

# TEST RESULT SUMMARY

## FCC PART 22 SUBPART H Class II Permissive Change

MANUFACTURER'S NAME ADC Inc.

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 NC302675

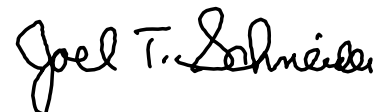
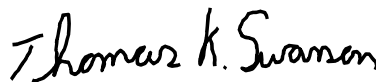
TEST DATE 05 June 2003

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 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: 17 June 2003



Location: Taylors Falls MN  
USA

T. K. Swanson  
Technical Writer/Technician  
Not Transferable

J. T. Schneider  
Tested By

# EMC EMISSION - TEST REPORT

Test Report File No. : **NC302675** Date of issue: 17 June 2003Model No. : **DGVL-112110SYS**  
**DGVL-122110SYS**Product Type : Digivance Long Range Coverage Solution 800 MHz System  
(A and B Band)

Applicant : ADC Inc.

Manufacturer : ADC Inc.

License holder : ADC Inc.

Address : PO Box 1101  
: Minneapolis MN 55440Test Result :  Positive  NegativeTest Project Number :  
Reference(s) : **NC302675**Total pages including  
Appendices : **58**

*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

	<b>Page(s)</b>
<b>A) Documentation</b>	
Test report	1 – 51
Directory	2
Test Regulations	3
<b>B) Test data</b>	
22.355 Frequency tolerance	5
22.913 Effective Radiated Power Limit	5
22.915 Modulation requirements	5
22.917 Emission Limitations for cellular	6 - 41
2.1053 Case radiation	42 - 48
EUT Operating Mode and Configuration Information	49
Deviations, General Remarks and Summary	50
Test Equipment List	51
Test Setup Diagrams and Photo(s)	See Test Setup Exhibit
Product Information Form	A1 – A8

## 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 22 Subpart H – 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 |

**Environmental conditions in the lab:**

	<u>Actual</u>
Temperature	: 22 °C
Relative Humidity	: 50 %
Atmospheric pressure	: 98.5 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
- Test Not Applicable for Class II Permissive Change

### 22.913 Effective Radiated Power Limit

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

- Test not applicable

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

### 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:

- - ADC facility

See Following Pages



**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 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  
(19dBm - [43 + 10log(0.08W)])

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)

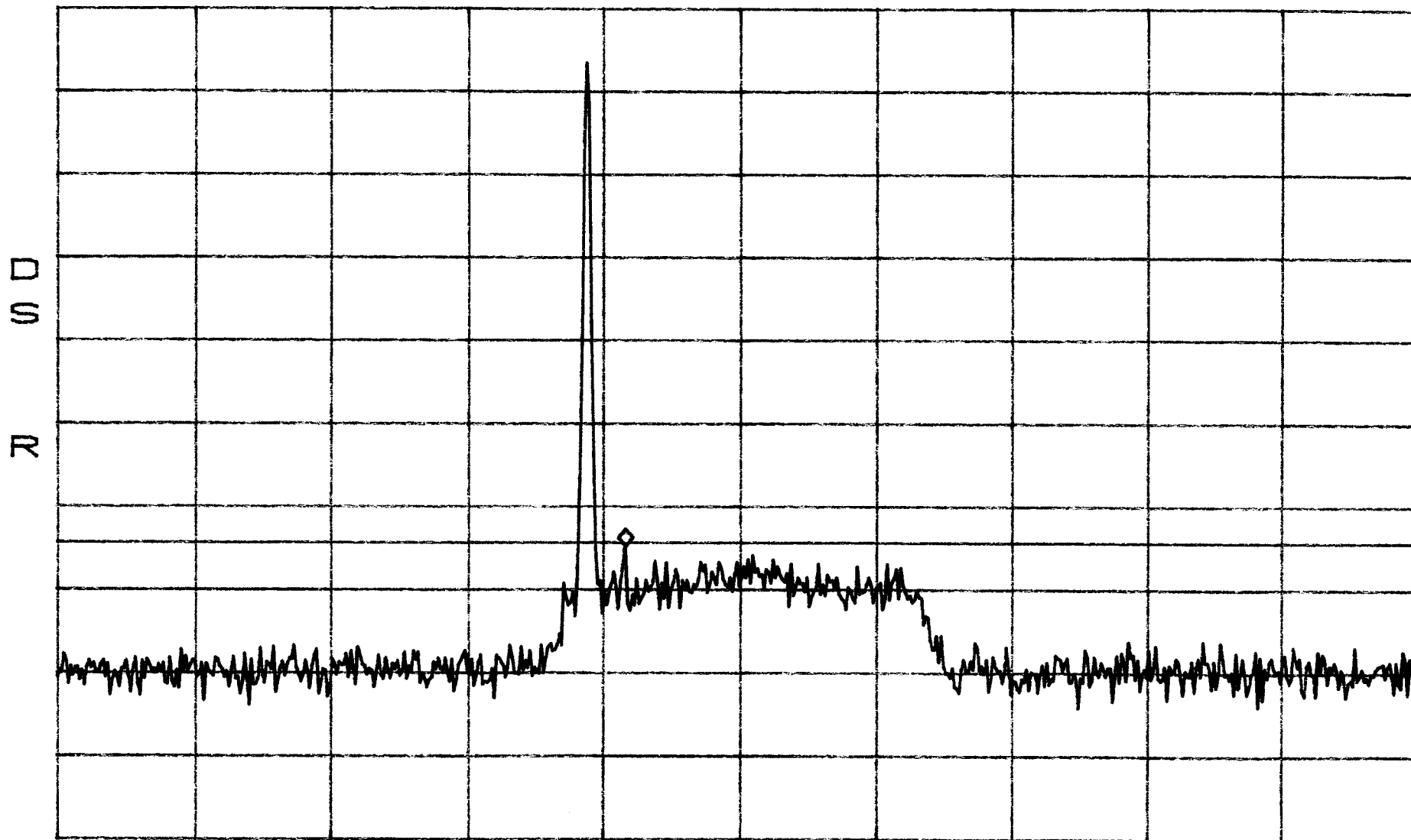


Conducted Emissions Band A  
Low

\*ATTEN 30dB  
RL 51.5dBm

MKR -13.17dBm  
871.7MHz

10dB/



CENTER 880.0MHz  
\*RBW 100kHz VBW 100kHz

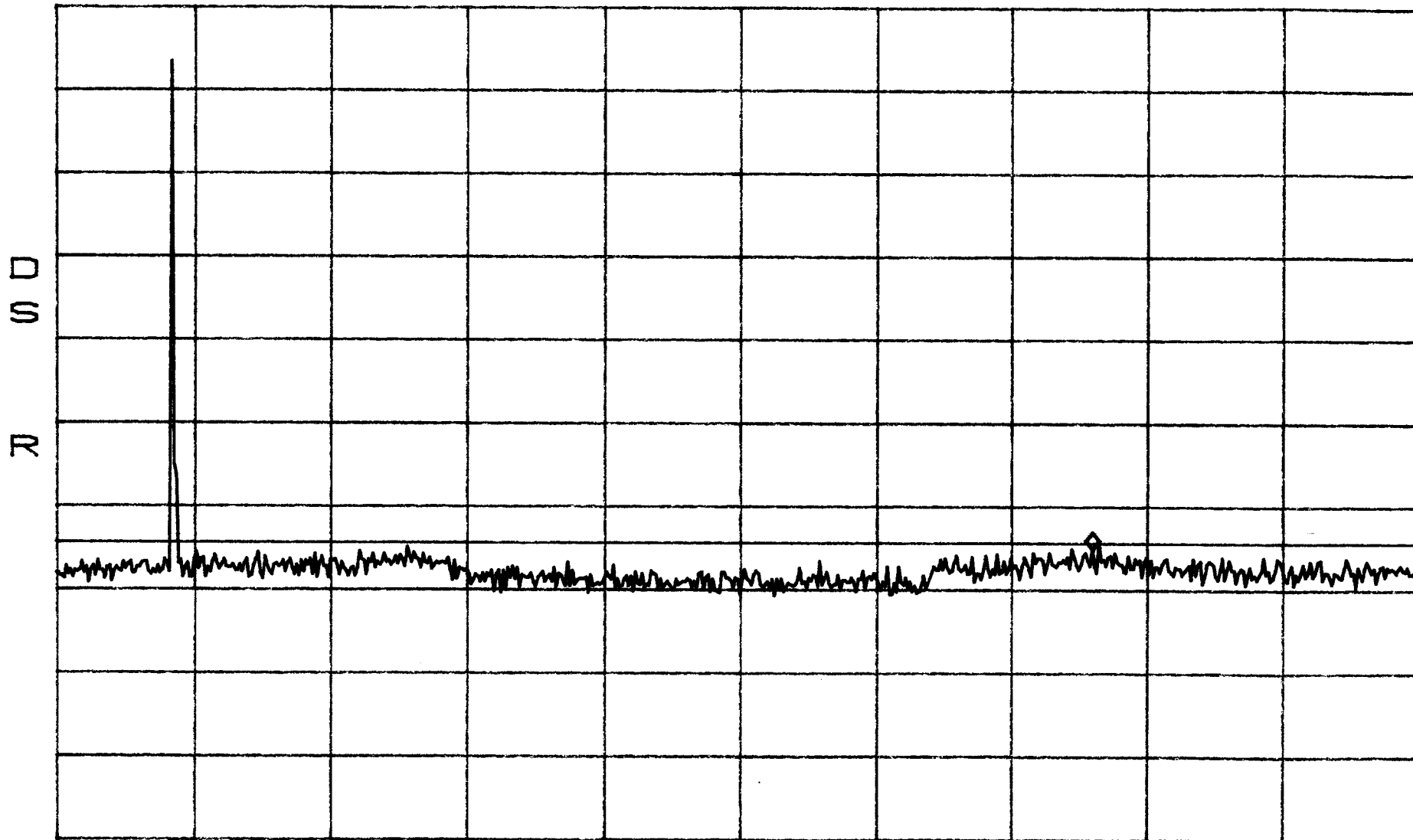
SPAN 100.0MHz  
SWP 50ms

Conducted Emissions Band A  
Low

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.50dBm  
7.607GHz



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

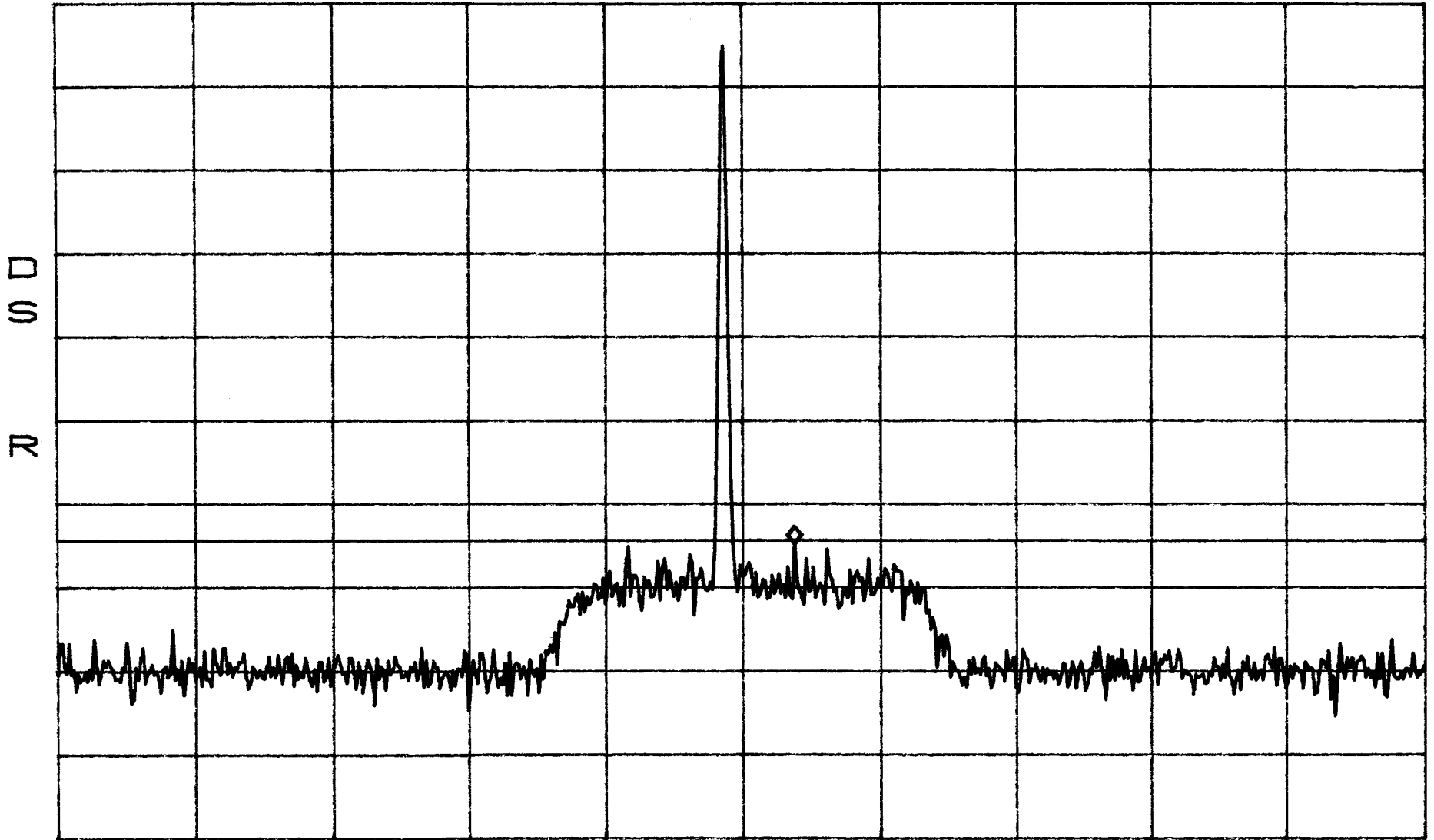
STOP 10.000GHz  
SWP 200ms

Conducted Emissions Band A  
Mid

\*ATTEN 30dB  
RL 51.5dBm

MKR -13.17dBm  
883.8MHz

10dB/



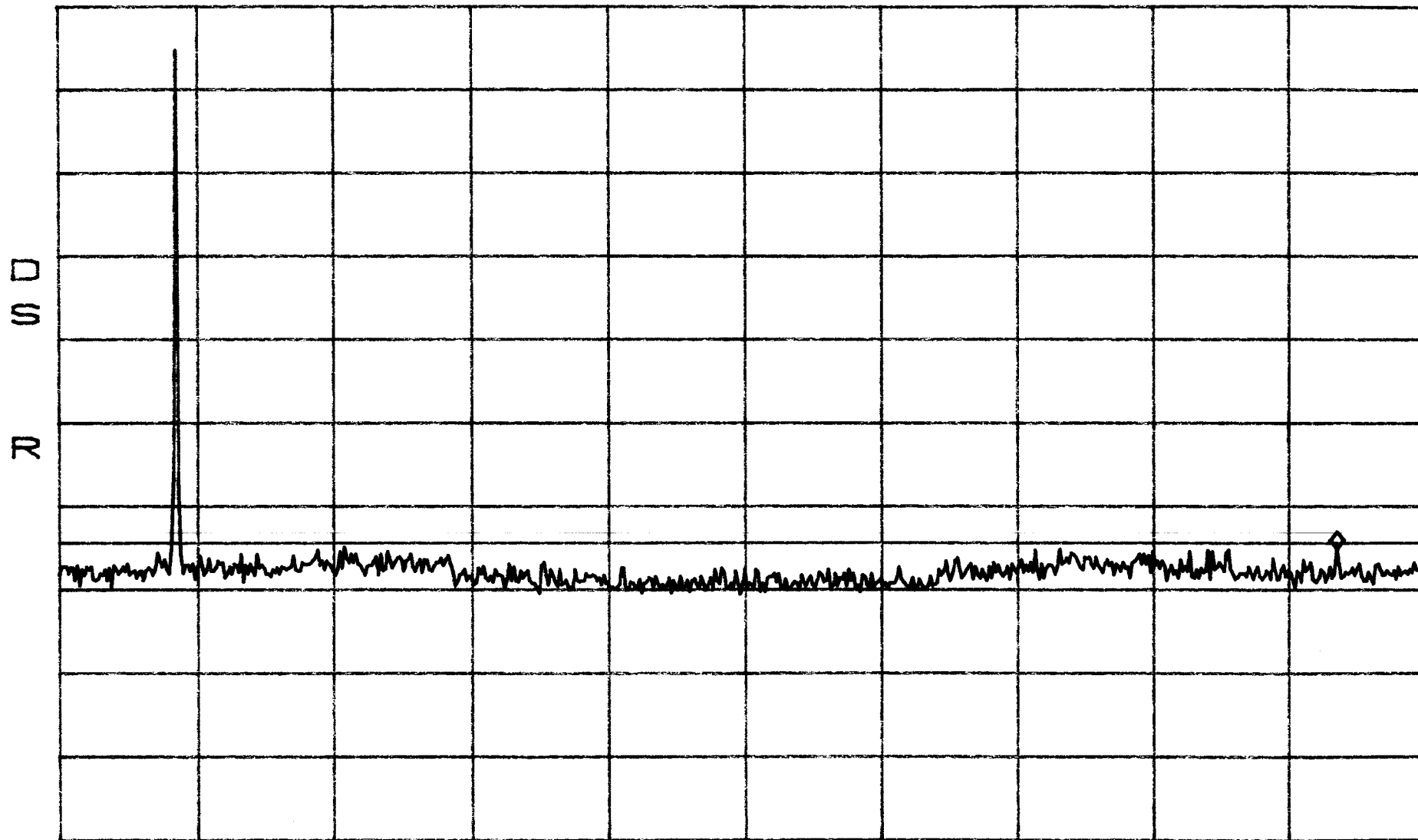
CENTER 880.0MHz SPAN 100.0MHz  
\*RBW 100kHz VBW 100kHz SWP 50ms

