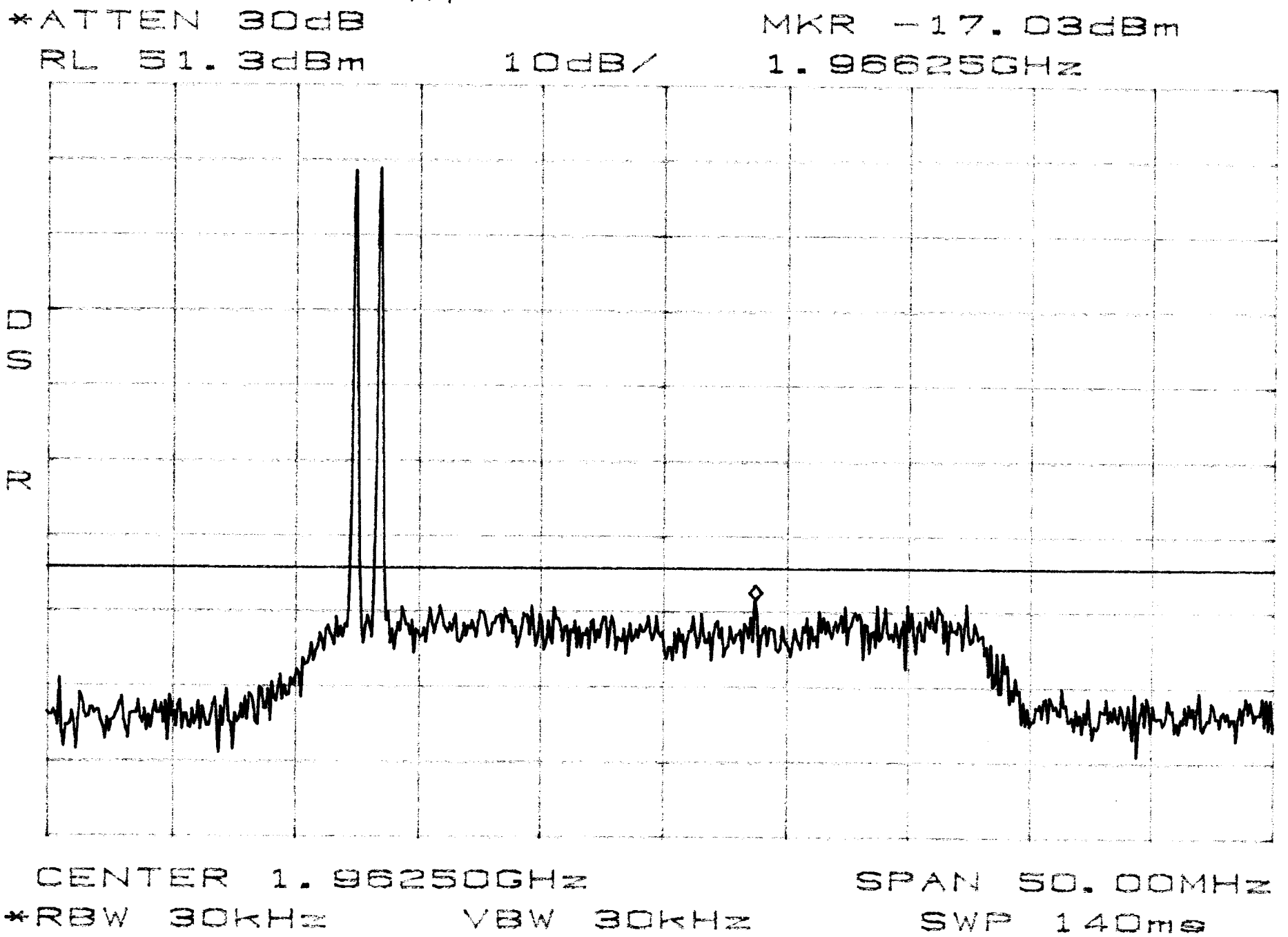
Intermodulation
Close
FM

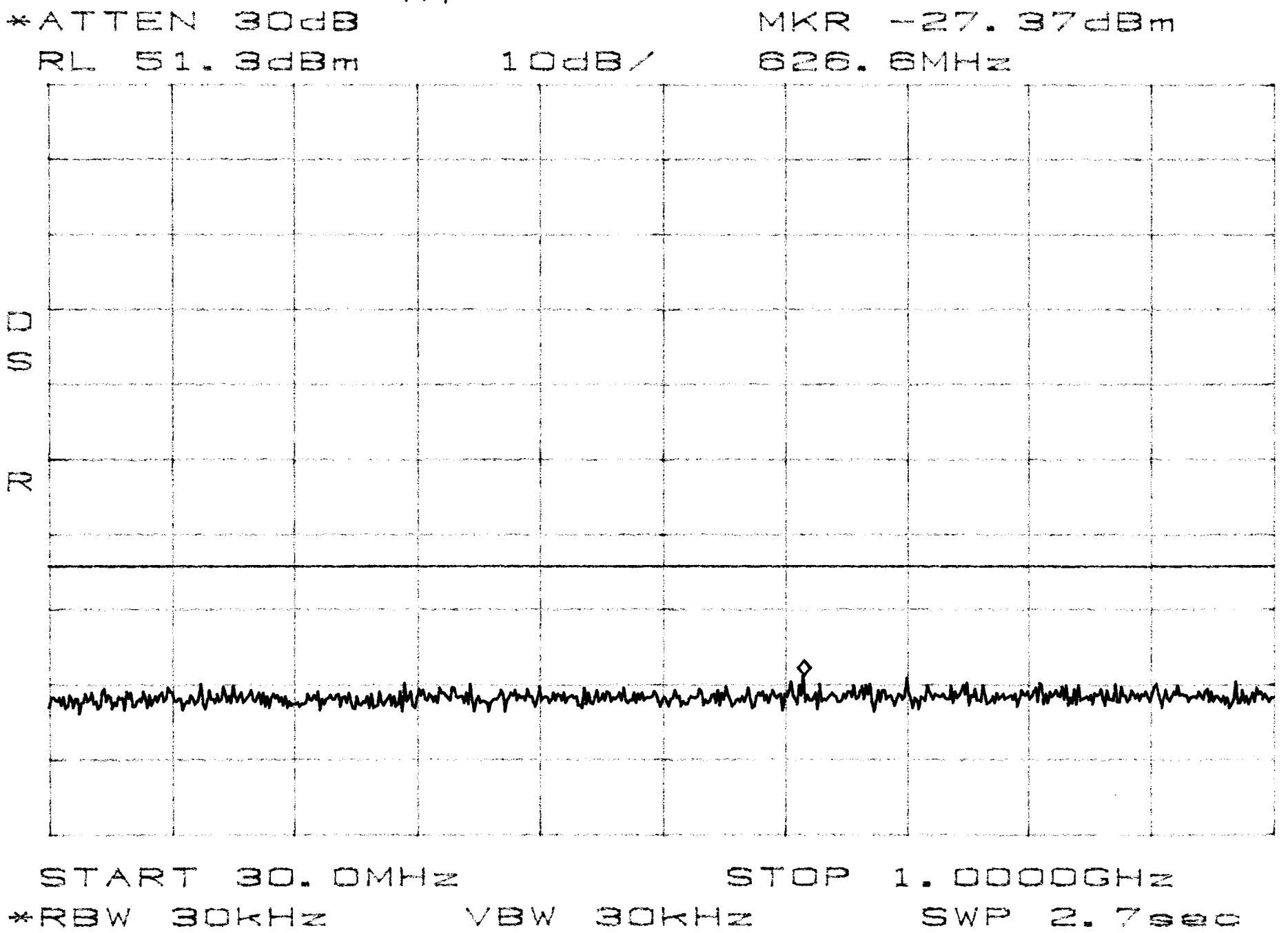
BAND B,E,F



Intermodulation BAND B,E,F

Close

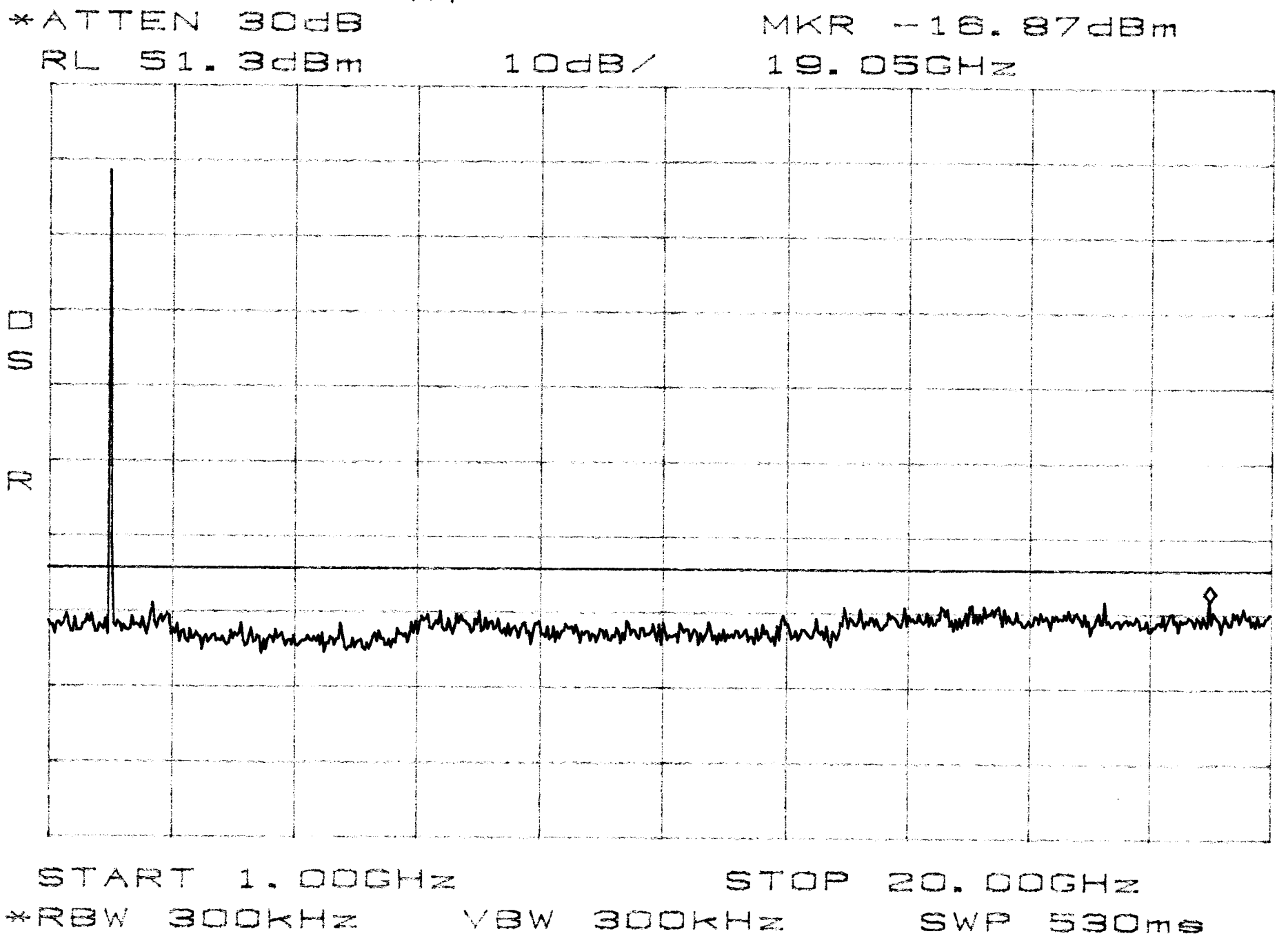
FM



Intermodulation BAND B, E, F

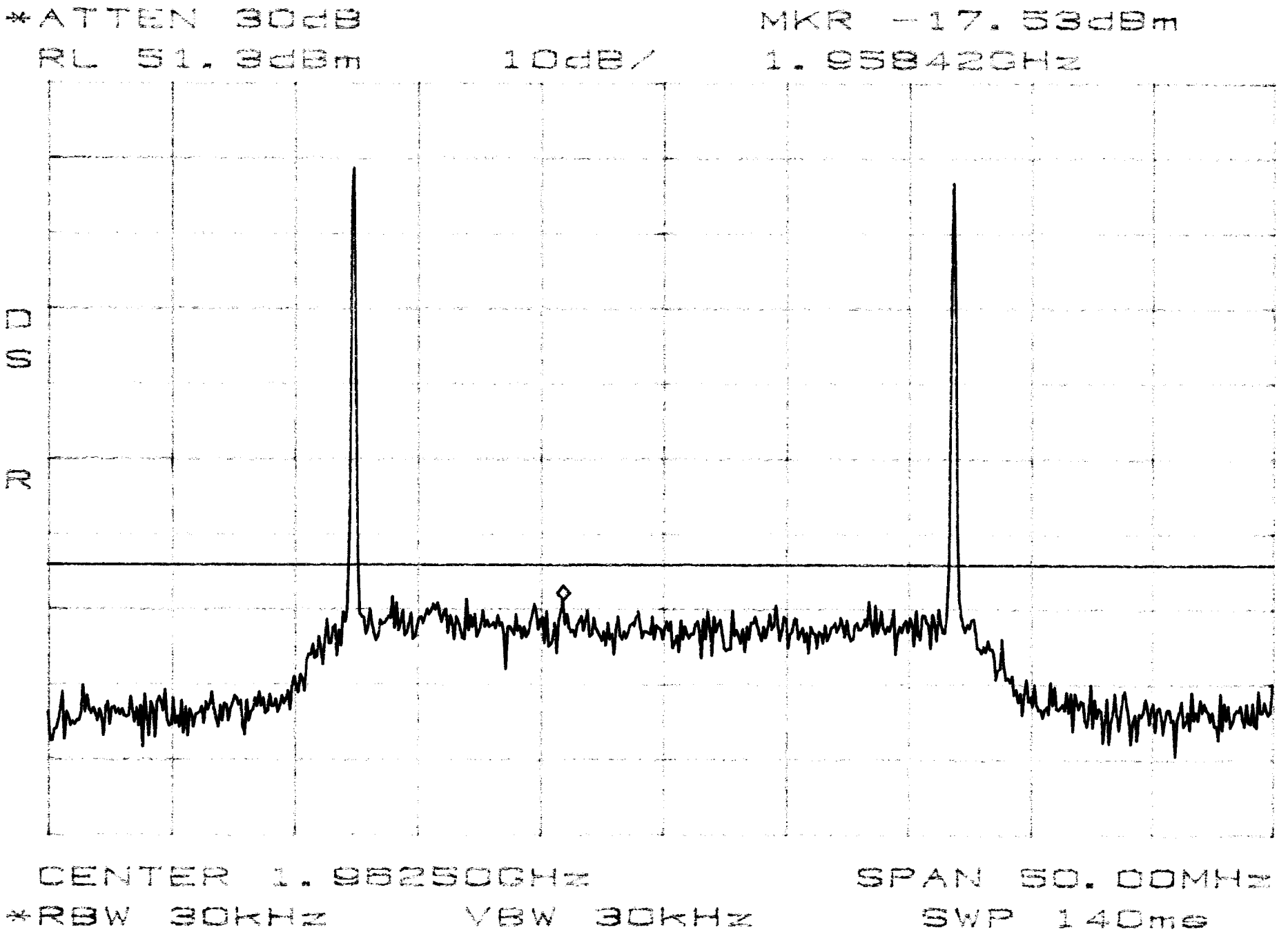
Close

FM



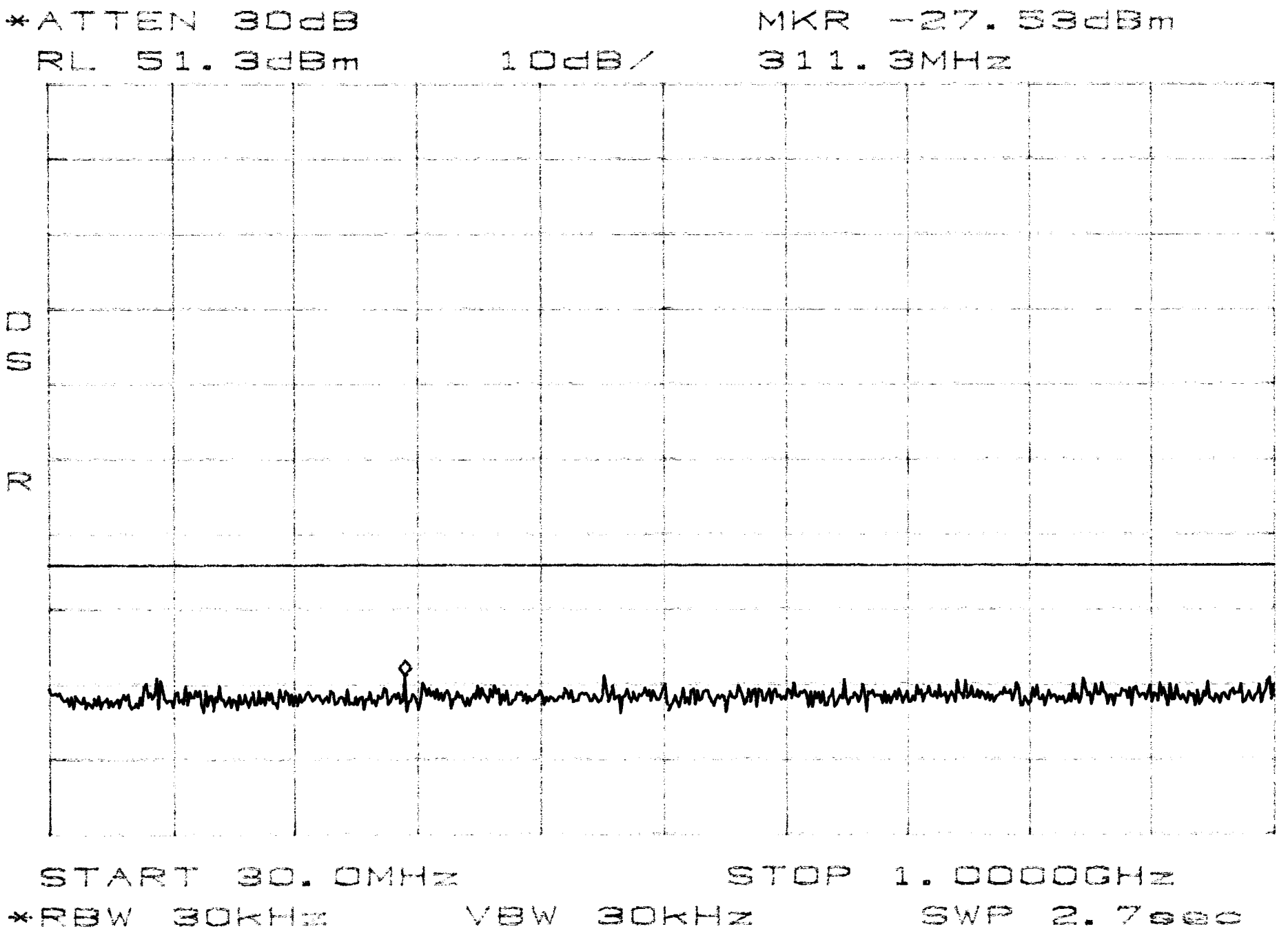
+Intermodulation
Apart
FM

BAND B,E,F



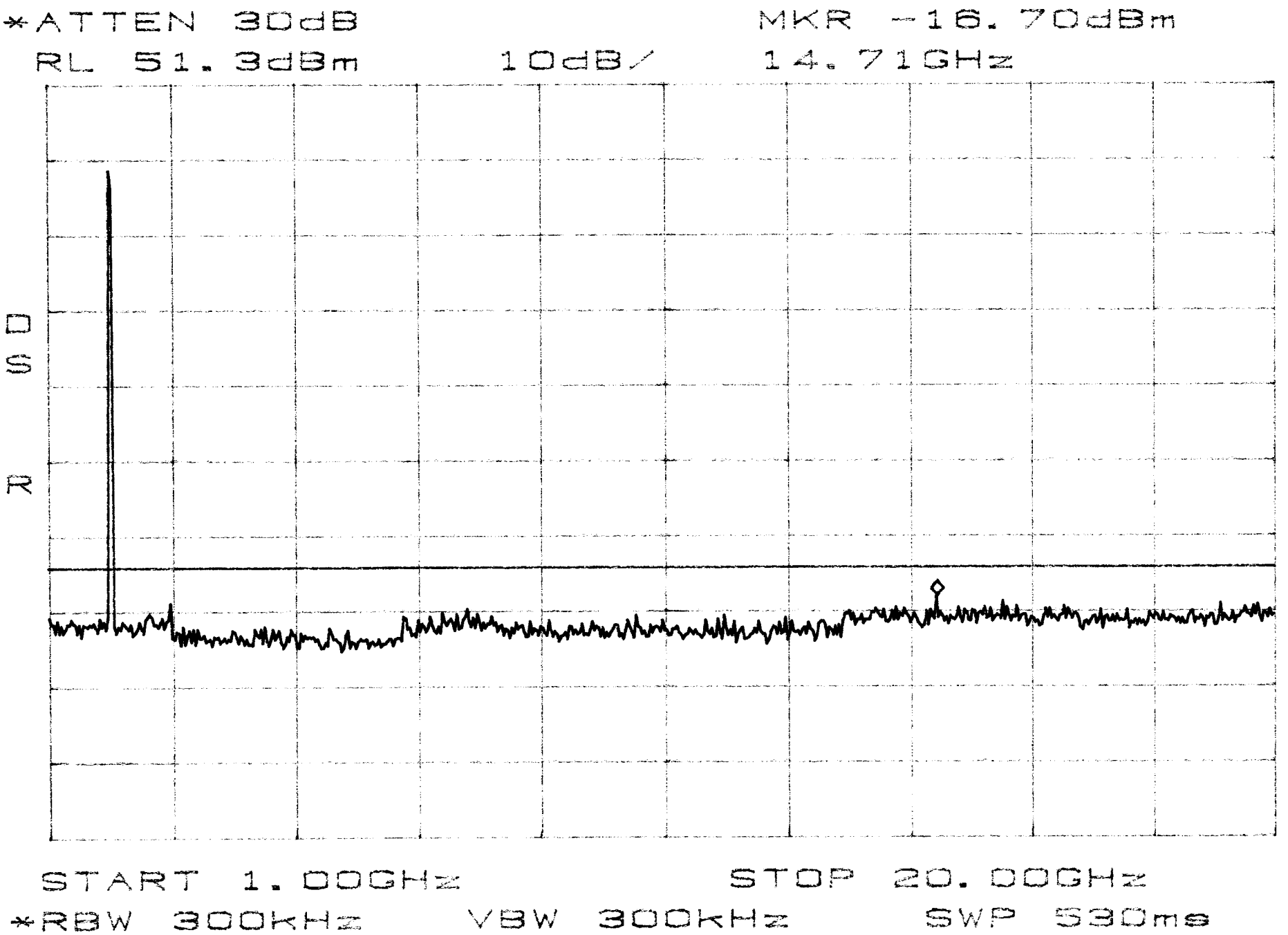
Intermodulation
Apart
FM

BAND B, E, F

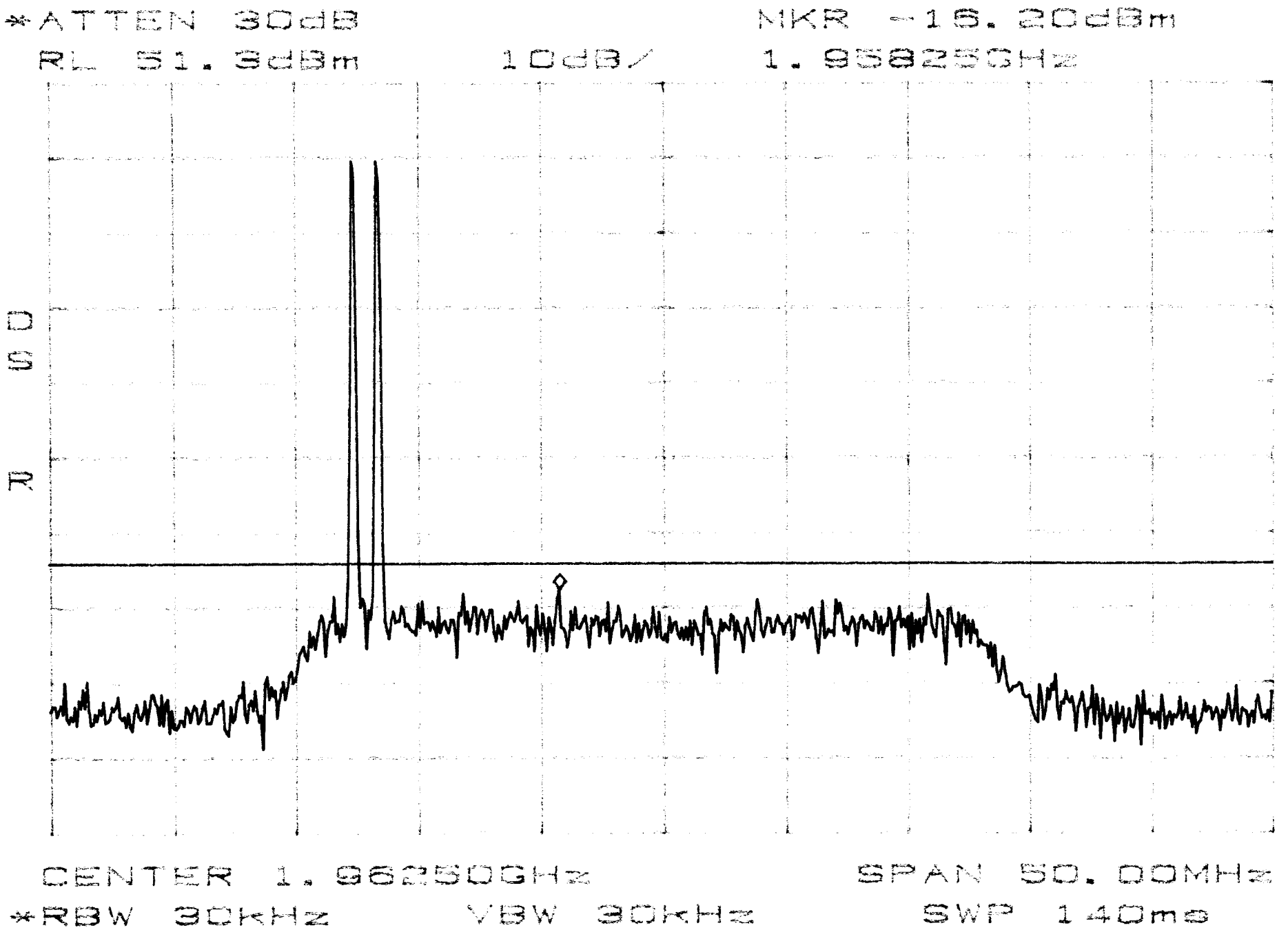


+Intermodulation
Apart
FM

BAND B, E, F

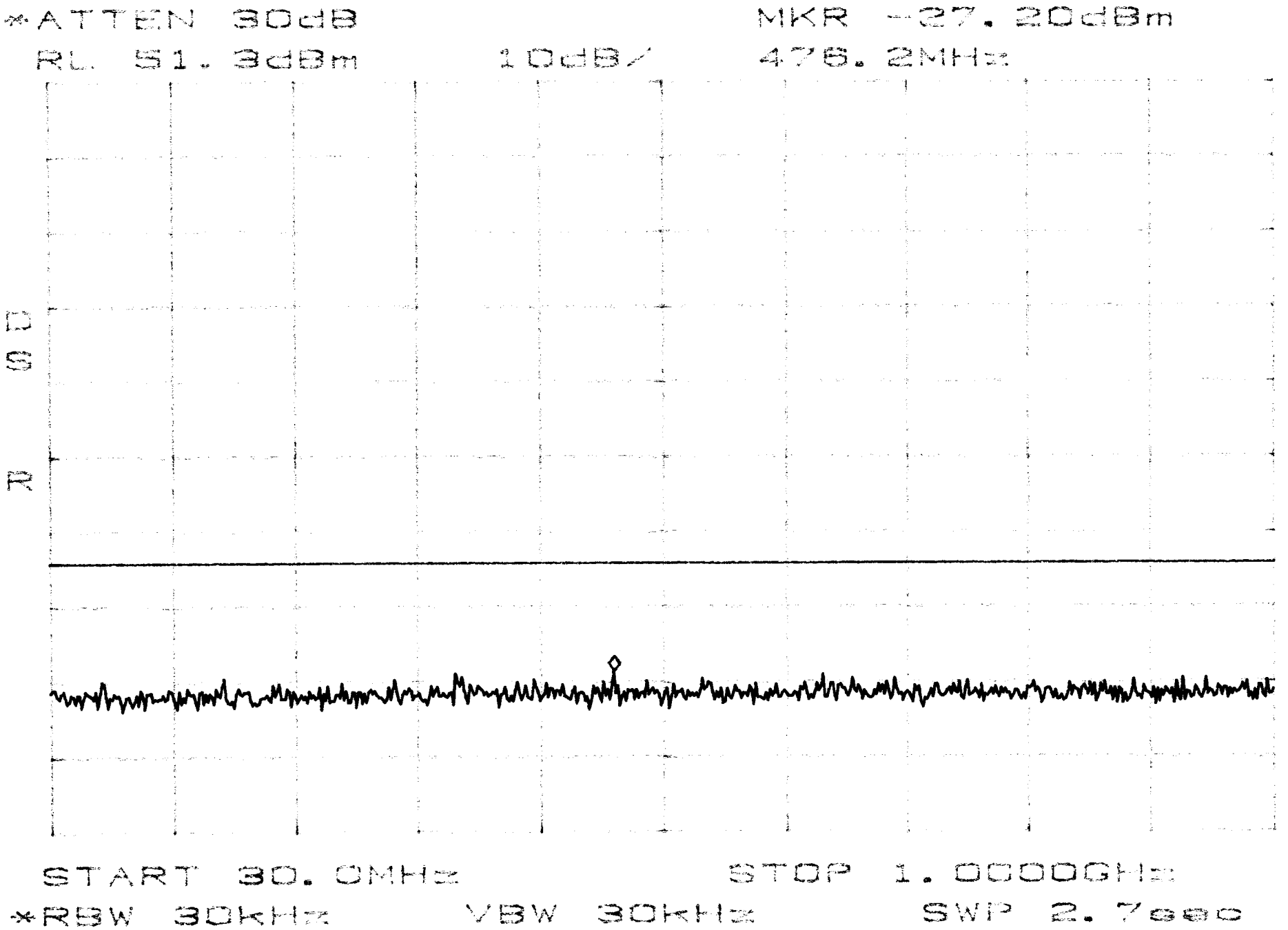


Intermodulation BAND B,E,F
Close
TDMA



