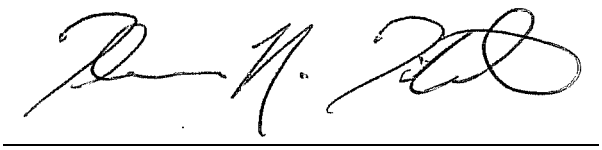
Nemko Test Report:	41240RUS1
Applicant:	Andrew Corporation 108 Rand Park Drive Garner, NC 27529 USA
Equipment Under Test: (E.U.T.)	MR8518/8518
FCC Identifier:	BCR-MR8518F
In Accordance With:	**CFR 47, Part 22, Subpart H** Cellular Band Repeaters
Tested By:	Nemko USA, Inc. 802 N. Kealy Lewisville, TX 75057-3136

TESTED BY: _____ **DATE:** **27 January 2010**

David Light, Senior Wireless Engineer



APPROVED BY: _____ **DATE:** **29 January 2010**

Tom Tidwell, Telecom Direct

Number of Pages: 54

Table of Contents

Section 1. Summary of Test Results

Manufacturer Andrew Corporation

Model No.: MR8518/8518

Serial No.: 10

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 CFR 47, Part 22, Subpart H.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-Production Unit

Reason for Class II change: Gain has been increased from 70 dB to 78 dB. Output power remains at 22 dBm. The gain of the amplifier is increased by the removal of attenuation in the system. There was no degradation in the performance of the device.

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	PARA. NO.	SPEC.	RESULT
RF Power Output	22.913(a)	500W ERP	Not tested
Occupied Bandwidth	Not defined	Input/Output	Complies
Spurious Emissions at Antenna Terminals	22.917	-13 dBm	Complies
Field Strength of Spurious Emissions	22.917	-13 dBm E.I.R.P.	Not tested
Frequency Stability	22.355	1.5 ppm	NA

Footnotes:

Frequency stability was not tested since there is no frequency translation in this device.

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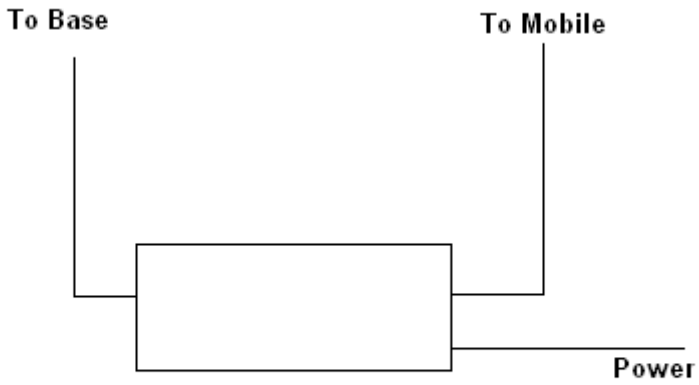
Section 2. General Equipment Specification

Supply Voltage Input:		120 Vac			
Frequency Range:	**Downlink:**	869-894 MHz			
Frequency Range:	**Uplink:**	824-849 Mhz			
Type of Modulation and Designator:		**CDMA W-CDMA (F9W)** ☒	**GSM (GXW)** ☒	**TDMA (DXW)** ☒	**EDGE (G7W)** ☒
Output Impedance:		50 ohms			
RF Output (Rated):	**Downlink:**	0.158 W 22 dBm			
	Uplink:	0.158 W 22 dBm			
Frequency Translation:		**F1-F1** ☒	**F1-F2** ☐	**N/A** ☐	
Band Selection:		**Software** ☒	**Duplexer Change** ☐	**Fullband Coverage** ☐	

Description of EUT

The miniRepeaters are bi-directional amplifiers used to enhance signals between a mobile and a base station in a wireless network. They have been designed to increase signal strength in small and medium sized areas such as offices, shops, basements and manufacturing facilities. The amplifier is programmable across the 850 MHz cellular band using a 10 MHz and 1.8 MHz filter.