Conducted Emissions Band A  
Mid

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.50dBm  
9.352GHz



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

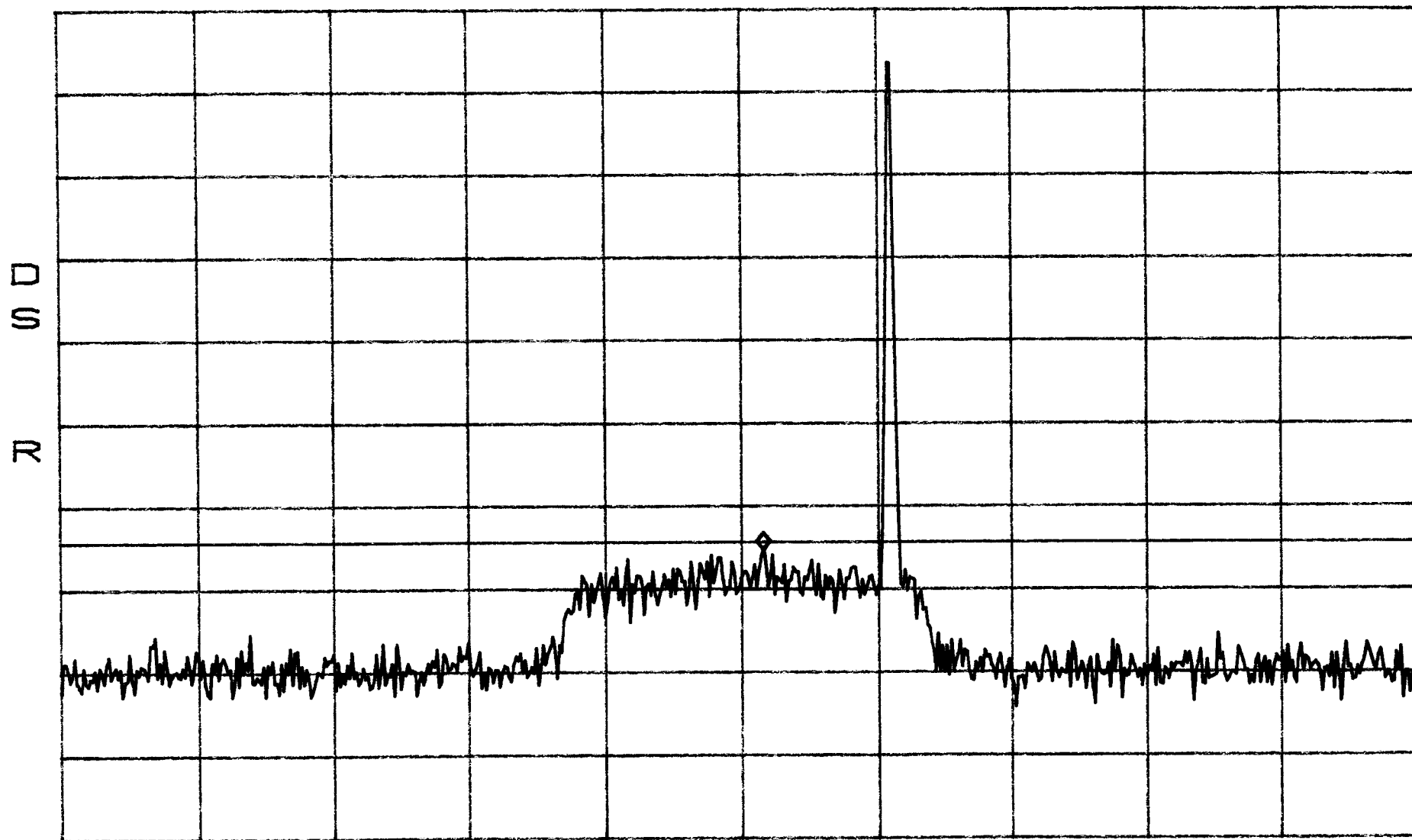
STOP 10.000GHz  
SWP 200ms

Conducted Emissions Band A  
High

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.67dBm  
881.7MHz



CENTER 880.0MHz  
\*RBW 100kHz VBW 100kHz

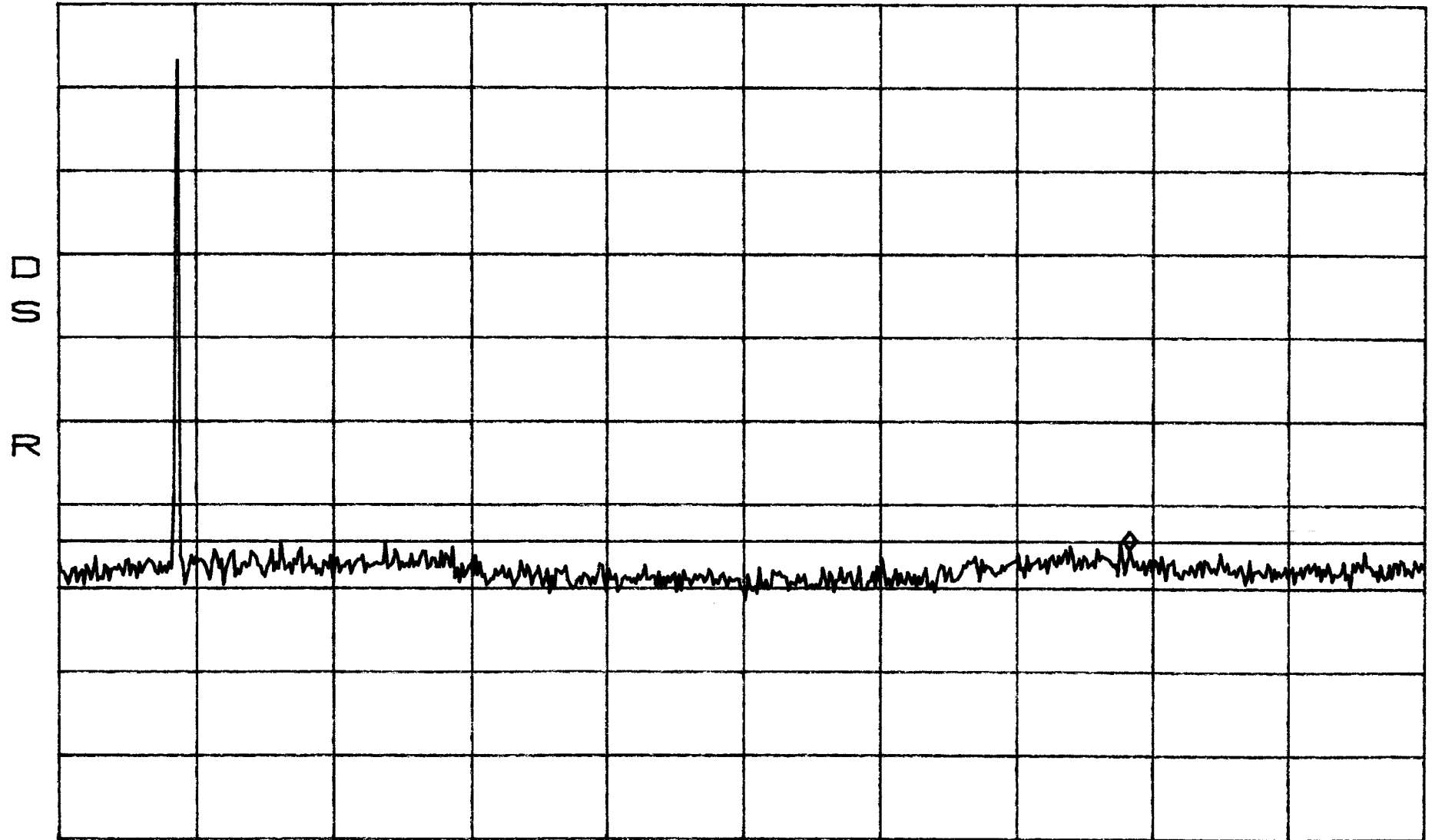
SPAN 100.0MHz  
SWP 50ms

Conducted Emissions Band A  
High

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.67dBm  
7.840GHz



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

STOP 10.000GHz  
SWP 200ms

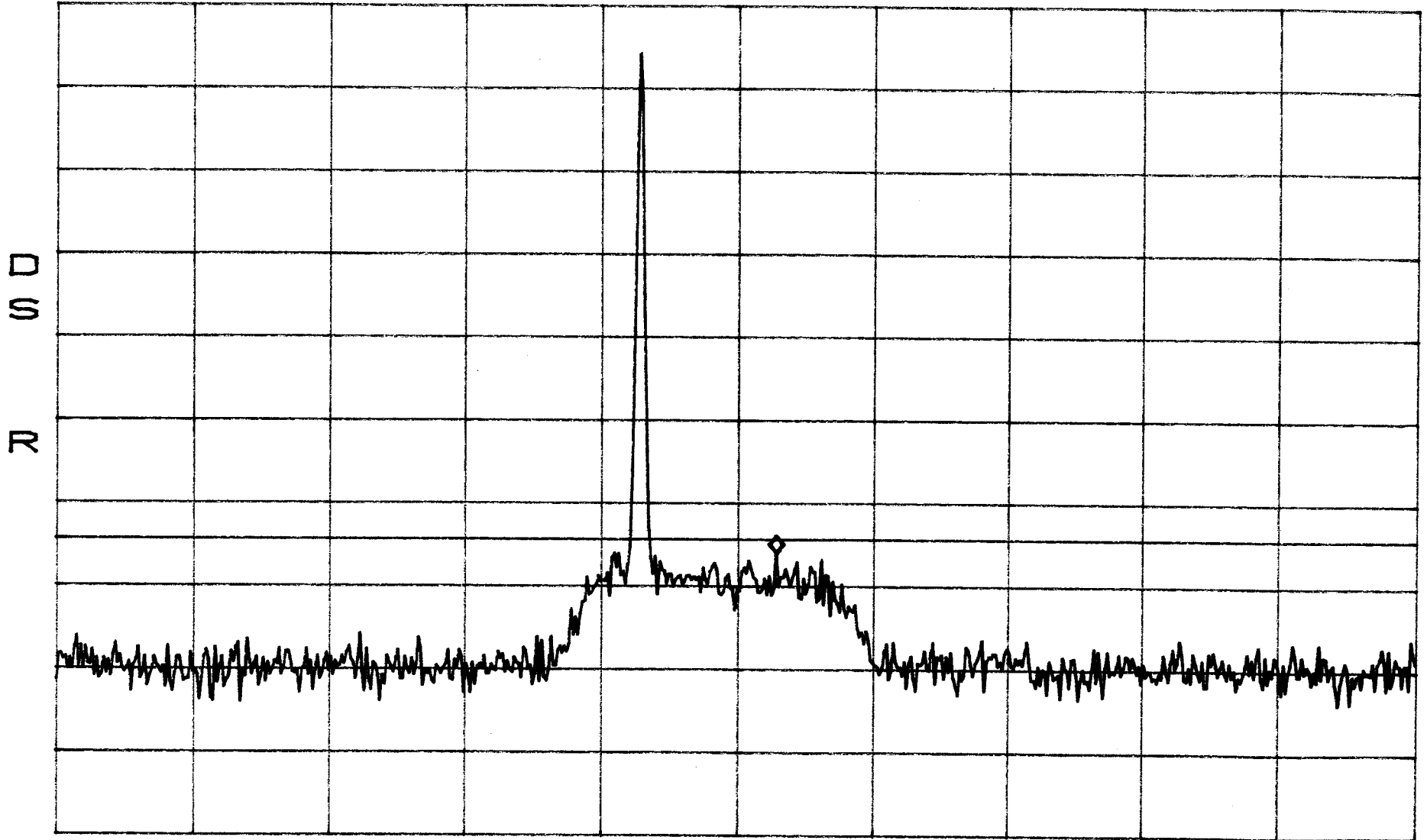
Conducted Emissions  
Low

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -14.3dBm  
889.8MHz



CENTER 887.0MHz  
\*RBW 100kHz VBW 100kHz

SPAN 100.0MHz  
SWP 50ms

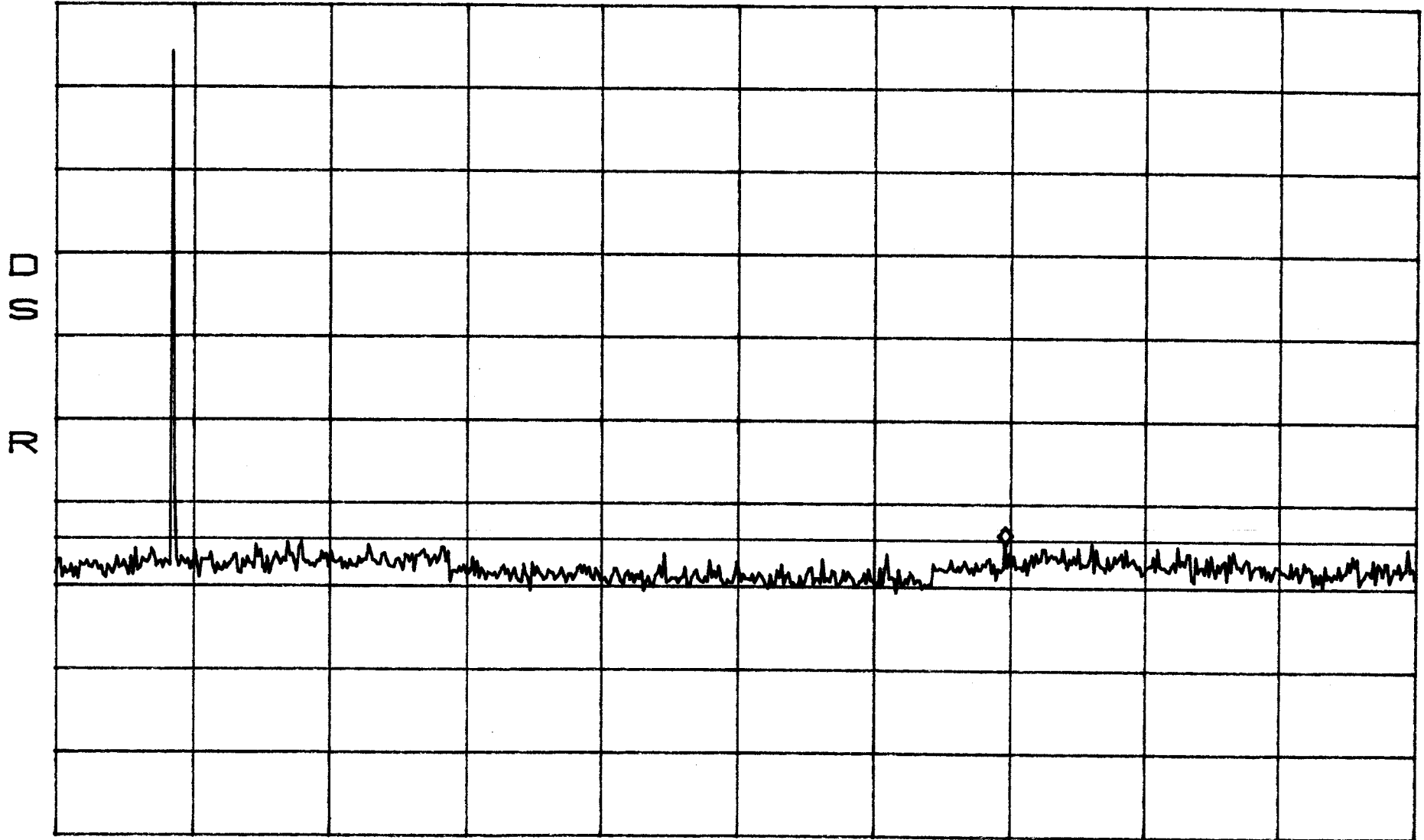
Conducted Emissions  
Low

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.17dBm  
6.976GHz



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

STOP 10.000GHz  
SWP 200ms



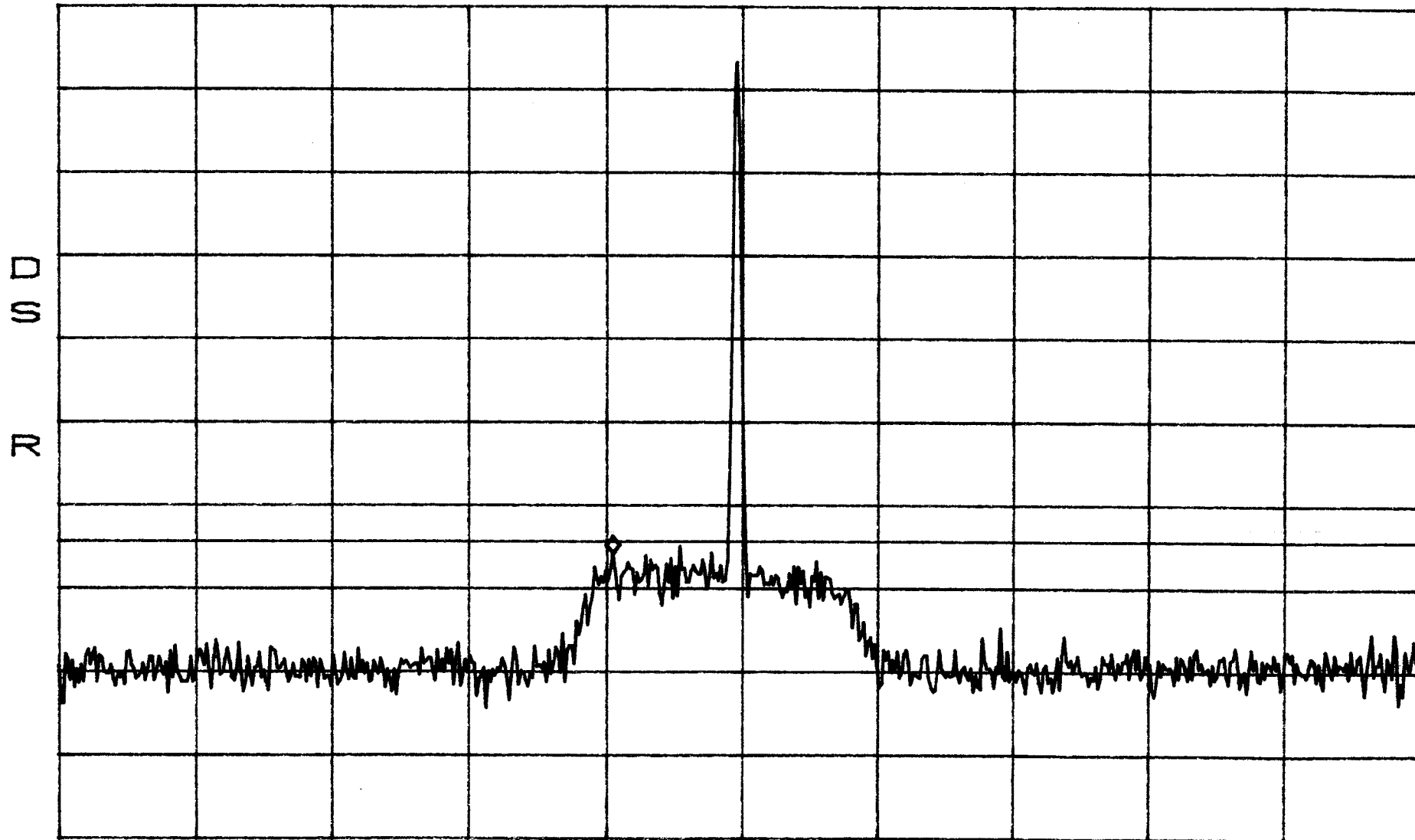
Conducted Emissions  
Mid

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -14.17dBm  
