



Nemko Test Report: 10242736_TRF_PT24_RSS-133

Applicant: Nokia Siemens Networks
6000 Connection Drive
Irving, TX 75039
USA

**Equipment Under Test:
(E.U.T.)** FXFC

FCC ID: VBNFXFC-01

IC ID: 661W-FXFC

In Accordance With: **CFR 47, Part 24, Subpart E and
Industry Canada RSS-133, Issue 6**
Personal Communication Services

Tested By: Nemko USA, Inc.
802 N. Kealy
Lewisville, TX 75057-3136

TESTED BY:

A handwritten signature in black ink, appearing to read 'David Light'.

David Light, Senior Wireless Engineer

DATE: 23 July 2013

APPROVED BY:

A handwritten signature in black ink, appearing to read 'Tom Tidwell'.

Tom Tidwell, Reviewer

DATE: 31 July 2013

Number of Pages: 71

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Report revision record

Rev.	Comments	Date
0	Initial release	31-JUL-2013

EQUIPMENT: FXFC

Section 1. Summary of Test Results

Manufacturer: Nokia Siemens Networks

Model No.: FXFC

Serial No.: L9132600649

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24, Subpart E and RSS-133, Issue 6.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.
See "Summary of Test Data".



NVLAP Lab Code 100426-0

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Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
RF Power Output	24.232 / 6.4	1640W	Complies
Occupied Bandwidth	24.238 / 6.5	Not defined	Complies
Spurious Emissions at Antenna Terminals	24.238(a) / 6.5	-13 dBm	Complies
Field Strength of Spurious Emissions	24.238(a) / 6.5	-13 dBm E.I.R.P.	Complies
Frequency Stability	24.235 / 6.3	± 1 ppm	Complies

Footnotes: None

Section 2. General Equipment Specification

Supply Voltage Input:	-48 Vdc nominal		
Frequency Band:	1930 to 1990 MHz		
Type of Modulation and Designator:	GMSK 300KGXW	8PSK 300KG7W	QPSK 300KD7W
	QPSK 5M00D7W	16QAM 5M00D7W	64QAM 5M00D7W
Maximum No. of Carriers:	6		
Output Impedance:	50 ohms		
RF Output (Rated):	80 W		
Band Selection:	Software <input checked="" type="checkbox"/>	Duplexer <input type="checkbox"/>	Fullband <input type="checkbox"/>

System Description

The FXFC is an 1900 MHz multi-standard multicarrier radio module that consists of three individual transceivers designed to support GSM/EDGE, WCDMA and LTE in dedicated or concurrent mode. Each module supports up to six GSM/EDGE carriers in GSM/EDGE dedicated mode, upto four WCDMA carriers in WCDMA dedicated mode and up to four 5 MHz LTE carriers in LTE dedicated mode with one radio branch. In concurrent mode, a combination of all three radio technologies is supported with a single radio branch. Each module is capable to serve three radio branches with multiradio multicarrier radios of up to 80 Watts output power per branch. The LTE modulation and concurrent mode operation were not tested under this effort.

The transmitter test setup for GSM/EDGE dedicated mode provided GMSK ,QPSK and 8PSK modulation types for both single and multicarrier operation. The transmitter WCDMA dedicated mode provided QPSK, 16QAM and 64QAM modulation types for both single and multicarrier operation.

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 24.232 / 6.4
TESTED BY: David Light	DATE: 22 July 2013

Test Results: Complies.**Measurement Data:** Refer to table on next page.**Equipment Used:** 1767-1082-1054-1065-1472**Measurement Uncertainty:** +/- 1.7 dB**Temperature:** 25 °C**Relative Humidity:** 48 %**Spectrum analyzer settings:**

Channel power measurement function is used to measure power with rf bandwidths above 10 MHz.

The RBW is set to >20 dB bandwidth of the measured rf signal.
RMS detector

Test Data – RF Power Output

Modulation Type	Frequency (MHz)	Measured Output Power (dBm)	Measured Output Power (W)
GSM Carriers			
GMSK	1930.2	36.5	4.5
GMSK	1930.4	48.5	70.8
GMSK	1960.0	48.7	74.1
GMSK	1989.6	48.1	64.6
GMSK	1989.8	35.9	3.9
QPSK	1930.2	35.7	3.7
QPSK	1930.4	48.4	69.2
QPSK	1960.0	48.3	67.6
QPSK	1989.6	47.9	61.6
QPSK	1989.8	36.9	4.9
8PSK	1930.2	36.1	4.1
8PSK	1930.4	48.6	72.4
8PSK	1960.0	48.7	74.1
8PSK	1989.6	48.4	69.2
8PSK	1989.8	35.8	3.8
Wide Band Carriers			
QPSK	1932.5	42.5	17.8
QPSK	1932.7	48.8	75.9
QPSK	1960.0	49.0	79.4
QPSK	1987.5	48.3	67.6
QPSK	1987.3	41.9	15.5
16QAM	1932.5	42.7	18.6
16QAM	1932.7	48.6	72.4
16QAM	1960.0	49.0	79.4
16QAM	1987.5	48.3	67.6
16QAM	1987.3	42.3	17.0
64QAM	1932.5	42.7	18.6
64QAM	1932.7	48.6	72.4
64QAM	1960.0	49.0	79.4
64QAM	1987.5	48.3	67.6
64QAM	1987.3	42.3	17.0

Note: The power needs to be lowered at the lowest and highest frequencies per above to ensure compliance at the band edges.

The FXFC is compliant at the other frequencies operating at full power.

Supply voltage was varied +/- 15%. No fluctuation in output power resulted.

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 24.238 / 6.5
TESTED BY: David Light	DATE: 22 July 2013

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1067-1082-1054-1065-1472

Measurement Uncertainty: +/- 1.6 dB

Temperature: 25 °C

Relative Humidity: 48 %

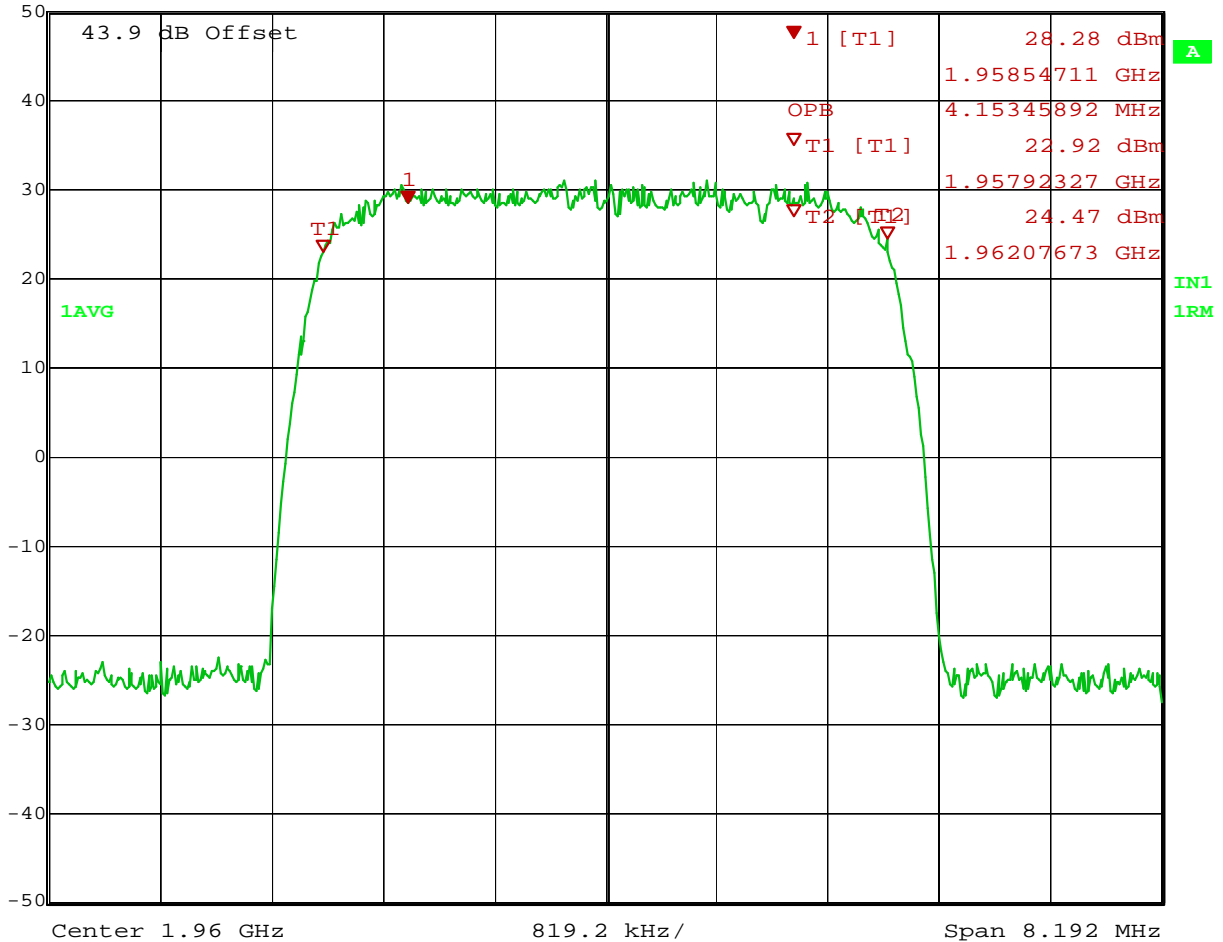
Test Data – Occupied Bandwidth

99% Bandwidth

QPSK



Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	30 dB
50 dBm	28.28 dBm	VBW	500 kHz		
	1.95854711 GHz	SWT	8.5 ms	Unit	dBm



Date: 22.JUL.2013 09:13:00

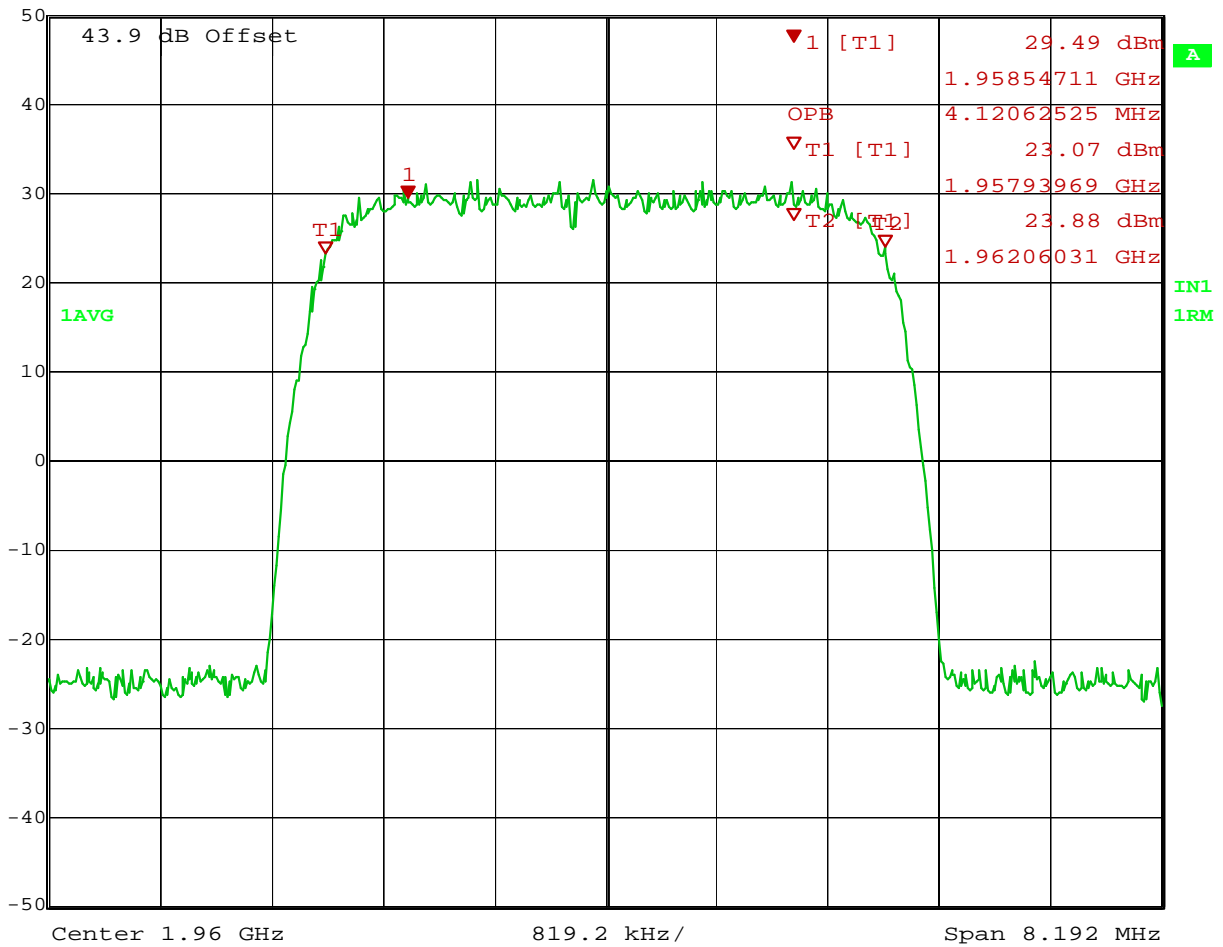
Test Data – Occupied Bandwidth

99% Bandwidth

16QAM



Ref Lvl	Marker 1 [T1]	RBW	50 kHz	RF Att	30 dB
50 dBm	29.49 dBm	VBW	500 kHz		
	1.95854711 GHz	SWT	8.5 ms	Unit	dBm



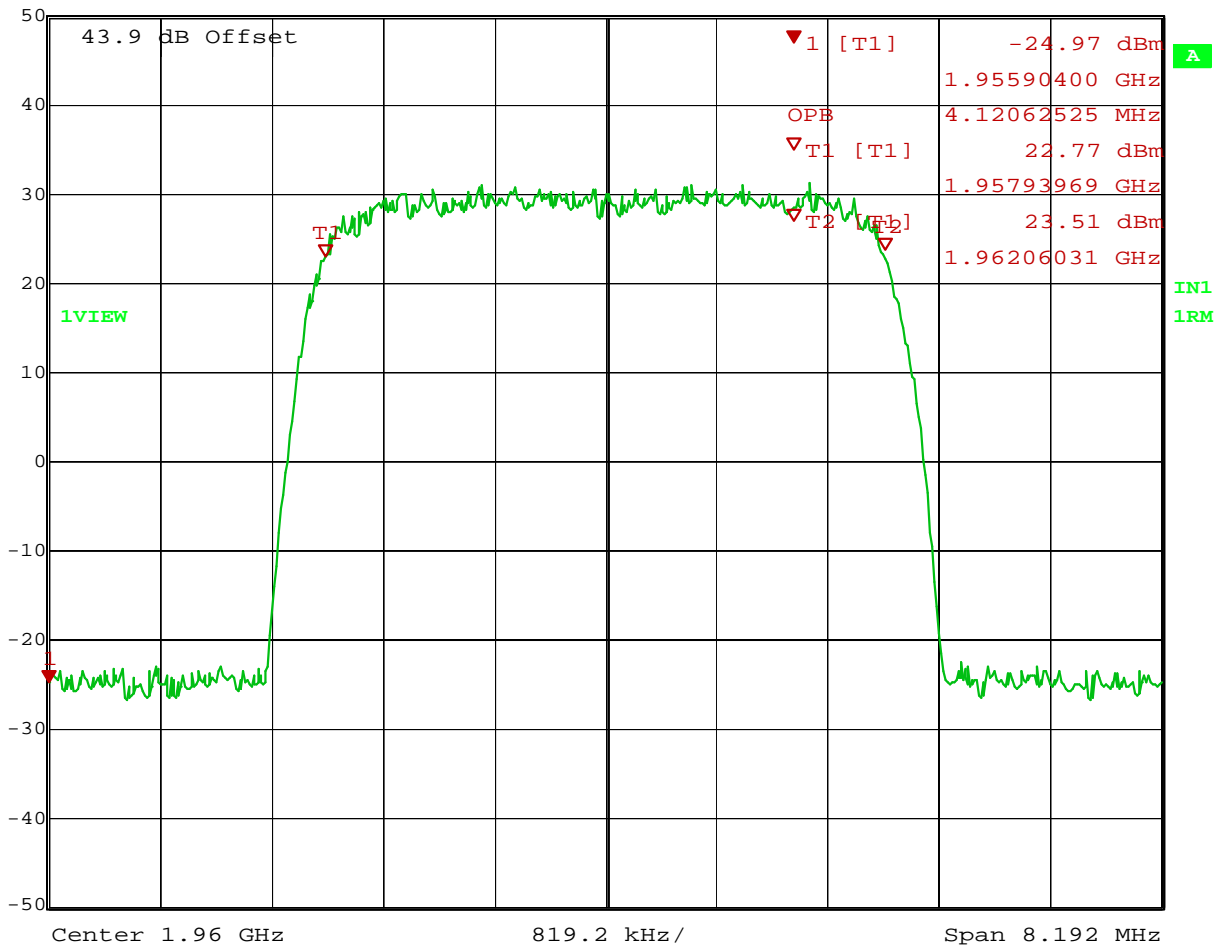
Date: 22.JUL.2013 09:16:34

Test Data – Occupied Bandwidth

99% Bandwidth
64QAM



Marker 1 [T1] RBW 50 kHz RF Att 30 dB
Ref Lvl -24.97 dBm VBW 500 kHz
50 dBm 1.95590400 GHz SWT 8.5 ms Unit dBm



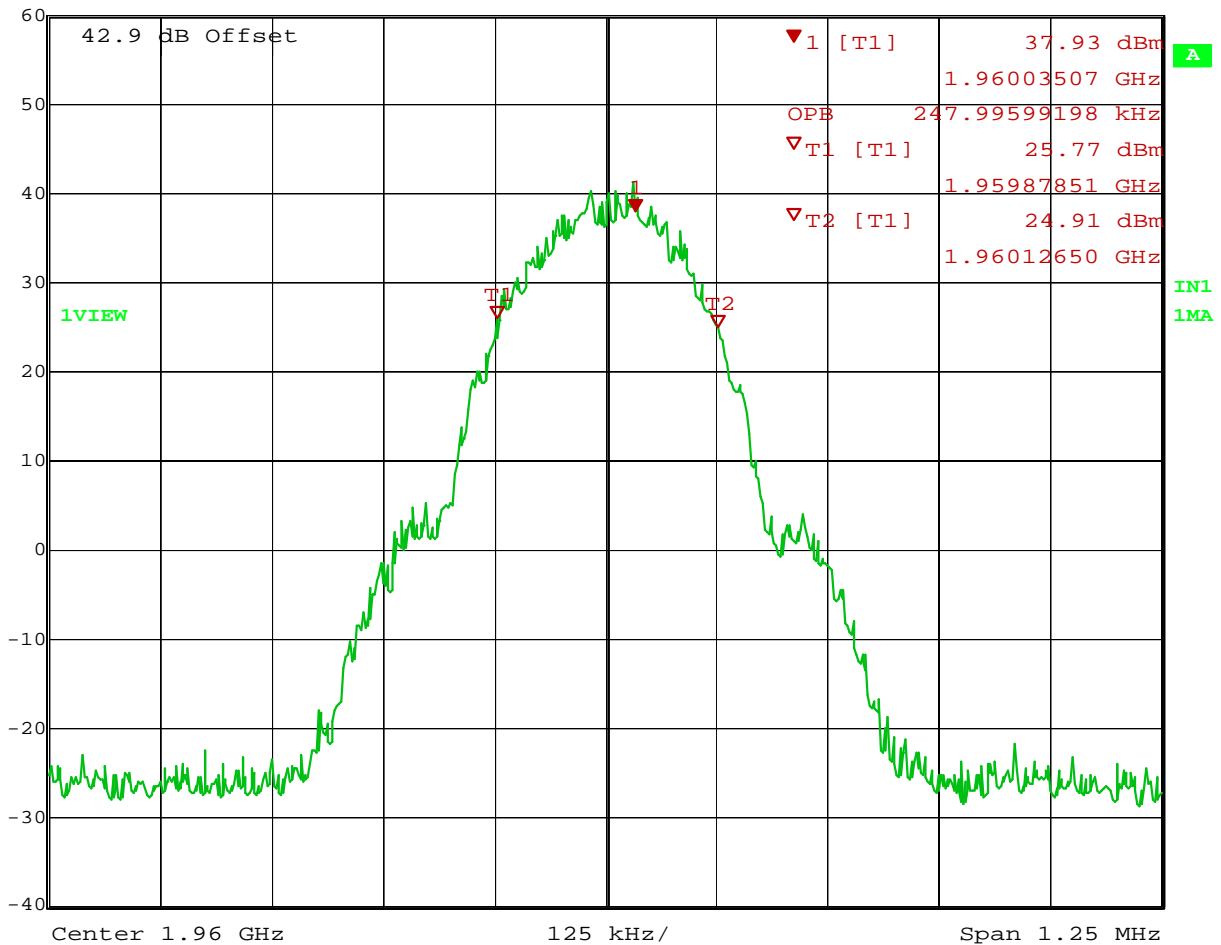
Date: 22.JUL.2013 09:29:16

Test Data – Occupied Bandwidth

99% Occupied Bandwidth
GMSK



Ref Lvl	Marker 1 [T1]	RBW	3 kHz	RF Att	40 dB
60 dBm	37.93 dBm	VBW	3 kHz		
	1.96003507 GHz	SWT	350 ms	Unit	dBm



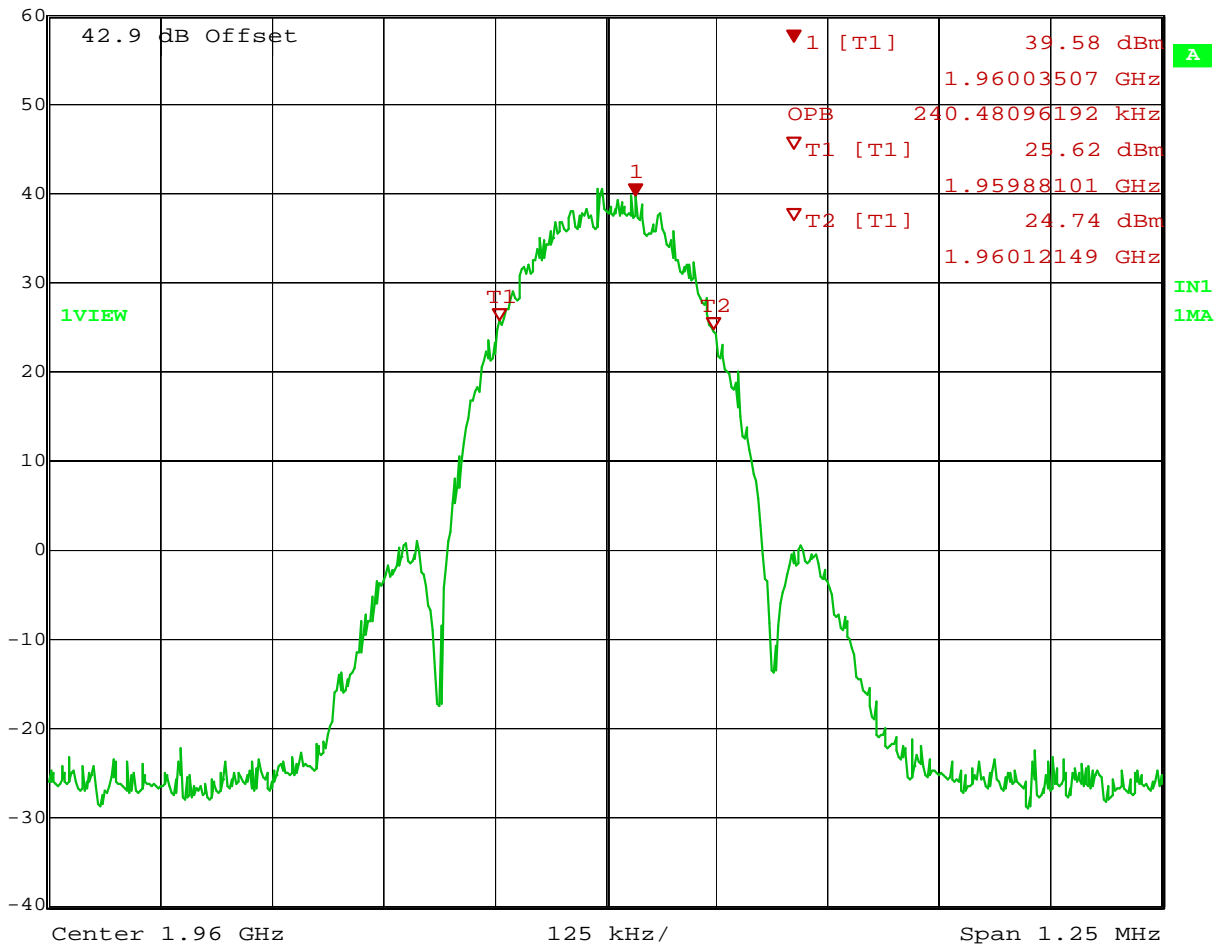
Date: 22.JUL.2013 12:13:59

Test Data – Occupied Bandwidth

99% Occupied Bandwidth
QPSK



Ref Lvl	Marker 1 [T1]	RBW	3 kHz	RF Att	40 dB
60 dBm	39.58 dBm	VBW	3 kHz		
	1.96003507 GHz	SWT	350 ms	Unit	dBm