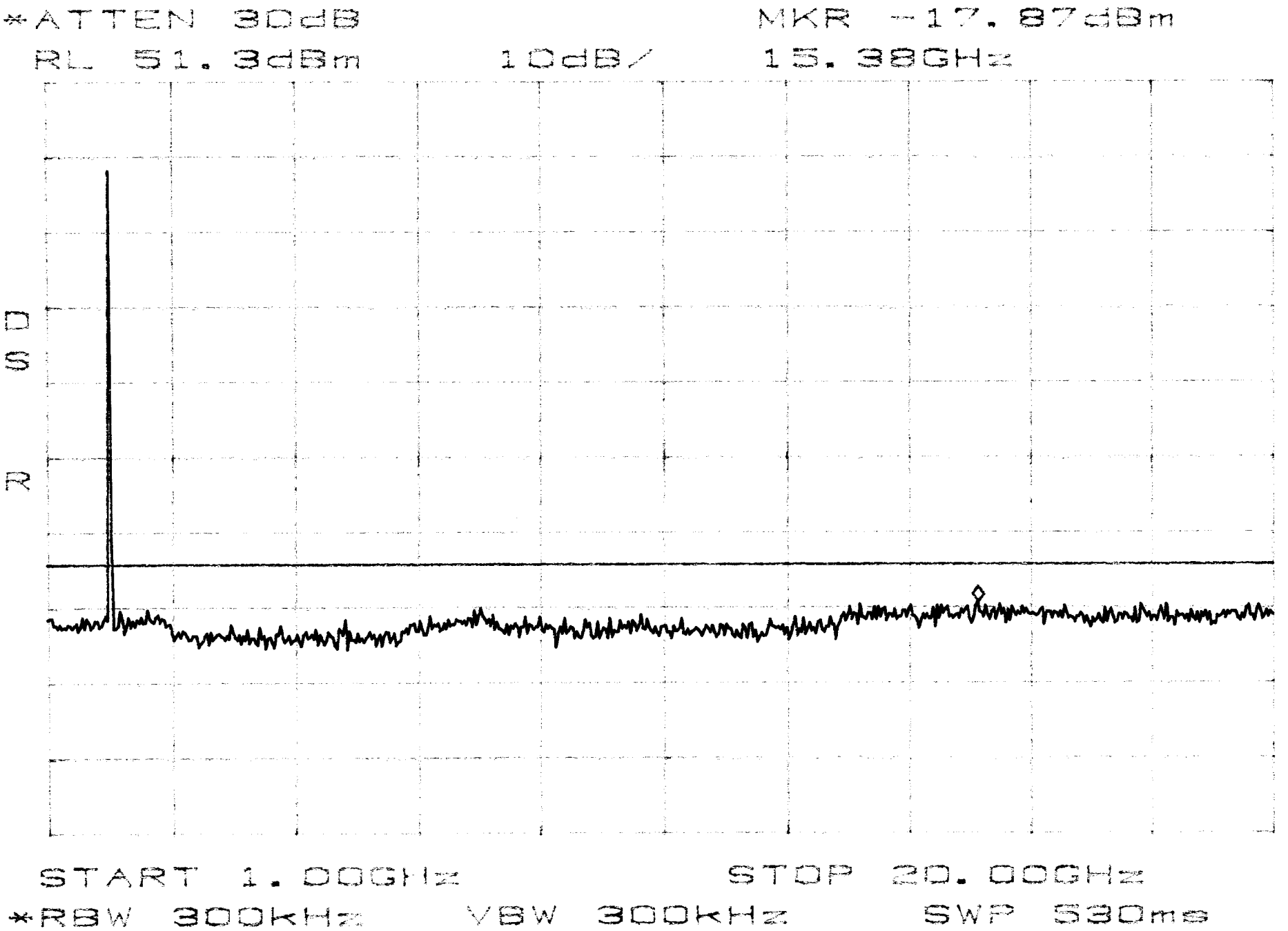
Intermodulation
Close
TDMA

BAND B, E, F

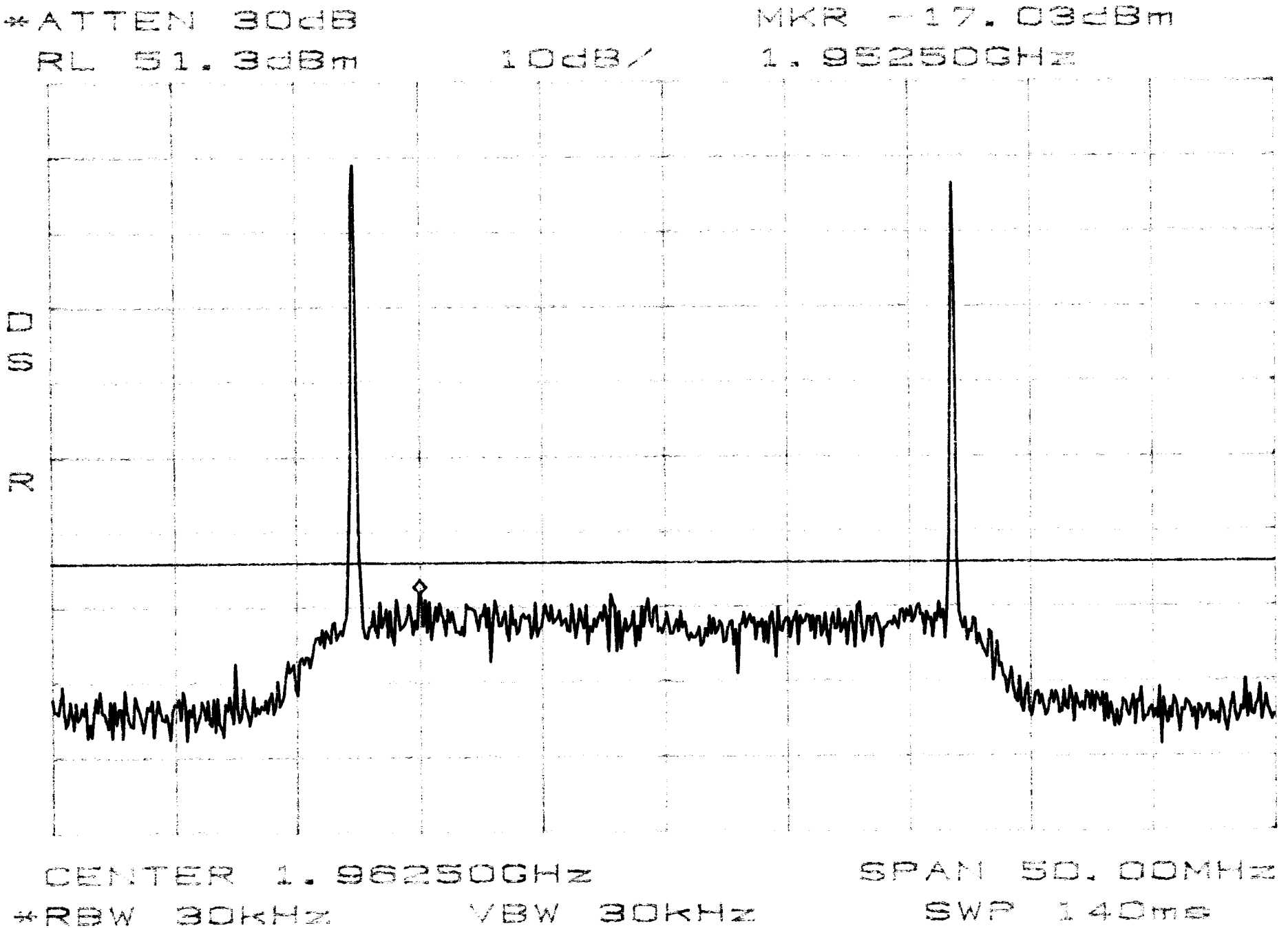


Intermodulation
Close
TDMA

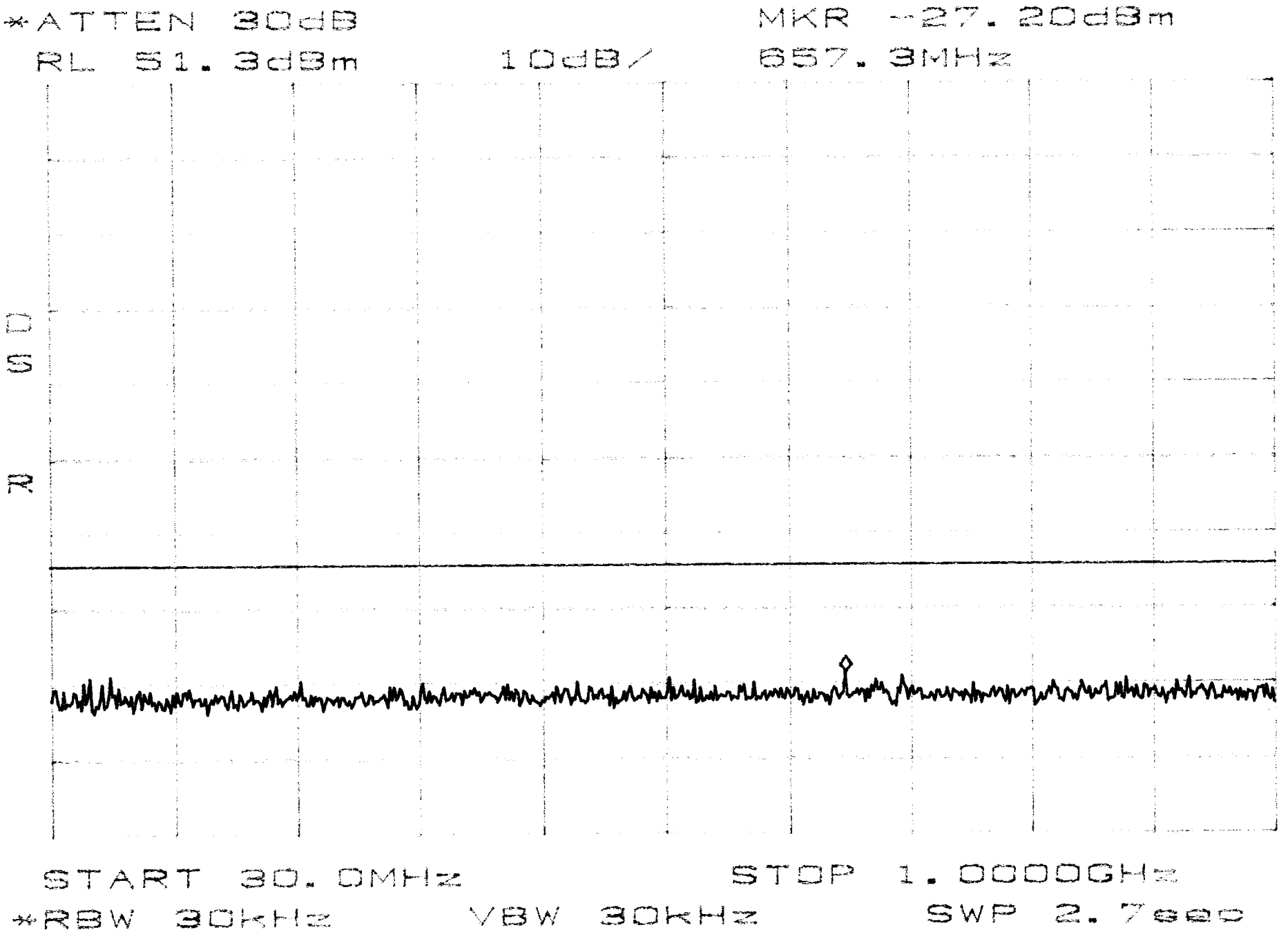
BAND B, E, F



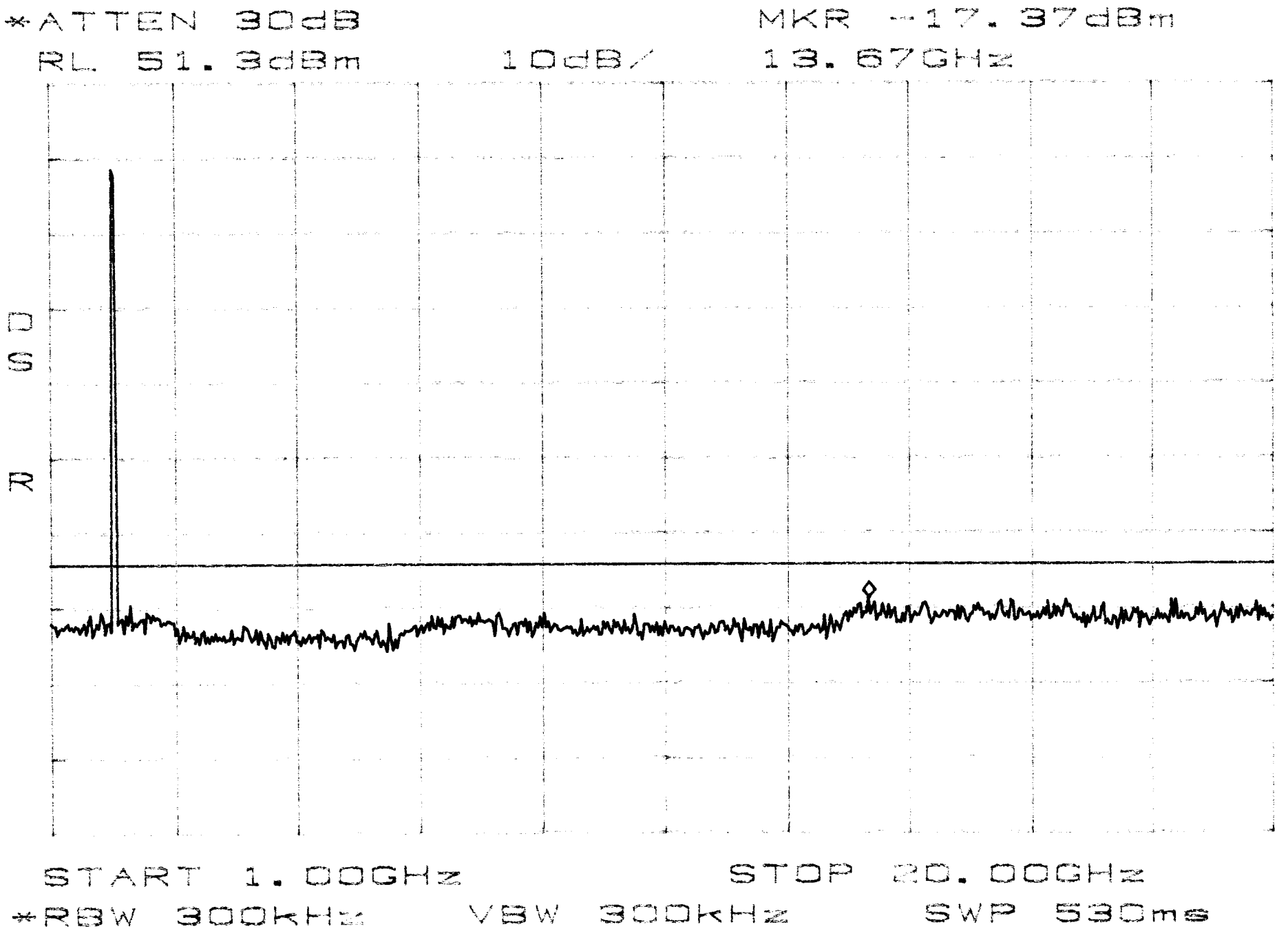
Intermodulation BAND B,E,F
Apart
TDMA



Intermodulation BAND B, E, F
Apart
TDMA

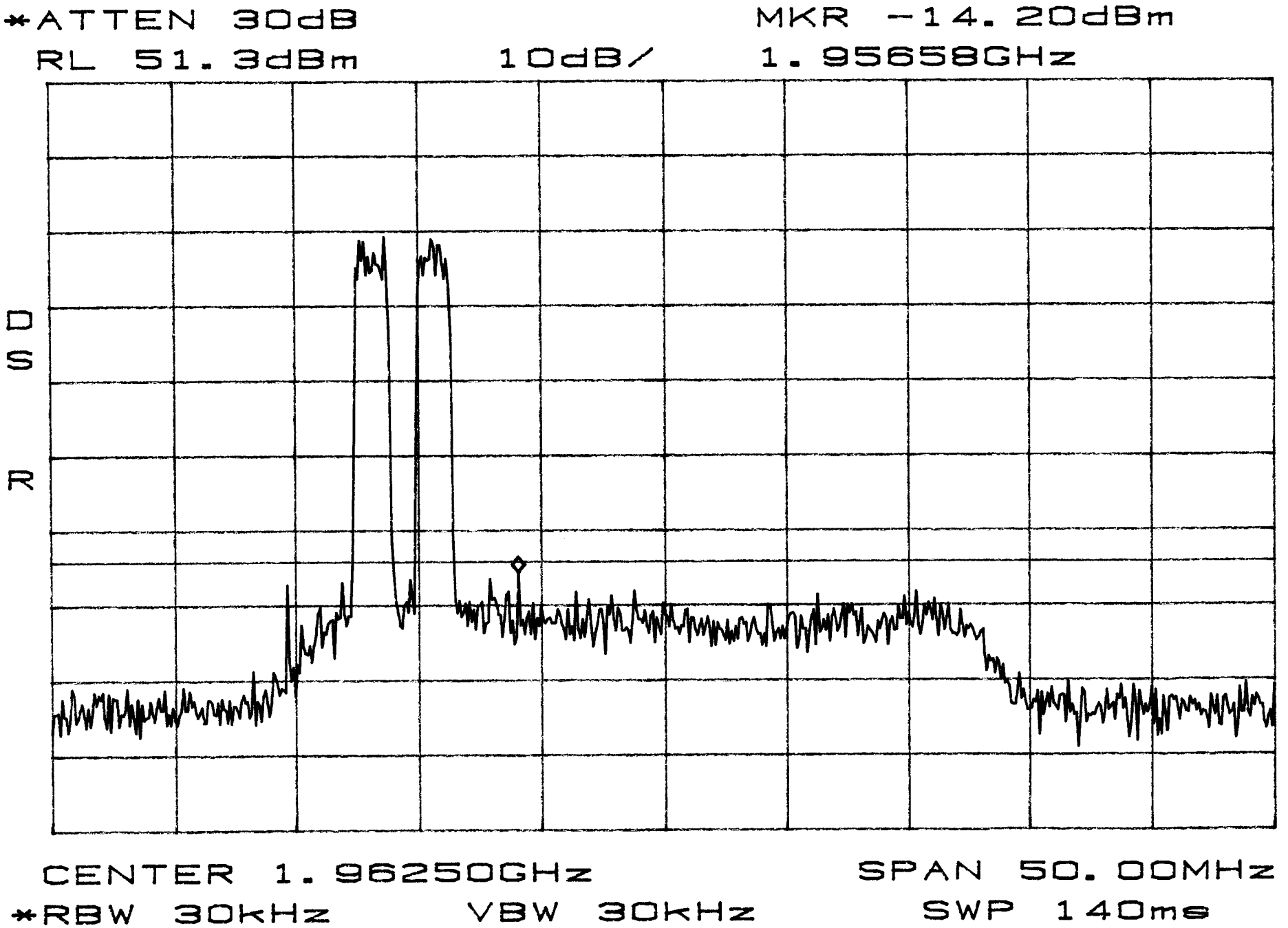


Intermodulation BAND B,E,F
Apart
TDMA



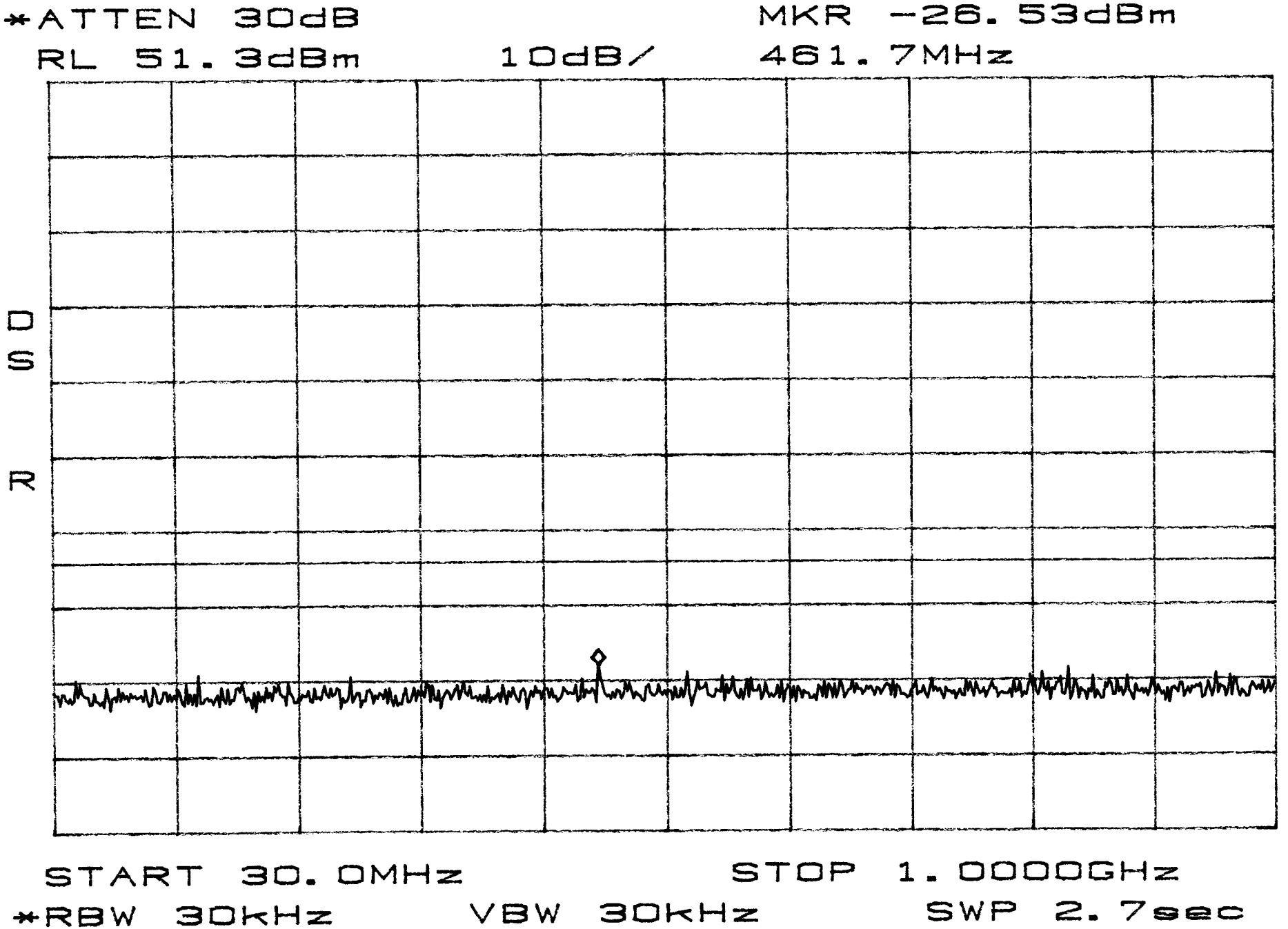
Intermodulation
Close
CDMA

BAND B,E,F



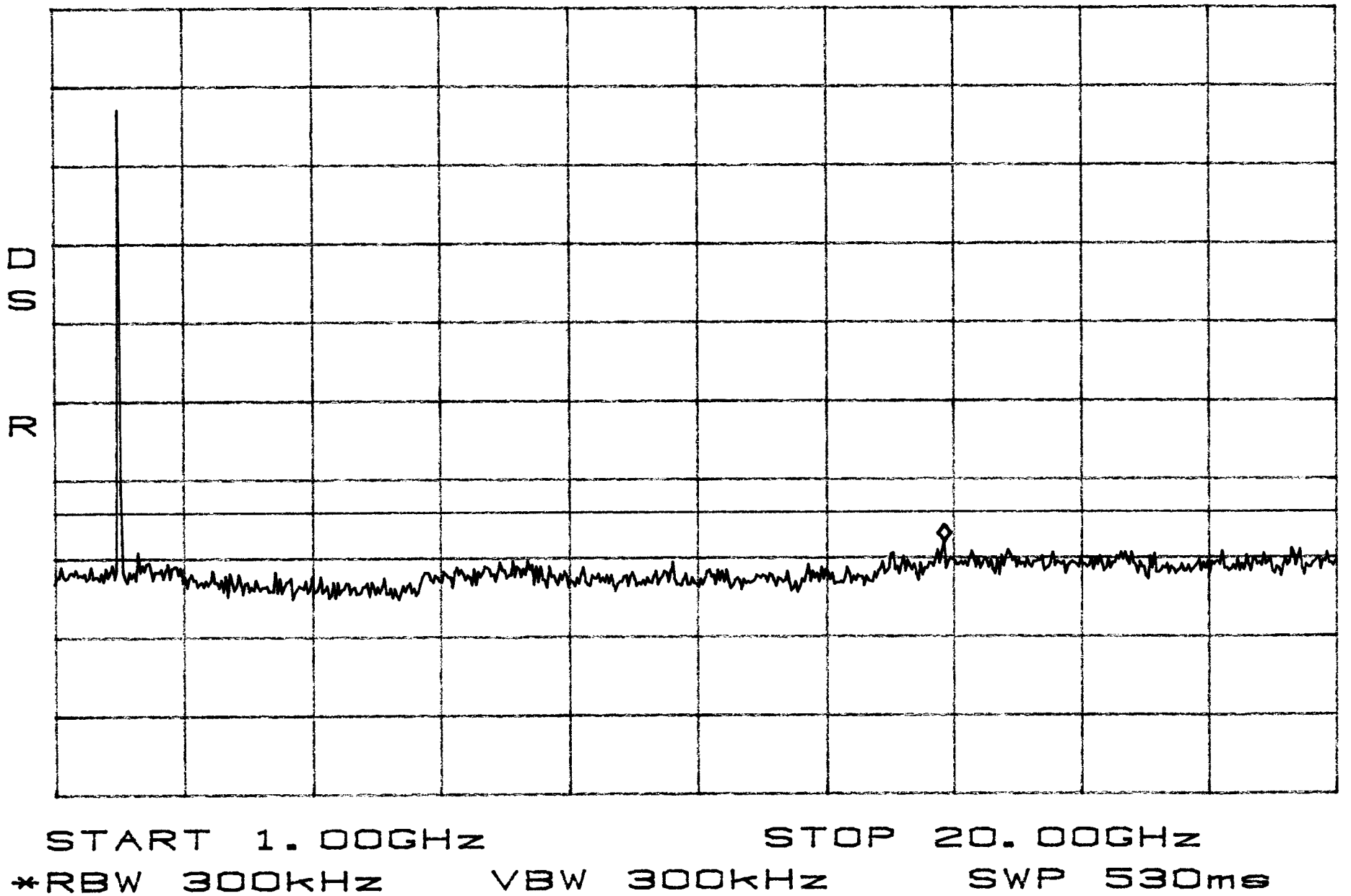
Intermodulation
Close
CDMA

BAND B, E, F

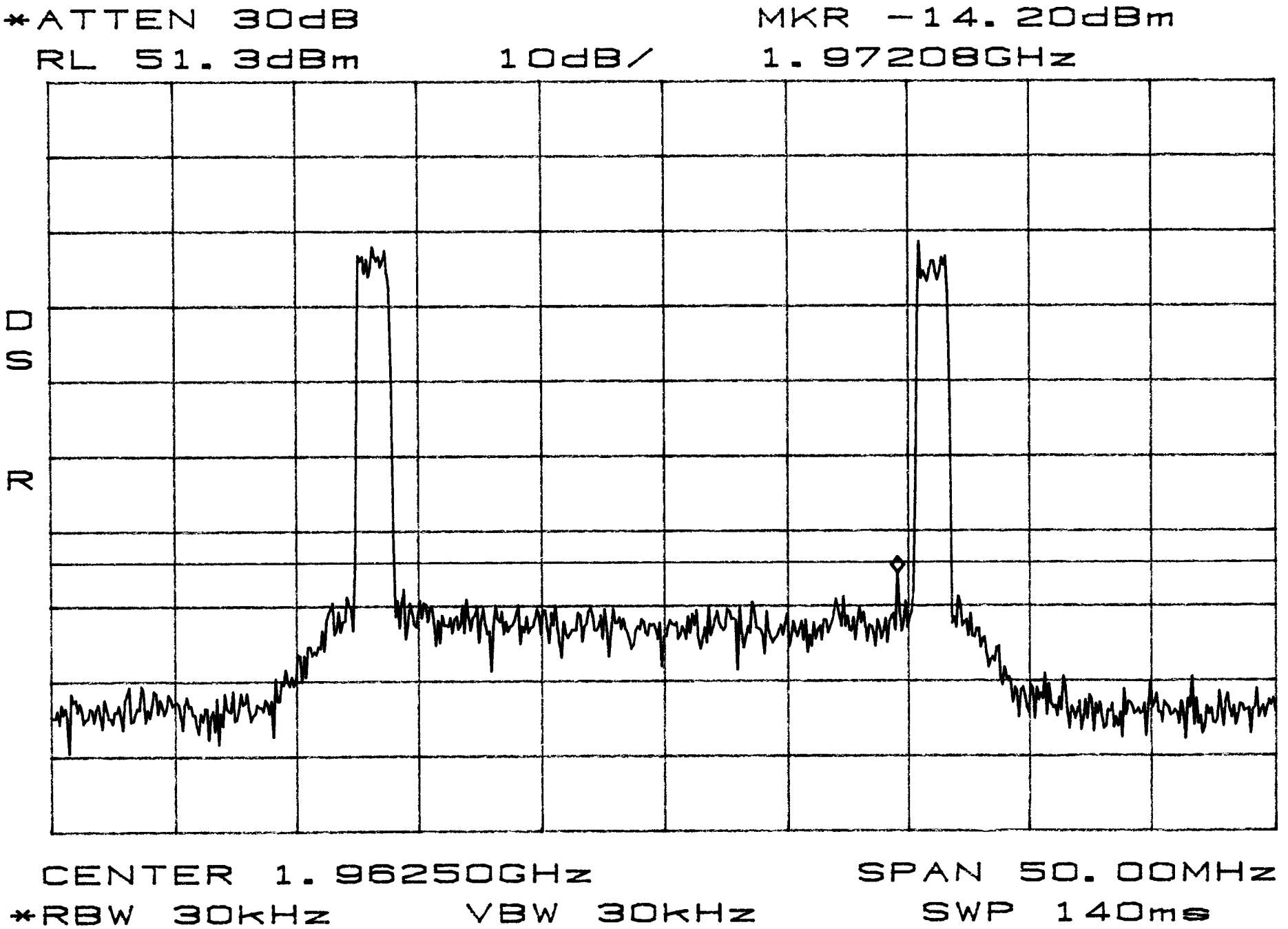


Intermodulation
