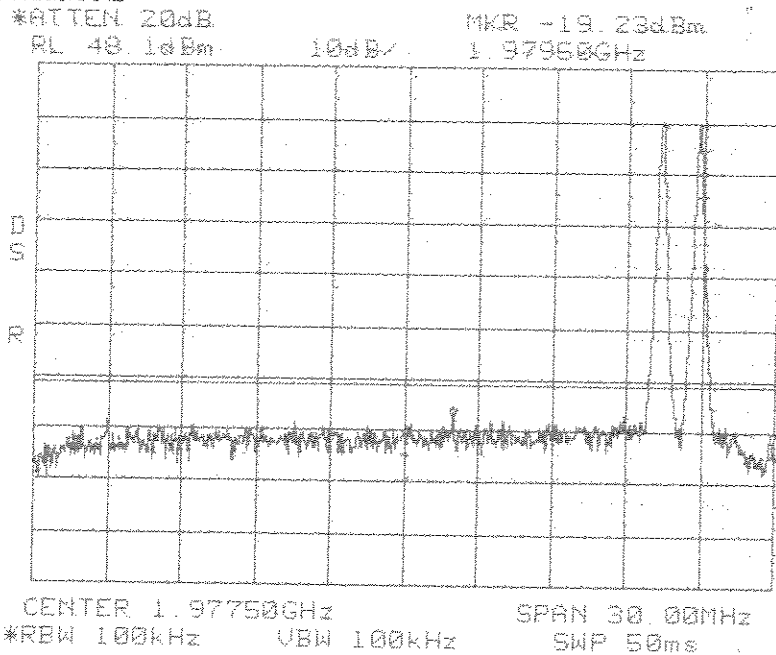
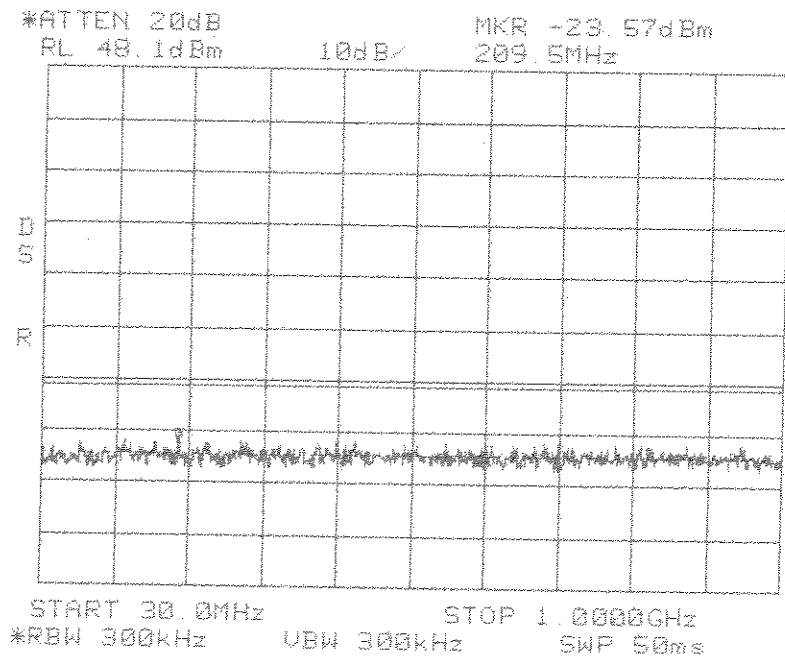


Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



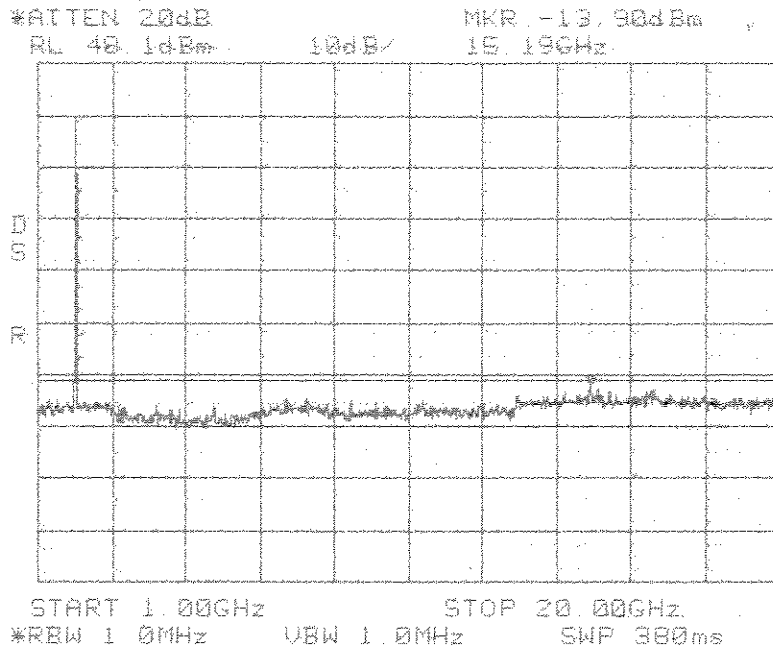
**Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band**



**Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band**

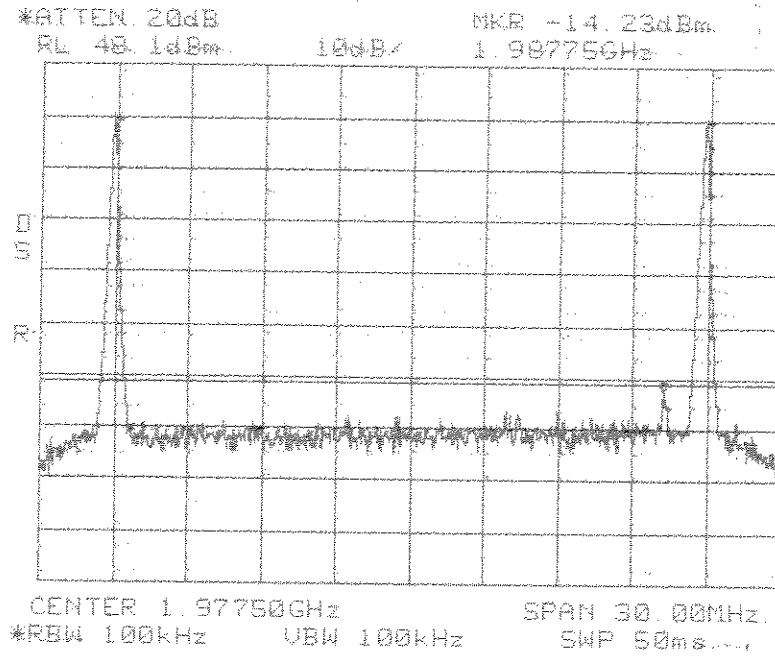
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

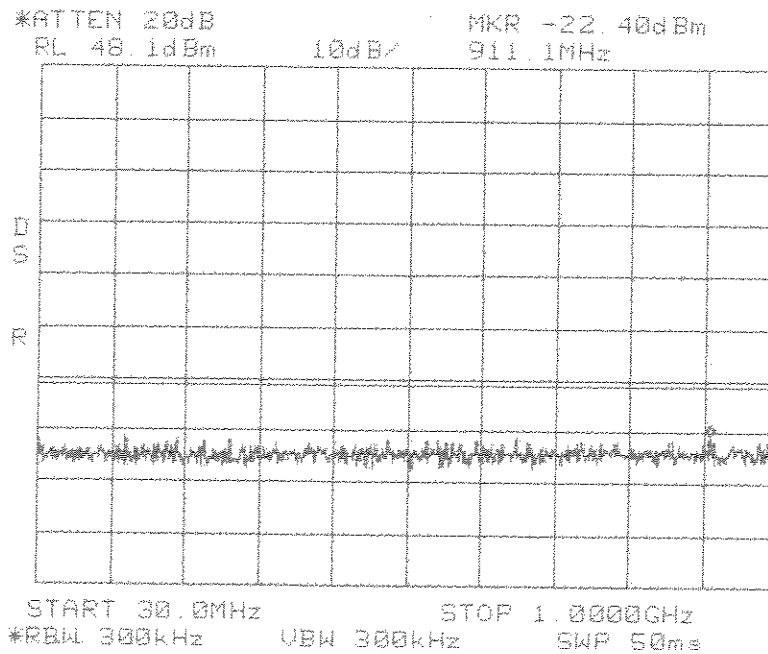


**Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



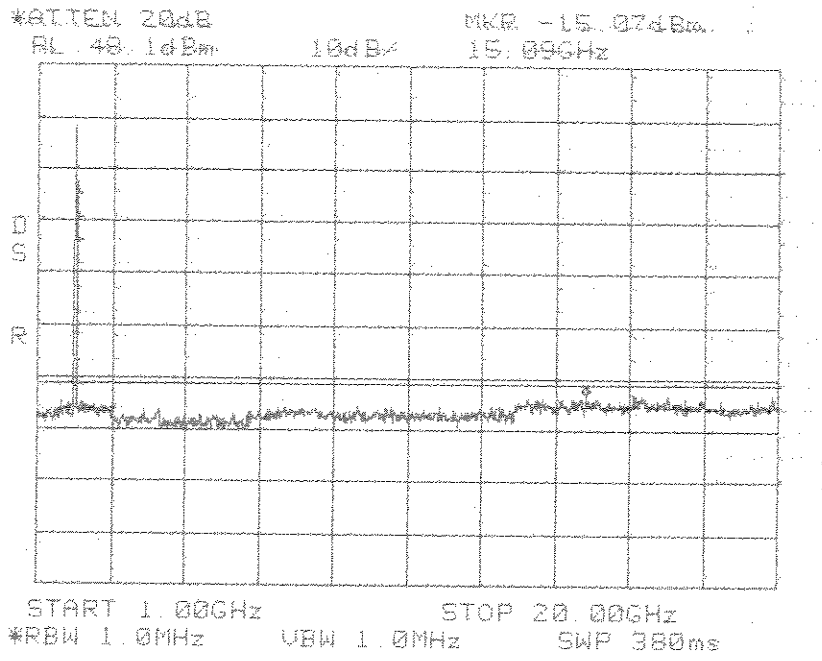
**Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band**



**Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band**

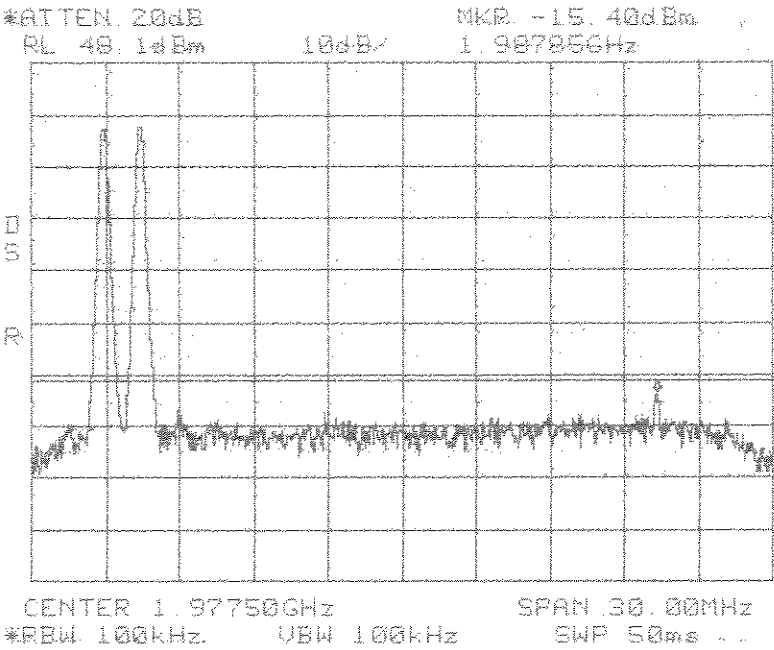
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

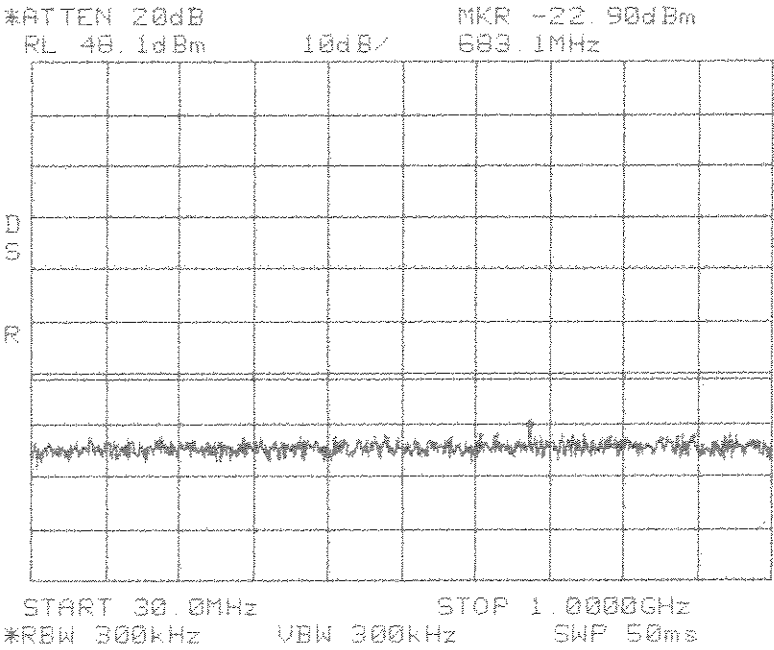


**Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



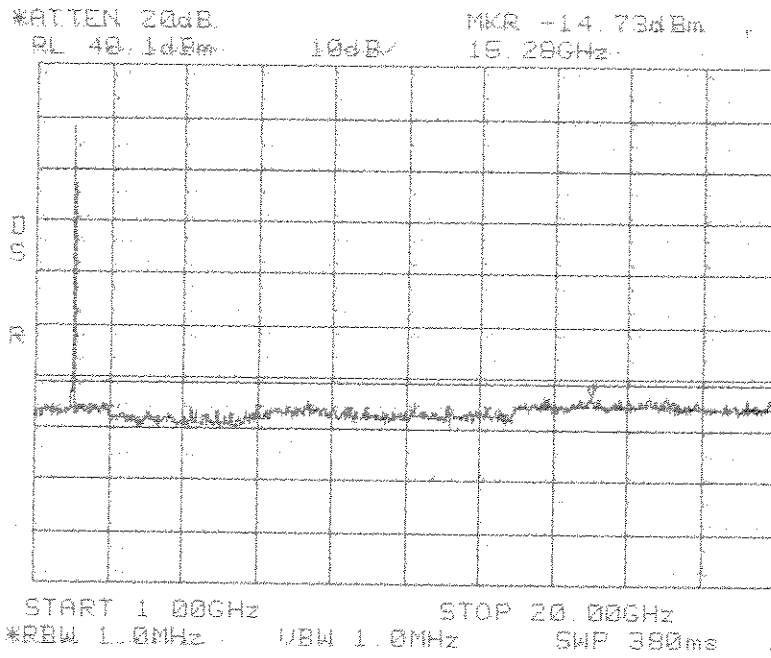
**Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band**



**Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band**

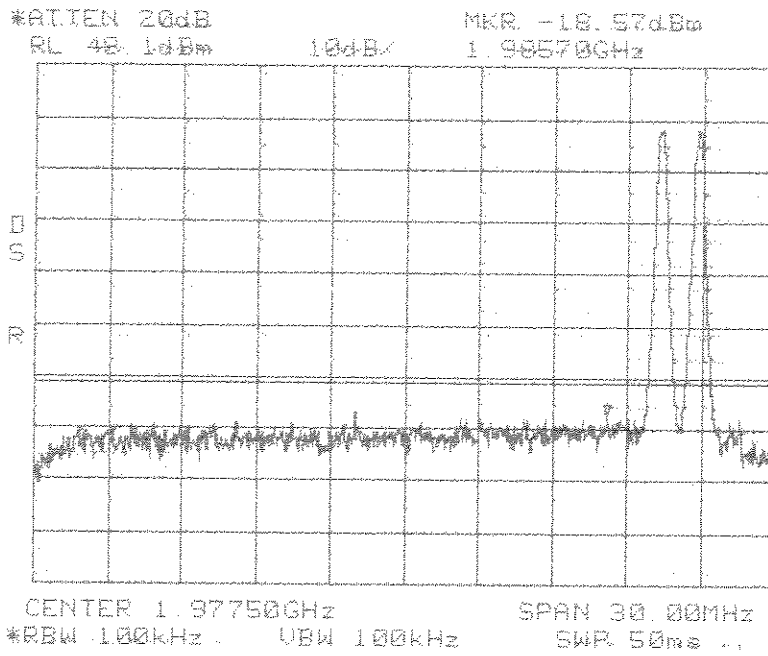
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