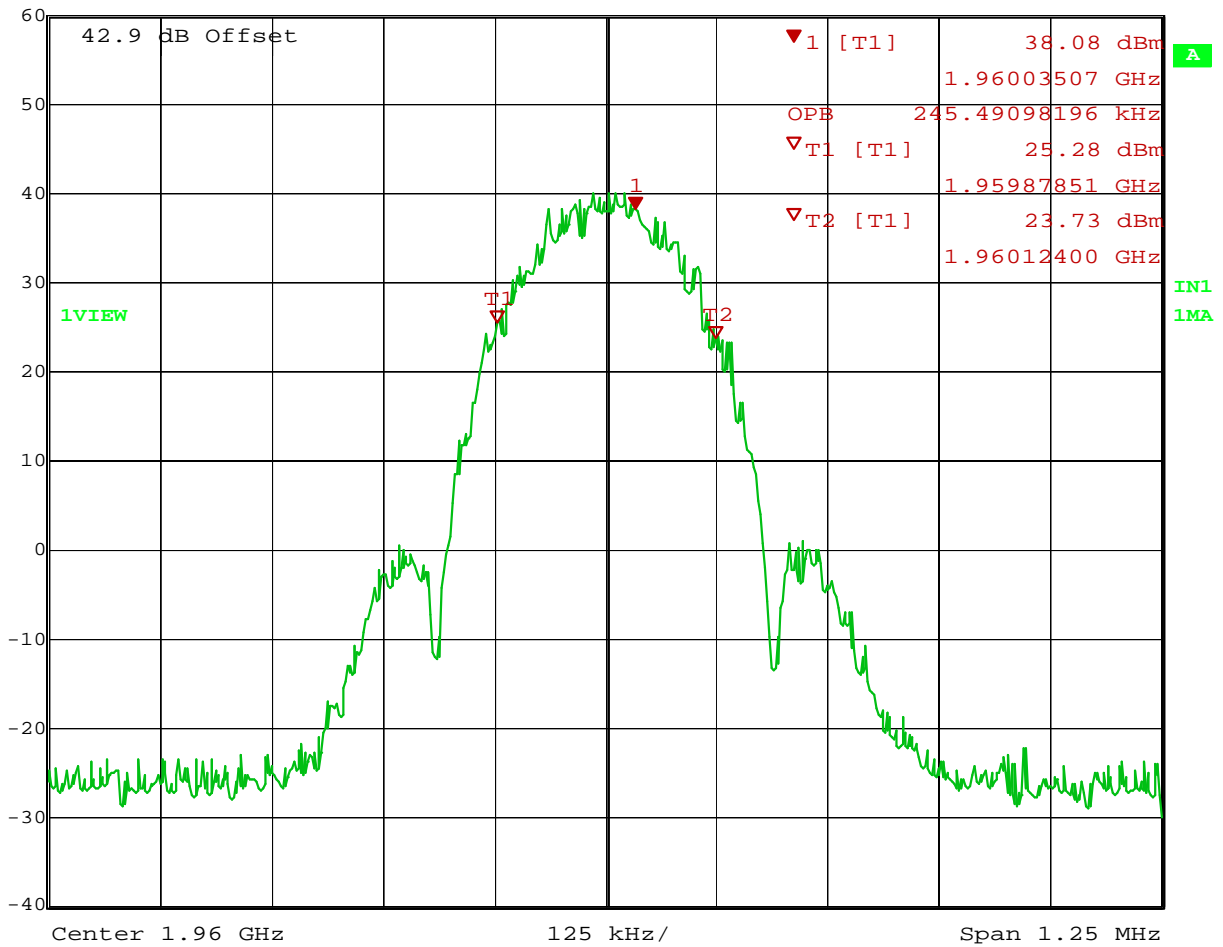
Date: 22.JUL.2013 12:13:14

Test Data – Occupied Bandwidth

99% Occupied Bandwidth
8PSK



Ref Lvl	Marker 1 [T1]	RBW	3 kHz	RF Att	40 dB
60 dBm	38.08 dBm	VBW	3 kHz		
	1.96003507 GHz	SWT	350 ms	Unit	dBm



Date: 22.JUL.2013 12:12:33

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 24.238 / 6.5
TESTED BY: David Light	DATE: 22 July 2013

Test Results: Complies.

Test Data: Refer to plots below

Equipment Used: 1767-1082-1054-1065-1472

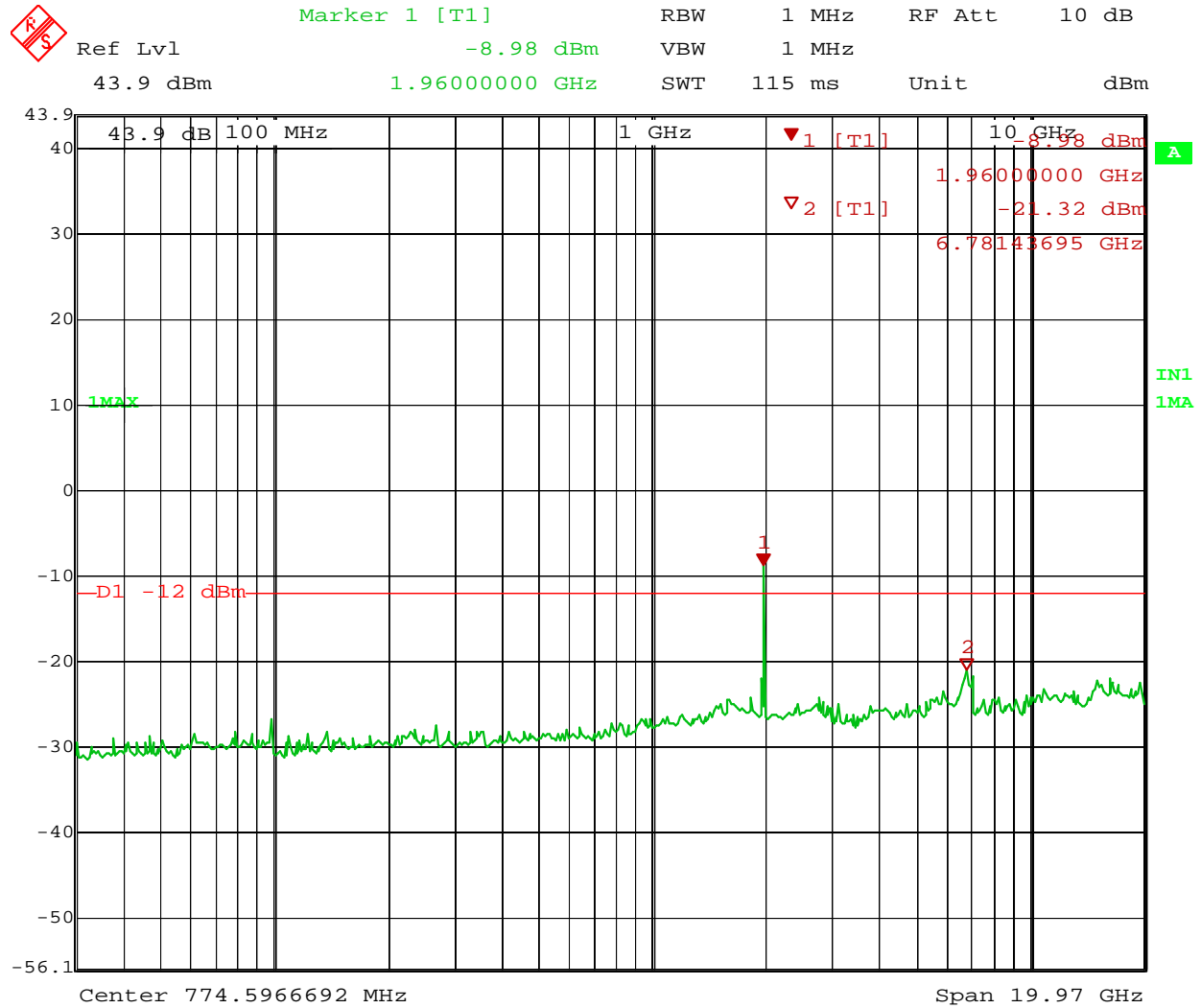
Measurement Uncertainty: +/- 1.7 dB

Temperature: 25 °C

Relative Humidity: 48 %

Test Data – Spurious Emissions

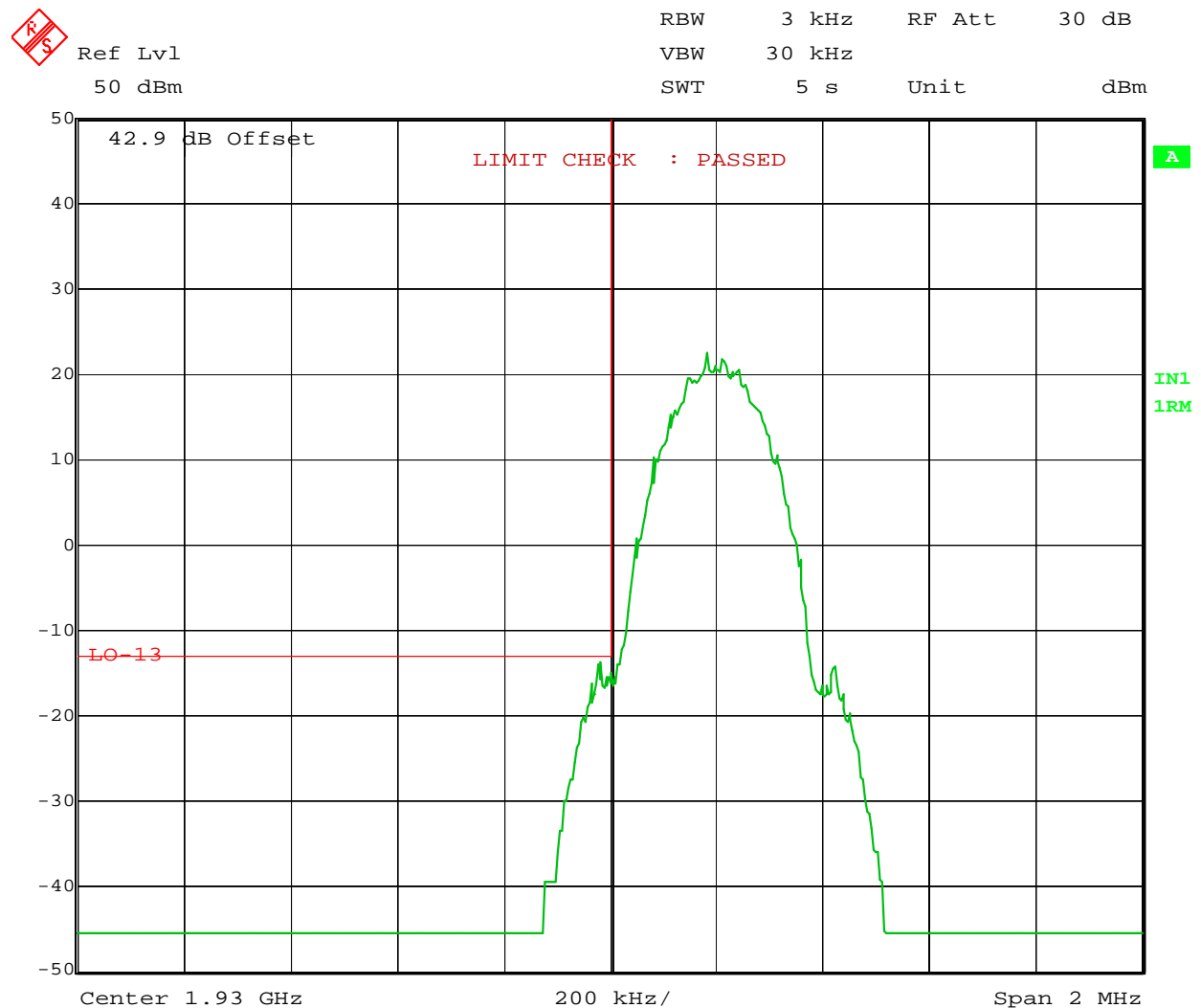
Spurious Emissions GMSK



Date: 22.JUL.2013 07:12:58

Test Data – Spurious Emissions

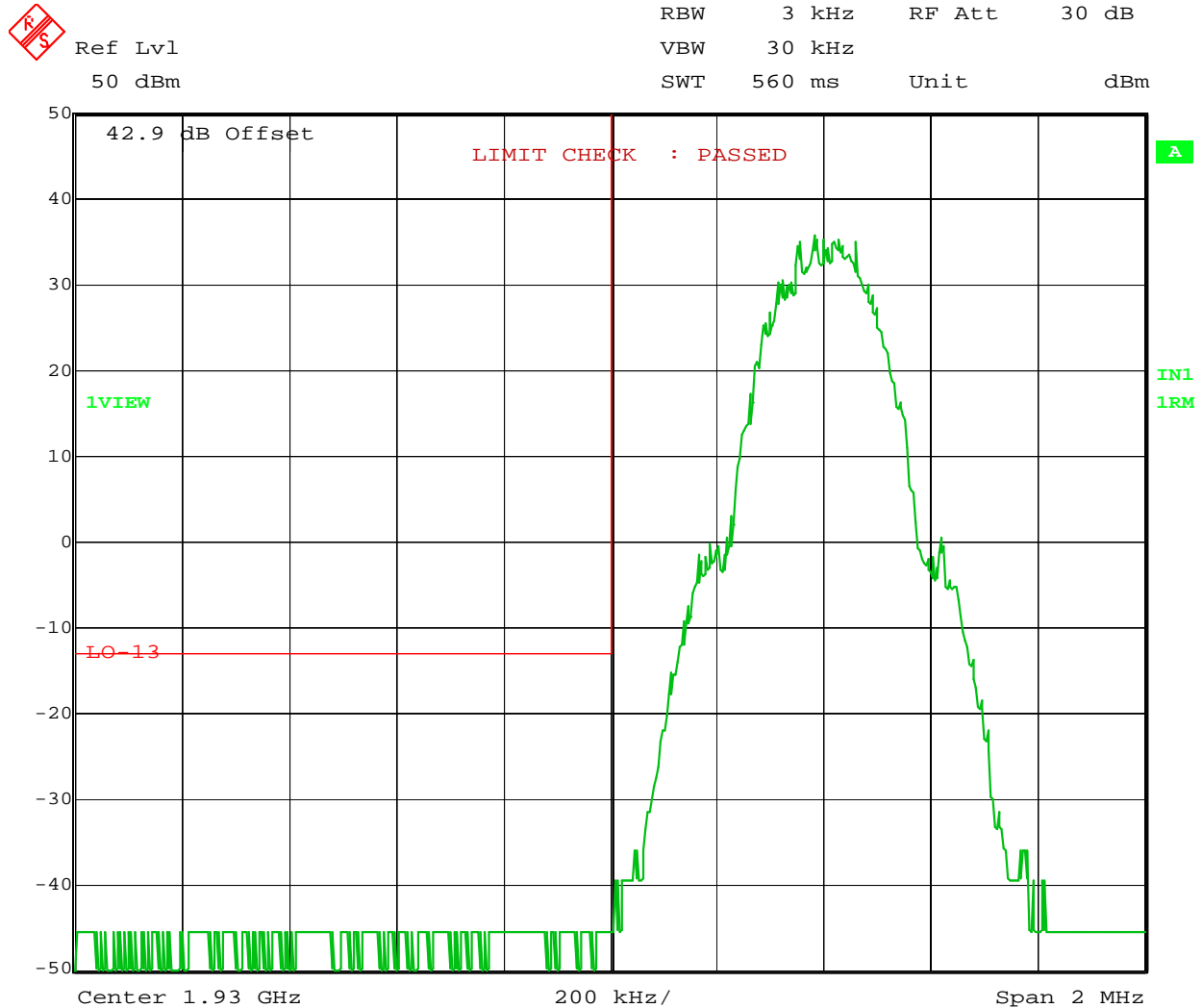
Lower Band Edge
Lowest Channel
GMSK
36.5 dBm Output



