

# TEST RESULT SUMMARY

## FCC PART 24 SUBPART E Class II Permissive Change

MANUFACTURER'S NAME	ADC, Inc.
NAME OF EQUIPMENT	Digivance Long Range Coverage Solution 1900 MHz System (A,D / D,B,E / B,E,F/ E,F,C)
MODEL NUMBER	<b>DGVL-431110SYS</b> <b>DGVL-441110SYS</b> <b>DGVL-451110SYS</b> <b>DGVL-461110SYS</b>
MANUFACTURER'S ADDRESS	PO Box 1101 Minneapolis MN 55440
TEST REPORT NUMBER	NC303847
TEST DATE	18 August 2003

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 24 Subpart E.

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.

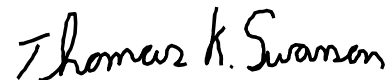
TÜV Product Service Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the requirements of FCC Part 24 Subpart E.

Date: 22 September 2003

Location: Taylors Falls MN  
USA



K. T. H. Rose  
Test Engineer



T. K. Swanson  
Test Technician

Not Transferable

# EMC EMISSION - TEST REPORT

Test Report File No. : **NC303847** Date of issue: 22 September 2003

Model No. : **DGVL-431110SYS**  
**DGVL-441110SYS**  
**DGVL-451110SYS**  
**DGVL-461110SYS**

Product Type : Digivance Long Range Coverage Solution 1900 MHz System  
 (A,D / D,B,E / B,E,F/ E,F,C)

Applicant : ADC, Inc.

Manufacturer : ADC, Inc.

License holder : ADC, Inc.

Address : PO Box 1101  
 : Minneapolis MN 55440

Test Result :  **Positive**     **Negative**

Test Project Number Reference(s) : **NC303847**

Total pages including Appendices **90**

*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*

## D I R E C T O R Y - E M I S S I O N S

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Conducted emissions per 15.207	<u>N/A</u>
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**Sign Explanations:**

- not applicable
- applicable

## EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

- |  |   |                                    |
|--|---|------------------------------------|
| <input type="checkbox"/> - EN 50081-1 / 1991   | <input type="checkbox"/> - Group 1                          | <input type="checkbox"/> - Group 2 |
| <input type="checkbox"/> - EN 55011 / 1991   | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - EN 55013 / 1990   | <input type="checkbox"/> - Household appliances and similar |                                    |
| <input type="checkbox"/> - EN 55014 / 1987   | <input type="checkbox"/> - Portable tools                   |                                    |
|  | <input type="checkbox"/> - Semiconductor devices            |                                    |
| <input type="checkbox"/> - EN 55014 / A2:1990  | <input type="checkbox"/> - Household appliances and similar |                                    |
| <input type="checkbox"/> - EN 55014 / 1993   | <input type="checkbox"/> - Portable tools                   |                                    |
|  | <input type="checkbox"/> - Semiconductor devices            |                                    |
| <input type="checkbox"/> - EN 55015 / 1987   |   |                                    |
| <input type="checkbox"/> - EN 55015 / A1:1990  |   |                                    |
| <input type="checkbox"/> - EN 55015 / 1993   |   |                                    |
| <input type="checkbox"/> - EN 55022 / 1987   | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input checked="" type="checkbox"/> - FCC Part 24 Subpart E – Class II Permissive Change |   |                                    |
| <input type="checkbox"/> - BS  |   |                                    |
| <input type="checkbox"/> - VCCI  | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - FCC   | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - AS 3548 (1992)  | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - CISPR 11 (1990)   | <input type="checkbox"/> - Group 1                          | <input type="checkbox"/> - Group 2 |
|  | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - CISPR 22 (1993)   | <input type="checkbox"/> - Class A                          | <input type="checkbox"/> - Class B |

**Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage) per 15.207**

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

■ - Test not applicable

- Wild River Lab Large Test Site (Open Area 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

**24.232 Effective Radiated Power Limit**

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

- ADC facility
- - Test Not Applicable for Class II Permissive Change

**24.235 Frequency Stability**

The **Frequency Stability** measurements were tested at the following test location:

- ADC facility
- - Test Not Applicable for Class II Permissive Change

## 24.238 Emission Limits

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

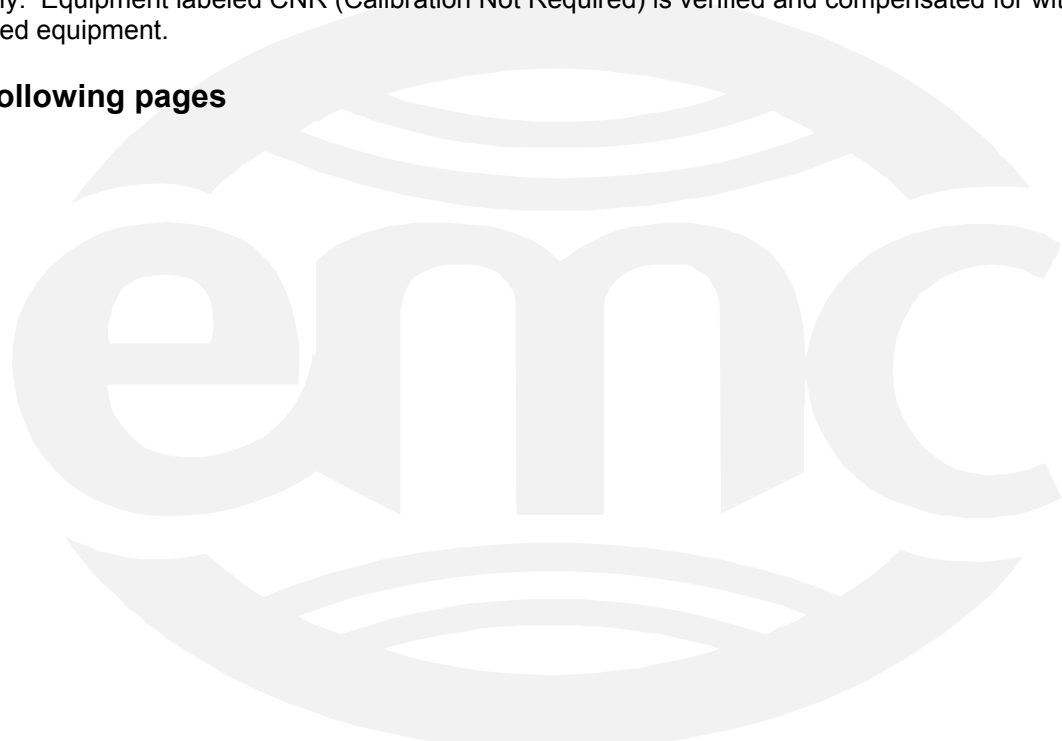
- - ADC facility

### Test equipment used:

Model Number	Manufacturer	Description	Serial Number	Cal Due
■ - E4437B	HP	Signal Generator	39260515	Sept 04
■ - ZAPD-21	Mini-Circuits	Combiner	N/A	CNR
■ - 50FH-030-300		Attenuator	N/A	CNR
■ - HPD60-5	Xantrex	DC Power Supply	MC27841	CNR
■ - 8594E	HP	Spectrum Analyzer	MC27761	April 04

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually. Equipment labeled CNR (Calibration Not Required) is verified and compensated for with NIST traceable calibrated equipment.

See data on following pages



**Conducted Emission Limits Test for ADC Inc.  
Digivance Long Range Coverage System  
Model Numbers DGVL-431110SYS, DGVL-441110SYS,  
DGVL-451110SYS, and DGVL-461110SYS.**

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10<sup>th</sup> 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.

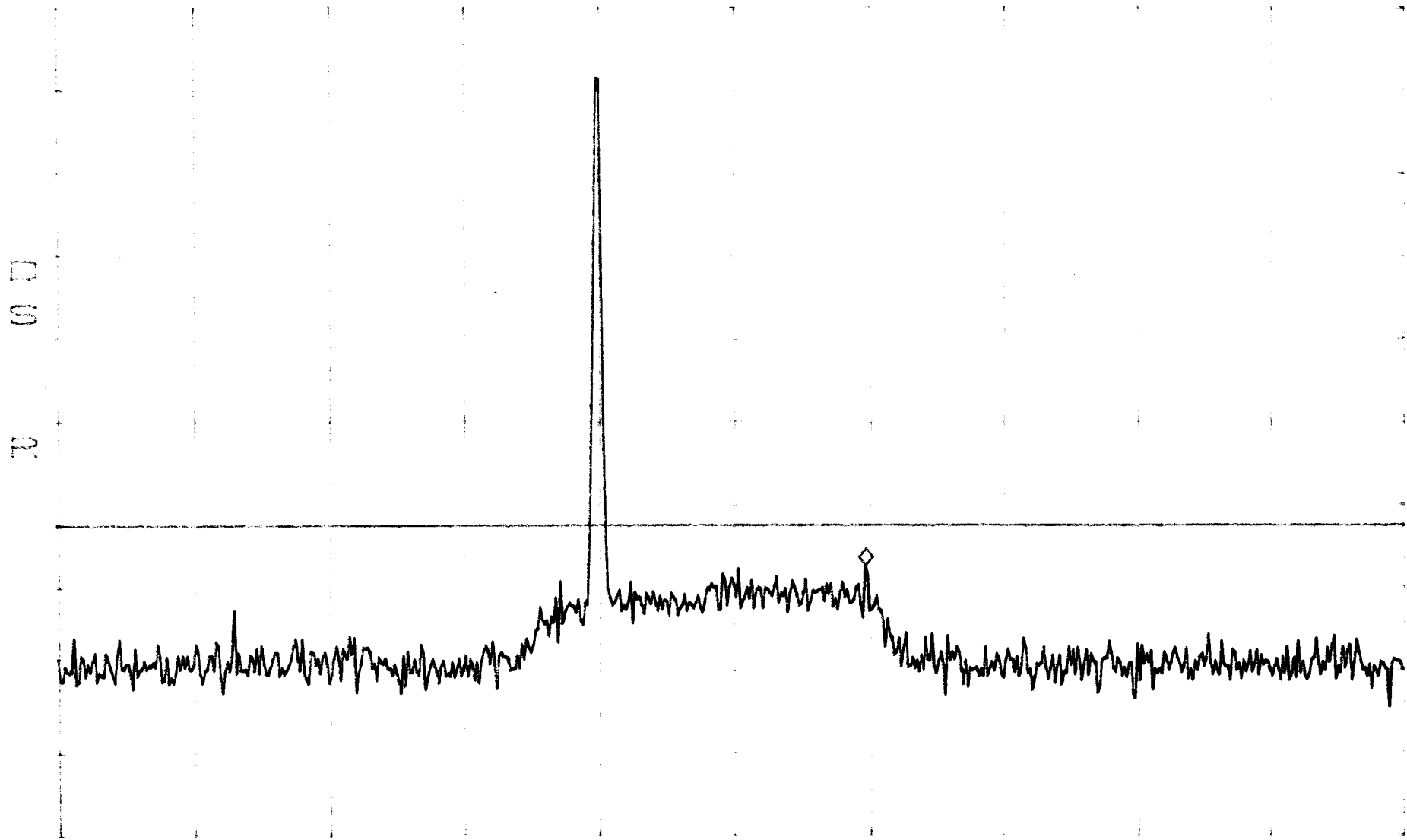
**Results:**

Pass (see plots)

# CONDUCTED EMISSIONS BAND AD LOW

\*ATTEN 80dB  
RES 40.0dBm

MKR -17.83dBm  
1.9497GHz



CENTER 1.9400GHz  
\*RBW 100kHz VBW 100kHz

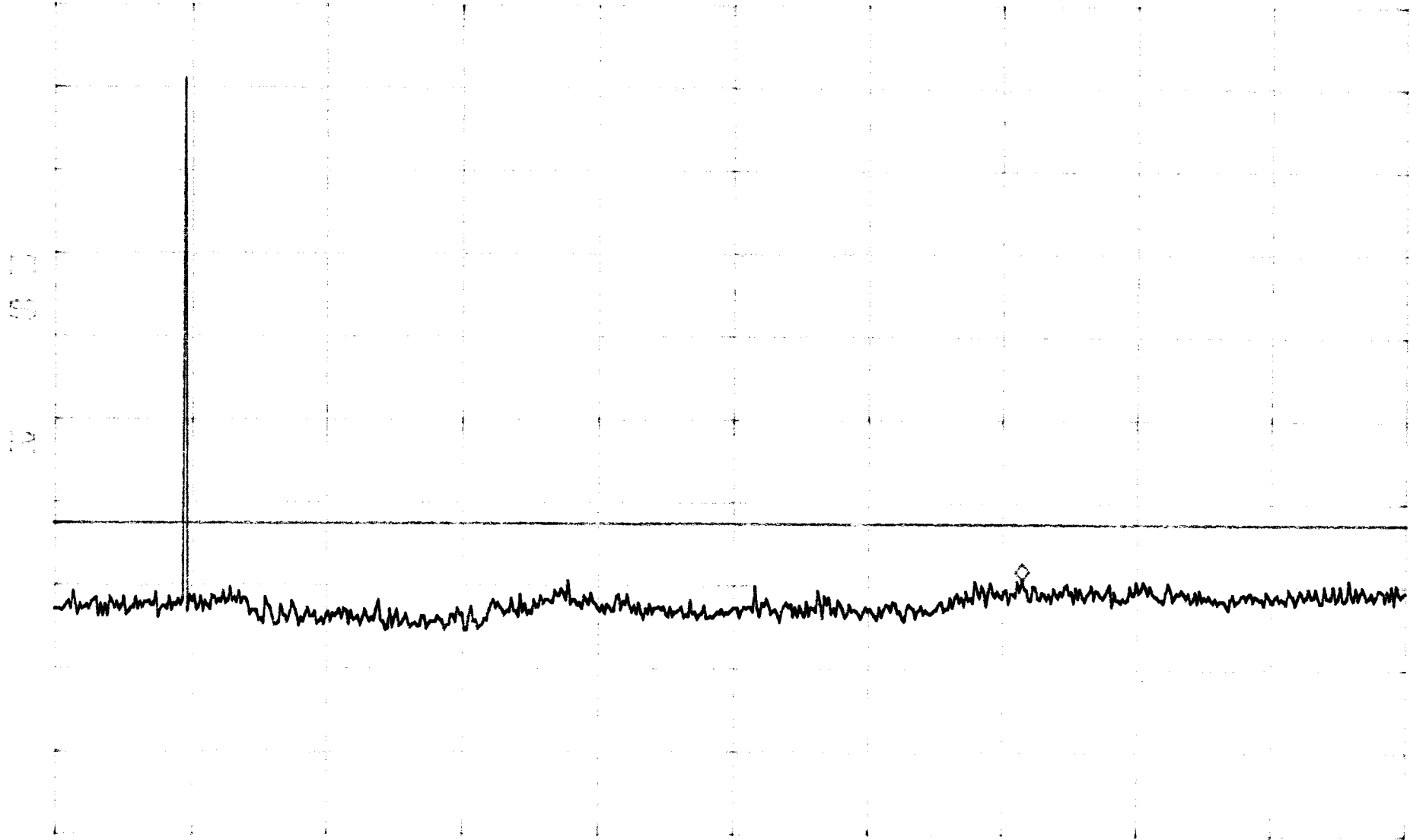
SPAN 100.0MHz  
SWP 50ms



# CONDUCTED EMISSIONS BAND AD LOW

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.87dBm  
14.81GHz



START 30MHz  
\*RBW 300kHz

VBW 300kHz

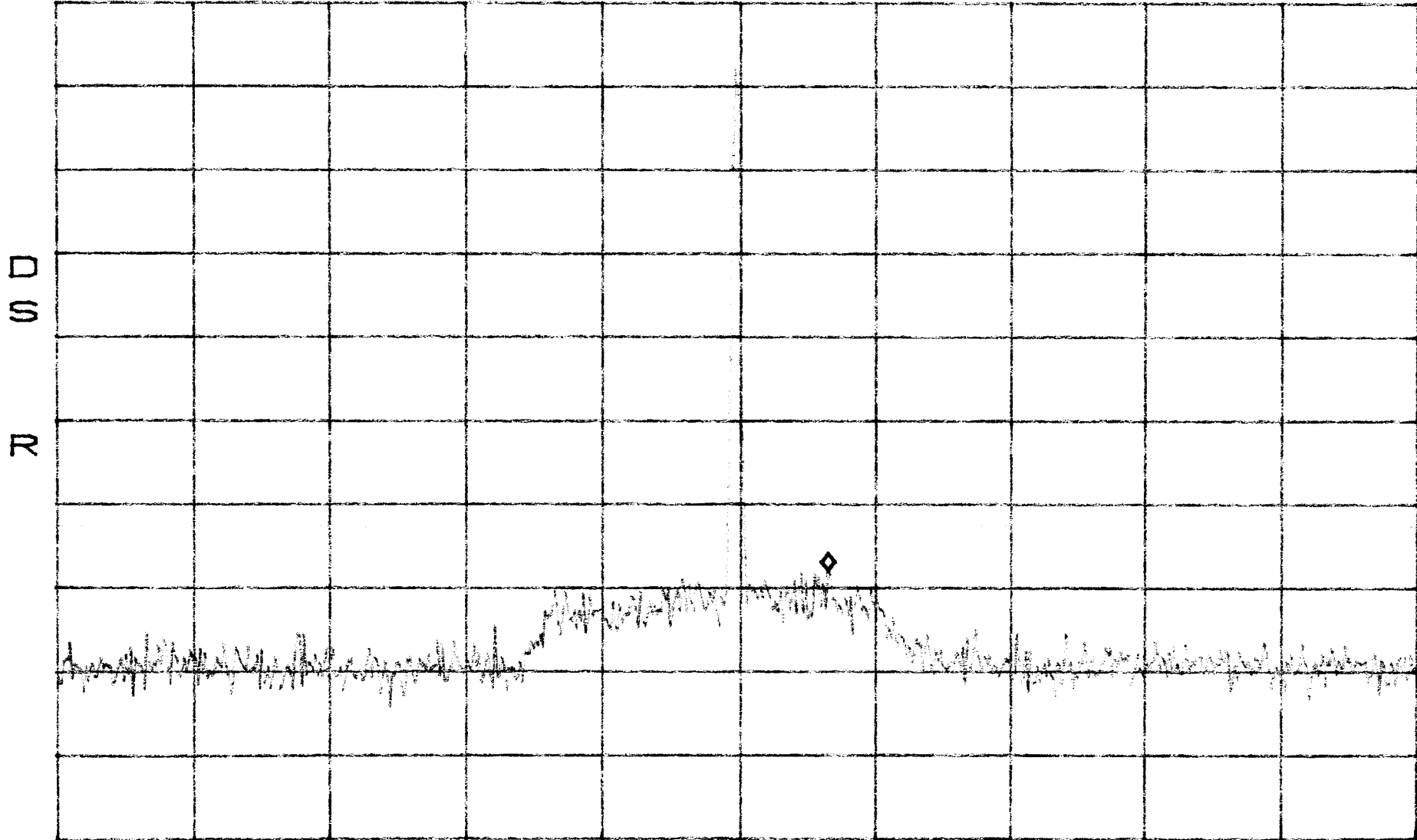
STOP 20.00GHz  
SWP 560ms

# CONDUCTED EMISSIONS BAND AD MID

\*ATTEN 30dB  
RL 49.5dBm

1dB/

MKR -18.33dBm  
1.9465GHz

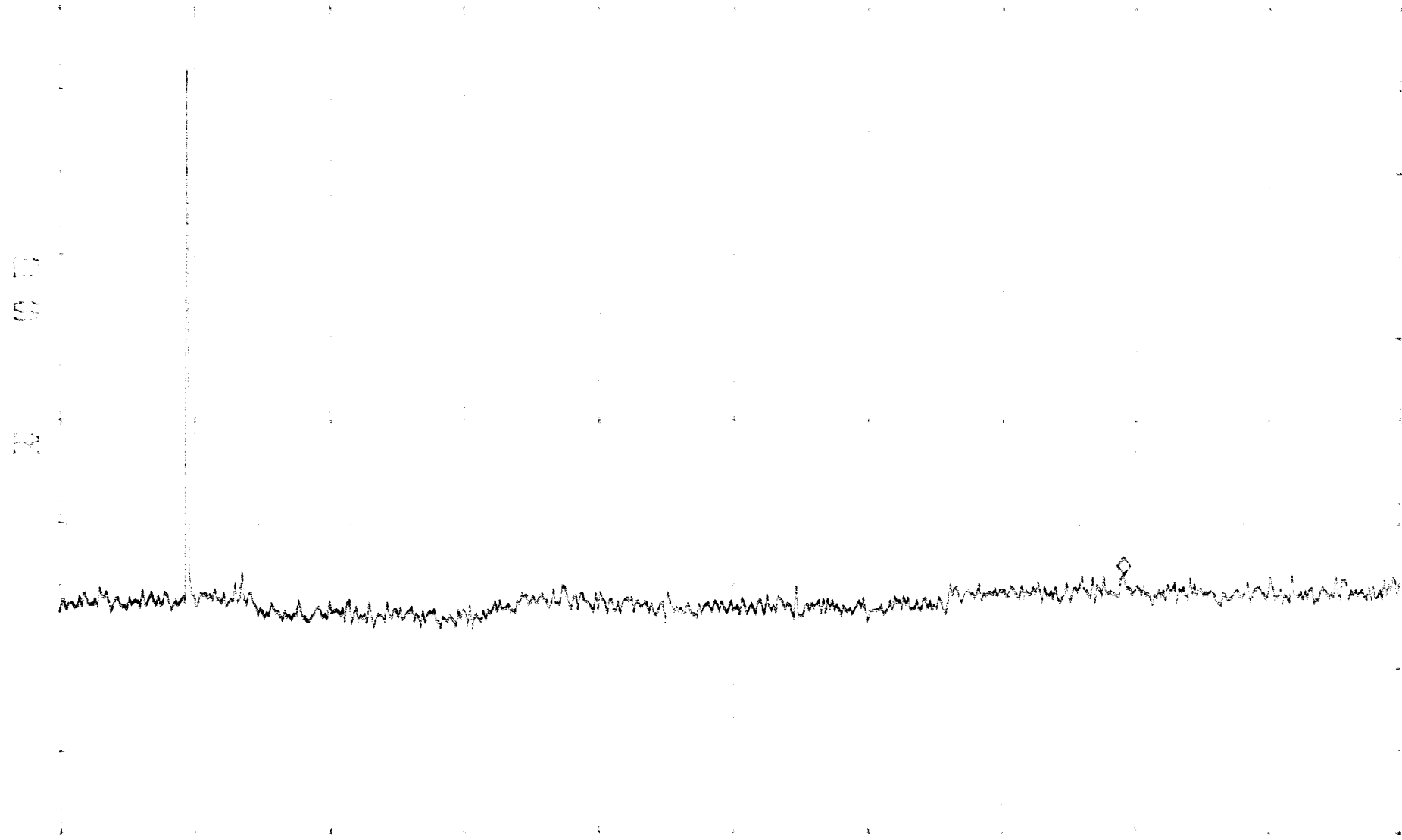


CENTER 1.9400GHz SPAN 100.0MHz  
\*RBW 100kHz VBW 100kHz SWP 50ms

# CONDUCTED EMISSIONS BAND AD MID

\*ATTEN: 30dB  
RES: 100.000000

MARK: 1.99.000000  
RES: 0.000000



START: 300.000000  
\*RES: 0.000000

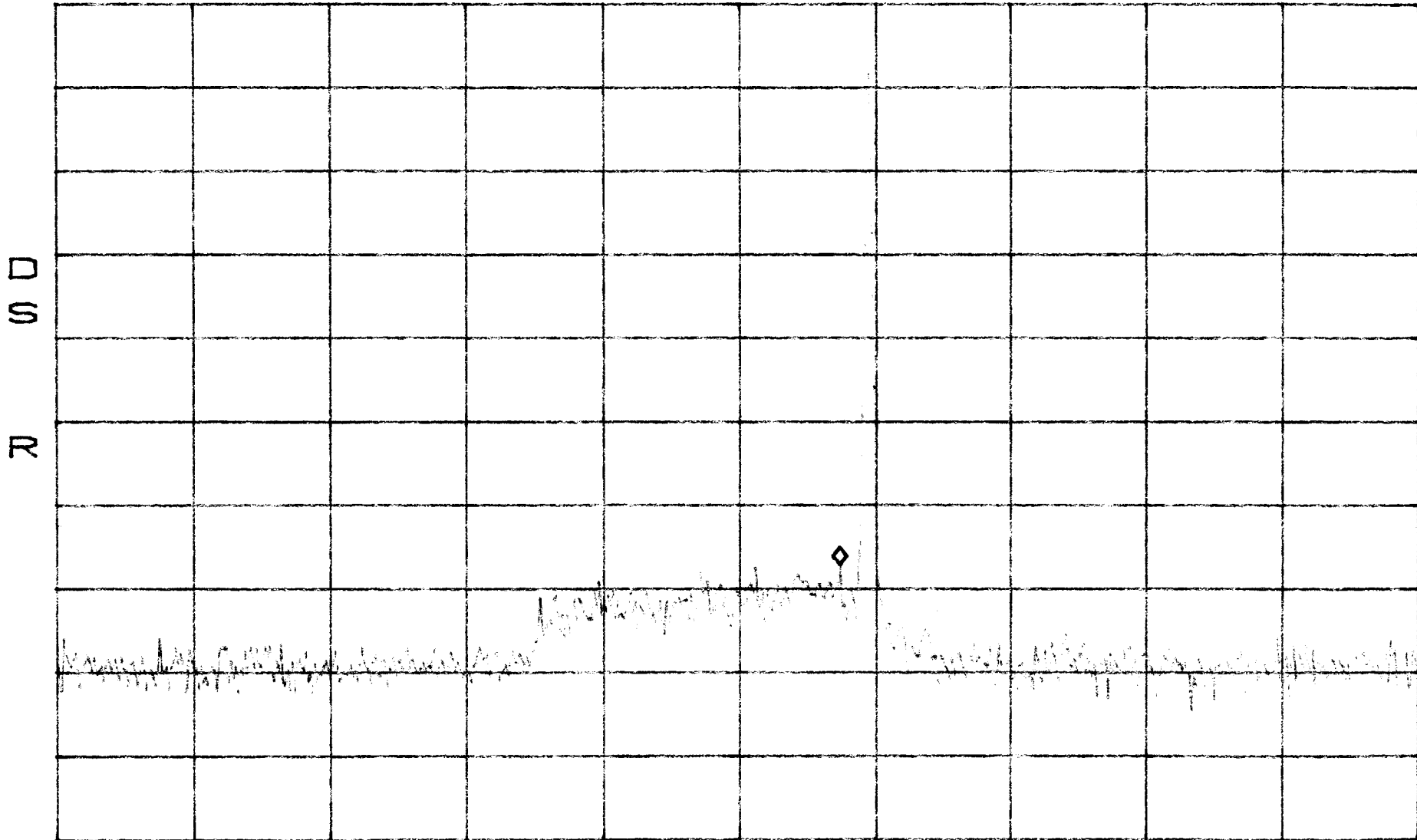
STOP: 30.000000  
VIEW: 300.000000 SWP: 100.000000

# CONDUCTED EMISSIONS BAND AD HIGH

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -17.50dBm  
1.9473GHz



CENTER 1.9400GHz  
\*RBW 100kHz VBW 100kHz

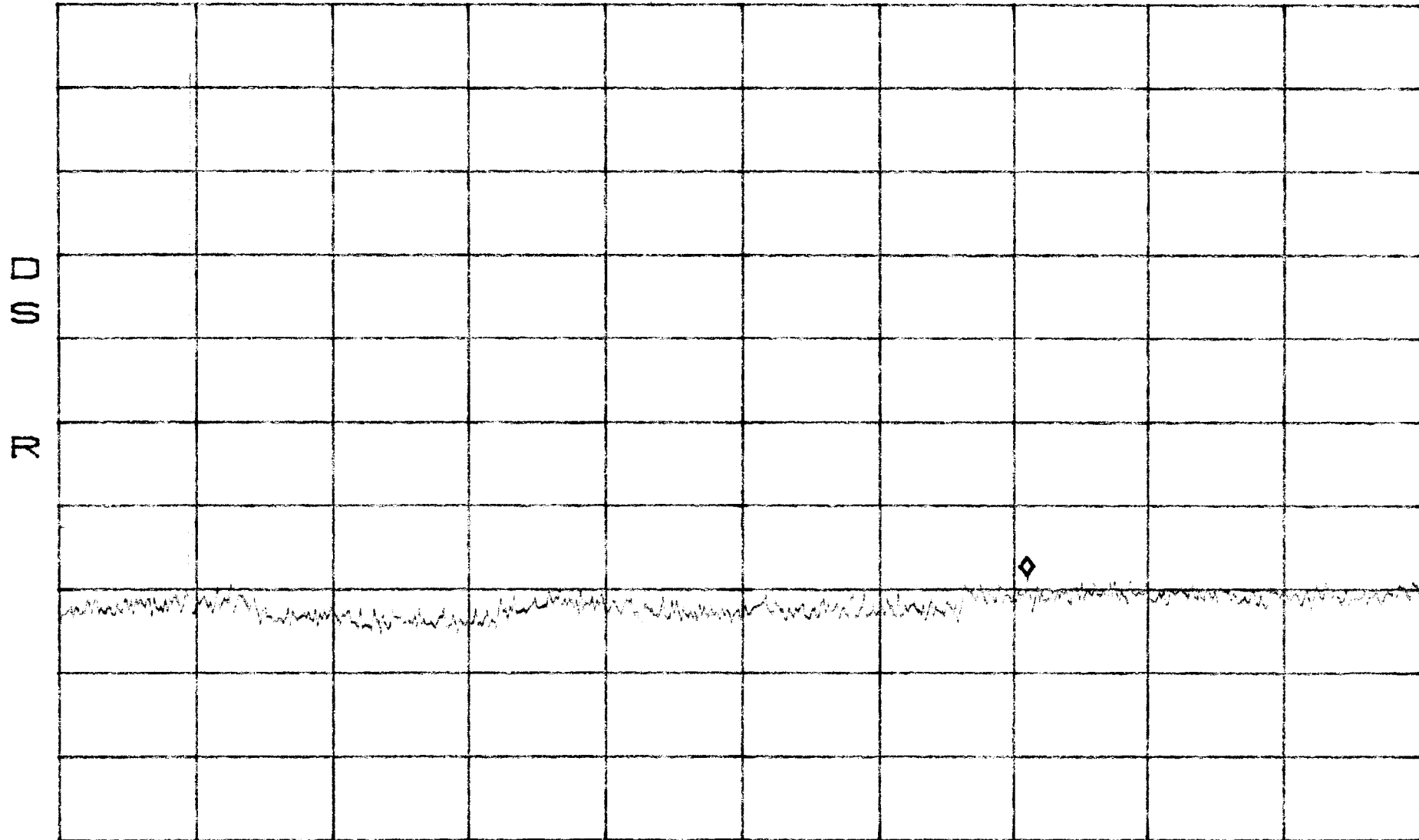
SPAN 100.0MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND AD HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.67dBm  
14.21GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