Close
CDMA

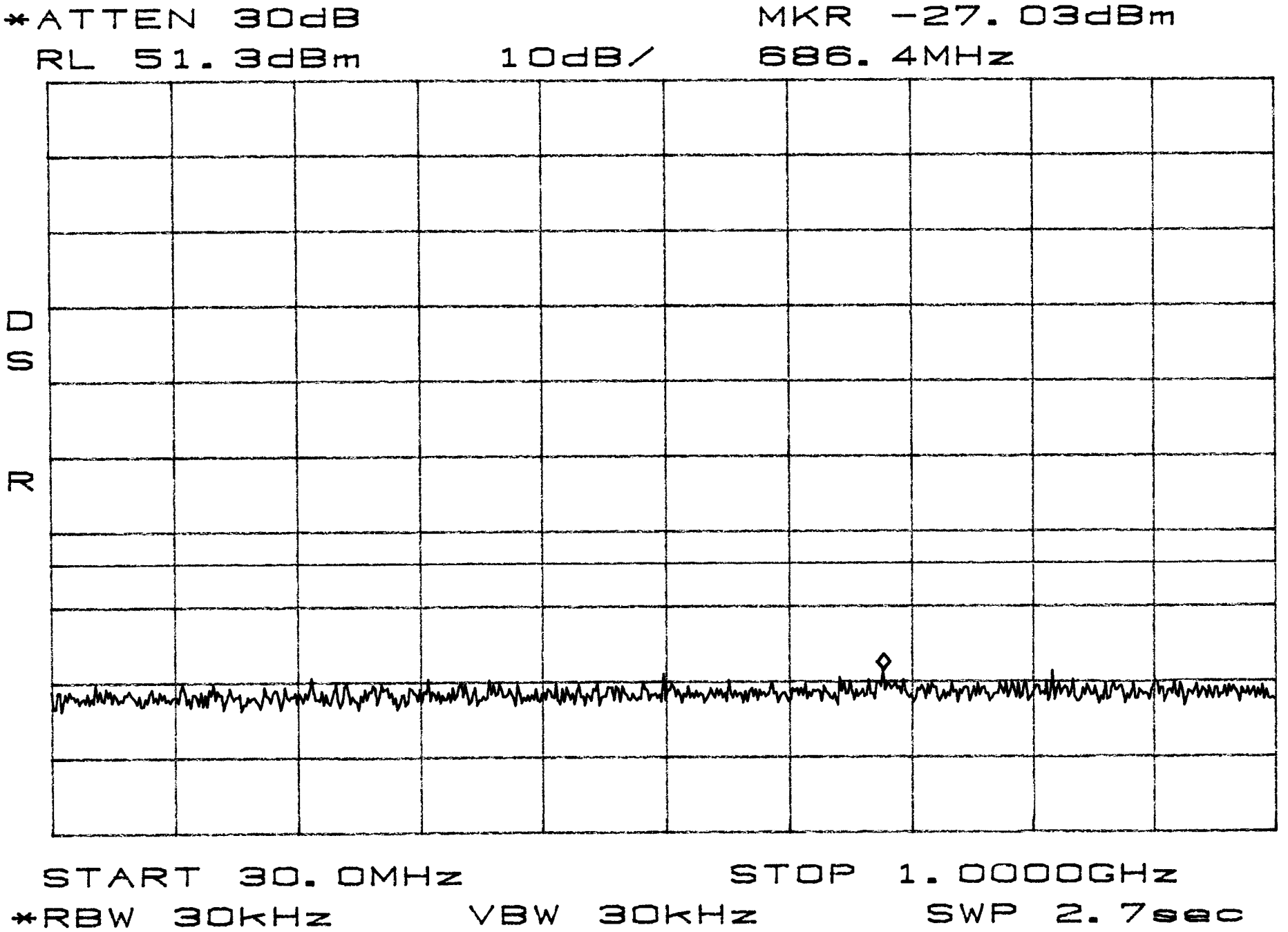
BAND B,E,F



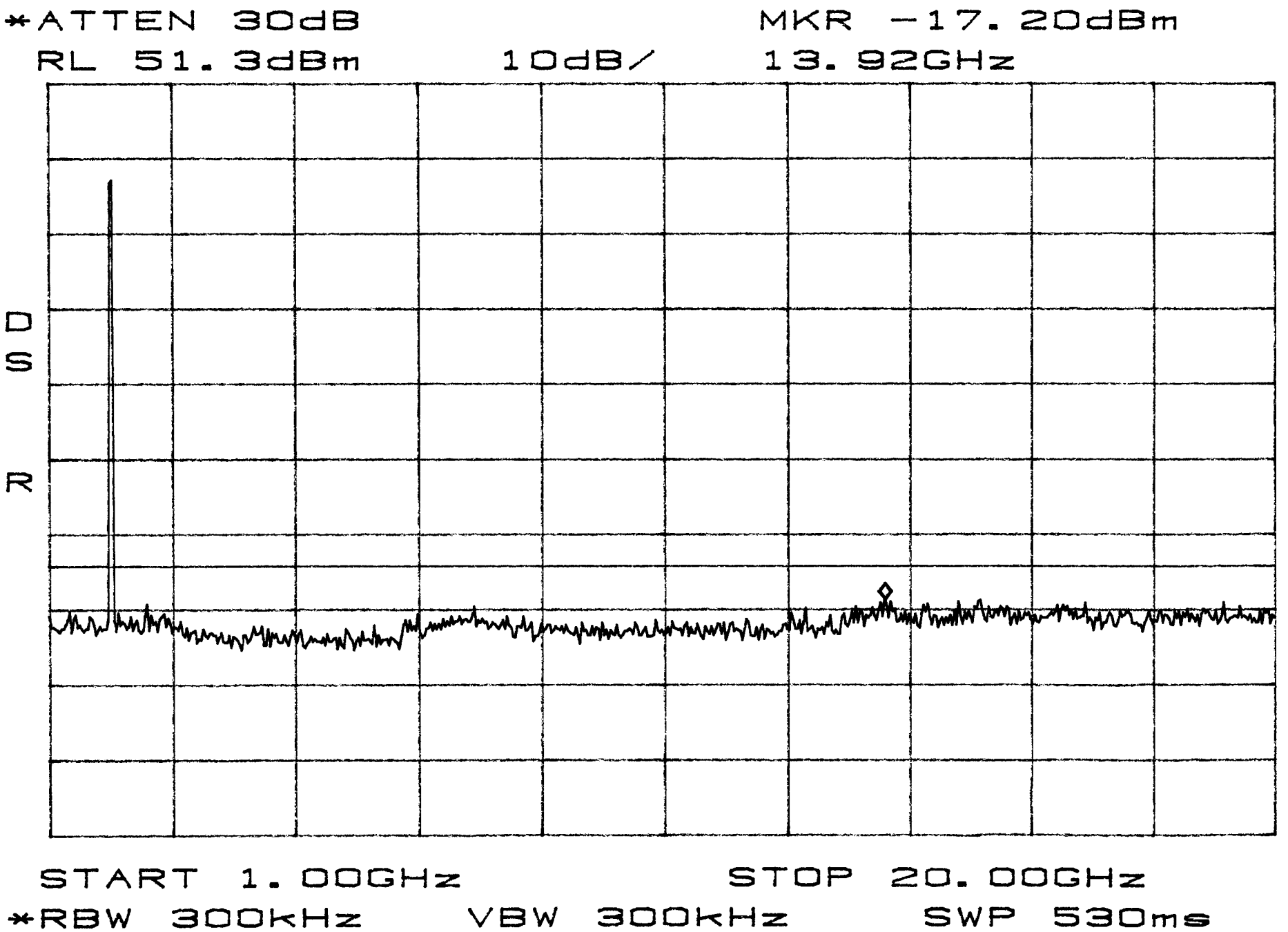
Intermodulation BAND B,E,F
Apart
CDMA



Intermodulation BAND B,E,F
Apart
CDMA

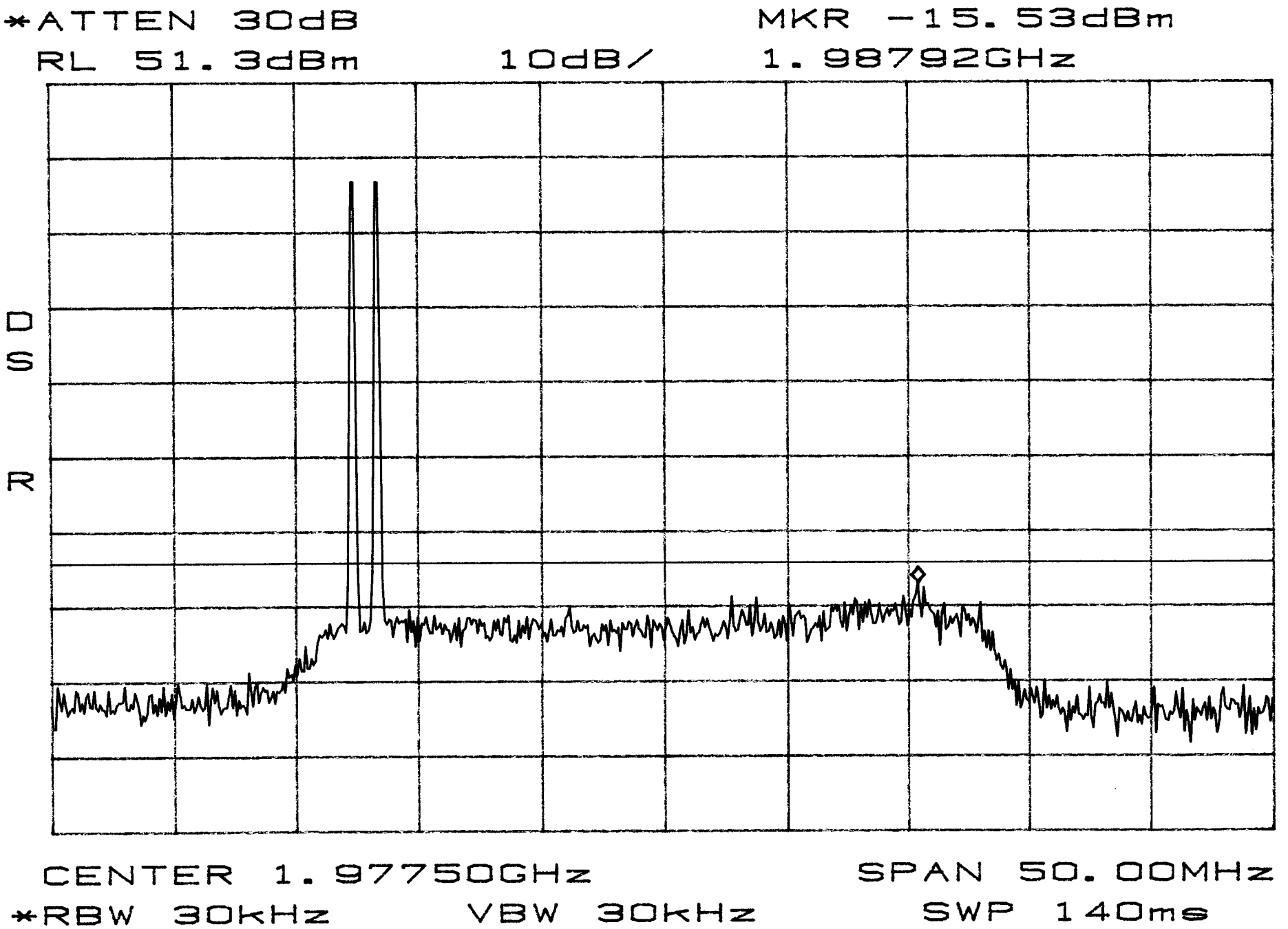


Intermodulation BAND B,E,F
Apart
CDMA



Intermodulation
Close
FM

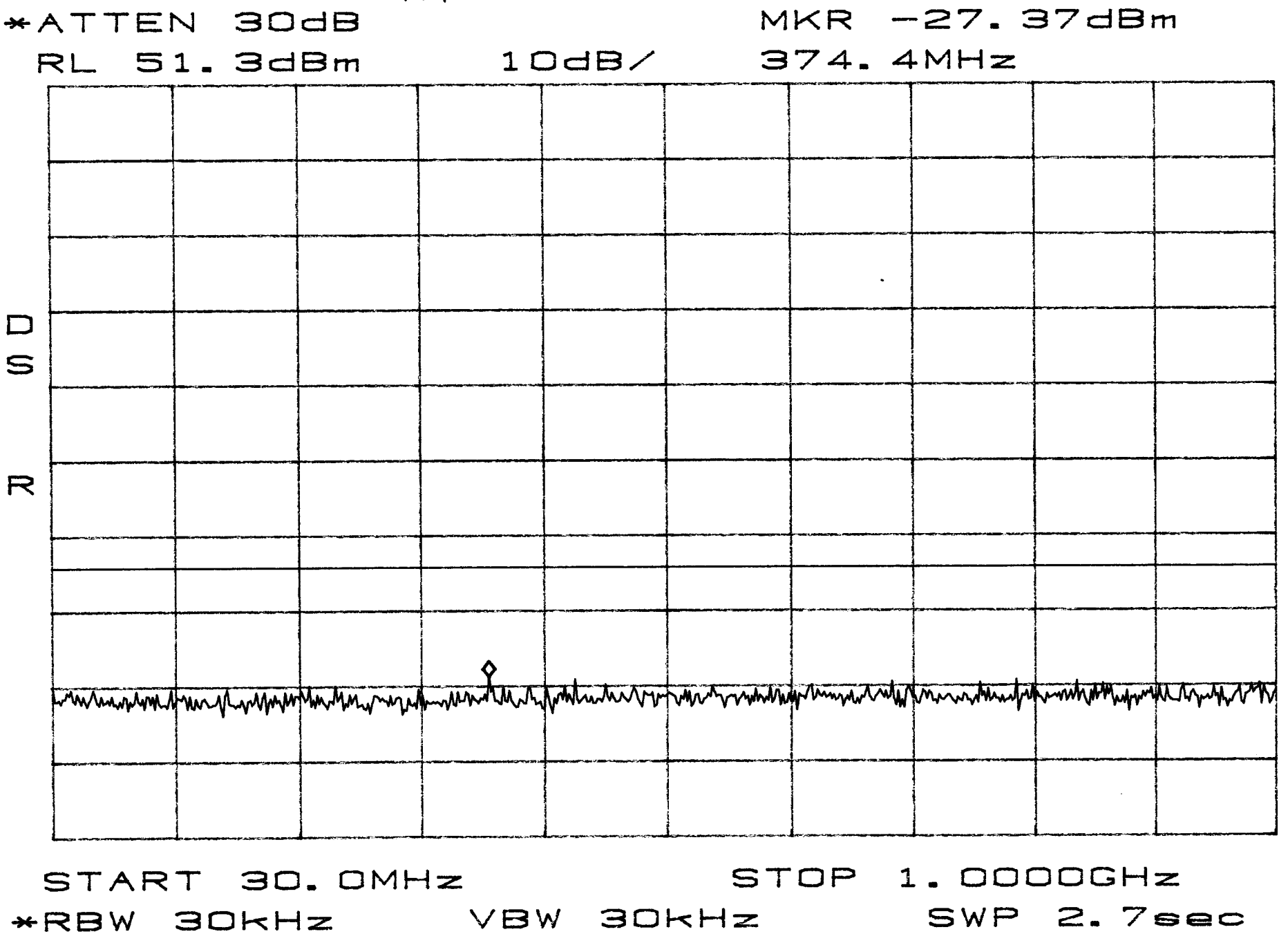
BAND E, F, C



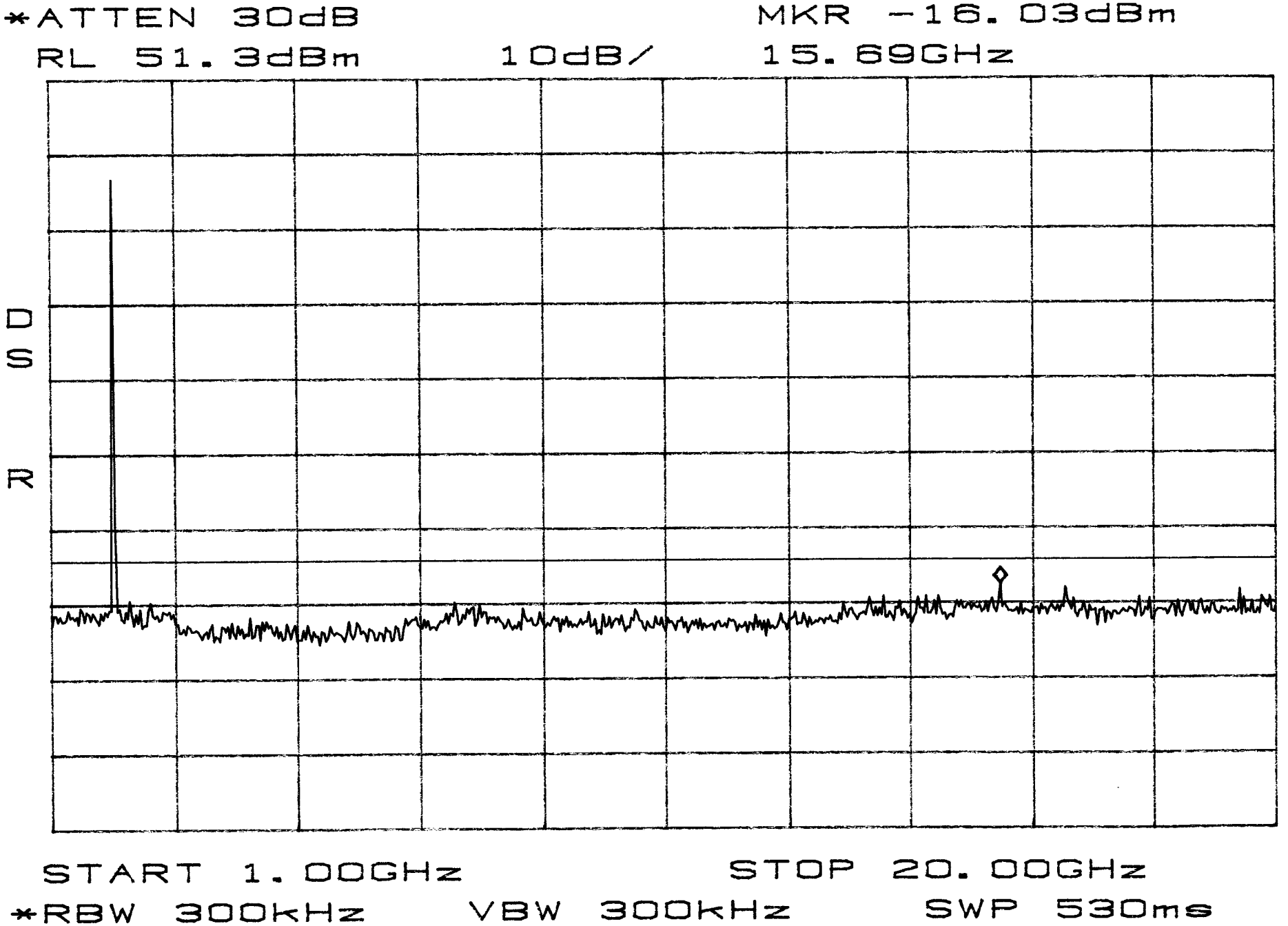
Intermodulation BAND E,F,C

Close

FM

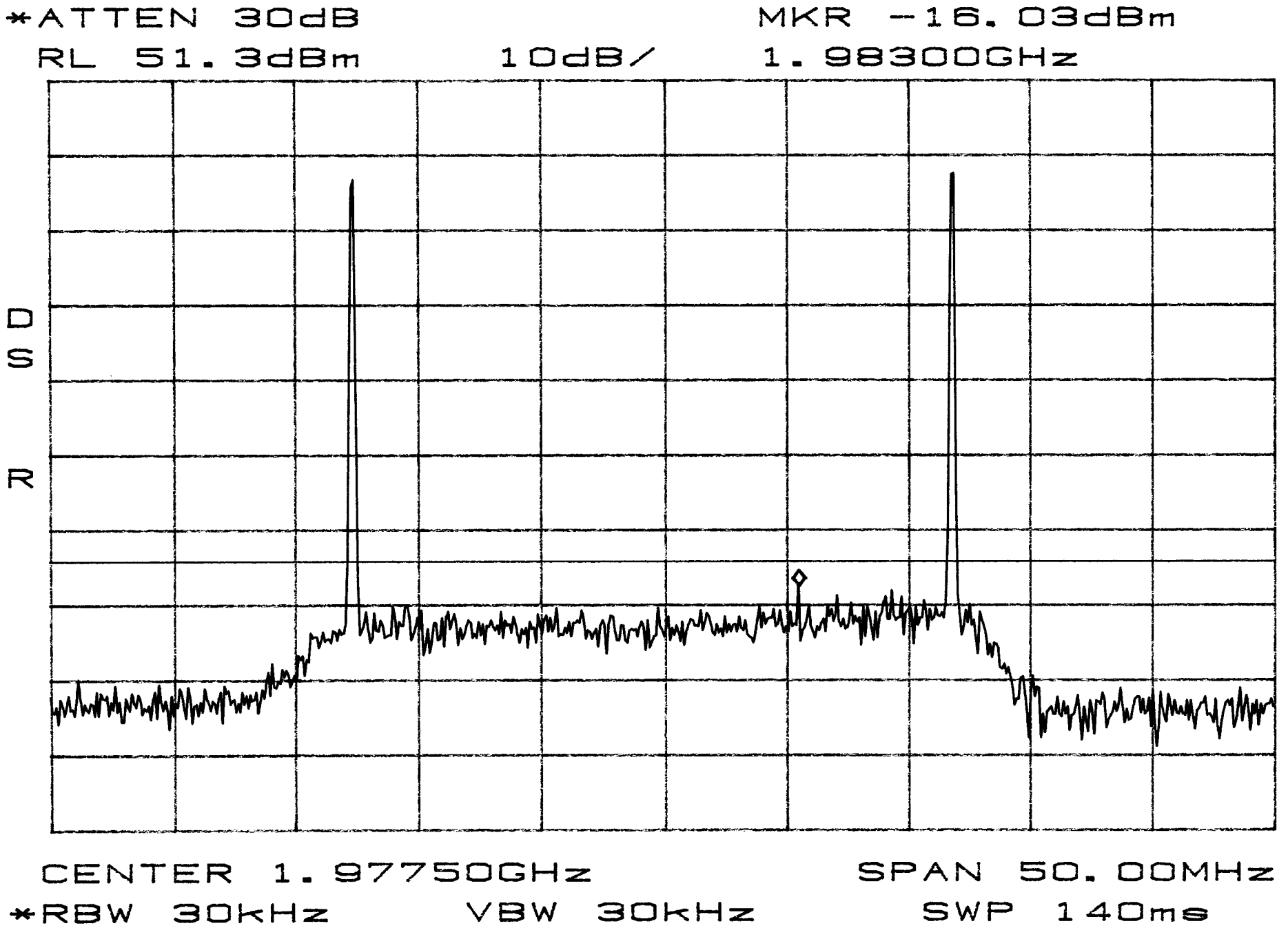


Intermodulation BAND E, F, C
Close
FM



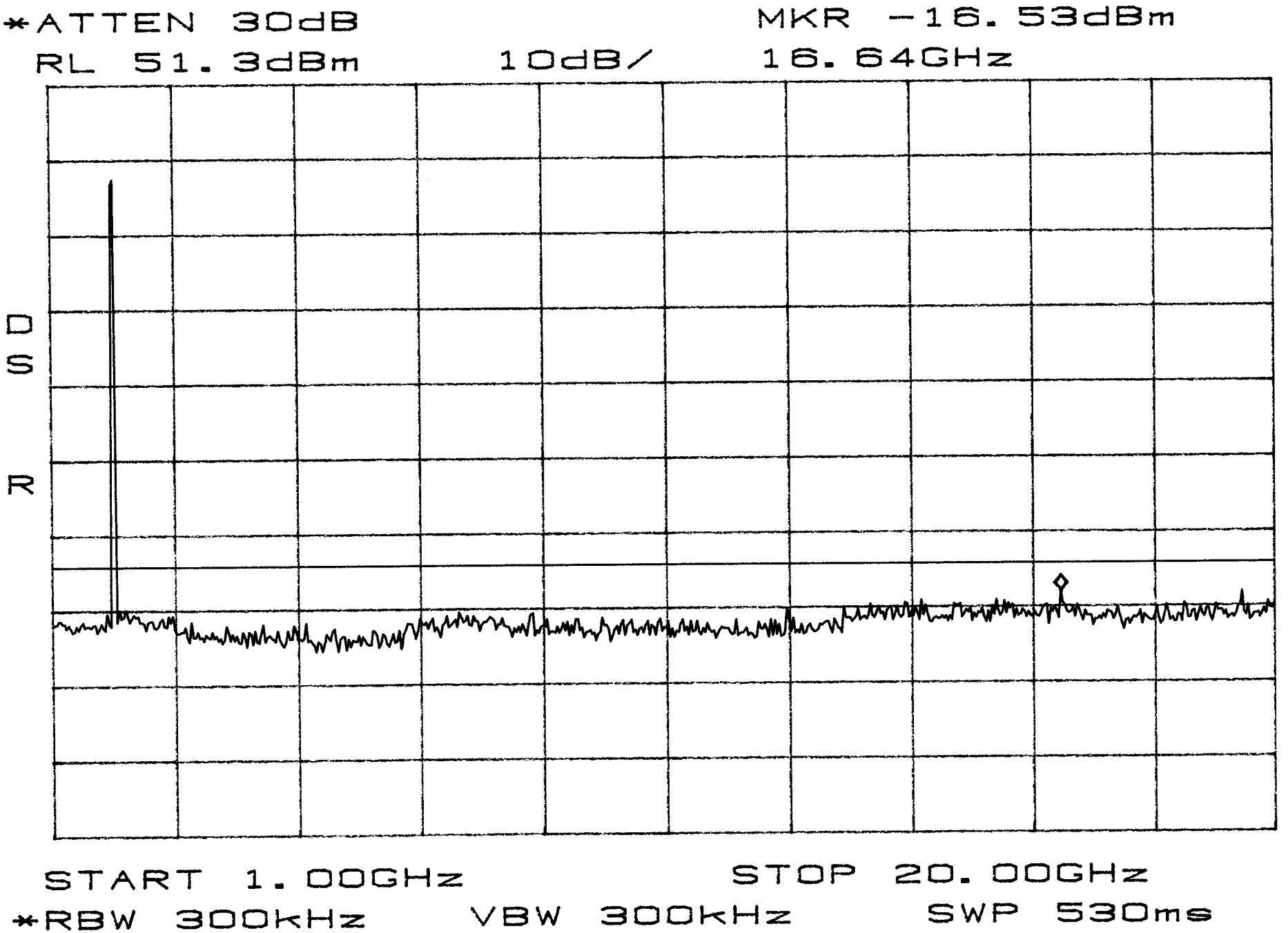
Intermodulation
Apart
FM

BAND E, F, C



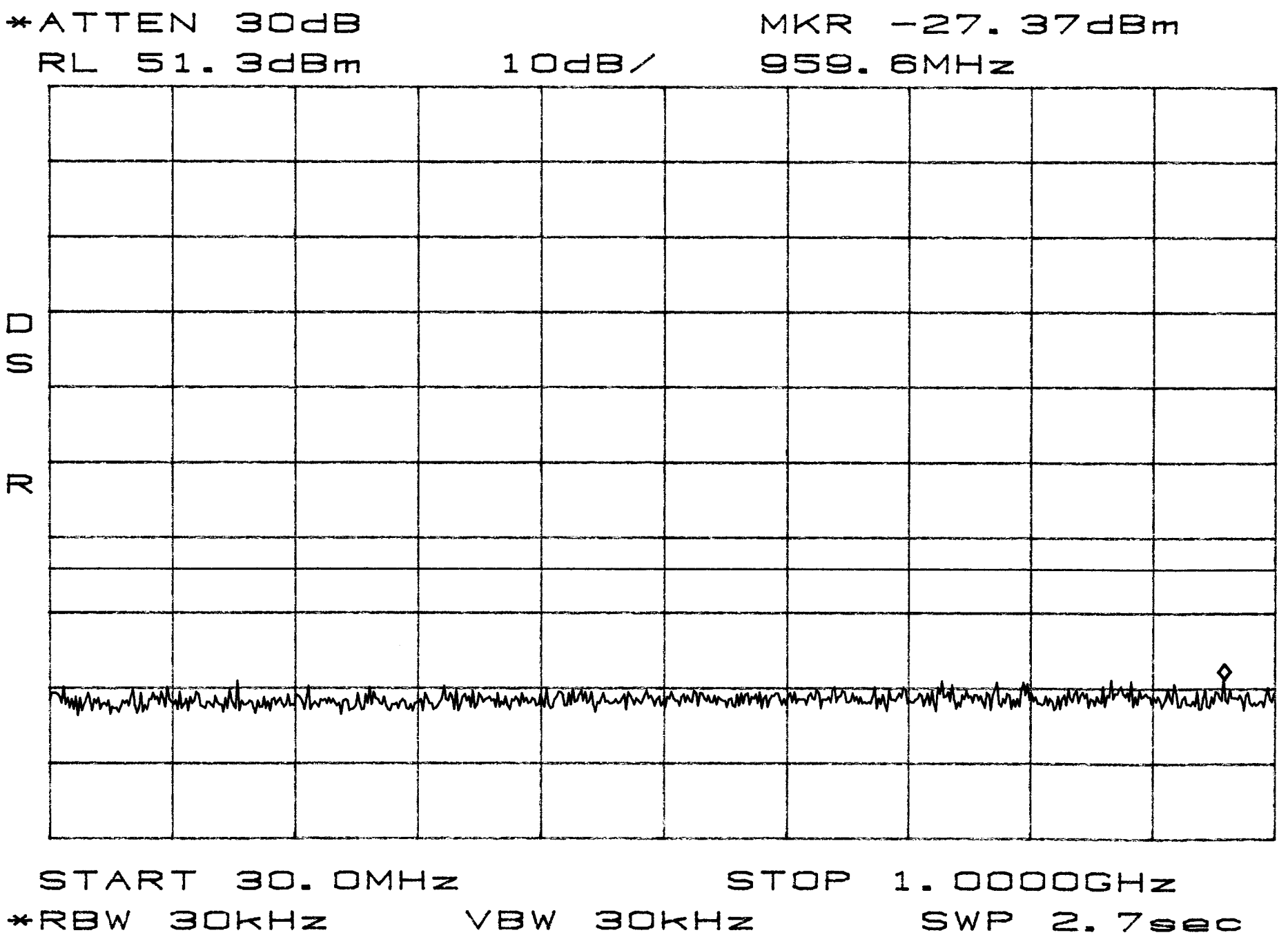
