EMISSIONS TEST REPORT

Report Number: 3144028BOX-001a
Project Number: 3144028

Testing performed on the

CDMA Base Station

Model: Anywave 850

To

FCC Part 22 Subpart H "Cellular Radiotelephone Service"
Industry Canada RSS-132 Issue 2 September 2005

For

Vanu, Inc.

Test Performed by:	Test Authorized by:
Intertek – ETL SEMKO	Vanu, Inc.
70 Codman Hill Road	1 Cambridge Center
Boxborough, MA 01719	Cambridge, MA 02142

Prepared by: _____ Date: 02/04/2008
Nicholas Abbondante

Reviewed by: _____ Date: 02/04/2008
David Schramm

1.0 Job Description

1.1 Client Information

This EUT has been tested at the request of:

Company:	Vanu, Inc. One Cambridge Center Cambridge, MA 02142
Contact:	Mr. Byron Kubert
Telephone:	617-864-1711 x274
Fax:	N/A
Email:	bkubert@vanu.com

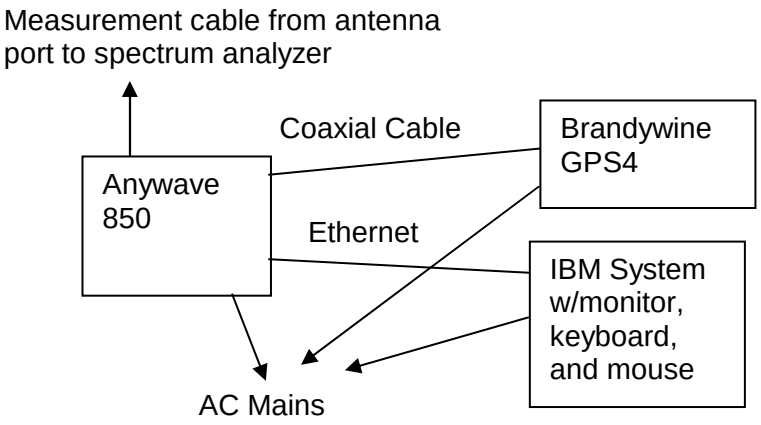
1.2 Equipment Under Test

Equipment Type:	CDMA Base Station
Model Number(s):	Anywave 850
Serial number(s):	1074
Manufacturer:	Protium Technologies, Inc.
EUT receive date:	11/26/2007; 01/24/2008
EUT received condition:	Prototype in Good Condition
Test start date:	11/26/2007; 01/24/2008
Test end date:	11/30/2007; 01/24/2008

1.3 Test Plan Reference: Tested according to the standards listed, IC SRSP-503, RSS-Gen Issue 2 June 2007, and ANSI/TIA-603-C-2004.

1.4 Test Configuration

1.4.1 Block Diagram



1.4.2. Cables:

Cable	Shielding	Connector	Length (m)	Qty.
EUT AC Mains	None	Plastic/IEEE	2	1
Ethernet Cable	None	Plastic RJ-45	3	1
Ethernet Cable	None	Plastic RJ-45	4	1
Coaxial Cable	Braid	Metal/BNC	3	1

1.4.3. Support Equipment:

Name: Dell Monitor
Model No.: 2007FPb
Serial No.: CN-0C9536-46633-62G-0DAL

Name: IBM System
Model No.: X3650T
Serial No.: KG0177P

Name: Dell Keyboard
Model No.: L100
Serial No.: CN0RH659735716BM059Q

Name: Dell Mouse
Model No.: M056U0
Serial No.: E1801LEV

Name: Brandywine Communications
Model No.: GPS4
Serial No.: 12085

1.5 Mode(s) of Operation:

During testing, the EUT was activated from nominal 120V/60Hz AC power and was transmitting continuously in the frequency band from 869-894 MHz. Testing was performed on the single channel CDMA, 8 channel CDMA, 8 channel GSM, and 4 channel GSM 4 channel CDMA modes. Various data patterns were utilized during testing to determine compliance of the EUT waveform. The various patterns as defined by Vanu, Inc., can be found below. During single channel CDMA mode, all six data patterns were examined for Occupied Bandwidth and RF Output Power. For the three 8 channel modes, Mode E Simulated CDMA Data was used. For the single channel CDMA mode spurious emissions, Mode D Maximum Value, Random Polarity was used to show compliance at a channel power equivalent to the aggregate power in the 8 channel operation modes, which demonstrates that all other modes must also comply, whether measured with peak or average RMS detectors. For band edge compliance measurements, Mode E Simulated CDMA Data was used as it is representative of normal operation. GSM signals in all cases used simulated GSM data at maximum power. Data was initially taken with a peak or sample detector for all tests, but was later supplemented with Average RMS data on 01/24/2008 when the CDMA bandwidth filter was narrowed.

To show transmit mask compliance in the typical case, simulated CDMA data will be used. To show the resistance of the system to transmitting outside the mask, contrived patterns have been selected to represent the worst case scenarios.

A. Random Data

Each sample has an amplitude of random value between min and max values

B. Max positive DC

A constant stream of positive maximum values

The DC signal passes through the channel filter and produces close to the maximum possible digital signal amplitude sent from each channel to the summation stages.

C. Max negative DC

A constant stream of most negative values

Depending on filter tap settings, either max positive or max negative DC values will produce a higher amplitude output signal, so we test both.

D. Maximum Value, Random Polarity

The I/Q stream consists of maximum values with random polarity. The random polarity quickly produces a pattern that matches the FIR filter tap polarity, whatever it is. (For a 12-tap FIR filter, there is a 99.9% probability of a match after 56,500 values; the test runs much longer than this.) Using maximum amplitude values produces the largest output possible from this resonance. Testing in our lab has shown that this I/Q stream effectively produces digital overflows if they are possible in the radio head configuration.

E. Simulated CDMA data

A pilot channel, a sync channel, and 32 voice channels. The user channels are compliant with the IS-2000 RC3 standard format and modulation.

F. Dropouts/Data Gap

Same as E but with one of the I/Q data streams suddenly switched to a sequence of zeroes. A single ethernet packet worth of I/Q data is replaced by zeroes. The gaps are inserted periodically in a longer test vector.

Channels selected for test in the 4 test modes are as follows:

Single Channel CDMA: 881.50 MHz
Single Channel CDMA Lower Band Edge Compliance: 869.70 MHz
Single Channel CDMA Upper Band Edge Compliance: 893.31 MHz

Channel numbers assigned for test purposes only.

8-CDMA:
869.7 MHz Channel 1
872.5 MHz Channel 2
876.25 MHz Channel 3
879.00 MHz Channel 4
883.75 MHz Channel 5
886.5 MHz Channel 6
890.25 MHz Channel 7
893.31 MHz Channel 8

4-CDMA/4-GSM:
869.2 MHz Channel 1
872.8 MHz Channel 2
876.2 MHz Channel 3
879.8 MHz Channel 4
883.75 MHz Channel 5
886.5 MHz Channel 6
890.25 MHz Channel 7
893.31 MHz Channel 8

8-GSM:
869.2 MHz Channel 1
872.8 MHz Channel 2
876.2 MHz Channel 3
879.8 MHz Channel 4
883.2 MHz Channel 5
886.8 MHz Channel 6
890.2 MHz Channel 7
893.8 MHz Channel 8

1.6 Floor Standing Equipment: Applicable:____ Not Applicable:_X_

2.0 Test Summary

TEST STANDARD	RESULTS	
FCC Part 22 Subpart H IC RSS-132 Issue 2 September 2005		
SUB-TEST	**TEST PARAMETER**	**COMMENT**
Effective Radiated Power FCC 2.1046, 22.913	Effective radiated power must not exceed 500 Watts (57 dBm)	Pass
Occupied Bandwidth FCC 2.1049, 22.917(b) IC RSS-Gen Section 4.6.1	Emission must stay within the band of operation.	Pass
Band Edge Compliance FCC 2.1051, 22.917(a, b) IC RSS-132 Section 4.5	Spurious emissions in the 1 MHz block edges must not exceed -13 dBm when measured with a bandwidth equal to or greater than 1% of the emission bandwidth.	Pass
Conducted Spurious Emissions FCC 2.1051, 22.917(a, b) IC RSS-132 Section 4.5	Spurious emissions must not exceed -13 dBm when measured with a 100 kHz bandwidth.	Pass
Radiated Spurious Emissions FCC 2.1053, 22.917(a, b) IC RSS-132 Section 4.5	Spurious emissions must not exceed -13 dBm when measured with a 100 kHz bandwidth.	Pass

REVISION SUMMARY – The following changes have been made to this Report:

Date	Project No.	Project Handler	Page(s)	Item	Description of Change
2/3-4/2008	3144028	Nicholas Abbondante	All	Report number, Test data	Merged reports 3144028BOX-001 and 3137086BOX-001, with additional explanations

3.0 Sample Calculations

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBµV/m

Level in µV/m = [10(32 dBµV/m)/20] = 39.8 µV/m

The following is how net line-conducted readings were determined:

NF = RF + LF + CF + AF
Where NF = Net Reading in dBµV
RF = Reading from receiver in dBµV
LF = LISN Correction Factor in dB
CF = Cable Correction Factor in dB
AF = Attenuator Loss Factor in dB

To convert from dBµV to µV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in µV

Example:

NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 dBµV
$UF = 10^{(48.1\ dB\mu V / 20)}$ = 254 µV/m

3.1 Measurement Uncertainty

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.
The expanded uncertainty (k = 2) for radiated emissions from 30 to 1000 MHz has been determined to be:

±3.5 dB at 10m, ±3.8 dB at 3m

The expanded uncertainty (k = 2) for mains conducted emissions from 150 kHz to 30 MHz has been determined to be:

±2.6 dB

The expanded uncertainty (k = 2) for telecom port conducted emissions from 150 kHz to 30 MHz has been determined to be:

±3.2 for ISN and voltage probe measurements
±3.1 for current probe measurements

3.2 Site Description

Test Site(s): 2

Our OATS are 3m and 10m sheltered emissions measurement ranges located in a light commercial environment in Boxborough, Massachusetts. They meet the technical requirements of ANSI C63.4-2003 and CISPR 22:1993/EN 55022:1994 for radiated and conducted emission measurements. The shelter structure is entirely fiberglass and plastic, with outside dimensions of 33 ft x 57 ft. The structure resembles a quonset hut with a center ceiling height of 16.5 ft.

The testing floor is covered by a galvanized sheet metal groundplane that is earth-grounded via copper rods around the perimeter of the site. The joints between individual metal sheets are bridged with a 2 inch wide metal strips to provide low RF impedance contact throughout. The sheets are screwed in place with stainless steel, round-head screws every three inches. Site illumination and HVAC are provided from beneath the ground reference plane through flush entry ports, the port covers are electrically bonded to the ground plane.

A flush metal turntable with 12 ft. diameter and 5000 lb. load capacity (12,000 lb. in Site 3) is provided for floor-standing equipment. A wooden table 80 cm high is used for table-top equipment. The turntable is electrically connected to the ground plane with three copper straps. The straps are connected to the turntable at the center of it with ground braid. The copper strap is directly connected to the groundplane at the edges of the turntable. The turntable is located on the south end of the structure and the antennas are mounted 3 and 10 meters away to the north. The antenna mast is a non-conductive with remote control of antenna height and polarization. The antenna height is adjustable from 1 to 4 meters.

All final radiated emission measurements are performed with the testing personnel and measurement equipment located below the ground reference plane. The site has a full basement underneath the turntable where support equipment may be remotely located. Operation of the antenna, turntable and equipment under test is controlled by remote controls that manipulate the antenna height and polarization and with a turntable control. Test personnel are located below the ellipse when measurements are performed, however the site maintains the ability of having personnel manipulate cables while monitoring test equipment. Ambient radiated emissions are 6 dB or more below the relevant FCC emission limits.

AC mains power is brought to the equipment under test through a power line filter, to remove ambient conducted noise. 50 Hz (240 VAC single phase), 60 Hz power (120 VAC single phase, 208 VAC three phase), and 60 Hz (480 VAC three phase) are available. Conducted emission measurements are performed with a Line Impedance Stabilization Network (LISN) or Artificial Mains Network (AMN) bonded to the ground reference plane. A removable vertical groundplane (2 meter X 2 meter area) is used for line-conducted measurements for table top equipment. The vertical groundplane is electrically connected to the reference groundplane.

The EMC Lab has two Semi-anechoic Chambers and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference groundplanes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

Test Results: Pass

Test Standard: FCC Part 22 Subpart H, IC RSS-132

Test: Effective Radiated Power, FCC 2.1046, 22.913

Performance Criterion: Effective radiated power must not exceed 500 Watts (57 dBm)

Test Environment:

Environmental Conditions During Testing:	Ambient (°C):	19/24/21	Humidity (%):	41/25/24	Pressure (hPa):	1050
Pretest Verification Performed	Yes		Equipment under Test:		Anywave 850 CDMA	
Test Engineer(s):	Nicholas Abbondante		EUT Serial Number:		1074	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	05/20/2008
2	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
3	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/04/2007*
4	40 GHz Cable	Megaphase	TM40-K1K1-80	7030802 002	05/23/2008

* - Used only during the 11/27-28/2007 testing

Test Details:

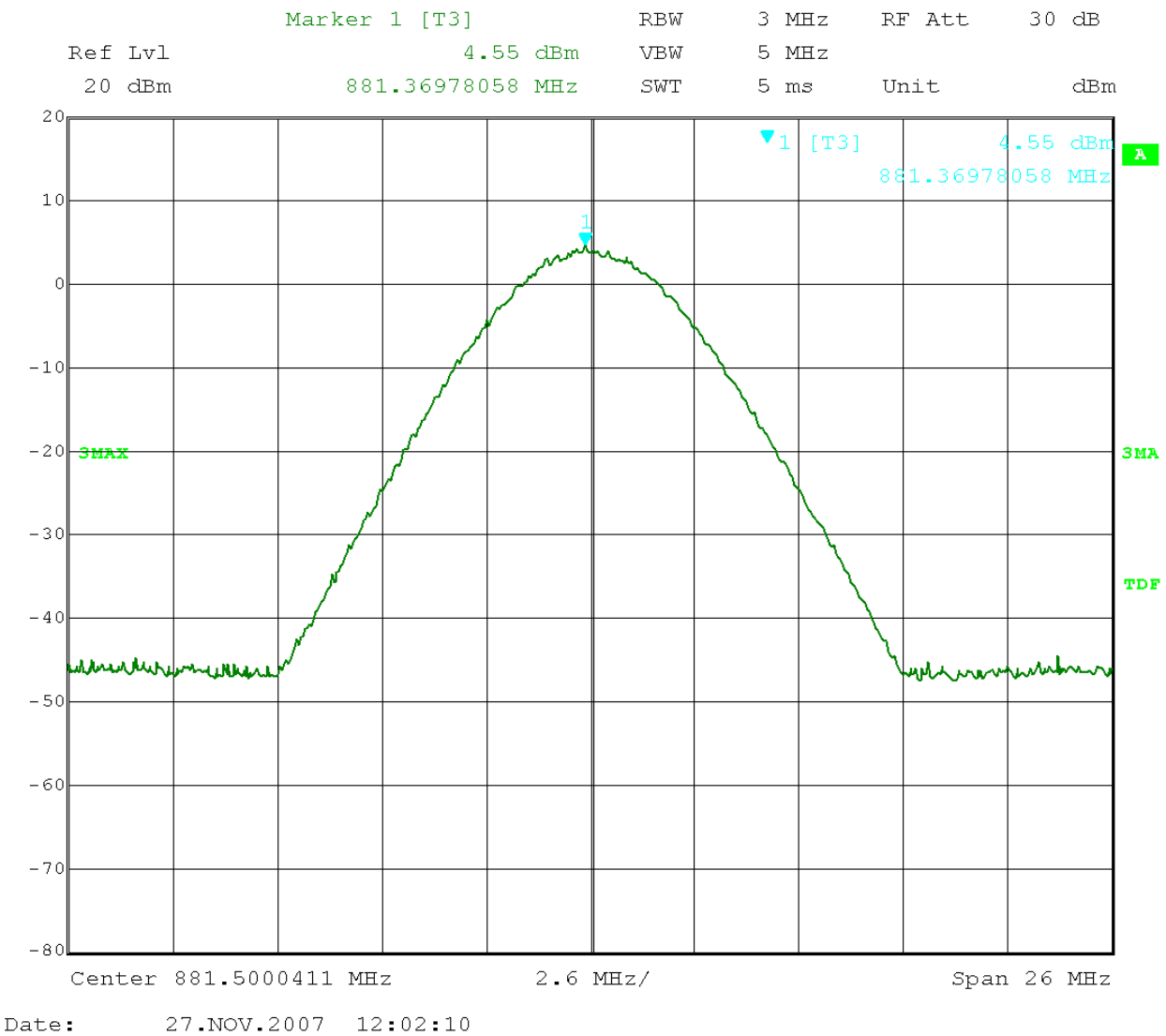
Notes: The data shown indicates output power variation over the various data streams tested. Mode E is representative of normal operation. Data in 8 Channel CDMA mode is shown which shows correlation between the output power measured initially and the output power measured with the narrower CDMA filter bandwidth, and is supplemented by Average RMS data with the narrower filter bandwidth in 8 Channel CDMA mode and also in Single Channel CDMA Mode E for correlation with the band edge compliance measurements. Note that during initial testing, the Single Channel CDMA mode was tested at an output power corresponding to the aggregate power in the 8 Channel CDMA mode. During actual operation, software limiting will not permit operation at this high output power. For the Single Channel CDMA Mode E Average RMS testing at the upper and lower channels, the output power corresponding to the actual Single Channel Mode maximum power was utilized.

Single Channel CDMA
Mode A Peak Detector: 4.55 dBm
Mode B Peak Detector: 1.35 dBm
Mode C Peak Detector: 1.42 dBm
Mode D Peak Detector: 7.67 dBm
Mode E Peak Detector: -8.28 dBm
Mode E 869.70 MHz Average RMS Detector, narrower filter: -17.37 dBm
Mode E 893.31 MHz Average RMS Detector, narrower filter: -17.37 dBm
Mode F Peak Detector: -8.70 dBm

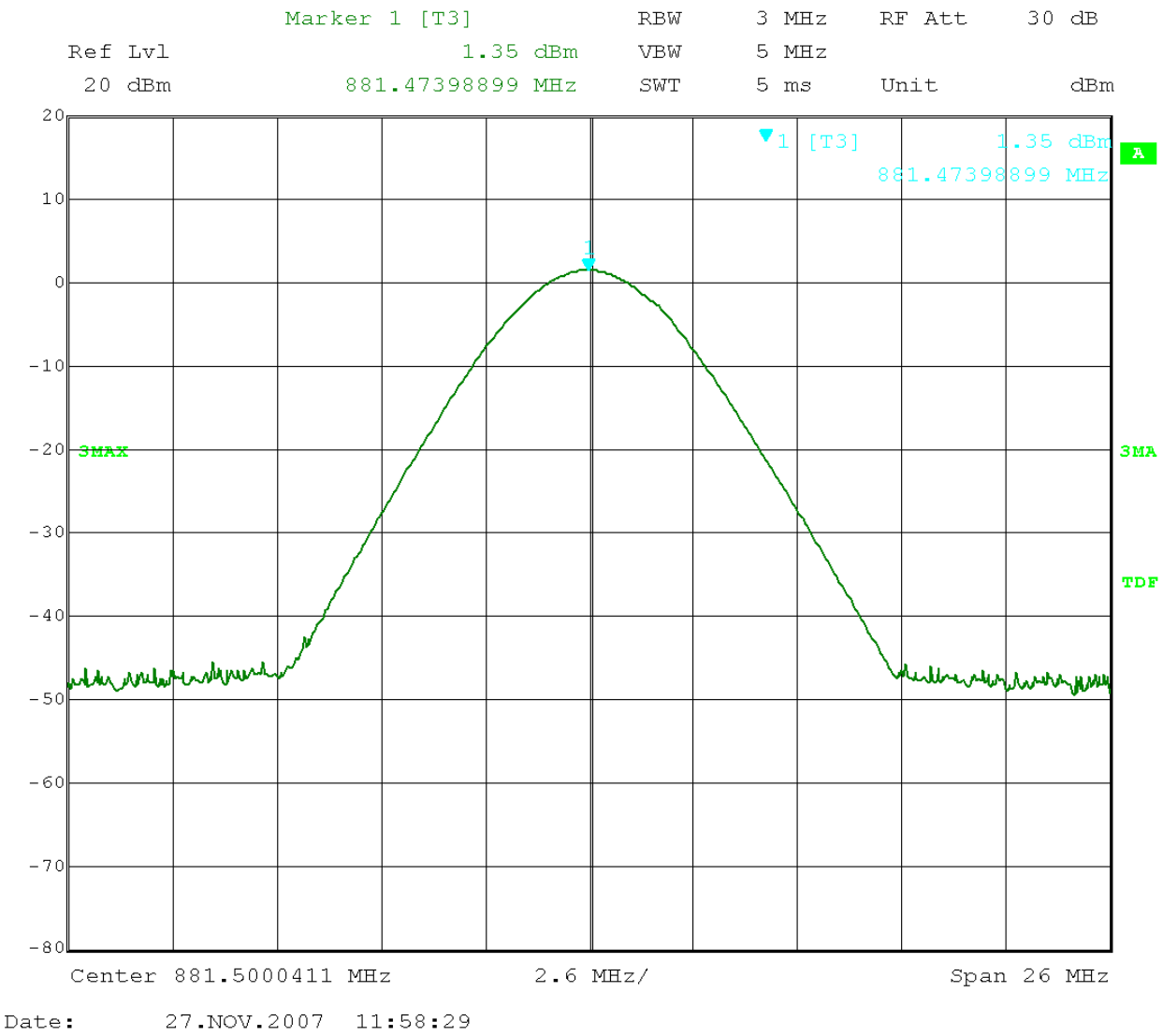
8 Channel CDMA
Mode E Sample Detector: -10.37 dBm
Mode E Sample Detector, narrower filter: -10.27 dBm
Mode E Average RMS Detector, narrower filter: -11.09 dBm

4 Channel CDMA/4 Channel GSM
Mode E Sample Detector: -8.74 dBm

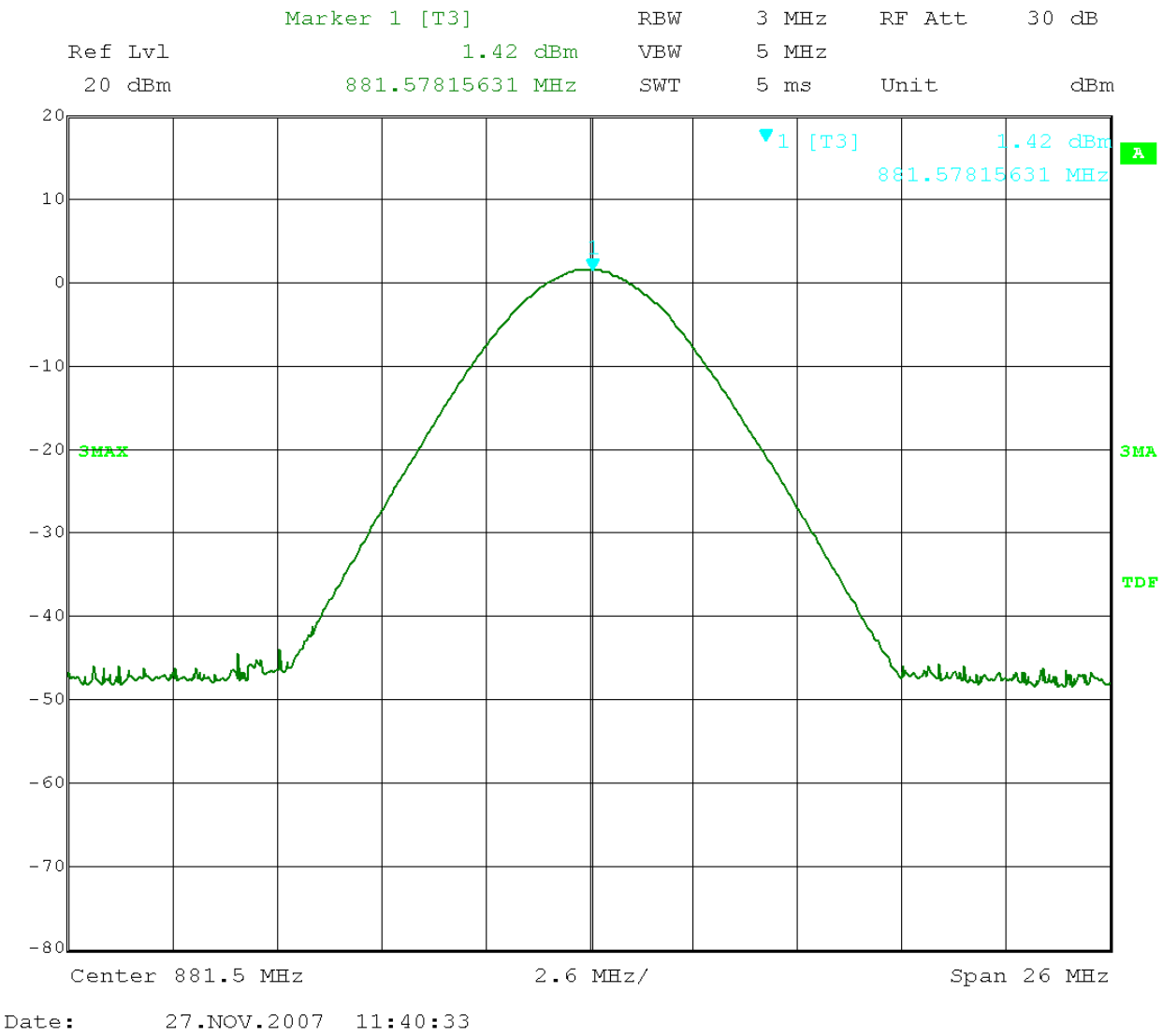
8 Channel GSM
Simulated GSM Data Sample Detector: -9.11 dBm



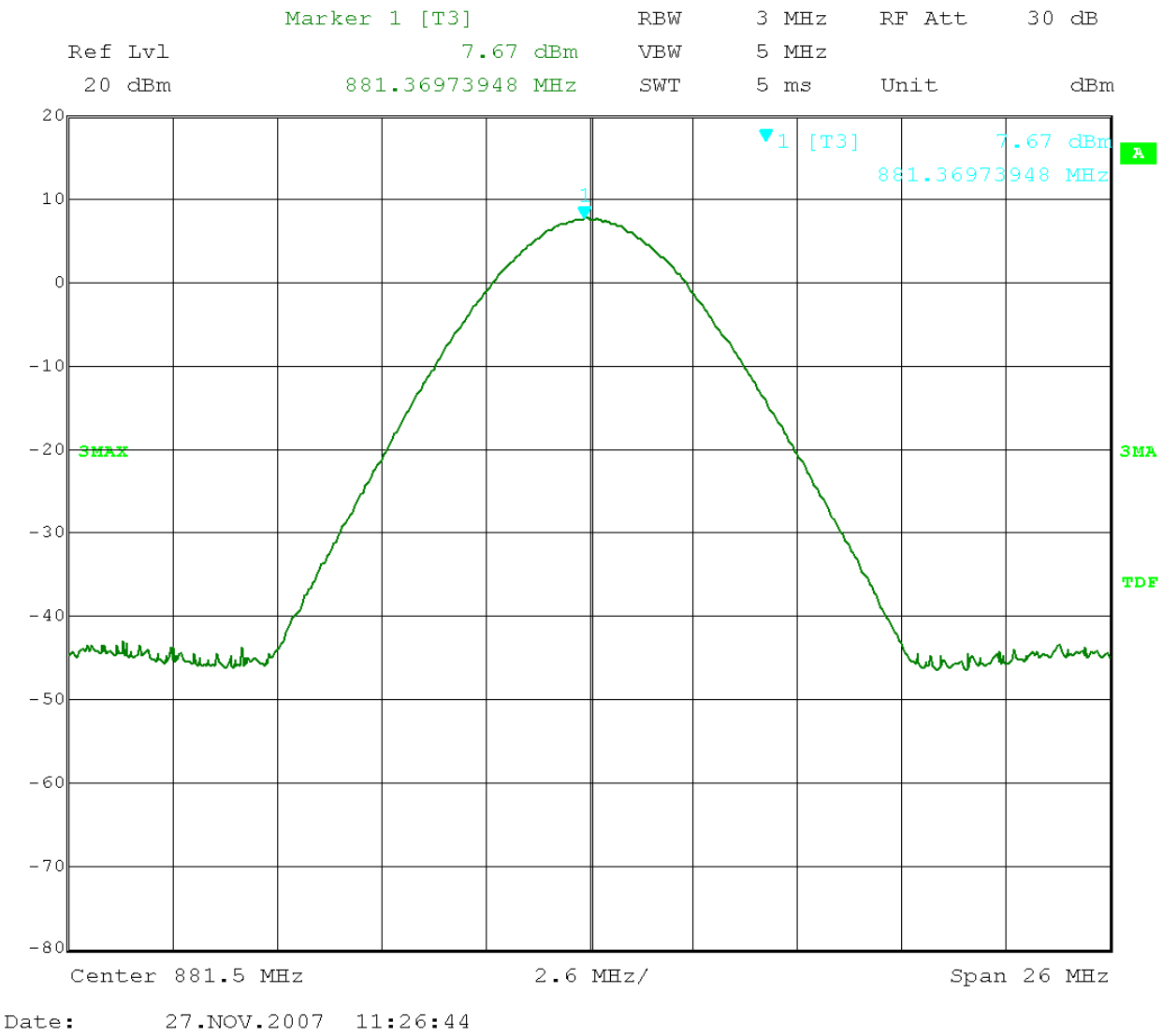
Single Channel CDMA 881.5 MHz Mode A Peak Detector



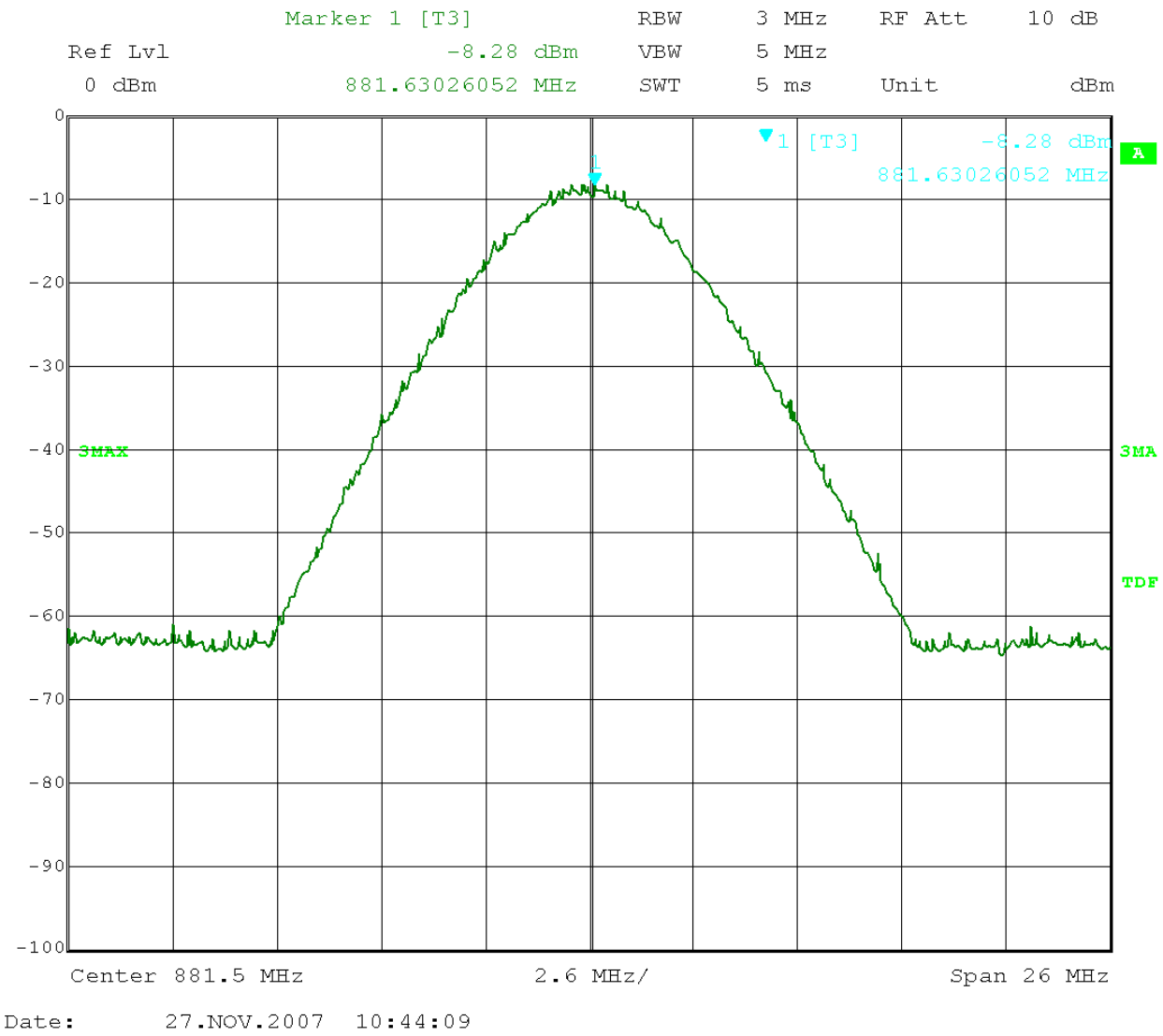
Single Channel CDMA 881.5 MHz Mode B Peak Detector



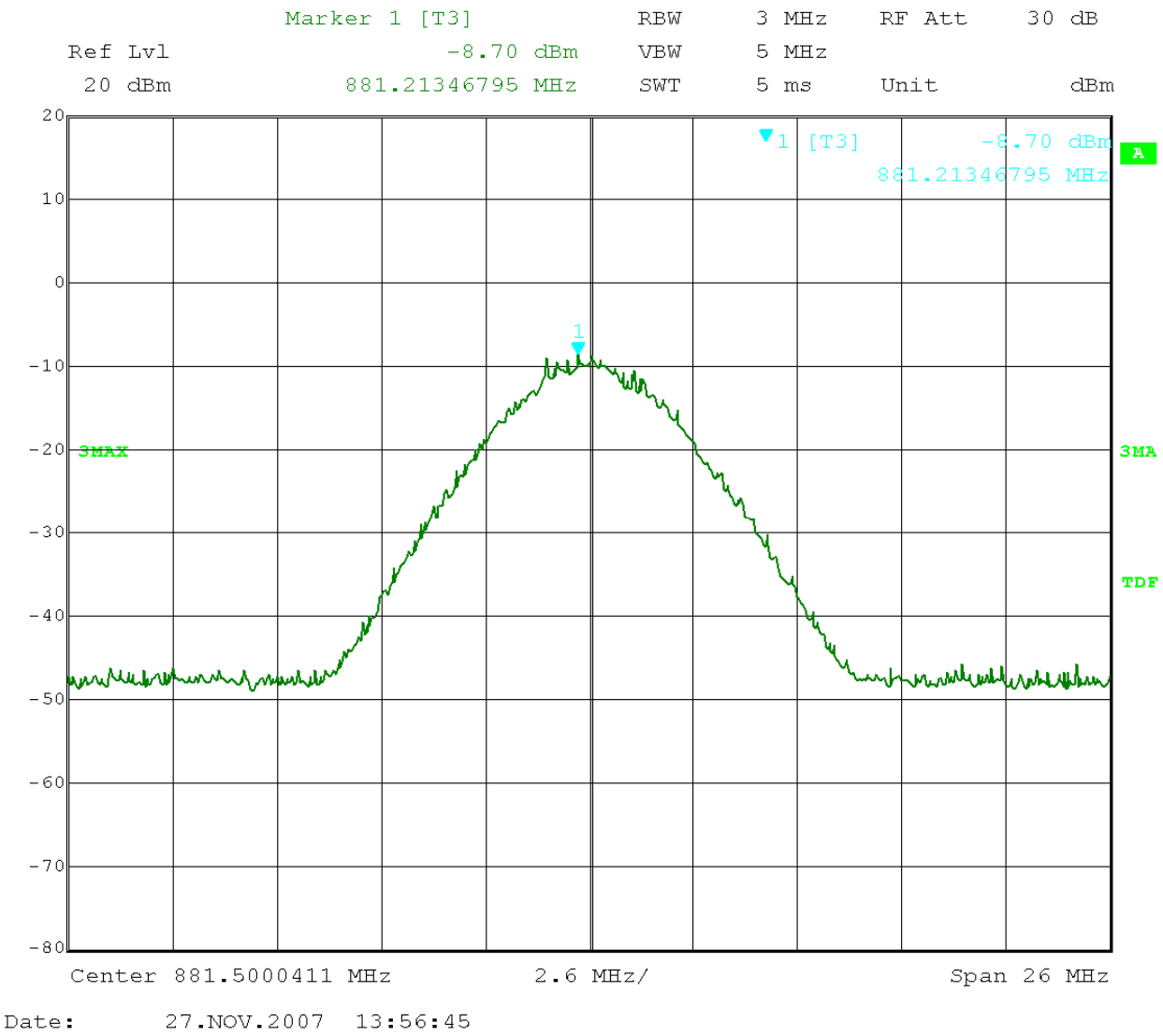
Single Channel CDMA 881.5 MHz Mode C Peak Detector



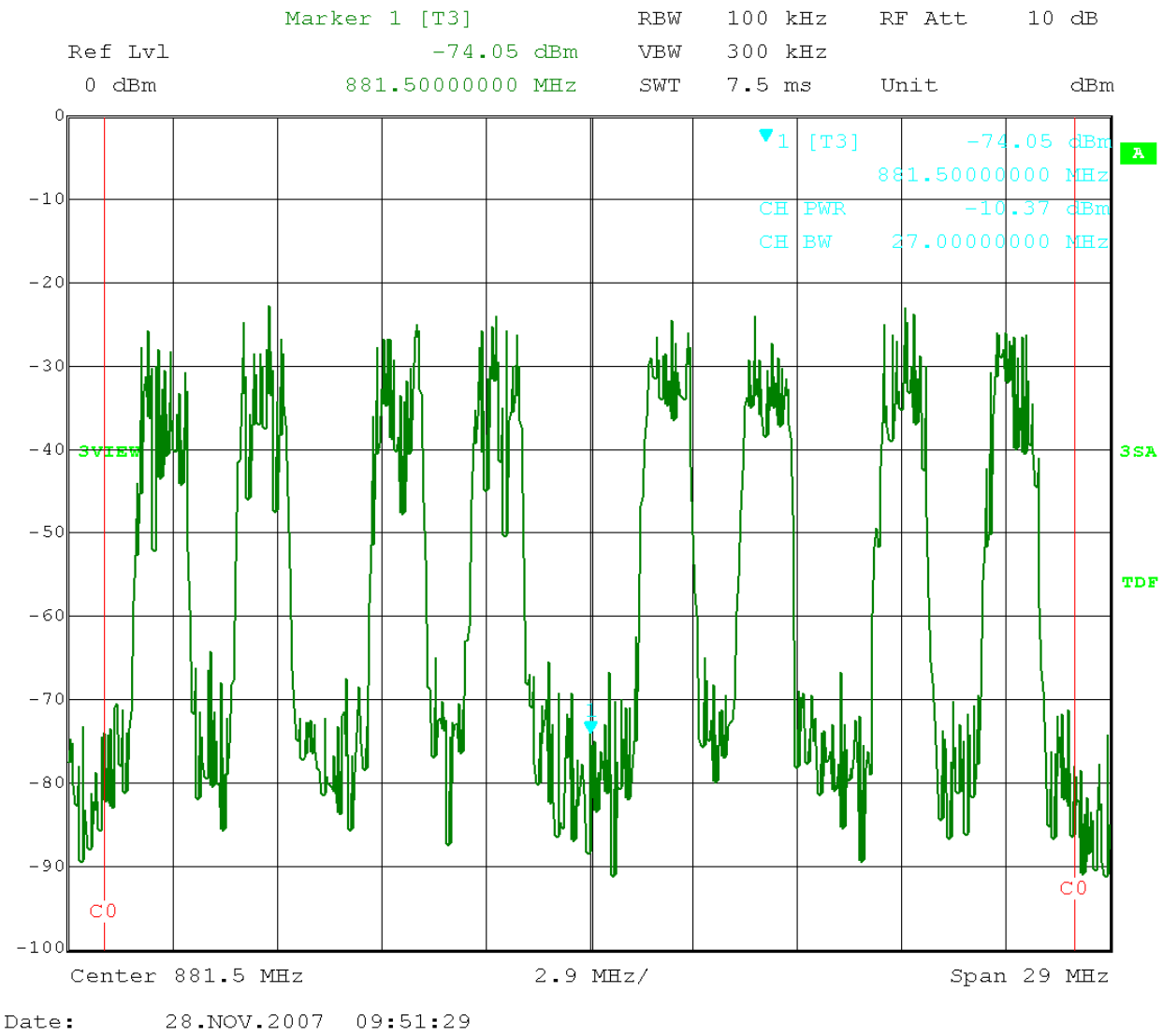
Single Channel CDMA 881.5 MHz Mode D Peak Detector



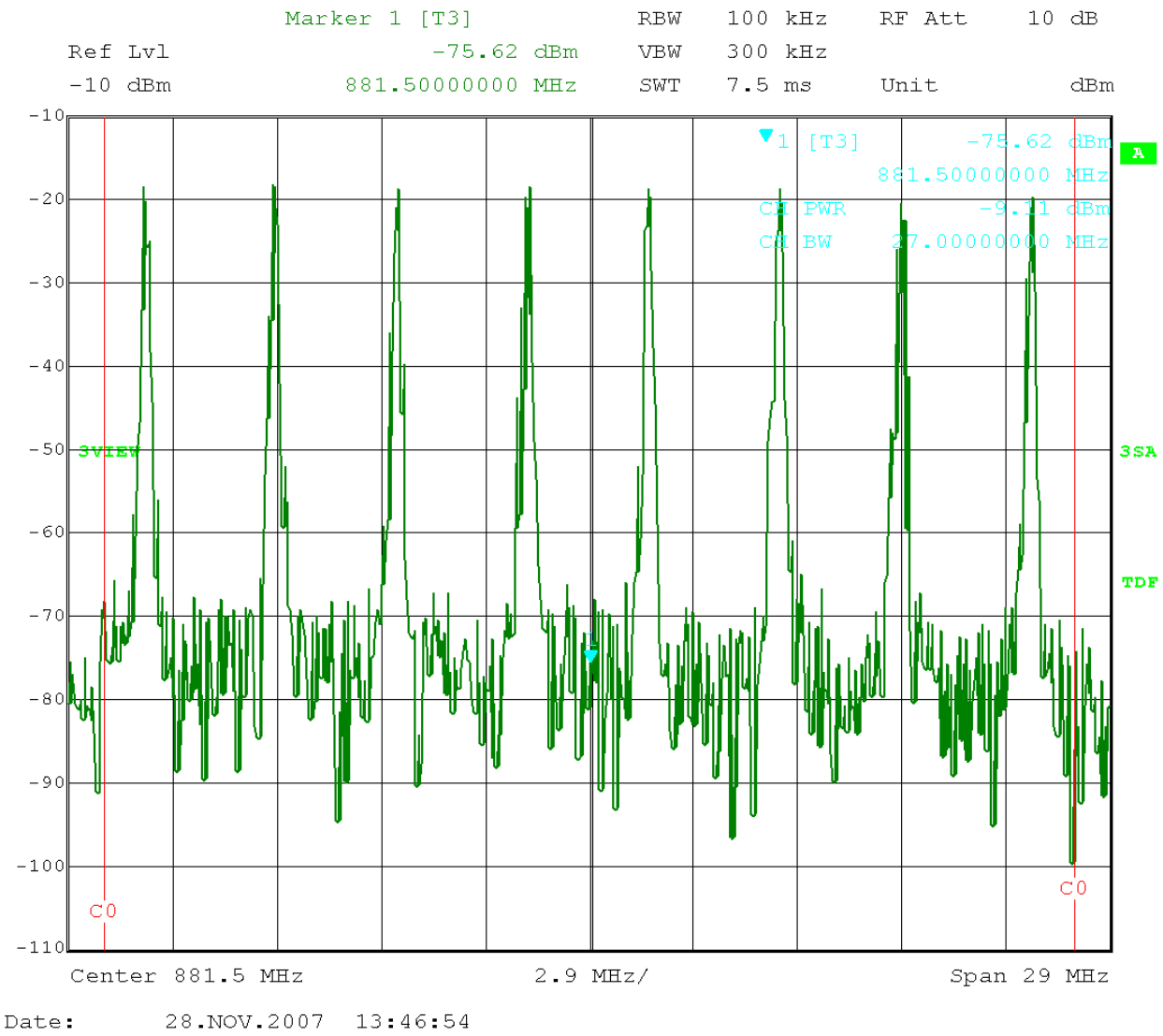
Single Channel CDMA 881.5 MHz Mode E Peak Detector



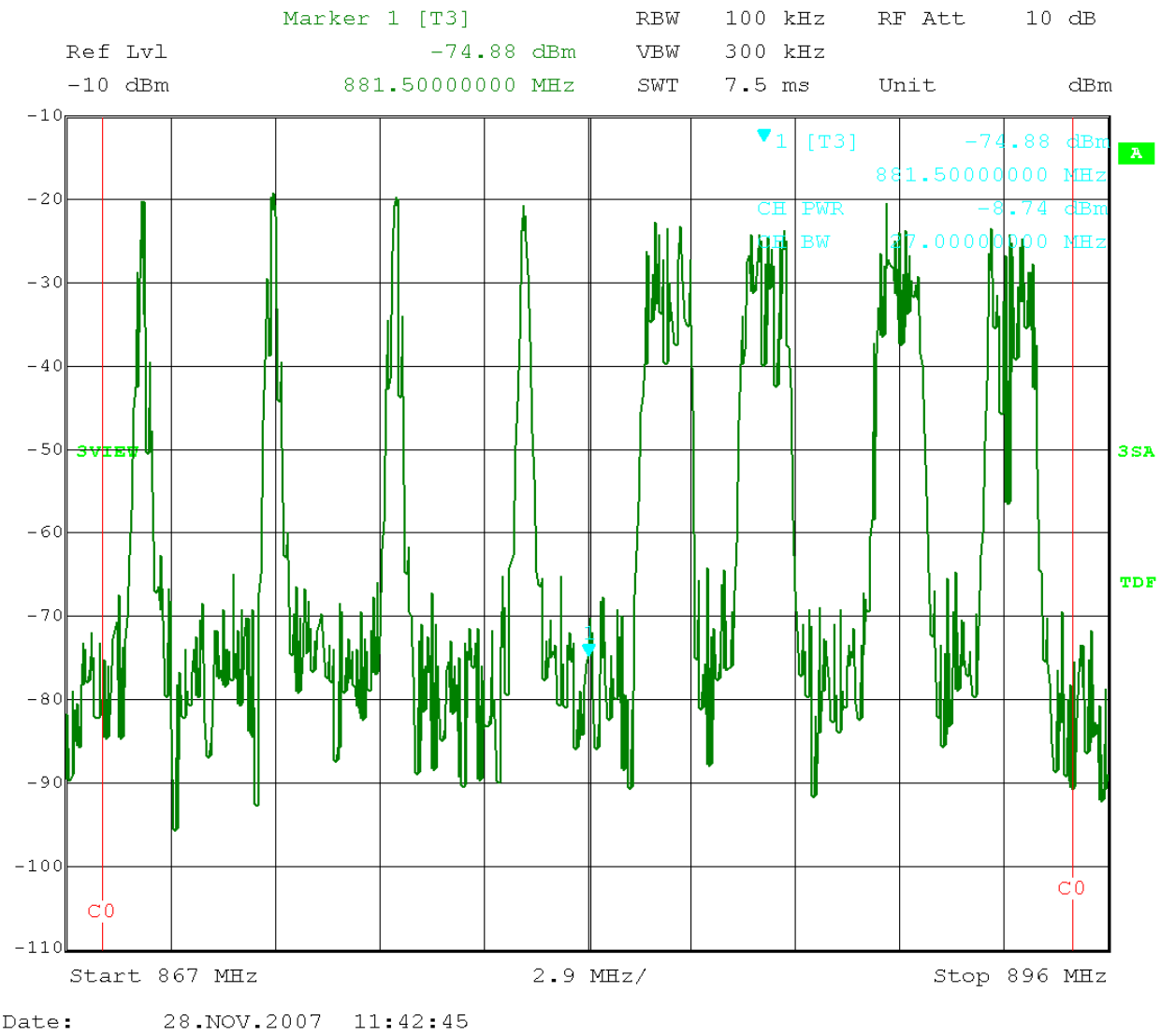
Single Channel CDMA 881.5 MHz Mode F Peak Detector



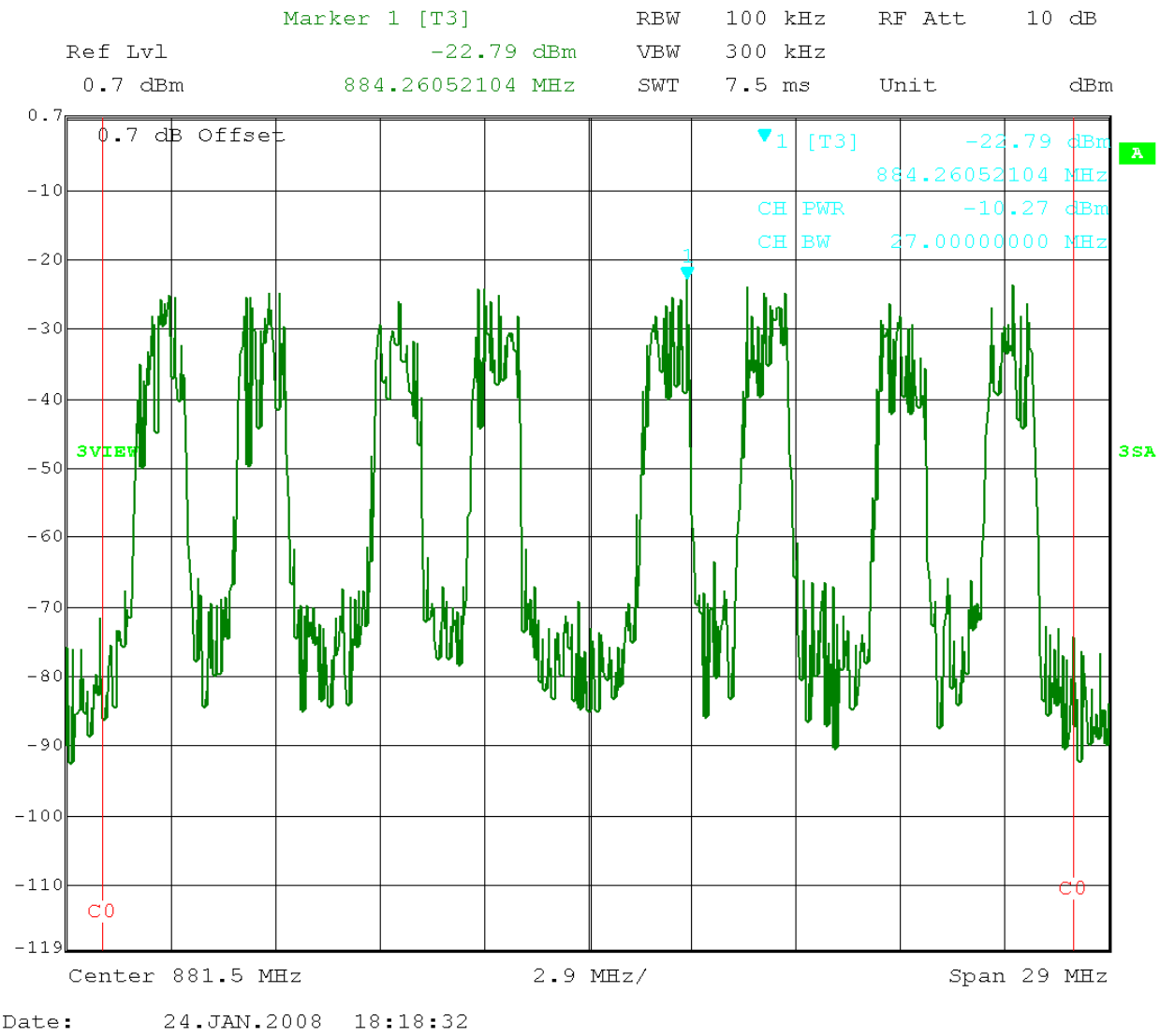
8 Channel CDMA Sample Detector



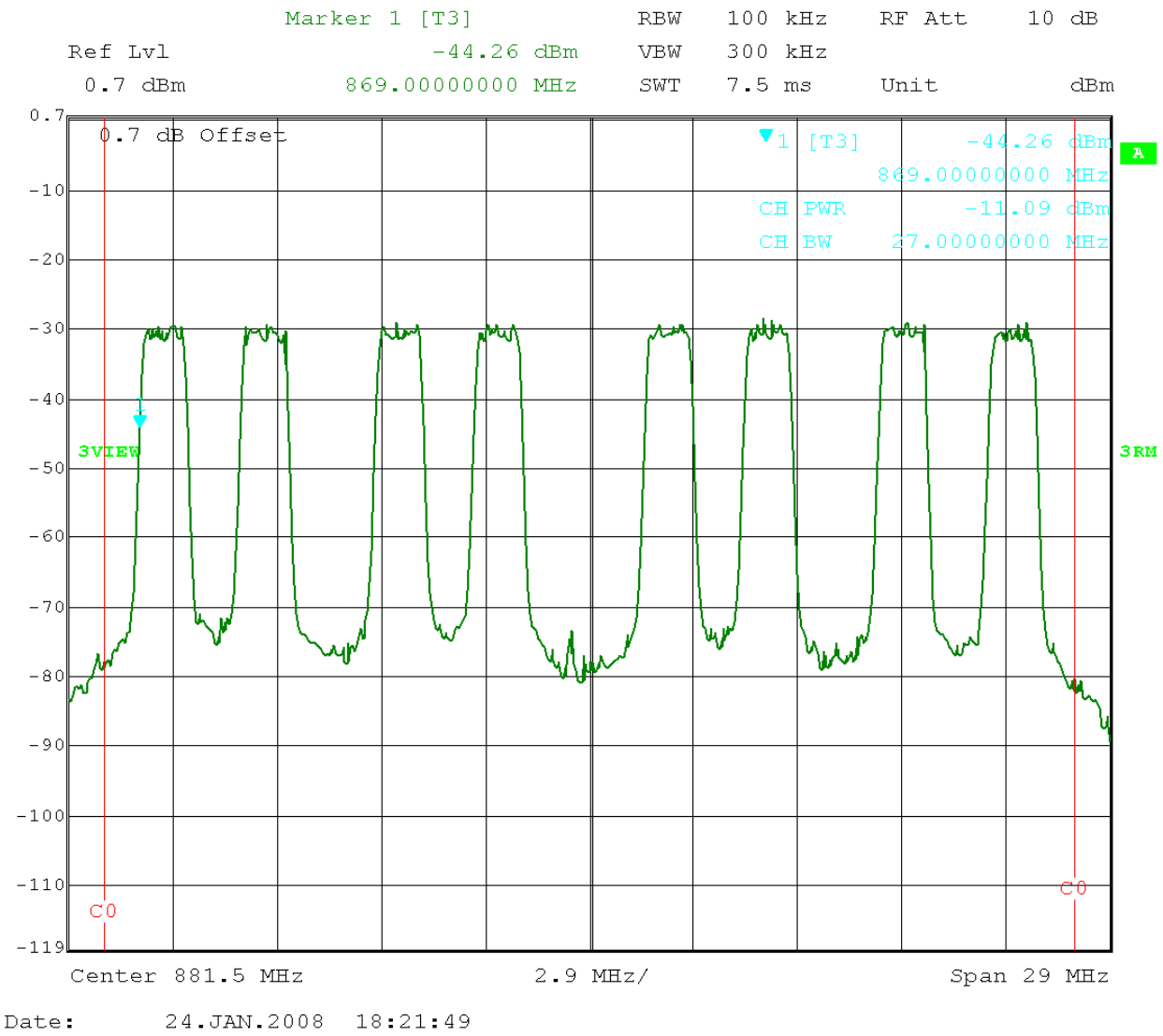
8 Channel GSM Sample Detector



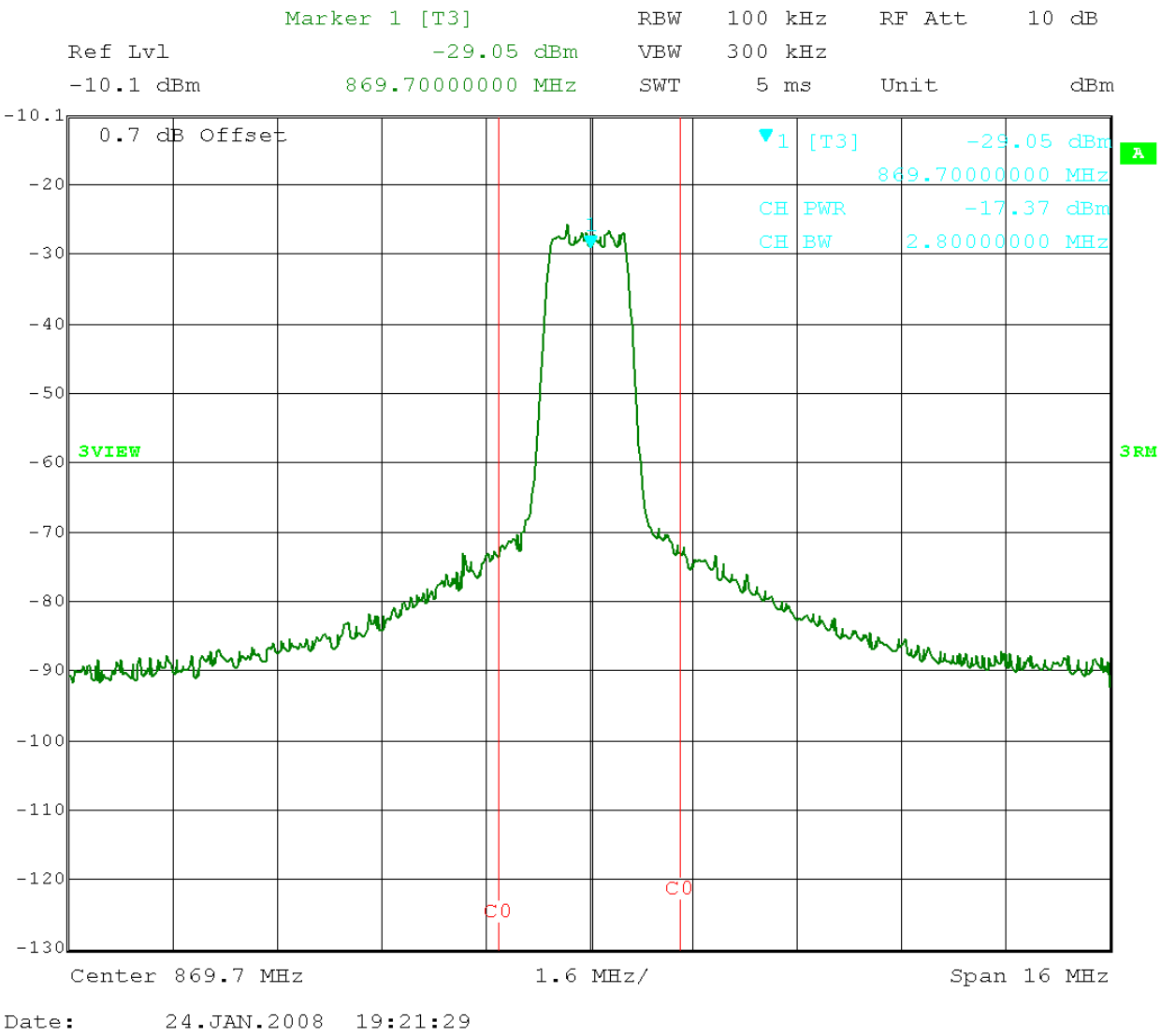
4 Channel GSM/4 Channel CDMA Sample Detector



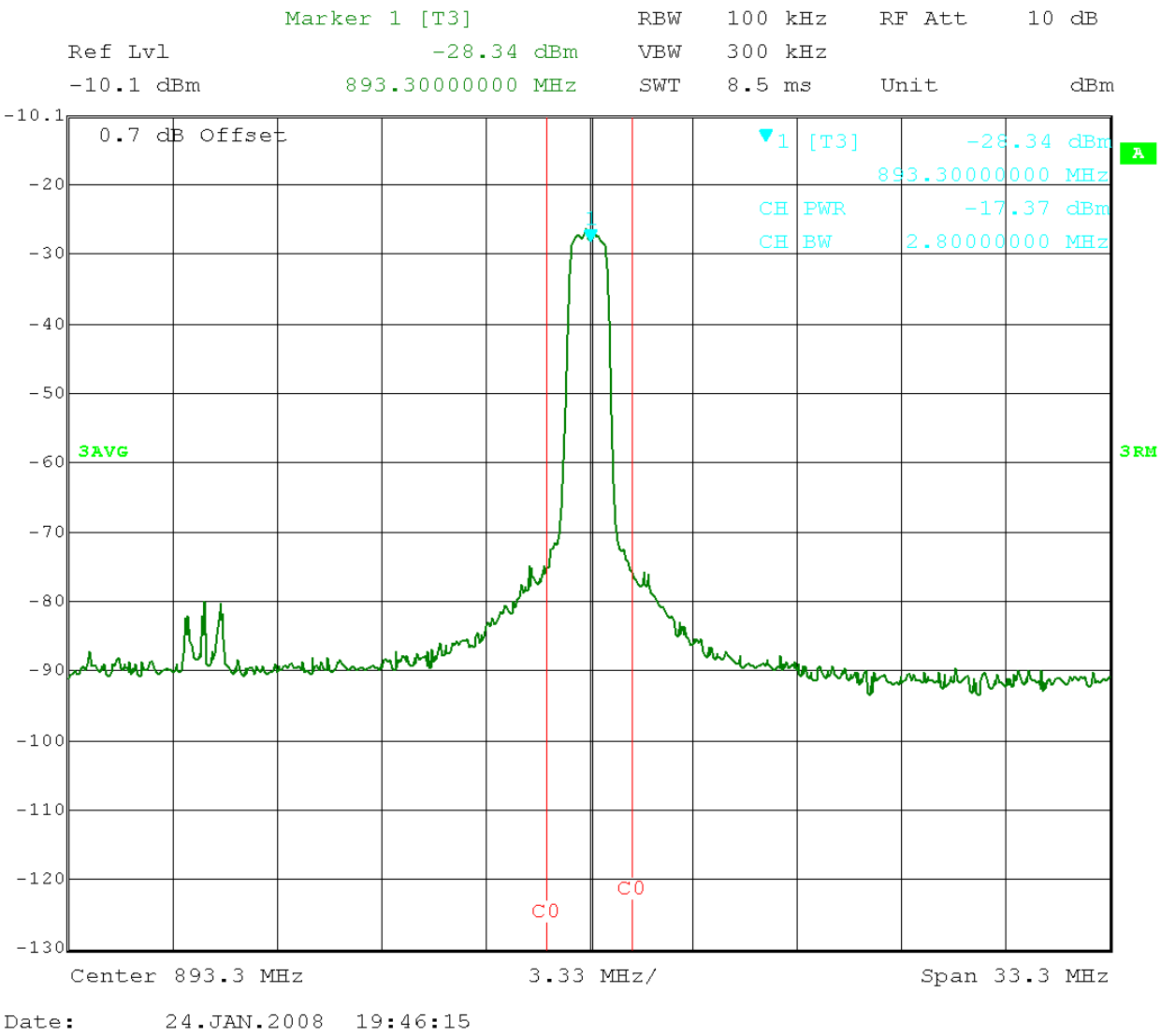
8 Channel CDMA Sample Detector, Narrower Filter



8 Channel CDMA Average RMS Detector, Narrower Filter



Single Channel CDMA Mode E 869.70 MHz Average RMS, Narrower Filter



Single Channel CDMA Mode E 893.31 MHz Average RMS, Narrower Filter

Test Results: Pass

Test Standard: FCC Part 22 Subpart H, IC RSS-Gen

Test: Occupied Bandwidth, FCC 2.1049, 22.917(b), IC RSS-Gen Section 4.6.1

Performance Criterion: Emission must stay within the assigned band.