877.5MHz



CENTER 887.0MHz

SPAN 100.0MHz

\*RBW 100kHz

VBW 100kHz

SWP 50ms

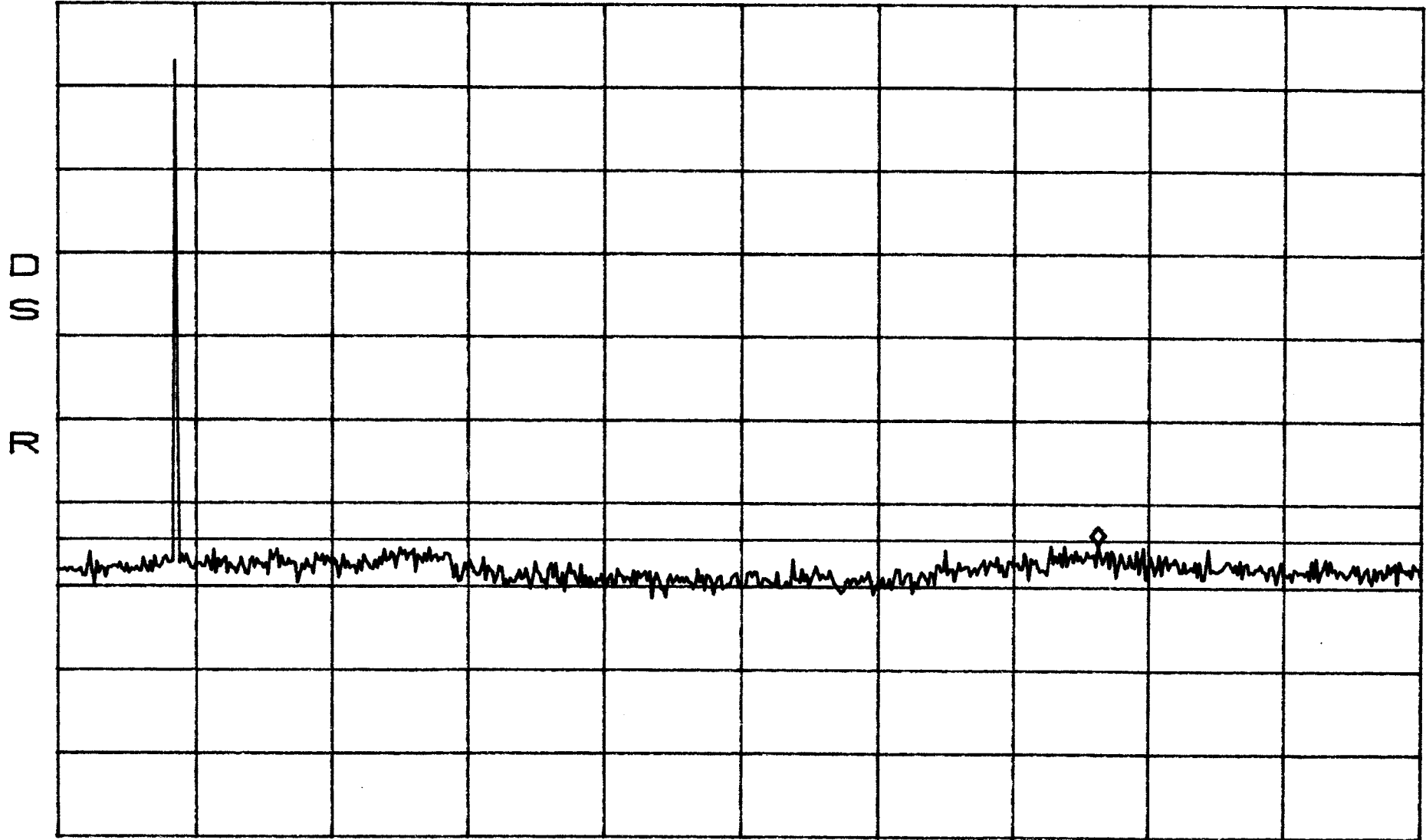
Conducted Emissions  
Mid

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.17dBm  
7.640GHz



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

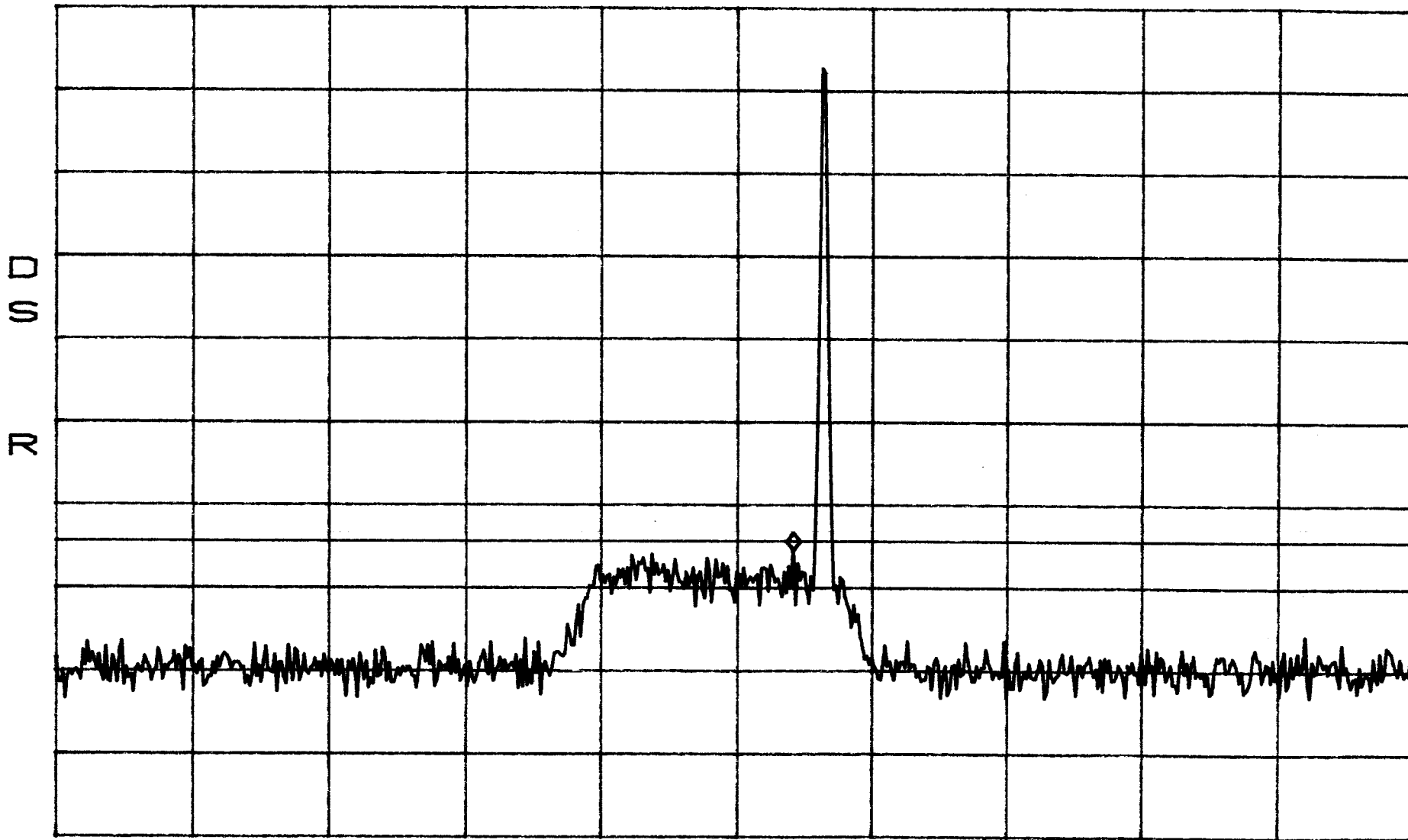
STOP 10.000GHz  
SWP 200ms

Conducted Emissions Band B  
High

\*ATTEN 30dB  
RL 51.5dBm

MKR -13.83dBm  
891.2MHz

10dB/



CENTER 887.0MHz  
\*RBW 100kHz VBW 100kHz

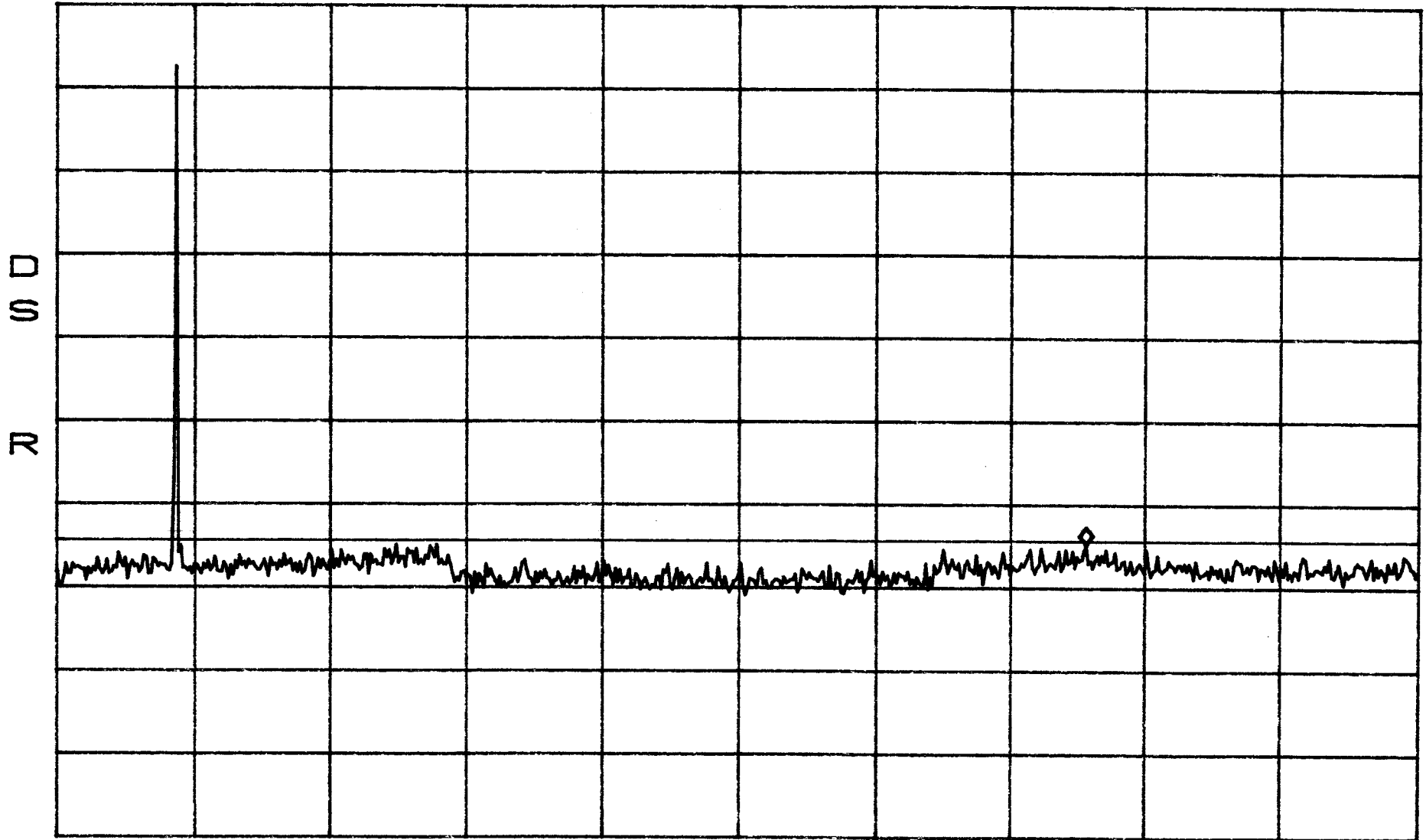
SPAN 100.0MHz  
SWP 50ms

Conducted Emissions Band B  
High

\*ATTEN 30dB  
RL 51.5dBm

MKR -13.17dBm  
7.574GHz

10dB/



START 30MHz  
\*RBW 1.0MHz

VBW 1.0MHz

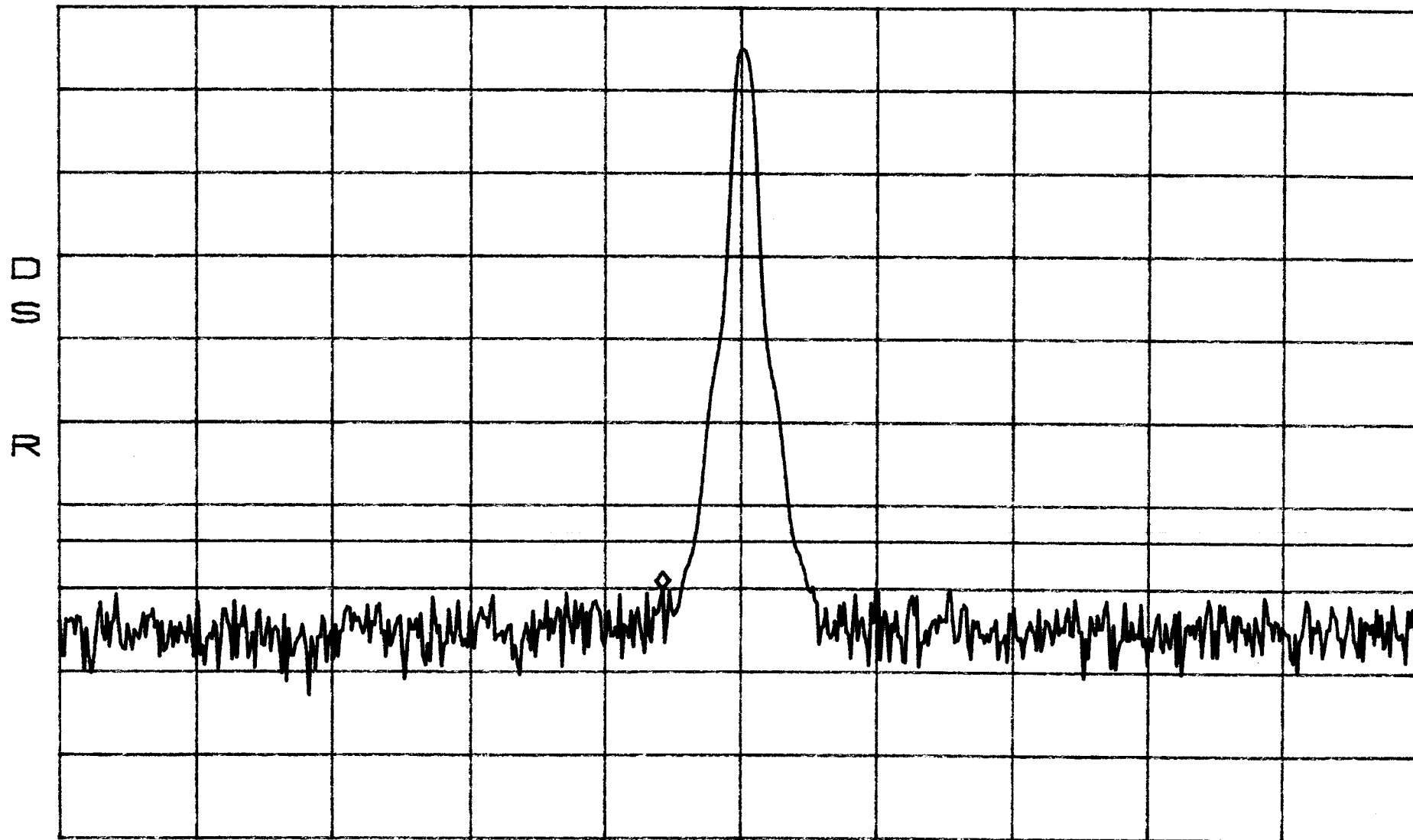
STOP 10.000GHz  
SWP 200ms

Conducted Emissions Band A  
FM

\*ATTEN 30dB  
RL 51.5dBm

MKR -18.50dBm  
878.717MHz

10dB/



CENTER 879.000MHz

SPAN 5.000MHz

\*RBW 30kHz

VBW 30kHz

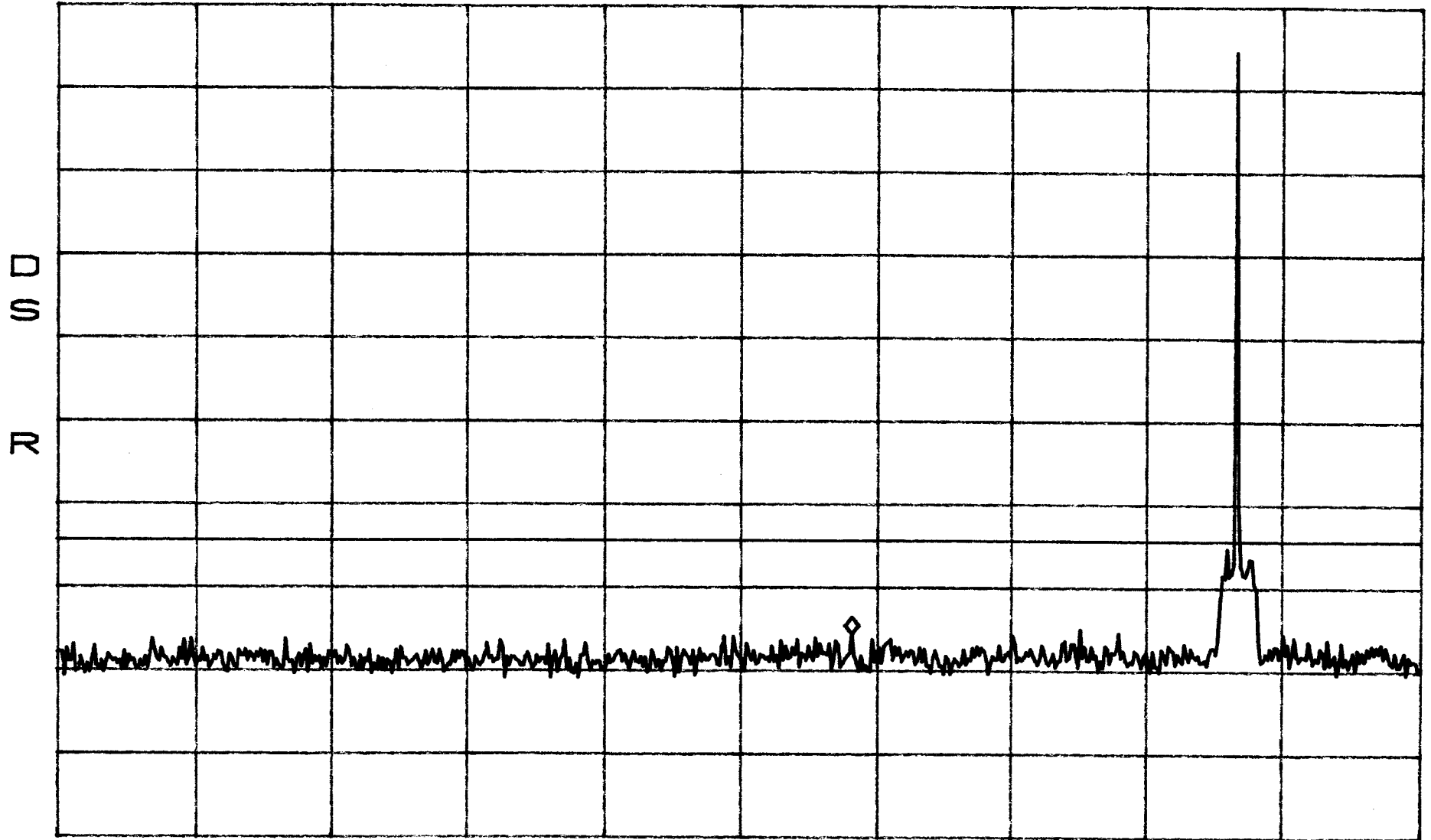
SWP 50ms

Conducted Emissions Band A  
FM

\*ATTEN 30dB  
RL 51.5dBm

MKR -24.00dBm  
594.2MHz

10dB/



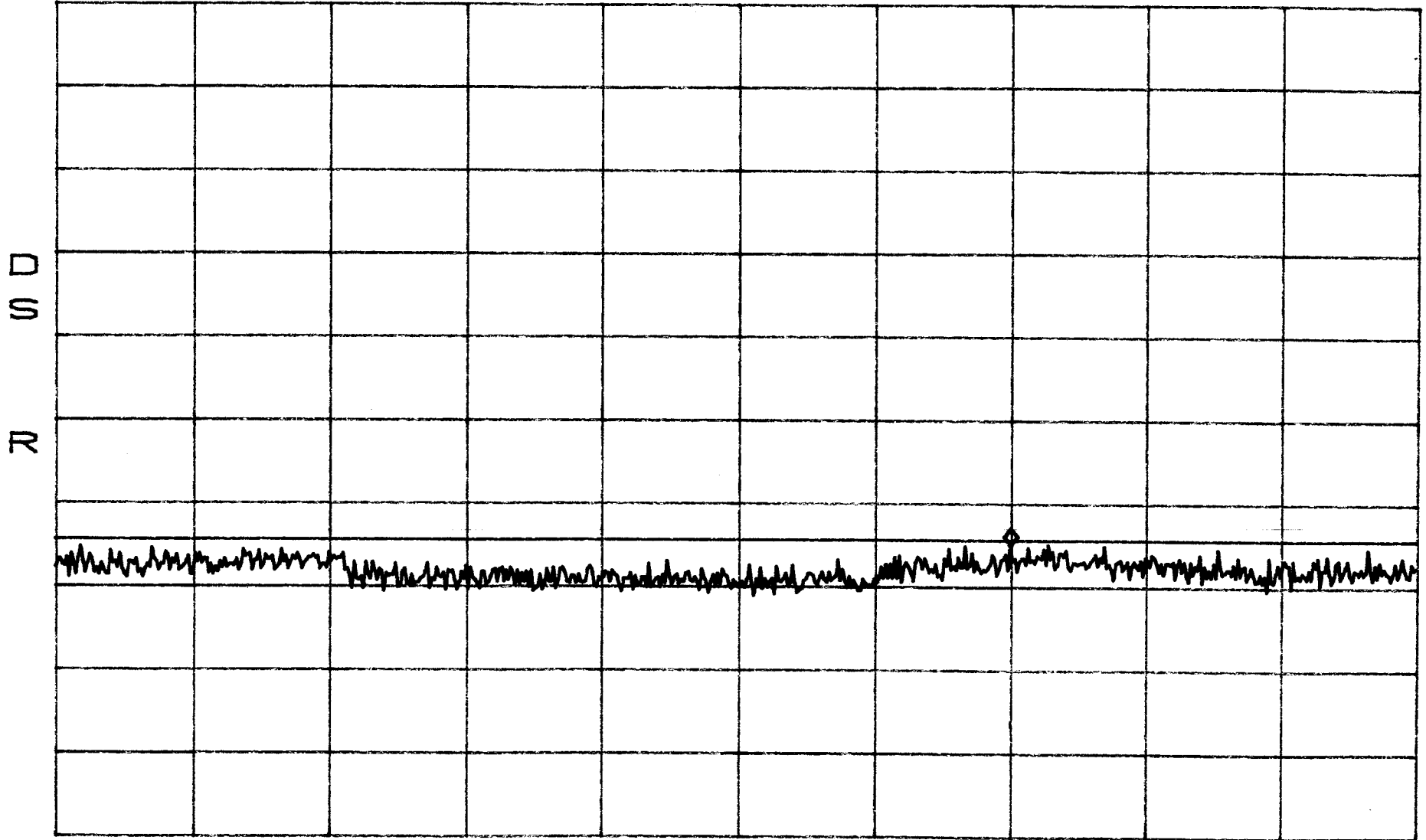
START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

