TEST REPORT

Report Number: 100242282MIN-001
Project Number: G100242282

Testing performed on the
Prism 700MHz Lower ABC Band

to
47 CFR, Part 27:2009, Enclosure Spurious Radiated Emissions

For
LGC Wireless / ADC Telecommunications Inc.

Test Performed by:
Intertek Testing Services NA, Inc.
7250 Hudson Blvd., Suite 100
Oakdale, MN 55128 USA

Test Authorized by:
LGC Wireless
541 E Trimble Road
San Jose, CA 95131 USA

Prepared by: _____ Date: October 25, 2010
Norman Shpilsher

Reviewed by: _____ Date: October 25, 2010

TABLE OF CONTENTS

1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	Prism 700MHz Lower ABC Band FWP-L416000MOD
Type of EUT:	Distributed Antenna System / Repeater
Frequency Range:	728MHz – 746MHz
Company:	LGC Wireless / ADC Telecommunications Inc.
Customer:	Sue Cyr
Address:	541 E. Trimble Road San Jose, CA 95131 USA
Phone:	408-952-2445
Fax:	408-952-2645
e-mail:	sue.cyr@adc.com
Test Standards:	☐ EN 55022:2006 +A1:2007, Class ☐ EN 55011:2007 +A2:2007, Group , Class ☒ 47 CFR, Part 27:2009, Enclosure Spurious Radiated Emissions ☐ ICES-003, Issue 4:2004 ☐ EN 55014-1:2006 ☐ EN 61326-1:2006 ☐ Class for Radiated and Conducted Emissions ☐ Basic Immunity Test Requirements ☐ Immunity Test Requirements for Industrial Locations ☐ EN 60601-1-2:2001 +A1:2006 ☐ EN 61000-6-3:2007 ☐ EN 61000-6-4:2007 ☐ EN 61000-3-2:2006 ☐ EN 61000-3-3:1995 +A1:2001 +A2:2006 ☐ EN 61000-6-1:2007 ☐ EN 61000-6-2:2005 ☐ EN 55024:1998 + A1:2001 + A2:2003
Date Sample Submitted:	October 13, 2010
Test Work Started:	October 13, 2010
Test Work Completed:	October 13, 2010
Test Sample Conditions:	☐ Damaged ☐Poor (Usable) ☒ Good ☐ Prototype ☒Production ☐ Used

2.0 TEST SUMMARY

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	RESULT
Part 27	Enclosure Spurious Radiated Emissions	Pass

2.1 Statement of the Measurement Uncertainty

Note: The measured result in this report is within the specification limits by more than the measurement uncertainty; the measured result indicates that the product tested complies with the specification limit.

The expanded uncertainty (k = 2) for radiated emissions from 30 to 1000 MHz has been determined to be: ±4 dB at 10m and ±5.4 dB at 3m

The expanded uncertainty (k = 2) for conducted emissions from 150 kHz to 30 MHz has been determined to be:
±2.6 dB

3.0 EQUIPMENT UNDER TEST

3.1 Power Configuration

Rated voltage:	☒ 120VAC ☐ 230VAC ☐ 400VAC ☐ VDC ☐ Other:
Rated current:	Amp.
Rated frequency:	☐ 50Hz ☒ 60Hz
Number of phases:	☒ 1 Phase ☐ 3 Phases

3.2 EUT Configuration

The equipment under test was operated during the measurement under the following conditions:

☐ - Standby
☐ - Test program (H - Pattern)
☒ - Continuous Operation (see details below)
☐ - Specific test program
☐ -

Operating modes of the EUT:

No.	Description
1	Continuous amplifying at 729MHz 737MHz and 745MHz
2	

Cables:

No.	Type	Length	Designation	Note
1	Two RF coax cables	10m each	RF input and output RF cables	
2	3-wire, unshielded	1.8m	AC Power Input	
3				

Support equipment/Services:

No.	Item	Description
1	HP 8648B	Signal Generator
2	HP 8563E	Spectrum Analyzer
3	Prism Host Unit p/n 1449226	Host Unit
4	Sorensen DCS 40-25	Power Supply

