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

Test Report File No. : **WC505742 Rev B** Date of issue: Date:02 November 2006

Model Nos.	:	**DGVC-901X4X1X200SYS**
Product Name	:	Digivance® Street Coverage Solution
Product Type	:	Dual band chassis Transports RF between a remote antenna and base station
Applicant	:	ADC Inc.
Manufacturer	:	ADC Inc.
License Holder	:	ADC Inc.
Address	:	P.O. Box 1101 Minneapolis, MN 55440-1101

Test Result	:	■ **Positive**	☐ **Negative**
Test Project Number Reference(s)	:	**WC505742 Rev B**	
Total pages including Appendices		**258**	

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TÜV America Inc 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 112205

DIRECTORY

Sign Explanations:
☐ - not applicable
■ - applicable

REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	241	06 March 2006	Initial Release
A	240	19 September 2006	Revisions include: ▪ Update all equipment lists ▪ Replace cover page and pages 1-9, 12, 21-23, 30, 35, 48, 65, 78, 87, 131, 160 ▪ Deleted page 11, corrected page numbrs accordingly
B	258	02 November 2006	Revisions include: Note: Reference page numbers are from Rev A. ▪ Replace pages 20-34, 47, 62-64, 77-88 and 130. ▪ Added pages after page 47, 57, 61 and 54.

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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
☐ - EN 55022 / 1991 ☐ - Class A ☐ - Class B

☐ - BS
☐ - VCCI ☐ - Class A ☐ - Class B

☐ - FCC Part 15 Subpart B ☐ - Class A ☐ - Class B
☐ - FCC Part 15 Subpart C
■ - FCC Part 24
■ - FCC Part 90

☐ - CISPR 11 (1990) ☐ - Group 1 ☐ - Group 2
☐ - Class A ☐ - Class B

☐ - CISPR 22 (1993) ☐ - Class A ☐ - Class B

☐ - IC RSS-Gen Issue 1
☐ - IC RSS-193 Issue 1

ENVIRONMENTAL CONDITIONS IN THE LAB

TUV	**ADC**
Temperature: 22 °C	Temperature: 26 °C
Relative Humidity: 20 %	Relative Humidity: 22 %
Atmospheric pressure: 98 - 99 kPa	Atmospheric pressure: 98.6 kPa

POWER SUPPLY UTILIZED

Power supply system : 1 phase, 60 Hz, 120 V

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90.635 Limitations on power and antenna height

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Minimum margin of compliance is 21.4 dB at 858.5 MHz

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

Test Distance
☐ - 3 meters
☐ - 10 meters
■ - Conducted measurement

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
49-30-33	Aeroflex	Attenuator	n/a	CNR
HP8563E	HP	Spectrum Analyzer	MC27690	6-22-06
EPM-441A	HP	Power Meter	MC27670	9-28-06
E4436B	Agilent	Signal Generator	963739	10-16-06

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test limit
500 watts or 57 dBm

Test Data
See page 20

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90.213 Frequency stability

Test summary
The requirements are: ■- MET ☐ - NOT MET
The fundamental emission stays within the limit
Frequency measured over a temperature range of -30 to 50°C and an input voltage range of 102 to 138 VAC

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

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
87	Fluke	Multimeter	MC20083	4-26-07
5347A	HP	Freq. Counter	MC27548	8-18-07
1520CT	Staco	Variable Auto Transformer	MC/44655	CNR
E4436B	Agilent	Signal Generator	963739	10-16-06

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test limit

MINIMUM FREQUENCY STABILITY
[Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	[1,2,3] 100	100	200
25–50	20	20	50
72–76	5	.....	50
150–174	[5,11] 5	[6] 5	[4,6] 50
216–220	1.0	.....	1.0
220–222 [12]	0.1	1.5	1.5
421–512	[7,11,14] 2.5	[8] 5	[8] 5
806–809	[14] 1.0	1.5	1.5
809–824	[14] 1.5	2.5	2.5
851–854	1.0	1.5	1.5
854–869	1.5	2.5	2.5
896–901	[14] 0.1	1.5	1.5
902–928	2.5	2.5	2.5
902–928 [13]	2.5	2.5	2.5
929–930	1.5	.....	.....
935–940	0.1	1.5	1.5
1427–1435	[9] 300	300	300
Above 2450 [10]	.....	.....	.....

Test data
See pages 23 - 24

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90.669 Emission limits

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Out of band emissions are less than –13 dBm

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

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
49-30-33	Aeroflex	Attenuator	n/a	CNR
HP8563E	HP	Spectrum Analyzer	MC27690	6-22-06
EPM-441A	HP	Power Meter	MC27670	9-28-06
26III	Fluke	Multimeter	MC22687	4-27-06
5347A	HP	Freq. Counter	MC27548	8-18-07
Ecosphere	Ecosphere	Temperature Chamber	MC21679	12-27-06
1520CT	Staco	Variable Auto Transformer	MC/44655	CNR
E4436B	Agilent	Signal Generator	963739	10-16-06
E4438C	Agilent	Signal Generator	1018532	3-13-08

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test equipment (TUV)

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	01-Apr-06
2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	07-Dec-06
3961	ZHL-1042J	Mini-Circuits	Preamplifier	D120403-1	Code B
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B
2681	85650A	Hewlett-Packard	Quasi-Peak Adapter	2430A00562	03-Feb-06
8052	8566B	Hewlett-Packard	Spectrum Analyzer	2115A00853	24-Mar-06
8051	85662A	Hewlett-Packard	Analyzer Display	2112A02220	24-Mar-06
3367	E4440A	Agilent	Spectrum Analyzer	MY43362222	02-Sep-06
6717	3116	Electro-Mechanics (EMCO)	Ridge Guide Ant 18-40 GHz	2005	19-Sep-06

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

Test limits
Out of band emissions: -13.0 dBm
Attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test data
Occupied bandwidth, pages 29 - 33
Conducted Emissions, pages 47 - 63
Radiated emissions, pages 89 - 98
Inter-Modulation Test, pages 130 - 154

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24.232 Power and antenna height limits

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Minimum margin of compliance is 12.3 dB at 1977.5 MHz (TDMA Band EFC)

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

Test Distance
☐ - 3 meters
☐ - 10 meters
■ - Conducted measurement

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
49-30-33	Aeroflex	Attenuator	n/a	CNR
HP8563E	HP	Spectrum Analyzer	MC27690	6-22-06
EPM-441A	HP	Power Meter	MC27670	9-28-06
E4436B	Agilent	Signal Generator	963739	10-16-06

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test limit
100 watts or 50 dBm

Test Data
See page 21 - 22

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24.235 Frequency stability

Test summary
The requirements are: ■- MET ☐ - NOT MET
The fundamental emission stays within the authorized frequency block
Frequency measured over a temperature range of -30 to 50°C and an input voltage range of 102 to 138 VAC

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

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
87	Fluke	Multimeter	MC20083	4-26-07
5347A	HP	Freq. Counter	MC27548	8-18-07
1520CT	Staco	Variable Auto Transformer	MC/44655	CNR
E4436B	Agilent	Signal Generator	963739	10-16-06

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test limit
The emission must stay within the authorized frequency block

Test data
See pages 25 - 28

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24.238 Emission limitations for Broadband PCS equipment

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Out of band emissions were less than –13dBm
Outside the emission bandwidth of the carrier, all emissions are attenuated at least 26 dB below the transmitter power

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

Test equipment (ADC)

Model Number	Manufacturer	Description	ADC Serial Number	Cal Due
49-30-33	Aeroflex	Attenuator	n/a	CNR
HP8563E	HP	Spectrum Analyzer	MC27690	6-22-06
EPM-441A	HP	Power Meter	MC27670	9-28-06
87	Fluke	Multimeter	MC20083	4-26-07
5347A	HP	Freq. Counter	MC27548	8-18-07
Ecosphere	Ecosphere	Temperature Chamber	MC21679	12-27-06
1520CT	Staco	Variable Auto Transformer	MC/44655	CNR
E4436B	Agilent	Signal Generator	963739	10-16-06
E4438C	Agilent	Signal Generator	1018532	3-13-08

Equipment with a Calibration Not Required (CNR) listing is verified and compensated for with NIST traceable calibrated equipment.

Test equipment (TUV)

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	01-Apr-06
2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	07-Dec-06
3961	ZHL-1042J	Mini-Circuits	Preamplifier	D120403-1	Code B
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B
2681	85650A	Hewlett-Packard	Quasi-Peak Adapter	2430A00562	03-Feb-06
8052	8566B	Hewlett-Packard	Spectrum Analyzer	2115A00853	24-Mar-06
8051	85662A	Hewlett-Packard	Analyzer Display	2112A02220	24-Mar-06
3367	E4440A	Agilent	Spectrum Analyzer	MY43362222	02-Sep-06
6717	3116	Electro-Mechanics (EMCO)	Ridge Guide Ant 18-40 GHz	2005	19-Sep-06

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

Test limits
Out of band emissions:
Attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. or –13 dBm
Outside of the carrier emission bandwidth:
26 dB below the transmitter power

Test data
Occupied bandwidth, pages 34 - 46
Conducted Emissions, pages 64 - 88
Radiated emissions, pages 99 - 129
Inter-Modulation Test, pages 155 - 227

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TEST SETUP FOR EMISSIONS TESTING

WILD RIVER LAB
Large Test Site

Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.

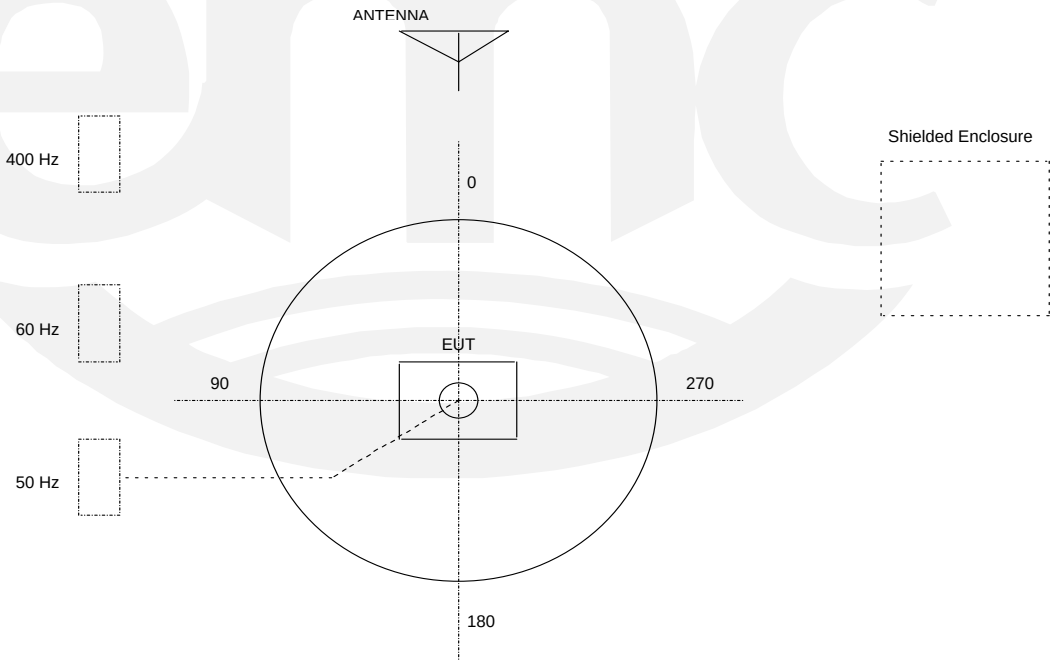
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.

3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.

4. The circle is a 6.7 meter diameter turntable.

5. A ground plane is in the plane of this sheet.

6. The test sample is shown in the azimuthal position representing zero degrees.



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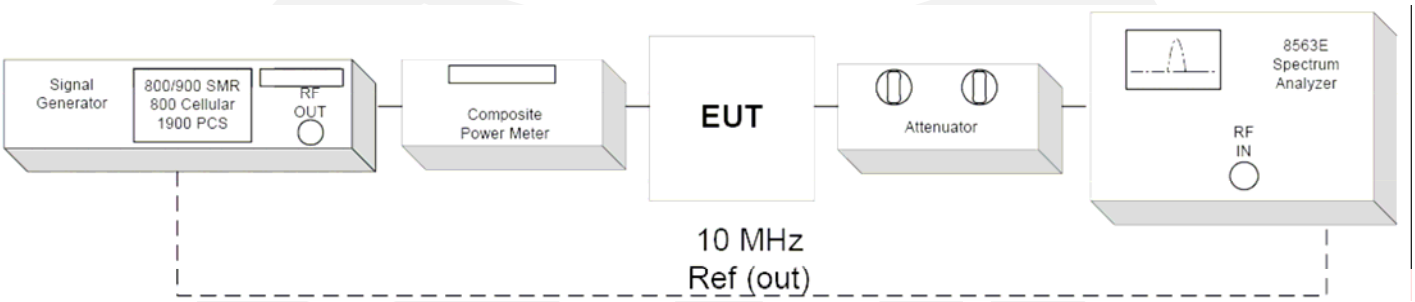
Conducted Emission Limits Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

Test Set-up



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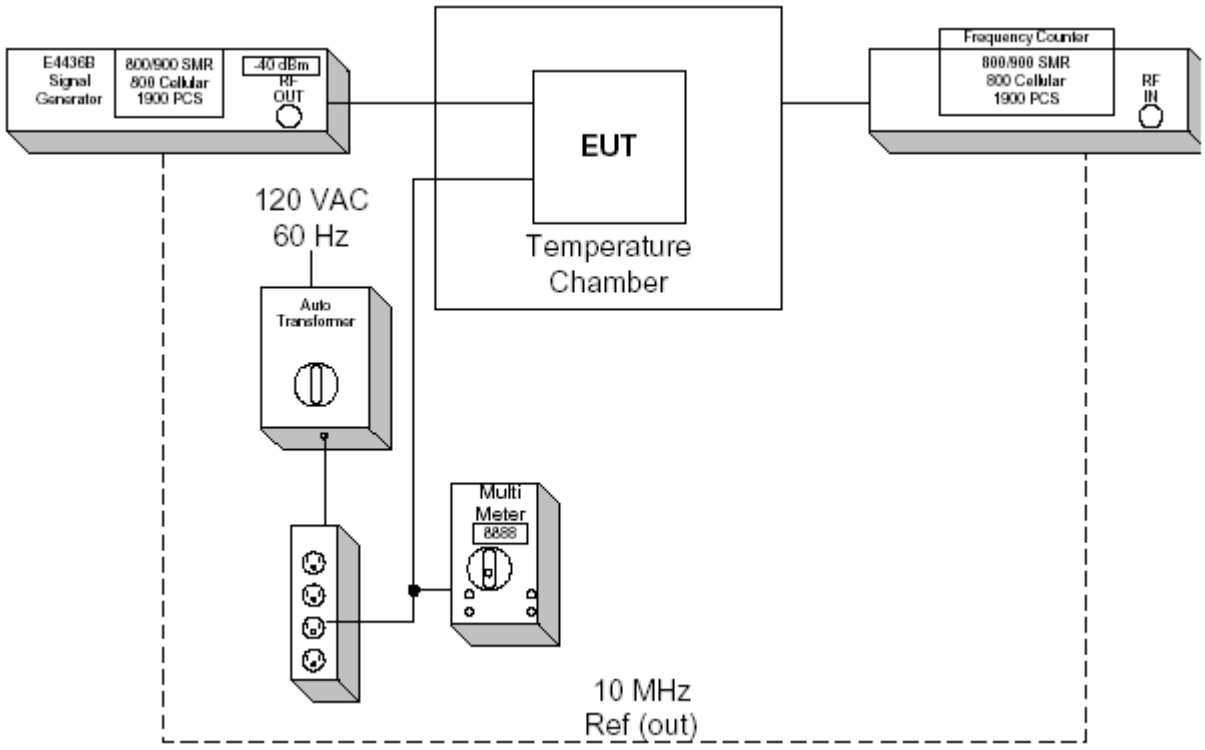
Frequency Tolerance Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT Host is specified for indoor use only with temperature range of 0° to +50° C, and was tested with its range.
EUT Remote is specified with a temperature range of -30° to +50° C and was tested with its range.

Test Set-up



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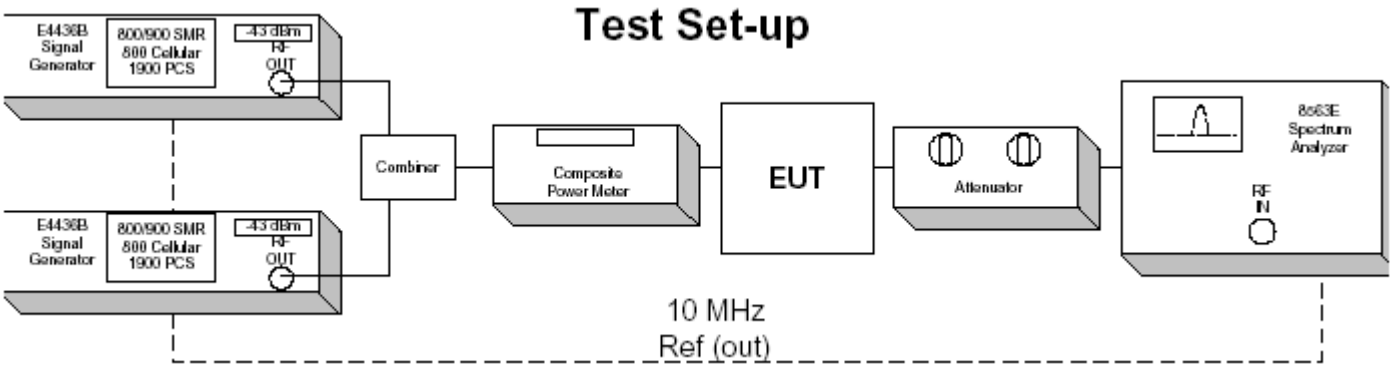
Inter-Modulation Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS



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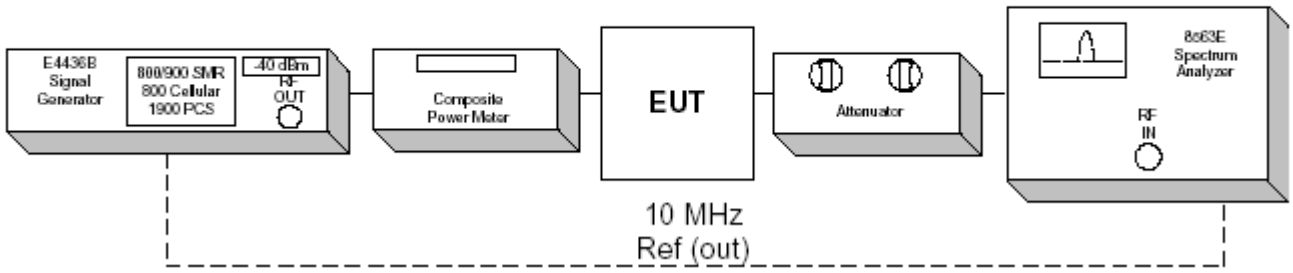
Occupied Bandwidth Modulation Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

