

TEST RESULT SUMMARY

FCC PART 22 SUBPART H

MANUFACTURER'S NAME	ADC Telecommunications
NAME OF EQUIPMENT	Digivance Long Range Coverage Solution 800 MHz System (A and B Band)
MODEL NUMBER	DGVL-112110SYS DGVL-122110SYS
MANUFACTURER'S ADDRESS	PO Box 1101 Minneapolis MN 55440
TEST REPORT NUMBER	NC201192
TEST DATE	12 & 26 March 2002

According to testing performed at TÜV Product Service Inc, the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in FCC Part 22 Subpart H.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

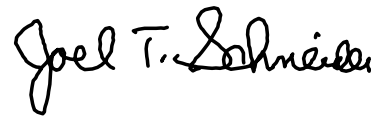
TÜV Product Service Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the requirements of FCC Part 22 Subpart H.

Date: 02 May 2002

Location: Taylors Falls MN
USA



R. M. Johnson
Test Technician
Not Transferable



J. T. Schneider
Chief Engineer

EMC EMISSION - TEST REPORT

Test Report File No. : **NC201192** Date of issue: 02 May 2002

Model / Serial No. : **DGVL-112110SYS /**
DGVL-122110SYS /

Product Type : Digivance Long Range Coverage Solution 800 MHz System
(A and B Band)

Applicant : ADC Telecommunications

Manufacturer : ADC Telecommunications

License holder : ADC Telecommunications

Address : PO Box 1101
: Minneapolis MN 55440

Test Result : ☒ **Positive** ☐ **Negative**

Test Project Number : **NC201192**

Reference(s) : **NC201192**

Total pages including Appendices : **141**

TÜV Product Service Inc is a subcontractor to TÜV Product Service, GmbH according to the principles outlined in ISO/IEC Guide 25 and EN 45001. TÜV Product Service Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV Product Service Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV Product Service Inc issued reports. This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval. This report shall not be used by the client to claim product endorsement by NVLAP or any agency of the US government.

TÜV Product Service Inc and its professional staff hold government and professional organization certifications and are members of AAMI, ACIL, AEA, ANSI, IEEE, NVLAP, and VCCI

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EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

- | | | |
|---|---|------------------------------------|
| ☐ - EN 50081-1 / 1991 | ☐ - Group 1 | ☐ - Group 2 |
| ☐ - EN 55011 / 1991 | ☐ - Class A | ☐ - Class B |
| ☐ - EN 55013 / 1990 | ☐ - Household appliances and similar | |
| ☐ - EN 55014 / 1987 | ☐ - Portable tools | |
| | ☐ - Semiconductor devices | |
| ☐ - EN 55014 / A2:1990 | ☐ - Household appliances and similar | |
| ☐ - EN 55014 / 1993 | ☐ - Portable tools | |
| | ☐ - Semiconductor devices | |
| ☐ - EN 55015 / 1987 | ☐ - Class A | ☐ - Class B |
| ☐ - EN 55015 / A1:1990 | | |
| ☐ - EN 55015 / 1993 | | |
| ☐ - EN 55022 / 1987 | | |
| ☒ - FCC Part 22 Subpart H | | |
| ☐ - BS | ☐ - Class A | ☐ - Class B |
| ☐ - VCCI | ☐ - Class A | ☐ - Class B |
| ☐ - FCC | ☐ - Class A | ☐ - Class B |
| ☐ - AS 3548 (1992) | ☐ - Class A | ☐ - Class B |
| ☐ - CISPR 11 (1990) | ☐ - Group 1 | ☐ - Group 2 |
| | ☐ - Class A | ☐ - Class B |
| ☐ - CISPR 22 (1993) | ☐ - Class A | ☐ - Class B |

Environmental conditions in the lab:

	<u>Actual</u>
Temperature	: 21 °C
Relative Humidity	: 7 %
Atmospheric pressure	: 98.6 kPa
Power supply system	: 60 Hz - 115 V - 1-phase

Sign Explanations:

- ☐ - not applicable
☒ - applicable



22.355 Frequency tolerance

The Frequency Tolerance measurements were performed at the following test location:

- - ADC facility

Frequency tolerance data on next 2 pages



Frequency Tolerance Test for ADC Inc.
Digivance Long Range Coverage System
Model Numbers DGVL-112110SYS and DGVL-122110SYS.

EUT A-Band

Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
102 VAC	869.200 MHz	869.200 MHz	Yes
120 VAC	869.200 MHz	869.200 MHz	Yes
138 VAC	869.200 MHz	869.200 MHz	Yes
102 VAC	879.000 MHz	879.000 MHz	Yes
120 VAC	879.000 MHz	879.000 MHz	Yes
138 VAC	879.000 MHz	879.000 MHz	Yes
102 VAC	891.300 MHz	891.300 MHz	Yes
120 VAC	891.300 MHz	891.300 MHz	Yes
138 VAC	891.300 MHz	891.300 MHz	Yes
Temperature	Carrier Frequency	Measured Frequency	Meets Requirements?
-30 Deg. C	869.200 MHz	869.200 MHz	Yes
-20 Deg. C	869.200 MHz	869.200 MHz	Yes
-10 Deg. C	869.200 MHz	869.200 MHz	Yes
0 Deg. C	869.200 MHz	869.200 MHz	Yes
10 Deg. C	869.200 MHz	869.200 MHz	Yes
20 Deg. C	869.200 MHz	869.200 MHz	Yes
30 Deg. C	869.200 MHz	869.200 MHz	Yes
40 Deg. C	869.200 MHz	869.200 MHz	Yes
50 Deg. C	869.200 MHz	869.200 MHz	Yes
-30 Deg. C	879.000 MHz	879.000 MHz	Yes
-20 Deg. C	879.000 MHz	879.000 MHz	Yes
-10 Deg. C	879.000 MHz	879.000 MHz	Yes
0 Deg. C	879.000 MHz	879.000 MHz	Yes
10 Deg. C	879.000 MHz	879.000 MHz	Yes
20 Deg. C	879.000 MHz	879.000 MHz	Yes
30 Deg. C	879.000 MHz	879.000 MHz	Yes
40 Deg. C	879.000 MHz	879.000 MHz	Yes
50 Deg. C	879.000 MHz	879.000 MHz	Yes
-30 Deg. C	891.300 MHz	891.300 MHz	Yes
-20 Deg. C	891.300 MHz	891.300 MHz	Yes
-10 Deg. C	891.300 MHz	891.300 MHz	Yes
0 Deg. C	891.300 MHz	891.300 MHz	Yes
10 Deg. C	891.300 MHz	891.300 MHz	Yes
20 Deg. C	891.300 MHz	891.300 MHz	Yes
30 Deg. C	891.300 MHz	891.300 MHz	Yes
40 Deg. C	891.300 MHz	891.300 MHz	Yes
50 Deg. C	891.300 MHz	891.300 MHz	Yes

Note: EUT Host is specified for indoor use only with temperature range of 0 to +50° C and was tested within its range.

Note: EUT STM and LPA are specified with a temperature range of -30 to +50° C and were tested with their range.

Frequency Tolerance Test for ADC Inc.
Digivance Long Range Coverage System
Model Numbers DGVL-112110SYS and DGVL-122110SYS.

EUT B-Band

Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
102 VAC	880.200 MHz	880.200 MHz	Yes
120 VAC	880.200 MHz	880.200 MHz	Yes
138 VAC	880.200 MHz	880.200 MHz	Yes
102 VAC	887.000 MHz	887.000 MHz	Yes
120 VAC	887.000 MHz	887.000 MHz	Yes
138 VAC	887.000 MHz	887.000 MHz	Yes
102 VAC	893.800 MHz	893.800 MHz	Yes
120 VAC	893.800 MHz	893.800 MHz	Yes
138 VAC	893.800 MHz	893.800 MHz	Yes
Temperature	Carrier Frequency	Measured Frequency	Meets Requirements?
-30 Deg. C	880.200 MHz	880.200 MHz	Yes
-20 Deg. C	880.200 MHz	880.200 MHz	Yes
-10 Deg. C	880.200 MHz	880.200 MHz	Yes
0 Deg. C	880.200 MHz	880.200 MHz	Yes
10 Deg. C	880.200 MHz	880.200 MHz	Yes
20 Deg. C	880.200 MHz	880.200 MHz	Yes
30 Deg. C	880.200 MHz	880.200 MHz	Yes
40 Deg. C	880.200 MHz	880.200 MHz	Yes
50 Deg. C	880.200 MHz	880.200 MHz	Yes
-30 Deg. C	887.000 MHz	887.000 MHz	Yes
-20 Deg. C	887.000 MHz	887.000 MHz	Yes
-10 Deg. C	887.000 MHz	887.000 MHz	Yes
0 Deg. C	887.000 MHz	887.000 MHz	Yes
10 Deg. C	887.000 MHz	887.000 MHz	Yes
20 Deg. C	887.000 MHz	887.000 MHz	Yes
30 Deg. C	887.000 MHz	887.000 MHz	Yes
40 Deg. C	887.000 MHz	887.000 MHz	Yes
50 Deg. C	887.000 MHz	887.000 MHz	Yes
-30 Deg. C	893.800 MHz	893.800 MHz	Yes
-20 Deg. C	893.800 MHz	893.800 MHz	Yes
-10 Deg. C	893.800 MHz	893.800 MHz	Yes
0 Deg. C	893.800 MHz	893.800 MHz	Yes
10 Deg. C	893.800 MHz	893.800 MHz	Yes
20 Deg. C	893.800 MHz	893.800 MHz	Yes
30 Deg. C	893.800 MHz	893.800 MHz	Yes
40 Deg. C	893.800 MHz	893.800 MHz	Yes
50 Deg. C	893.800 MHz	893.800 MHz	Yes

Note: EUT Host is specified for indoor use only with temperature range of 0 to +50° C and was tested within its range.

Note: EUT STM and LPA are specified with a temperature range of -30 to +50° C and were tested with their range.

22.913 Effective Radiated Power Limit

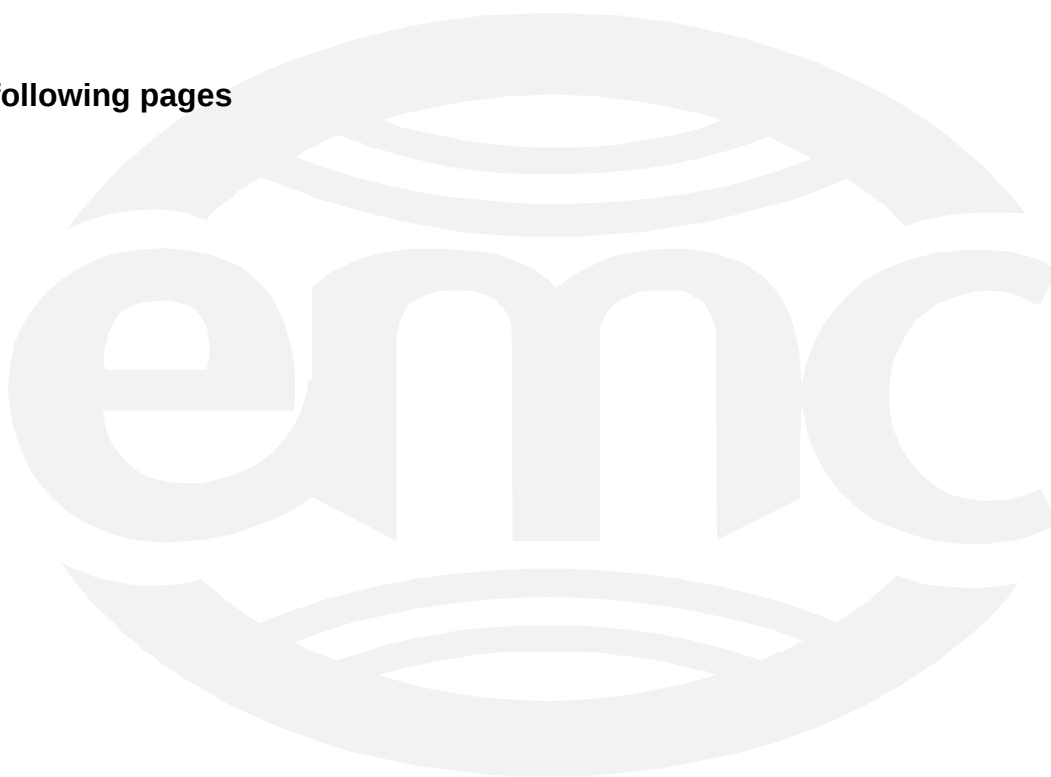
The Effective Radiated Power Limit measurements were tested at the following test location:

☐ - Test not applicable

■ - ADC facility

This measurement was made as a direct conducted emission measurement. The output from the EUT antenna connector was connected directly to the spectrum analyzer, which was set up with a 1 MHz resolution bandwidth. The spectrum analyzer level was offset by 20 dB to compensate for the attenuator placed between the EUT and the analyzer, and by 2 dB for the measured cable loss between the EUT and the analyzer.

ERP data on following pages



Effective Isotropic Radiated Power Test for ADC Inc.
Digivance LRCS 800 MHz System
Models DGVI-112110SYS, DGVI-122110SYS

*Note: The EUT is a fixed repeater and not a base station.

This measurement was made as a direct conducted emission measurement. The output from the EUT antenna connector was connected to the spectrum analyzer. 6 CW signals were used across the bandwidth of the EUT. The output of each signal was set to the emission level of 5 watts. The Carrier Output, below, was conducted using a single CW signal generator. The spectrum analyzer level was offset to compensate for attenuators and cable loss between the EUT and the analyzer.

A CW signal was used at the low, mid and high parts of the selected band. The spectrum analyzer level was offset by 56.8 dB to compensate for attenuators and cable loss between the EUT and the analyzer.

Band A

Carrier Frequency	Carrier Output
869.2 MHz	44.30 dBm
879.0 MHz	45.13 dBm
891.3 MHz	44.13 dBm

Band B

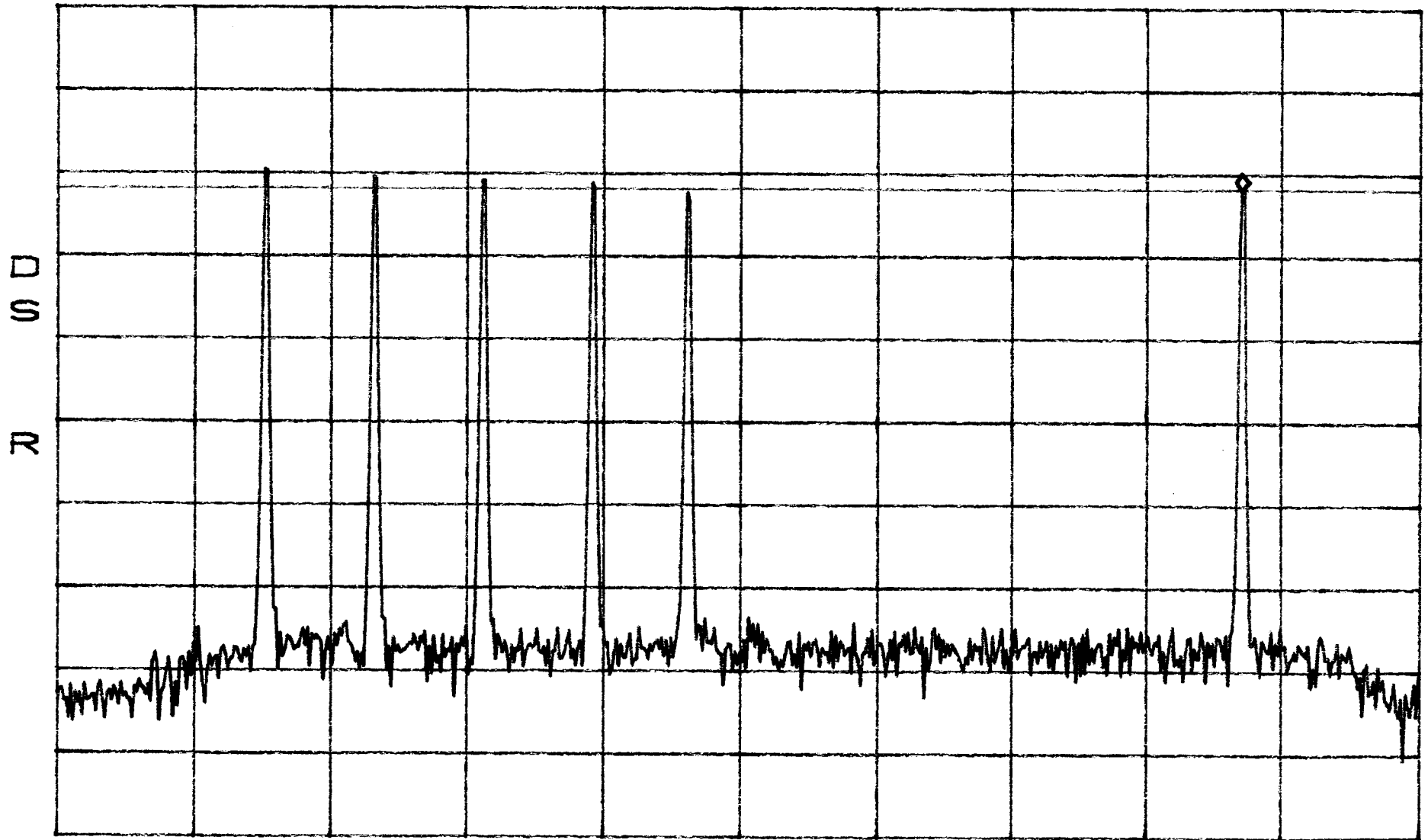
Carrier Frequency	Carrier Output
880.2 MHz	46.50 dBm
887.0 MHz	45.50 dBm
893.8 MHz	43.67 dBm

EIRP Band A
6 CW signals @ 5 watts per

ATTEN 10dB
RL 56.8dBm

MKR 34.97dBm
891.15MHz

10dB/



CENTER 880.00MHz
*RBW 30kHz VBW 30kHz

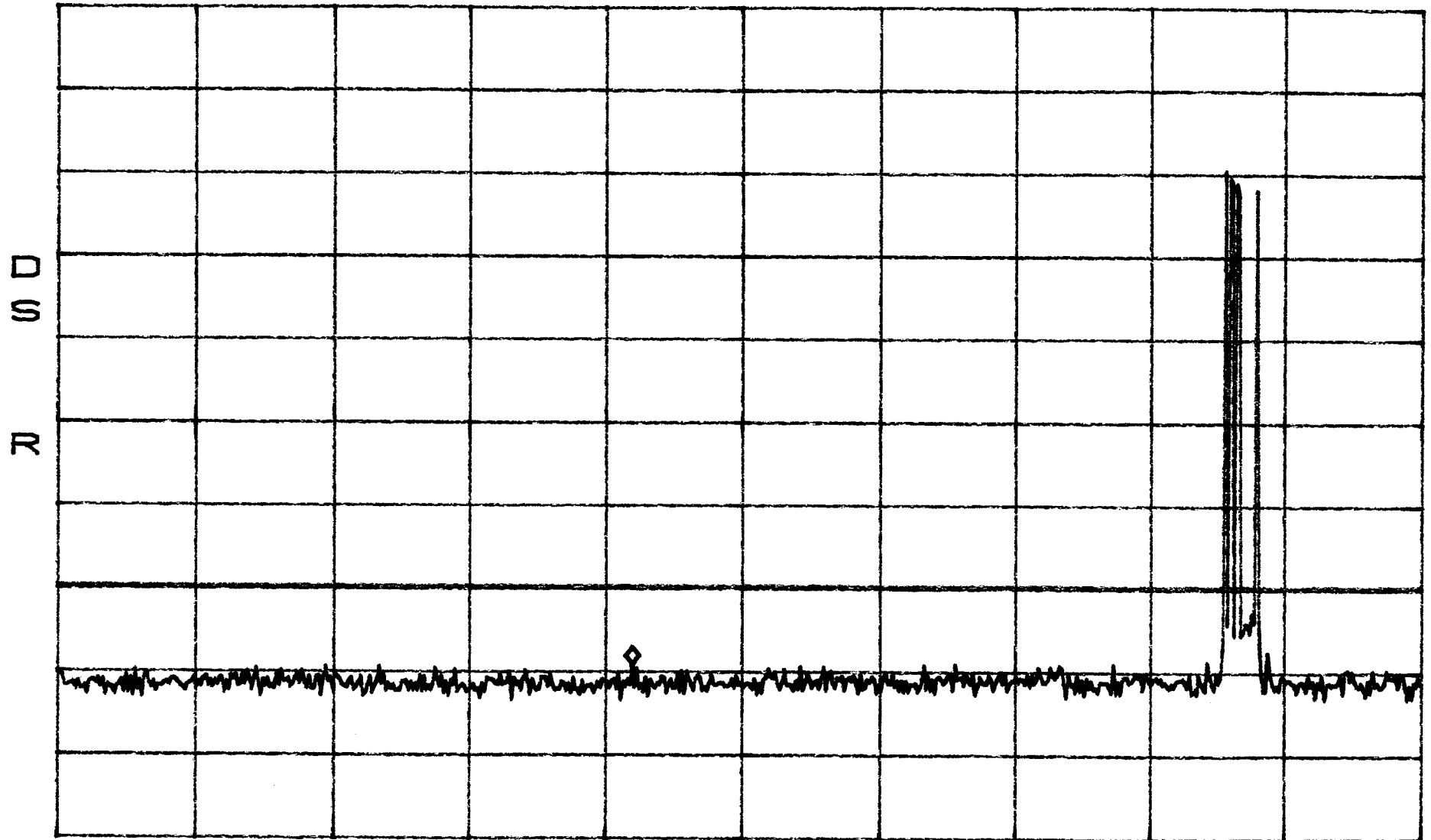
SPAN 30.00MHz
SWP 84ms

EIRP Band A
6 CW signals @ 5 watts per

ATTEN 10dB
RL 56.8dBm

10dB/

MKR -22.20dBm
437.4MHz



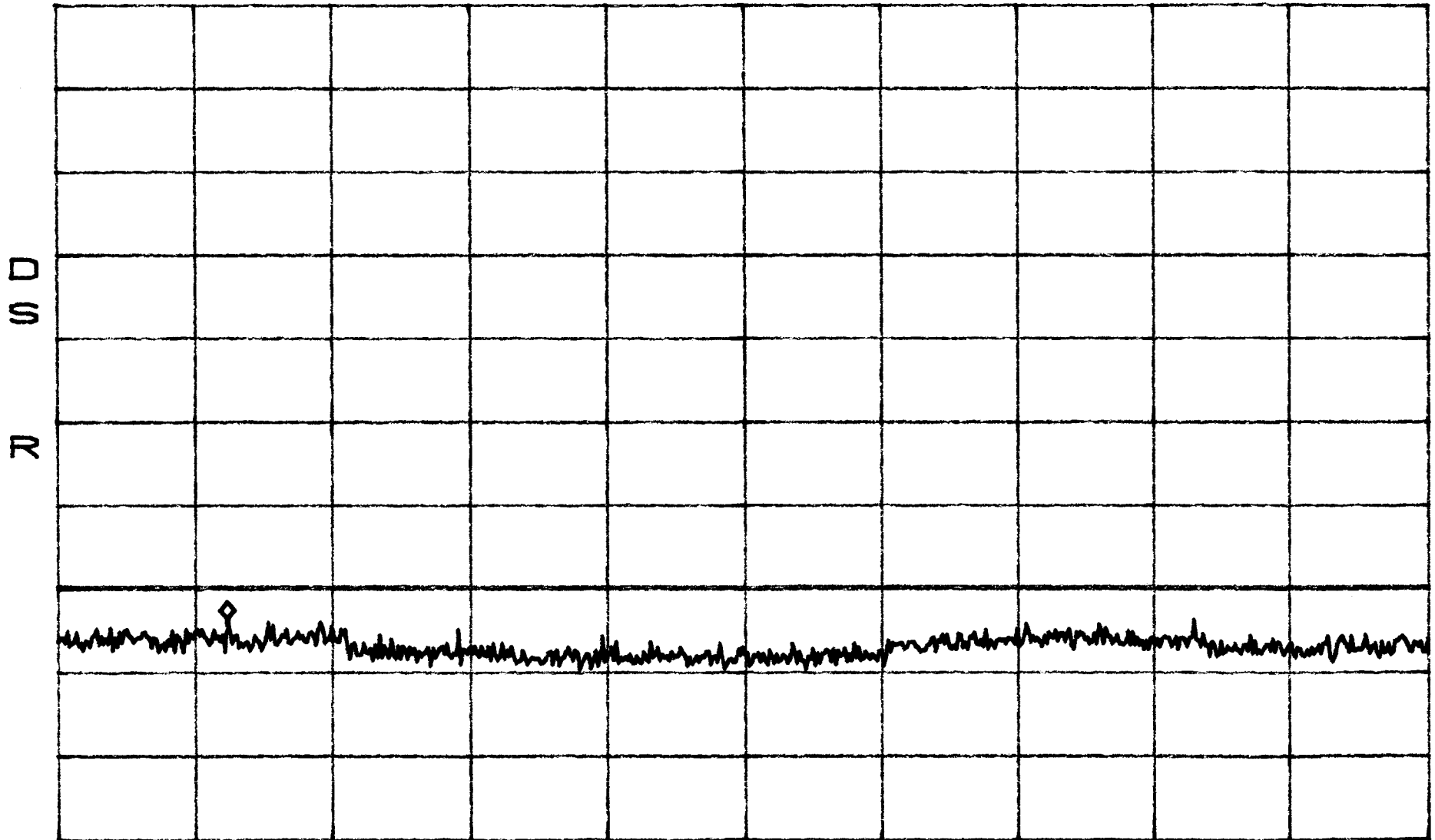
START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

EIRP BAND A
6 CW signals @ 5 watts per

ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.70dBm
2.110GHz



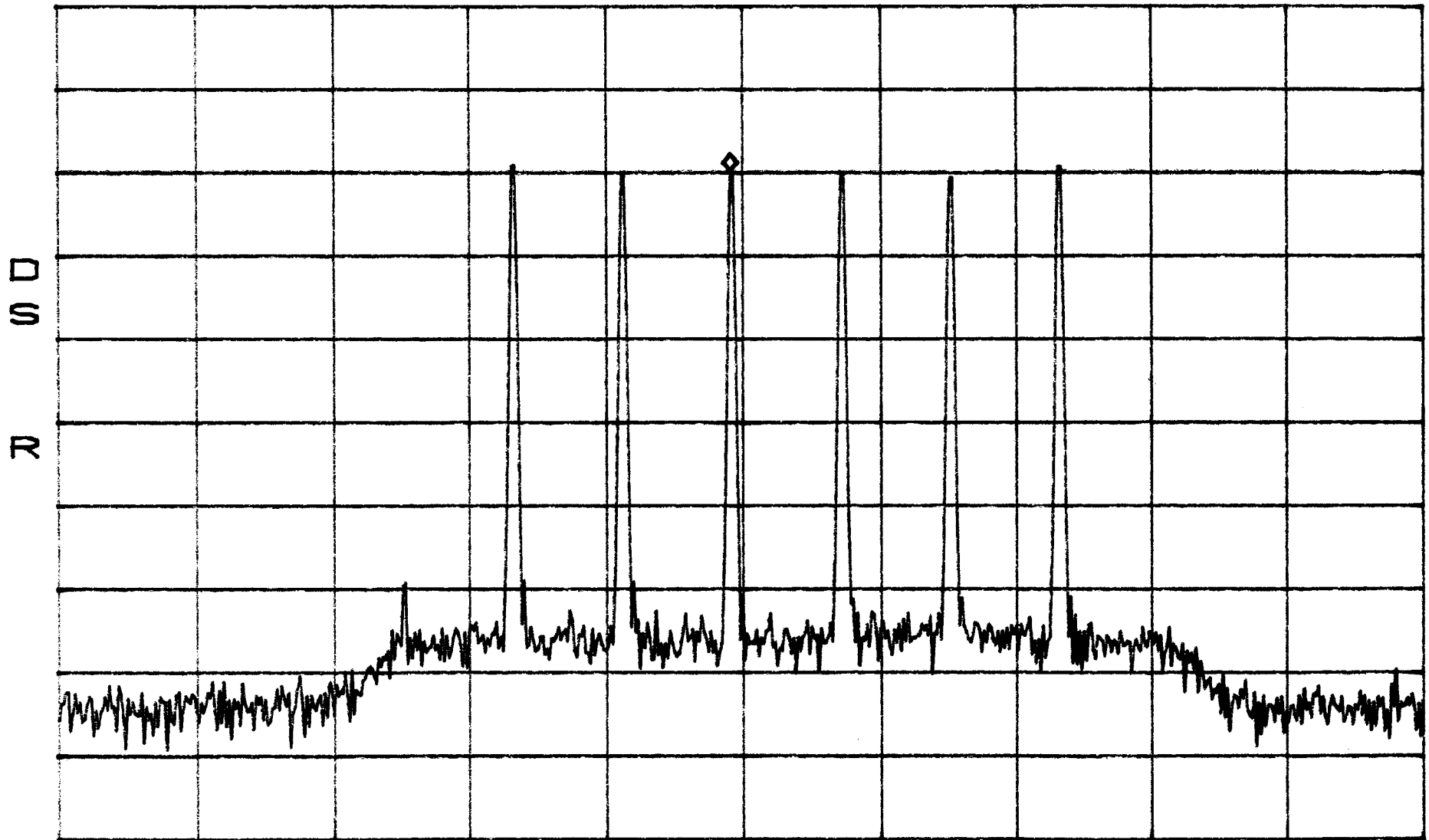
START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