System Diagram



Section 3. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 27 January 2010

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1472-1036-1082

Measurement Uncertainty: $1X10^{-7}$ Ppm

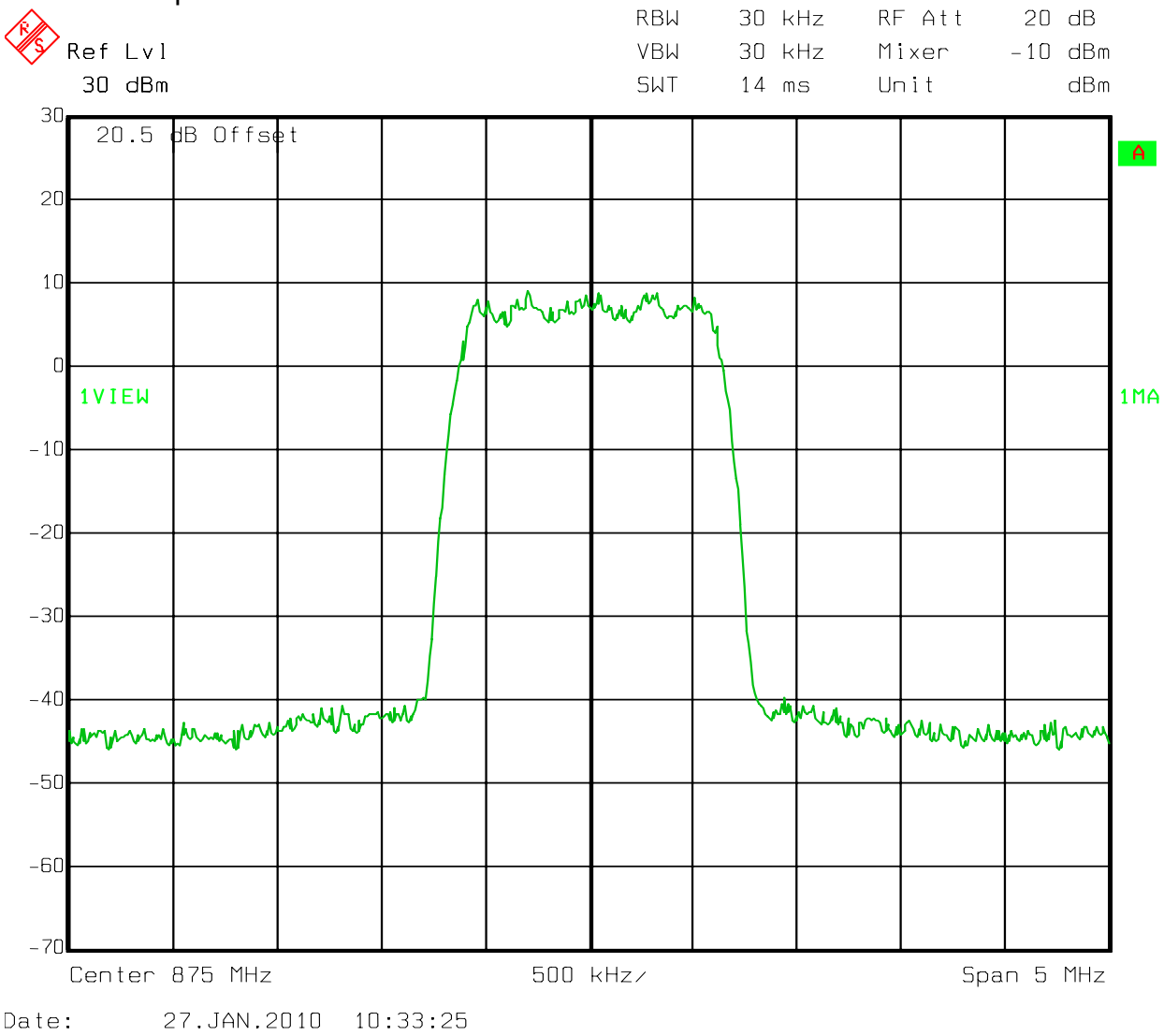
Temperature: 22 °C

Relative Humidity: 48 %

Test Data – Occupied Bandwidth

Downlink

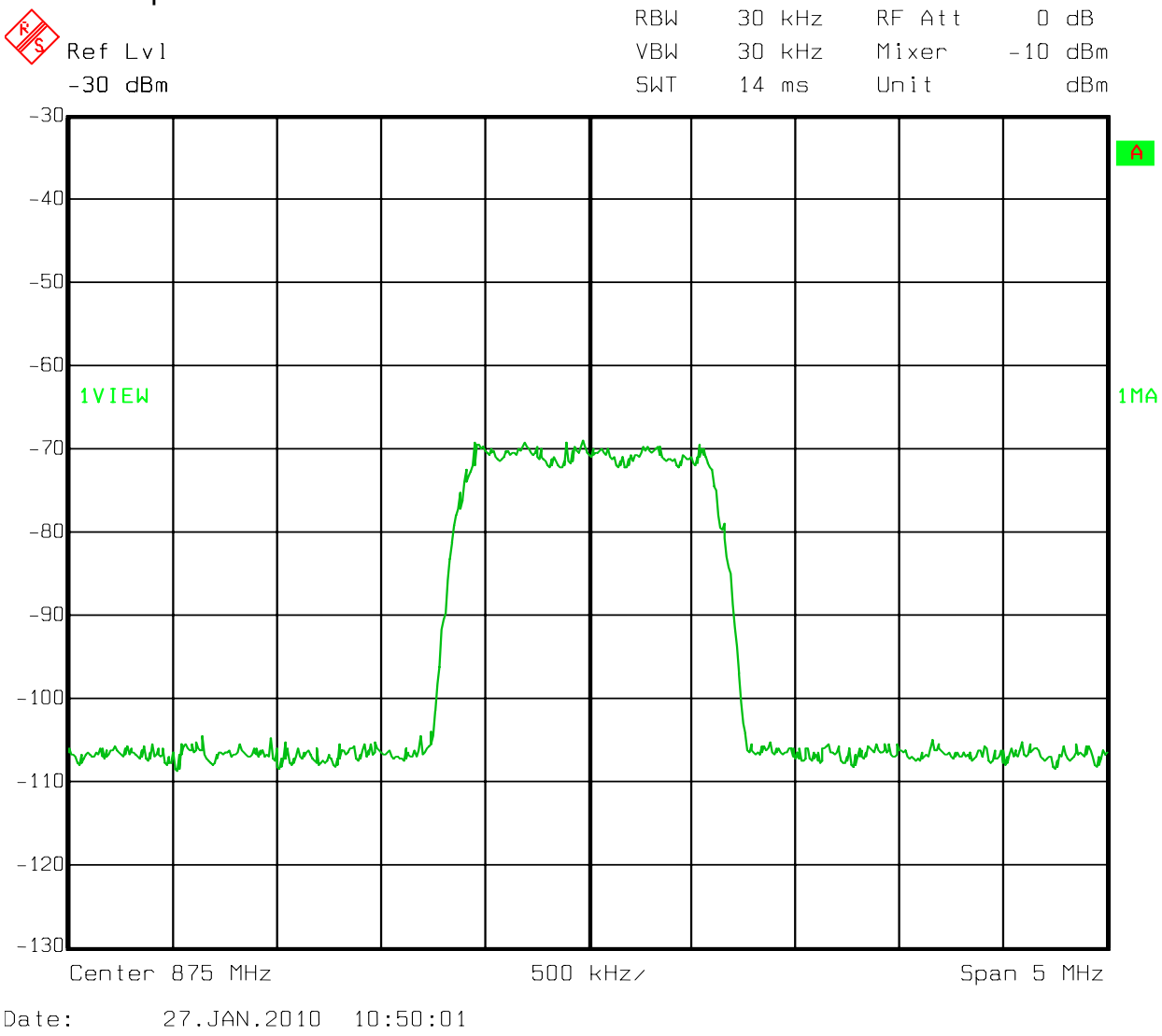
CDMA – Output



Test Data – Occupied Bandwidth

Downlink

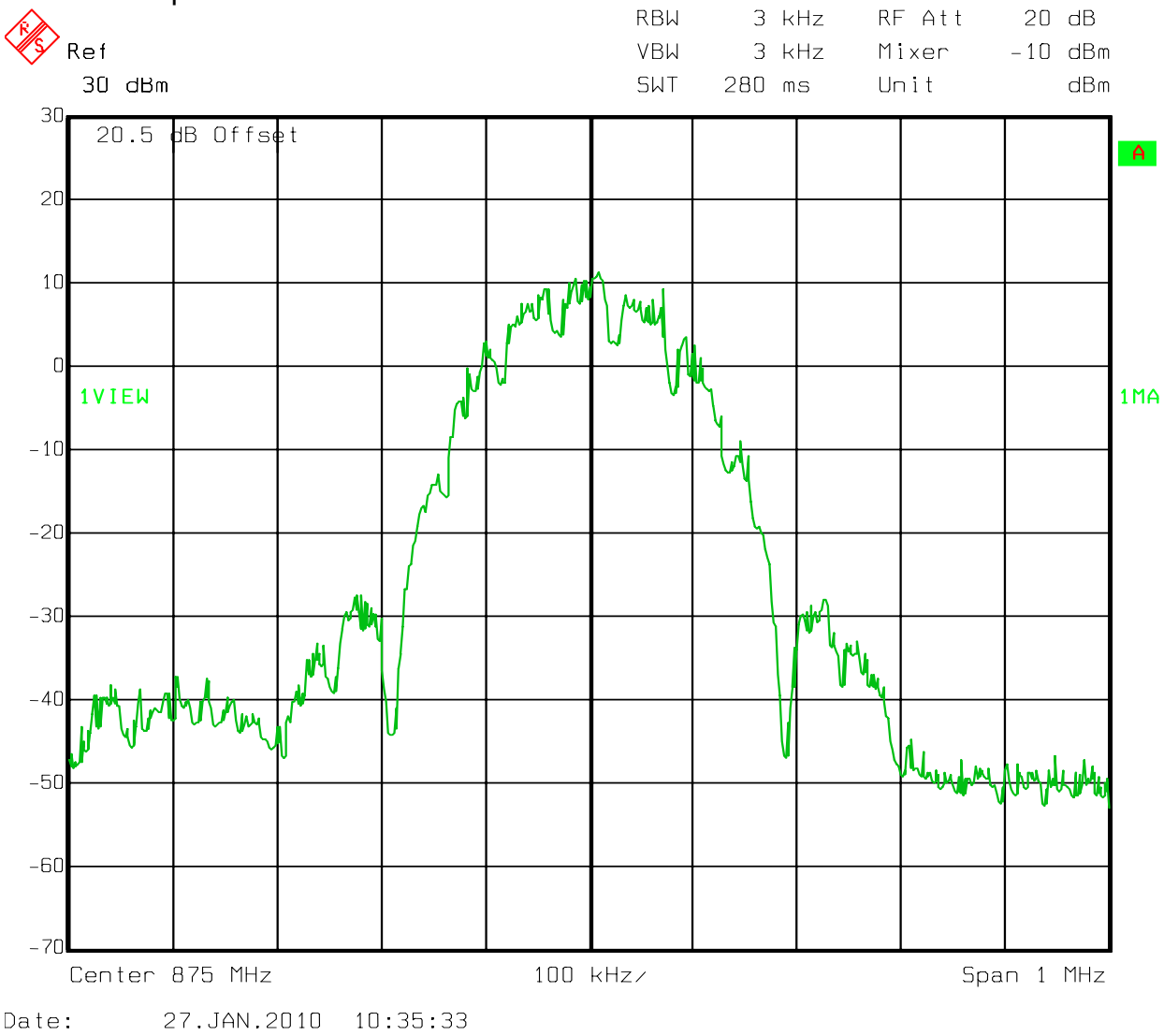
CDMA – Input



Test Data – Occupied Bandwidth

Downlink

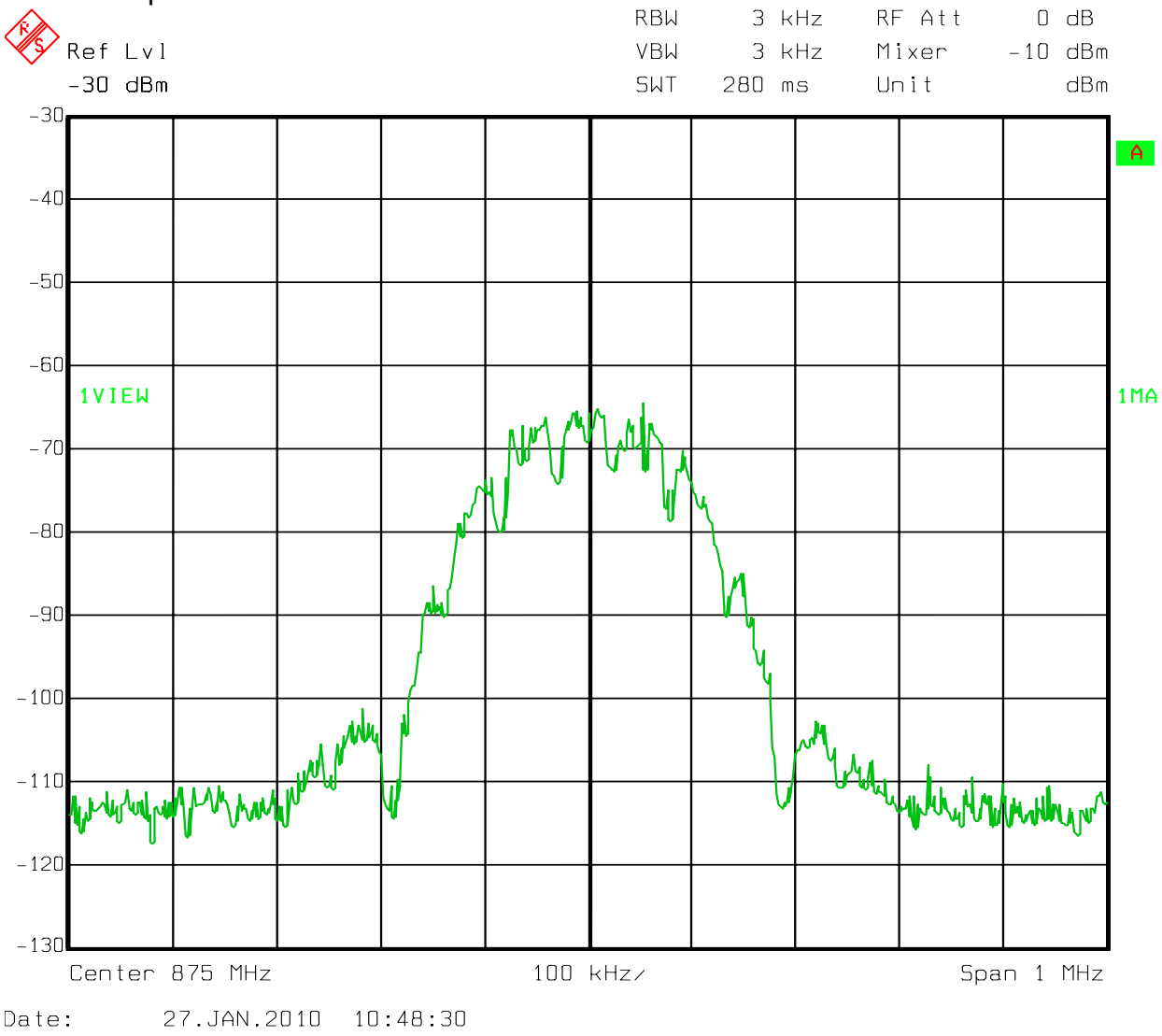
EDGE – Output



Test Data – Occupied Bandwidth

Downlink

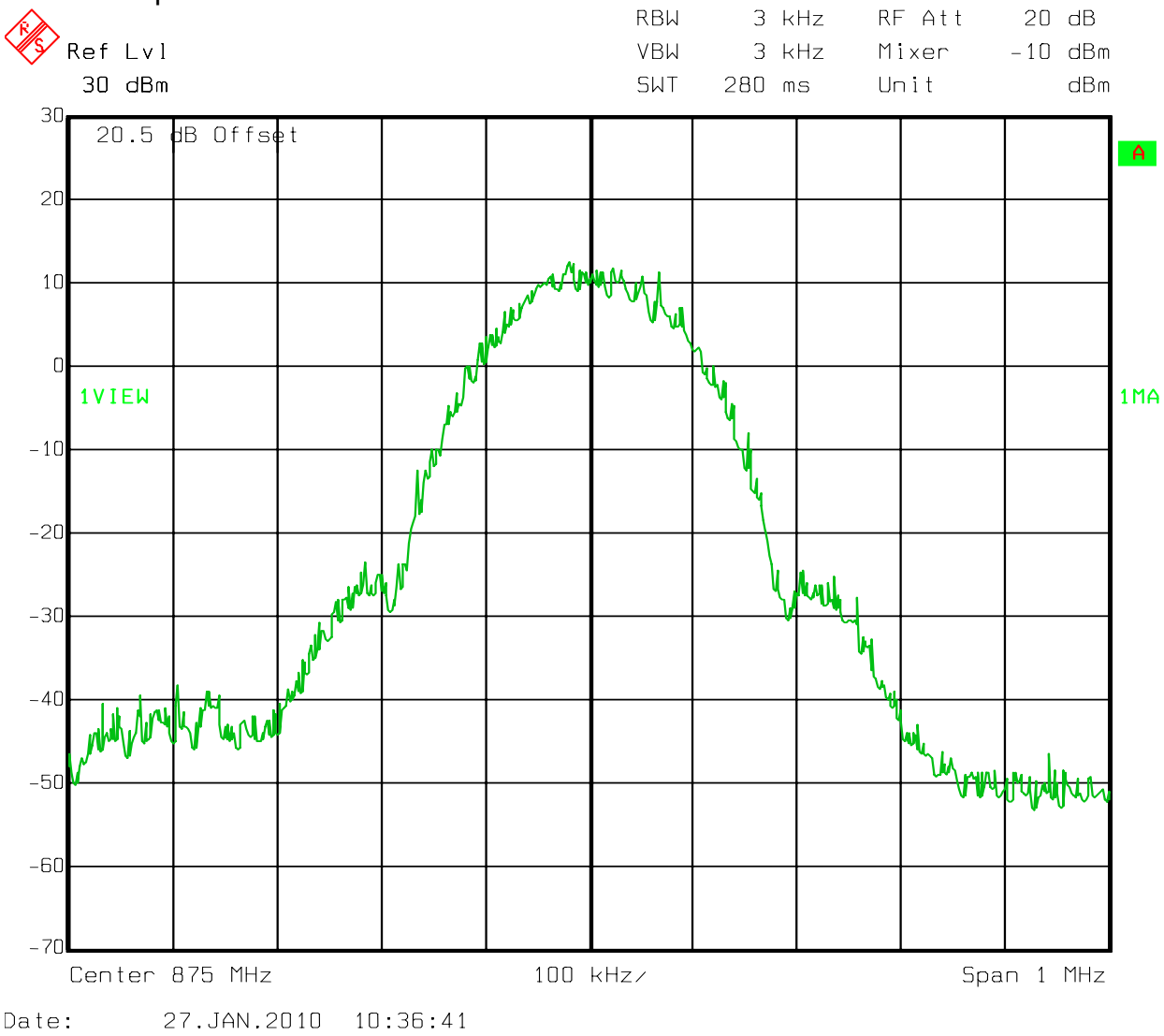
EDGE – Input



Test Data – Occupied Bandwidth

Downlink

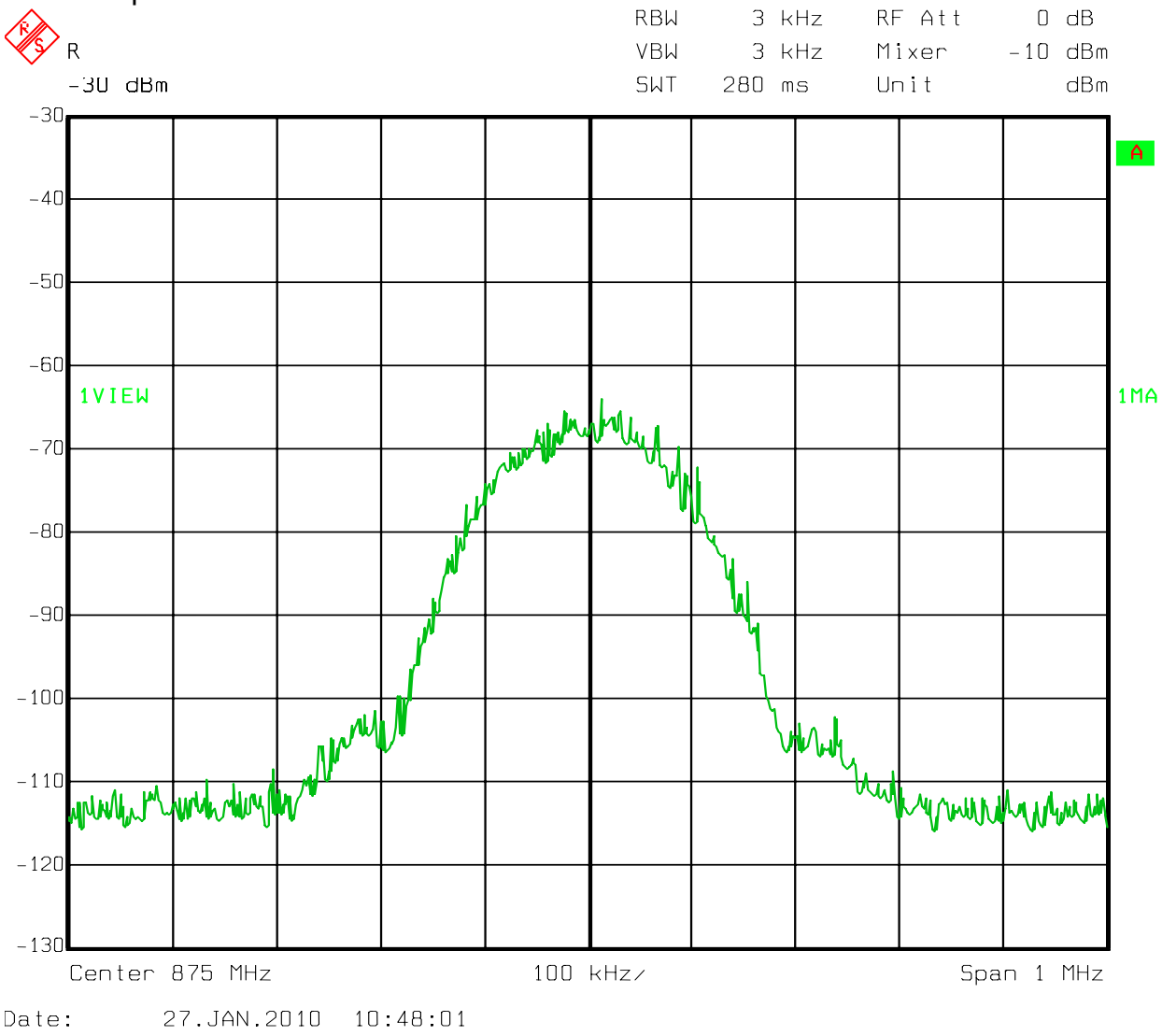
GSM – Output



Test Data – Occupied Bandwidth

