TEST RESULT SUMMARY

FCC PART 22 SUBPART H

MANUFACTURER'S NAME	ADC Inc.
NAME OF EQUIPMENT	Digivance Wide Band Digital Radio 800 MHz 50-Watt System
TYPE OF EQUIPMENT	Transports RF between a remote antenna and a Wide Band Digital Radio Base Station
MODEL NUMBER	**DGVS-112710SYS** **DGVS-122710SYS**
MANUFACTURER'S ADDRESS	PO Box 1101 Minneapolis MN 55440
TEST REPORT NUMBER	WC402208
TEST DATE	07 May 2004

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: 28 July 2004

Location: Taylors Falls MN
USA

J. C. Sausen
Test Technician

J. T. Schneider
Chief Engineer

Not Transferable

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

Test Report File No.	:	**WC402208**	Date of issue:	28 July 2004
Model No.	:	**DGVS-112710SYS** **DGVS-122710SYS**		
Product Name	:	Digivance Wide Band Digital Radio 800 MHz 50-Watt System		
Product Type	:	Transports RF between a remote antenna and a Wide Band Digital Radio Base Station		
Applicant	:	ADC Inc.		
Manufacturer	:	ADC Inc.		
License holder	:	ADC Inc.		
Address	:	PO Box 1101		
	:	Minneapolis MN 55440		
Test Result	:	■ **Positive** □ **Negative**		
Test Project Number Reference(s)	:	**WC402208**		
Total pages including Appendices		**60**		

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

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

D I R E C T O R Y - EMISSIONS

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

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

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Environmental conditions in the lab:

	Actual
Temperature	: 23 °C
Relative Humidity	: 28 %
Atmospheric pressure	: 98.0 kPa
Power supply system	: 60 Hz - 115 V - 1-phase

Sign Explanations:

☐ - not applicable
■ - applicable

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22.355 Frequency tolerance

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

■ - ADC facility

The EUT Server is specified for indoor use only with temperature range of +10 to +35º C and was tested within its range. The EUT STM and LPA are specified with a temperature range of -30 to +50º C and were tested within their range.

The remote units are placed in the temp chamber and the temp is lowered to -30 degrees C. Incremental temperature increases are administered and test measurements are taken when the units are soaked long enough. When the testing has been completed for the temperatures up to 0 degrees, then the host unit is placed in the temp chamber and testing resumes all the way up to +50 degrees C.

Frequency tolerance data on next 2 pages

Frequency Tolerance Test for ADC Inc
Digivance 800 MHz 50-Watt WBDR System
Model Numbers DGVS-112710SYS and DGVS-122710SYS

EUT A Band

Input Voltage	Carrier Frequency	Measured Frequency	Meets requirement?
102 VAC	869.200000 MHz	869.200000 MHz	YES
120 VAC	869.200000 MHz	869.200000 MHz	YES
138 VAC	869.200000 MHz	869.200000 MHz	YES
102 VAC	879.800000 MHz	879.800000 MHz	YES
120 VAC	879.800000 MHz	879.800000 MHz	YES
138 VAC	879.800000 MHz	879.800000 MHz	YES
102 VAC	891.400000 MHz	891.400000 MHz	YES
120 VAC	891.400000 MHz	891.400000 MHz	YES
138 VAC	891.400000 MHz	891.400000 MHz	YES
Temperature	**Carrier Frequency**	**Measured Frequency**	**Meets requirement?**
-30 Deg C	869.200000 MHz	869.200000 MHz	YES
-20 Deg C	869.200000 MHz	869.200000 MHz	YES
-10 Deg C	869.200000 MHz	869.200000 MHz	YES
0 Deg. C	869.200000 MHz	869.200000 MHz	YES
10 Deg C	869.200000 MHz	869.200000 MHz	YES
20 Deg C	869.200000 MHz	869.200000 MHz	YES
30 Deg C	869.200000 MHz	869.200000 MHz	YES
40 Deg C	869.200000 MHz	869.200000 MHz	YES
50 Deg C	869.200000 MHz	869.200000 MHz	YES
-30 Deg C	879.800000 MHz	879.800000 MHz	YES
-20 Deg C	879.800000 MHz	879.800000 MHz	YES
-10 Deg C	879.800000 MHz	879.800000 MHz	YES
0 Deg. C	879.800000 MHz	879.800000 MHz	YES
10 Deg C	879.800000 MHz	879.800000 MHz	YES
20 Deg C	879.800000 MHz	879.800000 MHz	YES
30 Deg C	879.800000 MHz	879.800000 MHz	YES
40 Deg C	879.800000 MHz	879.800000 MHz	YES
50 Deg C	879.800000 MHz	879.800000 MHz	YES
-30 Deg C	891.400000 MHz	891.400000 MHz	YES
-20 Deg C	891.400000 MHz	891.400000 MHz	YES
-10 Deg C	891.400000 MHz	891.400000 MHz	YES
0 Deg. C	891.400000 MHz	891.400000 MHz	YES
10 Deg C	891.400000 MHz	891.400000 MHz	YES
20 Deg C	891.400000 MHz	891.400000 MHz	YES
30 Deg C	891.400000 MHz	891.400000 MHz	YES
40 Deg C	891.400000 MHz	891.400000 MHz	YES
50 Deg C	891.400000 MHz	891.400000 MHz	YES

EUT B Band

Input Voltage	Carrier Frequency	Measured Frequency	Meets requirement?
102 VAC	880.000000 MHz	880.000000 MHz	YES
120 VAC	880.000000 MHz	880.000000 MHz	YES
138 VAC	880.000000 MHz	880.000000 MHz	YES
102 VAC	887.000000 MHz	887.000000 MHz	YES
120 VAC	887.000000 MHz	887.000000 MHz	YES
138 VAC	887.000000 MHz	887.000000 MHz	YES
102 VAC	893.800000 MHz	893.800000 MHz	YES
120 VAC	893.800000 MHz	893.800000 MHz	YES
138 VAC	893.800000 MHz	893.800000 MHz	YES
Temperature	**Carrier Frequency**	**Measured Frequency**	**Meets requirement?**
-30 Deg C	880.000000 MHz	880.000000 MHz	YES
-20 Deg C	880.000000 MHz	880.000000 MHz	YES
-10 Deg C	880.000000 MHz	880.000000 MHz	YES
0 Deg. C	880.000000 MHz	880.000000 MHz	YES
10 Deg C	880.000000 MHz	880.000000 MHz	YES
20 Deg C	880.000000 MHz	880.000000 MHz	YES
30 Deg C	880.000000 MHz	880.000000 MHz	YES
40 Deg C	880.000000 MHz	880.000000 MHz	YES
50 Deg C	880.000000 MHz	880.000000 MHz	YES
-30 Deg C	887.000000 MHz	887.000000 MHz	YES
-20 Deg C	887.000000 MHz	887.000000 MHz	YES
-10 Deg C	887.000000 MHz	887.000000 MHz	YES
0 Deg. C	887.000000 MHz	887.000000 MHz	YES
10 Deg C	887.000000 MHz	887.000000 MHz	YES
20 Deg C	887.000000 MHz	887.000000 MHz	YES
30 Deg C	887.000000 MHz	887.000000 MHz	YES
40 Deg C	887.000000 MHz	887.000000 MHz	YES
50 Deg C	887.000000 MHz	887.000000 MHz	YES
-30 Deg C	893.800000 MHz	893.800000 MHz	YES
-20 Deg C	893.800000 MHz	893.800000 MHz	YES
-10 Deg C	893.800000 MHz	893.800000 MHz	YES
0 Deg. C	893.800000 MHz	893.800000 MHz	YES
10 Deg C	893.800000 MHz	893.800000 MHz	YES
20 Deg C	893.800000 MHz	893.800000 MHz	YES
30 Deg C	893.800000 MHz	893.800000 MHz	YES
40 Deg C	893.800000 MHz	893.800000 MHz	YES
50 Deg C	893.800000 MHz	893.800000 MHz	YES

22.913 Effective Radiated Power Limit

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

☐ - Test not applicable

■ - ADC facility

ERP data on following page

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Effective Isotropic Radiated Power Limit Test for ADC Inc.
Digivance 800 MHz 50-Watt WBDR System
Model Numbers DGVS-112710SYS and DGVS-122710SYS

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. 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 50.5 dB to compensate for attenuators and cable loss between the EUT and the analyzer.

Band A

Carrier Frequency	Carrier Output
869.20 MHz	+ 43.50 dBm
879.80 MHz	+ 44.83 dBm
891.40 MHz	+ 45.33 dBm

Band B

Carrier Frequency	Carrier Output
880.00 MHz	+ 46.00 dBm
887.00 MHz	+ 46.17 dBm
893.80 MHz	+ 47.17 dBm

22.915 Modulation requirements

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

■ - Test not applicable

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

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

22.917 Emission Limitations for cellular

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

☐ - Wild River Lab Large Test Site (Open Area Test Site)
■ - ADC facility

at a test distance of:

■ - 3 meters
☐ - 10 meters

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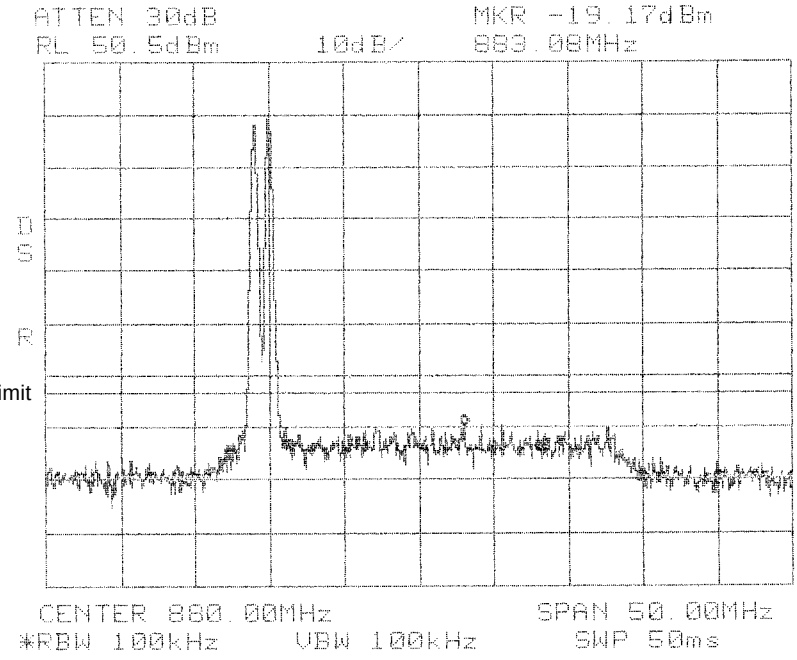
Inter-Modulation Test for ADC Inc.
Digivance 800 MHz 50-Watt WBDR System
Model Numbers DGVS-112710SYS and DGVS-122710SYS

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 input into the EUT at upper end channels. The modulation type tested was GSM. An investigation was made from 30 MHz to the 10^{th} harmonic of the highest fundamental frequency (~10 GHz).

Results:

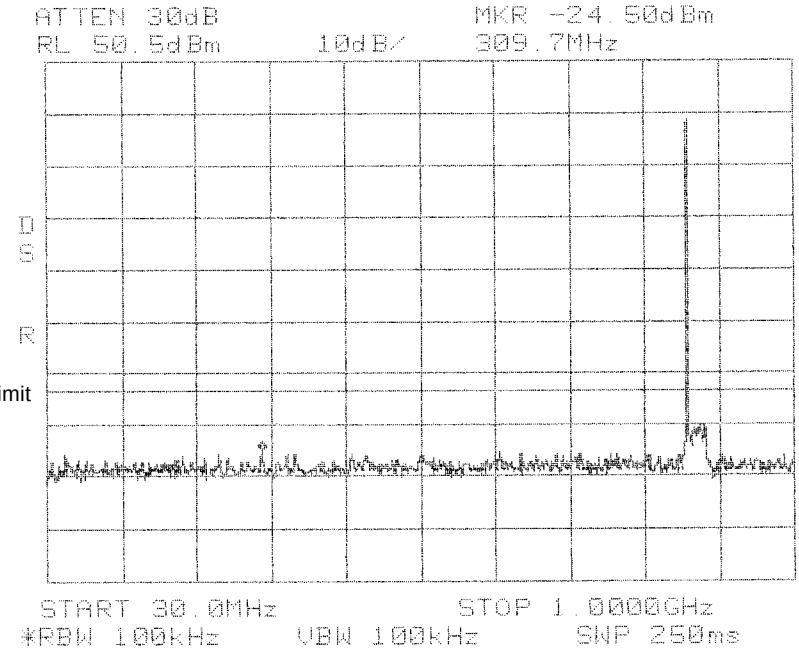
Pass (see plots)



-13 dBm limit

Intermodulation
Low
GSM
A BAND
Channel 128
Channel 133

Spikes are carrier signals.

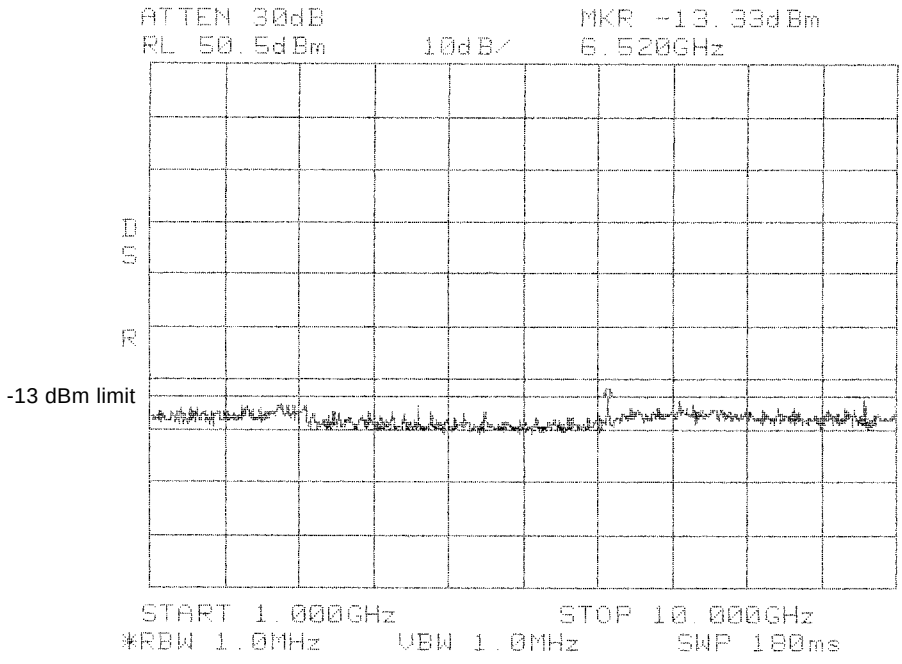


-13 dBm limit

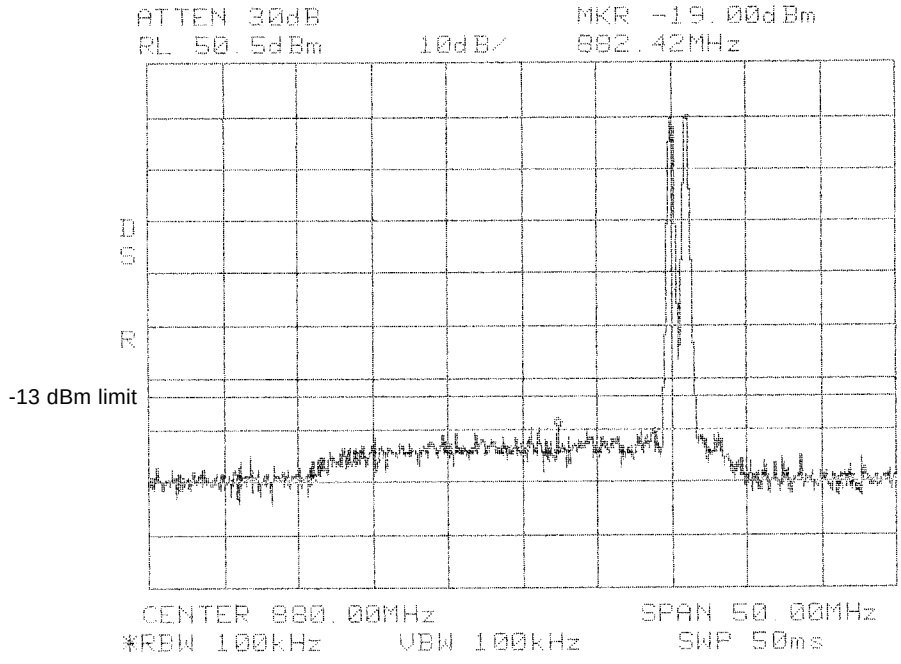
Intermodulation
Low
GSM
A BAND
Channel 128
Channel 133

Spikes are carrier signals.

