

TEST REPORT

Report Number: 100653916MPK-001

Project Number: G100653916

February 27, 2012

**Testing performed on the
Scanner Receiver Analog**

Model Number: PSR-120

FCC ID: ADV0908900

IC: 5088A-PSR120

to

**FCC Part 15, Subpart B
RSS-215**

Class: B

for

GRE America

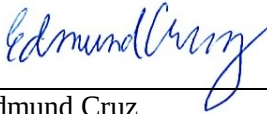
Test Performed by:

Intertek
1365 Adams Court
Menlo Park, CA 94025
USA

Test Authorized by:

GRE America
425 Harbor Blvd. Suite B
Belmont, CA 94002
USA

Prepared by:


Edmund Cruz

Date: February 27, 2012

Reviewed by:


Krishna K Vemuri

Date: February 27, 2012

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. This report must not be used to claim product endorsement by A2LA, NIST nor any other agency of the U.S. Government.

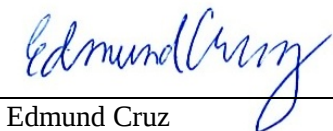
VERIFICATION OF COMPLIANCE

Report No. 100653916MPK-001

Verification is hereby issued to the named APPLICANT and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below.

Equipment Under Test:	Scanner Receiver Analog
Trade Name:	GRE America
Model No.:	PSR-120
Serial No.	000015
Applicant:	GRE America
Contact:	Mr. Raj Gounder
Address:	425 Harbor Blvd. Suite B Belmont, CA 94002
Country	USA
Tel. number:	650-591-1400
Fax number:	650-591-2001
Applicable Regulation:	FCC Part 15, Subpart B RSS-215
Equipment Class:	Class B
Date of Test:	February 17 to 27, 2012

We attest to the accuracy of this report:



Edmund Cruz
Project Engineer



Krishna Vemuri
Senior Staff EMC Engineer

TABLE OF CONTENTS

1.0	General Description	4
1.1	Product Description	4
1.2	Related Submittal(s) Grants	4
1.3	Test Methodology	4
1.4	Test Facility	4
1.5	Summary of Test Results	5
2.0	System Test Configuration.....	6
2.1	Justification.....	6
2.2	EUT Exercising Software	6
2.3	Mode of Operation.....	6
2.4	Support Equipment List and Description.....	7
2.5	Equipment Setup Block Diagram	7
2.6	Equipment Modification	7
3.0	Emission Test Results	8
3.1	Field Strength Calculation	9
3.2	Radiated Emission Data.....	10
3.3	AC Line Conducted Emission Data.....	15
3.4	Antenna Conducted Emission Data	17
4.0	List of Test Equipment	20
	Appendix A – Local Oscillator Frequency Calculation.....	21
	Appendix B – PSR-120 Specification	22



1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a Scanner Receiver Analog, model PSR-120.

Refer to the attached specifications sheets in Appendix B for more details.

A production version of the sample was received on February 17, 2012 in good condition. As declared by the Applicant, it is identical to production units.

1.2 Related Submittal(s) Grants

This is a single application for certification of a Scanner Receiver Analog.

1.3 Test Methodology

Both conducted (if applicable) and radiated emission measurements were performed according to the procedures in ANSI C63.4. All radiated measurements were performed in a semi-anechoic chamber. Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Data Section"** of this Application.

1.4 Test Facility

The test site and conducted measurement facility used to collect the radiated data is Site 1, a 10 meter semi-anechoic chamber. This test facility and site measurement data have been fully placed on file with the FCC and A2LA accredited.

1.5 Summary of Test Results

Model: PSR-120
FCC ID: ADV0908900
IC: 5088A-PSR120

TEST	REFERENCE	REFERENCE	RESULTS
Radiated Emission	15.109	RSS-215, Section 5.1 RSS-GEN, Section 6.1	Complies
AC Line Conducted Emission	15.107	RSS-GEN, Section 7.2.4	Complies
Antenna Conducted Emission	15.111	RSS-GEN, Section 6.2	Complies
FCC Part 15.121 Requirement	15.121		Complies ¹

¹ Refer to file: GRE PSR-120 REPORT FOR FCC RULE PART 15.121.pdf

2.0 System Test Configuration

2.1 Justification

The tests were performed according to the test procedure as outlined in CFR47 Part 15.31, ANSI C63.4, RSS-GEN and RSS-215.

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst-case emissions.

For the measurements, the EUT is placed on top of a non-conductive table. If the EUT attaches to peripherals, they are connected and operational (as typical as possible).

For radiated emission measurements, the signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance if measured at a closer distance.

