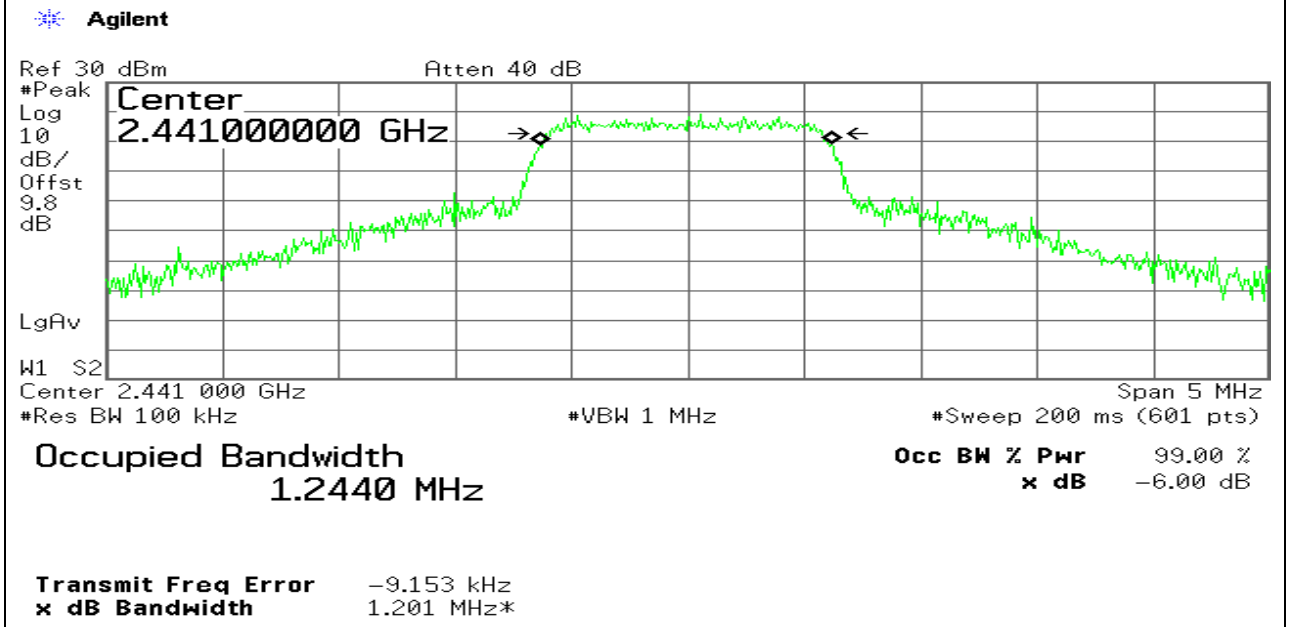
Channel BW (MHZ)	Channel	6dB Bandwidth (KHz)	99% Bandwidth (KHz)
6	L	5689	5660.4
6	M	5729	5690.3
6	H	5689	5666.1
8	L	7598	7554.1
8	M	7573	7539.8
8	H	7613	7561.2

6dB & 99% BANDWIDTH for 1.25MHz BW Mode: QPSK Modulation

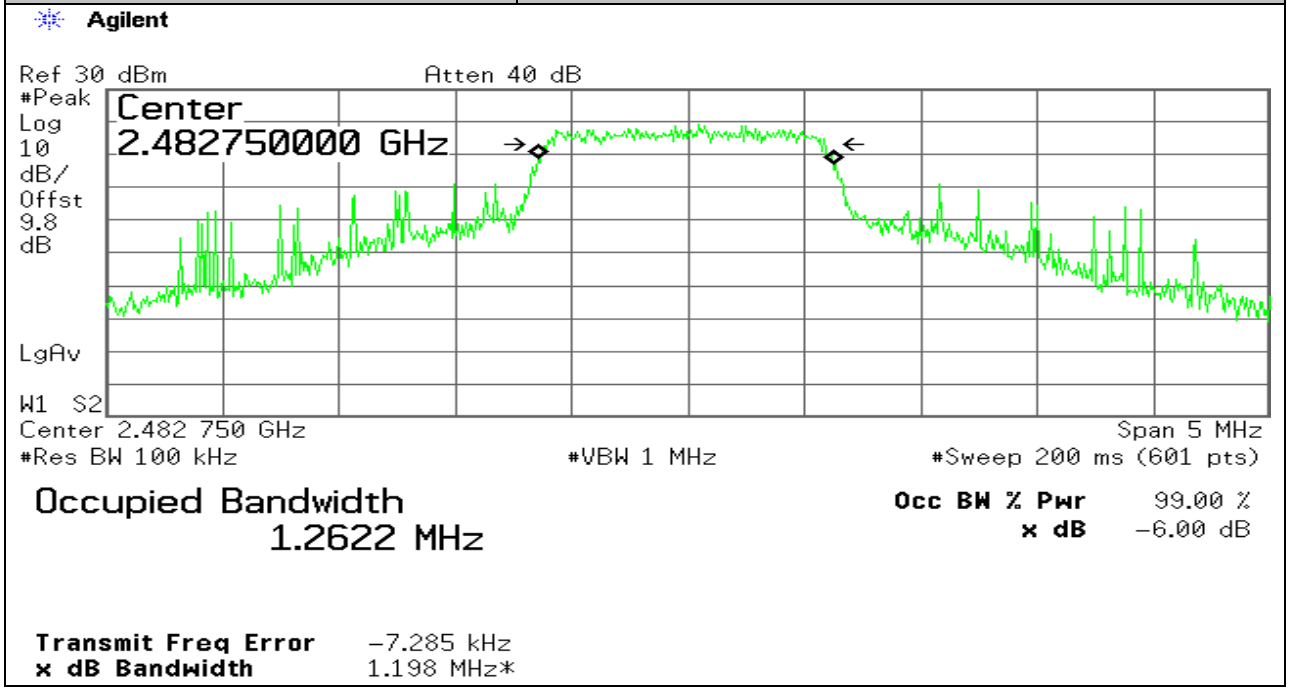
Plot Name:	6dB &99% Bandwidth, Low CH



Plot Name:	6dB &99% Bandwidth, Mid CH

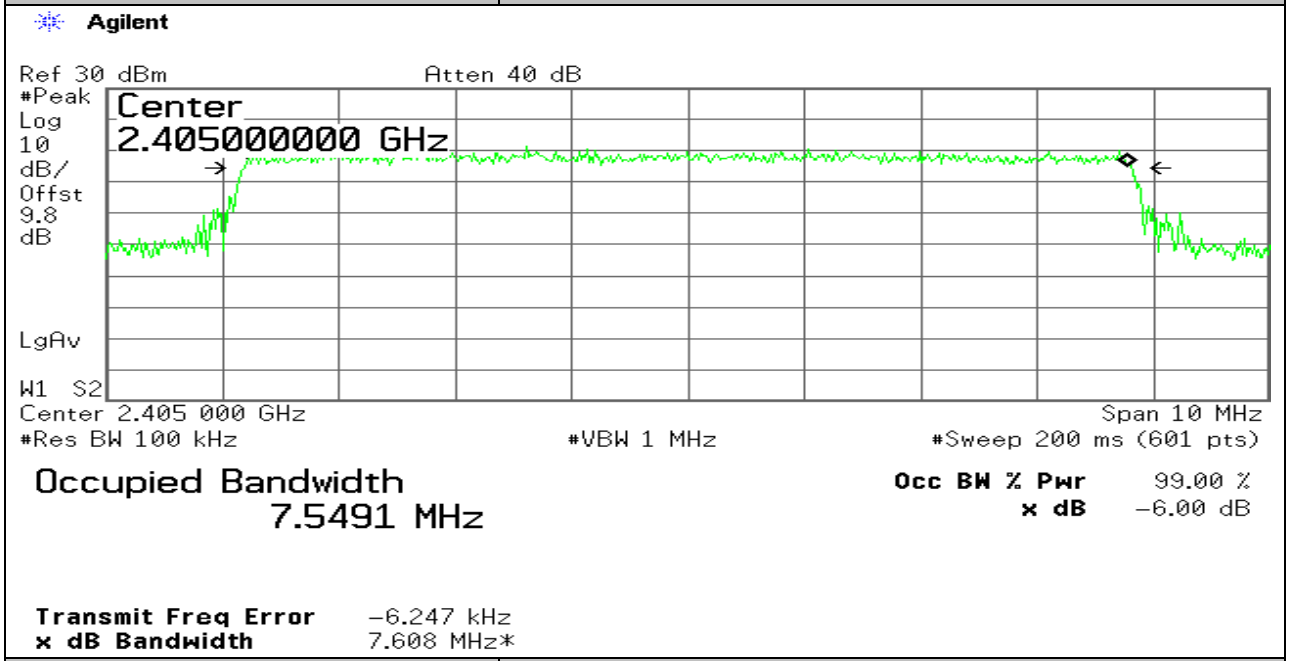


Plot Name:	6dB & 99% Bandwidth High CH

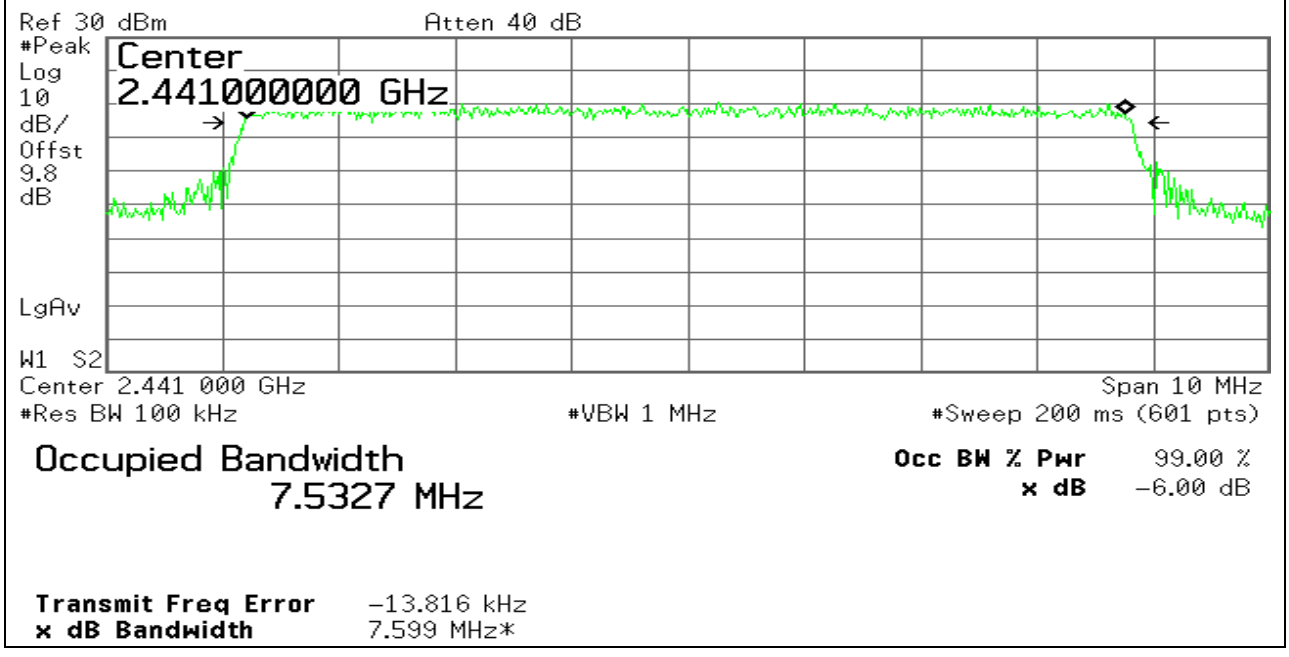


6dB & 99% BANDWIDTH for 8MHz BW Mode: QPSK Modulation

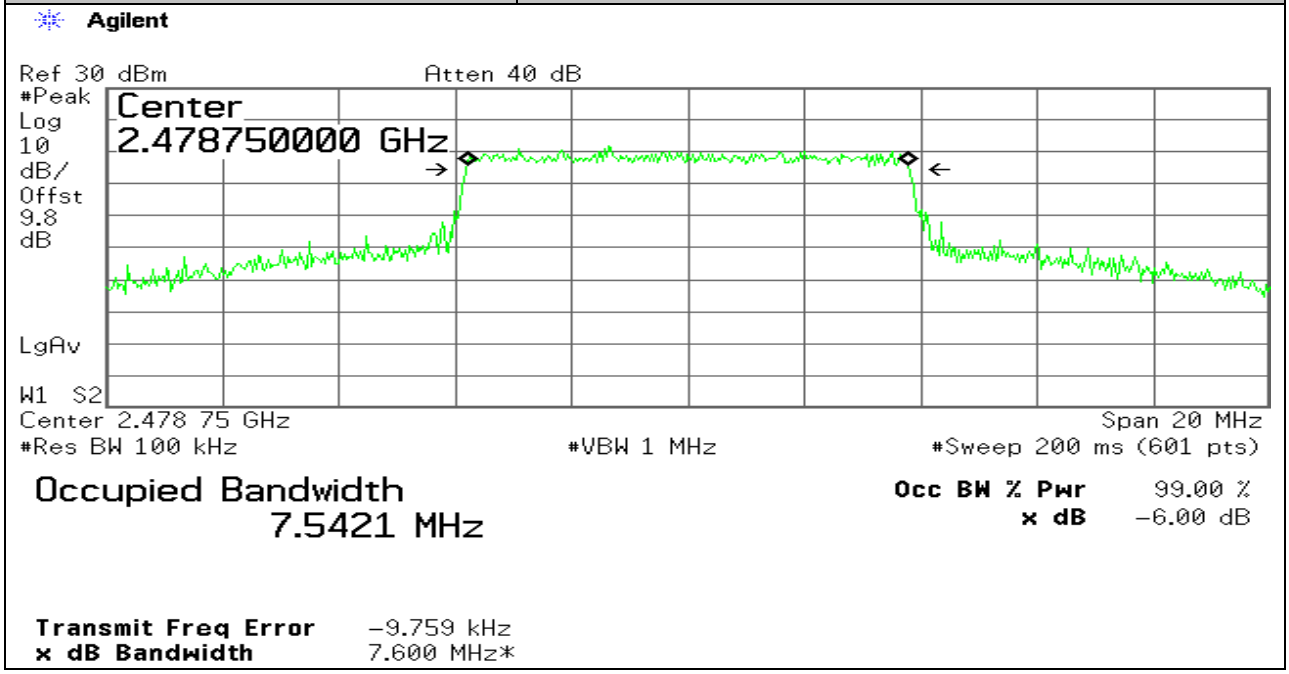
Plot Name:	6dB &99% Bandwidth, Low CH



Plot Name:	6dB &99% Bandwidth, Mid CH

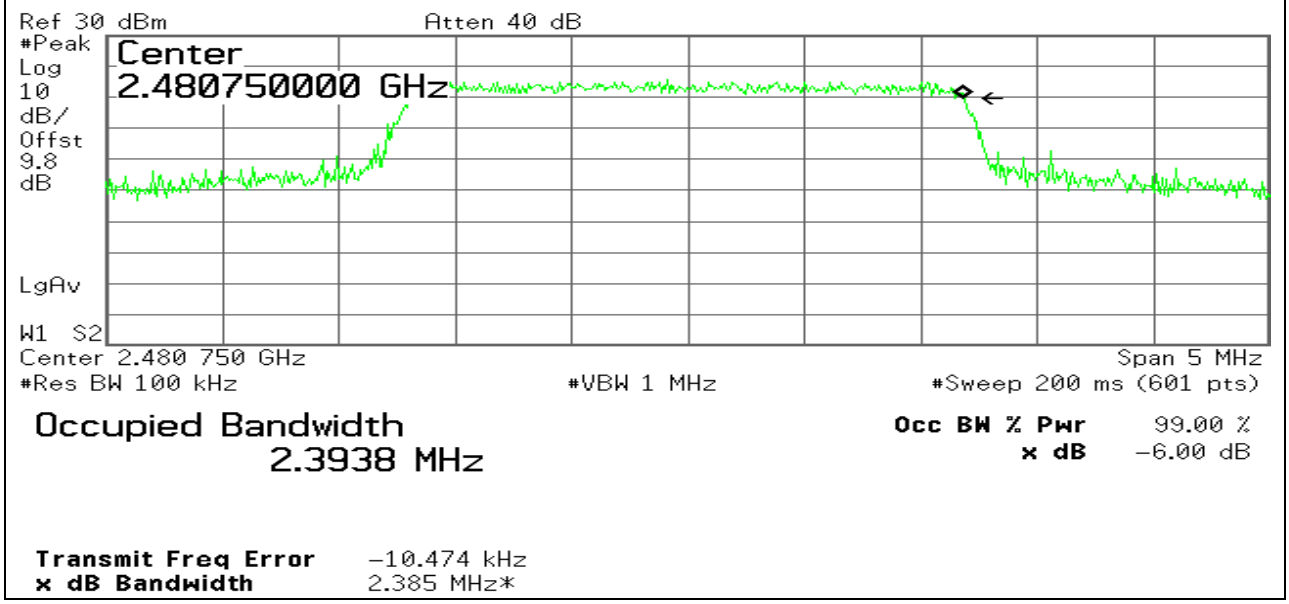


Plot Name:	6dB & 99% Bandwidth High CH



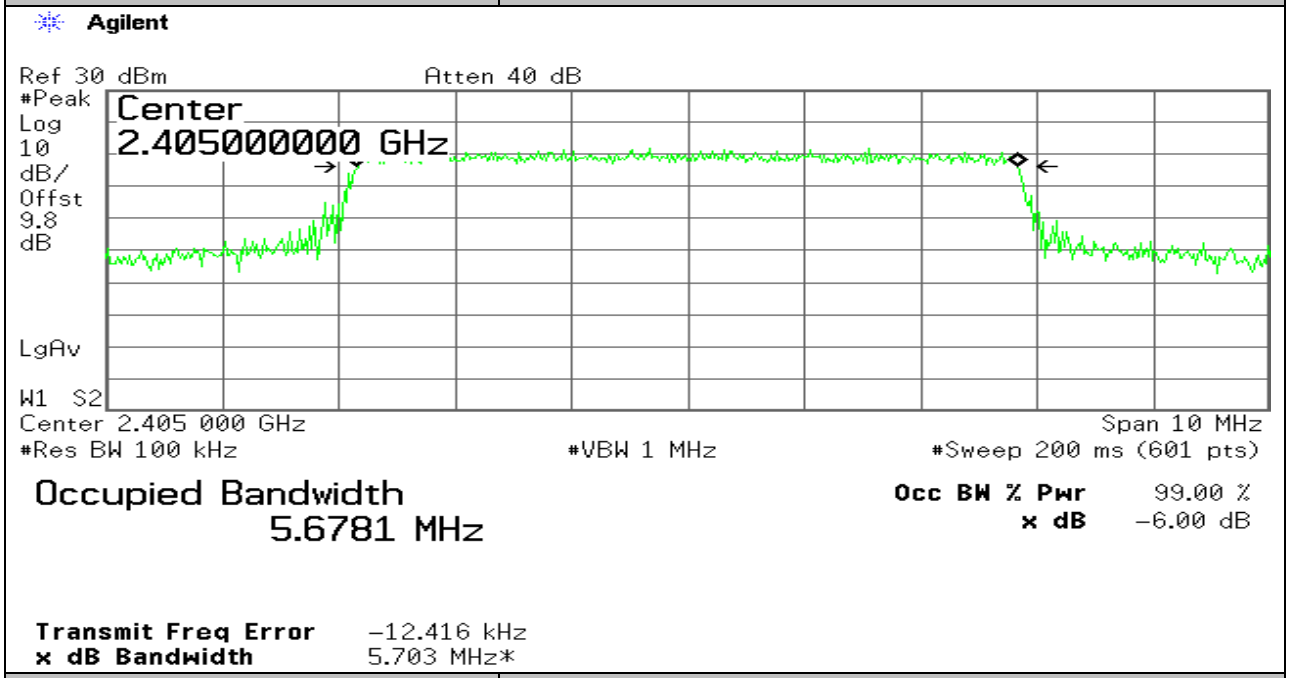
6dB & 99% BANDWIDTH for <u>2.5MHz BW Mode: QPSK Modulation</u>

Plot Name:	6dB & 99% Bandwidth High CH

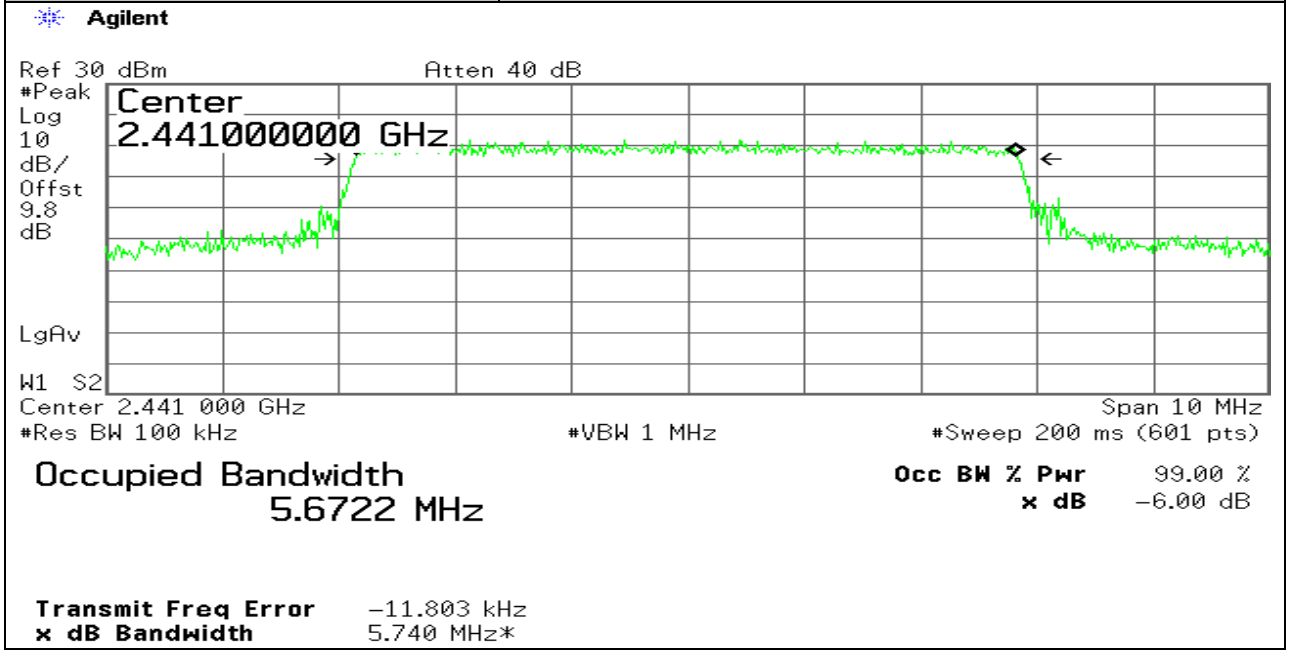


6dB & 99% BANDWIDTH for 6MHz BW Mode: 16QAM Modulation

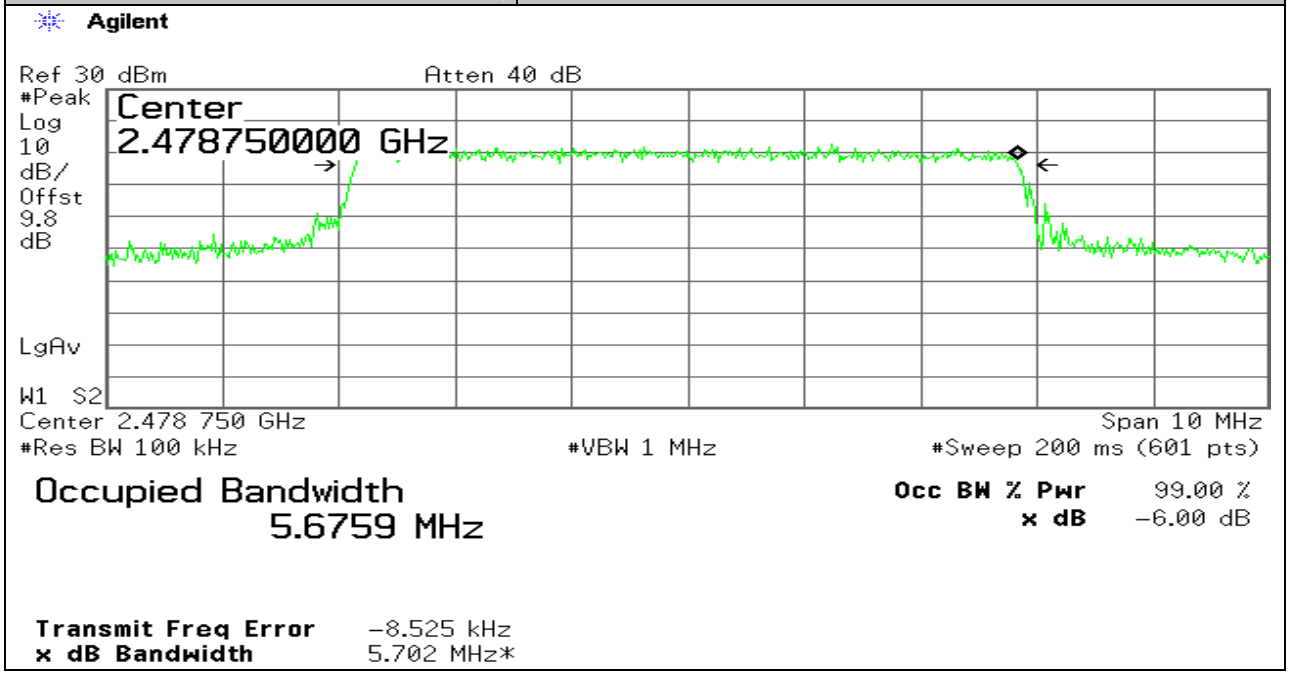
Plot Name:	6dB &99% Bandwidth, Low CH



Plot Name:	6dB &99% Bandwidth, Mid CH

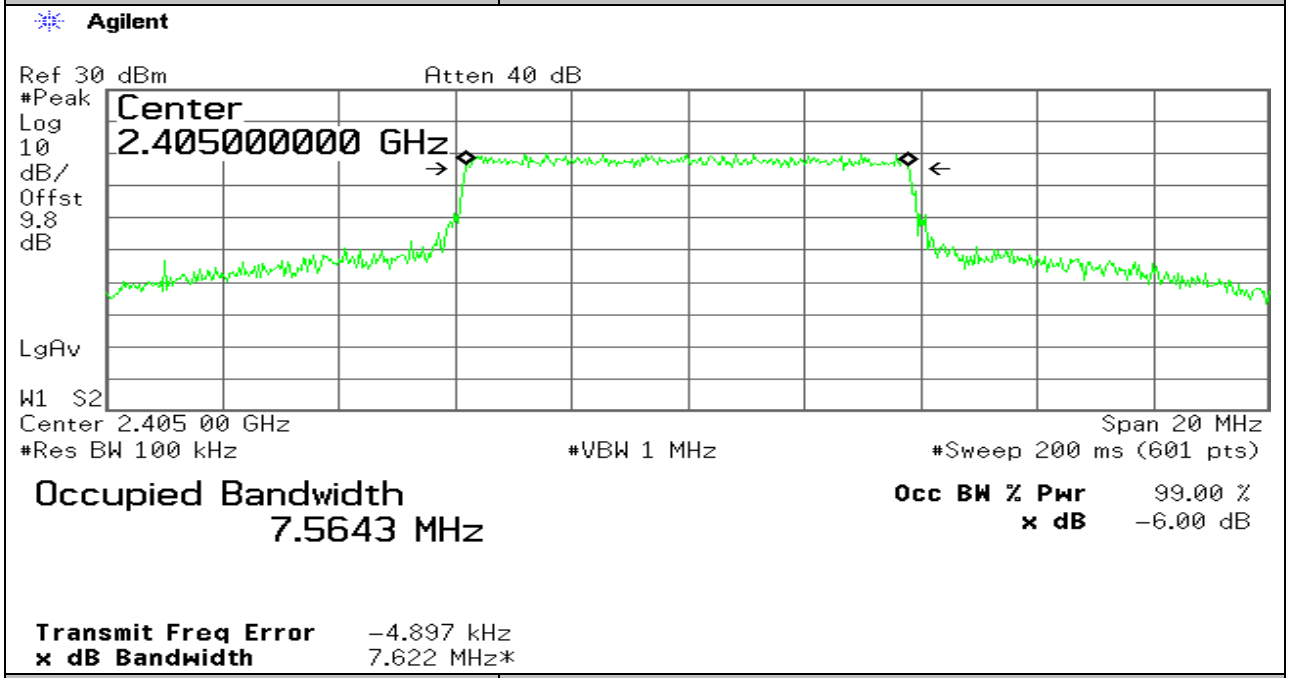


Plot Name:	6dB & 99% Bandwidth High CH

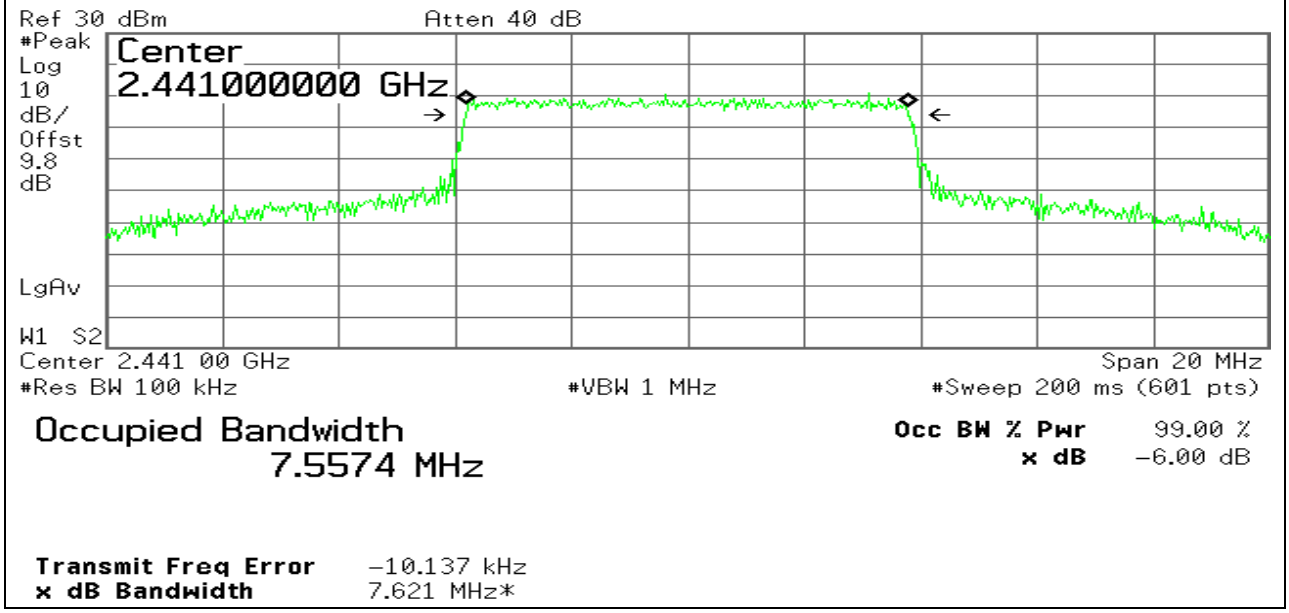


6dB & 99% BANDWIDTH for 8MHz BW Mode: 16QAM Modulation

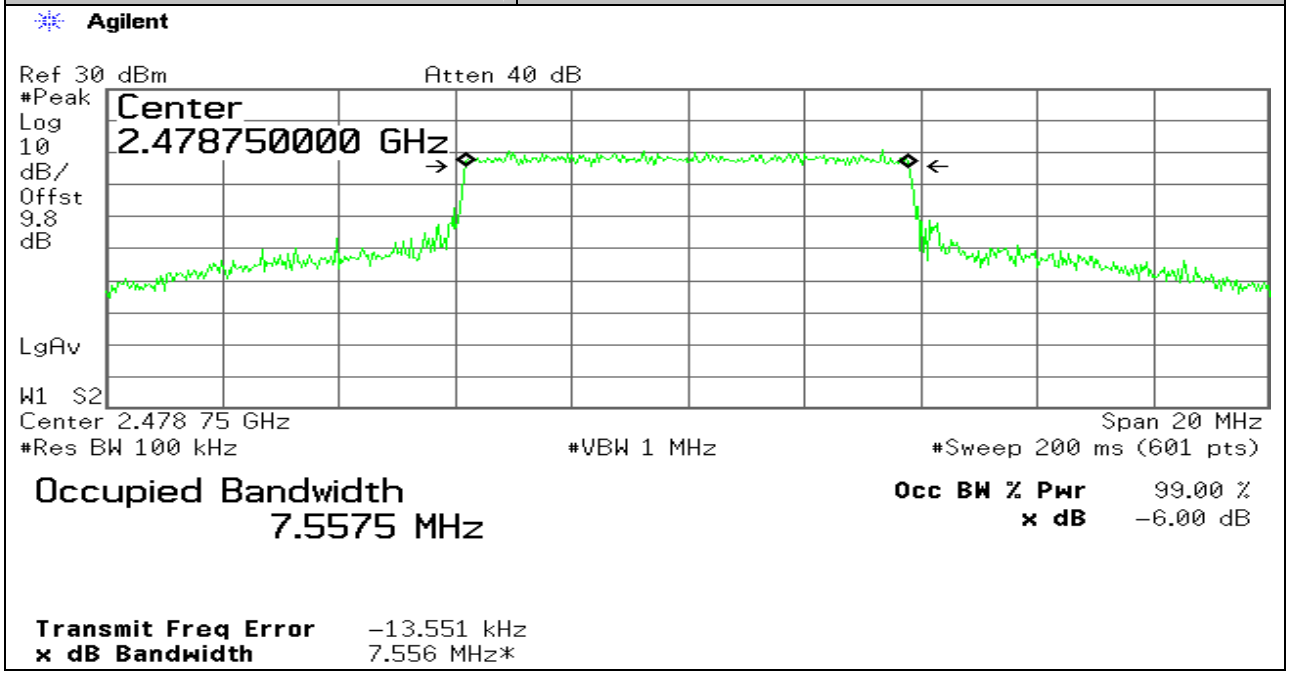
Plot Name:	6dB &99% Bandwidth, Low CH



Plot Name:	6dB &99% Bandwidth, Mid CH

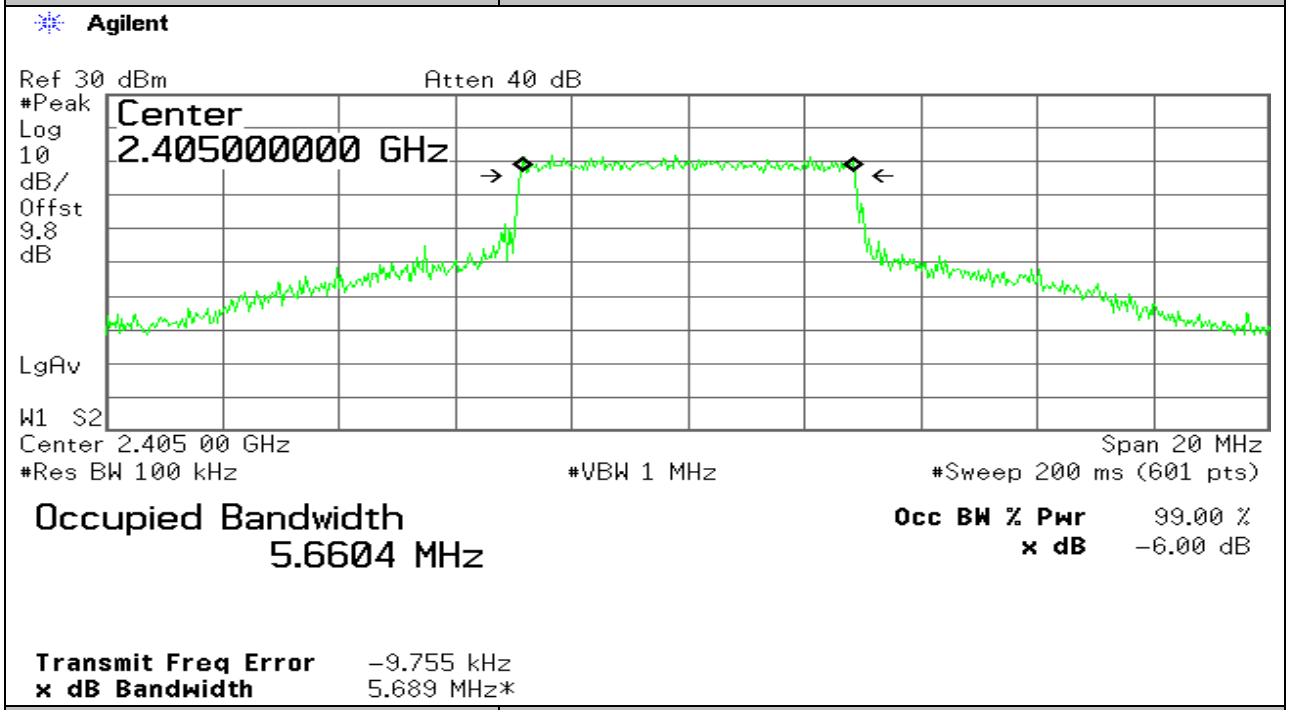


Plot Name:	6dB & 99% Bandwidth High CH

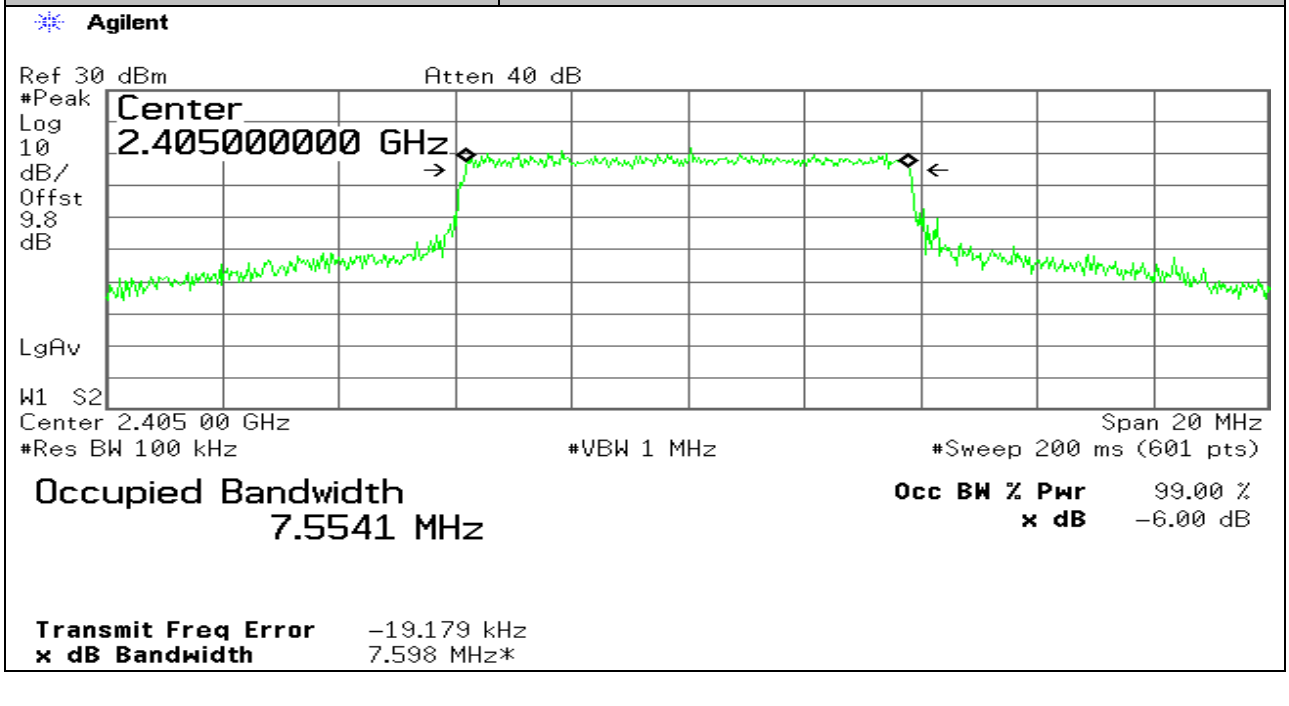


6dB & 99% BANDWIDTH for 6MHz & 8MHz BW Mode: 64QAM Modulation

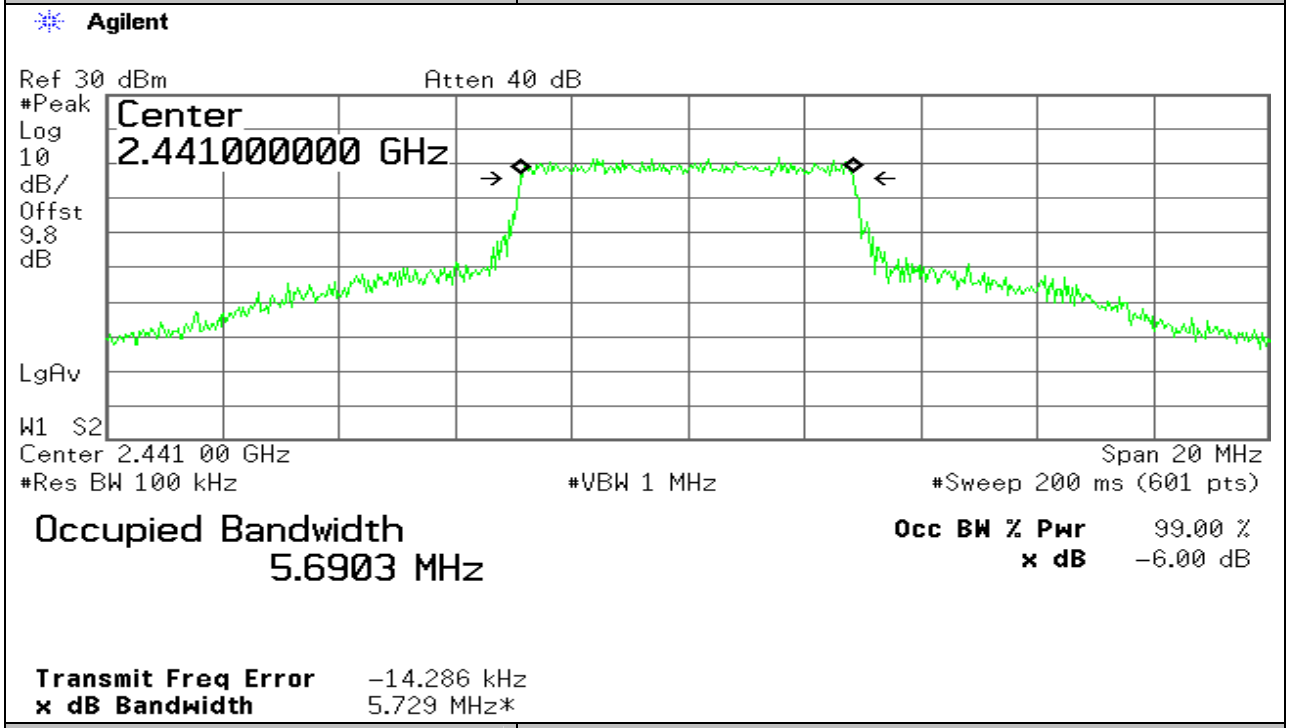
Plot Name:	6dB &99% Bandwidth, Low CH, 6MHz BW



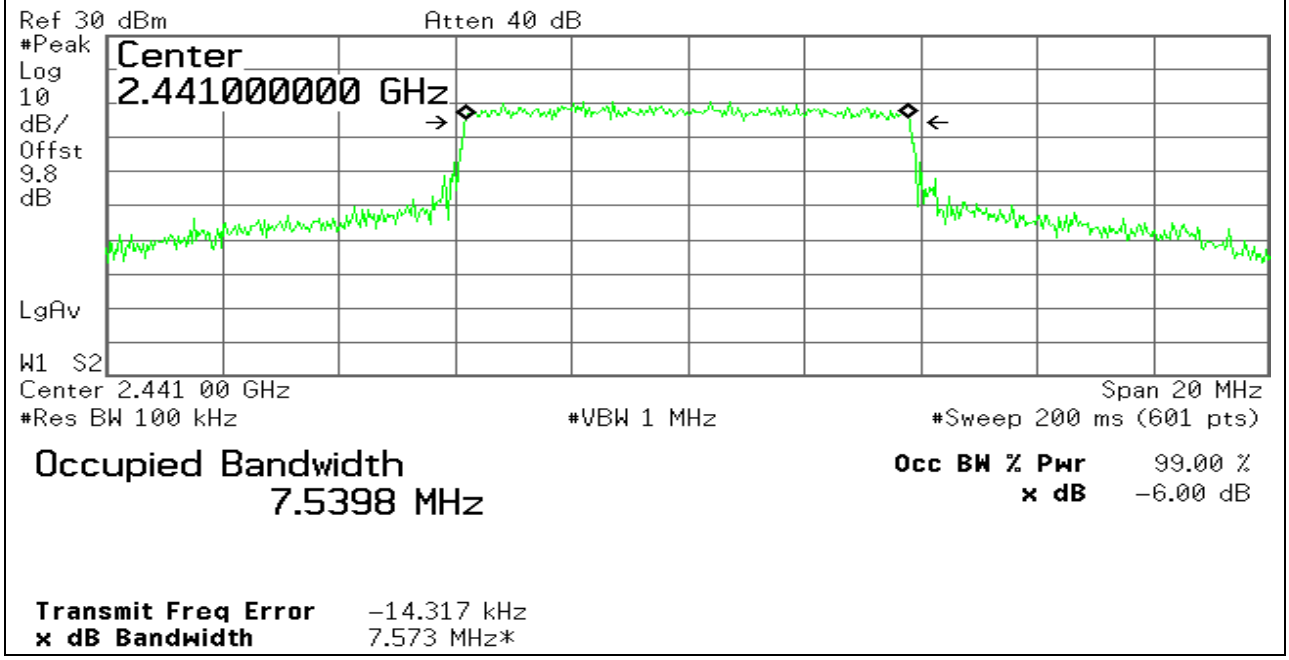
Plot Name:	6dB &99% Bandwidth, Low CH, 8MHz BW



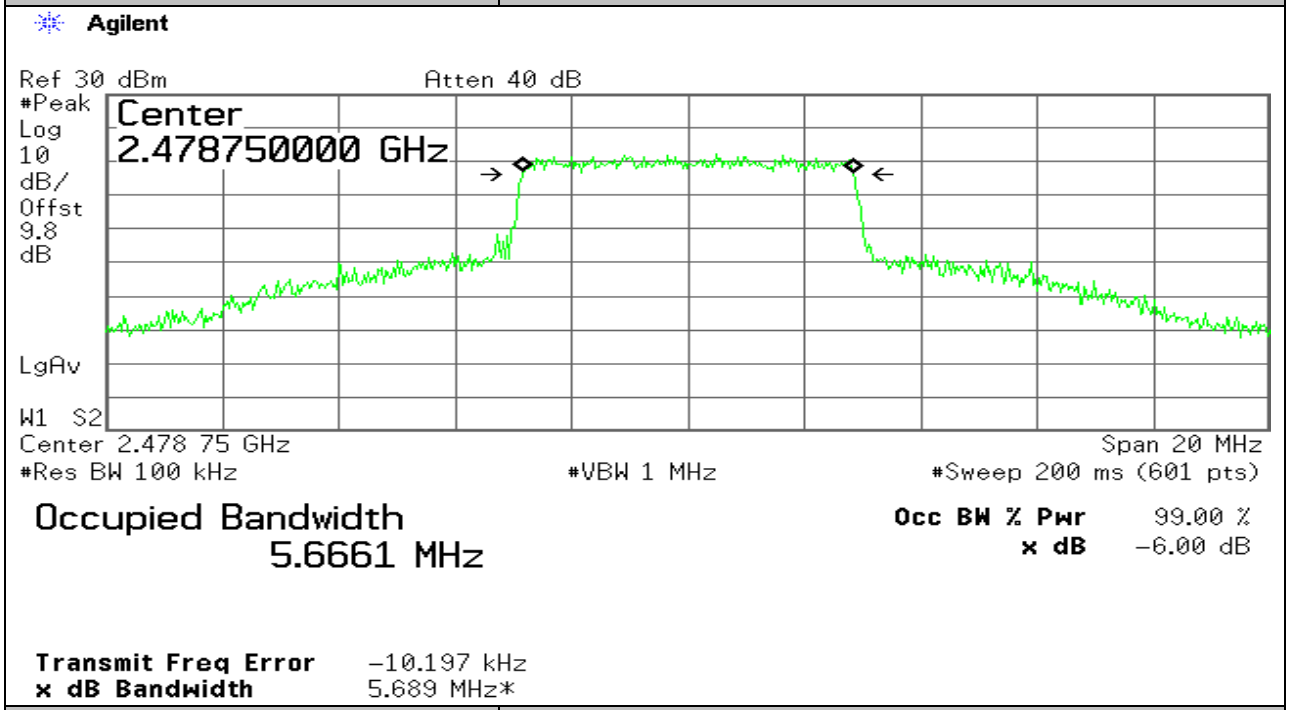
Plot Name:	6dB & 99% Bandwidth Mid CH, 6MHz



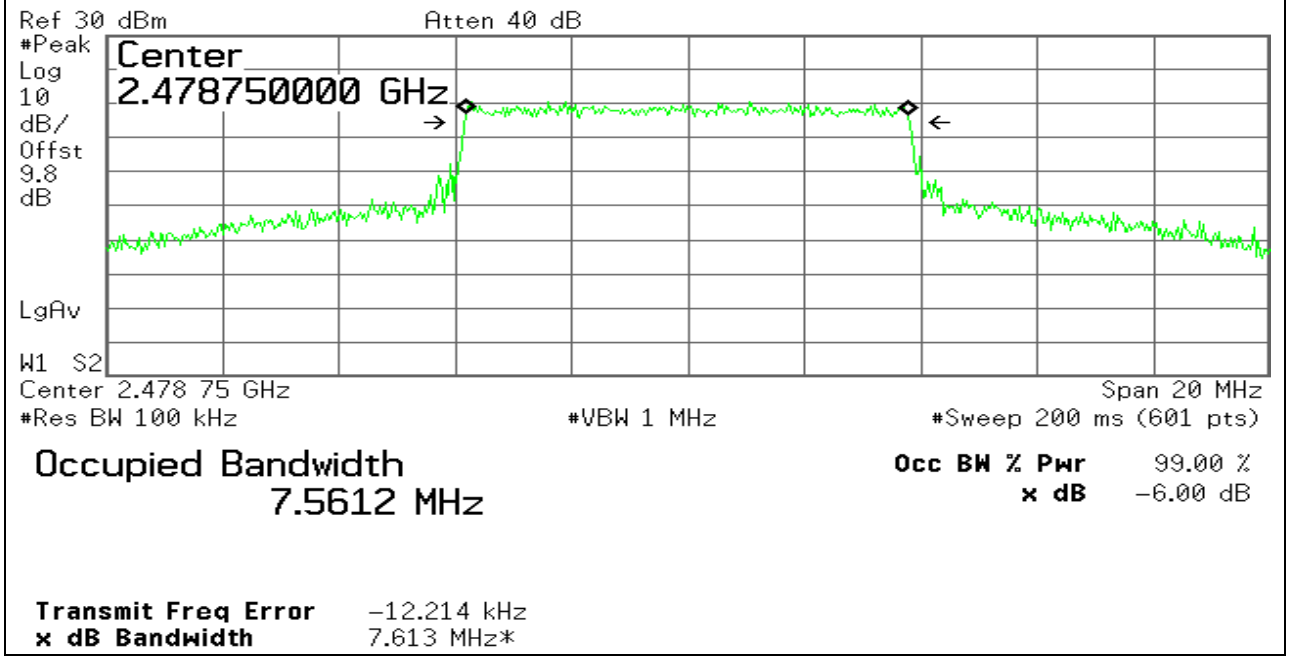
Plot Name:	6dB & 99% Bandwidth Mid CH, 8MHz



Plot Name:	6dB &99% Bandwidth, High CH, 6M BW



Plot Name:	6dB &99% Bandwidth, High CH, 8M BW



7.2. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b)(3) & RSS-210 A8.4(4)

The maximum peak conducted output power of the intentional radiator shall not exceed the following: For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

b(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 6dBi. Therefore, the limit in (b)(3) is +30dBm (1W). EIRP Limit is 36dBm.

TEST PROCEDURE

Per FCC KDB 558074, The transmitter output is connected to a spectrum analyzer and Power output Option 1 was selected for peak power measurement as the device transmits continuously.

Pretest shows that different modulation has no significant effect on output power measurements.

RESULTS

No non-compliance noted:

OUTPUT PEAK POWER

Summary of Peak Power Testing Data for **High Power Setting P=20dBm**.

QPSK Modulation

Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
1.25	L	27.23	30	-2.77
1.25	M	27.09	30	-2.91
1.25	H	26.80	30	-3.2
2.5	L	27.29	30	-2.71
2.5	M	27.03	30	-2.97
2.5	H	26.73	30	-3.27
6	L	28.07	30	-1.93
6	M	26.99	30	-3.01
6	H	27.71	30	-2.29
8	L	28.18	30	-1.82
8	M	26.58	30	-3.42
8	H	28.59	30	-1.41

16QAM Modulation

Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
6	L	28.18	30	-1.82
6	M	26.99	30	-3.01
6	H	27.67	30	-2.33
8	L	27.96	30	-2.04
8	M	26.36	30	-3.64
8	H	28.52	30	-1.48

64QAM Modulation

Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
6	L	27.71	30	-2.29
6	M	27.68	30	-2.32
6	H	27.67	30	-2.33
8	L	27.94	30	-2.06
8	M	27.58	30	-2.42
8	H	28.42	30	-1.58

Therefore, the max. measured peak power is +28.59dBm , which is under FCC allowed power limit.

OUTPUT PEAK POWER

Summary of Peak Power Testing Data for **Low Power Setting P=10dBm**.

QPSK Modulation

Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
1.25	L	20.63	30	-9.37
1.25	M	21.21	30	-8.79
1.25	H	20.14	30	-9.86
2.5	L	20.51	30	-9.49
2.5	H	20.75	30	-9.25
6	L	20.28	30	-9.72
6	H	21.06	30	-8.94
8	L	20.16	30	-9.84
8	M	20.11	30	-9.89
8	H	21.23	30	-8.77

16QAM Modulation

Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
6	L	19.98	30	-10.02
6	M	20.13	30	-9.87
6	H	20.99	30	-9.01
8	L	20.50	30	-9.5
8	M	21.04	30	-8.96
8	H	21.18	30	-8.82

64QAM Modulation

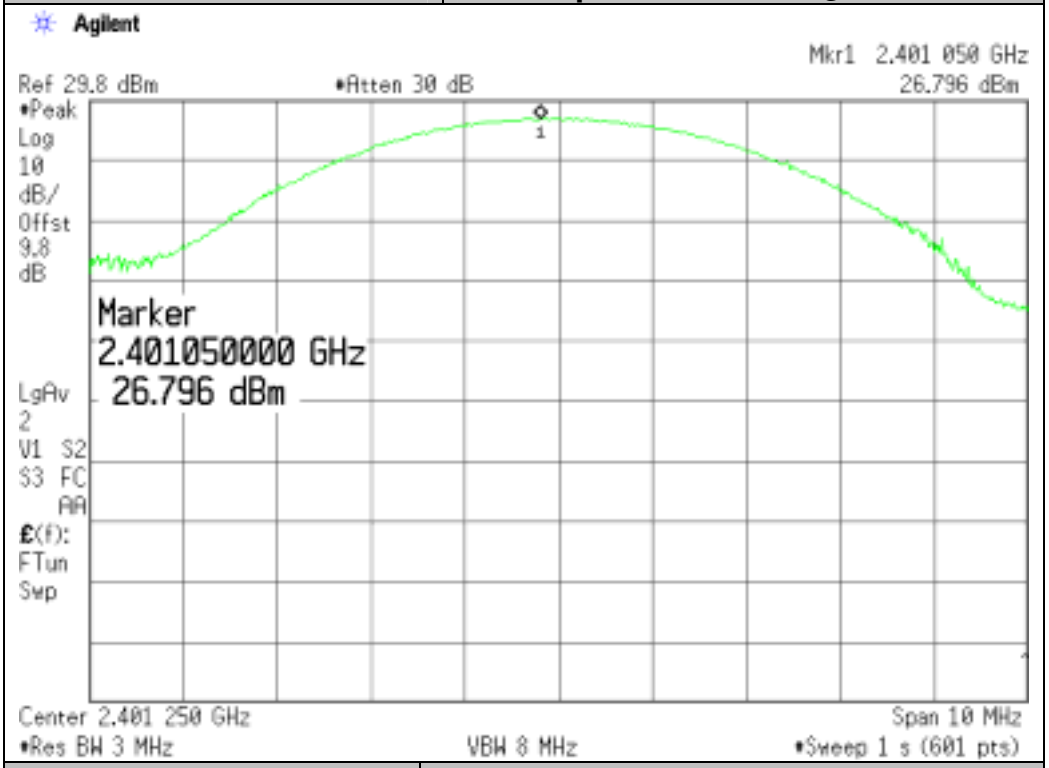
Channel BW (MHz)	Channel	Peak Power (dBm)	Limit (dBm)	Margin
6	L	20.65	30	-9.35
6	M	21.20	30	-8.8
6	H	21.02	30	-8.98
8	L	19.53	30	-10.47
8	M	21.34	30	-8.66
8	H	21.02	30	-8.98

Therefore, the max. measured peak power is +21.34dBm , which is under FCC allowed power limit.