Intermodulation
Apart
FM

BAND E, F, C



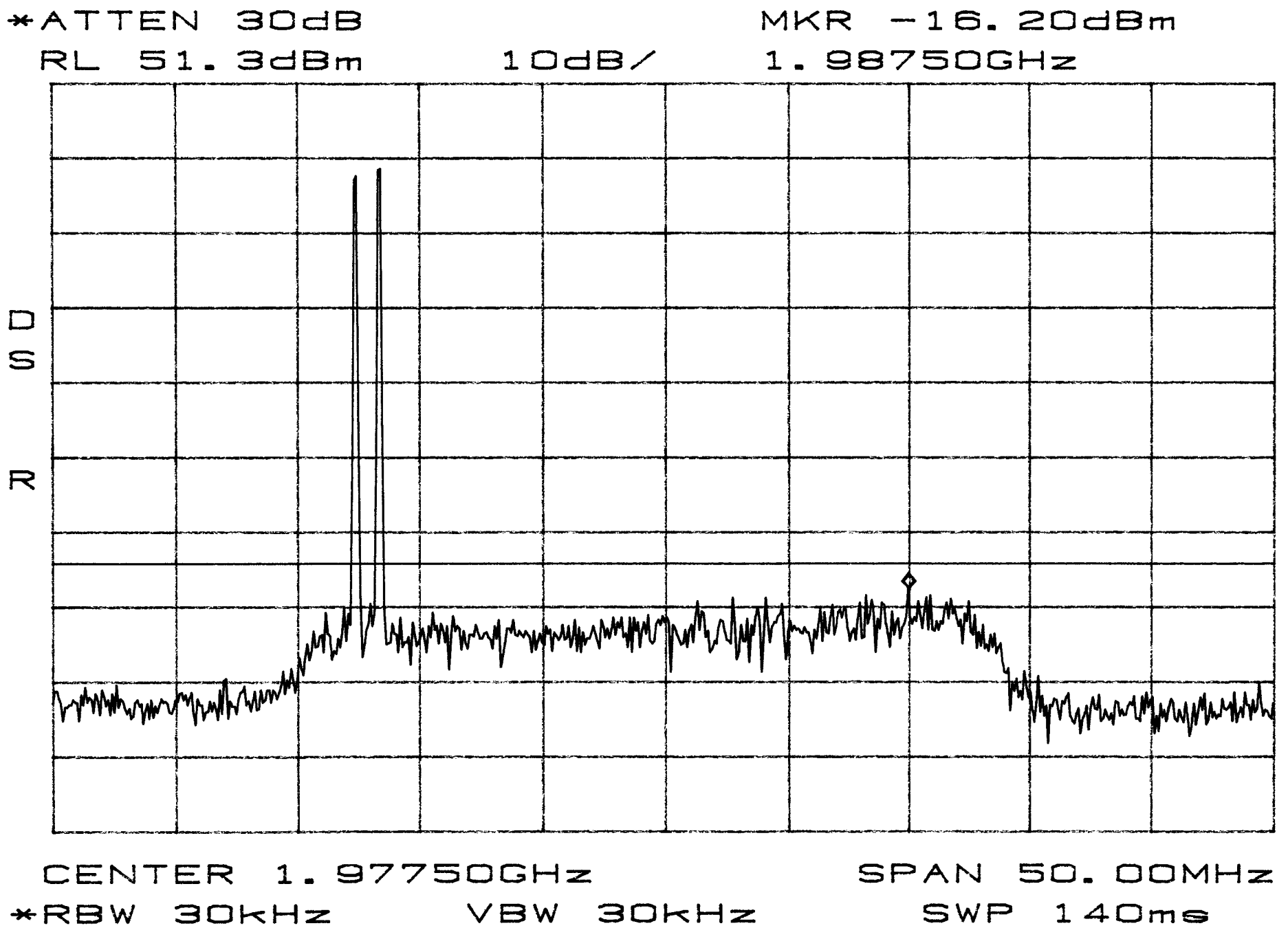
Intermodulation
Apart
FM

BAND E, F, C

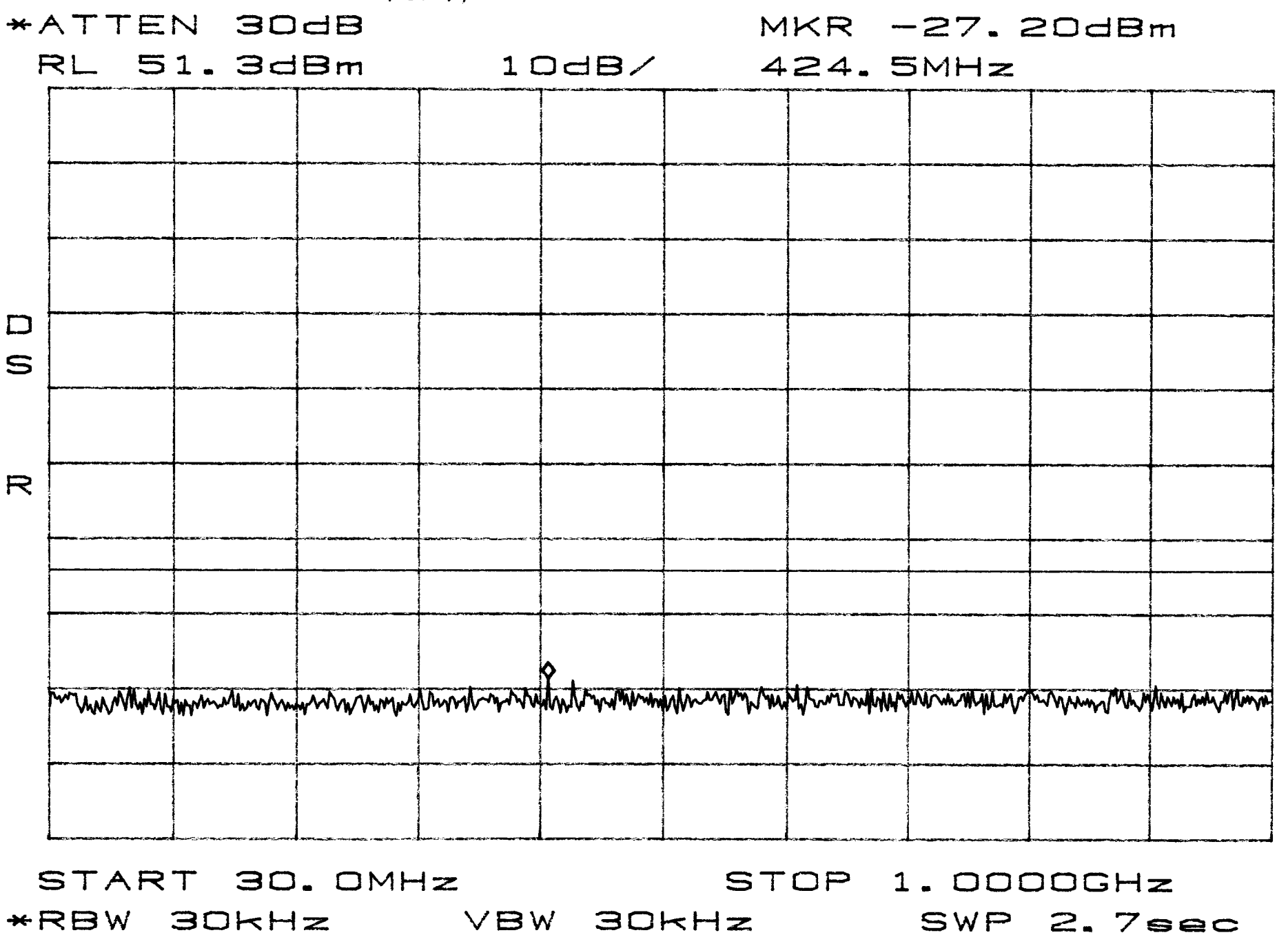


Intermodulation
Close
TDMA

BAND E, F, C

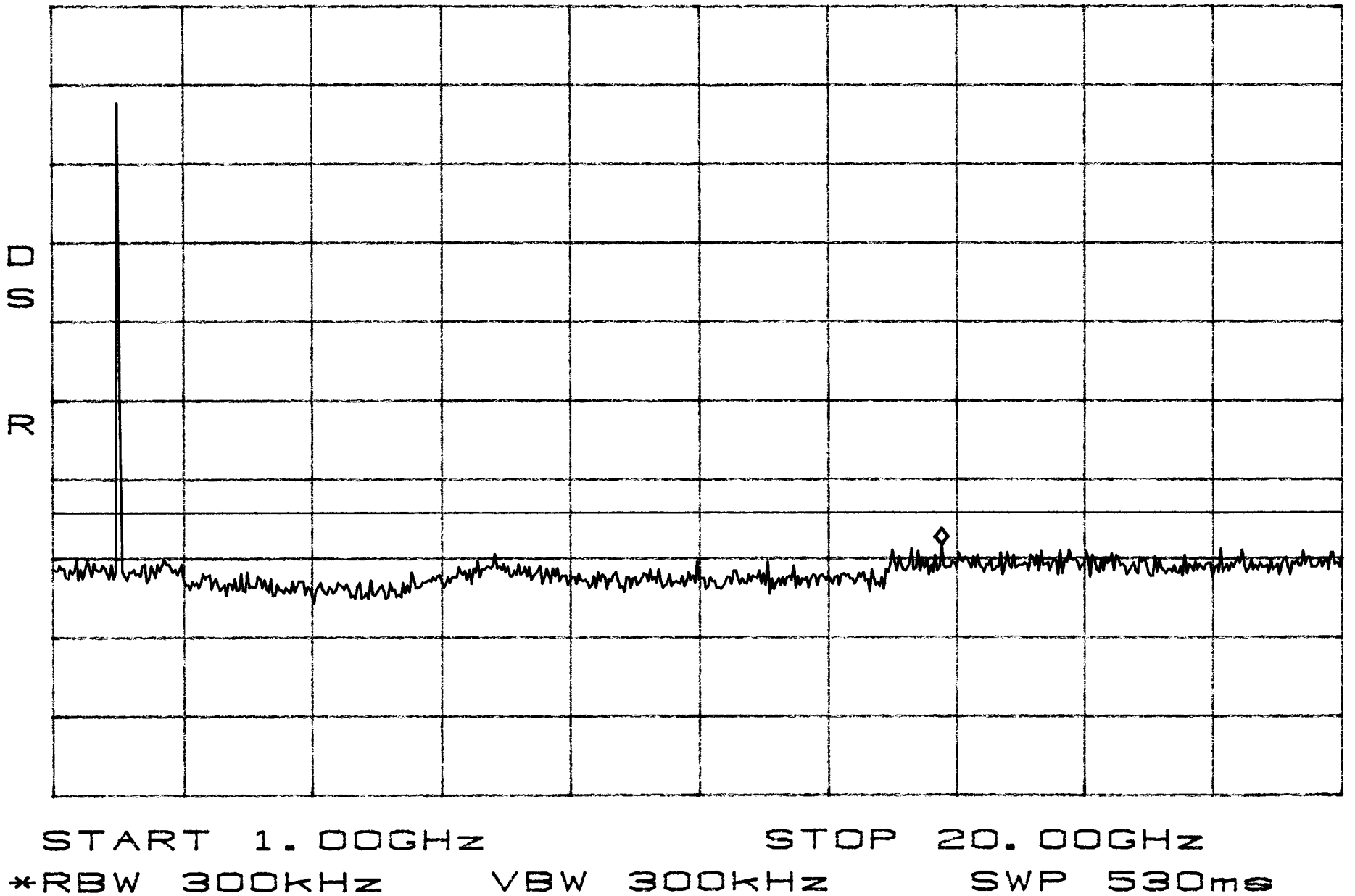


Intermodulation BAND E, F, C
Close
TDMA

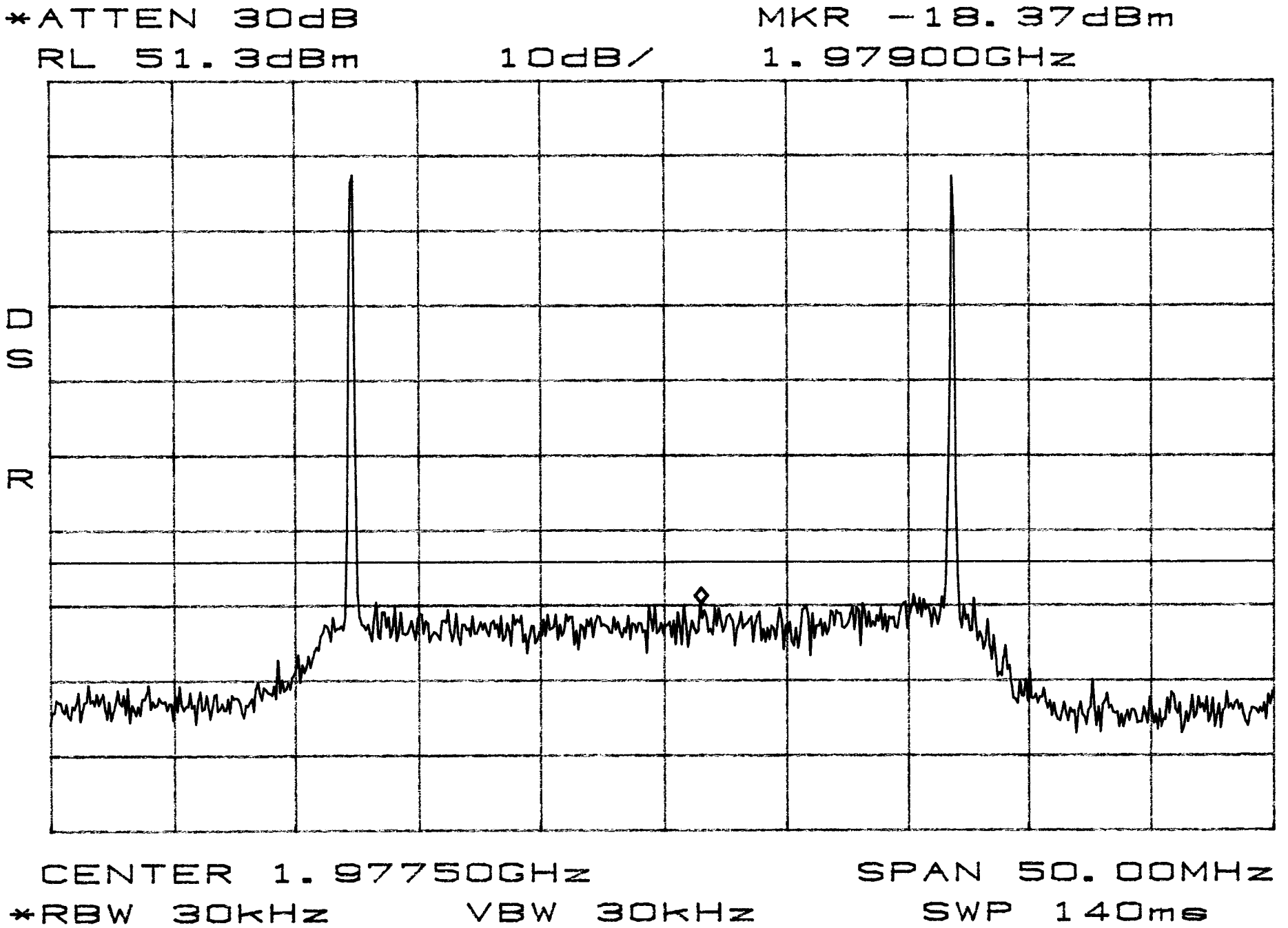


Intermodulation
Close
TDMA

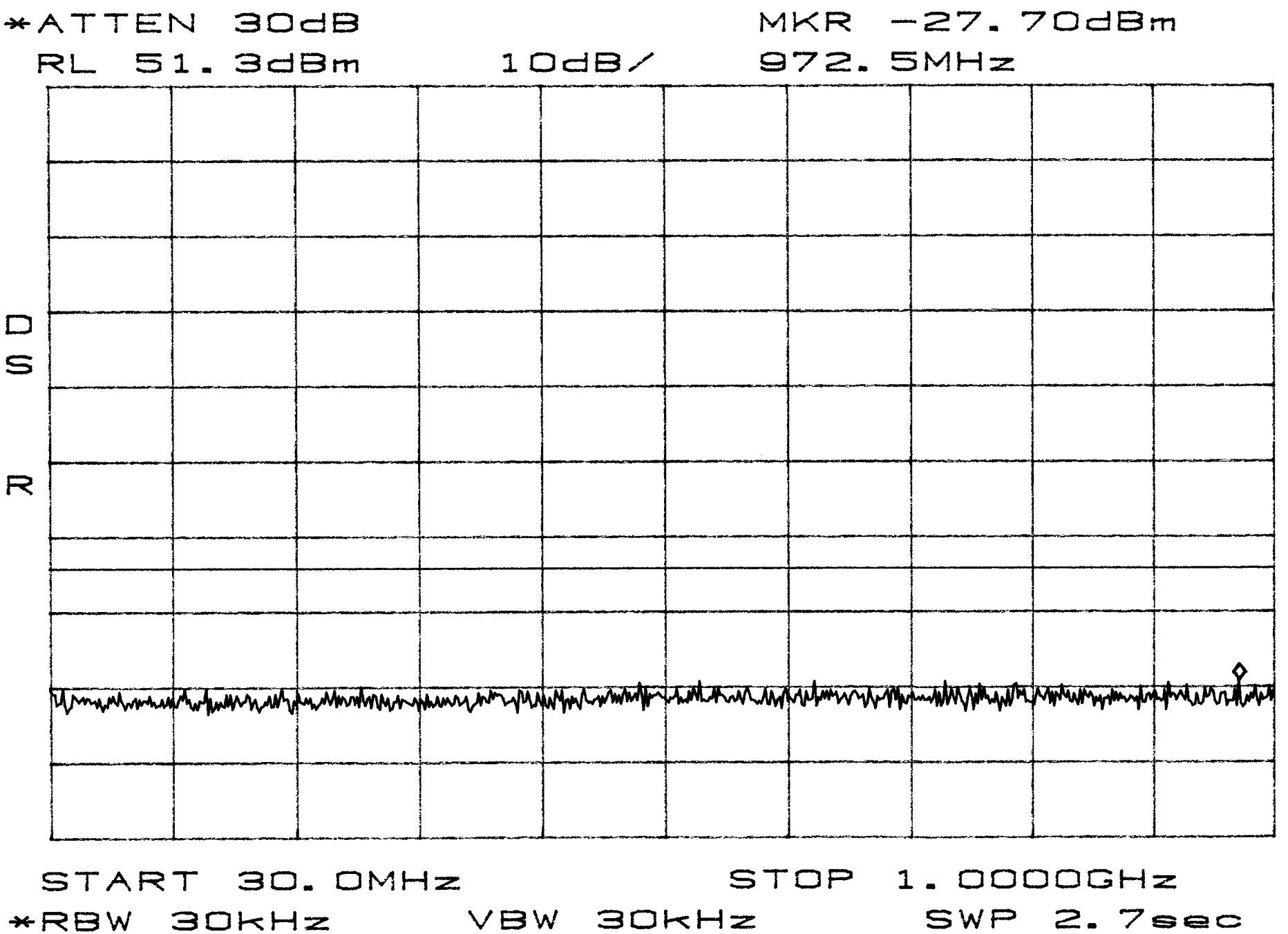
BAND E, F, C



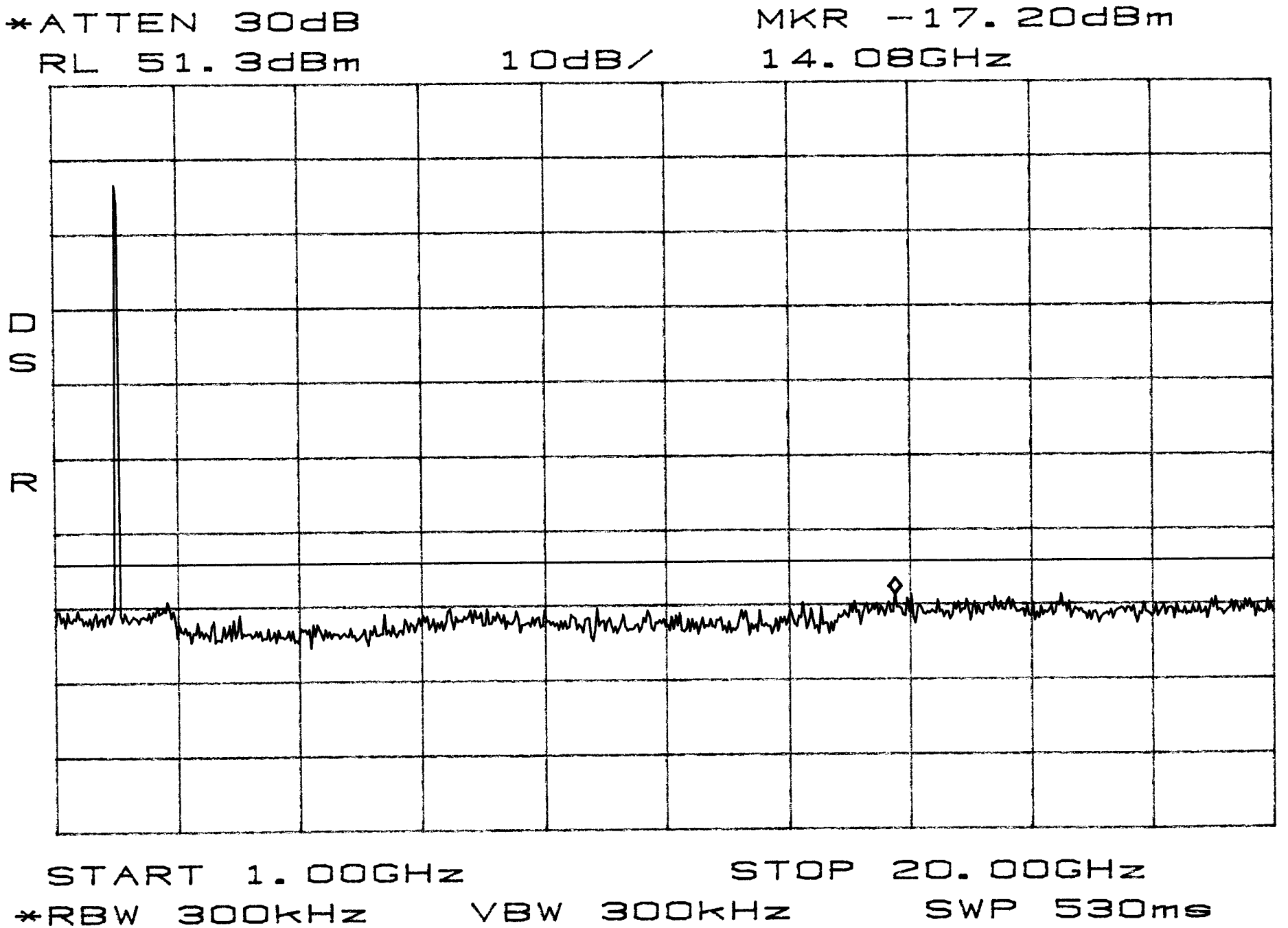
Intermodulation BAND E, F, C
Apart
TDMA



Intermodulation BAND E,F,C
Apart
TDMA

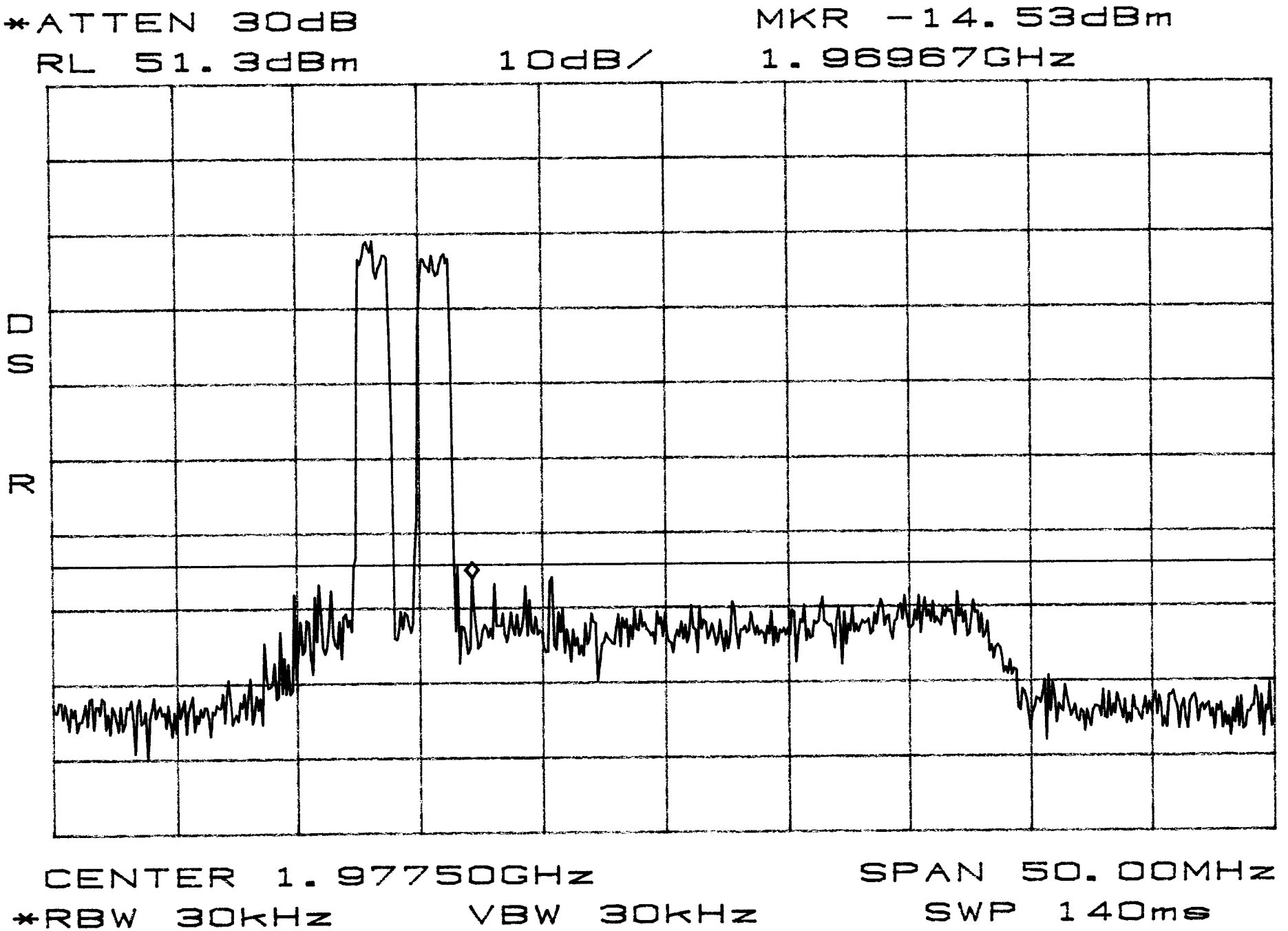


Intermodulation BAND E,F,C