Date: 22.JUL.2013 12:20:01

Test Data – Spurious Emissions

Lower Band Edge
2nd Channel
GMSK
48.5 dBm Output



Date: 22.JUL.2013 12:24:24

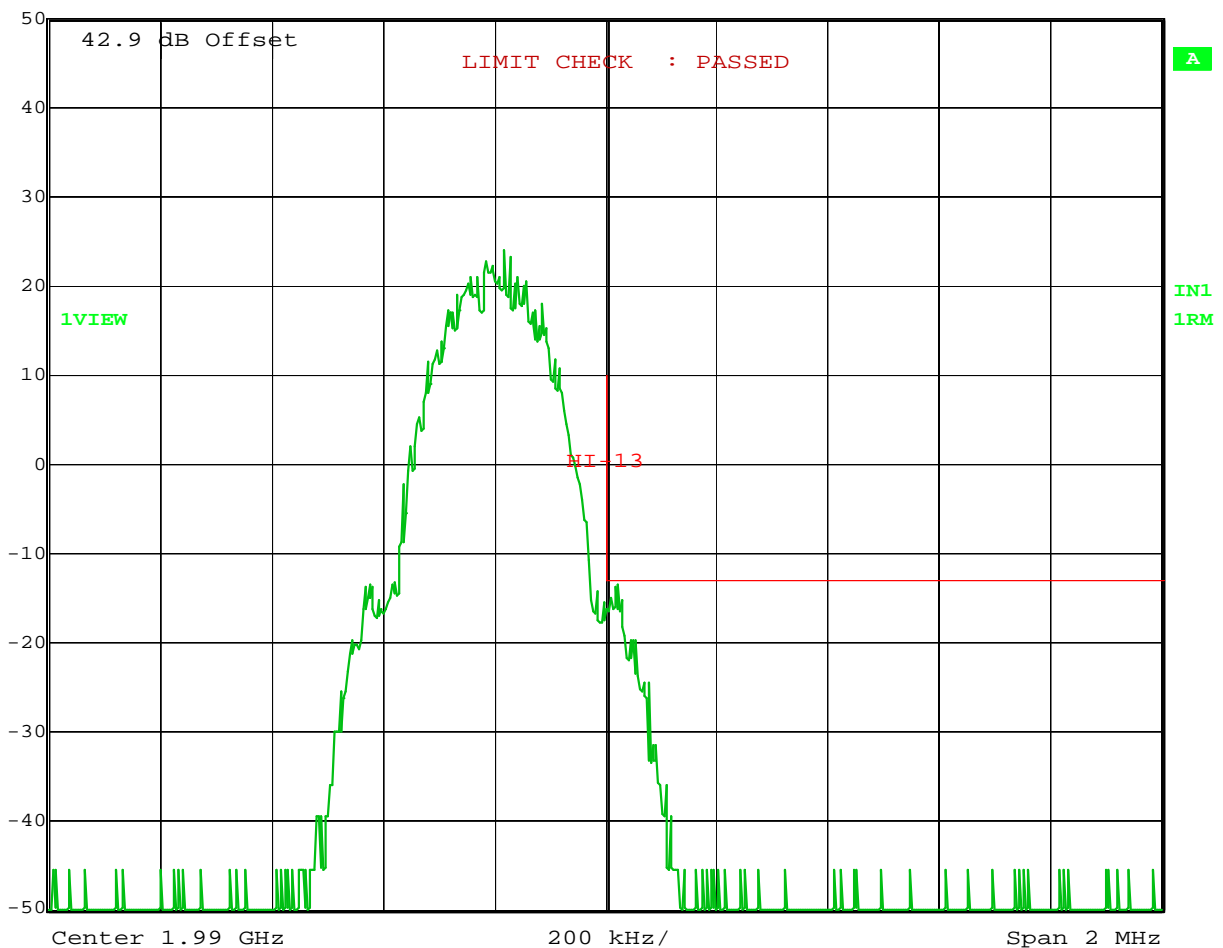
Test Data – Spurious Emissions

Upper Band Edge
Highest Channel
GMSK
35.9 dBm



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:26:32

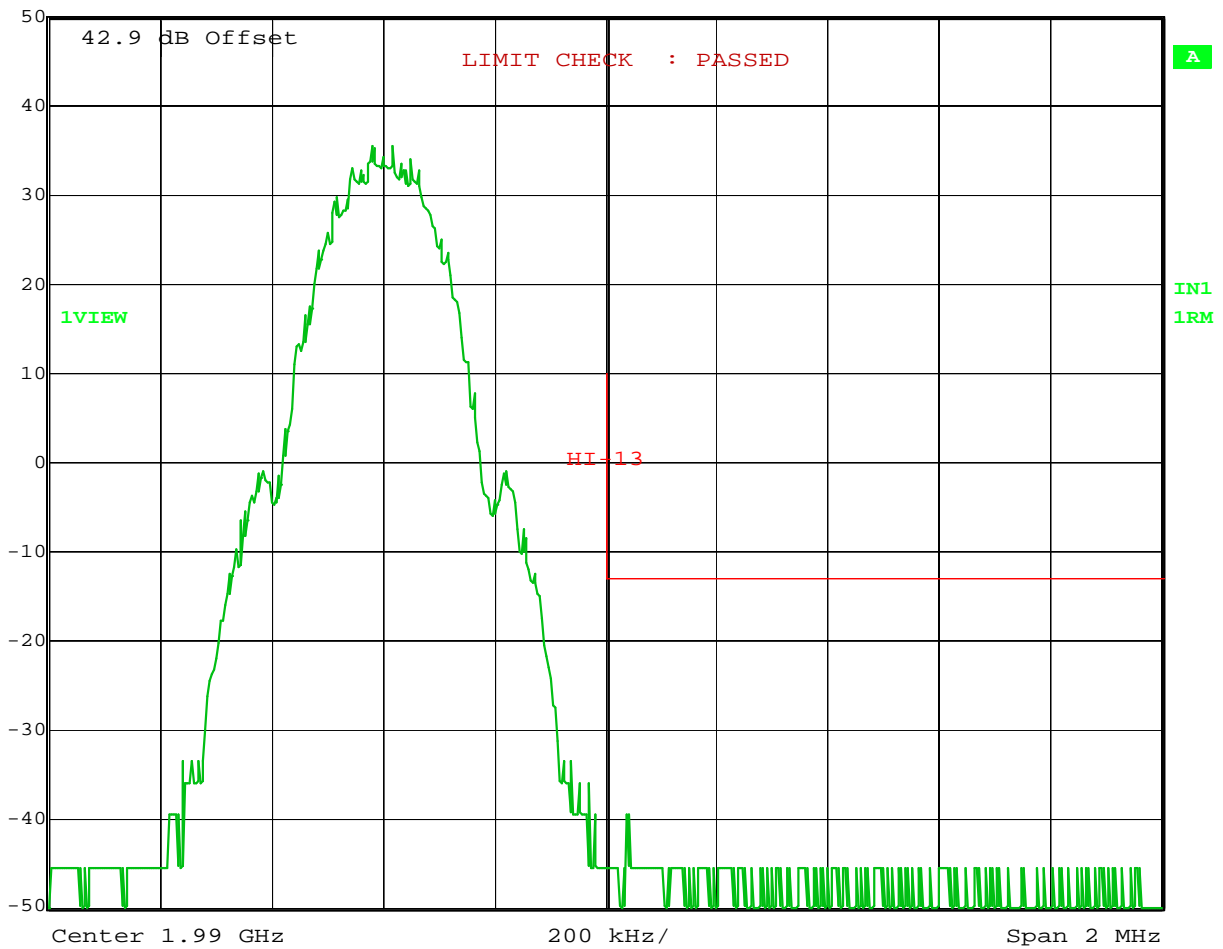
Test Data – Spurious Emissions

Upper Band Edge
GMSK
2nd Highest Channel
48.1 dBm Output



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:29:24

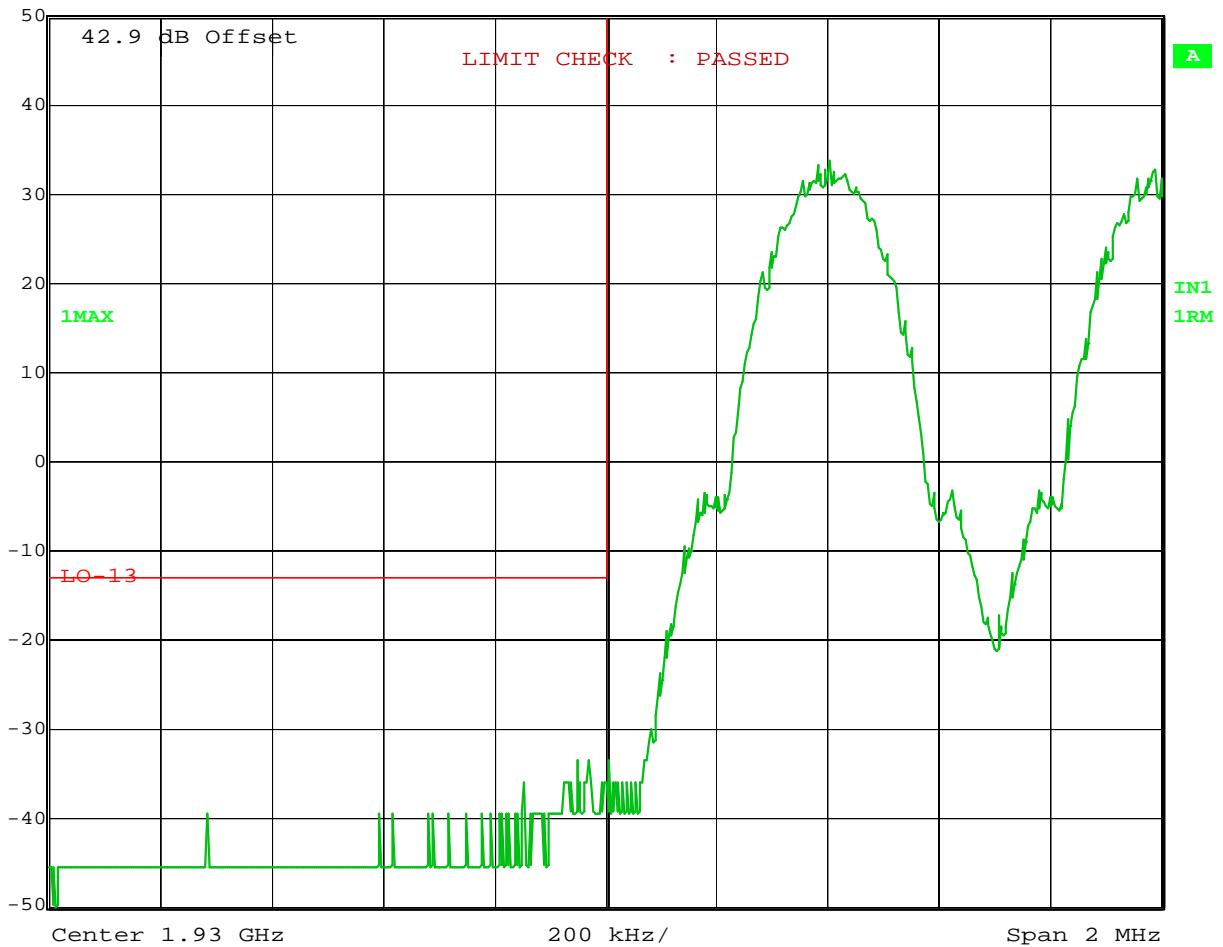
Test Data – Spurious Emissions

Lower Band Edge Intermodulation
80 Watts composite power
GMSK



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 13:08:49

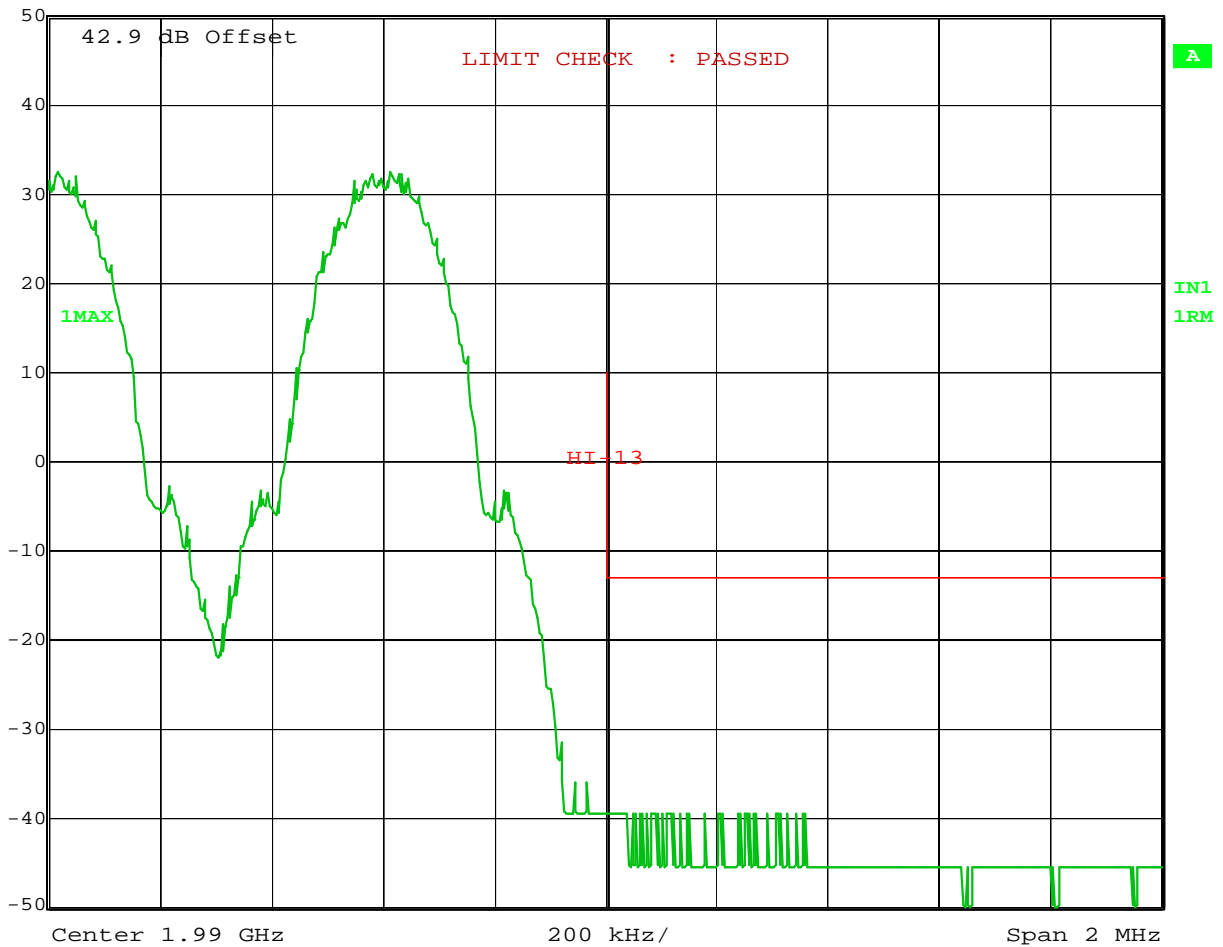
Test Data – Spurious Emissions

Upper Band Edge Intermodulation
80 Watts composite power
GMSK



Ref Lvl
50 dBm

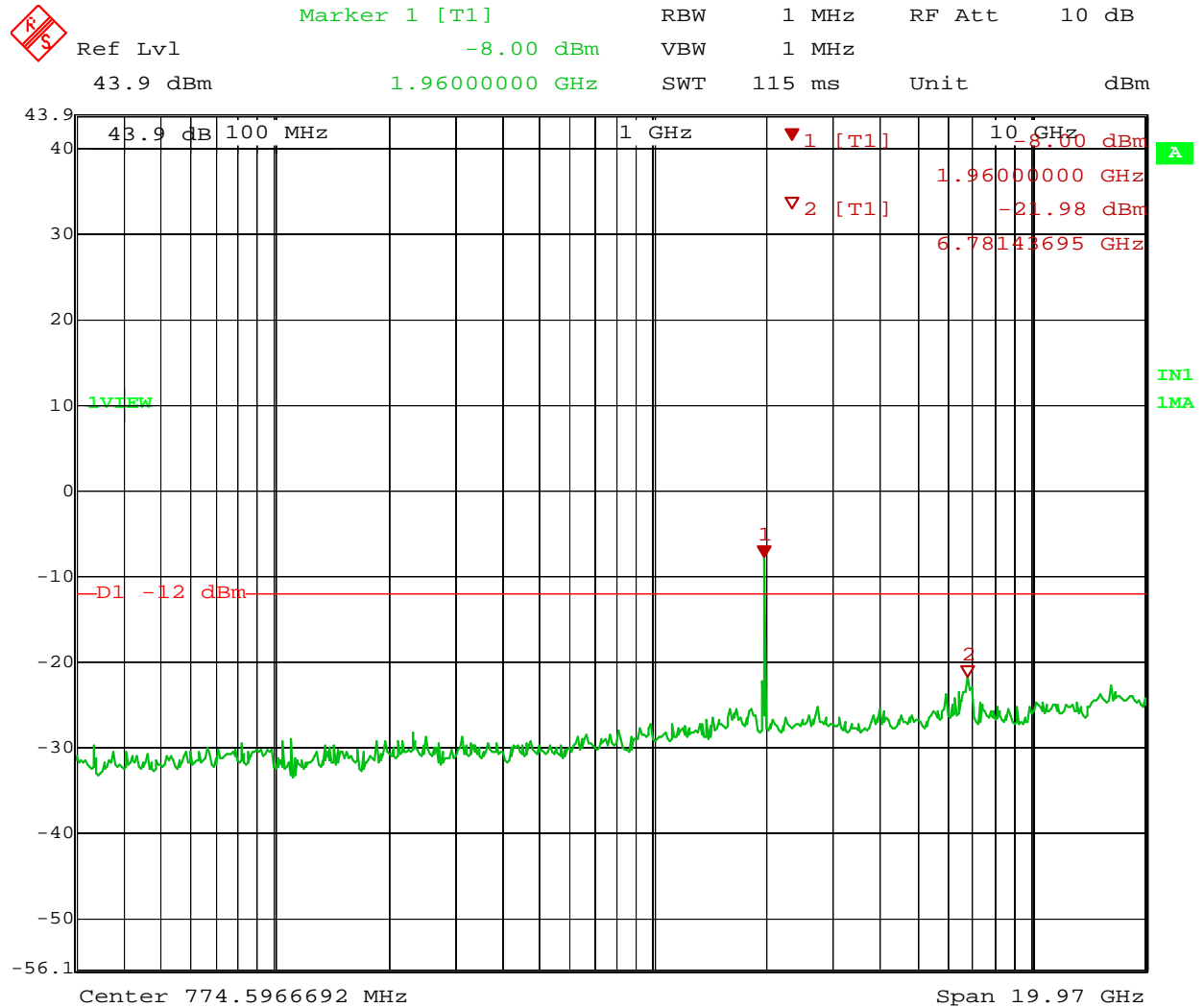
RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 13:14:16