Test Set-up



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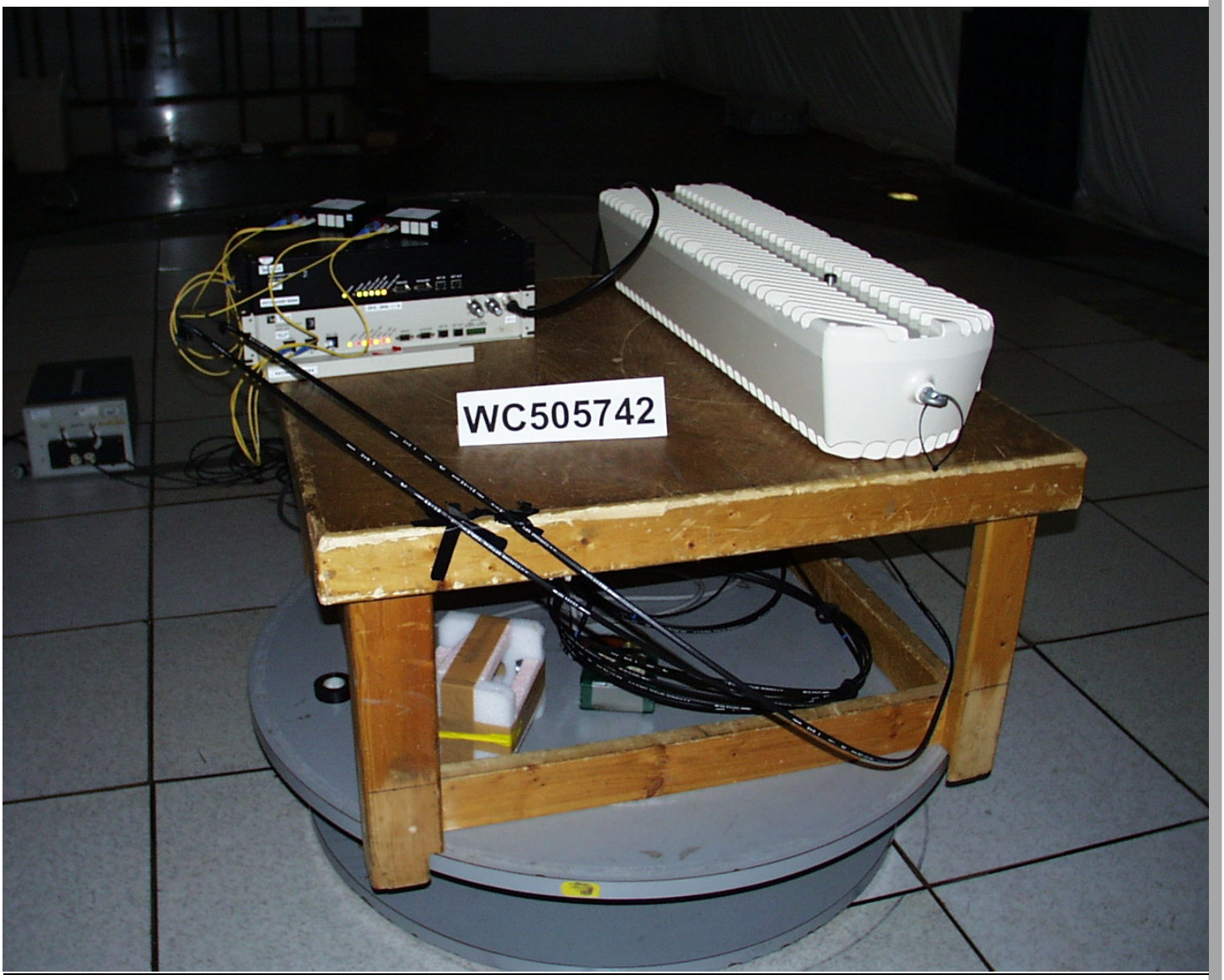
Test setup photo, radiated emissions



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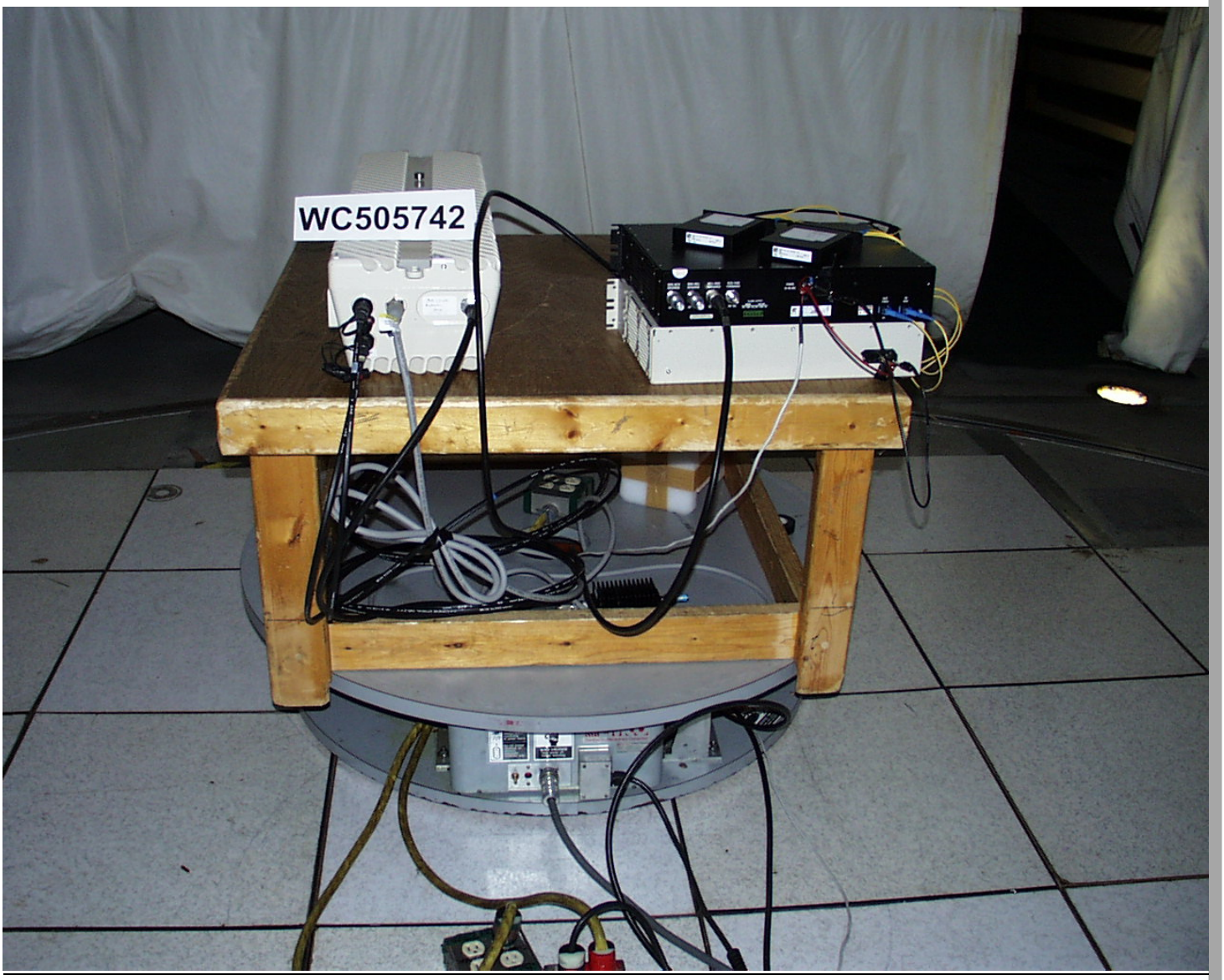
Test setup photo, radiated emissions



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Test Operation Mode:

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

■ - Max composite in and out.

Configuration of the device under test:

■ - See diagrams, pages 8 – 12, photos, pages 13 – 14, EUT software, page B6
SMR 800/900 MHz and 1900 MHz PCS Systems

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DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

FCC part 24 portions of the radiated emissions data were acquired under test report WC505743.

Modifications required to pass:
■ None
☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:
■ None
☐ As indicated in the Test Plan

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.

EUT Received Date: (TÜV)	06 December 2005
Condition of EUT:	Normal
Testing Start Date: (ADC)	30 September 2005
Testing End Date: (TÜV)	07 December 2005

- TÜV AMERICA INC -

M. J. Schultz & J. Sausen
EMC Technicians

J. T. Schneider
Senior EMC Engineer

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Appendix A

Test data

TÜV America Inc 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 112205

Conducted Output Power Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

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

This measurement was made as a direct conducted emission measurement. The output from the EUT antenna connector was connected to the power meter. The carrier output, below, was conducted using a single FM, 16QAM, and CDMA signal generator. The power meter level was offset to compensate for attenuators and cable loss between the EUT and the power meter.

A signal was used at the low, mid and high parts of the selected band. The power meter level was offset by 33.4 dB to compensate for attenuators and cable loss between the EUT and the power meter.

FM	**5.32 Watts**	**FM**	**5.79 Watts**
SMR	(800 MHz)	SMR	(900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
851.2 MHz	37.33 dBm	935.2 MHz	37.63 dBm
858.5 MHz	37.17 dBm	937.5 MHz	37.47 dBm
868.8 MHz	37.50 dBm	939.8 MHz	37.57 dBm

16QAM	**6.27 Watts**	**16QAM**	**6.17 Watts**
SMR	(800 MHz)	SMR	(900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
851.2 MHz	37.57 dBm	935.2 MHz	37.60 dBm
858.5 MHz	37.30 dBm	937.5 MHz	37.90 dBm
868.8 MHz	37.97 dBm	939.8 MHz	37.47 dBm

CDMA	**5.84 Watts**	**CDMA**	**6.12 Watts**
SMR	(800 MHz)	SMR	(900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
851.8 MHz	37.13 dBm	935.8 MHz	37.54 dBm
858.5 MHz	37.27 dBm	937.5 MHz	37.87 dBm
868.2 MHz	37.67 dBm	939.2 MHz	37.27 dBm

Conducted Output Power Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

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

This measurement was made as a direct conducted emission measurement. The output from the EUT antenna connector was connected to the power meter. The carrier output, below, was conducted using a single TDMA, GSM, CDMA, EVDO, and W-CDMA signal generator. The power meter level was offset to compensate for attenuators and cable loss between the EUT and the meter.

A signal was used at the low, mid and high parts of the selected band. The power meter level was offset by 33.4 dB to compensate for attenuators and cable loss between the EUT and the power meter.

TDMA 5.85 Watts		**GSM 5.58 Watts**	
Band AD	(1900 MHz)	Band AD	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1930.2 MHz	37.00 dBm	1930.2 MHz	37.13 dBm
1940.0 MHz	37.50 dBm	1940.0 MHz	37.30 dBm
1949.8 MHz	36.50 dBm	1949.8 MHz	36.63 dBm
Band DBE	(1900 MHz)	Band DBE	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1945.2 MHz	37.17 dBm	1945.2 MHz	37.47 dBm
1957.5 MHz	37.33 dBm	1957.5 MHz	37.13 dBm
1969.8 MHz	36.67 dBm	1969.8 MHz	37.13 dBm
Band BEF	(1900 MHz)	Band BEF	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1950.2 MHz	36.17 dBm	1950.2 MHz	36.47 dBm
1962.5 MHz	37.17 dBm	1962.5 MHz	37.13 dBm
1974.8 MHz	36.50 dBm	1974.8 MHz	36.63 dBm
Band EFC	(1900 MHz)	Band EFC	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1965.2 MHz	35.83 dBm	1965.2 MHz	36.47 dBm
1977.5 MHz	37.67 dBm	1977.5 MHz	37.13 dBm
1989.8 MHz	35.67 dBm	1989.8 MHz	36.63 dBm

CDMA	**5.83 Watts**	**EVDO**	**5.70 Watts**
Band AD	(1900 MHz)	Band AD	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1930.8 MHz	37.23 dBm	1930.8 MHz	37.56 dBm
1940.0 MHz	36.80 dBm	1940.0 MHz	36.93 dBm
1949.2 MHz	36.73 dBm	1949.2 MHz	37.27 dBm
Band DBE	(1900 MHz)	Band DBE	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1945.8 MHz	37.40 dBm	1945.8 MHz	36.87 dBm
1957.5 MHz	36.56 dBm	1957.5 MHz	37.13 dBm
1969.2 MHz	36.90 dBm	1969.2 MHz	35.87 dBm
Band BEF	(1900 MHz)	Band BEF	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1950.8 MHz	37.40 dBm	1950.8 MHz	36.50 dBm
1962.5 MHz	37.66 dBm	1962.5 MHz	37.23 dBm
1974.2 MHz	37.06 dBm	1974.2 MHz	37.10 dBm
Band EFC	(1900 MHz)	Band EFC	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1965.8 MHz	36.06 dBm	1965.8 MHz	37.50 dBm
1977.5 MHz	37.66 dBm	1977.5 MHz	37.54 dBm
1989.2 MHz	36.90 dBm	1989.2 MHz	37.27 dBm

W-CDMA	**5.70 Watts**		
Band AD	(1900 MHz)	Band DBE	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1932.6 MHz	37.13 dBm	1947.6 MHz	37.27 dBm
1940.0 MHz	37.56 dBm	1957.5 MHz	37.03 dBm
1947.4 MHz	37.17 dBm	1967.4 MHz	36.93 dBm
Band DBE	(1900 MHz)	Band EFC	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1952.6 MHz	37.40 dBm	1967.6 MHz	37.17 dBm
1962.5 MHz	36.87 dBm	1977.5 MHz	36.87 dBm
1972.4 MHz	37.23 dBm	1987.4 MHz	36.54 dBm

Frequency Tolerance Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT SMR (800 MHz)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	851.200 MHz	851.200 MHz	Yes
36 VDC	173 VAC	851.200 MHz	851.200 MHz	Yes
48 VDC	230 VAC	851.200 MHz	851.200 MHz	Yes
24 VDC	115 VAC	860.000 MHz	860.000 MHz	Yes
36 VDC	173 VAC	860.000 MHz	860.000 MHz	Yes
48 VDC	230 VAC	860.000 MHz	860.000 MHz	Yes
24 VDC	115 VAC	868.800 MHz	868.800 MHz	Yes
36 VDC	173 VAC	868.800 MHz	868.800 MHz	Yes
48 VDC	230 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® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT SMR (900 MHz)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	935.200 MHz	935.200 MHz	Yes
36 VDC	173 VAC	935.200 MHz	935.200 MHz	Yes
48 VDC	230 VAC	935.200 MHz	935.200 MHz	Yes
24 VDC	115 VAC	937.500 MHz	937.500 MHz	Yes
36 VDC	173 VAC	937.500 MHz	937.500 MHz	Yes
48 VDC	230 VAC	937.500 MHz	937.500 MHz	Yes
24 VDC	115 VAC	939.800 MHz	939.800 MHz	Yes
36 VDC	173 VAC	939.800 MHz	939.800 MHz	Yes
48 VDC	230 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

Frequency Tolerance Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT PCS (1900 MHz - AD)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	1930.200 MHz	1930.200 MHz	Yes
36 VDC	173 VAC	1930.200 MHz	1930.200 MHz	Yes
48 VDC	230 VAC	1930.200 MHz	1930.200 MHz	Yes
24 VDC	115 VAC	1940.000 MHz	1940.000 MHz	Yes
36 VDC	173 VAC	1940.000 MHz	1940.000 MHz	Yes
48 VDC	230 VAC	1940.000 MHz	1940.000 MHz	Yes
24 VDC	115 VAC	1949.800 MHz	1949.800 MHz	Yes
36 VDC	173 VAC	1949.800 MHz	1949.800 MHz	Yes
48 VDC	230 VAC	1949.800 MHz	1949.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		1930.200 MHz	1930.200 MHz	Yes
-20 Deg. C		1930.200 MHz	1930.200 MHz	Yes
-10 Deg. C		1930.200 MHz	1930.200 MHz	Yes
0 Deg. C		1930.200 MHz	1930.200 MHz	Yes
10 Deg. C		1930.200 MHz	1930.200 MHz	Yes
20 Deg. C		1930.200 MHz	1930.200 MHz	Yes
30 Deg. C		1930.200 MHz	1930.200 MHz	Yes
40 Deg. C		1930.200 MHz	1930.200 MHz	Yes
50 Deg. C		1930.200 MHz	1930.200 MHz	Yes
-30 Deg. C		1940.000 MHz	1940.000 MHz	Yes
-20 Deg. C		1940.000 MHz	1940.000 MHz	Yes
-10 Deg. C		1940.000 MHz	1940.000 MHz	Yes
0 Deg. C		1940.000 MHz	1940.000 MHz	Yes
10 Deg. C		1940.000 MHz	1940.000 MHz	Yes
20 Deg. C		1940.000 MHz	1940.000 MHz	Yes
30 Deg. C		1940.000 MHz	1940.000 MHz	Yes
40 Deg. C		1940.000 MHz	1940.000 MHz	Yes
50 Deg. C		1940.000 MHz	1940.000 MHz	Yes
-30 Deg. C		1949.800 MHz	1949.800 MHz	Yes
-20 Deg. C		1949.800 MHz	1949.800 MHz	Yes
-10 Deg. C		1949.800 MHz	1949.800 MHz	Yes
0 Deg. C		1949.800 MHz	1949.800 MHz	Yes
10 Deg. C		1949.800 MHz	1949.800 MHz	Yes
20 Deg. C		1949.800 MHz	1949.800 MHz	Yes
30 Deg. C		1949.800 MHz	1949.800 MHz	Yes
40 Deg. C		1949.800 MHz	1949.800 MHz	Yes
50 Deg. C		1949.800 MHz	1949.800 MHz	Yes

Frequency Tolerance Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT PCS (1900 MHz - DBE)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	1945.200 MHz	1945.200 MHz	Yes
36 VDC	173 VAC	1945.200 MHz	1945.200 MHz	Yes
48 VDC	230 VAC	1945.200 MHz	1945.200 MHz	Yes
24 VDC	115 VAC	1957.500 MHz	1957.500 MHz	Yes
36 VDC	173 VAC	1957.500 MHz	1957.500 MHz	Yes
48 VDC	230 VAC	1957.500 MHz	1957.500 MHz	Yes
24 VDC	115 VAC	1969.800 MHz	1969.800 MHz	Yes
36 VDC	173 VAC	1969.800 MHz	1969.800 MHz	Yes
48 VDC	230 VAC	1969.800 MHz	1969.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		1945.200 MHz	1945.200 MHz	Yes
-20 Deg. C		1945.200 MHz	1945.200 MHz	Yes
-10 Deg. C		1945.200 MHz	1945.200 MHz	Yes
0 Deg. C		1945.200 MHz	1945.200 MHz	Yes
10 Deg. C		1945.200 MHz	1945.200 MHz	Yes
20 Deg. C		1945.200 MHz	1945.200 MHz	Yes
30 Deg. C		1945.200 MHz	1945.200 MHz	Yes
40 Deg. C		1945.200 MHz	1945.200 MHz	Yes
50 Deg. C		1945.200 MHz	1945.200 MHz	Yes
-30 Deg. C		1957.500 MHz	1957.500 MHz	Yes
-20 Deg. C		1957.500 MHz	1957.500 MHz	Yes
-10 Deg. C		1957.500 MHz	1957.500 MHz	Yes
0 Deg. C		1957.500 MHz	1957.500 MHz	Yes
10 Deg. C		1957.500 MHz	1957.500 MHz	Yes
20 Deg. C		1957.500 MHz	1957.500 MHz	Yes
30 Deg. C		1957.500 MHz	1957.500 MHz	Yes
40 Deg. C		1957.500 MHz	1957.500 MHz	Yes
50 Deg. C		1957.500 MHz	1957.500 MHz	Yes
-30 Deg. C		1969.800 MHz	1969.800 MHz	Yes
-20 Deg. C		1969.800 MHz	1969.800 MHz	Yes
-10 Deg. C		1969.800 MHz	1969.800 MHz	Yes
0 Deg. C		1969.800 MHz	1969.800 MHz	Yes
10 Deg. C		1969.800 MHz	1969.800 MHz	Yes
20 Deg. C		1969.800 MHz	1969.800 MHz	Yes
30 Deg. C		1969.800 MHz	1969.800 MHz	Yes
40 Deg. C		1969.800 MHz	1969.800 MHz	Yes
50 Deg. C		1969.800 MHz	1969.800 MHz	Yes