EIRP BAND B
6 CW signals @ 5 watts per

ATTEN 10dB
RL 56.8dBm

10dB/

MKR 37.13dBm
885.15MHz



CENTER 885.40MHz
*RBW 30kHz VBW 30kHz

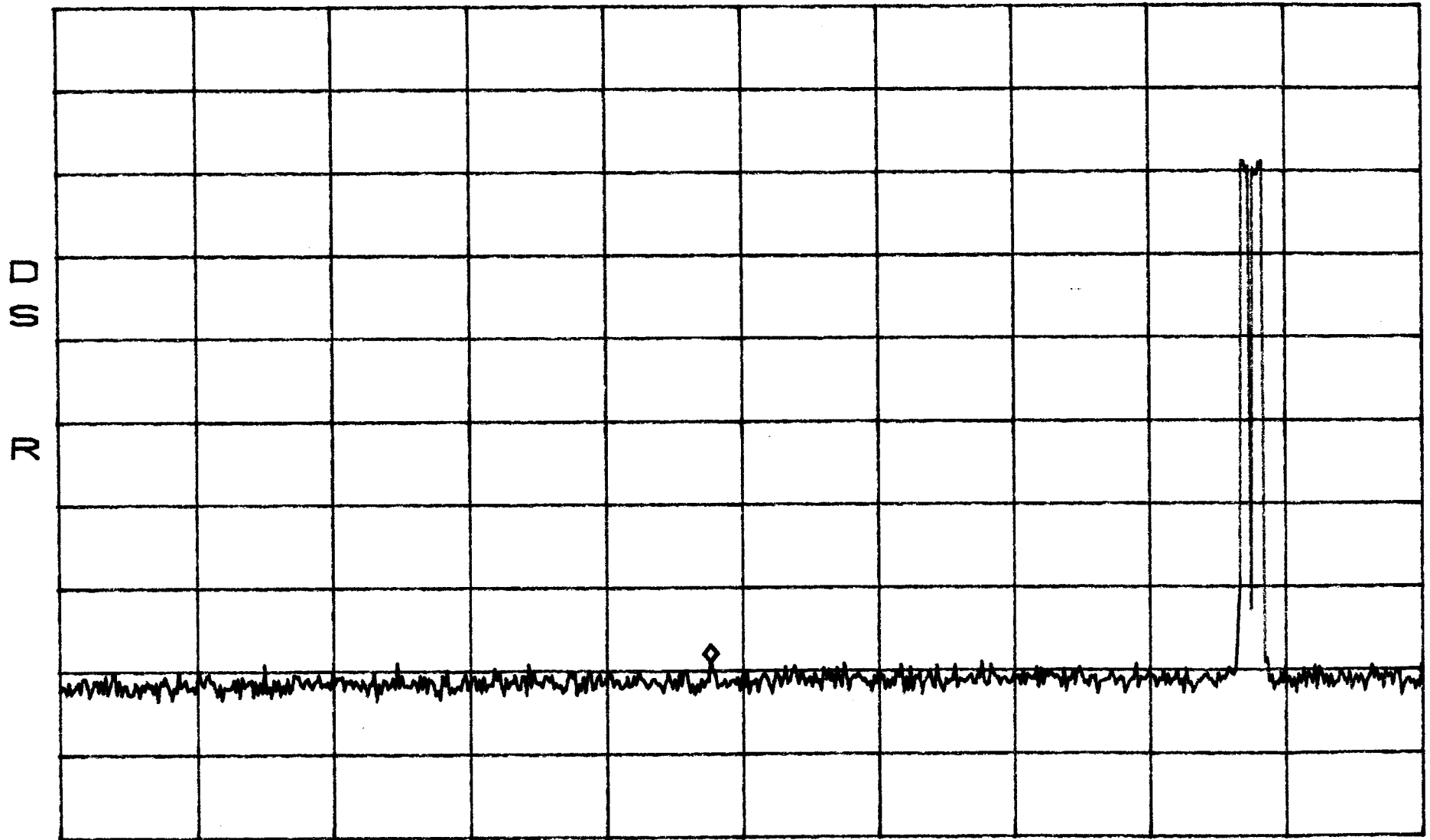
SPAN 30.00MHz
SWP 84ms

EIRP BAND B
6 CW signals @ 5 watts per

ATTEN 10dB
RL 56.8dBm

10dB/

MKR -22.03dBm
492.4MHz



START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

EIRP BAND B
6 CW signals @ 5 watts per

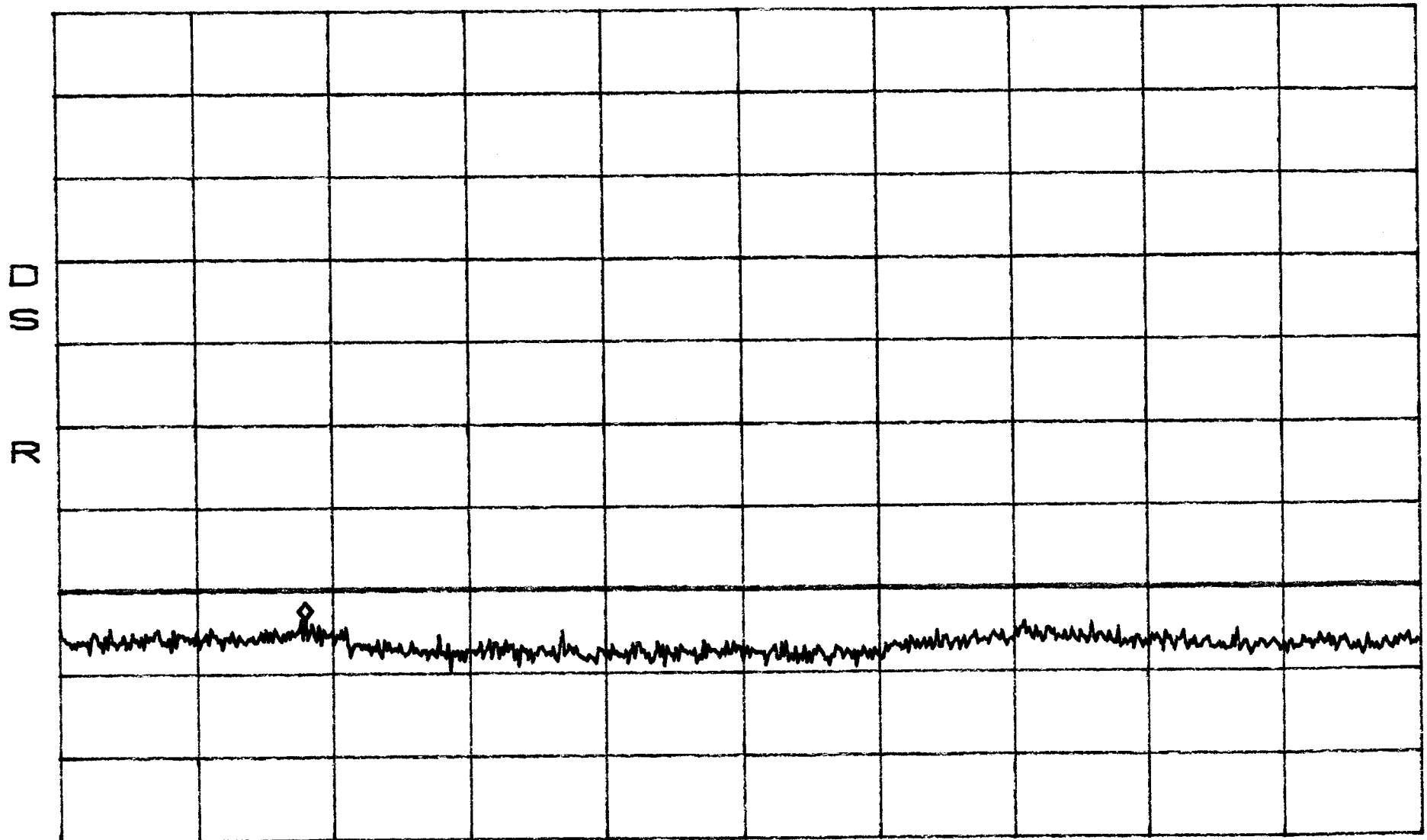
ATTEN 10dB

MKR -16.53dBm

RL 56.8dBm

10dB/

2.620GHz



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

SWP 2.3sec

22.915 Modulation requirements

The Modulation requirement measurements were performed at the following test location :

☒ - Test not applicable

- ☐ - Wild River Lab Large Test Site
- ☐ - Wild River Lab Small Test Site (Open Area Test Site)
- ☐ - Oakwood Lab (Open Area Test Site)
- ☐ - Wild River Lab Screen Room
- ☐ - New Brighton Lab Shielded Room

The instantaneous frequency deviation measurements and the audio filter characteristics measurements are not applicable to this device – it is an amplifier.

22.917 Emission Limitations for cellular

The Emission limitations for cellular measurements were performed at the following test location:

- ☒ - Wild River Lab Large Test Site (Open Area Test Site)
- ☒ - Wild River Lab Large Test Site (Open Area Test Site)

at a test distance of:

- ☒ - 3 meters
- ☐ - 10 meters

**Inter-Modulation Test for ADC Inc.
Digivance Long Range Coverage System
Model Numbers DGVL-112110SYS and DGVL-122110SYS.**

The intermodulation product test was performed for each bandwidth setting of the EUT. Two tests were performed with each modulation type. Test 1 was with two signals input into the EUT at lower end channels. Test 2 was with two signals, one at a lower end channel and one at a higher end channel. The modulation types tested were CDMA, TDMA, and FM (1 kHz @ 8 kHz deviation). An investigation was made from 30 MHz to the 10th harmonic of the highest fundamental frequency (~10 GHz).

Results:

Pass (see plots)

Intermodulation

BAND A

Close

FM

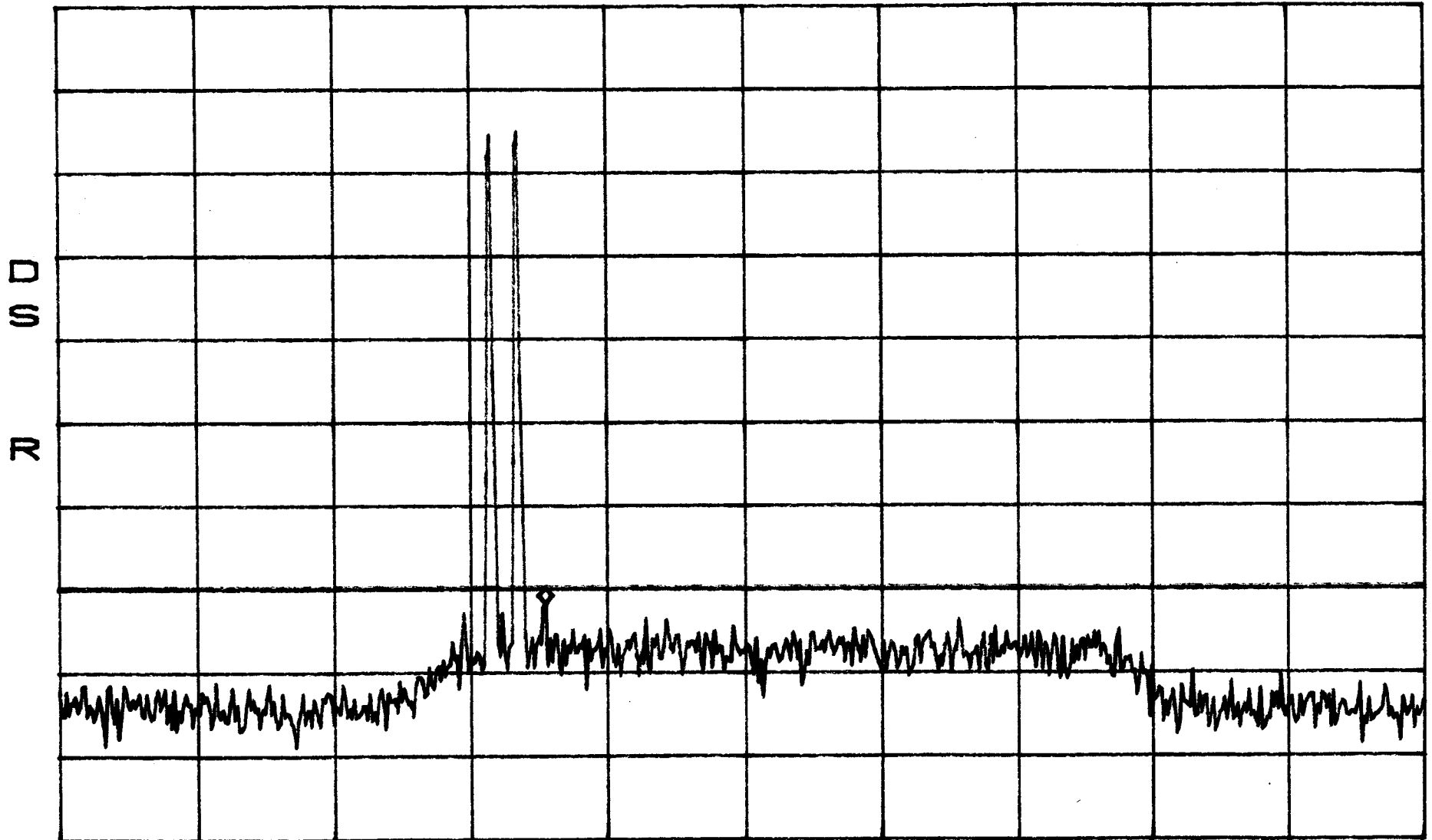
*ATTEN 10dB

MKR -14.87dBm

RL 56.8dBm

10dB/

871.75MHz



CENTER 879.00MHz

SPAN 50.00MHz

*RBW 30kHz

VBW 30kHz

SWP 140ms

Intermodulation

BAND A

Close

FM

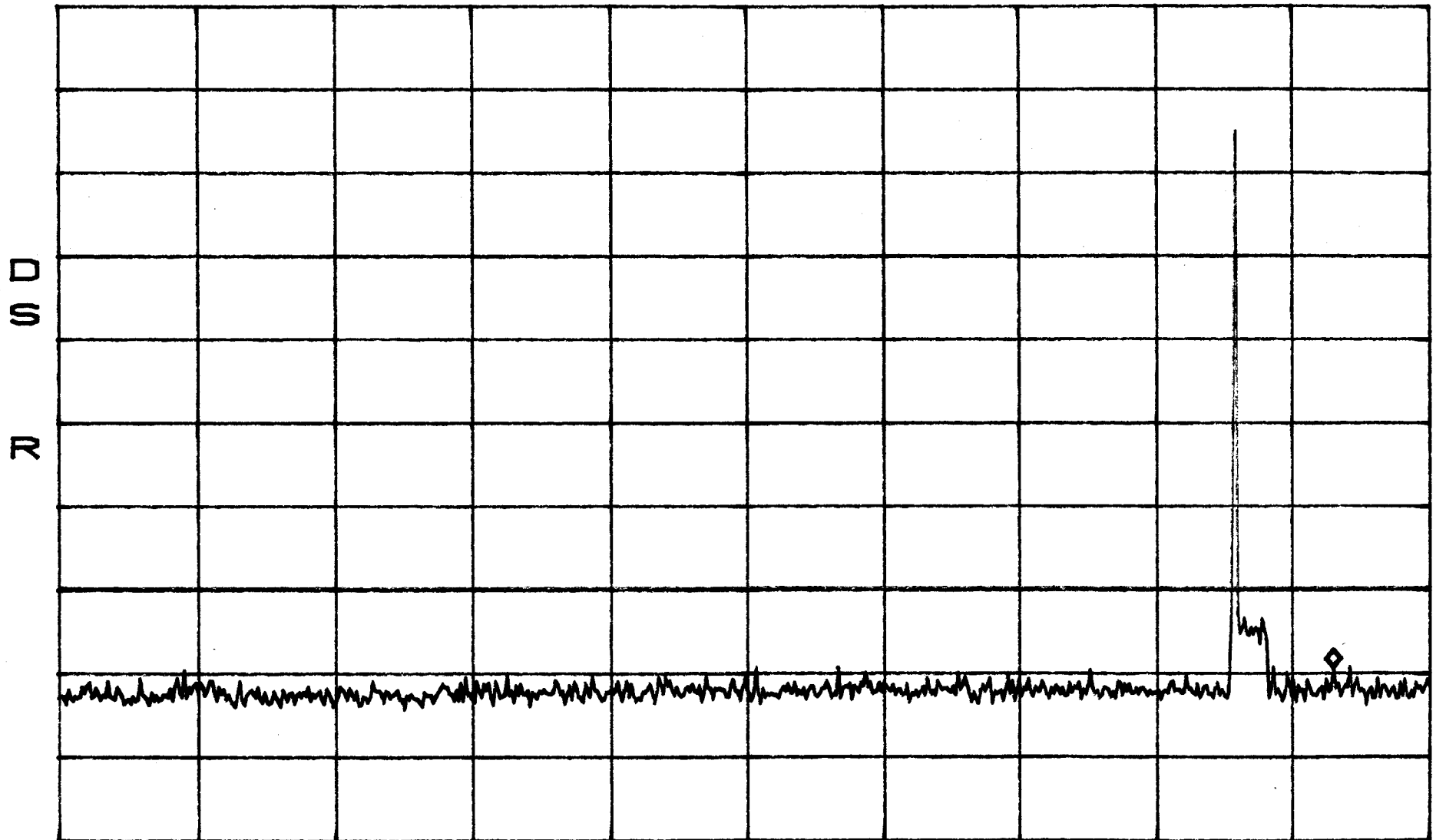
*ATTEN 10dB

MKR -22.37dBm

RL 56.8dBm

10dB/

932.1MHz



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

SWP 2.7sec

Intermodulation

BAND A

Close

FM

*ATTEN 10dB

MKR -17.87dBm

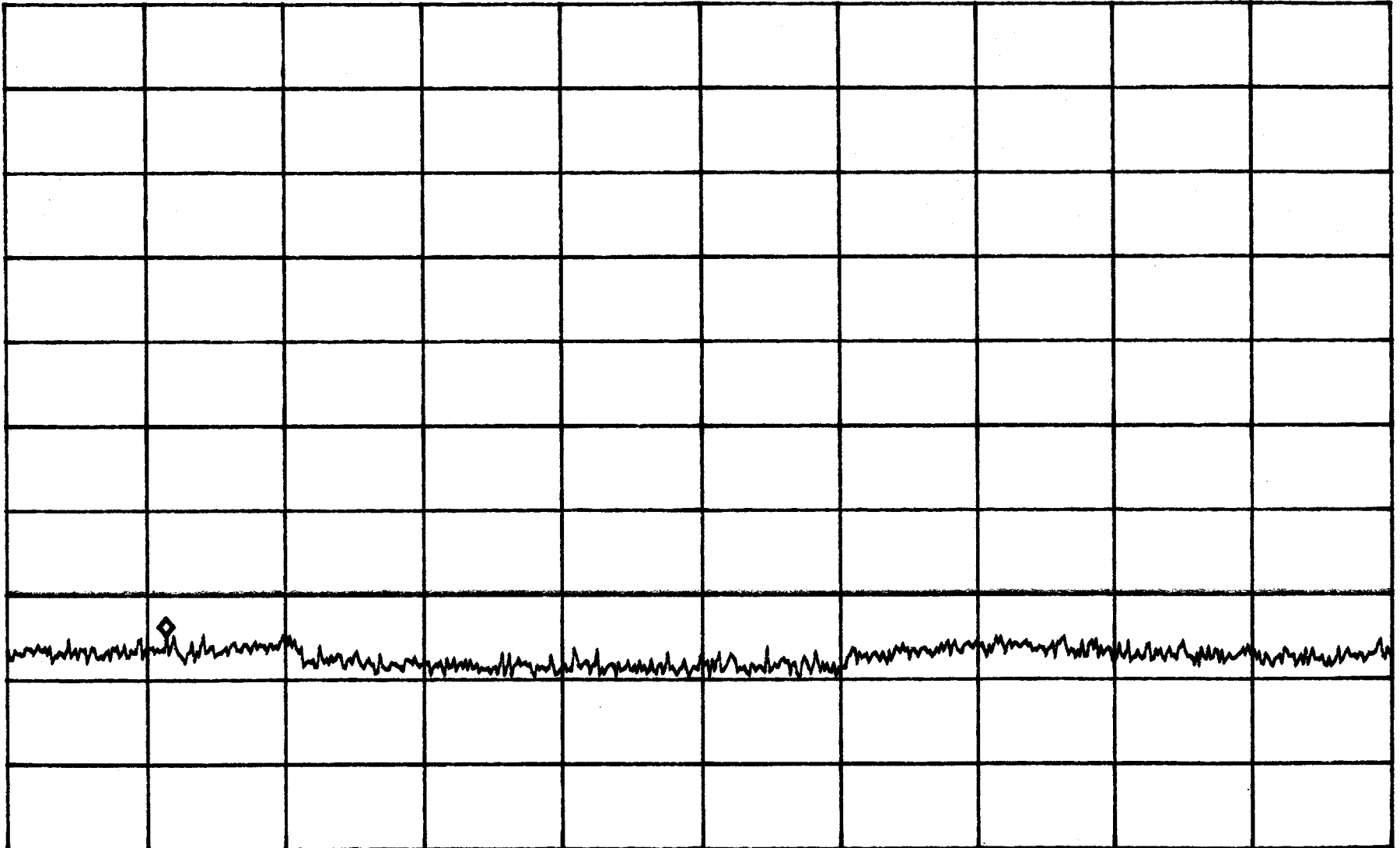
RL 56.8dBm

10dB/

2.020GHz

50

7



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

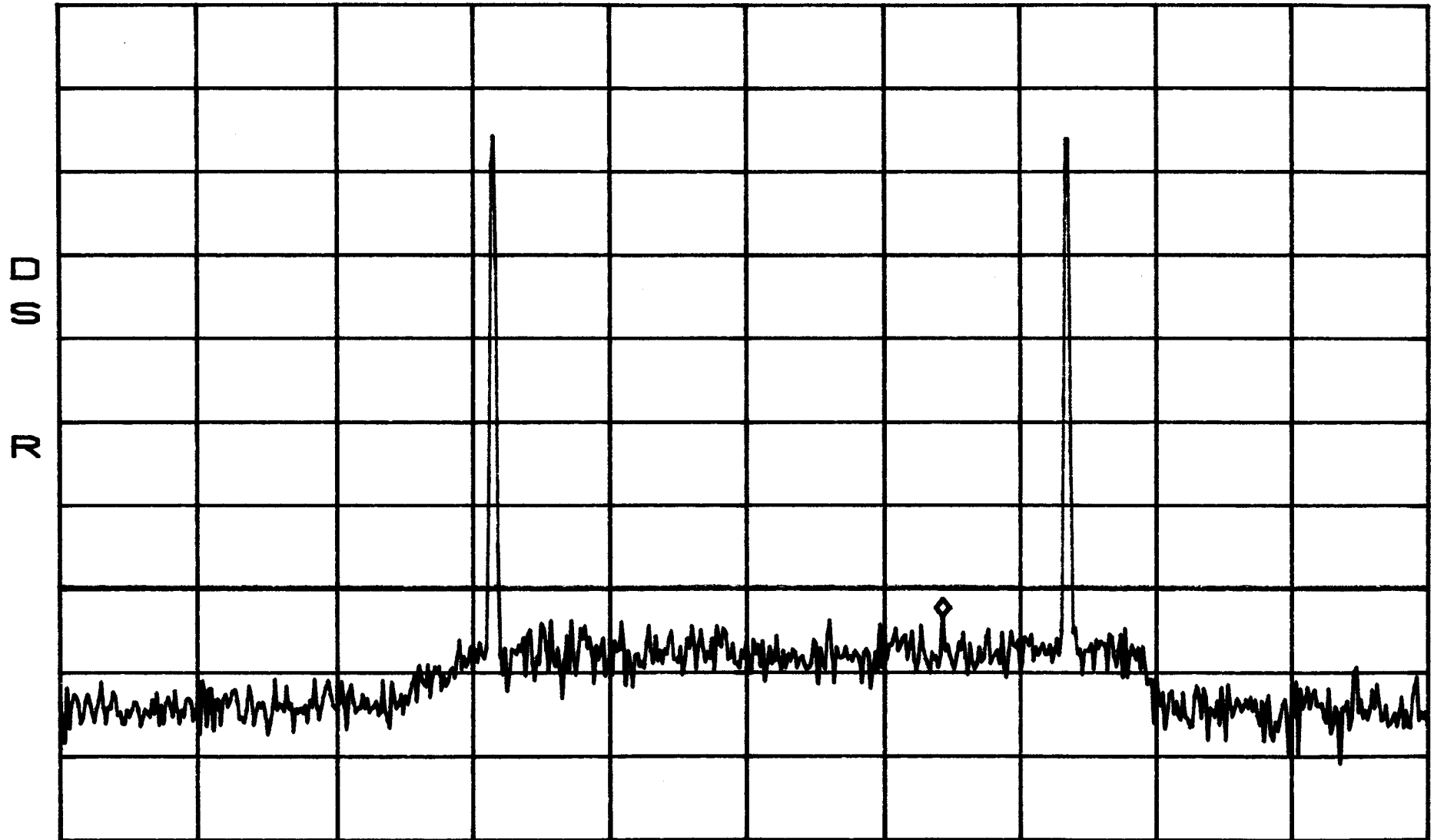
SWP 2.3sec

Intermodulation BAND A
Apert
FM

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.37dBm
886.17MHz



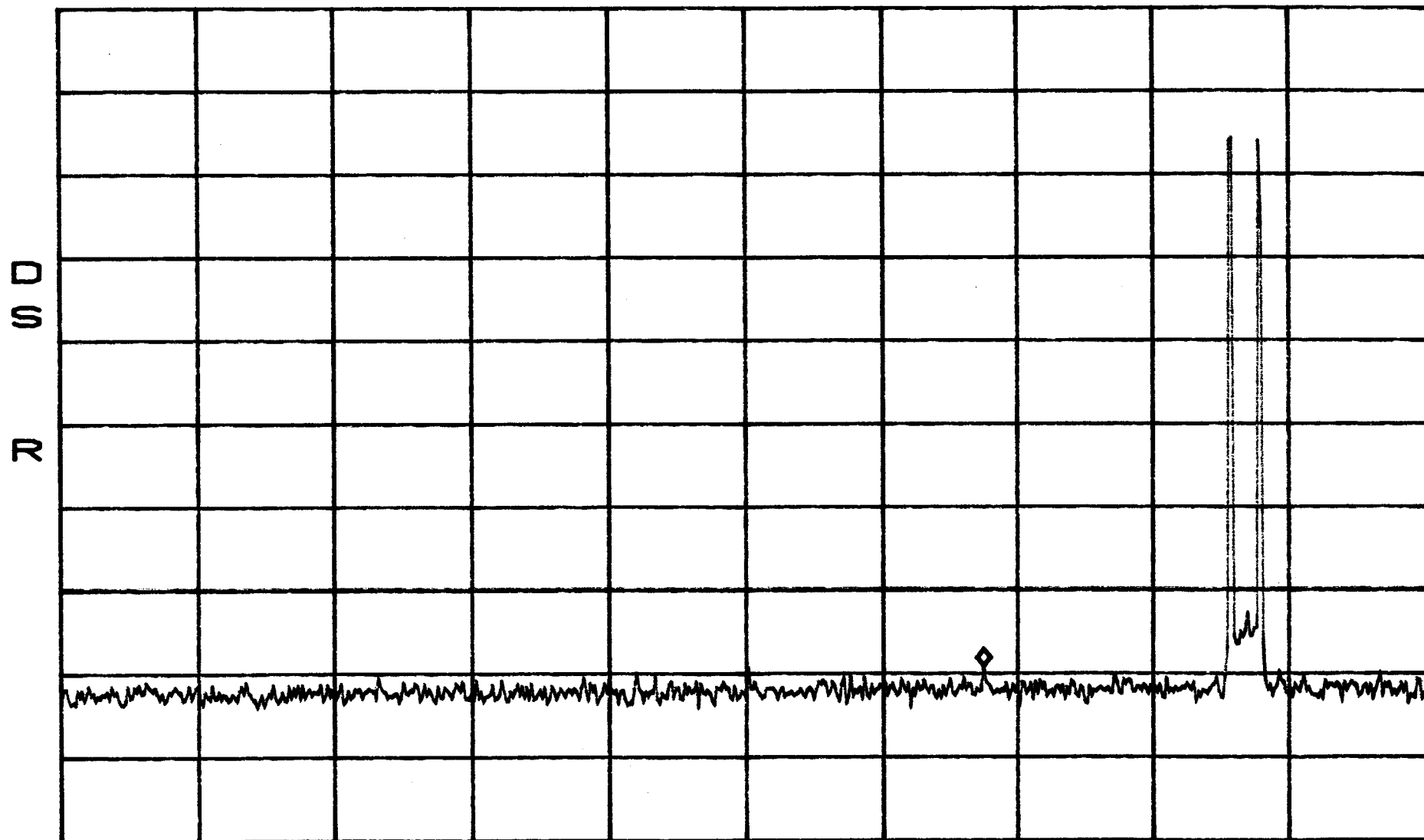
CENTER 879.00MHz SPAN 50.00MHz
*RBW 30kHz VBW 30kHz SWP 140ms

