Nemko Test Report:	10213234RUS1
Applicant:	Nokia Siemens Networks 6000 Connection Drive Irving, TX 75039 USA
Equipment Under Test: (E.U.T.)	FXFB
FCC ID:	VBNFXFB-01
In Accordance With:	**CFR 47, Part 24, Subpart E** Broadband PCS Base Stations
Tested By:	Nemko USA, Inc. 802 N. Kealy Lewisville, TX 75057-3136

TESTED BY: _____ **DATE:** **25-Aug-2011**

David Light, Senior Wireless Engineer

APPROVED BY: _____ **DATE:** **21-Sep-2011**

Mike Cantwell, General Manager

Number of Pages: 87

Table of Contents

Section 1. Summary of Test Results

Manufacturer: Nokia Siemens Networks

Model No.: FXFB

Serial No.: N/A

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.

☒ 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

Summary Of Test Data

NAME OF TEST	PART 24 PARA. NO.	SPEC.	RESULT
RF Power Output	24.232	1640 W	Complies
Occupied Bandwidth	24.238	6.5.1	Complies
Spurious Emissions at Antenna Terminals	24.238(a)	-13 dBm	Complies
Field Strength of Spurious Emissions	24.238(a)	-13 dBm E.I.R.P.	NT[1]
Frequency Stability	24.235	+/-1%	NT[1]

Footnotes:

These tests were originally performed on FXFA and were not re-tested since the FXFA and FXFB are electrically equivalent.

Note: For the purpose of this test, the FXFB is electrically equivalent to the FXFA. As such, no additional testing was performed for the FXFB. The data presented in this section was compiled for the FXFA from previous Nemko test reports 1026738RUS1 (GSM/EDGE/WCDMA) and 10213334RUS1 (LTE).

Section 2. General Equipment Specification

Supply Voltage Input:	-48 Vdc nominal
Frequency Band:	1930 to 1990 MHz
Type of Modulation and Designator:	300KGXW GSM 300KG7W EDGE 5M00D7W QPSK/16QAM/WCDMA 5M00F9W / 10M0F9W / 15M0F9W / 20M0F9W LTE
Maximum No. of Carriers:	6
Output Impedance:	50 ohms
RF Output (Rated):	60 W +47.8 dBm .The RF output power must be reduced on the first and last channel of each band when used for GSM, EDGE, QPSK or 16QAM modulations.
Band Selection:	**Software** ☒ **Duplexer** ☐ **Fullband** ☐

System Description

The FXFB is an FXFA which has been modified to include a Remote Electrical Tilt (RET) antenna controller module and an external RET connector. Therefore the FXFA and FXFB are deemed to be electrically equivalent. The FXFB is a 1900 MHz multistandard 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, up to 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 60 Watts output power per branch.

The transmitter test setup for LTE dedicated mode provided QPSK, 16 QAM and 64 QAM modulation types for single carrier operation only.

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

Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: David Light	DATE: 21 April 2011 and 23 August 2011

Test Results: Complies.

Measurement Data: Refer to table on next page.

Equipment Used: 2071-2072-1082-1054-1064-1065 (April)
1767-1082-1054-1064-1065 (August)

Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 °C

Relative Humidity: 35 %

Note: Measurement made with power meter

Test Data – RF Power Output (April 2011)

Modulation Type	Frequency (MHz)	Measured Output Power		Deviation from rated (dB)
		(dBm)	(W)	
GMSK	1930.2	35	3.2	2.0
GMSK	1930.4	48.6	72.4	0.8
GMSK	1960	49.1	81.3	1.3
GMSK	1989.6	48.8	75.9	1.0
GMSK	1989.8	34.7	3.0	1.7
8PSK	1930.2	33.1	2.0	0.1
8PSK	1930.4	48.9	77.6	1.1
8PSK	1960	49.2	83.2	1.4
8PSK	1989.6	48.9	77.6	1.1
8PSK	1989.8	32.7	1.9	-0.3
QPSK	1932.4	34.2	2.6	1.2
QPSK	1932.6	46.4	43.7	-1.4
QPSK	1960	49.2	83.2	1.4
QPSK	1987.4	47.1	51.3	-0.7
QPSK	1987.6	34	2.5	1.0
16QAM	1932.4	34.2	2.6	1.2
16QAM	1932.6	48.7	74.1	0.9
16QAM	1960	49.2	83.2	1.4
16QAM	1987.4	48.4	69.2	0.6
16QAM	1987.6	33.9	2.5	0.9

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

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

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

Test Data – RF Power Output (August 2011)

Modulation Type	Channel Bandwidth (MHz)	Frequency (MHz)	Measured Output Power		Deviation from rated (dB)
			(dBm)	(W)	
QPSK	5	1932.5	48.3	67.6	0.5
QPSK	5	1960.0	47.6	57.5	-0.2
QPSK	5	1987.4	47.7	58.9	-0.1
16 QAM	5	1932.5	48.0	63.1	0.2
16 QAM	5	1960.0	47.5	56.2	-0.3
16 QAM	5	1987.4	47.8	60.0	0
64QAM	5	1932.5	47.9	61.7	0.1
64QAM	5	1960.0	47.8	60.0	0
64QAM	5	1987.4	47.7	58.9	-0.1
QPSK	10	1935.0	47.8	60.0	0
QPSK	10	1960.0	48.2	66.1	0.4
QPSK	10	1984.9	48.4	69.2	0.6
16 QAM	10	1935.0	48.0	63.1	0.2
16 QAM	10	1960.0	48.1	64.6	0.3
16 QAM	10	1984.9	48.5	70.8	0.7
64QAM	10	1935.0	48.3	67.6	0.5
64QAM	10	1960.0	48.2	66.1	0.4
64QAM	10	1984.9	48.4	69.2	0.6
QPSK	15	1937.5	48.2	66.1	0.4
QPSK	15	1960.0	48.0	63.1	0.2
QPSK	15	1982.4	48.2	66.1	0.4
16 QAM	15	1937.5	48.3	67.6	0.5
16 QAM	15	1960.0	47.9	61.7	0.1
16 QAM	15	1982.4	48.2	66.1	0.4
64QAM	15	1937.5	48.3	67.6	0.5
64QAM	15	1960.0	48.0	63.1	0.2
64QAM	15	1982.4	48.2	66.1	0.4
QPSK	20	1940.0	48.2	66.1	0.4
QPSK	20	1960.0	47.9	61.7	0.1
QPSK	20	1979.9	48.1	64.6	0.3
16 QAM	20	1940.0	48.1	64.6	0.3
16 QAM	20	1960.0	47.8	60.0	0
16 QAM	20	1979.9	48.0	63.1	0.2
64QAM	20	1940.0	48.2	66.1	0.4
64QAM	20	1960.0	47.9	61.7	0.1
64QAM	20	1979.9	48.1	64.6	0.3

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

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 21 April 2011 and 23 August 2011

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1767-1054-1082-1065-1064 (April)
1767-1054-1082-1065-1064 (August)

Measurement Uncertainty: +/- 1.6 dB

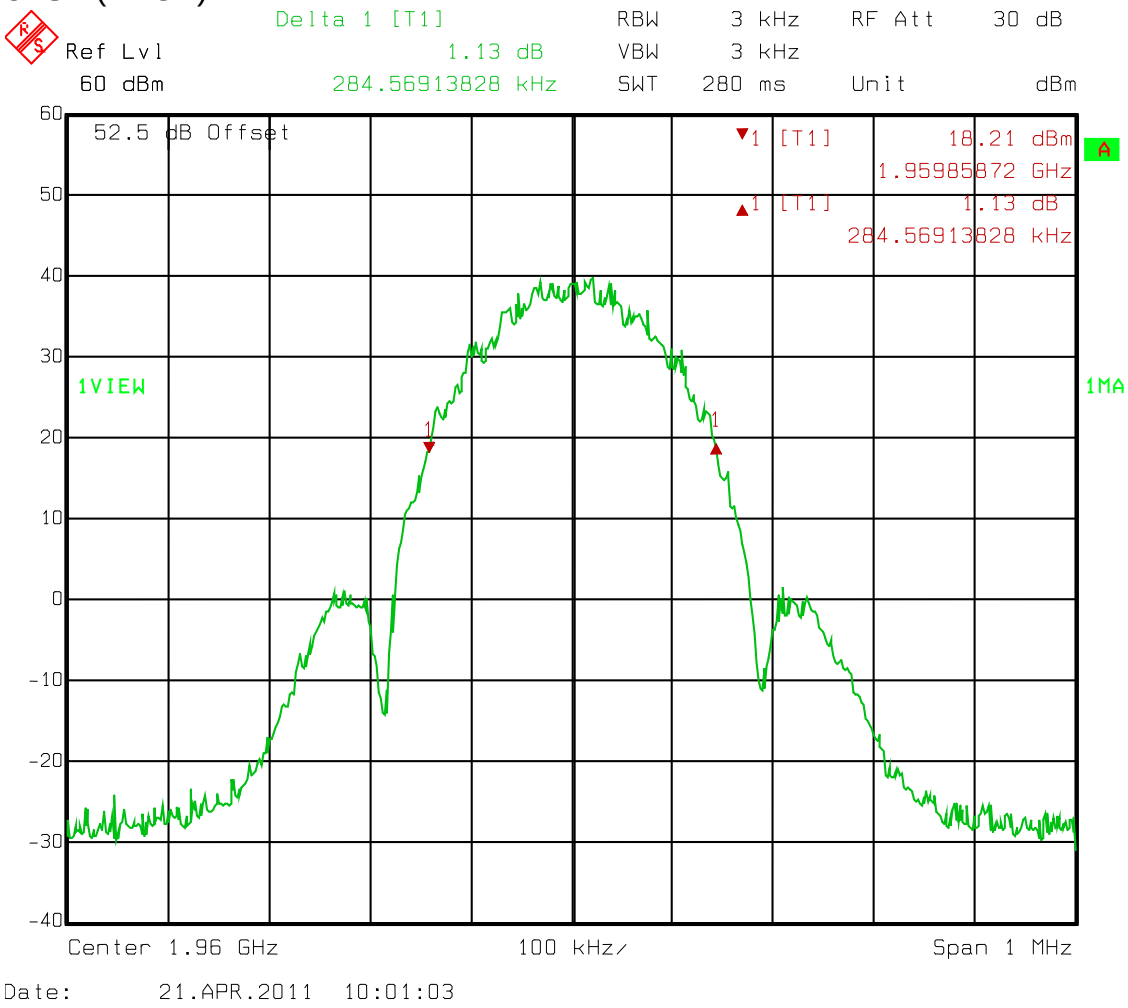
Temperature: 22 °C

Relative Humidity: 35 %

Spectrum analyzer settings:
Detector: Peak
Sweep: Auto

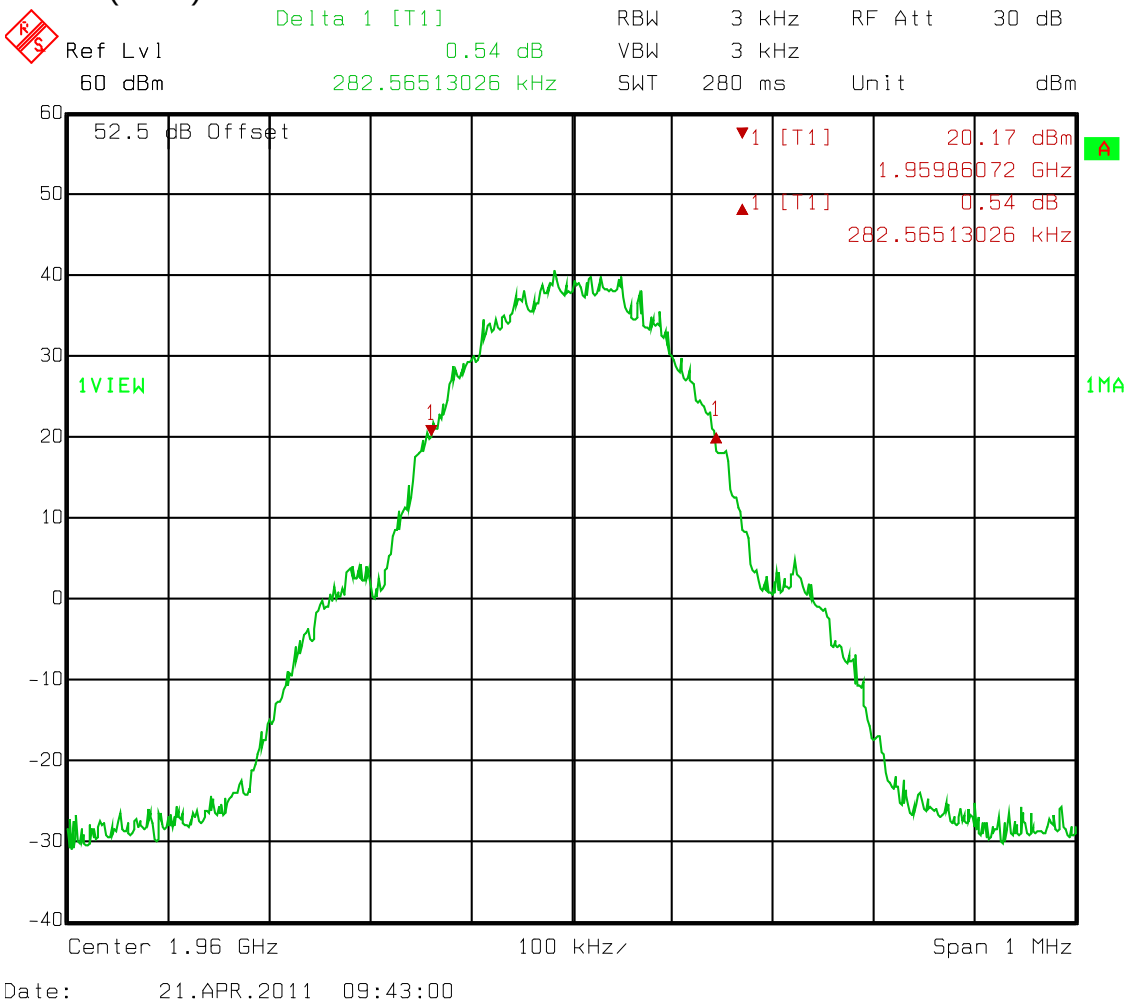
Test Data – Occupied Bandwidth (April 2011)

8PSK (EDGE)



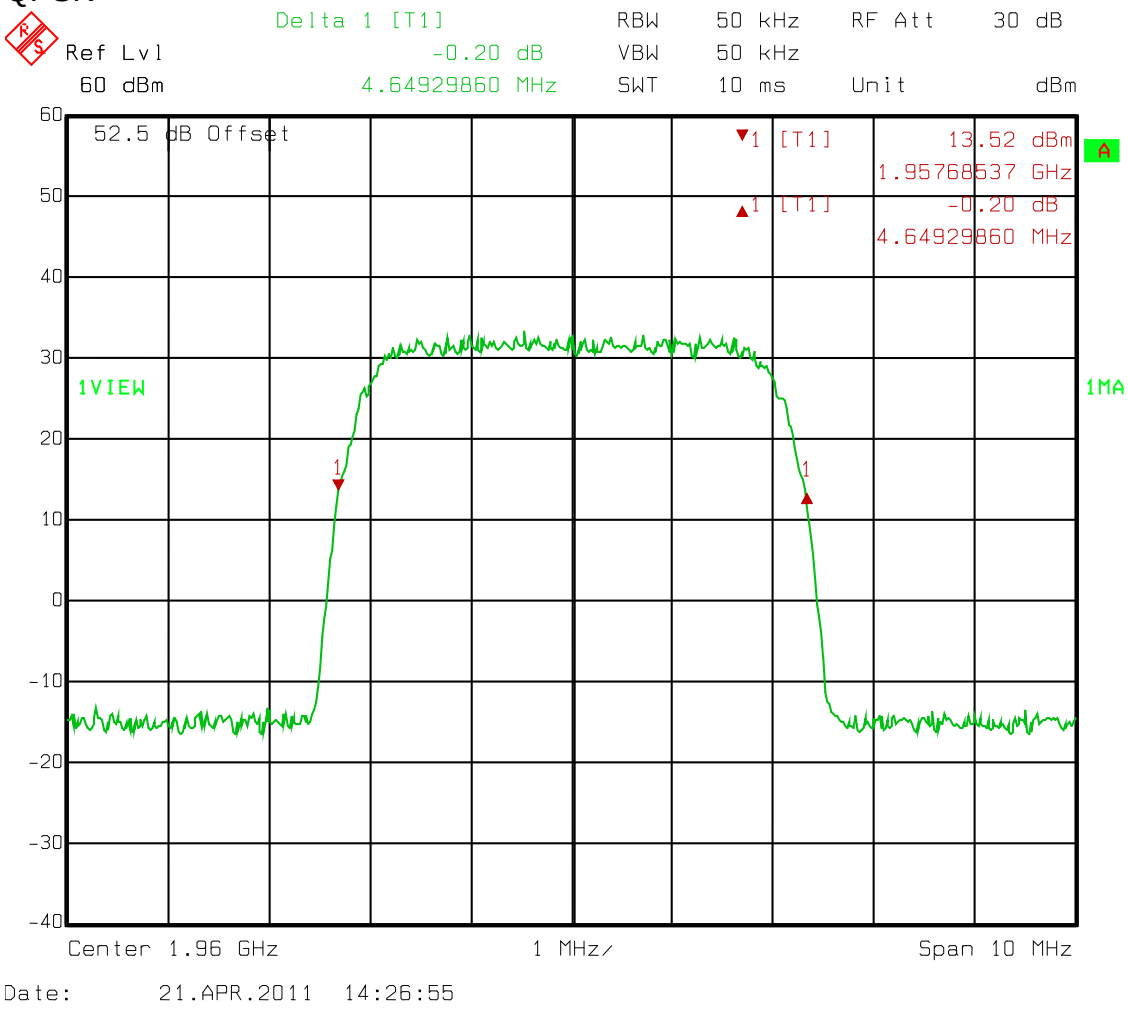
Test Data – Occupied Bandwidth (April 2011)

GMSK (GSM)



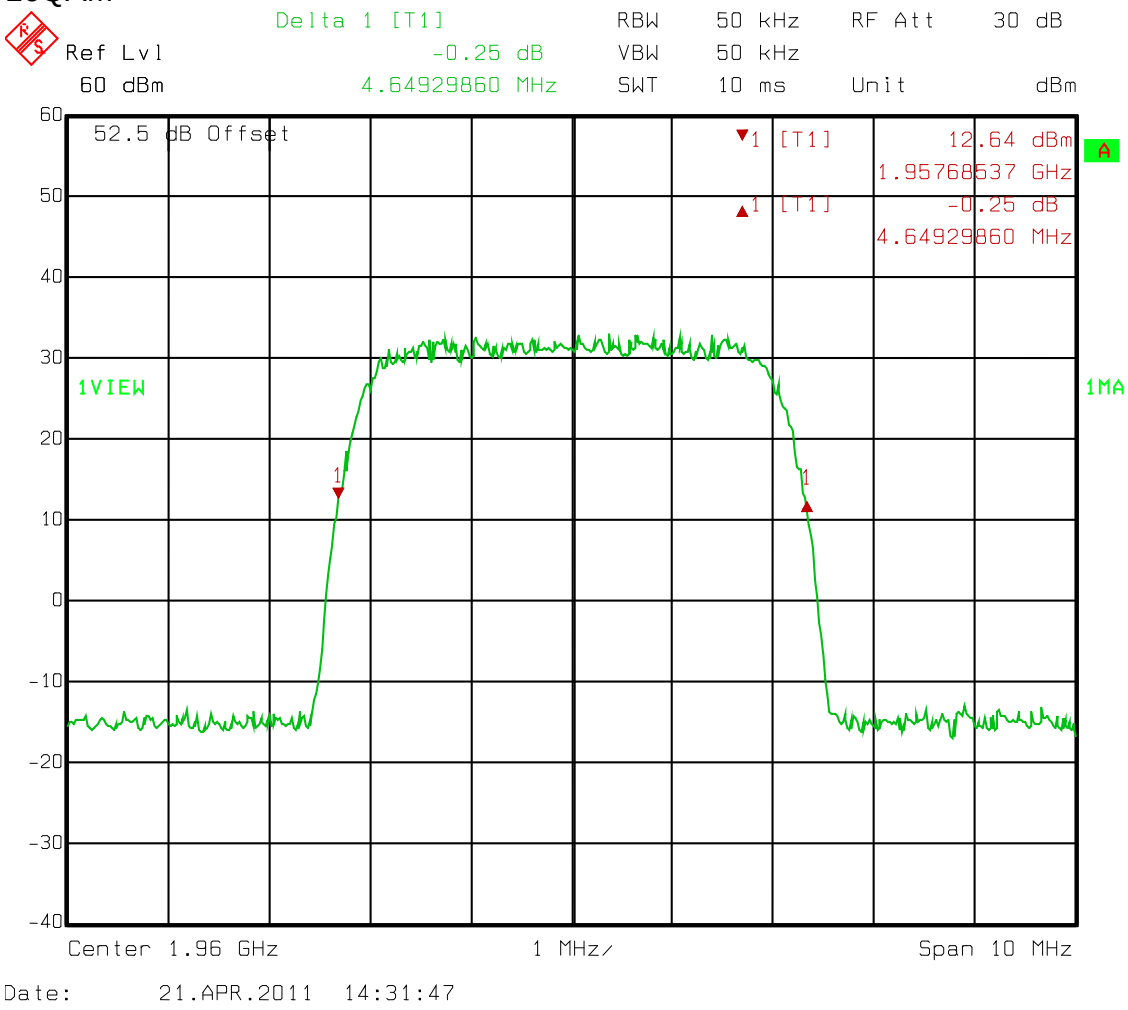
Test Data – Occupied Bandwidth (April 2011)

QPSK



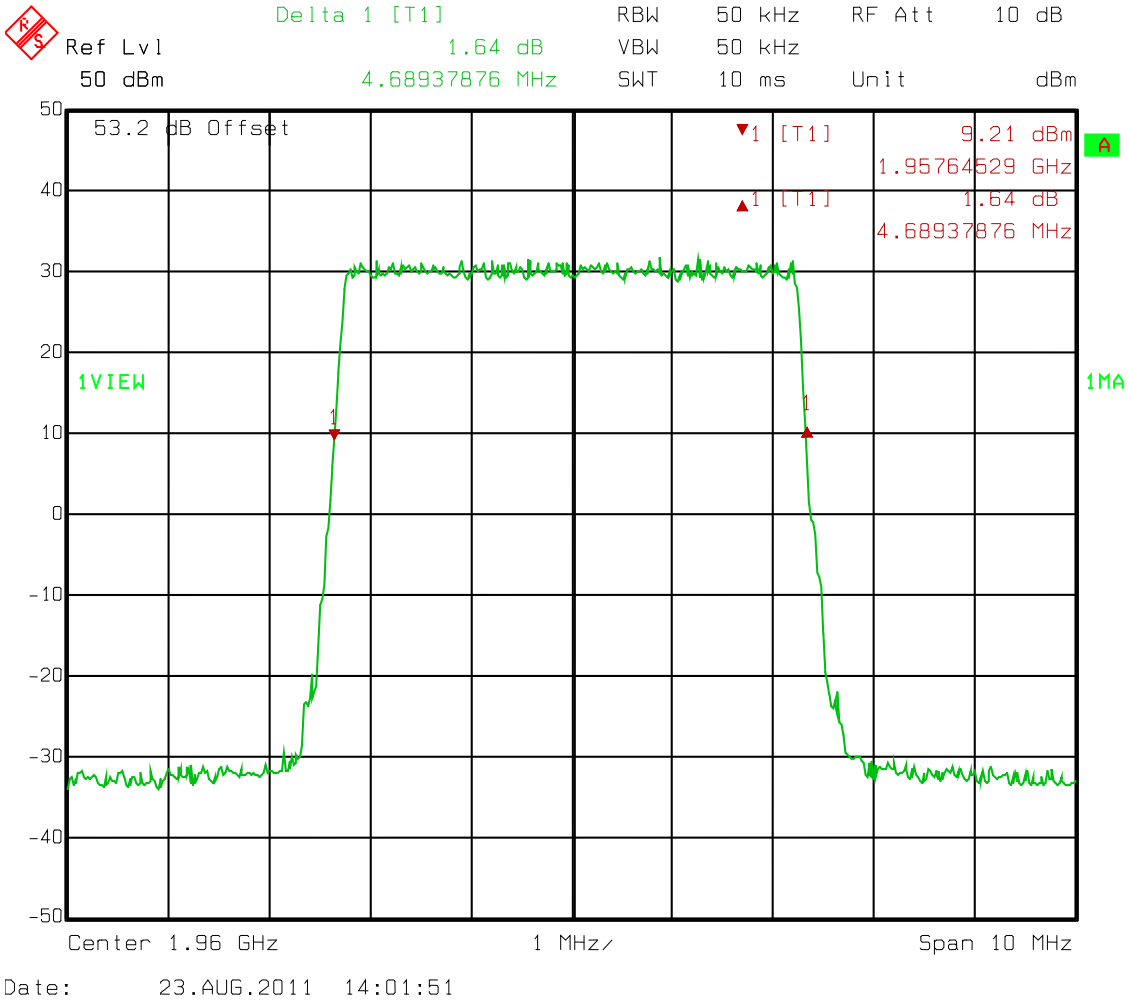
Test Data – Occupied Bandwidth (April 2011)

16QAM



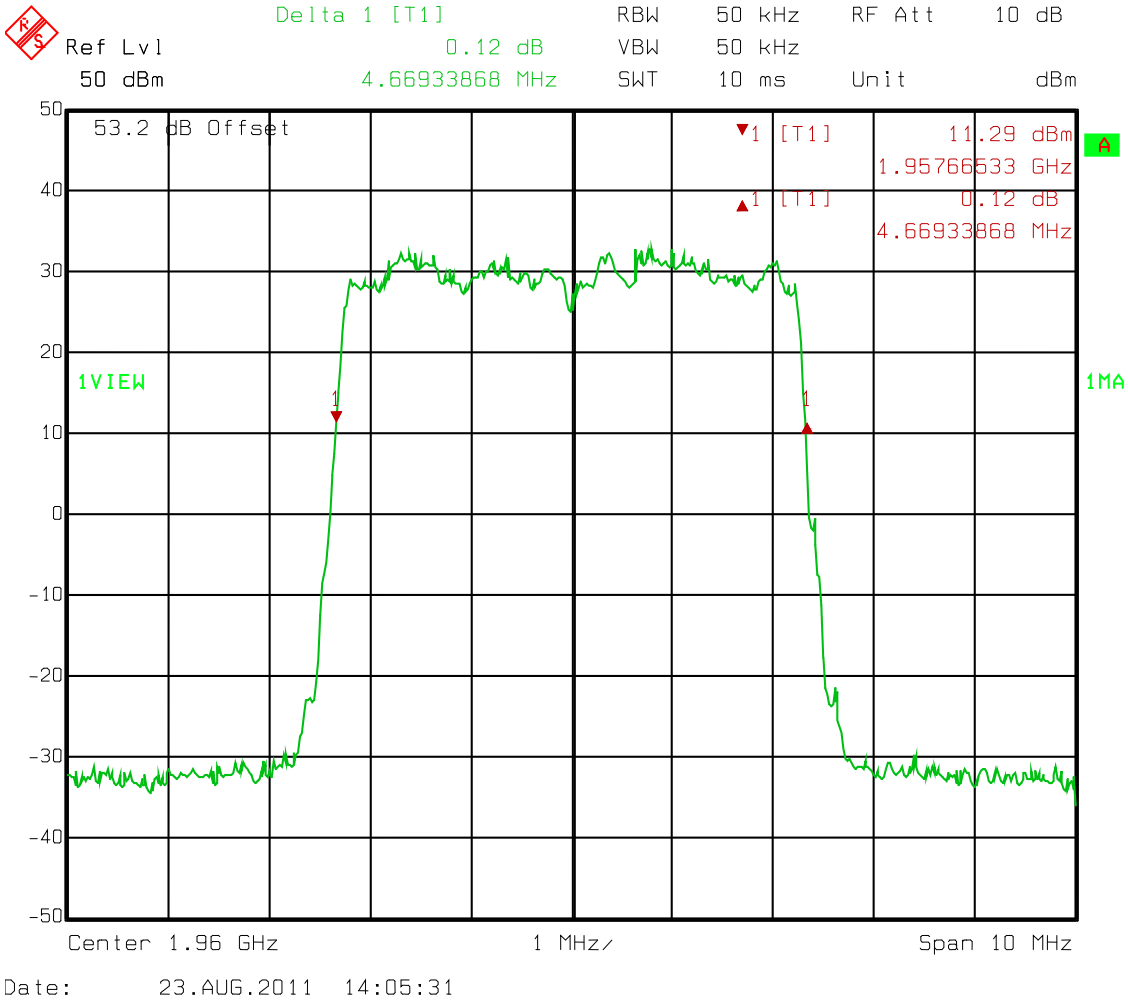
Test Data – Occupied Bandwidth (August 2011)

5 MHz Channel
QPSK
Center Channel
20 dB BW



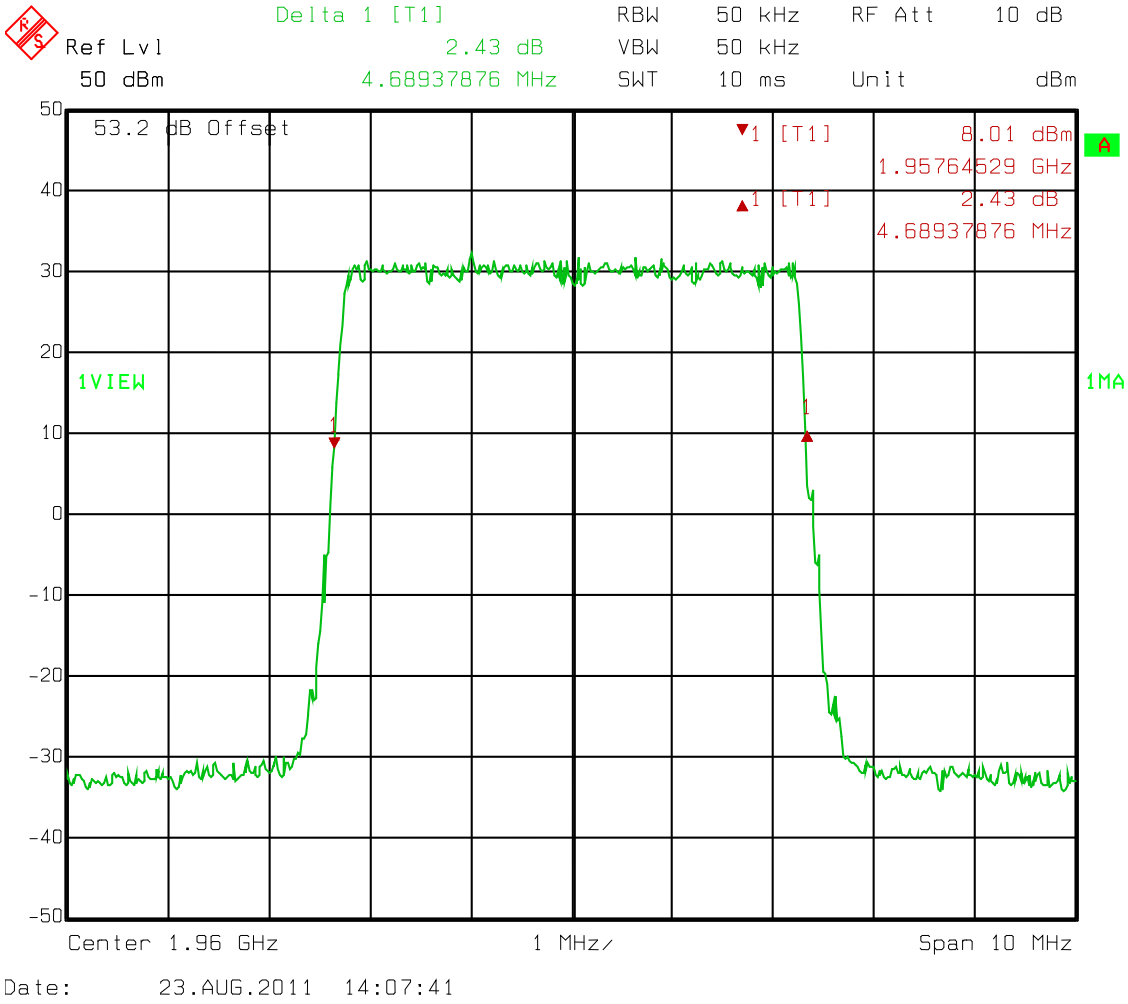
Test Data – Occupied Bandwidth (August 2011)