Intermodulation
Low
GSM
A BAND
Channel 128
channel 133



Spikes are carrier signals.

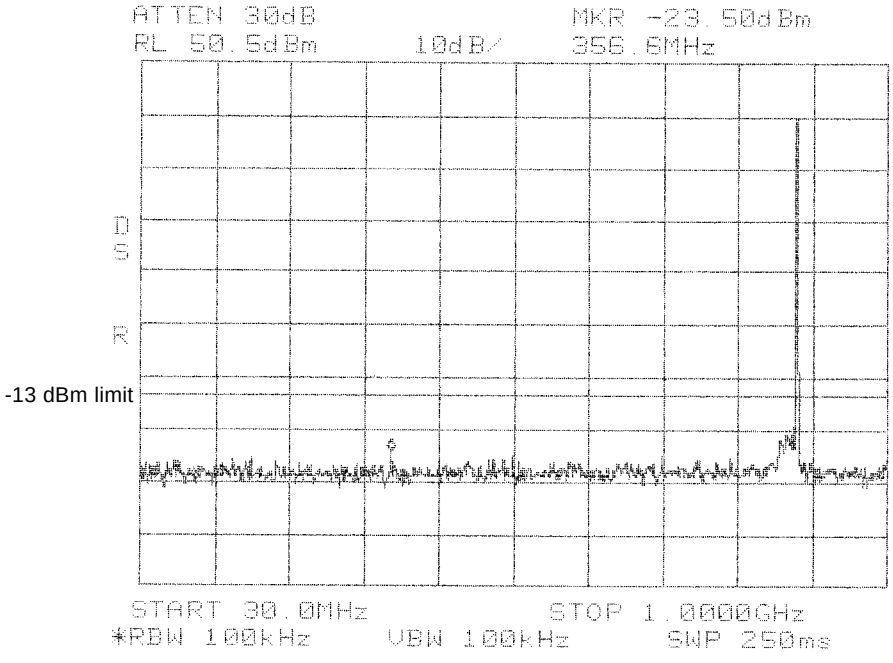


Intermodulation
High
GSM
A BAND

Channel 233

Channel 238

Spikes are carrier signals.

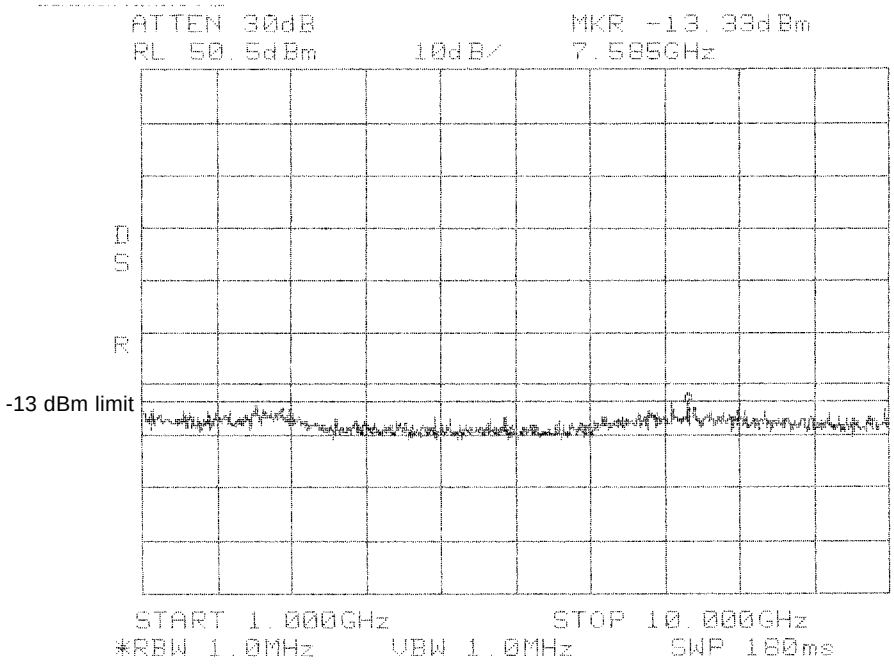


Intermodulation
High
GSM
A BAND

Channel 233

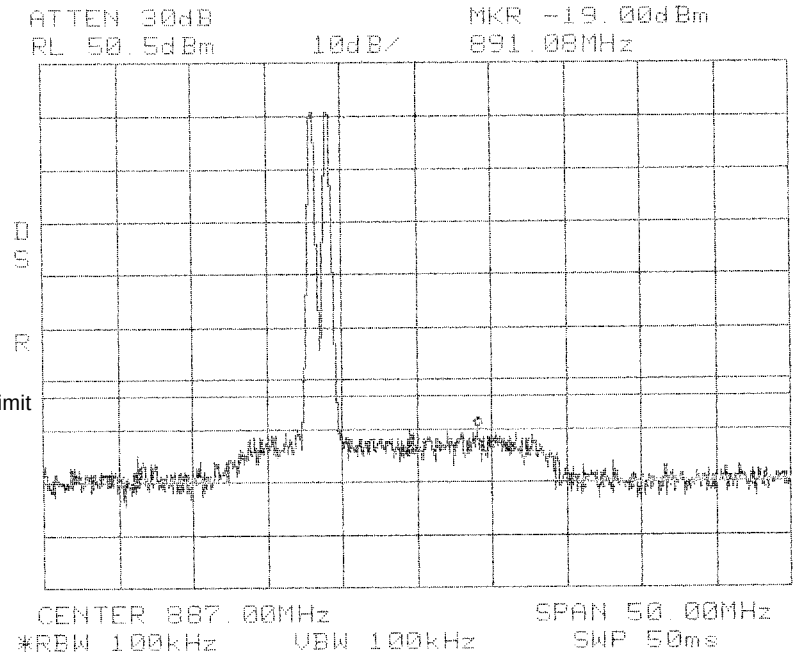
Channel 238

Spikes are carrier signals.



Intermodulation
High
GSM
A BAND
Channel 233
Channel 238

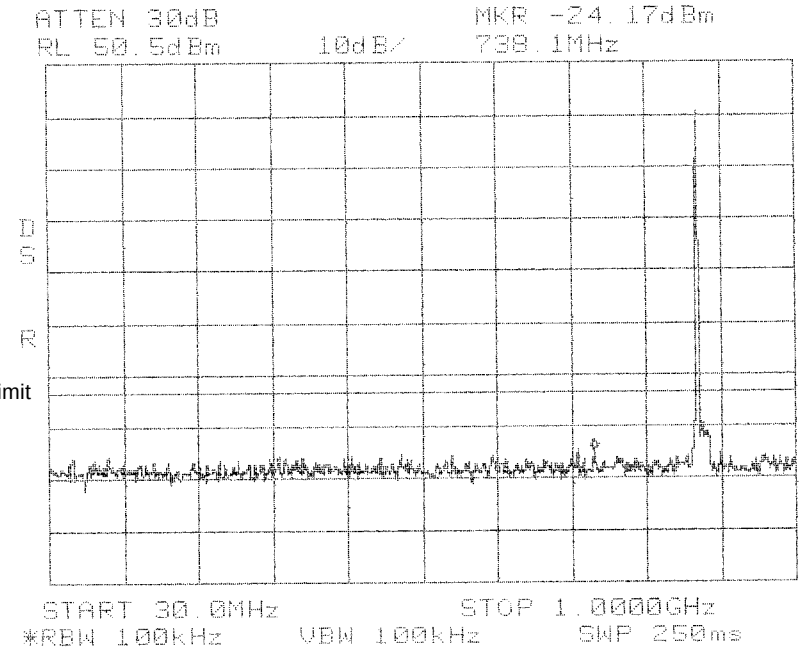
Spikes are carrier signals.



-13 dBm limit

Intermodulation
Low
GSM
B BAND
Channel 193
Channel 188

Spikes are carrier signals.

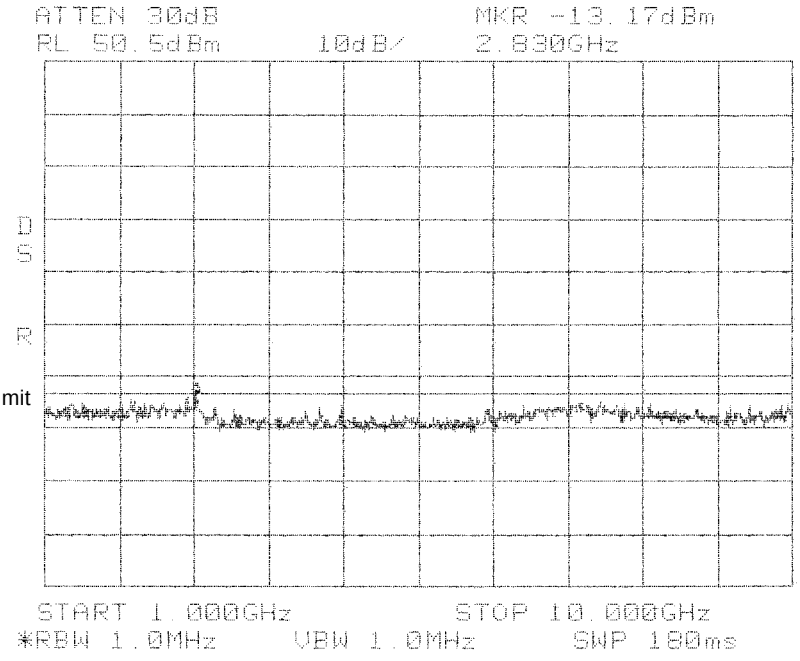


-13 dBm limit

Intermodulation
Low
GSM
B BAND
Channel 183
Channel 188

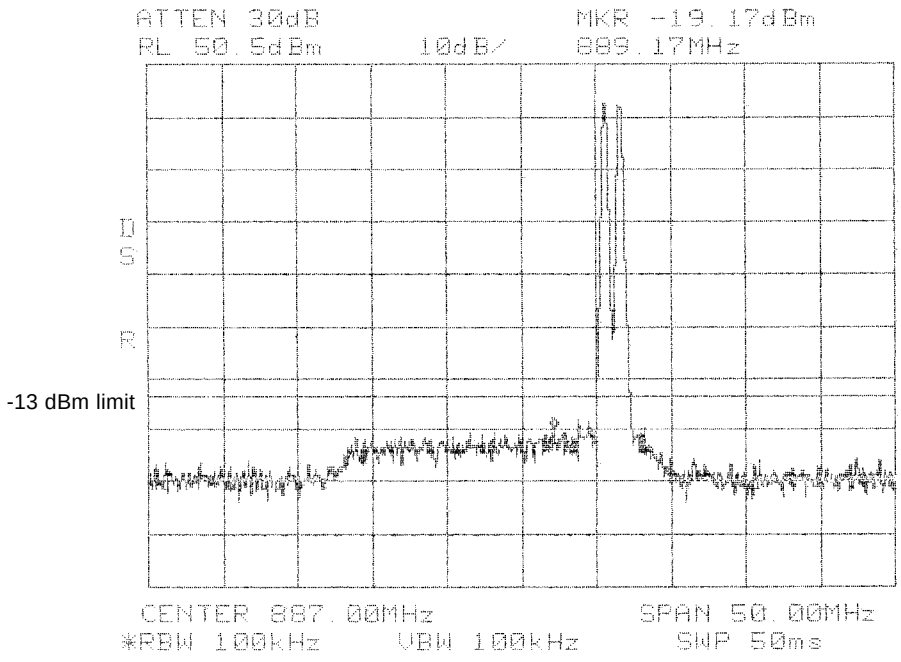
Spikes are carrier signals.

Intermodulation
Low
GSM
B BAND
Channel 183
Channel 188



-13 dBm limit

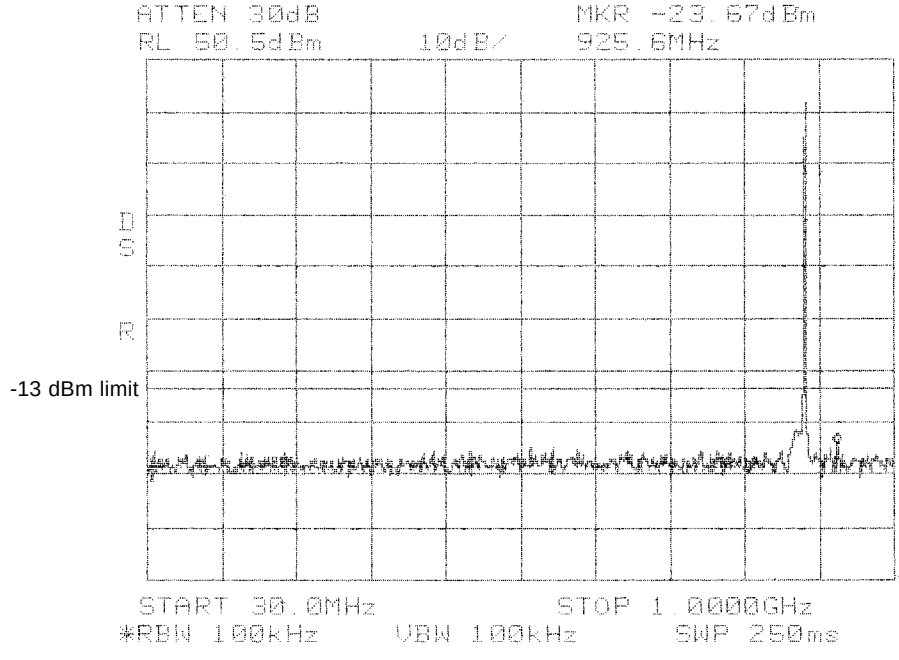
Spikes are carrier signals.



Spikes are carrier signals.

Intermodulation
High
GSM
B BAND

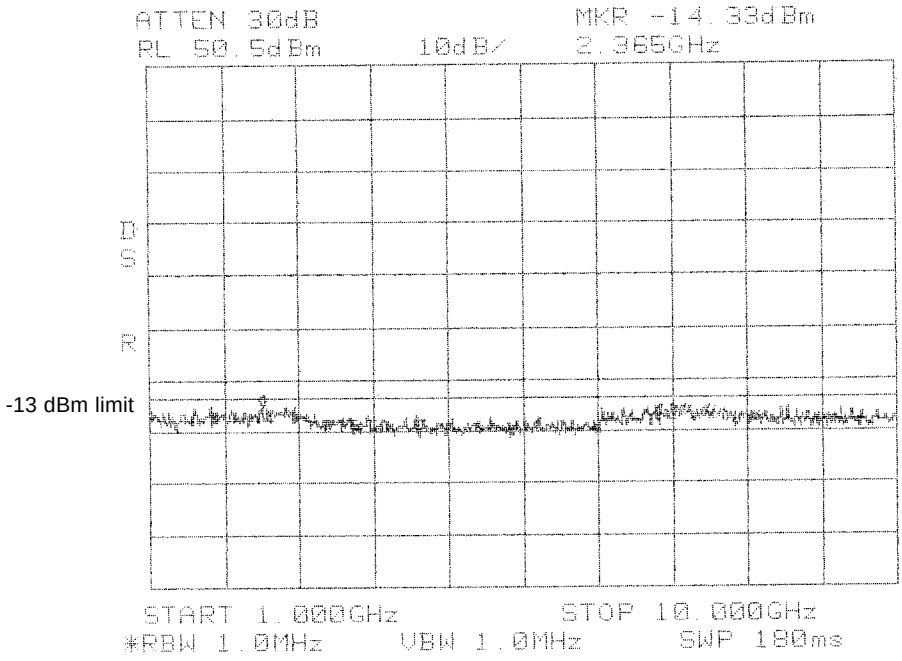
Channel 246
Channel 251



Spikes are carrier signals.

Intermodulation
High
GSM
B BAND

Channel 246
Channel 251



Intermodulation
High
GSM
B BAND
Channel 246
Channel 251

Spikes are carrier signals.