FM modulation OND A
Apert
FM

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -22.20dBm
684.8MHz



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

SWP 2.7sec

modulation AND A
Apert
FM

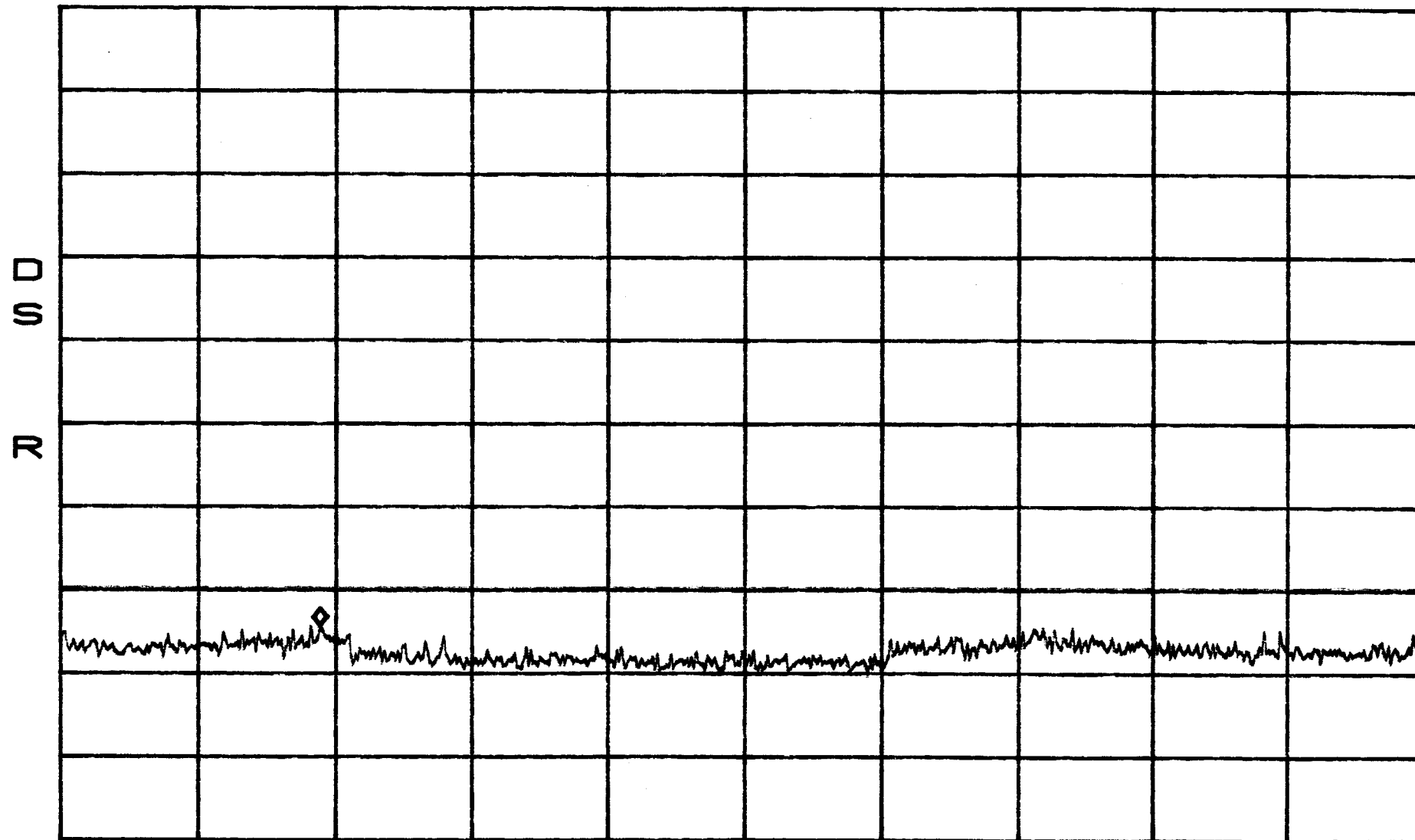
*ATTEN 10dB

MKR -17.37dBm

RL 56.8dBm

10dB/

2.695GHz



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

SWP 2.3sec

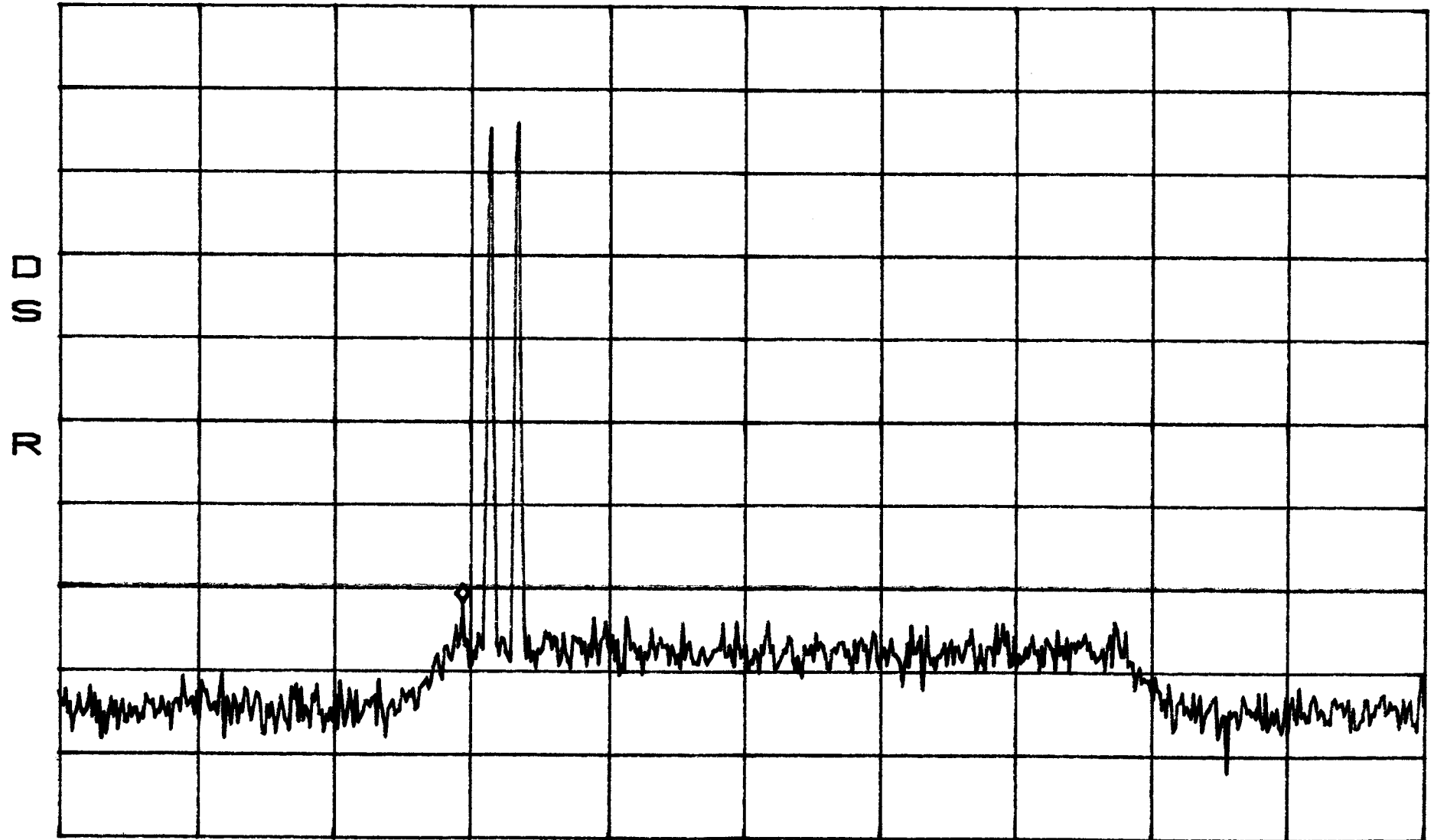
Intermodulation
Close
TDMA

BAND A

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -14.70dBm
868.75MHz



CENTER 879.00MHz
*RBW 30kHz VBW 30kHz

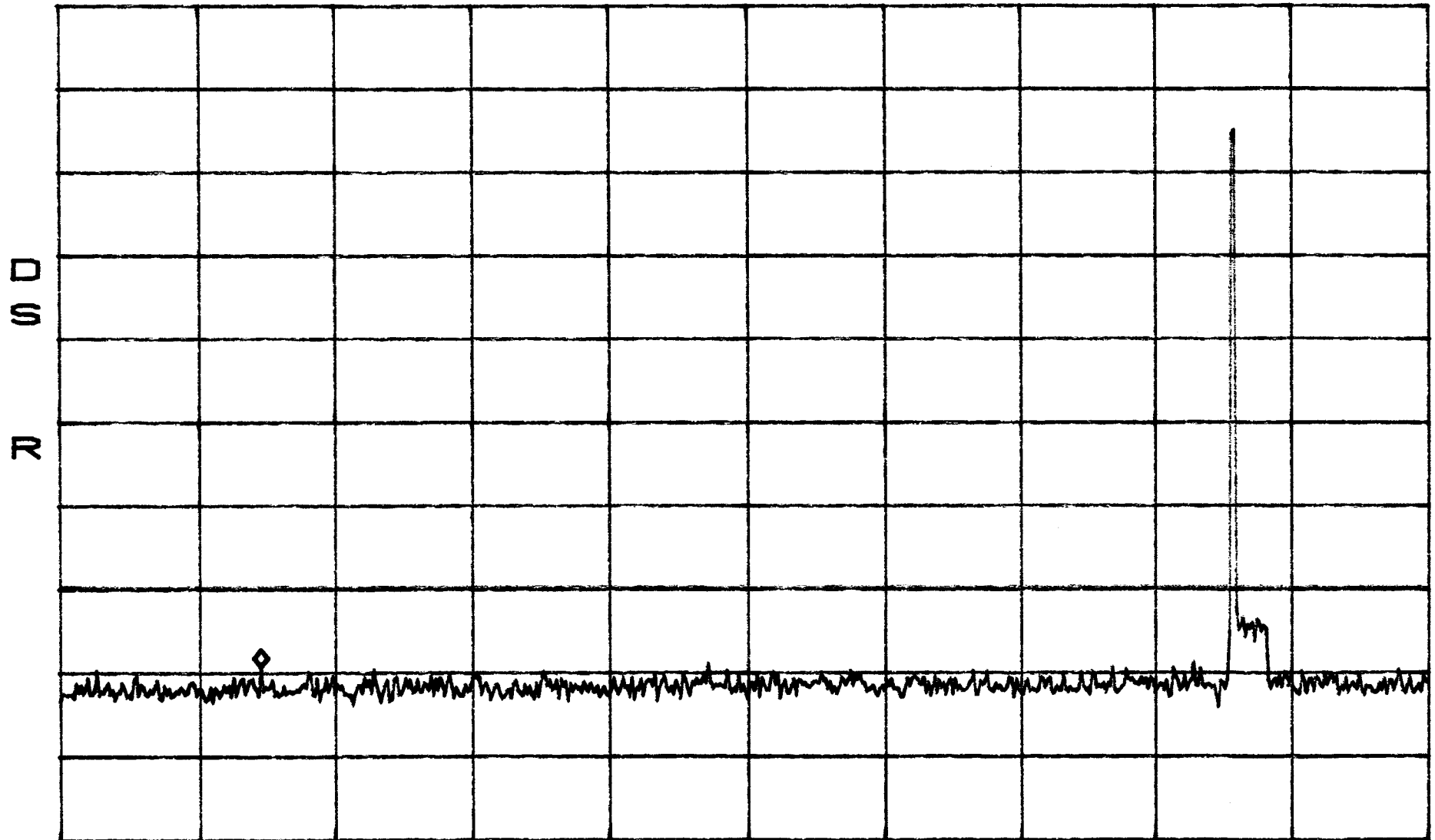
SPAN 50.00MHz
SWP 140ms

Intermodulation BAND A
Close
TDMA

*ATTEN 10dB
RL 56.8dBm

MKR -22.37dBm
170.7MHz

10dB/



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

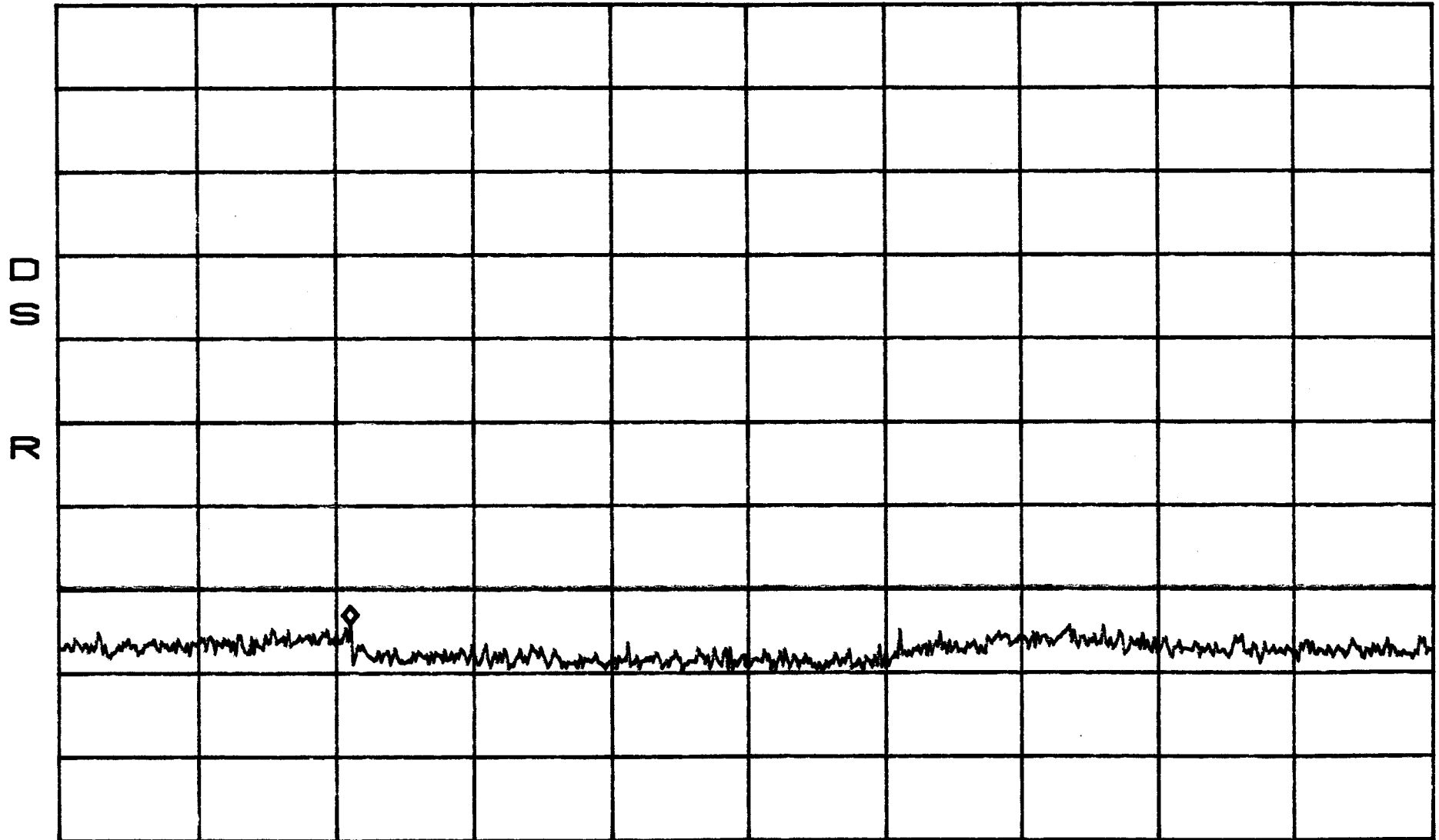
SWP 2.7sec

Intermodulation BAND A
Close
TDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -17.20dBm
2.890GHz



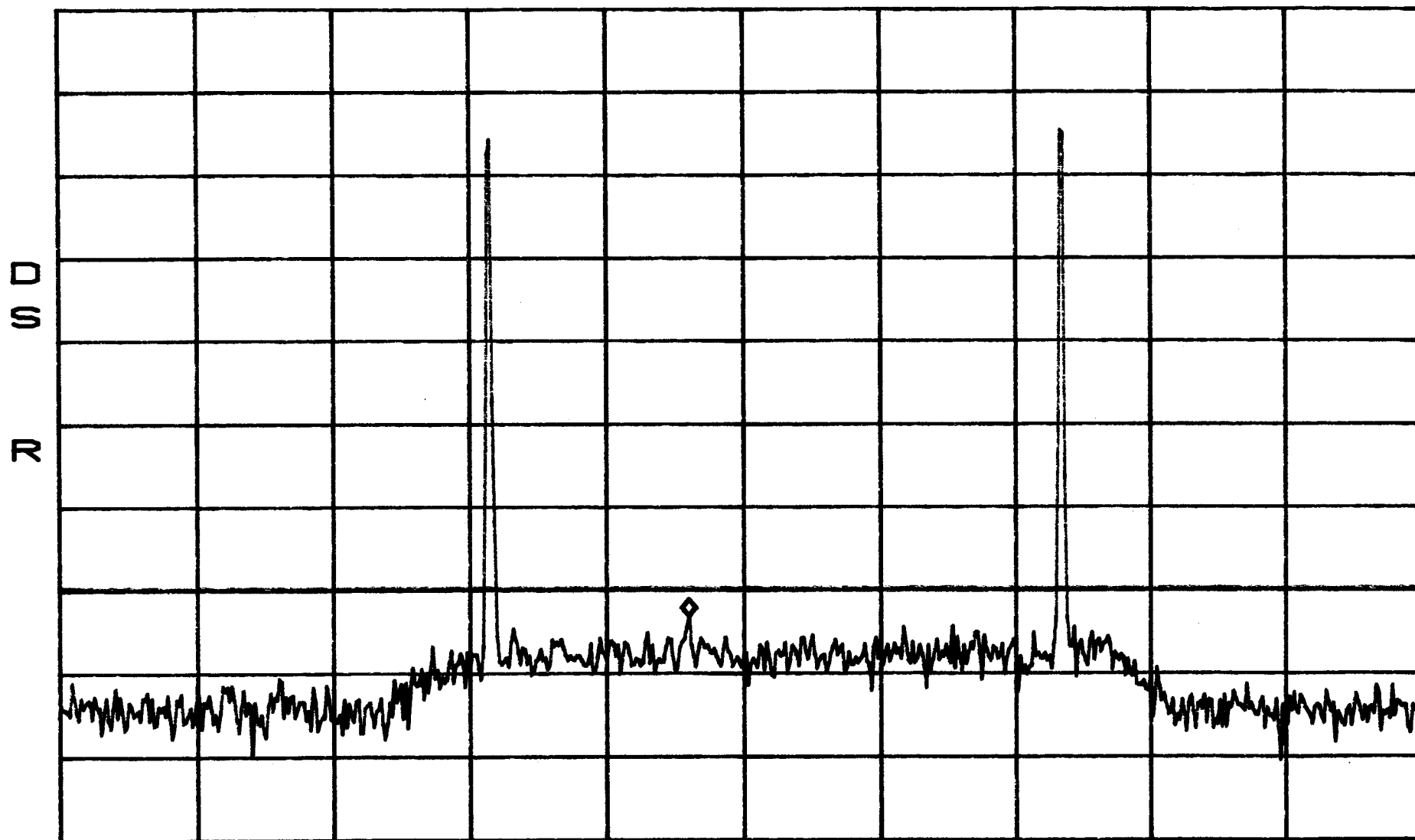
START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

Intermodulation BAND A
Apart
TDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.20dBm
877.00MHz



CENTER 879.00MHz

SPAN 50.00MHz

*RBW 30kHz

VBW 30kHz

SWP 140ms

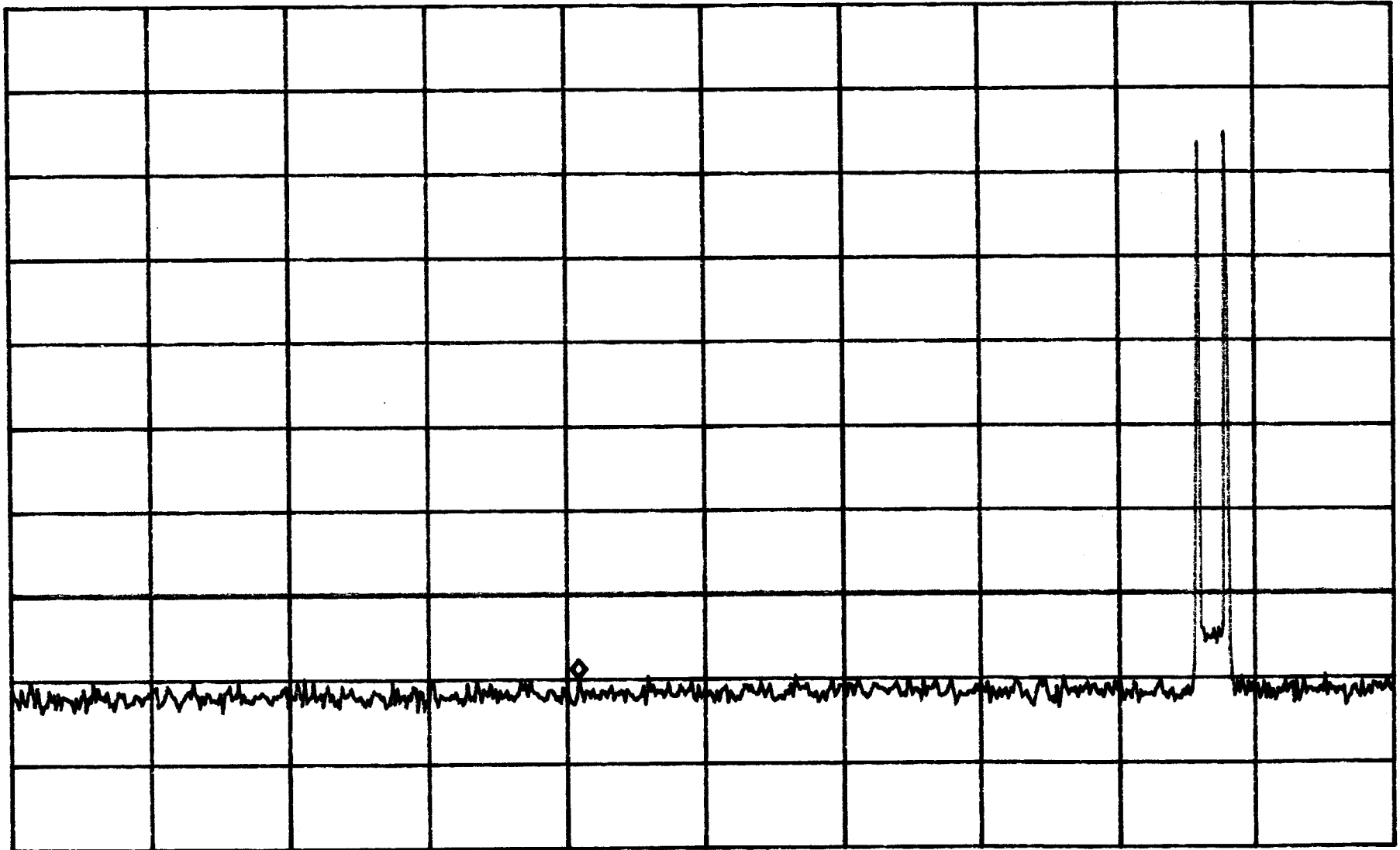
Intermodulation BAND A
Apart
TDMA

*ATTEN 10dB
RL 56.8dBm

MKR -22.87dBm
426.1MHz

10dB/

50
dB



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

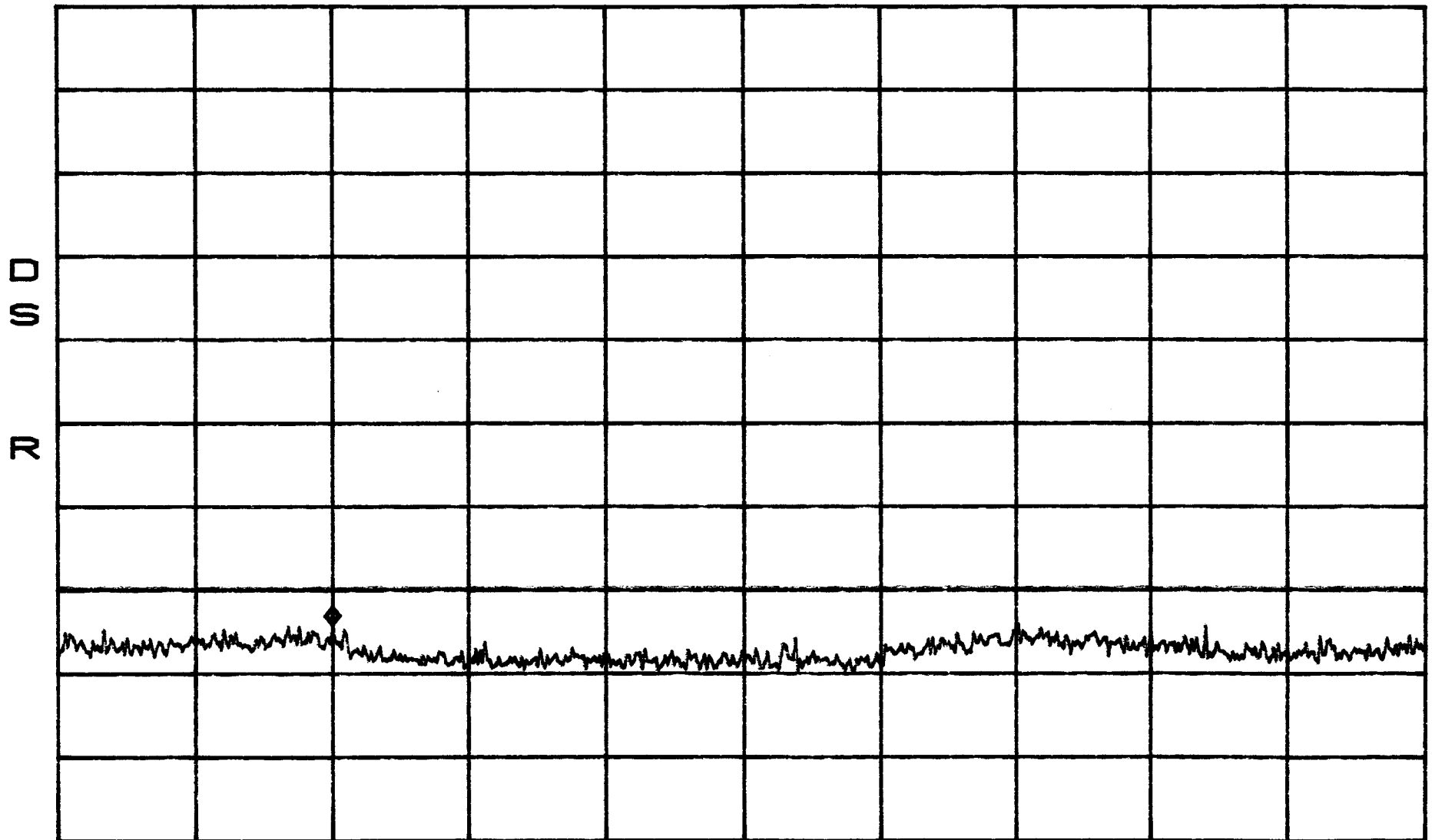
SWP 2.7sec

Intermodulation BAND A
Apert
TDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -17.20dBm
2.800GHz