5 MHz Channel
Center Channel
16 QAM
20 dB BW



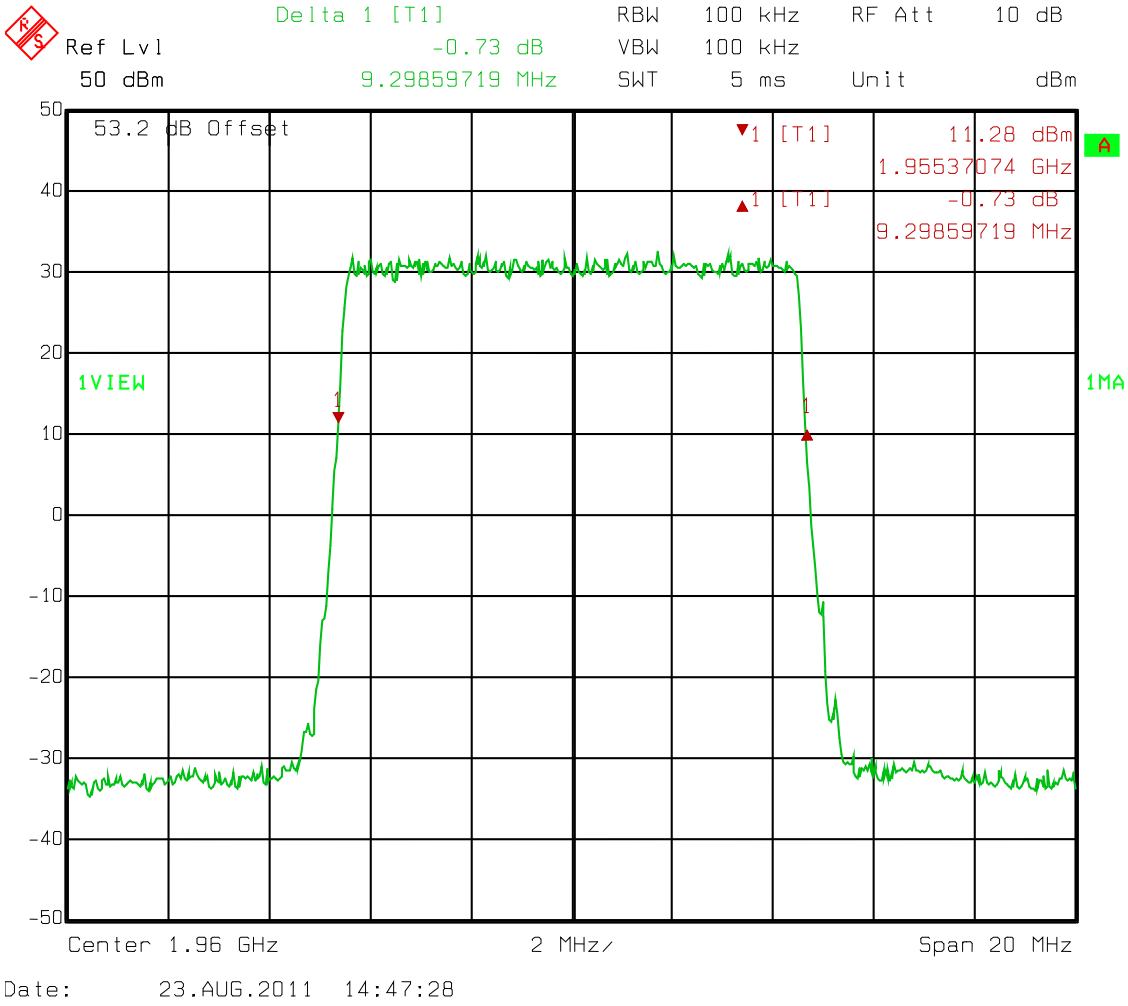
Test Data – Occupied Bandwidth (August 2011)

5 MHz Channel
64 QAM
Center Channel
20 dB BW



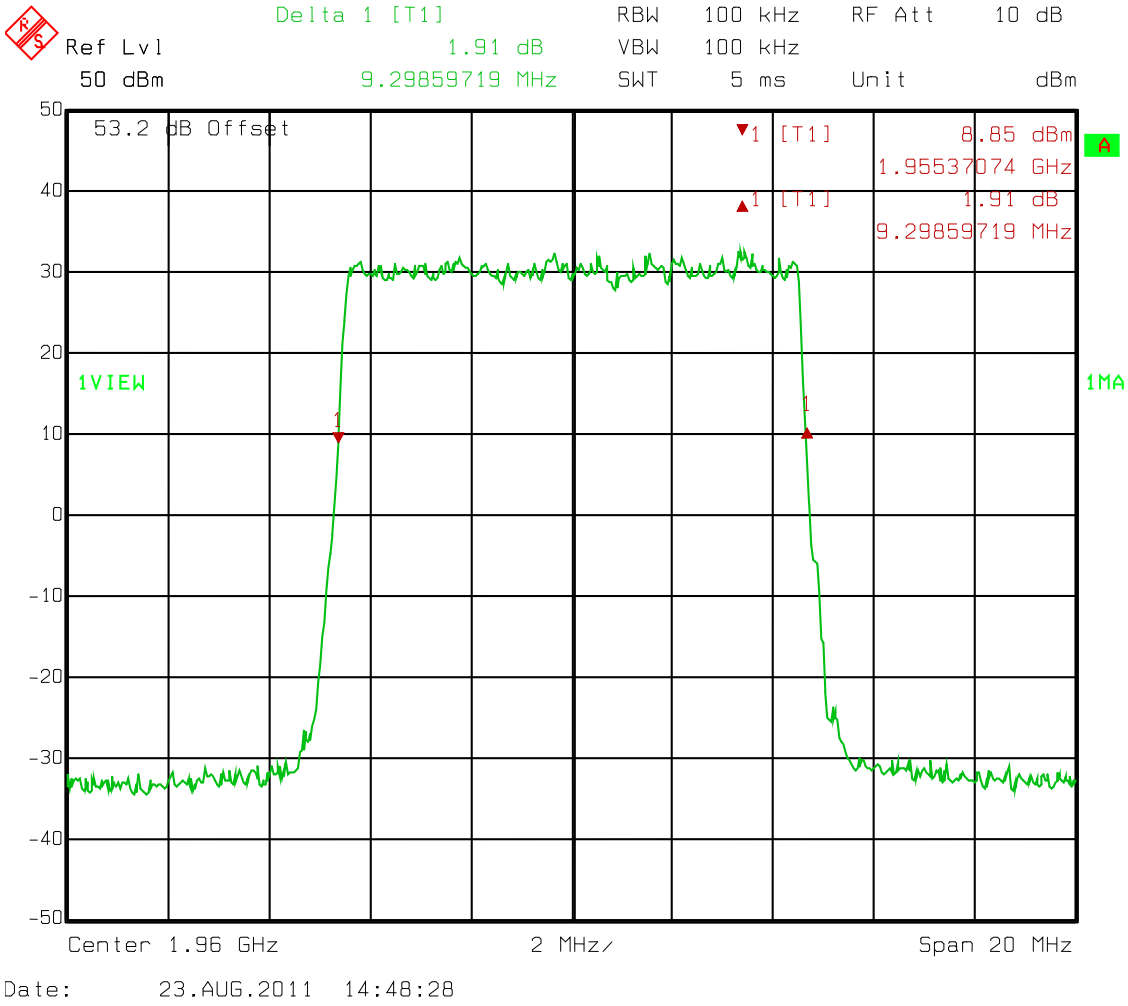
Test Data – Occupied Bandwidth (August 2011)

10 MHz Channel
QPSK
Center Channel
20 dB BW



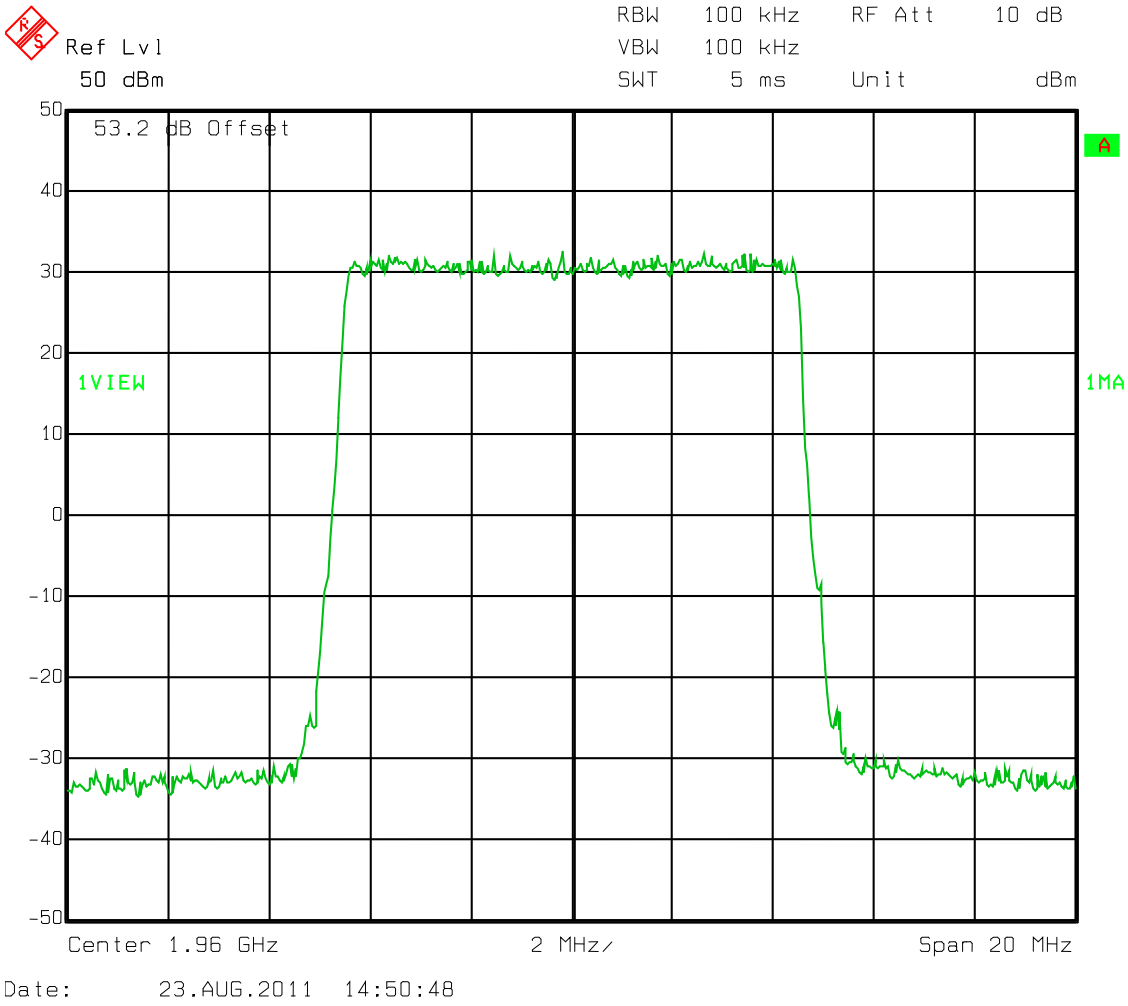
Test Data – Occupied Bandwidth (August 2011)

10 MHz Channel
Center Channel
16 QAM
20 dB BW



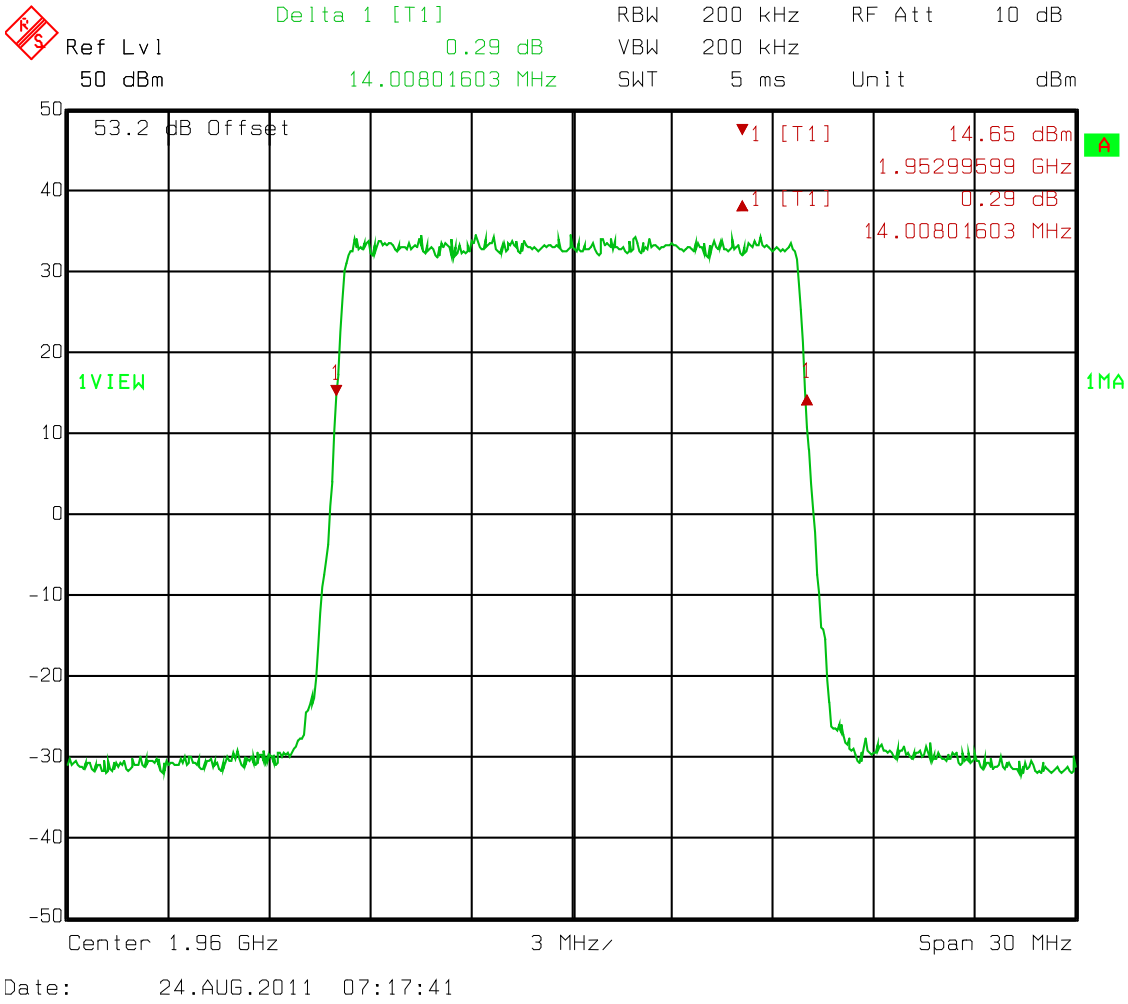
Test Data – Occupied Bandwidth (August 2011)

10 MHz Channel
64 QAM
Center Channel
20 dB BW



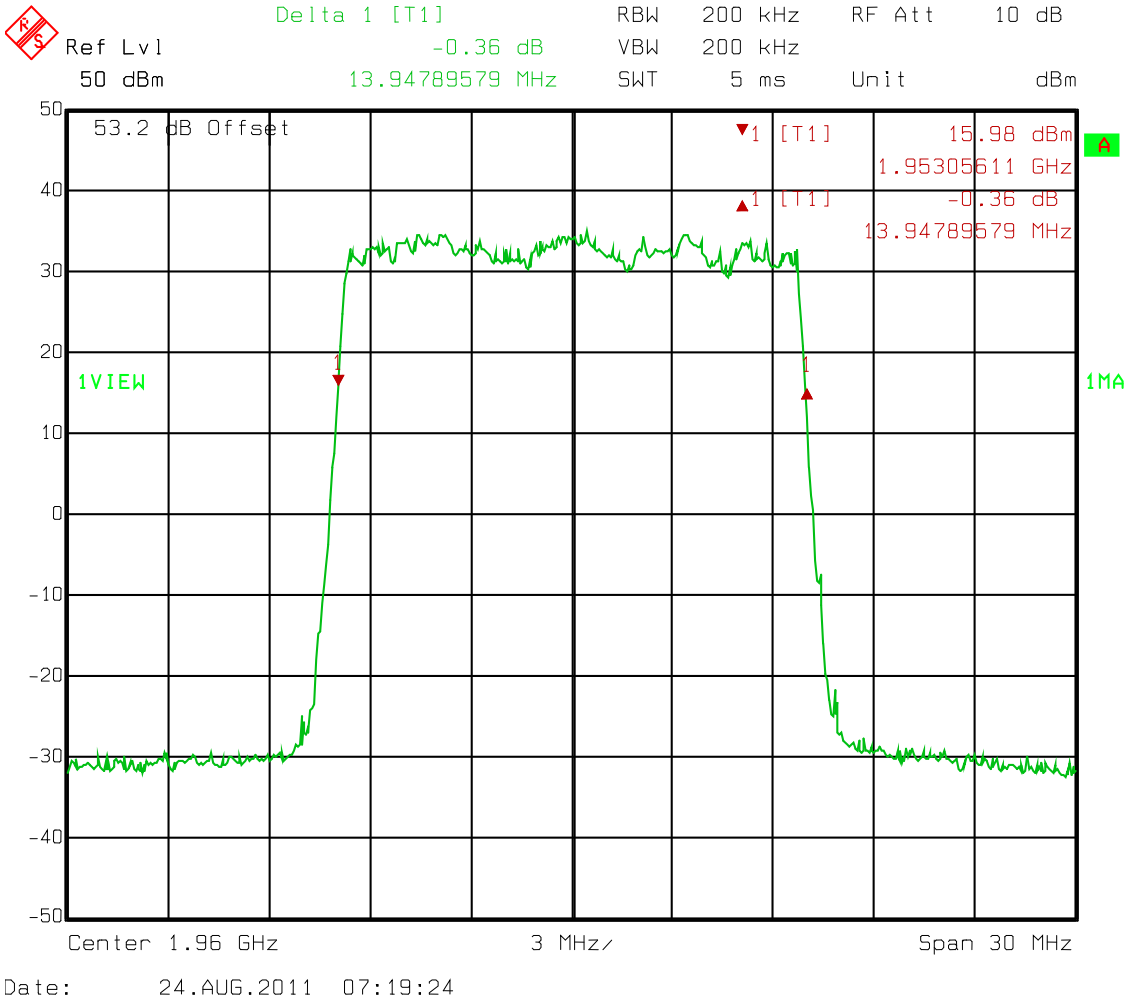
Test Data – Occupied Bandwidth (August 2011)

15 MHz Channel
QPSK
Center Channel
20 dB BW



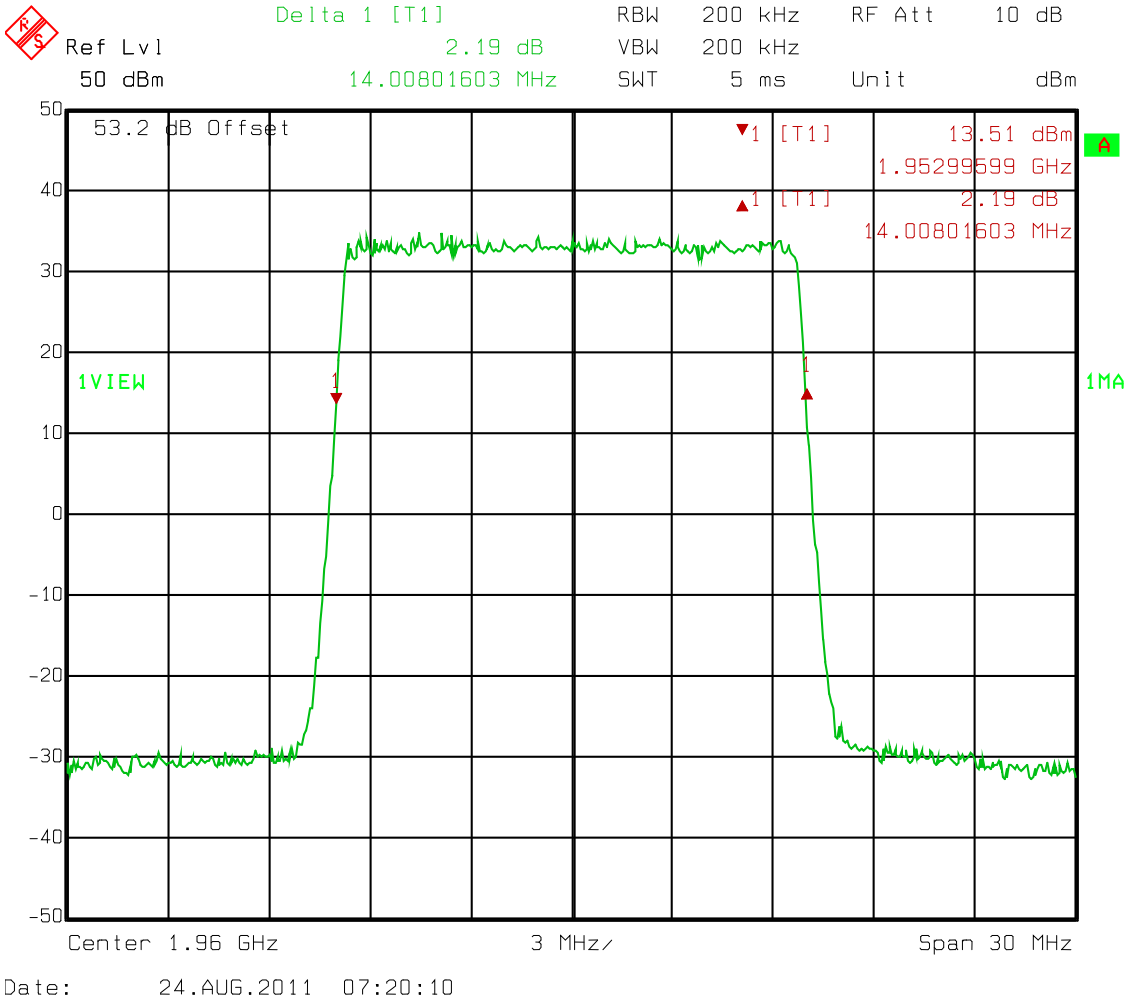
Test Data – Occupied Bandwidth (August 2011)

15 MHz Channel
Center Channel
16 QAM
20 dB BW



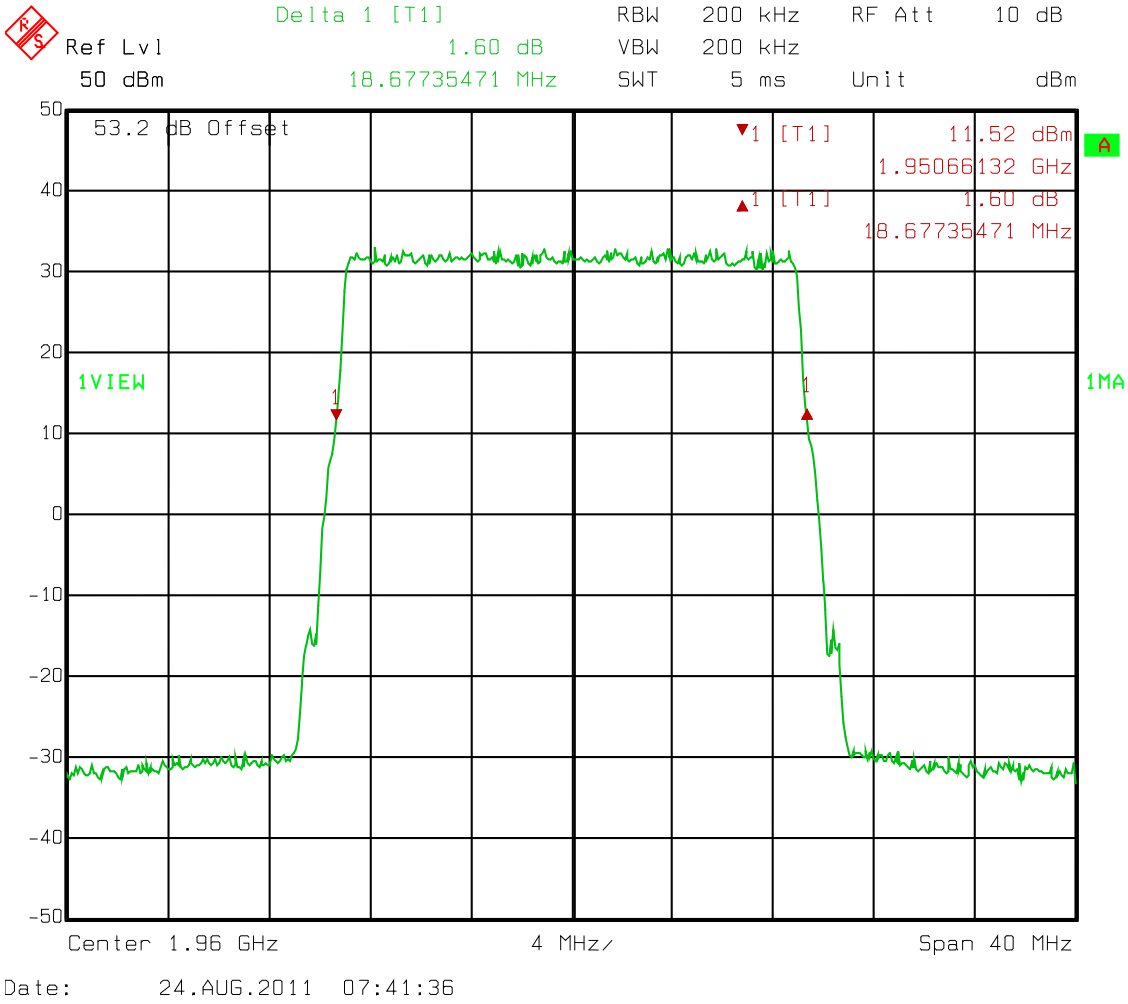
Test Data – Occupied Bandwidth (August 2011)

15 MHz Channel
64 QAM
Center Channel
20 dB BW



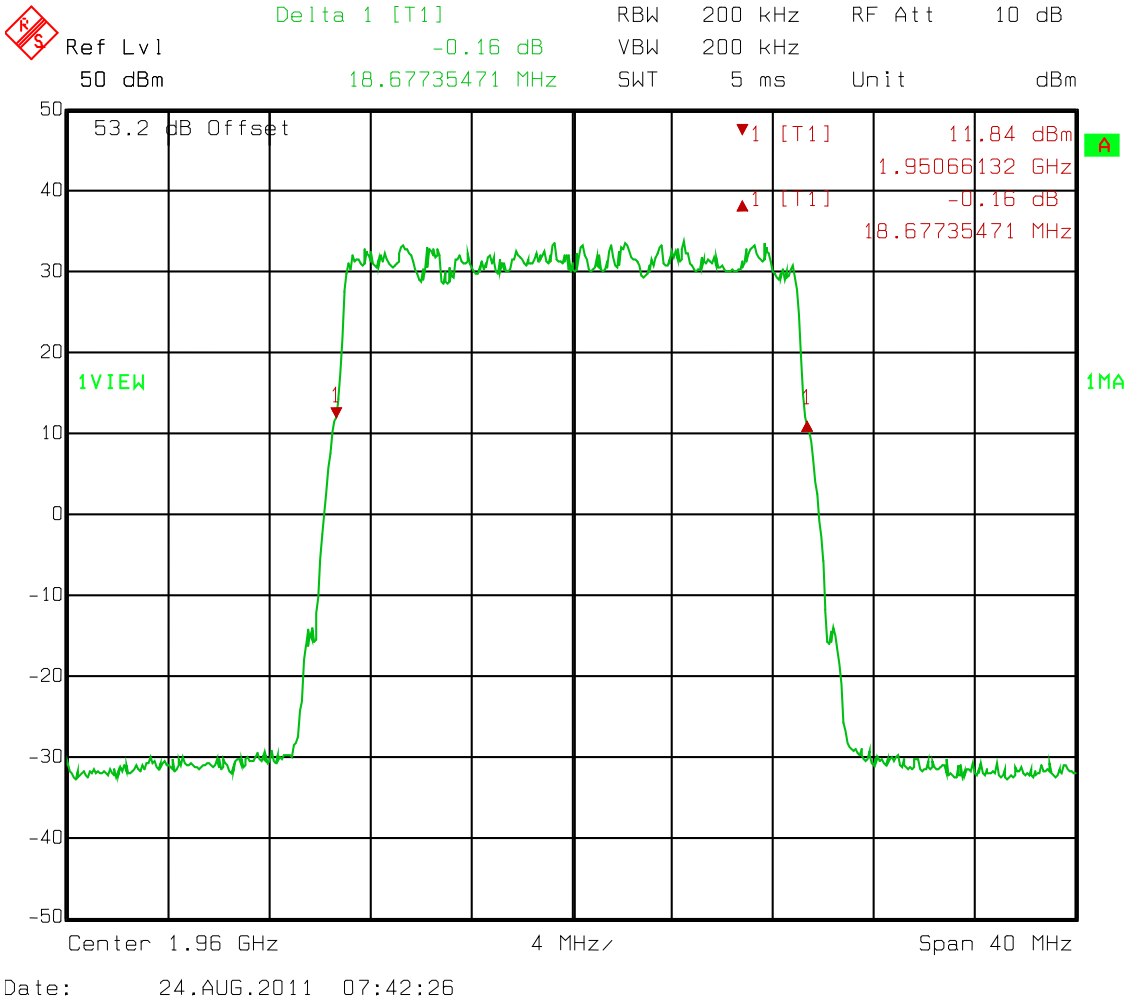
Test Data – Occupied Bandwidth (August 2011)

20 MHz Channel
QPSK
Center Channel
20 dB BW



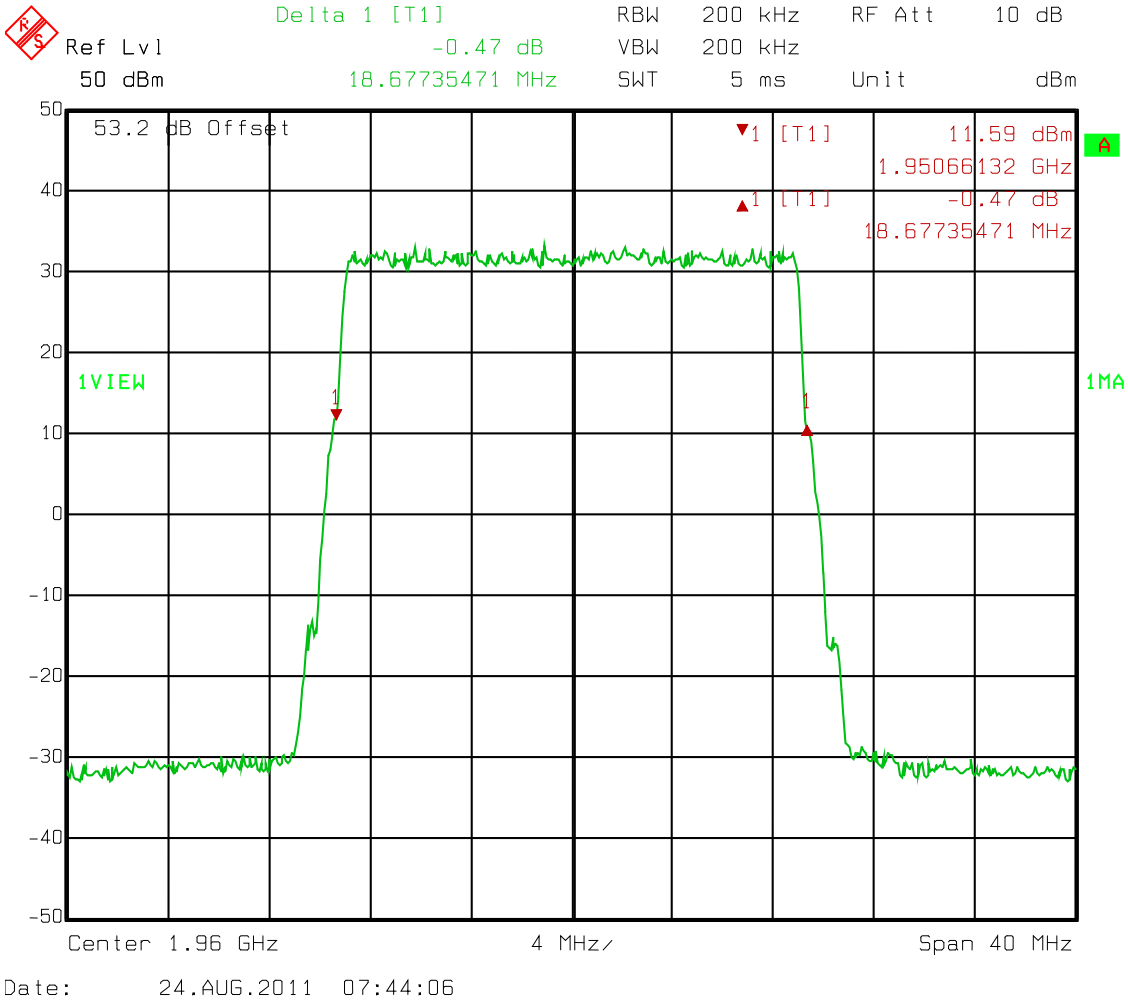
Test Data – Occupied Bandwidth (August 2011)

20 MHz Channel
Center Channel
16 QAM
20 dB BW



Test Data – Occupied Bandwidth (August 2011)

20 MHz Channel
64 QAM
Center Channel
20 dB BW



Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: April 2011 and 23 August 2011

Test Results: Complies.