Conducted Emission Limits Test for ADC Inc.
Digivance 800 MHz 50-Watt WBDR System
Model Numbers DGVS-112710SYS and DGVS-122710SYS

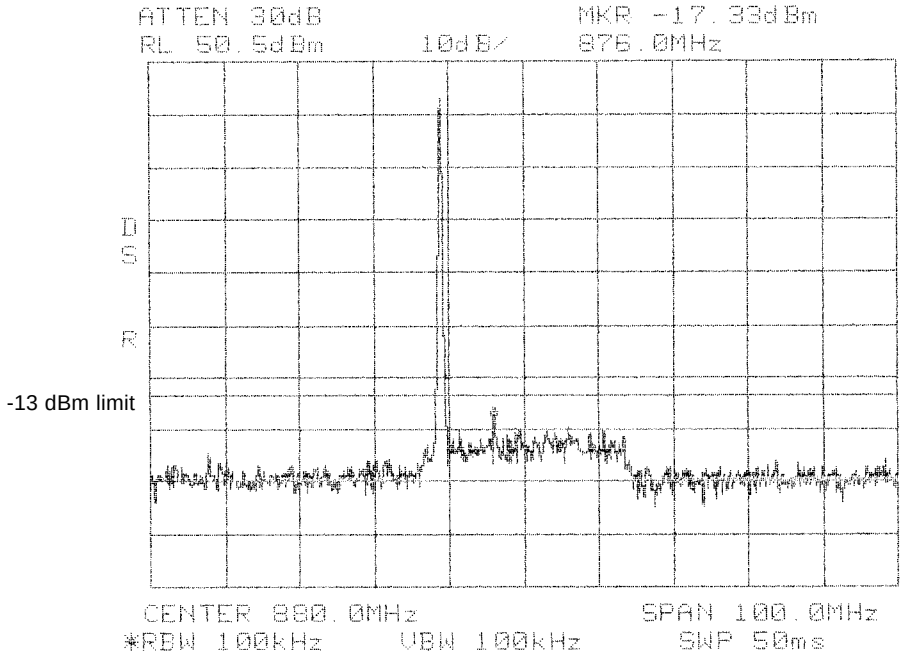
The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10^{th} harmonic of the highest carrier frequency. Test signals used are CW, and GSM. The different signals were input one at a time to the EUT. In all cases, the out of band emissions 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 GSM signal at the upper and lower limits of the band and a resolution bandwidth of 1 kHz.

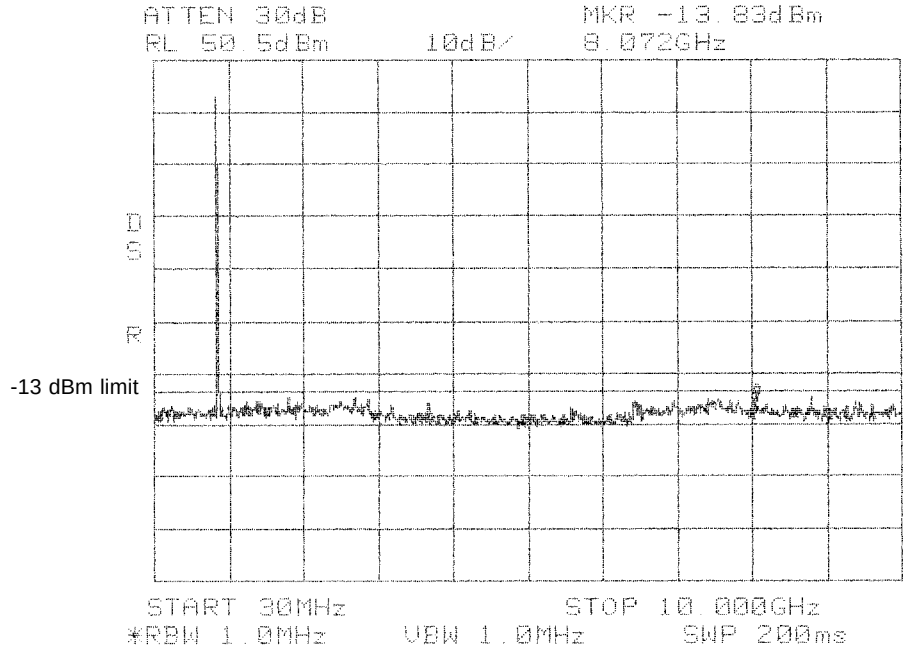
Results:

Pass (see plots)



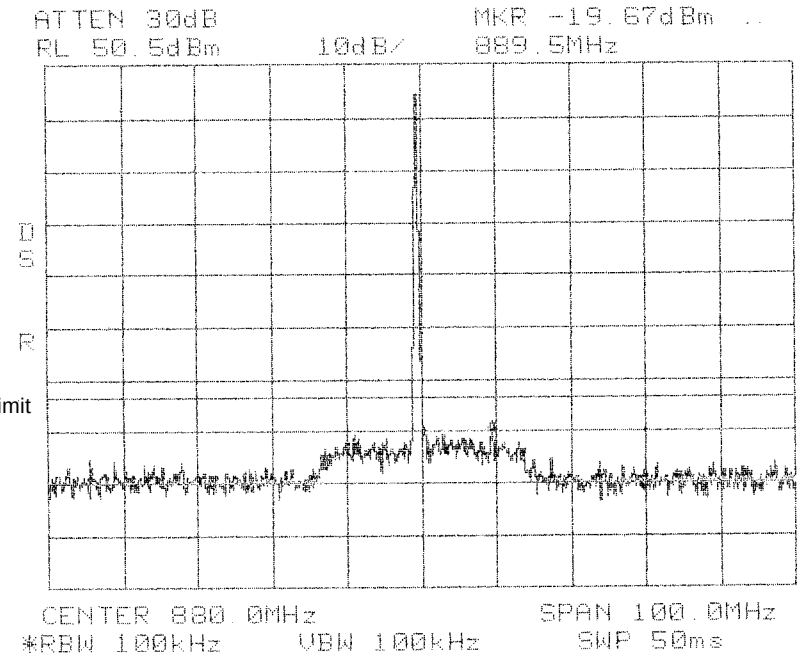
Spikes are carrier signals.

Conducted Emissions
LOW
A BAND
Channel 128



Spikes are carrier signals.

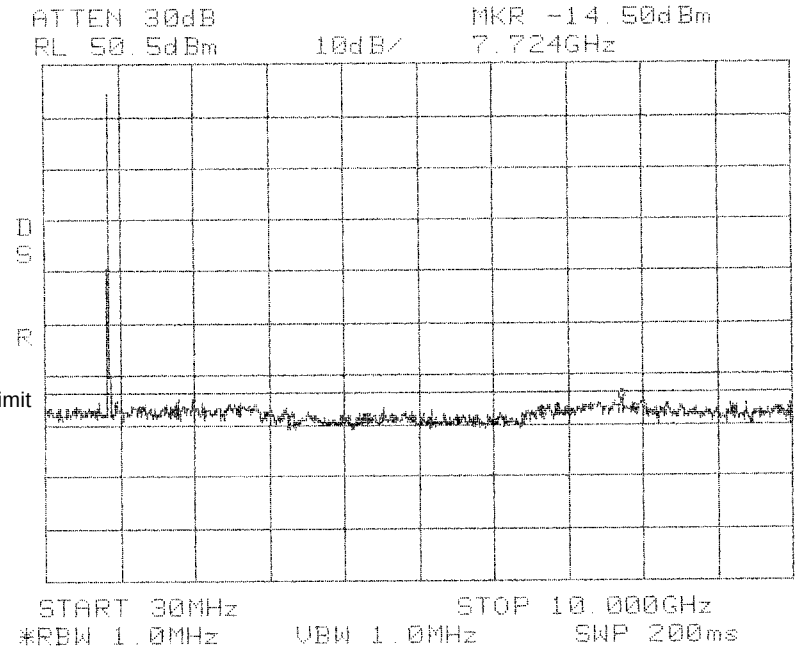
Conducted Emissions
LOW
A BAND
Channel 128



-13 dBm limit

Conducted Emissions
MID
A BAND
Channel 191

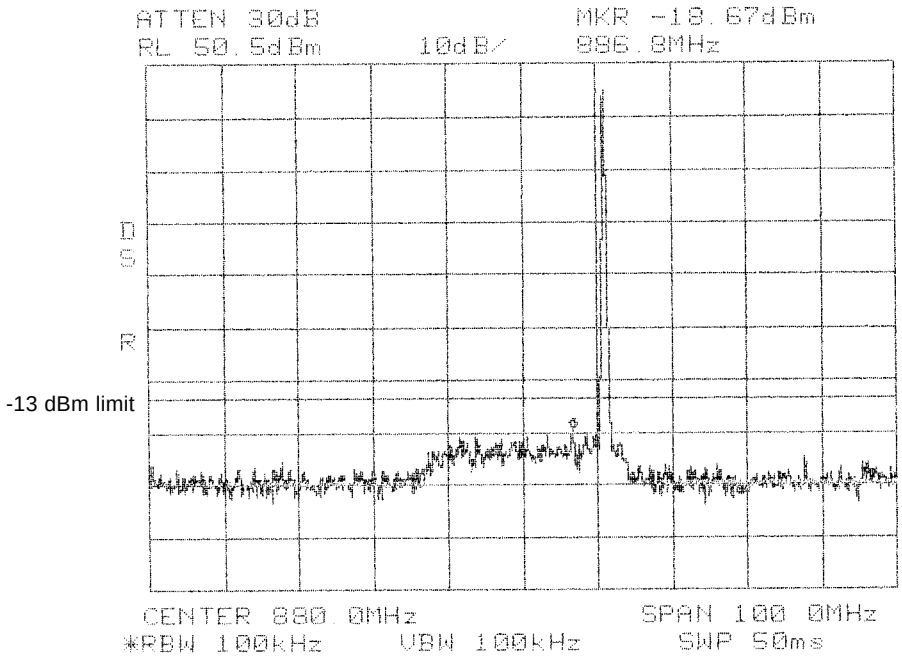
Spikes are carrier signals.



-13 dBm limit

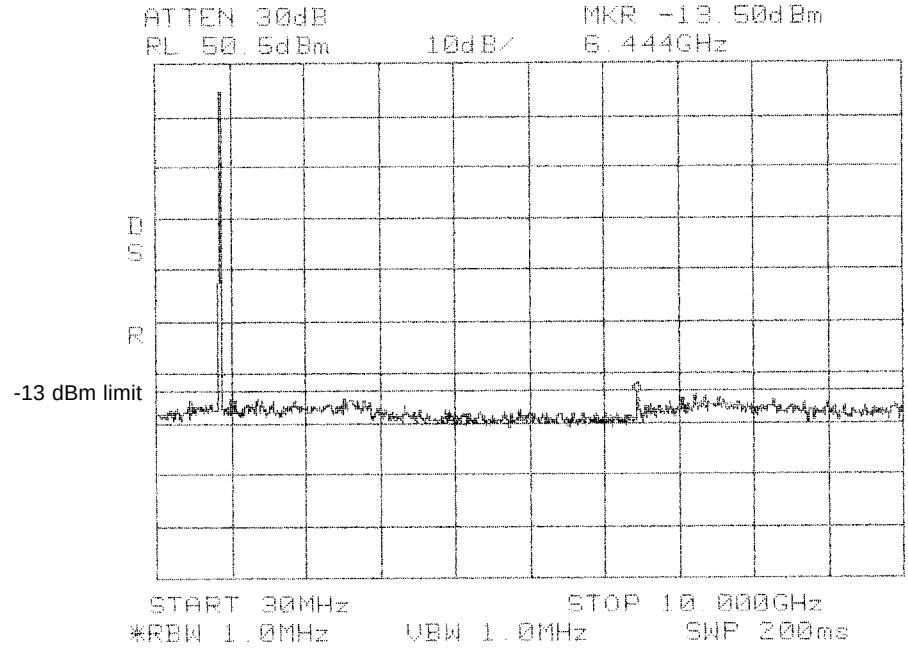
Conducted Emissions
MID
A BAND
Channel 191

Spikes are carrier signals.



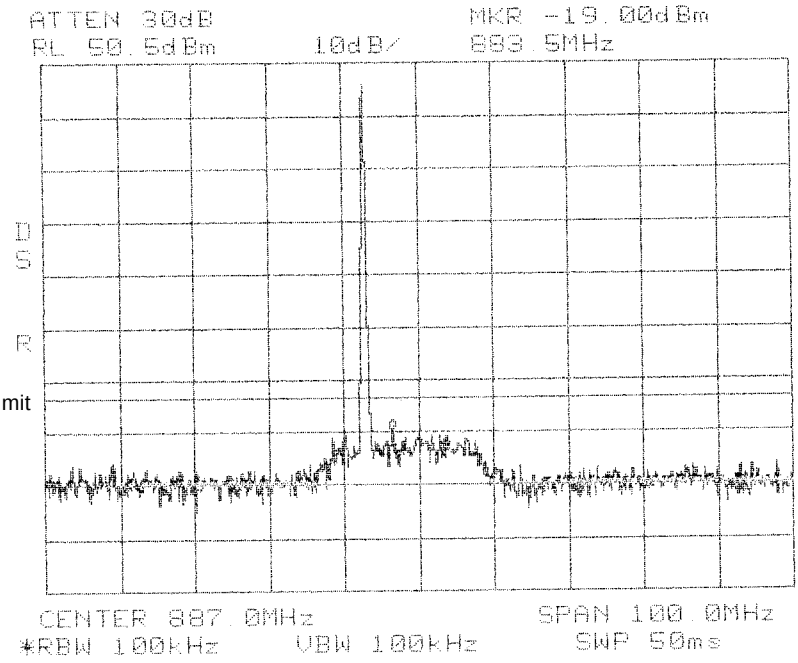
Spikes are carrier signals.

Conducted Emissions
HIGH
A BAND
Channel 239



Spikes are carrier signals.

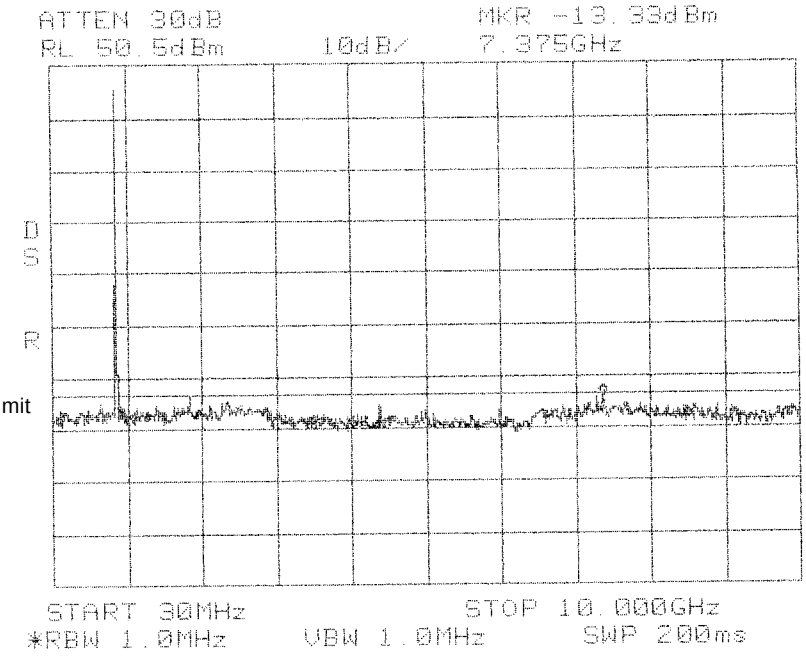
Conducted Emissions
HIGH
A BAND
Channel 239



-13 dBm limit

Conducted Emissions
LOW
B BAND
Channel 183

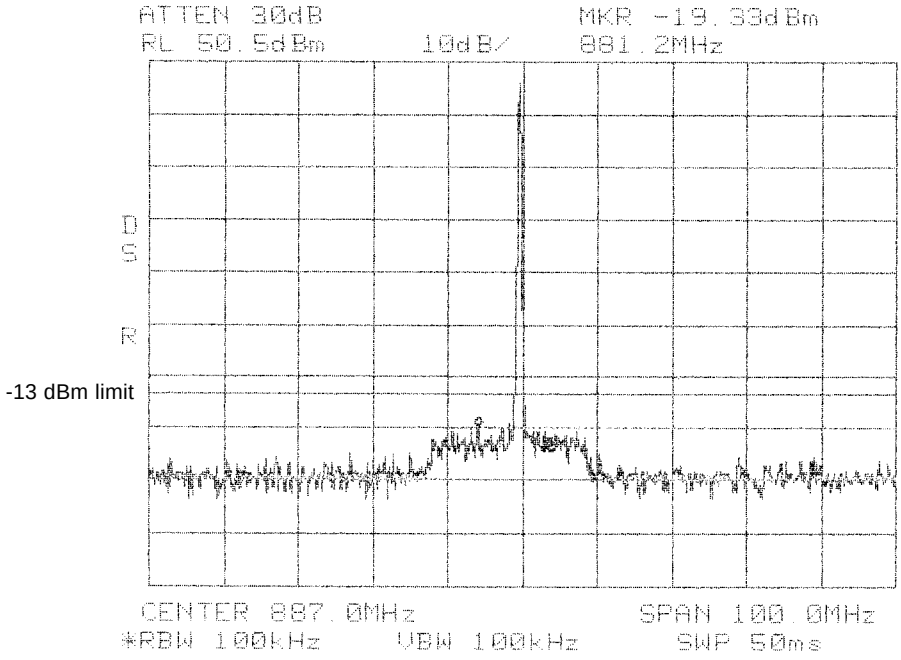
Spikes are carrier signals.