START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

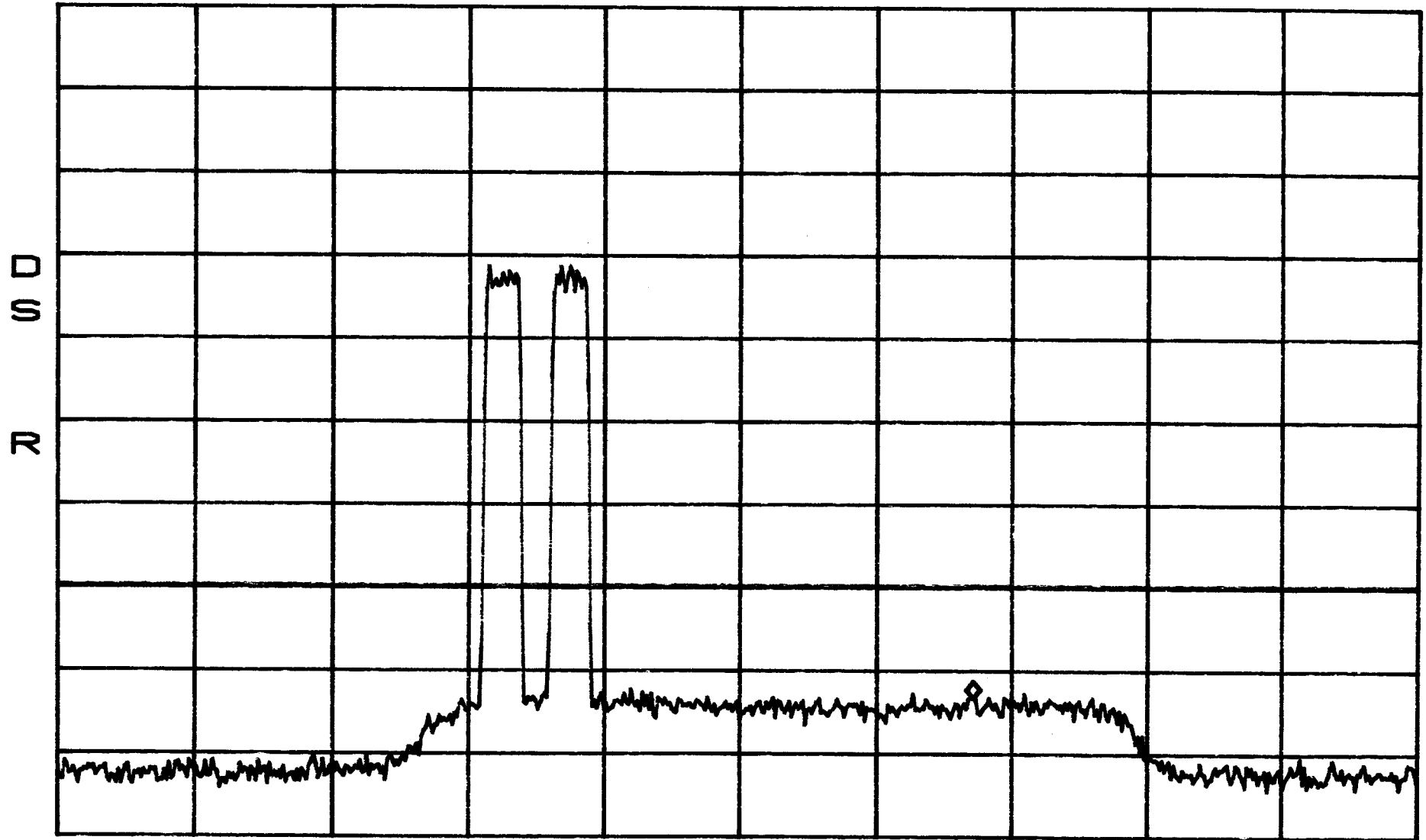
Intermodulation
Close
CDMA

BAND A

*ATTEN 10dB
RL 56.8dBm

VAVG 100
10dB/

MKR -26.37dBm
887.58MHz



CENTER 879.00MHz

SPAN 50.00MHz

*RBW 30kHz

VBW 30kHz

SWP 140ms

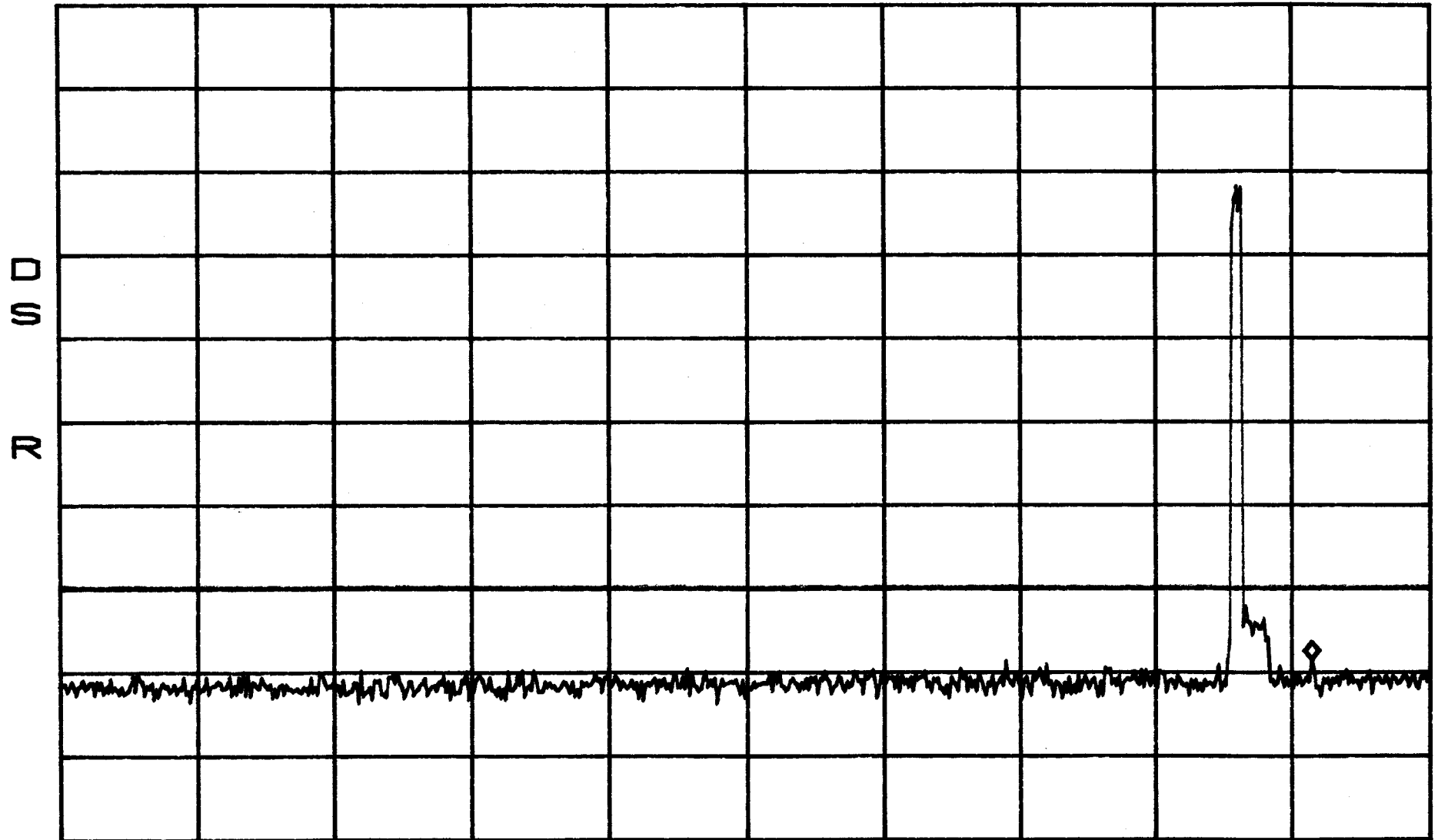
Intermodulation
Close
CDMA

BAND A

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -21.53dBm
917.6MHz



START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

Intermodulation
Close
CDMA

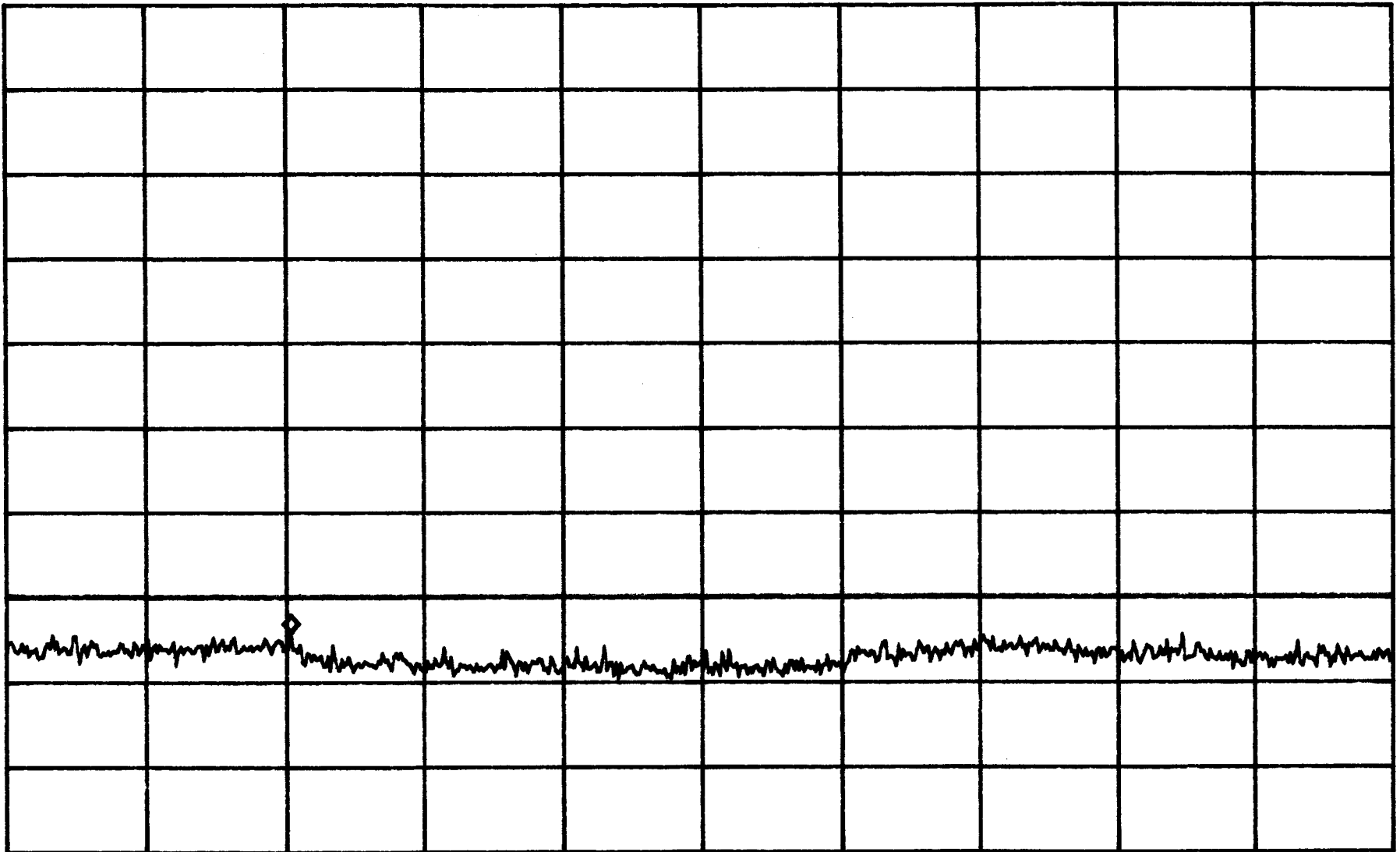
BAND A

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -17.20dBm
2.830GHz

50
dB



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

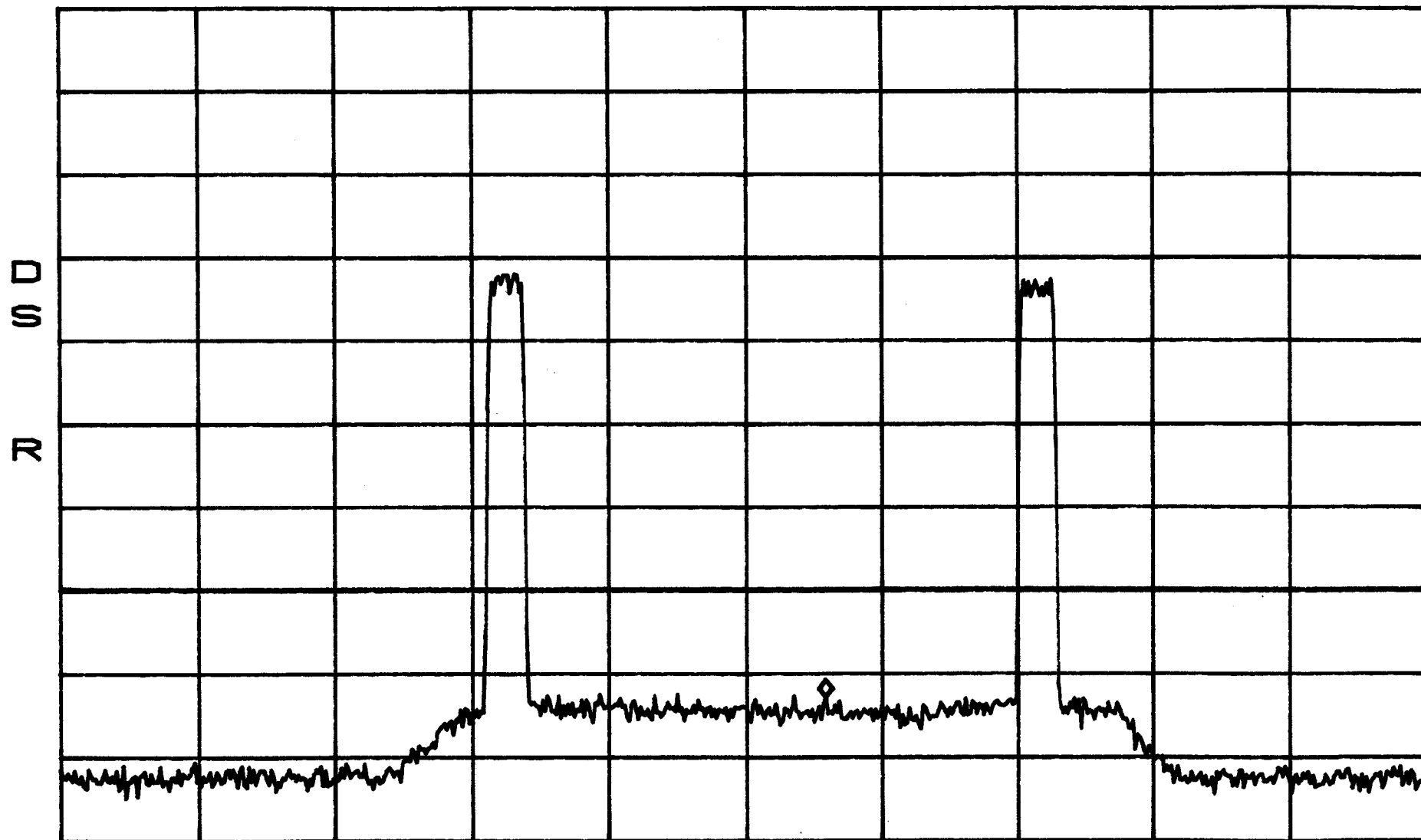
SWP 2.3sec

Intermodulation BAND A
Apart
CDMA

*ATTEN 10dB
RL 56.8dBm

VAVG 100
10dB/

MKR -25.87dBm
881.92MHz



CENTER 879.00MHz

SPAN 50.00MHz

*RBW 30kHz

VBW 30kHz

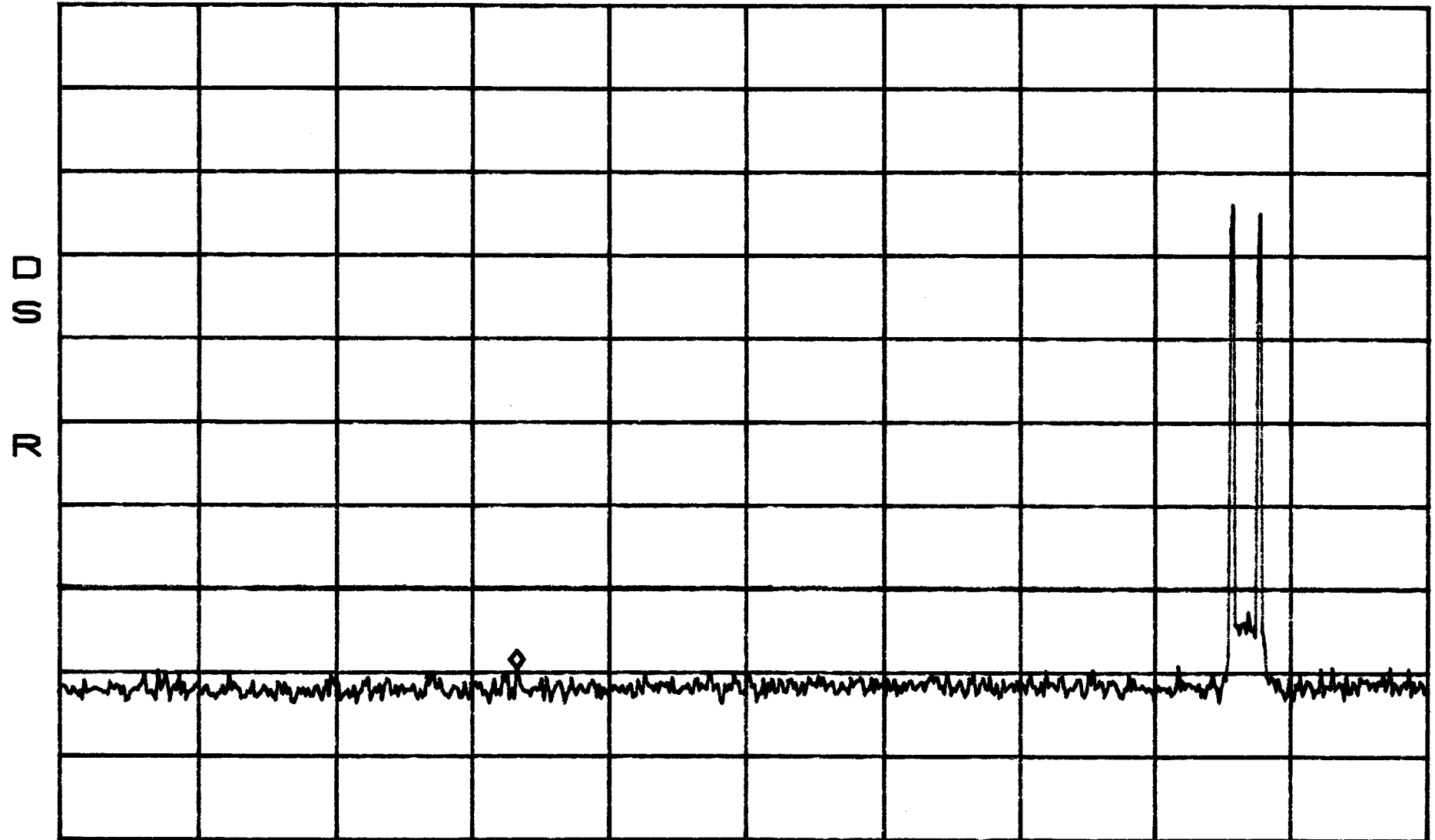
SWP 140ms

Intermodulation BAND A
Apert
CDMA

*ATTEN 10dB
RL 56.8dBm

MKR -22.53dBm
353.3MHz

10dB/



START 30.0MHz
*RBW 30kHz

STOP 1.0000GHz
VBW 30kHz

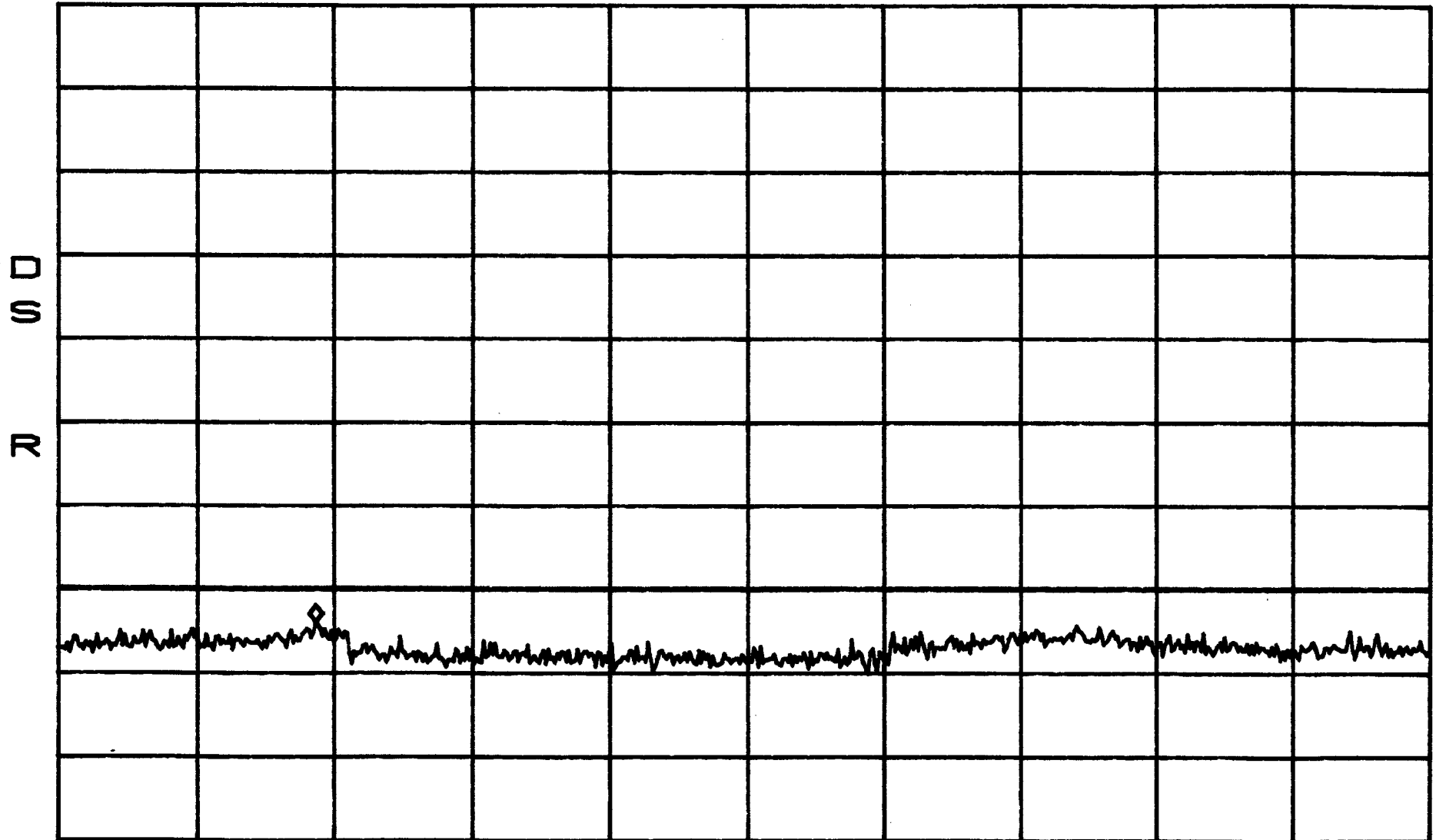
SWP 2.7sec

Intermodulation BAND A
Apert
CDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -17.03dBm
2.680GHz