Test Environment:

Environmental Conditions During Testing:		Ambient (°C):	21/19/24	Humidity (%):	36/43/25	Pressure (hPa): 1050
Pretest Verification Performed		Yes		Equipment under Test:		Anywave 850
Test Engineer(s):	Nicholas Abbondante			EUT Serial Number:		1074

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	05/20/2008
2	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
3	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/04/2007*
4	40 GHz Cable	Megaphase	TM40-K1K1-80	7030802 002	05/23/2008

* - Used only during the 11/27-28/2007 testing

Test Details:

Notes: The data which shows Single Channel CDMA Modes A-F demonstrates bandwidth limiting across the various data streams. The Single Channel CDMA Mode E data with the narrower filter demonstrates the effect that the narrower filter bandwidth has on the CDMA occupied bandwidth, correlated to the initial results using a peak detector and also showing the results with an Average RMS detector. The data in the 8 Channel CDMA, 8 Channel GSM, and 4 Channel GSM/4 Channel CDMA modes demonstrates bandwidth limiting at each fundamental when 8 channels are transmitted.

Single Channel CDMA Peak Detector
Mode A 99% power bandwidth: 1.291 MHz
Mode B 99% power bandwidth: 223 Hz
Mode C 99% power bandwidth: 223 Hz
Mode D 99% power bandwidth: 1.299 MHz
Mode E 99% power bandwidth: 1.291 MHz
Mode F 99% power bandwidth: 1.291 MHz

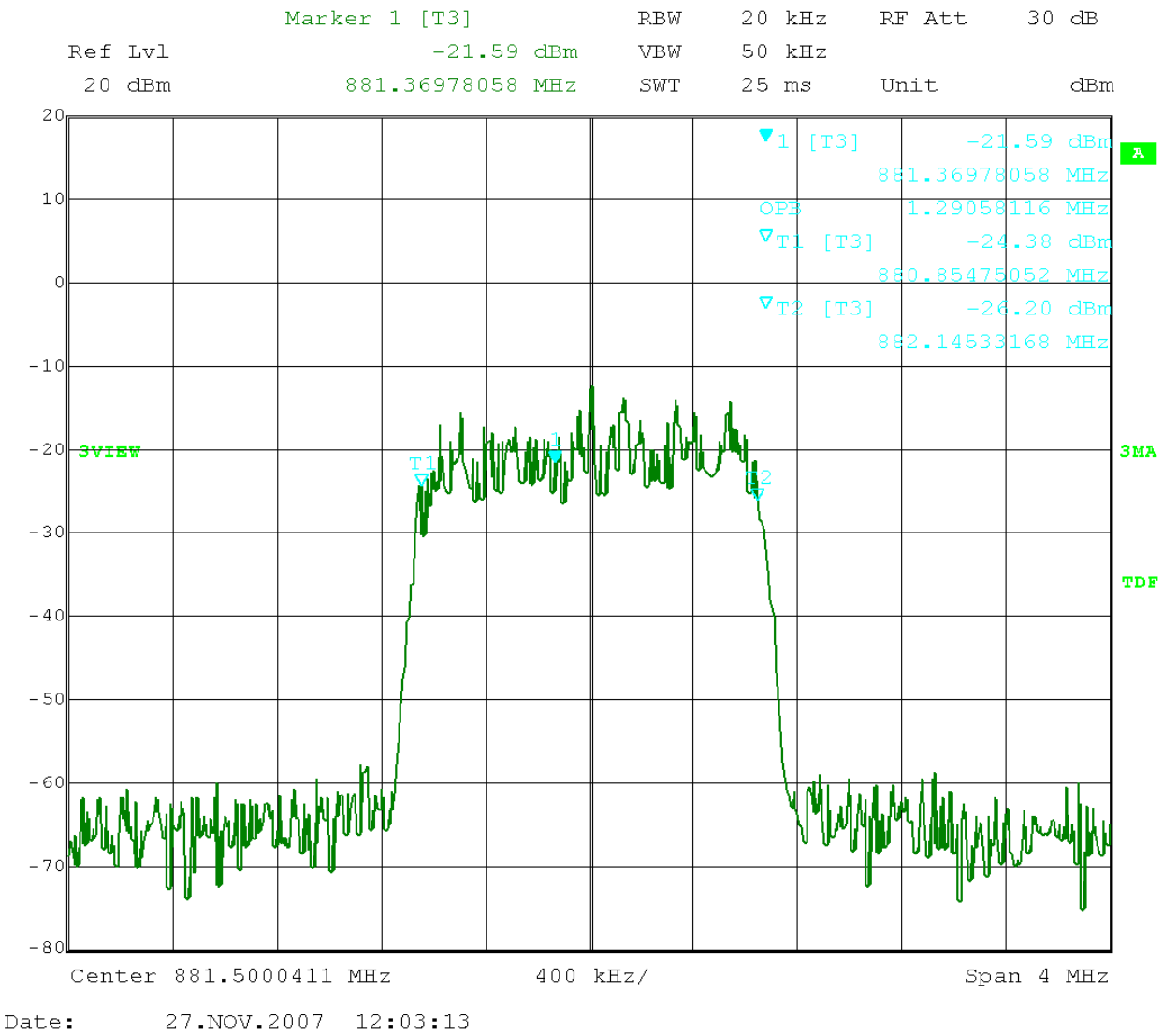
Single Channel CDMA Peak Detector, narrower filter
Mode E 869.70 MHz 99% power bandwidth: 1.242 MHz
Mode E 893.31 MHz 99% power bandwidth: 1.242 MHz

Single Channel CDMA Average RMS Detector, narrower filter
Mode E 869.70 MHz 99% power bandwidth: 1.234 MHz
Mode E 893.31 MHz 99% power bandwidth: 1.234 MHz

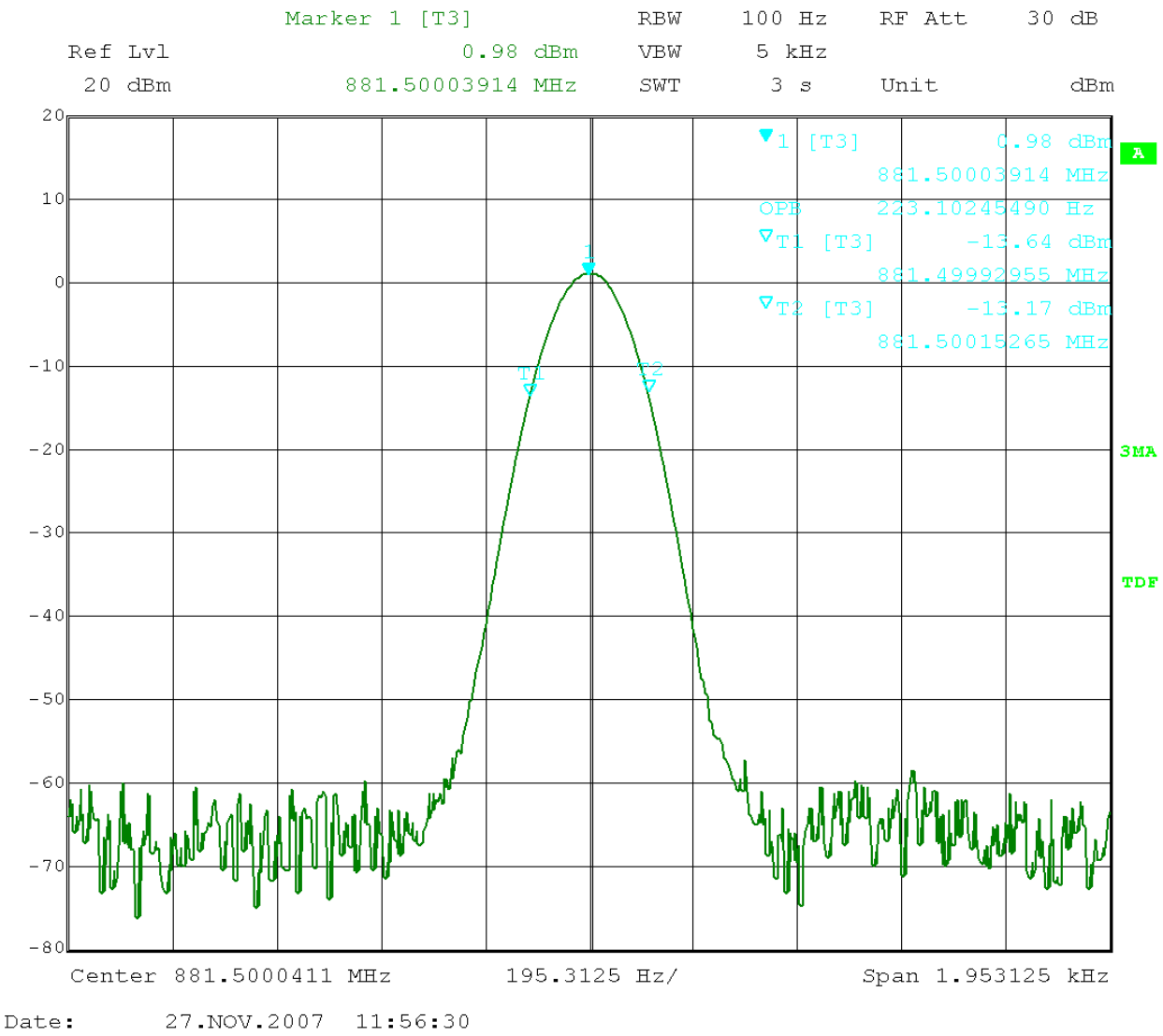
8-CDMA Peak Detector
869.7 MHz Channel 1: 1.299 MHz
872.5 MHz Channel 2: 1.299 MHz
876.25 MHz Channel 3: 1.291 MHz
879.00 MHz Channel 4: 1.291 MHz
883.75 MHz Channel 5: 1.291 MHz
886.5 MHz Channel 6: 1.291 MHz
890.25 MHz Channel 7: 1.291 MHz
893.3 MHz Channel 8: 1.291 MHz

4-CDMA/4-GSM Peak Detector
869.2 MHz Channel 1: 232.5 kHz
872.8 MHz Channel 2: 238.5 kHz
876.2 MHz Channel 3: 234.5 kHz
879.8 MHz Channel 4: 234.5 kHz
883.75 MHz Channel 5: 1.291 MHz
886.5 MHz Channel 6: 1.291 MHz
890.25 MHz Channel 7: 1.291 MHz
893.3 MHz Channel 8: 1.291 MHz

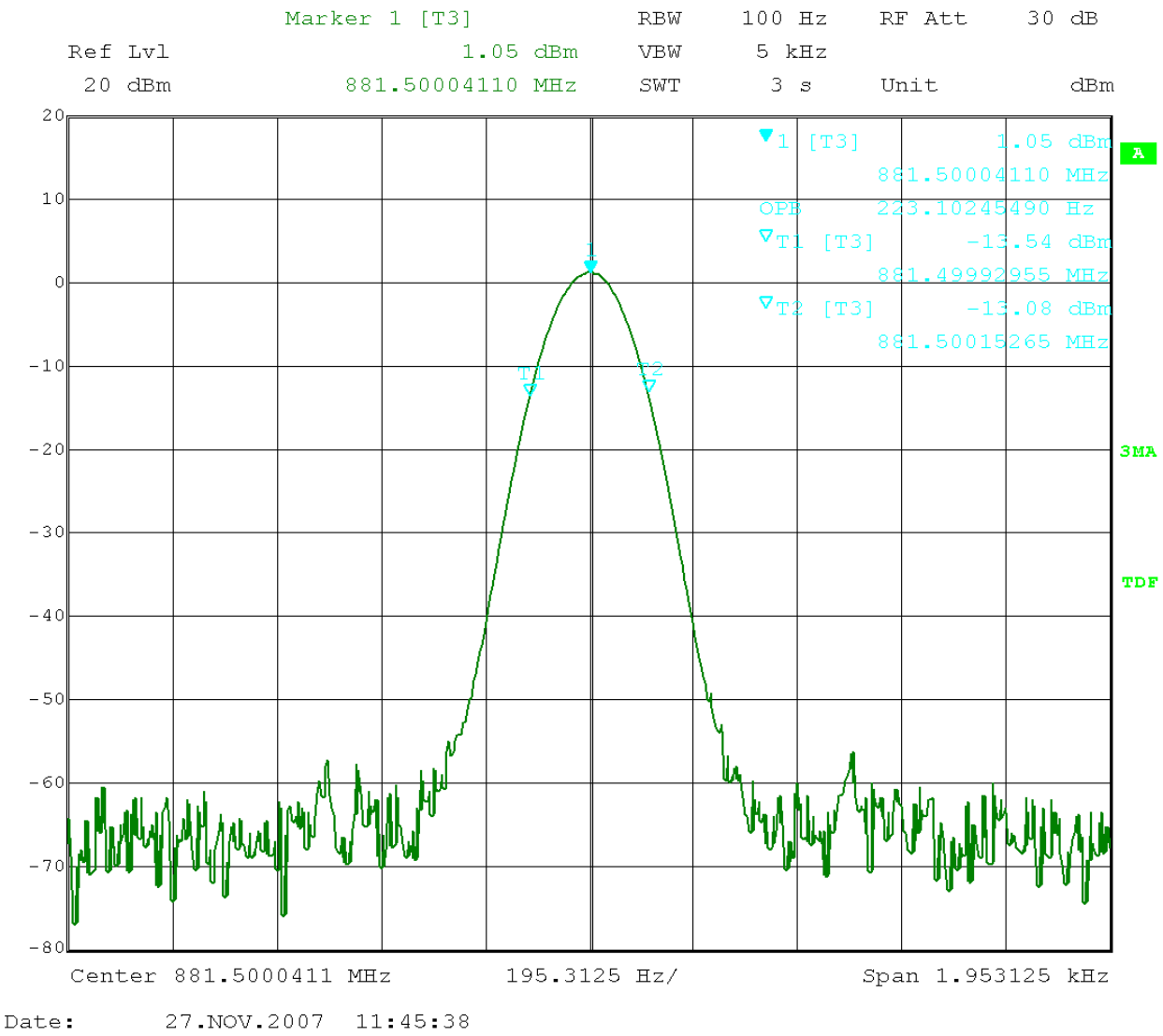
8-GSM Peak Detector
869.2 MHz Channel 1: 234.5 kHz
872.8 MHz Channel 2: 234.5 kHz
876.2 MHz Channel 3: 234.5 kHz
879.8 MHz Channel 4: 232.5 kHz
883.2 MHz Channel 5: 234.5 kHz
886.8 MHz Channel 6: 232.5 kHz
890.2 MHz Channel 7: 234.5 kHz
893.8 MHz Channel 8: 234.5 kHz



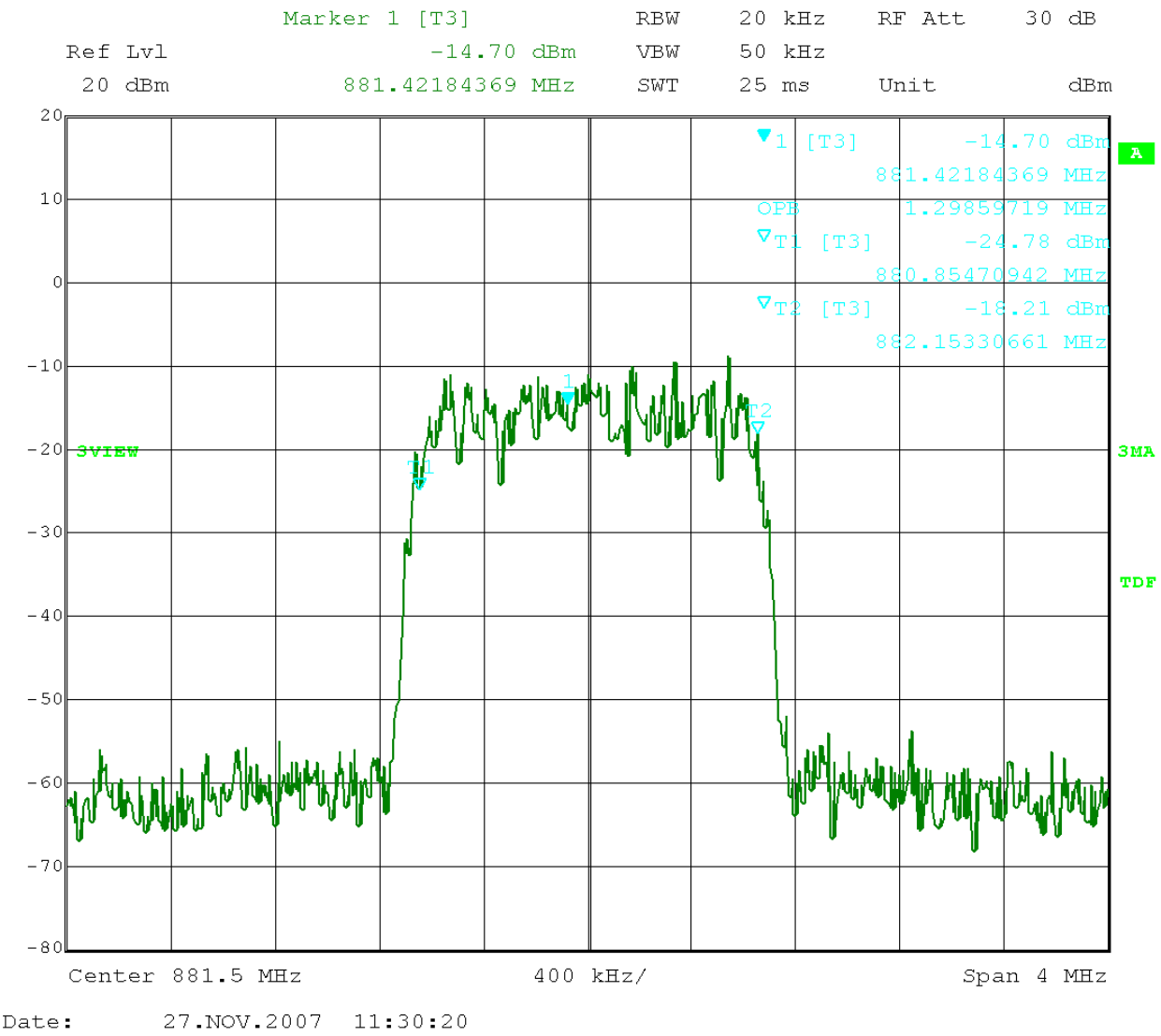
Single Channel CDMA Mode A Peak Detector



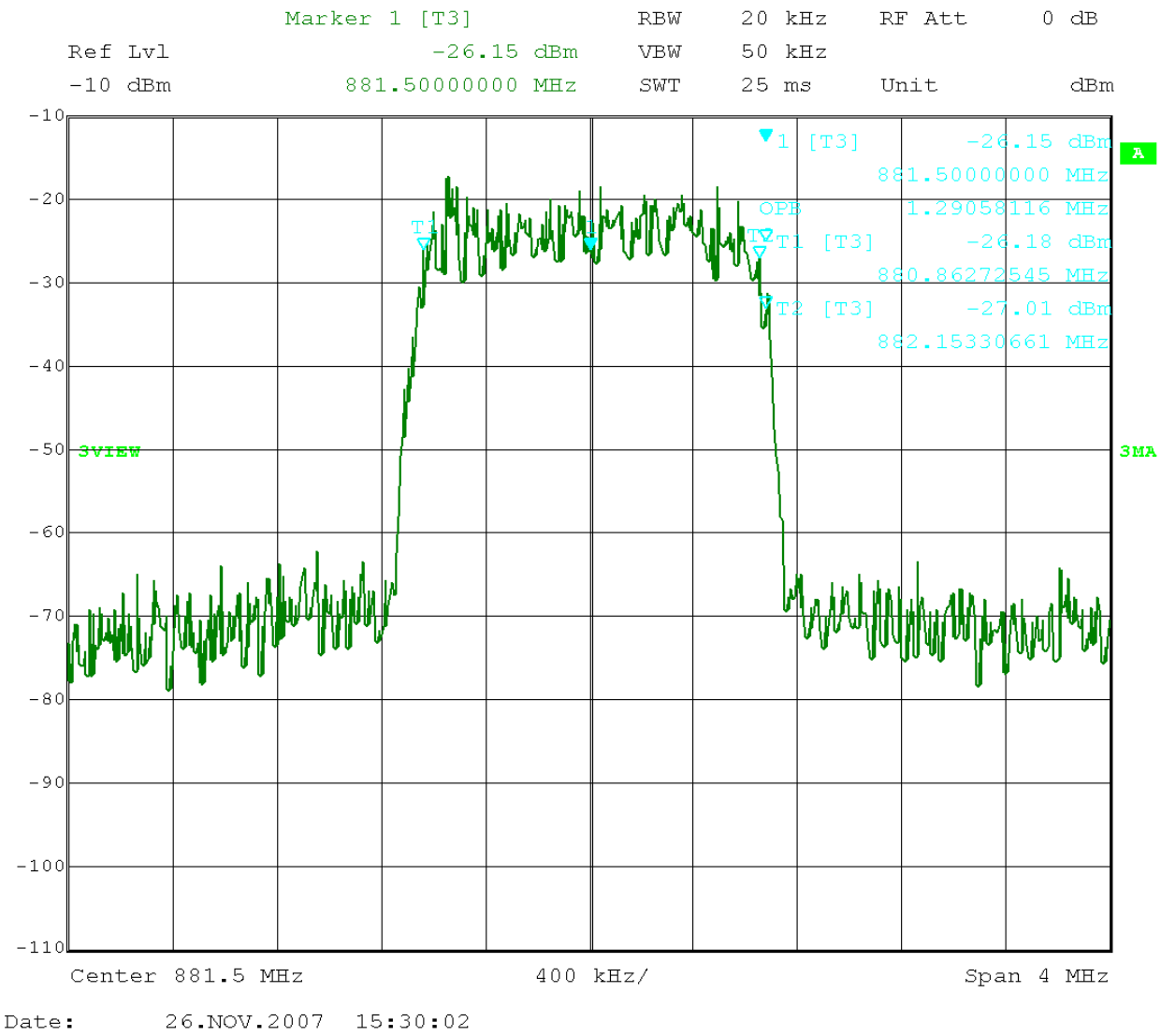
Single Channel CDMA Mode B Peak Detector



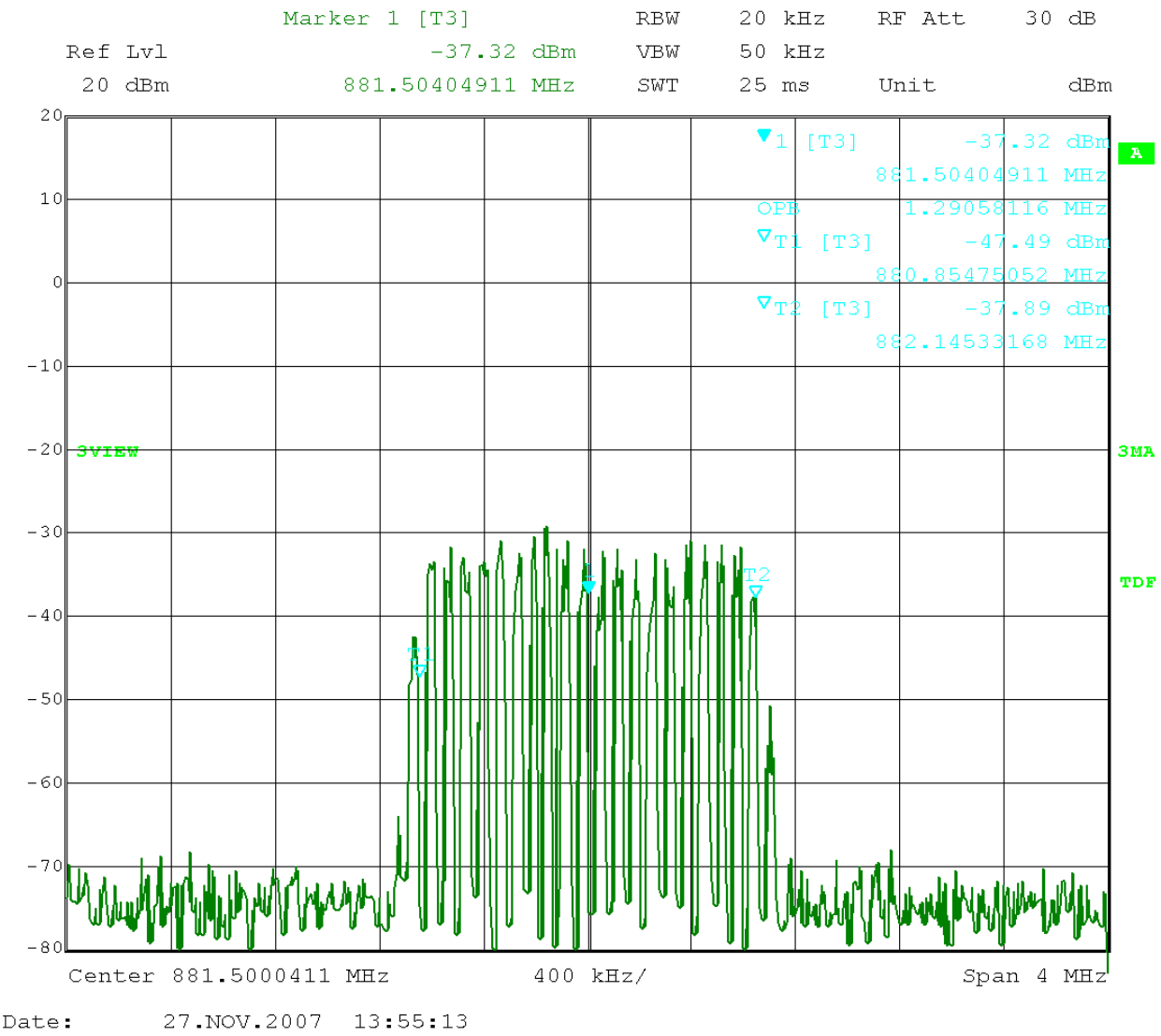
Single Channel CDMA Mode C Peak Detector



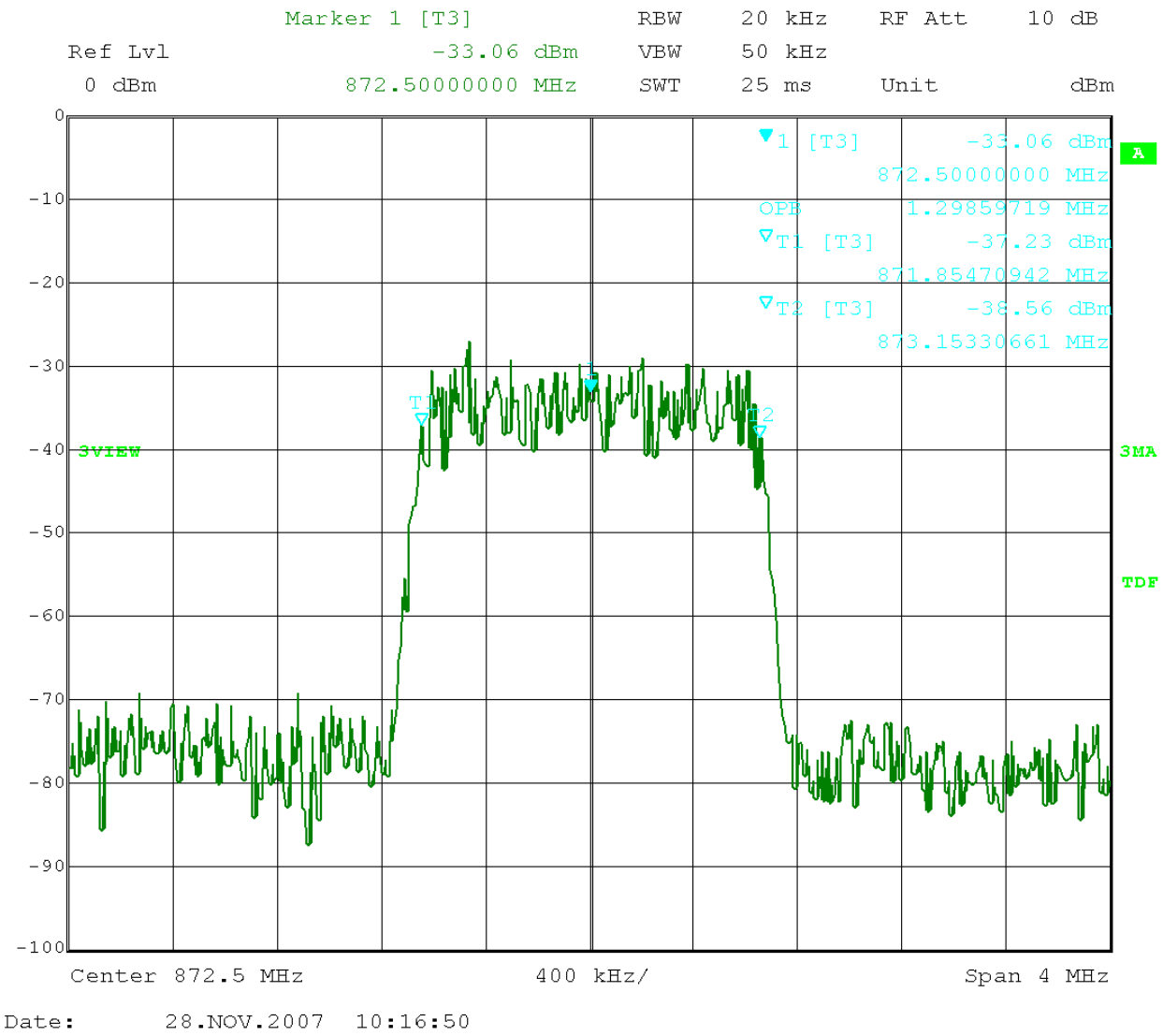
Single Channel CDMA Mode D Peak Detector



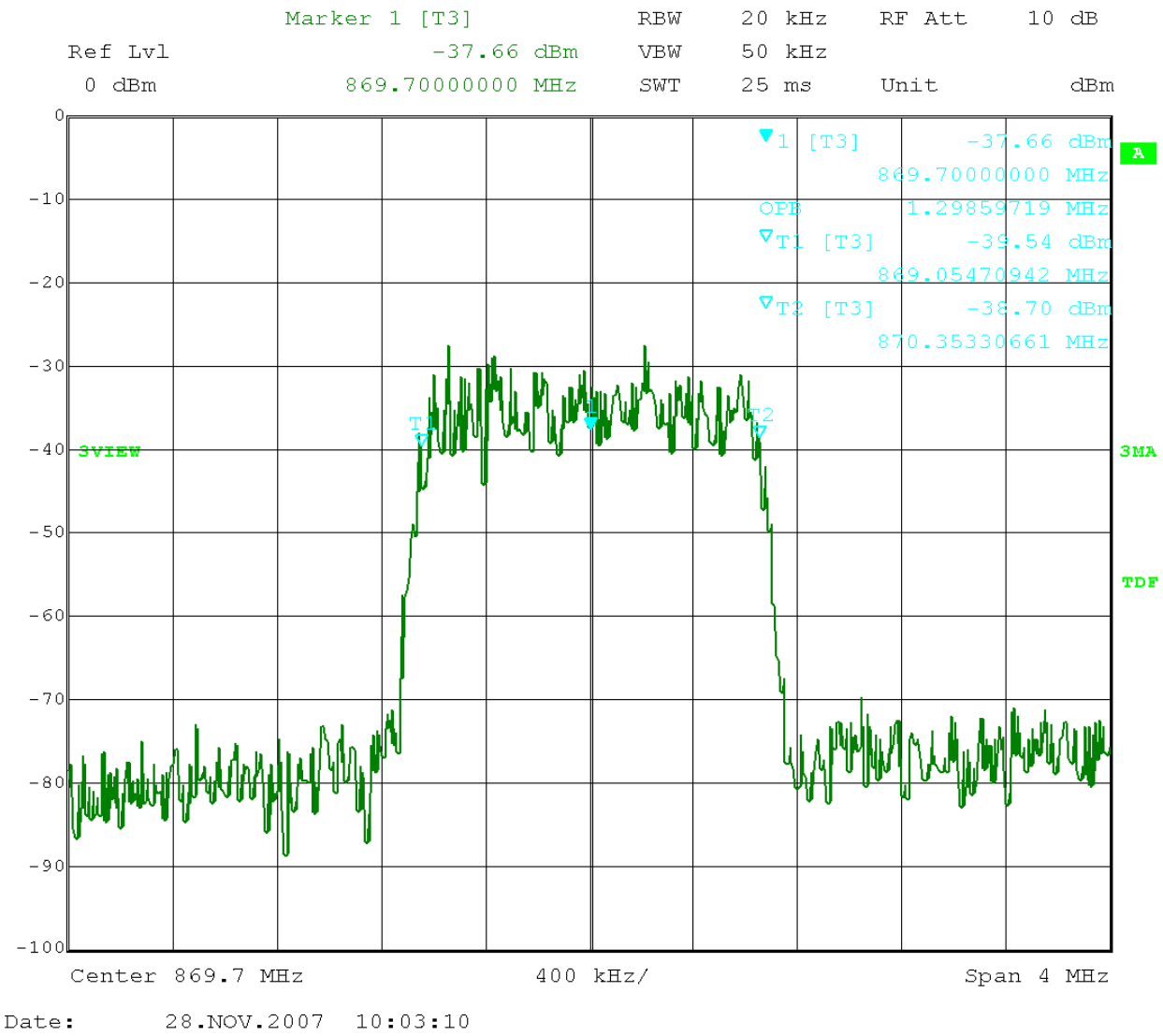
Single Channel CDMA Mode E Peak Detector



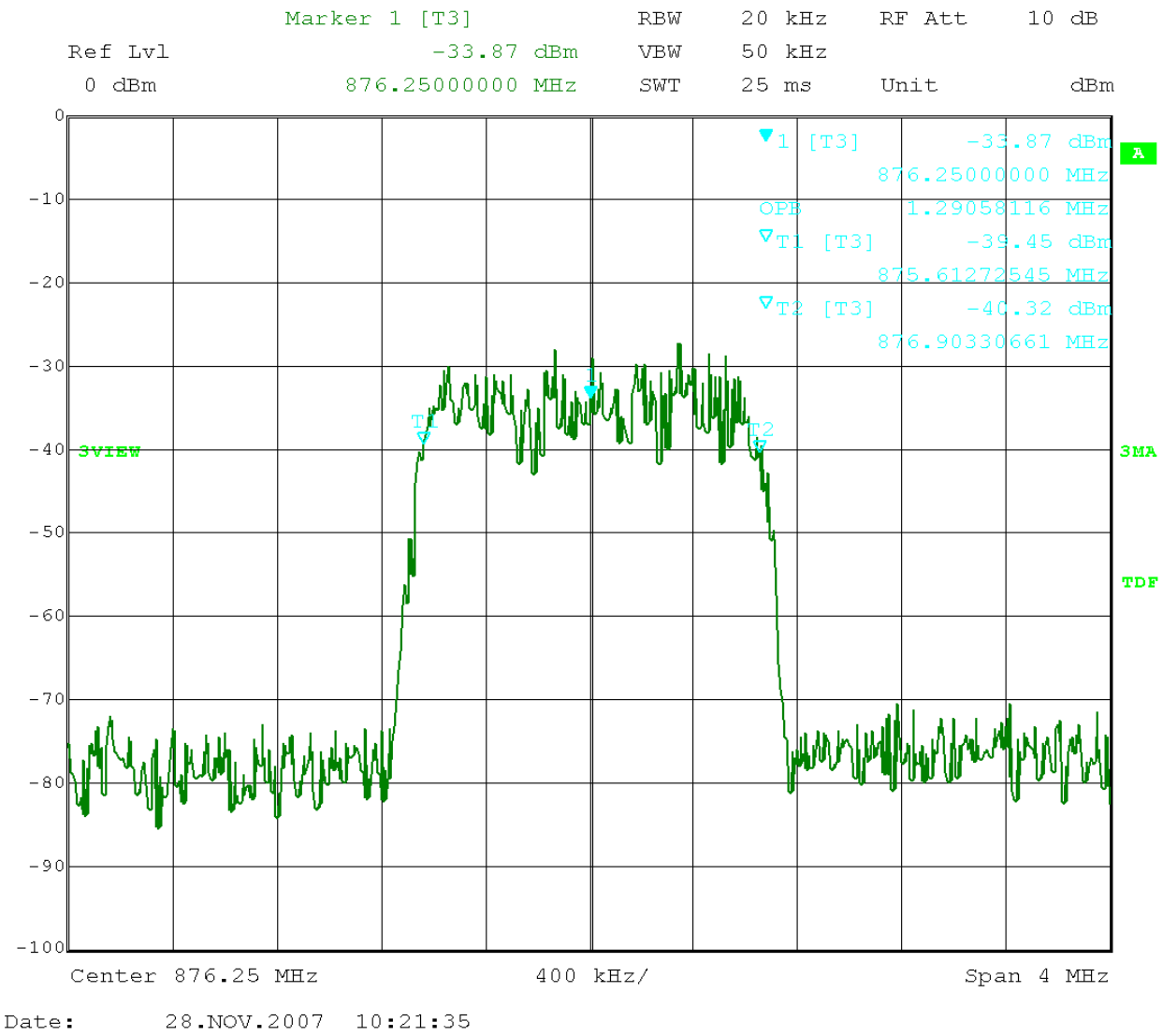
Single Channel CDMA Mode F Peak Detector



