

EMC Emission - TEST REPORT

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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Sign Explanations:

- not applicable
- applicable

R E V I S I O N R E C O R D

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	241	06 March 2006	Initial Release
A	240	19 September 2006	Revisions include: <ul style="list-style-type: none"> ▪ 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. <ul style="list-style-type: none"> ▪ Replace pages 20-34, 47, 62-64, 77-88 and 130. ▪ Added pages after page 47, 57, 61 and 54.

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

- | | | |
|---|---|------------------------------------|
| <input type="checkbox"/> - EN 50081-1 / 1991 | <input type="checkbox"/> - Group 1 | <input type="checkbox"/> - Group 2 |
| <input type="checkbox"/> - EN 55011 / 1991 | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - EN 55013 / 1990 | <input type="checkbox"/> - Household appliances and similar | |
| <input type="checkbox"/> - EN 55014 / 1987 | <input type="checkbox"/> - Portable tools | |
| | <input type="checkbox"/> - Semiconductor devices | |
| <input type="checkbox"/> - EN 55014 / A2:1990 | <input type="checkbox"/> - Household appliances and similar | |
| <input type="checkbox"/> - EN 55014 / 1993 | <input type="checkbox"/> - Portable tools | |
| | <input type="checkbox"/> - Semiconductor devices | |
| <input type="checkbox"/> - EN 55015 / 1987 | | |
| <input type="checkbox"/> - EN 55015 / A1:1990 | | |
| <input type="checkbox"/> - EN 55015 / 1993 | | |
| <input type="checkbox"/> - EN 55022 / 1987 | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - EN 55022 / 1991 | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - BS | | |
| <input type="checkbox"/> - VCCI | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - FCC Part 15 Subpart B | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - FCC Part 15 Subpart C | | |
| <input checked="" type="checkbox"/> - FCC Part 24 | | |
| <input checked="" type="checkbox"/> - FCC Part 90 | | |
| <input type="checkbox"/> - CISPR 11 (1990) | <input type="checkbox"/> - Group 1 | <input type="checkbox"/> - Group 2 |
| | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - CISPR 22 (1993) | <input type="checkbox"/> - Class A | <input type="checkbox"/> - Class B |
| <input type="checkbox"/> - IC RSS-Gen Issue 1 | | |
| <input type="checkbox"/> - IC RSS-193 Issue 1 | | |

ENVIRONMENTAL CONDITIONS IN THE LAB

TUV

Temperature: 22 °C
 Relative Humidity: 20 %
 Atmospheric pressure: 98 - 99 kPa

ADC

Temperature: 26 °C
 Relative Humidity: 22 %
 Atmospheric pressure: 98.6 kPa

POWER SUPPLY UTILIZED

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

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

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

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

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

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

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

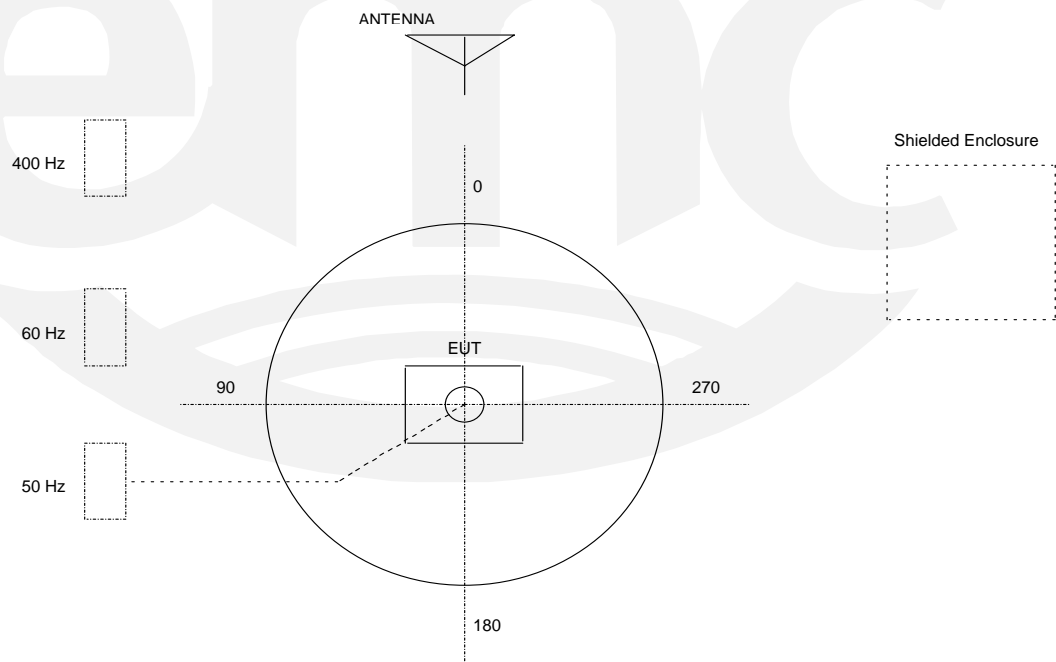
Inter-Modulation Test, pages 155 - 227

TEST SETUP FOR EMISSIONS TESTING

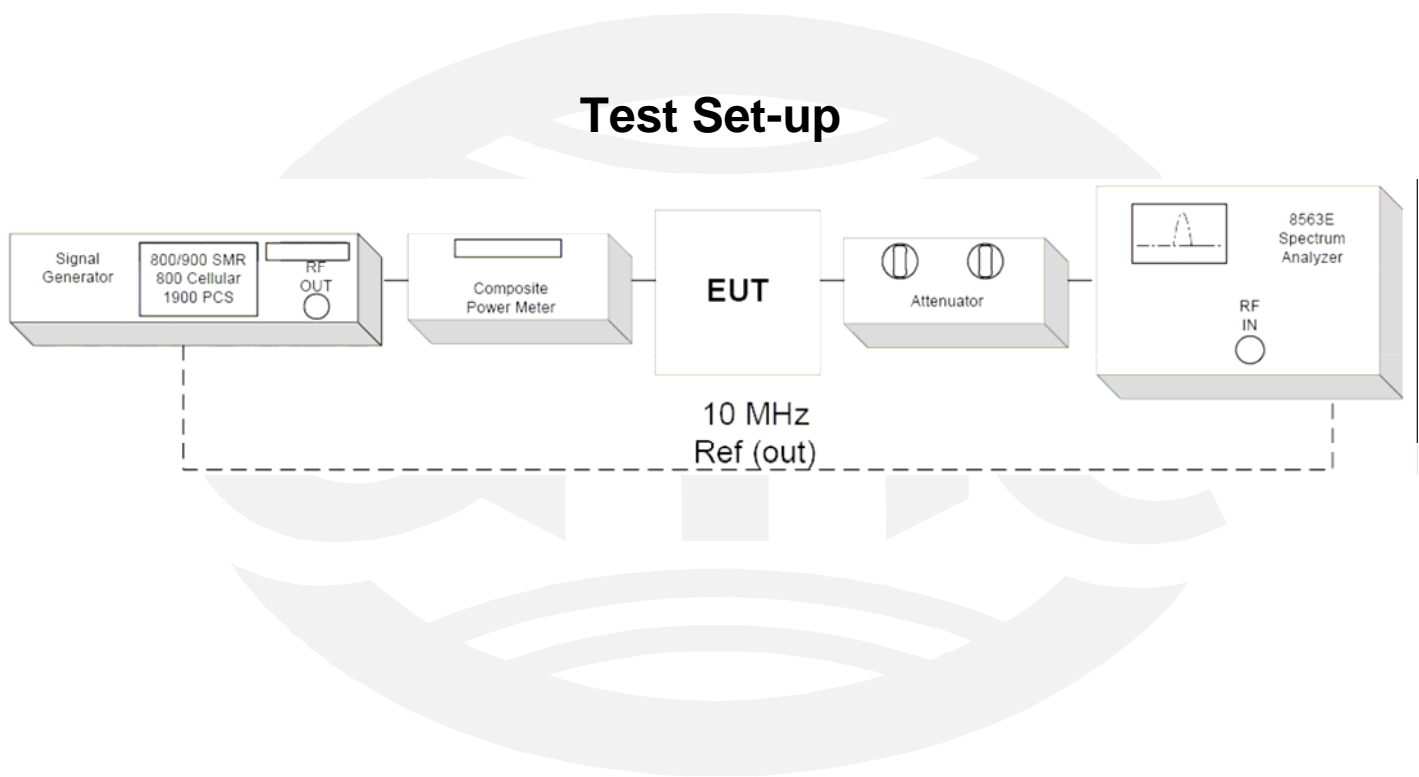
WILD RIVER LAB Large Test Site

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.



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

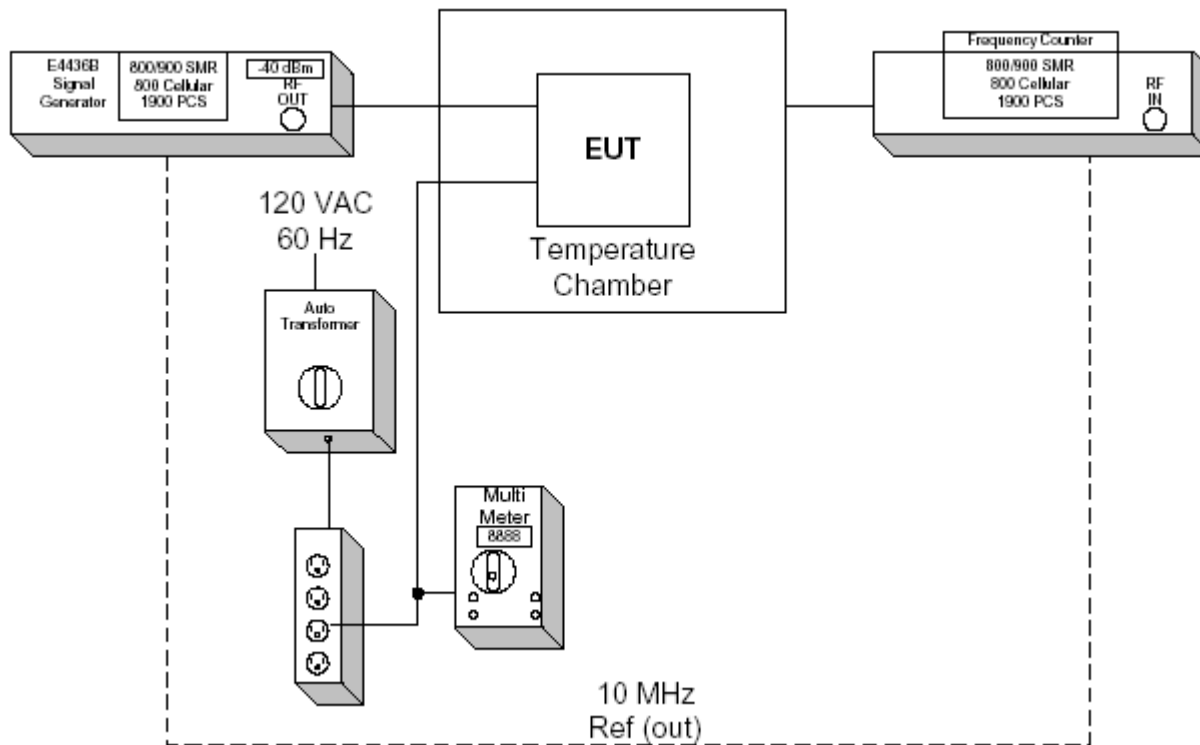


Frequency Tolerance Test for ADC Inc. Digivance Street Coverage Solution Model Number DGVC-901X4X1X200SYS

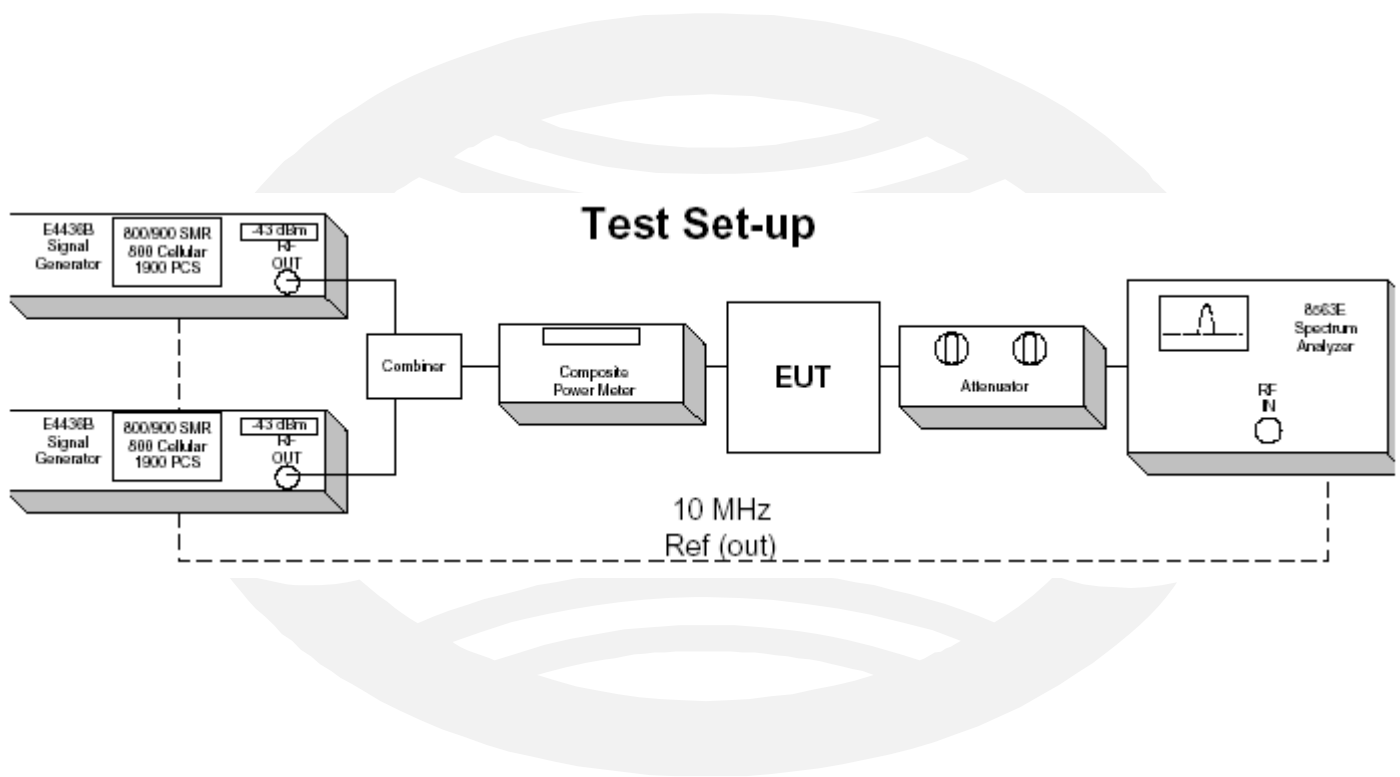
EUT Host is specified for indoor use only with temperature range of 0° to +50° C, and was tested with its range.

EUT Remote is specified with a temperature range of -30° to +50° C and was tested with its range.

