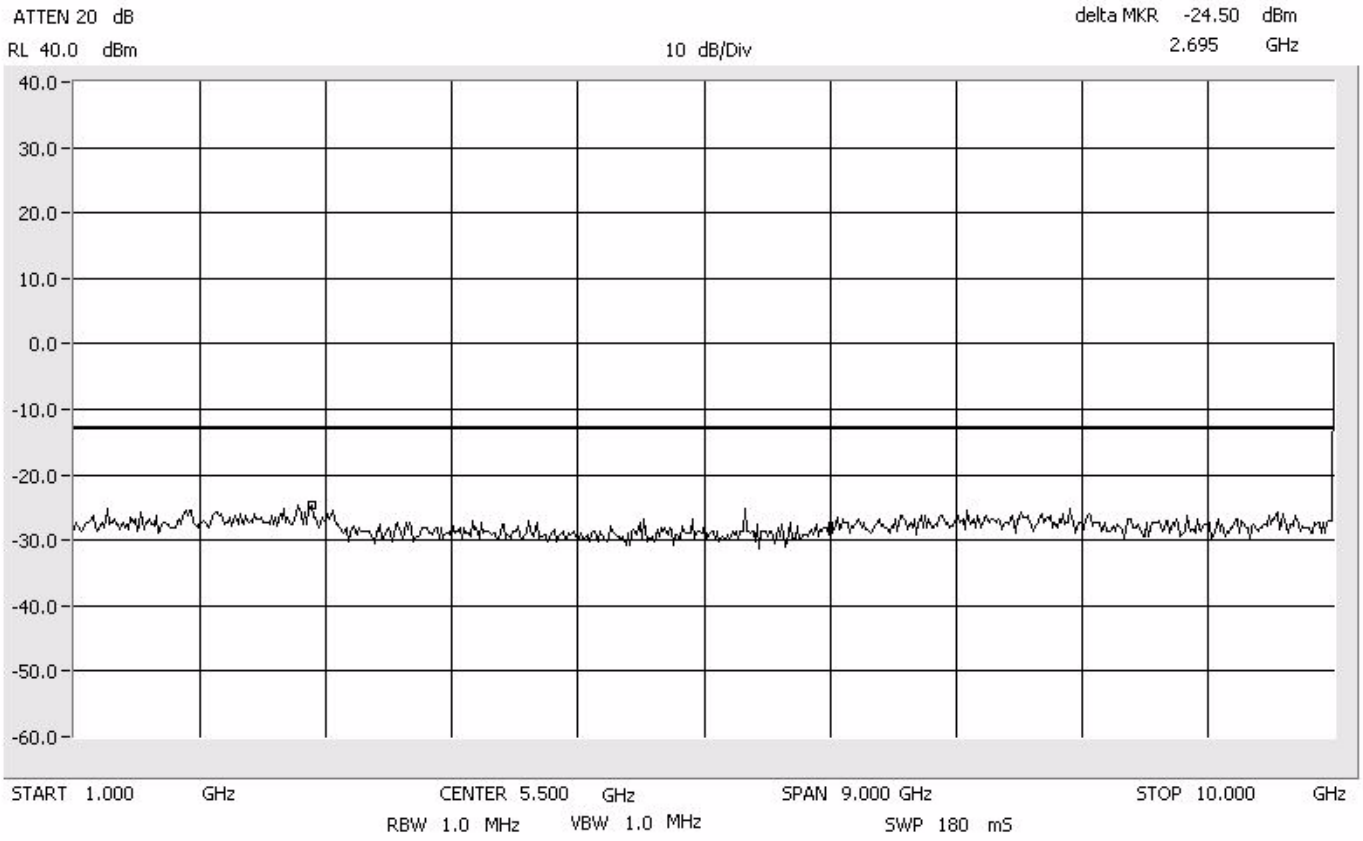
CDMA

Intermodulation
Close - Upper
SMR 800 MHz

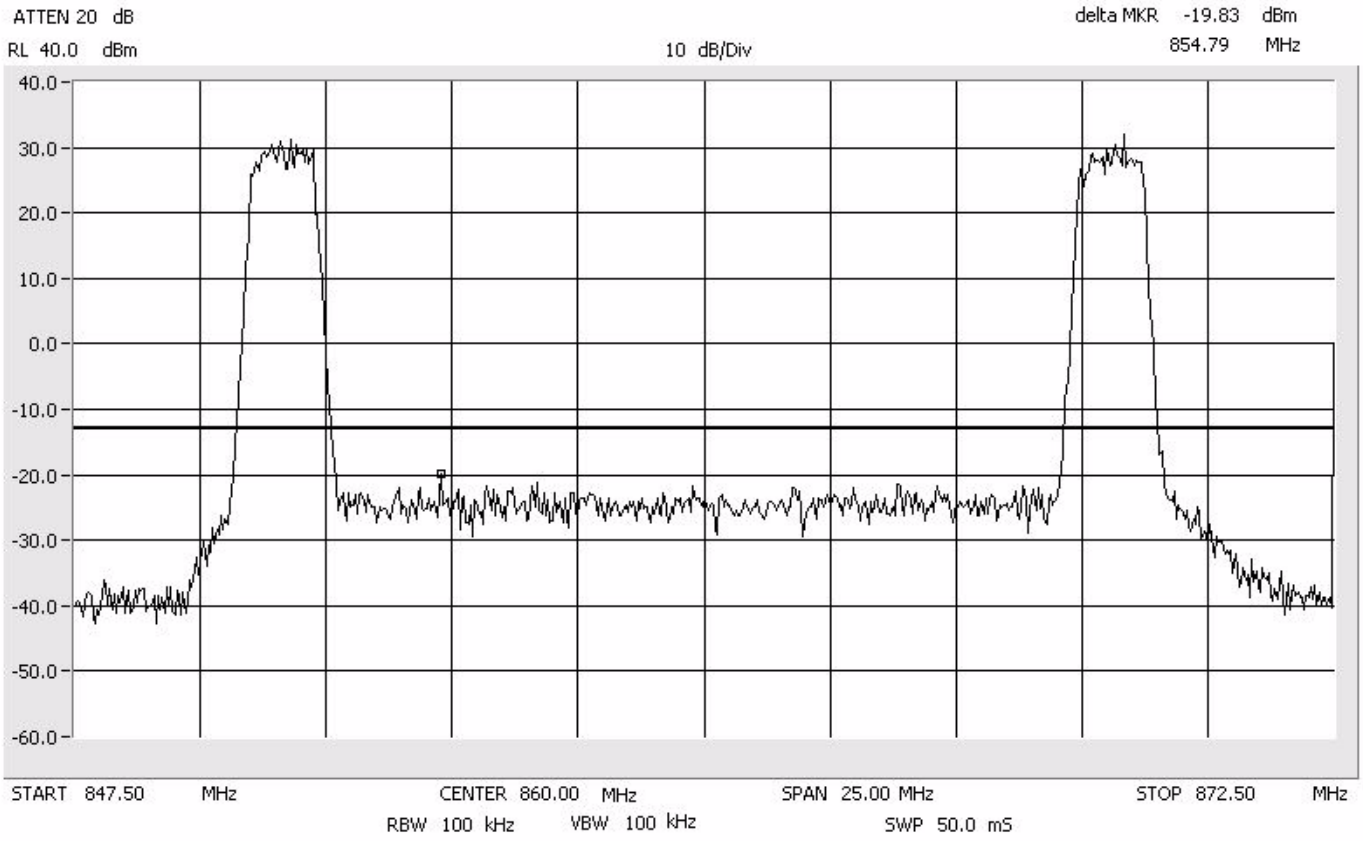
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



CDMA

Intermodulation
Apart
SMR 800 MHz

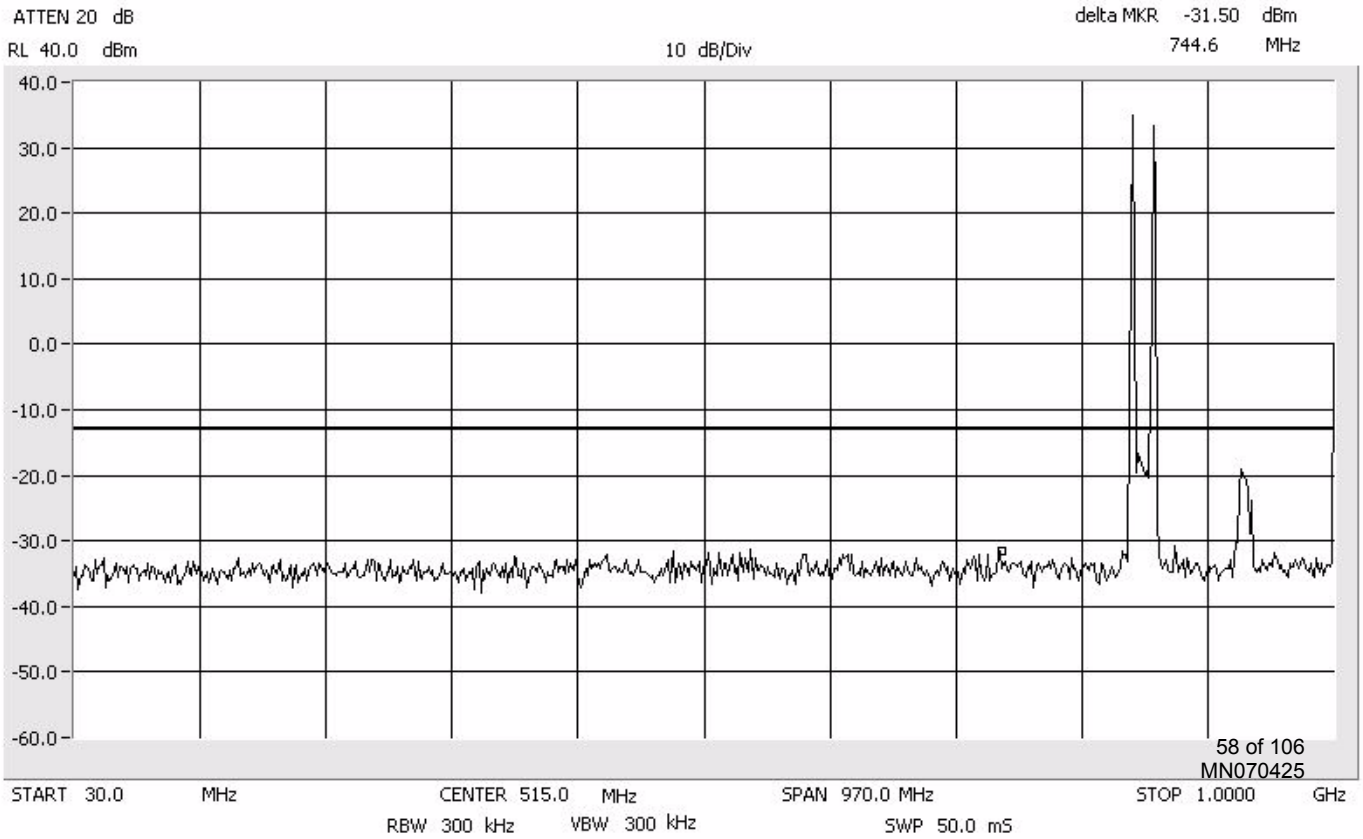
Center: 860.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



CDMA

Intermodulation
Apart
SMR 800 MHz

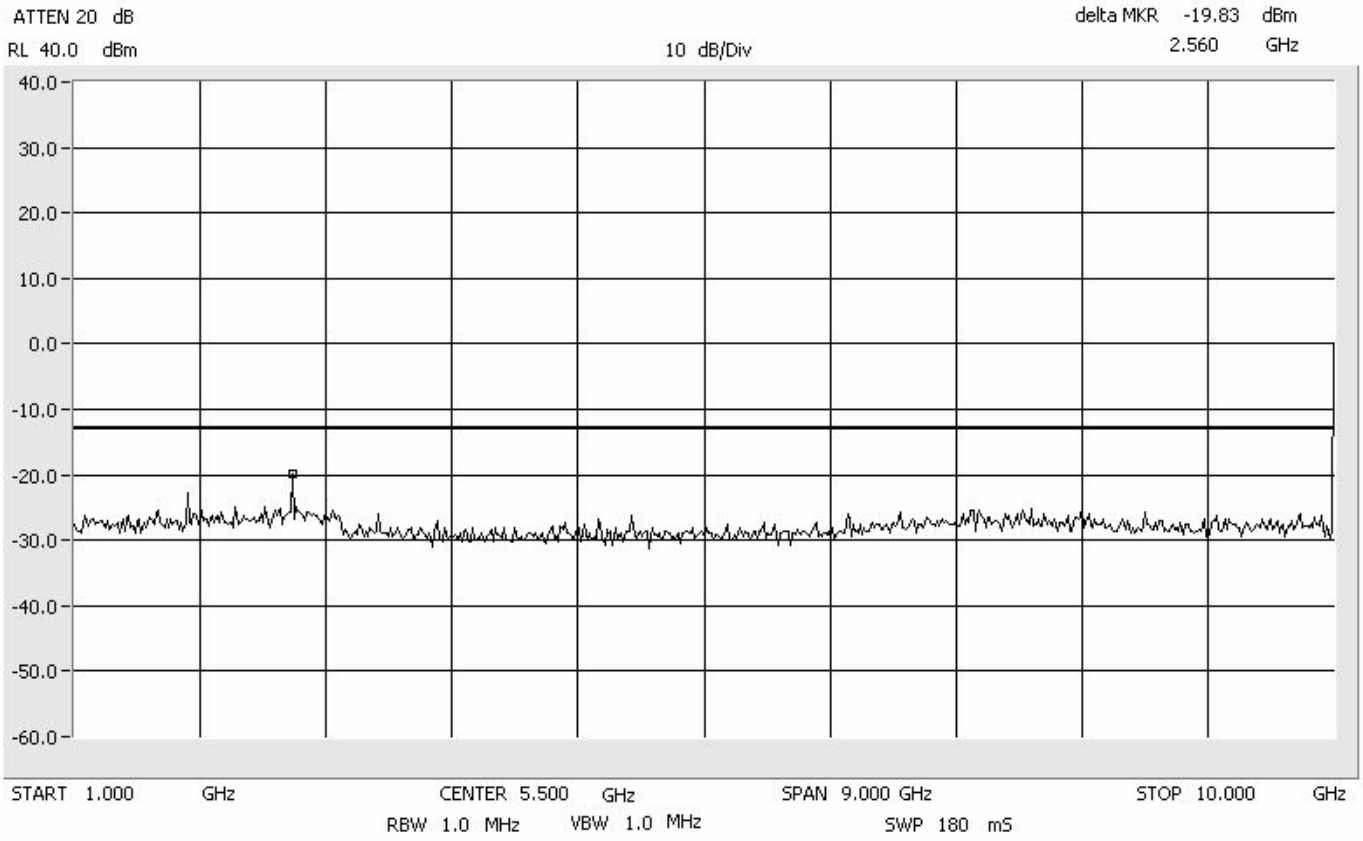
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



CDMA

Intermodulation
Apart
SMR 800 MHz

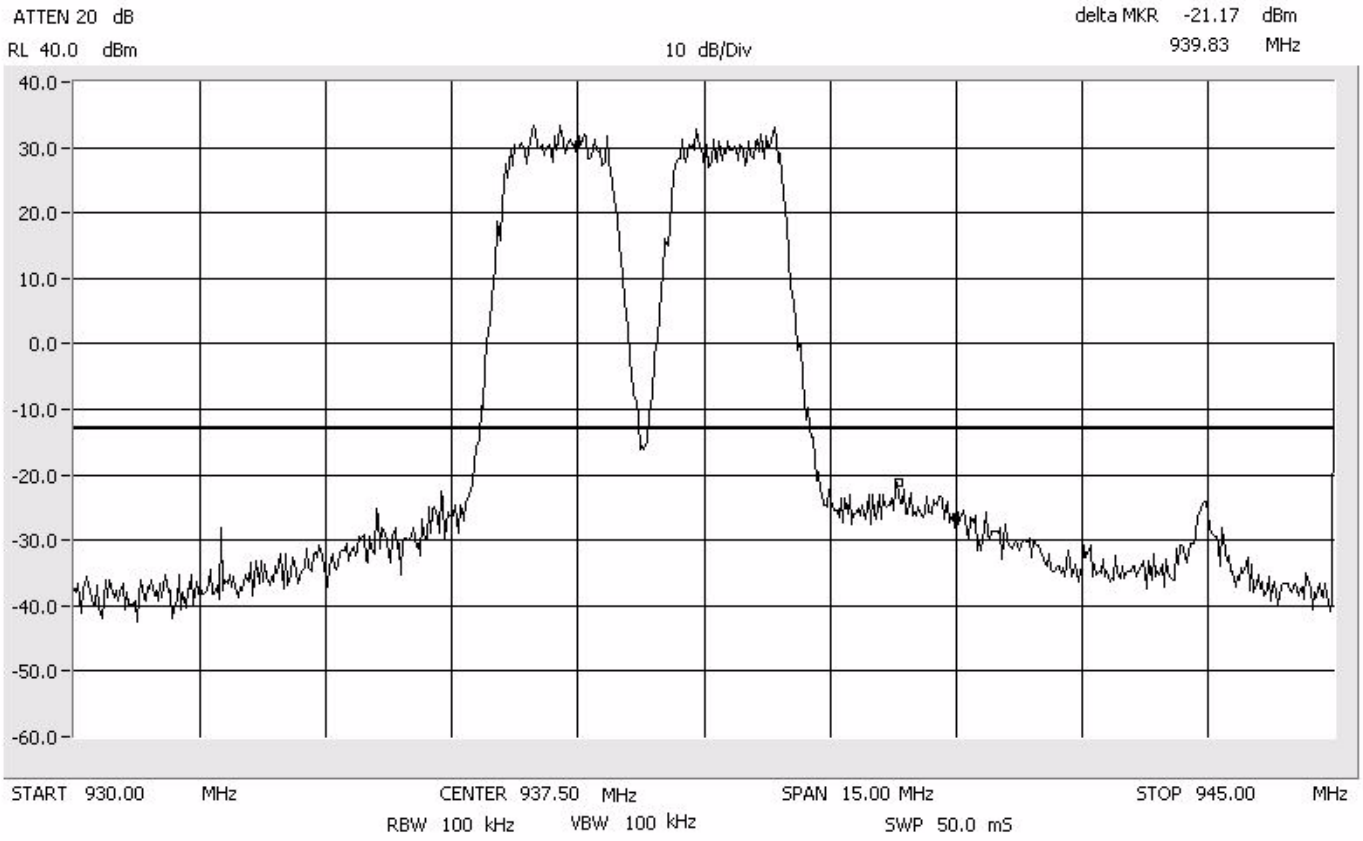
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



CDMA

Intermodulation
Close - Lower
SMR 900 MHz

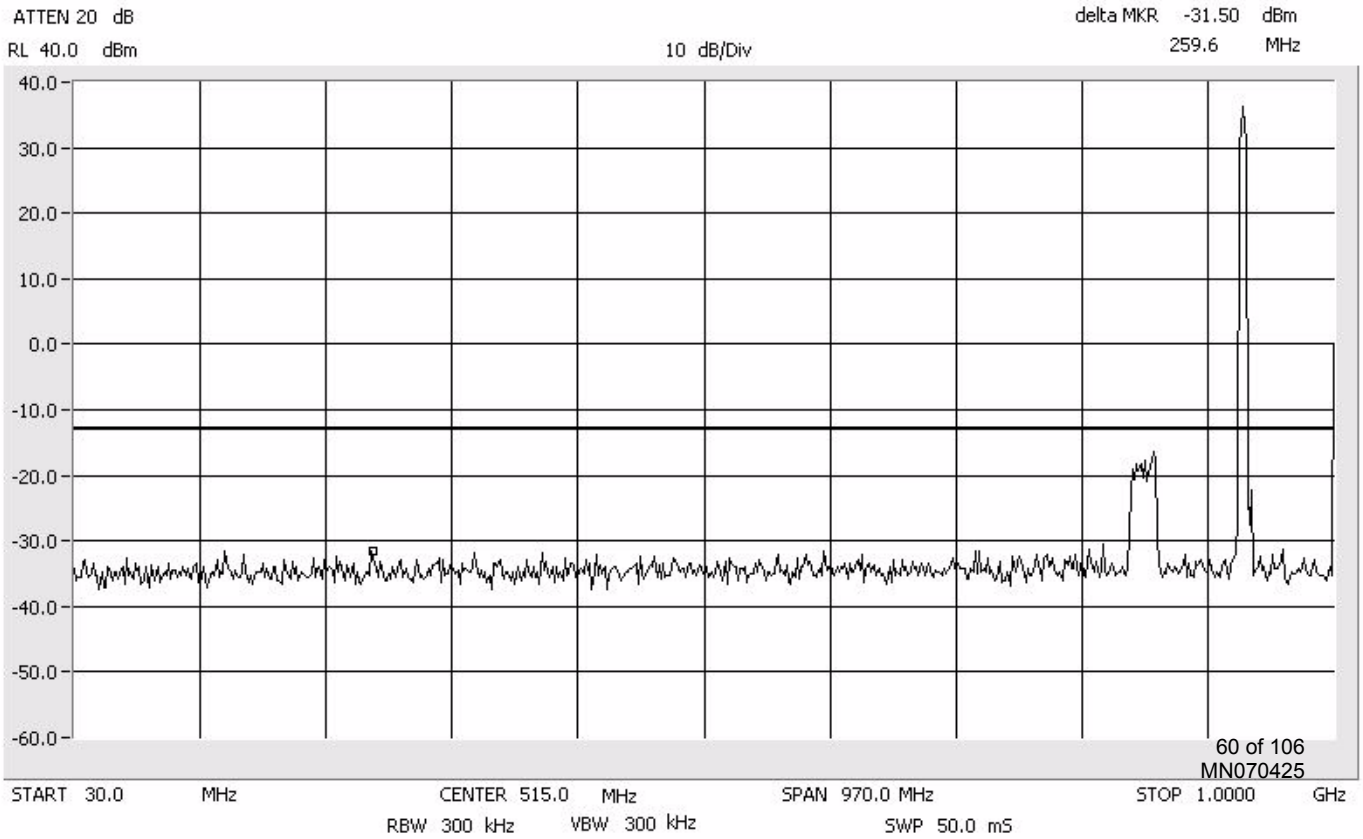
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



CDMA

Intermodulation
Close - Lower
SMR 900 MHz

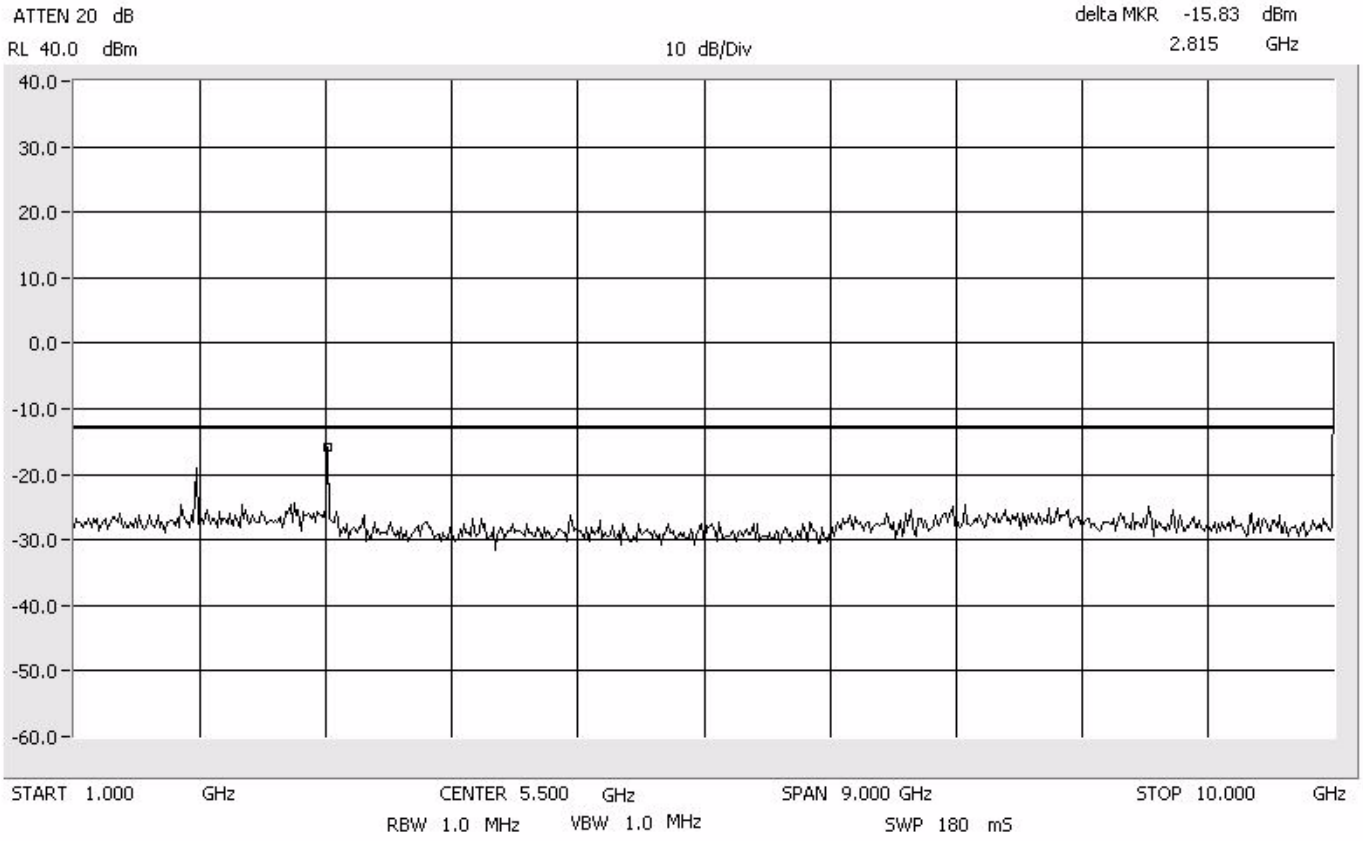
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