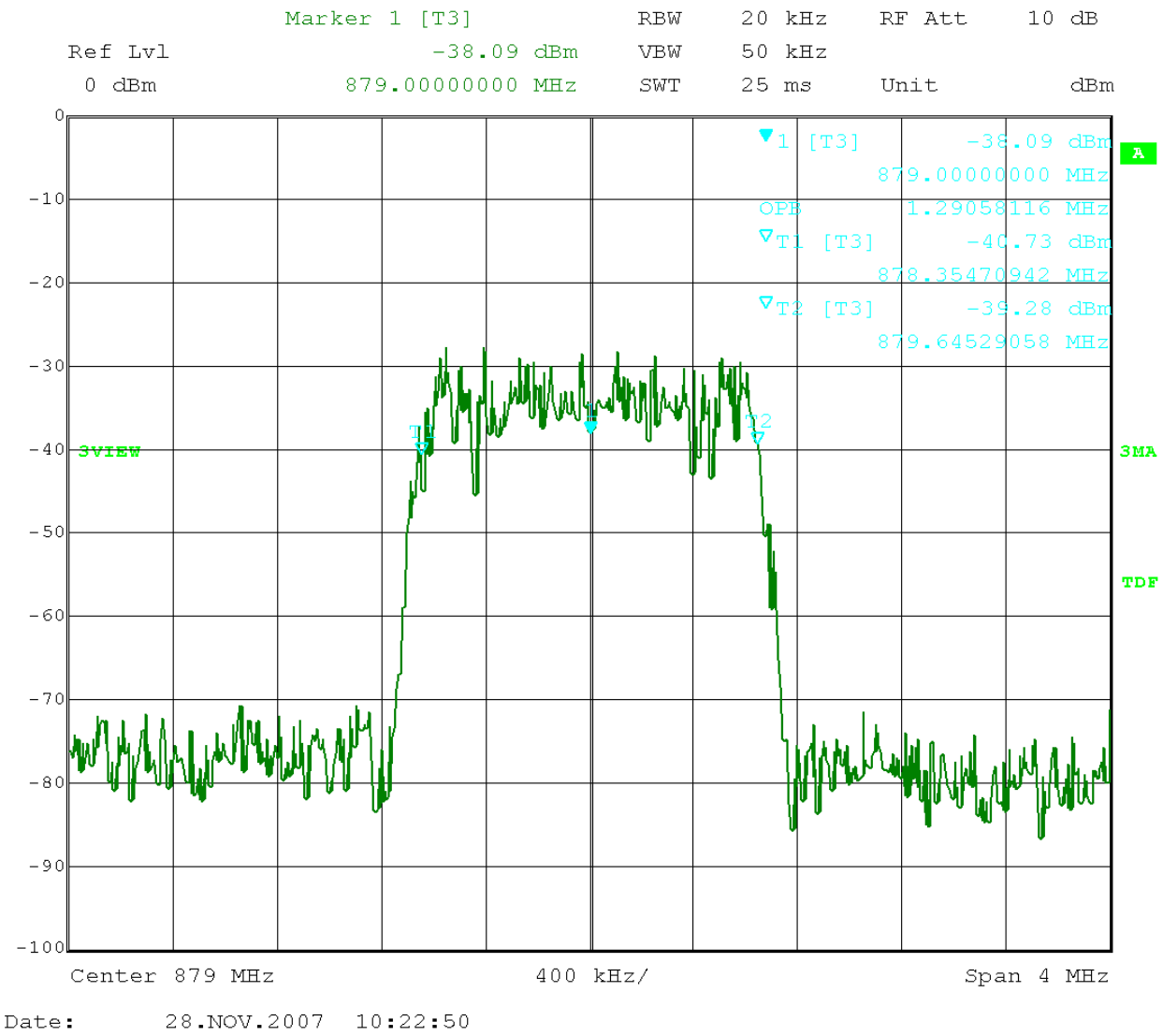
8 Channel CDMA Channel 1 Peak Detector



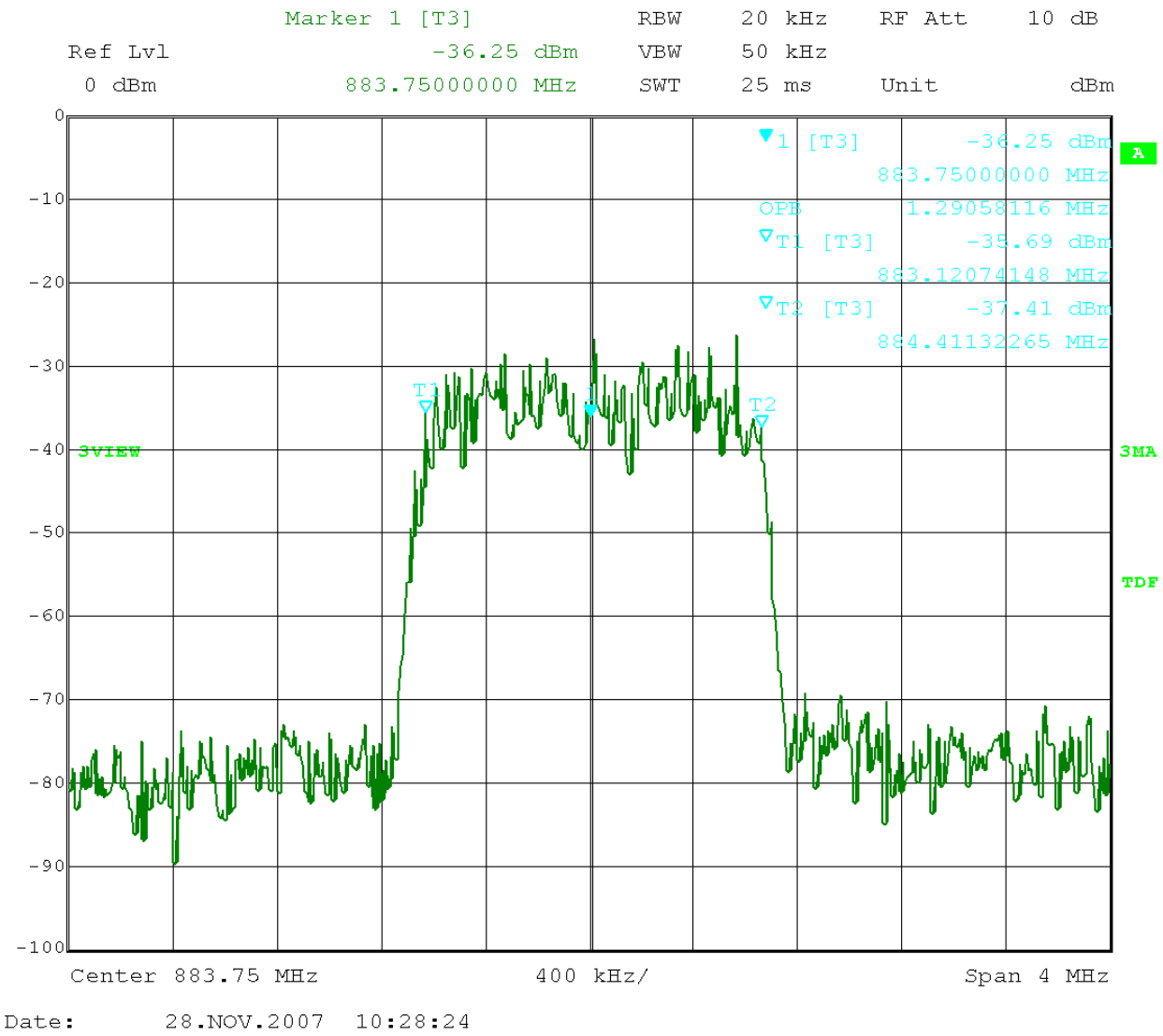
8 Channel CDMA Channel 2 Peak Detector



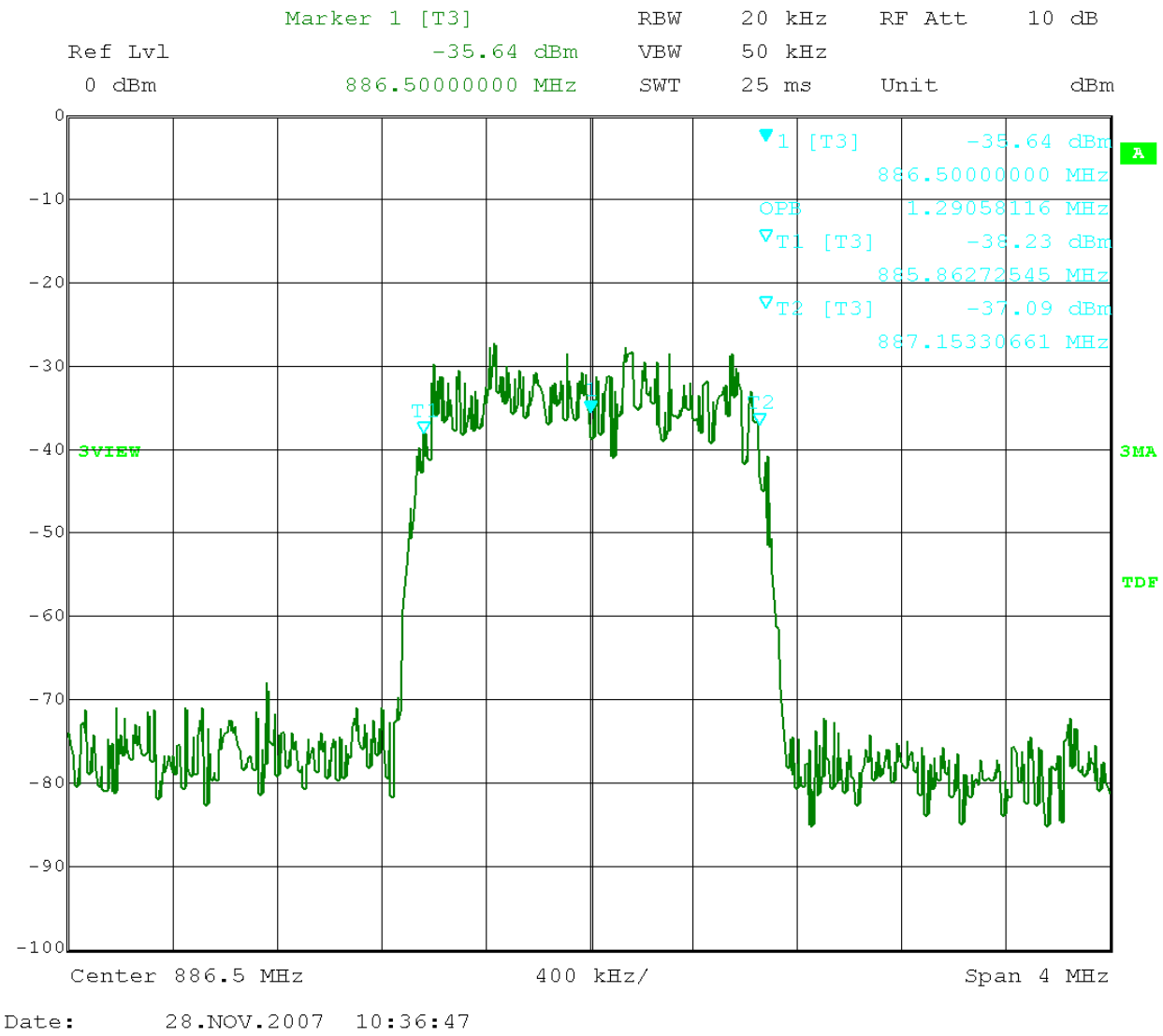
8 Channel CDMA Channel 3 Peak Detector



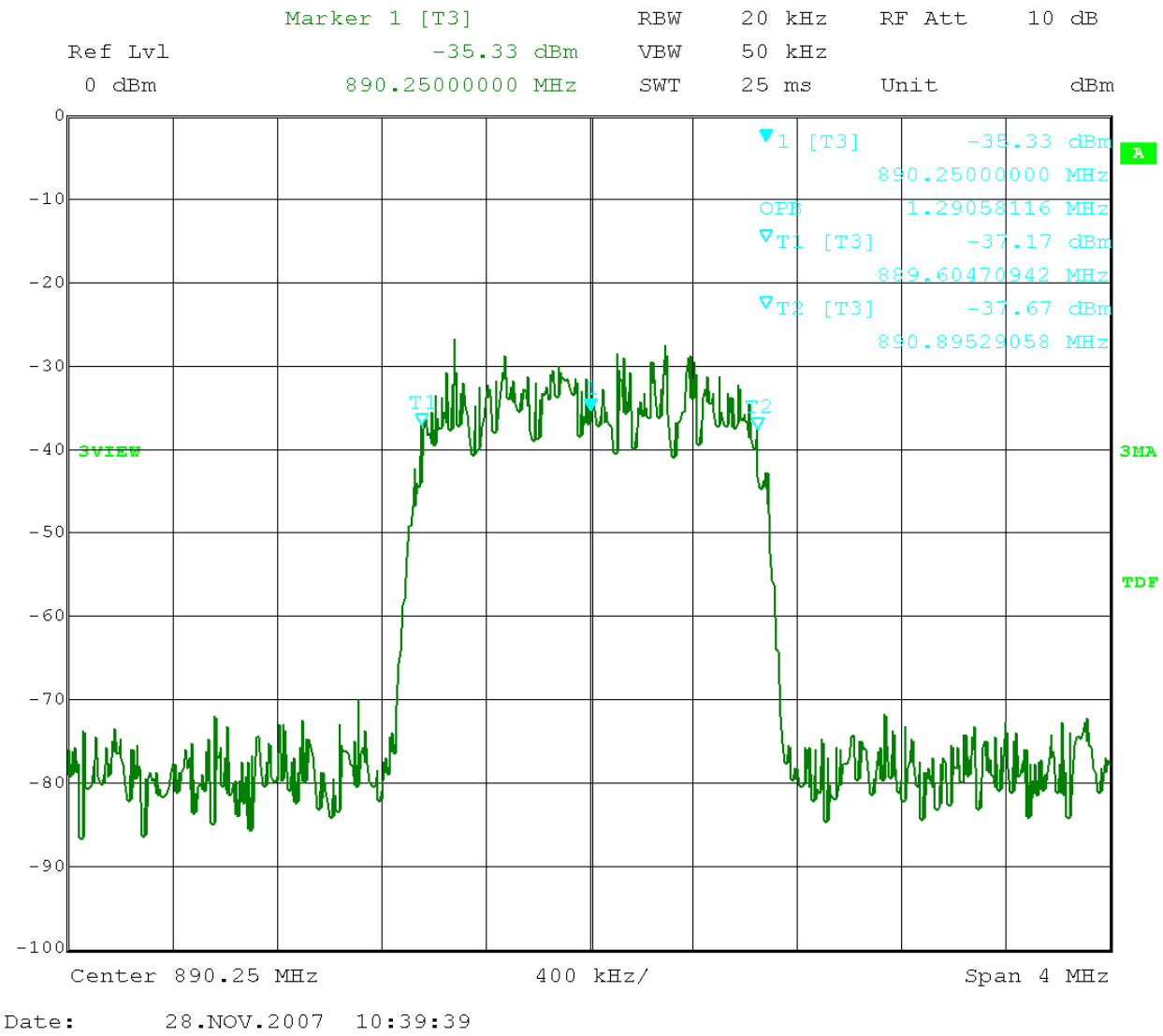
8 Channel CDMA Channel 4 Peak Detector



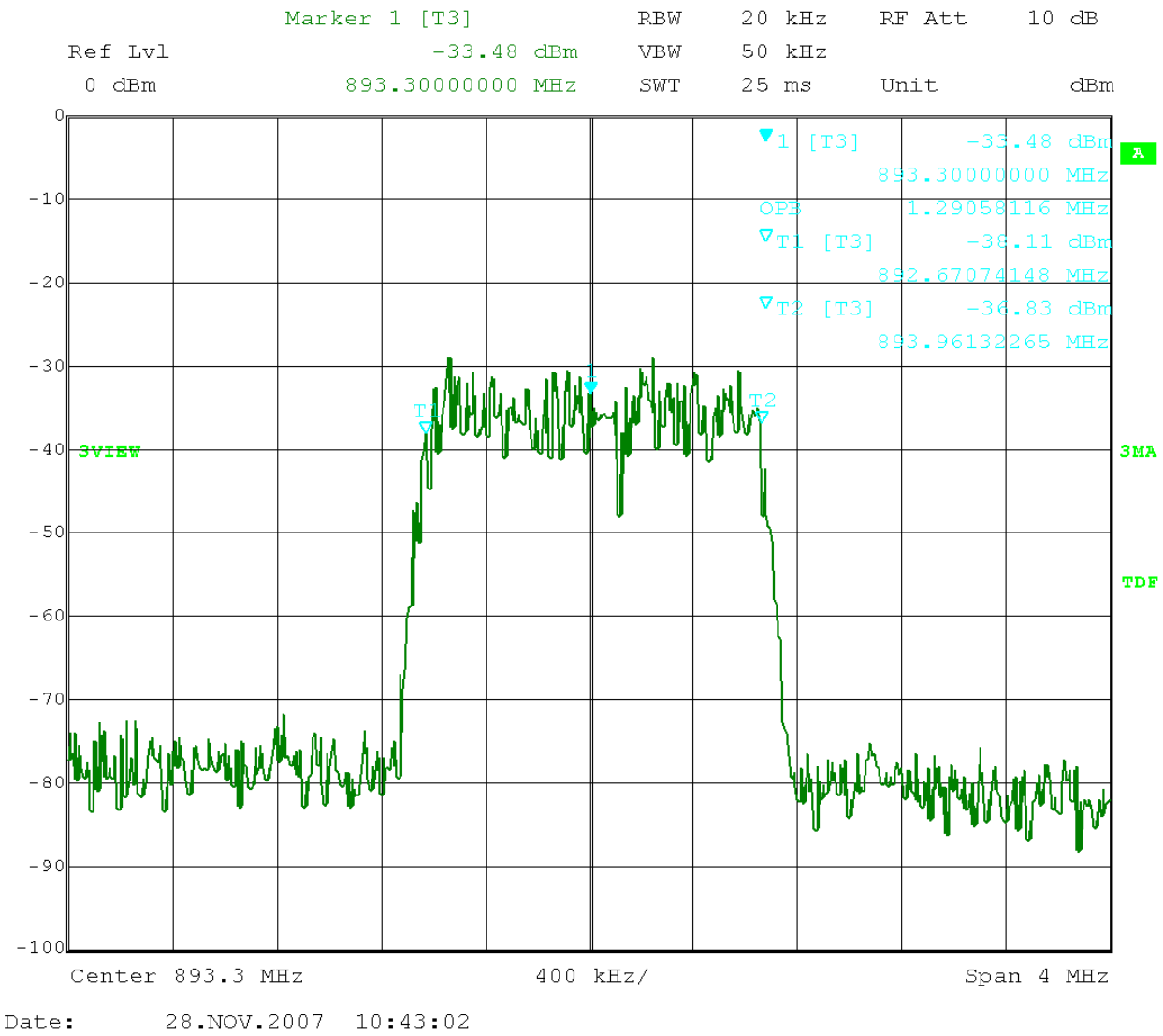
8 Channel CDMA Channel 5 Peak Detector



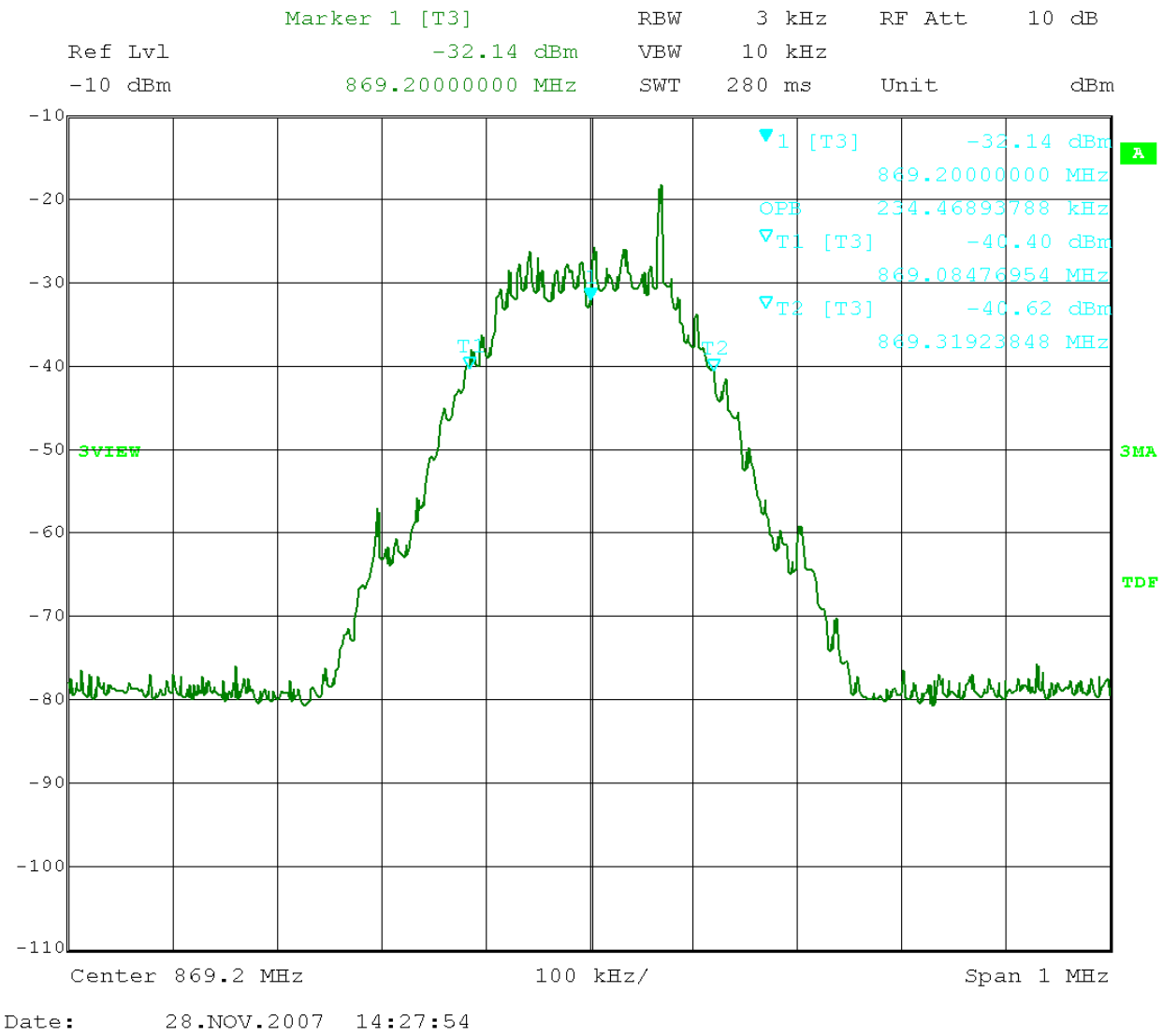
8 Channel CDMA Channel 6 Peak Detector



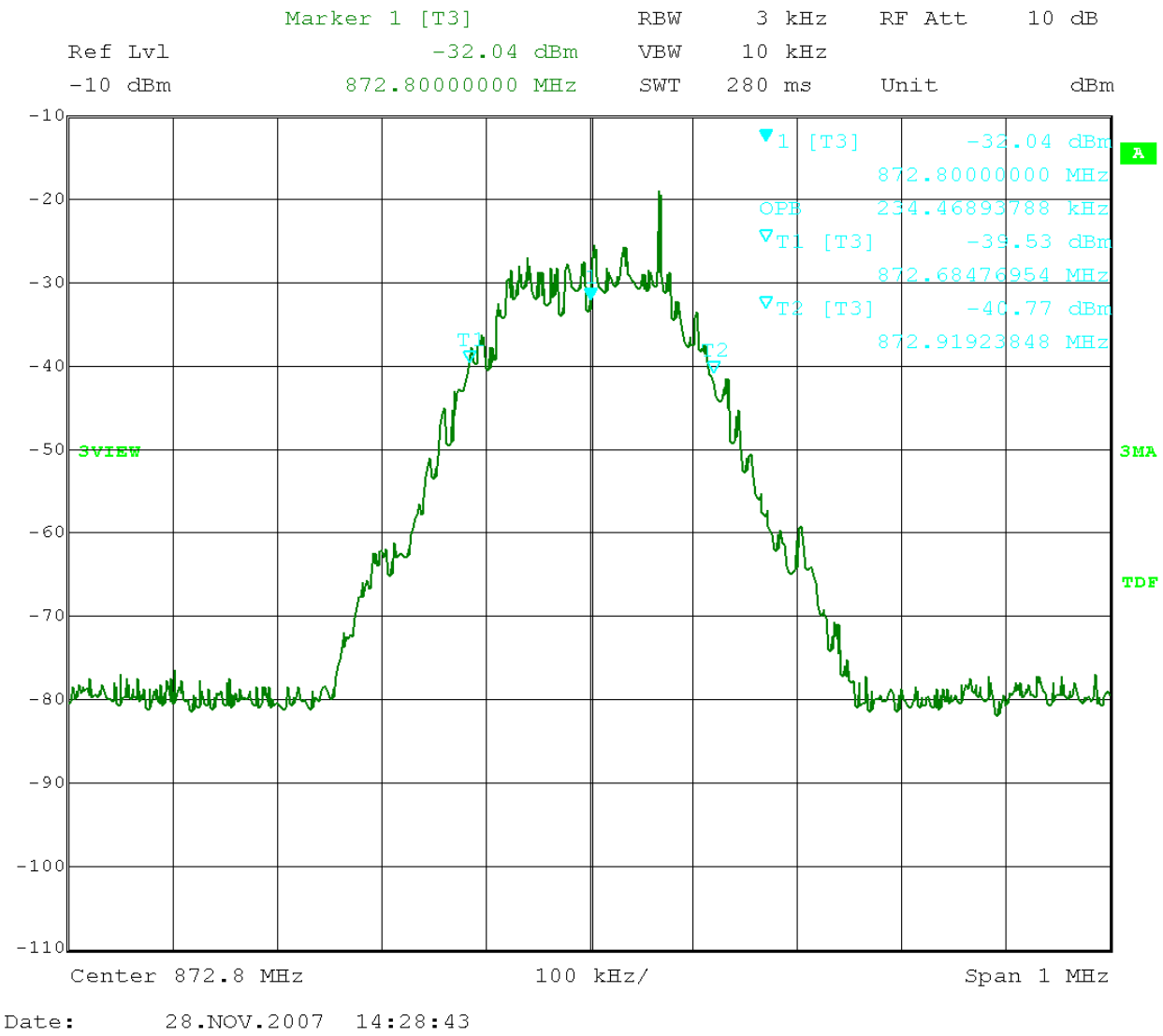
8 Channel CDMA Channel 7 Peak Detector



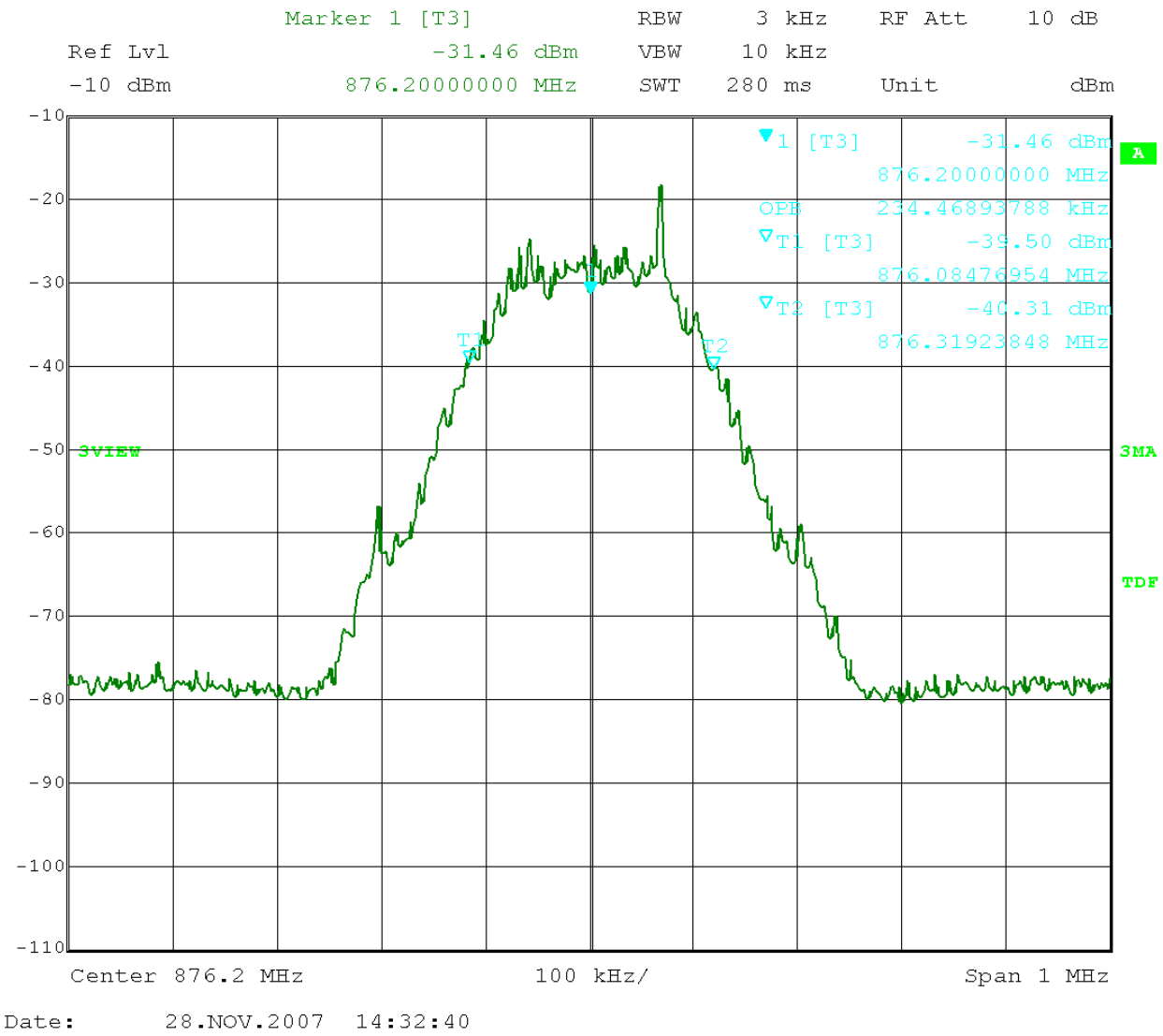
8 Channel CDMA Channel 8 Peak Detector



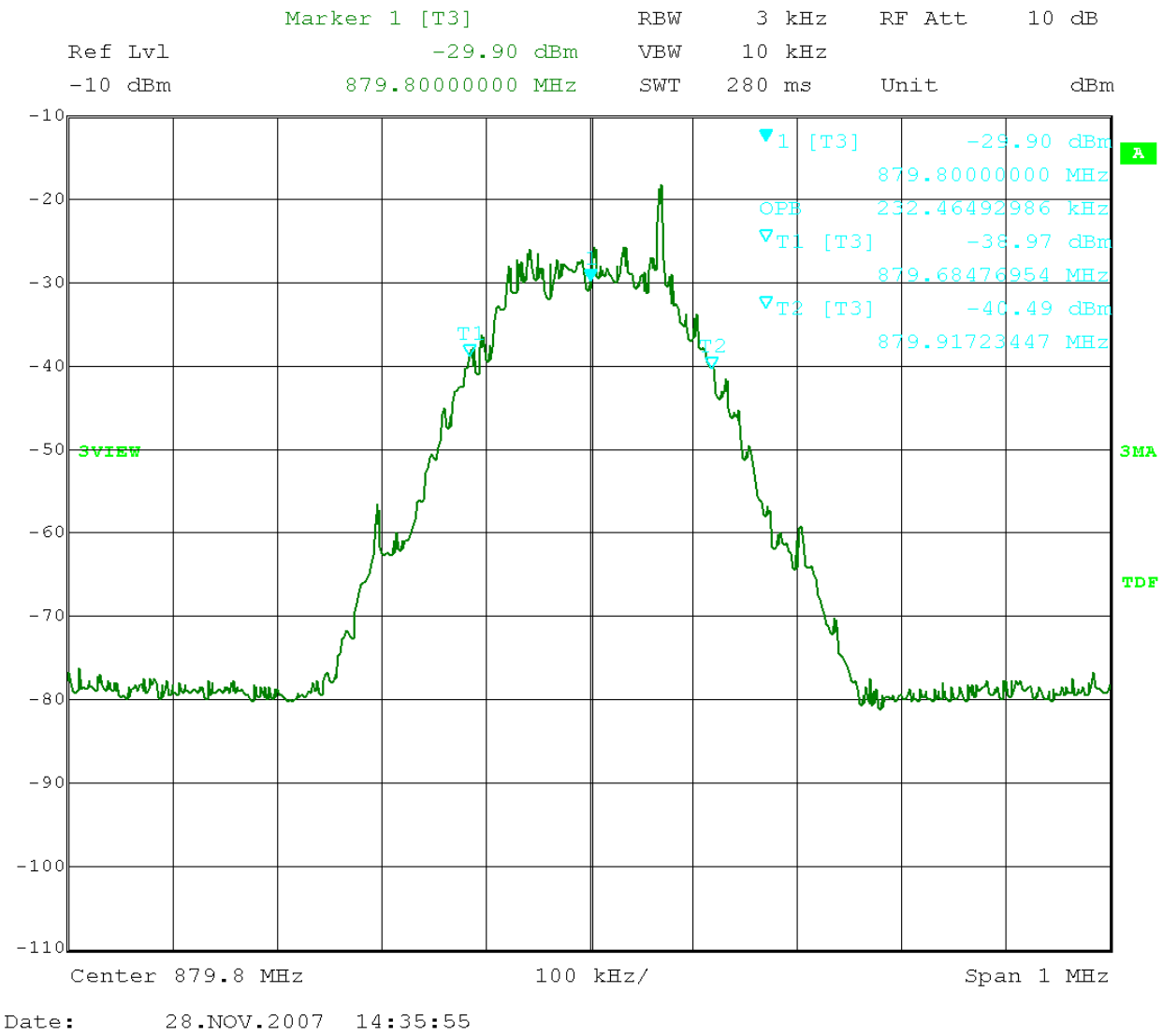
8 Channel GSM Channel 1 Peak Detector



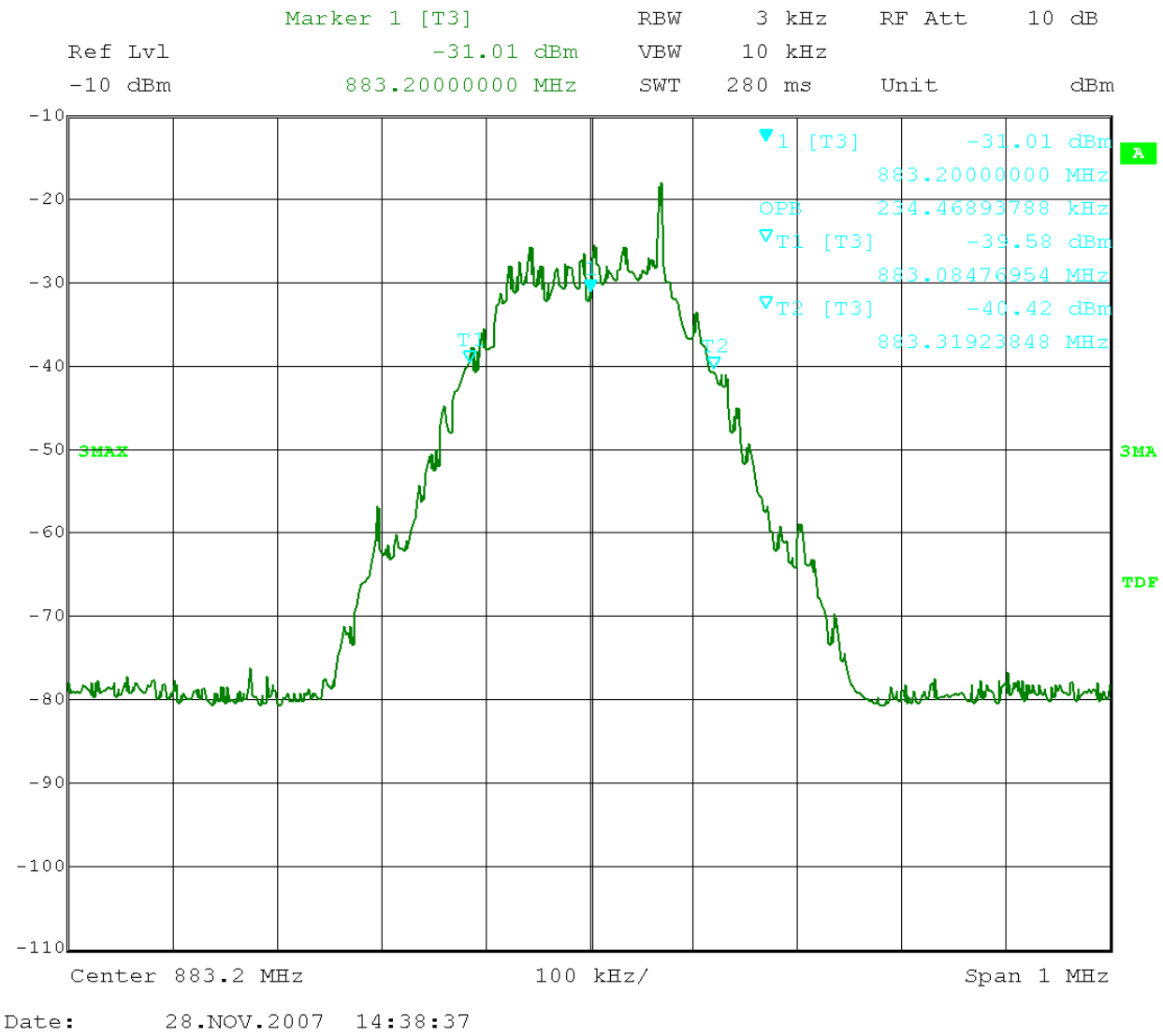
8 Channel GSM Channel 2 Peak Detector



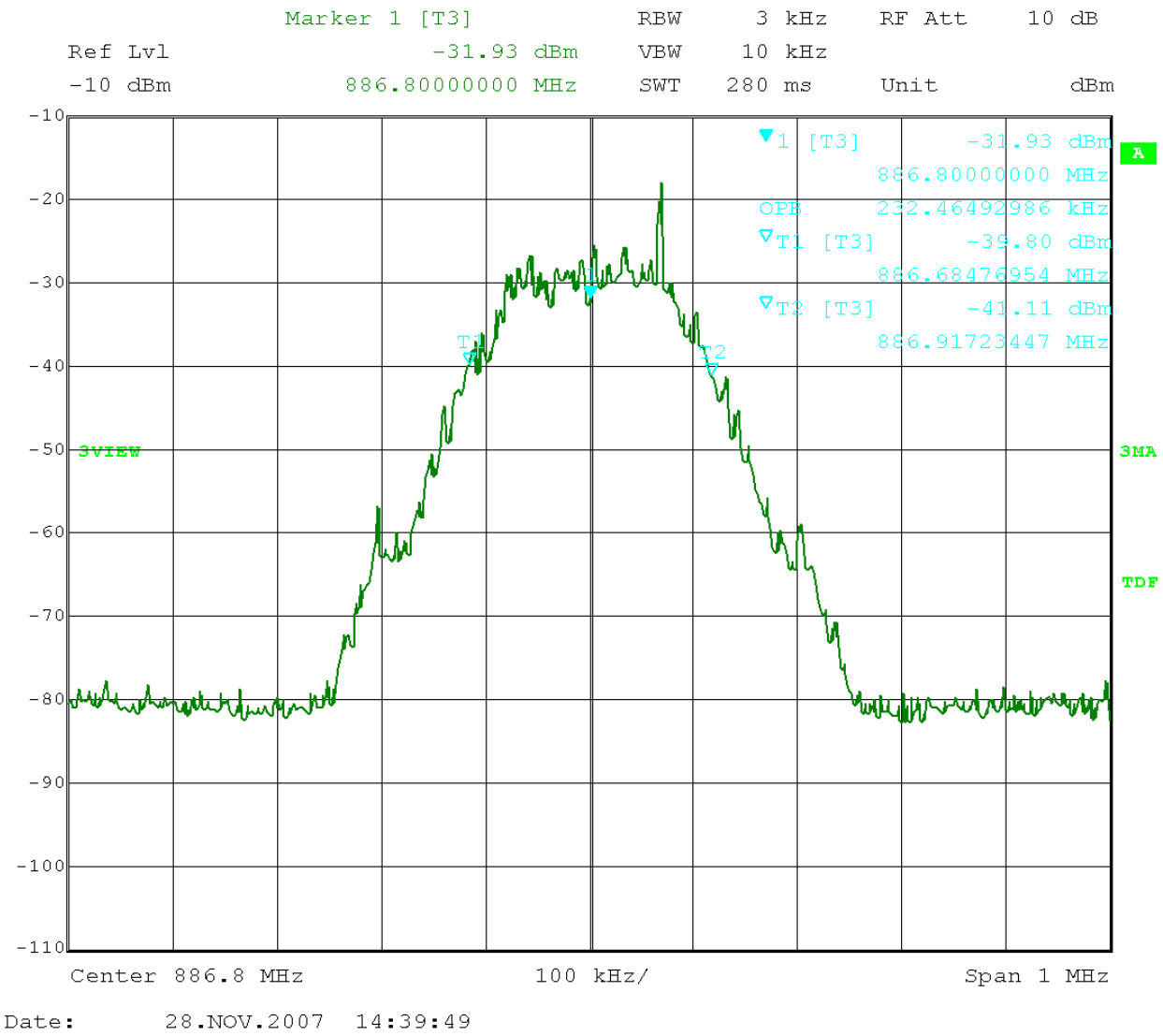
8 Channel GSM Channel 3 Peak Detector



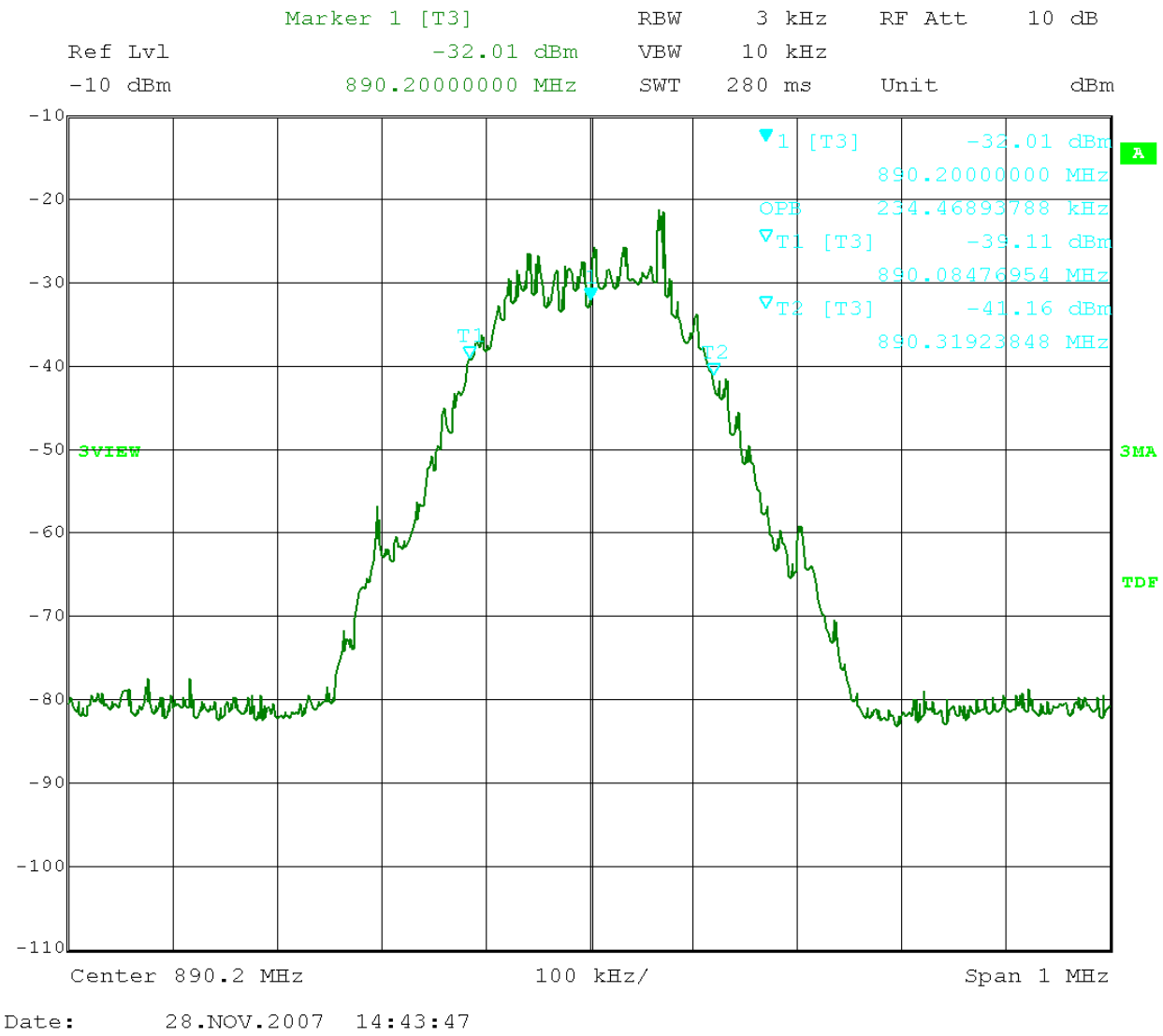
8 Channel GSM Channel 4 Peak Detector



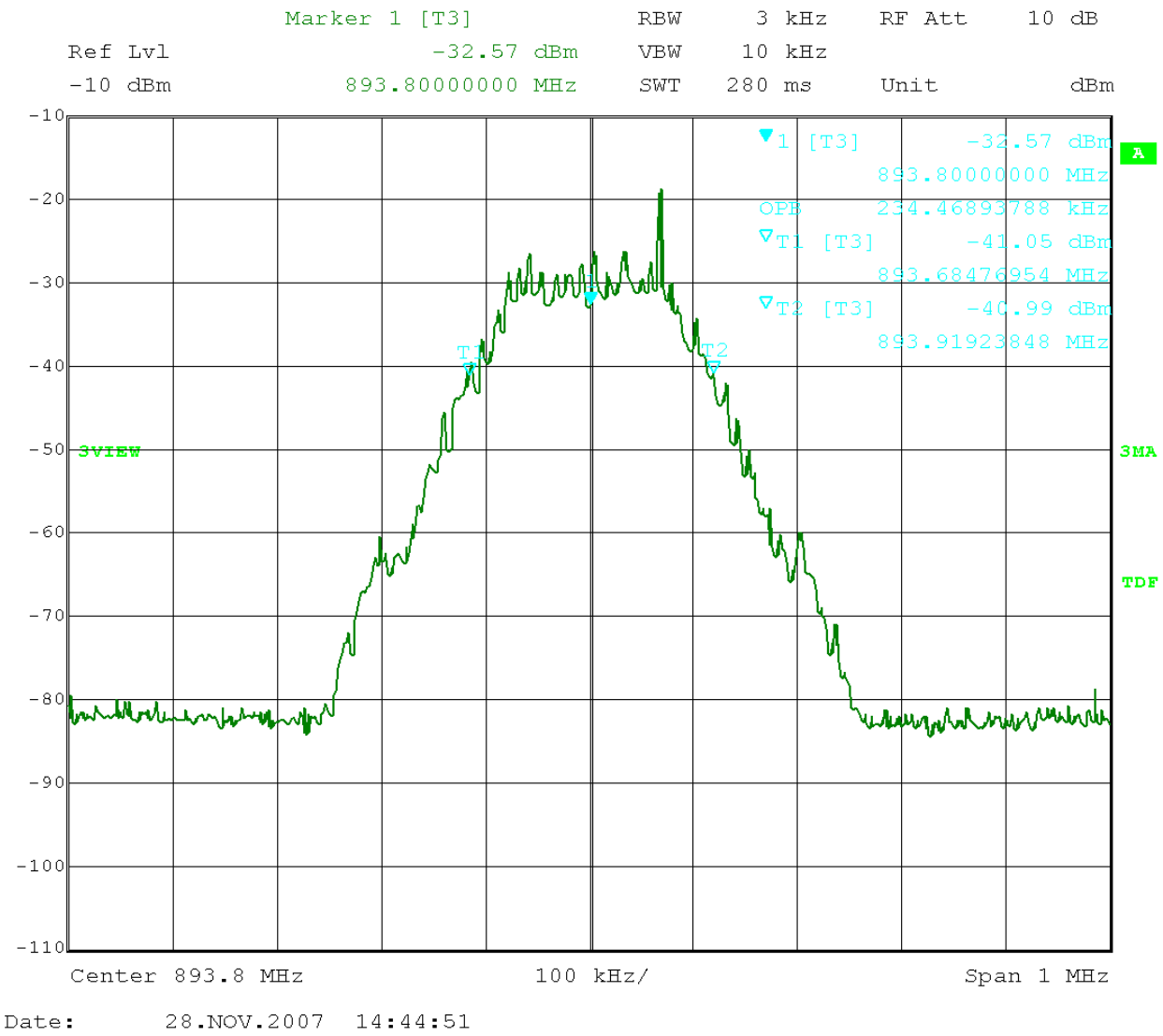
8 Channel GSM Channel 5 Peak Detector



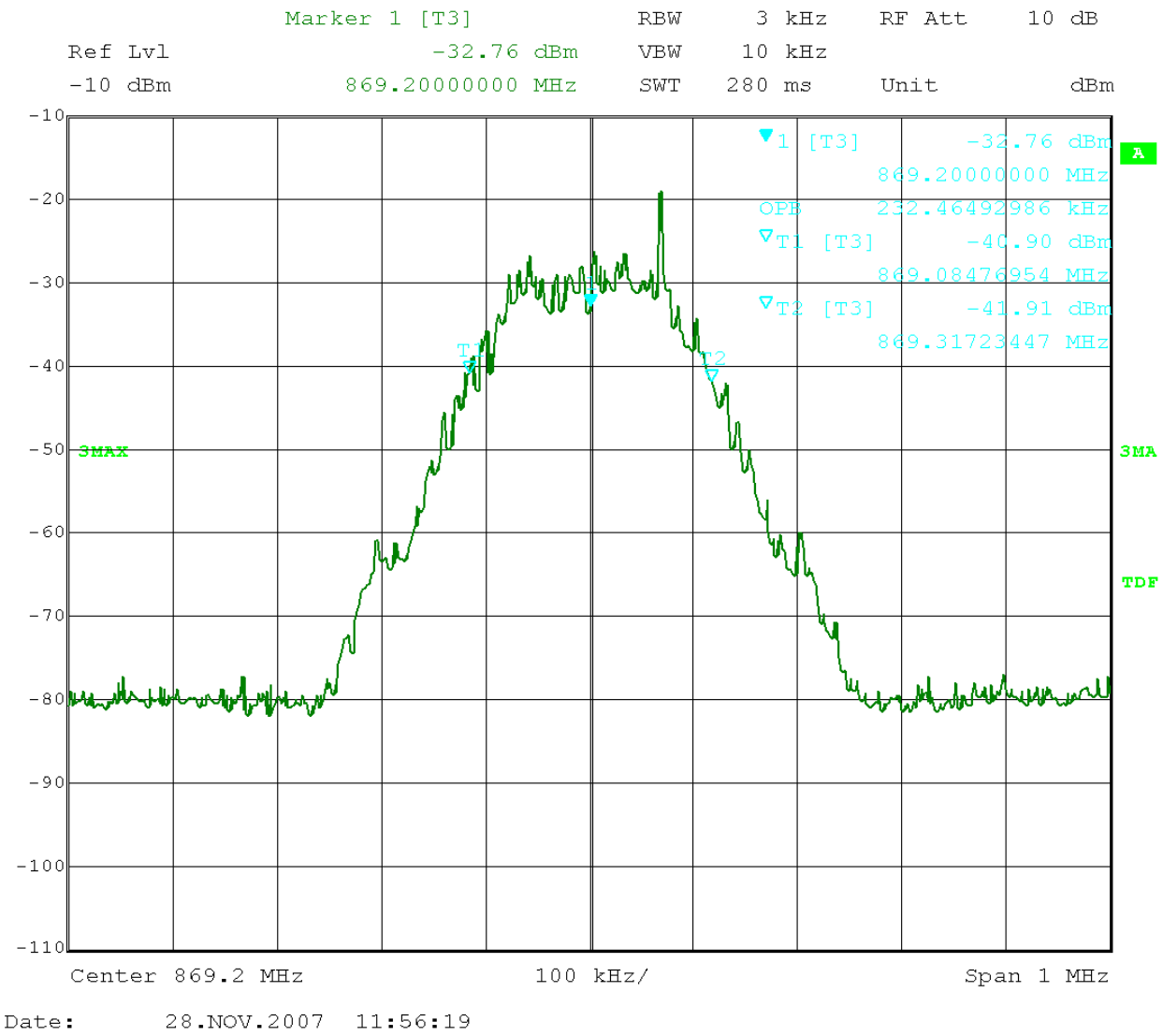
8 Channel GSM Channel 6 Peak Detector



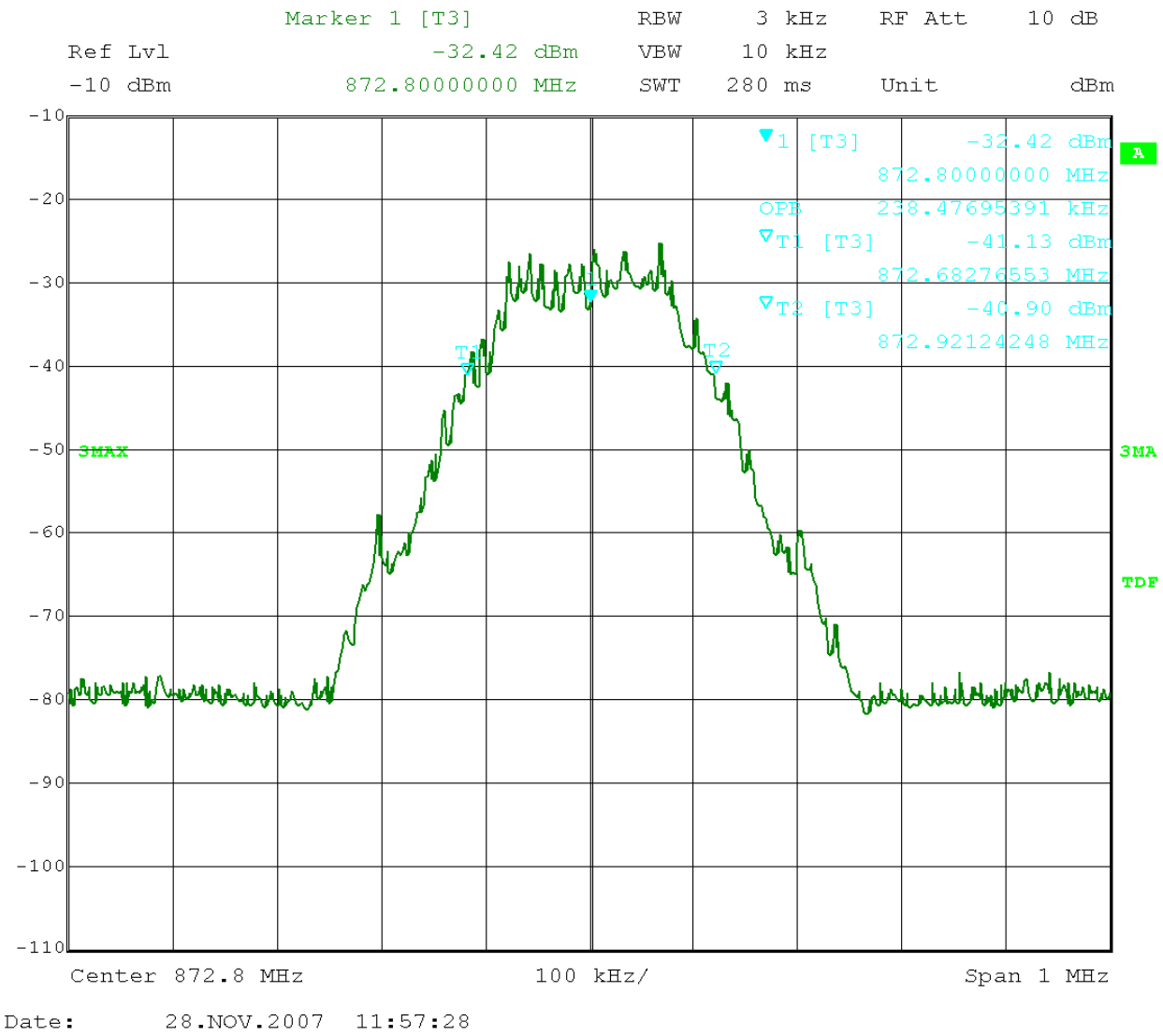
8 Channel GSM Channel 7 Peak Detector



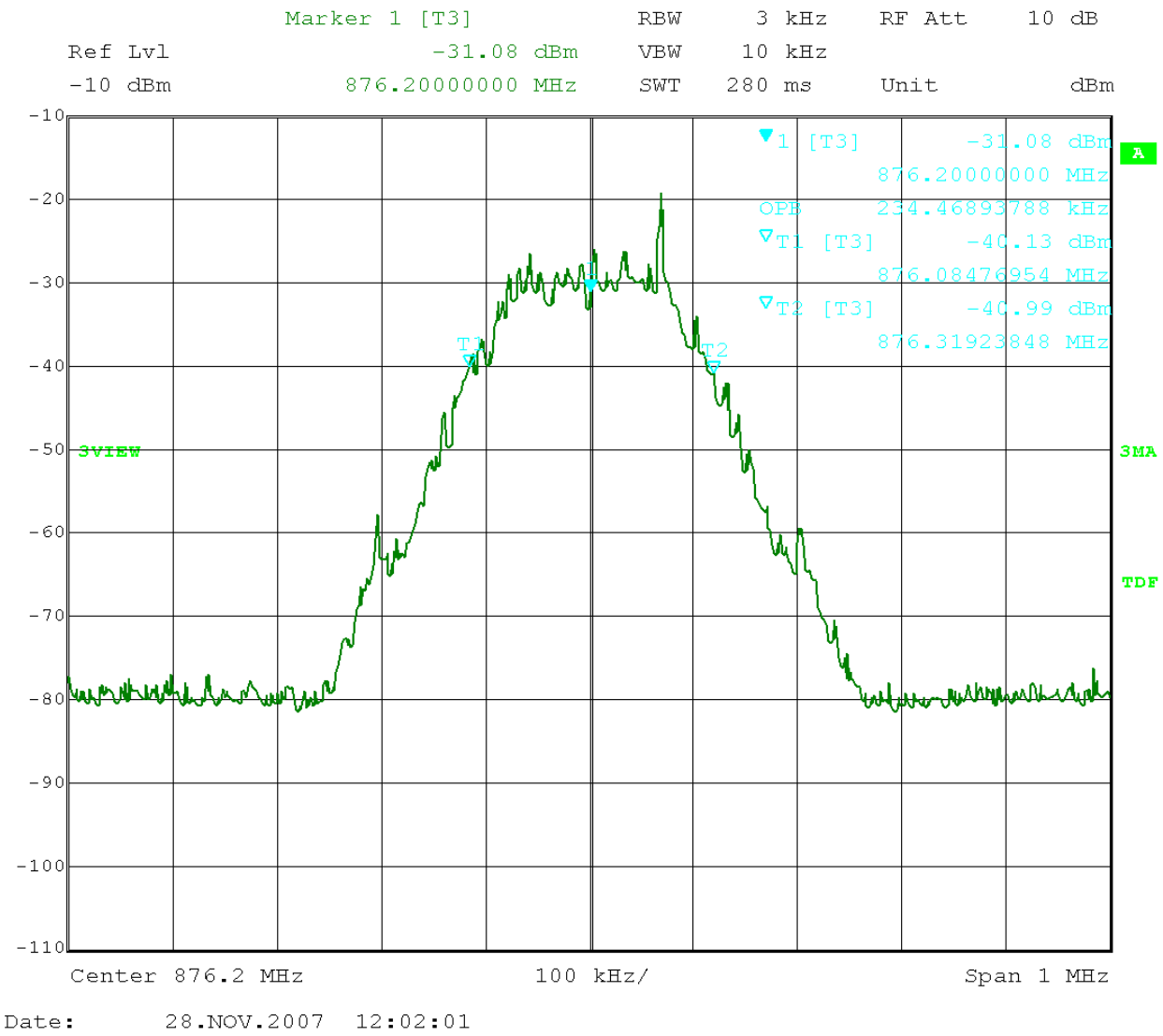
8 Channel GSM Channel 8 Peak Detector



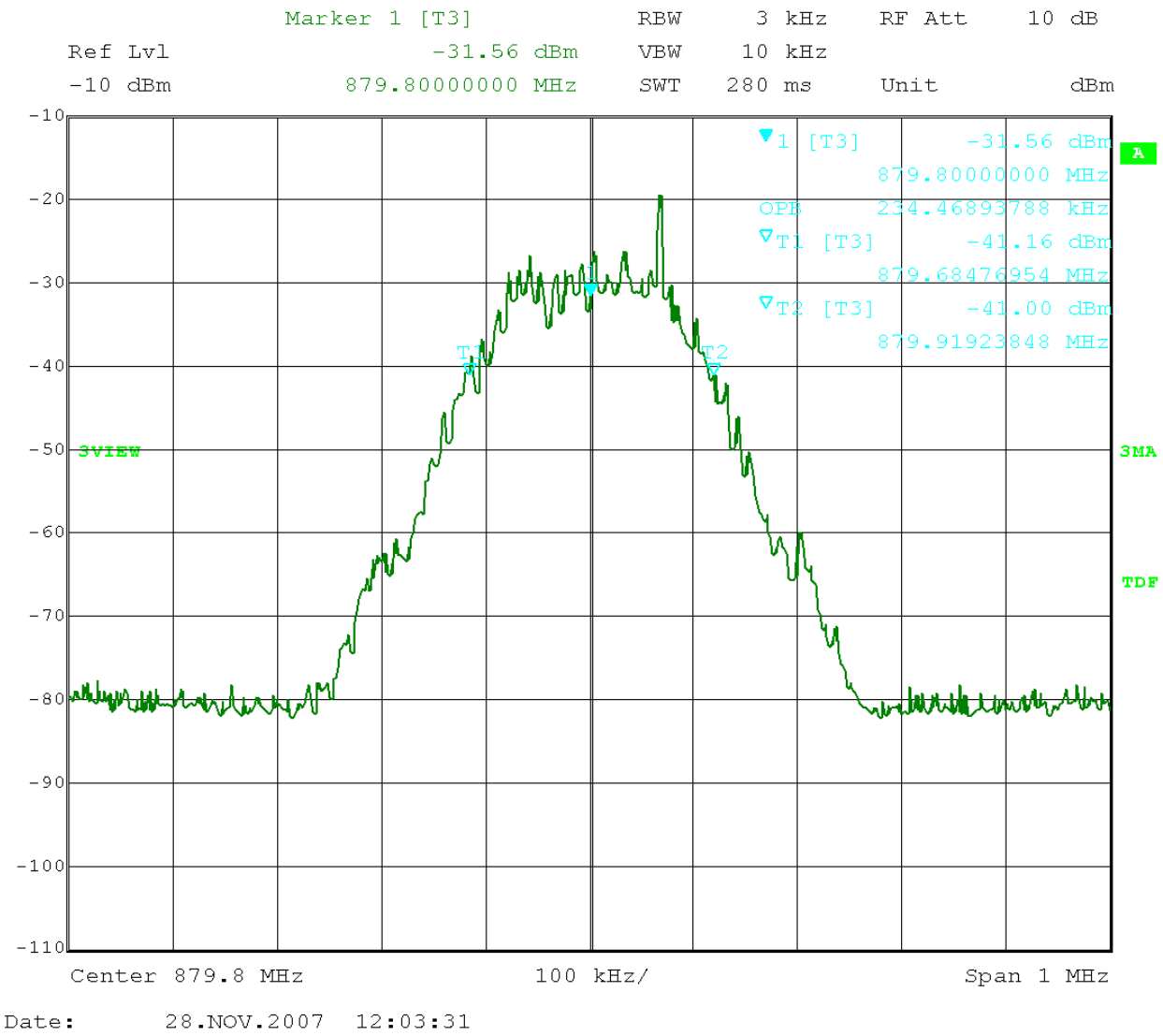
4 Channel GSM/4 Channel CDMA Channel 1 Peak Detector



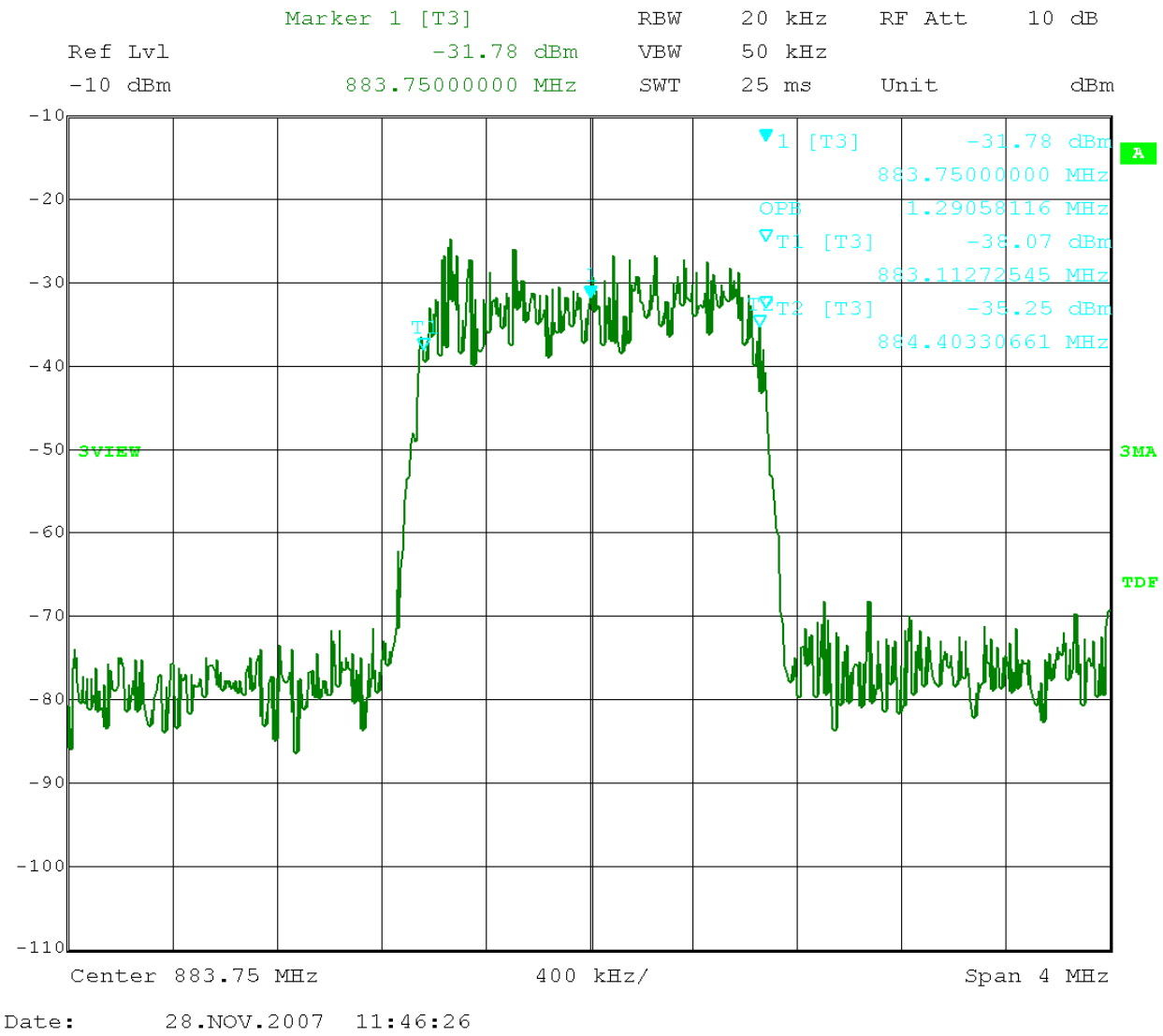
4 Channel GSM/4 Channel CDMA Channel 2 Peak Detector