Test Set-up



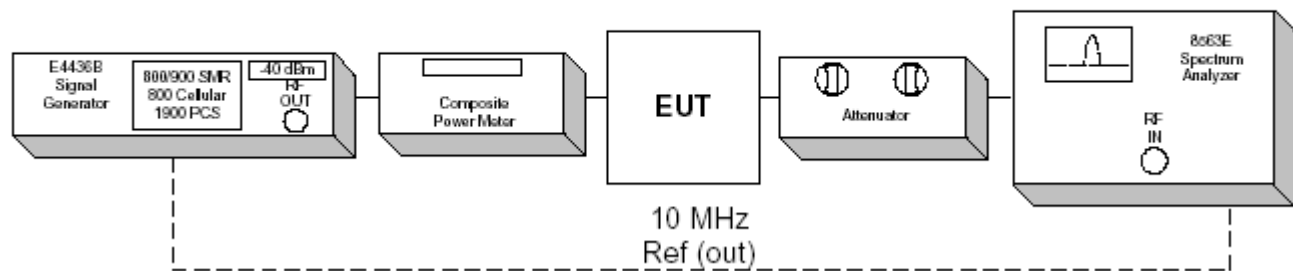
Inter-Modulation Test for ADC Inc. Digivance Street Coverage Solution Model Number DGVC-901X4X1X200SYS



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



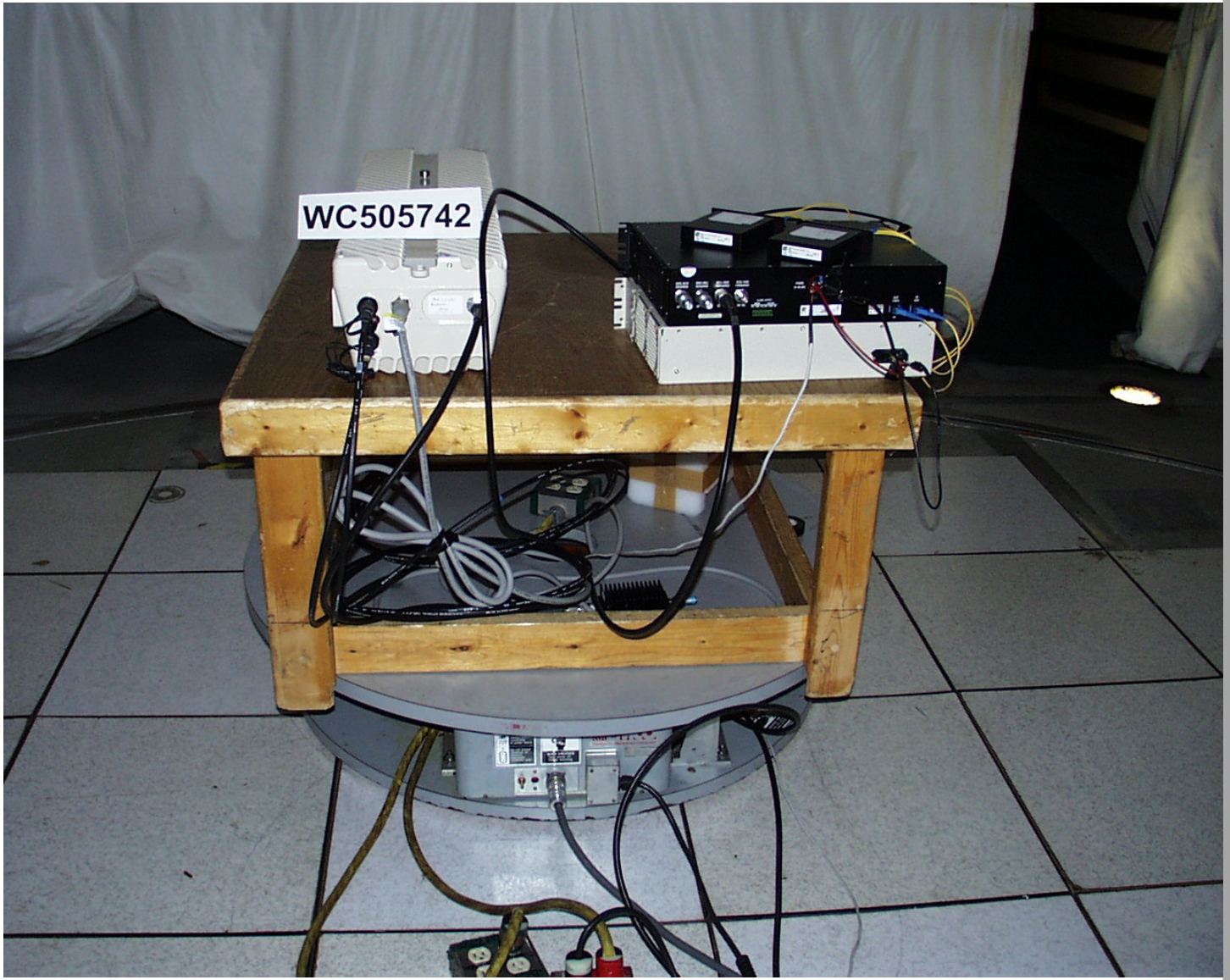
Test Set-up



Test setup photo, radiated emissions



Test setup photo, radiated emissions



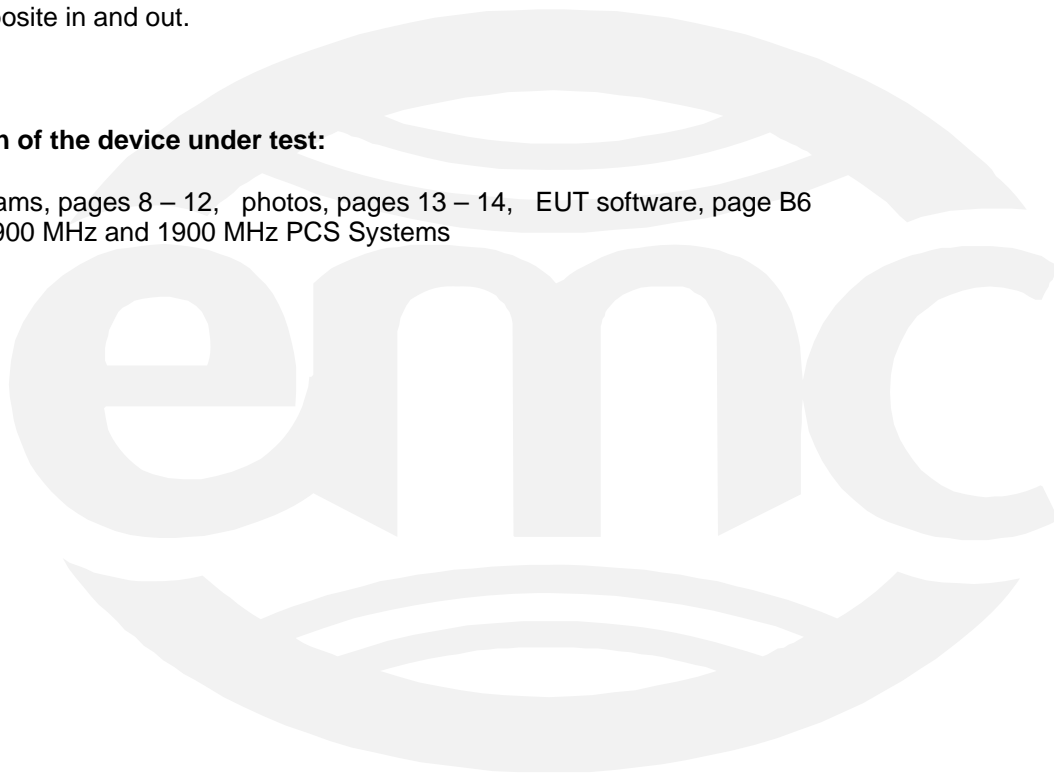
Test Operation Mode:

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



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

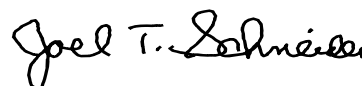
- fulfill the general approval requirements mentioned on page 3.
- **not** fulfill the general approval requirements mentioned on page 3.

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

- TÜV AMERICA INC -



M. J. Schultz & J. Sausen
EMC Technicians



J. T. Schneider
Senior EMC Engineer

Appendix A

Test data



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	<u>37.33</u> dBm	935.2 MHz	<u>37.63</u> dBm
858.5 MHz	<u>37.17</u> dBm	937.5 MHz	<u>37.47</u> dBm
868.8 MHz	<u>37.50</u> dBm	939.8 MHz	<u>37.57</u> dBm
<hr/>			
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	<u>37.57</u> dBm	935.2 MHz	<u>37.60</u> dBm
858.5 MHz	<u>37.30</u> dBm	937.5 MHz	<u>37.90</u> dBm
868.8 MHz	<u>37.97</u> dBm	939.8 MHz	<u>37.47</u> dBm
<hr/>			
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	<u>37.13</u> dBm	935.8 MHz	<u>37.54</u> dBm
858.5 MHz	<u>37.27</u> dBm	937.5 MHz	<u>37.87</u> dBm
868.2 MHz	<u>37.67</u> dBm	939.2 MHz	<u>37.27</u> 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)	Band AD	(1900 MHz)	Band AD	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1930.2 MHz	<u>37.00</u> dBm	1930.2 MHz	<u>37.13</u> dBm	1930.2 MHz	<u>37.13</u> dBm	1930.2 MHz	<u>37.13</u> dBm
1940.0 MHz	<u>37.50</u> dBm	1940.0 MHz	<u>37.30</u> dBm	1940.0 MHz	<u>37.30</u> dBm	1940.0 MHz	<u>37.30</u> dBm
1949.8 MHz	<u>36.50</u> dBm	1949.8 MHz	<u>36.63</u> dBm	1949.8 MHz	<u>36.63</u> dBm	1949.8 MHz	<u>36.63</u> dBm
Band DBE	(1900 MHz)	Band DBE	(1900 MHz)	Band DBE	(1900 MHz)	Band DBE	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1945.2 MHz	<u>37.17</u> dBm	1945.2 MHz	<u>37.47</u> dBm	1945.2 MHz	<u>37.47</u> dBm	1945.2 MHz	<u>37.47</u> dBm
1957.5 MHz	<u>37.33</u> dBm	1957.5 MHz	<u>37.13</u> dBm	1957.5 MHz	<u>37.13</u> dBm	1957.5 MHz	<u>37.13</u> dBm
1969.8 MHz	<u>36.67</u> dBm	1969.8 MHz	<u>37.13</u> dBm	1969.8 MHz	<u>37.13</u> dBm	1969.8 MHz	<u>37.13</u> dBm
Band BEF	(1900 MHz)	Band BEF	(1900 MHz)	Band BEF	(1900 MHz)	Band BEF	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1950.2 MHz	<u>36.17</u> dBm	1950.2 MHz	<u>36.47</u> dBm	1950.2 MHz	<u>36.47</u> dBm	1950.2 MHz	<u>36.47</u> dBm
1962.5 MHz	<u>37.17</u> dBm	1962.5 MHz	<u>37.13</u> dBm	1962.5 MHz	<u>37.13</u> dBm	1962.5 MHz	<u>37.13</u> dBm
1974.8 MHz	<u>36.50</u> dBm	1974.8 MHz	<u>36.63</u> dBm	1974.8 MHz	<u>36.63</u> dBm	1974.8 MHz	<u>36.63</u> dBm
Band EFC	(1900 MHz)	Band EFC	(1900 MHz)	Band EFC	(1900 MHz)	Band EFC	(1900 MHz)
Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output	Carrier Frequency	Carrier Output
1965.2 MHz	<u>35.83</u> dBm	1965.2 MHz	<u>36.47</u> dBm	1965.2 MHz	<u>36.47</u> dBm	1965.2 MHz	<u>36.47</u> dBm
1977.5 MHz	<u>37.67</u> dBm	1977.5 MHz	<u>37.13</u> dBm	1977.5 MHz	<u>37.13</u> dBm	1977.5 MHz	<u>37.13</u> dBm
1989.8 MHz	<u>35.67</u> dBm	1989.8 MHz	<u>36.63</u> dBm	1989.8 MHz	<u>36.63</u> dBm	1989.8 MHz	<u>36.63</u> dBm

CDMA		5.83 Watts		EVDO		5.70 Watts	
Band AD	(1900 MHz)	Carrier Output		Band AD	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1930.8 MHz		<u>37.23</u> dBm		1930.8 MHz		<u>37.56</u> dBm	
1940.0 MHz		<u>36.80</u> dBm		1940.0 MHz		<u>36.93</u> dBm	
1949.2 MHz		<u>36.73</u> dBm		1949.2 MHz		<u>37.27</u> dBm	
Band DBE	(1900 MHz)	Carrier Output		Band DBE	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1945.8 MHz		<u>37.40</u> dBm		1945.8 MHz		<u>36.87</u> dBm	
1957.5 MHz		<u>36.56</u> dBm		1957.5 MHz		<u>37.13</u> dBm	
1969.2 MHz		<u>36.90</u> dBm		1969.2 MHz		<u>35.87</u> dBm	
Band BEF	(1900 MHz)	Carrier Output		Band BEF	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1950.8 MHz		<u>37.40</u> dBm		1950.8 MHz		<u>36.50</u> dBm	
1962.5 MHz		<u>37.66</u> dBm		1962.5 MHz		<u>37.23</u> dBm	
1974.2 MHz		<u>37.06</u> dBm		1974.2 MHz		<u>37.10</u> dBm	
Band EFC	(1900 MHz)	Carrier Output		Band EFC	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1965.8 MHz		<u>36.06</u> dBm		1965.8 MHz		<u>37.50</u> dBm	
1977.5 MHz		<u>37.66</u> dBm		1977.5 MHz		<u>37.54</u> dBm	
1989.2 MHz		<u>36.90</u> dBm		1989.2 MHz		<u>37.27</u> dBm	
W-CDMA		5.70 Watts					
Band AD	(1900 MHz)	Carrier Output		Band DBE	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1932.6 MHz		<u>37.13</u> dBm		1947.6 MHz		<u>37.27</u> dBm	
1940.0 MHz		<u>37.56</u> dBm		1957.5 MHz		<u>37.03</u> dBm	
1947.4 MHz		<u>37.17</u> dBm		1967.4 MHz		<u>36.93</u> dBm	
Band DBE	(1900 MHz)	Carrier Output		Band EFC	(1900 MHz)	Carrier Output	
Carrier Frequency		Carrier Output		Carrier Frequency		Carrier Output	
1952.6 MHz		<u>37.40</u> dBm		1967.6 MHz		<u>37.17</u> dBm	
1962.5 MHz		<u>36.87</u> dBm		1977.5 MHz		<u>36.87</u> dBm	
1972.4 MHz		<u>37.23</u> dBm		1987.4 MHz		<u>36.54</u> 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**

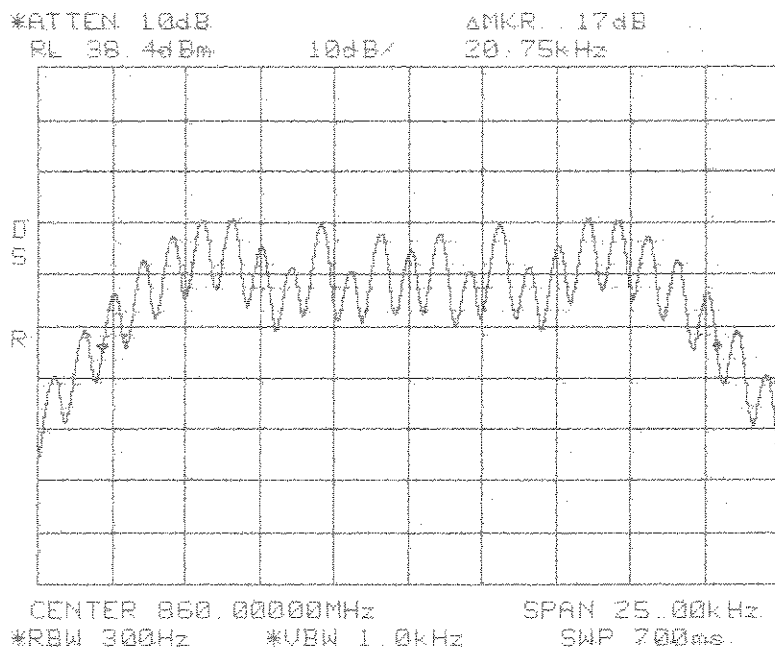
An input/output Occupied Bandwidth test was done with modulation types: FM, 16 QAM, and CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

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.