START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

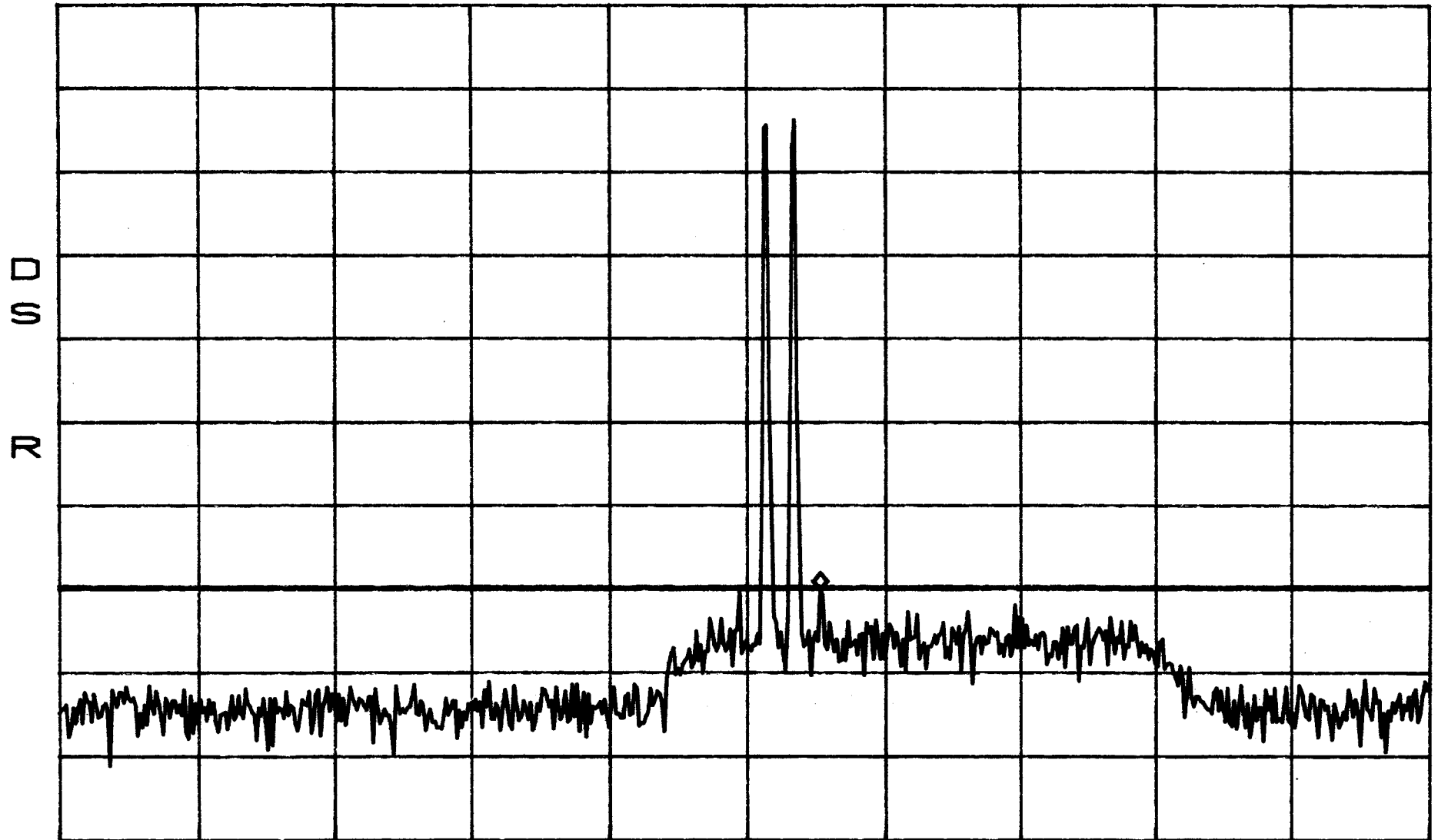
Intermodulation
Close
FM

BAND B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -13.20dBm
882.17MHz



CENTER 879.50MHz SPAN 50.00MHz
*RBW 30kHz VBW 30kHz SWP 140ms

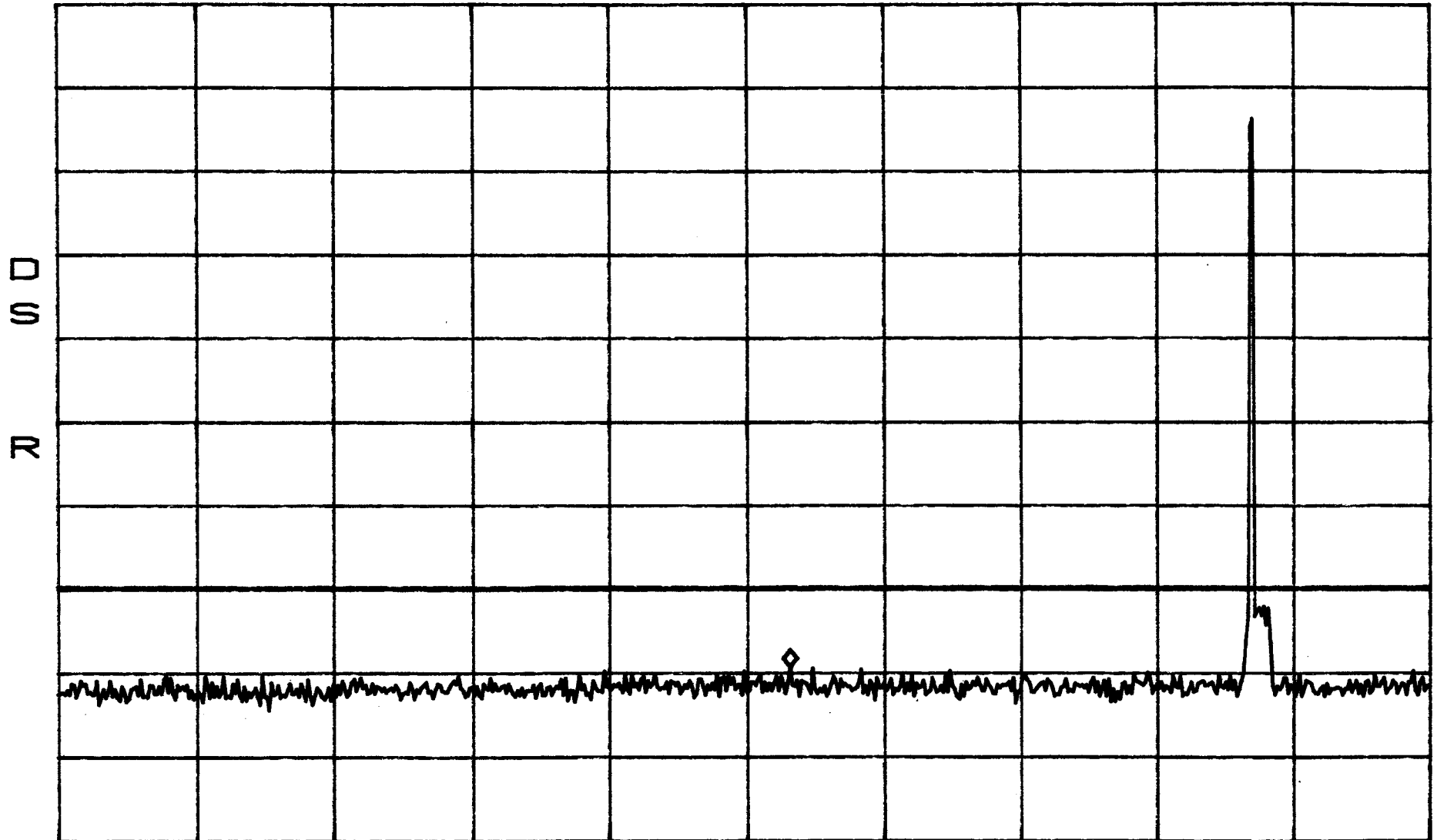
Intermodulation
Close
FM

BAND B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -22.37dBm
545.7MHz



START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

Intermodulation

BAND B

Close

FM

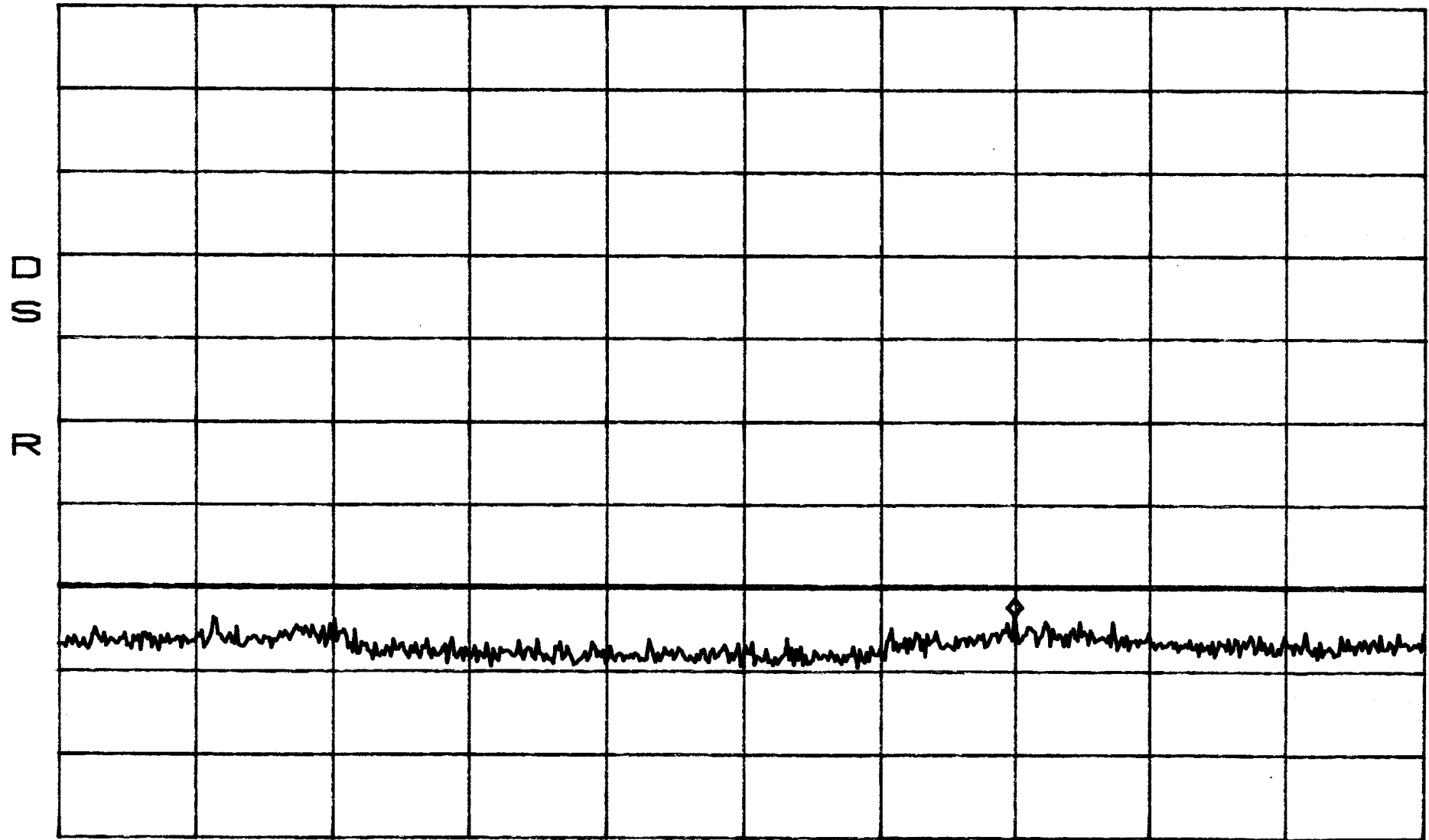
*ATTEN 10dB

MKR -16.37dBm

RL 56.8dBm

10dB/

7.300GHz



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

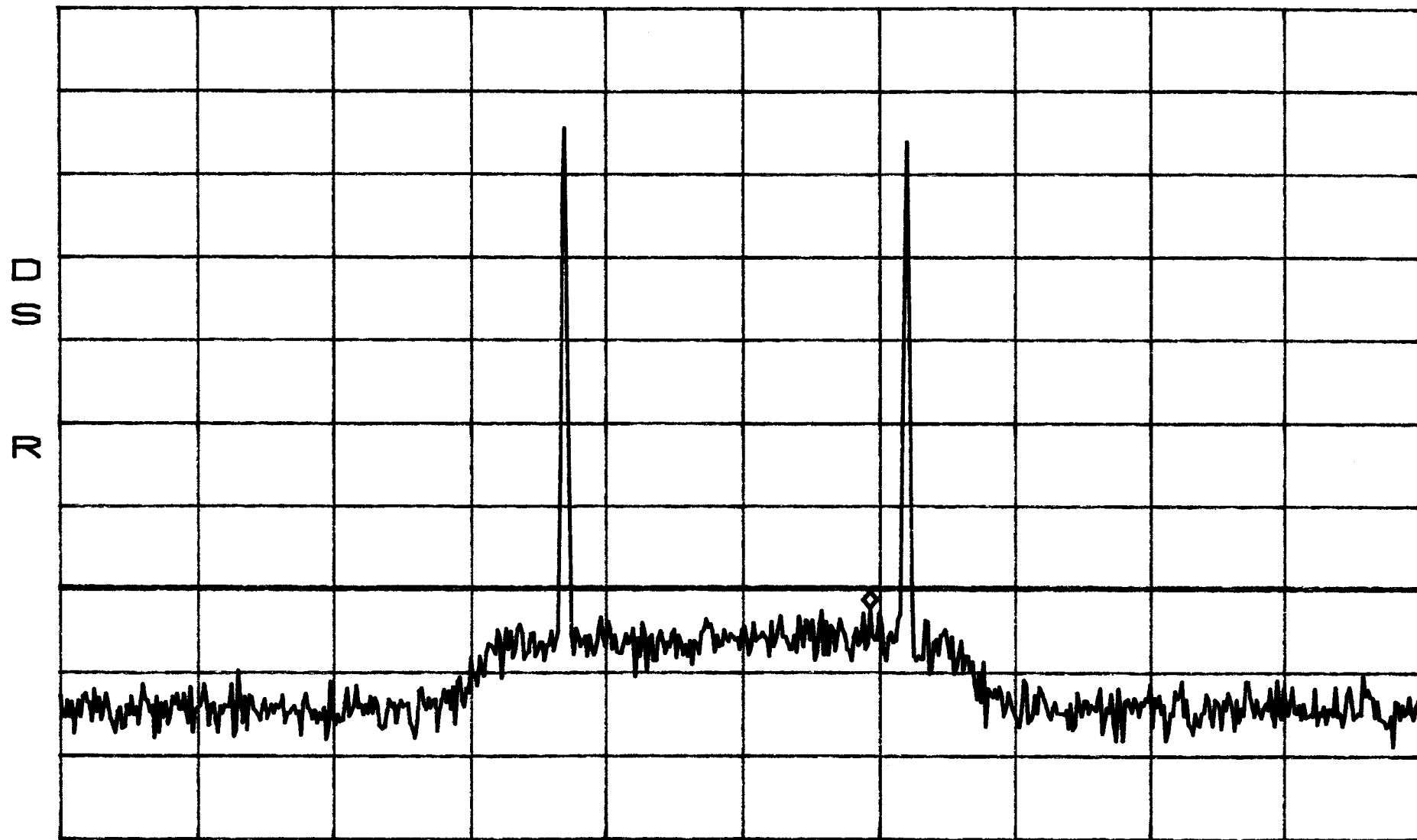
SWP 2.3sec

Intermodulation BAND B
Apert
FM

*ATTEN 10dB
RL 56.8dBm

MKR -15.37dBm
891.42MHz

10dB/



CENTER 886.75MHz

SPAN 50.00MHz

*RBW 30kHz

VBW 30kHz

SWP 140ms

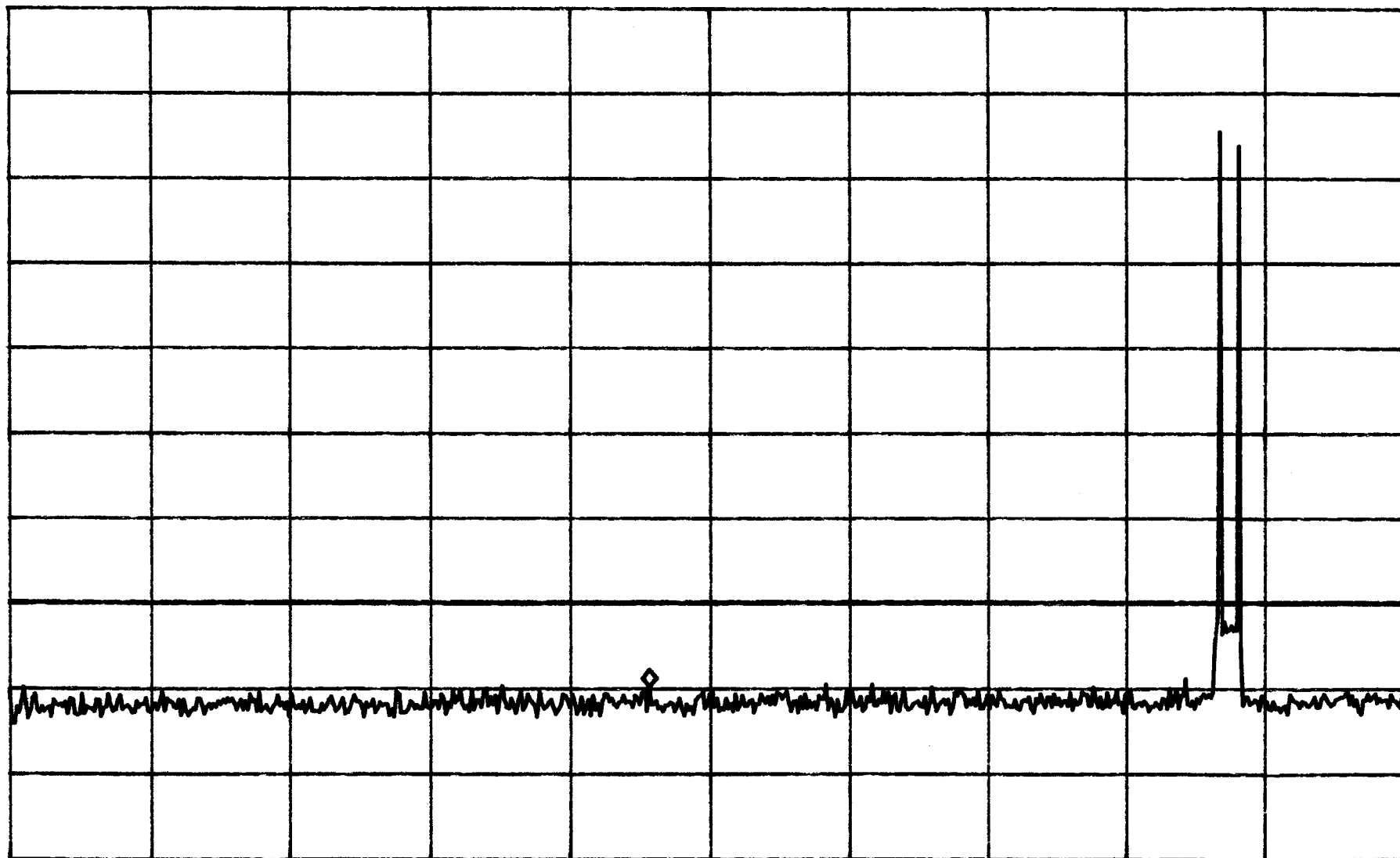
FM Modulation
Apert
FM

*ATTEN 10dB
RL 56.8dBm

MKR -22.87dBm
473.0MHz

10dB/

50
dB



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

SWP 2.7sec

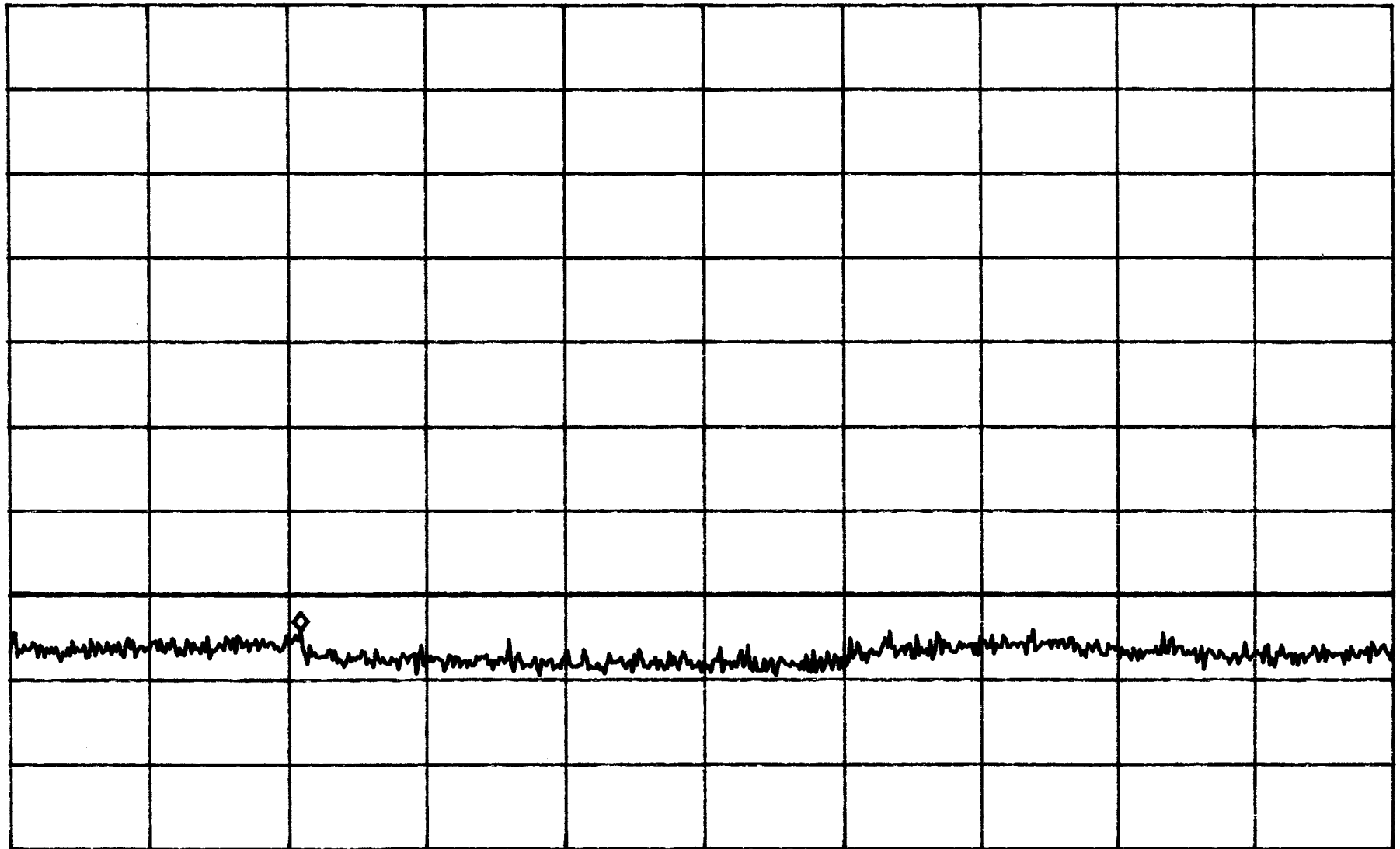
FM Modulation OND B
Apant
FM

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -17.20dBm
2.875GHz

SDR



START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

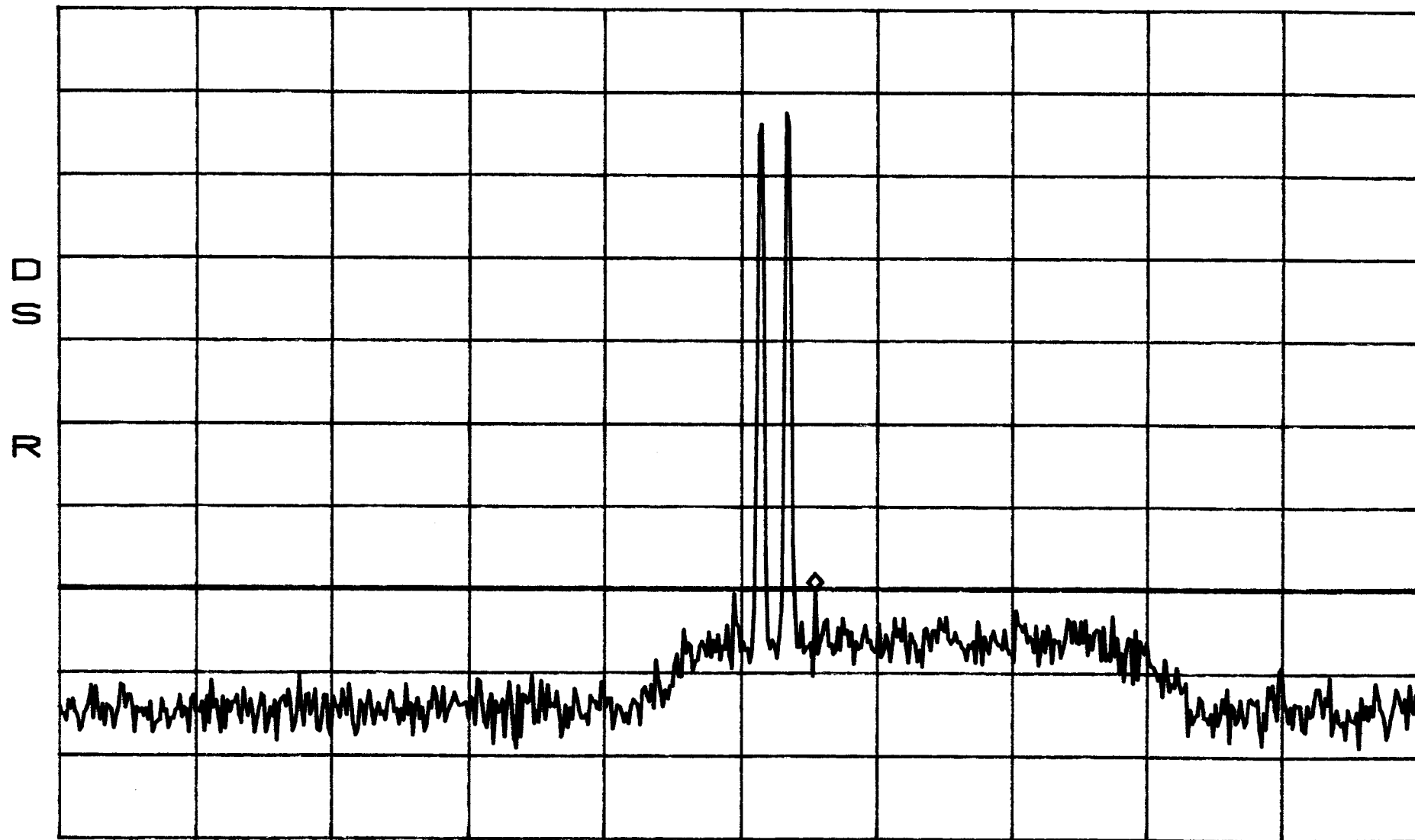
Intermodulation
Close
TDMA

BAND B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -13.20dBm
882.25MHz



CENTER 879.50MHz
*RBW 30kHz VBW 30kHz

SPAN 50.00MHz
SWP 140ms

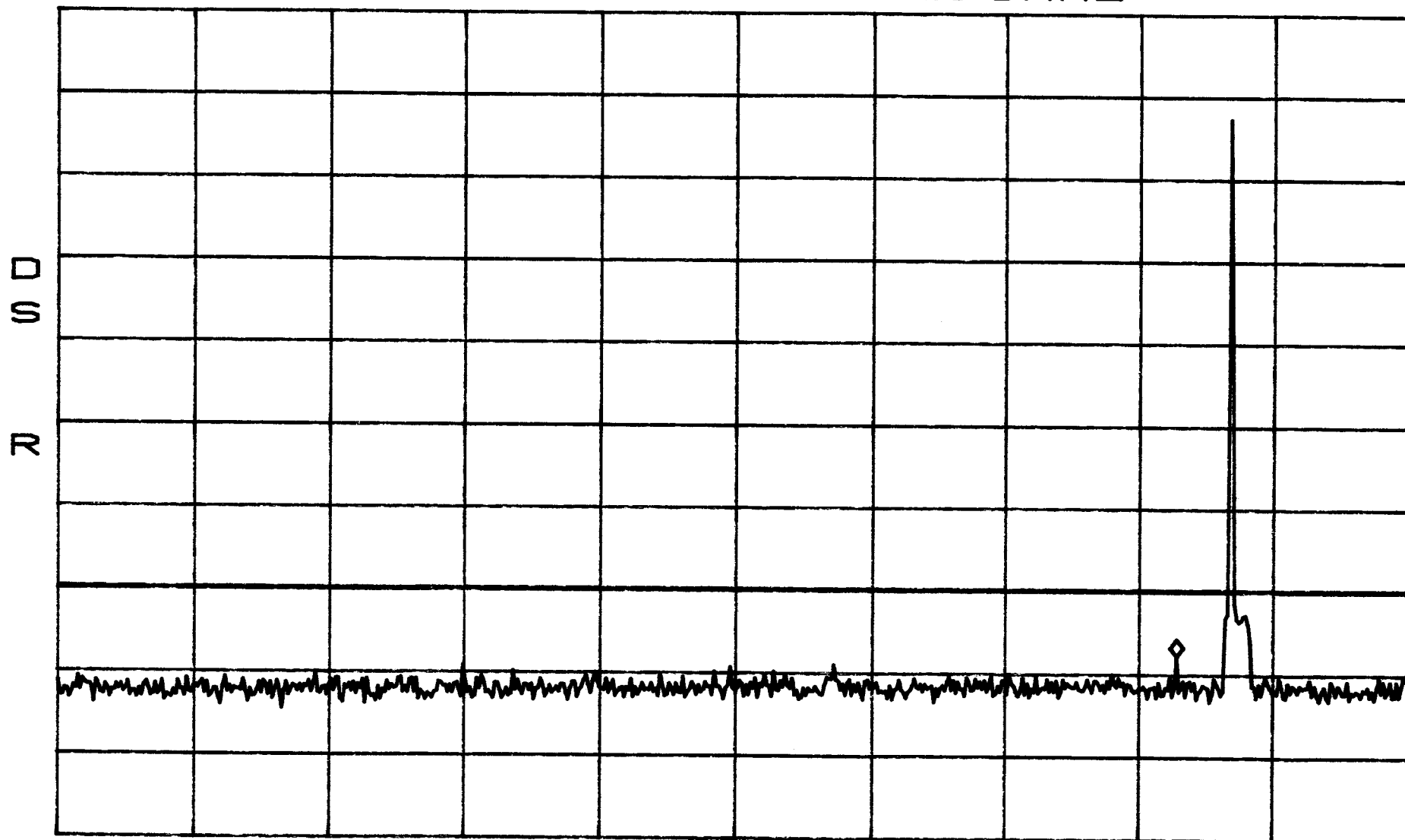
Intermodulation
Close
TDMA

BAND B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -20.87dBm
833.5MHz



START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

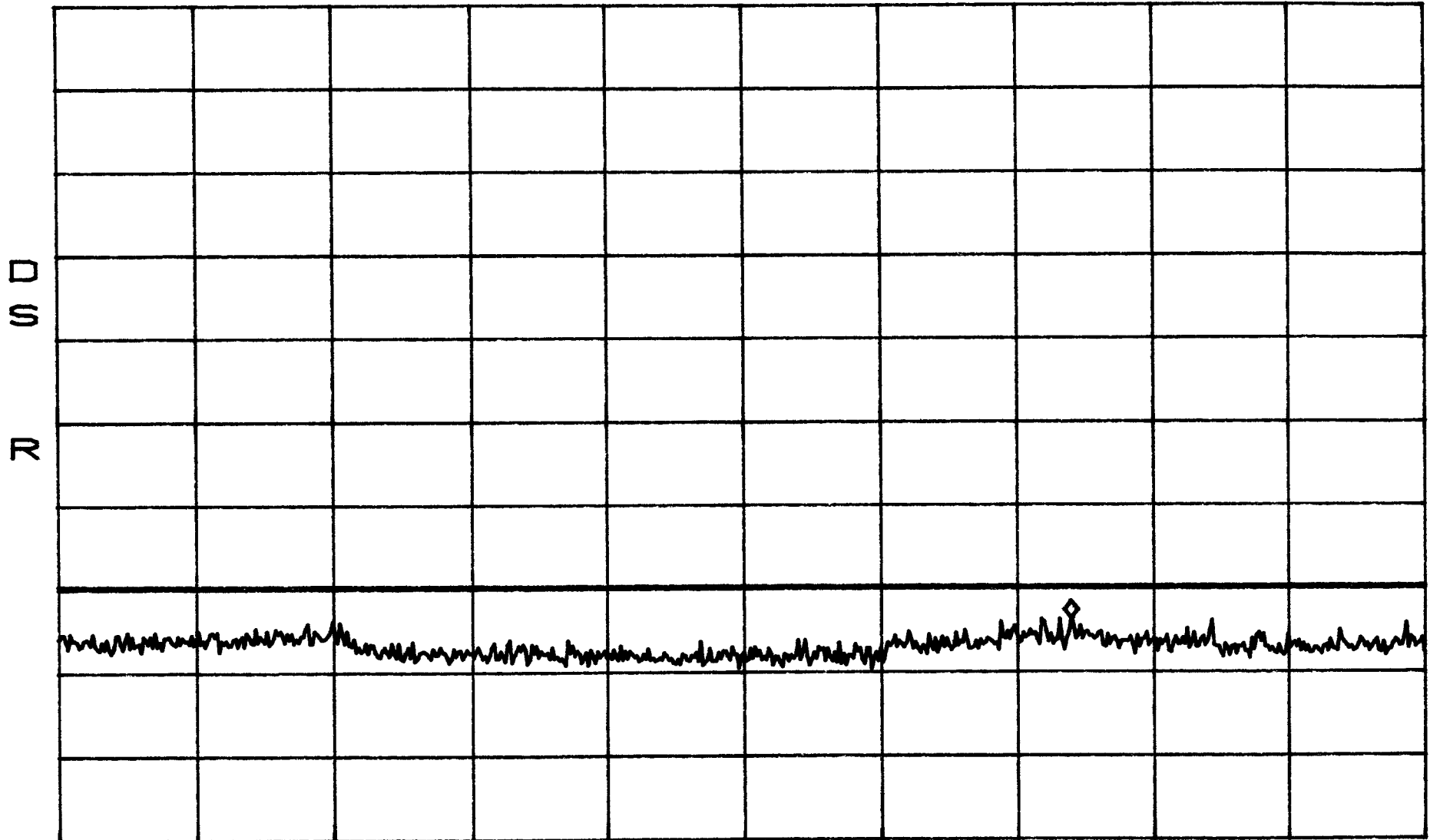
Intermodulation
Close
TDMA

BAND B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.70dBm
7.660GHz



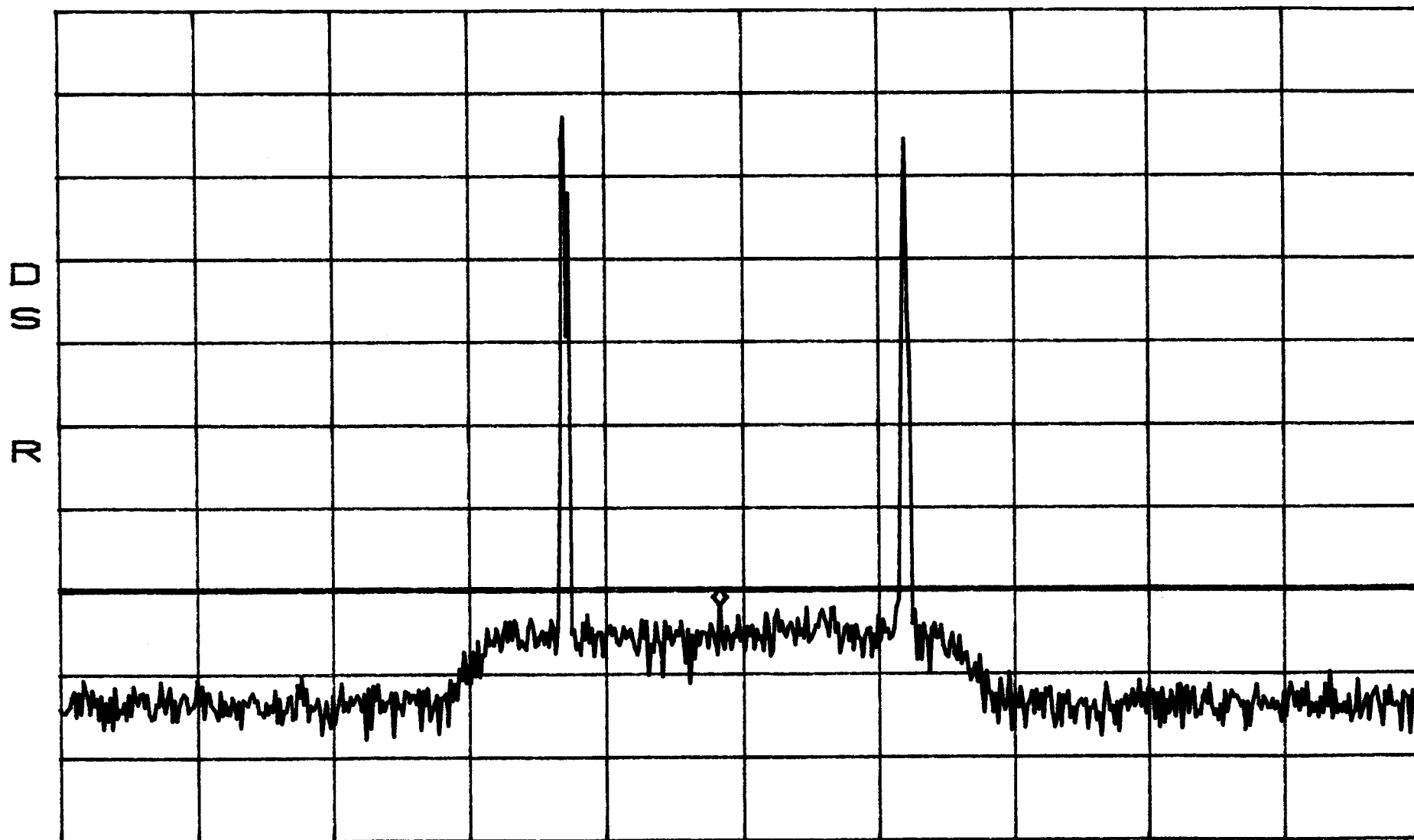
START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