General notes: None

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	86-106 kPa

4.0 TEST CONDITIONS AND RESULTS

4.1 Enclosure Spurious Radiated Emissions

Description of the test location

Test location: ☐ OATS ☒ Anechoic Chamber

Test distance: ☐ 10 meters ☒ 3 meters

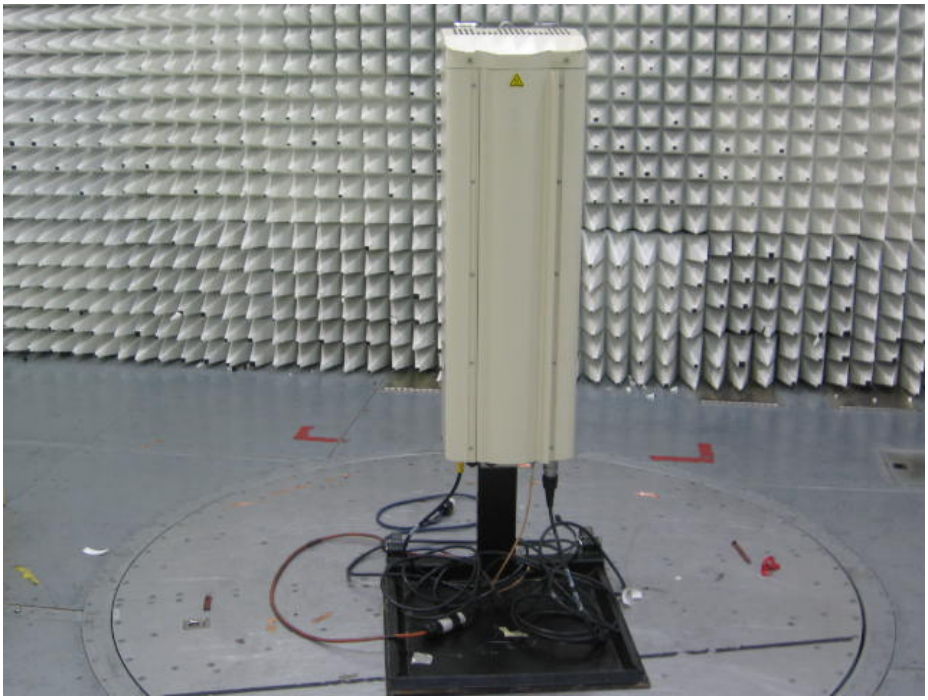
Test result: **Pass**

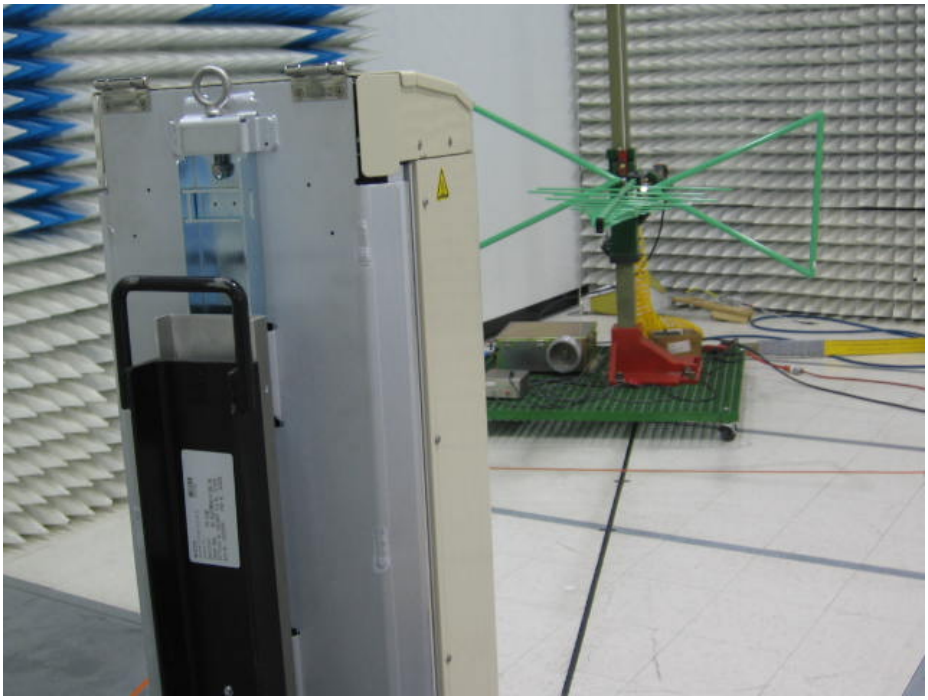
Frequency range: 30MHz-10000MHz

Max. Emissions margin: 31.0dB below the Reference Limits

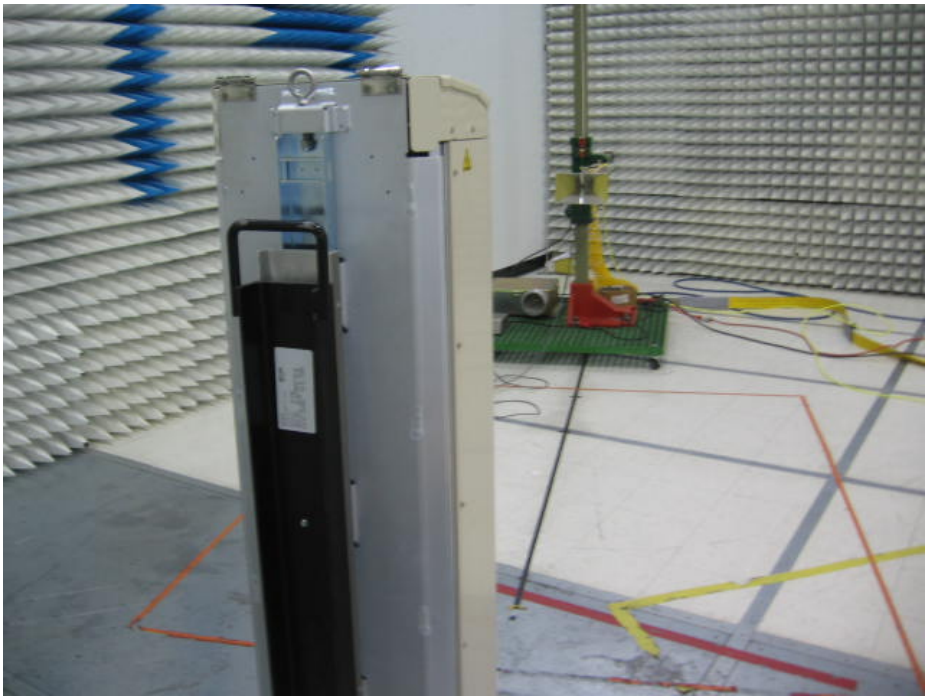
Notes:

1. The Radiated Emissions testing was performed in the Anechoic chamber at 3m measurement distance (see Table 1 and Graphs 1 to 6)
2. The Spurious Radiated Power limits of -13dBm was correlated with field strength Reference Limit of 82.2dBµV/m during field strength measurements at 3m measurement distance
3. No emissions were chosen for substitution measurements as the maximum emission is more than 20dB below the Reference Limit





Test Setup Photos



Test Setup Photo

Date:	October 13, 2010	**Result:** **Pass**
Standard:	FCC Part 27	
Tested by:	Norman Shpilsher	
Test Point:	Enclosure	
Operation mode:	See Page 5	
Note:	Frequency range 30-1000MHz	

Table 1

Frequency	Ant. Polarity	Peak Reading dBµV	Ant.Factor dB1/m	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
		Operating Frequency 729MHz				
41.912 MHz	V	28.8	14.5	43.3	82.2	-38.9
42.302 MHz	V	29.8	14.3	44.1	82.2	-38.1
238.44 MHz	V	30.6	13.5	44.0	82.2	-38.2
937.54 MHz	V	21.7	25.3	47.0	82.2	-35.2
583.93 MHz	H	21.9	21.8	43.7	82.2	-38.5
750.23 MHz	H	27.4	23.7	51.1	82.2	-31.1
		Operating Frequency 737MHz				
42.269 MHz	V	29.9	14.3	44.3	82.2	-38.0
230.37 MHz	V	33.8	12.8	46.6	82.2	-35.6
368.71 MHz	V	25.3	18.0	43.3	82.2	-38.9
937.54 MHz	V	22.1	25.3	47.4	82.2	-34.8
583.93 MHz	H	22.1	21.8	43.9	82.2	-38.3
750.23 MHz	H	27.4	23.7	51.1	82.2	-31.1
767.86 MHz	H	16.8	23.9	40.7	82.2	-41.5
		Operating Frequency 745MHz				
41.912 MHz	V	29.1	14.5	43.6	82.2	-38.6
42.269 MHz	V	30.7	14.3	45.0	82.2	-37.2
238.44 MHz	V	30.3	13.5	43.7	82.2	-38.5
583.72 MHz	V	20.6	21.8	42.4	82.2	-39.8
937.54 MHz	V	21.5	25.3	46.8	82.2	-35.5
583.93 MHz	H	22.3	21.8	44.1	82.2	-38.1
750.23 MHz	H	27.5	23.7	51.3	82.2	-31.0
937.9 MHz	H	16.6	25.3	41.9	82.2	-40.3