-13 dBm limit

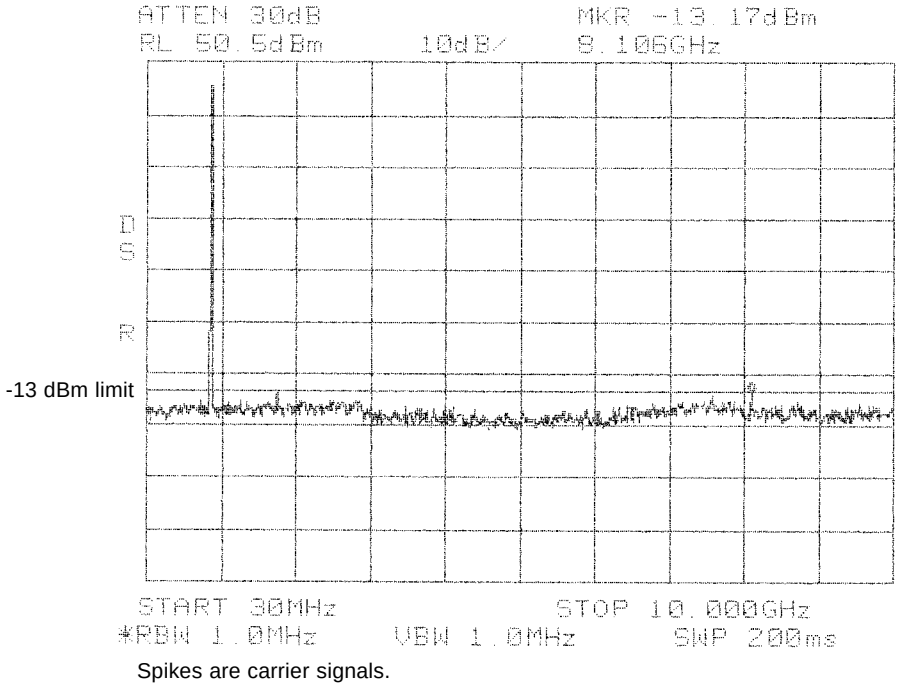
Conducted Emissions
LOW
B BAND
Channel 183

Spikes are carrier signals.



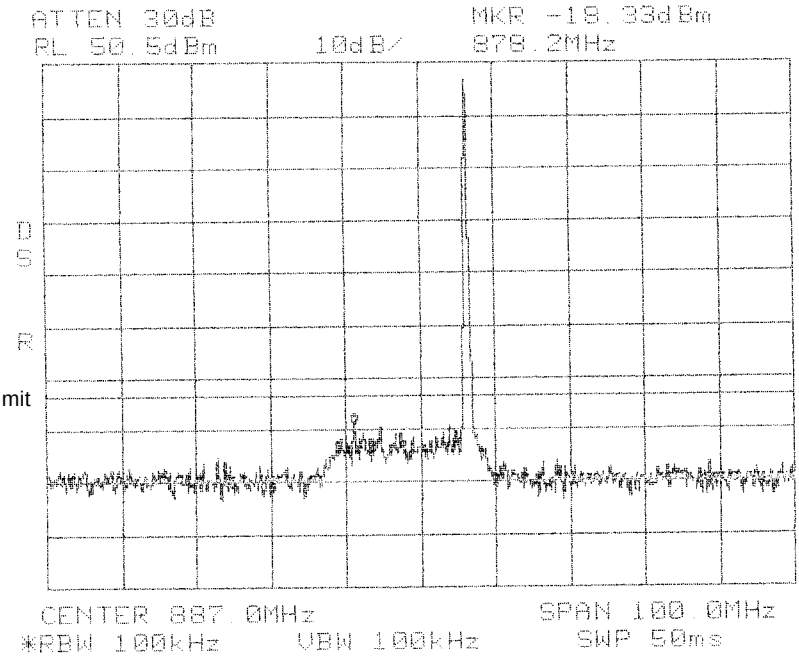
Spikes are carrier signals.

Conducted Emissions
MID
B BAND
Channel 217



Spikes are carrier signals.

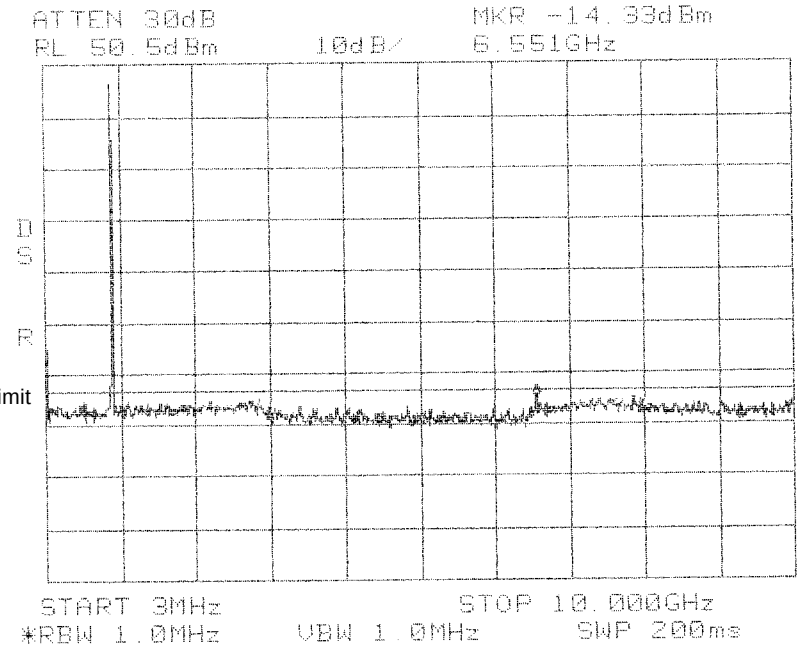
Conducted Emissions
MID
B BAND
Channel 217



-13 dBm limit

Conducted Emissions
HIGH
B BAND
Channel 251

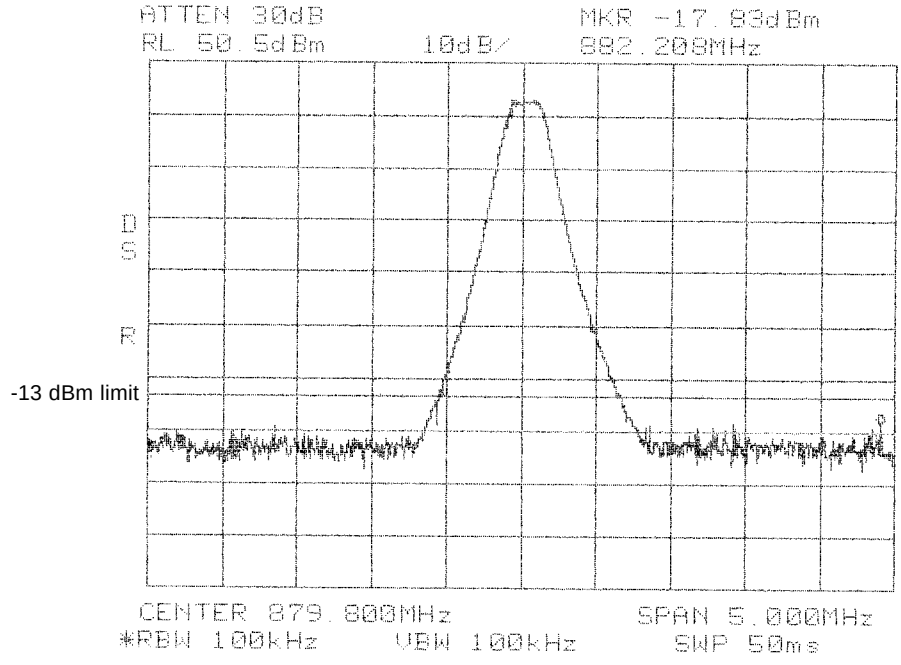
Spikes are carrier signals.



-13 dBm limit

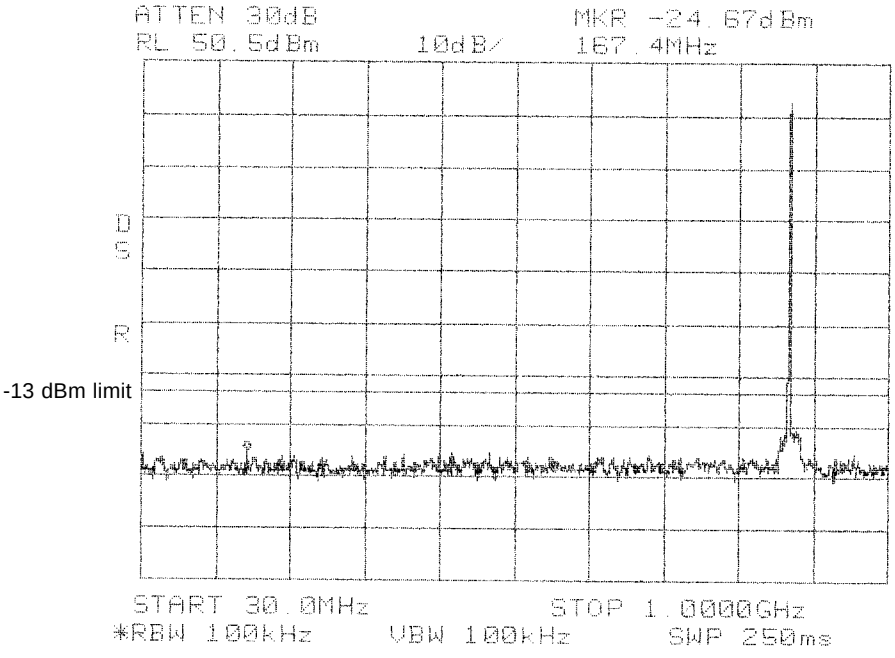
Conducted Emissions
HIGH
B BAND
Channel 251

Spikes are carrier signals.



Conducted Emissions
GSM
A BAND
Channel 181

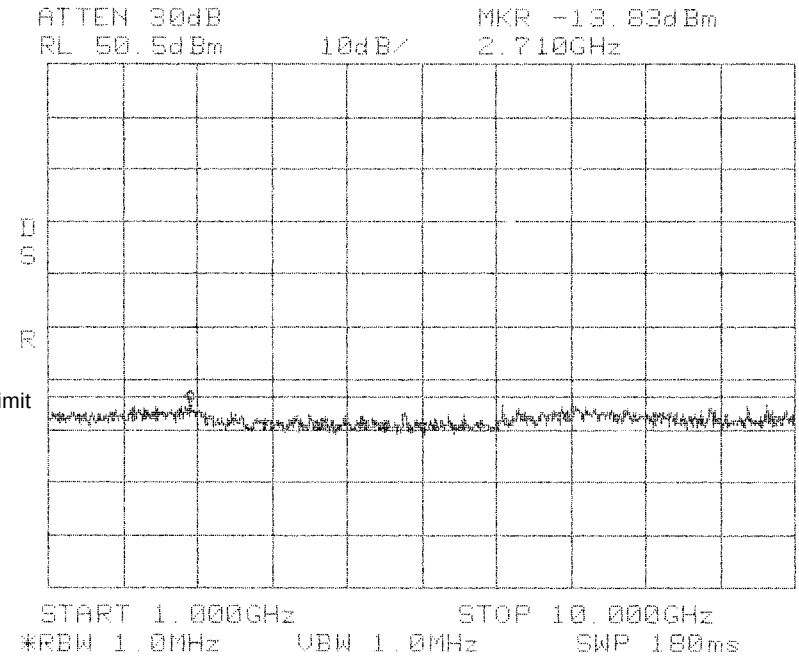
Spikes are carrier signals.



Conducted Emissions
GSM
A BAND
Channel 181

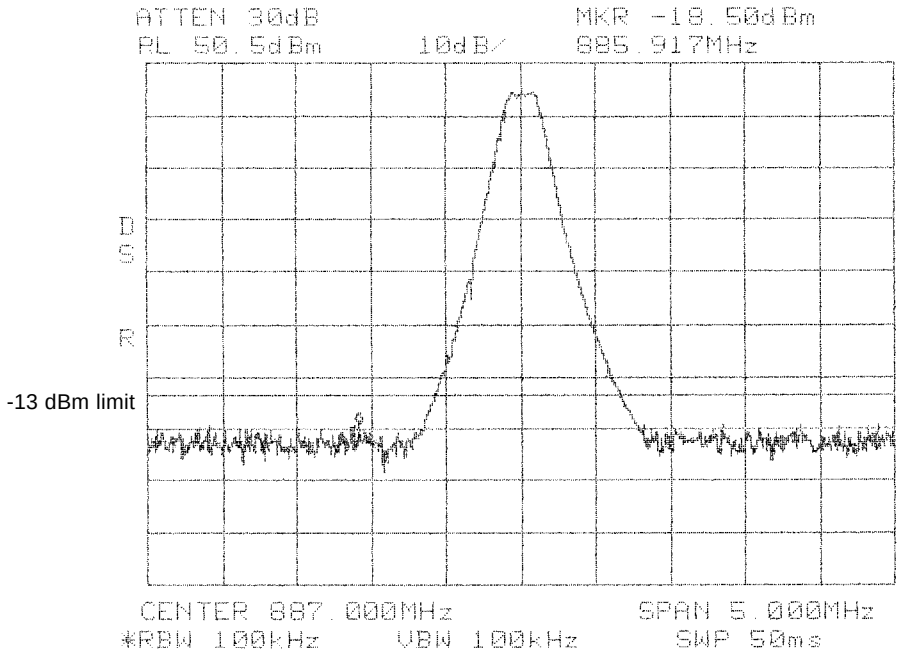
Spikes are carrier signals.

Conducted Emissions
GSM
A BAND
Channel 181



-13 dBm limit

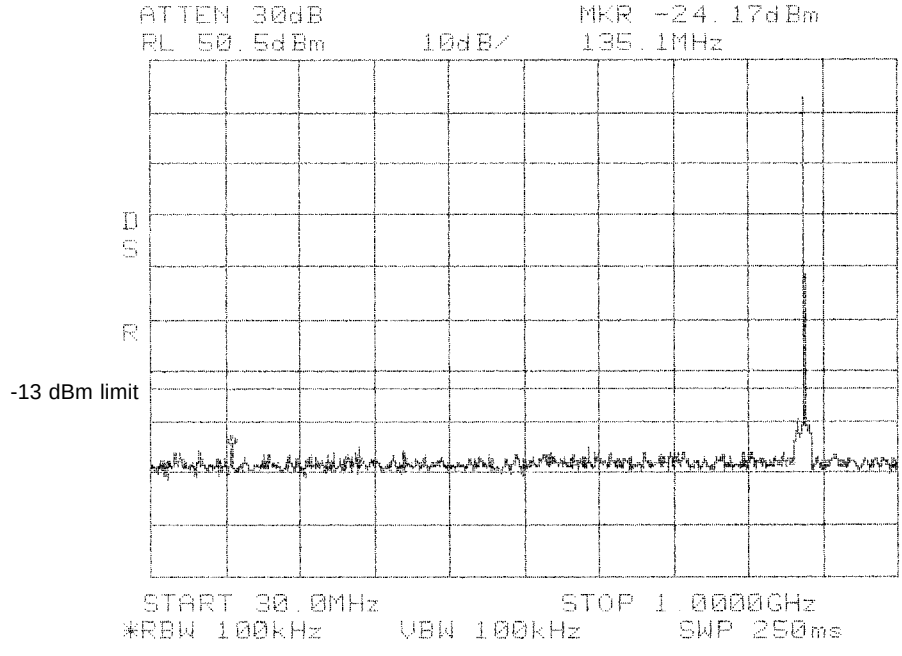
Spikes are carrier signals.



Spikes are carrier signals.

Conducted Emissions
GSM
B BAND

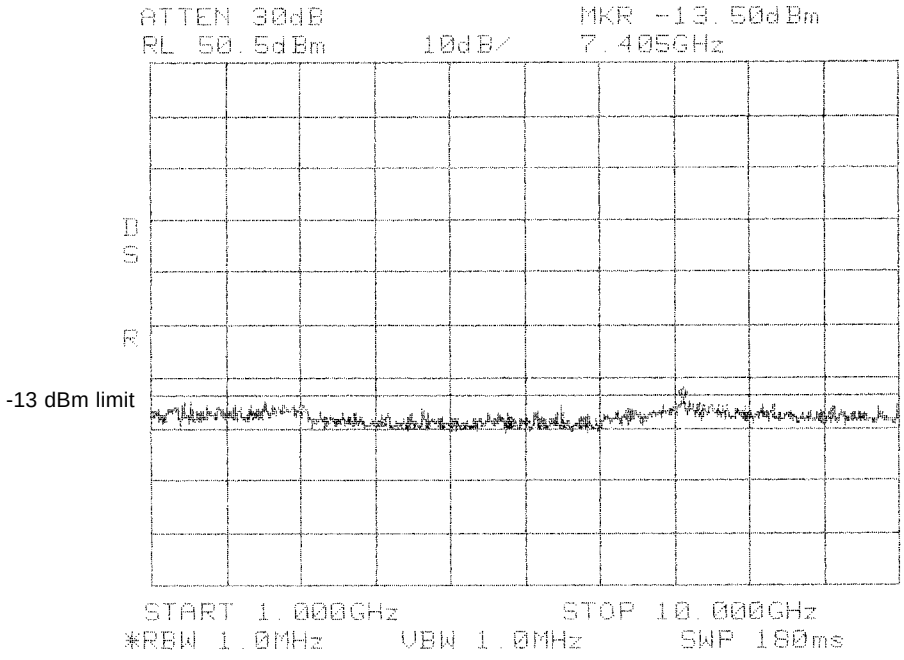
Channel 217



Spikes are carrier signals.