Frequency Tolerance Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT PCS (1900 MHz - BEF)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	1950.200 MHz	1950.200 MHz	Yes
36 VDC	173 VAC	1950.200 MHz	1950.200 MHz	Yes
48 VDC	230 VAC	1950.200 MHz	1950.200 MHz	Yes
24 VDC	115 VAC	1962.500 MHz	1962.500 MHz	Yes
36 VDC	173 VAC	1962.500 MHz	1962.500 MHz	Yes
48 VDC	230 VAC	1962.500 MHz	1962.500 MHz	Yes
24 VDC	115 VAC	1974.800 MHz	1974.800 MHz	Yes
36 VDC	173 VAC	1974.800 MHz	1974.800 MHz	Yes
48 VDC	230 VAC	1974.800 MHz	1974.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		1950.200 MHz	1950.200 MHz	Yes
-20 Deg. C		1950.200 MHz	1950.200 MHz	Yes
-10 Deg. C		1950.200 MHz	1950.200 MHz	Yes
0 Deg. C		1950.200 MHz	1950.200 MHz	Yes
10 Deg. C		1950.200 MHz	1950.200 MHz	Yes
20 Deg. C		1950.200 MHz	1950.200 MHz	Yes
30 Deg. C		1950.200 MHz	1950.200 MHz	Yes
40 Deg. C		1950.200 MHz	1950.200 MHz	Yes
50 Deg. C		1950.200 MHz	1950.200 MHz	Yes
-30 Deg. C		1962.500 MHz	1962.500 MHz	Yes
-20 Deg. C		1962.500 MHz	1962.500 MHz	Yes
-10 Deg. C		1962.500 MHz	1962.500 MHz	Yes
0 Deg. C		1962.500 MHz	1962.500 MHz	Yes
10 Deg. C		1962.500 MHz	1962.500 MHz	Yes
20 Deg. C		1962.500 MHz	1962.500 MHz	Yes
30 Deg. C		1962.500 MHz	1962.500 MHz	Yes
40 Deg. C		1962.500 MHz	1962.500 MHz	Yes
50 Deg. C		1962.500 MHz	1962.500 MHz	Yes
-30 Deg. C		1974.800 MHz	1974.800 MHz	Yes
-20 Deg. C		1974.800 MHz	1974.800 MHz	Yes
-10 Deg. C		1974.800 MHz	1974.800 MHz	Yes
0 Deg. C		1974.800 MHz	1974.800 MHz	Yes
10 Deg. C		1974.800 MHz	1974.800 MHz	Yes
20 Deg. C		1974.800 MHz	1974.800 MHz	Yes
30 Deg. C		1974.800 MHz	1974.800 MHz	Yes
40 Deg. C		1974.800 MHz	1974.800 MHz	Yes
50 Deg. C		1974.800 MHz	1974.800 MHz	Yes

Frequency Tolerance Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

EUT PCS (1900 MHz - EFC)

HOST	REMOTE			
Input Voltage	**Input Voltage**	**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
24 VDC	115 VAC	1965.200 MHz	1965.200 MHz	Yes
36 VDC	173 VAC	1965.200 MHz	1965.200 MHz	Yes
48 VDC	230 VAC	1965.200 MHz	1965.200 MHz	Yes
24 VDC	115 VAC	1977.500 MHz	1977.500 MHz	Yes
36 VDC	173 VAC	1977.500 MHz	1977.500 MHz	Yes
48 VDC	230 VAC	1977.500 MHz	1977.500 MHz	Yes
24 VDC	115 VAC	1989.800 MHz	1989.800 MHz	Yes
36 VDC	173 VAC	1989.800 MHz	1989.800 MHz	Yes
48 VDC	230 VAC	1989.800 MHz	1989.800 MHz	Yes
Temperature		**Carrier Frequency**	**Measured Frequency**	**Meets Requirements?**
-30 Deg. C		1965.200 MHz	1965.200 MHz	Yes
-20 Deg. C		1965.200 MHz	1965.200 MHz	Yes
-10 Deg. C		1965.200 MHz	1965.200 MHz	Yes
0 Deg. C		1965.200 MHz	1965.200 MHz	Yes
10 Deg. C		1965.200 MHz	1965.200 MHz	Yes
20 Deg. C		1965.200 MHz	1965.200 MHz	Yes
30 Deg. C		1965.200 MHz	1965.200 MHz	Yes
40 Deg. C		1965.200 MHz	1965.200 MHz	Yes
50 Deg. C		1965.200 MHz	1965.200 MHz	Yes
-30 Deg. C		1977.500 MHz	1977.500 MHz	Yes
-20 Deg. C		1977.500 MHz	1977.500 MHz	Yes
-10 Deg. C		1977.500 MHz	1977.500 MHz	Yes
0 Deg. C		1977.500 MHz	1977.500 MHz	Yes
10 Deg. C		1977.500 MHz	1977.500 MHz	Yes
20 Deg. C		1977.500 MHz	1977.500 MHz	Yes
30 Deg. C		1977.500 MHz	1977.500 MHz	Yes
40 Deg. C		1977.500 MHz	1977.500 MHz	Yes
50 Deg. C		1977.500 MHz	1977.500 MHz	Yes
-30 Deg. C		1989.800 MHz	1989.800 MHz	Yes
-20 Deg. C		1989.800 MHz	1989.800 MHz	Yes
-10 Deg. C		1989.800 MHz	1989.800 MHz	Yes
0 Deg. C		1989.800 MHz	1989.800 MHz	Yes
10 Deg. C		1989.800 MHz	1989.800 MHz	Yes
20 Deg. C		1989.800 MHz	1989.800 MHz	Yes
30 Deg. C		1989.800 MHz	1989.800 MHz	Yes
40 Deg. C		1989.800 MHz	1989.800 MHz	Yes
50 Deg. C		1989.800 MHz	1989.800 MHz	Yes

Occupied Bandwidth Modulation Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

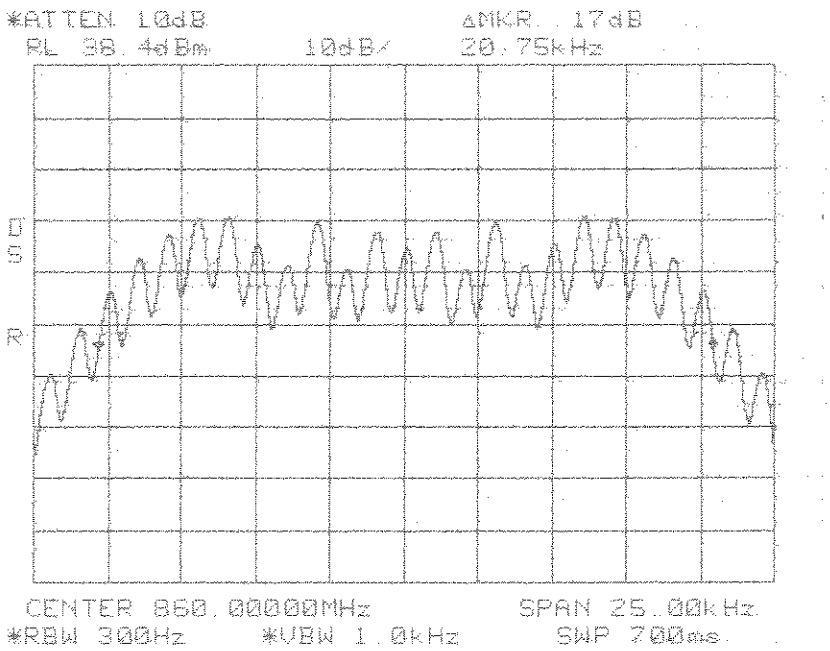
An input/output Occupied Bandwidth test was done with modulation types: FM, 16 QAM, and CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

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.

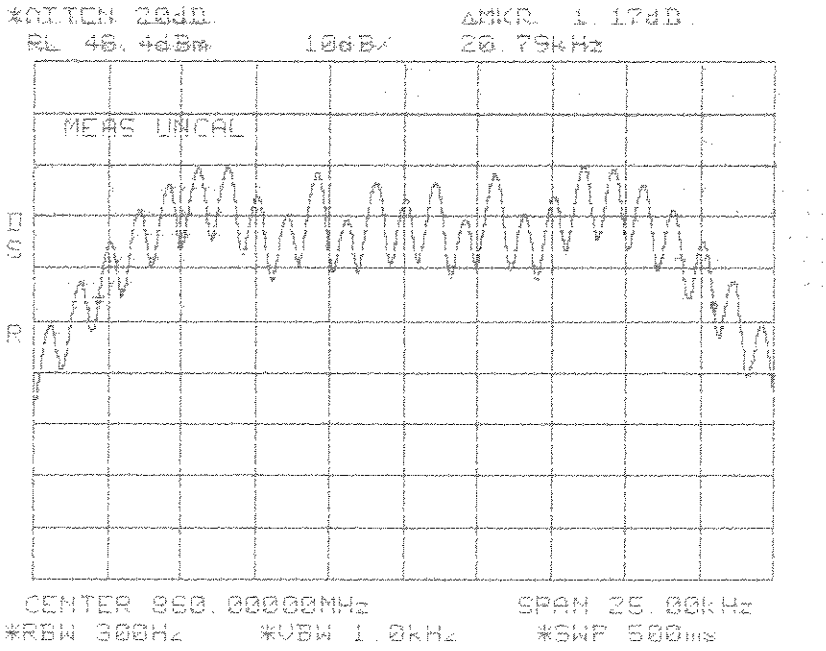
Results:

Pass (see plots)