Conducted Emissions Band A  
FM

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.33dBm  
7.300GHz



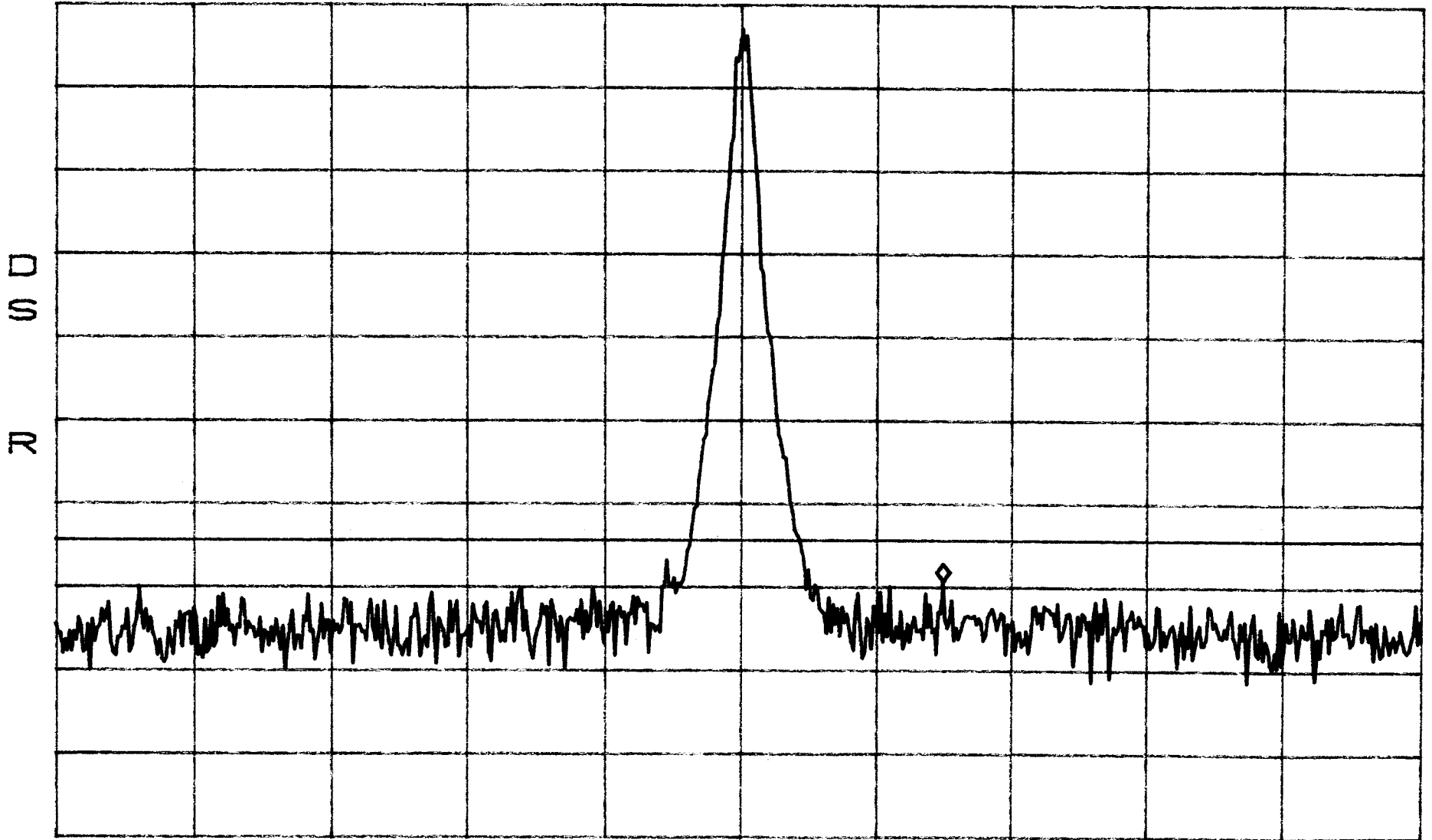
START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

Conducted Emissions Band A  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

MKR -17.67dBm  
879.750MHz

10dB/



CENTER 879.000MHz  
\*RBW 30kHz VBW 30kHz

SPAN 5.000MHz  
SWP 50ms

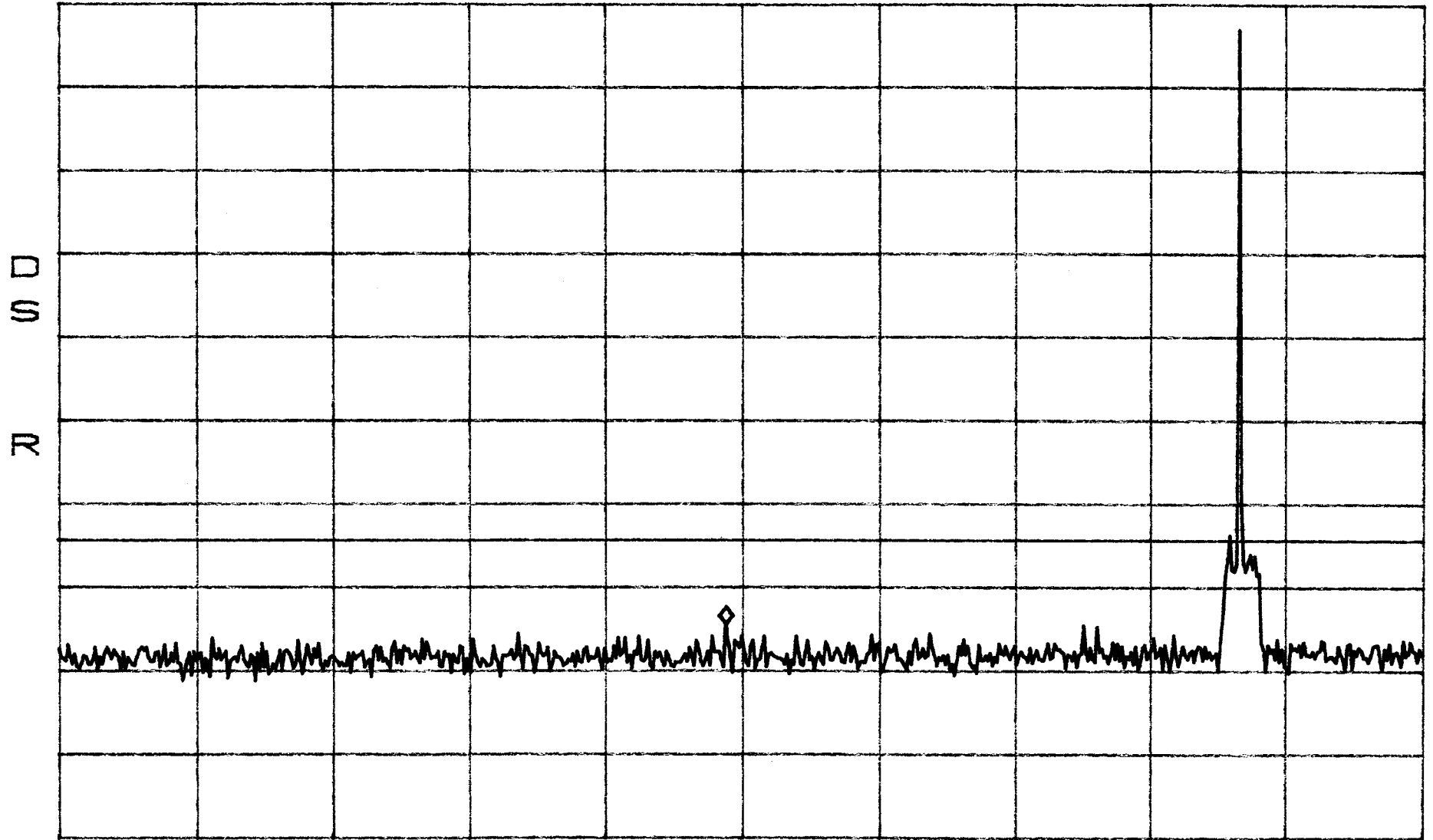


Conducted Emissions Band A  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -22.83dBm  
503.7MHz



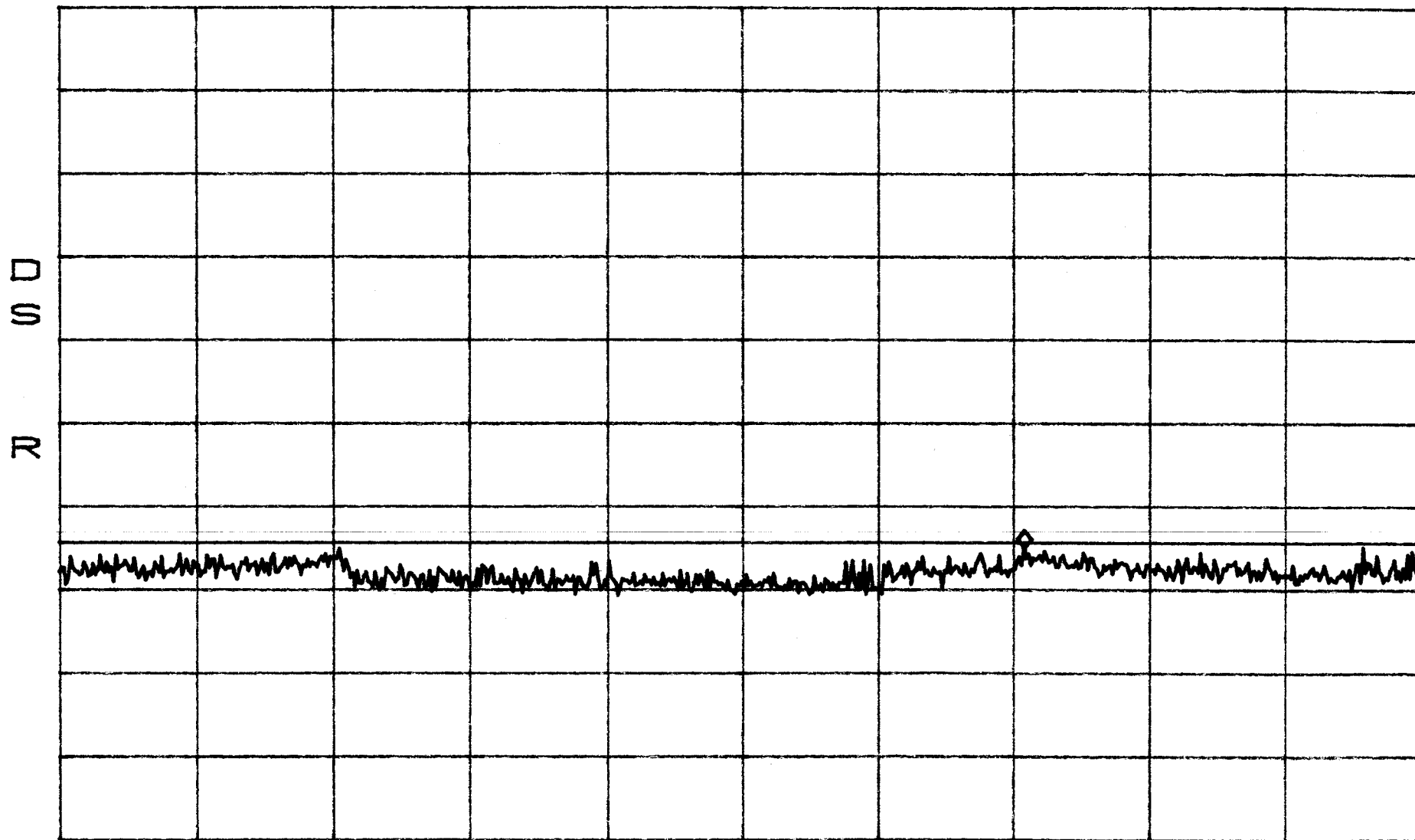
START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

Conducted Emissions Band A  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.33dBm  
7.375GHz



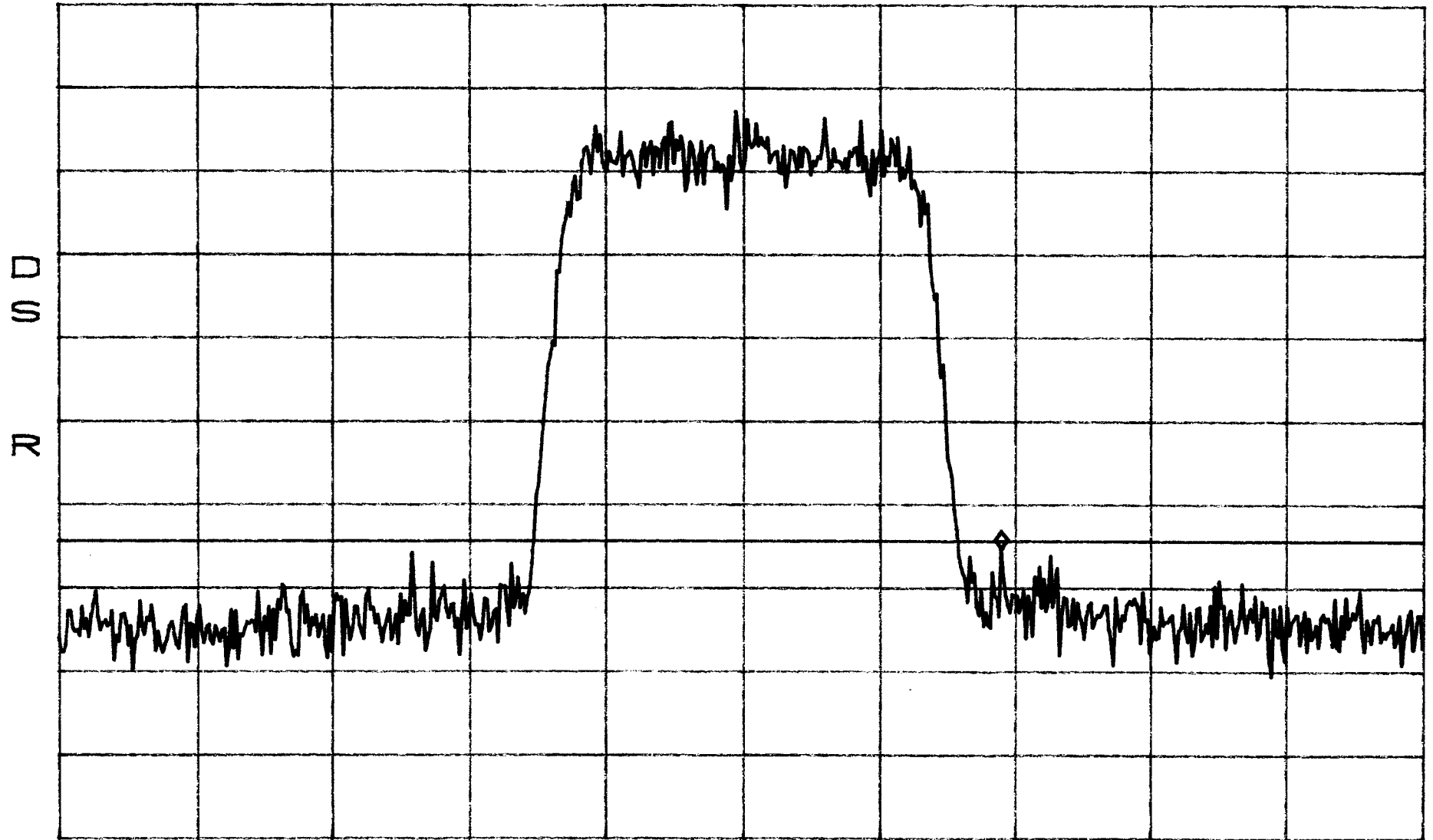
START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

Conducted Emissions Band A  
CDMA

\*ATTEN 30dB  
RL 51.5dBm

MKR -13.67dBm  
879.950MHz

10dB/



CENTER 879.000MHz  
\*RBW 30kHz VBW 30kHz

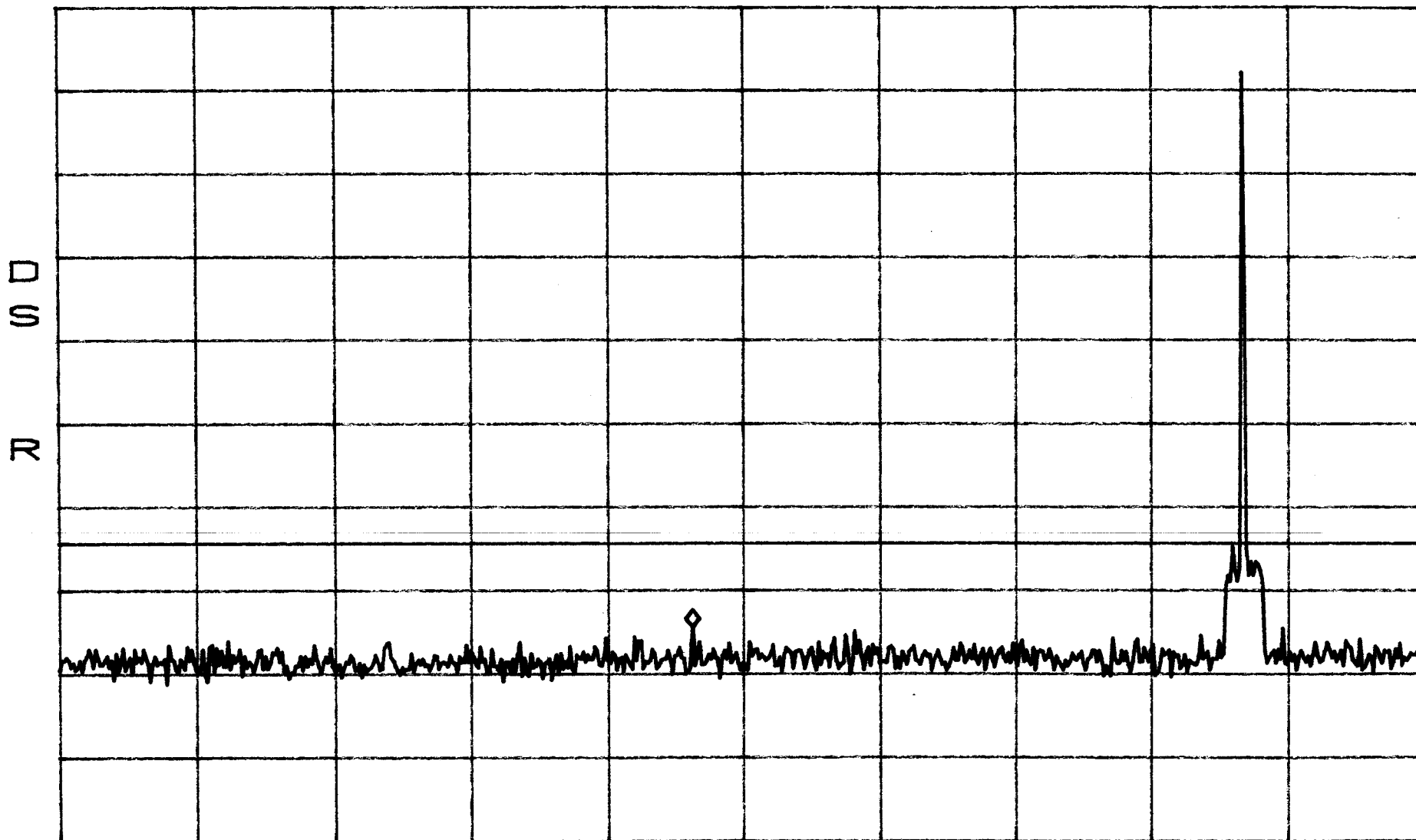
SPAN 5.000MHz  
SWP 50ms

Conducted Emissions Band A  
CDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -22.83dBm  
479.4MHz