CDMA

Intermodulation
Close - Lower
SMR 900 MHz

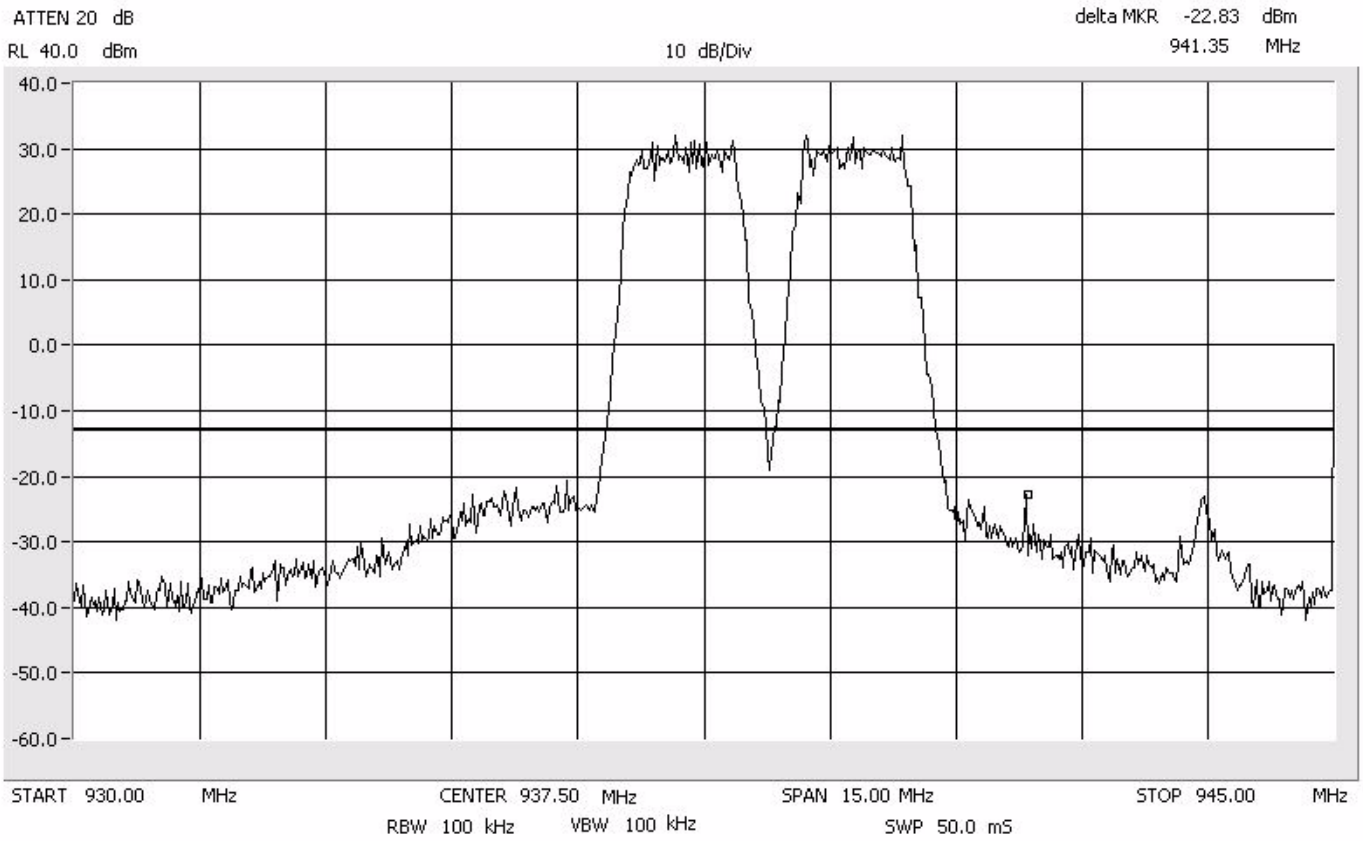
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



CDMA

Intermodulation
Close - Upper
SMR 900 MHz

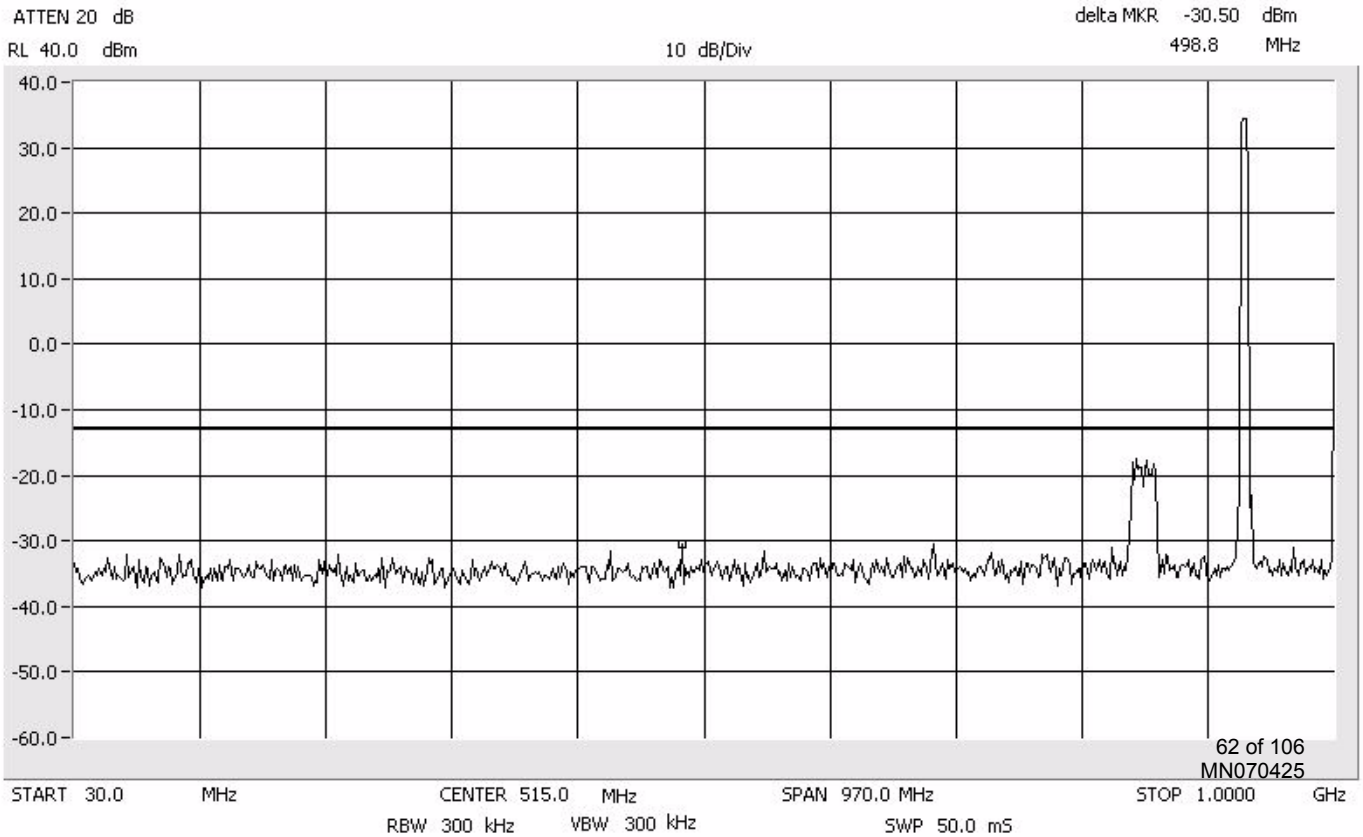
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



CDMA

Intermodulation
Close - Upper
SMR 900 MHz

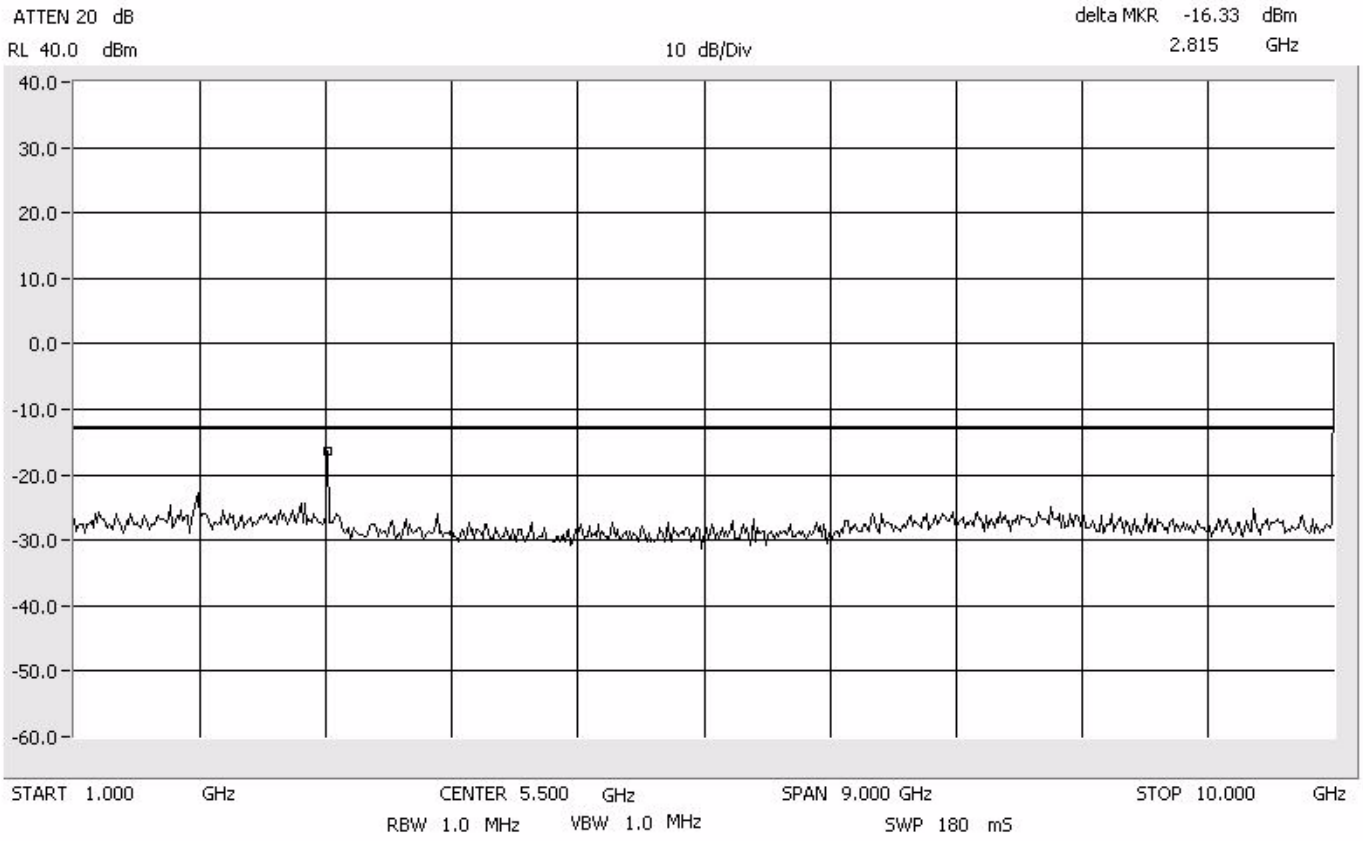
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



CDMA

Intermodulation
Close - Upper
SMR 900 MHz

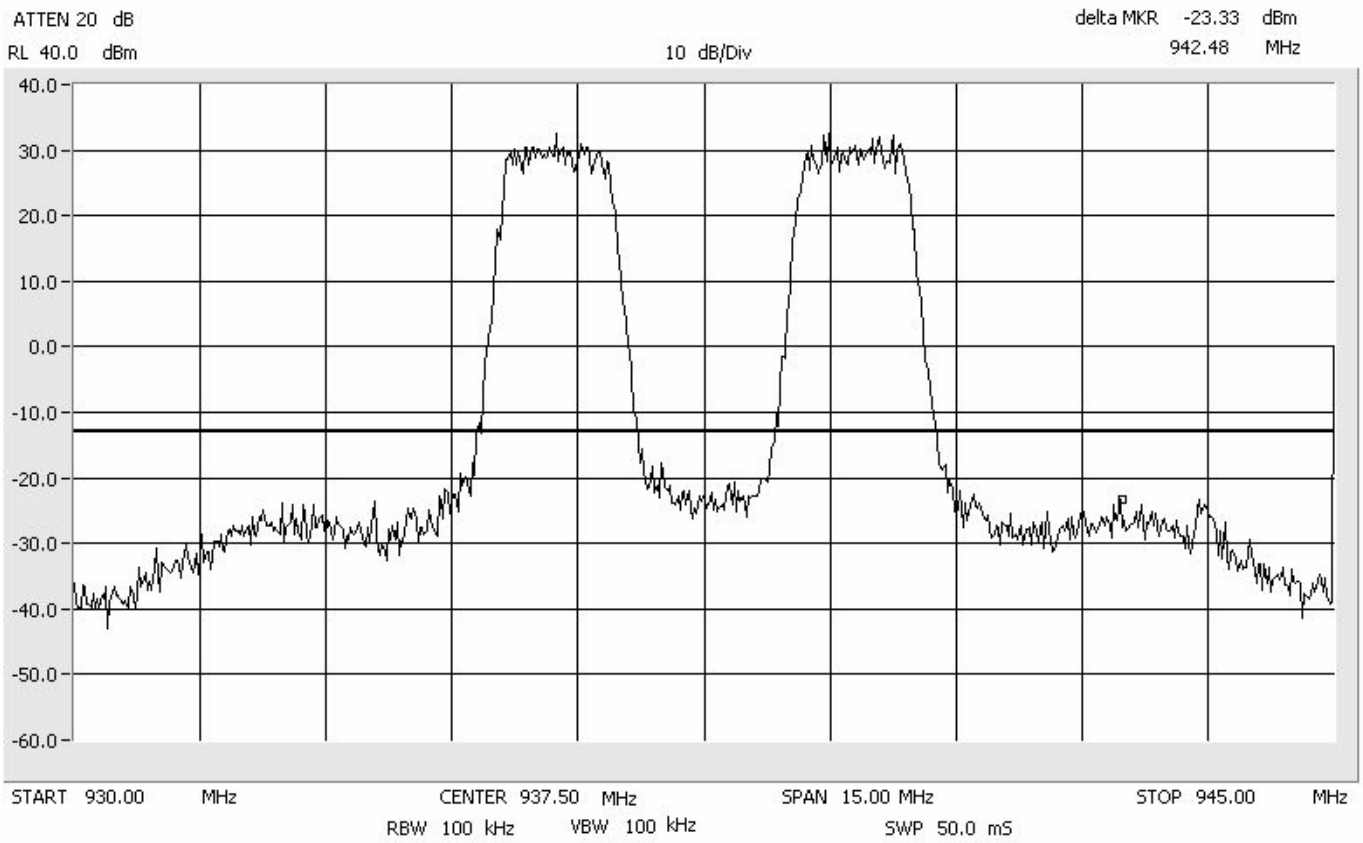
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



CDMA

Intermodulation
Apart
SMR 900 MHz

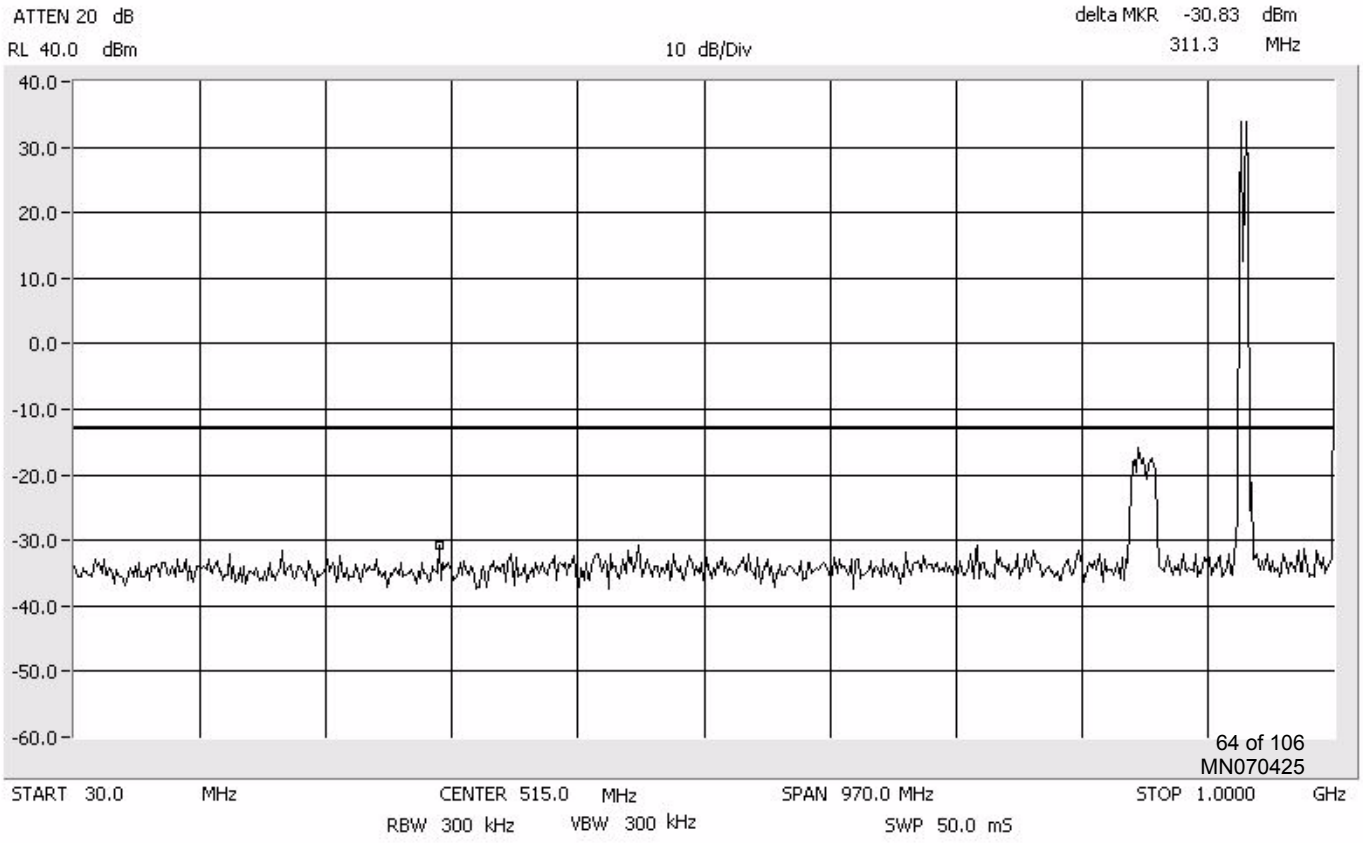
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



CDMA

Intermodulation
Apart
SMR 900 MHz

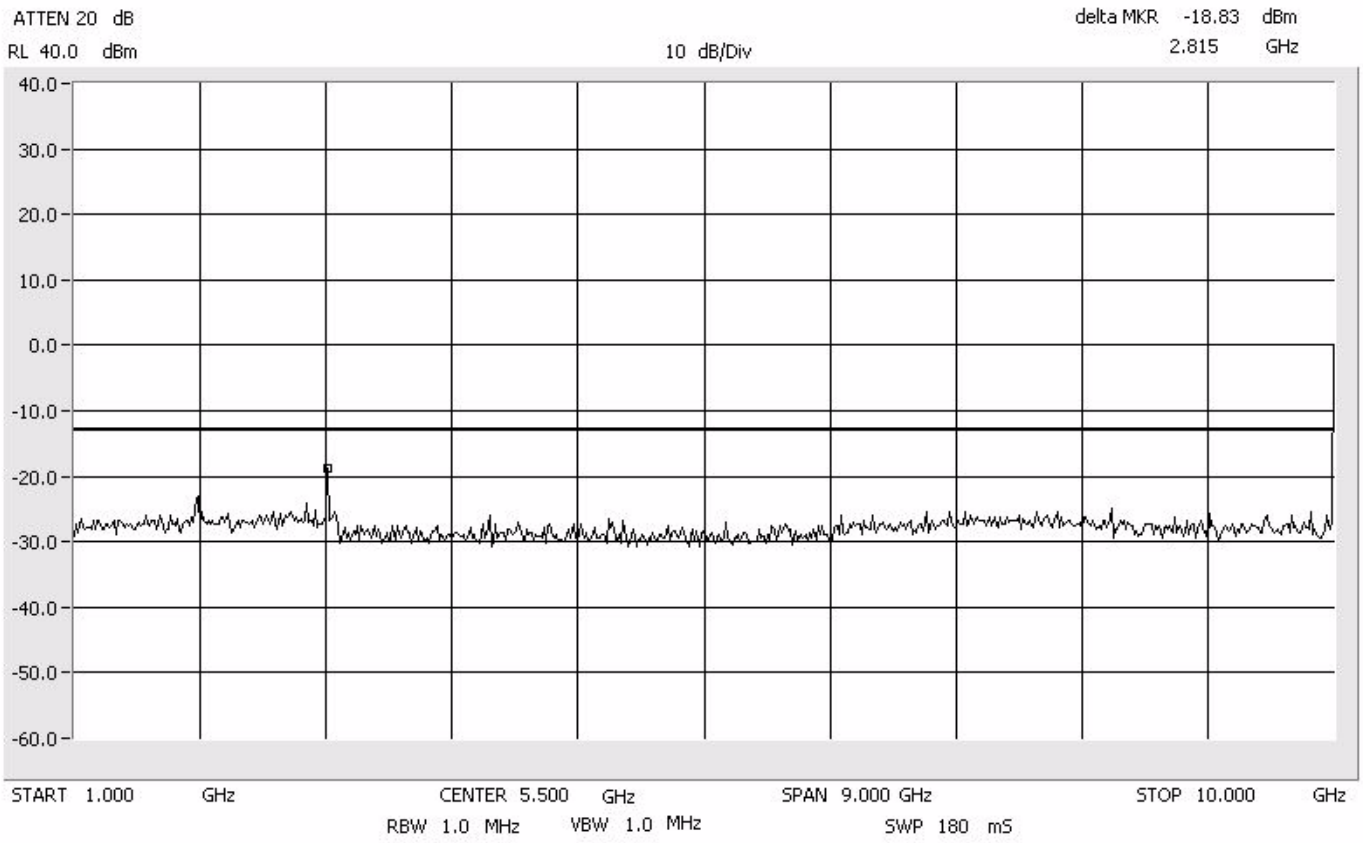
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



CDMA

Intermodulation
Apart
SMR 900 MHz

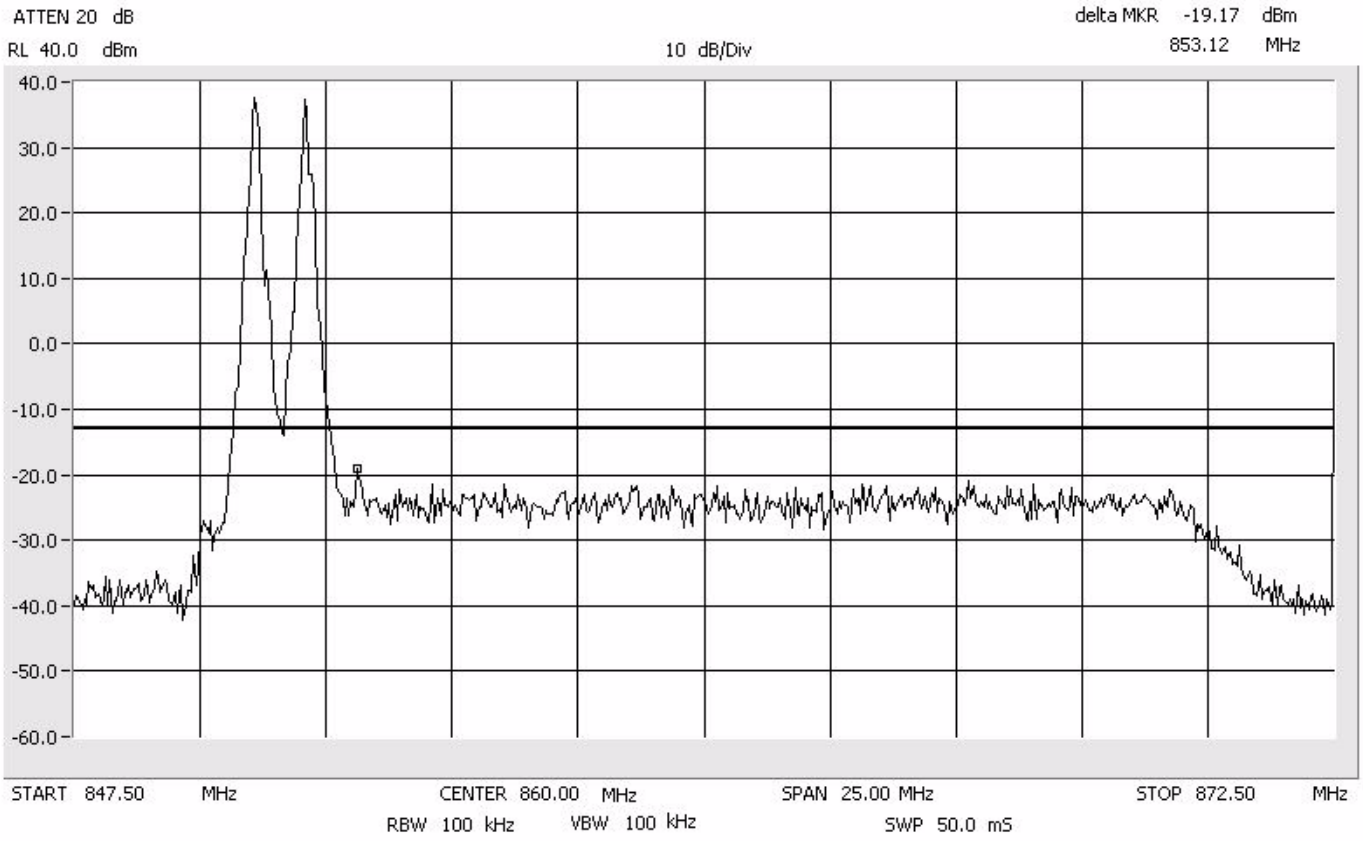
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Close - Lower
SMR 800 MHz

