Nemko Test Report:	6L0661RUS1
Applicant:	Motorola 1475 W. Shure Drive Arlington Heights, IL 60004 USA
Equipment Under Test:	WAP25400 MOTOwi4™ Diversity Access Point @ 2.5 GHz
In Accordance With:	**FCC PART 27, Subpart M** Broadband Radio Service and Educational Broadband Service
Tested By:	Nemko USA Inc. 802 N. Kealy Lewisville, Texas 75057-3136

TESTED BY: _____ DATE: 11/14/06

Kevin Rose Wireless Engineer

APPROVED BY: _____ DATE: 11/14/06

David Light, Senior Wireless Engineer

Total Number of Pages: 37

NVLAP®
LAB CODE: 100426-0

Table of Contents

Section 1. Summary of Test Results

Manufacturer: Motorola

Model No.: WAP25400 MOTOwi4™ Diversity Access Point @ 2.5 GHz

Serial No.: None

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 27,

☒ 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. NONE

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC. LIMIT	RESULT
RF Power Output	2.1046	33 dBW + 10log(X/Y) dBW	Complies
Occupied Bandwidth	2.1049	Not Specified	Complies
Spurious Emissions @ Antenna Terminals	2.1051	-13 dBm	Complies
Field Strength of Spurious Radiation	2.1053	-13 dBm	Complies
Frequency Stability	2.1055	Must remain within authorized bandwidth	Complies Note 1

Note 1:Customer provides Frequency Stability in separate exhibit labeled: 5_IHET7GT1_frequency stability-_Test_Report.

Section 2. General Equipment Specification

Power Supply	54 Vdc
Frequency Range	2498.5 to 2687.5MHz (center to center) 5MHz
Frequency Range Operating Frequencies	2501 to 2685MHz (center to center) 10MHz

Type(s) of Modulation:

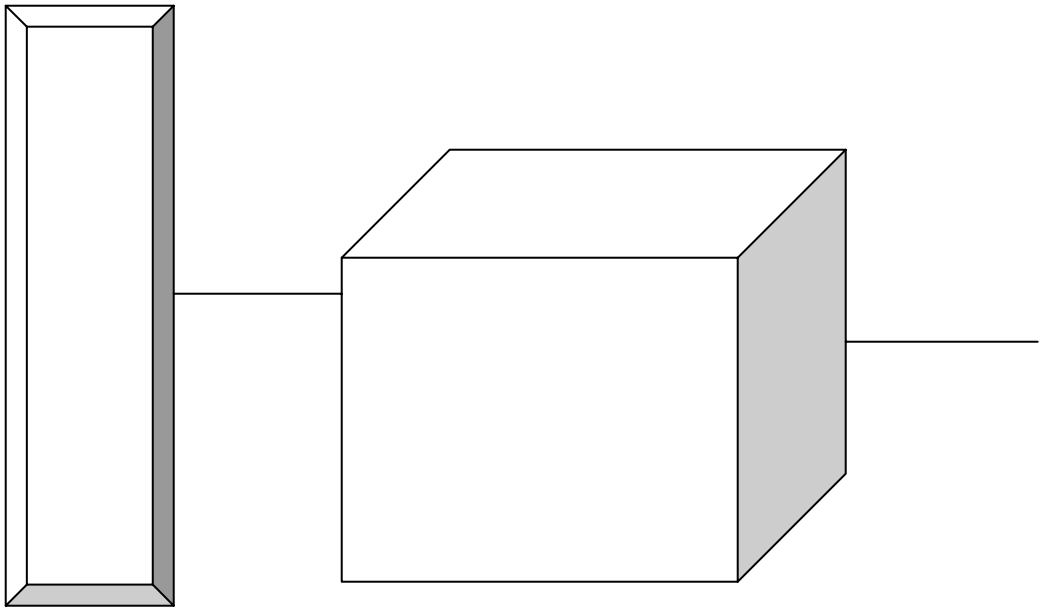
F3E (Voice)	F1D	F2D	W7D	F9W
☐	☐	☐	☒	☐

Emission Designator	10M0W7D and 5M00W7D
Output Impedance:	50 ohms
RF Power Output:	30dBm Conducted
Duty Cycle:	75% to 30% on" or 75% on (max)
Selection Of Operating Frequency:	Selectable by operator
Power Output Adjustment Capability:	18.25dBm minimum power

Description of EUT

The WAP25400 MOTOwi4™ Diversity Access Point @ 2.5 GHz is a Base station transceiver.

System Diagram



Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: Kevin Rose	DATE: October 24, 2006

Test Results: Complies

Measurement Data: See Tables.

Test Equipment: 1036-1529-1604-1602

MAX RF POWER OUTPUT
10MHZ Mode

Freq	RMS Power (dBm)
2501	30.06
2595	30.15
2685	30.59

5MHZ Mode

Freq	RMS Power (dBm)
2498.5	30.19
2597.5	30.24
2687.5	30.88

RBW/VBW=10MHz/10MHz

Section 4. Occupied Bandwidth

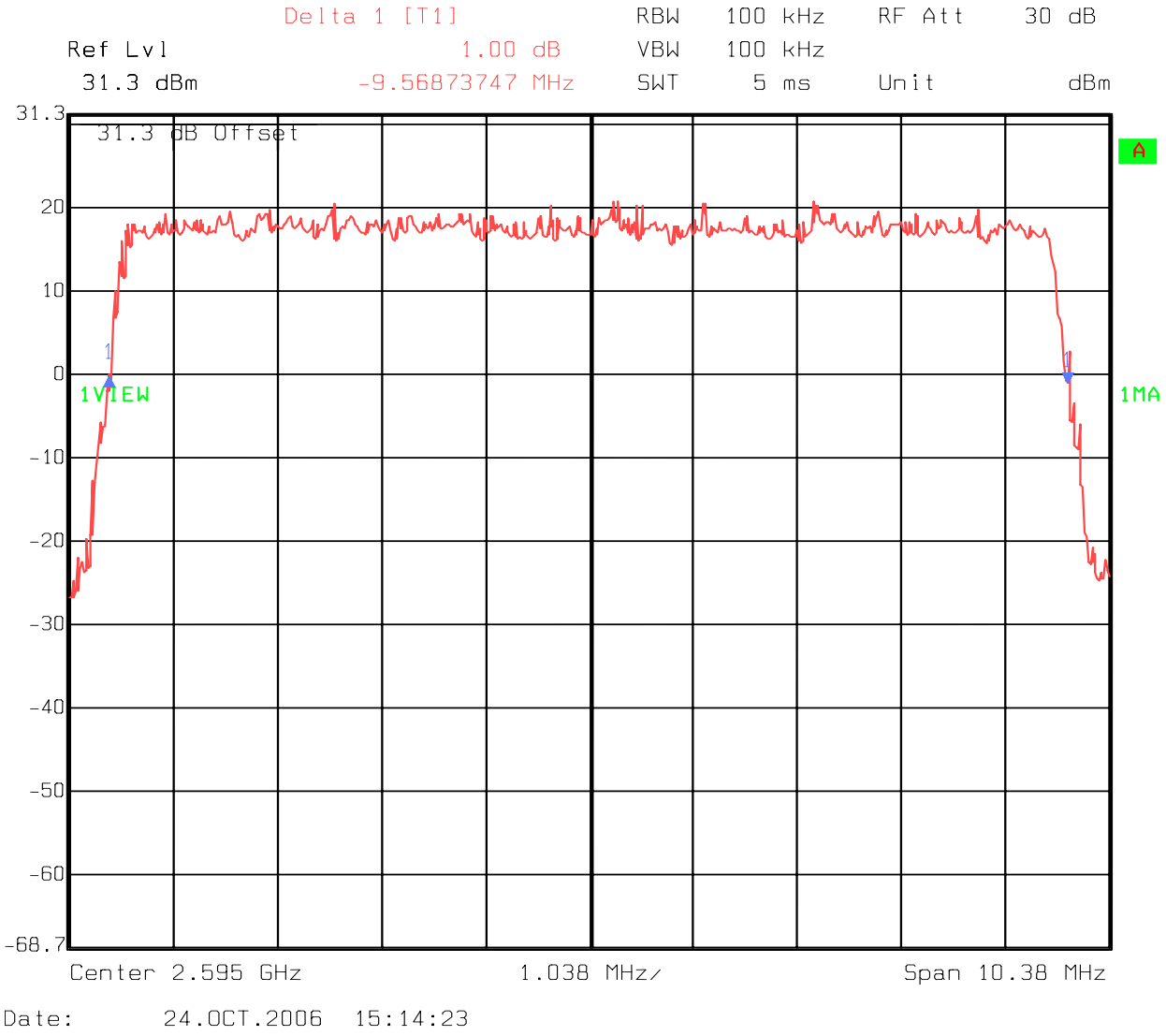
NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: Kevin Rose	DATE: October 24, 2006