Intermodulation BAND B
Apert
TDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -14.87dBm
885.92MHz



CENTER 886.75MHz
*RBW 30kHz VBW 30kHz

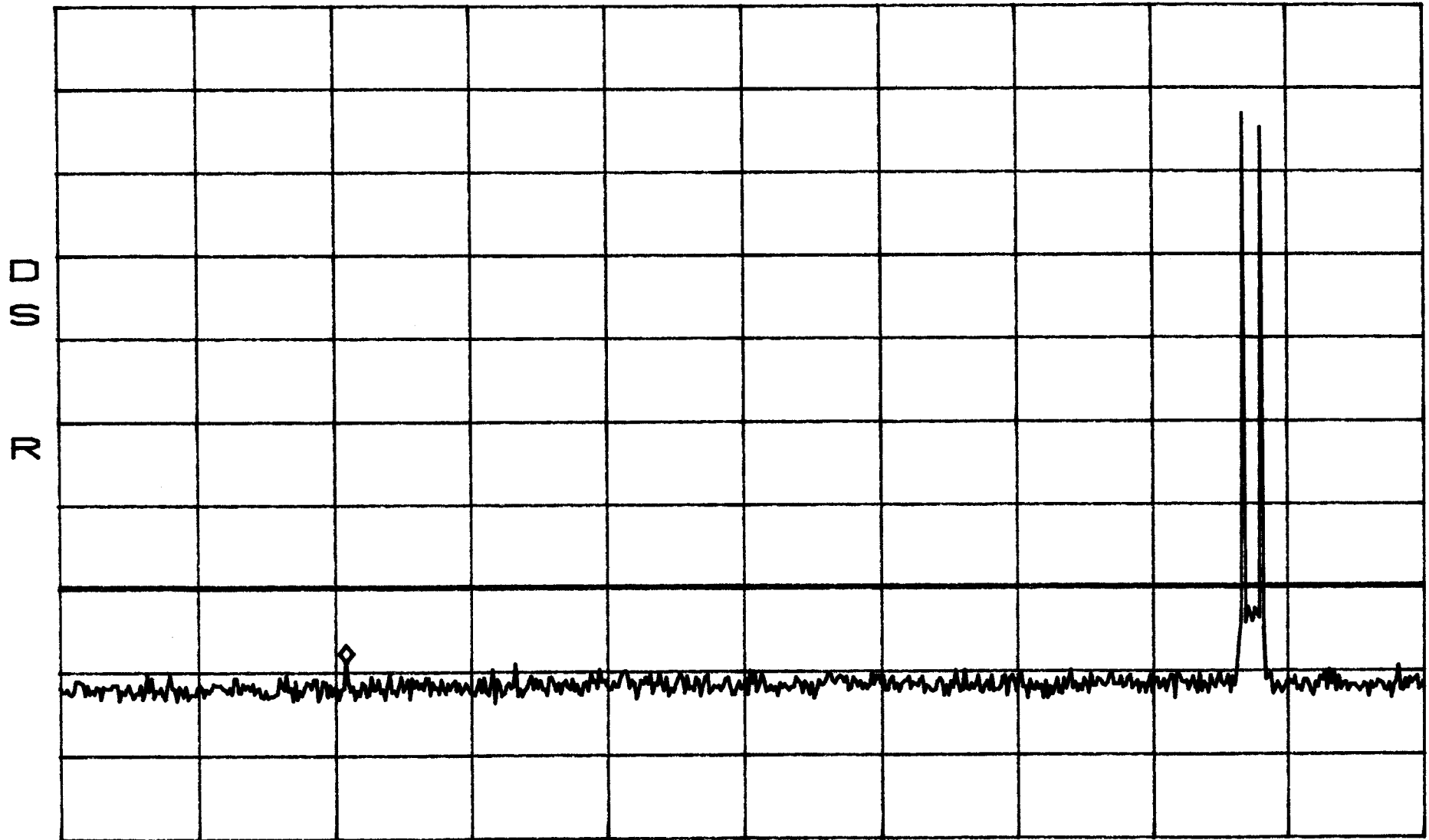
SPAN 50.00MHz
SWP 140ms

Intermodulation BAND B
Apart
TDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -21.87dBm
232.1MHz



START 30.0MHz STOP 1.0000GHz
*RBW 30kHz VBW 30kHz SWP 2.7sec

Intermodulation BAND B
Apert
TDMA

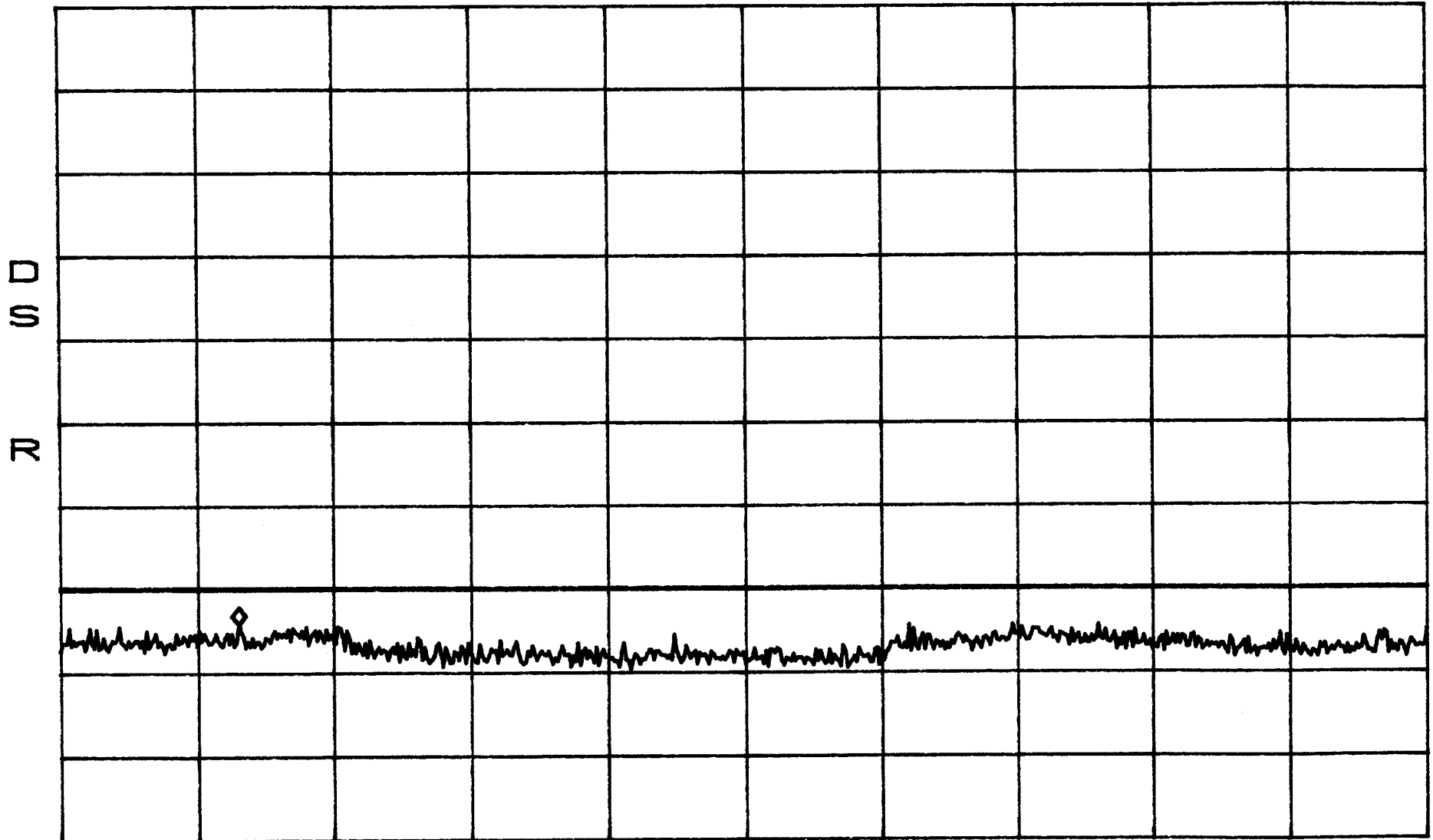
*ATTEN 10dB

MKR -17.20dBm

RL 56.8dBm

10dB/

2.170GHz



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

SWP 2.3sec

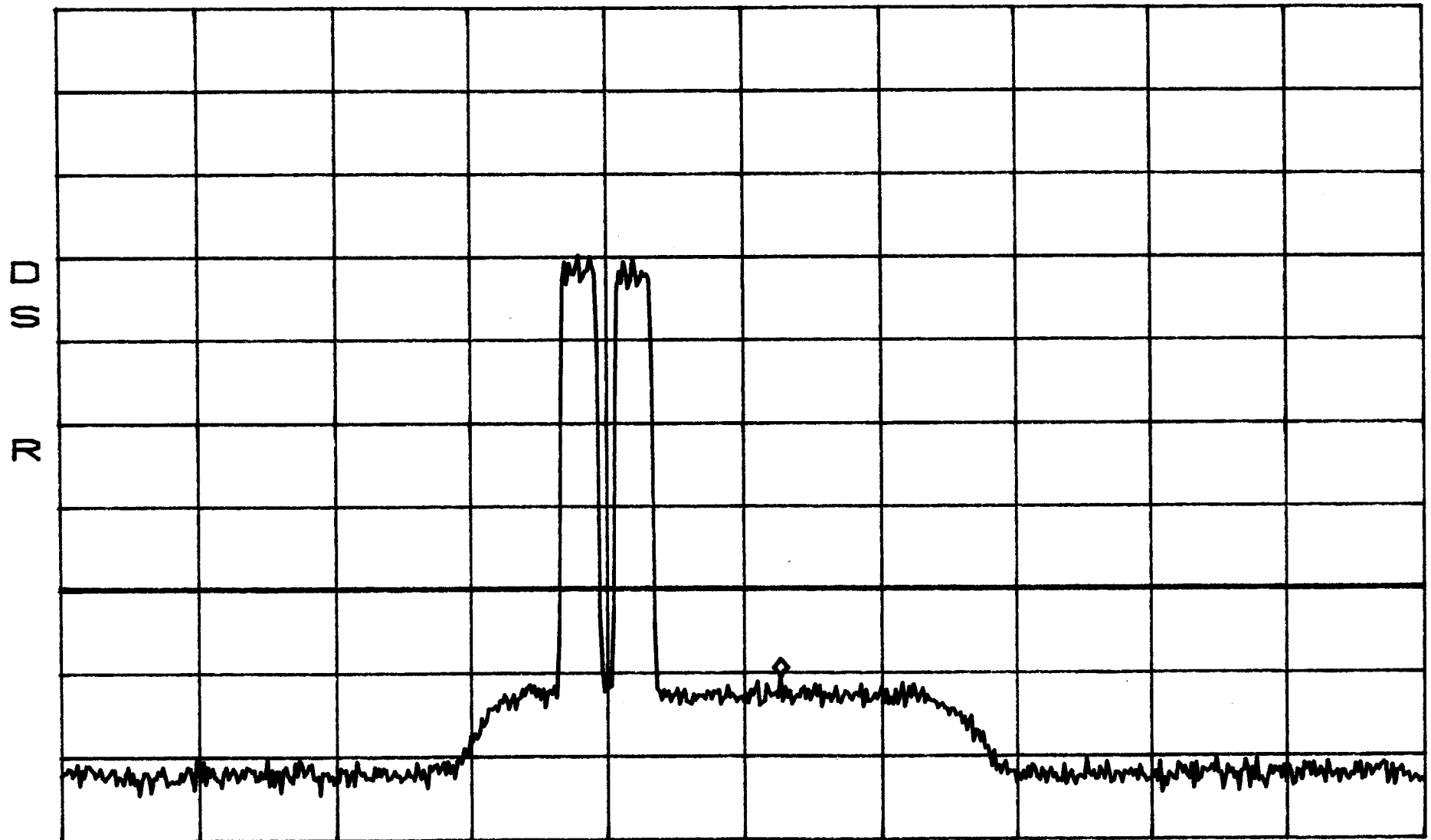
Intermodulation
Close
CDMA

BAND B

*ATTEN 10dB
RL 56.8dBm

VAVG 100
10dB/

MKR -23.53dBm
888.08MHz



CENTER 886.75MHz
*RBW 30kHz VBW 30kHz

SPAN 50.00MHz
SWP 140ms

Intermodulation
Close
CDMA

BAND B

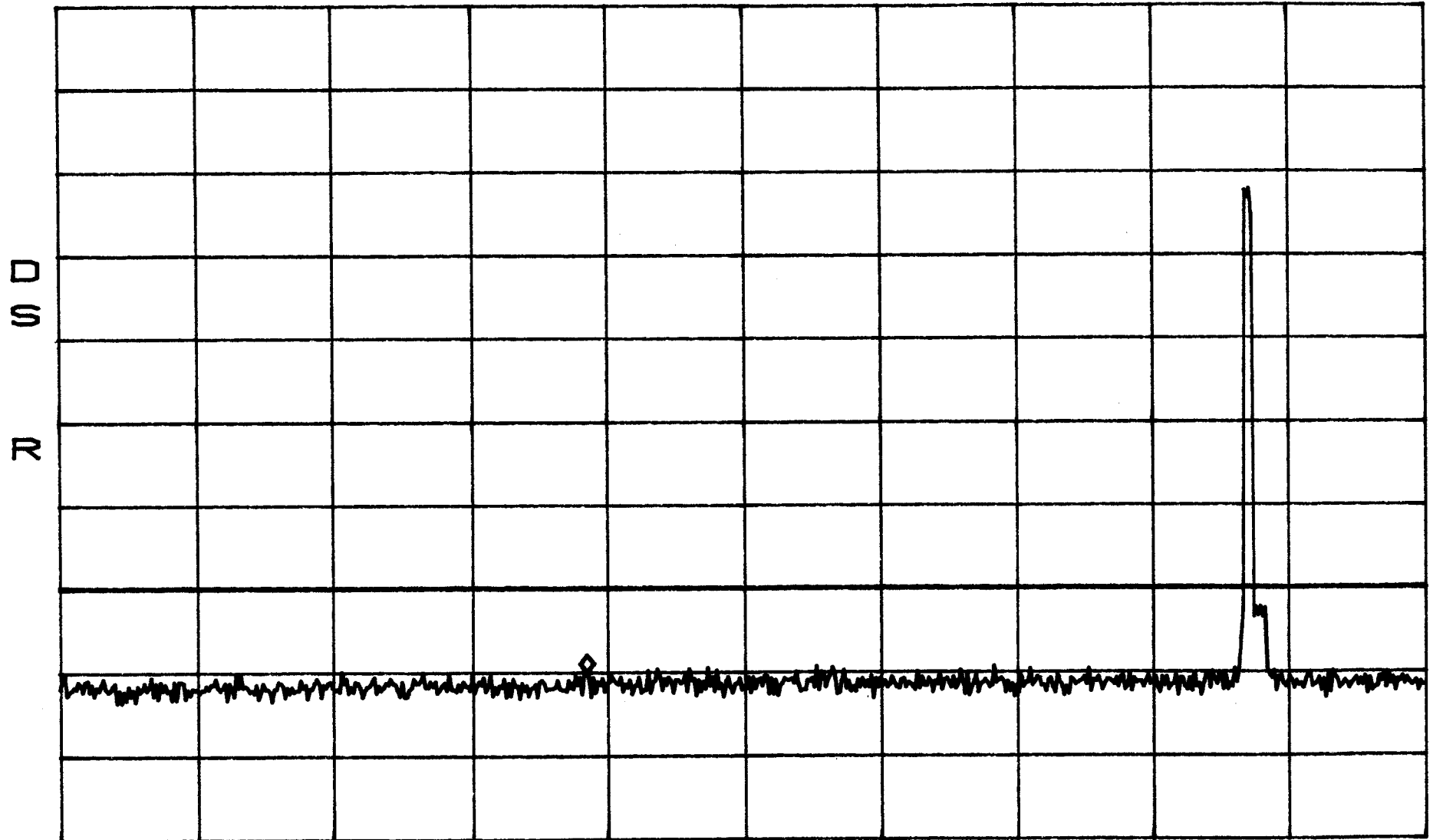
*ATTEN 10dB

RL 56.8dBm

10dB/

MKR -23.03dBm

403.5MHz



START 30.0MHz

STOP 1.0000GHz

*RBW 30kHz

VBW 30kHz

SWP 2.7sec

Intermodulation
Close
CDMA

BAND B

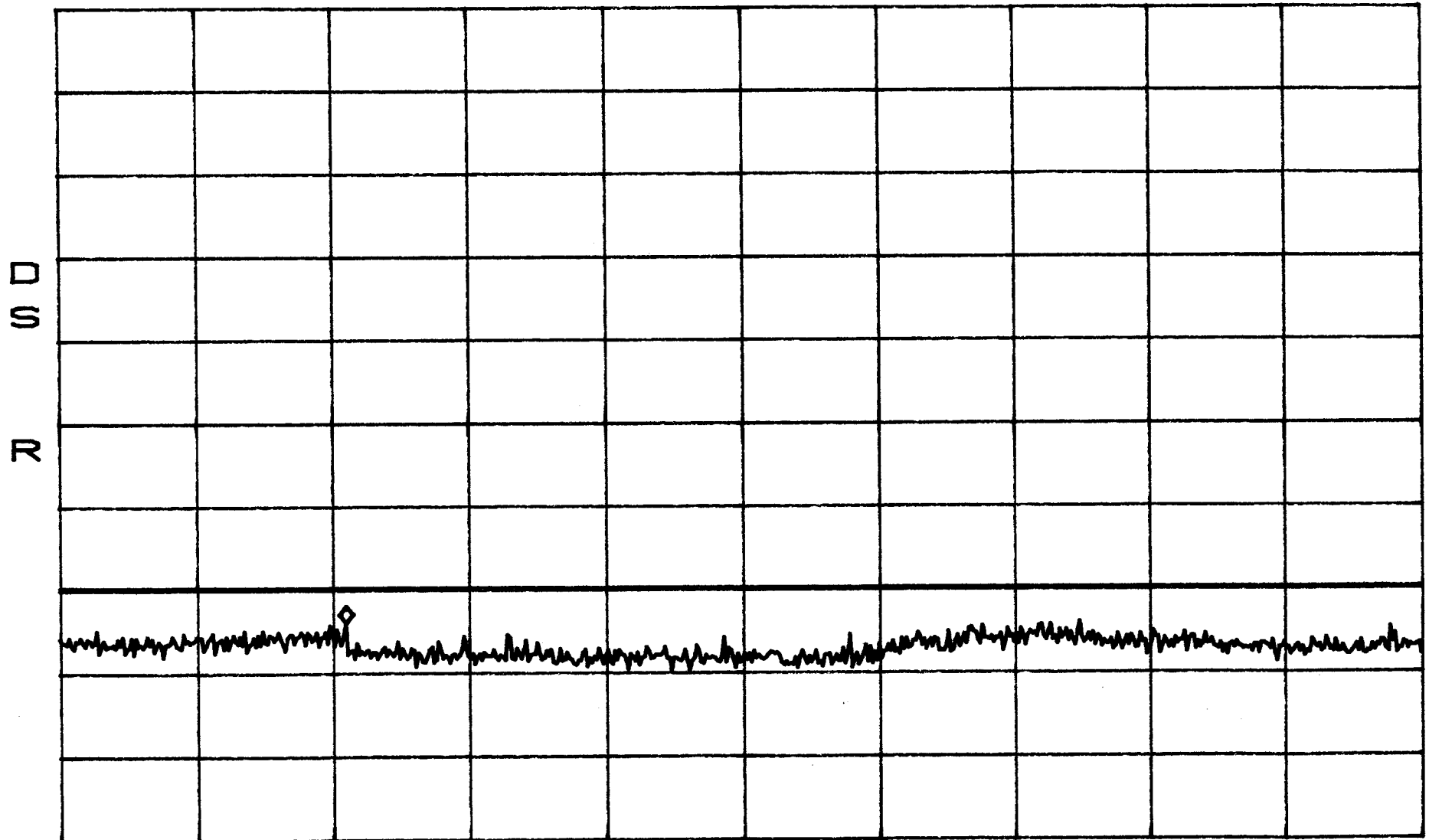
*ATTEN 10dB

RL 56.8dBm

10dB/

MKR -17.03dBm

2.890GHz



START 1.000GHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

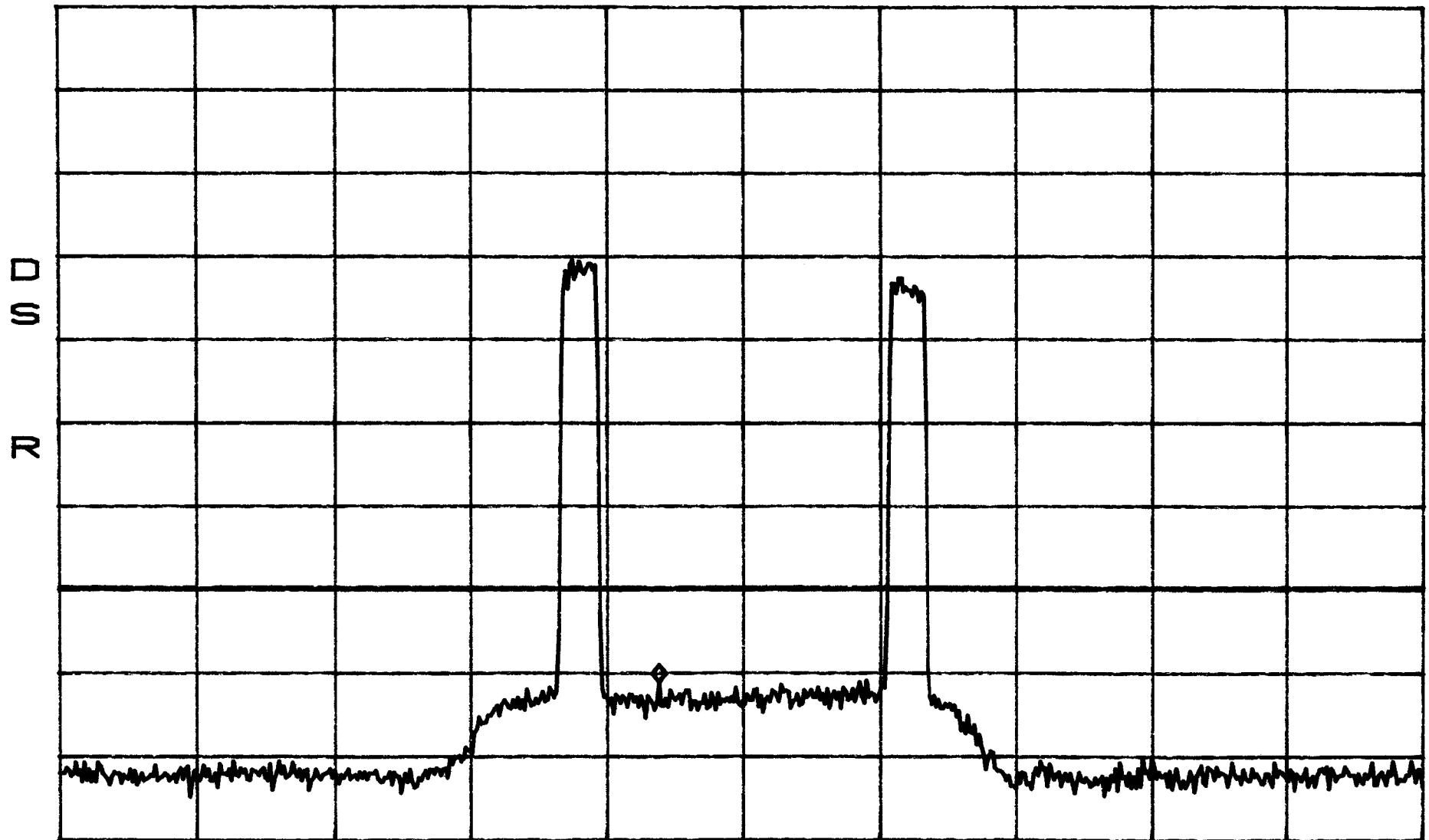
SWP 2.3sec

Intermodulation BAND B
Apart
CDMA

*ATTEN 10dB
RL 56.8dBm

VAVG 100
10dB/

MKR -24.20dBm
883.67MHz



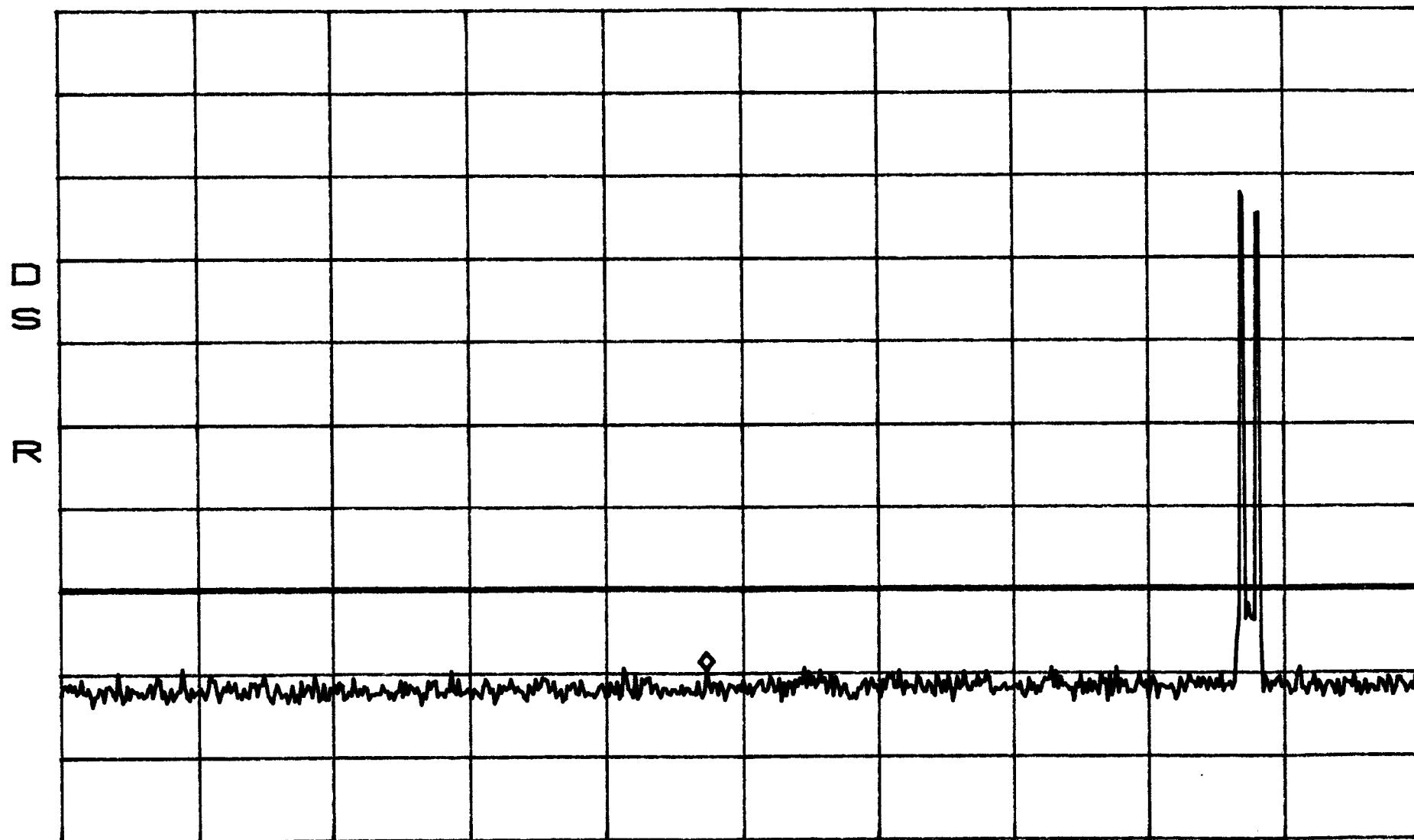
CENTER 886.75MHz SPAN 50.00MHz
*RBW 30kHz VBW 30kHz SWP 140ms

Intermodulation BAND B
Apert
CDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -22.70dBm
489.1MHz



START 30.0MHz
*RBW 30kHz

VBW 30kHz

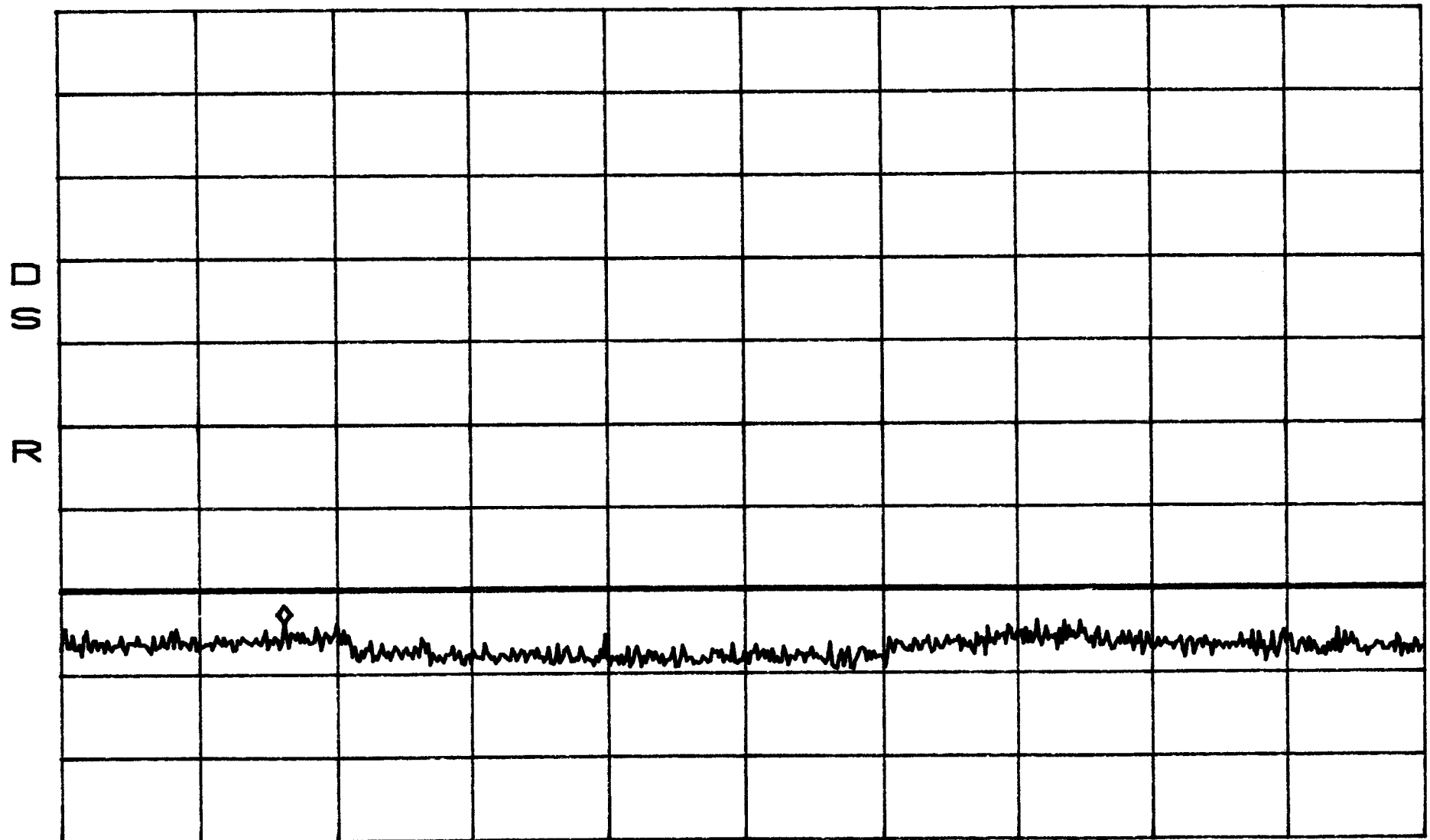
STOP 1.0000GHz
SWP 2.7sec

Intermodulation BAND B
Apert
CDMA

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.87dBm
2.455GHz



START 1.000GHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.3sec

CDMA Mask Test for ADC Inc.
Digivance Long Range Coverage System
Model Numbers DGVL-112110SYS and DGVL-122110SYS.