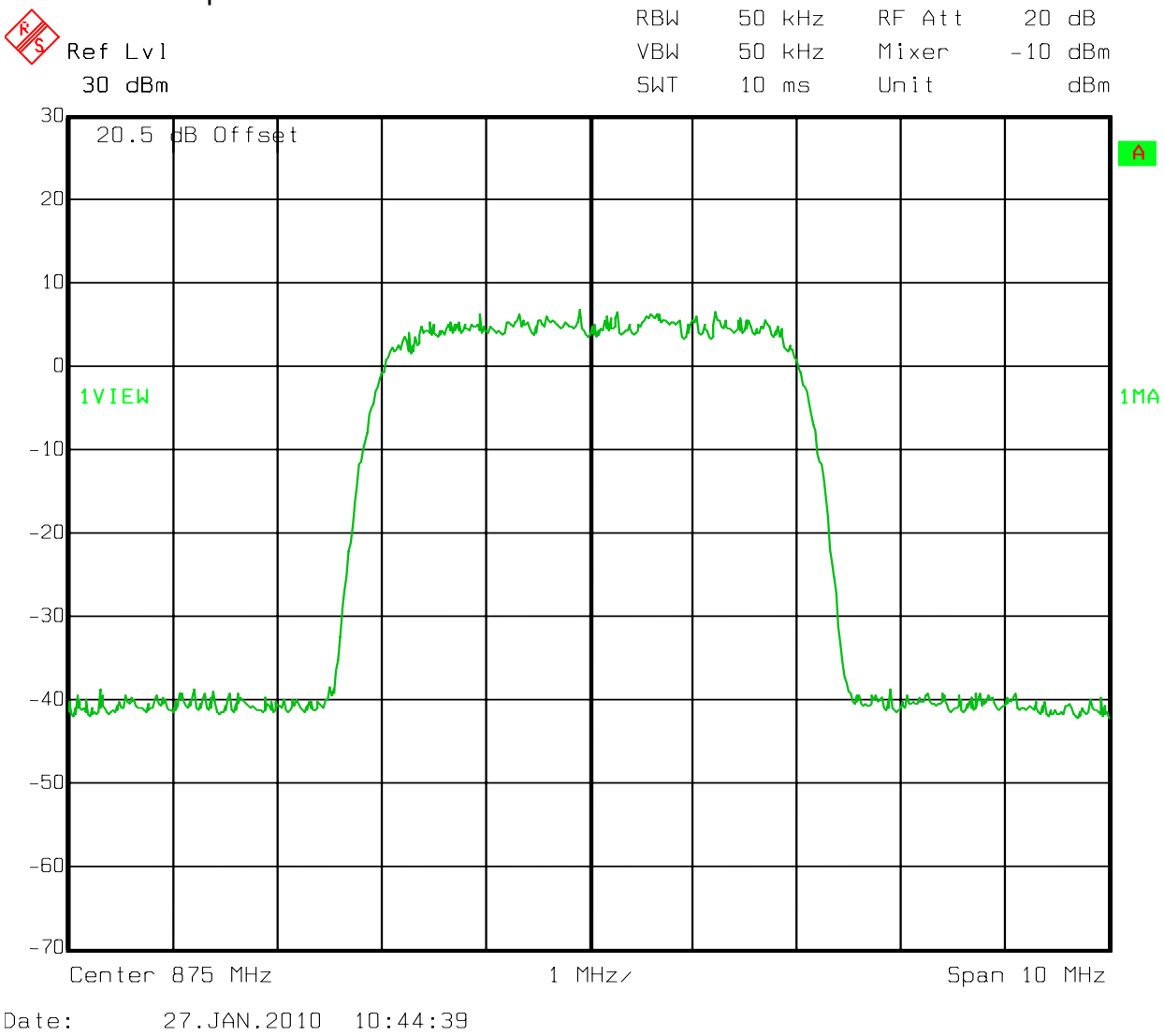
Downlink

GSM – Input



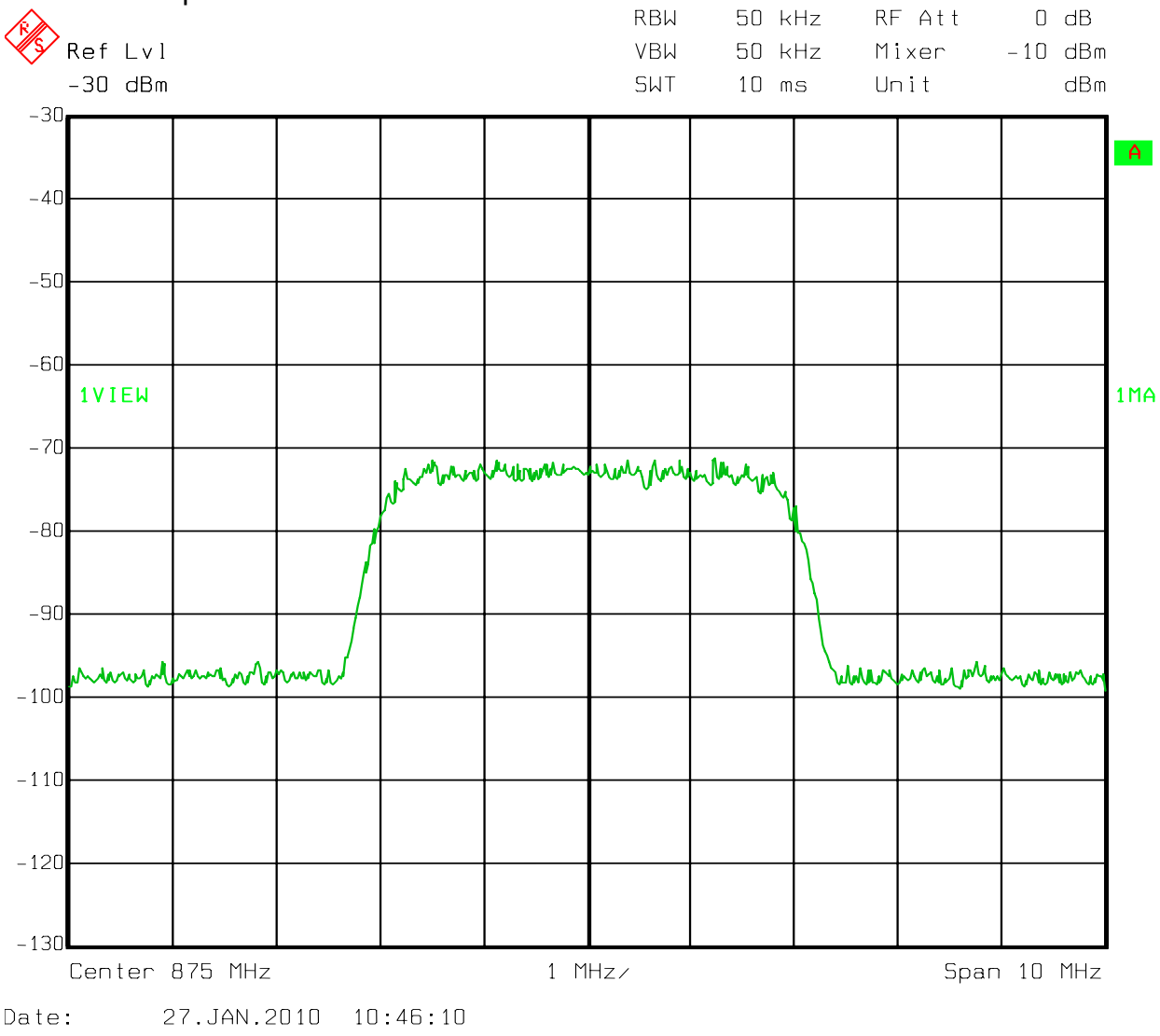
Test Data – Occupied Bandwidth

Downlink
W-CDMA - Output



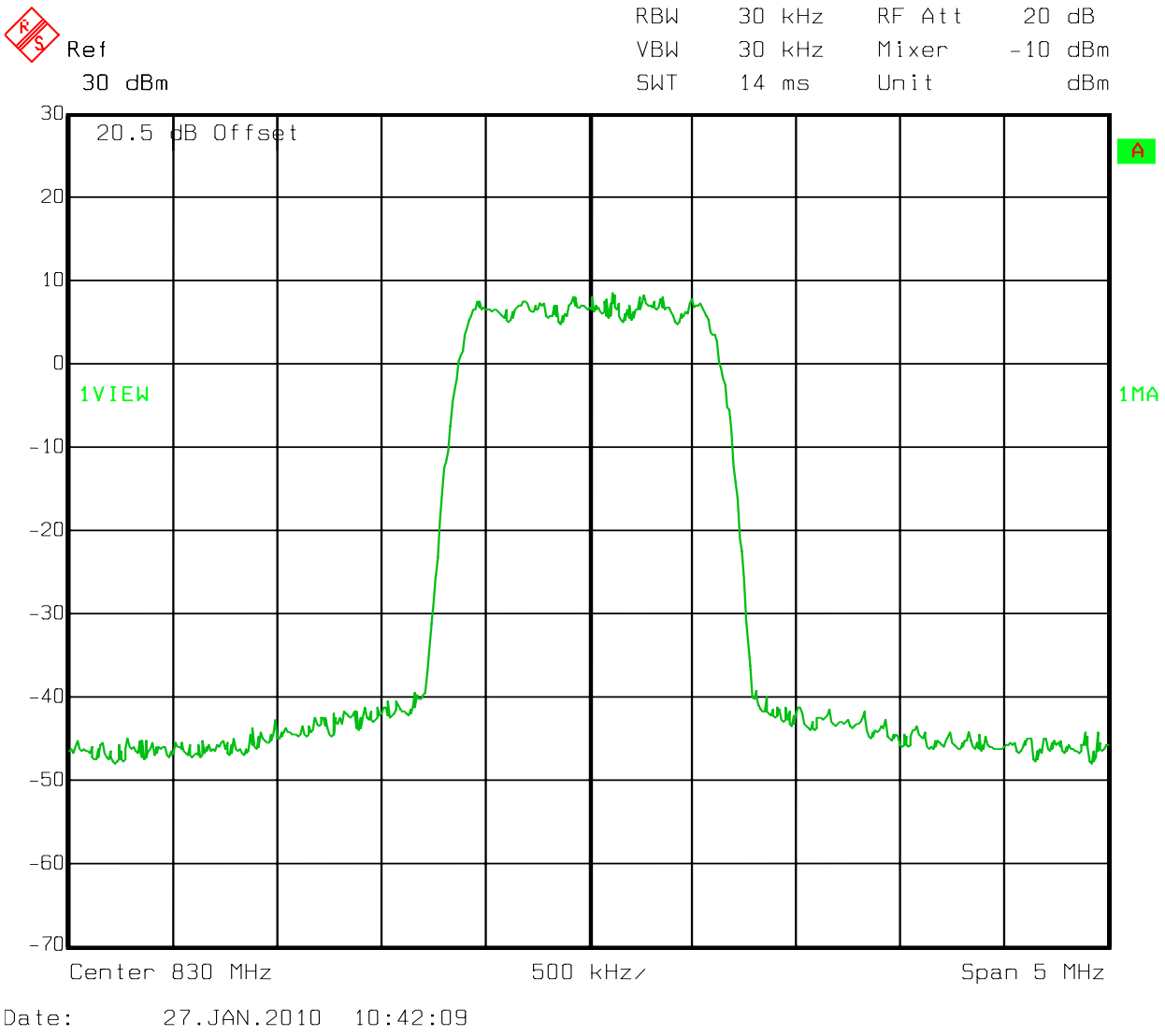
Test Data – Occupied Bandwidth

Downlink
W-CDMA - Input



Test Data – Occupied Bandwidth

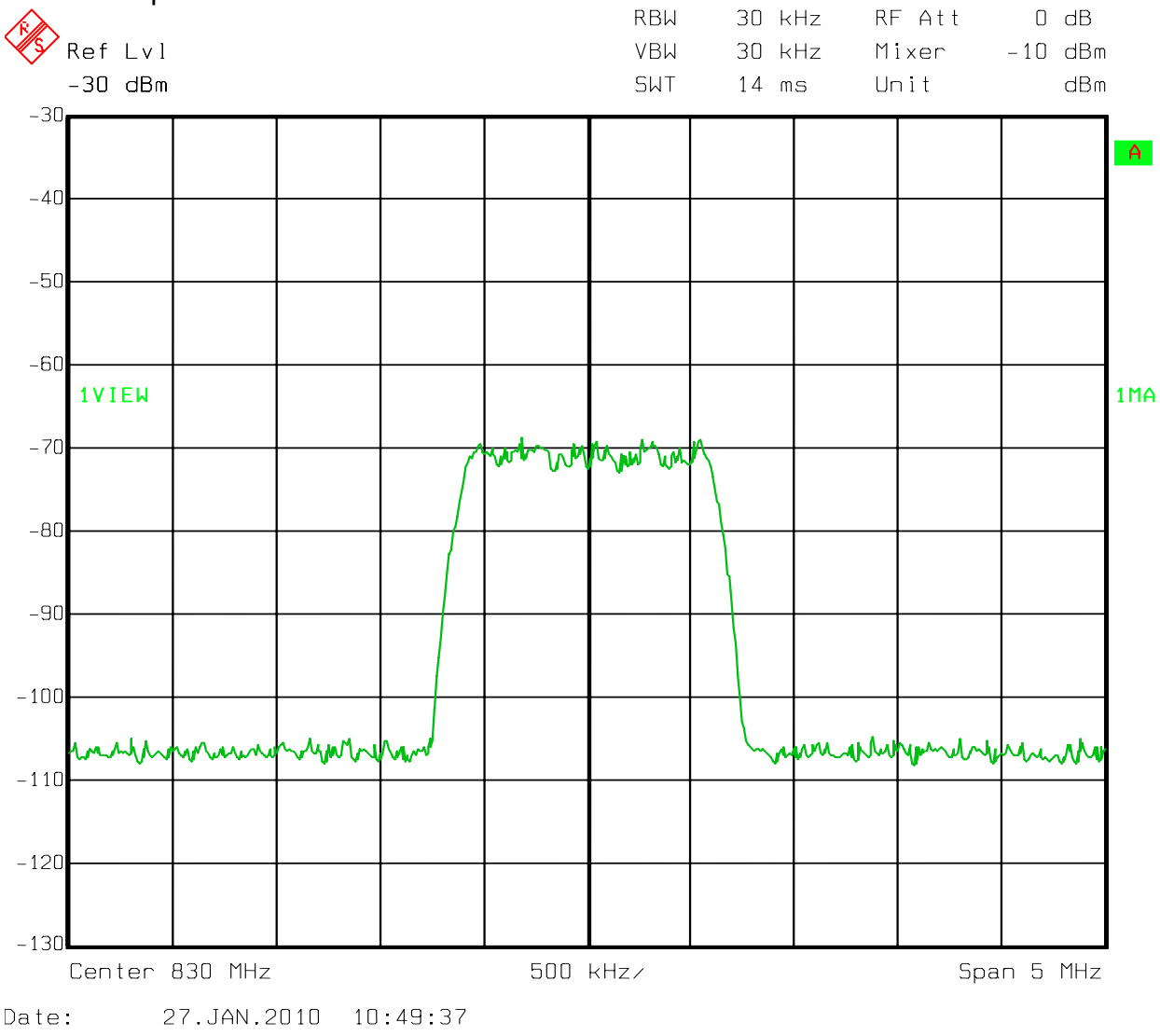
Uplink
CDMA – Output



Test Data – Occupied Bandwidth

Uplink

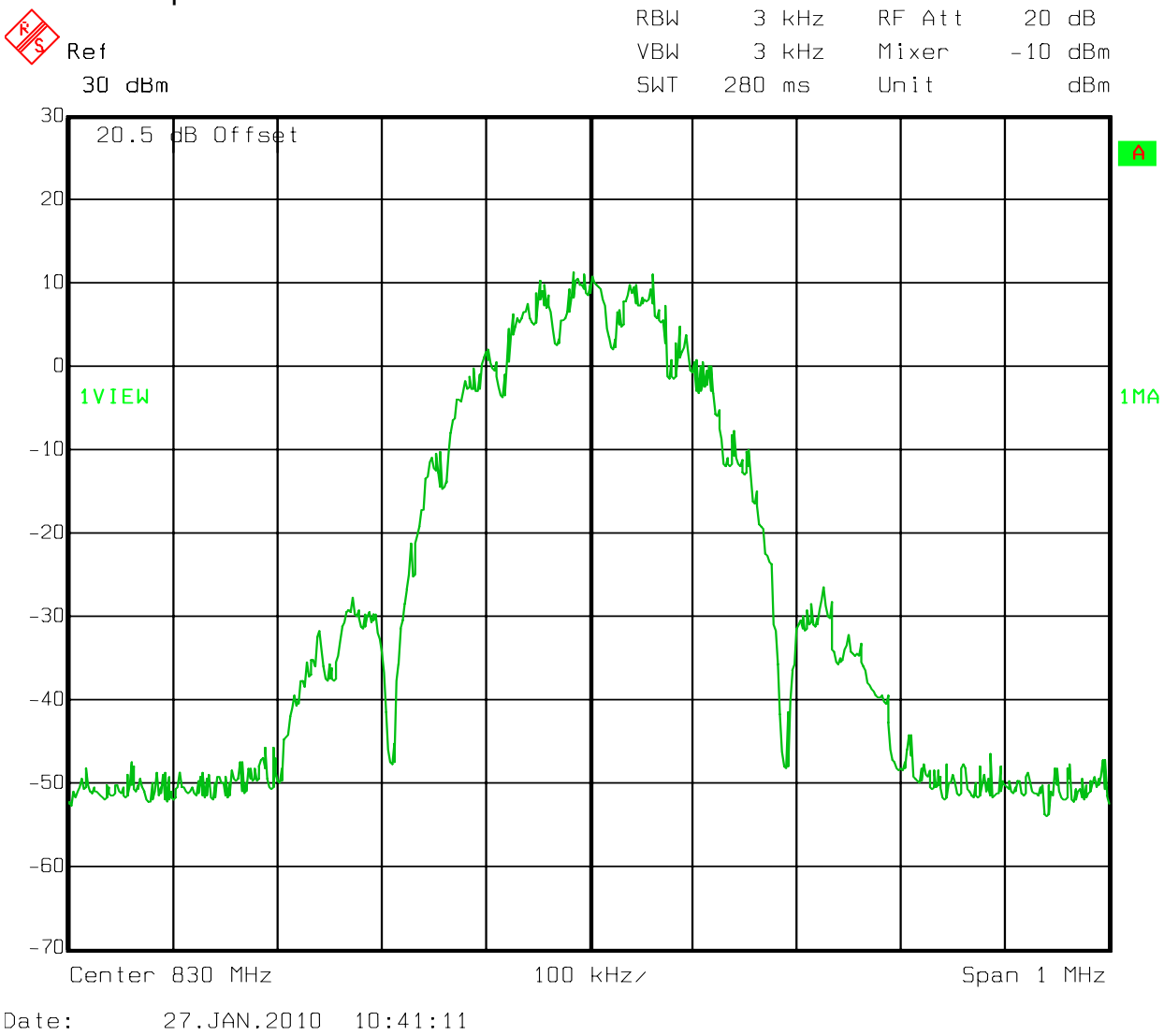
CDMA – Input



Test Data – Occupied Bandwidth

Uplink

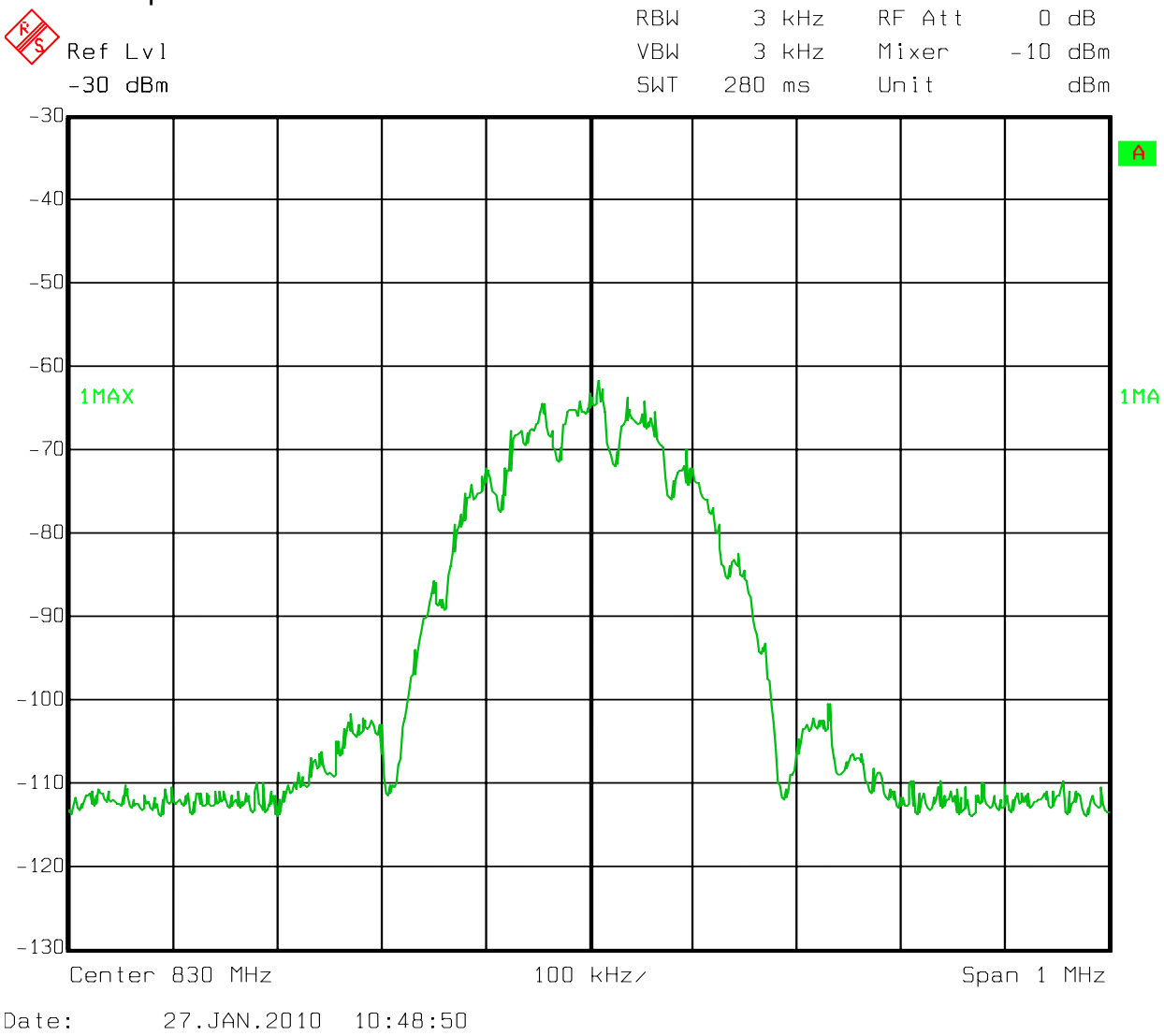
EDGE – Output



Test Data – Occupied Bandwidth

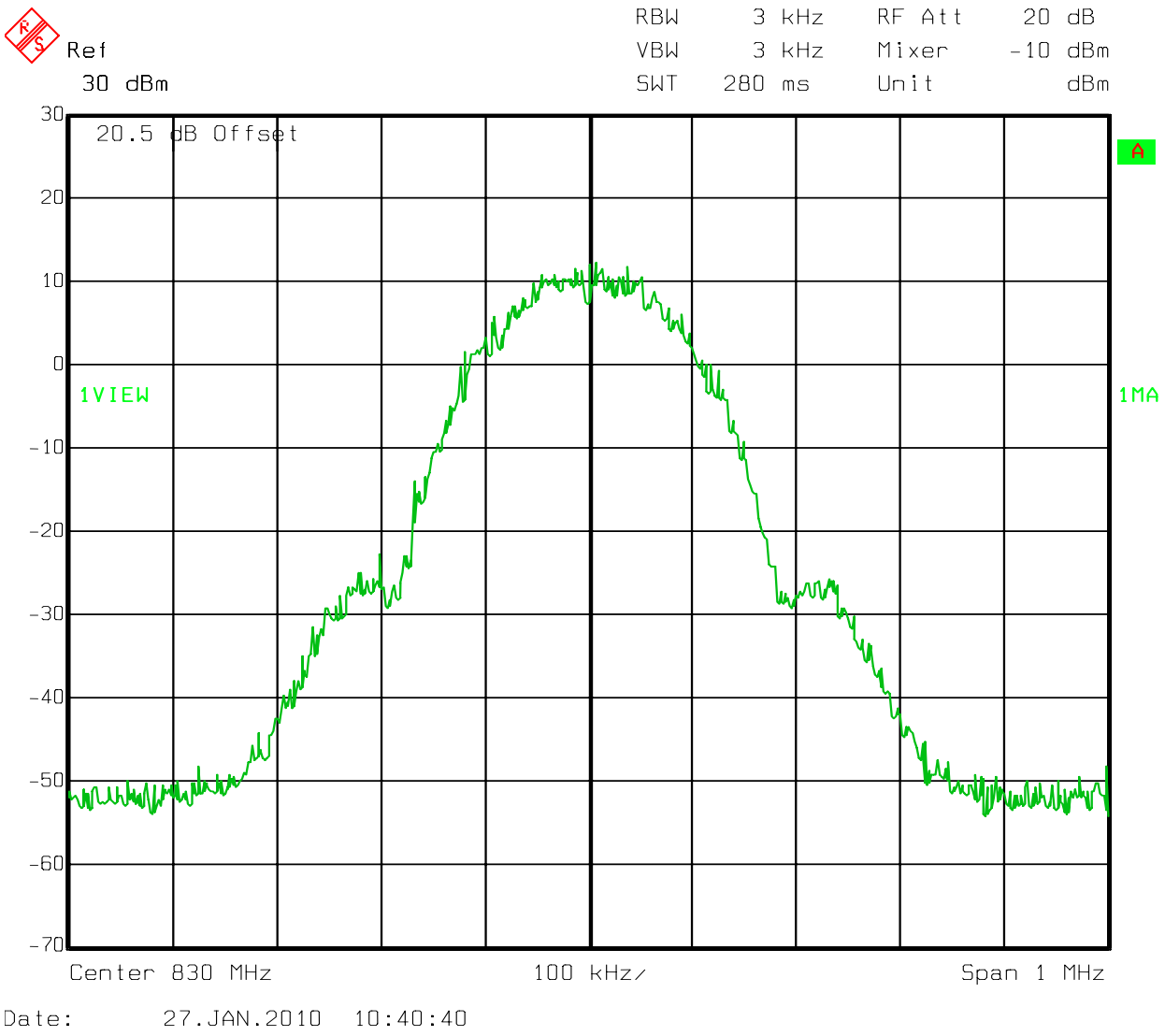
Uplink

EDGE – Input



Test Data – Occupied Bandwidth

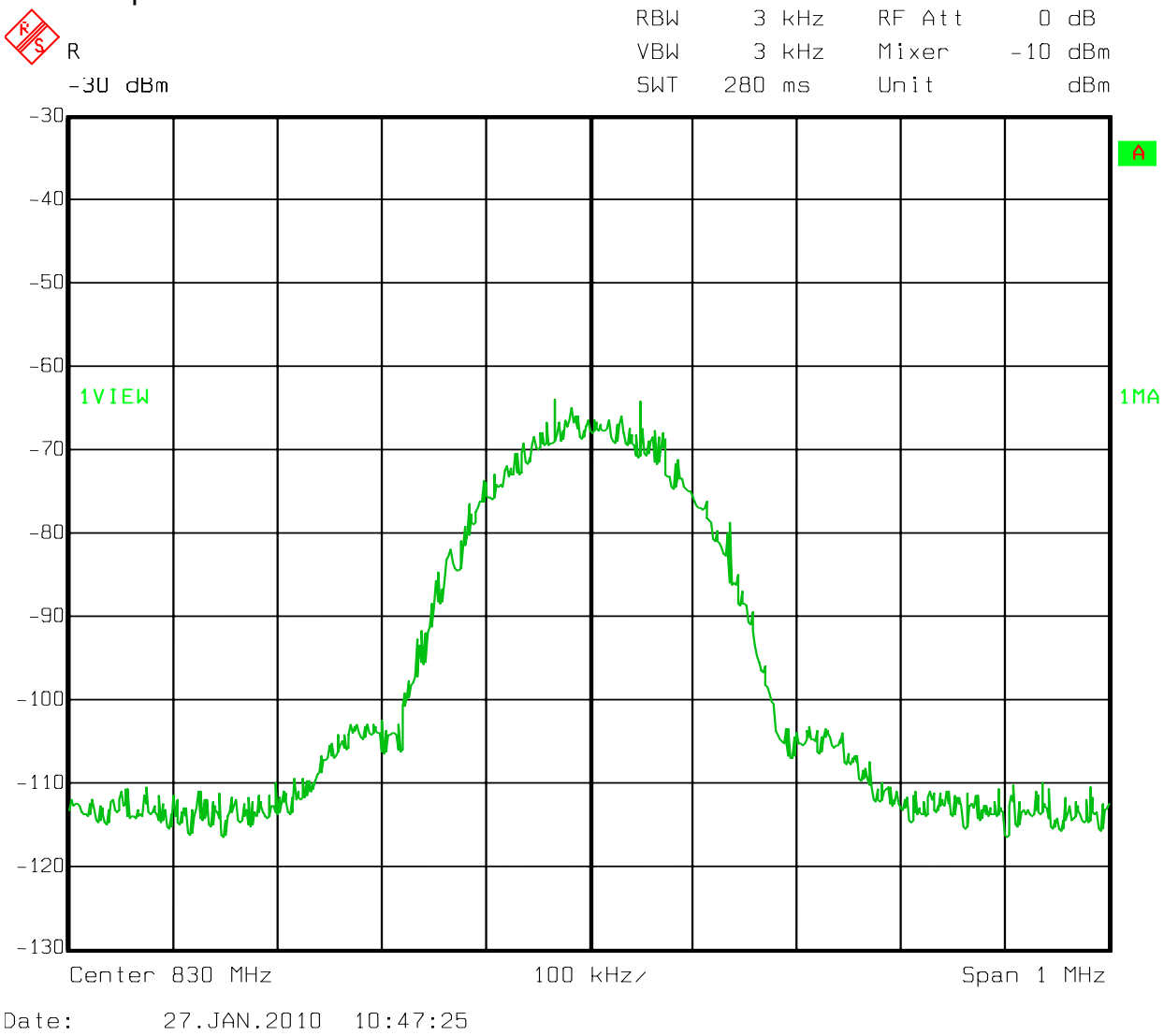
Uplink
GSM – Output



Test Data – Occupied Bandwidth

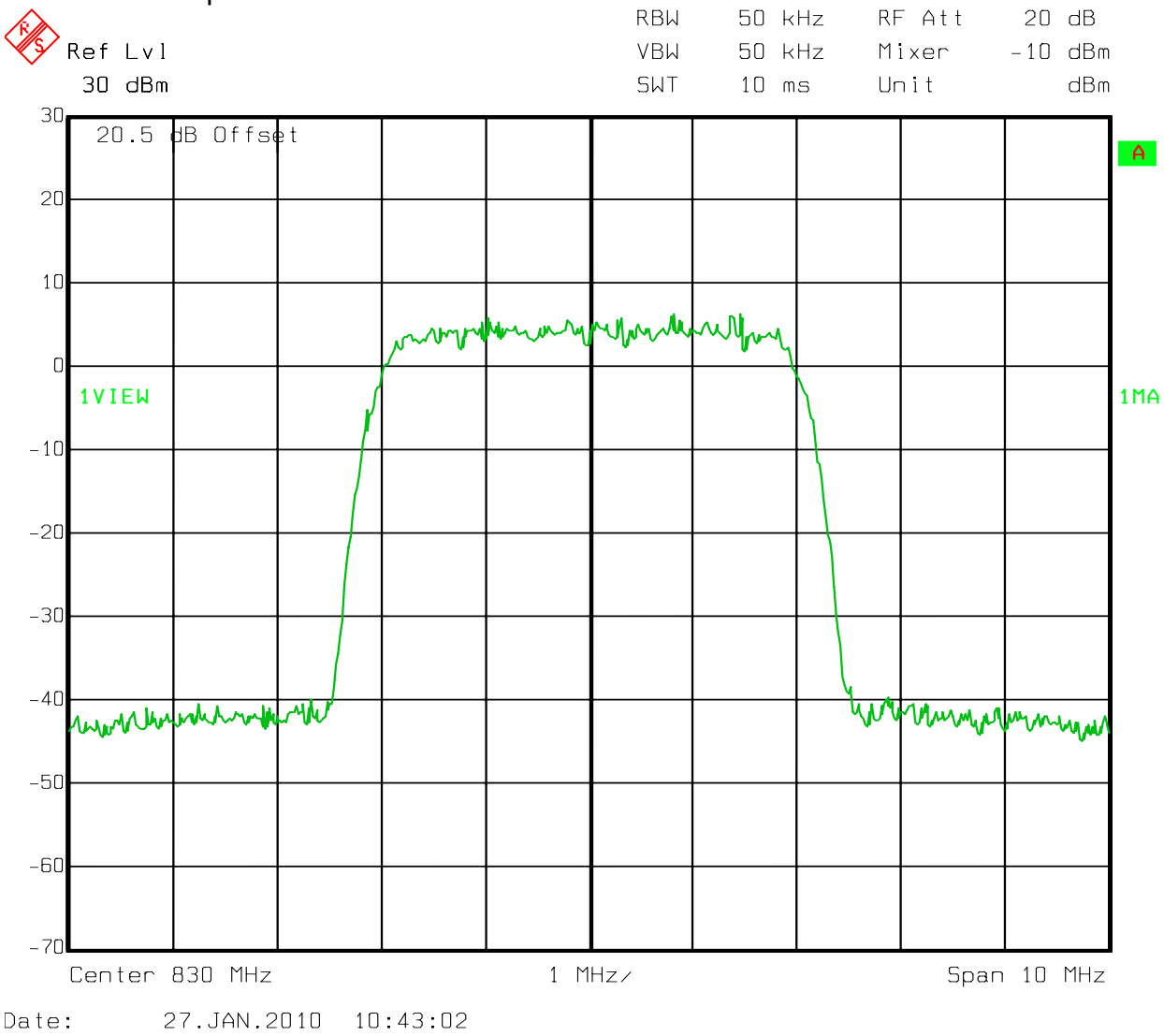
Uplink

GSM – Input