Apart
TDMA



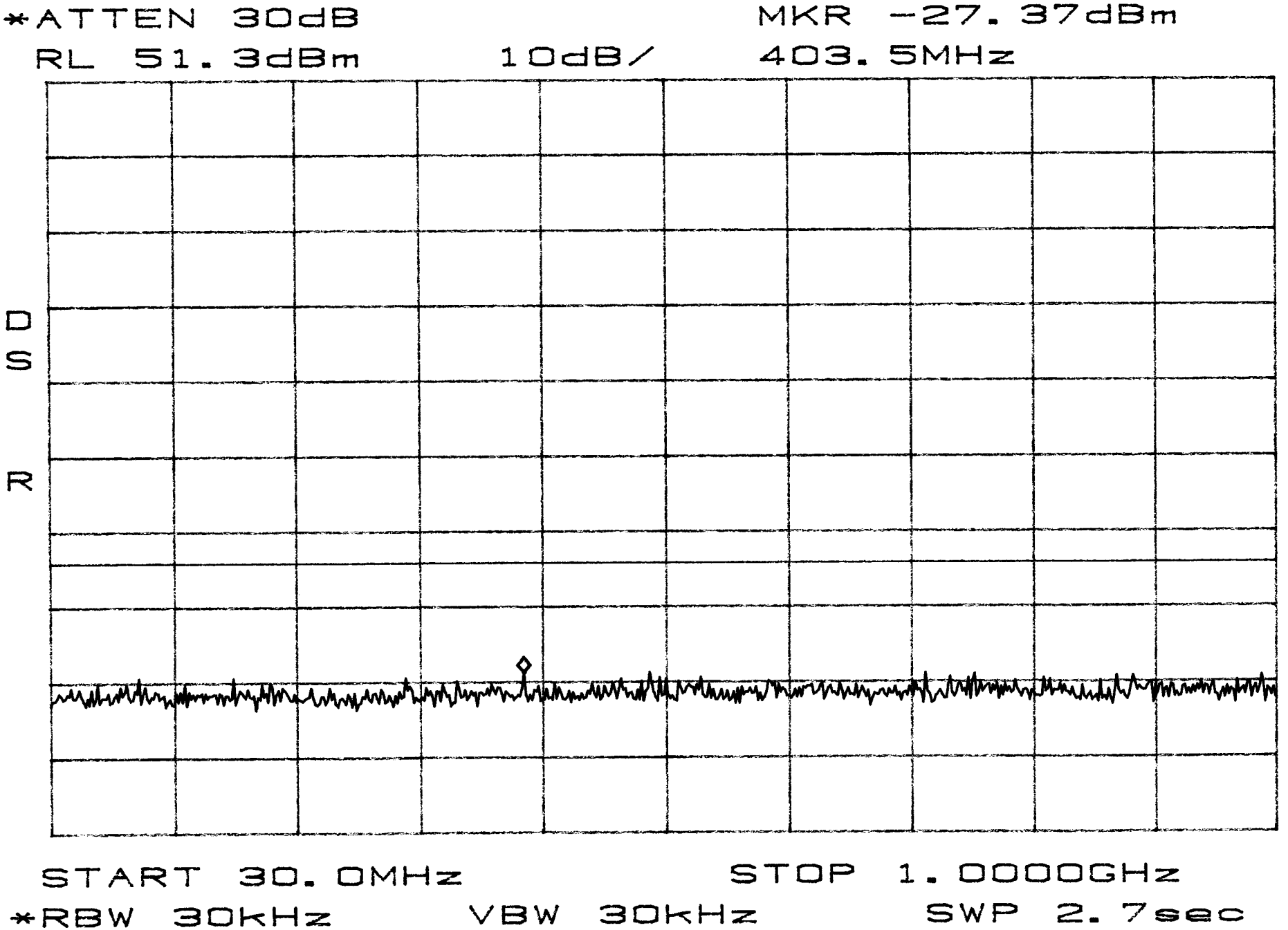
Intermodulation
Close
CDMA

BAND E, F, C



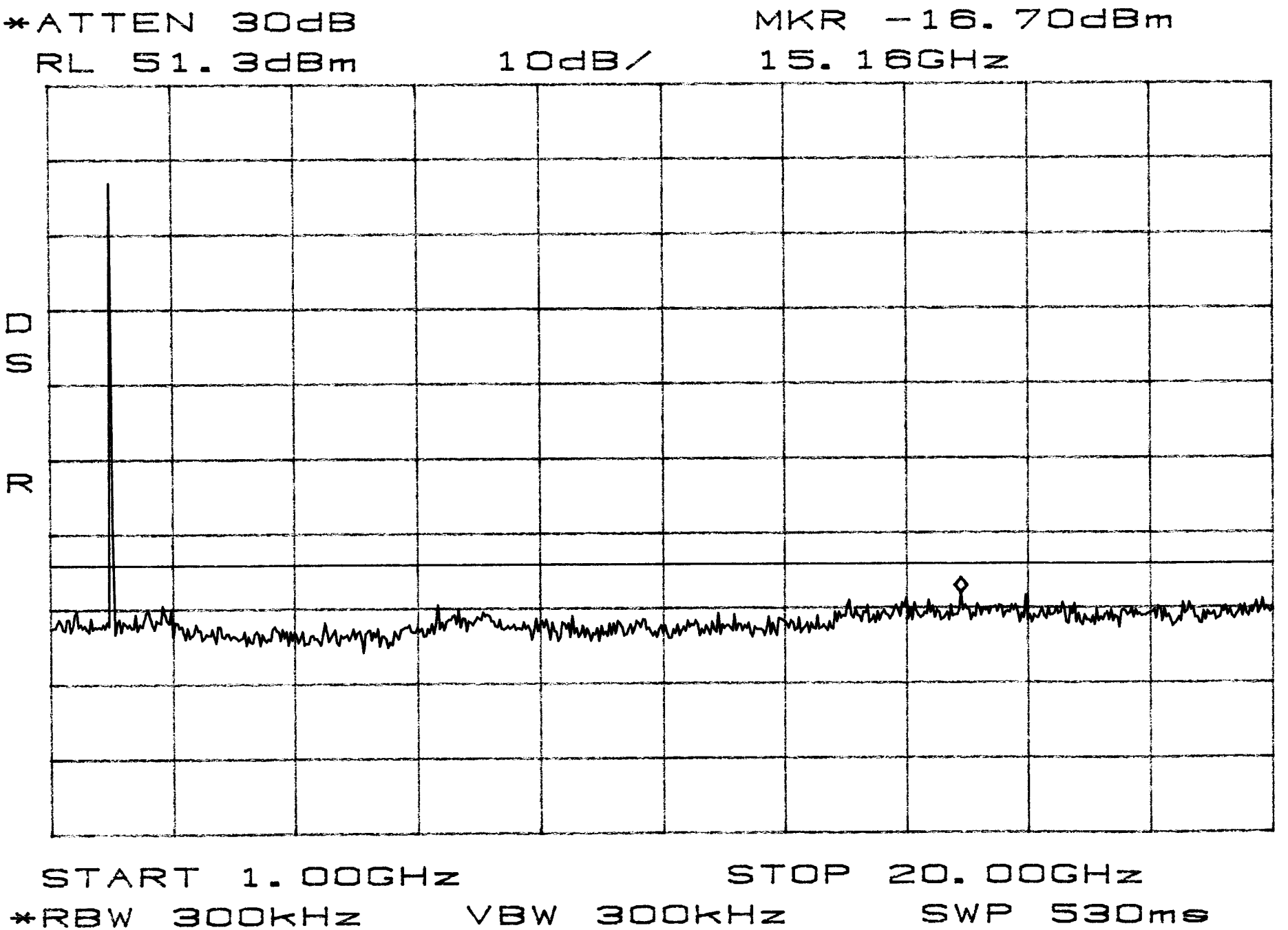
Intermodulation
Close
CDMA

BAND E, F, C

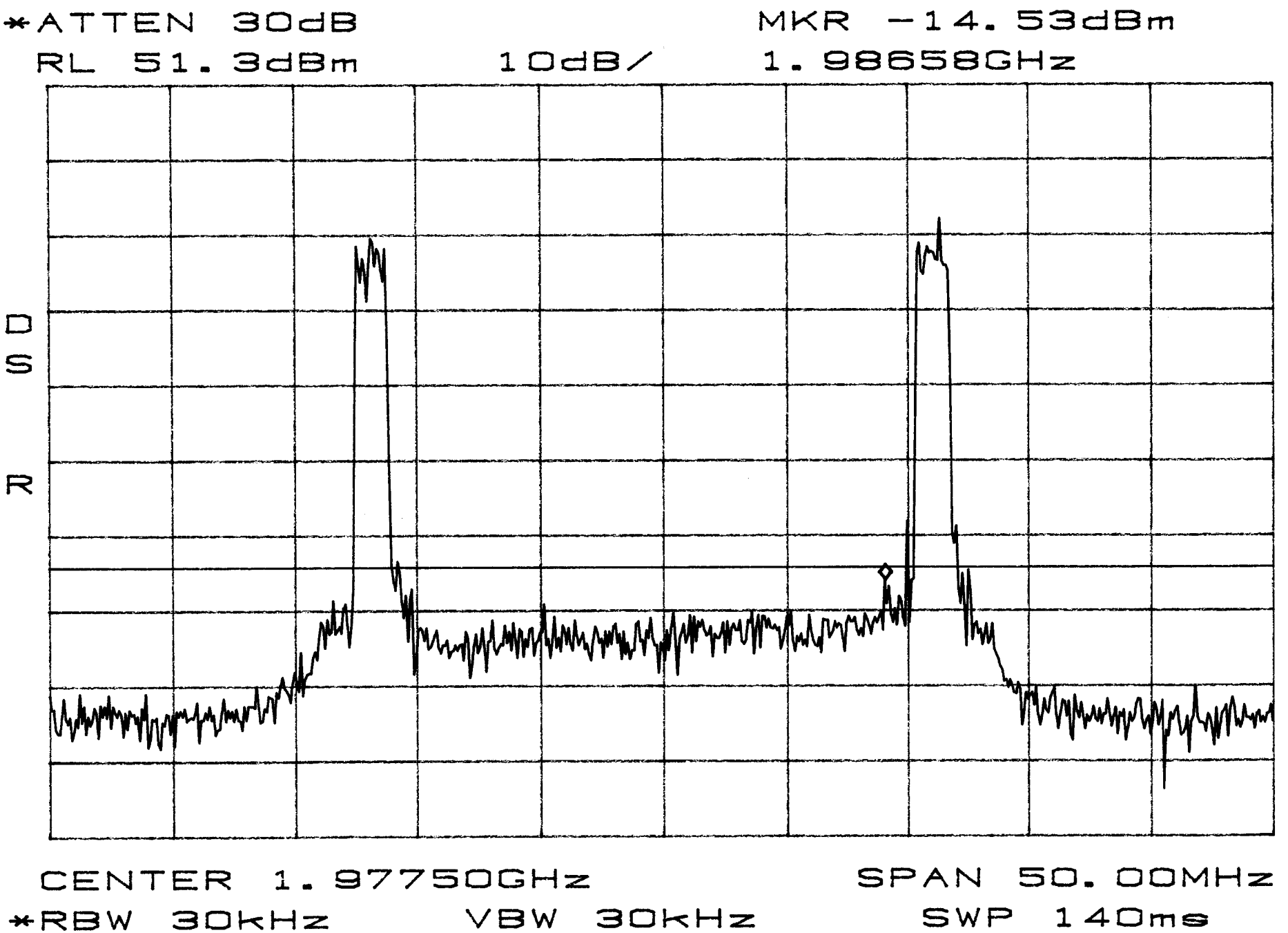


Intermodulation
Close
CDMA

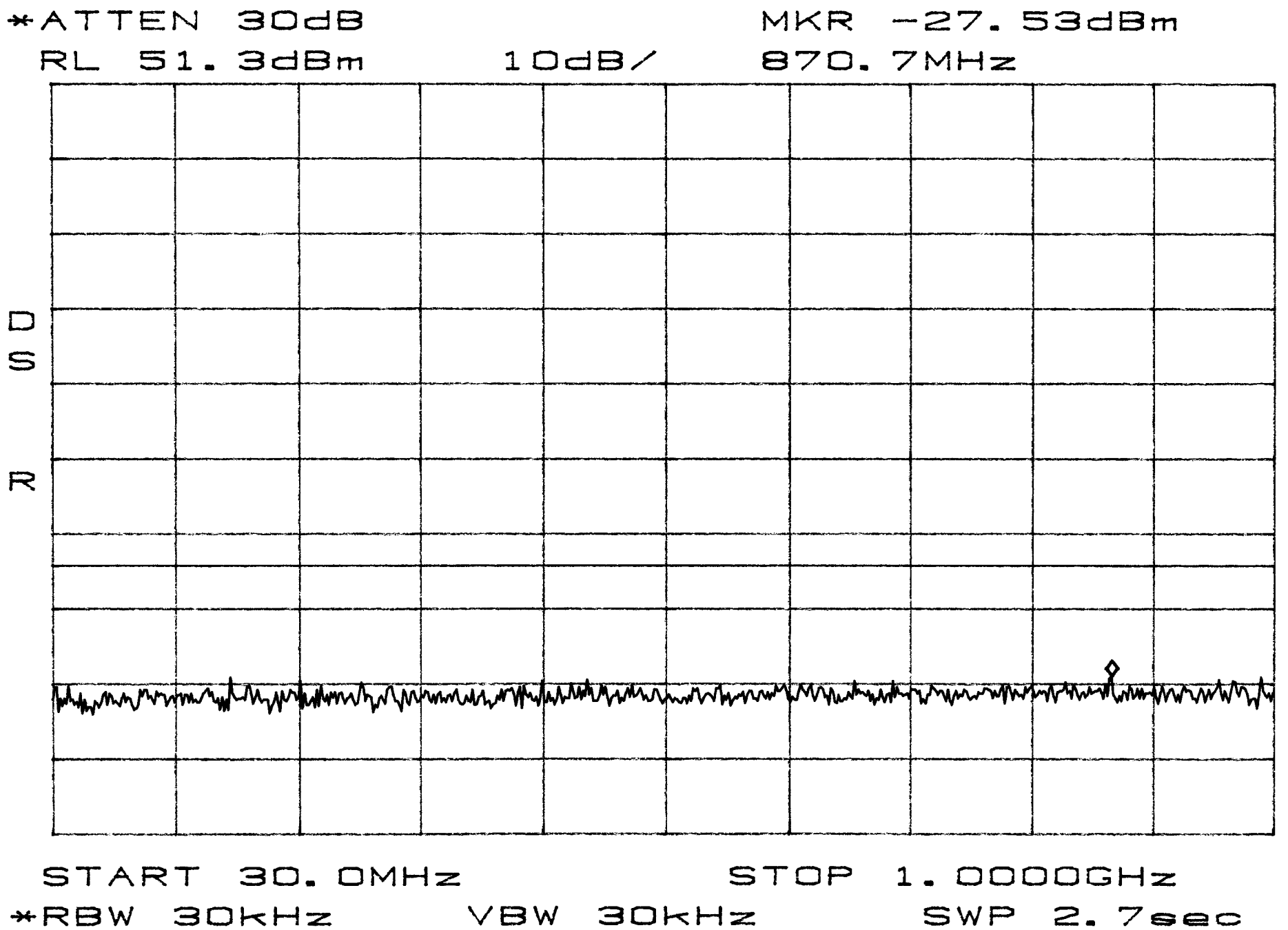
BAND E,F,C



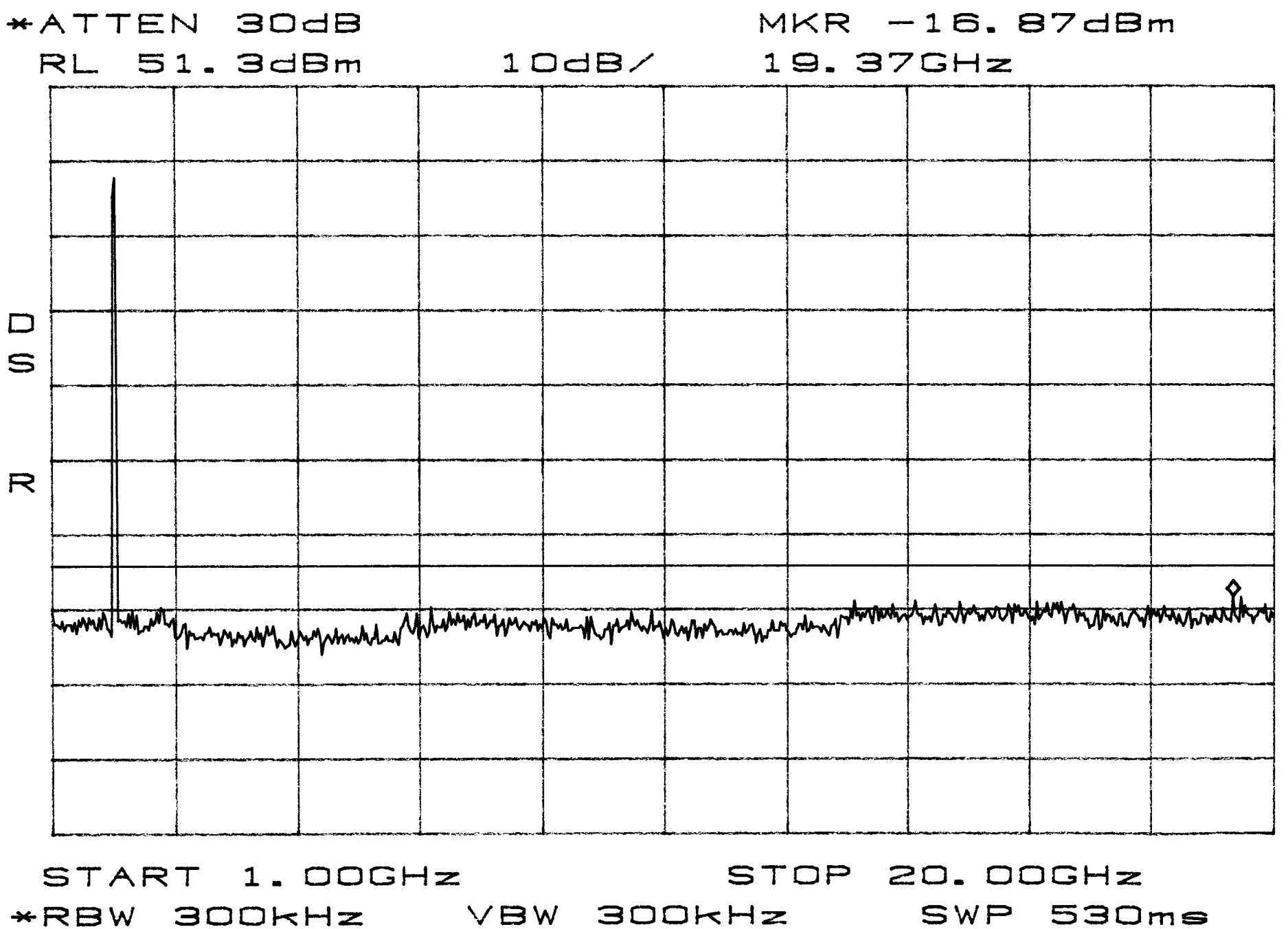
Intermodulation BAND E, F, C
Apart
CDMA



Intermodulation BAND E,F,C
Apart
CDMA



Intermodulation BAND E, F, C
Apart
CDMA



CDMA Mask Test for ADC Inc.
Digivance 1900 MHz 20 Watt System
Model Numbers DGVL-436100SYS, DGVL-446100SYS, DGVL-456100SYS and DGVL-466100SYS.