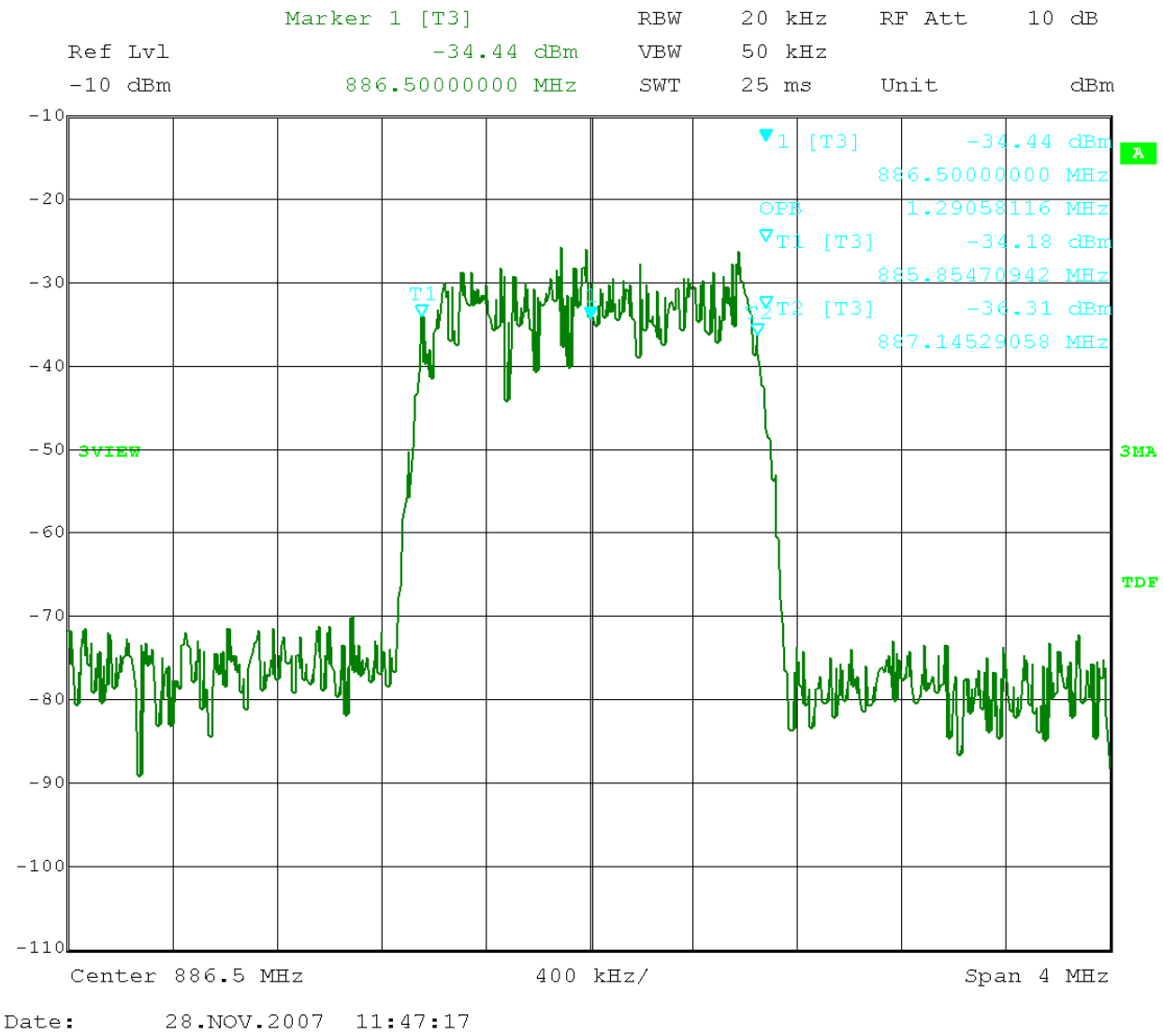
4 Channel GSM/4 Channel CDMA Channel 3 Peak Detector



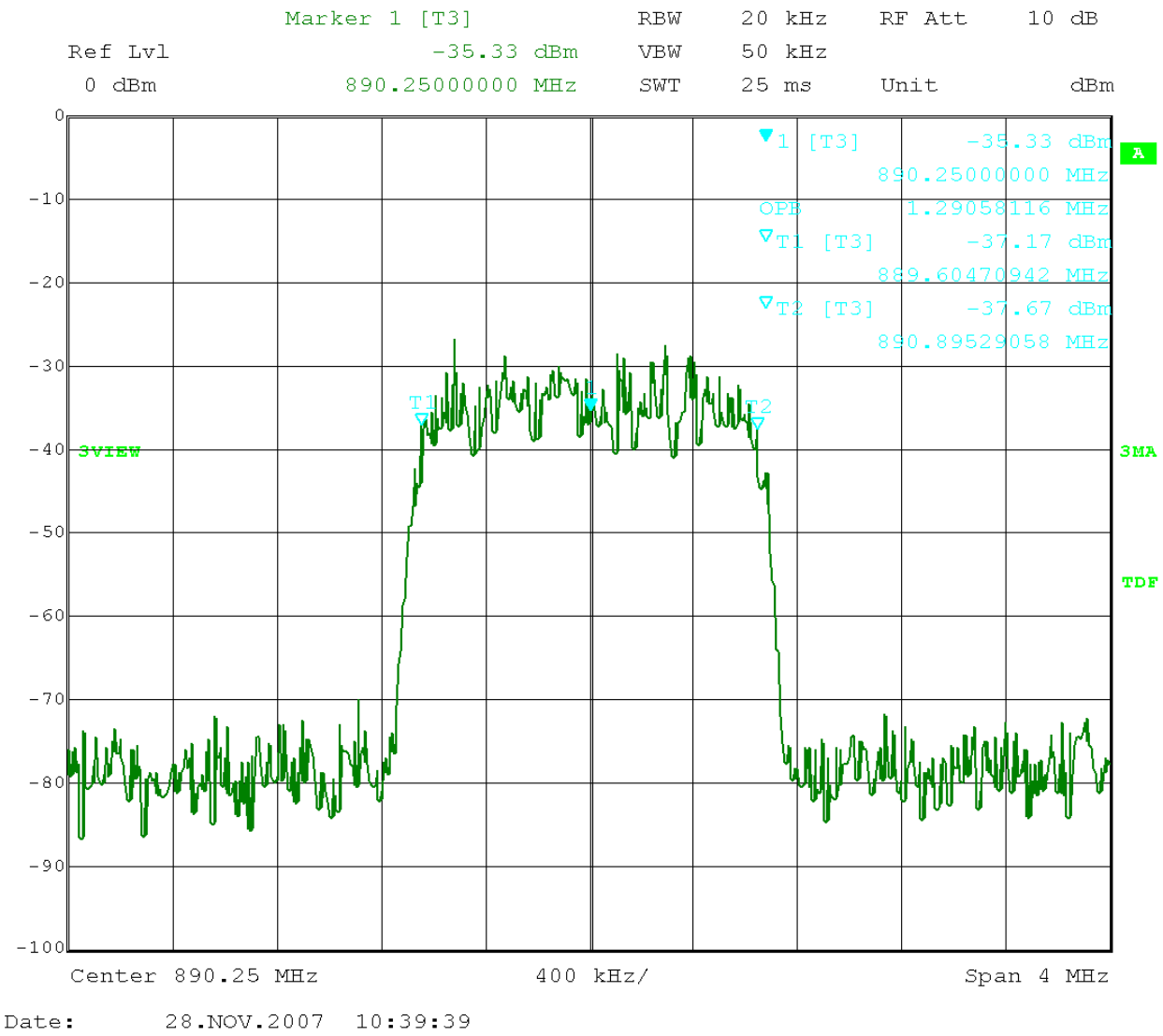
4 Channel GSM/4 Channel CDMA Channel 4 Peak Detector



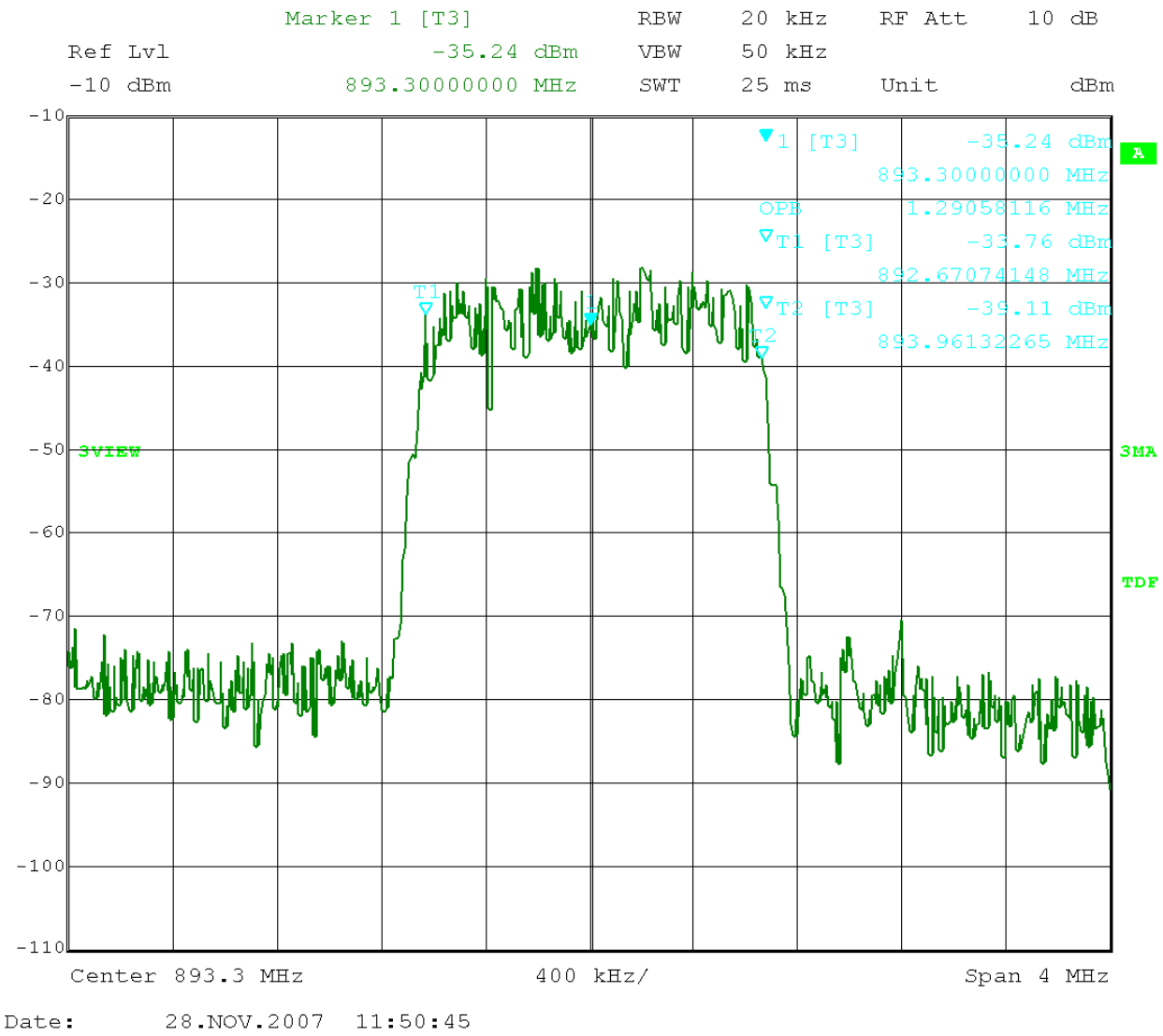
4 Channel GSM/4 Channel CDMA Channel 5 Peak Detector



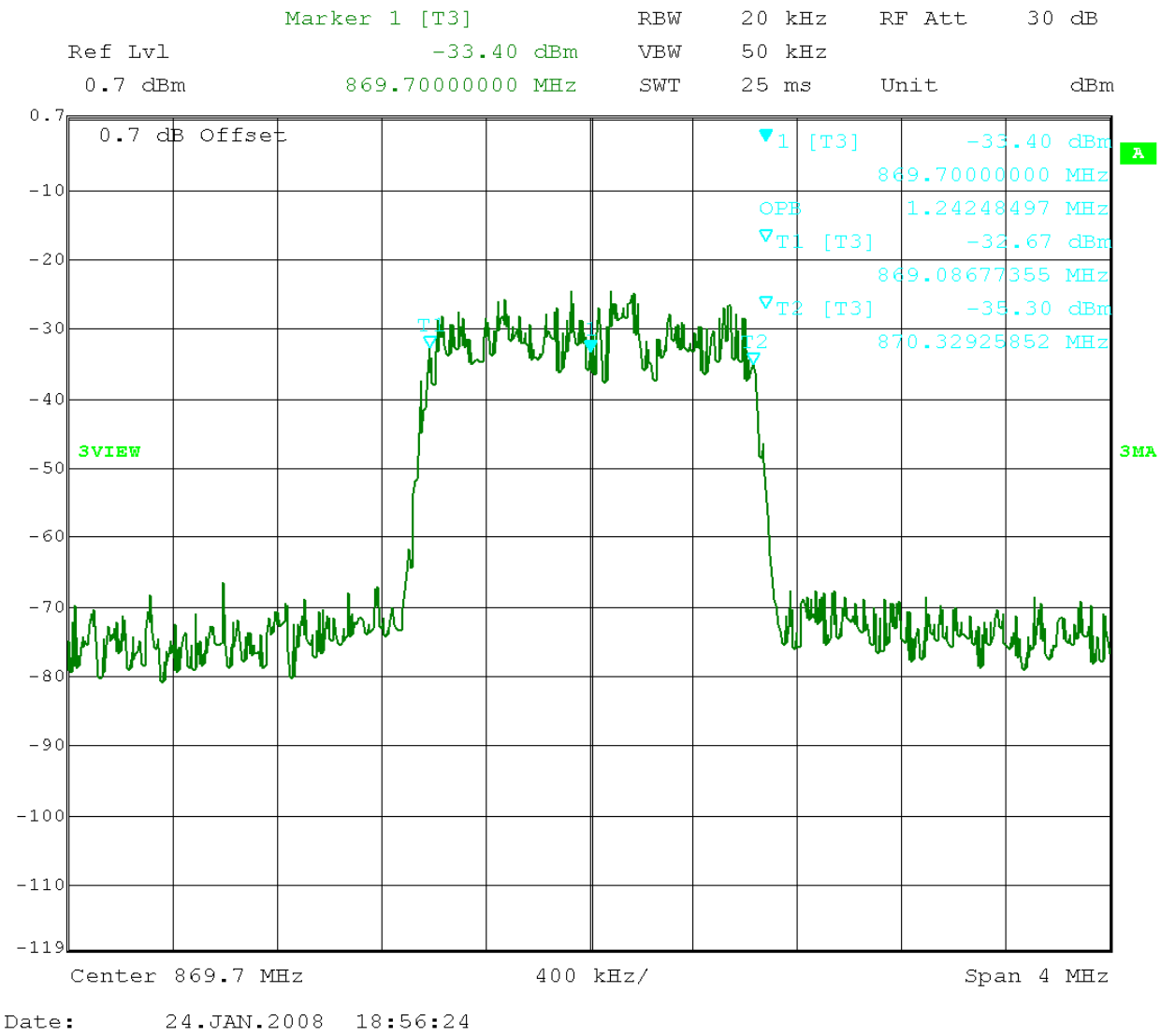
4 Channel GSM/4 Channel CDMA Channel 6 Peak Detector



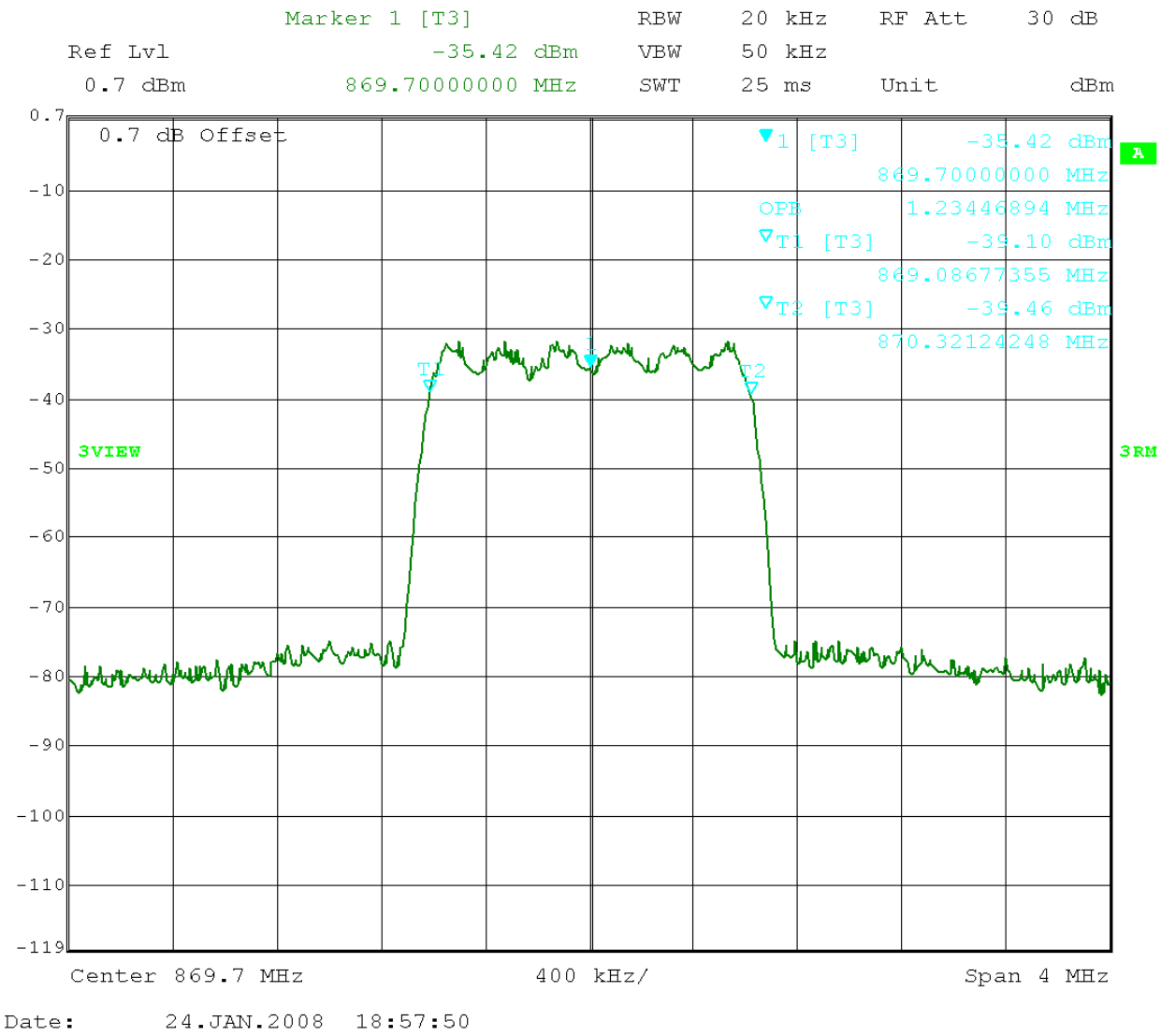
4 Channel GSM/4 Channel CDMA Channel 7 Peak Detector



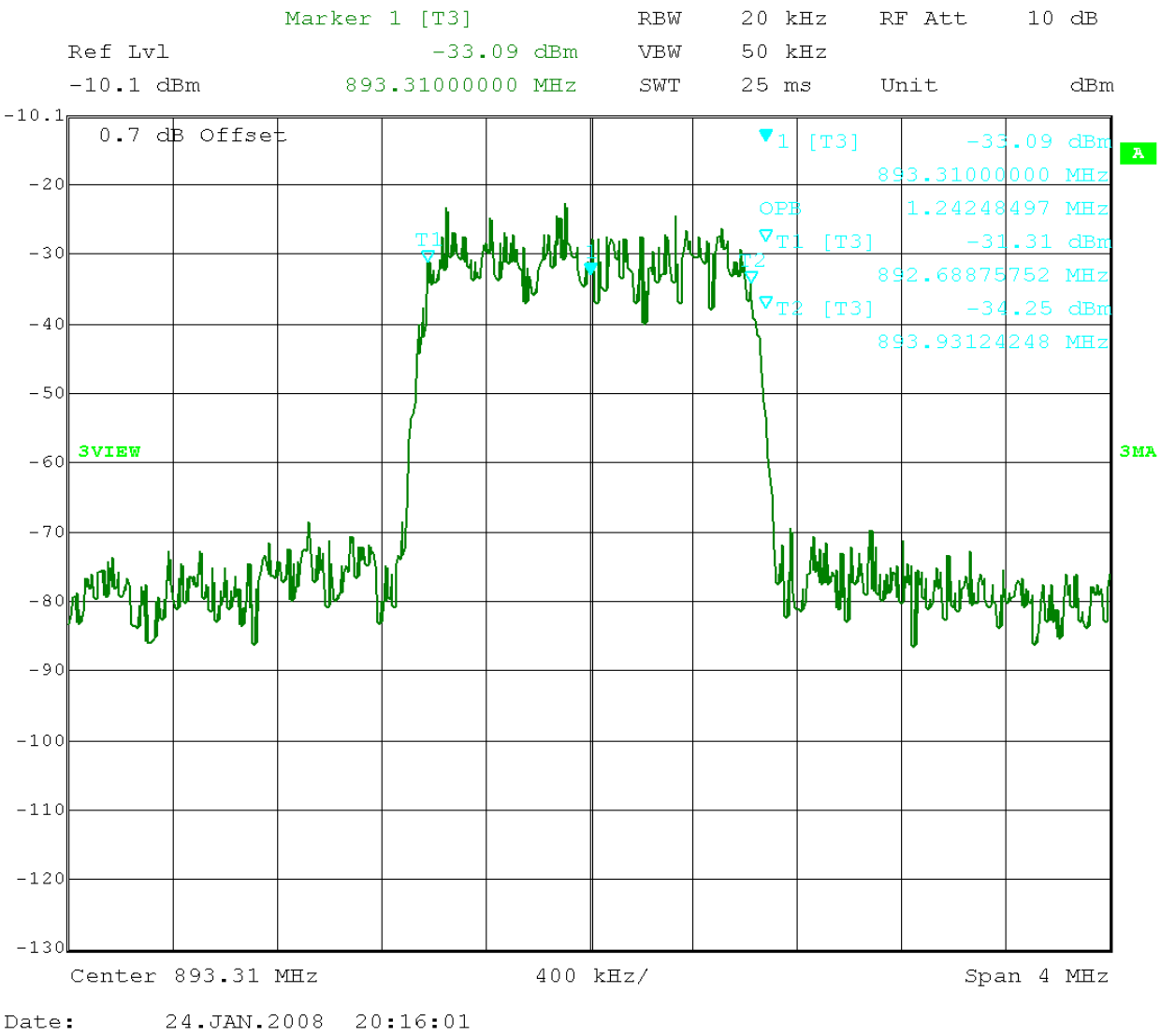
4 Channel GSM/4 Channel CDMA Channel 8 Peak Detector



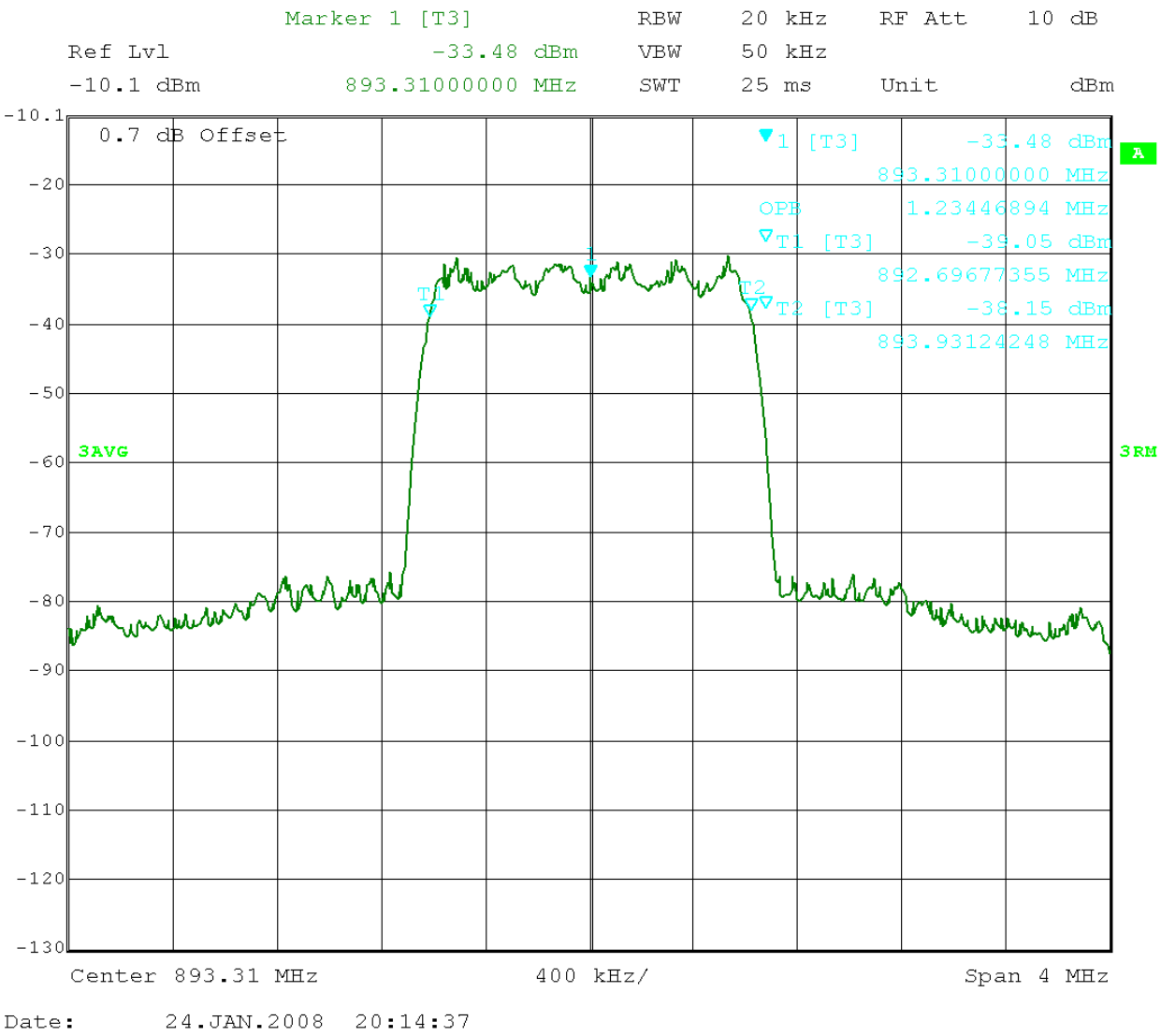
Single Channel CDMA Mode E 869.70 MHz Peak Detector



Single Channel CDMA Mode E 869.70 MHz Average RMS Detector



Single Channel CDMA Mode E 893.31 MHz Peak Detector



Single Channel CDMA Mode E 893.31 MHz Average RMS Detector

Test Results: Pass

Test Standard: FCC Part 22 Subpart H, IC RSS-132

Test: Band Edge Compliance, FCC 2.1051, 22.917(a, b), IC RSS-132 Section 4.5

Performance Criterion: Spurious emissions in the 1 MHz block edges must not exceed -13 dBm when measured with a bandwidth equal to or greater than 1% of the emission bandwidth. Outside the 1 MHz block edges, spurious emissions must not exceed -13 dBm when measured with a 100 kHz bandwidth.

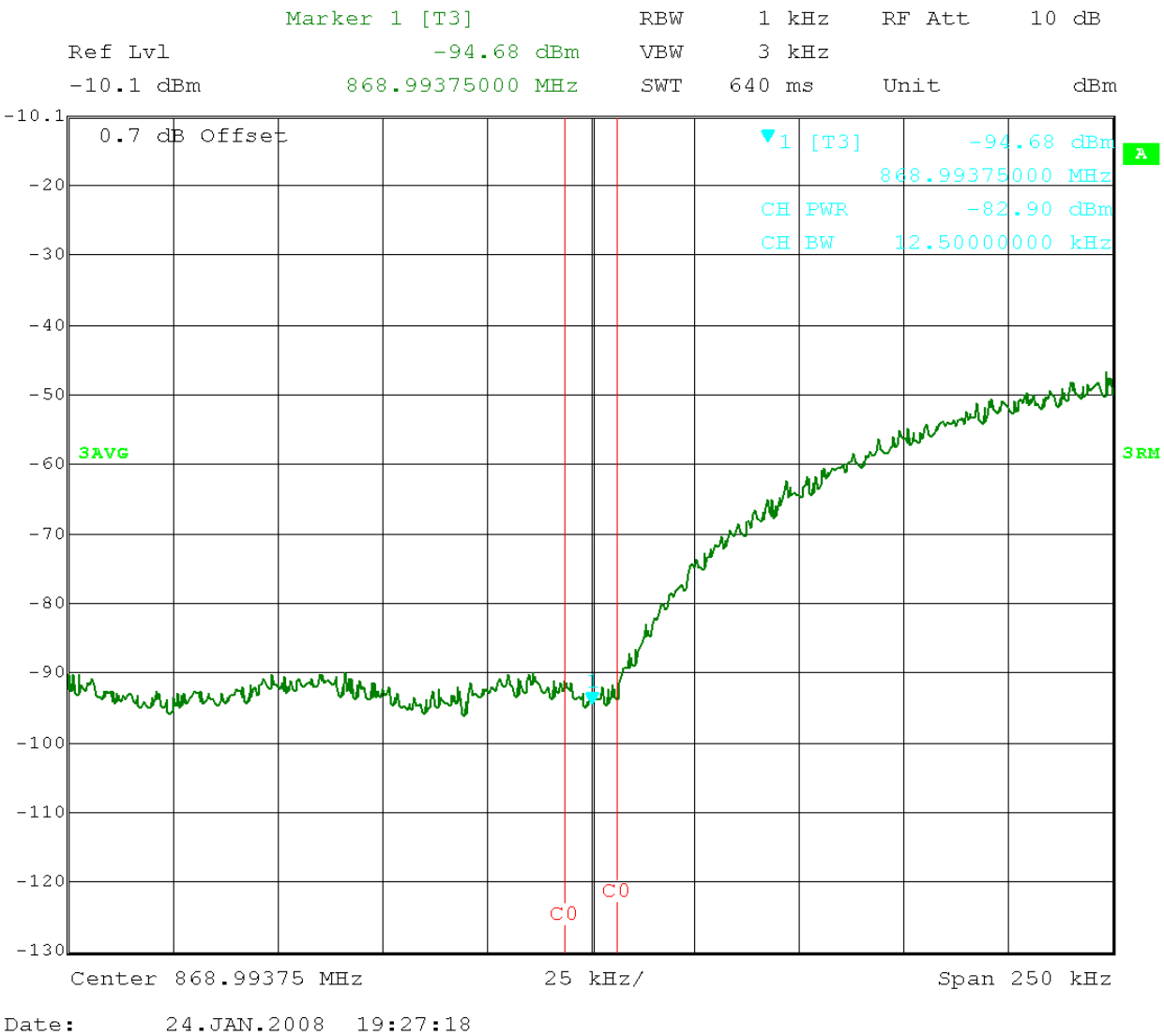
Test Environment:

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	24	Pressure (hPa):	1050
Pretest Verification Performed	Yes		Equipment under Test:		Anywave 850	
Test Engineer(s):	Nicholas Abbondante		EUT Serial Number:		1074	

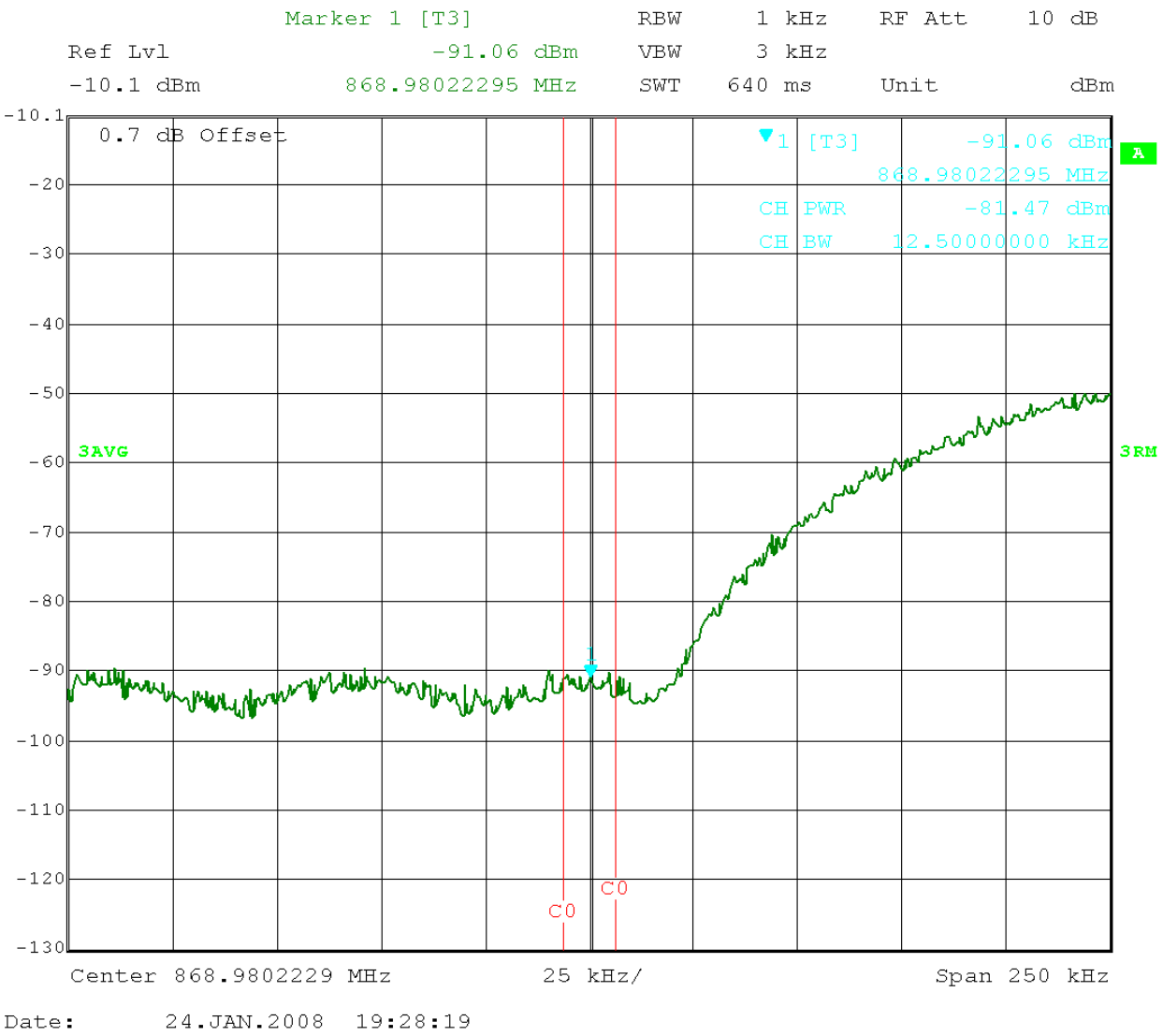
Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	05/20/2008
2	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
3	40 GHz Cable	Megaphase	TM40-K1K1-80	7030802 002	05/23/2008

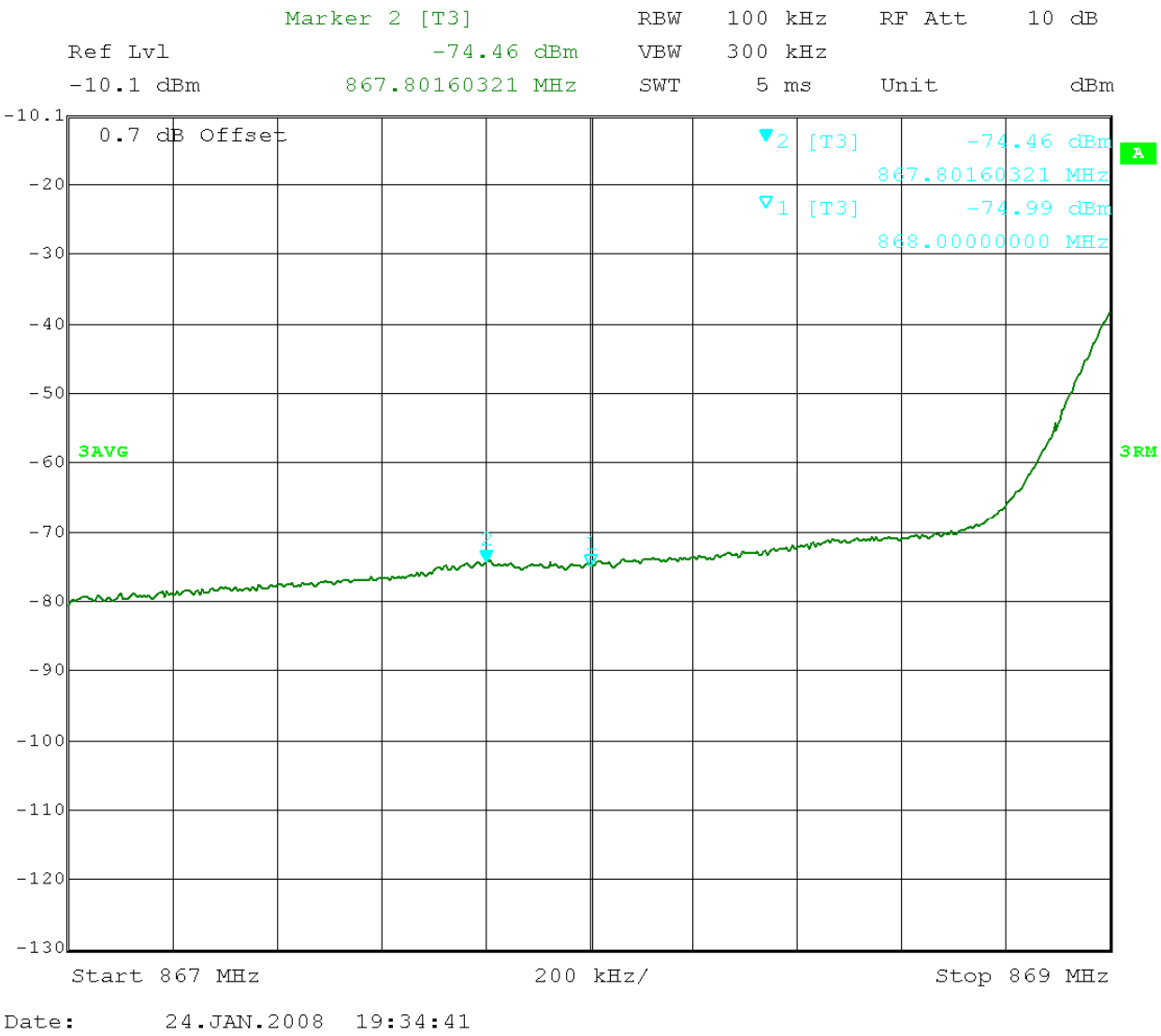
Test Details:



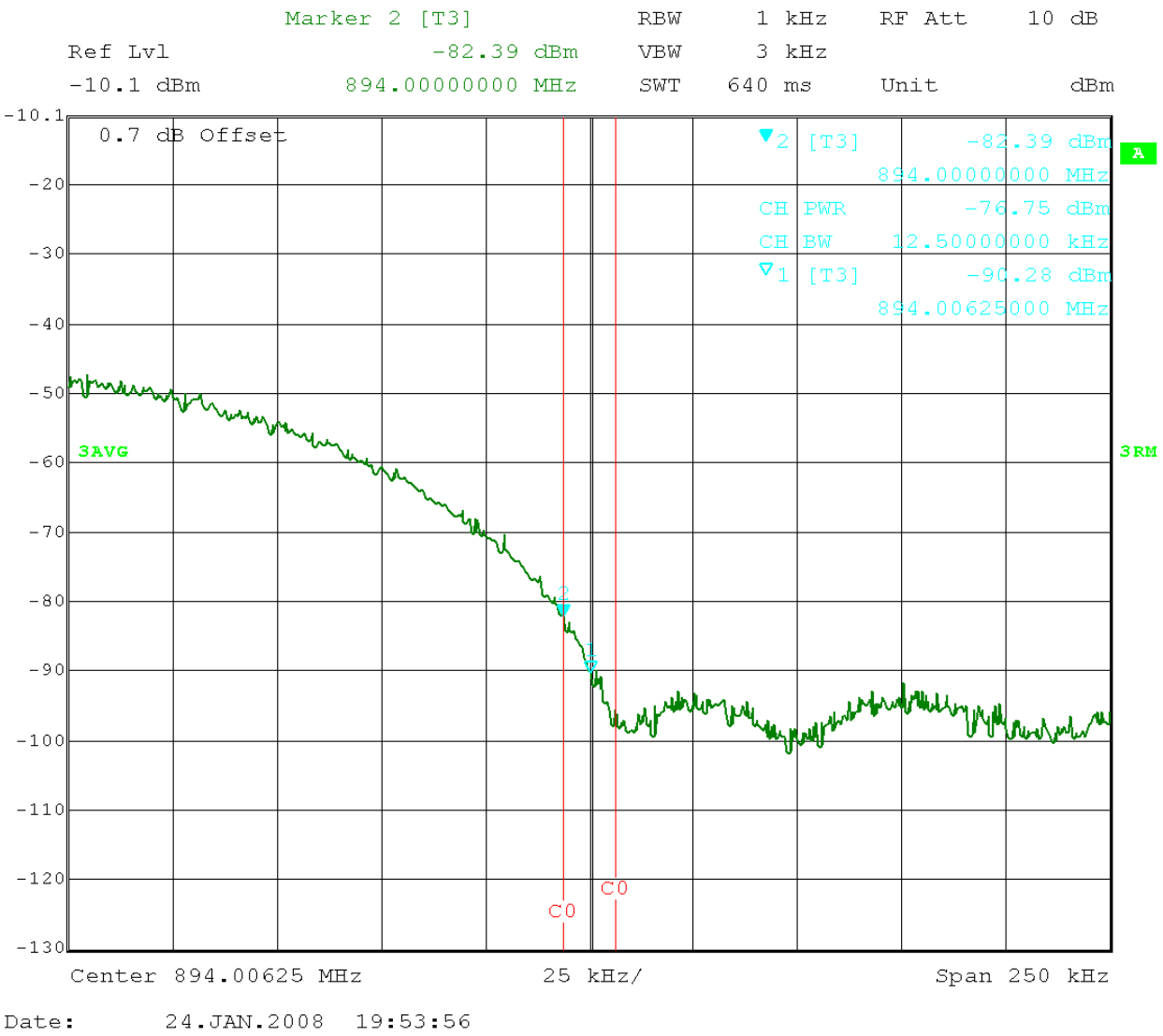
Single Channel CDMA Low Channel Lower Band Edge Compliance, Average RMS Detector
Plot shows band edge power integrated over a 1% (12.5 kHz) bandwidth using a 1 kHz RBW, from 868.9875 MHz to 869 MHz



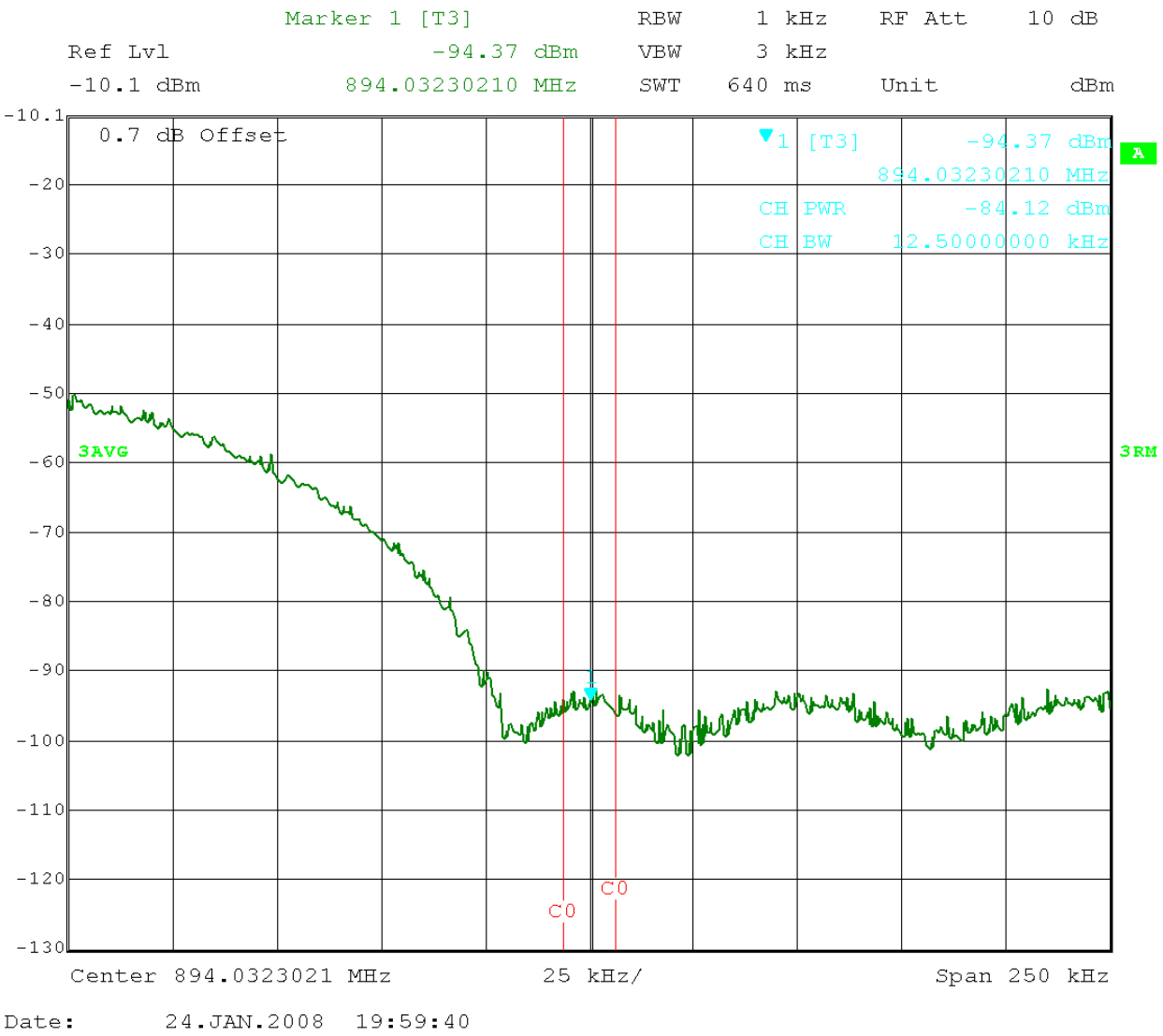
Single Channel CDMA Low Channel Lower Band Edge Compliance, Average RMS Detector
Plot shows band edge power integrated over a 1% (12.5 kHz) bandwidth using a 1 kHz RBW, at the highest amplitude frequency within the 1 MHz block edge



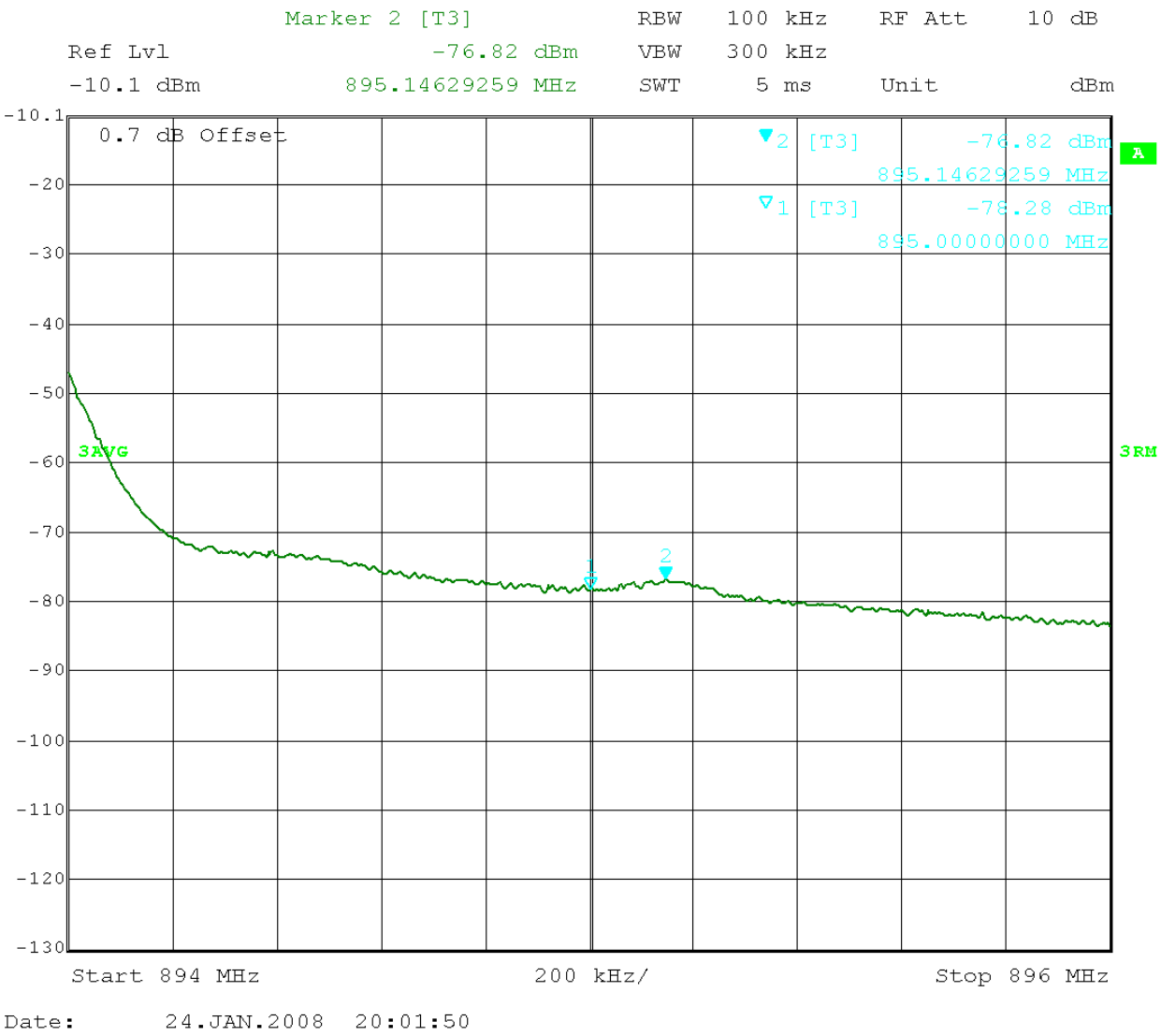
Single Channel CDMA Low Channel Lower Band Edge Compliance, Average RMS Detector
Plot shows highest signal in the range from 895-896 MHz, outside the 1 MHz block edge



Single Channel CDMA High Channel Upper Band Edge Compliance, Average RMS Detector
Plot shows band edge power integrated over a 1% (12.5 kHz) bandwidth using a 1 kHz RBW, from 894 MHz to 894.0125 MHz



Single Channel CDMA High Channel Upper Band Edge Compliance, Average RMS Detector
Plot shows band edge power integrated over a 1% (12.5 kHz) bandwidth using a 1 kHz RBW, at the highest amplitude frequency within the 1 MHz block edge



Single Channel CDMA High Channel Upper Band Edge Compliance, Average RMS Detector
Plot shows highest signal in the range from 895-896 MHz, outside the 1 MHz block edge

Test Results: Pass

Test Standard: FCC Part 22 Subpart H, IC RSS-132

Test: Conducted Spurious Emissions, FCC 2.1051, 22.917(a, b), IC RSS-132 Section 4.5

Performance Criterion: Spurious emissions must not exceed -13 dBm when measured with a 100 kHz bandwidth.

