TEST RESULT SUMMARY

FCC PART 90

MANUFACTURER'S NAME	ADC, Incorporated
NAME OF EQUIPMENT	Digivance Indoor Coverage Solution - SMR System
TYPE OF EQUIPMENT	Digivance ICS is a digitally distributed antenna system that provides in-building coverage for wireless phone systems.
MODEL NUMBER	**DGVI-2XXXXXDHU** **DGVI-2XXXXXDRU**
MANUFACTURER'S ADDRESS	P. O. Box 1101 Minneapolis MN 55440-1101
TEST REPORT NUMBER	NC205189
TEST DATE	08 October 2002

According to testing performed at TÜV Product Service Inc, the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in FCC Part 90.

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 90.

Date: 21 October 2002

Location: Taylors Falls MN USA

G. S. Jakubowski
Test Engineer

J. T. Schneider
Chief Engineer

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.

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

EMC EMISSION - T E S T R E P O R T

Test Report File Number: NC205189

Date of Issue: 21 October 2002

D I R E C T O R Y

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

Effective Isotropic Radiated Power Limit Test for ADC Inc Digivance Indoor Coverage Solution Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

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

This measurement was made as a direct conducted emission measurement. The output from the EUT antenna connector was connected to the spectrum analyzer. The Carrier Output, below, was conducted using a single CW signal generator. The spectrum analyzer level was offset to compensate for attenuators and cable loss between the EUT and the analyzer.

A CW signal was used at the low, mid and high parts of the selected band. The spectrum analyzer level was offset by 21.3dB to compensate for attenuators and cable loss between the EUT and the analyzer.

Band SMR

Carrier Frequency	Carrier Output
851.0 MHz	+ 13.30dBm
860.0 MHz	+ 15.13dBm
869.0 MHz	+ 14.13dBm

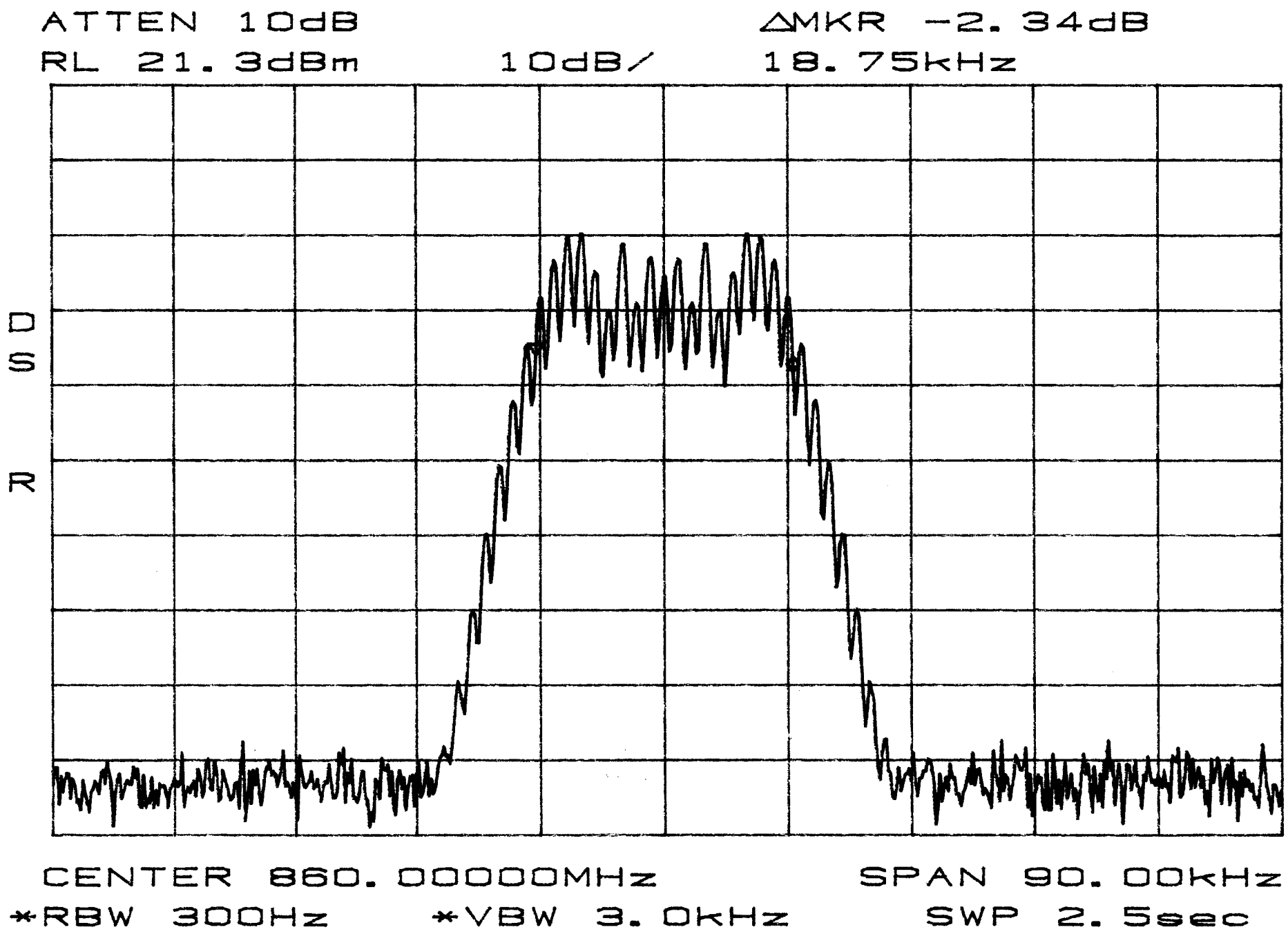
Occupied Bandwidth Modulation Test for ADC Inc Digivance Indoor Coverage Solution Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

An input/output Occupied Bandwidth test was done with three different modulation types: FM (1 kHz @ 8 kHz deviation) TDMA, and CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

Results:

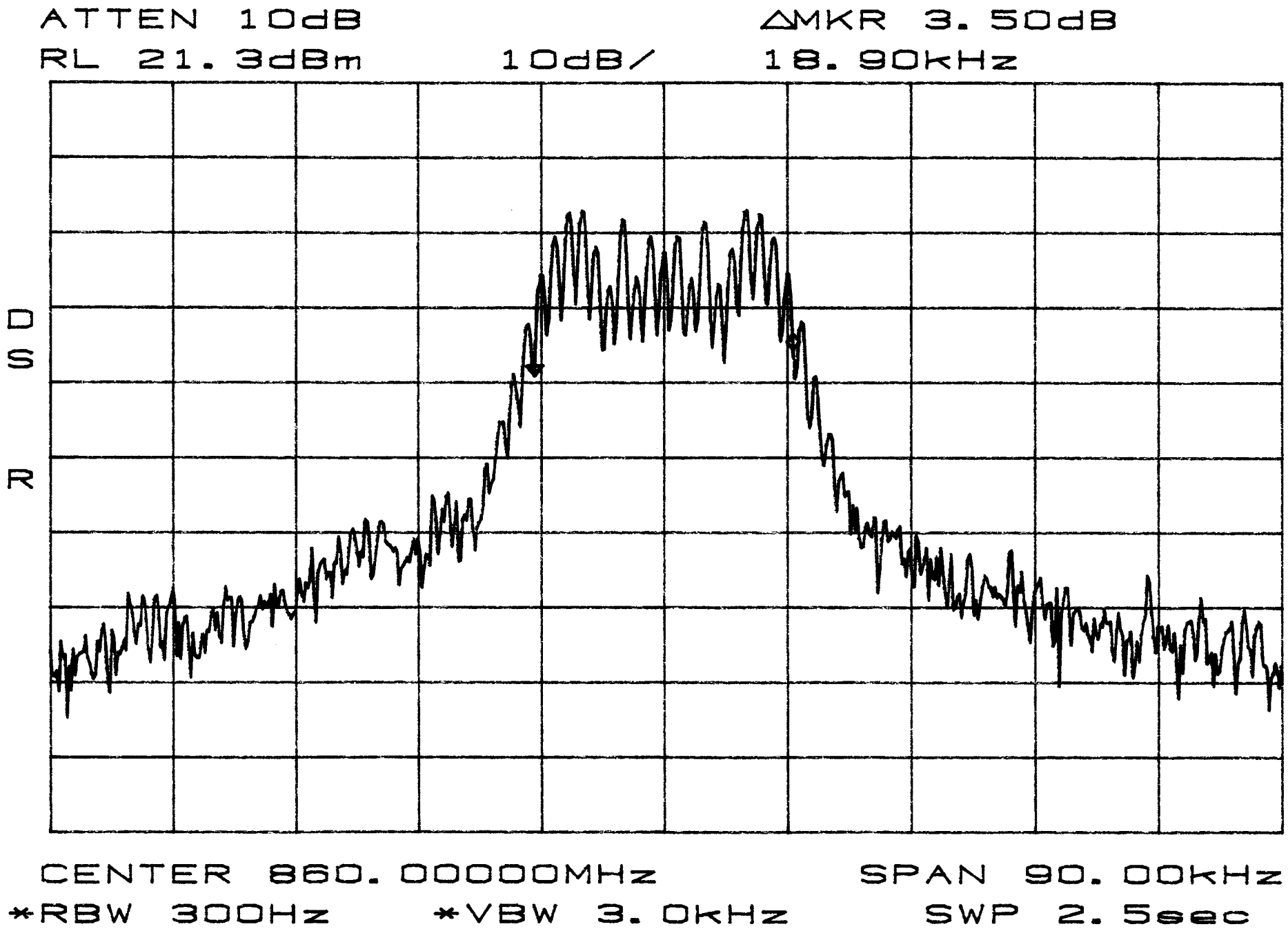
Pass (see plots)

Occupied Band Width BAND SMR
FM IN

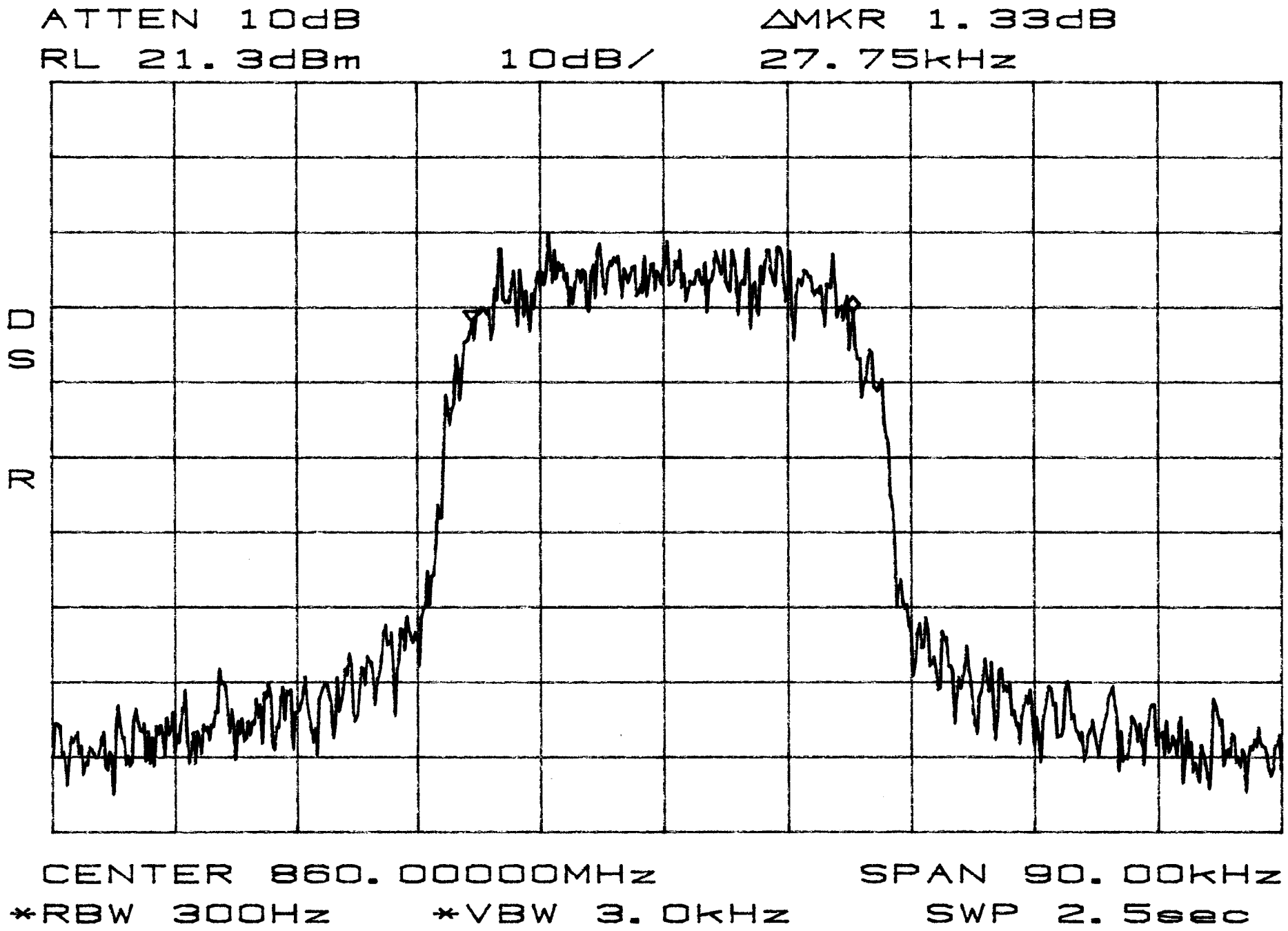


Occupied Band Width
FM OUT

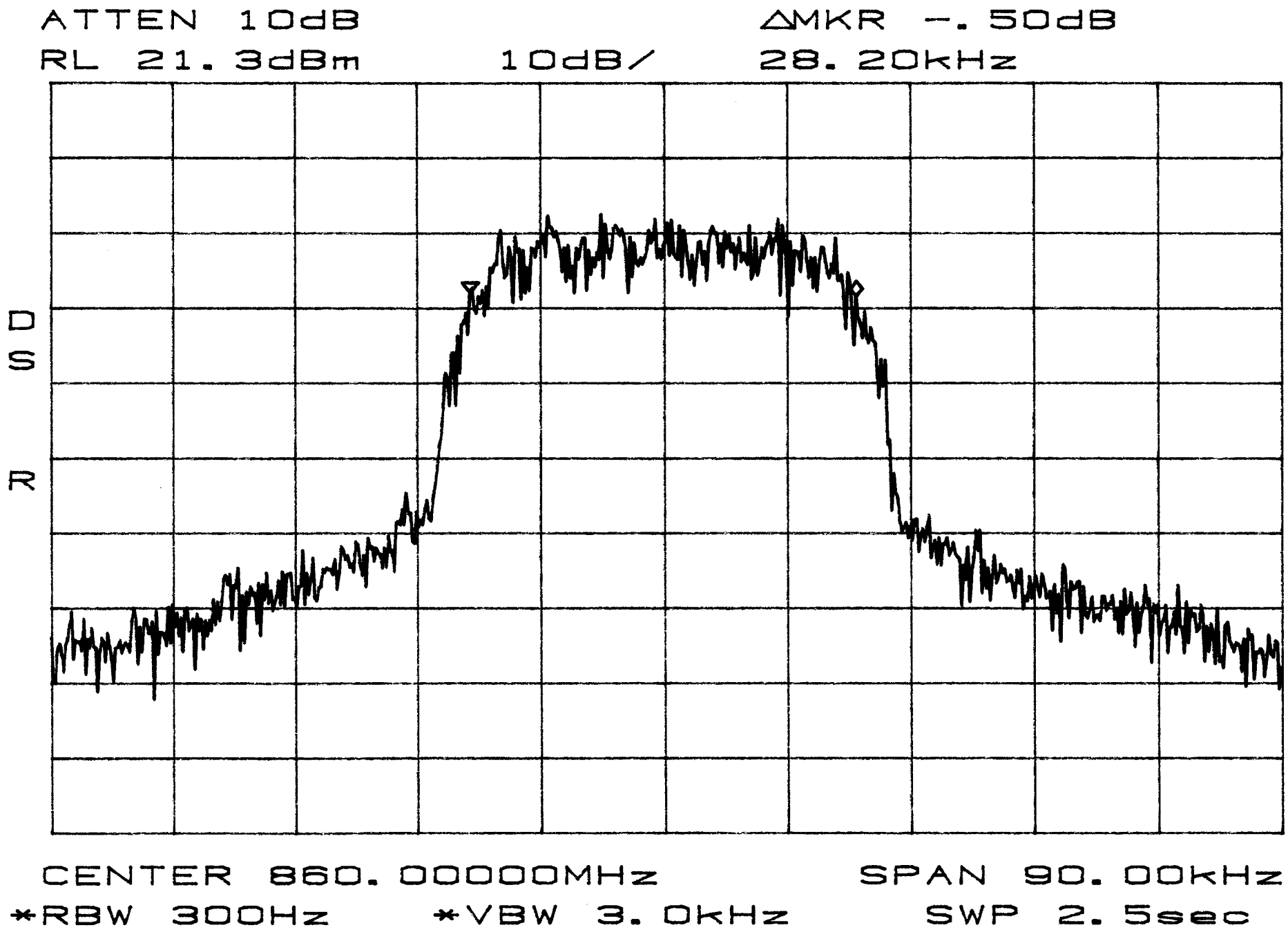
BAND SMR



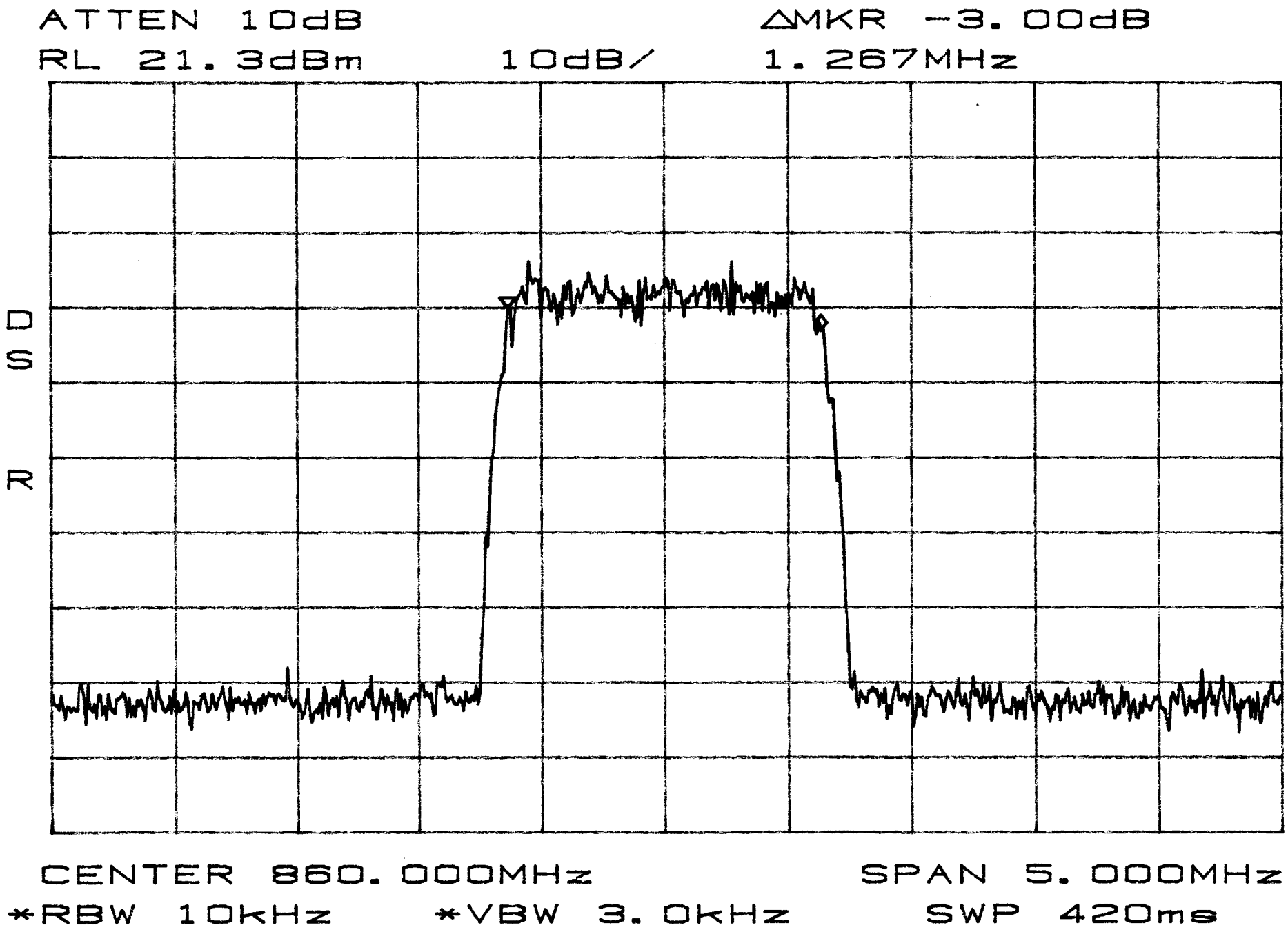
Occupied Band Width BAND SMR
TDMA IN



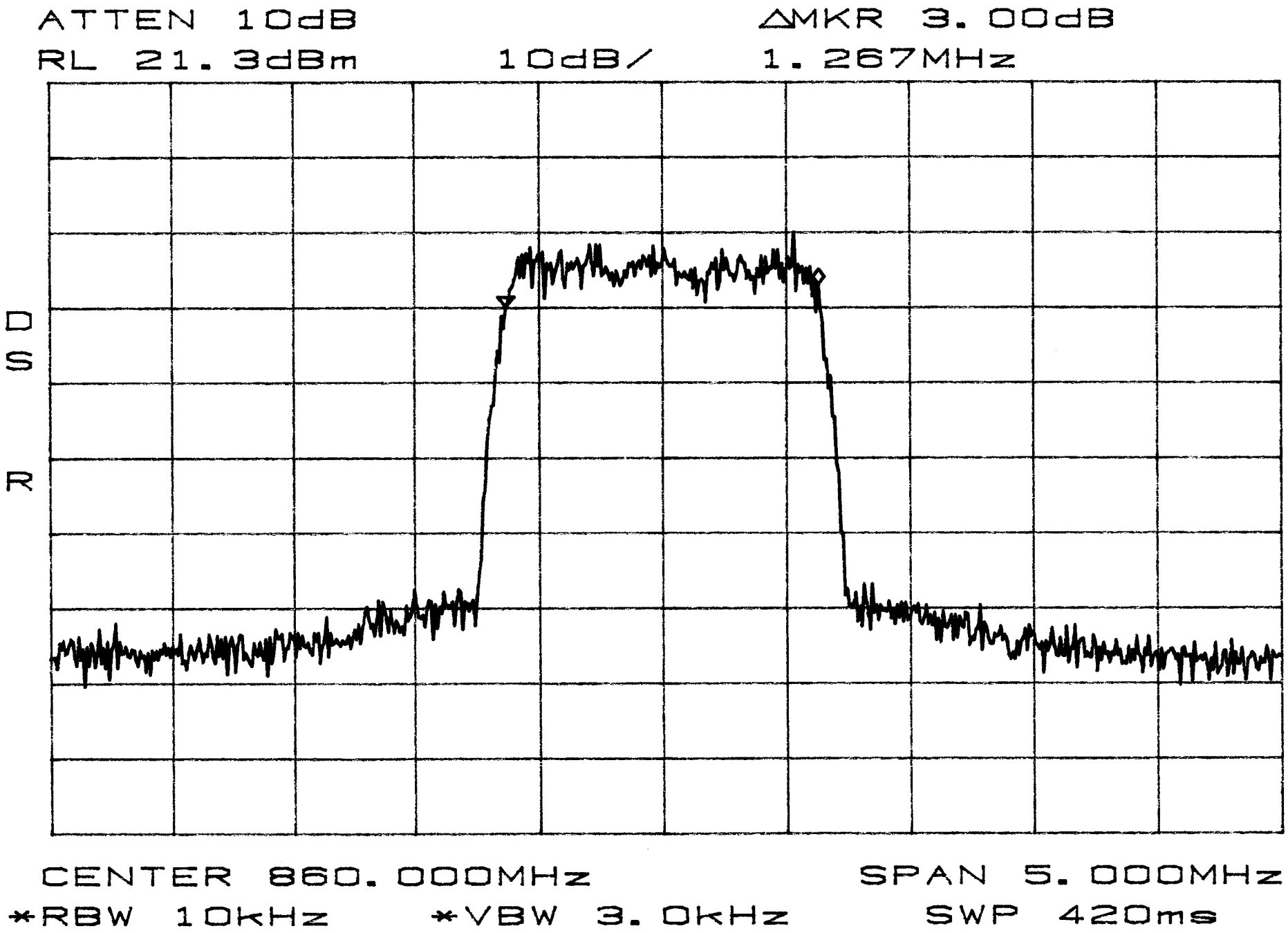
Occupied Band Width BAND SMR
TDMA OUT



Occupied BAnd width BAND SMR
CDMA IN



Occupied Band Width BAND SMR
CDMA OUT



Conducted Emission Limits Test for ADC Inc
Digivance Indoor Coverage Solution
Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10^{th} 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

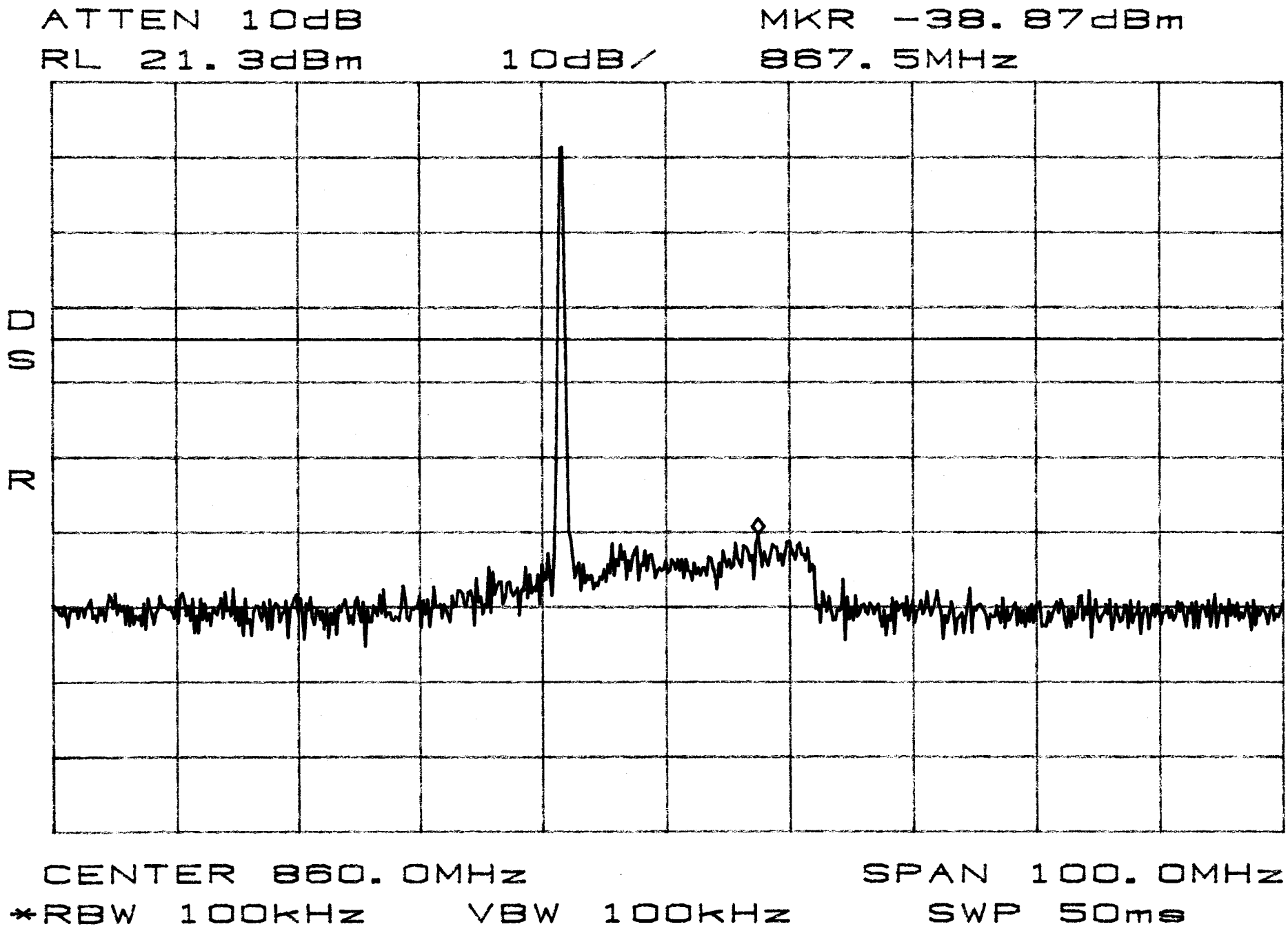
$$(19\text{dBm} - [43 + 10\log(0.08\text{W})])$$

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.