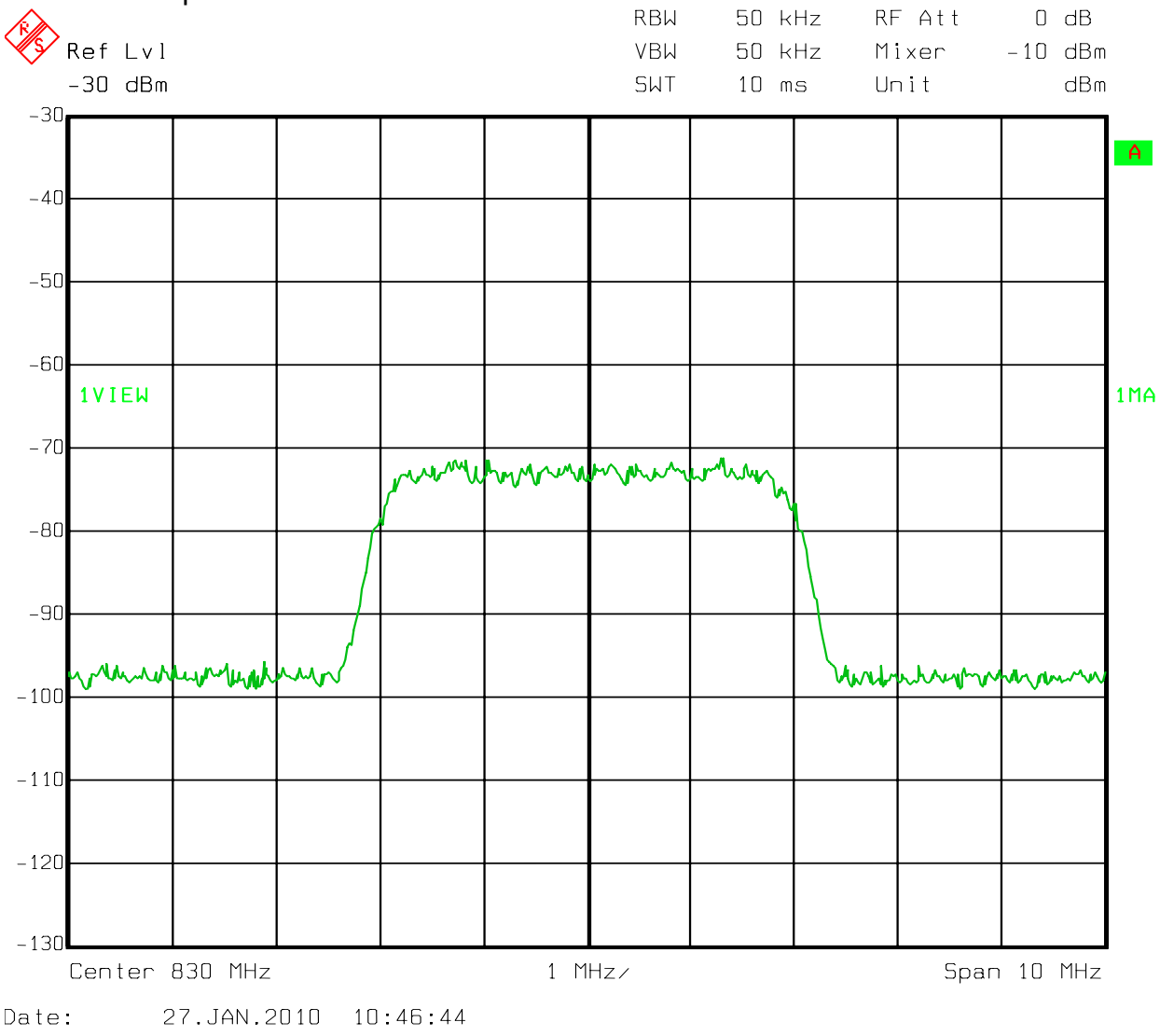
Test Data – Occupied Bandwidth

Uplink
W-CDMA - Output



Test Data – Occupied Bandwidth

Uplink
W-CDMA - Input



Section 4. Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions @ Antenna Terminals	PARA. NO.: 22.917
TESTED BY: David Light	DATE: 27 January 2010

Test Results: Complies.

Test Data: See attached plot(s).

Equipment Used: 1036-1082-1472

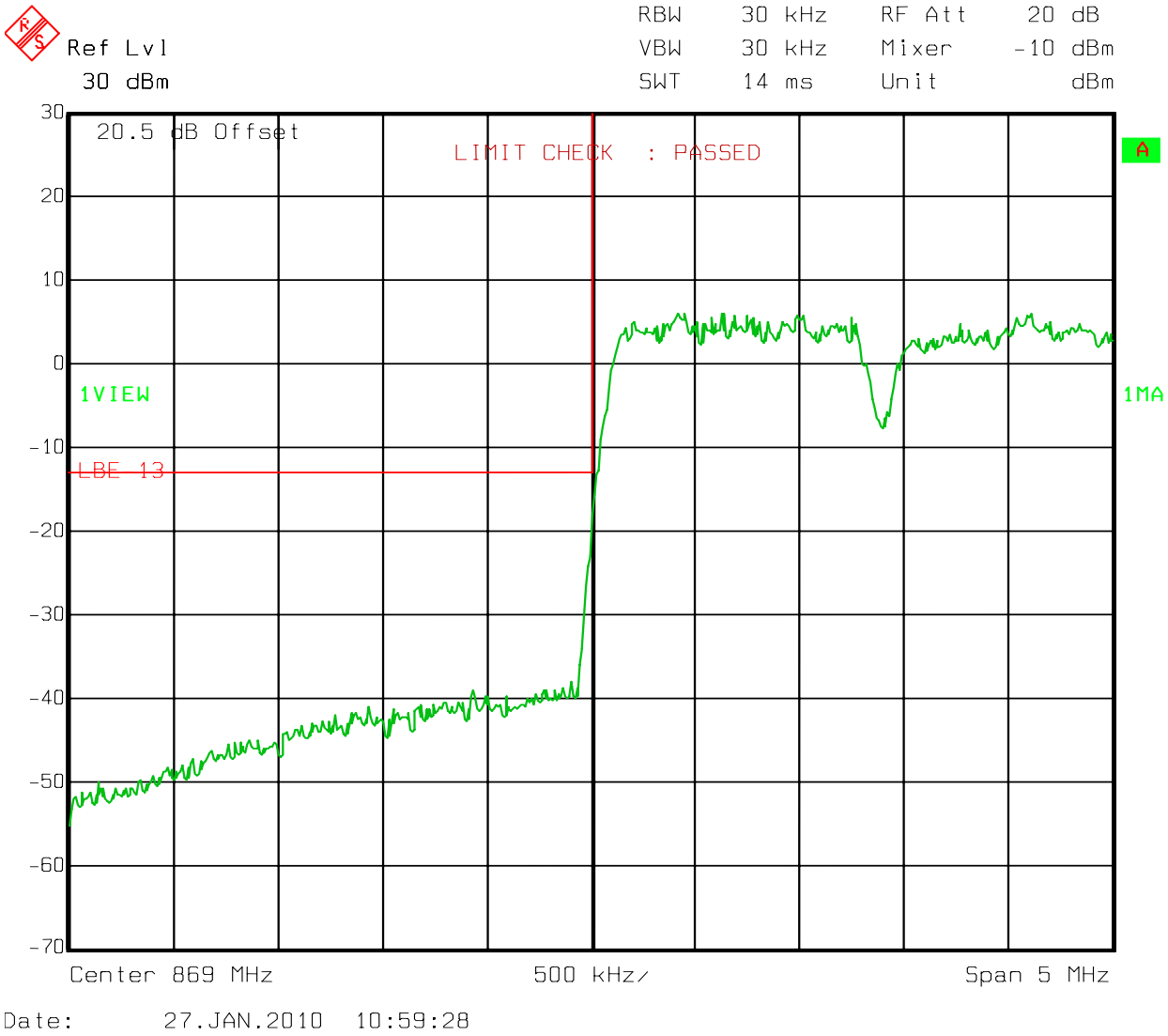
Measurement Uncertainty: +/- 1.7 dB

Temperature: 22 °C

Relative Humidity: 35 %

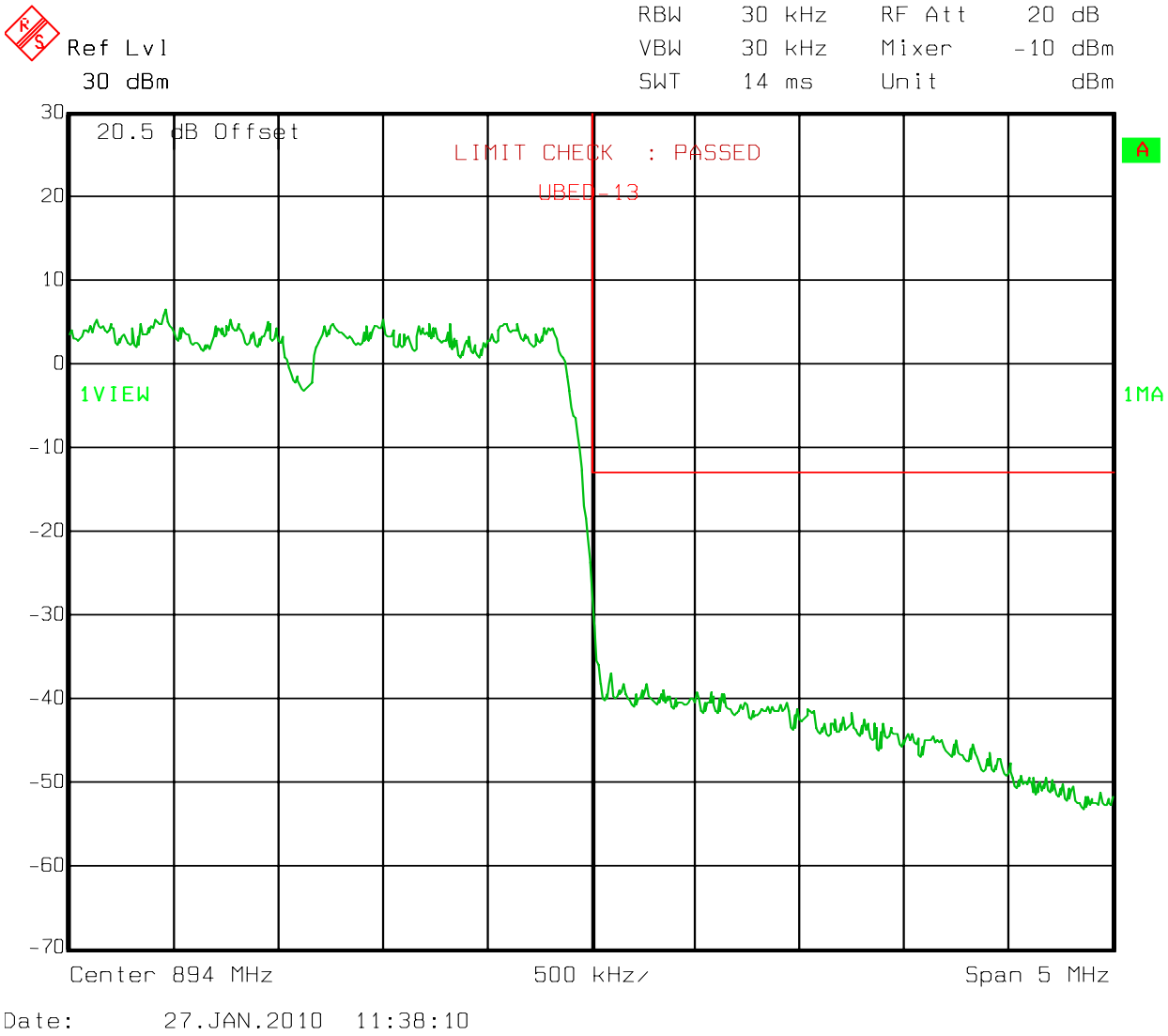
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Lower Bandedge Intermodulation
CDMA



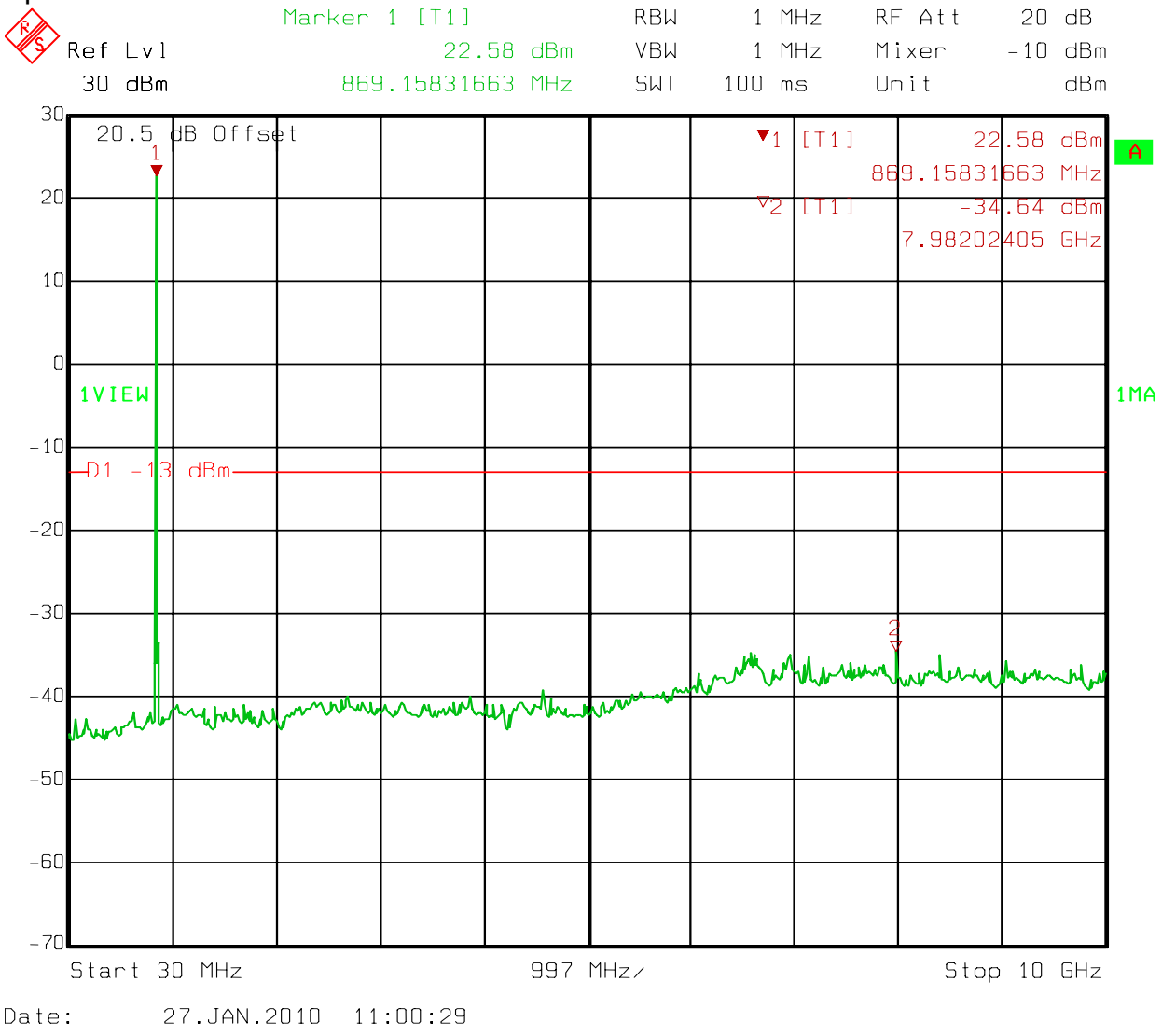
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
CDMA



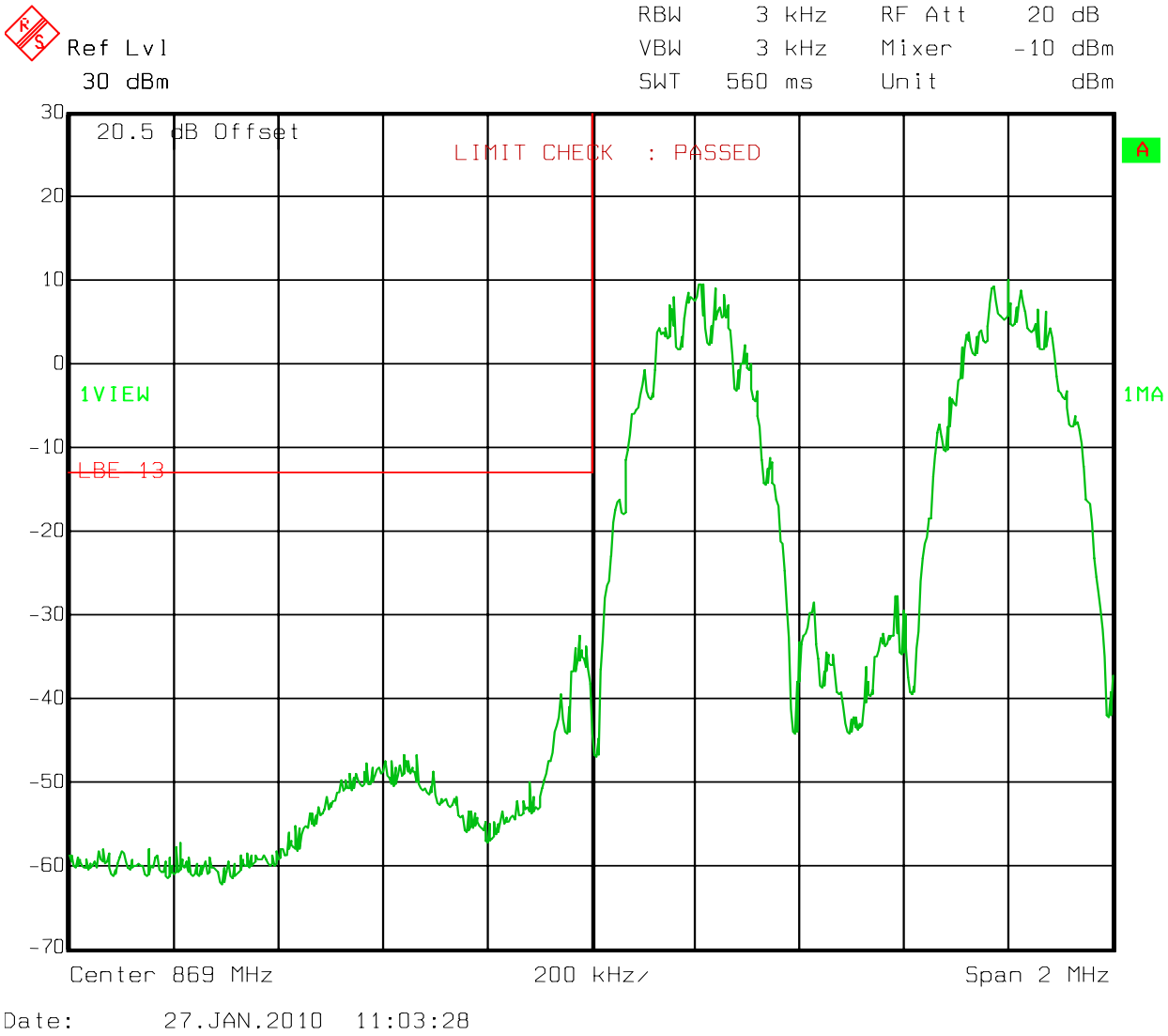
Test Data – Spurious Emissions at Antenna Terminals