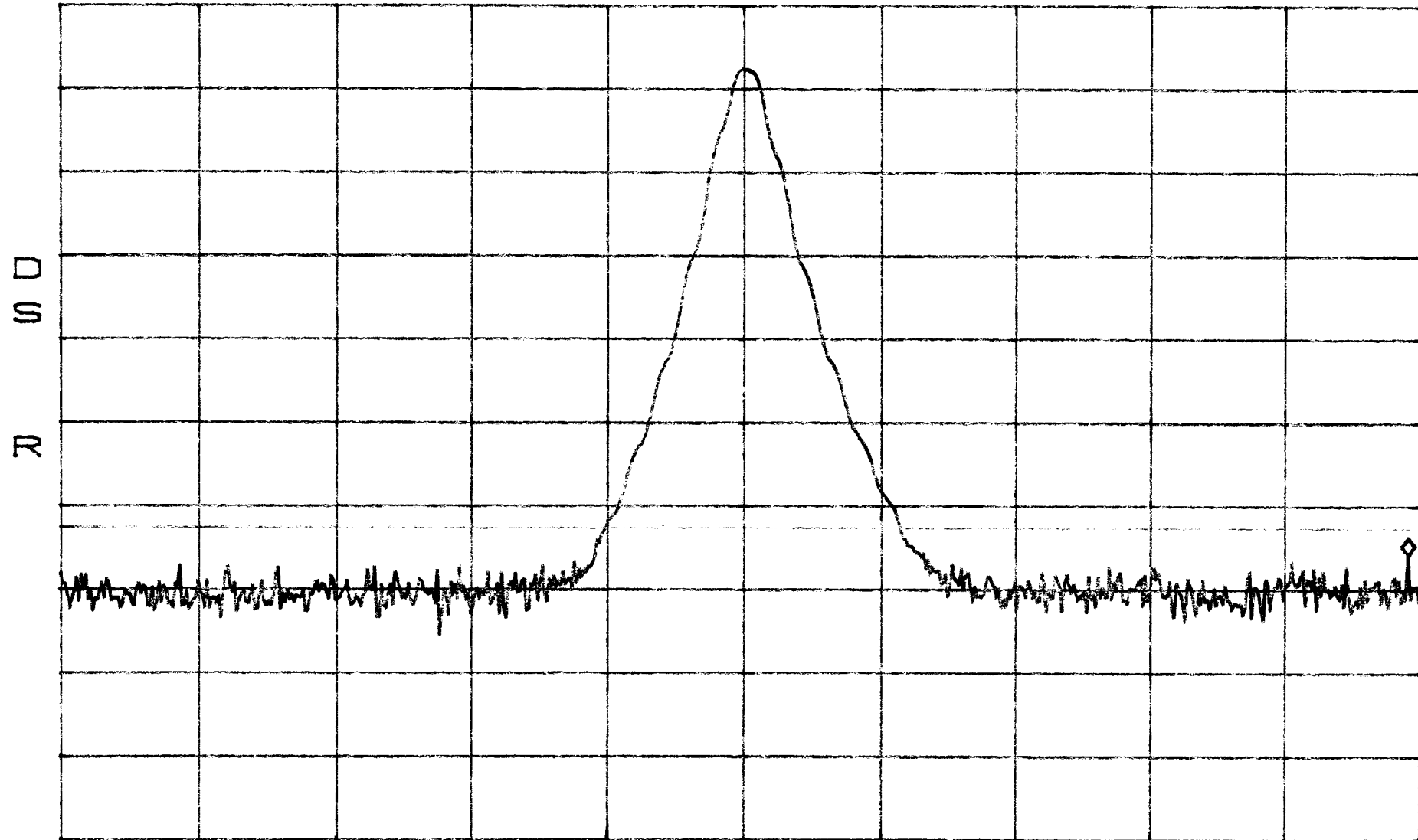
SWP 560ms

# CONDUCTED EMISSIONS BAND AD FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -16.17dBm  
1.942458GHz

10dB/



CENTER 1.940000GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

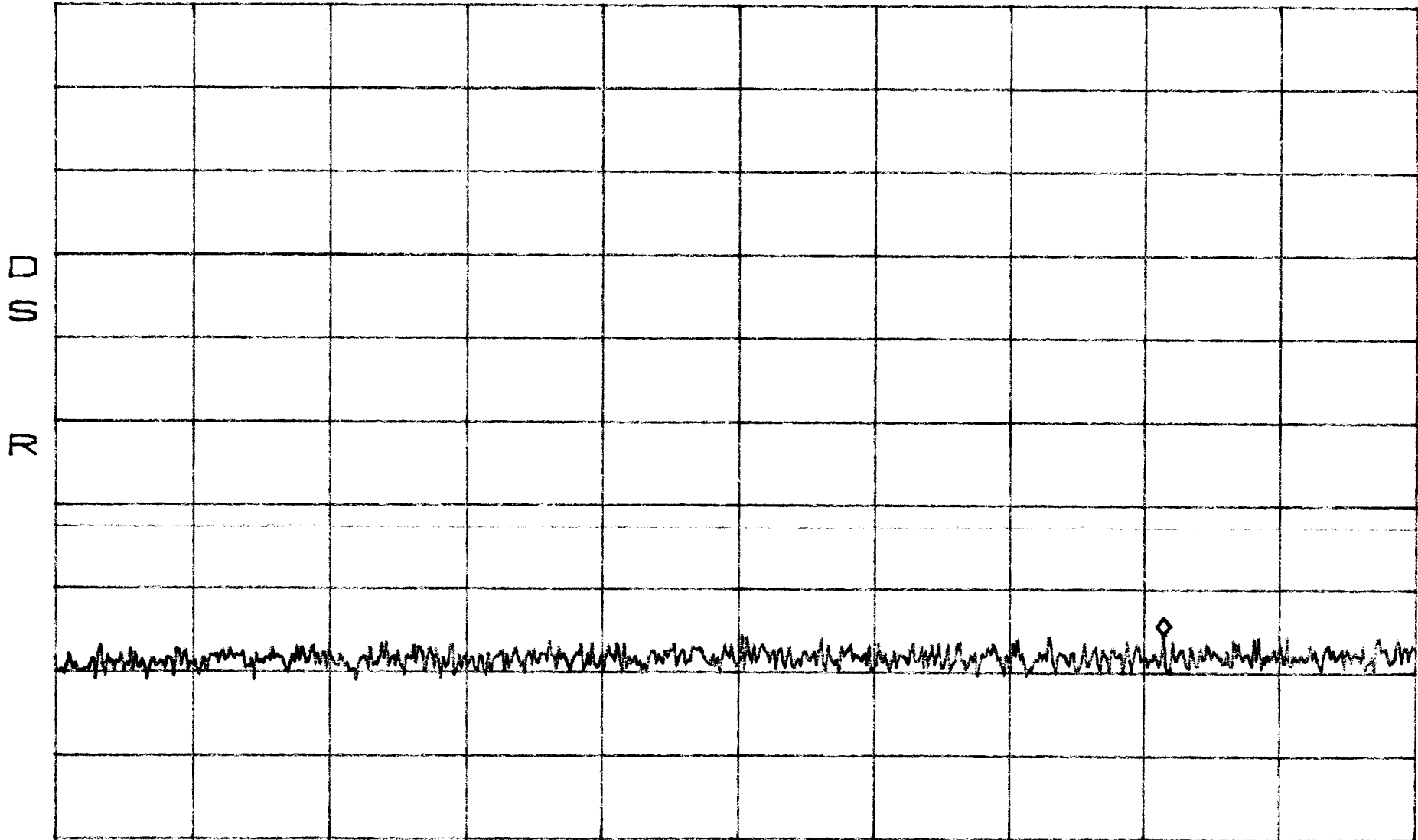
SWP 50ms

# CONDUCTED EMISSIONS BAND AD FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -25.83dBm  
820.6MHz



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

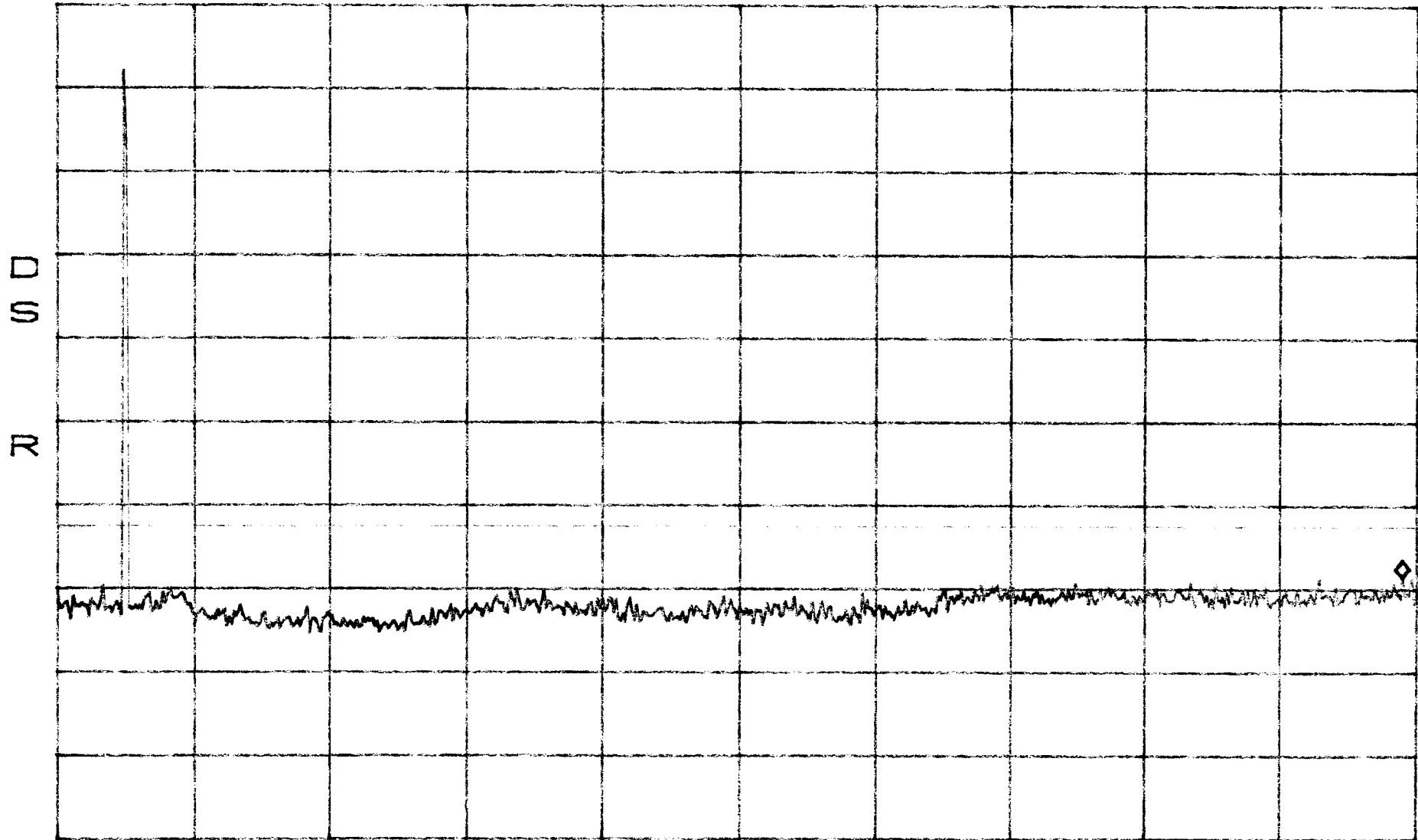
VBW 100kHz

SWP 250ms

# CONDUCTED EMISSIONS BAND AD FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.00dBm  
19.81GHz



START 1.00GHz STOP 20.00GHz  
\*RBW 300kHz VBW 300kHz SWP 530ms

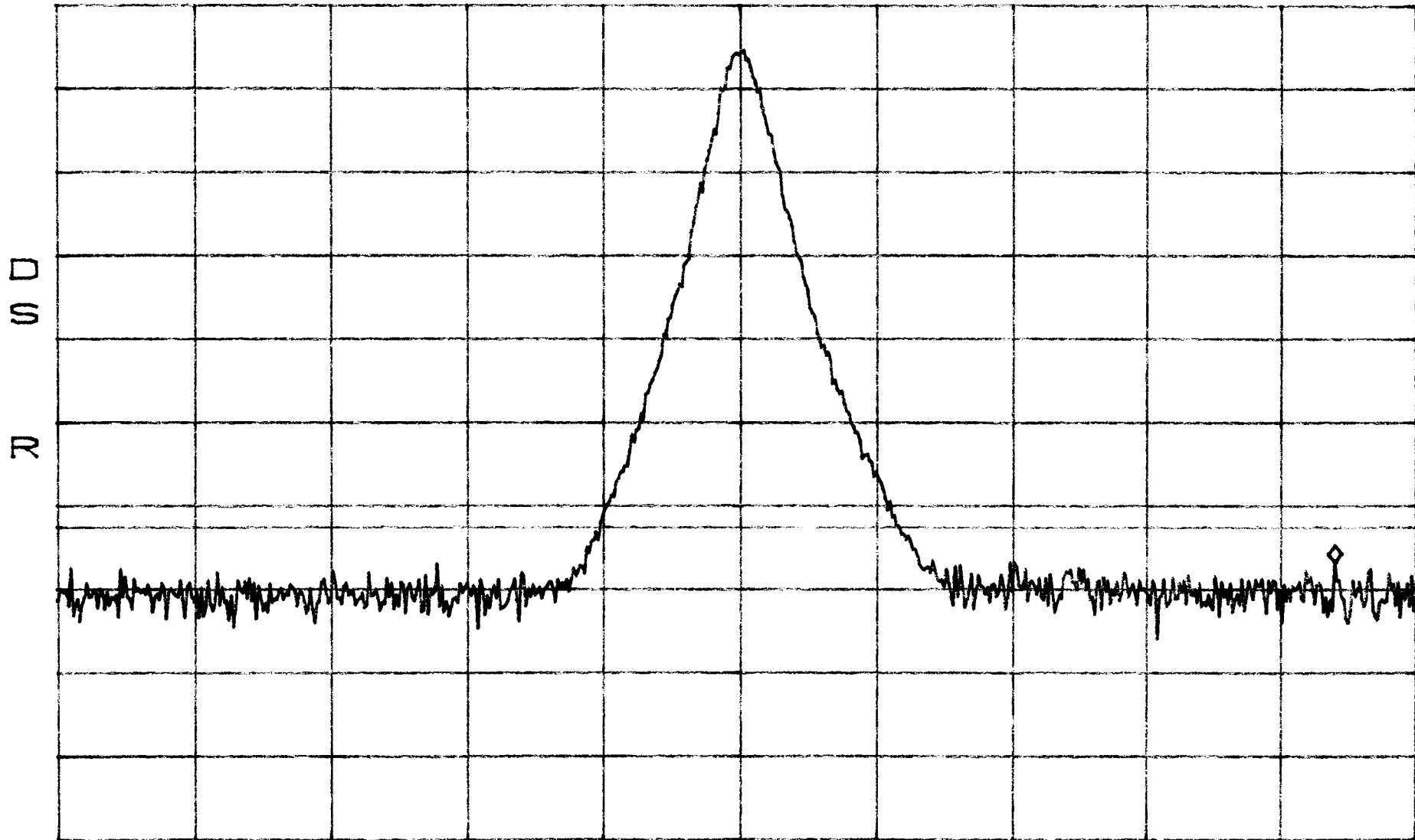


# CONDUCTED EMISSIONS BAND AD TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -17.17dBm  
1.942208GHz



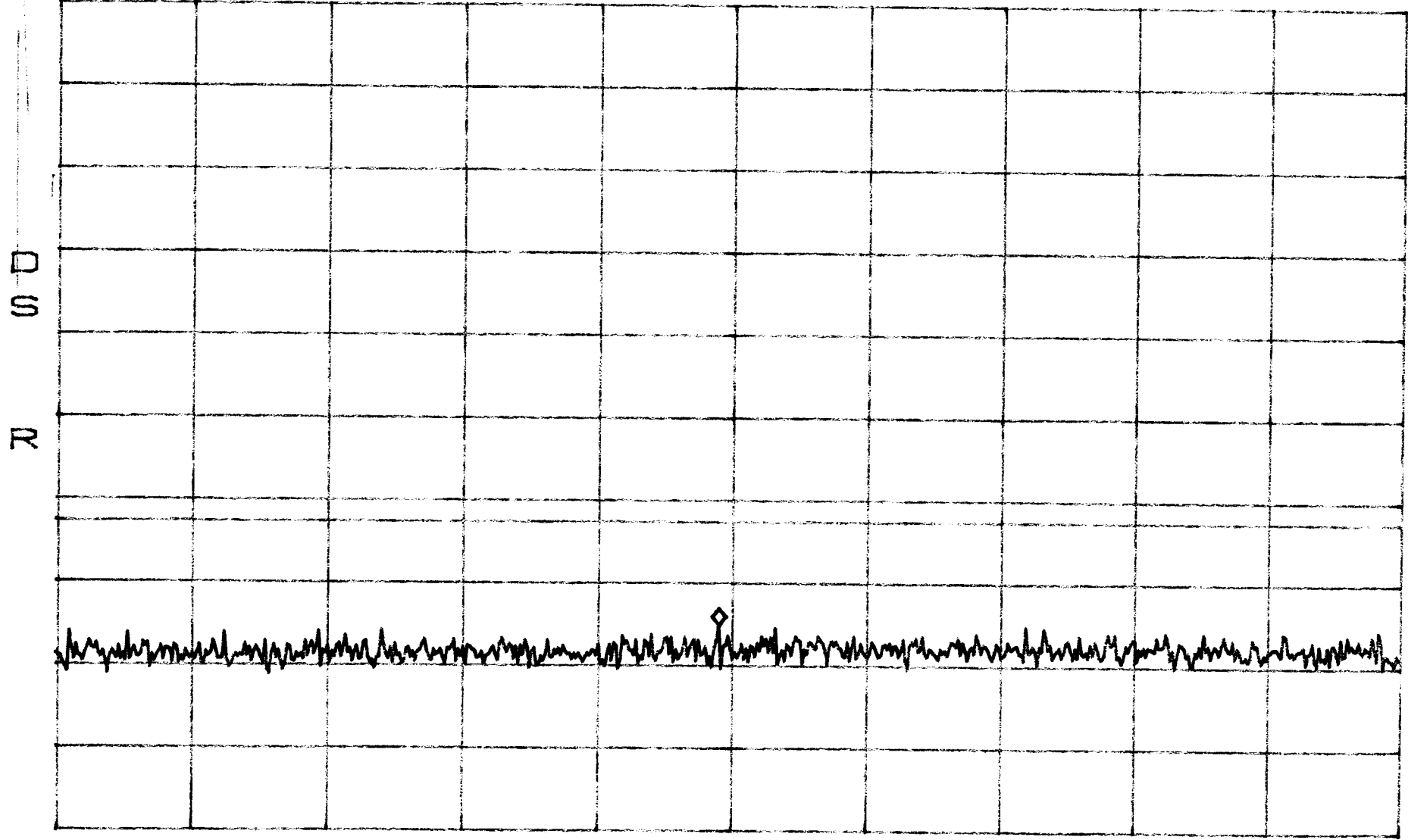
CENTER 1.940000GHz SPAN 5.000MHz  
\*RBW 100kHz VBW 100kHz SWP 50ms

# CONDUCTED EMISSIONS BAND AD TDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -25.50dBm  
506.9MHz

10dB/



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

VBW 100kHz

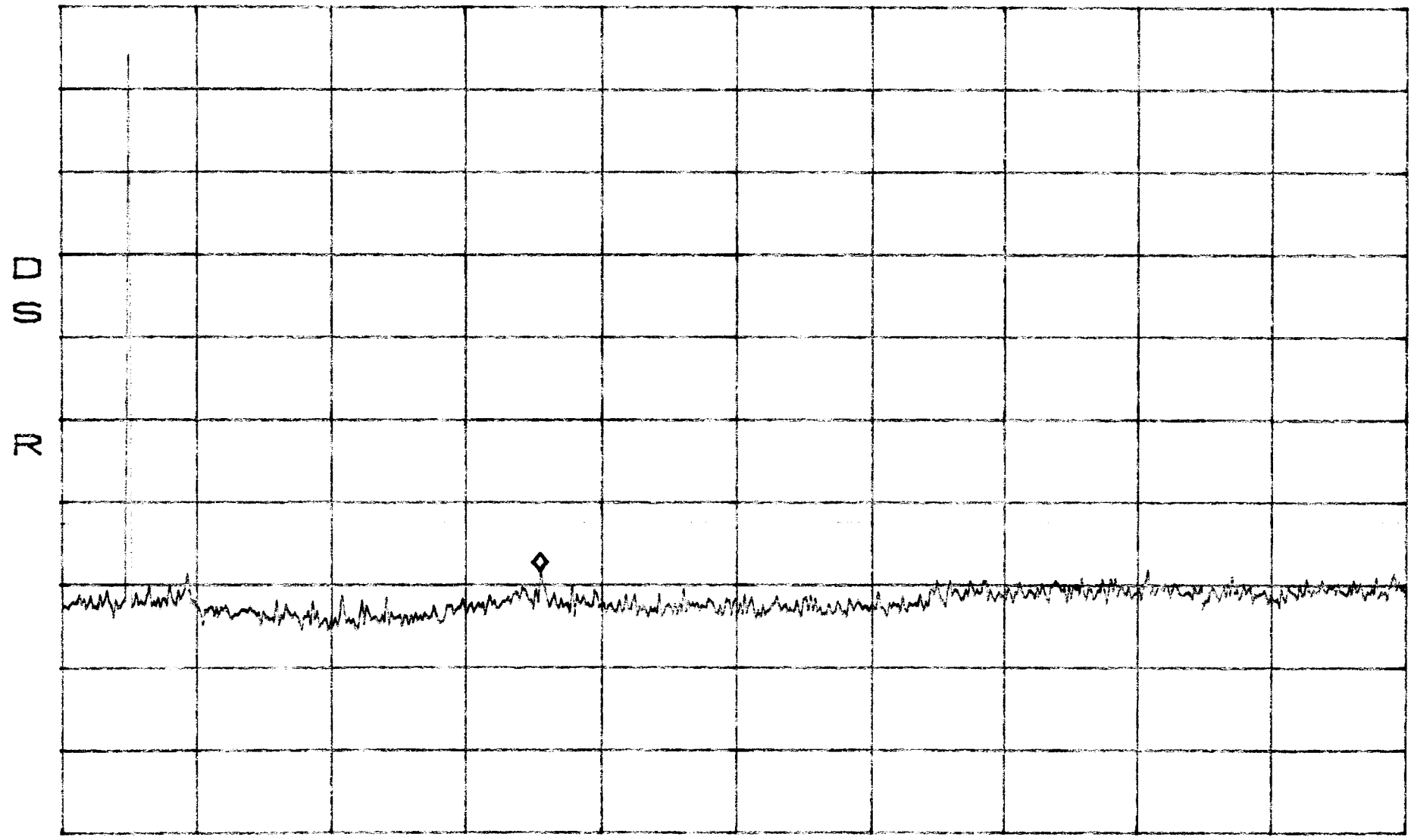
SWP 250ms

# CONDUCTED EMISSIONS BAND AD TDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.67dBm  
7.75GHz

10dB/



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

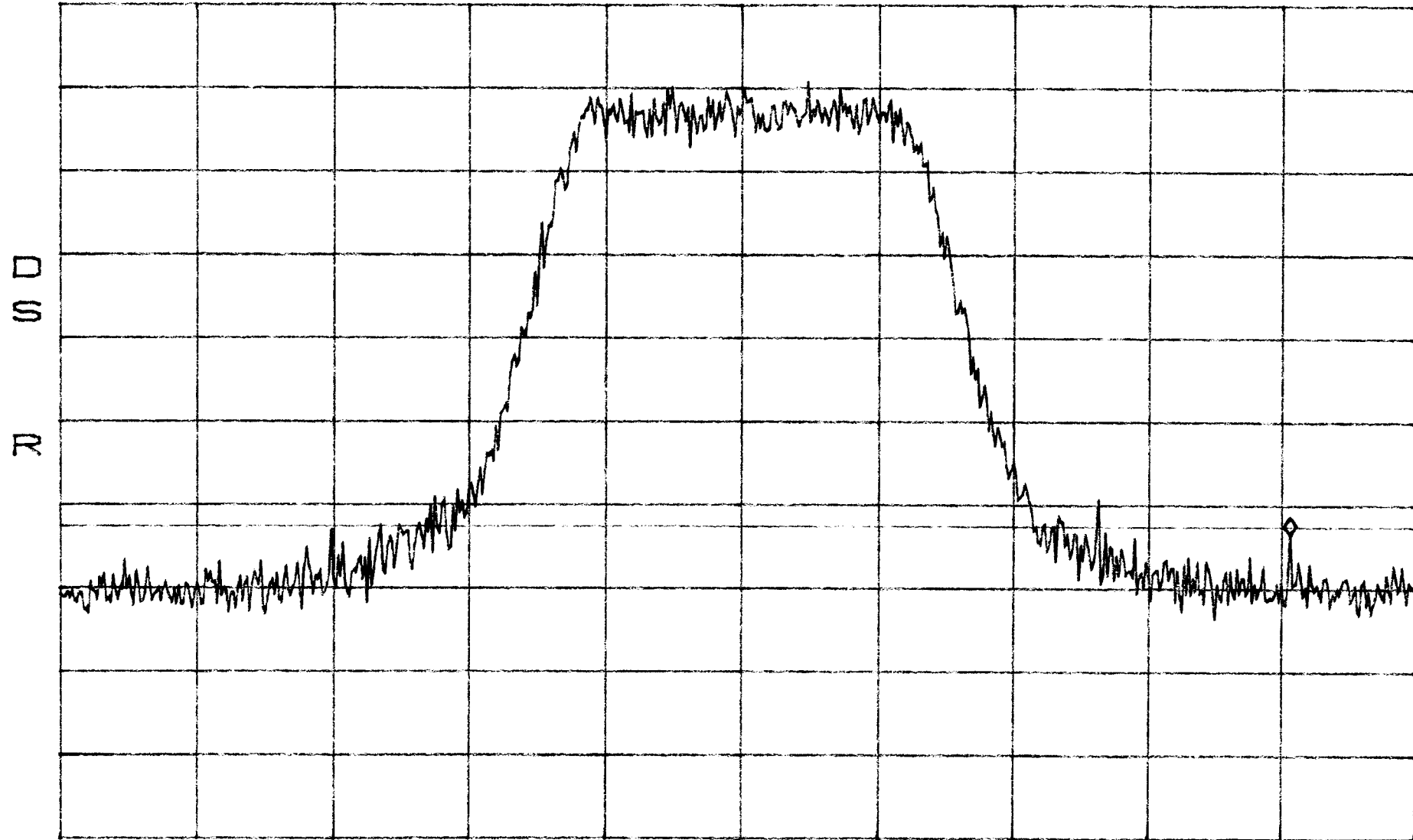
VBW 300kHz

SWP 530ms

# CONDUCTED EMISSIONS BAND AD CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -13.83dBm  
1.942033GHz



CENTER 1.940000GHz  
\*RBW 100kHz VBW 100kHz

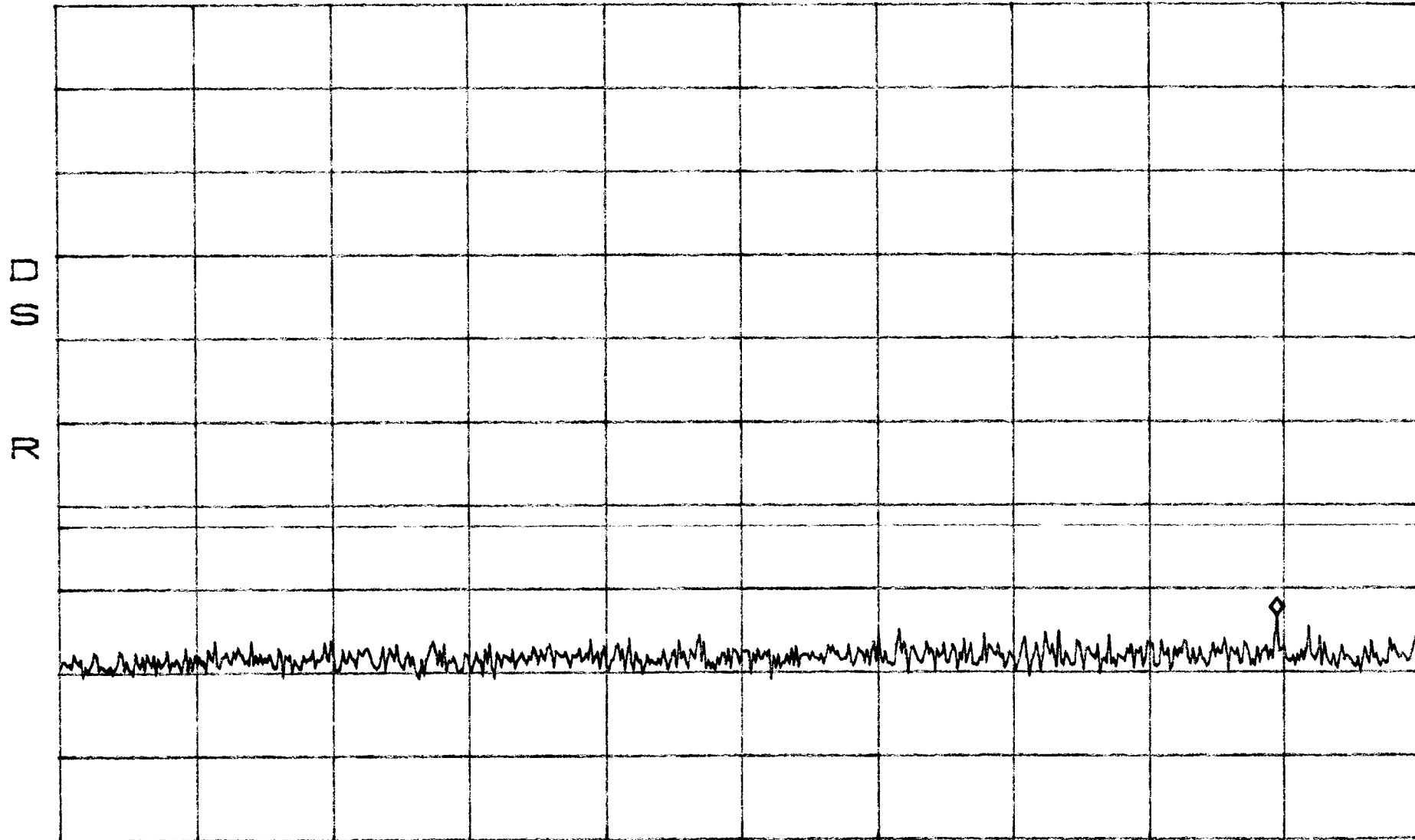
SPAN 5.000MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND AD CDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -23.67dBm  
898.2MHz