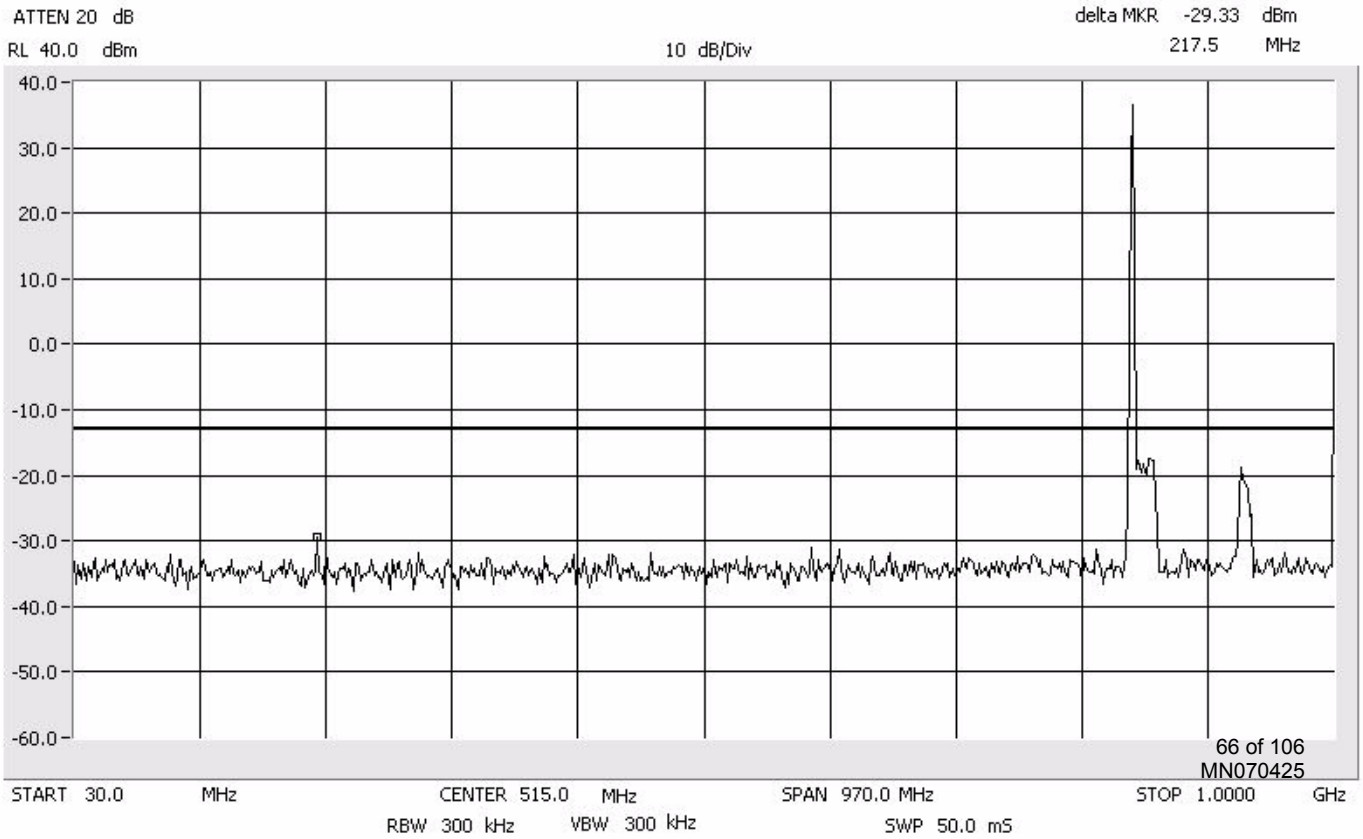
Center: 860.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Close - Lower
SMR 800 MHz

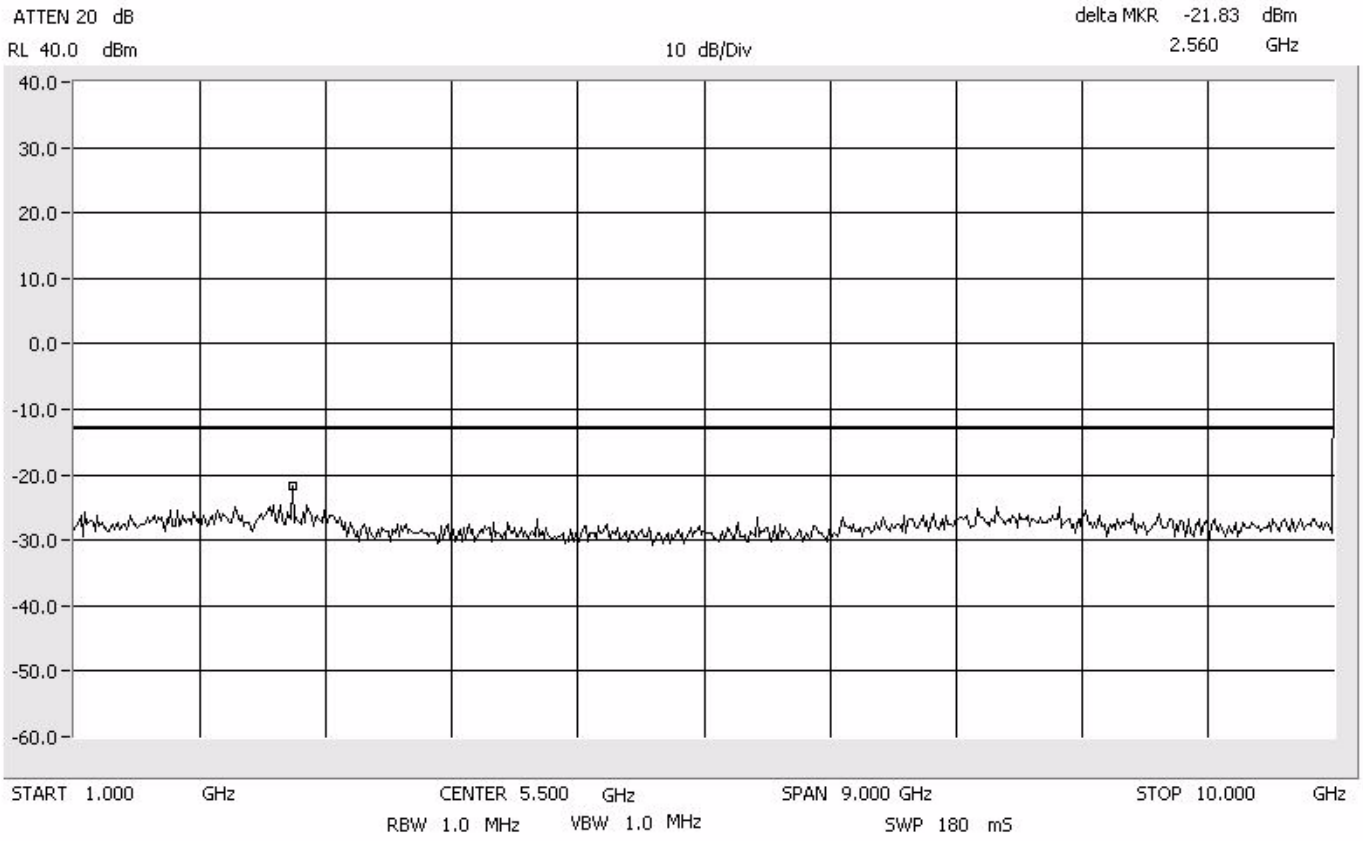
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Close - Lower
SMR 800 MHz

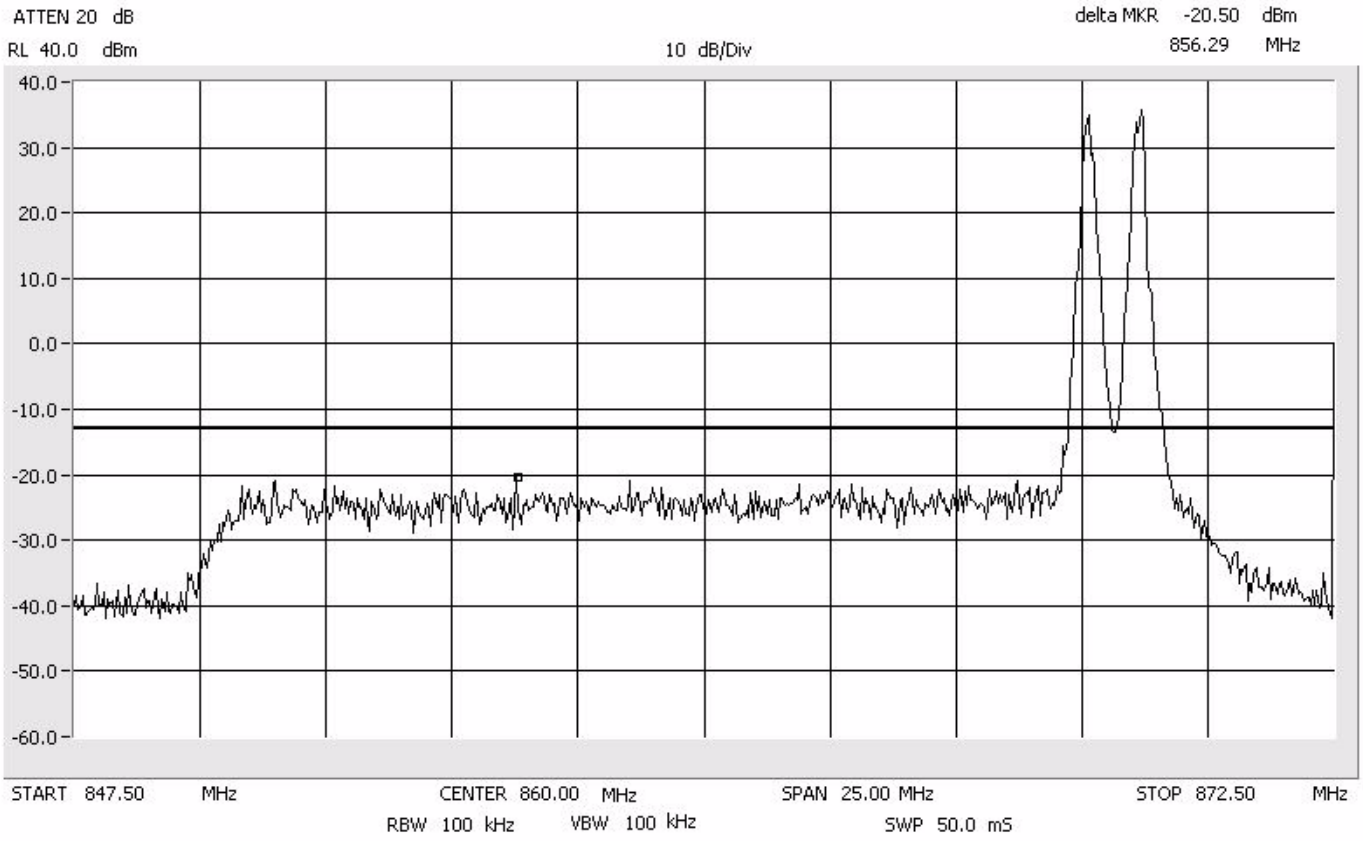
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Close - Upper
SMR 800 MHz

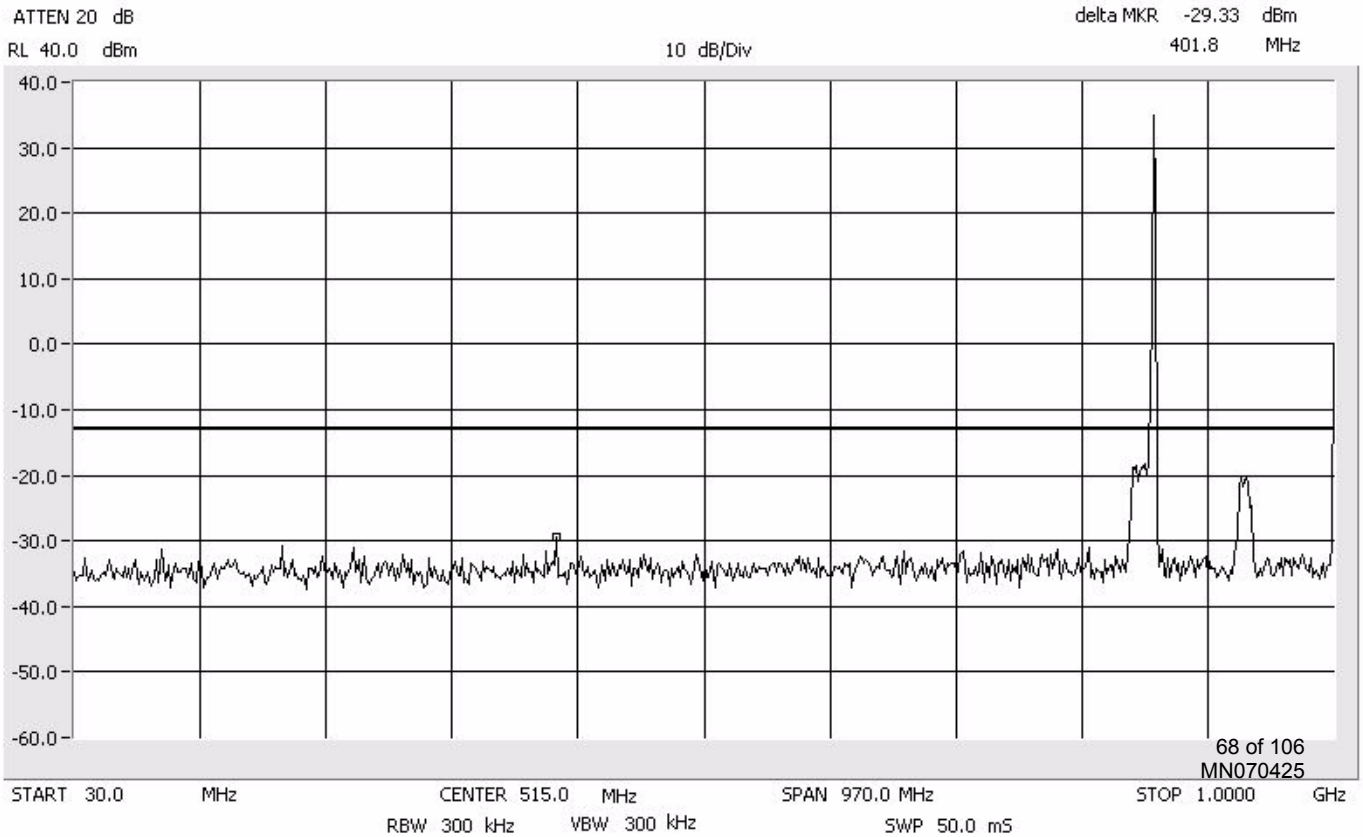
Center: 860.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Close - Upper
SMR 800 MHz

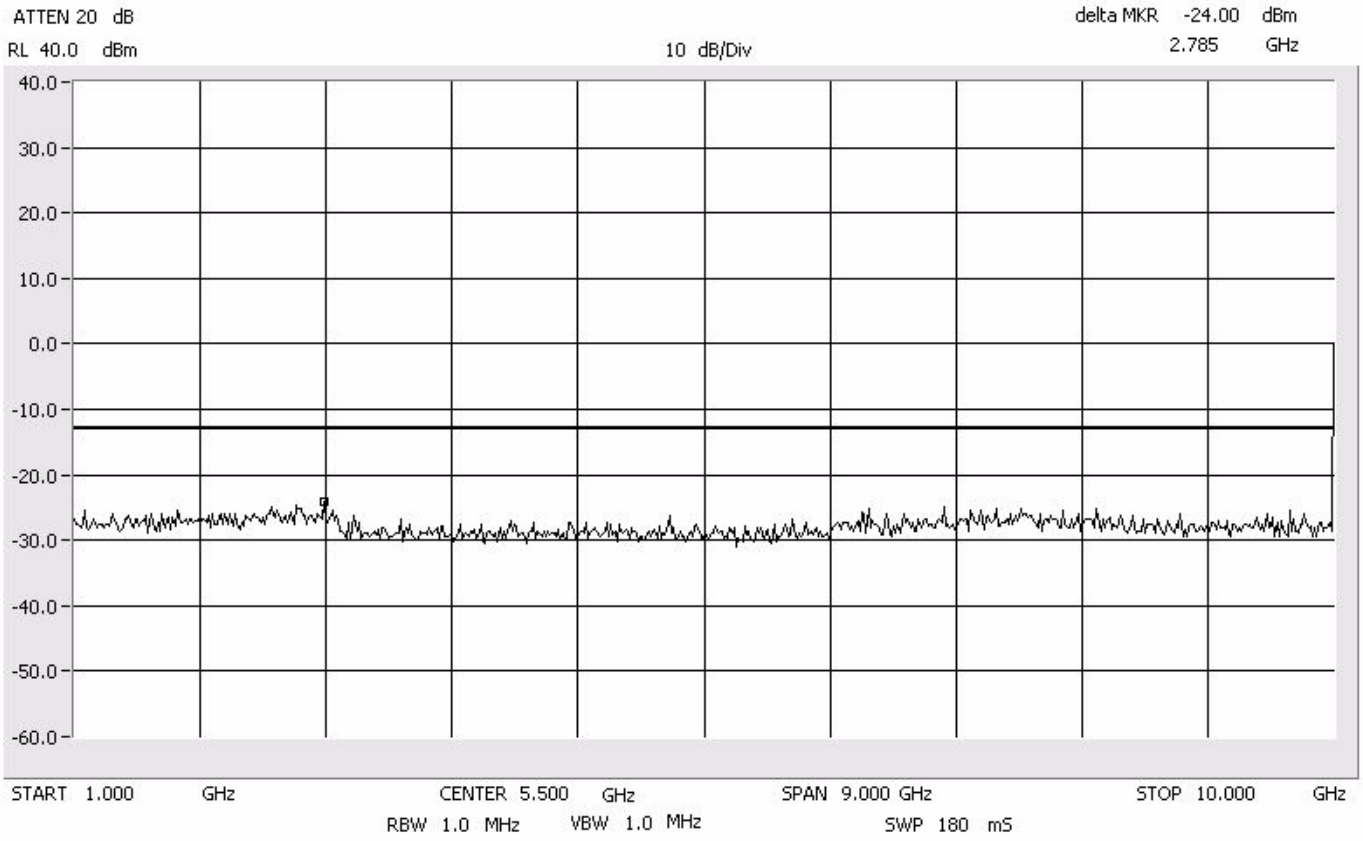
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Close - Upper
SMR 800 MHz

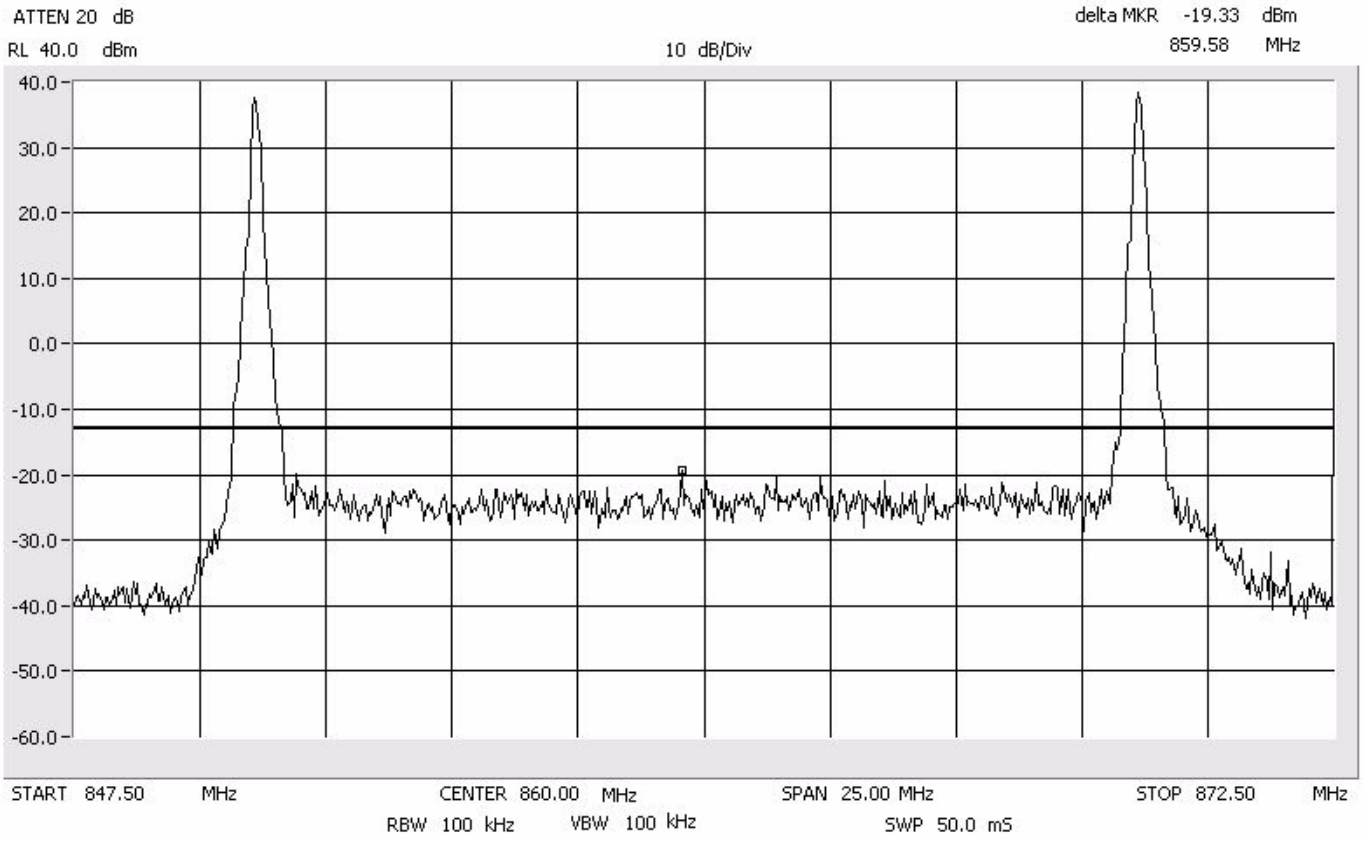
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Apart
SMR 800 MHz