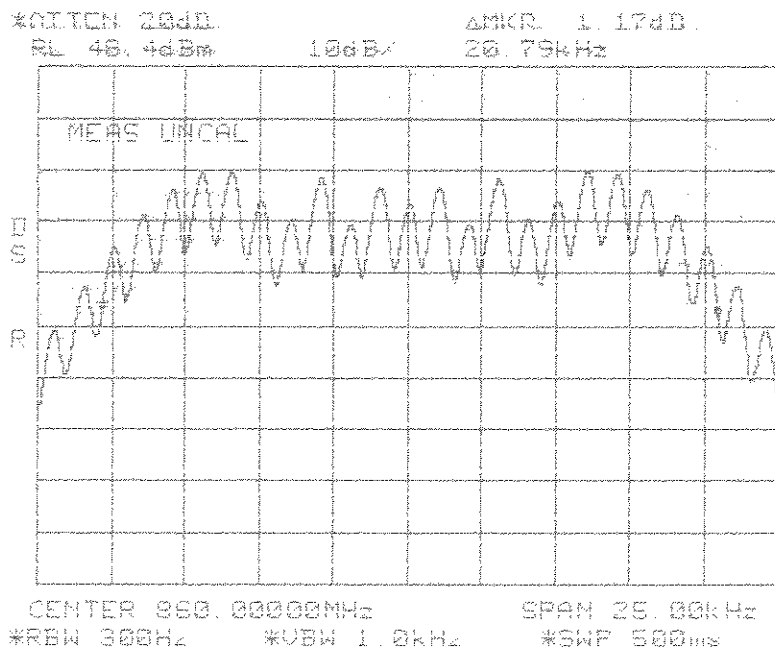
Results:

Pass (see plots)