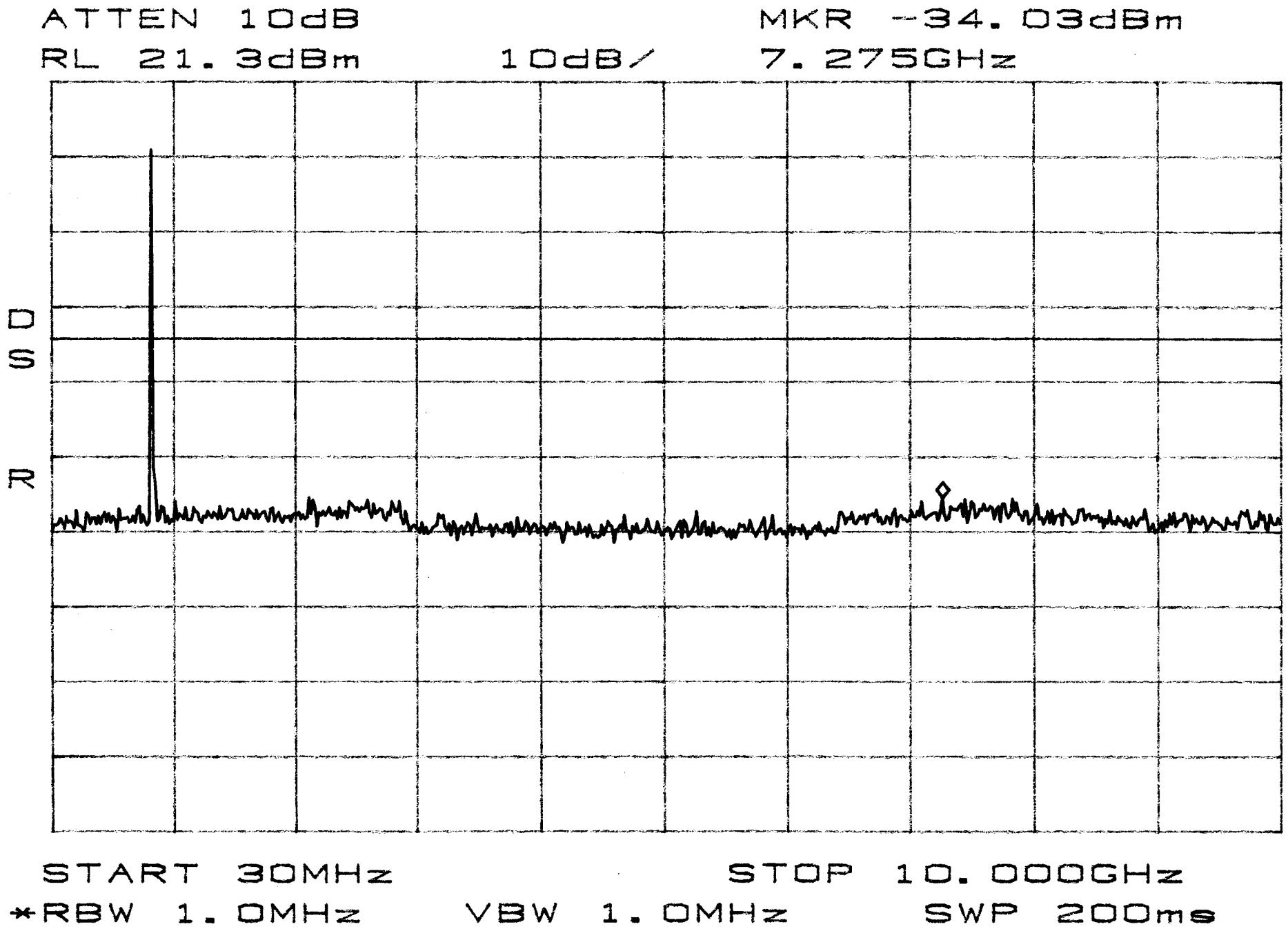
Results:

Pass (see plots)