2.2 EUT Exercising Software

The unit was setup to receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

2.3 Mode of Operation

The EUT was tested in two modes:

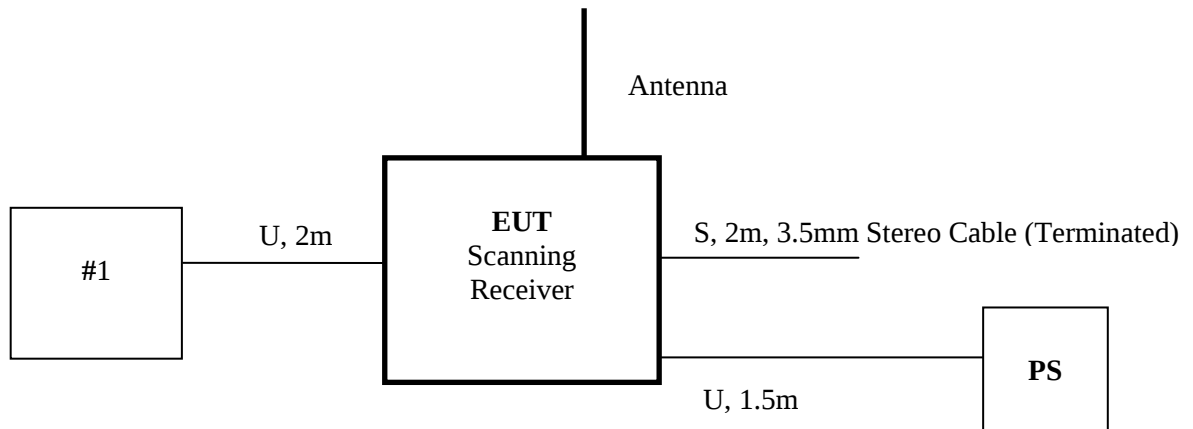
Test Mode 1: The EUT was set to constantly receive at the low, middle and high channels of each band.

Test Mode 2: The EUT was set to constantly scan all bands.

2.4 Support Equipment List and Description

Item #	Description	Model No.	Serial No.
1	Headphones	Not Labeled	Not Labeled

2.5 Equipment Setup Block Diagram



PS: GRECOM ACADAPTER, Model: 41-060-0500

U: Unshielded

S: Shielded

m: meter

2.6 Equipment Modification

Intertek Testing Services installed no modifications.

3.0 Emission Test Results

AC line conducted emission measurements were performed from 0.15 MHz to 30 MHz. Analyzer resolution is 10 kHz or greater.

Radiated emission measurements and antenna conducted emission measurements were performed from 30 MHz to 10,000 MHz. Analyzer resolution is 100 kHz or greater for frequencies from 30 MHz to 1000 MHz, 1 MHz - for frequencies above 1000 MHz.

Preliminary tests were performed to determine the worst-case emission with the EUT tuned to the low, middle and high channels of each band. From these preliminary measurements the EUT was tuned to the frequency with the highest emission and the final scan was performed using the automated test software.

The same procedure was used to determine the worst-case emission level with the EUT setup in scanning mode for each band.

The final recorded data reflects the worst-case result.

A sample calculation and data tables of the emissions are included.

All measurements were performed with peak detection unless otherwise specified.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG + DF$$

Where FS = Field Strength in dB(μ V/m)

RA = Receiver Amplitude (including preamplifier) in dB(μ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB(1/m)

AG = Amplifier Gain in dB

DF = Distance Factor in dB

Assume a receiver reading of 52.0 dB(μ V) is obtained. The antennas factor of 7.4 dB(1/m) and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB(μ V/m). This value in dB(μ V/m) was converted to its corresponding level in μ V/m.

$$RA = 52.0 \text{ dB}(\mu\text{V})$$

$$AF = 7.4 \text{ dB}(1/\text{m})$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$DF = 0 \text{ dB}$$

$$FS = 52 + 7.4 + 1.6 - 29.0 + 0 = 32 \text{ dB}(\mu\text{V}/\text{m})$$

$$\text{Level in } \mu\text{V}/\text{m} = \text{Common Antilogarithm } [(32 \text{ dB}(\mu\text{V}/\text{m})/20] = 39.8 \mu\text{V}/\text{m}$$



3.2 Radiated Emission Data

Tested By:	Edmund Cruz
Test Date:	February 17, 2012

The results on the following page(s) were obtained when the device was tested in the condition described in Section 2.