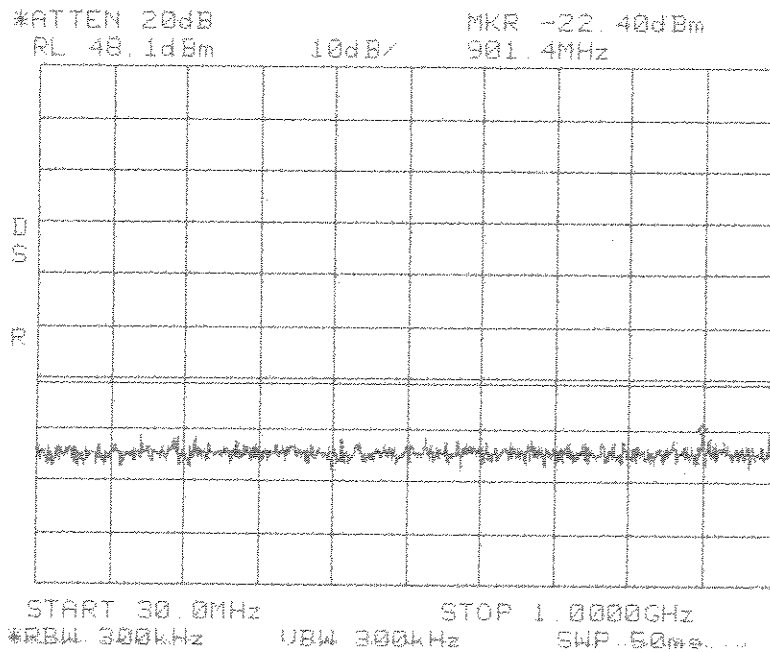


**Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



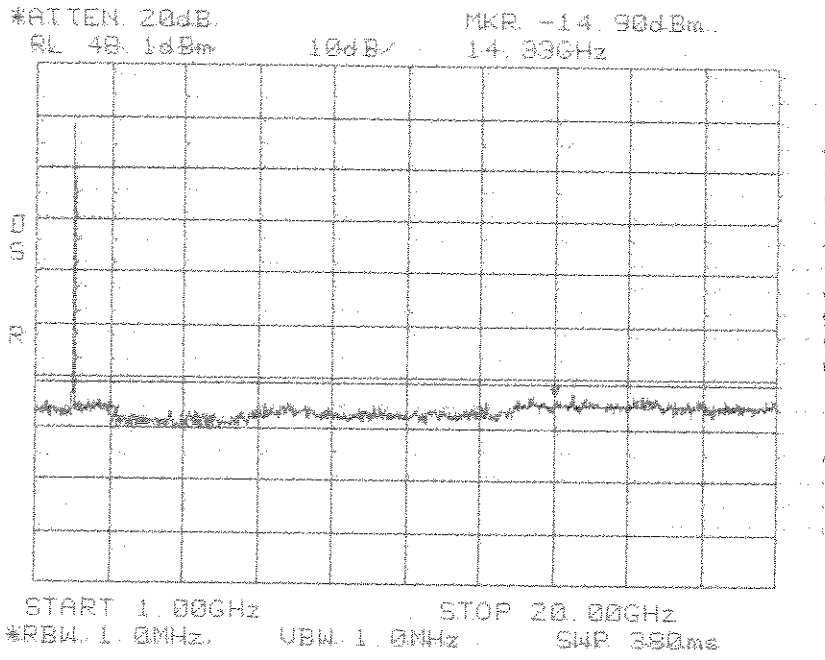
**Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band**



**Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band**

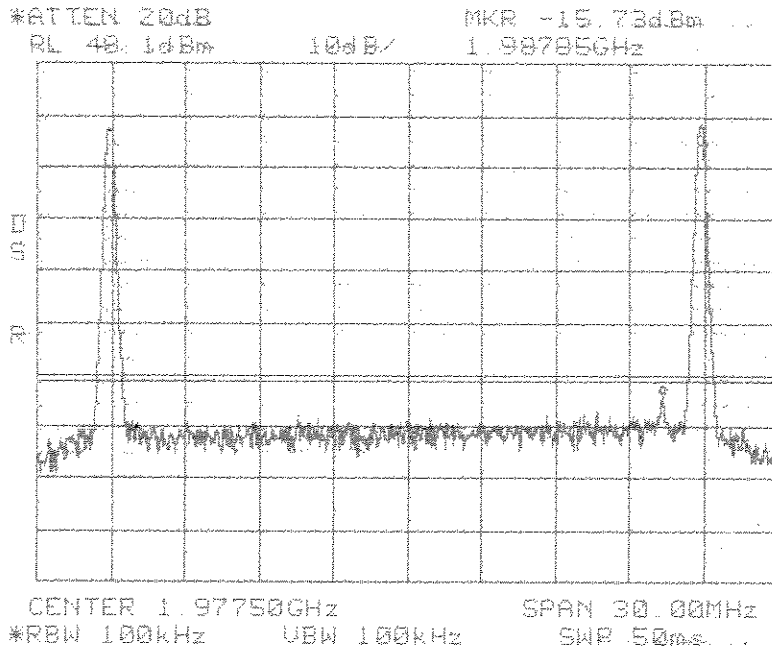
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

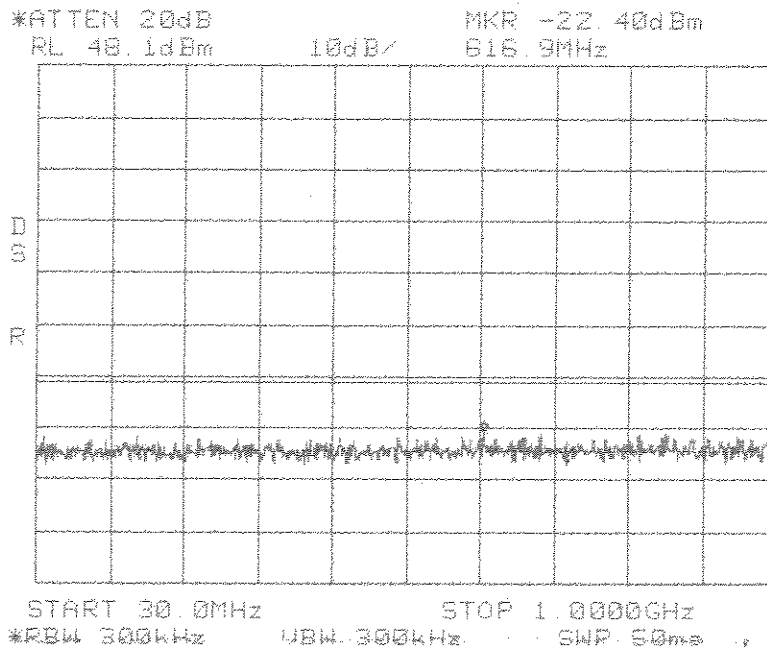


Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



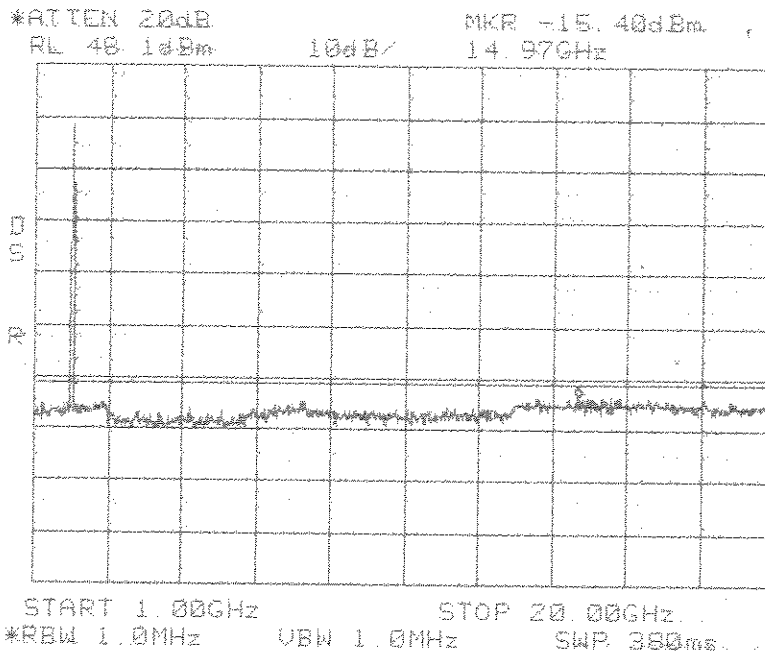
**Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band**



**Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band**

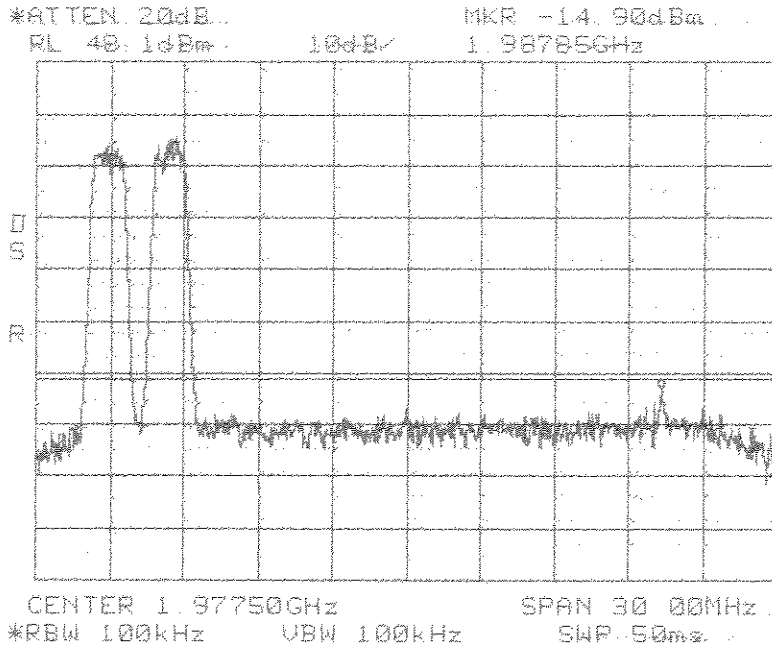
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

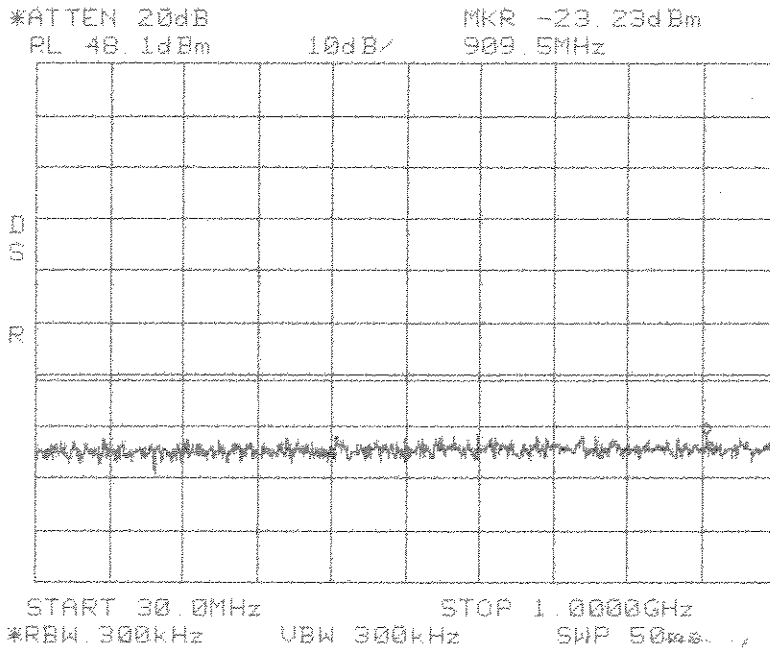


**Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



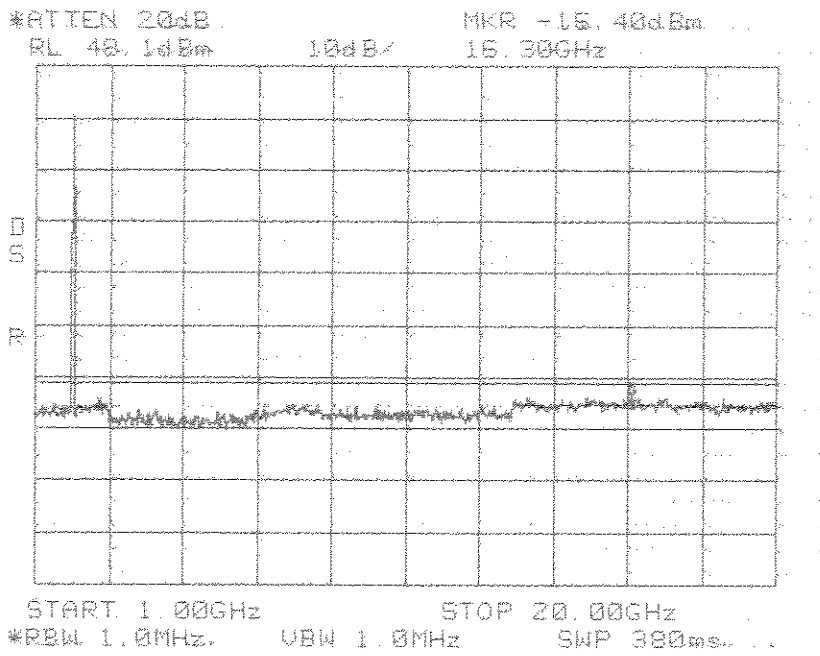
**Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band**



**Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band**

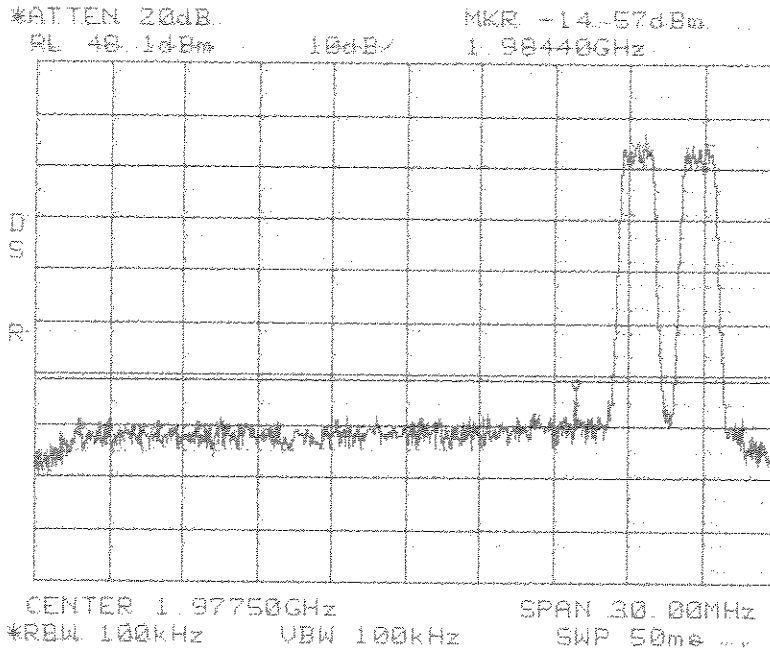
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

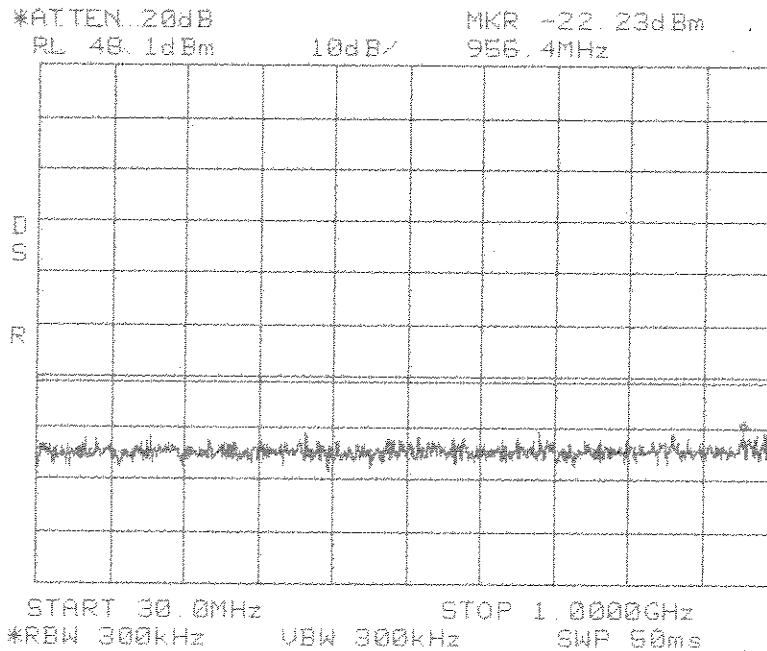


**Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



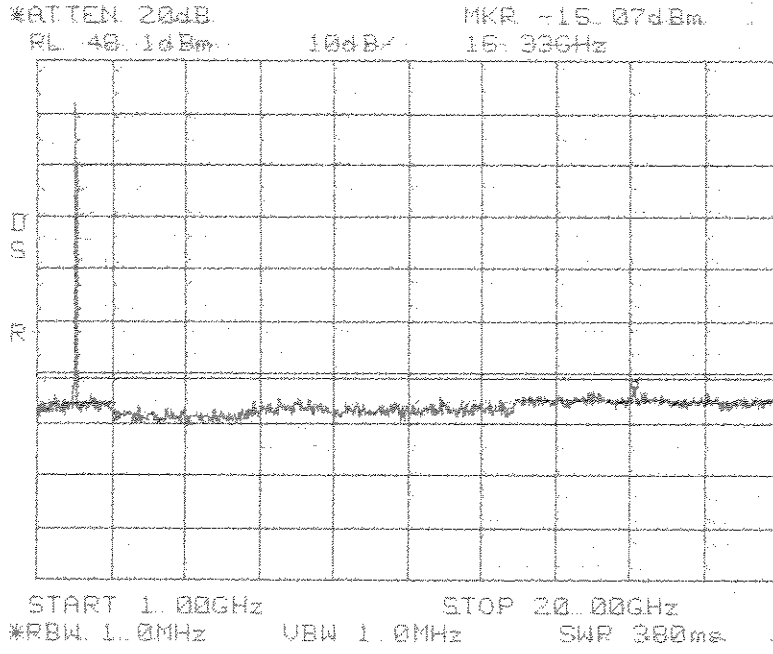
**Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band**



**Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band**

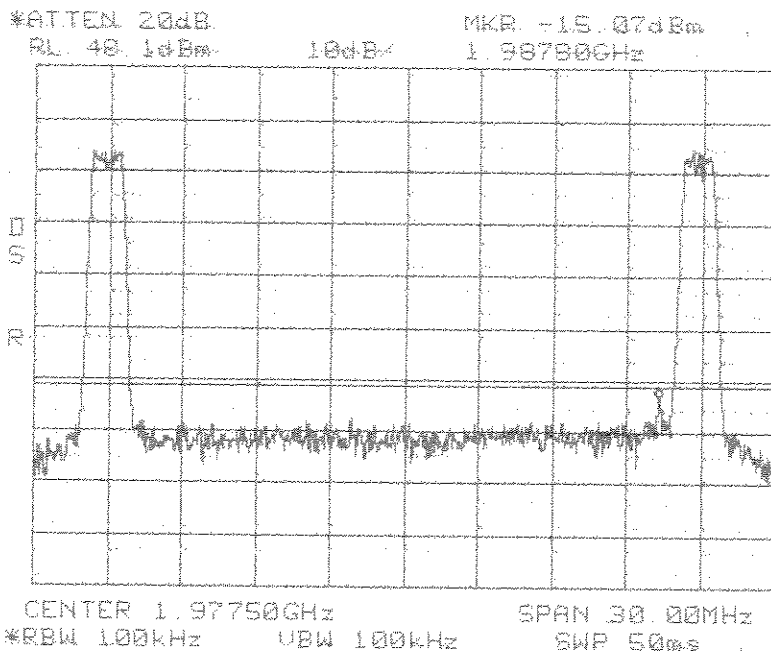
Span: 30 MHz to 1 GHz
RBW/VBW: 300 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

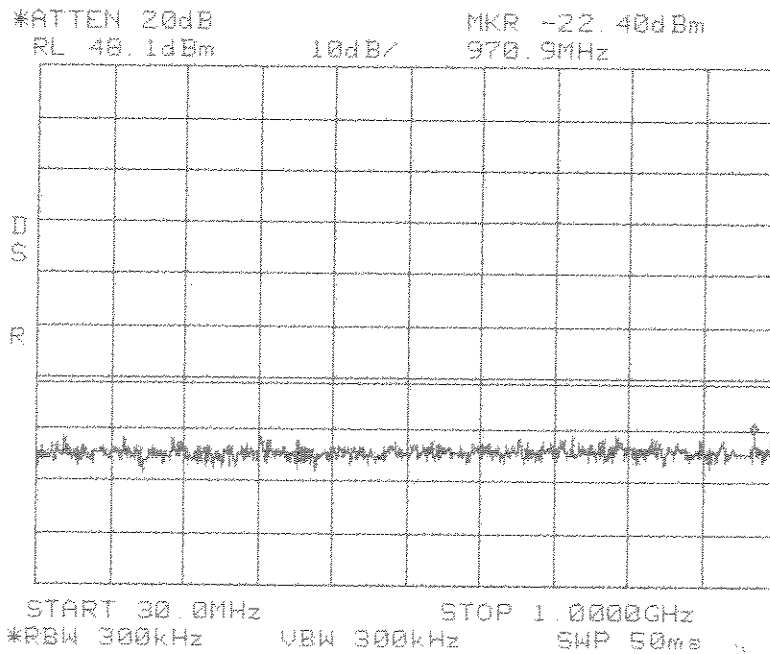


**Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band**

Center: 1977.5 MHz
Span: 30 MHz
RBW/VBW: 100 kHz



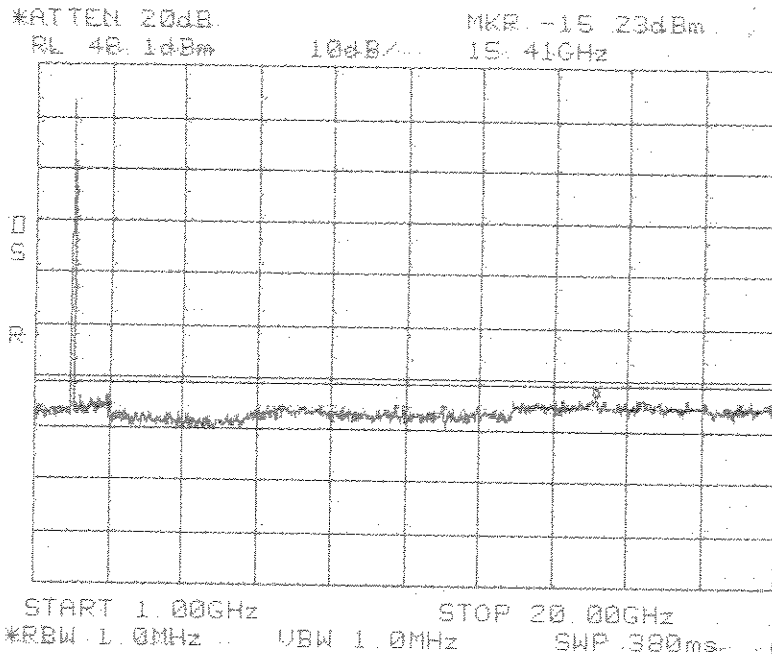
**Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band**



**Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band**

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

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz



**Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band**

**Occupied Bandwidth Modulation Test for ADC Inc.
Digivance® Long Range Coverage Solution
Model Number DGVL-406000LPA**

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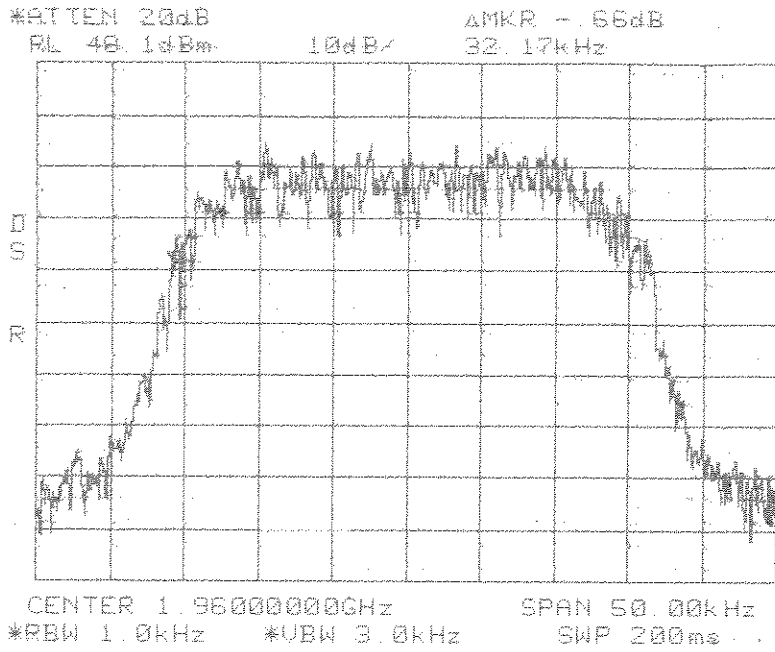
An input/output Occupied Bandwidth test was done with modulation types: TDMA, GSM, EDGE, CDMA, EVDO, and W-CDMA. The purpose was to determine the amount of distortion added to different types of modulation schemes by the EUT. The following plots show input signals vs. output signals.

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.

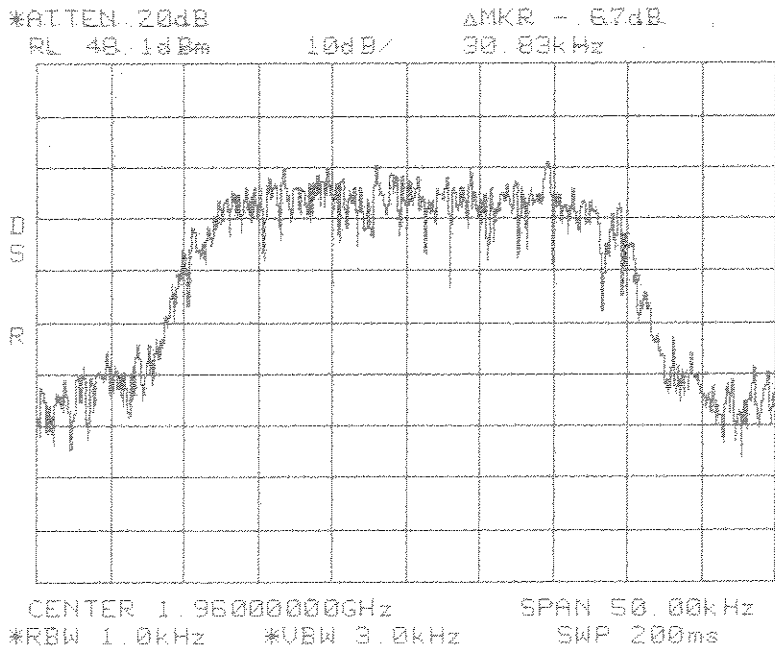
Results:

Pass (see plots)