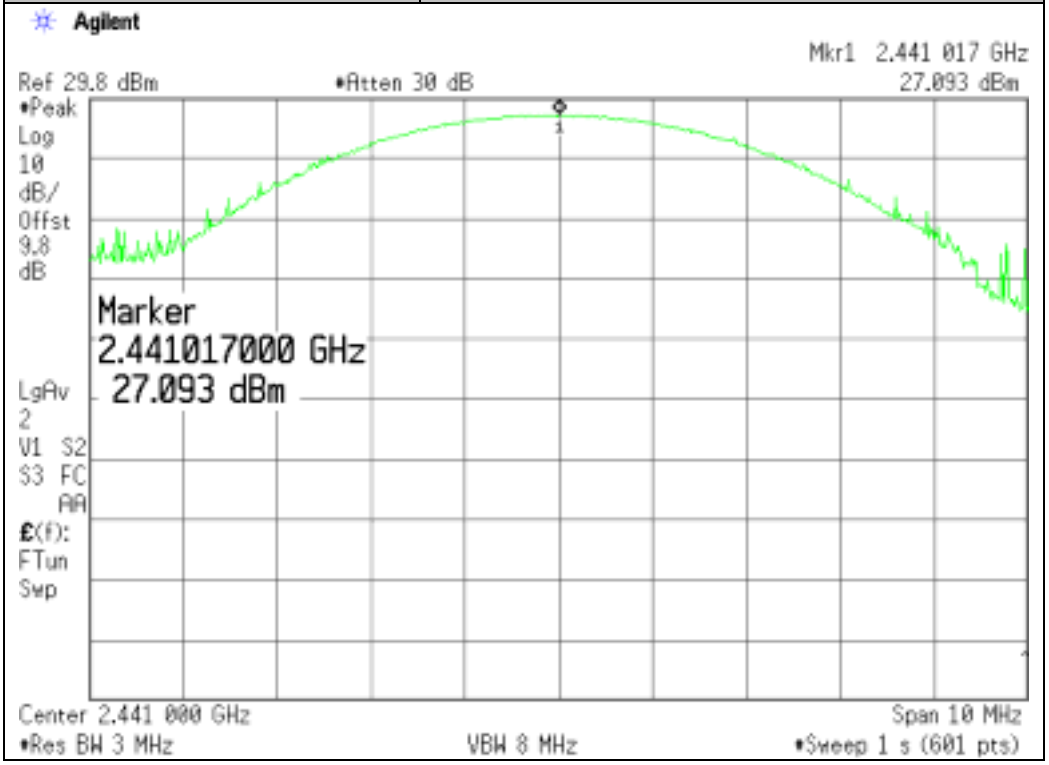
PLOTS for High Power Setting P=20dBm:

1.25MHz BW, QPSK Mode:

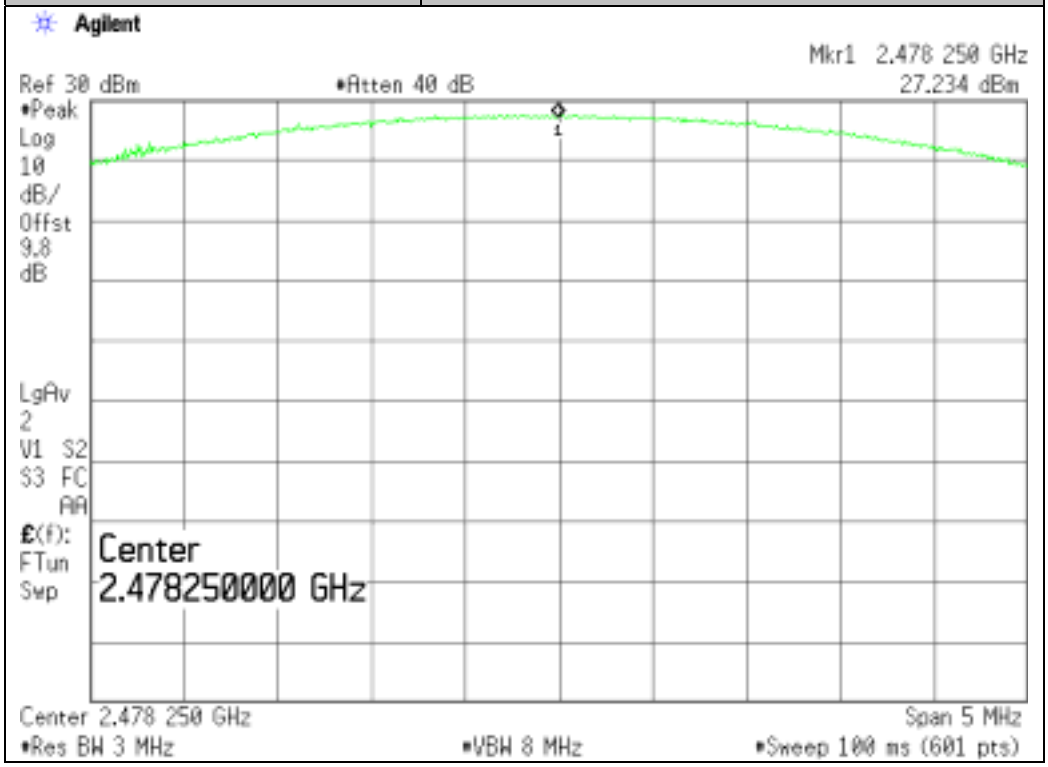
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH



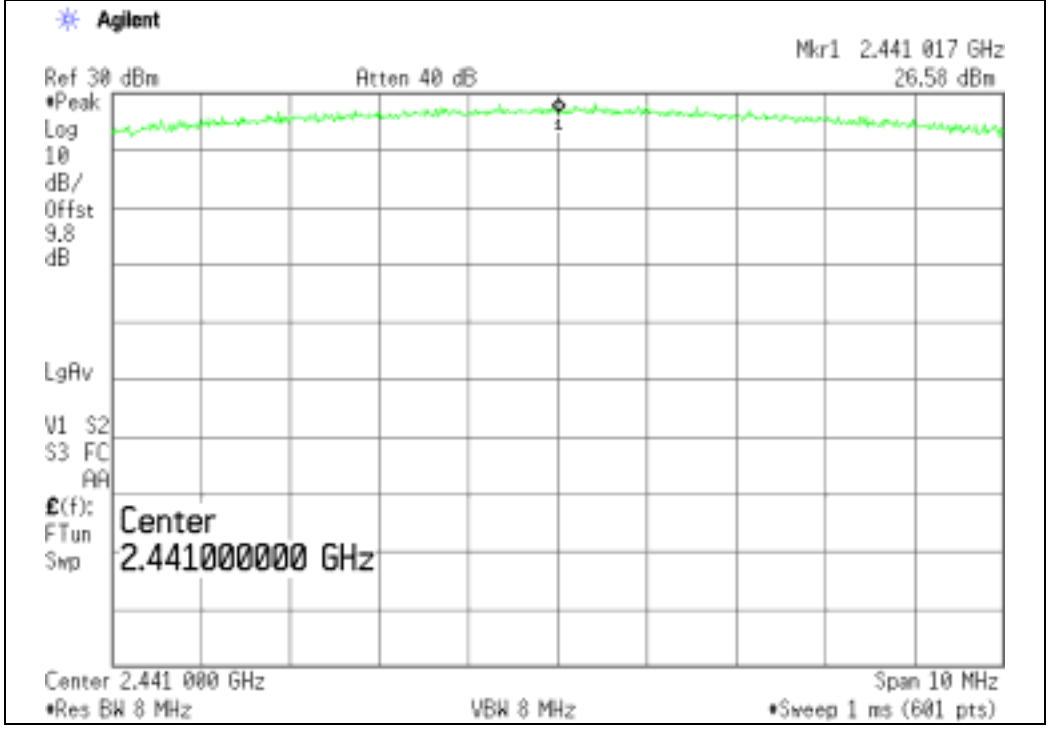
Plot Name:	Output Peak Power @ High CH



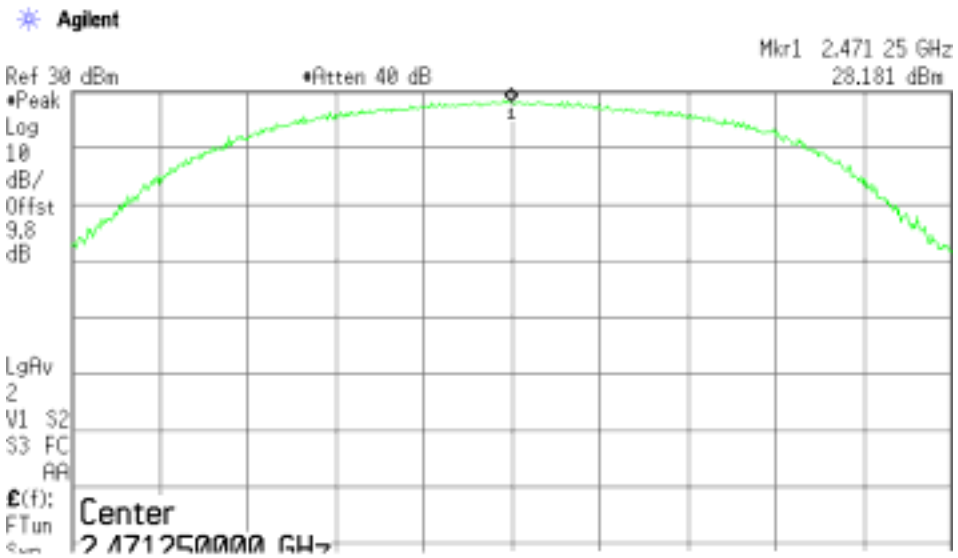
8MHz BW, QPSK Mode:

Plot Name:	Output Peak Power @ Low CH

Plot Name:	Output Peak Power @ Mid CH

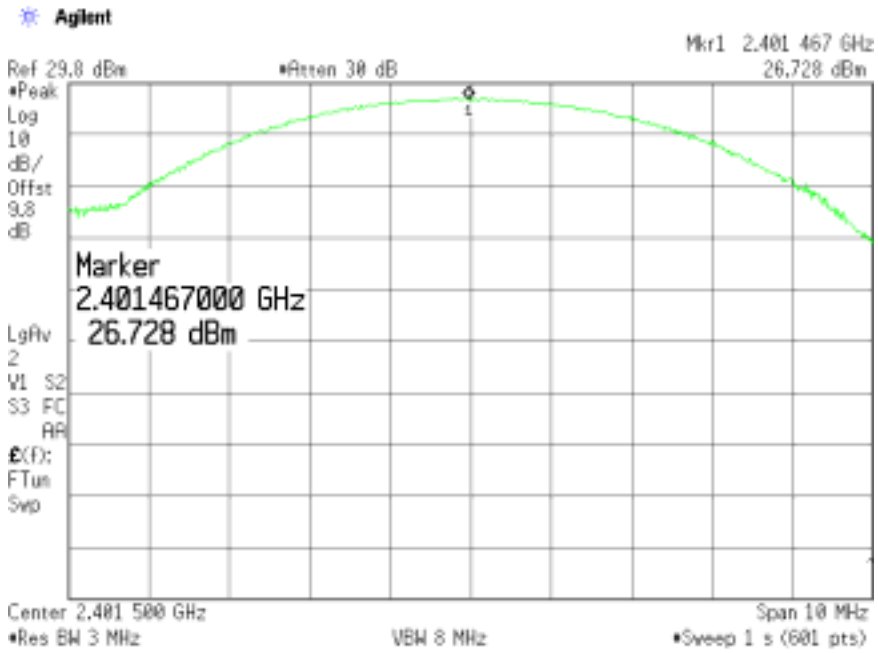


Plot Name:	Output Peak Power @ High CH

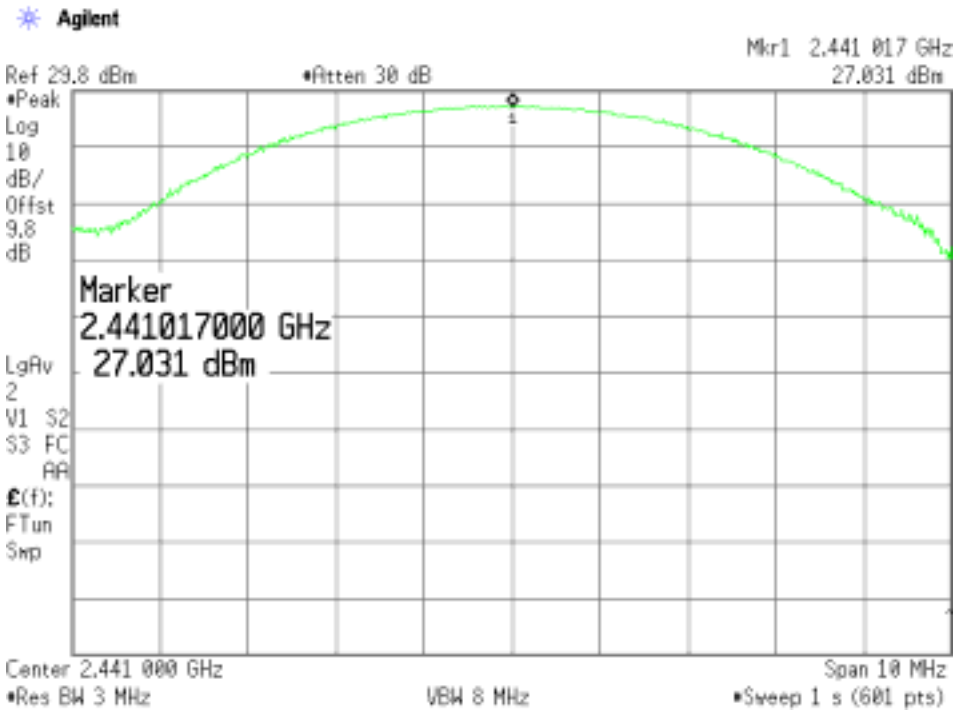


2.5 MHz BW, QPSK Mode:

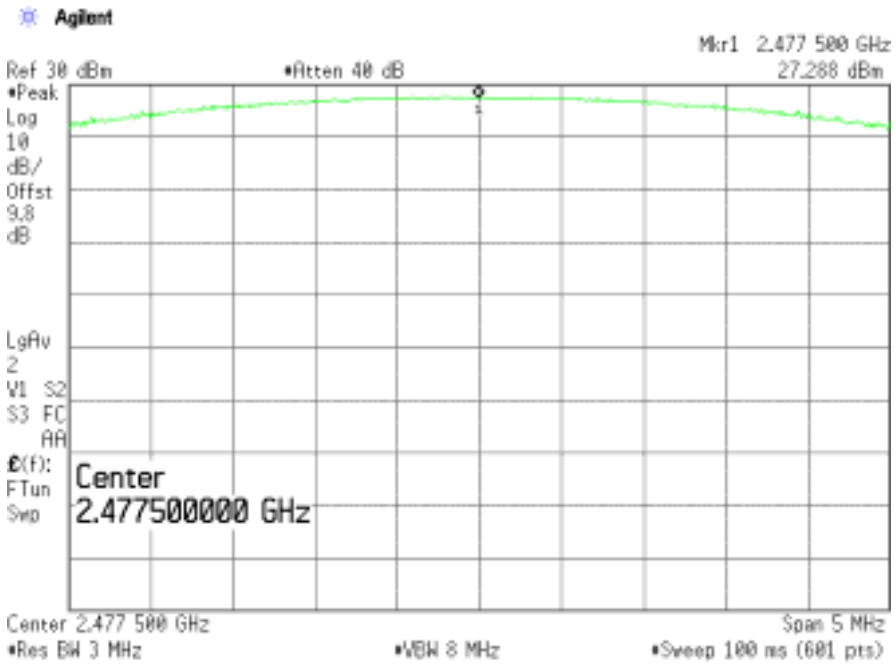
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH

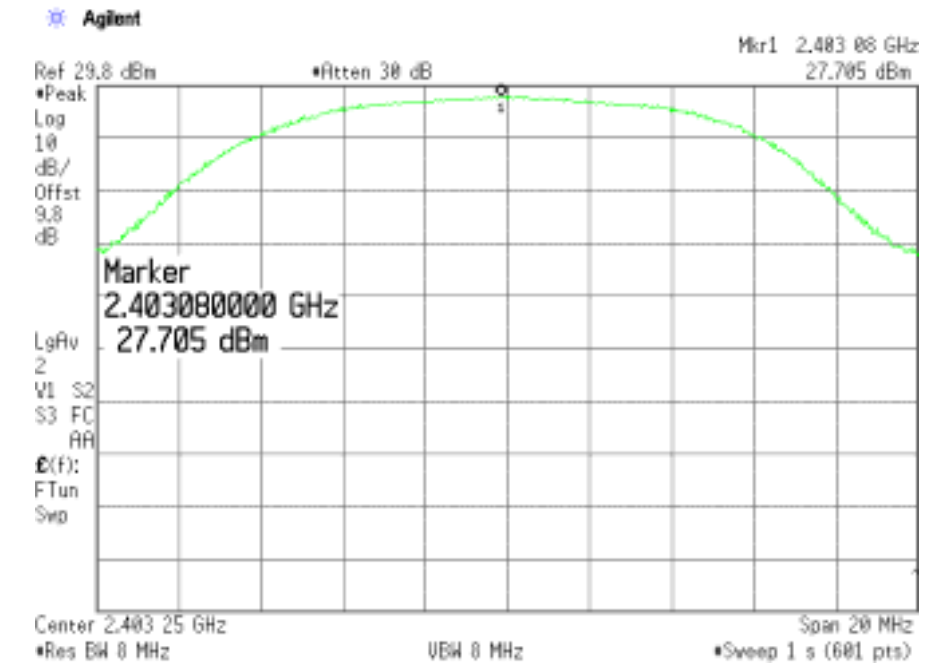


Plot Name:	Output Peak Power @ High CH

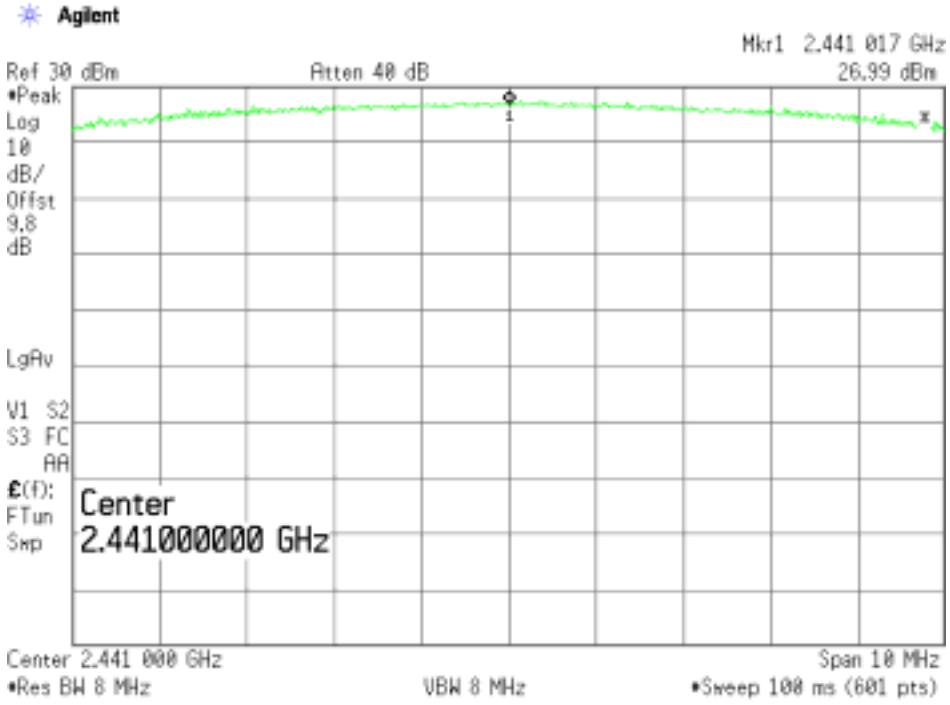


6 MHz BW, QPSK Mode:

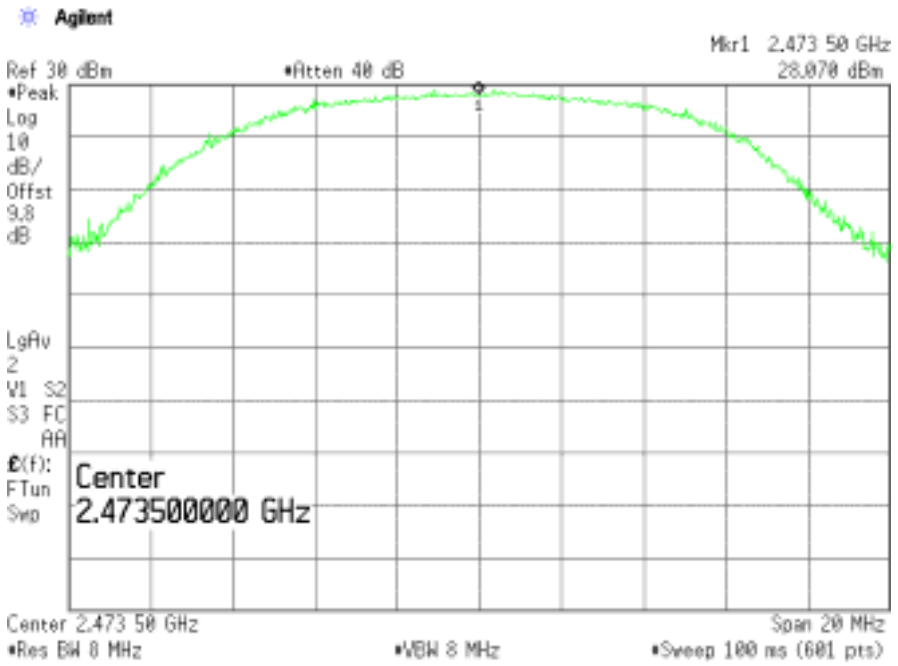
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH

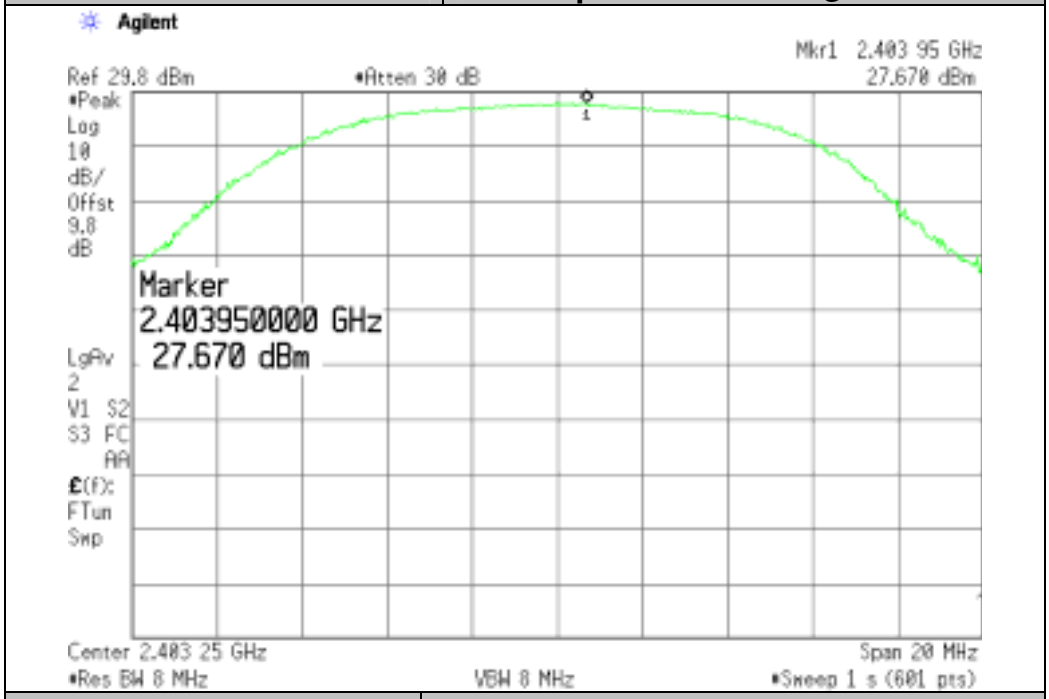


Plot Name:	Output Peak Power @ High CH

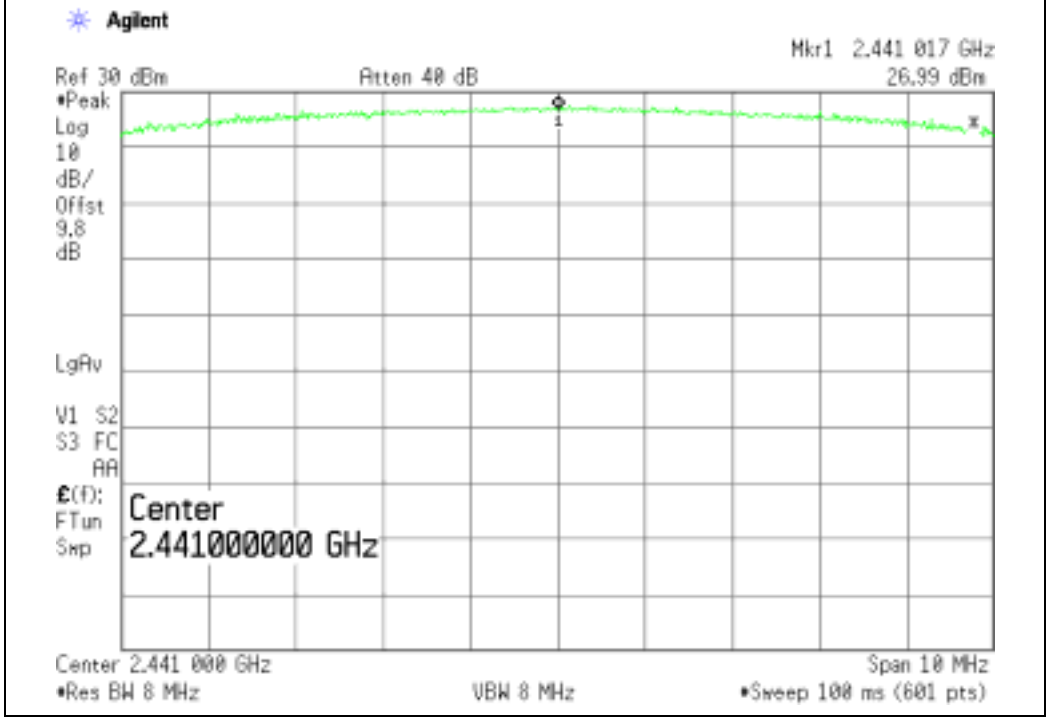


6MHz BW, 16QAM Mode:

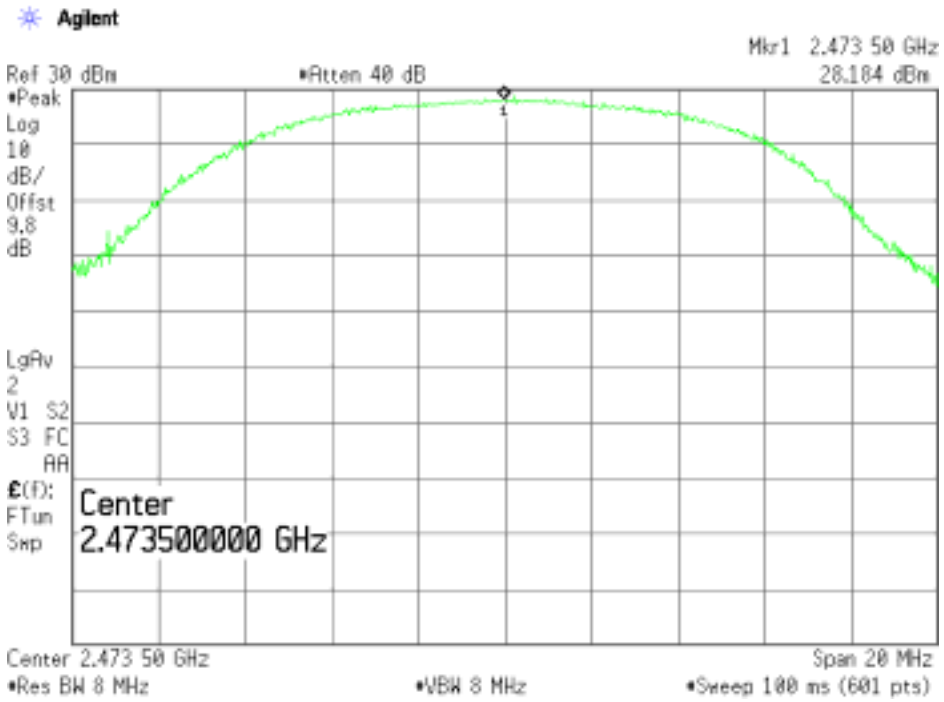
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH

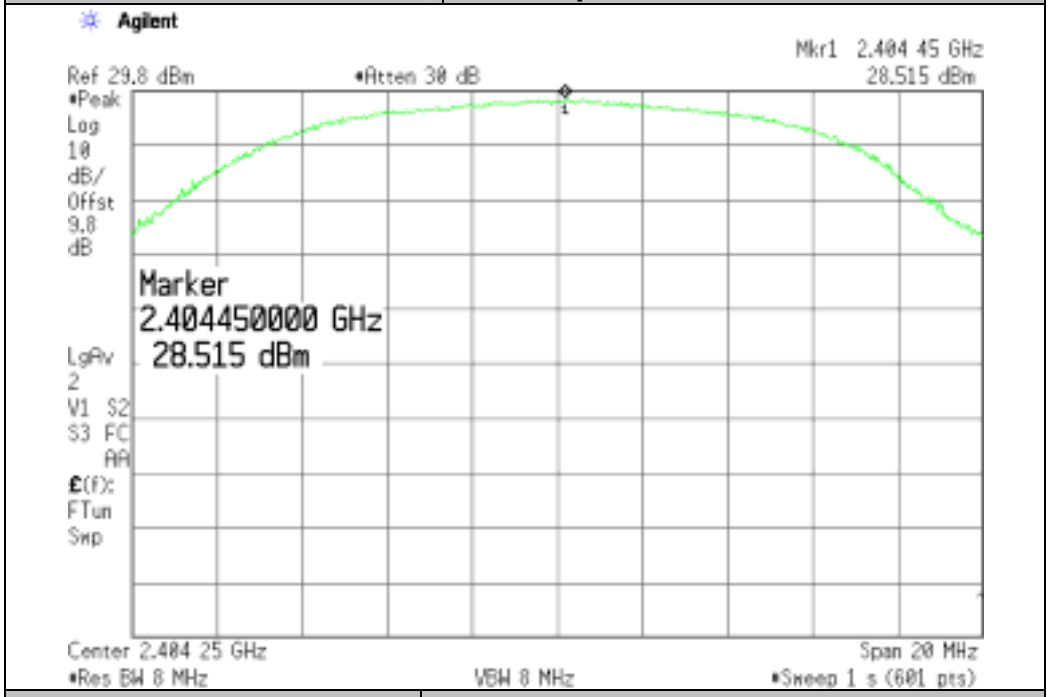


Plot Name:	Output Peak Power @ High CH

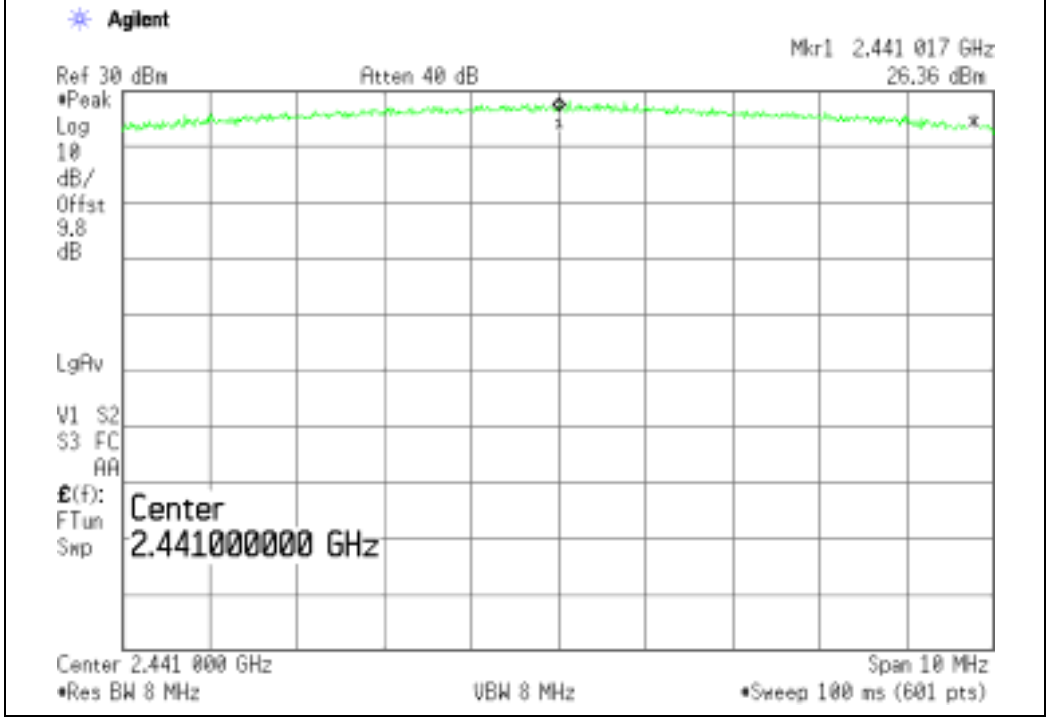


8MHz BW, 16QAM Mode:

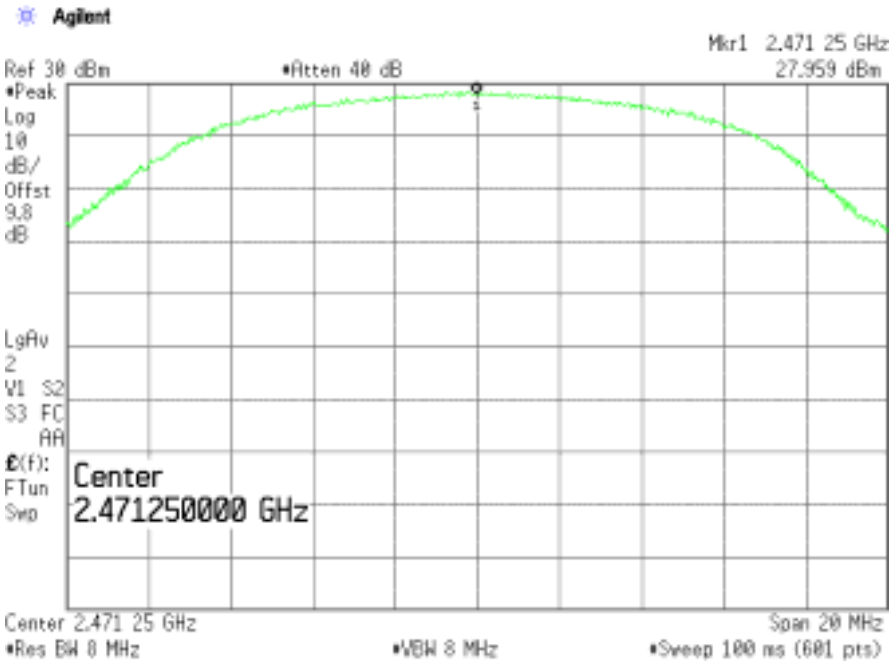
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH

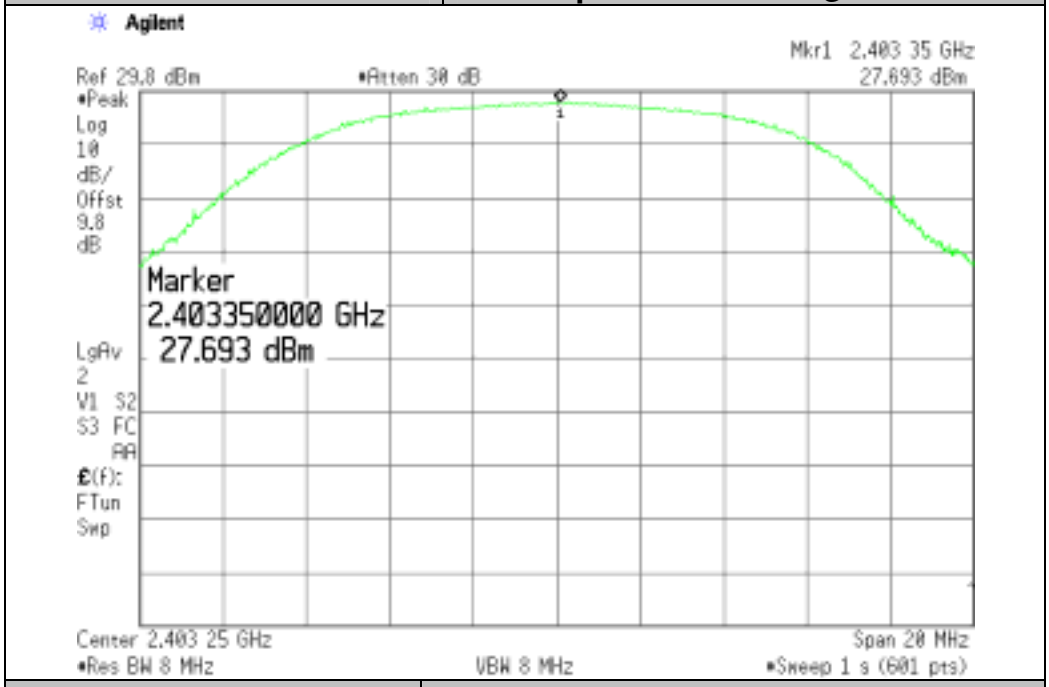


Plot Name:	Output Peak Power @ High CH

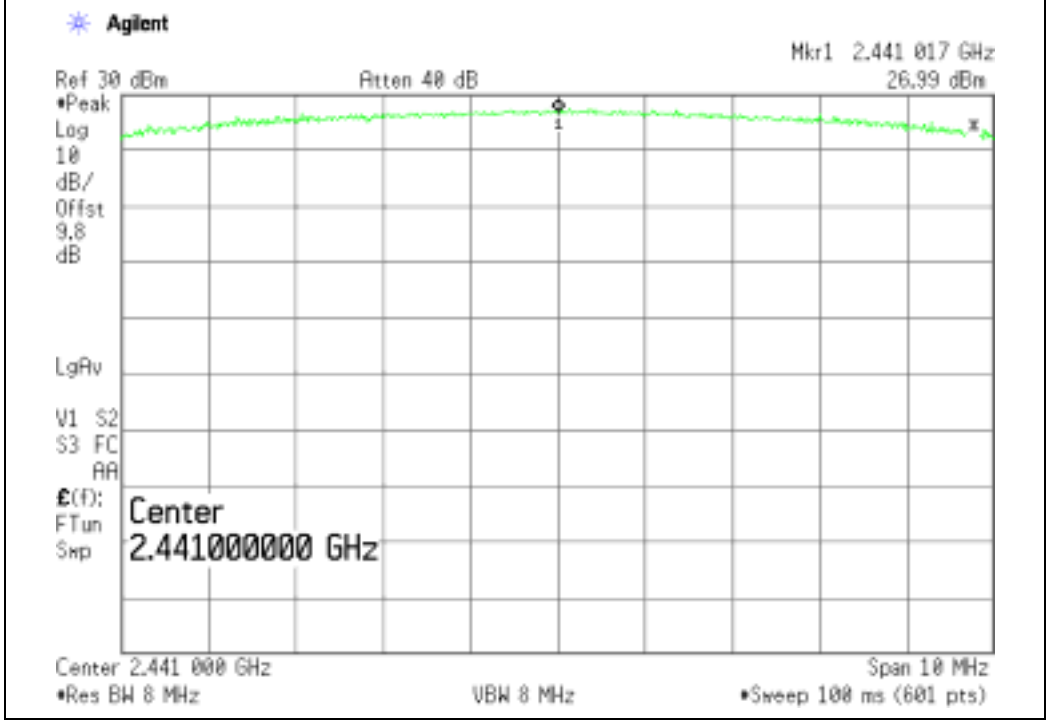


6MHz BW, 64QAM Mode:

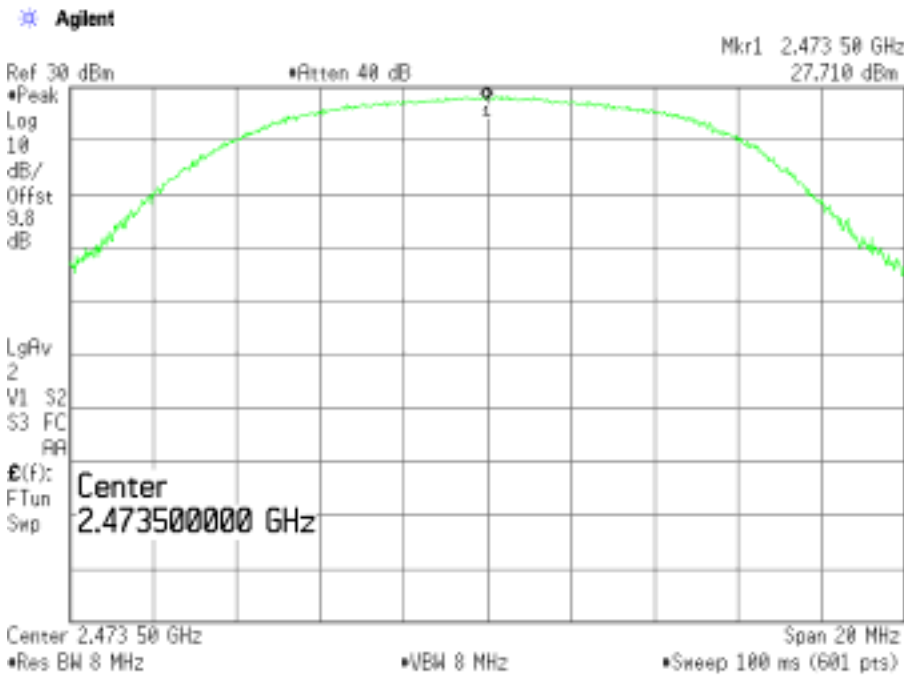
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH

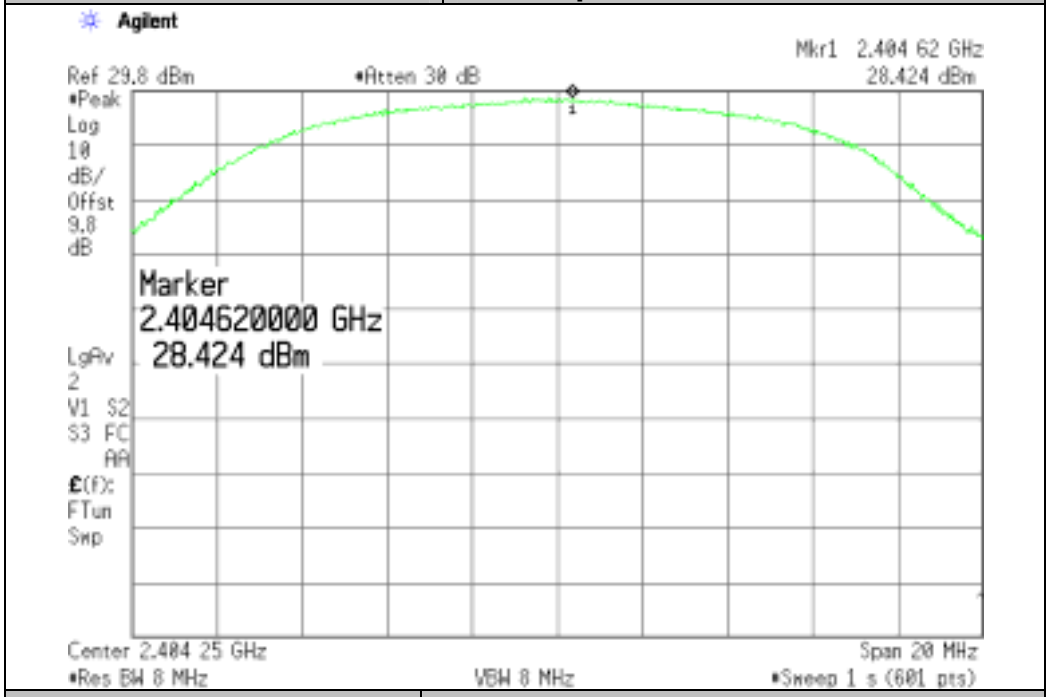


Plot Name:	Output Peak Power @ High CH

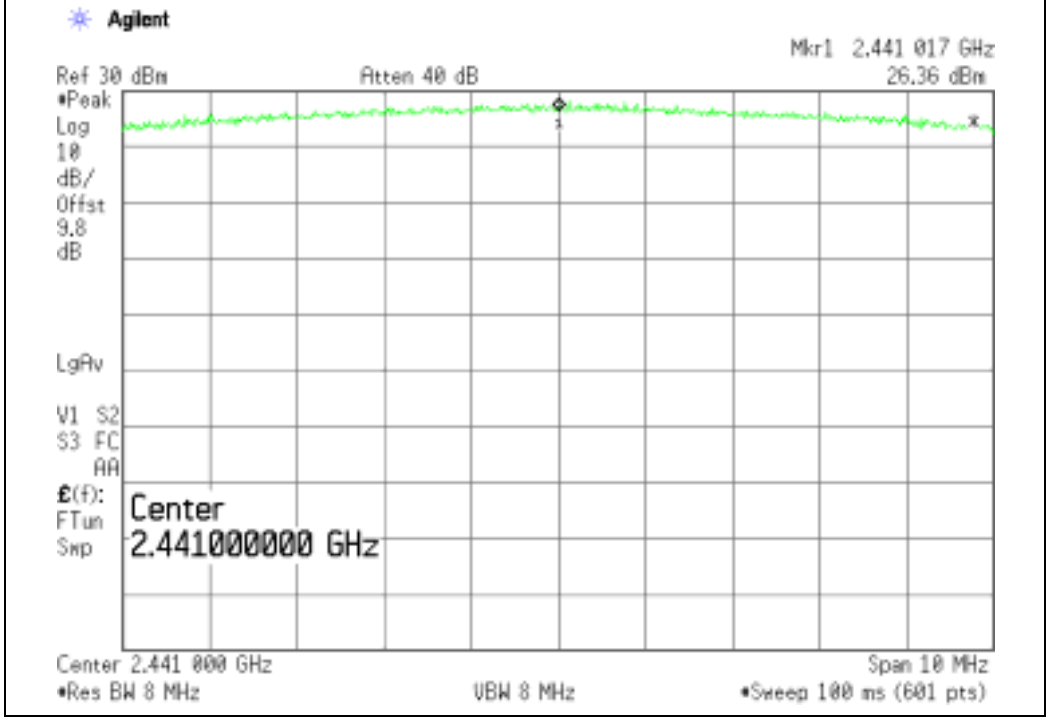


8MHz BW, 64QAM Mode:

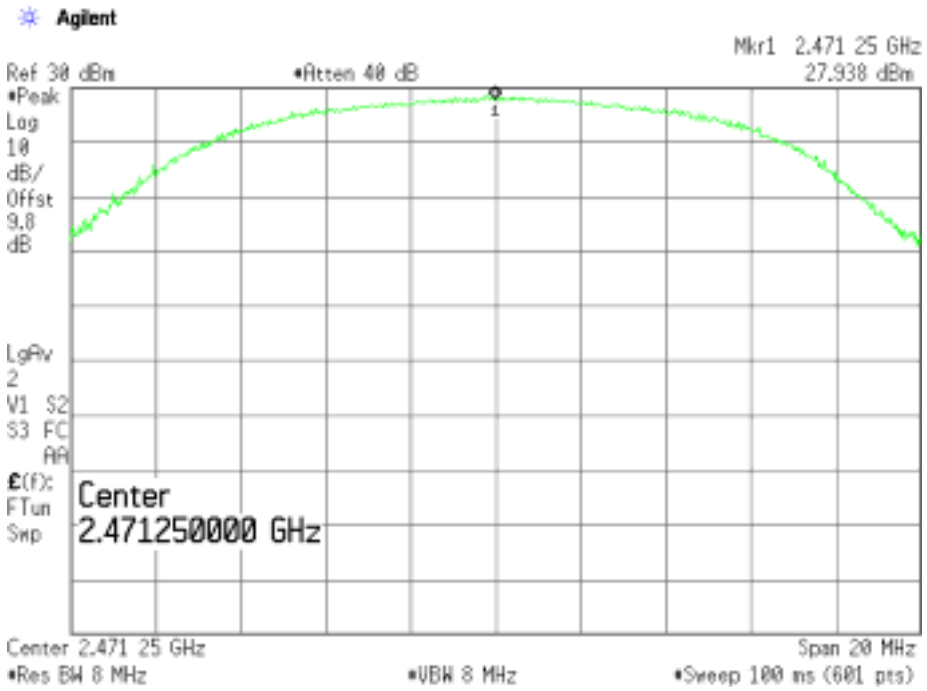
Plot Name:	Output Peak Power @ Low CH



Plot Name:	Output Peak Power @ Mid CH



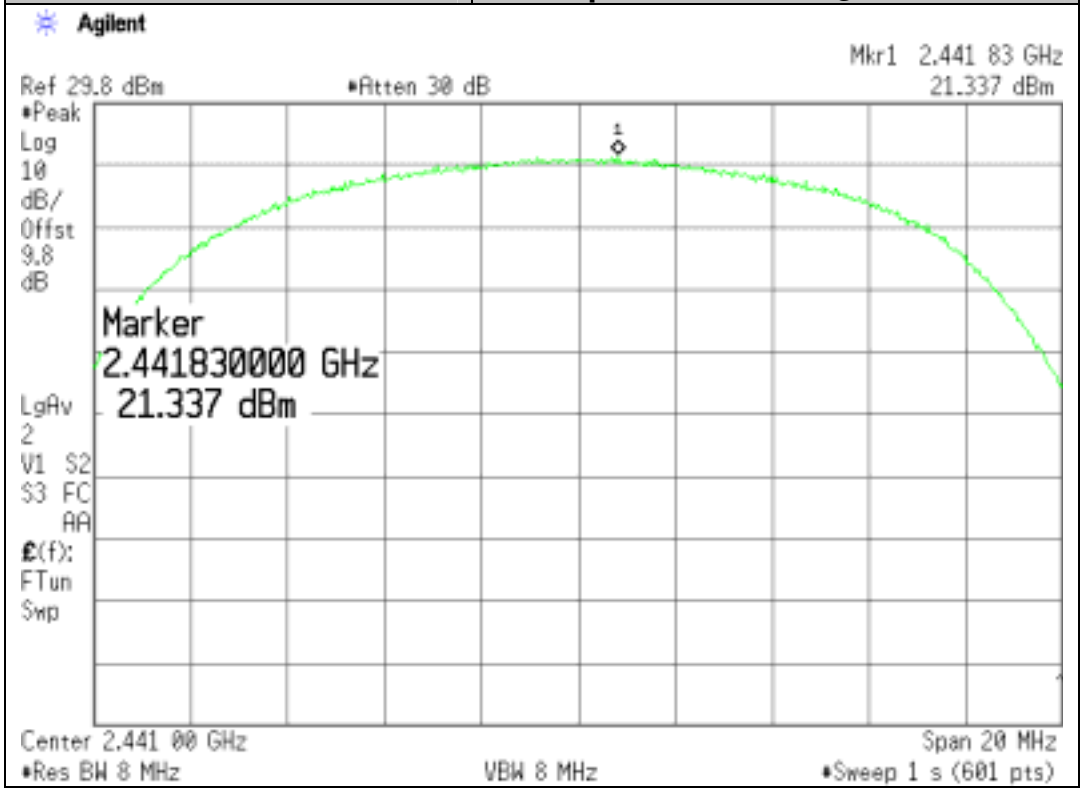
Plot Name:	Output Peak Power @ High CH



PLOTS for Lower Power Setting P=10dBm (only the worst case is shown):

8MHz BW, 64QAM Mode:

Plot Name:	Output Peak Power @ Middle CH



7.3. MAXIMUM PERMISSIBLE EXPOSURE

LIMITS & RSS-102

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E \wedge 2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$d = \sqrt{((30 * P * G) / (3770 * S))}$

Changing to units of Power to mW and Distance to cm, using: P (mW) = P (W) / 1000 and
d (cm) =100 * d (m)

yields

$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$

$d = 0.282 * \sqrt{(P * G / S)}$

where

d = distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power Density in mW/cm^2

Substituting the logarithmic form of power and gain using: P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

$d = 0.282 * 10 \wedge ((P + G) / 20) / \sqrt{S}$ Equation (1)

$S = 0.0795 * 10 \wedge ((P + G)/10)/ d\wedge 2$ Equation (2)

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.
Equation (2) and the measured peak power is used to calculate the Power density.

LIMITS

From §1.1310 Table 1 (B),
for Public S = 1.0 mW/cm^2
for Professional, S = 5.0 mW/cm^2

RESULTS

No non-compliance noted:

For this EUT, Max. P (avg)= 20.09 dBm, Max G= 5.0 dBi, and d=20cm

Plug all three items into equation (2), and yields,

Power Density Limit (mW/cm^2)	Output Power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm^2)
1.0/5.0	20.09	5.0	0.065

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.4. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

OUTPUT AVERAGE POWER

Summary of Peak Power Testing Data for **High Power Setting P=20dBm**.

QPSK Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
1.25	L	19.66
1.25	M	19.58
1.25	H	20.08
2.5	L	19.70
2.5	H	20.05
6	L	19.68
6	H	20.09
8	L	19.59
8	M	19.56
8	H	20.09

16QAM Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
6	L	19.58
6	M	19.56
6	H	20.08
8	L	19.58
8	M	19.56
8	H	20.07

64QAM Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
6	L	19.58
6	M	19.55
6	H	20.06
8	L	19.56
8	M	19.53
8	H	20.08

OUTPUT AVERAGE POWER

Summary of Peak Power Testing Data for **Low Power Setting P=10dBm**.

QPSK Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
1.25	L	9.98
1.25	M	9.90
1.25	H	10.00
2.5	L	9.94
2.5	H	10.14
6	L	9.97
6	H	10.13
8	L	9.98
8	M	9.95
8	H	10.15

16QAM Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
6	L	9.97
6	M	9.72
6	H	10.12
8	L	9.99
8	M	9.89
8	H	10.13

64QAM Modulation

Channel BW (MHz)	Channel	Average Power (dBm)
6	L	9.99
6	M	9.88
6	H	10.11
8	L	9.99
8	M	9.90
8	H	10.13

7.5. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (e) & RSS-210 A8.2(2)
For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

Per FCC KDB 558074, The transmitter output is connected to a spectrum analyzer and PSD Option 1 was applied: Locate and zoom in on emission peak(s) within the passband. Set RBW = 3 kHz, VBW >RBW, sweep= (SPAN/3 kHz) e.g., for a span of 1.5 MHz, the sweep should be 1.5 x 106 ÷3 x103 = 500 seconds. The peak level measured must be no greater than + 8 dBm.

Based on pretest result, the data for worst case, EUT operated with 1.25MHz BW & QPSK, is presented.

RESULTS

No non-compliance noted:

Summary of PPSD Testing Data:

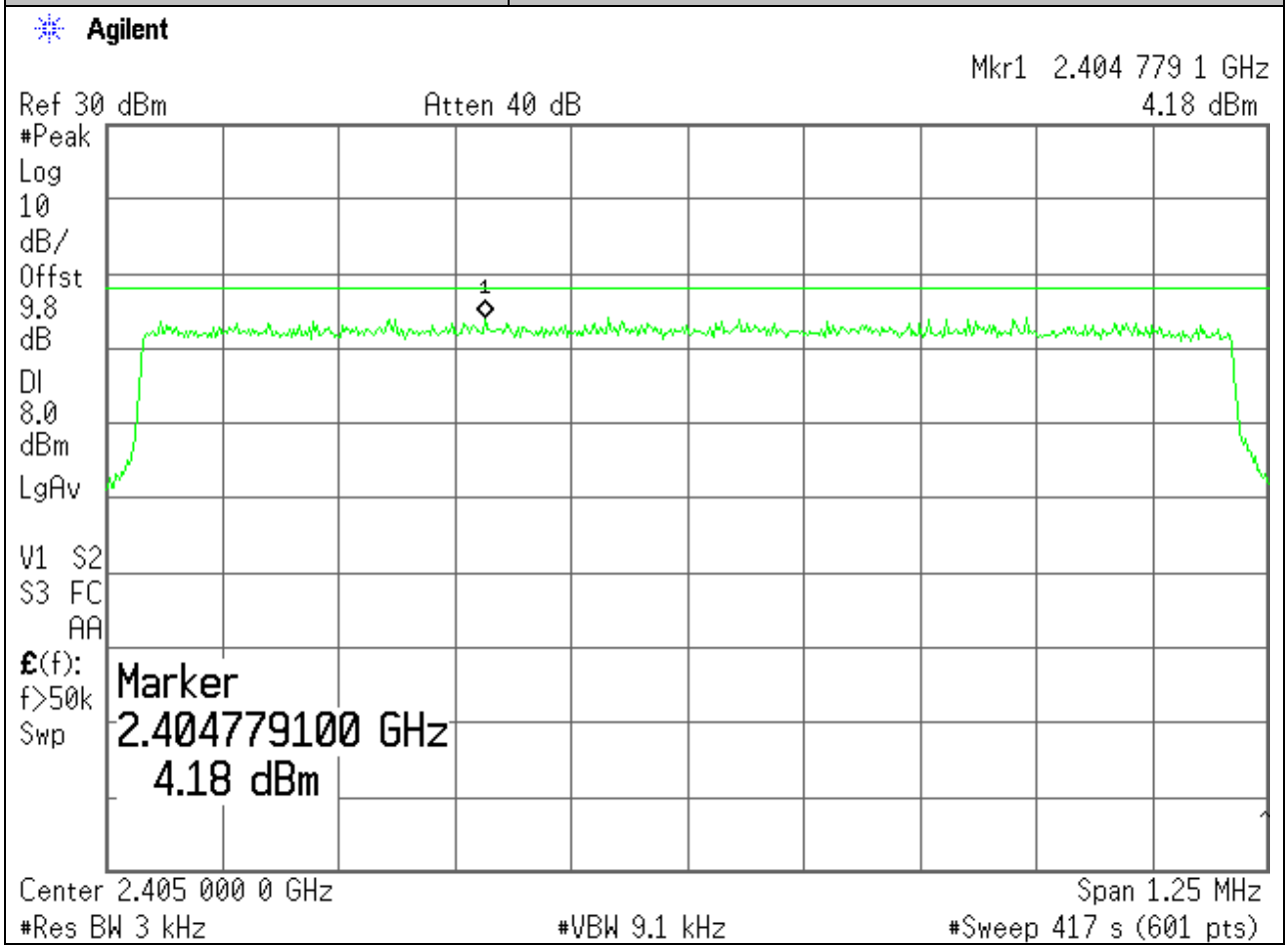
Worst case: 1.25MHz BW & QPSK Modulation with High Power P=20dBm Setting

Channel	CH BW (MHz)	PPSD (dBm/Hz BW)	Limit (dBm/3KHz BW)
Low	1.25	4.18	8
Middle	1.25	5.19	8
High	1.25	4.70	8

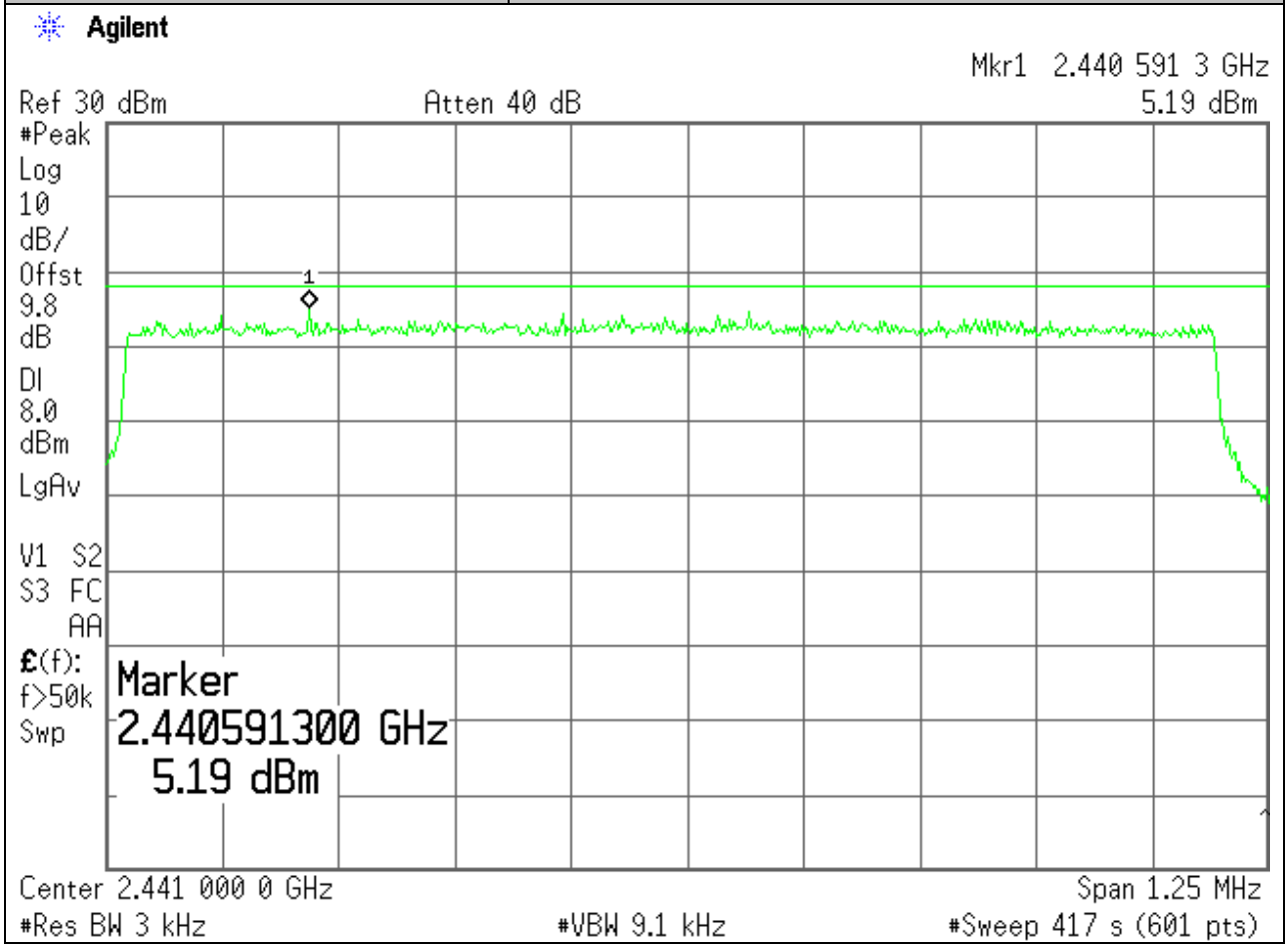
PEAK POWER SPECTRAL DENSITY

1.25MHz BW, QPSK Mode:

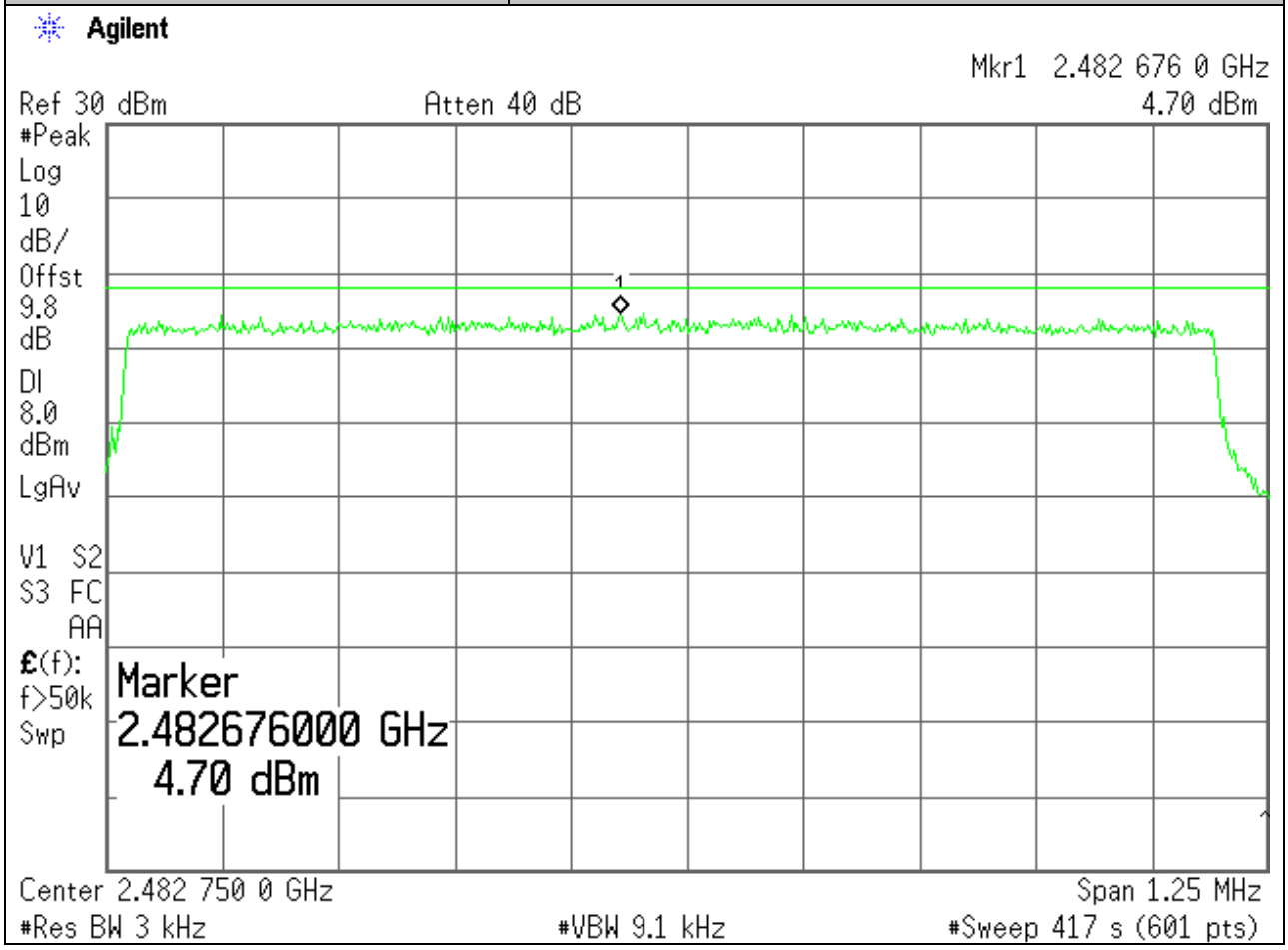
Plot Name:	PPSD (dBm/Hz BW) @ Low CH



Plot Name:	PPSD (dBm/Hz BW) @ Mid CH



Plot Name:	PPSD (dBm/Hz BW) @ High CH



7.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (d) & RSS- 210 A8.5
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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)).