Test Data: Refer to plots below

Equipment Used: 1767-1082-1064-1065-1054-1054-1058 (April)
1767-1082-1064-1065-1054-1054-1058 (August)

Measurement Uncertainty: +/- 1.7 dB

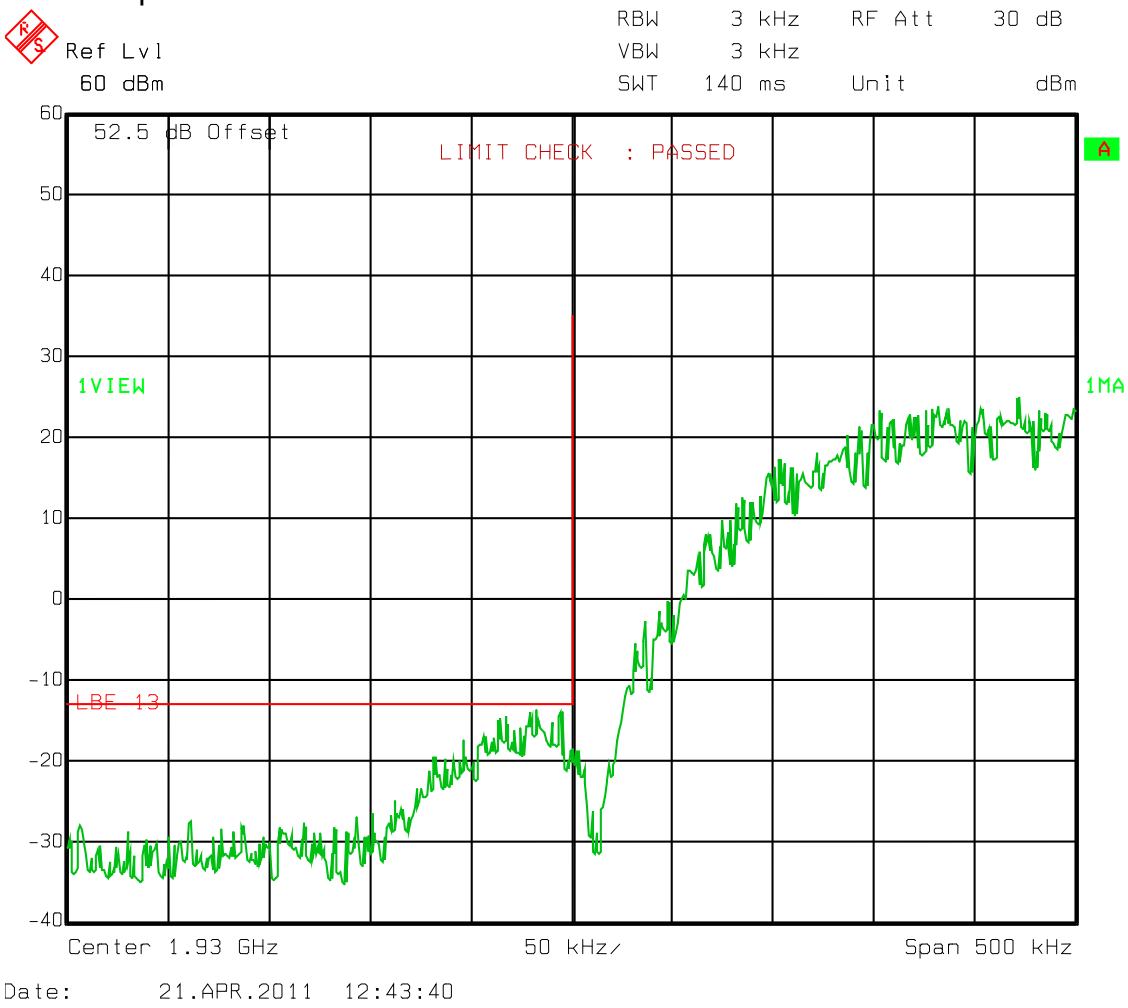
Temperature: 22 °C

Relative Humidity: 35 %

Spectrum analyzer settings:
Detector: Peak
Sweep: Auto

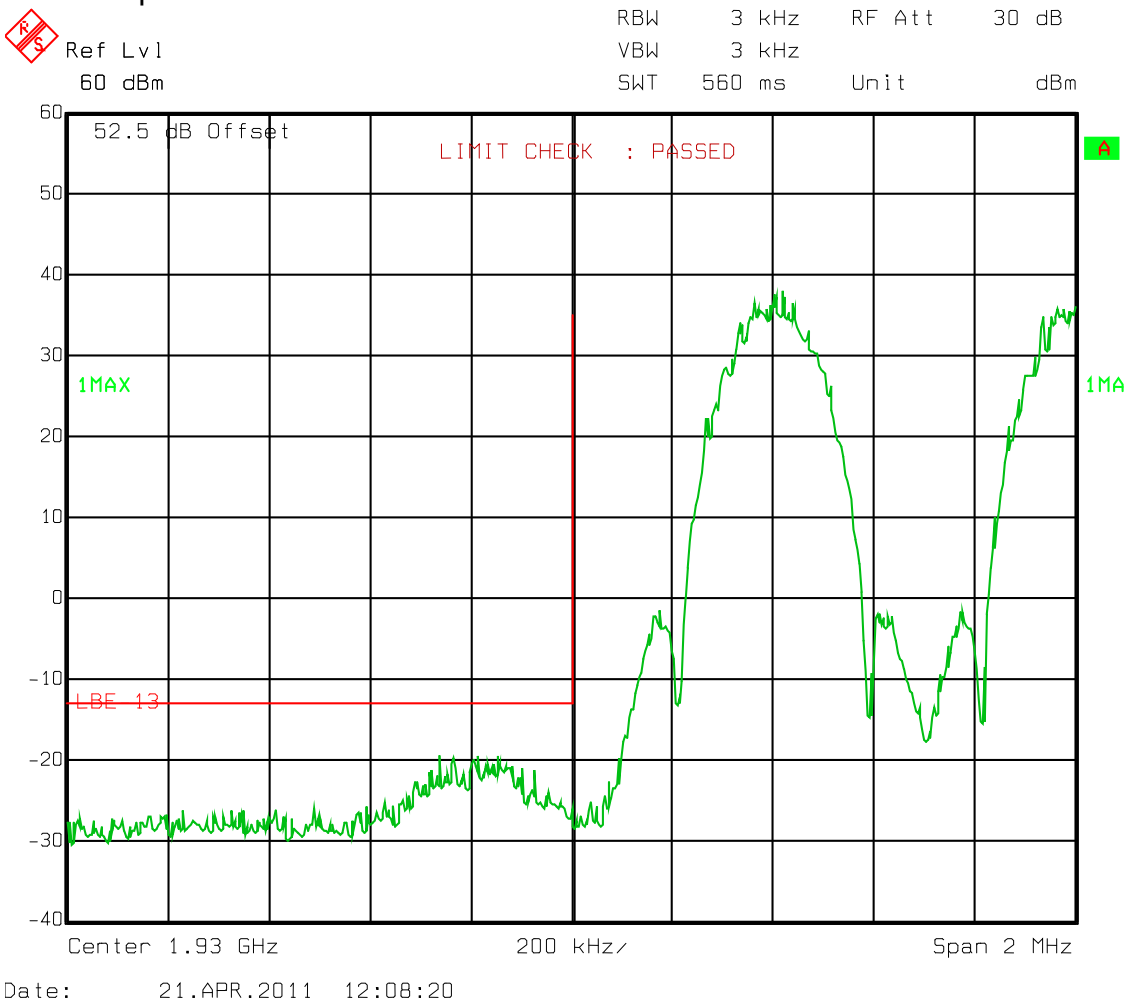
Test Data – Spurious Emissions (April 2011)

Low Band Edge
8PSK (EDGE)
Transmit Frequency: 1930.2 MHz
Transmit power reduced



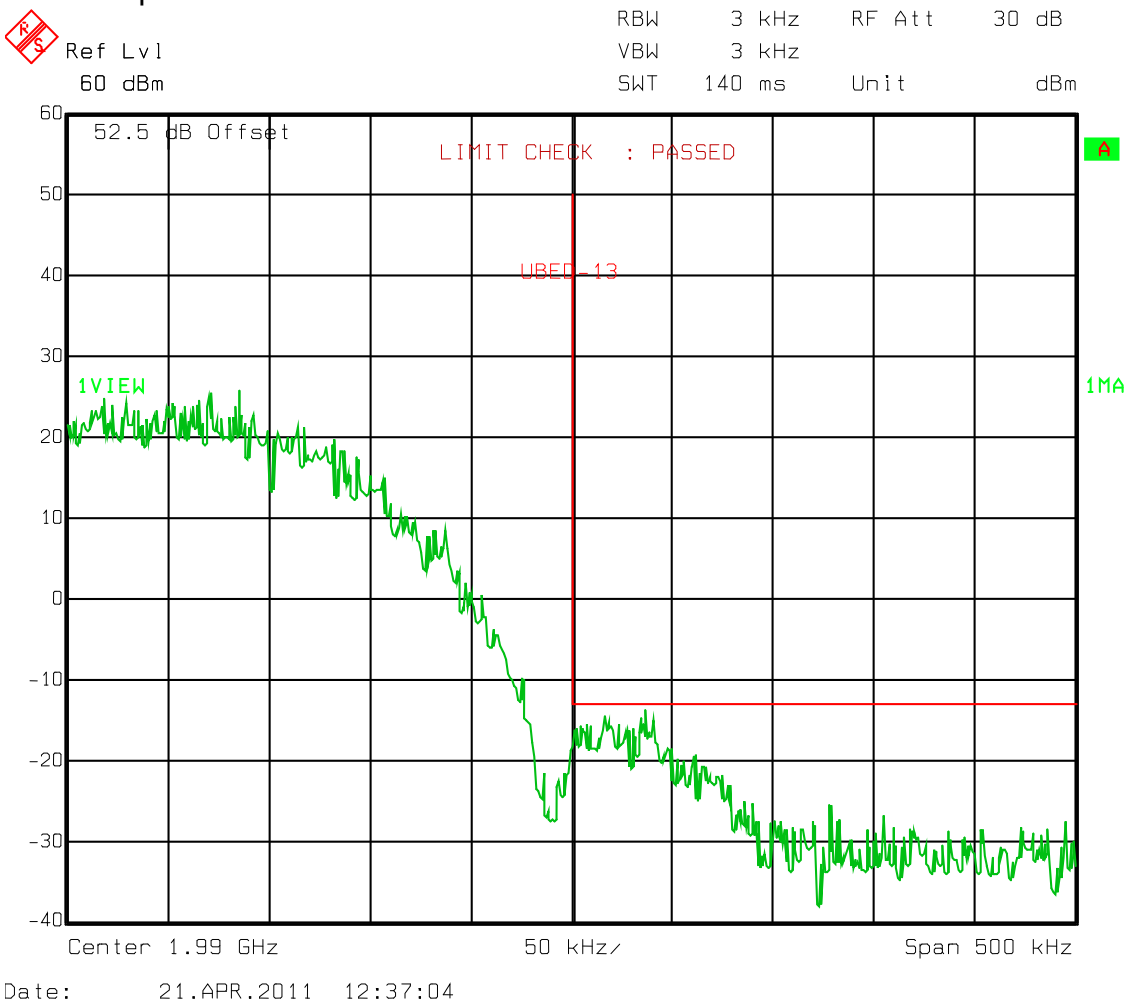
Test Data – Spurious Emissions (April 2011)

Low Band Edge Intermodulation
8PSK (EDGE)
Transmit power maximum



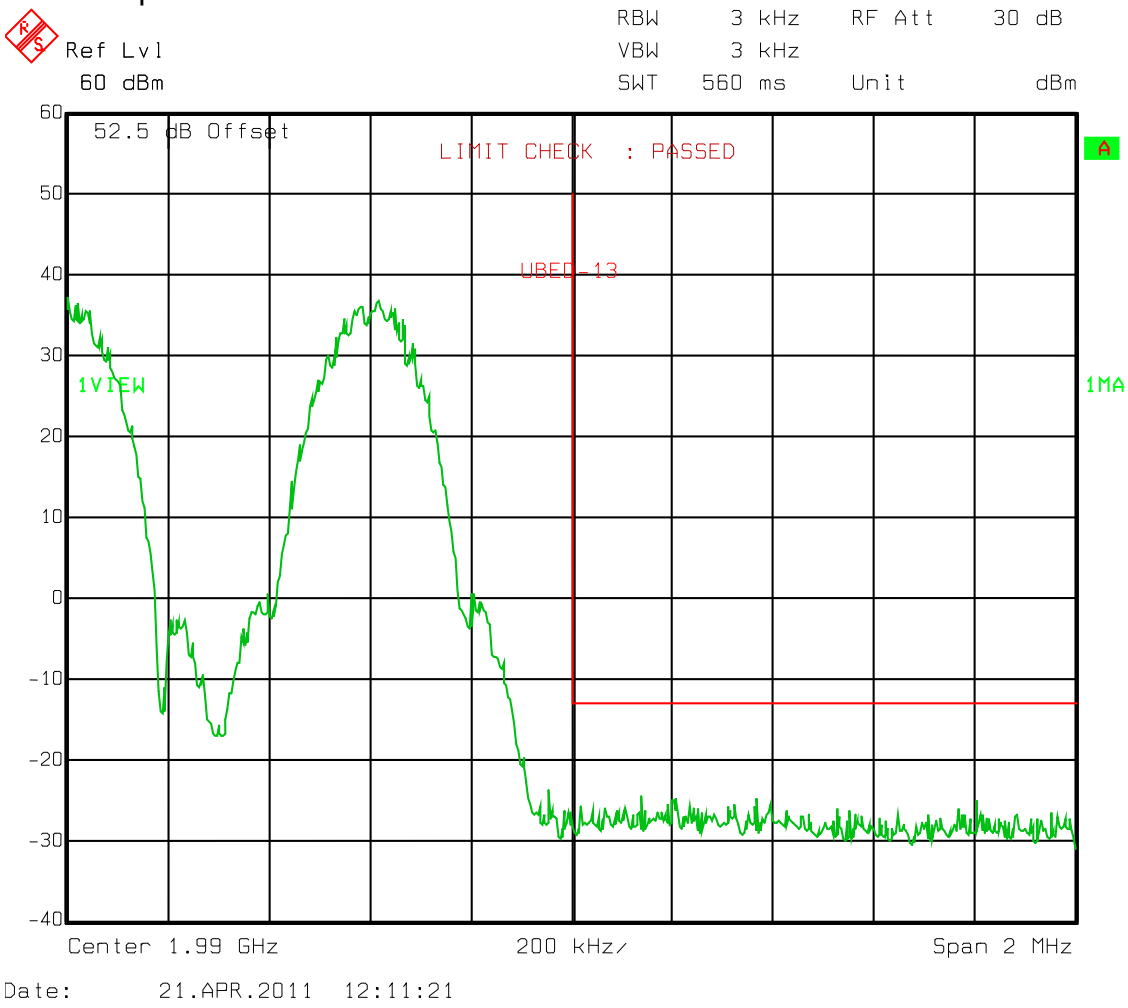
Test Data – Spurious Emissions (April 2011)

Upper Band Edge
8PSK (EDGE)
Transmit Frequency: 1989.8 MHz
Transmit power reduced



Test Data – Spurious Emissions(April 2011)

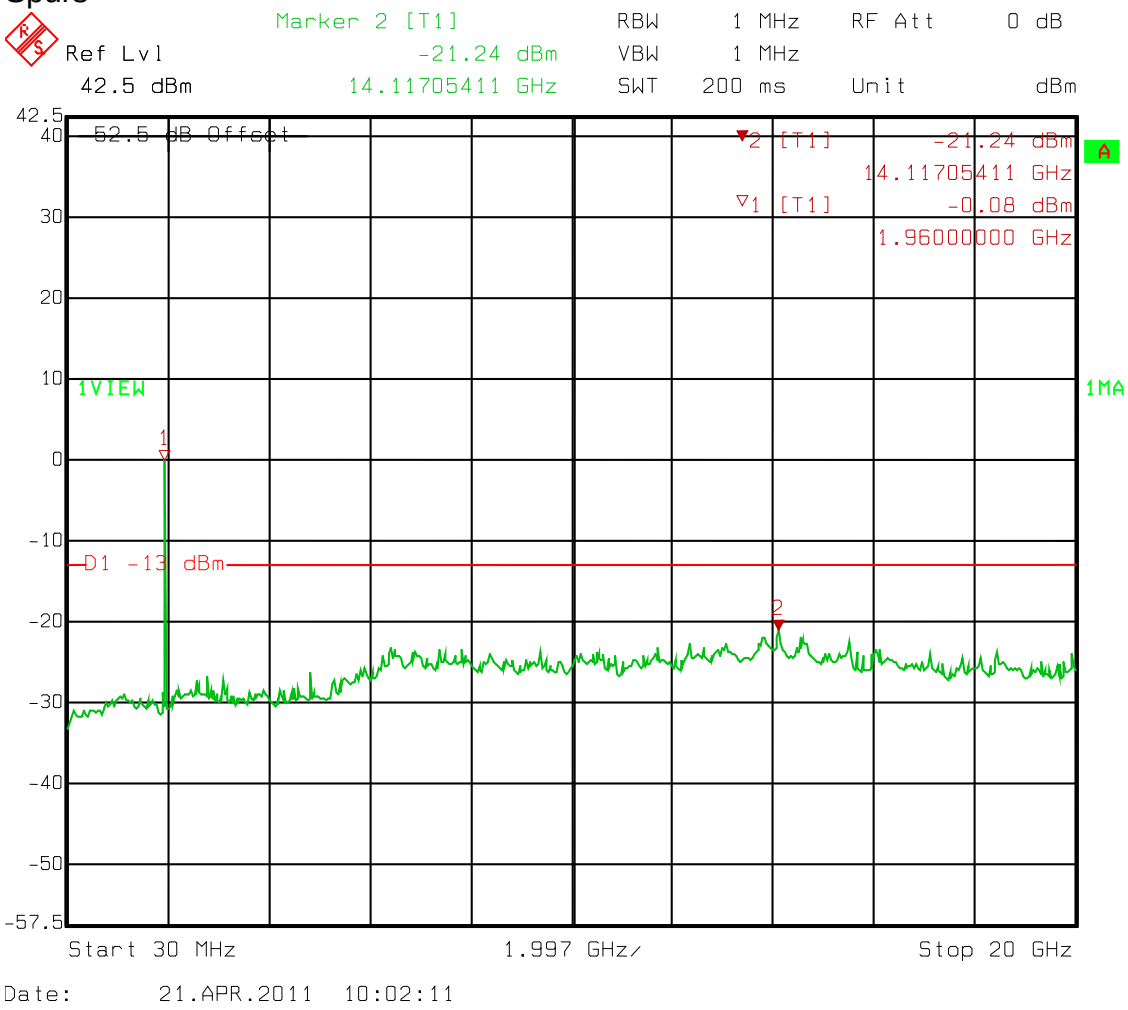
Upper Band Edge Intermodulation
8PSK (EDGE)
Transmit power maximum



Test Data – Spurious Emissions(April 2011)

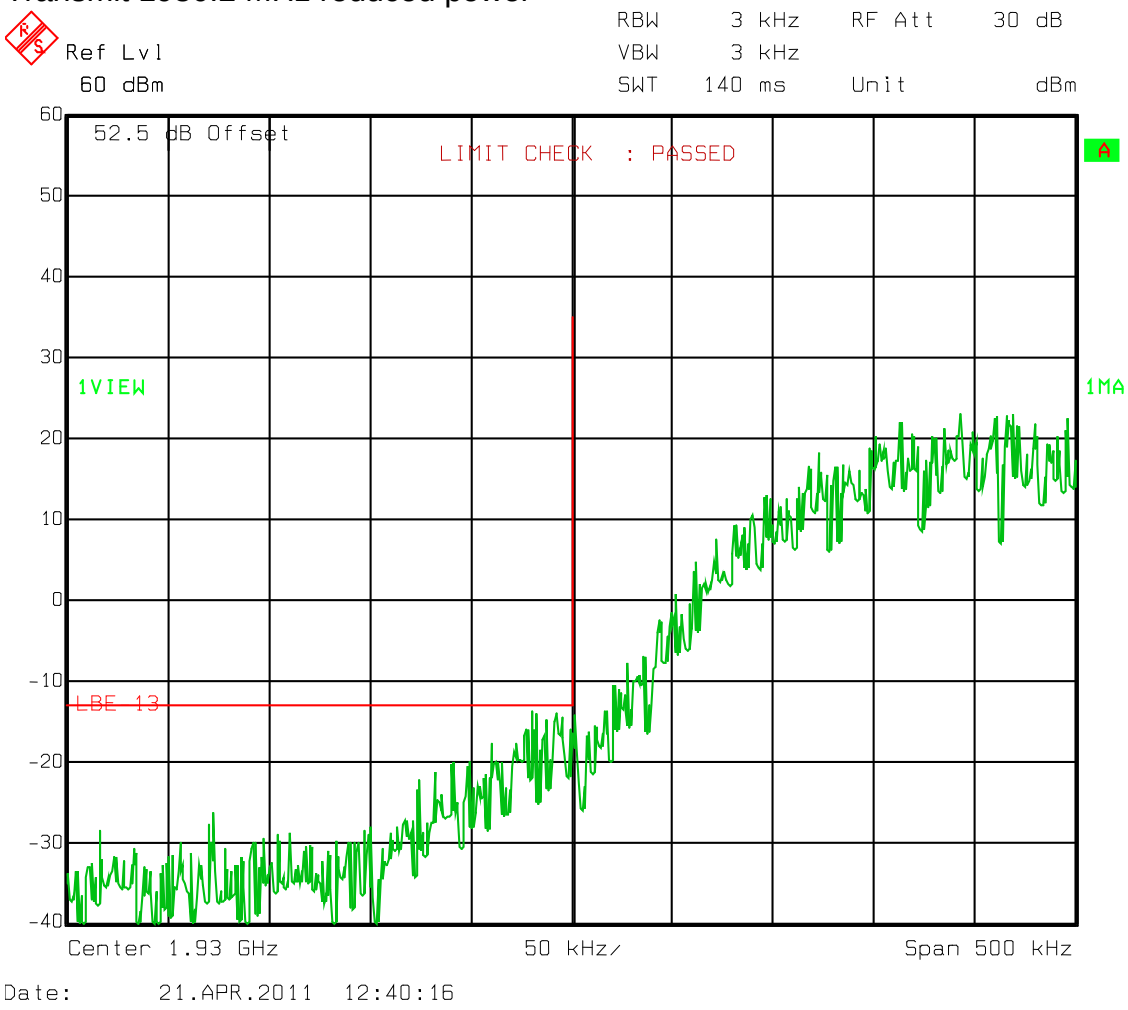
8PSK (EDGE)

Spurs



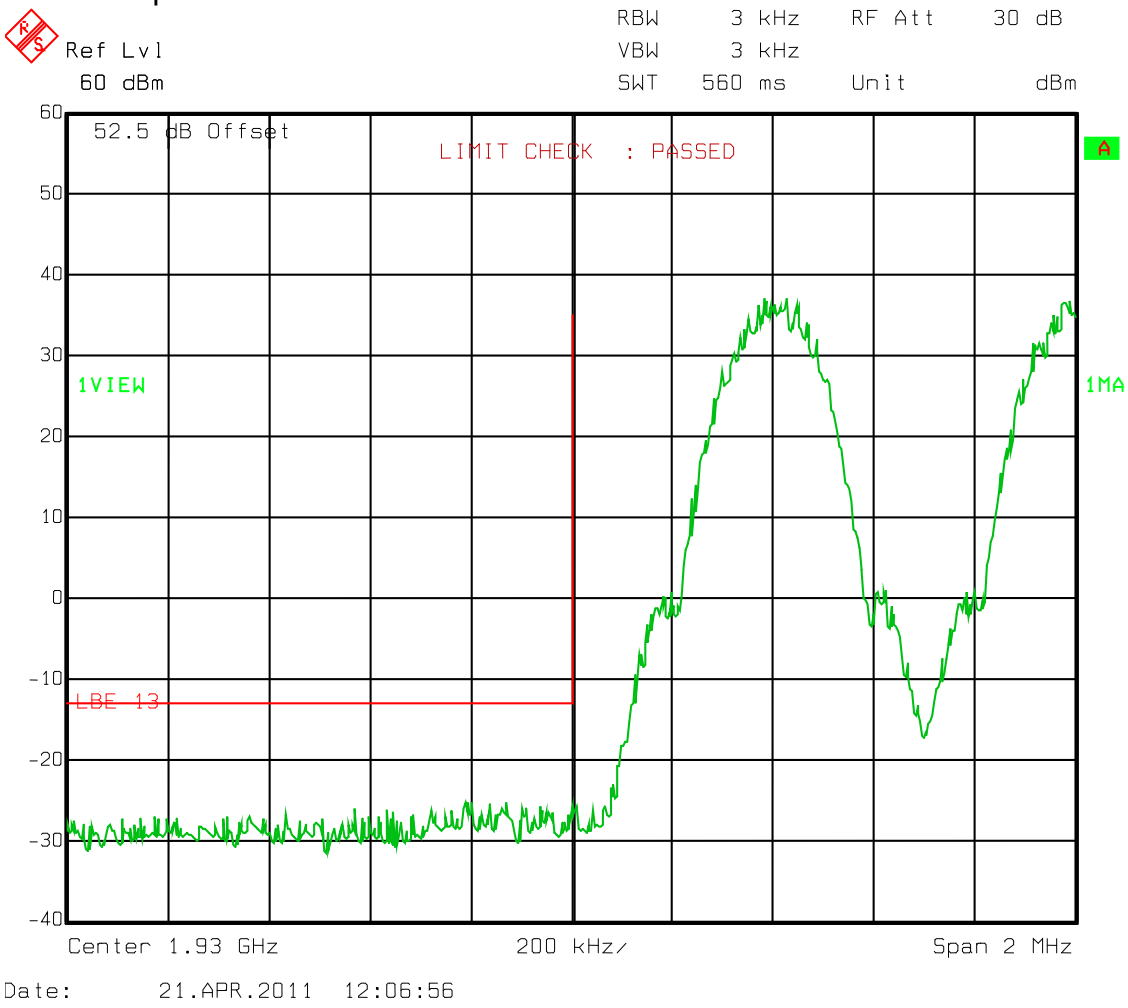
Test Data – Spurious Emissions(April 2011)