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

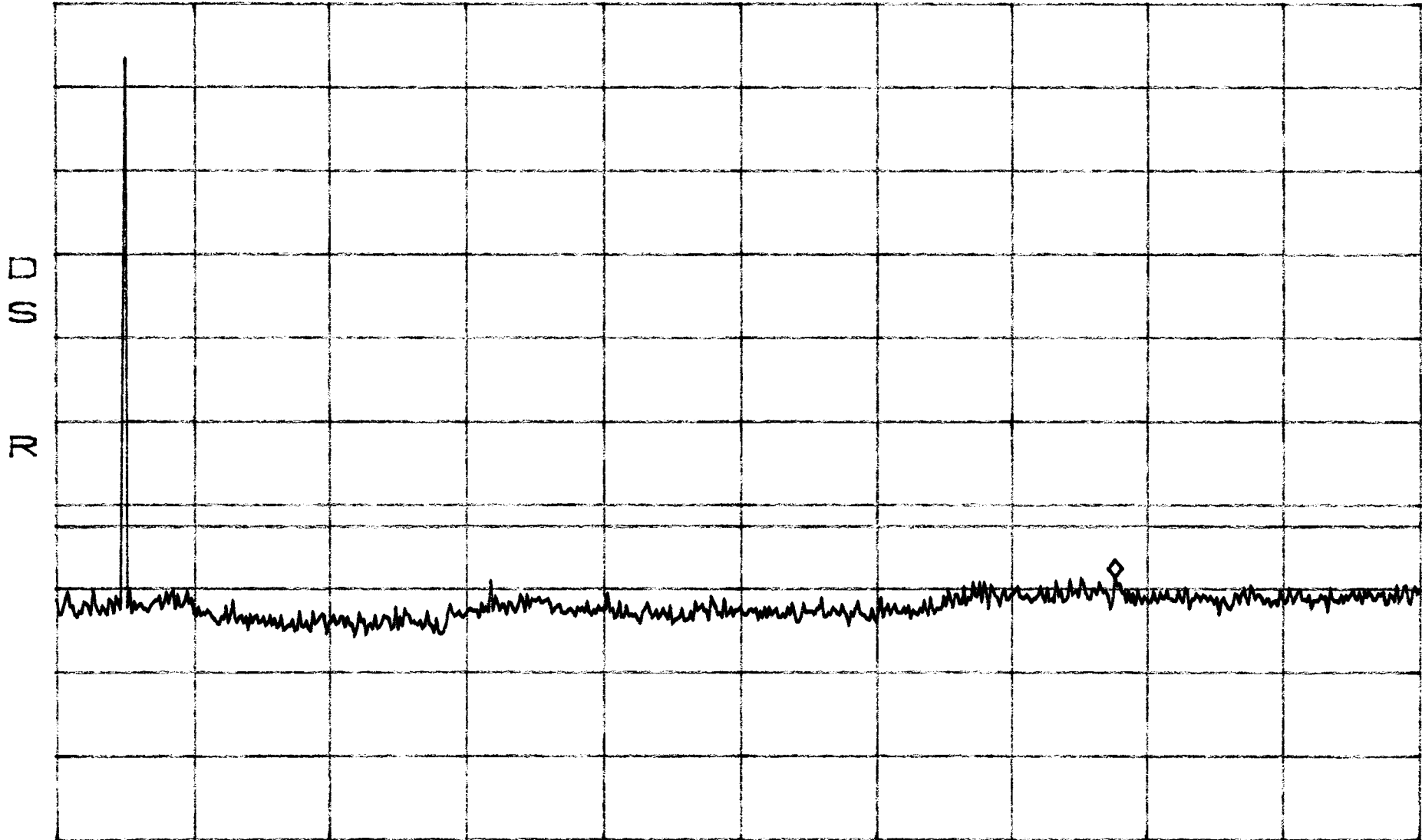
VBW 100kHz

SWP 250ms

# CONDUCTED EMISSIONS BAND AD CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.00dBm  
15.76GHz



START 1.00GHz  
\*RBW 300kHz

VBW 300kHz

STOP 20.00GHz  
SWP 530ms

# CONDUCTED EMISSIONS BAND AD

## BAND EDGE

### FM

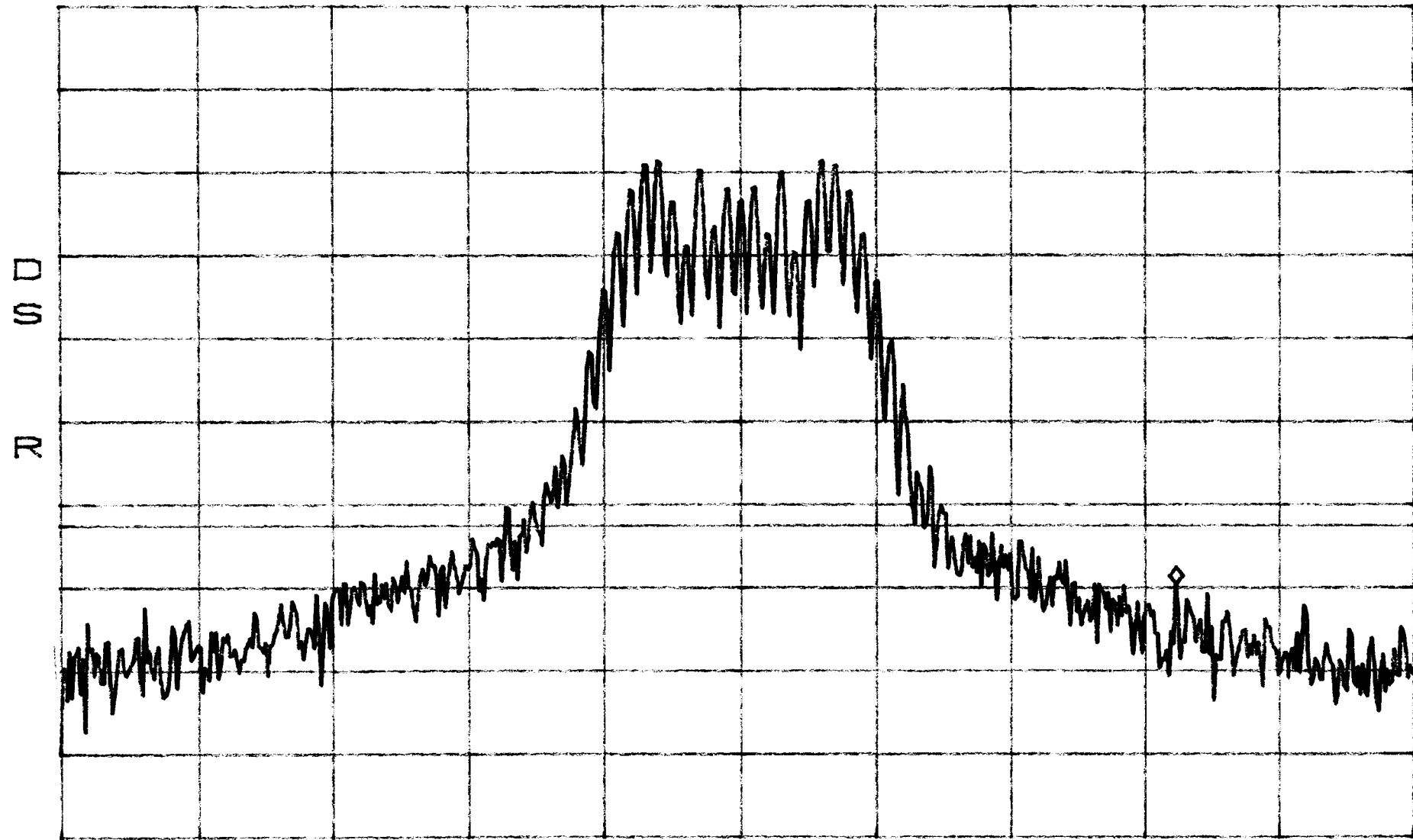
\*ATTN 30dB

MKR -20.00dBm

RL 49.5dBm

10dB/

1.9302323GHz



CENTER 1.9302000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

# CONDUCTED EMISSIONS BAND AD

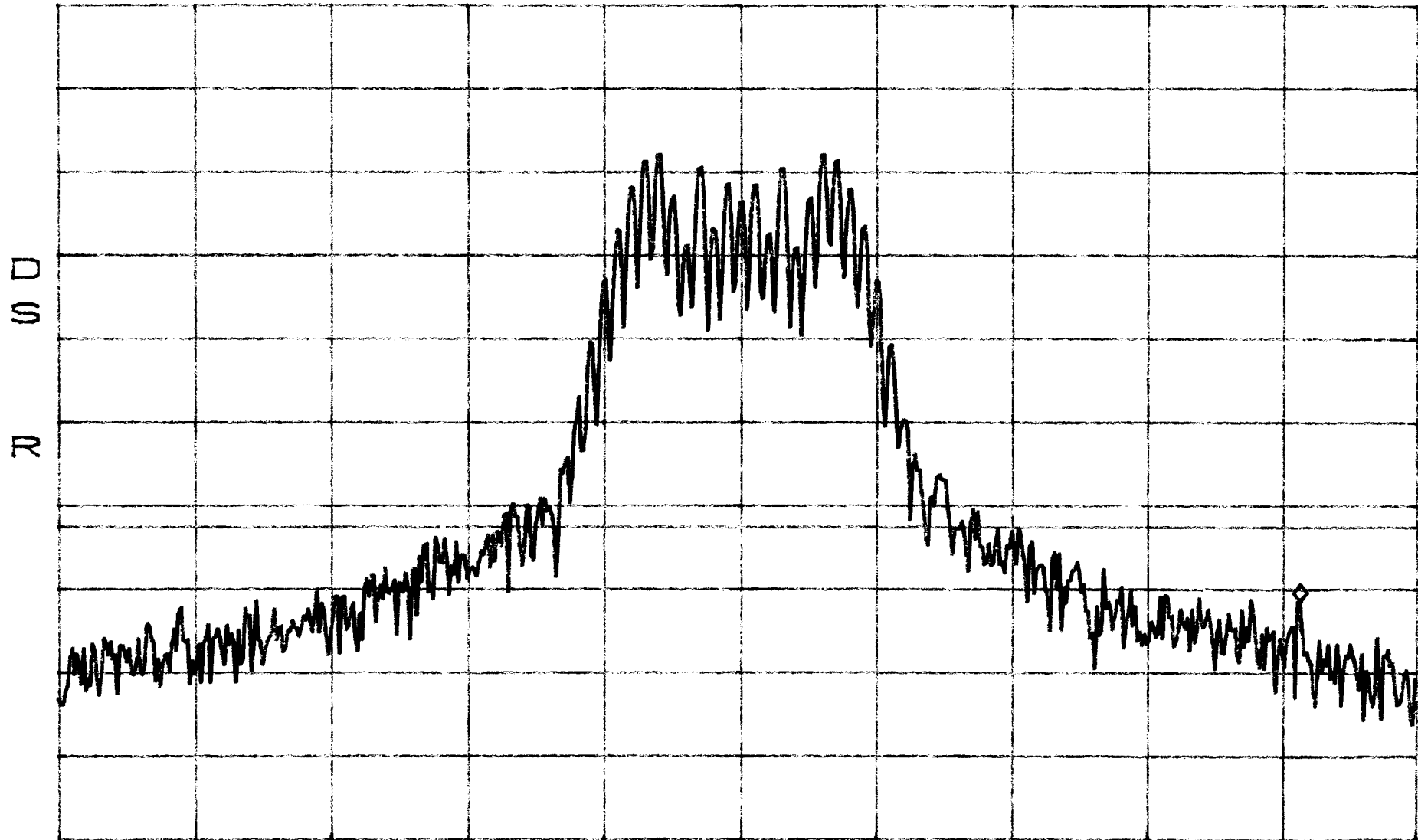
## BAND EDGE

### FM

\*ATTEN 30dB  
RL 49.5dBm

1dB/

MKR -21.83dBm  
1.9498413GHz



CENTER 1.9498000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

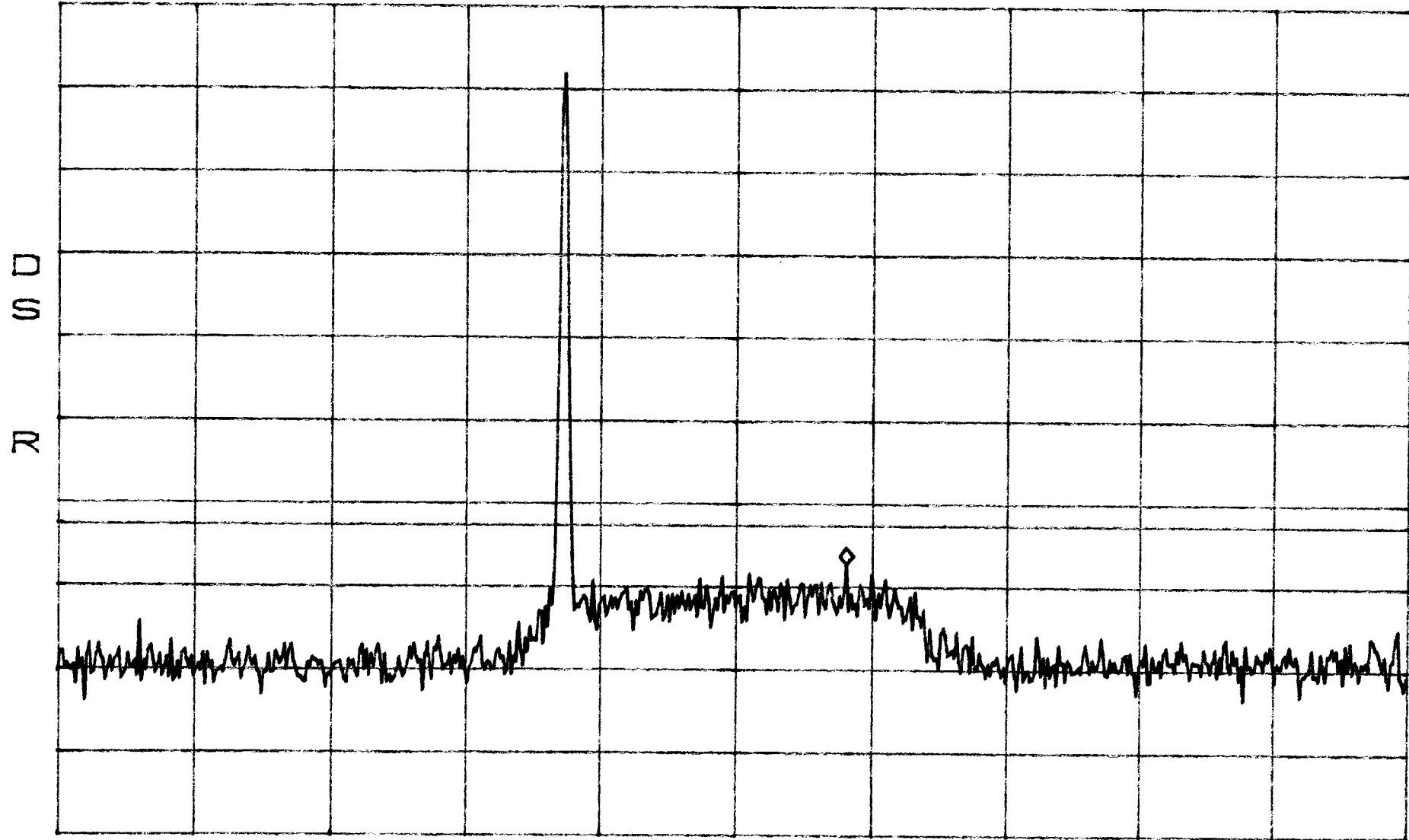


# CONDUCTED EMISSIONS BAND DBE LOW

\*ATTEN 30dB  
RL 49.5dBm

MKR -17.67dBm  
1.9657GHz

10dB/



CENTER 1.9575GHz  
\*RBW 100kHz VBW 100kHz

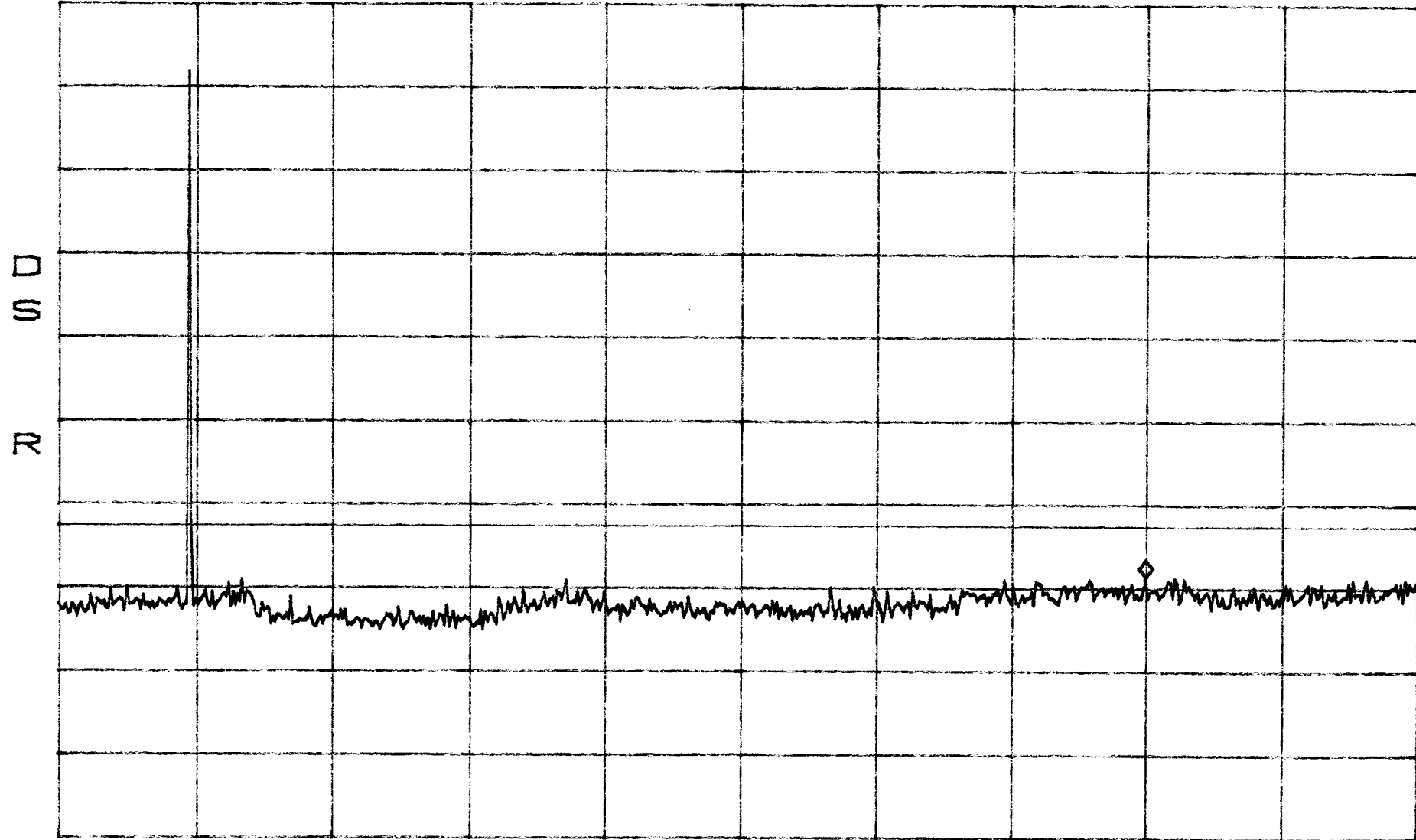
SPAN 100.0MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND DBE LOW

\*ATTN 30dB  
RL 49.5dBm

MKR -19.00dBm  
16.01GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

SWP 560ms

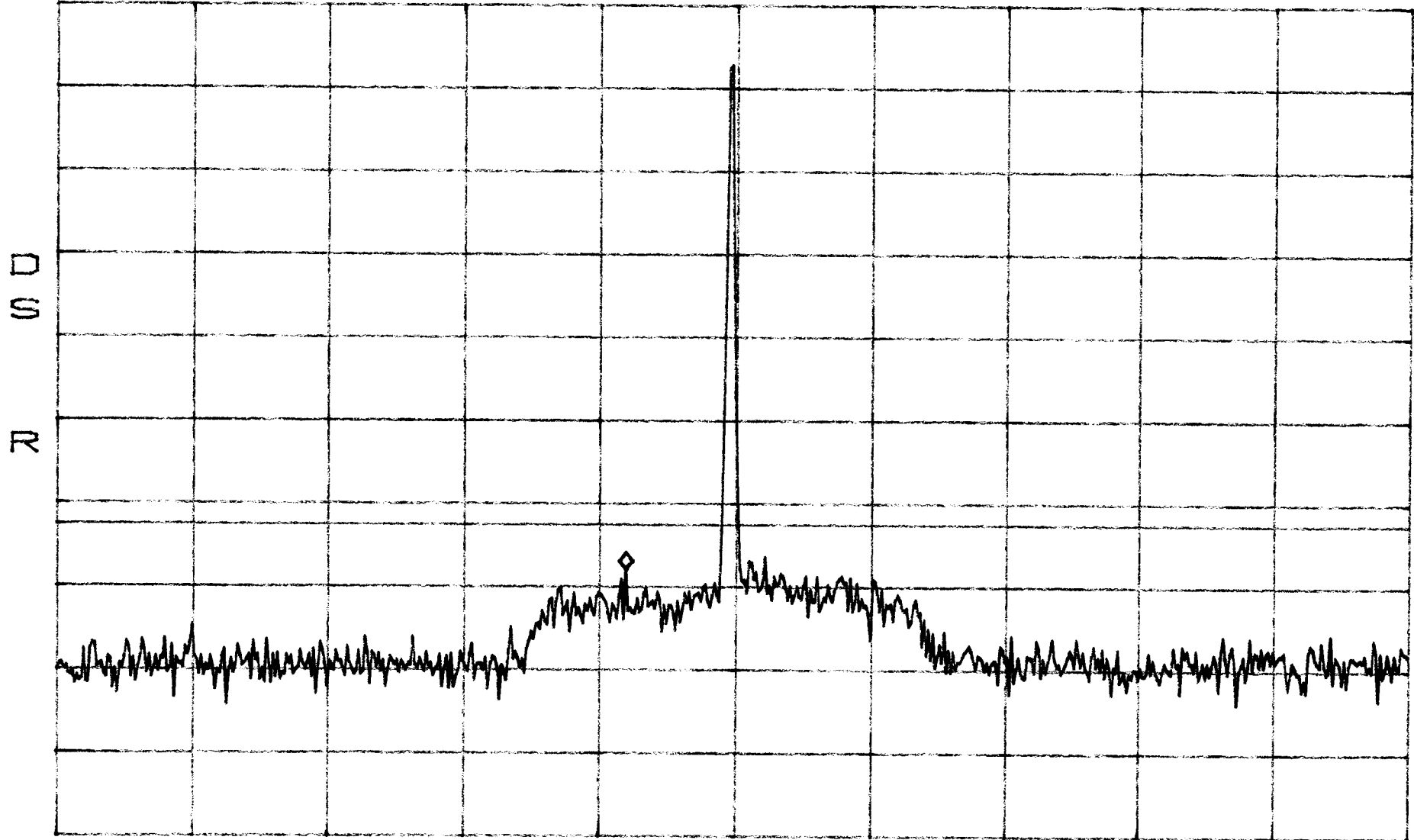
# CONDUCTED EMISSIONS BAND DBE

## MID

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.33dBm  
1.9495GHz

10dB/



CENTER 1.9575GHz

SPAN 100.0MHz

\*RBW 100kHz

VBW 100kHz

SWP 50ms

# CONDUCTED EMISSIONS BAND DBE

## MID

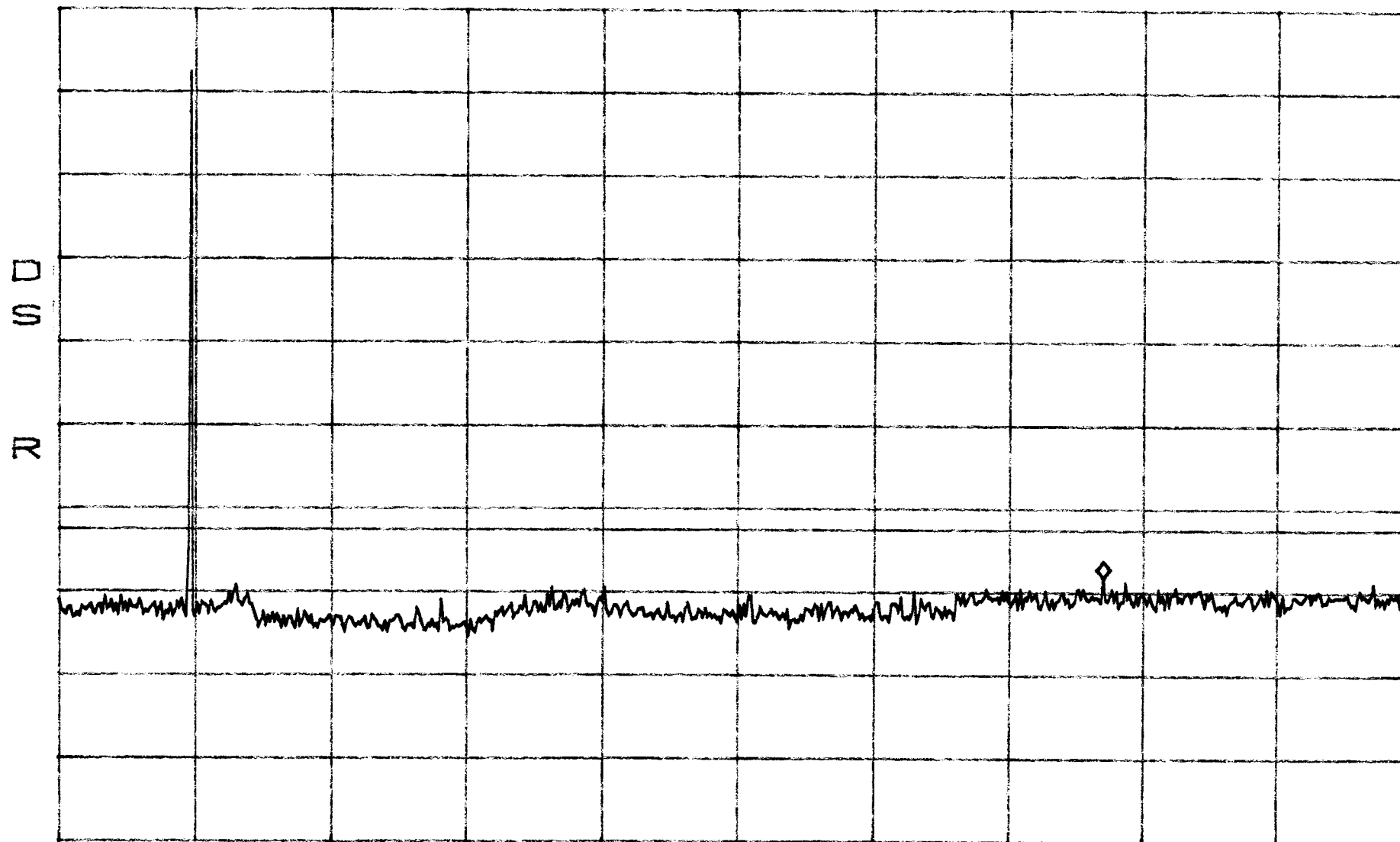
\*ATTEN 30dB

MKR -18.67dBm

RL 49.5dBm

10dB/

15.41GHz



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

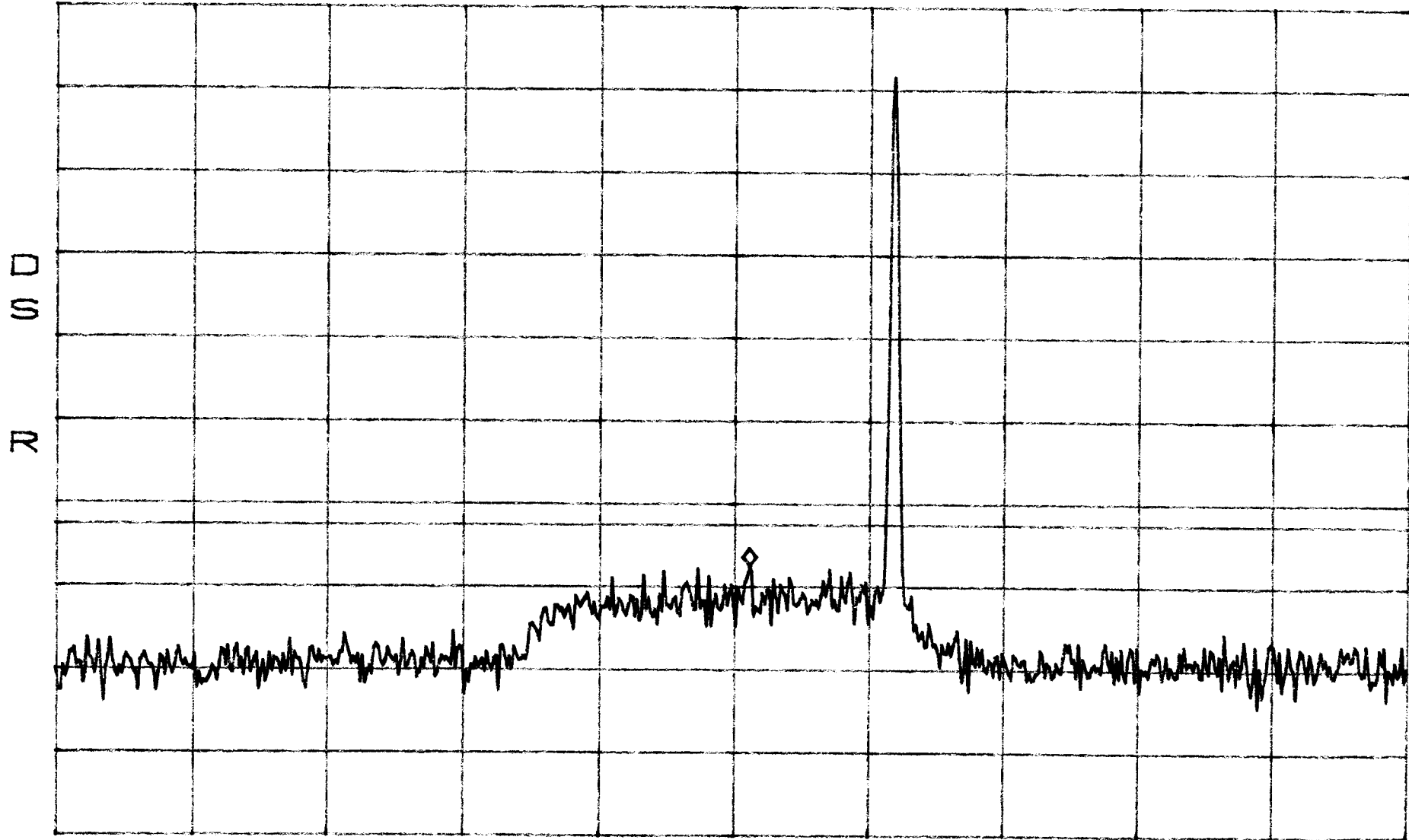
SWP 560ms

# CONDUCTED EMISSIONS BAND DBE HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -17.83dBm  
1.95875GHz

10dB/



CENTER 1.9575GHz  
\*RBW 100kHz

VBW 100kHz

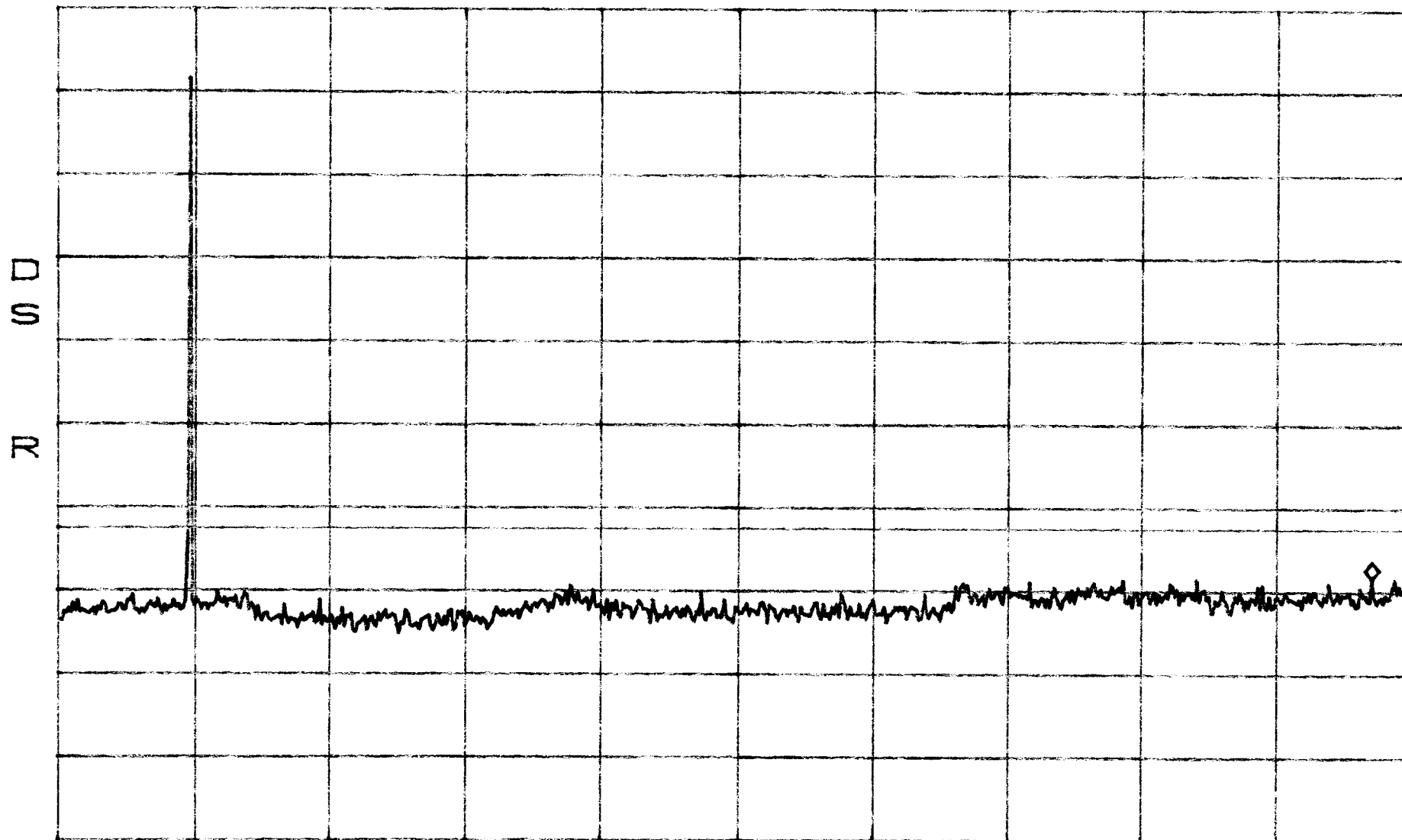
SPAN 100.0MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND DBE HIGH

\*ATTN 30dB  
RL 49.5dBm

MKR -18.83dBm  
19.43GHz

1dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

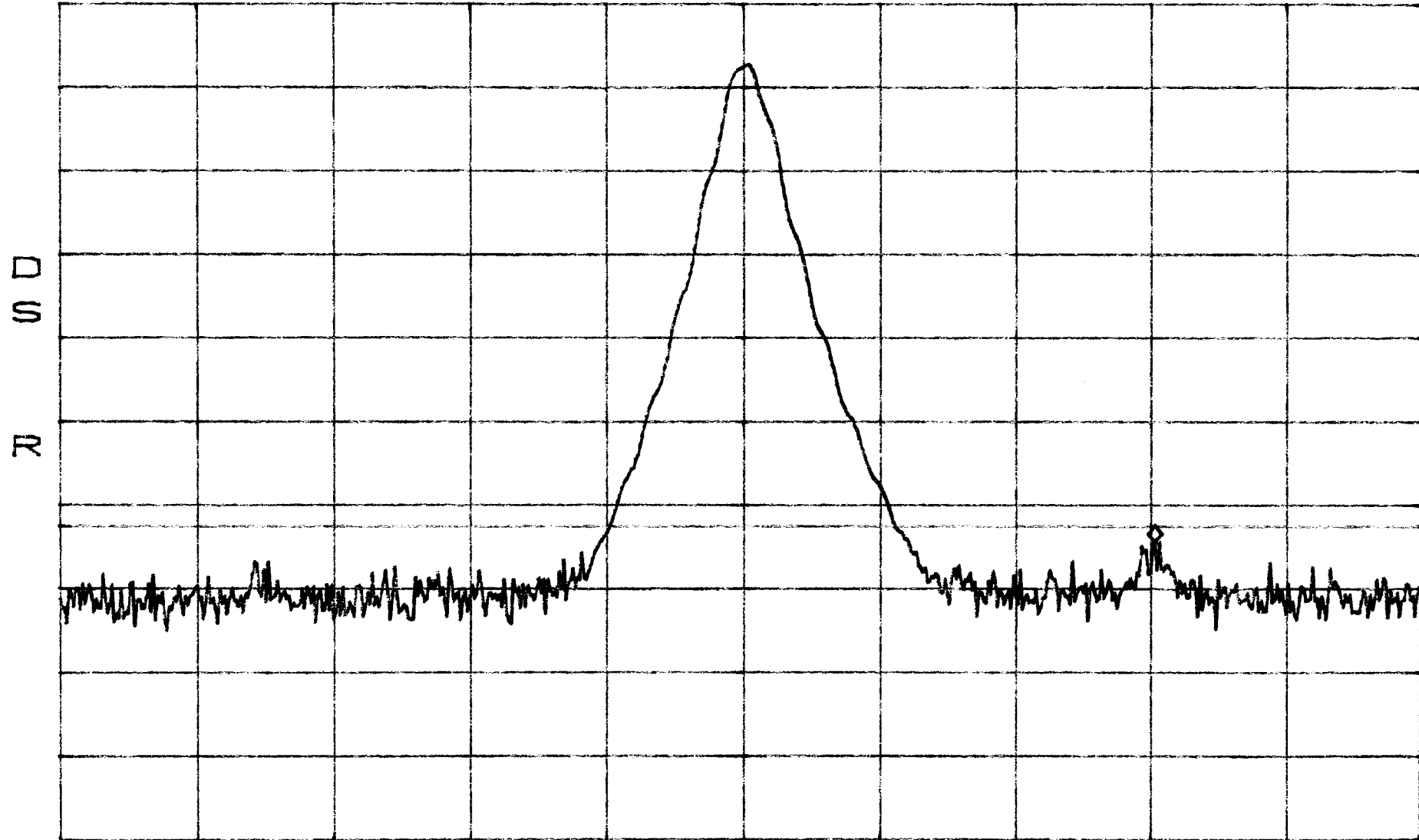
SWP 560ms

# CONDUCTED EMISSIONS BAND DBE FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -14.83dBm  
1.959017GHz



CENTER 1.957500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

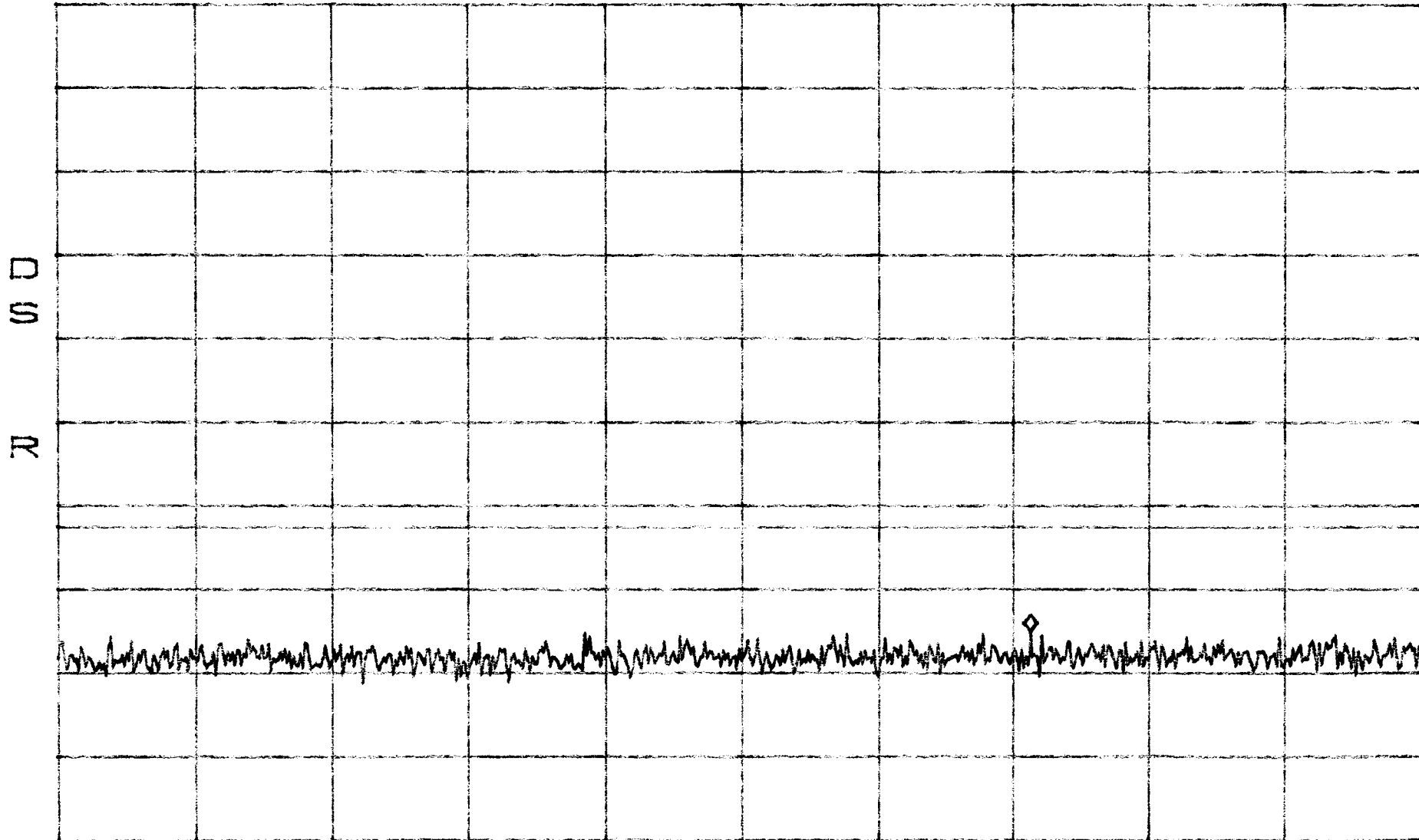
SWP 50ms

# CONDUCTED EMISSIONS BAND DBE FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -25.50dBm  
721.9MHz



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

VBW 100kHz

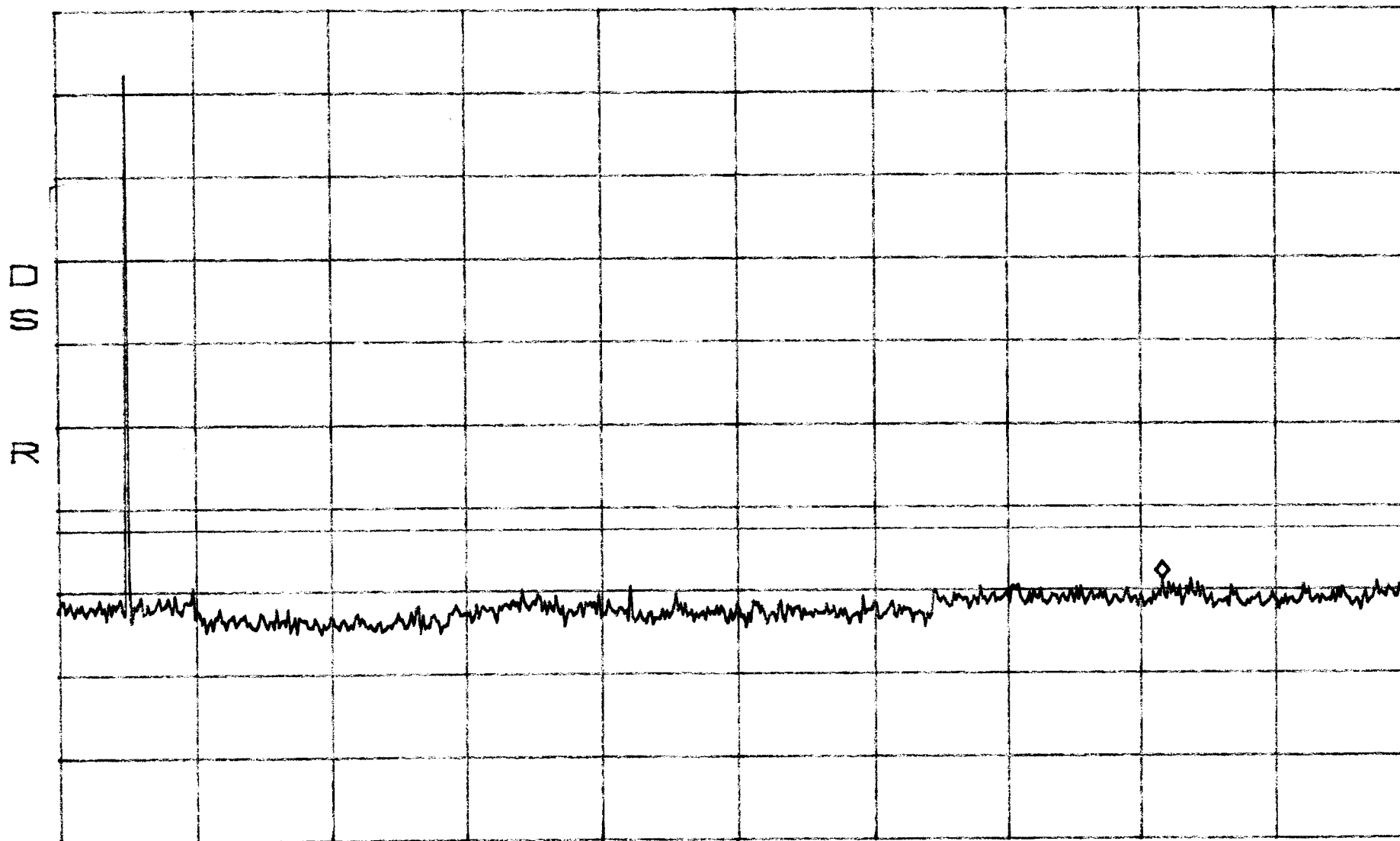
SWP 250ms



# CONDUCTED EMISSIONS BAND DBE FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.17dBm  
16.52GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