Span: 50 kHz
RBW: 1 kHz
VBW: 3.0 kHz



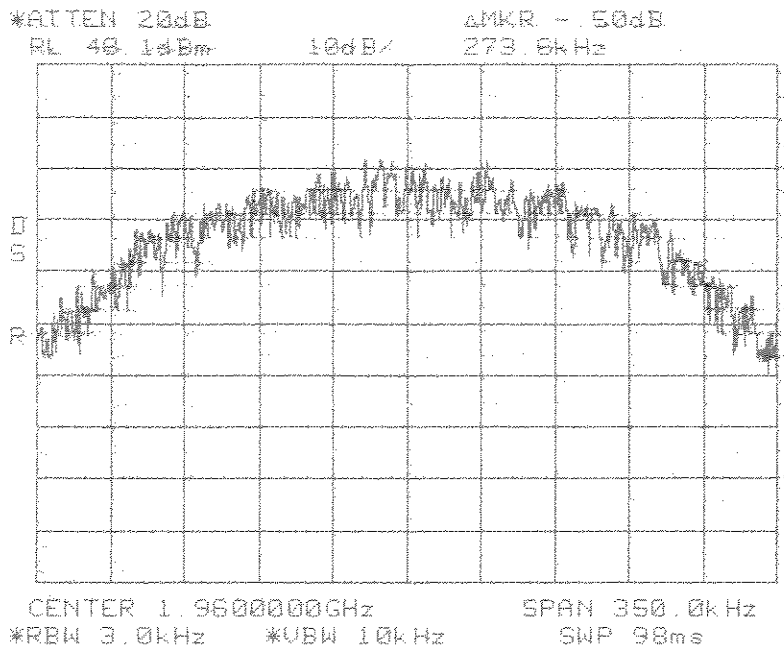
**Occupied Bandwidth
TDMA
Signal In**



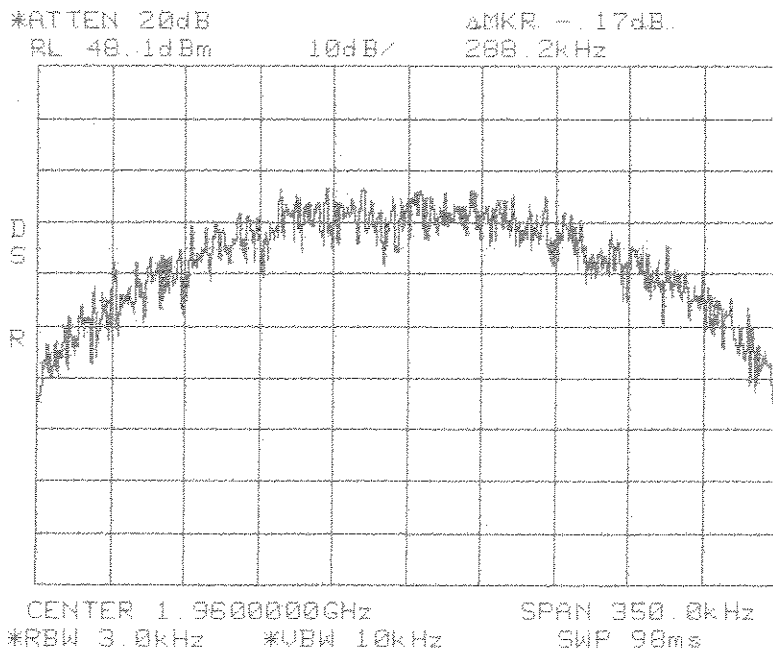
**Occupied Bandwidth
TDMA
Signal Out**

Span: 50 kHz
RBW: 1 kHz
VBW: 3.0 kHz

Span: 350 kHz
RBW: 3 kHz
VBW: 10 kHz



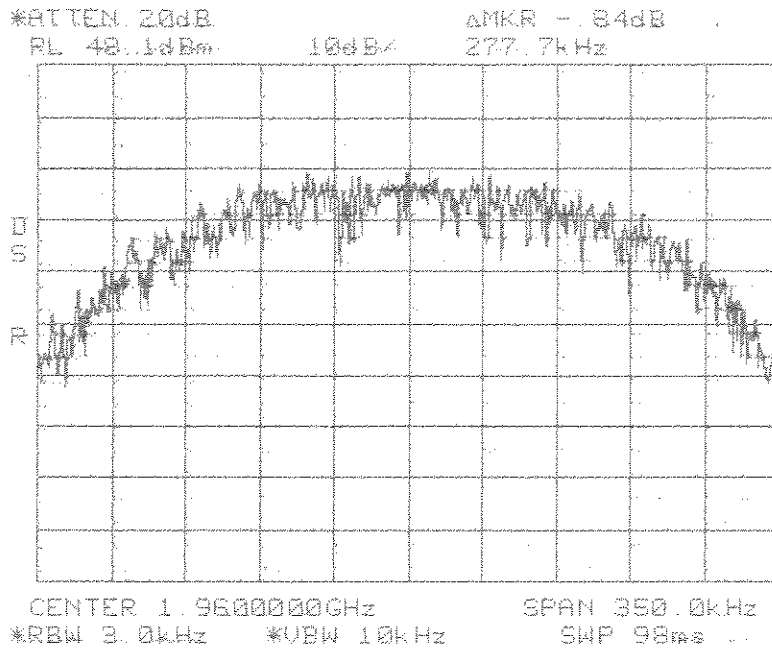
**Occupied Bandwidth
GSM
Signal In**



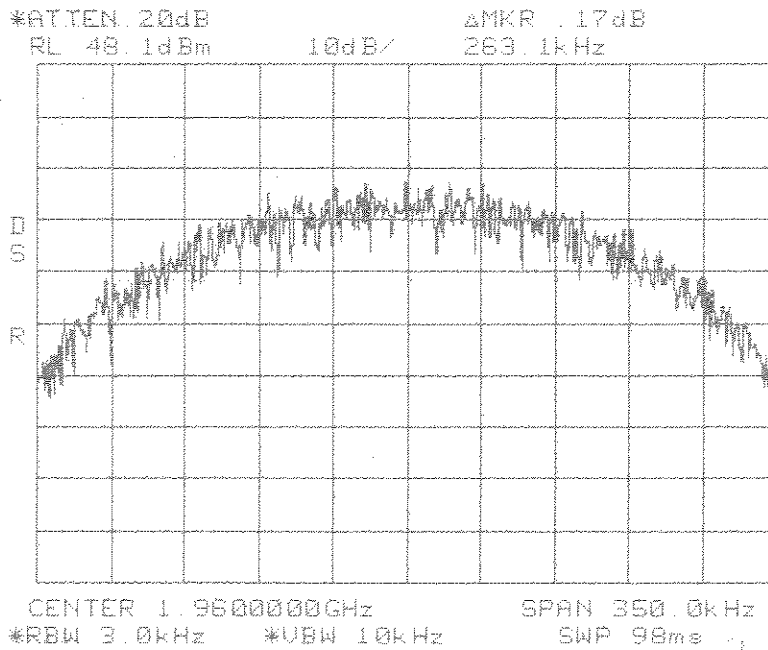
**Occupied Bandwidth
GSM
Signal Out**

Span: 350 kHz
RBW: 3 kHz
VBW: 10 kHz

Span: 350 kHz
RBW: 3 kHz
VBW: 10 kHz



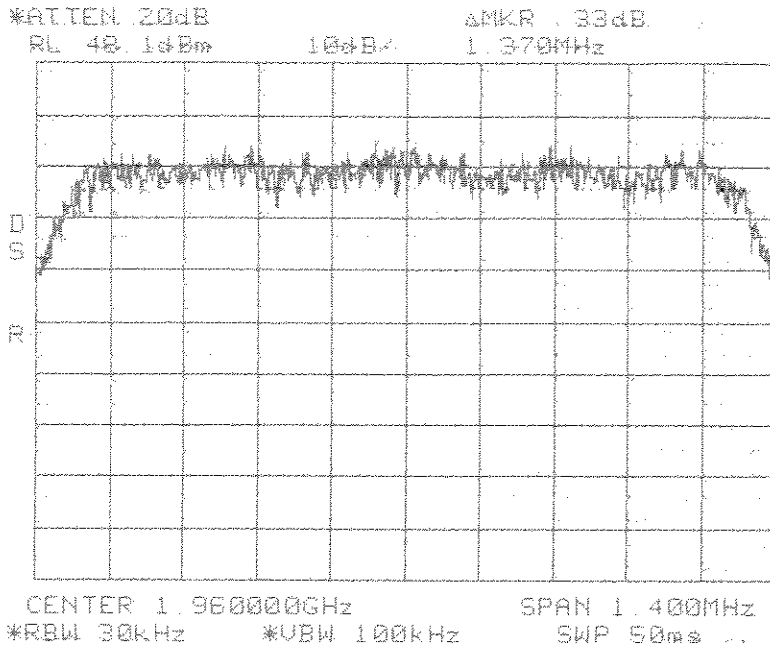
**Occupied Bandwidth
EDGE
Signal In**



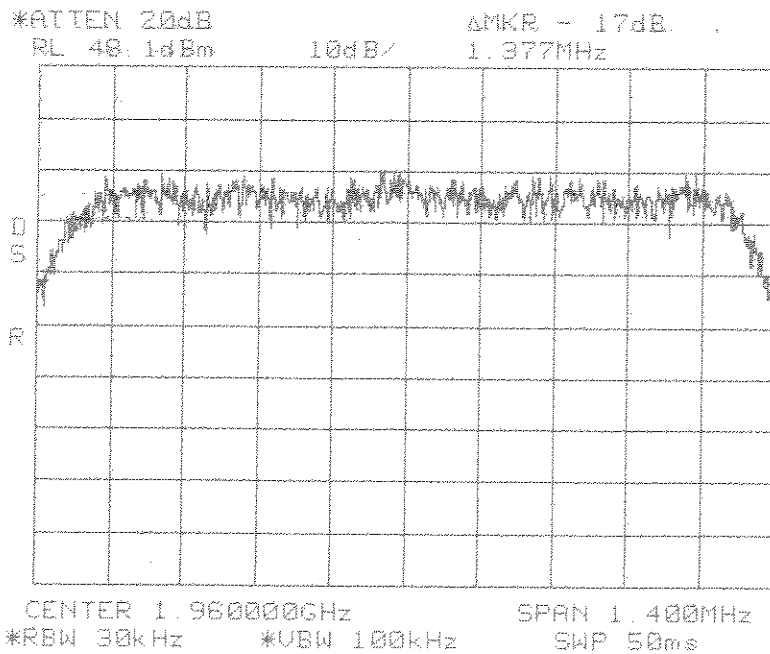
**Occupied Bandwidth
EDGE
Signal Out**

Span: 350 kHz
RBW: 3 kHz
VBW: 10 kHz

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



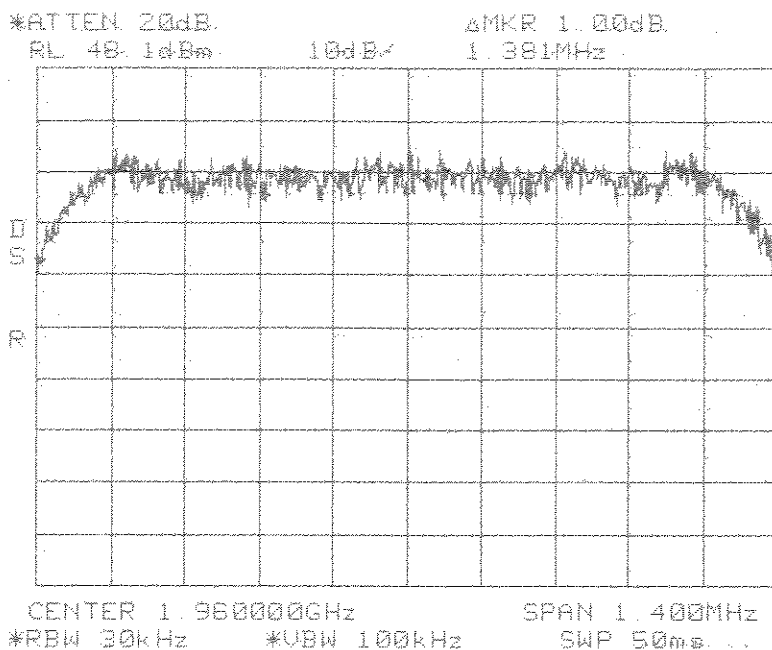
**Occupied Bandwidth
CDMA
Signal In**



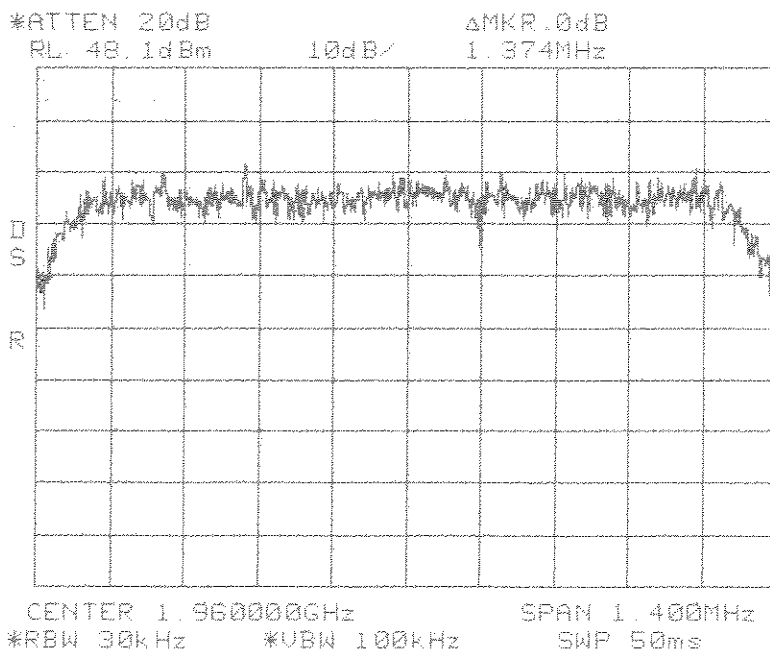
**Occupied Bandwidth
CDMA
Signal Out**

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

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



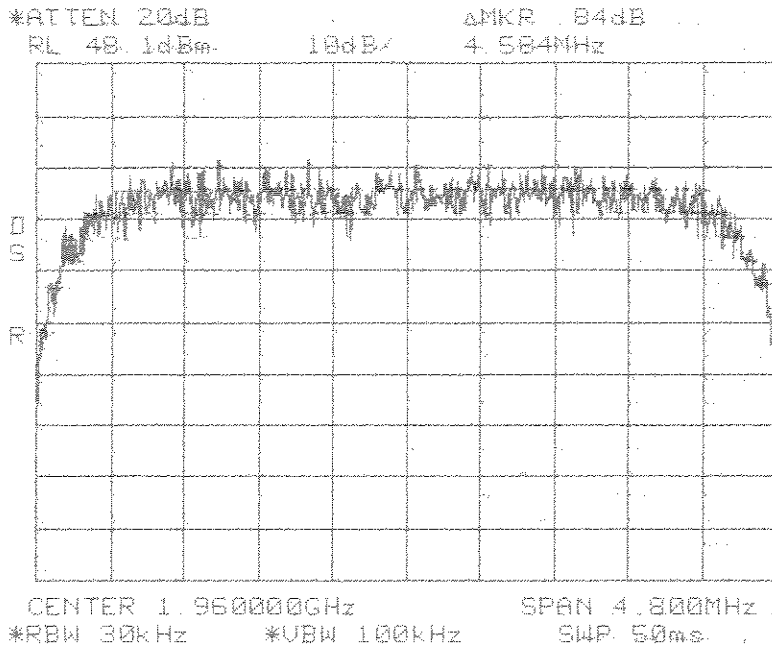
**Occupied Bandwidth
EVDO
Signal In**



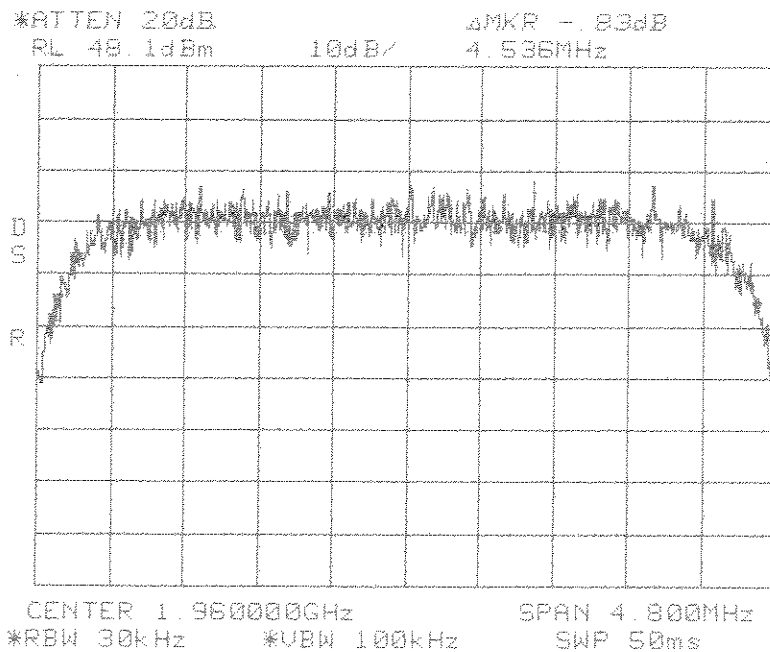
**Occupied Bandwidth
EVDO
Signal Out**

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

**Frequency Tolerance Test for ADC Inc.
Digivance® Long Range Coverage Solution
Model Number DGVL-406000LPA**

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EUT PCS (1900 MHz - AD)

HOST	REMOTE			
Input Voltage	Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
24 VDC	90 VAC	1930.200 MHz	1930.200 MHz	Yes
36 VDC	178 VAC	1930.200 MHz	1930.200 MHz	Yes
48 VDC	265 VAC	1930.200 MHz	1930.200 MHz	Yes
24 VDC	90 VAC	1940.000 MHz	1940.000 MHz	Yes
36 VDC	178 VAC	1940.000 MHz	1940.000 MHz	Yes
48 VDC	265 VAC	1940.000 MHz	1940.000 MHz	Yes
24 VDC	90 VAC	1949.800 MHz	1949.800 MHz	Yes
36 VDC	178 VAC	1949.800 MHz	1949.800 MHz	Yes
48 VDC	265 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® Long Range Coverage Solution
Model Number DGPL-406000LPA**

EUT PCS (1900 MHz - DBE)

HOST	REMOTE			
Input Voltage	Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
24 VDC	90 VAC	1945.200 MHz	1945.200 MHz	Yes
36 VDC	178 VAC	1945.200 MHz	1945.200 MHz	Yes
48 VDC	265 VAC	1945.200 MHz	1945.200 MHz	Yes
24 VDC	90 VAC	1957.500 MHz	1957.500 MHz	Yes
36 VDC	178 VAC	1957.500 MHz	1957.500 MHz	Yes
48 VDC	265 VAC	1957.500 MHz	1957.500 MHz	Yes
24 VDC	90 VAC	1969.800 MHz	1969.800 MHz	Yes
36 VDC	178 VAC	1969.800 MHz	1969.800 MHz	Yes
48 VDC	265 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® Long Range Coverage Solution
Model Number DGPL-406000LPA**

EUT PCS (1900 MHz - BEF)

HOST	REMOTE			
Input Voltage	Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
24 VDC	90 VAC	1950.200 MHz	1950.200 MHz	Yes
36 VDC	178 VAC	1950.200 MHz	1950.200 MHz	Yes
48 VDC	265 VAC	1950.200 MHz	1950.200 MHz	Yes
24 VDC	90 VAC	1962.500 MHz	1962.500 MHz	Yes
36 VDC	178 VAC	1962.500 MHz	1962.500 MHz	Yes
48 VDC	265 VAC	1962.500 MHz	1962.500 MHz	Yes
24 VDC	90 VAC	1974.800 MHz	1974.800 MHz	Yes
36 VDC	178 VAC	1974.800 MHz	1974.800 MHz	Yes
48 VDC	265 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® Long Range Coverage Solution
Model Number DGPL-406000LPA**

EUT PCS (1900 MHz - EFC)

HOST	REMOTE			
Input Voltage	Input Voltage	Carrier Frequency	Measured Frequency	Meets Requirements?
24 VDC	90 VAC	1965.200 MHz	1965.200 MHz	Yes
36 VDC	178 VAC	1965.200 MHz	1965.200 MHz	Yes
48 VDC	265 VAC	1965.200 MHz	1965.200 MHz	Yes
24 VDC	90 VAC	1977.500 MHz	1977.500 MHz	Yes
36 VDC	178 VAC	1977.500 MHz	1977.500 MHz	Yes
48 VDC	265 VAC	1977.500 MHz	1977.500 MHz	Yes
24 VDC	90 VAC	1989.800 MHz	1989.800 MHz	Yes
36 VDC	178 VAC	1989.800 MHz	1989.800 MHz	Yes
48 VDC	265 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

6.0

APPENDIX B

Intertek Test Data

[Back to Test Data:](#)

[Substitution Results:](#)

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Test Engineer: Norman Shpilsher

Date: 07 November, 2006

Test Procedure:

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

Test Site Location:

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

Test Site Description:

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

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

FCC Registration Number: 90706

IC Registration Number: 4359

TEST DATA

Test Data Number: 3109813MIN-001

Project Number: 3109813

November 10, 2006

**Testing performed on the
DGVL-406000LPA**

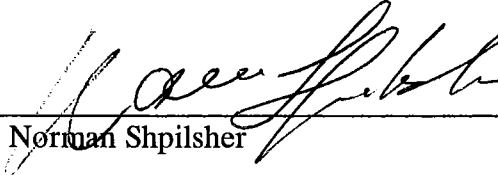
**to
FCC Part 24**

**For
ADC Telecommunications**

Test Performed by:
Intertek
7250 Hudson Blvd. Suite 100
Oakdale, MN 55128

Test Authorized by:
ADC Telecommunications
5341 12th Avenue East
Shakopee, MN 55379

Prepared by:


Norman Shpilsher

Date:

November 9, 2006



Intertek Testing Services NA, Inc.

7250 Hudson Boulevard, Suite 100, Oakdale, MN 55128

Telephone: 651-730-1188 Fax: 651-730-1282 Web: www.intertek-etlsemko.com

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1.0 JOB DESCRIPTION

Equipment: DGVL-406000LPA

Equipment Description: Cellular Phone Transmitter

Transmitter Operating Range: 1930 to 1990MHz

Voltage/Phase: 120VAC/60Hz

Customer: Mr. Mark F. Miska
ADC Telecommunications
5341 12th Avenue East
Shakopee, MN 55379

Test Standards: FCC Part 24

Date Sample Submitted: November 7, 2006

Test Work Started: November 7, 2006

Test Work Completed: November 7, 2006

Test Sample Conditions: Good

2.0 TEST RESULTS

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

TEST STANDARD	TEST	COMMENTS
FCC Part 24	Spurious Enclosure Radiated Emissions	Pass

The EUT was tested at low (1930MHz), middle (1960MHz), and upper (1990MHz) operating frequency.

Testing was performed in frequency range from 30MHz to 20GHz.

Spurious Radiated Emissions in frequency range from 30MHz to 1GHz are shown in Tables 1 to 3 and Graphs 1 to 3. Spurious Radiated Emissions in frequency range from 1 to 18GHz are shown in Tables 4 to 6 and Graphs 4 to 6. Spurious Radiated Emissions in frequency range from 18 to 20GHz are shown in Graphs 7 to 9. Spurious Radiated Emissions Power (substitution measurements) is shown in Table 7.