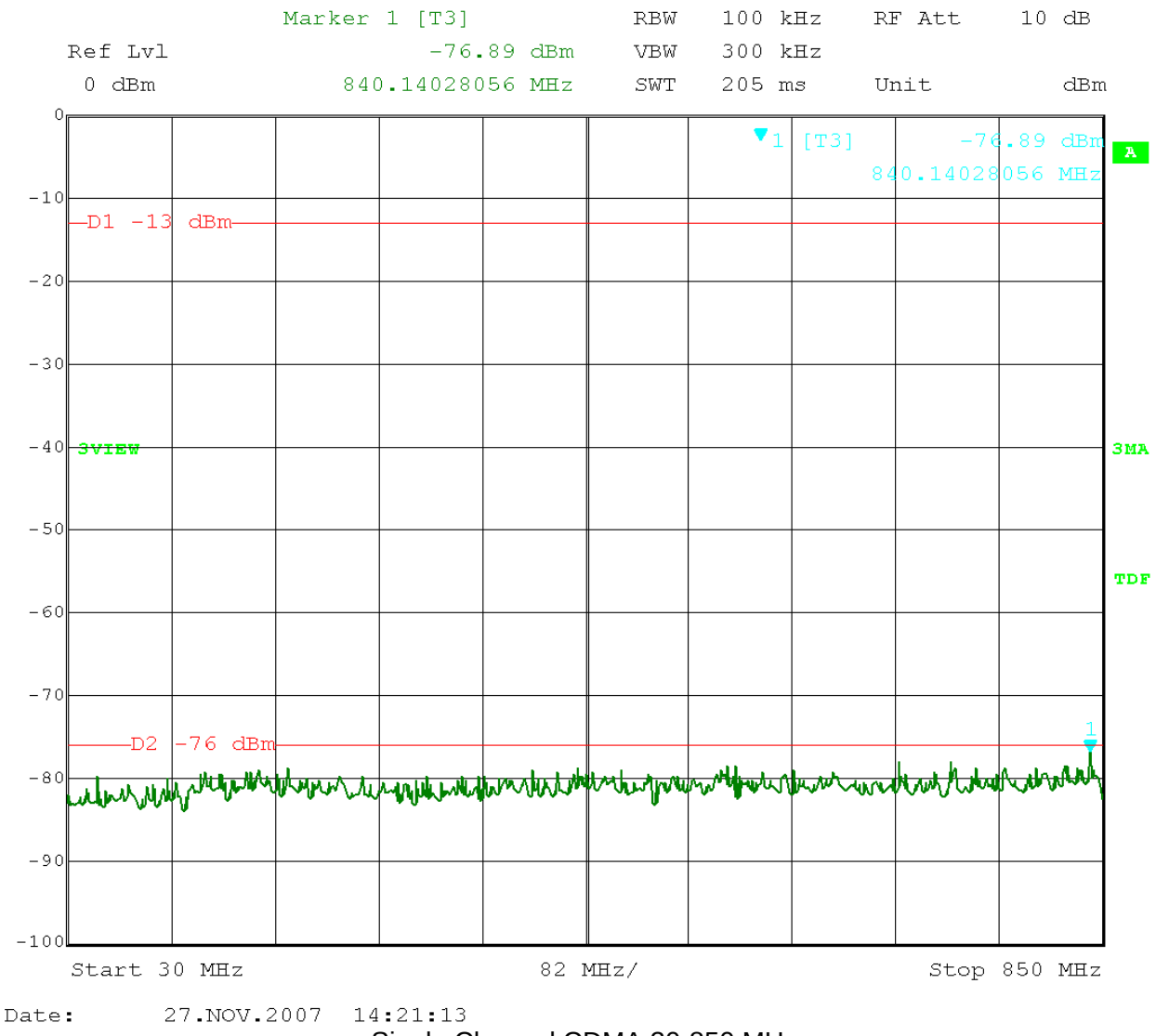
Test Environment:

Environmental Conditions During Testing:		Ambient (°C):	19 24	Humidity (%):	41 25	Pressure (hPa):	1050 1050
Pretest Verification Performed		Yes		Equipment under Test:		Anywave 850	
Test Engineer(s):	Nicholas Abbondante			EUT Serial Number:		1074	

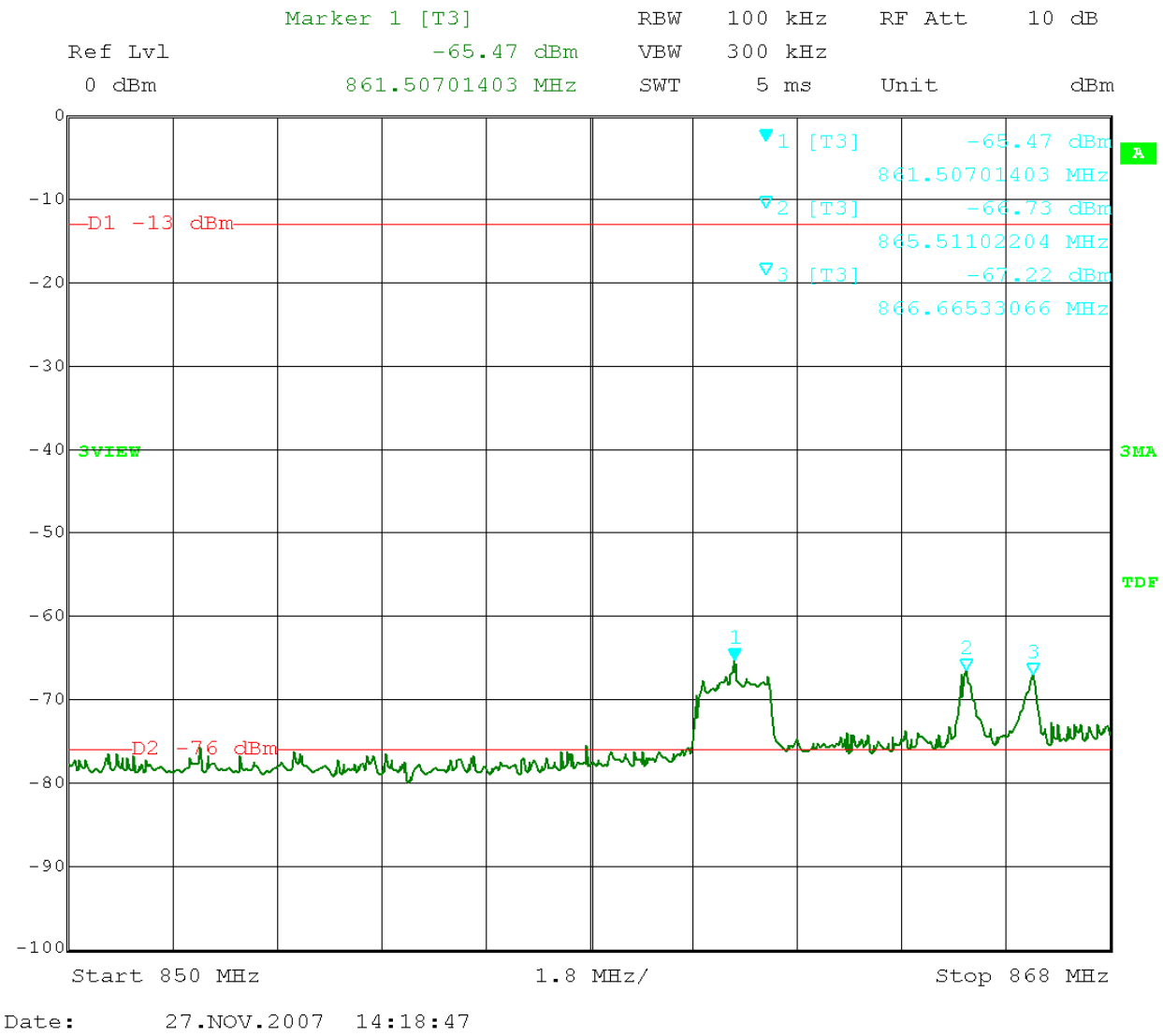
Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	05/20/2008
2	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
3	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/04/2007
4	1GHz High Pass Filter	Reactel, Inc	7HS-1G/10G-S11	06-1	09/18/2008

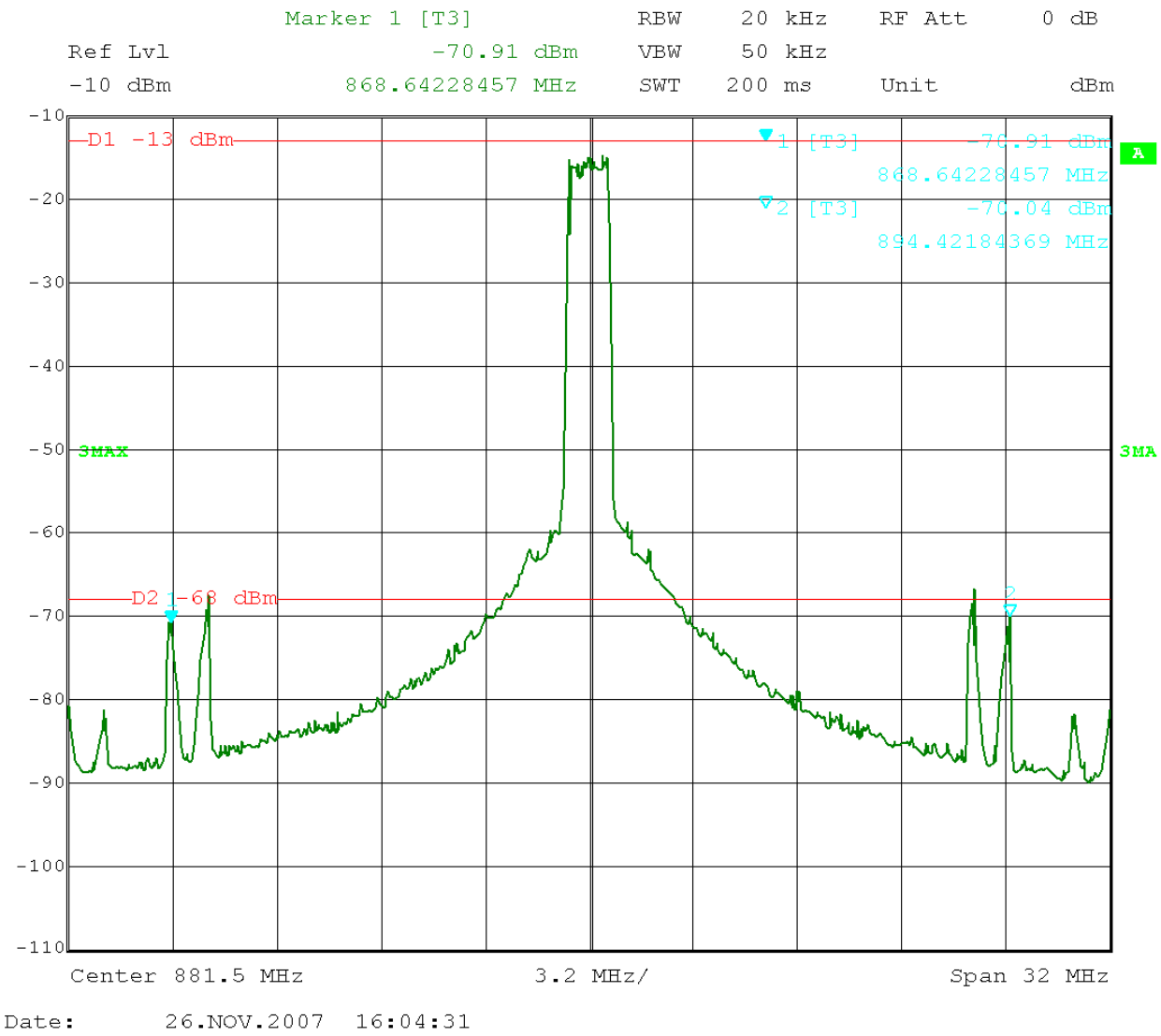
Test Details:



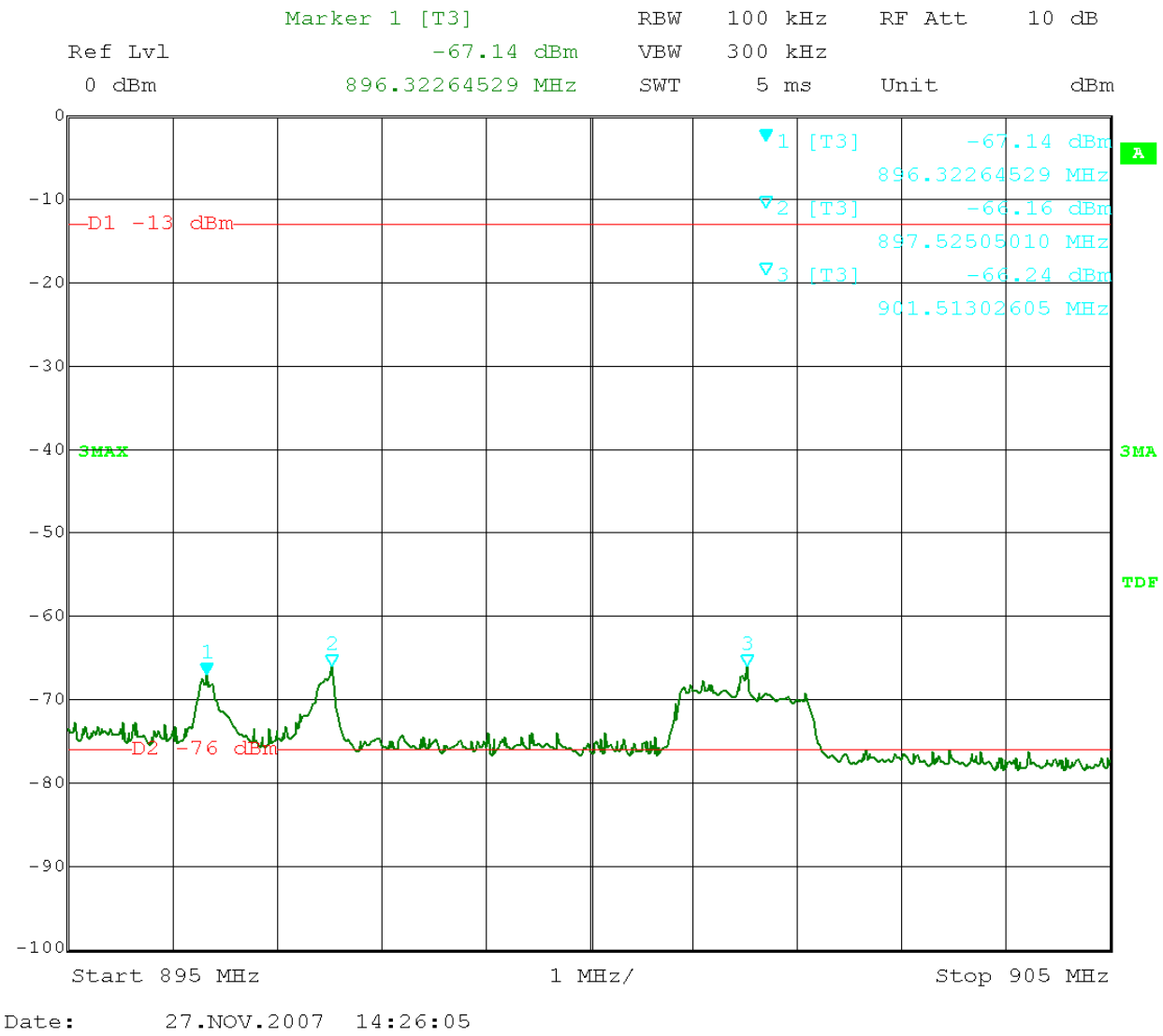
Single Channel CDMA 30-850 MHz



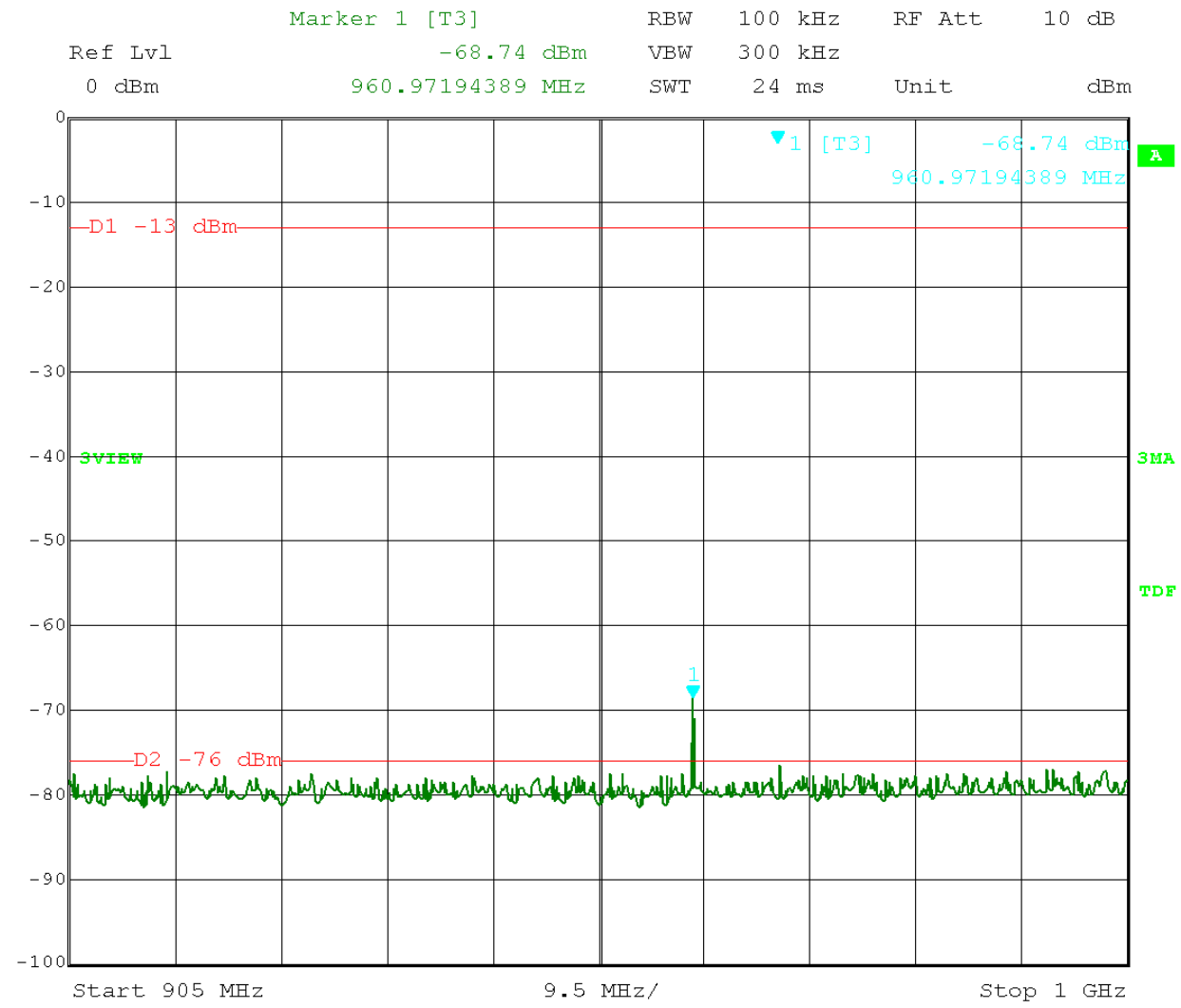
Single Channel CDMA 850-868 MHz



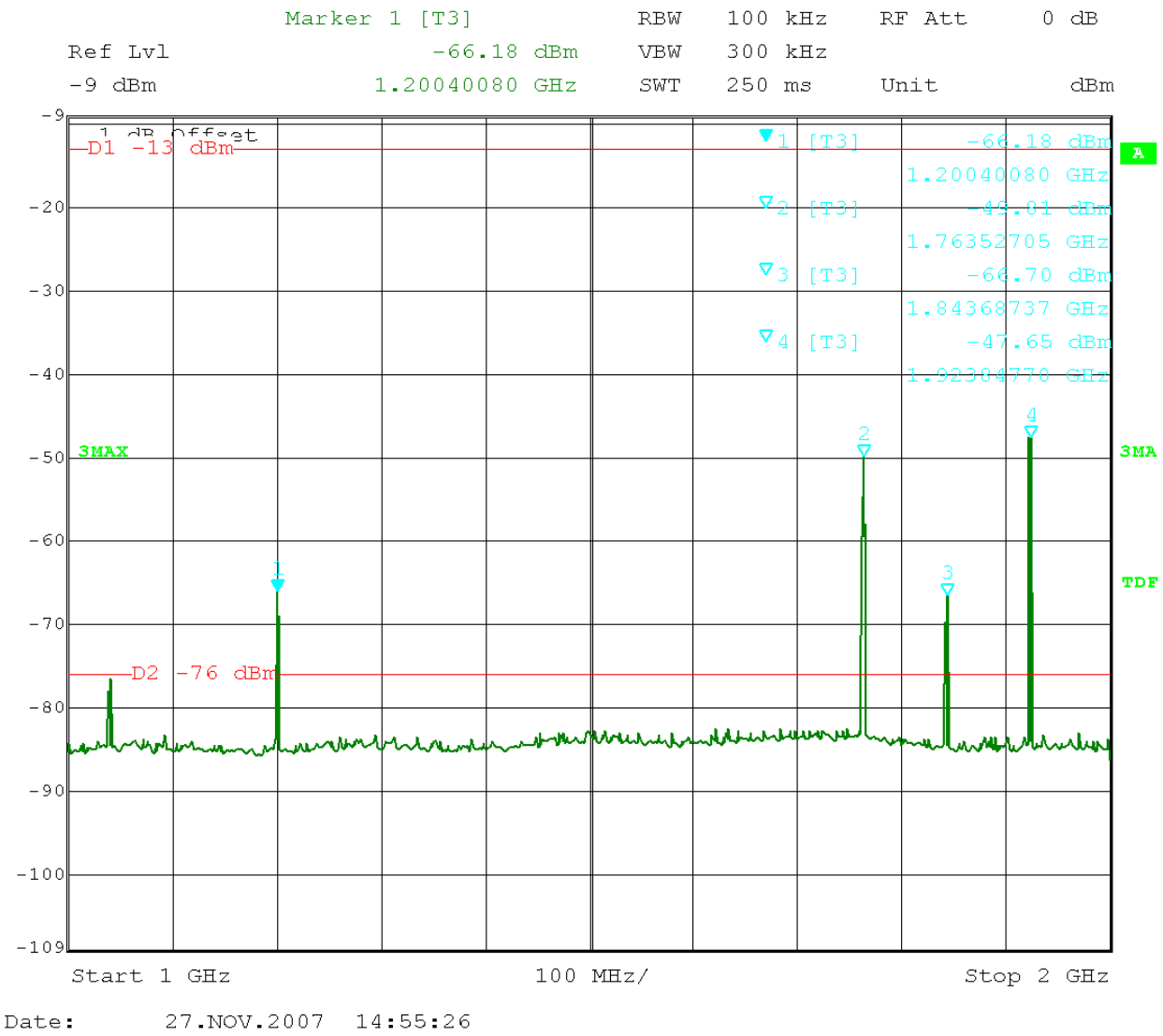
Single Channel CDMA In-Band Spurious



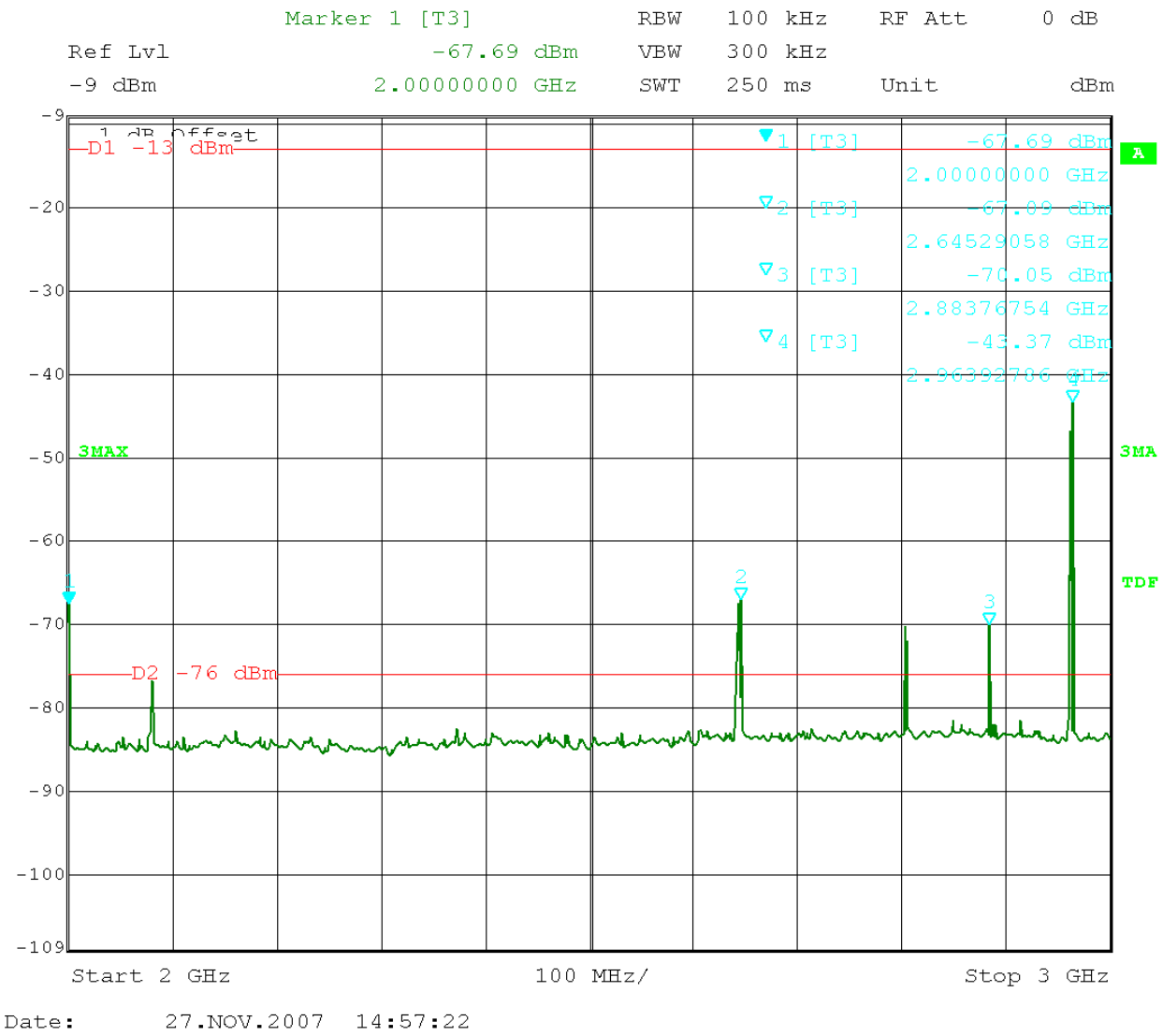
Single Channel CDMA 895 – 905 MHz



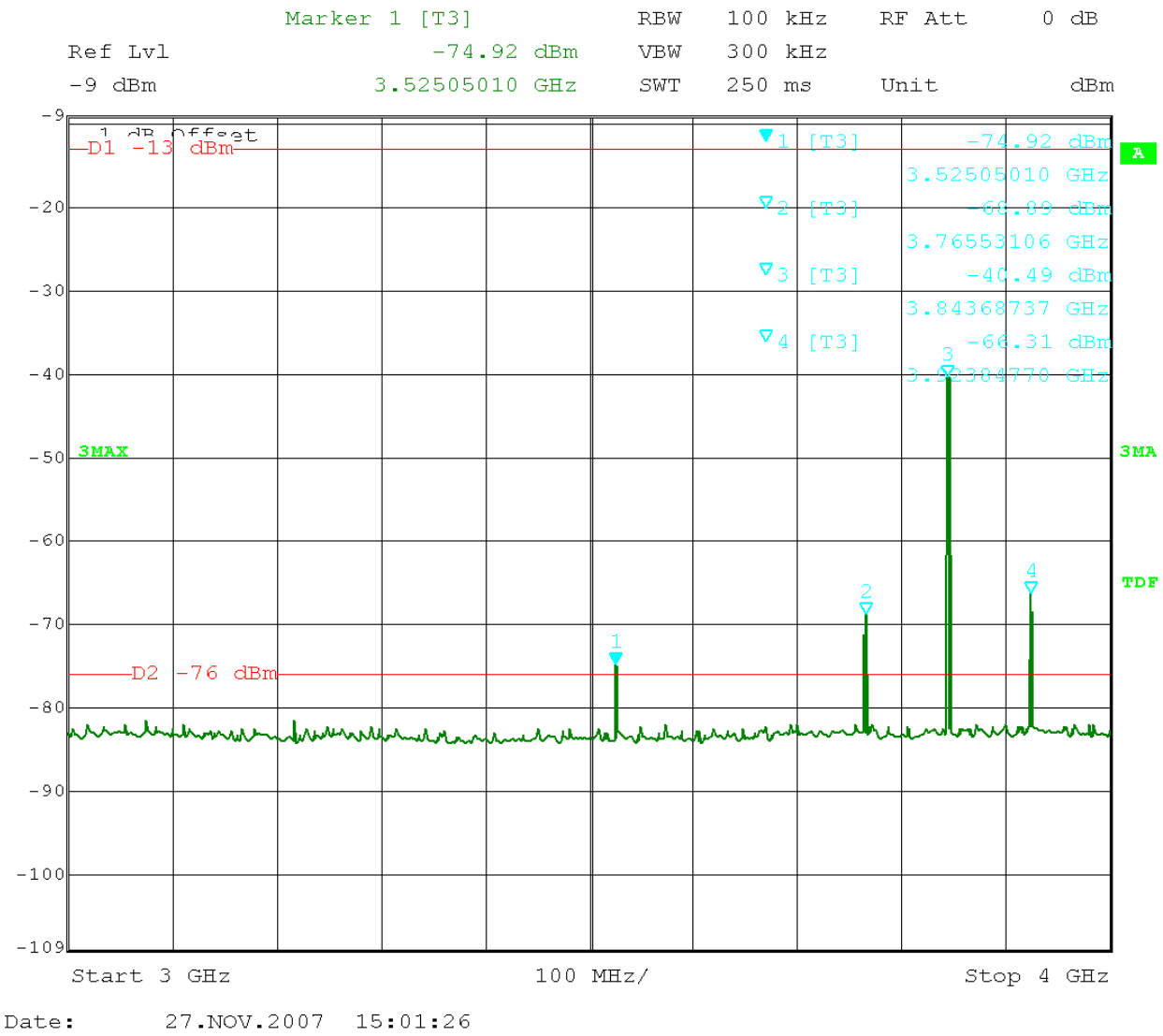
Single Channel CDMA 905-1000 MHz



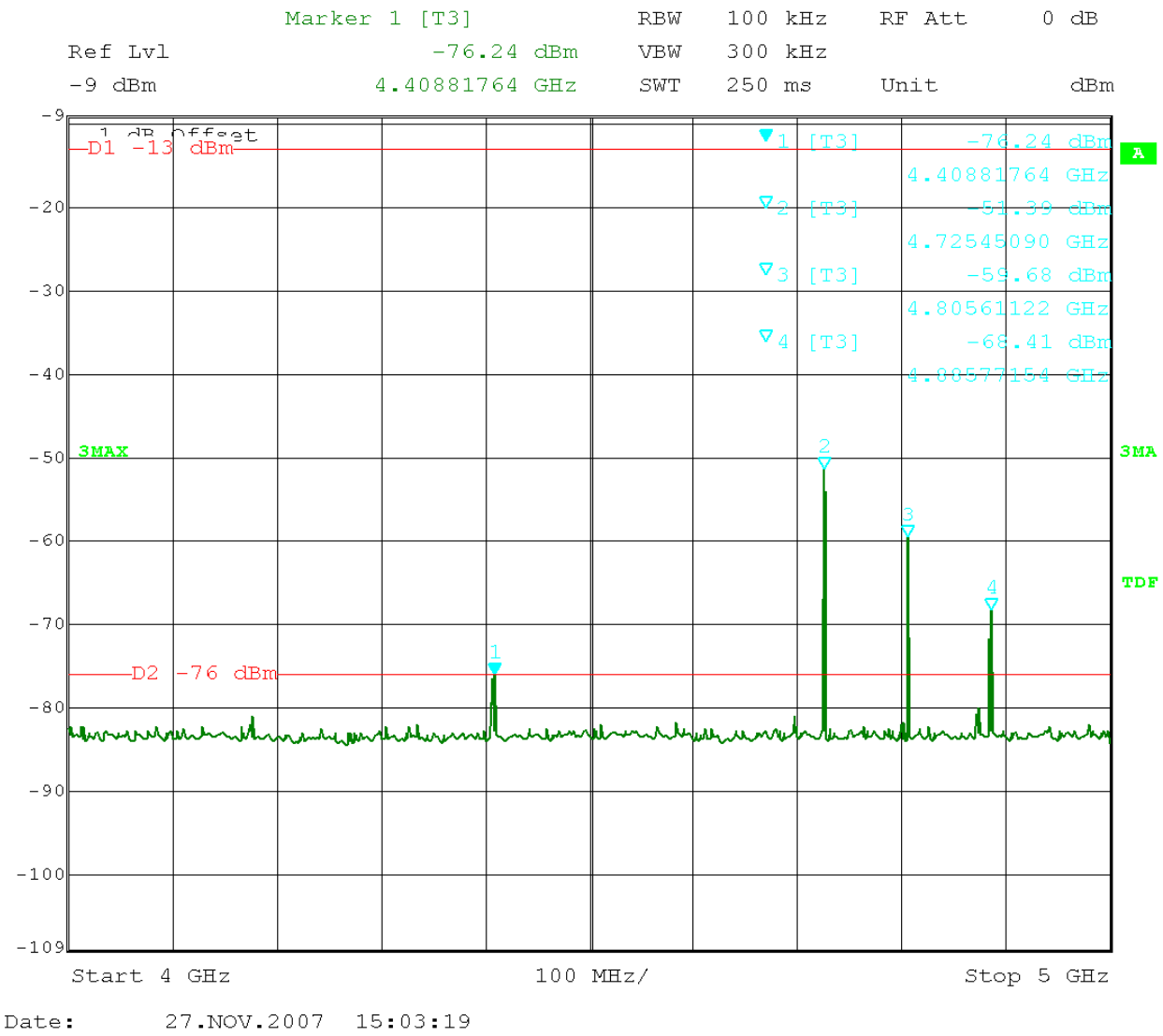
Single Channel CDMA 1-2 GHz



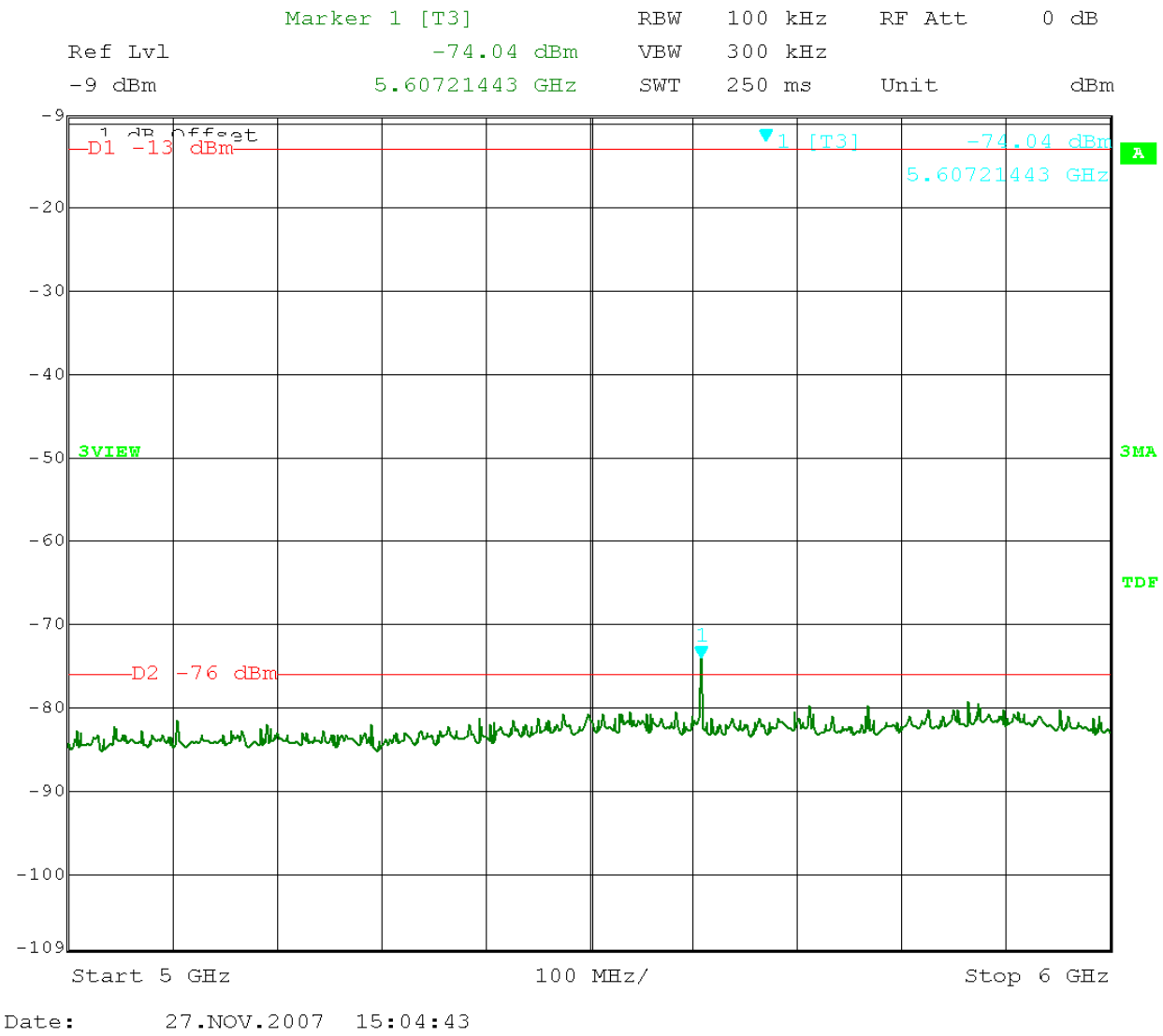
Single Channel CDMA 2-3 GHz



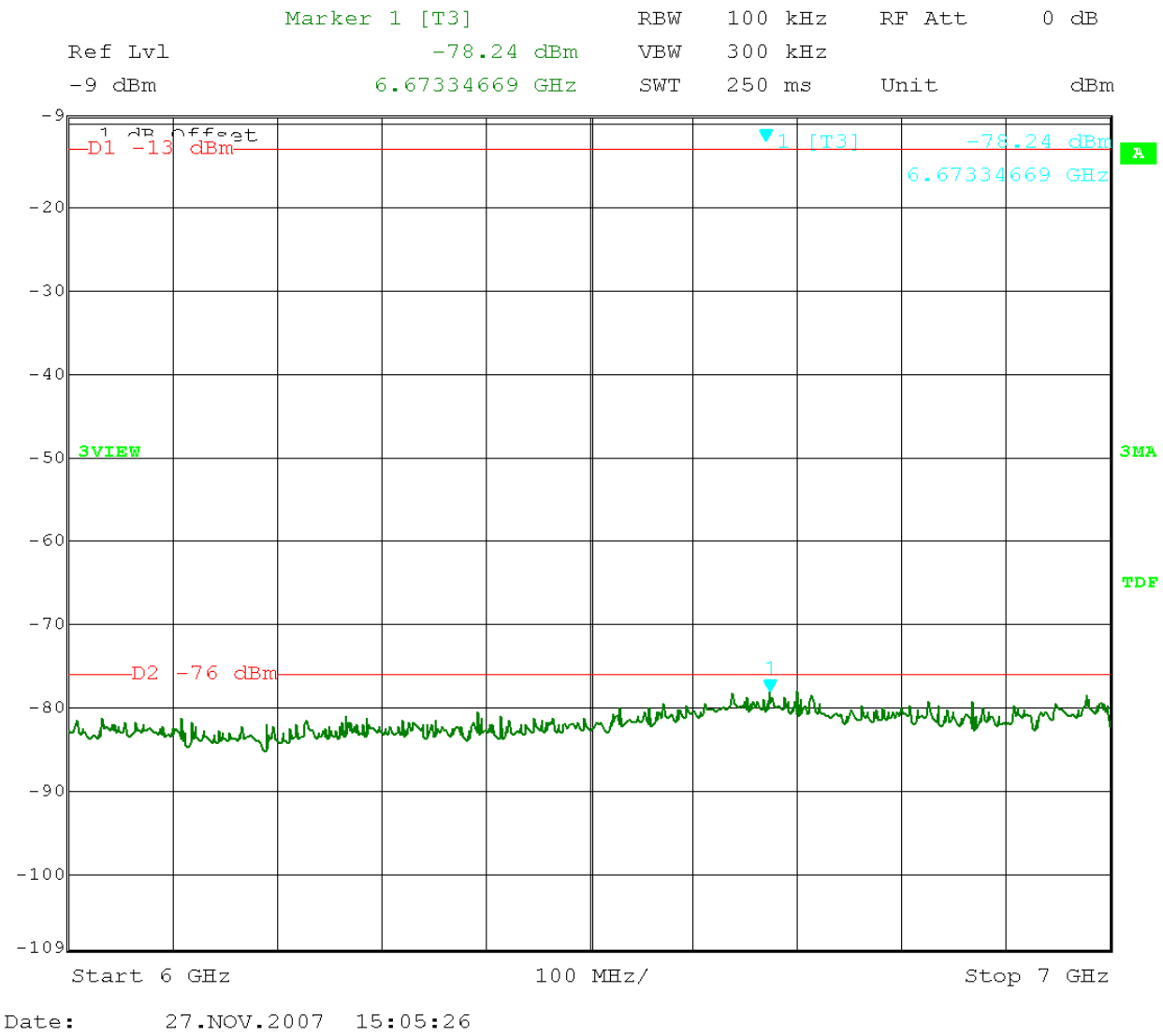
Single Channel CDMA 3-4 GHz



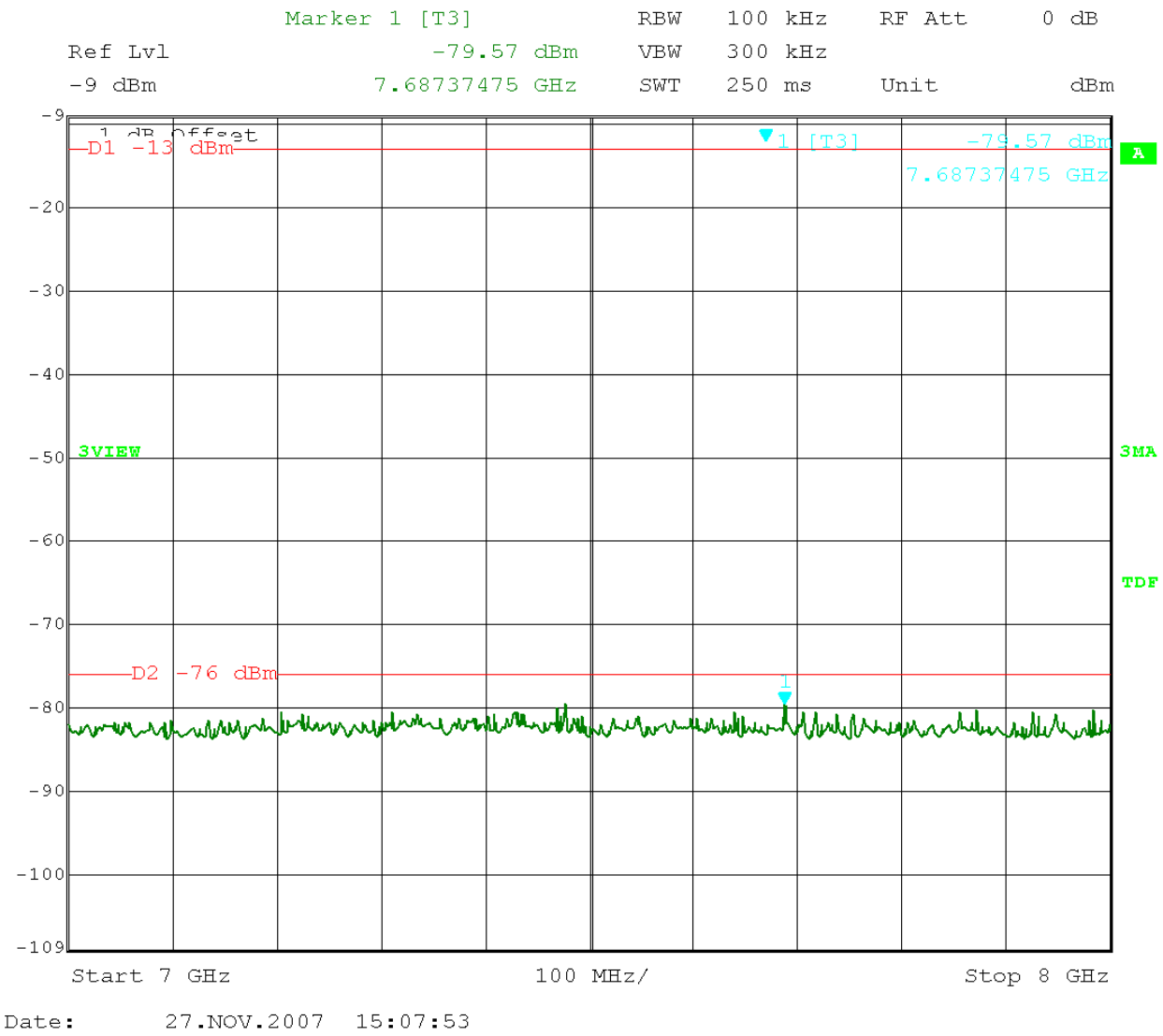
Single Channel CDMA 4-5 GHz



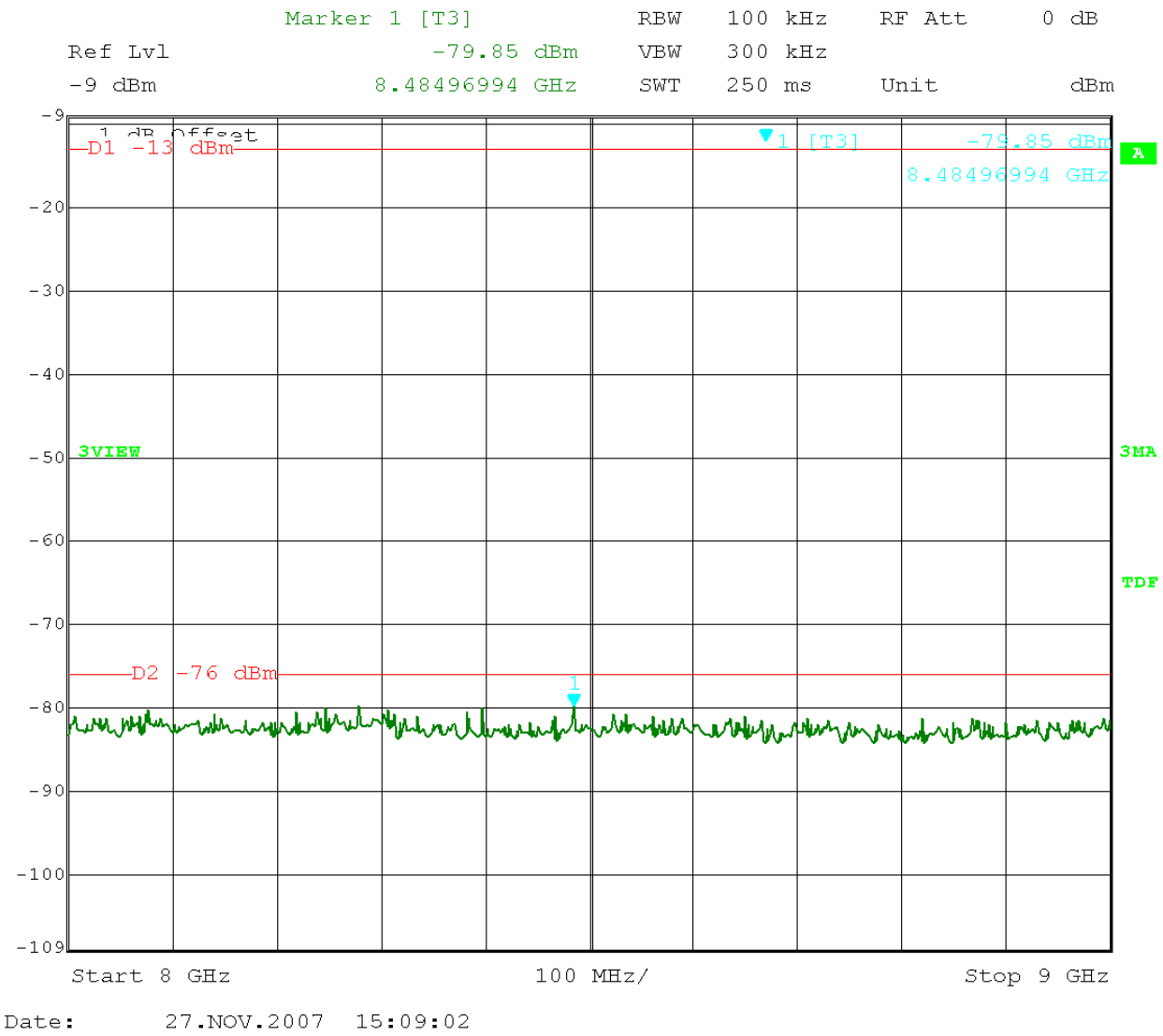
Single Channel CDMA 5-6 GHz



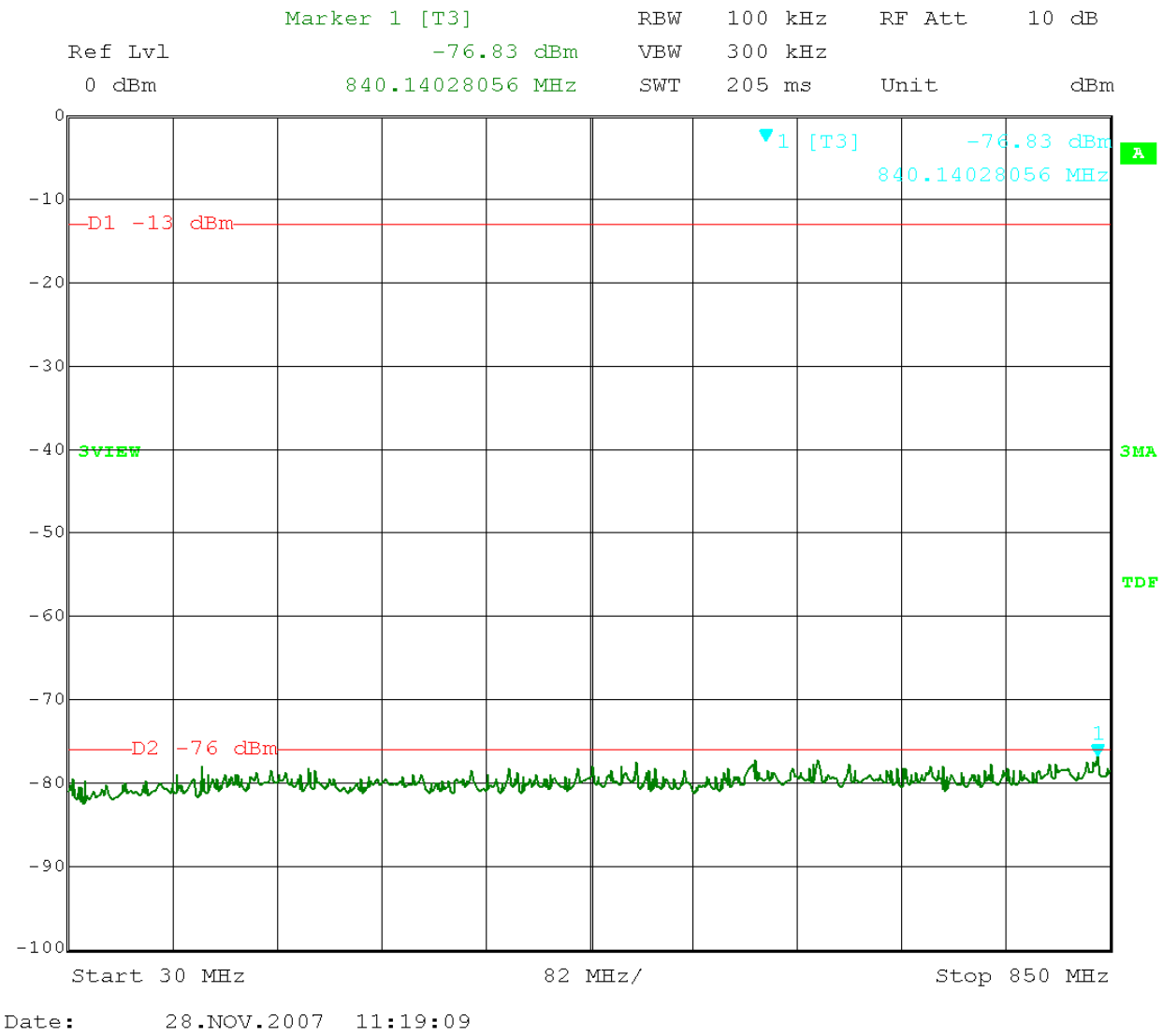
Single Channel CDMA 6-7 GHz



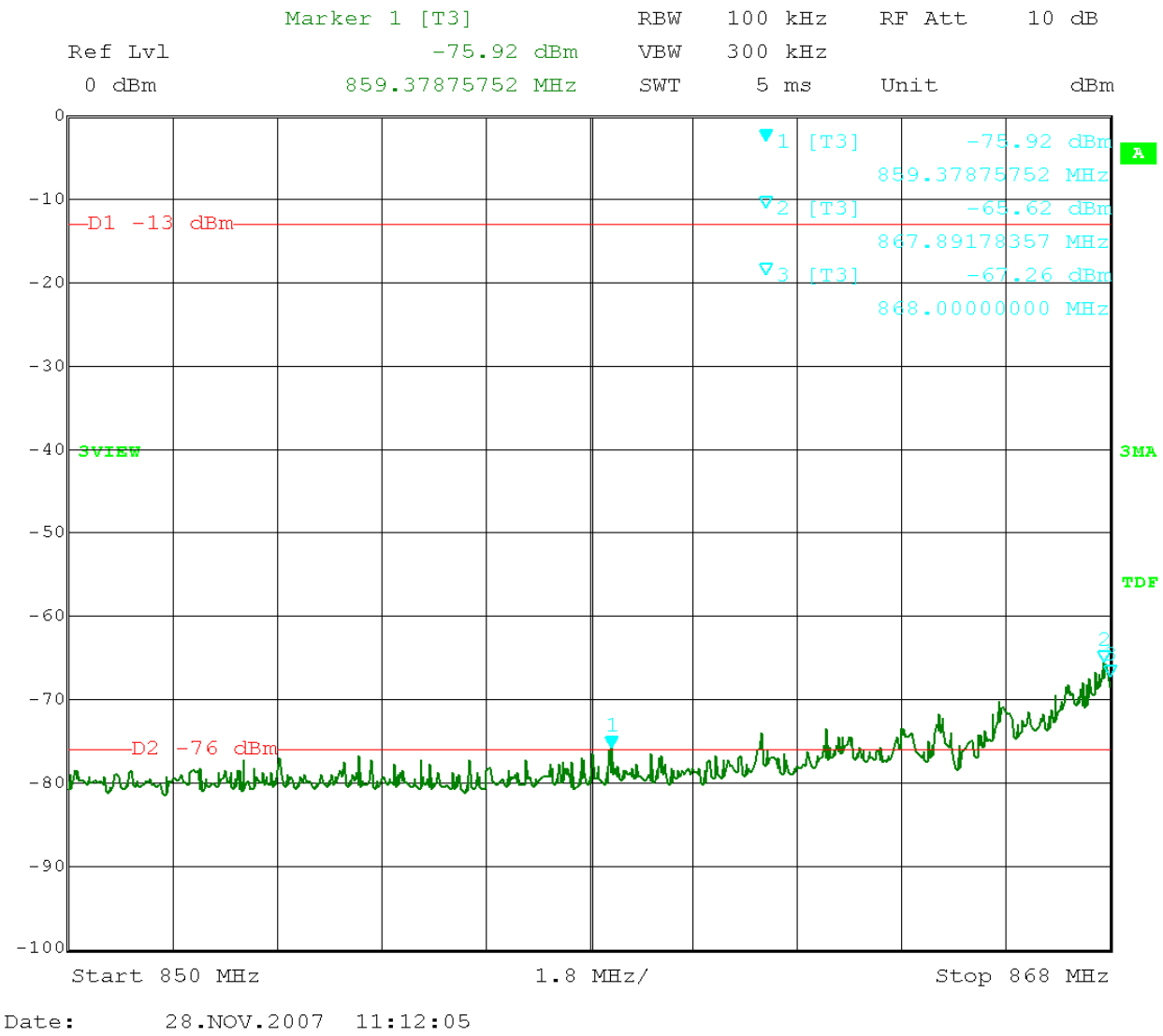
Single Channel CDMA 7-8 GHz



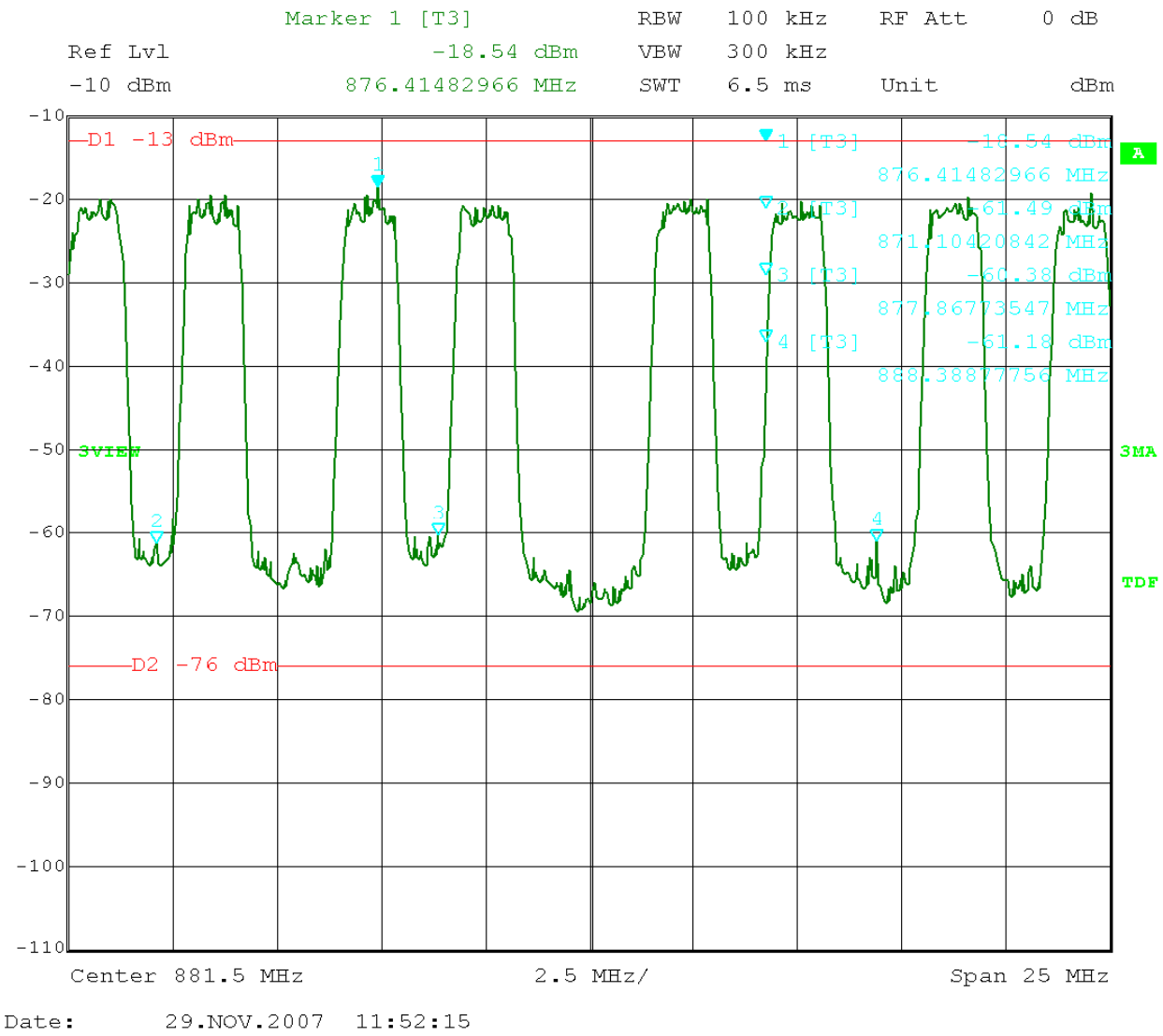
Single Channel CDMA 8-9 GHz



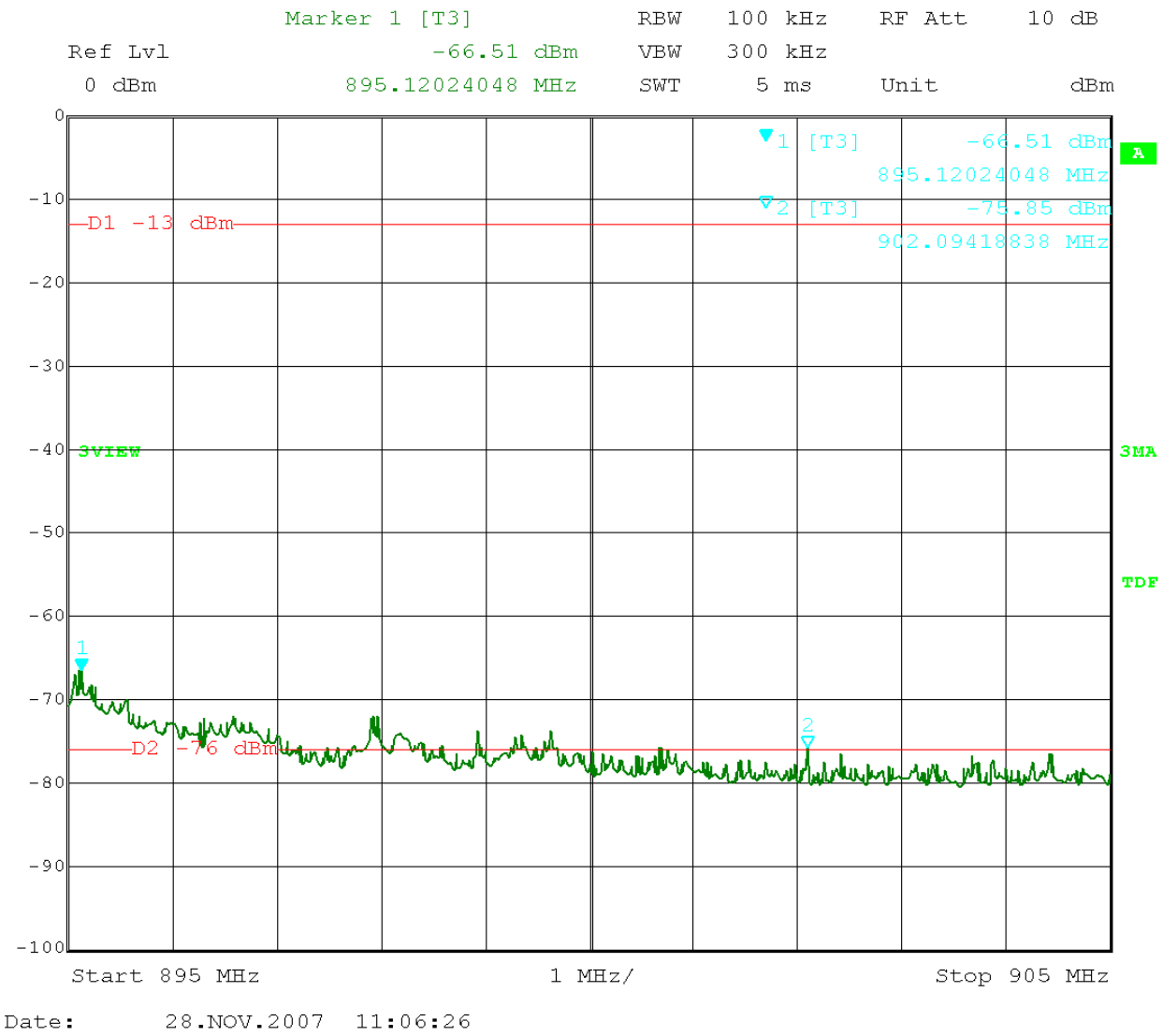
8 Channel CDMA 30-850 MHz



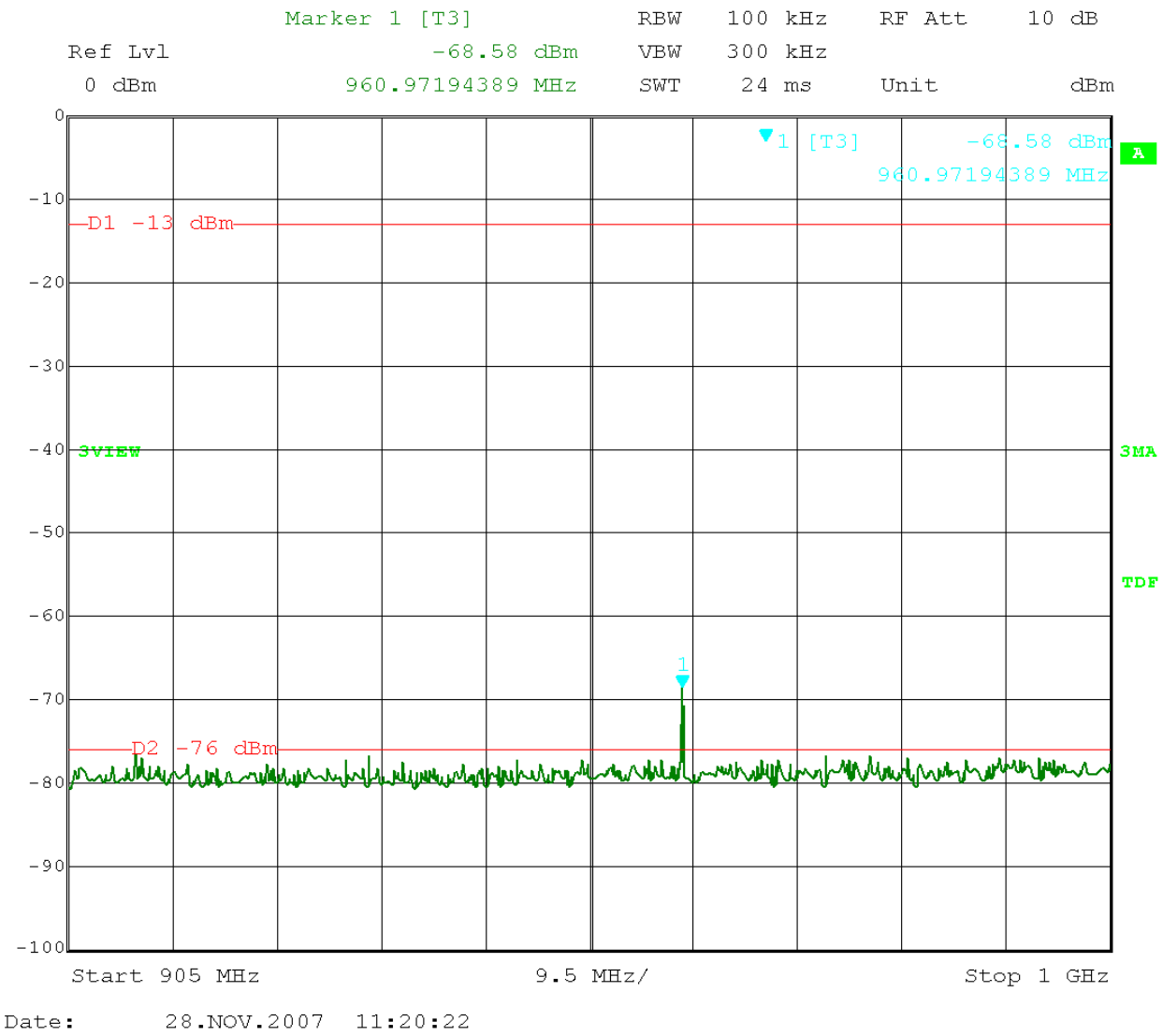
8 Channel CDMA 850-868 MHz



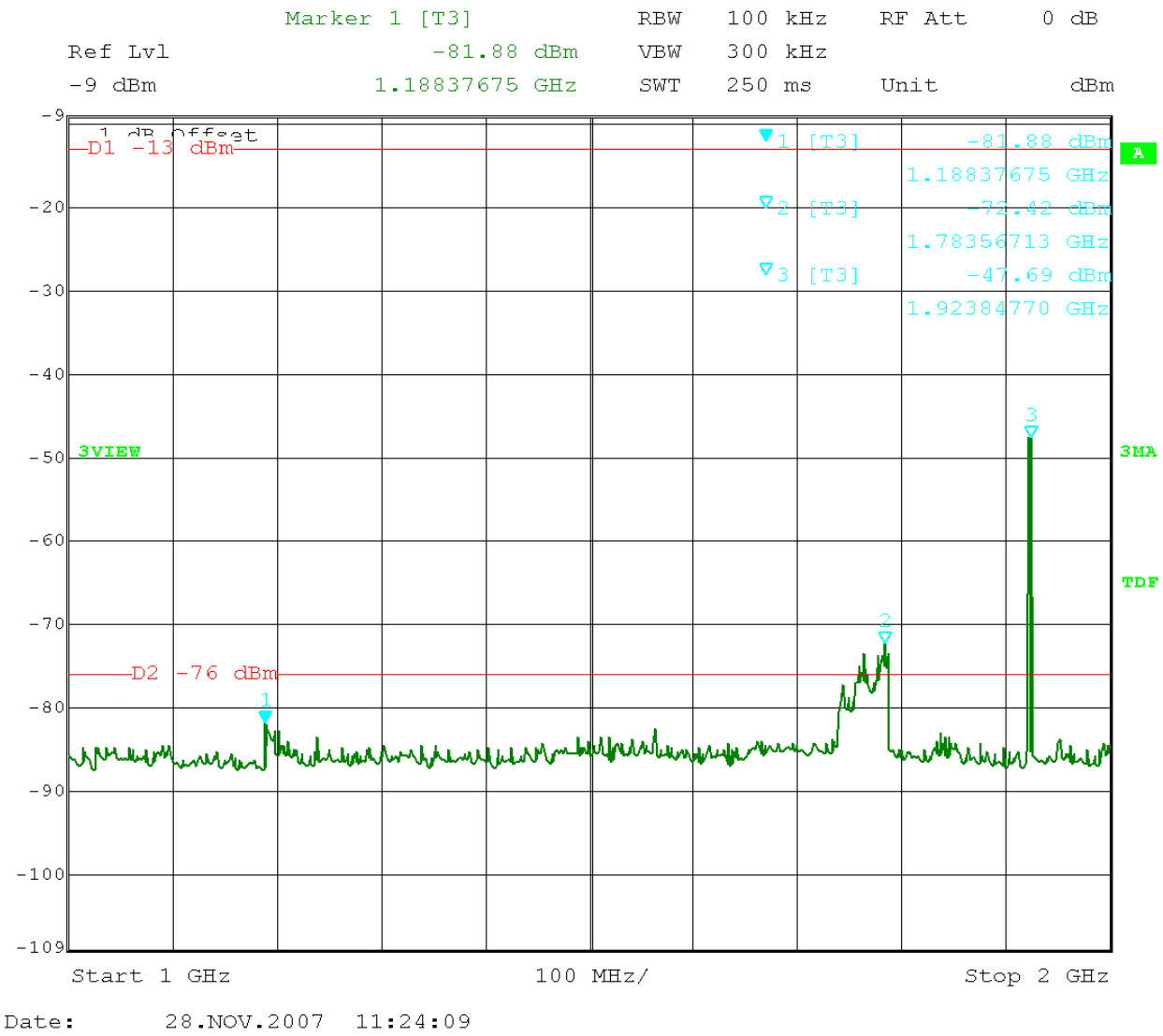
8 Channel CDMA In-Band Spurious



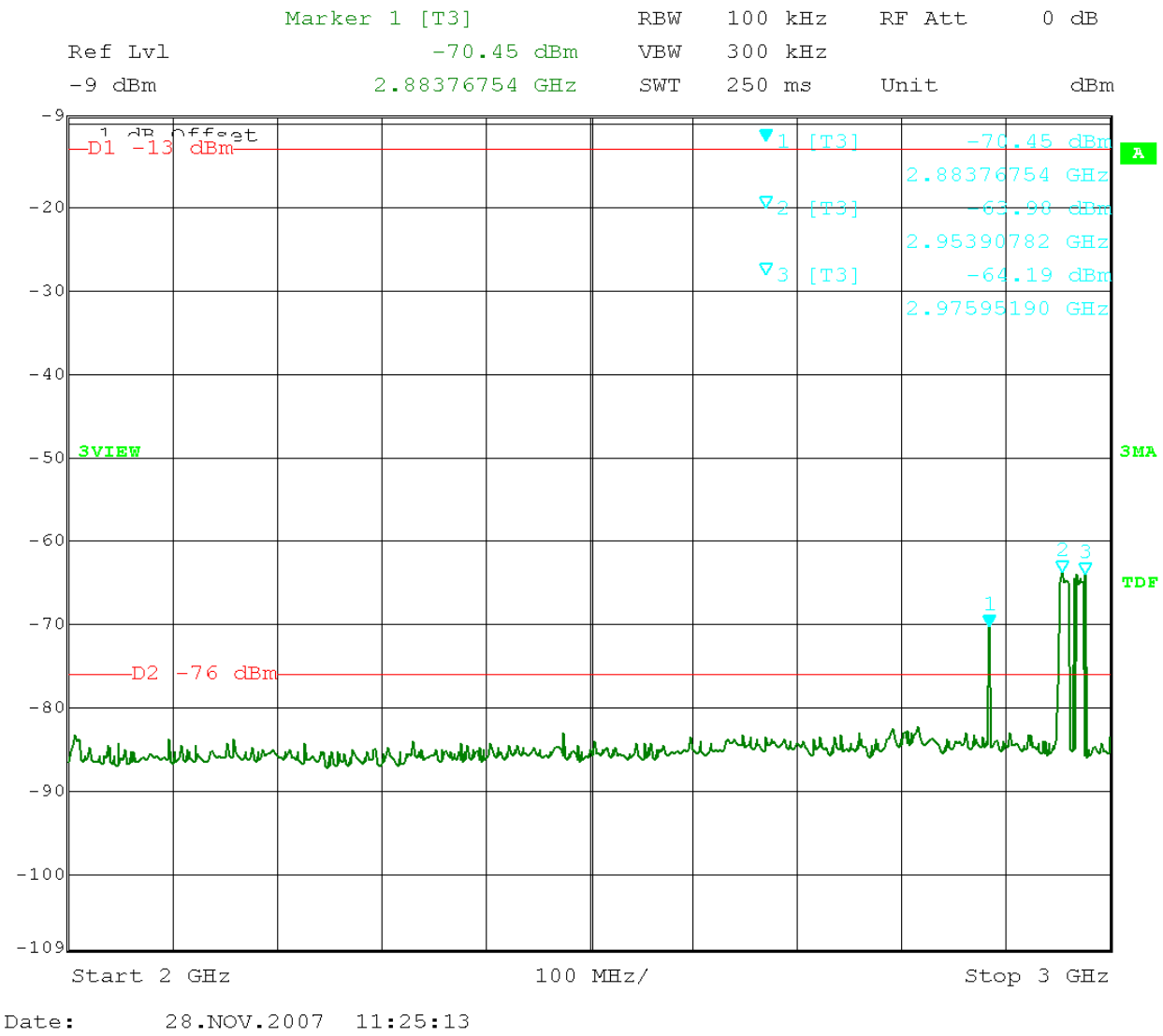
8 Channel CDMA 895 – 905 MHz



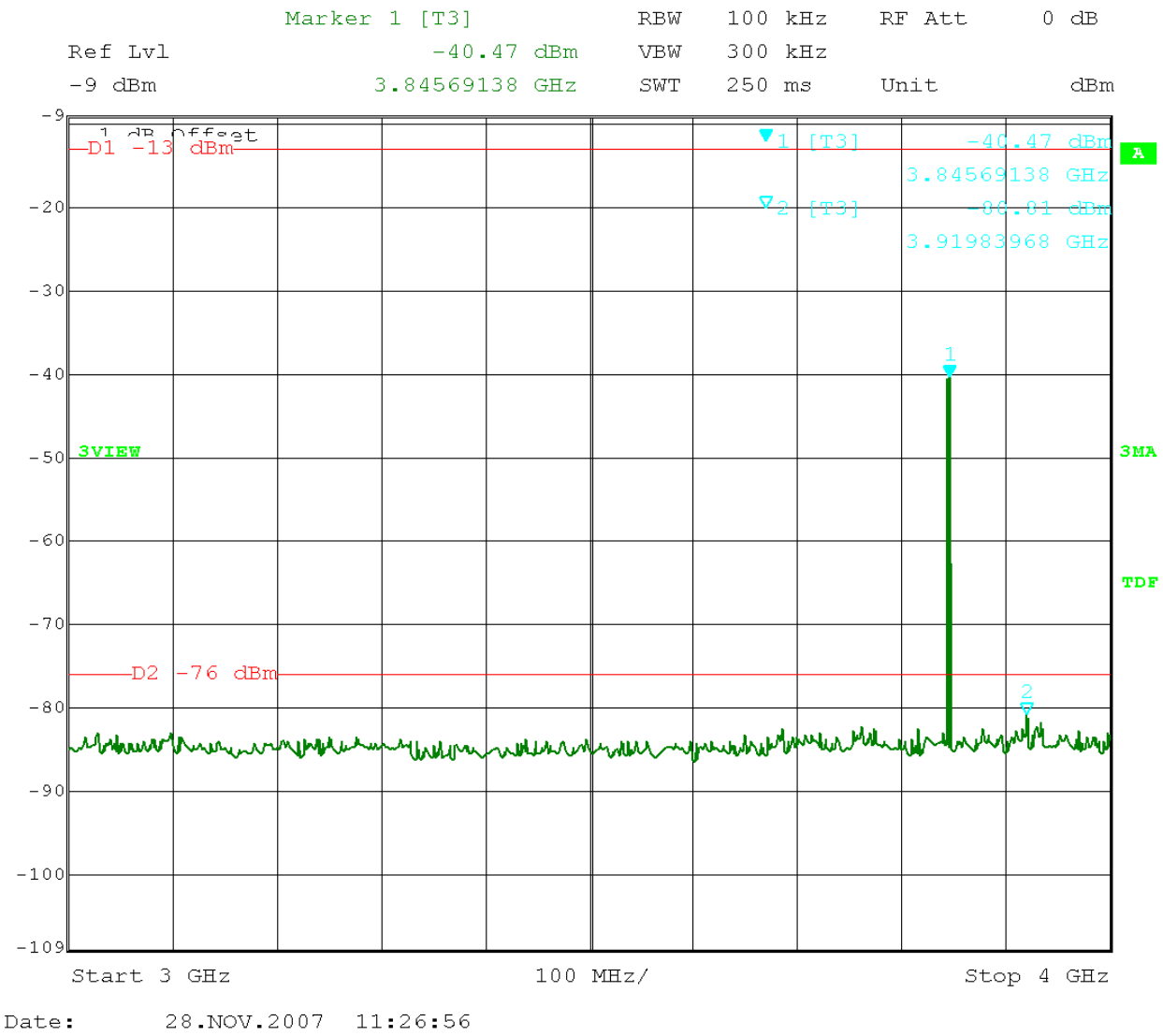
8 Channel CDMA 905-1000 MHz



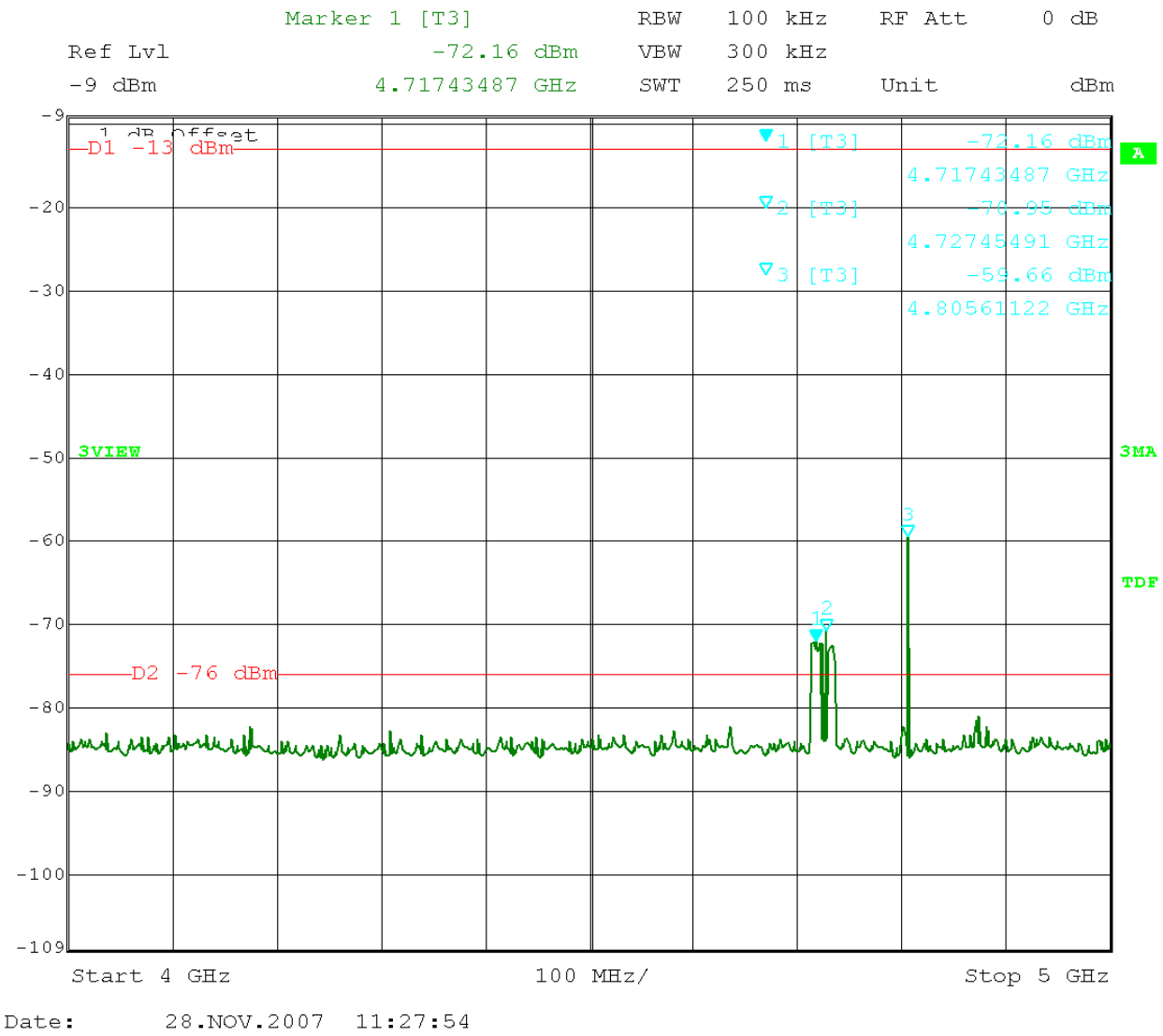
8 Channel CDMA 1-2 GHz



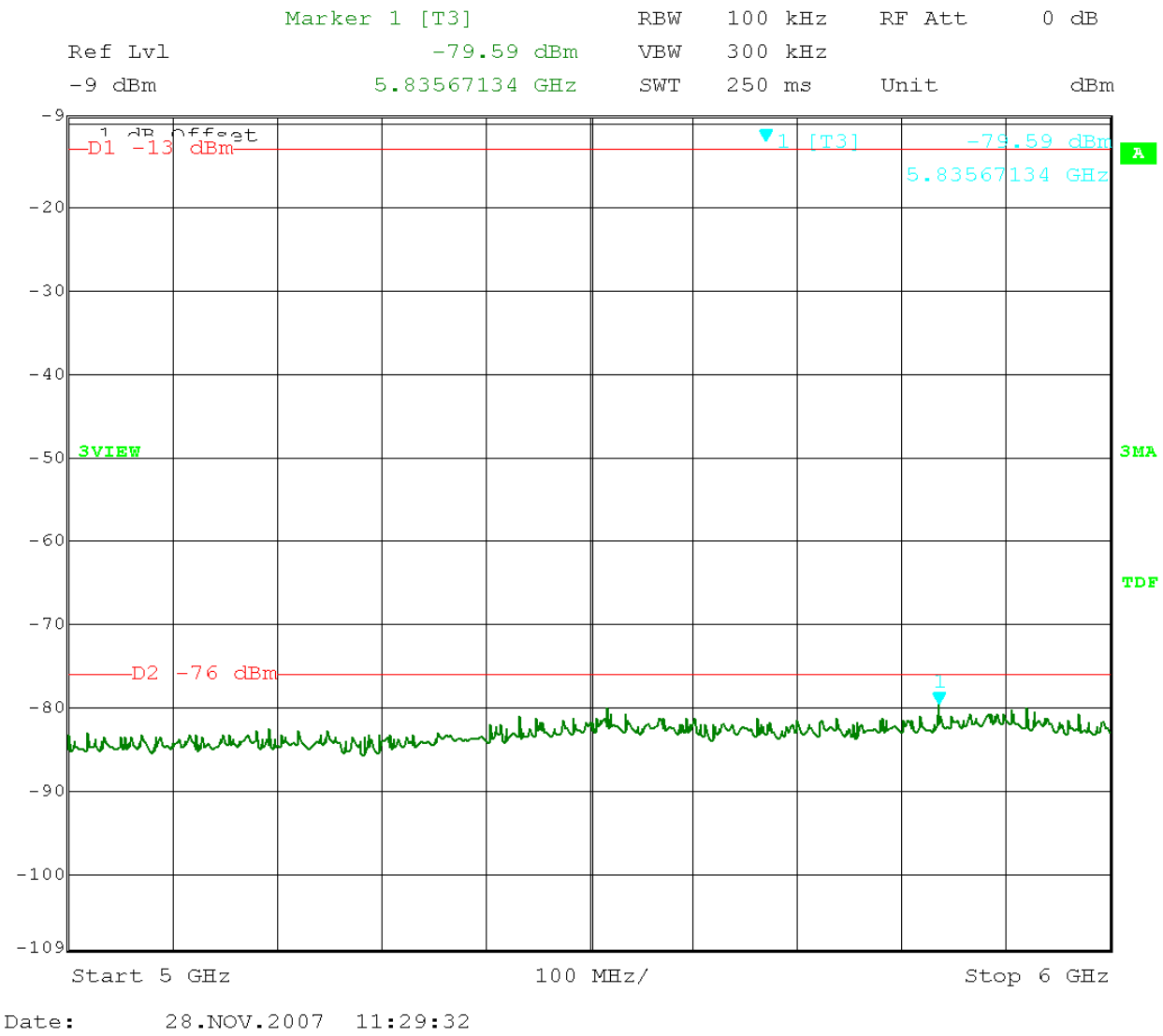
8 Channel CDMA 2-3 GHz



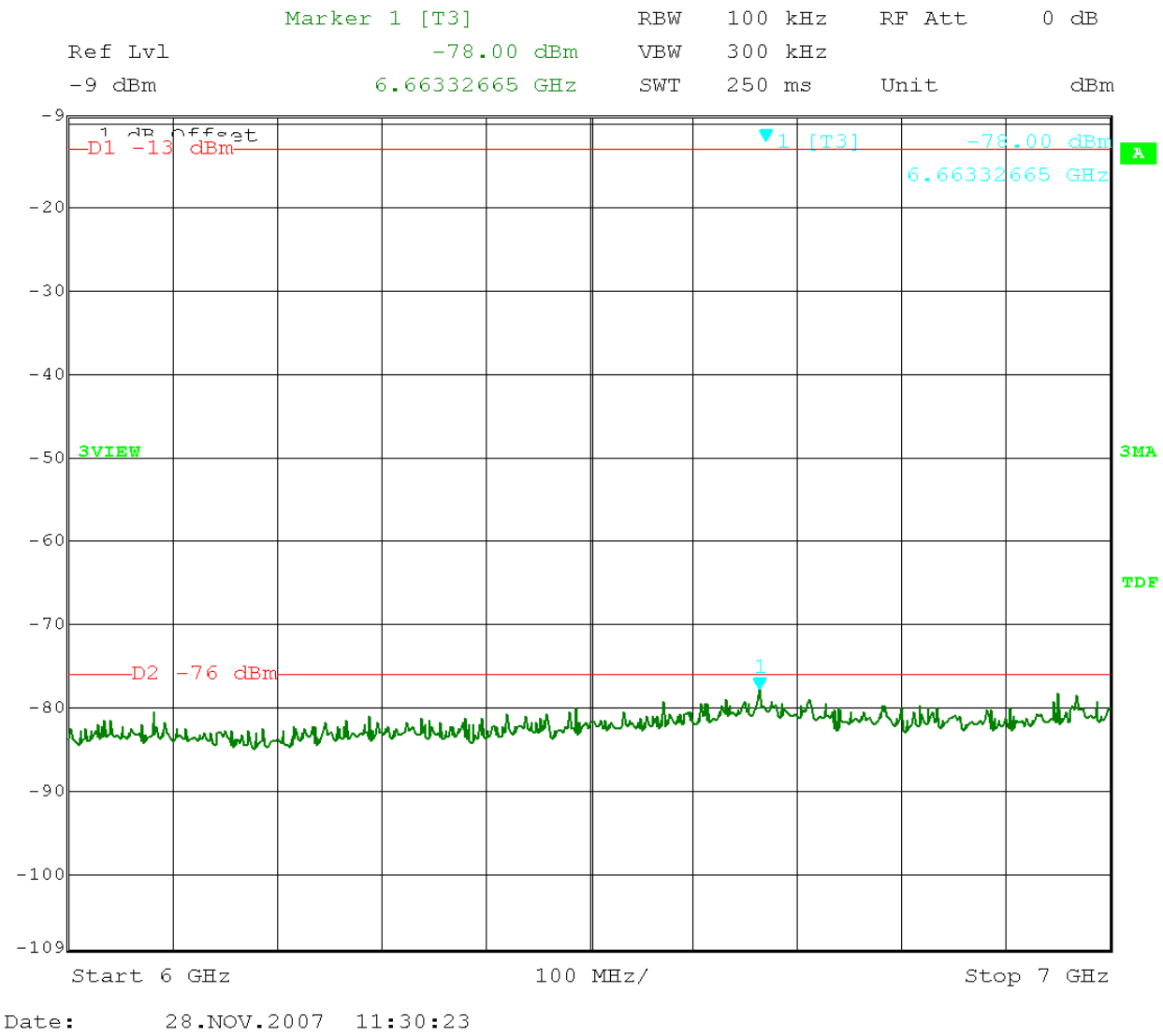
8 Channel CDMA 3-4 GHz