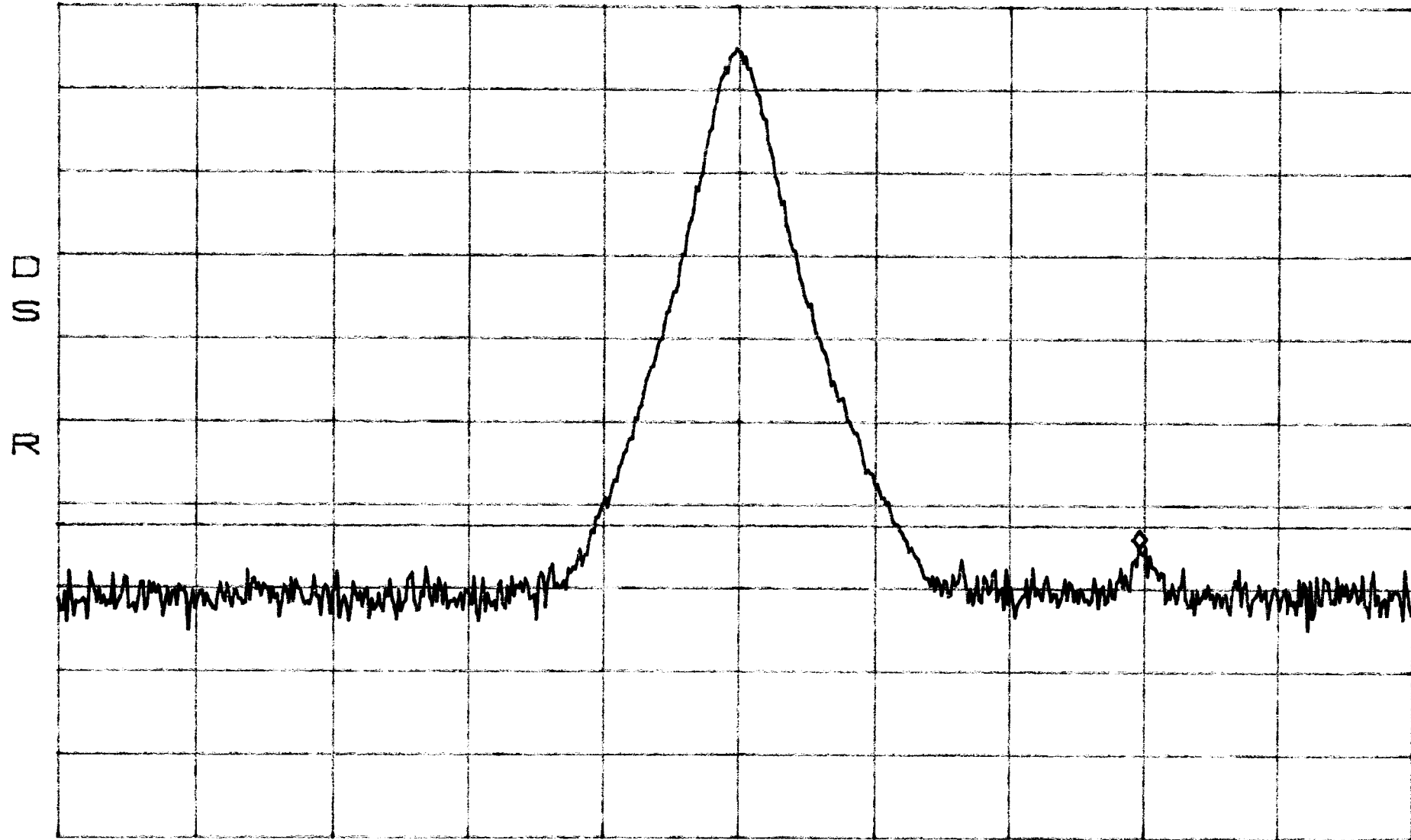
VBW 300kHz

SWP 530ms

# CONDUCTED EMISSIONS BAND DBE TDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -15.50dBm  
1.9586856 GHz



CENTER 1.957500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

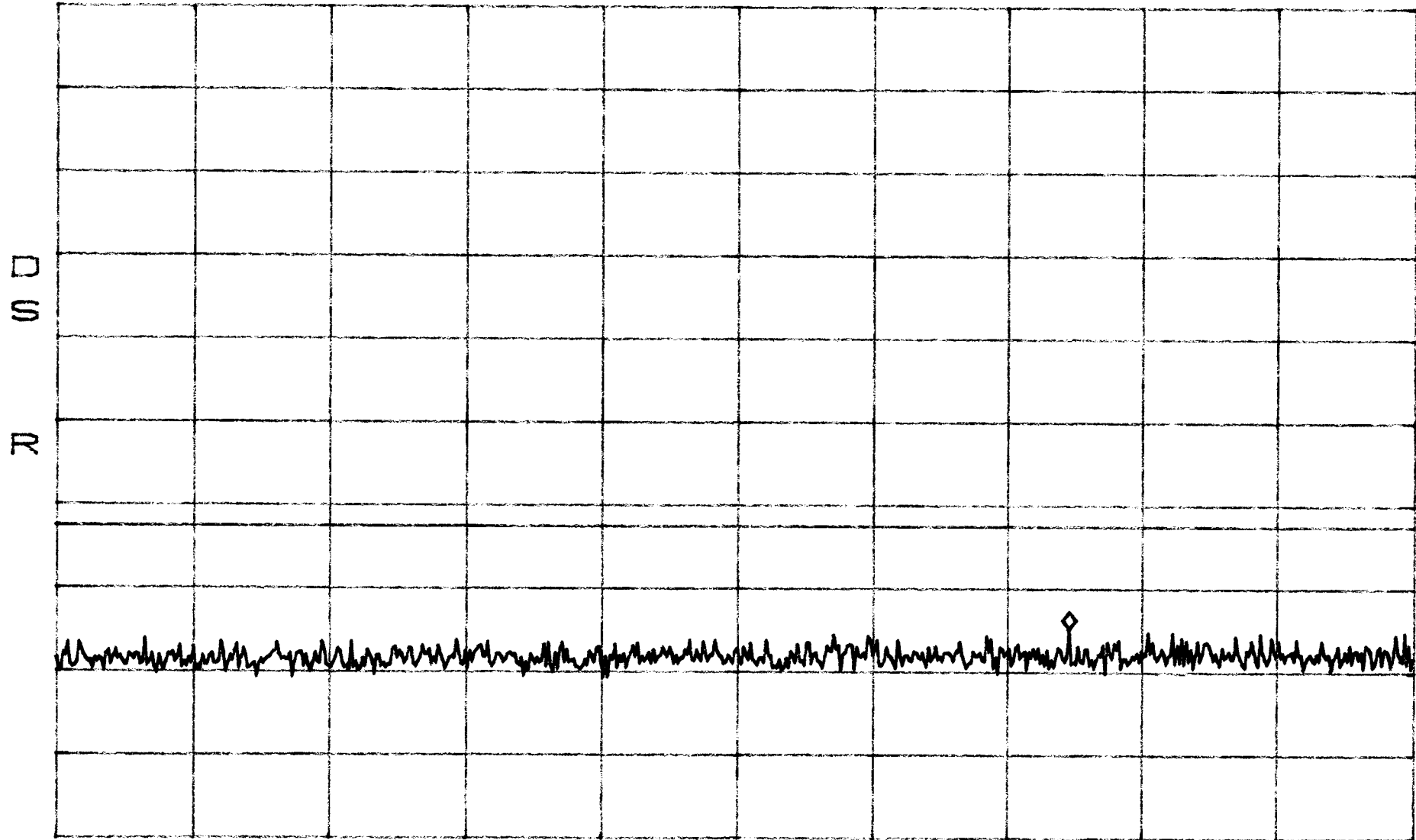
SWP 50ms

# CONDUCTED EMISSIONS BAND DBE TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -25.17dBm  
754.3MHz

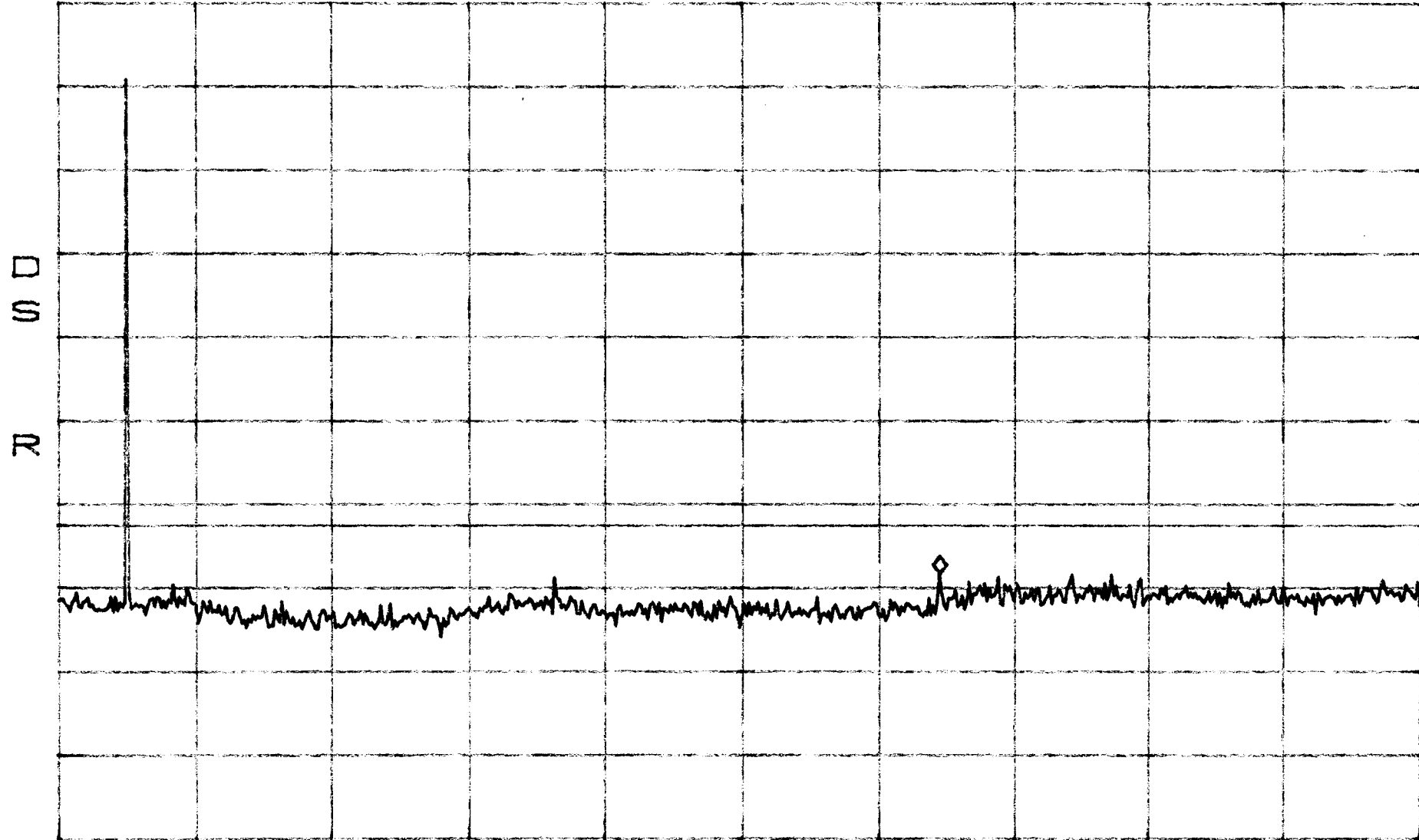


START 30.0MHz                      STOP 1.0000GHz  
\*RBW 100kHz                      VBW 100kHz                      SWP 250ms