Test Data – Spurious Emissions

Spurious Emissions QPSK



Date: 22.JUL.2013 07:15:56

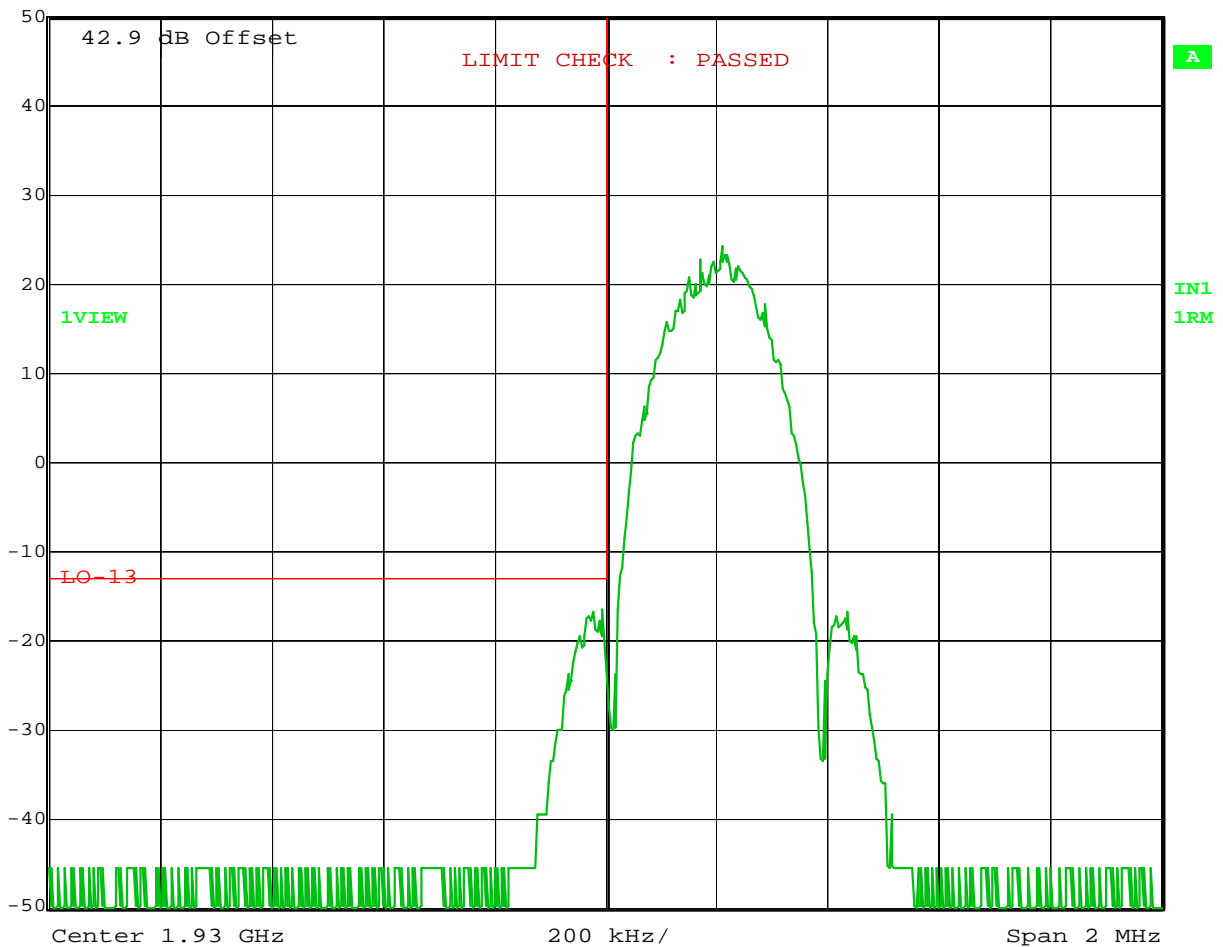
Test Data – Spurious Emissions

Lower Band Edge
QPSK
Lowest Channel
35.7 dBm



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:33:16

Test Data – Spurious Emissions

Lower Band Edge

QPSK

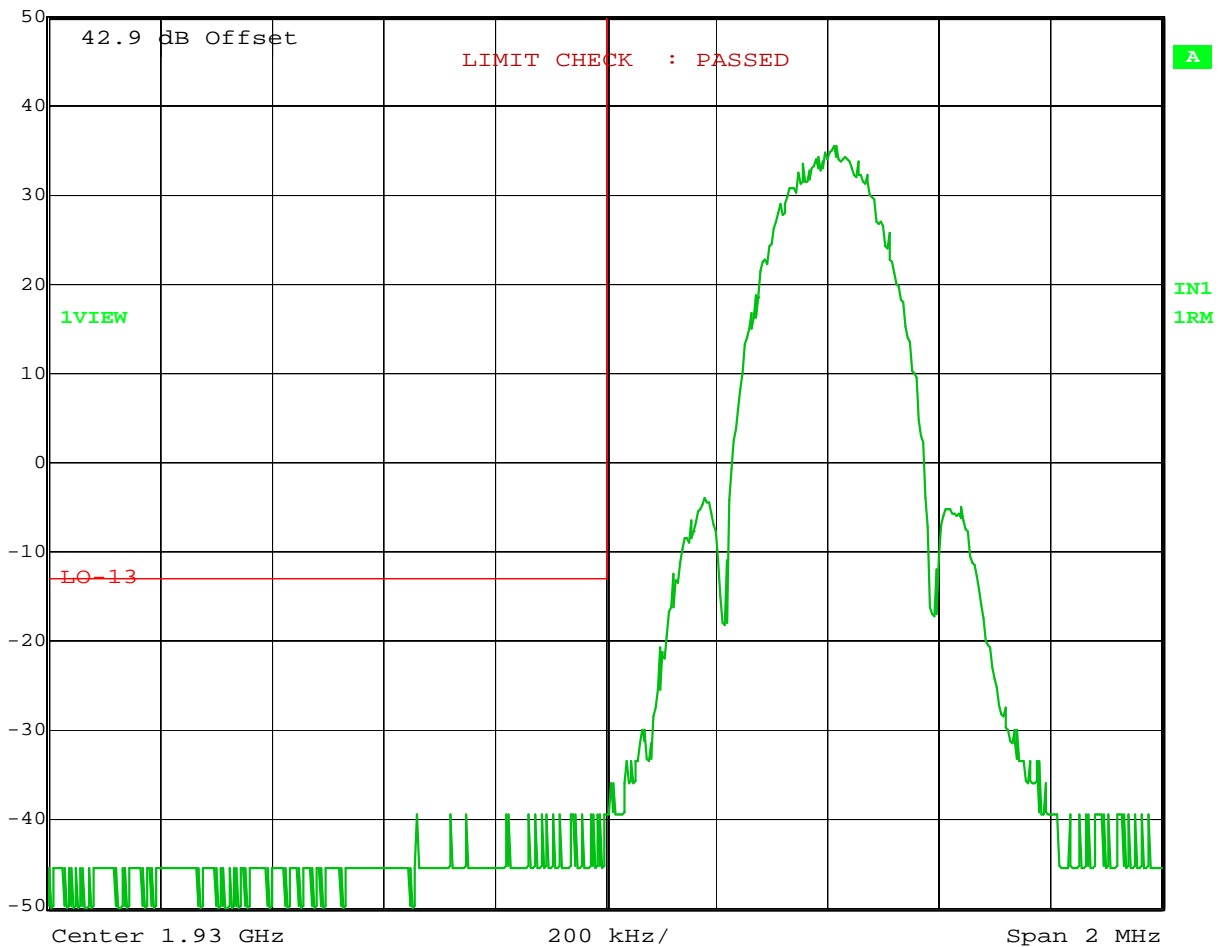
2nd Channel

48.4 dBm



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:35:19

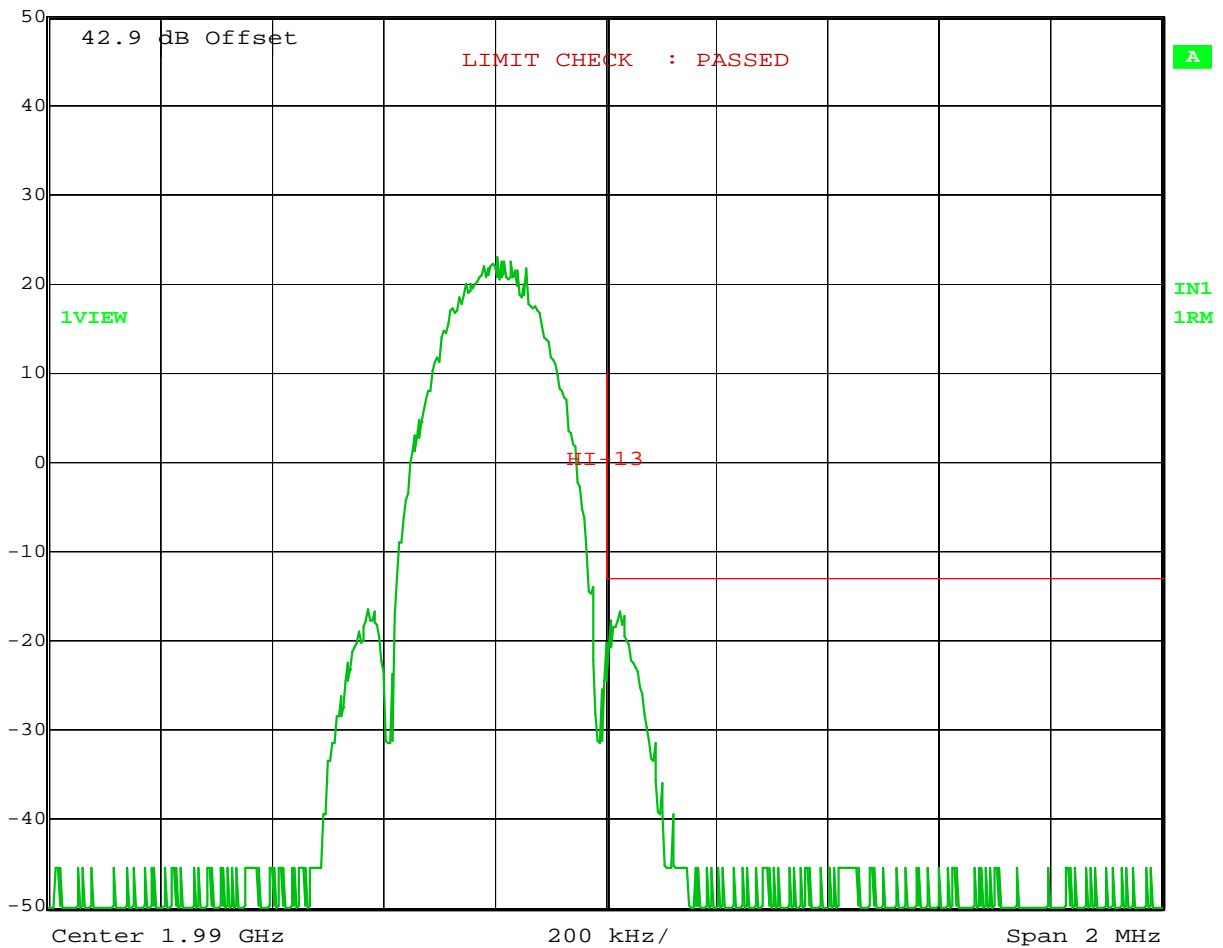
Test Data – Spurious Emissions

Upper Band Edge
QPSK
Highest Channel
36.9 dBm output



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:36:34

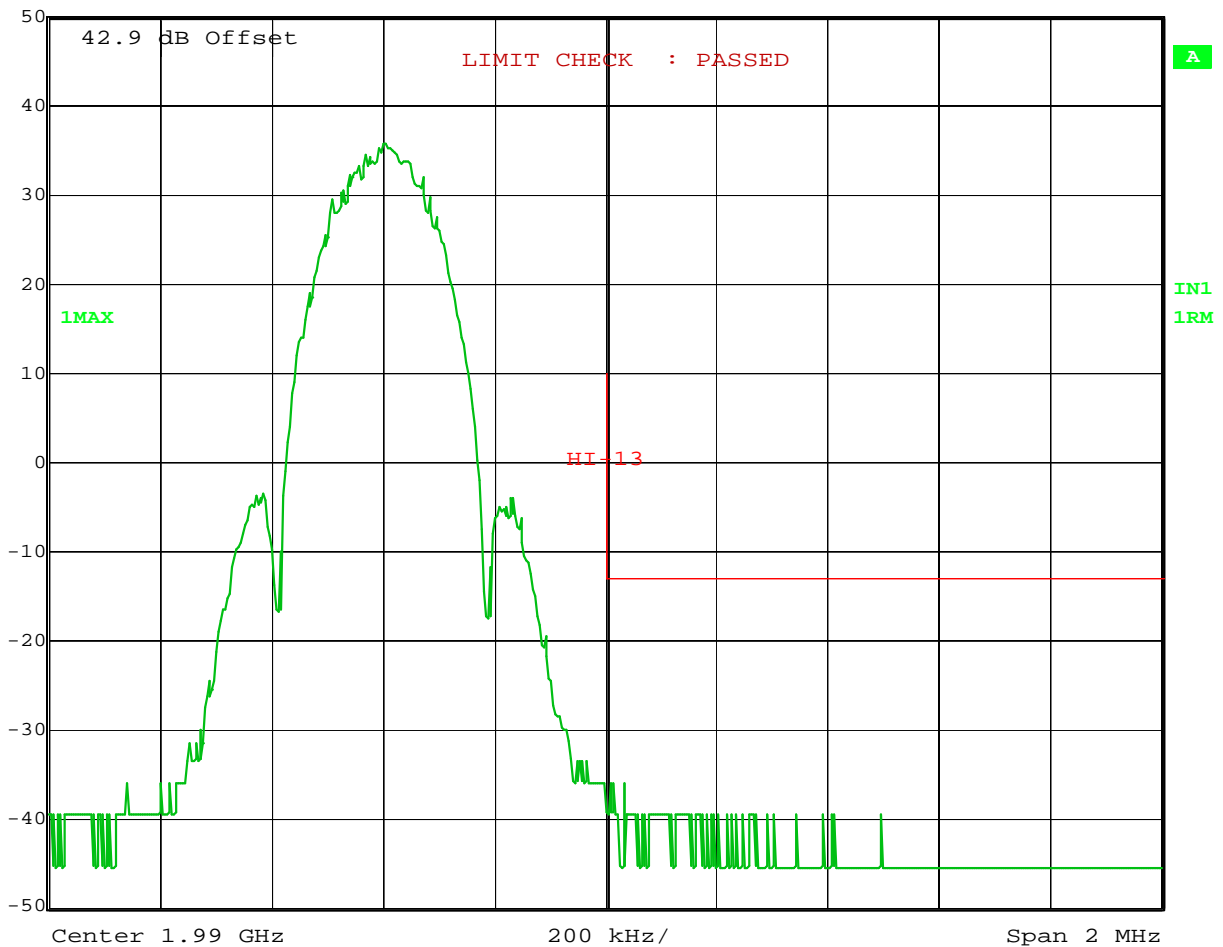
Test Data – Spurious Emissions

Upper Band Edge
QPSK
2nd Highest Channel
47.9 dBm Output



Ref Lvl
50 dBm

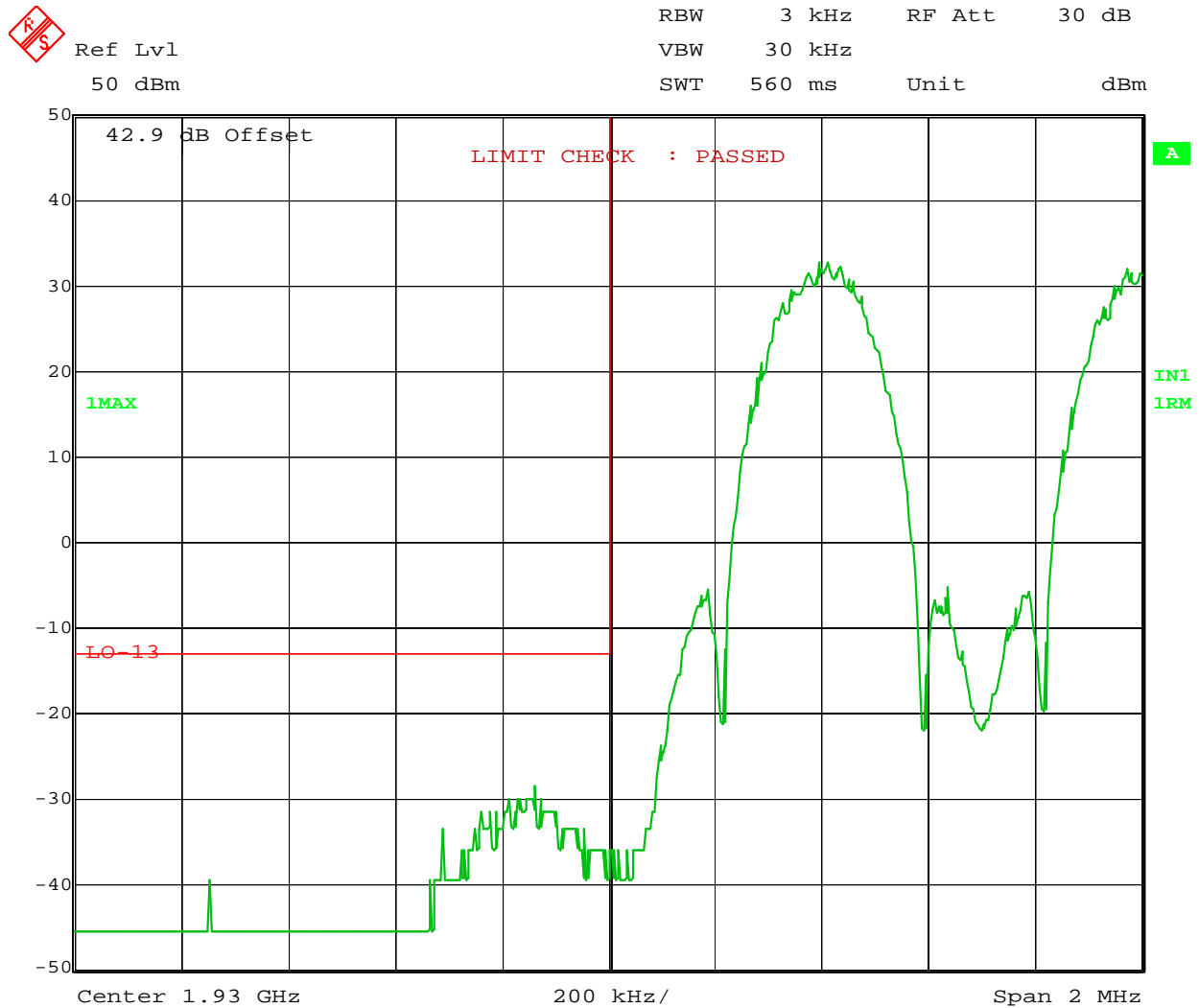
RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:39:29

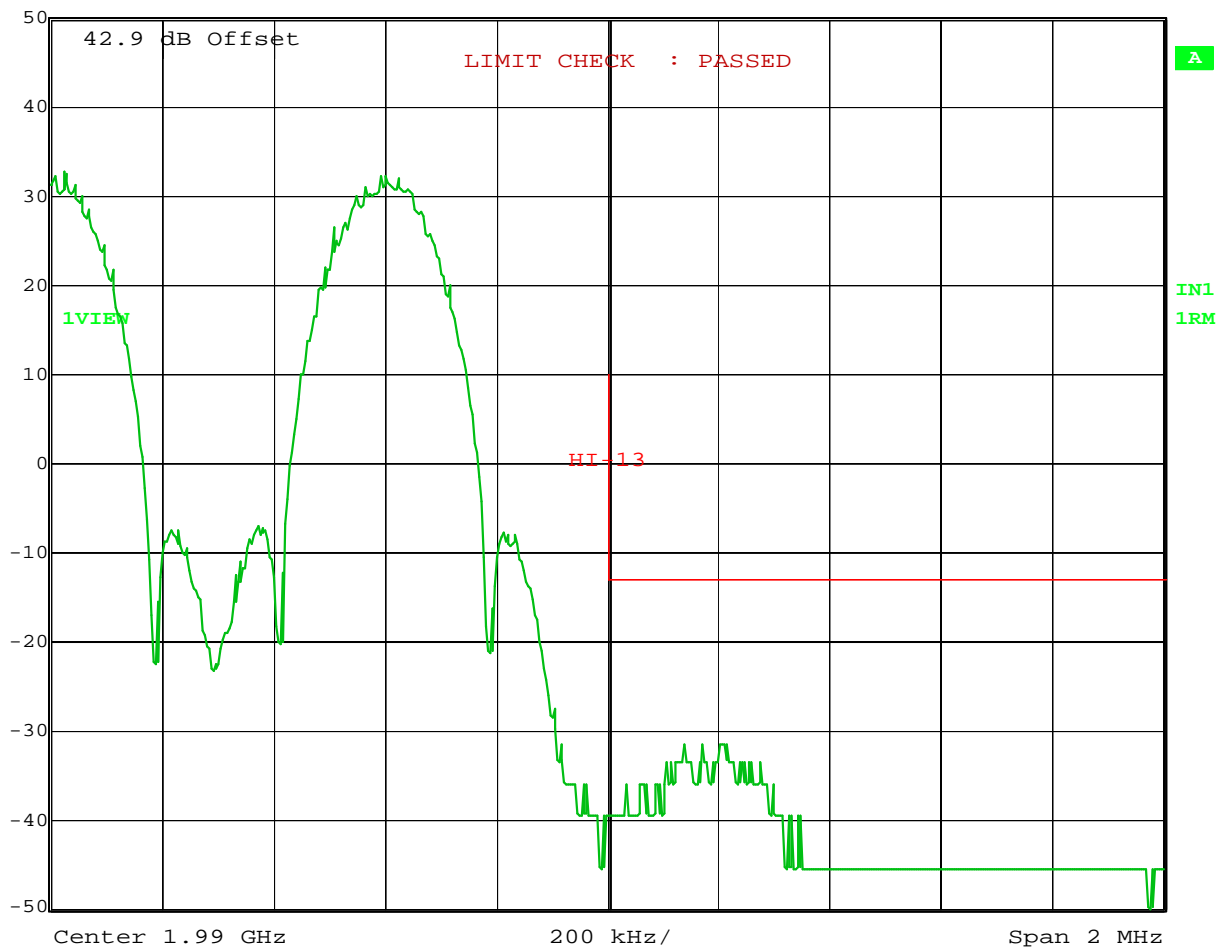
Test Data – Spurious Emissions

Lower Band Edge Intermodulation
80 Watts composite power
QPSK



Date: 22.JUL.2013 13:11:37

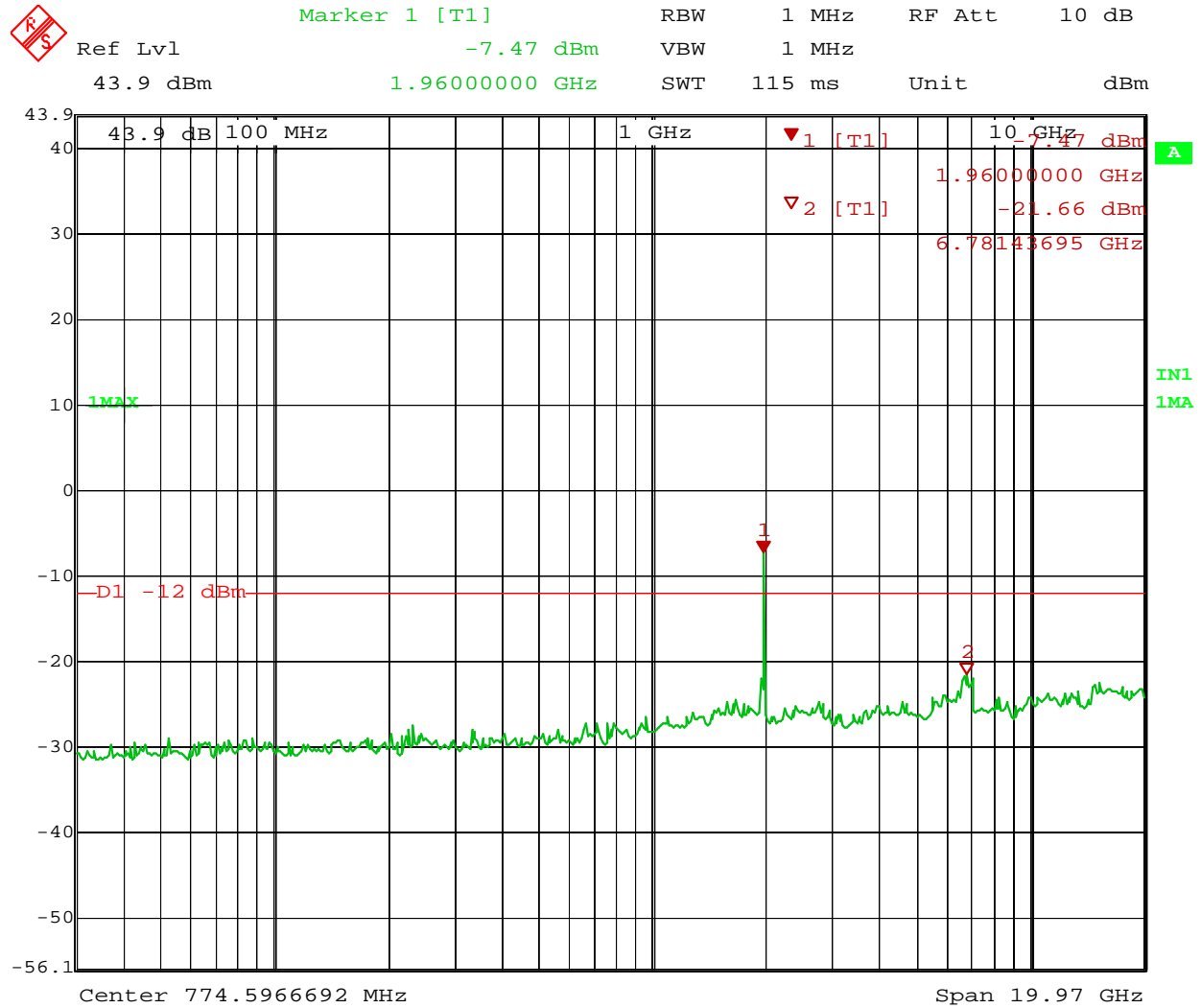
Test Data – Spurious Emissions

Upper Band Edge Intermodulation
80 Watts composite power
QPSKRef Lvl
50 dBmRBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm

Date: 22.JUL.2013 13:17:56

Test Data – Spurious Emissions

Spurious Emissions 8PSK



Date: 22.JUL.2013 07:17:00

Test Data – Spurious Emissions

Lower Band Edge

8PSK

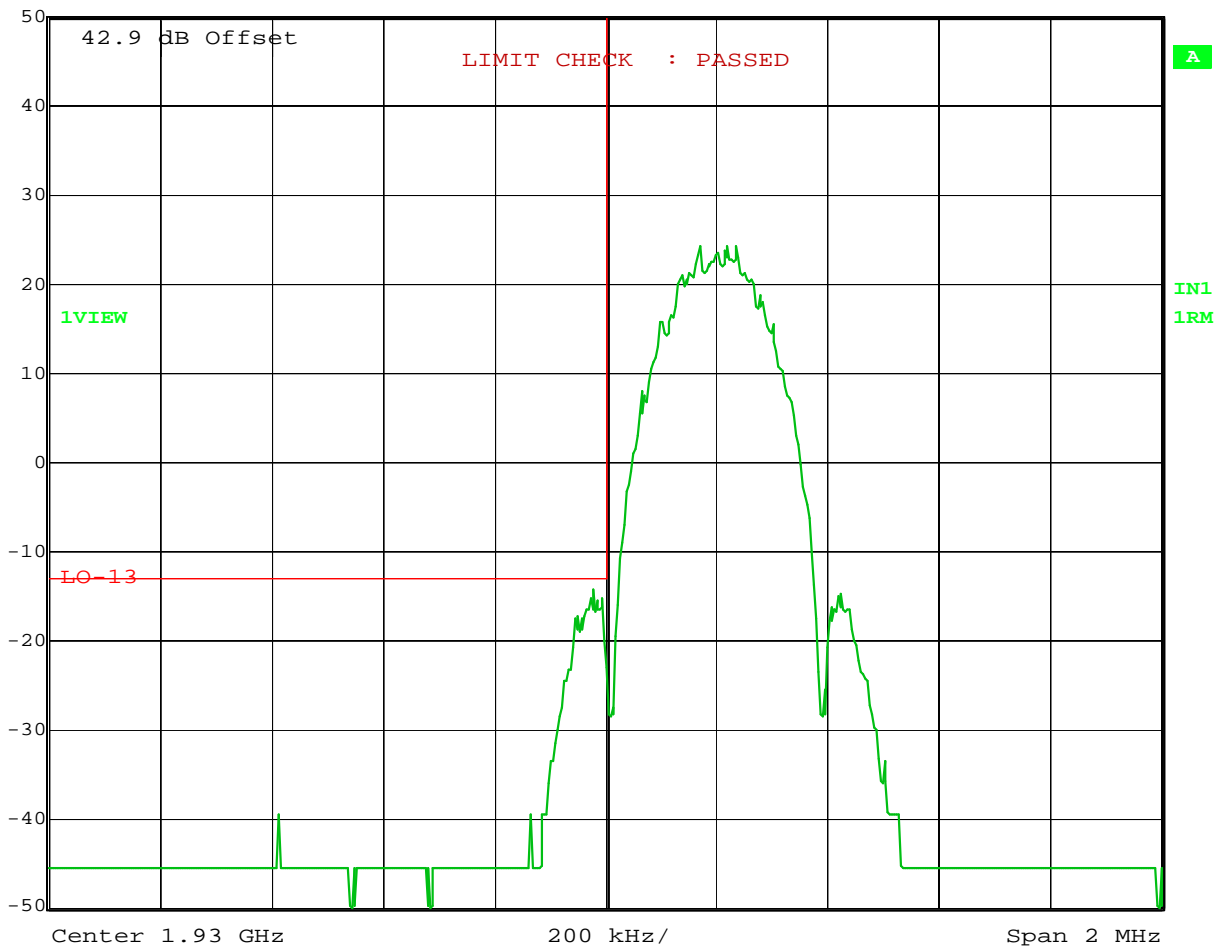
36.1 dBm

Lowest Channel



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:43:11

Test Data – Spurious Emissions

Lower Band Edge

8PSK

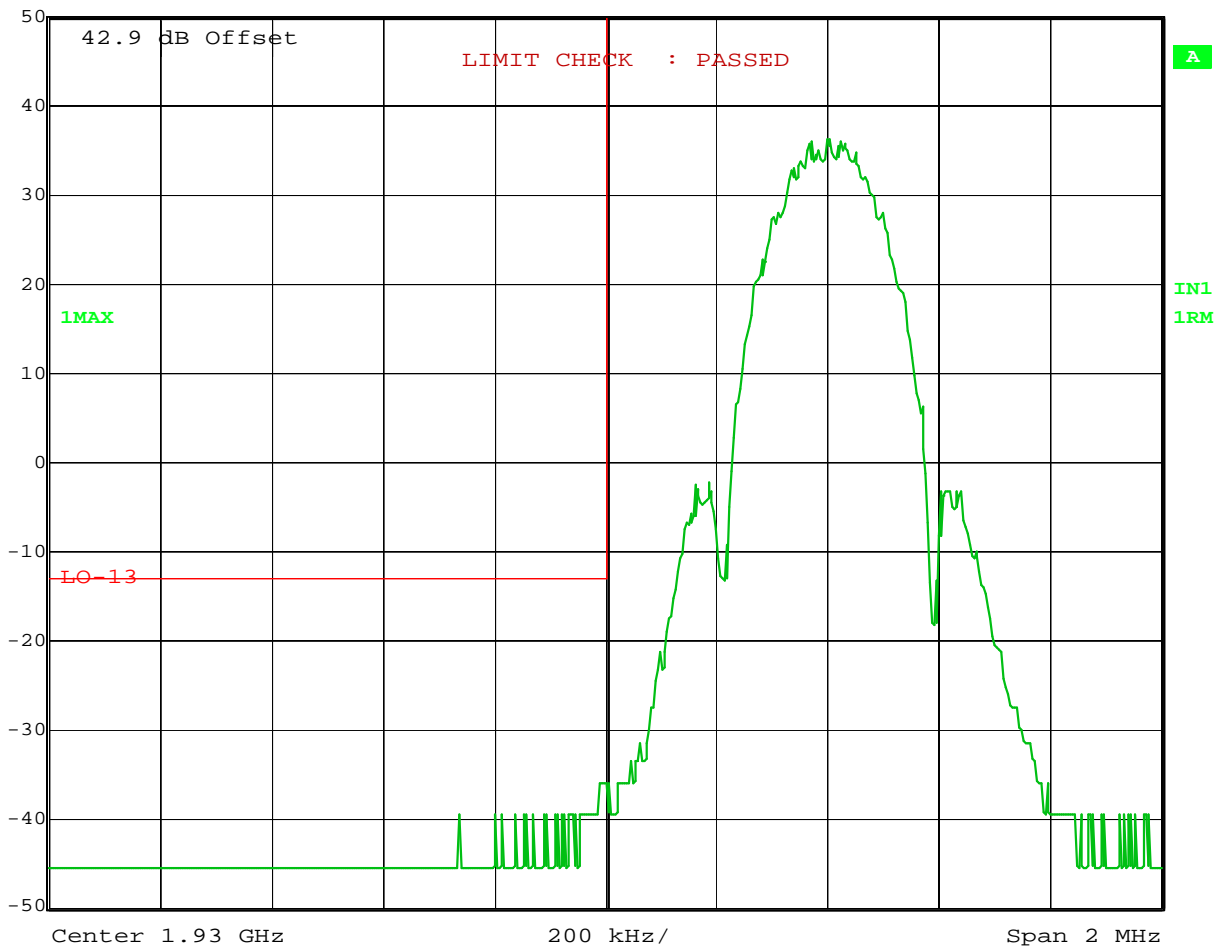
2nd Channel

48.6 dBm



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:45:11

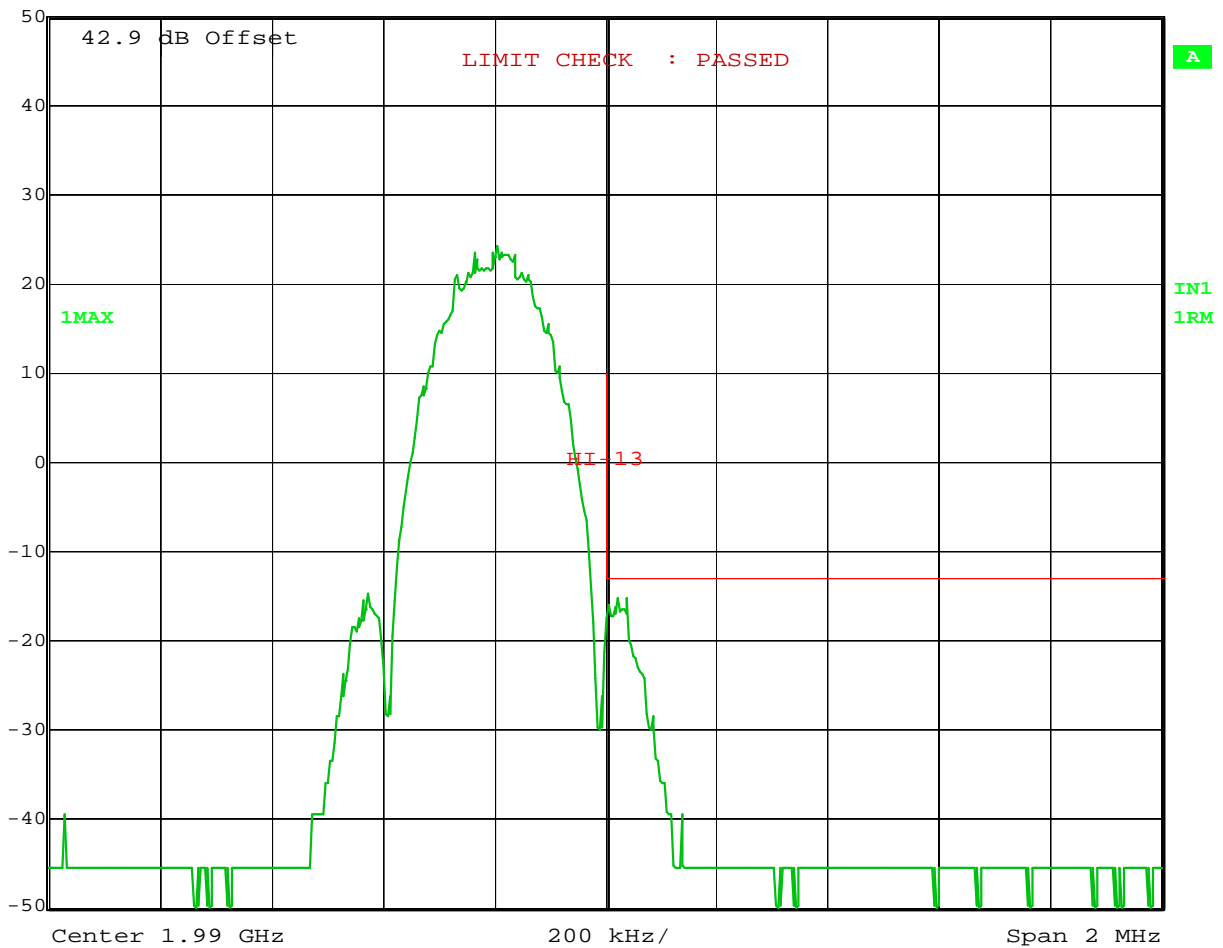
Test Data – Spurious Emissions

Upper Band Edge
8PSK
Highest Channel
35.8 dBm Output



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:46:44

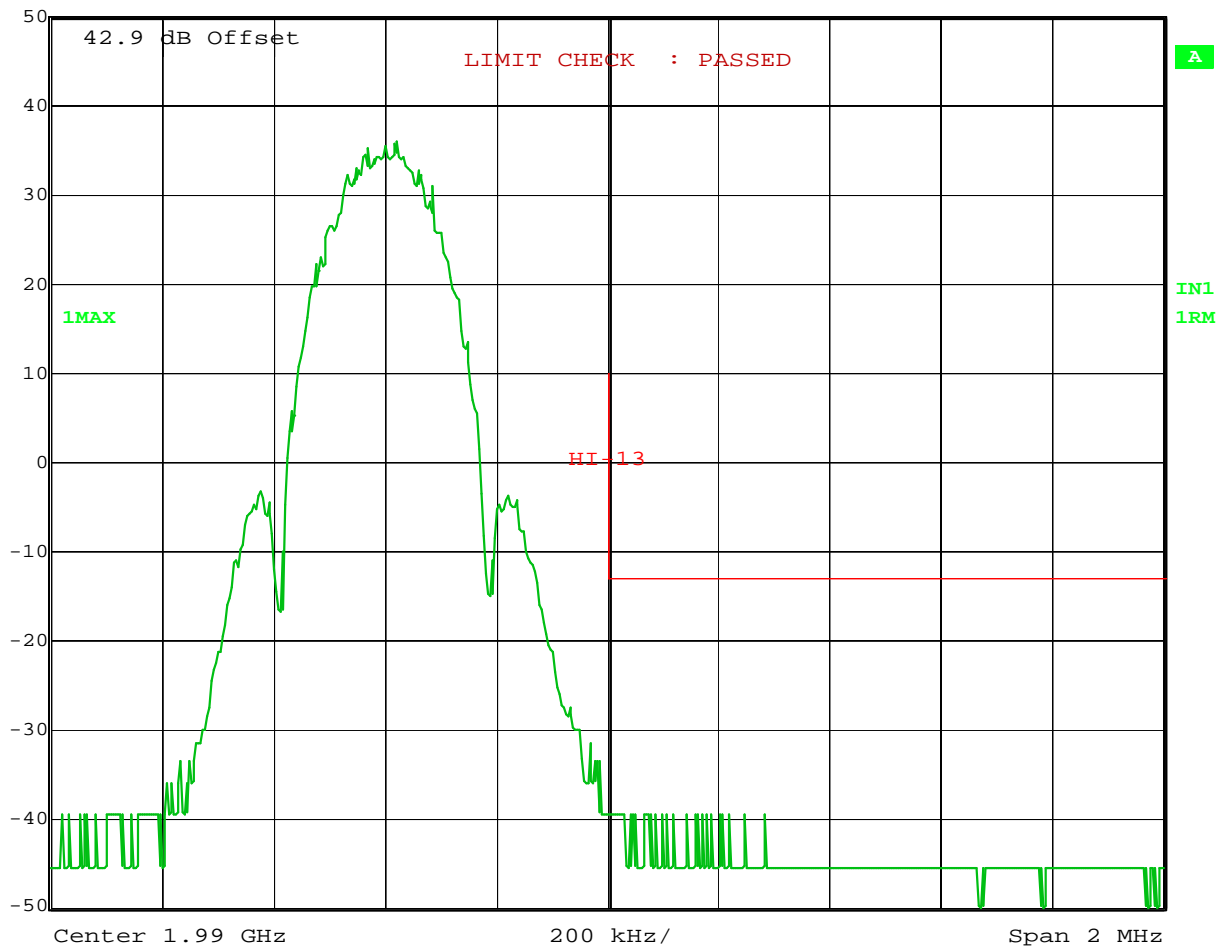
Test Data – Spurious Emissions

Upper Band Edge
8PSK
2nd Highest Channel
48.4 dBm



Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 12:49:51

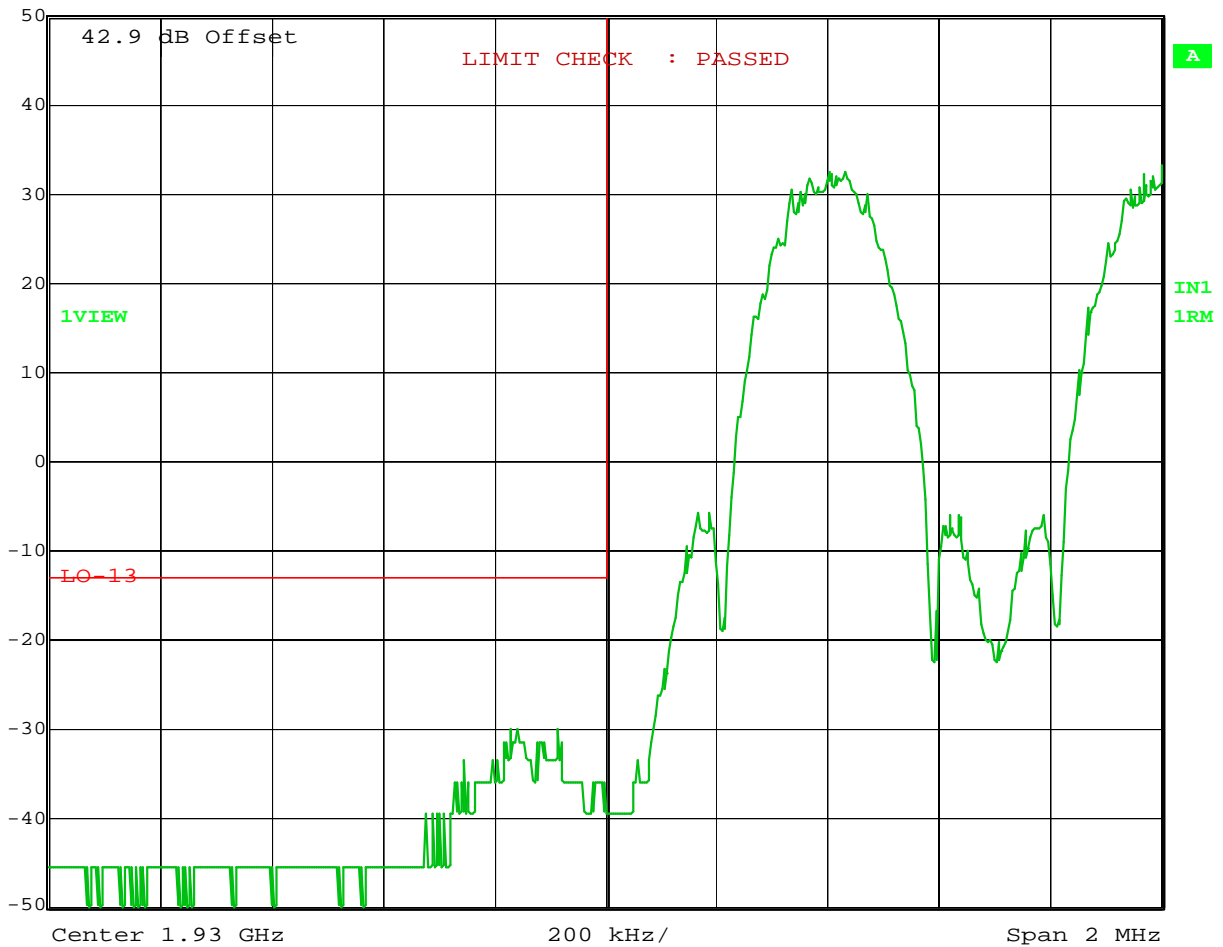
Test Data – Spurious Emissions

Lower Band Edge Intermodulation
80 Watts composite power
8PSK



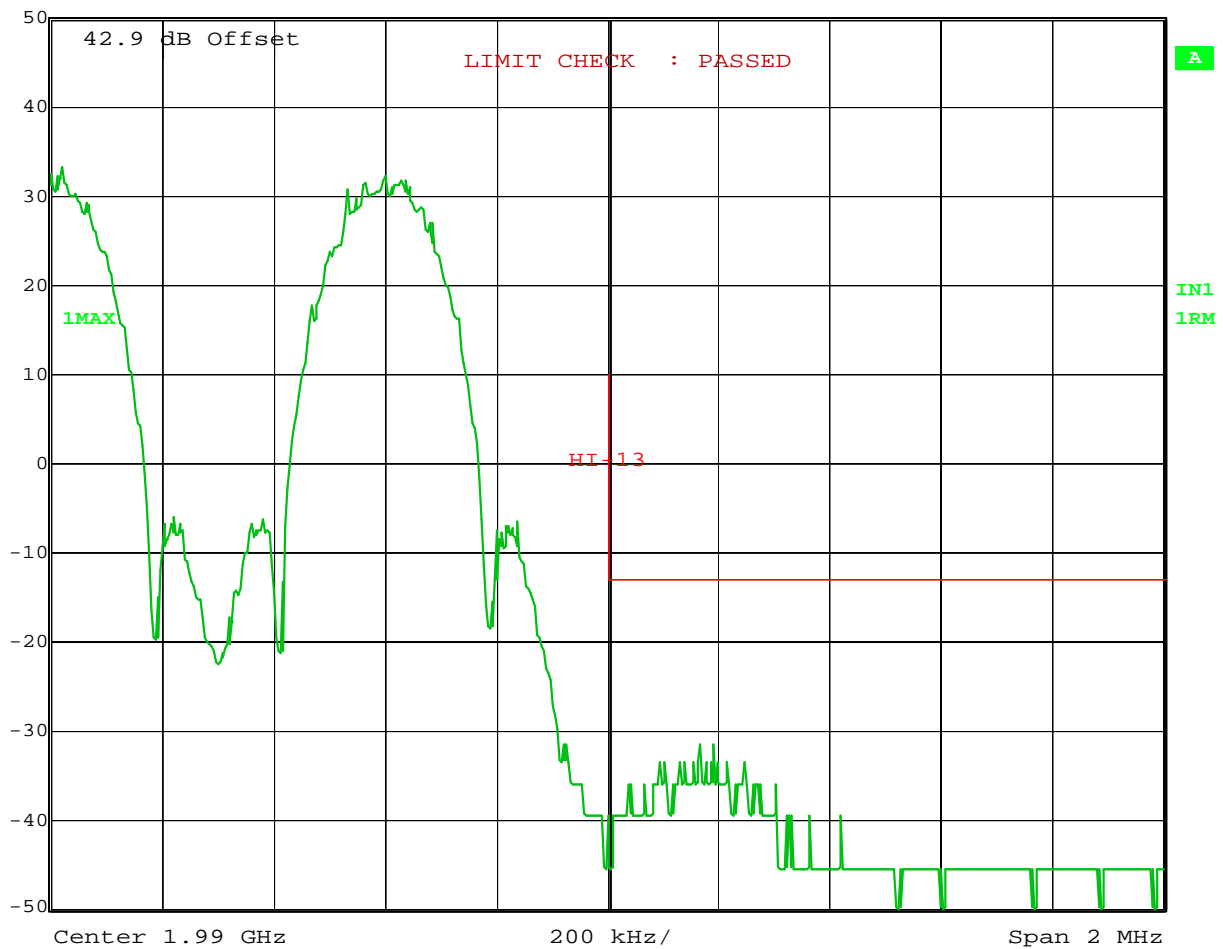
Ref Lvl
50 dBm

RBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm



Date: 22.JUL.2013 13:10:08

Test Data – Spurious Emissions

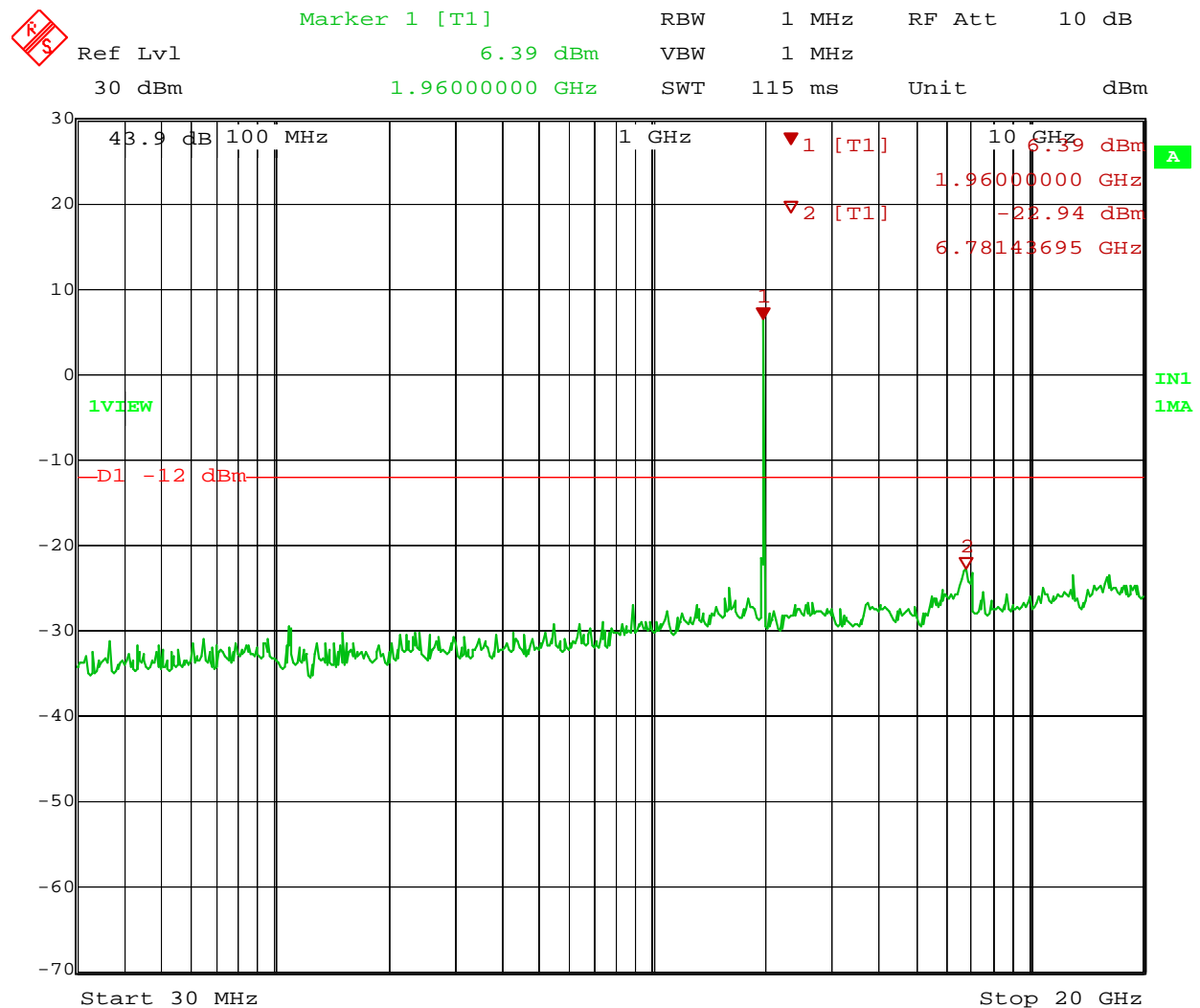
Upper Band Edge Intermodulation
80 Watts composite power
8PSKRef Lvl
50 dBmRBW 3 kHz RF Att 30 dB
VBW 30 kHz
SWT 560 ms Unit dBm

Date: 22.JUL.2013 13:16:04

Test Data – Spurious Emissions

Spurious Emissions

QPSK



Date: 22.JUL.2013 08:44:06

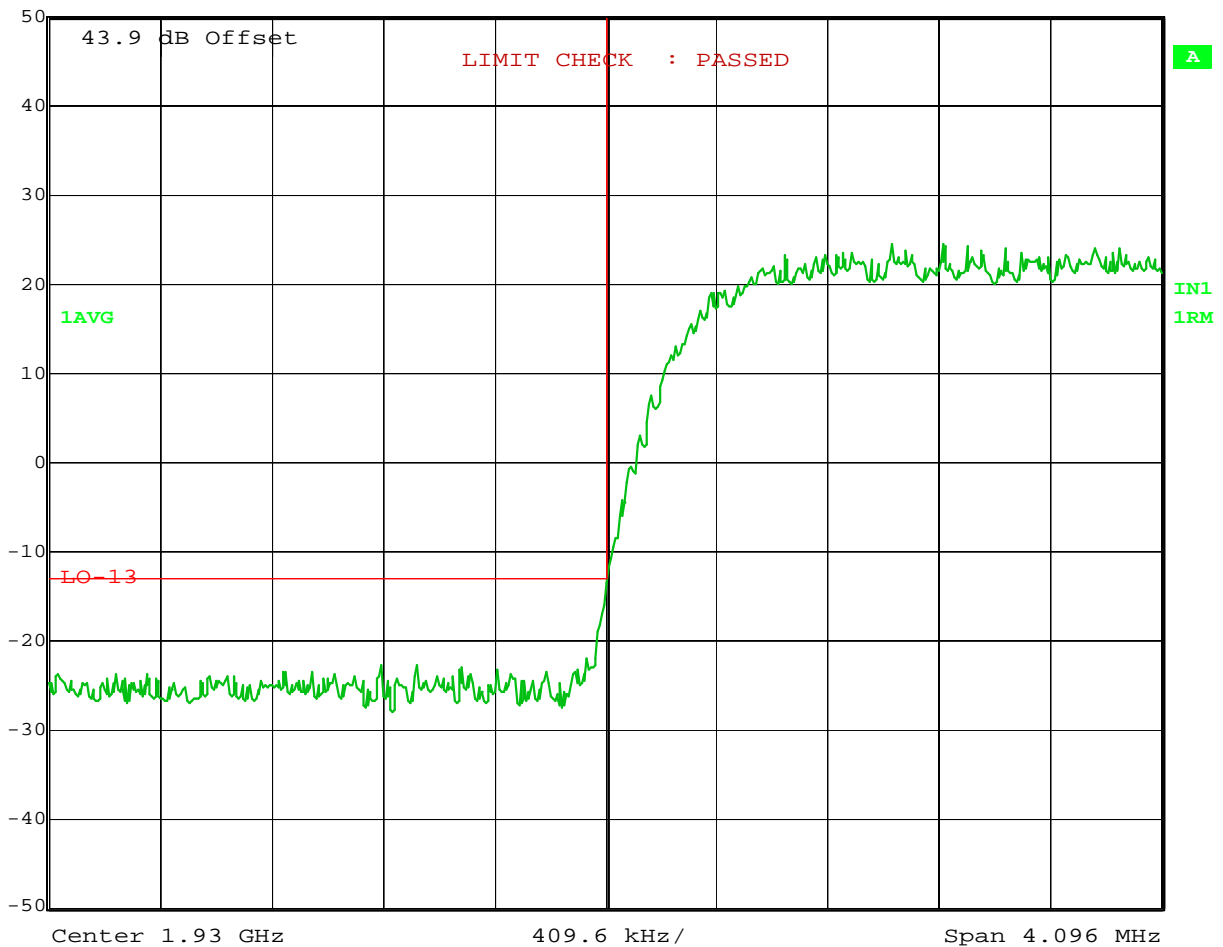
Test Data – Spurious Emissions

Lower Band Edge
QPSK
+42.5 dBm Output
(Lowest Channel)



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 5 ms Unit dBm



Date: 22.JUL.2013 08:59:53

Test Data – Spurious Emissions

Lower Band Edge

QPSK

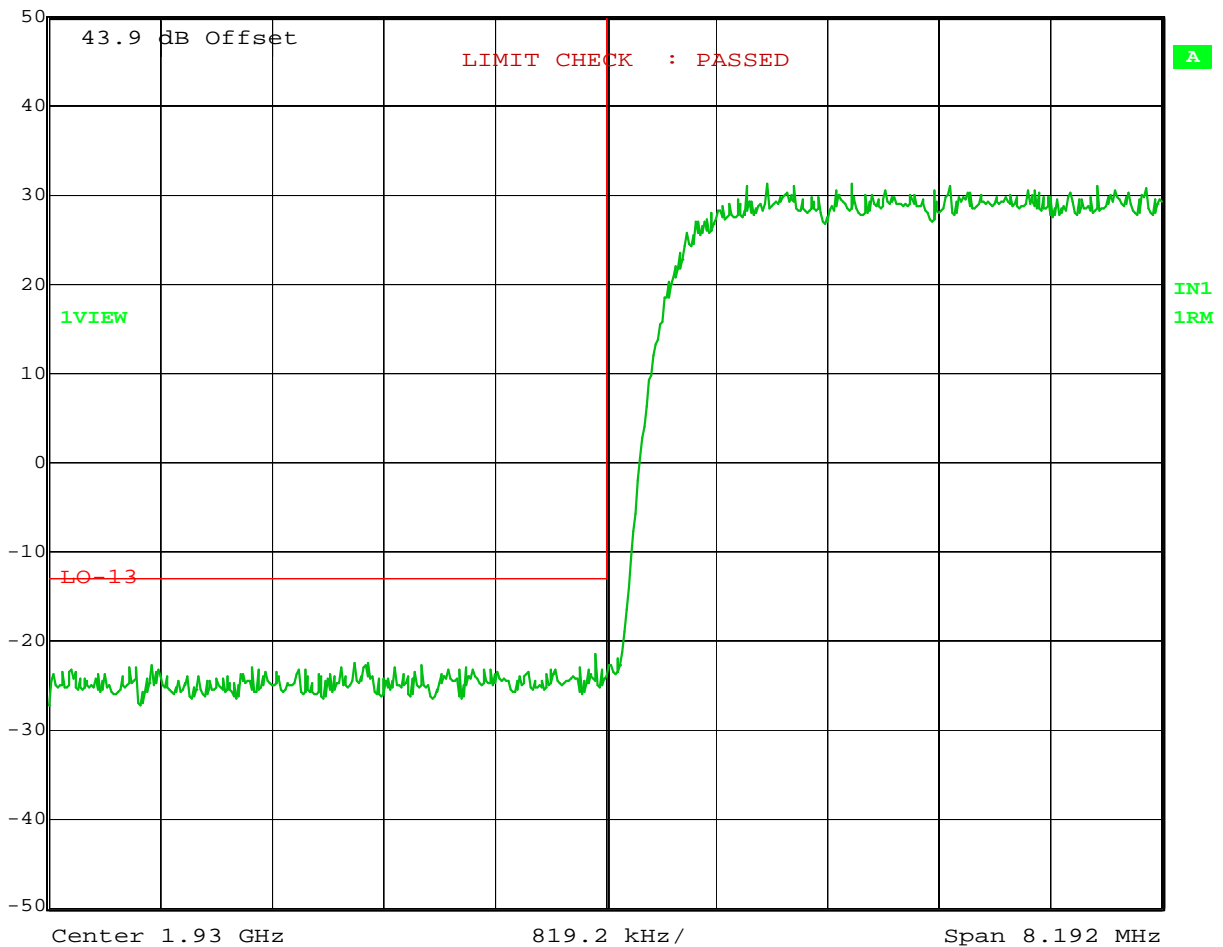
Second Lowest Channel

Full Power



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:37:56

Test Data – Spurious Emissions

Upper Band Edge

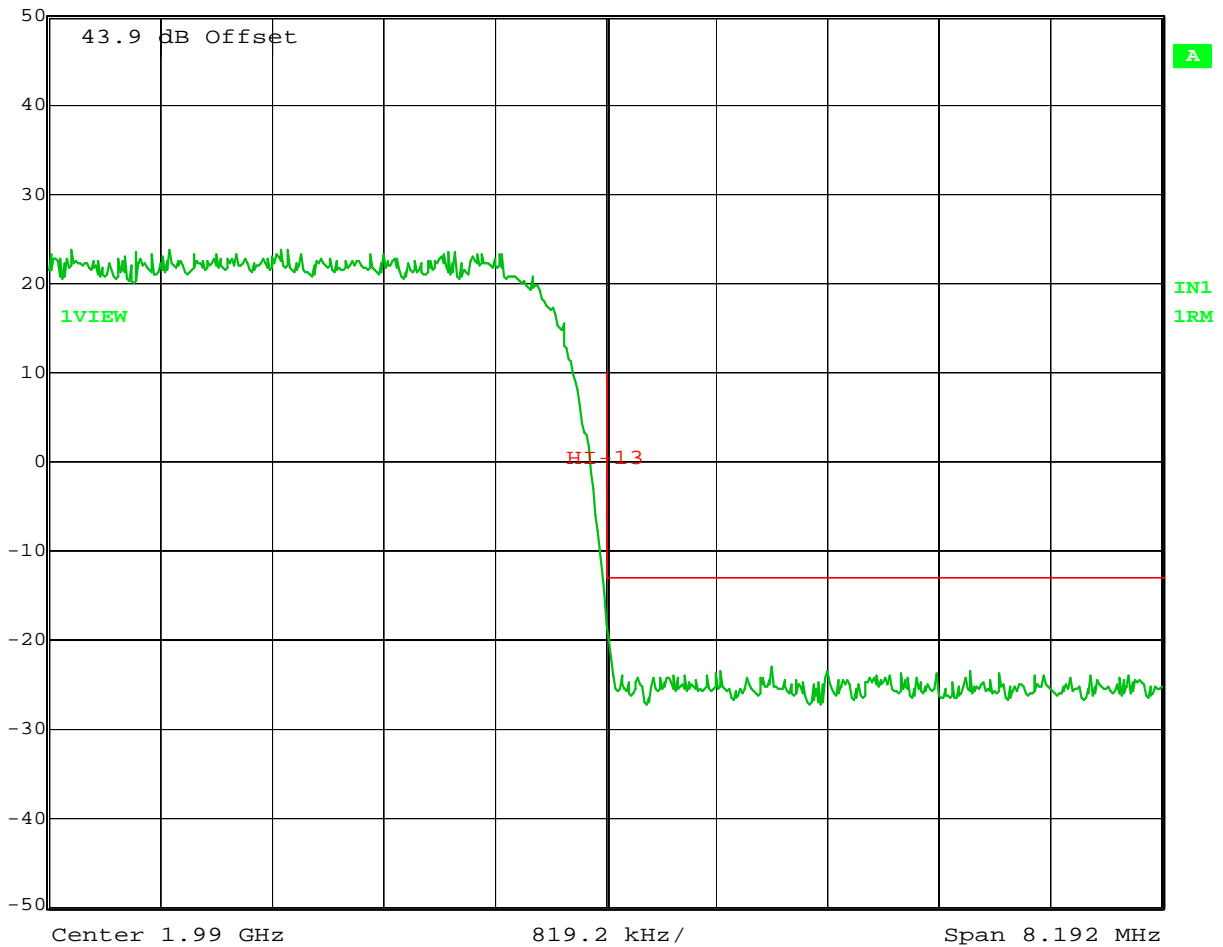
QPSK

+41.9 dBm Output (6 dB Attenuator @ Output)