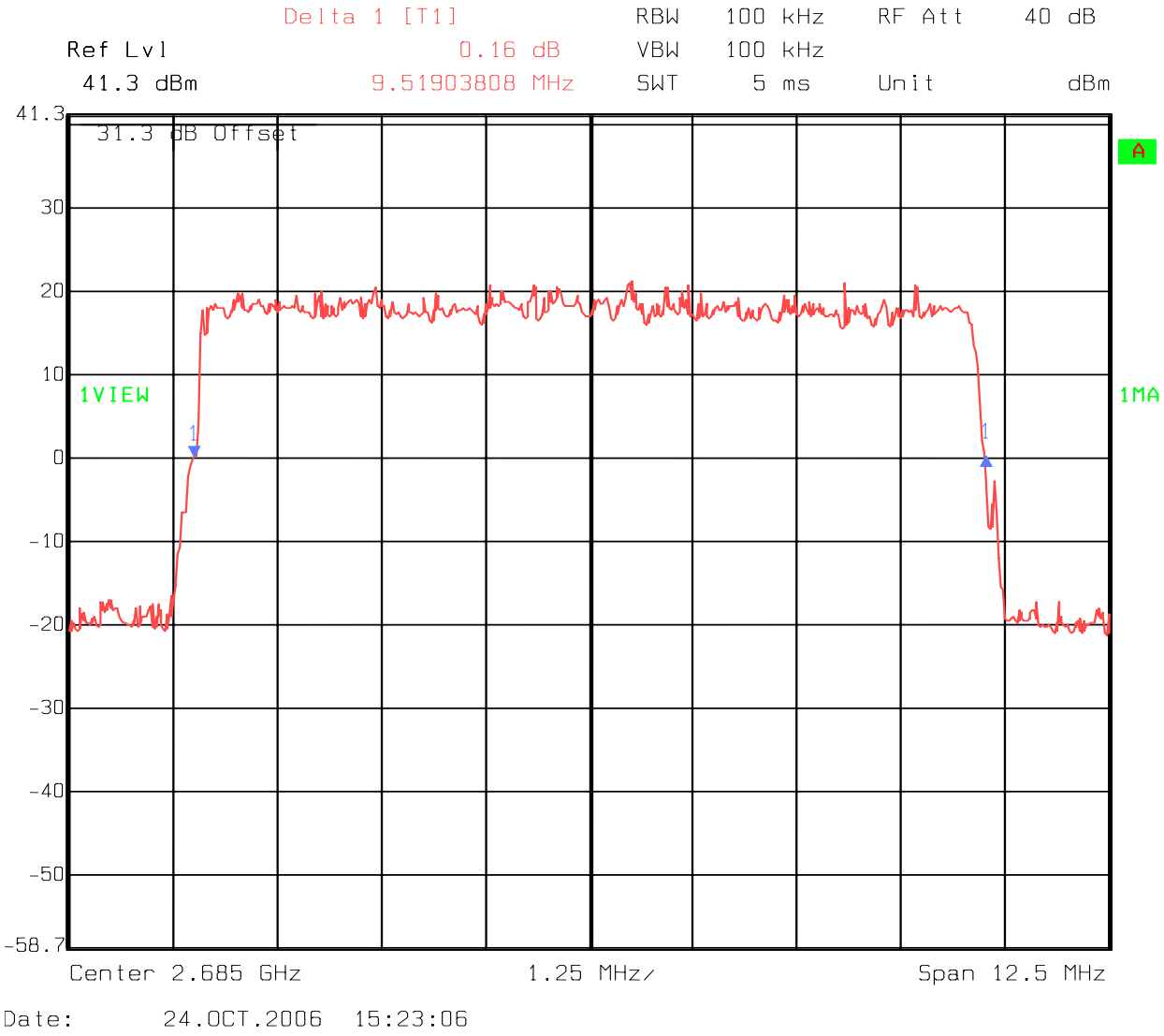
Test Results: Complies

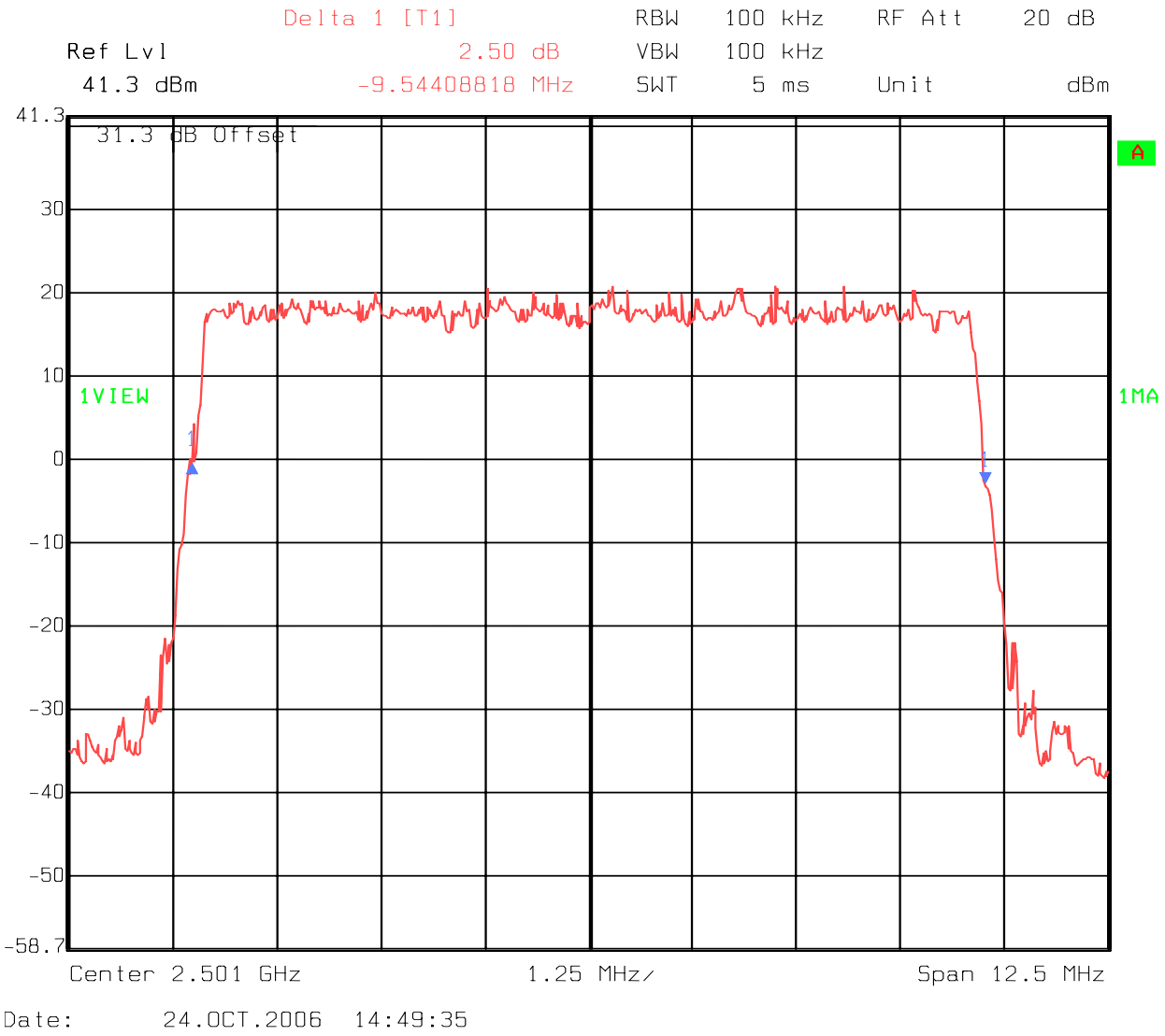
Measurement Data: See attached plots.