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



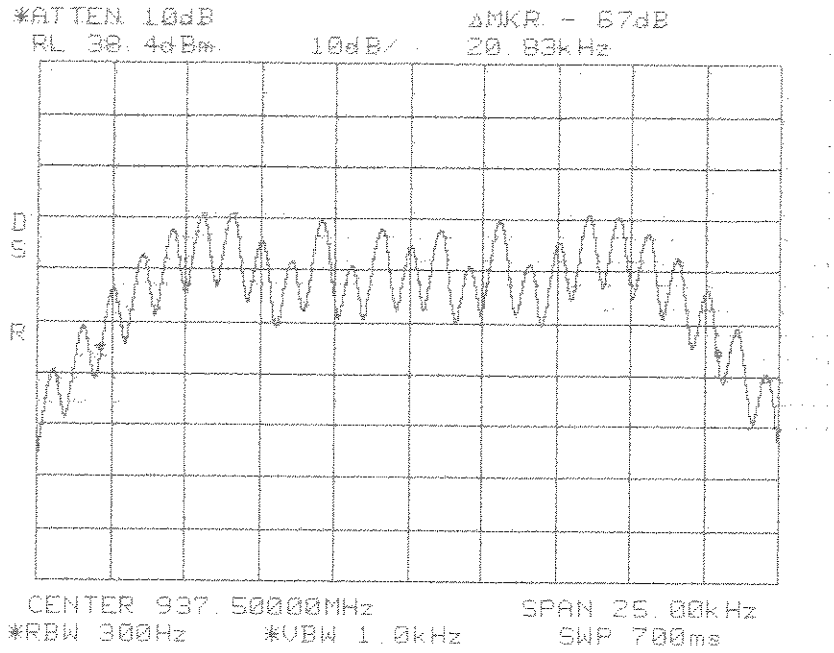
Occupied Bandwidth
FM
Signal In



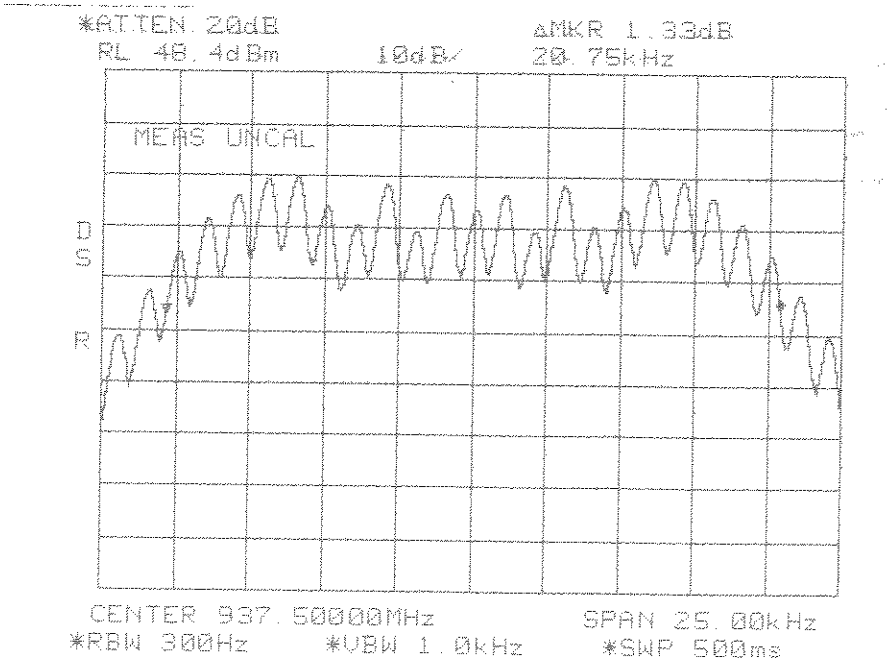
Occupied Bandwidth
FM
Signal Out

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

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



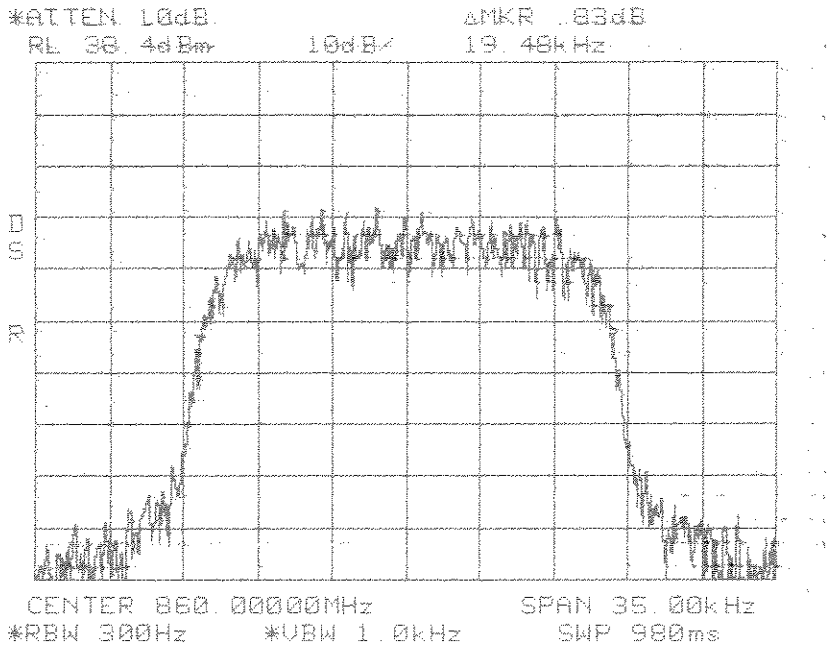
Occupied Bandwidth
FM
Signal In



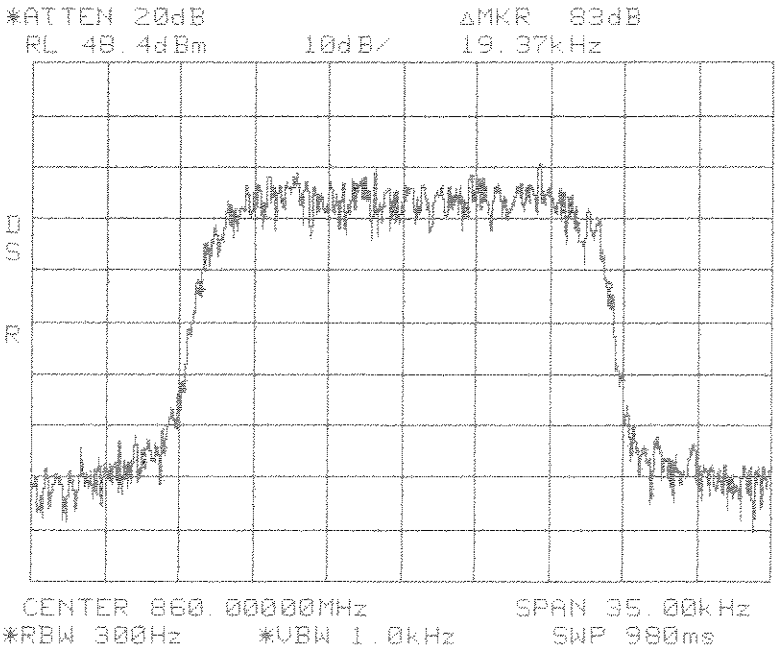
Occupied Bandwidth
FM
Signal Out

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

Span: 35 kHz
RBW: 300 kHz
VBW: 1.0 kHz



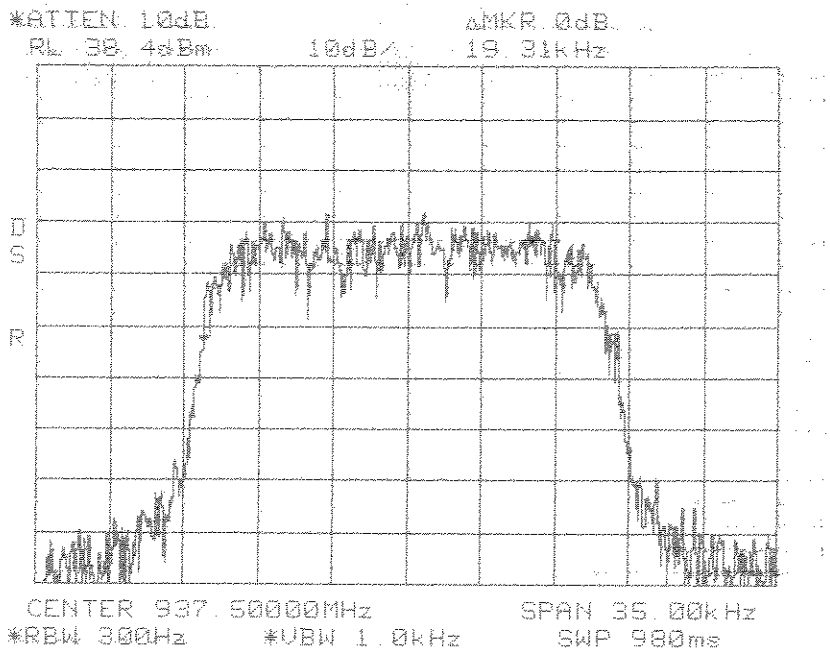
Occupied Bandwidth
16QAM
Signal In



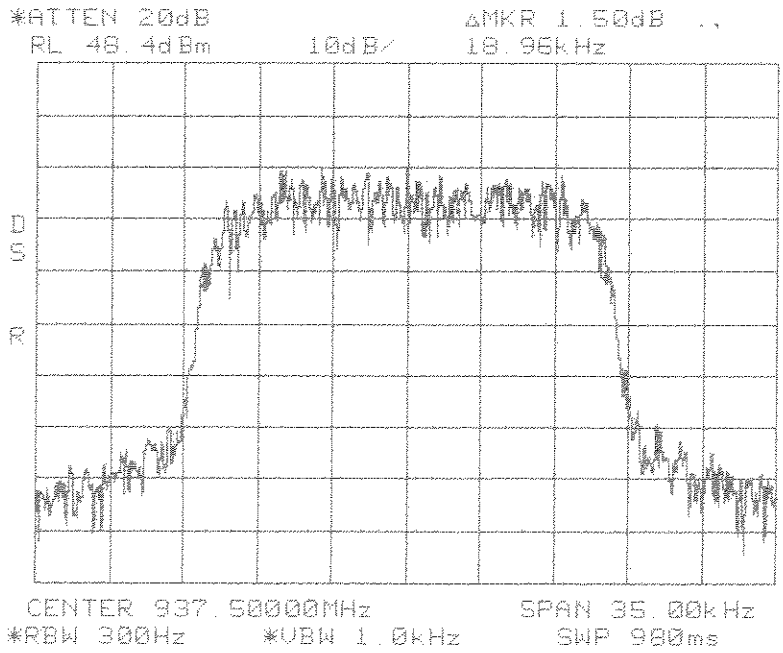
Occupied Bandwidth
16QAM
Signal Out

Span: 35 kHz
RBW: 300 kHz
VBW: 1.0 kHz

Span: 35 kHz
RBW: 300 kHz
VBW: 1.0 kHz



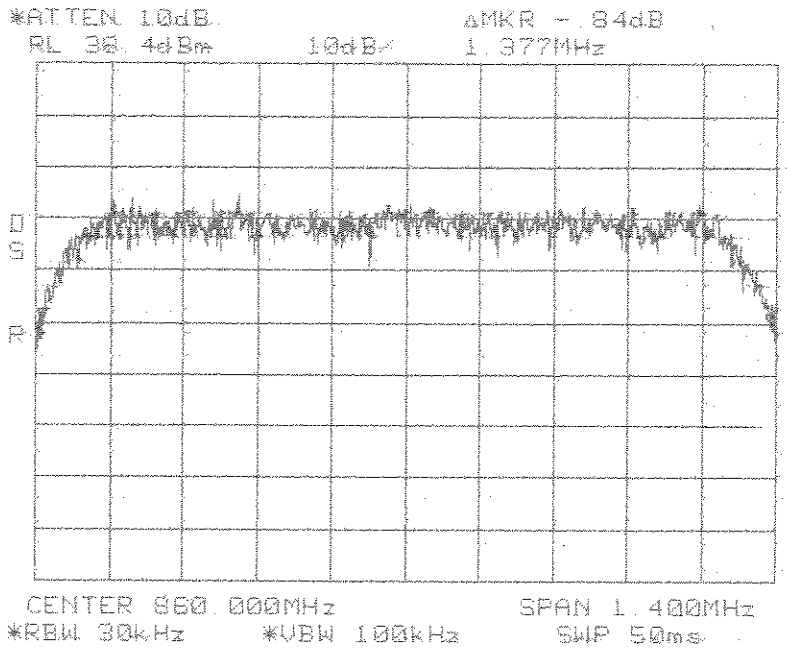
Occupied Bandwidth
16QAM
Signal In



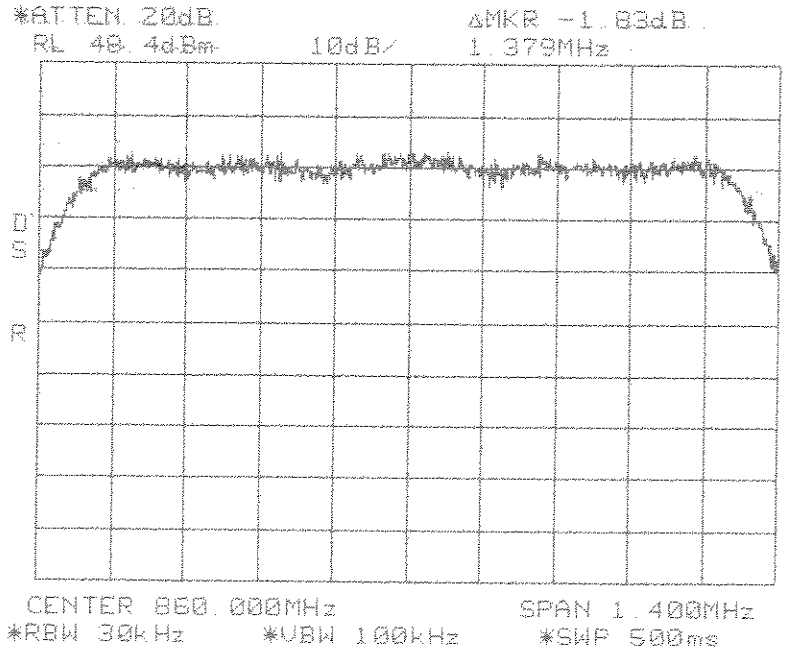
Occupied Bandwidth
16QAM
Signal Out

Span: 35 kHz
RBW: 300 kHz
VBW: 1.0 kHz

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



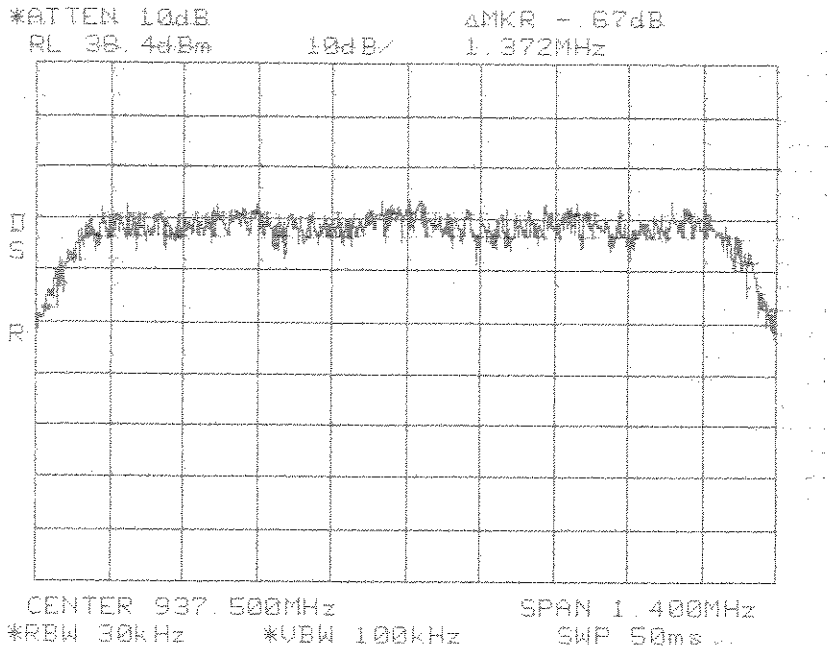
Occupied Bandwidth
CDMA
Signal In



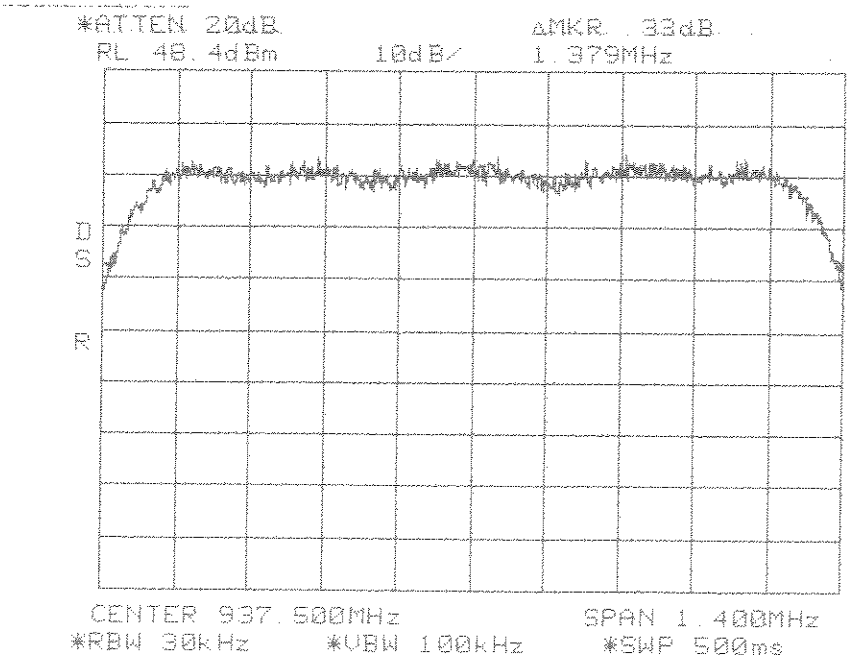
Occupied Bandwidth
CDMA
Signal Out

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

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



Occupied Bandwidth
CDMA
Signal In



Occupied Bandwidth
CDMA
Signal Out

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

Occupied Bandwidth Modulation Test for ADC Inc.
Digivance® Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

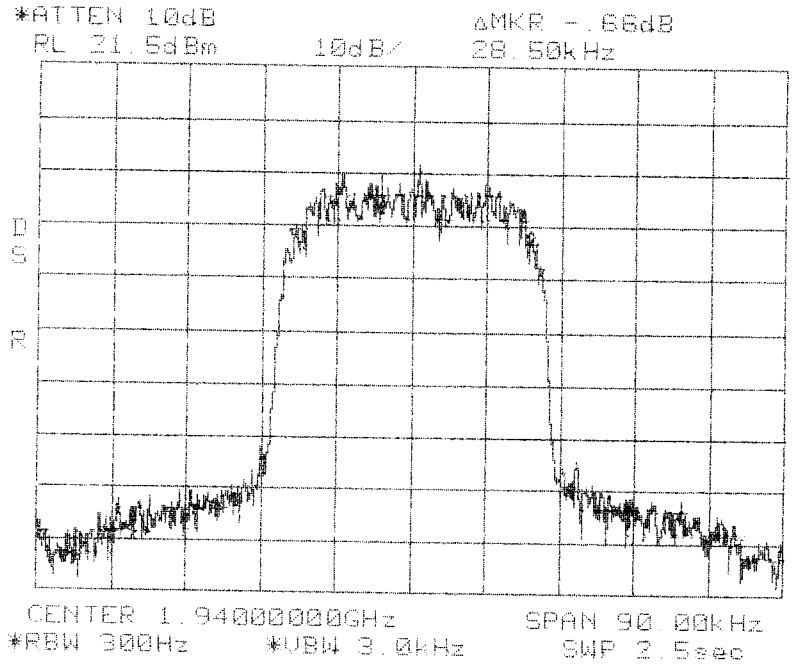
An input/output Occupied Bandwidth test was done with modulation types: TDMA, GSM, CDMA, EVDO, and W-CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

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.

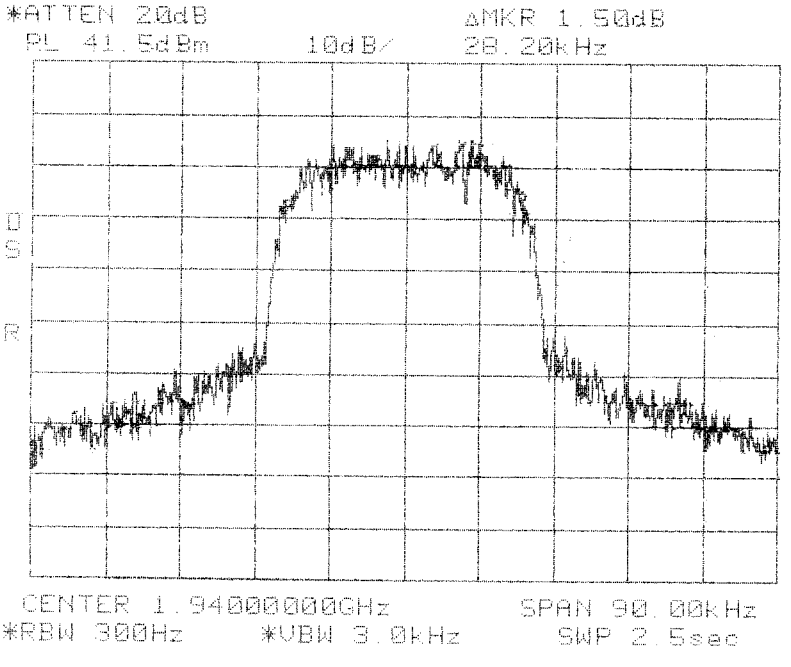
Results:

Pass (see plots)

Center: 1940.0 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz



Occupied Bandwidth
TDMA In
PCS 1900 MHz
AD Band

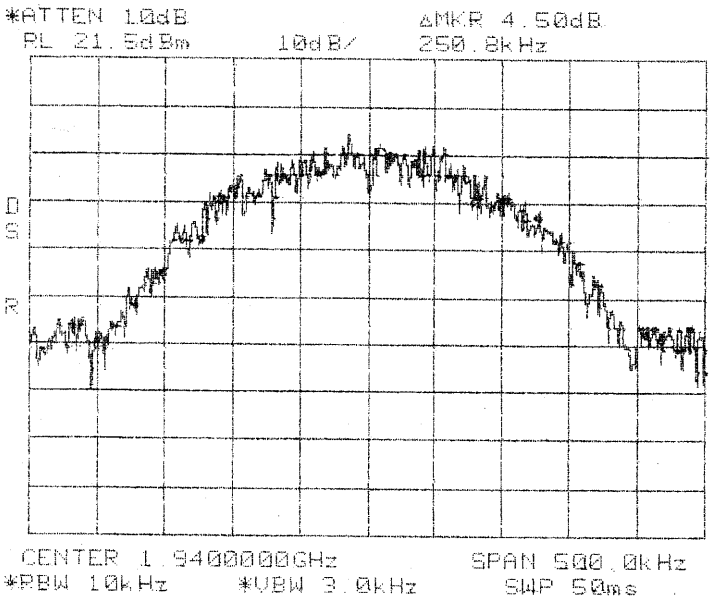


Occupied Bandwidth
TDMA Out
PCS 1900 MHz
AD Band

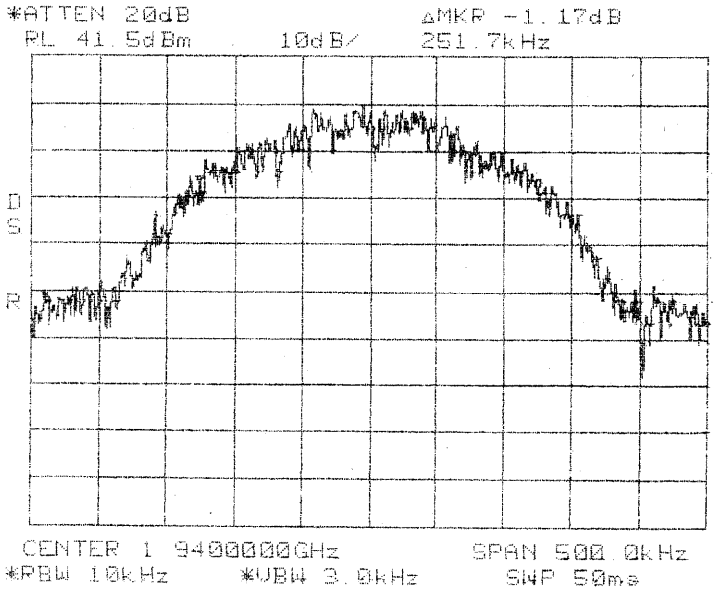
Center: 1940.0 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1940.0 MHz

RBW/VBW: 10 kHz / 3 kHz



Occupied Bandwidth
GSM In
PCS 1900 MHz
AD Band

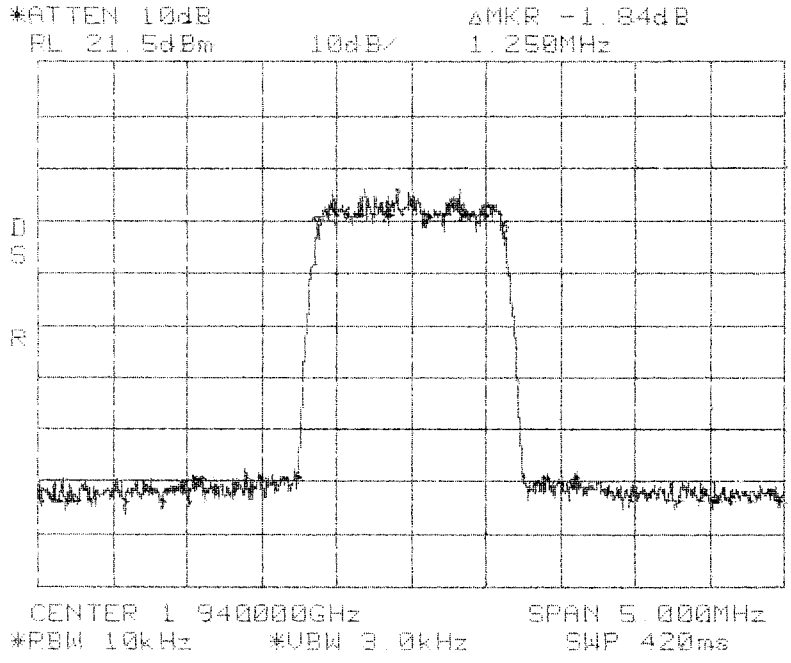


Occupied Bandwidth
GSM Out
PCS 1900 MHz
AD Band

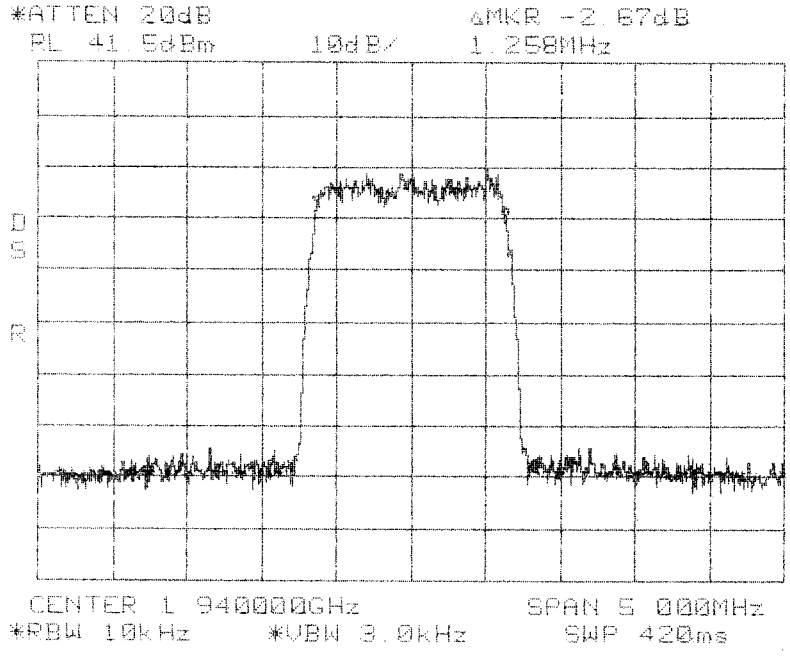
Center: 1940.0 MHz

RBW/VBW: 10 kHz / 3 kHz

Center: 1940.0 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz



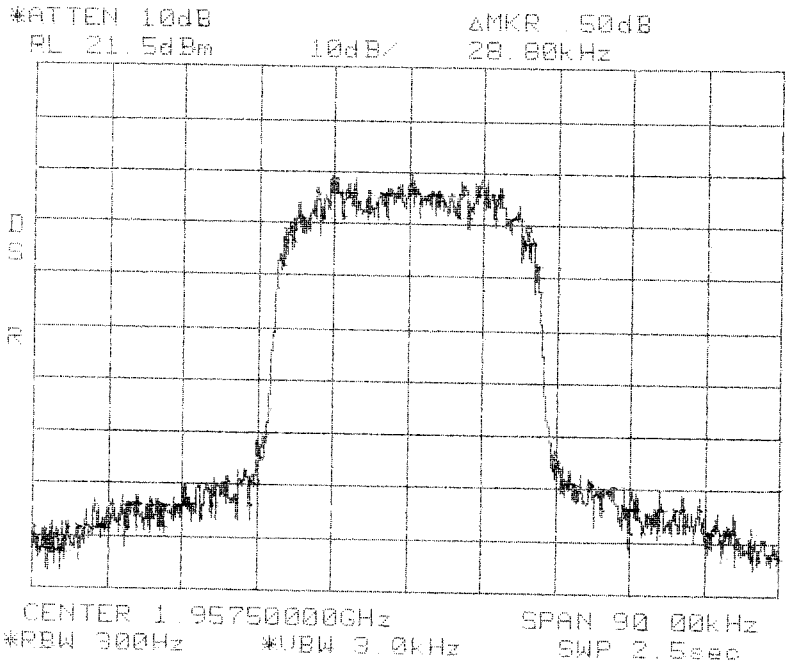
Occupied Bandwidth
CDMA In
PCS 1900 MHz
AD Band