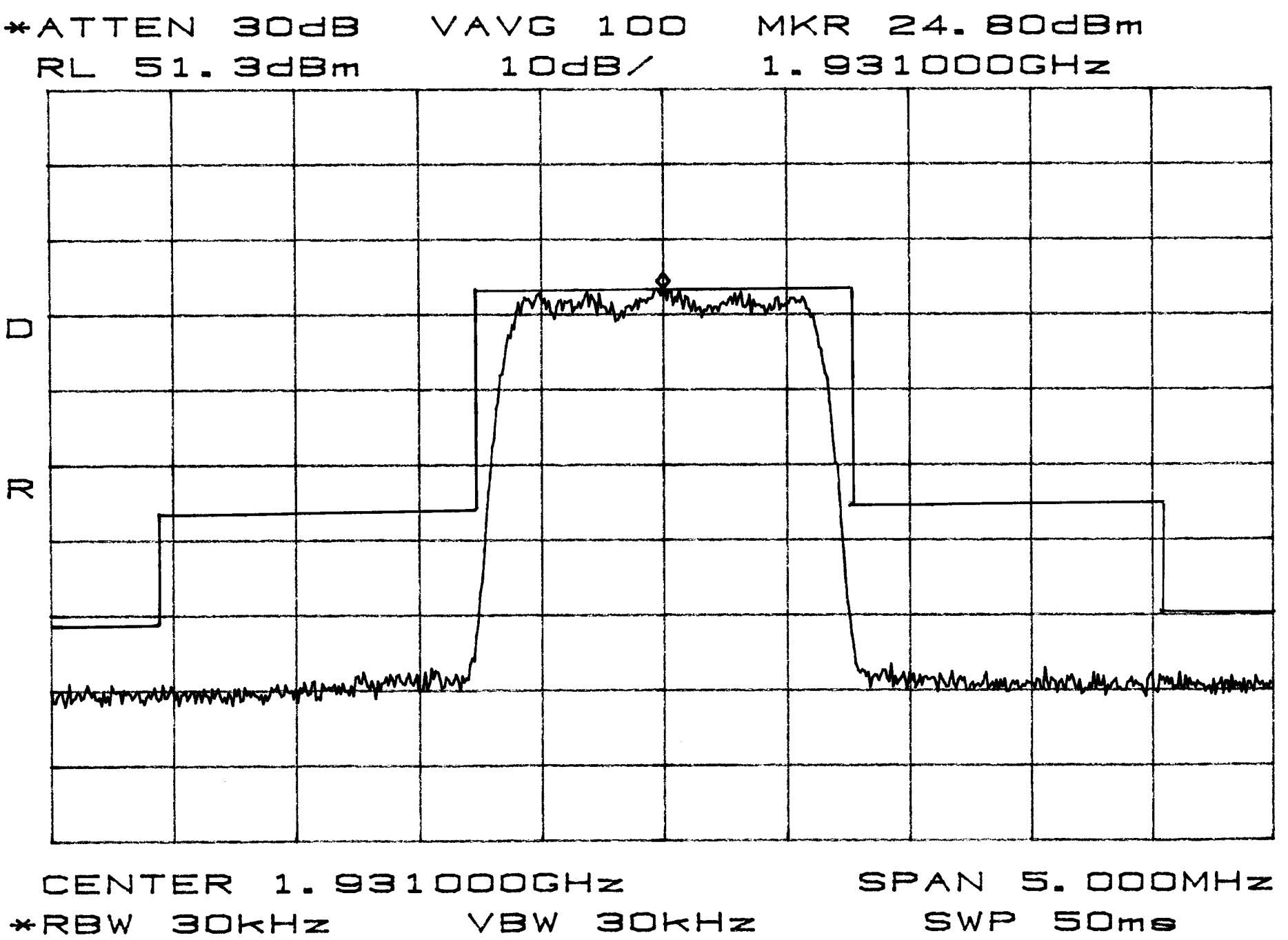
For the CDMA modulation type emission mask test, the average value of the center frequency will be 16.23dB down from the CW peak power. On any frequency removed from the center carrier frequency by up to 750 kHz the emissions are at or below 16.23dB below the peak power. On any frequency between 750 kHz and 1.98 MHz the emissions are below 45dB below the peak power. On any frequency removed from the carrier frequency by more than 1.98 MHz the emissions are below 60dB below the peak power. The test was performed at the low, mid, and high parts of the respective A, B, C, D, E, and F PCS bands.