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



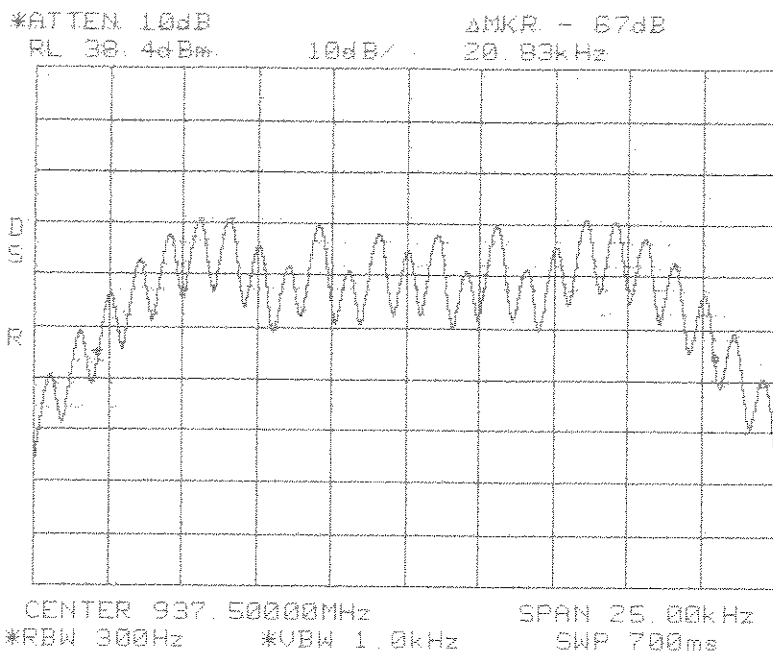
**Occupied Bandwidth
FM
Signal In**



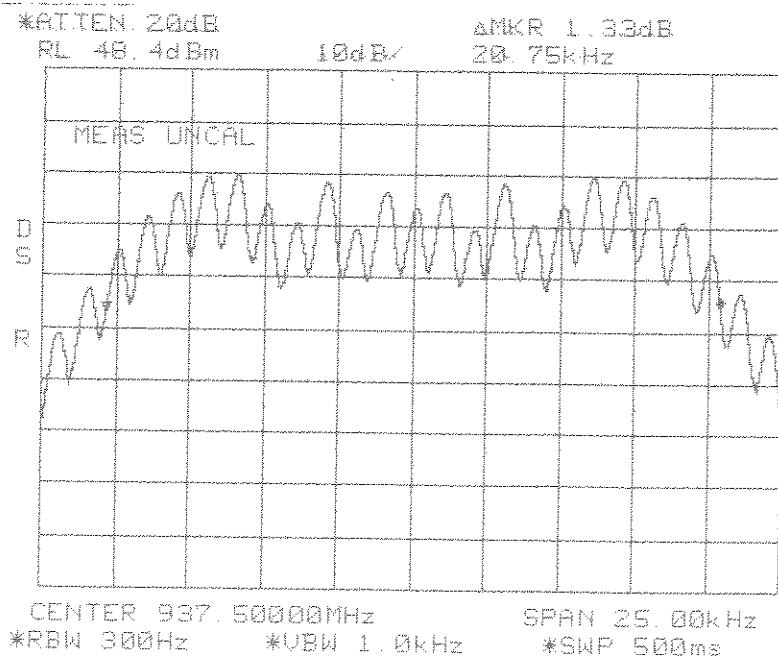
**Occupied Bandwidth
FM
Signal Out**

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

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



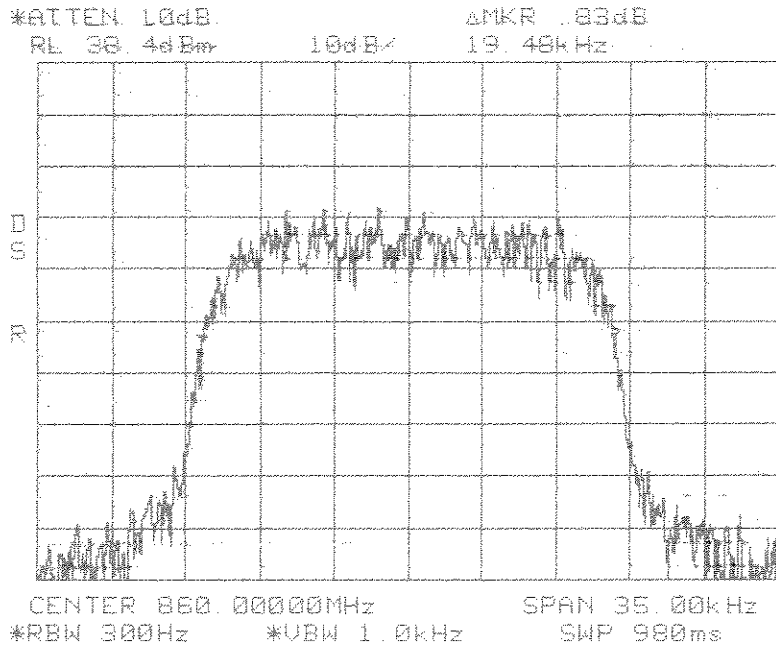
**Occupied Bandwidth
FM
Signal In**



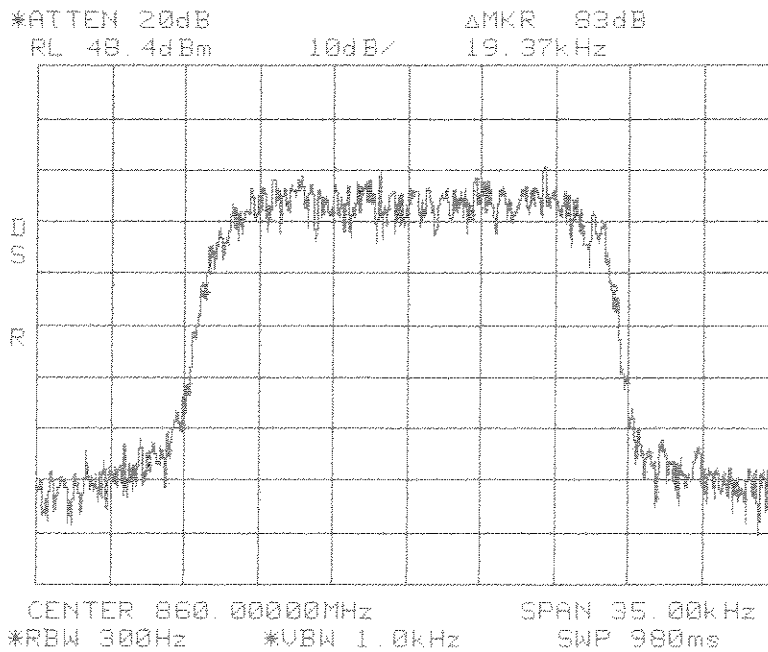
**Occupied Bandwidth
FM
Signal Out**

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

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



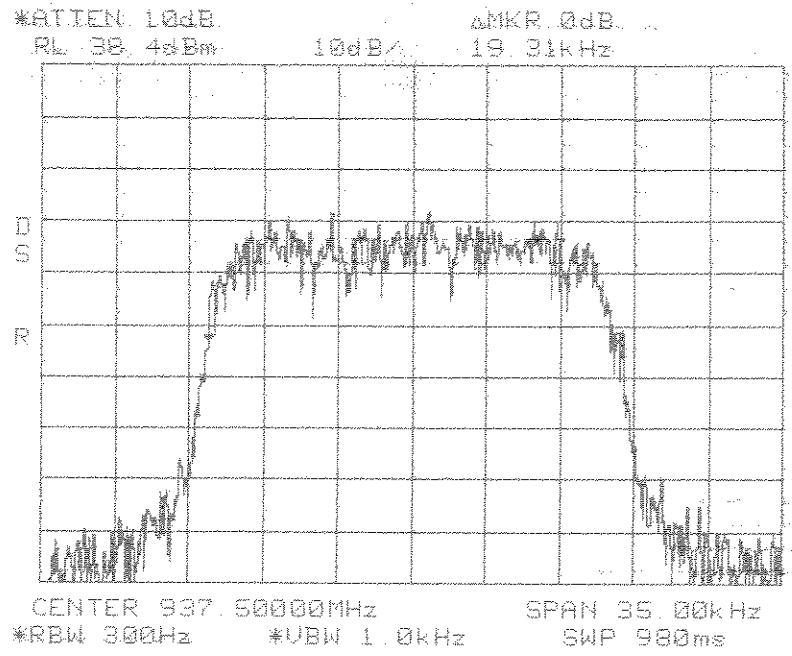
**Occupied Bandwidth
16QAM
Signal In**



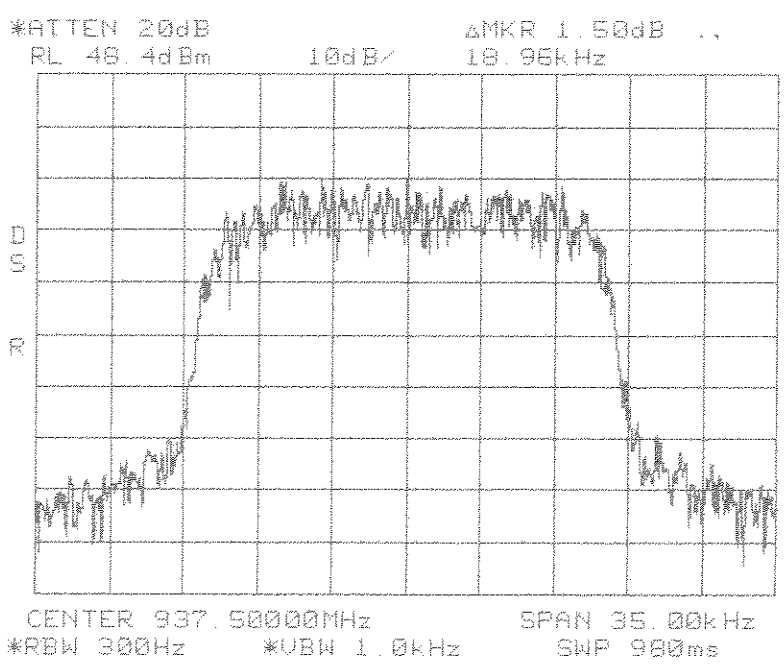
**Occupied Bandwidth
16QAM
Signal Out**

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

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



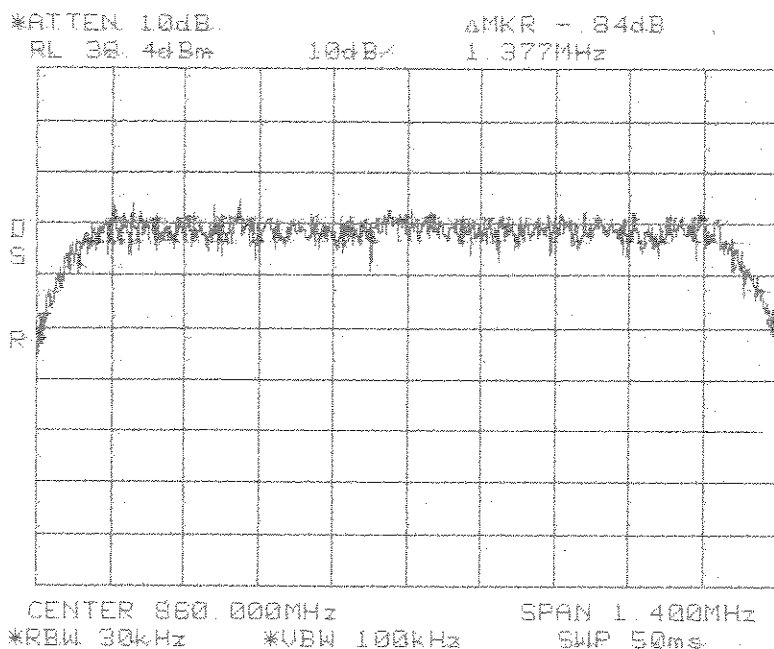
**Occupied Bandwidth
16QAM
Signal In**



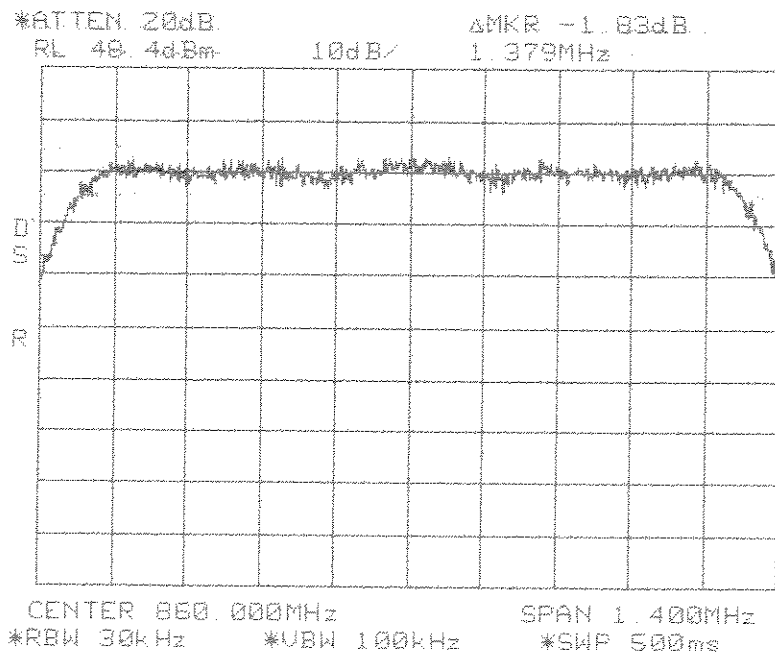
**Occupied Bandwidth
16QAM
Signal Out**

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

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



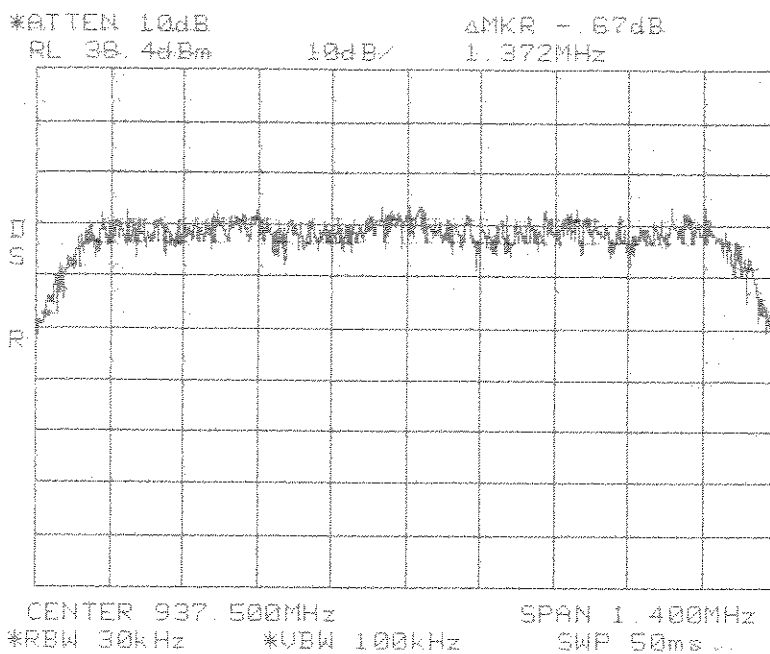
**Occupied Bandwidth
CDMA
Signal In**



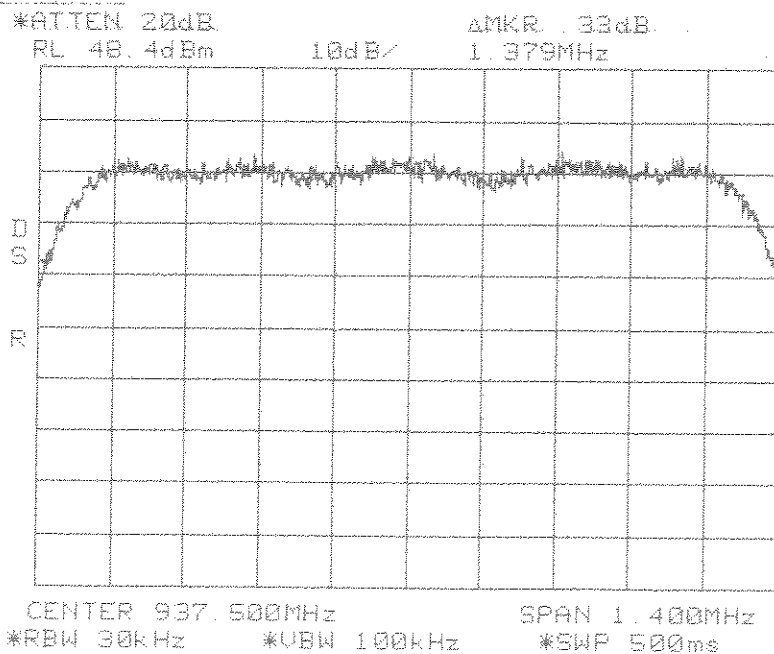
**Occupied Bandwidth
CDMA
Signal Out**

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**

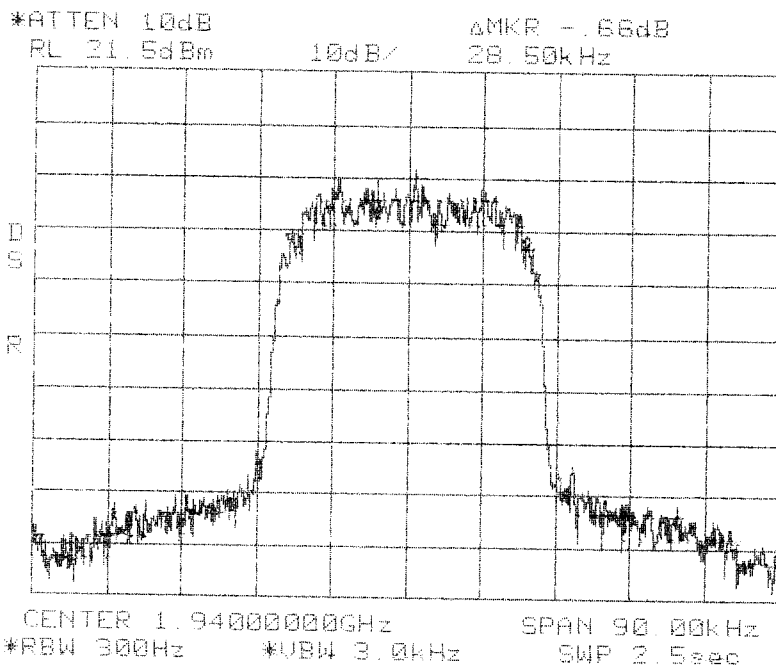
An input/output Occupied Bandwidth test was done with modulation types: TDMA, GSM, CDMA, EVDO, and W-CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

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.

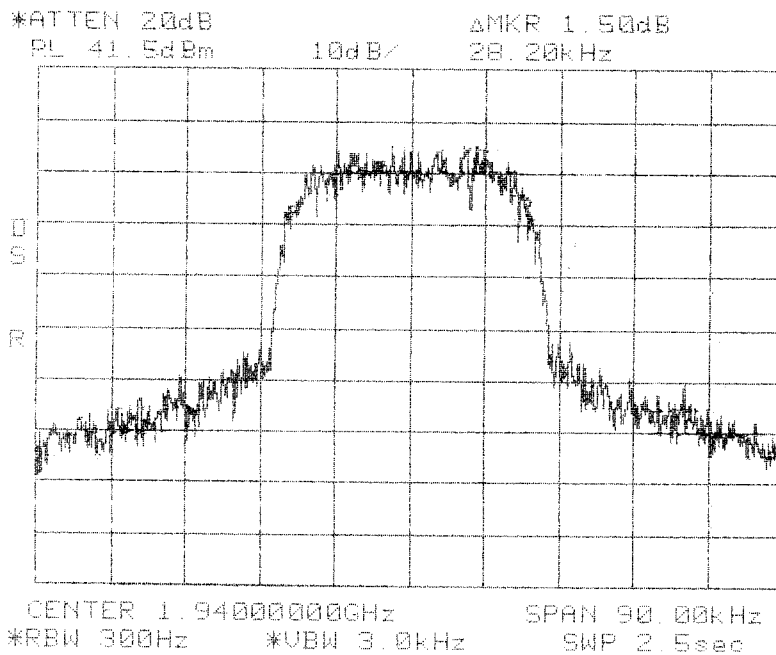
Results:

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**

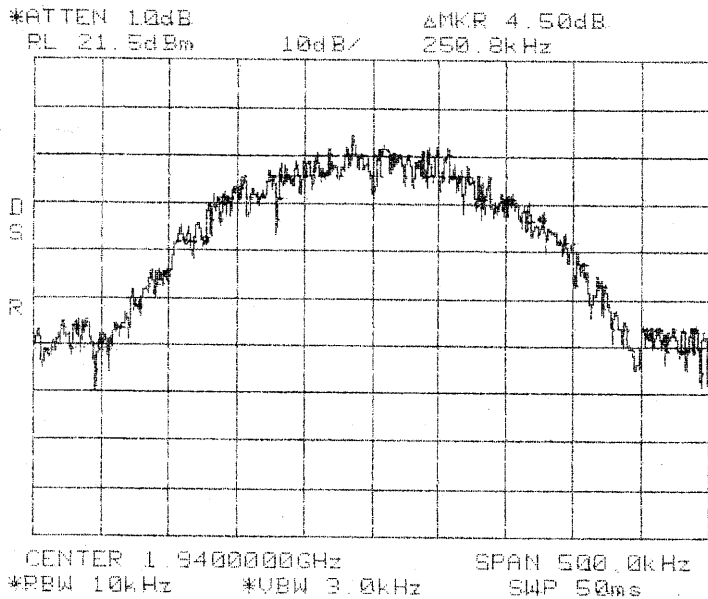


**Occupied Bandwidth
TDMA Out
PCS 1900 MHz
AD Band**

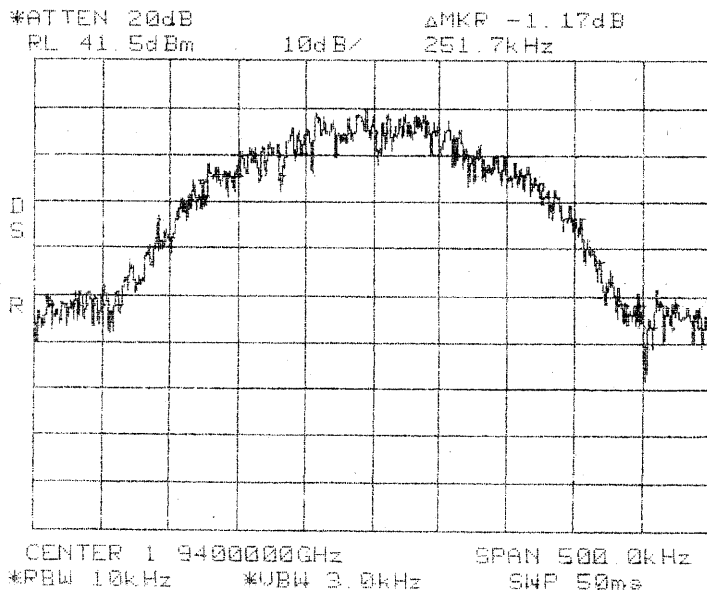
Center: 1940.0 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1940.0 MHz

RBW/VBW: 10 kHz / 3 kHz



**Occupied Bandwidth
GSM In
PCS 1900 MHz
AD Band**

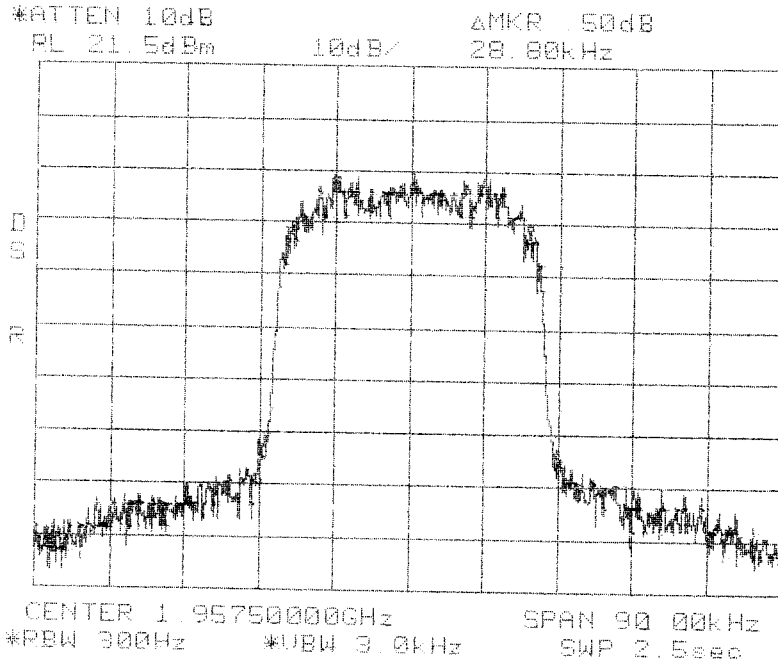


**Occupied Bandwidth
GSM Out
PCS 1900 MHz
AD Band**

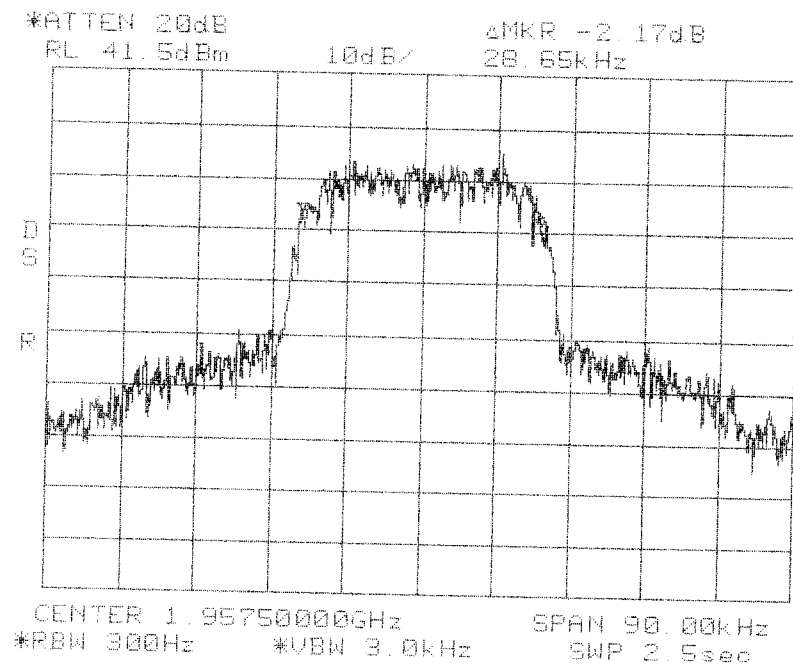
Center: 1940.0 MHz

RBW/VBW: 10 kHz / 3 kHz

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



**Occupied Bandwidth
TDMA In
PCS 1900 MHz
DBE Band**

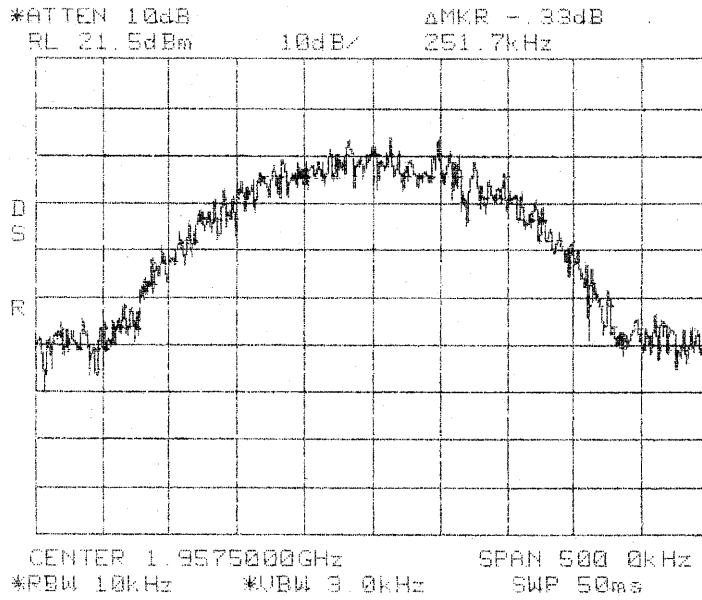


**Occupied Bandwidth
TDMA Out
PCS 1900 MHz
DBE Band**

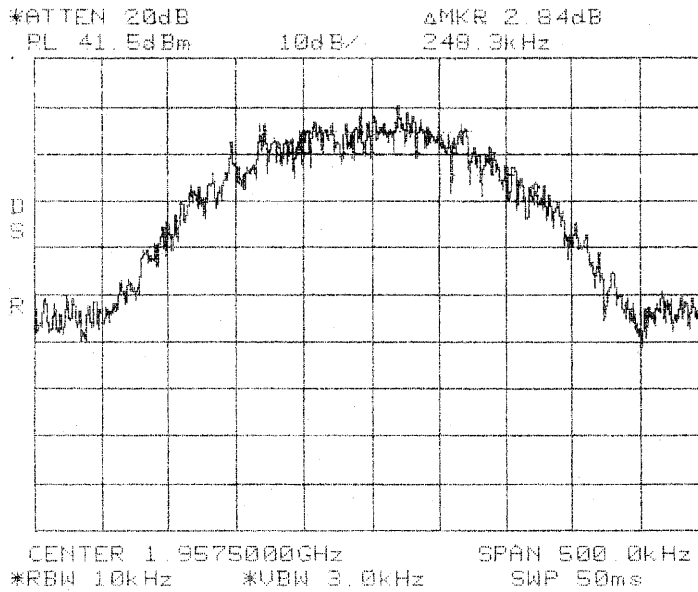
Center: 1957.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center 1957.5 MHz