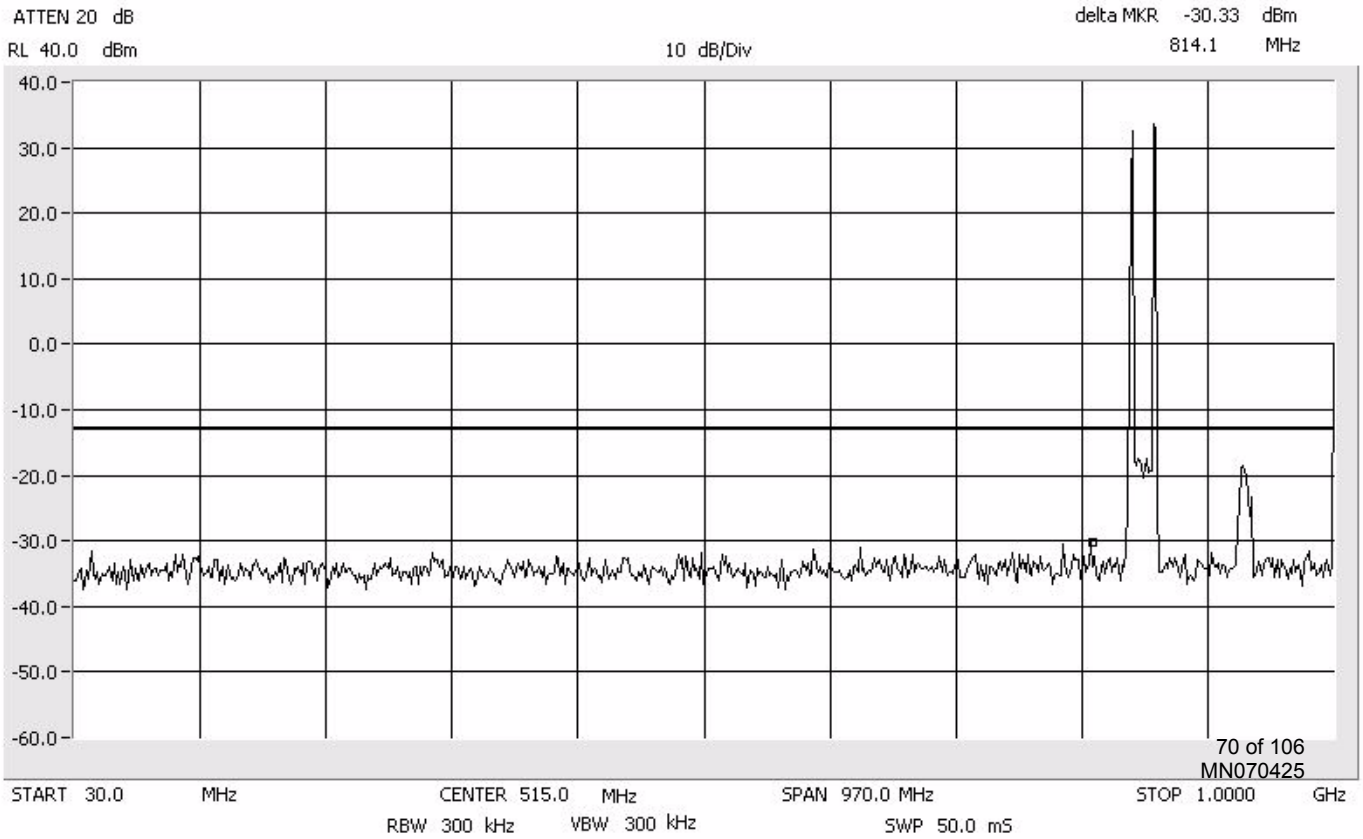
Center: 860.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Apart
SMR 800 MHz

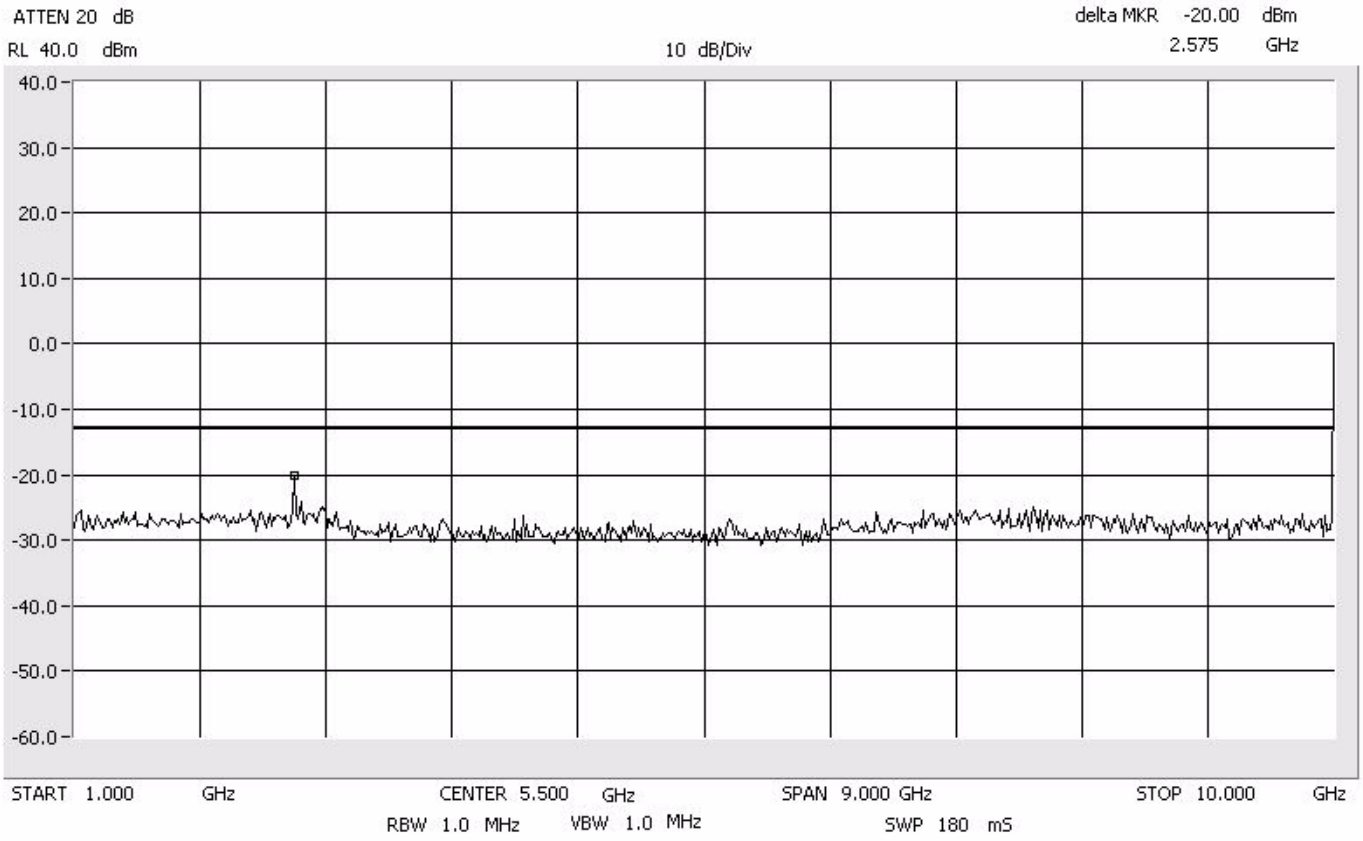
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Apart
SMR 800 MHz

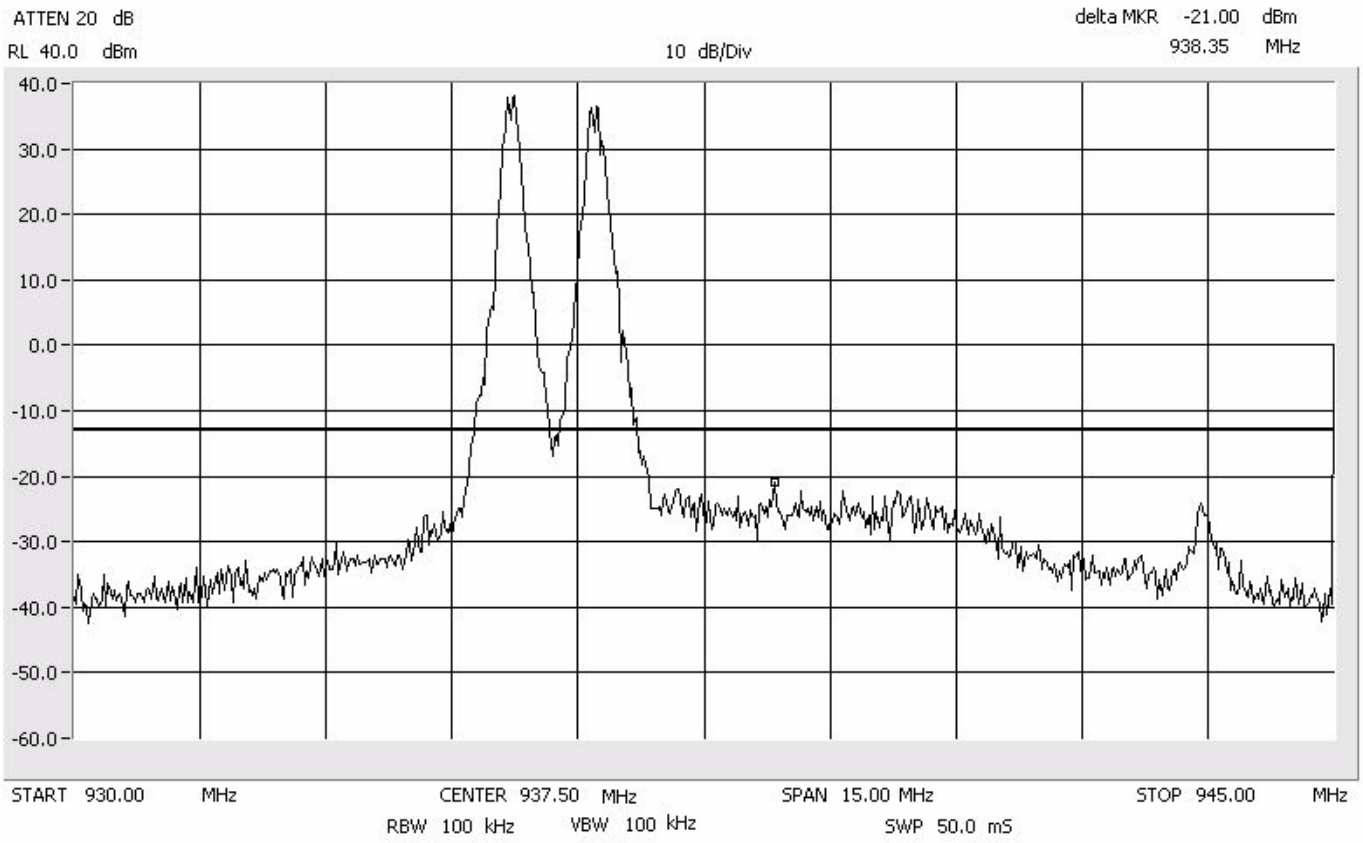
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Close - Lower
SMR 900 MHz

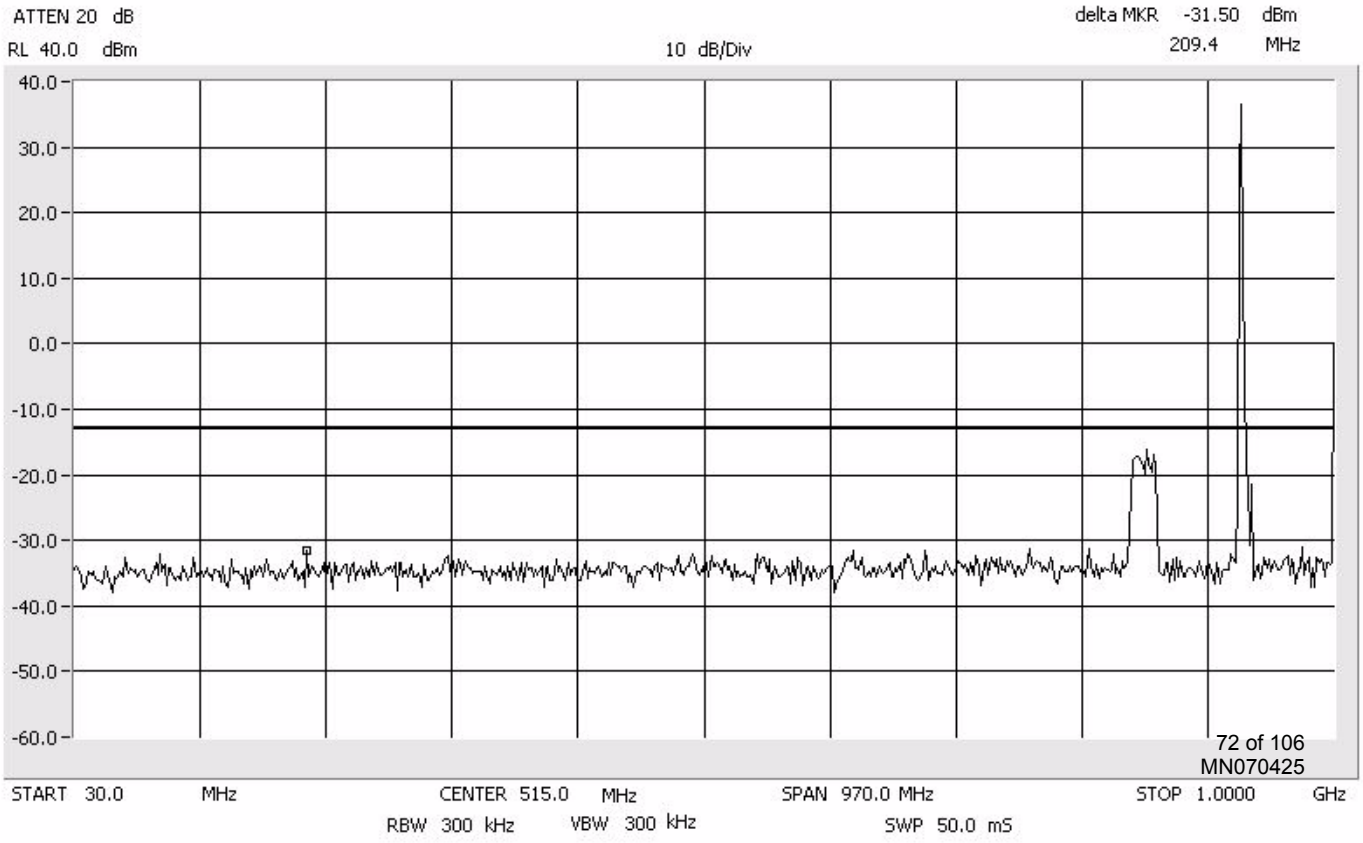
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Close - Lower
SMR 900 MHz

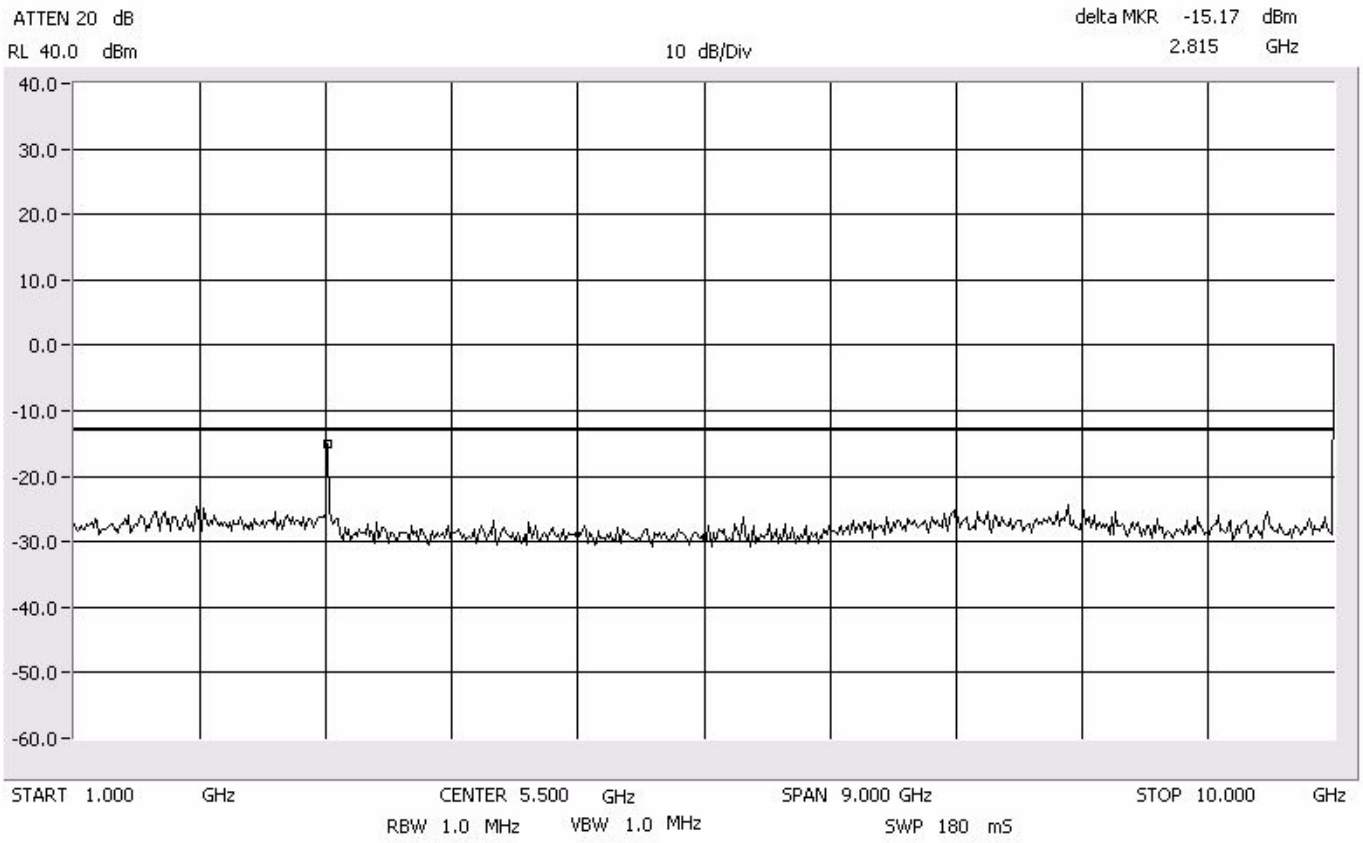
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Close - Lower
SMR 900 MHz

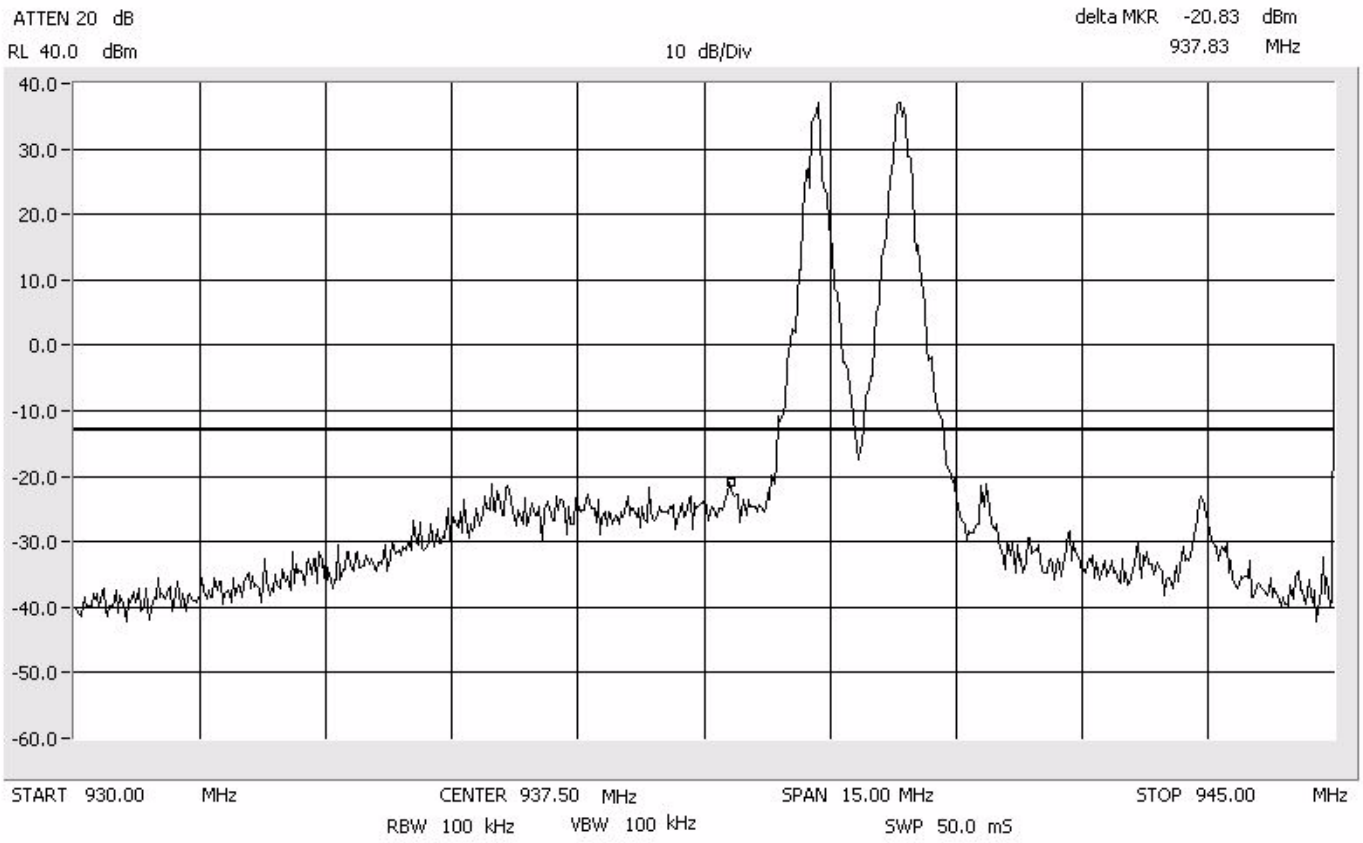
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Close - Upper
SMR 900 MHz

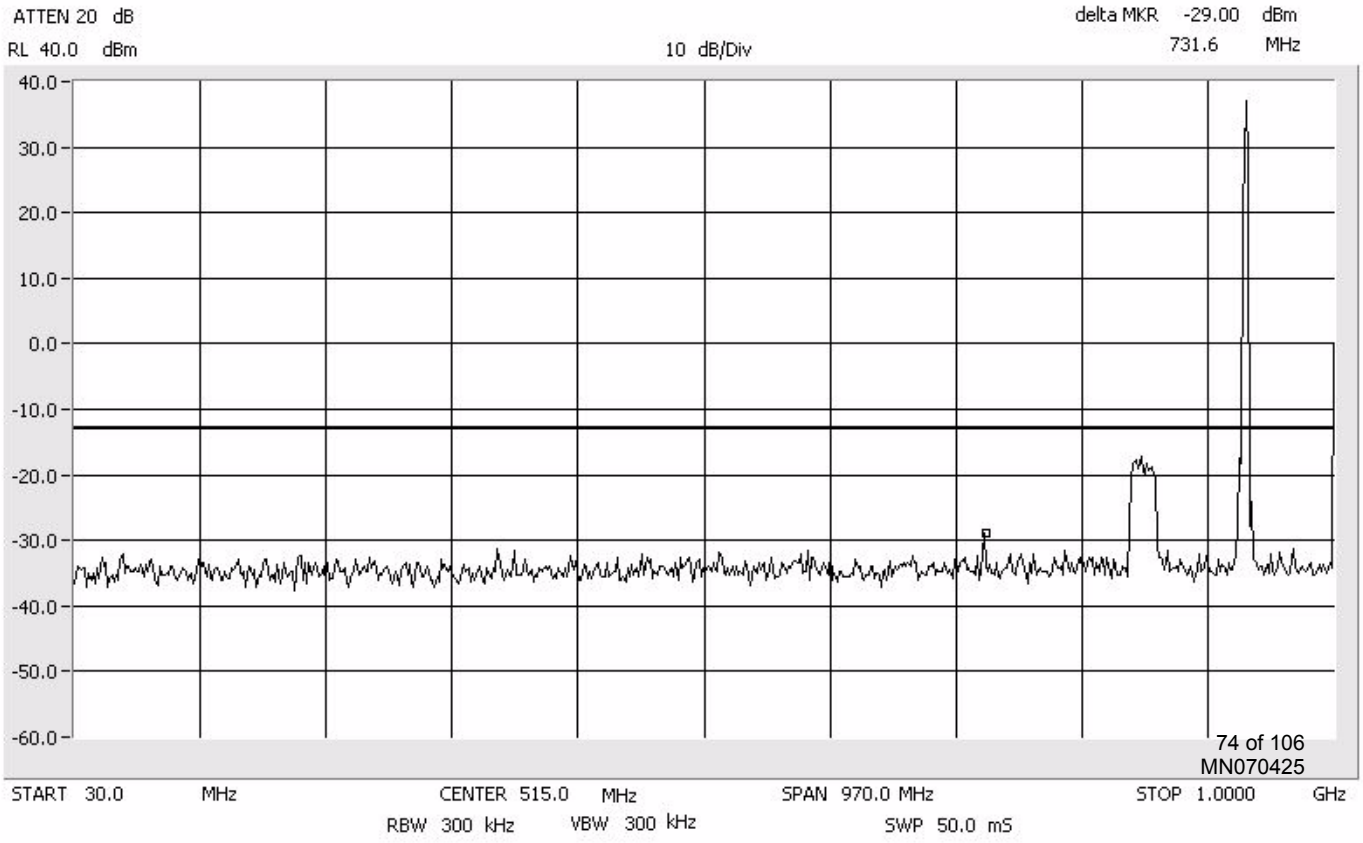
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Close - Upper
SMR 900 MHz