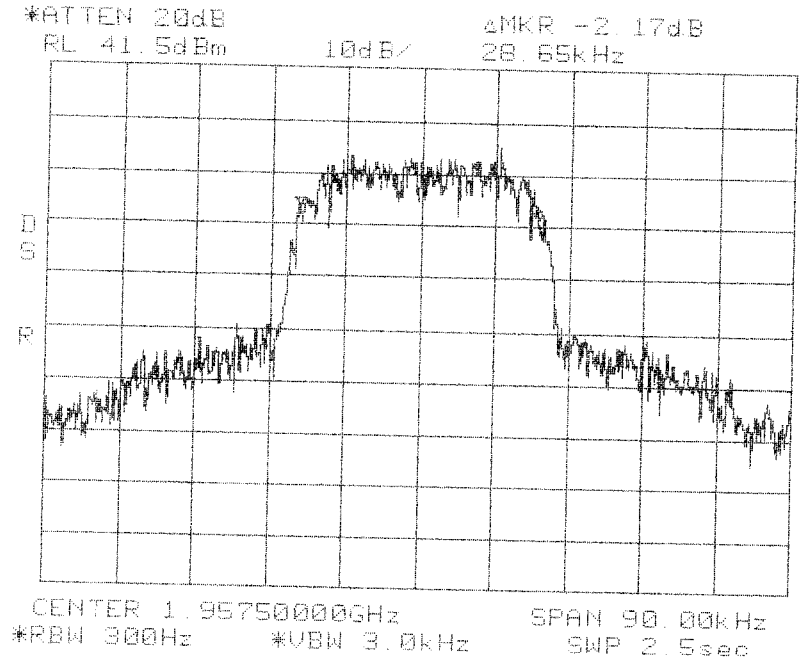
Occupied Bandwidth
CDMA Out
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz

Center: 1957.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz



Occupied Bandwidth
TDMA In
PCS 1900 MHz
DBE Band

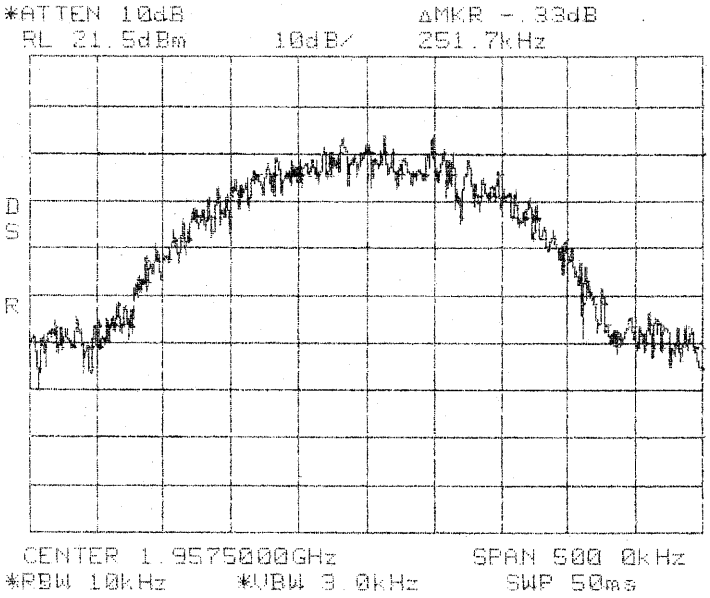


Occupied Bandwidth
TDMA Out
PCS 1900 MHz
DBE Band

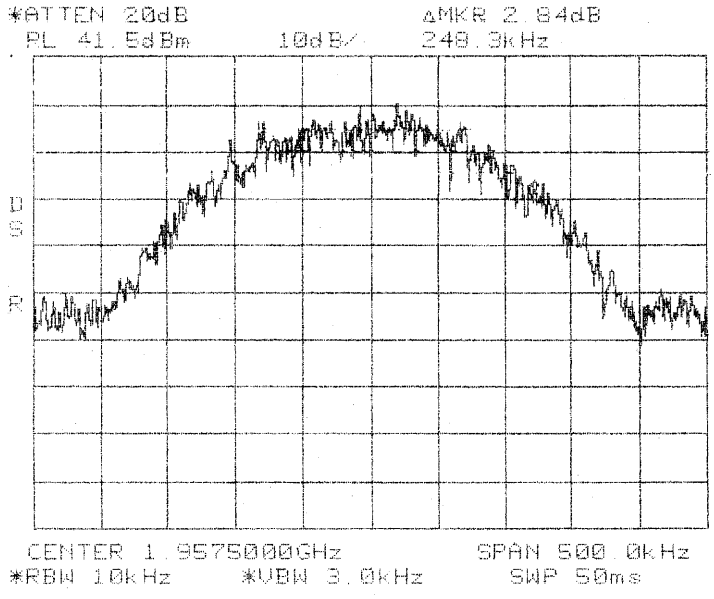
Center: 1957.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1957.5 MHz

RBW/VBW: 10 kHz / 3 kHz



Occupied Bandwidth
GSM In
PCS 1900 MHz
DBE Band

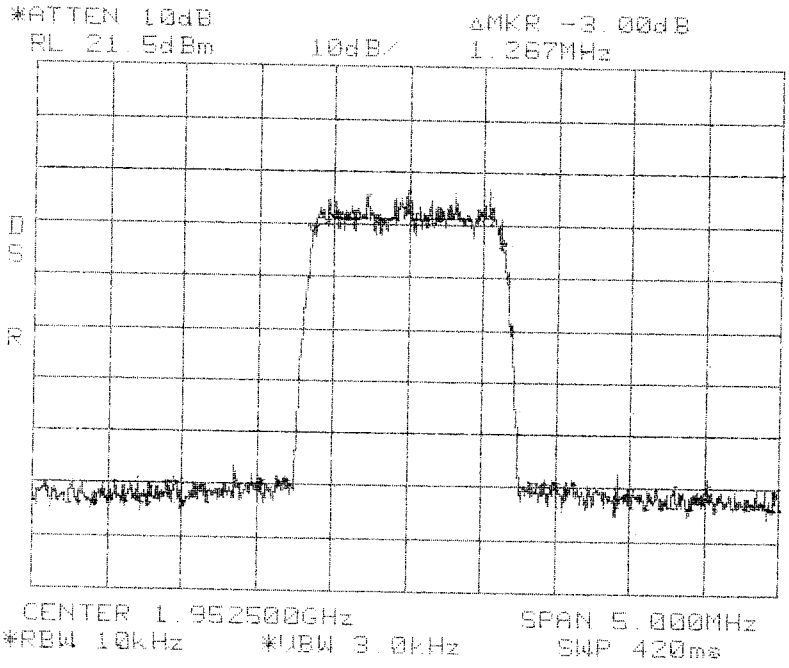


Occupied Bandwidth
GSM Out
PCS 1900 MHz
DBE Band

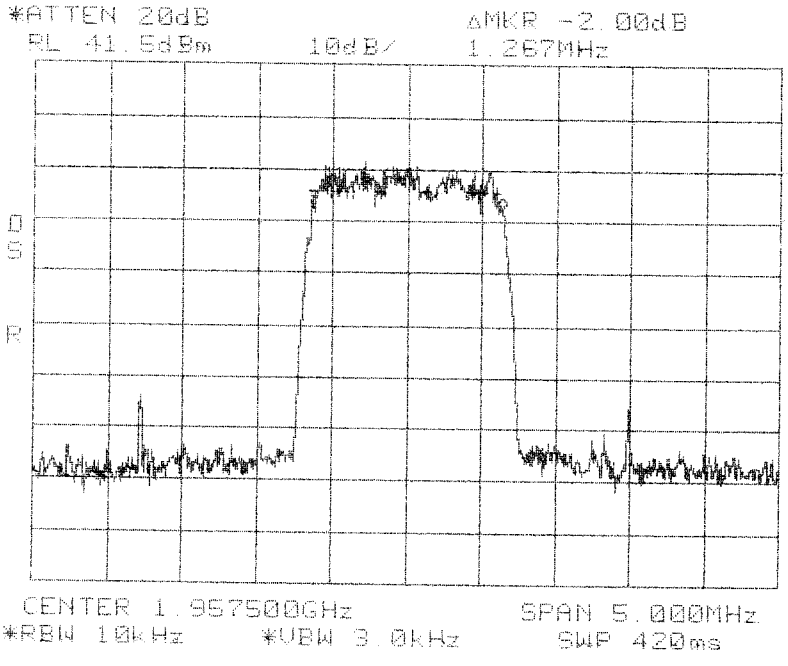
Center: 1957.5 MHz

RBW/VBW: 10 kHz / 3 kHz

Center: 1957.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz



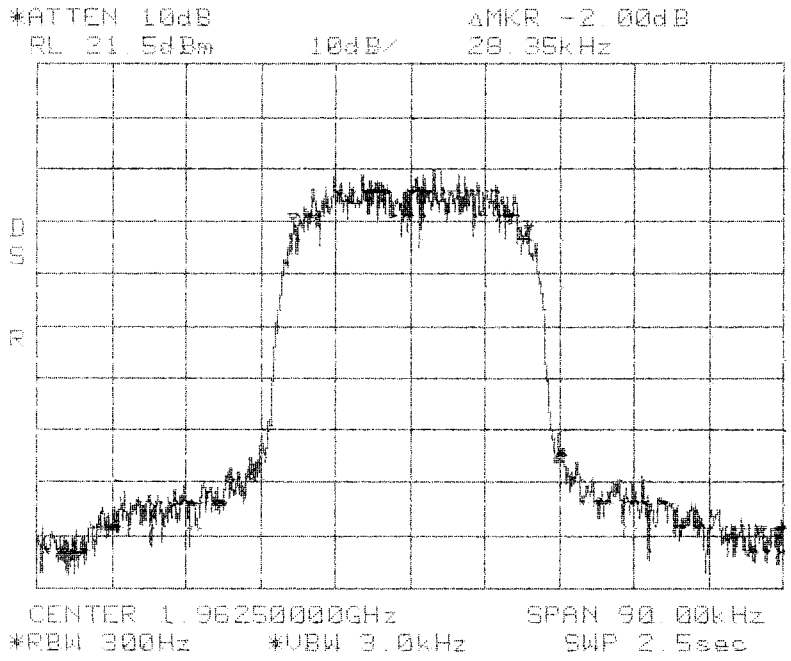
Occupied Bandwidth
CDMA In
PCS 1900 MHz
DBE Band



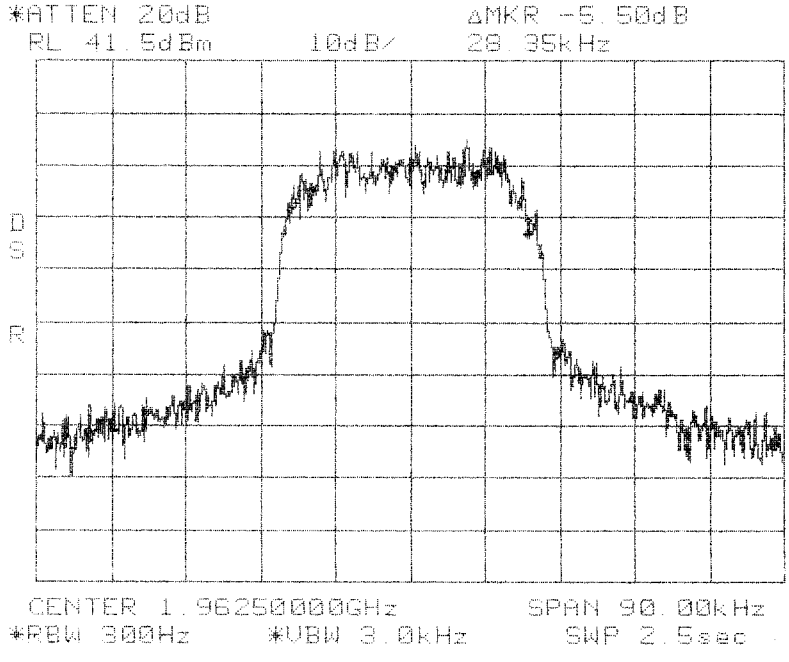
Occupied Bandwidth
CDMA Out
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz

Center: 1962.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz



Occupied Bandwidth
TDMA In
PCS 1900 MHz
BEF Band

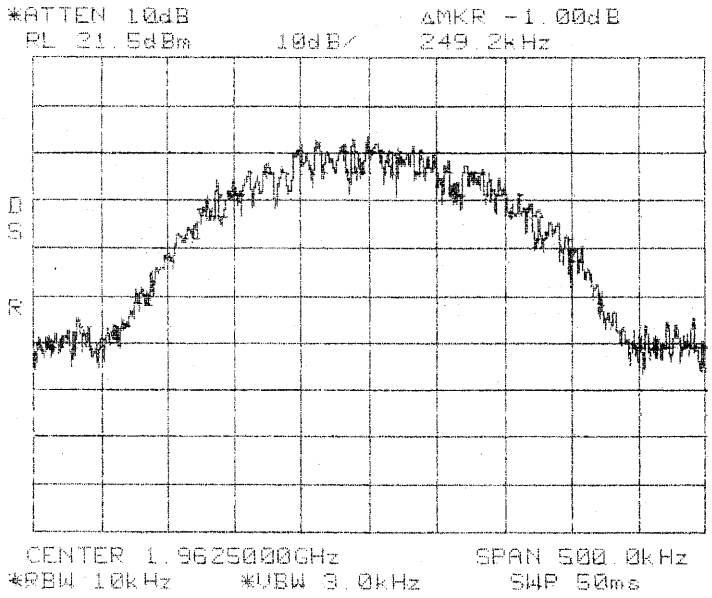


Occupied Bandwidth
TDMA Out
PCS 1900 MHz
BEF Band

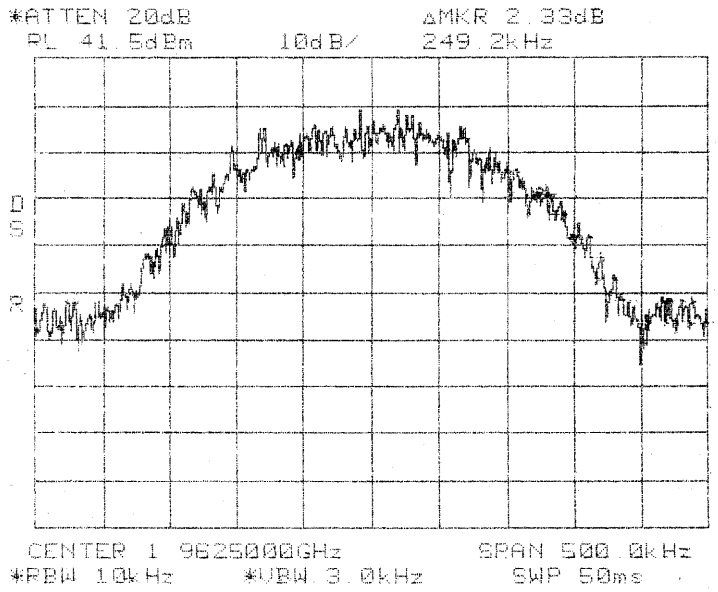
Center: 1962.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1962.5 MHz

RBW/VBW: 10 kHz / 3 kHz



Occupied Bandwidth
GSM In
PCS 1900 MHz
BEF Band

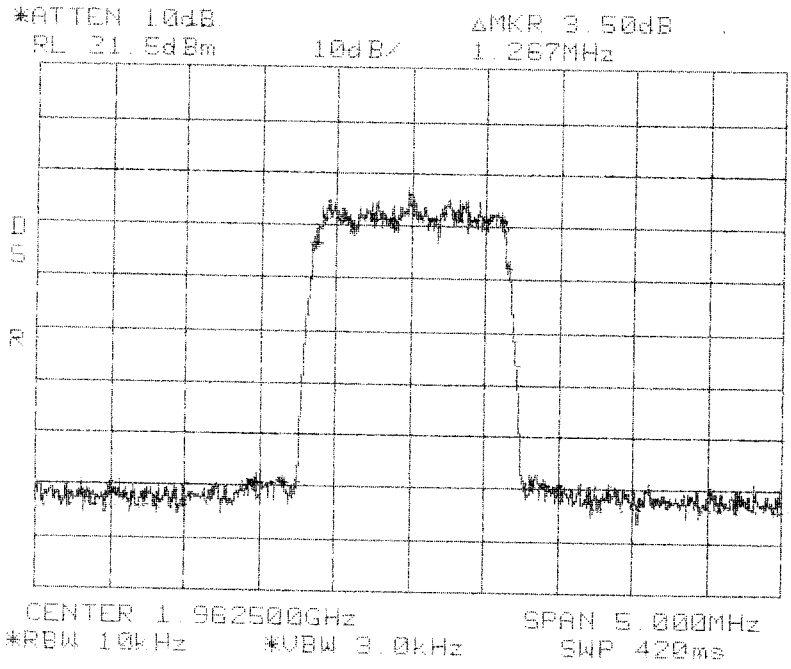


Occupied Bandwidth
GSM Out
PCS 1900 MHz
BEF Band

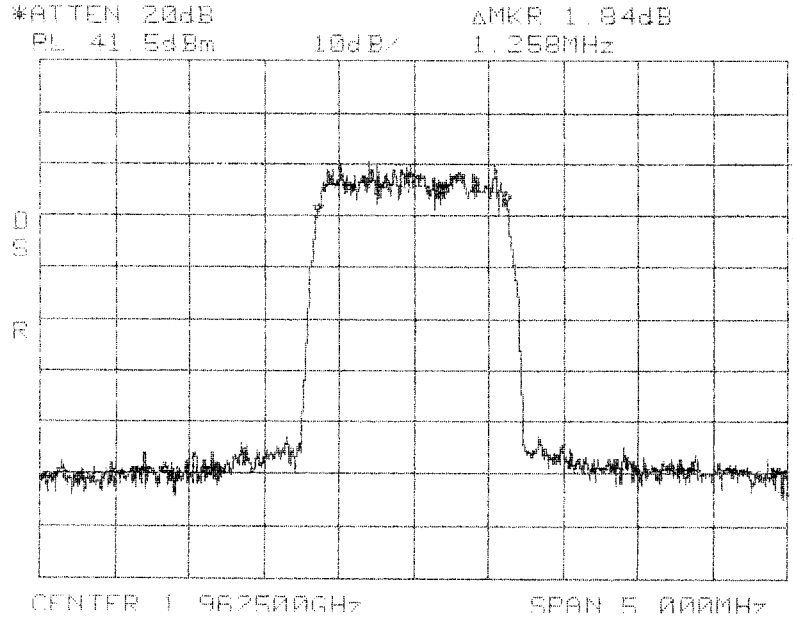
Center: 1962.5 MHz

RBW/VBW: 10 kHz / 3 kHz

Center: 1962.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz



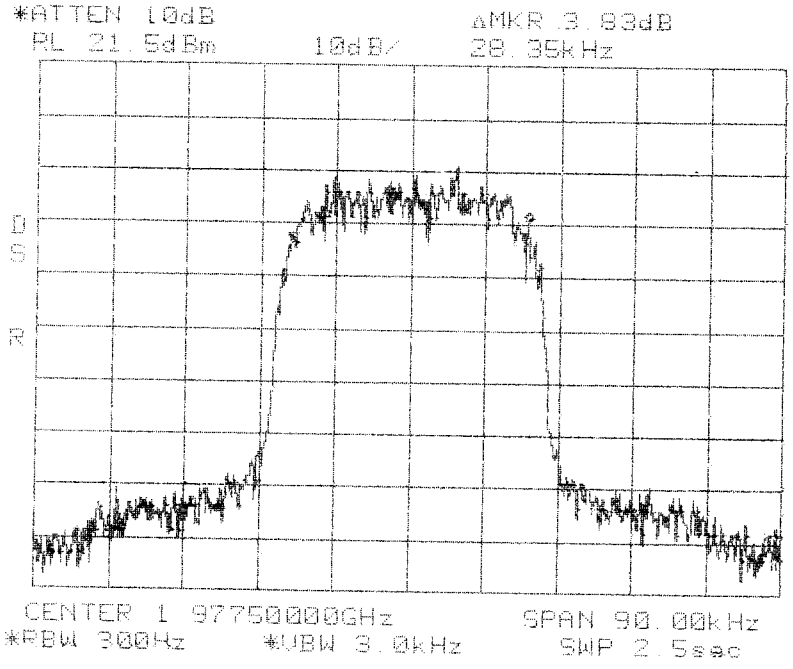
Occupied Bandwidth
CDMA In
PCS 1900 MHz
BEF Band