RBW/VBW: 10 kHz / 3 kHz



**Occupied Bandwidth
GSM In
PCS 1900 MHz
DBE Band**

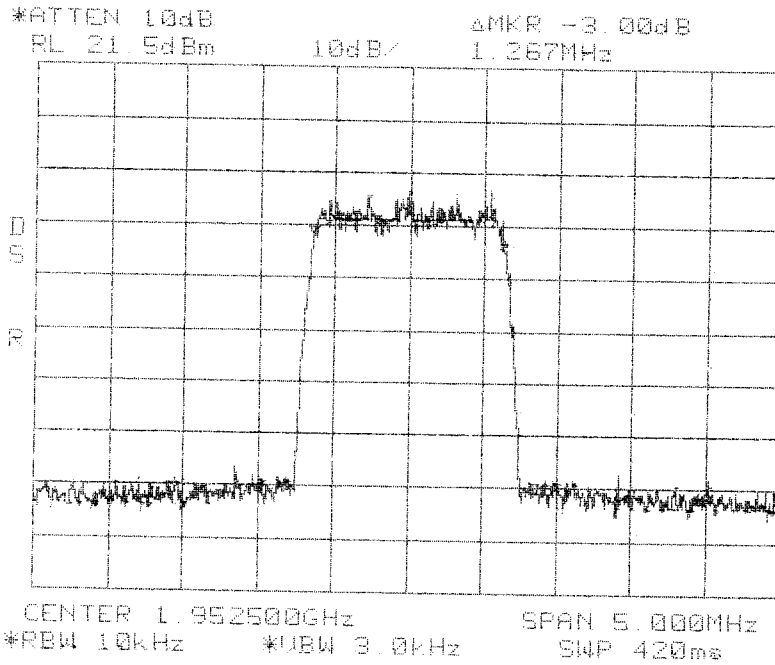


**Occupied Bandwidth
GSM Out
PCS 1900 MHz
DBE Band**

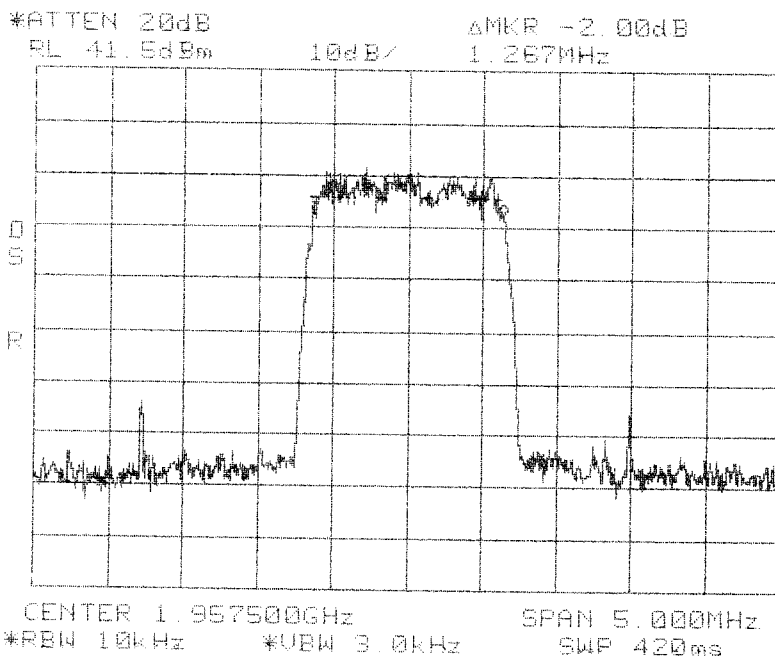
Center: 1957.5 MHz

RBW/VBW: 10 kHz / 3 kHz

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



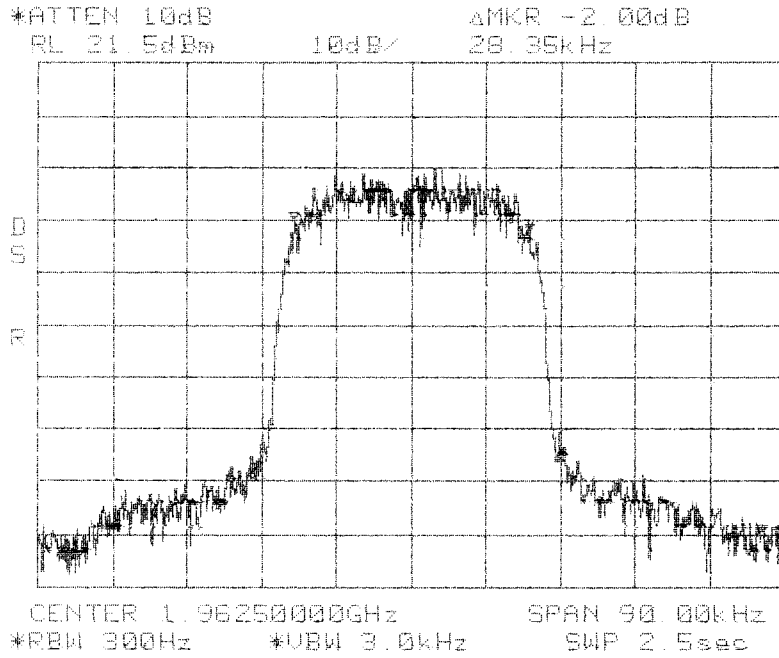
**Occupied Bandwidth
CDMA In
PCS 1900 MHz
DBE Band**



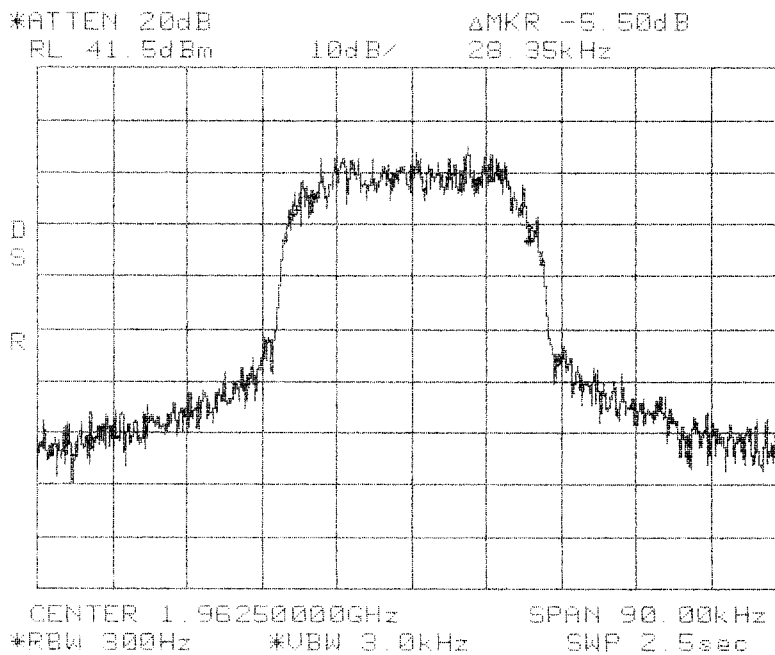
**Occupied Bandwidth
CDMA Out
PCS 1900 MHz
DBE Band**

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**

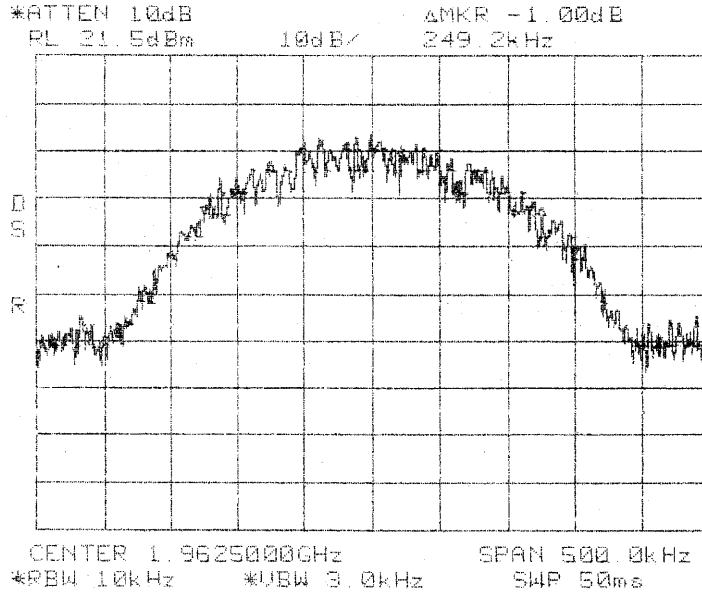


**Occupied Bandwidth
TDMA Out
PCS 1900 MHz
BEF Band**

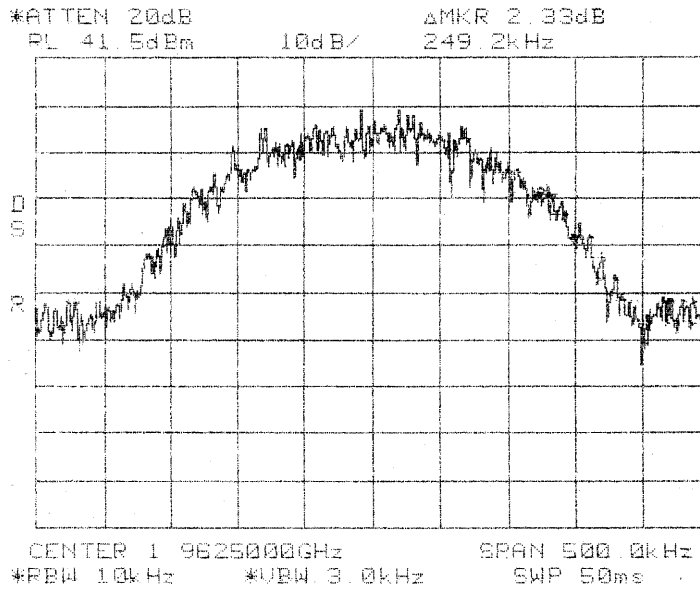
Center: 1962.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1962.5 MHz

RBW/VBW: 10 kHz / 3 kHz



**Occupied Bandwidth
GSM In
PCS 1900 MHz
BEF Band**

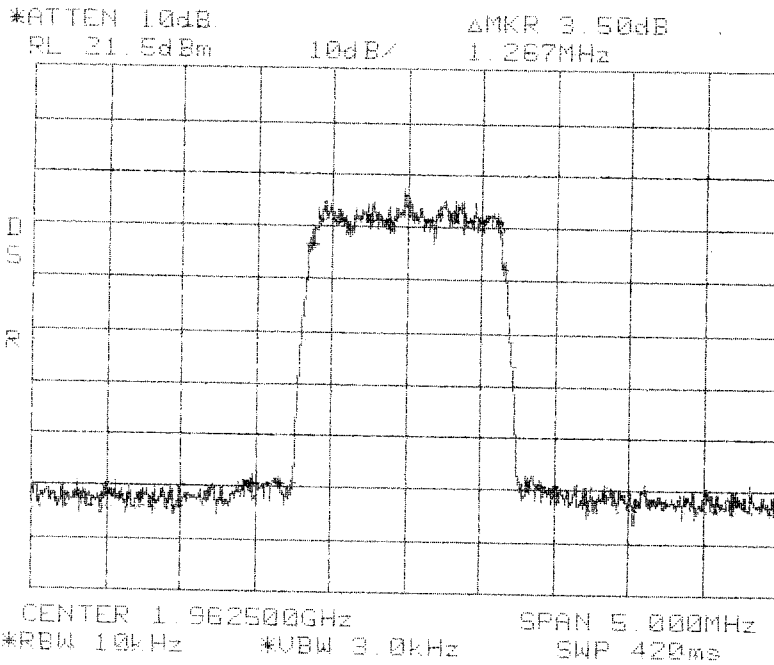


**Occupied Bandwidth
GSM Out
PCS 1900 MHz
BEF Band**

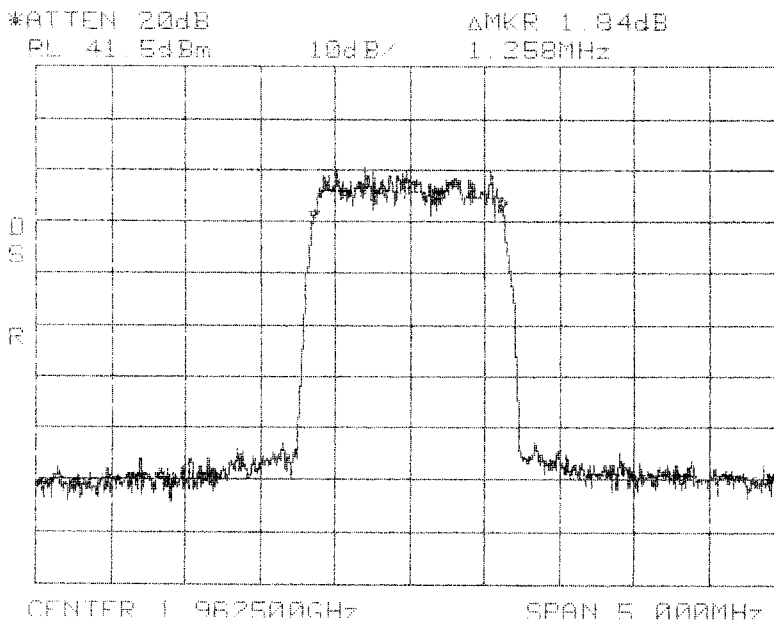
Center: 1962.5 MHz

RBW/VBW: 10 kHz / 3 kHz

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



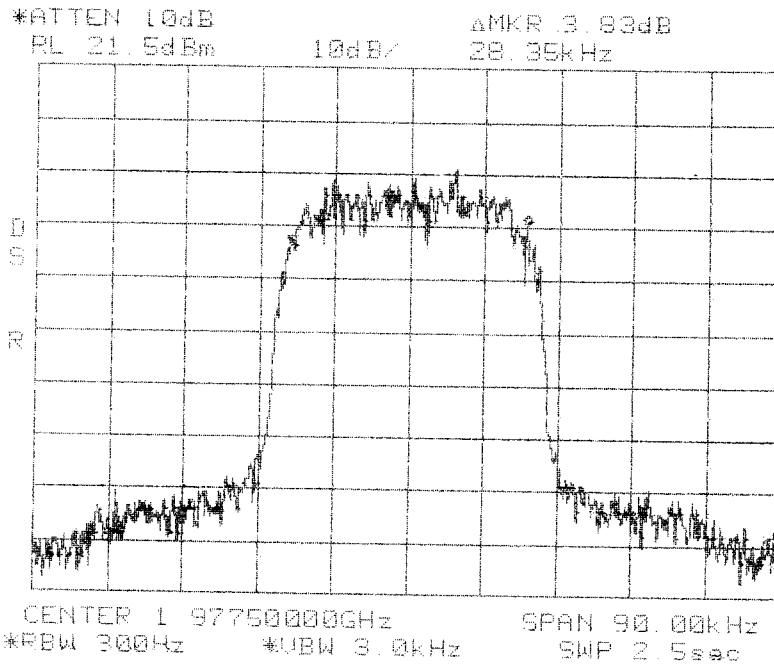
**Occupied Bandwidth
CDMA In
PCS 1900 MHz
BEF Band**