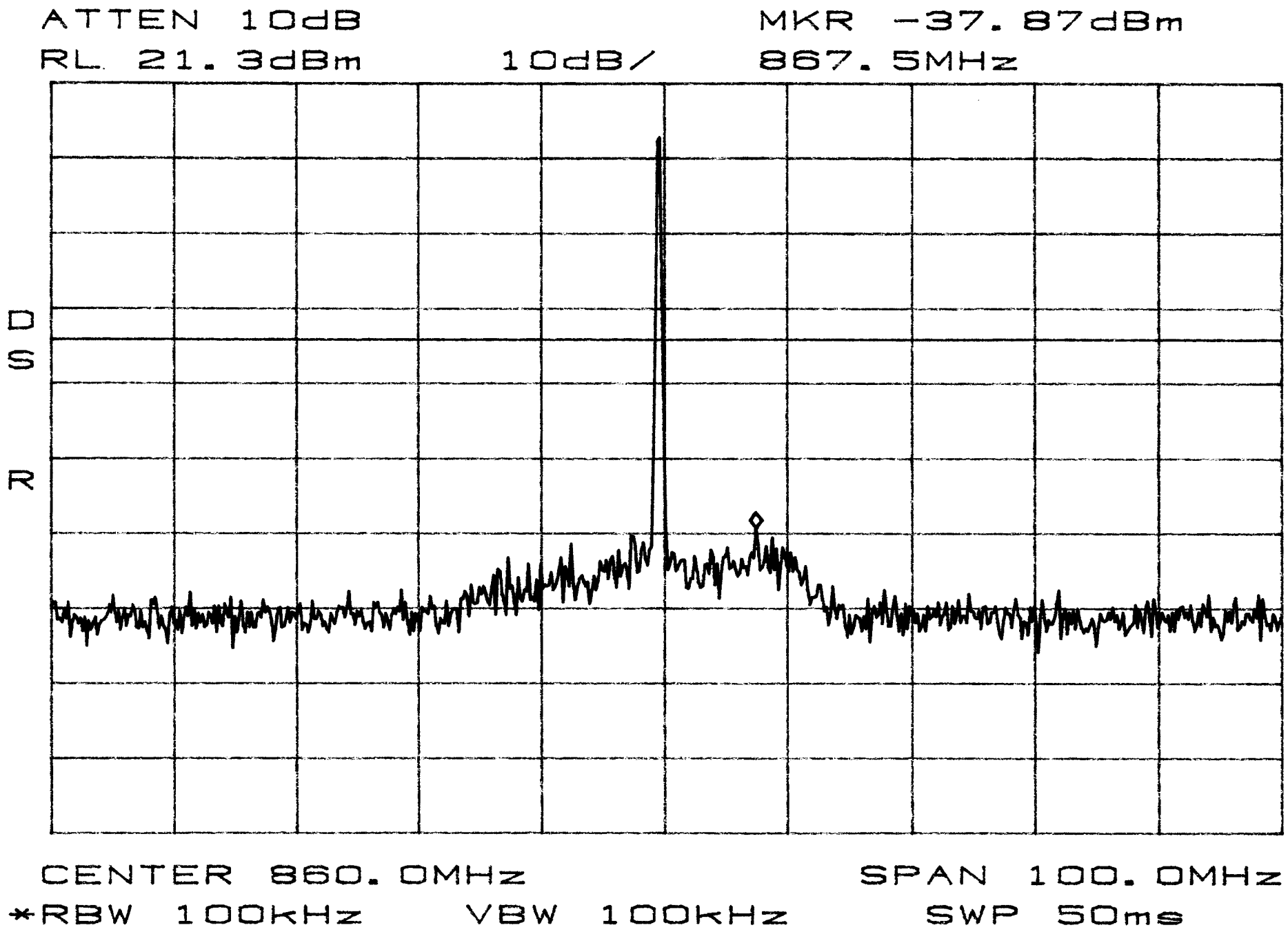
Conducted Emissions Band SMR
Low



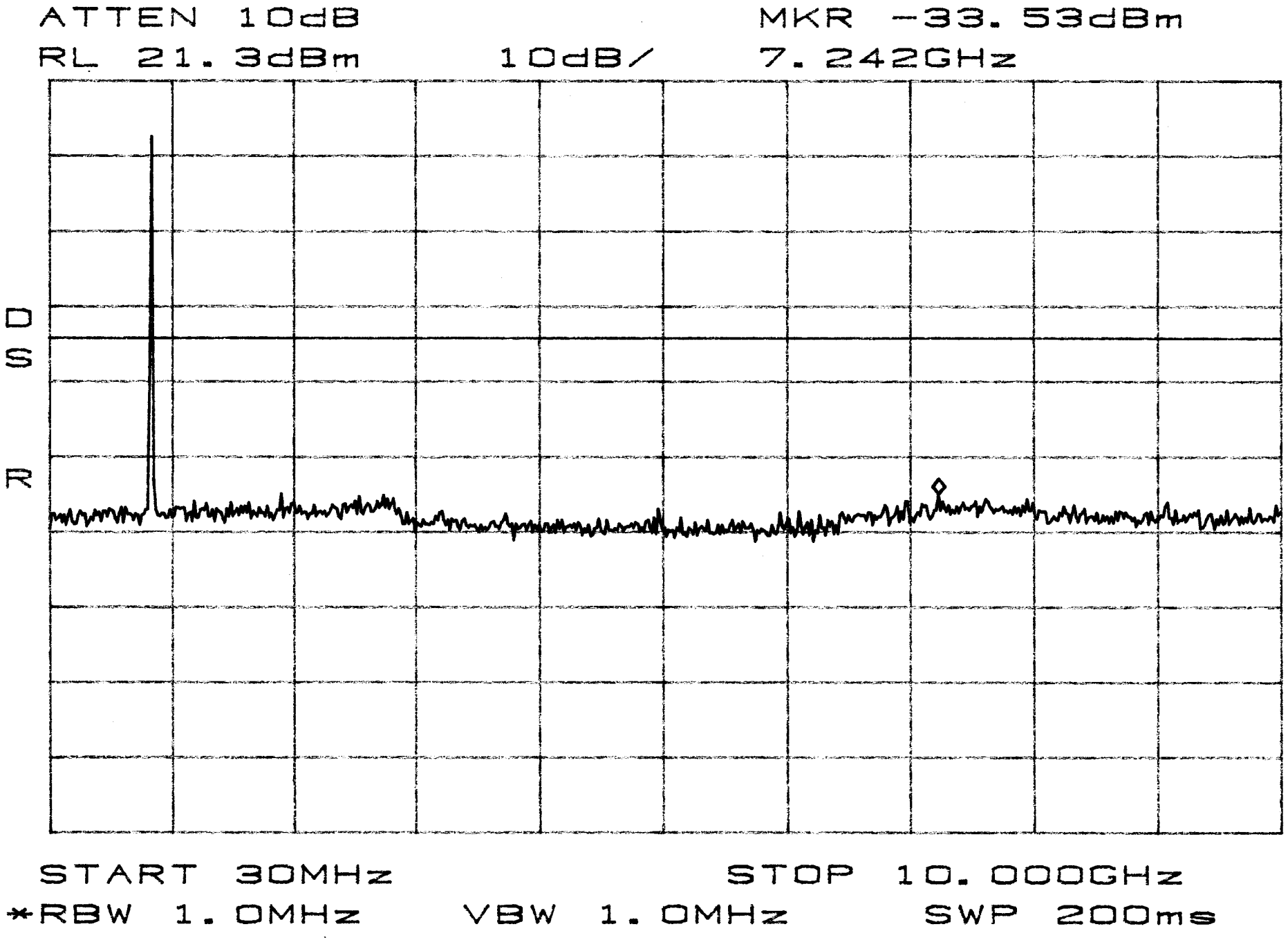
Conducted Emissions Band SMR
Low



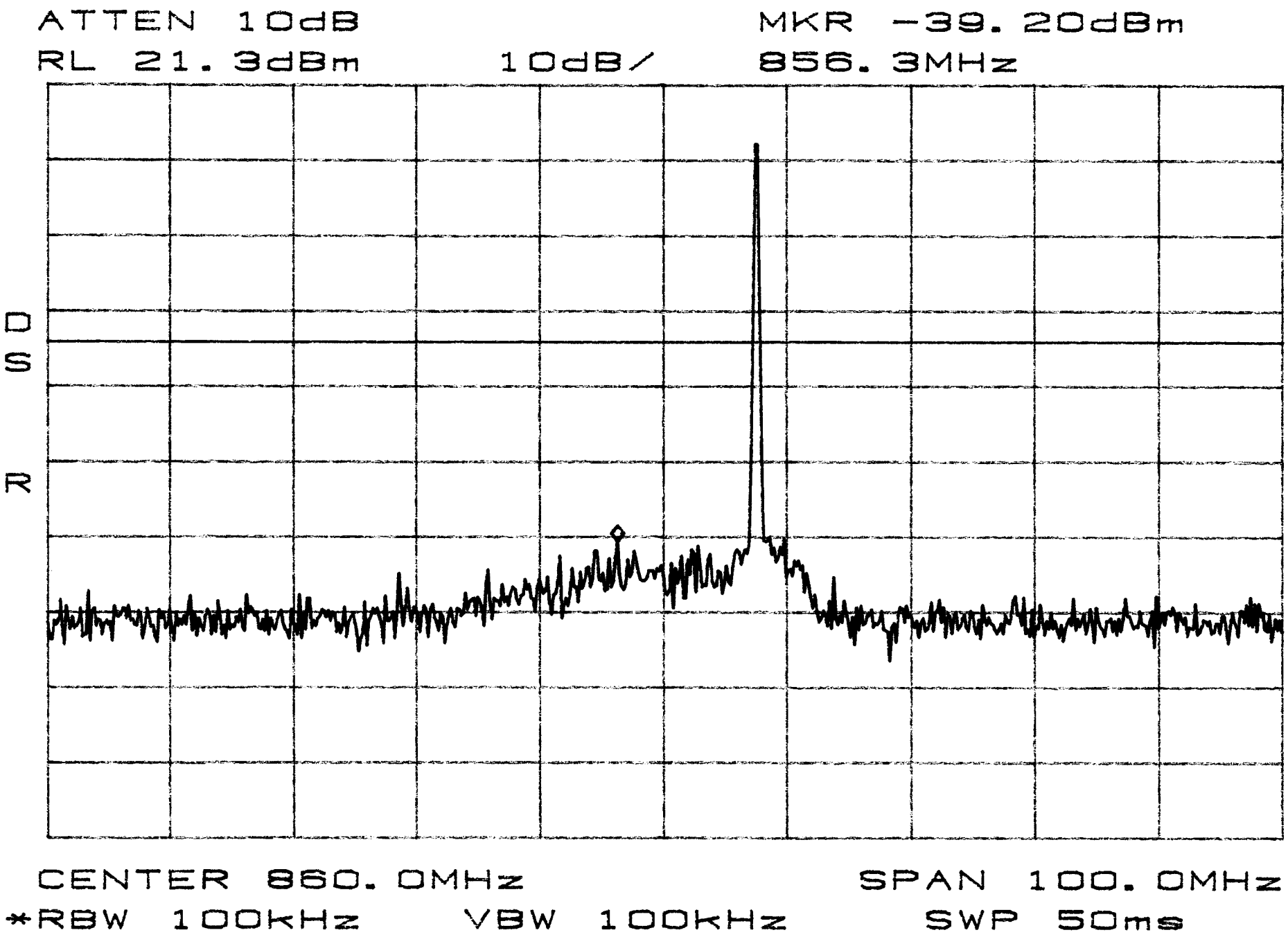
Conducted Emissions Band 5MR
Mid



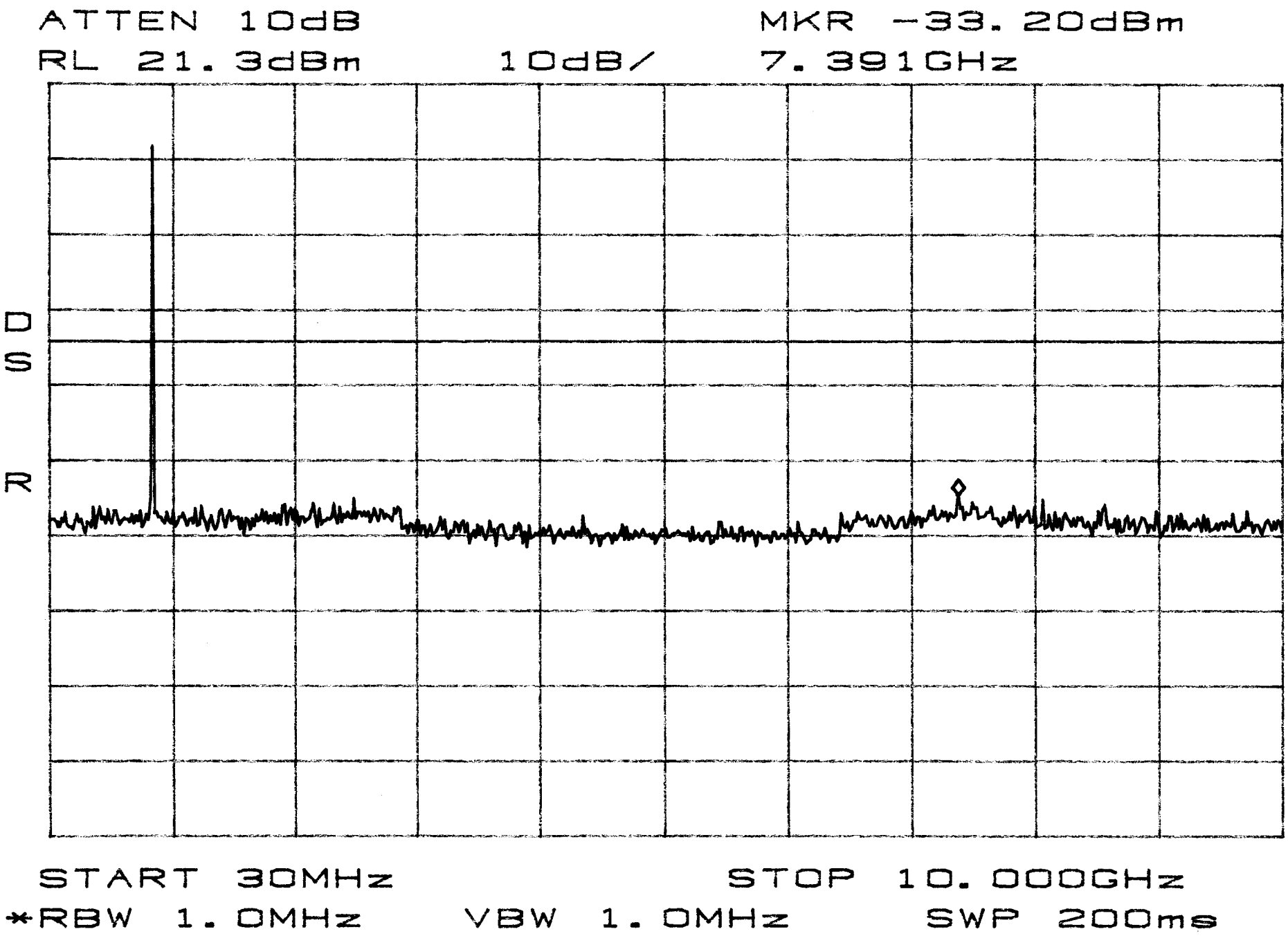
Conducted Emissions Band 3MR
Mid



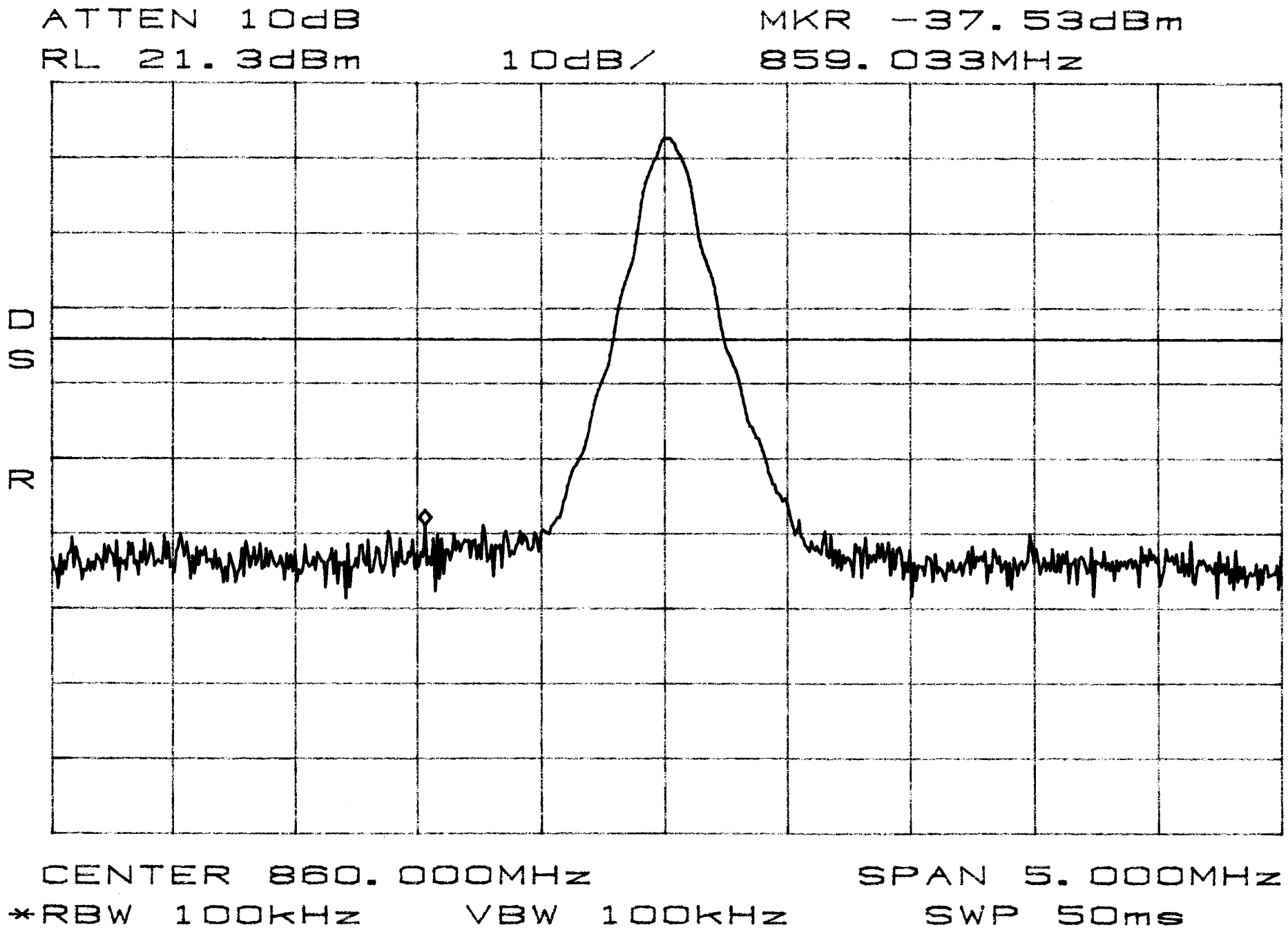
Conducted Emissions Band SMR
High



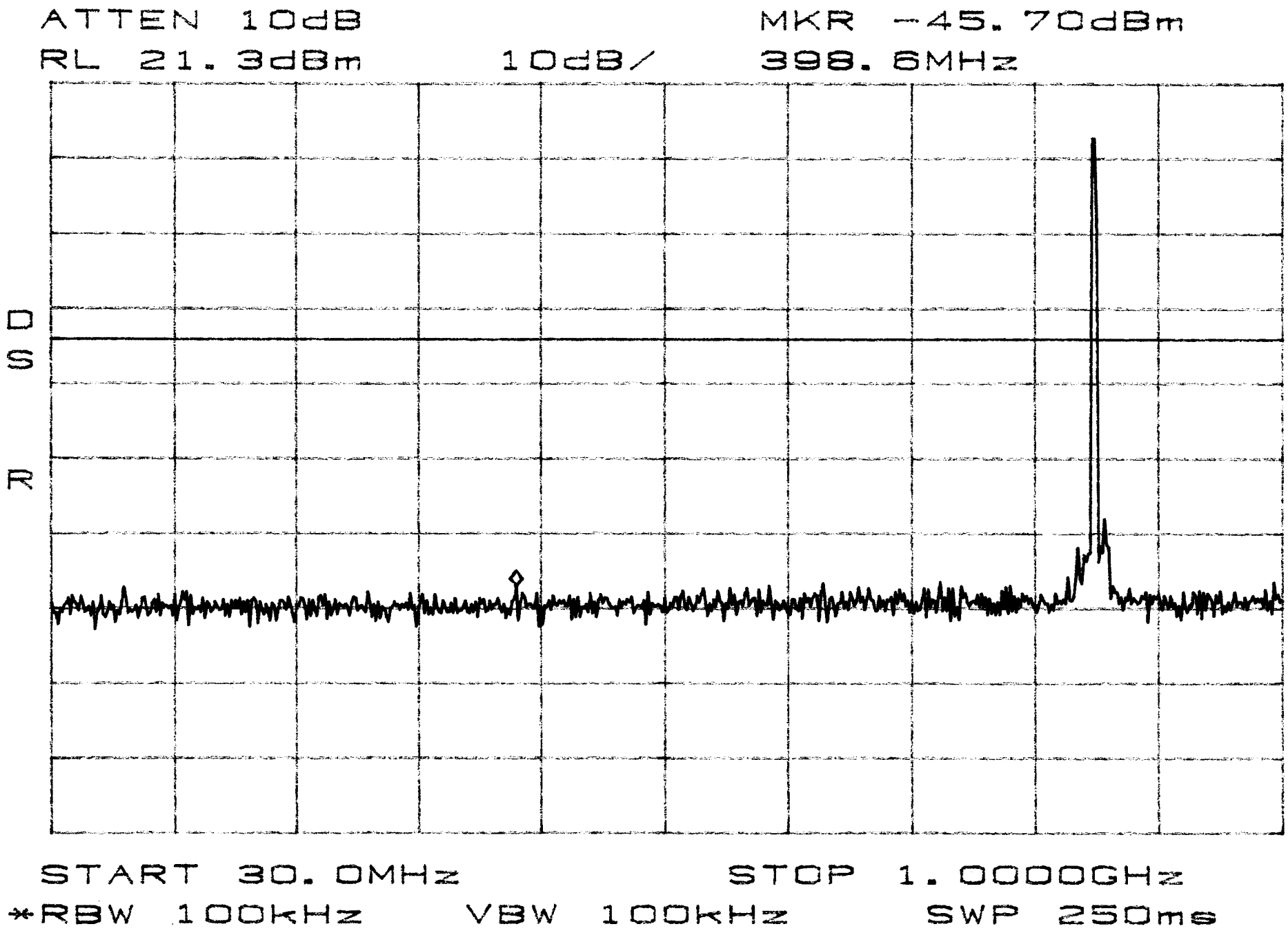
Conducted Emissions Band 3MR
High



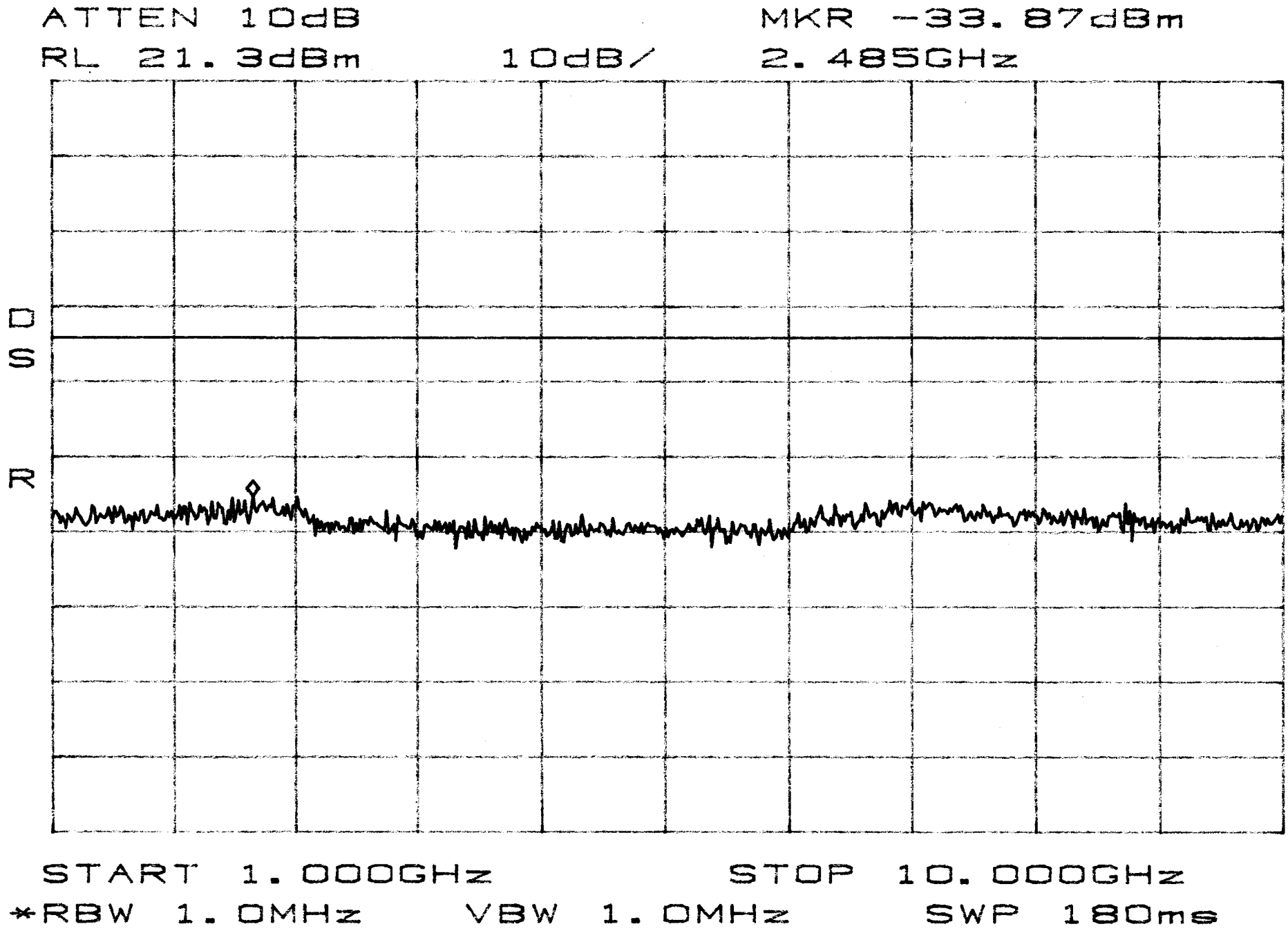
Conducted Emissions Band SMR
FM



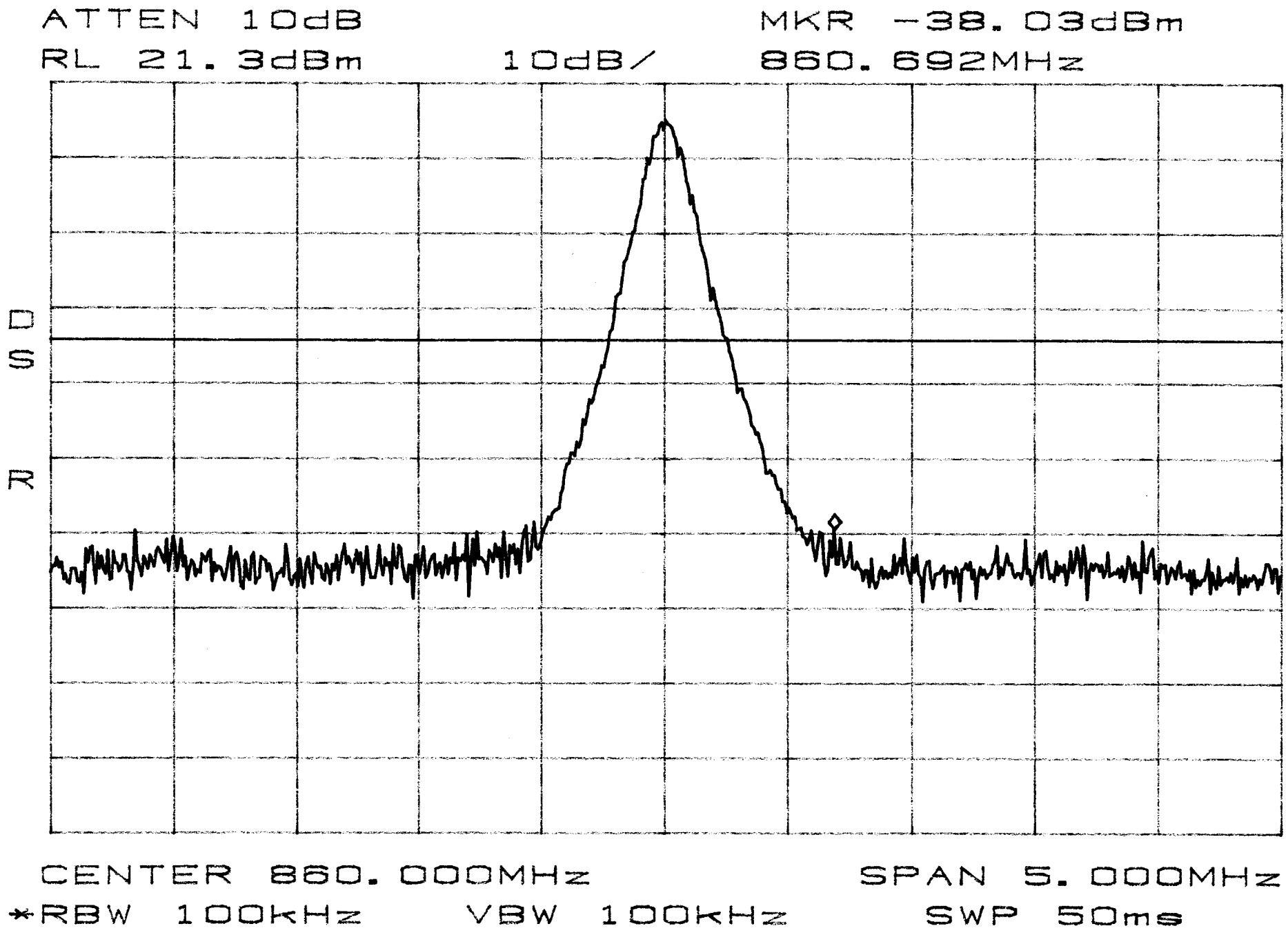
Conducted Emissions Band SMR
FM



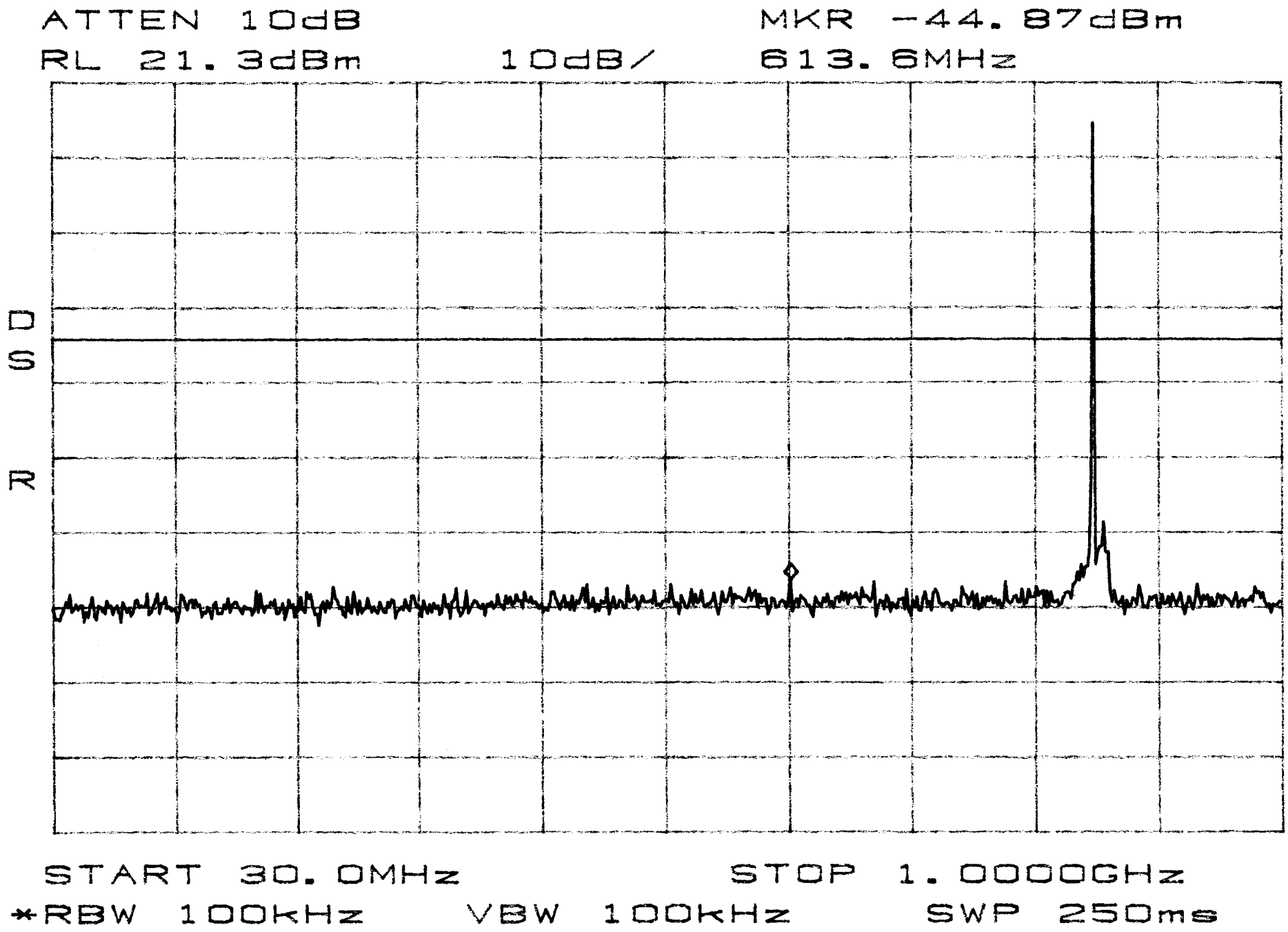
Conducted Emissions Band SMR
FM



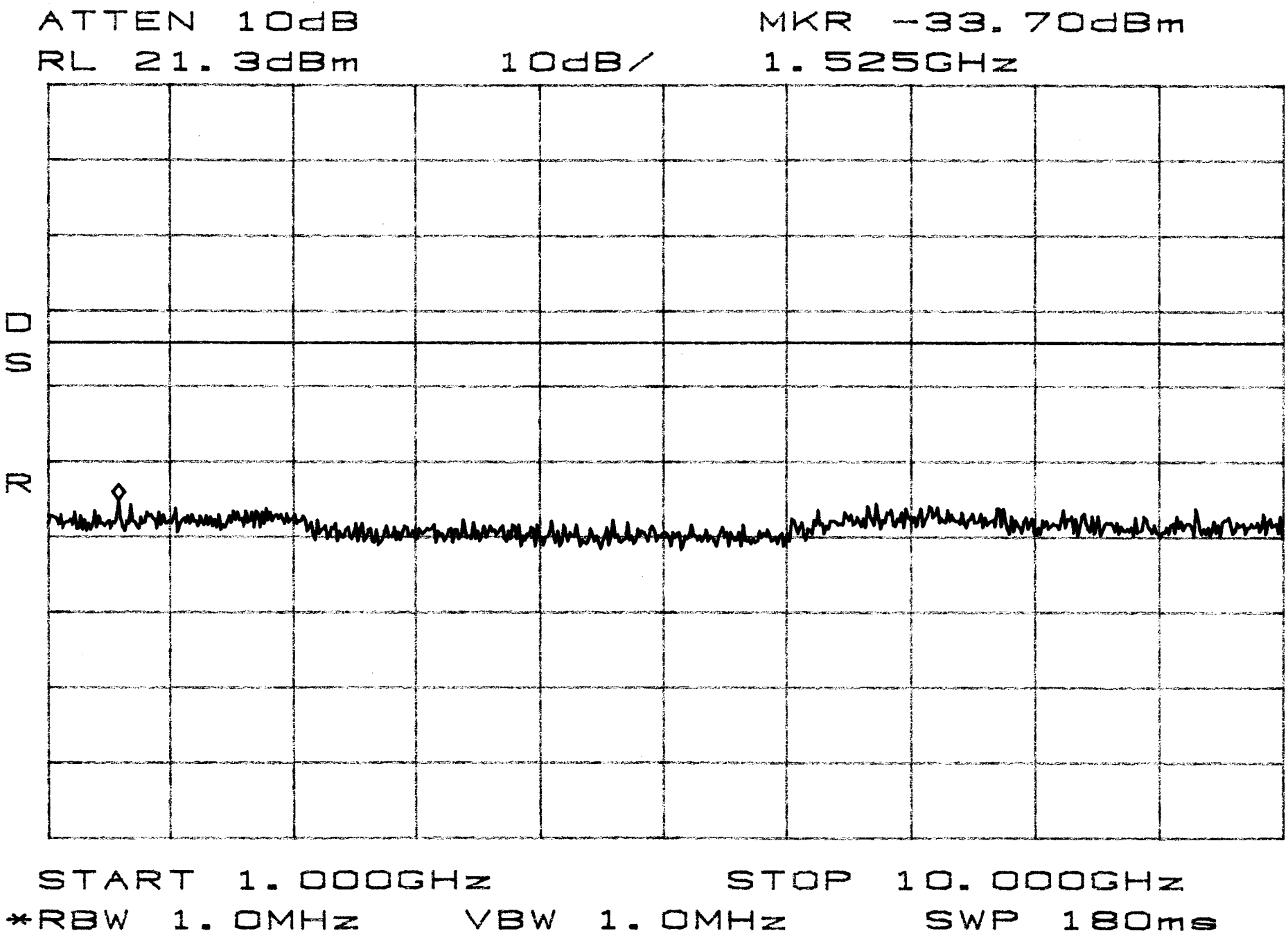
Conducted Emissions Band SMR
TDMA



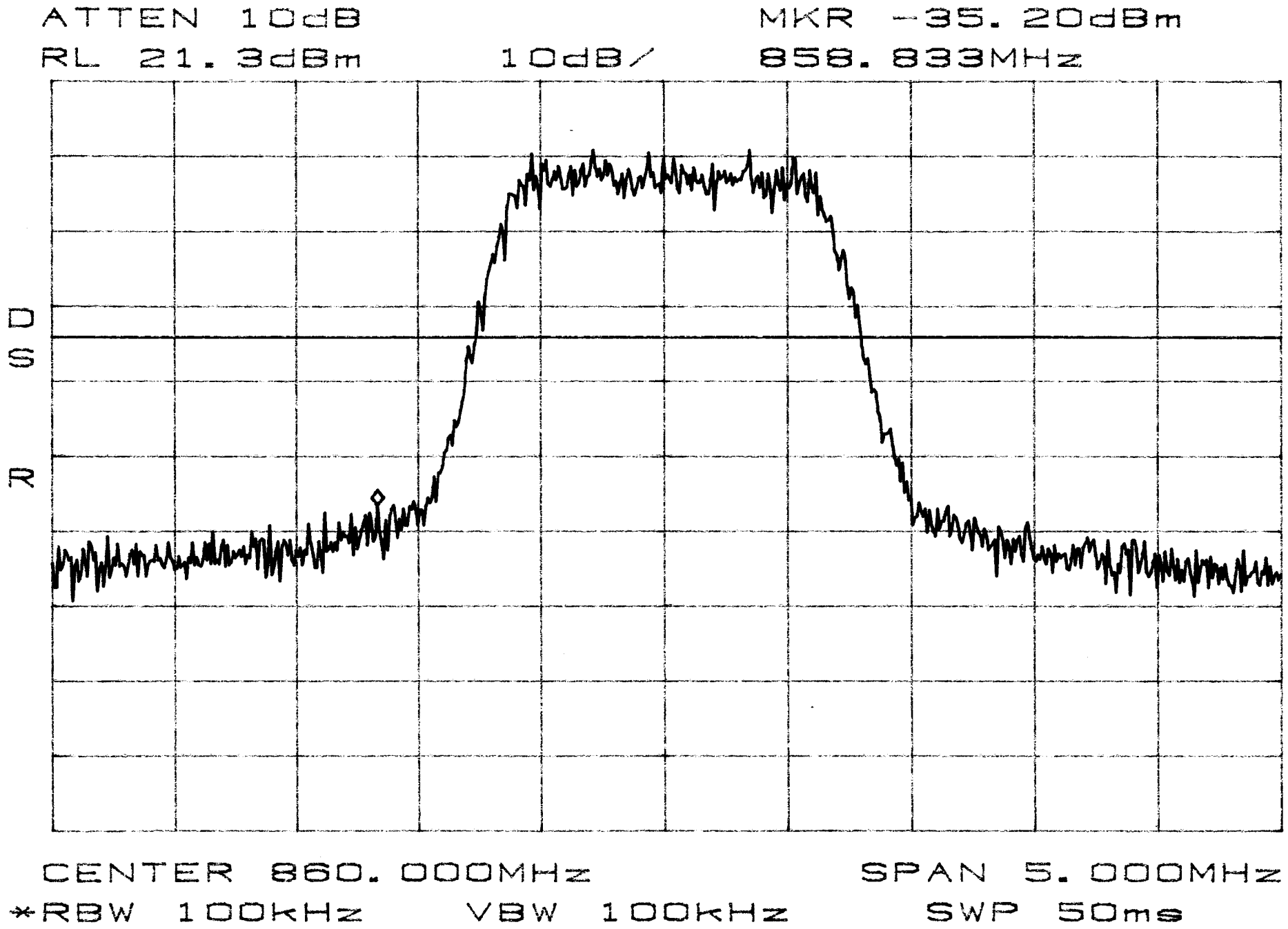
Conducted Emissions Band SMR
TDMA



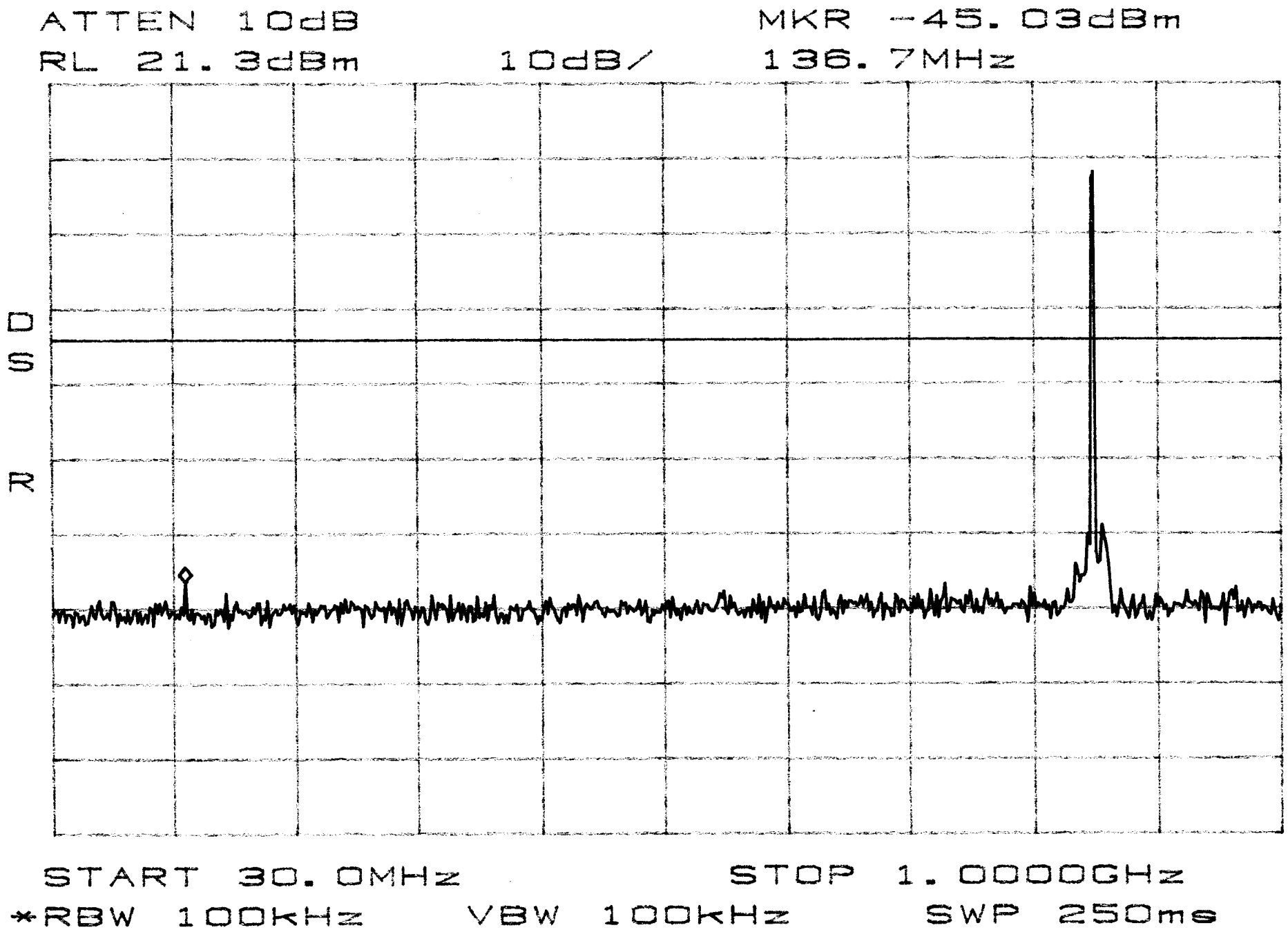
Conducted Emissions Band SMR
TDMA



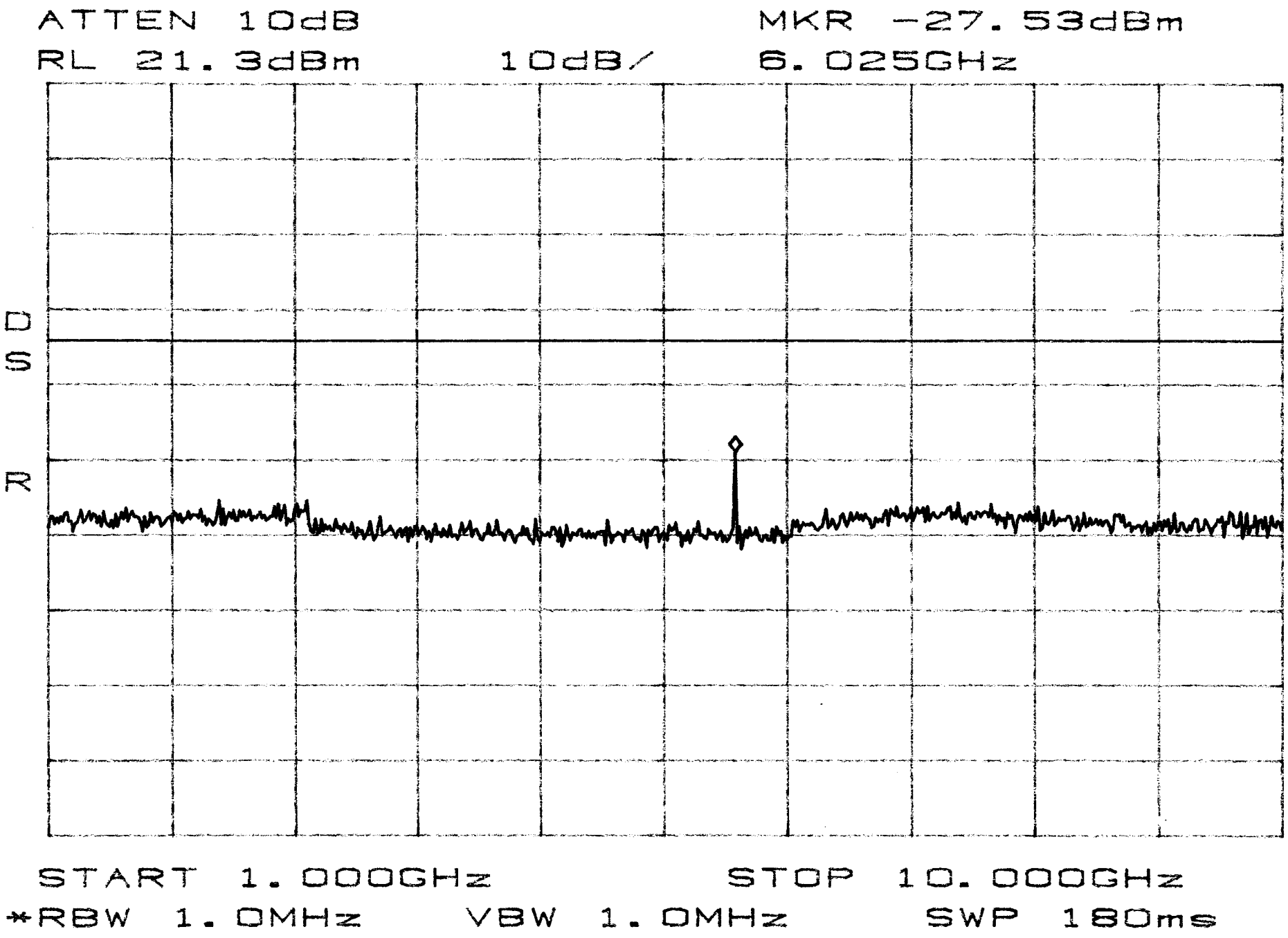
Conducted Emissions Band SMR
CDMA



Conducted Emissions Band SMR
CDMA



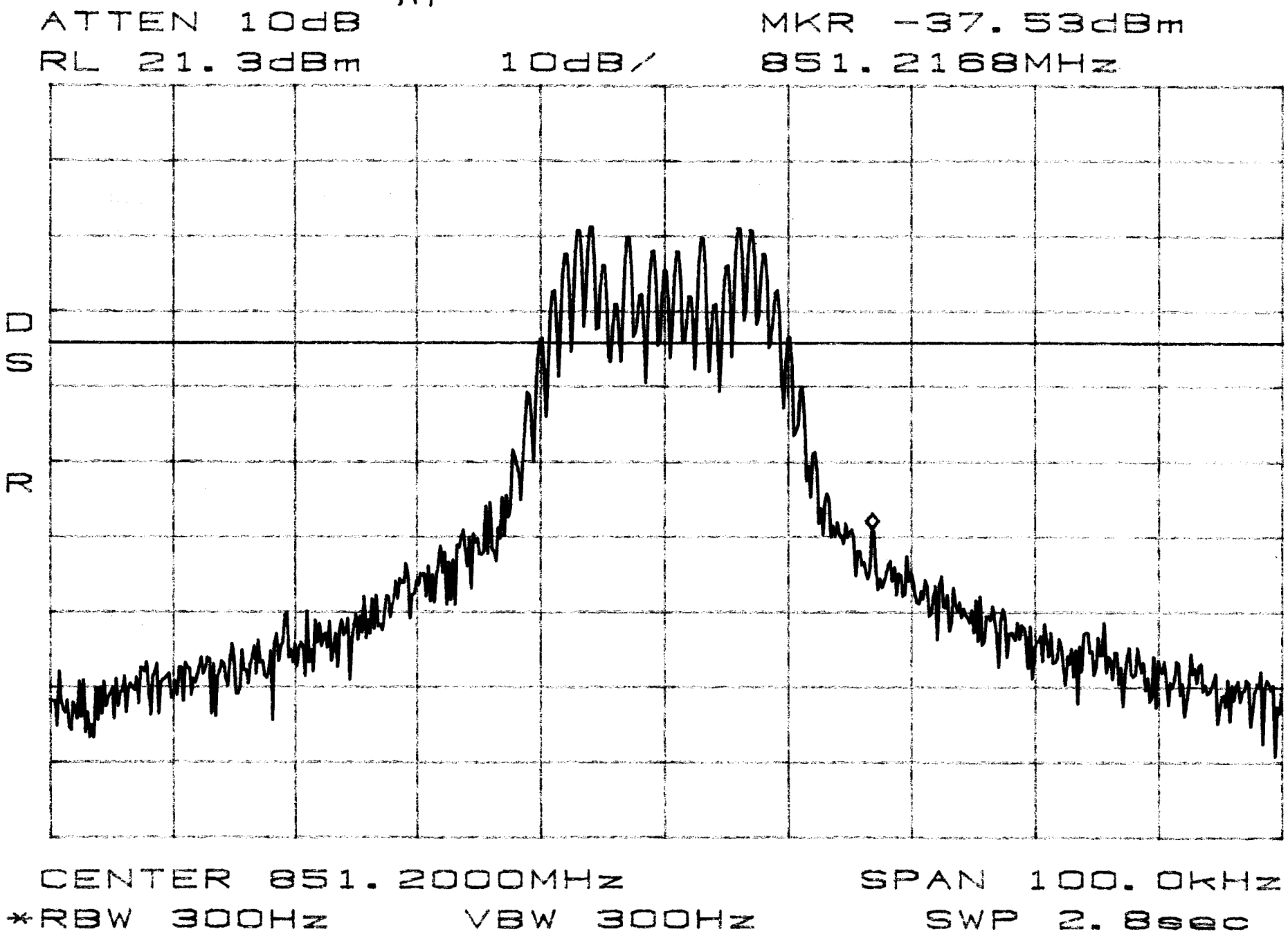
Conducted Emissions Band 3MR
CDMA



Conducted Emissions Band SMR

Band Edge

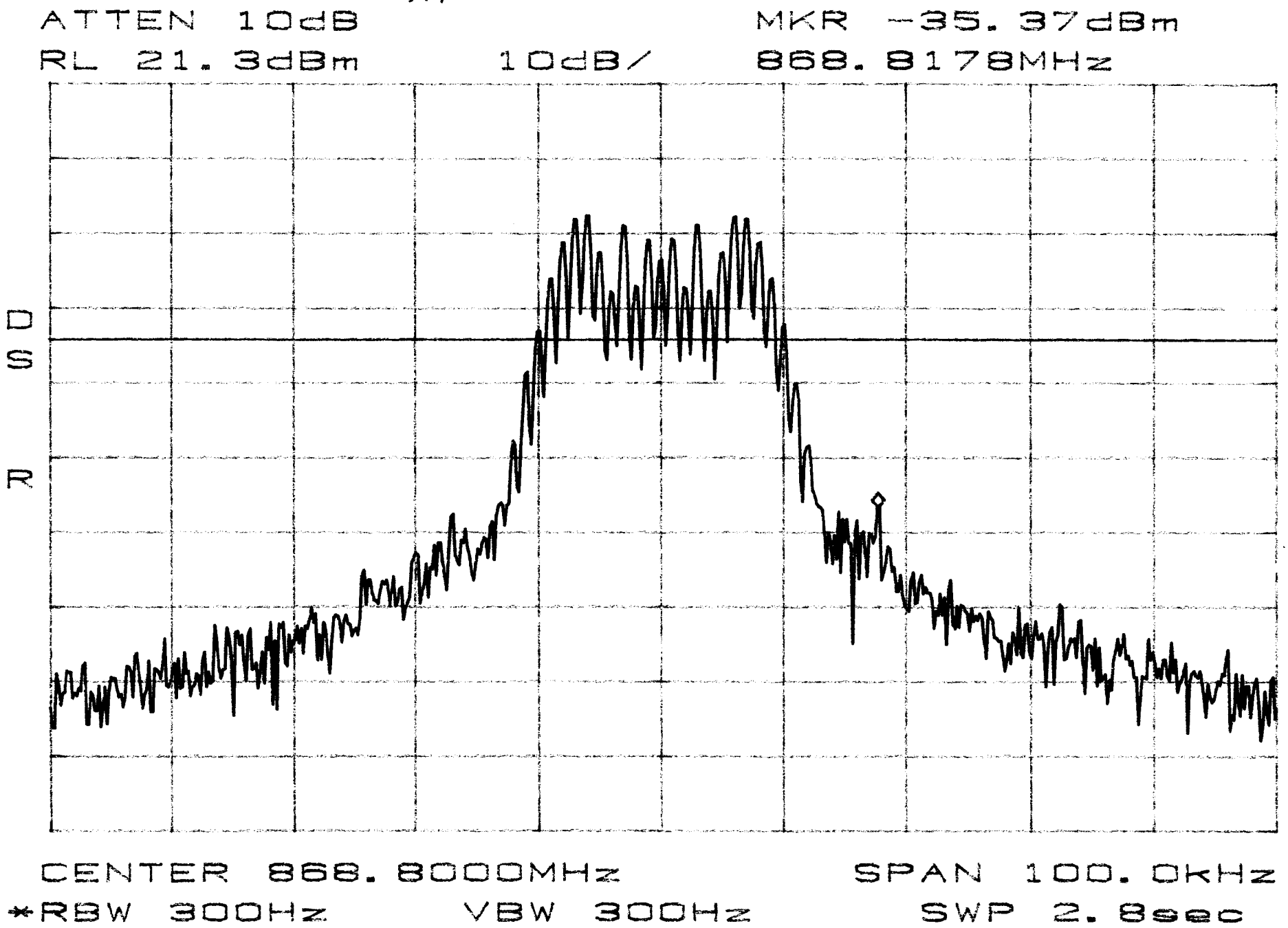
FM



Conducted Emissions Band SMR

Band Edge

FM



Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	1 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
MIDDLE CHANNEL 860MHZ (MID)						
38.71	38.5 Qp	0.5 / 17.4 / 27.8	28.6	V / 1.0 / 0.0	N/A	N/A
50.65	38.6 Qp	0.6 / 14.0 / 27.7	25.5	V / 1.0 / 0.0	N/A	N/A
86.59	45.0 Qp	0.8 / 7.4 / 27.9	25.2	V / 1.0 / 0.0	N/A	N/A
109.00	47.1 Qp	0.9 / 9.5 / 27.9	29.6	V / 1.0 / 0.0	N/A	N/A
115.96	42.0 Qp	0.9 / 9.3 / 28.0	24.2	V / 1.0 / 0.0	N/A	N/A
140.26	46.2 Qp	1.0 / 8.9 / 28.0	28.1	V / 1.0 / 0.0	N/A	N/A
212.97	73.5 Qp	1.4 / 10.8 / 27.7	57.9	V / 1.0 / 0.0	N/A	N/A
230.73	47.1 Qp	1.4 / 11.0 / 27.7	31.9	V / 1.0 / 0.0	N/A	N/A
233.98	44.1 Qp	1.4 / 11.2 / 27.7	28.9	V / 1.0 / 0.0	N/A	N/A
266.22	43.9 Qp	1.3 / 12.6 / 27.8	30.0	V / 1.0 / 0.0	N/A	N/A
283.97	41.4 Qp	1.4 / 12.6 / 27.8	27.6	V / 1.0 / 0.0	N/A	N/A
304.98	43.6 Qp	1.5 / 13.5 / 27.7	31.0	V / 1.0 / 0.0	N/A	N/A
312.97	42.1 Qp	1.6 / 13.7 / 27.7	29.6	V / 1.0 / 0.0	N/A	N/A
317.99	38.5 Qp	1.6 / 13.9 / 27.7	26.2	V / 1.0 / 0.0	N/A	N/A
333.97	40.9 Qp	1.6 / 14.3 / 27.7	29.1	V / 1.0 / 0.0	N/A	N/A
337.23	39.2 Qp	1.6 / 14.3 / 27.6	27.5	V / 1.0 / 0.0	N/A	N/A
354.97	66.0 Qp	1.6 / 14.9 / 27.6	54.8	V / 1.0 / 0.0	N/A	N/A
372.73	37.9 Qp	1.7 / 15.2 / 27.7	27.1	V / 1.0 / 0.0	N/A	N/A
404.97	41.6 Qp	1.7 / 15.9 / 27.7	31.5	V / 1.0 / 0.0	N/A	N/A
425.97	83.6 Qp	1.8 / 16.6 / 27.7	74.2	V / 1.0 / 0.0	N/A	N/A
496.98	61.1 Qp	2.1 / 17.5 / 27.6	53.1	V / 1.0 / 0.0	N/A	N/A
567.98	56.5 Qp	2.1 / 18.5 / 27.5	49.7	V / 1.0 / 0.0	N/A	N/A
638.97	59.1 Qp	2.3 / 19.9 / 27.6	53.7	V / 1.0 / 0.0	N/A	N/A
680.99	36.9 Qp	2.4 / 20.2 / 27.4	32.0	V / 1.0 / 0.0	N/A	N/A

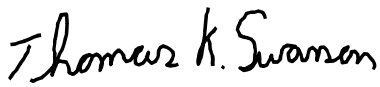
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed



Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	2 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
709.98	61.8 Qp	2.4 / 20.5 / 27.4	57.2	V / 1.0 / 0.0	N/A	N/A
763.22	37.8 Qp	2.5 / 21.2 / 27.4	34.0	V / 1.0 / 0.0	N/A	N/A
780.98	60.6 Qp	2.5 / 21.5 / 27.4	57.2	V / 1.0 / 0.0	N/A	N/A
798.73	44.7 Qp	2.5 / 21.5 / 27.3	41.4	V / 1.0 / 0.0	N/A	N/A
834.22	50.4 Qp	2.6 / 21.9 / 27.3	47.7	V / 1.0 / 0.0	N/A	N/A
851.98	47.1 Qp	2.6 / 22.1 / 27.2	44.6	V / 1.0 / 0.0	N/A	N/A
859.98	58.7 Qp	2.7 / 22.0 / 27.2	56.1	V / 1.0 / 0.0	N/A	N/A
869.73	47.2 Qp	2.7 / 22.1 / 27.2	44.8	V / 1.0 / 0.0	N/A	N/A
905.22	41.8 Qp	2.9 / 22.5 / 27.2	40.0	V / 1.0 / 0.0	N/A	N/A
922.98	43.8 Qp	2.9 / 22.8 / 27.2	42.3	V / 1.0 / 0.0	N/A	N/A
940.73	37.0 Qp	2.9 / 22.7 / 27.2	35.4	V / 1.0 / 0.0	N/A	N/A
976.22	49.6 Qp	2.9 / 23.1 / 27.2	48.3	V / 1.0 / 0.0	N/A	N/A
993.97	48.6 Qp	2.9 / 23.1 / 27.2	47.3	V / 1.0 / 0.0	N/A	N/A
1064.97	59.0 Pk	2.9 / 22.7 / 27.2	57.3	V / 1.0 / 0.0	N/A	N/A
1093.97	34.8 Pk	3.0 / 23.4 / 27.2	33.9	V / 1.0 / 0.0	N/A	N/A
1106.99	32.0 Pk	3.1 / 23.3 / 27.2	31.2	V / 1.0 / 0.0	N/A	N/A
1135.97	52.1 Pk	3.1 / 23.3 / 27.2	51.3	V / 1.0 / 0.0	N/A	N/A
1206.97	47.4 Pk	3.2 / 24.1 / 27.2	47.5	V / 1.0 / 0.0	N/A	N/A
1260.23	35.6 Pk	3.4 / 24.2 / 27.4	35.8	V / 1.0 / 0.0	N/A	N/A
1277.97	40.6 Pk	3.4 / 24.7 / 27.5	41.1	V / 1.0 / 0.0	N/A	N/A
1295.72	34.3 Pk	3.4 / 25.3 / 27.5	35.5	V / 1.0 / 0.0	N/A	N/A
1348.97	34.4 Pk	3.4 / 25.4 / 27.5	35.6	V / 1.0 / 0.0	N/A	N/A
1419.98	37.1 Pk	3.4 / 26.4 / 27.4	39.6	V / 1.0 / 0.0	N/A	N/A
1490.98	35.0 Pk	3.4 / 26.1 / 27.3	37.2	V / 1.0 / 0.0	N/A	N/A
1561.98	37.9 Pk	3.5 / 26.5 / 27.4	40.4	V / 1.0 / 0.0	N/A	N/A

Tested by: RMJ

Printed Signature

Reviewed by: TKS

Printed Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	3 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
1632.97	37.6 Pk	3.6 / 27.2 / 27.2	41.2	V / 1.0 / 0.0	N/A	N/A
1703.97	38.4 Pk	3.7 / 27.6 / 27.0	42.7	V / 1.0 / 0.0	N/A	N/A
1774.97	35.2 Pk	3.8 / 28.0 / 27.2	39.9	V / 1.0 / 0.0	N/A	N/A
1845.97	35.0 Pk	3.9 / 28.0 / 27.1	39.8	V / 1.0 / 0.0	N/A	N/A
1987.97	36.2 Pk	4.2 / 29.0 / 27.0	42.4	V / 1.0 / 0.0	N/A	N/A
140.26	53.3 Qp	1.0 / 8.9 / 28.0	35.2	V / 1.0 / 90.0	N/A	N/A
266.22	44.6 Qp	1.3 / 12.6 / 27.8	30.7	V / 1.0 / 90.0	N/A	N/A
283.97	61.0 Qp	1.4 / 12.6 / 27.8	47.2	V / 1.0 / 90.0	N/A	N/A
304.98	52.3 Qp	1.5 / 13.5 / 27.7	39.7	V / 1.0 / 90.0	N/A	N/A
303.85	55.1 Qp	1.5 / 13.5 / 27.7	42.4	V / 1.0 / 90.0	N/A	N/A
312.97	46.1 Qp	1.6 / 13.7 / 27.7	33.6	V / 1.0 / 90.0	N/A	N/A
317.99	43.1 Qp	1.6 / 13.9 / 27.7	30.9	V / 1.0 / 90.0	N/A	N/A
333.97	44.5 Qp	1.6 / 14.3 / 27.7	32.7	V / 1.0 / 90.0	N/A	N/A
337.23	43.2 Qp	1.6 / 14.3 / 27.6	31.5	V / 1.0 / 90.0	N/A	N/A
922.98	49.6 Qp	2.9 / 22.8 / 27.2	48.1	V / 1.0 / 90.0	N/A	N/A
1277.97	46.5 Pk	3.4 / 24.7 / 27.5	47.0	V / 1.0 / 90.0	N/A	N/A
1348.97	44.1 Pk	3.4 / 25.4 / 27.5	45.3	V / 1.0 / 90.0	N/A	N/A