Results:

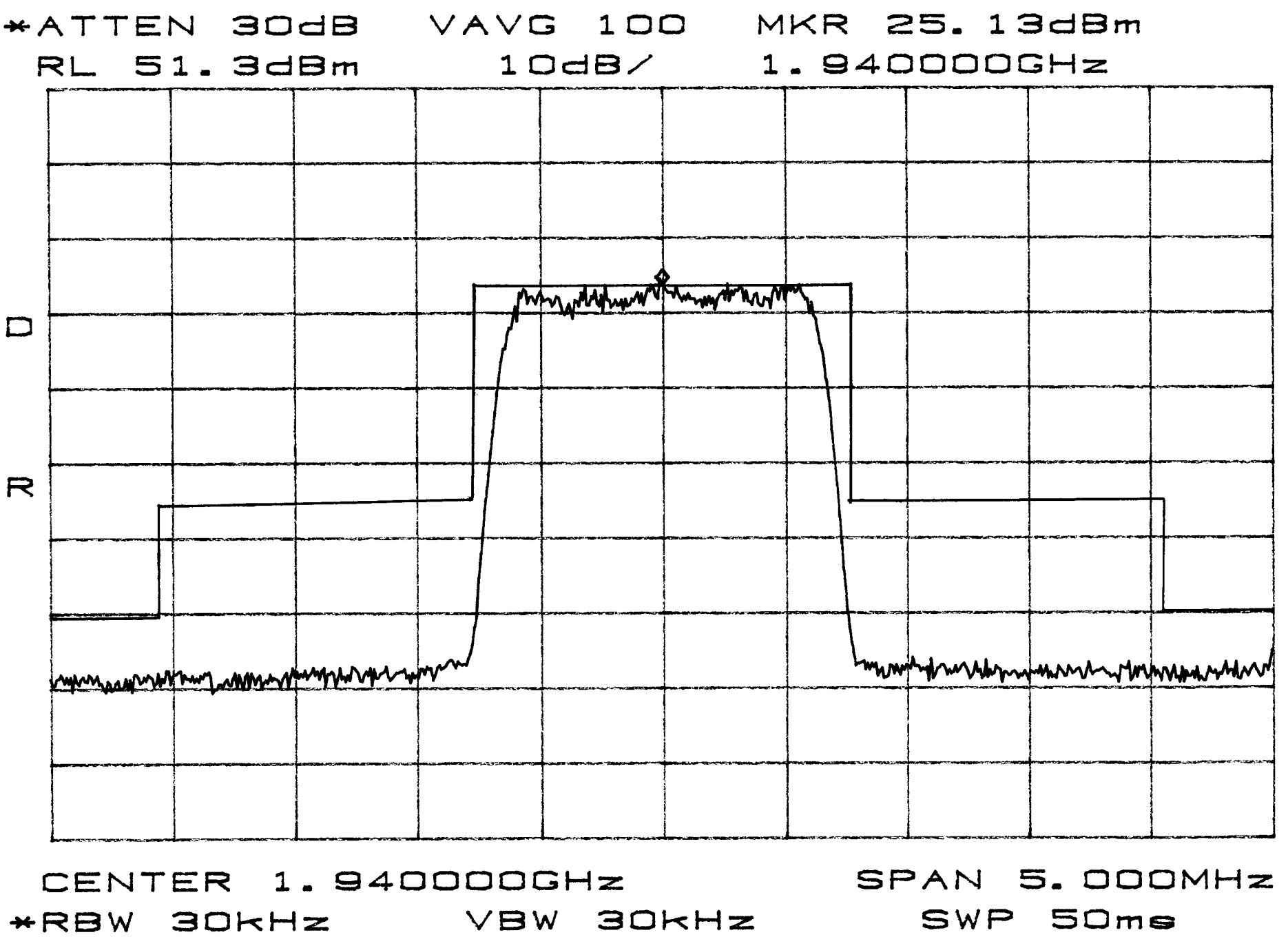
Pass (see plots)