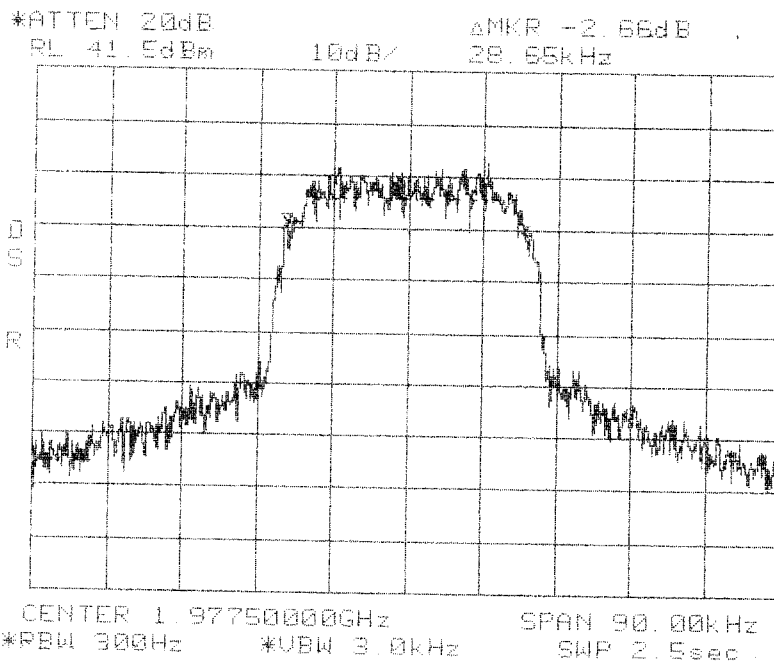
**Occupied Bandwidth
CDMA Out
PCS 1900 MHz
BEF Band**

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**

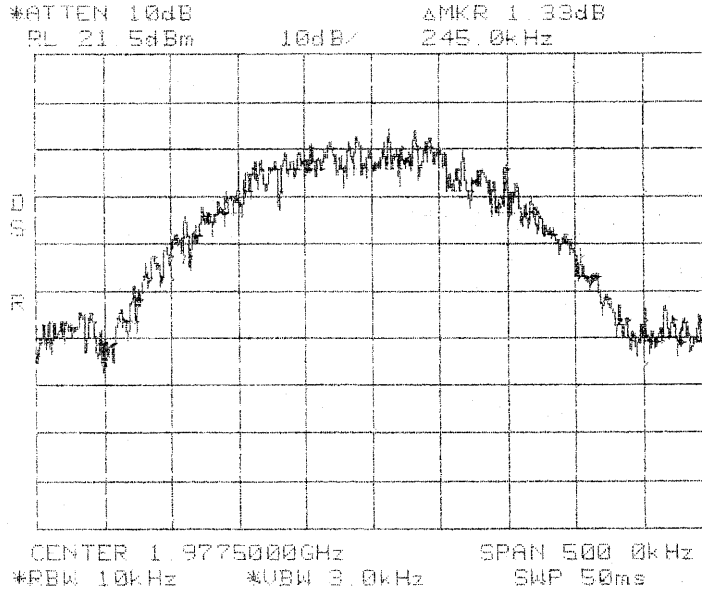


**Occupied Bandwidth
TDMA Out
PCS 1900 MHz
EFC Band**

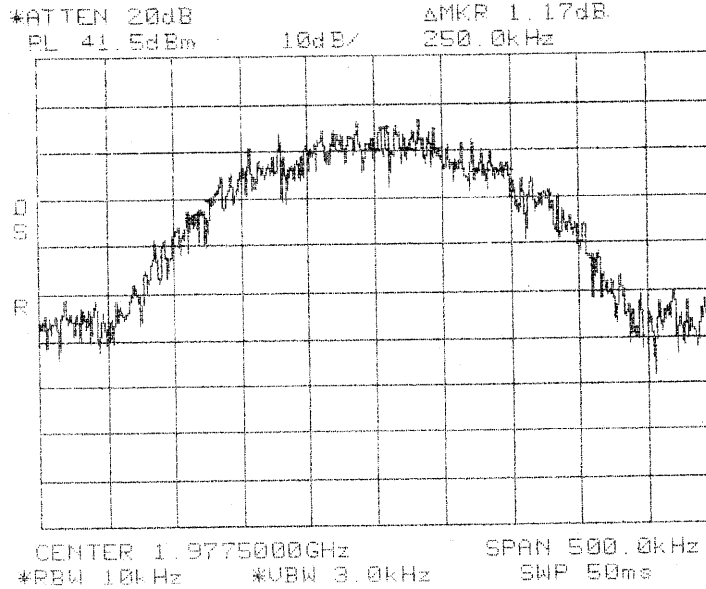
Center: 1977.5 MHz
Span: 90 kHz
RBW/VBW: 300 Hz / 3 kHz

Center: 1977.5 MHz

RBW/VBW: 10 kHz / 3 kHz



**Occupied Bandwidth
GSM In
PCS 1900 MHz
EFC Band**

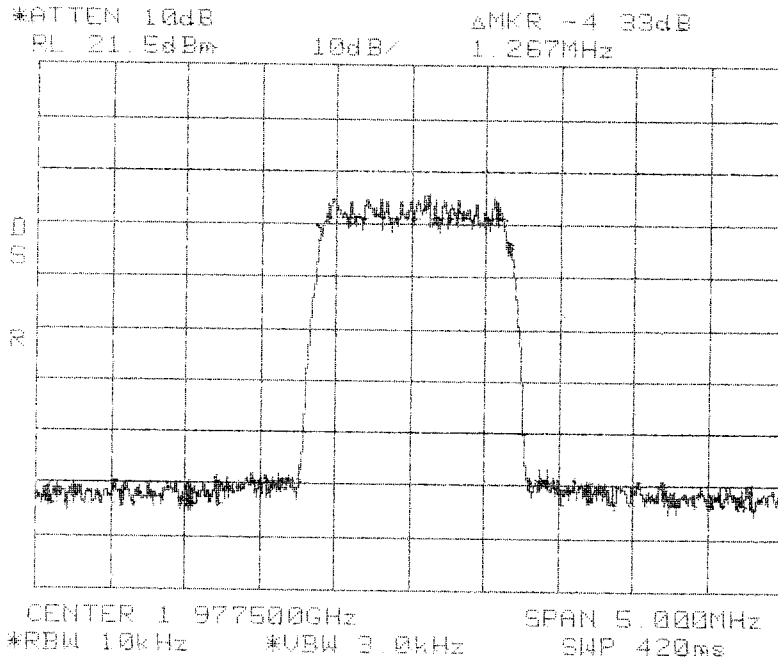


**Occupied Bandwidth
GSM Out
PCS 1900 MHz
EFC Band**

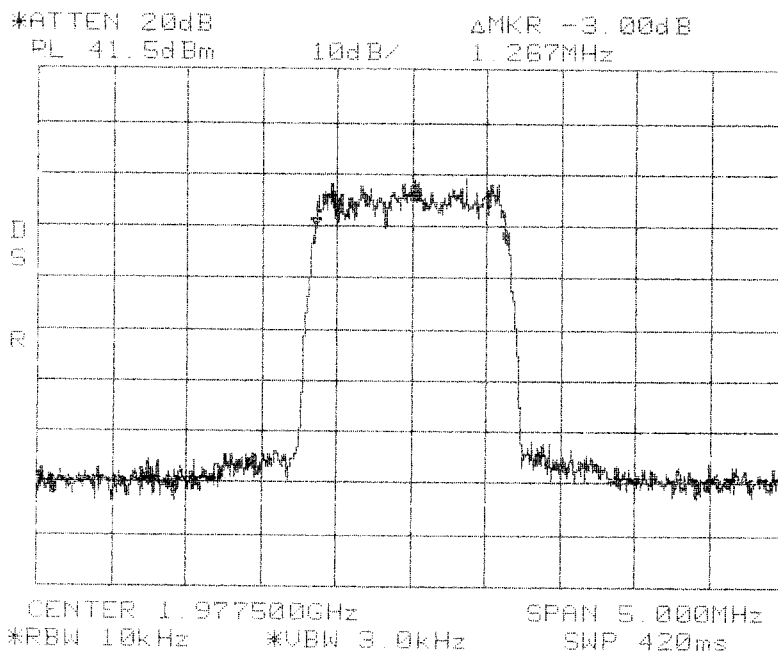
Center: 1977.5 MHz

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 \approx -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.

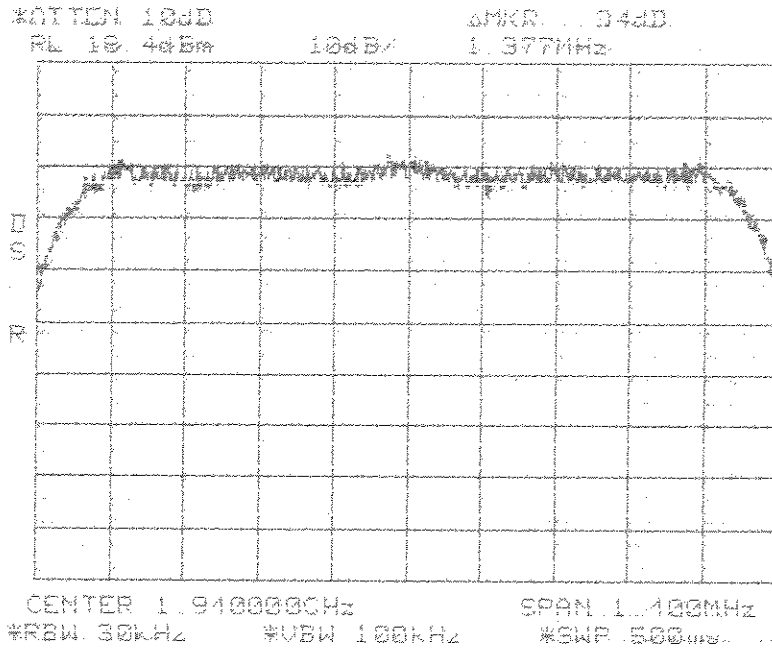
The spurious limitation is completed with the duplexer. The ALC also suppresses in-band spurious by preventing PA overdrive, while the duplexer suppresses out-of-band spurious.

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.

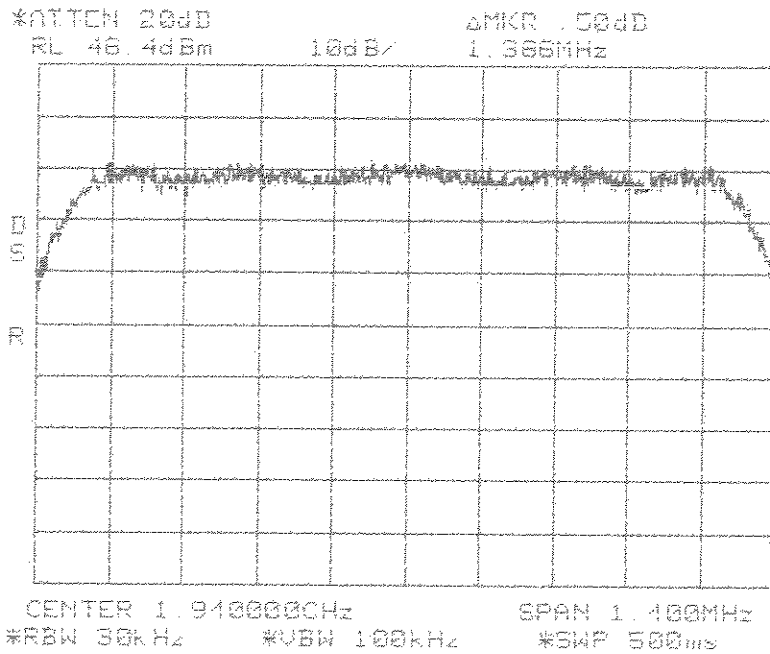
This is a constant gain device, so the setup controls the output. There is an overdrive and overpower limit control that prevents excess power.

Results:
Pass (See plots)

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



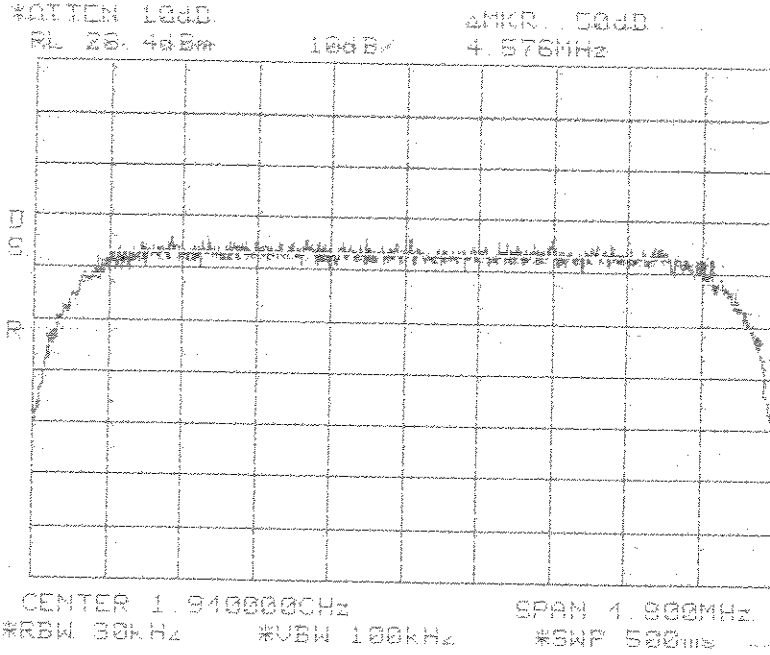
**Occupied Bandwidth
EVDO
Signal In**



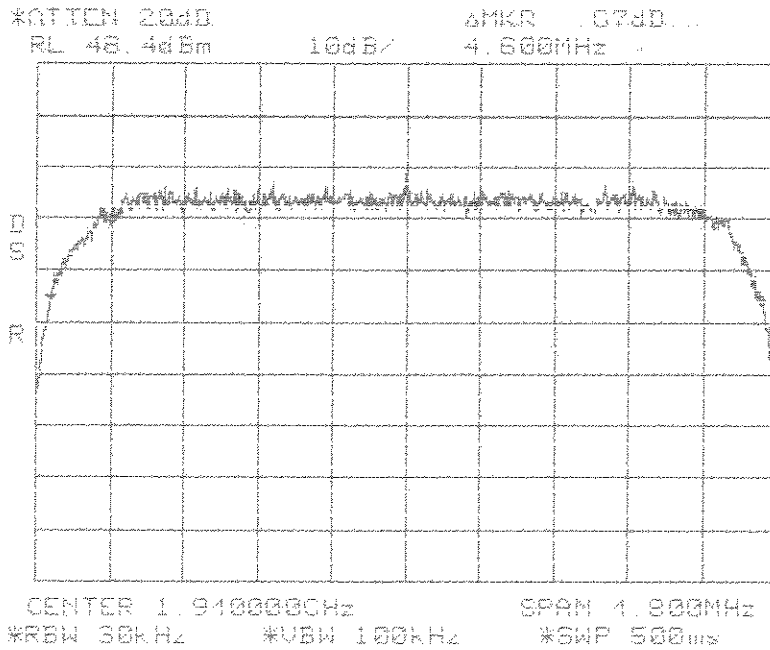
**Occupied Bandwidth
EVDO
Signal Out**

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

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 \approx -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.