Spurious Radiated Emissions from 30MHz to 1GHz

Date:

11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1930MHz Operating Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
 All measurements were taken using a Peak detector

Table # 1

Frequency	Ant. Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
52.234 MHz	V	50.5	8.2	58.8	94.0	-35.2
141.82 MHz	V	40.3	12.8	53.1	94.0	-40.9
426.06 MHz	V	33.0	19.7	52.7	94.0	-41.4
431.61 MHz	V	31.1	19.6	50.7	94.0	-43.3
435.07 MHz	V	33.2	19.5	52.7	94.0	-41.3
444.07 MHz	V	31.9	19.5	51.4	94.0	-42.6
639.4 MHz	V	28.3	22.8	51.1	94.0	-42.9
709.99 MHz	V	29.8	23.1	52.9	94.0	-41.1
780.72 MHz	V	27.0	24.0	51.1	94.0	-42.9
994.34 MHz	V	24.2	26.2	50.3	94.0	-43.7
30.416 MHz	H	39.5	18.8	58.3	94.0	-35.8
141.82 MHz	H	45.3	12.8	58.1	94.0	-35.9
212.87 MHz	H	38.8	12.0	50.8	94.0	-43.2
284.25 MHz	H	36.7	15.5	52.2	94.0	-41.8
709.99 MHz	H	33.7	23.1	56.8	94.0	-37.2
780.72 MHz	H	31.6	24.0	55.7	94.0	-38.3
994.34 MHz	H	25.7	26.2	51.9	94.0	-42.1

Spurious Radiated Emissions from 30MHz to 1GHz

Date: 11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1960MHz Operating Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
 All measurements were taken using a Peak detector

Table # 2

Frequency	Ant. Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
30.416 MHz	V	38.3	18.8	57.0	94.0	-37.0
141.82 MHz	V	39.9	12.8	52.7	94.0	-41.3
451.0 MHz	V	30.4	19.7	50.1	94.0	-43.9
497.41 MHz	V	34.7	20.6	55.4	94.0	-38.7
568.06 MHz	V	26.1	22.1	48.1	94.0	-45.9
639.4 MHz	V	26.3	22.8	49.1	94.0	-44.9
709.99 MHz	V	33.6	23.1	56.8	94.0	-37.2
780.72 MHz	V	30.7	24.0	54.7	94.0	-39.3
32.286 MHz	H	41.4	17.7	59.1	94.0	-34.9
141.82 MHz	H	44.9	12.8	57.7	94.0	-36.3
212.87 MHz	H	38.9	12.0	50.9	94.0	-43.2
497.41 MHz	H	31.1	20.6	51.7	94.0	-42.3
639.4 MHz	H	32.0	22.8	54.8	94.0	-39.2
709.99 MHz	H	34.4	23.1	57.6	94.0	-36.4
780.72 MHz	H	29.6	24.0	53.6	94.0	-40.4

Spurious Radiated Emissions from 30MHz to 1GHz

Date: 11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1990MHz Operating Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
 All measurements were taken using a Peak detector

Table # 3

Frequency	Ant. Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
30.693 MHz	V	34.5	18.6	53.1	94.0	-40.9
48.633 MHz	V	42.1	9.2	51.2	94.0	-42.8
141.82 MHz	V	42.2	12.8	55.0	94.0	-39.0
497.41 MHz	V	32.3	20.6	52.9	94.0	-41.1
639.4 MHz	V	28.8	22.8	51.6	94.0	-42.4
709.99 MHz	V	33.0	23.1	56.2	94.0	-37.9
780.72 MHz	V	26.6	24.0	50.6	94.0	-43.4
31.524 MHz	H	35.1	18.1	53.2	94.0	-40.8
141.82 MHz	H	45.5	12.8	58.3	94.0	-35.7
568.06 MHz	H	25.4	22.1	47.5	94.0	-46.5
639.4 MHz	H	26.7	22.8	49.5	94.0	-44.5
709.99 MHz	H	34.9	23.1	58.0	94.0	-36.0
780.72 MHz	H	26.2	24.0	50.2	94.0	-43.8

Spurious Radiated Emissions Field Strength from 1 to 20GHz

Date:

11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1930MHz Opearaing Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 4

Frequency MHz	Antenna Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
1.4902 GHz	V	61.8	27.8	39.4	50.1	94.0	-43.9
1.9208 GHz	V	67.7	29.7	38.7	58.7	94.0	-35.3
3.5528 GHz	V	54.0	34.7	37.6	51.1	94.0	-42.9
3.8588 GHz	V	62.7	35.7	37.7	60.8	94.0	-33.2
4.0373 GHz	V	46.1	36.2	37.7	44.7	94.0	-49.3
5.7883 GHz	V	62.9	38.6	36.8	64.6	94.0	-29.4
6.0575 GHz	V	58.3	38.8	36.5	60.5	94.0	-33.5
7.7207 GHz	V	49.6	42.0	36.2	55.4	94.0	-38.6
8.0777 GHz	V	46.7	42.2	35.6	53.3	94.0	-40.7
9.6502 GHz	V	53.4	43.9	34.8	62.5	94.0	-31.5
11.58 GHz	V	49.4	46.3	35.3	60.5	94.0	-33.6
13.512 GHz	V	53.3	47.8	34.7	66.4	94.0	-27.6
13.844 GHz	V	43.9	48.7	35.4	57.3	94.0	-36.7
17.983 GHz	V	41.8	54.9	35.5	61.2	94.0	-32.8
1.2068 GHz	H	67.4	26.8	39.6	54.5	94.0	-39.5
1.9208 GHz	H	65.9	29.7	38.7	56.9	94.0	-37.1
2.02 GHz	H	54.4	30.1	38.6	45.9	94.0	-48.1
3.5528 GHz	H	53.1	34.7	37.6	50.2	94.0	-43.8
3.859 GHz	H	66.2	35.7	37.7	64.3	94.0	-29.7
4.0373 GHz	H	49.1	36.2	37.7	47.7	94.0	-46.3
5.7883 GHz	H	58.4	38.6	36.8	60.2	94.0	-33.8
6.0575 GHz	H	54.2	38.8	36.5	56.4	94.0	-37.6
7.7207 GHz	H	46.9	42.0	36.2	52.7	94.0	-41.3
8.0777 GHz	H	45.4	42.2	35.6	52.0	94.0	-42.0
9.6502 GHz	H	49.3	43.9	34.8	58.4	94.0	-35.6
11.58 GHz	H	40.2	46.3	35.3	51.2	94.0	-42.8
13.512 GHz	H	45.0	47.8	34.7	58.2	94.0	-35.8
13.824 GHz	H	43.7	48.7	35.3	57.1	94.0	-36.9
17.918 GHz	H	42.6	54.5	35.5	61.6	94.0	-32.4

Spurious Radiated Emissions Field Strength from 1 to 20GHz

Date: 11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1960MHz Opearaing Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 5

Frequency MHz	Antenna Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
1.9208 GHz	V	68.3	29.7	38.7	59.3	94.0	-34.7
2.0455 GHz	V	58.8	30.2	38.5	50.4	94.0	-43.6
3.6038 GHz	V	59.7	34.9	37.6	56.9	94.0	-37.1
3.9183 GHz	V	66.3	35.9	37.7	64.5	94.0	-29.5
4.0883 GHz	V	52.6	36.3	37.7	51.2	94.0	-42.8
5.879 GHz	V	63.1	38.6	36.7	65.0	94.0	-29.0
6.134 GHz	V	60.1	38.8	36.5	62.4	94.0	-31.6
7.205 GHz	V	49.5	40.9	37.0	53.4	94.0	-40.6
7.8397 GHz	V	51.0	42.0	36.0	57.1	94.0	-36.9
8.1768 GHz	V	55.0	42.4	35.6	61.9	94.0	-32.1
9.8003 GHz	V	54.4	44.2	34.7	63.9	94.0	-30.1
10.22 GHz	V	46.9	44.7	35.4	56.1	94.0	-37.9
10.806 GHz	V	40.6	45.8	35.3	51.1	94.0	-42.9
11.761 GHz	V	42.7	46.4	35.4	53.6	94.0	-40.4
12.265 GHz	V	40.4	46.2	35.3	51.3	94.0	-42.7
13.722 GHz	V	55.6	48.4	35.1	68.8	94.0	-25.2
17.64 GHz	V	44.1	52.8	35.5	61.4	94.0	-32.6
1.9208 GHz	H	66.8	29.7	38.7	57.7	94.0	-36.3
2.0455 GHz	H	62.1	30.2	38.5	53.8	94.0	-40.2
2.8388 GHz	H	51.5	32.5	37.9	46.1	94.0	-47.9
3.6038 GHz	H	60.7	34.9	37.6	58.0	94.0	-36.0
3.918 GHz	H	70.4	35.9	37.7	68.7	94.0	-25.3
4.0883 GHz	H	54.0	36.3	37.7	52.6	94.0	-41.4
5.879 GHz	H	60.4	38.6	36.7	62.3	94.0	-31.7
6.1312 GHz	H	58.4	38.8	36.5	60.7	94.0	-33.3
7.205 GHz	H	48.0	40.9	37.0	51.9	94.0	-42.1
7.8397 GHz	H	49.3	42.0	36.0	55.4	94.0	-38.6
8.174 GHz	H	51.3	42.4	35.6	58.2	94.0	-35.8
9.8003 GHz	H	50.6	44.2	34.7	60.0	94.0	-34.0
10.22 GHz	H	45.8	44.7	35.4	55.1	94.0	-38.9
10.806 GHz	H	40.6	45.8	35.3	51.1	94.0	-42.9
12.265 GHz	H	42.0	46.2	35.3	52.9	94.0	-41.1
14.308 GHz	H	45.6	49.9	35.7	59.8	94.0	-34.2
17.926 GHz	H	42.6	54.6	35.5	61.6	94.0	-32.4

Spurious Radiated Emissions Field Strength from 1 to 20GHz

Date:

11-07-2006

Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Info: 1990MHz Opearaing Frequency.
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
Emissions at fundamental frequency removed from the Table
All measurements were taken using a Peak detector

Table # 6

Frequency MHz	Antenna Polarity	Reading dB μ V	Ant & Cable CF (dB1/m)	Pre-Amp. Gain (dB)	Total at 3m dB μ V/m	Reference Limit dB μ V/m	Margin dB
1.2068 GHz	V	64.1	26.8	39.6	51.2	94.0	-42.8
1.9208 GHz	V	68.9	29.7	38.7	59.9	94.0	-34.1
3.6322 GHz	V	52.9	35.0	37.6	50.3	94.0	-43.7
3.9807 GHz	V	66.3	36.1	37.7	64.8	94.0	-29.2
5.9697 GHz	V	55.8	38.7	36.6	57.9	94.0	-36.1
6.1793 GHz	V	53.4	38.9	36.5	55.8	94.0	-38.2
7.9615 GHz	V	55.8	42.1	35.7	62.1	94.0	-31.9
8.2363 GHz	V	44.7	42.5	35.5	51.7	94.0	-42.3
9.950 GHz	V	61.8	44.4	34.6	71.6	94.0	-22.4
11.942 GHz	V	45.1	46.5	35.6	56.1	94.0	-37.9
12.353 GHz	V	43.3	46.0	35.2	54.2	94.0	-39.9
13.931 GHz	V	50.9	49.0	35.5	64.3	94.0	-29.7
17.974 GHz	V	42.1	54.9	35.5	61.5	94.0	-32.5
1.2068 GHz	H	67.7	26.8	39.6	54.8	94.0	-39.2
3.981 GHz	H	71.4	36.1	37.7	69.8	94.0	-24.2
4.1167 GHz	H	51.5	36.3	37.7	50.2	94.0	-43.8
5.9697 GHz	H	56.5	38.7	36.6	58.6	94.0	-35.4
6.1793 GHz	H	58.0	38.9	36.5	60.4	94.0	-33.6
7.9615 GHz	H	49.4	42.1	35.7	55.7	94.0	-38.3
8.2363 GHz	H	43.8	42.5	35.5	50.8	94.0	-43.2
9.9505 GHz	H	53.6	44.4	34.6	63.3	94.0	-30.7
12.353 GHz	H	45.6	46.0	35.2	56.5	94.0	-37.5
13.931 GHz	H	46.3	49.0	35.5	59.8	94.0	-34.2
17.949 GHz	H	41.8	54.7	35.5	61.0	94.0	-33.0

Spurious Radiated Emissions Power

Date: 11-07-2006

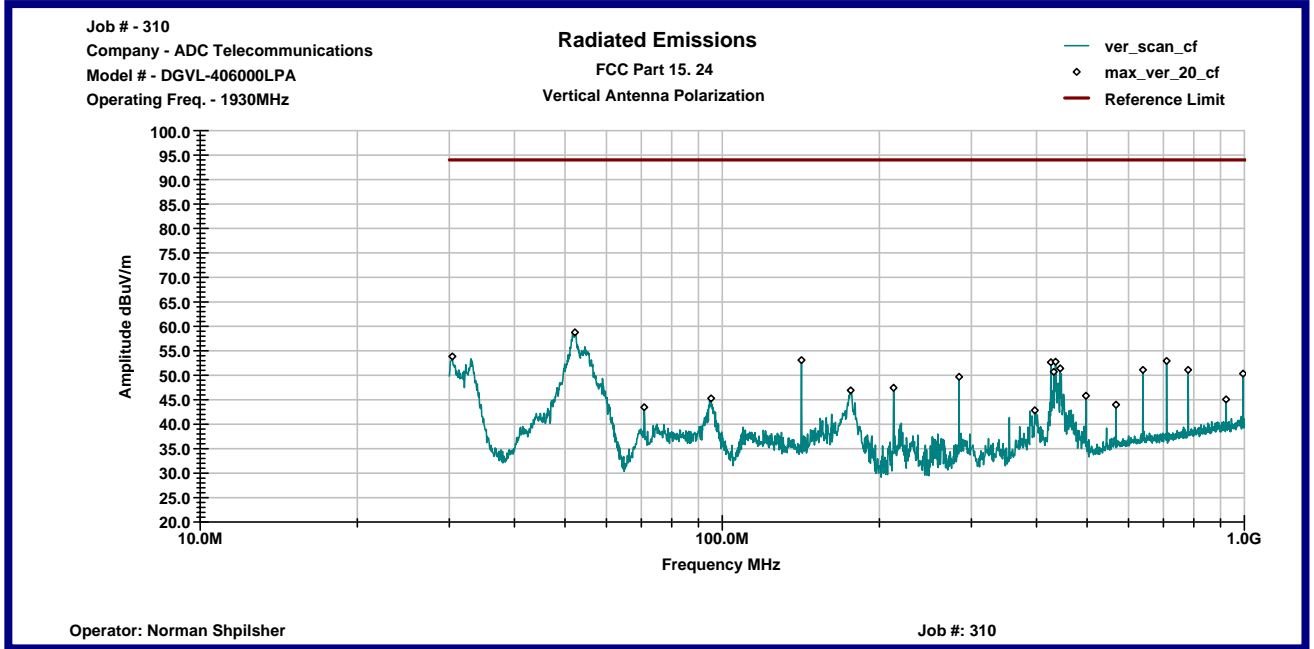
Company: ADC Telecommunications
Model: DGVL-406000LPA
Test Engineer: Norman Shpilsher
Special Config. Info: Substitution Method
Standard: FCC Part 24
Frequency Range: 30MHz to 20GHz
Test Site: 3m Anechoic Chamber
Note: The table shows the worst case radiated emissions
 Emissions at fundamental frequency removed from the Table

Table # 7

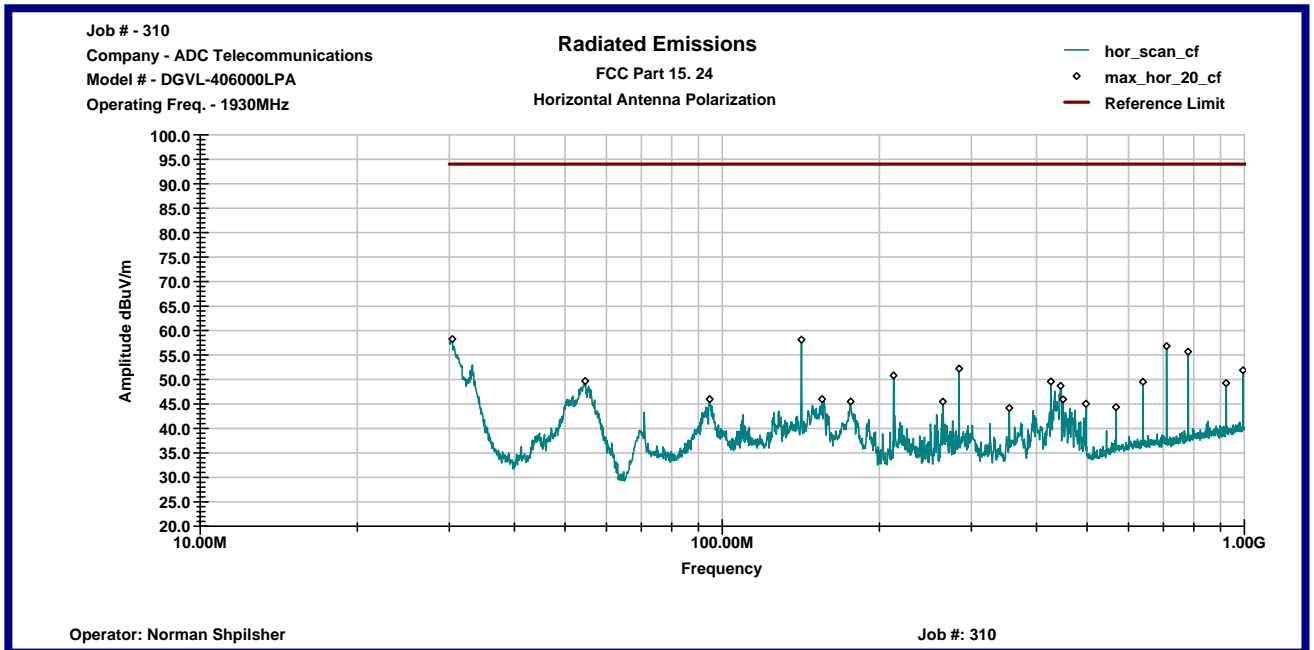
Frequency of Emissions MHz	Operating Frequency MHz	Antenna Polarity	Measured Emissions dB μ V	Substitution Generator Power dBm	Substitution Antenna Gain dBi	Cable Loss dB	ERP Spur. Emissions dBm	Limit dBm	Margin dB
9950	1990	V	61.8	-34.1	11.8	0.5	-22.8	-13.0	-9.8
13512	1930	V	53.3	-37.3	11.8	0.6	-26.1	-13.0	-13.1
13722	1960	V	55.6	-37.5	11.6	0.6	-26.5	-13.0	-13.5
3859	1930	H	66.2	-40.5	9.6	0.3	-31.2	-13.0	-18.2
3918	1960	H	70.4	-35.6	9.6	0.3	-26.3	-13.0	-13.3
3981	1990	H	71.4	-33.5	9.6	0.3	-24.2	-13.0	-11.2