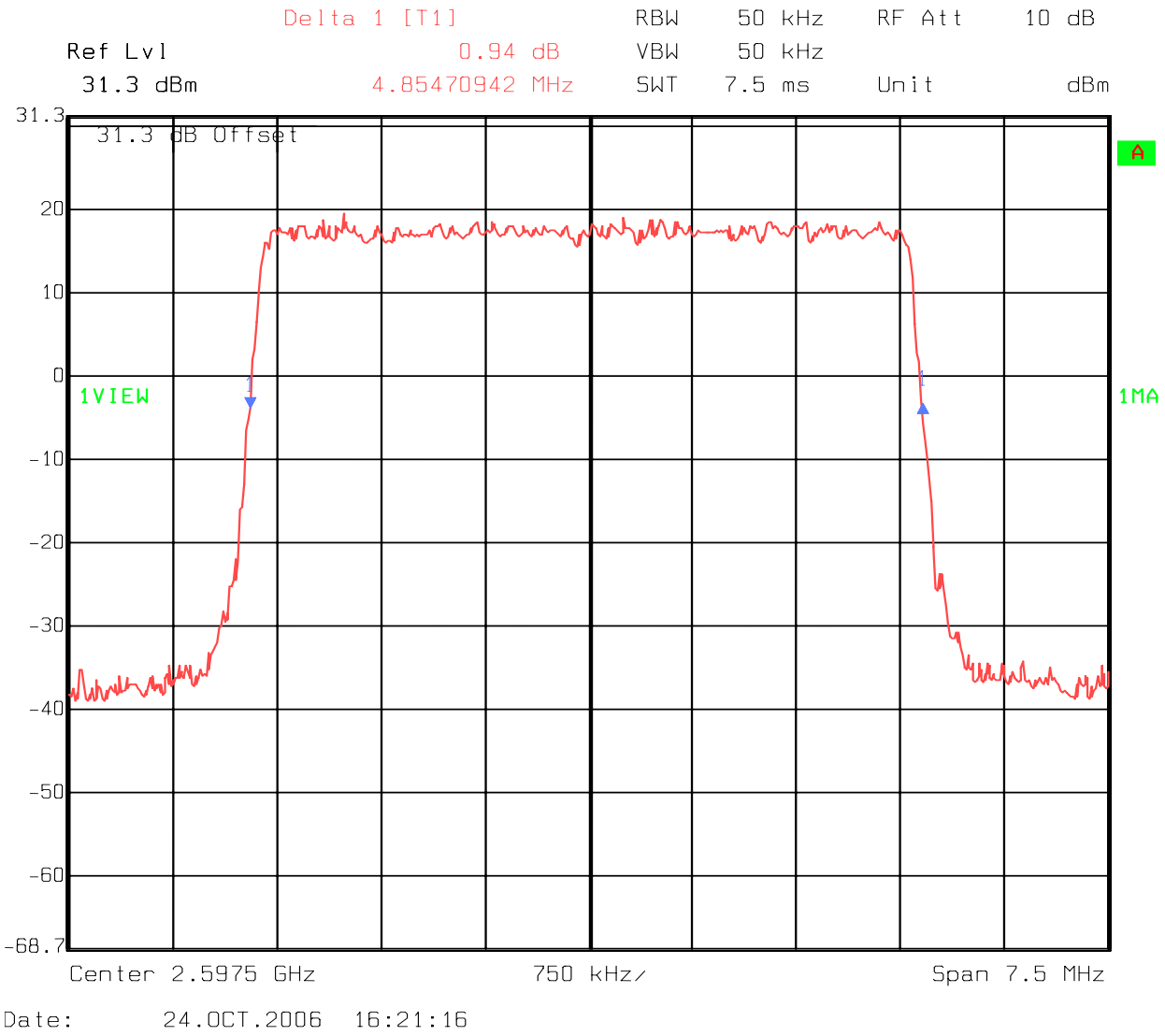
Test Equipment: 1036-1529-1604-1602

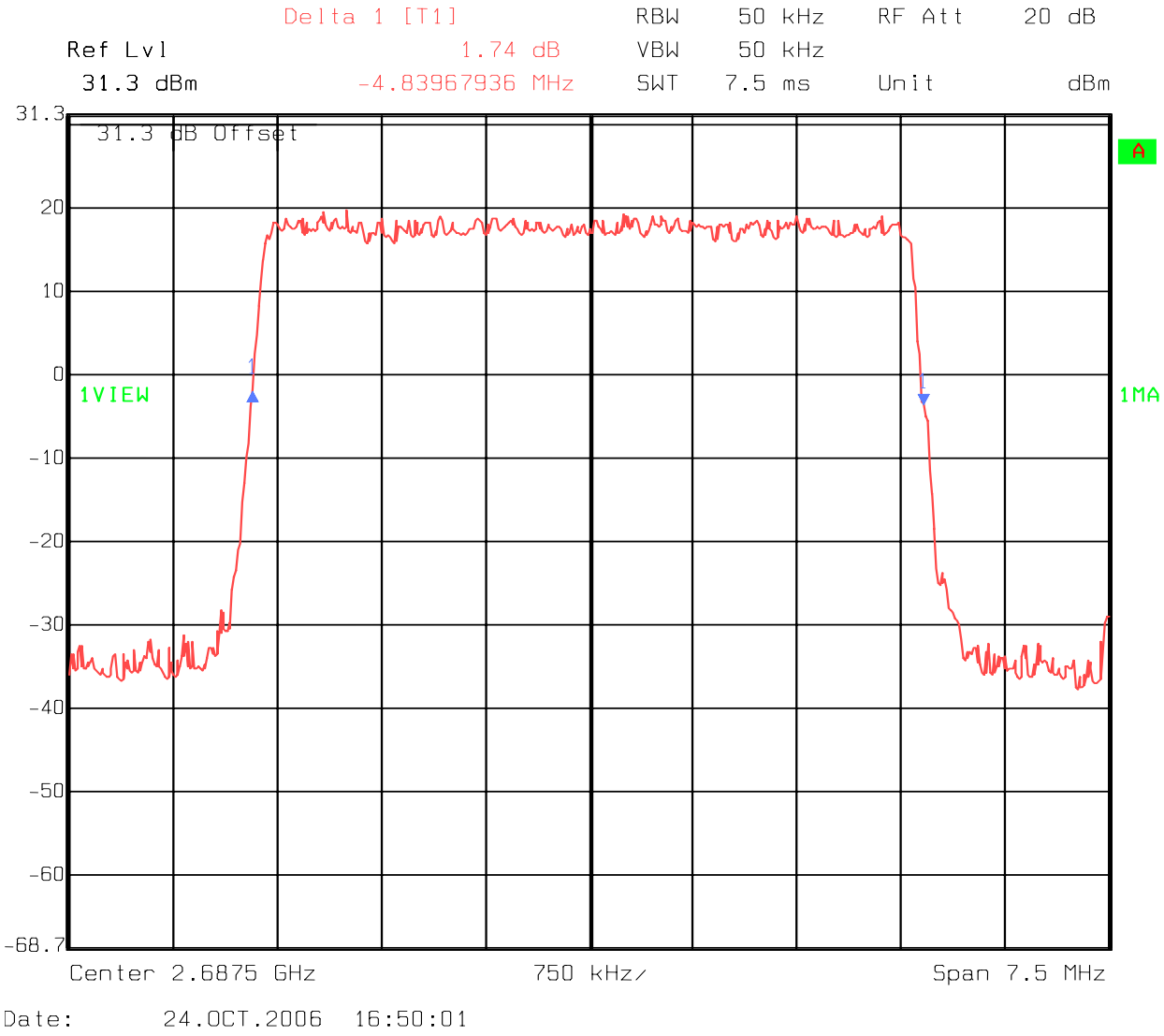
Test Data – Occupied Bandwidth

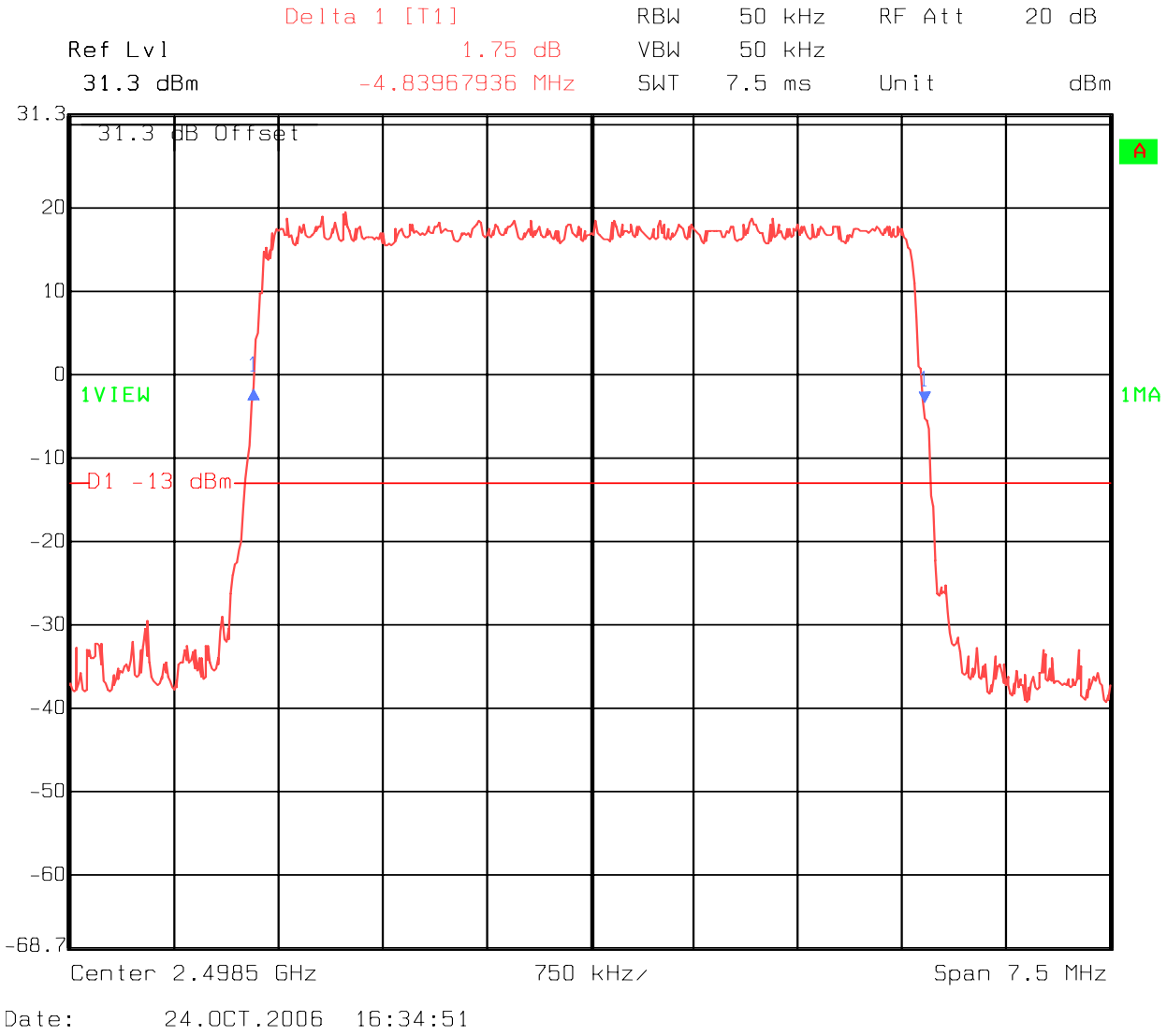



Delta 1 [T1]
0.16 dB
9.51903808 MHz
RBW 100 kHz
VBW 100 kHz
SWT 5 ms
RF Att 40 dB
Unit dBm
Ref Lvl
41.3 dBm
31.3 dB Offset
41.3
30
20
10
0
-10
-20
-30
-40
-50
-58.7
1VIEW
1MA
A
Center 2.685 GHz
1.25 MHz/
Span 12.5 MHz
Date: 24.OCT.2006 15:23:06