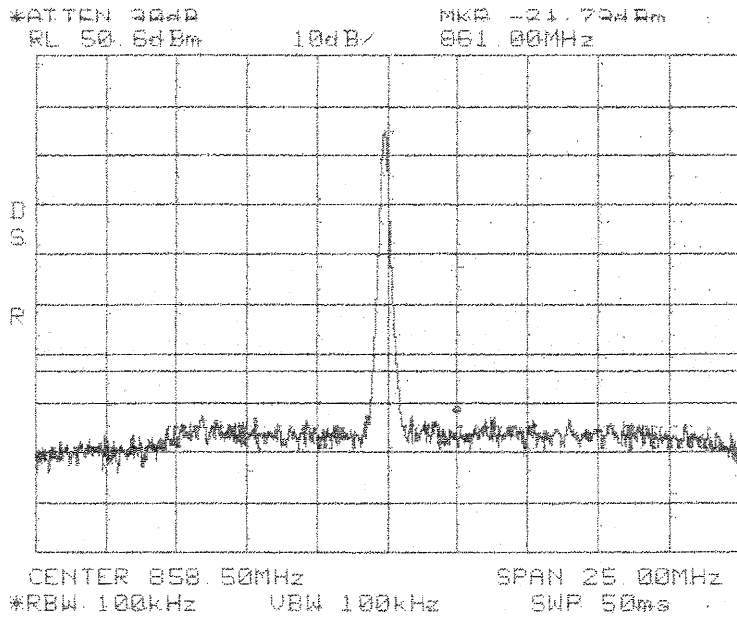
The spurious limitation is completed with the duplexer. The ALC also suppresses in-band spurious by preventing PA overdrive, while the duplexer suppresses out-of-band spurious. Internal to the electronics, the use of SAW filters provides for higher Q roll-off at band edges.

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.

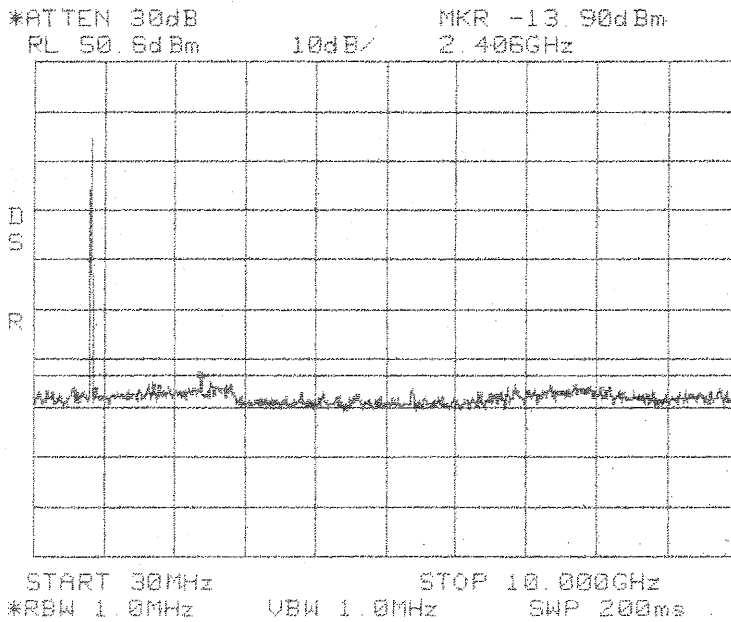
This is a constant gain device, so the setup controls the output. There is an overdrive and overpower limit control that prevents excess power.

Results:
Pass (See plots)

Center: 858.5 MHz
Span: 25 MHz



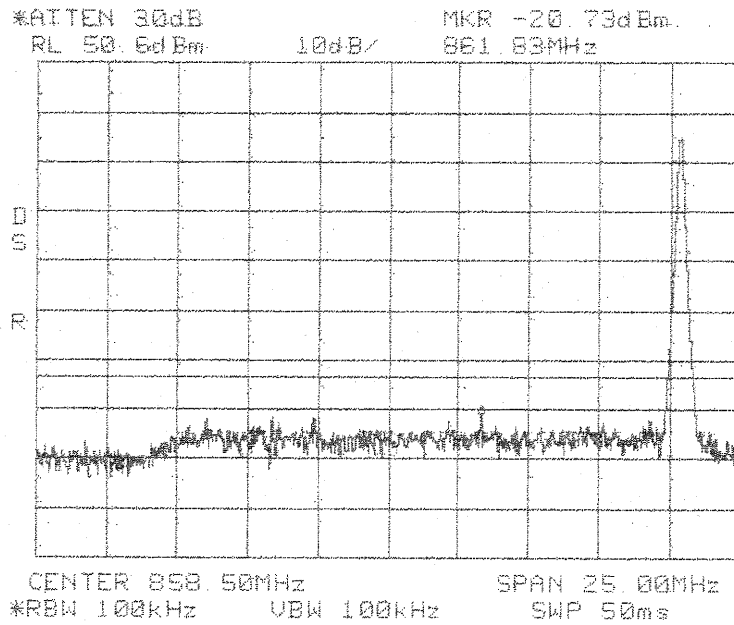
**Conducted Emissions
Mid
SMR 800 MHz**



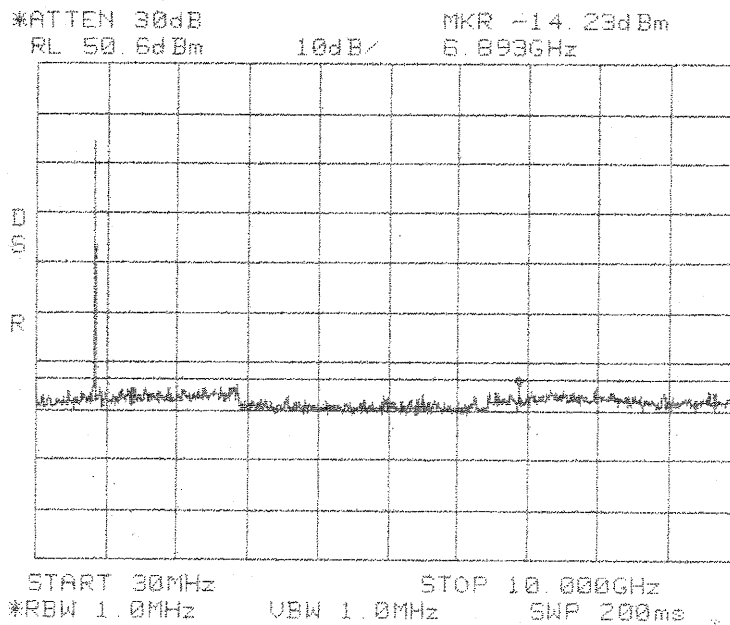
**Conducted Emissions
Mid
SMR 800 MHz**

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

Center: 858.5 MHz
Span: 25 MHz



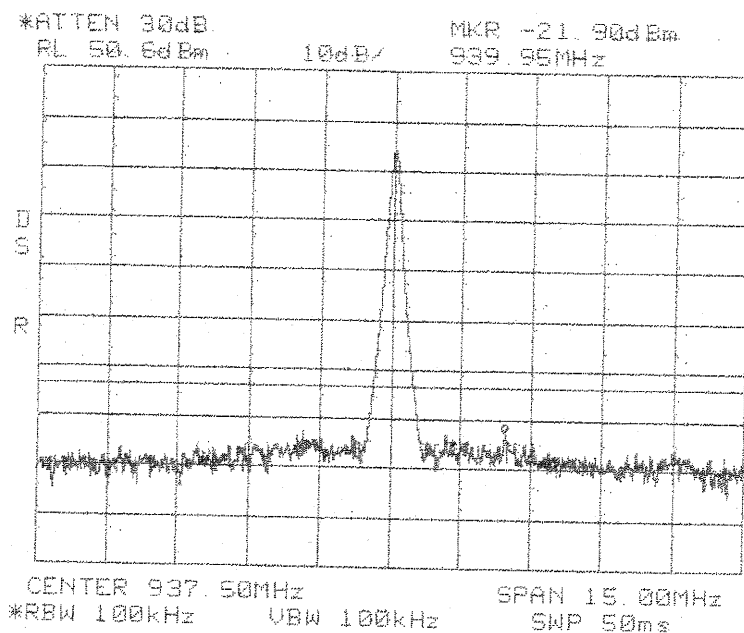
**Conducted Emissions
High
SMR 800 MHz**



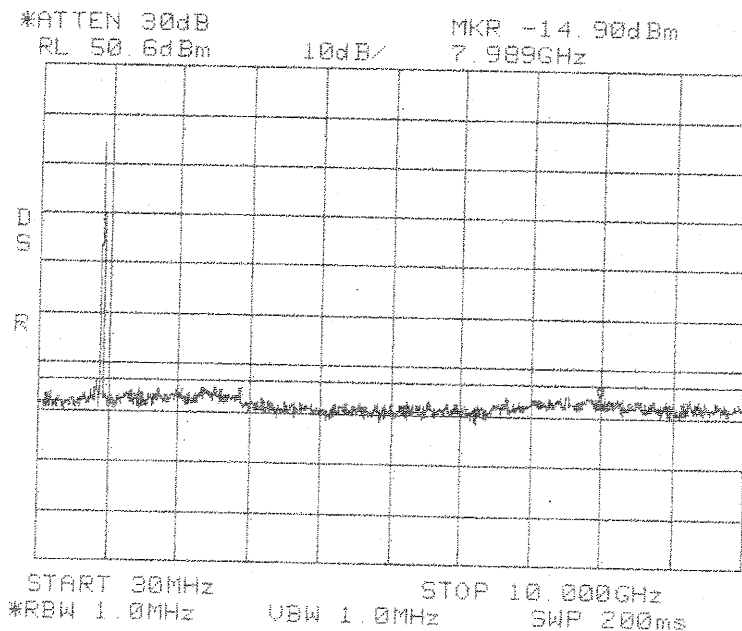
**Conducted Emissions
High
SMR 800 MHz**

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

Center: 937.5 MHz
Span: 15 MHz



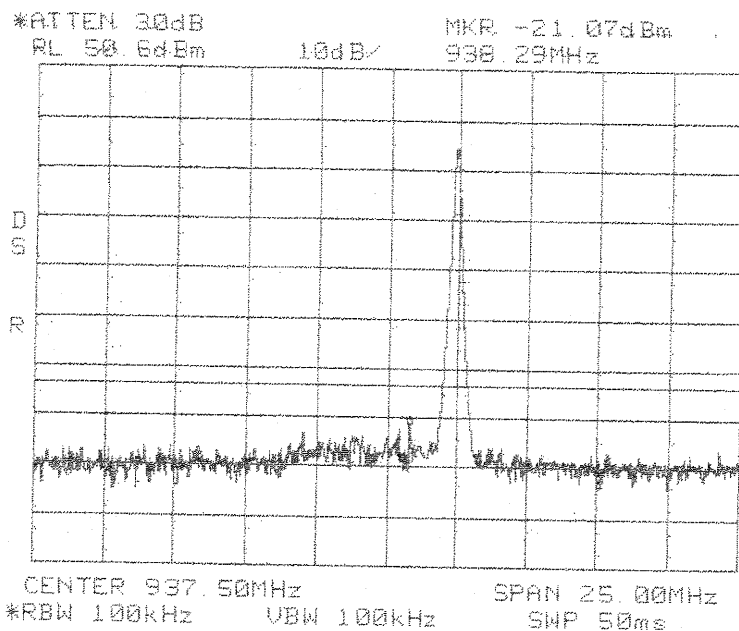
**Conducted Emissions
Mid
SMR 900 MHz**



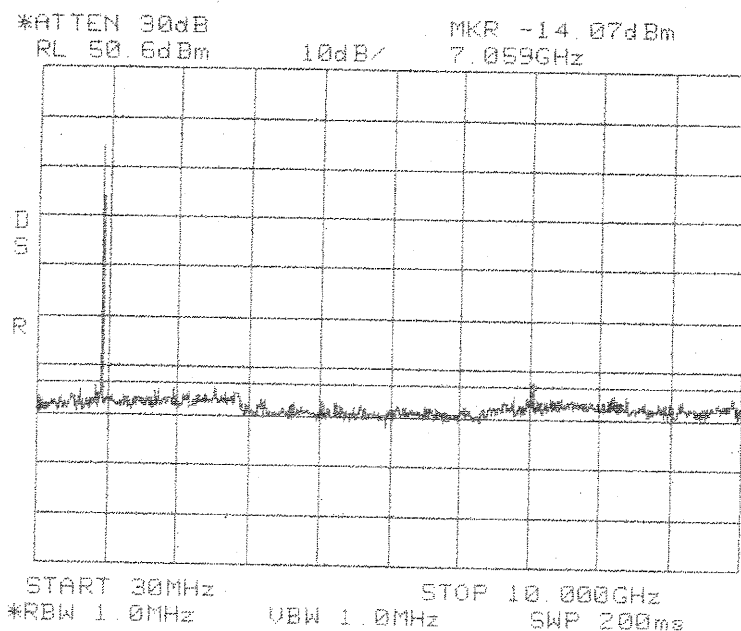
**Conducted Emissions
Mid
SMR 900 MHz**

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

Center: 937.5 MHz
Span: 15 MHz



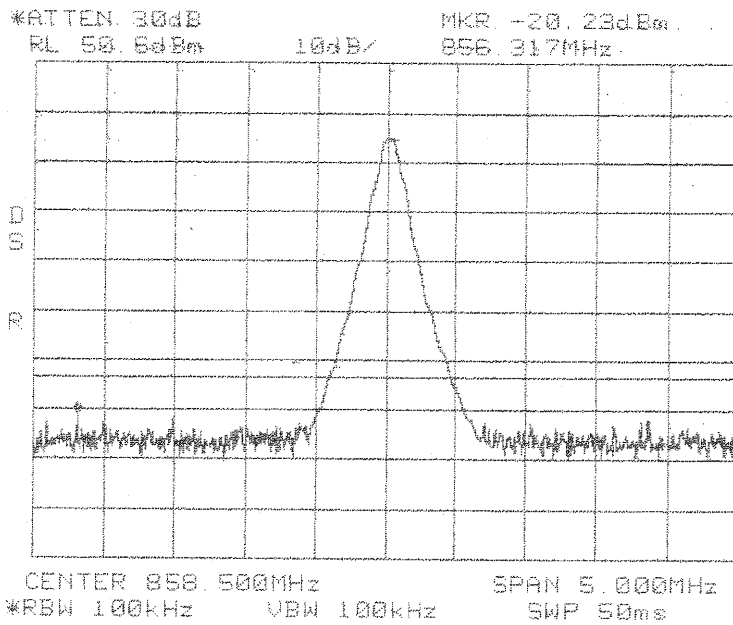
**Conducted Emissions
High
SMR 900 MHz**



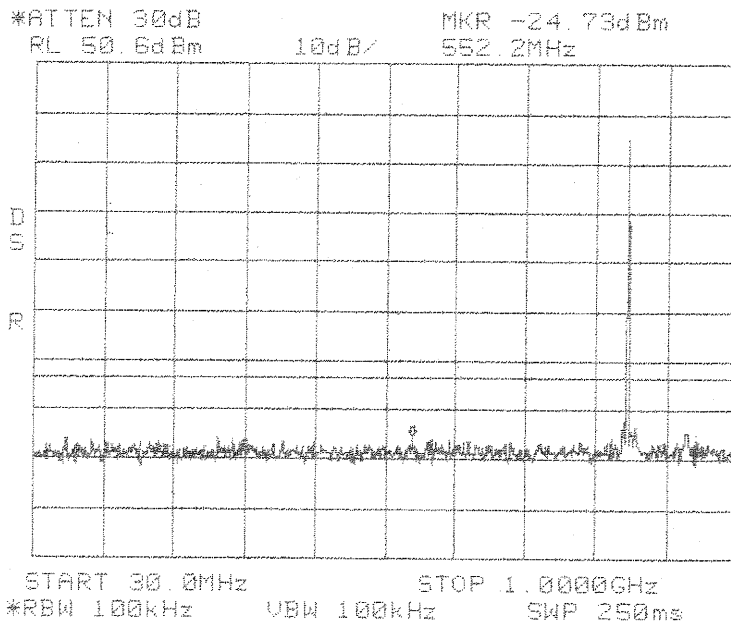
**Conducted Emissions
High
SMR 900 MHz**