# CONDUCTED EMISSIONS BAND DBE TDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.87dBm  
13.26GHz

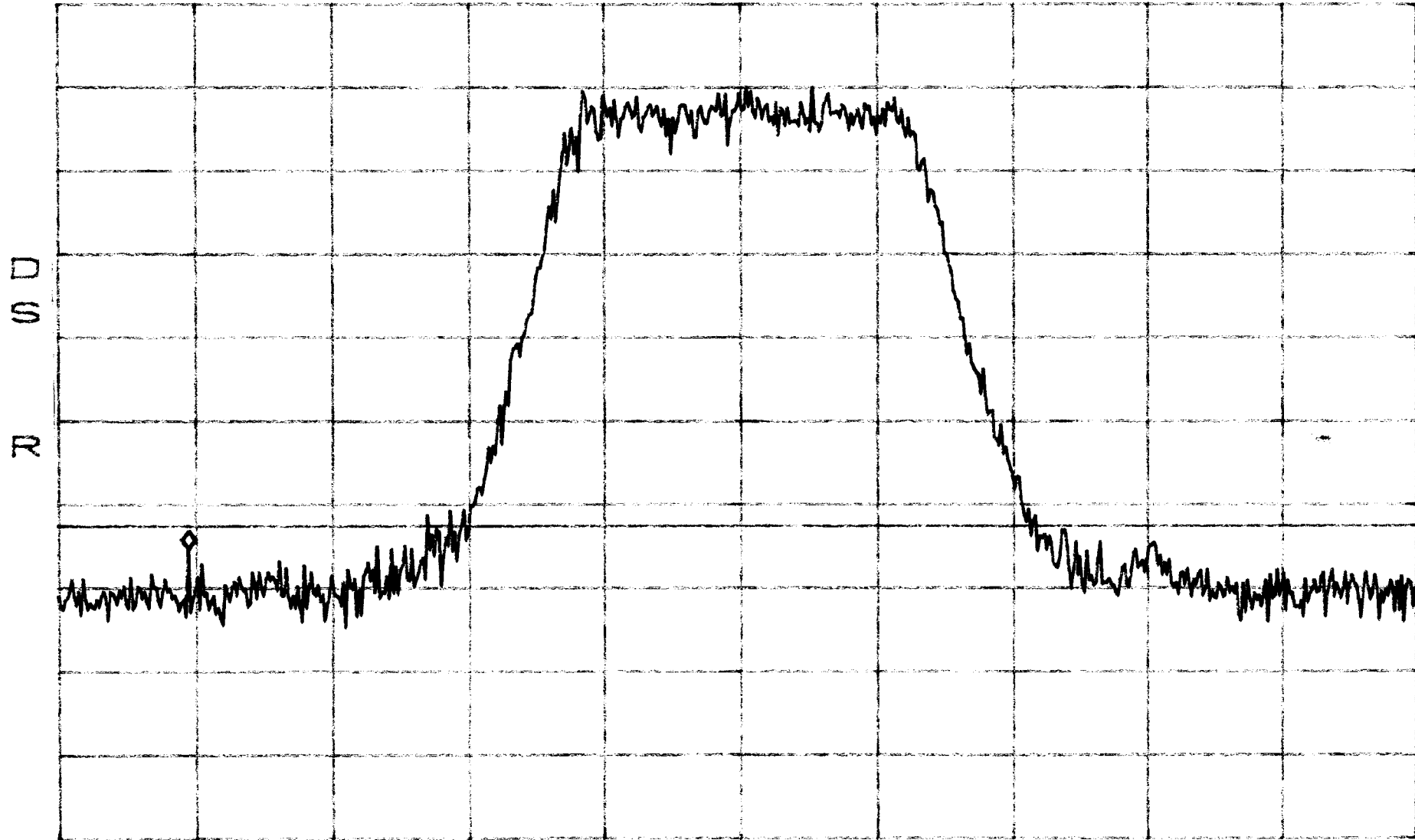


START 1.00GHz STOP 20.00GHz  
\*RBW 300kHz VBW 300kHz SWP 530ms

# CONDUCTED EMISSIONS BAND DBE CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -15.67dBm  
1.955475GHz



CENTER 1.957500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

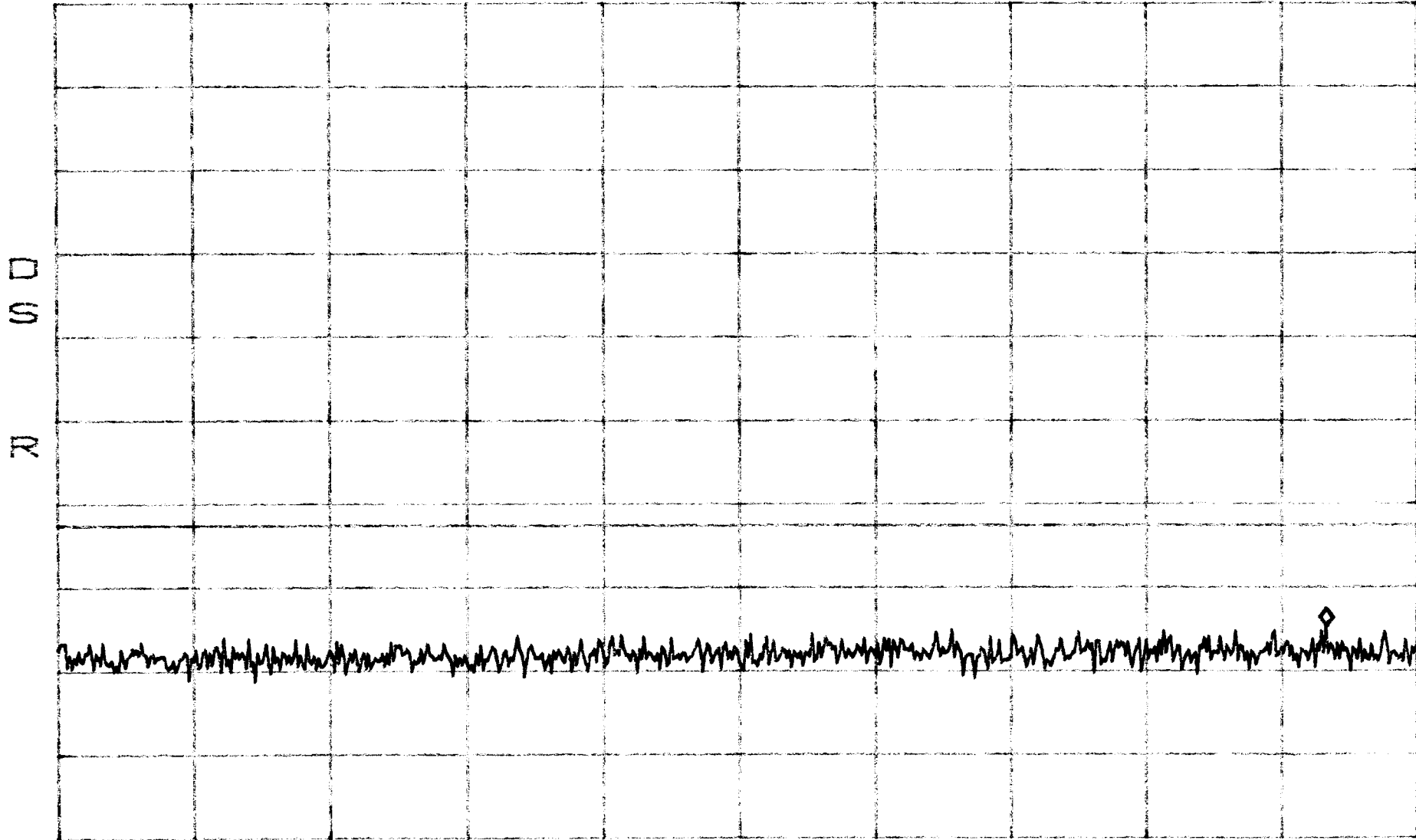
SWP 50ms

# CONDUCTED EMISSIONS BAND DBE CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -25.00dBm  
935.3MHz

1001

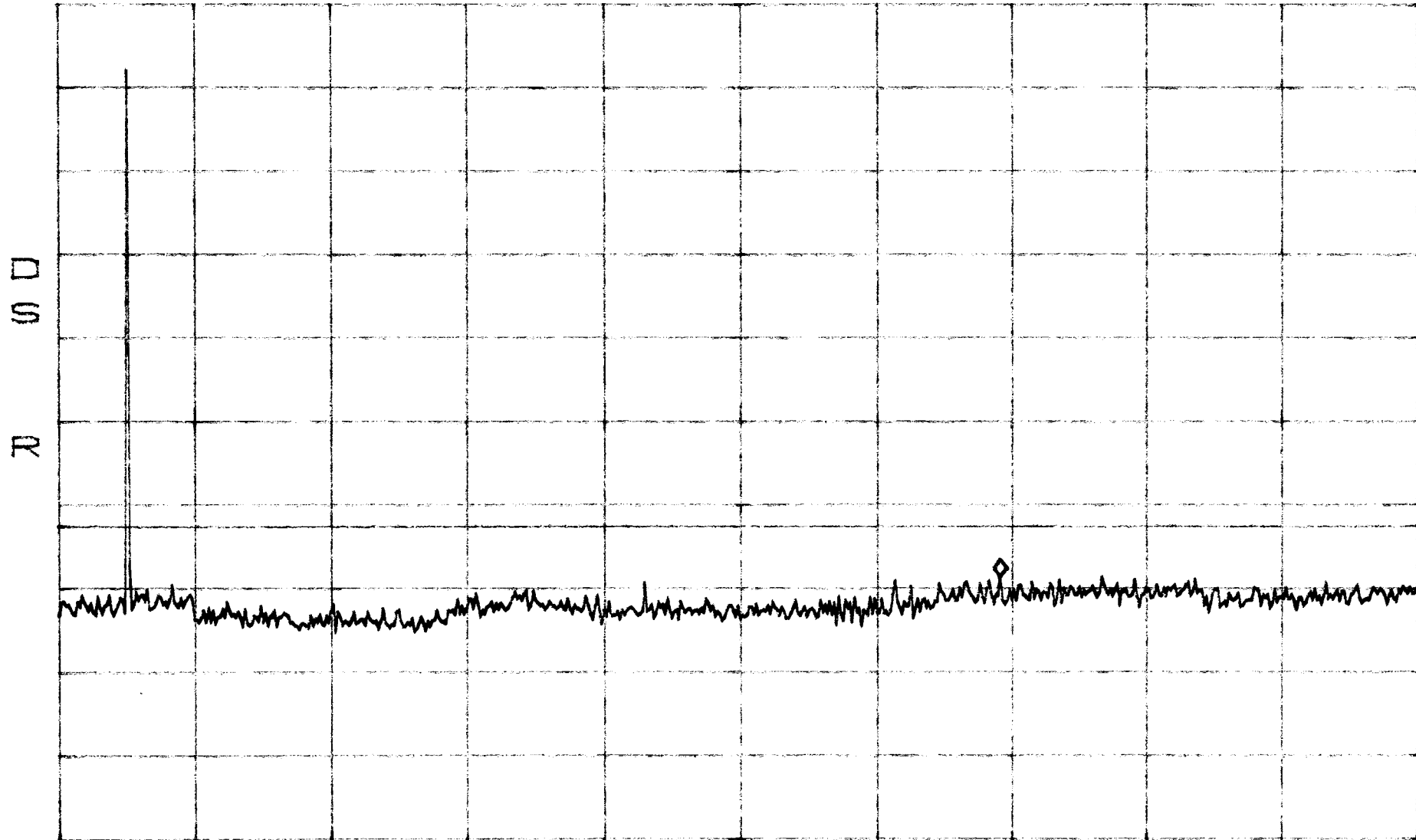


START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

# CONDUCTED EMISSIONS BAND DBE CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.00dBm  
14.14GHz



START 1.00GHz STOP 20.00GHz  
\*RBW 300kHz VBW 300kHz SWP 530ms

# CONDUCTED EMISSIONS BAND DBE

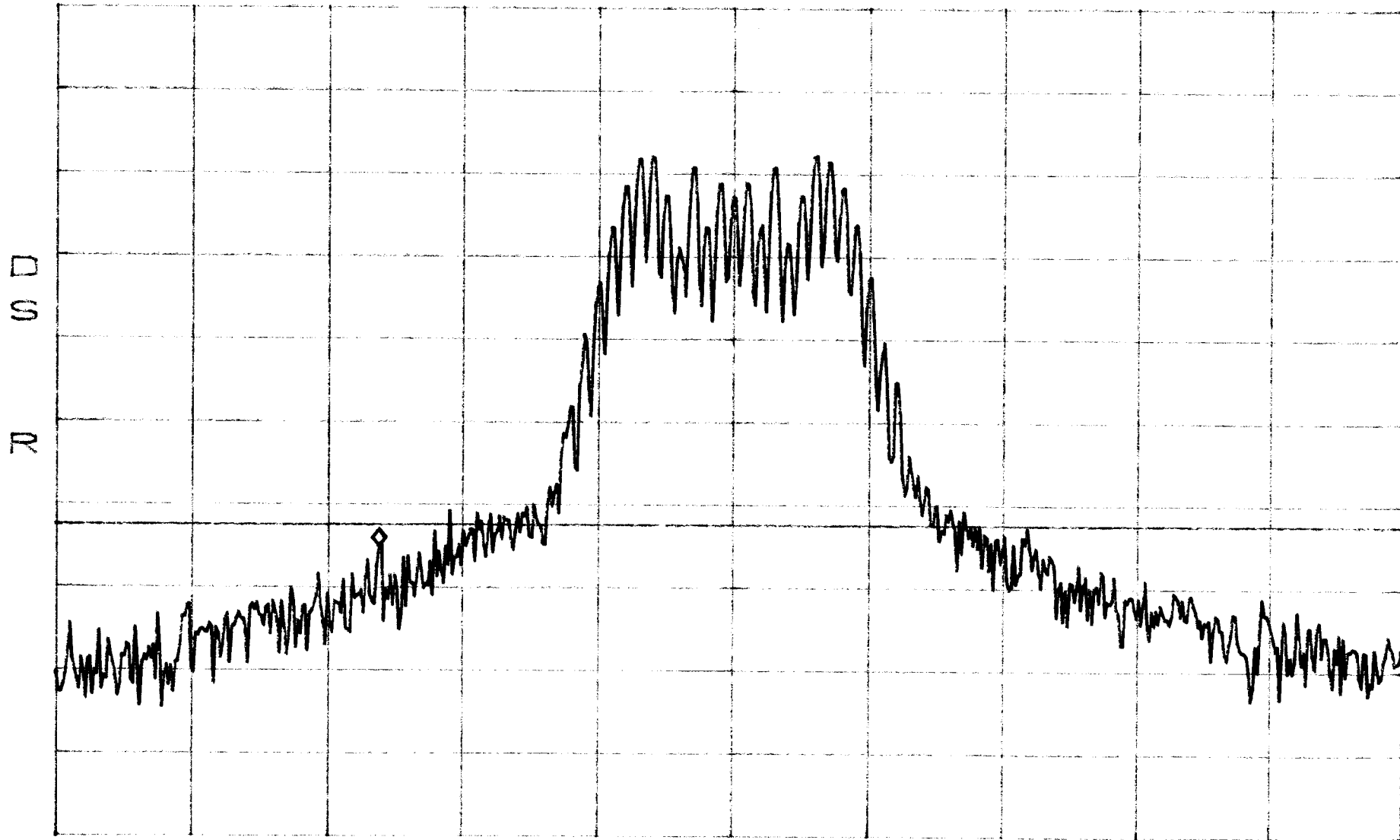
## BAND EDGE

FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -15.50dBm  
1.9451738GHz



CENTER 1.9452000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec



# CONDUCTED EMISSIONS BAND DBE

## BAND EDGE

FM

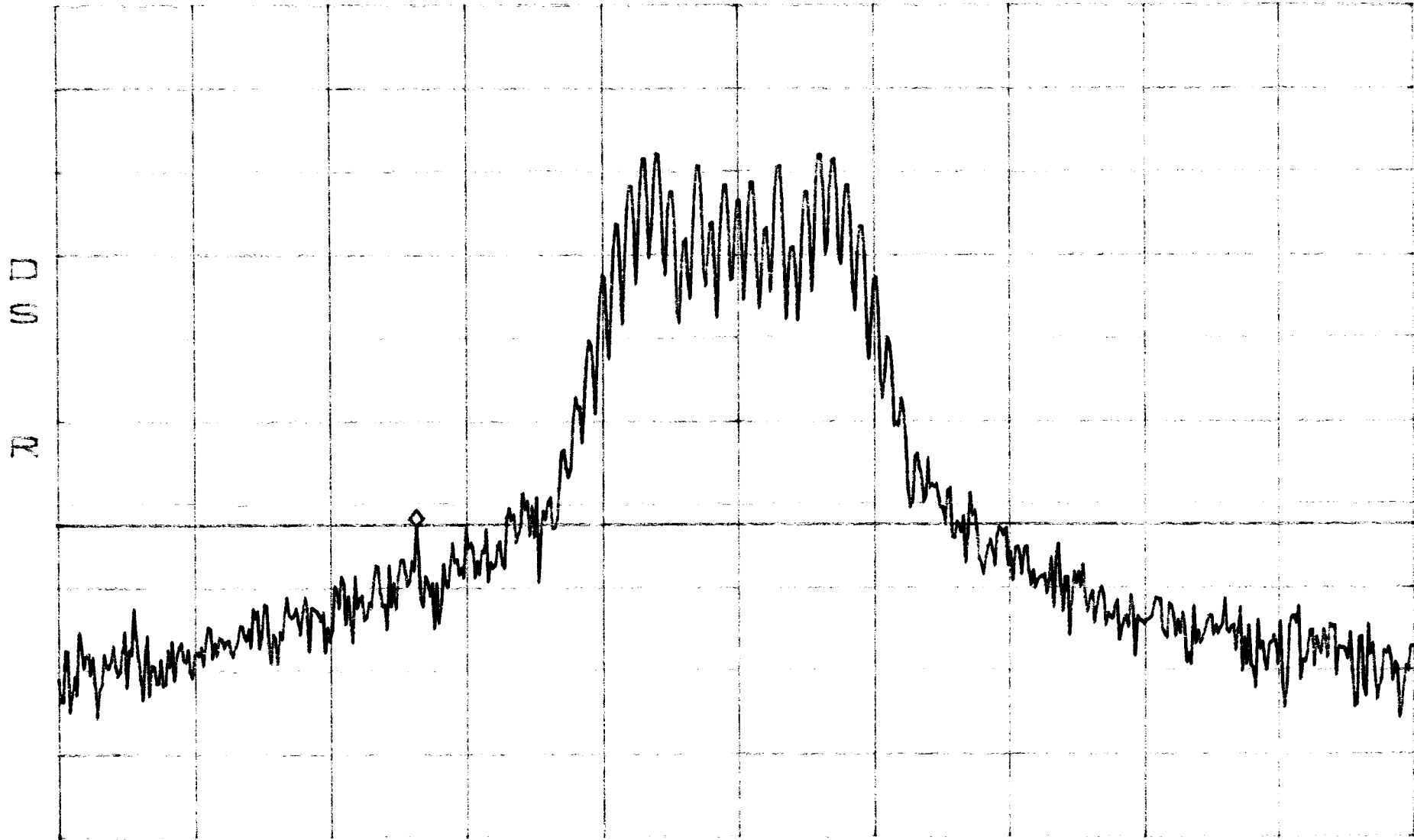
\*ATTEN 30dB

MKR -13.17dBm

RL 49.5dB

10dB/

1.9697763GHz



CENTER 1.9698000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

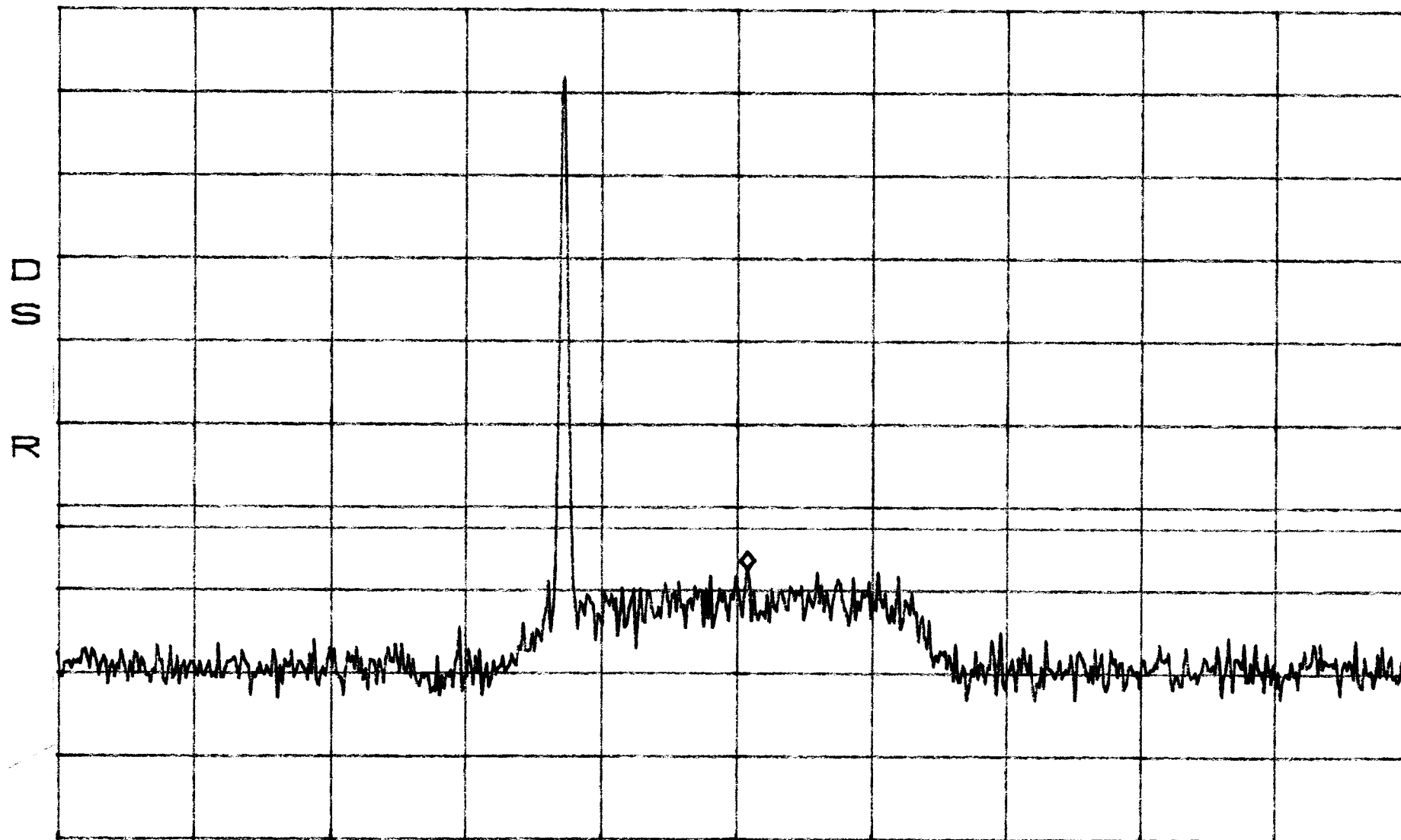
SWP 2.8sec

# CONDUCTED EMISSIONS BAND BEF LOW

\*ATTEN 30dB  
RL 49.5dBm

MKR -17.83dBm  
1.9633GHz

10dB/



CENTER 1.9625GHz

SPAN 100.0MHz

\*RBW 100kHz

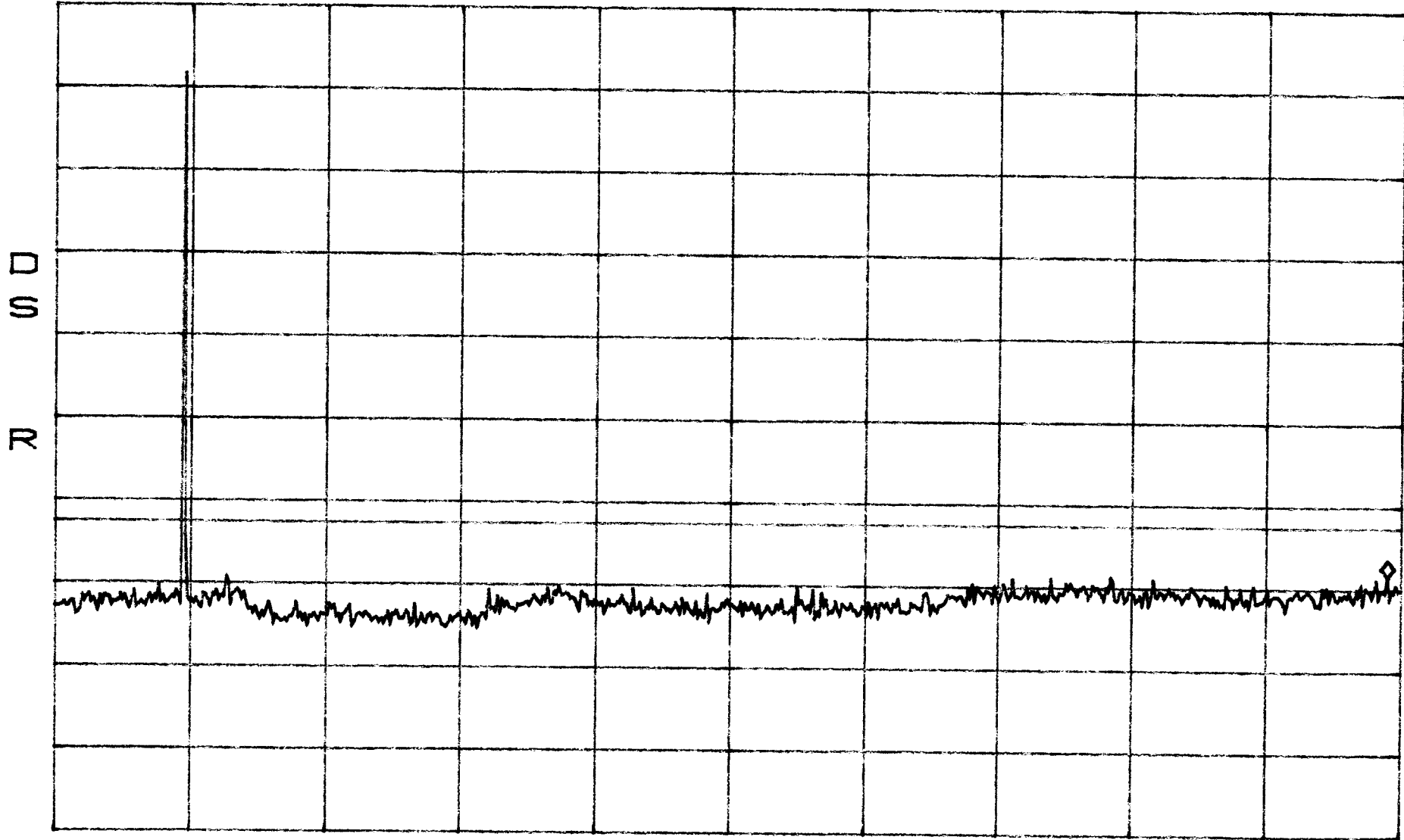
VBW 100kHz

SWP 50ms

# CONDUCTED EMISSIONS BAND BEF LOW

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.83dBm  
19.80GHz



START 30MHz STOP 20.00GHz  
\*RBW 300kHz VBW 300kHz SWP 560ms

# CONDUCTED EMISSIONS BAND BEF

MID

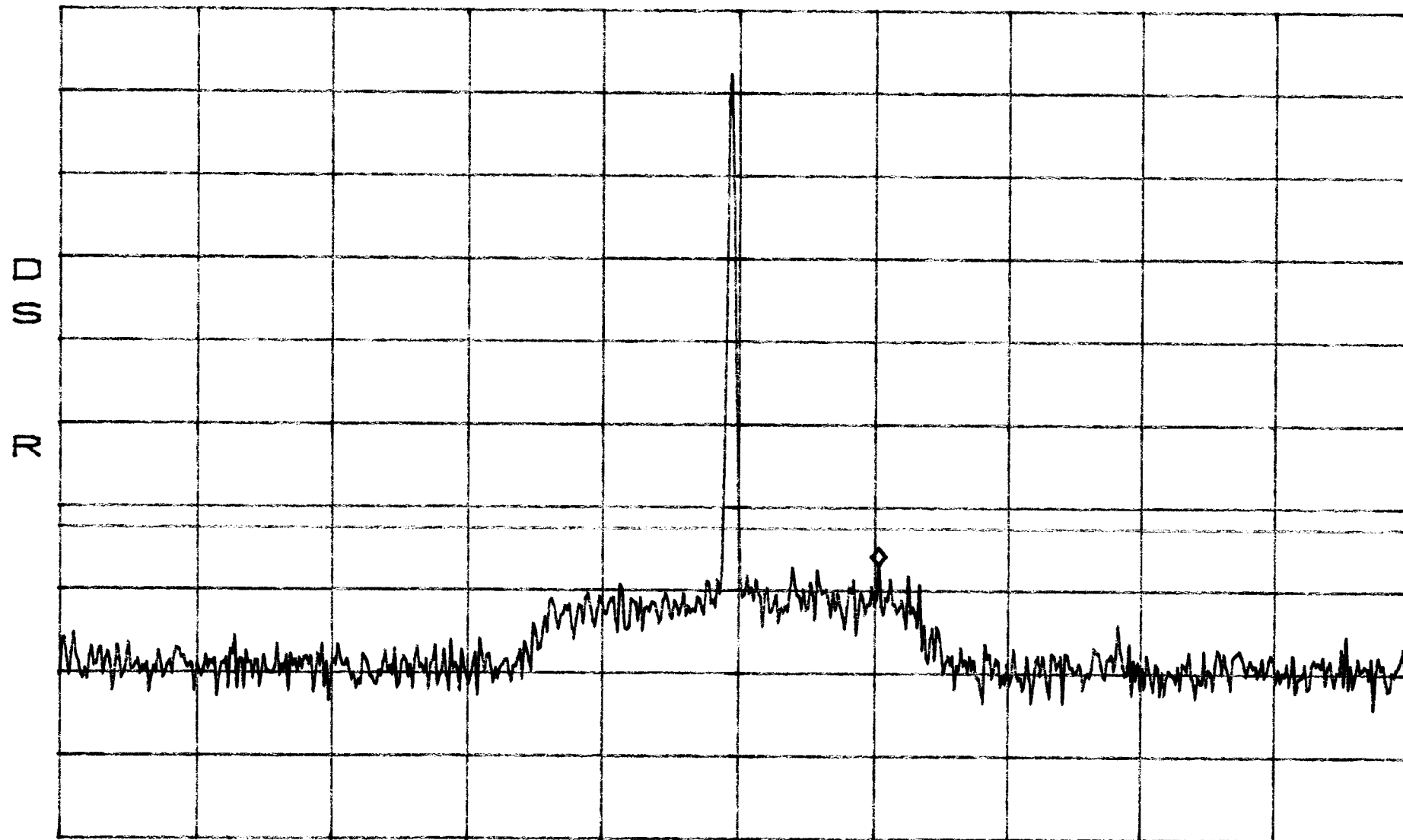
\*ATTEN 30dB

MKR -17.33dBm

RL 49.5dBm

10dB/

1.9728GHz



CENTER 1.9625GHz

SPAN 100.0MHz

\*RBW 100kHz

VBW 100kHz

SWP 50ms

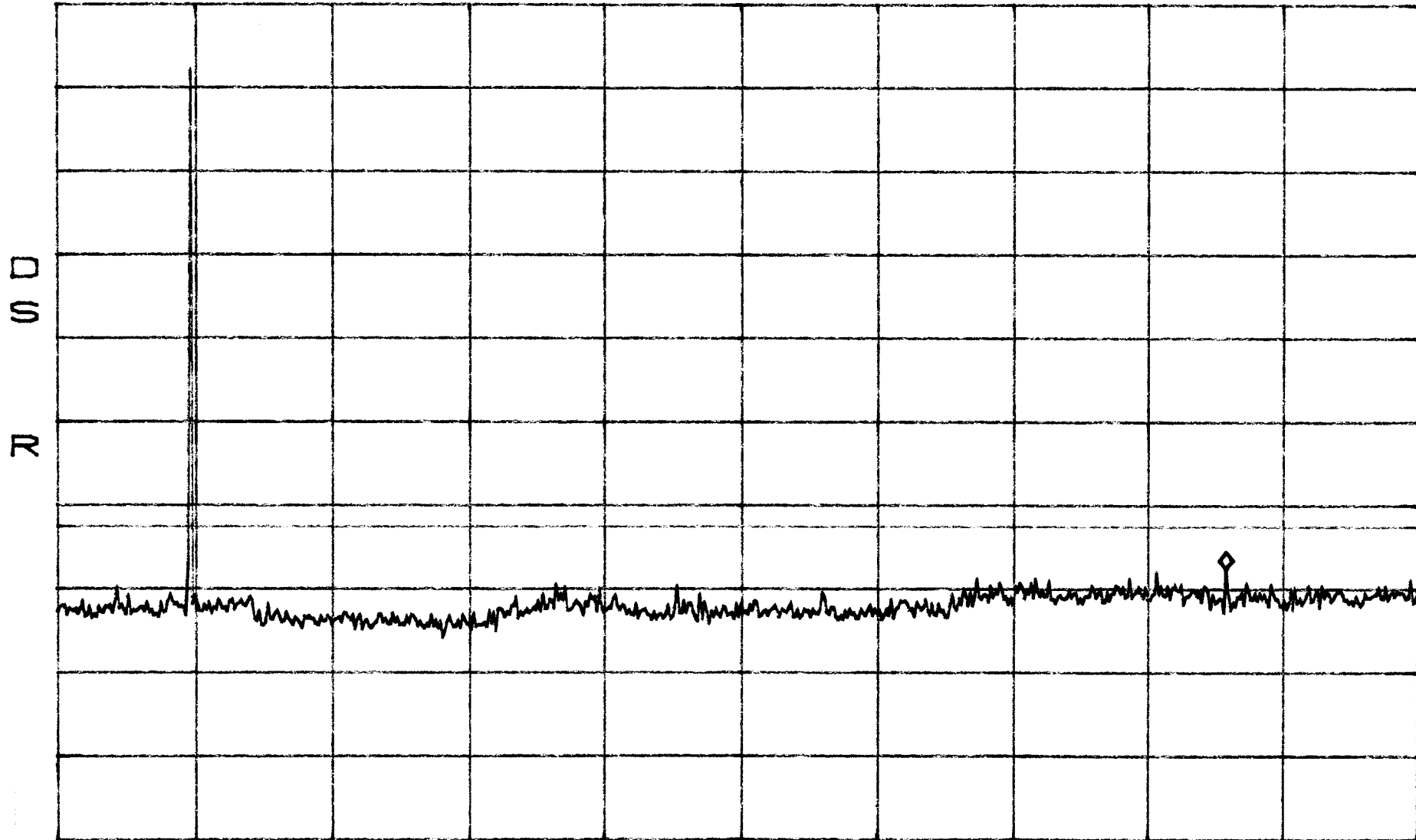
# CONDUCTED EMISSIONS BAND BEF

## MID

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -18.00dBm  
17.17GHz



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

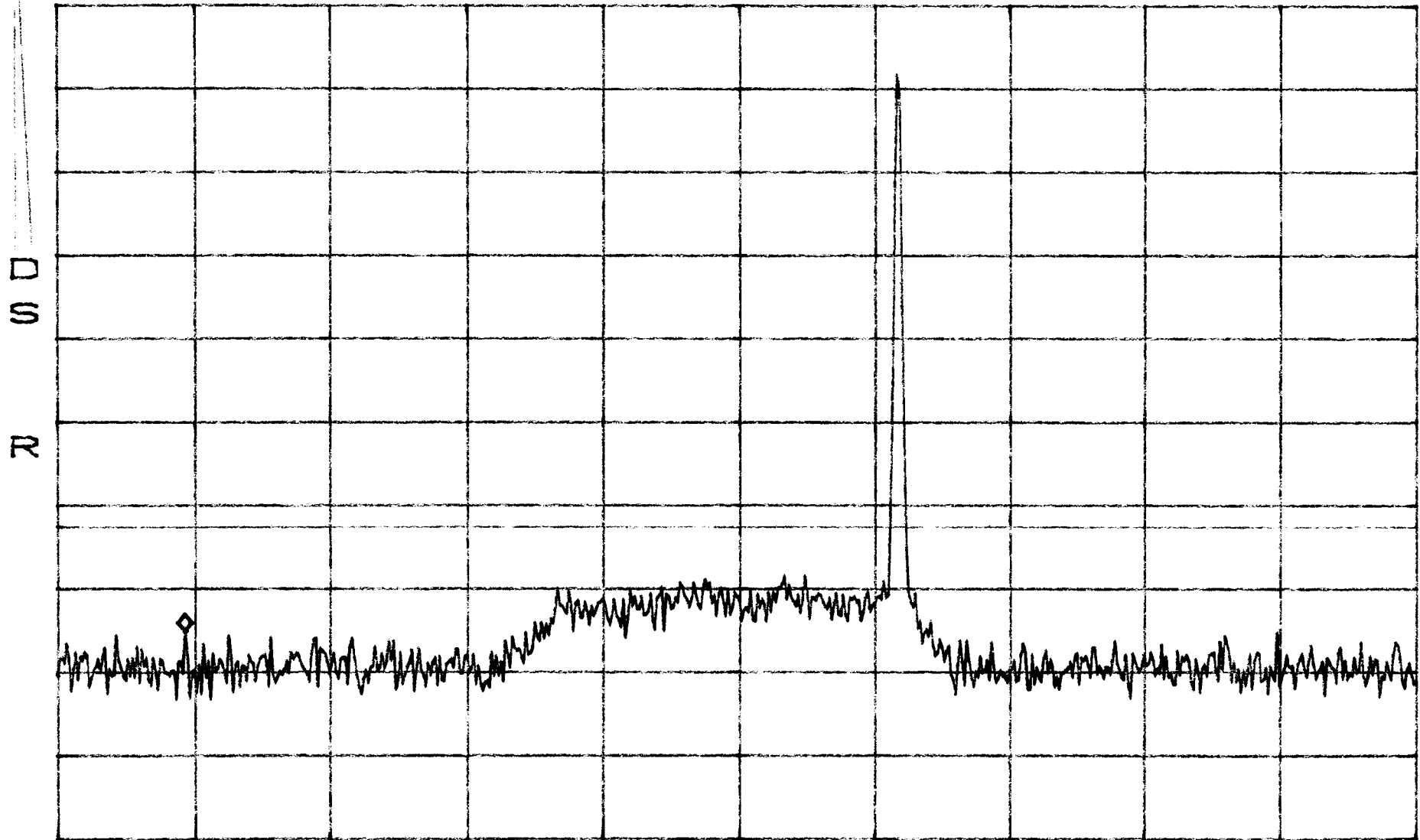
VBW 300kHz

SWP 560ms

# CONDUCTED EMISSIONS BAND BEF HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -25.50dBm  
1.9218GHz



CENTER 1.9625GHz  
\*RBW 100kHz VBW 100kHz

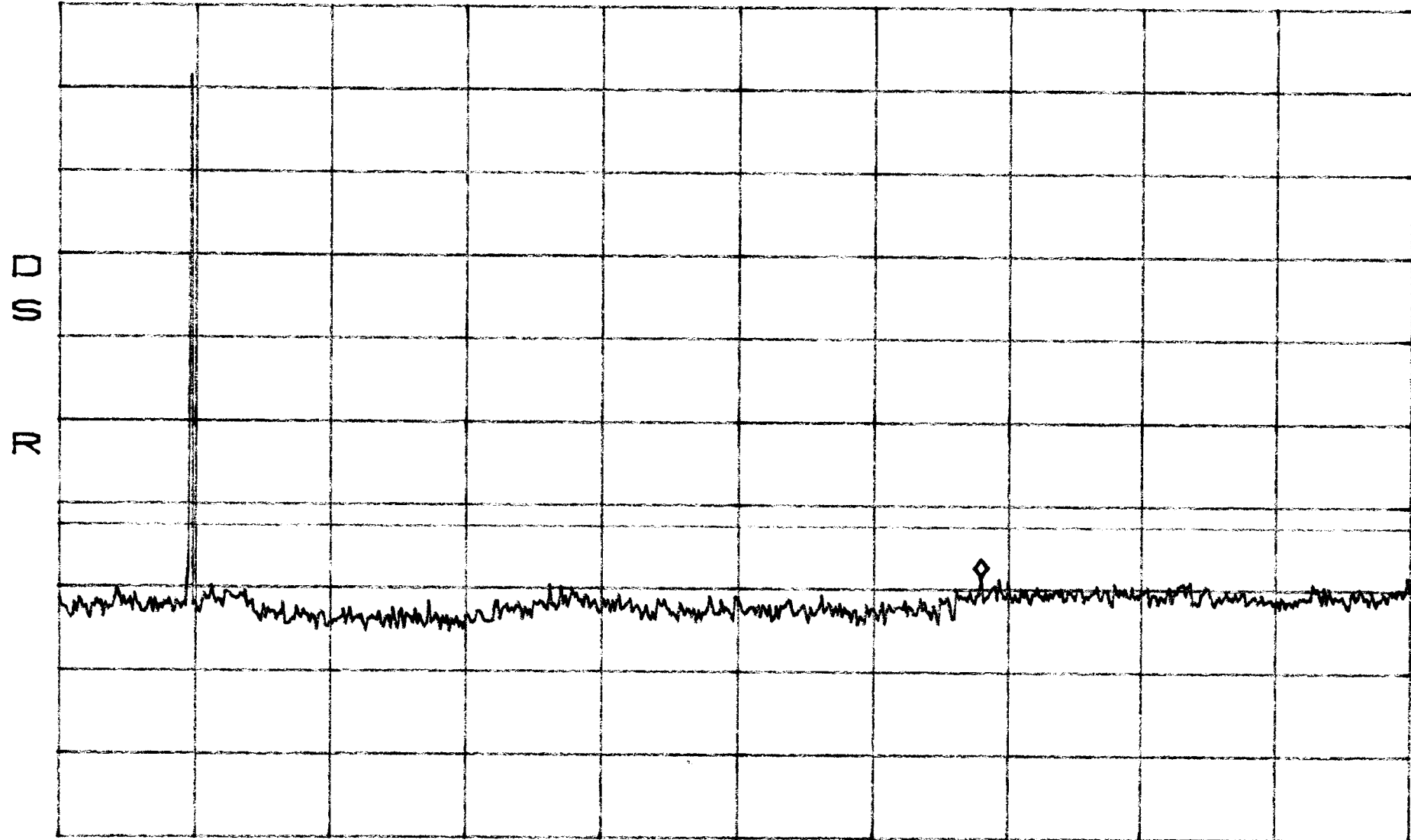
SPAN 100.0MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND BEF HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.83dBm  
13.91GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

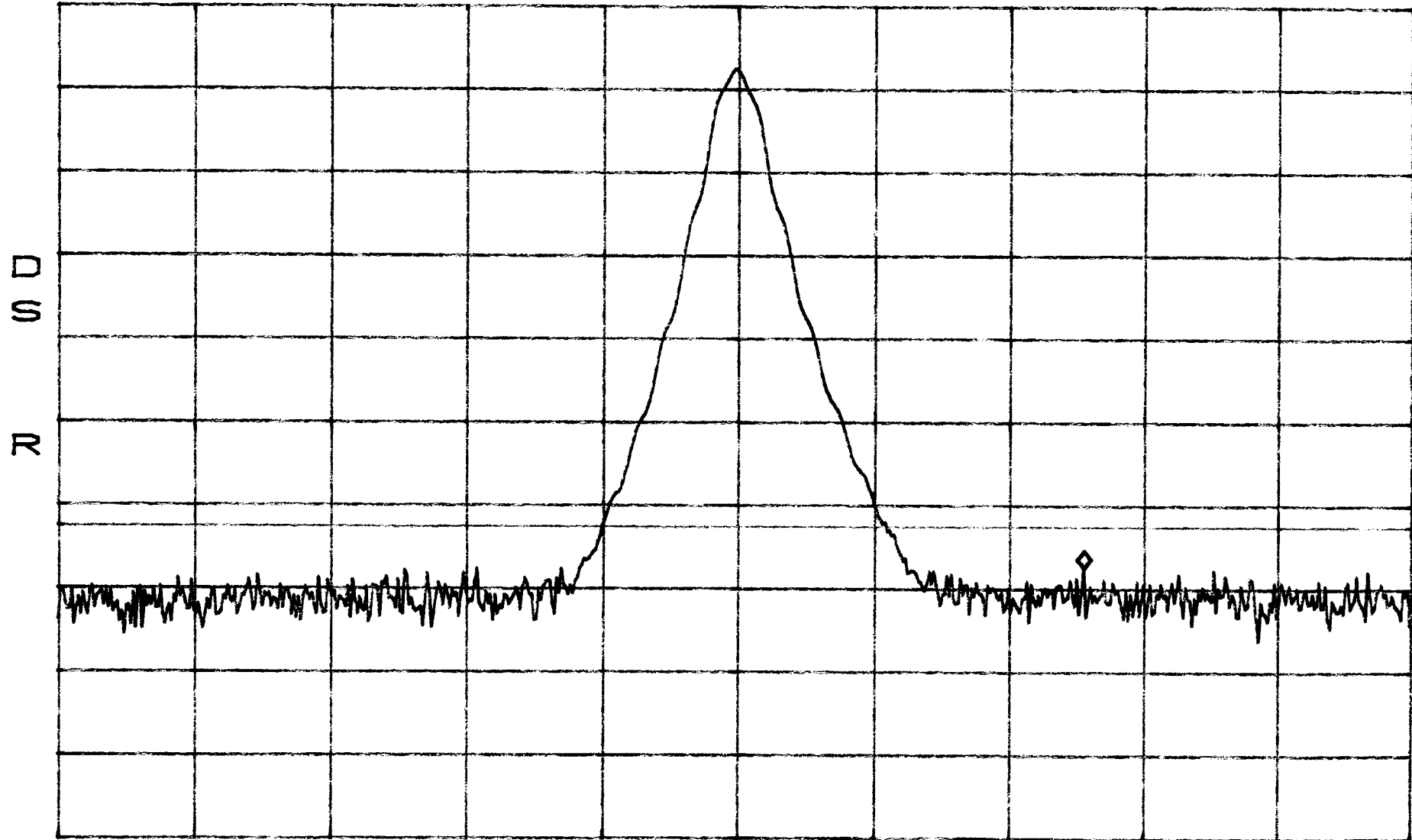
SWP 560ms

# CONDUCTED EMISSIONS BAND BEF FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -17.83dBm  
1.963775GHz



CENTER 1.962500GHz  
\*RBW 100kHz VBW 100kHz

SPAN 5.000MHz  
SWP 50ms

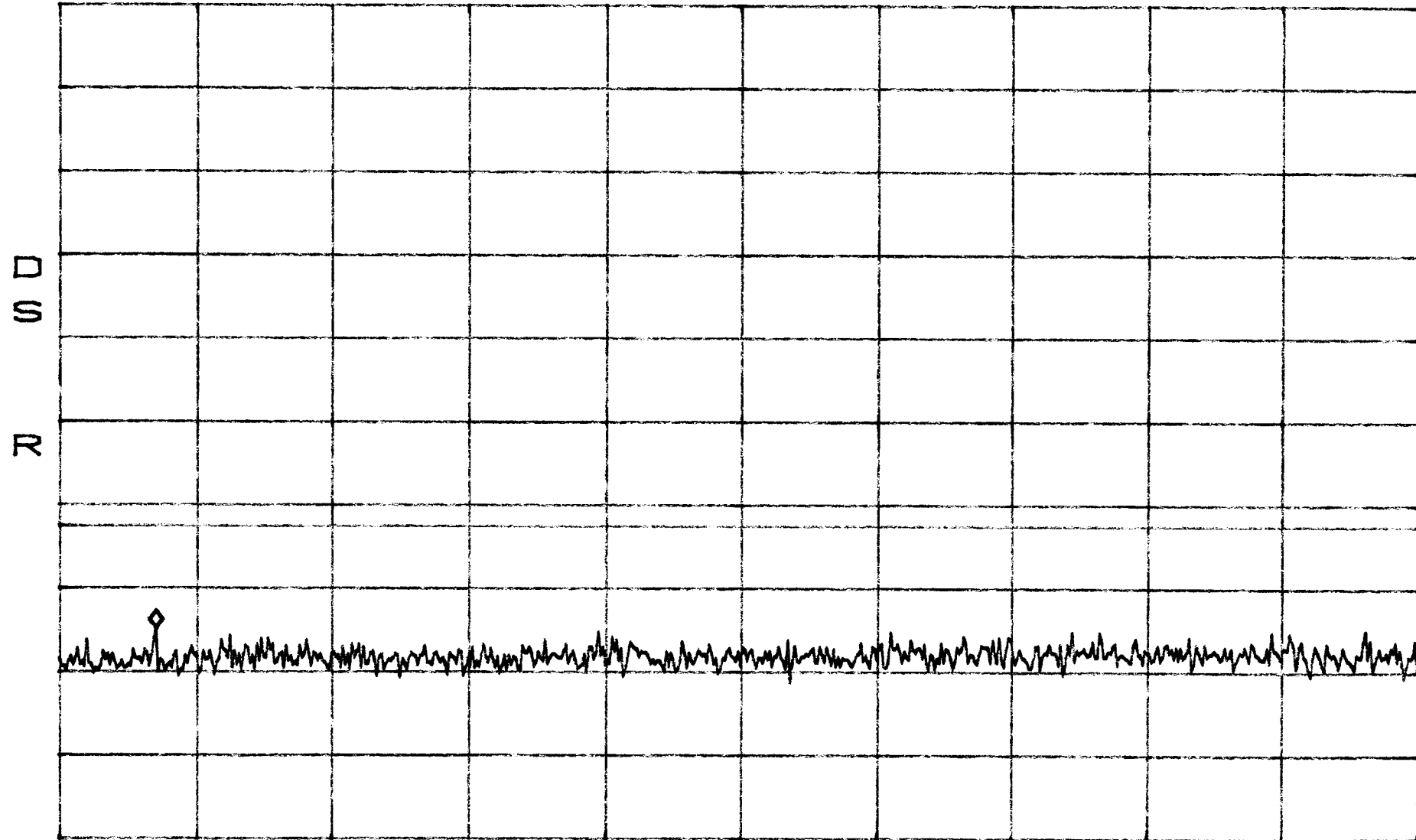


# CONDUCTED EMISSIONS BAND BEF FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -25.17dBm  
97.9MHz

10dB/



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

VBW 100kHz

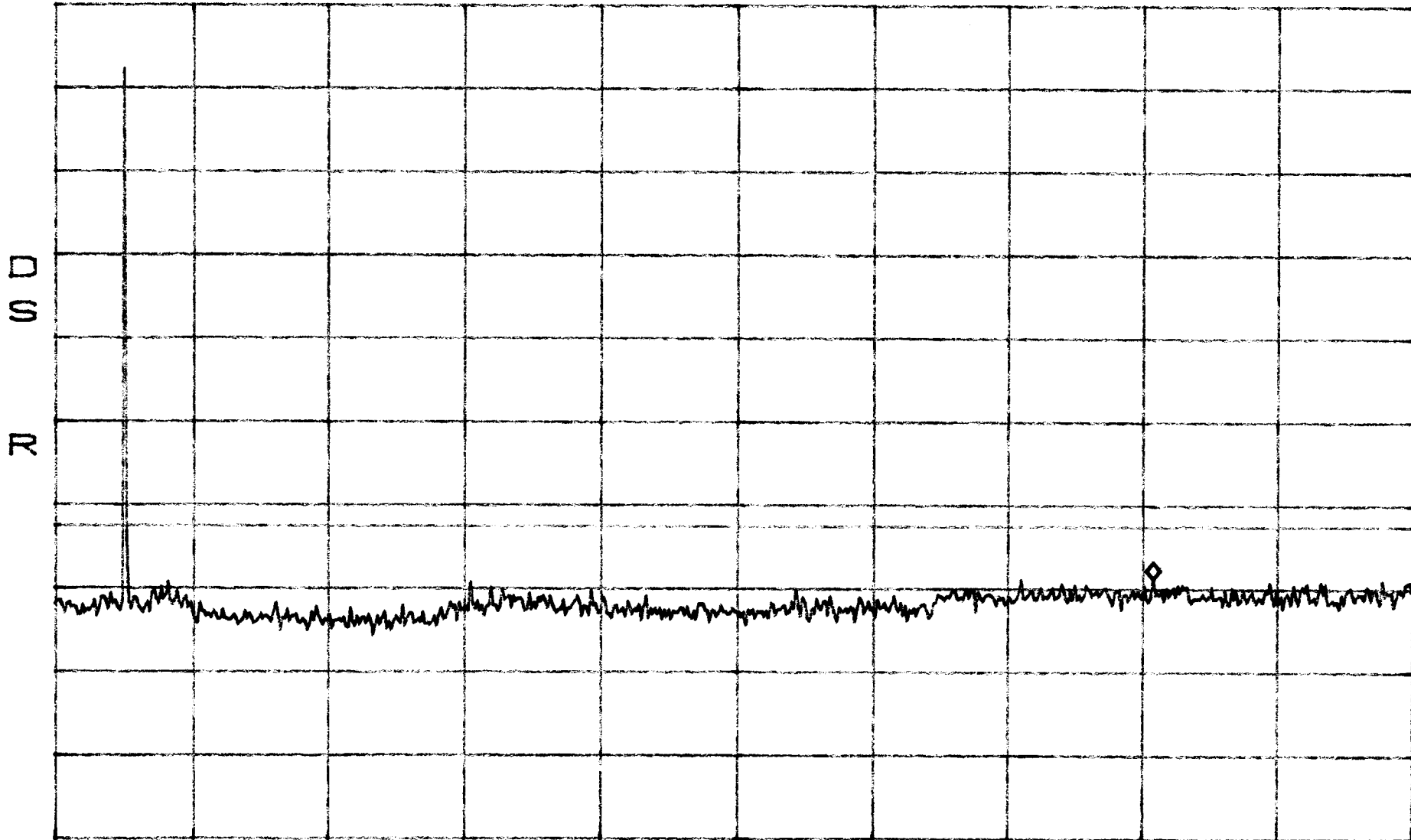
SWP 250ms

# CONDUCTED EMISSIONS BAND BEF FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -19.17dBm  
16.36GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

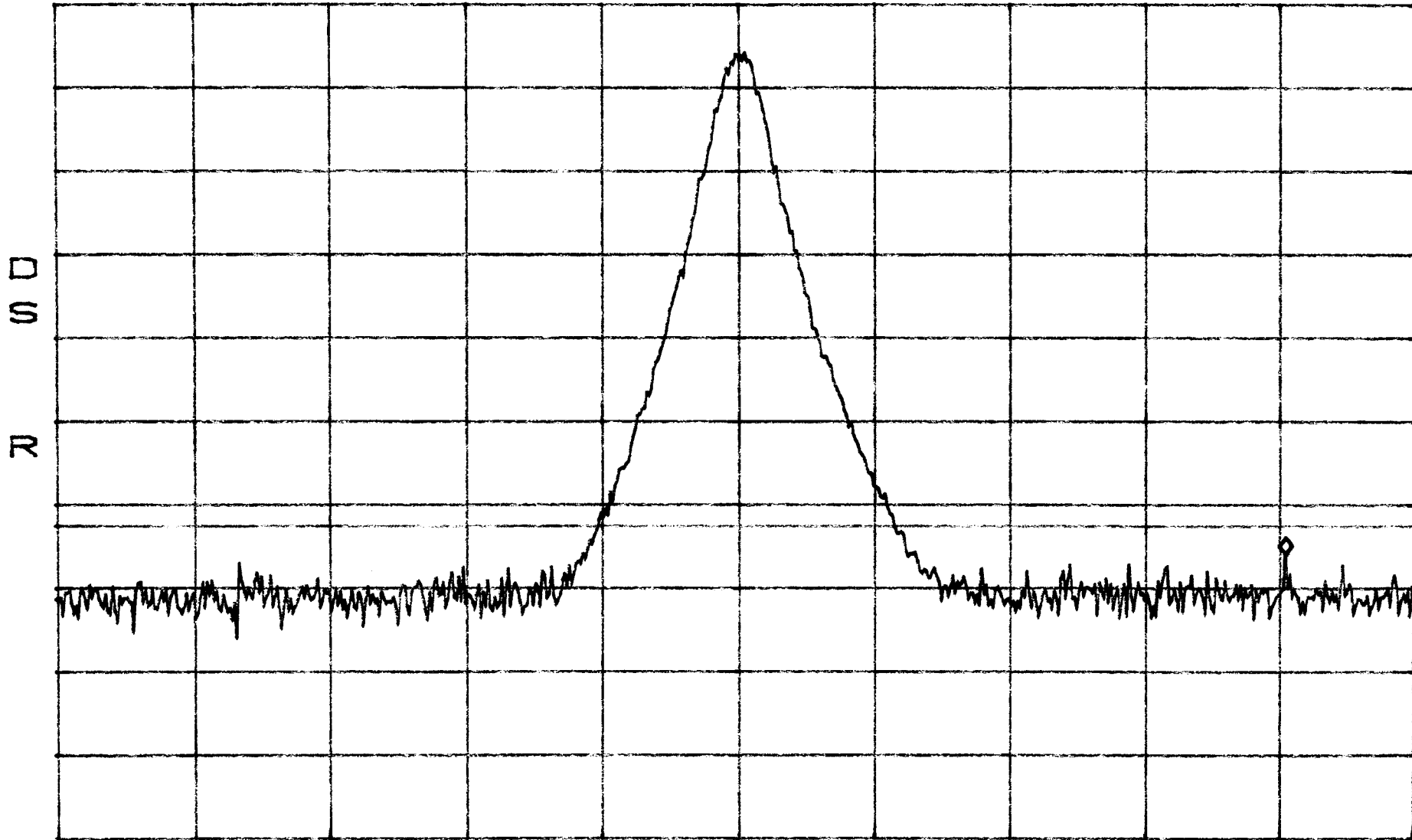
SWP 530ms

# CONDUCTED EMISSIONS BAND BEF TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -16.33dBm  
1.964525GHz



CENTER 1.962500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

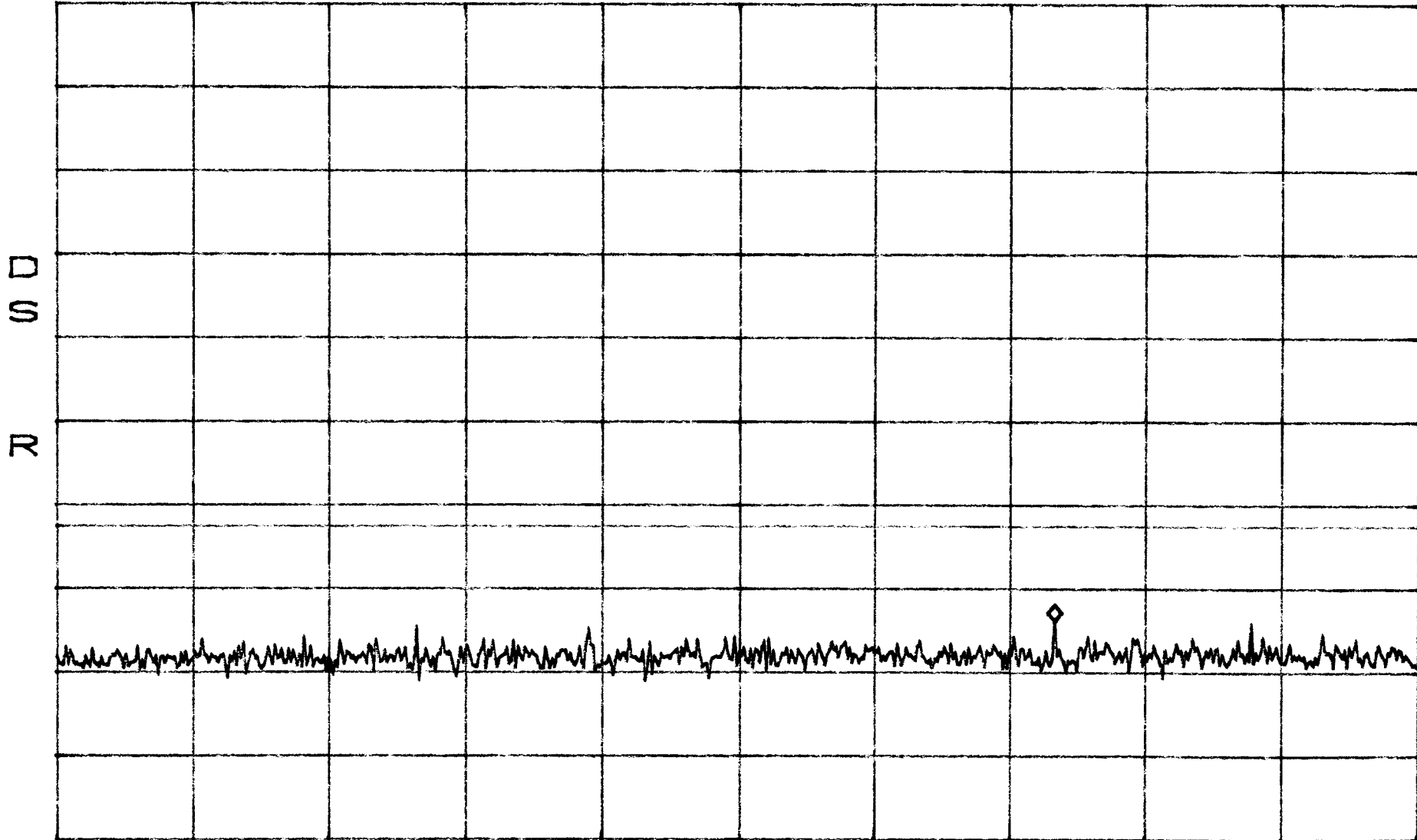
SWP 50ms

# CONDUCTED EMISSIONS BAND BEF TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -24.33dBm  
741.3MHz



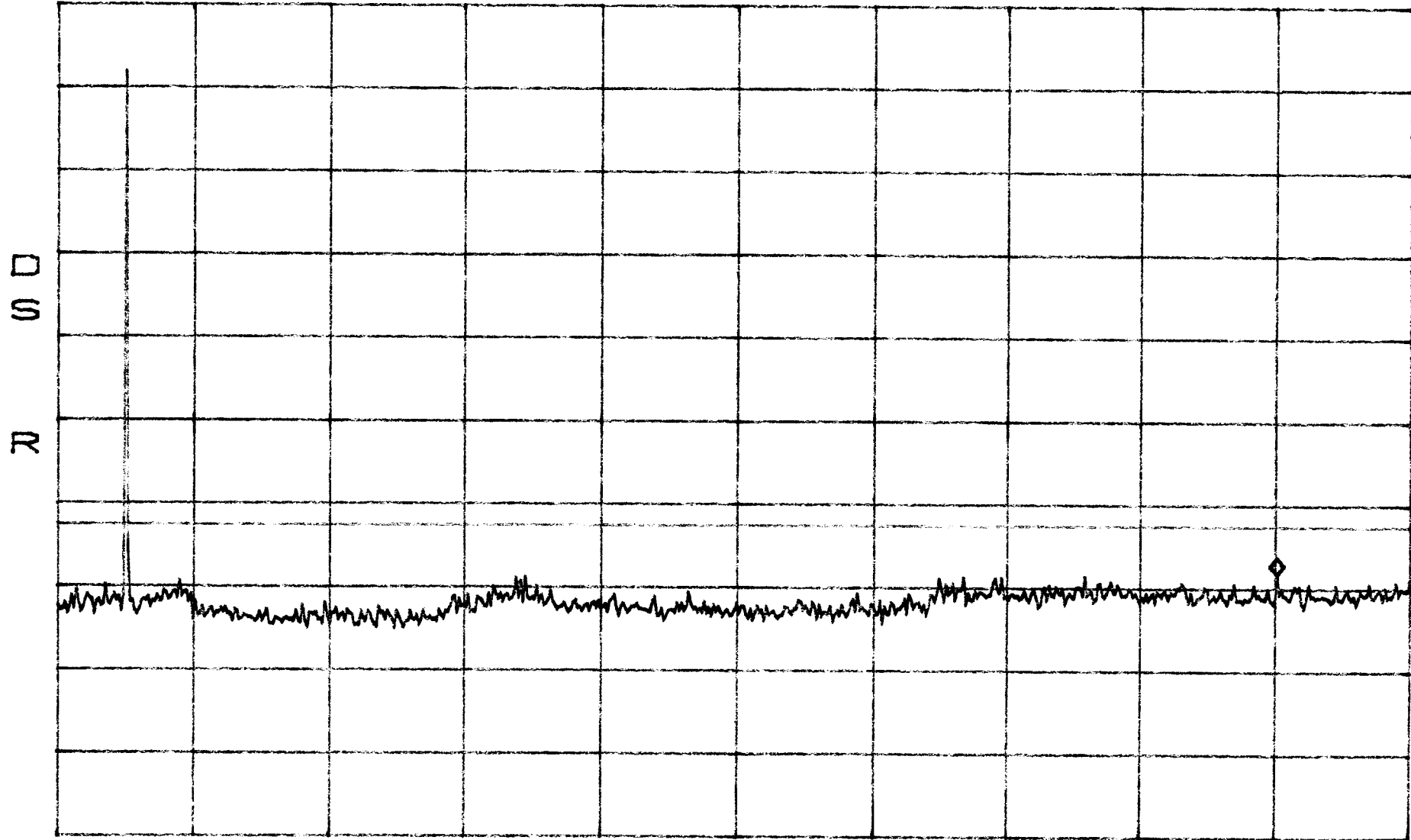
START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