GMSK (GSM)
Lower Edge
Transmit 1930.2 MHz reduced power



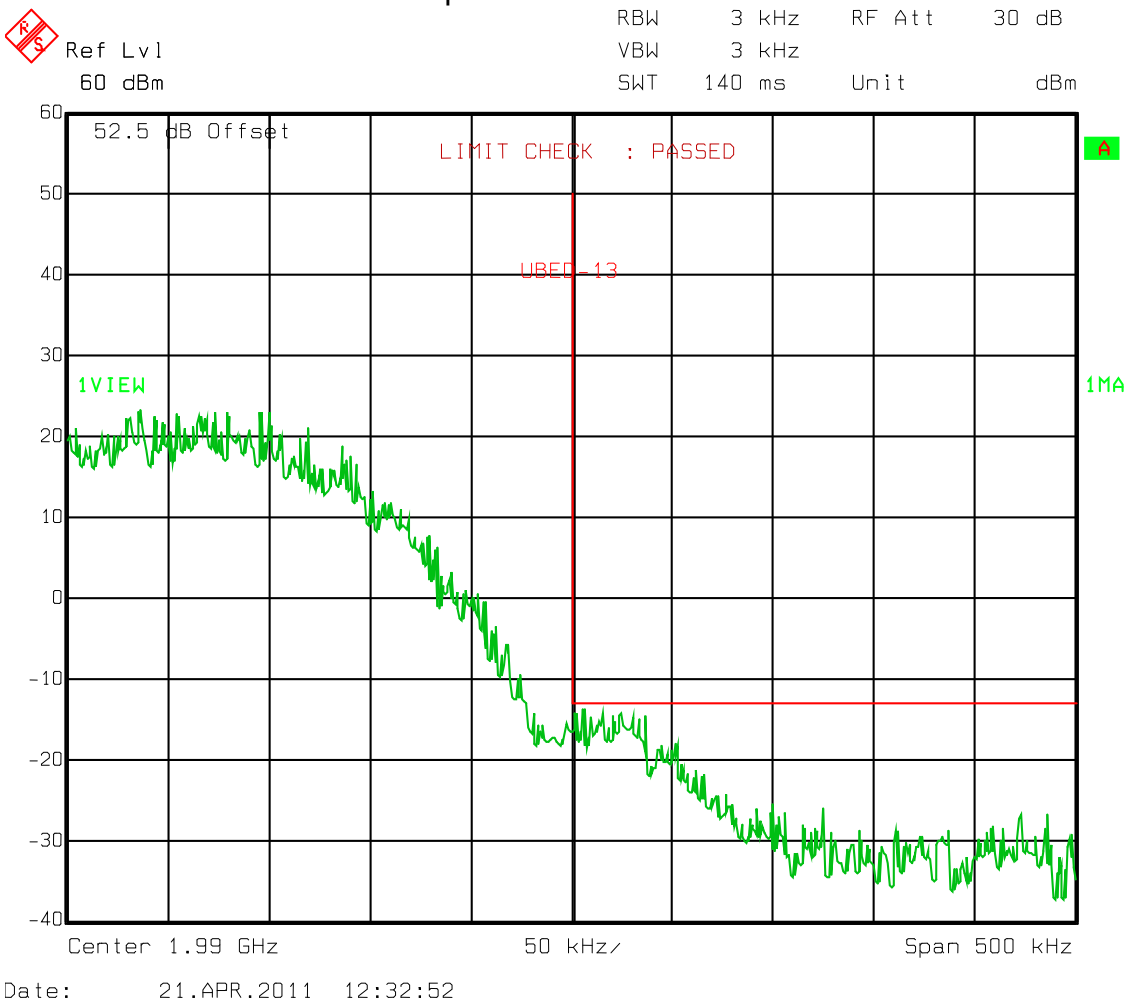
Test Data – Spurious Emissions(April 2011)

GMSK (GSM)
Lower band edge Intermodulation
Maximum power



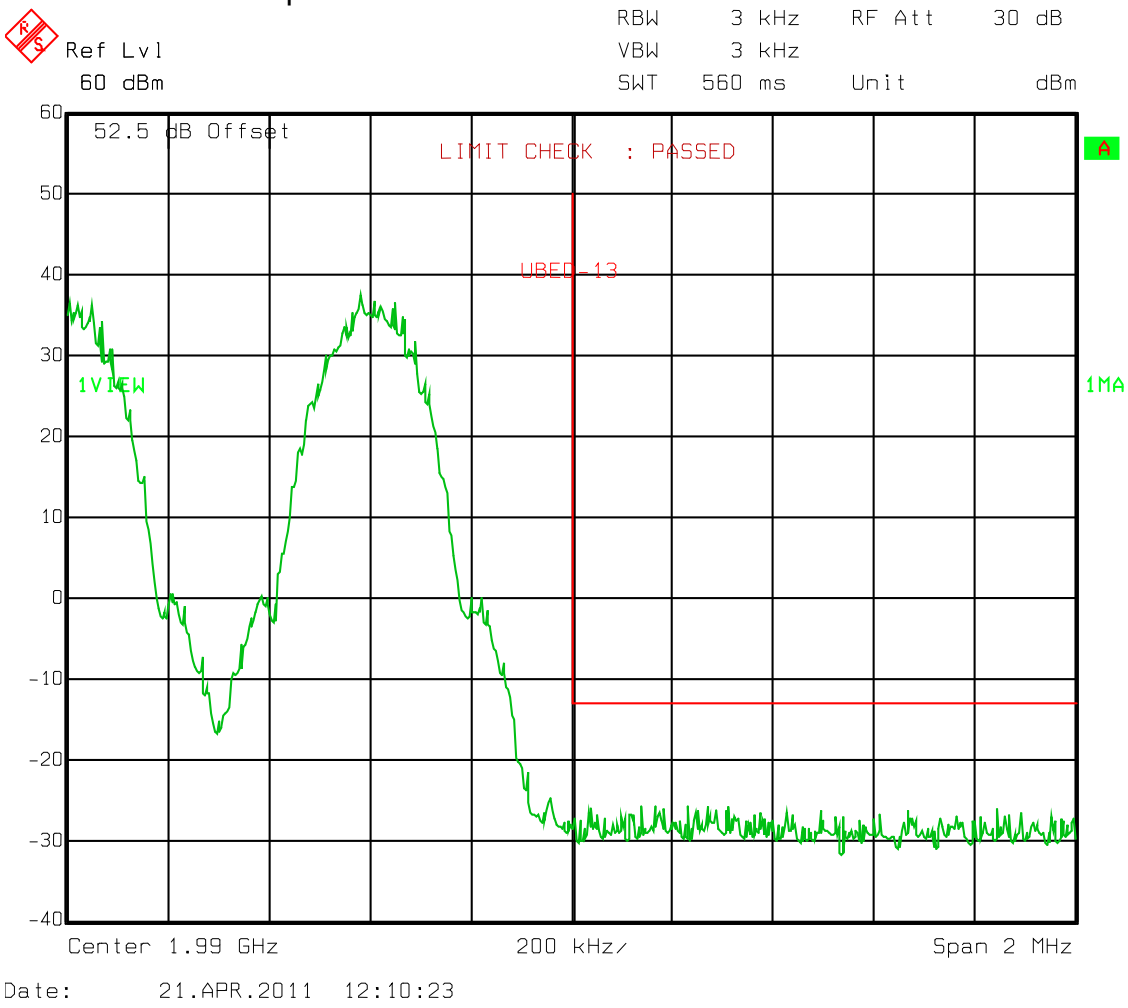
Test Data – Spurious Emissions(April 2011)

GMSK (GSM)
Upper band edge
Transmit 1989.8 MHz reduced power



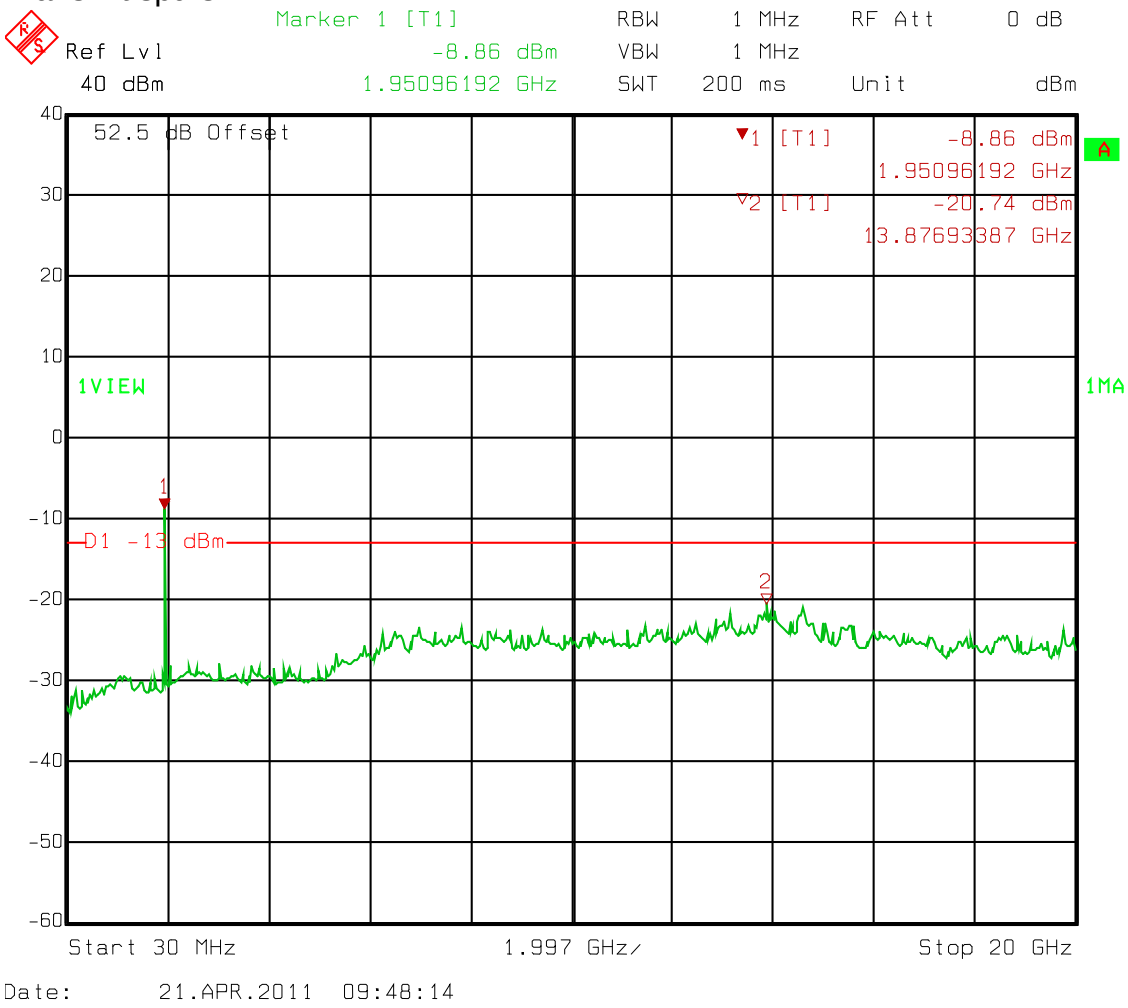
Test Data – Spurious Emissions(April 2011)

GMSK (GSM)
Upper band edge intermodulation
Transmit maximum power



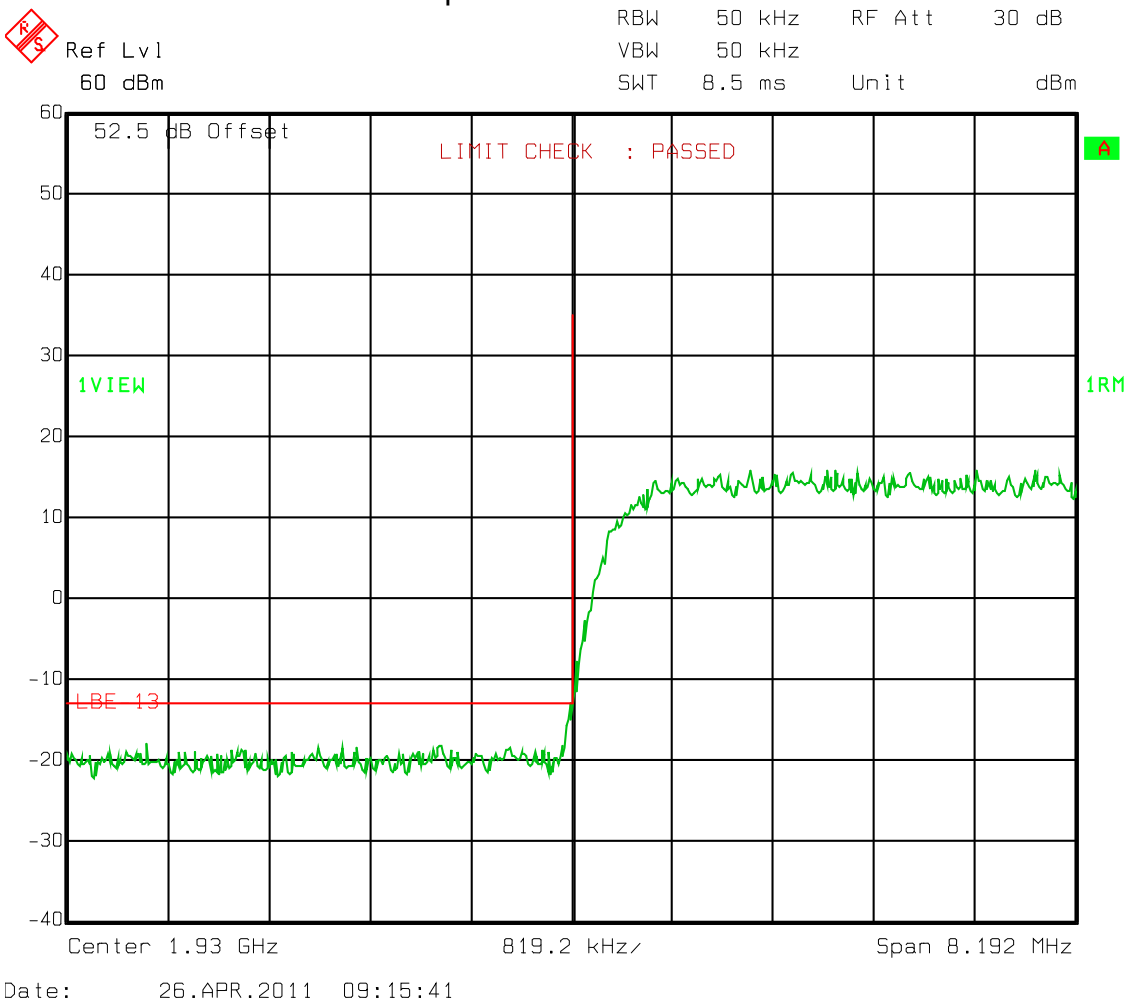
Test Data – Spurious Emissions(April 2011)

GMSK (GSM)
Transmit spurs



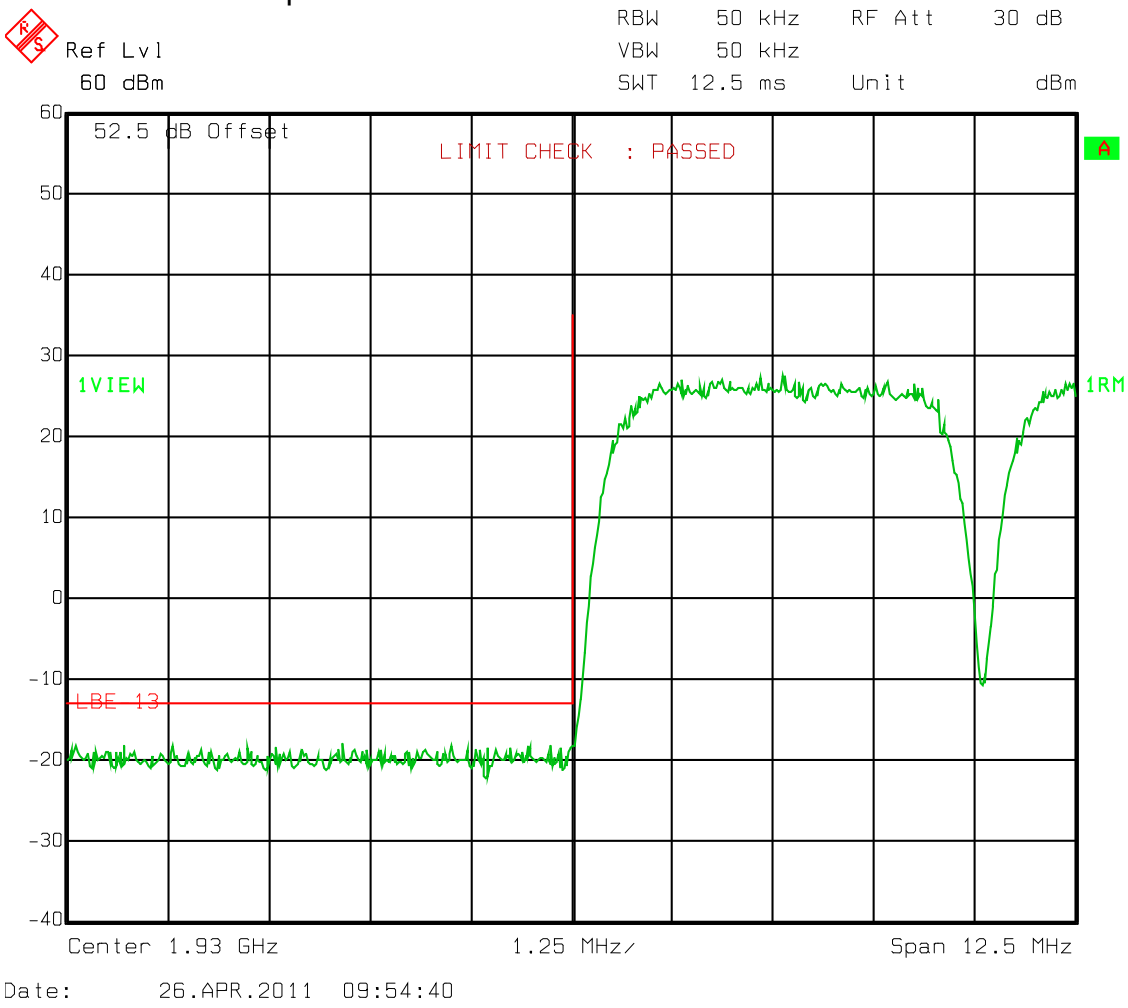
Test Data – Spurious Emissions(April 2011)

QPSK (WCDMA)
Lower band edge
Transmit 1932.4 MHz reduced power



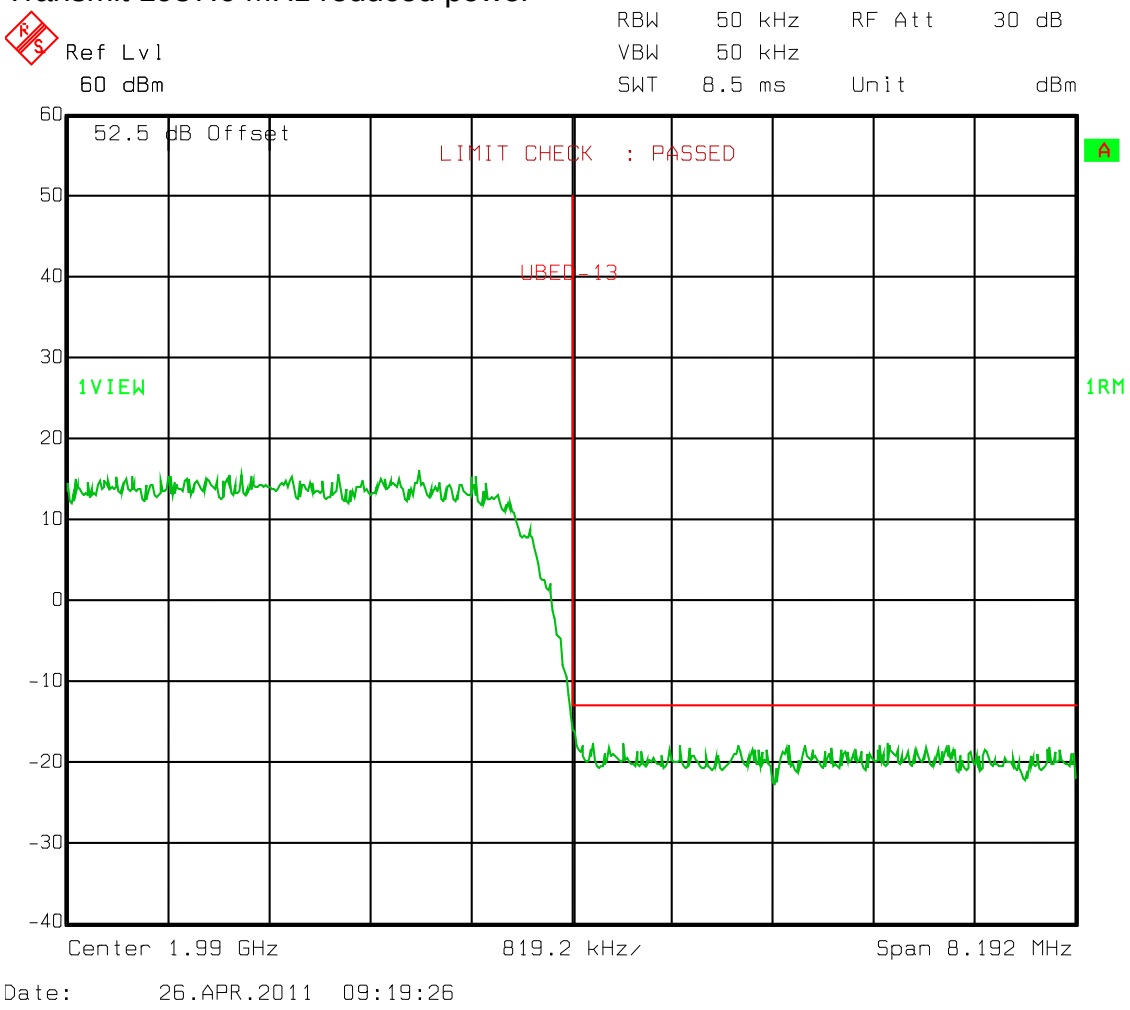
Test Data – Spurious Emissions(April 2011)

QPSK (WCDMA)
Lower band edge intermodulation
Transmit maximum power



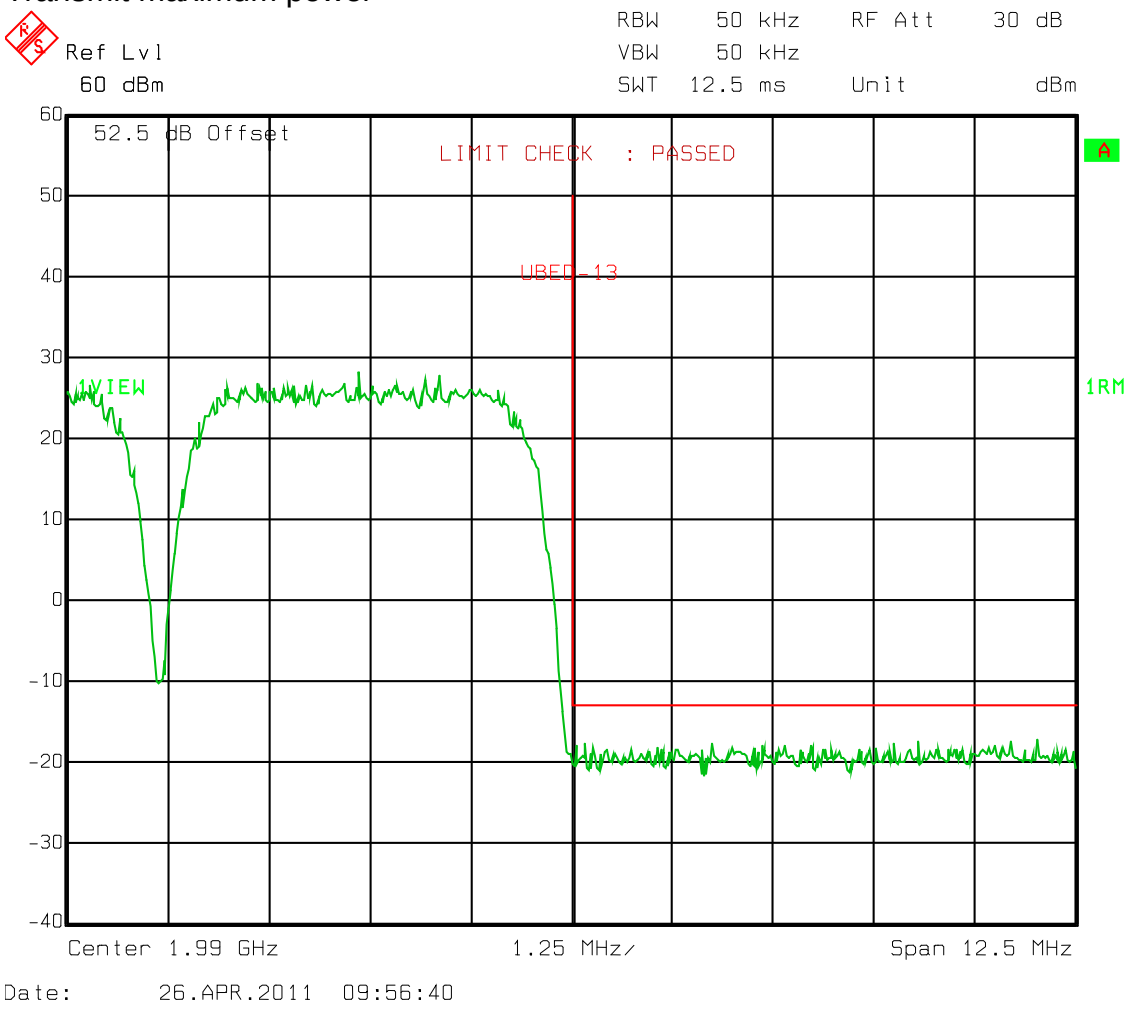
Test Data – Spurious Emissions(April 2011)

QPSK (WCDMA)
Upper band edge
Transmit 1987.6 MHz reduced power



Test Data – Spurious Emissions (April 2011)

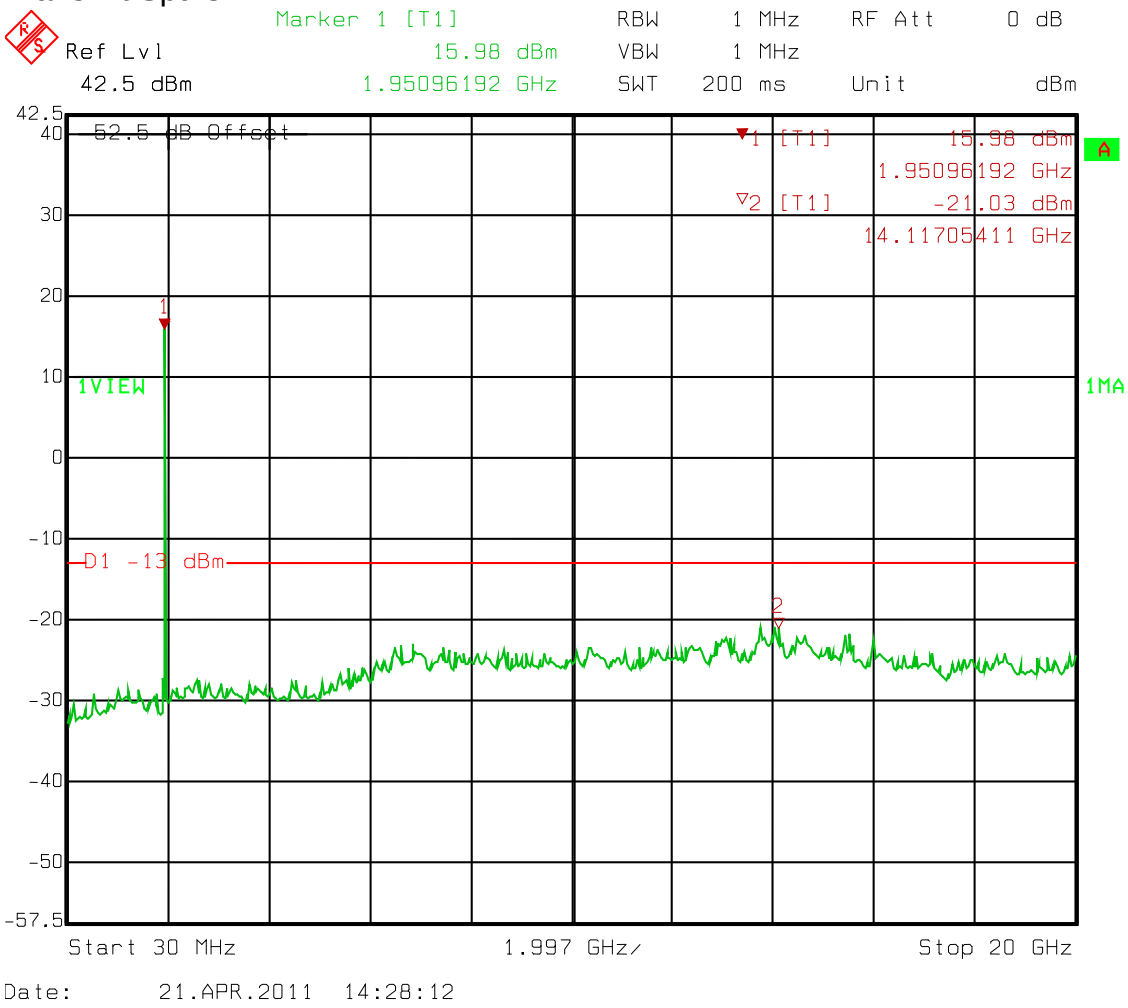
QPSK (WCDMA)
Upper band edge Intermodulation
Transmit maximum power



Test Data – Spurious Emissions (April 2011)

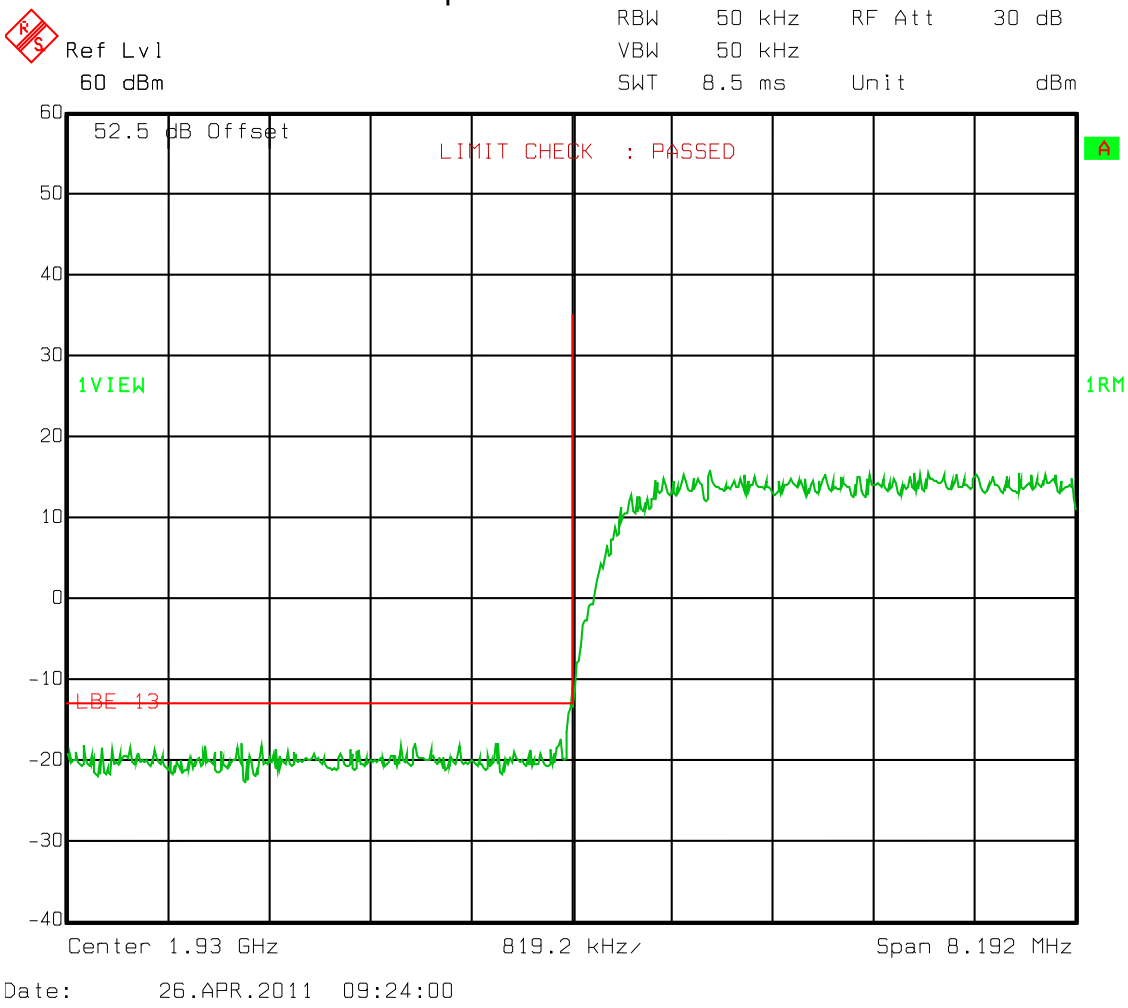
QPSK (WCDMA)