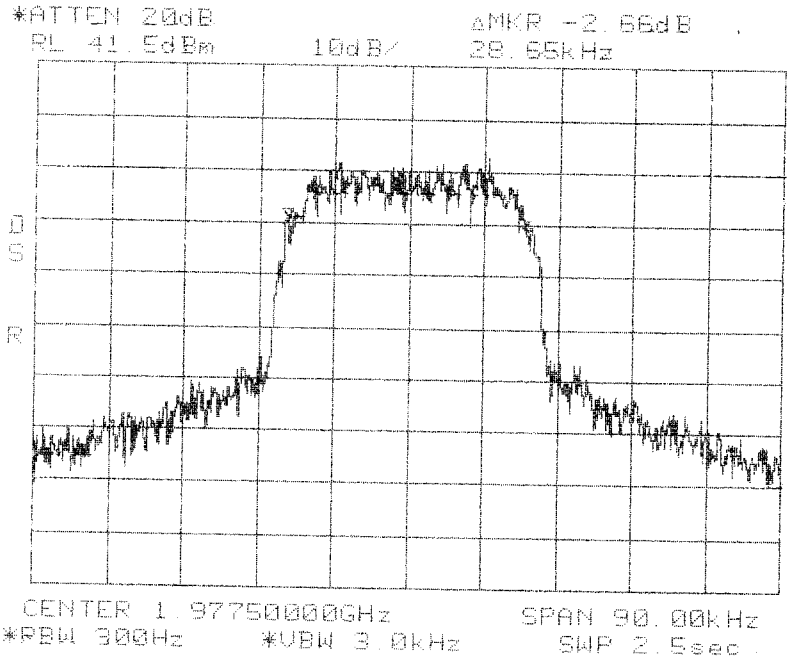
Occupied Bandwidth
CDMA Out
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz

Center: 1977.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz



Occupied Bandwidth
TDMA In
PCS 1900 MHz
EFC Band

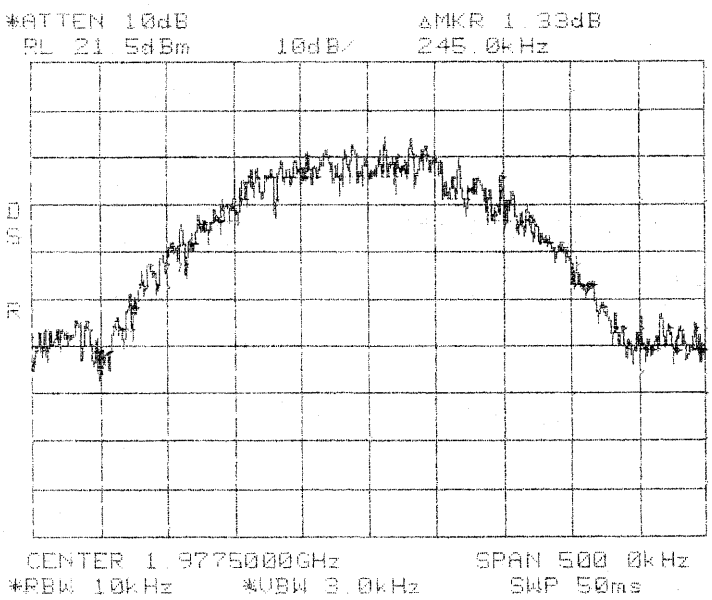


Occupied Bandwidth
TDMA Out
PCS 1900 MHz
EFC Band

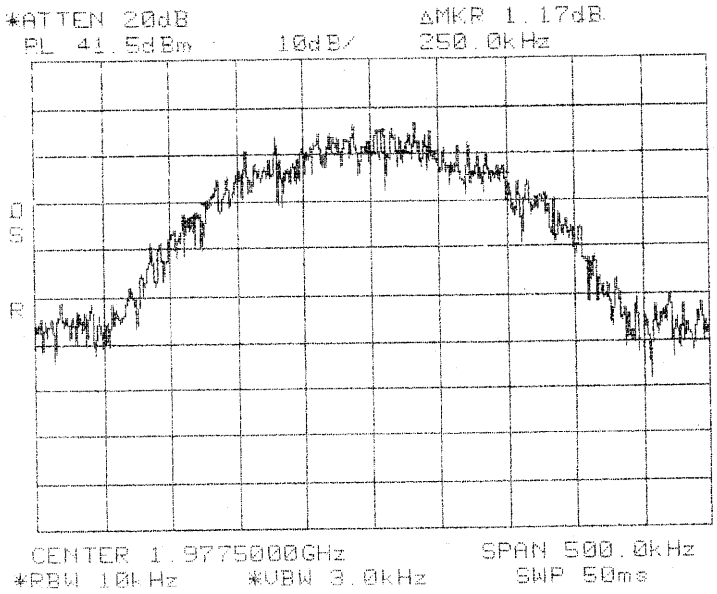
Center: 1977.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1977.5 MHz

RBW/VBW: 10 kHz / 3 kHz



Occupied Bandwidth
GSM In
PCS 1900 MHz
EFC Band

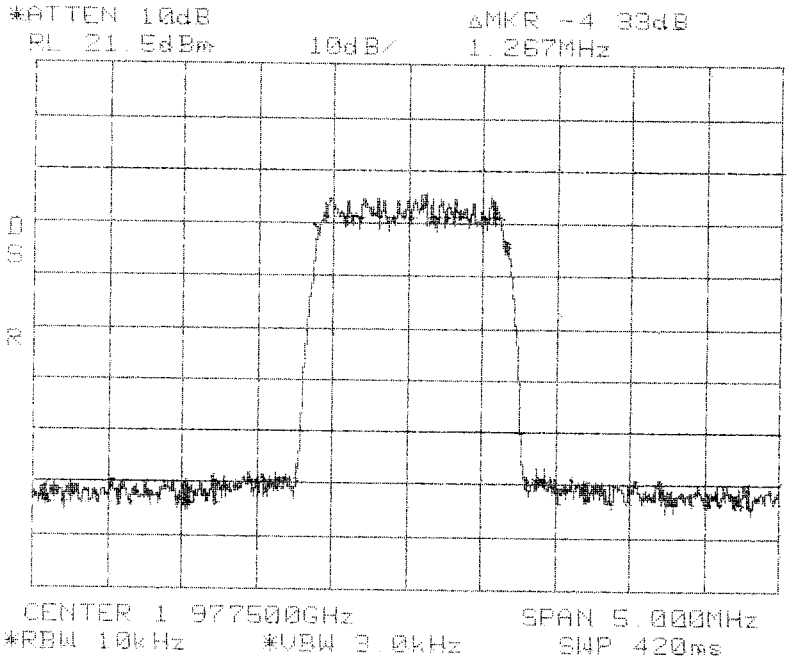


Occupied Bandwidth
GSM Out
PCS 1900 MHz
EFC Band

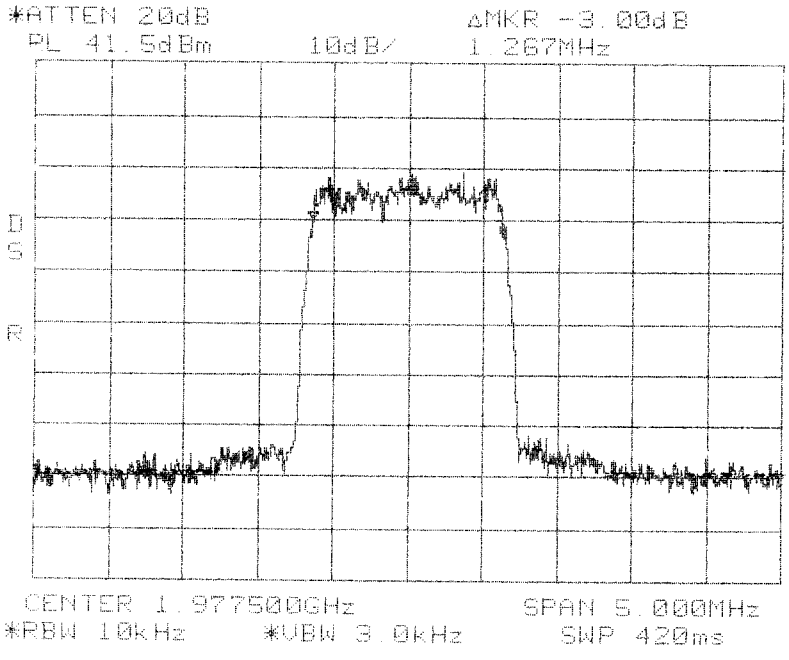
Center: 1977.5 MHz

RBW/VBW: 10 kHz / 3 kHz

Center: 1977.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz



Occupied Bandwidth
CDMA In
PCS 1900 MHz
EFC Band



Occupied Bandwidth
CDMA Out
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 5 MHz
RBW/VBW: 10 kHz / 3 kHz

Conducted Emission Limits Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10th harmonic of the highest carrier frequency. Test signals used are FM and 16 QAM. The different signals were input one at a time to the EUT. In all cases, the out of band emissions were less than –13dBm from the equation

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

Band edge compliance is also demonstrated using a FM signal at the upper and lower limits of the band.

The Host unit connects directly to the BTS via coax. The Host unit does not connect to an antenna or amplifier, thus it is a Part 15 device and has been tested and is compliant as such. No FCC ID is necessary.

Industry practice has generally set the input signal power level. Test signal used was ≈ -40 dBm input to the Host unit.
Industry practice has generally set the output signal power level.

Host Unit:
Range: 24 - 48 VDC
Tested @: 48 VDC
Tested @: 1.53 A

Remote Unit:
Range: 115-230 VAC
Tested @: 120 VAC
Tested @: 4.2 A

Application details for 2.1033(c)(10), and 2.1033(c)(13):

The input to the host unit has a digital attenuation chip (ALC) to provide protection from overdrive with 5-10 millisecond attack time / 100 millisecond decay time and 31 dB of head room, such that single channel operation, or multi-channel operation will not exceed nominal gain of the system.

The frequency stability is derived by the BTS, base transceiver station. This product uses internal frequency stability to keep the signal inside our filter bandwidths. This means that the frequency can change, but the frequency that transmits is still at the original frequency. The remote system uses the data over the fiber optic path to phase/frequency lock to the host. The purpose is to frequency lock the up- and down-conversion local oscillators, and thereby eliminate any end-to-end frequency shift.

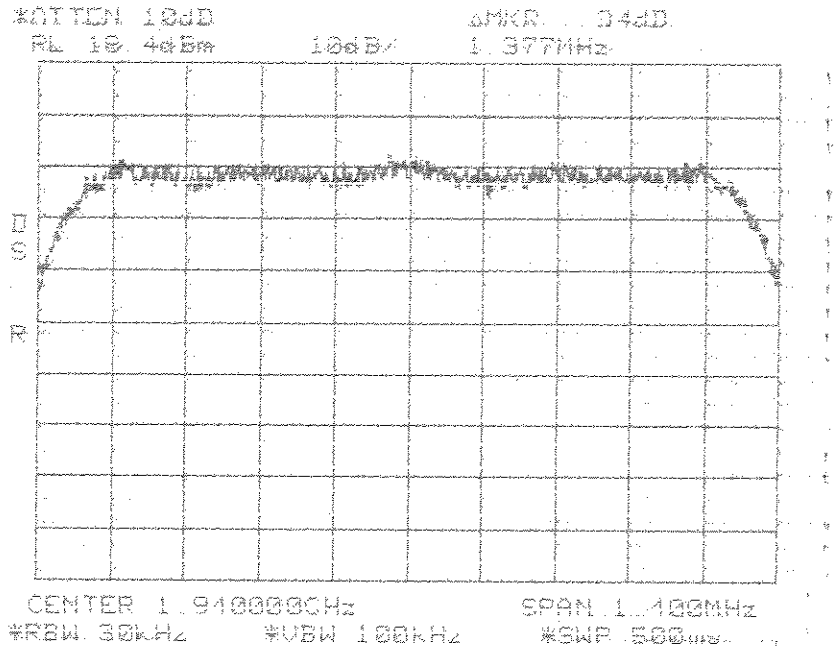
The spurious limitation is completed with the duplexer. The ALC also suppresses in-band spurious by preventing PA overdrive, while the duplexer suppresses out-of-band spurious.

This equipment does not modulate the RF, so there is no modulation limiter. This equipment does not change the modulation of the RF or the occupied bandwidth of any channel. It transports the signal, as is, over an optical link. The RF input is not changed in the RF output.

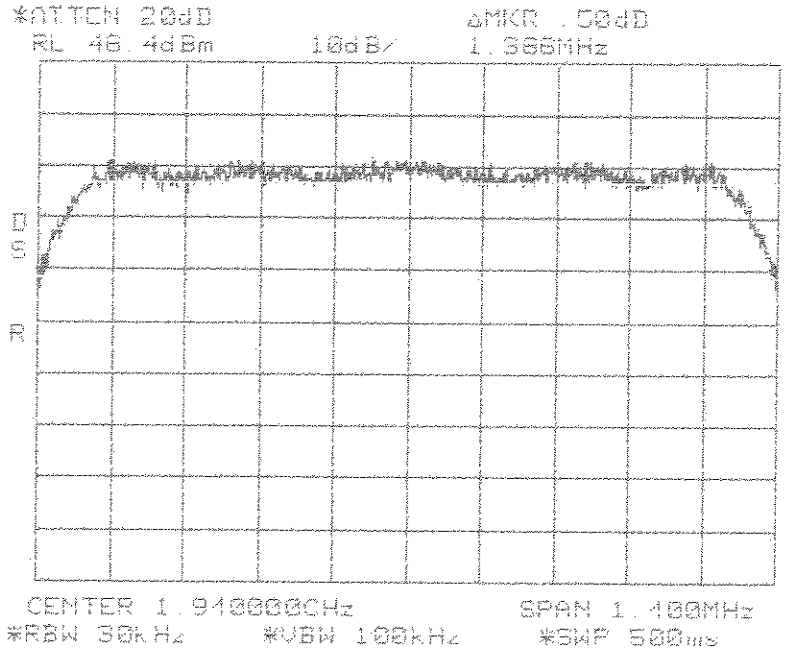
This is a constant gain device, so the setup controls the output. There is an overdrive and overpower limit control that prevents excess power.

Results:
Pass (See plots)

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



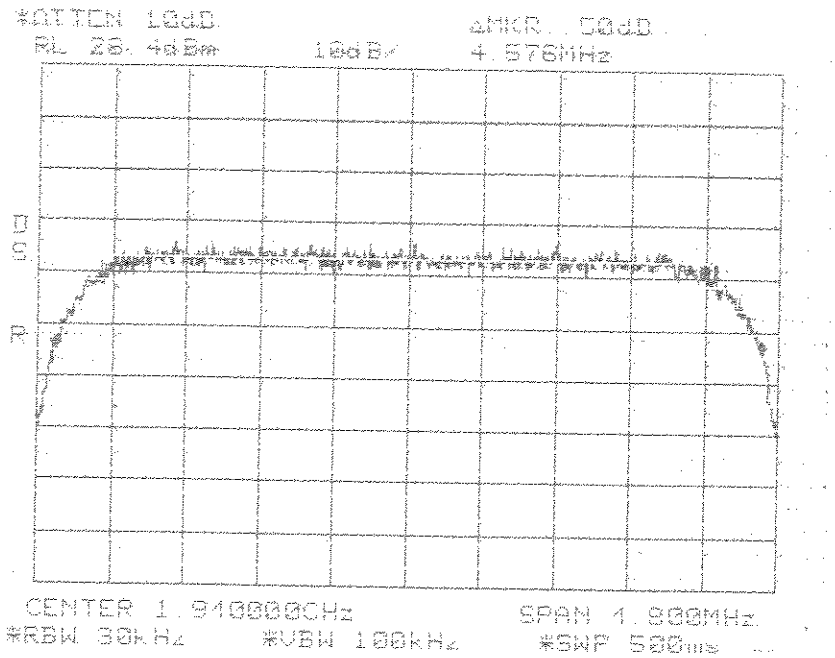
Occupied Bandwidth
EVDO
Signal In



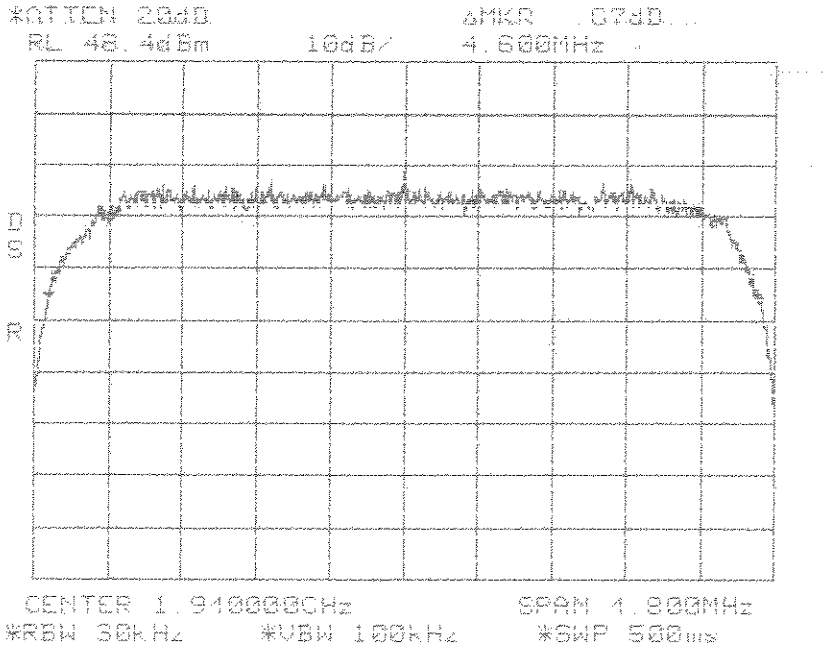
Occupied Bandwidth
EVDO
Signal Out

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

Span: 4.8 MHz
RBW: 30 kHz
VBW: 100 kHz



Occupied Bandwidth
W-CDMA
Signal In



Occupied Bandwidth
W-CDMA
Signal Out

Span: 4.8 MHz
RBW: 30 kHz
VBW: 100 kHz

Conducted Emission Limits Test for ADC Inc.
Digivance Street Coverage Solution
Model Number DGVC-901X4X1X200SYS

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10th harmonic of the highest carrier frequency. Test signals used are FM, 16QAM, and CDMA. The different signals were input one at a time to the EUT. In all cases, the out of band emissions were less than –13dBm from the equation

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

Band edge compliance is also demonstrated using a FM, 16QAM, and CDMA signal at the upper and lower limits of the band.