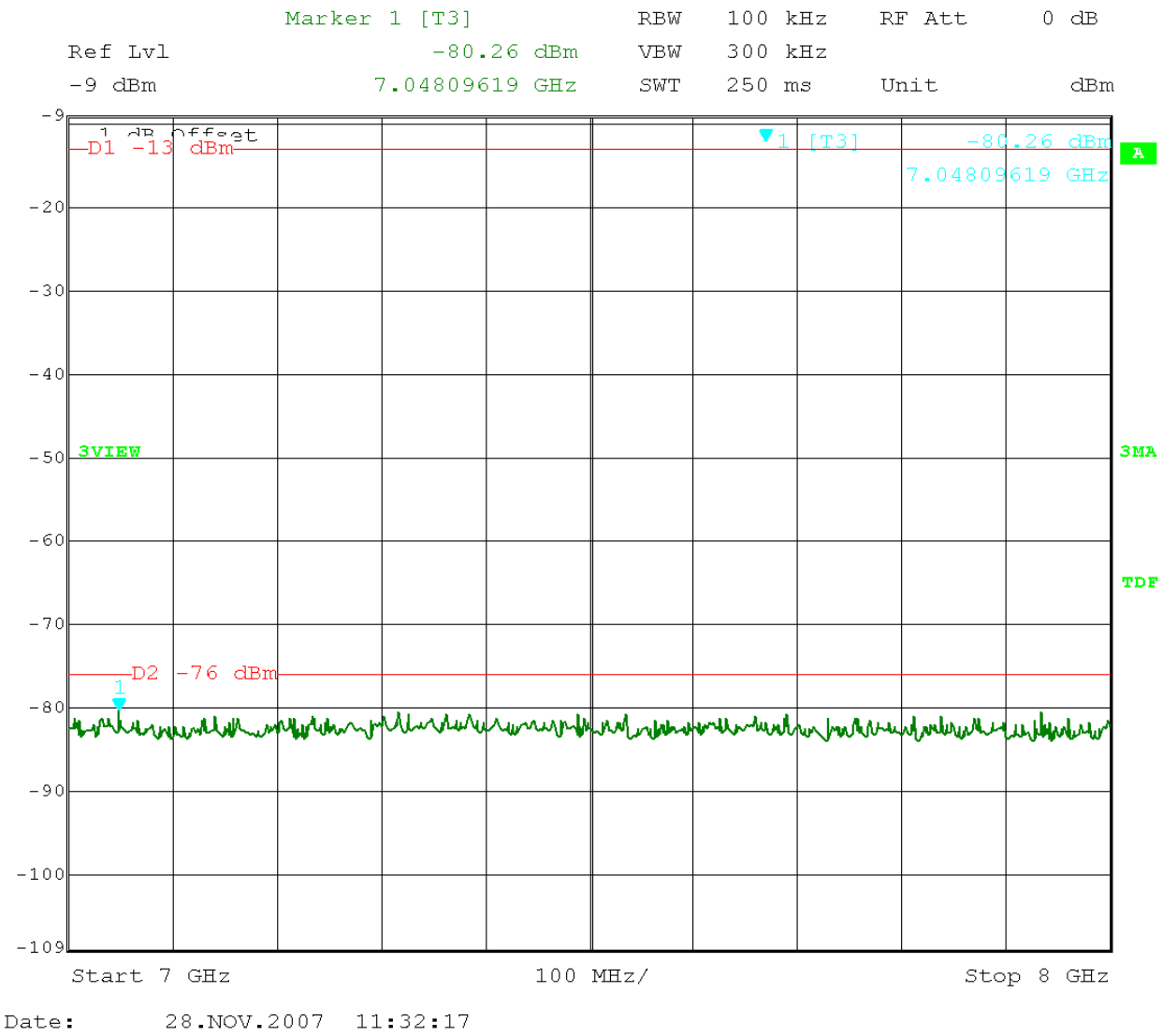
8 Channel CDMA 4-5 GHz



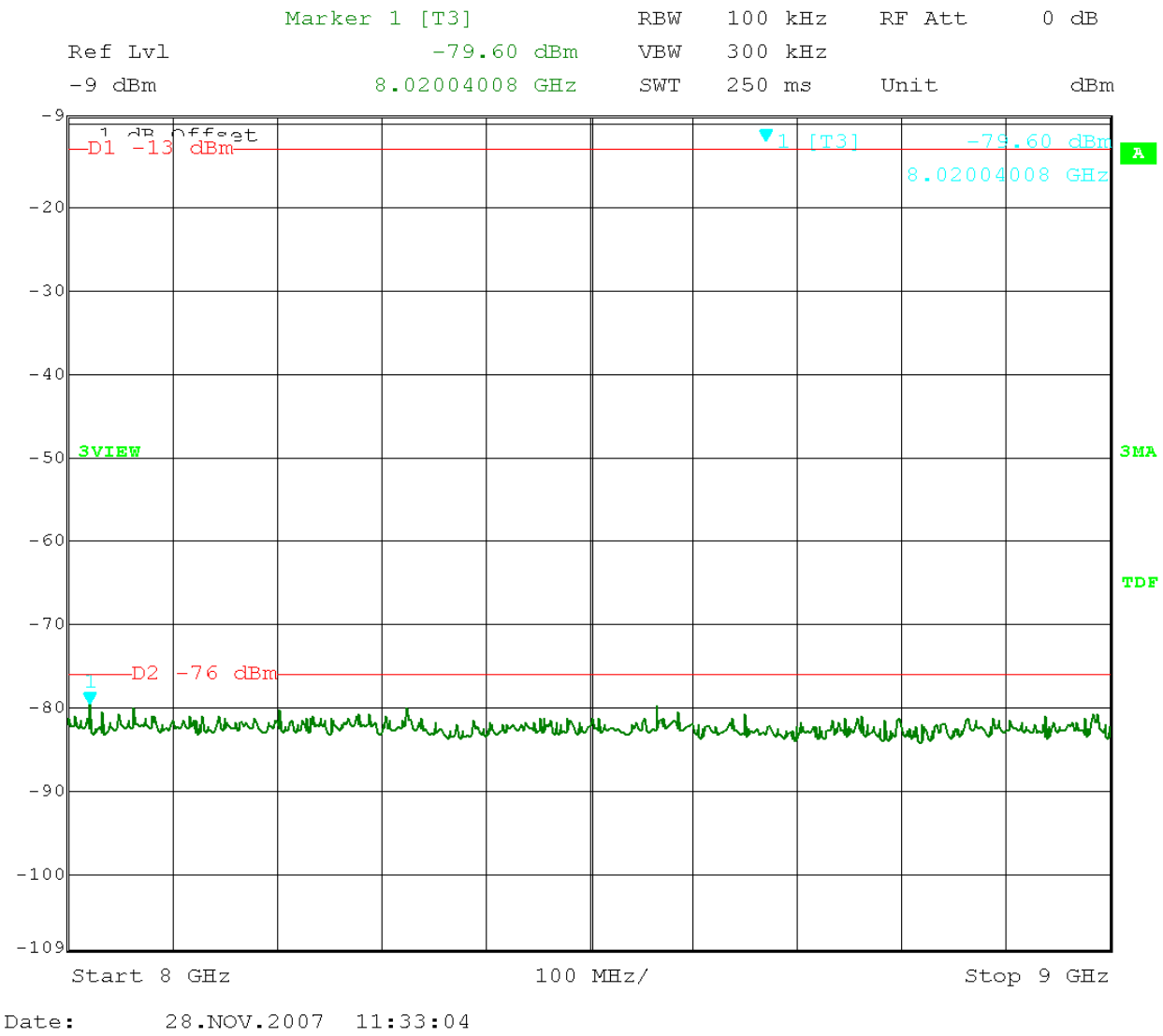
8 Channel CDMA 5-6 GHz



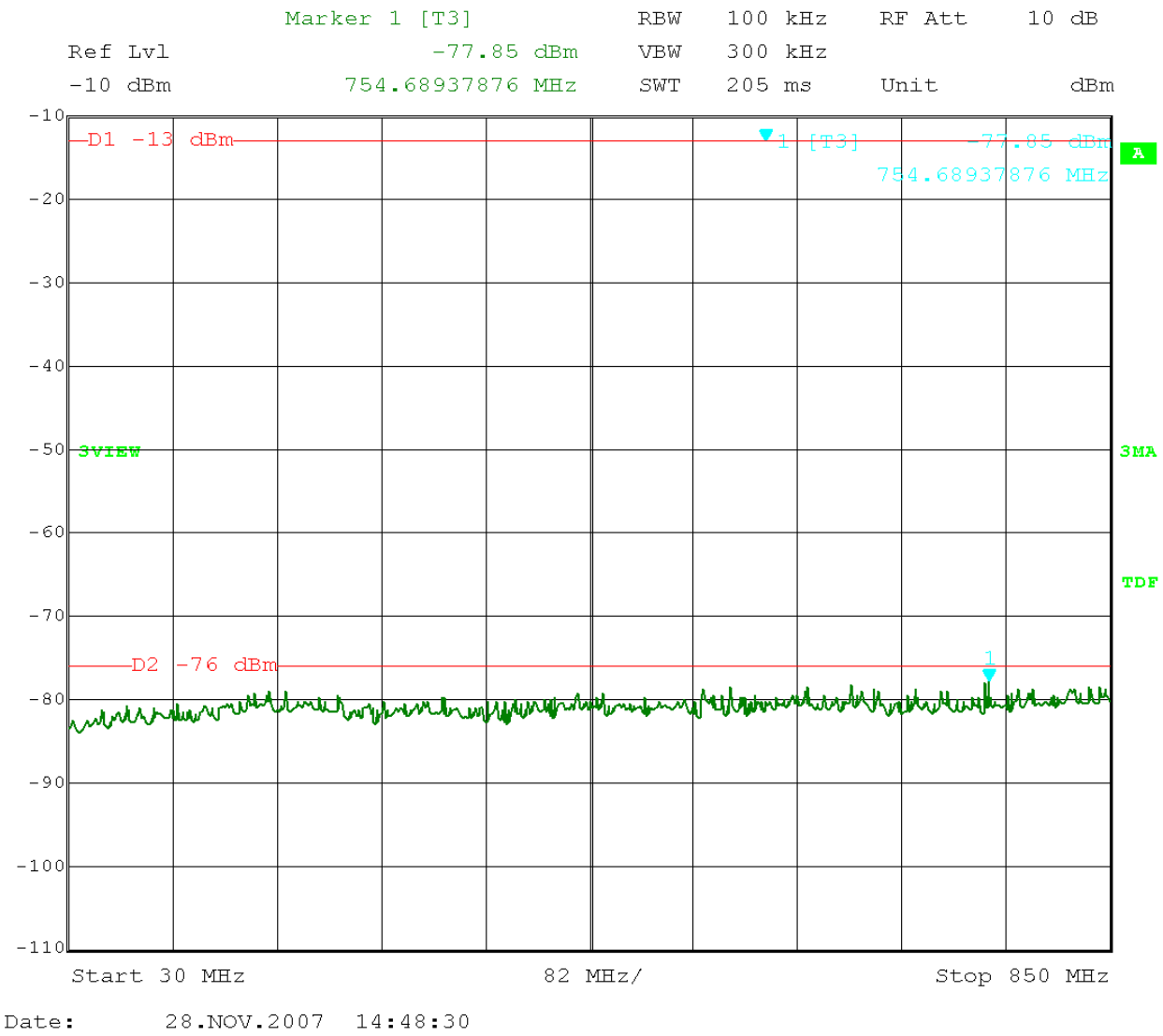
8 Channel CDMA 6-7 GHz



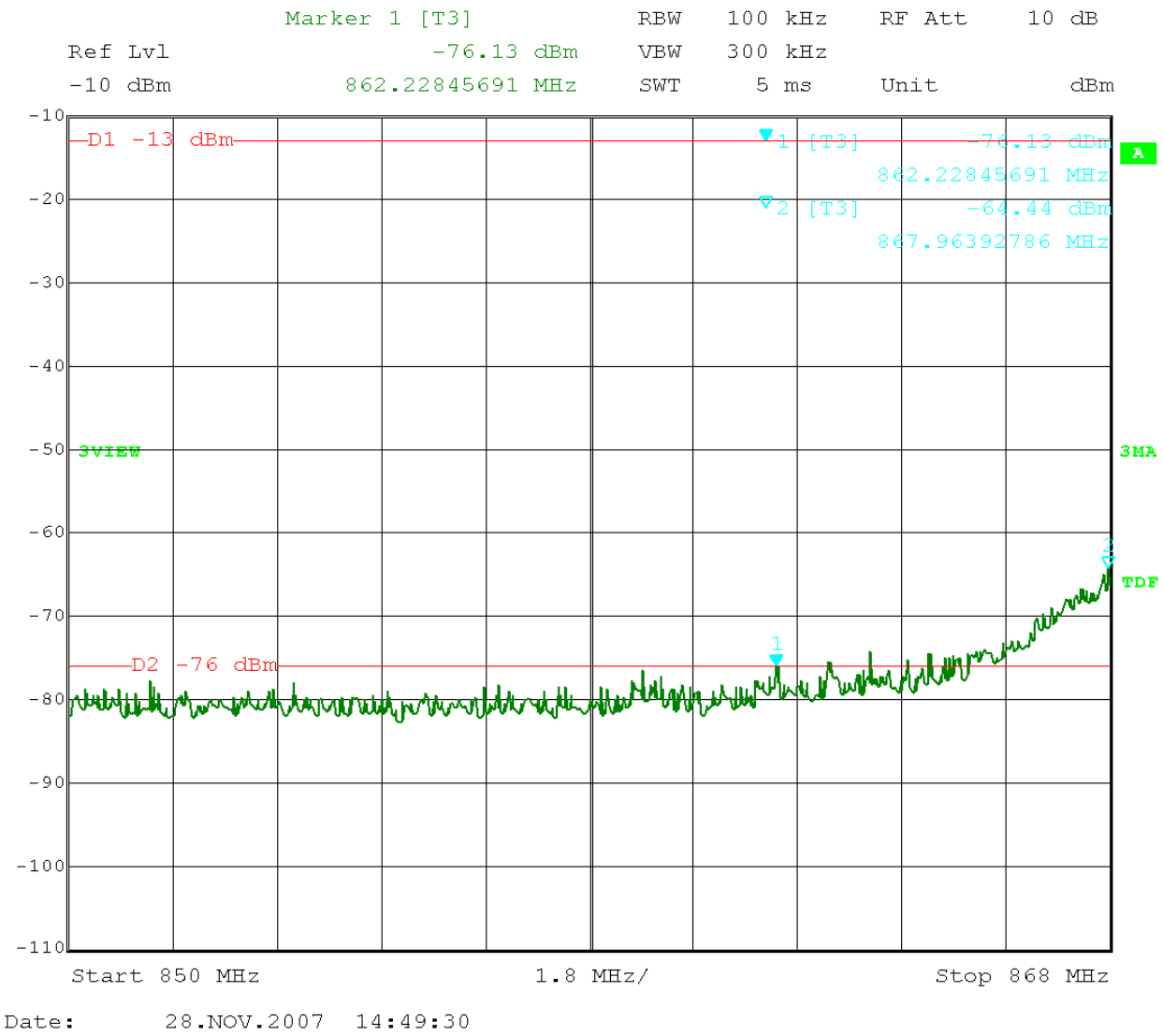
8 Channel CDMA 7-8 GHz



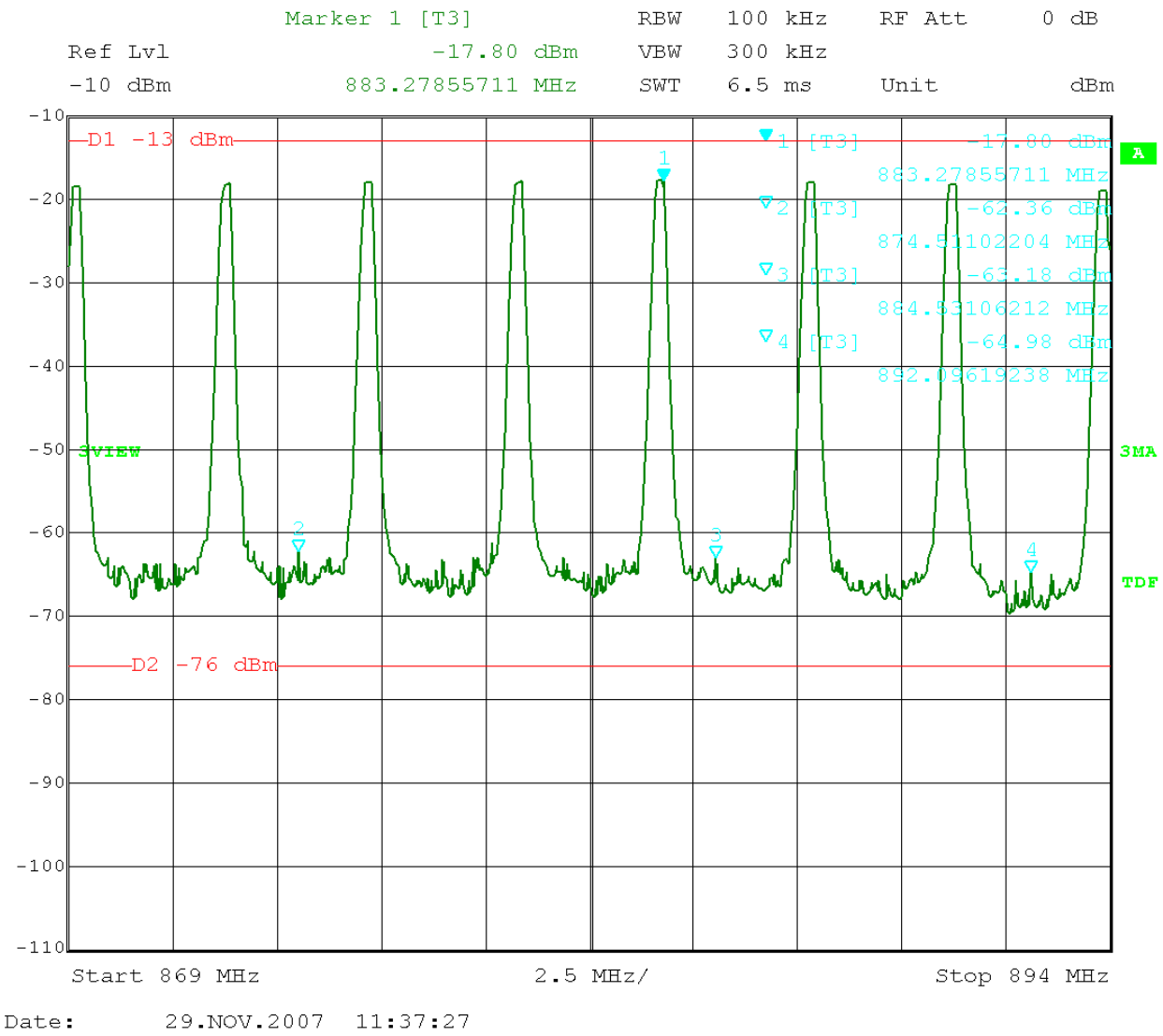
8 Channel CDMA 8-9 GHz



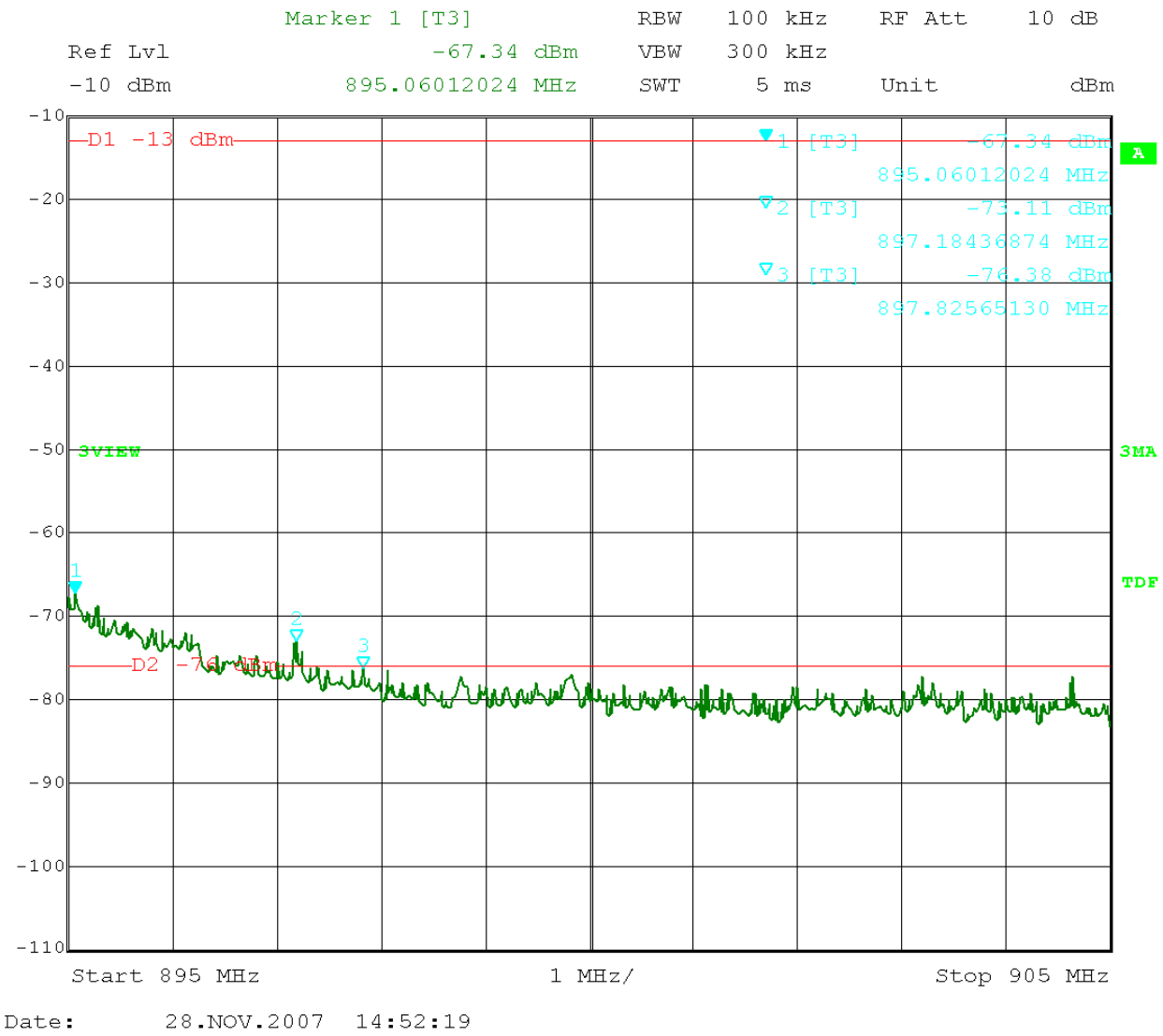
8 Channel GSM 30-850 MHz



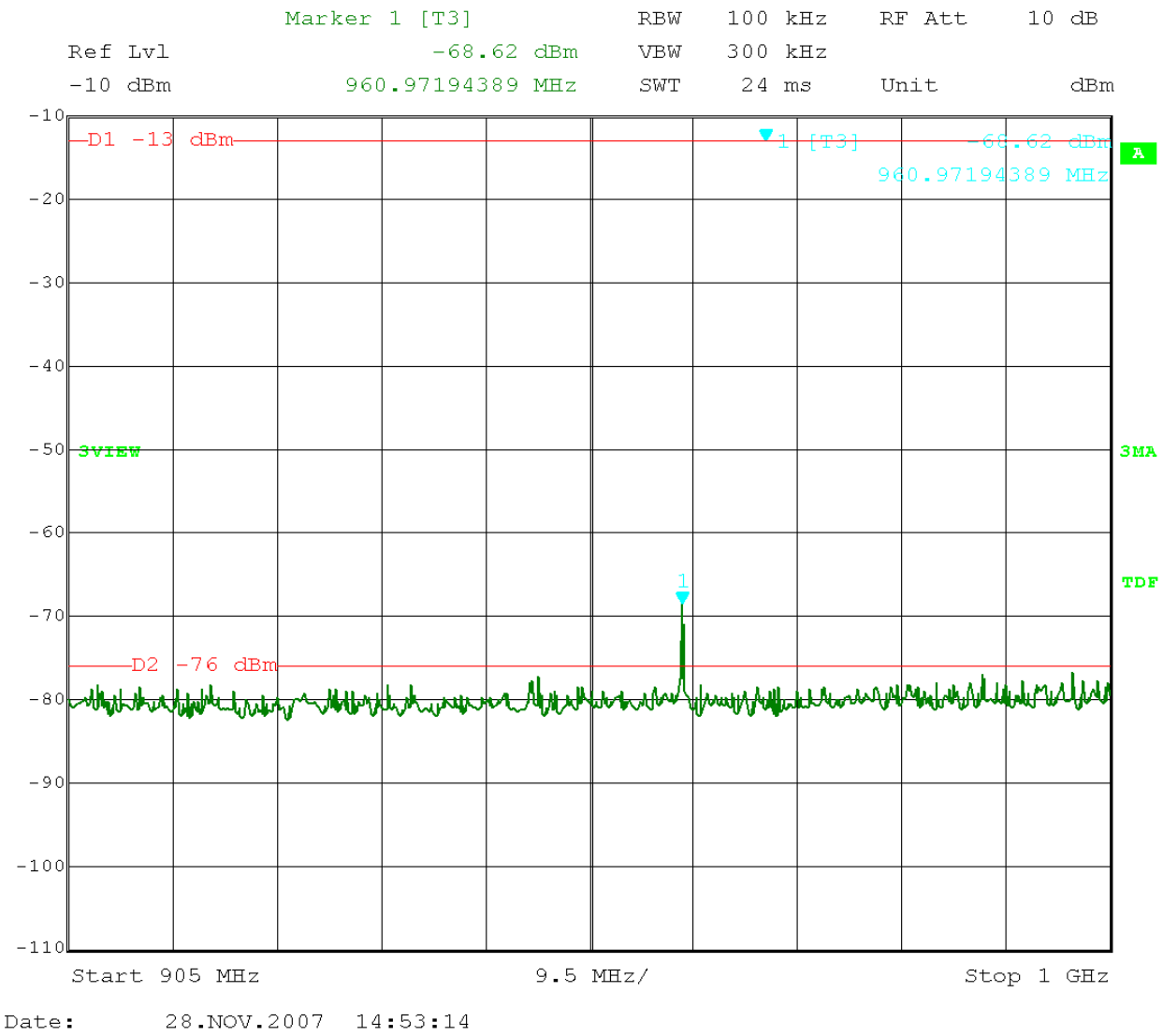
8 Channel GSM 850-868 MHz



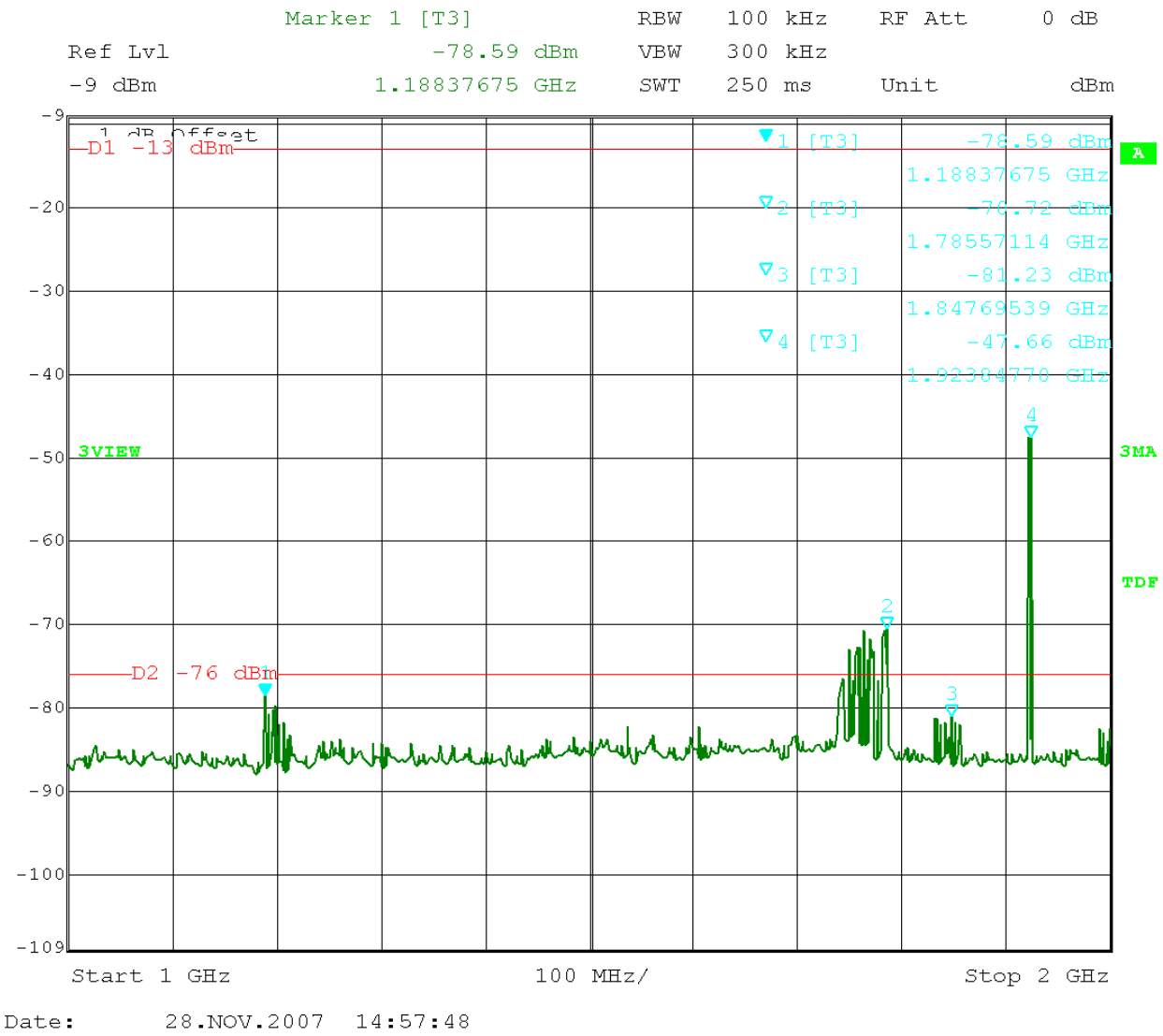
8 Channel GSM In-Band Spurious



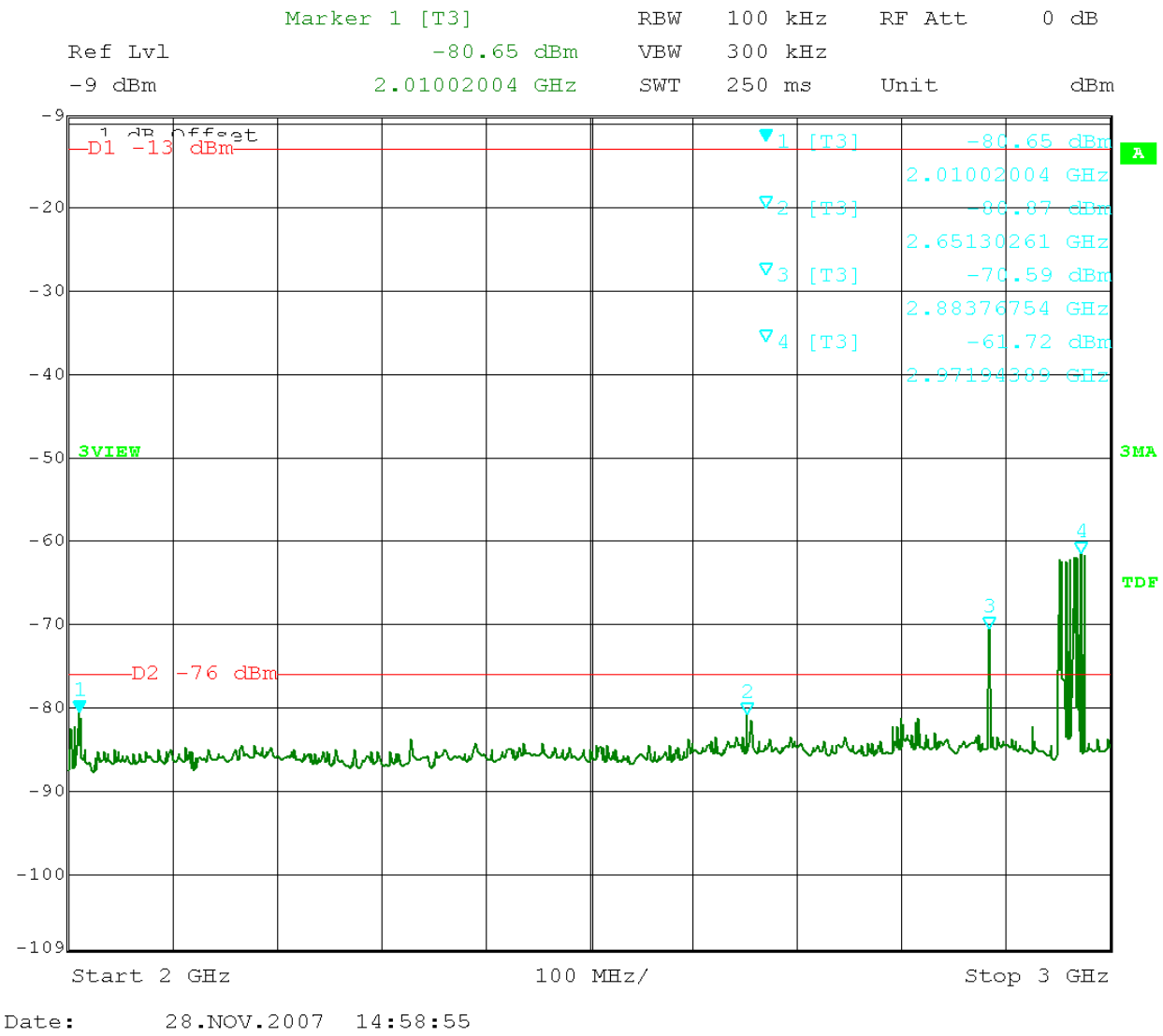
8 Channel GSM 895 – 905 MHz



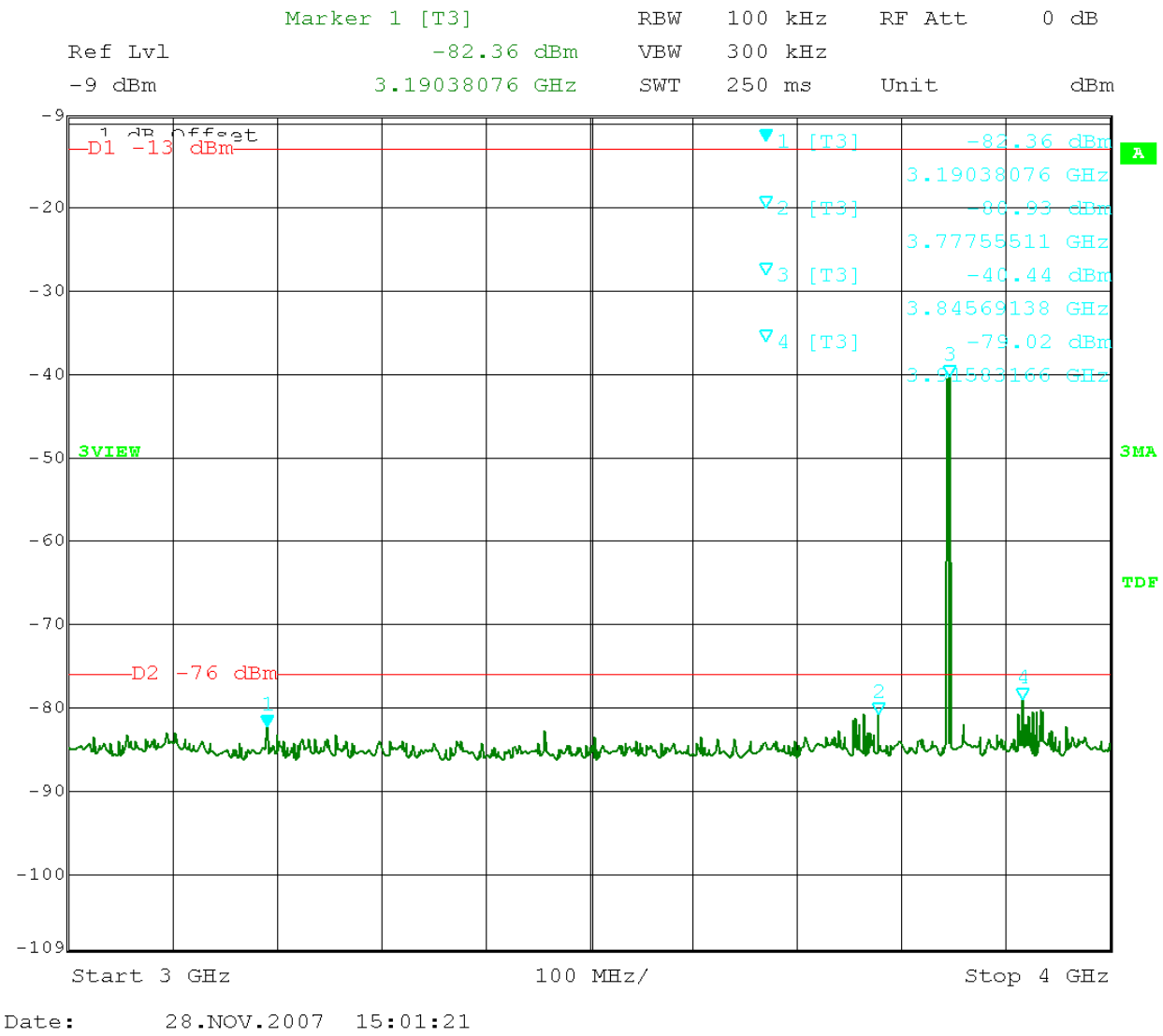
8 Channel GSM 905-1000 MHz



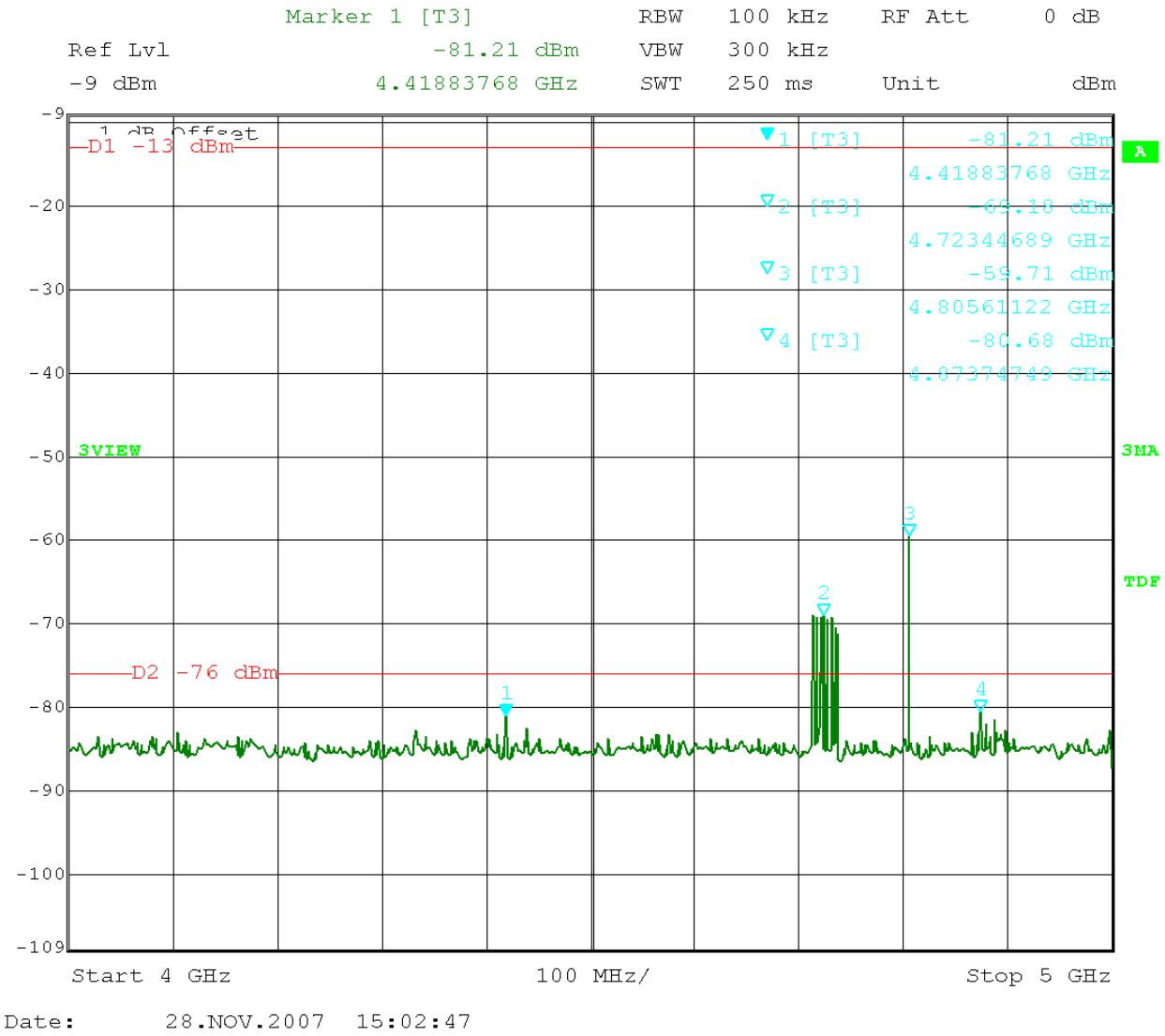
8 Channel GSM 1-2 GHz



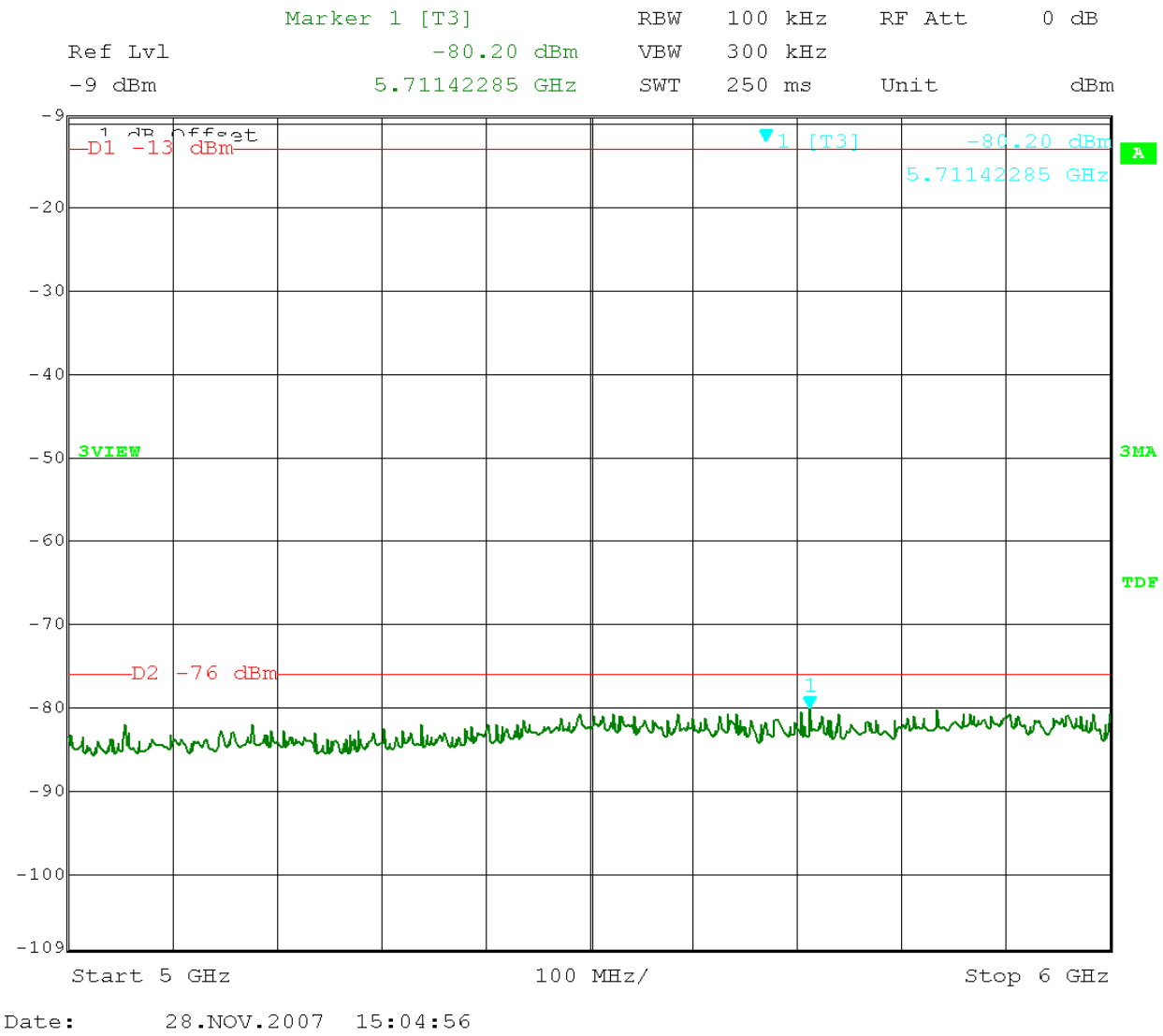
8 Channel GSM 2-3 GHz



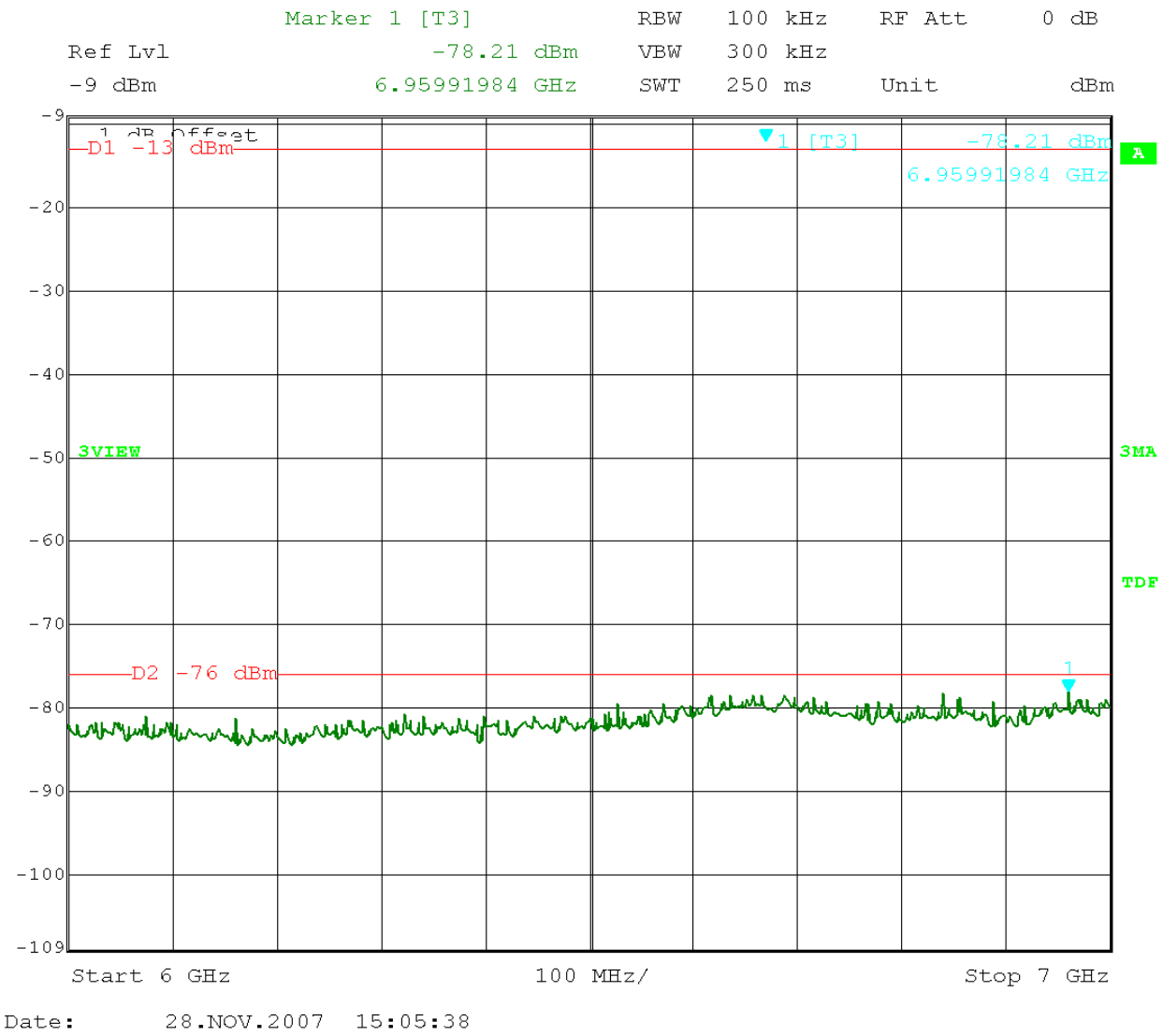
8 Channel GSM 3-4 GHz



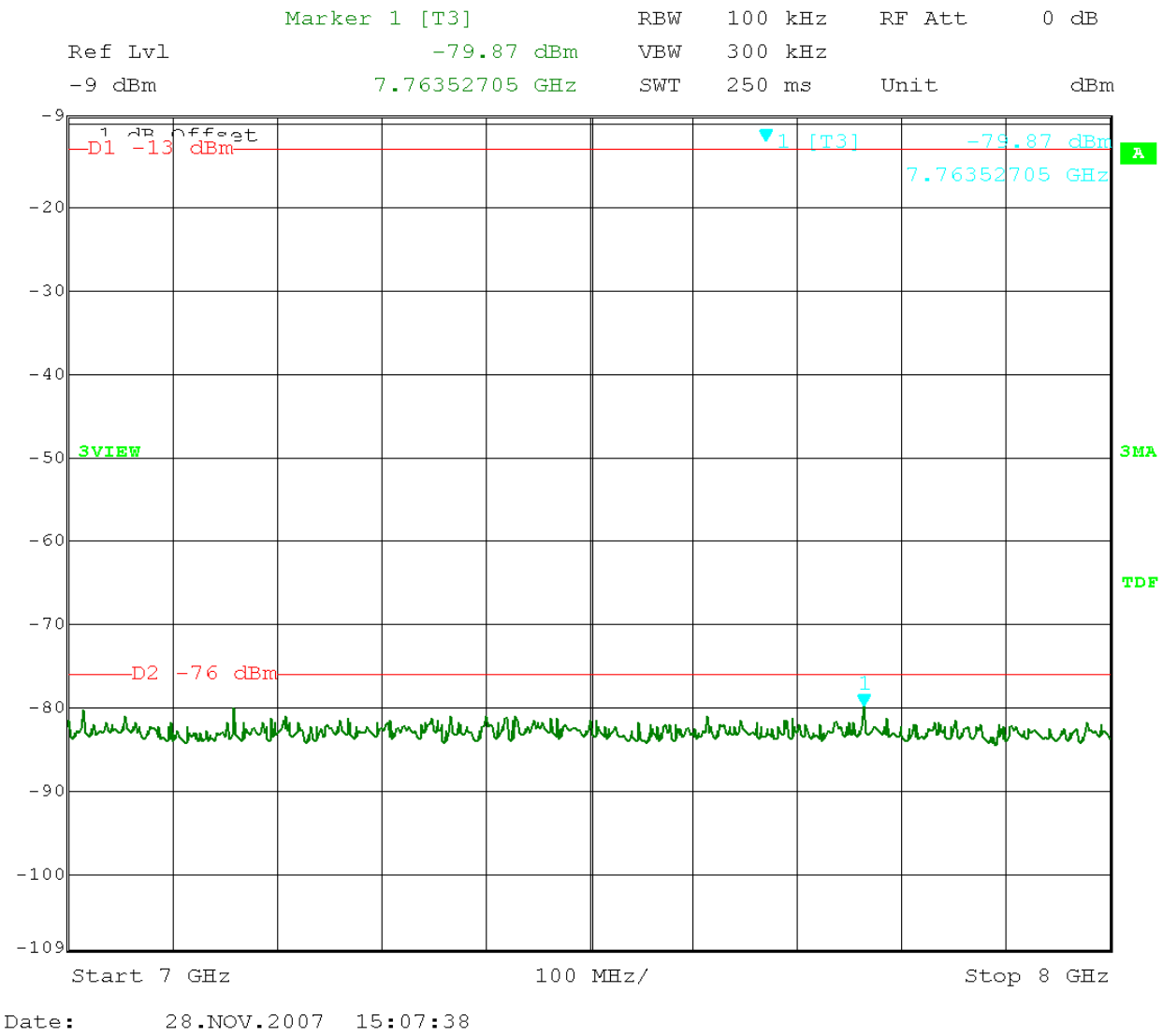
8 Channel GSM 4-5 GHz



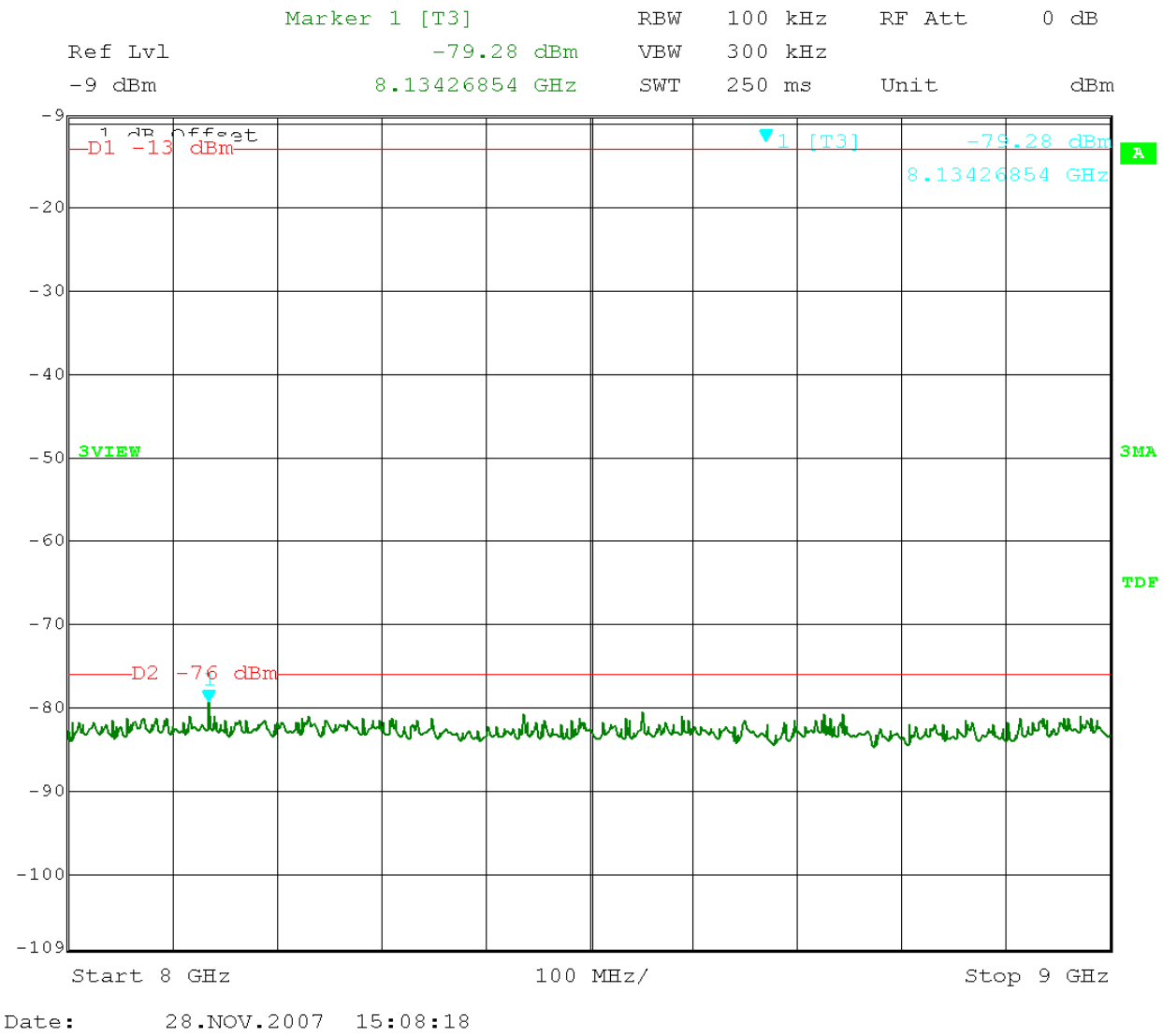
8 Channel GSM 5-6 GHz



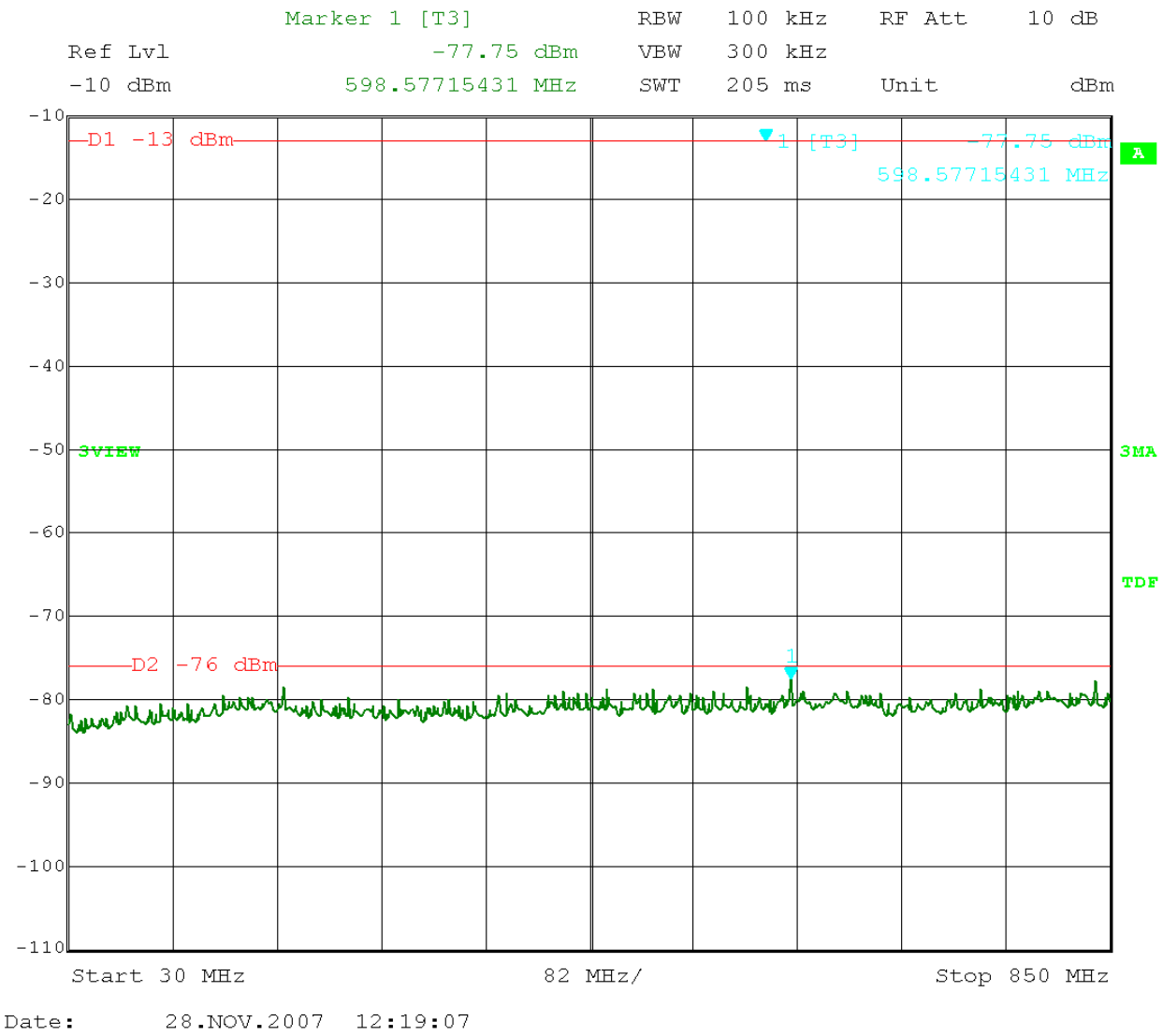
8 Channel GSM 6-7 GHz



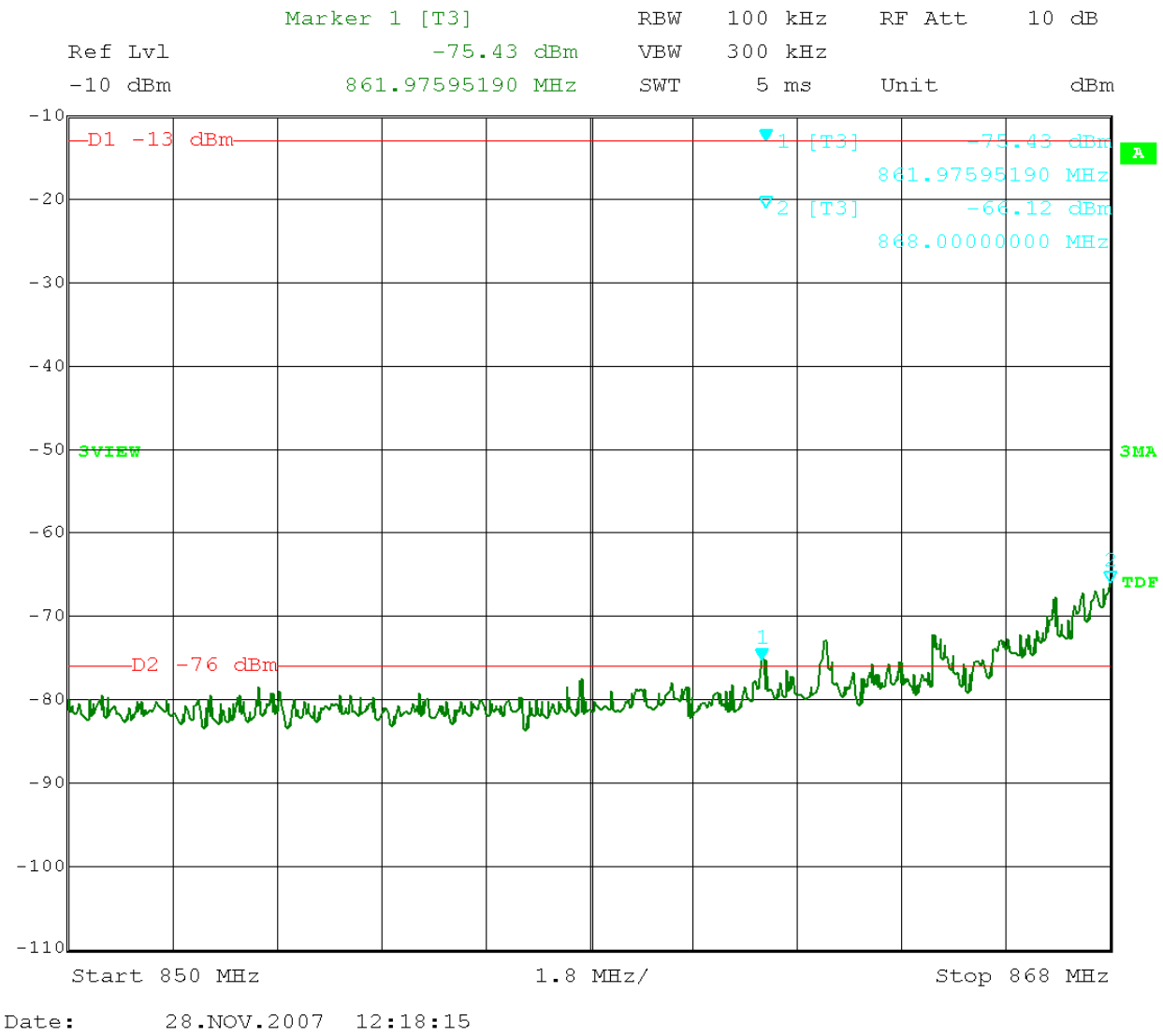
8 Channel GSM 7-8 GHz



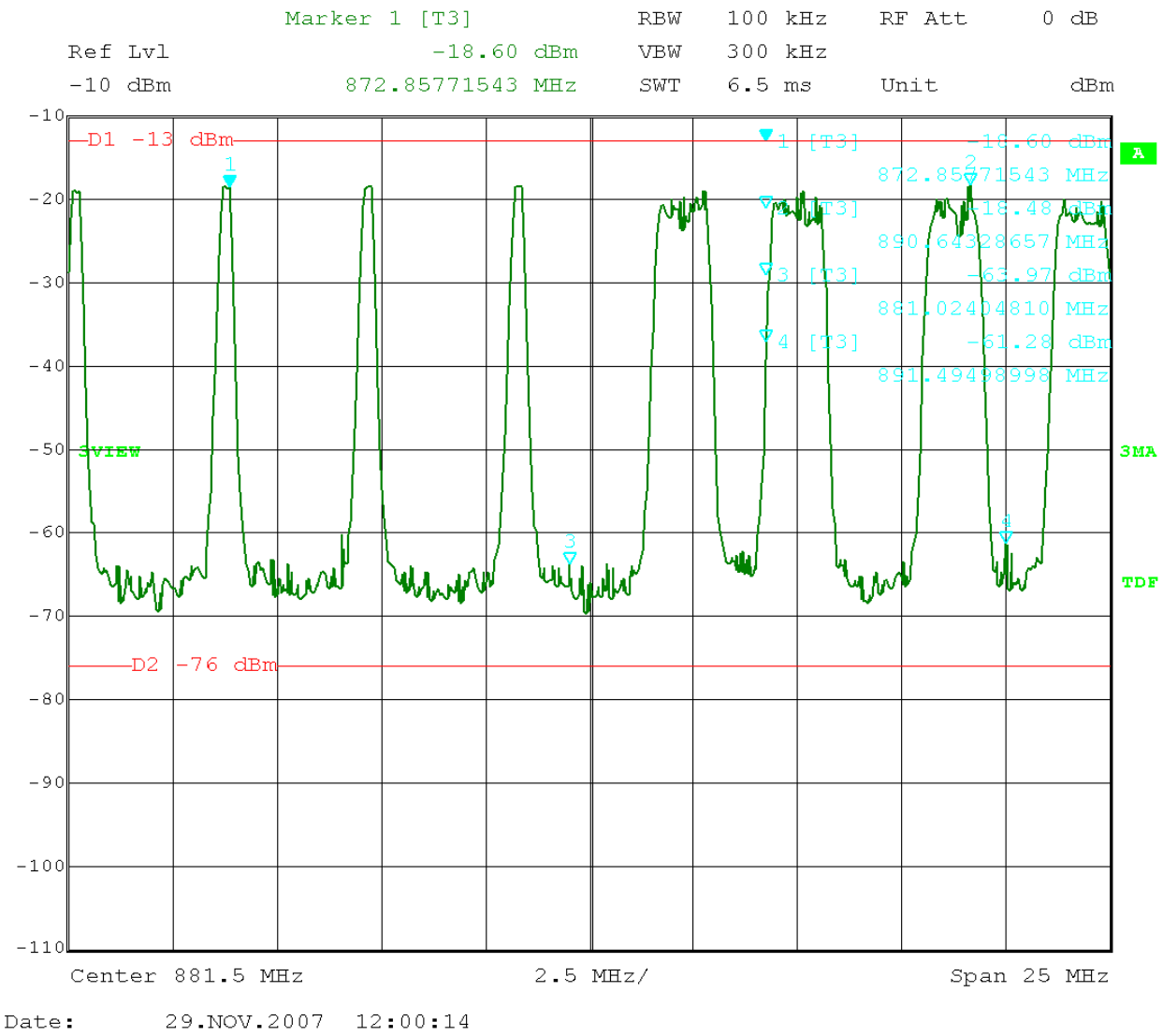
8 Channel GSM 8-9 GHz



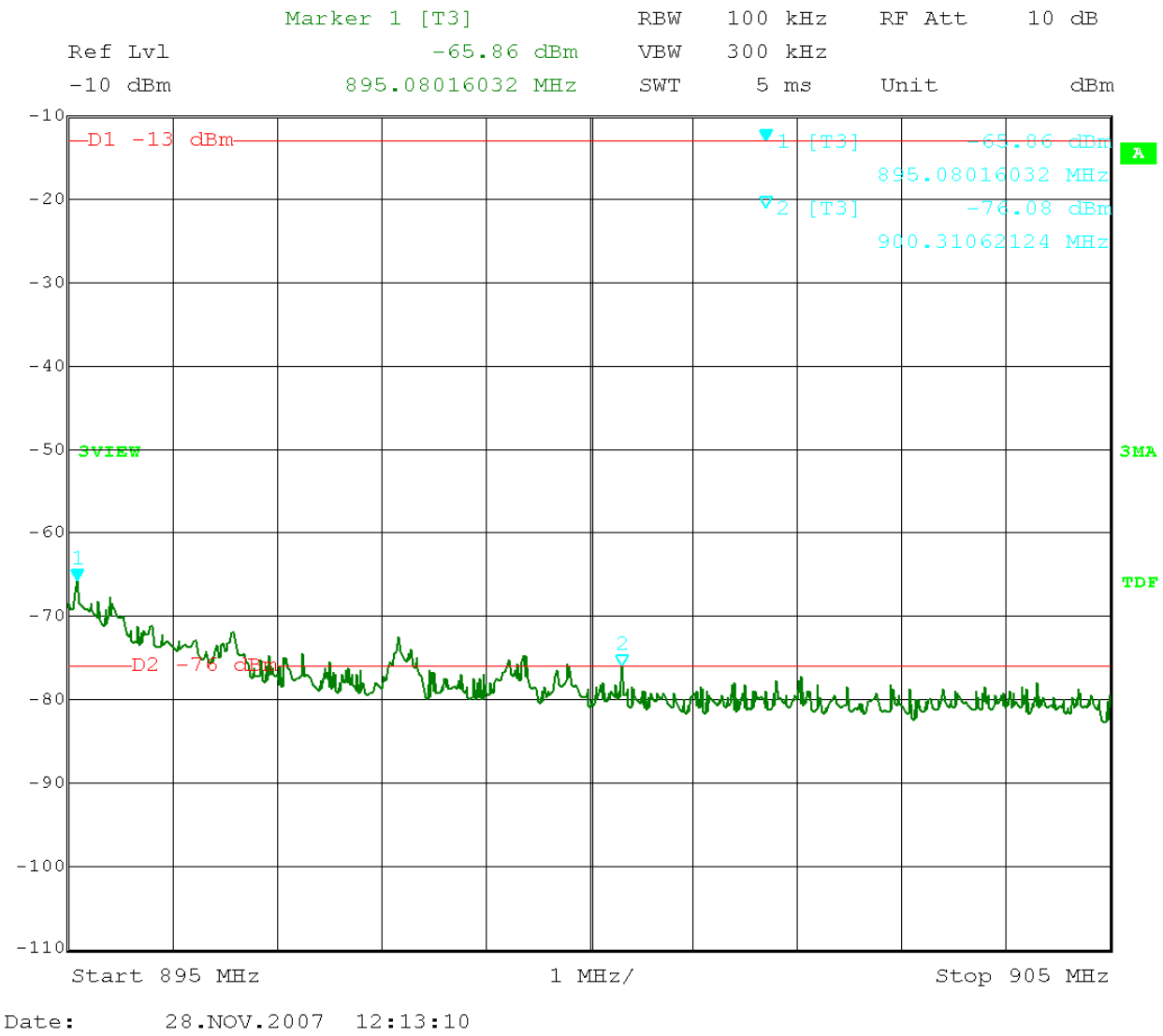
4 Channel GSM/4 Channel CDMA 30-850 MHz



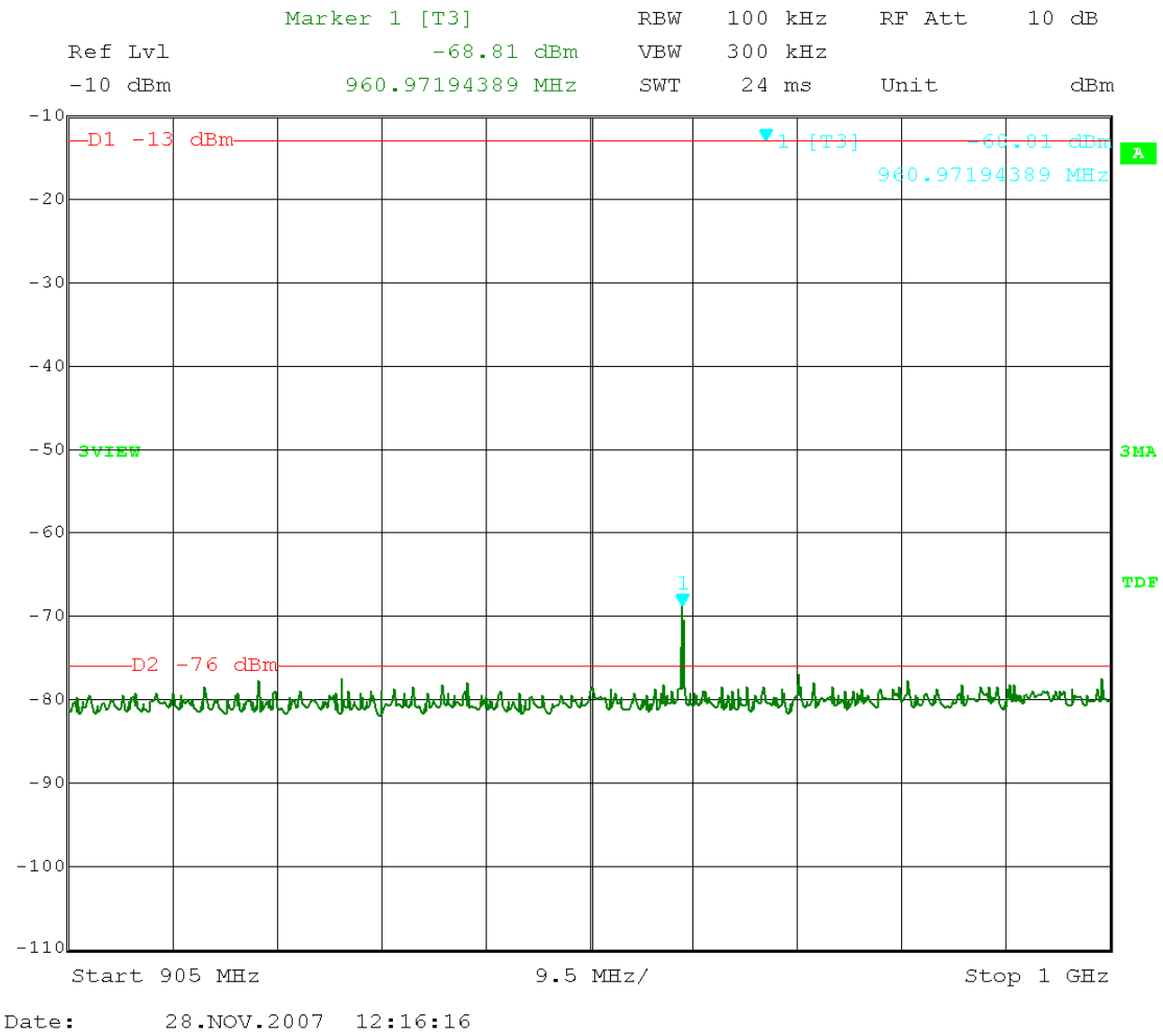
4 Channel GSM/4 Channel CDMA 850-868 MHz



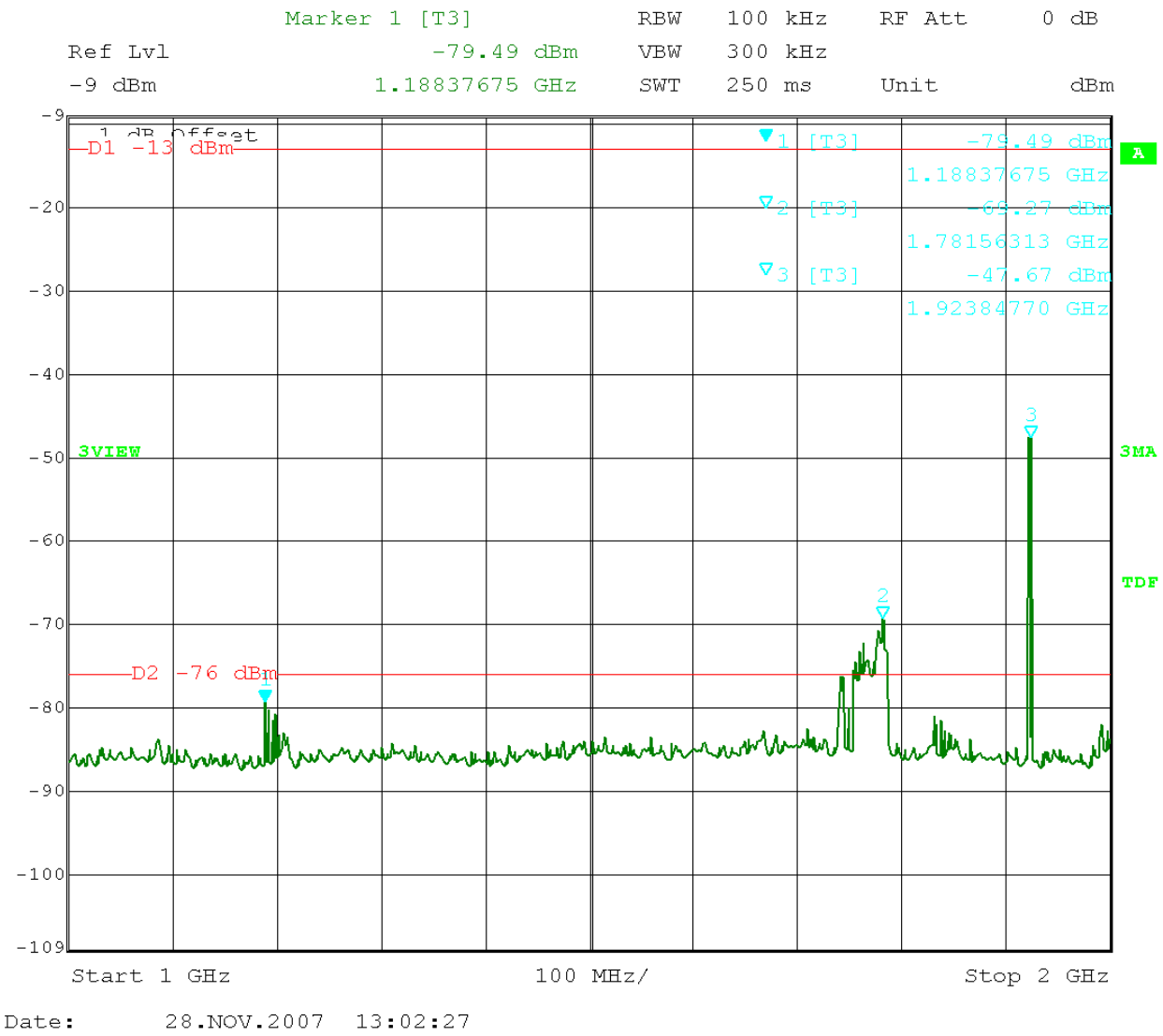
4 Channel GSM/4 Channel CDMA In-Band Spurious



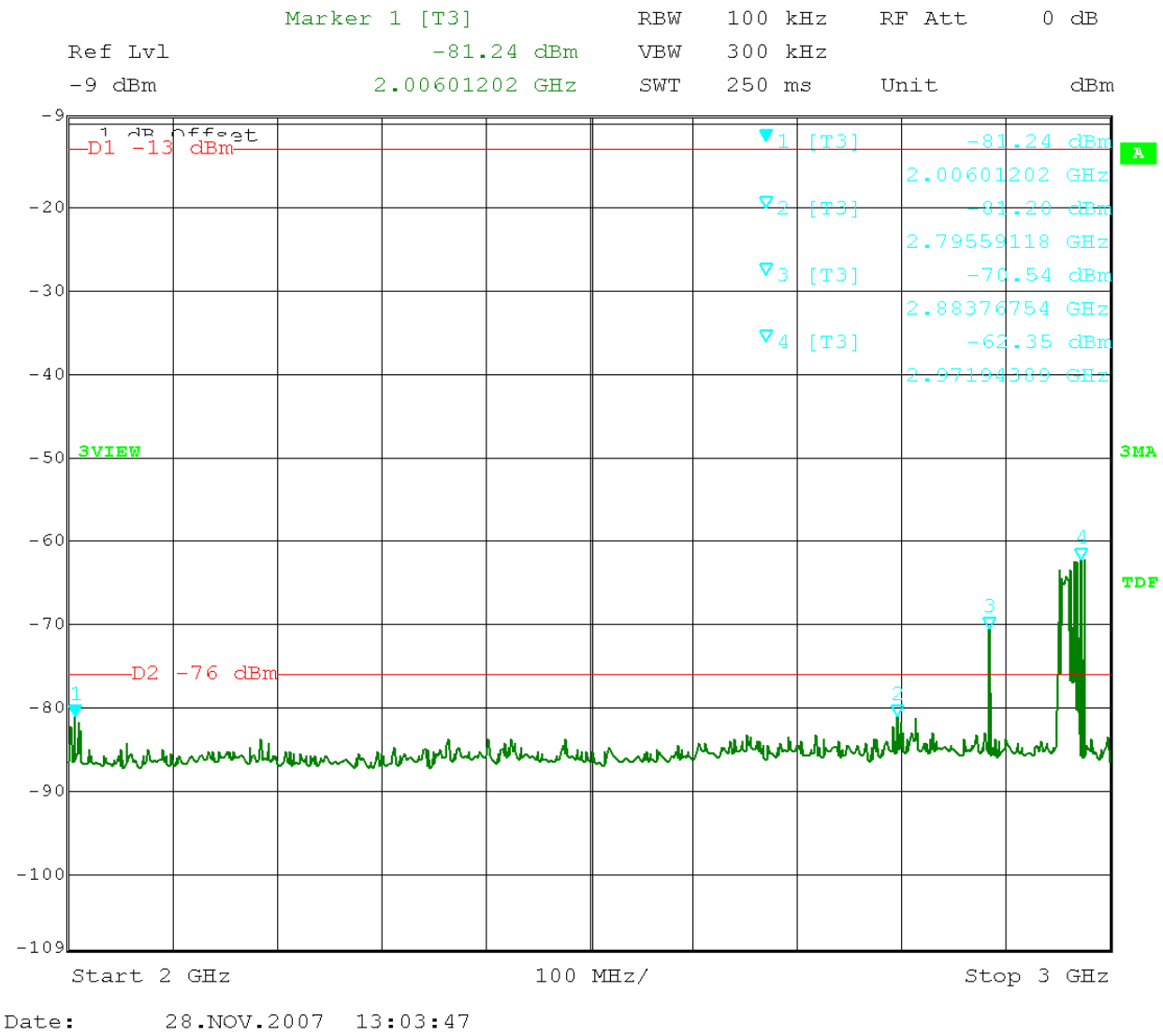
4 Channel GSM/4 Channel CDMA 895 – 905 MHz