# CONDUCTED EMISSIONS BAND BEF TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -18.67dBm  
18.13GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

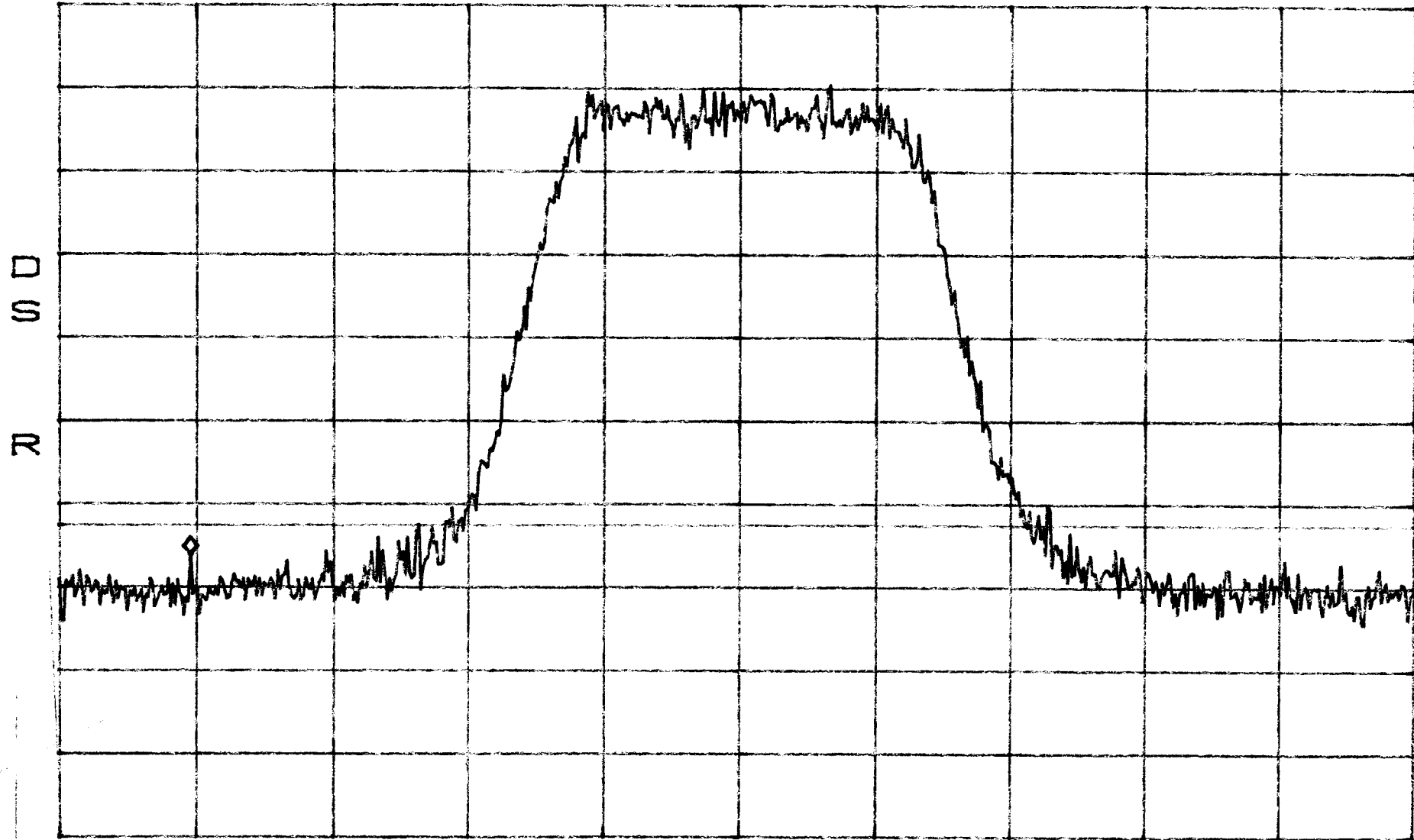
SWP 530ms

# CONDUCTED EMISSIONS BAND BEF CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -16.50dBm  
1.96483GHz

10dB/



CENTER 1.962500GHz

SPAN 5.000MHz

\*RBW 100kHz

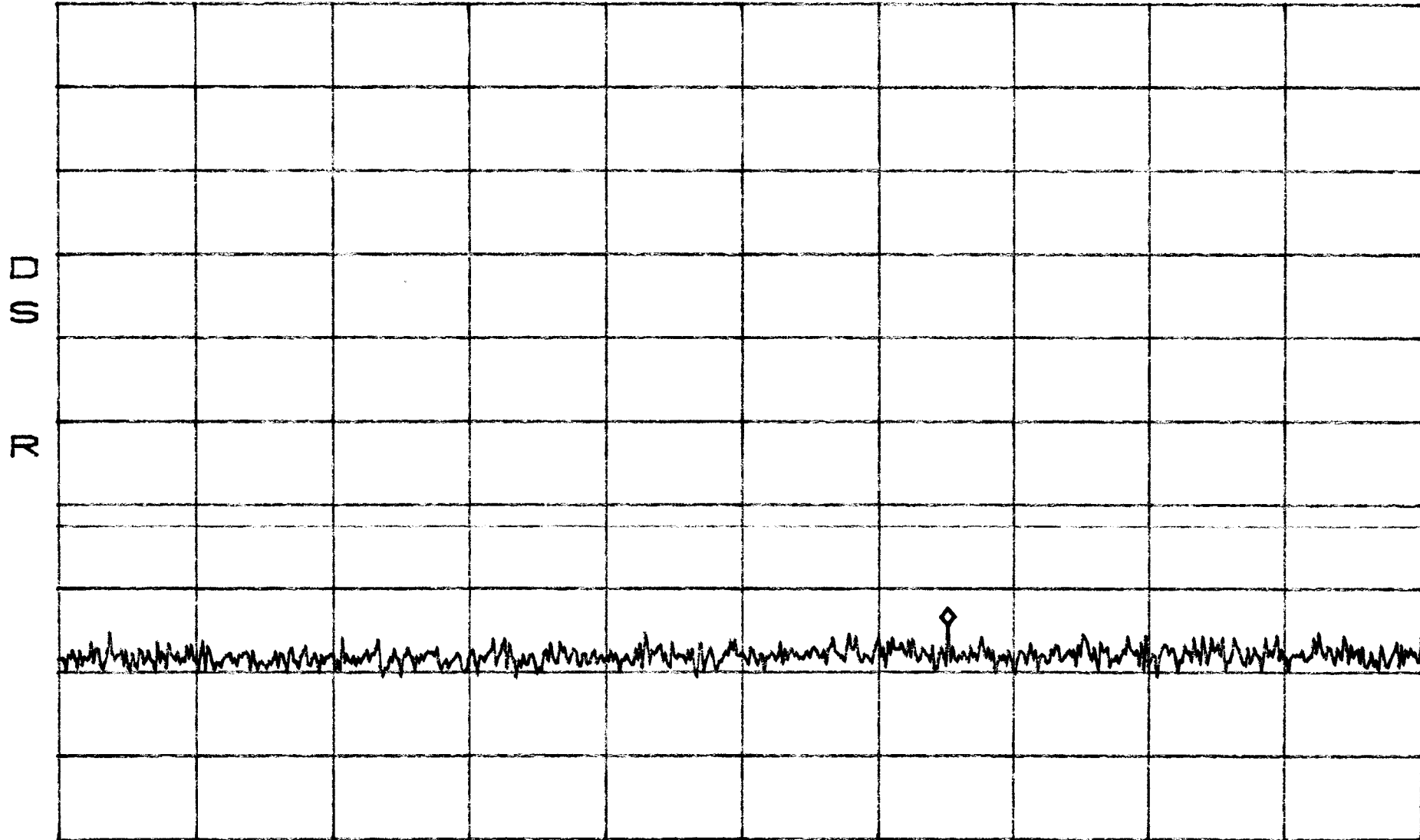
VBW 100kHz

SWP 50ms

# CONDUCTED EMISSIONS BAND BEF CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -24.83dBm  
662.1MHz

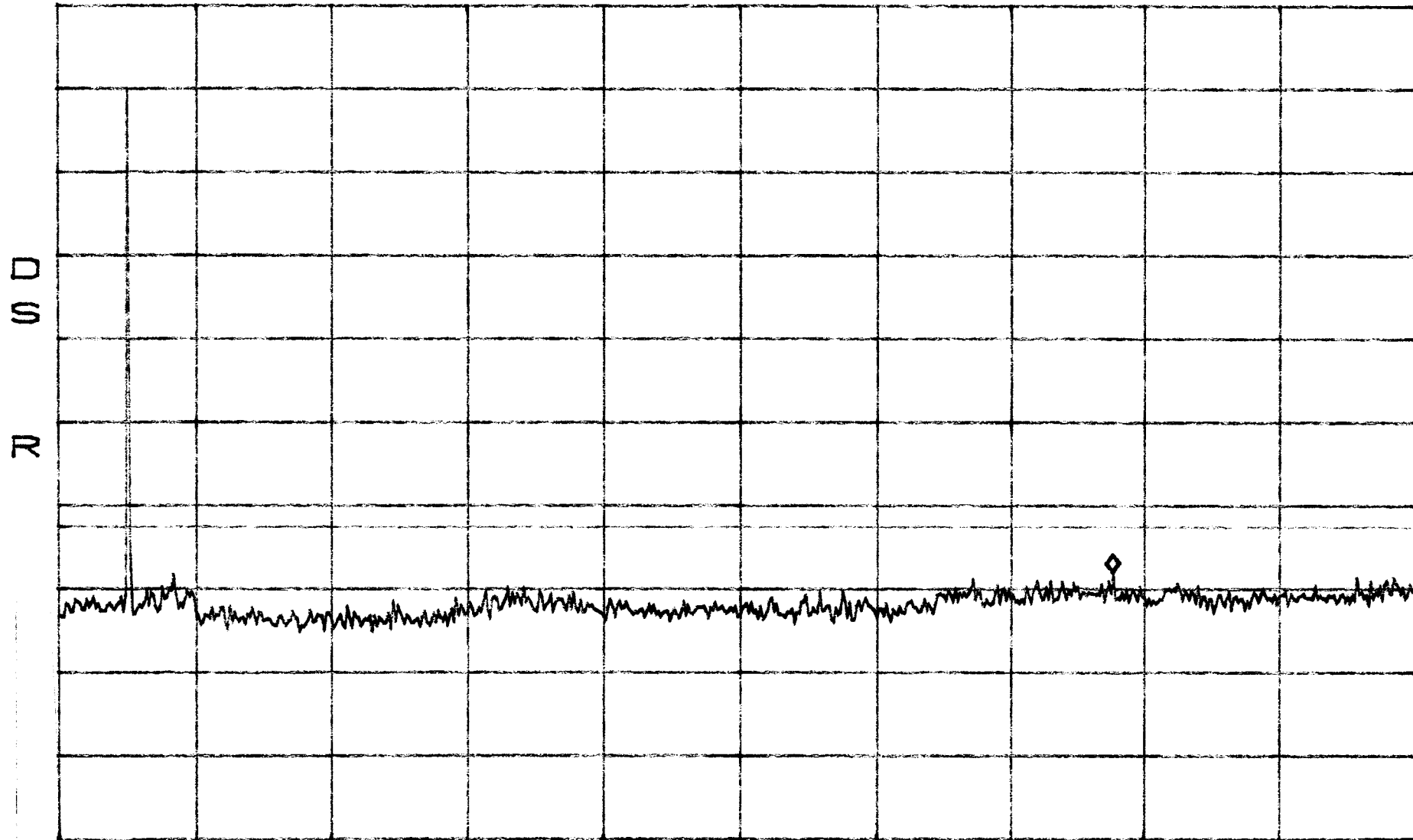


START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

# CONDUCTED EMISSIONS BAND BEF CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.33dBm  
15.76GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