Results:	Complies
-----------------	-----------------



3.2 Test Data (Continued)

FCC Part 15.109 Class B and RSS-GEN Radiated Emissions Data

Intertek
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP)

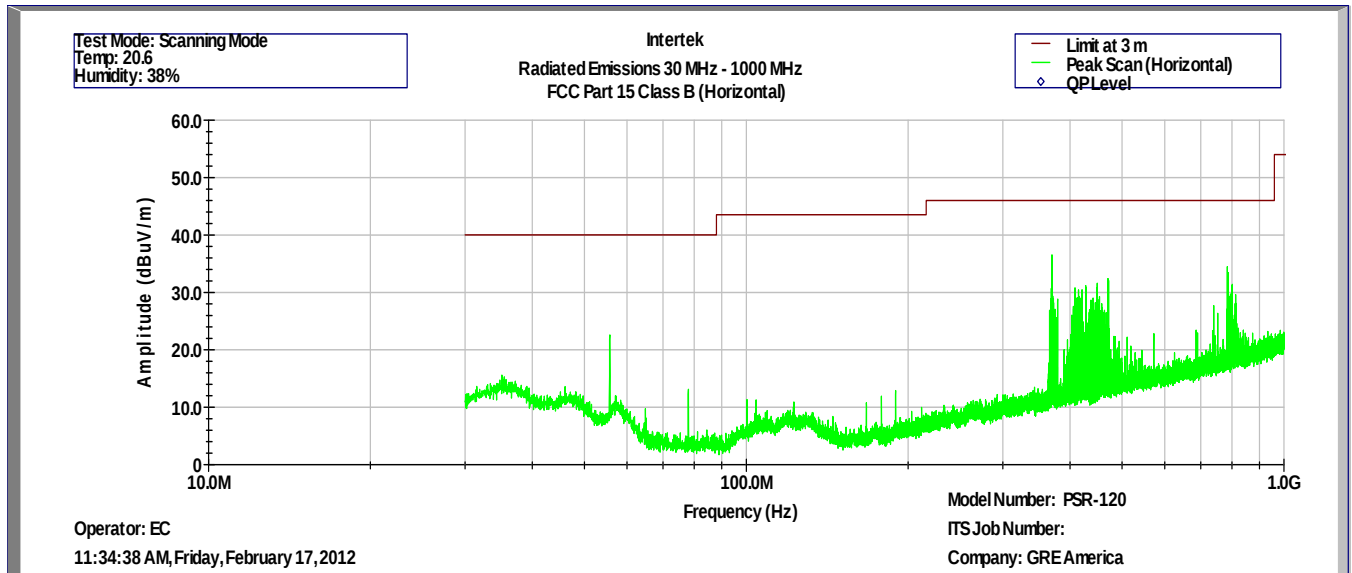
Operator: EC
February 17, 2012

Model Number:PSR-120
Company: GRE

Tuned Frequency	Measured Frequency	Quasi Pk FS	Limit@3m	RA	AG	CF	AF	Margin
MHz	MHz	dB(uV/m)	dB(uV/m)	dB(uV)	dB	dB	dB(1/m)	dB
25	405.8	31.9	46.0	46.3	32.0	1.6	16.1	-14.1
45	425.8	33.5	46.0	47.1	32.0	1.6	16.8	-12.5
54	434.8	36.3	46.0	50.5	32.0	1.6	16.2	-9.7
88	468.8	32.9	46.0	46.0	32.1	1.7	17.3	-13.1
100	480.8	29.5	46.0	42.5	32.1	1.7	17.3	-16.5
107.9	488.7	31.3	46.0	44.1	32.1	1.7	17.5	-14.7
108	488.8	28.6	46.0	41.5	32.1	1.7	17.6	-17.4
110	490.8	28.1	46.0	40.8	32.1	1.7	17.6	-17.9
136.99166	517.8	32.2	46.0	44.5	32.1	1.8	18.0	-13.8
137	517.8	27.4	46.0	39.7	32.1	1.8	18.0	-18.6
150	530.8	27.0	46.0	38.7	32.2	1.8	18.7	-19.0
174	554.8	24.4	46.0	36.3	32.2	1.8	18.5	-21.6
380	760.8	36.8	46.0	45.9	32.2	2.2	20.9	-9.2
410	790.8	37.2	46.0	45.6	32.2	2.3	21.5	-8.8
512	892.8	31.9	46.0	38.8	31.7	2.4	22.4	-14.1
806	425.2	31.6	46.0	45.2	32.0	1.6	16.8	-14.4
815	434.2	29.4	46.0	43.5	32.0	1.6	16.3	-16.6
823.9875	443.2	32.1	46.0	46.3	32.0	1.6	16.2	-13.9
849	468.2	32.9	46.0	46.0	32.1	1.7	17.3	-13.1
860	479.2	28.6	46.0	41.6	32.1	1.7	17.3	-17.4
868.9875	488.2	28.3	46.0	41.1	32.1	1.7	17.5	-17.7
894	513.2	27.4	46.0	39.8	32.1	1.8	18.0	-18.6
920	539.2	30.3	46.0	42.3	32.2	1.8	18.3	-15.7
960	579.2	17.2	46.0	28.5	32.2	1.9	19.0	-28.8
1240	859.2	28.2	46.0	35.9	31.9	2.4	21.9	-17.8
1275	894.2	32.3	46.0	39.1	31.7	2.4	22.5	-13.7
1300	919.2	32.9	46.0	39.1	31.6	2.5	22.9	-13.1