Transmit Spurs



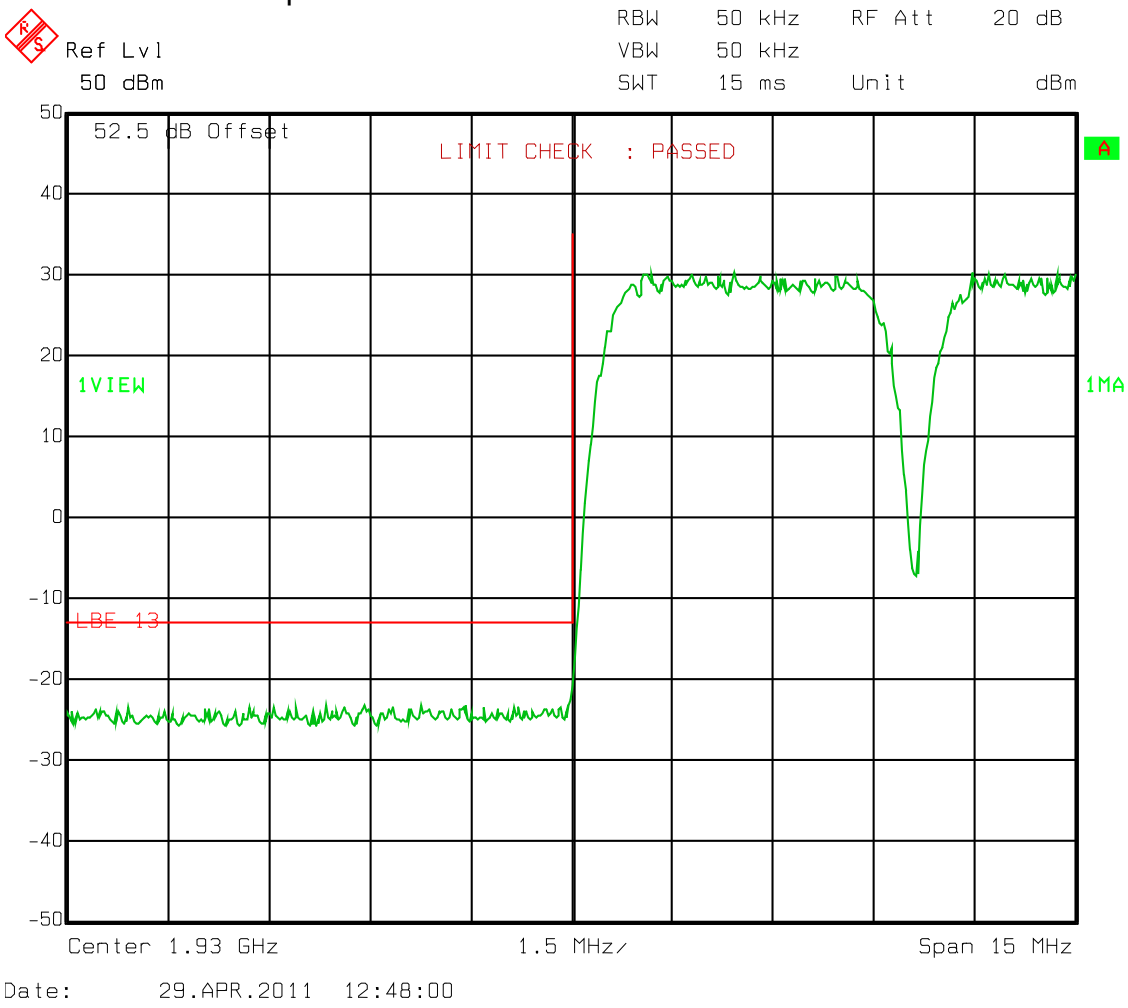
Test Data – Spurious Emissions (April 2011)

16QAM (WCDMA)
Lower band edge
Transmit 1932.4 MHz reduced power



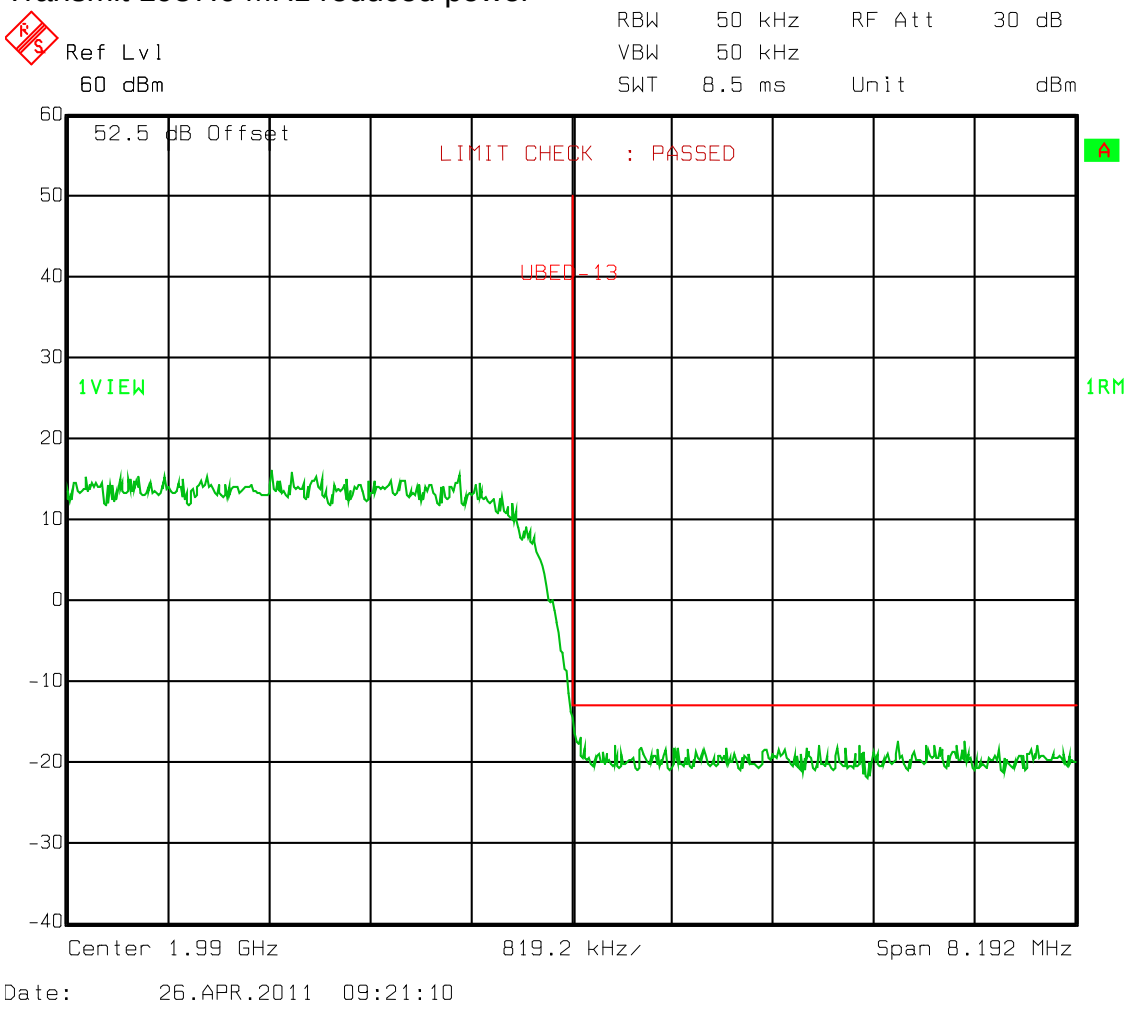
Test Data – Spurious Emissions (April 2011)

16QAM (WCDMA)
Lower band edge intermodulation
Transmit maximum power



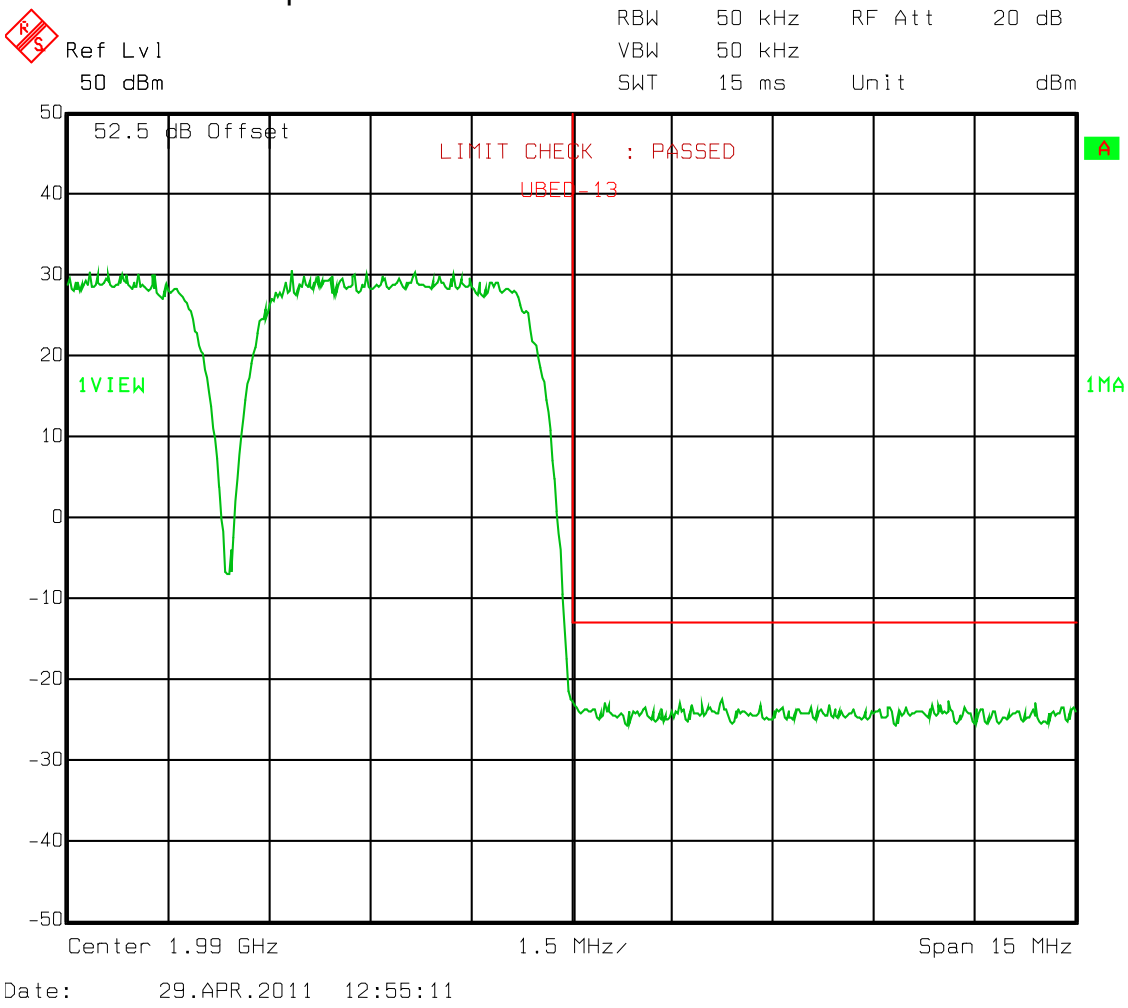
Test Data – Spurious Emissions (April 2011)

16QAM (WCDMA)
Upper band edge
Transmit 1987.6 MHz reduced power



Test Data – Spurious Emissions (April 2011)

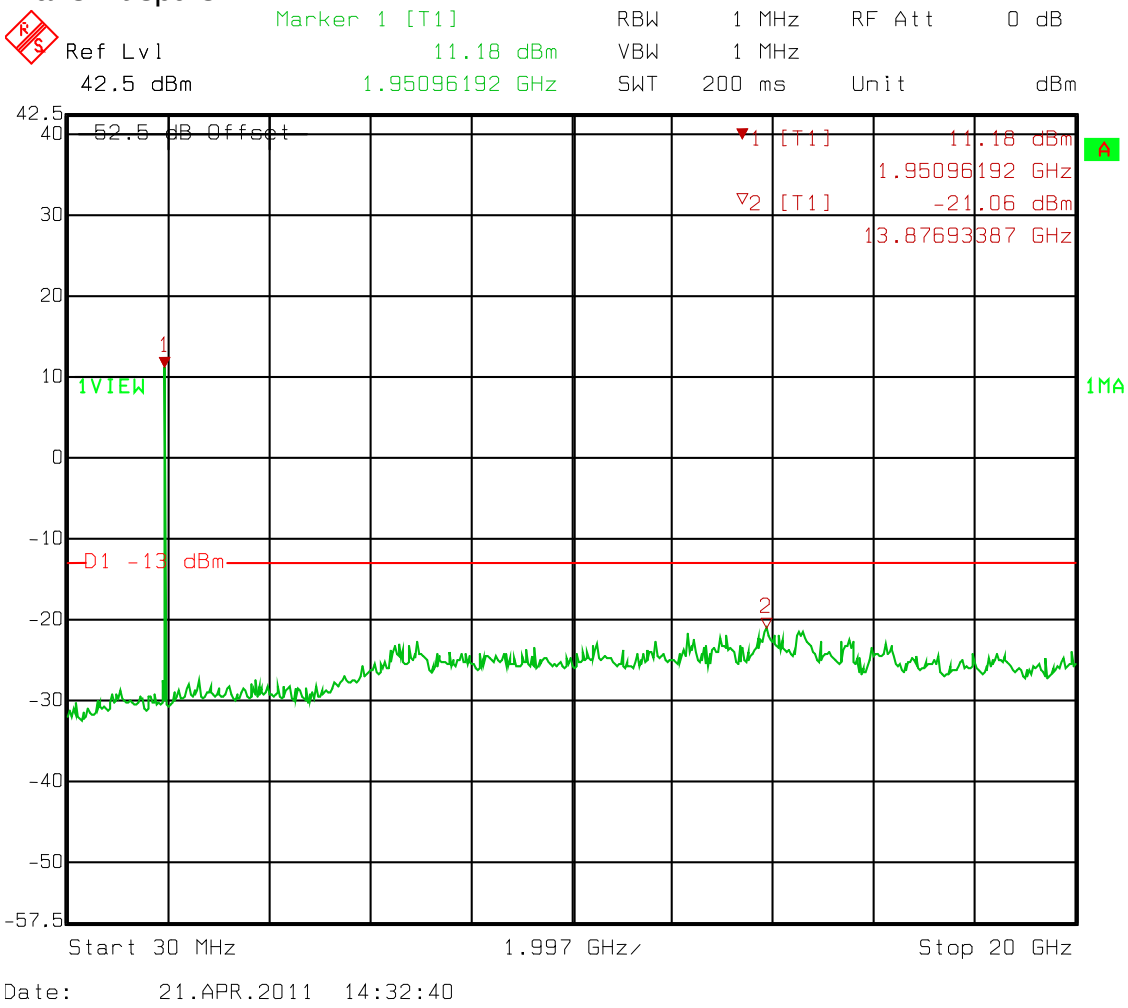
16QAM (WCDMA)
Upper band edge intermodulation
Transmit maximum power



Test Data – Spurious Emissions (April 2011)

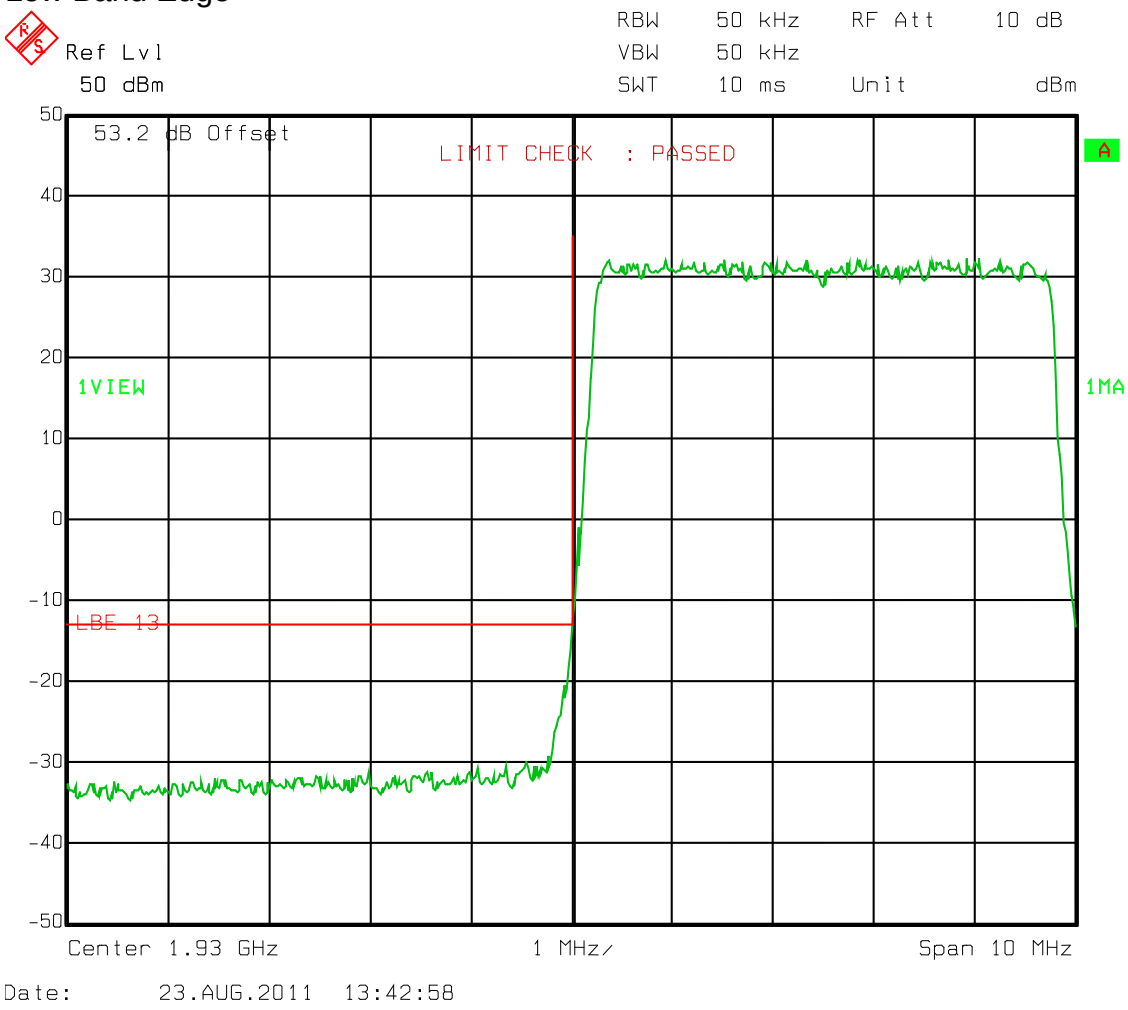
16QAM (WCDMA)

Transmit spurs



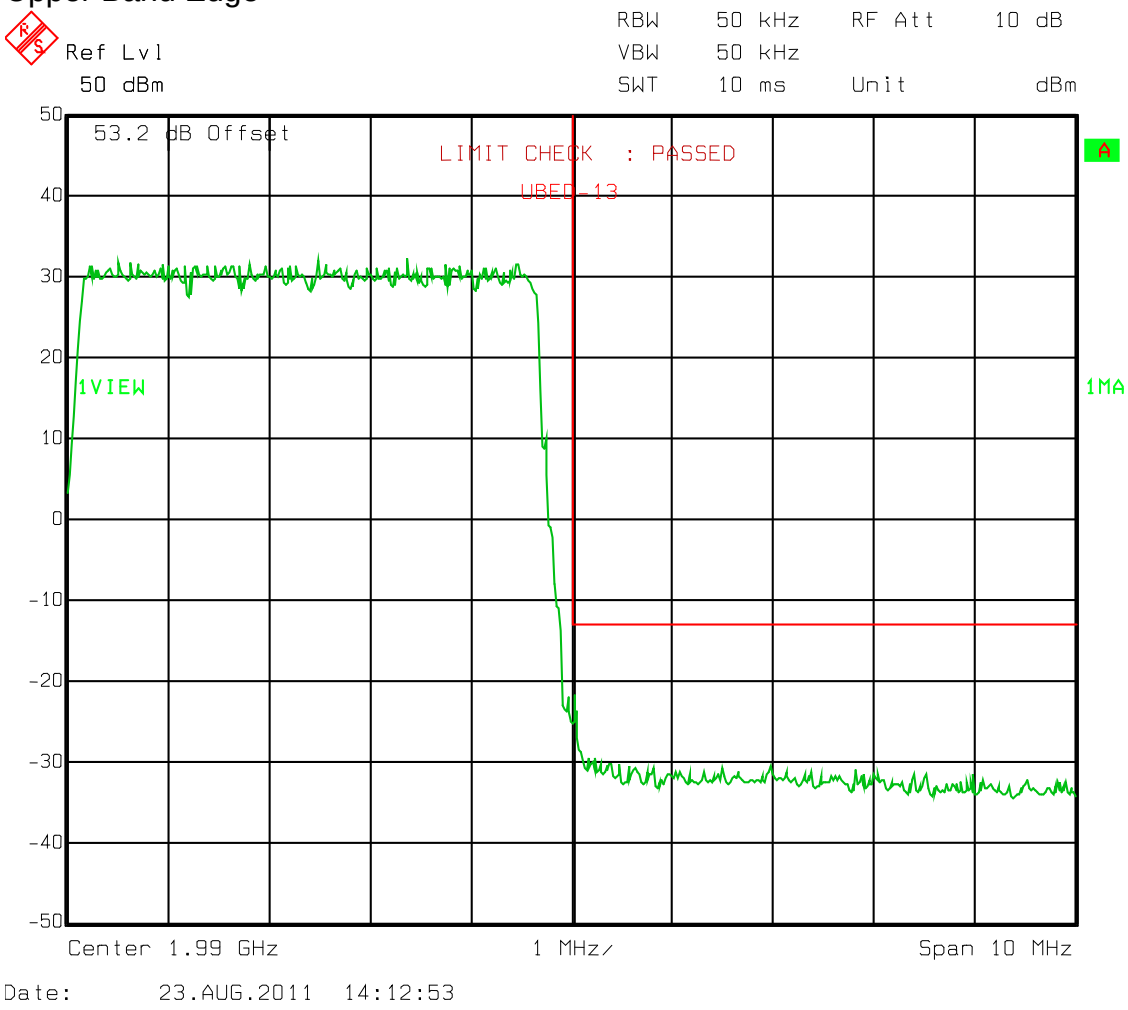
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
QPSK
Low Band Edge



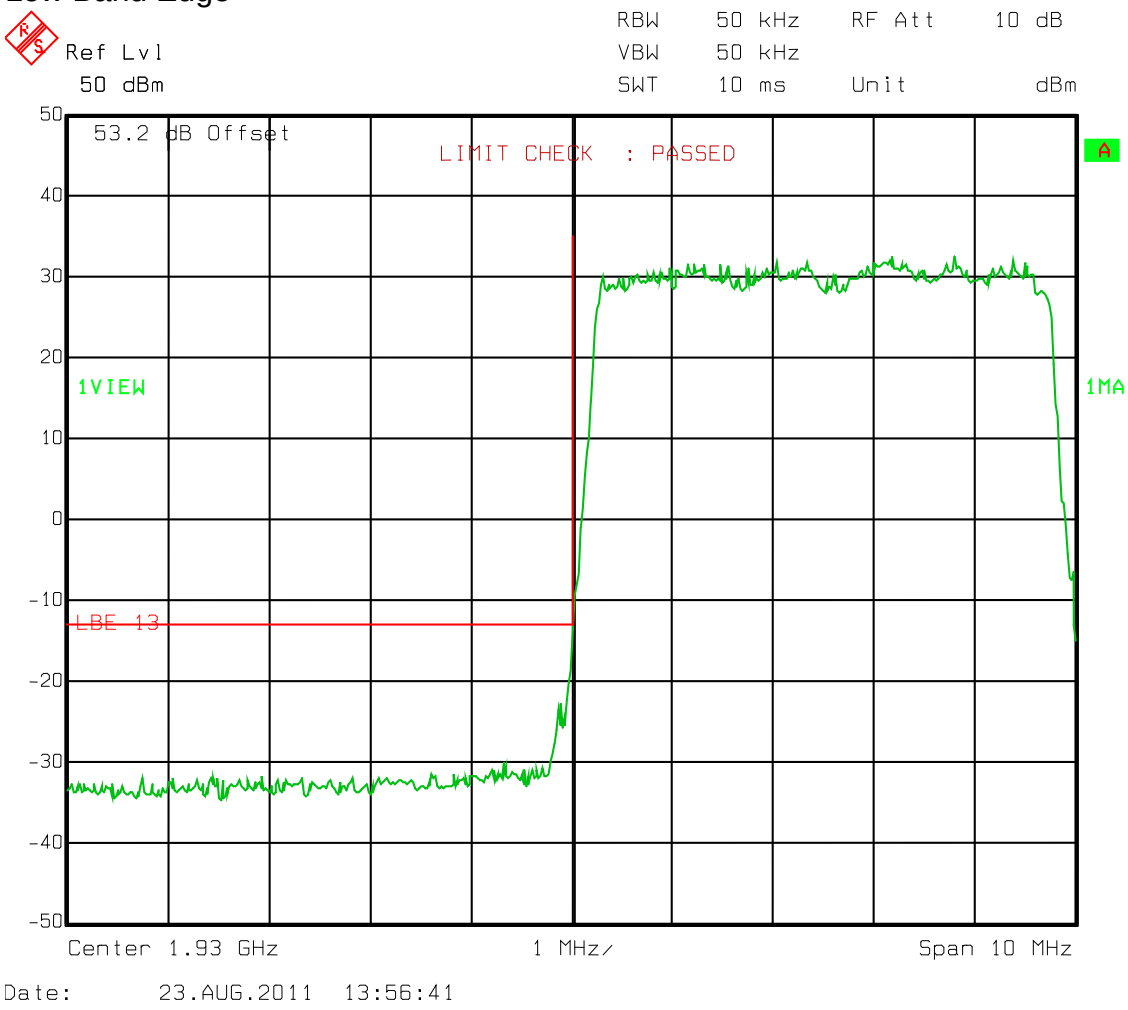
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
QPSK
Upper Band Edge



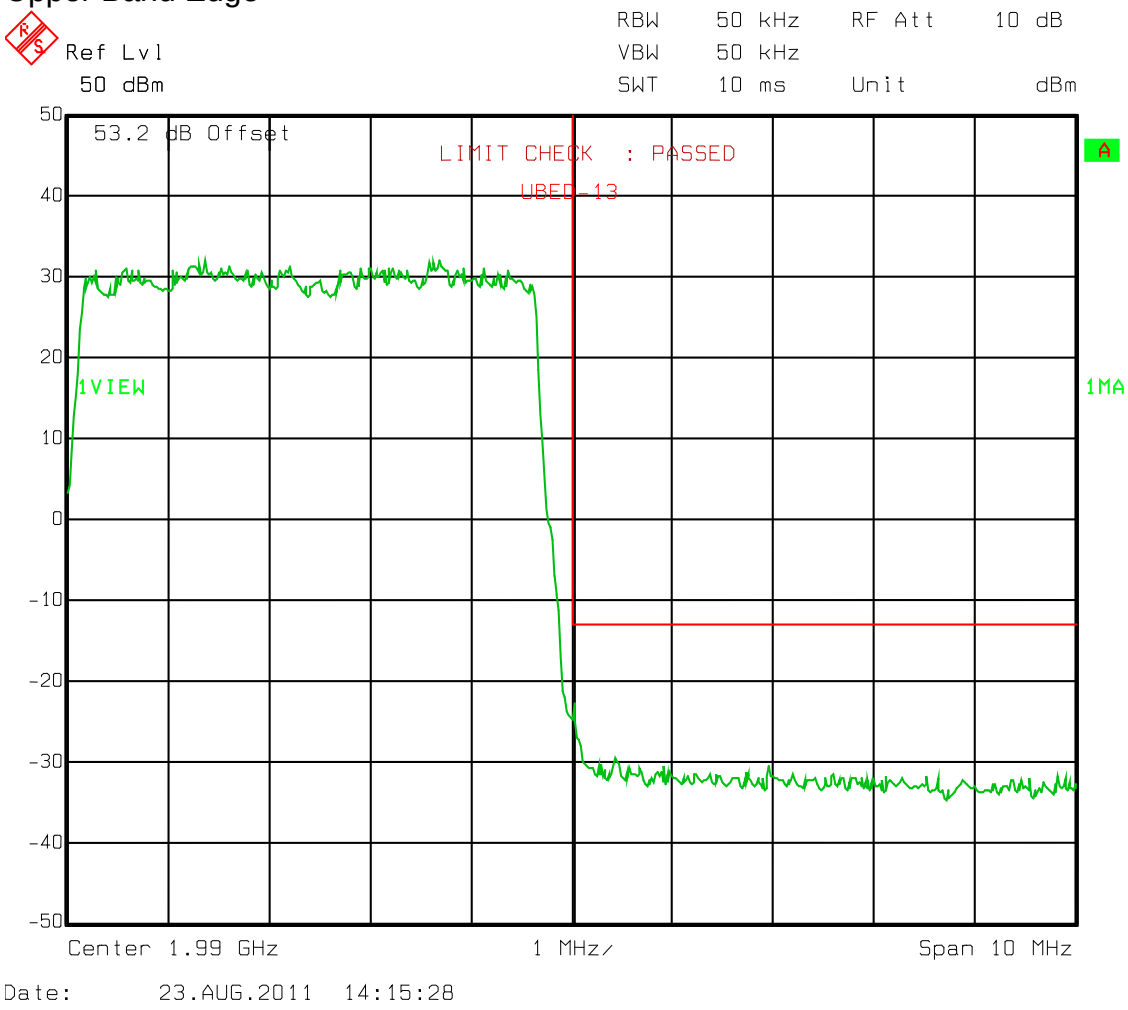
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
16 QAM
Low Band Edge