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 and B Cellular bands.

Results:

Pass (see plots)

CDMA MASK

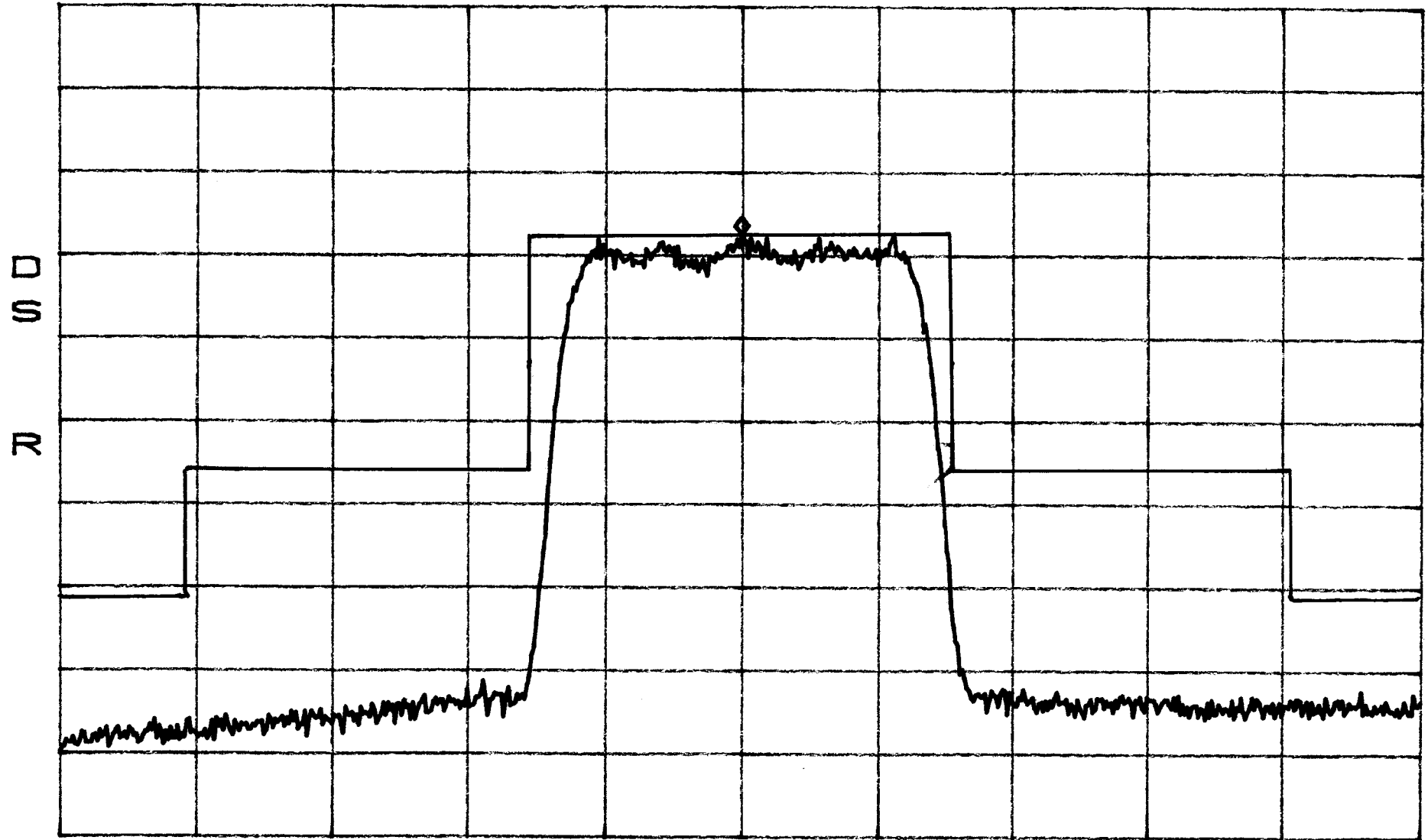
BAND A

Low

*ATTEN 10dB
RL 56.8dBm

VAVG 100
10dB/

MKR 29.47dBm
870.000MHz



CENTER 870.000MHz

SPAN 5.000MHz

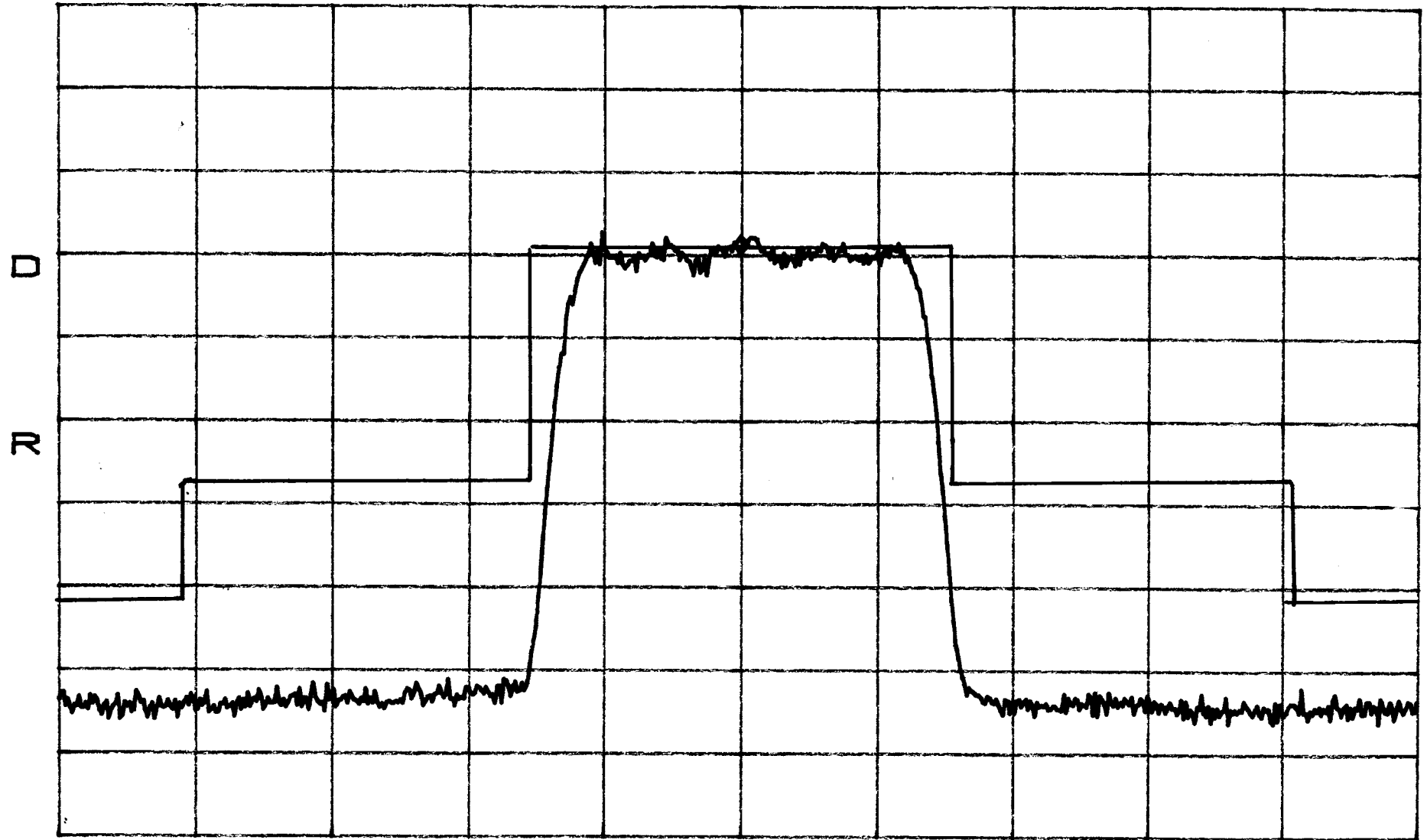
*RBW 30kHz

VBW 30kHz

SWP 50ms

CDMA MASK BAND A
Mid

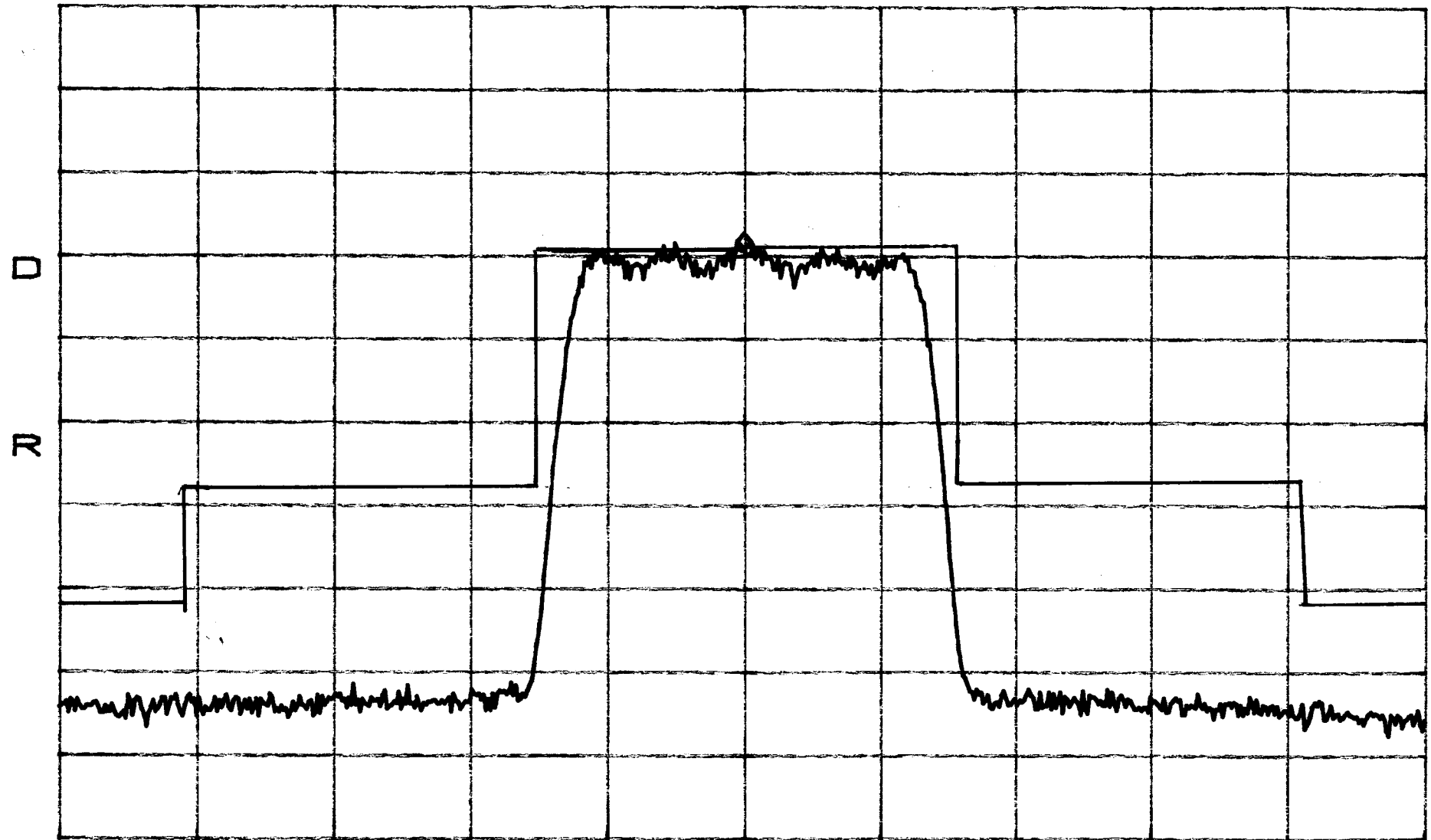
*ATTEN 10dB VAVG 100 MKR 27.13dBm
RL 56.8dBm 10dB/ 879.000MHz



CENTER 879.000MHz SPAN 5.000MHz
*RBW 30kHz VBW 30kHz SWP 50ms

CDMA MASK BAND A
High

*ATTEN 10dB VAVG 100 MKR 27.63dBm
RL 56.8dBm 10dB/BPO 891.000MHz



CENTER 891.000MHz SPAN 5.000MHz
*RBW 30kHz VBW 30kHz SWP 50ms

CDMA MASK

BAND B

Low

*ATTEN 10dB

VAVG 100

MKR 29.63dBm

RL 56.8dBm

10dB/

881.000MHz



CENTER 881.000MHz

SPAN 5.000MHz

*RBW 30kHz

VBW 30kHz

SWP 50ms

CDMA MASK

BAND B

Mid

*ATTEN 10dB

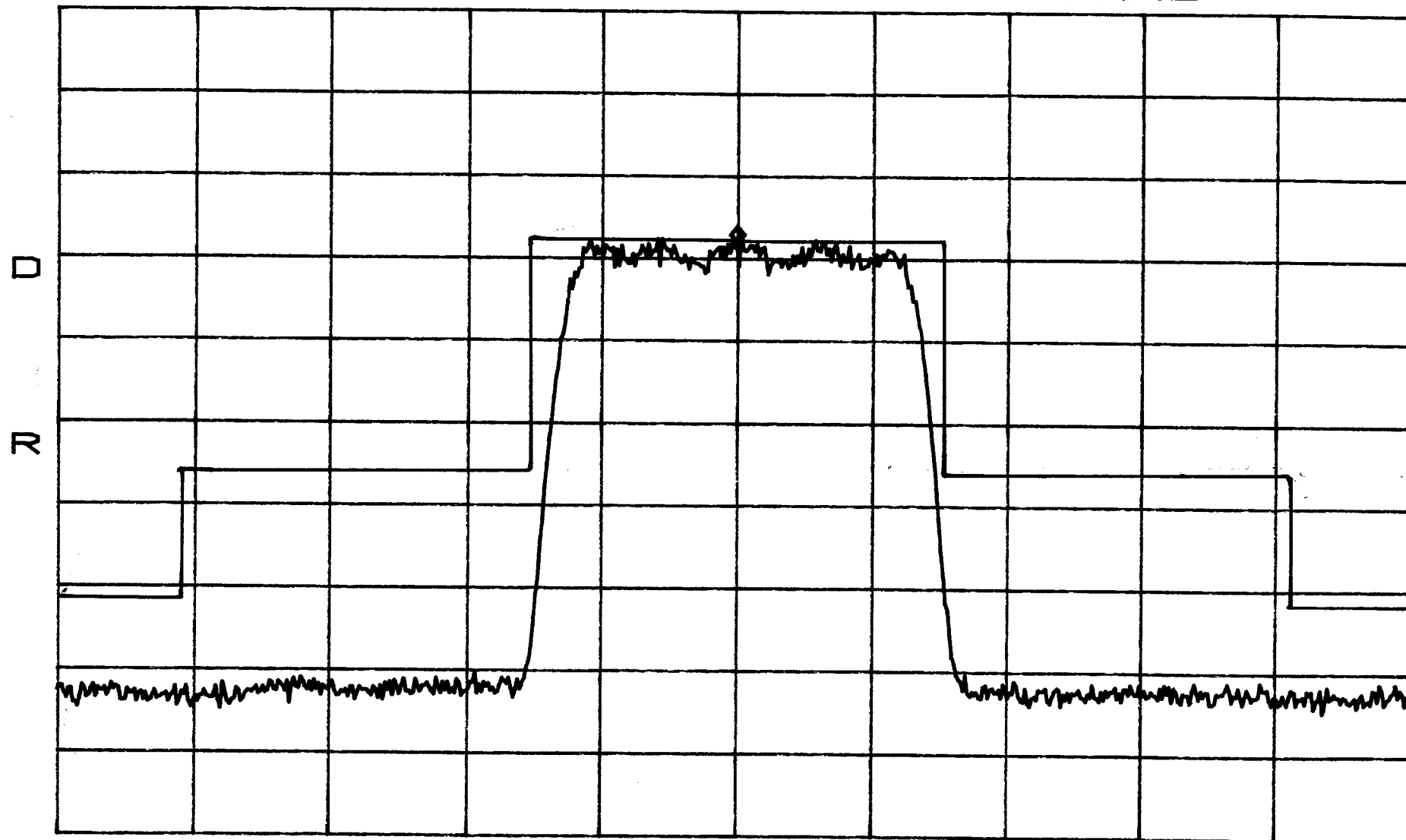
VAVG 100

MKR 28.80dBm

RL 56.8dBm

10dB/

887.000MHz



CENTER 887.000MHz

SPAN 5.000MHz

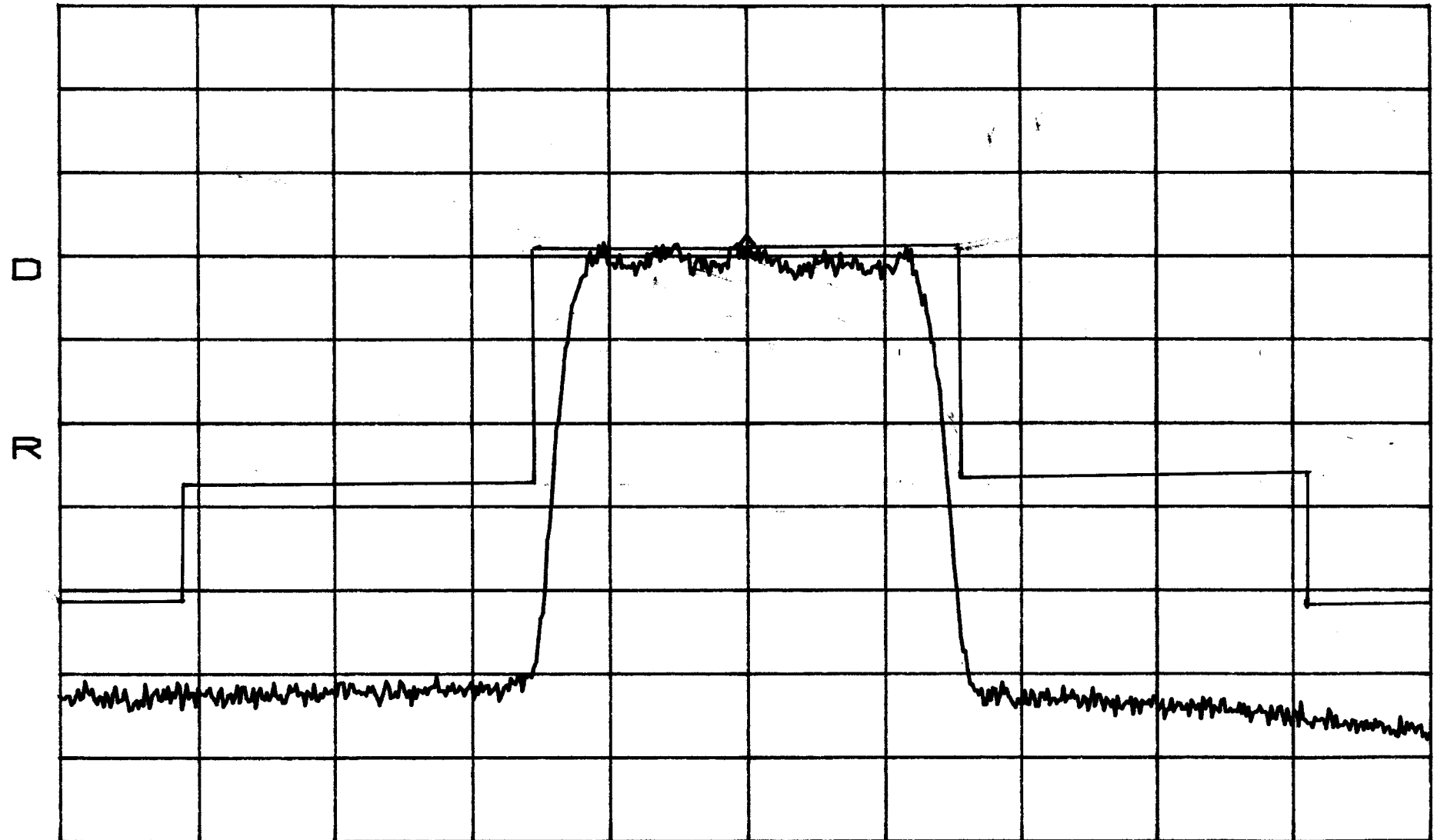
*RBW 30kHz

VBW 30kHz

SWP 50ms

CDMA MASK BAND B
High

*ATTEN 10dB VAVG 100 MKR 27.30dBm
RL 56.8dBm 10dB/ 893.000MHz



CENTER 893.000MHz SPAN 5.000MHz
*RBW 30kHz VBW 30kHz SWP 50ms

**Conducted Emission Limits Test for ADC Inc.
Digivance Long Range Coverage System
Model Numbers DGVL-112110SYS and DGVL-122110SYS.**

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10th harmonic of the highest carrier frequency. Test signals used: CW, FM (1 kHz @ 8 kHz deviation), TDMA, and CDMA. The different signals were input one at a time to the EUT. In all cases, the out of band emissions were less than -13dBm from the equation
$$(19\text{dBm} - [43 + 10\log(0.08\text{W})])$$

Band edge compliance is also demonstrated using a FM signal at the upper and lower limits of the band and a resolution bandwidth of 300 Hz.

Results:

Pass (see plots)