The Host unit connects directly to the BTS via coax. The Host unit does not connect to an antenna or amplifier, thus it is a Part 15 device and has been tested and is compliant as such. No FCC ID is necessary.

Industry practice has generally set the input signal power level. Test signal used was ≈ -40 dBm input to the Host unit.
Industry practice has generally set the output signal power level.

Host Unit:
Range: 24 - 48 VDC
Tested @: 48 VDC
Tested @: 1.53 A

Remote Unit:
Range: 115-230 VAC
Tested @: 120 VAC
Tested @: 4.2 A

Application details for 2.1033(c)(10), and 2.1033(c)(13):

The input to the host unit has a digital attenuation chip (ALC) to provide protection from overdrive with 5-10 millisecond attack time / 100 millisecond decay time and 31 dB of head room, such that single channel operation, or multi-channel operation will not exceed nominal gain of the system.

The frequency stability is derived by the BTS, base transceiver station. This product uses internal frequency stability to keep the signal inside our filter bandwidths. This means that the frequency can change, but the frequency that transmits is still at the original frequency. The remote system uses the data over the fiber optic path to phase/frequency lock to the host. The purpose is to frequency lock the up- and down-conversion local oscillators, and thereby eliminate any end-to-end frequency shift.

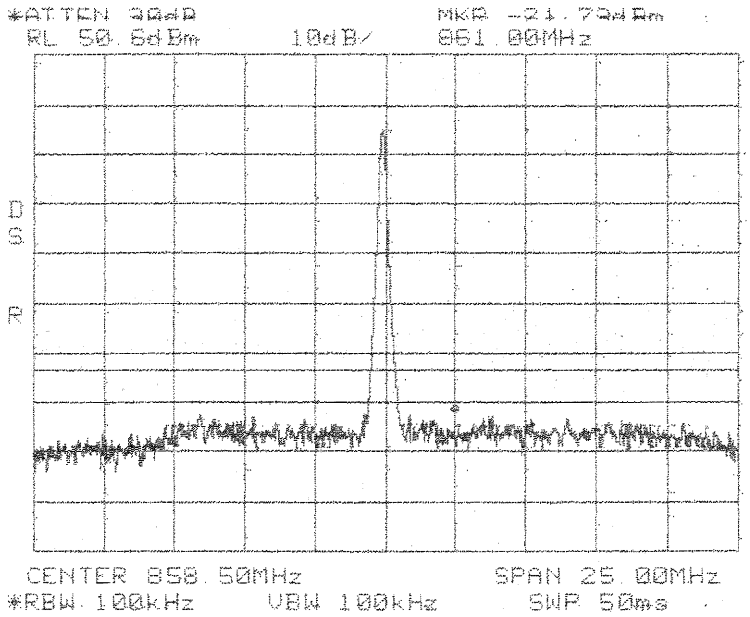
The spurious limitation is completed with the duplexer. The ALC also suppresses in-band spurious by preventing PA overdrive, while the duplexer suppresses out-of-band spurious. Internal to the electronics, the use of SAW filters provides for higher Q roll-off at band edges.

This equipment does not modulate the RF, so there is no modulation limiter. This equipment does not change the modulation of the RF or the occupied bandwidth of any channel. It transports the signal, as is, over an optical link. The RF input is not changed in the RF output.

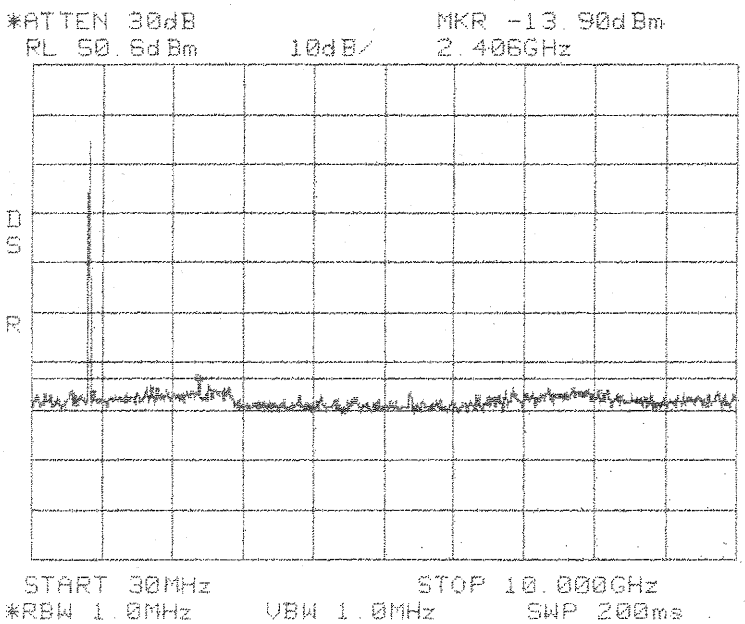
This is a constant gain device, so the setup controls the output. There is an overdrive and overpower limit control that prevents excess power.

Results:
Pass (See plots)