1419.98	44.2 Pk	3.4 / 26.4 / 27.4	46.6	V / 1.0 / 90.0	N/A	N/A
1490.98	44.4 Pk	3.4 / 26.1 / 27.3	46.6	V / 1.0 / 90.0	N/A	N/A
1561.98	49.7 Pk	3.5 / 26.5 / 27.4	52.2	V / 1.0 / 90.0	N/A	N/A
1632.97	41.0 Pk	3.6 / 27.2 / 27.2	44.6	V / 1.0 / 90.0	N/A	N/A
1845.97	40.0 Pk	3.9 / 28.0 / 27.1	44.8	V / 1.0 / 90.0	N/A	N/A
50.65	39.4 Qp	0.6 / 14.0 / 27.7	26.3	V / 1.0 / 180.0	N/A	N/A

Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	4 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
140.26	58.2 Qp	1.0 / 8.9 / 28.0	40.2	V / 1.0 / 180.0	N/A	N/A
212.97	78.6 Qp	1.4 / 10.8 / 27.7	63.0	V / 1.0 / 180.0	N/A	N/A
266.22	49.5 Qp	1.3 / 12.6 / 27.8	35.5	V / 1.0 / 180.0	N/A	N/A
283.97	65.2 Qp	1.4 / 12.6 / 27.8	51.4	V / 1.0 / 180.0	N/A	N/A
312.97	48.0 Qp	1.6 / 13.7 / 27.7	35.5	V / 1.0 / 180.0	N/A	N/A
337.23	44.4 Qp	1.6 / 14.3 / 27.6	32.6	V / 1.0 / 180.0	N/A	N/A
638.97	61.2 Qp	2.3 / 19.9 / 27.6	55.8	V / 1.0 / 180.0	N/A	N/A
851.98	48.6 Qp	2.6 / 22.1 / 27.2	46.1	V / 1.0 / 180.0	N/A	N/A
1419.98	47.0 Pk	3.4 / 26.4 / 27.4	49.4	V / 1.0 / 180.0	N/A	N/A
109.00	49.6 Qp	0.9 / 9.5 / 27.9	32.1	V / 1.0 / 270.0	N/A	N/A
115.96	45.9 Qp	0.9 / 9.3 / 28.0	28.1	V / 1.0 / 270.0	N/A	N/A
212.97	81.0 Qp	1.4 / 10.8 / 27.7	65.4	V / 1.0 / 270.0	N/A	N/A
233.98	46.6 Qp	1.4 / 11.2 / 27.7	31.4	V / 1.0 / 270.0	N/A	N/A
333.97	46.4 Qp	1.6 / 14.3 / 27.7	34.6	V / 1.0 / 270.0	N/A	N/A
567.98	60.9 Qp	2.1 / 18.5 / 27.5	54.1	V / 1.0 / 270.0	N/A	N/A
780.98	63.0 Qp	2.5 / 21.5 / 27.4	59.6	V / 1.0 / 270.0	N/A	N/A
976.22	50.1 Qp	2.9 / 23.1 / 27.2	48.9	V / 1.0 / 270.0	N/A	N/A
993.97	51.1 Qp	2.9 / 23.1 / 27.2	49.8	V / 1.0 / 270.0	N/A	N/A
MAXIMIZED.						
425.97	89.9 Qp	1.8 / 16.6 / 27.7	80.5	V / 1.5 / 20.0	N/A	N/A
MAXED ANTENNA AND ROTATED EUT 360 DEGREES.						

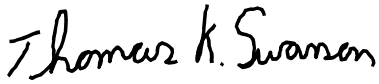
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed



Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m
Test Method:	N/A	Test Date:	08-Oct-2002
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC
EUT Serial #:		Temperature:	20 °C
Manufacturer:	ADC TELECOMM	Relative Humidity:	55 %
EUT Description:	INDOOR RF REPEATER (SMR)	Air Pressure:	99 kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS	Page:	5 of 11
	INVESTIGATED - LOW / MED / HIGH)		

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
212.97	82.1 Qp	1.4 / 10.8 / 27.7	66.5	H / 1.0 / 0.0	N/A	N/A
266.22	54.6 Qp	1.3 / 12.6 / 27.8	40.6	H / 1.0 / 0.0	N/A	N/A
283.97	68.9 Qp	1.4 / 12.6 / 27.8	55.0	H / 1.0 / 0.0	N/A	N/A
304.98	54.6 Qp	1.5 / 13.5 / 27.7	42.0	H / 1.0 / 0.0	N/A	N/A
312.97	51.5 Qp	1.6 / 13.7 / 27.7	39.0	H / 1.0 / 0.0	N/A	N/A
317.99	52.4 Qp	1.6 / 13.9 / 27.7	40.1	H / 1.0 / 0.0	N/A	N/A
333.97	54.3 Qp	1.6 / 14.3 / 27.7	42.5	H / 1.0 / 0.0	N/A	N/A
337.23	53.5 Qp	1.6 / 14.3 / 27.6	41.8	H / 1.0 / 0.0	N/A	N/A
404.97	45.6 Qp	1.7 / 15.9 / 27.7	35.5	H / 1.0 / 0.0	N/A	N/A
112.45	48.8 Qp	0.9 / 9.5 / 28.0	31.2	H / 1.0 / 0.0	N/A	N/A
139.15	50.2 Qp	1.0 / 8.7 / 28.0	32.0	H / 1.0 / 0.0	N/A	N/A
320.97	52.8 Qp	1.6 / 14.0 / 27.7	40.7	H / 1.0 / 0.0	N/A	N/A
383.96	48.2 Qp	1.7 / 15.7 / 27.7	38.0	H / 1.0 / 0.0	N/A	N/A
112.45	49.2 Qp	0.9 / 9.5 / 28.0	31.6	H / 1.0 / 0.0	N/A	N/A
372.73	45.4 Qp	1.7 / 15.2 / 27.7	34.6	H / 1.0 / 0.0	N/A	N/A
1206.97	47.6 Pk	3.2 / 24.1 / 27.2	47.8	H / 1.0 / 0.0	N/A	N/A
266.22	57.1 Qp	1.3 / 12.6 / 27.8	43.2	H / 1.0 / 90.0	N/A	N/A
283.97	72.0 Qp	1.4 / 12.6 / 27.8	58.2	H / 1.0 / 90.0	N/A	N/A
230.73	51.0 Qp	1.4 / 11.0 / 27.7	35.7	H / 1.0 / 180.0	N/A	N/A
312.97	53.0 Qp	1.6 / 13.7 / 27.7	40.5	H / 1.0 / 180.0	N/A	N/A
317.99	53.0 Qp	1.6 / 13.9 / 27.7	40.8	H / 1.0 / 180.0	N/A	N/A
333.97	55.2 Qp	1.6 / 14.3 / 27.7	43.4	H / 1.0 / 180.0	N/A	N/A

Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	6 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
212.97	86.8 Qp	1.4 / 10.8 / 27.7	71.2	H / 1.0 / 270.0	N/A	N/A
496.98	62.6 Qp	2.1 / 17.5 / 27.6	54.6	H / 1.0 / 270.0	N/A	N/A
1277.97	49.7 Pk	3.4 / 24.7 / 27.5	50.3	H / 1.0 / 270.0	N/A	N/A
1348.97	47.0 Pk	3.4 / 25.4 / 27.5	48.2	H / 1.0 / 270.0	N/A	N/A
MAXIMIZED.						
212.97	88.5 Qp	1.4 / 10.8 / 27.7	73.0	H / 1.5 / 254.0	N/A	N/A
MAXED ANTENNA AND ROTATED EUT 360 DEGREES.						
CHANGED TO 851MHZ CHANNEL (LOW)						
CHANGED TO 869MHZ CHANNEL (HIGH)						
425.97	91.3 Qp	1.8 / 16.6 / 27.7	81.9	V / 1.0 / 0.0	N/A	N/A
MAXIMIZED.						
425.97	91.6 Qp	1.8 / 16.6 / 27.7	82.2	V / 1.7 / 0.0	N/A	N/A
RE-CHECKING 860MHZ (MIDDLE CHANNEL) ON 425.97MHZ.						
425.97	91.7 Qp	1.8 / 16.6 / 27.7	82.3	V / 1.7 / 0.0	N/A	N/A
MIDDLE CHANNEL 860MHZ.						
2058.97	36.6 Pk	4.1 / 29.7 / 27.3	43.2	V / 1.0 / 0.0	N/A	N/A
2129.97	41.8 Pk	4.1 / 29.9 / 27.3	48.6	V / 1.0 / 0.0	N/A	N/A
2200.97	38.2 Pk	4.2 / 30.0 / 27.0	45.5	V / 1.0 / 0.0	N/A	N/A

Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m		
Test Method:	N/A	Test Date:	08-Oct-2002		
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC		
EUT Serial #:				Temperature:	20 °C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55 %
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99 kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	7 of 11
	INVESTIGATED - LOW / MED / HIGH)				

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
2271.97	37.2 Pk	4.3 / 30.2 / 26.9	44.9	V / 1.0 / 0.0	N/A	N/A
2413.96	37.8 Pk	4.4 / 30.5 / 26.8	46.0	V / 1.0 / 0.0	N/A	N/A
MAXIMIZED.						
2129.97	41.9 Pk	4.1 / 29.9 / 27.3	48.7	V / 1.0 / 0.0	N/A	N/A
NO NEW OR HIGHER EMISSIONS FOUND WITH HORIZONTAL POLARIZATION AT ALL AZIMUTHS.						
CHANGED TO 851MHZ (LOW)						
CHANGED TO 869MHZ CHANNEL (HIGH)						
SCANNING 4.5 - 9 GHZ RANGE.						
CHANGED TO 860MHZ (MIDDLE CHANNEL)						
CHANGED TO 869MHZ (HIGH CHANNEL)						
CHANGED TO 851MHZ (LOW CHANNEL)						
NO EMISSIONS DETECTED ABOVE 2.413.96GHZ V OR H POLARIZATIONS AT ALL AZIMUTHS.						
END OF SCAN 30 MHZ - 9 GHZ.						