Delta 1 [T1]
2.50 dB
-9.54408818 MHz
RBW 100 kHz
VBW 100 kHz
SWT 5 ms
RF Att 20 dB
Unit dBm
Ref Lvl
41.3 dBm
31.3 dB Offset
1VIEW
1MA
A
41.3
30
20
10
0
-10
-20
-30
-40
-50
-58.7
Center 2.501 GHz
1.25 MHz/
Span 12.5 MHz
Date: 24.OCT.2006 14:49:35


Delta 1 [T1]
RBW 50 kHz
RF Att 10 dB
Ref Lvl
0.94 dB
VBW 50 kHz
31.3 dBm
4.85470942 MHz
SWT 7.5 ms
Unit dBm
31.3
31.3 dB Offset
A
20
10
0
1VIEW
1MA
-10
-20
-30
-40
-50
-60
-68.7
Center 2.5975 GHz
750 kHz/
Span 7.5 MHz
Date: 24.OCT.2006 16:21:16


Delta 1 [T1]
1.74 dB
-4.83967936 MHz
RBW 50 kHz
VBW 50 kHz
SWT 7.5 ms
RF Att 20 dB
Unit dBm
Ref Lvl
31.3 dBm
31.3 dB Offset
31.3
20
10
0
-10
-20
-30
-40
-50
-60
-68.7
1VIEW
A
1MA
Center 2.6875 GHz
750 kHz/
Span 7.5 MHz
Date: 24.OCT.2006 16:50:01


Delta 1 [T1]
RBW 50 kHz
RF Att 20 dB
Ref Lvl
1.75 dB
VBW 50 kHz
31.3 dBm
-4.83967936 MHz
SWT 7.5 ms
Unit dBm
31.3
31.3 dB Offset
20
10
0
-10
-20
-30
-40
-50
-60
-68.7
1VIEW
D1 -13 dBm
A
1MA
Center 2.4985 GHz
750 kHz/
Span 7.5 MHz
Date: 24.OCT.2006 16:34:51

Section 5. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 2.1051
TESTED BY: Kevin Rose	DATE: October 24, 2006

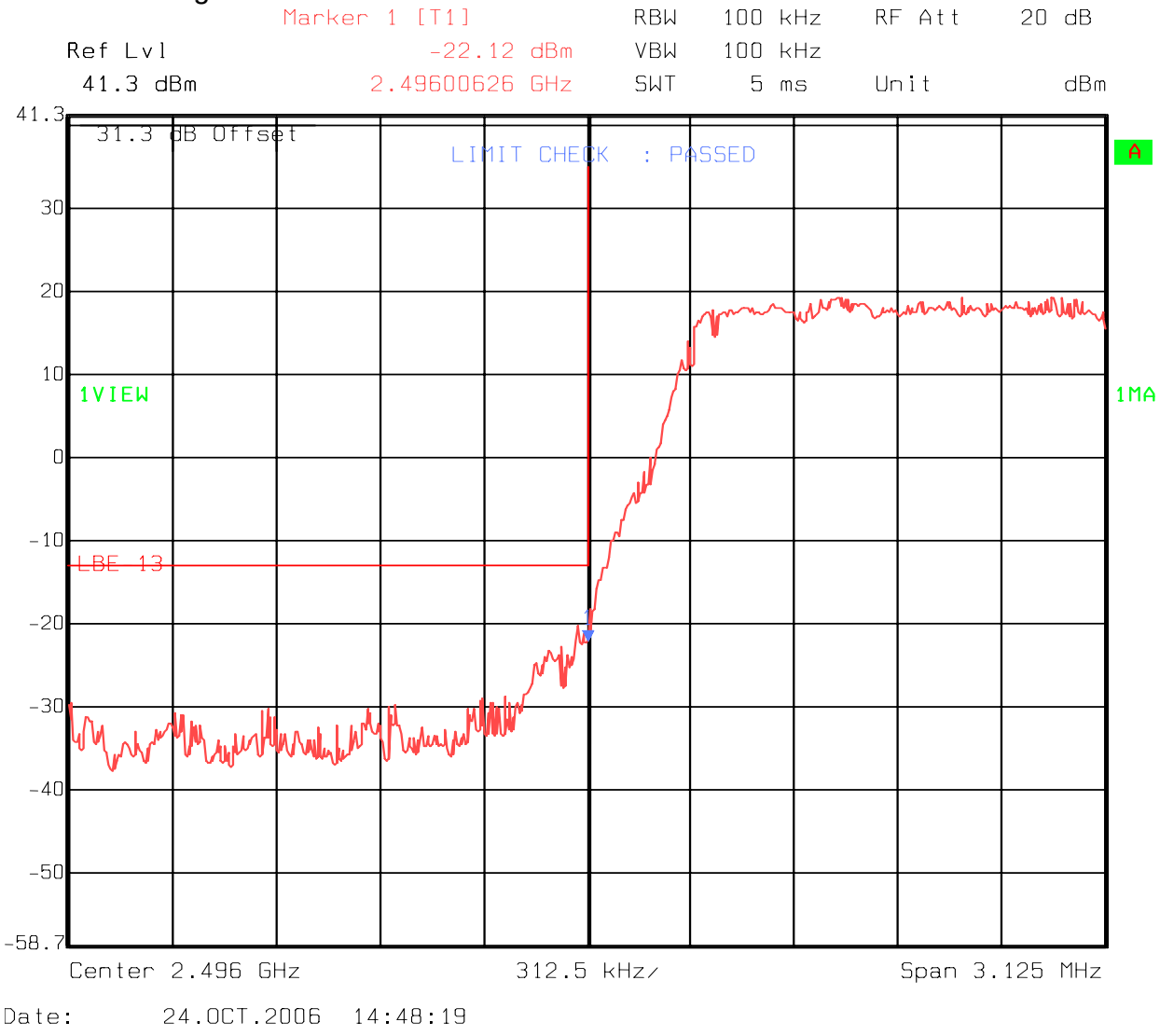
Test Results: Complies

Measurement Data: See attached plots.