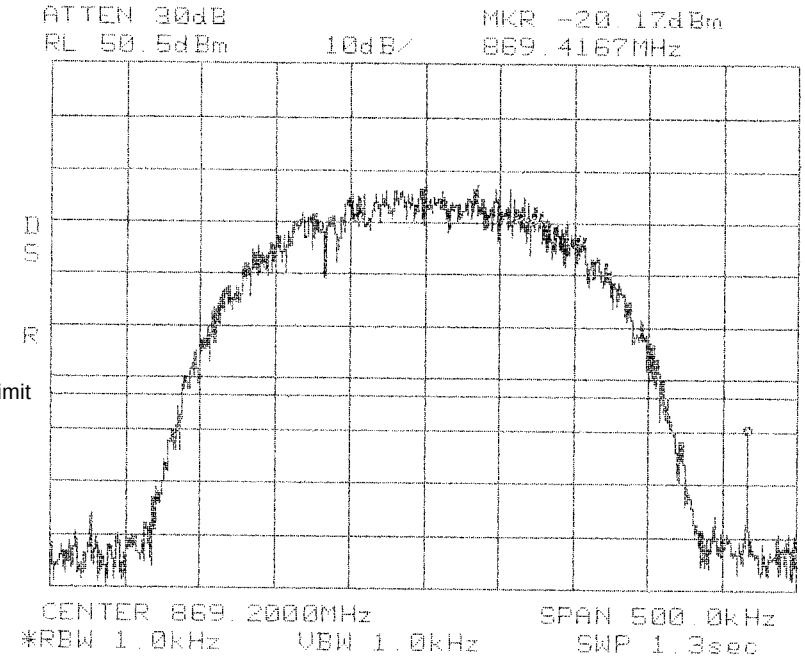
Conducted Emissions
GSM
B BAND

Channel 217

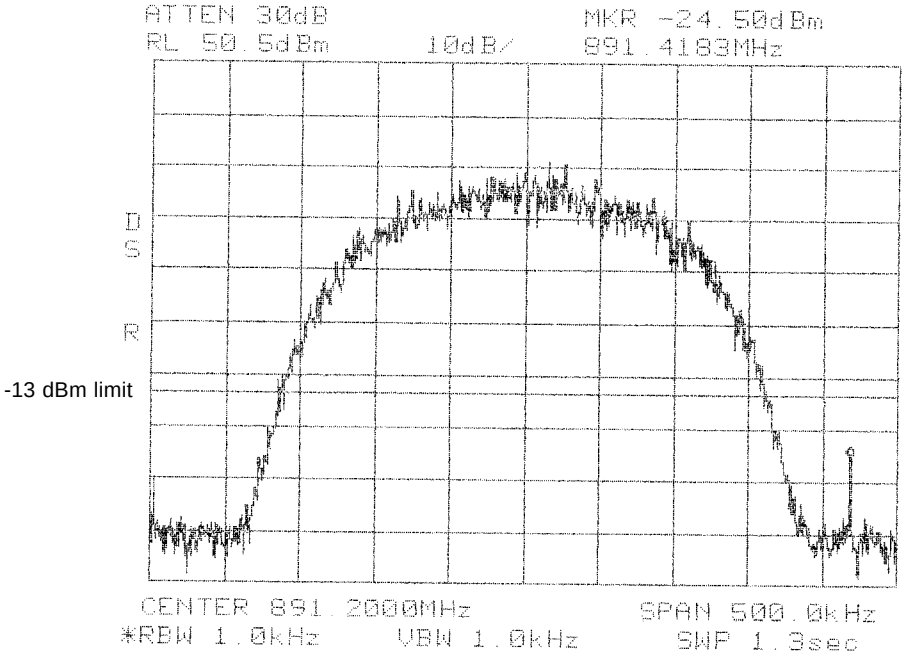


Conducted Emissions
GSM
B BAND
Channel 217

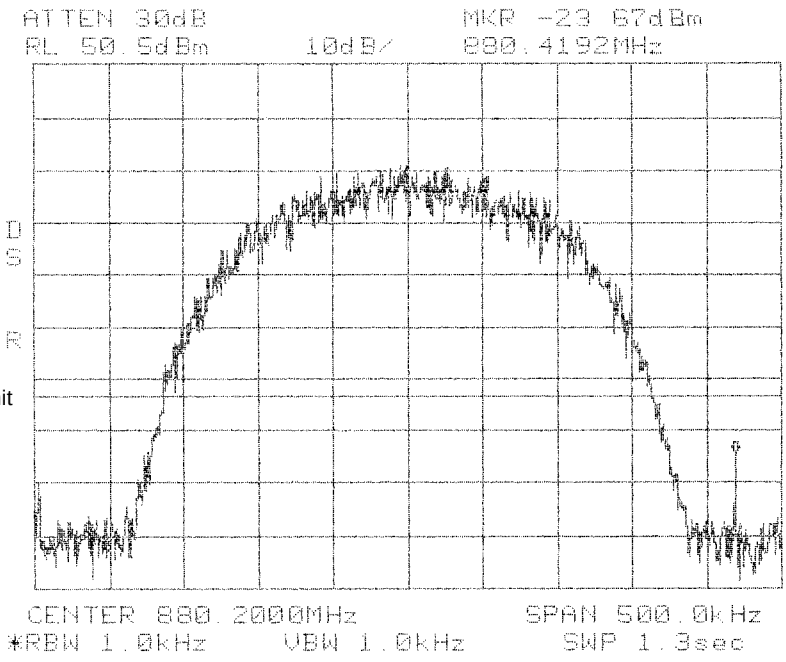
Spikes are carrier signals.