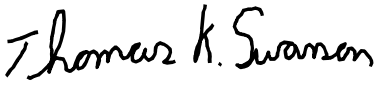
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed



Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m			
Test Method:	N/A	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	8 of 11	
	INVESTIGATED - LOW / MED / HIGH)					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A

Substitution done on highest (worst case) emission (425.97MHz)
Level measured is -4.5dBm
Final level with cable loss and antenna factor = -14.5dBm
Cable loss = 2dB , Antenna Factor = 8dB

Level - cable loss - Antenna Factor = Power out
-4.5dB - 2dB - 8dB = -14.5dBm = 355uW

********** MEASUREMENT SUMMARY **********						
38.71	38.5 Qp	0.5 / 17.4 / 27.8	28.6	V / 1.0 / 0.0	N/A	N/A
50.65	39.4 Qp	0.6 / 14.0 / 27.7	26.3	V / 1.0 / 180.0	N/A	N/A
86.59	45.0 Qp	0.8 / 7.4 / 27.9	25.2	V / 1.0 / 0.0	N/A	N/A
109.00	49.6 Qp	0.9 / 9.5 / 27.9	32.1	V / 1.0 / 270.0	N/A	N/A
112.45	49.2 Qp	0.9 / 9.5 / 28.0	31.6	H / 1.0 / 0.0	N/A	N/A
115.96	45.9 Qp	0.9 / 9.3 / 28.0	28.1	V / 1.0 / 270.0	N/A	N/A
139.15	50.2 Qp	1.0 / 8.7 / 28.0	32.0	H / 1.0 / 0.0	N/A	N/A
140.26	58.2 Qp	1.0 / 8.9 / 28.0	40.2	V / 1.0 / 180.0	N/A	N/A
212.97	88.5 Qp	1.4 / 10.8 / 27.7	73.0	H / 1.5 / 254.0	N/A	N/A
230.73	51.0 Qp	1.4 / 11.0 / 27.7	35.7	H / 1.0 / 180.0	N/A	N/A
233.98	46.6 Qp	1.4 / 11.2 / 27.7	31.4	V / 1.0 / 270.0	N/A	N/A
266.22	57.1 Qp	1.3 / 12.6 / 27.8	43.2	H / 1.0 / 90.0	N/A	N/A
283.97	72.0 Qp	1.4 / 12.6 / 27.8	58.2	H / 1.0 / 90.0	N/A	N/A
303.85	55.1 Qp	1.5 / 13.5 / 27.7	42.4	V / 1.0 / 90.0	N/A	N/A
304.98	54.6 Qp	1.5 / 13.5 / 27.7	42.0	H / 1.0 / 0.0	N/A	N/A

Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Radiated Electromagnetic Emissions

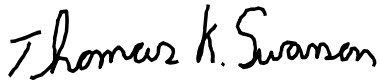
Test Report #:	**5189 Run 01**	Test Area:	LTS 3m		
Test Method:	N/A	Test Date:	08-Oct-2002		
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC		
EUT Serial #:				Temperature:	20 °C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55 %
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99 kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	9 of 11
	INVESTIGATED - LOW / MED / HIGH)				

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
********** MEASUREMENT SUMMARY **********						
312.97	53.0 Qp	1.6 / 13.7 / 27.7	40.5	H / 1.0 / 180.0	N/A	N/A
317.99	53.0 Qp	1.6 / 13.9 / 27.7	40.8	H / 1.0 / 180.0	N/A	N/A
320.97	52.8 Qp	1.6 / 14.0 / 27.7	40.7	H / 1.0 / 0.0	N/A	N/A
333.97	55.2 Qp	1.6 / 14.3 / 27.7	43.4	H / 1.0 / 180.0	N/A	N/A
337.23	53.5 Qp	1.6 / 14.3 / 27.6	41.8	H / 1.0 / 0.0	N/A	N/A
354.97	66.0 Qp	1.6 / 14.9 / 27.6	54.8	V / 1.0 / 0.0	N/A	N/A
372.73	45.4 Qp	1.7 / 15.2 / 27.7	34.6	H / 1.0 / 0.0	N/A	N/A
383.96	48.2 Qp	1.7 / 15.7 / 27.7	38.0	H / 1.0 / 0.0	N/A	N/A
404.97	45.6 Qp	1.7 / 15.9 / 27.7	35.5	H / 1.0 / 0.0	N/A	N/A
425.97	**91.7 Qp**	**1.8 / 16.6 / 27.7**	**82.3**	**V / 1.7 / 0.0**	**N/A**	**N/A**
496.98	62.6 Qp	2.1 / 17.5 / 27.6	54.6	H / 1.0 / 270.0	N/A	N/A
567.98	60.9 Qp	2.1 / 18.5 / 27.5	54.1	V / 1.0 / 270.0	N/A	N/A
638.97	61.2 Qp	2.3 / 19.9 / 27.6	55.8	V / 1.0 / 180.0	N/A	N/A
680.99	36.9 Qp	2.4 / 20.2 / 27.4	32.0	V / 1.0 / 0.0	N/A	N/A
709.98	61.8 Qp	2.4 / 20.5 / 27.4	57.2	V / 1.0 / 0.0	N/A	N/A
763.22	37.8 Qp	2.5 / 21.2 / 27.4	34.0	V / 1.0 / 0.0	N/A	N/A
780.98	63.0 Qp	2.5 / 21.5 / 27.4	59.6	V / 1.0 / 270.0	N/A	N/A
798.73	44.7 Qp	2.5 / 21.5 / 27.3	41.4	V / 1.0 / 0.0	N/A	N/A
834.22	50.4 Qp	2.6 / 21.9 / 27.3	47.7	V / 1.0 / 0.0	N/A	N/A
851.98	48.6 Qp	2.6 / 22.1 / 27.2	46.1	V / 1.0 / 180.0	N/A	N/A
859.98	58.7 Qp	2.7 / 22.0 / 27.2	56.1	V / 1.0 / 0.0	N/A	N/A
869.73	47.2 Qp	2.7 / 22.1 / 27.2	44.8	V / 1.0 / 0.0	N/A	N/A
905.22	41.8 Qp	2.9 / 22.5 / 27.2	40.0	V / 1.0 / 0.0	N/A	N/A
922.98	49.6 Qp	2.9 / 22.8 / 27.2	48.1	V / 1.0 / 90.0	N/A	N/A

Tested by: RMJ

Printed Signature

Reviewed by: TKS



Printed Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m		
Test Method:	N/A	Test Date:	08-Oct-2002		
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC		
EUT Serial #:				Temperature:	20 °C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55 %
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99 kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	10 of 11
	INVESTIGATED - LOW / MED / HIGH)				

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
********** MEASUREMENT SUMMARY **********						
940.73	37.0 Qp	2.9 / 22.7 / 27.2	35.4	V / 1.0 / 0.0	N/A	N/A
976.22	50.1 Qp	2.9 / 23.1 / 27.2	48.9	V / 1.0 / 270.0	N/A	N/A
993.97	51.1 Qp	2.9 / 23.1 / 27.2	49.8	V / 1.0 / 270.0	N/A	N/A
1064.97	59.0 Pk	2.9 / 22.7 / 27.2	57.3	V / 1.0 / 0.0	N/A	N/A
1093.97	34.8 Pk	3.0 / 23.4 / 27.2	33.9	V / 1.0 / 0.0	N/A	N/A
1106.99	32.0 Pk	3.1 / 23.3 / 27.2	31.2	V / 1.0 / 0.0	N/A	N/A
1135.97	52.1 Pk	3.1 / 23.3 / 27.2	51.3	V / 1.0 / 0.0	N/A	N/A
1206.97	47.6 Pk	3.2 / 24.1 / 27.2	47.8	H / 1.0 / 0.0	N/A	N/A
1260.23	35.6 Pk	3.4 / 24.2 / 27.4	35.8	V / 1.0 / 0.0	N/A	N/A
1277.97	49.7 Pk	3.4 / 24.7 / 27.5	50.3	H / 1.0 / 270.0	N/A	N/A
1295.72	34.3 Pk	3.4 / 25.3 / 27.5	35.5	V / 1.0 / 0.0	N/A	N/A
1348.97	47.0 Pk	3.4 / 25.4 / 27.5	48.2	H / 1.0 / 270.0	N/A	N/A
1419.98	47.0 Pk	3.4 / 26.4 / 27.4	49.4	V / 1.0 / 180.0	N/A	N/A
1490.98	44.4 Pk	3.4 / 26.1 / 27.3	46.6	V / 1.0 / 90.0	N/A	N/A
1561.98	49.7 Pk	3.5 / 26.5 / 27.4	52.2	V / 1.0 / 90.0	N/A	N/A
1632.97	41.0 Pk	3.6 / 27.2 / 27.2	44.6	V / 1.0 / 90.0	N/A	N/A
1703.97	38.4 Pk	3.7 / 27.6 / 27.0	42.7	V / 1.0 / 0.0	N/A	N/A
1774.97	35.2 Pk	3.8 / 28.0 / 27.2	39.9	V / 1.0 / 0.0	N/A	N/A
1845.97	40.0 Pk	3.9 / 28.0 / 27.1	44.8	V / 1.0 / 90.0	N/A	N/A
1987.97	36.2 Pk	4.2 / 29.0 / 27.0	42.4	V / 1.0 / 0.0	N/A	N/A
2058.97	36.6 Pk	4.1 / 29.7 / 27.3	43.2	V / 1.7 / 0.0	N/A	N/A
2129.97	41.9 Pk	4.1 / 29.9 / 27.3	48.7	V / 1.0 / 0.0	N/A	N/A
2200.97	38.2 Pk	4.2 / 30.0 / 27.0	45.5	V / 1.7 / 0.0	N/A	N/A
2271.97	37.2 Pk	4.3 / 30.2 / 26.9	44.9	V / 1.7 / 0.0	N/A	N/A

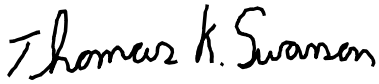
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

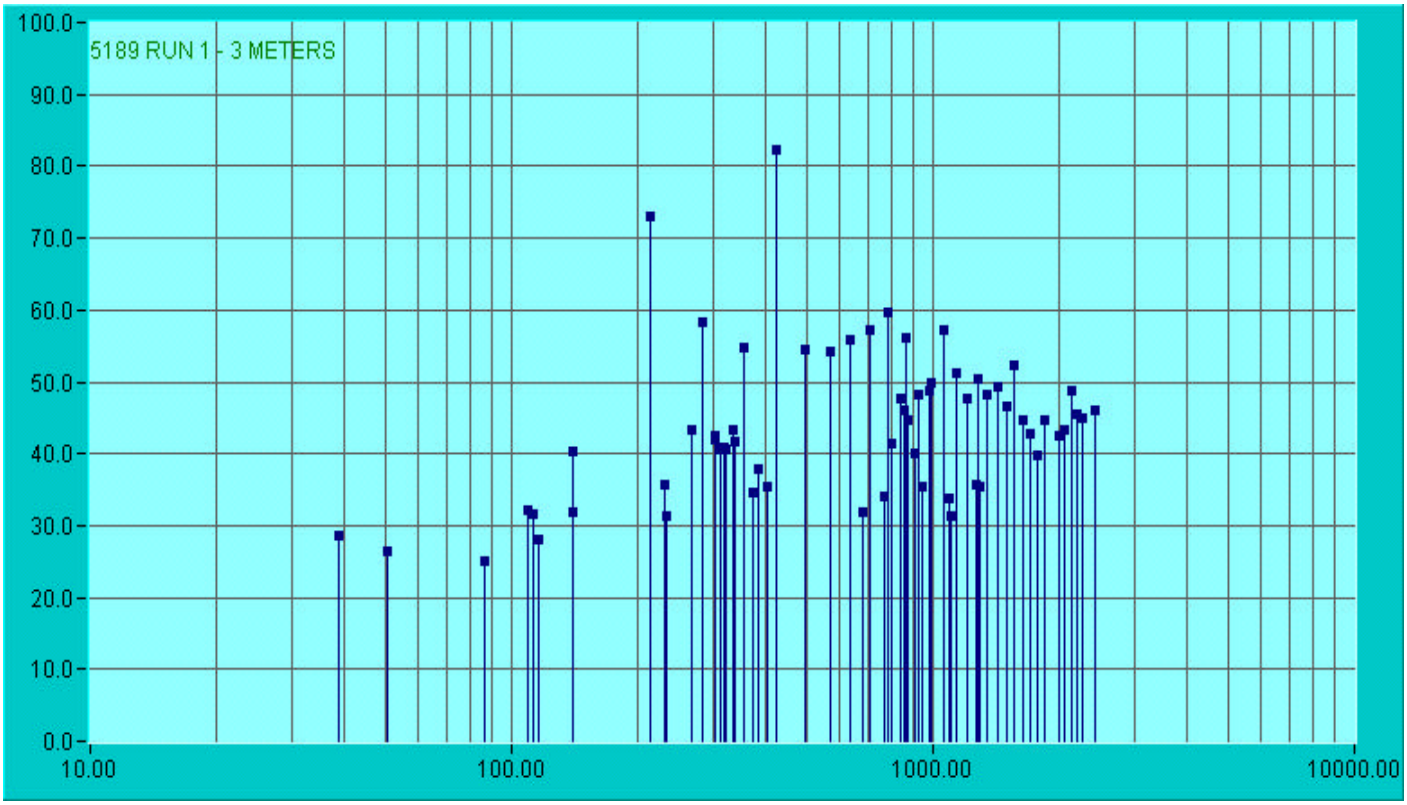


Signature

Radiated Electromagnetic Emissions

Test Report #:	**5189 Run 01**	Test Area:	LTS 3m		
Test Method:	N/A	Test Date:	08-Oct-2002		
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC		
EUT Serial #:				Temperature:	20 °C
Manufacturer:	ADC TELECOMM			Relative Humidity:	55 %
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99 kPa
Notes:	SPURIOUS CASE RADIATION SCAN (3 CHANNELS			Page:	11 of 11
	INVESTIGATED - LOW / MED / HIGH)				

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 N/A	DELTA2 N/A
********** MEASUREMENT SUMMARY **********						
2413.96	37.8 Pk	4.4 / 30.5 / 26.8	46.0	V / 1.7 / 0.0	N/A	N/A



Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Conducted Electromagnetic Emissions

Test Report #:	**5189 Run 1**	Test Area:	SCREEN ROOM			
Test Method:	EN55022	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC (48VDC)			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	50	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:				Page:	1 of 3	

FREQ (MHz)	LEVEL (dBuV)	CABLE / LISN / ATTEN (dB)	FINAL (dBuV)	TEST POINT	DELTA1 EN55022 A QP	DELTA2 EN55022 A Avg
0.150	43.0 Qp	0.0 / 0.1 / 0.0	43.1	Neutral	-35.9	N/A
0.195	40.0 Qp	0.1 / 0.1 / 0.0	40.2	Neutral	-38.8	N/A
0.205	42.5 Qp	0.1 / 0.1 / 0.0	42.7	Neutral	-36.3	N/A
1.02	44.2 Qp	0.1 / 0.0 / 0.0	44.3	Neutral	-28.7	N/A
15.89	41.9 Qp	0.4 / 0.2 / 0.0	42.5	Neutral	-30.5	N/A
26.60	28.7 Qp	0.5 / 0.6 / 0.0	29.7	Neutral	-43.3	N/A
0.150	42.5 Qp	0.0 / 0.1 / 0.0	42.6	Line 1	-36.4	N/A
0.195	41.9 Qp	0.1 / 0.1 / 0.0	42.1	Line 1	-36.9	N/A
0.205	42.7 Qp	0.1 / 0.1 / 0.0	42.9	Line 1	-36.1	N/A
1.02	45.3 Qp	0.1 / 0.0 / 0.0	45.4	Line 1	-27.6	N/A
15.89	32.0 Qp	0.4 / 0.2 / 0.0	32.6	Line 1	-40.4	N/A
26.60	28.0 Qp	0.5 / 0.6 / 0.0	29.0	Line 1	-44.0	N/A
0.150	37.2 Av	0.0 / 0.1 / 0.0	37.3	Neutral	N/A	-28.7
0.195	33.2 Av	0.1 / 0.1 / 0.0	33.4	Neutral	N/A	-32.6
0.205	33.6 Av	0.1 / 0.1 / 0.0	33.8	Neutral	N/A	-32.2
1.02	41.0 Av	0.1 / 0.0 / 0.0	41.1	Neutral	N/A	-18.9
15.89	26.4 Av	0.4 / 0.2 / 0.0	27.0	Neutral	N/A	-33.0
26.60	21.0 Av	0.5 / 0.6 / 0.0	22.0	Neutral	N/A	-38.0
0.150	36.1 Av	0.0 / 0.1 / 0.0	36.2	Line 1	N/A	-29.8
0.195	35.7 Av	0.1 / 0.1 / 0.0	35.9	Line 1	N/A	-30.1
0.205	34.5 Av	0.1 / 0.1 / 0.0	34.7	Line 1	N/A	-31.3

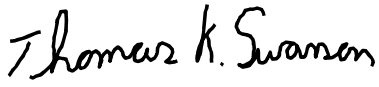
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed



Signature

Conducted Electromagnetic Emissions

Test Report #:	**5189 Run 1**	Test Area:	SCREEN ROOM		
Test Method:	EN55022	Test Date:	08-Oct-2002		
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC (48VDC)		
EUT Serial #:				Temperature:	20 °C
Manufacturer:	ADC TELECOMM			Relative Humidity:	50 %
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99 kPa
Notes:				Page:	2 of 3

FREQ (MHz)	LEVEL (dBuV)	CABLE / LISN / ATTEN (dB)	FINAL (dBuV)	TEST POINT	DELTA1 EN55022 A QP	DELTA2 EN55022 A Avg
1.02	39.9 Av	0.1 / 0.0 / 0.0	40.0	Line 1	N/A	-20.0
15.89	35.0 Av	0.4 / 0.2 / 0.0	35.6	Line 1	N/A	-24.4
26.60	19.6 Av	0.5 / 0.6 / 0.0	20.6	Line 1	N/A	-39.4
END OF SCAN.						

Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed

Signature

Conducted Electromagnetic Emissions

Test Report #:	**5189 Run 1**	Test Area:	SCREEN ROOM			
Test Method:	EN55022	Test Date:	08-Oct-2002			
EUT Model #:	DGVI-2XXXXXDHU / DGVI-2XXXXXDRU	EUT Power:	60HZ/110VAC (48VDC)			
EUT Serial #:				Temperature:	20	°C
Manufacturer:	ADC TELECOMM			Relative Humidity:	50	%
EUT Description:	INDOOR RF REPEATER (SMR)			Air Pressure:	99	kPa
Notes:				Page:	3 of 3	

FREQ (MHz)	LEVEL (dBuV)	CABLE / LISN / ATTEN (dB)	FINAL (dBuV)	TEST POINT	DELTA1 EN55022 A QP	DELTA2 EN55022 A Avg
********** **MEASUREMENT SUMMARY** **********						
1.02	41.0 Av	0.1 / 0.0 / 0.0	41.1	Neutral	N/A	-18.9
15.89	35.0 Av	0.4 / 0.2 / 0.0	35.6	Line 1	N/A	-24.4
0.150	37.2 Av	0.0 / 0.1 / 0.0	37.3	Neutral	N/A	-28.7
0.195	35.7 Av	0.1 / 0.1 / 0.0	35.9	Line 1	N/A	-30.1
0.205	34.5 Av	0.1 / 0.1 / 0.0	34.7	Line 1	N/A	-31.3
26.60	21.0 Av	0.5 / 0.6 / 0.0	22.0	Neutral	N/A	-38.0

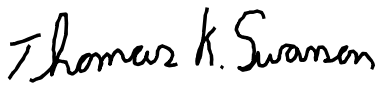
Tested by: RMJ

Printed

Signature

Reviewed by: TKS

Printed



Signature

Frequency Tolerance Test for ADC Inc.
Digivance Indoor Coverage Solution
Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

EUT Band SMR

Input Voltage	Carrier Frequency	Measured Frequency	Meets requirement?
102 VAC	851.000000 MHz	851.000000 MHz	YES
120 VAC	851.000000 MHz	851.000000 MHz	YES
138 VAC	851.000000 MHz	851.000000 MHz	YES
102 VAC	860.000000 MHz	860.000000 MHz	YES
120 VAC	860.000000 MHz	860.000000 MHz	YES
138 VAC	860.000000 MHz	860.000000 MHz	YES
102 VAC	869.000000 MHz	869.000000 MHz	YES
120 VAC	869.000000 MHz	869.000000 MHz	YES
138 VAC	869.000000 MHz	869.000000 MHz	YES
Temperature	**Carrier Frequency**	**Measured Frequency**	**Meets requirement?**
0 Deg. C	851.000000 MHz	851.000000 MHz	YES
10 Deg C	851.000000 MHz	851.000000 MHz	YES
20 Deg C	851.000000 MHz	851.000000 MHz	YES
30 Deg C	851.000000 MHz	851.000000 MHz	YES
40 Deg C	851.000000 MHz	851.000000 MHz	YES
50 Deg C	851.000000 MHz	851.000000 MHz	YES
0 Deg. C	860.000000 MHz	860.000000 MHz	YES
10 Deg C	860.000000 MHz	860.000000 MHz	YES
20 Deg C	860.000000 MHz	860.000000 MHz	YES
30 Deg C	860.000000 MHz	860.000000 MHz	YES
40 Deg C	860.000000 MHz	860.000000 MHz	YES
50 Deg C	860.000000 MHz	860.000000 MHz	YES
0 Deg. C	869.000000 MHz	869.000000 MHz	YES
10 Deg C	869.000000 MHz	869.000000 MHz	YES
20 Deg C	869.000000 MHz	869.000000 MHz	YES
30 Deg C	869.000000 MHz	869.000000 MHz	YES
40 Deg C	869.000000 MHz	869.000000 MHz	YES
50 Deg C	869.000000 MHz	869.000000 MHz	YES

Note: EUT Host and Remote are specified for indoor use only with temperature range of 0 to +50º C and were tested within their range.

CDMA Mask Test for ADC Inc
Digivance Indoor Coverage Solution
Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

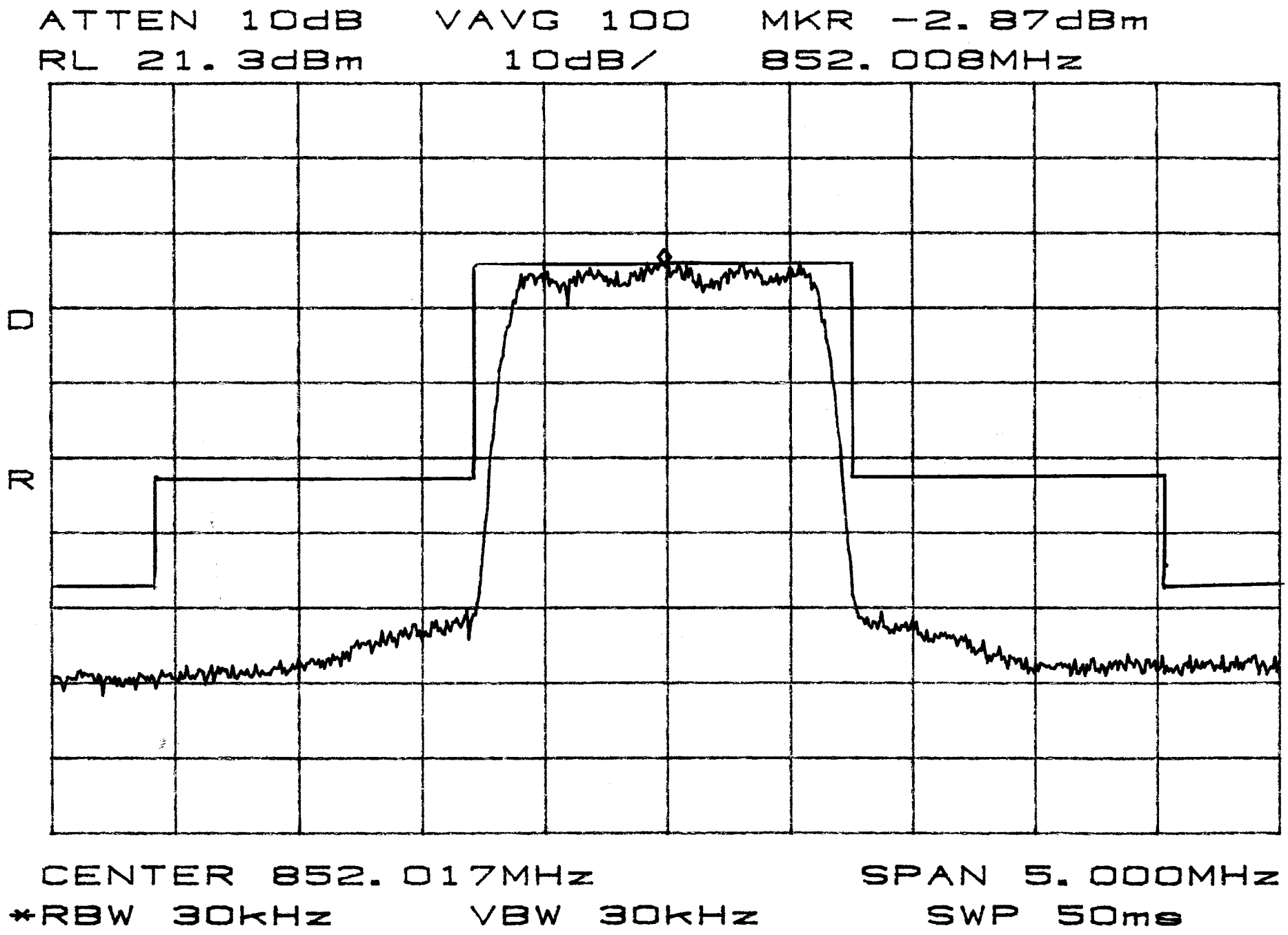
For the CDMA modulation type emission mask test, the average value of the center frequency will be 16.23dB down from the CW peak power. On any frequency removed from the center carrier frequency by up to 750 kHz the emissions are at or below 16.23dB below the peak power. On any frequency between 750 kHz and 1.98 MHz the emissions are below 25dB below the peak power. On any frequency removed from the carrier frequency by more than 1.98 MHz the emissions are below 35dB below the peak power. The test was performed at the low, middle, and high parts of the SMR band.