Spurs – CDMA - Downlink



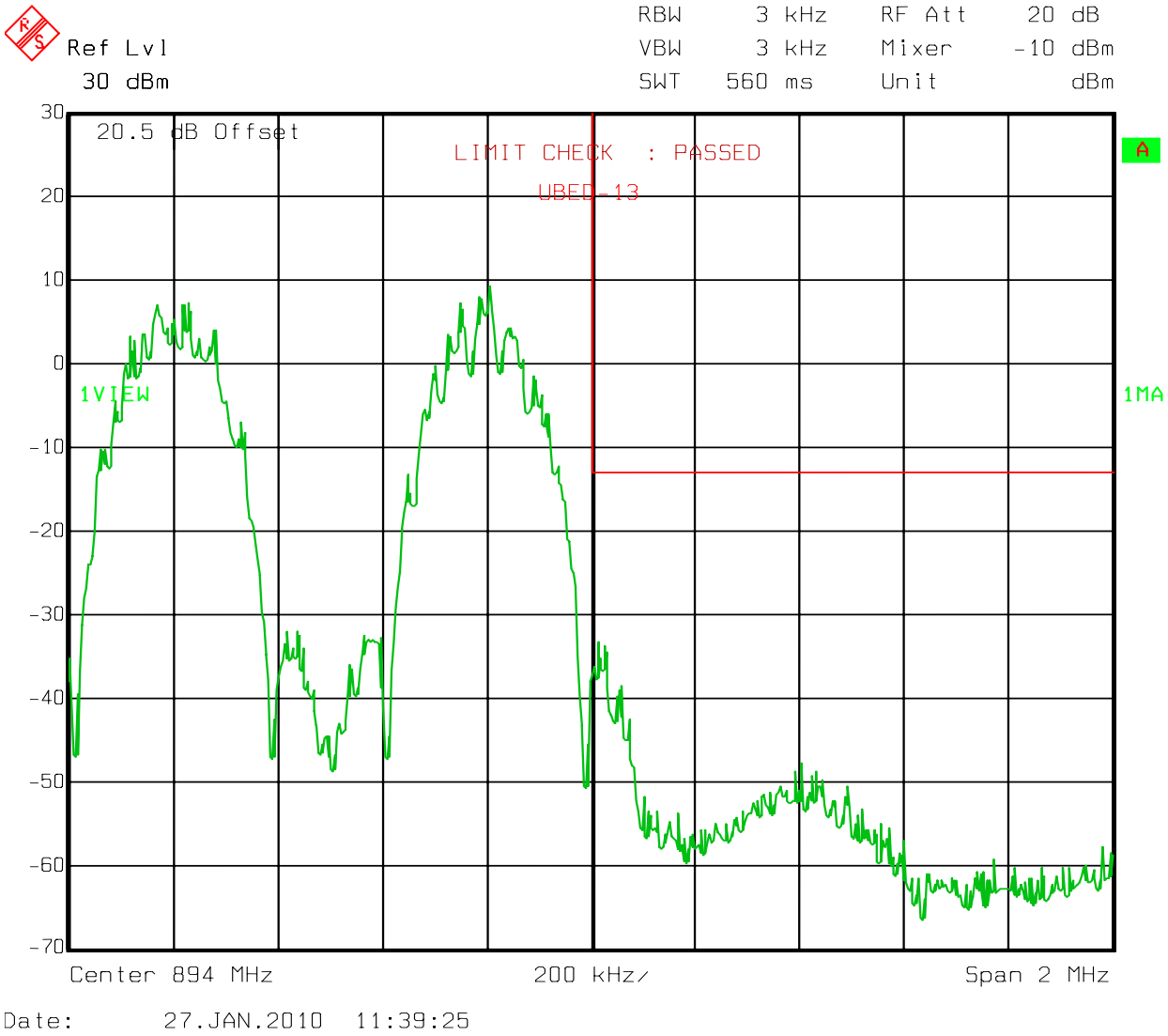
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Lower Bandedge Intermodulation
EDGE



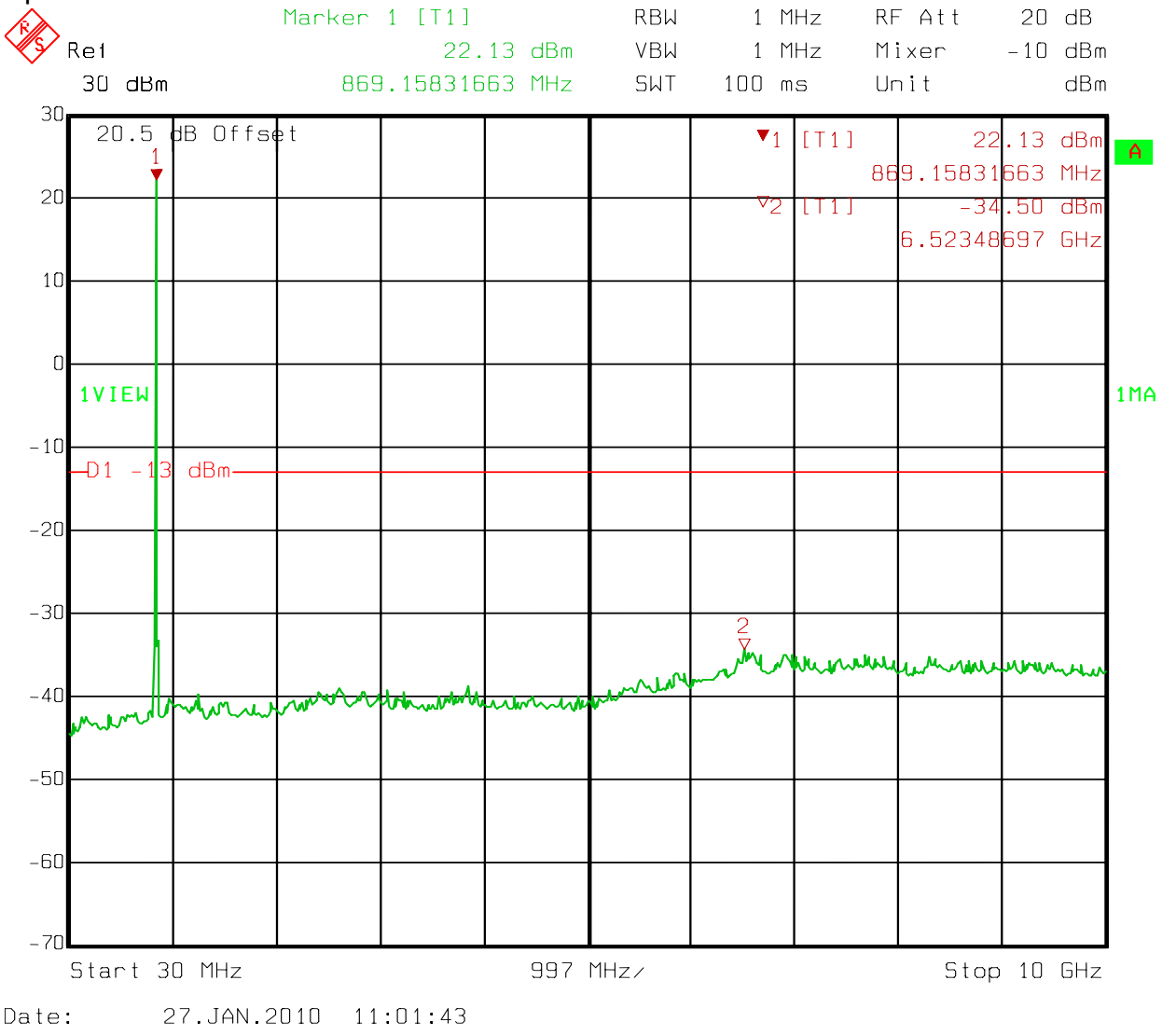
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
EDGE



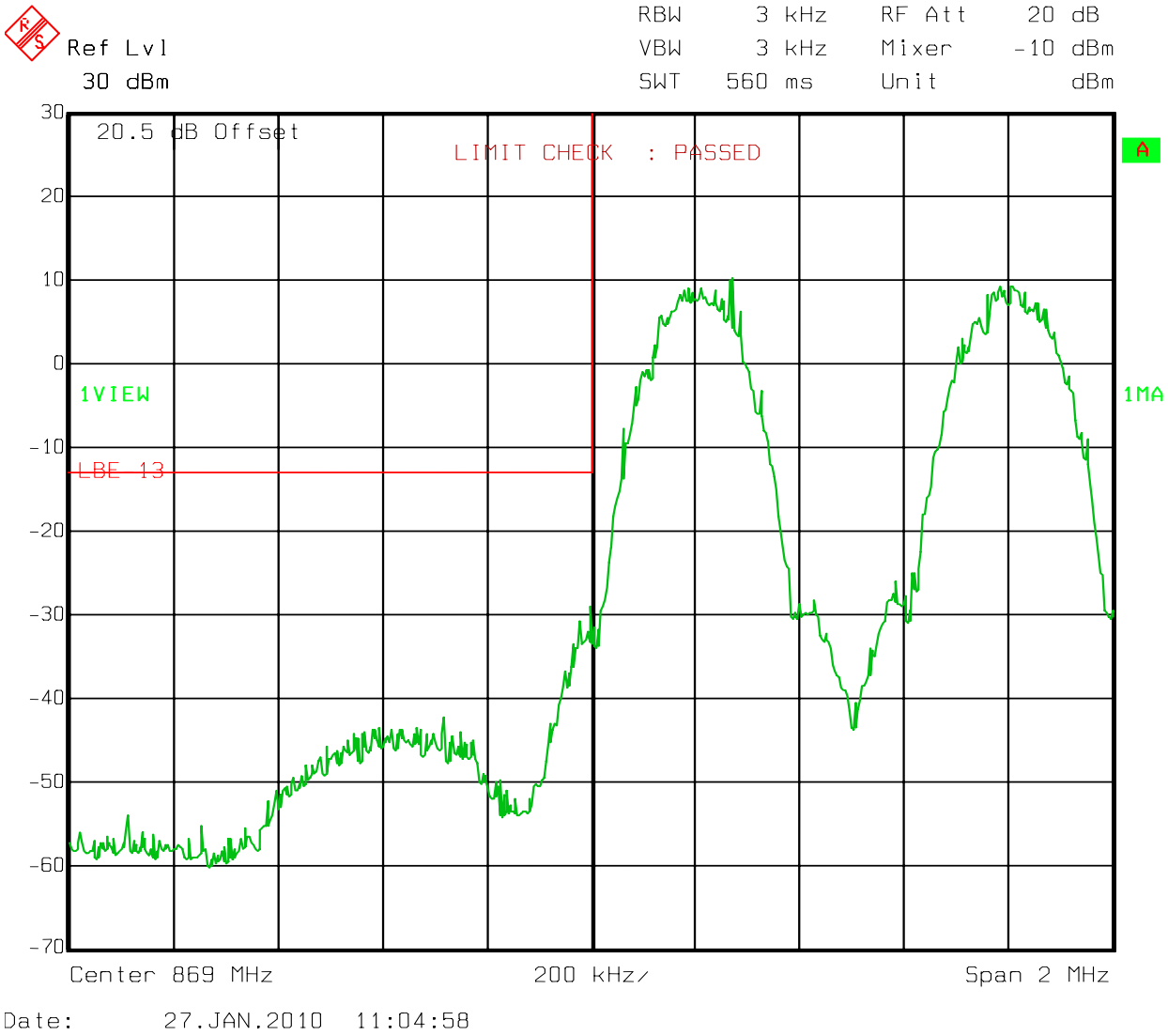
Test Data – Spurious Emissions at Antenna Terminals

Spurs – EDGE – Downlink



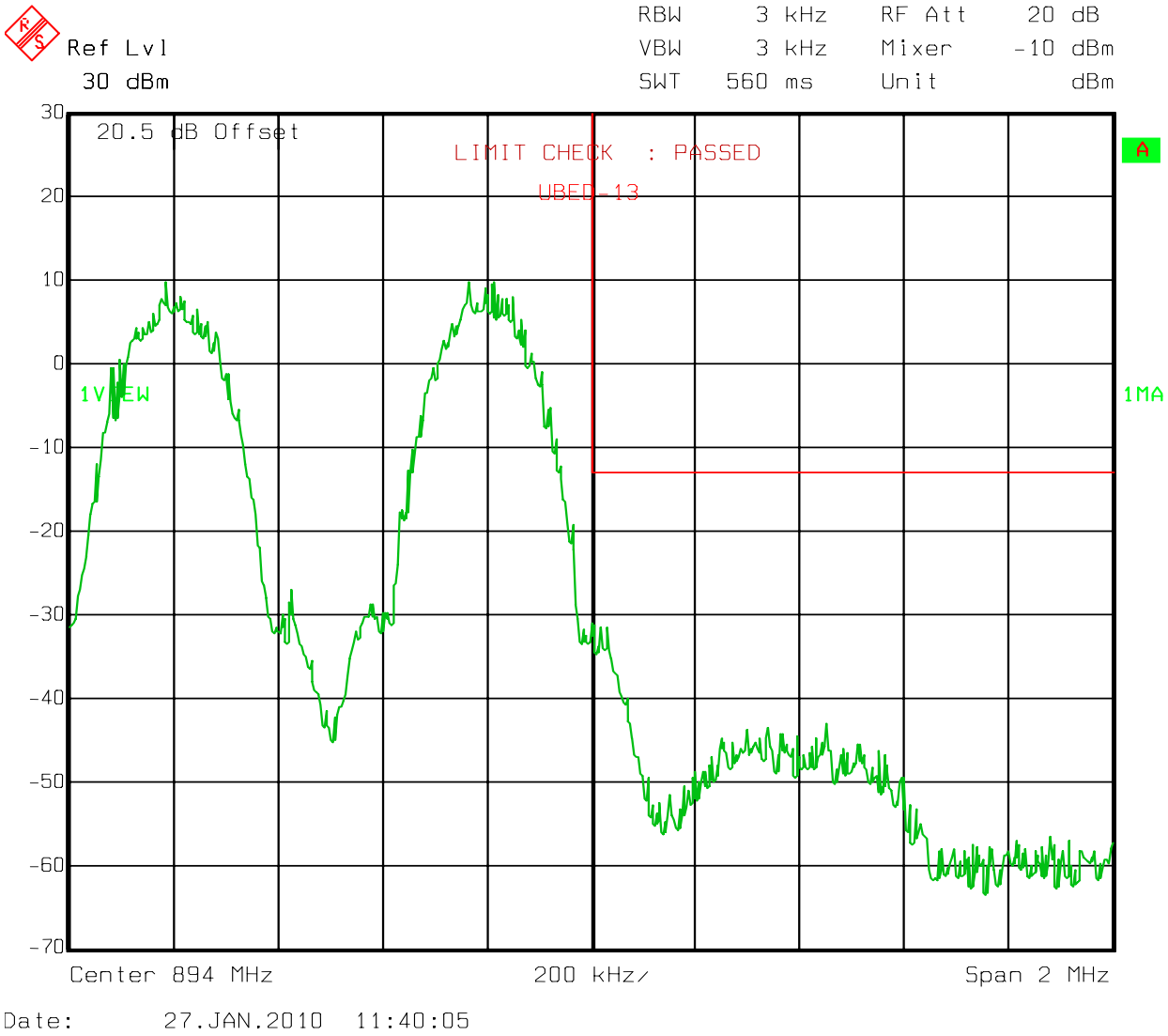
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Lower Bandedge Intermodulation
GSM



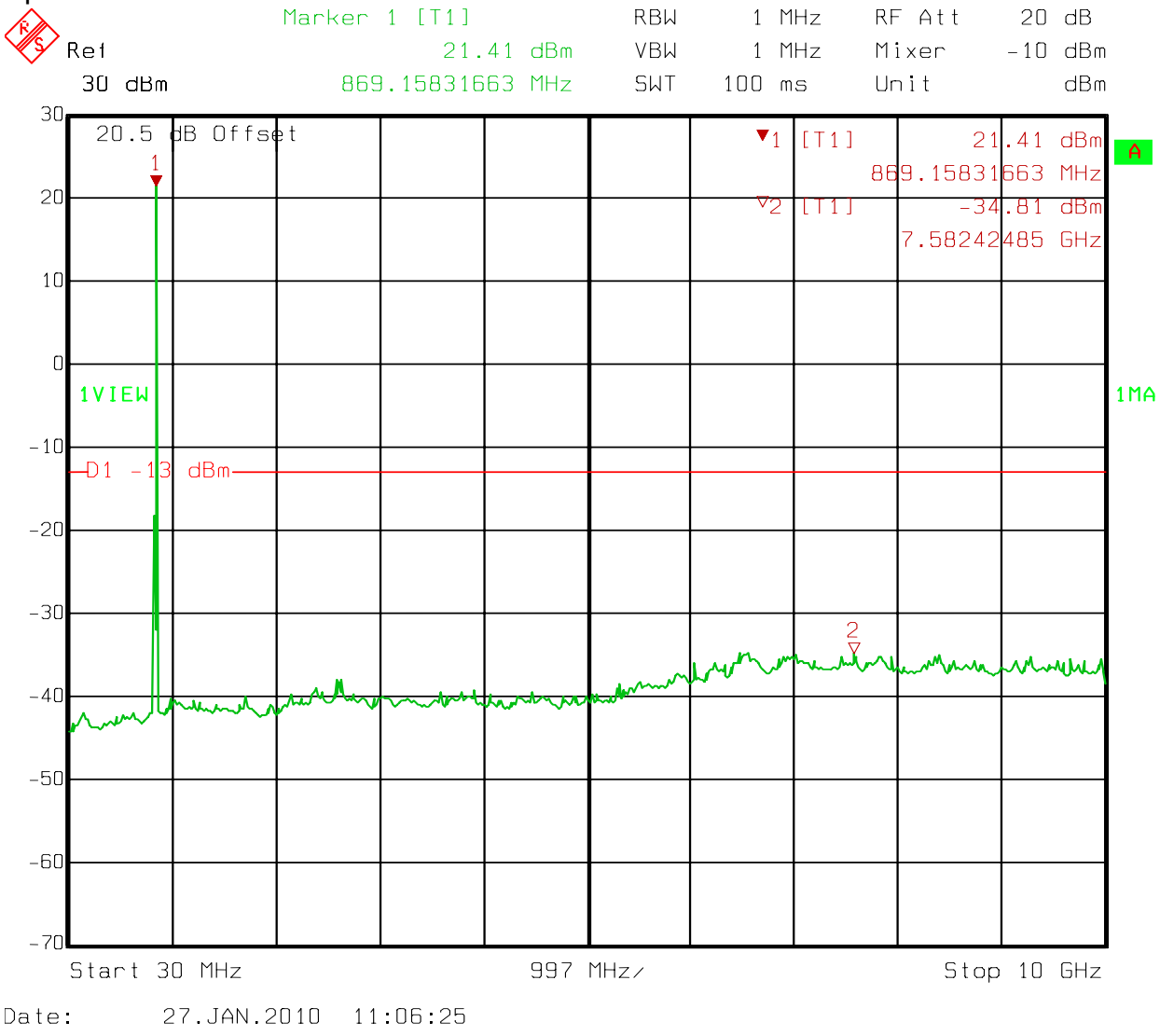
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
GSM