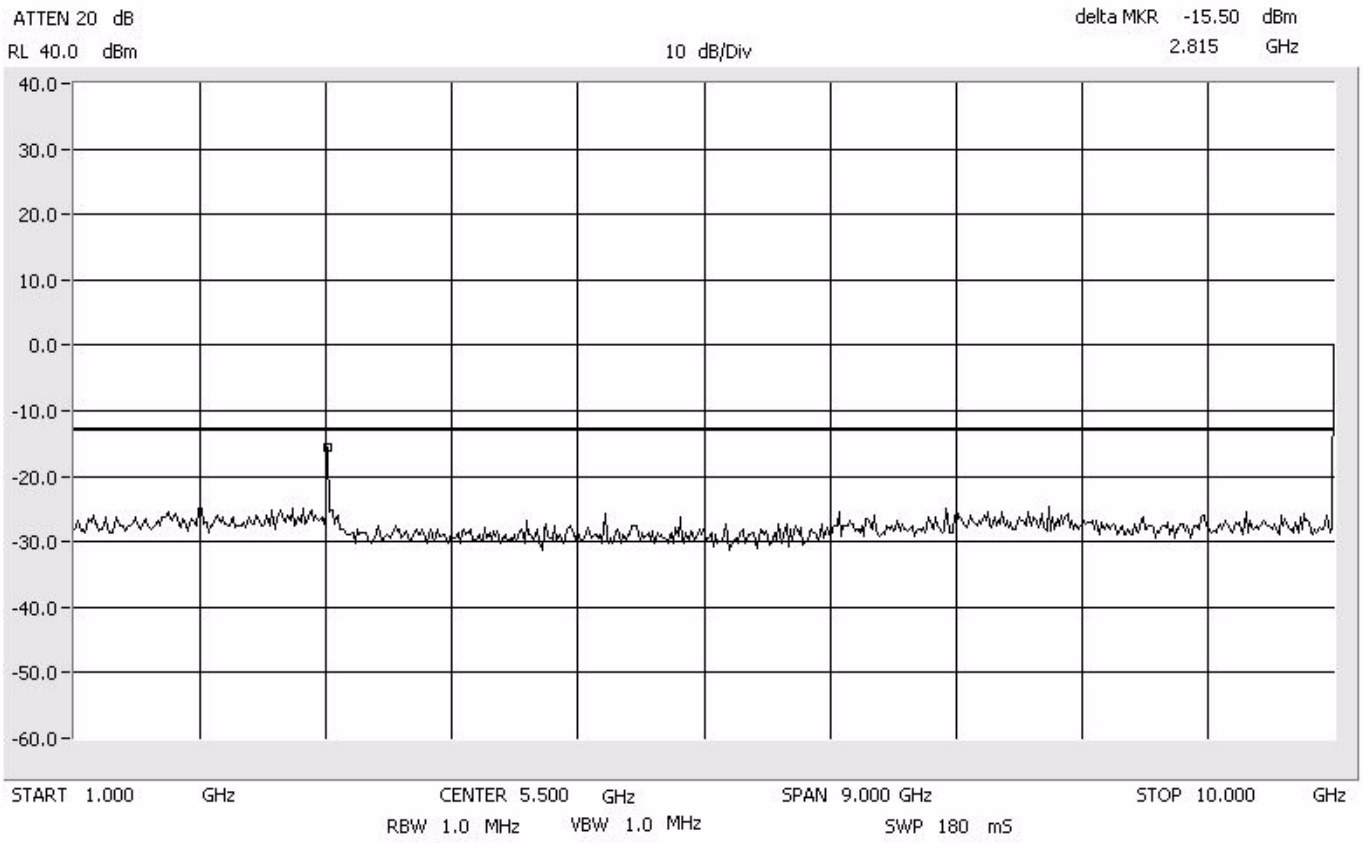
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Close - Upper
SMR 900 MHz

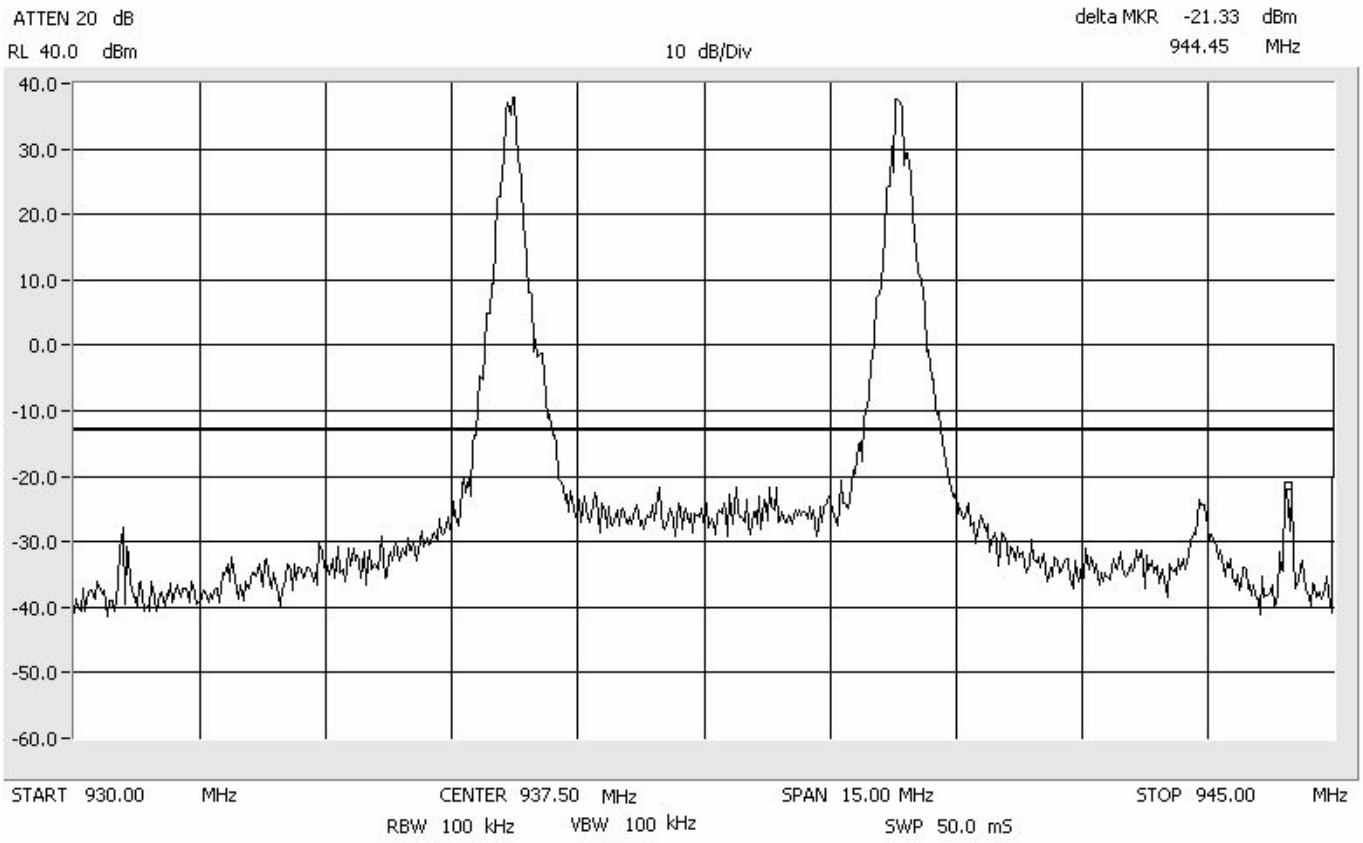
Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



iDEN

Intermodulation
Apart
SMR 900 MHz

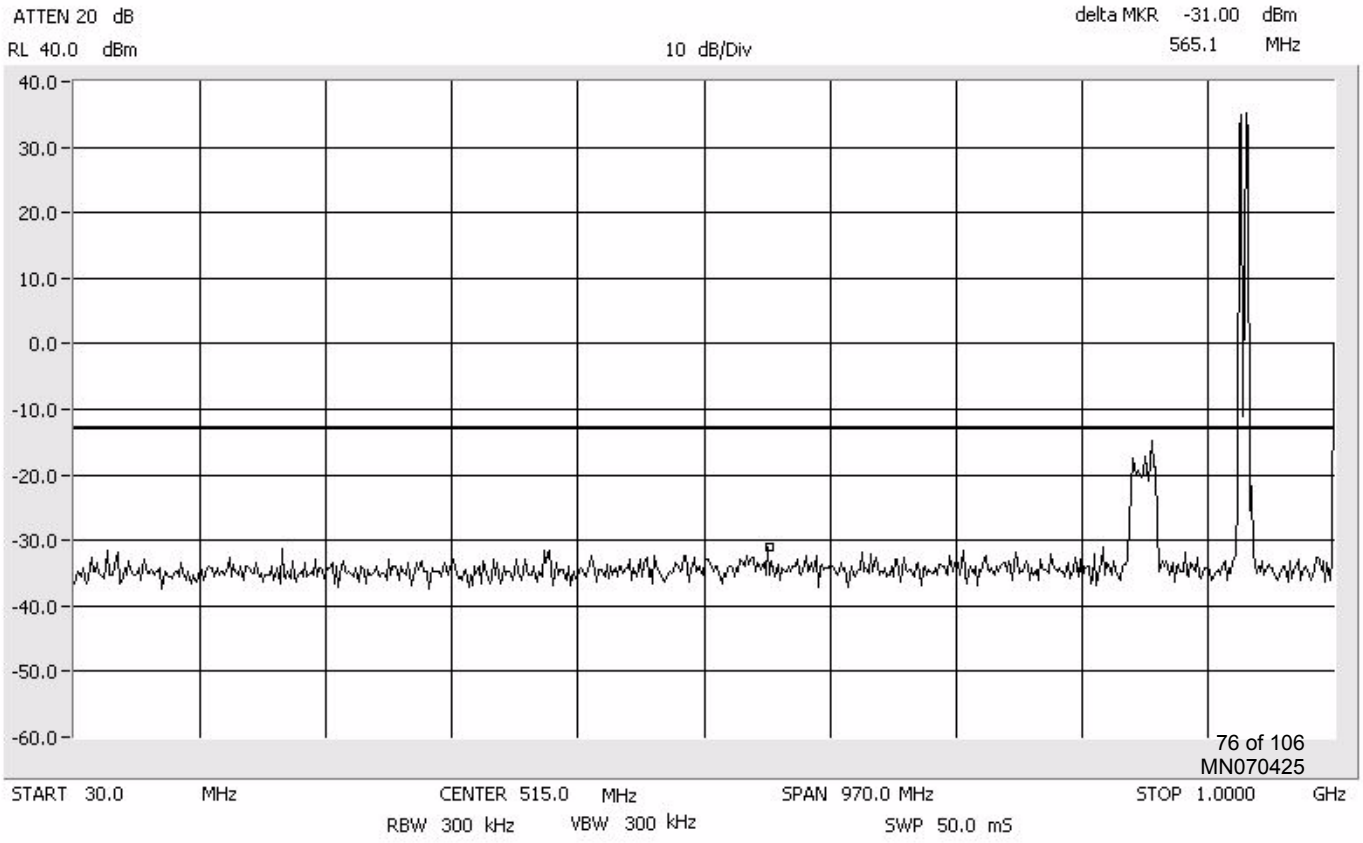
Center: 937.5 MHz
Span: 15 MHz
RBW/VBW: 100 kHz



iDEN

Intermodulation
Apart
SMR 900 MHz

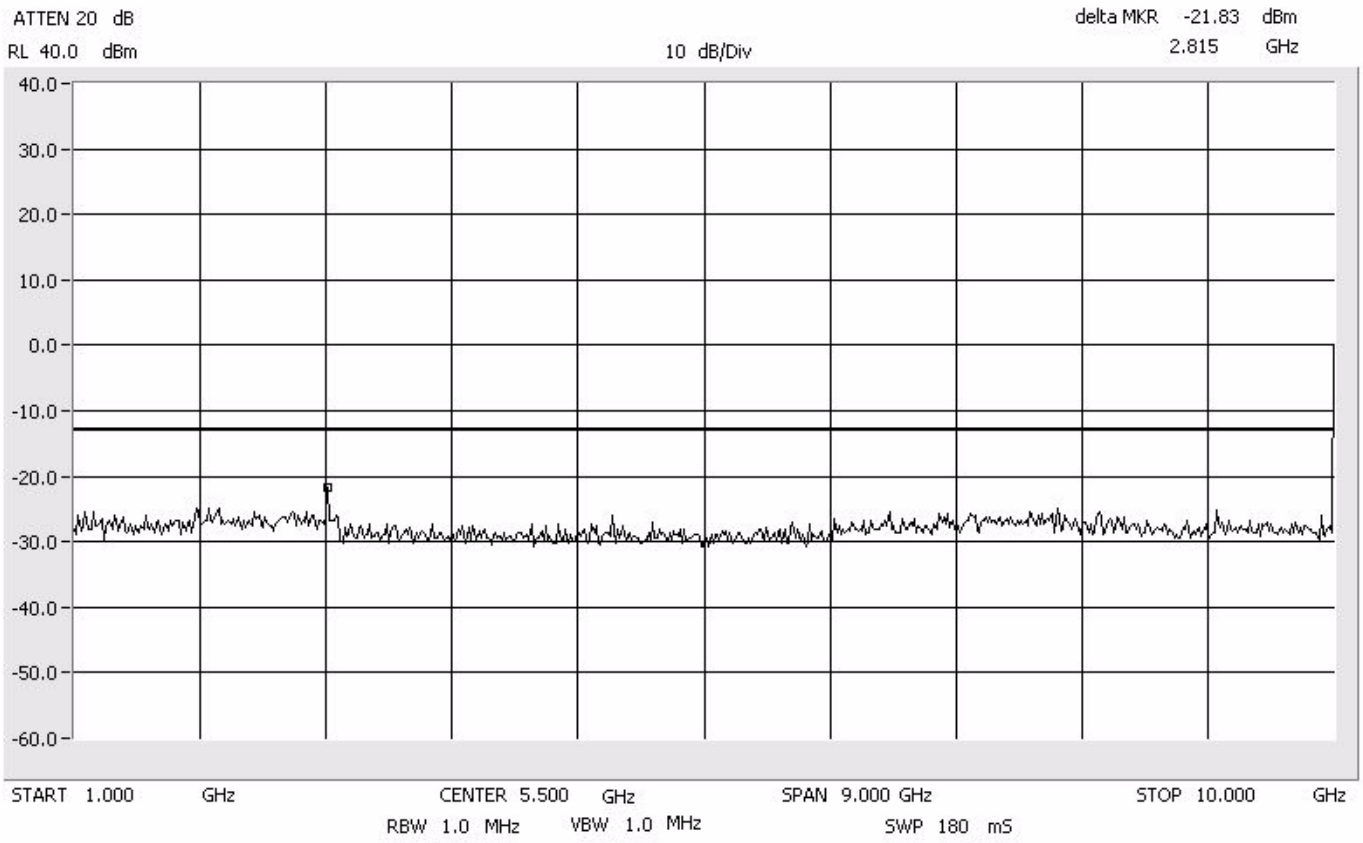
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz



iDEN

Intermodulation
Apart
SMR 900 MHz

Span: 1 GHz to 10 GHz
RBW/VBW: 1 MHz



Occupied Bandwidth Modulation Test for ADC Inc.
Digivance® SCX
Model Number DGVC-901000RU

Back

An input/output Occupied Bandwidth test was done with modulation types: FM, iDEN, 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.

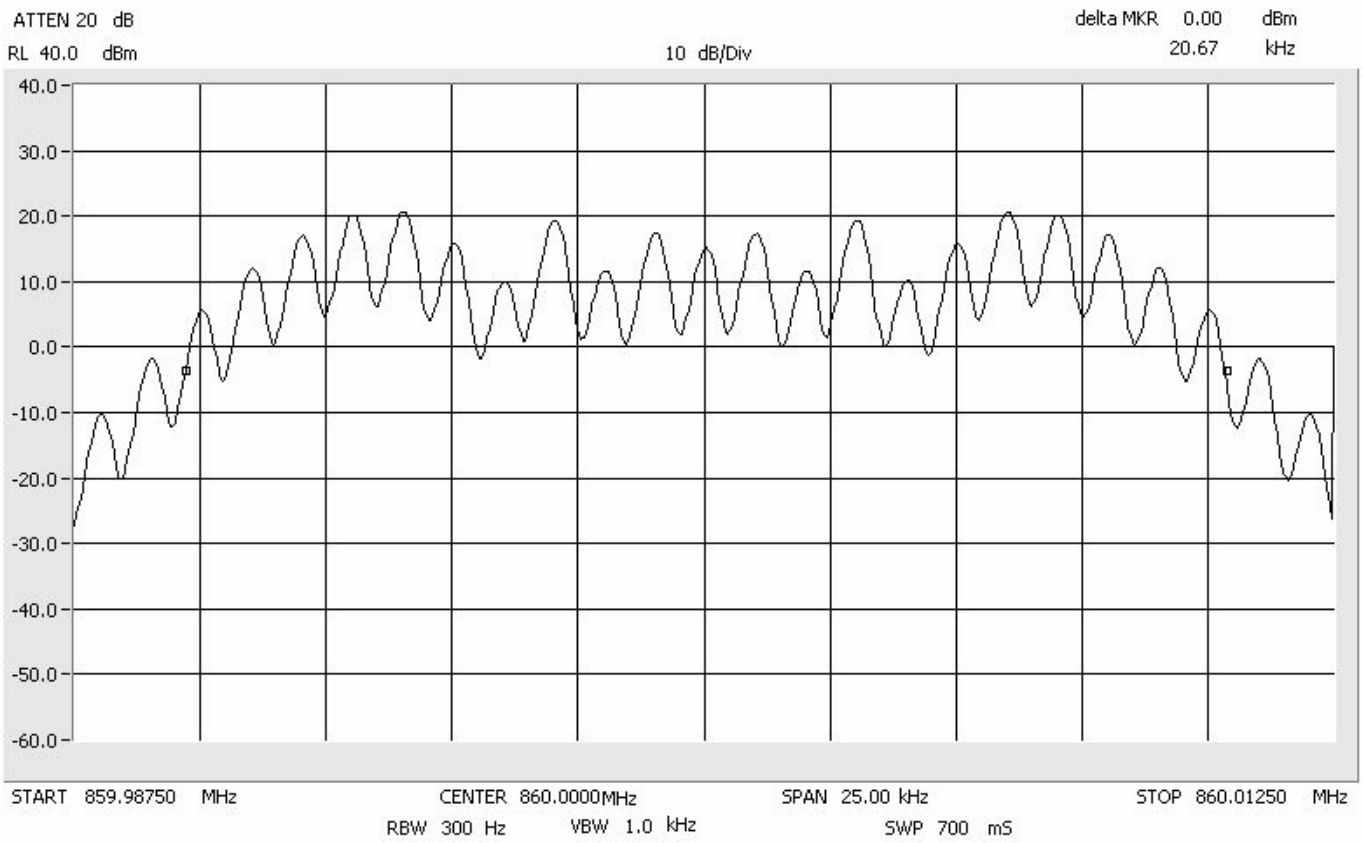
The resolution bandwidth is reduced to 1% of the estimated emission bandwidth and the video bandwidth is set to 3 times the resolution bandwidth. The markers are moved to the -20 dB points (from the previously established center frequency level) on either side of center frequency.

Results:

Pass (see plots)