TEST PROCEDURE

Per FCC KDB 558074, the transmitter output is connected to a spectrum analyzer and the resolution bandwidth is set to 100 kHz. Since the EUT complies with the use of power option1, the 20dB attenuation requirement is applied here, which makes the absolute spurious limit as low as "Max. peak of fundamental -20dB" (however, more restricted limit line, the 30dB attenuation requirement for Power Option 2, is shown on grid line as reference). All spurious under this line, for sure, are defined as compliance results.

The spectrum from 30 MHz to 26.5 GHz was investigated with the transmitter set to the lowest, middle, and highest channels. There is no significant spurious found in the range of 20GHz-40GHz with the worst case scenario @ middle channel.

RESULTS

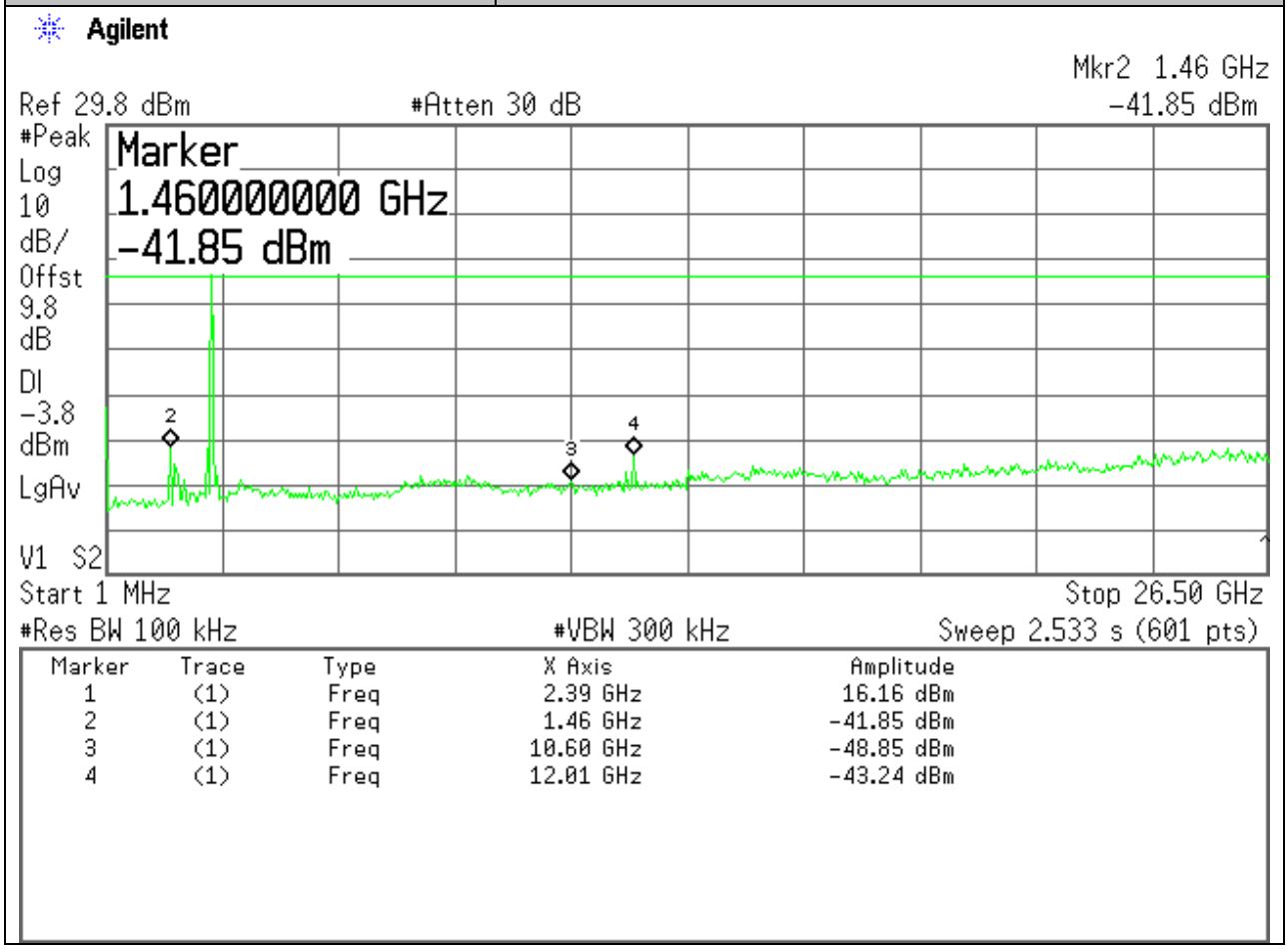
No non-compliance noted:

. CONDUCTED PURIOUS EMISSIONS

For High Power Setting P=20dBm:

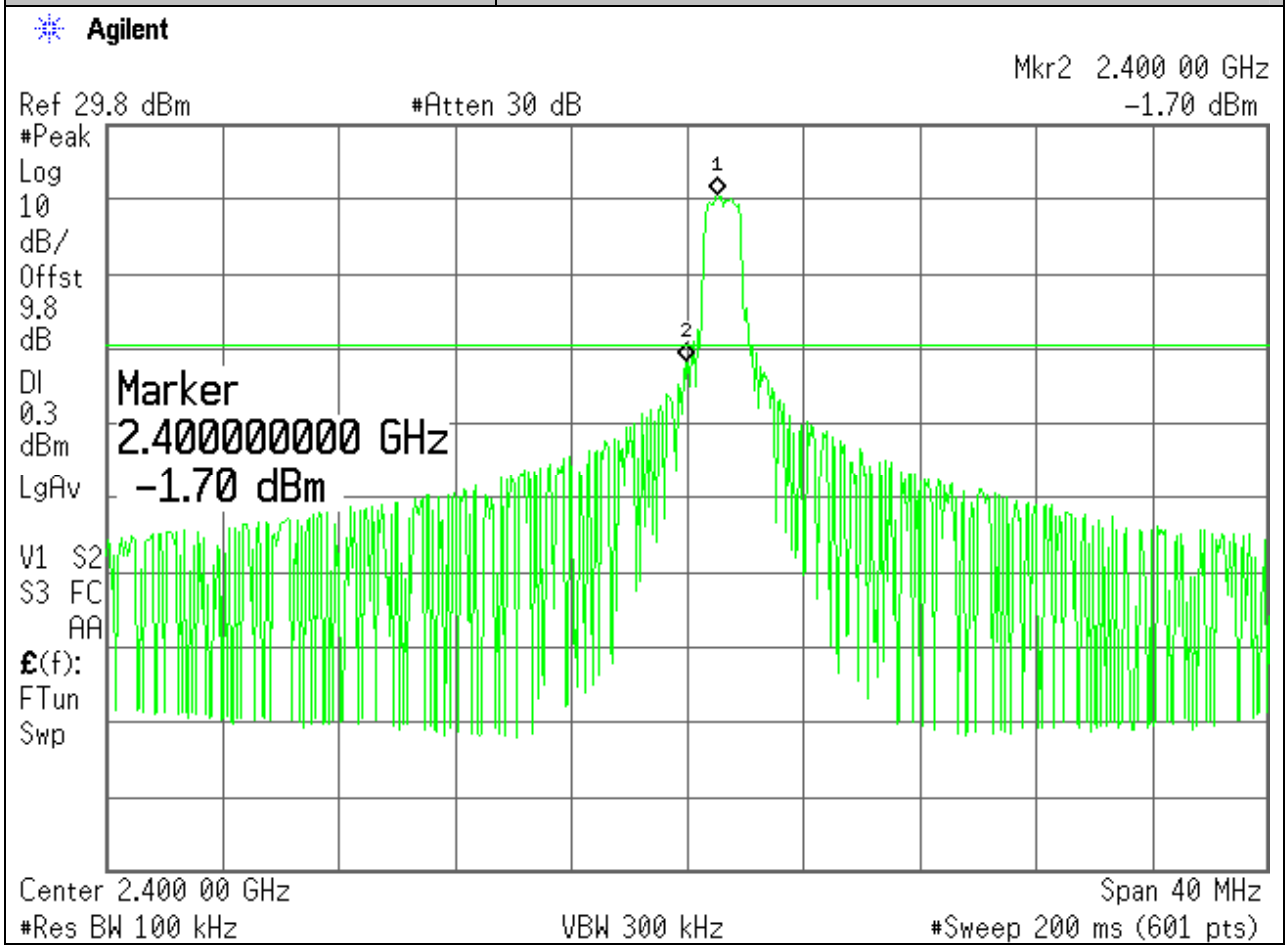
1.25MHz BW, QPSK Mode

Plot Name:	Conducted Spurious Emissions @ Low CH



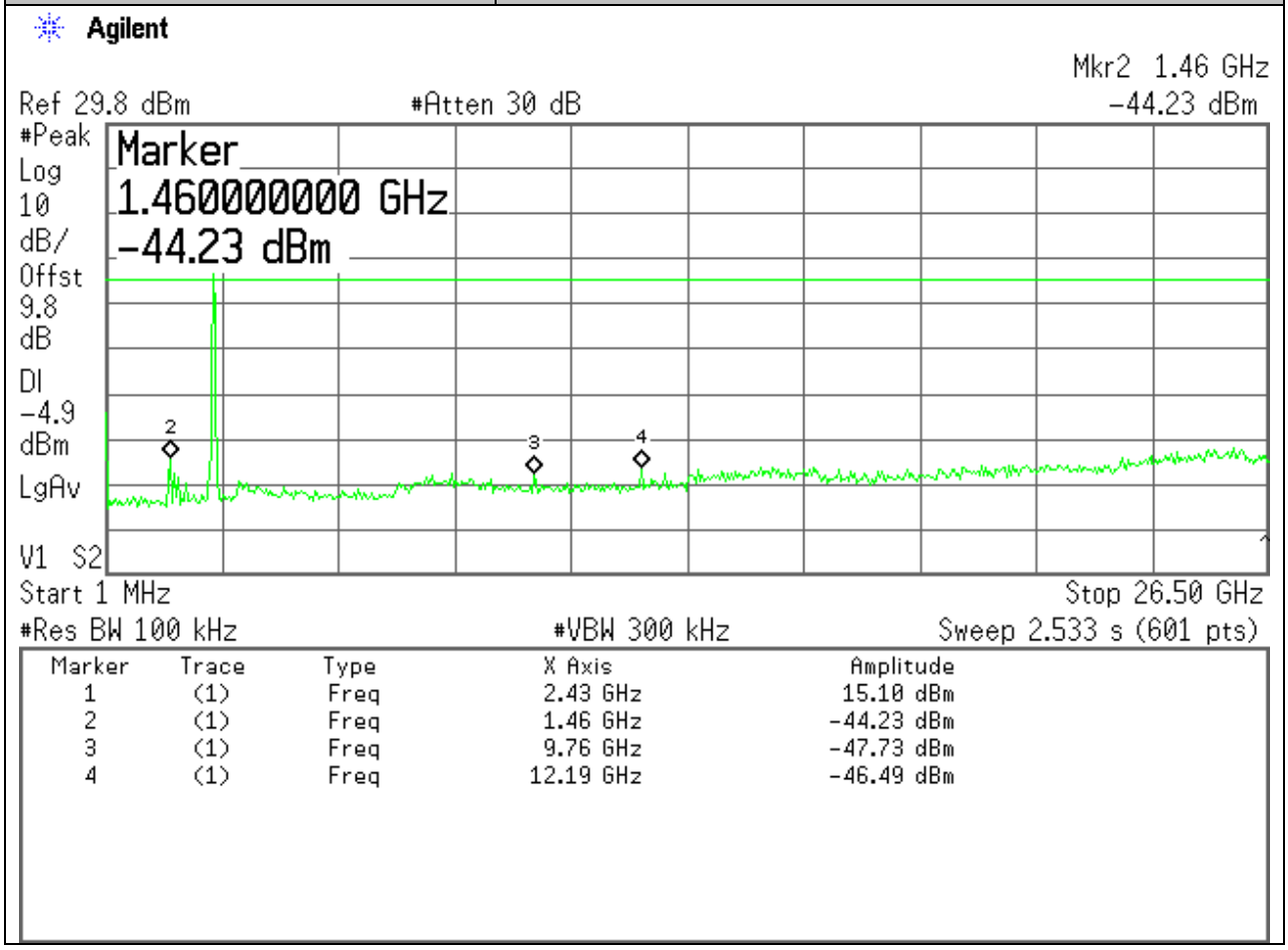
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



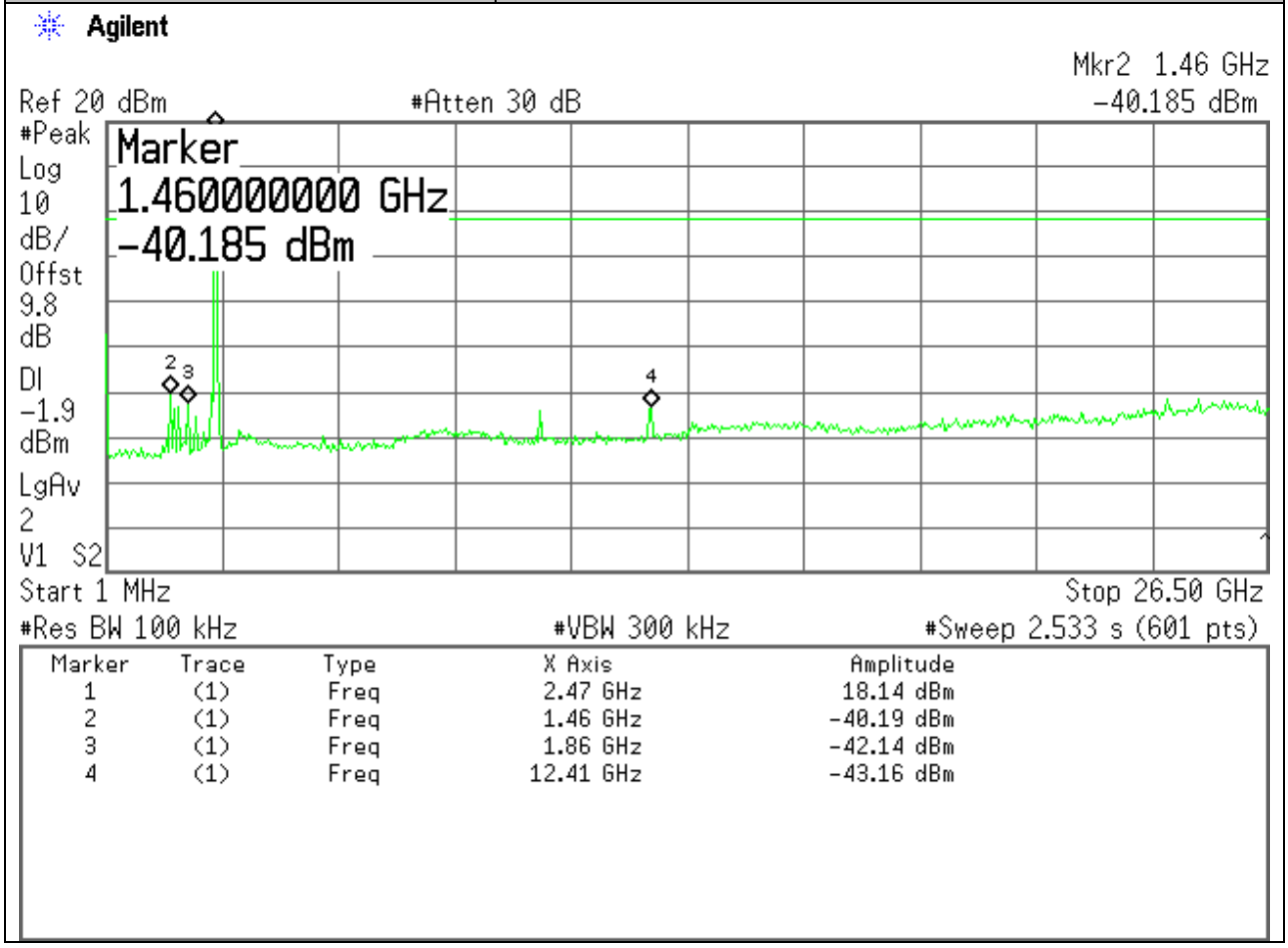
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



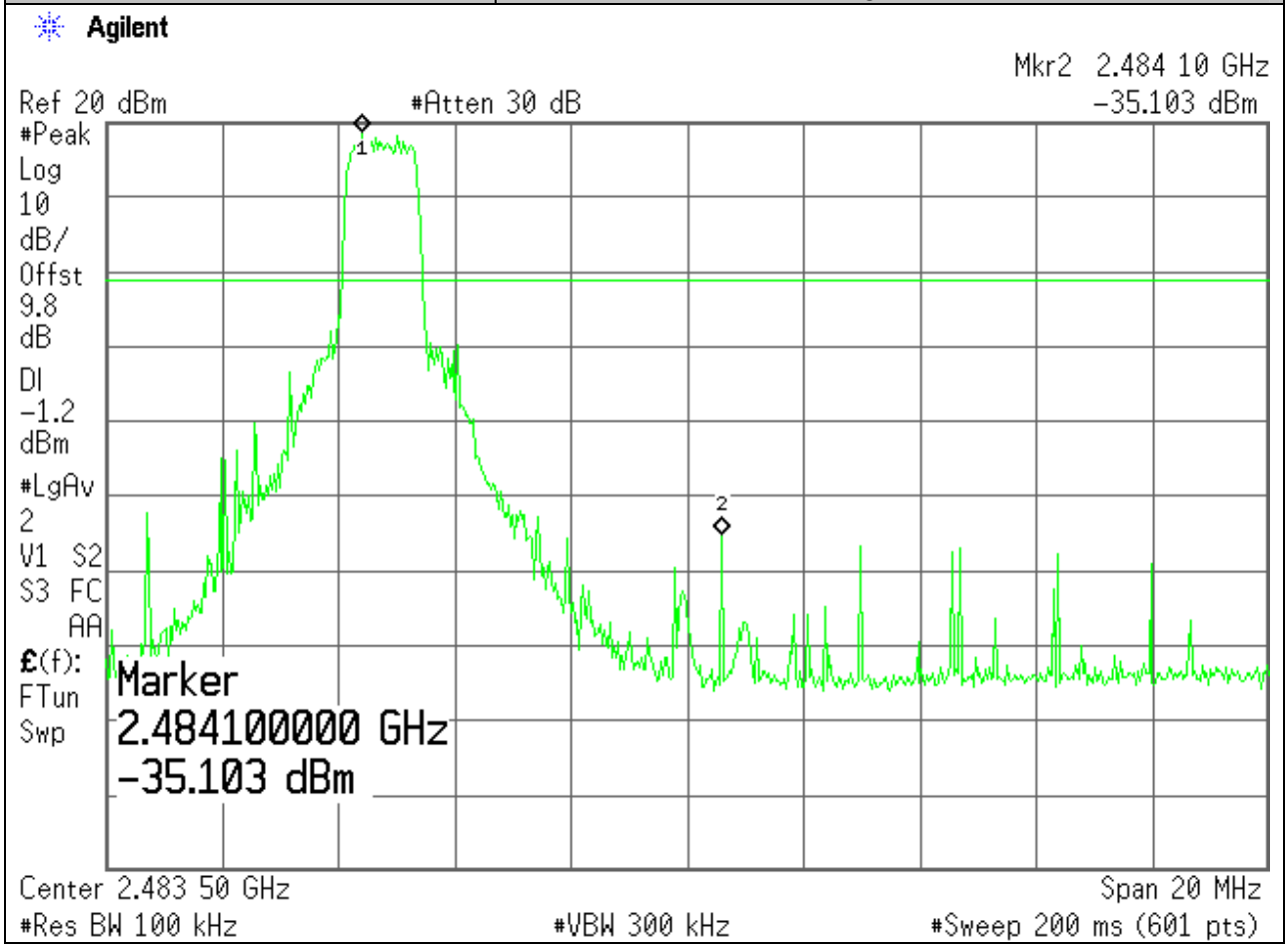
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



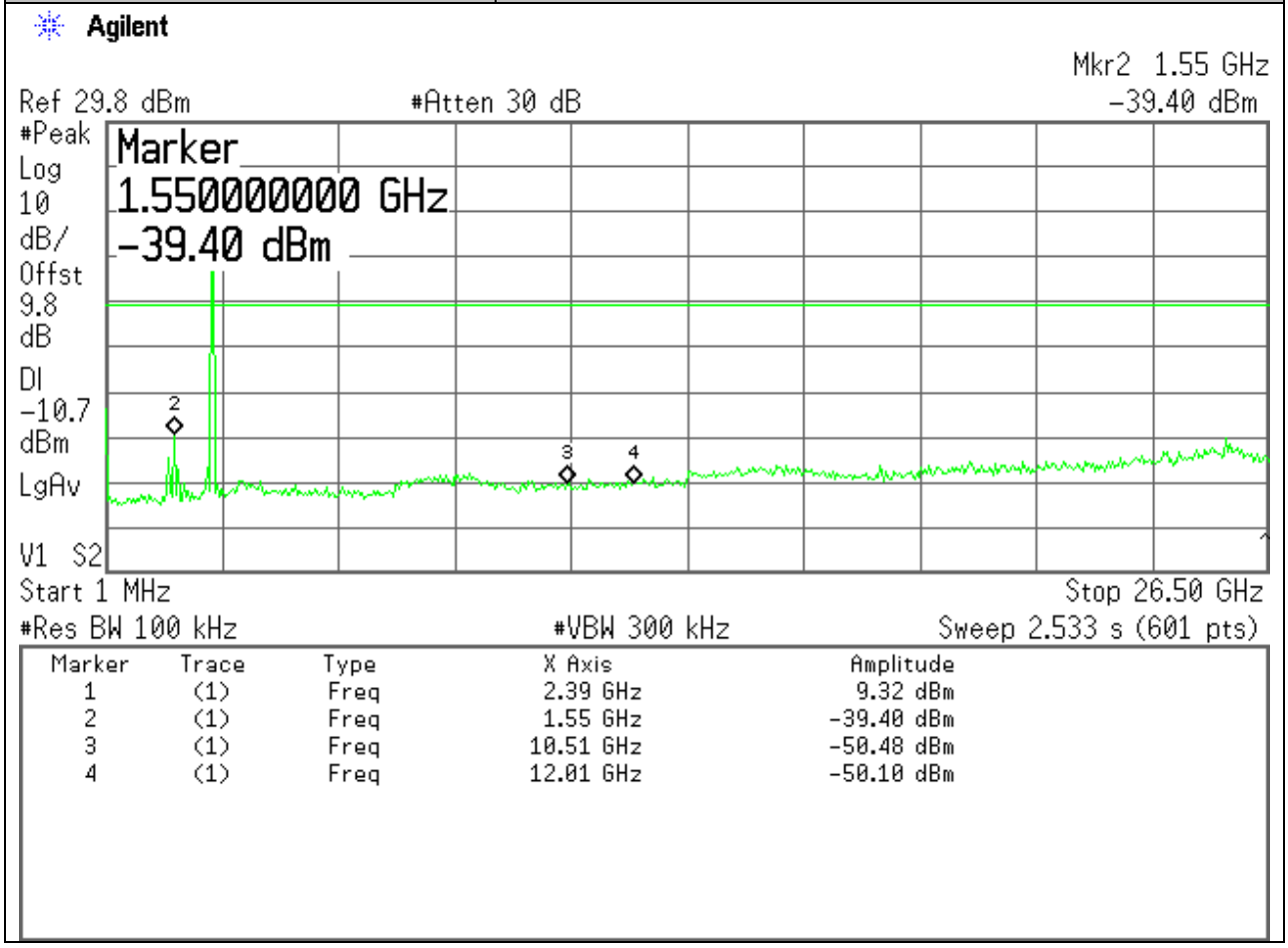
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



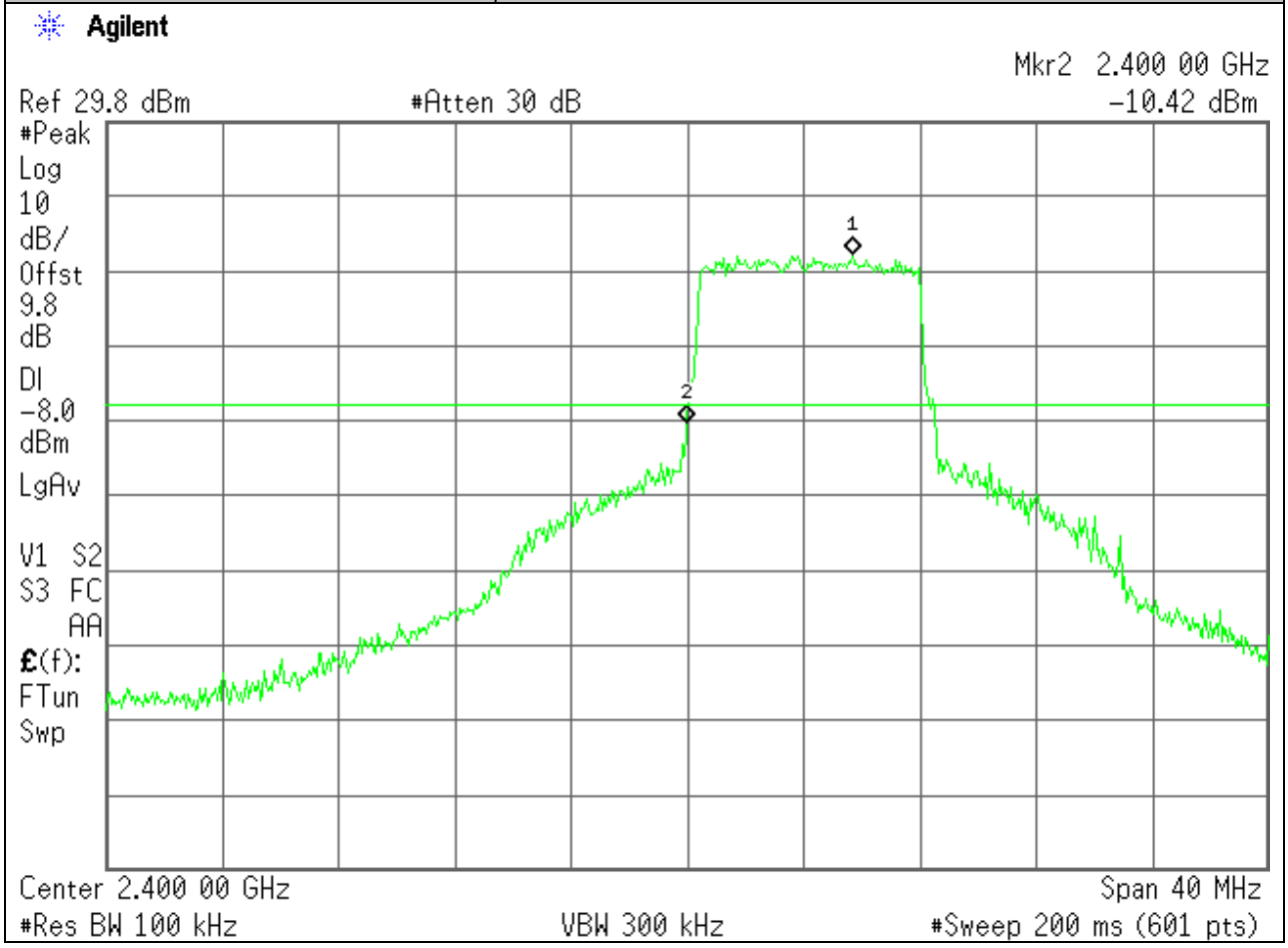
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



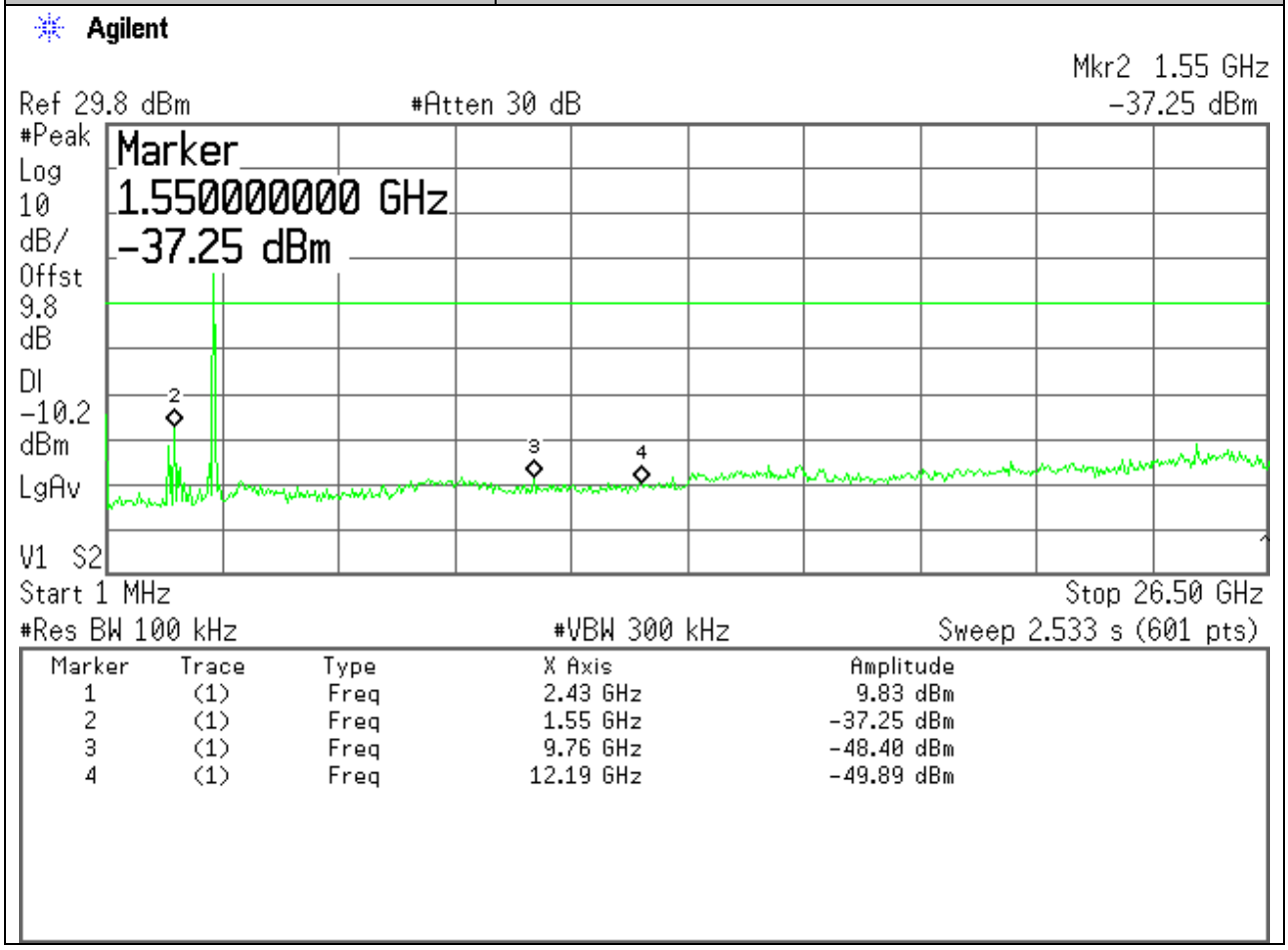
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



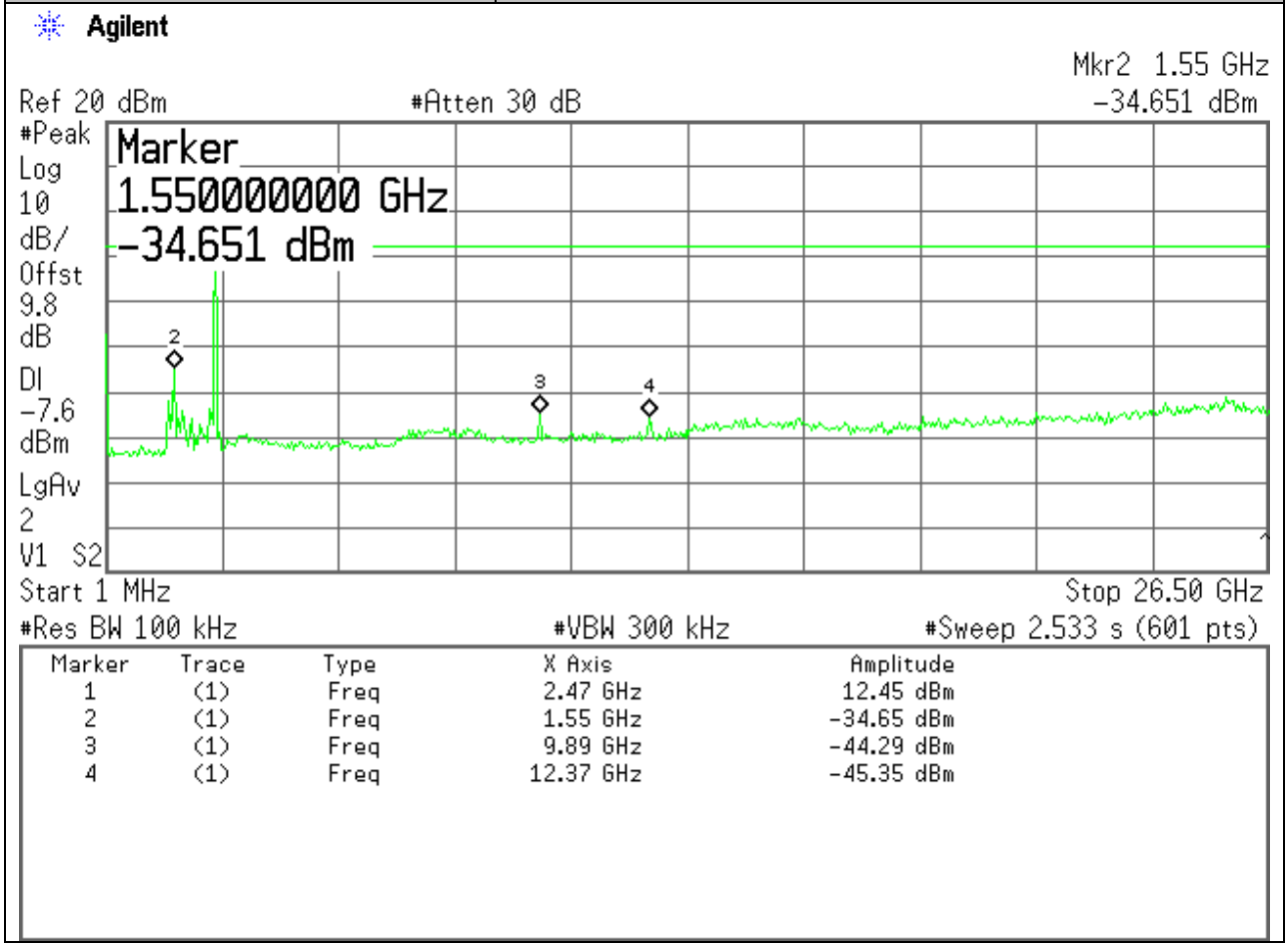
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



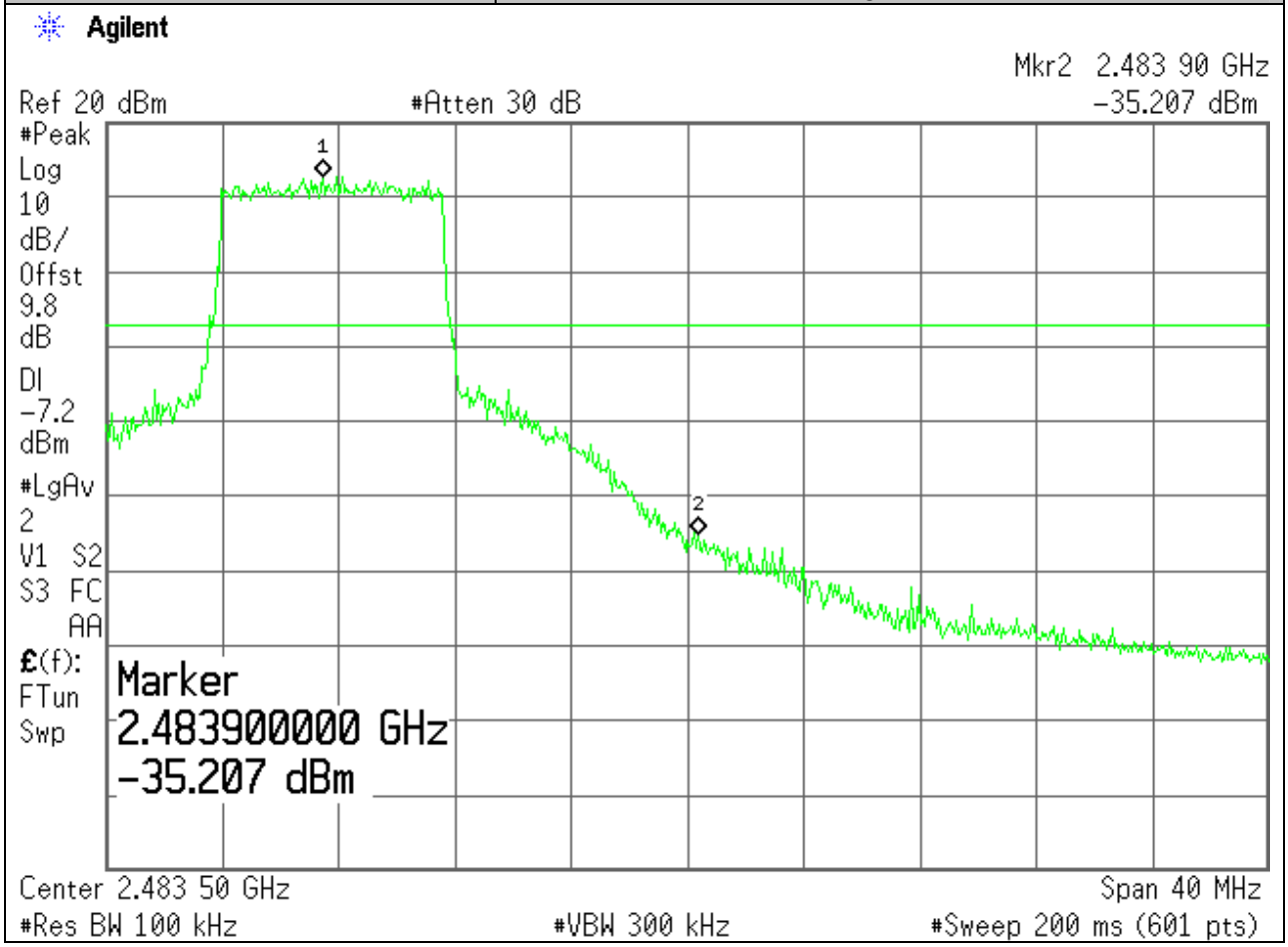
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



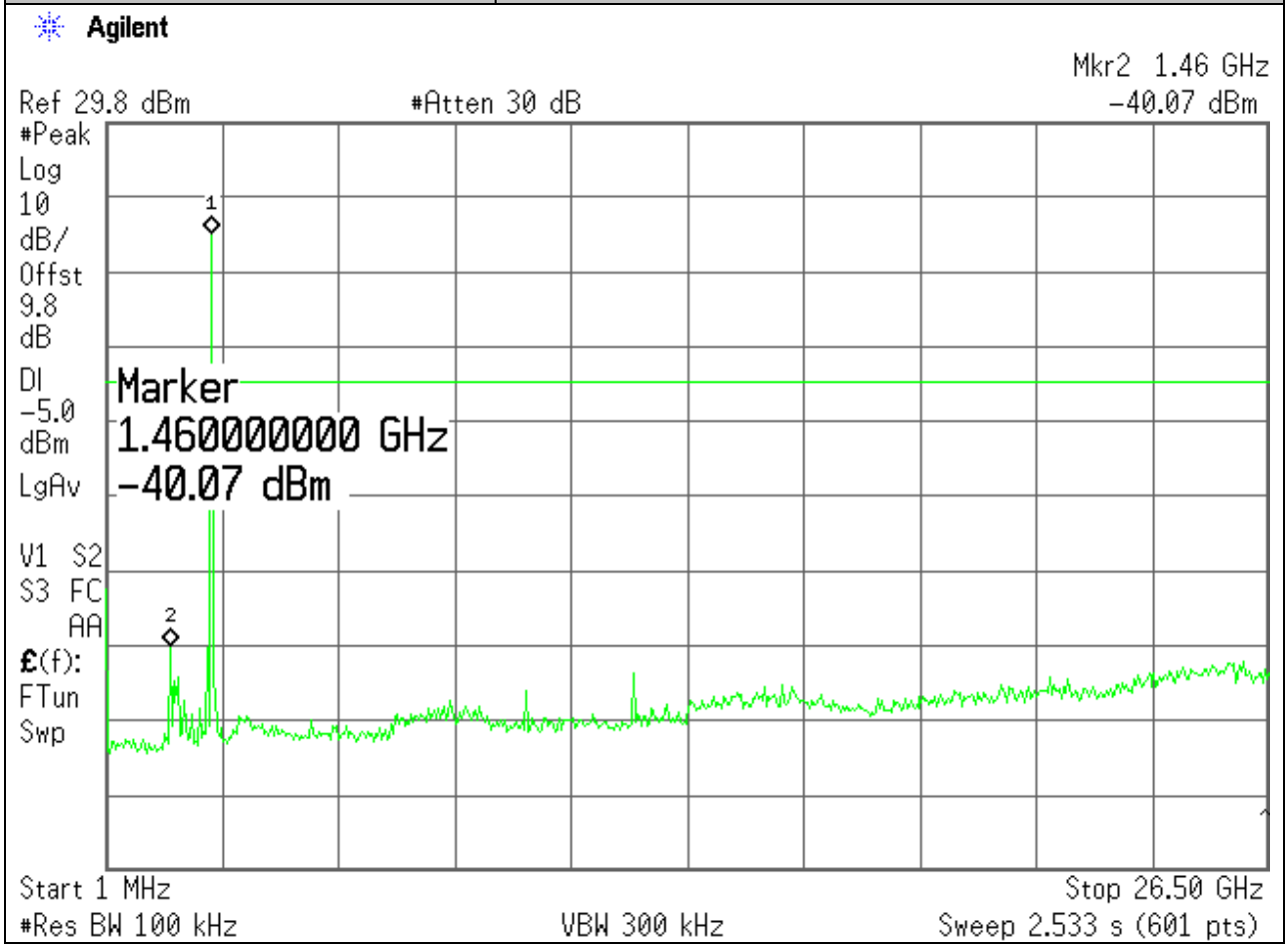
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



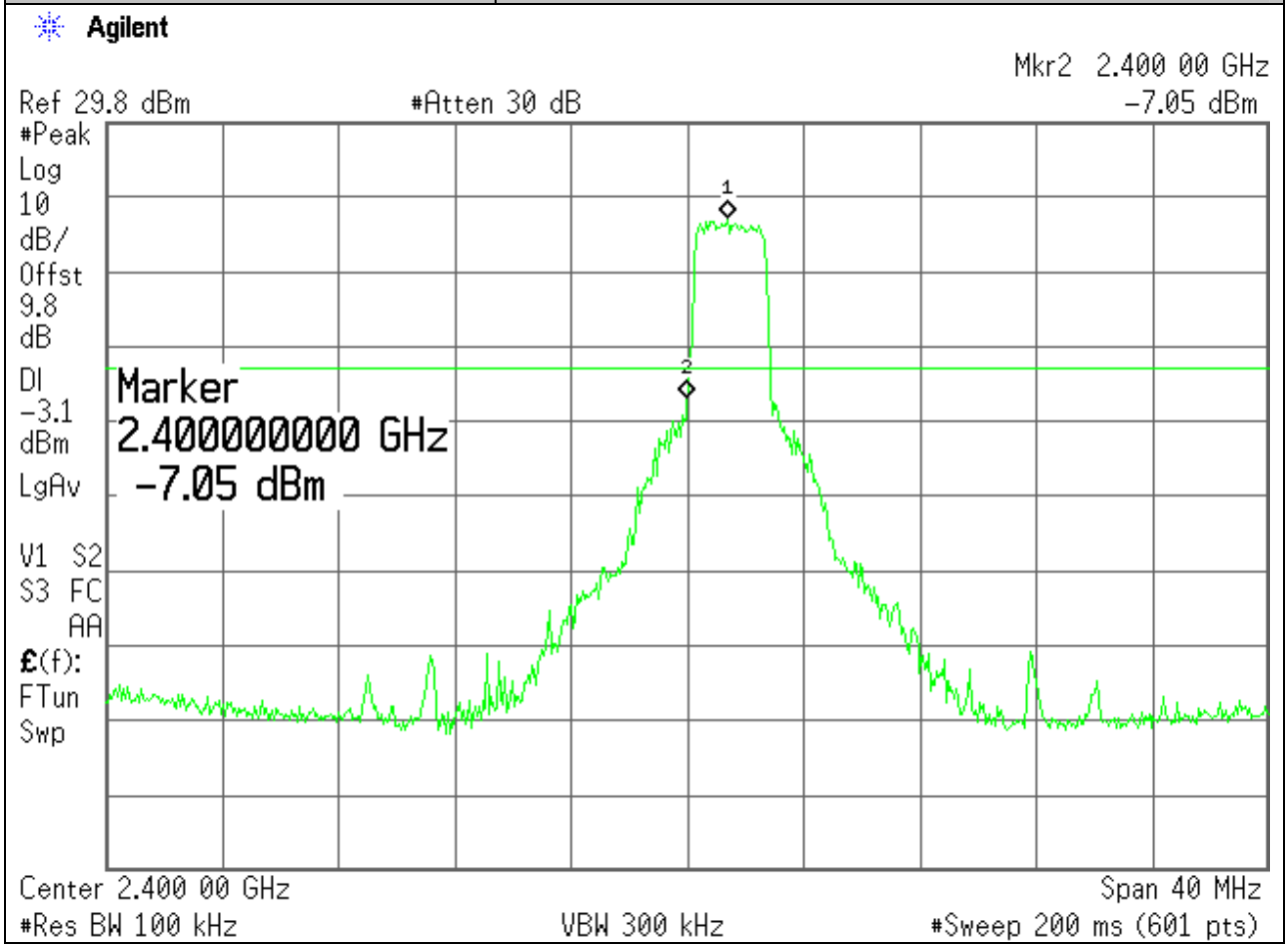
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



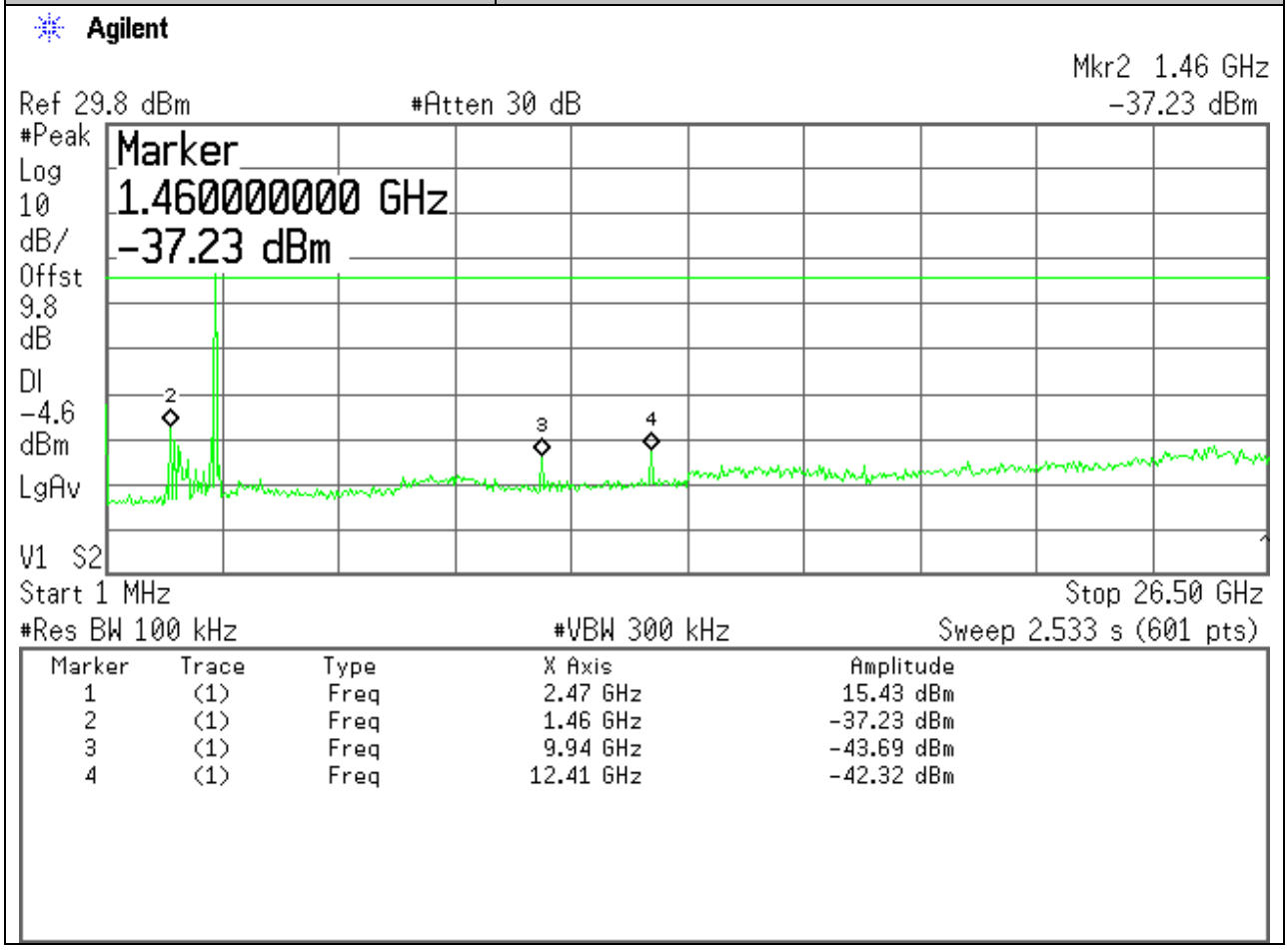
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



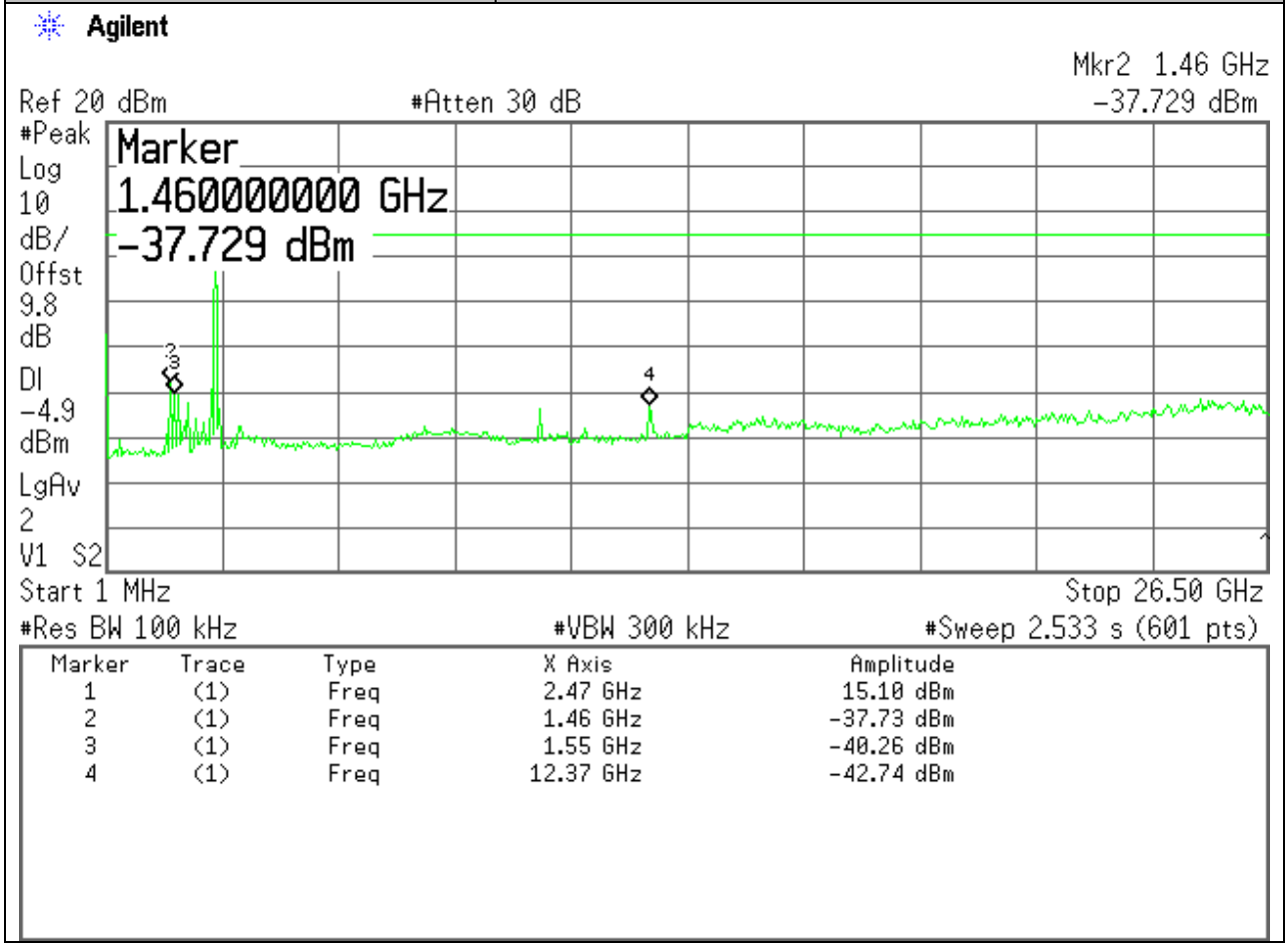
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