Results:

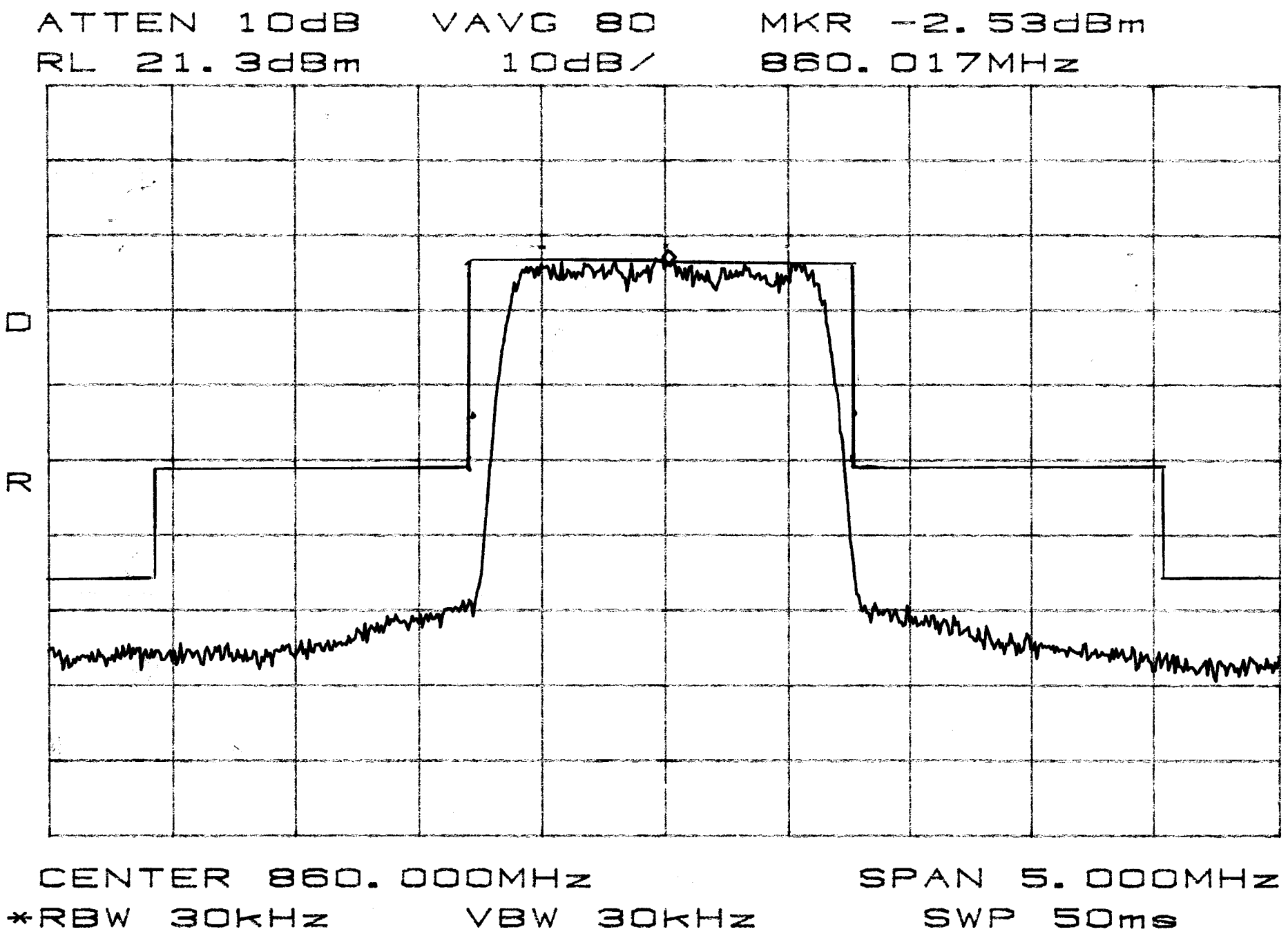
Pass (see plots)

CDMA MASK BAND SMR

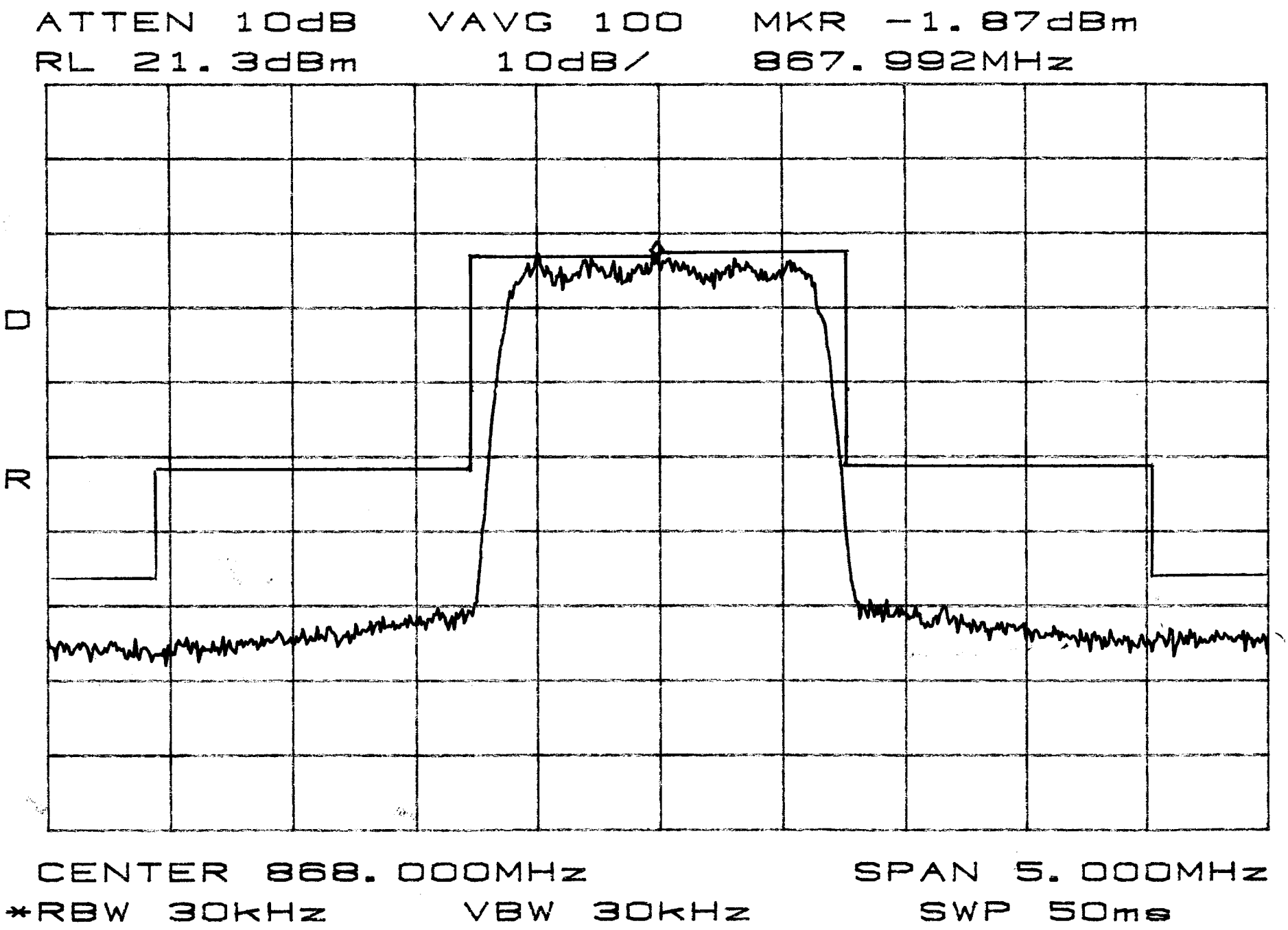
Low



CDMA MASK BAND 5MR
Mid



CDMA MASK BAND SMR
High



Inter-Modulation Test for ADC Inc
Digivance Indoor Coverage Solution
Model Numbers DGVI-2XXXXXDHU and DGVI-2XXXXXDRU

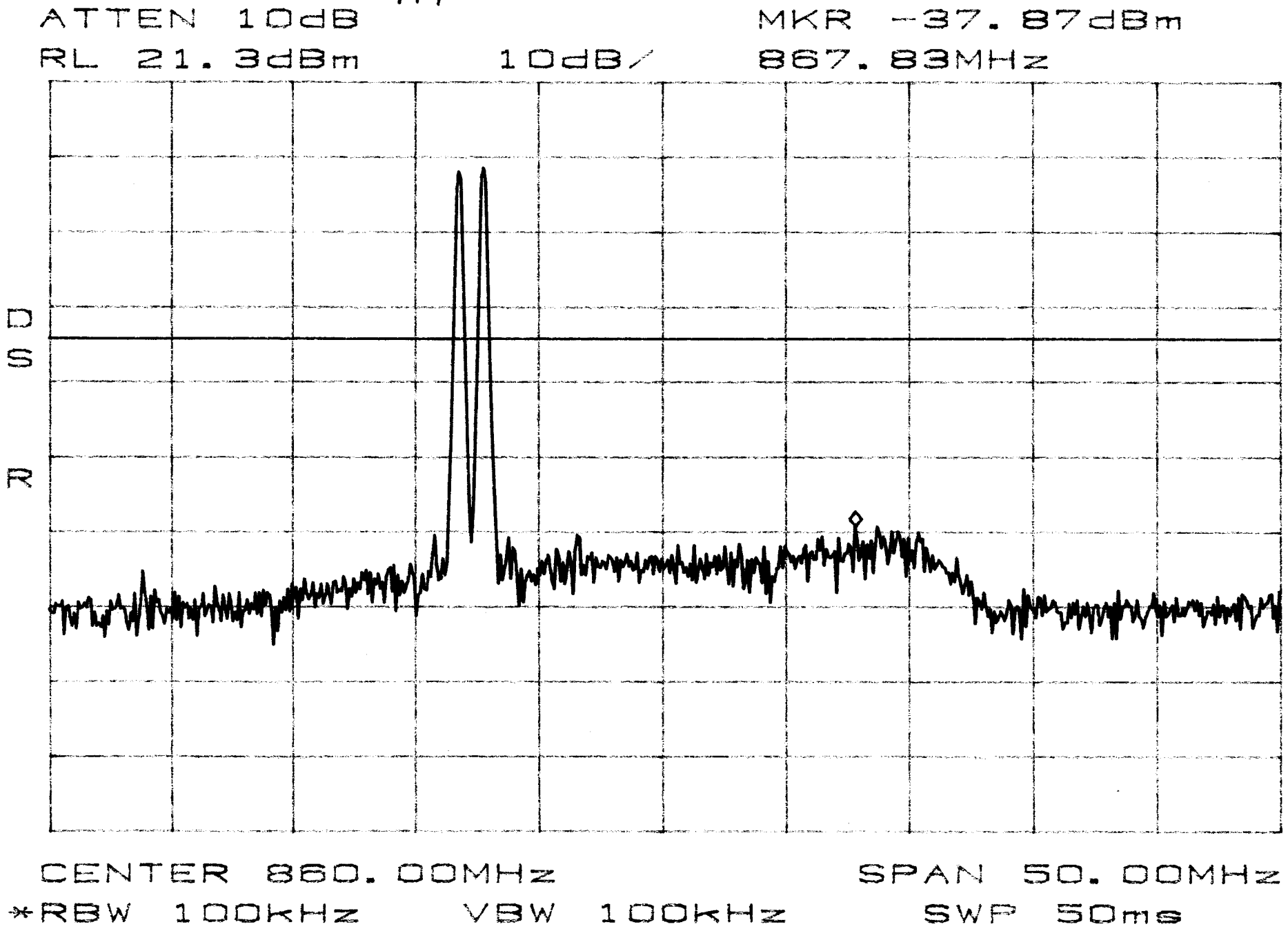
The intermodulation product test was performed for each bandwidth setting of the EUT. Two tests were performed with each modulation type. Test 1 was with two signals input into the EUT at lower end channels. Test 2 was with two signals, one at a lower end channel and one at a higher end channel. The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

Results:

Pass (see plots)