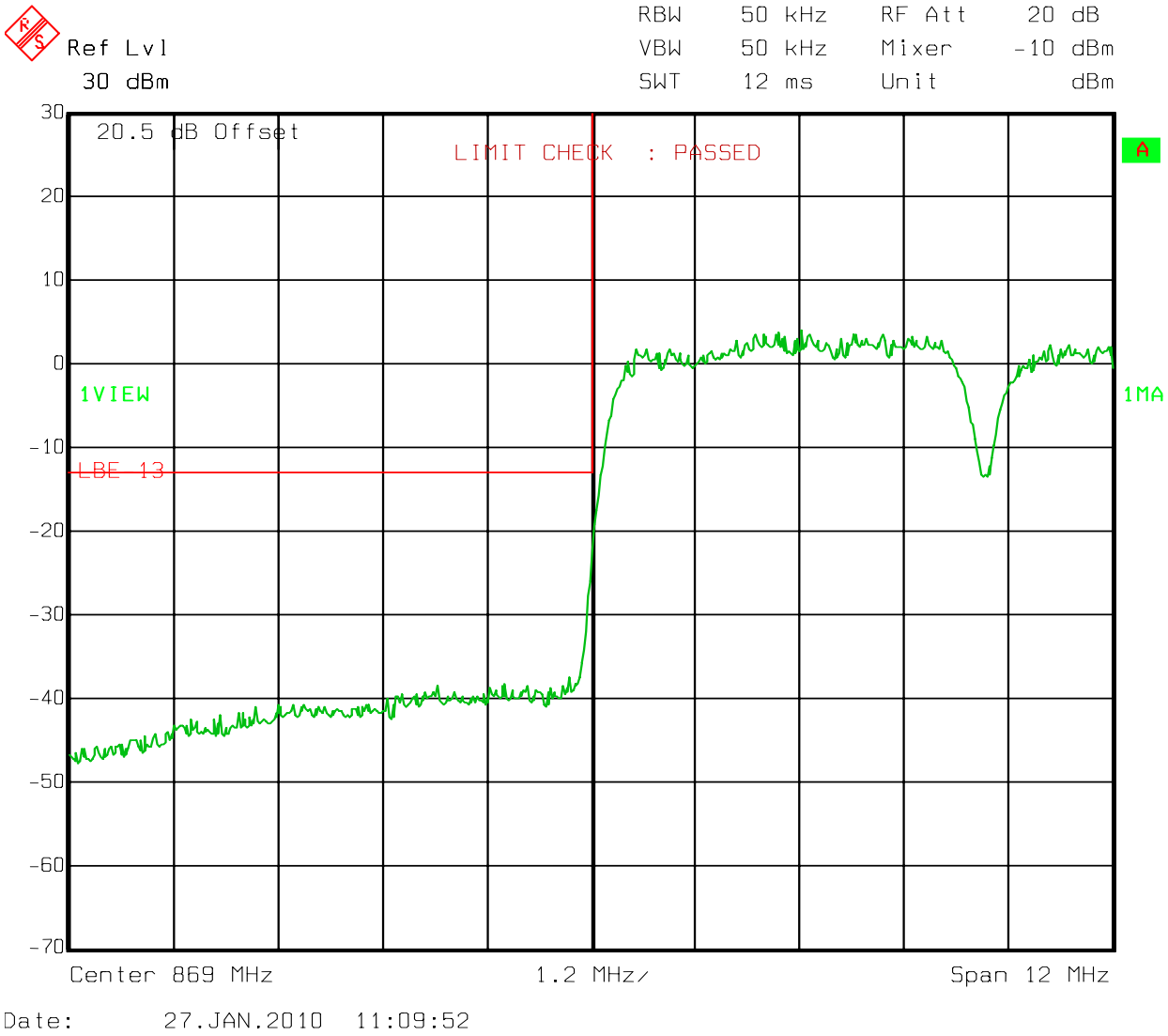
Test Data – Spurious Emissions at Antenna Terminals

Spurs – GSM – Downlink



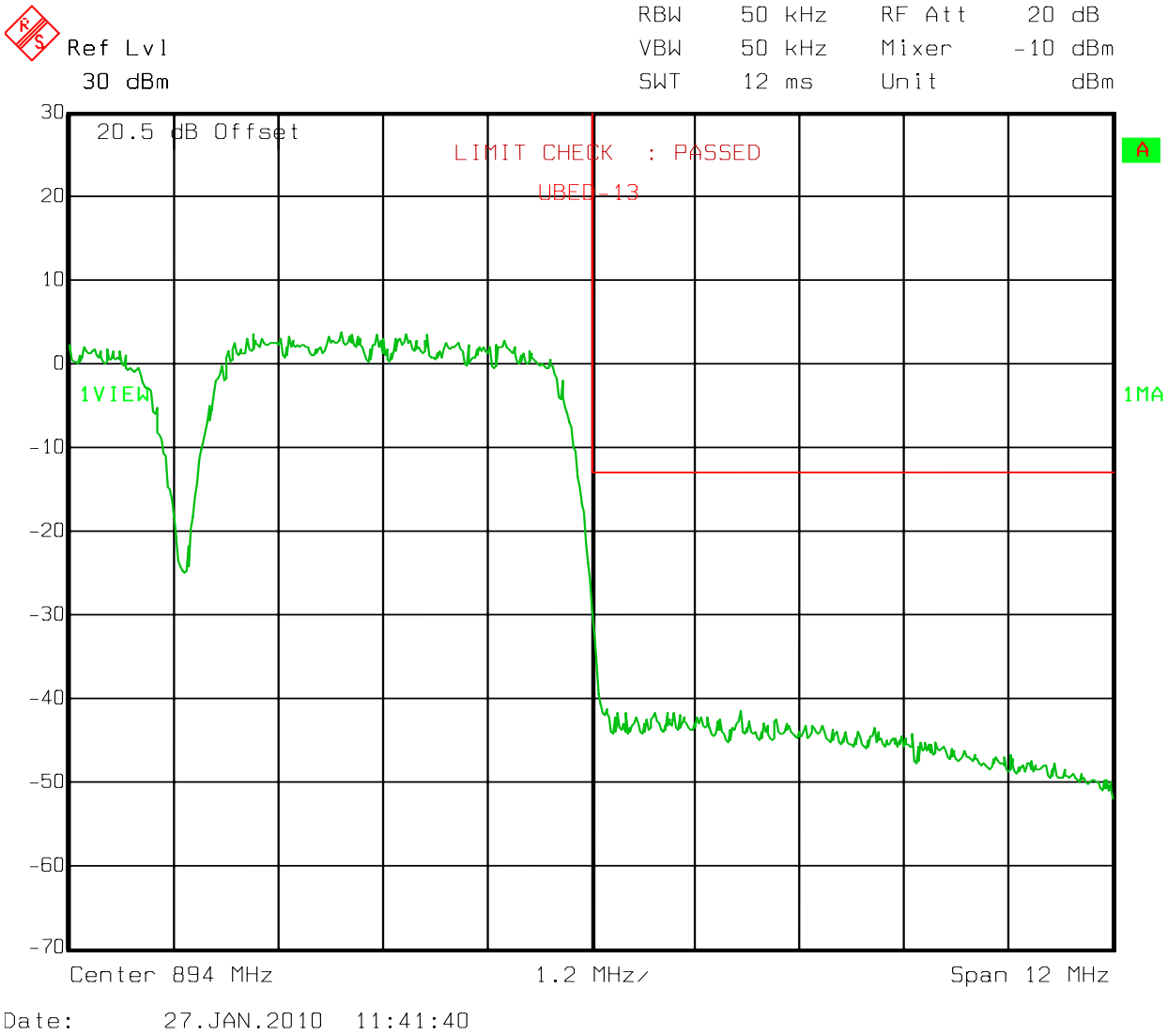
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Lower Bandedge Intermodulation
W-CDMA



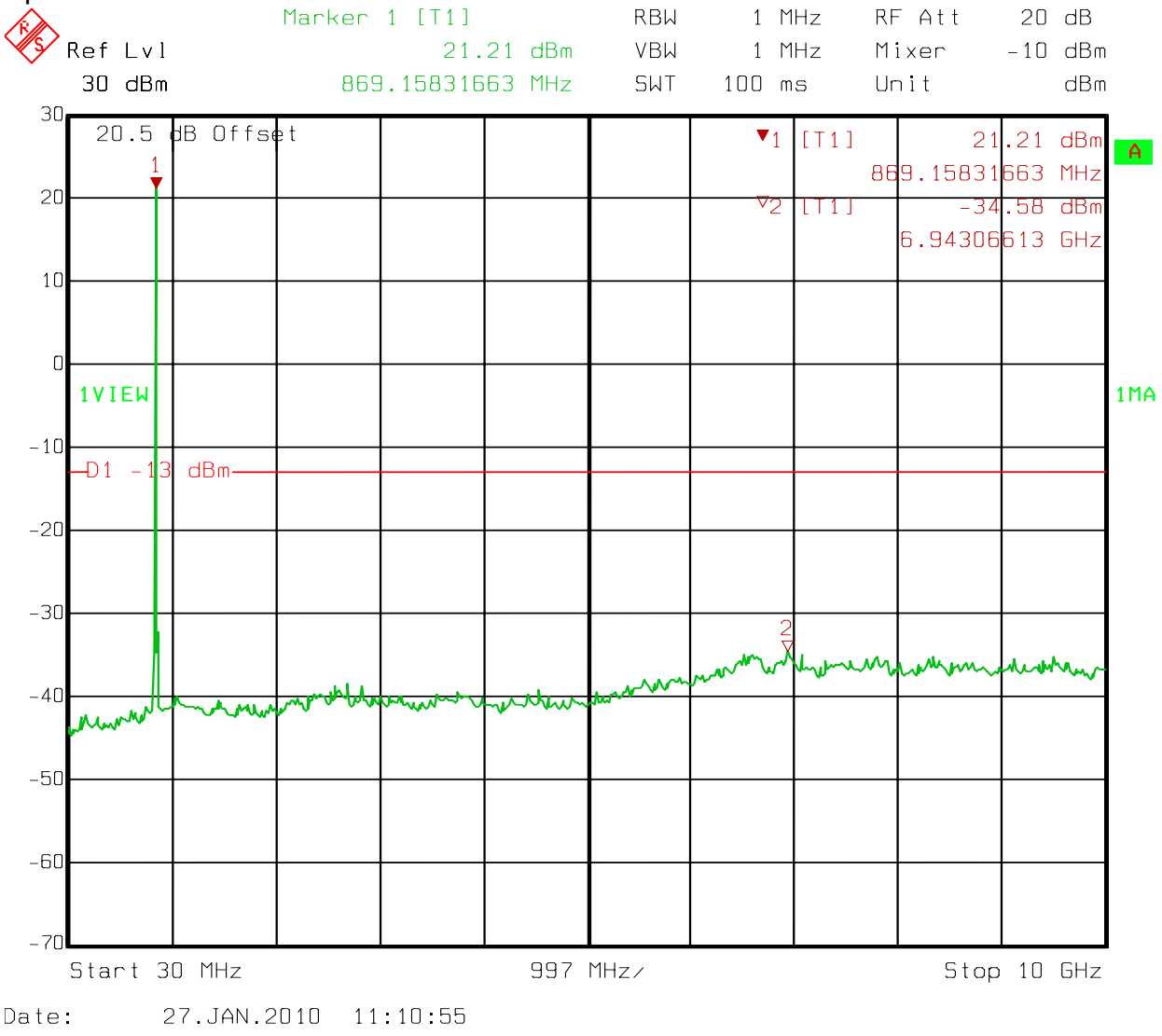
Test Data – Spurious Emissions at Antenna Terminals

Downlink - Upper Bandedge Intermodulation
W-CDMA



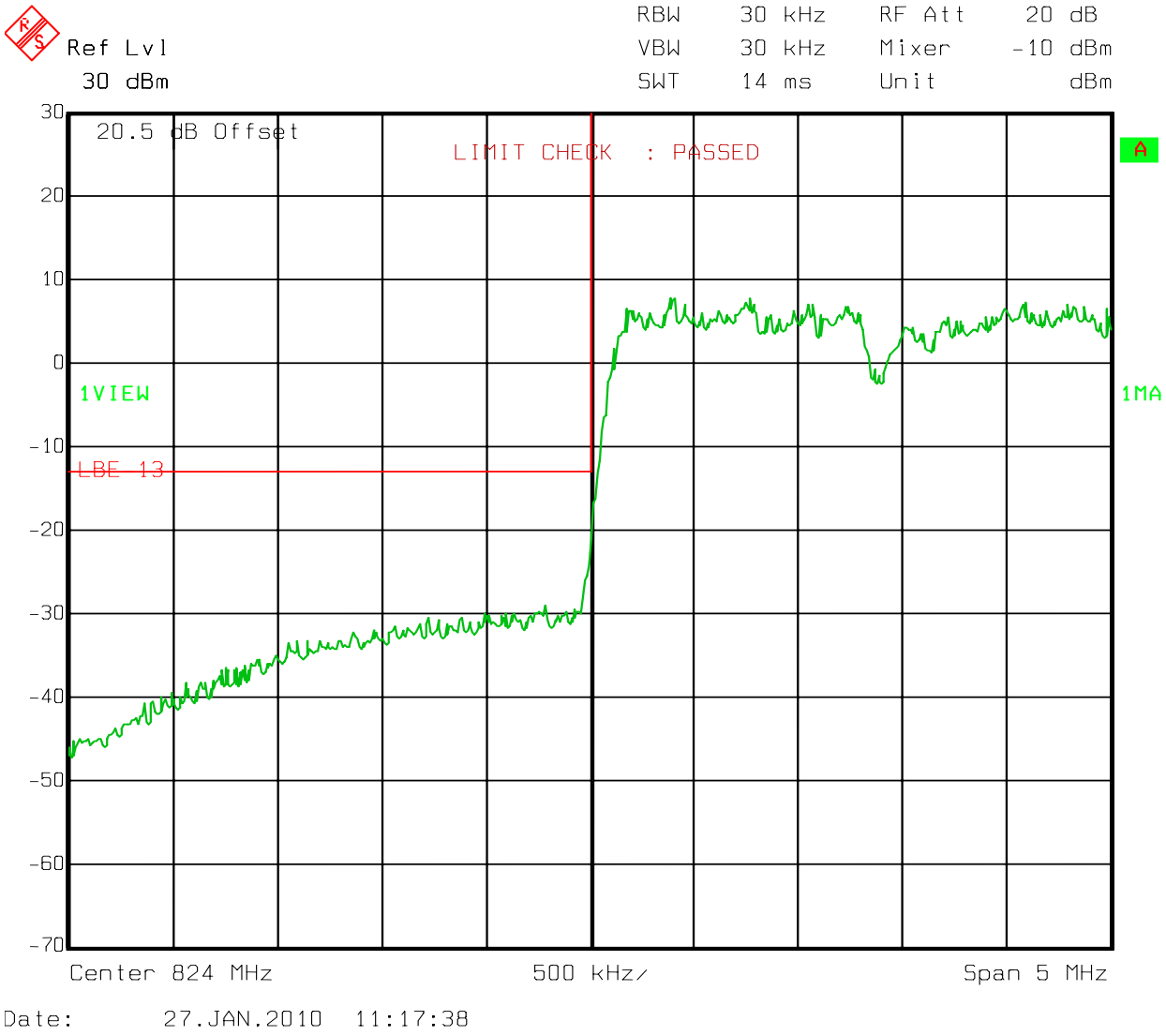
Test Data – Spurious Emissions at Antenna Terminals

Spurs – W-CDMA - Downlink



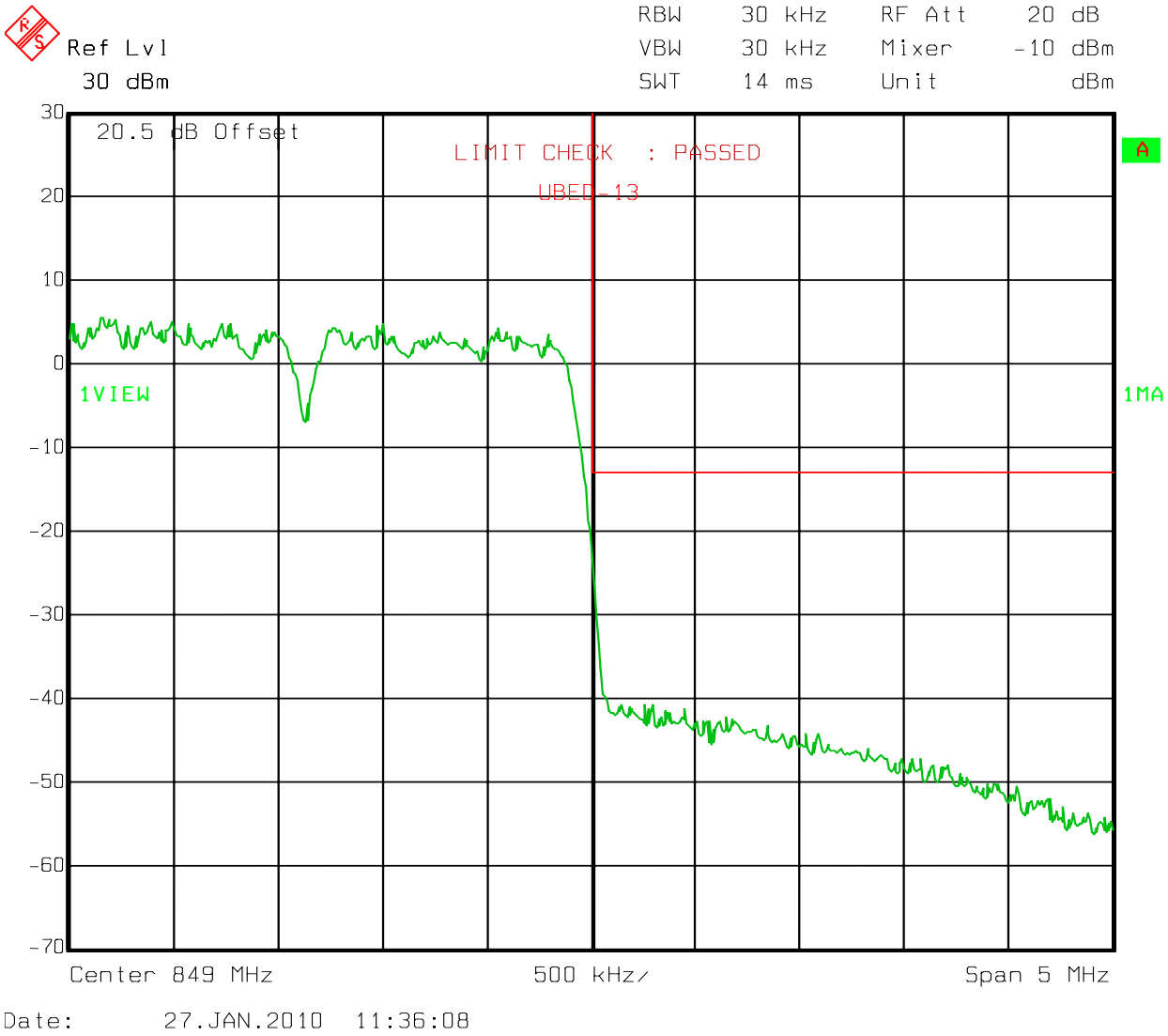
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Lower Bandedge Intermodulation
CDMA