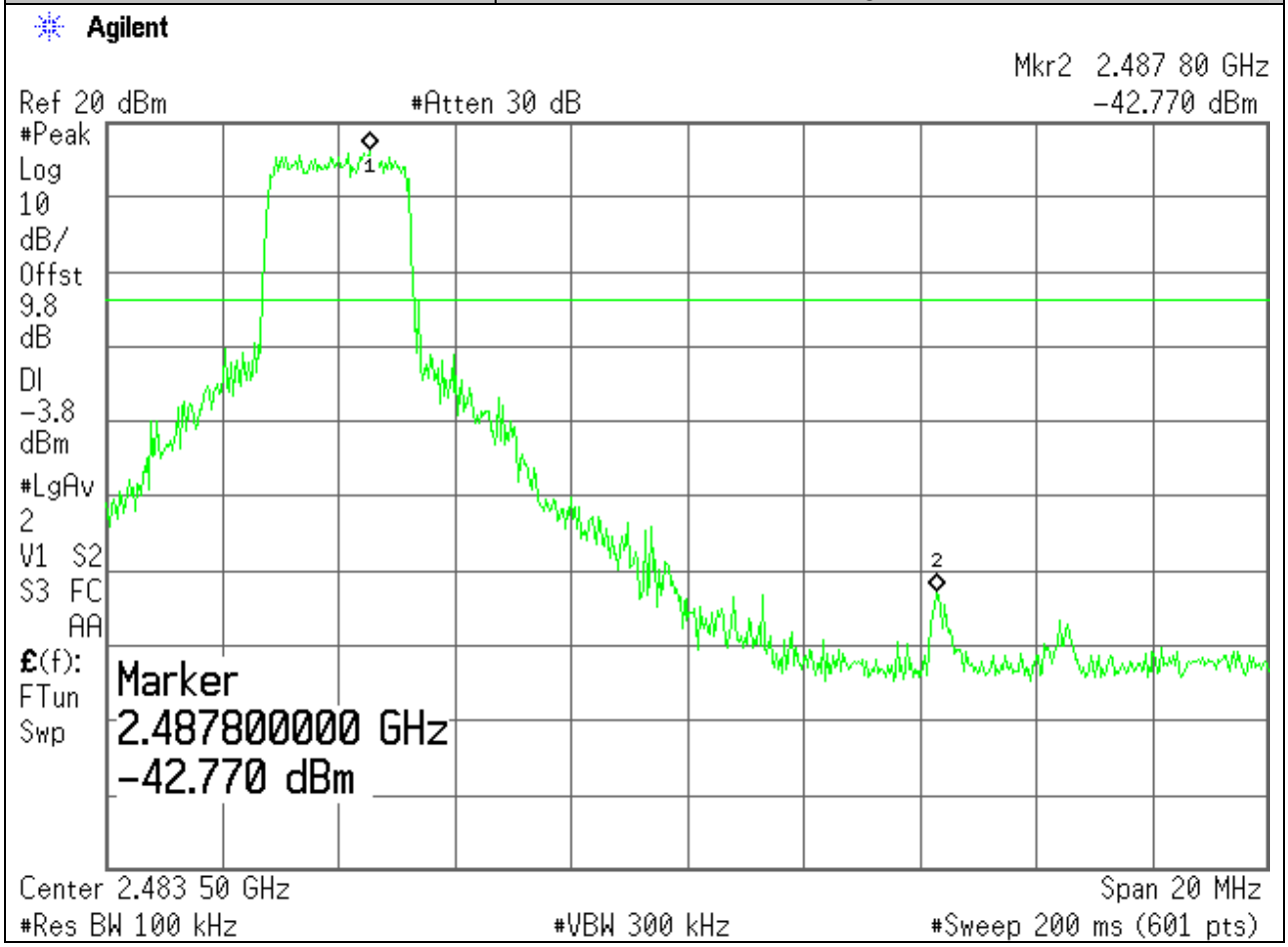
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



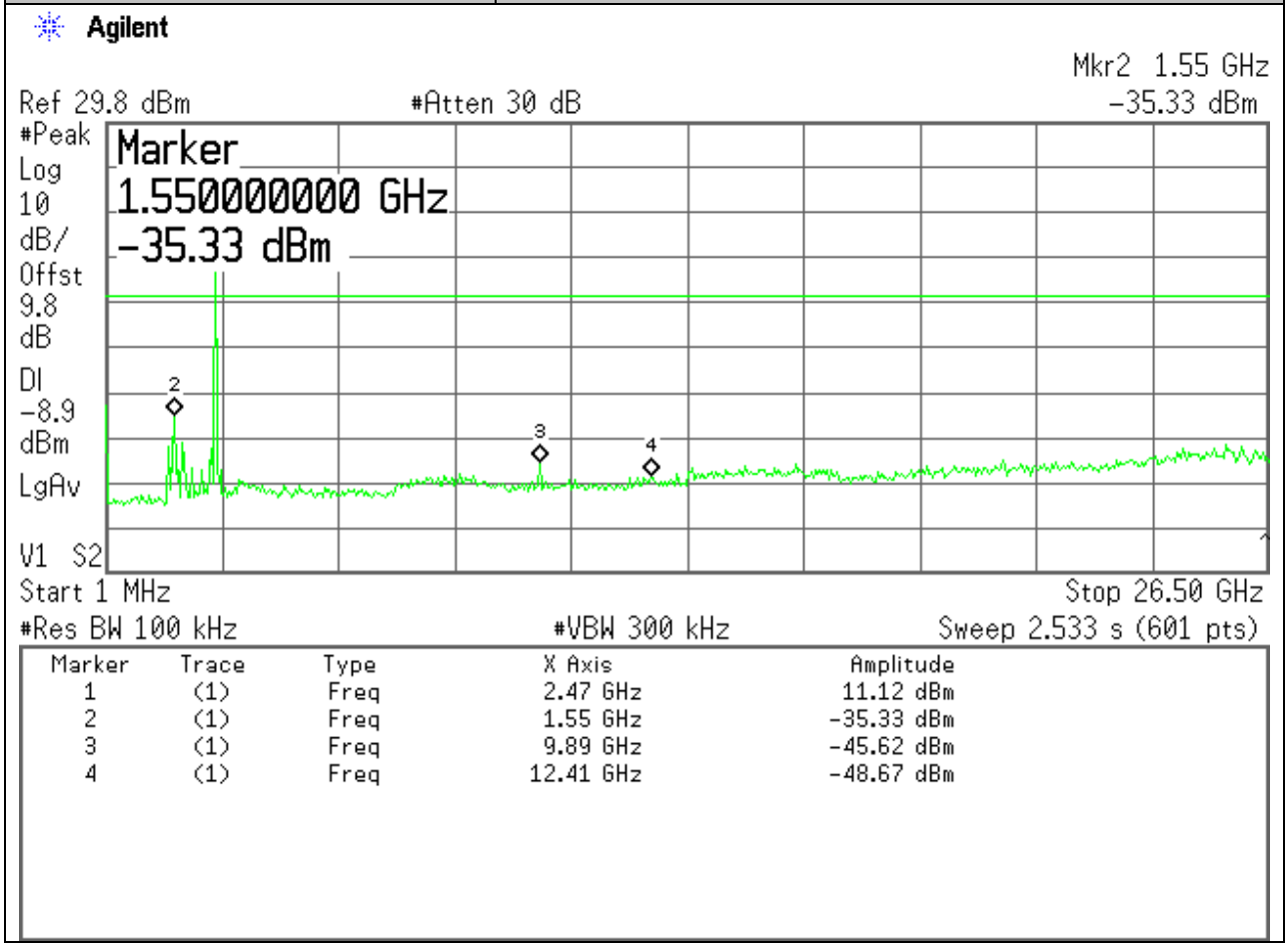
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



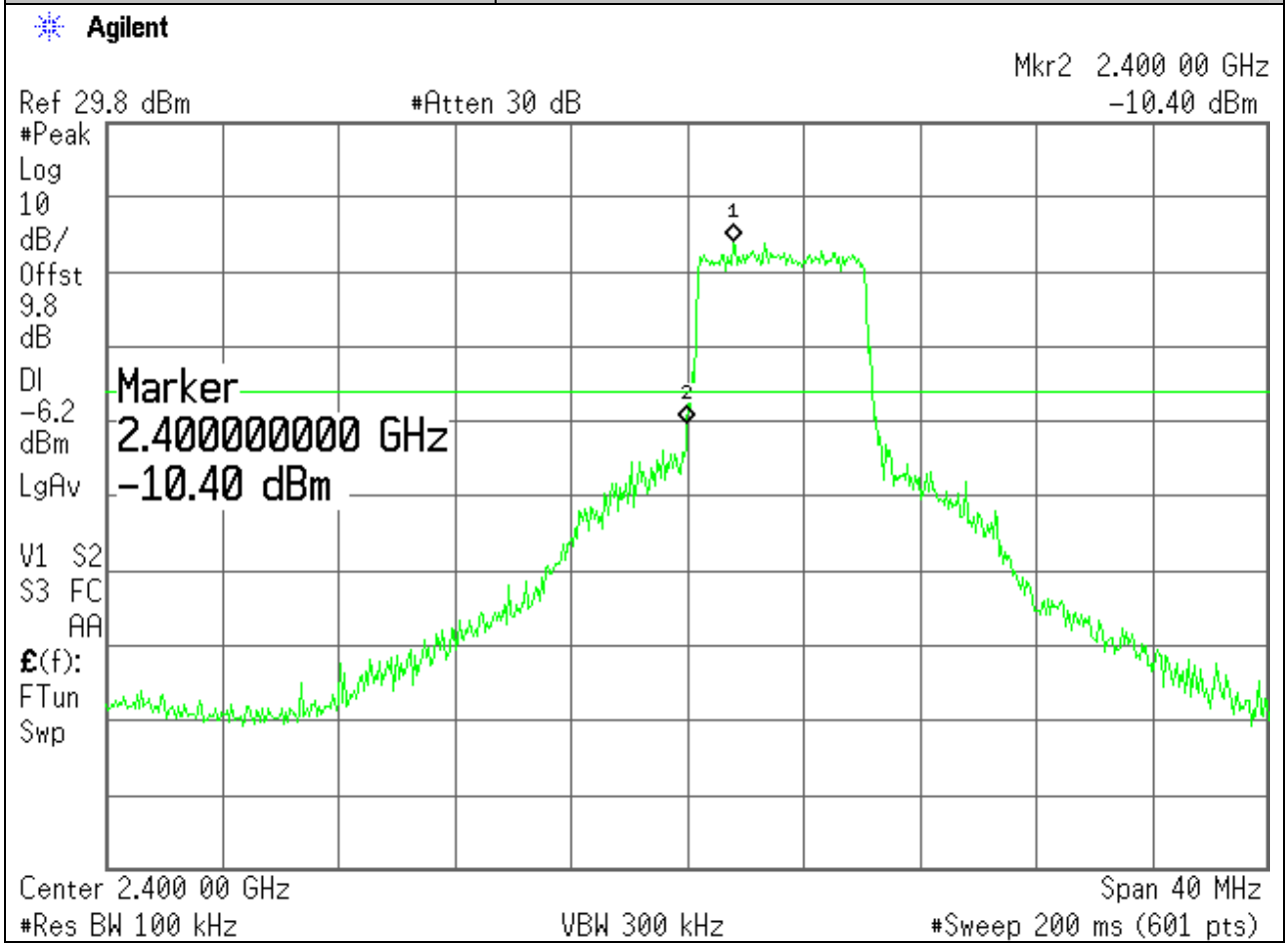
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



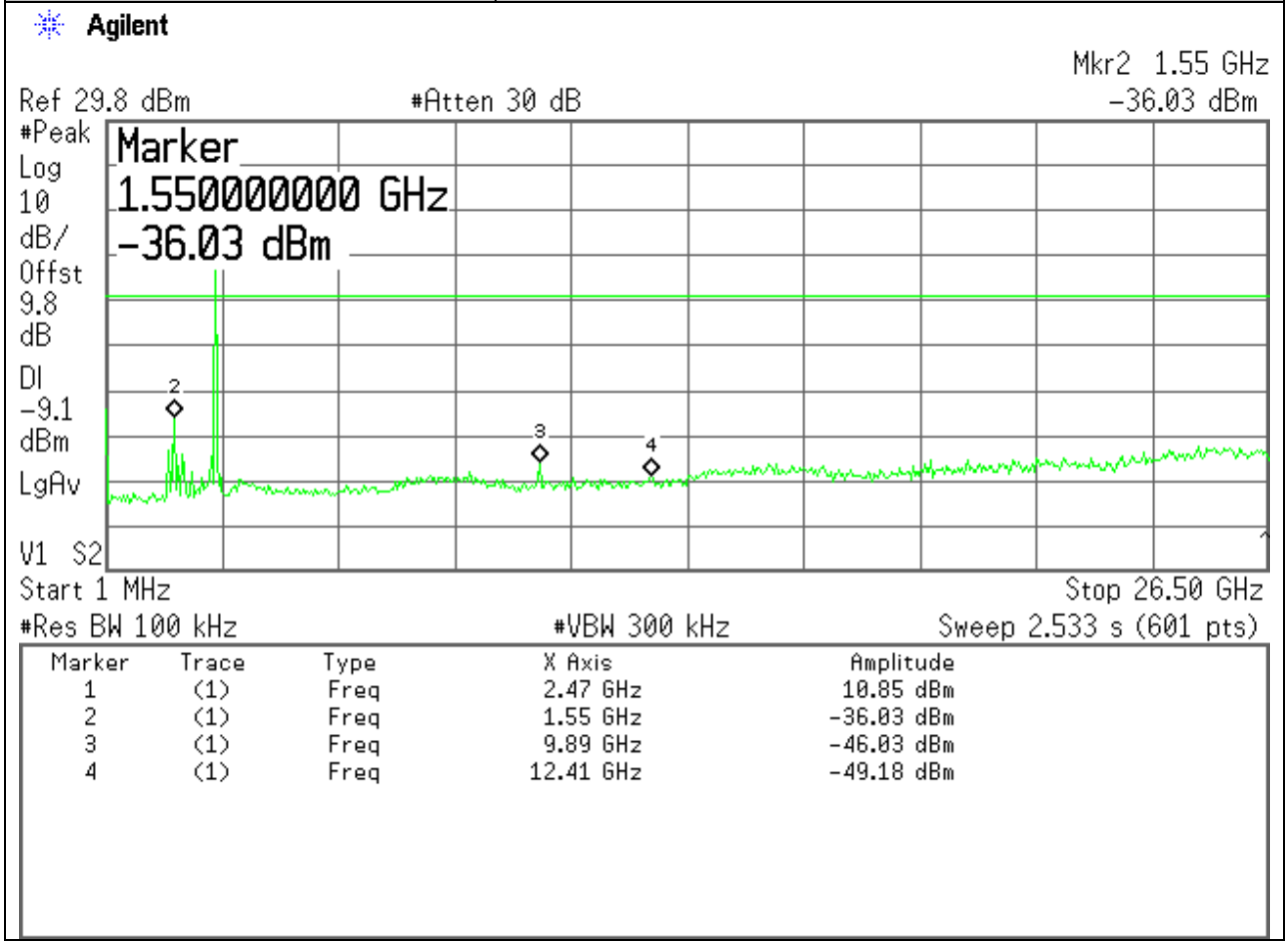
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



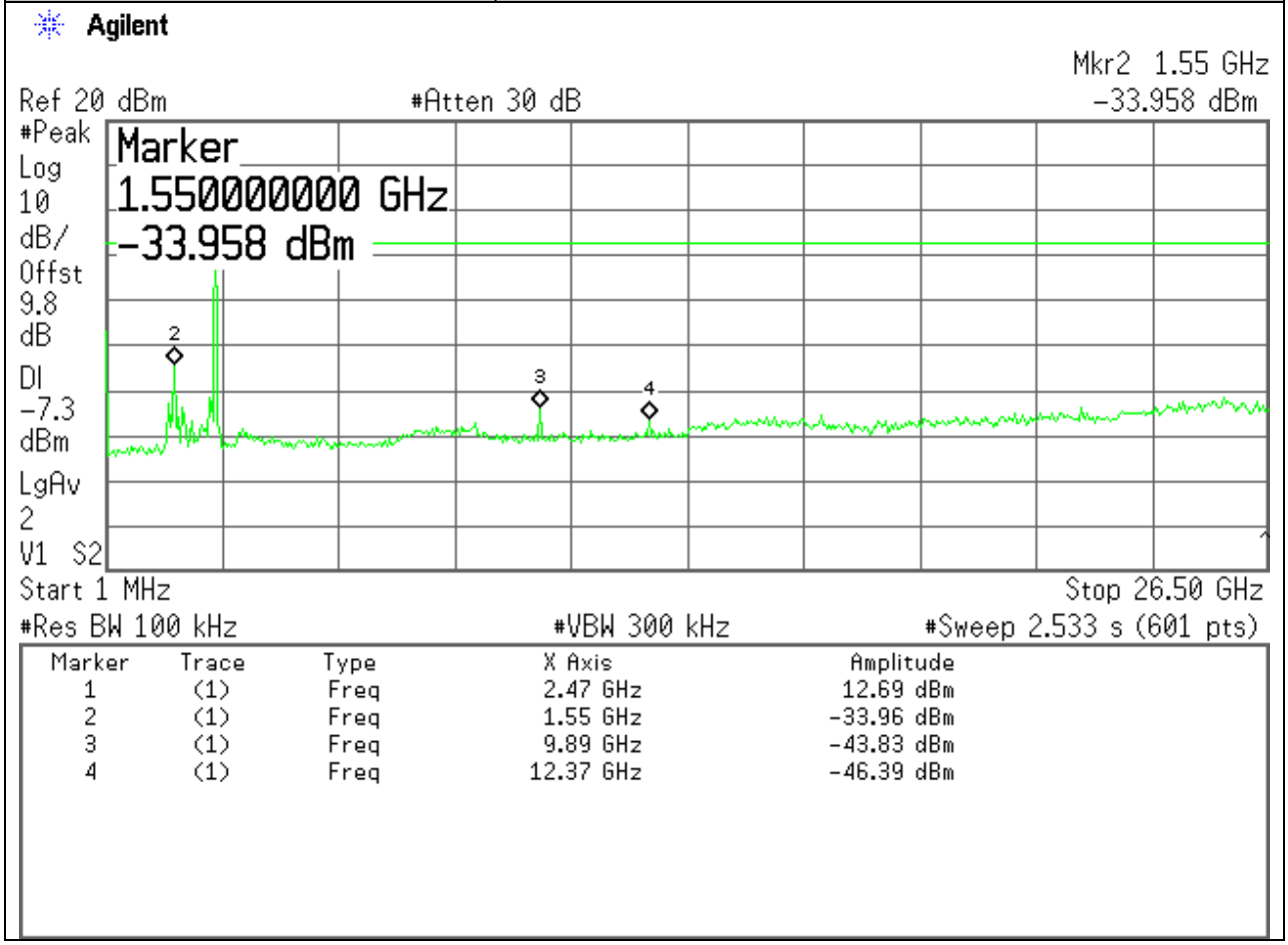
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



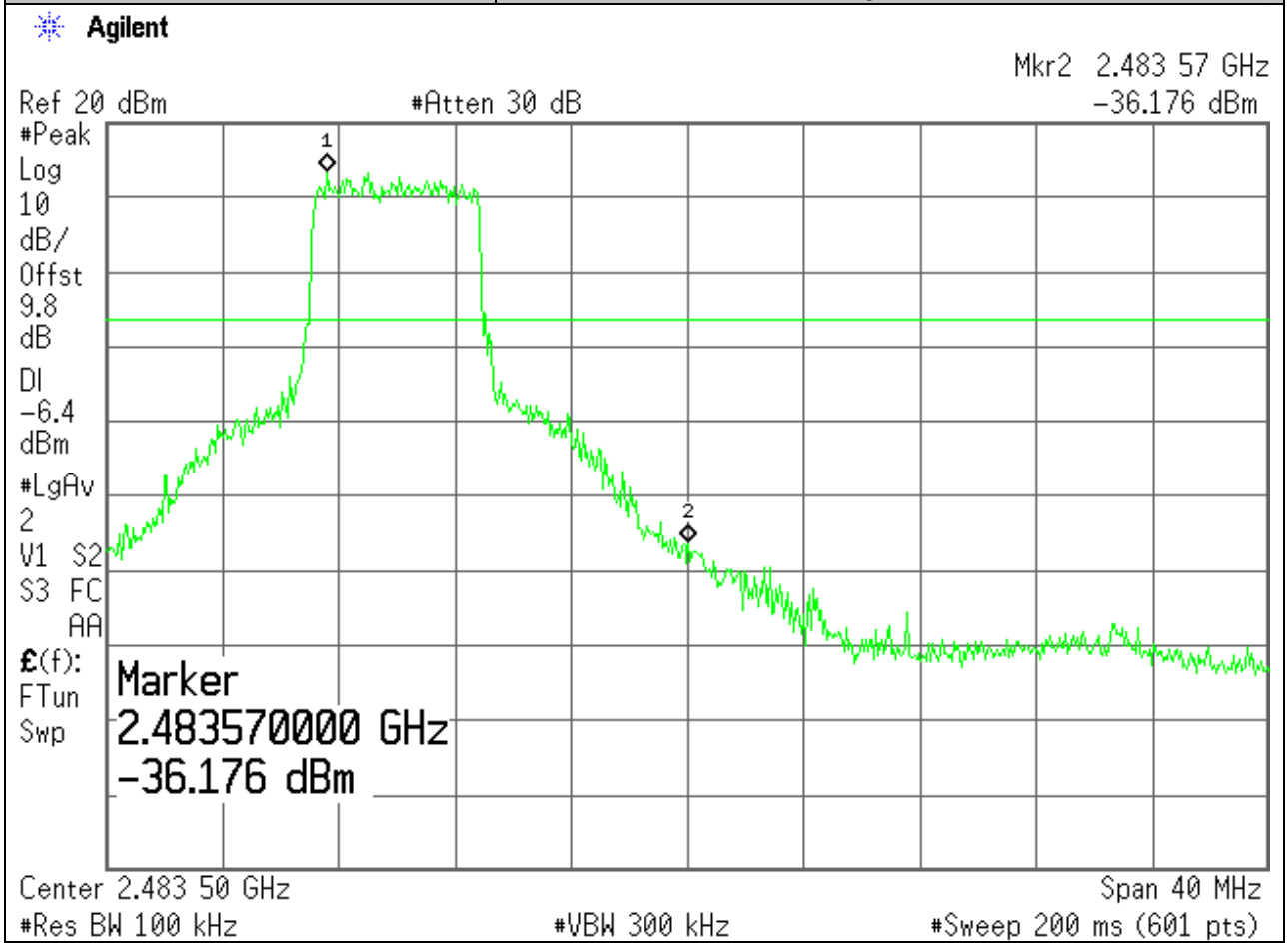
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



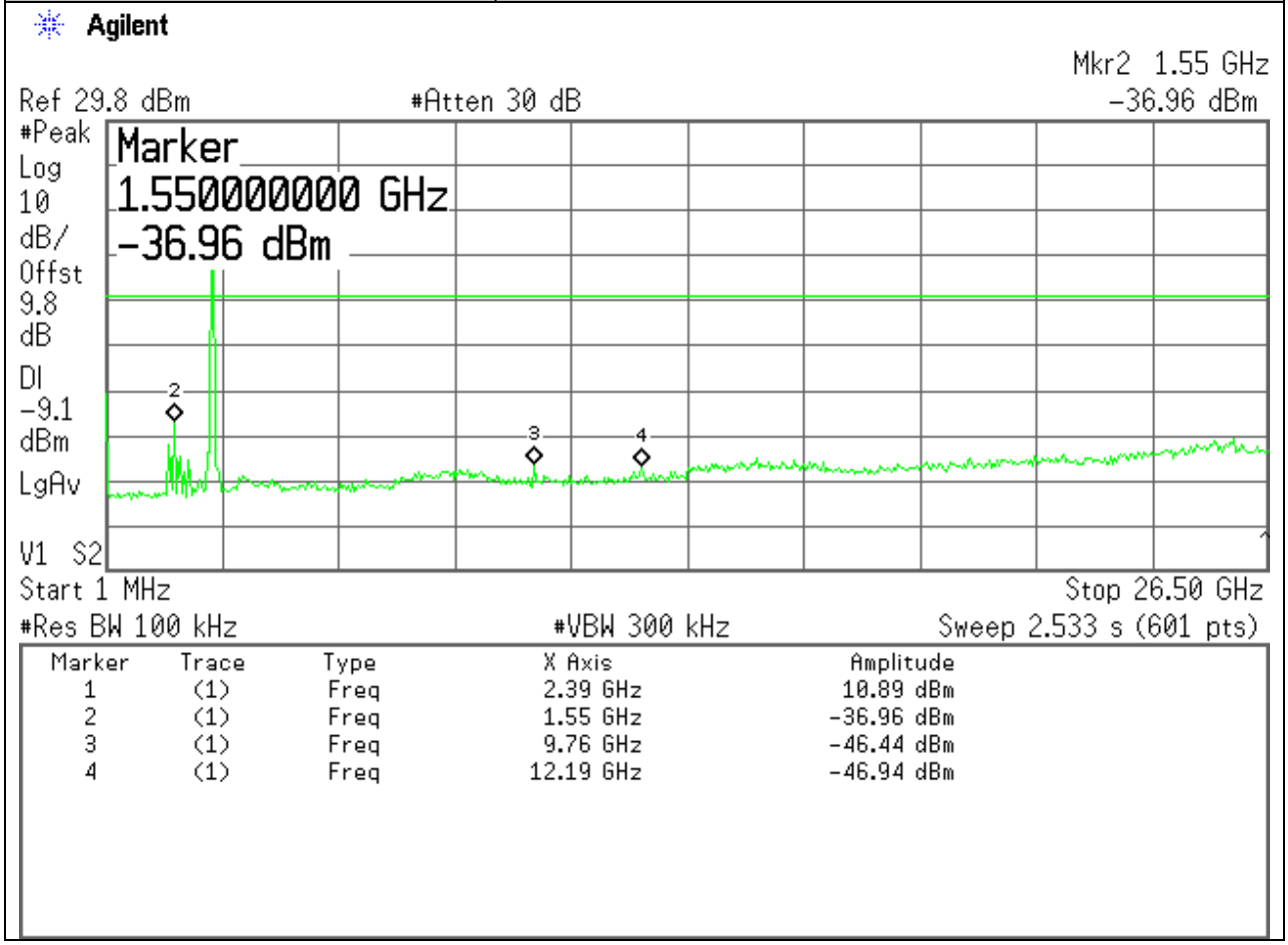
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



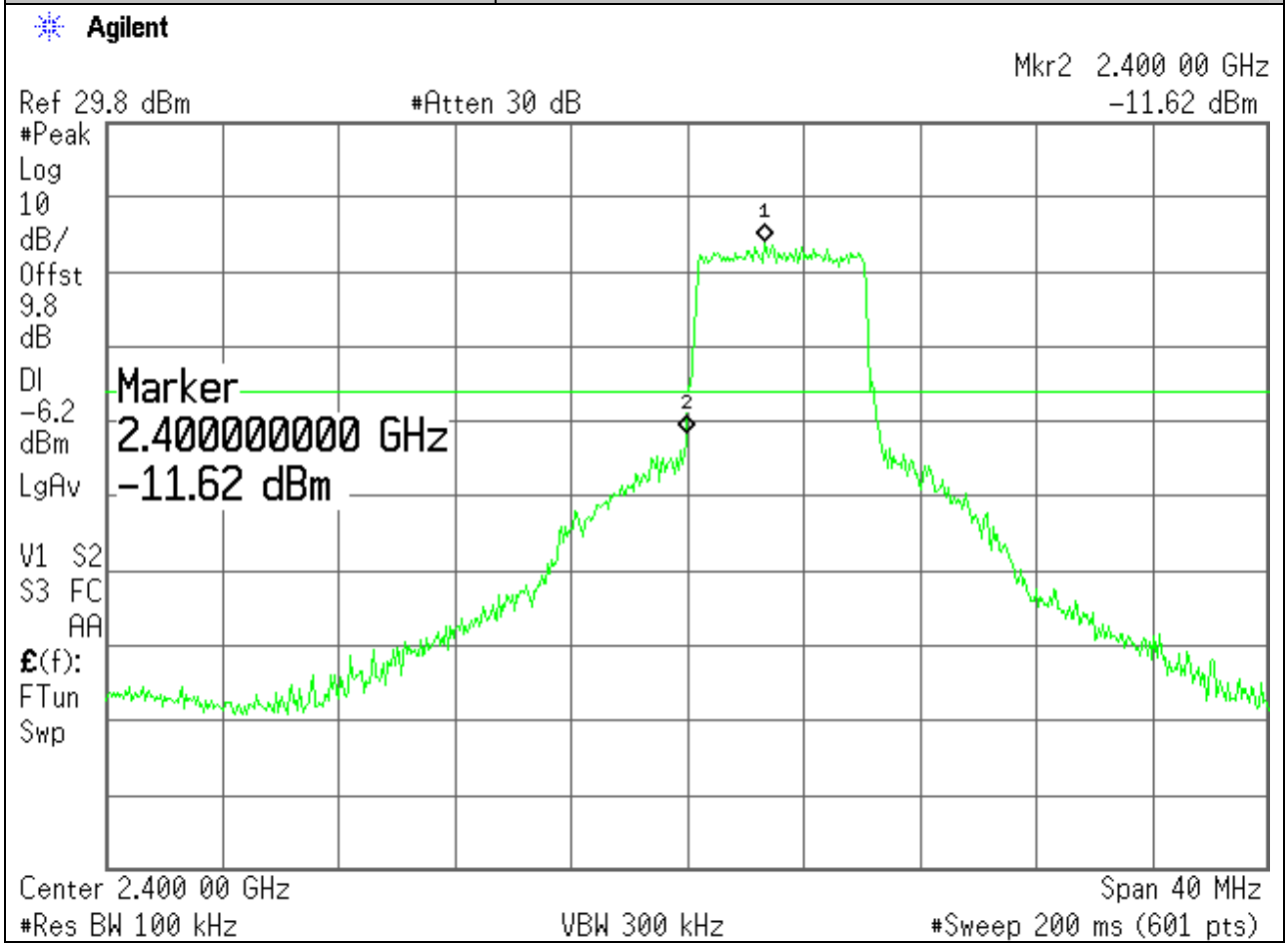
6MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



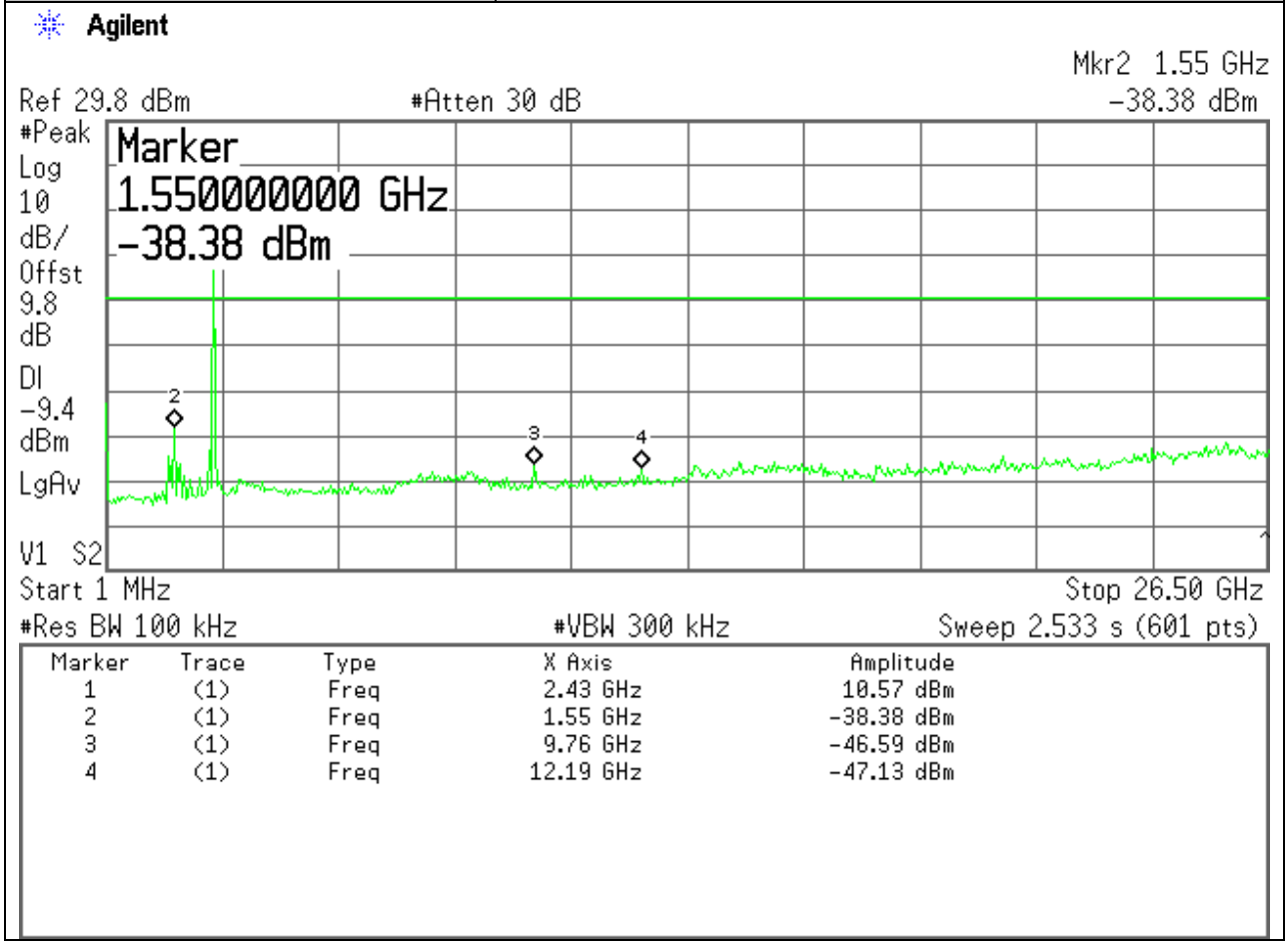
6MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



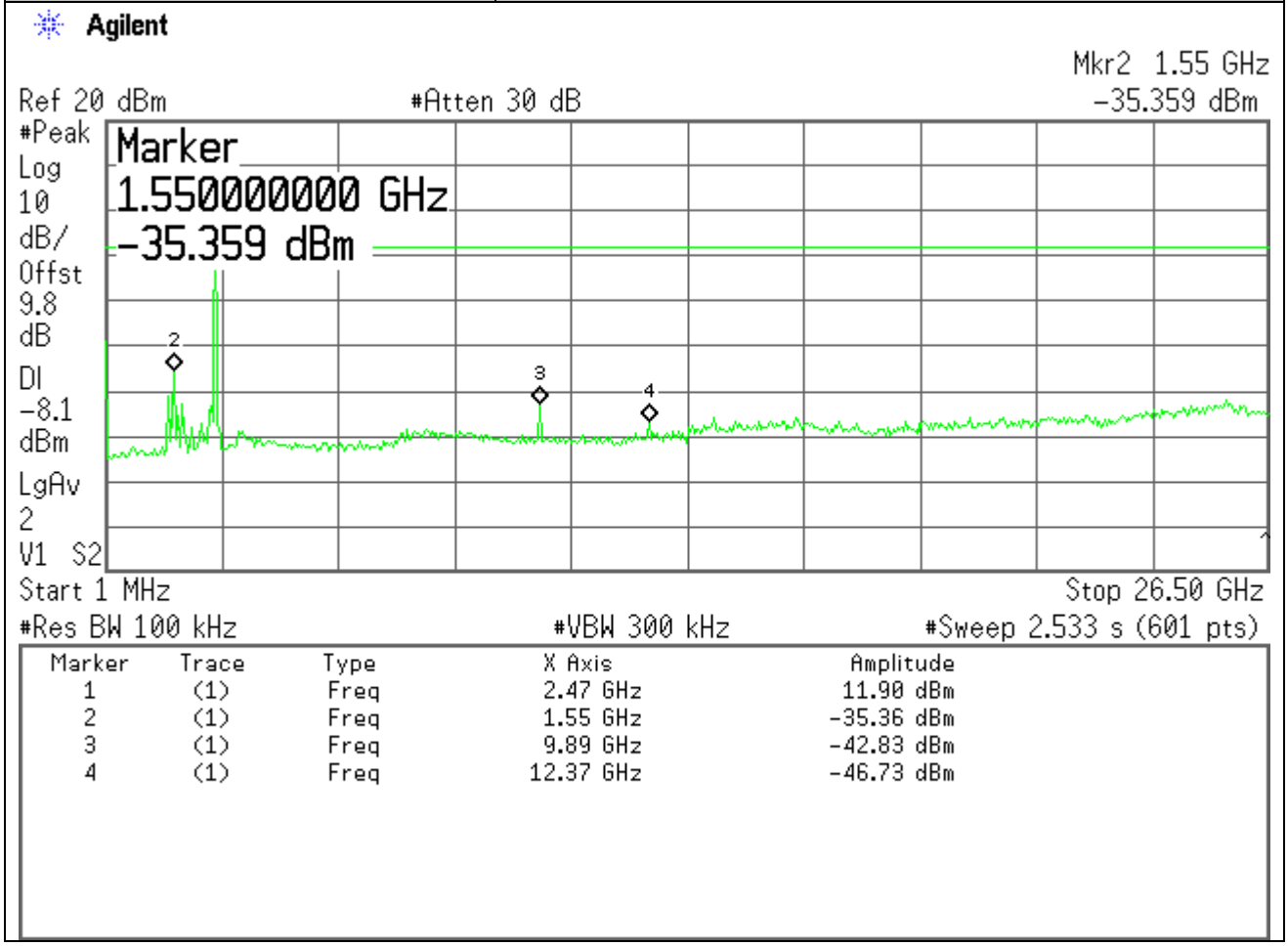
6MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



6MHz BW, 16QAM Mode:

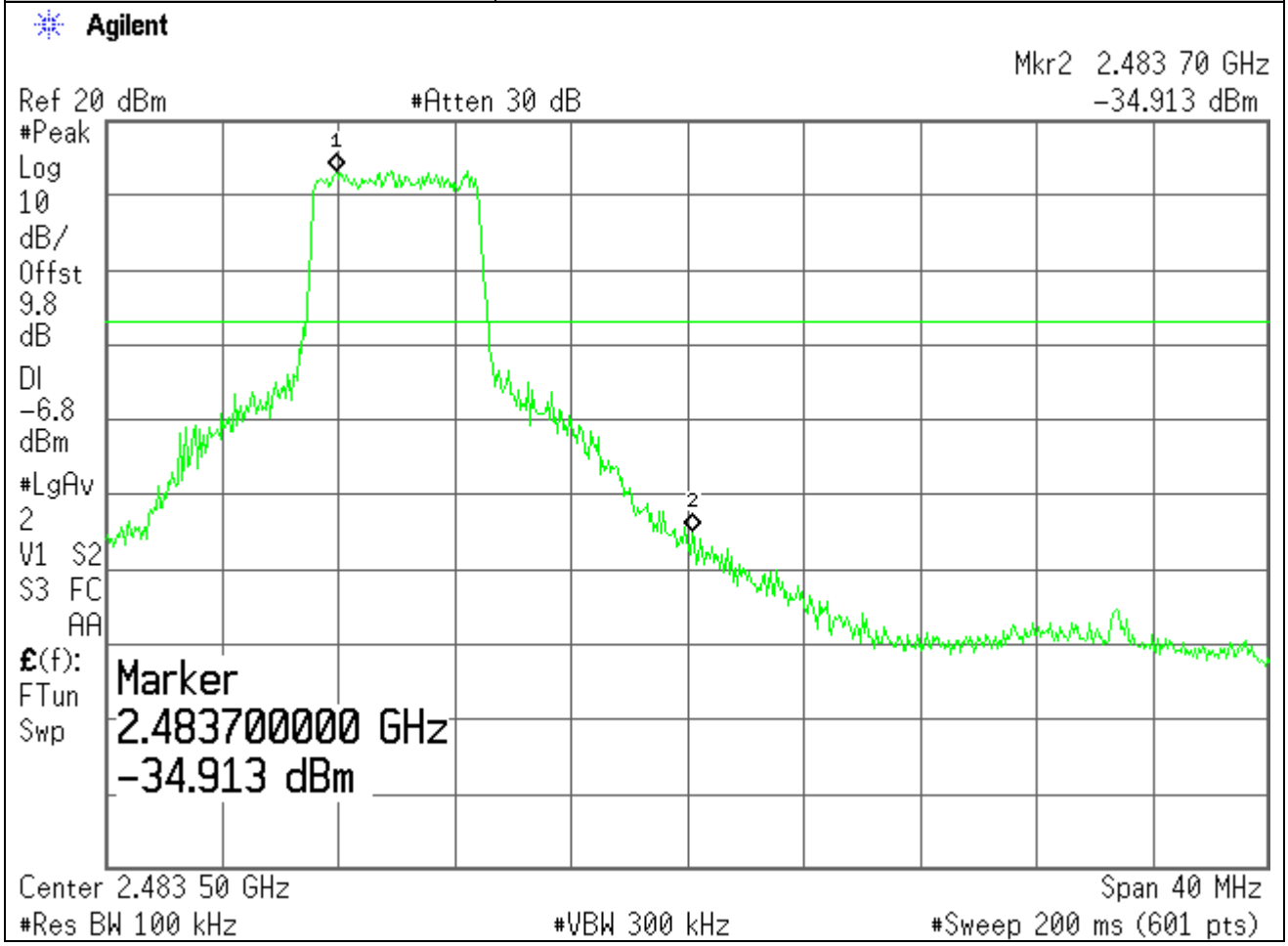
Plot Name:	Conducted Spurious Emissions @ High CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.47 GHz	11.90 dBm
2	(1)	Freq	1.55 GHz	-35.36 dBm
3	(1)	Freq	9.89 GHz	-42.83 dBm
4	(1)	Freq	12.37 GHz	-46.73 dBm

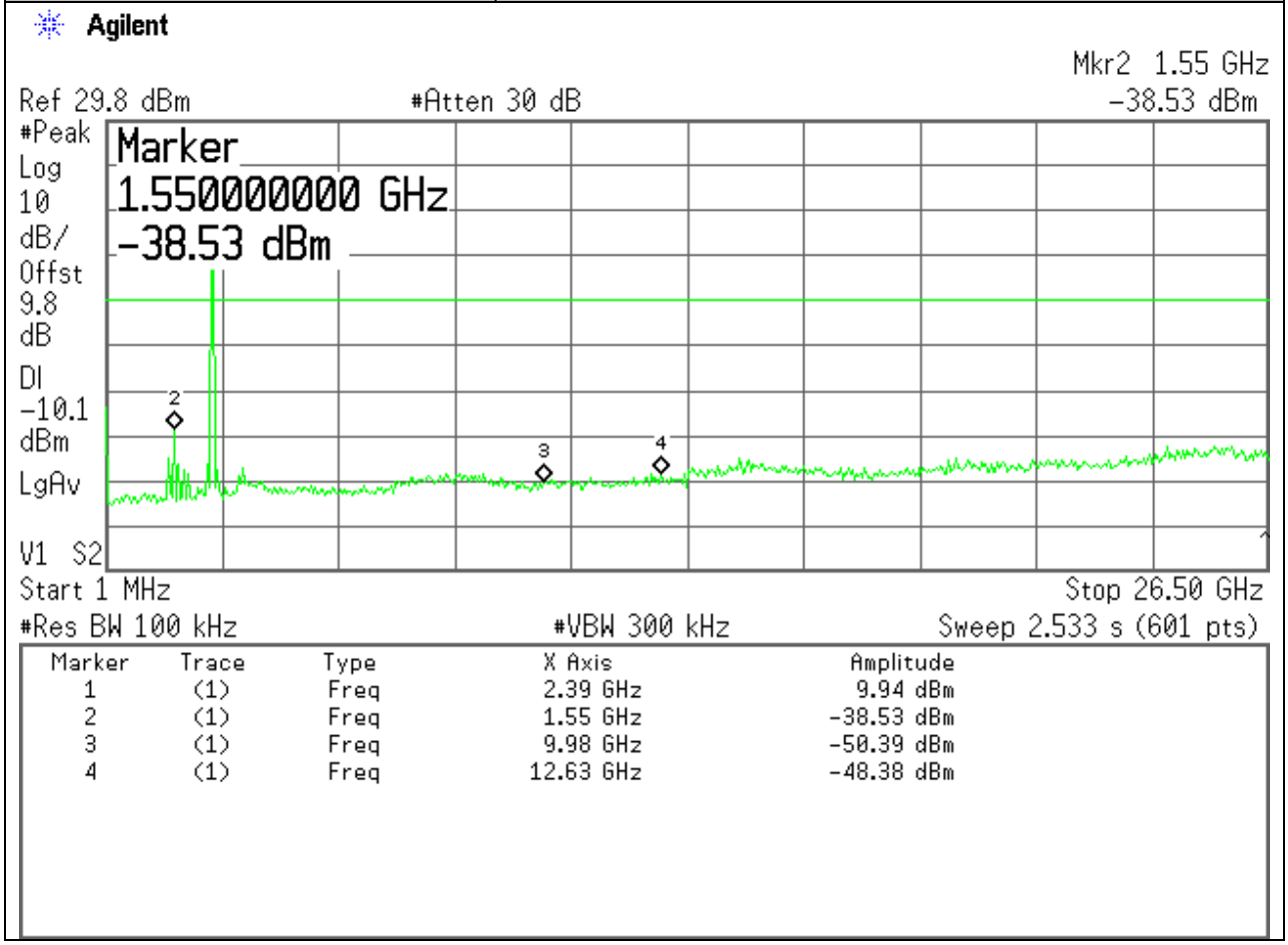
6MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



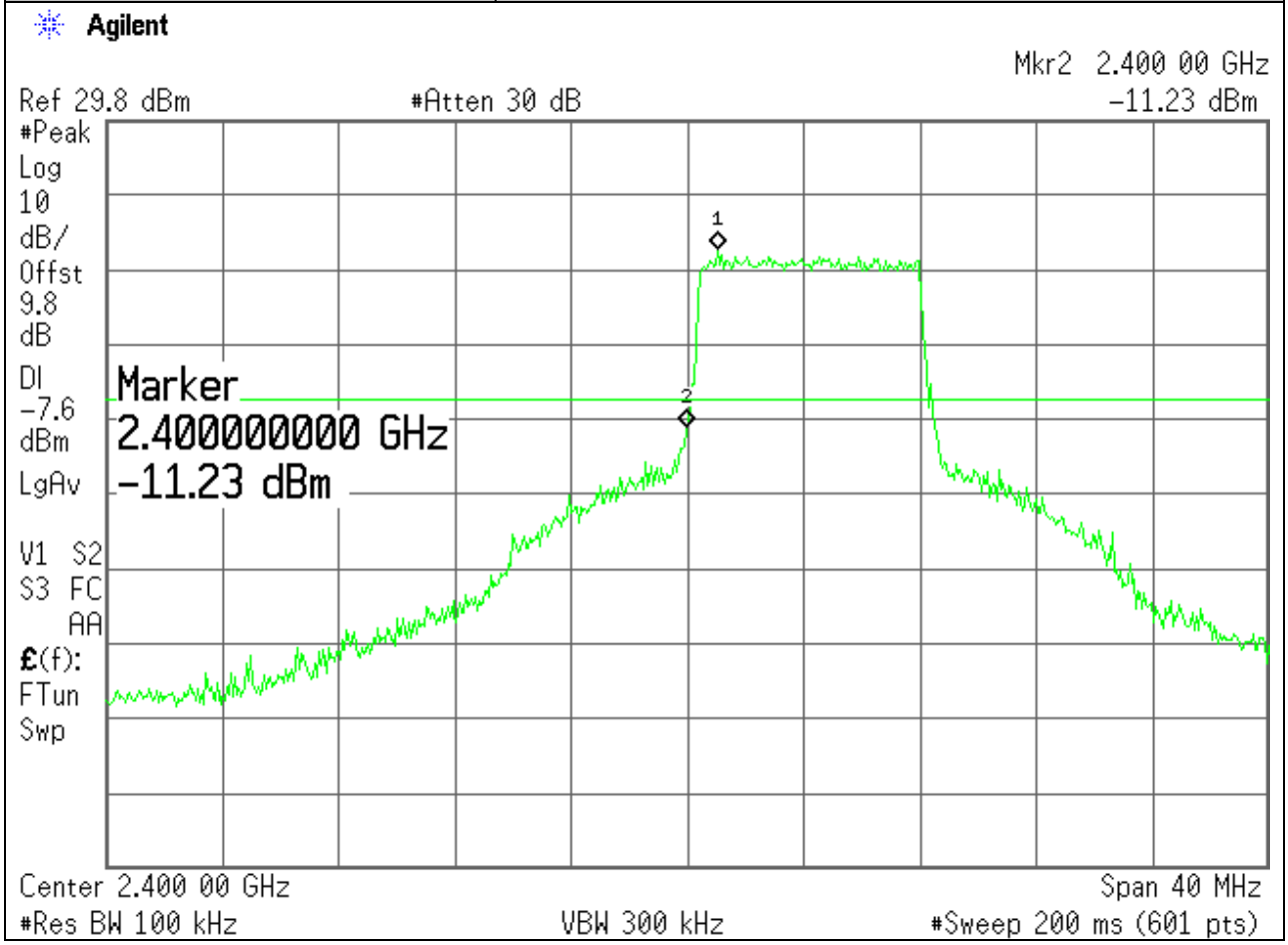
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



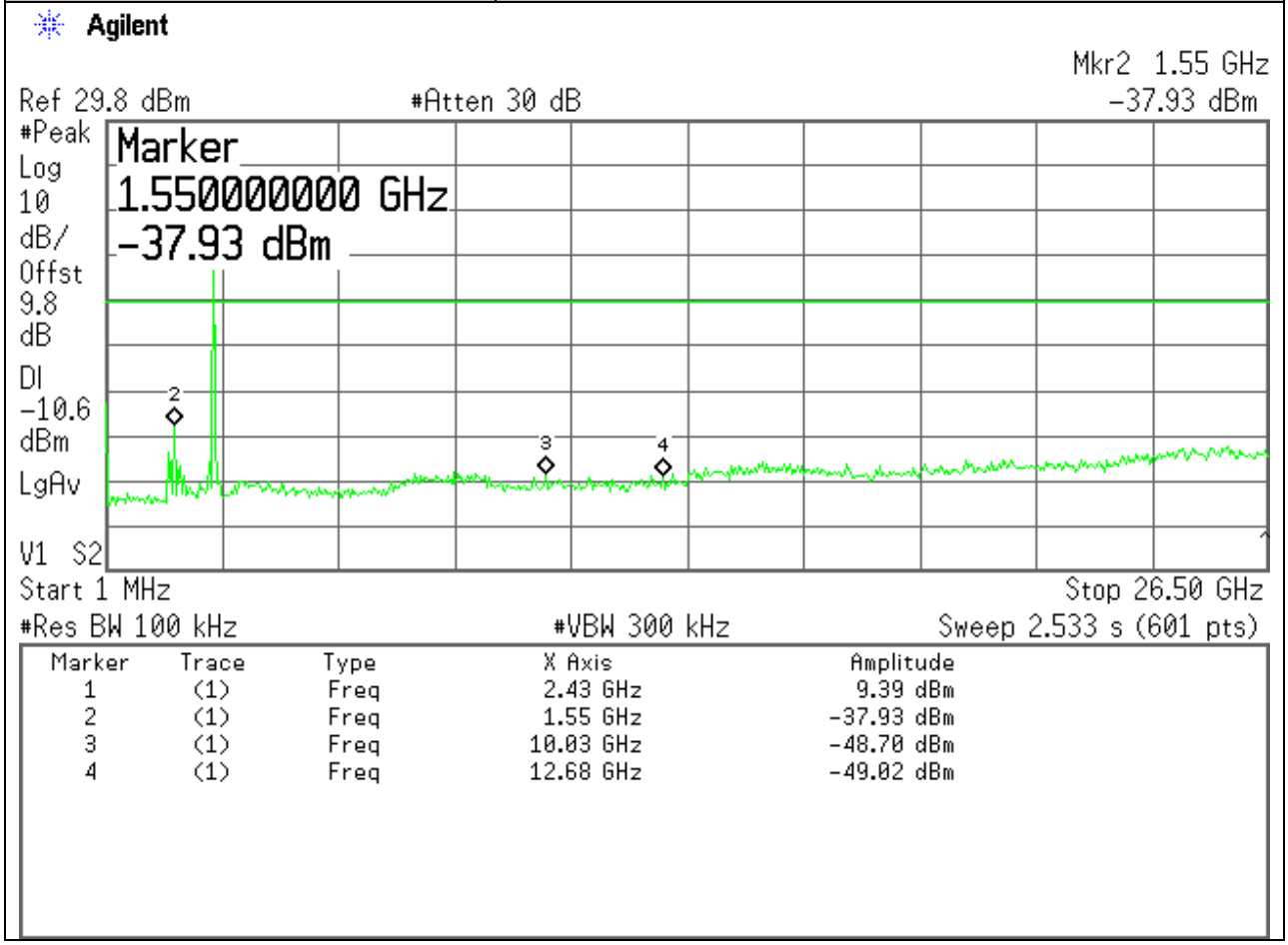
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



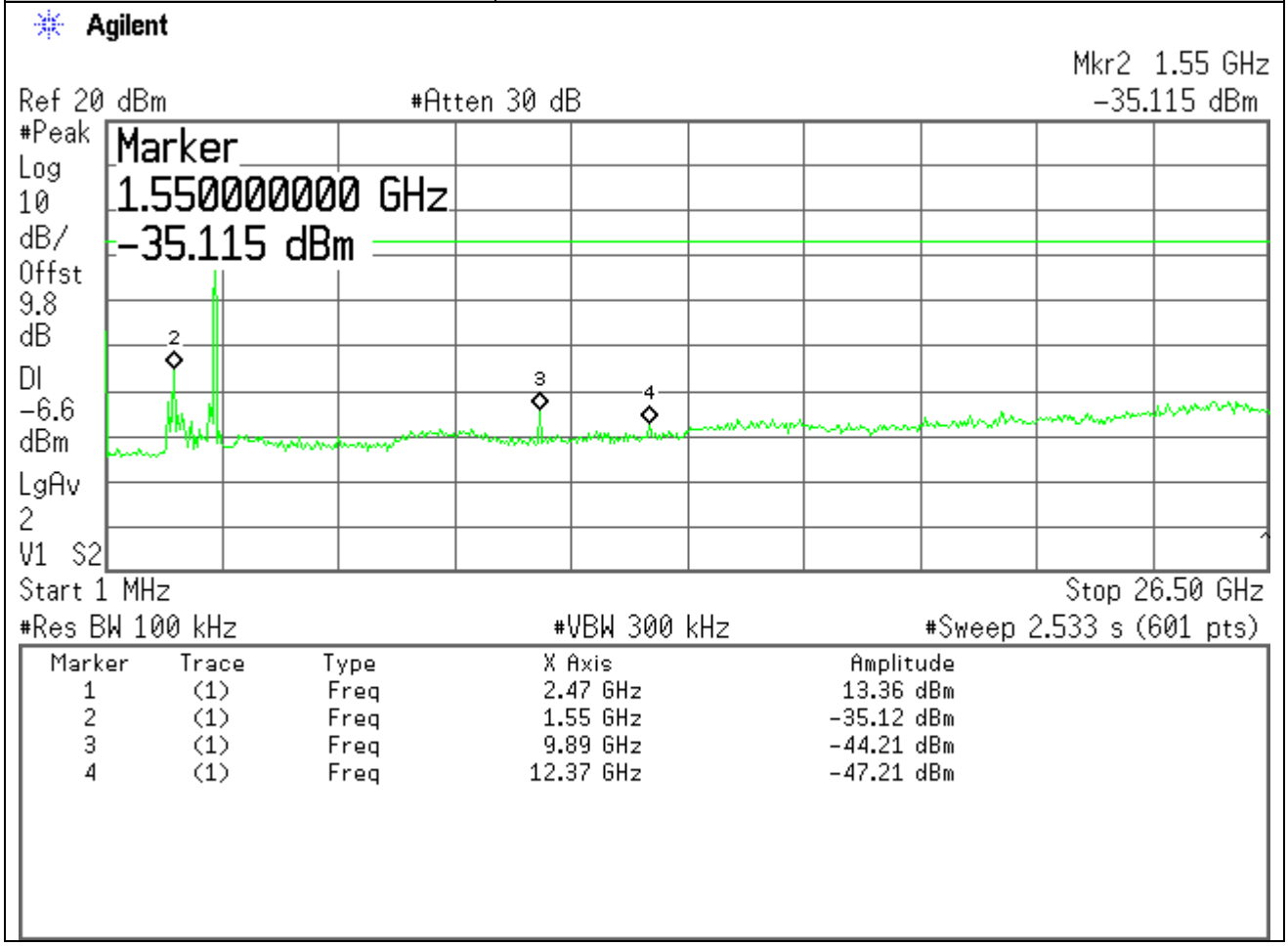
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



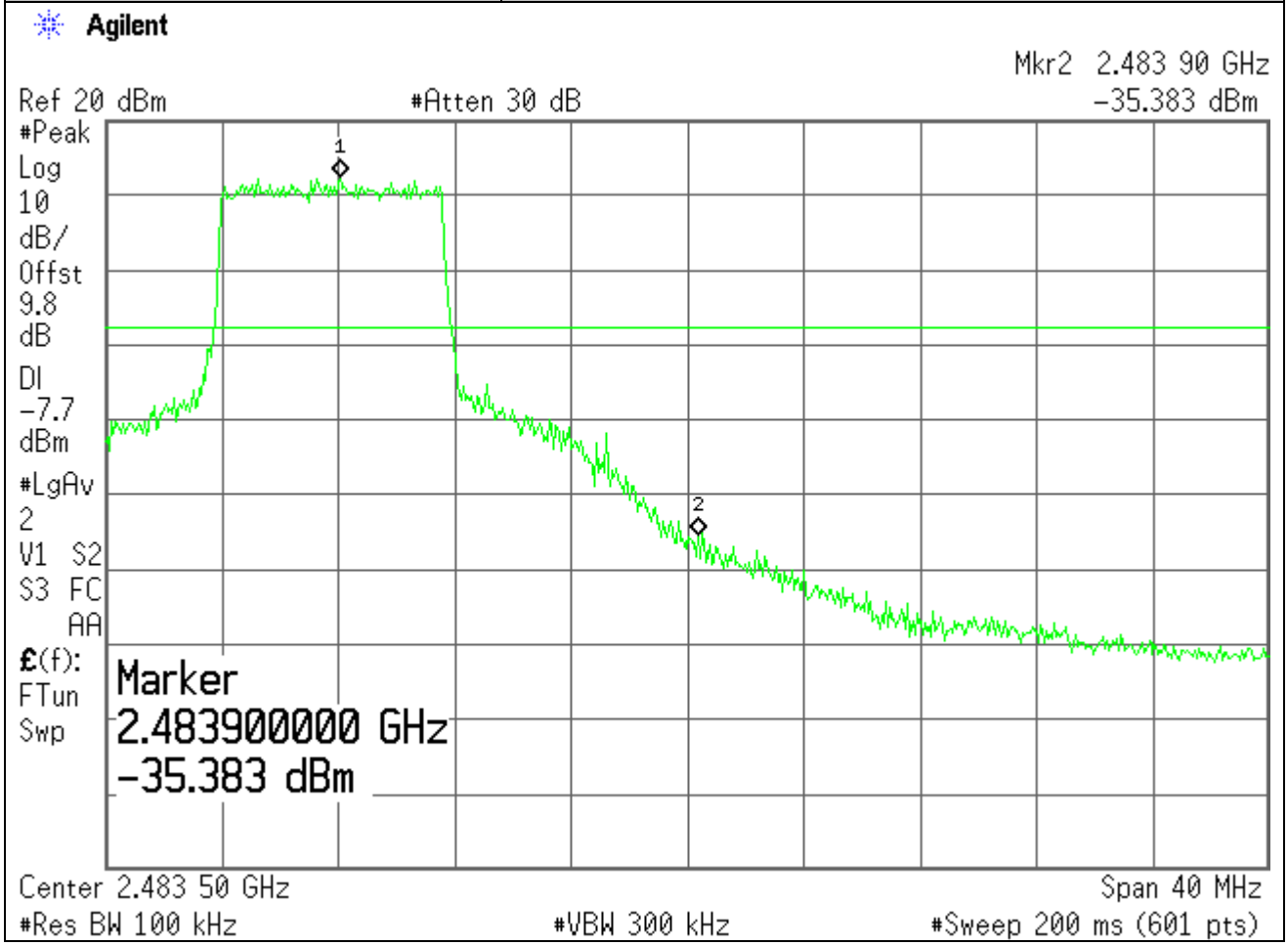
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