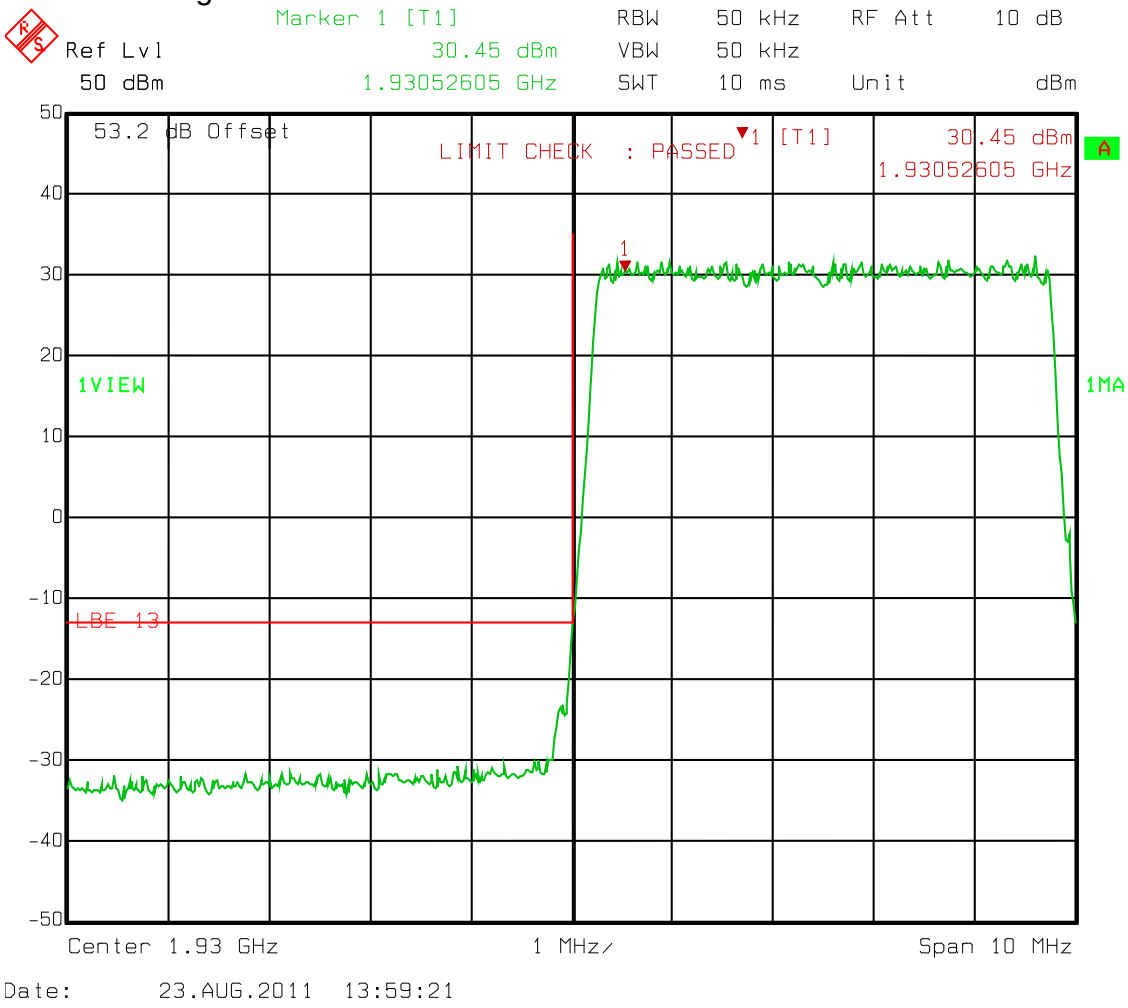
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
16 QAM
Upper Band Edge



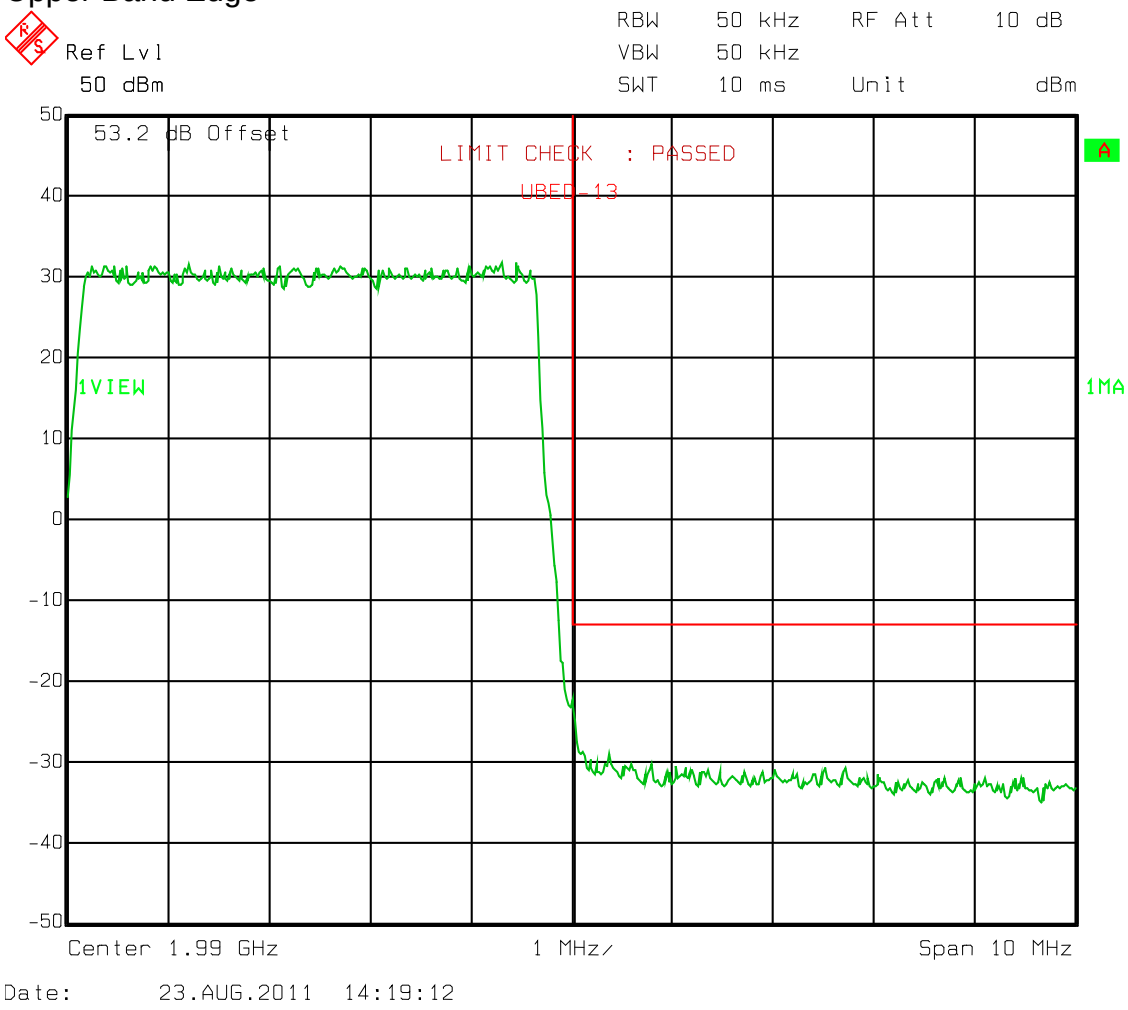
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
64 QAM
Low Band Edge



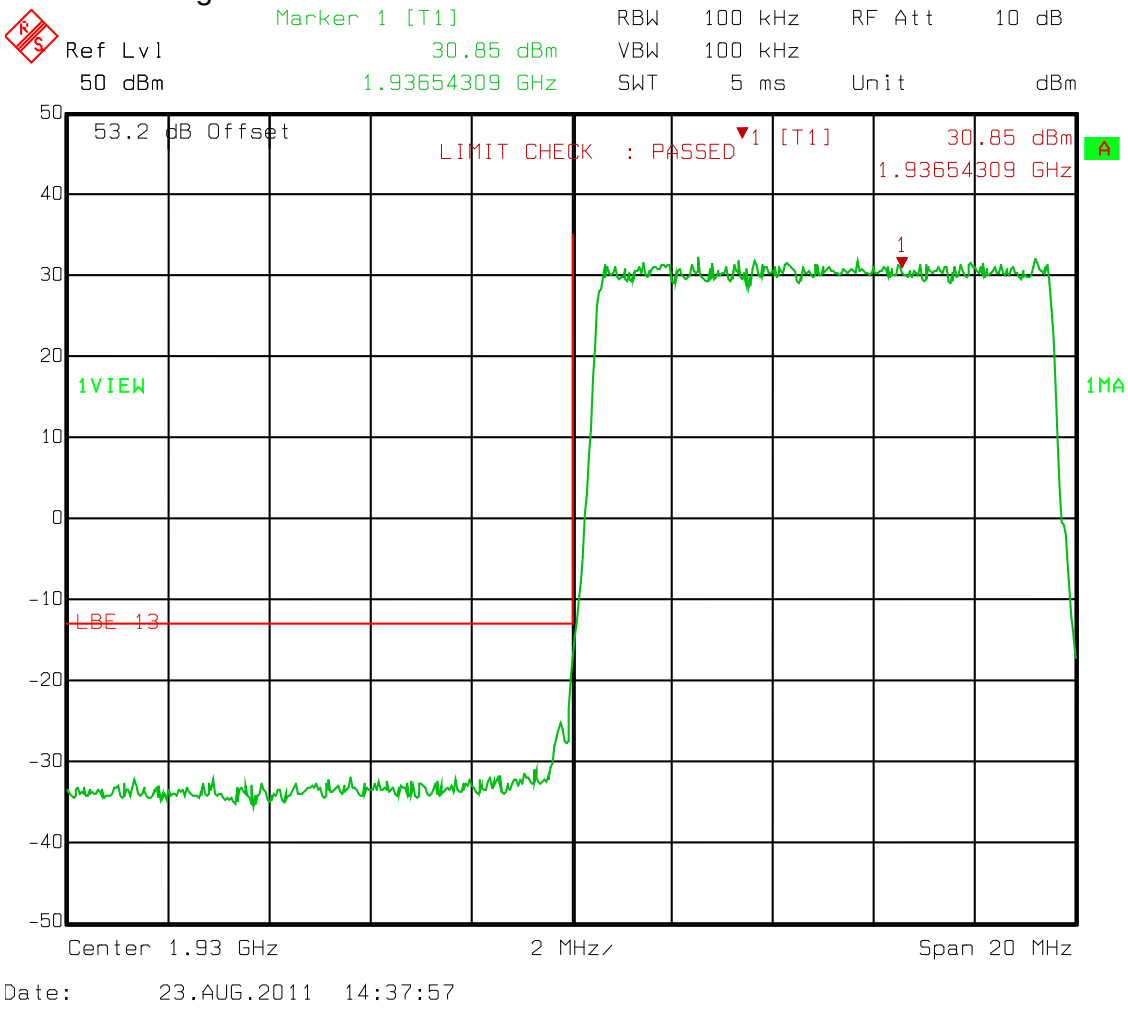
Test Data – Spurious Emissions (August 2011)

5 MHz Channel
64 QAM
Upper Band Edge



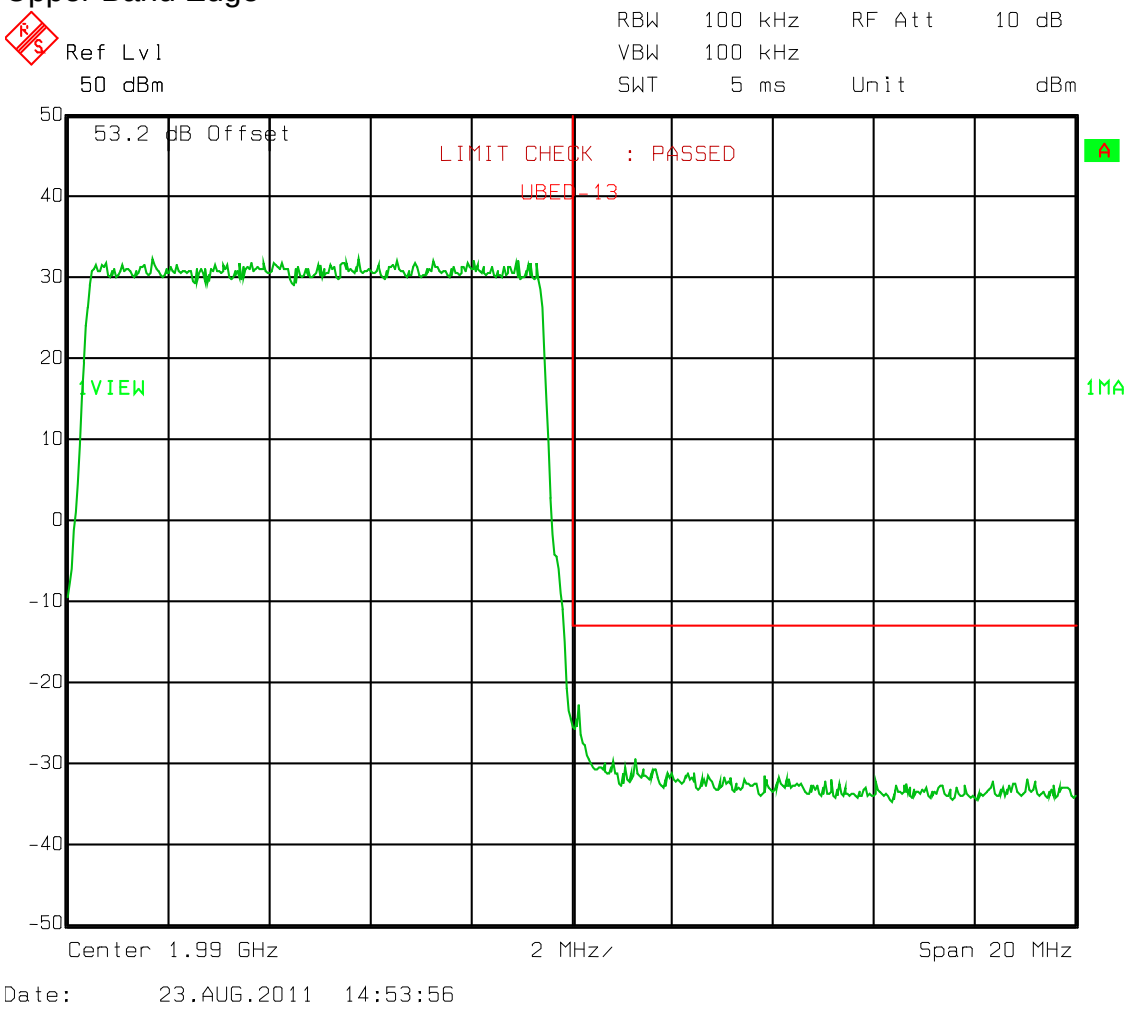
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
QPSK
Low Band Edge



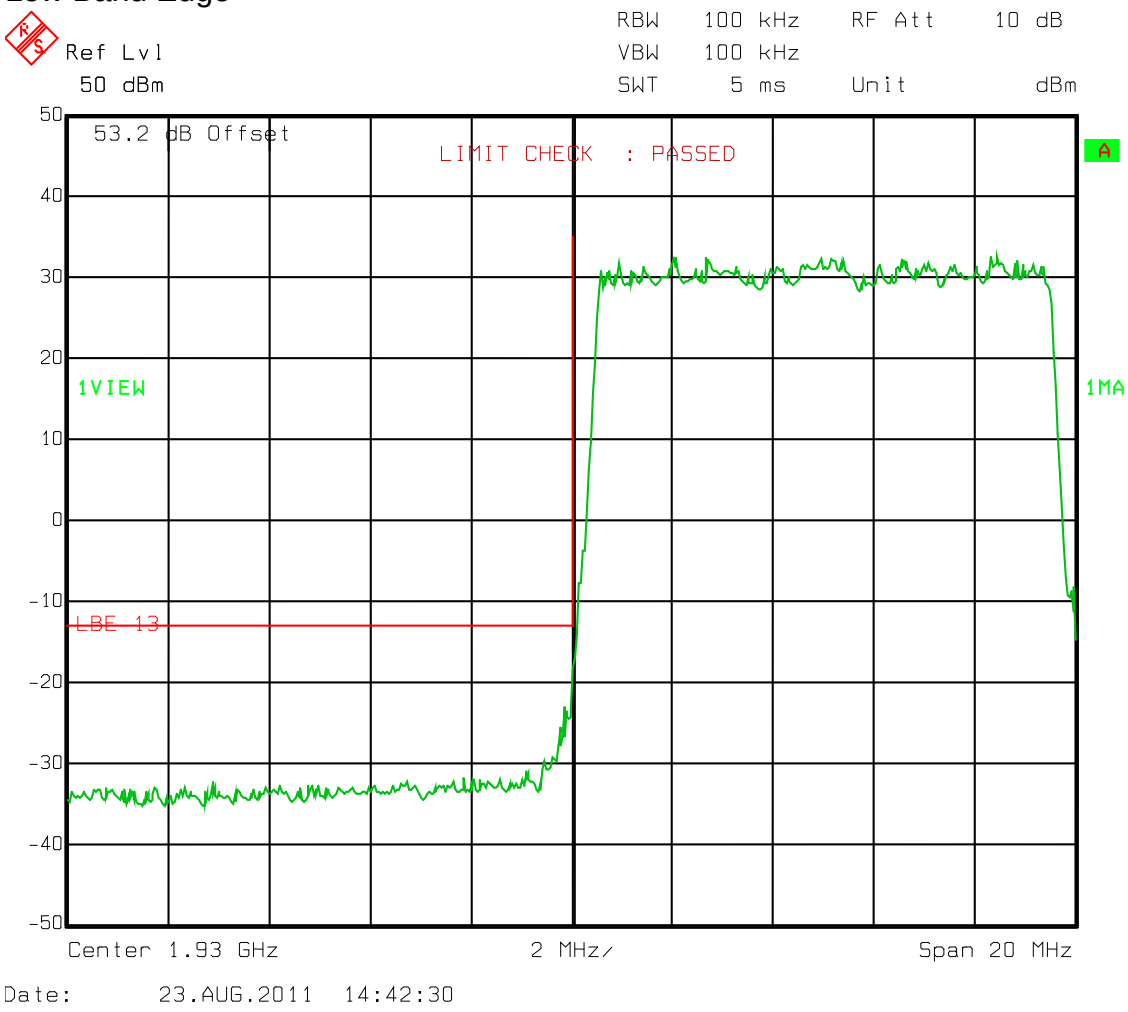
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
QPSK
Upper Band Edge



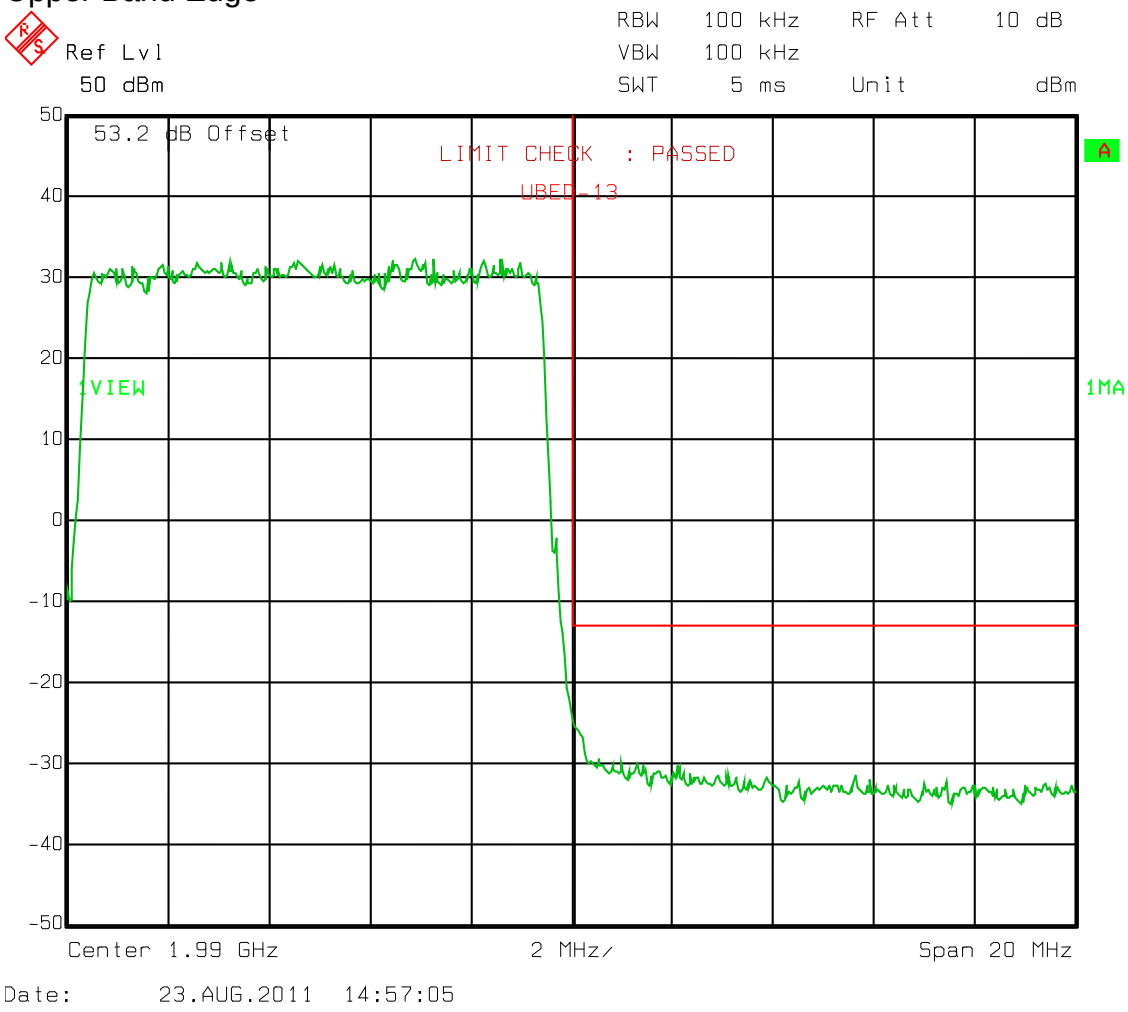
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
16 QAM
Low Band Edge



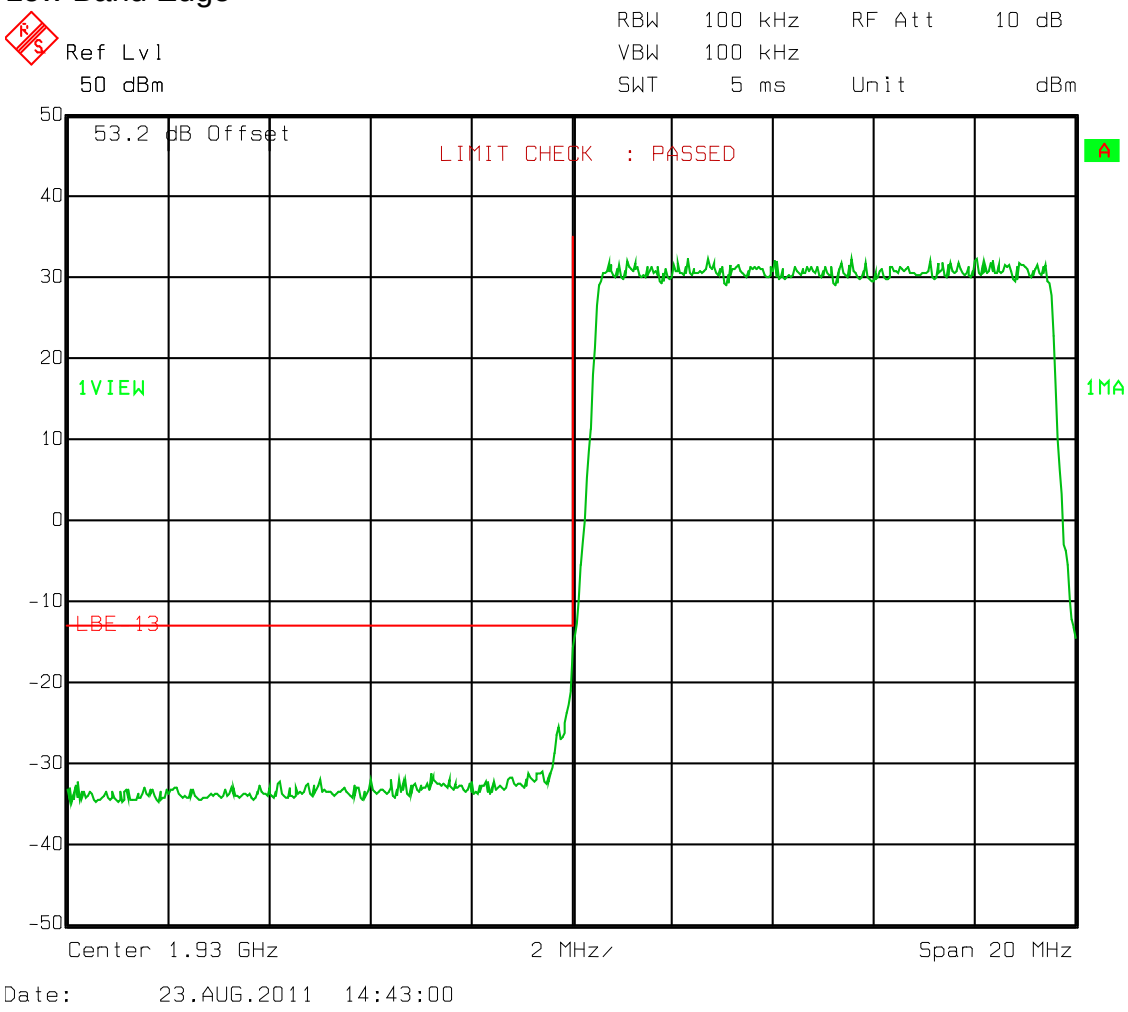
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
16 QAM
Upper Band Edge



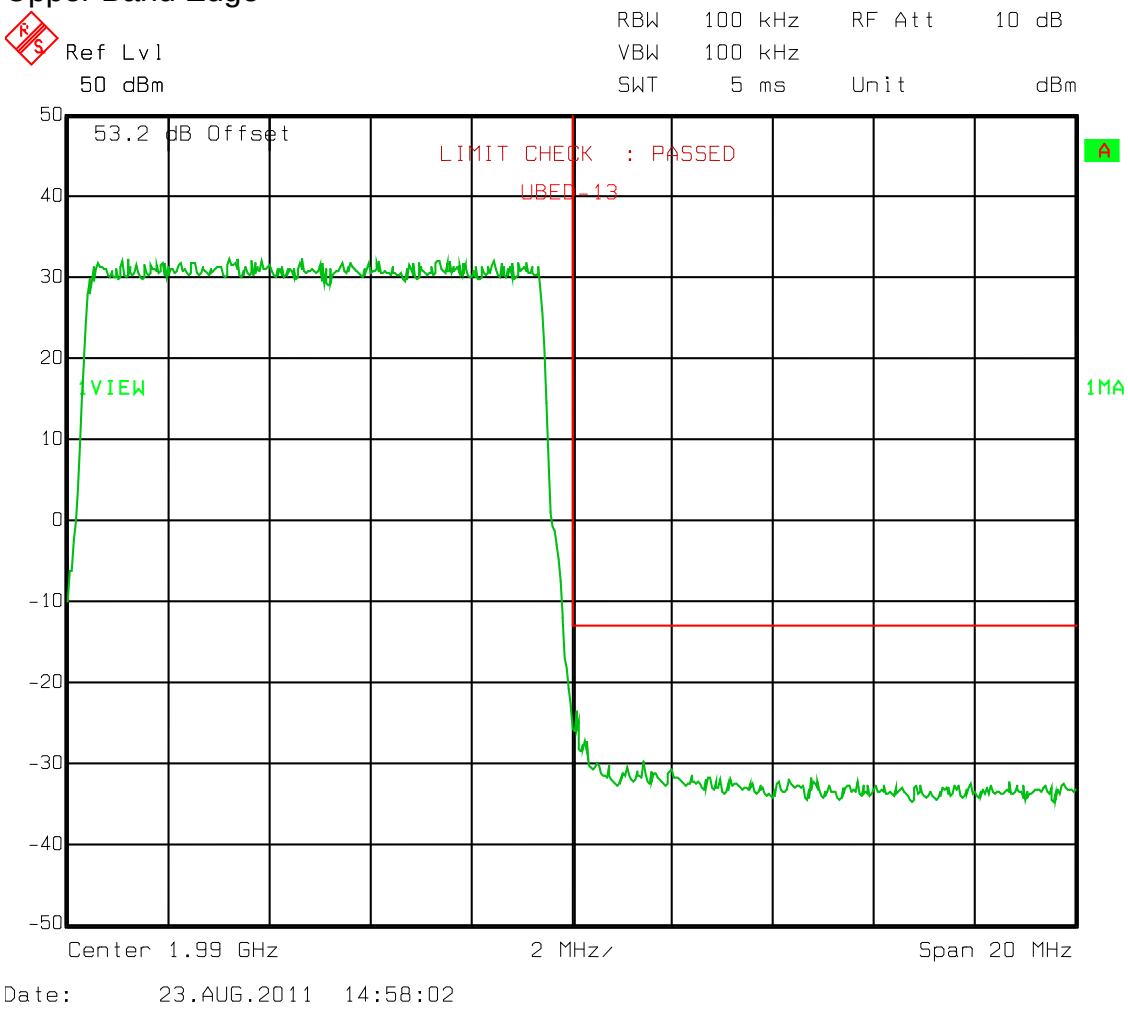
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
64 QAM
Low Band Edge



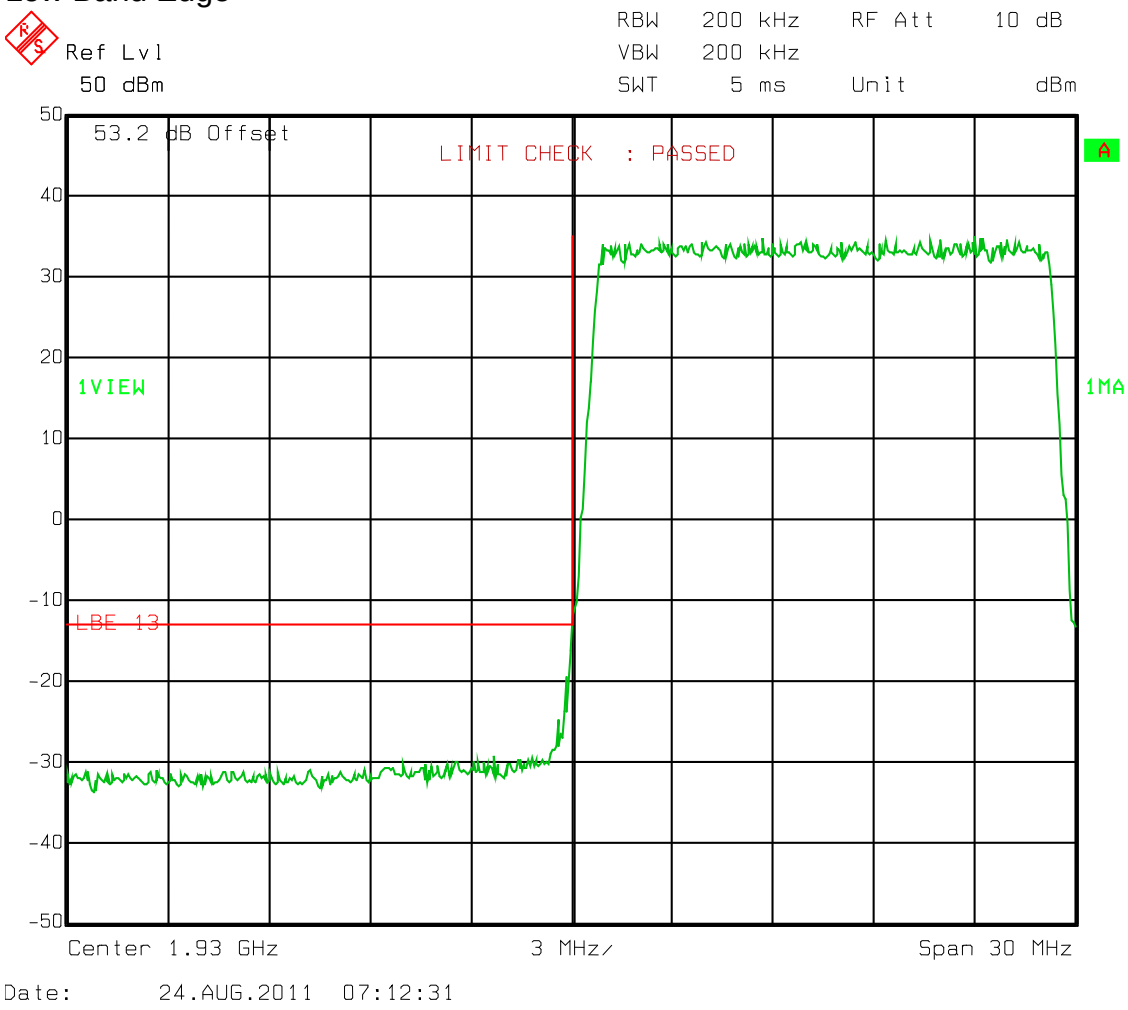
Test Data – Spurious Emissions (August 2011)