Conducted Emissions
Band Edge
GSM
A BAND
Channel 128

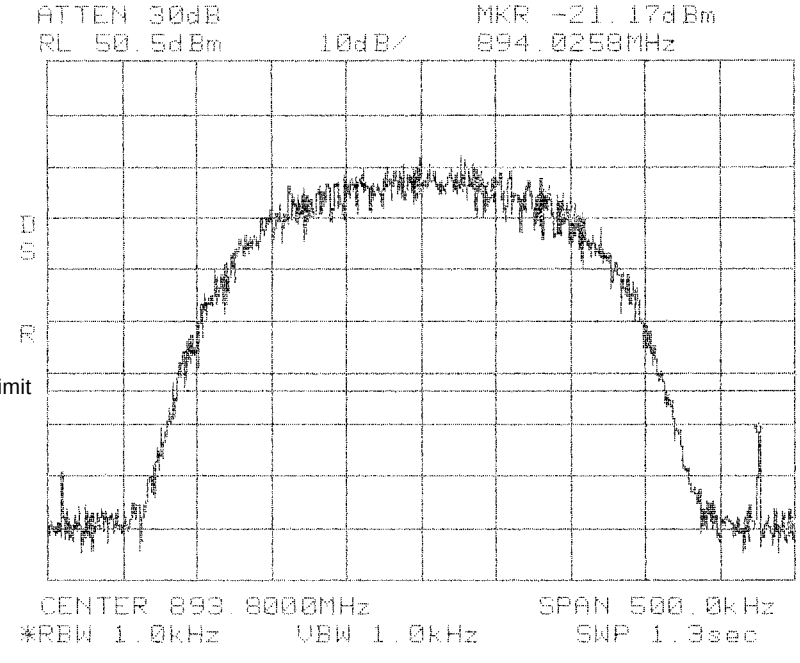


Conducted Emissions
Band Edge
GSM
A BAND
Channel 238



-13 dBm limit

Conducted Emissions
Band Edge
GSM
B BAND
Channel 183



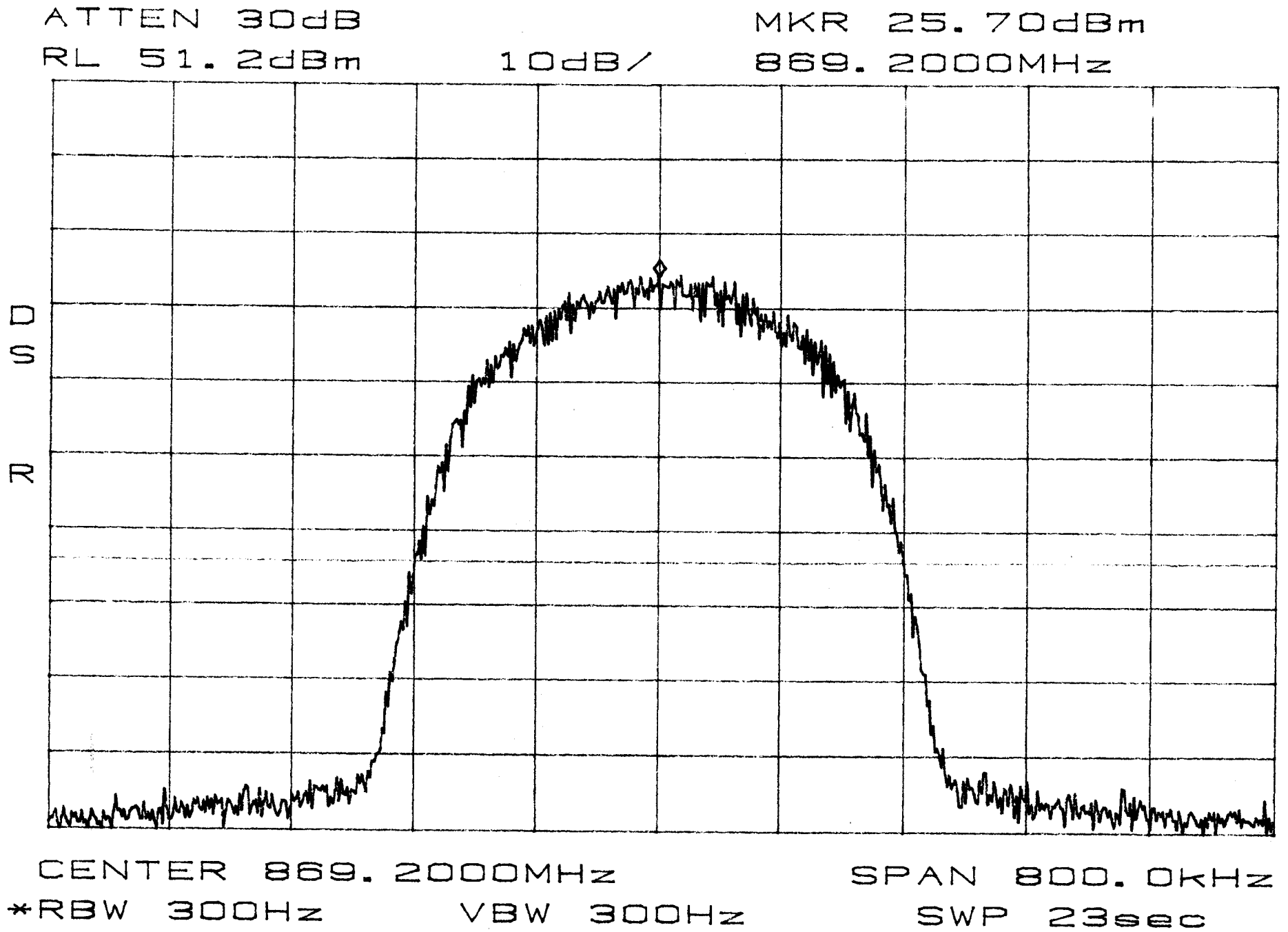
-13 dBm limit

Conducted Emissions
Band Edge
GSM
B BAND
Channel 251

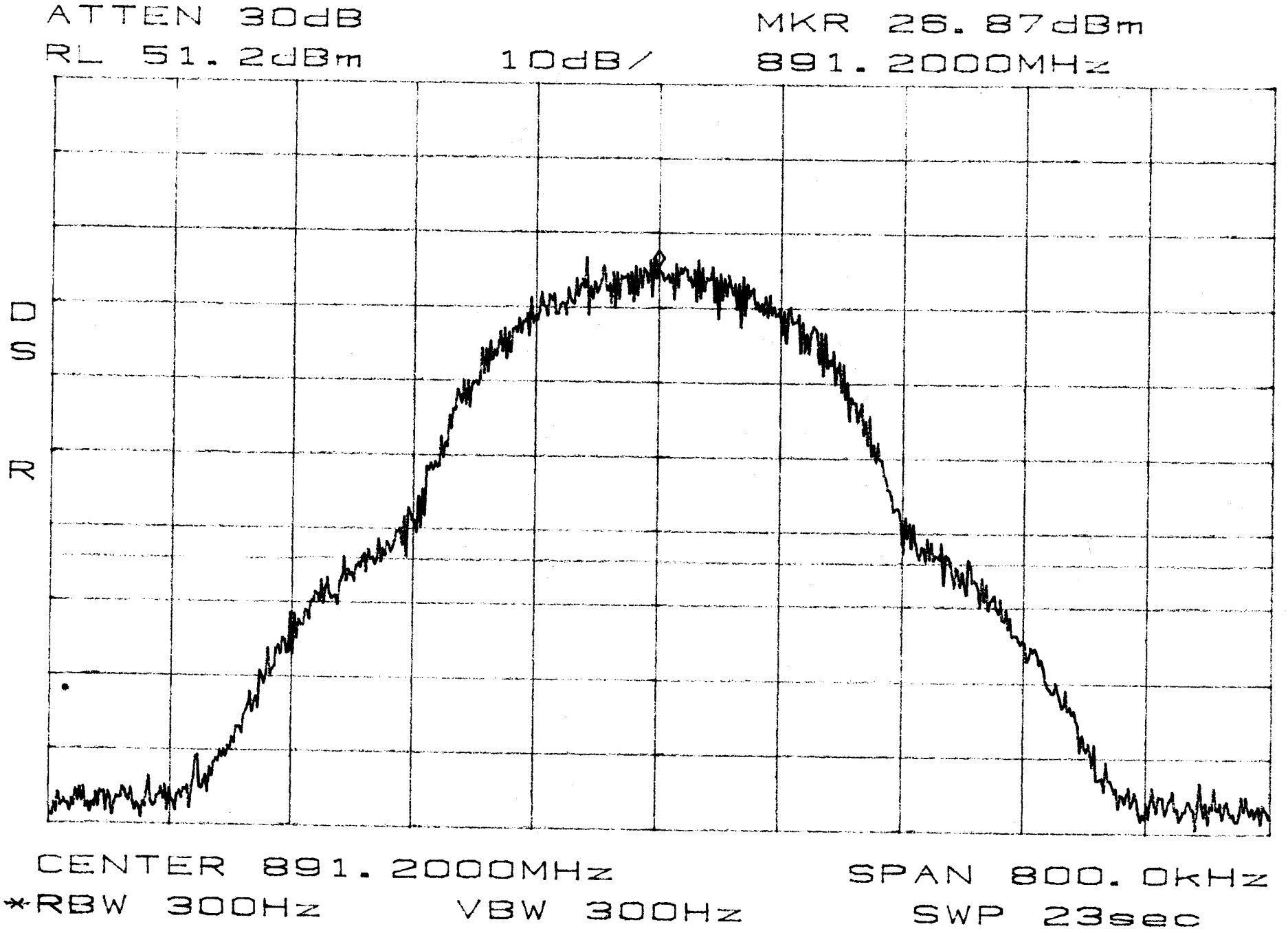
BAND EDGE PLOTS

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

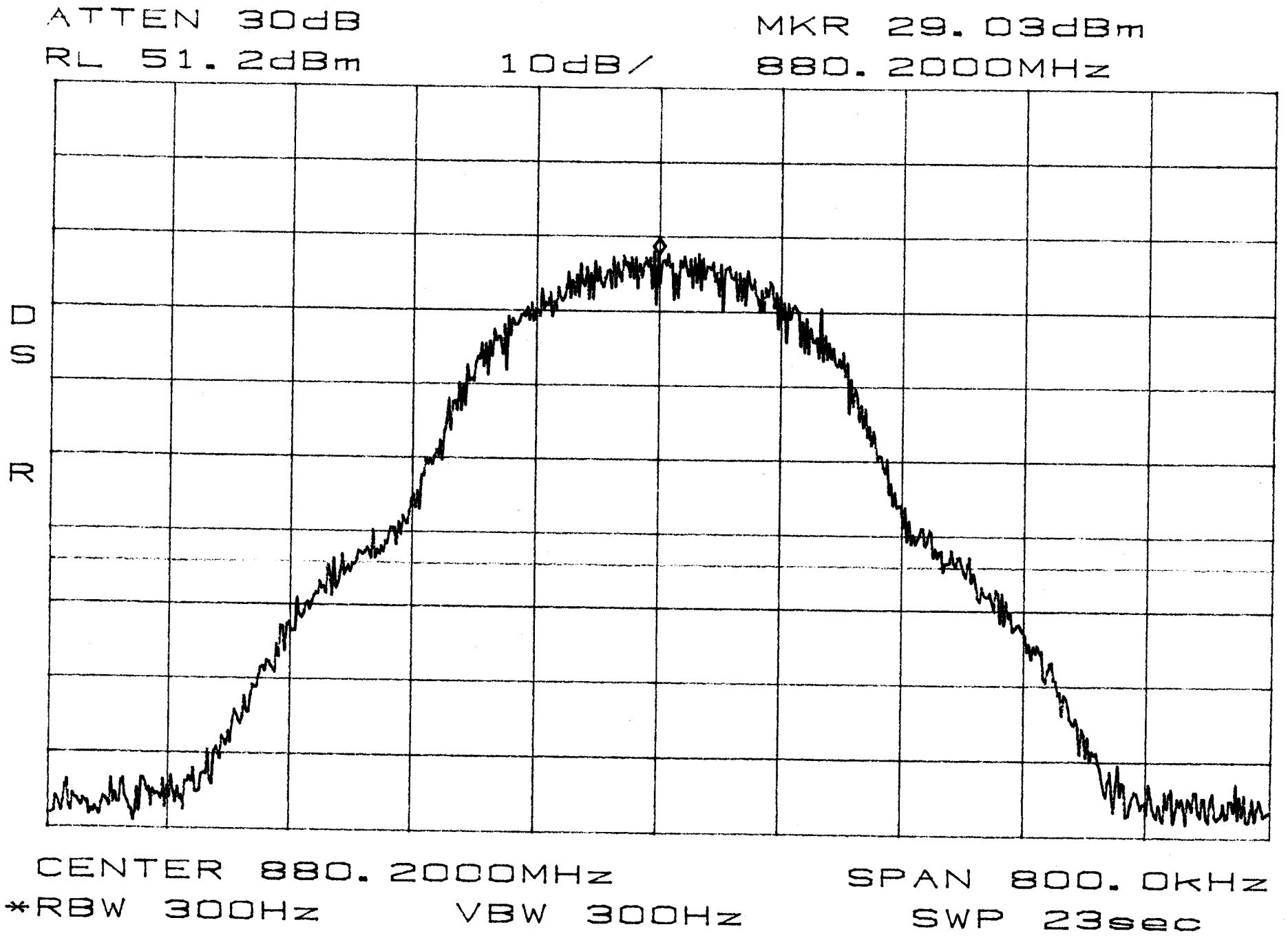
Band Edge Low
Band A channel 128



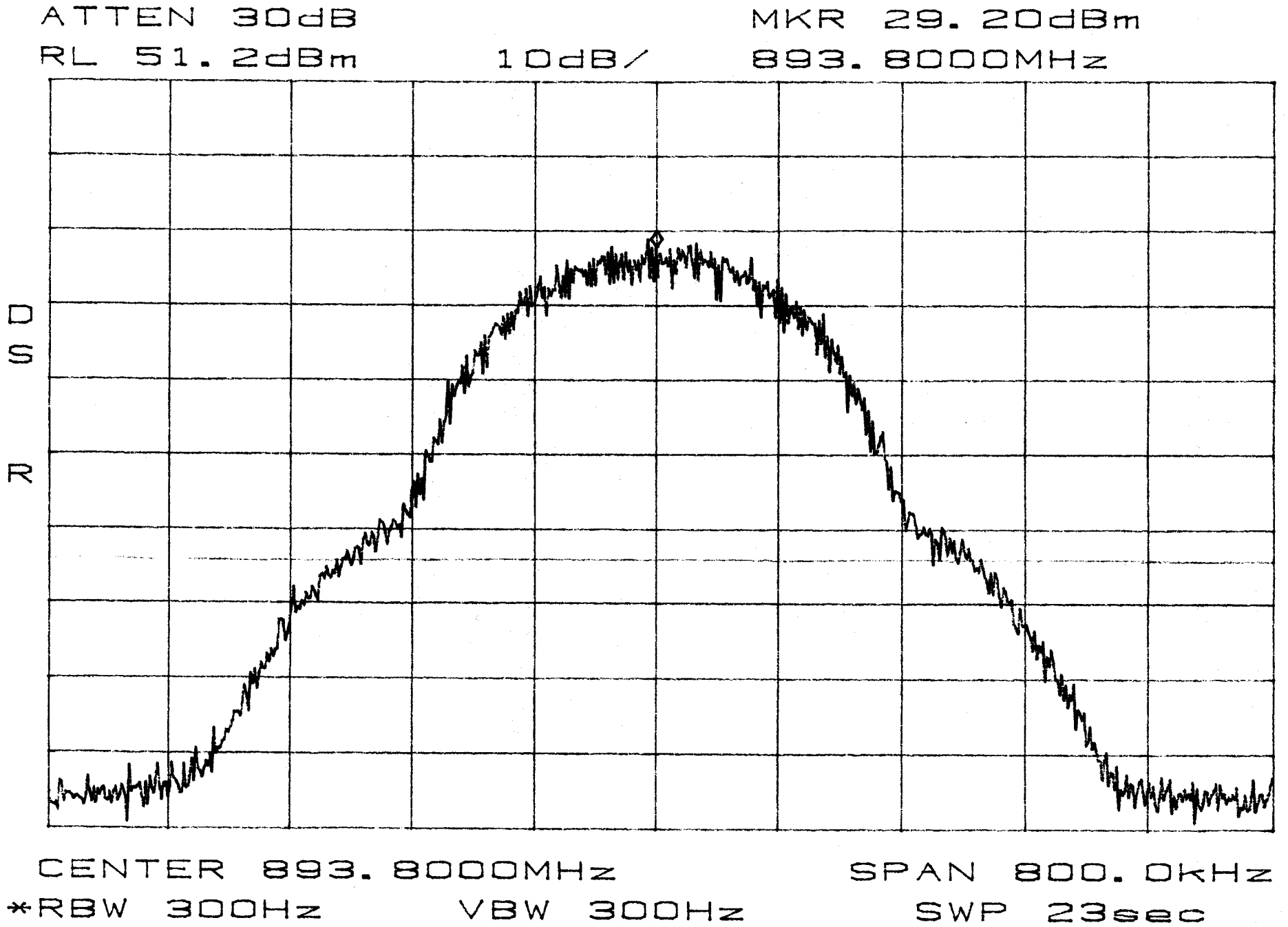
Band Edge High
Band A channel 238



Band Edge Low
Band B channel 183



Band Edge High
Band B channel 251

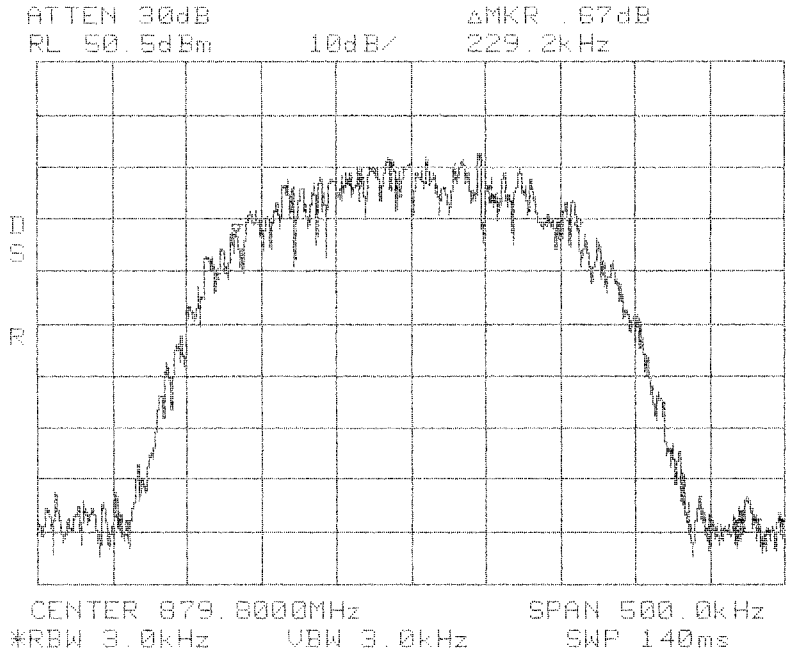


Occupied Bandwidth Modulation Test for ADC Inc.
Digivance 800 MHz 50-Watt WBDR System
Model Numbers DGVS-112710SYS and DGVS-122710SYS

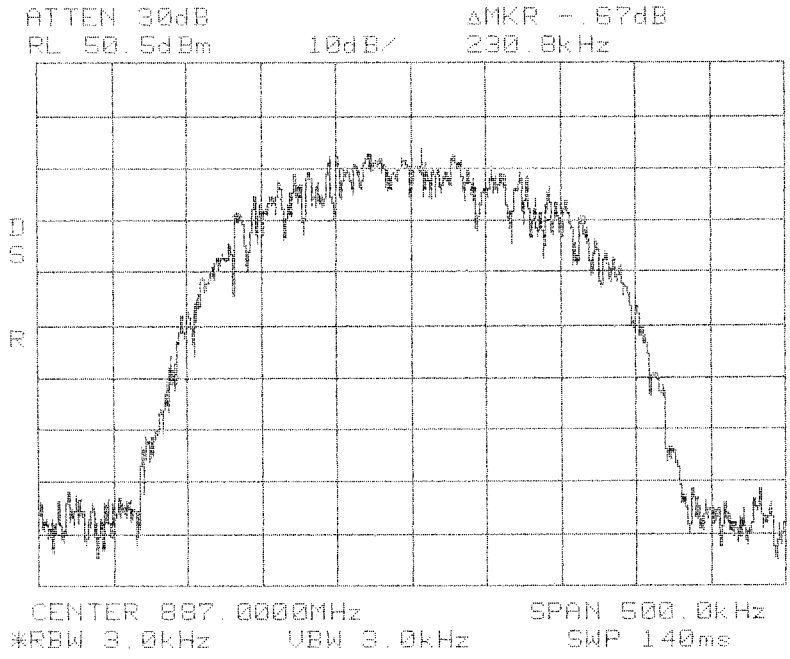
An output Occupied Bandwidth test was done with modulation type GSM. The purpose was to determine the amount of distortion added to this modulation scheme by the EUT. The following plots show output signals.

Results:

Pass (see plots)



Occupied Bandwidth
GSM
A BAND
Channel 191



Occupied Bandwidth
GSM
B BAND

Channel 217

A radiated emission scan was also made, at TUV America's Wild River Lab Large Test Site, 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. 2 case radiation emission scans were performed. The highest emission frequency from the two scans is listed below.

Run 1

Frequency MHz	dBuV/m(from EUT)	Substitution power level - dBm
910.44	67.5	-32.49

Case Radiation data is on the following pages:

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

RADIATED EMISSIONS

TÜV PRODUCT SERVICE

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	1 of 6

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA1	DELTA (dBm) part 22 case radiation qp
Channel 128 (869.2 MHz)						
1.0 GHz	38.9 Pk	2.74 / 26.4 / 38.2 / -100.5	-70.66	H / 1.00 / 0	n/a	-57.66*
1.065 GHz	43.15 Pk	2.83 / 26.44 / 39.29 / -100.5	-67.36	H / 1.00 / 0	n/a	-54.36*
1.136 GHz	40.5 Pk	2.93 / 26.48 / 39.9 / -100.5	-70.49	H / 1.00 / 0	n/a	-57.49*
1.207 GHz	40.6 Pk	3.01 / 26.52 / 40.28 / -100.5	-70.64	H / 1.00 / 0	n/a	-57.64*
1.278 GHz	51.3 Pk	3.1 / 26.57 / 40.56 / -100.5	-60.09	H / 1.00 / 0	n/a	-47.09*
1.28 GHz	44.0 Pk	3.1 / 26.57 / 40.57 / -100.5	-67.4	H / 1.00 / 0	n/a	-54.4*
1.491 GHz	44.8 Pk	3.42 / 26.69 / 41.53 / -100.5	-67.11	H / 1.00 / 0	n/a	-54.11*
1.558 GHz	40.45 Pk	3.48 / 27.04 / 41.72 / -100.5	-71.25	H / 1.00 / 0	n/a	-58.25*
1.633 GHz	42.9 Pk	3.55 / 27.47 / 41.92 / -100.5	-68.5	H / 1.00 / 0	n/a	-55.5*
1.704 GHz	44.0 Pk	3.62 / 27.88 / 42.1 / -100.5	-67.1	H / 1.00 / 0	n/a	-54.1*
1.738 GHz	59.05 Pk	3.68 / 28.08 / 42.19 / -100.5	-51.88	H / 1.00 / 0	n/a	-38.88*
1.775 GHz	42.5 Pk	3.74 / 28.3 / 42.31 / -100.5	-68.27	H / 1.00 / 0	n/a	-55.27*
1.78 GHz	41.7 Pk	3.75 / 28.32 / 42.32 / -100.5	-69.05	H / 1.00 / 0	n/a	-56.05*
1.846 GHz	40.15 Pk	3.83 / 28.71 / 42.54 / -100.5	-70.35	H / 1.00 / 0	n/a	-57.35*
2.333 GHz	47.3 Pk	4.23 / 30.33 / 43.62 / -100.5	-62.26	H / 1.00 / 0	n/a	-49.26*
2.608 GHz	40.95 Pk	4.43 / 30.92 / 43.7 / -100.5	-67.91	H / 1.00 / 0	n/a	-54.91*
3.477 GHz	42.55 Pk	5.26 / 32.94 / 44.3 / -100.5	-64.05	H / 1.00 / 0	n/a	-51.05*
8.692 GHz	34.7 Pk	9.23 / 38.51 / 43.26 / -100.5	-61.31	H / 1.00 / 0	n/a	-48.31*
1738 MHz maxed:						
1.738 GHz	66.25 Pk	3.68 / 28.08 / 42.19 / -100.5	-44.68	H / 2.30 / 271	n/a	-31.68*
1.738 GHz	73.2 Pk	3.68 / 28.08 / 42.19 / -100.5	-37.73	V / 1.00 / 180	n/a	-24.73*
1.065 GHz	49.7 Pk	2.83 / 26.44 / 39.29 / -100.5	-60.81	V / 1.00 / 180	n/a	-47.81*
1.136 GHz	53.7 Pk	2.93 / 26.48 / 39.9 / -100.5	-57.29	V / 1.00 / 180	n/a	-44.29*
1.207 GHz	57.0 Pk	3.01 / 26.52 / 40.28 / -100.5	-54.24	V / 1.00 / 180	n/a	-41.24*