Intermodulation
Close
FM

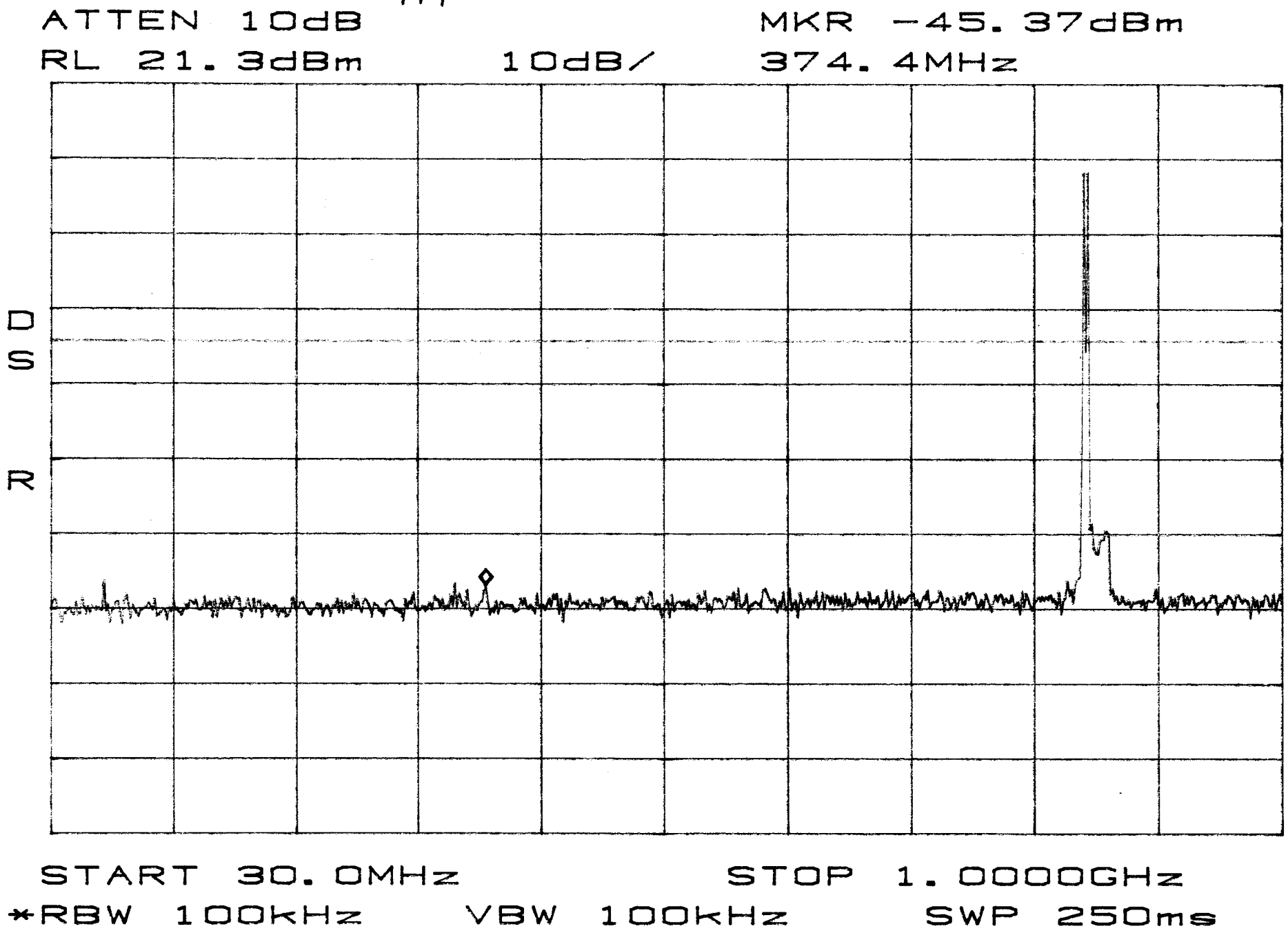
BAND SMR



Intermodulation BAND SMR

Close

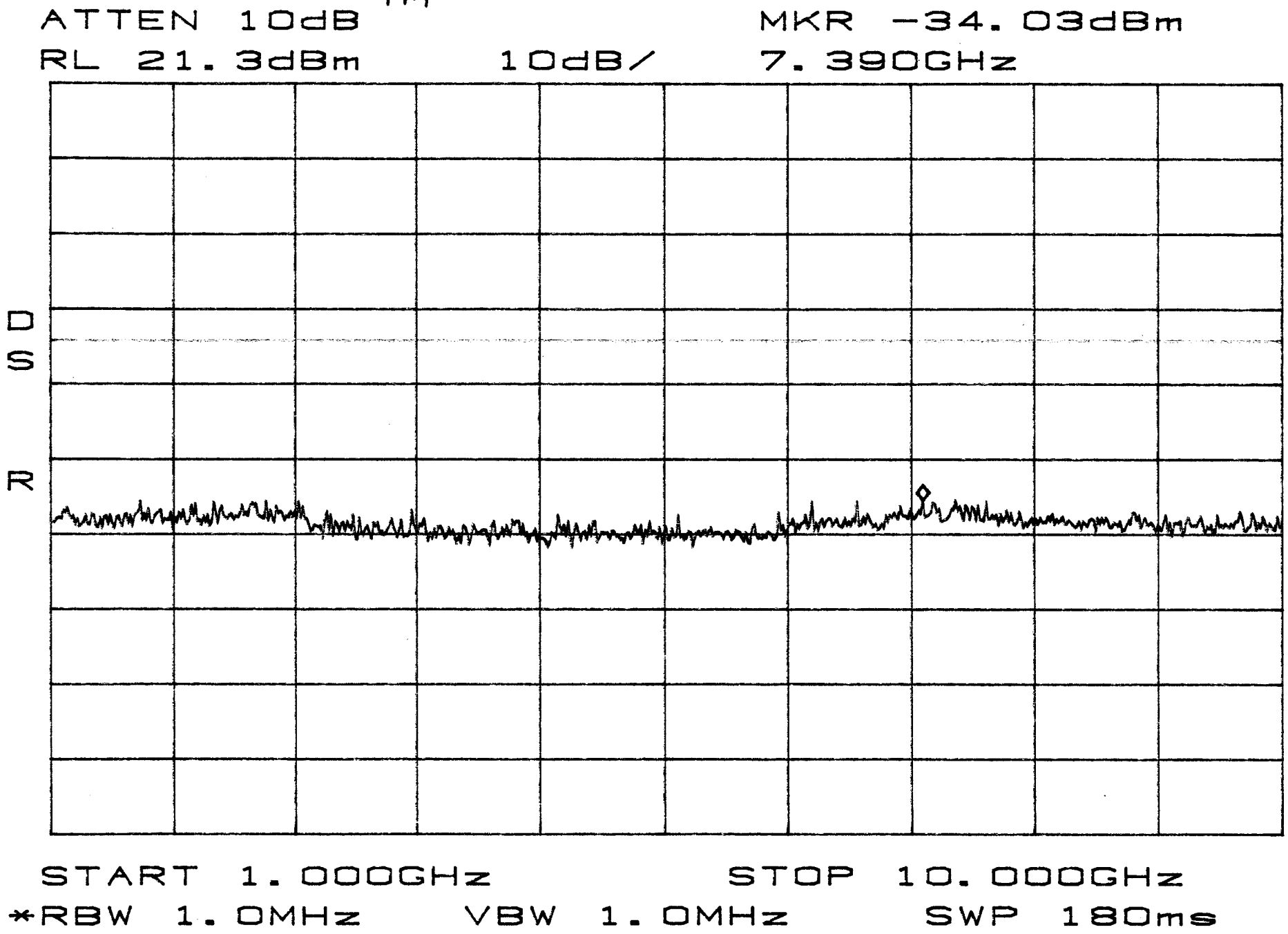
FM



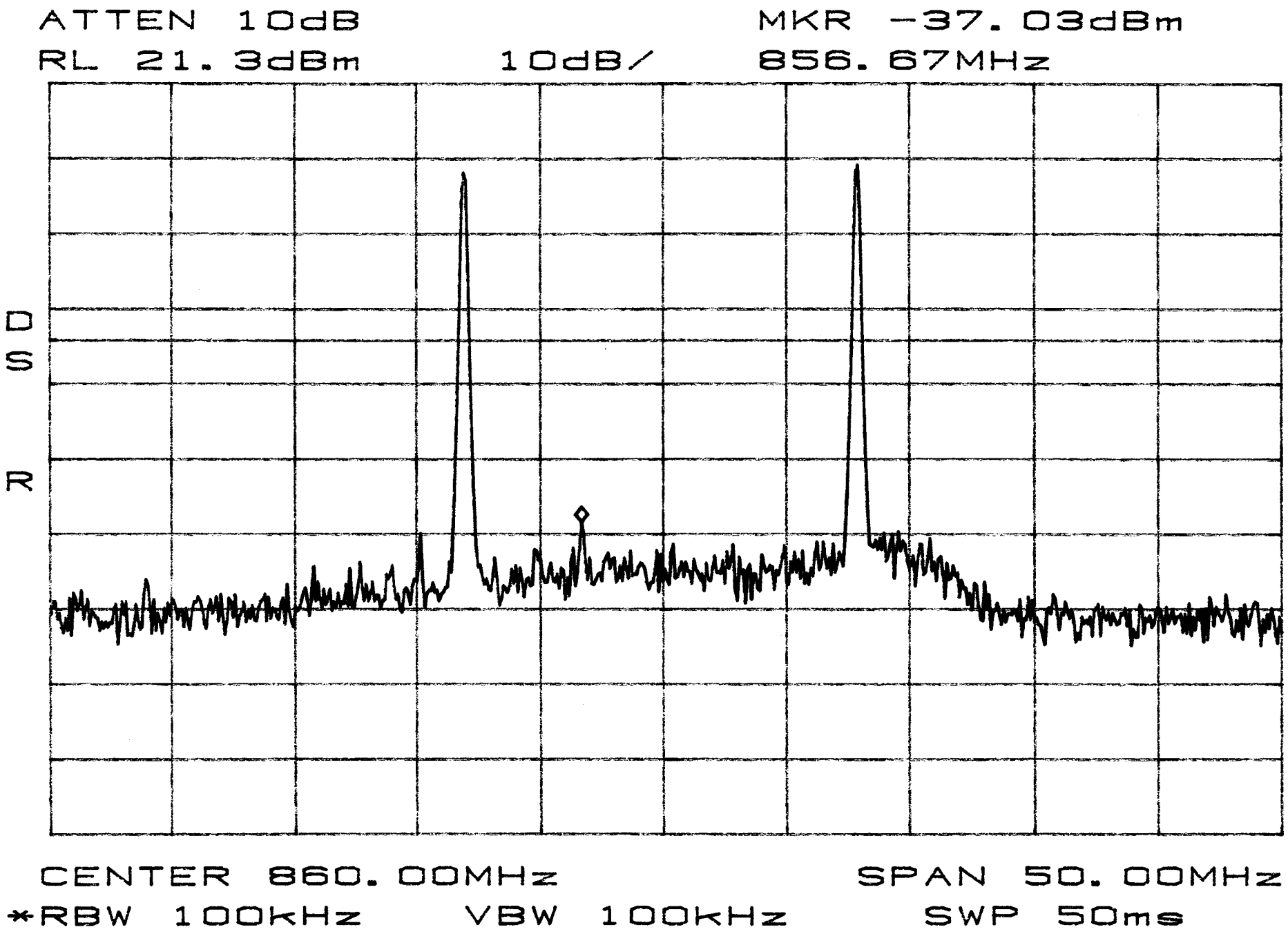
Intermodulation BAND SMR

Close

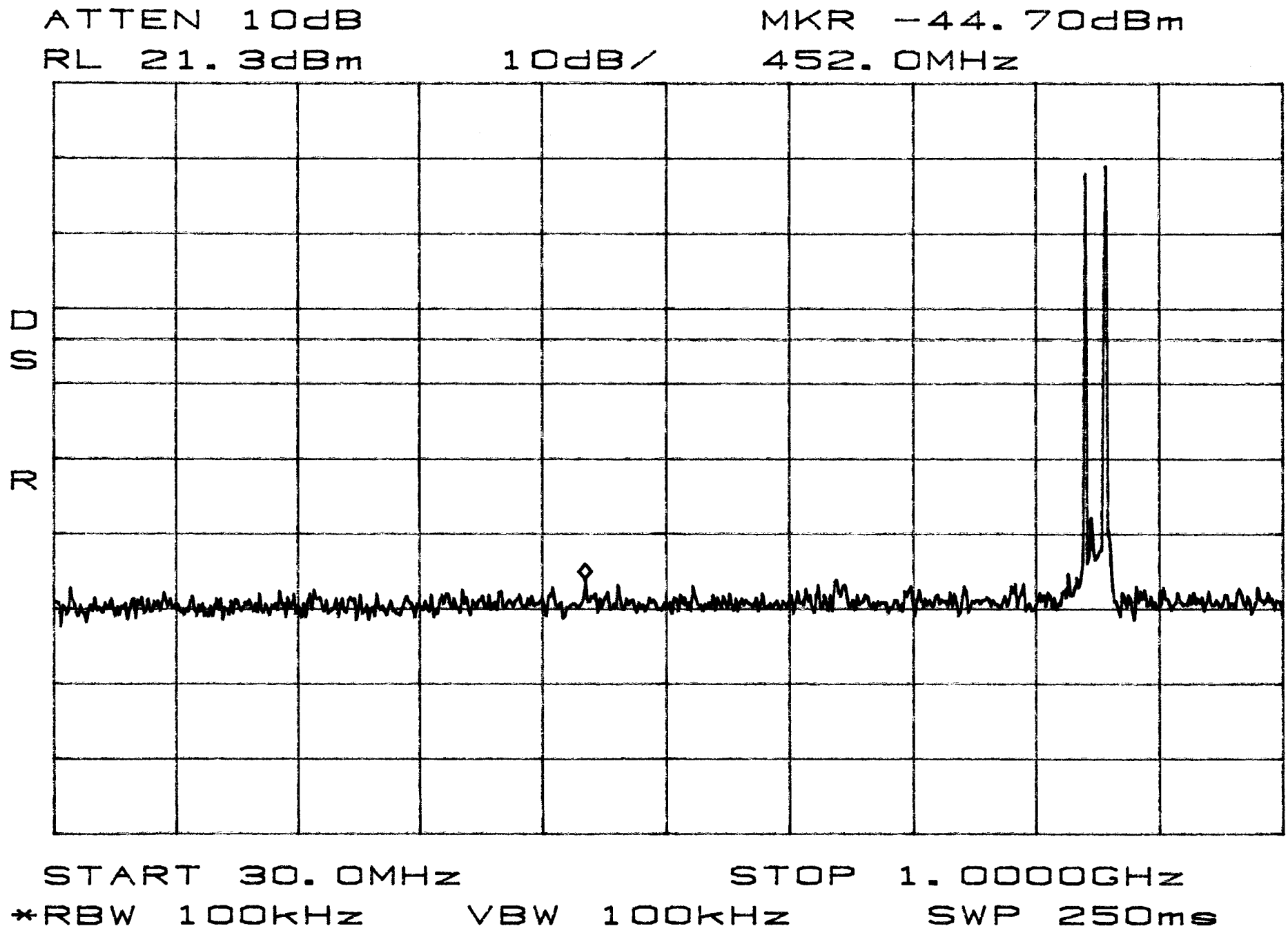
FM



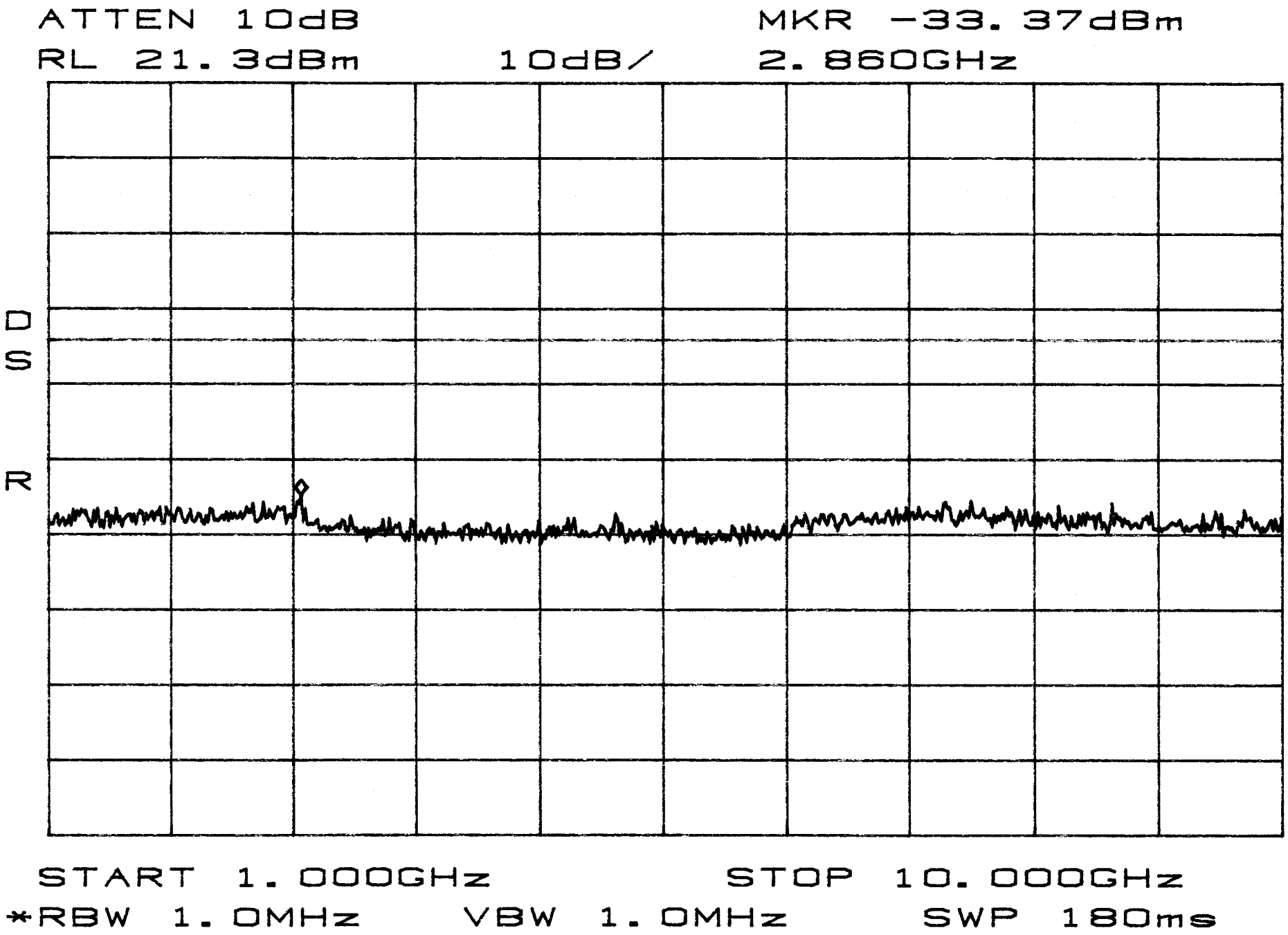
Intermodulation BAND 3MR
Apart
FM



Intermodulation BAND SMR
Apart
FM

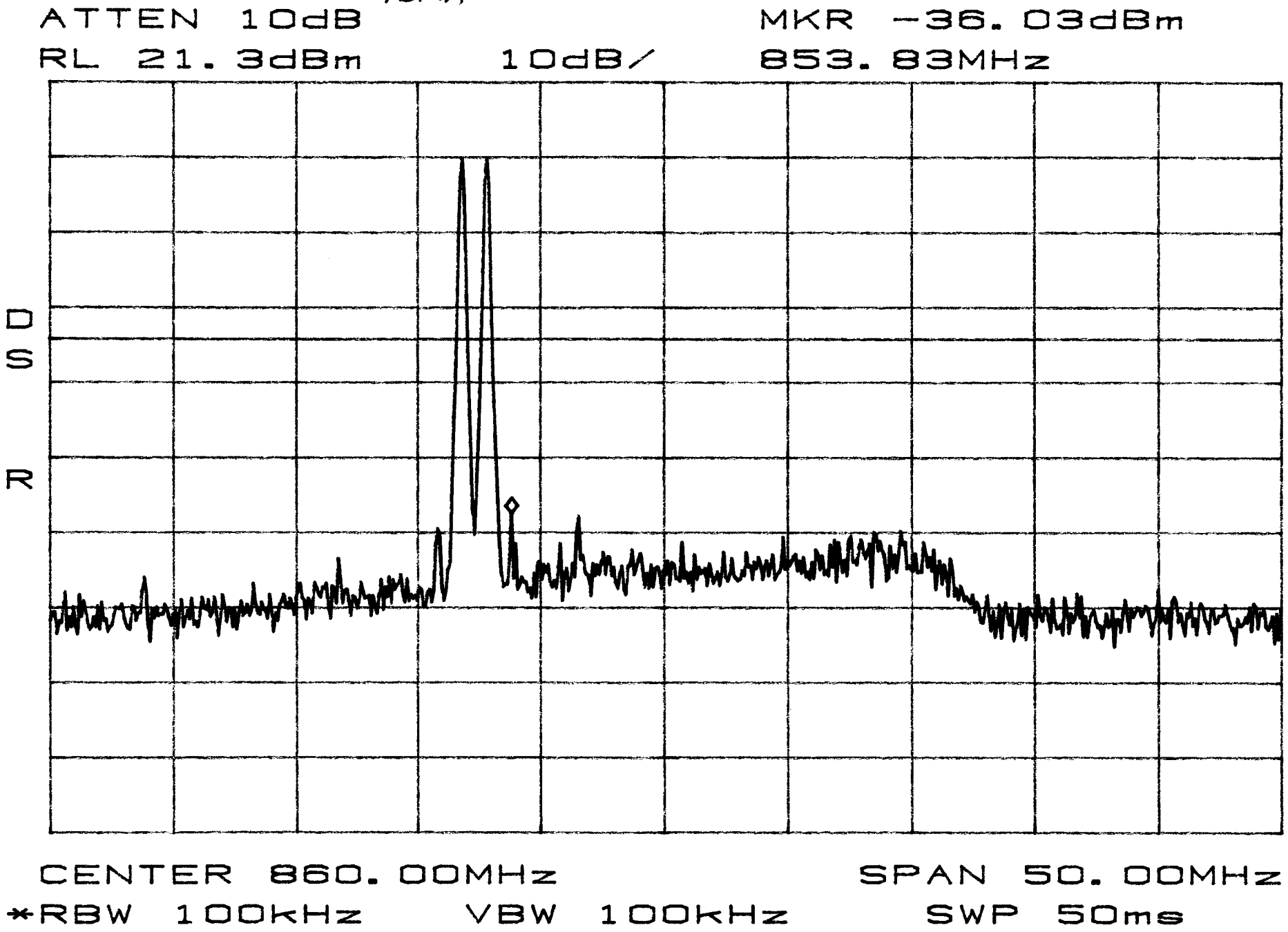


Intermodulation BAND SMR
Apart
FM



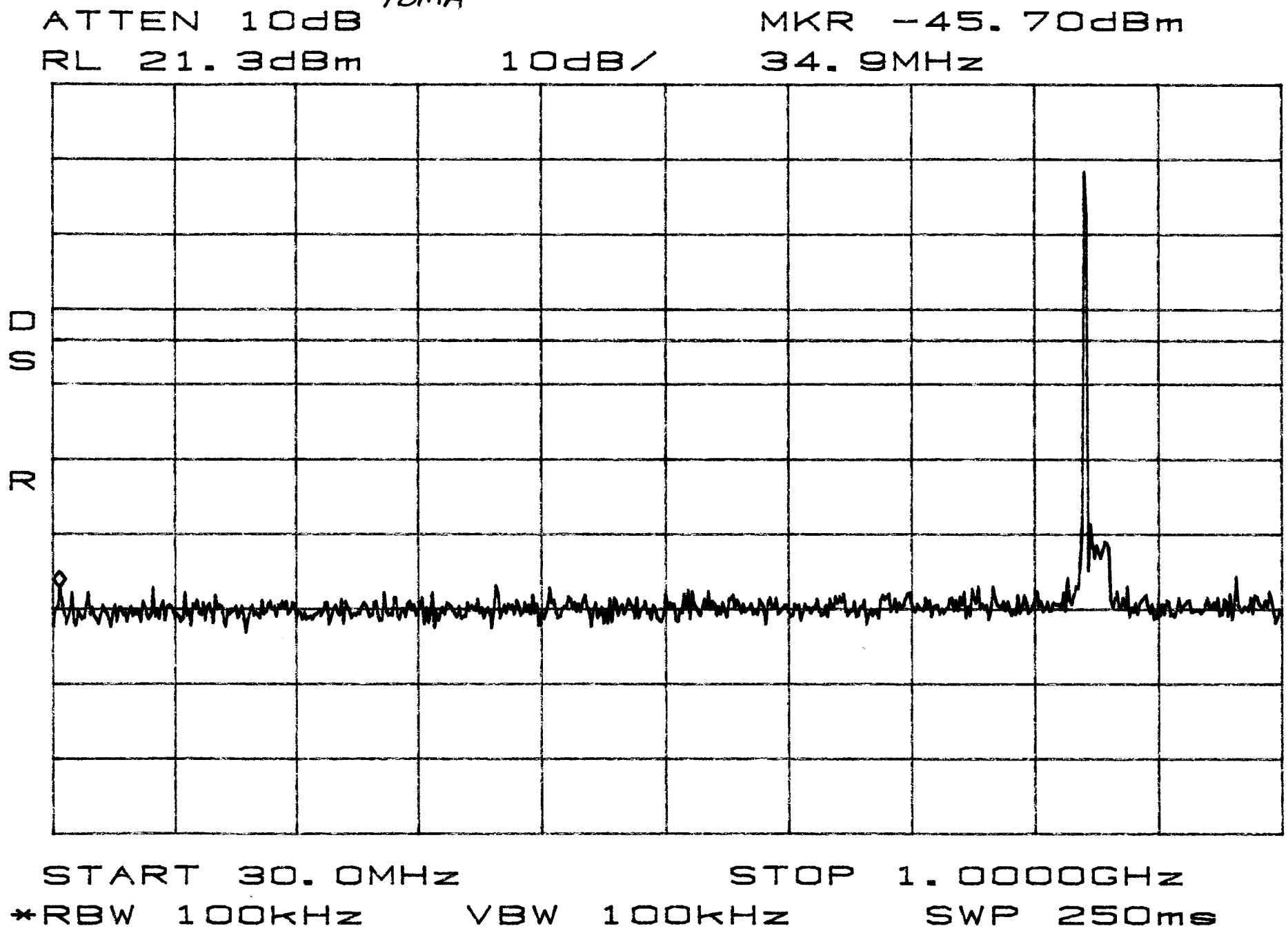
Intermodulation
Close
TDMA

BAND SMR

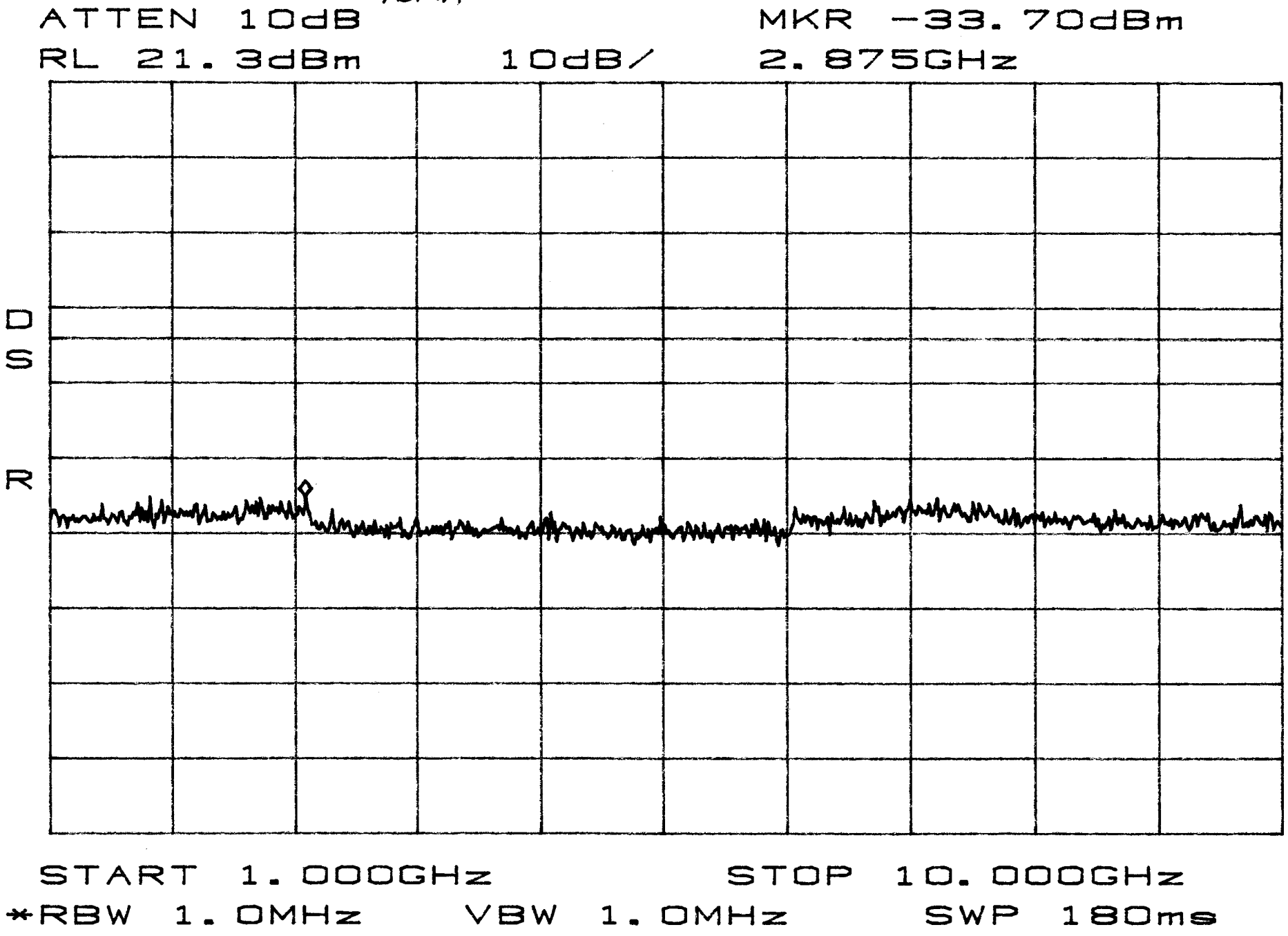


Intermodulation
Close
TDMA

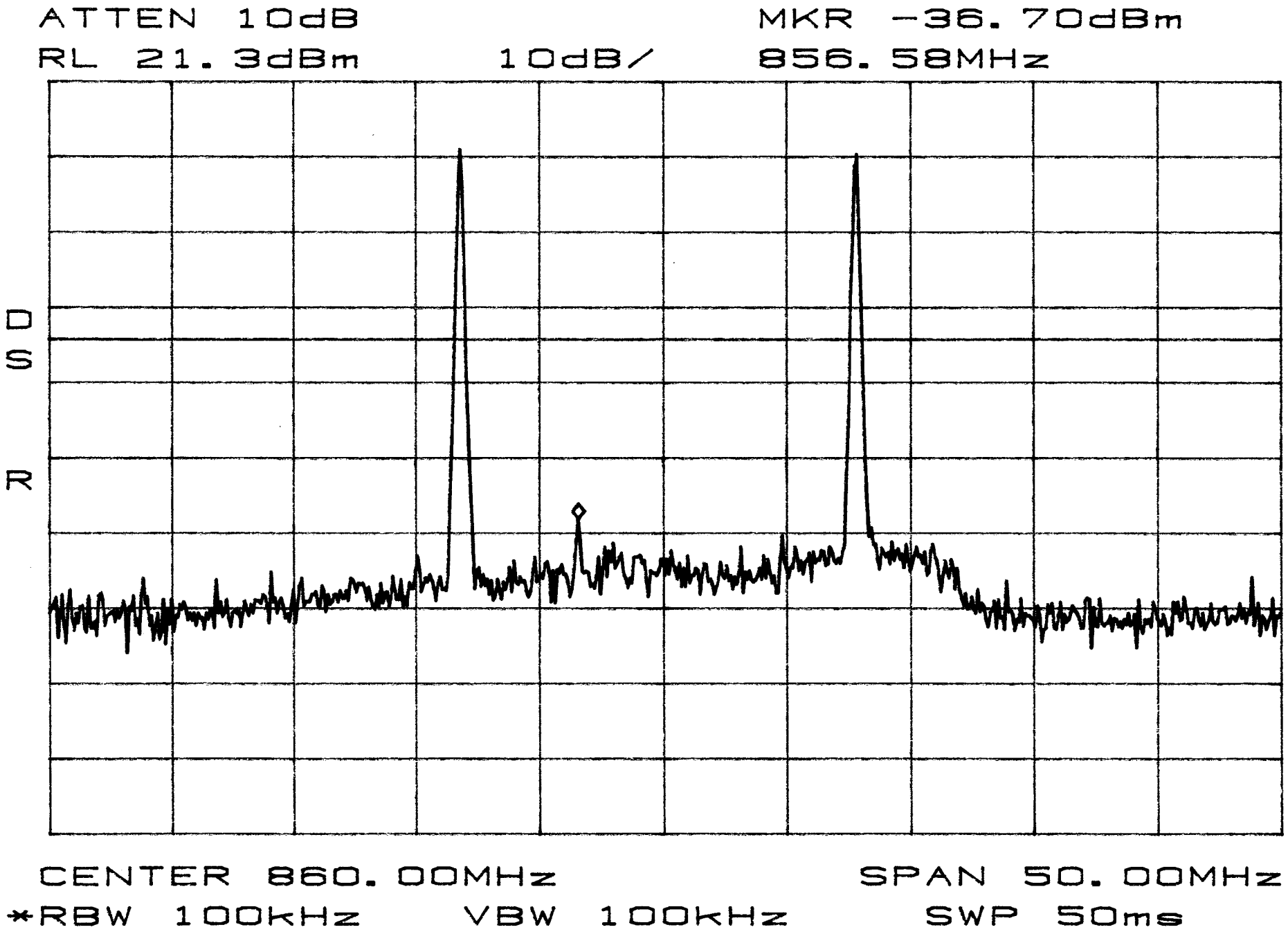
BAND SMR



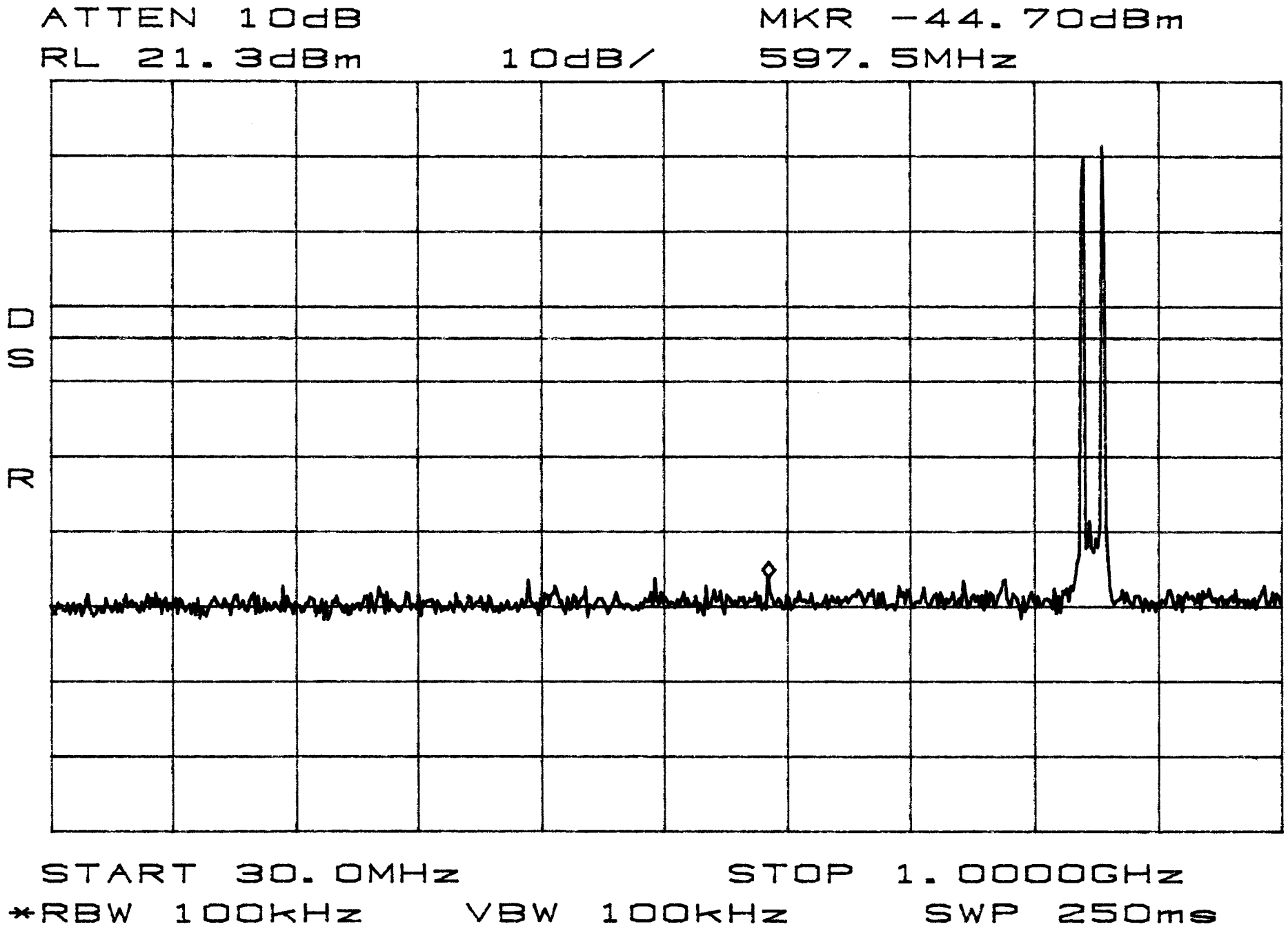
Intermodulation BAND SMR
Close
TDMA



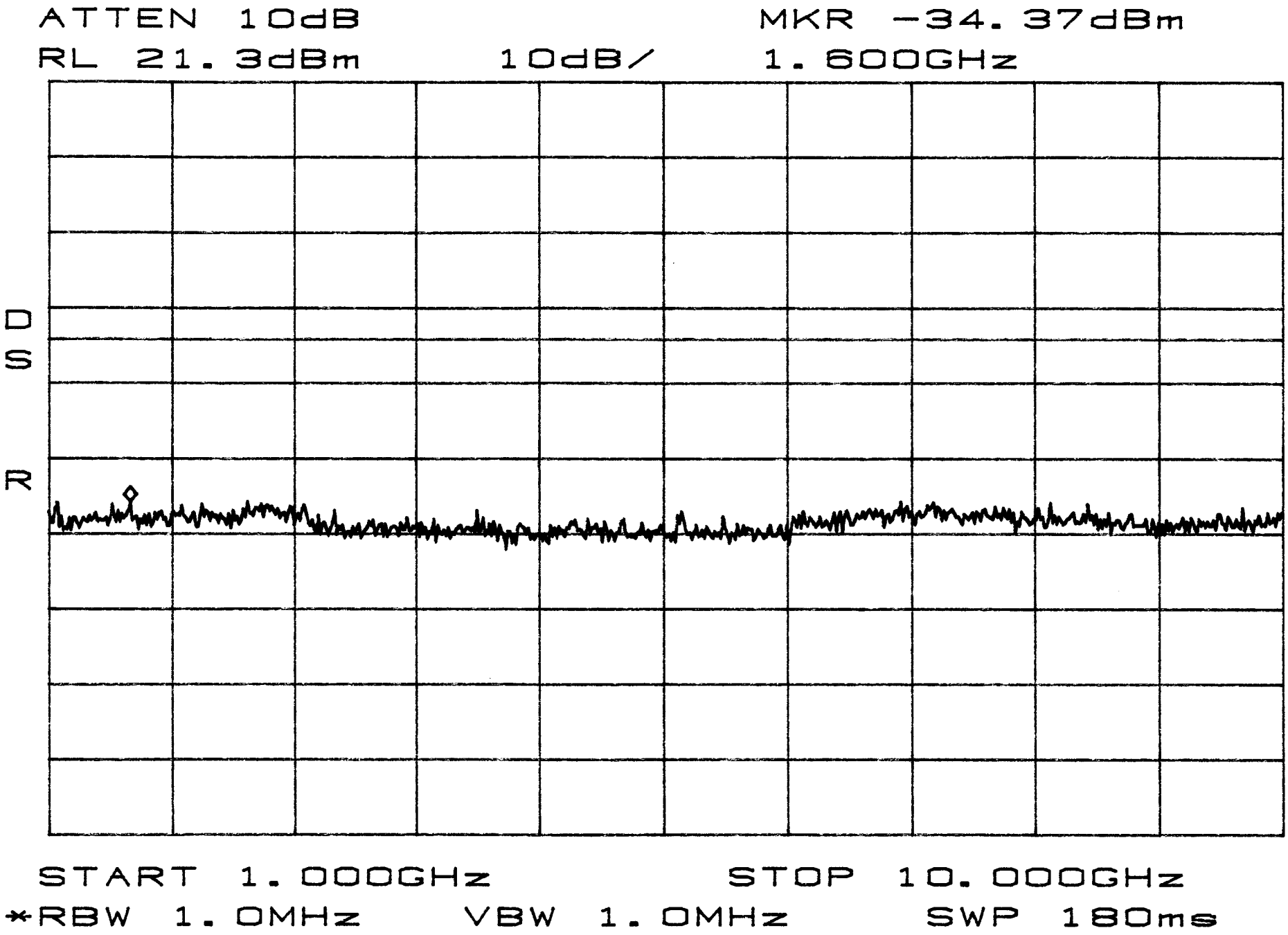
Intermodulation BAND SMR
Apart
TDMA



Intermodulation BAND SMR
Apart
TDMA

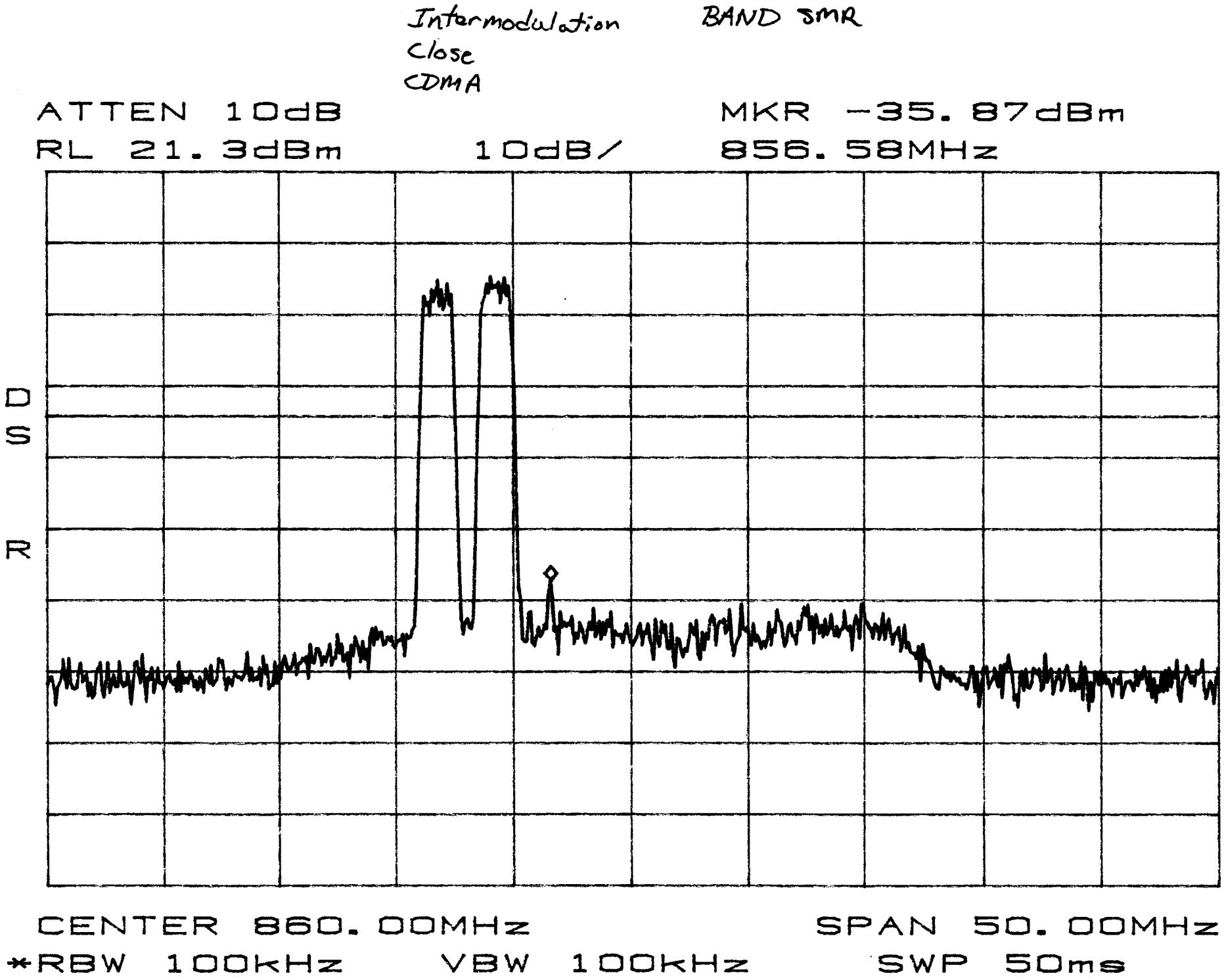


Intermodulation BAND 3MR
Apart
TDMA

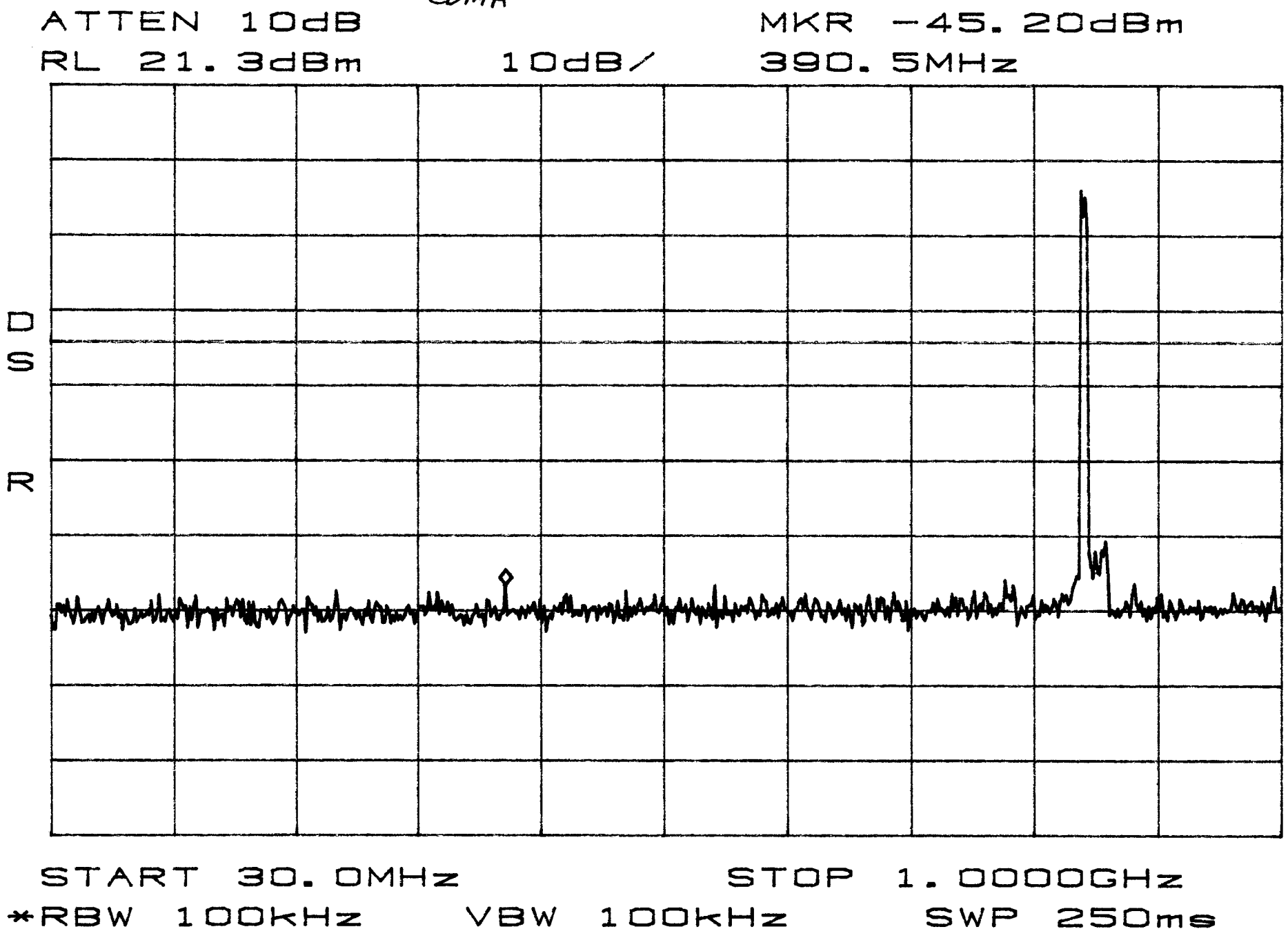


Intermodulation
Close
CDMA

BAND SMR

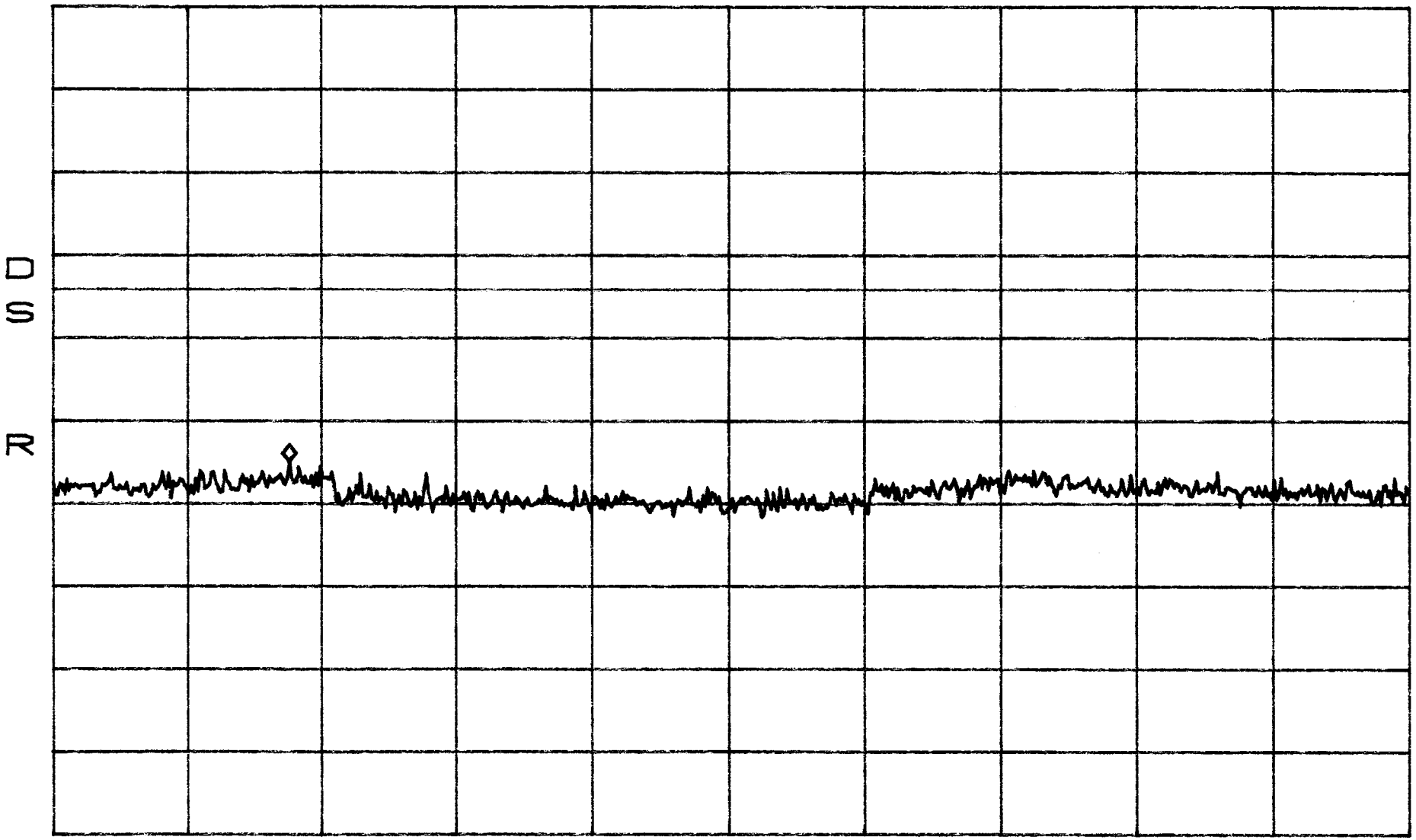


Intermodulation BAND SMR
Close
CDMA

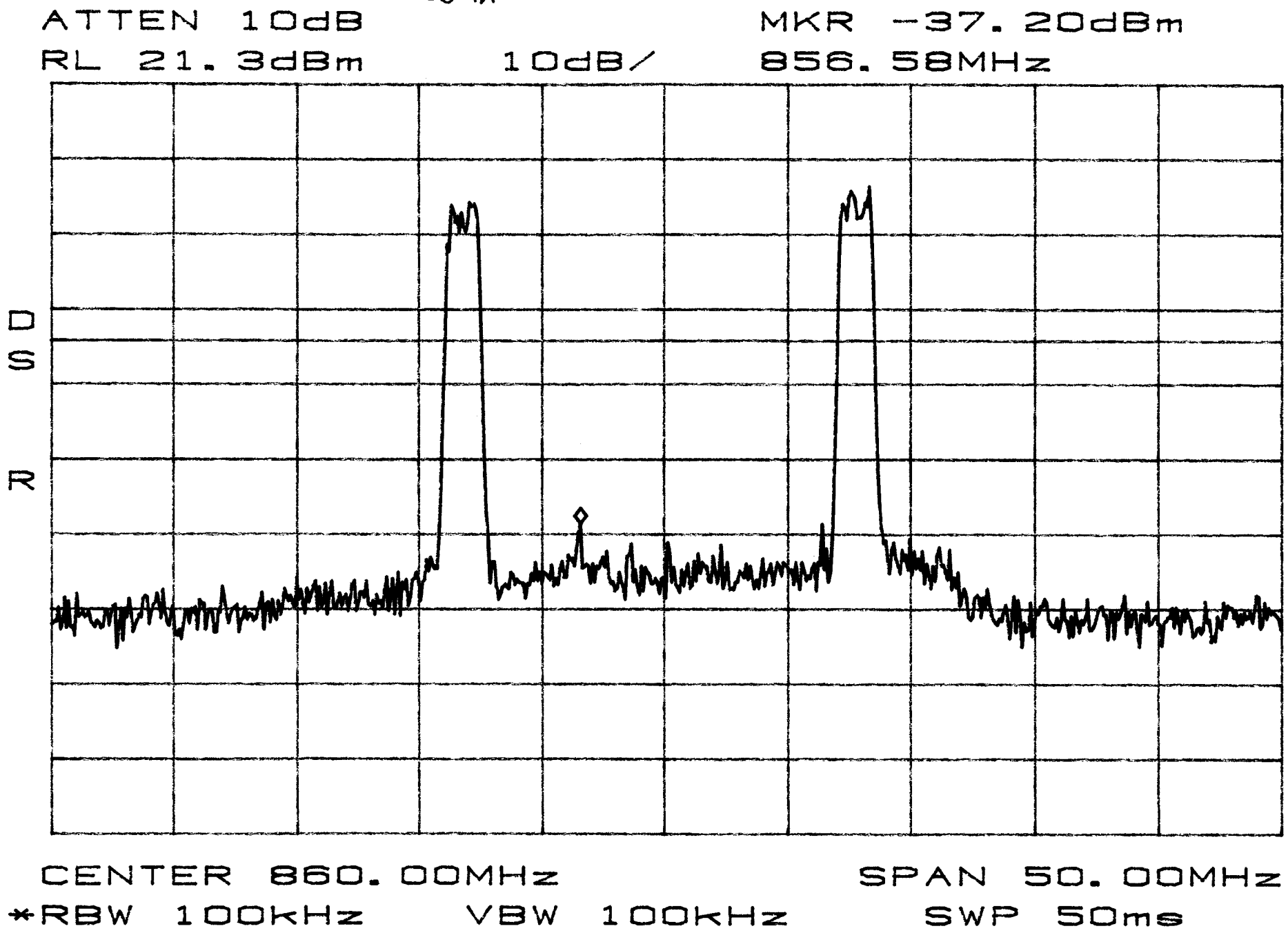


Intermodulation
Close
CDMA

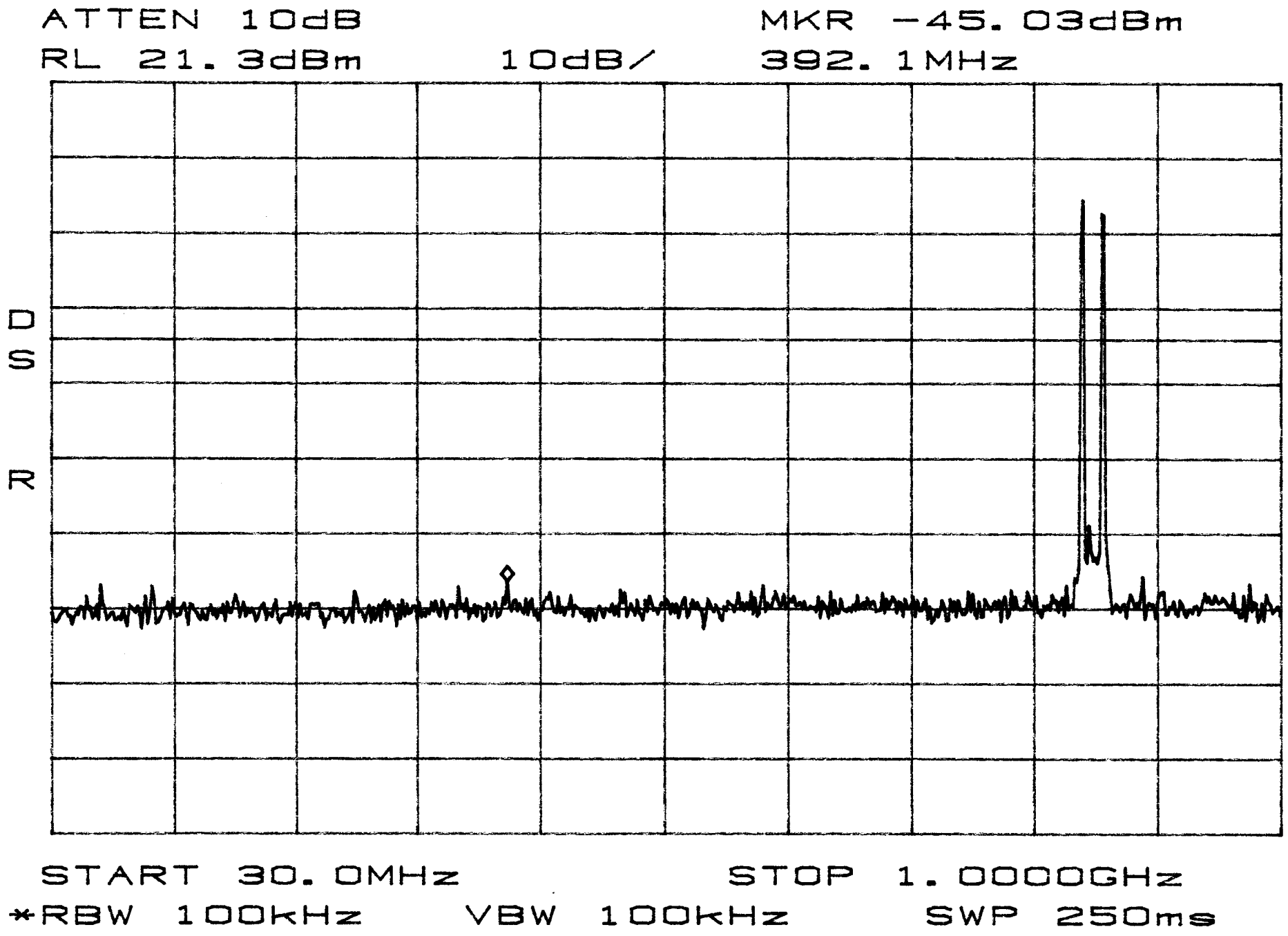
BAND SMR



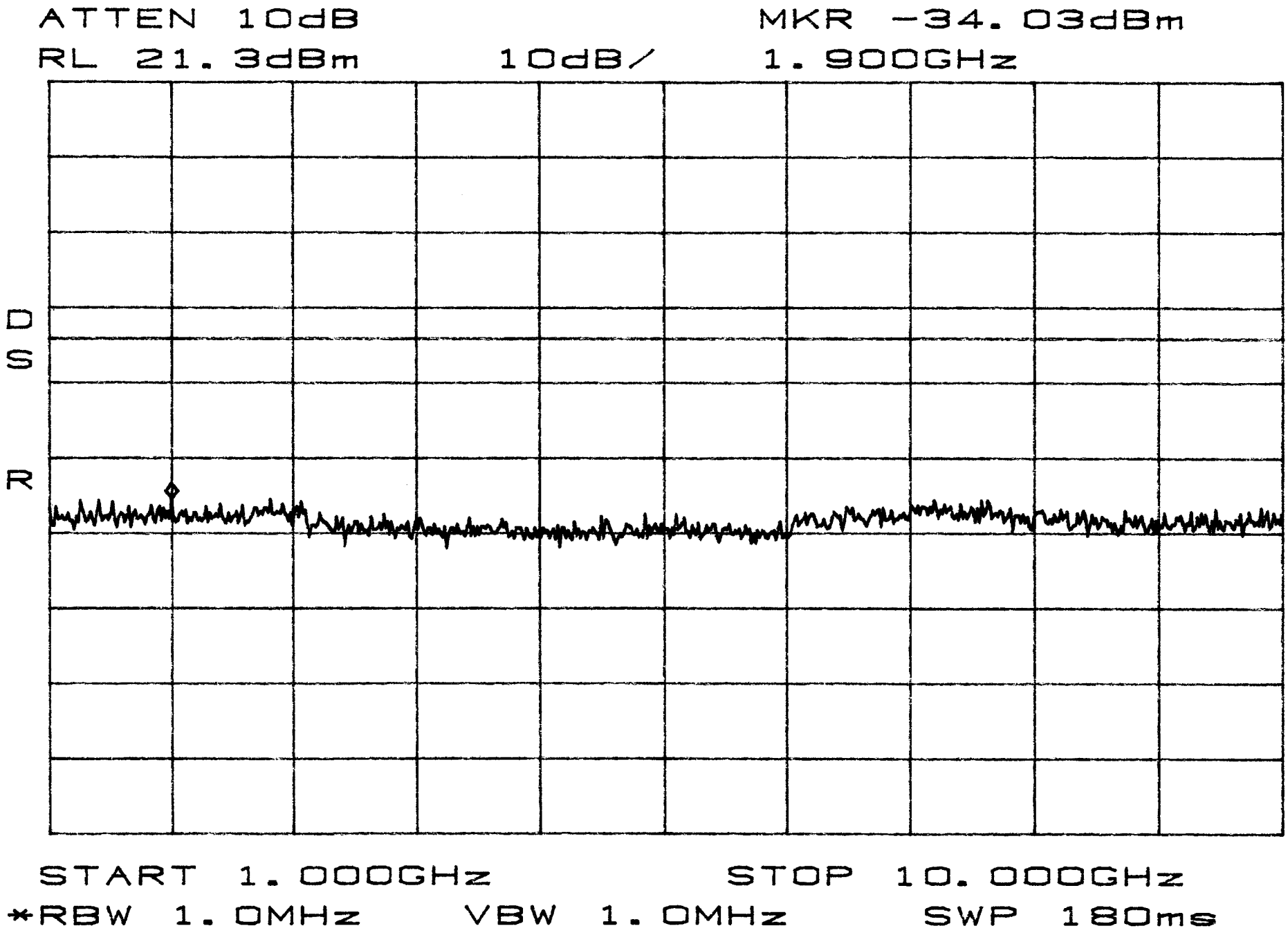
Intermodulation BAND SMR
Apart
CDMA



Intermodulation BAND JMR
Apart
CDMA



Intermodulation BAND SMR
Apart
CDMA



Test Equipment List

Table 1 Test Equipment

Equipment	MFG/Model	ADC Serial Number	Calibration Due. (NIST)
Signal Generator	HP/E4432B	MC27657	October 02
Signal Generator	HP/E4436B	693743	October 02
Combiner	Mini-Circuits/ZAPD-21	N/A	CNR
Isolator	ADC	N/A	CNR
Variable Attenuator	Trilithic/BMA-580	N/A	CNR
Spectrum Analyzer	HP/HP8563E	MC27690	May 03
			March 03
Power Meter	Rohde & Schwarz NRVS	MC21671	January 03
Variable Auto Transformer	Staco/1520CT	MC/44655	May 02
Multimeter	Fluke 79	MC19952	July 03
Freq. Counter	HP/5347A	MC27569	May 02
Temperature Chamber	Despatch/Ecosphere	MC21679	August 02

Note: Any equipment used in testing that has a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test Equipment List

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■-	2665	ZHL-1042J	Mini-Circuits	Preamplifier	32296	10-15-02
■ -	3202	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	10-04-02
■ -	2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	10-20-02
■-	2690	8566B	Hewlett-Packard	Spectrum Analyzer (Unit F)	2430A00930	11-19-02
■ -	2678	85662A	Hewlett-Packard	Analyzer Display (Unit F)	2403A08134	11-19-02
■ -	2684	85650A	Hewlett-Packard	Quasi-Peak Adapter (Unit F)	2521A01006	11-19-02
■ -	2478	AWT-18037	Avantek	Preamplifier 8-18 GHz	1001-9226	3-18-03
■ -	2477	AFT-8434	Avantek	Preamplifier 4-8 GHz	2613A92801	3-18-03
■ -	2396	2520	Wavetek	Signal Generator	6271013	6-05-03
■ -		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.

Form

EMC Test Plan and Constructional Data Form

PRODUCT SERVICE

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

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

Company:	ADC Inc.		
Address:	P.O. Box 1101		
	Minneapolis, MN 55440-1101		
Contact:	Mark F. Miska	Position:	Compliance Engineer
Phone:	952-917-0326	Fax:	952-917-3244
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	Digivance ICS is a digitally distributed antenna system that provides in-building coverage for wireless phone systems.		
EUT Name	Digivance Indoor Coverage Solution - SMR System		
Model No.:	DGVI-2XXXXXDHU DGVI-2XXXXXDRU	Serial No.:	None
Product Options:	Single Mode or Multi Mode Transceivers		
Configurations to be tested:	Host and Remote System - SMR Band		

Test Objective

☐	EMC Directive 89/336/EEC (EMC) Std:	☒	FCC:	Class	☐ A	☐ B	Part 90
☐	Machinery Directive 89/392/EEC (EMC Std:	☐	VCCI:	Class	☐ A	☐ B	
☐	Medical Device Directive 93/42/EEC (EMC) Std:	☐	BCIQ:	Class	☐ A	☐ B	