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:09:48

Test Data – Spurious Emissions

Upper Band Edge

QPSK

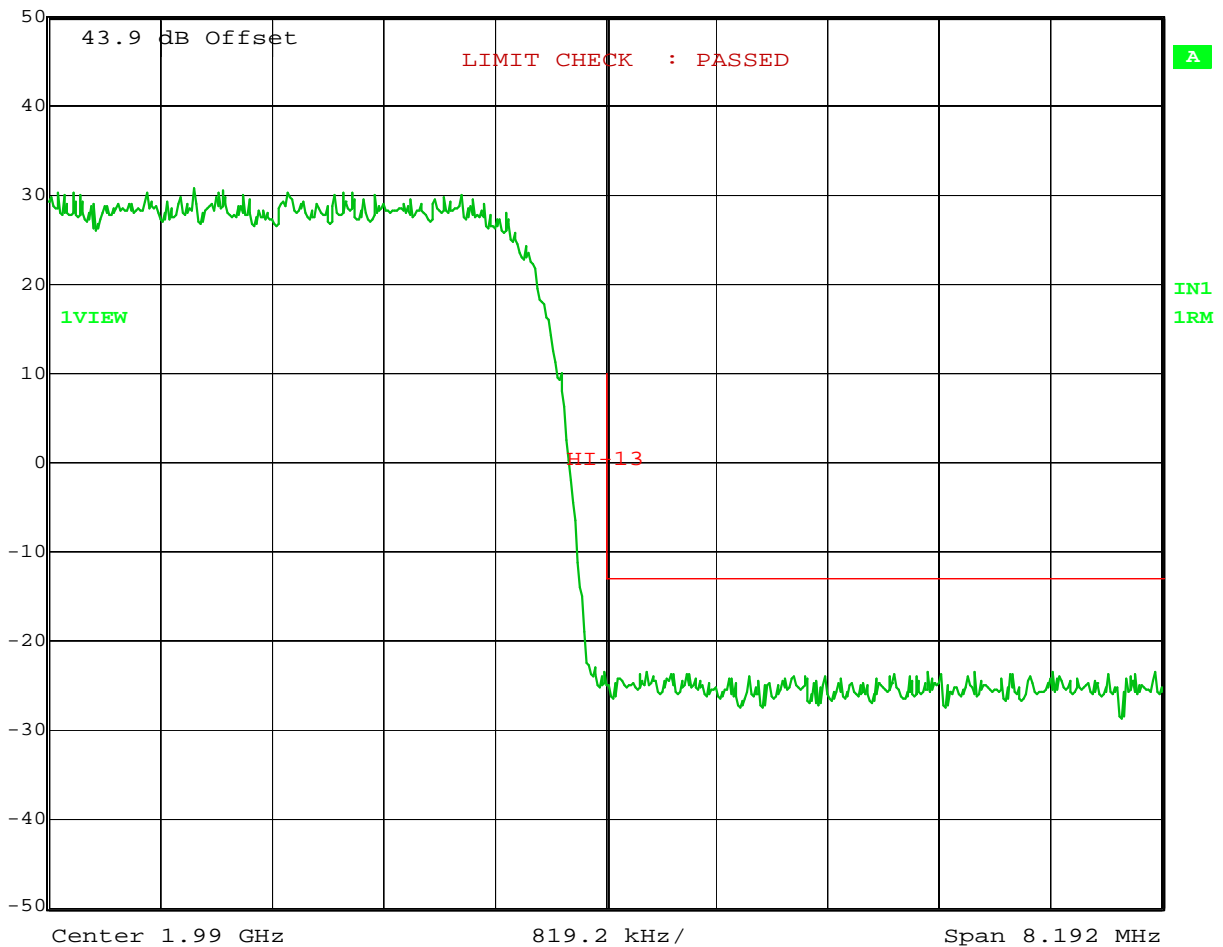
Second to Highest Channel

Full Power



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:41:50

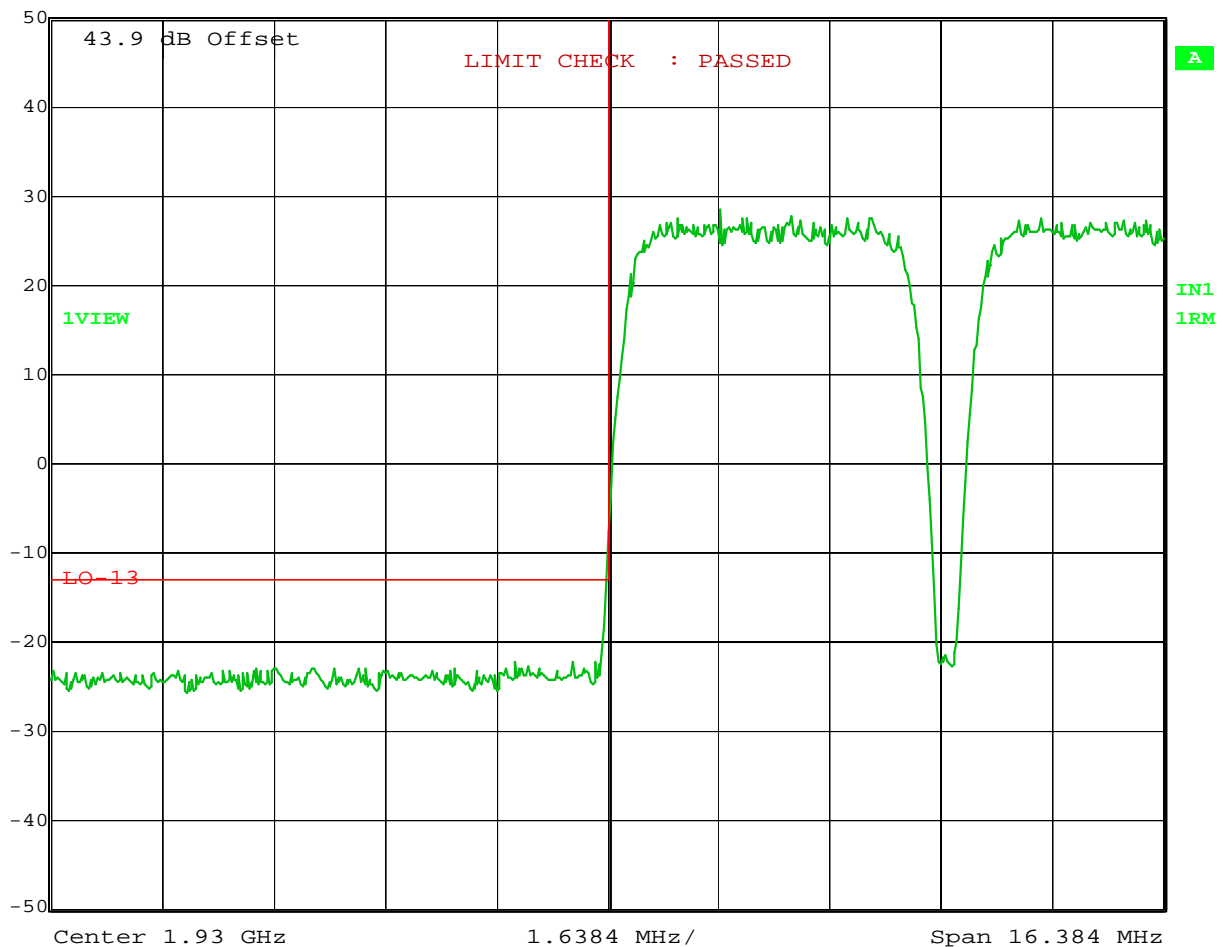
Test Data – Spurious Emissions

Lower Band Edge Intermodulation
QPSK
40 Watts per carrier



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 16.5 ms Unit dBm



Date: 22.JUL.2013 11:40:47

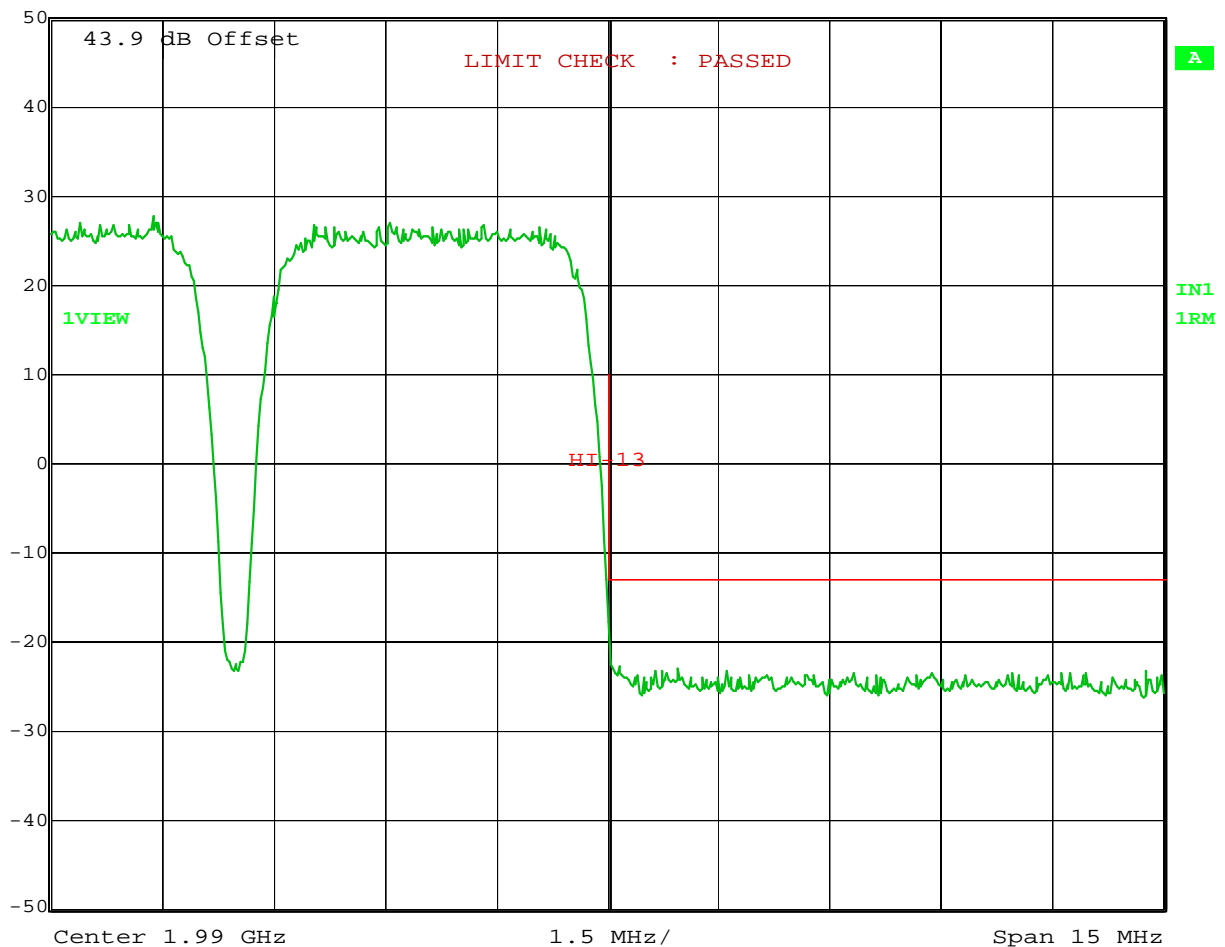
Test Data – Spurious Emissions

Upper Band Edge Intermodulation
Full Power
QPSK



Ref Lvl
50 dBm

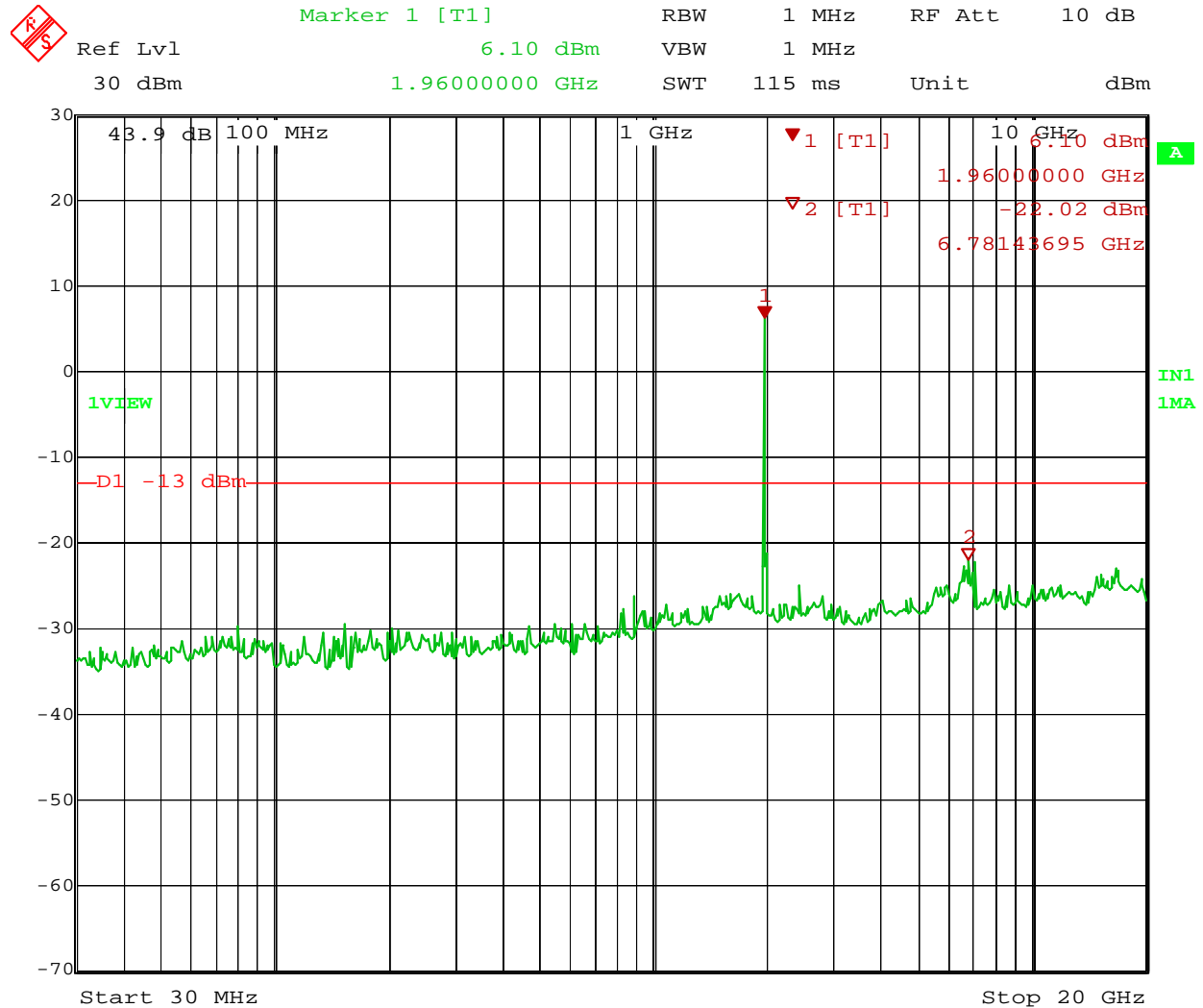
RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 15 ms Unit dBm