Tested by: J. C. Sausen — Printed — J C Sausen — Signature

Reviewed by: T. K. Swanson — Printed — Thomas K. Swanson — Signature

RADIATED EMISSIONS

TÜV PRODUCT SERVICE

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	2 of 6

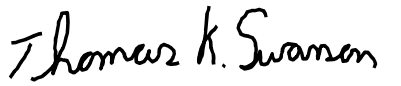
List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA1	DELTA (dBm) part 22 case radiation qp
1.278 GHz	62.65 Pk	3.1 / 26.57 / 40.56 / -100.5	-48.74	V / 1.00 / 180	n/a	-35.74*
1.491 GHz	50.6 Pk	3.42 / 26.69 / 41.53 / -100.5	-61.31	V / 1.00 / 180	n/a	-48.31*
1.704 GHz	50.75 Pk	3.62 / 27.88 / 42.1 / -100.5	-60.35	V / 1.00 / 180	n/a	-47.35*
1.775 GHz	46.75 Pk	3.74 / 28.3 / 42.31 / -100.5	-64.02	V / 1.00 / 180	n/a	-51.02*
1.78 GHz	48.3 Pk	3.75 / 28.32 / 42.32 / -100.5	-62.45	V / 1.00 / 180	n/a	-49.45*
1.846 GHz	46.65 Pk	3.83 / 28.71 / 42.54 / -100.5	-63.85	V / 1.00 / 180	n/a	-50.85*
1.738 GHz	66.1 Pk	3.68 / 28.08 / 42.19 / -100.5	-44.83	H / 2.60 / 180	n/a	-31.83*
1278 MHz maxed:						
1.278 GHz	60.65 Pk	3.1 / 26.57 / 40.56 / -100.5	-50.74	H / 1.80 / 137	n/a	-37.74*
2.84 GHz	40.95 Pk	4.6 / 31.38 / 44.12 / -100.5	-67.69	H / 1.80 / 137	n/a	-54.69*
Channel 157 (875.0 MHz)						
1750 MHz maxed:						
1.75 GHz	65.5 Pk	3.7 / 28.15 / 42.23 / -100.5	-45.38	H / 1.41 / 183	n/a	-32.38*
1.0 GHz	37.25 Pk	2.74 / 26.4 / 38.2 / -100.5	-72.31	H / 1.41 / 183	n/a	-59.31*
1.065 GHz	48.9 Pk	2.83 / 26.44 / 39.29 / -100.5	-61.61	H / 1.41 / 183	n/a	-48.61*
1.136 GHz	52.7 Pk	2.93 / 26.48 / 39.9 / -100.5	-58.29	H / 1.41 / 183	n/a	-45.29*
1.207 GHz	51.75 Pk	3.01 / 26.52 / 40.28 / -100.5	-59.49	H / 1.41 / 183	n/a	-46.49*
1.278 GHz	58.6 Pk	3.1 / 26.57 / 40.56 / -100.5	-52.79	H / 1.41 / 183	n/a	-39.79*
1.28 GHz	41.35 Pk	3.1 / 26.57 / 40.57 / -100.5	-70.05	H / 1.41 / 183	n/a	-57.05*
1.491 GHz	50.55 Pk	3.42 / 26.69 / 41.53 / -100.5	-61.36	H / 1.41 / 183	n/a	-48.36*
1.633 GHz	48.55 Pk	3.55 / 27.47 / 41.92 / -100.5	-62.85	H / 1.41 / 183	n/a	-49.85*
1.704 GHz	46.0 Pk	3.62 / 27.88 / 42.1 / -100.5	-65.1	H / 1.41 / 183	n/a	-52.1*
1.775 GHz	44.25 Pk	3.74 / 28.3 / 42.31 / -100.5	-66.52	H / 1.41 / 183	n/a	-53.52*
1.846 GHz	49.25 Pk	3.83 / 28.71 / 42.54 / -100.5	-61.25	H / 1.41 / 183	n/a	-48.25*
2.84 GHz	57.3 Pk	4.6 / 31.38 / 44.12 / -100.5	-51.34	H / 1.41 / 183	n/a	-38.34*

Tested by: J. C. Sausen — Printed

Signature

Reviewed by: T. K. Swanson — Printed



Signature

RADIATED EMISSIONS

TÜV PRODUCT SERVICE

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	3 of 6

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA1	DELTA (dBm) part 22 case radiation qp
2.625 GHz	42.65 Pk	4.44 / 30.95 / 43.7 / -100.5	-66.16	H / 1.41 / 183	n/a	-53.16*
1750 MHz maxed:						
1.75 GHz	72.95 Pk	3.7 / 28.15 / 42.23 / -100.5	-37.93	V / 1.00 / 184	n/a	-24.93*
8.692 GHz	35.45 Pk	9.23 / 38.51 / 43.26 / -100.5	-60.56	V / 1.00 / 184	n/a	-47.56*
8.75 GHz	35.85 Pk	9.24 / 38.7 / 43.29 / -100.5	-59.99	V / 1.00 / 184	n/a	-46.99*
Channel 239 (891.4 MHz)						
1782 MHz maxed;						
1.783 GHz	69.1 Pk	3.75 / 28.34 / 42.33 / -100.5	-41.64	V / 1.80 / 185	n/a	-28.64*
1.136 GHz	41.85 Pk	2.93 / 26.48 / 39.9 / -100.5	-69.14	V / 1.80 / 185	n/a	-56.14*
1.207 GHz	54.2 Pk	3.01 / 26.52 / 40.28 / -100.5	-57.04	V / 1.80 / 185	n/a	-44.04*
1.278 GHz	59.9 Pk	3.1 / 26.57 / 40.56 / -100.5	-51.49	V / 1.80 / 185	n/a	-38.49*
1.28 GHz	42.95 Pk	3.1 / 26.57 / 40.57 / -100.5	-68.45	V / 1.80 / 185	n/a	-55.45*
1.491 GHz	54.2 Pk	3.42 / 26.69 / 41.53 / -100.5	-57.71	V / 1.80 / 185	n/a	-44.71*
1.633 GHz	41.65 Pk	3.55 / 27.47 / 41.92 / -100.5	-69.75	V / 1.80 / 185	n/a	-56.75*
1.704 GHz	45.85 Pk	3.62 / 27.88 / 42.1 / -100.5	-65.25	V / 1.80 / 185	n/a	-52.25*
1.775 GHz	49.65 Pk	3.74 / 28.3 / 42.31 / -100.5	-61.12	V / 1.80 / 185	n/a	-48.12*
1.846 GHz	42.85 Pk	3.83 / 28.71 / 42.54 / -100.5	-67.65	V / 1.80 / 185	n/a	-54.65*
1782 MHz maxed:						
1.783 GHz	66.85 Pk	3.75 / 28.34 / 42.33 / -100.5	-43.89	H / 1.60 / 233	n/a	-30.89*
1.633 GHz	50.05 Pk	3.55 / 27.47 / 41.92 / -100.5	-61.35	H / 1.60 / 233	n/a	-48.35*
Channel 128 (869.2 MHz)						
73.42 MHz	36.6 Qp	0.7 / 8.5 / 0.0 / -100.5	-54.7	V / 1.50 / 235	n/a	-41.7
150.17 MHz	32.4 Qp	1.0 / 9.95 / 0.0 / -100.5	-57.15	V / 1.50 / 235	n/a	-44.15
710.015 MHz	31.05 Qp	2.3 / 21.3 / 0.0 / -100.5	-45.85	V / 1.50 / 235	n/a	-32.85

Tested by: J. C. Sausen — Printed

J C Sausen — Signature

Reviewed by: T. K. Swanson — Printed

Thomas K. Swanson — Signature

RADIATED EMISSIONS

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	4 of 6

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA1	DELTA (dBm) part 22 case radiation qp
910.406 MHz	39.05 Qp	2.61 / 23.3 / 0.0 / -100.5	-35.54	V / 1.70 / 235	n/a	-22.54
910.441 MHz	41.95 Qp	2.61 / 23.3 / 0.0 / -100.5	-32.64	V / 2.90 / 235	n/a	-19.64
910.441 MHz	40.15 Qp	2.61 / 23.3 / 0.0 / -100.5	-34.44	H / 2.90 / 235	n/a	-21.44
Channel 157 (875.0MHz)						
910.441 MHz	39.75 Qp	2.61 / 23.3 / 0.0 / -100.5	-34.84	H / 2.90 / 235	n/a	-21.84
910.441 MHz	42.1 Qp	2.61 / 23.3 / 0.0 / -100.5	-32.49	V / 2.90 / 235	n/a	-19.49
Channel 239 (891.4 MHz)						
910.441 MHz	41.5 Qp	2.61 / 23.3 / 0.0 / -100.5	-33.09	V / 2.90 / 235	n/a	-20.09
910.441 MHz	40.2 Qp	2.61 / 23.3 / 0.0 / -100.5	-34.39	H / 2.90 / 235	n/a	-21.39
substitution signal						
910.43 MHz	41.6 Qp	2.61 / 23.3 / 0.0 / -100.5	-32.99	V / 1.00 / 0	n/a	-19.99
signal generator level - cable loss = -26.9 dBm - 6.2 db (dipole factor w/10 dB pad) = -33.1 dBm						
to get 67.5 dBuV/m						

Tested by: J. C. Sausen — Printed — J C Sausen — Signature

Reviewed by: T. K. Swanson — Printed — Thomas K. Swanson — Signature

RADIATED EMISSIONS

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	5 of 6

Measurement summary for limit2: part 22 case radiation qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp
910.441 MHz	42.1 Qp	2.61 / 23.3 / 0.0 / -100.5	-32.49	V / 2.90 / 235	-19.49
710.015 MHz	31.05 Qp	2.3 / 21.3 / 0.0 / -100.5	-45.85	V / 1.50 / 235	-32.85
73.42 MHz	36.6 Qp	0.7 / 8.5 / 0.0 / -100.5	-54.7	V / 1.50 / 235	-41.7
150.17 MHz	32.4 Qp	1.0 / 9.95 / 0.0 / -100.5	-57.15	V / 1.50 / 235	-44.15
1.0 GHz	38.9 Pk	2.74 / 26.4 / 38.2 / -100.5	-70.66	H / 1.00 / 0	-57.66*
1.065 GHz	49.7 Pk	2.83 / 26.44 / 39.29 / -100.5	-60.81	V / 1.00 / 180	-47.81*
1.136 GHz	53.7 Pk	2.93 / 26.48 / 39.9 / -100.5	-57.29	V / 1.00 / 180	-44.29*
1.207 GHz	57.0 Pk	3.01 / 26.52 / 40.28 / -100.5	-54.24	V / 1.00 / 180	-41.24*
1.278 GHz	62.65 Pk	3.1 / 26.57 / 40.56 / -100.5	-48.74	V / 1.00 / 180	-35.74*
1.28 GHz	44.0 Pk	3.1 / 26.57 / 40.57 / -100.5	-67.4	H / 1.00 / 0	-54.4*
1.491 GHz	54.2 Pk	3.42 / 26.69 / 41.53 / -100.5	-57.71	V / 1.80 / 185	-44.71*
1.558 GHz	40.45 Pk	3.48 / 27.04 / 41.72 / -100.5	-71.25	H / 1.00 / 0	-58.25*
1.633 GHz	50.05 Pk	3.55 / 27.47 / 41.92 / -100.5	-61.35	H / 1.60 / 233	-48.35*
1.704 GHz	50.75 Pk	3.62 / 27.88 / 42.1 / -100.5	-60.35	V / 1.00 / 180	-47.35*
1.738 GHz	73.2 Pk	3.68 / 28.08 / 42.19 / -100.5	-37.73	V / 1.00 / 180	-24.73*
1.775 GHz	49.65 Pk	3.74 / 28.3 / 42.31 / -100.5	-61.12	V / 1.80 / 185	-48.12*
1.78 GHz	48.3 Pk	3.75 / 28.32 / 42.32 / -100.5	-62.45	V / 1.00 / 180	-49.45*
1.846 GHz	49.25 Pk	3.83 / 28.71 / 42.54 / -100.5	-61.25	H / 1.41 / 183	-48.25*
2.333 GHz	47.3 Pk	4.23 / 30.33 / 43.62 / -100.5	-62.26	H / 1.00 / 0	-49.26*
2.608 GHz	40.95 Pk	4.43 / 30.92 / 43.7 / -100.5	-67.91	H / 1.00 / 0	-54.91*
3.477 GHz	42.55 Pk	5.26 / 32.94 / 44.3 / -100.5	-64.05	H / 1.00 / 0	-51.05*
8.692 GHz	35.45 Pk	9.23 / 38.51 / 43.26 / -100.5	-60.56	V / 1.00 / 184	-47.56*
2.84 GHz	57.3 Pk	4.6 / 31.38 / 44.12 / -100.5	-51.34	H / 1.41 / 183	-38.34*
1.75 GHz	72.95 Pk	3.7 / 28.15 / 42.23 / -100.5	-37.93	V / 1.00 / 184	-24.93*
2.625 GHz	42.65 Pk	4.44 / 30.95 / 43.7 / -100.5	-66.16	H / 1.41 / 183	-53.16*

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RADIATED EMISSIONS

Test Report #:	2208 Run 1	Test Area:	LTS		
EUT Model #:	DGVS-112710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	6 of 6

Measurement summary for limit2: part 22 case radiation qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp
8.75 GHz	35.85 Pk	9.24 / 38.7 / 43.29 / -100.5	-59.99	V / 1.00 / 184	-46.99*
1.783 GHz	69.1 Pk	3.75 / 28.34 / 42.33 / -100.5	-41.64	V / 1.80 / 185	-28.64*

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RADIATED EMISSIONS

TÜV PRODUCT SERVICE

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	1 of 6

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp	DELTA2
Channel 182 (880.0 MHz)						
1760 MHz maxed:						
1.76 GHz	68.15 Pk	3.72 / 28.21 / 42.26 / -100.5	-42.69	H / 1.10 / 230	-29.69*	n/a
1.0 GHz	40.35 Pk	2.74 / 26.4 / 38.2 / -100.5	-69.21	H / 1.10 / 230	-56.21*	n/a
1.065 GHz	51.1 Pk	2.83 / 26.44 / 39.29 / -100.5	-59.41	H / 1.10 / 230	-46.41*	n/a
1.136 GHz	47.0 Pk	2.93 / 26.48 / 39.9 / -100.5	-63.99	H / 1.10 / 230	-50.99*	n/a
1.207 GHz	55.95 Pk	3.01 / 26.52 / 40.28 / -100.5	-55.29	H / 1.10 / 230	-42.29*	n/a
1.278 GHz	45.9 Pk	3.1 / 26.57 / 40.56 / -100.5	-65.49	H / 1.10 / 230	-52.49*	n/a
1.491 GHz	53.95 Pk	3.42 / 26.69 / 41.53 / -100.5	-57.96	H / 1.10 / 230	-44.96*	n/a
1.633 GHz	63.3 Pk	3.55 / 27.47 / 41.92 / -100.5	-48.1	H / 1.10 / 230	-35.1*	n/a
1.704 GHz	40.5 Pk	3.62 / 27.88 / 42.1 / -100.5	-70.6	H / 1.10 / 230	-57.6*	n/a
1.775 GHz	45.8 Pk	3.74 / 28.3 / 42.31 / -100.5	-64.97	H / 1.10 / 230	-51.97*	n/a
1.846 GHz	46.85 Pk	3.83 / 28.71 / 42.54 / -100.5	-63.65	H / 1.10 / 230	-50.65*	n/a
2.333 GHz	50.1 Pk	4.23 / 30.33 / 43.62 / -100.5	-59.46	H / 1.10 / 230	-46.46*	n/a
2.84 GHz	47.8 Pk	4.6 / 31.38 / 44.12 / -100.5	-60.84	H / 1.10 / 230	-47.84*	n/a
1.76 GHz	68.95 Pk	3.72 / 28.21 / 42.26 / -100.5	-41.89	V / 2.10 / 239	-28.89*	n/a
1.704 GHz	45.6 Pk	3.62 / 27.88 / 42.1 / -100.5	-65.5	V / 2.10 / 239	-52.5*	n/a
1.775 GHz	52.0 Pk	3.74 / 28.3 / 42.31 / -100.5	-58.77	V / 2.10 / 239	-45.77*	n/a
2.64 GHz	37.55 Pk	4.44 / 30.98 / 43.7 / -100.5	-71.23	V / 2.10 / 239	-58.23*	n/a
3.52 GHz	39.9 Pk	5.33 / 33.05 / 44.35 / -100.5	-66.56	V / 2.10 / 239	-53.56*	n/a
8.8 GHz	37.0 Pk	9.25 / 38.86 / 43.31 / -100.5	-58.7	V / 2.10 / 239	-45.7*	n/a
Channel 217 (887.0 MHz)						
1774 MHz maxed:						
1.774 GHz	61.25 Pk	3.74 / 28.29 / 42.31 / -100.5	-49.53	V / 2.80 / 227	-36.53*	n/a
3.548 GHz	37.65 Pk	5.38 / 33.12 / 44.38 / -100.5	-68.73	V / 2.80 / 227	-55.73*	n/a