10 MHz Channel
64 QAM
Upper Band Edge



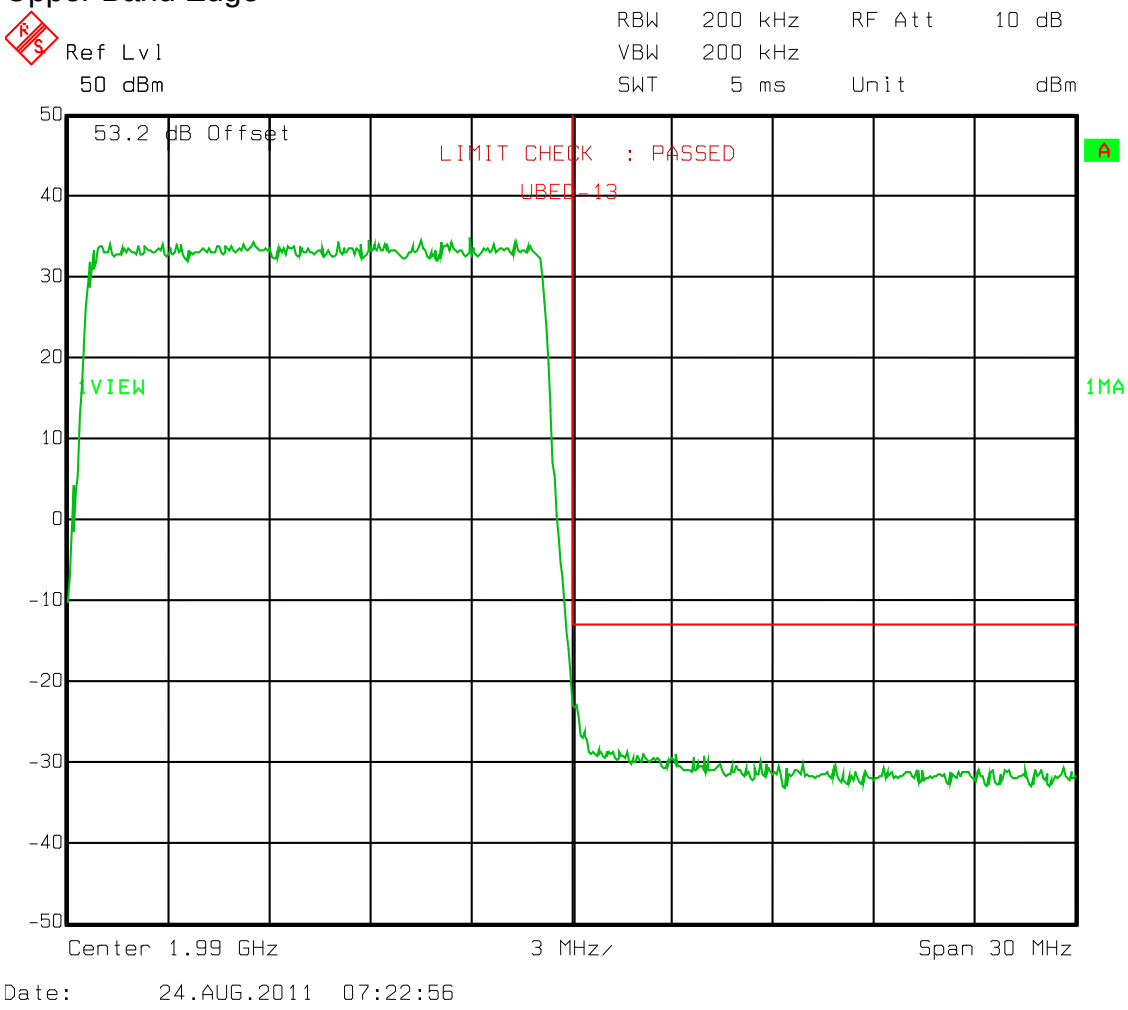
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
QPSK
Low Band Edge



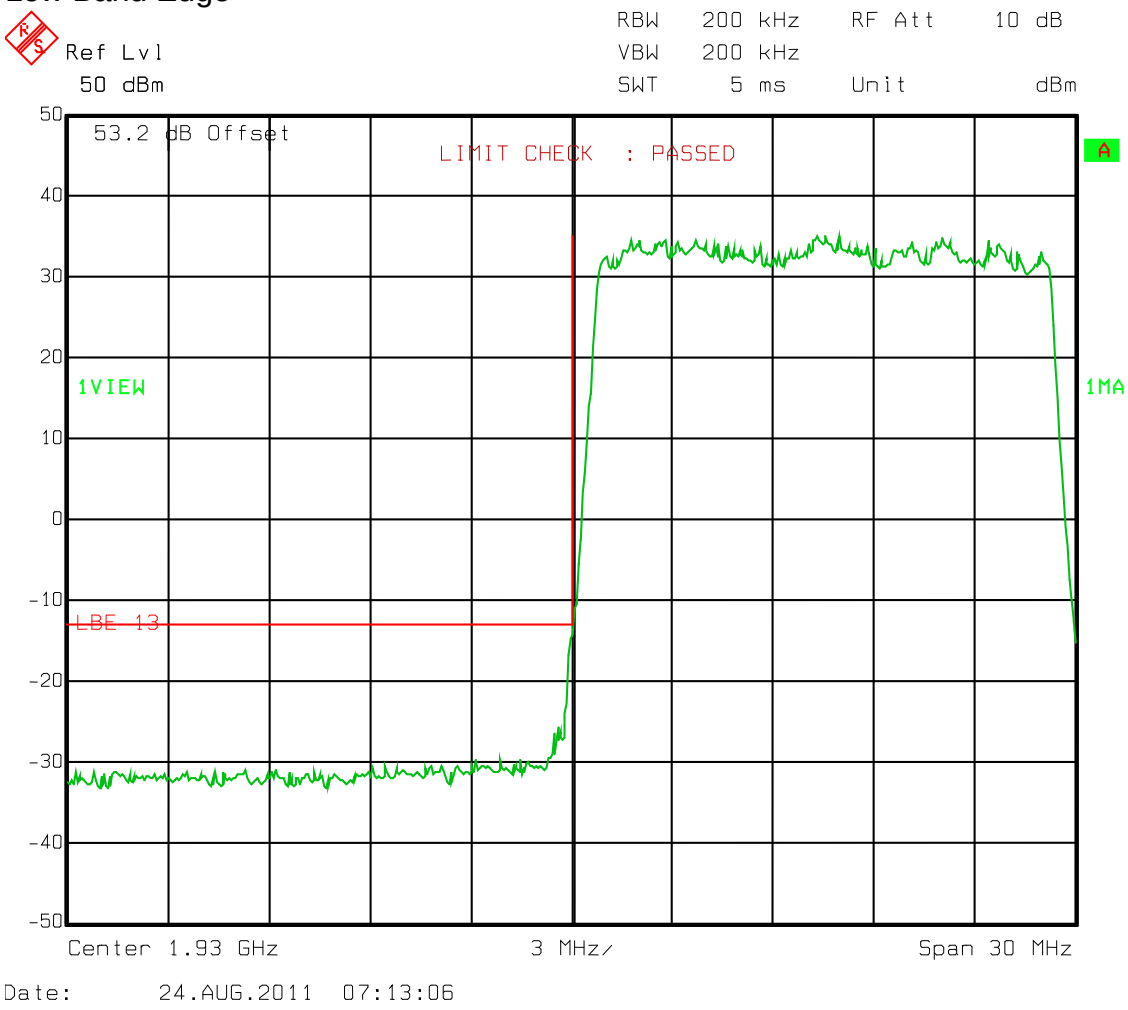
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
QPSK
Upper Band Edge



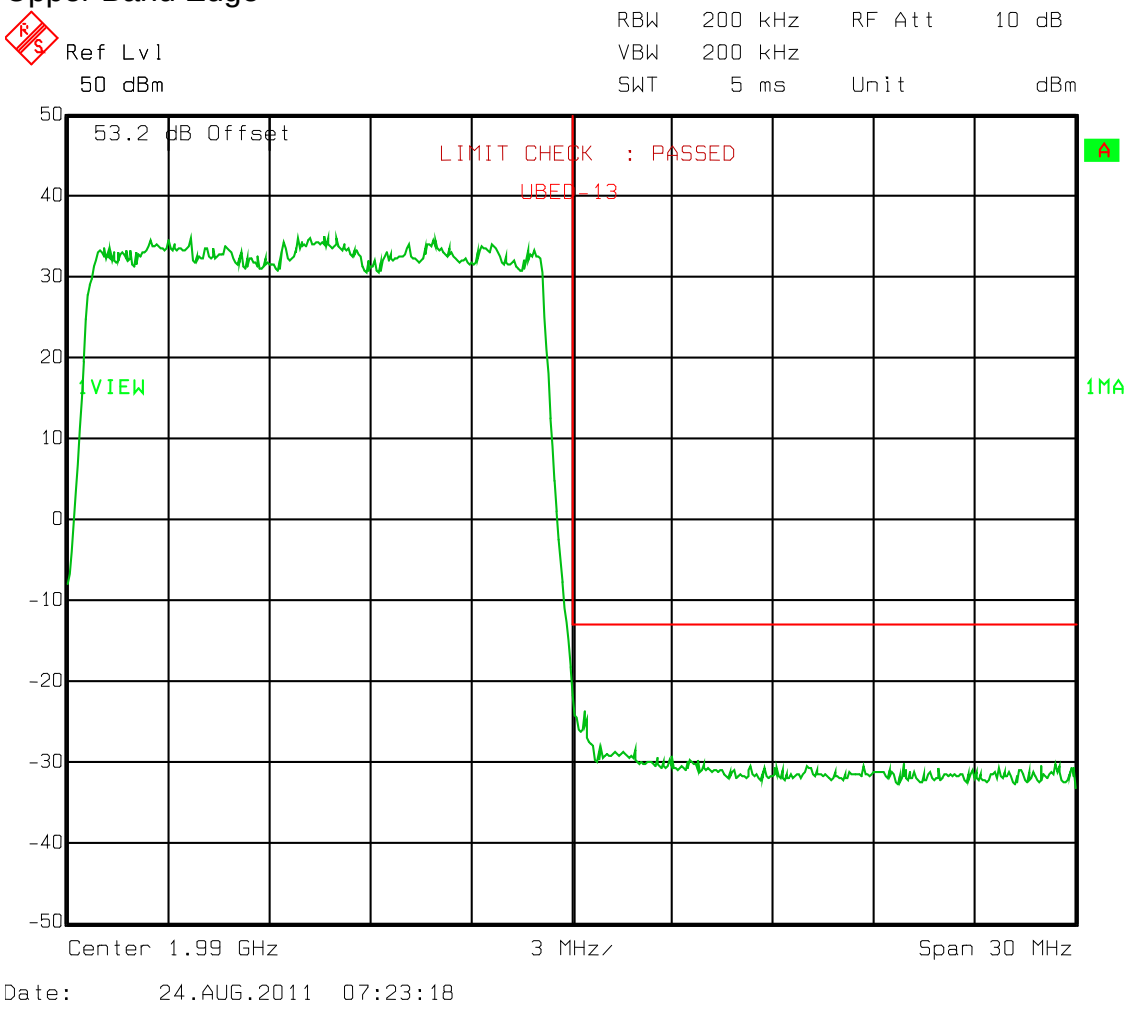
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
16 QAM
Low Band Edge



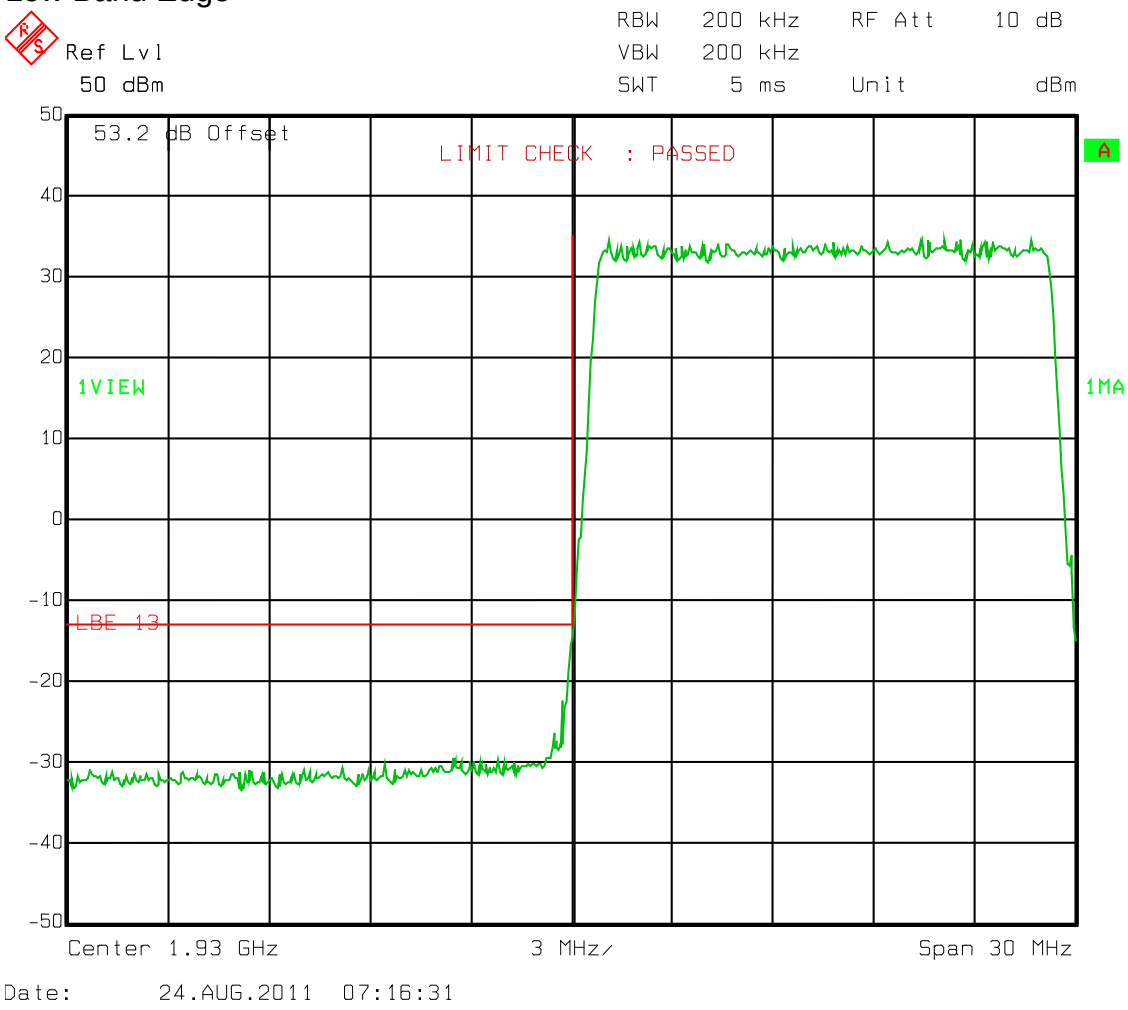
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
16 QAM
Upper Band Edge



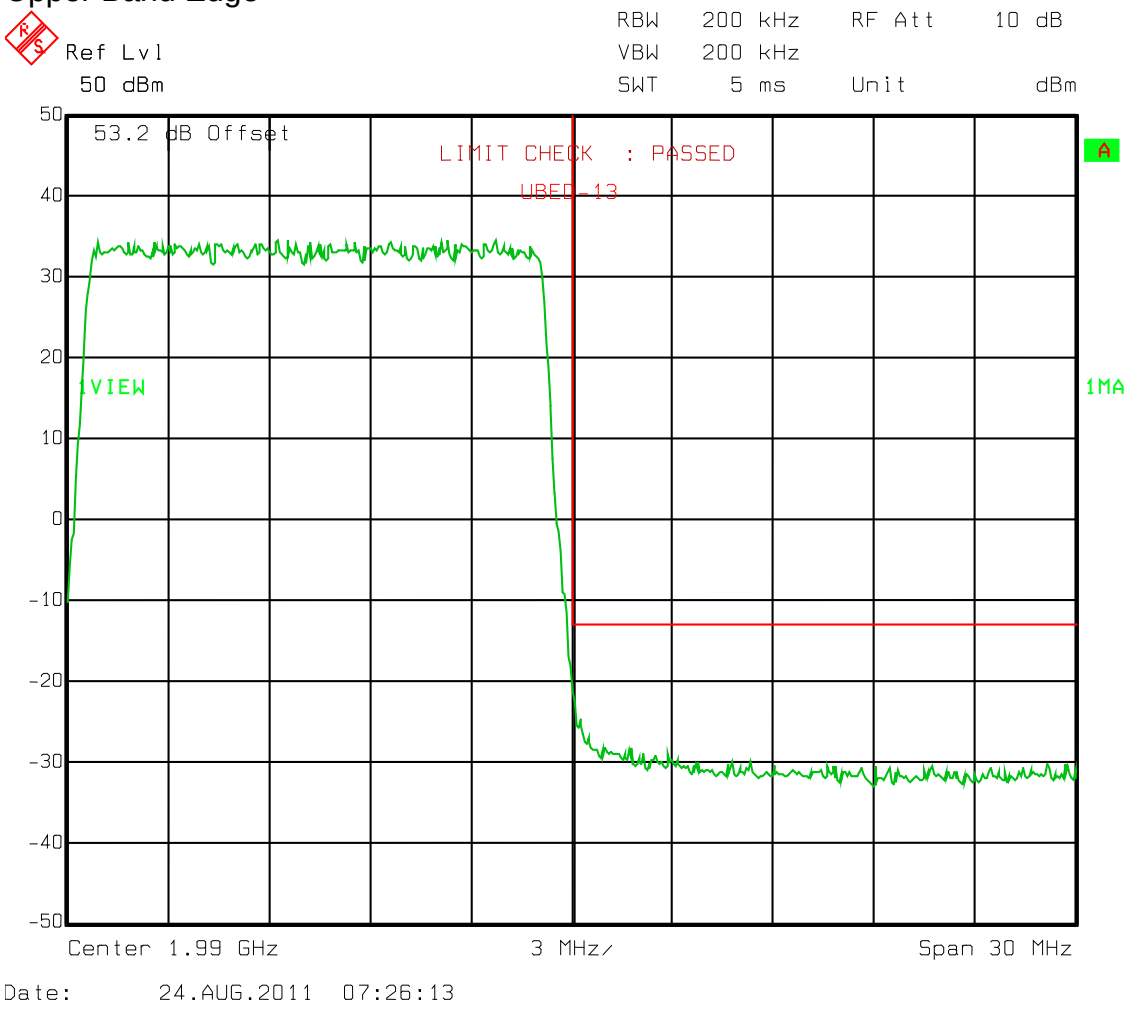
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
64 QAM
Low Band Edge



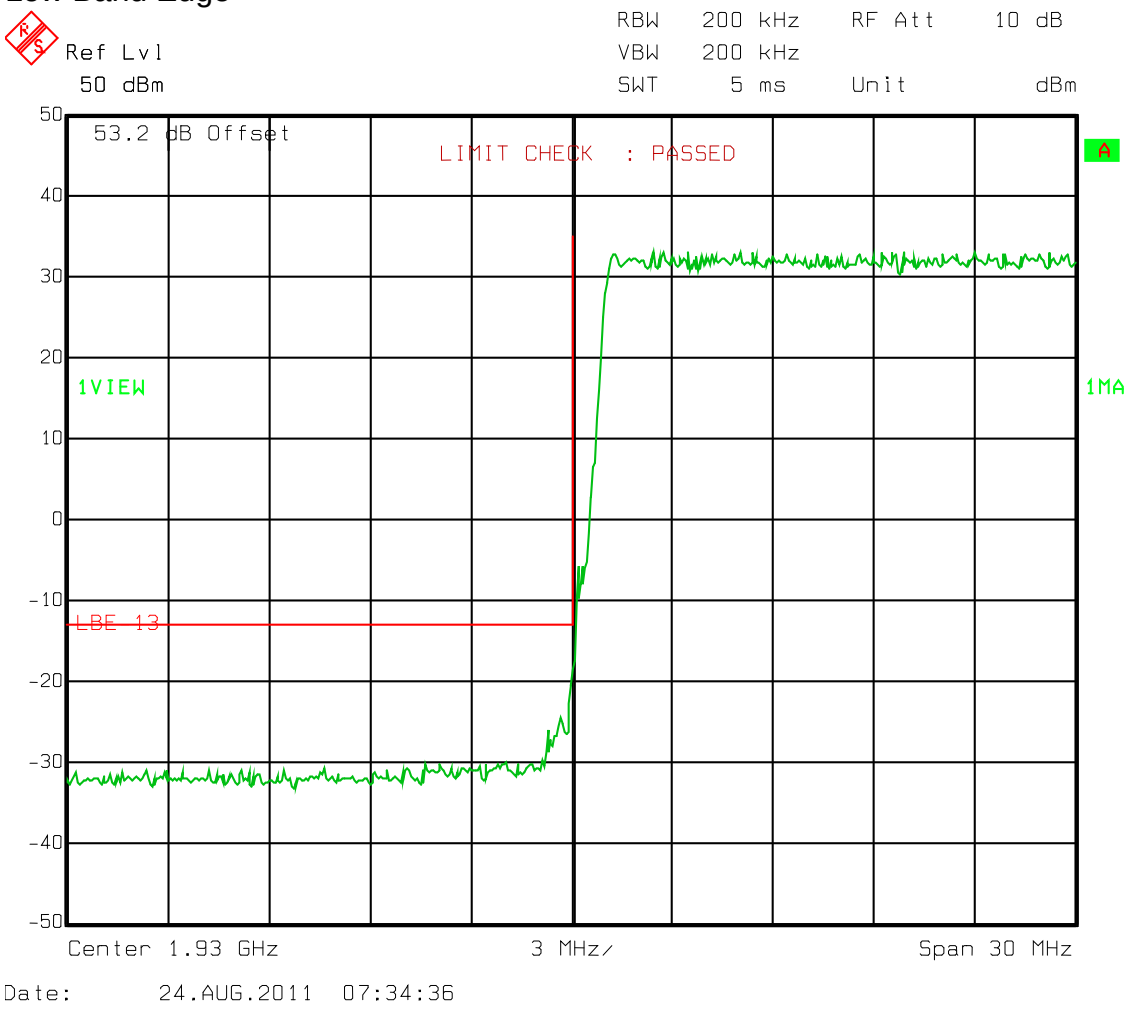
Test Data – Spurious Emissions (August 2011)

15 MHz Channel
64 QAM
Upper Band Edge



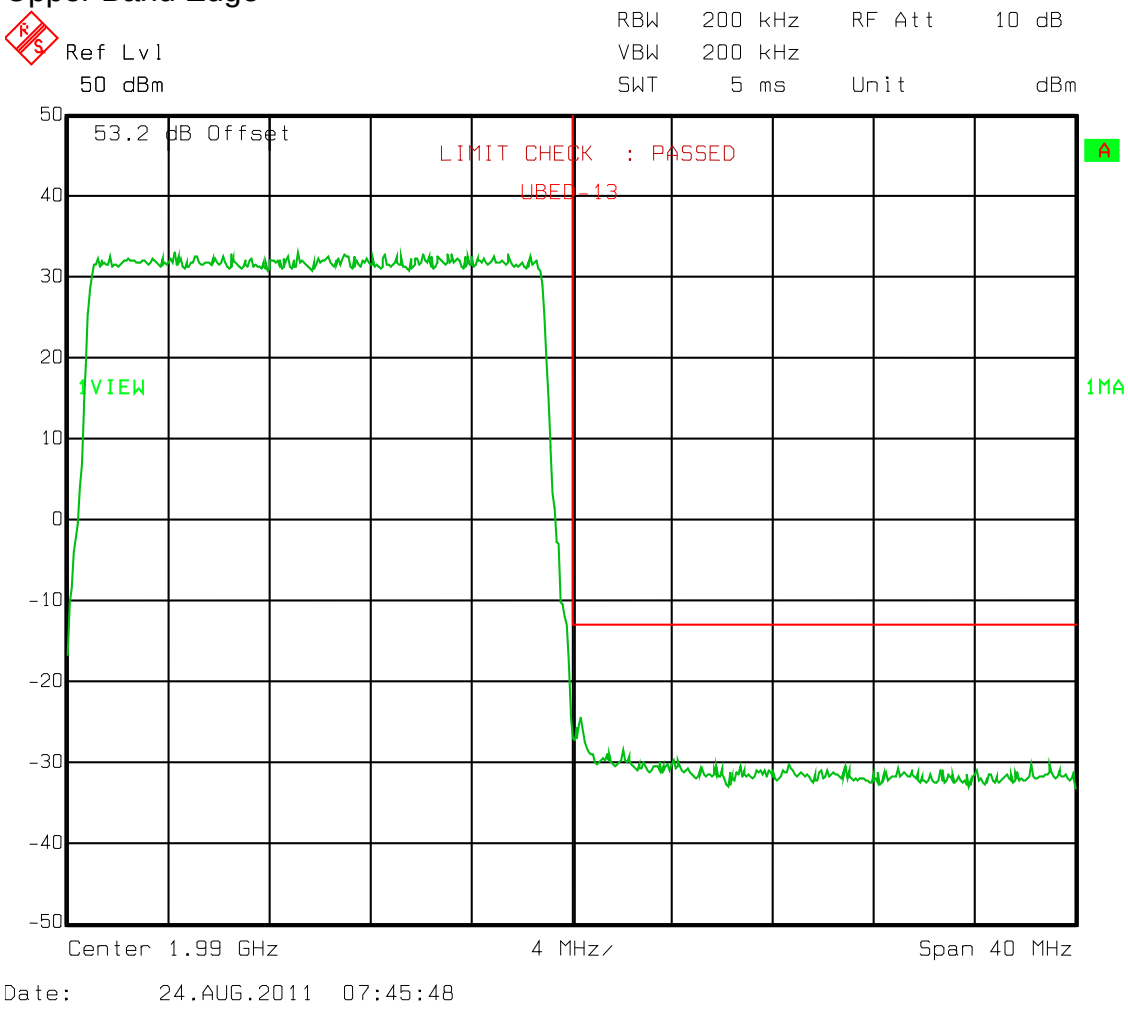
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
QPSK
Low Band Edge



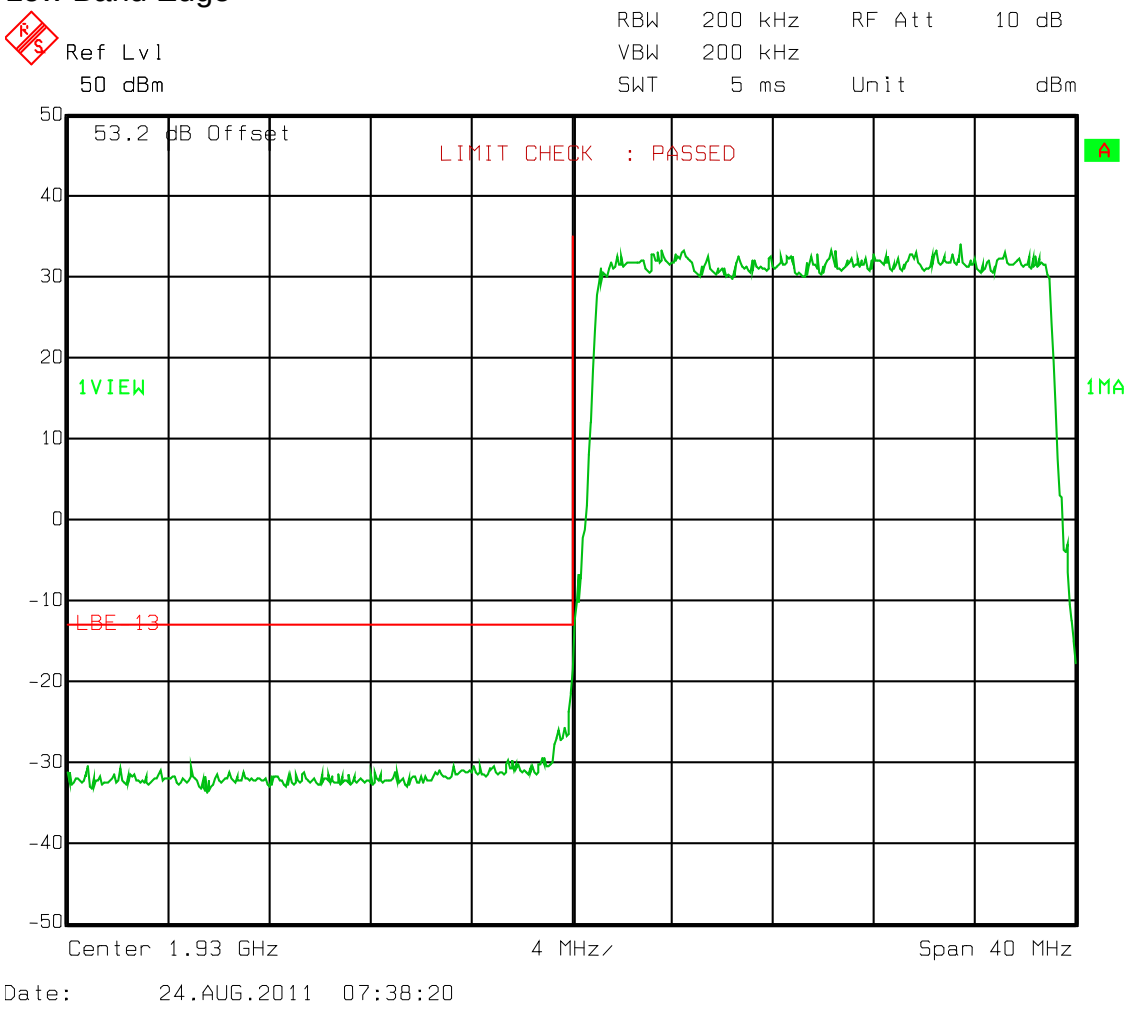
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
QPSK
Upper Band Edge