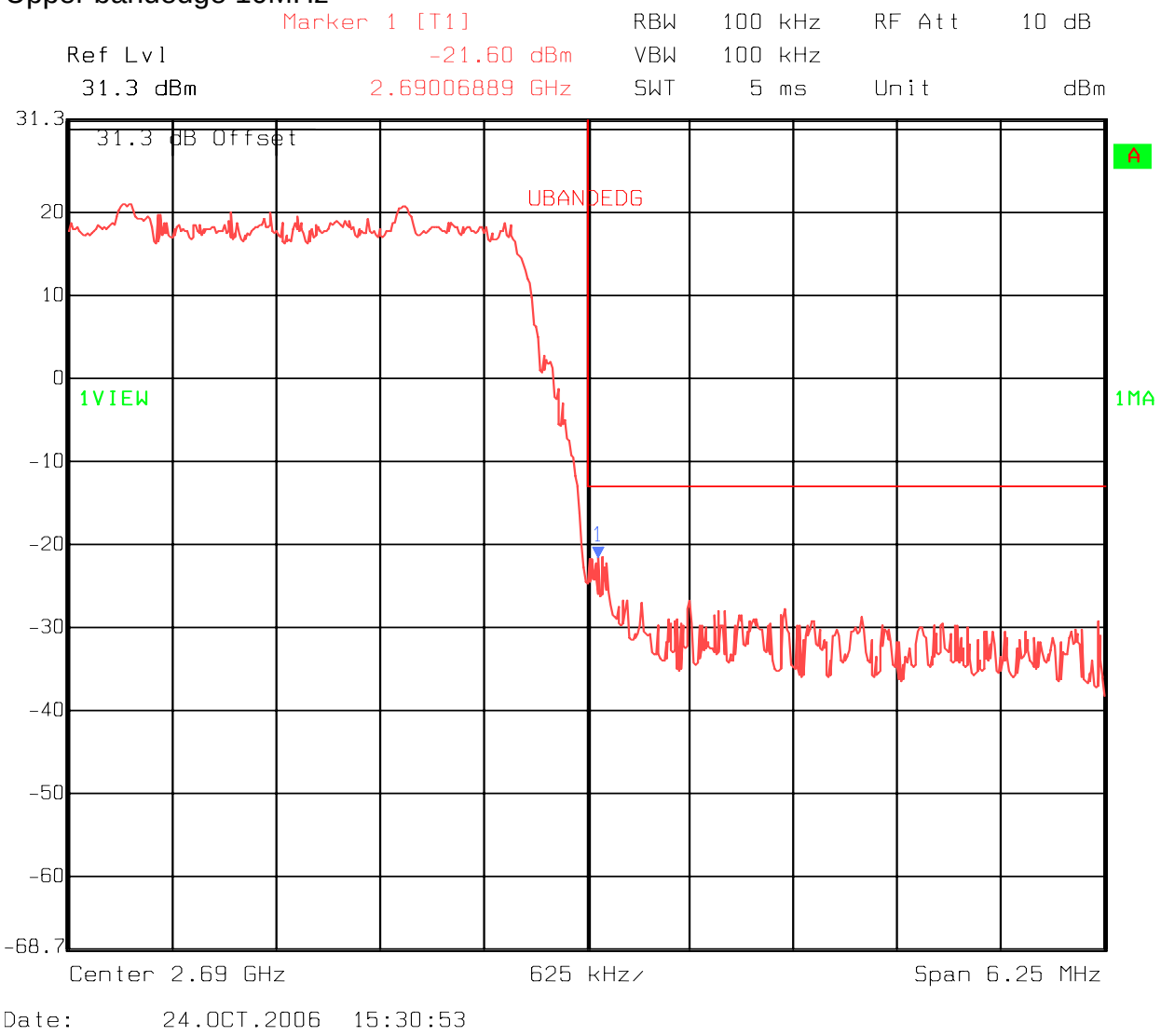
Test Equipment: .1036-1529-1604-1602

Test Data – Spurious Emissions at Antenna Terminals

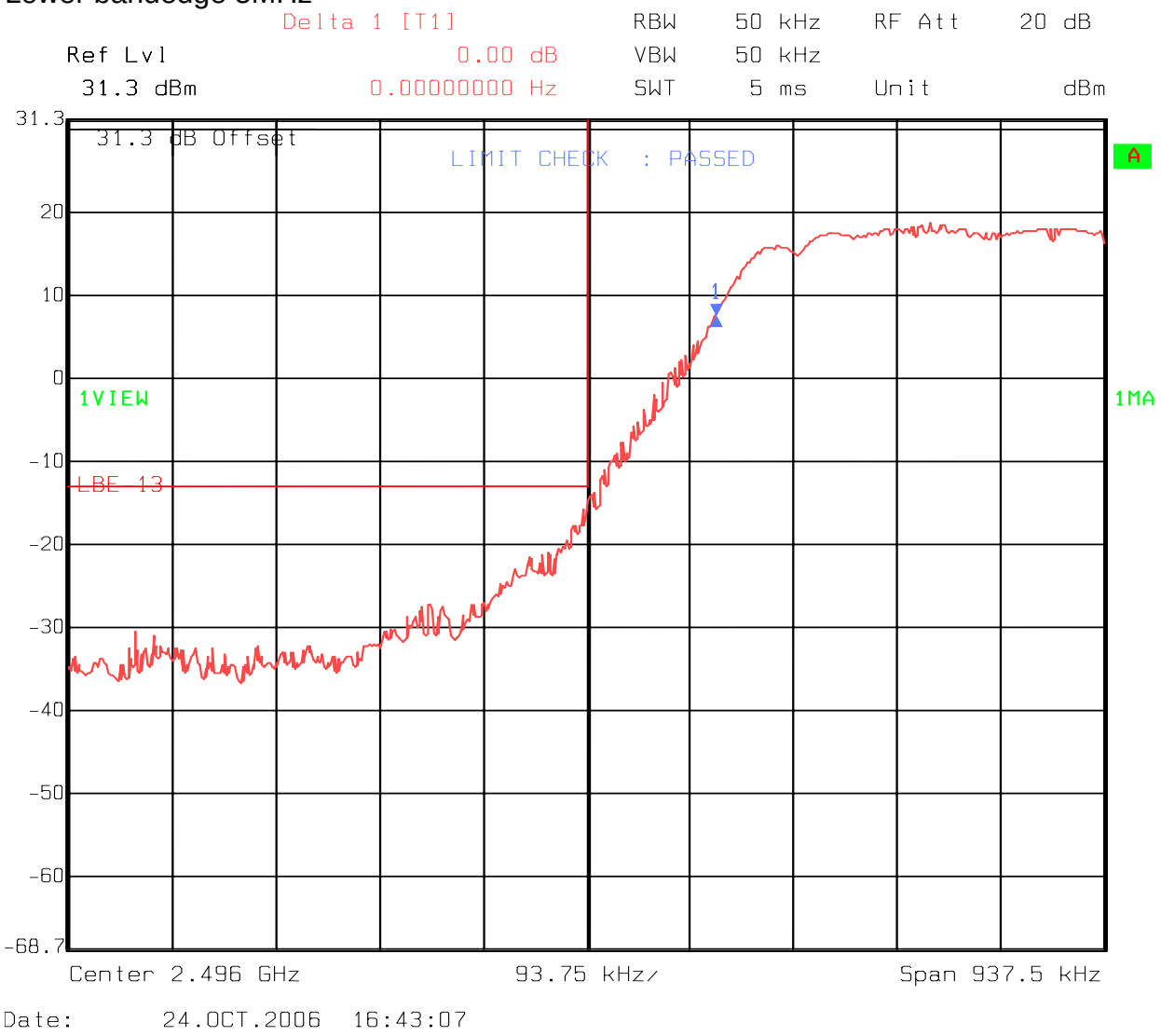
Lower bandedge 10MHz



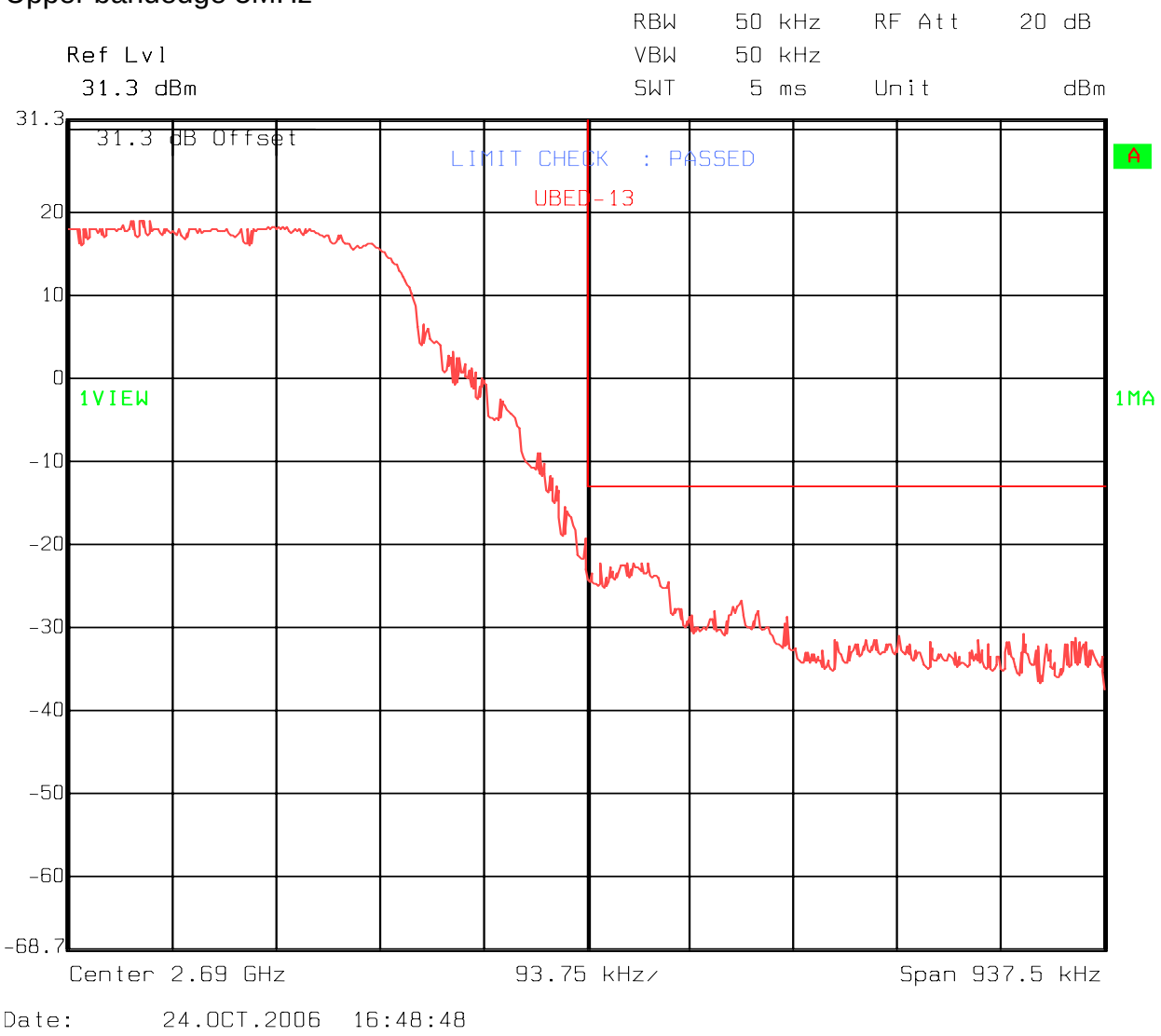
Upper bandedge 10MHz



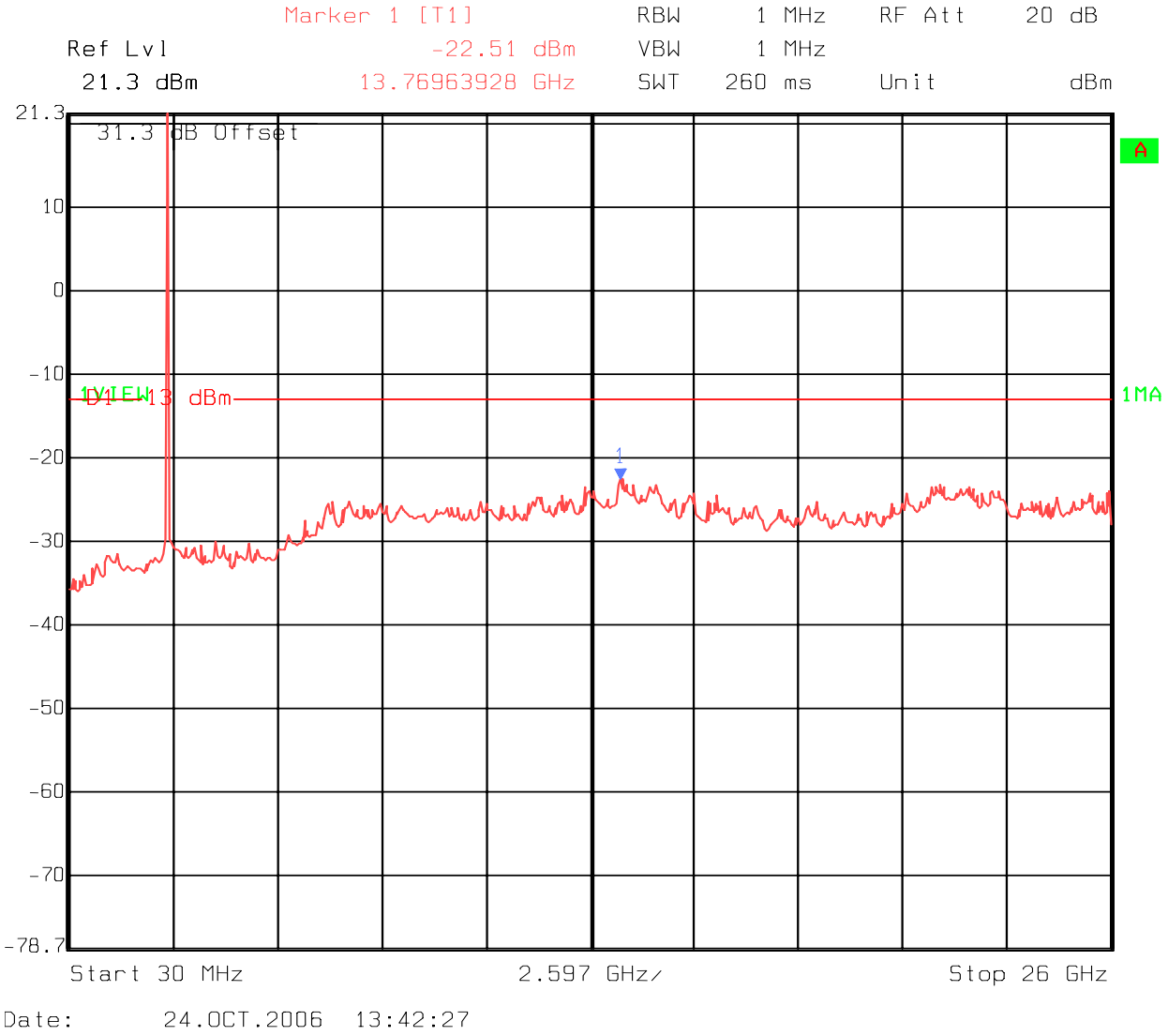
Lower bandedge 5MHz



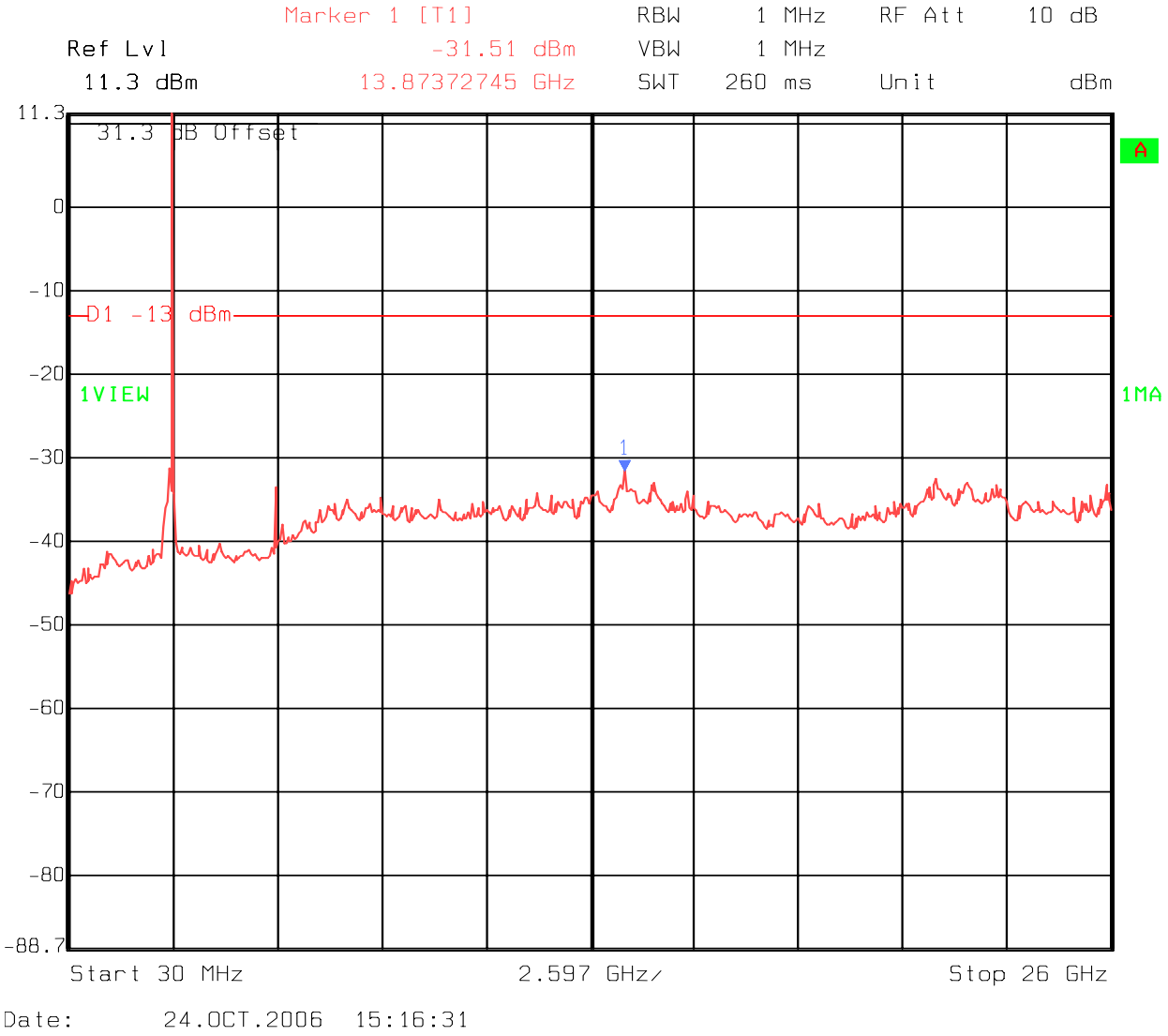
Upper bandedge 5MHz



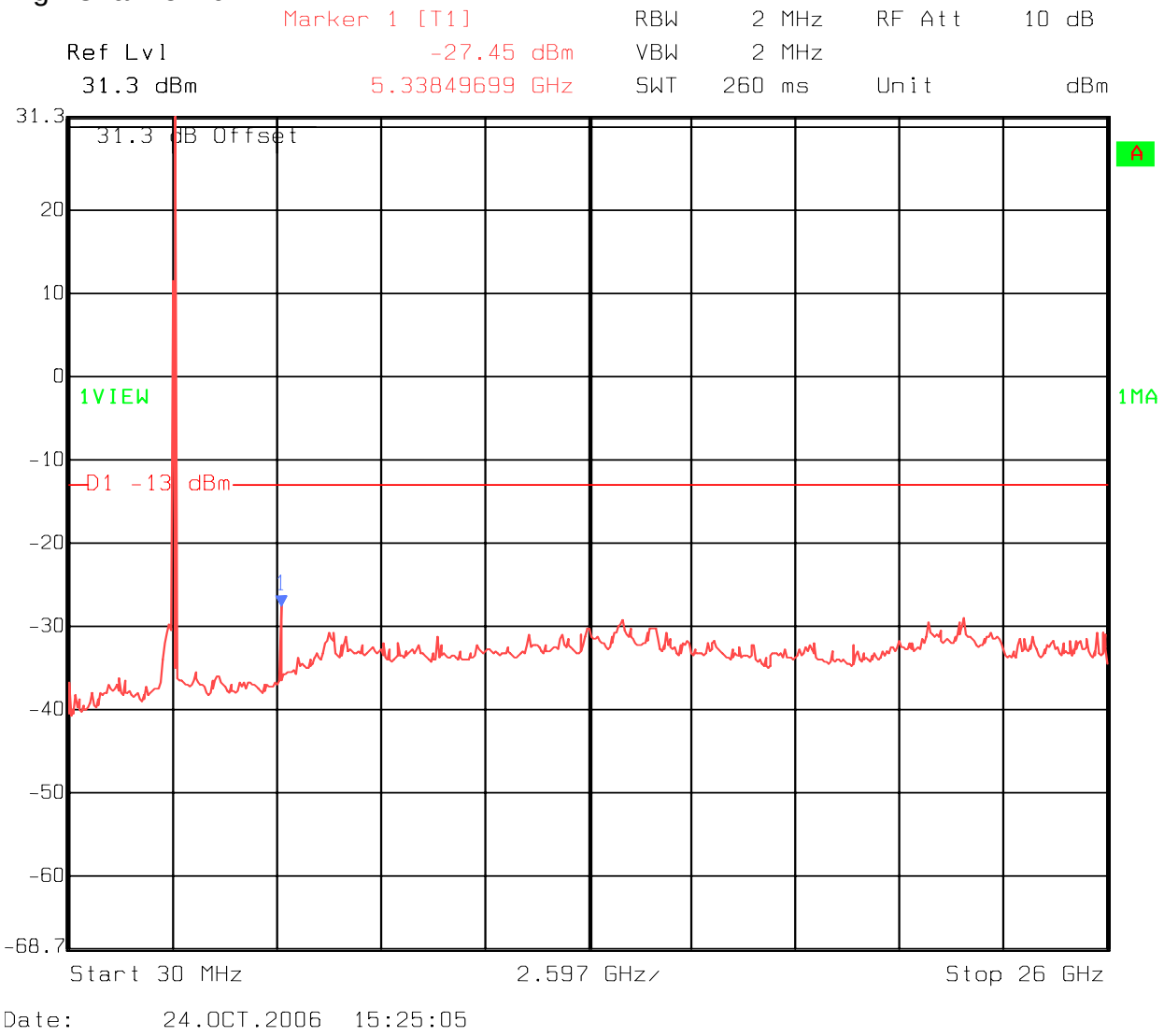
Low Channel 10MHz



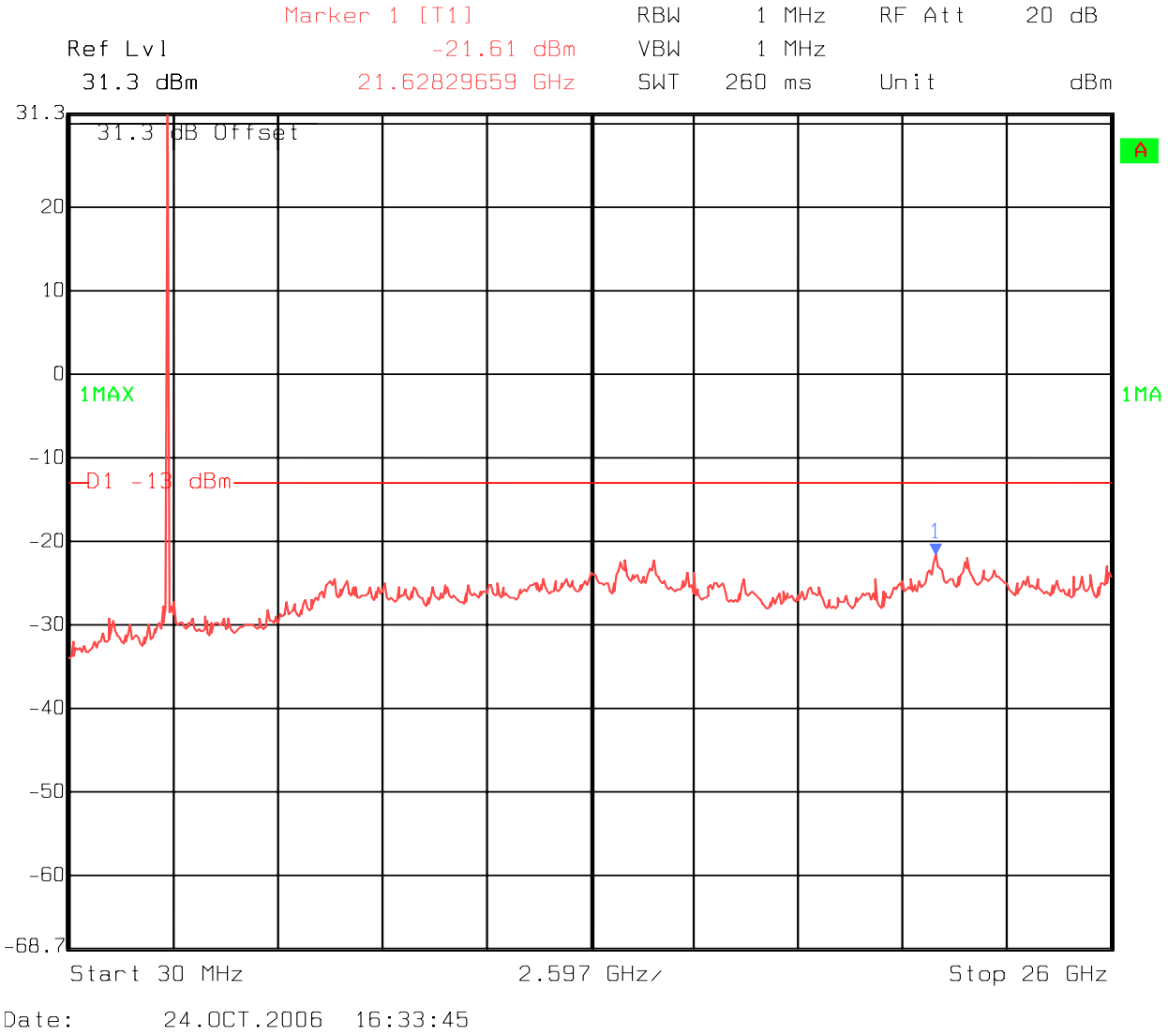
Mid Channel 10MHz



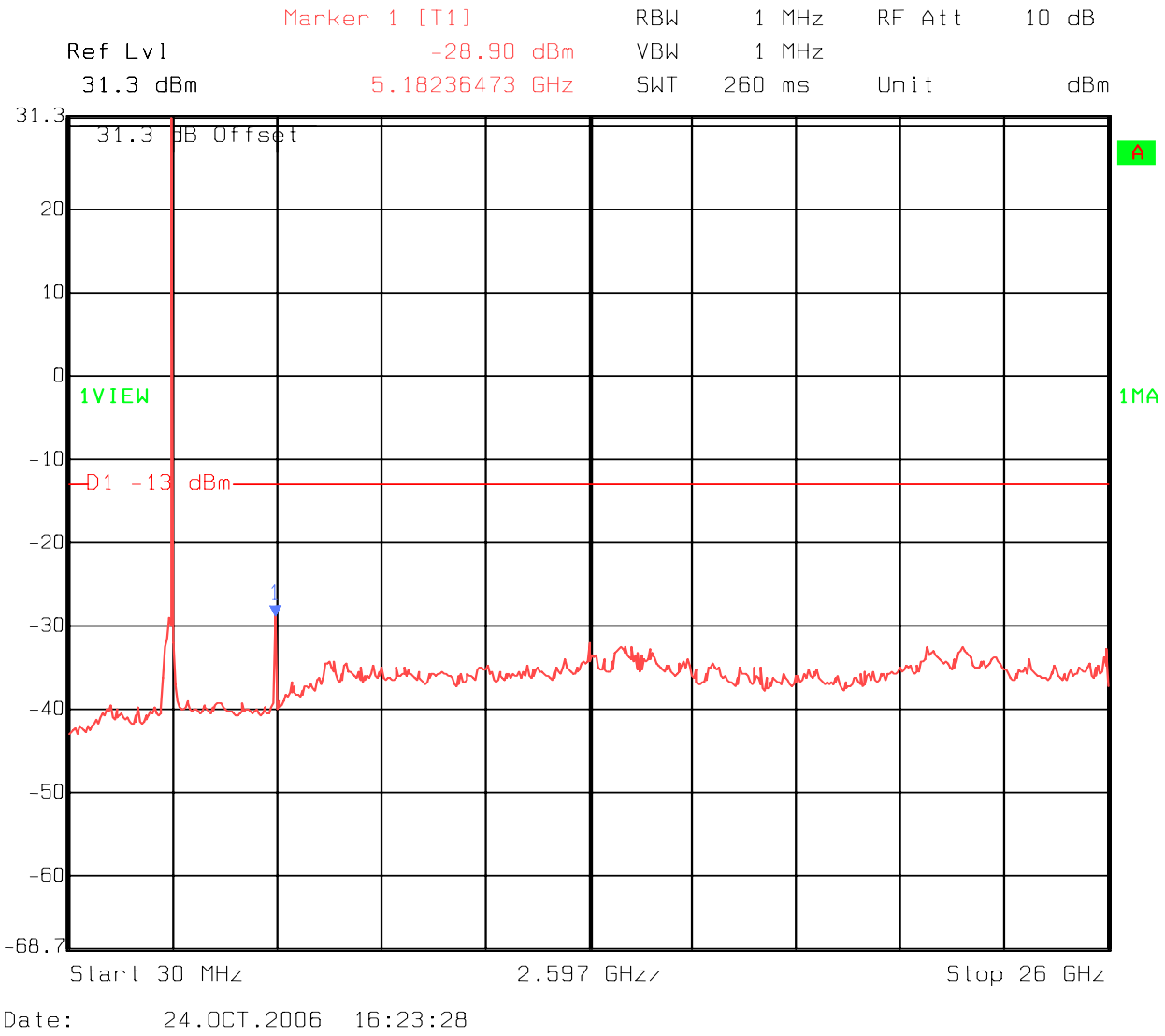
High Channel 10MHz



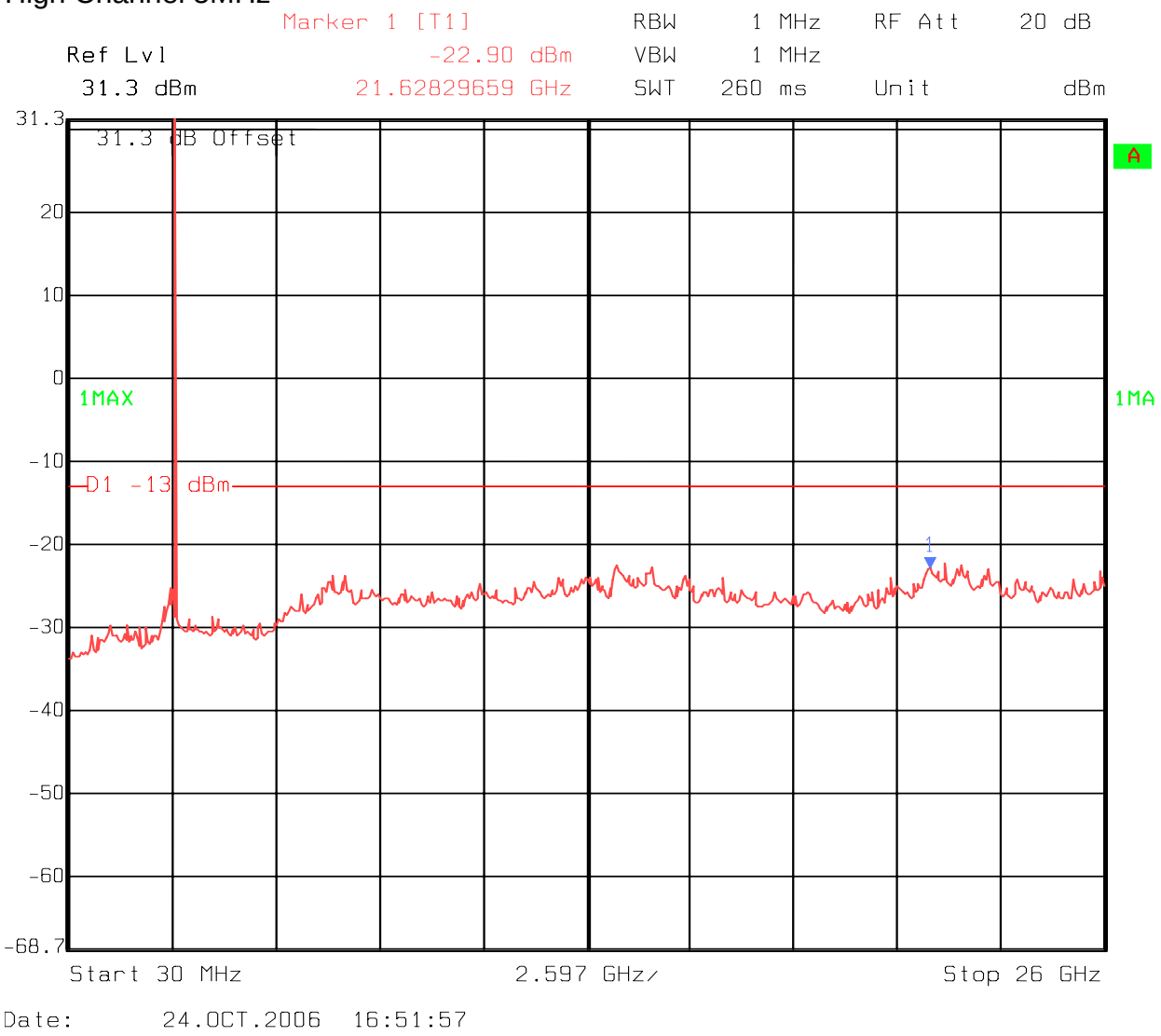
Low Channel 5MHz



Mid Channel 5MHz



High Channel 5MHz



Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1053
TESTED BY: Kevin Rose	DATE: October 24, 2006

Test Results: Complies

Measurement Data: See attached table.

Test Equipment: 1484-1485-993-1016-791-759-1479