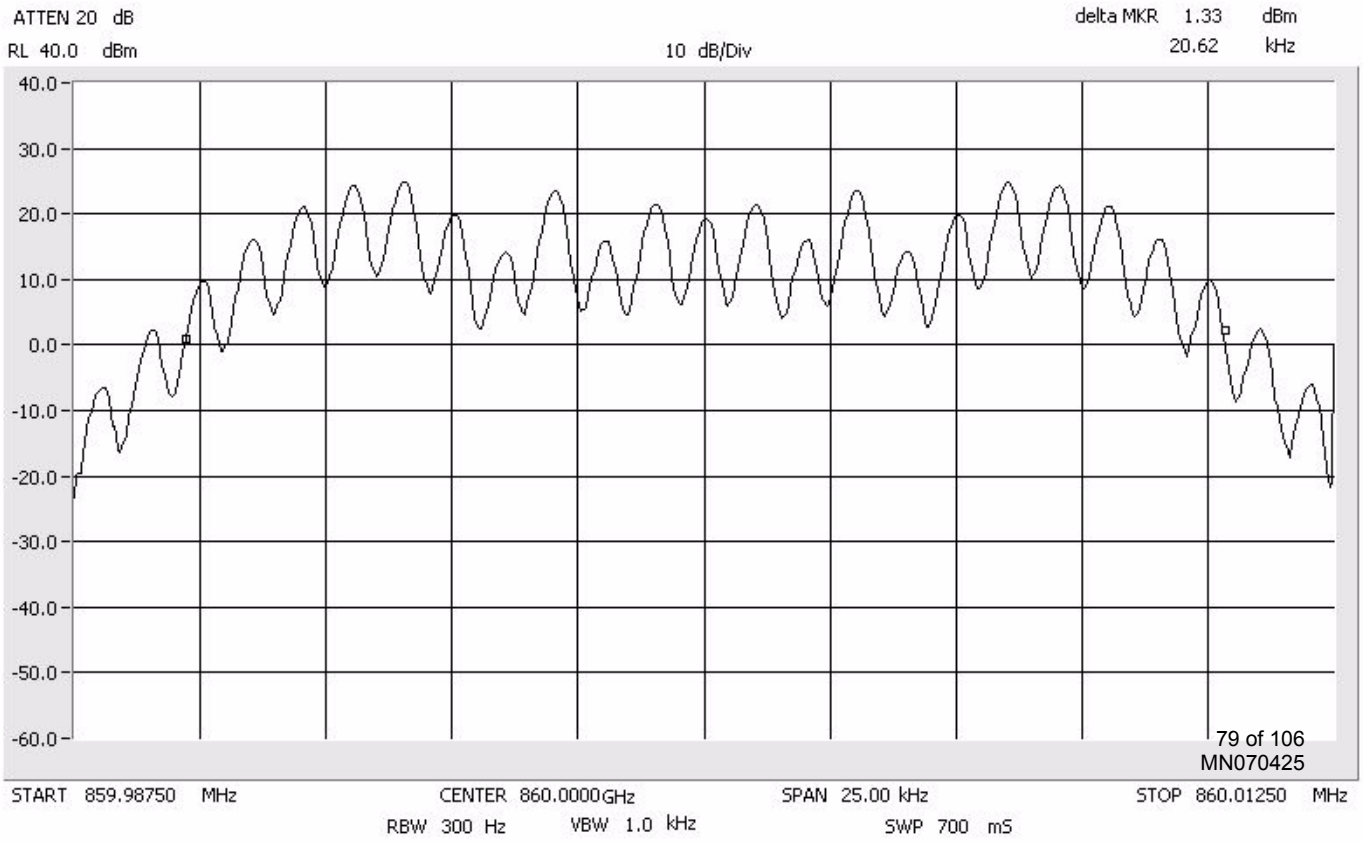
Occupied Bandwidth
FM
Signal In

Span: 25 kHz
RBW: 300 kHz
VBW: 1.0 kHz



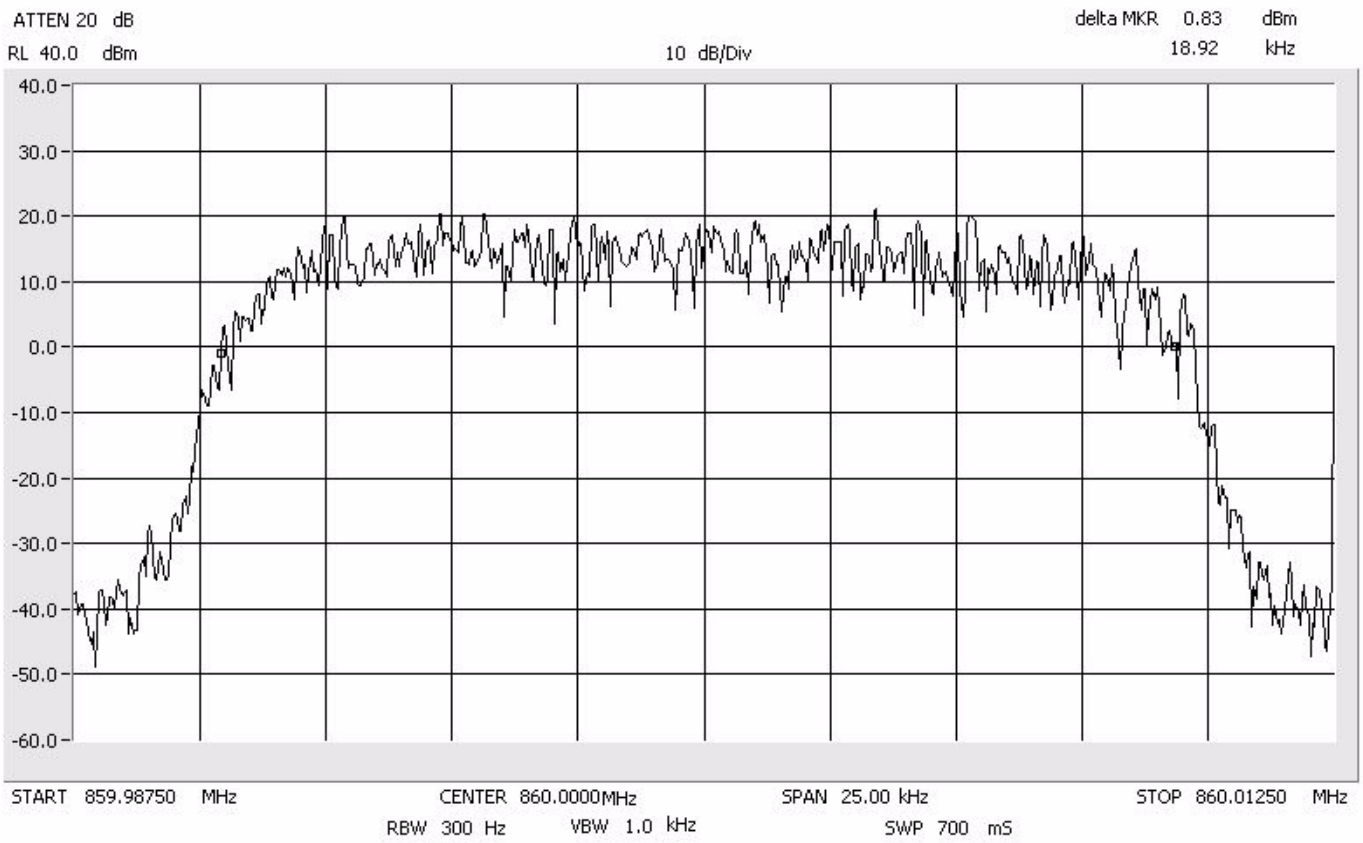
Occupied Bandwidth
FM
Signal Out

Span: 25 kHz
RBW: 300 kHz
VBW: 1.0 kHz



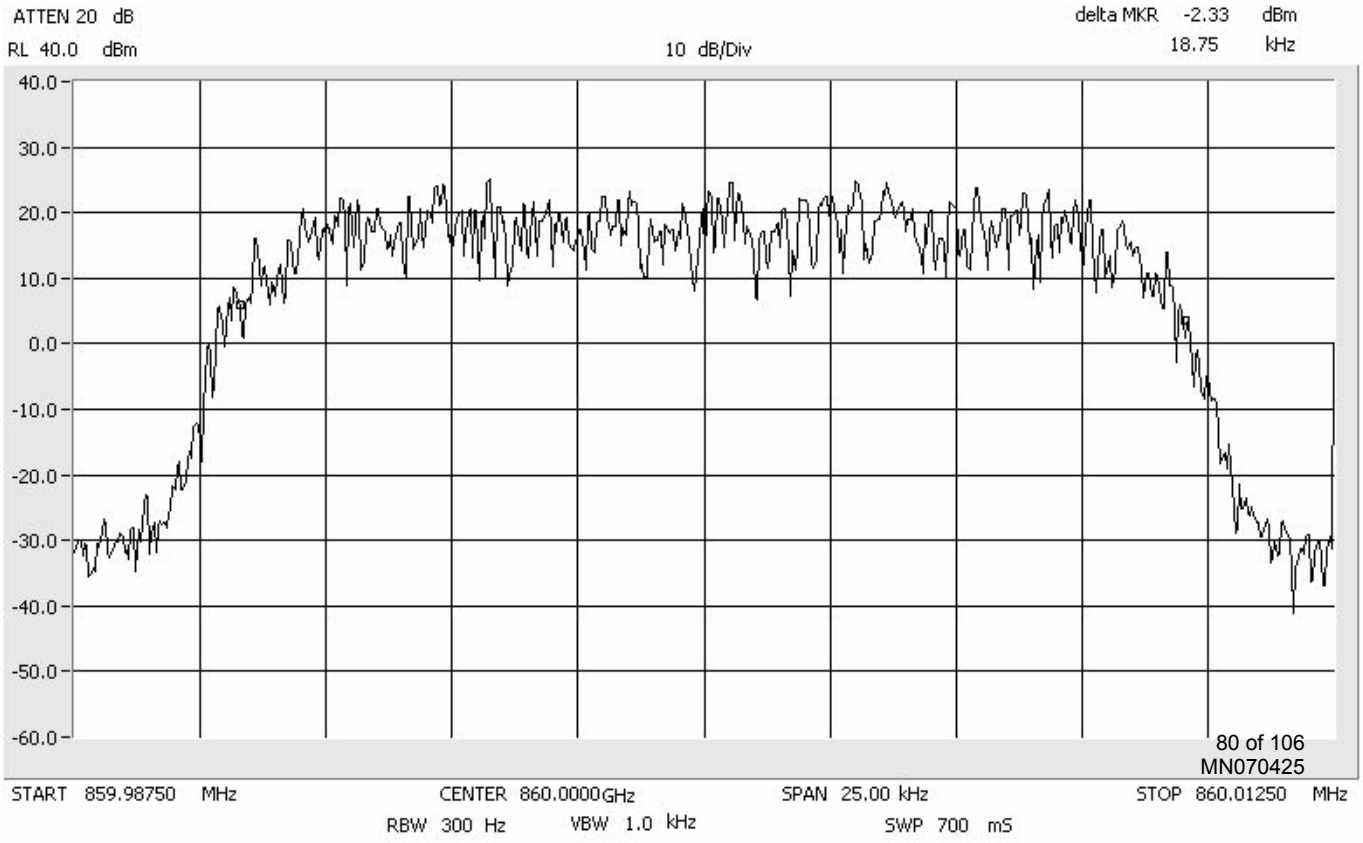
Occupied Bandwidth
iDEN
Signal In

Span: 25 kHz
RBW: 300 kHz
VBW: 1.0 kHz



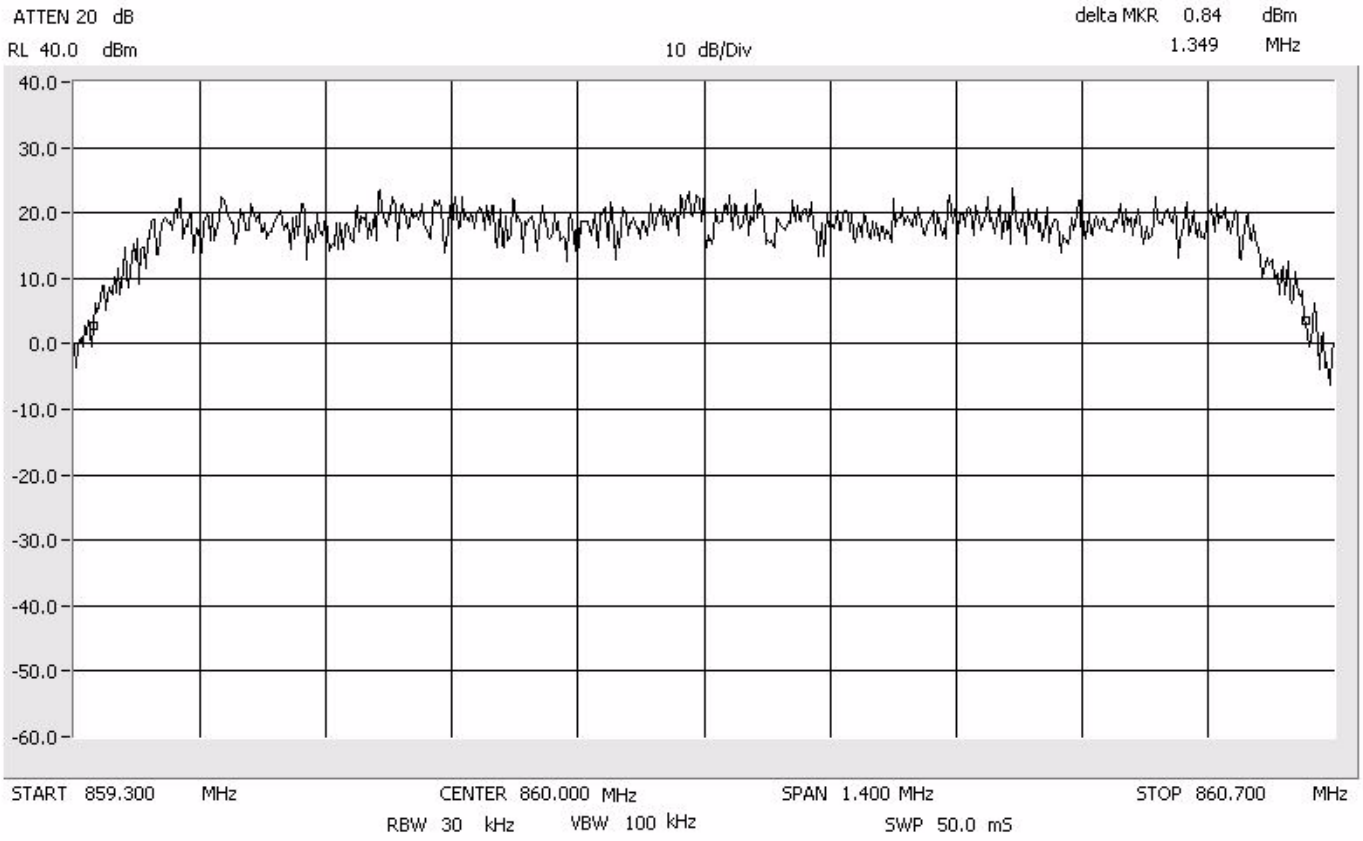
Occupied Bandwidth
iDEN
Signal Out

Span: 25 kHz
RBW: 300 kHz
VBW: 1.0 kHz



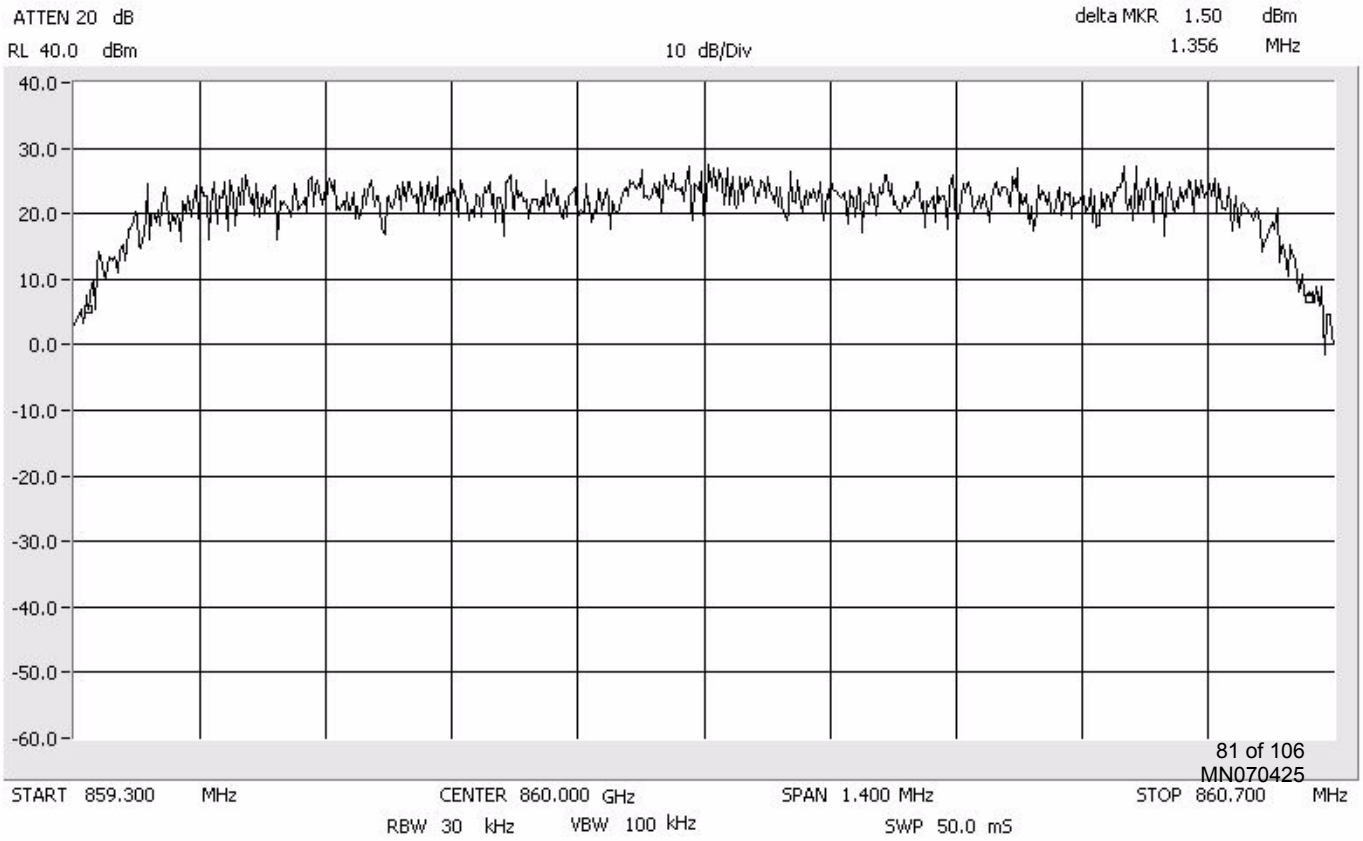
Occupied Bandwidth
CDMA
Signal In

Span: 1.4 MHz
RBW: 30 kHz
VBW: 100 kHz



Occupied Bandwidth
CDMA
Signal Out

Span: 1.4 MHz
RBW: 30 kHz
VBW: 100 kHz



Frequency Tolerance Test for ADC Inc.
Digivance® SCX
Model Number DGVC-901000RU

Back

EUT SMR 800 MHz

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	100 VAC	851.200 MHz	851.200 MHz	Yes
36 VDC	175 VAC	851.200 MHz	851.200 MHz	Yes
48 VDC	250 VAC	851.200 MHz	851.200 MHz	Yes
24 VDC	100 VAC	860.000 MHz	860.000 MHz	Yes
36 VDC	175 VAC	860.000 MHz	860.000 MHz	Yes
48 VDC	250 VAC	860.000 MHz	860.000 MHz	Yes
24 VDC	100 VAC	868.800 MHz	868.800 MHz	Yes
36 VDC	175 VAC	868.800 MHz	868.800 MHz	Yes
48 VDC	250 VAC	868.800 MHz	868.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		851.200 MHz	851.200 MHz	Yes
-20 Deg. C		851.200 MHz	851.200 MHz	Yes
-10 Deg. C		851.200 MHz	851.200 MHz	Yes
0 Deg. C		851.200 MHz	851.200 MHz	Yes
10 Deg. C		851.200 MHz	851.200 MHz	Yes
20 Deg. C		851.200 MHz	851.200 MHz	Yes
30 Deg. C		851.200 MHz	851.200 MHz	Yes
40 Deg. C		851.200 MHz	851.200 MHz	Yes
50 Deg. C		851.200 MHz	851.200 MHz	Yes
-30 Deg. C		860.000 MHz	860.000 MHz	Yes
-20 Deg. C		860.000 MHz	860.000 MHz	Yes
-10 Deg. C		860.000 MHz	860.000 MHz	Yes
0 Deg. C		860.000 MHz	860.000 MHz	Yes
10 Deg. C		860.000 MHz	860.000 MHz	Yes
20 Deg. C		860.000 MHz	860.000 MHz	Yes
30 Deg. C		860.000 MHz	860.000 MHz	Yes
40 Deg. C		860.000 MHz	860.000 MHz	Yes
50 Deg. C		860.000 MHz	860.000 MHz	Yes
-30 Deg. C		868.800 MHz	868.800 MHz	Yes
-20 Deg. C		868.800 MHz	868.800 MHz	Yes
-10 Deg. C		868.800 MHz	868.800 MHz	Yes
0 Deg. C		868.800 MHz	868.800 MHz	Yes
10 Deg. C		868.800 MHz	868.800 MHz	Yes
20 Deg. C		868.800 MHz	868.800 MHz	Yes
30 Deg. C		868.800 MHz	868.800 MHz	Yes
40 Deg. C		868.800 MHz	868.800 MHz	Yes
50 Deg. C		868.800 MHz	868.800 MHz	Yes

Frequency Tolerance Test for ADC Inc.
Digivance® SCX
Model Number DGVC-901000RU

EUT SMR 900 MHz

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	100 VAC	935.200 MHz	935.200 MHz	Yes
36 VDC	175 VAC	935.200 MHz	935.200 MHz	Yes
48 VDC	250 VAC	935.200 MHz	935.200 MHz	Yes
24 VDC	100 VAC	937.500 MHz	937.500 MHz	Yes
36 VDC	175 VAC	937.500 MHz	937.500 MHz	Yes
48 VDC	250 VAC	937.500 MHz	937.500 MHz	Yes
24 VDC	100 VAC	939.800 MHz	939.800 MHz	Yes
36 VDC	175 VAC	939.800 MHz	939.800 MHz	Yes
48 VDC	250 VAC	939.800 MHz	939.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		935.200 MHz	935.200 MHz	Yes
-20 Deg. C		935.200 MHz	935.200 MHz	Yes
-10 Deg. C		935.200 MHz	935.200 MHz	Yes
0 Deg. C		935.200 MHz	935.200 MHz	Yes
10 Deg. C		935.200 MHz	935.200 MHz	Yes
20 Deg. C		935.200 MHz	935.200 MHz	Yes
30 Deg. C		935.200 MHz	935.200 MHz	Yes
40 Deg. C		935.200 MHz	935.200 MHz	Yes
50 Deg. C		935.200 MHz	935.200 MHz	Yes
-30 Deg. C		937.500 MHz	937.500 MHz	Yes
-20 Deg. C		937.500 MHz	937.500 MHz	Yes
-10 Deg. C		937.500 MHz	937.500 MHz	Yes
0 Deg. C		937.500 MHz	937.500 MHz	Yes
10 Deg. C		937.500 MHz	937.500 MHz	Yes
20 Deg. C		937.500 MHz	937.500 MHz	Yes
30 Deg. C		937.500 MHz	937.500 MHz	Yes
40 Deg. C		937.500 MHz	937.500 MHz	Yes
50 Deg. C		937.500 MHz	937.500 MHz	Yes
-30 Deg. C		939.800 MHz	939.800 MHz	Yes
-20 Deg. C		939.800 MHz	939.800 MHz	Yes
-10 Deg. C		939.800 MHz	939.800 MHz	Yes
0 Deg. C		939.800 MHz	939.800 MHz	Yes
10 Deg. C		939.800 MHz	939.800 MHz	Yes
20 Deg. C		939.800 MHz	939.800 MHz	Yes
30 Deg. C		939.800 MHz	939.800 MHz	Yes
40 Deg. C		939.800 MHz	939.800 MHz	Yes
50 Deg. C		939.800 MHz	939.800 MHz	Yes

6.0 APPENDIX B

Intertek Test Data

Back to Test Data:

Substitution Results:
Page 11 of 21

Back to Table of Contents:

Test Engineer: Uri Spector **Date:** 23 March, 2007

Test Procedure:
Test measurements were made in accordance with ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

Test Site Location:
The test site is a 3 meter Semi-Anechoic Chamber, constructed by Panashield™ Inc. and located
inside the building at 7250 Hudson Blvd. Suite 100, Oakdale, MN 55128.

Test Site Description:
The 3 meter Semi-Anechoic Chamber is constructed of Panabolt™ modular RF shielding and self-supported with structural steel designed for the local seismic zone rating. The chamber has the nominal size of 20' wide x 29' long x 18' high. All walls and ceiling of the chamber are treated with FFG-1000 Ferrite Grid absorber which was developed specifically to meet international requirements for EMC anechoic chambers for emissions and immunity measurements. To meet high frequency testing white HY-35 hybrid absorber is mounted on the ferrites in specular regions of the chamber.

The chamber has a 2 meter diameter ANSI test volume area and meets the requirements of ANSI C63.4 (1992), EN55022, and FCC Part 15 standards for testing at a 3 meter path length.

FCC Registration Number: 90706
IC Registration Number: 4359

TEST DATA

Test Data Number: 3118541MIN-001
Project Number: 3118541
March 28, 2007

Testing performed on the
SMR DGVC-901000RU

to
FCC Part 90

For
ADC Telecommunications

Test Performed by:	Test Authorized by:
Intertek	ADC Telecommunications
7250 Hudson Blvd. Suite 100	5341 12th Avenue East
Oakdale, MN 55128	Shakopee, MN 55379

Prepared by:  Date: March 28, 2007

Uri Spector

TABLE OF CONTENTS

1.0 JOB DESCRIPTION

Equipment:	SMR DGVC-901000RU
Equipment Description:	SMR DGVC
Transmitter Operating Range:	851 to 940MHz
Customer:	Mr. Mark F. Miska ADC Telecommunications 5341 12th Avenue East Shakopee, MN 55379
Test Standards:	FCC Part 90
Date Sample Submitted:	March 21, 2007
Test Work Started:	March 21, 2007
Test Work Completed:	March 23, 2007
Test Sample Conditions:	Good

2.0 TEST RESULTS

Referring to the performance criteria and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards.

TEST STANDARD	TEST	COMMENTS
FCC Part 90	Spurious Enclosure Radiated Emissions	Pass

The EUT was tested at low (851MHz), middle (869MHz), and upper (940MHz) operating frequency.
Testing was performed in frequency range from 30MHz to 10GHz.
Spurious Radiated Emissions in frequency range from 30MHz to 1GHz are shown in Tables 1, 2, 3 and Graphs 1 to 3.
Spurious Radiated Emissions in frequency range from 1 to 10GHz are shown in Tables 4, 5, 6 and Graphs 4 to 6.
Spurious Radiated Emissions Power (substitution measurements) is shown in Table 7.

Spuriuos Radiated Emissions from 30MHz to 1GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: Operating Frequency 851MHz
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 1

Frequency	Ant. Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
36.422 MHz	V	20.44	15.25	35.69	94.0	-58.31
88.579 MHz	V	40.69	9.68	50.37	94.0	-43.63
132.84 MHz	V	25.98	13.26	39.24	94.0	-54.76
142.07 MHz	V	24.55	12.81	37.36	94.0	-56.64
148.49 MHz	V	25.62	12.46	38.07	94.0	-55.93
197.7 MHz	V	26.43	11.73	38.16	94.0	-55.84
198.37 MHz	V	27.27	11.82	39.09	94.0	-54.91
199.03 MHz	V	25.27	11.9	37.17	94.0	-56.83
210.1 MHz	V	23.2	12.05	35.24	94.0	-58.76
212.98 MHz	V	24.51	12	36.51	94.0	-57.49
227.15 MHz	V	24.9	12.62	37.52	94.0	-56.48
233.13 MHz	V	22.44	13.17	35.61	94.0	-58.39
240.22 MHz	V	23.5	13.96	37.46	94.0	-56.54
270.11 MHz	V	20	15.54	35.55	94.0	-58.45
284.06 MHz	V	27.98	15.48	43.46	94.0	-50.54
355.1 MHz	V	23.39	17.68	41.06	94.0	-52.94
496.6 MHz	V	22.81	20.61	43.41	94.0	-50.59
567.8 MHz	V	19.11	22.08	41.19	94.0	-52.81
781.17 MHz	V	19.52	24.05	43.57	94.0	-50.43
30.035 MHz	H	14.59	18.98	33.57	94.0	-60.43
88.227 MHz	H	30.42	9.61	40.03	94.0	-53.97
133.12 MHz	H	23.26	13.25	36.51	94.0	-57.49
156.04 MHz	H	29.12	12.02	41.14	94.0	-52.86
195.04 MHz	H	19.35	11.4	30.75	94.0	-63.25
197.7 MHz	H	21.41	11.73	33.14	94.0	-60.86
210.1 MHz	H	19.19	12.05	31.24	94.0	-62.76
212.98 MHz	H	23.05	12	35.05	94.0	-58.95
226.93 MHz	H	22.02	12.6	34.62	94.0	-59.38
232.47 MHz	H	22.15	13.12	35.26	94.0	-58.74
239.99 MHz	H	23.94	13.94	37.88	94.0	-56.12
269.0 MHz	H	22.01	15.56	37.57	94.0	-56.43
270.11 MHz	H	23.94	15.54	39.49	94.0	-54.51
284.06 MHz	H	29.06	15.48	44.54	94.0	-49.46
355.1 MHz	H	25.15	17.68	42.83	94.0	-51.17
496.6 MHz	H	23.59	20.61	44.2	94.0	-49.8
539.99 MHz	H	19.07	21.28	40.34	94.0	-53.66
567.8 MHz	H	23.34	22.08	45.42	94.0	-48.58

Spuriuos Radiated Emissions from 30MHz to 1GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: Operating Frequency 869MHz
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 2

Frequency	Ant. Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
36.371 MHz	V	19.15	15.28	34.43	94.0	-59.57
53.551 MHz	V	34.13	8	42.13	94.0	-51.87
88.277 MHz	V	38.76	9.62	48.38	94.0	-45.62
133.21 MHz	V	25.24	13.24	38.48	94.0	-55.52
141.98 MHz	V	24.79	12.81	37.6	94.0	-56.4
147.98 MHz	V	25.71	12.49	38.2	94.0	-55.8
195.14 MHz	V	21.15	11.41	32.56	94.0	-61.44
197.48 MHz	V	23.19	11.7	34.9	94.0	-59.1
198.13 MHz	V	26.15	11.79	37.94	94.0	-56.06
199.31 MHz	V	21.96	11.93	33.89	94.0	-60.11
210.12 MHz	V	22.88	12.05	34.93	94.0	-59.07
212.99 MHz	V	24.2	12	36.2	94.0	-57.8
240.15 MHz	V	24.17	13.96	38.13	94.0	-55.87
244.93 MHz	V	20.56	14.35	34.91	94.0	-59.09
284.13 MHz	V	25.83	15.48	41.31	94.0	-52.69
355.01 MHz	V	22.98	17.67	40.65	94.0	-53.35
496.78 MHz	V	21.5	20.61	42.1	94.0	-51.9
568.05 MHz	V	18.95	22.08	41.03	94.0	-52.97
30.028 MHz	H	14.2	18.98	33.18	94.0	-60.82
87.914 MHz	H	30.82	9.56	40.37	94.0	-53.63
131.97 MHz	H	22.94	13.31	36.25	94.0	-57.75
133.21 MHz	H	23.16	13.24	36.4	94.0	-57.6
156.57 MHz	H	26.07	11.99	38.06	94.0	-55.94
174.03 MHz	H	26.51	11.32	37.83	94.0	-56.17
197.35 MHz	H	19.13	11.69	30.81	94.0	-63.19
198.0 MHz	H	23.86	11.77	35.63	94.0	-58.37
212.99 MHz	H	22.98	12	34.98	94.0	-59.02
233.65 MHz	H	22.62	13.22	35.83	94.0	-58.17
240.15 MHz	H	23.58	13.96	37.54	94.0	-56.46
244.93 MHz	H	24.5	14.35	38.85	94.0	-55.15
270.17 MHz	H	21.02	15.54	36.57	94.0	-57.43
284.13 MHz	H	28.07	15.48	43.55	94.0	-50.45
355.01 MHz	H	26.47	17.67	44.14	94.0	-49.86
496.78 MHz	H	22.97	20.61	43.57	94.0	-50.43
540.45 MHz	H	18.92	21.3	40.21	94.0	-53.79
568.05 MHz	H	23.19	22.08	45.27	94.0	-48.73
639.33 MHz	H	19.5	22.77	42.27	94.0	-51.73