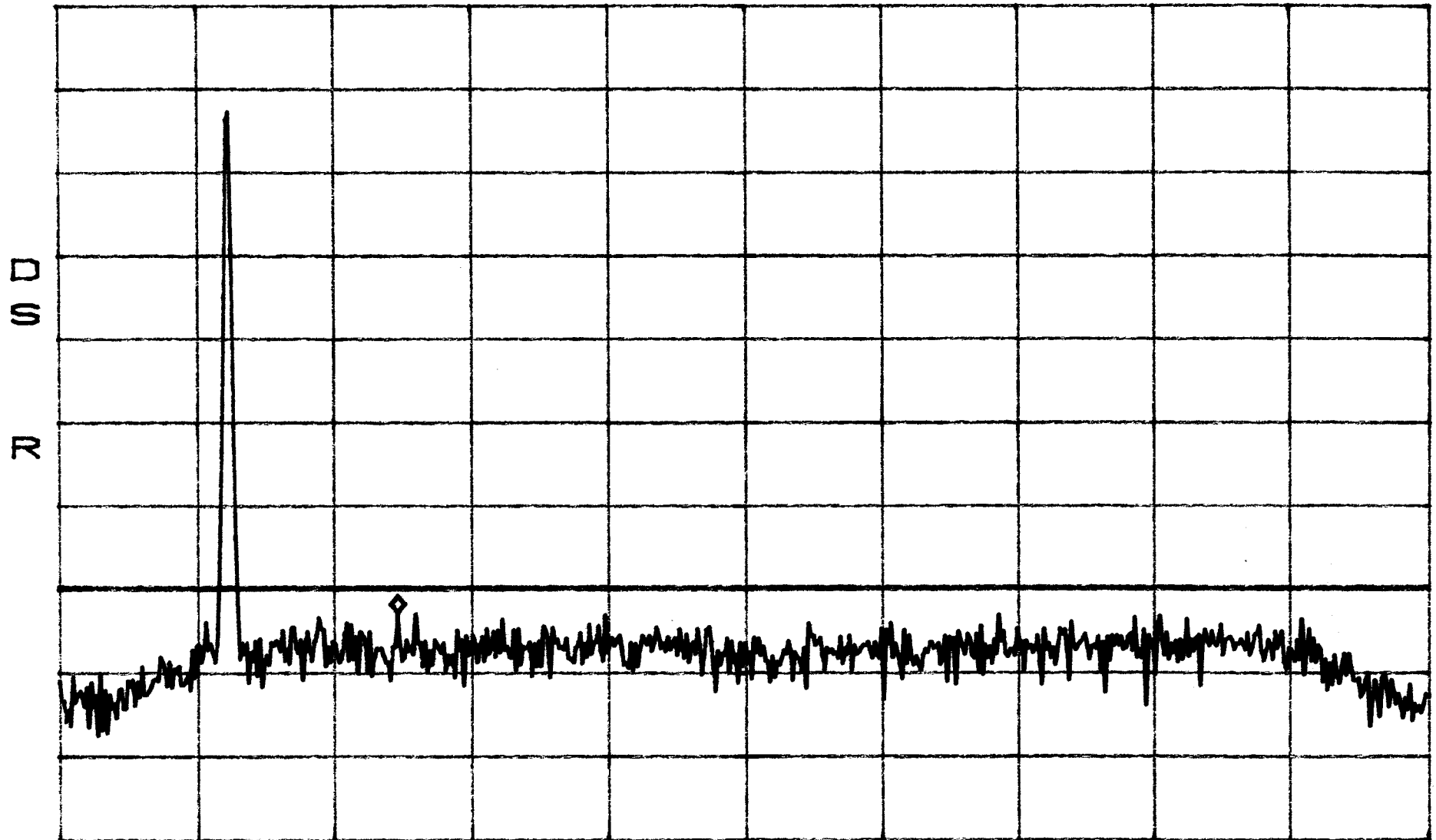
Conducted Emissions
Low

Band A

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -15.87dBm
872.80MHz



CENTER 880.40MHz
*RBW 30kHz VBW 30kHz

SPAN 30.00MHz
SWP 84ms

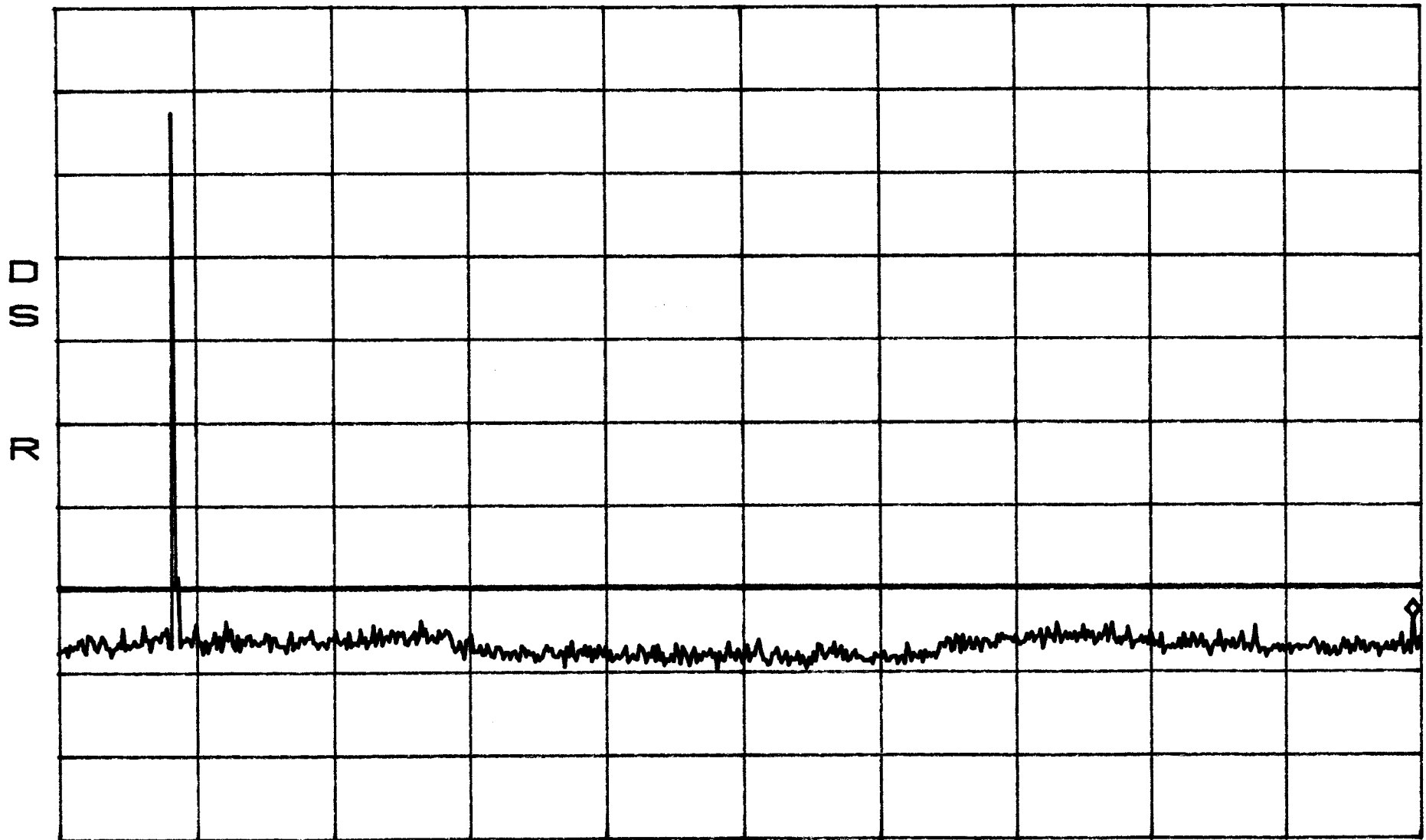
Conducted Emissions
Low

Band A

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.70dBm
9.950GHz



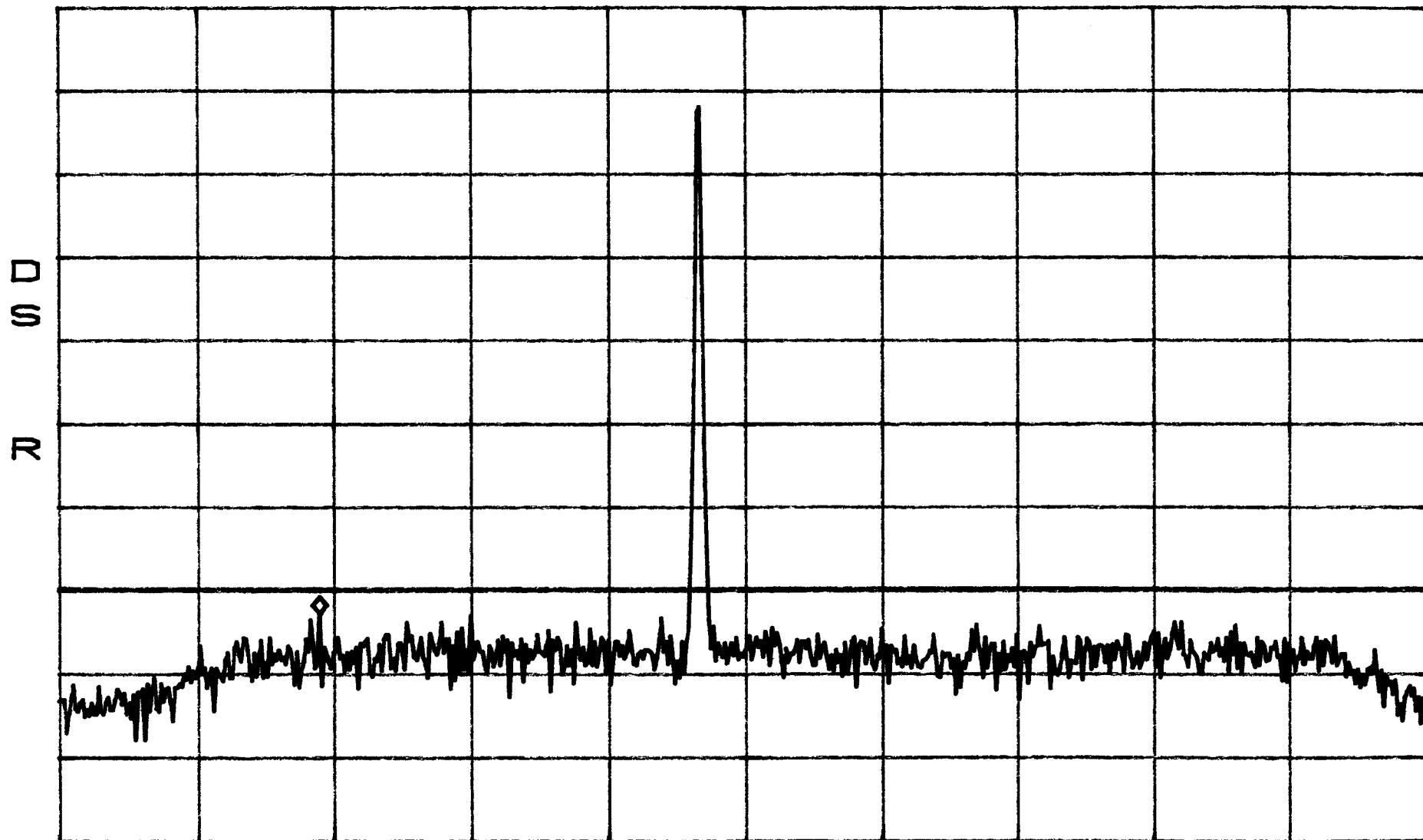
START 30MHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.5sec

Conducted Emissions Band A
Mid

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -15.87dBm
870.60MHz



CENTER 879.90MHz
*RBW 30kHz VBW 30kHz

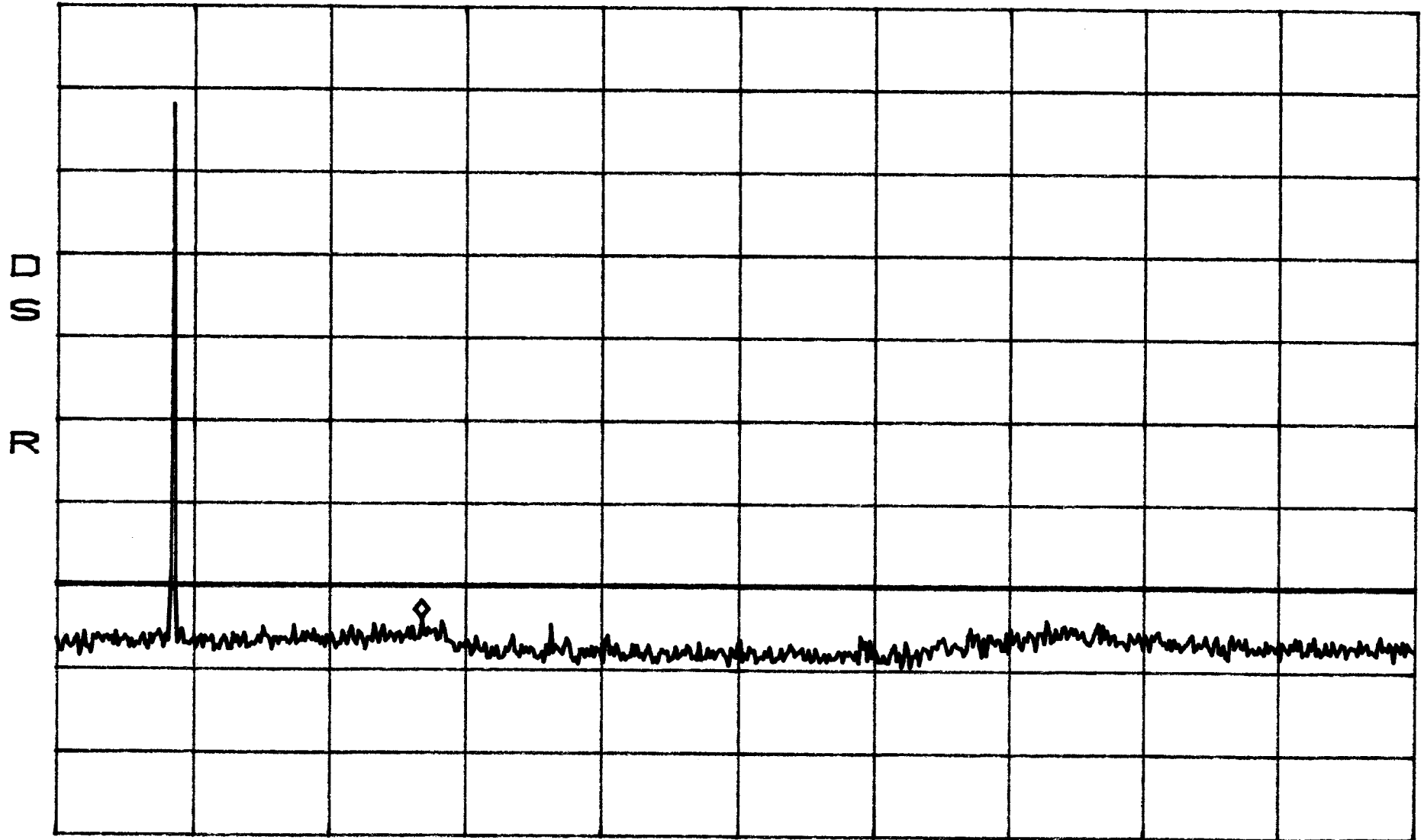
SPAN 30.00MHz
SWP 84ms

Conducted Emissions Band A
Mid

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.87dBm
2.705GHz



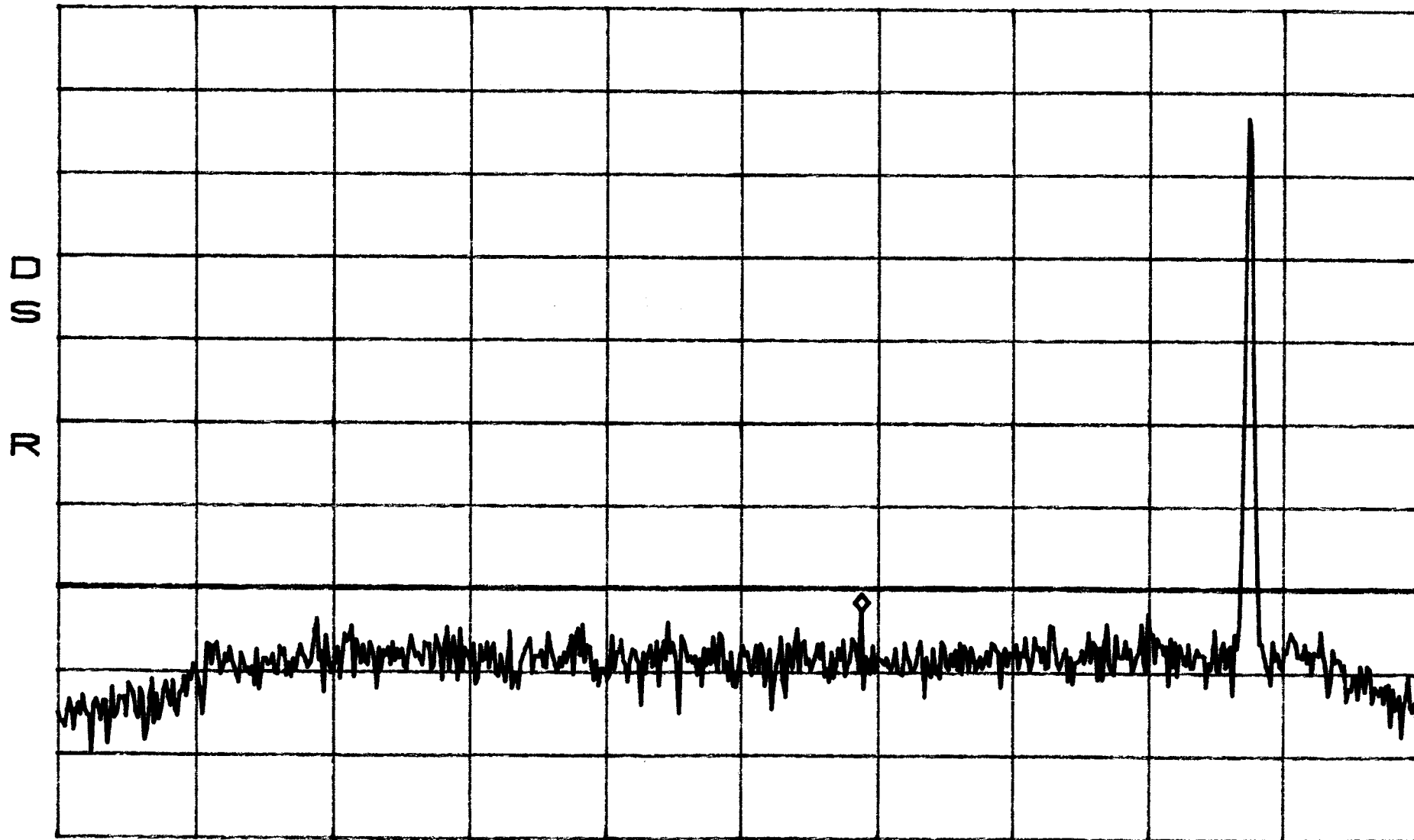
START 30MHz STOP 10.000GHz
*RBW 100kHz VBW 100kHz SWP 2.5sec

Conducted Emissions Band A
High

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -15.70dBm
882.55MHz



CENTER 879.90MHz
*RBW 30kHz VBW 30kHz

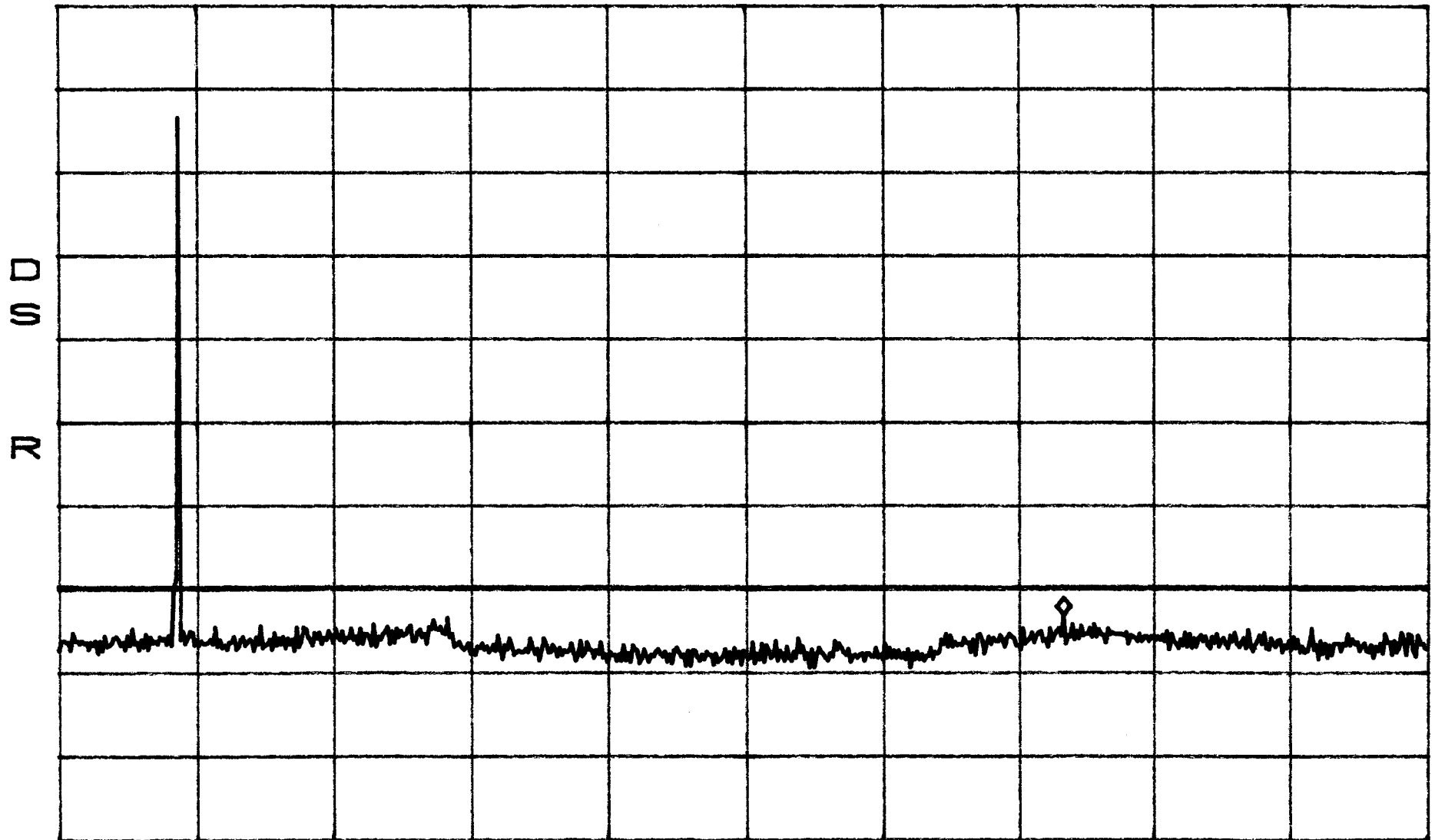
SPAN 30.00MHz
SWP 84ms

Conducted Emissions Band A
High

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -16.20dBm
7.341GHz



START 30MHz
*RBW 100kHz

VBW 100kHz

STOP 10.000GHz
SWP 2.5sec

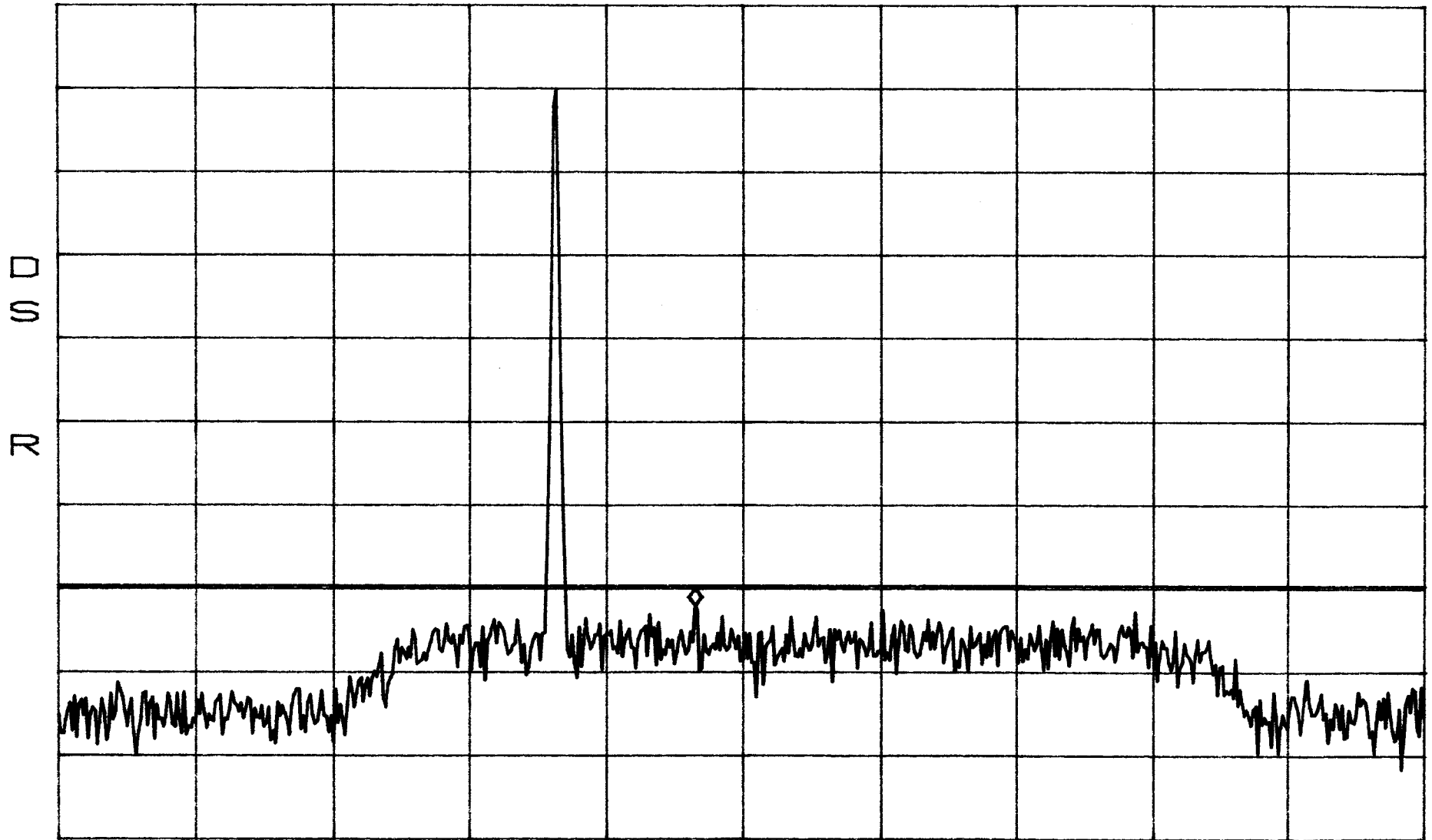
Conducted Emissions
Low

Band B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -15.20dBm
883.95MHz



CENTER 885.00MHz
*RBW 30kHz VBW 30kHz

SPAN 30.00MHz
SWP 84ms

Conducted Emissions
Low

Band B

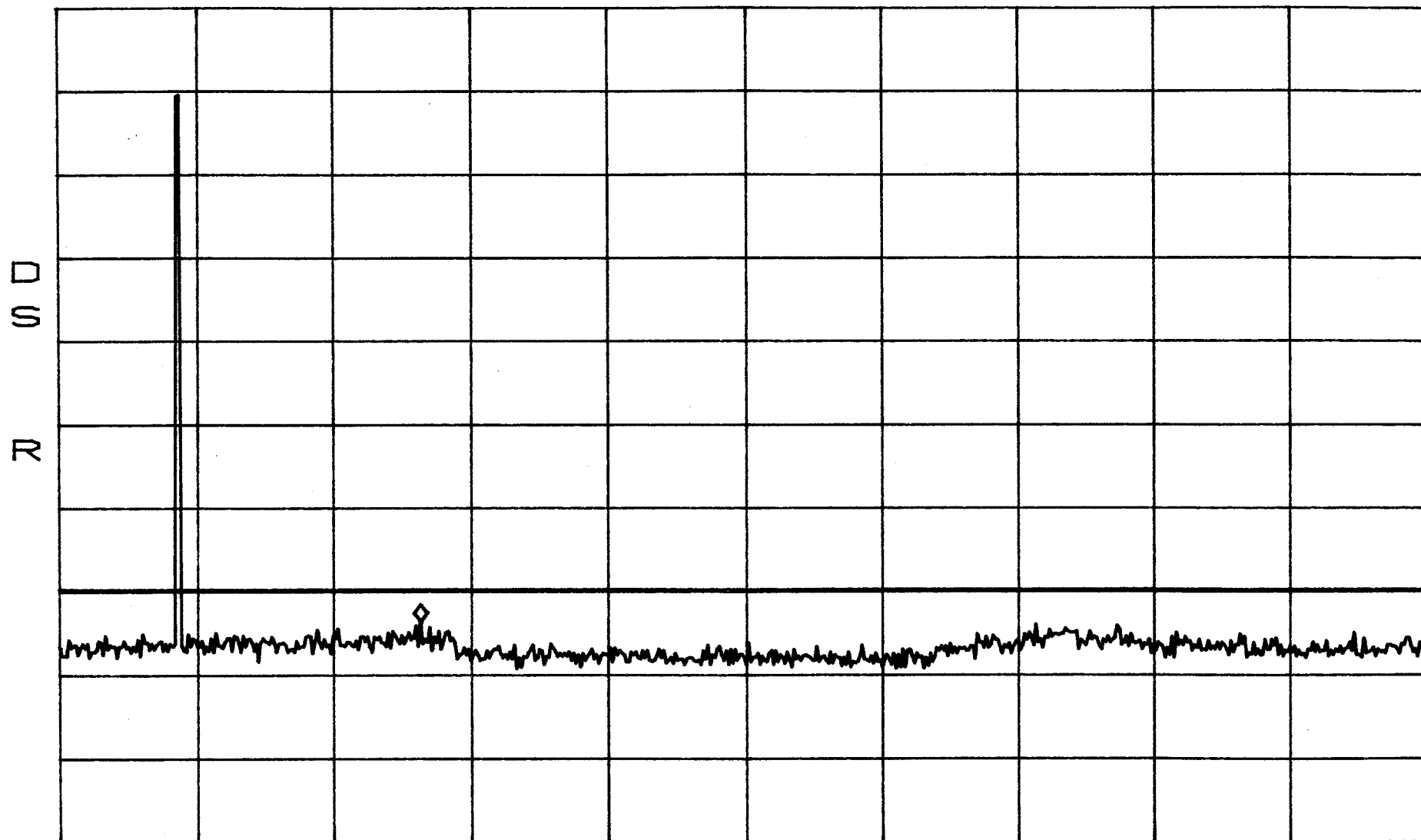
*ATTEN 10dB

MKR -16.70dBm

RL 56.8dBm

10dB/

2.655GHz



START 30MHz

STOP 10.000GHz

*RBW 100kHz

VBW 100kHz

SWP 2.5sec

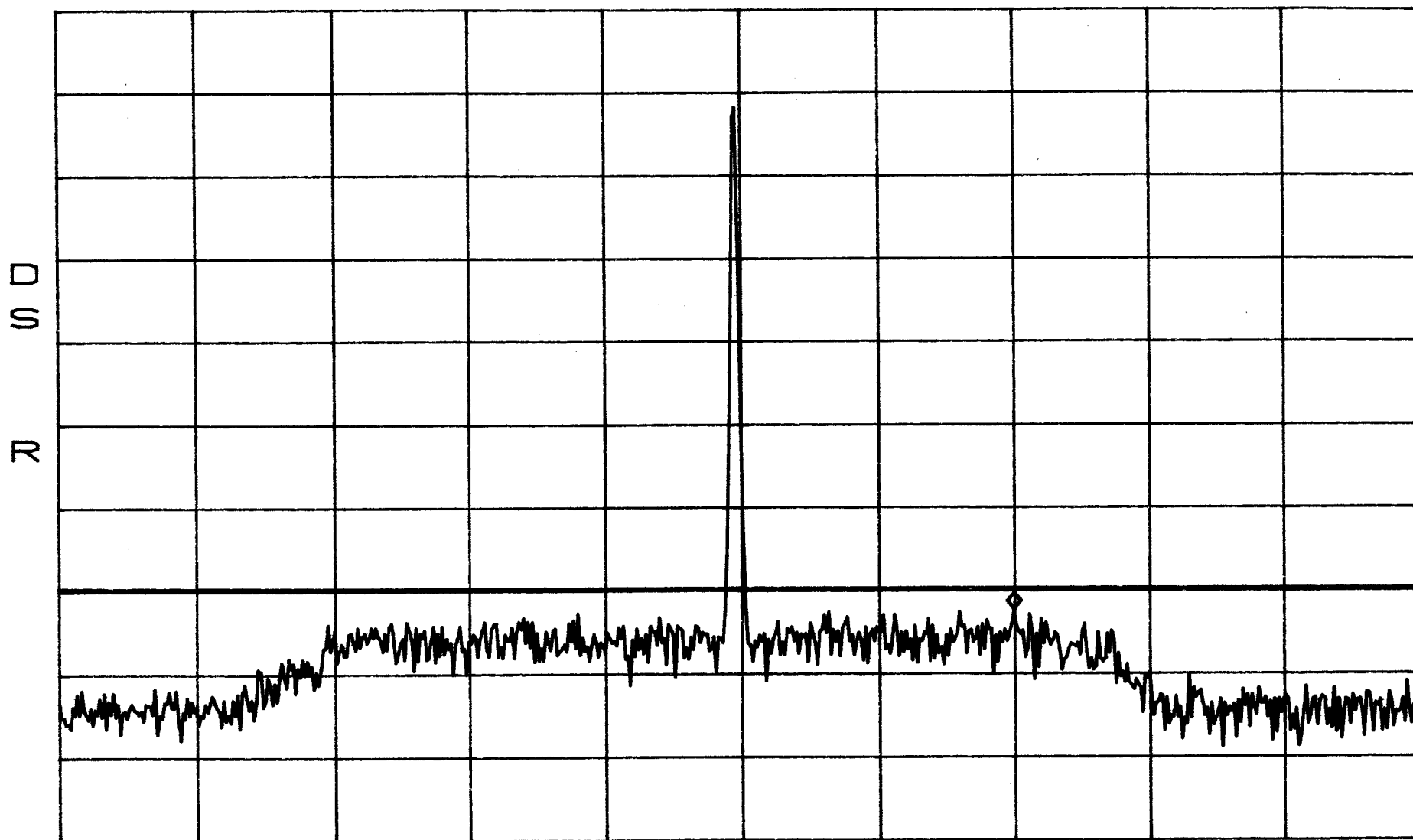
Conducted Emissions
Mid

Band B

*ATTEN 10dB
RL 56.8dBm

10dB/

MKR -15.37dBm
893.00MHz



CENTER 887.00MHz

SPAN 30.00MHz

*RBW 30kHz

VBW 30kHz

SWP 84ms