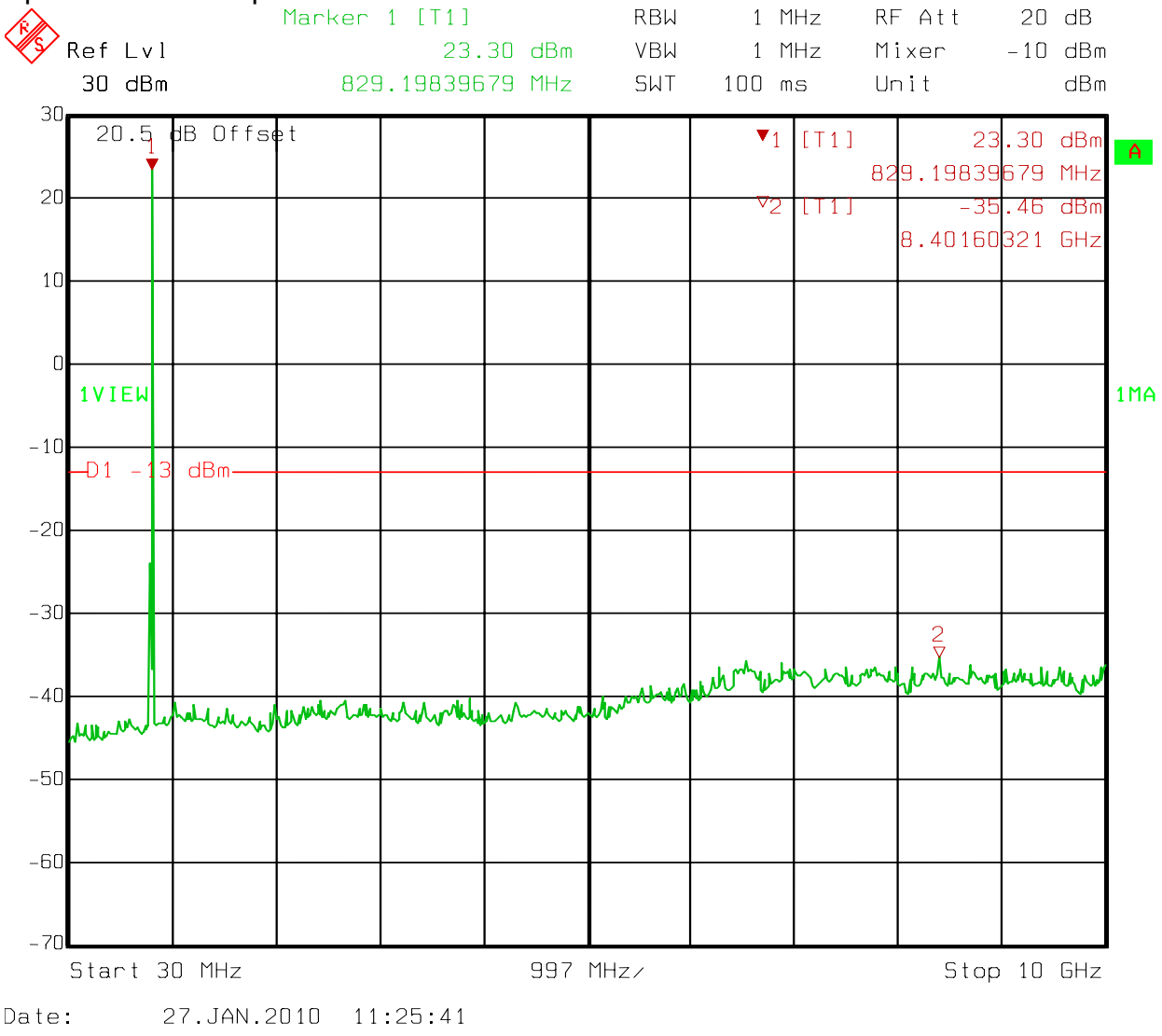
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Upper Bandedge Intermodulation
CDMA



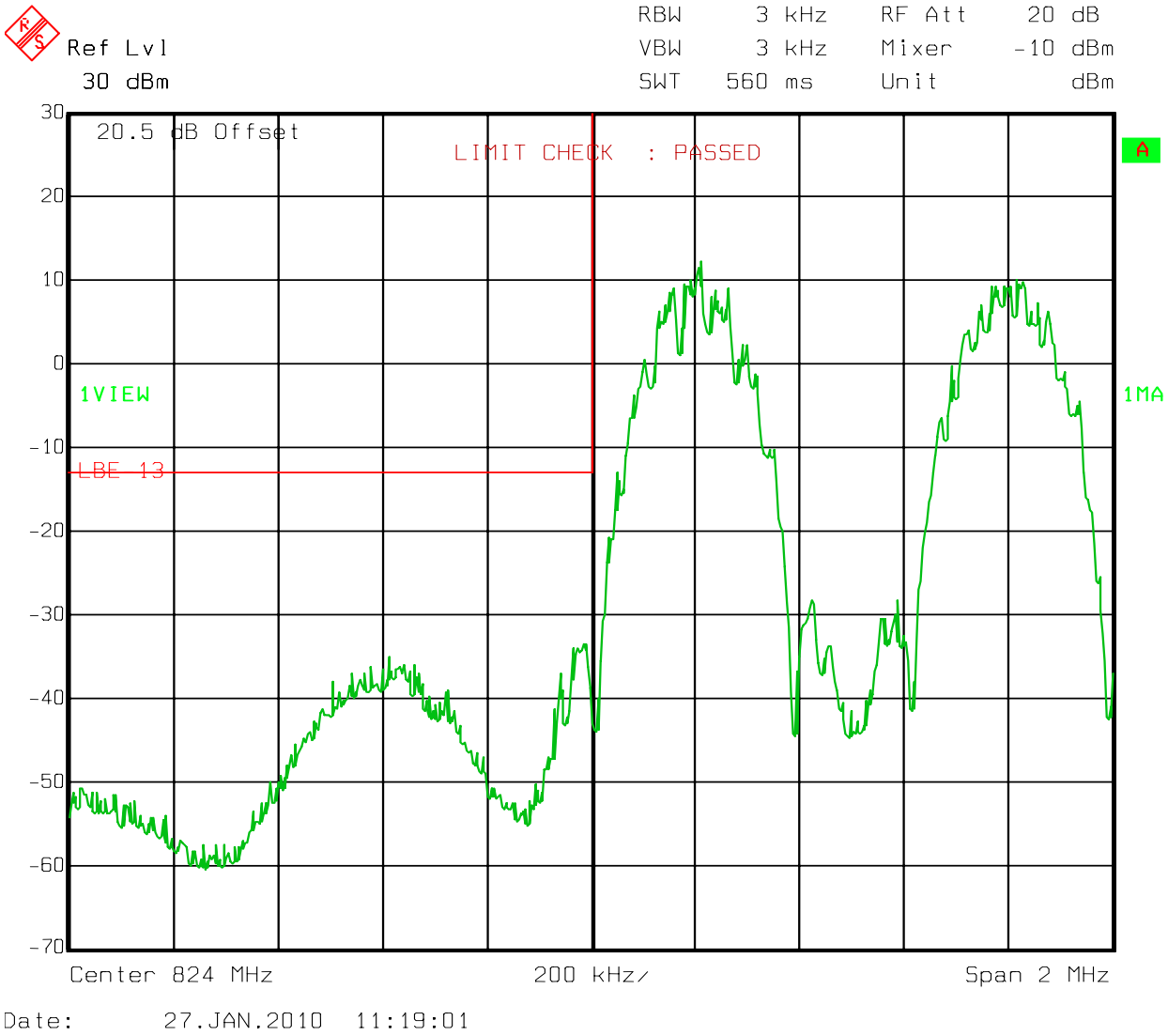
Test Data – Spurious Emissions at Antenna Terminals

Spurs – CDMA - Uplink



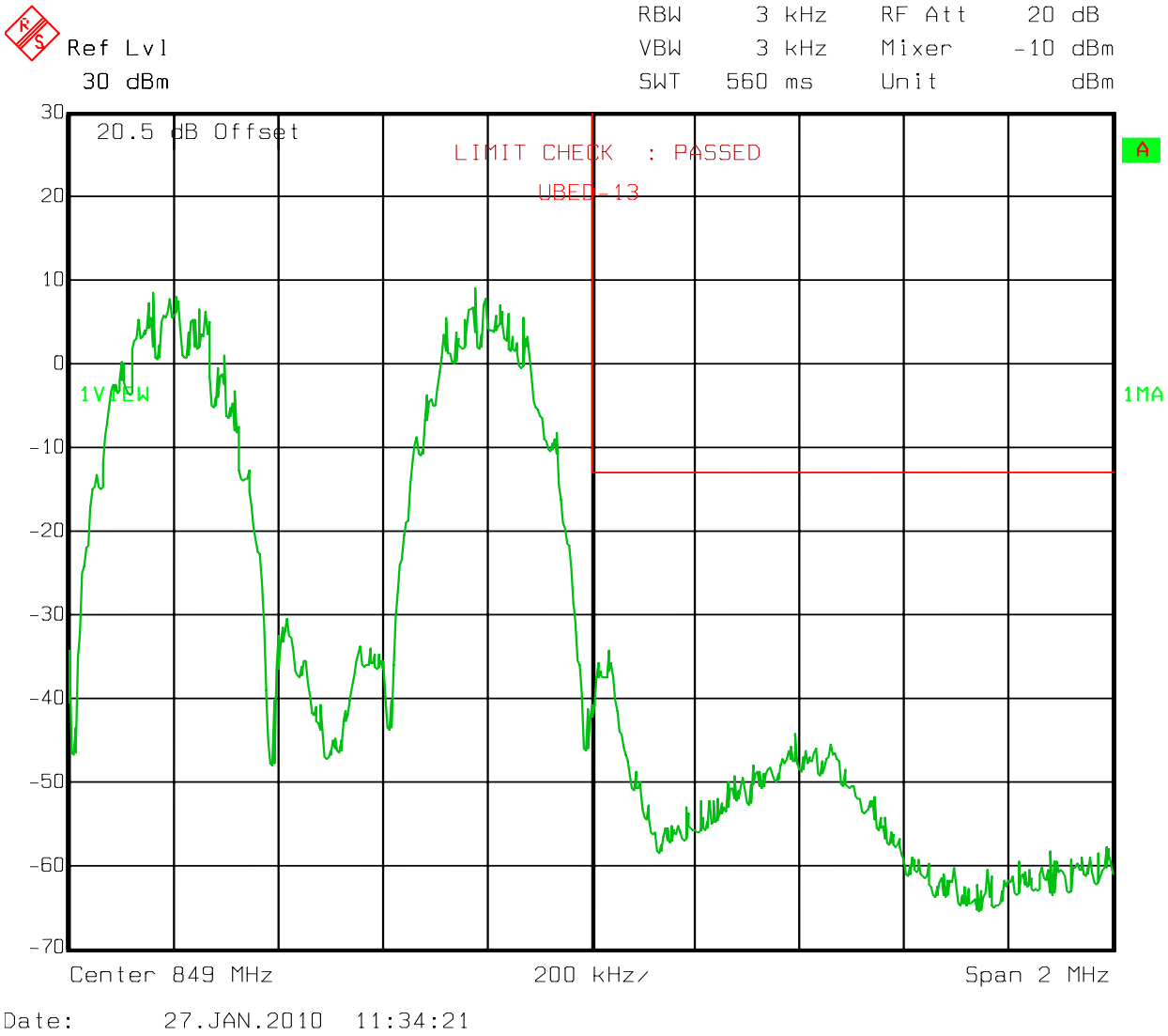
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Lower Bandedge Intermodulation
EDGE



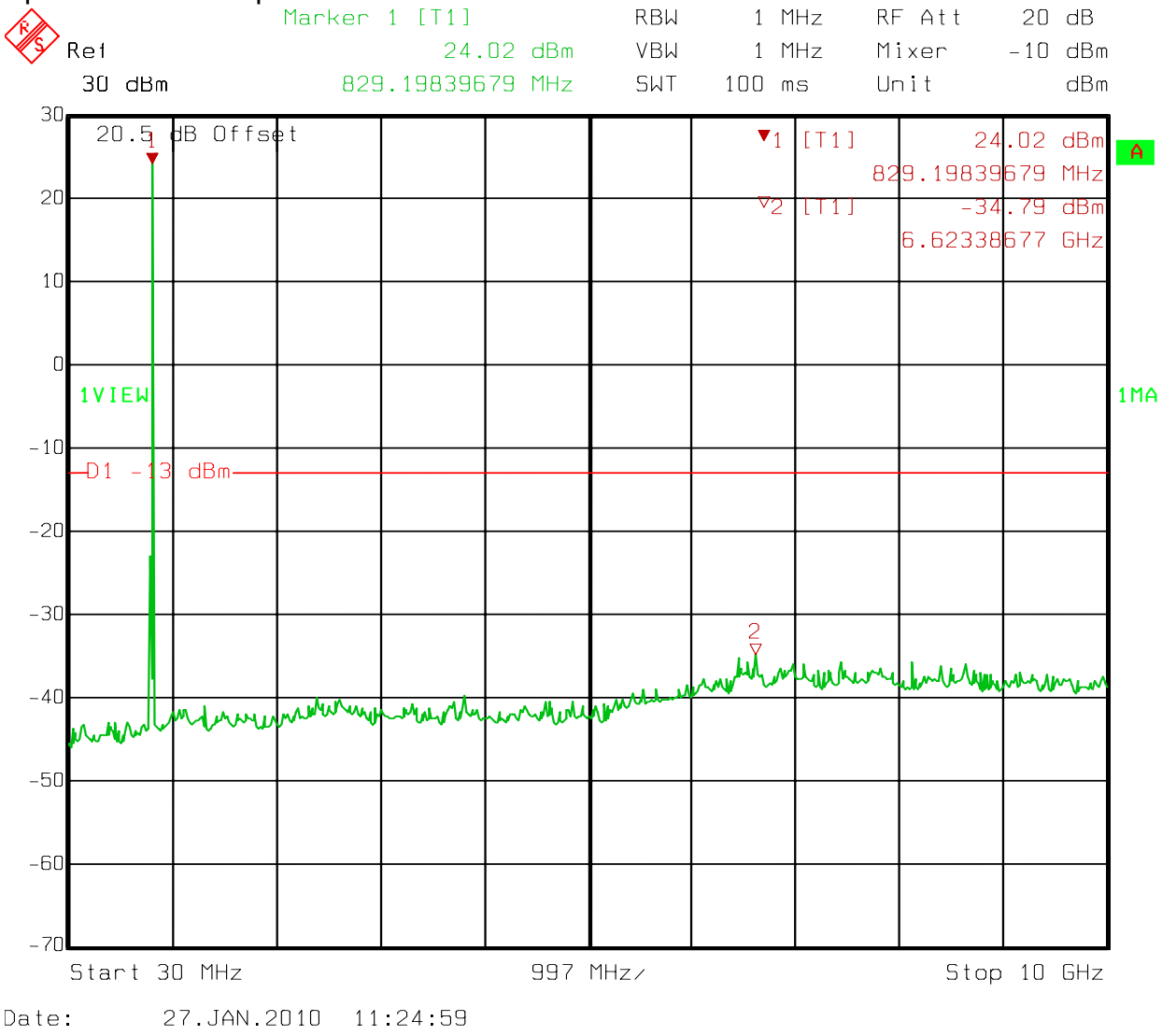
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Upper Bandedge Intermodulation
EDGE



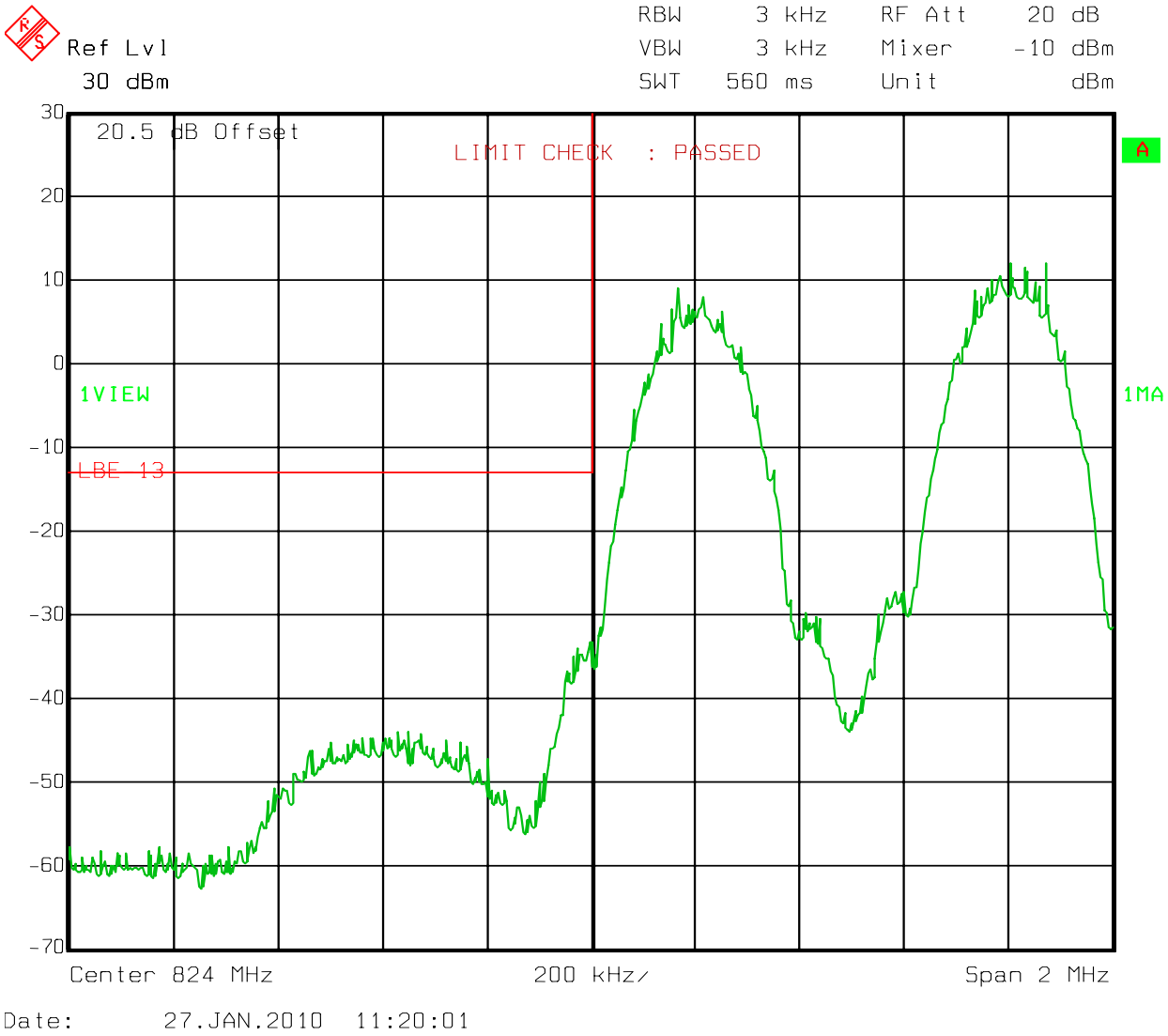
Test Data – Spurious Emissions at Antenna Terminals

Spurs – EDGE – Uplink



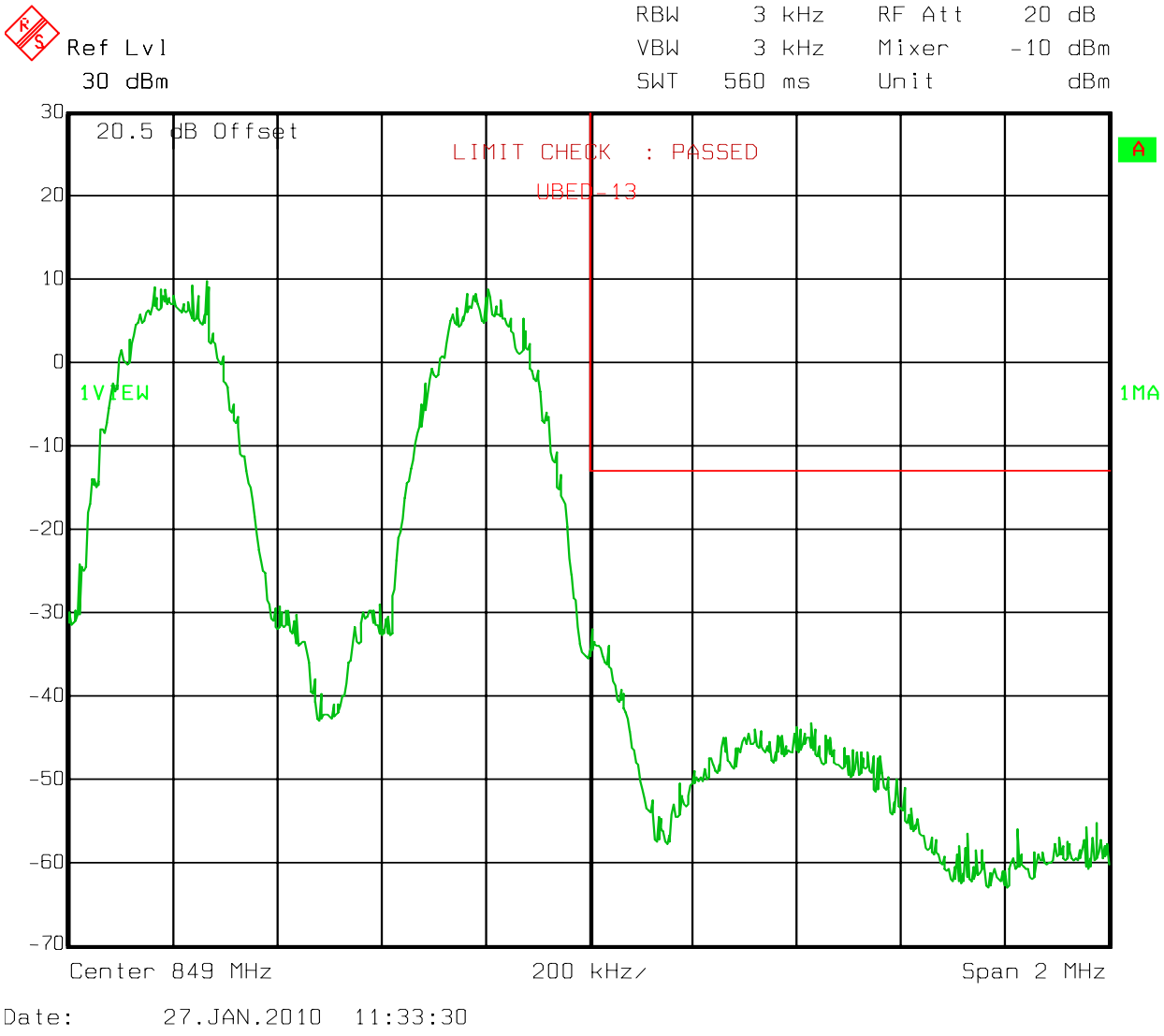
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Lower Bandedge Intermodulation
GSM