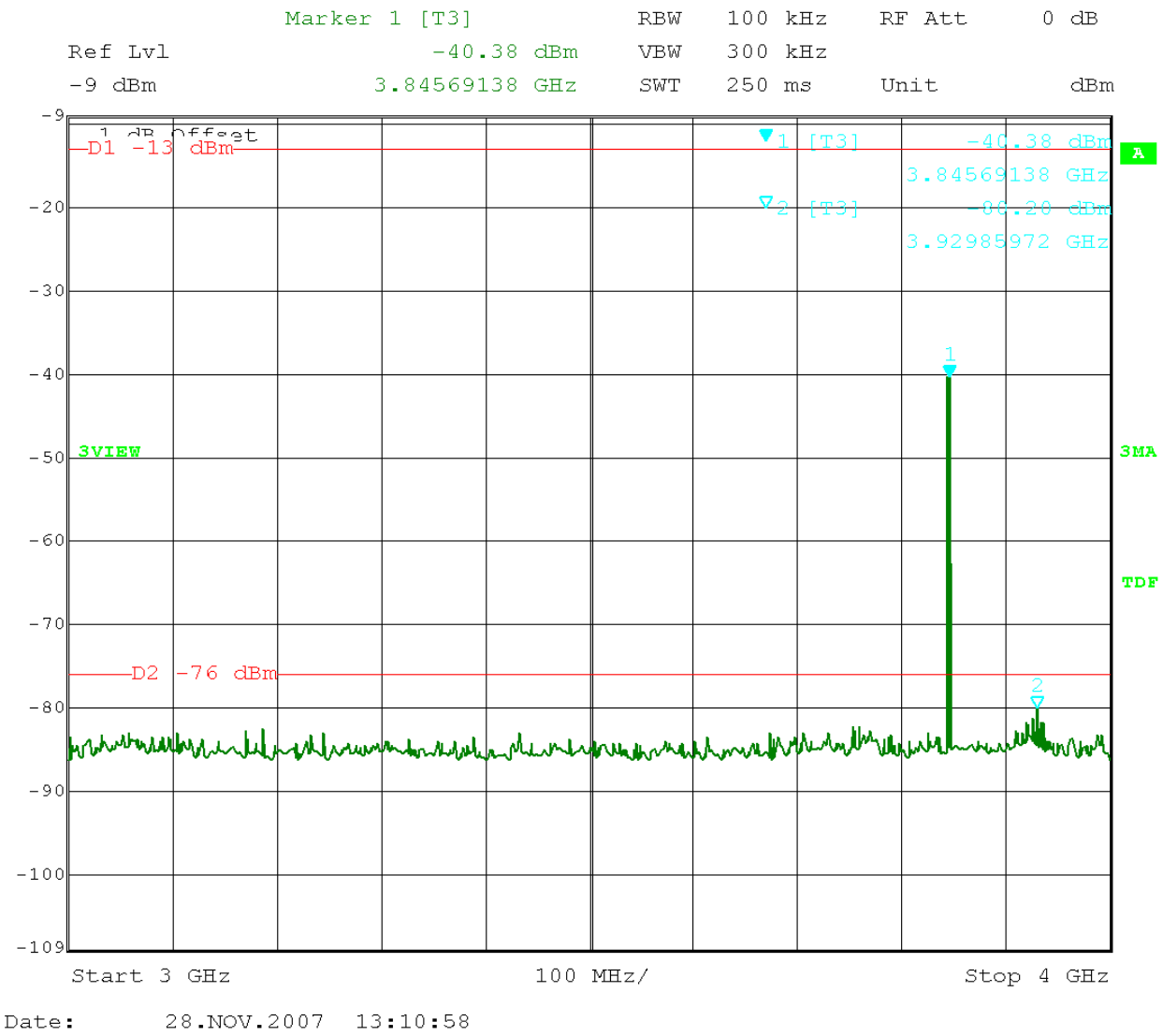
4 Channel GSM/4 Channel CDMA 905-1000 MHz



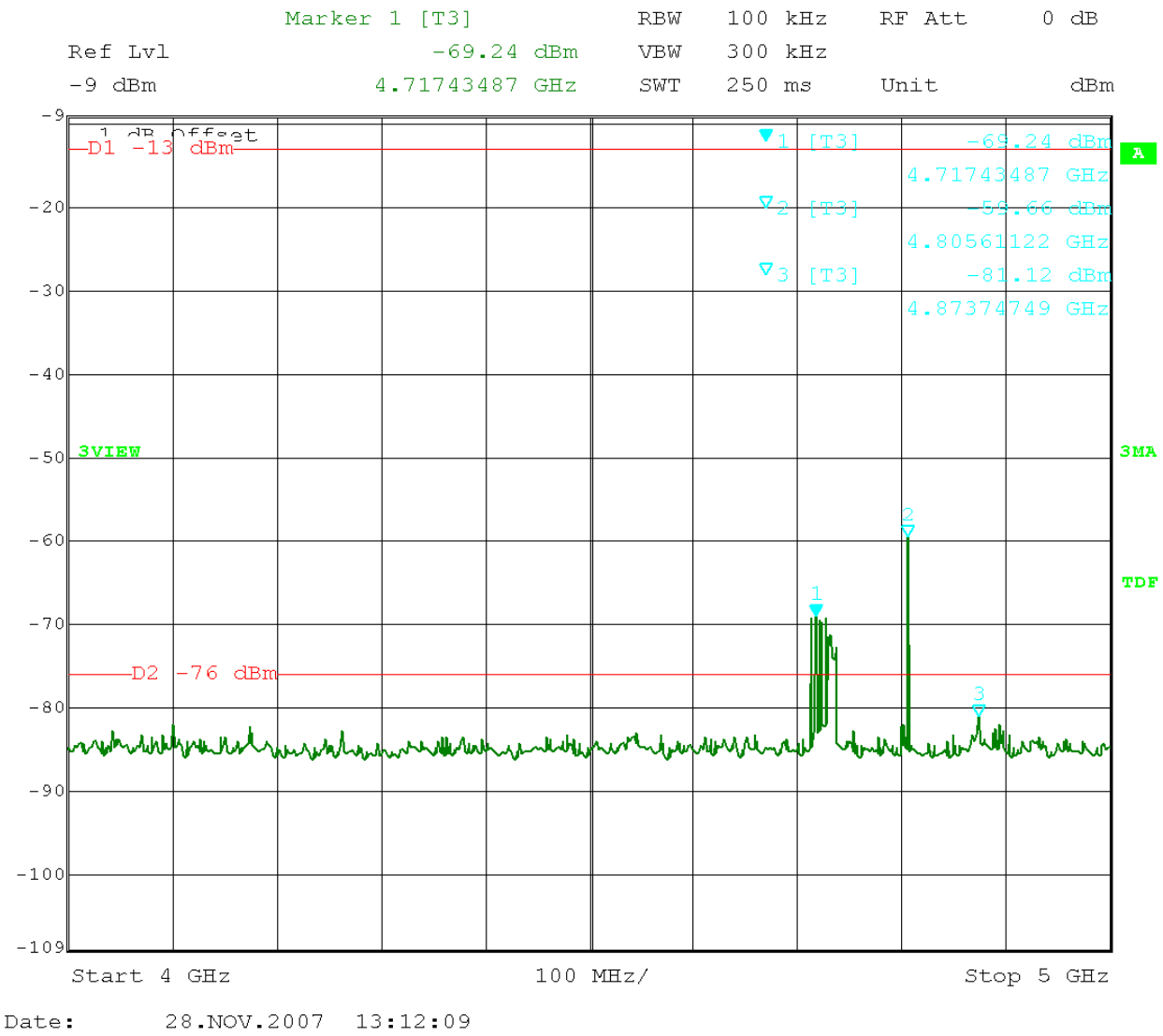
4 Channel GSM/4 Channel CDMA 1-2 GHz



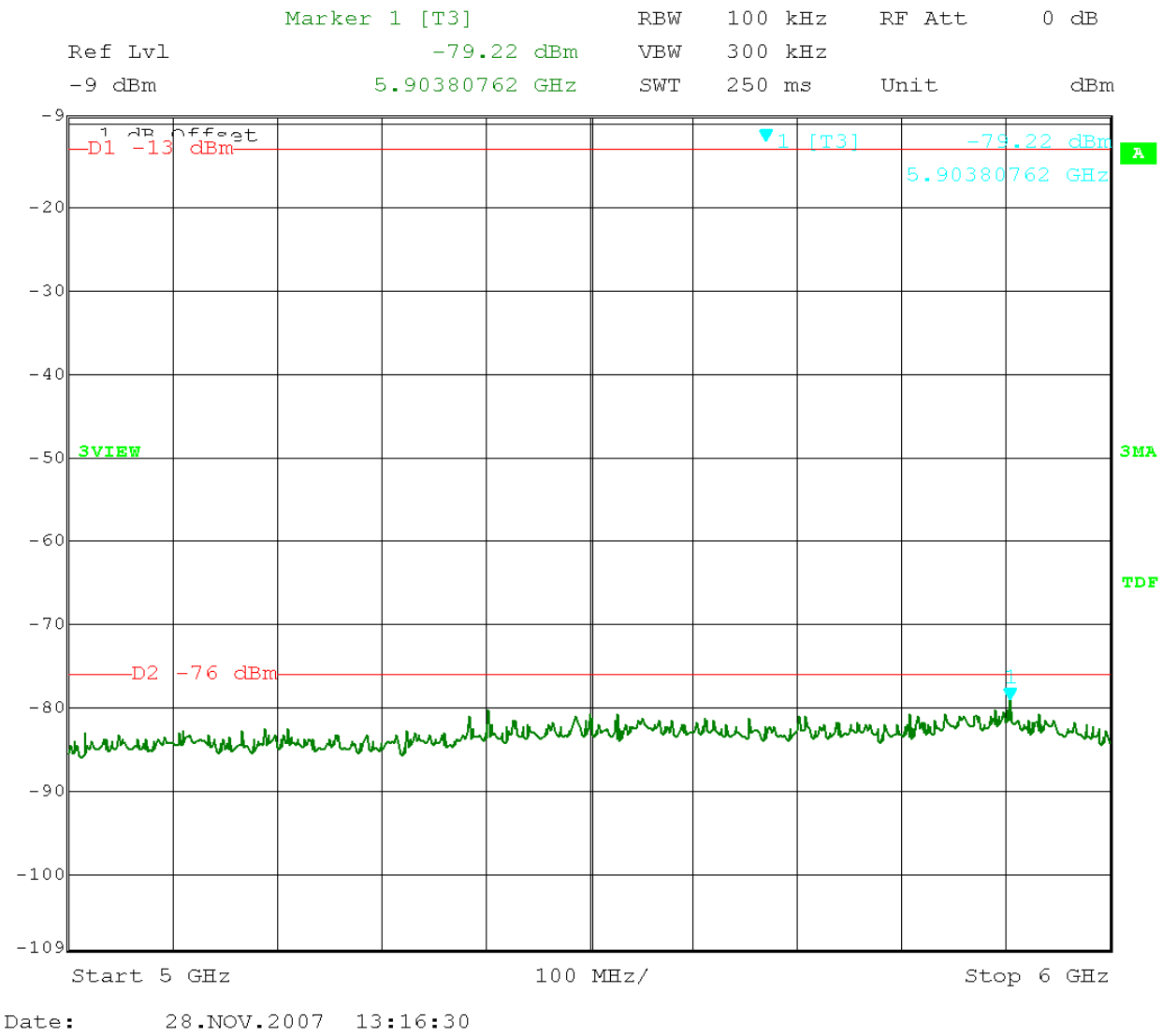
4 Channel GSM/4 Channel CDMA 2-3 GHz



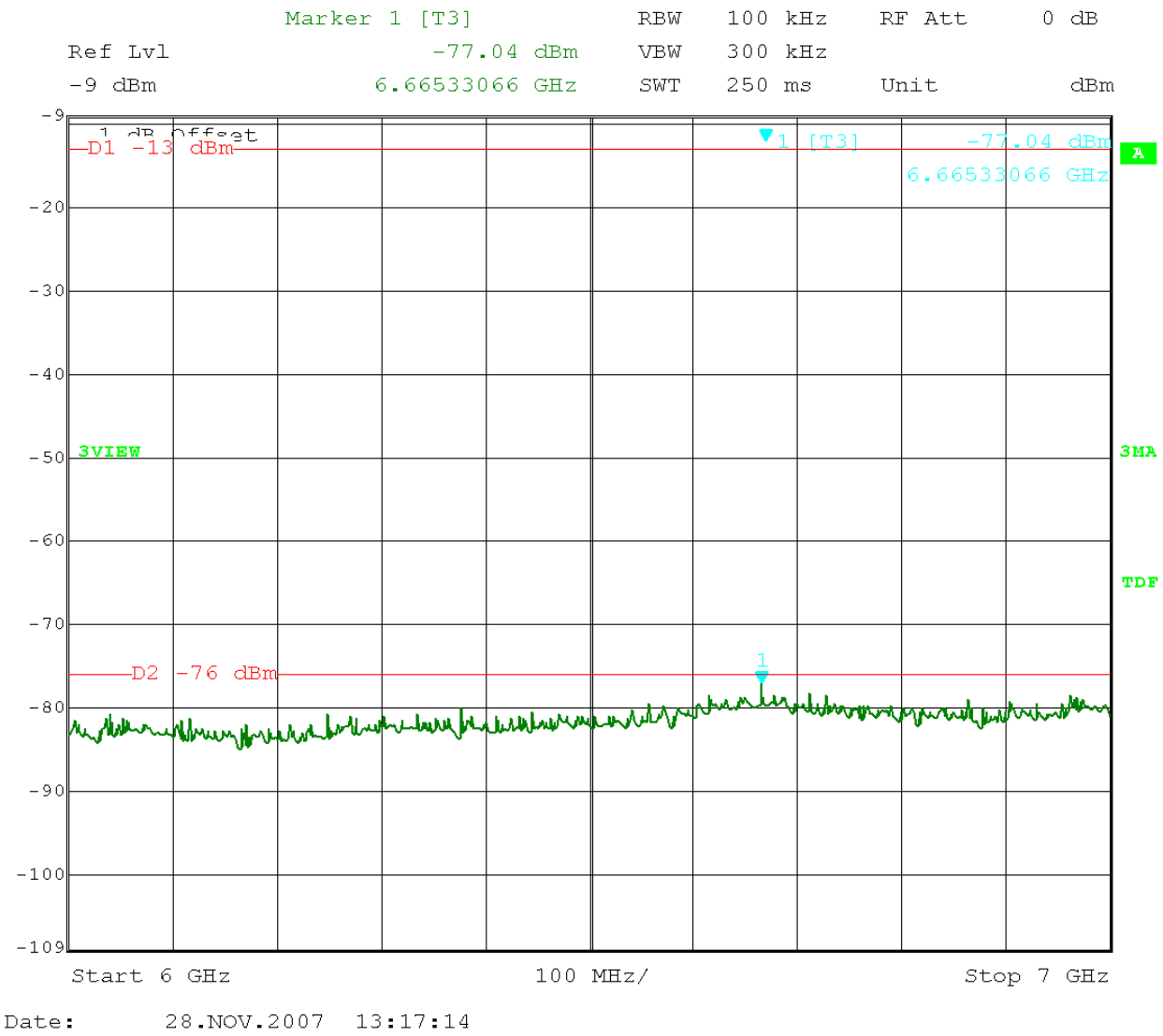
4 Channel GSM/4 Channel CDMA 3-4 GHz



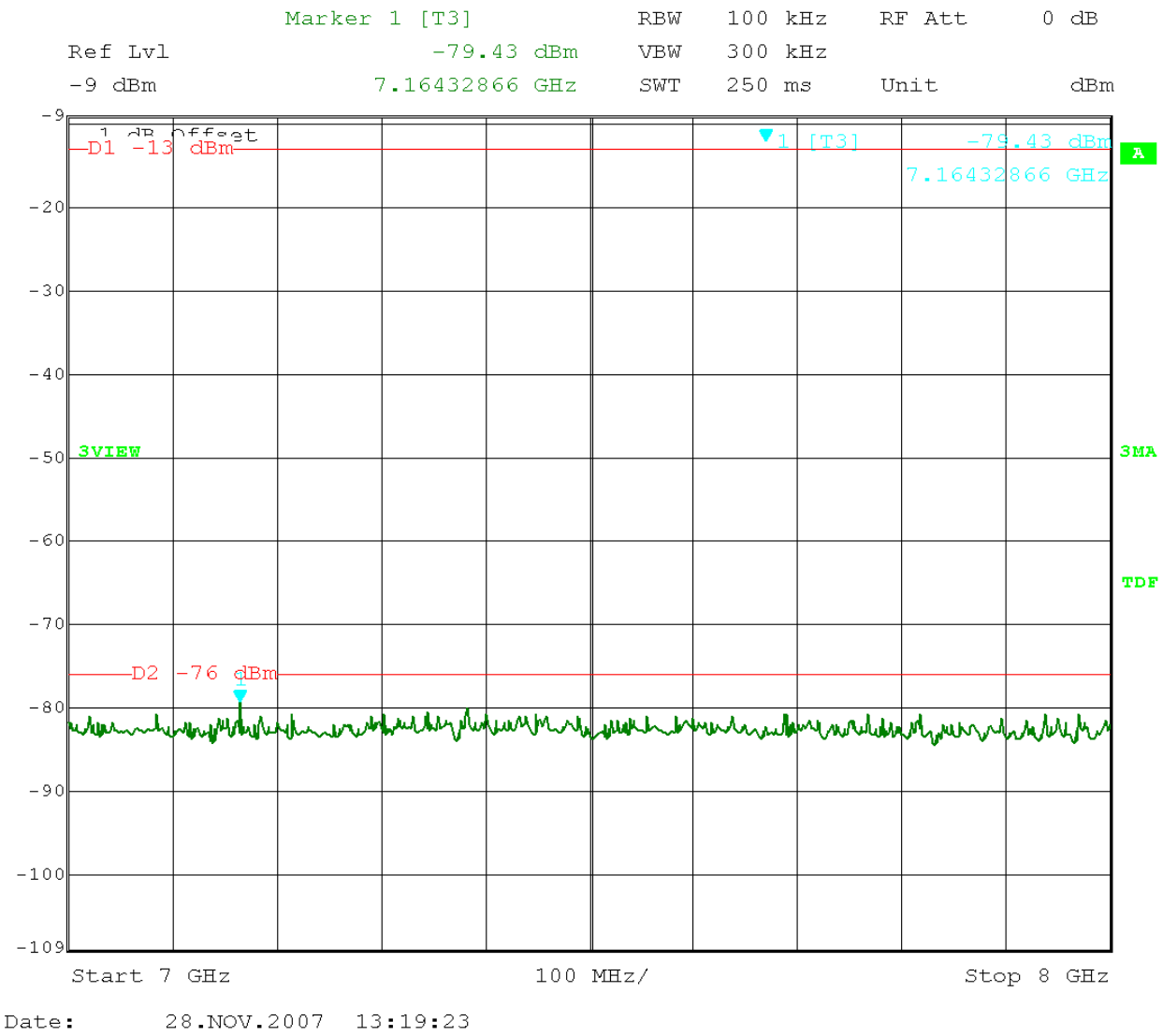
4 Channel GSM/4 Channel CDMA 4-5 GHz



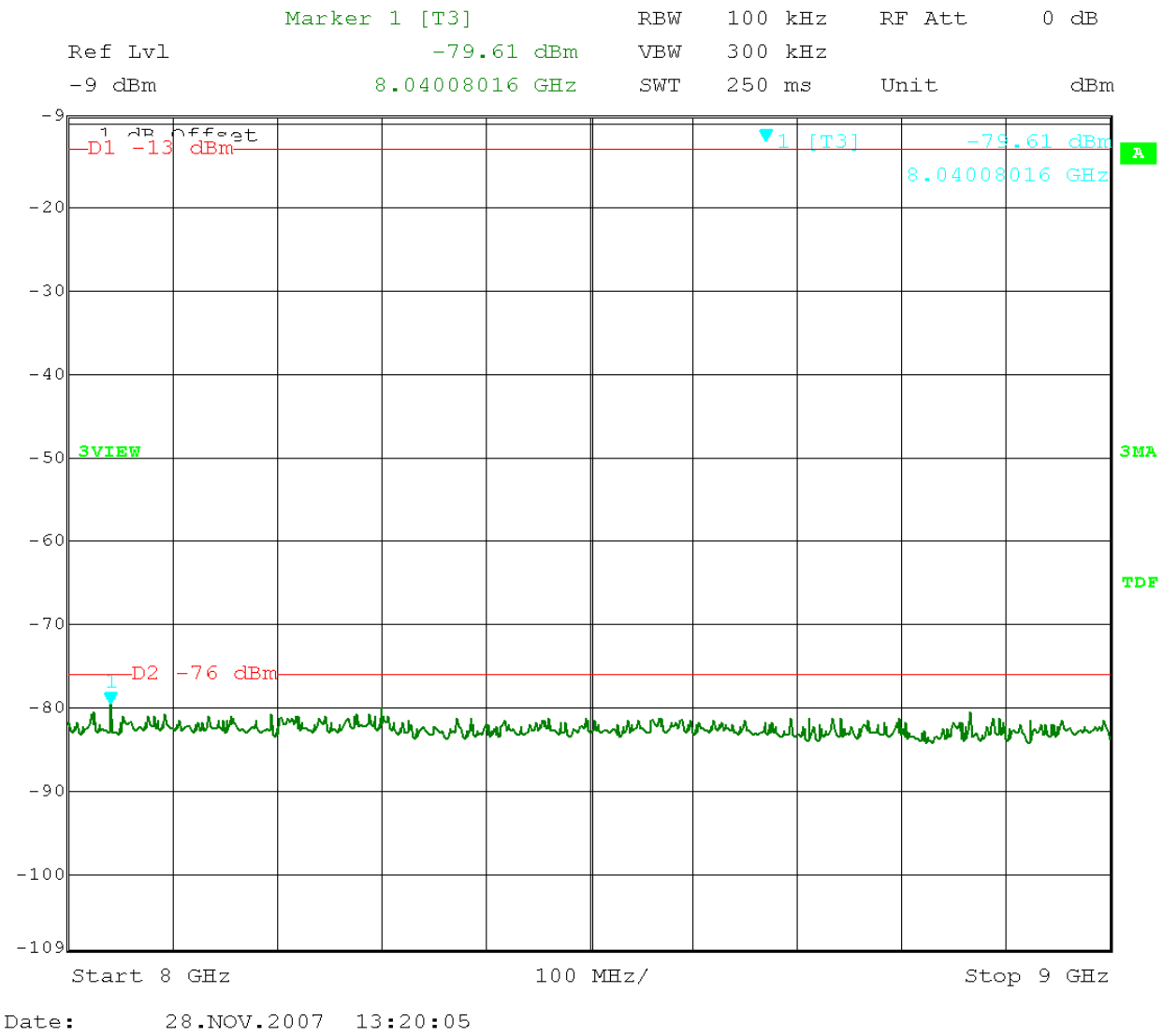
4 Channel GSM/4 Channel CDMA 5-6 GHz



4 Channel GSM/4 Channel CDMA 6-7 GHz



4 Channel GSM/4 Channel CDMA 7-8 GHz



4 Channel GSM/4 Channel CDMA 8-9 GHz

Test Results: Pass

Test Standard: FCC Part 22 Subpart H, IC RSS-132

Test: Radiated Spurious Emissions, FCC 2.1053, 22.917(a, b), IC RSS-132 Section 4.5

Performance Criterion: Spurious emissions must not exceed -13 dBm when measured with a 100 kHz bandwidth.

Test Environment:

Environmental Conditions During Testing:		Ambient (°C):	See Table	Humidity (%):	See Table	Pressure (hPa):	See Table
Pretest Verification Performed		Yes		Equipment under Test:		Anywave 850	
Test Engineer(s):	Nicholas Abbondante			EUT Serial Number:		1074	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	05/20/2008
2	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
3	HORN ANTENNA	EMCO	3115	9602-4675	09/24/2008
4	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 197	CBL028	12/04/2007
5	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/04/2007
6	PREAMPLFIER 1- 40 GHz	MITEQ	NSP4000-NF	507145	11/09/2008
7	1GHz High Pass Filter	Reactel, Inc	7HS-1G/10G-S11	06-1	09/18/2008
8	HORN ANTENNA	EMCO	3115	9610-4980	06/18/2008
9	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL029	12/04/2007
10	Synthesized Sweep Generator	Hewlett Packard	83620A	3213A01244	02/06/2009
11	EMI Receiver with 85420E RF Filter Section S/N 3705A00230 On Loan from Littleton	Hewlett Packard	8542E	3906A00273	02/16/2008
12	3 Meter In floor cable for site 2	ITS	RG214B/U	S2 3M FLR	09/17/2008
13	ANTENNA	EMCO	3142	9711-1223	02/06/2008
14	BROADBAND ANTENNA	Compliance Design	B100	1852	09/13/2008
15	BROADBAND ANTENNA	Compliance Design	B200	1850	09/13/2008
16	BROADBAND ANTENNA	Compliance Design	B300	00674	09/13/2008

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

Test Results:

Radiated Emissions, Substitution

Company: Vanu, Inc.
Model #: Anywave 850
Serial #: 1074
Engineer(s): Nicholas Abbondante
Project #: 3137086
Standard: FCC Part 15 Subpart C 15.209
Barometer: BAR2 Temp/Humidity/Pressure: 19c 25% 1050mB

Location: Site 2
Date(s): 11/29/07 11/30/2007

Rx Antenna: HORN2 LOG2
Rx Cable(s): CBL028 CBL030 S2 3M FLR
Rx Preamp: PRE8 Receiver: ROS001
Tx Antenna: HORN3 ANT2 147-092
Tx Cable(s): CBL029
Tx Signal Generator: HEW62
ERP or EIRP?: ERP

Test Distance (m): 3 Voltage/Frequency: 120V/60Hz Frequency Range: 30 MHz - 9 GHz

Net = Generator Level (0.00 dBm) + (EUT reading - Generator reading) - Cable Loss + Antenna Gain (dBi or dBd)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	EUT Reading dB(uV)	Generator Reading dB(uV)	Transmit Cable Loss dB	Transmit Antenna dBi	Generator Level dBm	Net dBm	Limit dBm	Margin dB	Bandwidth
Note: Single Channel CDMA											
PK	V	30.000	27.0	47.1	0.1	-10.3	-20.0	-52.8	-13.0	-39.8	120/300 kHz
PK	V	50.250	31.3	63.8	0.2	-5.9	-20.0	-60.7	-13.0	-47.7	120/300 kHz
PK	V	85.500	24.2	68.3	0.2	0.2	-20.0	-66.3	-13.0	-53.3	120/300 kHz
PK	V	109.400	18.1	66.8	0.2	-2.5	-20.0	-73.6	-13.0	-60.6	120/300 kHz
PK	V	125.000	25.4	70.8	0.3	-1.3	-20.0	-69.1	-13.0	-56.1	120/300 kHz
PK	H	140.000	17.7	69.4	0.3	1.7	-20.0	-72.4	-13.0	-59.4	120/300 kHz
PK	H	163.400	17.0	69.6	0.3	-0.1	-20.0	-75.1	-13.0	-62.1	120/300 kHz
PK	H	198.500	17.4	68.9	0.3	1.2	-20.0	-72.7	-13.0	-59.7	120/300 kHz
PK	H	208.630	22.0	67.4	0.3	0.8	-20.0	-67.1	-13.0	-54.1	120/300 kHz
PK	H	230.130	21.4	65.7	0.4	-0.2	-20.0	-67.1	-13.0	-54.1	120/300 kHz
PK	H	240.000	22.1	63.0	0.4	-0.5	-20.0	-63.9	-13.0	-50.9	120/300 kHz
PK	H	250.000	26.7	64.3	0.4	-0.7	-20.0	-60.8	-13.0	-47.8	120/300 kHz
PK	H	280.000	21.8	63.3	0.4	-0.1	-20.0	-64.2	-13.0	-51.2	120/300 kHz
PK	H	293.000	18.2	62.8	0.4	-0.8	-20.0	-68.0	-13.0	-55.0	120/300 kHz
PK	H	320.000	26.3	62.1	0.4	-1.3	-20.0	-59.7	-13.0	-46.7	120/300 kHz
PK	H	340.000	18.5	62.7	0.4	-0.8	-20.0	-67.6	-13.0	-54.6	120/300 kHz
PK	H	350.000	24.6	58.9	0.4	-0.4	-20.0	-57.3	-13.0	-44.3	120/300 kHz
PK	V	375.000	33.3	59.1	0.5	-1.2	-20.0	-49.6	-13.0	-36.6	120/300 kHz
PK	V	380.000	17.5	59.5	0.5	-0.8	-20.0	-65.4	-13.0	-52.4	120/300 kHz
PK	H	400.000	22.3	58.4	0.5	-0.1	-20.0	-58.9	-13.0	-45.9	120/300 kHz
PK	V	480.000	24.2	56.9	0.5	0.8	-20.0	-54.6	-13.0	-41.6	120/300 kHz
PK	V	720.000	13.7	53.4	0.7	1.2	-20.0	-61.3	-13.0	-48.3	120/300 kHz
PK	V	869.000	27.3	51.4	0.7	0.9	-20.0	-46.1	-13.0	-33.1	120/300 kHz
PK	V	894.000	9.4	51.2	0.7	0.8	-20.0	-63.9	-13.0	-50.9	120/300 kHz
Note: 8CDMA											
PK	V	30.000	25.8	47.1	0.1	-10.3	-20.0	-53.9	-13.0	-40.9	120/300 kHz
PK	V	50.250	30.4	63.8	0.2	-5.9	-20.0	-61.7	-13.0	-48.7	120/300 kHz
PK	V	85.500	22.8	68.3	0.2	0.2	-20.0	-67.7	-13.0	-54.7	120/300 kHz
PK	V	110.000	18.6	66.8	0.2	-2.5	-20.0	-73.1	-13.0	-60.1	120/300 kHz
PK	V	125.000	30.5	70.8	0.3	-1.3	-20.0	-64.0	-13.0	-51.0	120/300 kHz
PK	H	128.000	17.5	68.7	0.3	0.6	-20.0	-73.0	-13.0	-60.0	120/300 kHz
PK	H	140.000	16.4	69.4	0.3	1.7	-20.0	-73.8	-13.0	-60.8	120/300 kHz
PK	H	163.400	17.0	69.6	0.3	-0.1	-20.0	-75.1	-13.0	-62.1	120/300 kHz
PK	H	198.500	17.1	68.9	0.3	1.2	-20.0	-73.0	-13.0	-60.0	120/300 kHz
PK	H	208.750	21.9	67.4	0.3	0.8	-20.0	-67.2	-13.0	-54.2	120/300 kHz
PK	H	230.130	21.7	65.7	0.4	-0.2	-20.0	-66.7	-13.0	-53.7	120/300 kHz
PK	H	240.000	22.3	63.0	0.4	-0.5	-20.0	-63.8	-13.0	-50.8	120/300 kHz
PK	H	250.000	23.6	64.3	0.4	-0.7	-20.0	-64.0	-13.0	-51.0	120/300 kHz
PK	H	280.000	22.4	63.3	0.4	-0.1	-20.0	-63.6	-13.0	-50.6	120/300 kHz
PK	H	290.000	18.4	62.8	0.4	-0.6	-20.0	-67.6	-13.0	-54.6	120/300 kHz
PK	H	320.000	24.7	62.1	0.4	-1.3	-20.0	-61.3	-13.0	-48.3	120/300 kHz
PK	H	340.000	11.8	62.7	0.4	-0.8	-20.0	-74.3	-13.0	-61.3	120/300 kHz
PK	H	350.000	22.5	58.9	0.4	-0.4	-20.0	-59.4	-13.0	-46.4	120/300 kHz
PK	H	375.000	31.9	57.6	0.5	-0.6	-20.0	-48.9	-13.0	-35.9	120/300 kHz
PK	H	380.000	18.8	57.4	0.5	-0.9	-20.0	-62.1	-13.0	-49.1	120/300 kHz
PK	V	400.000	26.1	59.6	0.5	0.6	-20.0	-55.5	-13.0	-42.5	120/300 kHz
PK	H	450.000	18.3	59.3	0.5	1.1	-20.0	-62.6	-13.0	-49.6	120/300 kHz
PK	V	412.500	16.4	59.3	0.5	1.0	-20.0	-64.5	-13.0	-51.5	120/300 kHz
PK	V	480.000	23.3	56.9	0.5	0.8	-20.0	-55.5	-13.0	-42.5	120/300 kHz
PK	V	720.000	14.6	53.4	0.7	1.2	-20.0	-60.5	-13.0	-47.5	120/300 kHz
PK	V	869.000	28.1	51.4	0.7	0.9	-20.0	-45.3	-13.0	-32.3	120/300 kHz
PK	V	894.000	7.6	51.2	0.7	0.8	-20.0	-65.7	-13.0	-52.7	120/300 kHz

Radiated Emissions, Substitution

Company: Vanu, Inc.
Model #: Anywave 850
Serial #: 1074
Engineer(s): Nicholas Abbondante
Project #: 3137086
Standard: FCC Part 15 Subpart C 15.209
Barometer: BAR2

Rx Antenna: HORN2 LOG2
Rx Cable(s): CBL028 CBL030 S2 3M FLR
Rx Preamp: PRE8 Receiver: ROS001
Tx Antenna: HORN3 ANT2 147-092
Tx Cable(s): CBL029
Tx Signal Generator: HEW62
ERP or EIRP?: ERP

Location: Site 2
Date(s): 11/29/07 11/30/2007
Temp/Humidity/Pressure: 19c 25% 1050mB
Test Distance (m): 3 Voltage/Frequency: 120V/60Hz Frequency Range: 30 MHz - 9 GHz

Net = Generator Level (0.00 dBm) + (EUT reading - Generator reading) - Cable Loss + Antenna Gain (dBi or dBd)
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	EUT Reading dB(uV)	Generator Reading dB(uV)	Transmit Cable Loss dB	Transmit Antenna dBi	Generator Level dBm	Net dBm	Limit dBm	Margin dB	Bandwidth
Note: 8GSM											
PK	V	30.000	28.5	47.1	0.1	-10.3	-20.0	-51.2	-13.0	-38.2	120/300 kHz
PK	V	50.250	31.6	63.8	0.2	-5.9	-20.0	-60.5	-13.0	-47.5	120/300 kHz
PK	V	85.950	25.8	68.3	0.2	0.2	-20.0	-64.7	-13.0	-51.7	120/300 kHz
PK	V	110.000	18.6	66.8	0.2	-2.5	-20.0	-73.1	-13.0	-60.1	120/300 kHz
PK	V	125.000	30.0	70.8	0.3	-1.3	-20.0	-64.5	-13.0	-51.5	120/300 kHz
PK	H	127.700	16.7	68.7	0.3	0.6	-20.0	-73.8	-13.0	-60.8	120/300 kHz
PK	H	140.000	22.6	69.4	0.3	1.7	-20.0	-67.5	-13.0	-54.5	120/300 kHz
PK	H	155.750	20.3	68.7	0.3	0.7	-20.0	-70.1	-13.0	-57.1	120/300 kHz
PK	H	167.000	20.2	69.0	0.3	-0.6	-20.0	-71.8	-13.0	-58.8	120/300 kHz
PK	H	208.750	22.2	67.4	0.3	0.8	-20.0	-66.9	-13.0	-53.9	120/300 kHz
PK	H	230.130	21.0	65.7	0.4	-0.2	-20.0	-67.4	-13.0	-54.4	120/300 kHz
PK	H	240.000	33.2	63.0	0.4	-0.5	-20.0	-52.8	-13.0	-39.8	120/300 kHz
PK	H	250.000	24.6	64.3	0.4	-0.7	-20.0	-62.9	-13.0	-49.9	120/300 kHz
PK	H	278.000	27.4	63.3	0.4	-0.1	-20.0	-58.5	-13.0	-45.5	120/300 kHz
PK	H	290.000	23.9	62.8	0.4	-0.6	-20.0	-62.0	-13.0	-49.0	120/300 kHz
PK	H	320.000	25.2	62.1	0.4	-1.3	-20.0	-60.8	-13.0	-47.8	120/300 kHz
PK	H	340.000	14.5	62.7	0.4	-0.8	-20.0	-71.6	-13.0	-58.6	120/300 kHz
PK	H	350.000	23.4	58.9	0.4	-0.4	-20.0	-58.5	-13.0	-45.5	120/300 kHz
PK	H	375.000	31.7	57.6	0.5	-0.6	-20.0	-49.1	-13.0	-36.1	120/300 kHz
PK	V	380.000	17.4	59.5	0.5	-0.8	-20.0	-65.5	-13.0	-52.5	120/300 kHz
PK	V	400.000	24.9	59.6	0.5	0.6	-20.0	-56.7	-13.0	-43.7	120/300 kHz
PK	V	412.500	14.7	59.3	0.5	1.0	-20.0	-66.3	-13.0	-53.3	120/300 kHz
PK	H	443.000	21.6	59.3	0.5	1.0	-20.0	-59.4	-13.0	-46.4	120/300 kHz
PK	V	446.000	22.1	59.5	0.5	0.2	-20.0	-59.8	-13.0	-46.8	120/300 kHz
PK	V	450.000	25.1	59.5	0.5	0.1	-20.0	-57.0	-13.0	-44.0	120/300 kHz
PK	V	453.000	24.3	59.5	0.5	0.1	-20.0	-57.8	-13.0	-44.8	120/300 kHz
PK	V	480.000	31.3	56.9	0.5	0.8	-20.0	-47.5	-13.0	-34.5	120/300 kHz
PK	V	606.300	12.6	56.0	0.6	1.5	-20.0	-64.7	-13.0	-51.7	120/300 kHz
PK	V	609.500	14.0	56.0	0.6	1.3	-20.0	-63.5	-13.0	-50.5	120/300 kHz
PK	V	613.300	14.8	56.0	0.6	1.3	-20.0	-62.6	-13.0	-49.6	120/300 kHz
PK	V	720.000	15.0	53.4	0.7	1.2	-20.0	-60.1	-13.0	-47.1	120/300 kHz
PK	V	869.000	28.8	51.4	0.7	0.9	-20.0	-44.5	-13.0	-31.5	120/300 kHz
PK	V	894.000	12.0	51.2	0.7	0.8	-20.0	-61.3	-13.0	-48.3	120/300 kHz
Note: 4GSM/4CDMA											
PK	V	30.000	27.0	47.1	0.1	-10.3	-20.0	-52.7	-13.0	-39.7	120/300 kHz
PK	V	50.250	33.3	63.8	0.2	-5.9	-20.0	-58.8	-13.0	-45.8	120/300 kHz
PK	V	86.550	25.2	68.3	0.2	0.2	-20.0	-65.2	-13.0	-52.2	120/300 kHz
PK	V	110.000	17.5	66.8	0.2	-2.5	-20.0	-74.2	-13.0	-61.2	120/300 kHz
PK	V	125.000	31.0	70.8	0.3	-1.3	-20.0	-63.5	-13.0	-50.5	120/300 kHz
PK	H	127.000	17.3	68.7	0.3	0.5	-20.0	-73.4	-13.0	-60.4	120/300 kHz
PK	H	140.000	18.5	69.4	0.3	1.7	-20.0	-71.7	-13.0	-58.7	120/300 kHz
PK	H	155.250	20.8	68.7	0.3	0.9	-20.0	-69.5	-13.0	-56.5	120/300 kHz
PK	H	167.000	19.4	69.0	0.3	-0.6	-20.0	-72.7	-13.0	-59.7	120/300 kHz
PK	H	208.750	22.2	67.4	0.3	0.8	-20.0	-66.9	-13.0	-53.9	120/300 kHz
PK	H	230.130	22.7	65.7	0.4	-0.2	-20.0	-65.8	-13.0	-52.8	120/300 kHz
PK	H	240.000	35.6	63.0	0.4	-0.5	-20.0	-50.5	-13.0	-37.5	120/300 kHz
PK	H	250.000	26.8	64.3	0.4	-0.7	-20.0	-60.8	-13.0	-47.8	120/300 kHz
PK	H	280.000	21.8	63.3	0.4	-0.1	-20.0	-64.2	-13.0	-51.2	120/300 kHz
PK	H	290.000	20.3	62.8	0.4	-0.6	-20.0	-65.6	-13.0	-52.6	120/300 kHz
PK	H	320.000	27.1	62.1	0.4	-1.3	-20.0	-58.9	-13.0	-45.9	120/300 kHz
PK	V	340.000	32.1	59.8	0.4	-1.1	-20.0	-51.4	-13.0	-38.4	120/300 kHz
PK	H	350.000	23.7	58.9	0.4	-0.4	-20.0	-58.2	-13.0	-45.2	120/300 kHz
PK	H	375.000	30.4	57.6	0.5	-0.6	-20.0	-50.4	-13.0	-37.4	120/300 kHz
PK	V	380.000	17.8	59.5	0.5	-0.8	-20.0	-65.2	-13.0	-52.2	120/300 kHz
PK	V	400.000	26.2	59.6	0.5	0.6	-20.0	-55.4	-13.0	-42.4	120/300 kHz
PK	V	412.500	11.1	59.3	0.5	1.0	-20.0	-69.9	-13.0	-56.9	120/300 kHz
PK	V	449.000	20.1	59.5	0.5	0.1	-20.0	-62.0	-13.0	-49.0	120/300 kHz
PK	V	480.000	26.8	56.9	0.5	0.8	-20.0	-52.0	-13.0	-39.0	120/300 kHz
PK	V	720.000	13.4	53.4	0.7	1.2	-20.0	-61.6	-13.0	-48.6	120/300 kHz
PK	V	869.000	24.3	51.4	0.7	0.9	-20.0	-49.0	-13.0	-36.0	120/300 kHz
PK	V	894.000	7.8	51.2	0.7	0.8	-20.0	-65.6	-13.0	-52.6	120/300 kHz

Radiated Emissions, Substitution

Company: Vanu, Inc.
Model #: Anywave 850
Serial #: 1074
Engineer(s): Nicholas Abbondante
Project #: 3137086
Standard: FCC Part 15 Subpart C 15.209
Barometer: BAR2

Location: Site 2
Date(s): 11/29/07 11/30/2007
Temp/Humidity/Pressure: 19c 25% 1050mB

Rx Antenna: HORN2 LOG2
Rx Cable(s): CBL028 CBL030 S2 3M FLR
Rx Preamp: PRE8 Receiver: ROS001
Tx Antenna: HORN3 ANT2 147-092
Tx Cable(s): CBL029
Tx Signal Generator: HEW62
ERP or EIRP?: ERP

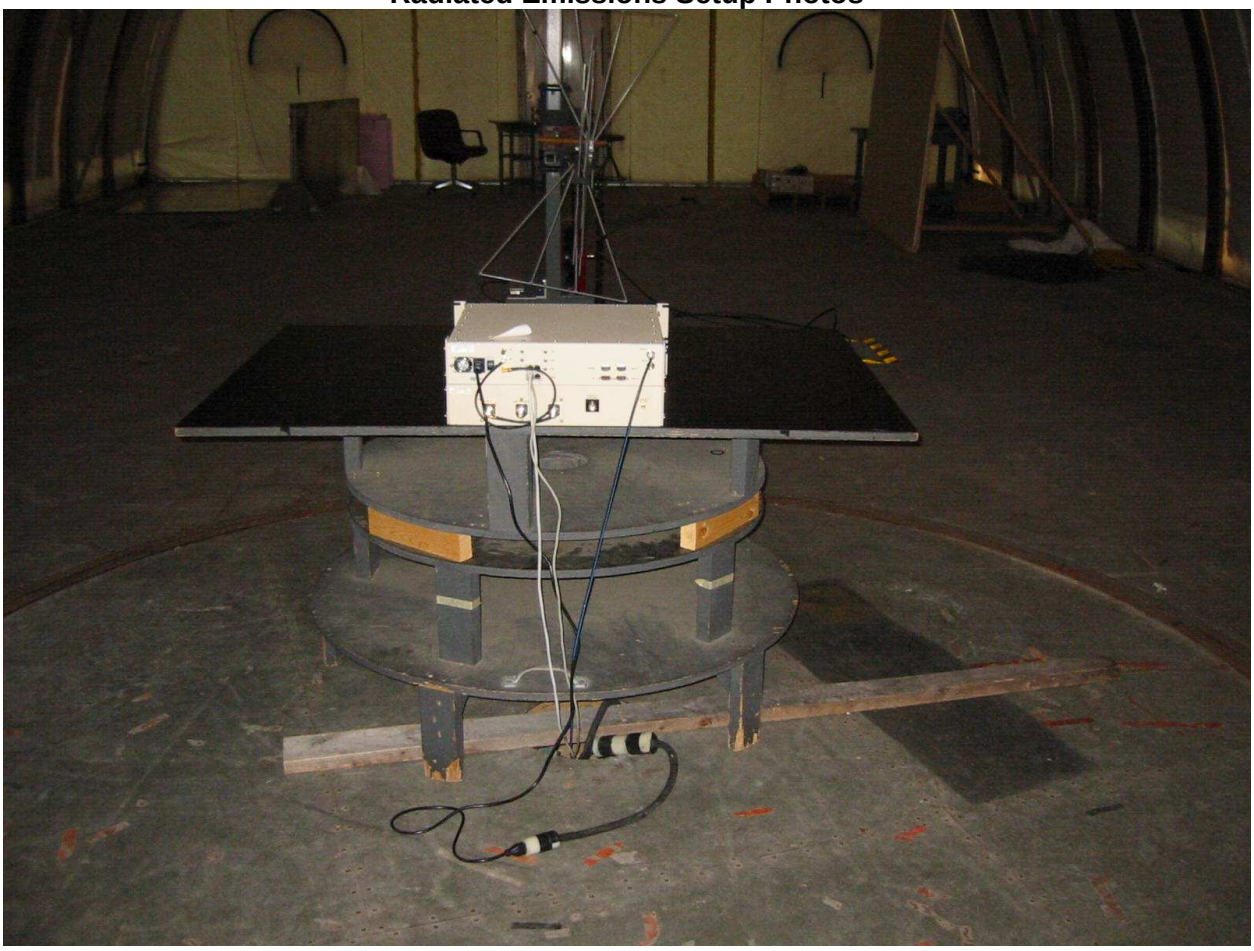
Test Distance (m): 3 Voltage/Frequency: 120V/60Hz Frequency Range: 30 MHz - 9 GHz

Net = Generator Level (0.00 dBm) + (EUT reading - Generator reading) - Cable Loss + Antenna Gain (dBi or dBd)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	EUT Reading dB(uV)	Generator Reading dB(uV)	Transmit Cable Loss dB	Transmit Antenna dBi	Generator Level dBm	Net dBm	Limit dBm	Margin dB	Bandwidth
Note: 8CDMA											
PK	V	1040.000	32.5	72.5	0.8	6.0	-20.0	-56.9	-13.0	-43.9	100/300 kHz
PK	H	1200.000	37.0	73.1	0.9	6.5	-20.0	-52.6	-13.0	-39.6	100/300 kHz
PK	H	1280.000	44.6	72.5	0.9	6.8	-20.0	-44.2	-13.0	-31.2	100/300 kHz
PK	H	1360.000	30.9	73.5	0.9	7.1	-20.0	-58.5	-13.0	-45.5	100/300 kHz
PK	H	1760.000	29.6	74.1	1.1	7.8	-20.0	-59.9	-13.0	-46.9	100/300 kHz
PK	V	1875.000	28.5	71.0	1.1	7.8	-20.0	-57.9	-13.0	-44.9	100/300 kHz
Note: 4GSM/4CDMA											
PK	V	1040.000	29.6	72.5	0.8	6.0	-20.0	-59.8	-13.0	-46.8	100/300 kHz
PK	H	1200.000	39.1	73.1	0.9	6.5	-20.0	-50.5	-13.0	-37.5	100/300 kHz
PK	H	1250.000	32.8	71.1	0.9	6.7	-20.0	-54.6	-13.0	-41.6	100/300 kHz
PK	H	1280.000	44.8	72.5	0.9	6.8	-20.0	-43.9	-13.0	-30.9	100/300 kHz
PK	V	1360.000	28.3	74.5	0.9	7.1	-20.0	-62.1	-13.0	-49.1	100/300 kHz
PK	V	1625.000	29.7	72.4	1.0	7.7	-20.0	-58.2	-13.0	-45.2	100/300 kHz
PK	H	1760.000	29.6	74.1	1.1	7.8	-20.0	-59.9	-13.0	-46.9	100/300 kHz
PK	V	1875.000	28.2	71.0	1.1	7.8	-20.0	-58.2	-13.0	-45.2	100/300 kHz
Note: 8GSM											
PK	V	1040.000	29.4	72.5	0.8	6.0	-20.0	-60.0	-13.0	-47.0	100/300 kHz
PK	H	1200.000	36.8	73.1	0.9	6.5	-20.0	-52.8	-13.0	-39.8	100/300 kHz
PK	H	1250.000	31.4	71.1	0.9	6.7	-20.0	-56.0	-13.0	-43.0	100/300 kHz
PK	H	1280.000	45.5	72.5	0.9	6.8	-20.0	-43.2	-13.0	-30.2	100/300 kHz
PK	V	1360.000	30.4	74.5	0.9	7.1	-20.0	-60.0	-13.0	-47.0	100/300 kHz
PK	V	1375.000	31.1	74.5	0.9	7.1	-20.0	-59.4	-13.0	-46.4	100/300 kHz
PK	V	1625.000	27.4	72.4	1.0	7.7	-20.0	-60.5	-13.0	-47.5	100/300 kHz
PK	H	1760.000	29.8	74.1	1.1	7.8	-20.0	-59.7	-13.0	-46.7	100/300 kHz
PK	V	1875.000	27.1	71.0	1.1	7.8	-20.0	-59.3	-13.0	-46.3	100/300 kHz
PK	H	2000.000	32.8	73.3	1.1	7.9	-20.0	-56.0	-13.0	-43.0	100/300 kHz
Note: Single Channel CDMA											
PK	V	1040.000	28.1	72.5	0.8	6.0	-20.0	-61.3	-13.0	-48.3	100/300 kHz
PK	H	1200.000	34.3	73.1	0.9	6.5	-20.0	-55.3	-13.0	-42.3	100/300 kHz
PK	H	1250.000	31.2	71.1	0.9	6.7	-20.0	-56.2	-13.0	-43.2	100/300 kHz
PK	H	1280.000	44.8	72.5	0.9	6.8	-20.0	-43.9	-13.0	-30.9	100/300 kHz
PK	V	1360.000	27.3	74.5	0.9	7.1	-20.0	-63.1	-13.0	-50.1	100/300 kHz
PK	V	1375.000	29.6	74.5	0.9	7.1	-20.0	-60.9	-13.0	-47.9	100/300 kHz
PK	V	1625.000	32.3	72.4	1.0	7.7	-20.0	-55.6	-13.0	-42.6	100/300 kHz
PK	H	1760.000	29.3	74.1	1.1	7.8	-20.0	-60.2	-13.0	-47.2	100/300 kHz
PK	V	1875.000	27.2	71.0	1.1	7.8	-20.0	-59.2	-13.0	-46.2	100/300 kHz
PK	H	2000.000	35.2	73.3	1.1	7.9	-20.0	-53.6	-13.0	-40.6	100/300 kHz

Radiated Emissions Setup Photos

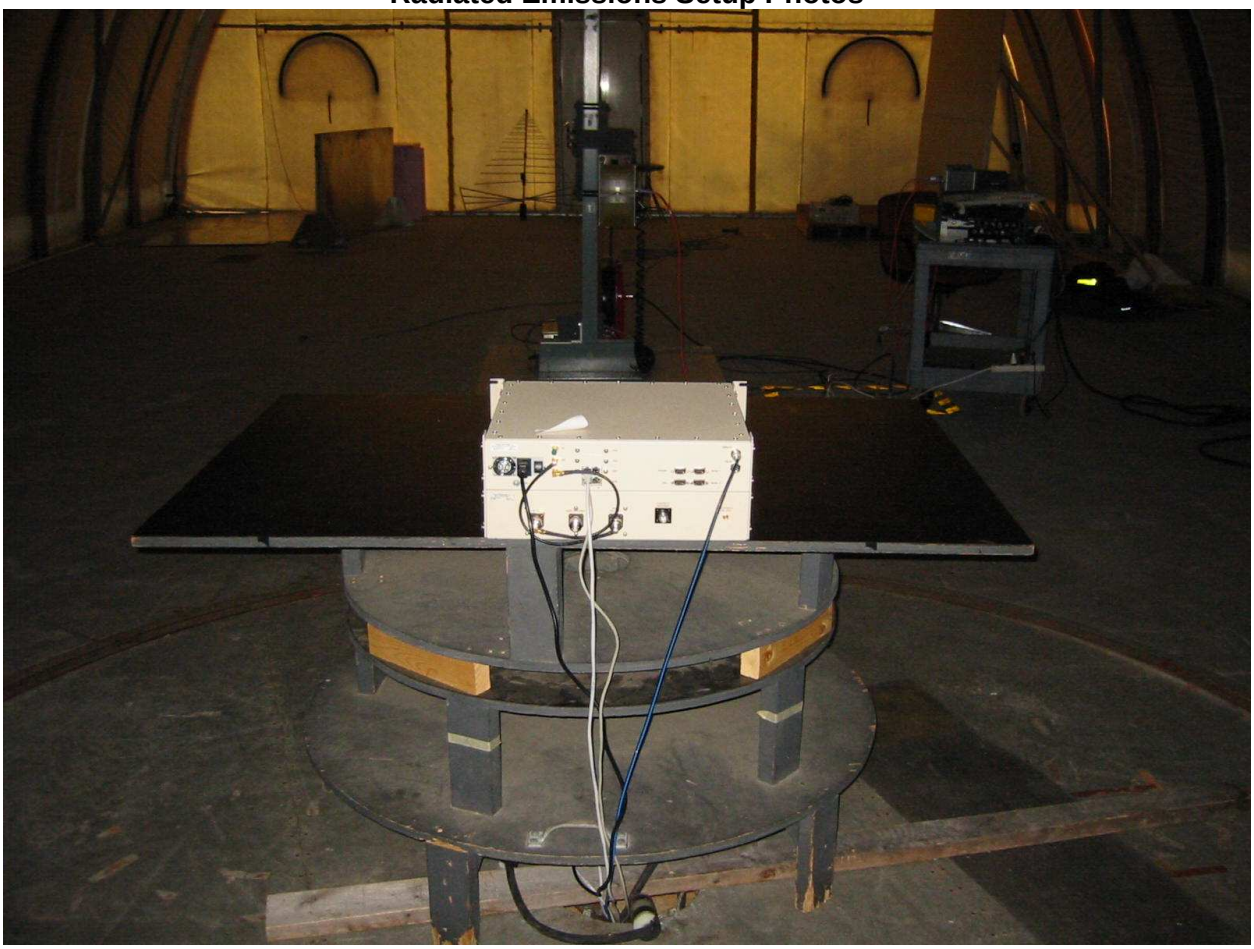


30-1000 MHz

Radiated Emissions Setup Photos

30-1000 MHz

Radiated Emissions Setup Photos



1-9 GHz

Radiated Emissions Setup Photos

1-9 GHz