SWP 530ms



# CONDUCTED EMISSIONS BAND BEF

## BAND EDGE

### FM

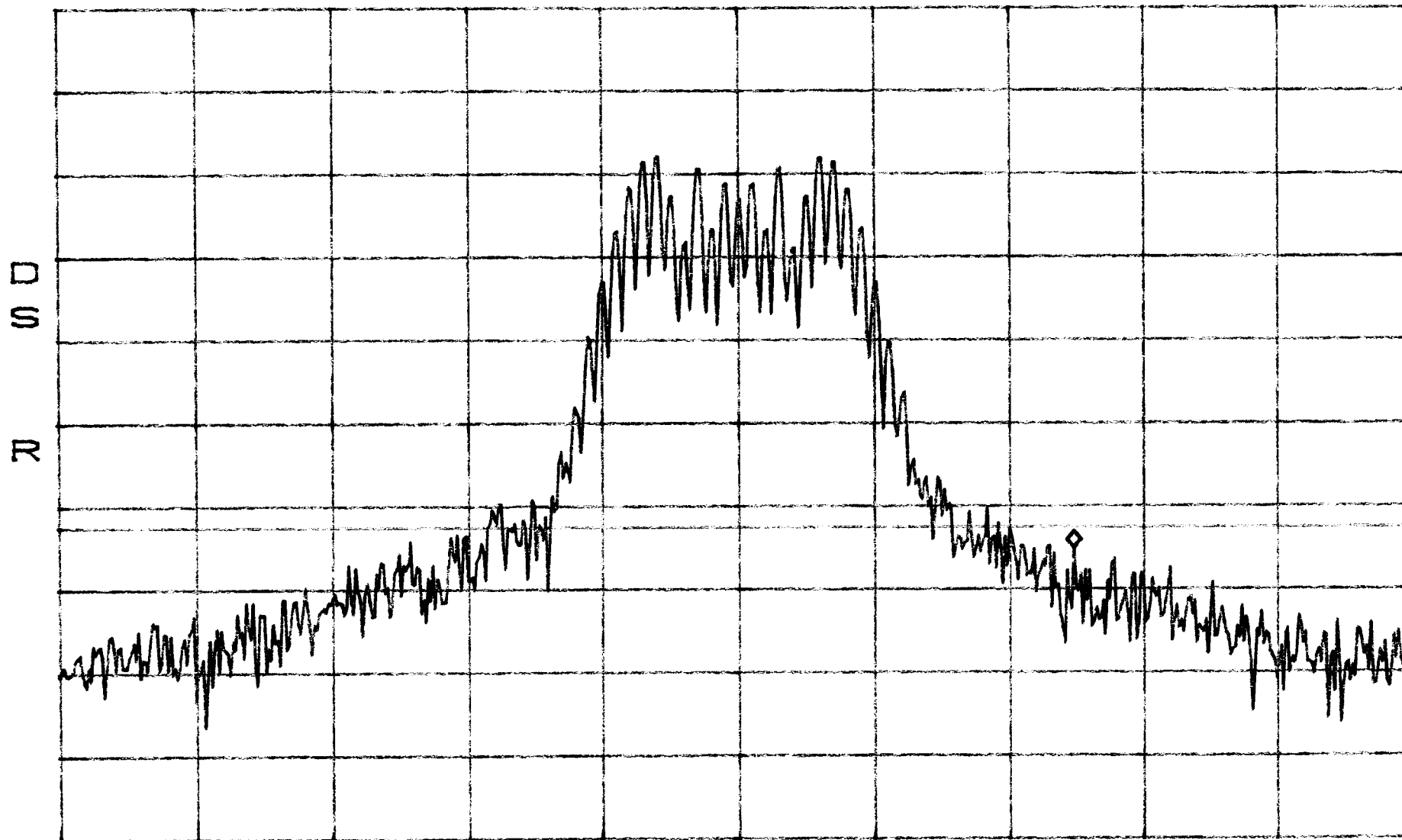
\*ATTEN 30dB

MKR -15.50dBm

RL 49.5dBm

10dB/

1.9502248GHz



CENTER 1.9502000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

# CONDUCTED EMISSIONS BAND BEF

## BAND EDGE

### FM

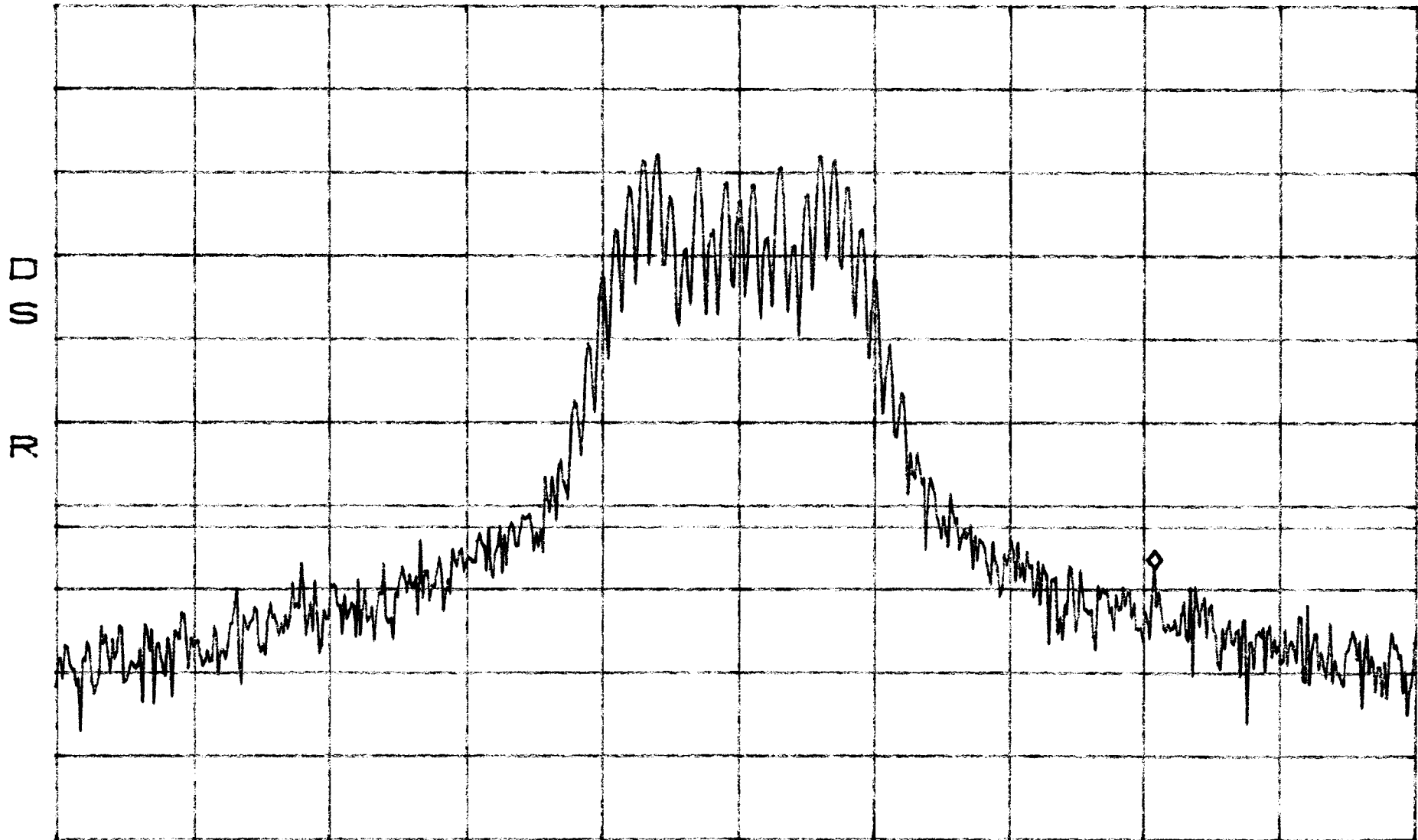
\*ATTEN 30dB

MKR -17.83dBm

RL 49.5dBm

10dB/

1.9748876GHz



CENTER 1.9748000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

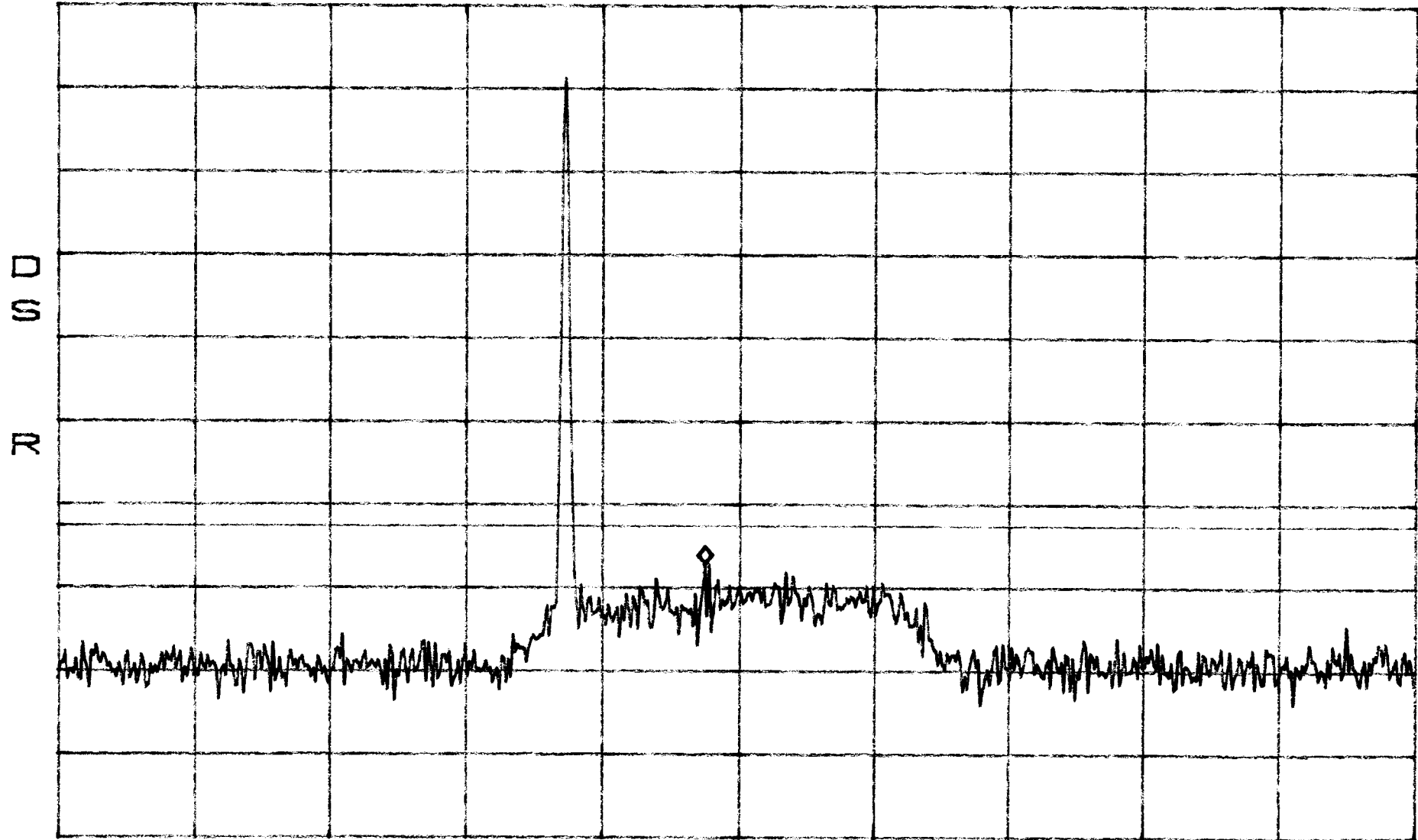
# CONDUCTED EMISSIONS BAND EFC

## LOW

\*ATTEN 30dB  
RL 49.5dBm

MKR -17.50dBm  
1.9750GHz

10dB/



CENTER 1.9775GHz

SPAN 100.0MHz

\*RBW 100kHz

VBW 100kHz

SWP 50ms

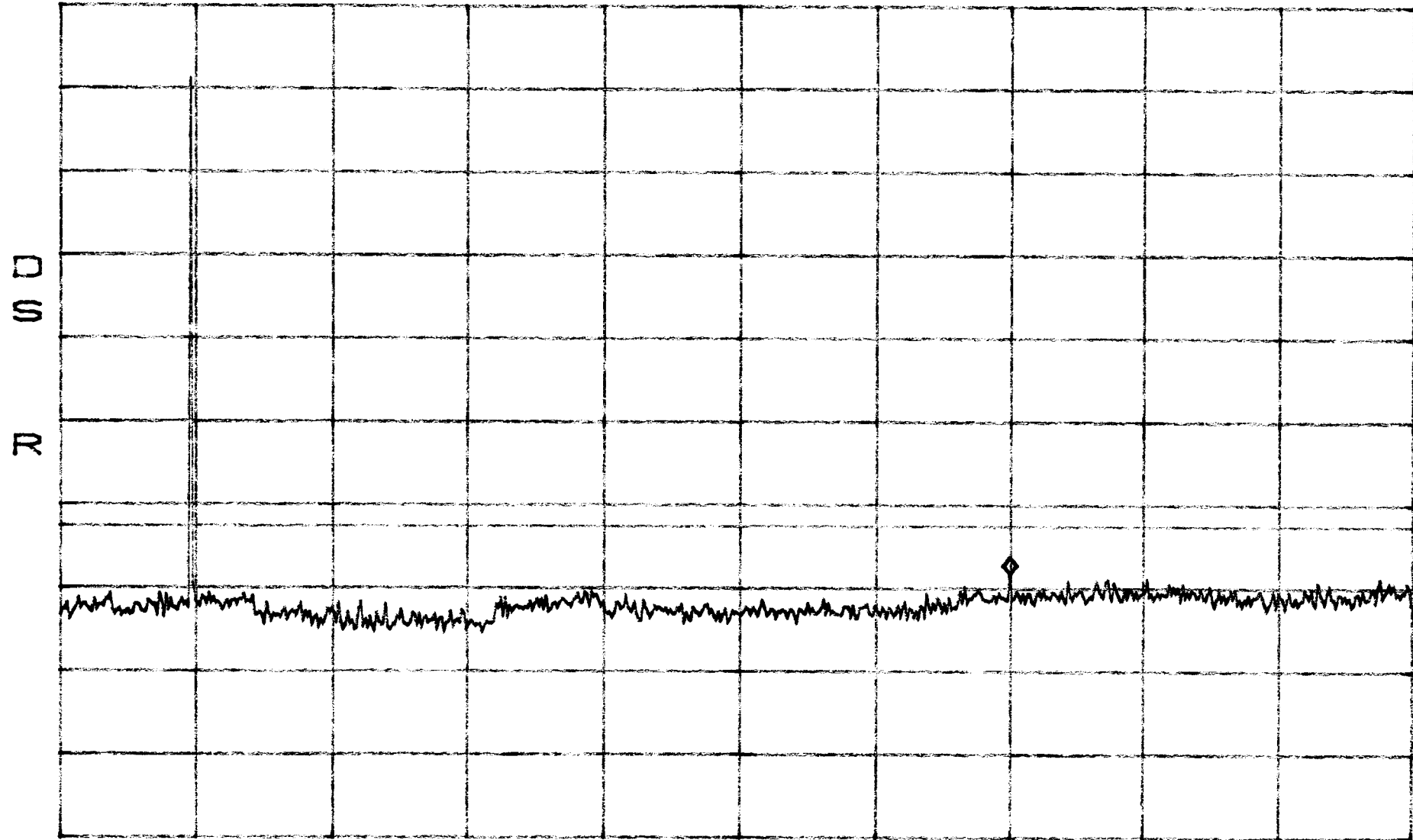
# CONDUCTED EMISSIONS BAND EFC

## LOW

\*ATTN 30dB  
RL 49.5dBm

MKR -18.87dBm  
14.01GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

SWP 560ms

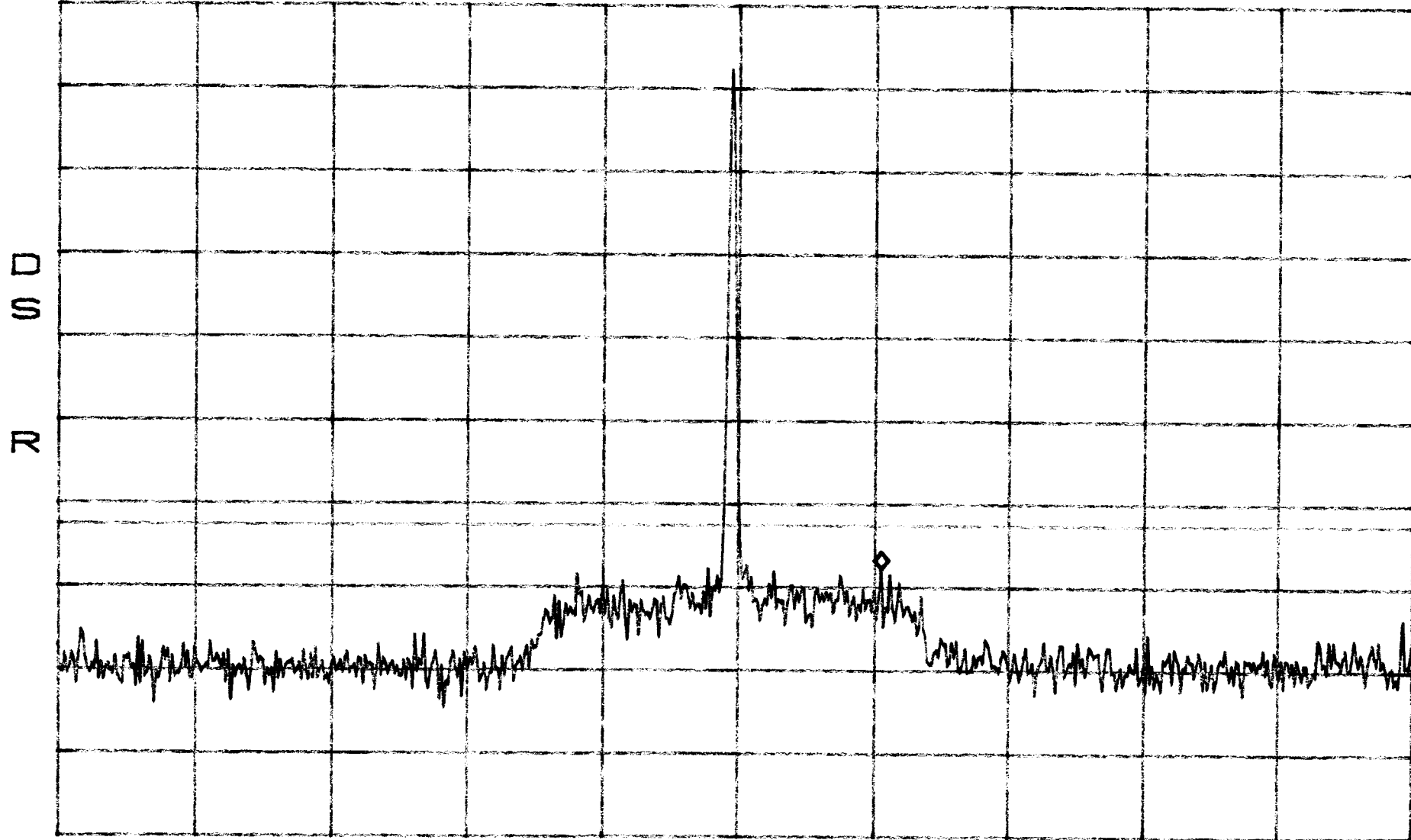
# CONDUCTED EMISSIONS BAND EFC

MID

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.17dBm  
1.98886GHz

10dB/



CENTER 1.9775GHz  
\*RBW 100kHz

VBW 100kHz

SPAN 100.0MHz  
SWP 50ms

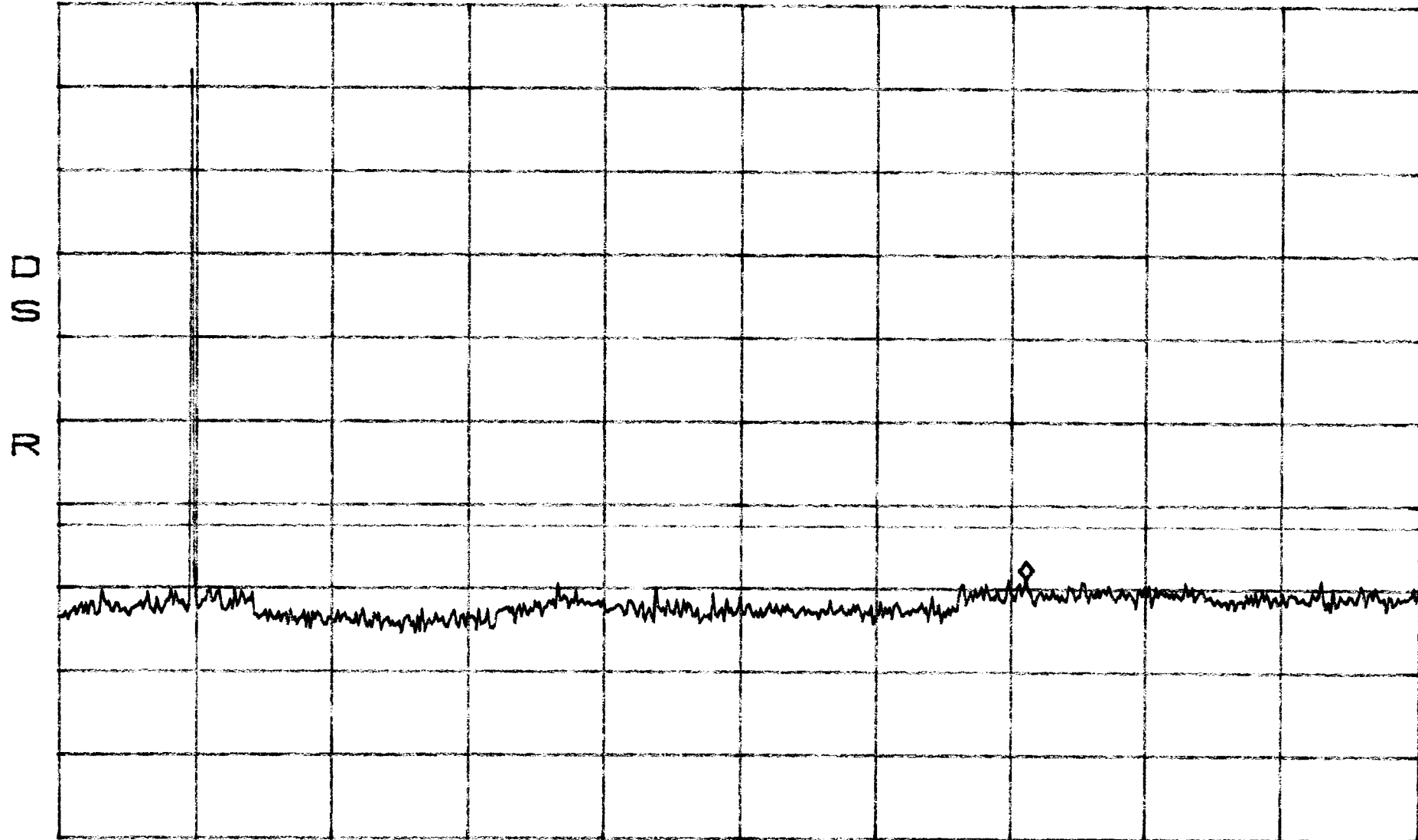
# CONDUCTED EMISSIONS BAND EFC

MID

\*ATTEN 30dB  
RL 49.5dBm

MKR -19.17dBm  
14.24GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

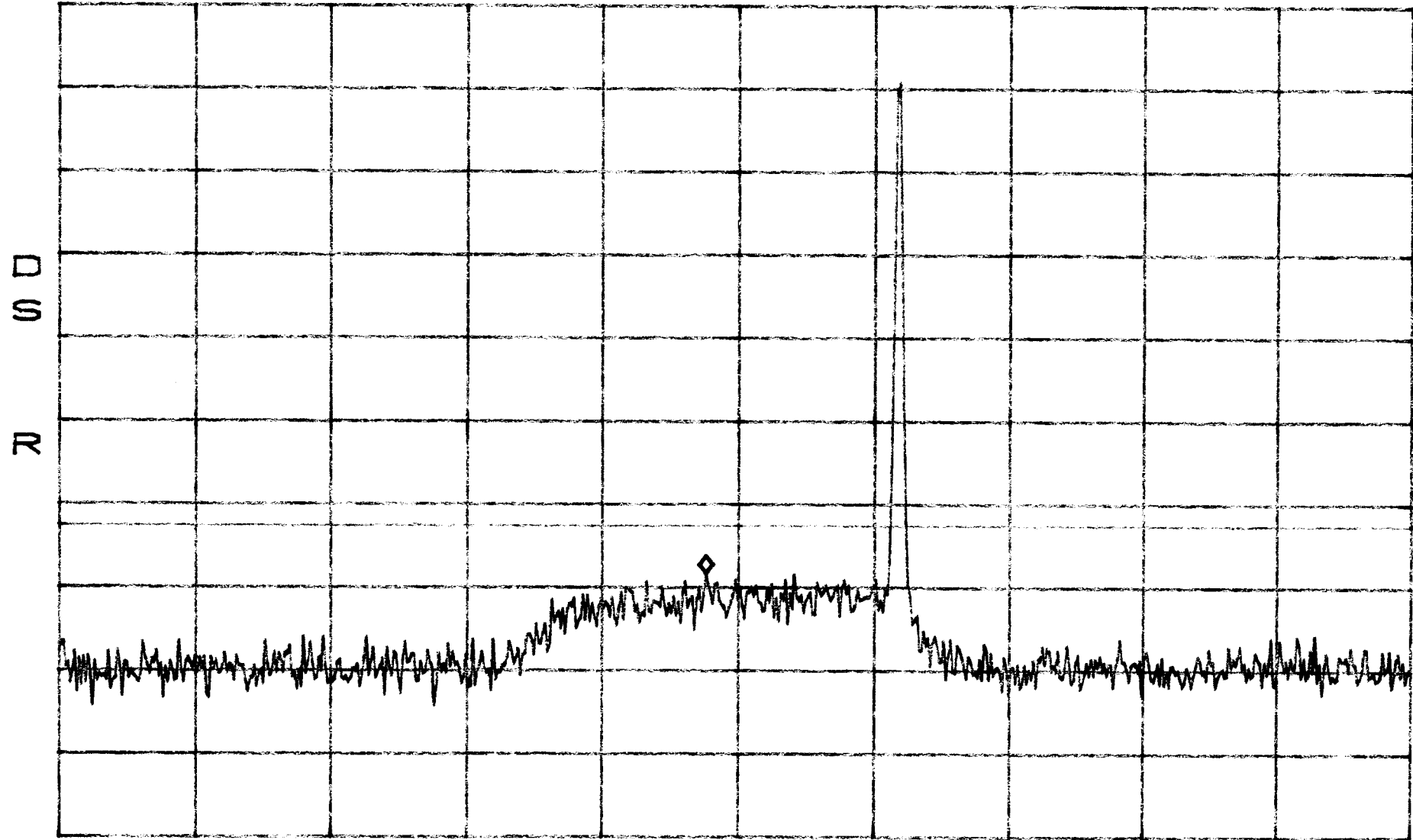
SWP 560ms

# CONDUCTED EMISSIONS BAND EFC HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.67dBm  
1.97526GHz

10dB/



CENTER 1.9775GHz  
\*RBW 100kHz VBW 100kHz

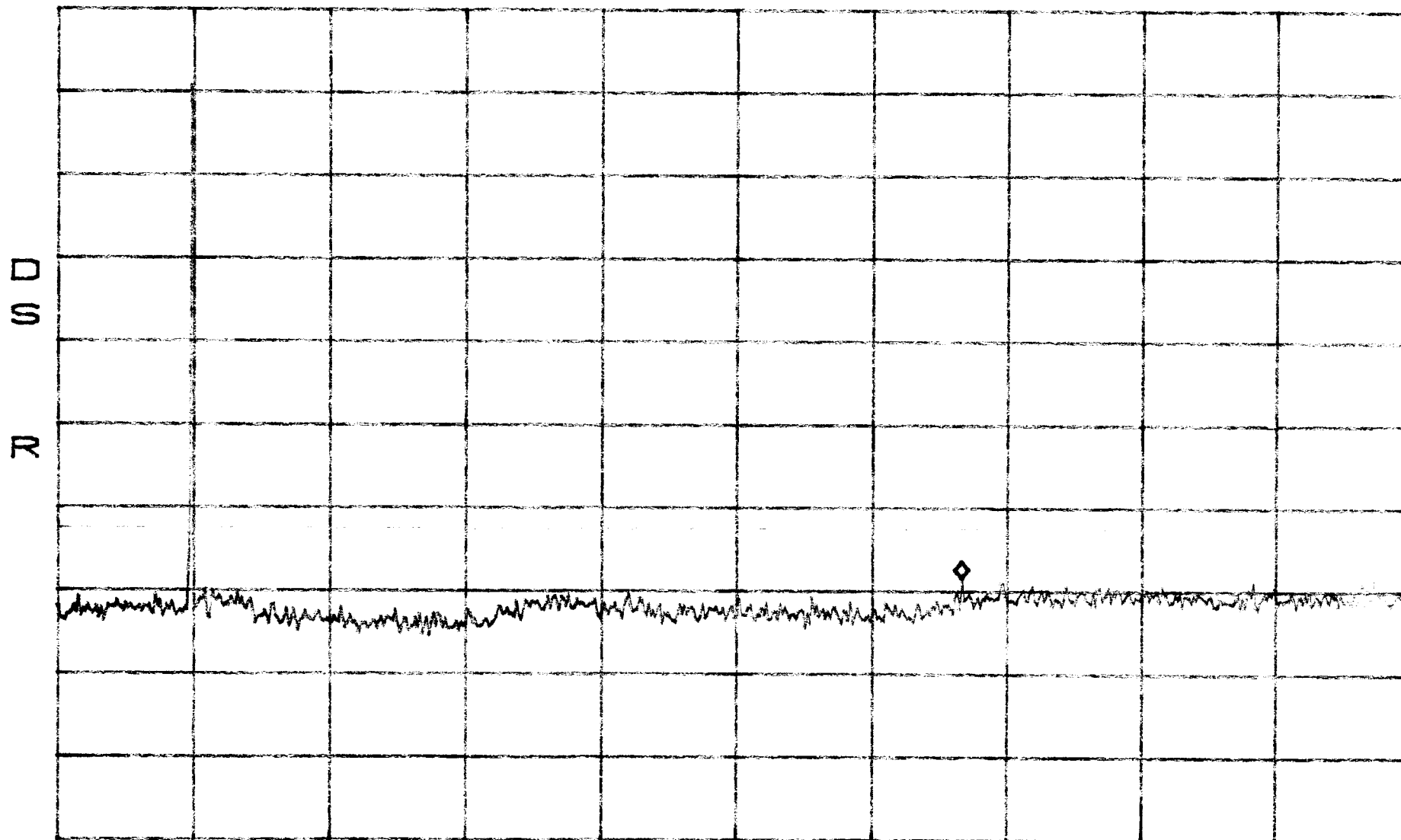
SPAN 100.0MHz  
SWP 50ms

# CONDUCTED EMISSIONS BAND EFC HIGH

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.83dBm  
13.34GHz

10dB/



START 30MHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

SWP 560ms

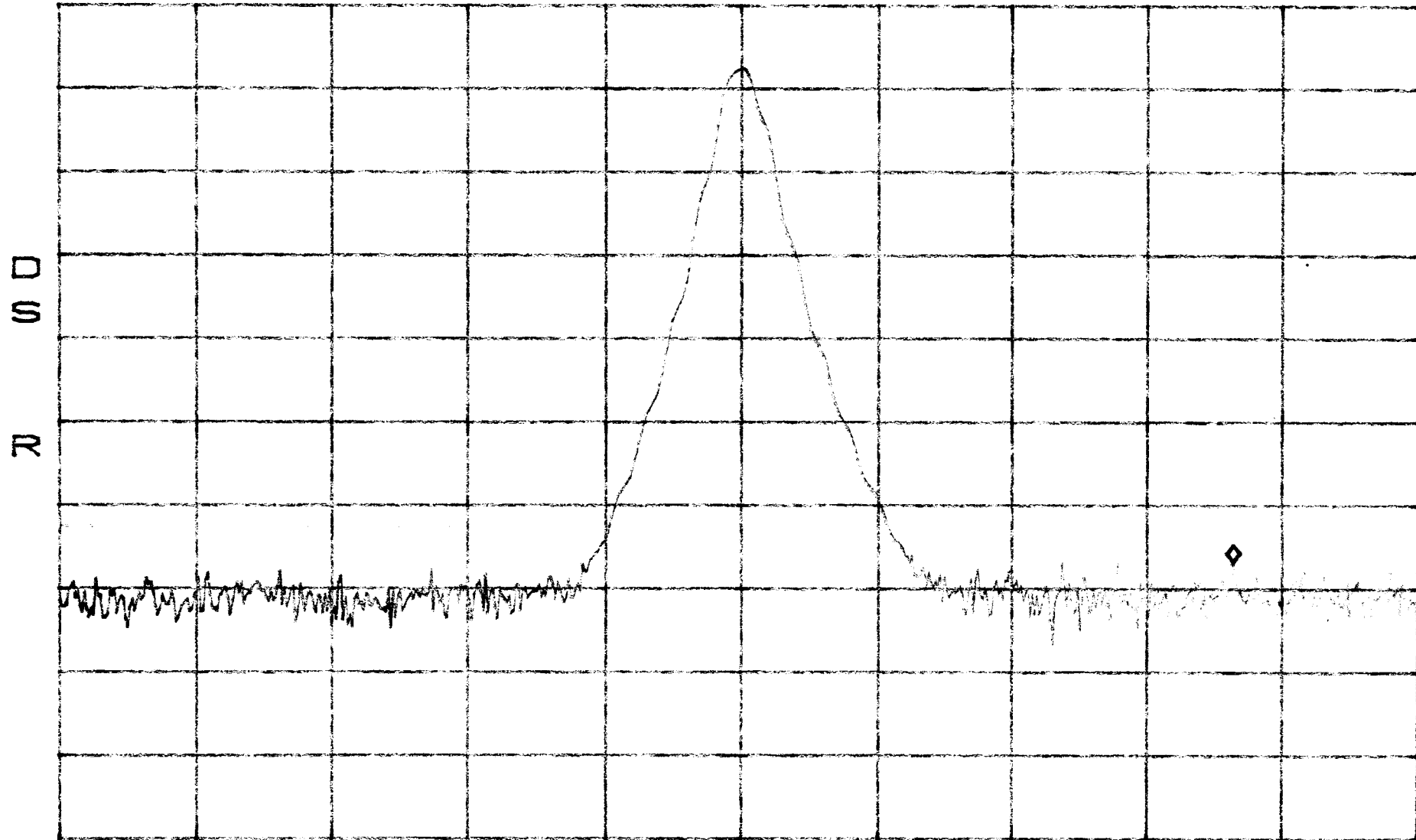


# CONDUCTED EMISSIONS BAND EFC FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -17.17dBm  
1.979325GHz

10dB/



CENTER 1.977500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

SWP 50ms

# CONDUCTED EMISSIONS BAND EFC

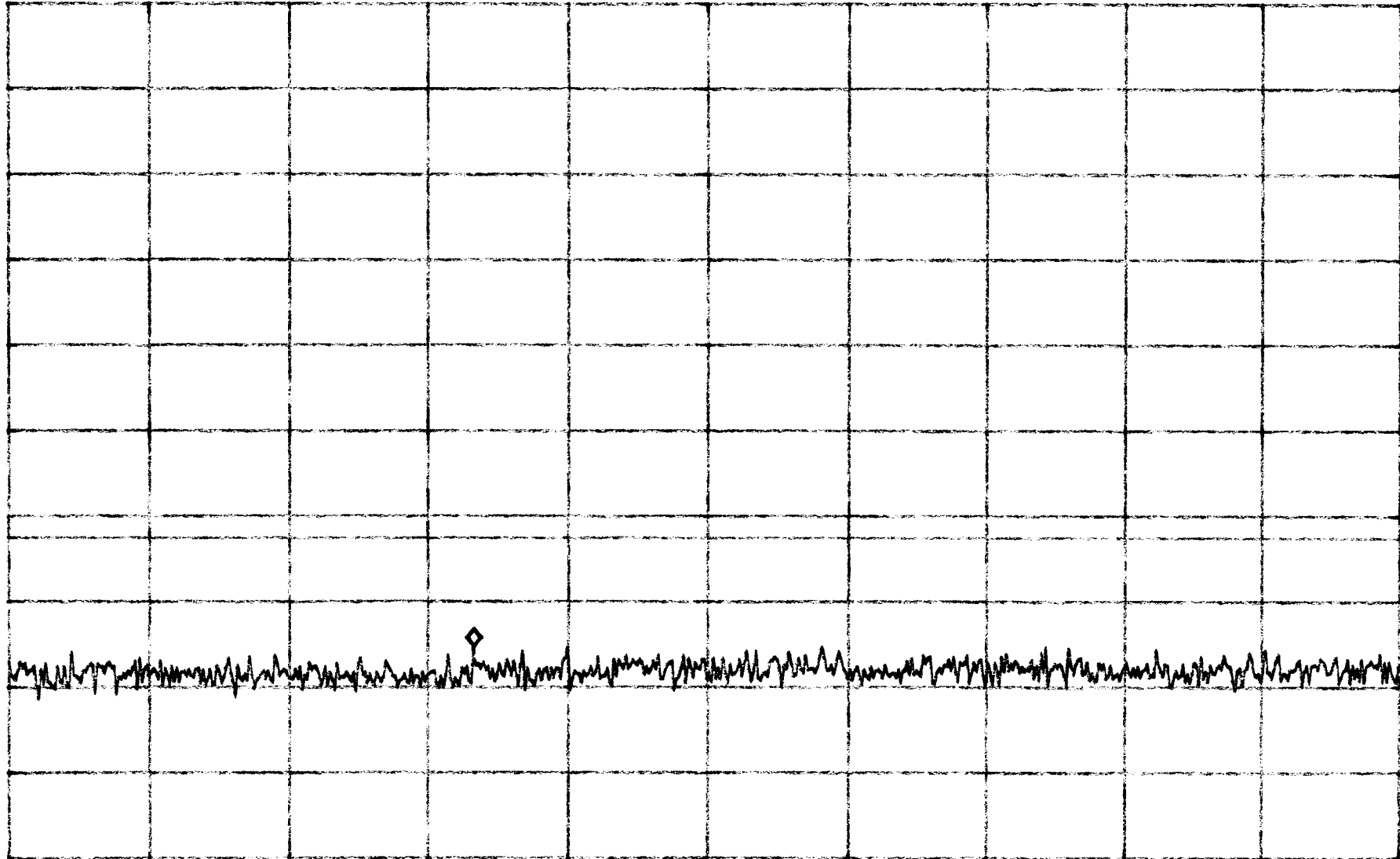
## FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -25.67dBm  
353.3MHz