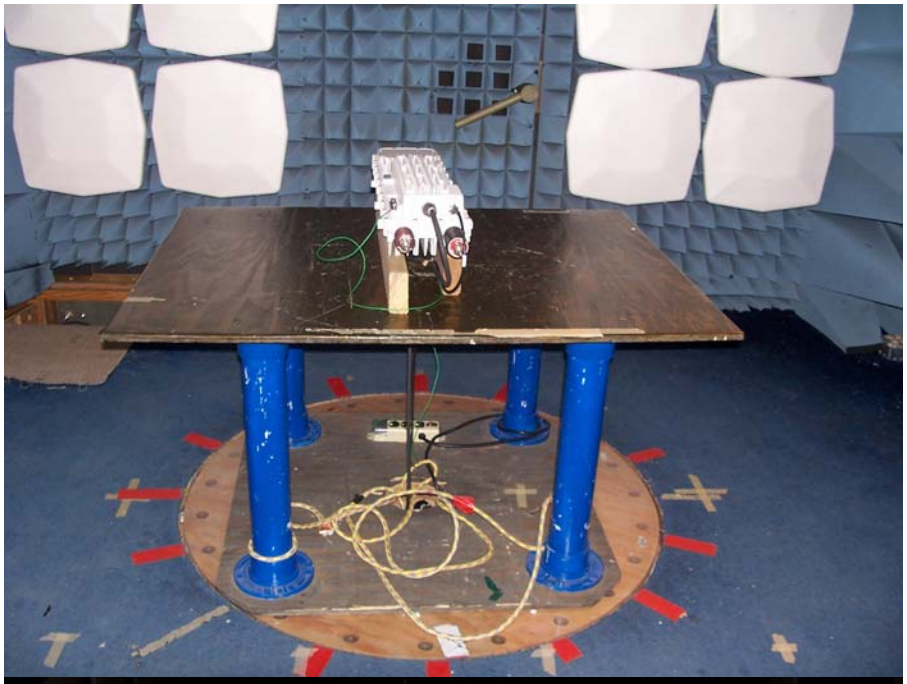
The spectrum was searched from 30 MHz to the 10th harmonic of the carrier.

Note: No Emissions were detected within 20db of the limit

30MHz to 1 GHz: RBW/VBW =100 kHz

1 GHz to 10th harmonic: RBW/VBW =1 MHz

Photos – Radiated Emissions



Section 7. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1484	Cable	Storm PR90-010-072	N/A	10/02/06	10/02/07
1485	Cable	Storm PR90-010-216	N/A	10/02/06	10/02/07
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	04/20/06	04/20/07
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	02/13/06	02/13/07
1479	Bi Conical Antenna 20-330 Mhz	A. H. Systems SAS-200/540	496	07/27/06	07/27/07
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/01/05	08/02/07
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	05/26/06	05/26/08
1529	CABLE 4M 2.0-18.0 Ghz	Storm PR90-010-144	00-07-002	CBU	N/A