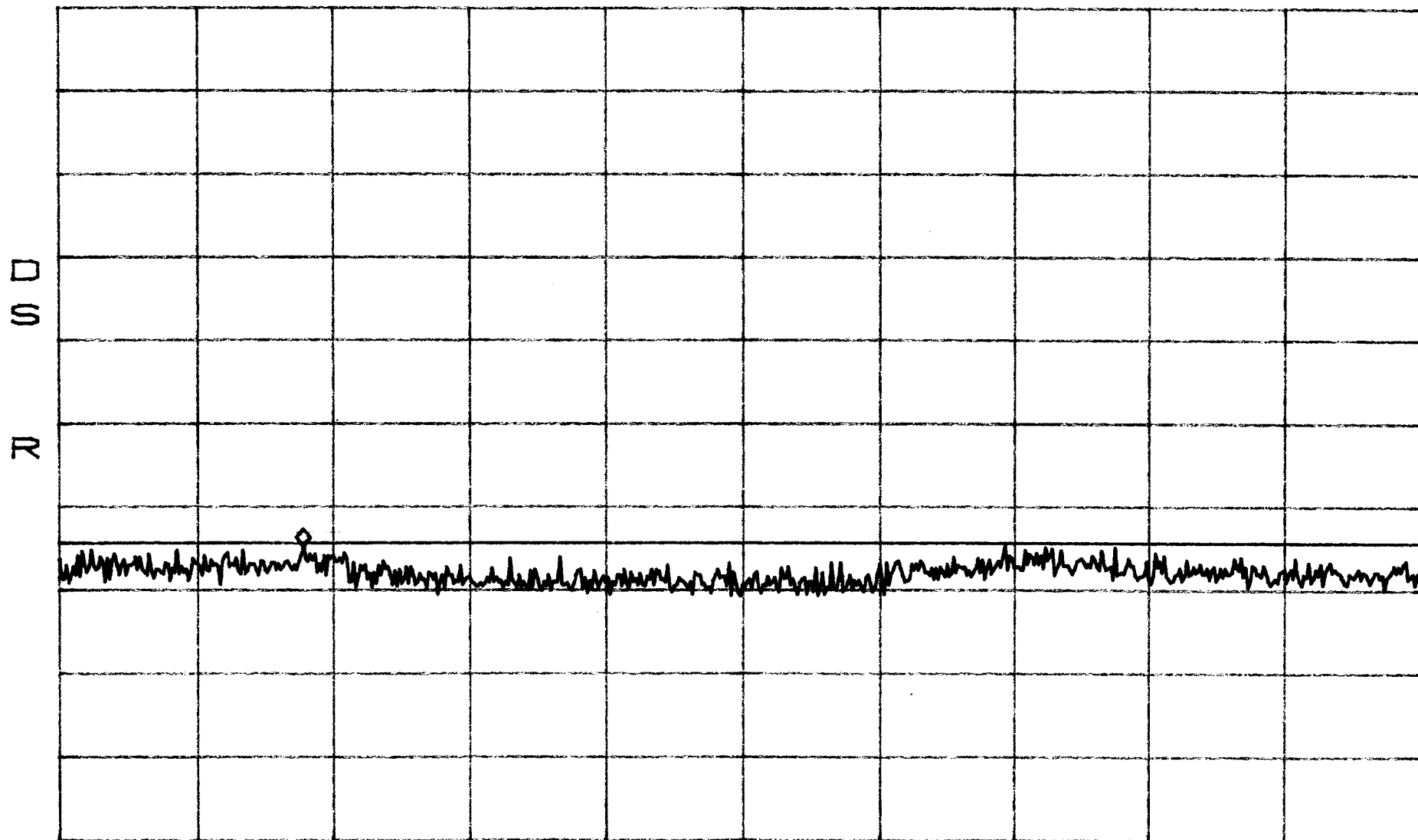
START 30.0MHz                      STOP 1.0000GHz  
\*RBW 100kHz                      VBW 100kHz                      SWP 250ms

Conducted Emissions Band A  
CDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.17dBm  
2.605GHz



START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

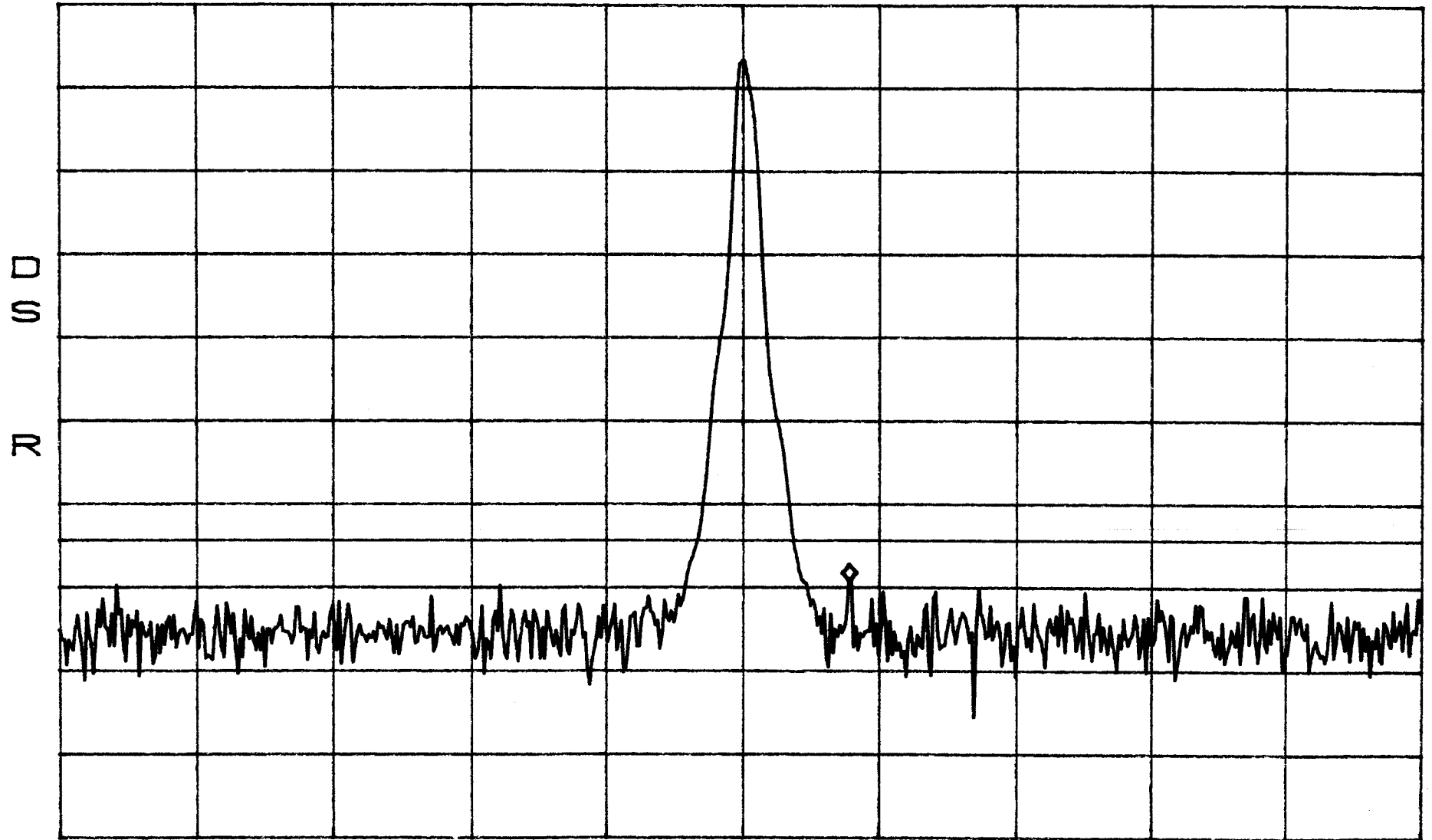
Conducted Emissions  
FM

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -17.67dBm  
887.392MHz



CENTER 887.000MHz  
\*RBW 30kHz VBW 30kHz

SPAN 5.000MHz  
SWP 50ms

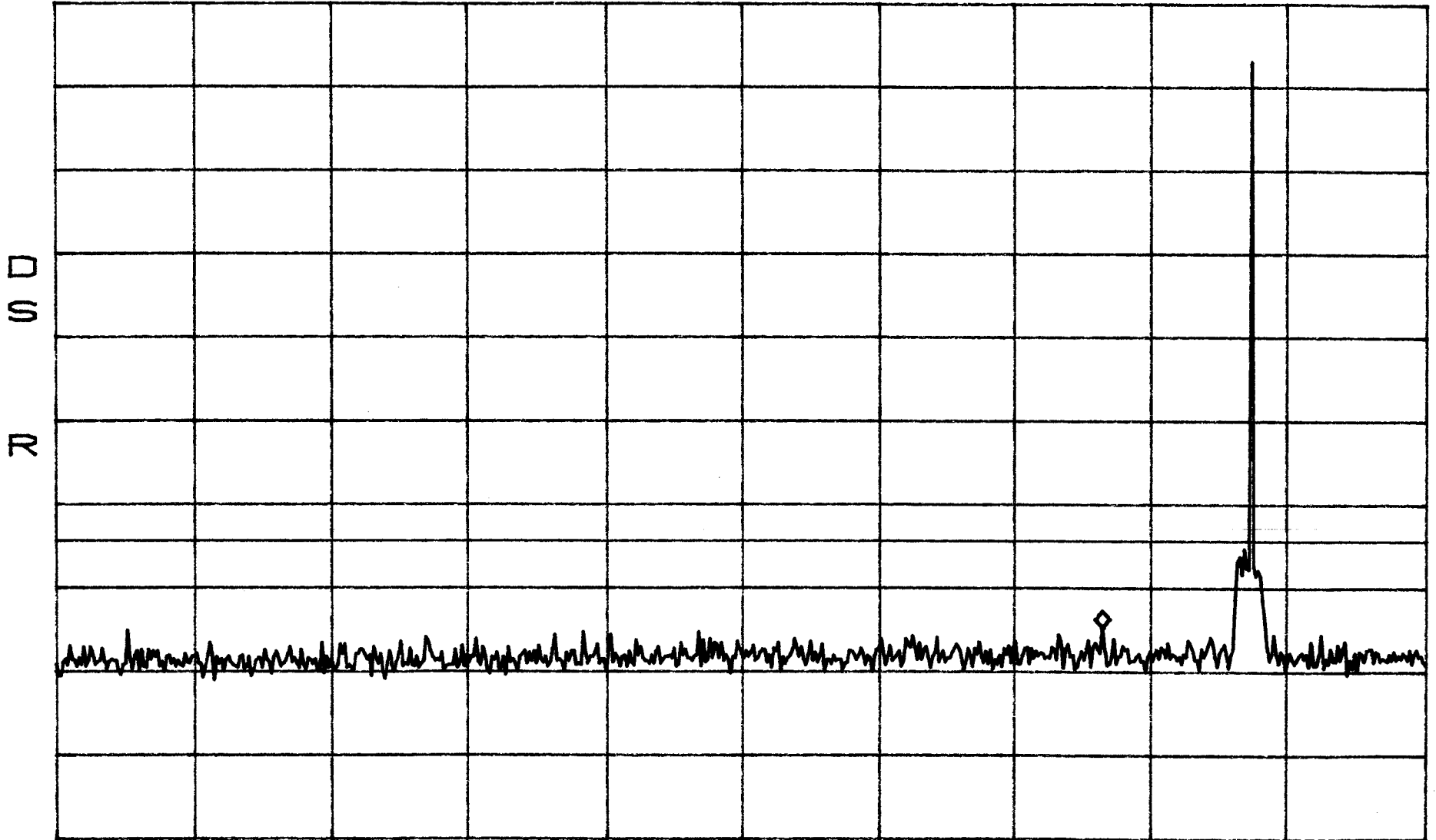
Conducted Emissions  
FM

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -23.17dBm  
772.1MHz



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

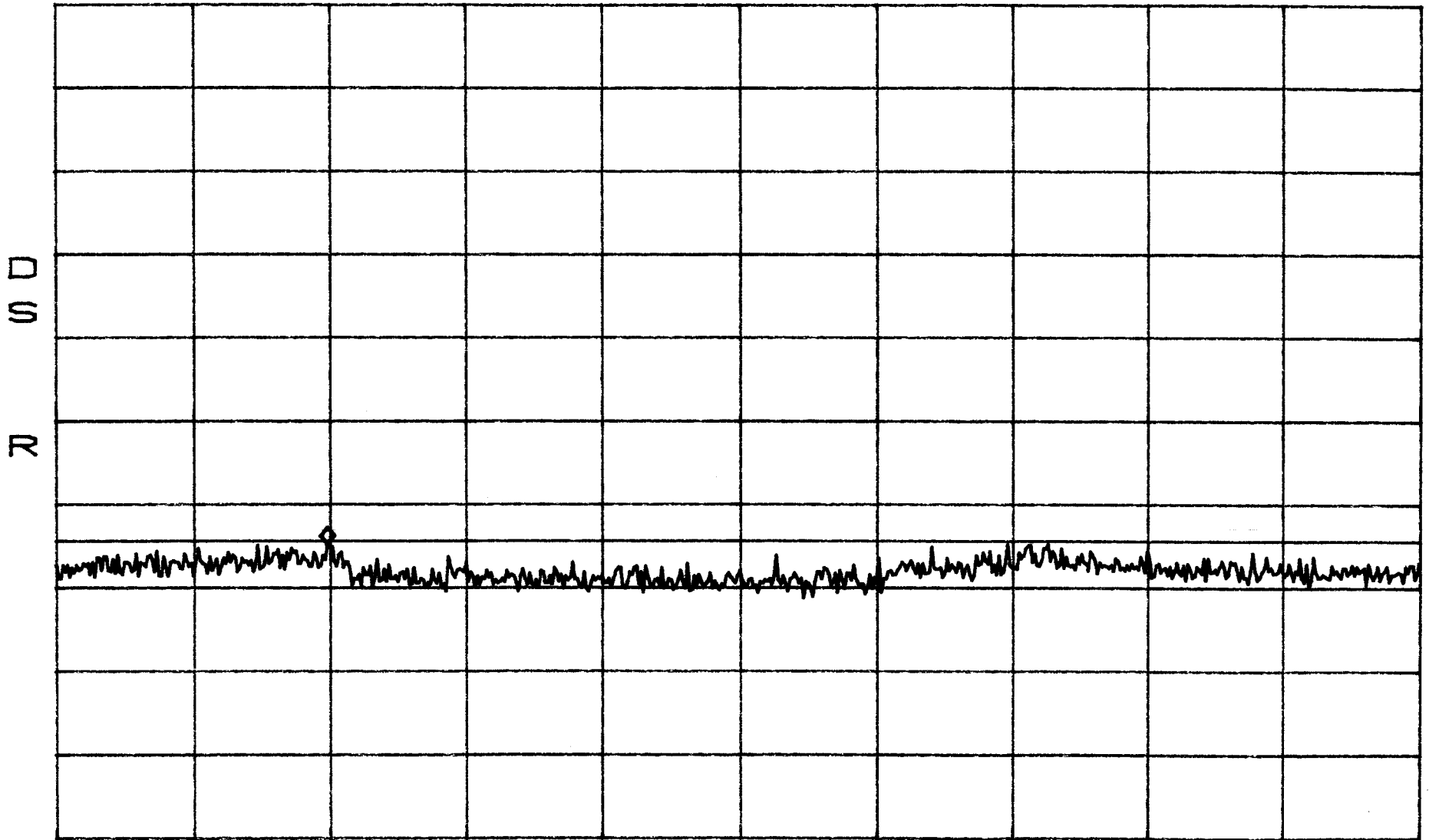
Conducted Emissions  
FM

Band B

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.17dBm  
2.785GHz



START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

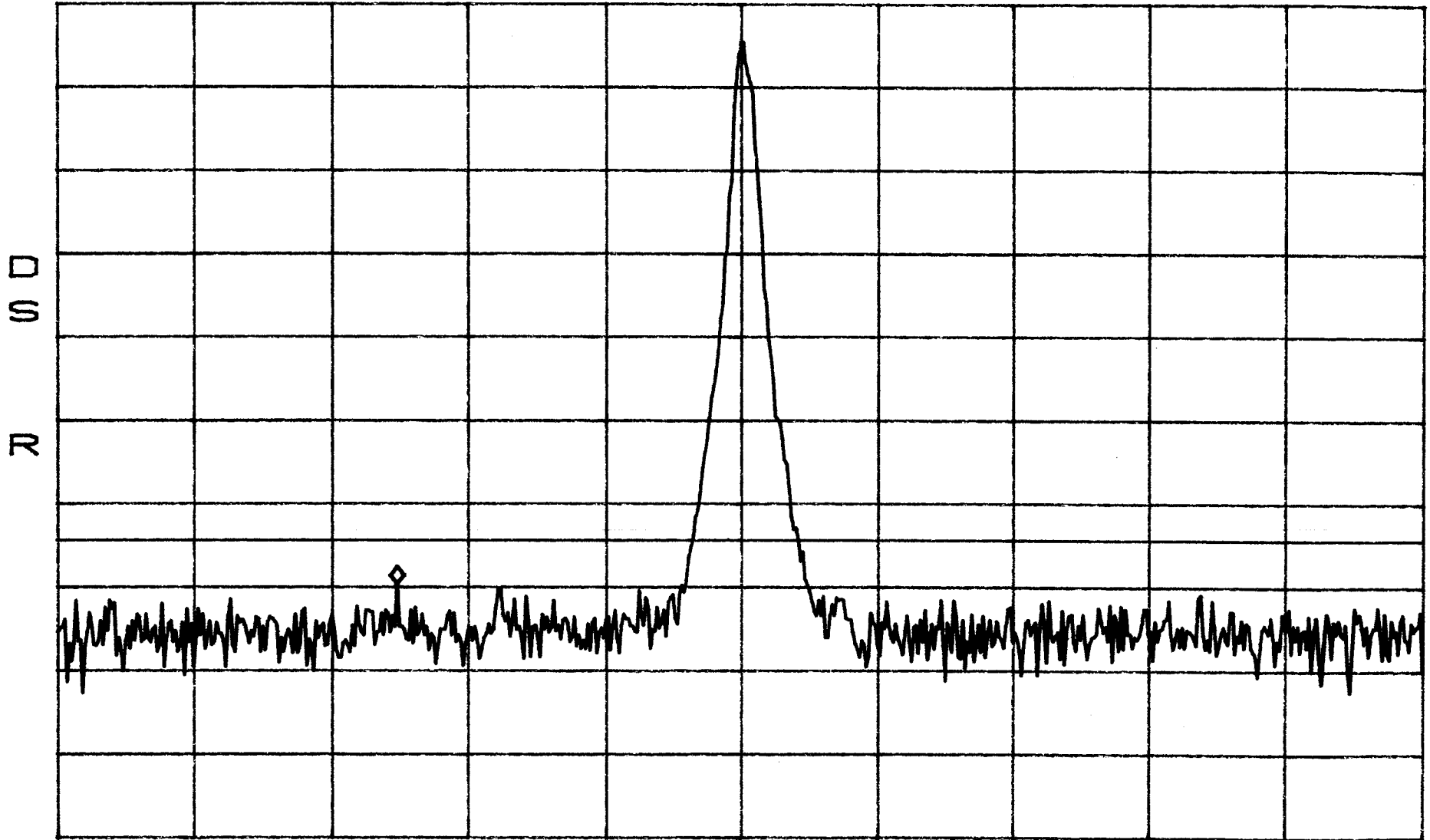


Conducted Emissions Band B  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -18.00dBm  
885.742MHz