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RADIATED EMISSIONS

TÜV PRODUCT SERVICE

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	2 of 6

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp	DELTA2
8.87 GHz	36.55 Pk	9.26 / 39.08 / 43.34 / -100.5	-58.95	V / 2.80 / 227	-45.95*	n/a
1.774 GHz	65.7 Pk	3.74 / 28.29 / 42.31 / -100.5	-45.08	H / 1.40 / 258	-32.08*	n/a
1.775 GHz	53.0 Pk	3.74 / 28.3 / 42.31 / -100.5	-57.77	H / 1.40 / 258	-44.77*	n/a
2.84 GHz	58.45 Pk	4.6 / 31.38 / 44.12 / -100.5	-50.19	H / 1.30 / 197	-37.19*	n/a
1.136 GHz	49.8 Pk	2.93 / 26.48 / 39.9 / -100.5	-61.19	H / 1.30 / 197	-48.19*	n/a
1.775 GHz	54.75 Pk	3.74 / 28.3 / 42.31 / -100.5	-56.02	H / 1.30 / 197	-43.02*	n/a
1.846 GHz	51.6 Pk	3.83 / 28.71 / 42.54 / -100.5	-58.9	H / 1.30 / 197	-45.9*	n/a
2.84 GHz	59.0 Pk	4.6 / 31.38 / 44.12 / -100.5	-49.64	H / 1.30 / 197	-36.64*	n/a
3.548 GHz	48.7 Pk	5.38 / 33.12 / 44.38 / -100.5	-57.68	H / 1.30 / 197	-44.68*	n/a
3.548 GHz	48.9 Pk	5.38 / 33.12 / 44.38 / -100.5	-57.48	H / 1.40 / 229	-44.48*	n/a
Channel 251 (893.8 MHz)						
1.788 GHz	69.1 Pk	3.76 / 28.37 / 42.35 / -100.5	-41.62	V / 1.40 / 229	-28.62*	n/a
2.681 GHz	40.05 Pk	4.47 / 31.06 / 43.79 / -100.5	-68.71	V / 1.00 / 235	-55.71*	n/a
3.575 GHz	48.2 Pk	5.43 / 33.18 / 44.41 / -100.5	-58.11	V / 1.00 / 235	-45.11*	n/a
3.575 GHz	47.15 Pk	5.43 / 33.18 / 44.41 / -100.5	-59.16	V / 1.00 / 243	-46.16*	n/a
1.788 GHz	66.9 Pk	3.76 / 28.37 / 42.35 / -100.5	-43.82	H / 1.50 / 234	-30.82*	n/a
1.065 GHz	52.25 Pk	2.83 / 26.44 / 39.29 / -100.5	-58.26	H / 1.50 / 234	-45.26*	n/a
1.278 GHz	48.7 Pk	3.1 / 26.57 / 40.56 / -100.5	-62.69	H / 1.50 / 234	-49.69*	n/a
1.633 GHz	63.65 Pk	3.55 / 27.47 / 41.92 / -100.5	-47.75	H / 1.50 / 234	-34.75*	n/a
3.575 GHz	52.5 Pk	5.43 / 33.18 / 44.41 / -100.5	-53.81	H / 1.20 / 313	-40.81*	n/a
1.065 GHz	55.05 Pk	2.83 / 26.44 / 39.29 / -100.5	-55.46	H / 1.20 / 313	-42.46*	n/a
2.681 GHz	48.75 Pk	4.47 / 31.06 / 43.79 / -100.5	-60.01	H / 1.20 / 313	-47.01*	n/a
8.938 GHz	36.95 Pk	9.27 / 39.3 / 43.38 / -100.5	-58.35	H / 1.20 / 313	-45.35*	n/a
893 MHz maxed:						

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RADIATED EMISSIONS

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	3 of 6

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp	DELTA2
910.39 MHz	33.35 Qp	2.61 / 23.3 / 0.0 / -100.5	-41.24	H / 1.80 / 246	-28.24	n/a
710.02 MHz	32.4 Qp	2.3 / 21.3 / 0.0 / -100.5	-44.5	H / 1.80 / 246	-31.5	n/a
168.506 MHz	31.2 Qp	1.07 / 9.1 / 0.0 / -100.5	-59.13	H / 1.80 / 246	-46.13	n/a
142.004 MHz	41.2 Qp	1.0 / 9.78 / 0.0 / -100.5	-48.52	H / 1.80 / 246	-35.52	n/a
80.624 MHz	33.55 Qp	0.8 / 7.51 / 0.0 / -100.5	-58.64	H / 1.80 / 246	-45.64	n/a
910.39 MHz	34.85 Qp	2.61 / 23.3 / 0.0 / -100.5	-39.74	H / 1.80 / 266	-26.74	n/a
910.39 MHz	40.85 Pk	2.61 / 23.3 / 0.0 / -100.5	-33.74	V / 1.50 / 231	-20.74*	n/a
80.624 MHz	31.15 Qp	0.8 / 7.51 / 0.0 / -100.5	-61.04	V / 1.50 / 231	-48.04	n/a
710.02 MHz	35.5 Qp	2.3 / 21.3 / 0.0 / -100.5	-41.4	V / 1.50 / 231	-28.4	n/a
910.39 MHz	38.25 Qp	2.61 / 23.3 / 0.0 / -100.5	-36.34	V / 1.50 / 231	-23.34	n/a
Channel 217 (887 MHz)						
710.02 MHz	35.35 Qp	2.3 / 21.3 / 0.0 / -100.5	-41.55	V / 1.50 / 231	-28.55	n/a
910.39 MHz	37.55 Qp	2.61 / 23.3 / 0.0 / -100.5	-37.04	V / 1.50 / 231	-24.04	n/a
74.924 MHz	36.4 Qp	0.71 / 8.2 / 0.0 / -100.5	-55.19	V / 1.50 / 231	-42.19	n/a
142.004 MHz	39.9 Qp	1.0 / 9.78 / 0.0 / -100.5	-49.82	V / 1.50 / 231	-36.82	n/a
710.02 MHz	35.25 Qp	2.3 / 21.3 / 0.0 / -100.5	-41.65	V / 1.50 / 231	-28.65	n/a
910.39 MHz	37.55 Qp	2.61 / 23.3 / 0.0 / -100.5	-37.04	V / 1.50 / 231	-24.04	n/a
910.39 MHz	39.1 Pk	2.61 / 23.3 / 0.0 / -100.5	-35.49	H / 1.50 / 323	-22.49*	n/a
142.004 MHz	40.6 Qp	1.0 / 9.78 / 0.0 / -100.5	-49.12	H / 1.50 / 323	-36.12	n/a
Channel 182 (880 MHz)						
910.414 MHz	36.55 Qp	2.61 / 23.3 / 0.0 / -100.5	-38.04	H / 1.50 / 323	-25.04	n/a
142.004 MHz	40.6 Qp	1.0 / 9.78 / 0.0 / -100.5	-49.12	H / 1.50 / 323	-36.12	n/a
710.02 MHz	32.25 Qp	2.3 / 21.3 / 0.0 / -100.5	-44.65	V / 1.50 / 323	-31.65	n/a
910.403 MHz	36.22 Qp	2.61 / 23.3 / 0.0 / -100.5	-38.37	V / 1.50 / 323	-25.37	n/a

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RADIATED EMISSIONS

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	4 of 6

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp	DELTA2
910.403 MHz	39.2 Qp	2.61 / 23.3 / 0.0 / -100.5	-35.39	V / 1.70 / 235	-22.39	n/a
74.924 MHz	36.25 Qp	0.71 / 8.2 / 0.0 / -100.5	-55.34	V / 1.50 / 235	-42.34	n/a
710.02 MHz	37.7 Qp	2.3 / 21.3 / 0.0 / -100.5	-39.2	V / 1.50 / 235	-26.2	n/a

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RADIATED EMISSIONS

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	5 of 6

Measurement summary for limit1: part 22 case radiation qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp
910.403 MHz	39.2 Qp	2.61 / 23.3 / 0.0 / -100.5	-35.39	V / 1.70 / 235	-22.39
710.02 MHz	37.7 Qp	2.3 / 21.3 / 0.0 / -100.5	-39.2	V / 1.50 / 235	-26.2
142.004 MHz	41.2 Qp	1.0 / 9.78 / 0.0 / -100.5	-48.52	H / 1.80 / 246	-35.52
74.924 MHz	36.4 Qp	0.71 / 8.2 / 0.0 / -100.5	-55.19	V / 1.50 / 231	-42.19
80.624 MHz	33.55 Qp	0.8 / 7.51 / 0.0 / -100.5	-58.64	H / 1.80 / 246	-45.64
168.506 MHz	31.2 Qp	1.07 / 9.1 / 0.0 / -100.5	-59.13	H / 1.80 / 246	-46.13
1.76 GHz	68.95 Pk	3.72 / 28.21 / 42.26 / -100.5	-41.89	V / 2.10 / 239	-28.89*
1.0 GHz	40.35 Pk	2.74 / 26.4 / 38.2 / -100.5	-69.21	H / 1.10 / 230	-56.21*
1.065 GHz	55.05 Pk	2.83 / 26.44 / 39.29 / -100.5	-55.46	H / 1.20 / 313	-42.46*
1.136 GHz	49.8 Pk	2.93 / 26.48 / 39.9 / -100.5	-61.19	H / 1.30 / 197	-48.19*
1.207 GHz	55.95 Pk	3.01 / 26.52 / 40.28 / -100.5	-55.29	H / 1.10 / 230	-42.29*
1.278 GHz	48.7 Pk	3.1 / 26.57 / 40.56 / -100.5	-62.69	H / 1.50 / 234	-49.69*
1.491 GHz	53.95 Pk	3.42 / 26.69 / 41.53 / -100.5	-57.96	H / 1.10 / 230	-44.96*
1.633 GHz	63.65 Pk	3.55 / 27.47 / 41.92 / -100.5	-47.75	H / 1.50 / 234	-34.75*
1.704 GHz	45.6 Pk	3.62 / 27.88 / 42.1 / -100.5	-65.5	V / 2.10 / 239	-52.5*
1.775 GHz	54.75 Pk	3.74 / 28.3 / 42.31 / -100.5	-56.02	H / 1.30 / 197	-43.02*
1.846 GHz	51.6 Pk	3.83 / 28.71 / 42.54 / -100.5	-58.9	H / 1.30 / 197	-45.9*
2.333 GHz	50.1 Pk	4.23 / 30.33 / 43.62 / -100.5	-59.46	H / 1.10 / 230	-46.46*
2.84 GHz	59.0 Pk	4.6 / 31.38 / 44.12 / -100.5	-49.64	H / 1.30 / 197	-36.64*
2.64 GHz	37.55 Pk	4.44 / 30.98 / 43.7 / -100.5	-71.23	V / 2.10 / 239	-58.23*
3.52 GHz	39.9 Pk	5.33 / 33.05 / 44.35 / -100.5	-66.56	V / 2.10 / 239	-53.56*
8.8 GHz	37.0 Pk	9.25 / 38.86 / 43.31 / -100.5	-58.7	V / 2.10 / 239	-45.7*
1.774 GHz	65.7 Pk	3.74 / 28.29 / 42.31 / -100.5	-45.08	H / 1.40 / 258	-32.08*
3.548 GHz	48.9 Pk	5.38 / 33.12 / 44.38 / -100.5	-57.48	H / 1.40 / 229	-44.48*
8.87 GHz	36.55 Pk	9.26 / 39.08 / 43.34 / -100.5	-58.95	V / 2.80 / 227	-45.95*

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: T. K. Swanson — Printed — Signature

RADIATED EMISSIONS

Test Report #:	2208 Run 2	Test Area:	LTS		
EUT Model #:	DGVS-122710SYS	Date:	5/7/04		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC Part 22			Air Pressure:	98.0 kPa
Customer:	ADC Mark Miska			Rel. Humidity:	35.0 %
EUT Description:	Digivance 800 MHz 50 Watt WBDR System				
Notes:					
Data File Name:	2208convertedtodbm.dat			Page:	6 of 6

Measurement summary for limit1: part 22 case radiation qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA (dBm) part 22 case radiation qp
1.788 GHz	69.1 Pk	3.76 / 28.37 / 42.35 / -100.5	-41.62	V / 1.40 / 229	-28.62*
2.681 GHz	48.75 Pk	4.47 / 31.06 / 43.79 / -100.5	-60.01	H / 1.20 / 313	-47.01*
3.575 GHz	52.5 Pk	5.43 / 33.18 / 44.41 / -100.5	-53.81	H / 1.20 / 313	-40.81*
8.938 GHz	36.95 Pk	9.27 / 39.3 / 43.38 / -100.5	-58.35	H / 1.20 / 313	-45.35*
910.39 MHz	40.85 Pk	2.61 / 23.3 / 0.0 / -100.5	-33.74	V / 1.50 / 231	-20.74*

Tested by: J. C. Sausen — 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 out.

Configuration of the device under test:

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

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

■ - unshielded cables

■ - shielded cables MPS.No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

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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: 07 May 2004

Testing End Date: 07 May 2004

- TÜV PRODUCT SERVICE INC -

Reviewed By:
J. T. Schneider

Tested By:
J. C. Sausen

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Test Equipment List

ADC Test equipment used :

	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ -	49-30-33	Aeroflex	Attenuator	N/A	CNR
■ -	HP8563E	HP	Spectrum Analyzer	MC27690	24 May 04
■ -		Rohde & Schwarz	Power Meter	MC21671	March 05
■ -	1520CT	Staco	Variable Auto Transformer	MC/44655	CNR
■ -	79III	Fluke	Multimeter	MC16178	Feb 06
■ -	5347A	HP	Freq. Counter	MC27569	Jan 05
■ -		Tenney Environmental	Temperature Chamber	MC24315	Oct 05

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

TUV Test equipment used :

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ -	3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	10-24-04
■ -	2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	11-19-04
■-	8052	8566B	Hewlett-Packard	Spectrum Analyzer	2115a00853	10-17-04
■ -	8051	85662A	Hewlett-Packard	Analyzer Display	2112A02220	10-17-04
■	2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	2-23-05
■-	3962	ZHL-1042J	Mini-Circuits	Preamplifier	D120403-2	Code B
■-	3957	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B
■ -	2396	2520	Wavetek	Signal Generator	6271013	6-04-04
■ -	3236	UHAP-10dB	Schwarzbeck	Dipole Antenna 300-1000	164	N/A

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

TEST SETUP PHOTOS FOR EMISSIONS TESTING

See Test Setup Exhibit

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Appendix A

Product Information Form

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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: 952-403-8340 Fax: 952-403-8560

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 Wide Band Digital Radio base station.

EUT Name: Digivance Wide Band Digital Radio 800 MHz 50-Watt System

Model No.: DGVS-112710SYS and DGVS-122710SYS Serial No.: None

Product Options: Receive Diversity

Configurations to be tested: 800 MHz System: A and B Band Version with Diversity option

Test Objective

☐ EMC Directive 89/336/EEC (EMC)
Std:

☐ Machinery Directive 89/392/EEC (EMC
Std:

☐ Medical Device Directive 93/42/EEC (EMC)
Std:

☐ Vehicle Directive 72/245/EEC (EMC)
Std:

☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)

☒ FCC: Class ☐ A ☐ B Part 22

☐ VCCI: Class ☐ A ☐ B

☐ BCIQ: Class ☐ A ☐ B

☐ Canada: Class ☐ A ☐ B

☐ Australia: Class ☐ A ☐ B

☒ Other: FCC Part 15 Class B

Form

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

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.)

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: 20" Width: 17.11" Height: 3.5" Weight: 48 LBS

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: 100-120/200-240 VAC (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 6/4 Current (Amps/phase(nominal)): 4

Other _____

Other Special Requirements

none

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)
Server/PCIx card indoor only with STM and LPA indoor or outdoor. System is typically employed as a GSM base station.

EMC Test Plan and Constructional Data Form

EUT Power Cable					
☐	Permanent	OR	☒	Removable	Length (in meters): 1
☐	Shielded	OR	☒	Unshielded	
☐	Not Applicable				

EMC Test Plan and Constructional Data Form

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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	☒	☐
RF "SMR" type	☒	☐	2	☐	☒	Braid	Coaxial	SMA	50 Ohms	>3	☒	☐
Alarm	☒	☐	1	☐	☒	Not Specified	N/A	4 Pin Standoff		>3	☒	☐
Fiber	☐	☒	3	☐	☒	N/A	N/A	SC	N/A	>3	☒	☐
9 Pin Din	☐	☒	2	☒	☐	Not Specified	AC Coupled	Din		>3	☒	☐
AC power	☒	☐	1	☐	☒	N/A				>3	☒	☐
Battery Connection	☒	☐	1	☐	☒	N/A	N/A	2 Pin Standoff		1	☒	☐
STM to Amp Interconnect	☒	☐	1	☐	☒	Varied		Terminal		1	☒	☐
	☐	☐		☐	☐						☐	☐
	☐	☐		☐	☐						☐	☐
	☐	☐		☐	☐						☐	☐
	☐	☐		☐	☐						☐	☐

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Software.

Revision Level: Version 0.00.00.12

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

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

1. Max composite 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	DGVS-800010HU	None	
STM A Band	DGVL-112010STM	None	
STM B Band	DGVL-122010STM	None	
LPA	DGVL-102000LPA	None	
		None	
		None	
Digivance Wide Band Digital Radio 800 MHz 50-Watt System Models DGVS-112710SYS and DGVS-122710SYS consist of the HU, STM, and LPA.		None	

EMC Test Plan and Constructional Data Form

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

Description	*Model #*	*Serial #*	*FCC ID #*
Server	HP Proliant DL380	D402LJC1H278	
Monitor	N/A		
Keyboard	N/A		

Oscillator Frequencies

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

Power Supply

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

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*
None		

EMC Test Plan and Constructional Data Form

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Critical EMI Components (Capacitors, ferrites, etc.)

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

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

None

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

Authorization Signatures

Mark R. Mosley — 7-7-04

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