CDMA MASK BAND A,D

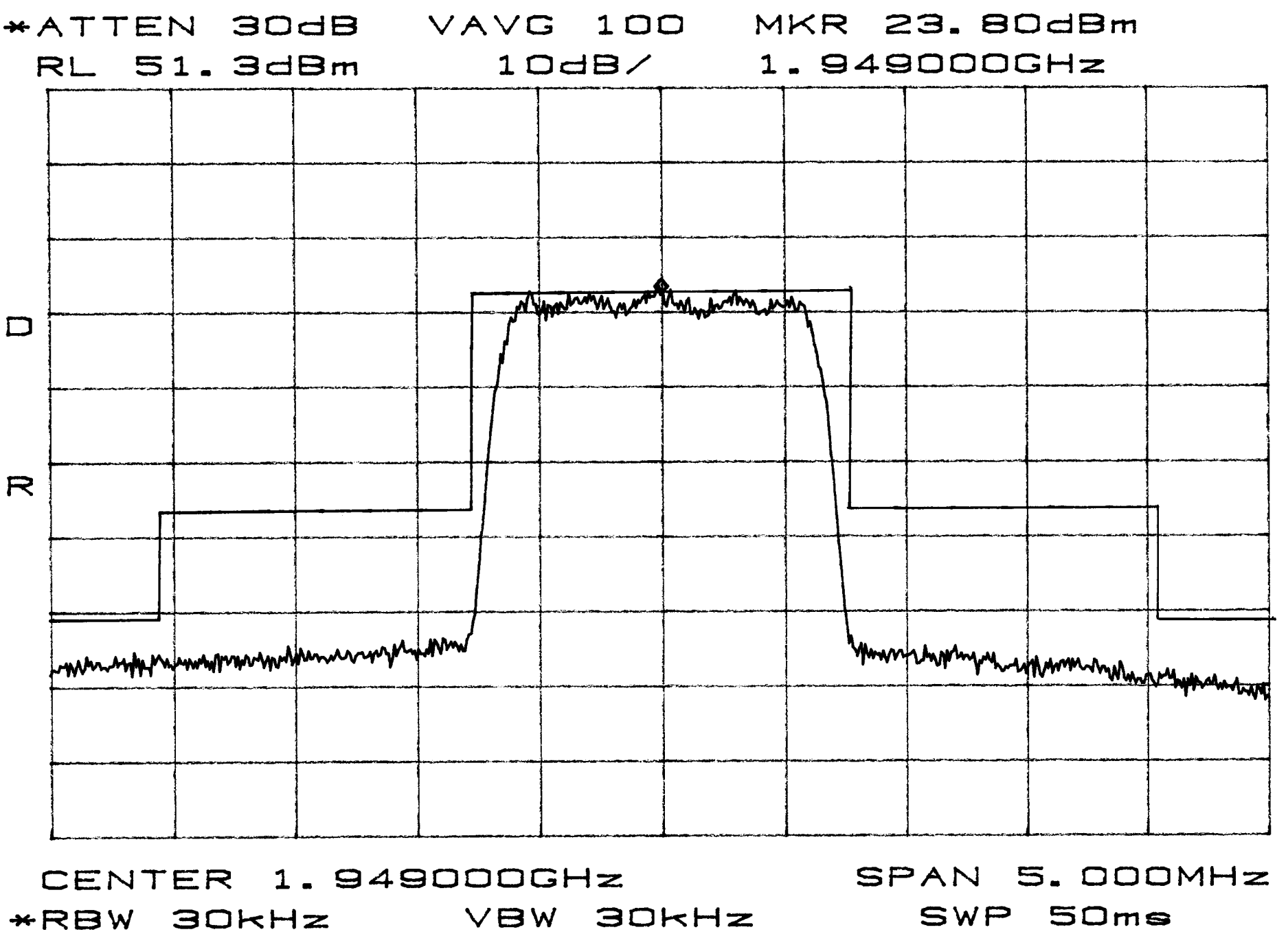
Low



CDMA MASK BAND A, D
Mid

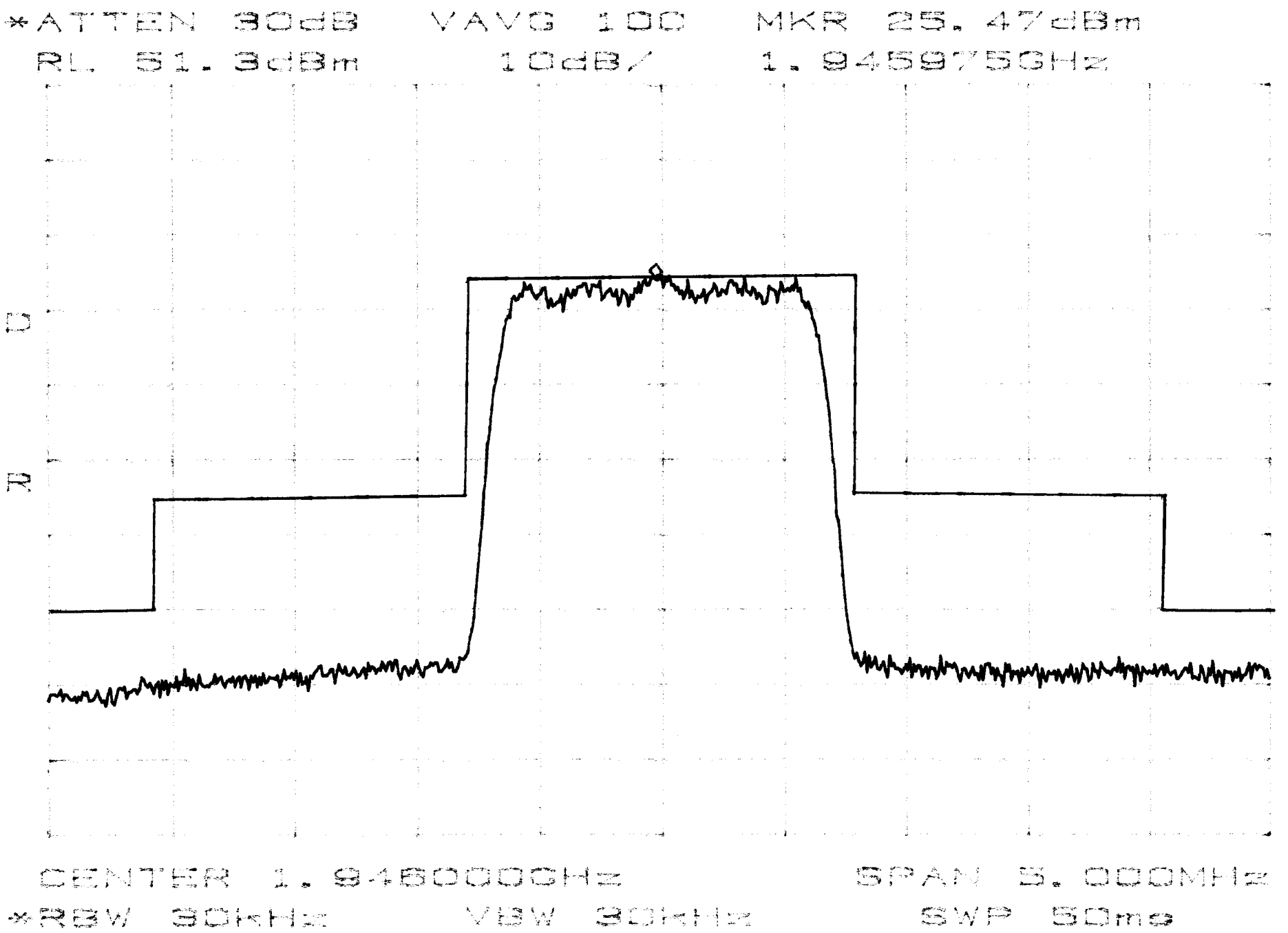


CDMA MASK BAND A,D
High

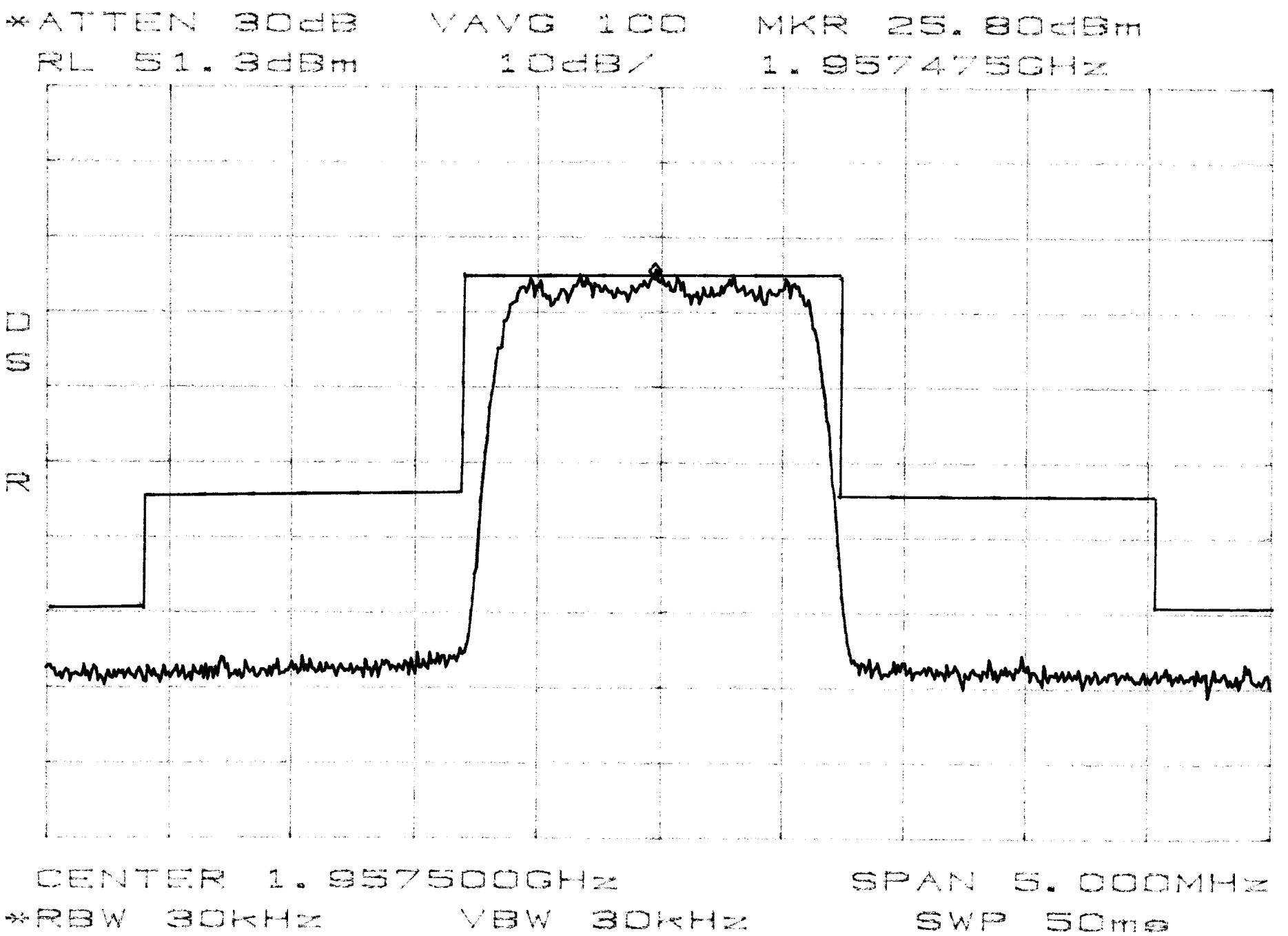


CDMA MASK BAND D,B,E

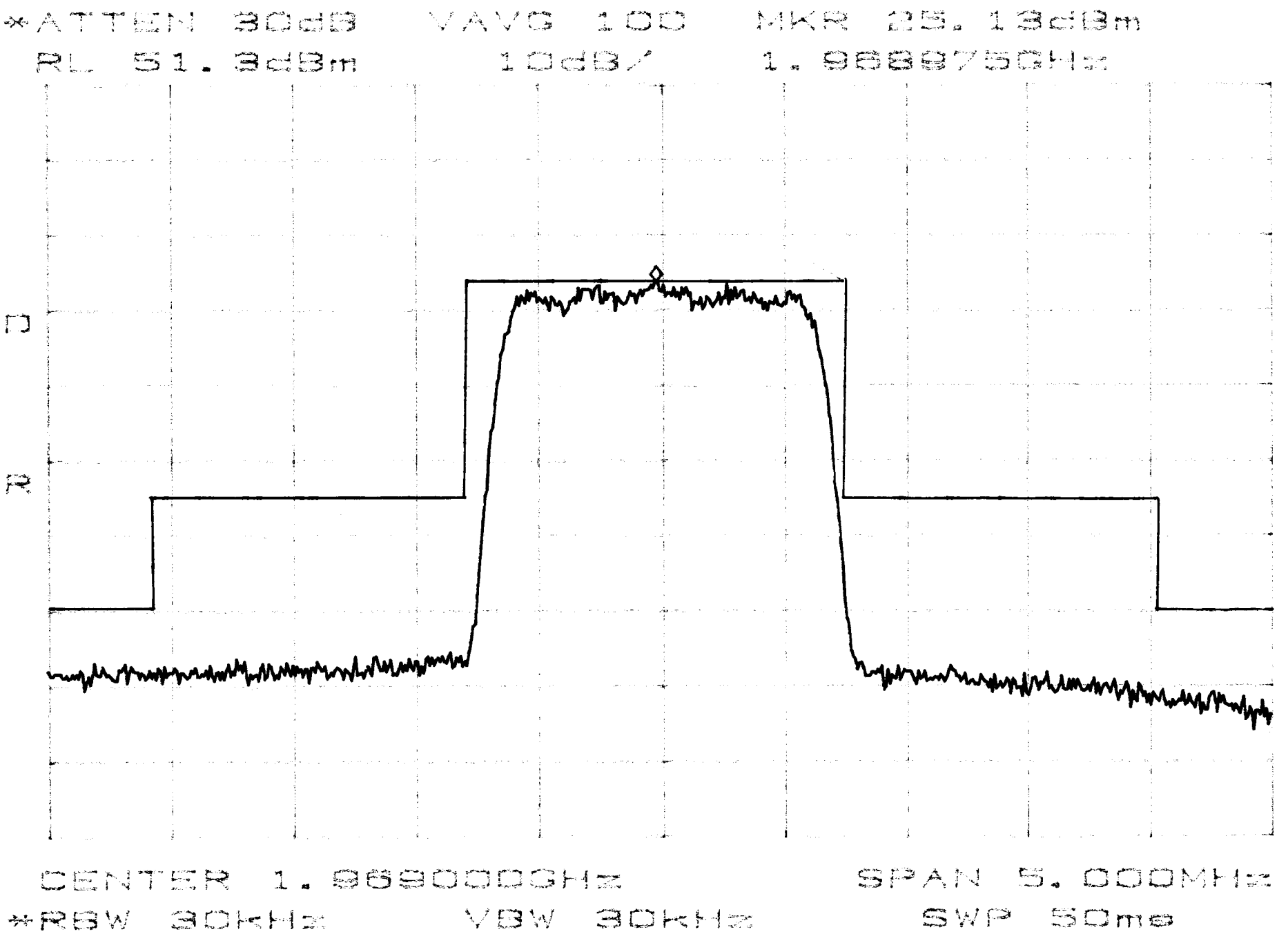
Low



CDMA MASK BAND D, B, E
Mid

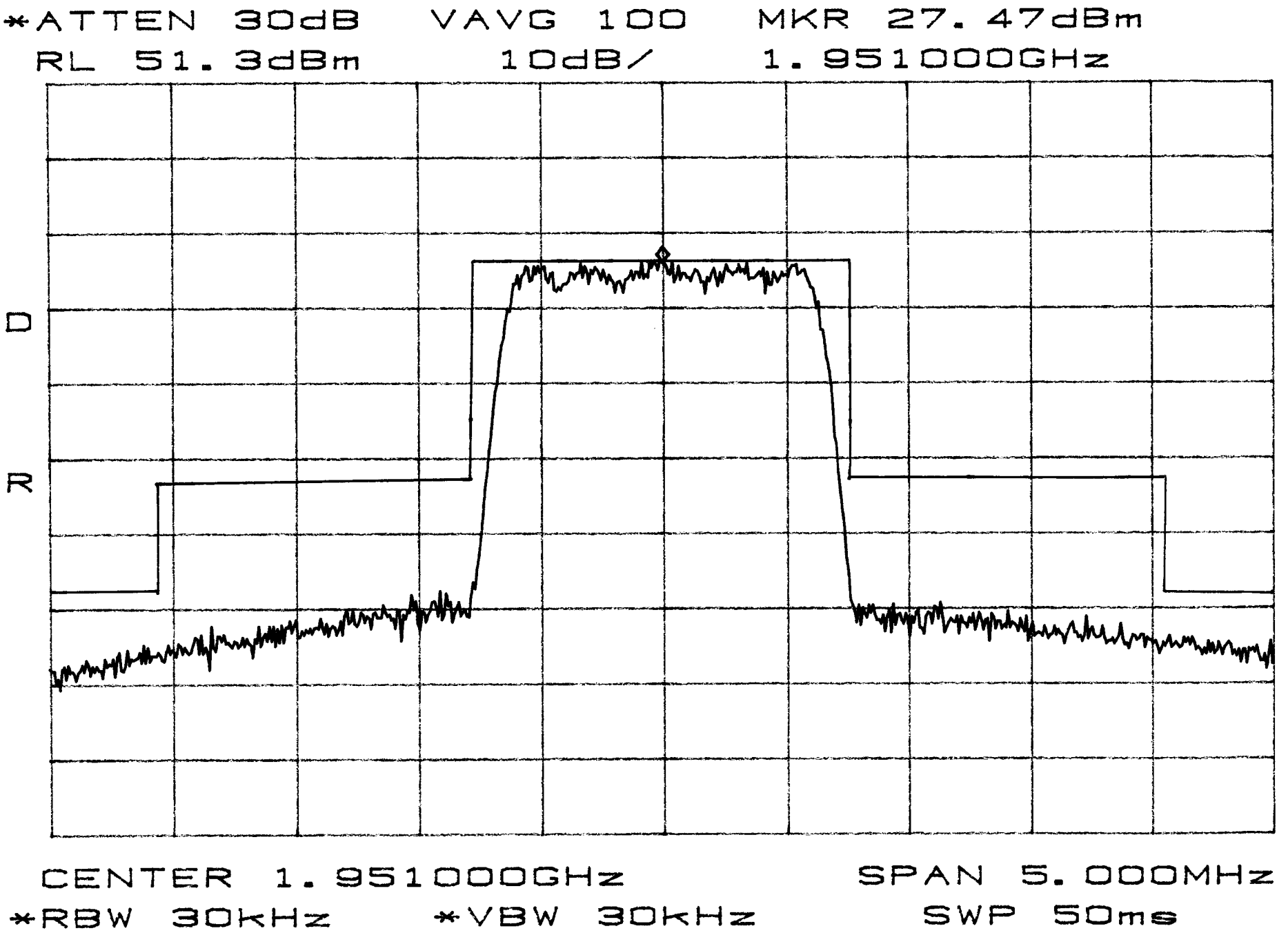


CDMA MASK BAND D,B,E
High

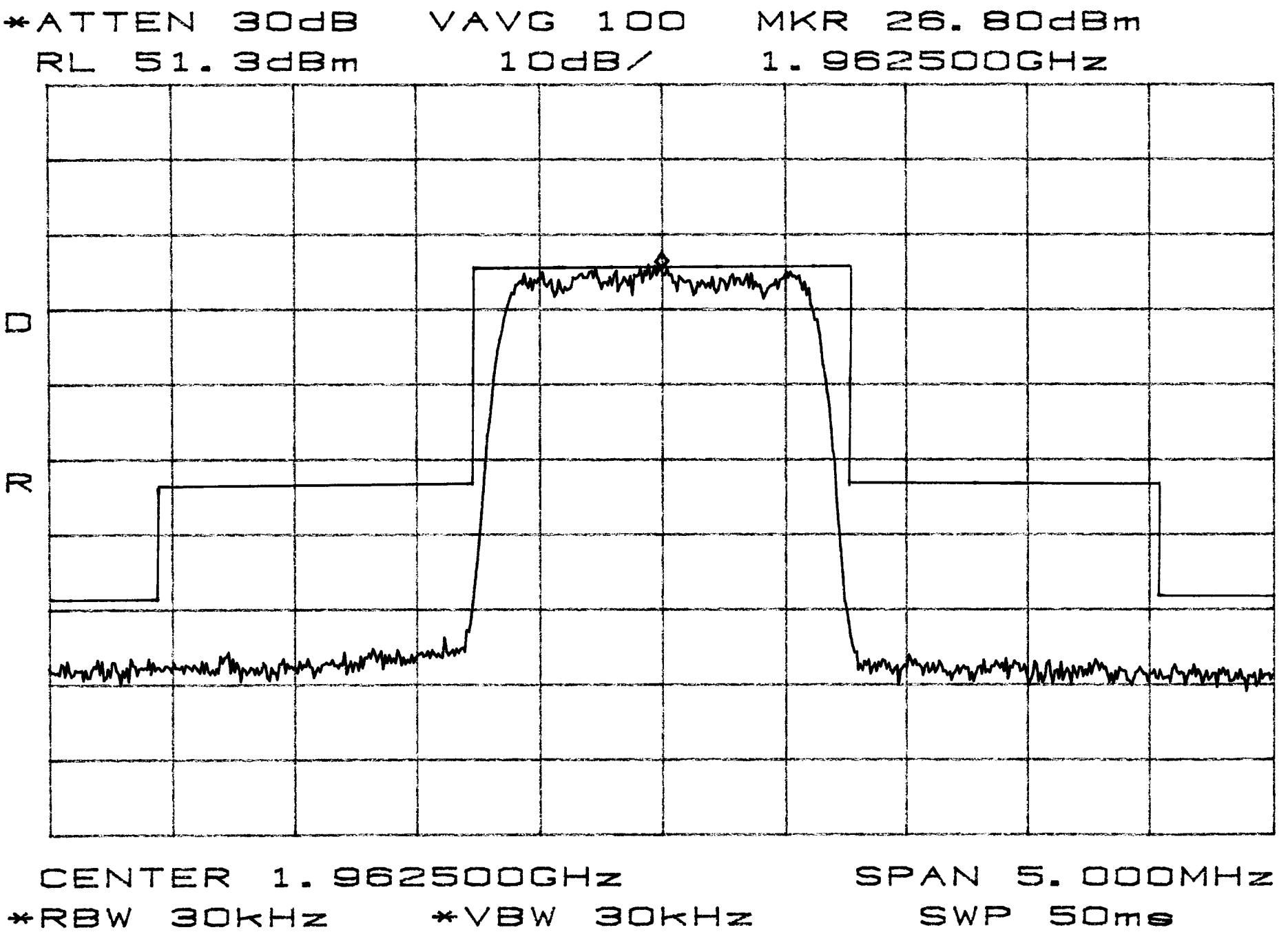


CDMA MASK BAND B,E,F

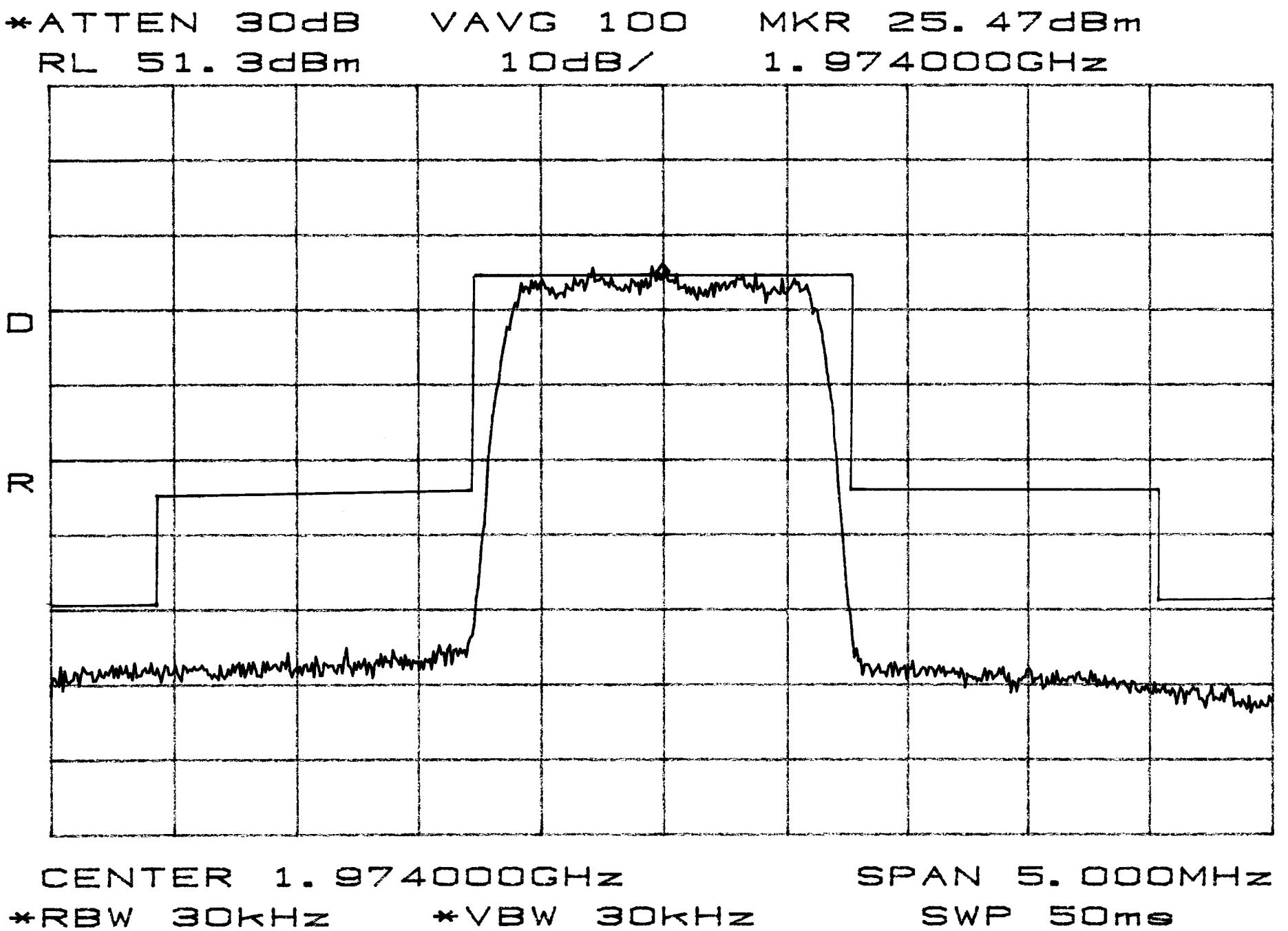
Low



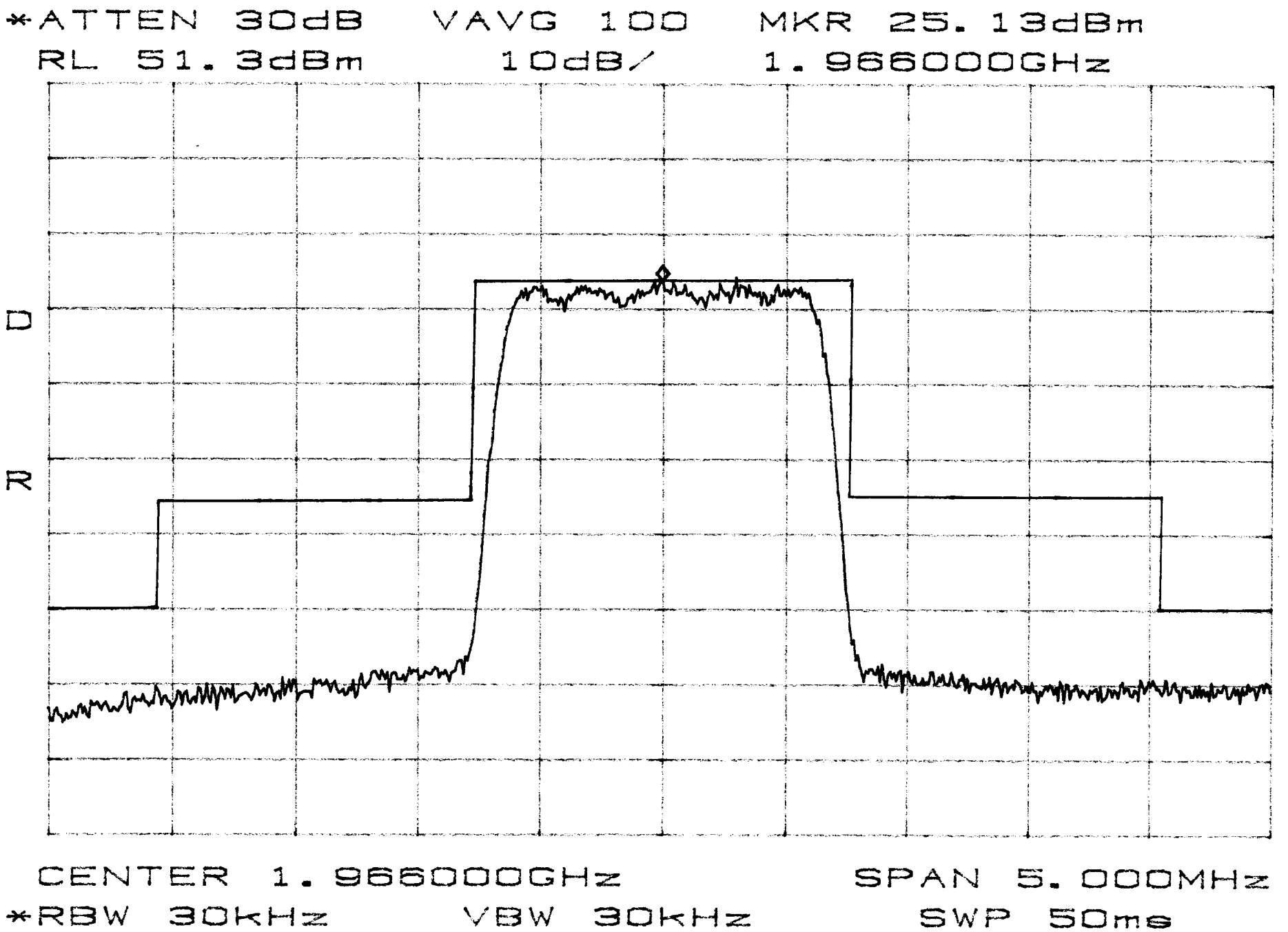
CDMA MASK BAND B,E,F
Mid



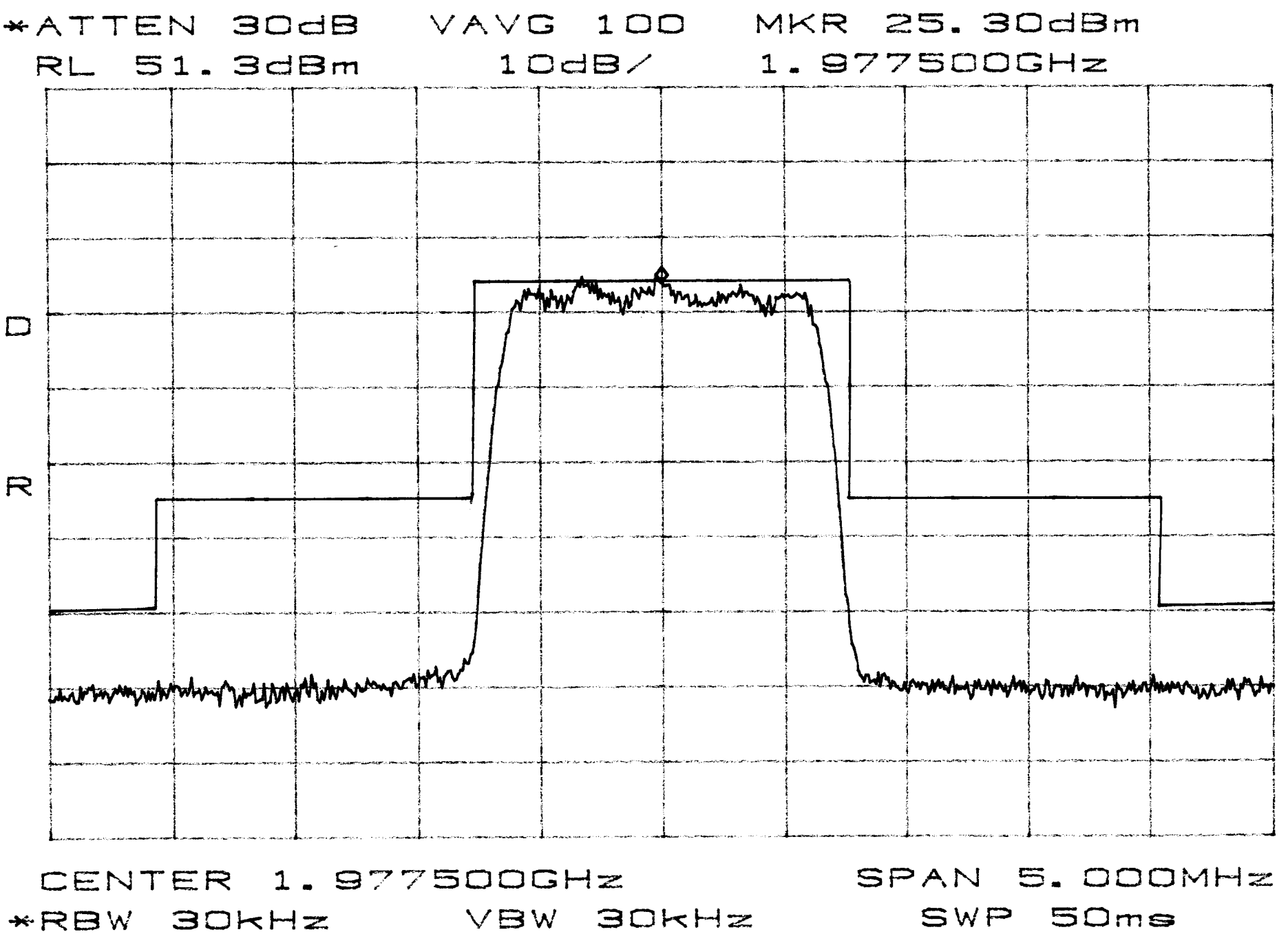
CDMA MASK BAND B,E,F
High



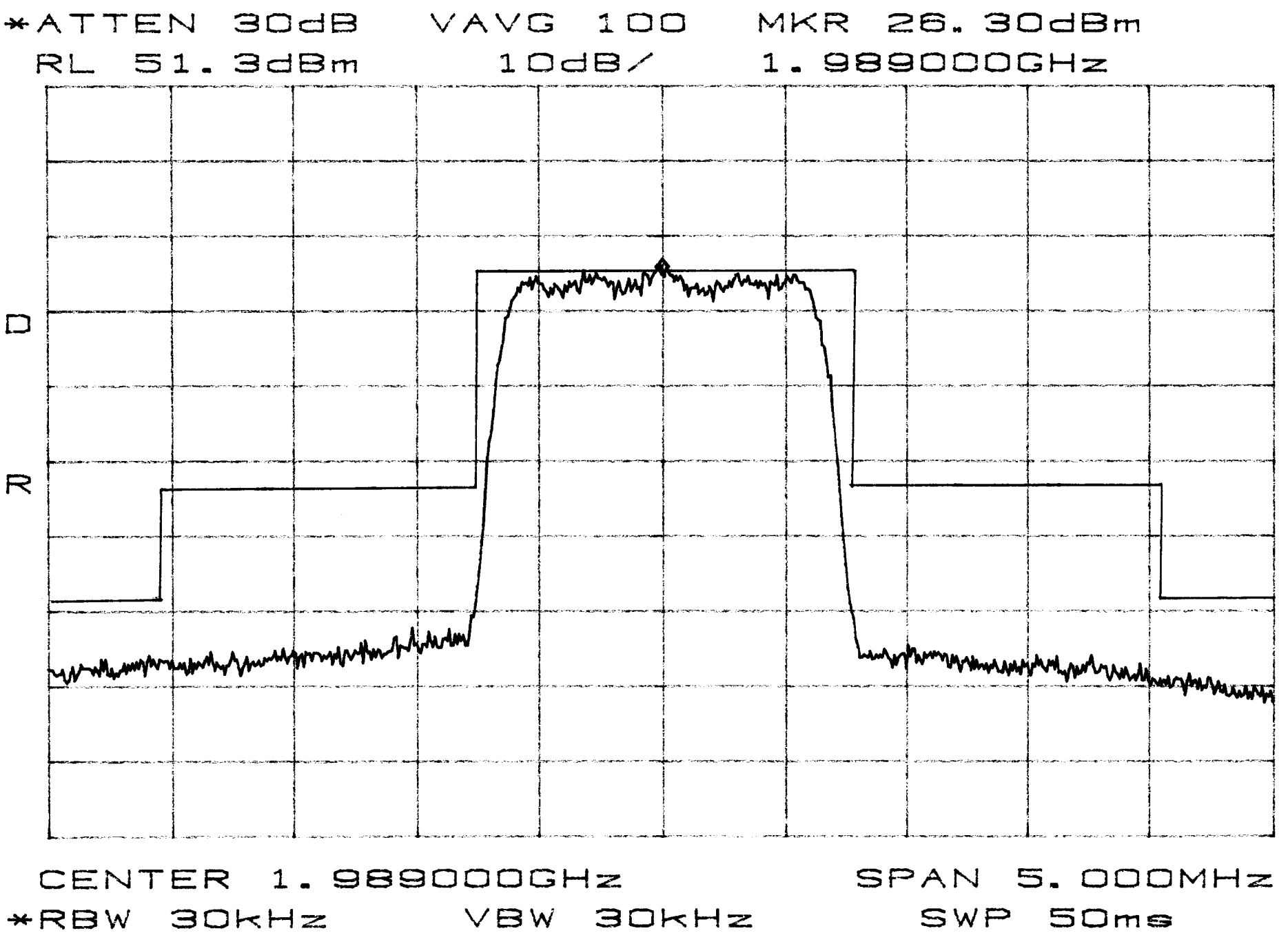
CDMA MASK BAND E,F,C
Low



CDMA MASK BAND E, F, C
Mid



CDMA MASK BAND E,F,C
High



Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

■ - Normal Operating Mode

☐ - _____

Configuration of the device under test:

The following peripheral devices and interface cables were connected during the measurement:

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

■ - unshielded cables

■ - shielded cables MPS.No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

DEVIATIONS FROM STANDARD:

None

GENERAL REMARKS:

SUMMARY:

The requirements according to the technical regulations are

■ - met

☐ - **not** met.

The device under test does

■ - fulfill the general approval requirements mentioned on page 3.

☐ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date: 01 July 2003

Testing End Date: 05 July 2003

- TÜV PRODUCT SERVICE INC -

Thomas K. Swanson

Reviewed By:
T. K. Swanson

Tested By:
K. T. H. Rose

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

TEST SETUP FOR EMISSIONS TESTING

See Test Setup Exhibit

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

Radiated emission (case radiation) test setup photos

See Test Setup Exhibit

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

Appendix A

Constructional Data Form

And/or

Product Information Form

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

Form

EMC Test Plan and Constructional Data Form

PRODUCT SERVICE

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE.

Applicant -- ***NOTE: This information will be input into your test report as shown below.***
Press the F1 key at any time to get HELP for the current field selected.

Company:	ADC Inc.		
Address:	P.O. Box 1101		
	Minneapolis, MN 55440-1101		
Contact:	Mark F. Miska	Position:	Compliance Engineer
Phone:	952-917-0326	Fax:	952-917-0181
E-mail Address:	mark_miska@adc.com		

General Equipment Description -- ***NOTE: This information will be input into your test report as shown below.***

EUT Description	Transports RF between a remote antenna and a customer provided base station.		
EUT Name	Digivance 1900 MHz 20 Watt System (A, B, C, D, E, and F Band)		
Model No.:	DGVL-436100SYS, DGVL-446100SYS, DGVL-456100SYS, and DGVL-466100SYS	Serial No.:	None
Product Options:	None		
Configurations to be tested:	1900 MHz 20 Watt A, B, C, D, E, and F Band		

Test Objective

- ☐ EMC Directive 89/336/EEC (EMC) Std:
- ☐ Machinery Directive 89/392/EEC (EMC Std:
- ☐ Medical Device Directive 93/42/EEC (EMC) Std:
- ☐ Vehicle Directive 72/245/EEC (EMC) Std:
- ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)

- ☒ FCC: Class ☐ A ☐ B Part 24
- ☐ VCCI: Class ☐ A ☐ B
- ☐ BCIQ: Class ☐ A ☐ B
- ☐ Canada: Class ☐ A ☐ B
- ☐ Australia: Class ☐ A ☐ B
- ☐ Other:

TÜV Product Service Certification Requested

- ☐ Attestation of Conformity (AoC)
- ☐ Certificate of Conformity (CoC)
- ☐ International EMC Mark (IEM)
- ☐ Compliance Document

Protection Class (N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III

(Press **F1** when field is selected to show additional information on Protection Class.)

EMC Test Plan and Constructional Data Form

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Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TUV Product Service should:

☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____

☐ Continue testing to complete test series.

☐ Continue testing to define corrective action.

☐ Stop testing.

EUT Specifications and Requirements

Length: 19" Width: 26" Height: 23" Weight: 47 LB

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 115 VAC (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 10.0 Current (Amps/phase(nominal)): 9.0

Other _____

Other Special Requirements

None

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Host indoor only with STM and LPA indoor or outdoor. System is typically employed as a Microcell.

EUT Power Cable

☐ Permanent OR ☒ Removable Length (in meters): 1

☐ Shielded OR ☒ Unshielded

☐ Not Applicable

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Interface Ports and Cables

Interface			Shielding							
Type	Analog / Digital	Qty	Yes / No	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable / Permanent	
EXAMPLE:										
RS232	☐ ☒	*2*	☒ ☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒ ☐	
RF "N" type	☒ ☐	3	☒ ☐	Braid	Coaxial	N	50 Ohms	>3	☒ ☐	
Alarm	☒ ☐	1	☐ ☒	Not Specified	N/A	6 Pin Standoff		>3	☒ ☐	
Alarm	☒ ☐	1	☐ ☒	Not Specified	N/A	4 Pin Standoff		>3	☒ ☐	
Fiber	☐ ☒	2	☐ ☒	N/A	N/A	SC	N/A	>3	☒ ☐	
9 Pin Din	☐ ☒	2	☒ ☐	Not Specified	AC Coupled	Din		>3	☒ ☐	
Net in	☐ ☒	1	☐ ☒	Not Specified	N/A	Cat 5		>3	☒ ☐	
Net out	☐ ☒	1	☐ ☒	Not Specified	N/A	Cat 5		3	☒ ☐	
DC power block	☒ ☐	1	☐ ☒	None		Terminal		>3	☒ ☐	
AC power	☒ ☐	1	☐ ☒	None				<3	☒ ☐	
STM to Amp Interconnect	☒ ☒	1	☒ ☒	Varied	Chassis	Special		.3	☒ ☐	
Battery Connection	☐ ☐	1	☐ ☒	N/A	N/A	2 Pin Standoff		<1	☒ ☐	
	☐ ☐		☐ ☐						☐ ☐	

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Software.

Revision Level: Version 0.00.00.12

Description: Digivance Element Management System (DEMS). System Management and Interface Matching Software.

EUT Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. Max composite in and out

2.

3.

EUT System Components -- List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

Description	Model #	Serial #	FCC ID #
Host Unit	DGVL-401000HU	None	
STM AD Band	DGVL-431000STM	None	
STM DBE Band	DGVL-441000STM	None	
STM BEF Band	DGVL-451000STM	None	
STM EFC Band	DGVL-461000STM	None	
LPA	DGVL-406000LPA	None	
Digivance LRCS 1900 MHz 20 Watt System consist of the HU, STM, and LPA.			

EMC Test Plan and Constructional Data Form

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

Description	*Model #*	*Serial #*	*FCC ID #*
Signal Generator	HP E4436B	963739	
DC Power Supply	HPD 60-5	MC27884	

Oscillator Frequencies

Frequency	*Derived Frequency*	*Component # / Location*	*Description of Use*

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
ADC			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*
None		

EMC Test Plan and Constructional Data Form

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Critical EMI Components (Capacitors, ferrites, etc.)

Description	*Manufacturer*	*Part # or Value*	*Qty*	*Component # / Location*
None				

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

None

(PLEASE INSERT "**ELECTRONIC SIGNATURE**" BELOW IF POSSIBLE)

Authorization Signatures

Mark D. Mosher — 4-16-03

Customer authorization to perform tests according to this test plan. — Date

Test Plan/CDF Prepared By (please print) — Date

Reviewed by TÜV Product Service Associate — Date