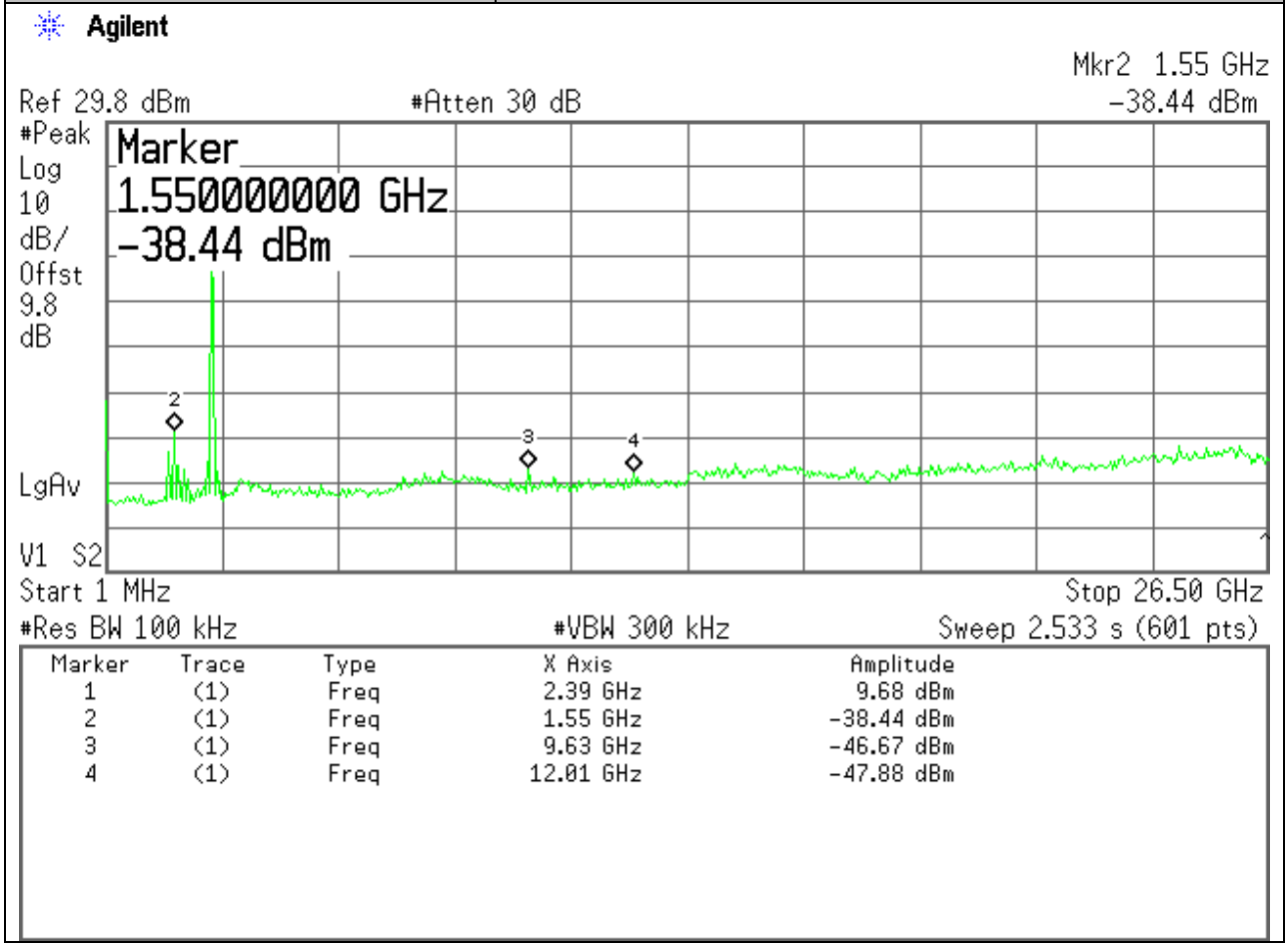
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



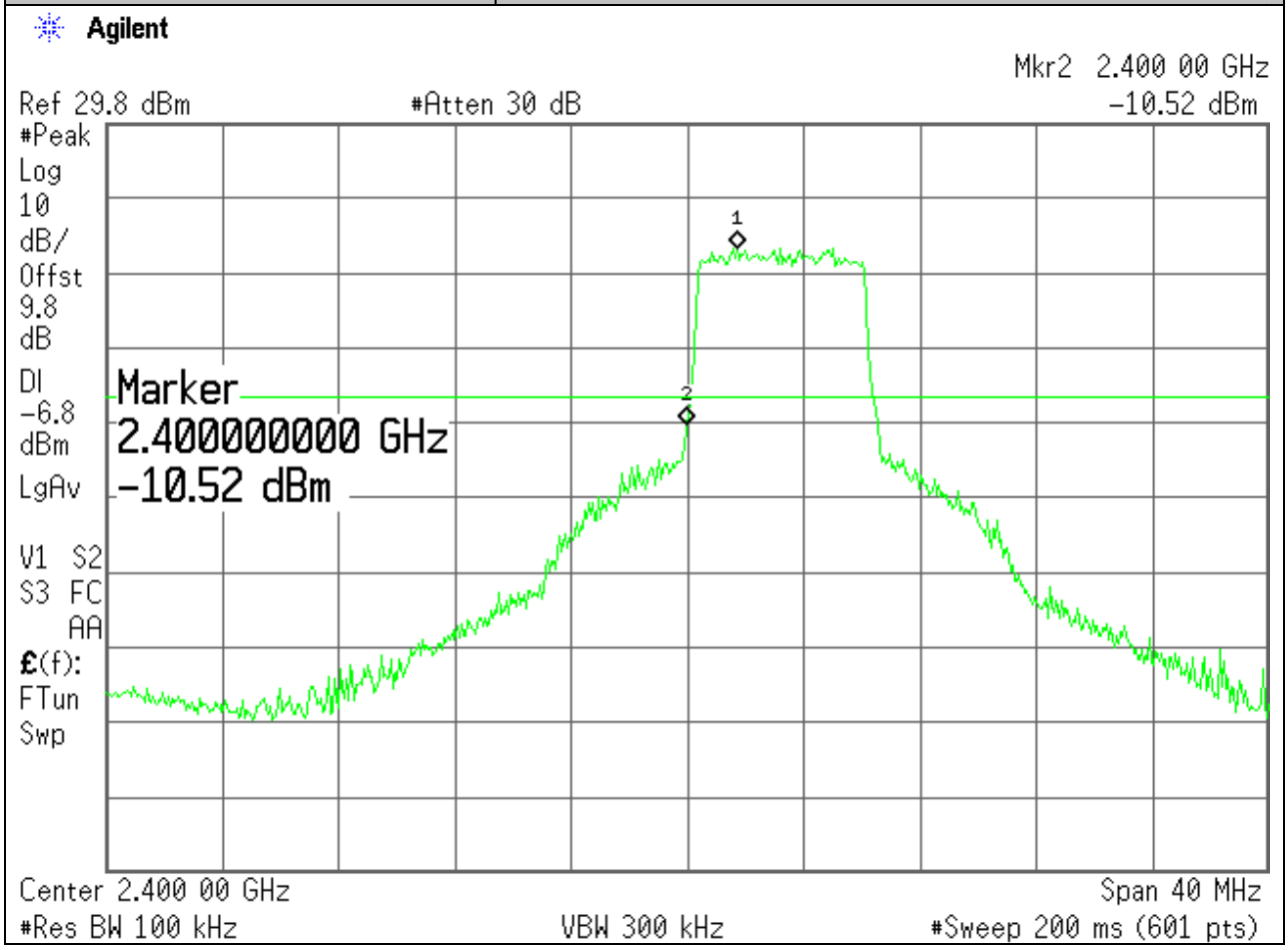
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



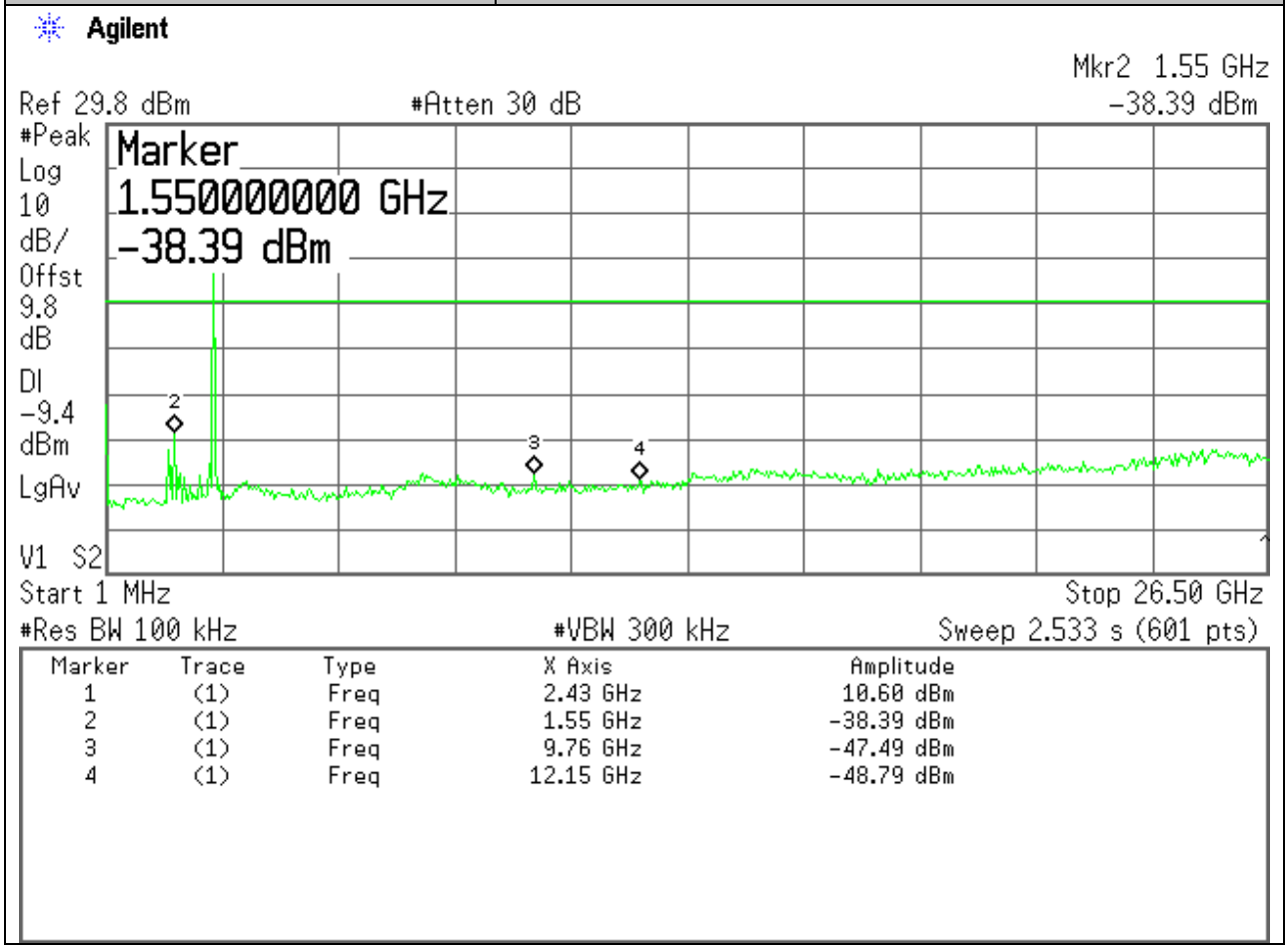
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



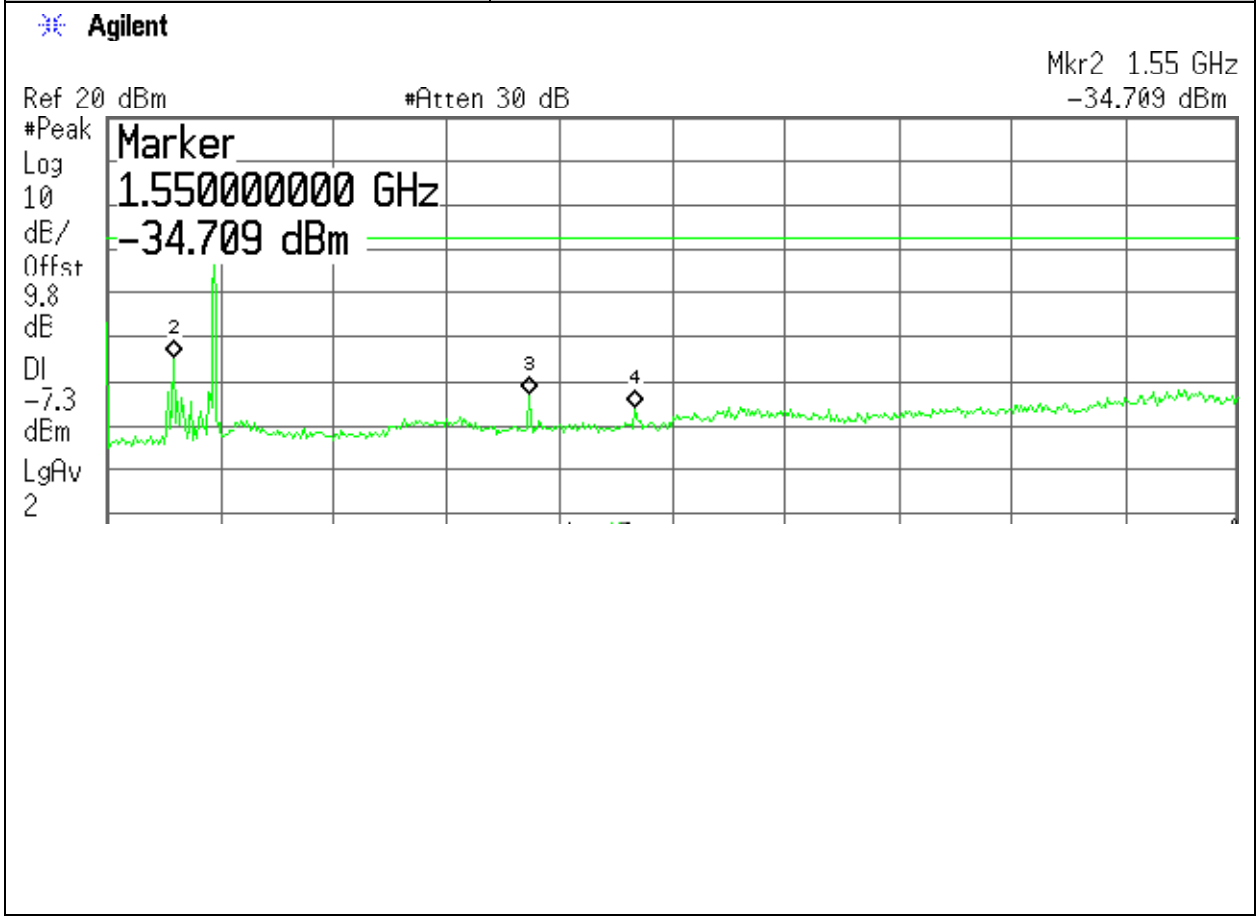
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



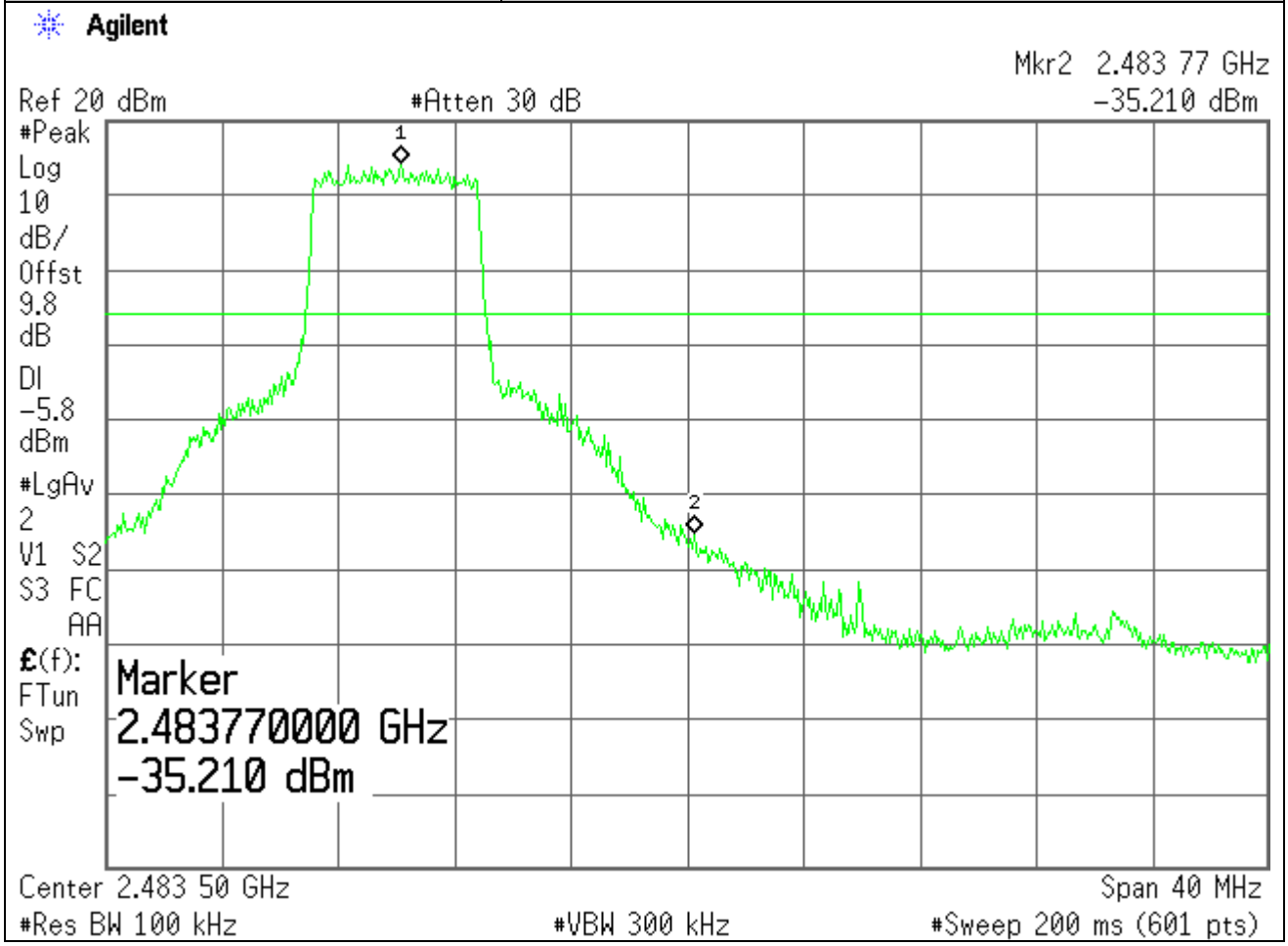
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



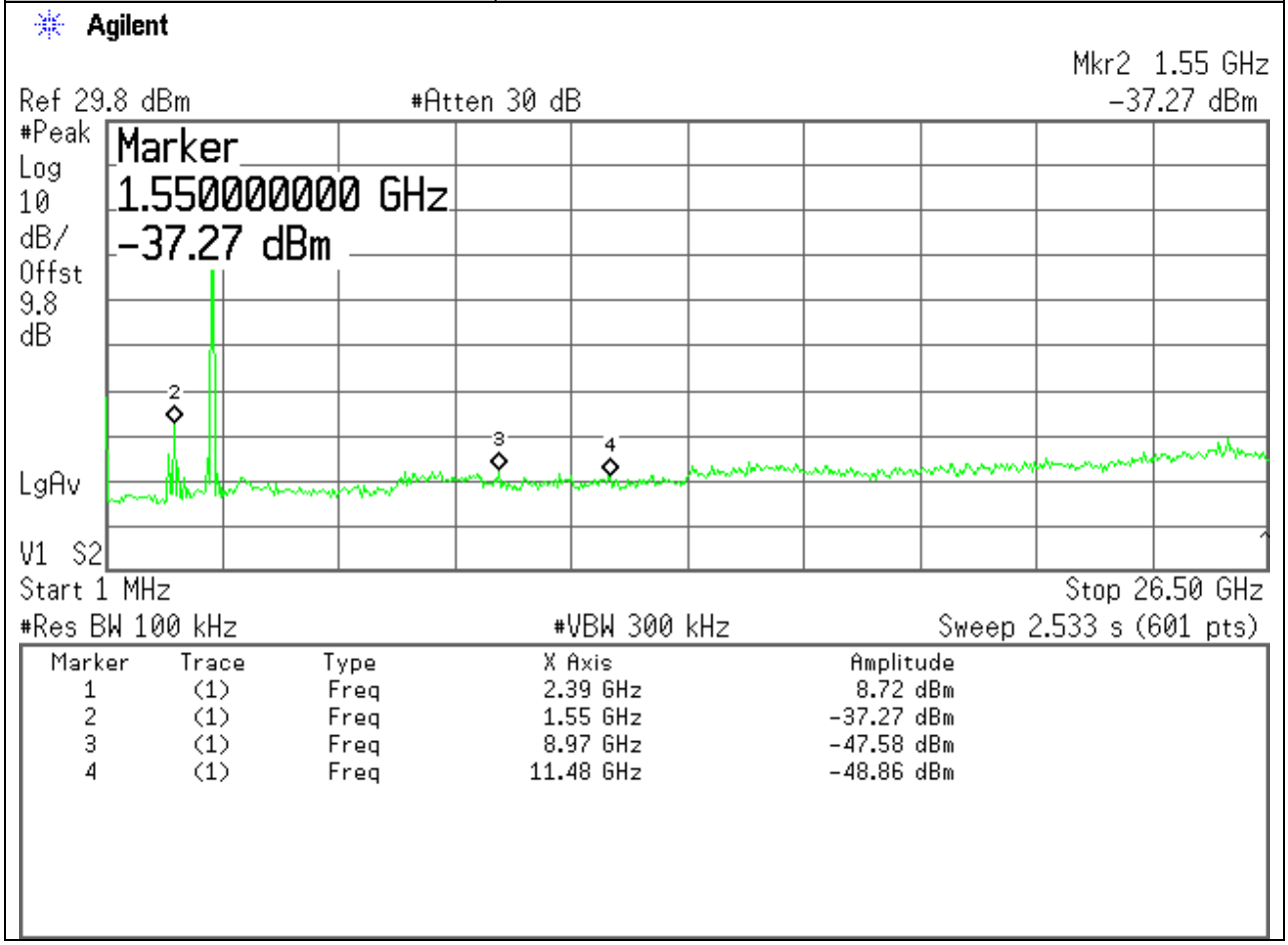
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



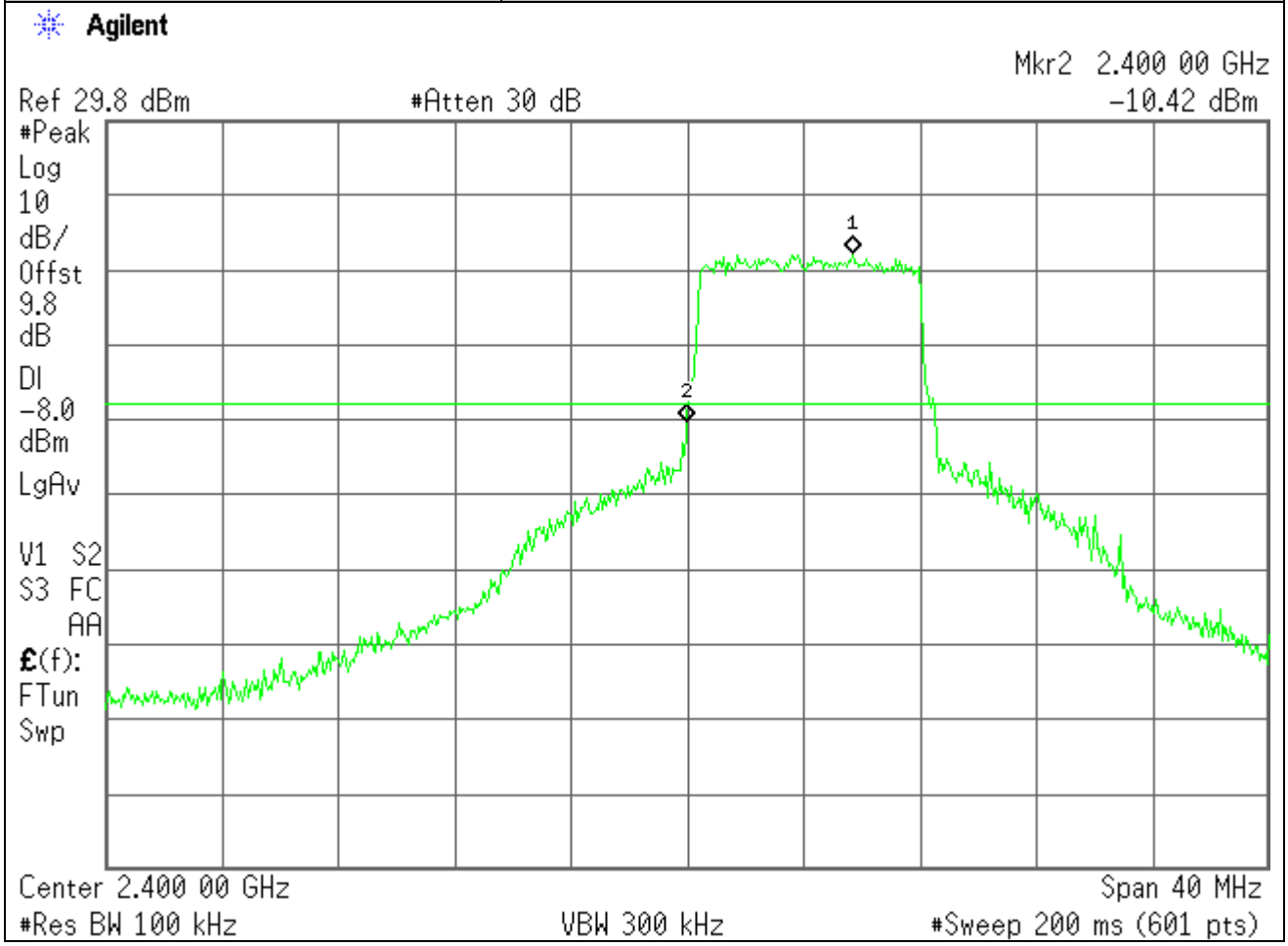
8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low CH



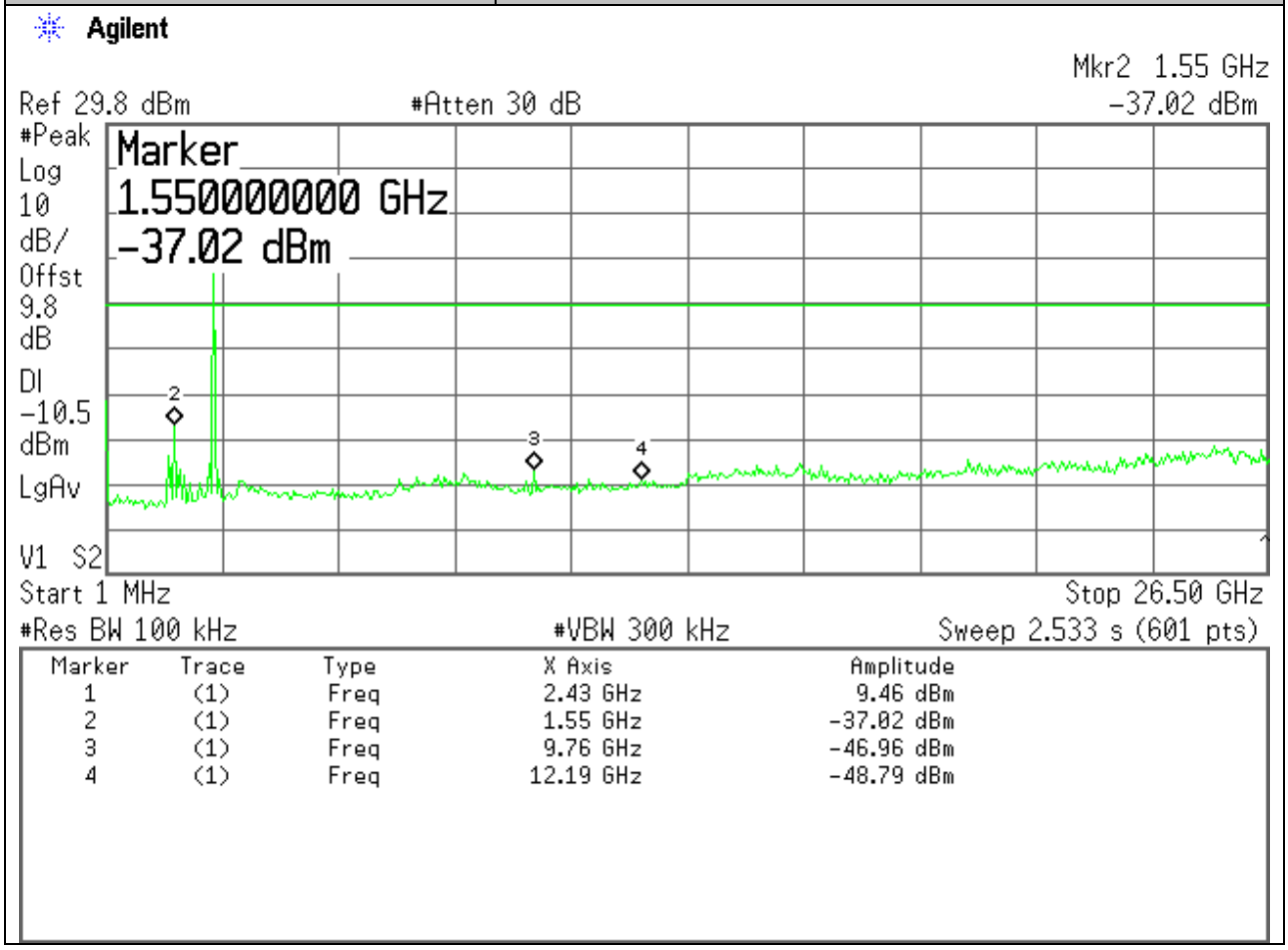
8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



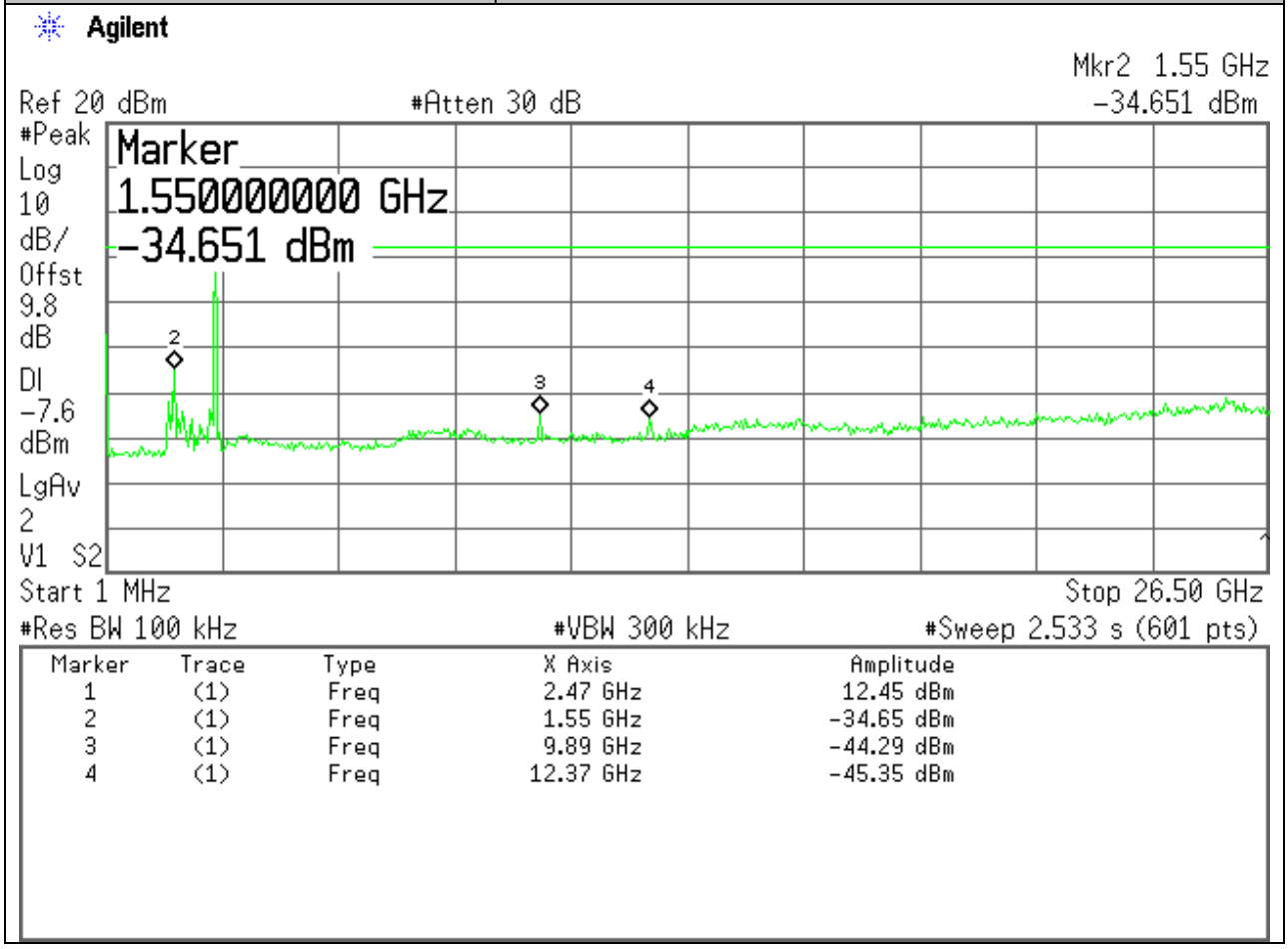
8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Mid CH



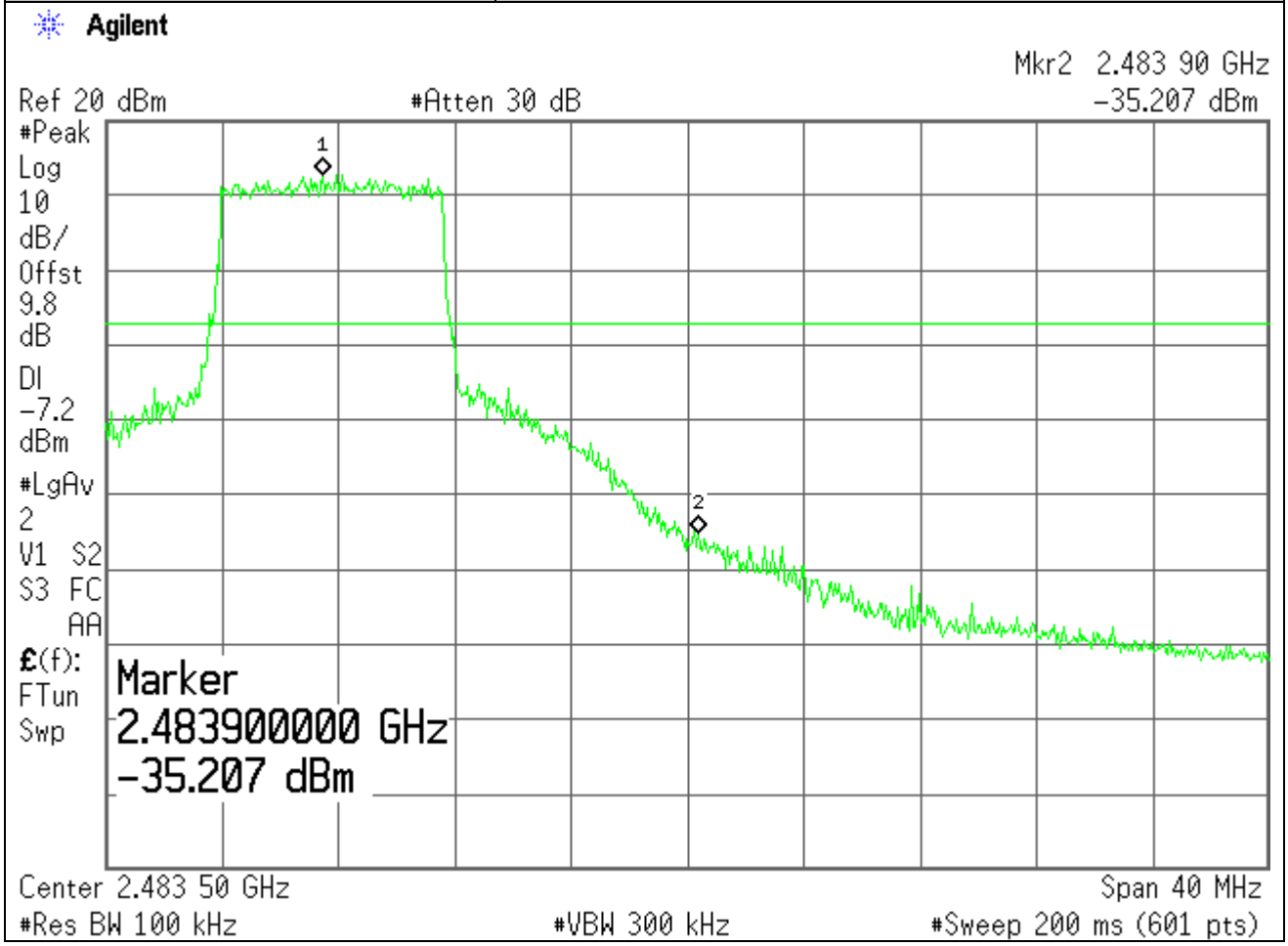
8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High CH



8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH

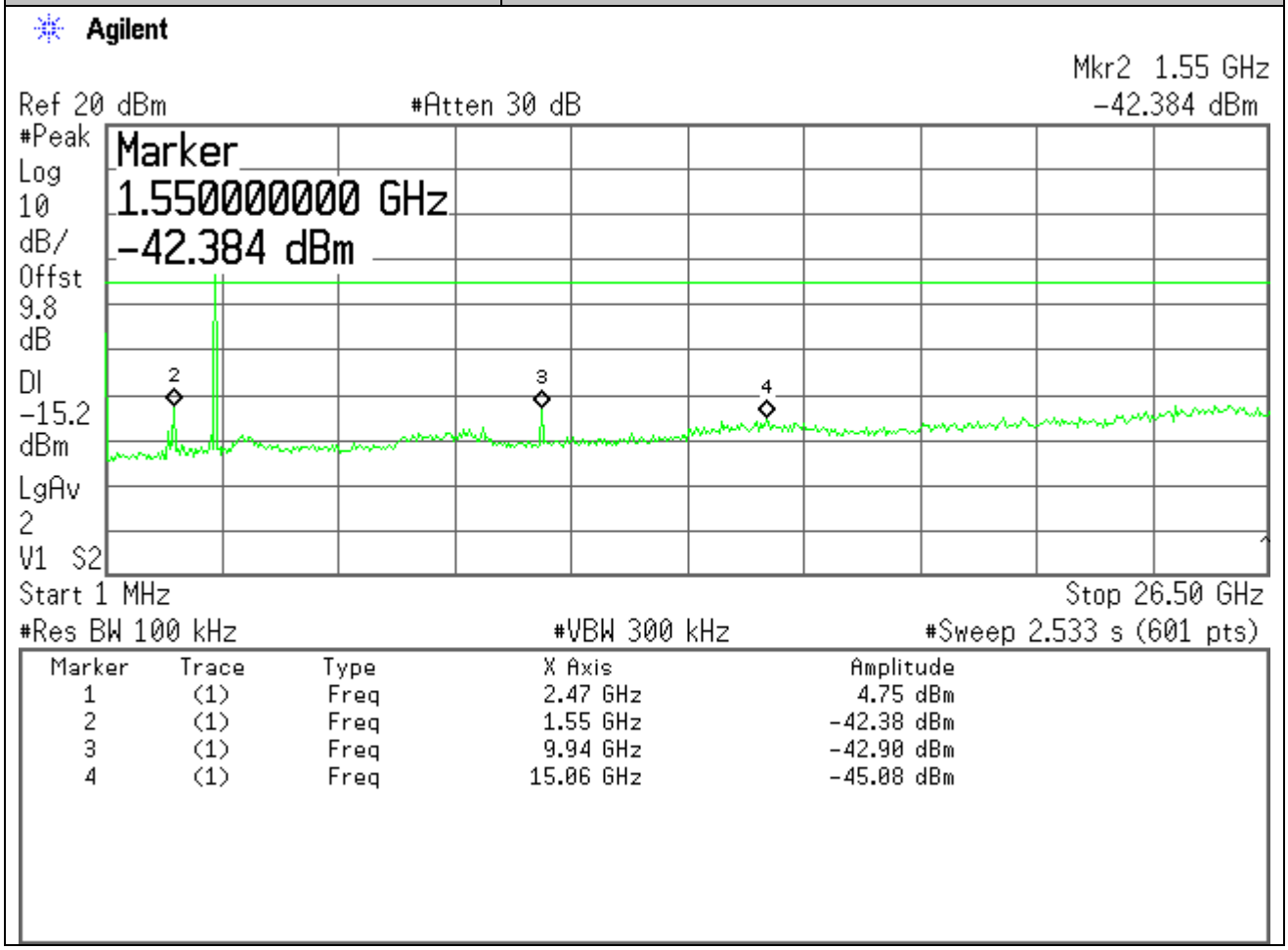


. CONDUCTED PURIOUS EMISSIONS

For Low Power Setting P=10dBm: Worst Case Selected for Spurious & Bandedge Emissions
(Modulation mode won't make significant difference based on pretest results).

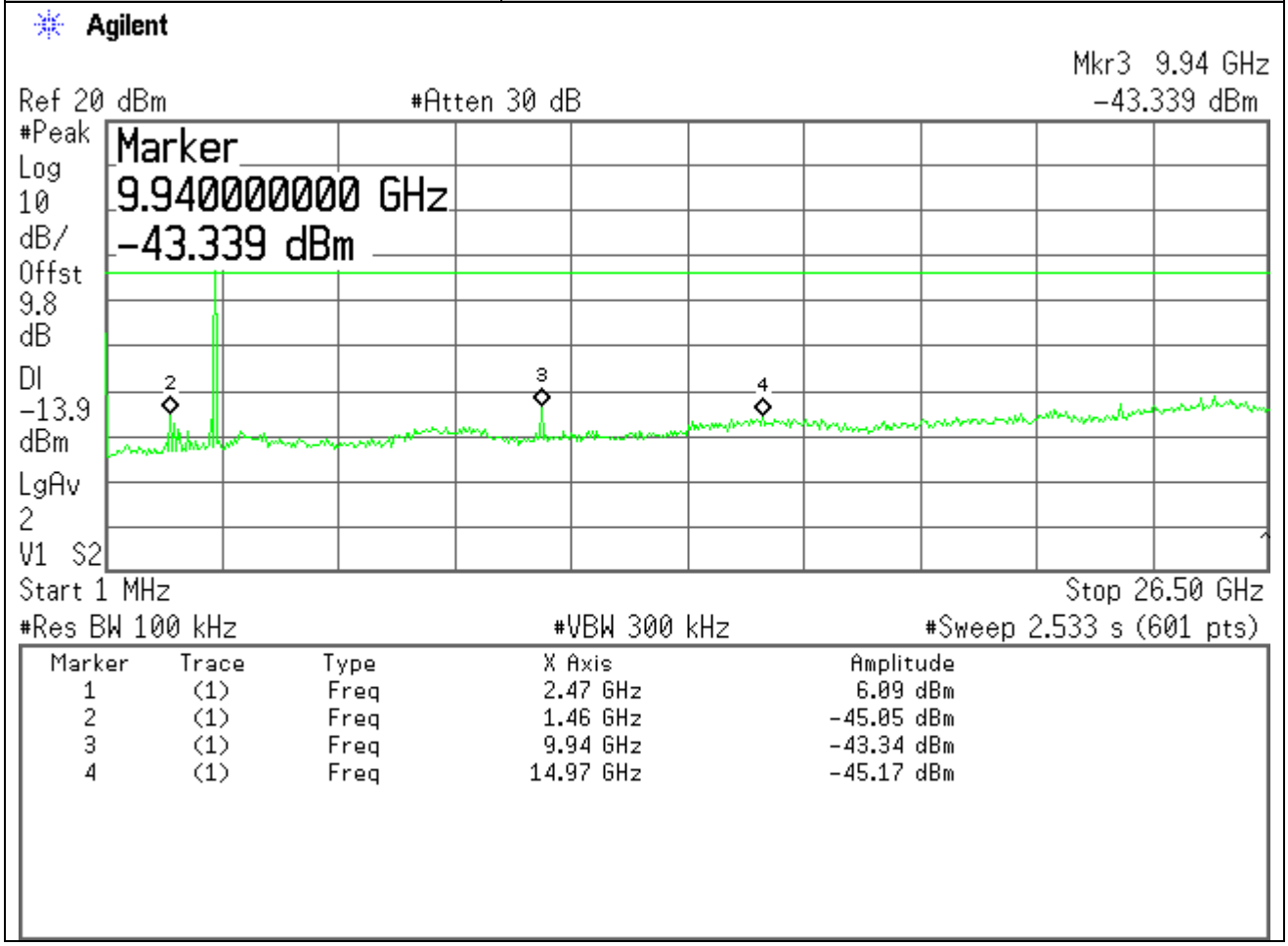
1.25MHz BW, QPSK Mode

Plot Name:	Conducted Spurious Emissions @ Low CH



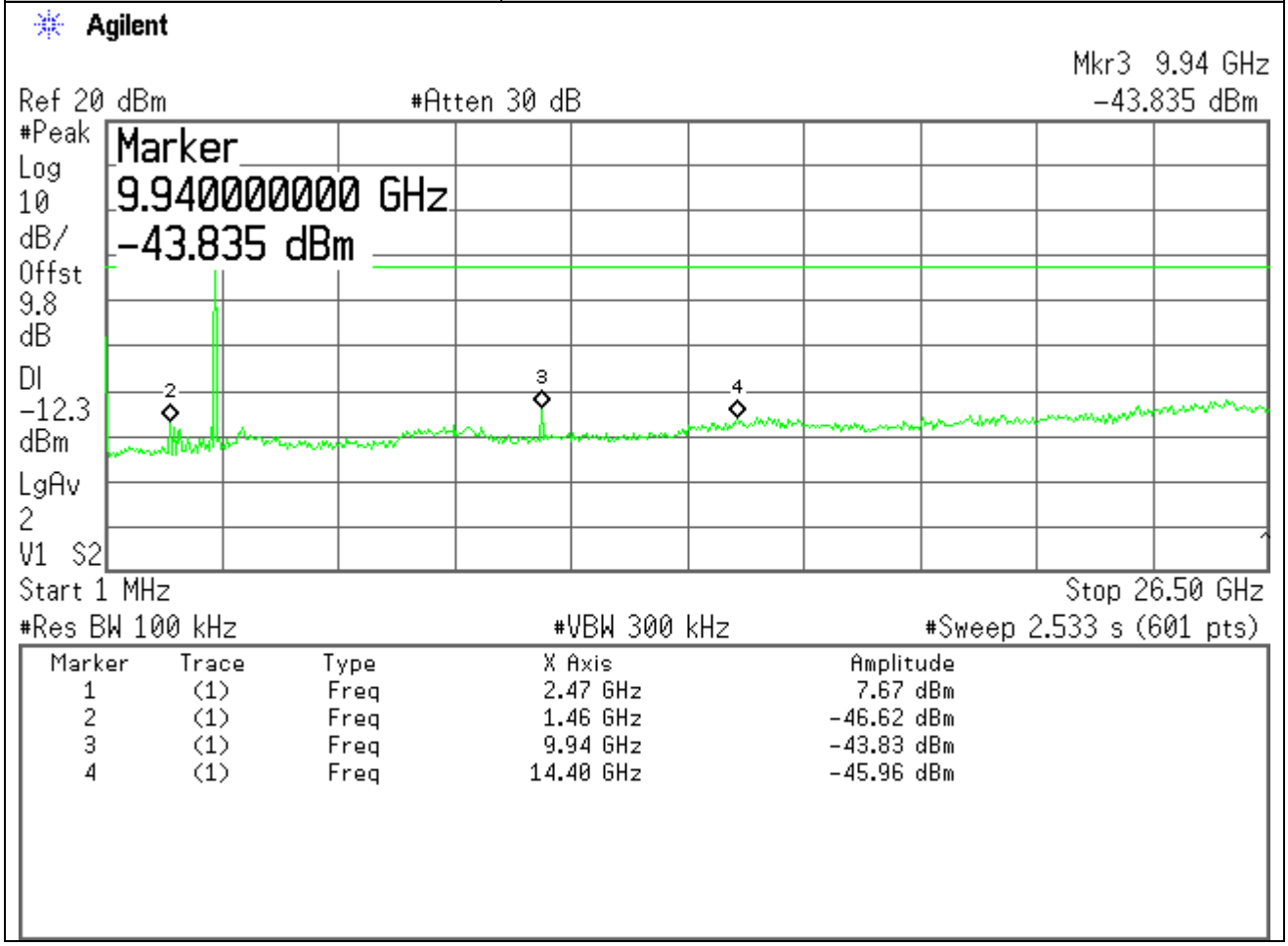
1.25MHz BW, QPSK Mode

Plot Name:	Conducted Spurious Emissions @ Mid CH



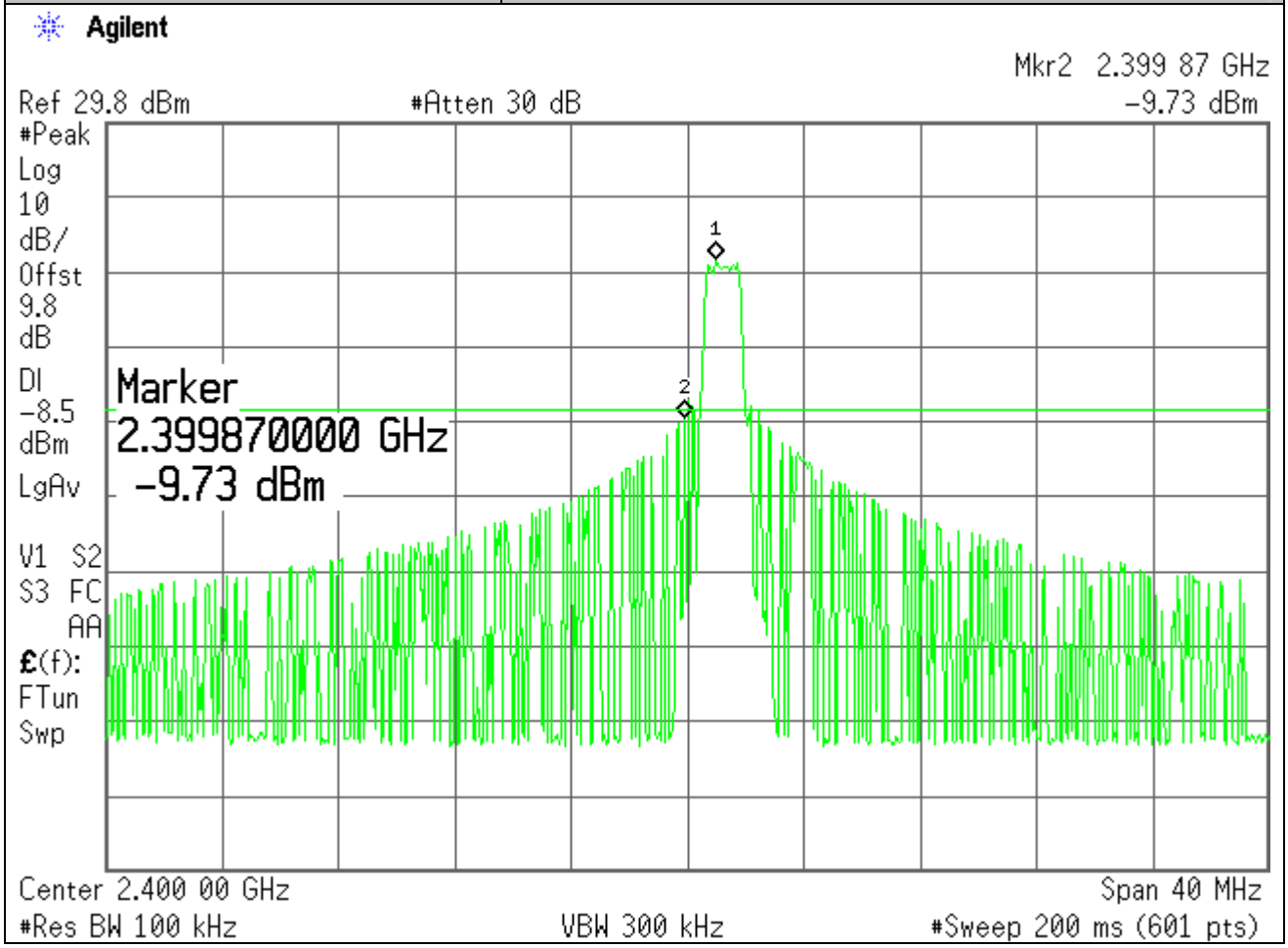
1.25MHz BW, QPSK Mode

Plot Name:	Conducted Spurious Emissions @ High CH



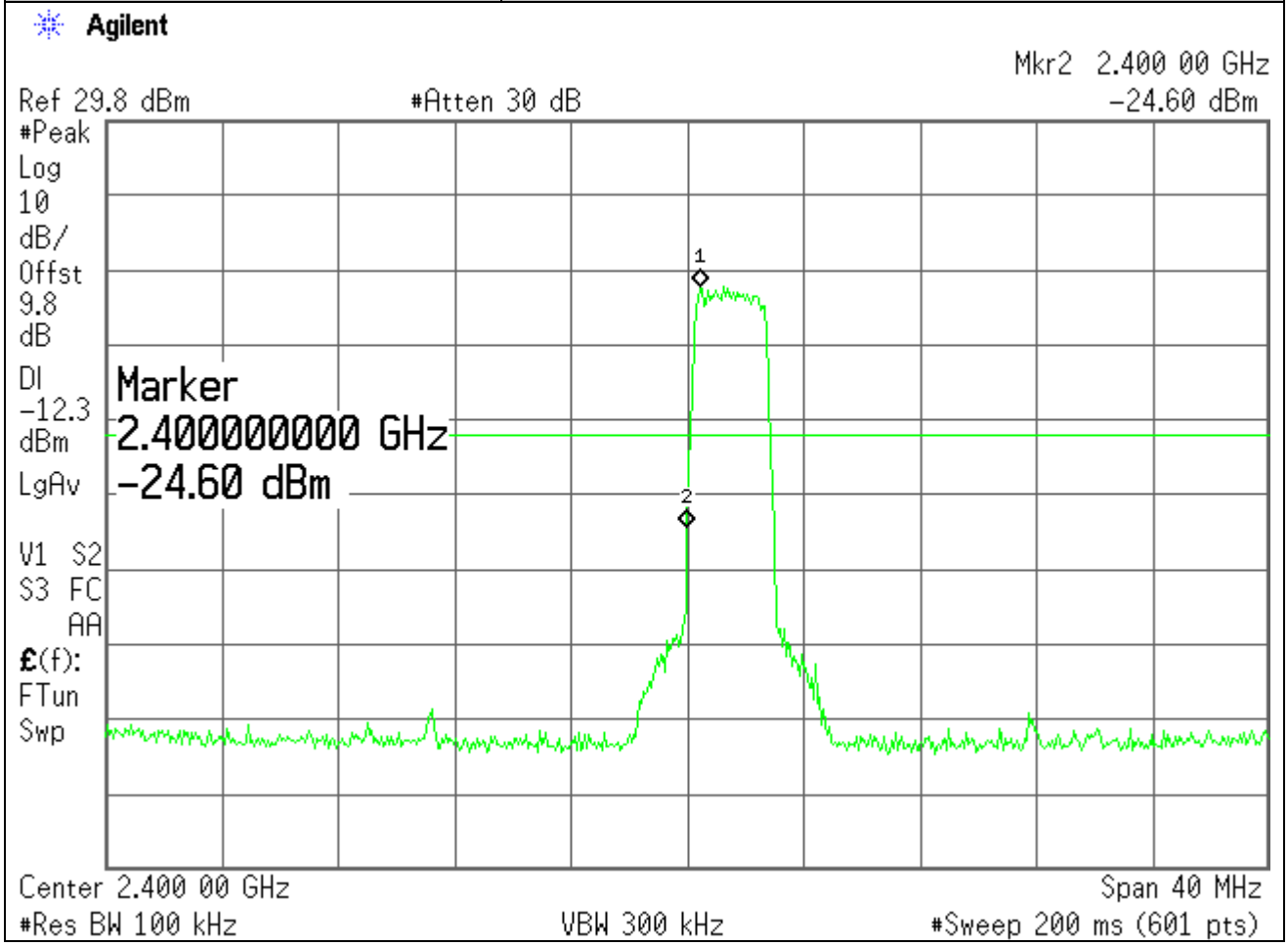
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



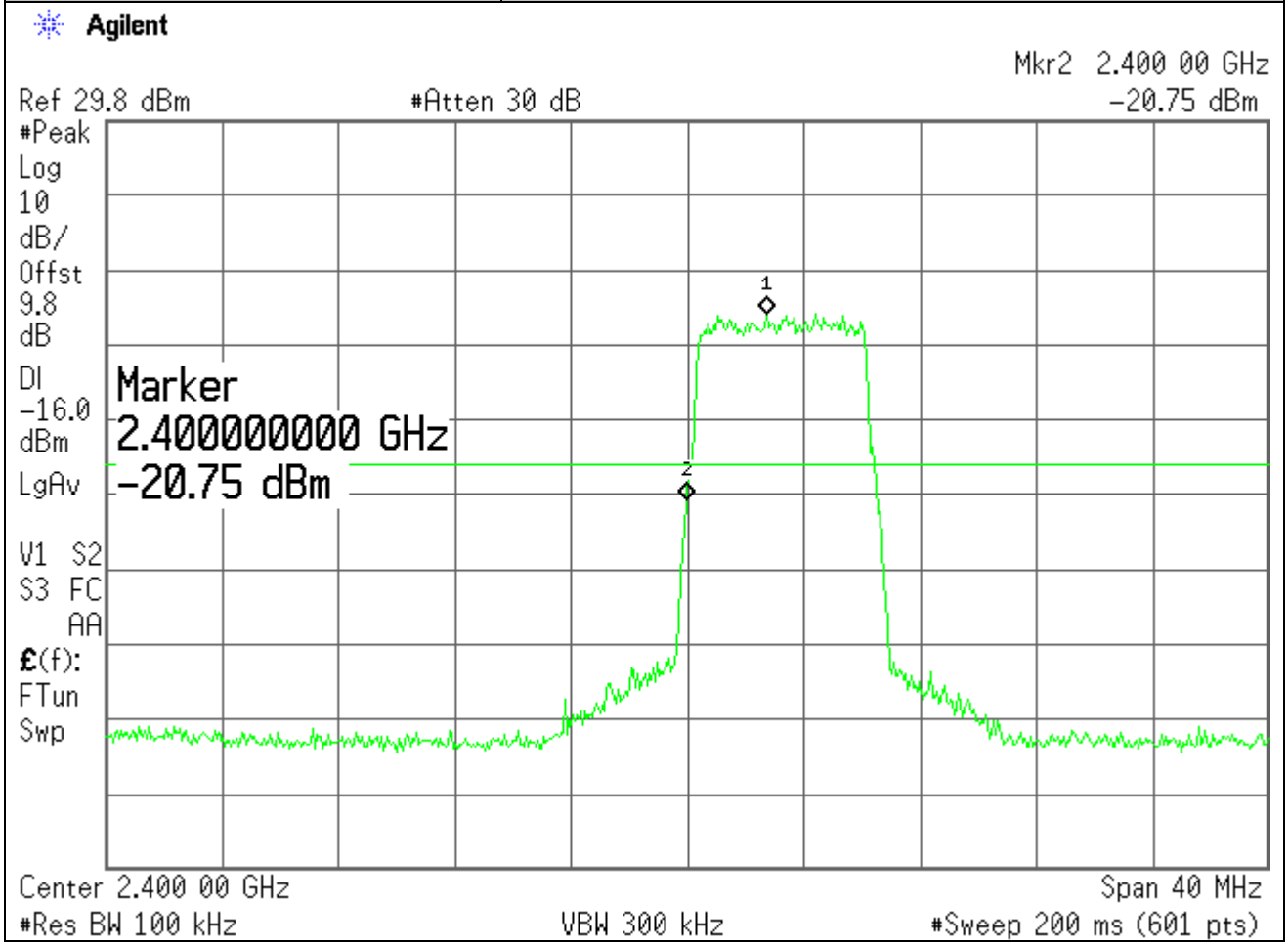
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