Graph # 1
Radiated Emissions from 30MHz to 1GHz, 1930MHz Channel

Vertical Antenna Polarization

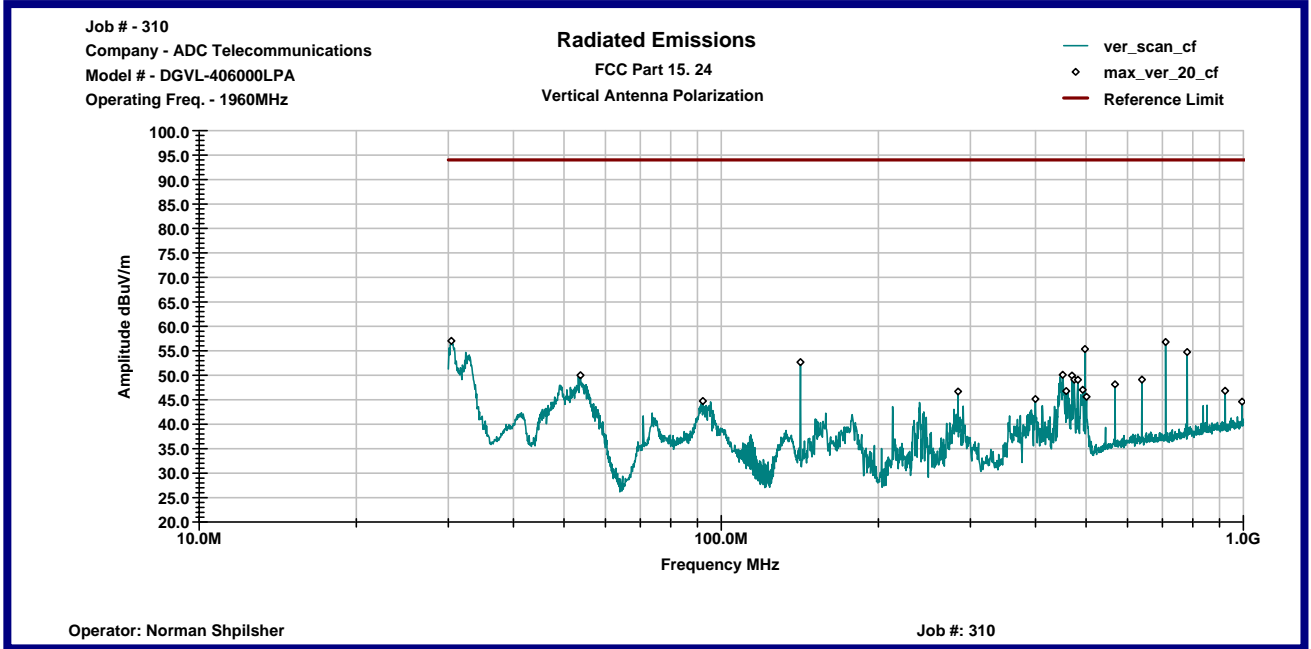


Horizontal Antenna Polarization

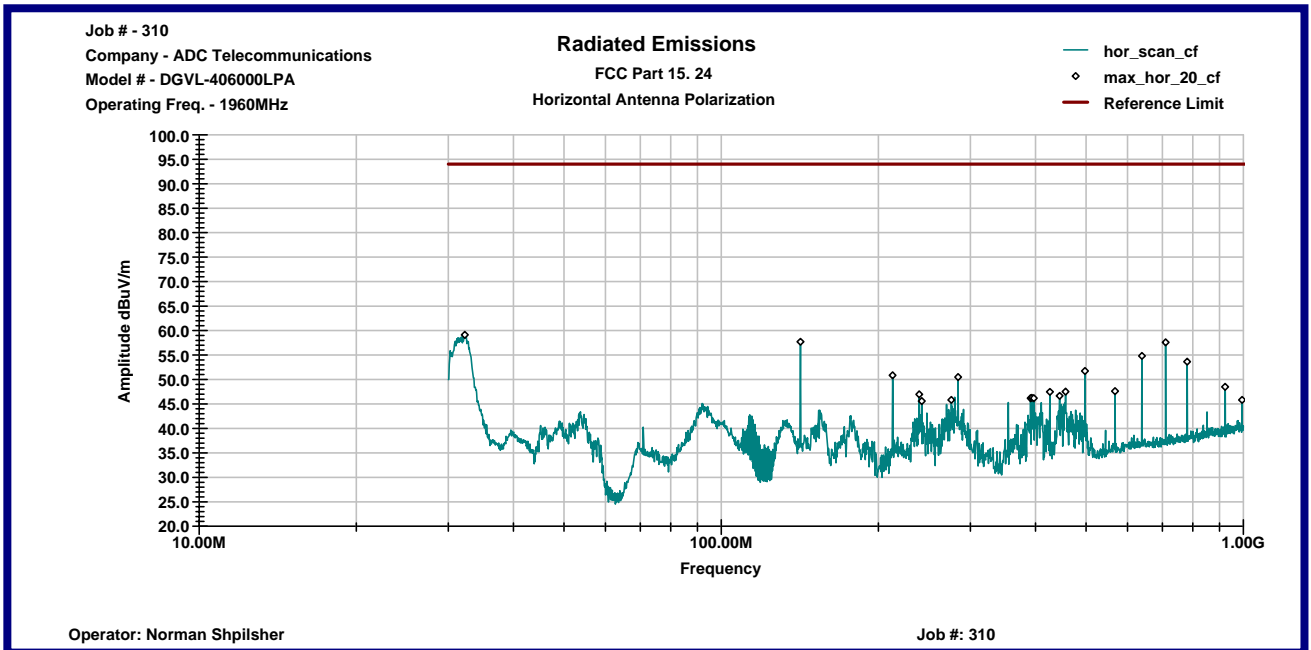


Graph # 2
Radiated Emissions from 30MHz to 1GHz, 1960MHz Channel

Vertical Antenna Polarization

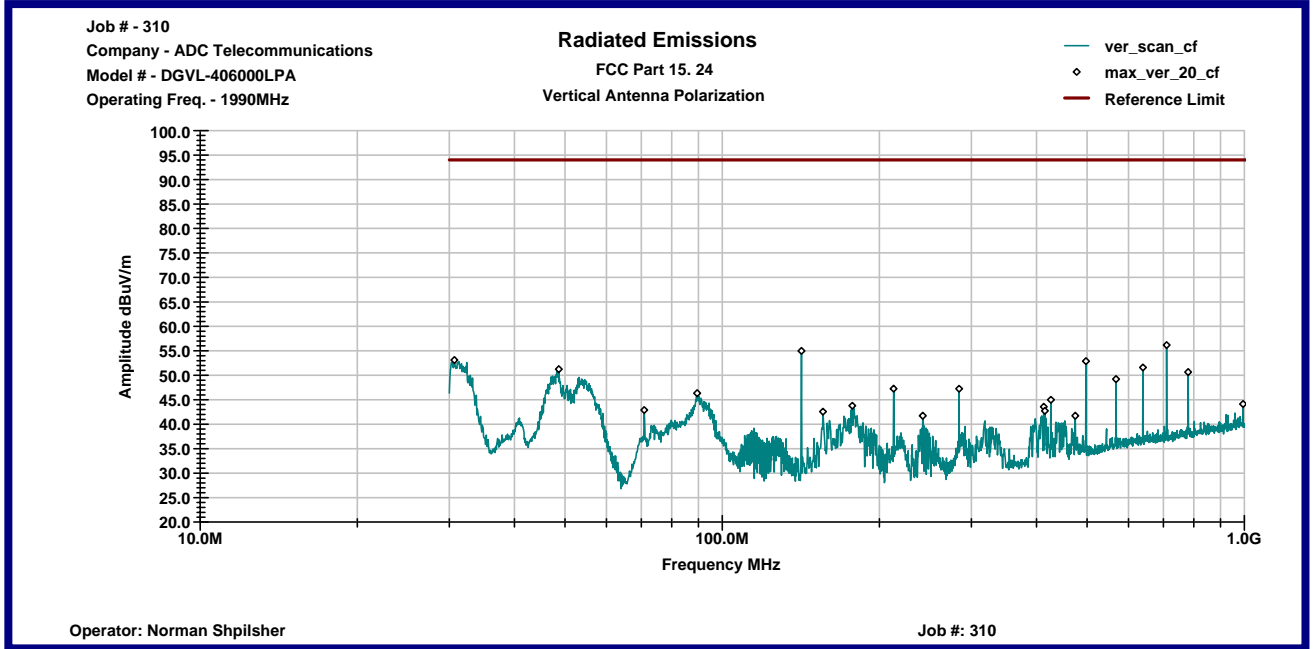


Horizontal Antenna Polarization

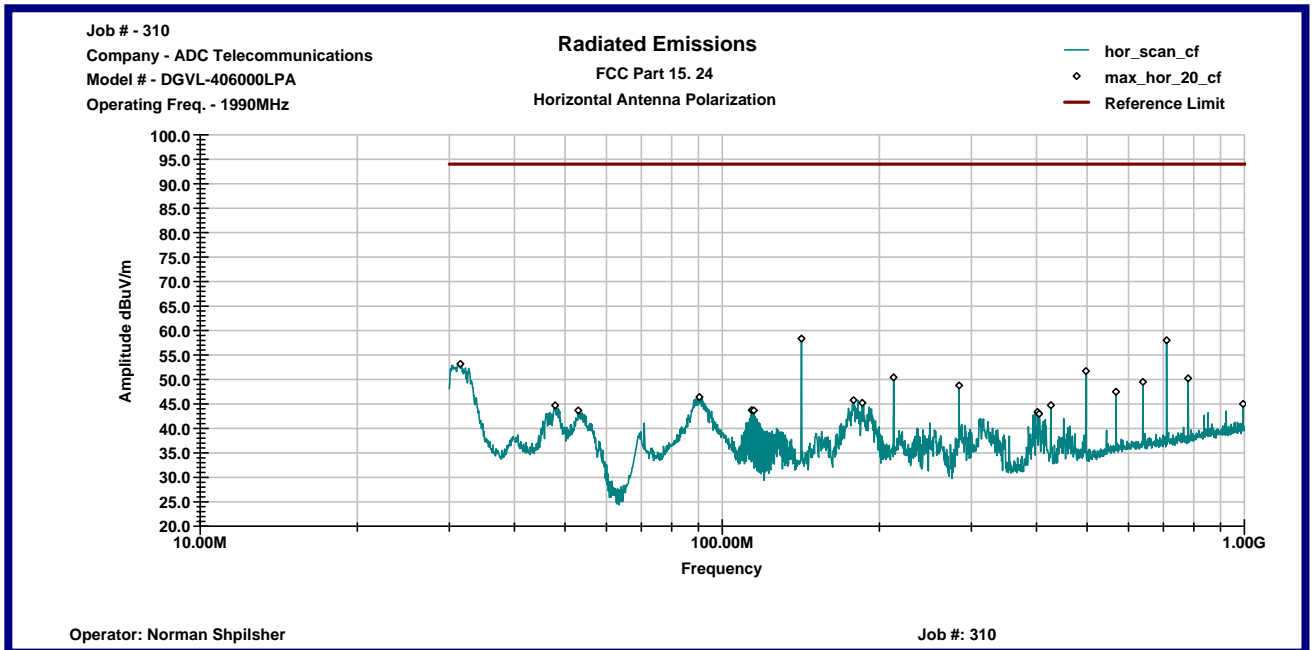


Graph # 3
Radiated Emissions from 30MHz to 1GHz, 1990MHz Channel

Vertical Antenna Polarization

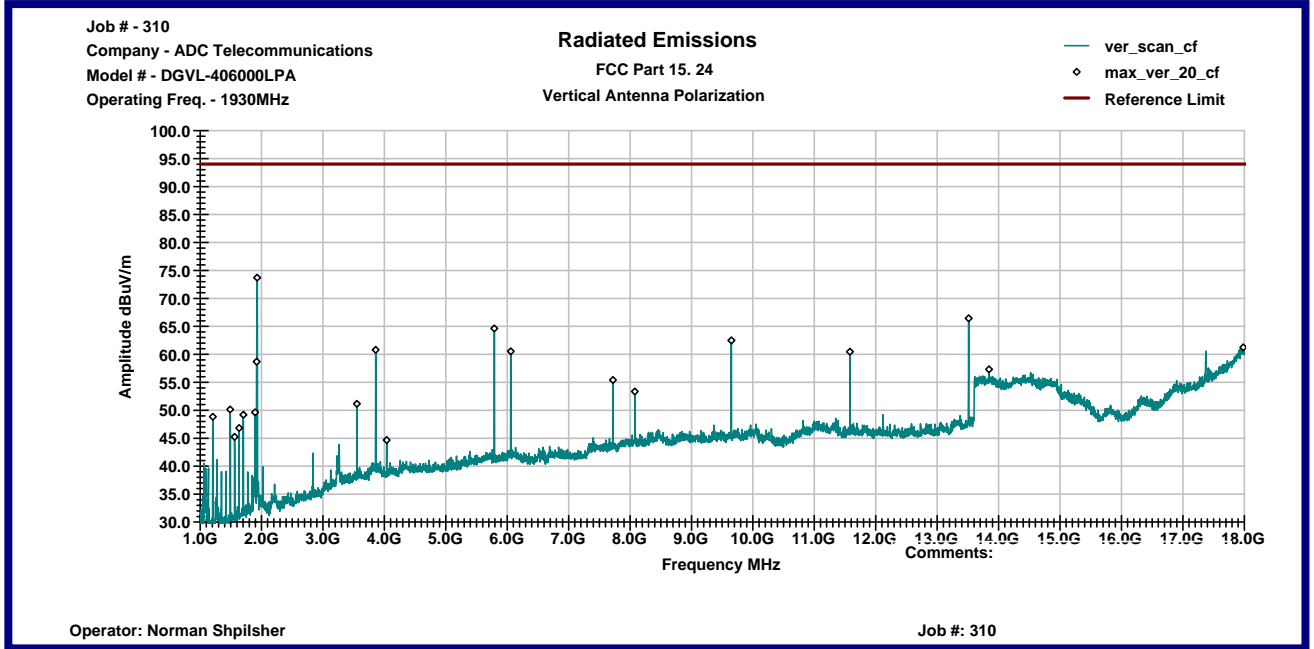


Horizontal Antenna Polarization

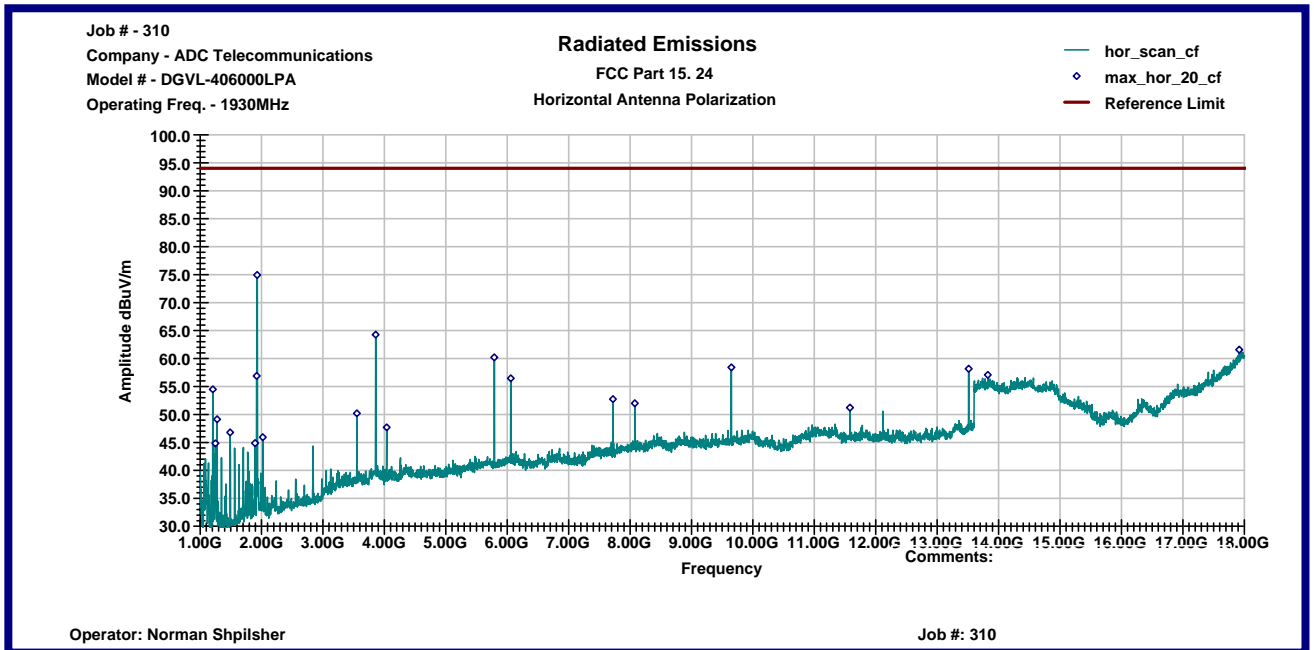


Graph # 4
Radiated Emissions from 1 to 18GHz, 1930MHz Channel

Vertical Antenna Polarization

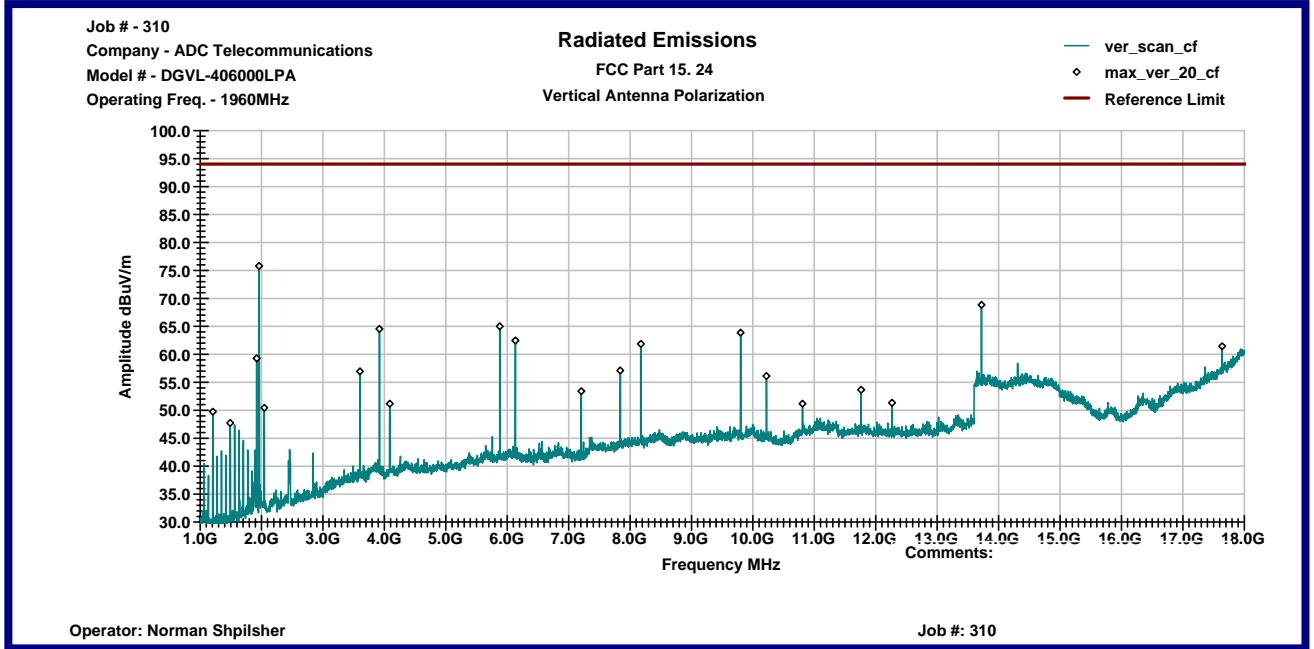


Horizontal Antenna Polarization

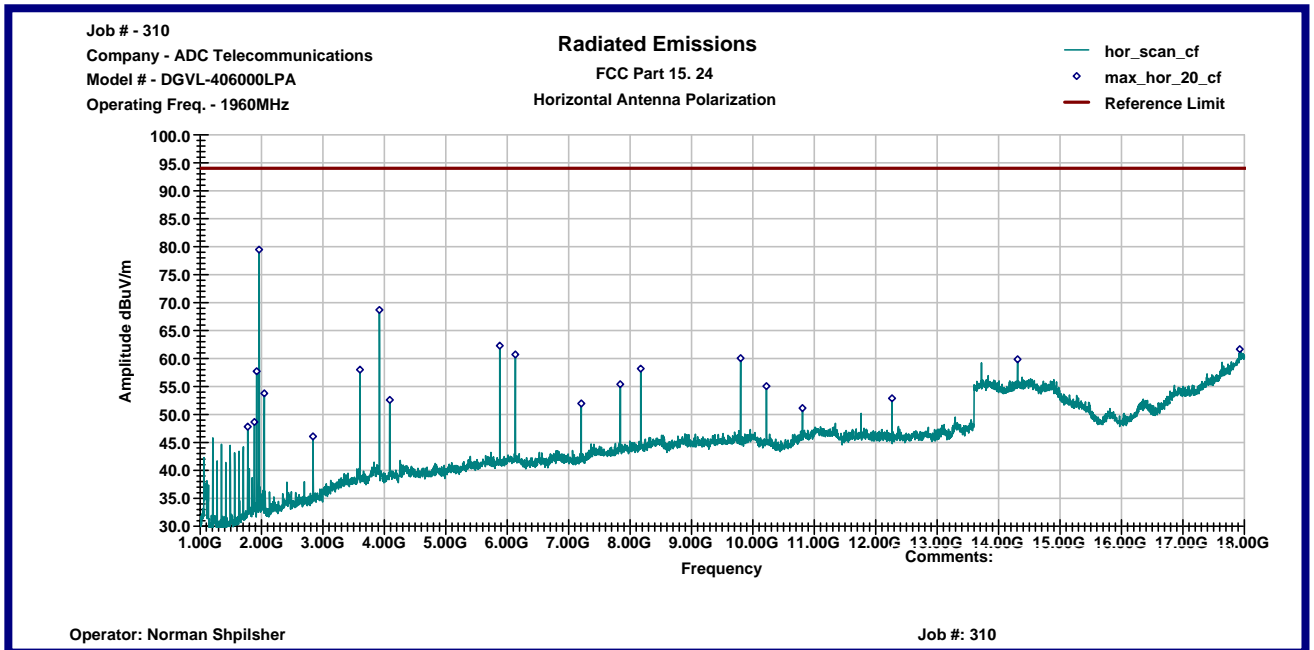


Graph # 5
Radiated Emissions from 1 to 18GHz, 1960MHz Channel

Vertical Antenna Polarization

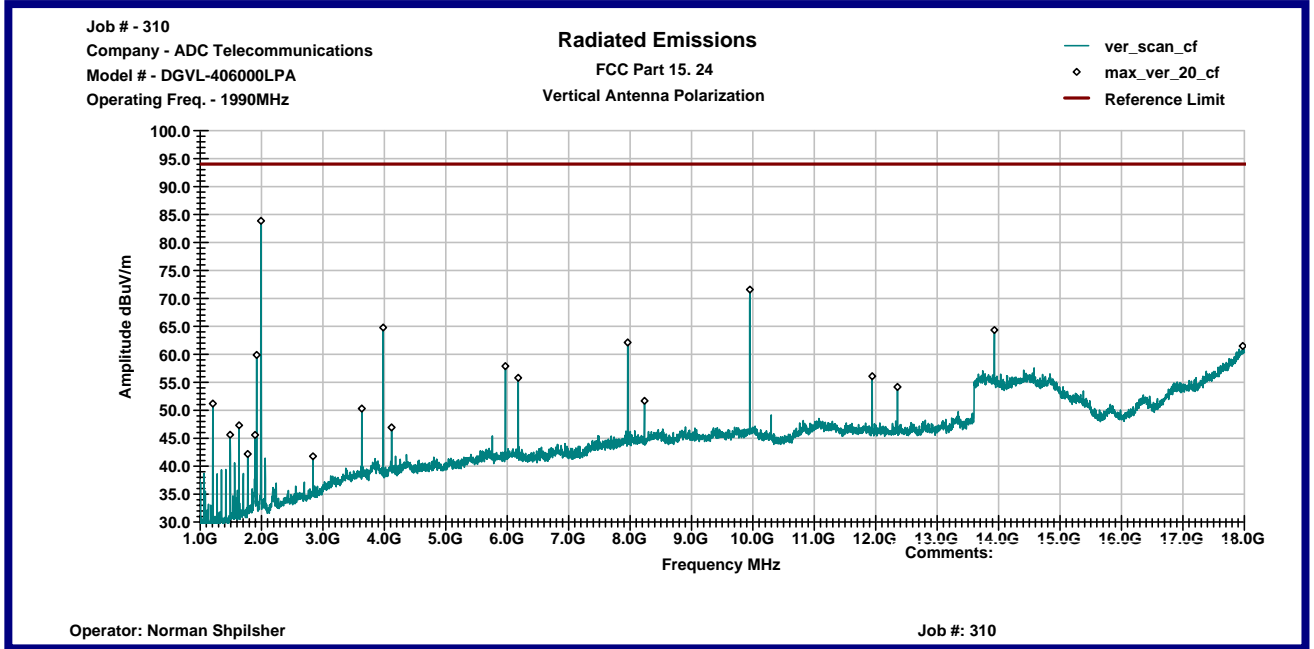


Horizontal Antenna Polarization

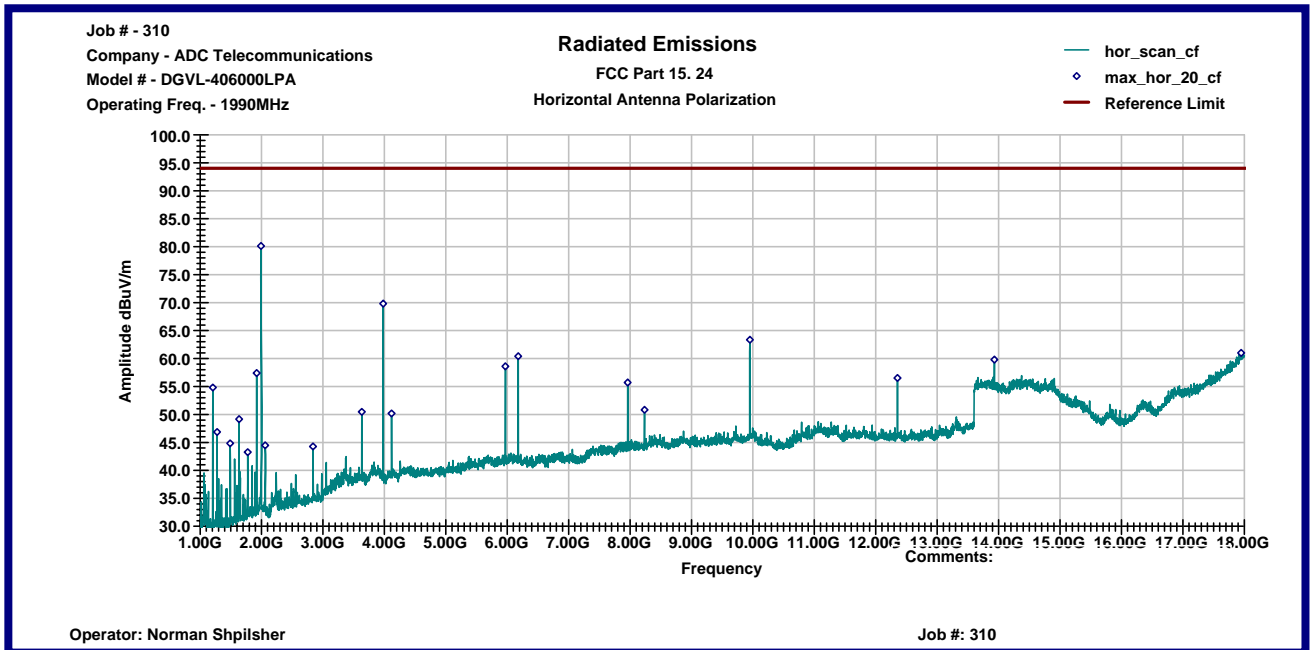


Graph # 6
Radiated Emissions from 1 to 18GHz, 1990MHz Channel

Vertical Antenna Polarization

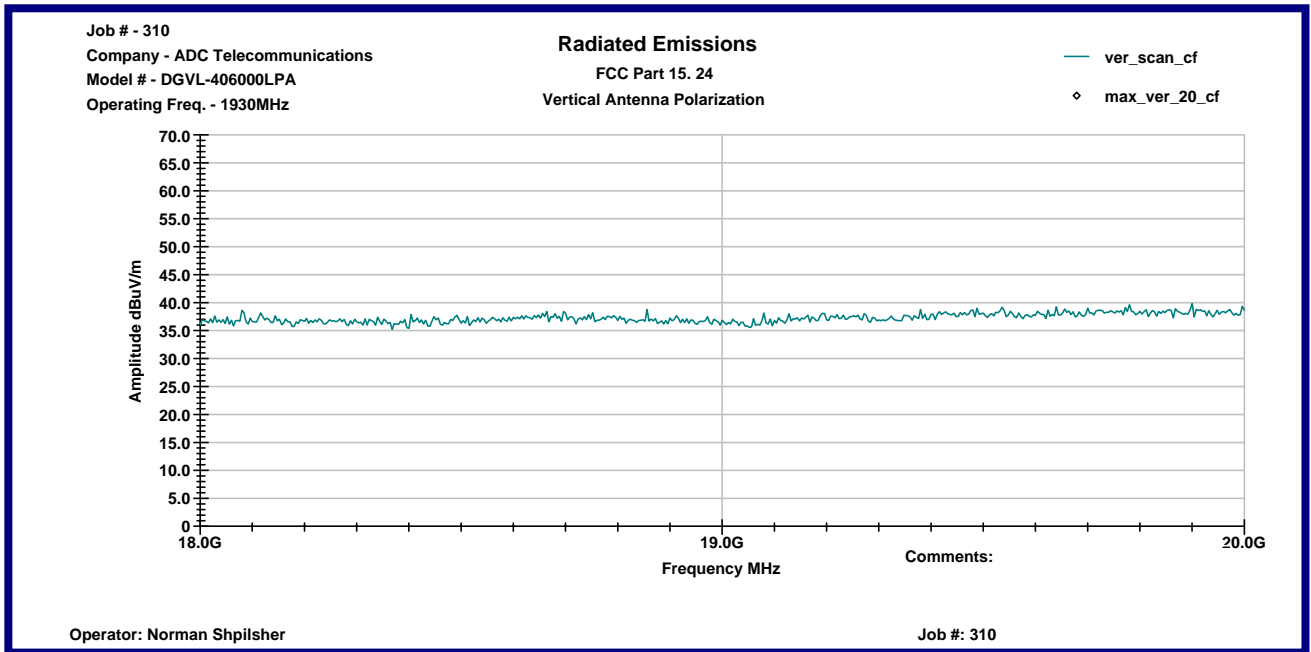


Horizontal Antenna Polarization

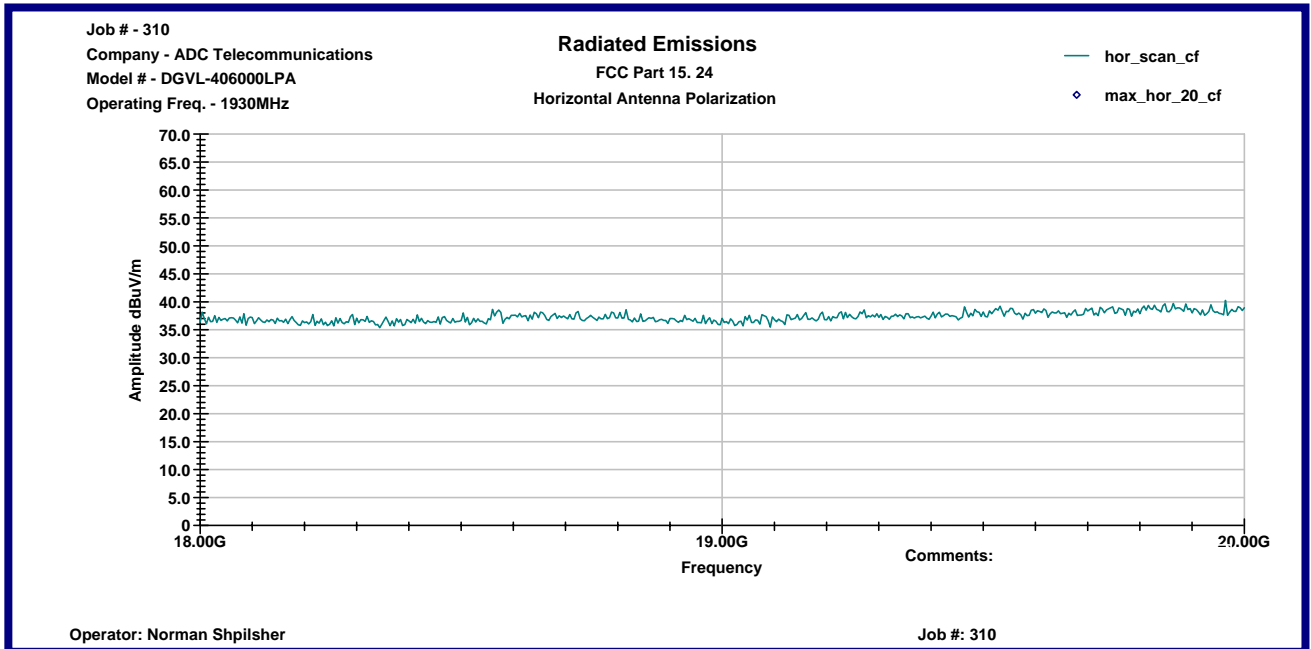


Graph # 7

Vertical Antenna Polarization

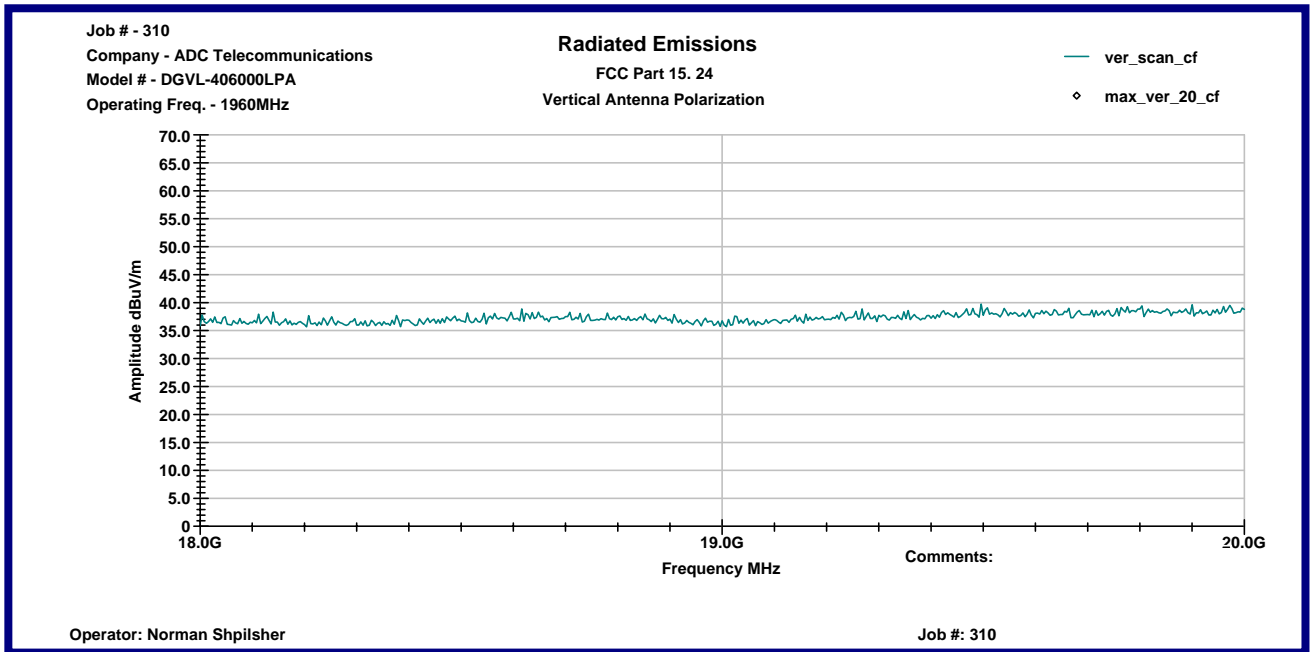


Horizontal Antenna Polarization

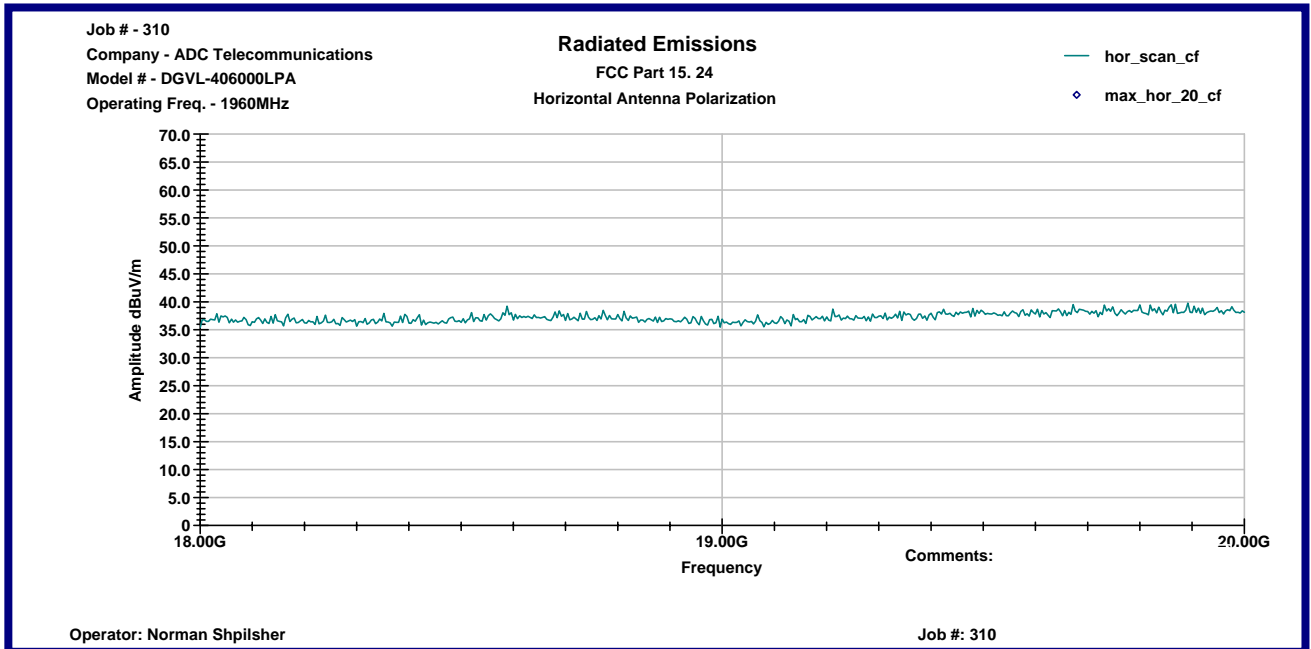


Graph # 8

Vertical Antenna Polarization

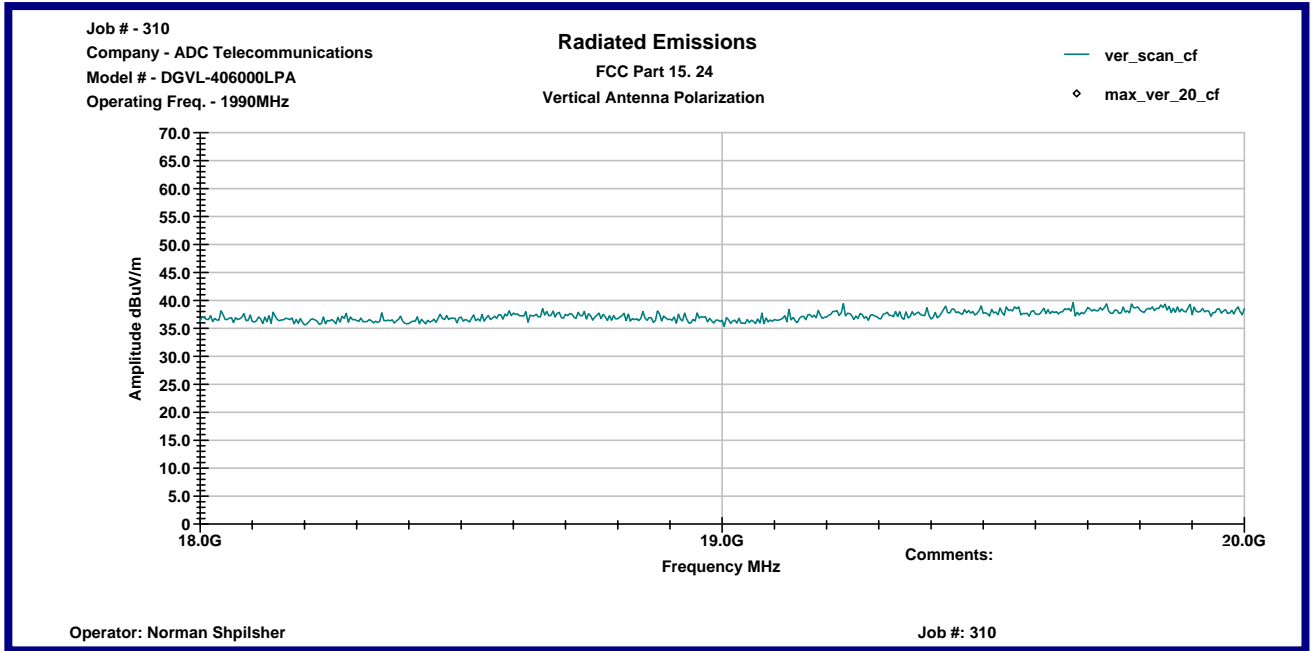


Horizontal Antenna Polarization