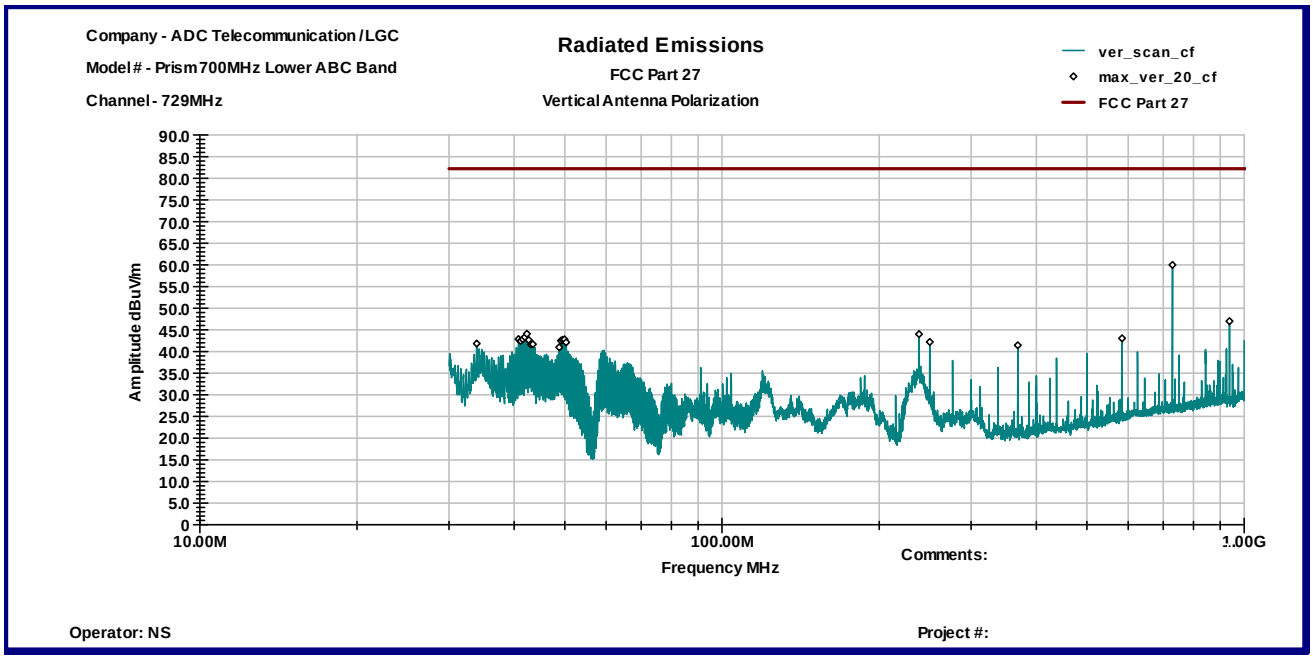
Notes: The Table shows the worst case radiated emissions
Emissions at operating frequencies were excluded from the Table

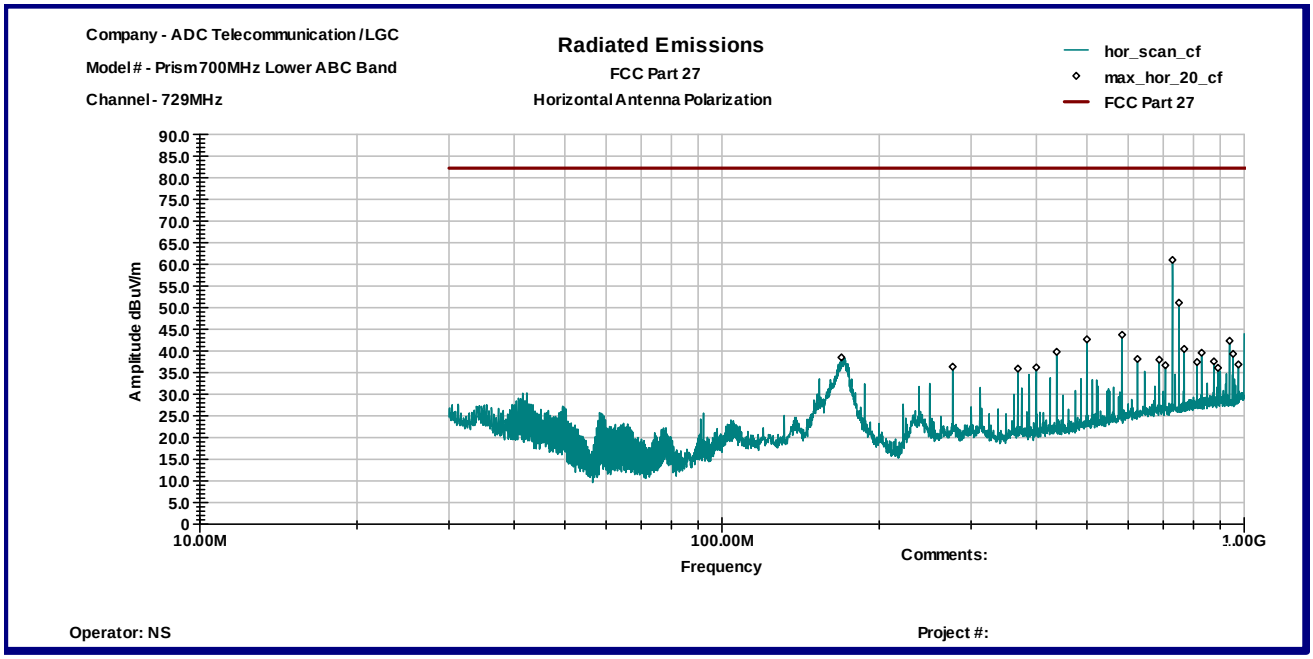
Date:	October 13, 2010	**Result:** **Pass**
Standard:	FCC Part 27	
Tested by:	Norman Shpilsher	
Test Point:	Enclosure	
Operation mode:	See Page 5	
Note:	Frequency range 1-10GHz	