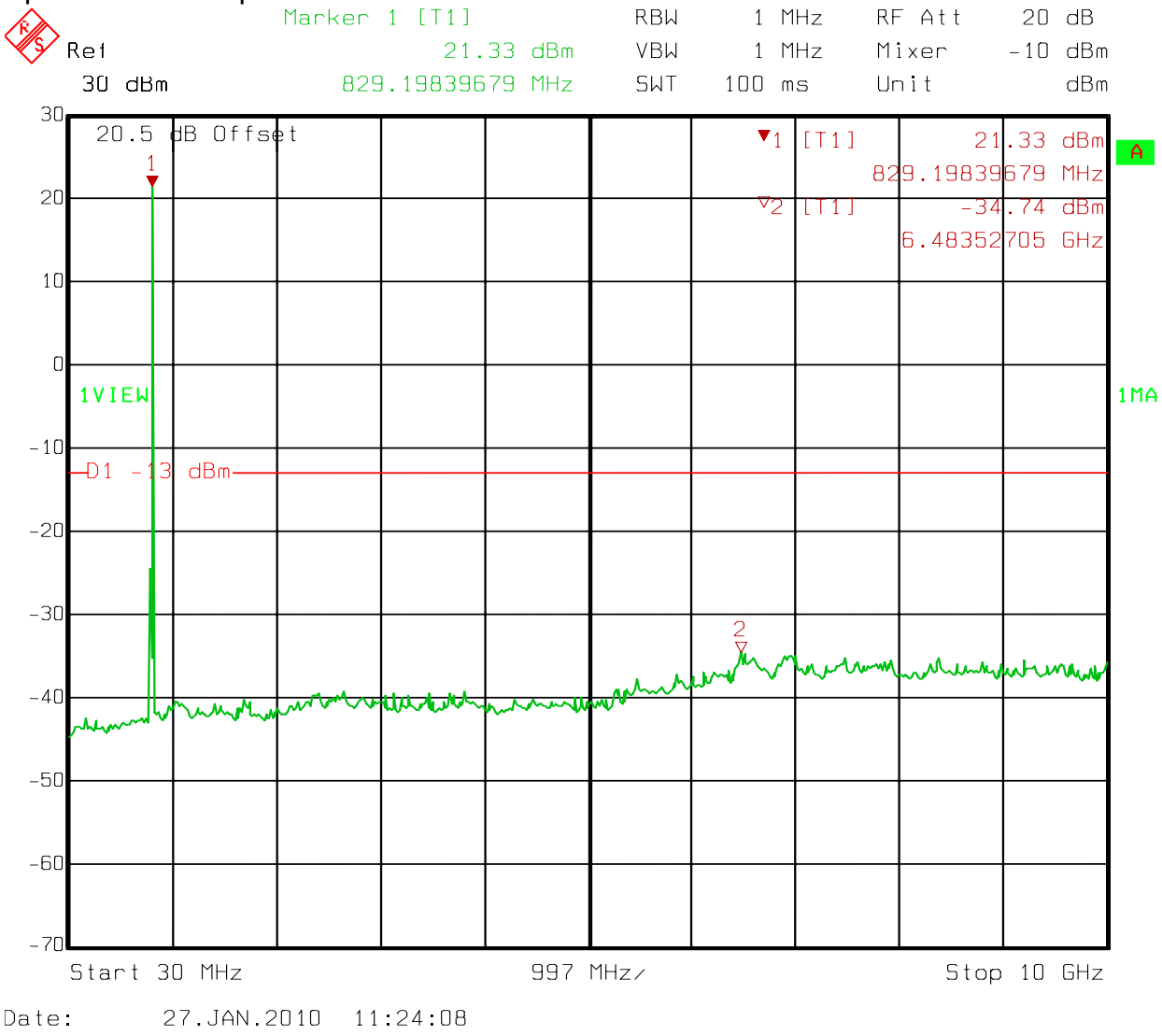
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Upper Bandedge Intermodulation
GSM



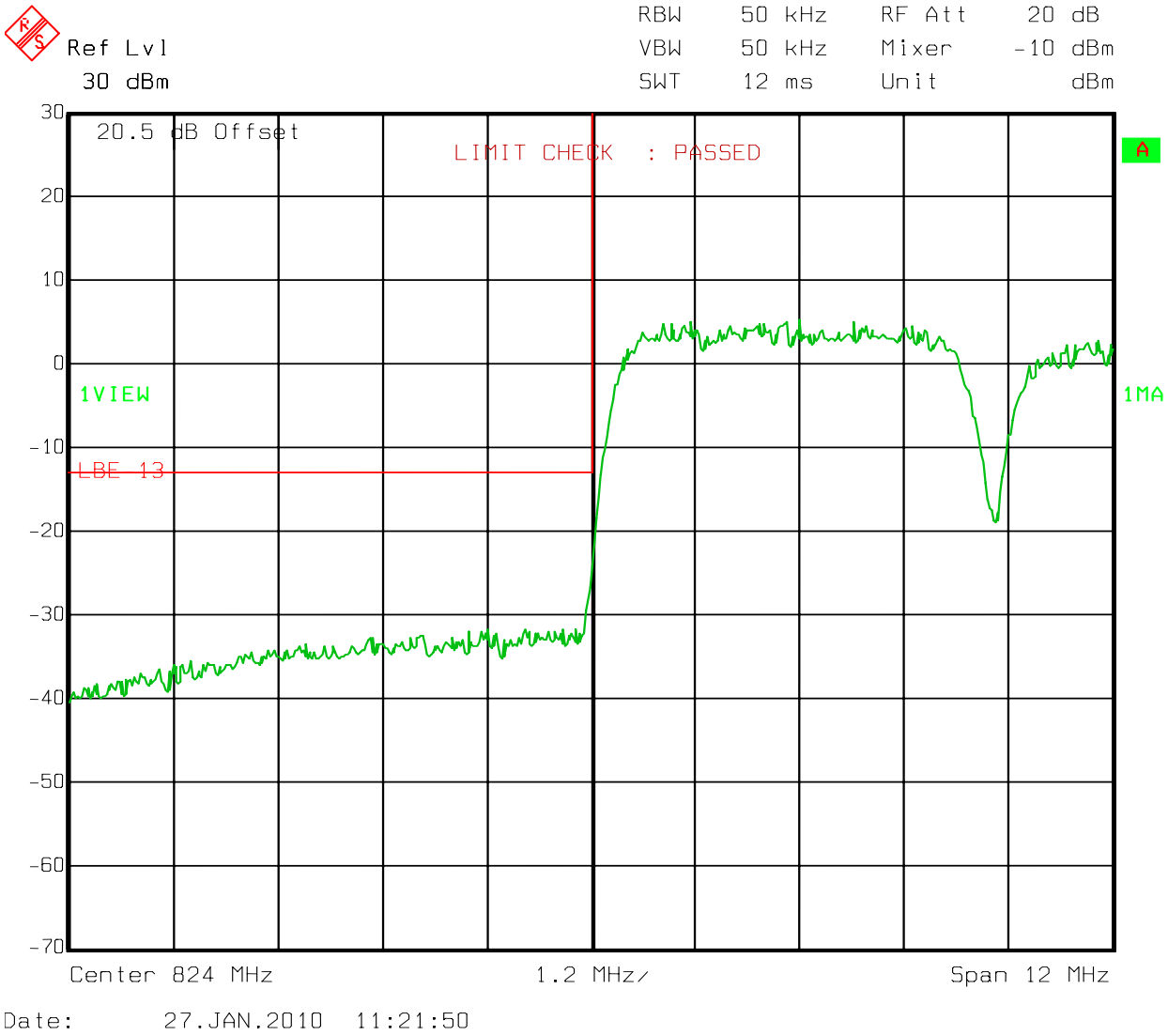
Test Data – Spurious Emissions at Antenna Terminals

Spurs – GSM – Uplink



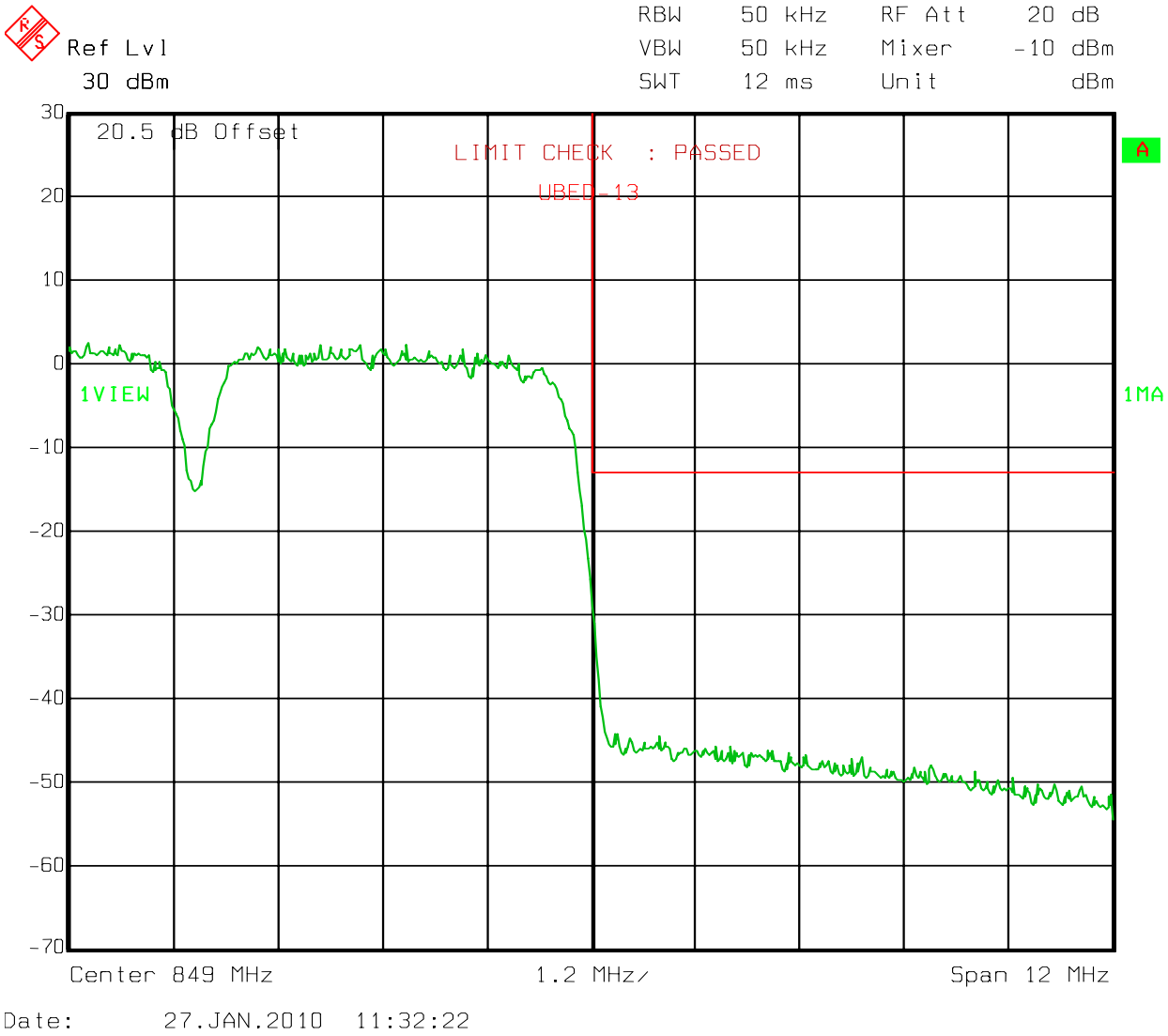
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Lower Bandedge Intermodulation
W-CDMA



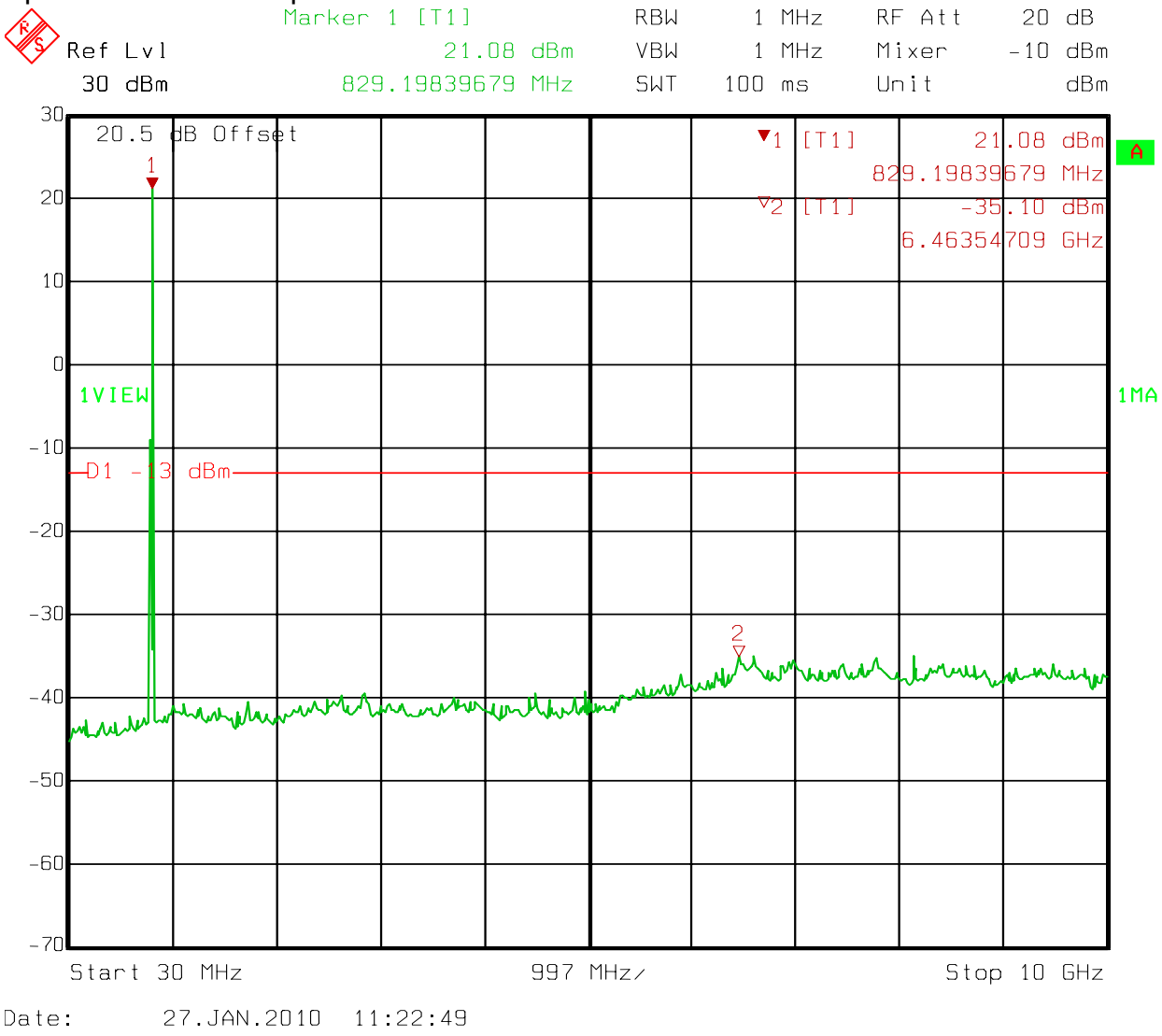
Test Data – Spurious Emissions at Antenna Terminals

Uplink - Upper Bandedge Intermodulation
W-CDMA



Test Data – Spurious Emissions at Antenna Terminals

Spurs – W-CDMA - Uplink



Section 5. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ	830844/006	01/19/09	01/20/11
		FSEK30			
1082	CABLE 2m	Astrolab	N/A	CBU	N/A
		32027-2-29094-72TC			
1472	20db Attenuator DC 18 Ghz	Omni Spectra	NONE	CBU	N/A
		20600-20db			

ANNEX A - TEST DETAILS

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

Minimum Standard: Not defined (Input/Output)

Method Of Measurement:

CDMA

Spectrum analyzer settings:
RBW=VBW=30 kHz
Span: 5 MHz
Sweep: Auto

GSM / EDGE

RBW=VBW= 3 kHz
Span: 1 MHz
Sweep: Auto

TDMA

RBW=VBW= 1 kHz
Span: 1 MHz
Sweep: Auto

W-CDMA

RBW=VBW= 100 kHz
Span: 10 MHz
Sweep: Auto

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

Minimum Standard: Para. No. 22.917(e). The mean power of emissions must be attenuated below the mean power of the unmodulated carrier on any frequency twice or more than twice the fundamental emission by at least 43 + 10 log P. This is equivalent to -13 dBm absolute power.

Method Of Measurement:

Spectrum analyzer settings:

CDMA

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

GSM / EDGE

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

TDMA

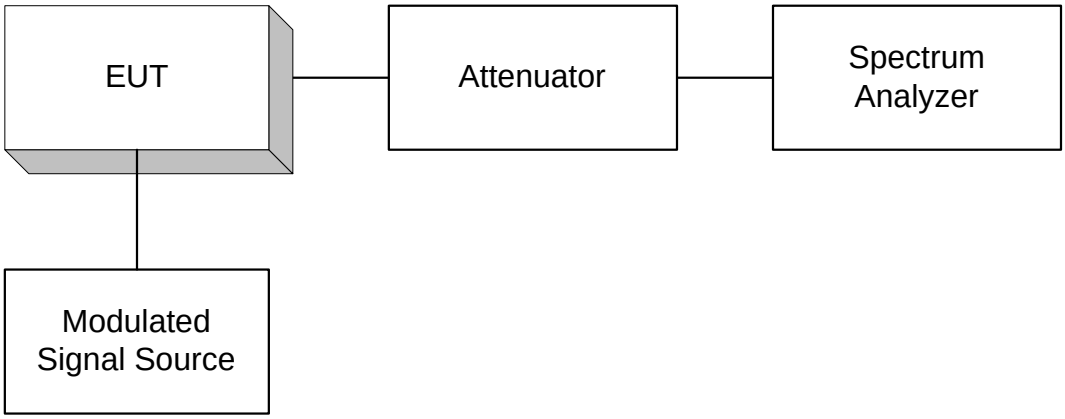
RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 3 kHz (< 1 MHz from Band Edge)
VBW: ≥ RBW
Sweep: Auto
Video Avg: Disabled

W-CDMA

RBW: 1 MHz (> 1 MHz from Band Edge)
RBW: 100 kHz (< 1MHz from Band Edge)
VBW: ≥ RBW
Sweep: Auto
Video Avg: 6 Sweeps

ANNEX B - TEST DIAGRAMS

Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 Spurious Emissions at Antenna Terminals