Date: 22.JUL.2013 11:45:45

Test Data – Spurious Emissions

Spurious Emissions 16QAM



Date: 22.JUL.2013 08:46:12

Test Data – Spurious Emissions

Lower Band Edge

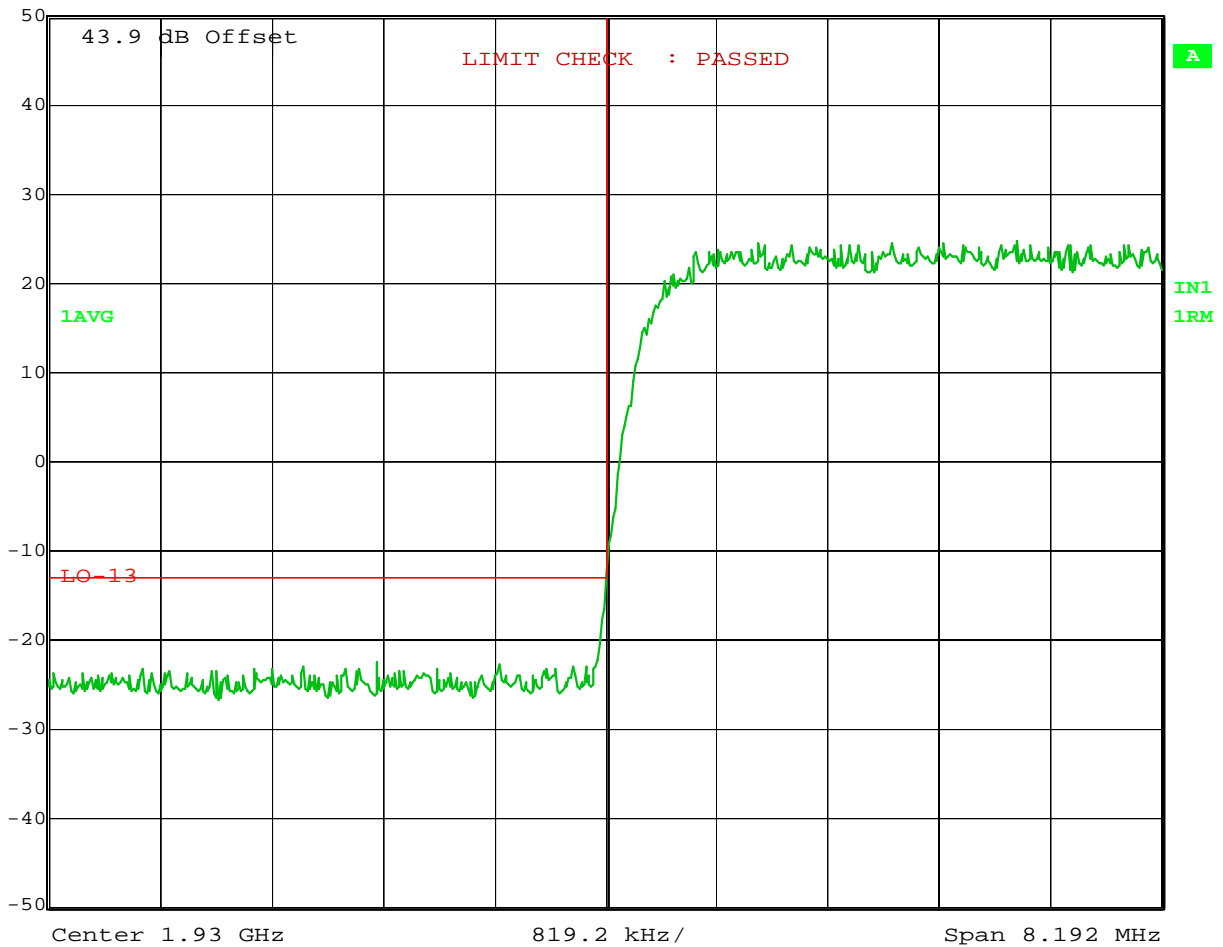
16QAM

42.7 dBm Output



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:19:15

Test Data – Spurious Emissions

Lower Band Edge

16QAM

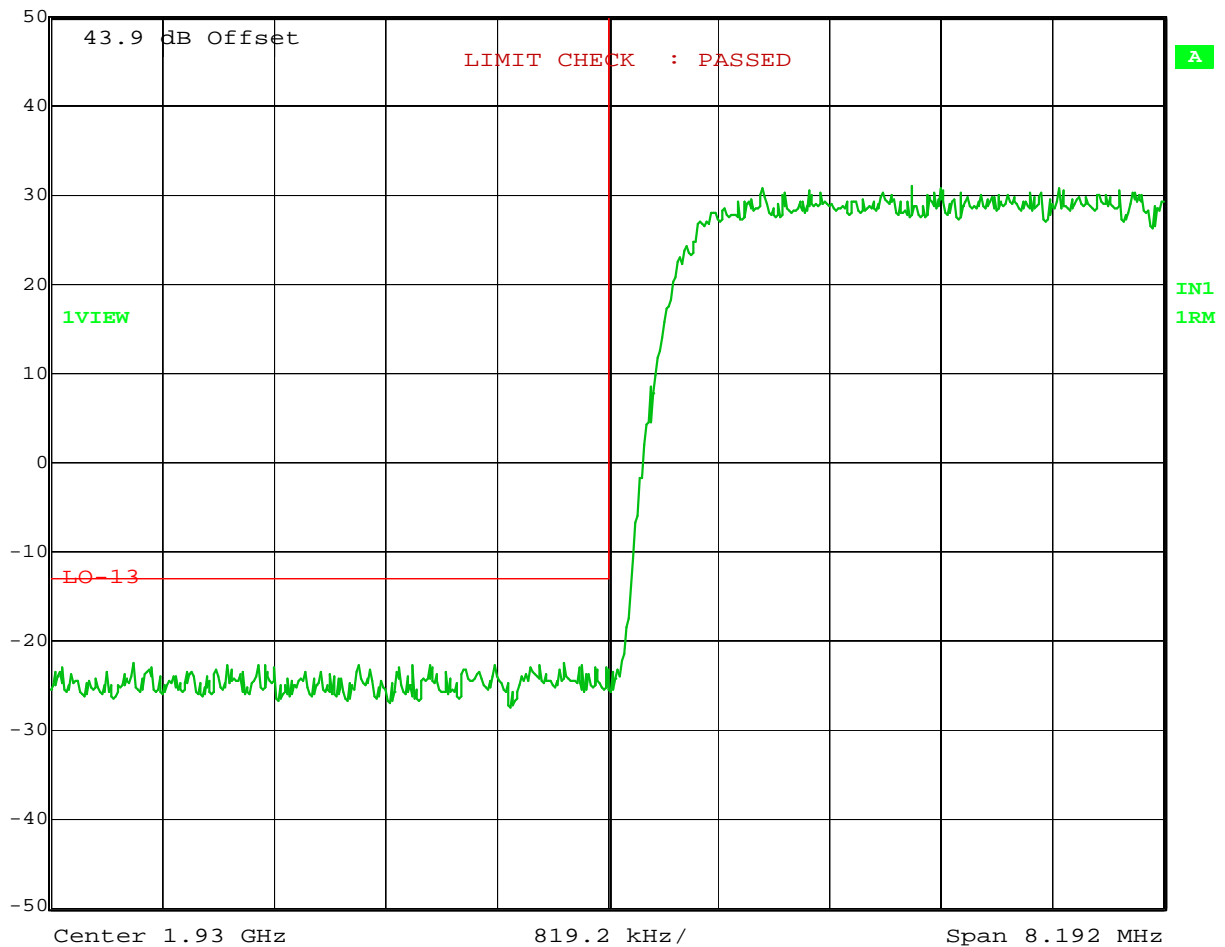
Second to Lowest Channel

Full Power



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:46:58

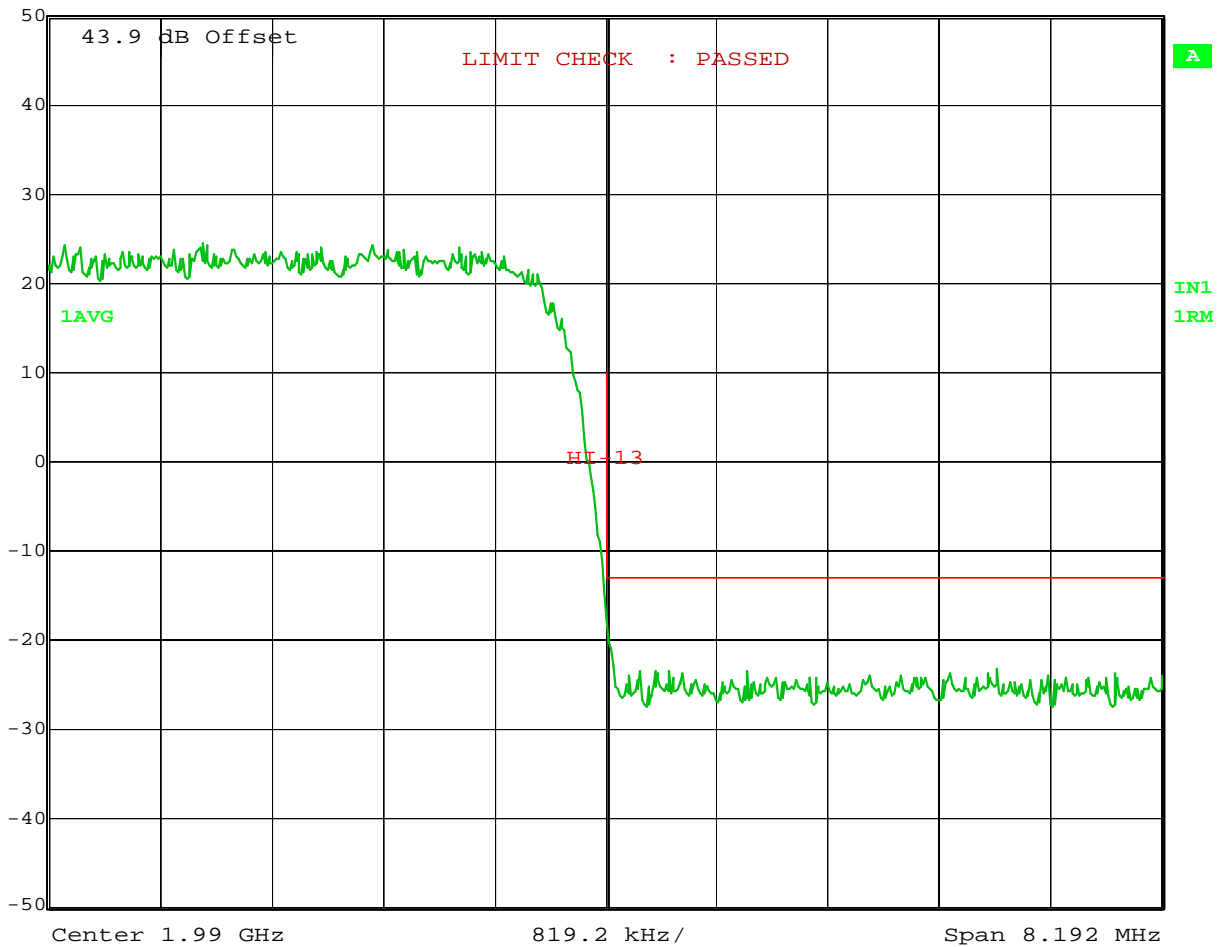
Test Data – Spurious Emissions

Upper Band Edge
16QAM
42.3 dBm Output



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:21:25

Test Data – Spurious Emissions

Upper Band Edge

16QAM

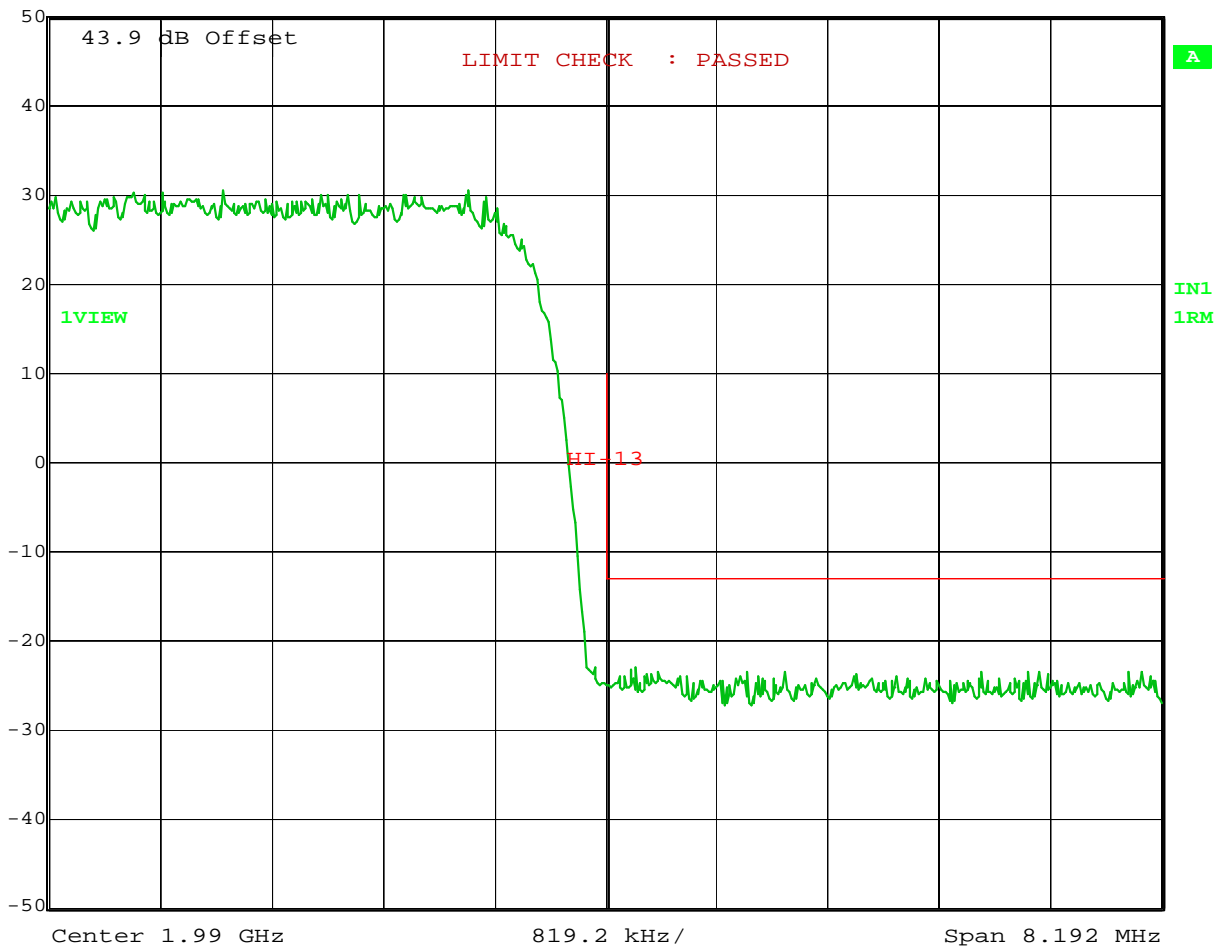
Second to Highest Channel

Full Power



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:44:46

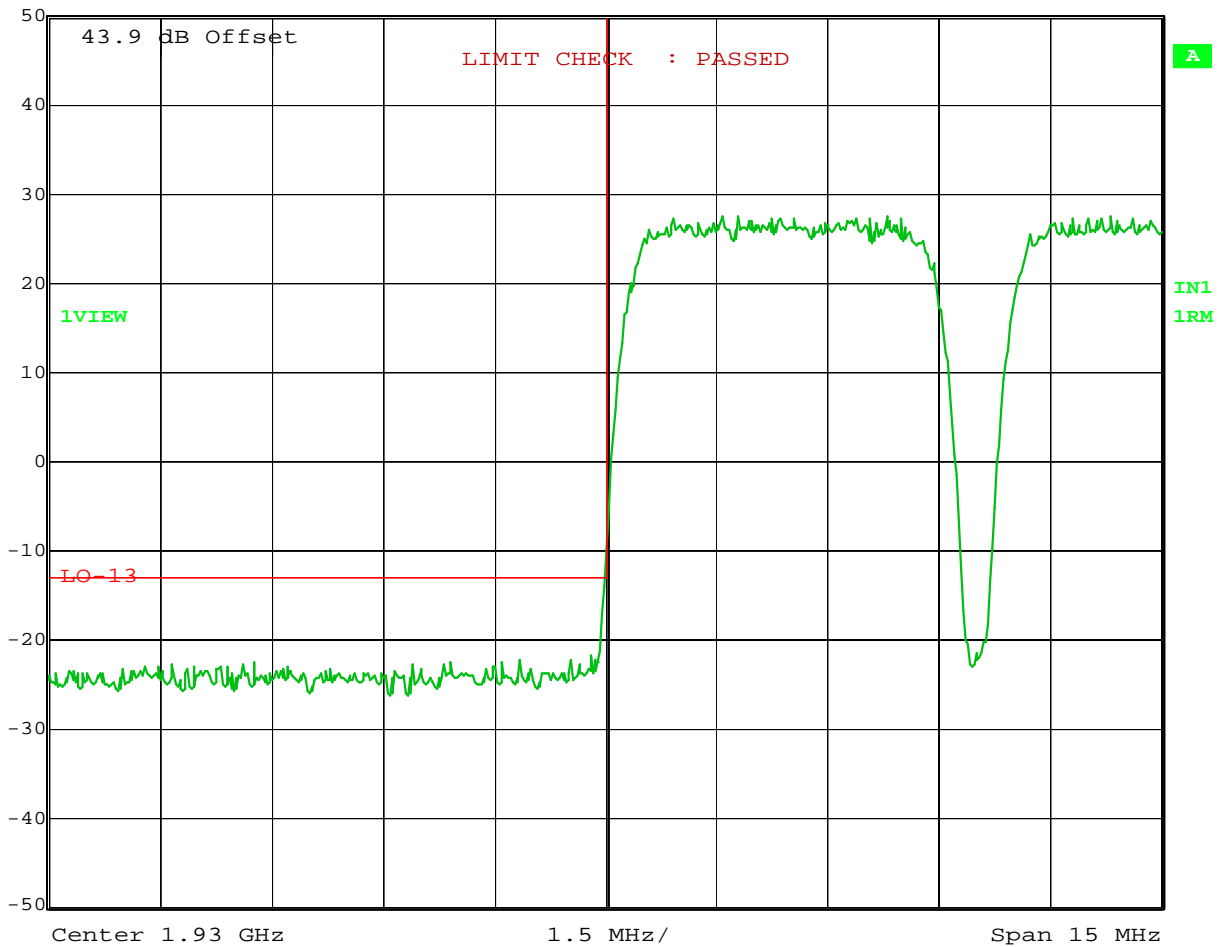
Test Data – Spurious Emissions

Lower Band Edge Intermodulation
Full Power
16QAM



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 15 ms Unit dBm



Date: 22.JUL.2013 11:41:58

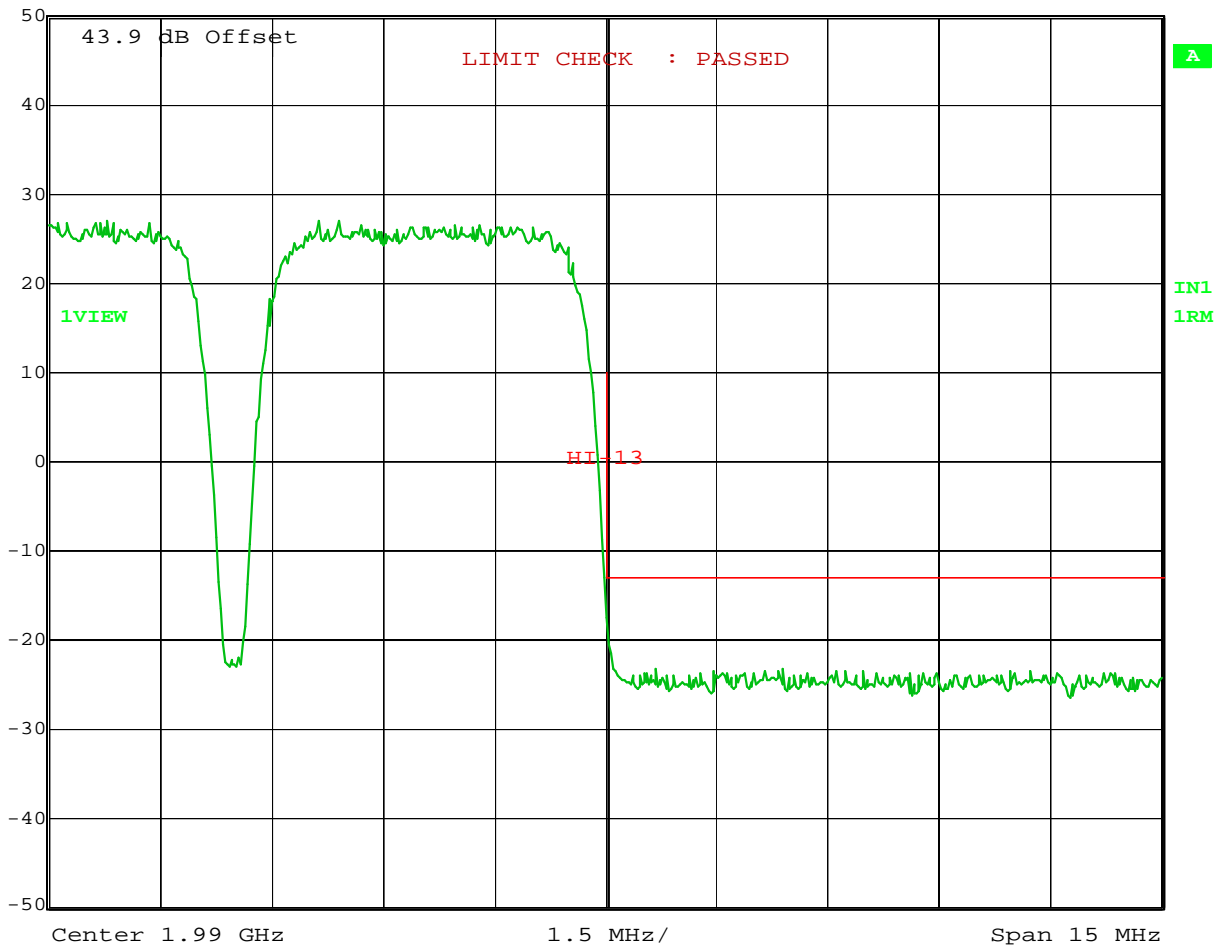
Test Data – Spurious Emissions

Upper Band Edge Intermodulation
Full Power
16QAM



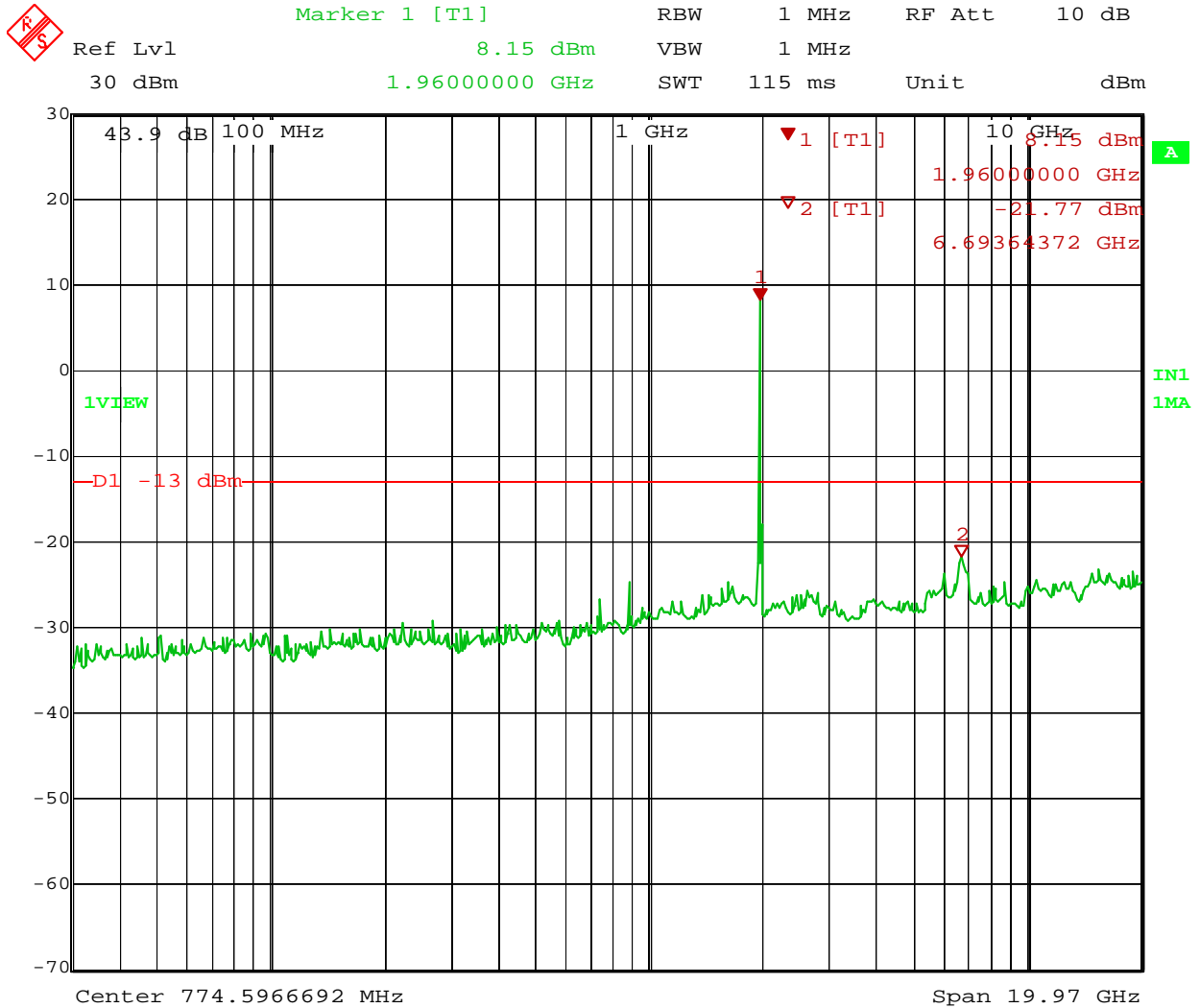
Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 15 ms Unit dBm