Table 2

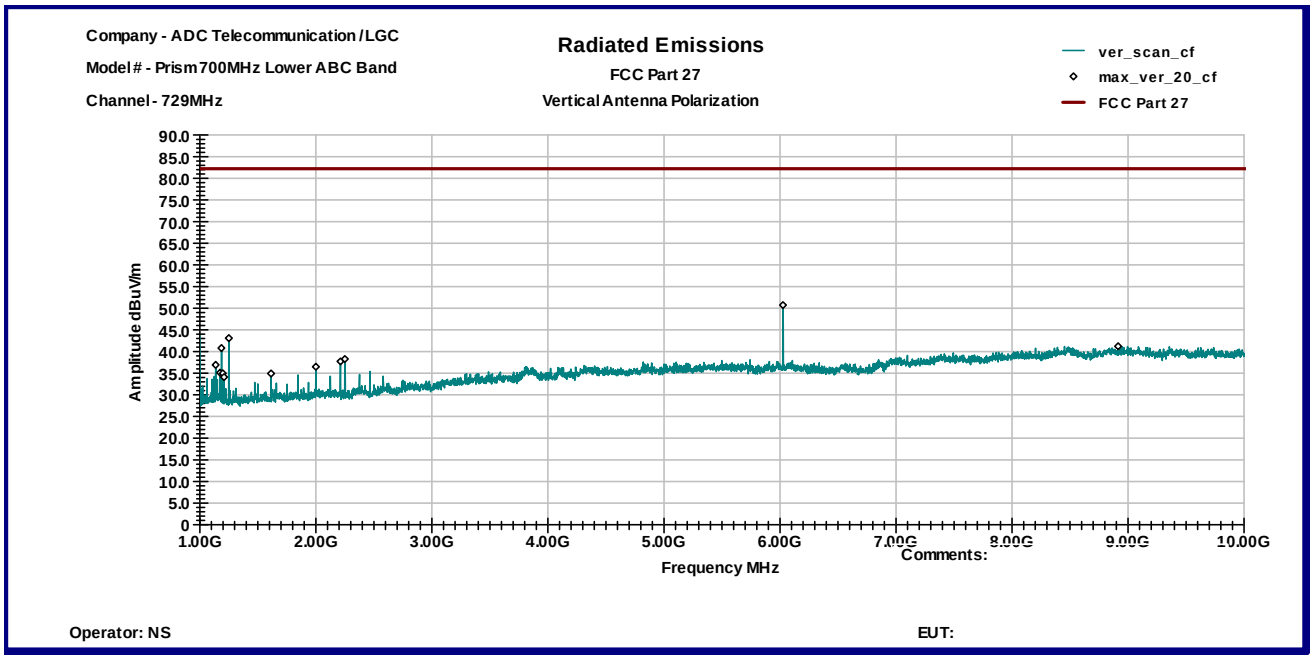
Frequency MHz	Antenna Polarity	Peak Reading dBµV	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
		Operating Frequency 729MHz					
1.25 GHz	V	58.5	27.2	42.6	43.1	82.2	-39.1
6.026 GHz	V	52.6	39.8	41.7	50.7	82.2	-31.5
8.914 GHz	V	36.9	44.5	40.1	41.2	82.2	-41.0
1.25 GHz	H	65.0	27.1	42.6	49.5	82.2	-32.7
6.026 GHz	H	52.2	39.8	41.7	50.3	82.2	-31.9
8.988 GHz	H	38.2	44.6	40.1	42.6	82.2	-39.6
		Operating Frequency 737MHz					
1.25 GHz	V	58.0	27.2	42.6	42.6	82.2	-39.6
2.476 GHz	V	53.8	32.0	43.1	42.7	82.2	-39.5
6.026 GHz	V	49.3	39.8	41.7	47.4	82.2	-34.8
8.416 GHz	V	39.3	43.9	40.2	43.0	82.2	-39.2
1.25 GHz	H	65.2	27.1	42.6	49.8	82.2	-32.4
6.026 GHz	H	52.5	39.8	41.7	50.6	82.2	-31.6
8.946 GHz	H	38.0	44.6	40.1	42.4	82.2	-39.8
		Operating Frequency 745MHz					
1.25 GHz	V	58.4	27.2	42.6	43.0	82.2	-39.2
6.026 GHz	V	48.7	39.8	41.7	46.8	82.2	-35.4
8.892 GHz	V	37.3	44.4	40.1	41.6	82.2	-40.6
1.25 GHz	H	65.0	27.1	42.6	49.5	82.2	-32.7
6.026 GHz	H	52.2	39.8	41.7	50.3	82.2	-31.9
9.376 GHz	H	37.7	44.7	40.5	41.9	82.2	-40.3

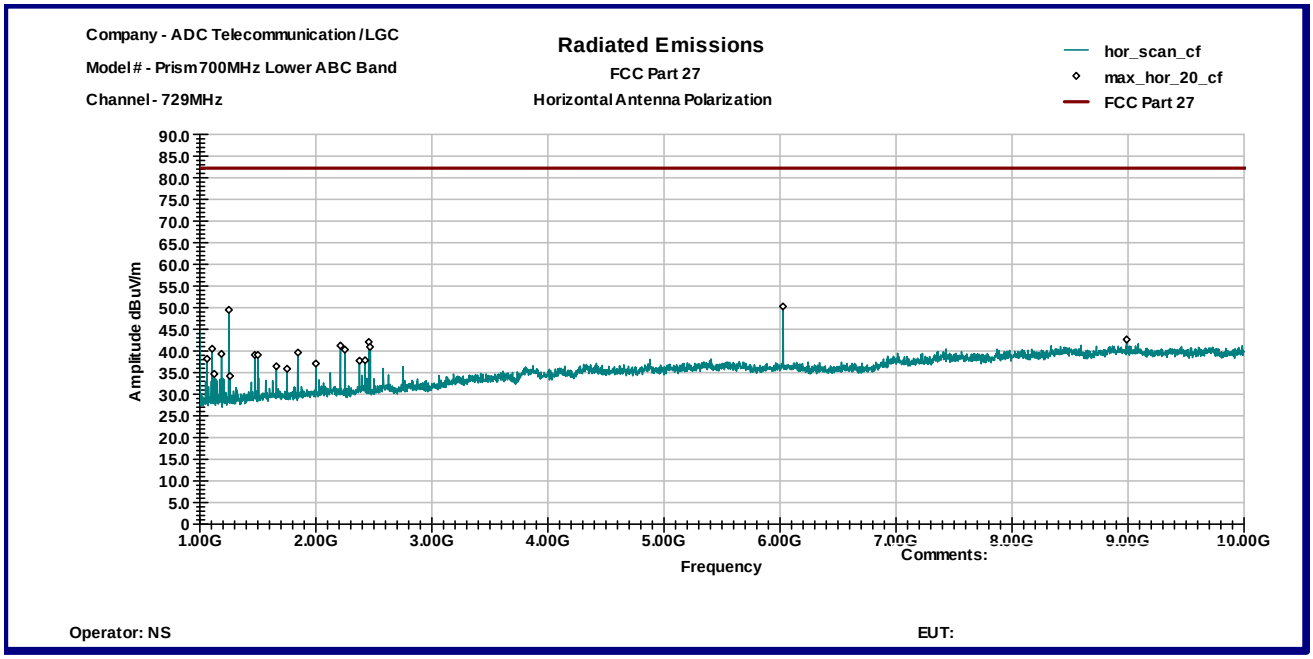
Note: The Table shows the worst case radiated emissions