☐	Vehicle Directive 72/245/EEC (EMC) Std:	☐	Canada:	Class	☐ A	☐ B	
☐	FDA Reviewers Guidance for Premarket Notification Submissions (EMC)	☐	Australia:	Class	☐ A	☐ B	
		☐	Other:				

TÜV Product Service Certification Requested

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

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

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

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

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: 16" Width: 19" Height: 4" Weight: 15 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)): 3 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 and Remote are indoor only. System is used to enhance coverage within buildings.

EUT Power Cable

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

☐ Shielded OR ☒ Unshielded

☐ Not Applicable

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Interface Ports and Cables

Interface			Shielding							
Type	Analog ☐ Digital ☒	Qty	Yes ☒ No ☐	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable ☒ Permanent ☐
EXAMPLE: *RS232*	☐ ☒	*2*	☒ ☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒ ☐
RF "N" type	☒ ☐	2	☒ ☐	Braid	Coaxial	N	50 Ohms	>3	☒ ☐
Alarm	☒ ☐	1	☐ ☒	Not Specified	N/A	6 Pin	N/A	>3	☒ ☐
Fiber	☐ ☒	7	☐ ☒	N/A	N/A	LC	N/A	>3	☒ ☐
RF "SMA" type	☒ ☐	1	☒ ☐	Braid	Coaxial	SMA	50 Ohms	>3	☒ ☐
AC Power	☒ ☐	1	☐ ☒	None	N/A	3 Pin	N/A	>3	☒ ☐
DC Power	☒ ☐	7	☐ ☒	Cat 5	N/A	RJ-45	N/A	>3	☒ ☐
	☐ ☐		☐ ☐						☐ ☐
	☐ ☐		☐ ☐						☐ ☐
	☐ ☐		☐ ☐						☐ ☐
	☐ ☐		☐ ☐						☐ ☐
	☐ ☐		☐ ☐						☐ ☐
	☐ ☐		☐ ☐						☐ ☐

EMC Test Plan and Constructional Data Form

EUT Software.

Revision Level: None

Description:

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	DGVI-2XXXXXDHU	None	#101
Remote Unit	DGVI-2XXXXXDRU	None	#106

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

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

Description	*Model #*	*Serial #*	*FCC ID #*
Signal Generator	HP E4436B	963743	

Oscillator Frequencies

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

Power Supply

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

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*
None		

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

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. Misha — 10-2-02

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

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

Reviewed by TÜV Product Service Associate — Date

RADIATED EMISSIONS

The final level, expressed in dBµV/m, is arrived at by taking the reading from the spectrum analyzer (Level dBµV) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has the FCC limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment B. The amplifier gain is automatically accounted for by using an analyzer offset.

Example:

FREQ	LEVEL		CABLE/ANT/PREAMP			FINAL	POL/HGT/AZ			DELTA1
(MHz)	(dBuV)		(dB)	(dB/m)	(dB)	(dBuV/m)		(m)	(deg)	FCC
60.80	42.5Qp	+	1.2	+ 10.9	- 25.5 =	29.1	V	1.0	0.0	-10.9

SUBSTITION ANTENNA

The substitution antenna is used to replace the EUT for tests in which a transmitting parameter(i.e. frequency error, effective radiated power, spurious emissions and adjacent channel power) is being measured. The substitution antenna is connected to a calibrated signal generator. The frequency of the calibrated signal generator is set to the frequency of the emission component detected. The test antenna is raised and lowered through the specified range of height to ensure the maximum signal is received. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the emission component was measured, corrected for any change of input attenuator setting of the measuring receiver. The input level to the substitution antenna is recorded as power level, corrected for any change of input attenuator setting of the measuring receiver.