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

Center: 858.5 MHz
Span: 5 MHz



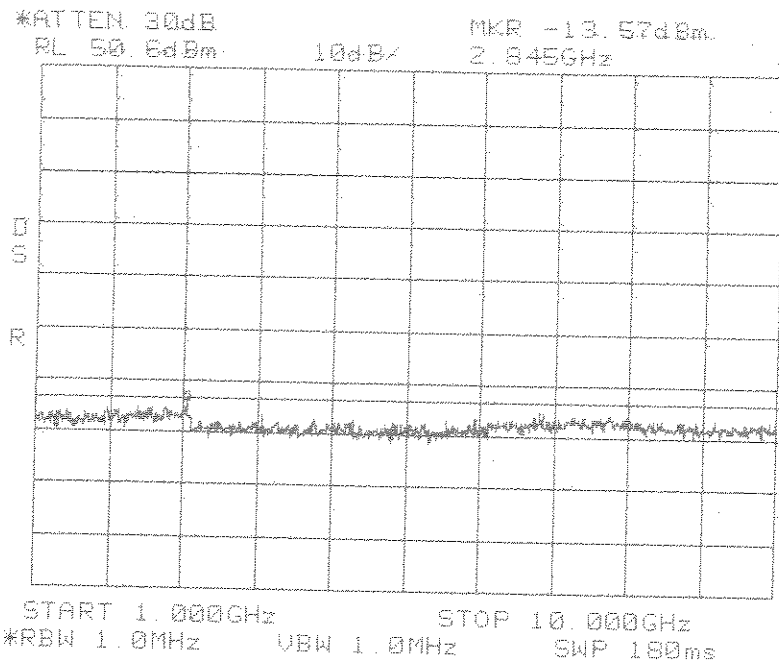
**Conducted Emissions
FM
SMR 800 MHz**



**Conducted Emissions
FM
SMR 800 MHz**

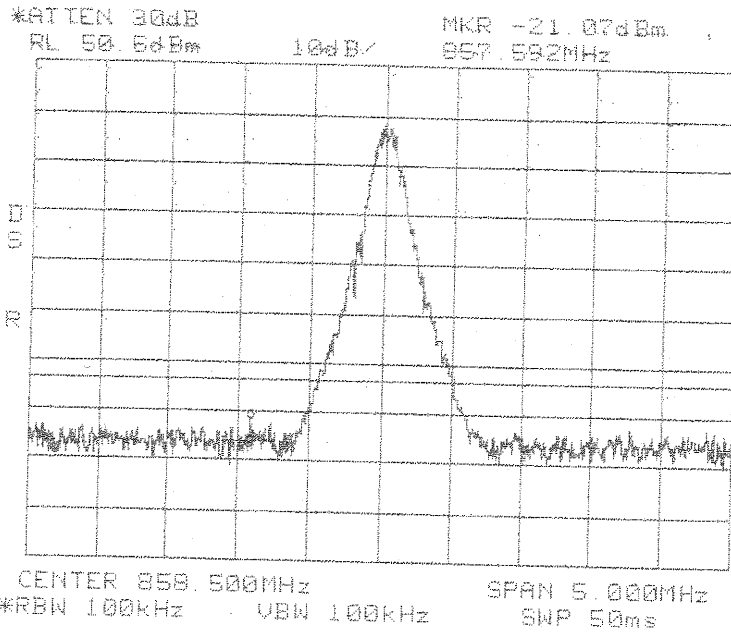
Span: 30 MHz to 1 GHz
RBW/VBW: 30 kHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

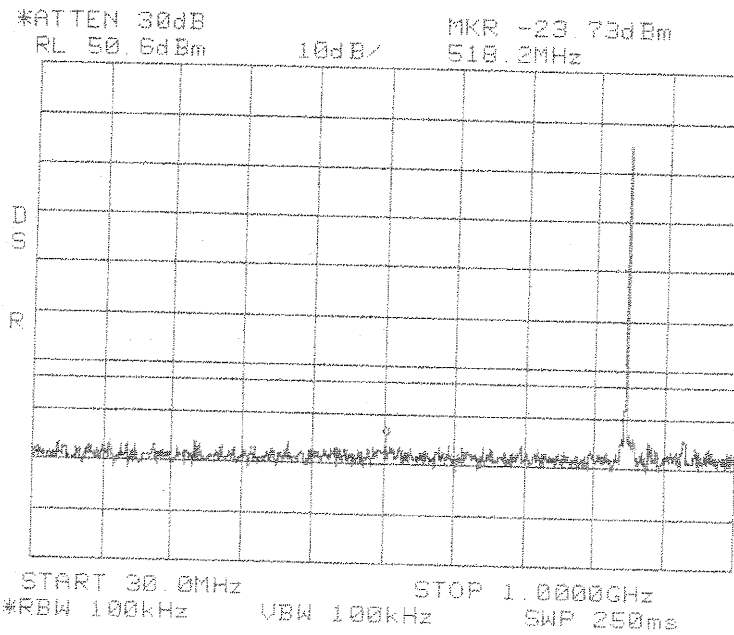


**Conducted Emissions
FM
SMR 800 MHz**

Center: 858.5 MHz
Span: 5 MHz



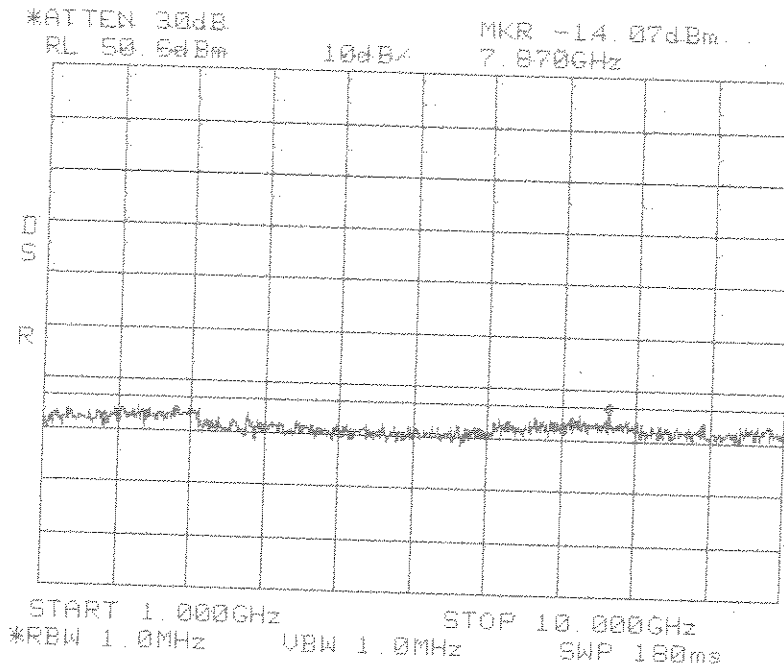
**Conducted Emissions
16QAM
SMR 800 MHz**



**Conducted Emissions
16QAM
SMR 800 MHz**

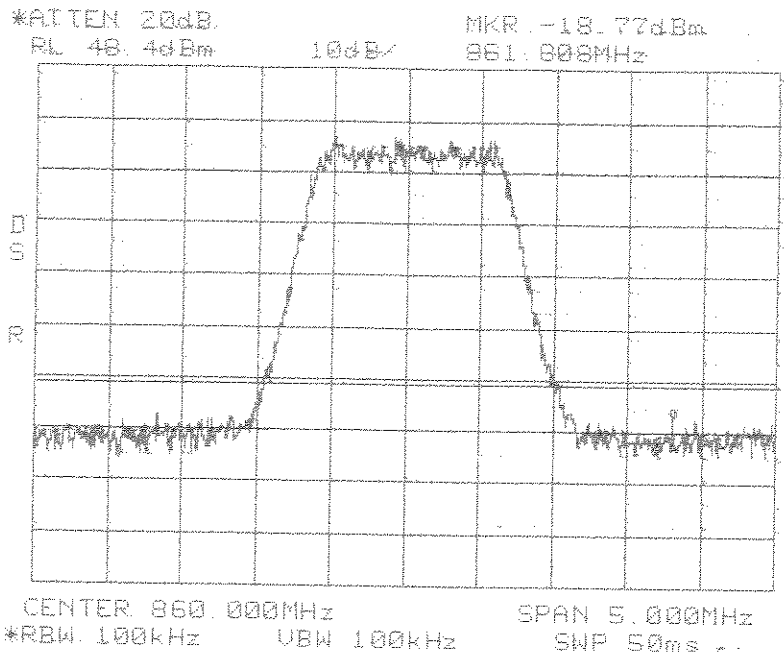
Span: 30 MHz to 1 GHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

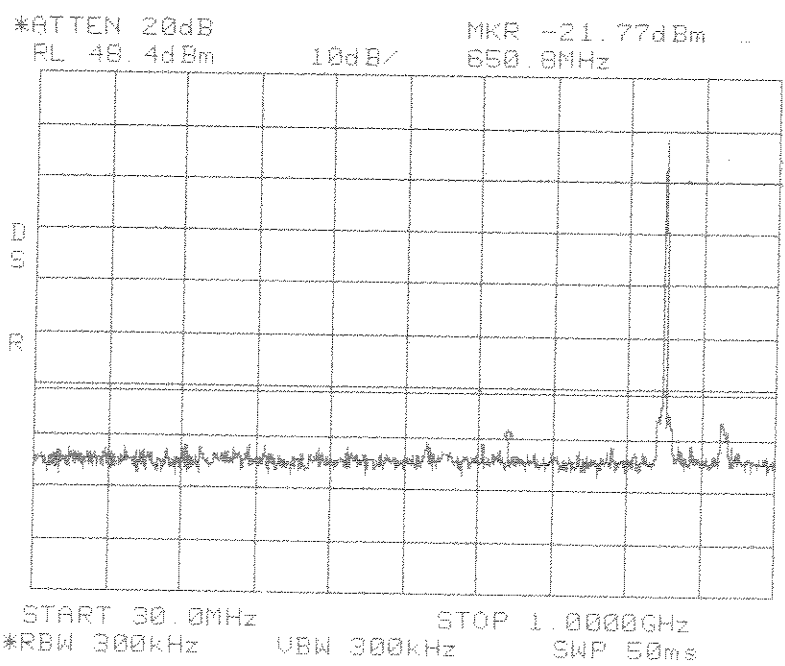


Conducted Emissions
16QAM
SMR 800 MHz

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



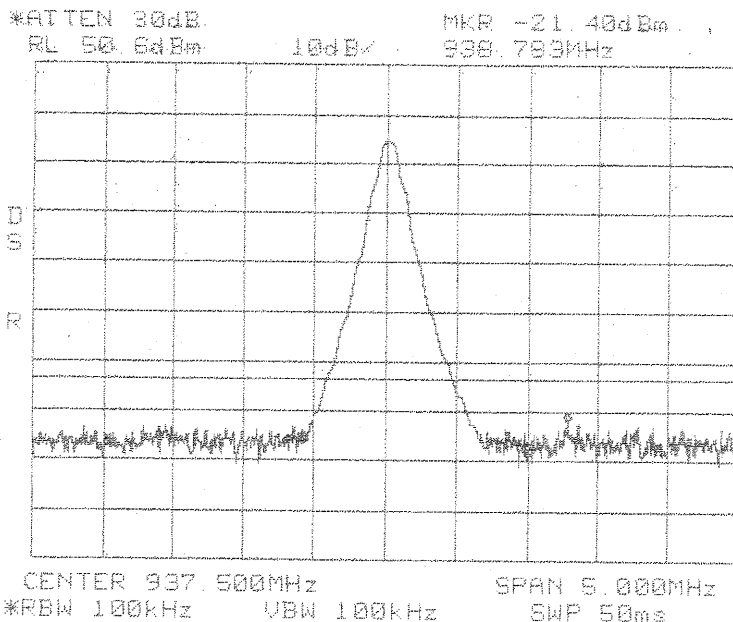
**Conducted Emissions
CDMA
SMR 800 MHz**



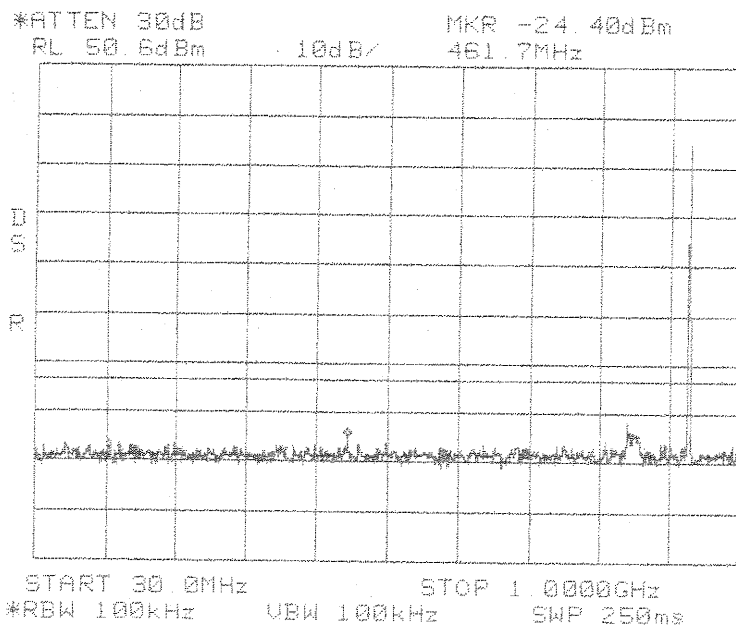
**Conducted Emissions
CDMA
SMR 800 MHz**

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

Center: 937.5 MHz
Span: 5 MHz



**Conducted Emissions
FM
SMR 900 MHz**

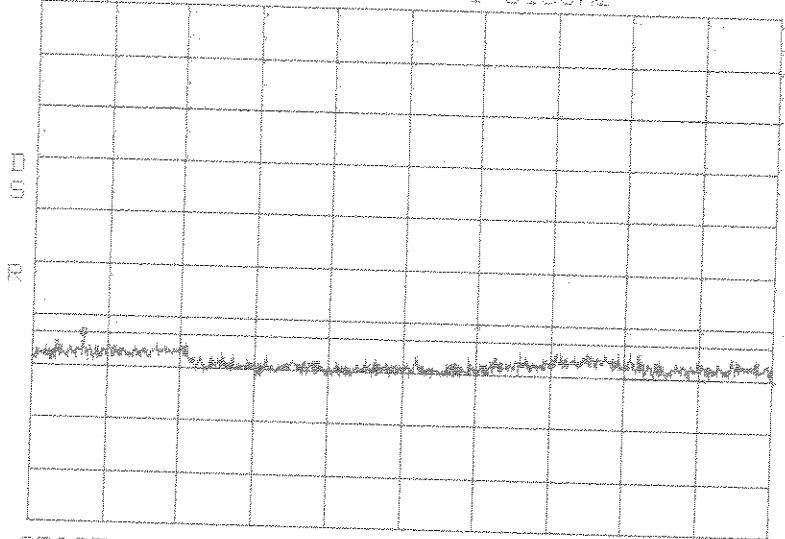


**Conducted Emissions
FM
SMR 900 MHz**

Span: 30 MHz to 1 GHz

1 GHz to 10 GHz
RBW/VBW: 1 MHz

*ATTEN 30dB
RL 50.5dBm 10dB/ MKR -13.90dBm
1.615GHz



**Conducted Emissions
FM
SMR 900 MHz**

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