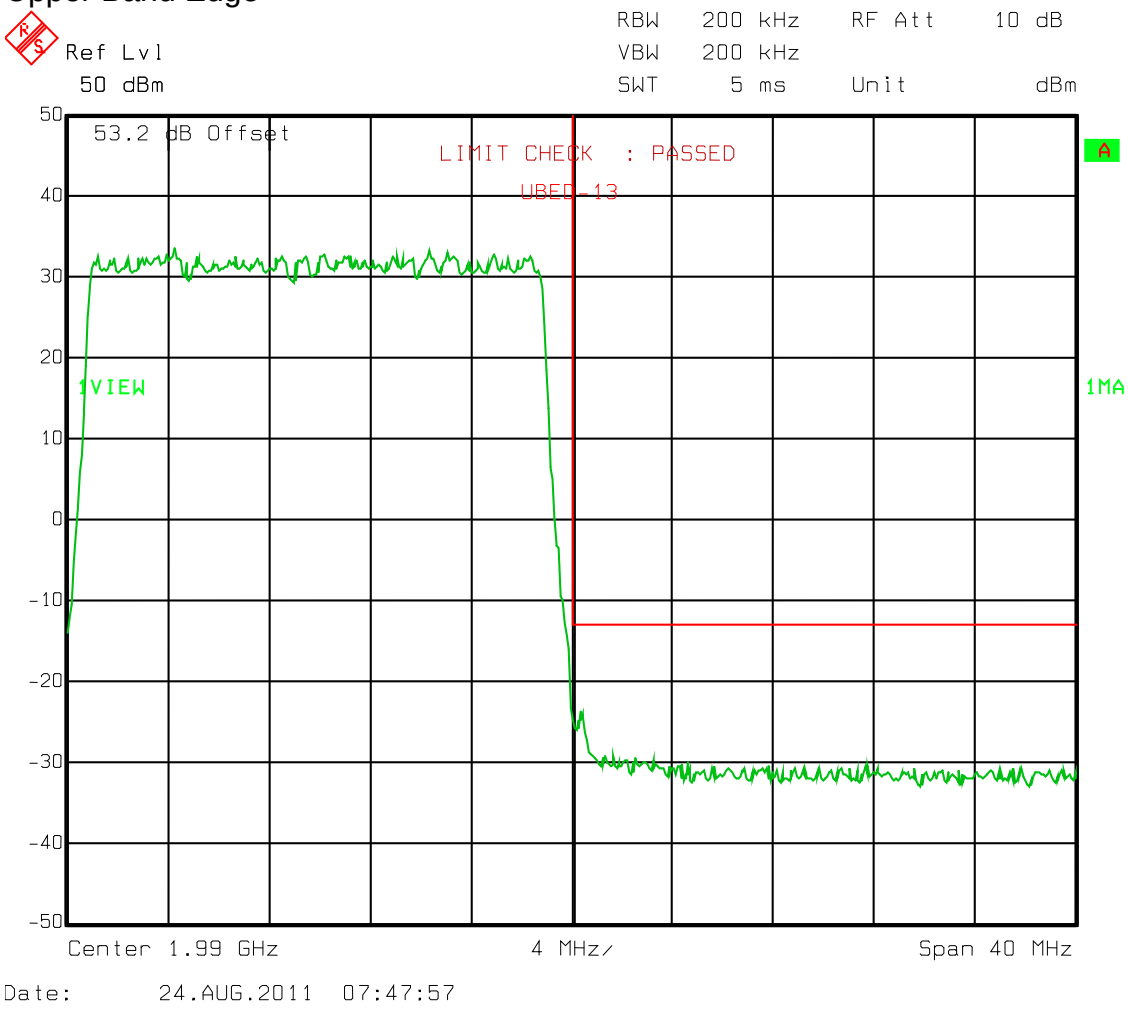
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
16 QAM
Low Band Edge



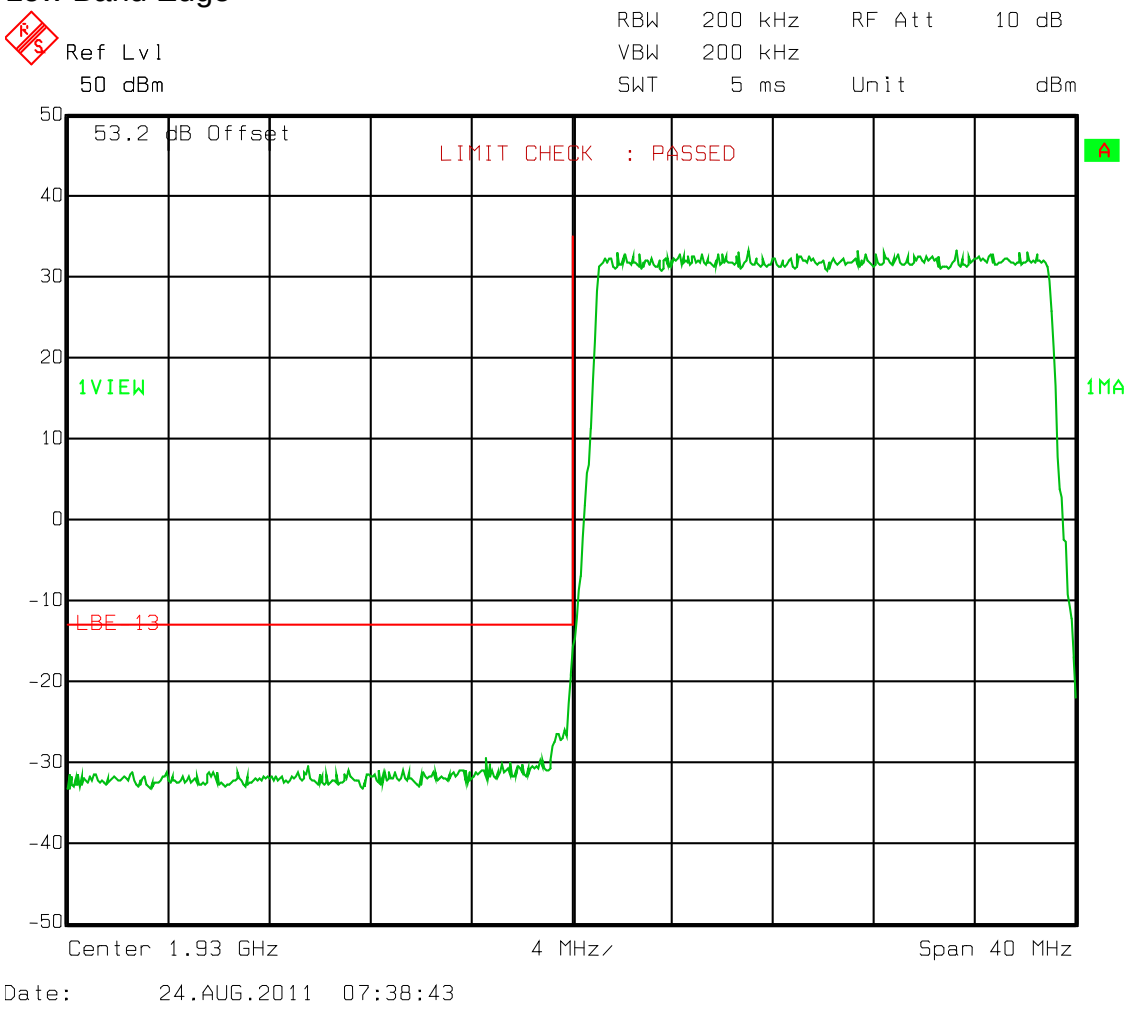
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
16 QAM
Upper Band Edge



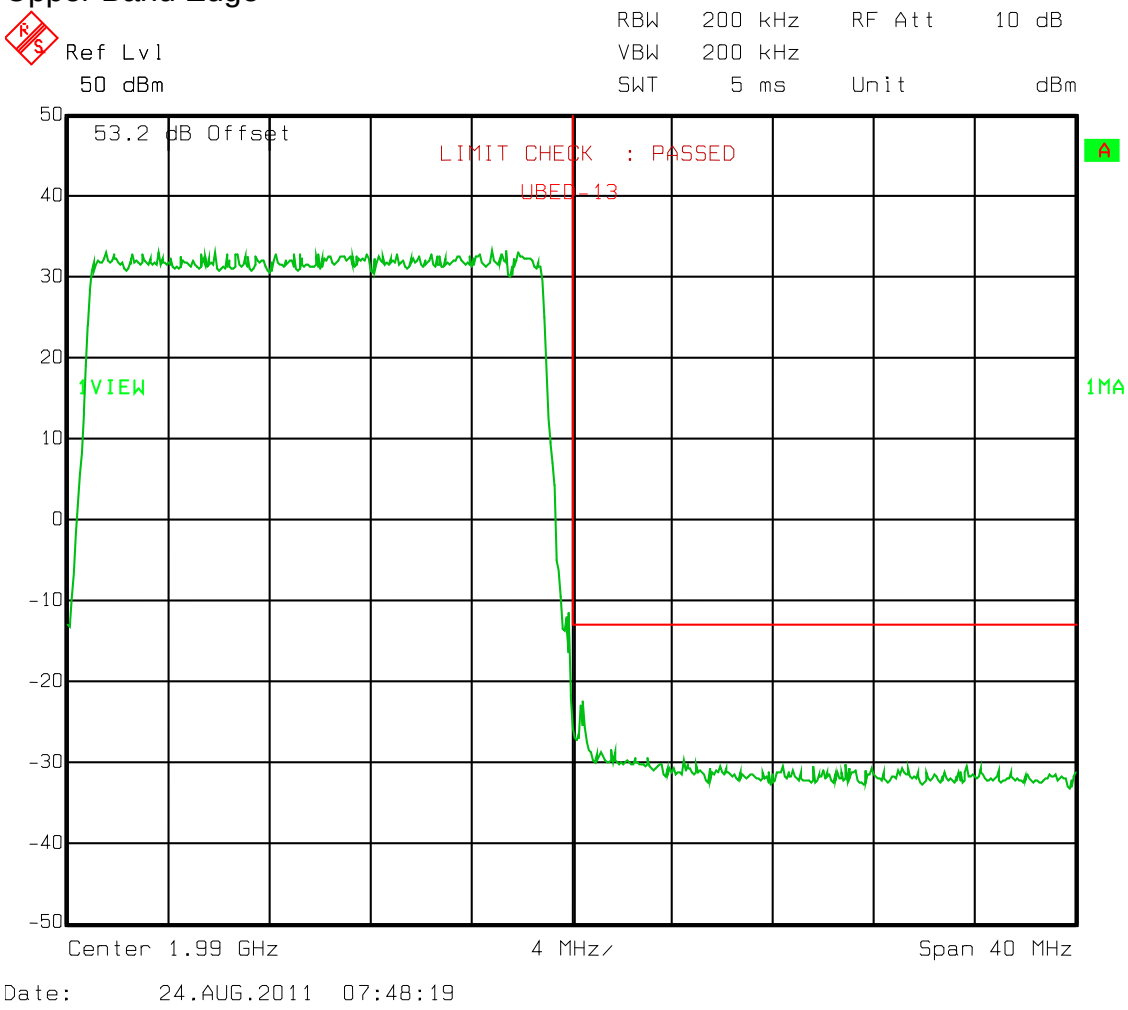
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
64 QAM
Low Band Edge



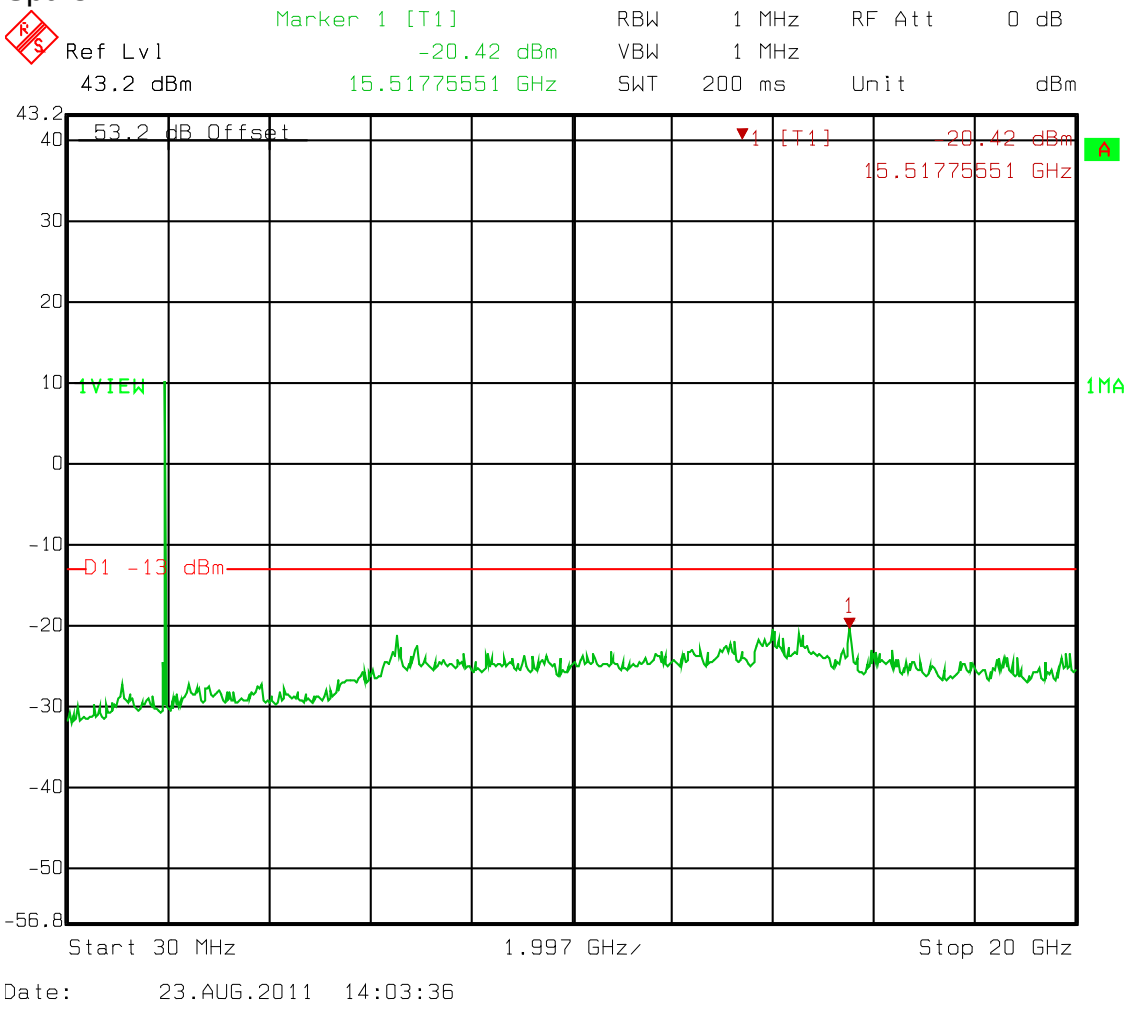
Test Data – Spurious Emissions (August 2011)

20 MHz Channel
64 QAM
Upper Band Edge



Test Data – Spurious Emissions (August 2011)

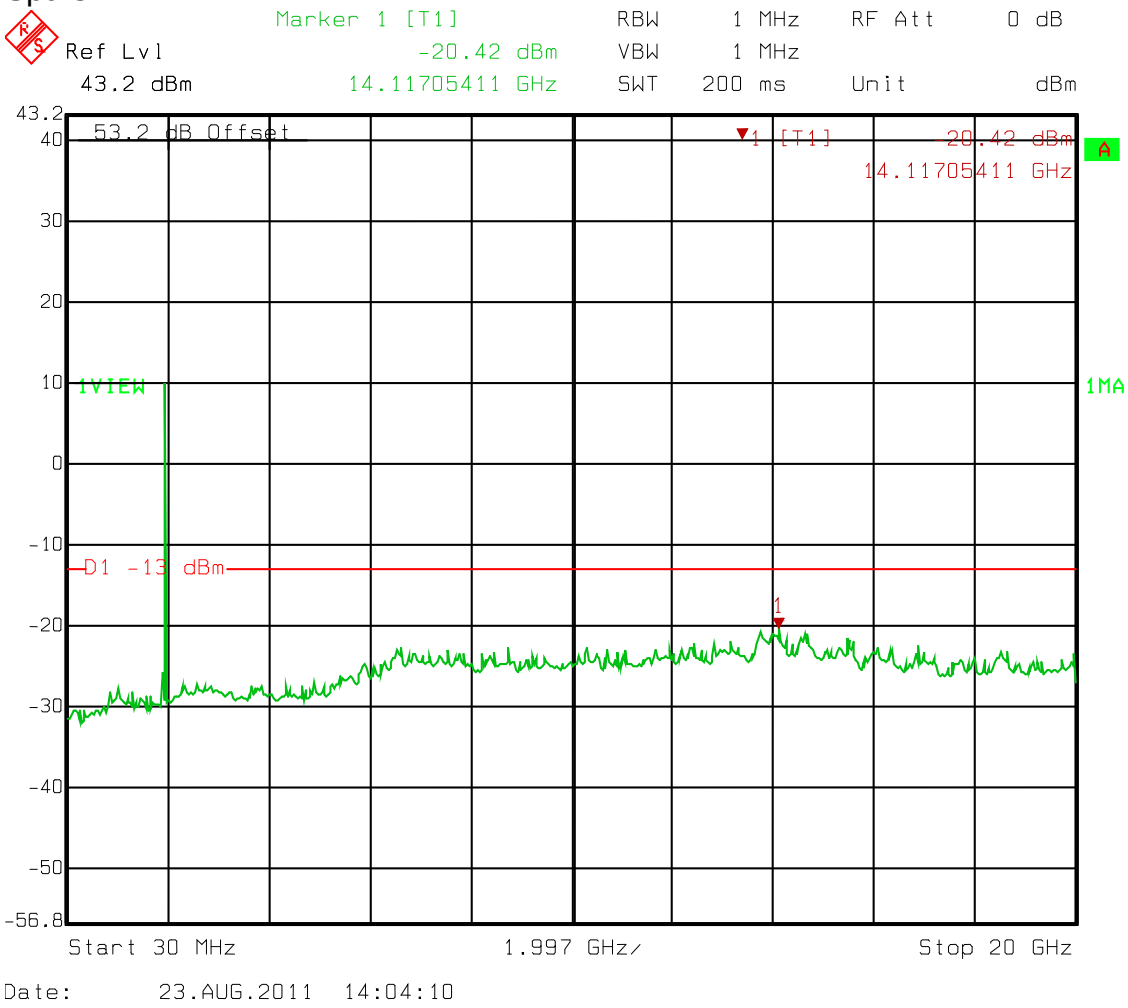
QPSK
Spurs



Carrier notched.

Test Data – Spurious Emissions (August 2011)

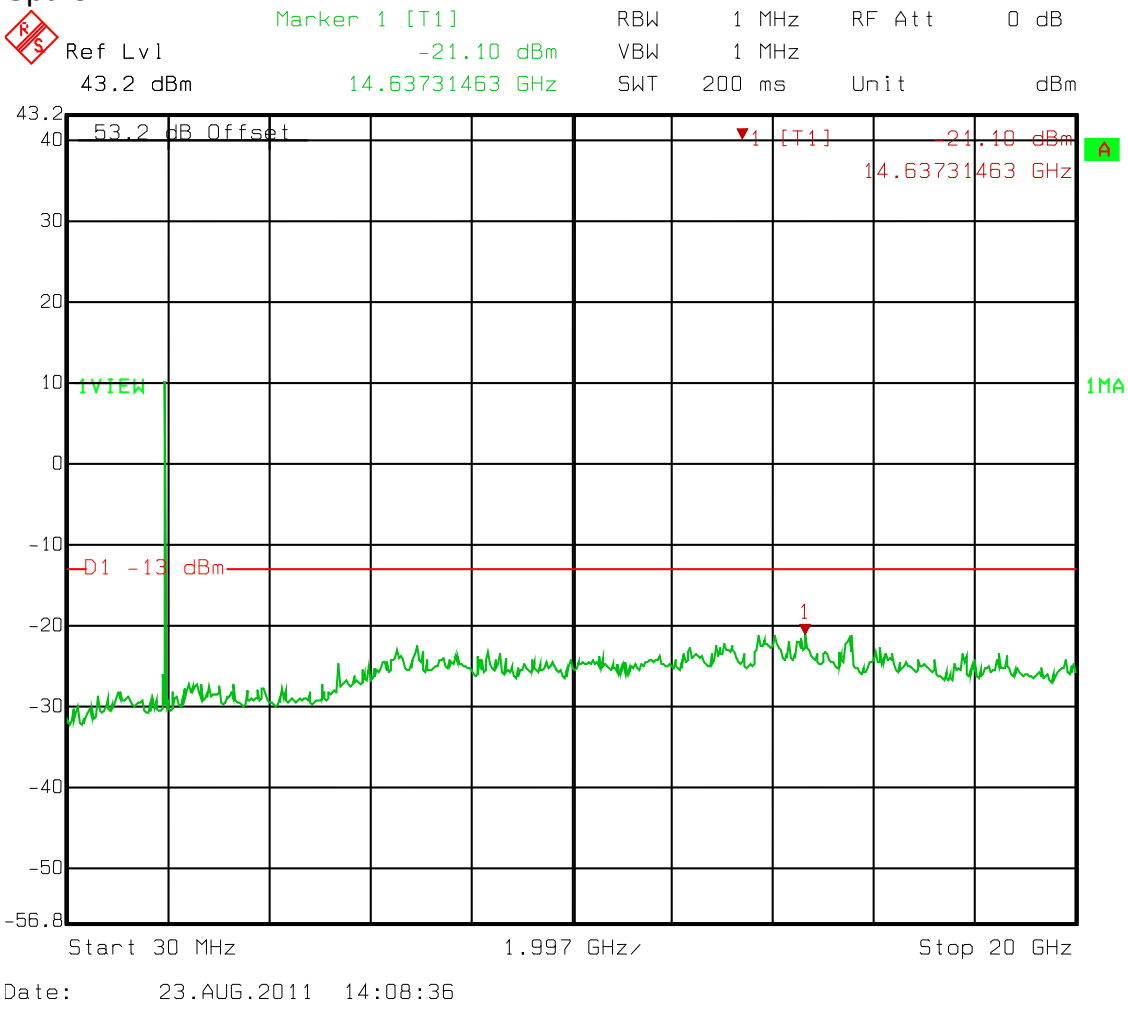
16 QAM
Spurs



Carrier notched.

Test Data – Spurious Emissions (August 2011)

64 QAM
Spurs



Carrier notched.

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: 21 April 2011

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: 1783-1763-1025-1016-993-1767

Measurement Uncertainty: +/- 1.7 dB

Temperature: 23 °C

Relative Humidity: 40 %

Section 7. Frequency Stability

NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055 RSS 133 PARA. 6.3
TESTED BY: David Light	DATE: : 25 April 2011

Test Results: Complies

Measurement Data: Standard Test Frequency: 1960 MHz
Standard Test Voltage: -48 Vdc

Equipment Used: 1767-1082-1064-1065

Measurement Uncertainty: +/- 1.7 dB

Temperature: 23 °C

Relative Humidity: 40 %

Test Data – Frequency Stability

Temp (^{O}C)	Measured Frequency (MHz)	Rho	Test Voltage	Freqeuncy Error (Hz)	Limit (+/-Hz)	Error (ppm)	Comment
20	1960.000161	0.9999	-48.0	161	1960.0	0.1	
20	1960.000183	0.9999	-55.2	183	1960.0	0.1	
20	1960.000160	0.9999	-40.8	160	1960.0	0.1	
50	1960.000103	0.9999	-48.0	103	1960.0	0.1	
40	1960.000121	0.9999	-48.0	121	1960.0	0.1	
30	1960.000115	0.9999	-48.0	115	1960.0	0.1	
10	1960.000105	0.9999	-48.0	105	1960.0	0.1	
0	1960.000101	0.9999	-48.0	101	1960.0	0.1	
-10	1960.000099	0.9999	-48.0	99	1960.0	0.1	
-20	1960.000112	0.9999	-48.0	112	1960.0	0.1	
-30	1960.000103	0.9999	-48.0	103	1960.0	0.1	
Notes:							

Section 8. Test Equipment List

Test Equipments List for Aprilt 2011 Testing

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
993	Antenna, Horn	A.H. Systems	SAS-200/571	162	09-Sep-2009	09-Sep-2011
1016	Preamplifier	Hewlett Packard	8449A	2749A00159	19-Jun-2010	19-Jun-2011
1025	Preamplifier, 25dB	Nemko USA, Inc.	LNA25	399	23-Feb-2011	23-Feb-2012
1054	Directional Coupler, Dual	Narda	3020A	34366	N/R	
1064	Attenuator	Narda	776B-20		N/R	
1065	Attenuator	Narda	776B-10		N/R	
1082	Cable, 2m	Astrolab	32027-2-29094-72TC		N/R	
1763	Antenna, Bilog	Schaffner	CBL 6111D	22926	11-Feb-2011	11-Feb-2012
1767	Receiver,	Rohde & Schwartz	ESIB26	837491/0002	01-Dec-2010	01-Dec-2011
1783	Cable Assy, 3m Chamber	Nemko	Chanmber		04-Oct-2010	04-Oct-2011
2071	Power Sensor	Agilent	E9304A	MY41495174	12-Oct-2010	12-Oct-2011
2072	Power Meter	Hewlett Packard	E4418B	GB39401848	23-Sep-2010	23-Sep-2011

Test Equipments List for August 2011 Testing

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
1054	Directional Coupler, Dual	Narda	3020A	34366	N/R	
1064	Attenuator	Narda	776B-20		N/R	
1065	Attenuator	Narda	776B-10		N/R	
1082	Cable, 2m	Astrolab	32027-2-29094-72TC		N/R	
1763	Antenna, Bilog	Schaffner	CBL 6111D	22926	11-Feb-2011	11-Feb-2012
1767	Receiver,	Rohde & Schwartz	ESIB26	837491/0002	01-Dec-2010	01-Dec-2011

ANNEX A - TEST DETAILS

NAME OF TEST: RF Power Output **PARA. NO.: 2.1046**

Minimum Standard: Para. No.24.232. Base stations with an emission bandwidth of 1 MHz or less are limited to 1640 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

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**

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: 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.

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: ≥ 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: ≥ 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: ≥ 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

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.

NAME OF TEST: Frequency Stability **PARA. NO.: 2.1055**

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

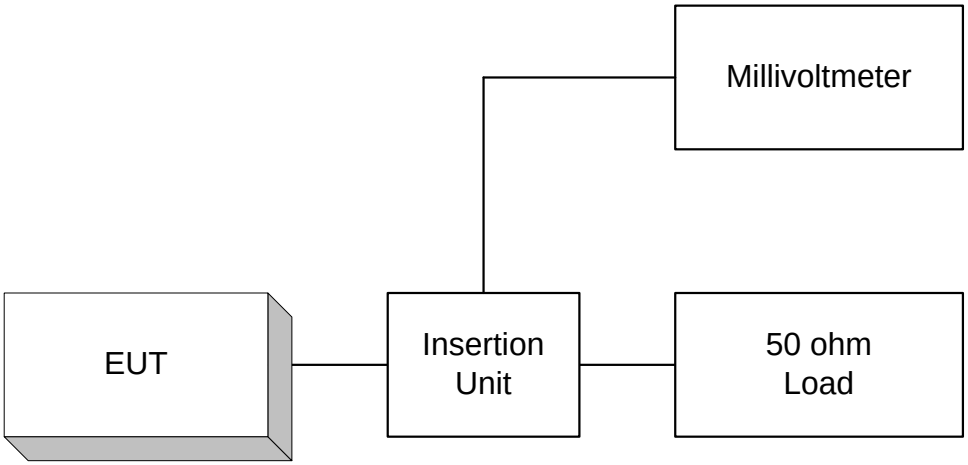
The E.U.T. is placed in an environmental chamber and allowed to stabilize at +20 degrees Celsius for at least 15 minutes. With the voltage input to the E.U.T. set to 85% S.T.V., the frequency is measured in 30 second intervals for a period of 5 minutes. This procedure is repeated at 100% S.T.V. and 115%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

Frequency Stability With Temperature Variation

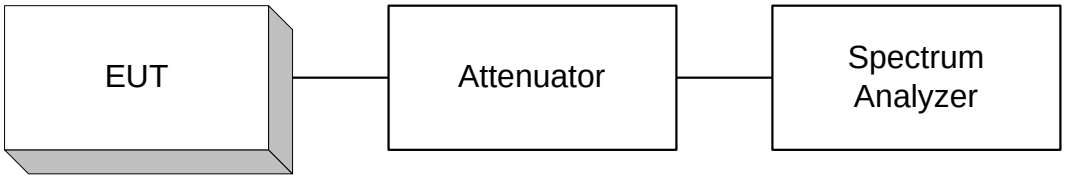
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

ANNEX B - TEST DIAGRAMS

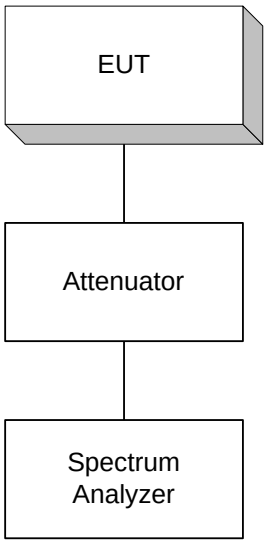
Para. No. 2.985 - R.F. Power Output



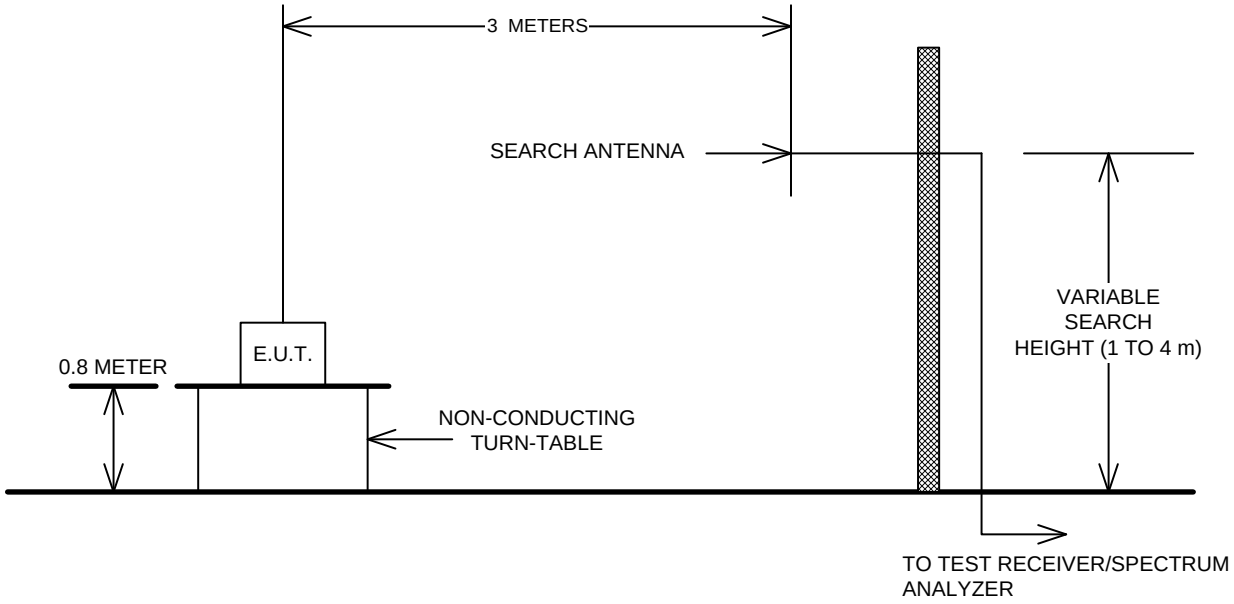
Para. No. 2.989 - Occupied Bandwidth



Para. No. 2.991 Spurious Emissions at Antenna Terminals



Para. No. 2.993 - Field Strength of Spurious Radiation



Para. No. 2.995 - Frequency Stability