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 729MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency MHz
Comments:
Operator: NS
Project #:

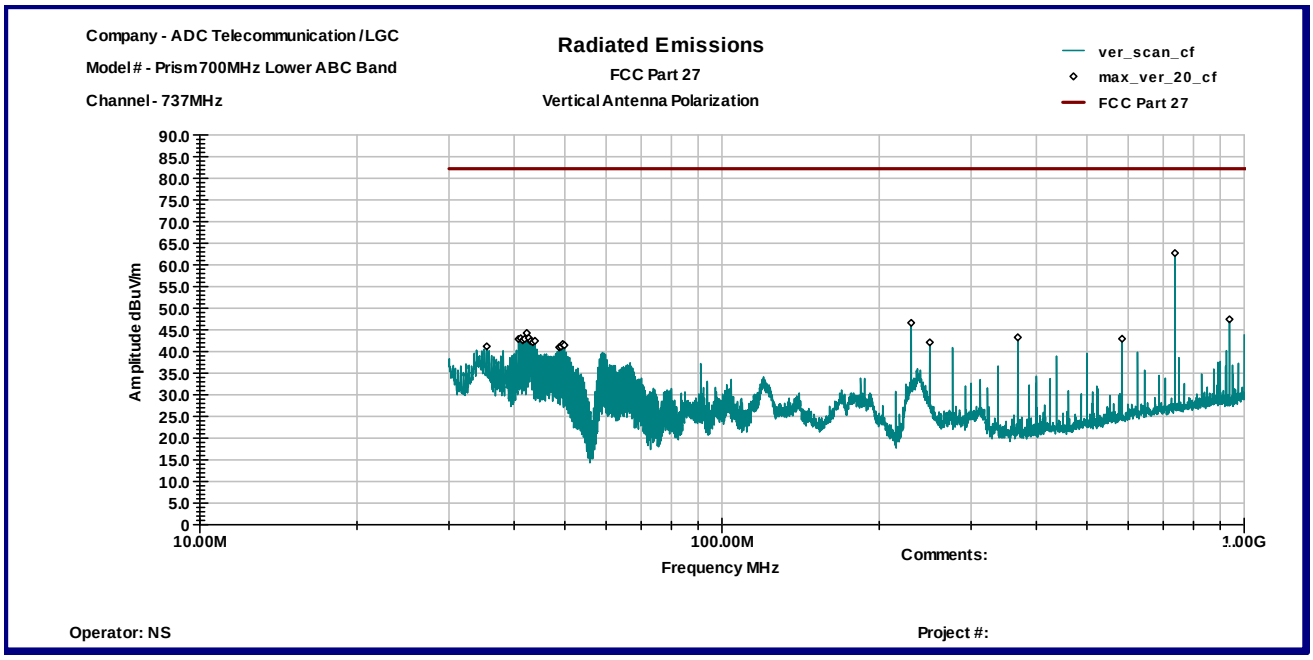

Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 729MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency
Comments:
Operator: NS
Project #:

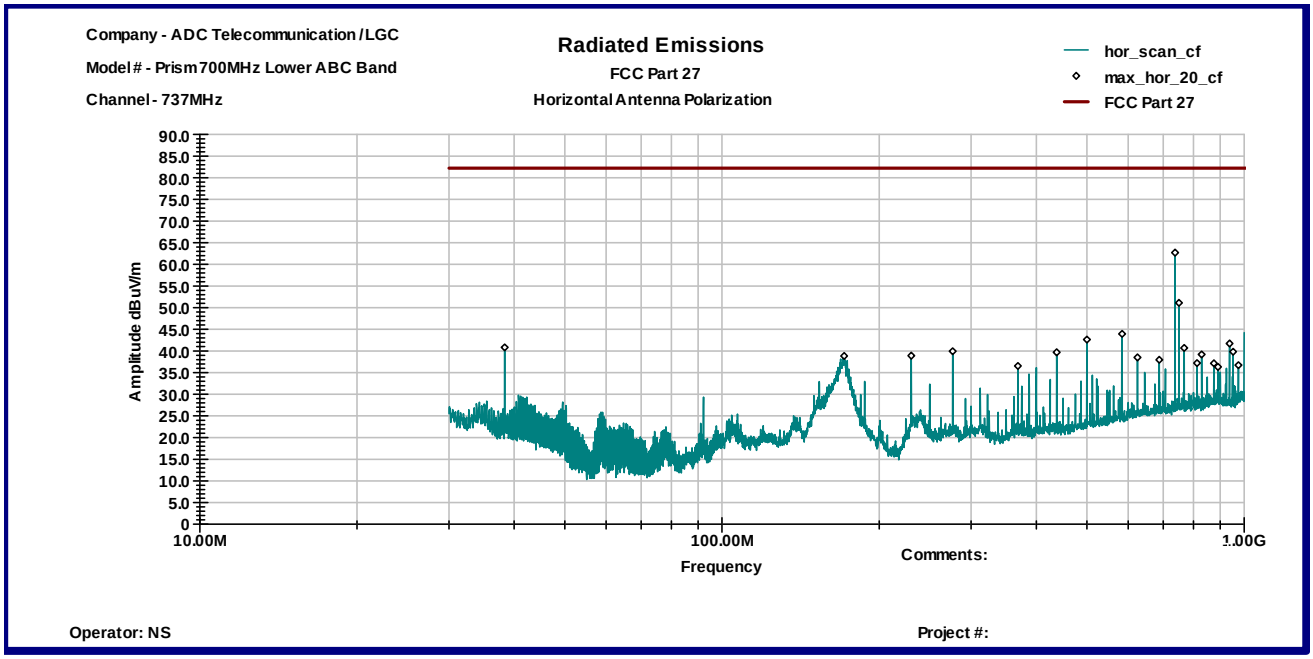
Graph 1


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 729MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency MHz
Comments:
Operator: NS
EUT:

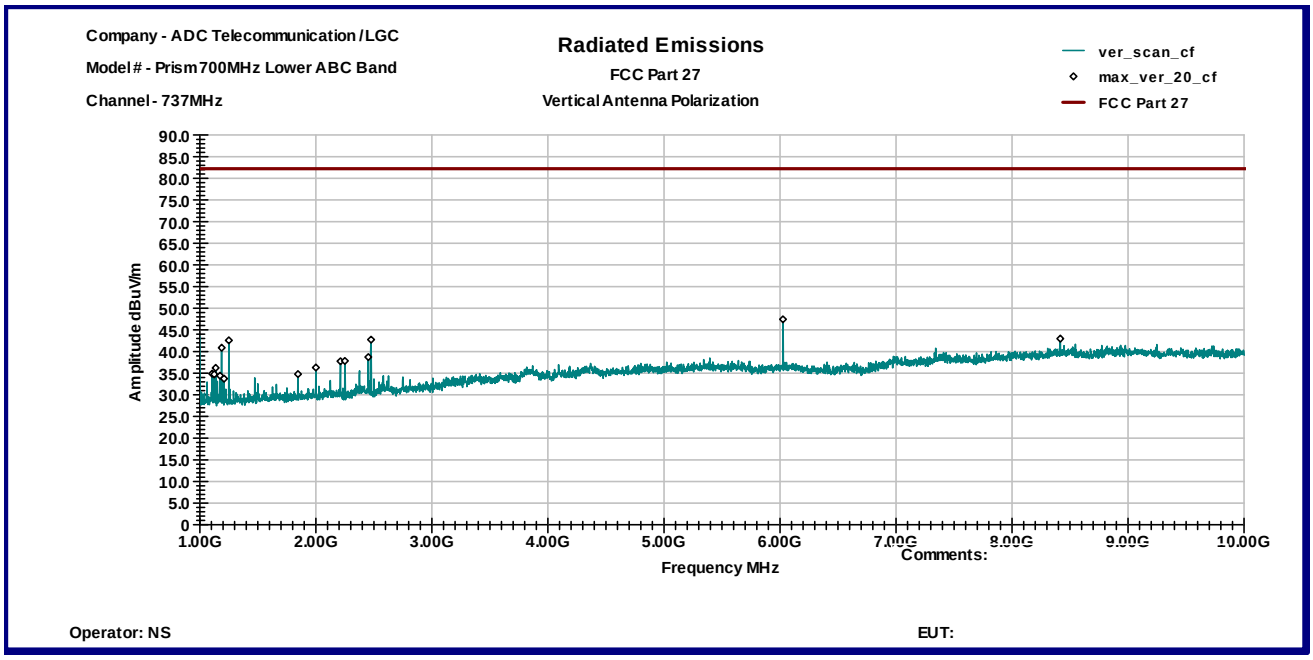

Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 729MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency
Comments:
Operator: NS
EUT:

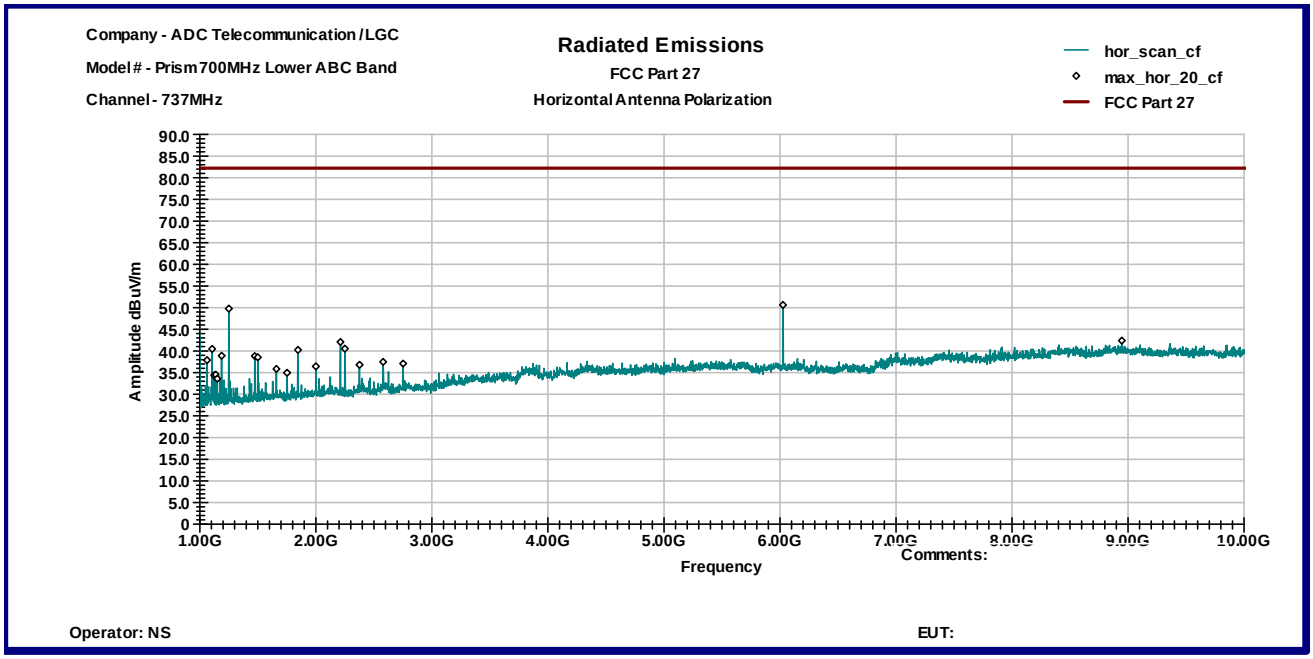
Graph 2


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 737MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency MHz
Comments:
Operator: NS
Project #:

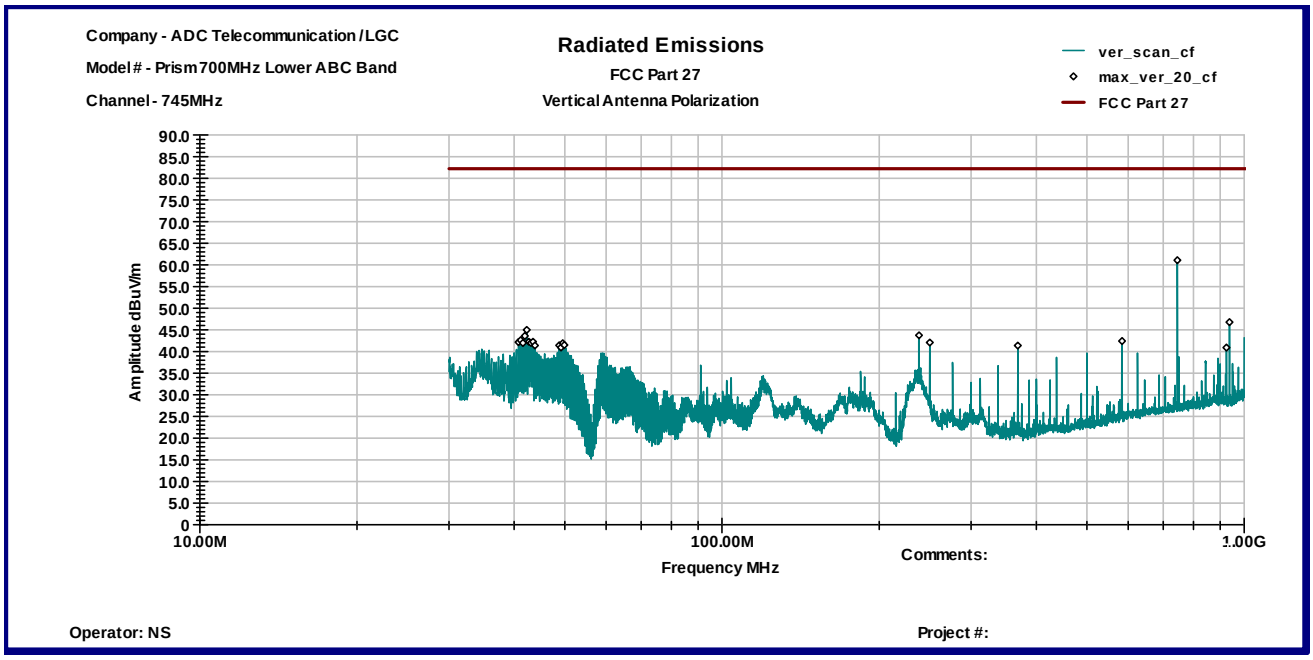

Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 737MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency
Comments:
Operator: NS
Project #:

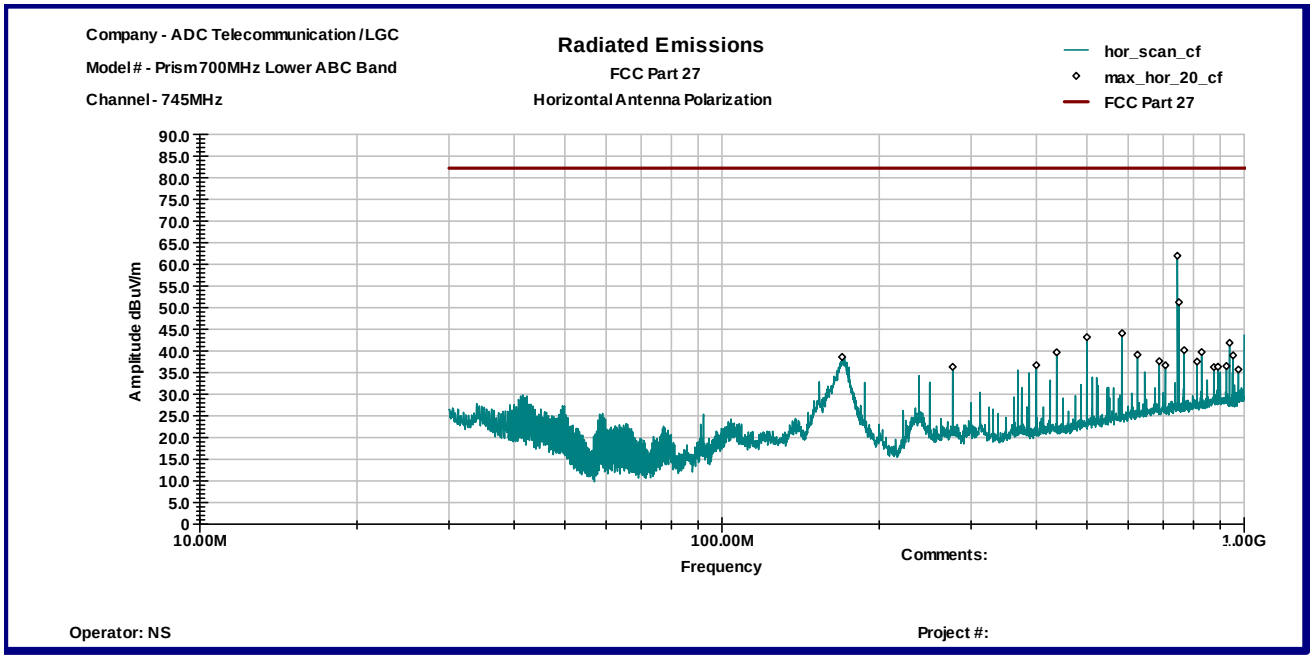
Graph 3


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 737MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency MHz
Comments:
Operator: NS
EUT:

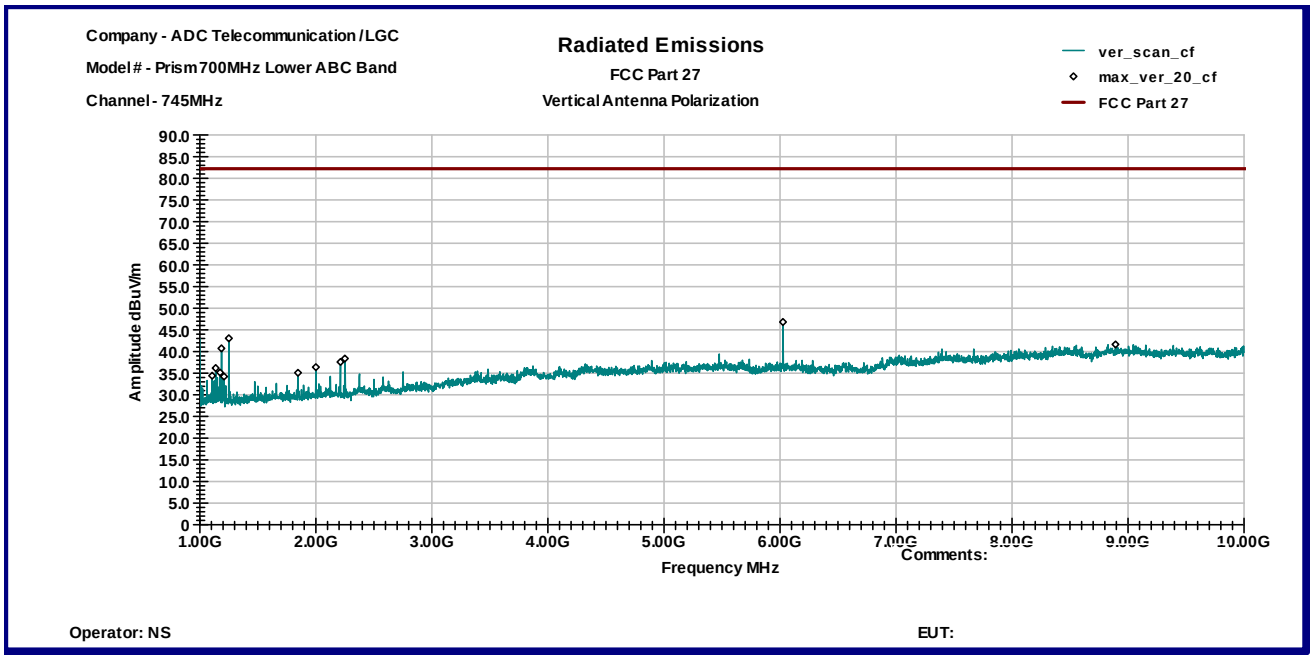

Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 737MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency
Comments:
Operator: NS
EUT:

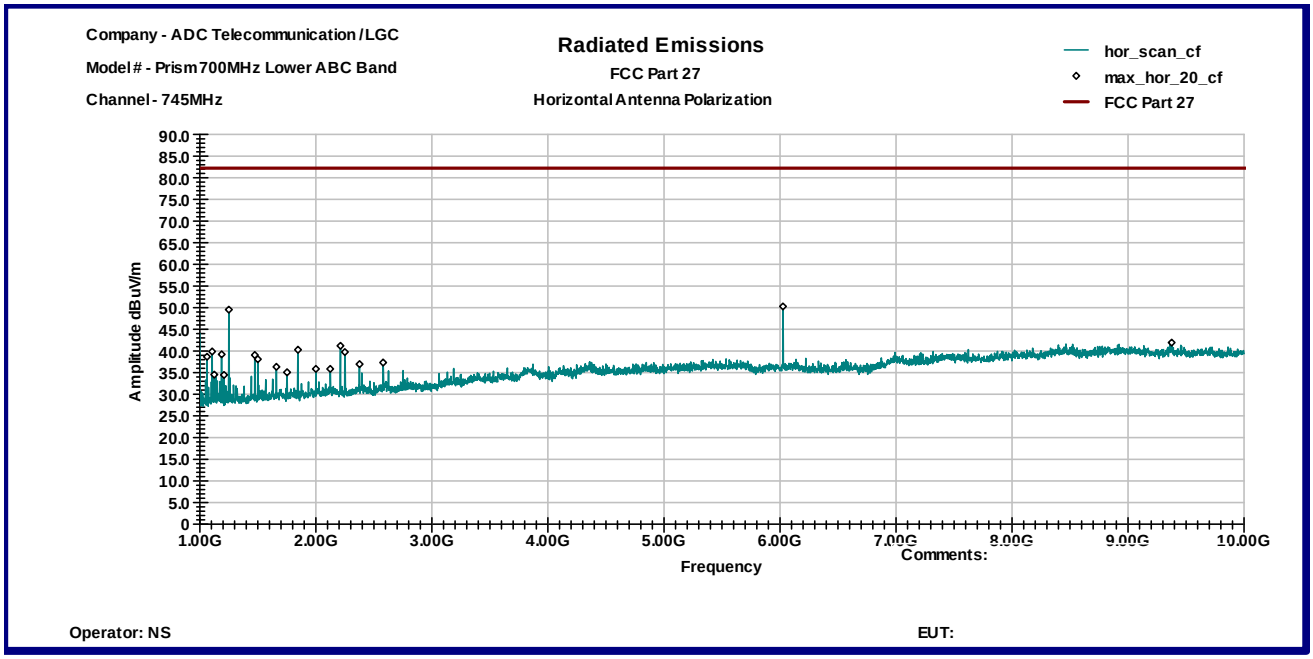
Graph 4


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 745MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency MHz
Comments:
Operator: NS
Project #:


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 745MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
10.00M
100.00M
1.00G
Frequency
Comments:
Operator: NS
Project #:

Graph 5


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 745MHz
Radiated Emissions
FCC Part 27
Vertical Antenna Polarization
ver_scan_cf
max_ver_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency MHz
Comments:
Operator: NS
EUT:


Company - ADC Telecommunication / LGC
Model # - Prism 700MHz Lower ABC Band
Channel - 745MHz
Radiated Emissions
FCC Part 27
Horizontal Antenna Polarization
hor_scan_cf
max_hor_20_cf
FCC Part 27
Amplitude dBuV/m
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0
1.00G
2.00G
3.00G
4.00G
5.00G
6.00G
7.00G
8.00G
9.00G
10.00G
Frequency
Comments:
Operator: NS
EUT:

Graph 6

5.0 TEST EQUIPMENT

DESCRIPTION	MANUFACTURER	MODEL	SERIAL NO.	INTERTEK ID	CAL DUE	USED
Receiver RF Section	HP	85462A	3549A00306	9995	03/31/2011	☐
RF Filter Section	HP	85460A	3448A00276	9937	03/31/2011	☐
Spectrum Analyzer	R & S	FSP 40	100024	12559	11/10/2010	☒
Spectrum Analyzer	R & S	ESCI	100358	12909	07/01/2011	☒
Spectrum Analyzer	Agilent	E7402A	MY44212200	12660	11/20/2010	☐
Bicono-Log Antenna	Schaffner-Chase	CBL 6112 B	2468	9734	10/18/2011	☒
Horn Antenna	EMCO	3115	9507-4513	9936	04/13/2011	☒
Horn Antenna	EMCO	3115	6579	15580	04/29/2011	☐
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	10/04/2011	☐
LISN	Fischer Custom Communications	FCC-LISN-2 MOD.SD	316	9945	11/06/2010	☐
LISN	Fischer Custom Communications	FCC-LISN-50-25-2	2014	9665	11/30/2010	☐
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1122951	13475	10/06/2011	☒
Pre-Amplifier	MITEQ	AMF-6F-16002600-25-10P	1222383	MIN-0065	10/06/2011	☐
Pre-Amplifier	MITEQ	AMF-6F-26004000-40-8P	13224444	MIN-0064	10/06/2011	☐
Pre-Amplifier	HP	8447F OPT H64	3113A04974	9934	06/02/2011	☐
System	TILE! Instrument Control		Ver. 3.4.K.29	15259	VBU	☒
5001ix	California Instruments System	5001	55864, 55863, 55862, 72277	17672	01/08/2011	☐
CTS 3.0.19	California Instruments Harmonic/Flicker Software	632		12723	01/08/2011	☐