Center: 858.5 MHz
Span: 25 MHz



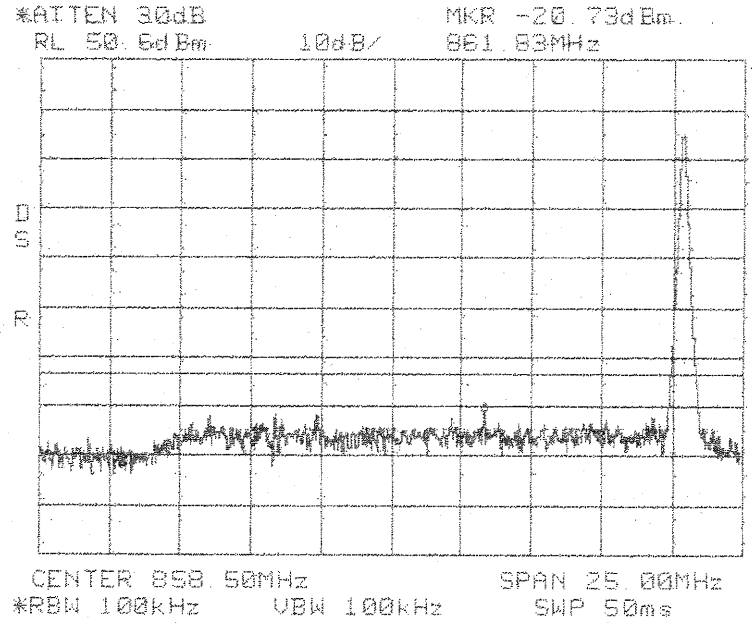
Conducted Emissions
Mid
SMR 800 MHz



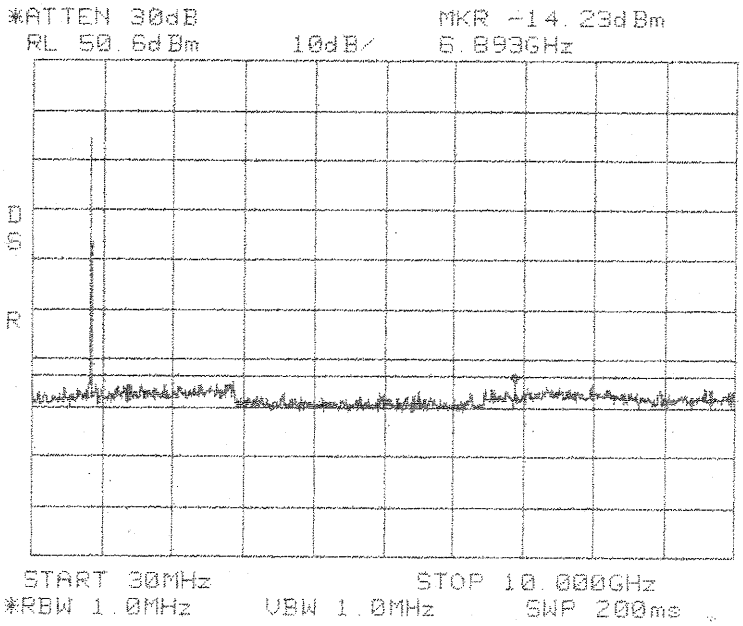
Conducted Emissions
Mid
SMR 800 MHz

Span: 30 MHz to 10 GHz
RBW/VBW: 1 MHz

Center: 858.5 MHz
Span: 25 MHz



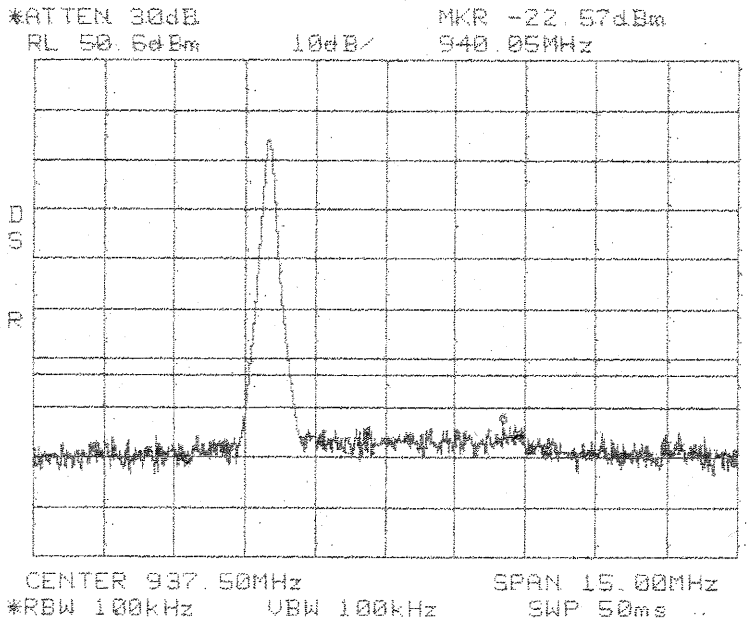
Conducted Emissions
High
SMR 800 MHz



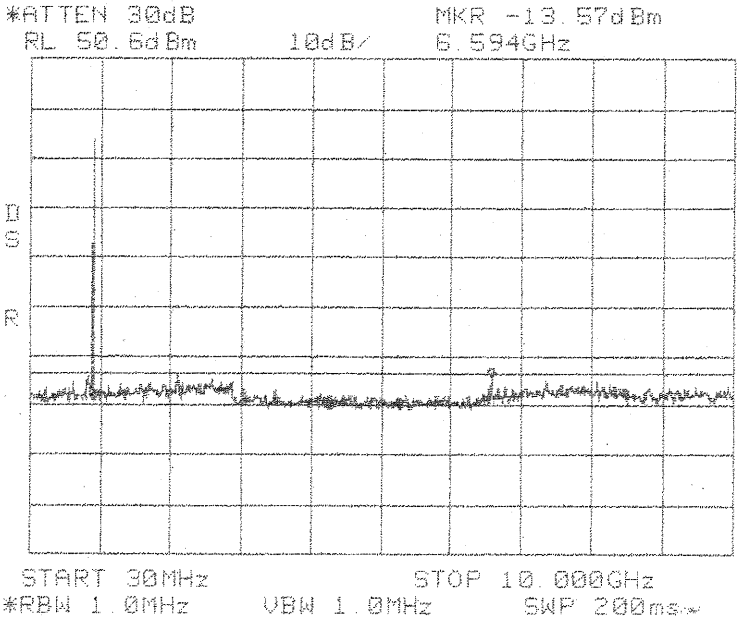
Conducted Emissions
High
SMR 800 MHz

Span: 30 MHz to 10 GHz
RBW/VBW: 1 MHz

Center: 937.5 MHz
Span: 15 MHz



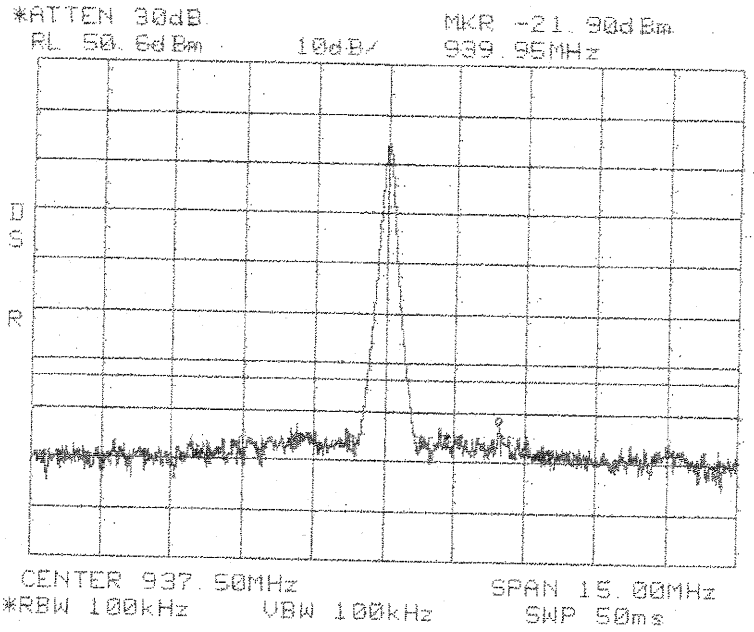
Conducted Emissions
Low
SMR 900 MHz



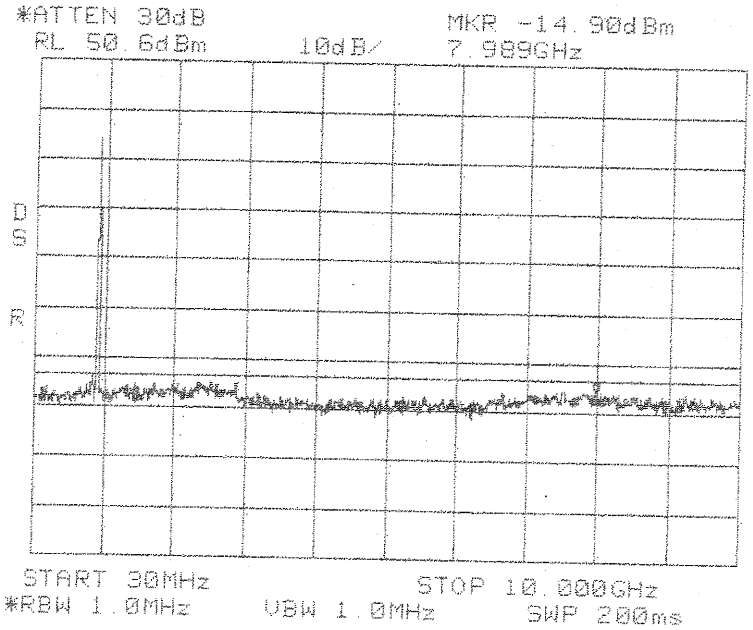
Conducted Emissions
Low
SMR 900 MHz

Span: 30 MHz to 10 GHz
RBW/VBW: 1 MHz

Center: 937.5 MHz
Span: 15 MHz



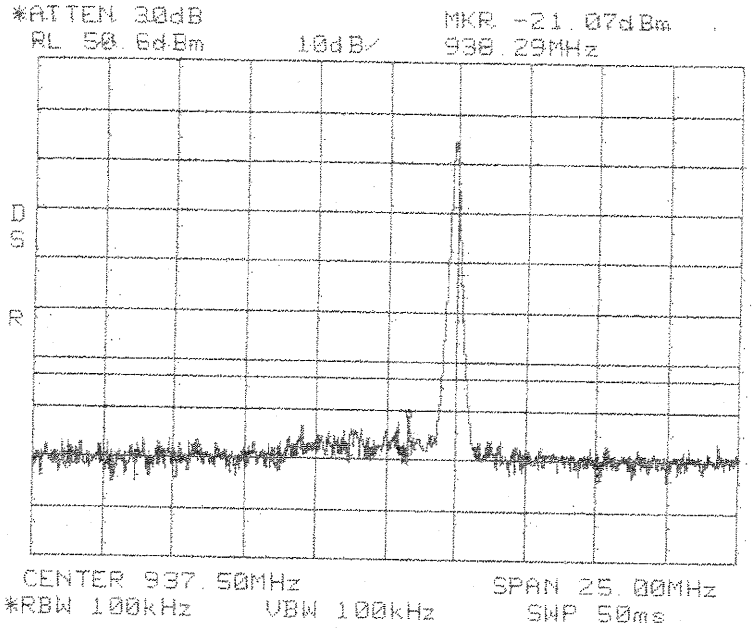
Conducted Emissions
Mid
SMR 900 MHz



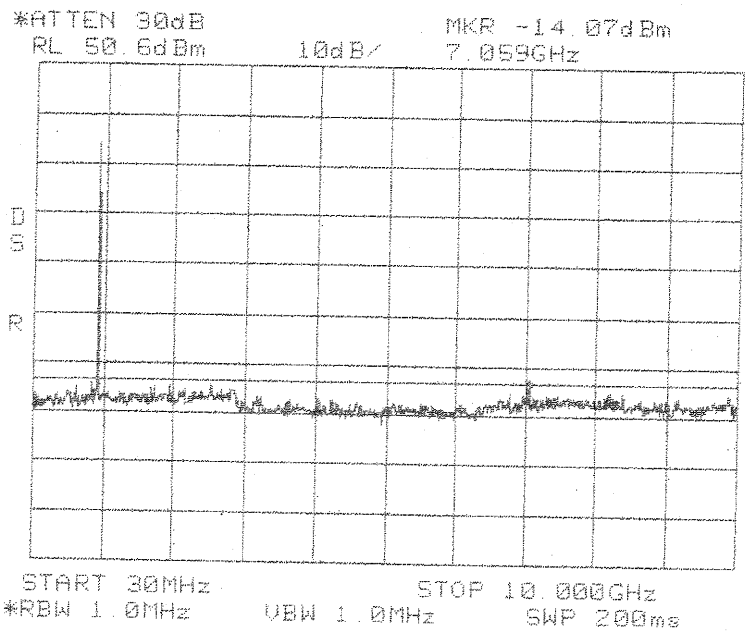
Conducted Emissions
Mid
SMR 900 MHz

Span: 30 MHz to 10 GHz
RBW/VBW: 1 MHz

Center: 937.5 MHz
Span: 15 MHz



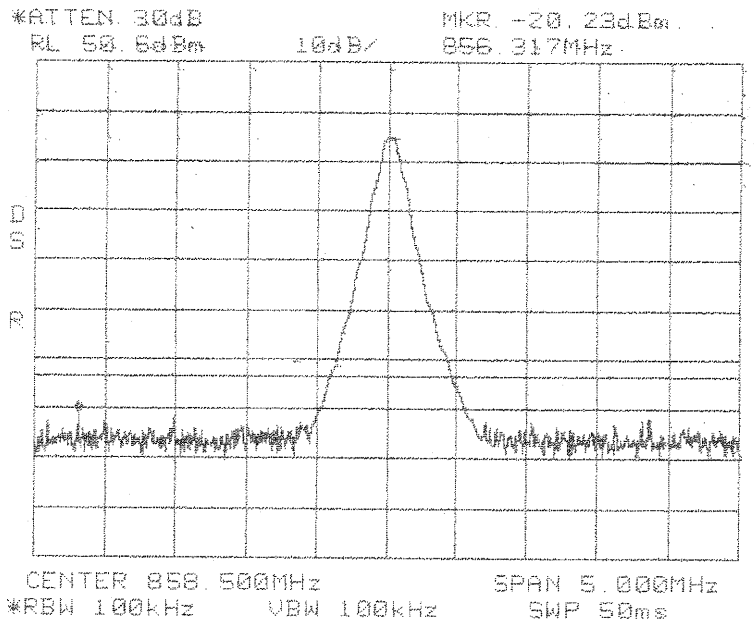
Conducted Emissions
High
SMR 900 MHz



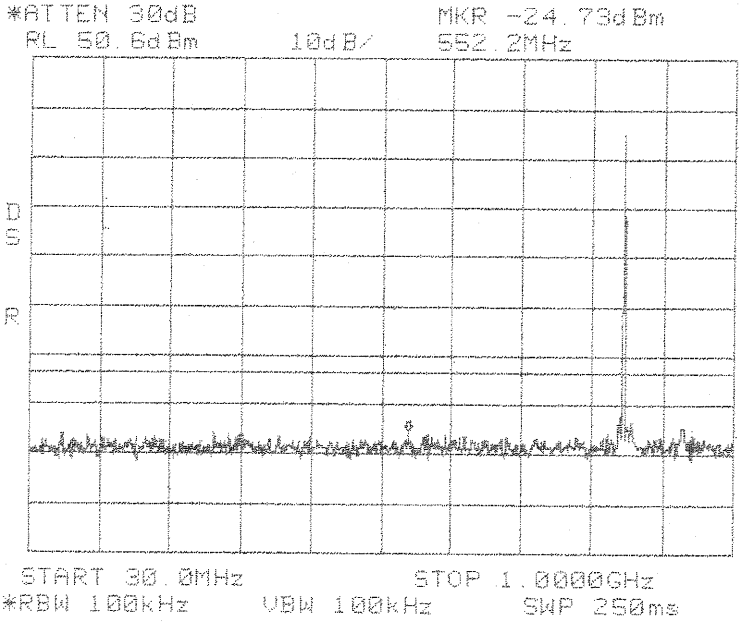
Conducted Emissions
High
SMR 900 MHz

Span: 30 MHz to 10 GHz
RBW/VBW: 1 MHz

Center: 858.5 MHz
Span: 5 MHz



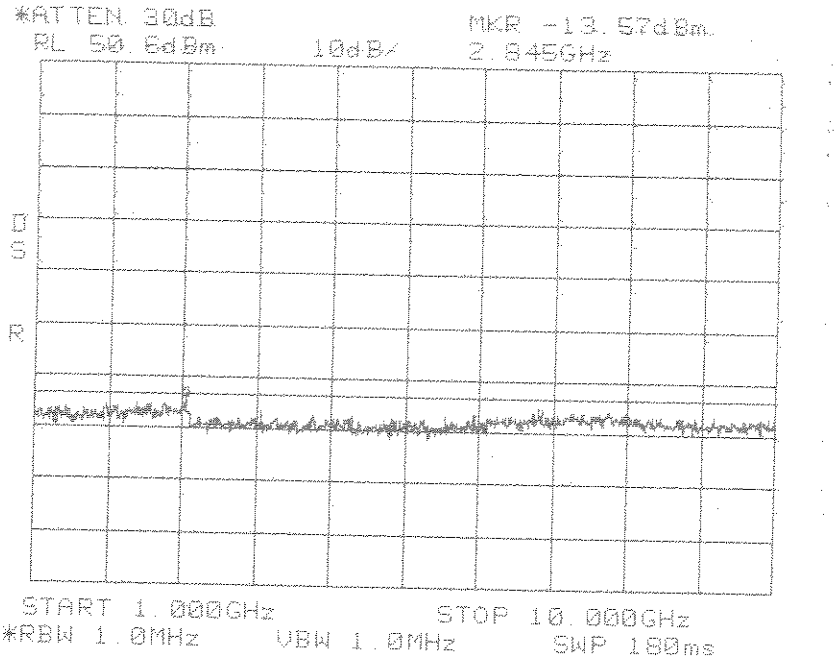
Conducted Emissions
FM
SMR 800 MHz



Conducted Emissions
FM
SMR 800 MHz

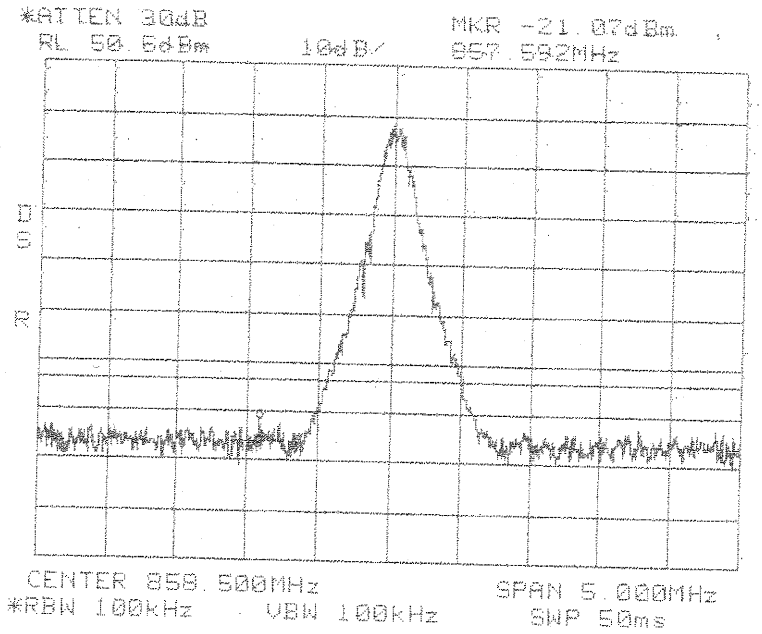
Span: 30 MHz to 1 GHz
RBW/VBW: 30 kHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

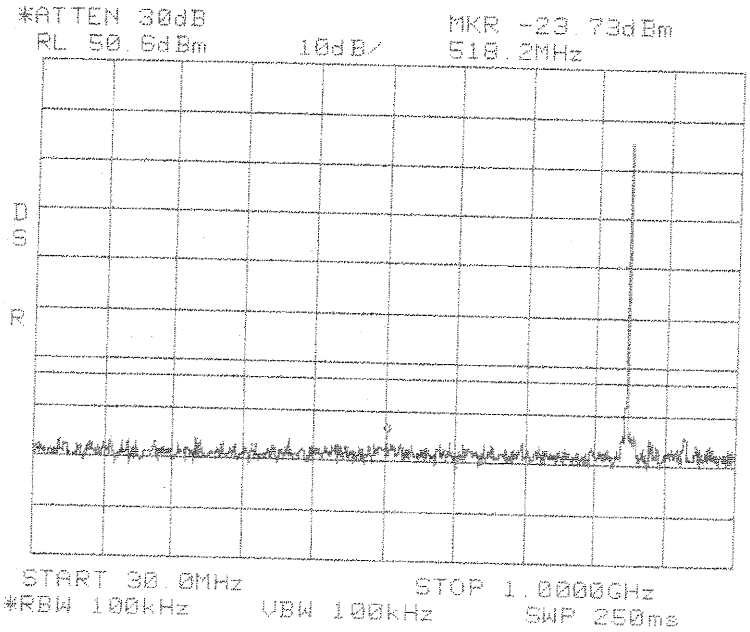


Conducted Emissions
FM
SMR 800 MHz

Center: 858.5 MHz
Span: 5 MHz



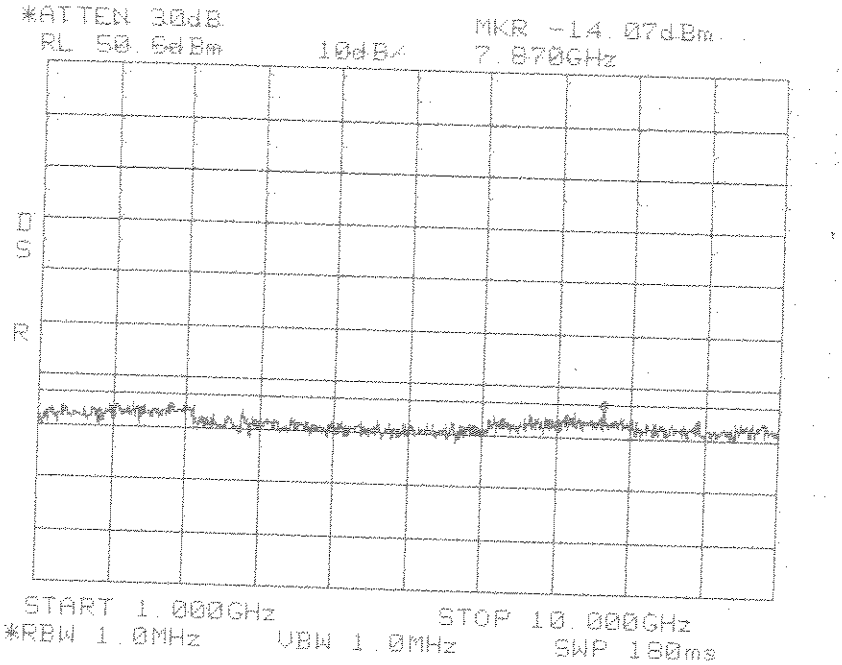
Conducted Emissions
16QAM
SMR 800 MHz



Conducted Emissions
16QAM
SMR 800 MHz

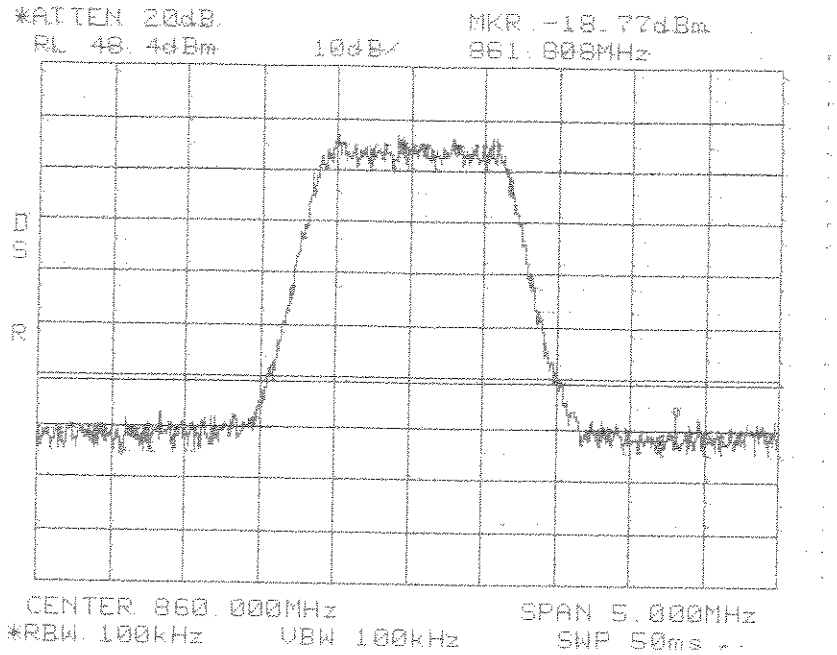
Span: 30 MHz to 1 GHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

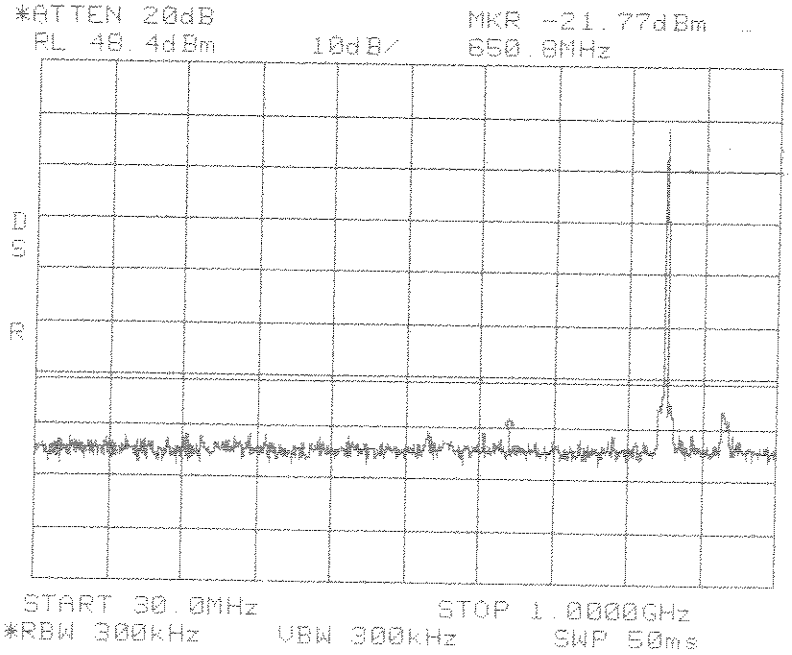


Conducted Emissions
16QAM
SMR 800 MHz

Center: 860.0 MHz
Span: 5 MHz
RBW/VBW: 100 kHz



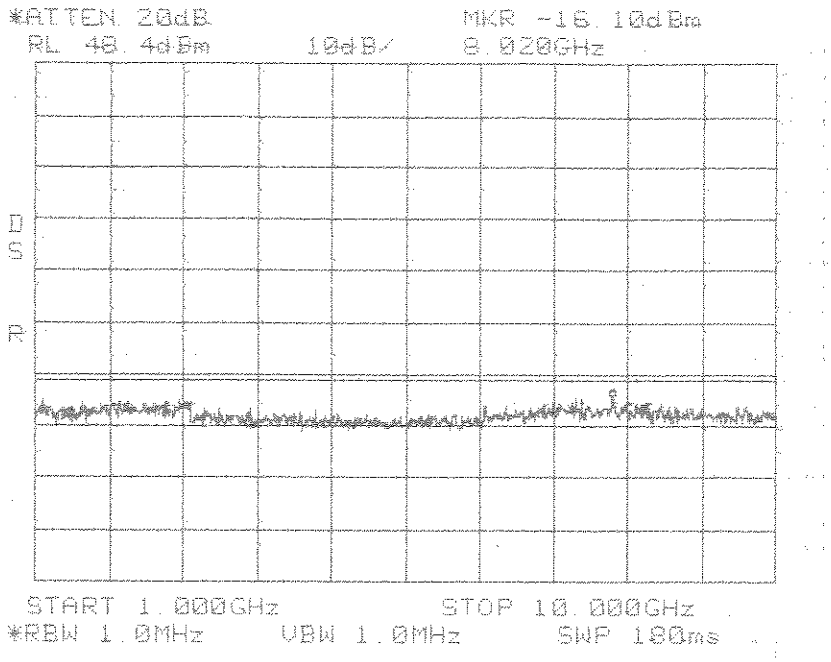
Conducted Emissions
CDMA
SMR 800 MHz



Conducted Emissions
CDMA
SMR 800 MHz

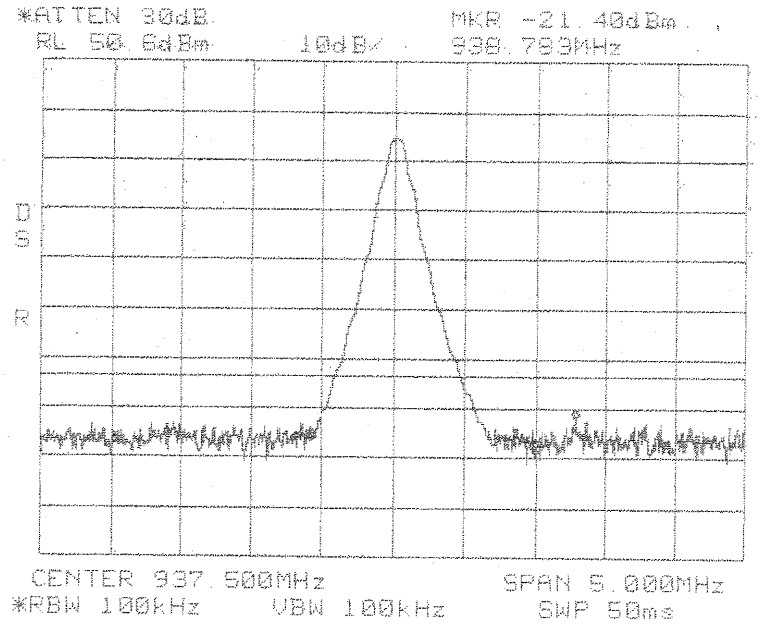
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

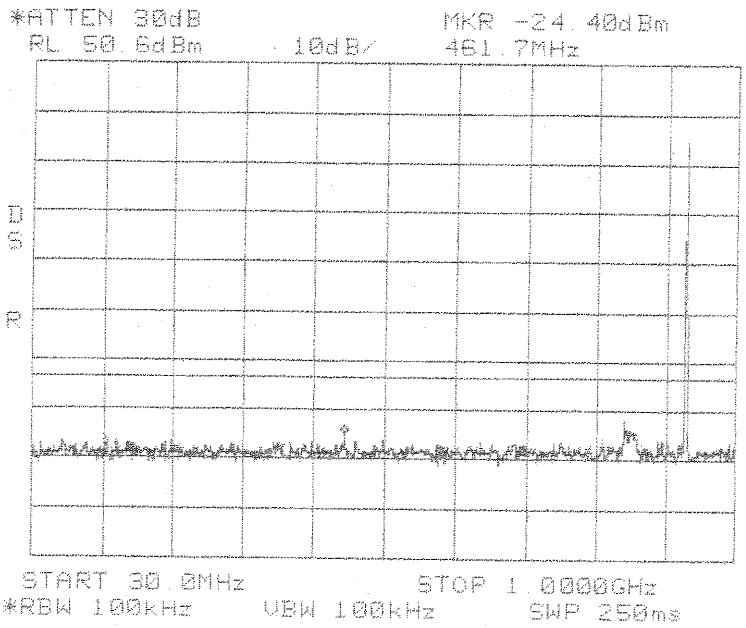


Conducted Emissions
CDMA
SMR 800 MHz

Center: 937.5 MHz
Span: 5 MHz



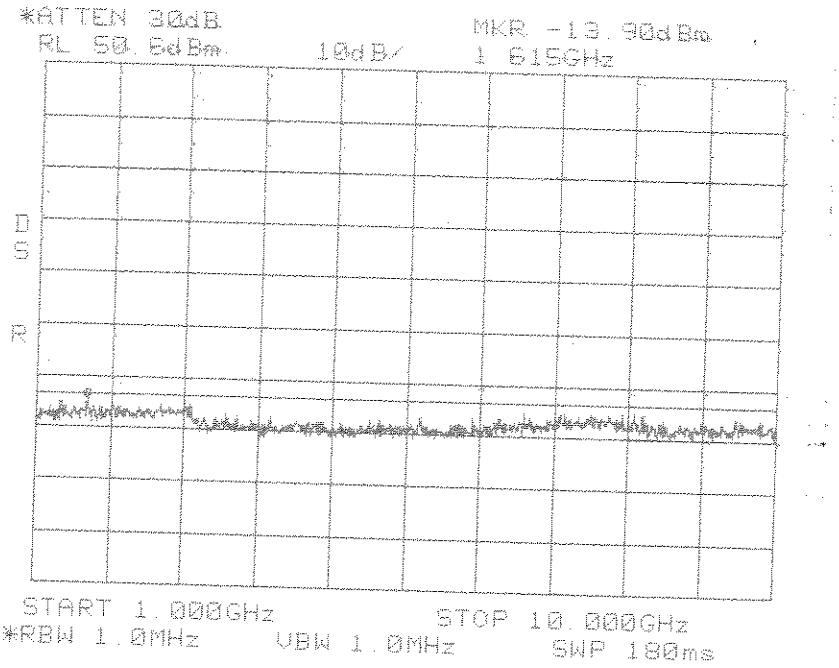
Conducted Emissions
FM
SMR 900 MHz



Conducted Emissions
FM
SMR 900 MHz

Span: 30 MHz to 1 GHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz



Conducted Emissions
FM
SMR 900 MHz