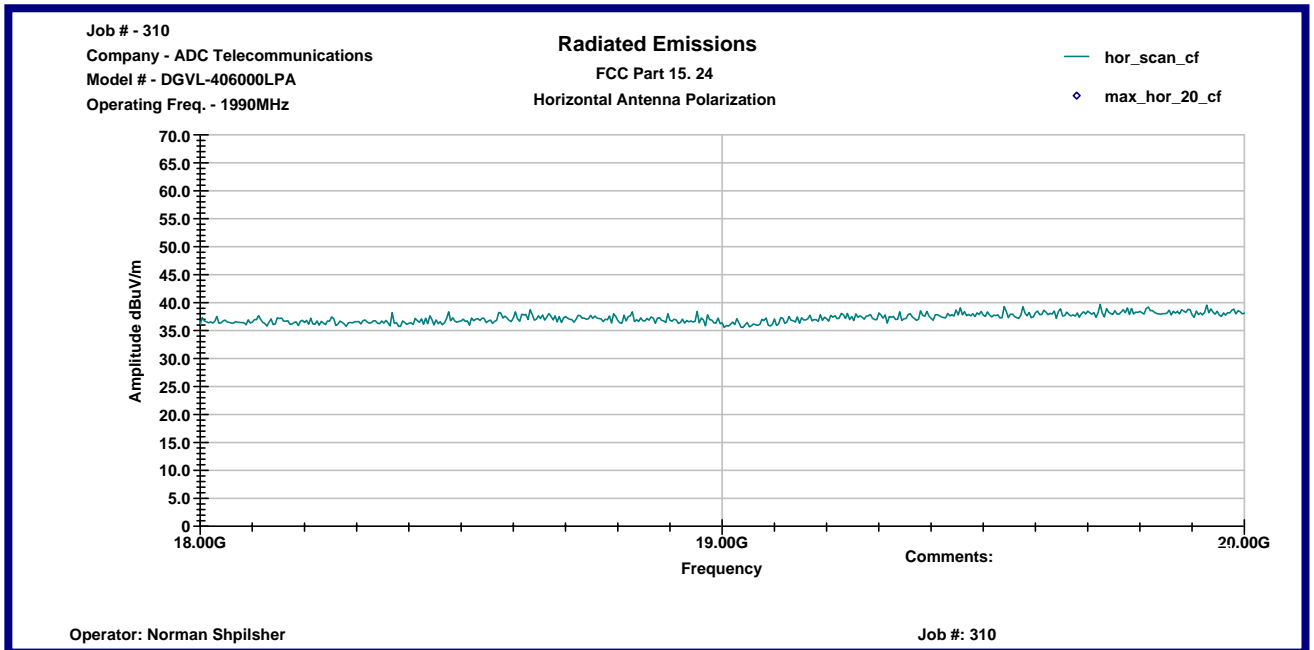


Graph # 9
Radiated Emissions from 18 to 20GHz, 1990MHz Channel

Vertical Antenna Polarization



Horizontal Antenna Polarization



3.0 TEST EQUIPMENT / ENVIRONMENTAL CONDITIONS

Receivers/Spectrum Analyzers and Test Software

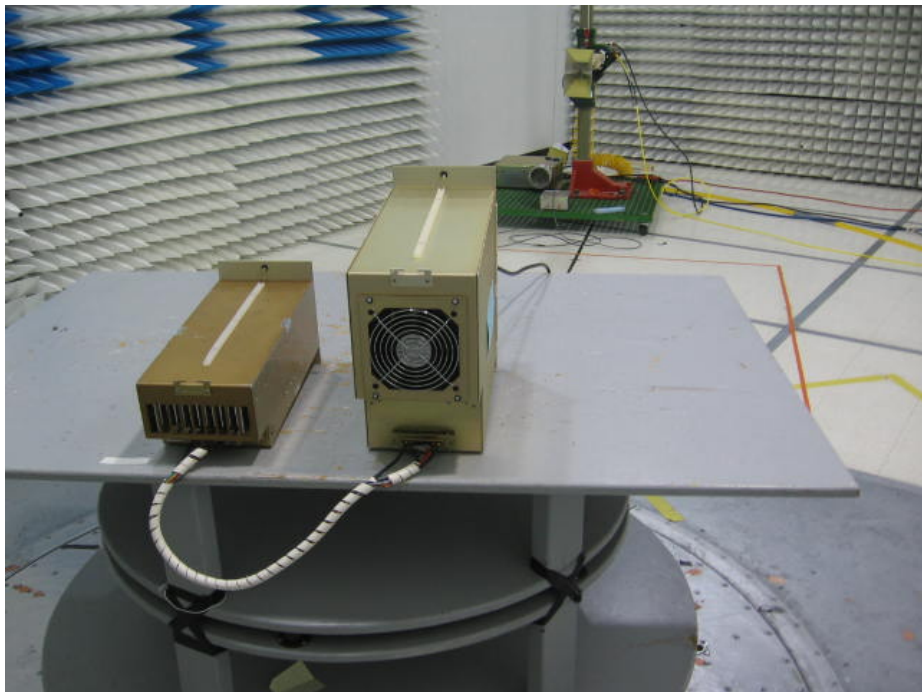
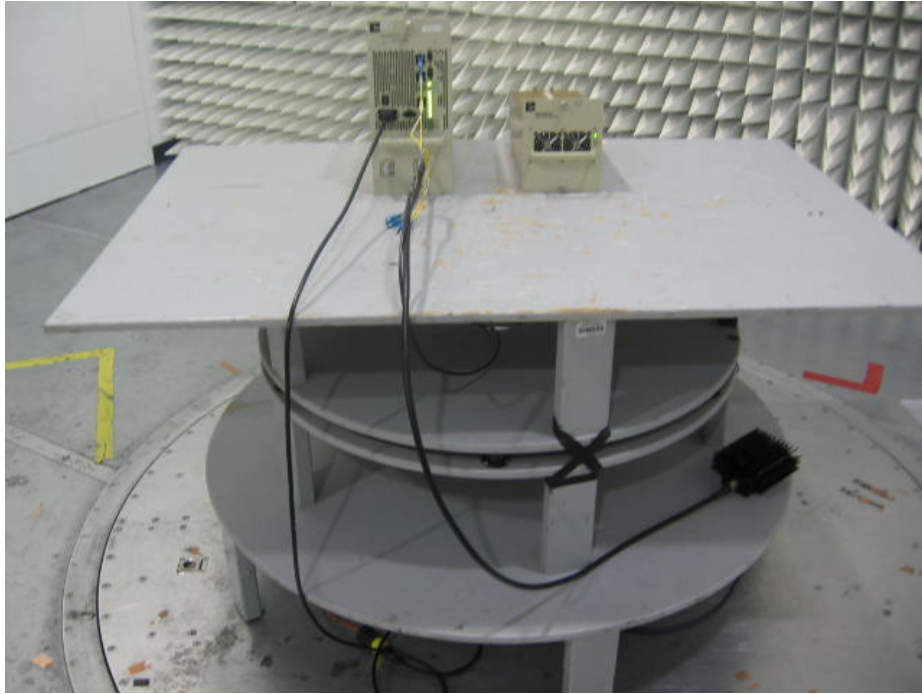
DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
HP85462A Receiver RF Section	3325A00106	04/06	04/07	
HP85460A RF Filter Section	3330A00109	04/06	04/07	
HP85462A Receiver RF Section	3549A00306	02/06	02/07	
HP85460A RF Filter Section	3448A00276	02/06	02/07	
Rohde & Schwarz FSP 40 Spectrum Analyzer	100024	07/06	07/07	X
Rohde & Schwarz ESCI Spectrum Analyzer	100358	04/06	04/07	X
Advantest R3271A Spectrum Analyzer	55050084	10/06	10/07	
Agilent E7402A Spectrum Analyzer	MY44212200	10/06	10/07	
TILE! Instrument Control System	Ver. 3.4 K.15	N/A	N/A	X

Antennas/Generators/Pre-Amps

DESCRIPTION	SERIAL NO.	LAST CAL	CAL DUE	USED
Schaffner-Chase Bicono-Log Antenna	2468	01/06	01/07	X
Schaffner-Chase Bicono-Log Antenna	2630	08/06	08/07	
EMCO Horn Antenna 3115	9507-4513	01/06	01/07	X
EMCO Horn Antenna 3115	6579	02/06	02/07	X
EMCO Waveguide Horn Antenna 3116	9904-2423	07/06	07/07	X
A.H. System Loop Antenna SAS-200/562	215	05/06	05/07	
MITEQ AMF-5D Pre-Amplifier	1122951	02/06	02/07	X
MITEQ AMF-6F-16002600-25-10P Pre-Amplifier	1222383	09/06	09/07	X
HP 8340B Generator	2819A01098	09/06	09/07	X
HP 8447F Pre-Amplifier	3113A04974	02/06	02/07	

Temperature: 23° C
Relative Humidity: 31%
Atmospheric pressure: 98.3 kPa

4.0 CONFIGURATION PHOTOGRAPHS



7.0

APPENDIX C

Measurement Protocol

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Measurement Protocol

Environmental conditions of the lab. (ADC)

Temperature: 21 - 26° C
Relative Humidity: 21 - 24 %
Atmospheric Pressure: 97.8 - 100.0 kPa

Test Methodology:

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

Measurement Uncertainty

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

Justification

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

Radiated Emissions

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

Example:

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

Substitution Method

A cabinet (or enclosure) radiated emission scan was also made, at Intertek, with the EUT's antenna replaced with a termination to demonstrate case radiation compliance to the -13 dBm requirement. Radiated emissions from the EUT are measured in the frequency range of 30 to 20,000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees. The field strength levels were measured per ANSI C63.4. The EUT is then replaced with a tuned dipole antenna (below 1GHz) or horn antenna (above 1 GHz). The substitute antenna was placed in the same polarization as the test antenna. A signal generator was used to generate a signal level that matched the highest level measured from the EUT. The signal generator level minus the cable loss from the signal generator to the substitute antenna plus the substitute antenna gain equals the spurious power level.

Test Equipment

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