Spuriuos Radiated Emissions from 30MHz to 1GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: Operating Frequency 940MHz
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 3

Frequency	Ant. Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
53.592 MHz	V	33.69	7.99	41.68	94.0	-52.32
88.519 MHz	V	39.32	9.66	48.98	94.0	-45.02
132.68 MHz	V	26.76	13.27	40.04	94.0	-53.96
141.98 MHz	V	24.03	12.81	36.84	94.0	-57.16
156.05 MHz	V	26.57	12.02	38.59	94.0	-55.41
161.53 MHz	V	25.21	11.75	36.95	94.0	-57.05
166.48 MHz	V	23.93	11.58	35.5	94.0	-58.5
197.48 MHz	V	24.02	11.7	35.73	94.0	-58.27
198.66 MHz	V	25.1	11.85	36.96	94.0	-57.04
198.92 MHz	V	24.94	11.88	36.82	94.0	-57.18
210.12 MHz	V	22.87	12.05	34.92	94.0	-59.08
212.99 MHz	V	25.78	12	37.79	94.0	-56.21
226.95 MHz	V	22.69	12.6	35.29	94.0	-58.71
234.41 MHz	V	21.53	13.28	34.81	94.0	-59.19
240.15 MHz	V	23.65	13.96	37.6	94.0	-56.4
284.13 MHz	V	26.35	15.48	41.83	94.0	-52.17
355.01 MHz	V	24.8	17.67	42.47	94.0	-51.53
496.78 MHz	V	23.03	20.61	43.64	94.0	-50.36
978.96 MHz	H	18.54	26.03	44.57	94.0	-49.43
30.084 MHz	H	14.81	18.95	33.76	94.0	-60.24
53.345 MHz	H	21.66	8.03	29.69	94.0	-64.31
88.096 MHz	H	30.65	9.59	40.24	94.0	-53.76
133.21 MHz	H	23.31	13.24	36.56	94.0	-57.44
156.05 MHz	H	26.42	12.02	38.44	94.0	-55.56
166.48 MHz	H	25.85	11.58	37.42	94.0	-56.58
197.22 MHz	H	19.88	11.67	31.55	94.0	-62.45
212.99 MHz	H	23.49	12	35.49	94.0	-58.51
226.95 MHz	H	18.9	12.6	31.5	94.0	-62.5
240.15 MHz	H	23.85	13.96	37.81	94.0	-56.19
270.17 MHz	H	19.85	15.54	35.4	94.0	-58.6
284.13 MHz	H	28.98	15.48	44.46	94.0	-49.54
355.01 MHz	H	26.66	17.67	44.33	94.0	-49.67
496.78 MHz	H	24.31	20.61	44.92	94.0	-49.08
540.04 MHz	H	19.6	21.28	40.88	94.0	-53.12
568.05 MHz	H	23.95	22.08	46.03	94.0	-47.97
639.33 MHz	H	19.27	22.77	42.04	94.0	-51.96
978.96 MHz		17.99	26.03	44.01	94.0	-49.99

Spuriuous Radiated Emissions Field Strength from 1 to 10GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: 851MHz Opearaing Frequency.
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
All measurements were taken using a Peak detector

Table # 4

Frequency MHz	Antenna Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
1.064 GHz	V	48.4	26.2	39.7	34.9	94.0	-59.1
1.69 GHz	V	51.1	28.7	39.1	40.7	94.0	-53.3
1.894 GHz	V	60.4	29.6	38.8	51.2	94.0	-42.8
1.96 GHz	V	50.1	29.9	38.7	41.3	94.0	-52.7
2.984 GHz	V	46.0	33.0	38.0	41.0	94.0	-53.0
3.916 GHz	V	49.9	35.9	37.7	48.1	94.0	-45.9
5.67 GHz	V	44.3	38.5	37.0	45.8	94.0	-48.2
5.876 GHz	V	52.6	38.6	36.7	54.5	94.0	-39.5
10.0 GHz	V	38.1	44.5	34.6	48.0	94.0	-46.0
1.064 GHz	H	47.9	26.2	39.7	34.4	94.0	-59.6
1.42 GHz	H	48.7	27.6	39.5	36.8	94.0	-57.2
1.69 GHz	H	55.8	28.7	39.1	45.4	94.0	-48.6
1.894 GHz	H	62.2	29.6	38.8	53.0	94.0	-41.0
1.96 GHz	H	48.2	29.9	38.7	39.4	94.0	-54.6
2.442 GHz	H	48.7	31.1	37.9	41.9	94.0	-52.1
2.456 GHz	H	47.6	31.2	37.9	40.9	94.0	-53.1
2.556 GHz	H	46.4	31.5	37.8	40.0	94.0	-54.0
2.842 GHz	H	46.7	32.5	37.9	41.2	94.0	-52.8
3.408 GHz	H	46.7	34.3	37.7	43.3	94.0	-50.7
3.918 GHz	H	48.3	35.9	37.7	46.6	94.0	-47.4
5.876 GHz	H	47.7	38.6	36.7	49.7	94.0	-44.3
9.872 GHz	H	37.6	44.3	34.7	47.2	94.0	-46.8

Spuriuous Radiated Emissions Field Strength from 1 to 10GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: 869MHz Opearaing Frequency.
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
All measurements were taken using a Peak detector

Table # 5

Frequency MHz	Antenna Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
1.42 GHz	V	47.4	27.6	39.5	35.5	94.0	-58.5
1.69 GHz	V	52.8	28.7	39.1	42.4	94.0	-51.6
1.894 GHz	V	64.0	29.6	38.8	54.8	94.0	-39.2
1.96 GHz	V	49.7	29.9	38.7	40.9	94.0	-53.1
2.984 GHz	V	45.8	33.0	38.0	40.7	94.0	-53.3
3.918 GHz	V	49.2	35.9	37.7	47.4	94.0	-46.6
5.876 GHz	V	54.4	38.6	36.7	56.3	94.0	-37.7
9.458 GHz	V	38.7	43.7	35.0	47.4	94.0	-46.6
1.064 GHz	H	48.7	26.2	39.7	35.2	94.0	-58.8
1.42 GHz	H	49.4	27.6	39.5	37.5	94.0	-56.5
1.69 GHz	H	54.0	28.7	39.1	43.6	94.0	-50.4
1.712 GHz	H	53.1	28.8	39.1	42.8	94.0	-51.2
1.894 GHz	H	60.2	29.6	38.8	50.9	94.0	-43.1
1.96 GHz	H	49.7	29.9	38.7	40.9	94.0	-53.1
2.446 GHz	H	48.8	31.1	37.9	42.0	94.0	-52.0
2.556 GHz	H	46.0	31.5	37.8	39.6	94.0	-54.4
2.84 GHz	H	45.3	32.5	37.9	39.8	94.0	-54.2
3.408 GHz	H	47.0	34.3	37.7	43.6	94.0	-50.4
3.692 GHz	H	45.4	35.2	37.6	43.0	94.0	-51.0
3.918 GHz	H	48.0	35.9	37.7	46.3	94.0	-47.7
5.22 GHz	H	44.2	37.8	37.5	44.5	94.0	-49.5
5.876 GHz	H	48.0	38.6	36.7	50.0	94.0	-44.0
9.708 GHz	H	38.2	44.0	34.8	47.4	94.0	-46.6

Spuriuous Radiated Emissions Field Strength from 1 to 10GHz **Date:** 3/21/2007

Company: ADC Telecommunications
Model: DGVC-901000RU
Test Engineer: Uri Spector
Special Info: 940MHz Opearaing Frequency.
Standard: FCC Part 90
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
All measurements were taken using a Peak detector

Table # 6

Frequency MHz	Antenna Polarity	Reading dBµV	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Reference Limit dBµV/m	Margin dB
1.064 GHz	V	48.6	26.2	39.7	35.1	94.0	-58.9
1.278 GHz	V	47.9	27.0	39.6	35.3	94.0	-58.7
1.69 GHz	V	53.2	28.7	39.1	42.7	94.0	-51.3
1.896 GHz	V	50.9	29.6	38.8	41.7	94.0	-52.3
1.96 GHz	V	50.6	29.9	38.7	41.8	94.0	-52.2
2.984 GHz	V	47.2	33.0	38.0	42.2	94.0	-51.8
3.918 GHz	V	50.1	35.9	37.7	48.3	94.0	-45.7
5.068 GHz	V	46.3	37.5	37.6	46.2	94.0	-47.8
5.256 GHz	V	45.4	37.9	37.5	45.8	94.0	-48.2
5.67 GHz	V	44.5	38.5	37.0	46.0	94.0	-48.0
5.876 GHz	V	53.1	38.6	36.7	55.1	94.0	-38.9
6.266 GHz	V	44.2	38.9	36.4	46.7	94.0	-47.3
7.834 GHz	V	41.5	42.0	36.0	47.6	94.0	-46.4
1.064 GHz	H	49.7	26.2	39.7	36.2	94.0	-57.8
1.136 GHz	H	48.3	26.5	39.7	35.2	94.0	-58.8
1.278 GHz	H	47.8	27.0	39.6	35.3	94.0	-58.7
1.42 GHz	H	49.5	27.6	39.5	37.6	94.0	-56.4
1.69 GHz	H	56.2	28.7	39.1	45.7	94.0	-48.3
1.896 GHz	H	60.0	29.6	38.8	50.7	94.0	-43.3
1.96 GHz	H	49.4	29.9	38.7	40.6	94.0	-53.4
2.418 GHz	H	51.5	31.1	37.9	44.6	94.0	-49.4
2.48 GHz	H	50.8	31.2	37.8	44.2	94.0	-49.8
2.556 GHz	H	45.9	31.5	37.8	39.5	94.0	-54.5
2.842 GHz	H	45.8	32.5	37.9	40.3	94.0	-53.7
3.408 GHz	H	46.5	34.3	37.7	43.1	94.0	-50.9
3.692 GHz	H	46.3	35.2	37.6	43.8	94.0	-50.2
3.918 GHz	H	47.9	35.9	37.7	46.2	94.0	-47.8
5.876 GHz	H	47.9	38.6	36.7	49.8	94.0	-44.2
9.954 GHz	H	37.3	44.4	34.6	47.1	94.0	-46.9

Spurious Radiated Emissions Power **Date:** 3/23/2007

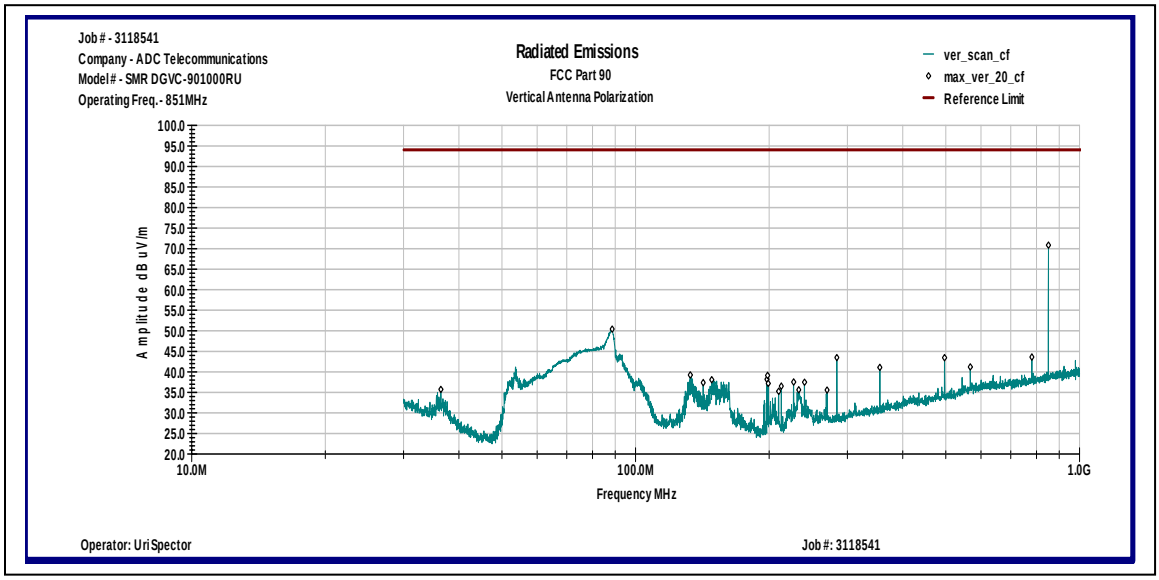
Company: ADC Telecommunications
Model: SMR DGVC-901000RU
Test Engineer: Uri Spector
Special Config. Info: Sabstitution Method
Standard: FCC Part 90
Frequency Range: 30MHz to 10GHz
Test Site: 3m Anechoic Chamber
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table

Table # 7

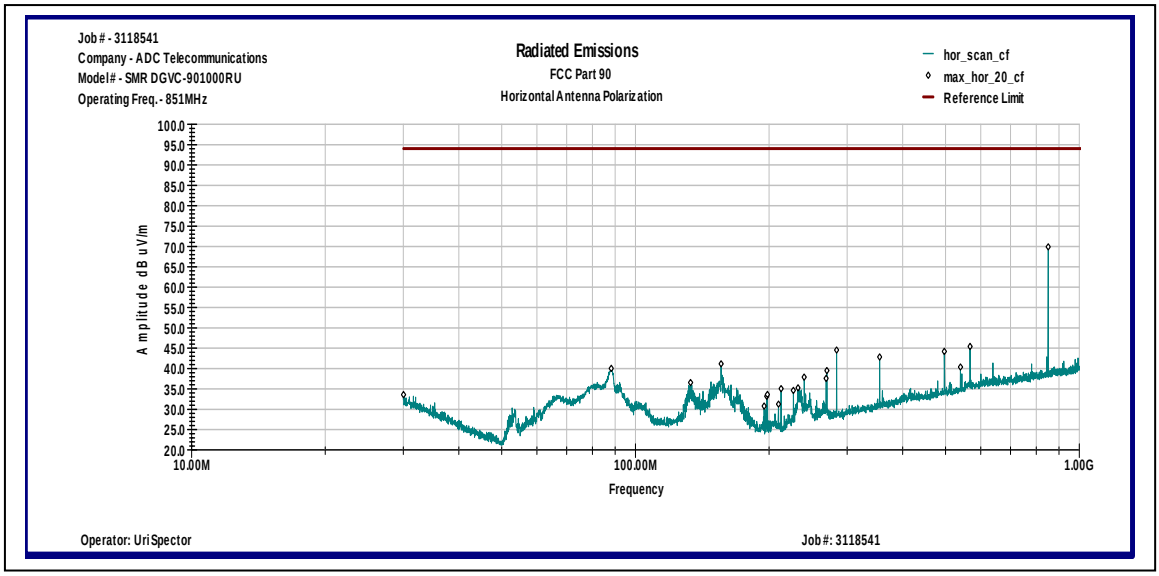
Frequency of Emissions MHz	Operating Frequency MHz	Antenna Polarity	Measured Emissions dBµV	Substitution Generator Power dBm	Substitution Antenna Gain dBi	Cable Loss dB	ERP Spur. Emissions dBm	Limit dBm	Margin dB
88.58	851	V	40.7	-47.4	0.0	0.1	-47.5	-13.0	-34.5
496.78	940	V	23.0	-57.0	0.0	0.1	-57.1	-13.0	-44.1
978.96	940	V	18.5	-53.9	0.0	0.1	-54.0	-13.0	-41.0
1894.00	851	V	60.4	-53.2	8.8	0.3	-44.7	-13.0	-31.7
5876.00	869	V	54.4	-51.1	11.5	0.4	-40.0	-13.0	-27.0
88.23	851	H	30.4	-57.0	0.0	0.1	-57.1	-13.0	-44.1
496.78	940	H	24.3	-55.8	0.0	0.1	-55.9	-13.0	-42.9
978.96	940	H	18.0	-55.0	0.0	0.1	-55.1	-13.0	-42.1
1894.00	851	H	62.2	-51.3	9.0	0.3	-42.6	-13.0	-29.6
5876.00	869	H	48.0	-57.3	11.8	0.4	-45.9	-13.0	-32.9