1604	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A
1602	ATTENUATOR, 10db	Pasternak PE-7000-10	None	CBU	N/A
791	PREAMP, 25dB	Nemko USA, Inc. LNA25	398	04/20/06	04/20/07

ANNEX A - TEST DETAILS

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

Method Of Measurement:

Antenna Conducted:
The AVG power at antenna terminals is measured using a Spectrum Analyzer or Power Meter. Power output is measured with the maximum rated input level.

E.I.R.P.:
If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts
E = the maximum measured field strength in V/m
R = the measurement range (3 meters)
G = the numeric gain of the transmit antenna in relation to an isotropic radiator

NAME OF TEST: Occupied Bandwidth	**PARA. NO.: 2.1049**

Method Of Measurement:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1% of the bandwidth of the transmitted signal. The resolution bandwidth is chosen so as not to reduce the peak level of the measured waveform.

The appropriate bandwidth mask is applied to the output waveform to verify compliance.

NAME OF TEST: Spurious Emission at Antenna Terminals	**PARA. NO.: 2.1051**

Antenna Conducted:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of =>1 MHz for emissions above 1 GHz. Below 1 GHz the resolution bandwidth is chosen so as not to reduce the peak level of the measured waveform.

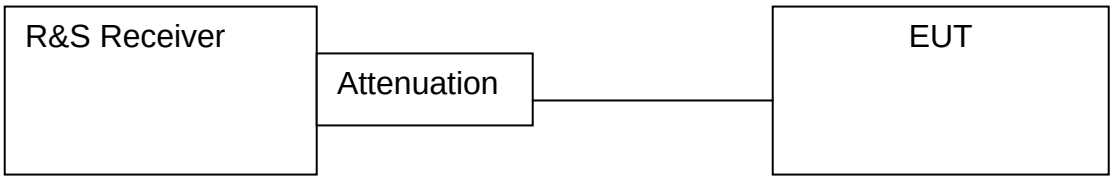
The appropriate limit line is applied to the output waveform to verify compliance.

NAME OF TEST: Field Strength of Spurious Radiation PARA. NO.: 2.1053

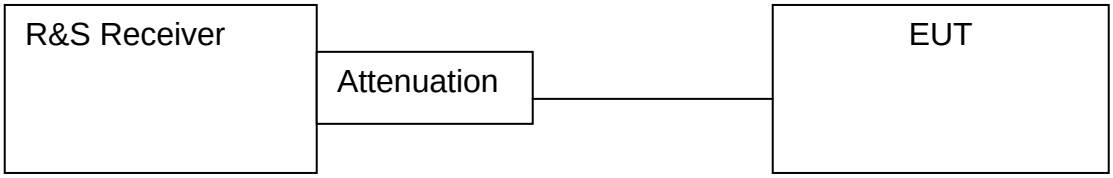
The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

ANNEX B - TEST DIAGRAMS

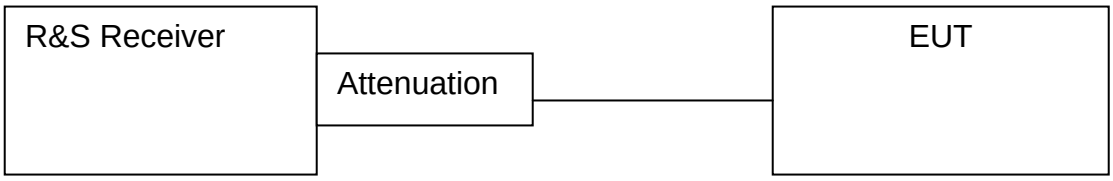
Para. No. 2.1046 - R.F. Power Output



Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Radiation