CENTER 887.000MHz  
\*RBW 30kHz VBW 30kHz

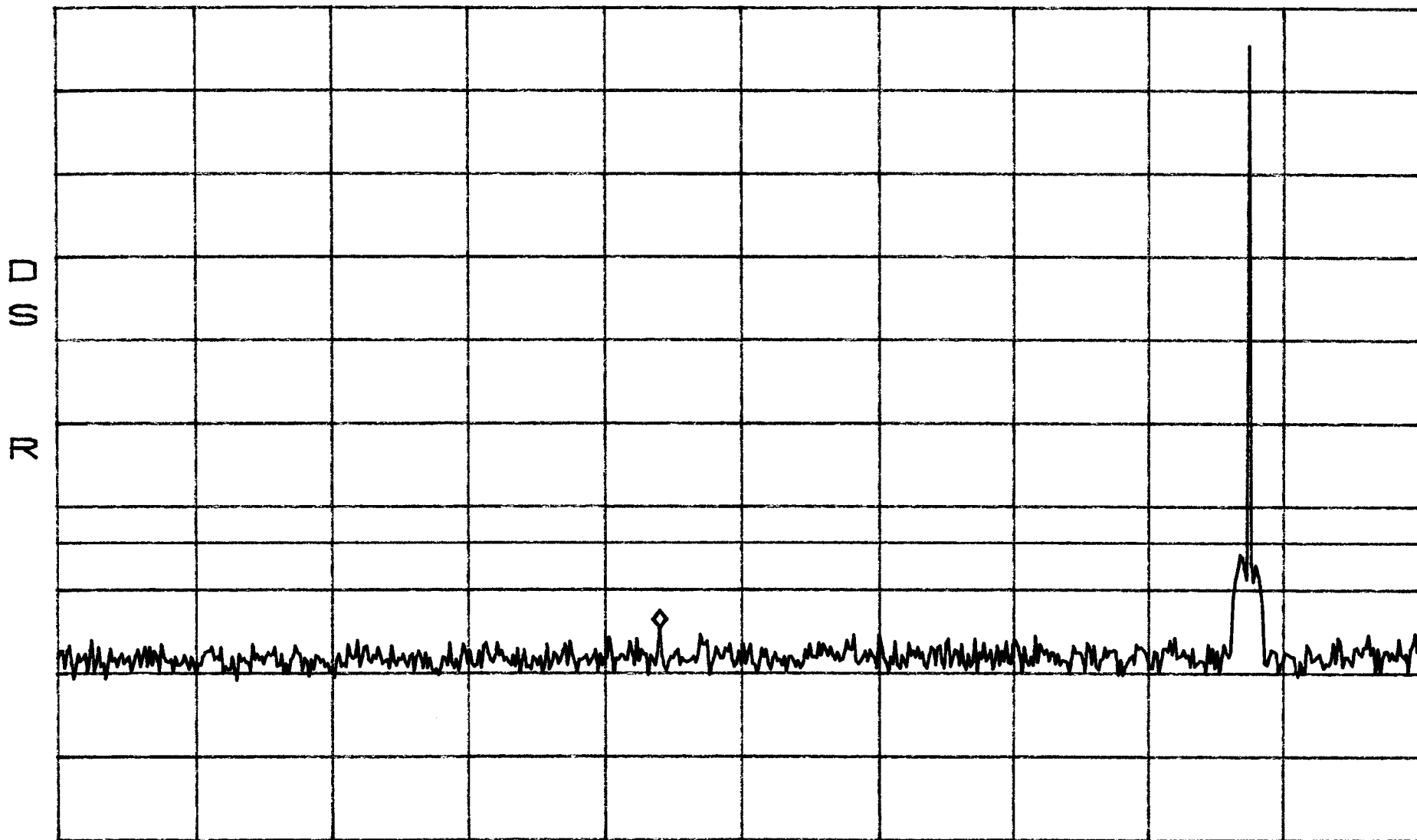
SPAN 5.000MHz  
SWP 50ms

Conducted Emissions Band B  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -23.00dBm  
456.8MHz



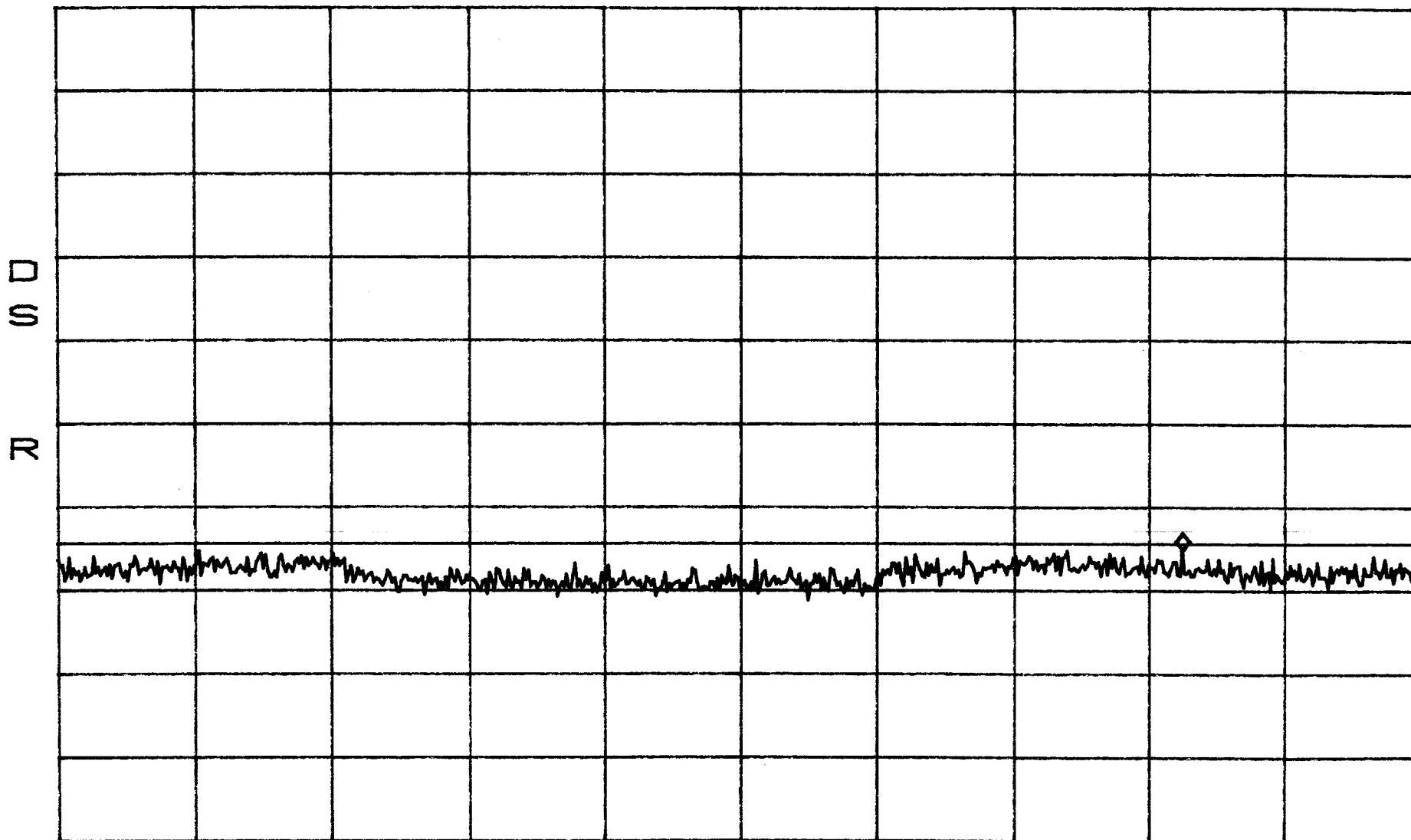
START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

Conducted Emissions Band B  
TDMA

\*ATTEN 30dB  
RL 51.5dBm

1dB/

MKR -13.50dBm  
8.425GHz



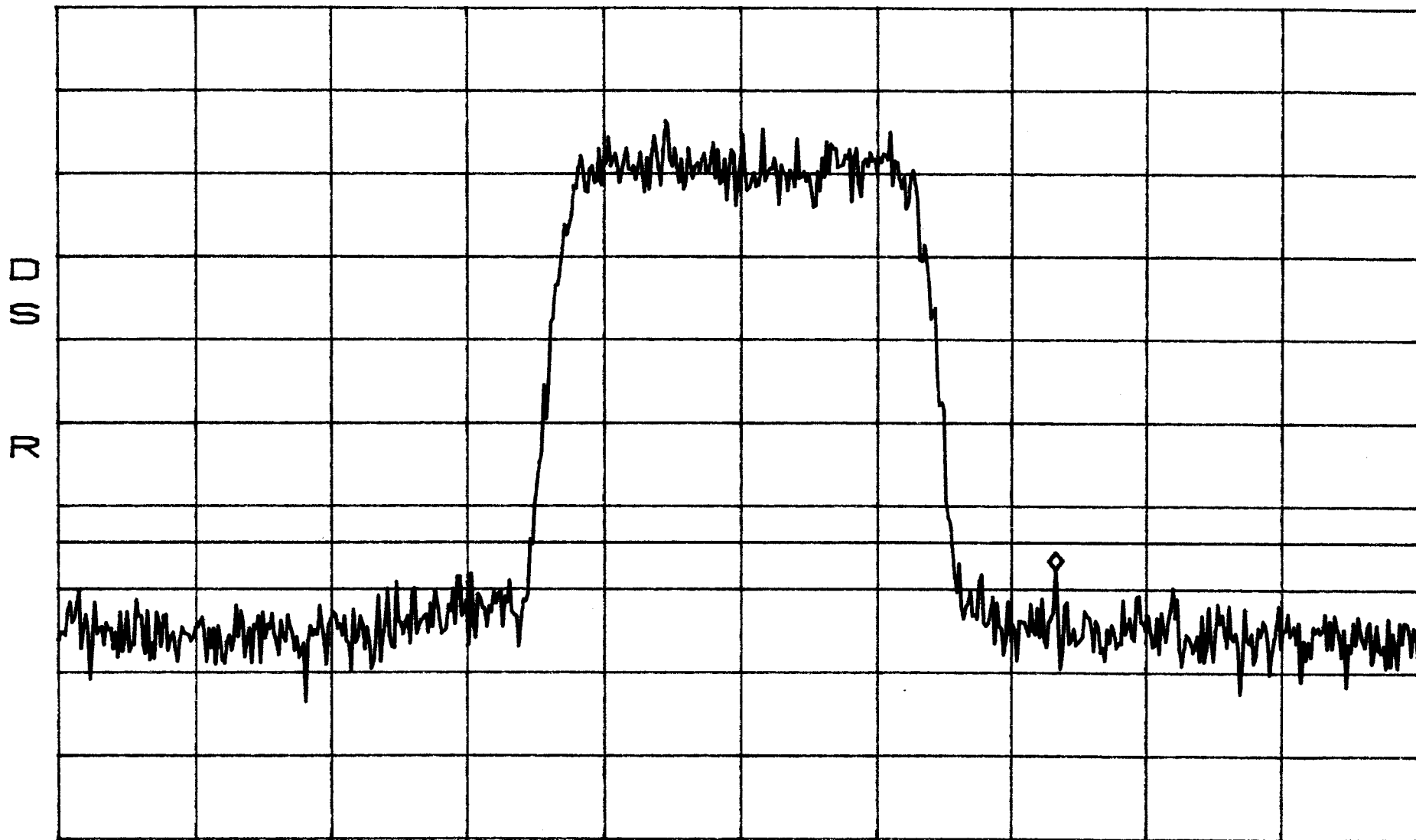
START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

Conducted Emissions Band B  
CDMA

\*ATTEN 30dB  
RL 51.5dBm

MKR -16.00dBm  
888.167MHz

10dB/



CENTER 887.000MHz  
\*RBW 30kHz VBW 30kHz

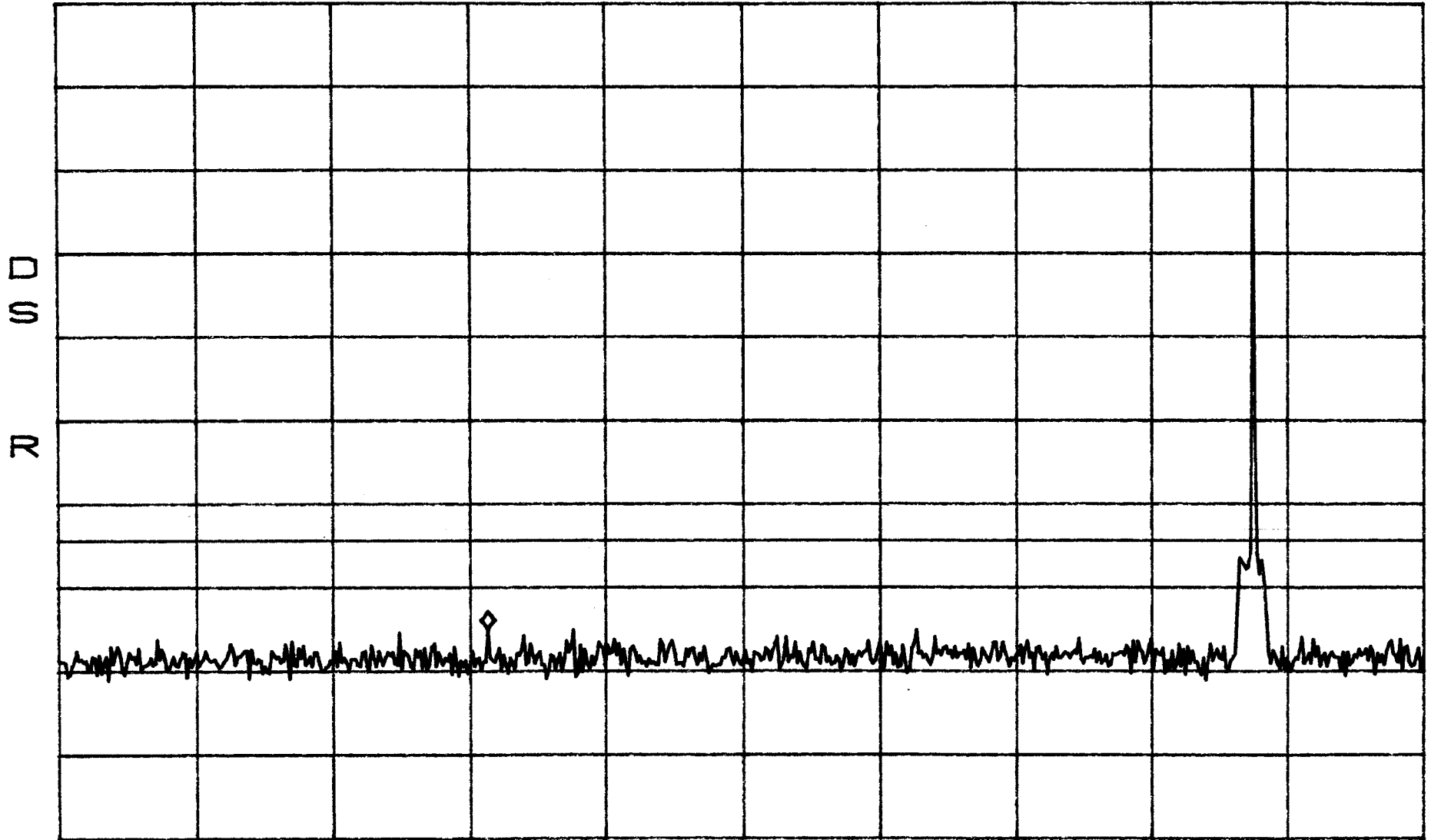
SPAN 5.000MHz  
SWP 50ms

Conducted Emissions Band B  
CDMA

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -23.33dBm  
333.9MHz



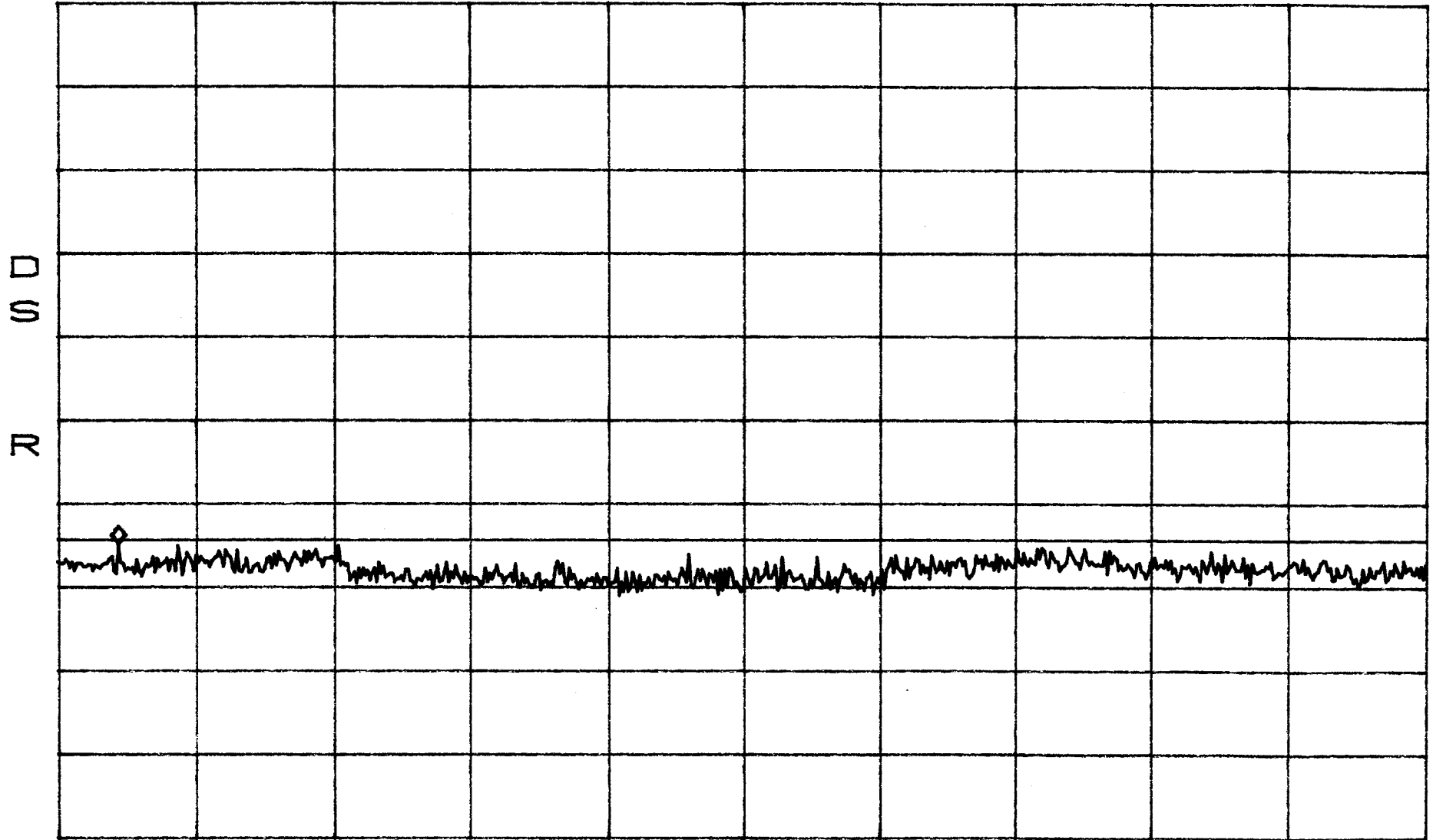
START 30.0MHz STOP 1.0000GHz  
\*RBW 100kHz VBW 100kHz SWP 250ms