Graph # 1
Radiated Emissions from 30MHz to 1GHz, 851MHz Channel

Vertical Antenna Polarization

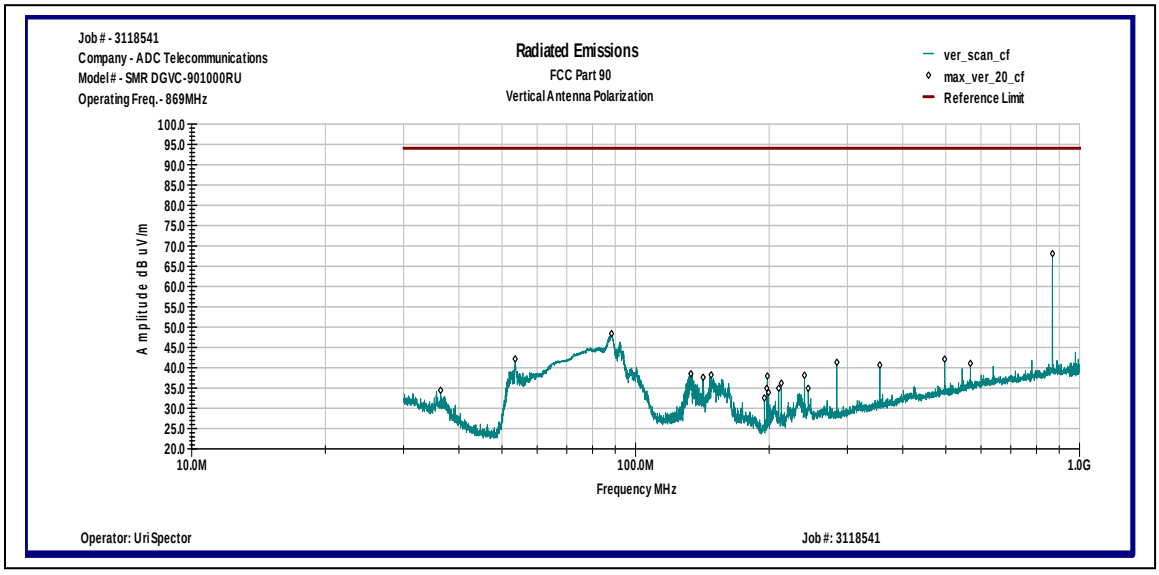


Horizontal Antenna Polarization

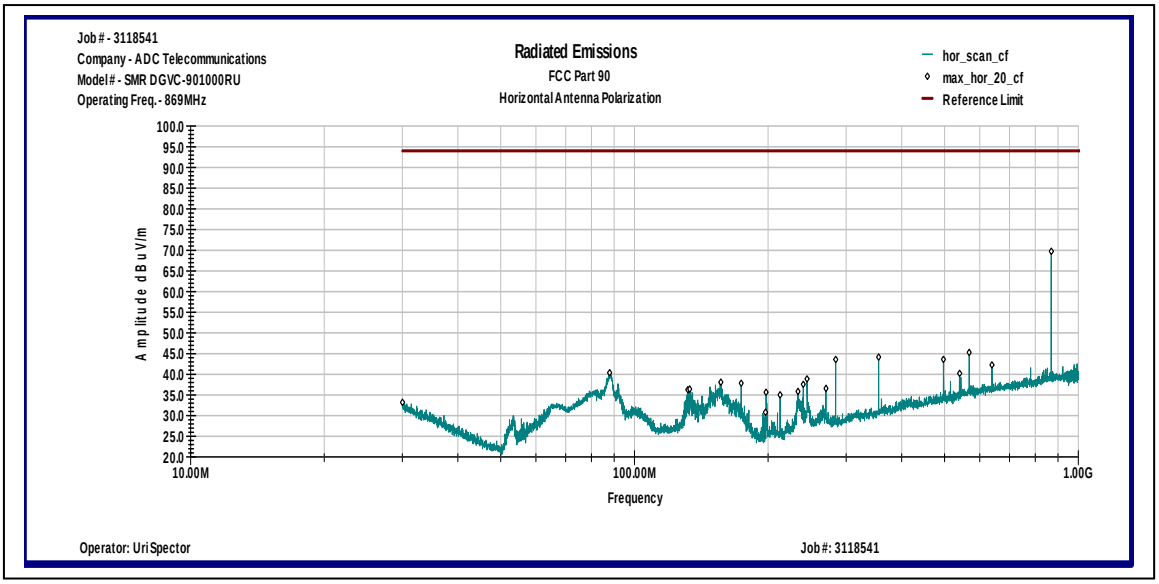


Graph # 2
Radiated Emissions from 30MHz to 1GHz, 869MHz Channel

Vertical Antenna Polarization

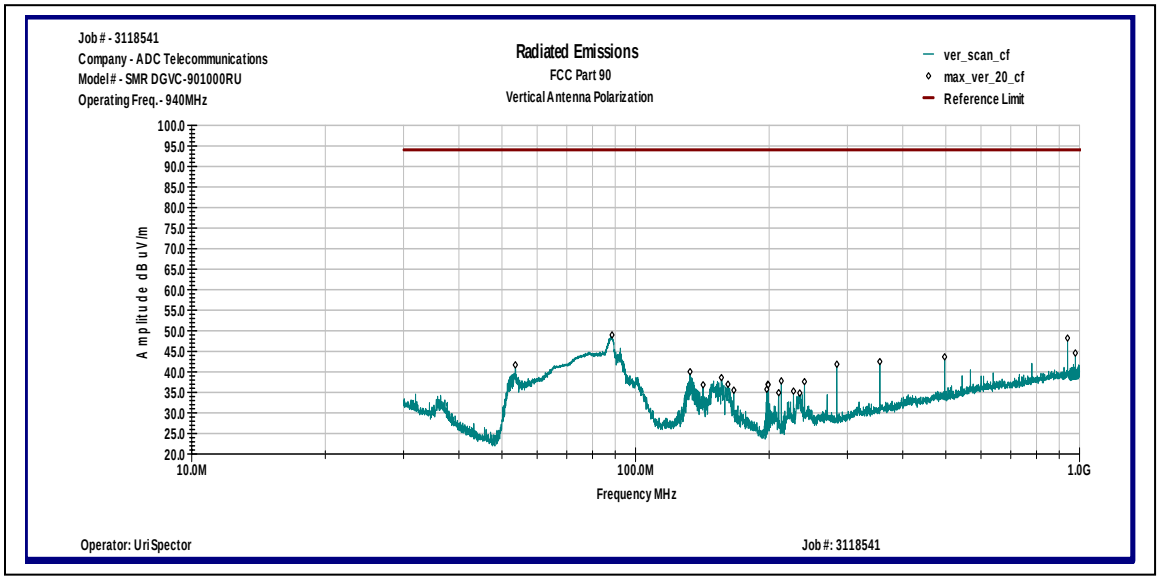


Horizontal Antenna Polarization

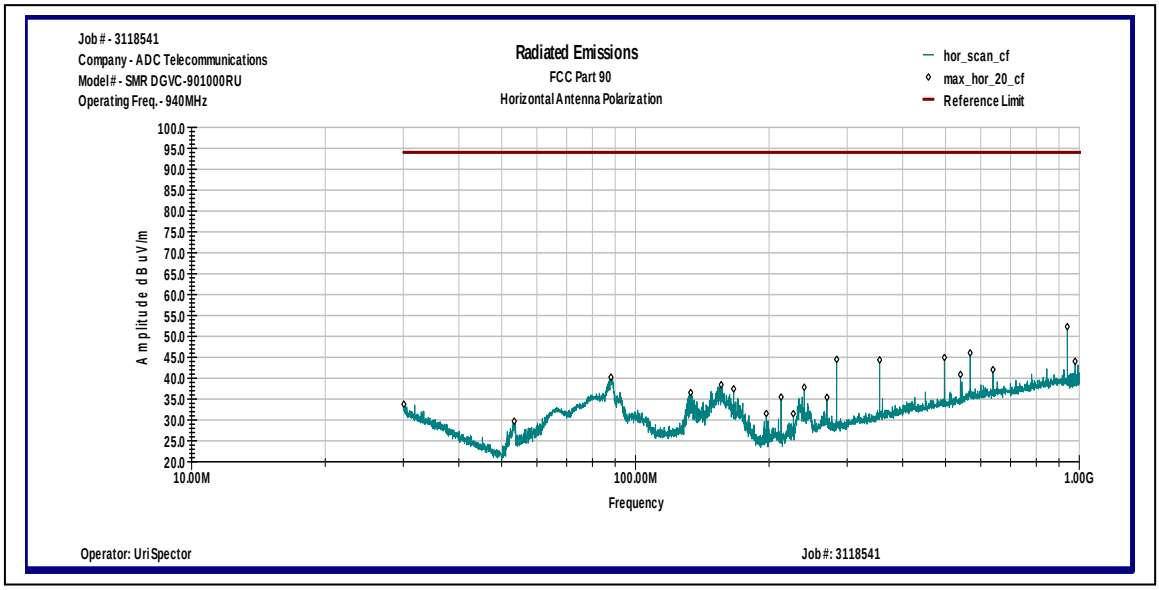


Graph # 3
Radiated Emissions from 30MHz to 1GHz, 940MHz Channel

Vertical Antenna Polarization

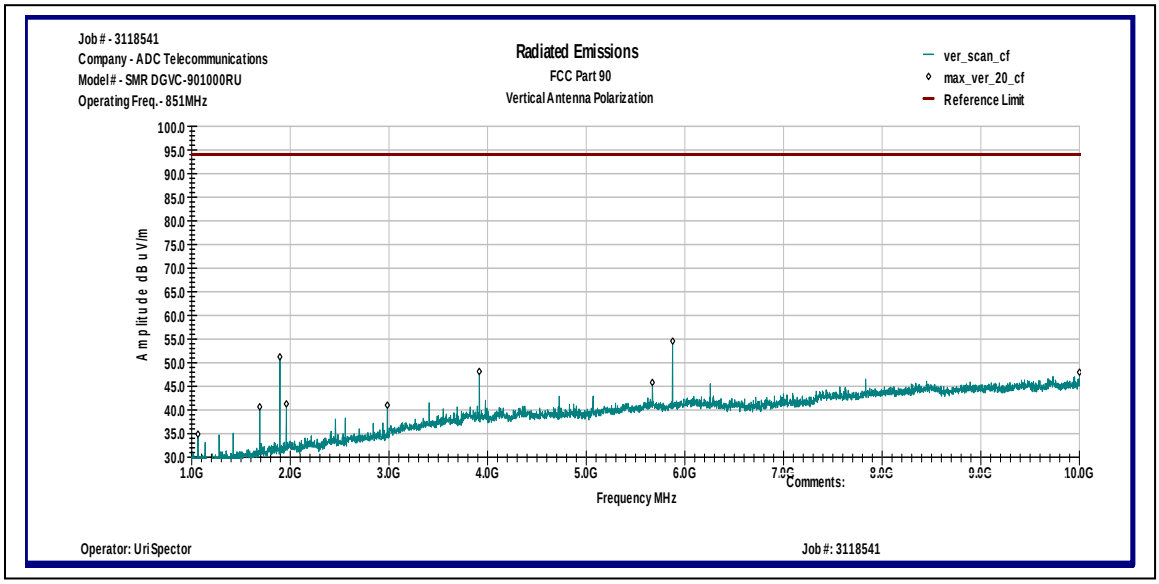


Horizontal Antenna Polarization

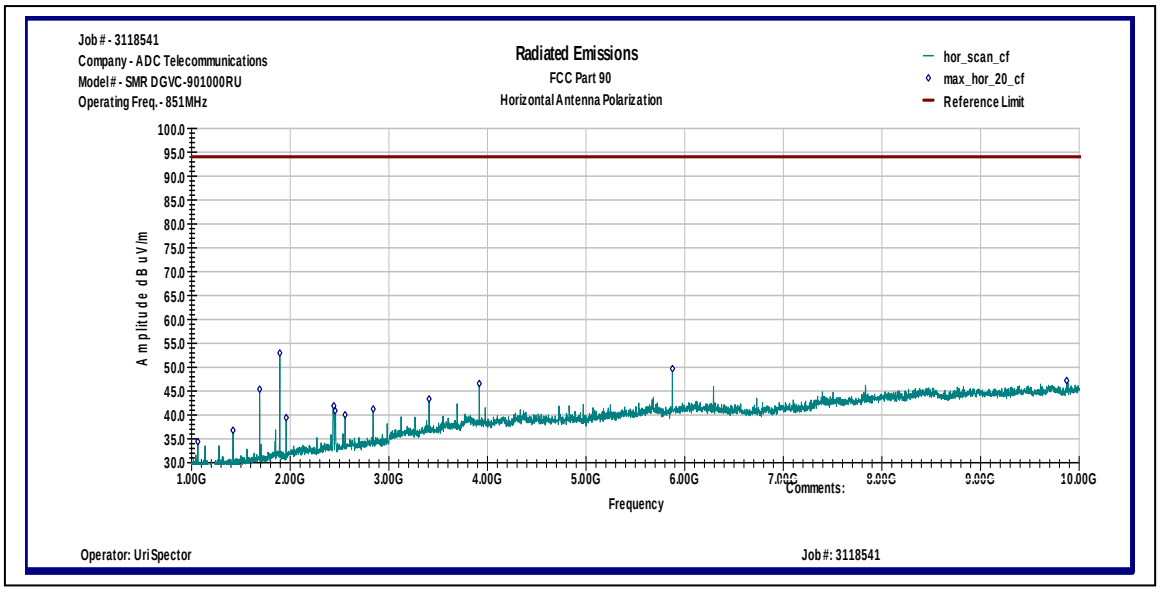


Graph # 4
Radiated Emissions from 1 to 10GHz, 851MHz Channel

Vertical Antenna Polarization

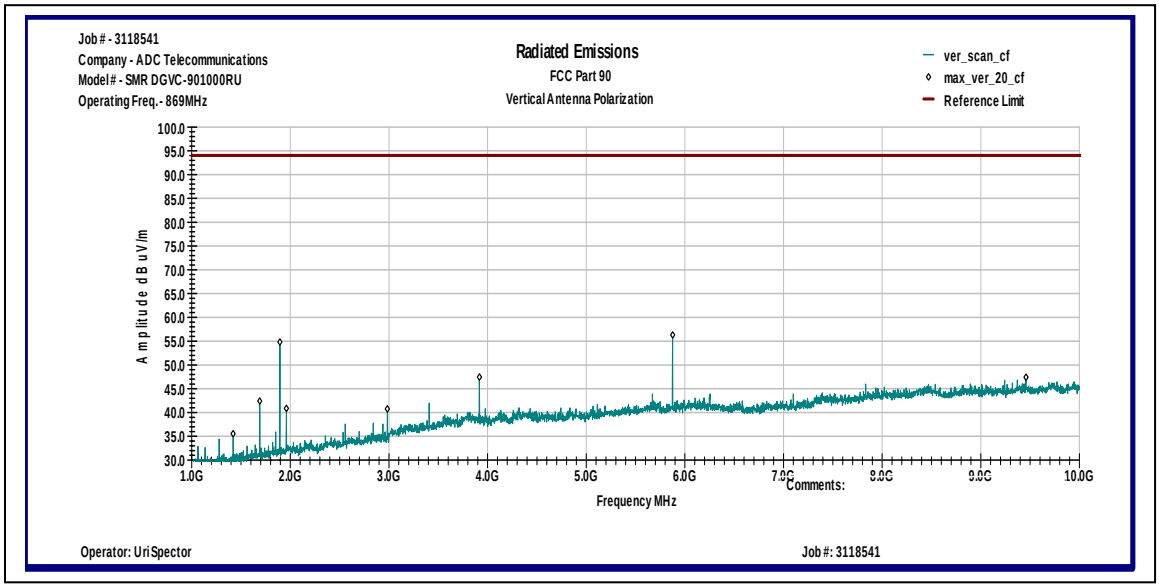


Horizontal Antenna Polarization

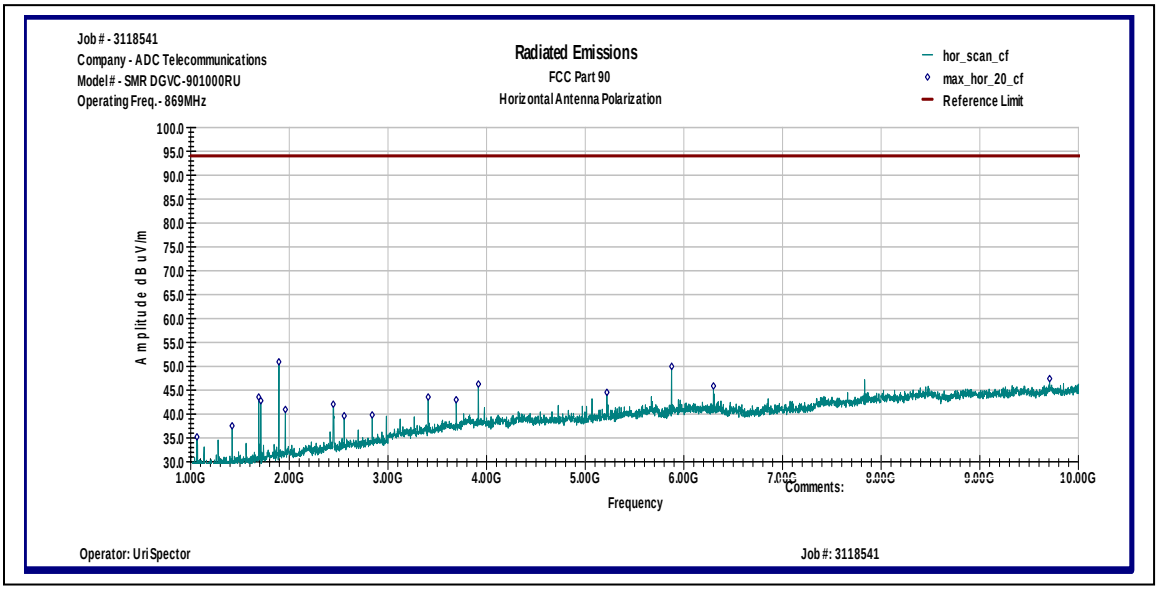


Graph # 5
Radiated Emissions from 1 to 10GHz, 869MHz Channel

Vertical Antenna Polarization

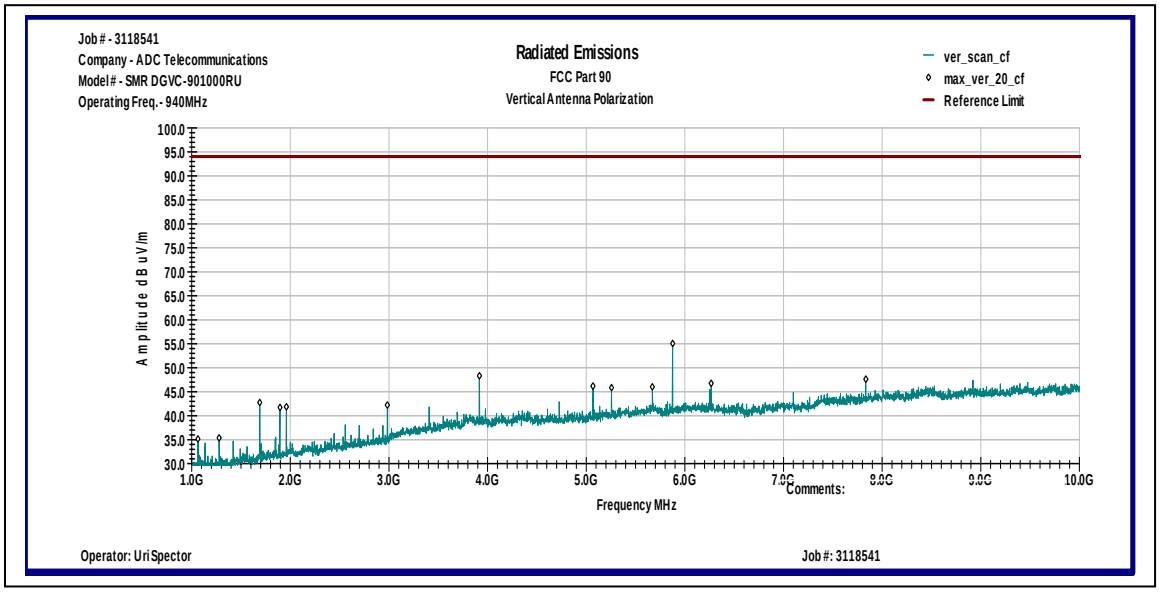


Horizontal Antenna Polarization

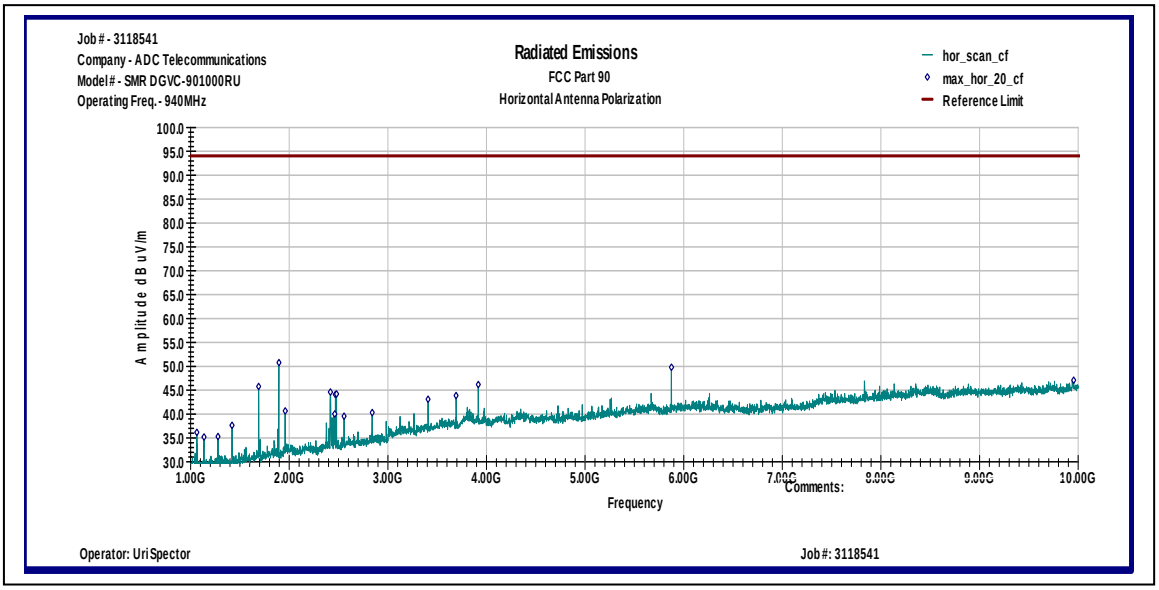


Graph # 6
Radiated Emissions from 1 to 10GHz, 940MHz Channel

Vertical Antenna Polarization



Horizontal Antenna Polarization



3.0 TEST EQUIPMENT / ENVIRONMENTAL CONDITIONS

Receivers/Spectrum Analyzers and Test Software

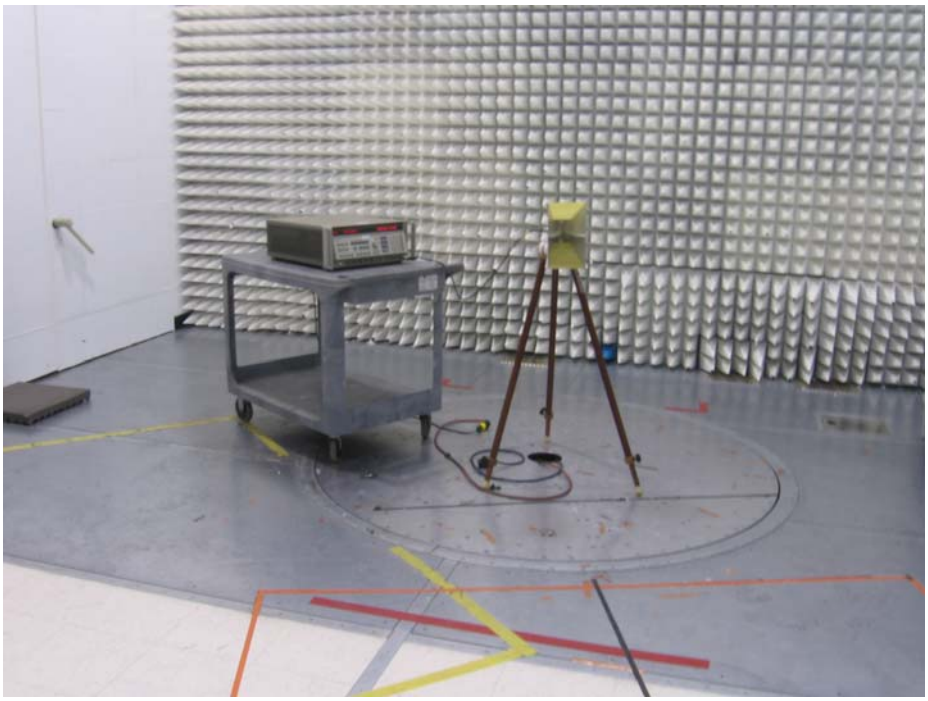
DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
Rohde & Schwarz FSP 40 Spectrum Analyzer	100024	07/06	07/07	X
Rohde & Schwarz ESCI Spectrum Analyzer	100358	04/06	04/07	X
TILE! Instrument Control System	Ver. 3.4 K.20	N/A	N/A	X

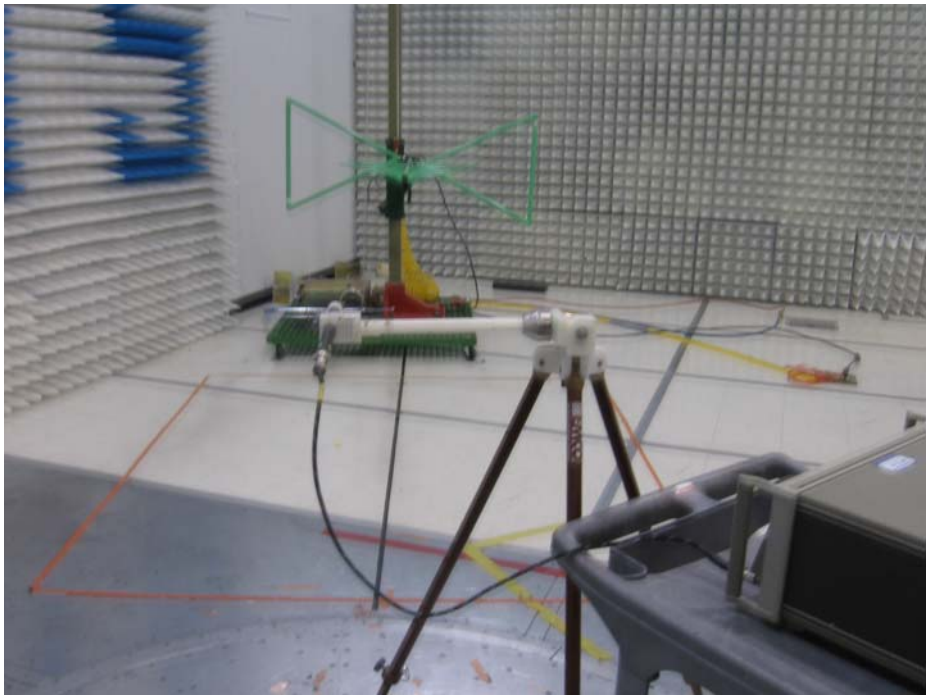
Antennas/Generators/Pre-Amps

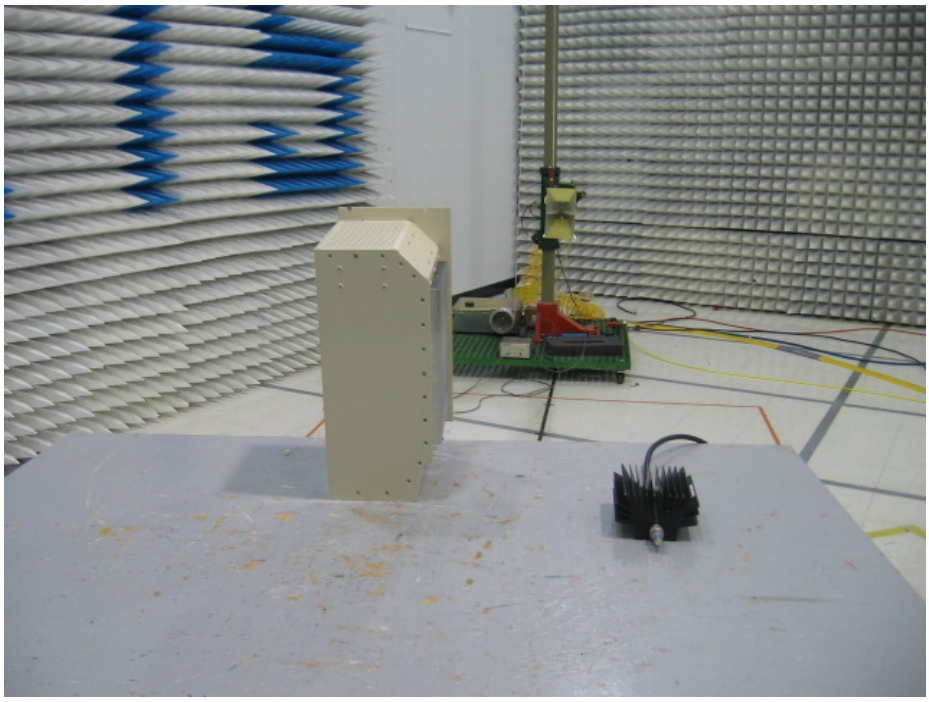
DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
Schaffner-Chase Bicono-Log Antenna	2630	08/06	08/07	X
EMCO Horn Antenna 3115	9507-4513	01/07	01/08	X
EMCO Horn Antenna 3115	6579	03/06/07	03/06/08	X
Roberts Antenna 4 400-1000MHz	00599	N/A	N/A	X
MITEQ AMF-5D Pre-Amplifier	1122951	02/07	02/08	X
HP 8340B Synthesized Sweeper	2819A01098	09/06	09/07	X

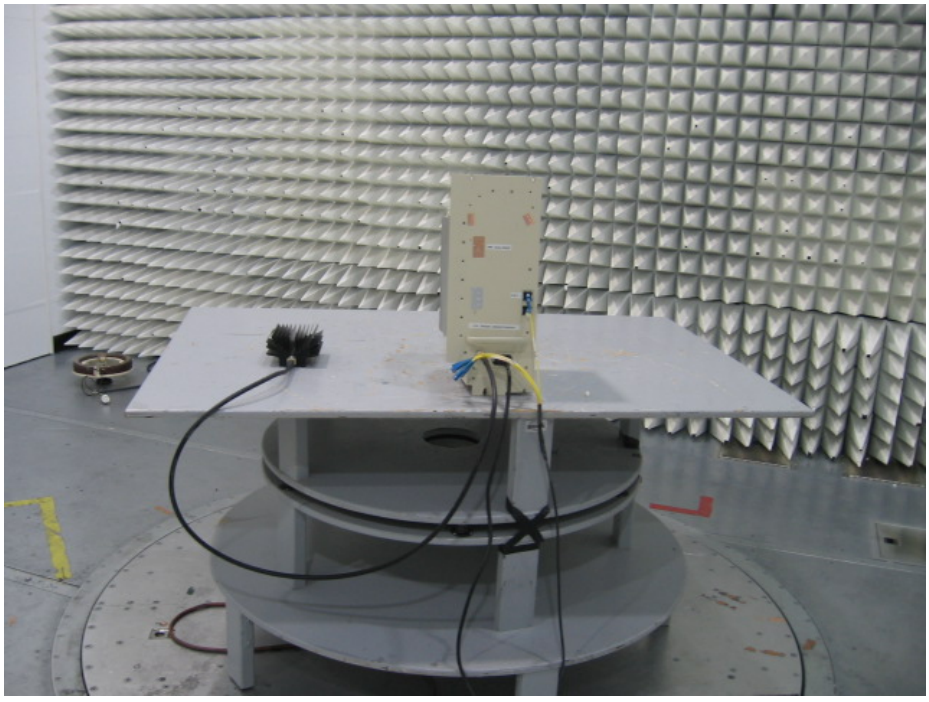
Temperature: 23° C
Relative Humidity: 17%
Atmospheric pressure: 99.1 kPa

4.0 CONFIGURATION PHOTOGRAPHS









7.0 APPENDIX C

Measurement Protocol

Back to Table of Contents:

Measurement Protocol

Environmental conditions of the lab, (ADC)
Temperature: 21 - 26º C
Relative Humidity: 21 - 24 %
Atmospheric Pressure: 97.8 - 100.0 kPa

Test Methodology:
Emission testing is performed according to the procedures in ANSI C63.4-2003.

Measurement Uncertainty
The test system for conducted emissions is defined as the signal generator(s), the power meter, the spectrum analyzer and the coaxial cable. The equipment comprising the test systems is calibrated prior to testing the EUT.

Justification
The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left un-terminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

Radiated Emissions
The final level, in dBuV/m, equals the reading from the spectrum analyzer (Level dBuV), adding the antenna correction factor and cable loss factor (Factor dB) to it, and subtracting the preamp gain (and duty cycle correction factor, if applicable). This result then has the limit subtracted from it to provide the Delta, which gives the tabular data as shown in the data sheets in Appendix B.

Example:

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

Substitution Method
A cabinet (or enclosure) radiated emission scan was also made, at Intertek, with the EUT's antenna replaced with a termination to demonstrate case radiation compliance to the –13 dBm requirement. Radiated emissions from the EUT are measured in the frequency range of 30 to 20,000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. 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 place directly on the turntable/ground plane. Interface cable 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 3 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 1GHz) 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.

Test Equipment
All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.