Date: 22.JUL.2013 11:45:01

Spurious Emissions
64QAM



Date: 22.JUL.2013 08:48:01

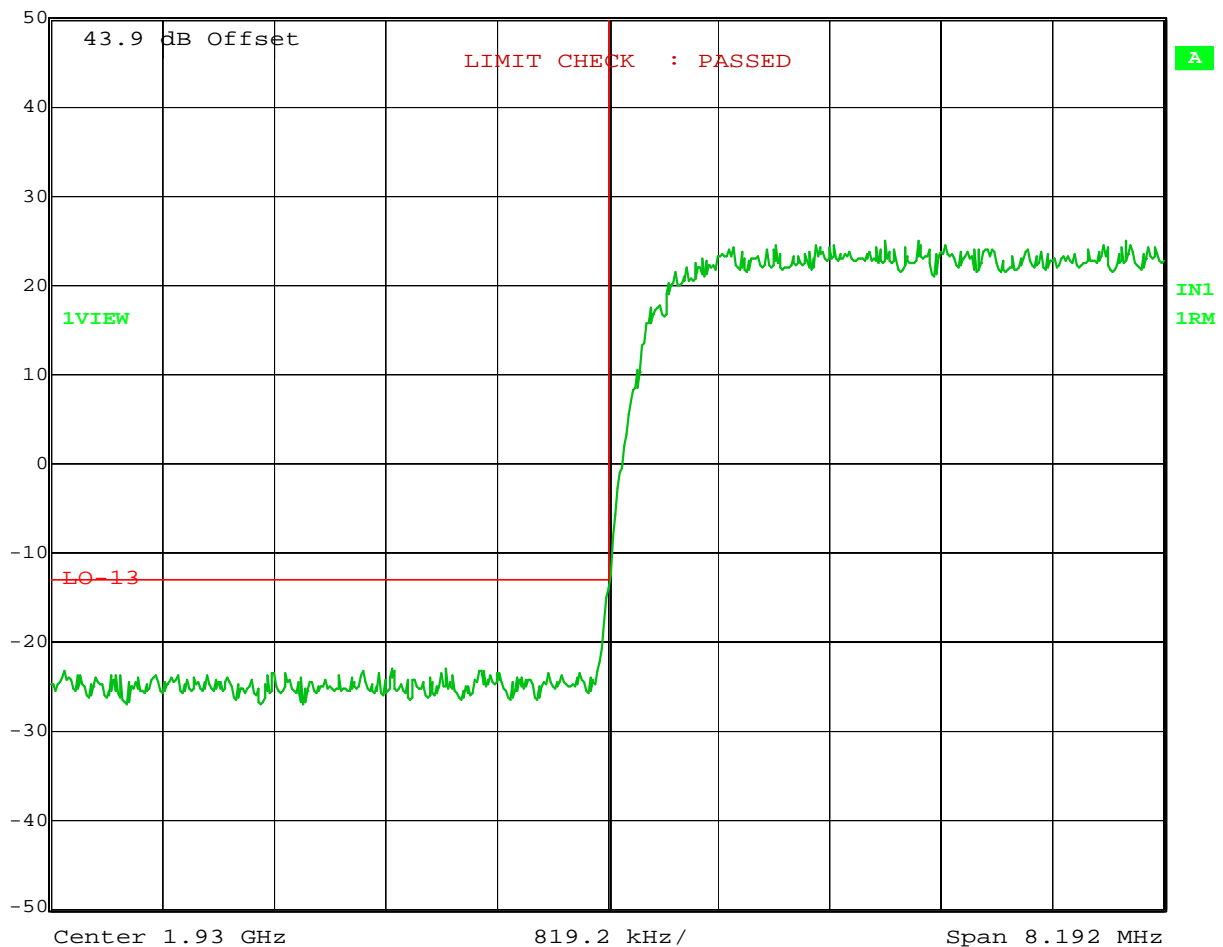
Test Data – Spurious Emissions

Lower Band Edge
42.7 dBm Output
64QAM



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:27:43

Test Data – Spurious Emissions

Lower Band Edge

64QAM

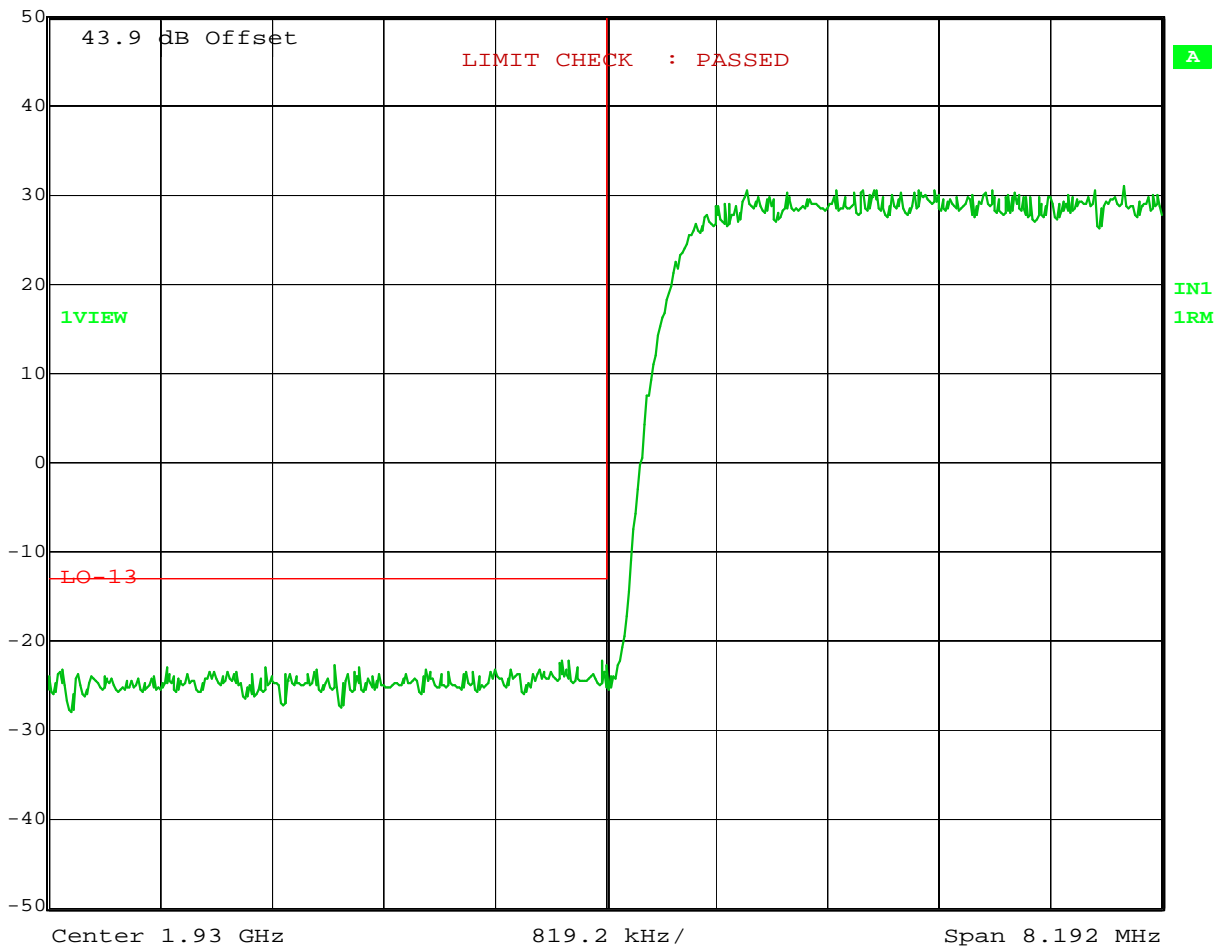
Second Lowest Channel

Full Power



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:49:18

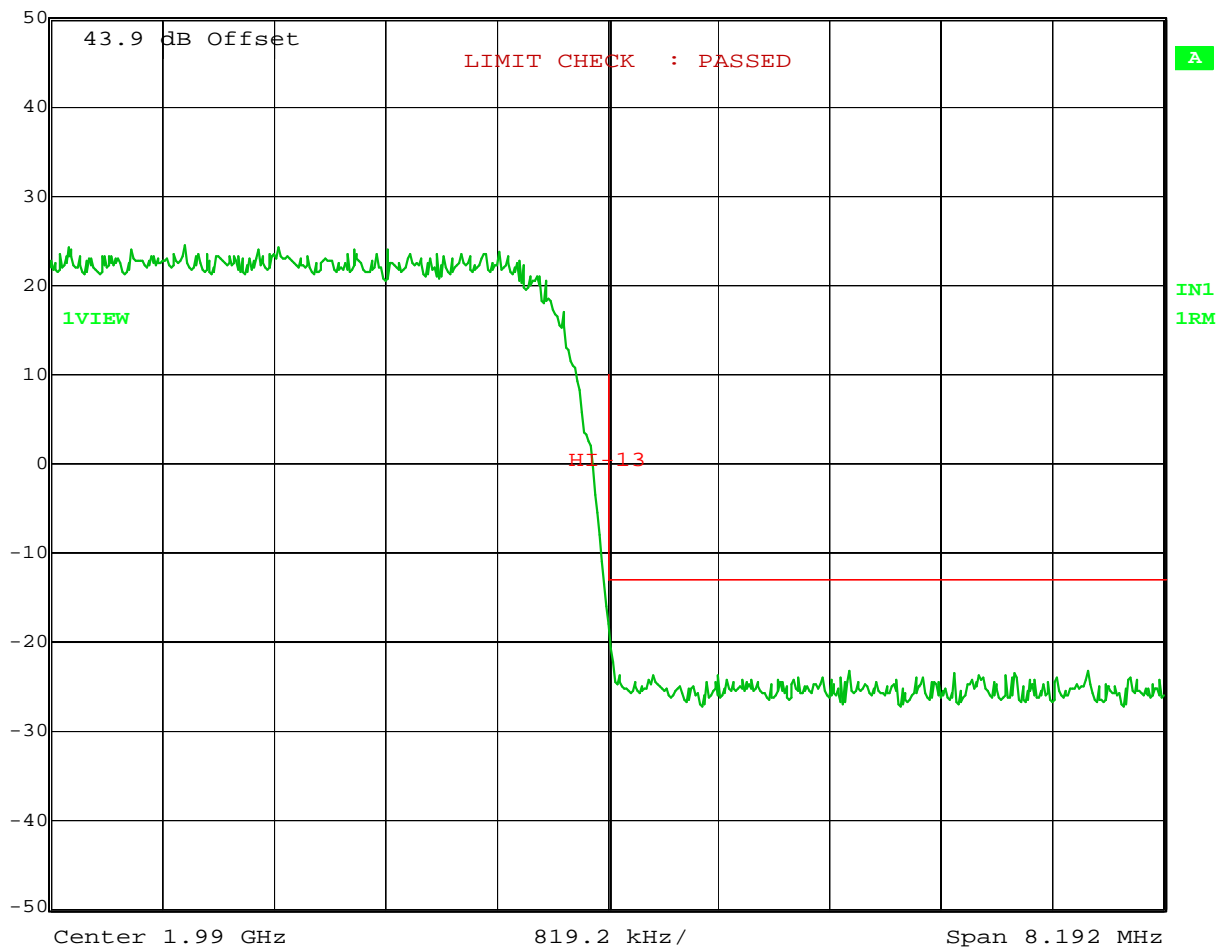
Test Data – Spurious Emissions

Upper Band Edge
42.3 dBm Output
64QAM



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:24:06

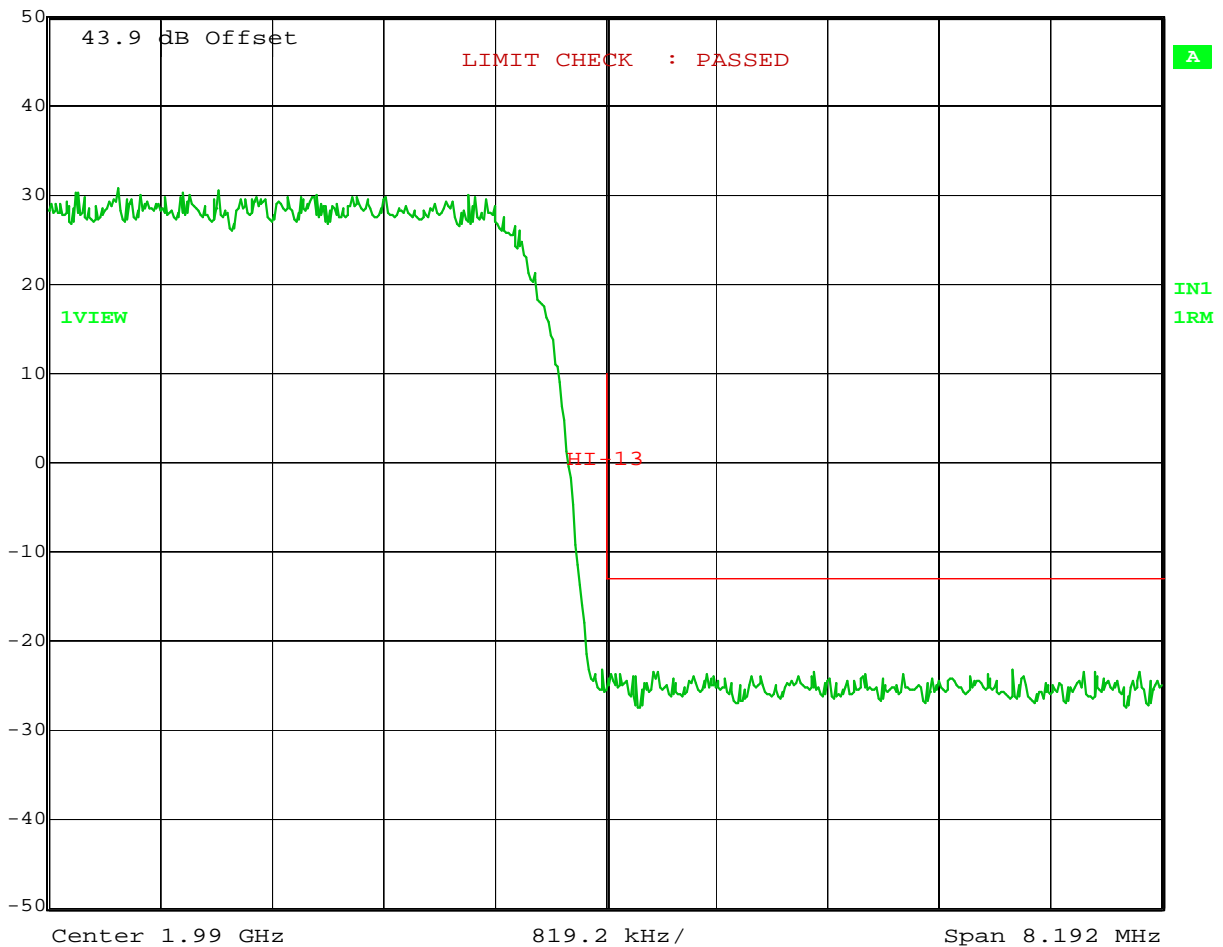
Test Data – Spurious Emissions

Upper Band Edge
64QAM
Second Highest Channel
Full Power



Ref Lvl
50 dBm

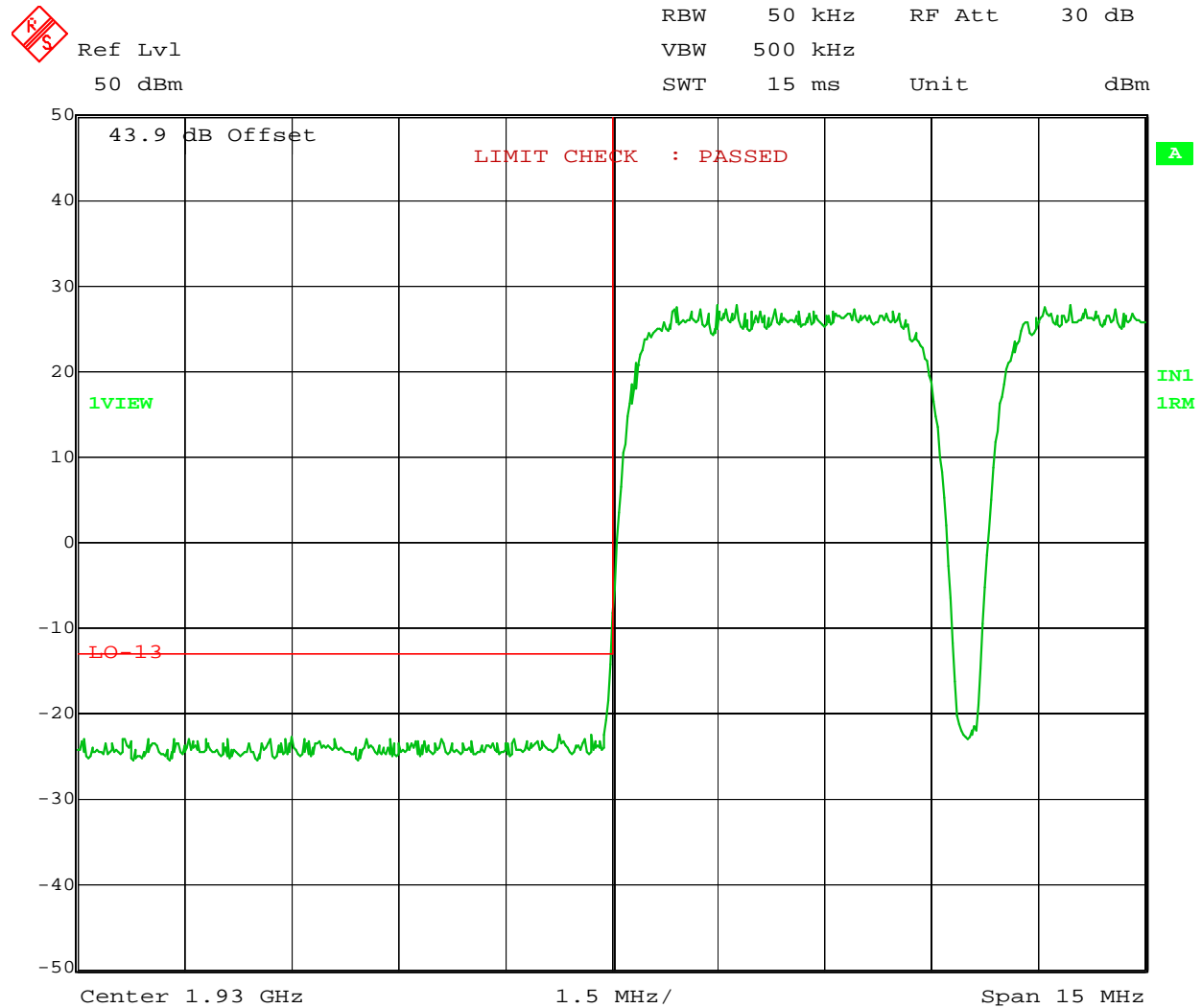
RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 8.5 ms Unit dBm



Date: 22.JUL.2013 09:51:22

Test Data – Spurious Emissions

Lower Band Edge Intermodulation
80 watts composite
64QAM



Date: 22.JUL.2013 11:42:46

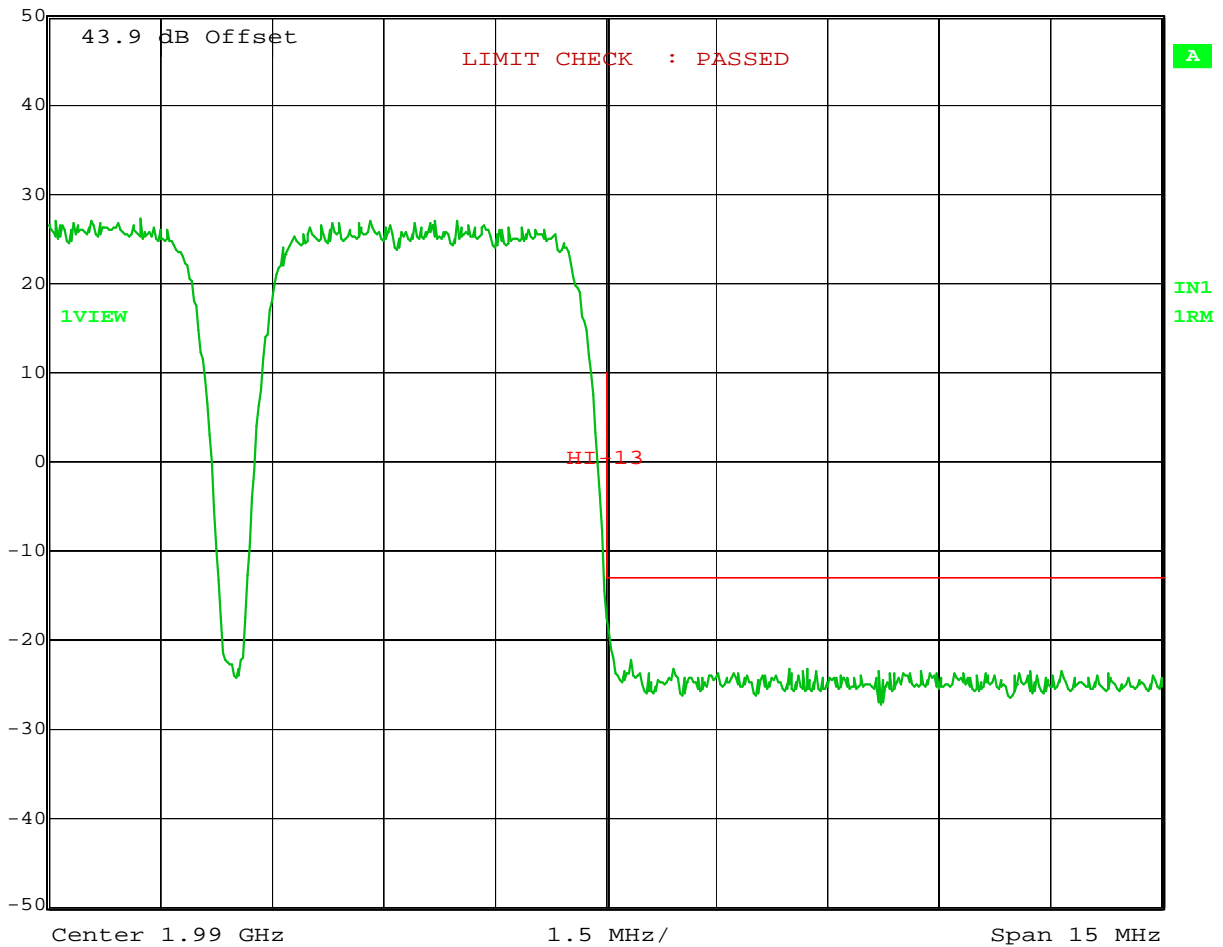
Test Data – Spurious Emissions

Upper Band Edge Intermodulation
80 watts composite
64QAM



Ref Lvl
50 dBm

RBW 50 kHz RF Att 30 dB
VBW 500 kHz
SWT 15 ms Unit dBm



Date: 22.JUL.2013 11:44:22

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 24.238 / 6.5
TESTED BY: David Light	DATE: 23 July 2013

Test Results: Complies.**Test Data:** The spectrum was searched from 30 MHz to the tenth harmonic of the carrier. There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.RBW/VBW=1 MHz
Detector = Peak
Sweep Time = Auto
.**Equipment Used:** 1767-1783-1016-993-1480-791**Measurement Uncertainty:** +/- 1.7 dB**Temperature:** 24 °C**Relative Humidity:** 45 %

Section 7. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 22.355/5.3
TESTED BY: David Light	DATE: 23 July 2013

Test Results: Complies

Measurement Data: Standard Test Frequency: 1960.070 MHz
Standard Test Voltage: -48 Vdc

Equipment Used: 1767-1082-1054-1065-1472

Measurement Uncertainty: +/- 1.7 dB

Temperature: 24 °C

Relative Humidity: 45 %

Test Data – Frequency Stability

Measurement Uncertainty:	1x10 ⁻⁷ ppm	Standard Test Frequency			1960.070000		MHz
Temp (°C)	Measured Frequency (MHz)		Test Voltage	Frequency Error (Hz)	Limit (+/-Hz)	Error (ppm)	Comment
20	1960.070000		-48.0	0	1960.1	0.00	
20	1960.069240		-40.2	-760	1960.1	-0.39	
20	1960.070000		-55.2	0	1960.1	0.00	
50	1960.069000		-48.0	-1000	1960.1	-0.51	
40	1960.069573		-48.0	-427	1960.1	-0.22	
30	1960.069410		-48.0	-590	1960.1	-0.30	
10	1960.069000		-48.0	-1000	1960.1	-0.51	
0	1960.069000		-48.0	-1000	1960.1	-0.51	
-10	1960.070020		-48.0	20	1960.1	0.01	
-20	1960.069000		-48.0	-1000	1960.1	-0.51	
-30	1960.069000		-48.0	-1000	1960.1	-0.51	
Notes:							

-

Section 8. Test Equipment List

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
993	Antenna, Horn	A.H. Systems	SAS-200/571	162	22-Sep-2011	22-Sep-2013
1016	Preamplifier	Hewlett Packard	8449A	2749A00159	23-Jul-2012	23-Jul-2013
1054	Directional Coupler	Narda	3020A	34366	N/R	
1065	Attenuator	Narda	776B-10		N/R	
1082	Cable, 2m	Astrolab	32027-2- 29094-72TC		N/R	
1472	Attenuator,	Omni Spectra	20600-20db		N/R	
1480	Antenna, Bilog	Schaffner- Chase	CBL6111C	2572	25-Feb-2013	25-Feb-2014
1767	Receiver,	Rohde & Schwartz	ESIB26	837491/0002	19-Dec-2012	19-Dec-2013
1783	Cable Assy, 3m Chamber	Nemko	Chamber		26-Sep-2012	26-Sep-2013
791	Pre Amplifier	Nemko, USA	CRA69 321003 9605	119	19-Oct-2012	19-Oct-2013

ANNEX A - TEST DETAILS

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
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Minimum Standard: Para. No.24.232. Base stations are limited to 1640 watts peak E.I.R.P. with an antenna height up to 300 meters HAAT. In no case may the peak output power of a base station transmitter exceed 100 watts.

Method Of Measurement:

Detachable Antenna:

The peak power at antenna terminals is measured using an in-line peak power meter or a spectrum analyzer.

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
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Minimum Standard:

Para. No. 24.238(b). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB.

**NAME OF TEST: Spurious Emission at Antenna
Terminals**

PARA. NO.: 2.1051

Minimum Standard:
licensee's

Para. No.24.238(a). On any frequency outside a
frequency block, the power of any emission shall be
attenuated below the transmitter power by at least $43 + 10 \log (P)$ dB.

Method Of Measurement:

Spectrum analyzer settings:

CDMA Per ANSI/J-STD-014

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 30 kHz (< 1MHz from Band Edge)
VBW: \geq RBW
Sweep: Auto
Video Avg: 6 Sweeps

GSM Per ANSI/J-STD-010

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)
VBW: \geq RBW
Sweep: Auto
Video Avg: Disabled

NADC Per IS-136

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 1 kHz (< 1 MHz from Band Edge)
VBW: \geq RBW
Sweep: Auto
Video Avg: Disabled

To demonstrate compliance at band edges the frequency of the input signal is set to the lowest and highest assigned channel and the center frequency of the spectrum analyzer is set to the upper and lower edges of the appropriate frequency block.

NAME OF TEST: Field Strength of Spurious Radiation	PARA. NO.: 2.1053
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Minimum Standard: Para. No.24.238(a). On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power by at least $43 + 10 \log (P)$ dB.

Test Method: Testing was performed using the reference antenna substitution method.

NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055
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Minimum Standard: Para. No. 24.235. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Method Of Measurement:

Frequency Stability With Voltage Variation

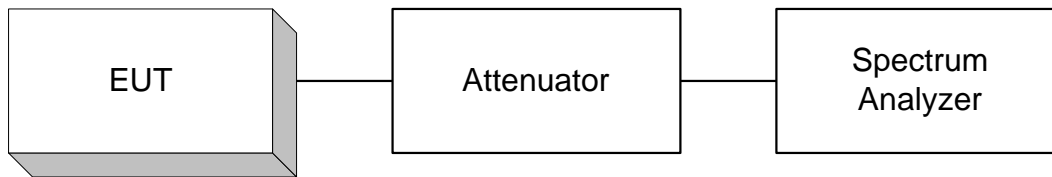
The E.U.T. is placed in an environmental chamber and allowed to stabilize at +20 degrees Celsius for at least 15 minutes. With the voltage input to the E.U.T. set to 85% S.T.V., the frequency is measured in 30 second intervals for a period of 5 minutes. This procedure is repeated at 100% S.T.V. and 115% S.T.V.

Frequency Stability With Temperature Variation

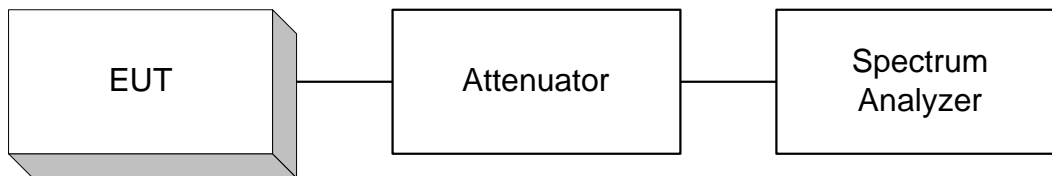
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

ANNEX B - TEST DIAGRAMS

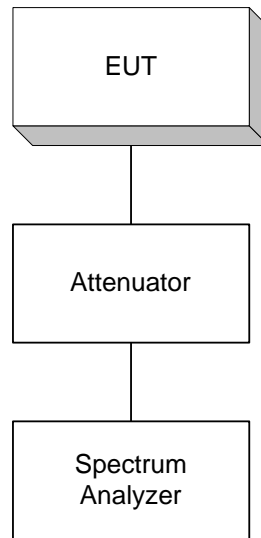
R.F. Power Output



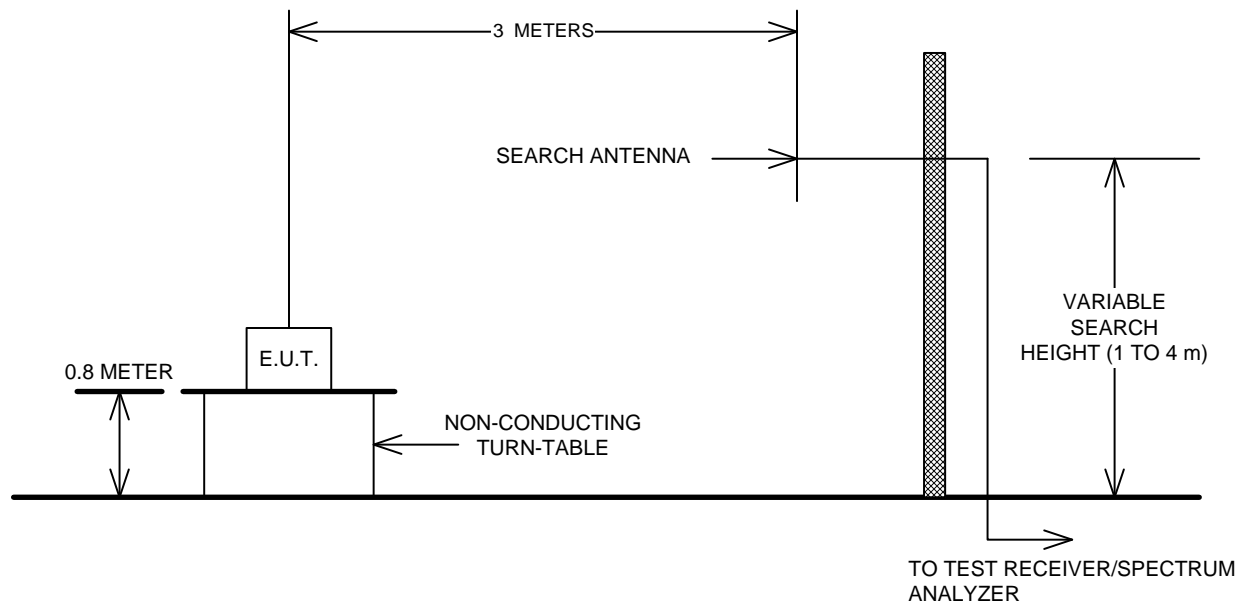
Occupied Bandwidth



Spurious Emissions at Antenna Terminals



Field Strength of Spurious Radiation



Frequency Stability