Conducted Emissions Band B  
CDMA

\*ATTN 30dB  
RL 51.5dBm

MKR -13.17dBm  
1.390GHz

10dB/



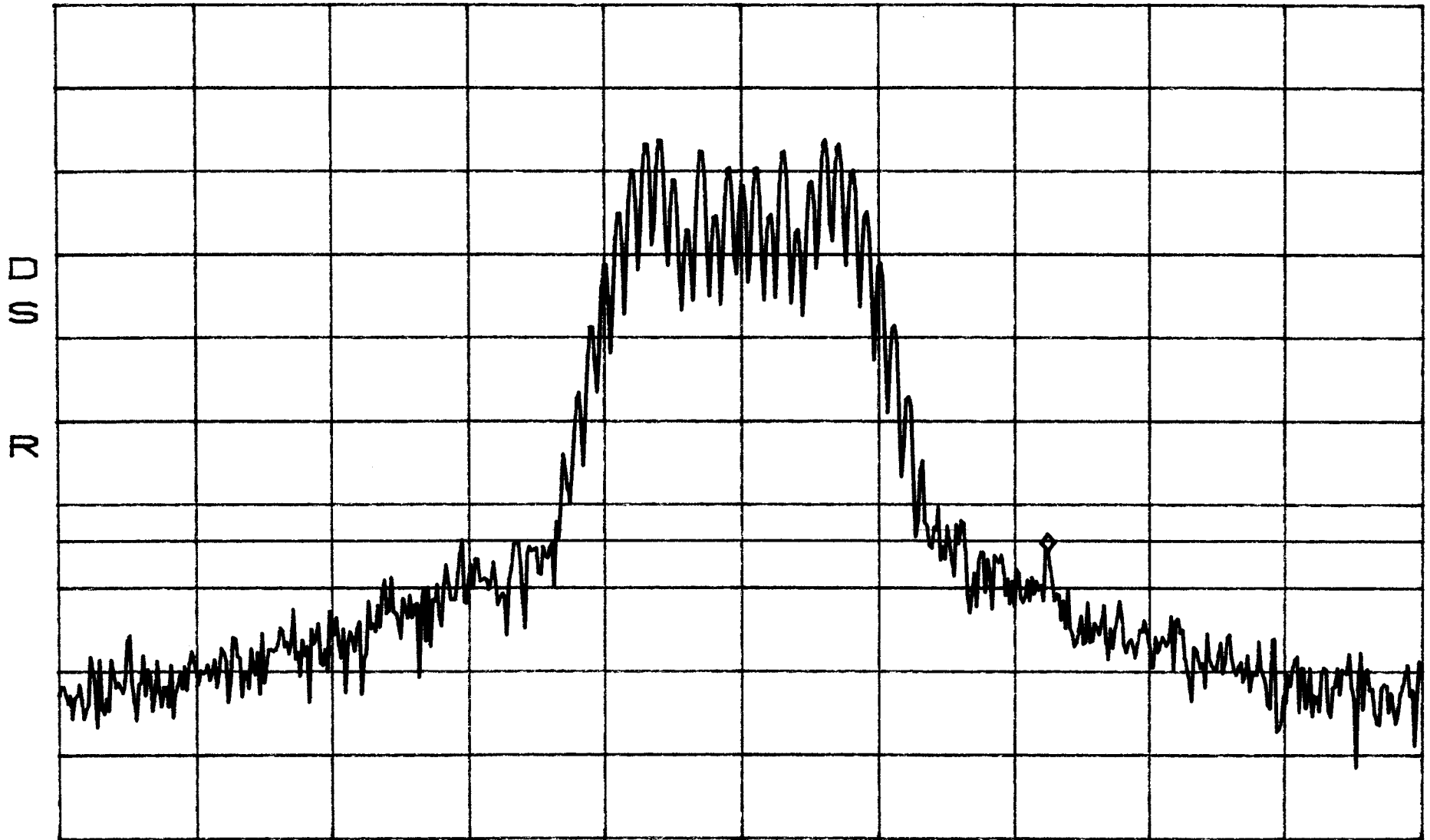
START 1.000GHz STOP 10.000GHz  
\*RBW 1.0MHz VBW 1.0MHz SWP 180ms

Conducted Emissions Band A  
Band Edge  
FM

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -14.00dBm  
869.2225MHz



CENTER 869.2000MHz  
\*RBW 300Hz VBW 300Hz

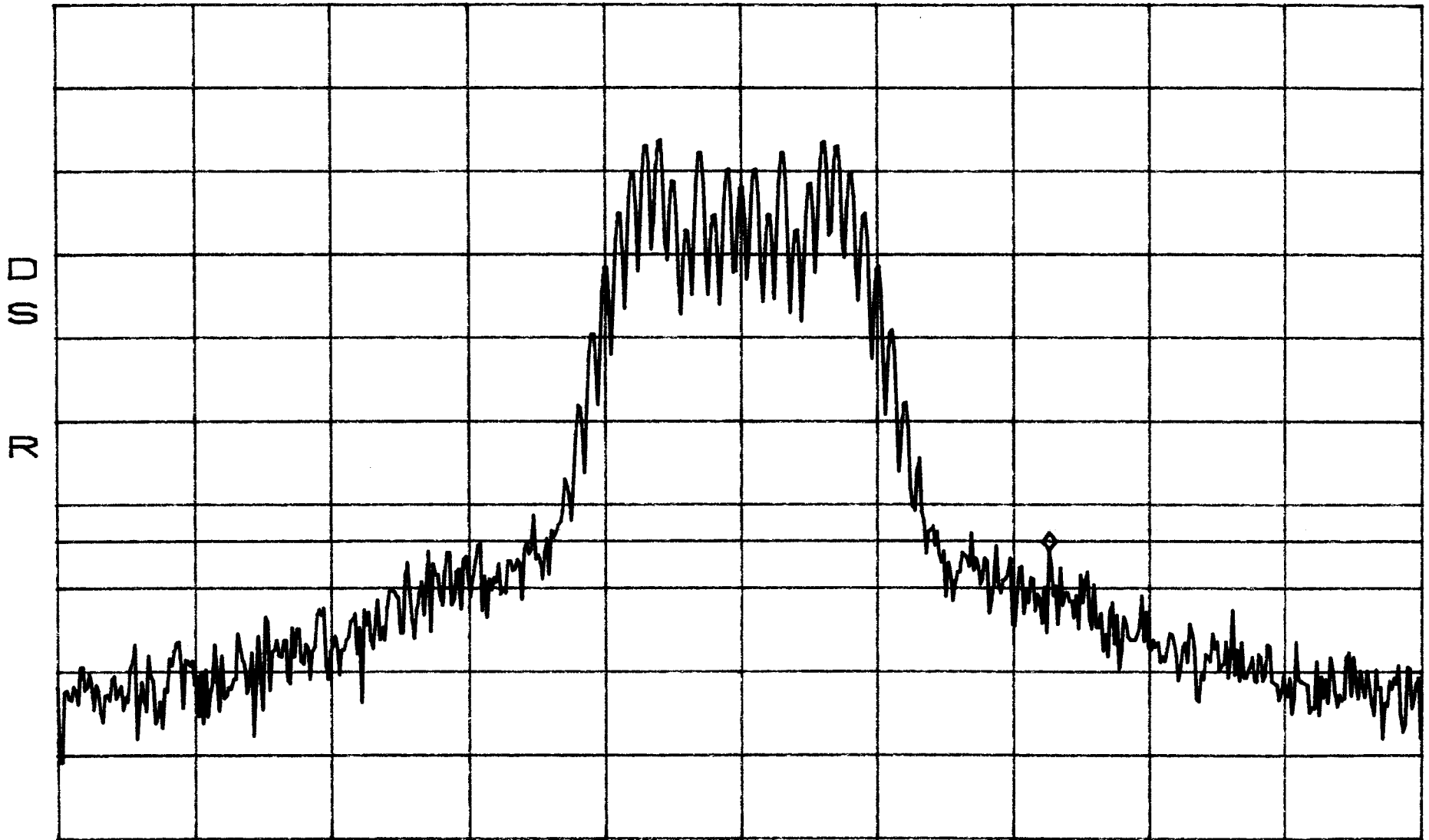
SPAN 100.0kHz  
SWP 2.8sec

Conducted Emissions Band A  
Band Edge  
FM

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -13.83dBm  
891.3227MHz



CENTER 891.3000MHz  
\*RBW 300Hz VBW 300Hz

SPAN 100.0kHz  
SWP 2.86sec

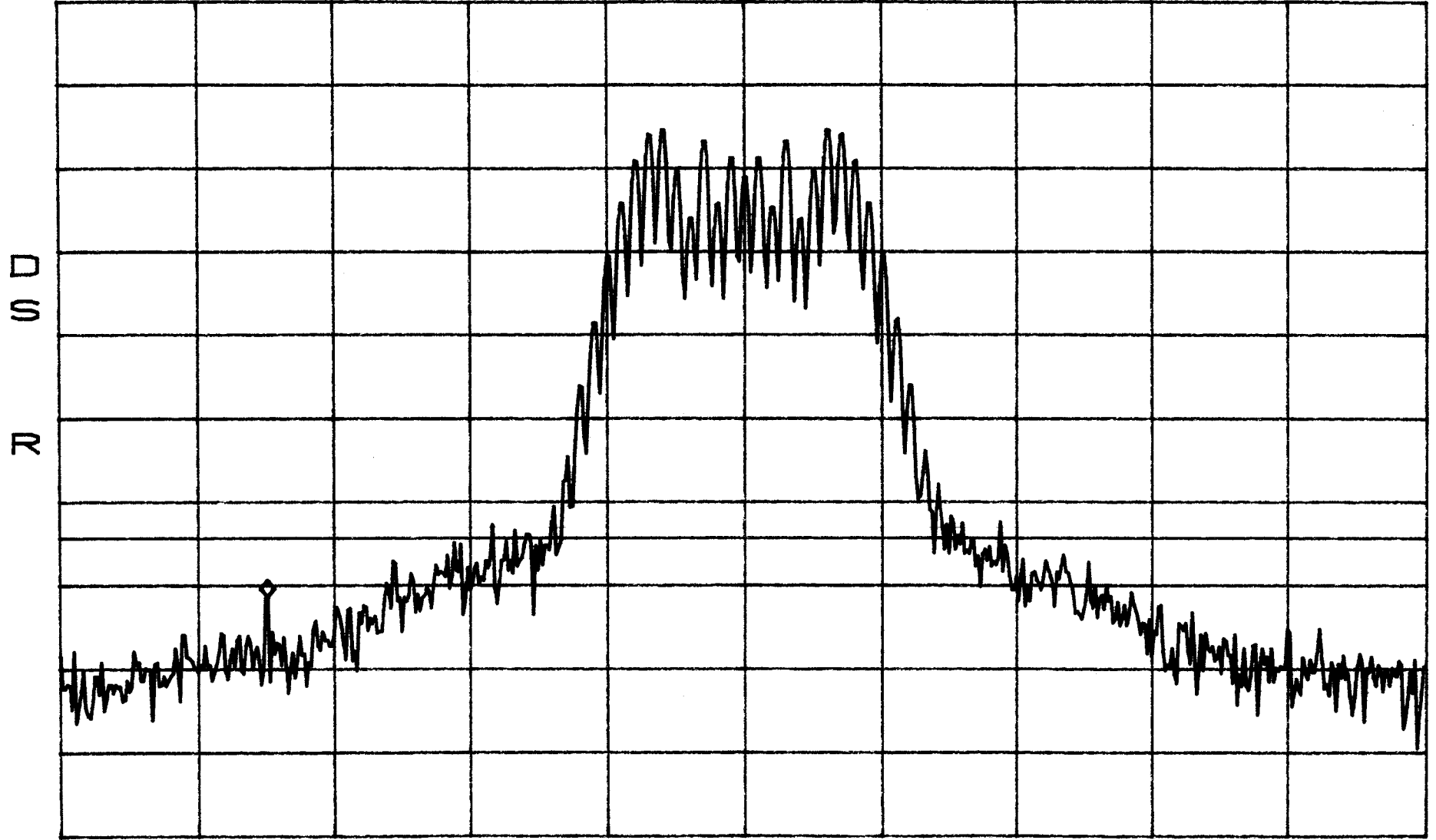


Conducted Emissions Band B  
Band Edge FM

\*ATTEN 30dB  
RL 51.5dBm

10dB/

MKR -19.83dBm  
880.1652MHz



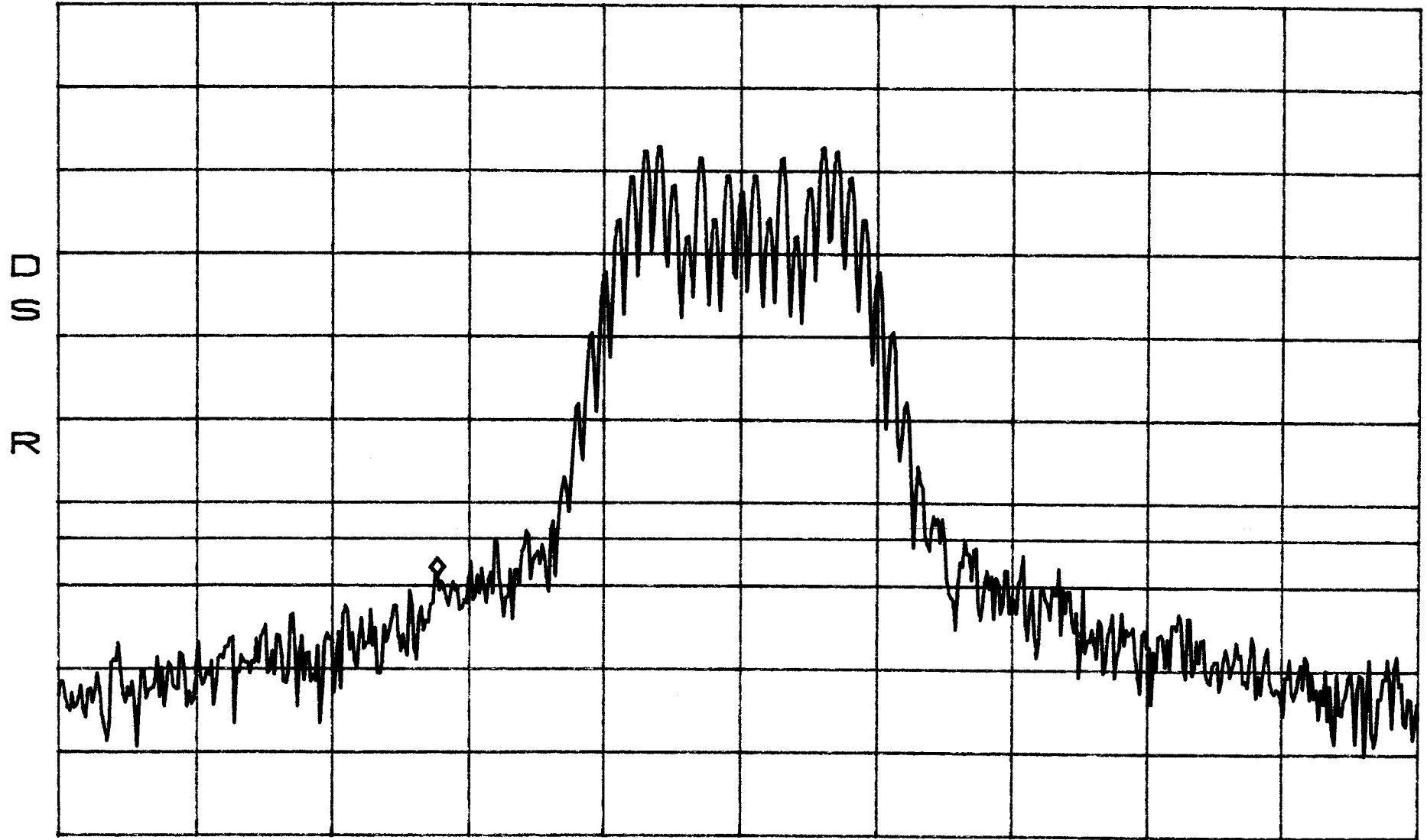
CENTER 880.2000MHz SPAN 100.0kHz  
\*RBW 300Hz VBW 300Hz SWP 2.8sec

Conducted Emissions Band B  
Band Edge  
FM

\*ATTEN 30dB  
RL 51.5dBm

MKR -17.17dBm  
893.7777MHz

10dB/



CENTER 893.8000MHz  
\*RBW 300Hz VBW 300Hz

SPAN 100.0kHz  
SWP 2.8sec

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. The highest emission frequency is listed below.

Frequency MHz	dBuV/m(from EUT)	Substitution power level - dBm
426.0	70.2	-26.0

**Case Radiation data is on the following pages:**

# Radiated Electromagnetic Emissions



Test Report #: 2675 Run 02 Test Area: OW 3m  
 Test Method: N/A Test Date: 05-Jun-2003  
 EUT Model #: DGVL-112110SYS & DGVL-122110SYS EUT Power: 40 VDC  
 EUT Serial #: \_\_\_\_\_ Temperature: 22 °C  
 Manufacturer: ADC TELECOMMUNICATIONS Relative Humidity: 50 %  
 EUT Description: CELLULAR A & B BAND SYSTEM Air Pressure: 98.5 kPa  
 Notes: SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS Page: 1 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
30.50	60.8 Pk	0.5 / 20.6 / 28.3	53.5	V / 1.0 / 0.0	See Measurement	-13
58.95	66.7 Qp	0.7 / 11.8 / 28.2	51.1	V / 1.0 / 0.0	Summary – Pages 5&6	-13
79.63	58.3 Pk	0.9 / 7.5 / 28.2	38.5	V / 1.0 / 0.0	"	-13
103.40	58.6 Qp	1.0 / 9.2 / 28.2	40.6	V / 1.0 / 0.0	"	-13
142.00	72.3 Qp	1.1 / 8.9 / 28.3	54.0	V / 1.0 / 0.0	"	-13
156.20	55.2 Qp	1.3 / 9.2 / 28.2	37.4	V / 1.0 / 0.0	"	-13
178.50	54.3 Qp	1.3 / 9.1 / 28.3	36.4	V / 1.0 / 0.0	"	-13
213.00	64.8 Qp	1.4 / 10.8 / 28.2	48.7	V / 1.0 / 0.0	"	-13
225.85	46.3 Qp	1.4 / 11.1 / 28.2	30.5	V / 1.0 / 0.0	"	-13
284.00	76.5 Qp	1.6 / 12.8 / 28.3	62.6	V / 1.0 / 0.0	"	-13
323.70	39.6 Qp	1.7 / 13.7 / 28.2	26.8	V / 1.0 / 0.0	"	-13
355.00	58.3 Qp	1.8 / 15.0 / 28.2	46.9	V / 1.0 / 0.0	"	-13
426.00	73.8 Qp	2.0 / 16.9 / 28.1	64.6	V / 1.0 / 0.0	"	-13
497.00	66.0 Qp	2.2 / 17.4 / 28.1	57.5	V / 1.0 / 0.0	"	-13
548.60	36.8 Qp	2.3 / 18.8 / 28.1	29.7	V / 1.0 / 0.0	"	-13
568.00	59.7 Qp	2.3 / 18.3 / 28.1	52.2	V / 1.0 / 0.0	"	-13
639.00	56.9 Qp	2.5 / 19.8 / 28.0	51.2	V / 1.0 / 0.0	"	-13
653.70	31.5 Qp	2.5 / 19.8 / 28.0	25.8	V / 1.0 / 0.0	"	-13
710.00	63.5 Qp	2.6 / 20.4 / 28.0	58.5	V / 1.0 / 0.0	"	-13
781.00	41.0 Qp	2.7 / 21.7 / 27.9	37.5	V / 1.0 / 0.0	"	-13
801.90	32.7 Qp	2.7 / 21.9 / 27.9	29.6	V / 1.0 / 0.0	"	-13
852.00	49.1 Qp	2.9 / 22.3 / 27.7	46.6	V / 1.0 / 0.0	"	-13
909.75	58.2 Qp	2.9 / 23.0 / 27.7	56.4	V / 1.0 / 0.0	"	-13
994.00	56.4 Qp	3.2 / 22.7 / 27.7	54.5	V / 1.0 / 0.0	"	-13