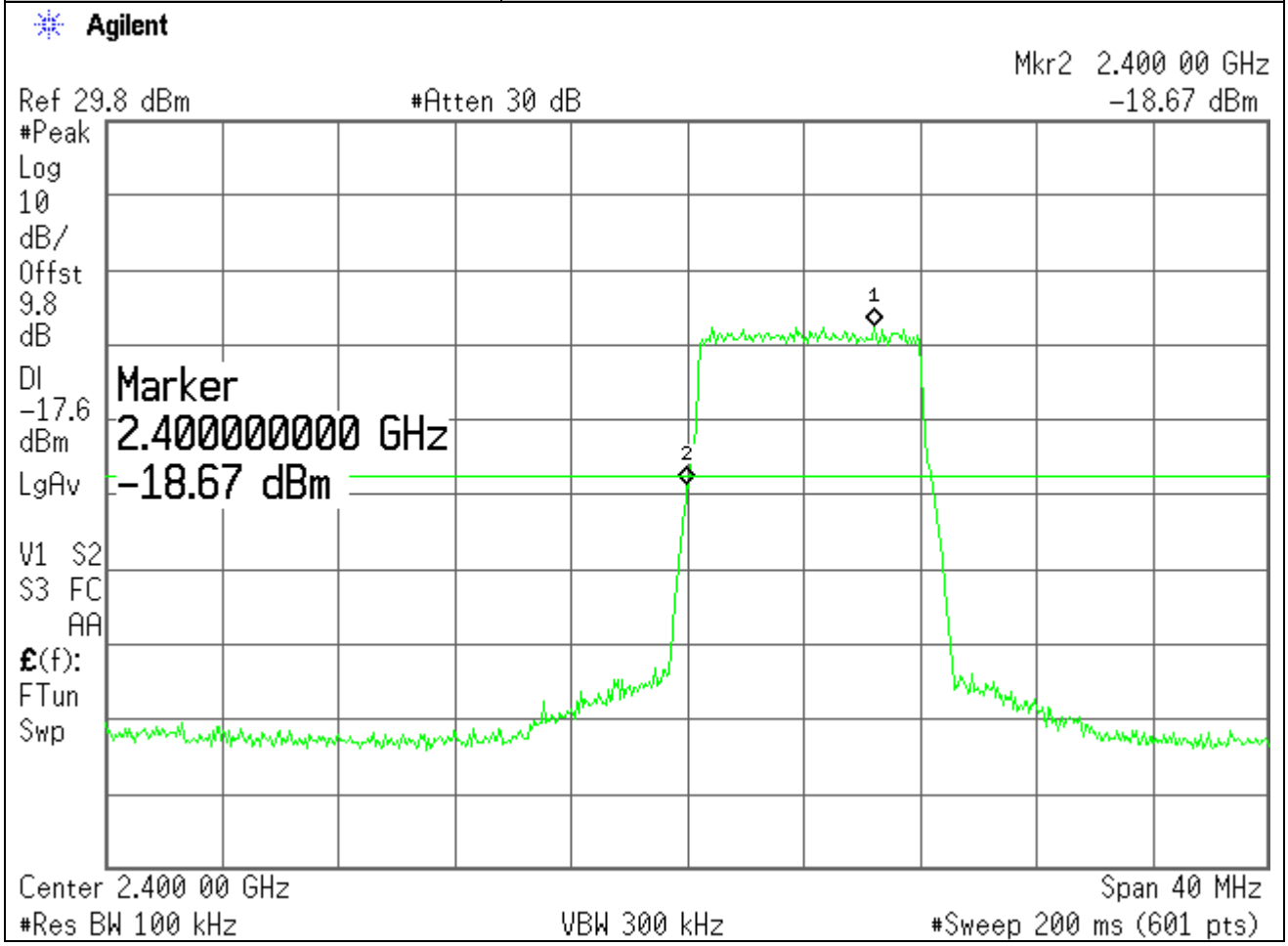
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



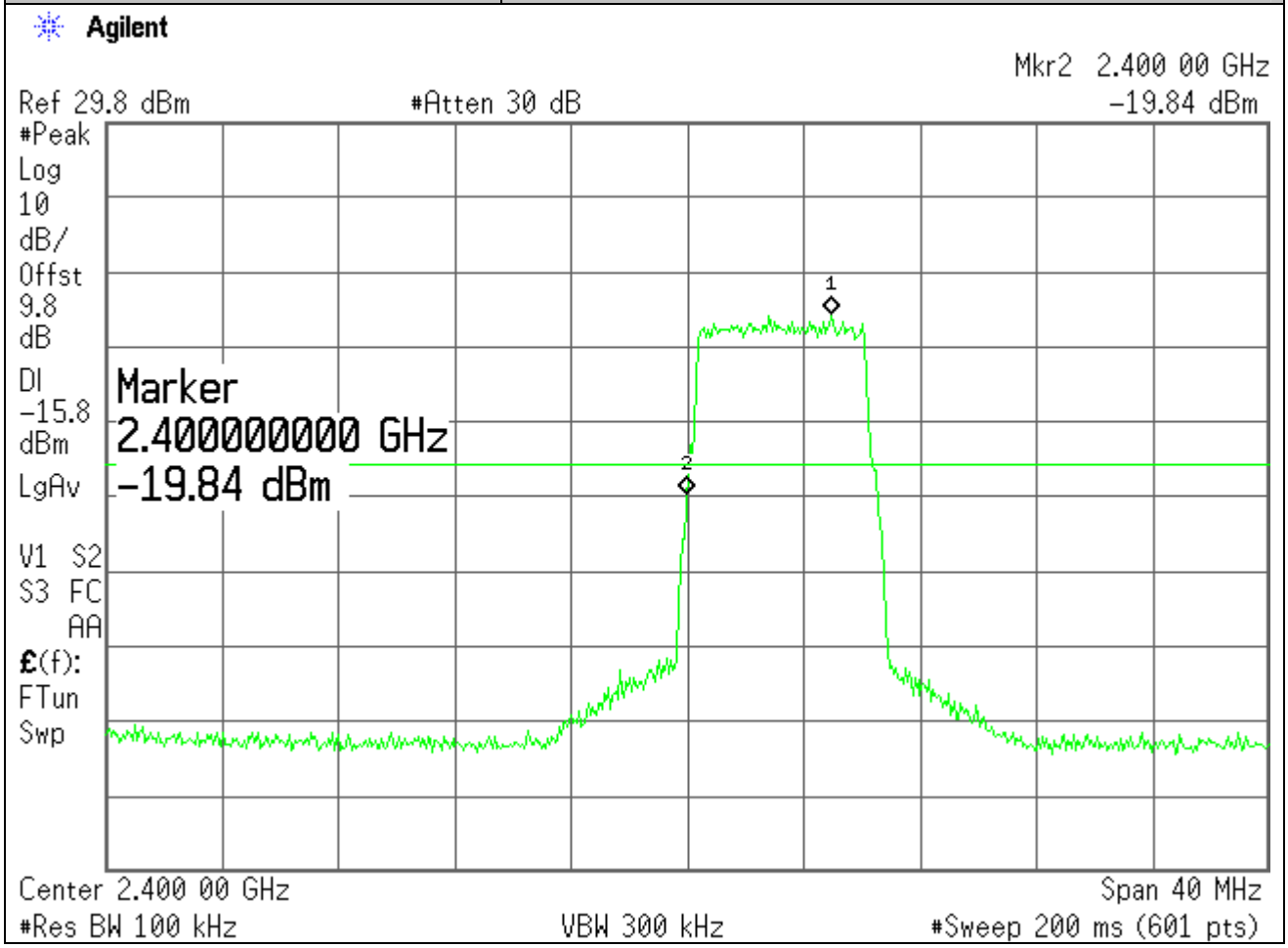
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



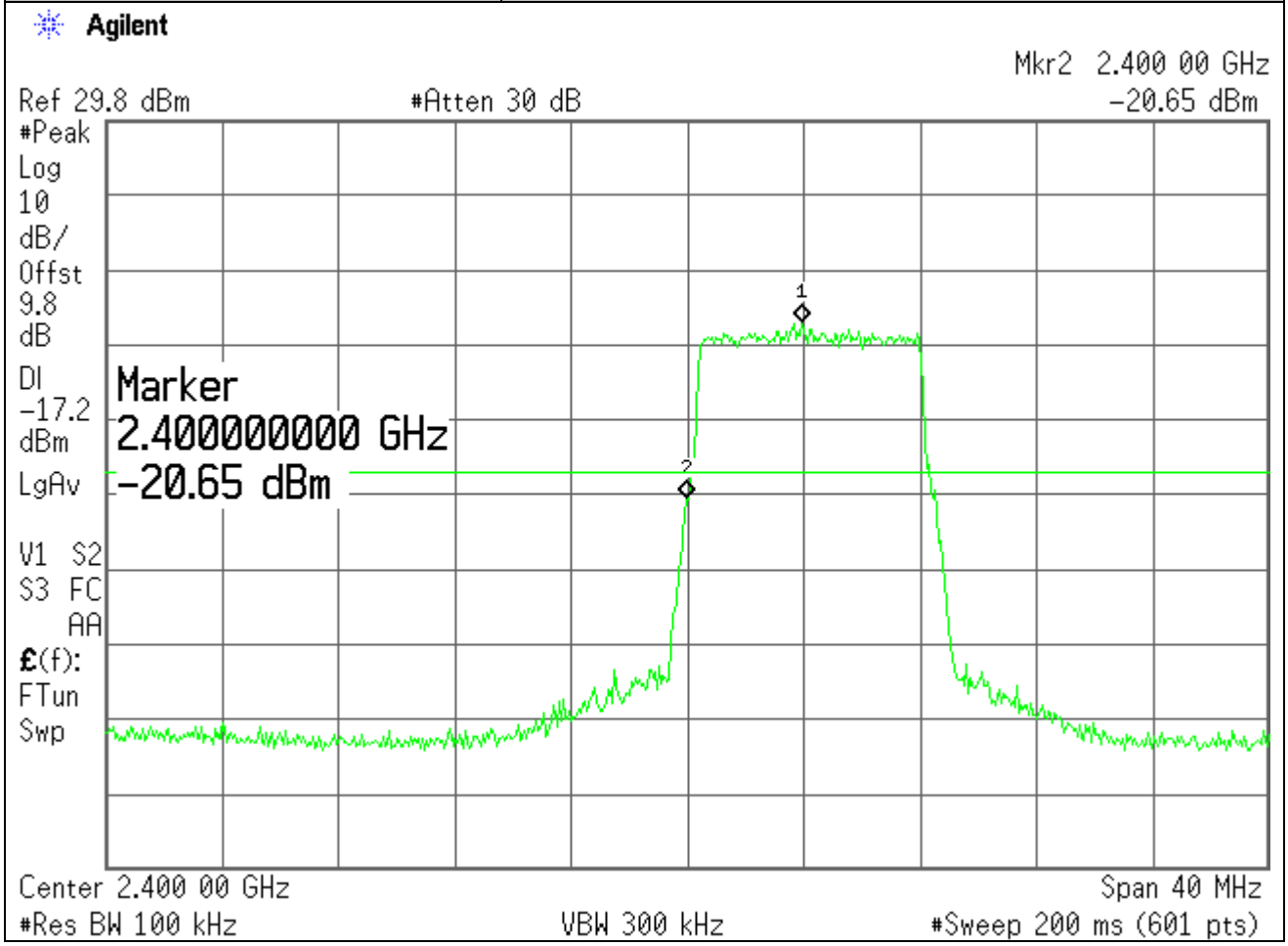
6MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



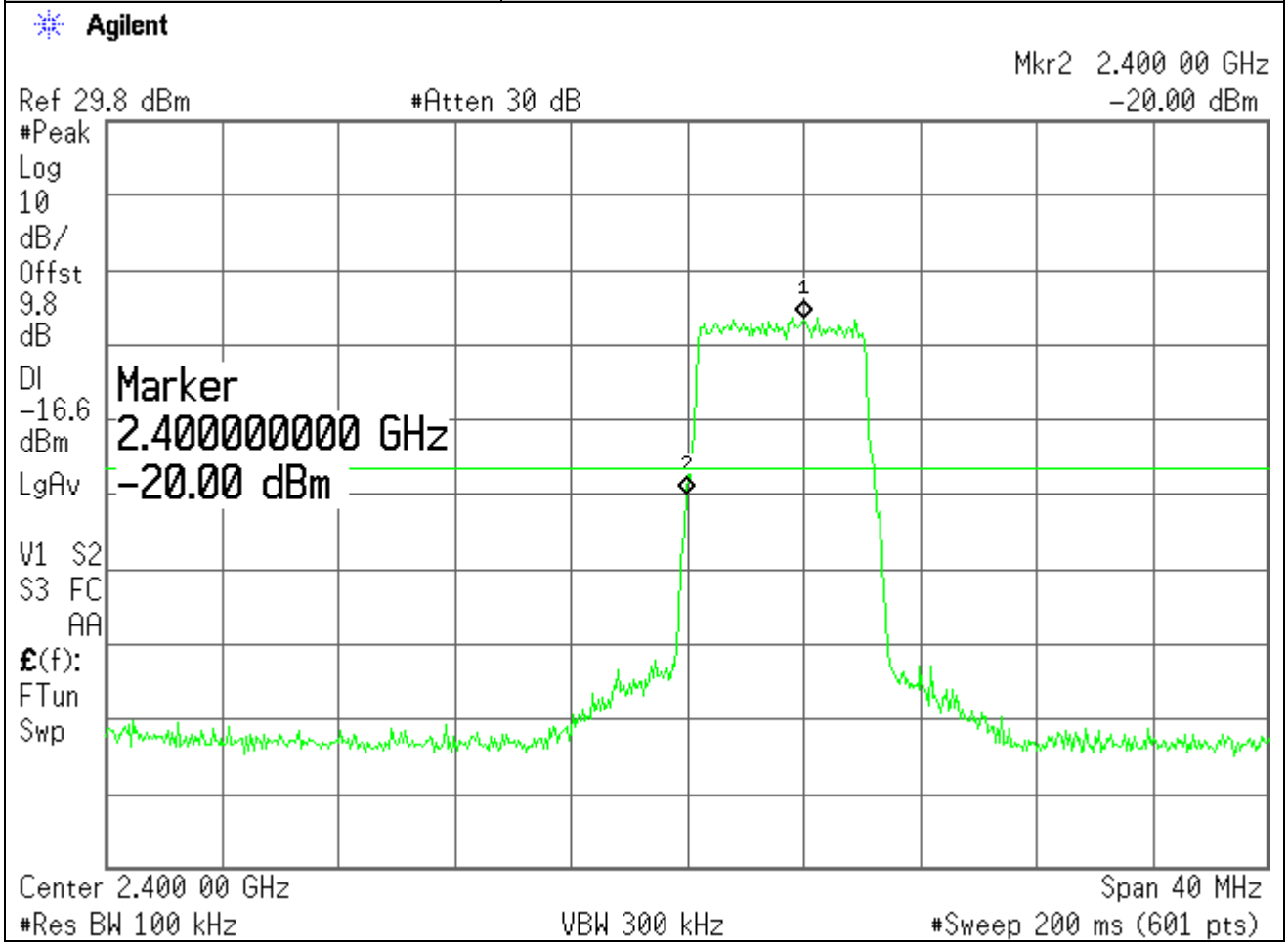
8MHz BW, 16QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



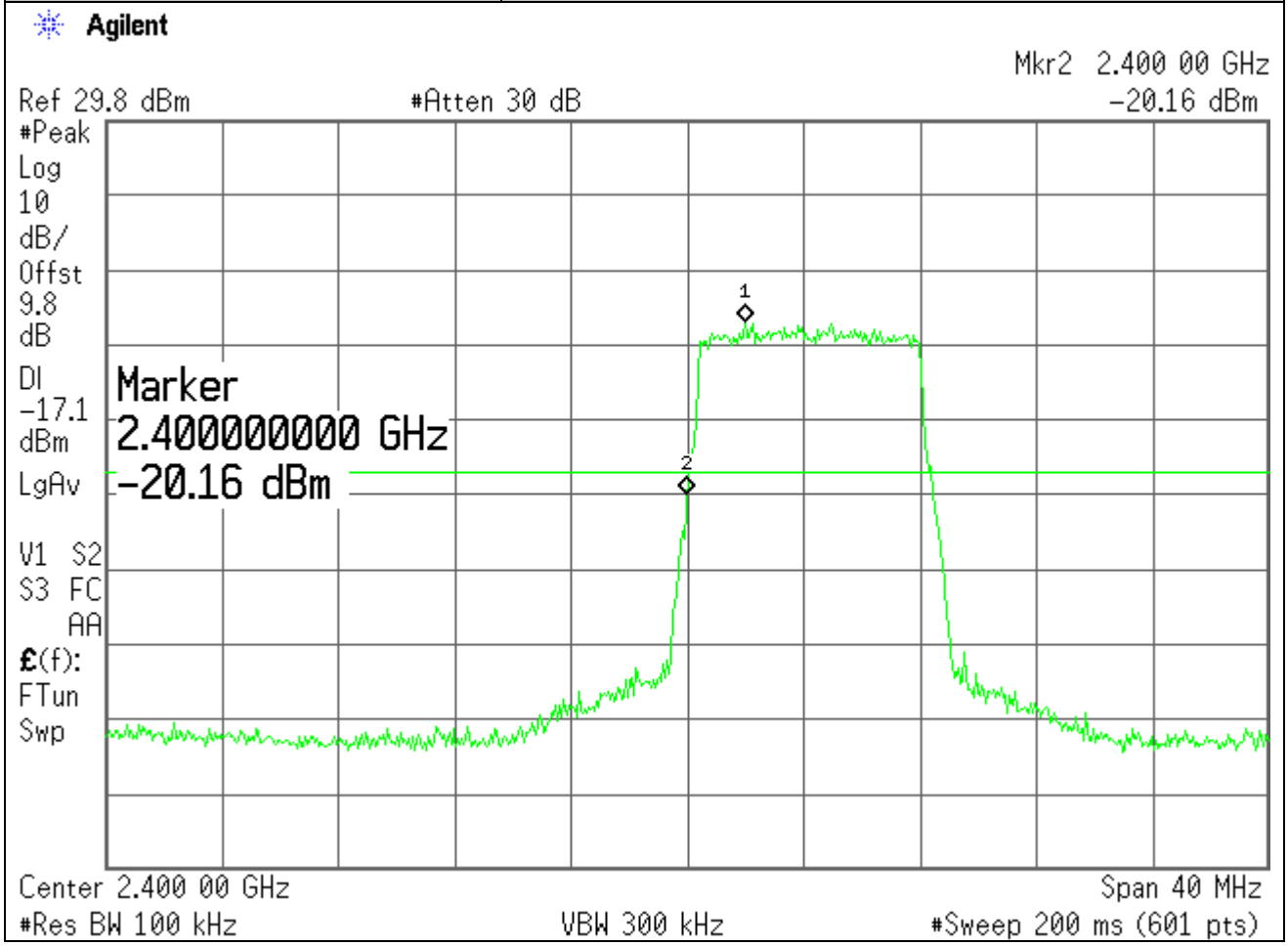
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



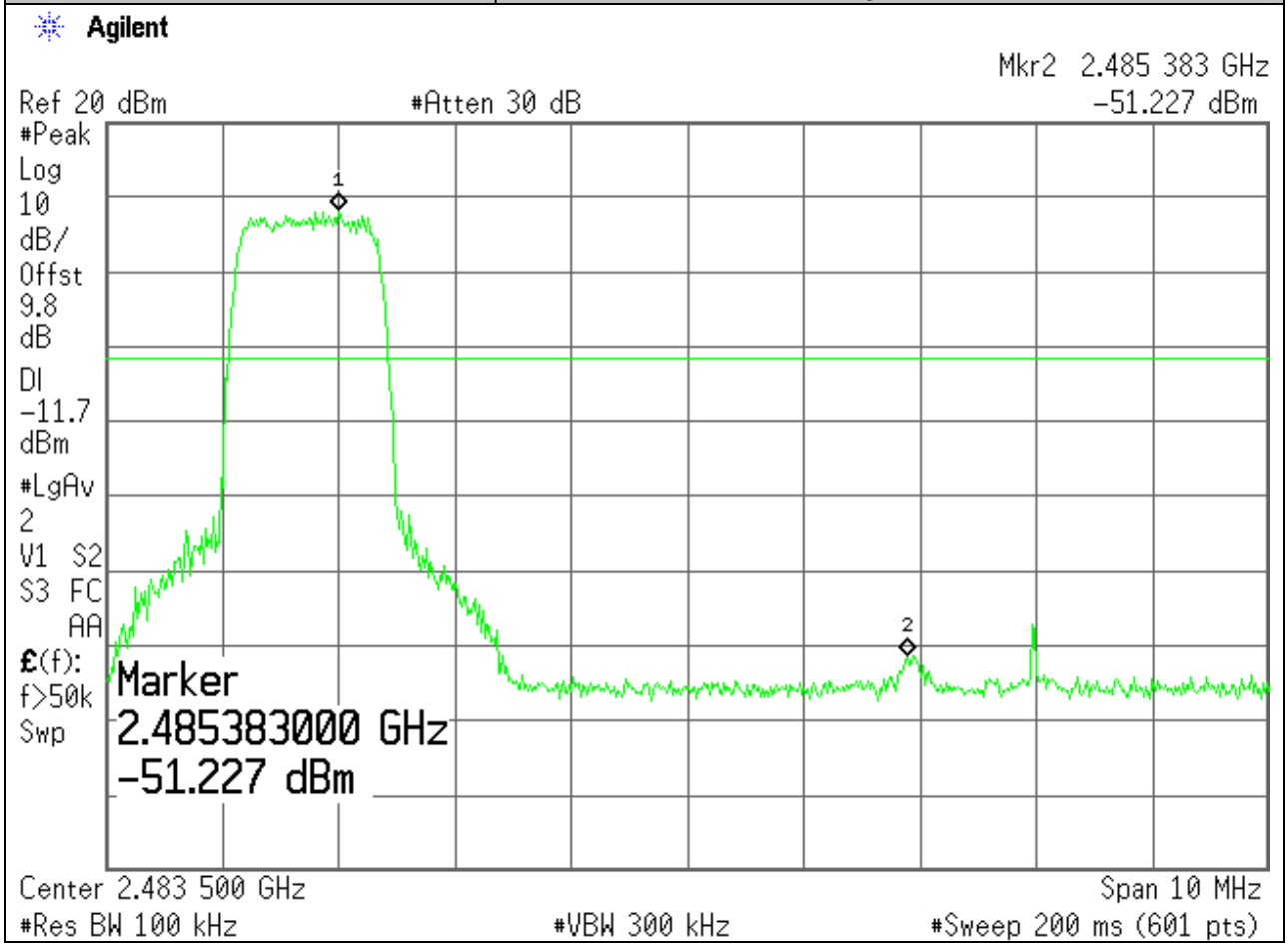
8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ Low Band Edge Low CH



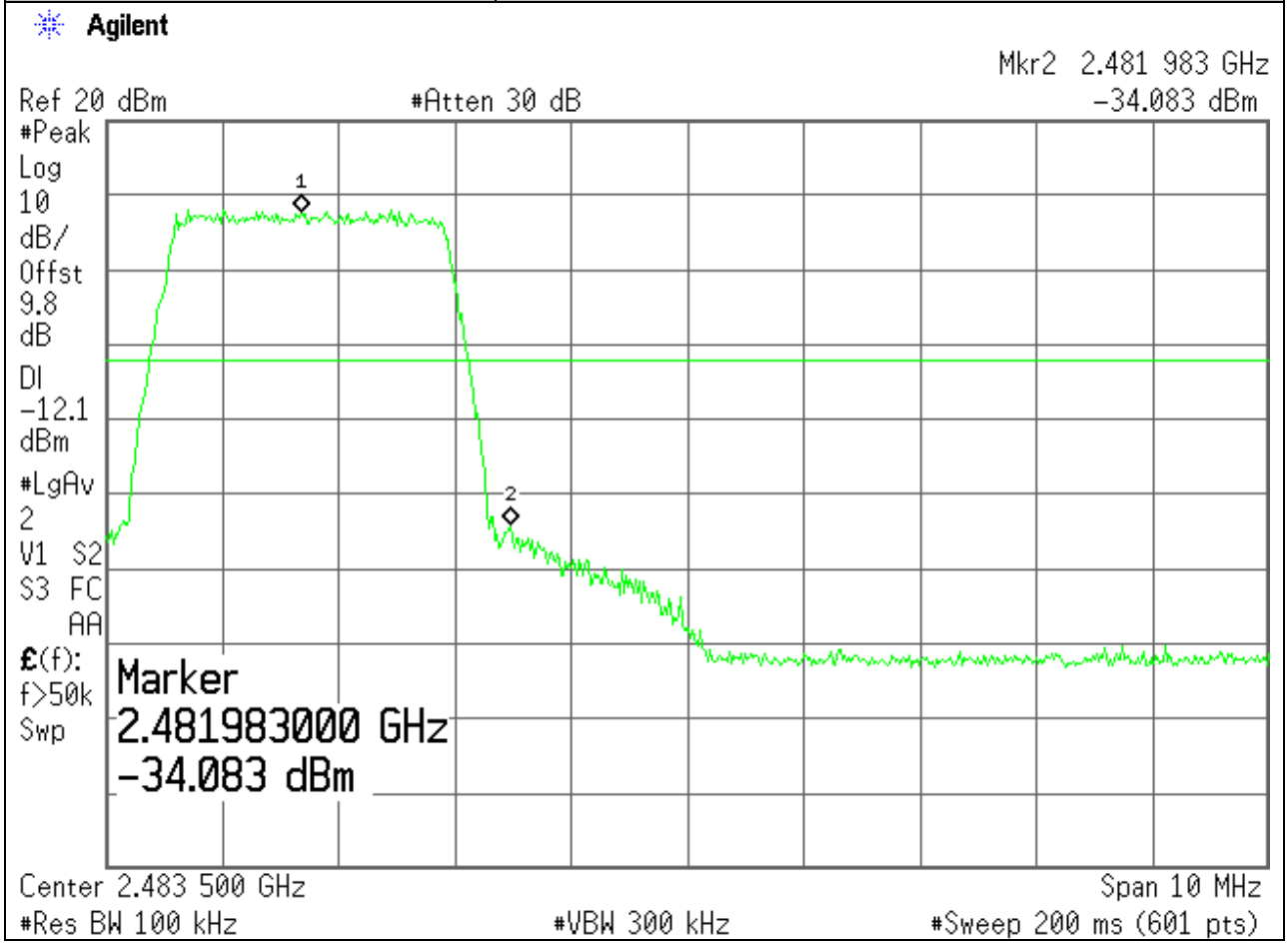
1.25MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



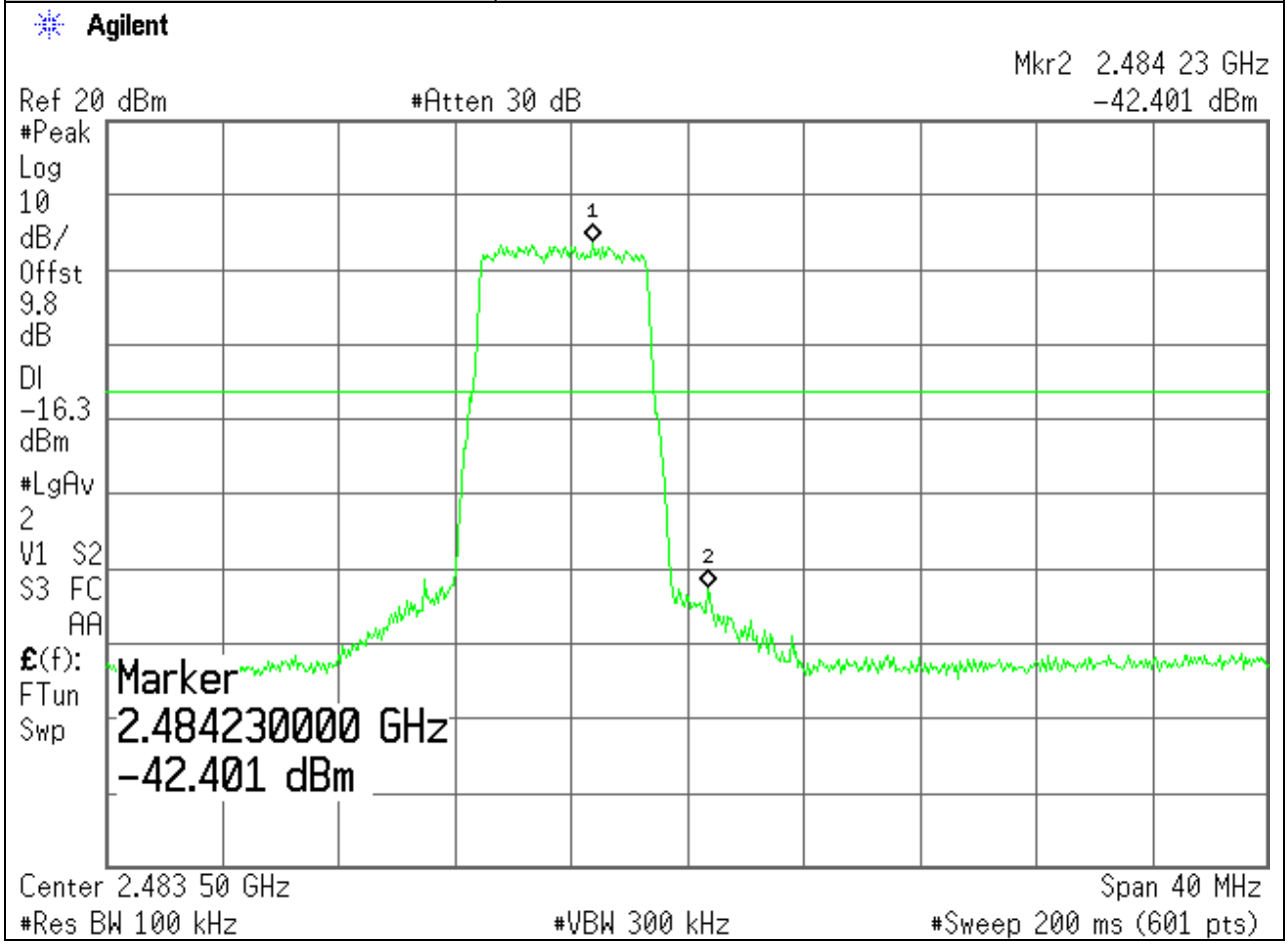
2.5MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



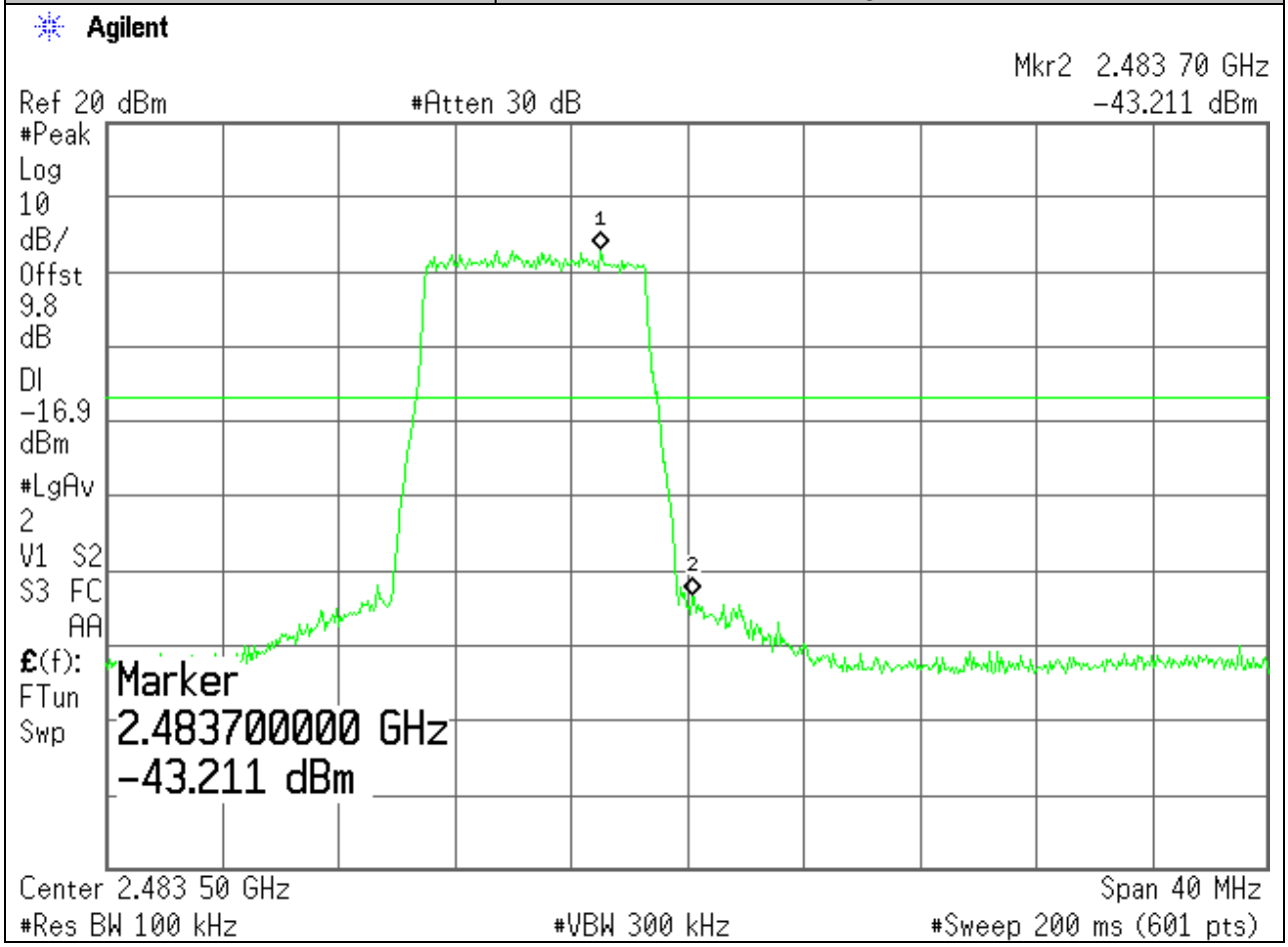
6MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



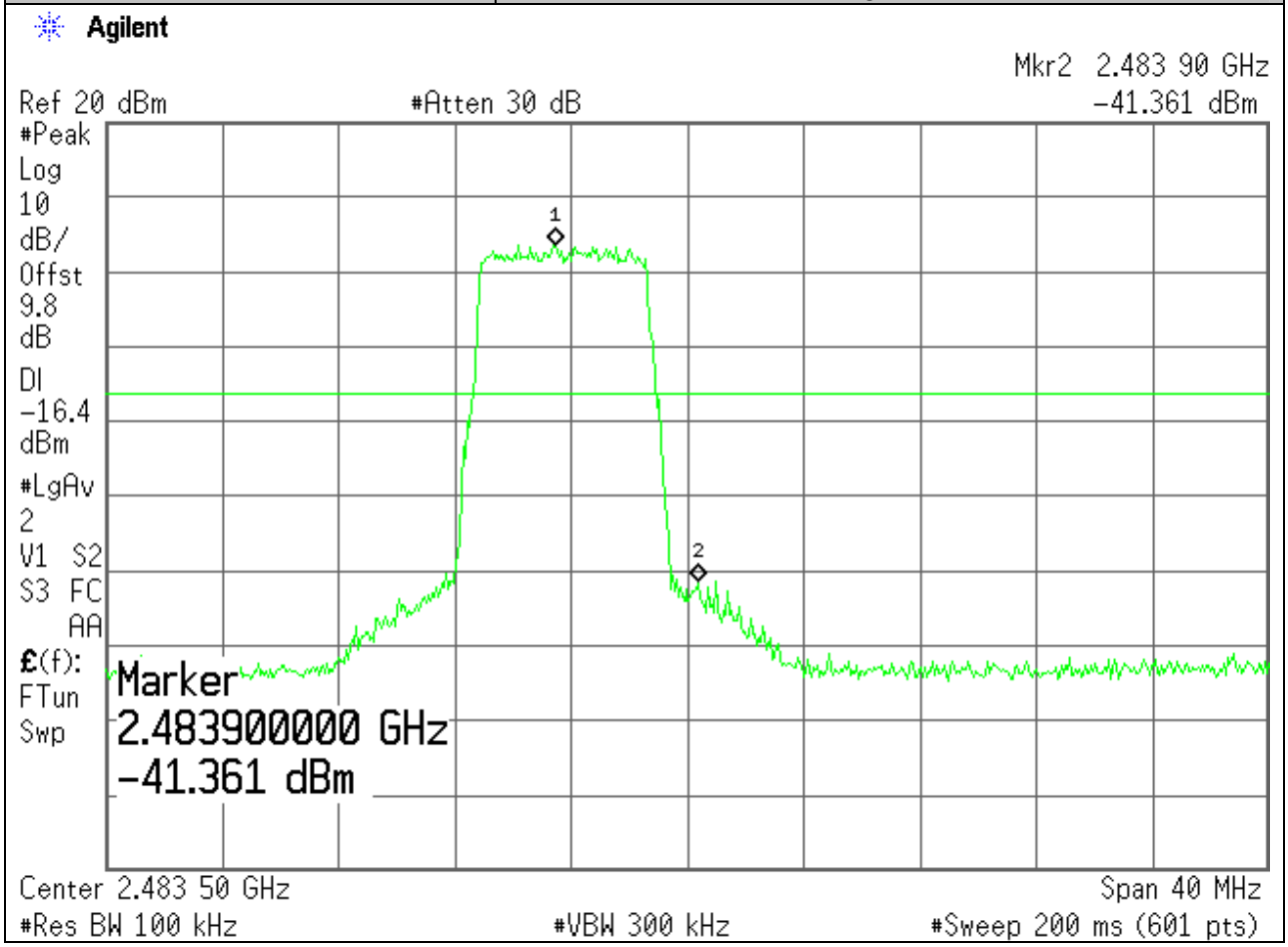
8MHz BW, QPSK Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



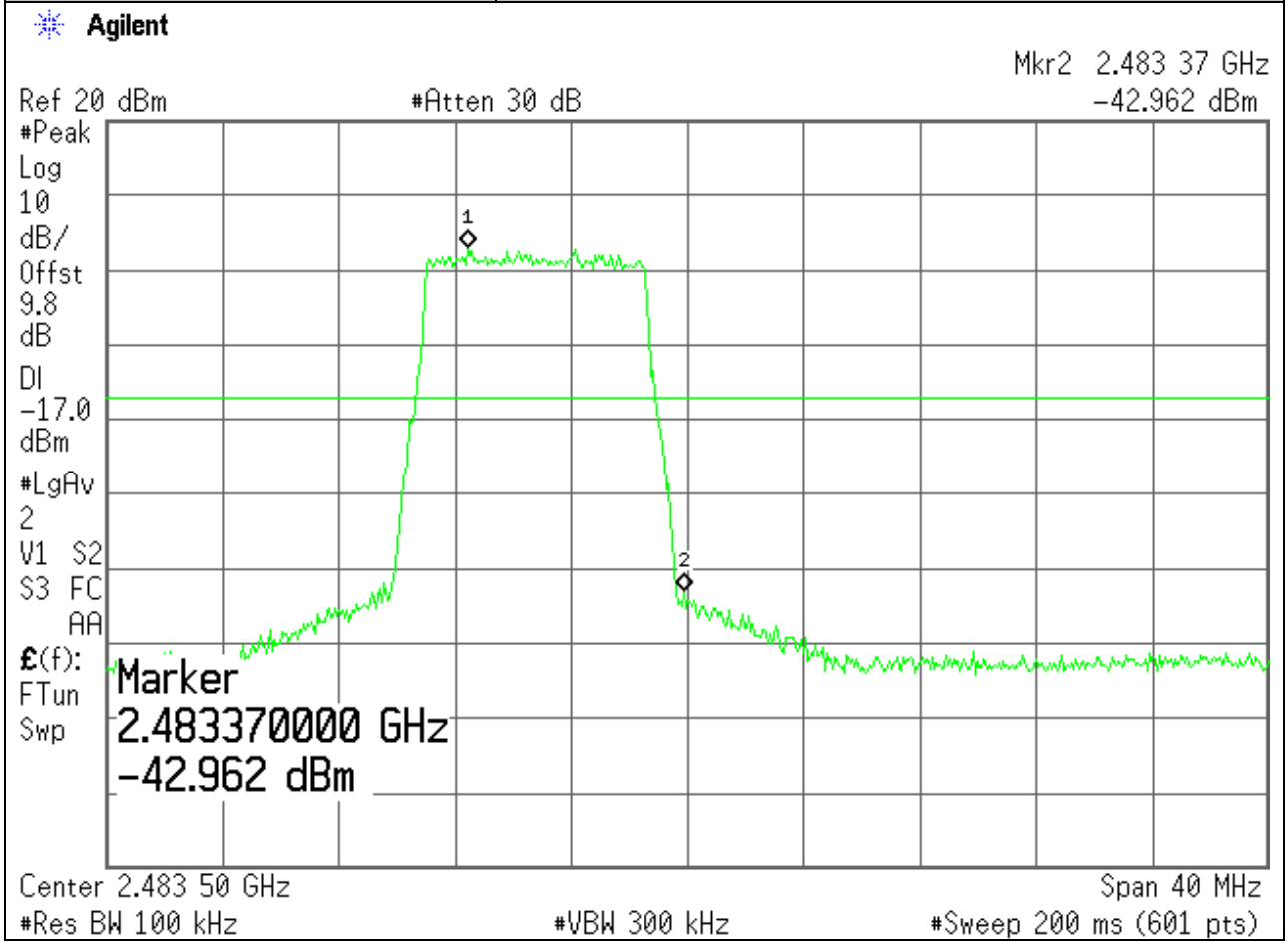
6MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



8MHz BW, 64QAM Mode:

Plot Name:	Conducted Spurious Emissions @ High Band Edge High CH



7.7. RADIATED EMISSIONS

7.7.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) RSS-102 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	2655 - 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			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The emissions are investigated with the transmitter set to the lowest, middle, and highest channels.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

RESULTS

No non-compliance noted:

7.7.2. TRANSMITTER RADIATED EMISSIONS DATA
(HARMONICS & SPURIOUS falling in the restricted bands listed in Sec.15.205)

A. Data for EUT with 6" Interface cable (High Power Setting as the worst case)

Low Channel Harmonics/Spurious

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
131.7	V	3			40.0		43.5		-3.5
130.1	H	3			37.8		43.5		-5.7
436.0	H	3			37.7		46.0		-8.3
1434	V	3		45.2	40.0	74	54	-28.8	-14
1462	V	3		54.1	49.7	74	54	-19.9	-4.3
1556	V	3		46.2	41.8	74	54	-27.8	-12.2
1448	H	3		57.0	49.5	74	54	-17	-4.5
1464	H	3		57.7	44.1	74	54	-16.3	-9.9
1555	H	3		52.0	44.2	74	54	-22	-9.8
4802	V	1	-10.5	46.0	38.0	74	54	-28	-16
12006	V	1	-10.5	45.2	39.8	74	54	-28.8	-14.2

Middle Channel Harmonics/Spurious

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
132.0	V	3			41.1		43.5		-2.4
132.0	H	3			39.1		43.5		-4.4
432.2	H	3			38.5		46.0		-7.5
1436	V	3		43.0	39.3	74	54	-31	-14.7
1463	V	3		52.9	48.9	74	54	-21.1	-5.1
1556	V	3		45.0	41.4	74	54	-29	-12.6
1447	H	3		56.3	49.0	74	54	-17.7	-5
1463	H	3		56.5	43.2	74	54	-17.5	-10.8
1555	H	3		50.9	43.3	74	54	-23.1	-10.7
4882	V	1	-10.5	44.5	38.2	74	54	-29.5	-15.8
12205	V	1	-10.5	44.0	37.8	74	54	-30	-16.2

High Channel Harmonics/Spurious

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
127.4	V	3			41.7		43.5		-1.8
125.8	H	3			39.9		43.5		-3.6
432.0	H	3			38.0		46.0		-8
1436	V	3		43.5	39.6	74	54	-30.5	-14.4
1464	V	3		53.4	49.5	74	54	-20.6	-4.5
1556	V	3		46.8	41.4	74	54	-27.2	-12.6
1448	H	3		57.0	49.7	74	54	-17	-4.3
1462	H	3		57.7	46.0	74	54	-16.3	-8
1554	H	3		51.4	45.2	74	54	-22.6	-8.8
4956.5	V	1	-10.5	46.5	39.0	74	54	-27.5	-15
12392	V	1	-10.5	46.0	40.1	74	54	-28	-13.9

B. Data for EUT with 2" Interface cable
(High Power Setting and Channel as the worst case based pre test results)

Low Channel Harmonics

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
4802	V	1	-10.5	45.8	38.2	74	54	-28.2	-15.8
12006	V	1	-10.5	45.4	39.5	74	54	-28.6	-14.5

Middle Channel Harmonics

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
4882	V	1	-10.5	45.0	38.0	74	54	-29	-16
12205	V	1	-10.5	44.8	38.7	74	54	-29.2	-15.3

High Channel Harmonics/Spurious

Freq. (MHz)	Worst H/V	Dist. (m)	D Corr (dB)	Peak@3m (dBuV/m)	QP/Avg @3m (dBuV/m)	PK Lim (dBuV/m)	QP /Avg. Lim (dBuV/m)	PK Mar (dBuV/m)	QP /Avg.Mar. (dBuV/m)
123.5	H	3			38.9		43.5		-4.6
128.5	H	3			39.1		43.5		-4.4
131.2	H	3			39.3		43.5		-4.2
141.4	H	3			38.9		43.5		-4.6
123.5	V	3			39.0		43.5		-4.5
134.1	V	3			39.4		43.5		-4.1
141.4	V	3			39.3		43.5		-4.2
208	H	3			38.0		43.5		-5.5
432	H	3			39.0		46.0		-7
208	V	3			35.1		43.5		-8.4
306	V	3			35.2		46.0		-10.8
432	V	3			40.5		46.0		-5.5
1462.8	H	3		51.6	48.2	74	54.0	-22.4	-5.8
1477.5	H	3		50.4	47.0	74	54.0	-23.6	-7
1554.3	H	3		49.7	46.3	74	54.0	-24.3	-7.7
1462.8	V	3		45.5	41.9	74	54.0	-28.5	-12.1
1477.5	V	3		52.5	44.2	74	54.0	-21.5	-9.8
1554.3	V	3		55.8	43.5	74	54.0	-18.2	-10.5
4956.5	V	1	-10.5	47.2	40.2	74	54	-26.8	-13.8
12392	V	1	-10.5	47.3	41.7	74	54	-26.7	-12.3

No other harmonics or spurious emissions were detected in the rest band above system noise floor.

The worst case: EUT tested with the highest gain antenna, Dipole Antenna (5dBi). Narrowest channel BW (1.25MHz) and QPSK Modulation with rated High output power level (20dBm) were selected for final testing record, based on pre-testing investigations for all modes.

C. Band Edge Data for EUT with 6" Interface cable
(pretesting shows that interface cable length has no significant effect on Band Edge emissions)

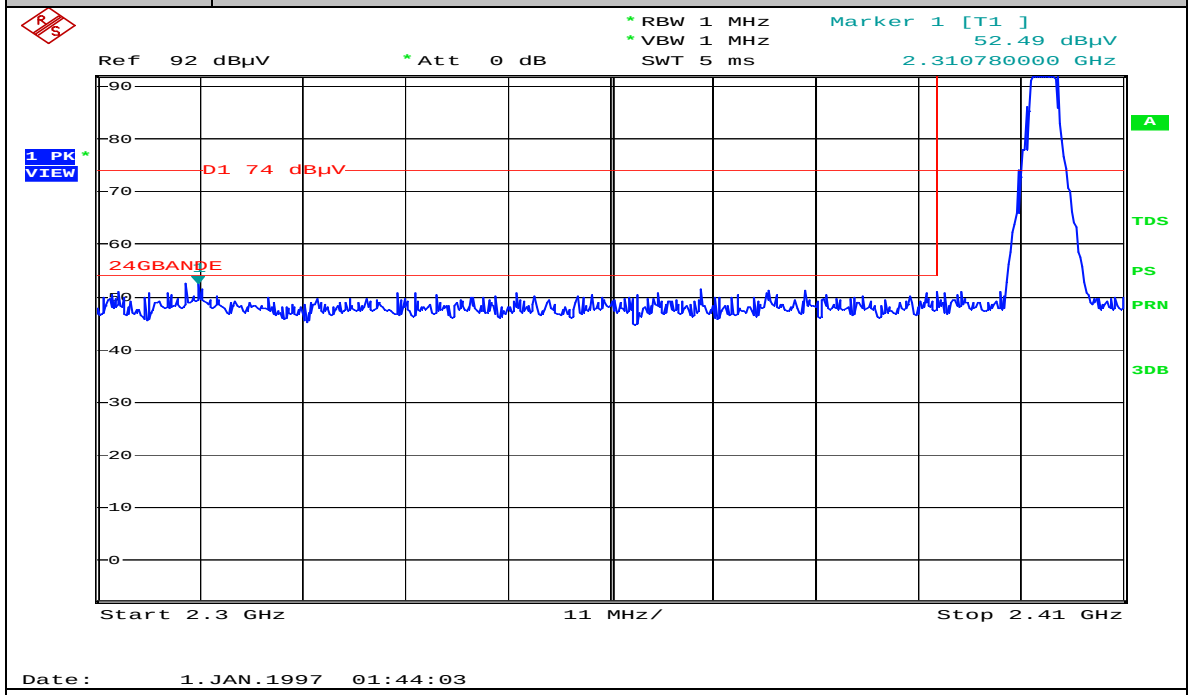
In addition, the band-edge requirements are also verified. The testing results for worst case are shown as following and comply with the band-edge requirements for 2400-2483.5MHz DTS per FCC Part 15.247 & FCC KDB Publication No. 558074. Antenna with max gain (5dBi) was used for this testing.

- H=Measurement antenna horizontal position
- V= Measurement antenna vertical position
- Final results for worst case scenario with QPSK modulation are documented in the report, based on pre-testing investigations for all operation modes.
- Using conventional manner for measuring the radiated emissions that are removed by more than two measurement bandwidths from band-edge, such as the emissions in the restricted band 2310-2390MHz & 2483.5-2500MHz, etc.
- Using conventional manner or if needed, using "delta" measurement technique for measuring the radiated emissions that are up to two measurement bandwidths removed from band-edge, such as the restricted band that begins at 2483.5MHz.