1/BPO1

00  
70



START 30.0MHz

STOP 1.0000GHz

\*RBW 100kHz

VBW 100kHz

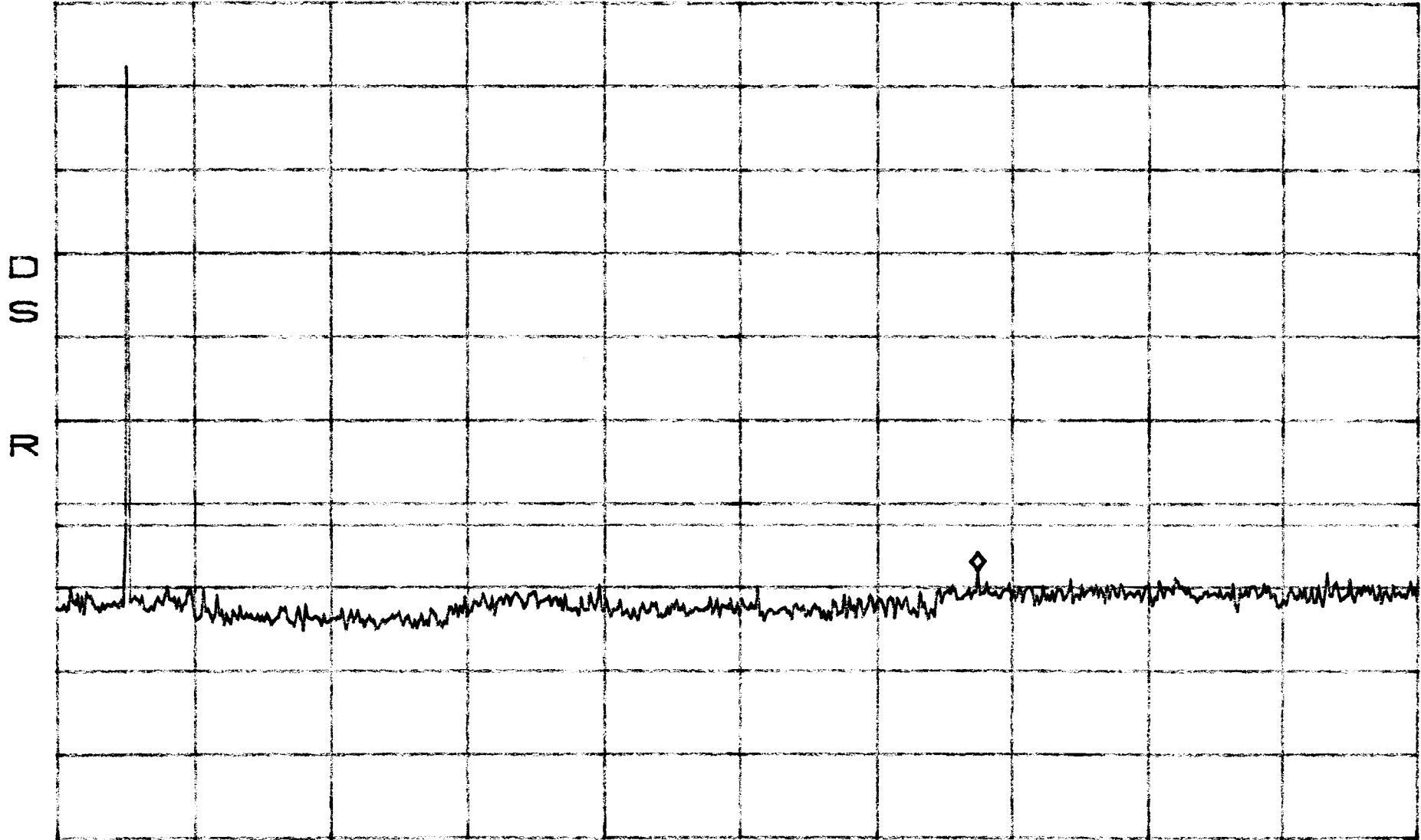
SWP 250ms

# CONDUCTED EMISSIONS BAND EFC FM

\*ATTEN 30dB  
RL 49.5dBm

MKR -18.33dBm  
13.83GHz

10dB/



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

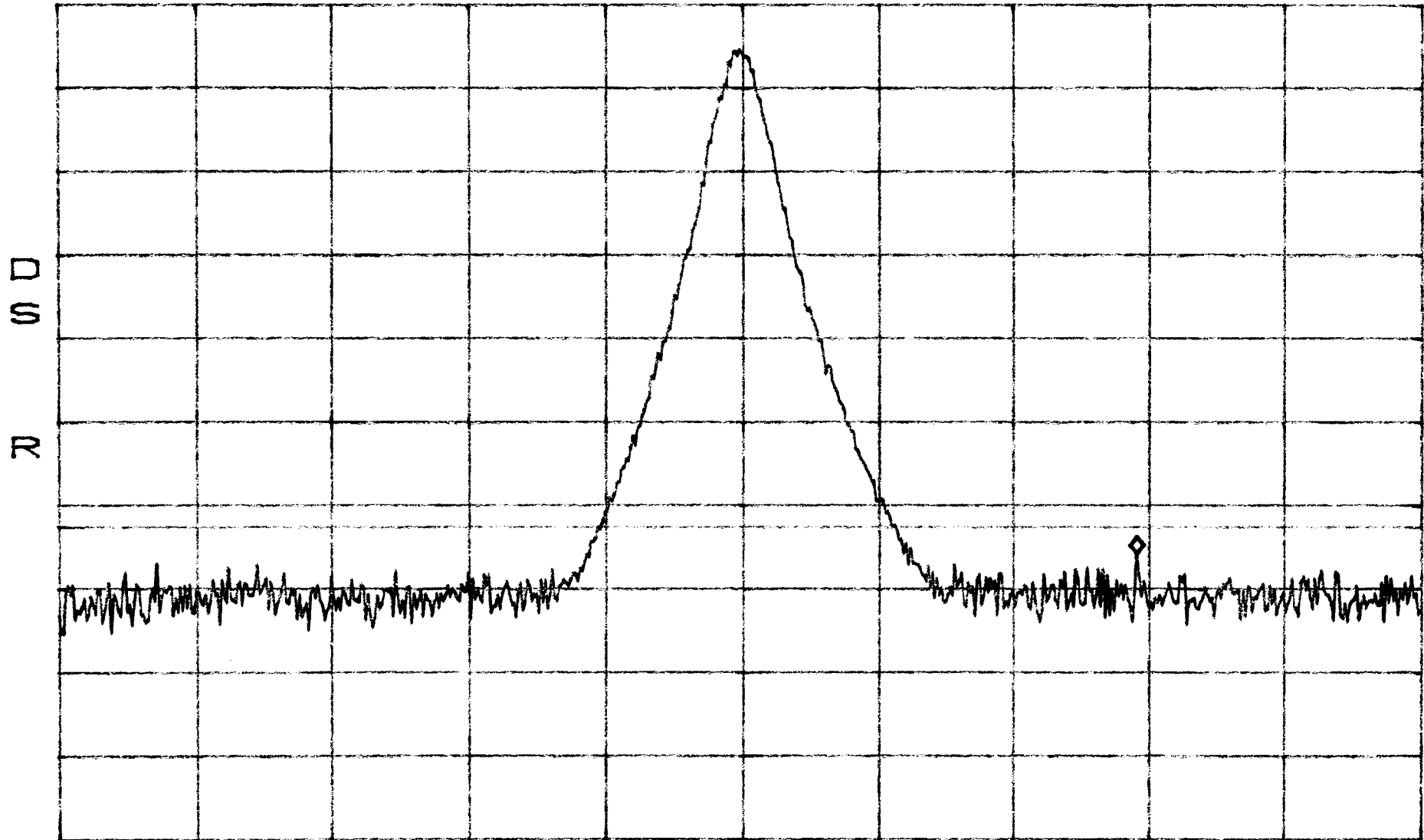
SWP 530ms

# CONDUCTED EMISSIONS BAND EFC TDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -16.17dBm  
1.978958GHz

10dB/



CENTER 1.977500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

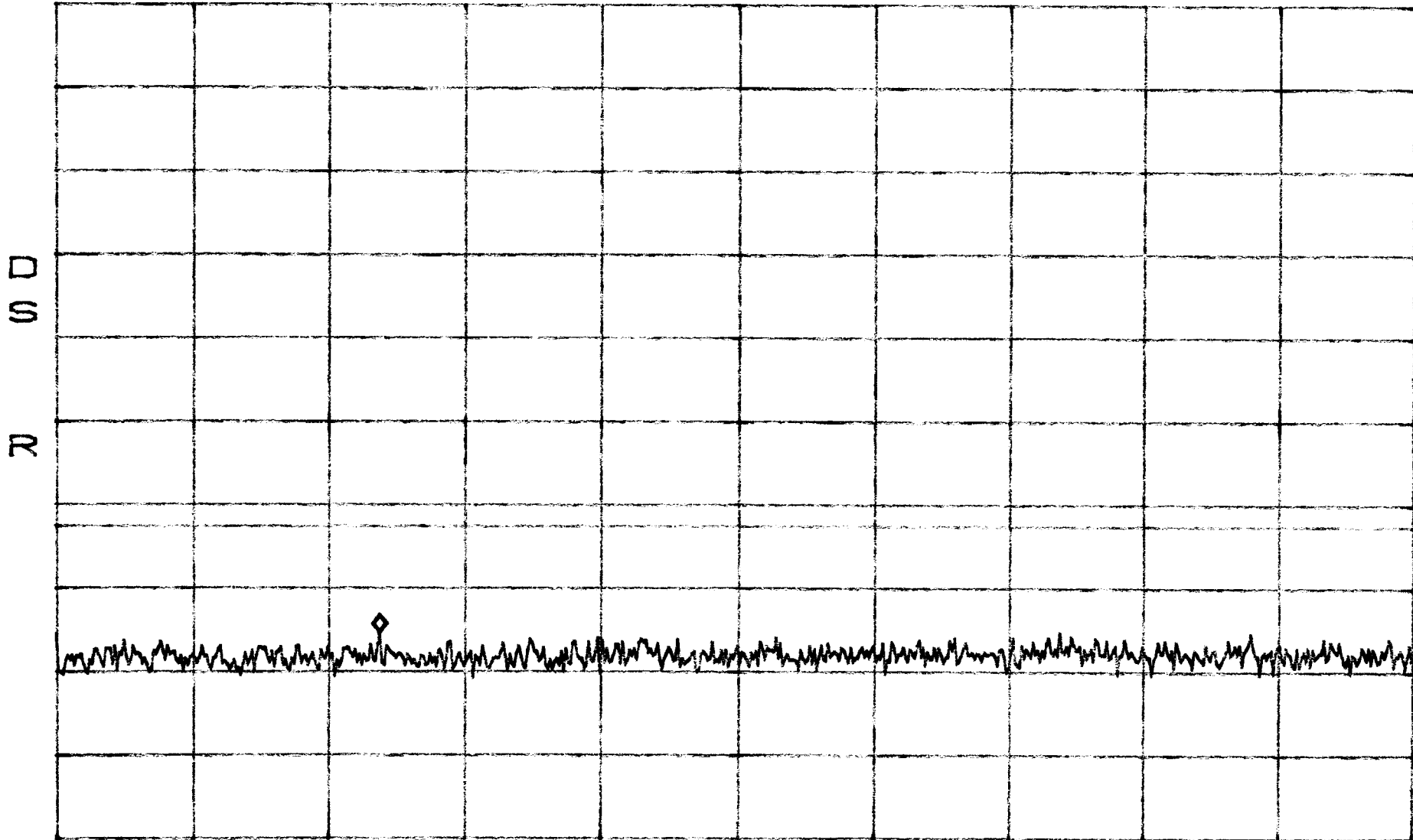
SWP 50ms

# CONDUCTED EMISSIONS BAND EFC TDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -25.67dBm  
261.2MHz

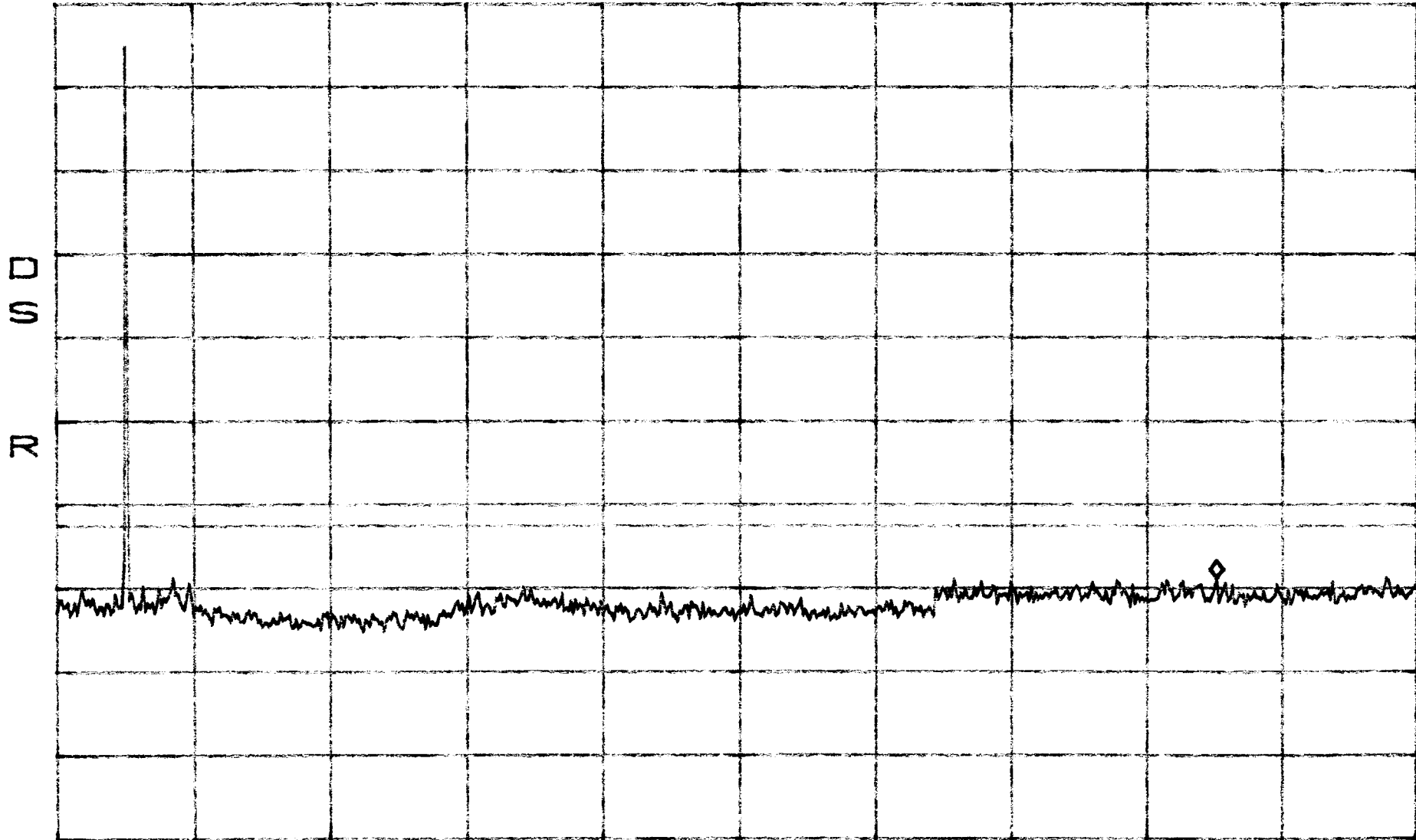


START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

# CONDUCTED EMISSIONS BAND EFC TDMA

\*ATTN 30dB  
RL 49.5dBm

MKR -19.17dBm  
17.18GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

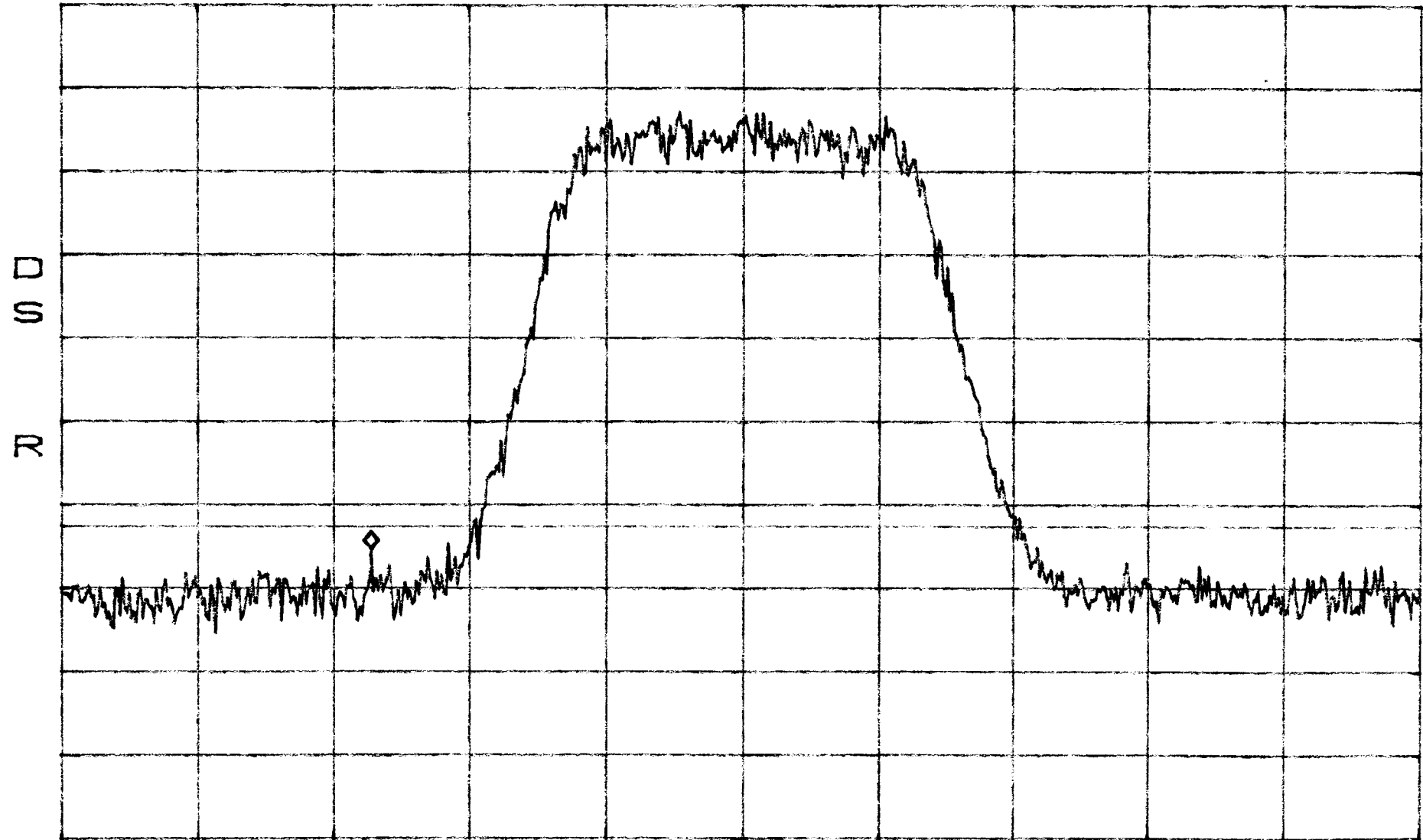
SWP 530ms

# CONDUCTED EMISSIONS BAND EFC CDMA

\*ATTEN 30dB  
RL 49.5dBm

MKR -15.67dBm  
1.976142GHz

10dB/



CENTER 1.977500GHz

SPAN 5.000MHz

\*RBW 100kHz

VBW 100kHz

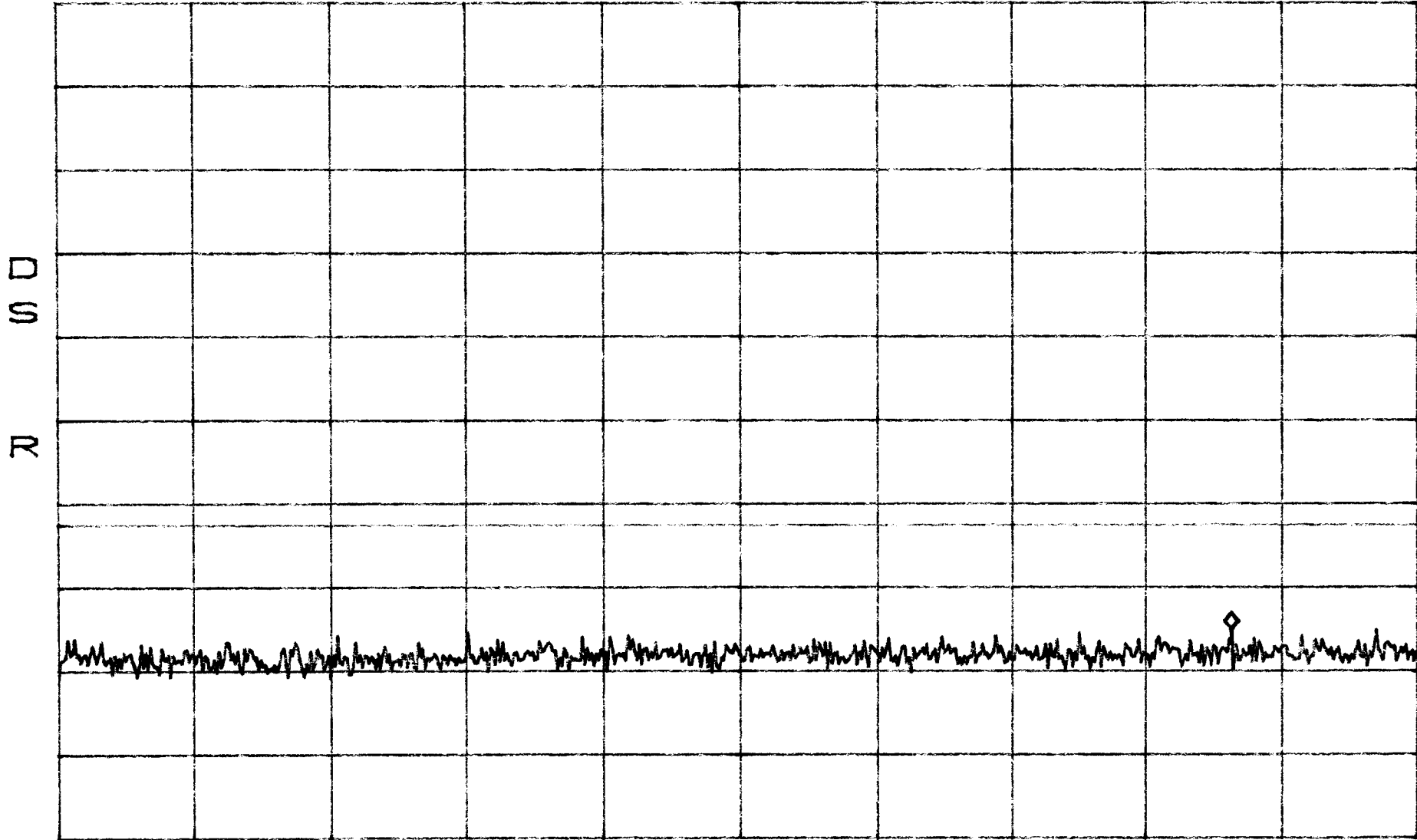
SWP 50ms

# CONDUCTED EMISSIONS BAND EFC CDMA

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -25.50dBm  
867.4MHz



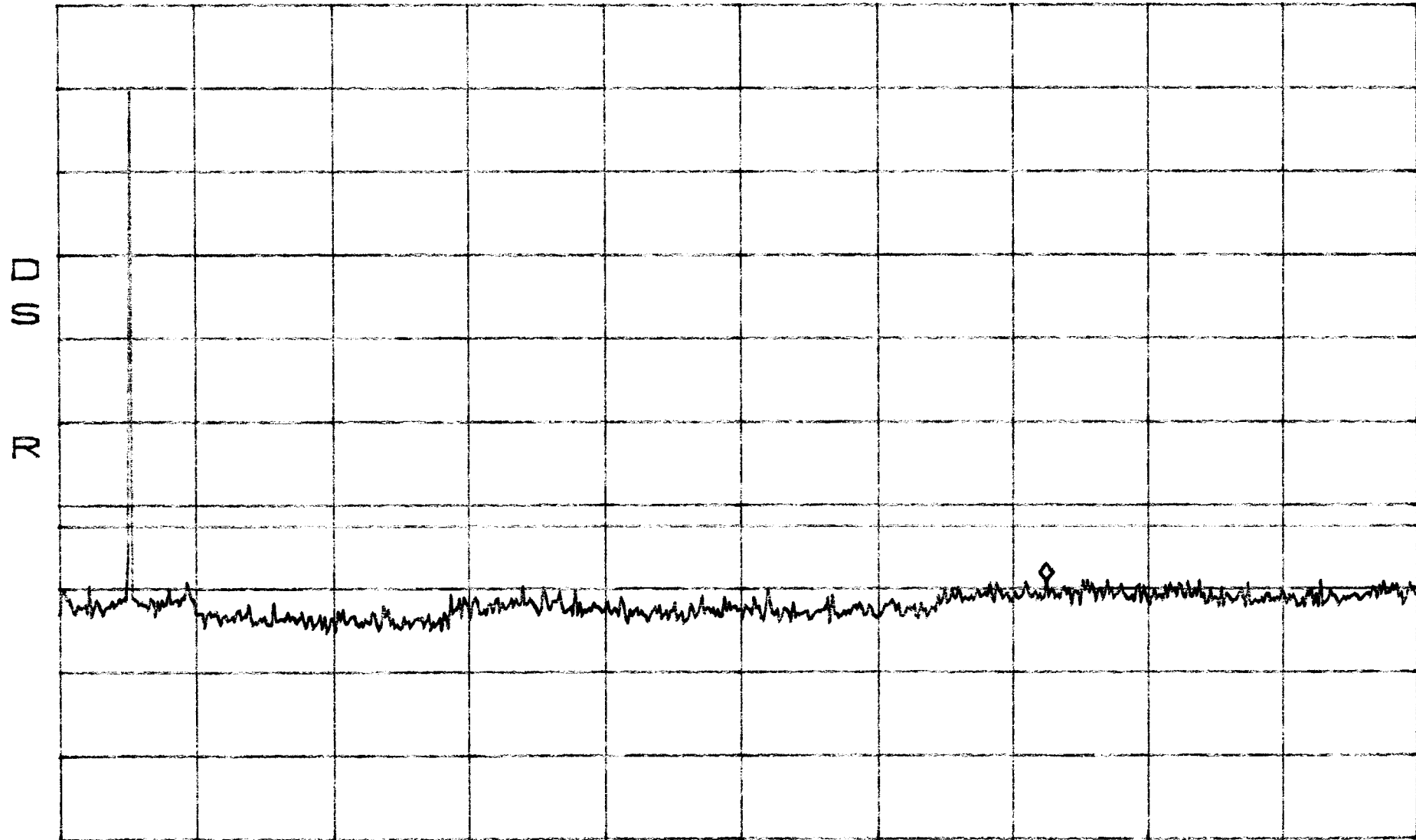
START 30.0MHz                      STOP 1.0000GHz  
\*RBW 100kHz                      VBW 100kHz                      SWP 250ms



# CONDUCTED EMISSIONS BAND EFC CDMA

\*ATTN 30dB  
RL 49.5dBm

MKR -19.50dBm  
14.78GHz



START 1.00GHz

STOP 20.00GHz

\*RBW 300kHz

VBW 300kHz

SWP 530ms

# CONDUCTED EMISSIONS BAND EFC

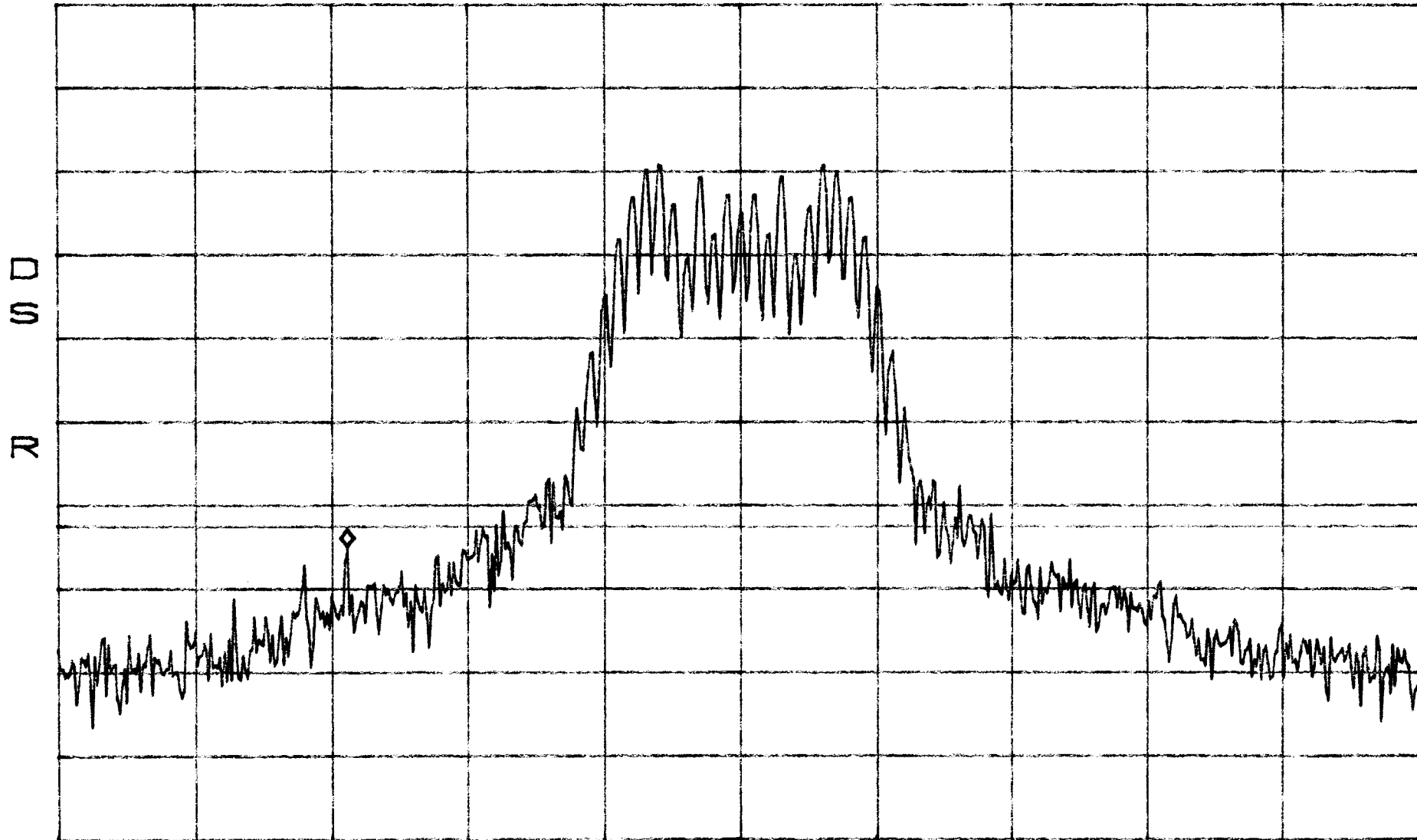
## BAND EDGE

### FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -15.33dBm  
1.9651712GHz



CENTER 1.9652000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

# CONDUCTED EMISSIONS BAND EFC

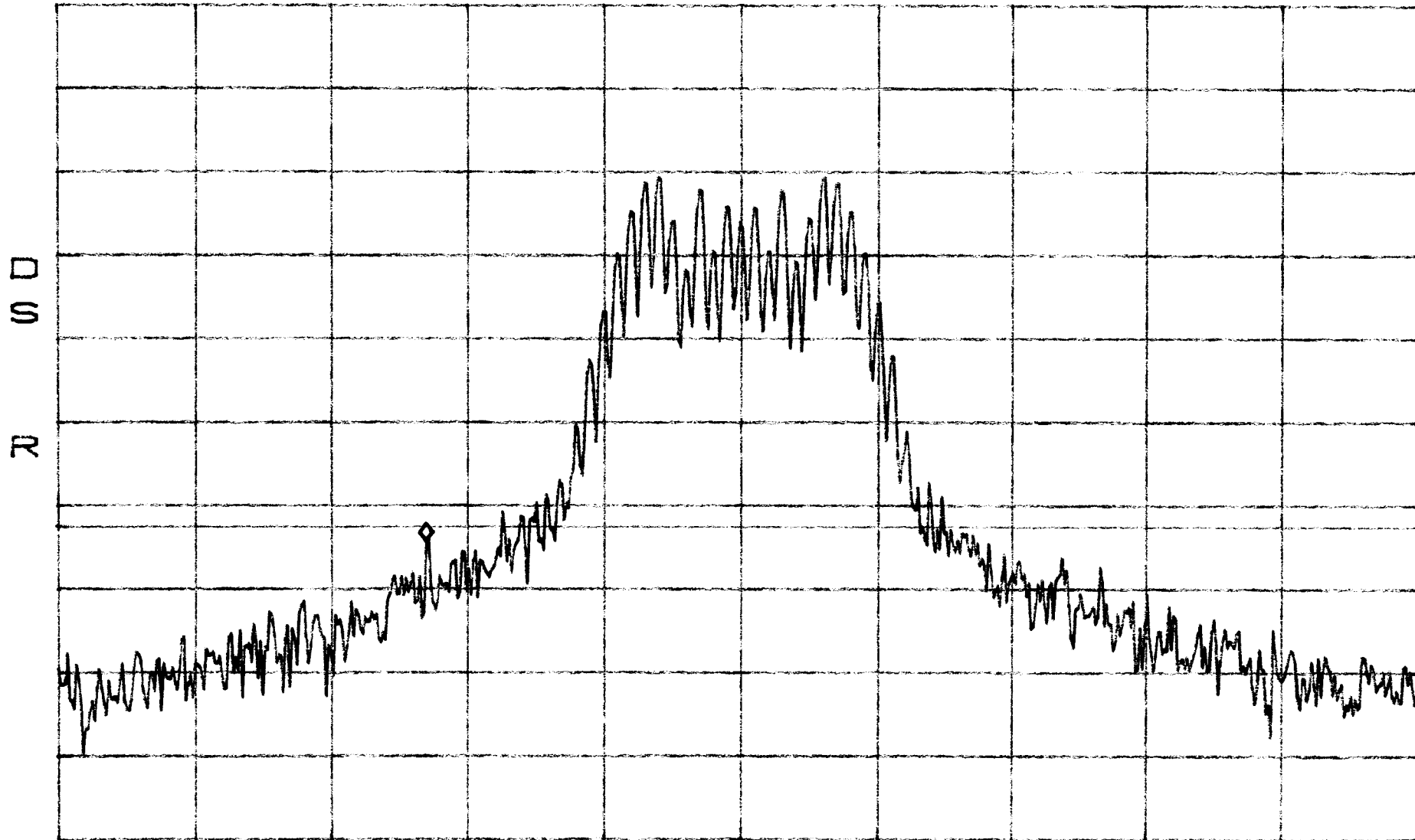
## BAND EDGE

### FM

\*ATTEN 30dB  
RL 49.5dBm

10dB/

MKR -14.67dBm  
1.9897770GHz



CENTER 1.9898000GHz

SPAN 100.0kHz

\*RBW 300Hz

VBW 300Hz

SWP 2.8sec

## 24.238 Emission Limits

A radiated emission scan was also made with the EUT's antenna replaced with a termination to demonstrate case radiation compliance to the -13 dBm requirement at the 3 carrier frequencies. Radiated emissions from the EUT are measured in the frequency range of 30 to 9000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 10 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees. The field strength levels were measured per ANSI C63.4. The EUT is then replaced with a tuned dipole antenna (below 1 GHz) or horn antenna (above 1 GHz). The substitute antenna was placed in the same polarization as the test antenna. A signal generator was used to generate a signal level that matched the highest level measured from the EUT. The signal generator level minus the cable loss from the signal generator to the substitute antenna plus the substitute antenna gain equals the spurious power level. 4 case radiation emission scans were performed. The 10 highest emission frequencies from each of the 4 scans is presented on the following pages.

**The case radiation measurements were performed at the following test location:**

- - Oakwood Lab Open Area Test Site (Case Emissions Test)

### TÜV Product Service Test equipment used for Case Emissions Test:

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ - 3294	8566B	Hewlett-Packard	Spectrum Analyzer	2349A03098	9-03-04
■ - 3295	85662A	Hewlett-Packard	Analyzer Display	2349A06144	9-03-04
■ - 2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	2-08-04
■ - 3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	3-04-04
■ - 2665	ZHL-1042J	Mini-Circuits	Preamplifier 1-4 GHz	32296	10-15-03
■ - 2074	3115	Electro-Mechanics (EMCO)	Ridge Guide Antenna	2504	10-15-03
■ - 2125	JCA018-504	JCA Technology	Preamplifier 4 GHz -18 GHz	101A	8-15-04

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually. Equipment labeled CNR (Calibration Not Required) is verified and compensated for with NIST traceable calibrated equipment.

### Environmental conditions – Oakwood Lab:

	<u>Actual</u>
Temperature	: 23 °C
Relative Humidity	: 58 %
Atmospheric pressure	: 99.0 kPa
Power supply system	: 60 Hz - 115 V - 1-phase

**Case radiation data on following pages**

# RADIATED EMISSIONS



Test Report #: NC303847 Run 1                      Test Area: OW  
 EUT Model #: DVGL-461110SYS                      Date: 8/18/03  
 EUT Serial #: \_\_\_\_\_ EUT Power: 40VDC/120VAC-60HZ      Temperature: 23.0 °C  
 Test Method: PART 24    Air Pressure: 99.0 kPa  
 Customer: ADC    Rel. Humidity: 58.0 %

EUT Description: EFC BLOCK 1900MHZ

Notes: 30 MHz -18GHZ V/H 360 DEGREES 1-4 METERS ANTENNA LOW MID AND HIGH TRANSMITTING

Data File Name: 3847.dat    Page: 1 of 1

<b>Measurement Summary Run 1</b>					
<b>10 Highest Emissions : Limit is -13 dBm</b>					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	Erp (dBm)
6.177 GHz	50.75 Pk	10.28 / 36.66 / 25.95 / 0.0	71.74	H / 1.17 / 190	-24.46
3.93 GHz	56.23 Pk	6.75 / 34.0 / 28.31 / 0.0	68.67	H / 1.17 / 190	-27.53
1.919 GHz	60.15 Pk	4.47 / 29.21 / 29.54 / 0.0	64.29	V / 1.10 / 186	-31.91
426.02 MHz	72.42 Pk	2.0 / 16.9 / 28.09 / 0.0	63.23	H / 1.00 / 80	-32.97
355.013 MHz	70.25 Pk	1.85 / 15.0 / 28.2 / 0.0	58.9	H / 1.00 / 80	-37.3
3.955 GHz	46.25 Pk	6.78 / 34.07 / 28.28 / 0.0	58.82	H / 1.17 / 190	-37.38
1.667 GHz	56.35 Pk	3.98 / 28.0 / 29.68 / 0.0	58.66	H / 1.00 / 270	-37.54
38.54 MHz	67.15 Pk	0.6 / 17.4 / 28.3 / 0.0	56.85	V / 1.00 / 180	-39.35
38.4 MHz	66.05 Pk	0.6 / 17.42 / 28.3 / 0.0	55.77	V / 1.00 / 0	-40.43
3.979 GHz	42.95 Pk	6.81 / 34.14 / 28.26 / 0.0	55.64	V / 1.00 / 0	-40.56

Tested by:                     KTHR  
 \_\_\_\_\_  
                     Printed

  
 \_\_\_\_\_  
                     Signature

Reviewed by:                     TKS  
 \_\_\_\_\_  
                     Printed

  
 \_\_\_\_\_  
                     Signature

# RADIATED EMISSIONS



Test Report #: NC303847 Run 2                      Test Area: OW  
 EUT Model #: DVGL-451110SYS                      Date: 8/18/03  
 EUT Serial #: \_\_\_\_\_ EUT Power: 40VDC/120VAC-60HZ      Temperature: 23.0 °C  
 Test Method: PART 24    Air Pressure: 99.0 kPa  
 Customer: ADC    Rel. Humidity: 58.0 %

EUT Description: BEF BLOCK 1900MHZ

Notes: 30MHZ-18GHZ V/H 1-4 METERS 360 DEGREES LO, MID, AND, HIGH, FREQ

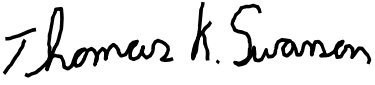
Data File Name: 3847.dat    Page: 1 of 1

<b>Measurement Summary Run 2</b>					
<b>10 Highest Emissions : Limit is -13 dBm</b>					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	Erp (dBm)
6.177 GHz	45.53 Pk	10.28 / 36.66 / 25.95 / 0.0	66.52	V / 1.00 / 0	-29.68
1.919 GHz	57.58 Pk	4.47 / 29.04 / 27.65 / 0.0	63.44	V / 1.00 / 180	-32.76
426.016 MHz	70.95 Pk	2.0 / 16.9 / 28.09 / 0.0	61.76	V / 1.10 / 10	-34.44
3.924 GHz	44.95 Pk	6.75 / 33.99 / 28.32 / 0.0	57.36	H / 2.50 / 90	-38.84
3.9 GHz	44.3 Pk	6.72 / 33.92 / 28.36 / 0.0	56.58	V / 2.50 / 0	-39.62
38.54 MHz	66.35 Pk	0.6 / 17.4 / 28.3 / 0.0	56.05	V / 1.00 / 0	-40.15
38.4 MHz	66.12 Pk	0.6 / 17.42 / 28.3 / 0.0	55.84	V / 1.00 / 270	-40.36
355.03 MHz	67.15 Pk	1.85 / 15.0 / 28.2 / 0.0	55.8	H / 1.10 / 187	-40.4
3.95 GHz	41.4 Pk	6.78 / 34.06 / 28.29 / 0.0	53.95	V / 2.50 / 270	-42.25
780.995 MHz	56.58 Pk	2.71 / 21.7 / 27.91 / 0.0	53.08	V / 1.00 / 180	-43.12

Tested by:                     KTHR  
 \_\_\_\_\_  
 Printed

  
 \_\_\_\_\_  
 Signature

Reviewed by:                     TKS  
 \_\_\_\_\_  
 Printed

  
 \_\_\_\_\_  
 Signature

# RADIATED EMISSIONS



Test Report #: NC303847 Run 3                      Test Area: OW  
 EUT Model #: DVGL-441110SYS                      Date: 8/18/03  
 EUT Serial #: \_\_\_\_\_ EUT Power: 40VDC/120VAC-60HZ      Temperature: 23.0 °C  
 Test Method: PART 24    Air Pressure: 99.0 kPa  
 Customer: ADC    Rel. Humidity: 58.0 %

EUT Description: DBE BLOCK 1900MHZ

Notes: 30MHZ-18GHZ V/H 1-4 METERS 360 DEGREES LO, MID, AND, HIGH, FREQ

Data File Name: 3847.dat    Page: 1 of 1

<b>Measurement Summary Run 3</b>					
<b>10 Highest Emissions : Limit is - 13 dBm</b>					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	Erp (dBm)
5.835 GHz	48.3 Pk	9.21 / 36.5 / 25.97 / 0.0	68.04	V / 1.10 / 187	-28.16
6.915 GHz	42.7 Pk	10.93 / 37.06 / 25.5 / 0.0	65.2	H / 2.50 / 180	-31.0
5.909 GHz	44.0 Pk	9.39 / 36.64 / 25.93 / 0.0	64.1	V / 1.10 / 254	-32.1
1.647 GHz	60.45 Pk	3.96 / 27.91 / 29.62 / 0.0	62.7	H / 1.00 / 300	-33.5
426.021 MHz	71.87 Pk	2.0 / 16.9 / 28.09 / 0.0	62.68	V / 1.10 / 300	-33.52
1.918 GHz	58.2 Pk	4.47 / 29.21 / 29.54 / 0.0	62.34	V / 1.10 / 254	-33.86
6.177 GHz	41.0 Pk	10.28 / 36.66 / 25.95 / 0.0	61.99	V / 1.00 / 0	-34.21
5.87 GHz	41.55 Pk	9.28 / 36.57 / 25.95 / 0.0	61.44	V / 1.10 / 254	-34.76
142.027 MHz	75.7 Pk	1.13 / 8.89 / 28.3 / 0.0	57.42	H / 2.50 / 90	-38.78
38.54 MHz	67.53 Pk	0.6 / 17.4 / 28.3 / 0.0	57.23	V / 1.00 / 90	-38.97

Tested by:                     KTHR  
 \_\_\_\_\_  
                     Printed

  
 \_\_\_\_\_  
                     Signature

Reviewed by:                     TKS  
 \_\_\_\_\_  
                     Printed

  
 \_\_\_\_\_  
                     Signature

# RADIATED EMISSIONS



Test Report #: NC303847 Run 4                      Test Area: OW  
 EUT Model #: DVGL-431110SYS                      Date: 8/18/03  
 EUT Serial #: \_\_\_\_\_ EUT Power: 40VDC/120VAC-60HZ    Temperature: 23.0 °C  
 Test Method: PART 24    Air Pressure: 99.0 kPa  
 Customer: ADC    Rel. Humidity: 58.0 %

EUT Description: AD BLOCK 1900MHZ

Notes: 30MHZ-18GHZ V/H 1-4 METERS 360 DEGREES LO, MID, AND, HIGH, FREQ

Data File Name: 3847.dat    Page: 1 of 1

<b>Measurement Summary Run 4</b>					
<b>10 Highest Emissions : Limit is - 13 dBm</b>					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	Erp (dBm)
6.915 GHz	41.95 Pk	10.93 / 37.06 / 25.5 / 0.0	64.45	V / 1.00 / 0	-31.75
1.919 GHz	57.75 Pk	4.47 / 29.06 / 27.65 / 0.0	63.63	V / 1.00 / 180	-32.57
5.82 GHz	43.95 Pk	9.18 / 36.48 / 25.98 / 0.0	63.63	H / 1.00 / 270	-32.57
5.873 GHz	43.6 Pk	9.28 / 36.57 / 25.95 / 0.0	63.51	V / 2.50 / 0	-32.69
426.021 MHz	72.61 Pk	2.0 / 16.9 / 28.09 / 0.0	63.42	V / 1.00 / 340	-32.78
6.177 GHz	40.75 Pk	10.28 / 36.66 / 25.95 / 0.0	61.74	V / 1.00 / 0	-34.46
5.909 GHz	40.95 Pk	9.39 / 36.64 / 25.93 / 0.0	61.05	V / 1.00 / 0	-35.15
5.85 GHz	40.5 Pk	9.24 / 36.53 / 25.96 / 0.0	60.31	V / 1.00 / 270	-35.89
3.86 GHz	48.1 Pk	6.66 / 33.81 / 28.42 / 0.0	60.15	V / 1.10 / 300	-36.05
5.79 GHz	38.75 Pk	9.11 / 36.42 / 25.99 / 0.0	58.3	H / 1.00 / 270	-37.9

Tested by:                     KTHR

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by:                     TKS

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature



**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:

- |                                  |              |
|----------------------------------|--------------|
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |
| <input type="checkbox"/> - _____ | Type : _____ |

- unshielded power cable
- unshielded cables
- shielded cables                      MPS.No.: \_\_\_\_\_
- customer specific cables
- \_\_\_\_\_
- \_\_\_\_\_

**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: 18 August 2003

Testing End Date: 18 August 2003

- TÜV PRODUCT SERVICE INC -

*Thomas K. Swanson*

*K. T. H. Rose*

Reviewed By:  
T. K. Swanson

Tested By:  
K. T. H. Rose

## TEST SETUP FOR EMISSIONS TESTING

See Test Setup Exhibit



Radiated emission (case radiation) test setup photos

See Test Setup Exhibit

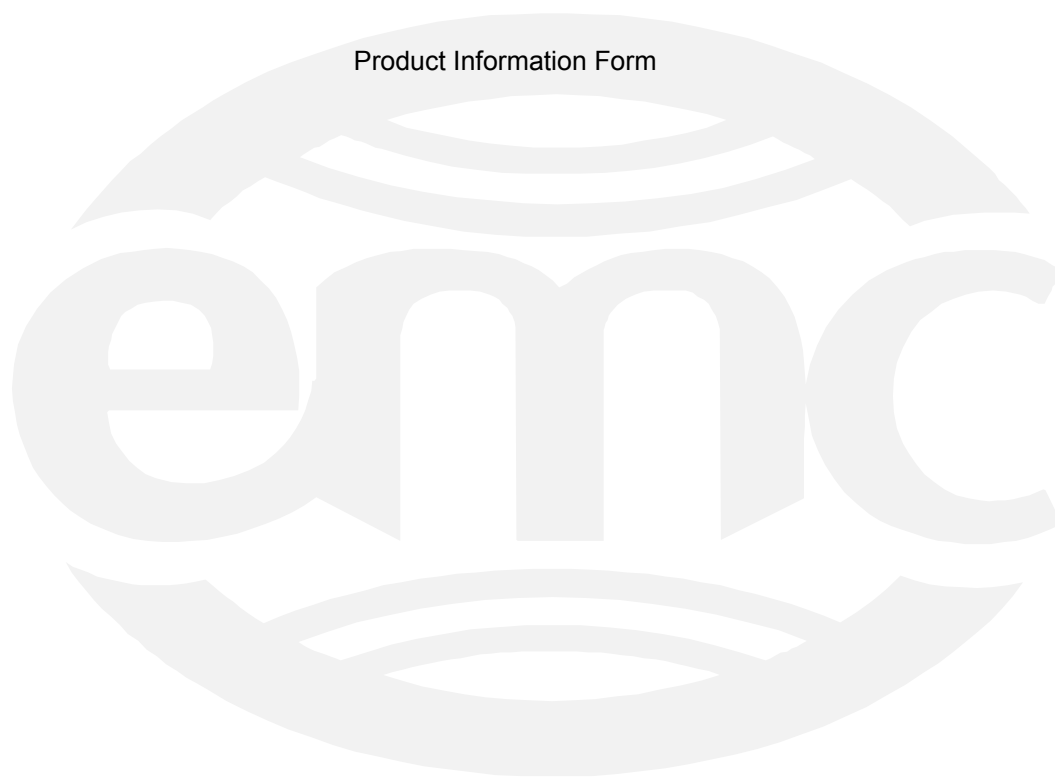


**Appendix A**

Constructional Data Form

And/or

Product Information Form



# EMC Test Plan and Constructional Data Form

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 Long Range Coverage Solution 1900 MHz System (A,D / D,B,E / B,E,F / E,F,C Band)  
 Model No.: DGVL-431110SYS, DGVL-441110SYS, DGVL-451110SYS, and DGVL-461110SYS Serial No.: None  
 Product Options: Receive Diversity  
 Configurations to be tested: 1900 MHz System: A,D / D,B,E / B,E,F / E,F,C Band Version with Diversity option

**Test Objective**

- |   |   |
|---|---|
| <input type="checkbox"/> EMC Directive 89/336/EEC (EMC)<br>Std: _____                           | <input checked="" type="checkbox"/> FCC: Class <input type="checkbox"/> A <input type="checkbox"/> B Part <u>24</u> |
| <input type="checkbox"/> Machinery Directive 89/392/EEC (EMC)<br>Std: _____                     | <input type="checkbox"/> VCCI: Class <input type="checkbox"/> A <input type="checkbox"/> B                          |
| <input type="checkbox"/> Medical Device Directive 93/42/EEC (EMC)<br>Std: _____                 | <input type="checkbox"/> BCIQ: Class <input type="checkbox"/> A <input type="checkbox"/> B                          |
| <input type="checkbox"/> Vehicle Directive 72/245/EEC (EMC)<br>Std: _____                       | <input type="checkbox"/> Canada: Class <input type="checkbox"/> A <input type="checkbox"/> B                        |
| <input type="checkbox"/> FDA Reviewers Guidance for Premarket<br>Notification Submissions (EMC) | <input type="checkbox"/> Australia: Class <input type="checkbox"/> A <input type="checkbox"/> B                     |
|   | <input type="checkbox"/> Other: _____   |

**TÜV Product Service Certification Requested**

- |  |   |
|--|---|
| <input type="checkbox"/> Attestation of Conformity (AoC) | <input type="checkbox"/> International EMC Mark (IEM)   |
| <input type="checkbox"/> Certificate of Conformity (CoC) | <input type="checkbox"/> Compliance Document  |
| Protection Class (N/A for vehicles)                      | <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III |
- (Press F1 when field is selected to show additional information on Protection Class.)

# EMC Test Plan and Constructional Data Form

### 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: 51" Height: 27 Weight: 62 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)): 15 Current (Amps/phase(nominal)): 10

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



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



## EMC Test Plan and Constructional Data Form

### 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-401010HU	None	
STM A,D Band	DGVL-431010STM	None	
STM D,B,E Band	DGVL-441010STM	None	
STM B,E,F Band	DGVL-451010STM	None	
STM E,F,C Band	DGVL-461010STM	None	
Amp	DGVL-401000LPA	None	
Digivance LRCS 1900 MHz System Model DGVL-431110SYS, DGVL-441110SYS, DGVL- 451110SYS and DGVL- 461110SYS consist of the HU, STM, and LPA.			

## EMC Test Plan and Constructional Data Form

<b>Support Equipment</b> -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)			
<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>
Signal Generator	HP E4436B	963739	
DC Power Supply	HPD 60-5	MC27883	

<b>Oscillator Frequencies</b>			
<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>

<b>Power Supply</b>			
<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Type</i>
ADC			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

<b>Power Line Filters</b>		
<i>Manufacturer</i>	<i>Model #</i>	<i>Location in EUT</i>
None		

**EMC Test Plan and Constructional Data Form**

**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. Mirba  
 Customer authorization to perform tests according to this test plan.

8-18-03  
 Date

\_\_\_\_\_  
 Test Plan/CDF Prepared By (please print)

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Reviewed by TÜV Product Service Associate

\_\_\_\_\_  
 Date