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

# Radiated Electromagnetic Emissions



Test Report #: 2675 Run 02 Test Area: OW 3m  
 Test Method: N/A Test Date: 05-Jun-2003  
 EUT Model #: DGVL-112110SYS & DGVL-122110SYS EUT Power: 40 VDC  
 EUT Serial #: \_\_\_\_\_ Temperature: 22 °C  
 Manufacturer: ADC TELECOMMUNICATIONS Relative Humidity: 50 %  
 EUT Description: CELLULAR A & B BAND SYSTEM Air Pressure: 98.5 kPa  
 Notes: SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS Page: 2 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
1064.95	55.9 Pk	3.3 / 23.1 / 27.7	54.6	V / 1.0 / 0.0	See Measurement	-13
1136.15	48.2 Pk	3.2 / 23.9 / 27.7	47.6	V / 1.0 / 0.0	Summary – Pages 5&6	-13
1206.90	47.8 Pk	3.3 / 24.0 / 27.7	47.5	V / 1.0 / 0.0	"	-13
1278.10	45.0 Pk	3.6 / 24.8 / 27.8	45.6	V / 1.0 / 0.0	"	-13
1349.15	54.1 Pk	3.6 / 25.8 / 27.9	55.6	V / 1.0 / 0.0	"	-13
1491.15	40.4 Pk	3.8 / 27.0 / 28.0	43.2	V / 1.0 / 0.0	"	-13
1633.20	42.6 Pk	4.0 / 27.8 / 28.0	46.3	V / 1.0 / 0.0	"	-13
1737.90	41.7 Pk	4.1 / 28.2 / 28.0	46.0	V / 1.0 / 0.0	"	-13
79.95	51.2 Qp	0.9 / 7.5 / 28.2	31.4	V / 1.0 / 90.0	"	-13
103.40	68.9 Qp	1.0 / 9.2 / 28.2	50.9	V / 1.0 / 90.0	"	-13
178.50	57.0 Qp	1.3 / 9.1 / 28.3	39.1	V / 1.0 / 90.0	"	-13
781.00	52.5 Qp	2.7 / 21.7 / 27.9	49.0	V / 1.0 / 90.0	"	-13
1738.08	55.5 Pk	4.1 / 28.2 / 28.0	59.8	V / 1.0 / 90.0	"	-13
79.95	57.8 Qp	0.9 / 7.5 / 28.2	37.9	V / 1.0 / 180.0	"	-13
142.00	77.4 Qp	1.1 / 8.9 / 28.3	59.1	V / 1.0 / 180.0	"	-13
156.20	59.4 Qp	1.3 / 9.2 / 28.2	41.6	V / 1.0 / 180.0	"	-13
213.00	68.2 Qp	1.4 / 10.8 / 28.2	52.2	V / 1.0 / 180.0	"	-13
225.85	52.1 Qp	1.4 / 11.1 / 28.2	36.4	V / 1.0 / 180.0	"	-13
568.00	61.4 Qp	2.3 / 18.3 / 28.1	53.9	V / 1.0 / 180.0	"	-13
639.00	58.6 Qp	2.5 / 19.8 / 28.0	52.9	V / 1.0 / 180.0	"	-13
781.00	55.7 Qp	2.7 / 21.7 / 27.9	52.2	V / 1.0 / 180.0	"	-13
852.00	50.4 Qp	2.9 / 22.3 / 27.7	47.9	V / 1.0 / 180.0	"	-13
1207.07	50.5 Pk	3.3 / 24.0 / 27.7	50.2	V / 1.0 / 180.0	"	-13
30.50	60.9 Qp	0.5 / 20.6 / 28.3	53.7	V / 1.0 / 270.0	"	-13

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

*Joel T. Schneider*

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
Printed

*Thomas K. Swanson*

\_\_\_\_\_  
Signature

# Radiated Electromagnetic Emissions



Test Report #: 2675 Run 02 Test Area: OW 3m  
 Test Method: N/A Test Date: 05-Jun-2003  
 EUT Model #: DGVL-112110SYS & DGVL-122110SYS EUT Power: 40 VDC  
 EUT Serial #: \_\_\_\_\_ Temperature: 22 °C  
 Manufacturer: ADC TELECOMMUNICATIONS Relative Humidity: 50 %  
 EUT Description: CELLULAR A & B BAND SYSTEM Air Pressure: 98.5 kPa  
 Notes: SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS Page: 3 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
284.00	82.9 Qp	1.6 / 12.8 / 28.3	69.1	V / 1.0 / 270.0	See Measurement	-13
639.00	62.9 Qp	2.5 / 19.8 / 28.0	57.2	V / 1.0 / 270.0	Summary – Pages 5&6	-13
1278.07	47.3 Pk	3.6 / 24.8 / 27.8	47.9	V / 1.0 / 270.0	"	-13
284.00	83.5 Qp	1.6 / 12.8 / 28.3	69.7	V / 1.0 / 260.0	"	-13
710.00	65.7 Qp	2.6 / 20.4 / 28.0	60.7	V / 3.0 / 0.0	"	-13
323.70	44.8 Qp	1.7 / 13.7 / 28.2	32.0	V / 3.0 / 180.0	"	-13
355.00	59.2 Qp	1.8 / 15.0 / 28.2	47.8	V / 3.0 / 180.0	"	-13
355.00	62.2 Qp	1.8 / 15.0 / 28.2	50.9	V / 3.0 / 270.0	"	-13
710.00	68.6 Qp	2.6 / 20.4 / 28.0	63.6	V / 2.5 / 0.0	"	-13
225.85	54.6 Qp	1.4 / 11.1 / 28.2	38.8	H / 3.0 / 0.0	"	-13
355.00	65.1 Qp	1.8 / 15.0 / 28.2	53.8	H / 3.0 / 0.0	"	-13
79.95	60.6 Qp	0.9 / 7.5 / 28.2	40.8	H / 3.0 / 90.0	"	-13
426.00	76.4 Qp	2.0 / 16.9 / 28.1	67.2	H / 3.0 / 270.0	"	-13
426.00	79.4 Qp	2.0 / 16.9 / 28.1	70.2	H / 2.1 / 270.0	"	-13
355.00	66.5 Qp	1.8 / 15.0 / 28.2	55.2	H / 1.0 / 0.0	"	-13
568.00	62.3 Qp	2.3 / 18.3 / 28.1	54.9	H / 1.0 / 0.0	"	-13
639.00	63.8 Qp	2.5 / 19.8 / 28.0	58.1	H / 1.0 / 0.0	"	-13
225.85	57.2 Qp	1.4 / 11.1 / 28.2	41.5	H / 1.0 / 90.0	"	-13
497.00	68.4 Qp	2.2 / 17.4 / 28.1	59.9	H / 1.0 / 90.0	"	-13
710.00	72.5 Qp	2.6 / 20.4 / 28.0	67.5	H / 1.0 / 90.0	"	-13
909.75	64.1 Qp	2.9 / 23.0 / 27.7	62.3	H / 1.0 / 90.0	"	-13
SIGNAL GENERATOR/CABLE LOSS LEVEL = -20 DBM - 6 DB DIPOLE FACTOR = -26 DBM SUBSTITUTION LEVEL AT 426						
ABOVE READINGS TAKEN AT 869 MHZ XMIT FREQUENCY						
NO HIGHER LEVELS WITH 879 MHZ XMIT FREQUENCY						

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

# Radiated Electromagnetic Emissions



Test Report #: 2675 Run 02      Test Area: OW 3m  
 Test Method: N/A      Test Date: 05-Jun-2003  
 EUT Model #: DGVL-112110SYS & DGVL-122110SYS      EUT Power: 40 VDC  
 EUT Serial #: \_\_\_\_\_      Temperature: 22 °C  
 Manufacturer: ADC TELECOMMUNICATIONS      Relative Humidity: 50 %  
 EUT Description: CELLULAR A & B BAND SYSTEM      Air Pressure: 98.5 kPa  
 Notes: SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS      Page: 4 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
284.00	83.6 Qp	1.6 / 12.8 / 28.3	69.7	V / 1.0 / 270.0	See Measurement	-13
2840.10	38.3 Pk	5.7 / 31.1 / 27.6	47.6	H / 1.0 / 0.0	Summary – Pages 5&6	-13
5112.00	39.4 Pk	8.2 / 35.1 / 40.8	41.8	H / 3.0 / 0.0	"	-13
ABOVE READINGS WITH 891.5 MHZ XMIT FREQUENCY						
5679.95	39.7 Pk	8.9 / 36.0 / 40.9	43.7	H / 1.0 / 0.0	"	-13
5988.00	43.5 Pk	9.7 / 36.4 / 41.0	48.5	V / 1.0 / 0.0	"	-13
639.00	67.6 Qp	2.5 / 19.8 / 28.0	61.9	V / 1.0 / 0.0	"	-13
639.00	69.9 Qp	2.5 / 19.8 / 28.0	64.2	V / 1.2 / 0.0	"	-13
909.80	71.0 Qp	2.9 / 23.0 / 27.7	69.2	V / 1.5 / 75.0	"	-13
568.00	67.8 Qp	2.3 / 18.3 / 28.1	60.3	V / 1.2 / 270.0	"	-13
ABOVE READINGS AT 880 MHZ XMIT FREQUENCY						
NO HIGHER LEVELS WITH 887 MHZ XMIT FREQUENCY						
NO HIGHER LEVELS WITH 894 MHZ XMIT FREQUENCY						
SCANNED 30-9000 MHZ, 360 DEGREES, 1-4 METERS HIGH, VERT. AND HOR. POLARIZATION.						

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

# Radiated Electromagnetic Emissions



Test Report #:	2675 Run 02	Test Area:	OW 3m
Test Method:	N/A	Test Date:	05-Jun-2003
EUT Model #:	DGVL-112110SYS & DGVL-122110SYS	EUT Power:	40 VDC
EUT Serial #:		Temperature:	22 °C
Manufacturer:	ADC TELECOMMUNICATIONS	Relative Humidity:	50 %
EUT Description:	CELLULAR A & B BAND SYSTEM	Air Pressure:	98.5 kPa
Notes:	SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS		Page: 5 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
---------------	-----------------	--	-----------------	-----------------------------	------------	--------------

***** MEASUREMENT SUMMARY *****						
30.50	60.9 Qp	0.5 / 20.6 / 28.3	53.7	V / 1.0 / 270.0	-42.5	-13
58.95	66.7 Qp	0.7 / 11.8 / 28.2	51.1	V / 1.0 / 0.0	-45.1	-13
79.63	58.3 Pk	0.9 / 7.5 / 28.2	38.5	V / 1.0 / 0.0	-57.7	-13
79.95	60.6 Qp	0.9 / 7.5 / 28.2	40.8	H / 3.0 / 90.0	-55.4	-13
103.40	68.9 Qp	1.0 / 9.2 / 28.2	50.9	V / 1.0 / 90.0	-45.3	-13
142.00	77.4 Qp	1.1 / 8.9 / 28.3	59.1	V / 1.0 / 180.0	-37.1	-13
156.20	59.4 Qp	1.3 / 9.2 / 28.2	41.6	V / 1.0 / 180.0	-54.6	-13
178.50	57.0 Qp	1.3 / 9.1 / 28.3	39.1	V / 1.0 / 90.0	-57.1	-13
213.00	68.2 Qp	1.4 / 10.8 / 28.2	52.2	V / 1.0 / 180.0	-44.0	-13
225.85	57.2 Qp	1.4 / 11.1 / 28.2	41.5	H / 1.0 / 90.0	-54.7	-13
284.00	83.6 Qp	1.6 / 12.8 / 28.3	69.7	V / 1.0 / 270.0	-26.5	-13
323.70	44.8 Qp	1.7 / 13.7 / 28.2	32.0	V / 3.0 / 180.0	-64.2	-13
355.00	66.5 Qp	1.8 / 15.0 / 28.2	55.2	H / 1.0 / 0.0	-41.0	-13
426.00	79.4 Qp	2.0 / 16.9 / 28.1	70.2	H / 2.1 / 270.0	-26.0	-13
497.00	68.4 Qp	2.2 / 17.4 / 28.1	59.9	H / 1.0 / 90.0	-36.3	-13
548.60	36.8 Qp	2.3 / 18.8 / 28.1	29.7	V / 1.0 / 0.0	-66.5	-13
568.00	67.8 Qp	2.3 / 18.3 / 28.1	60.3	V / 1.2 / 270.0	-35.9	-13
639.00	69.9 Qp	2.5 / 19.8 / 28.0	64.2	V / 1.2 / 0.0	-32.0	-13
653.70	31.5 Qp	2.5 / 19.8 / 28.0	25.8	V / 1.0 / 0.0	-70.4	-13
710.00	72.5 Qp	2.6 / 20.4 / 28.0	67.5	H / 1.0 / 90.0	-28.7	-13
781.00	55.7 Qp	2.7 / 21.7 / 27.9	52.2	V / 1.0 / 180.0	-44.0	-13
801.90	32.7 Qp	2.7 / 21.9 / 27.9	29.6	V / 1.0 / 0.0	-66.6	-13

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature



# Radiated Electromagnetic Emissions



Test Report #: 2675 Run 02 Test Area: OW 3m  
 Test Method: N/A Test Date: 05-Jun-2003  
 EUT Model #: DGVL-112110SYS & DGVL-122110SYS EUT Power: 40 VDC  
 EUT Serial #: \_\_\_\_\_ Temperature: 22 °C  
 Manufacturer: ADC TELECOMMUNICATIONS Relative Humidity: 50 %  
 EUT Description: CELLULAR A & B BAND SYSTEM Air Pressure: 98.5 kPa  
 Notes: SEE MEASUREMENT SUMMARY FOR FINAL dBm LEVELS Page: 6 of 6

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	erp dBm	LIMIT dBm
---------------	-----------------	--	-----------------	-----------------------------	------------	--------------

***** MEASUREMENT SUMMARY CONTINUED*****						
852.00	50.4 Qp	2.9 / 22.3 / 27.7	47.9	V / 1.0 / 180.0	-48.3	-13
909.80	71.0 Qp	2.9 / 23.0 / 27.7	69.2	V / 1.5 / 75.0	-27.0	-13
994.00	56.4 Qp	3.2 / 22.7 / 27.7	54.5	V / 1.0 / 0.0	-41.7	-13
1064.95	55.9 Pk	3.3 / 23.1 / 27.7	54.6	V / 1.0 / 0.0	-41.6	-13
1136.15	48.2 Pk	3.2 / 23.9 / 27.7	47.6	V / 1.0 / 0.0	-48.6	-13
1207.07	50.5 Pk	3.3 / 24.0 / 27.7	50.2	V / 1.0 / 180.0	-46.0	-13
1278.07	47.3 Pk	3.6 / 24.8 / 27.8	47.9	V / 1.0 / 270.0	-48.3	-13
1349.15	54.1 Pk	3.6 / 25.8 / 27.9	55.6	V / 1.0 / 0.0	-40.6	-13
1491.15	40.4 Pk	3.8 / 27.0 / 28.0	43.2	V / 1.0 / 0.0	-53.0	-13
1633.20	42.6 Pk	4.0 / 27.8 / 28.0	46.3	V / 1.0 / 0.0	-49.9	-13
1738.08	55.5 Pk	4.1 / 28.2 / 28.0	59.8	V / 1.0 / 90.0	-36.4	-13
2840.10	38.3 Pk	5.7 / 31.1 / 27.6	47.6	H / 1.0 / 0.0	-48.6	-13
5112.00	39.4 Pk	8.2 / 35.1 / 40.8	41.8	H / 3.0 / 0.0	-54.4	-13
5679.95	39.7 Pk	8.9 / 36.0 / 40.9	43.7	H / 1.0 / 0.0	-52.5	-13
5988.00	43.5 Pk	9.7 / 36.4 / 41.0	48.5	V / 1.0 / 0.0	-47.7	-13

Tested by: J. T. SCHNEIDER

\_\_\_\_\_  
Printed

\_\_\_\_\_  
Signature

Reviewed by: T. K. Swanson

\_\_\_\_\_  
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
- Max composite in and out.

**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: 05 June 2003

Testing End Date: 05 June 2003

- TÜV PRODUCT SERVICE INC -

*Thomas K. Swanson*

*Joel T. Schneider*

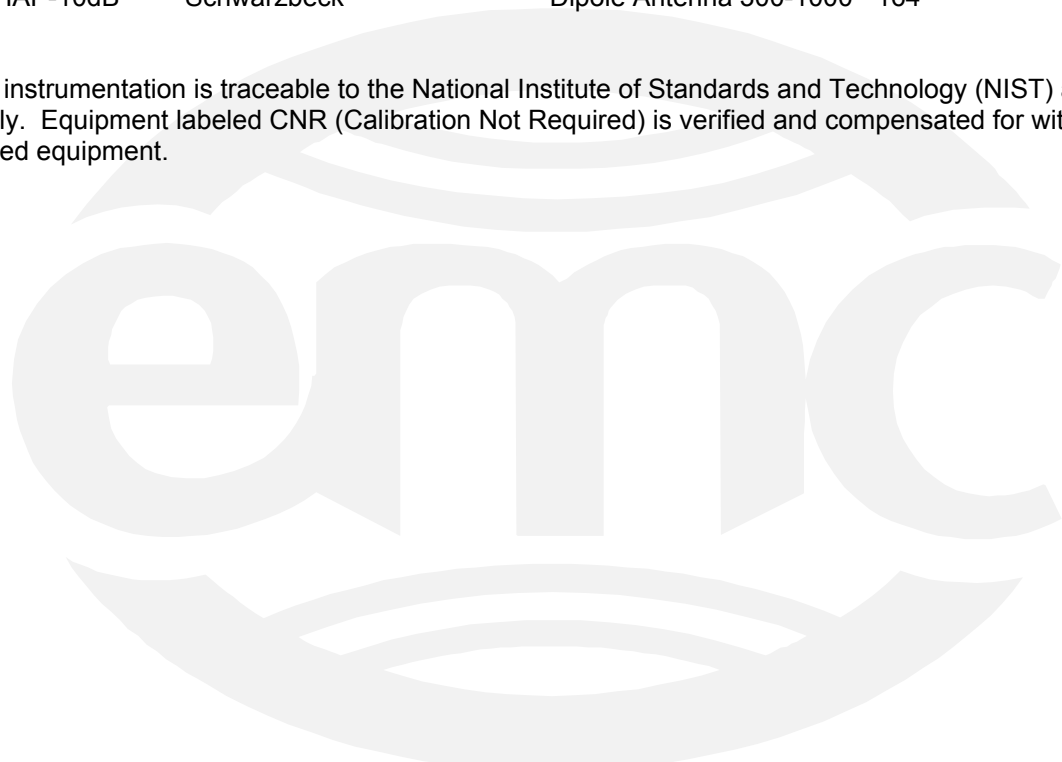
Reviewed By:  
T. K. Swanson

Tested By:  
J. T. Schneider

Test Equipment List

	<b>TUV ID</b>	<b>Model Number</b>	<b>Manufacturer</b>	<b>Description</b>	<b>Serial Number</b>	<b>Cal Due</b>
■ -	3932	8566B	Hewlett-Packard	Spectrum Analyzer	2115A00853	9-03-03
■ -	3931	85662A	Hewlett-Packard	Analyzer Display	2112A02220	9-03-03
■ -	2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	2-08-04
■ -	3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	3-04-04
■ -	3927	ZHL-1042J-SMA	Mini-Circuits	Preamplifier	D113001-16	2-28-04
■ -	2074	3115	Electro-Mechanics (EMCO)	Ridge Guide Antenna	2504	10-15-03
■ -	2478	AWT-18037	Avantek	Preamplifier 8-18 GHz	1001-9226	4-17-04
■ -	2477	AFT-8434	Avantek	Preamplifier 4-8 GHz	2613A92801	4-17-04
■ -	2396	2520	Wavetek	Signal Generator	6271013	6-05-03
■ -	3236	UHAP-10dB	Schwarzbeck	Dipole Antenna 300-1000	164	N/A

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.



**Appendix A**

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 800 MHz System (A and B Band)

Model No.: DGVL-112110SYS Serial No.: None  
and DGVL-122110SYS

Product Options: Receive Diversity

Configurations to be tested: 800 MHz A Band and B 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>22</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)): 2.5 Current (Amps/phase(nominal)): 1.5

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-102010HU	None	
STM A Band	DGVL-112101STM	None	
STM B Band	DGVL-122010STM	None	
Amp	DGVL-102000LPA	None	
Digivance LRCS 800 MHz System Model DGVL-112110SYS and DGVL-122110SYS 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 E4432B	MC22109	
DC Power Supply	Xantrex HPD 60-5	MC27884	

<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 E. Moran  
 Customer authorization to perform tests according to this test plan.

6-16-03  
 Date

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

\_\_\_\_\_  
 Date

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

\_\_\_\_\_  
 Date