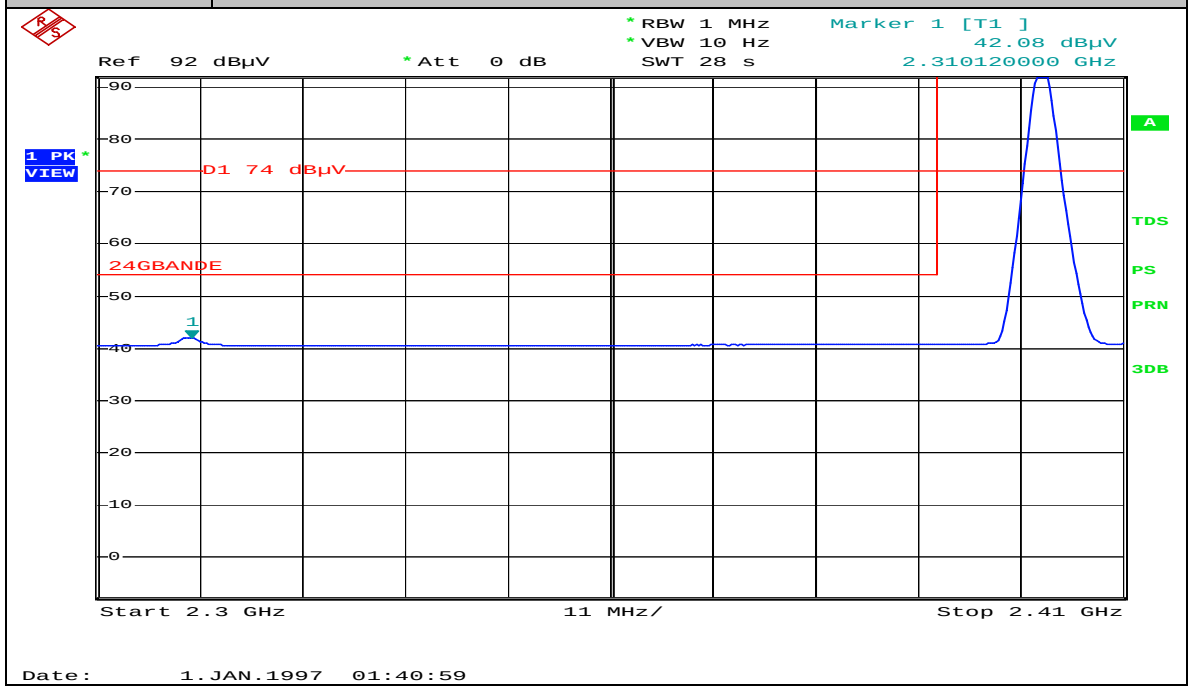
C1: High Power Setting (P=20dBm)

1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, H

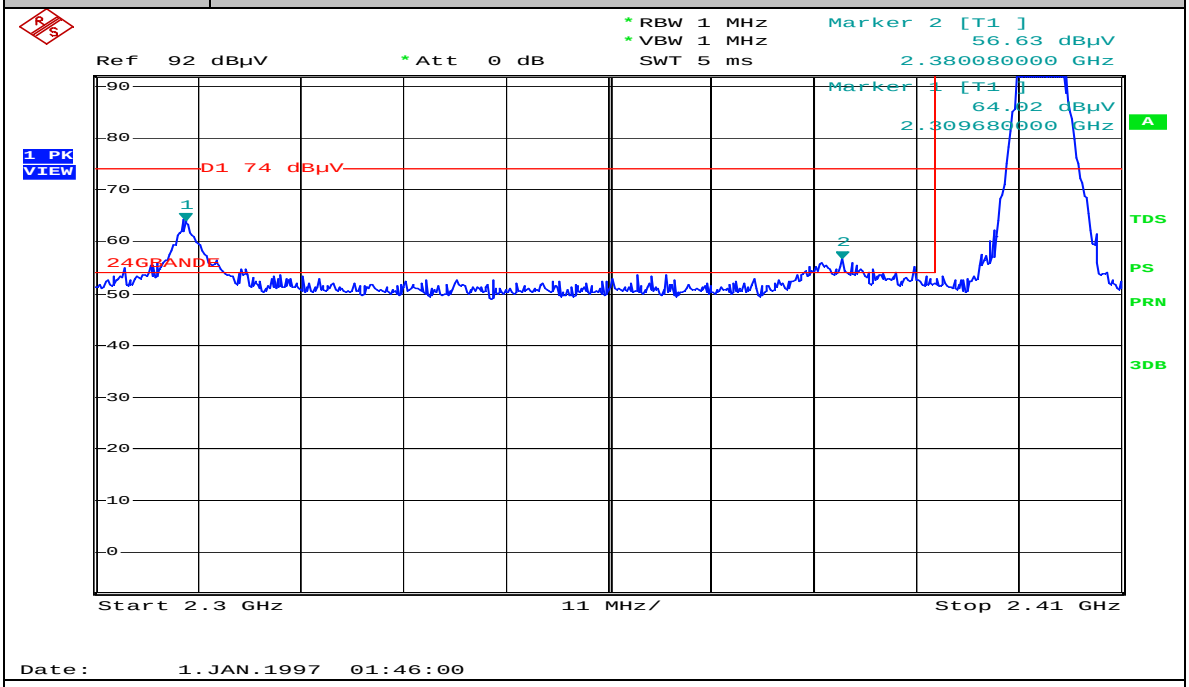


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, H

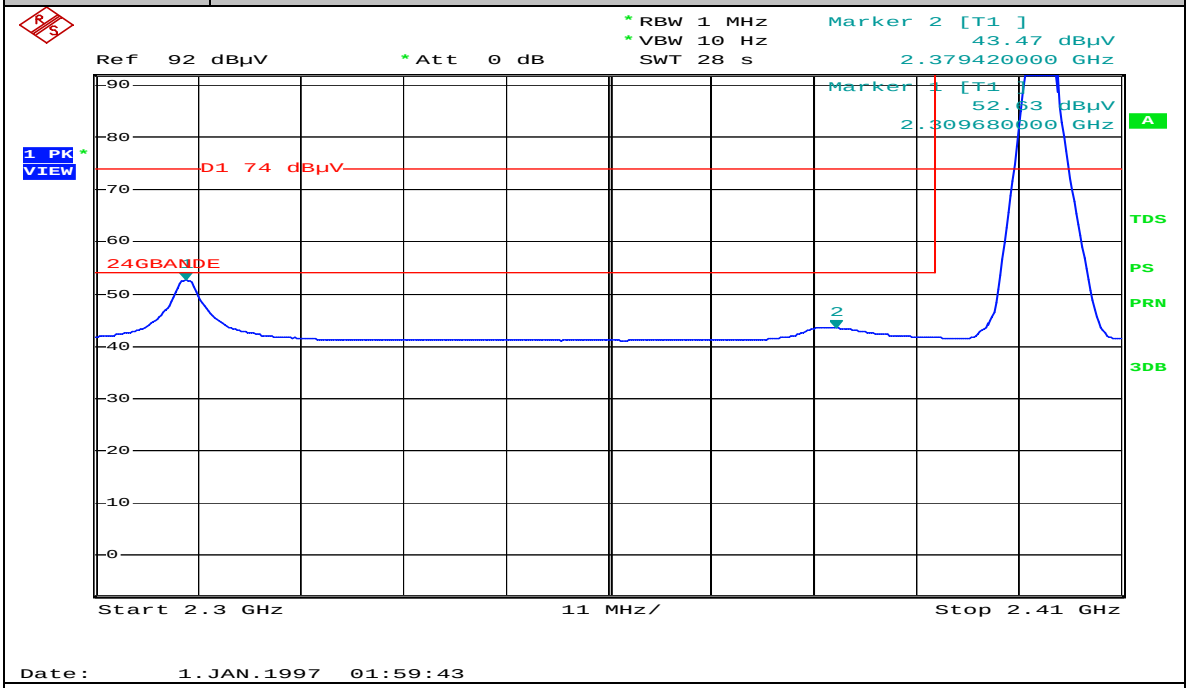


1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

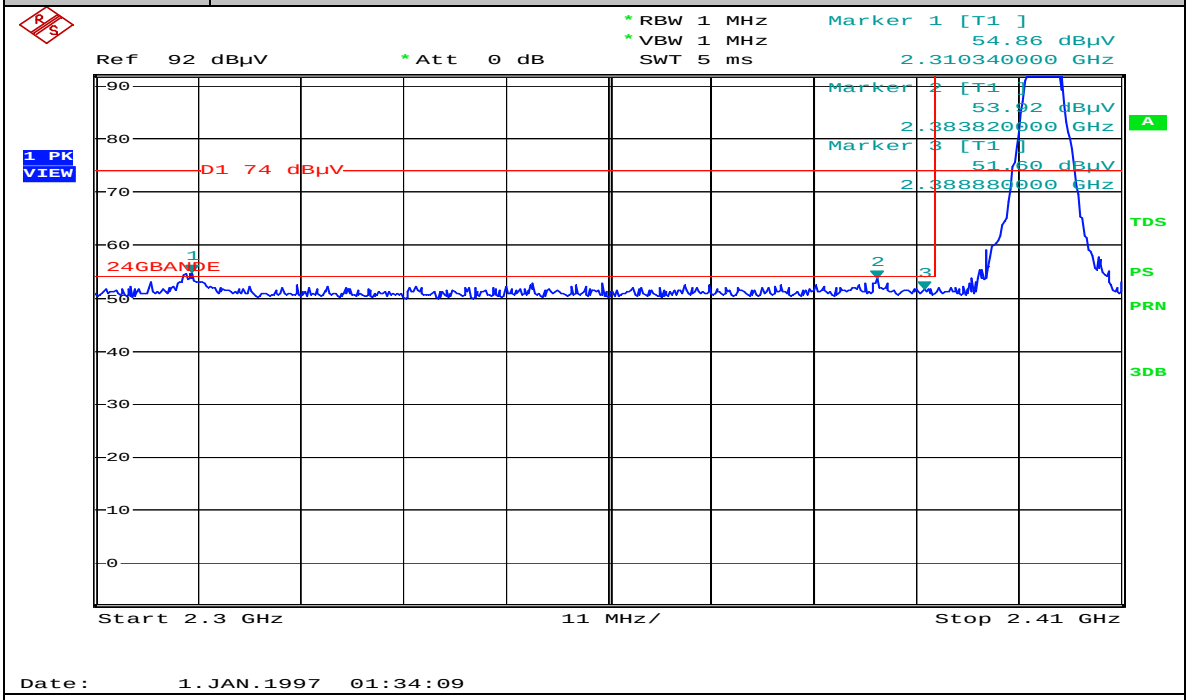


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V

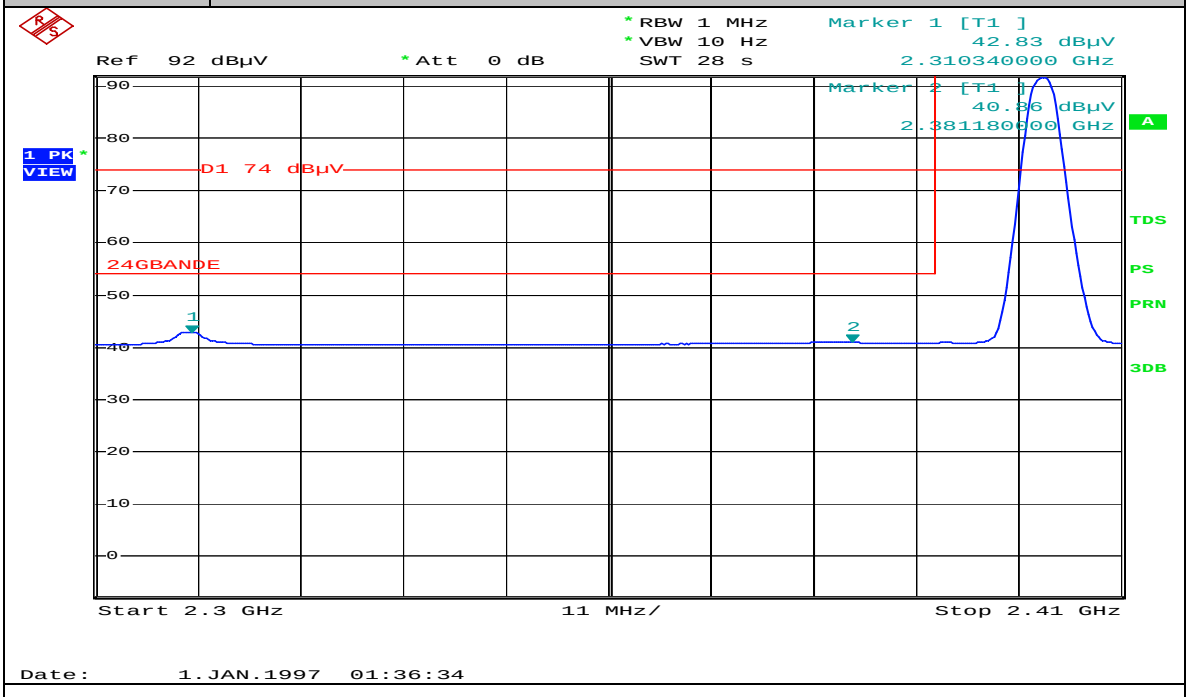


2.5MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, H

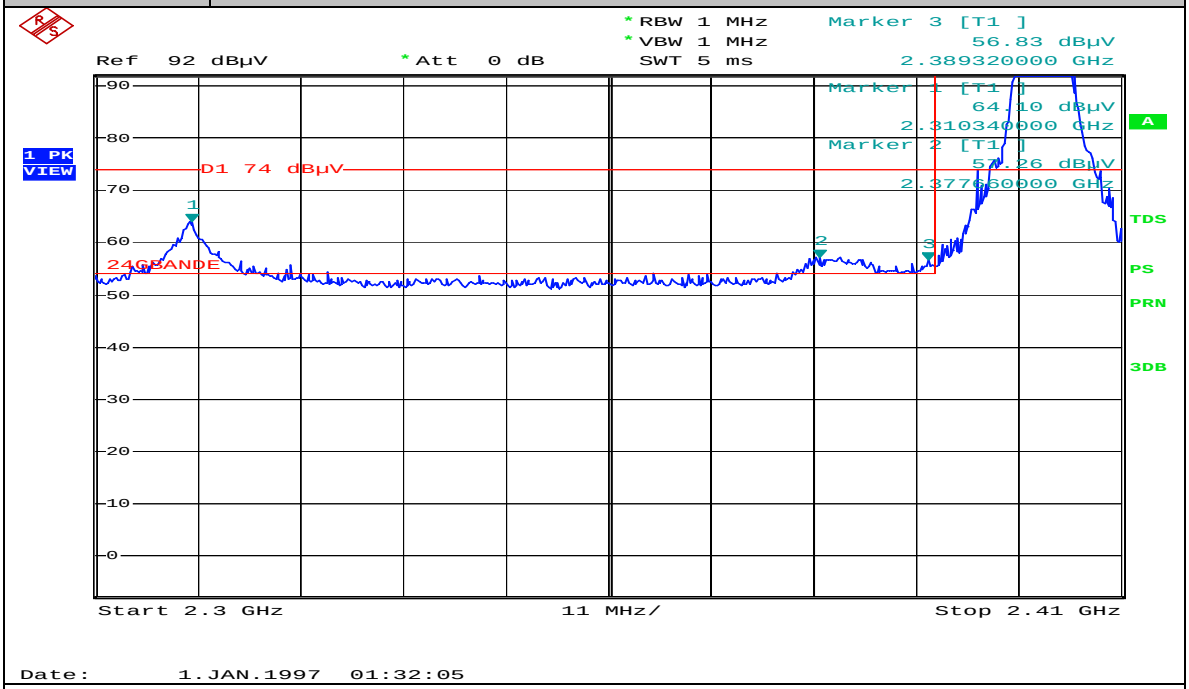


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, H

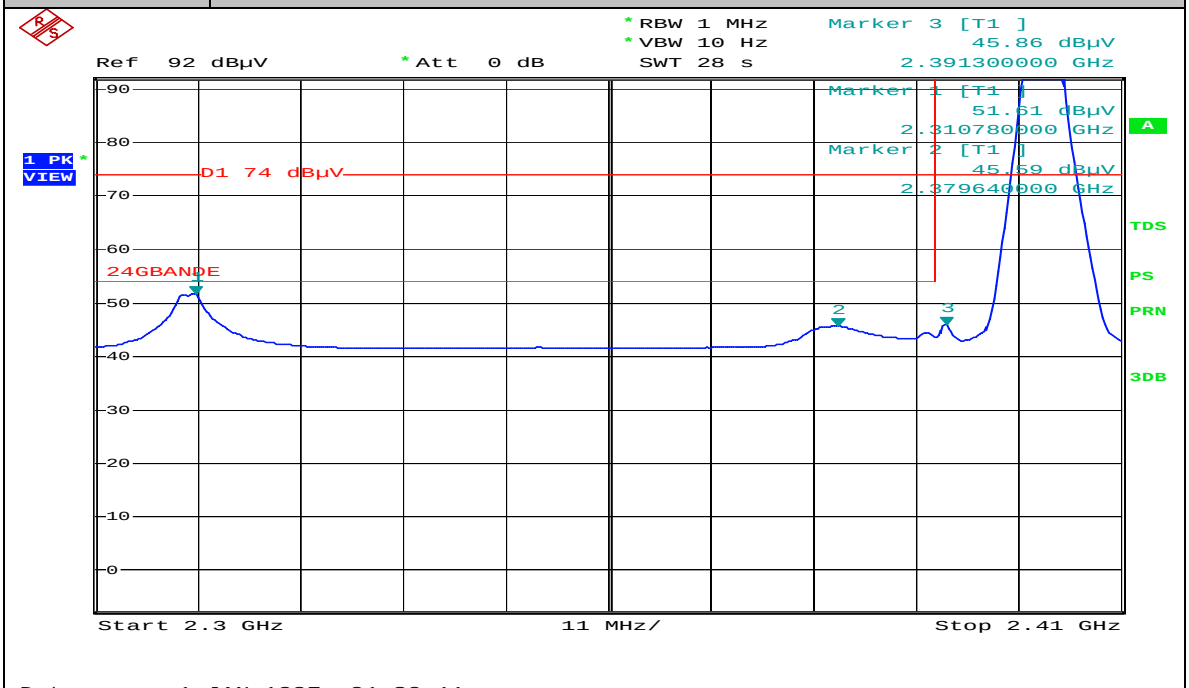


2.5MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

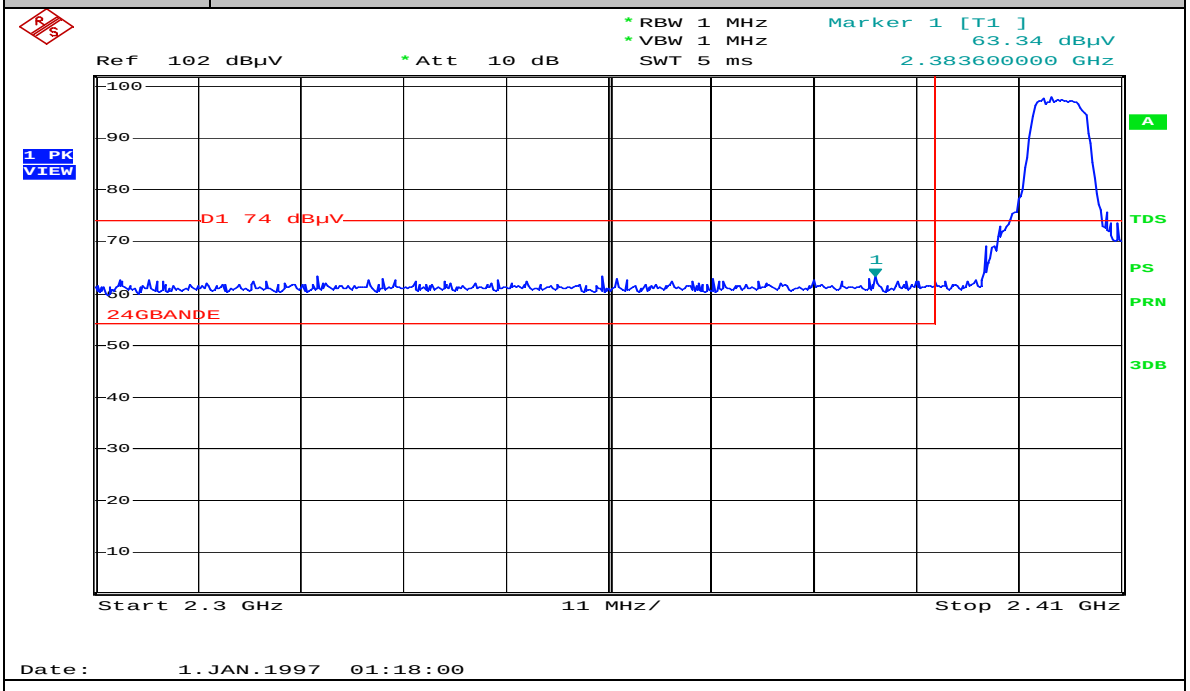


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V

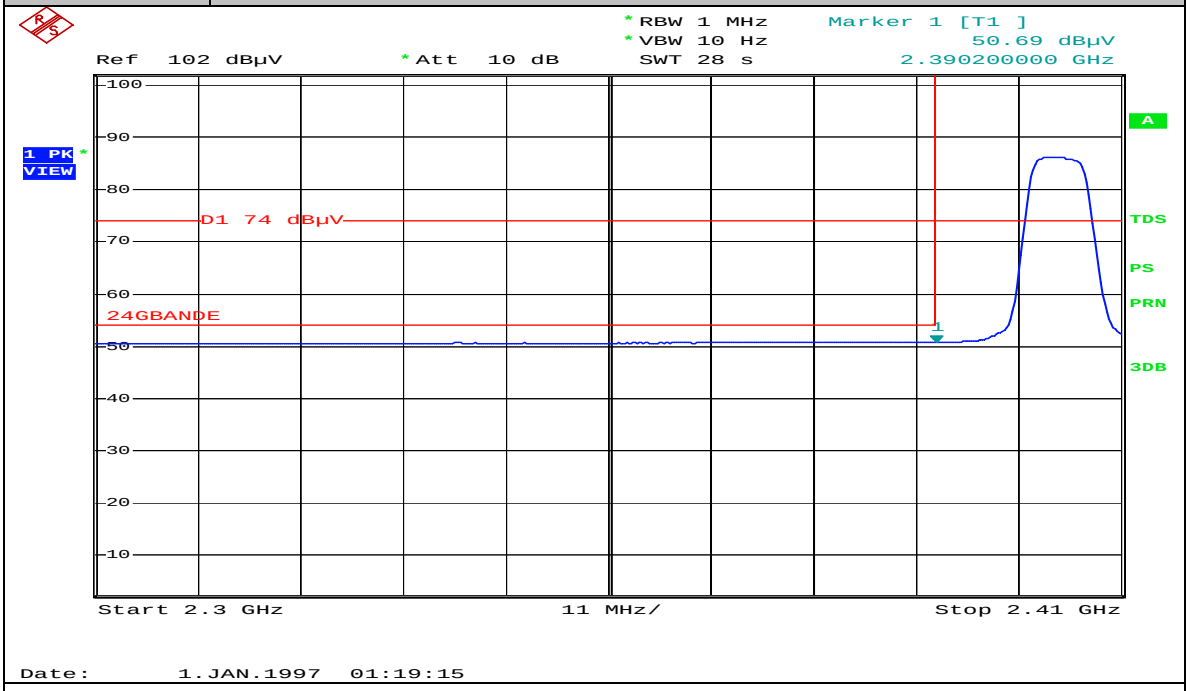


6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, H

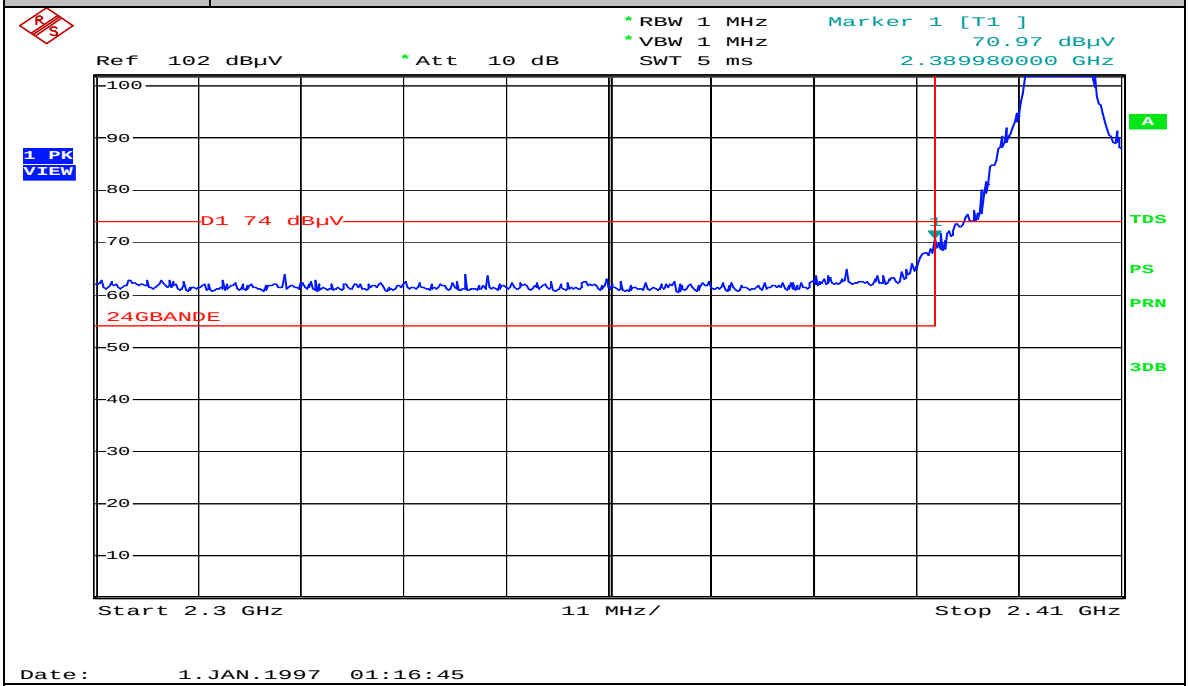


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, H

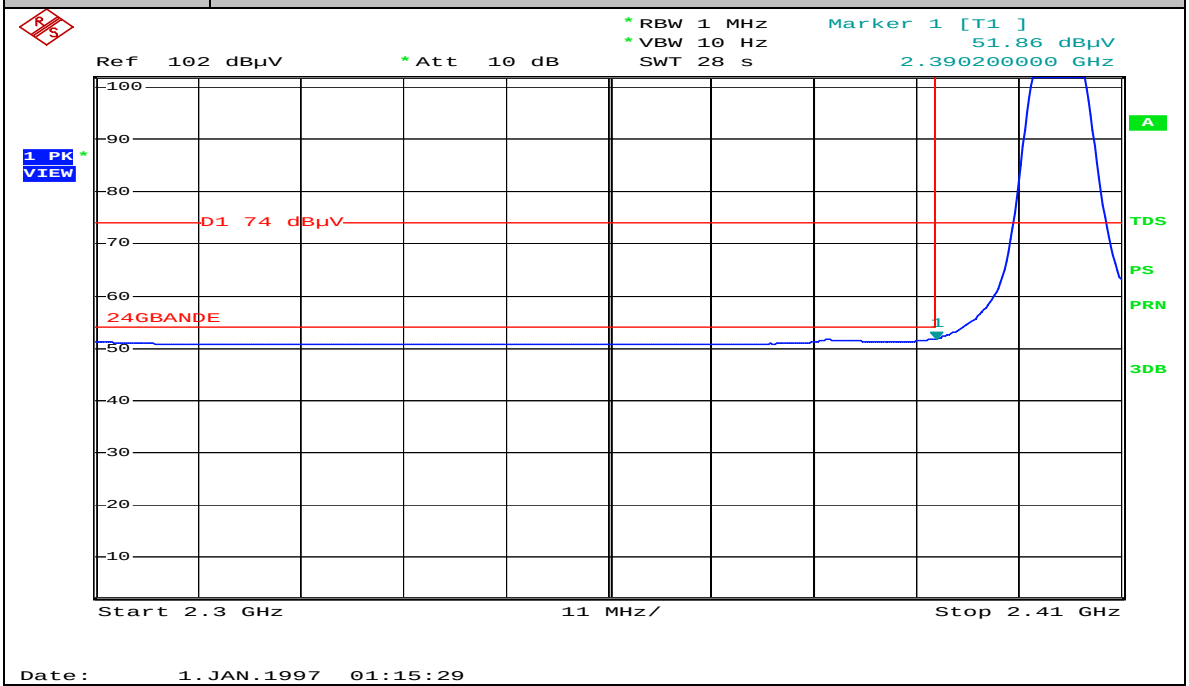


6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

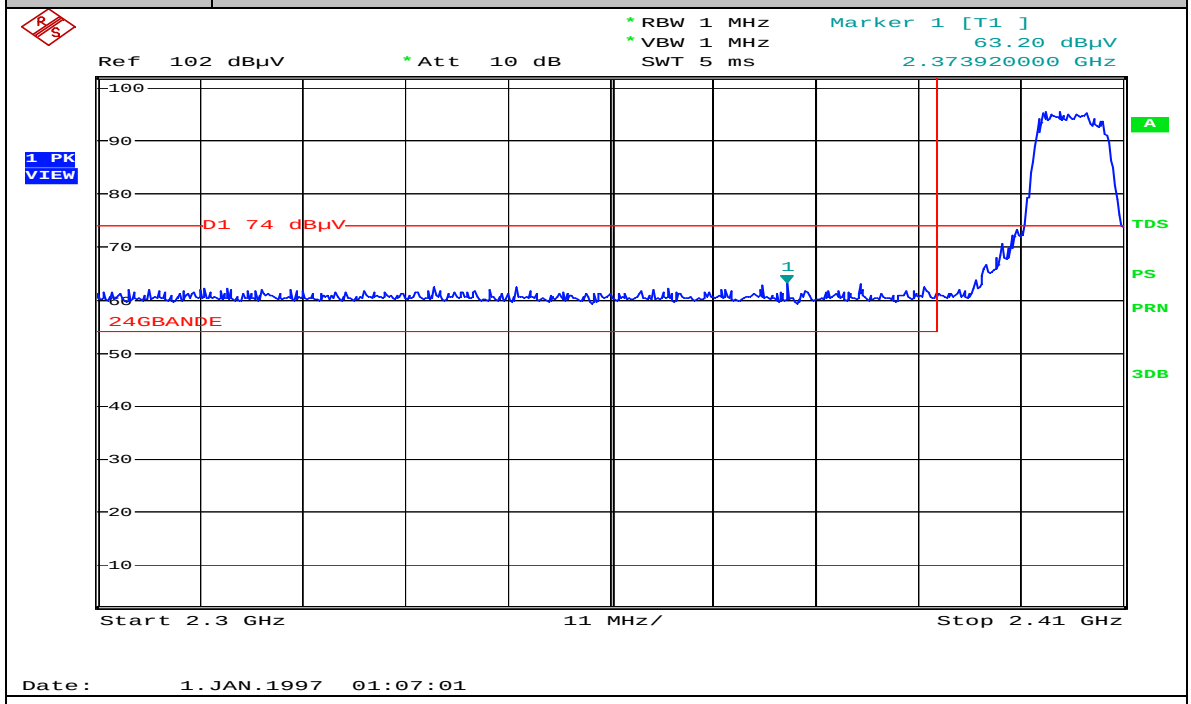


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V

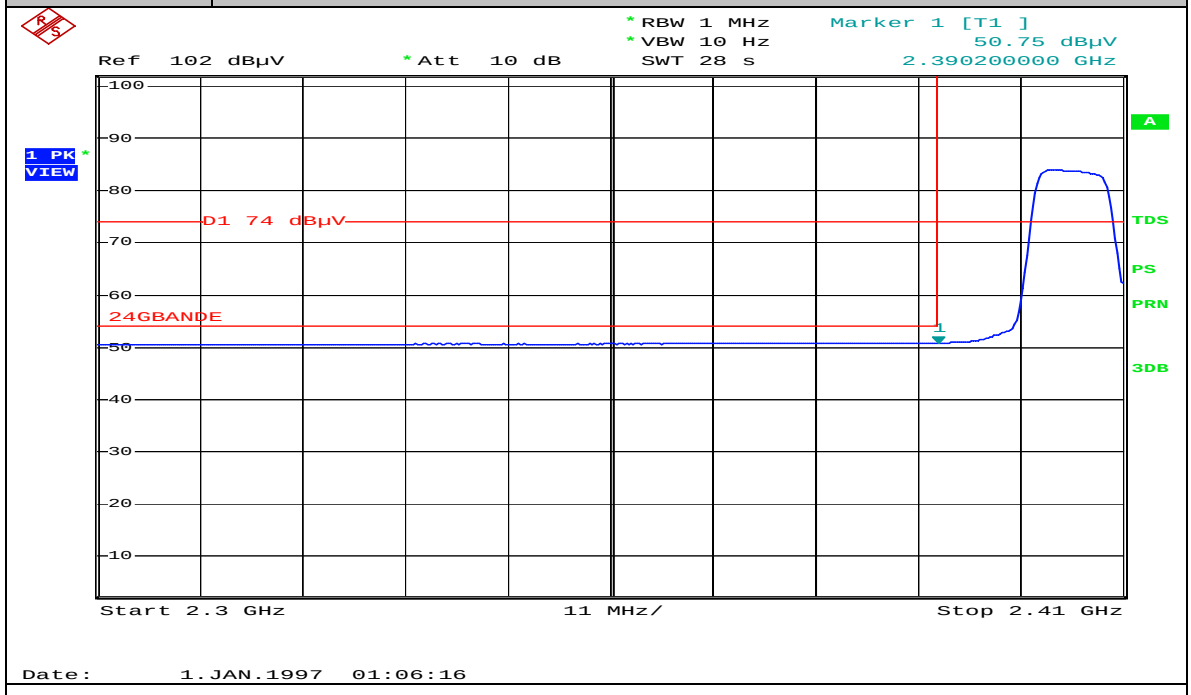


8MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, H

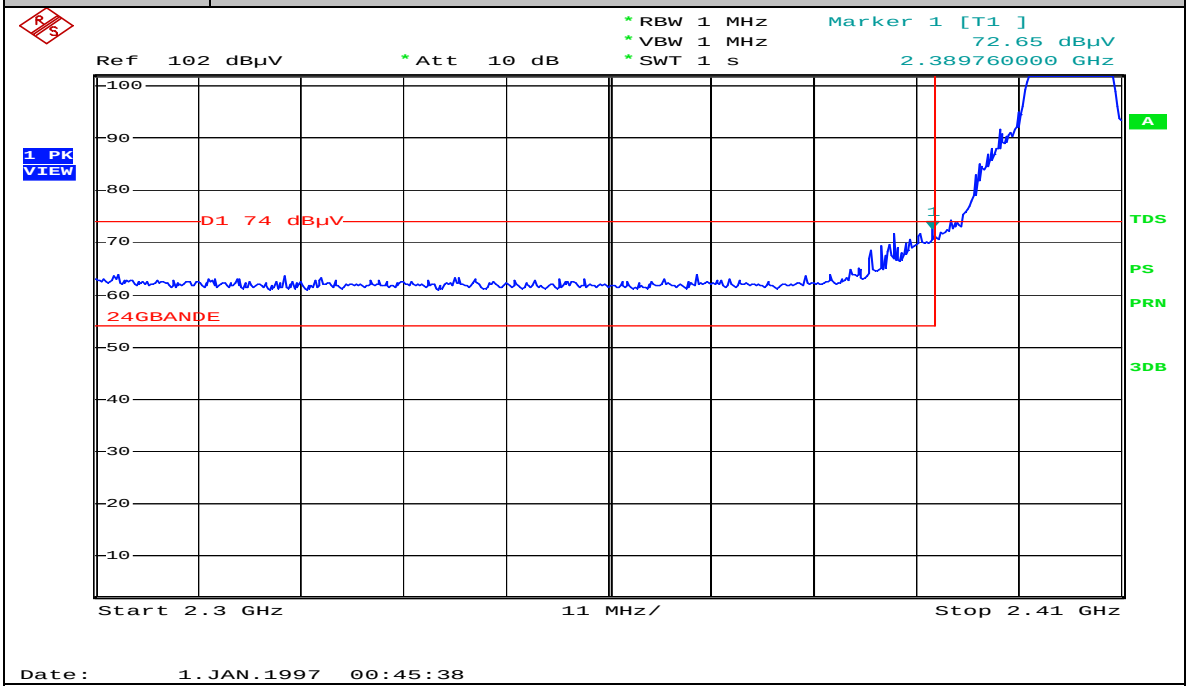


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, H

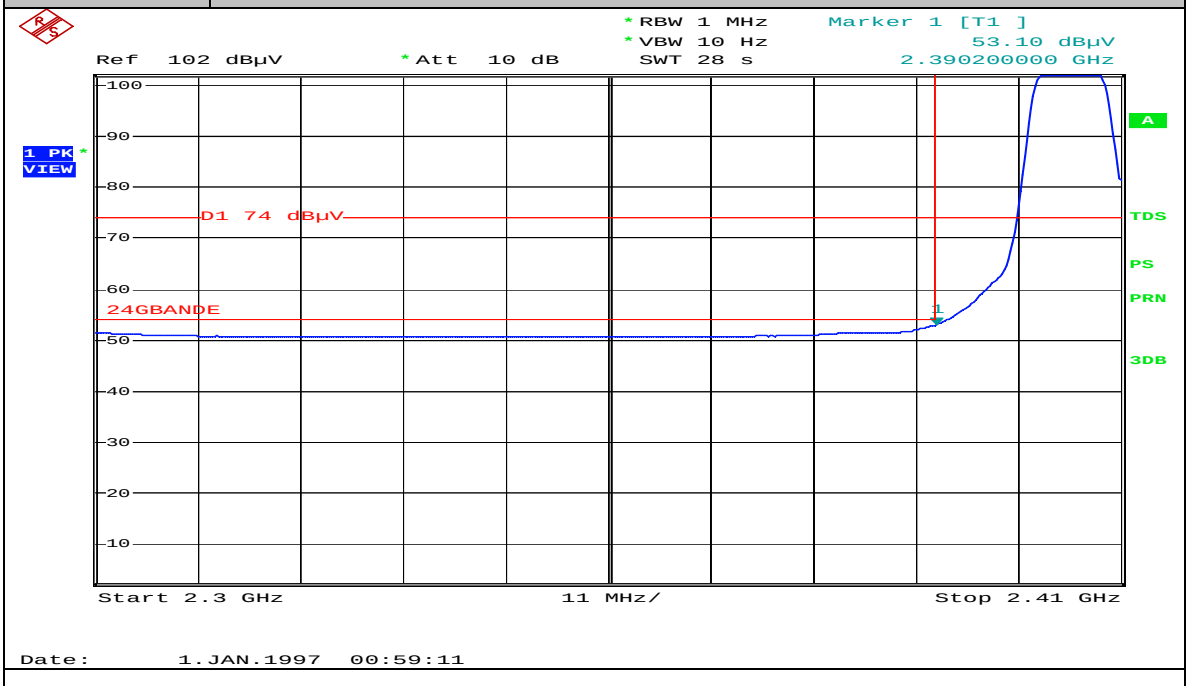


8MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

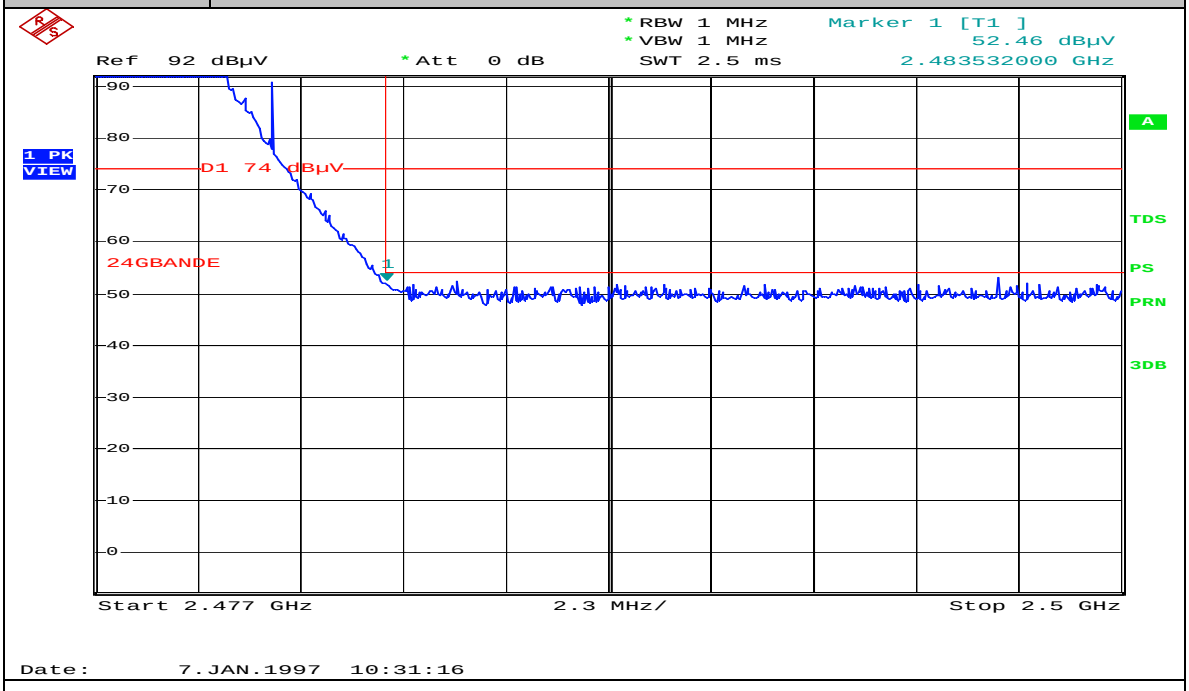


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V

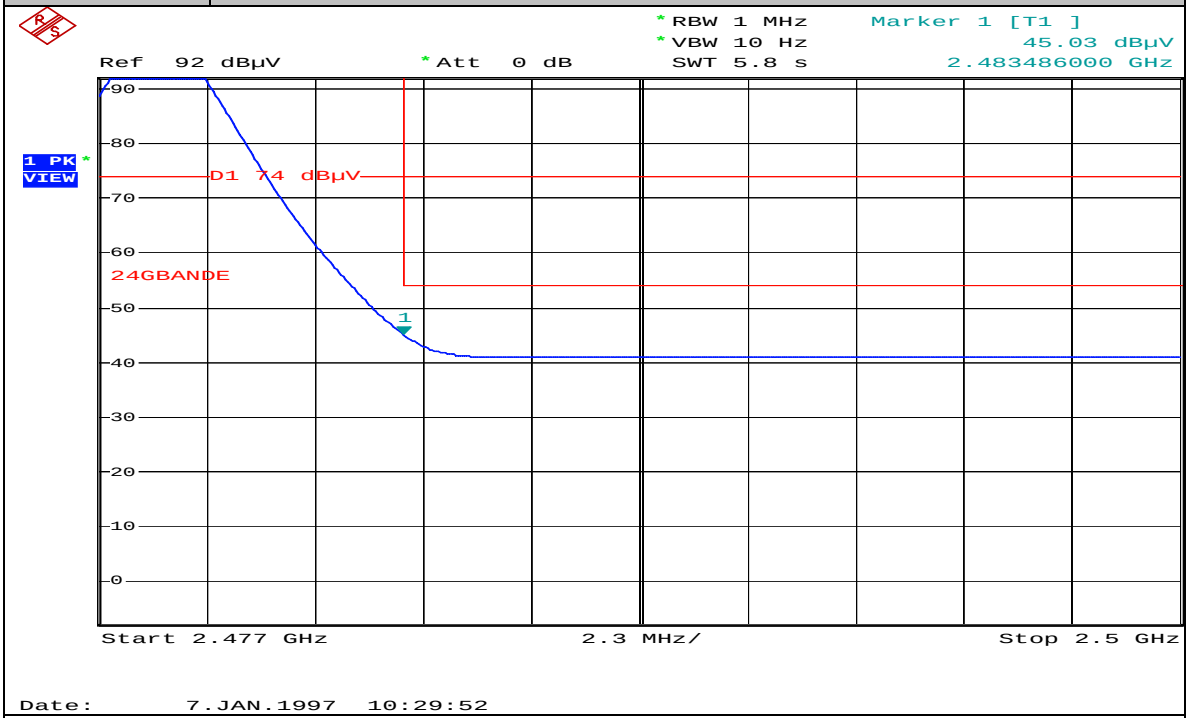


1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, H

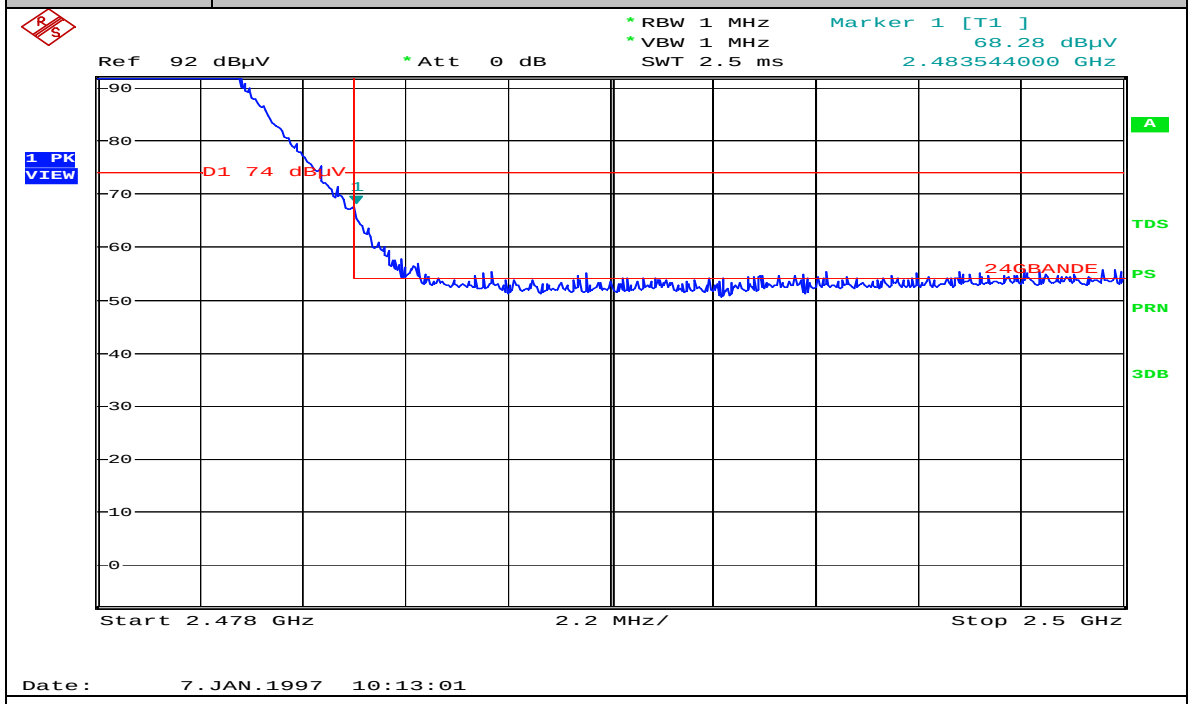


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, H



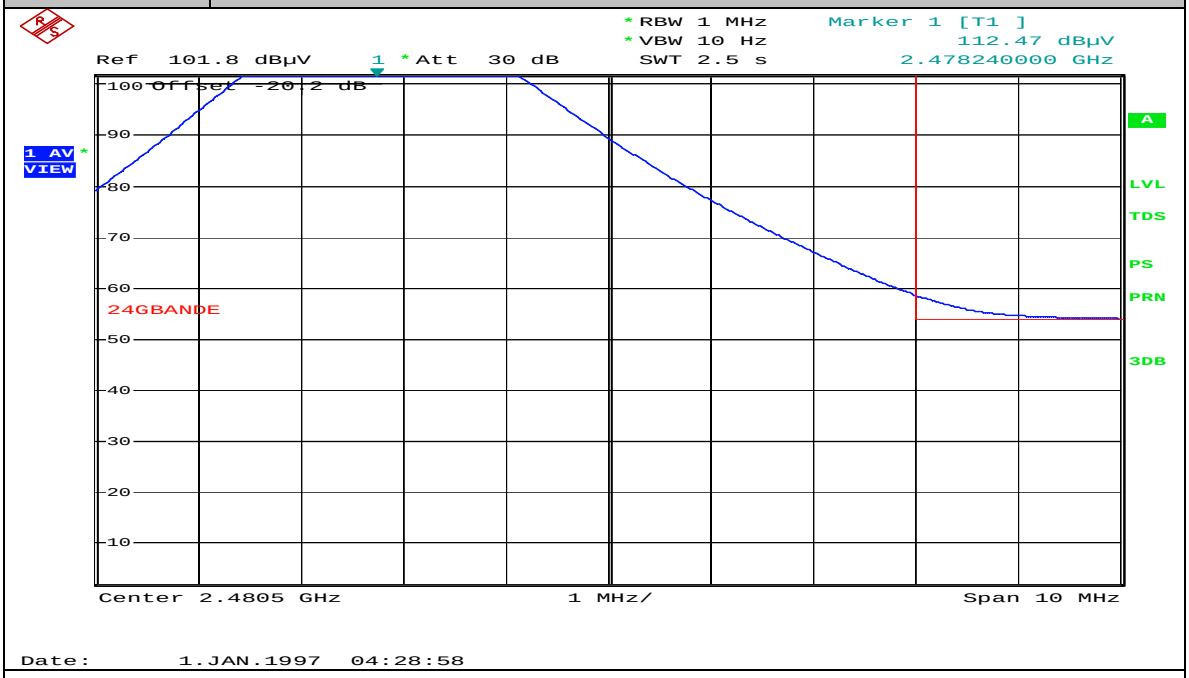
1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



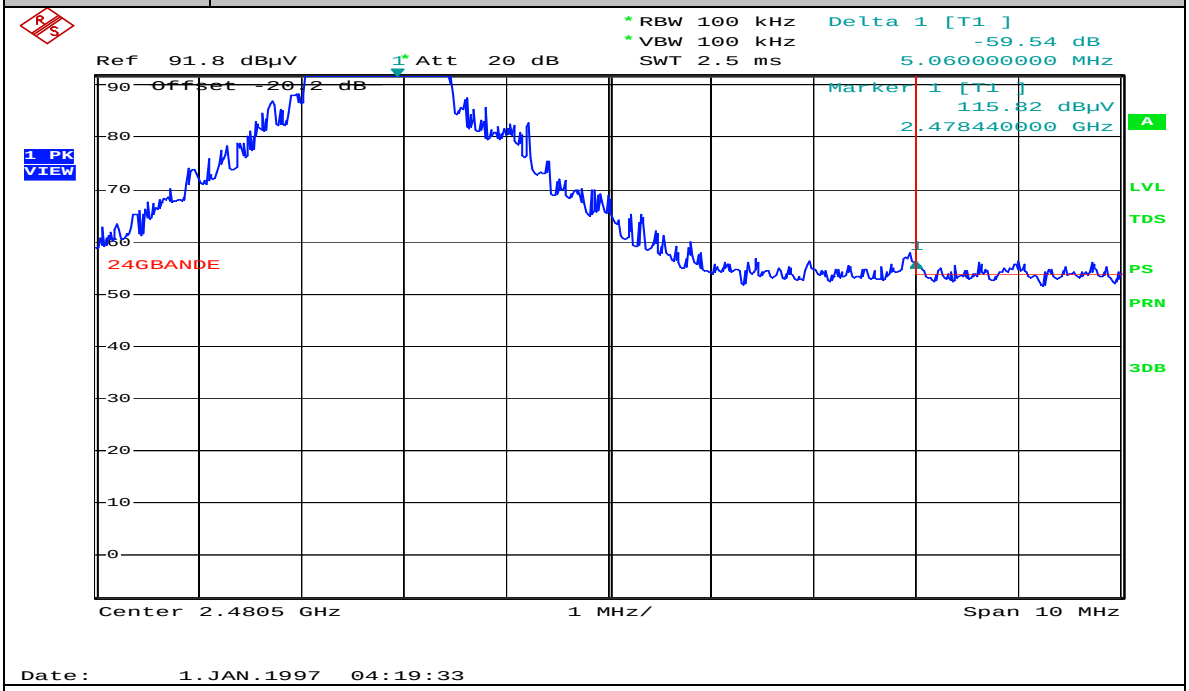
1.25MHz BW

Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



using “delta” measurement technique: Fundamental =112.47dBuV/m with RBW=1MHz.

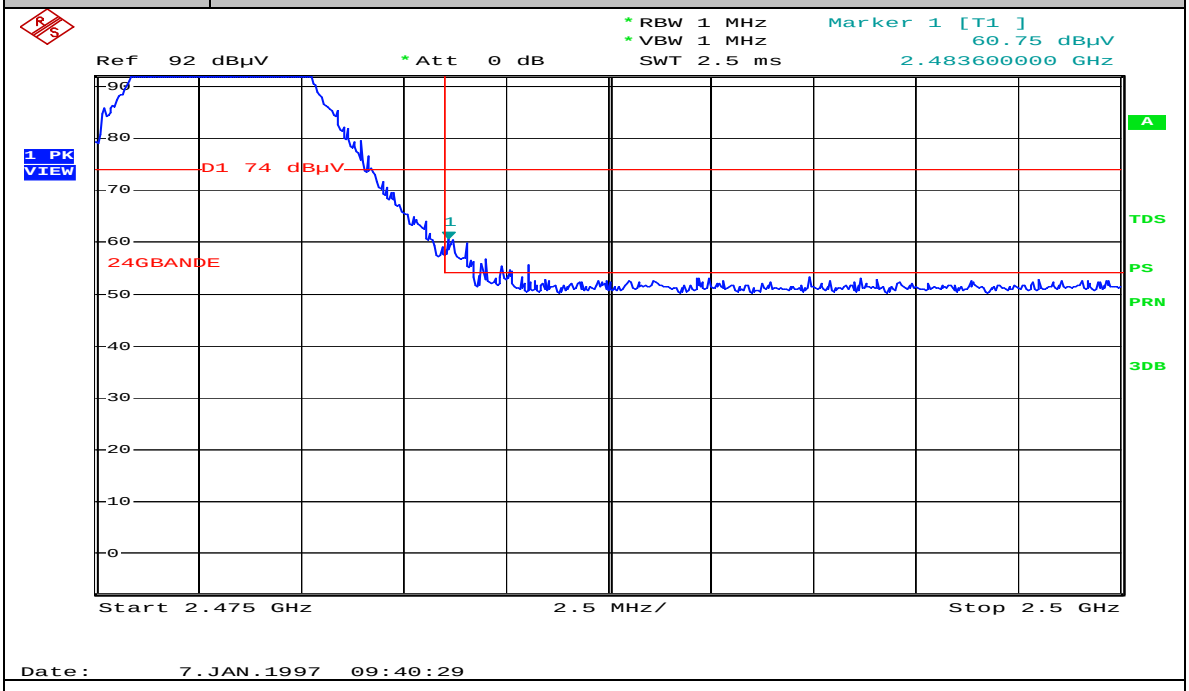
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



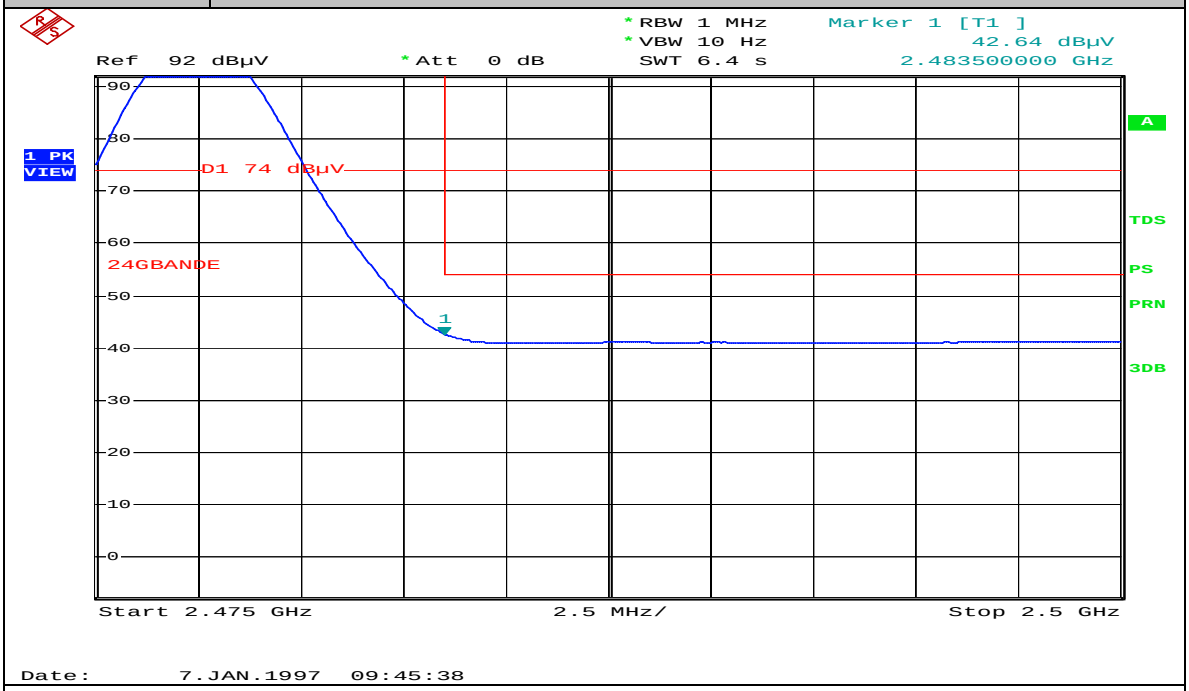
Delta=-59.54dB with RBW=100KHz. Then the average reading for emissions adjacent to 2483.5MHz bandedge=112.47dBuV-59.54=52.93dBuV/m

2.5MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, H

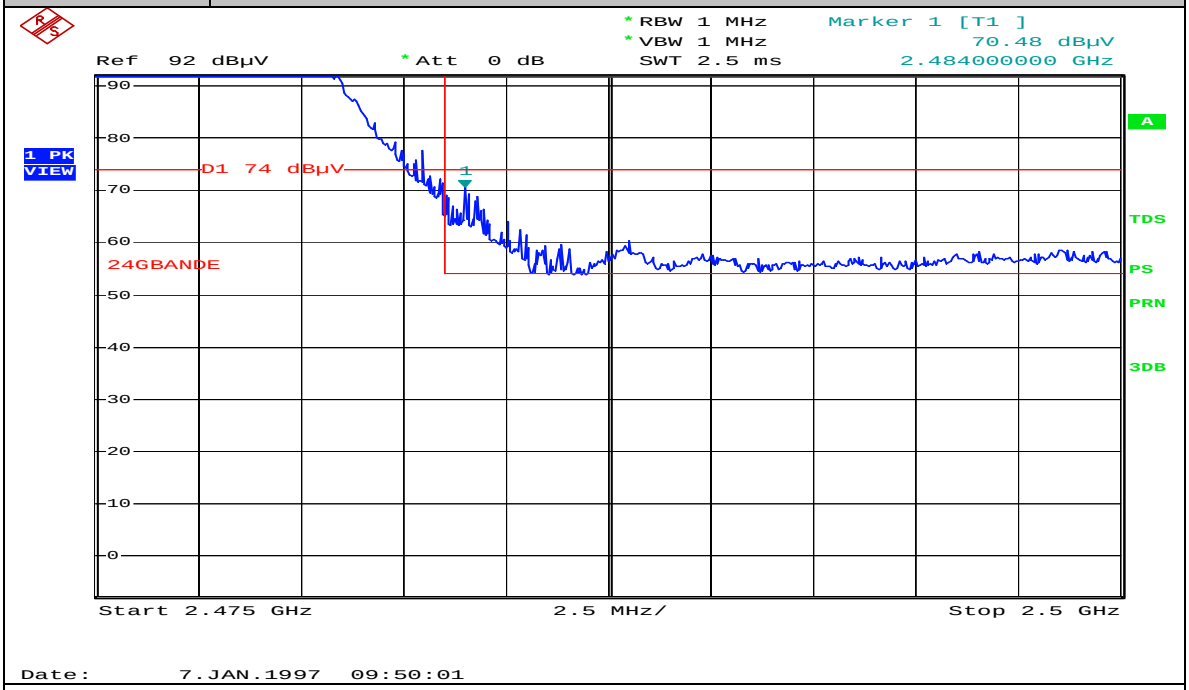


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, H

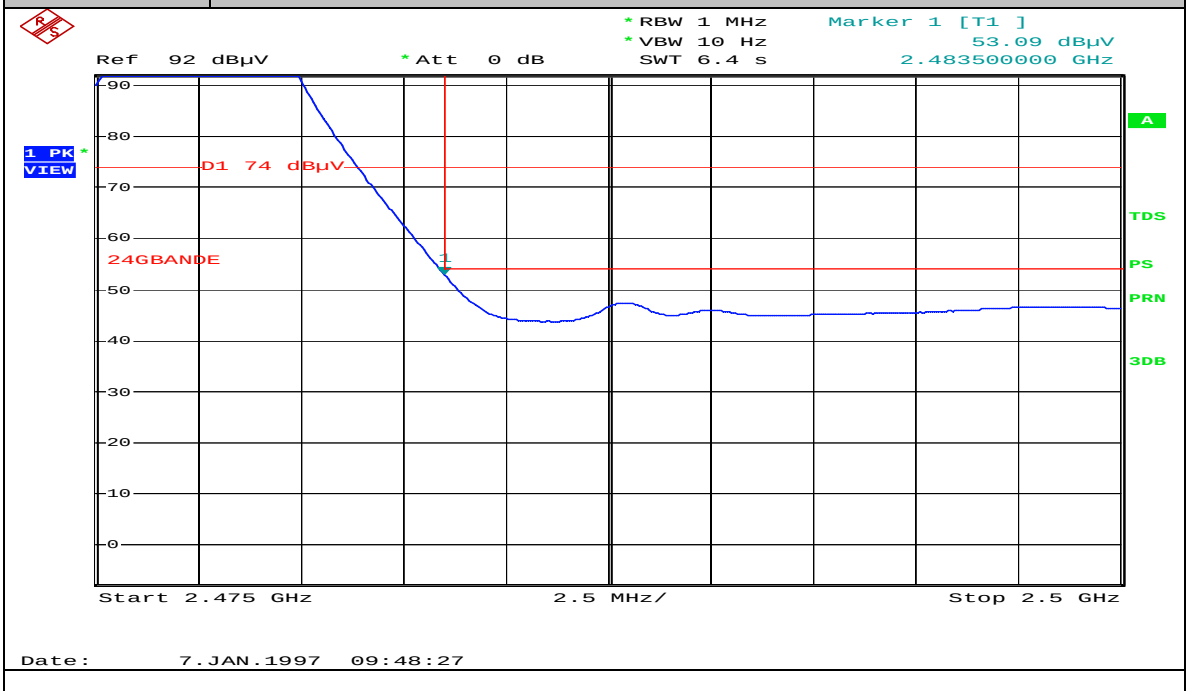


2.5MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V

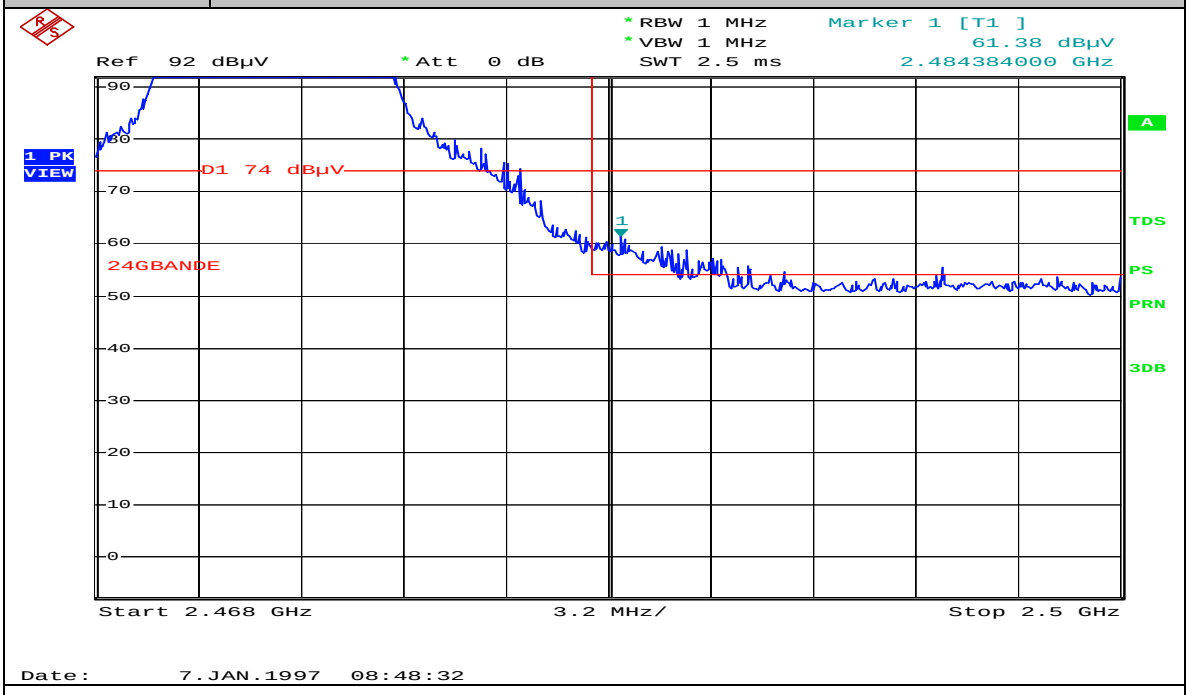


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V

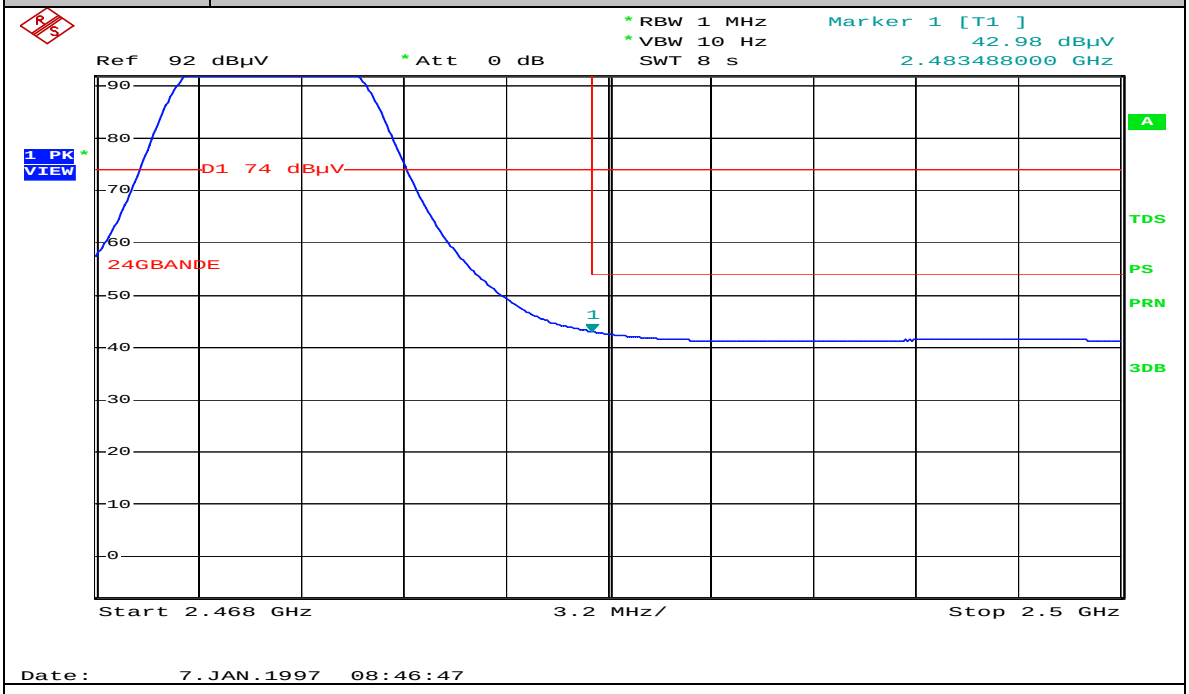


6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, H

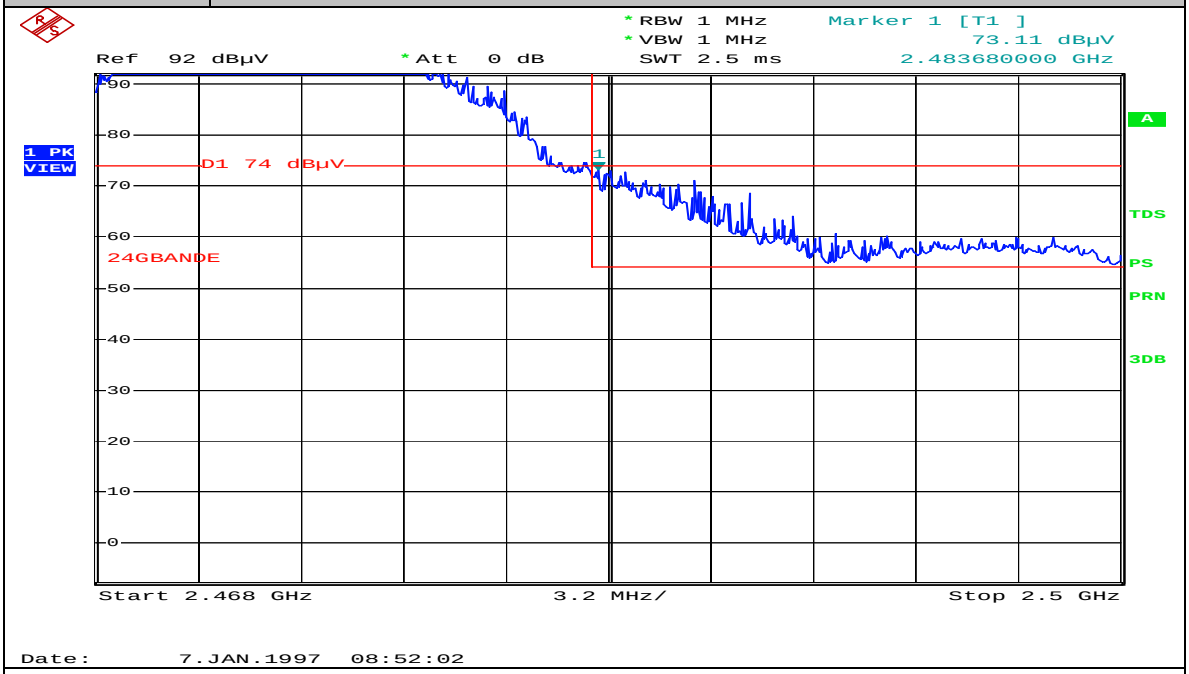


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, H

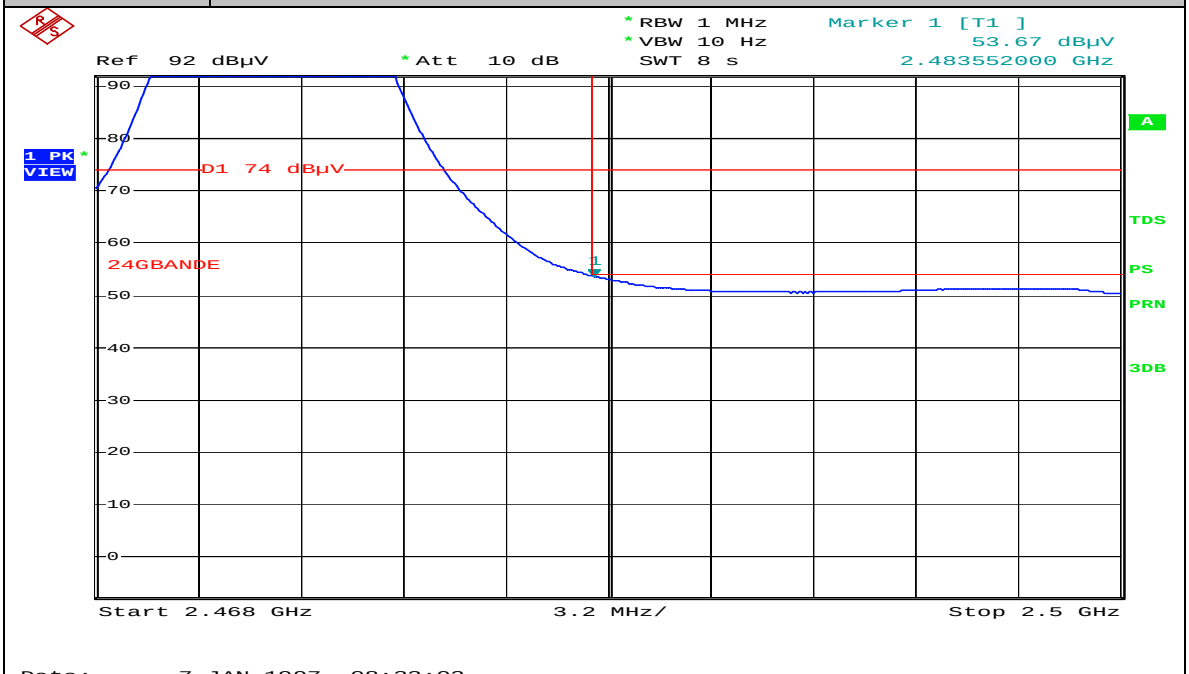


6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V

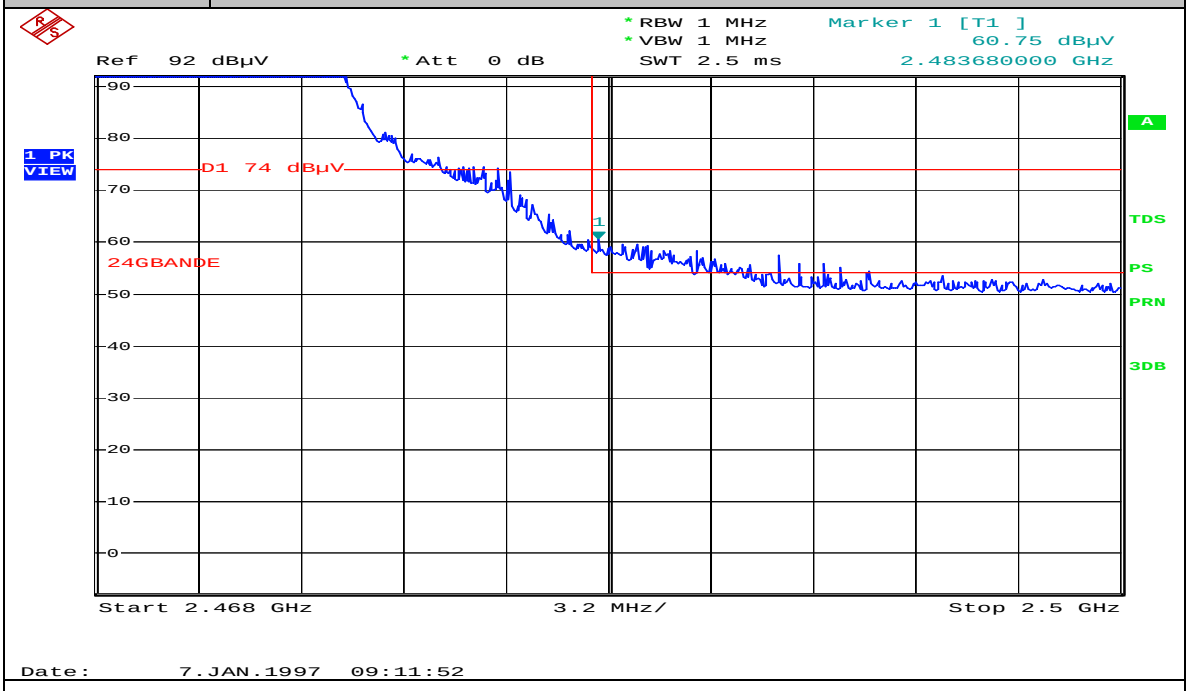


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V

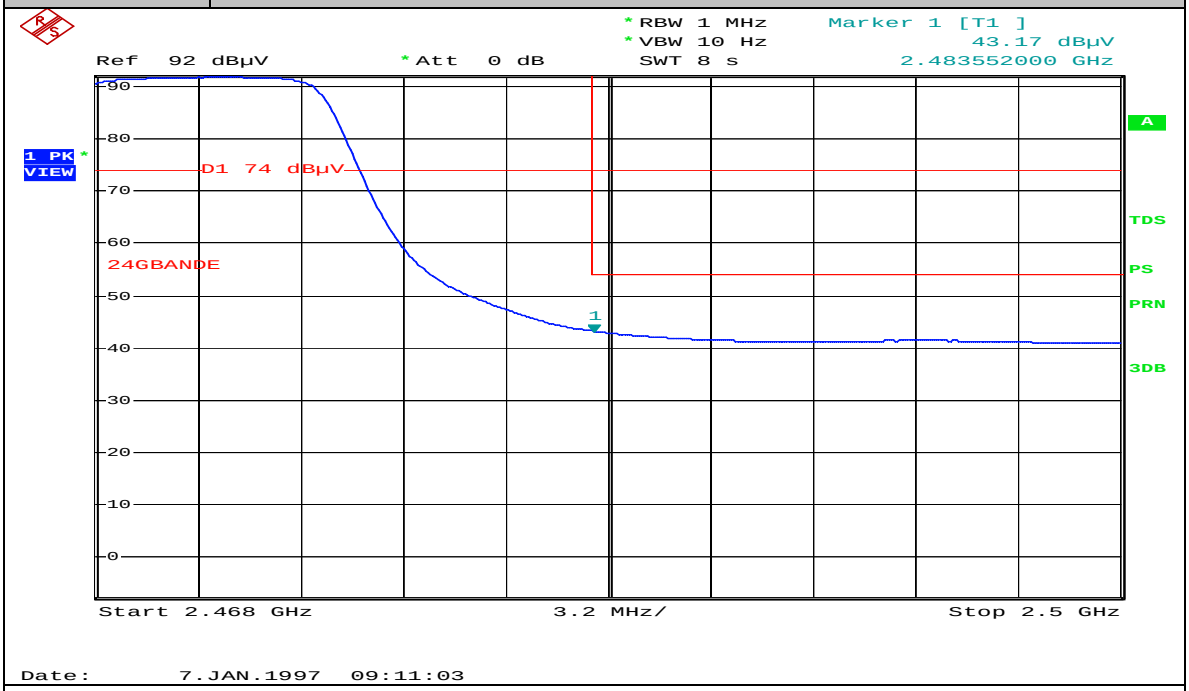


8MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, H

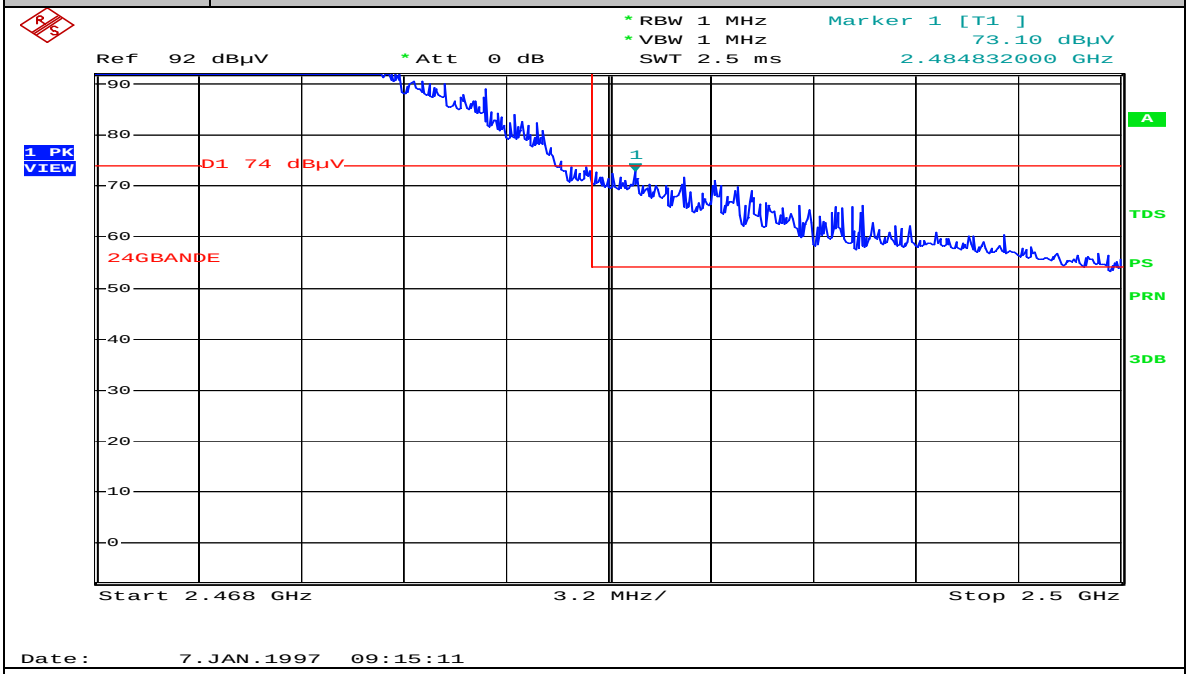


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, H

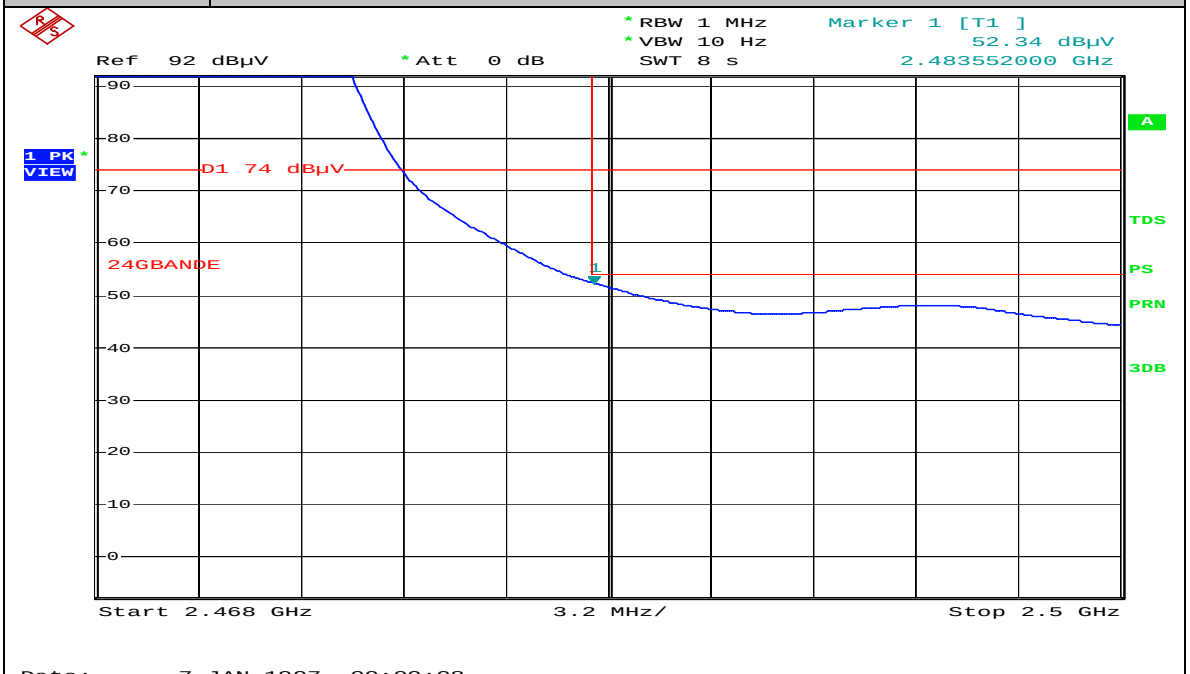


8MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V

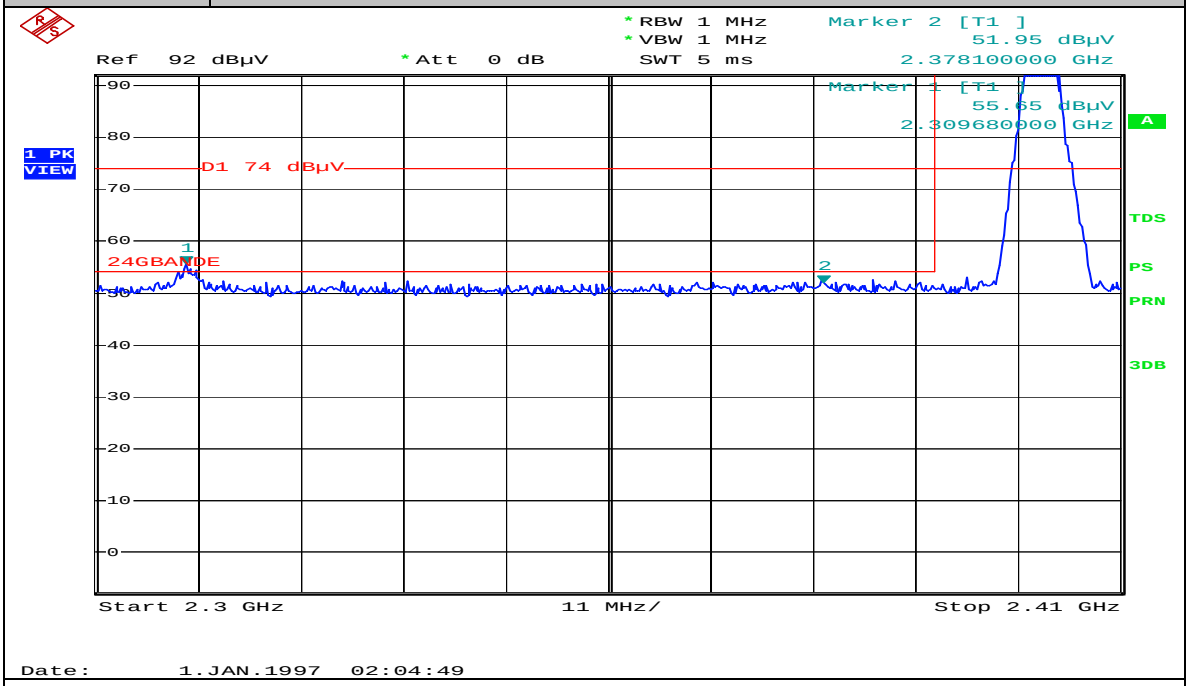


C2: Low Power Setting (P=10dBm)

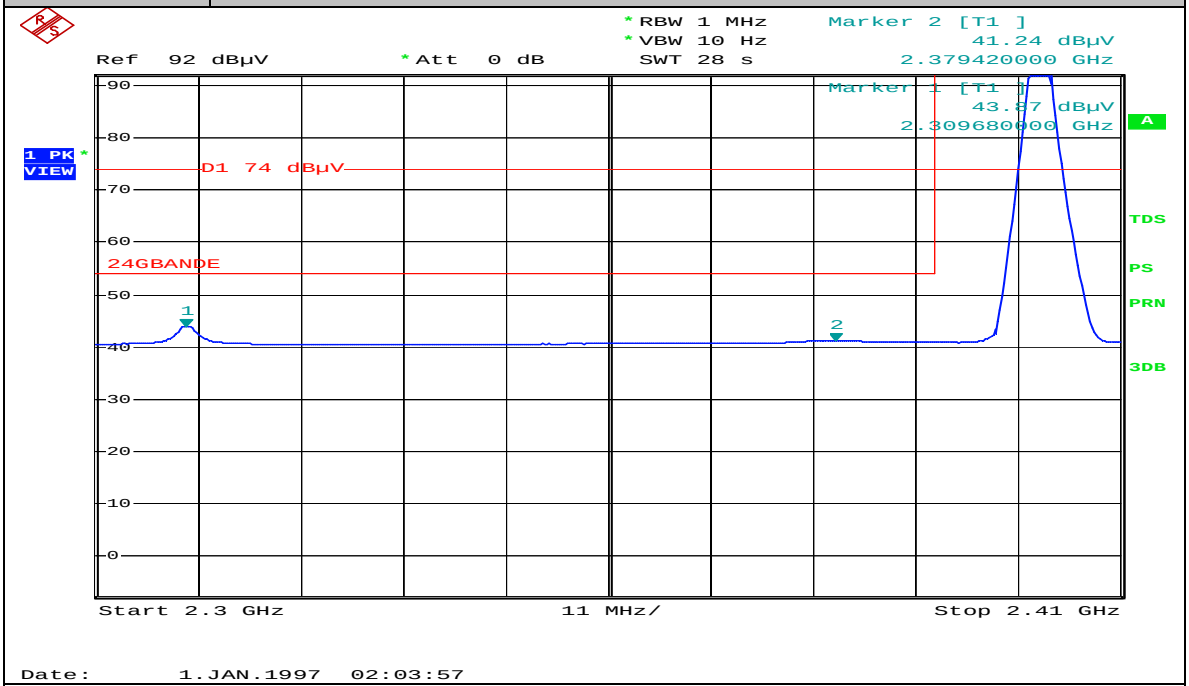
Worst case scenario approach based on Pre-test results for different lowest /highest channel frequencies.

1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

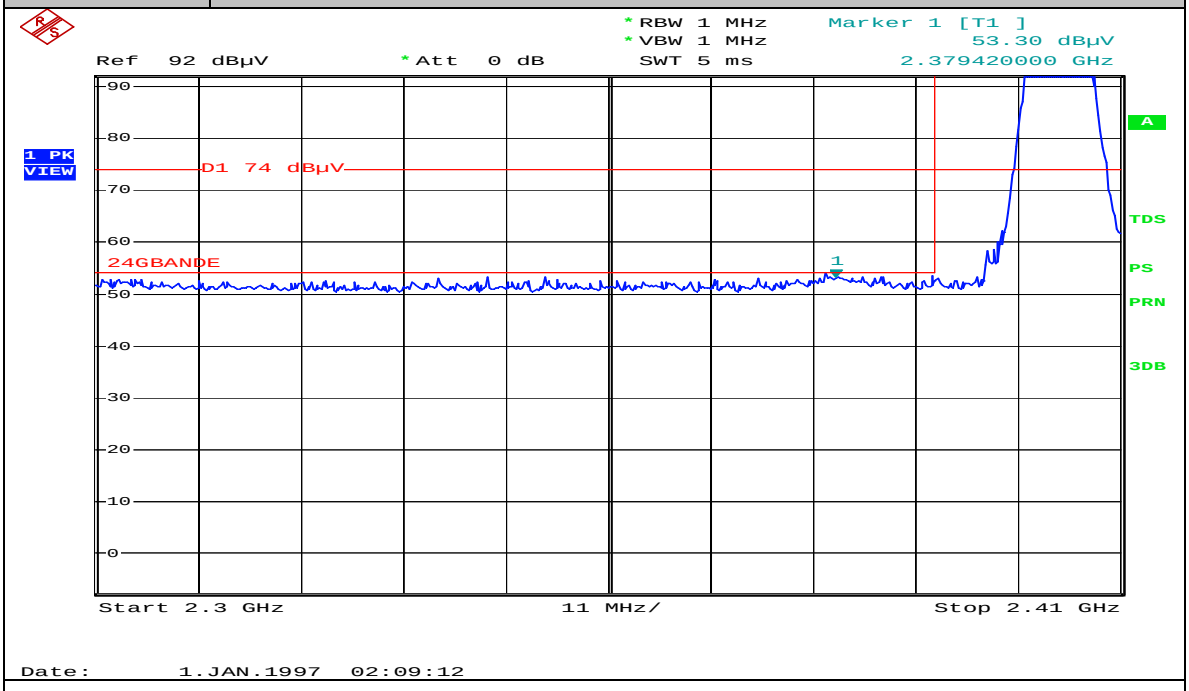


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V

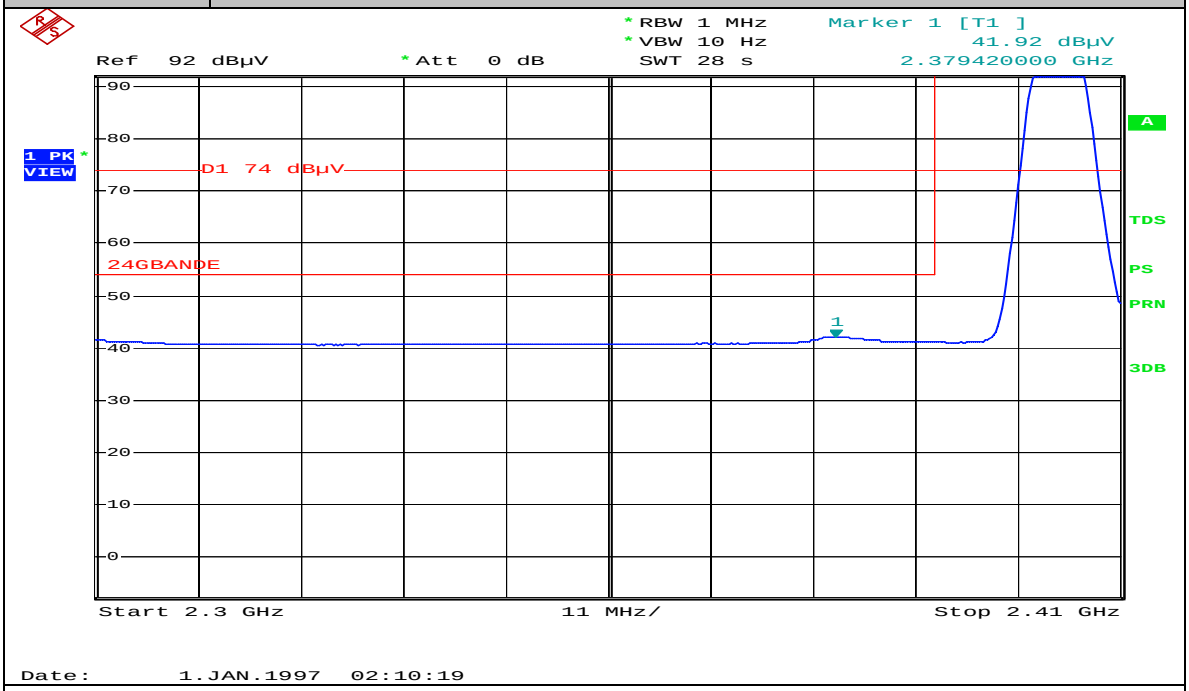


6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ Low End, V

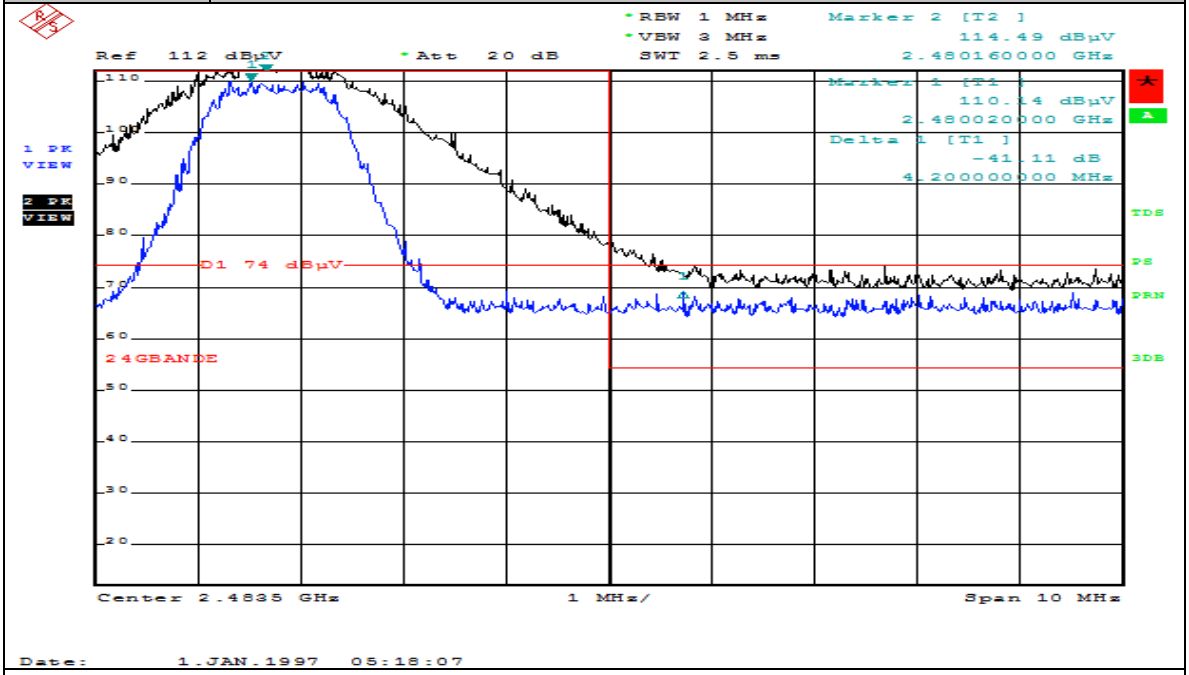


Plot Name:	Average Reading for Band-Edge Radiated Emissions @ Low End, V



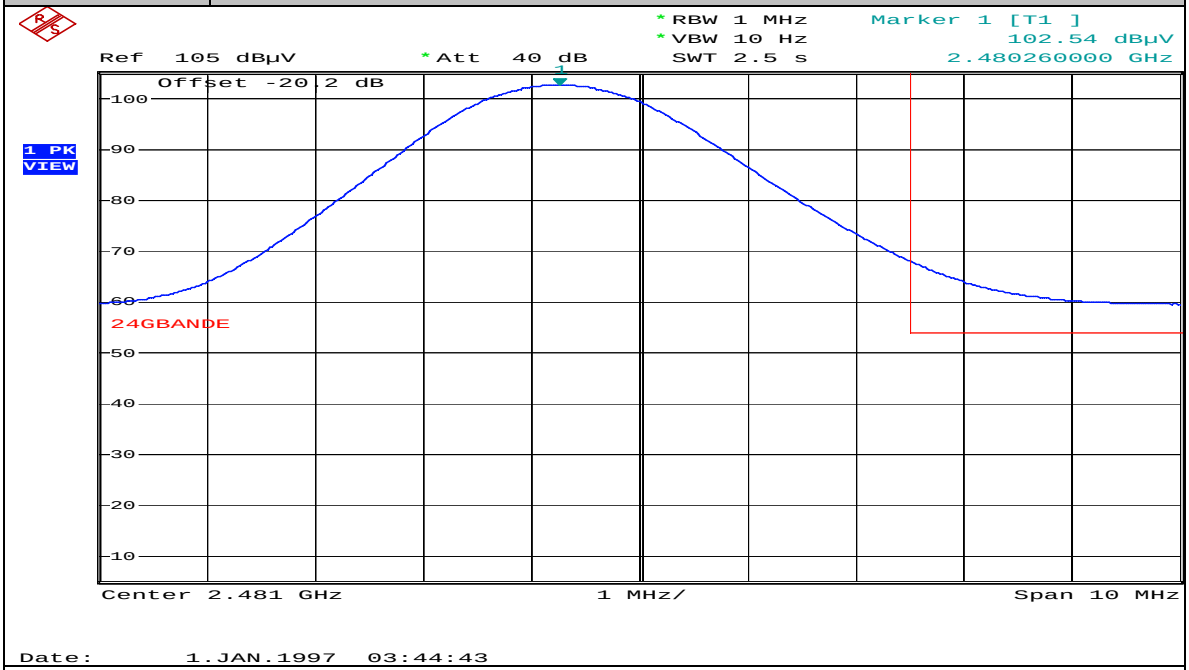
1.25MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



Peak Reading=114.49dBuV/m-41.11=73.38dBuV/m: under the limit, 74dBuV/m

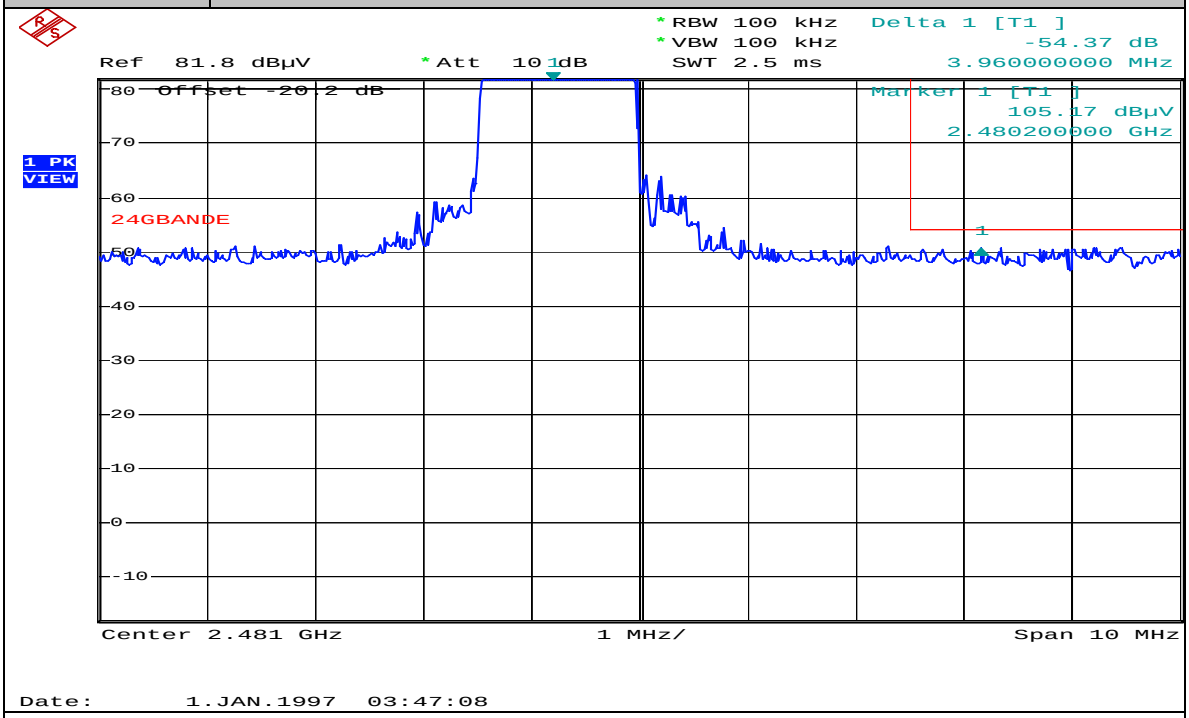
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Fundamental@ 1MHz RBW=102.54dBuV/m. Using “Delta” Method in next plot

1.25MHz BW

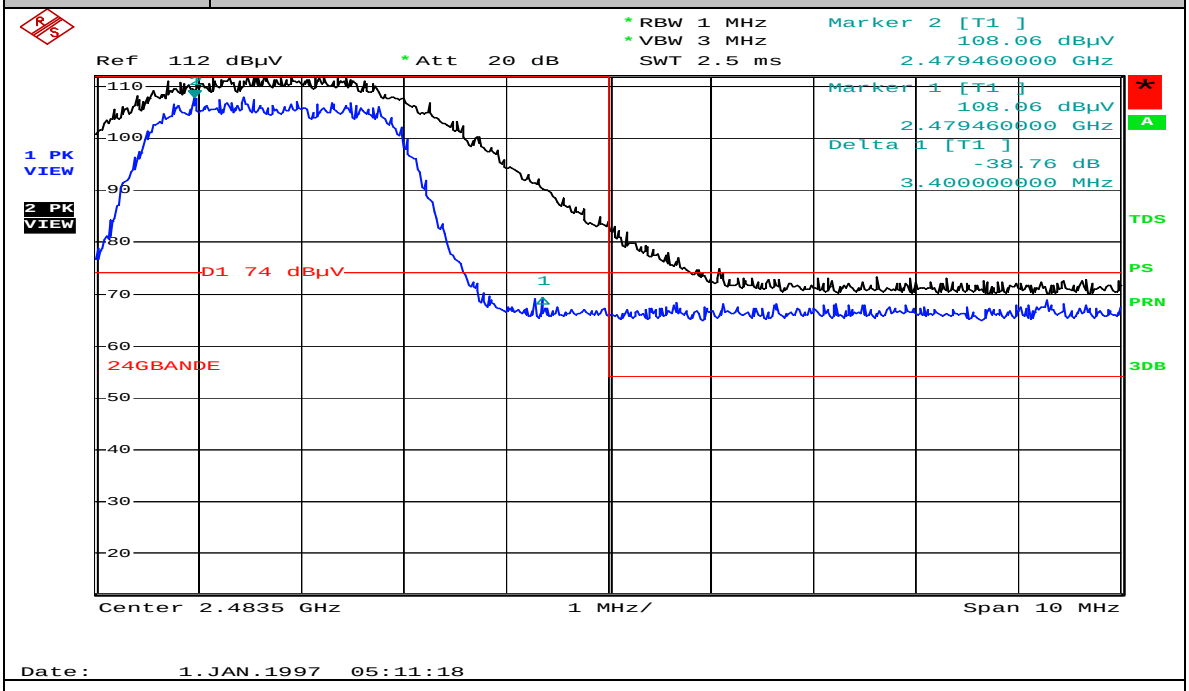
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Reading=102.54dBuV/m-54.37=48.17dBuV/m: under the limit, 54dBuV/m

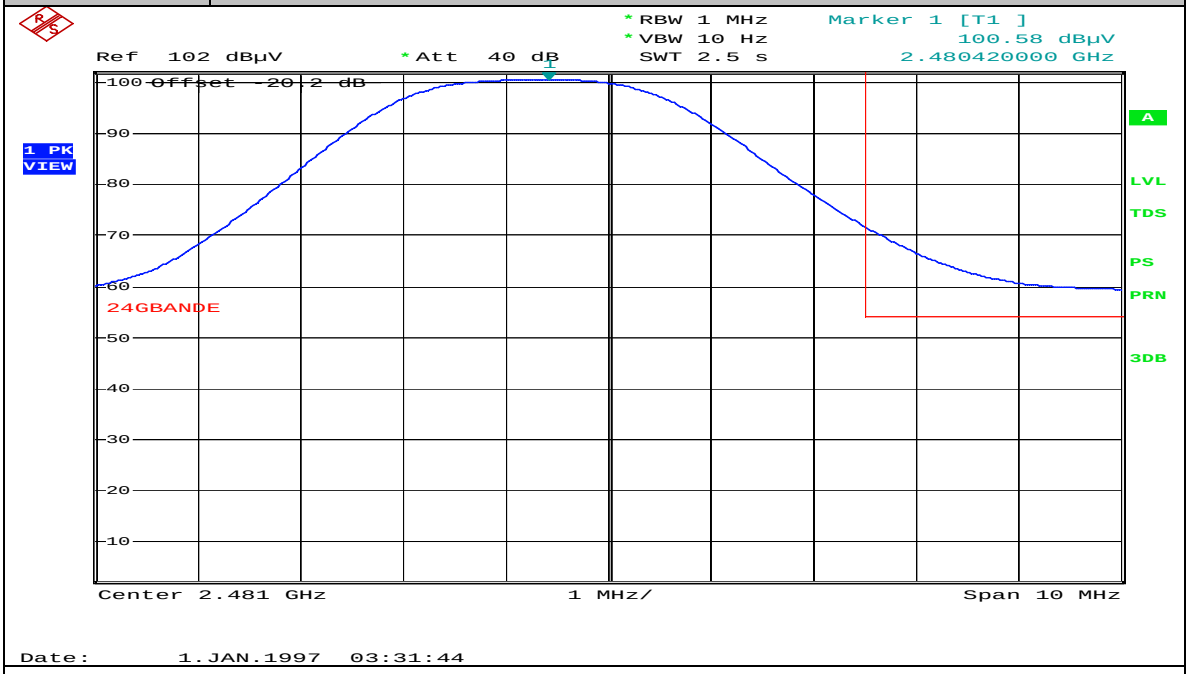
2.5MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



Peak Reading=108.06dBuV/m-38.76=69.30dBuV/m: under the limit, 74dBuV/m

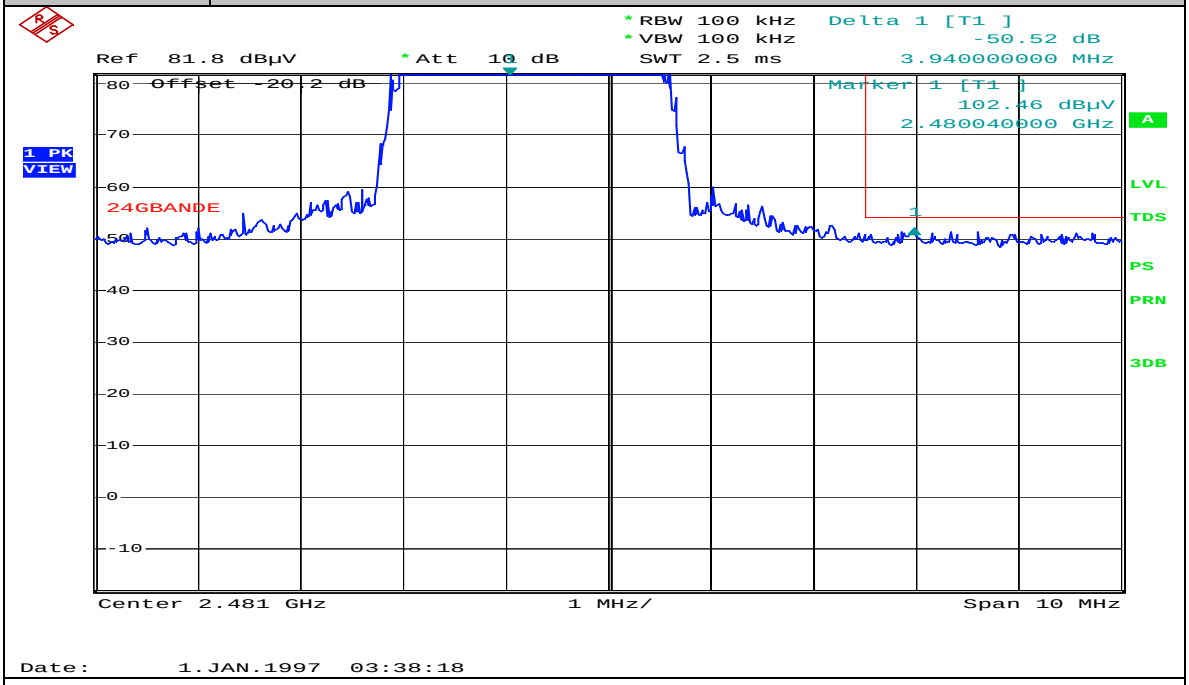
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Fundamental@ 1MHz RBW=100.58dBuV/m. Using “Delta” Method in next plot

2.5MHz BW

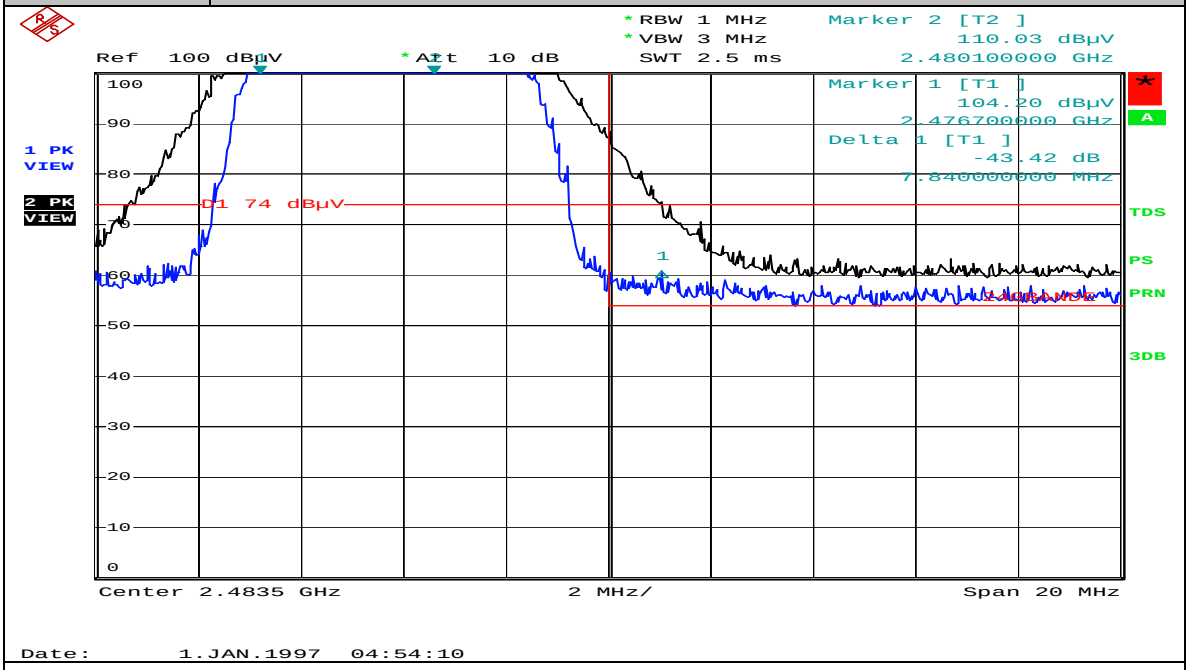
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Reading=100.58dBuV/m-50.52=50.06dBuV/m: under the limit, 54dBuV/m

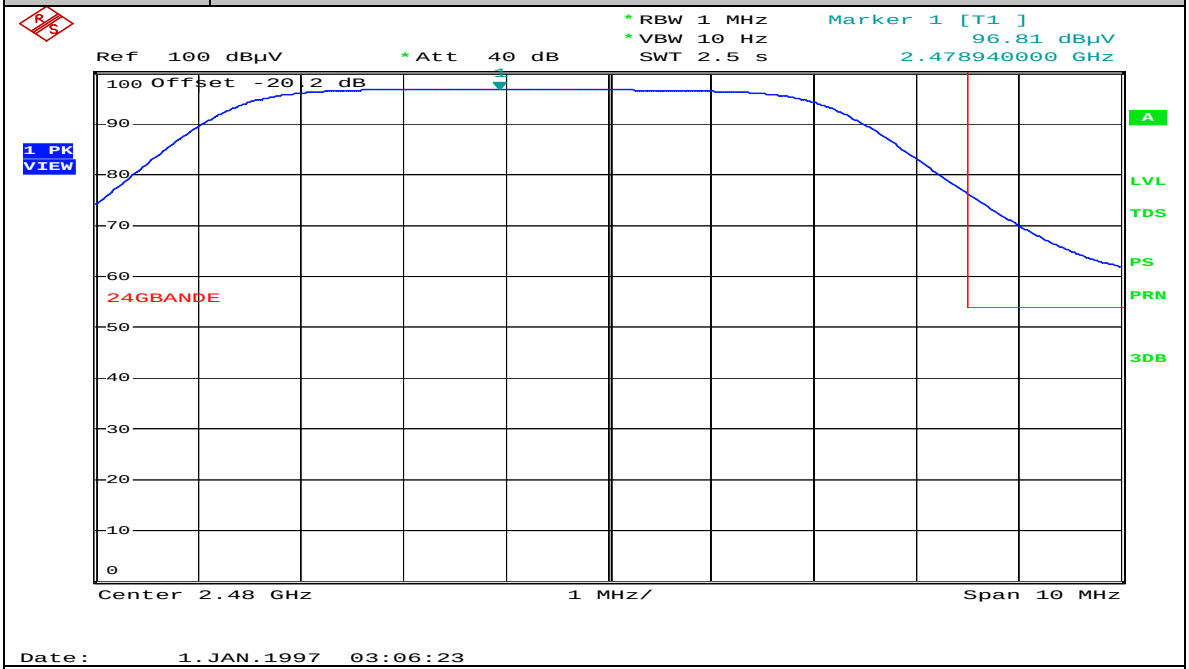
6MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



Peak Reading=110.03dBuV/m-43.42=66.61dBuV/m: under the limit, 74dBuV/m

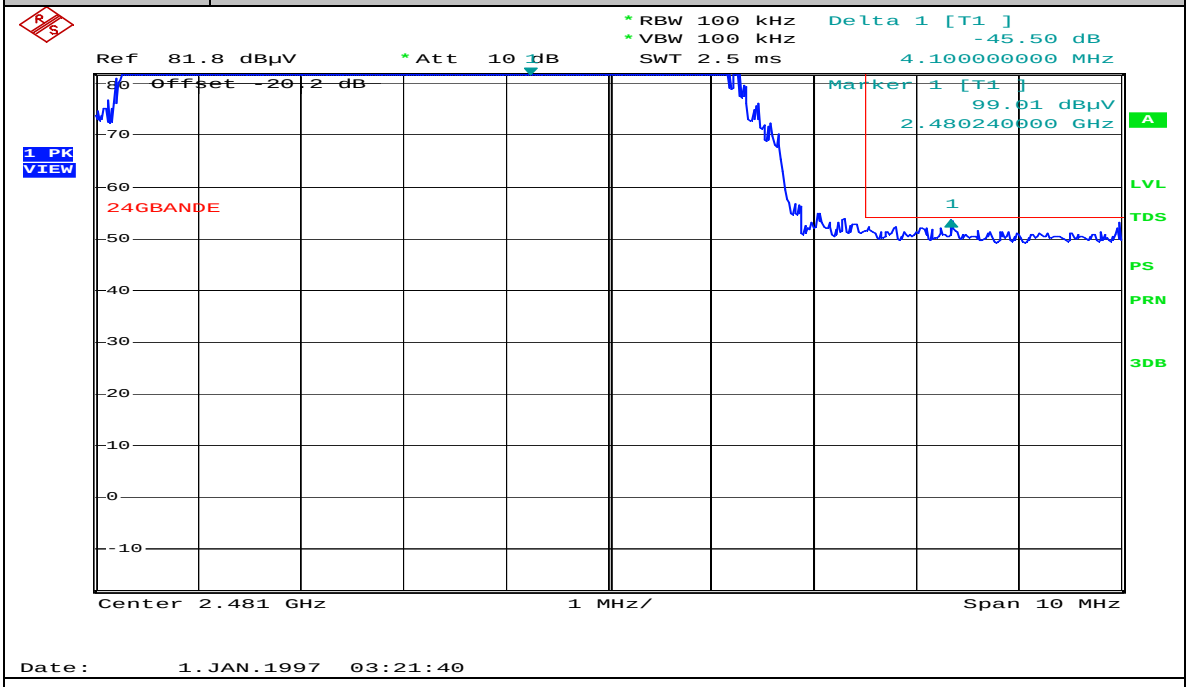
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Fundamental@ 1MHz RBW=96.81dBuV/m. Using “Delta” Method in next plot

6MHz BW

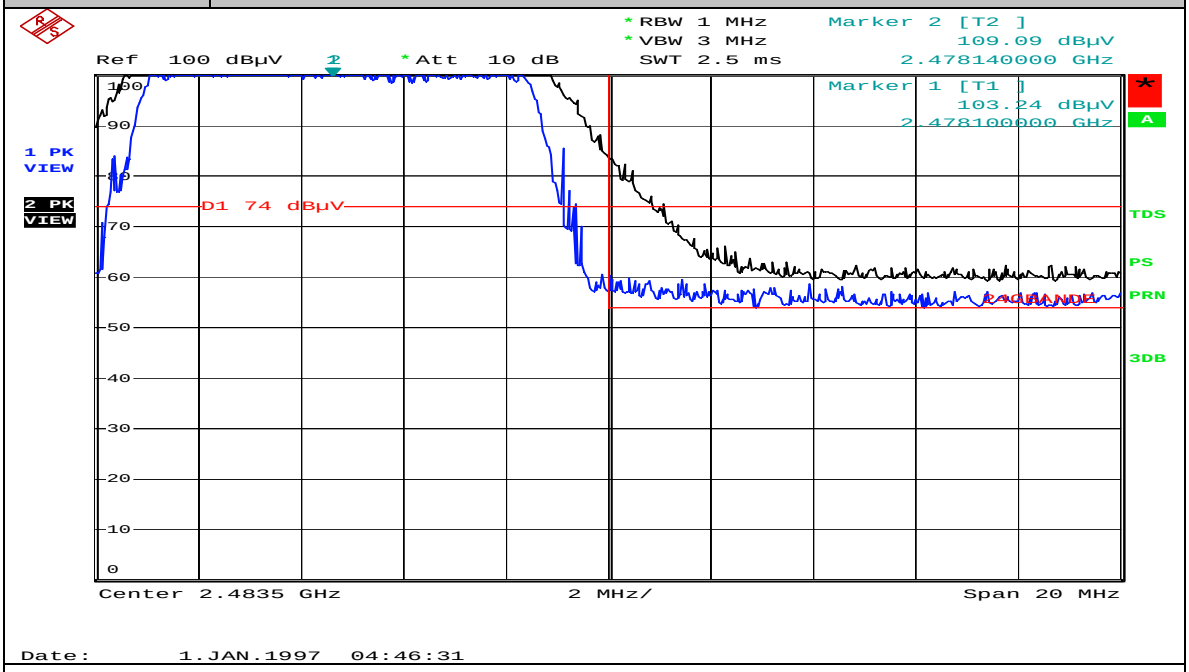
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Reading=96.81dBuV/m-45.50=51.31dBuV/m: under the limit, 54dBuV/m

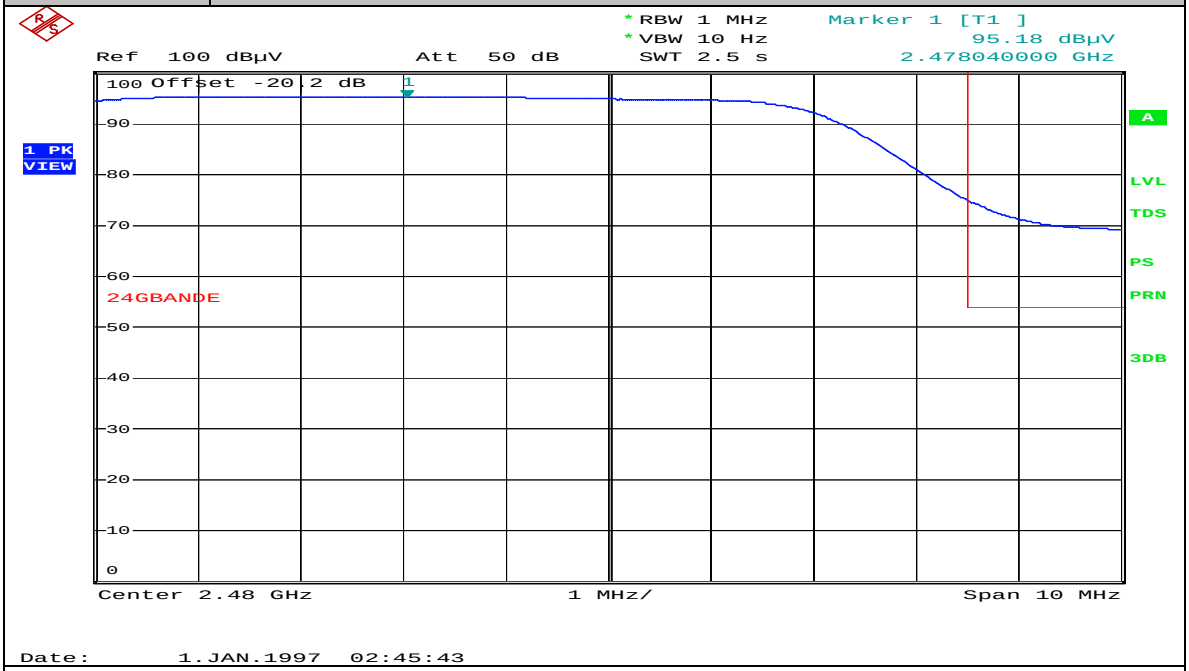
8MHz BW

Plot Name:	Peak Reading for Band-Edge Radiated Emissions @ High End, V



Peak Reading=109.09dBuV/m-40.14=68.95dBuV/m: under the limit, 74dBuV/m

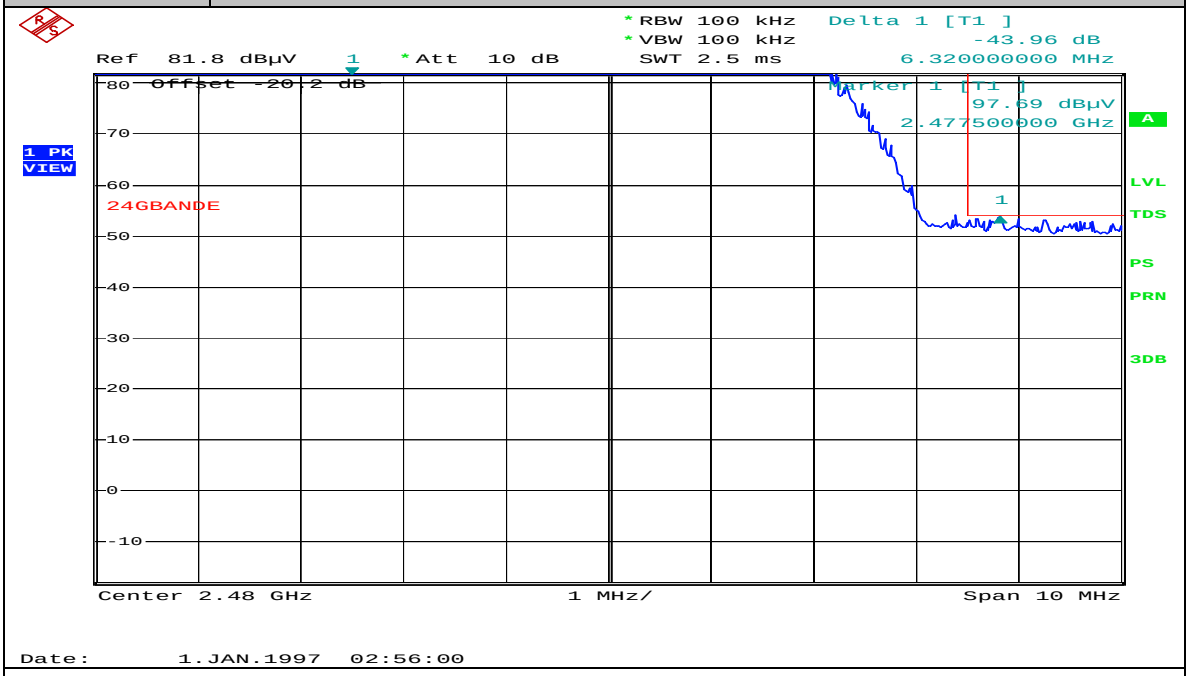
Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Fundamental@ 1MHz RBW=95.18dBuV/m. Using “Delta” Method in next plot

8MHz BW

Plot Name:	Average Reading for Band-Edge Radiated Emissions @ High End, V



Average Reading=95.18dBuV/m-43.96=51.22dBuV/m: under the limit, 54dBuV/m