Test Mode: Tuned Frequency
Temp: 22.5C
Humidity: 45.7%

3.2 Test Data (Continued)



Intertek Radiated Emissions 30 MHz- 1000 MHz FCC Part 15 Class B (Pk-Horizontal)

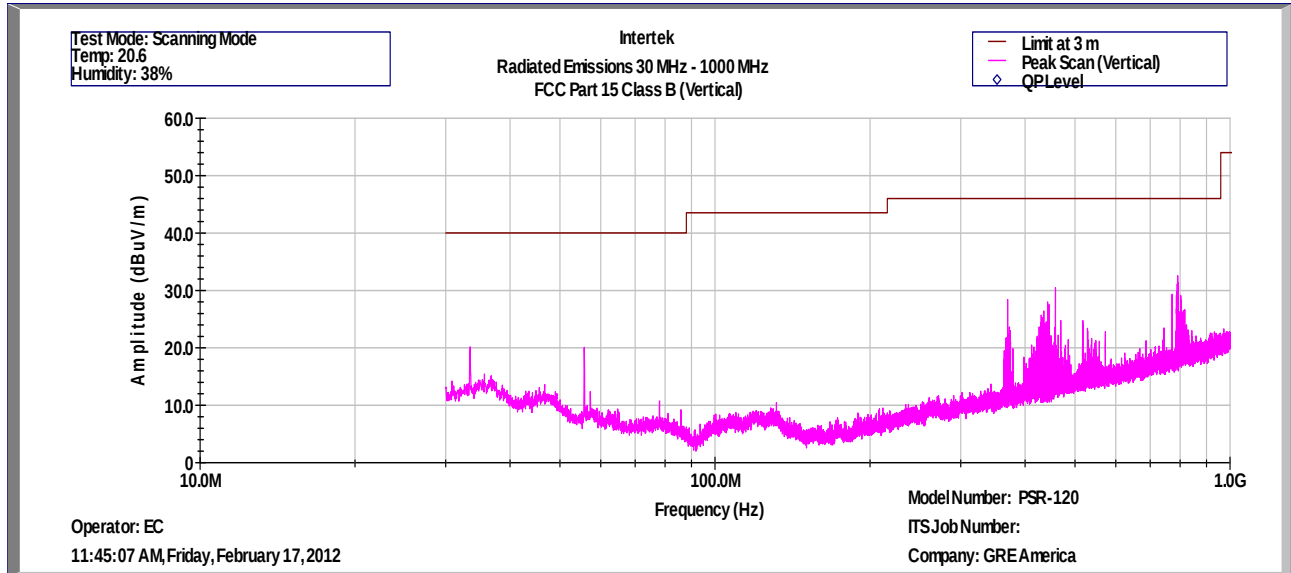
Operator: EC
February 17, 2012

Model Number: PSR-120
Company: GRE

Frequency (Hz)	Peak FS dB(uV/m)	Limit@3m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	CF dB	AF dB(1/m)
3.701E+08	36.5	46.0	-9.5	51.4	32.0	1.5	15.6
7.843E+08	34.5	46.0	-11.5	42.9	32.2	2.3	21.5
7.876E+08	33.4	46.0	-12.6	41.9	32.2	2.3	21.5
4.707E+08	32.4	46.0	-13.6	45.4	32.1	1.7	17.3
7.872E+08	32.2	46.0	-13.8	40.6	32.2	2.3	21.5
4.720E+08	32.0	46.0	-14.0	45.1	32.1	1.7	17.3

Test Mode: Scanning Mode
Temp: 22.5C
Humidity: 45.7%

3.2 Test Data (Continued)



Intertek Radiated Emissions 30 MHz- 1000 MHz FCC Part 15 Class B (Pk-Vertical)

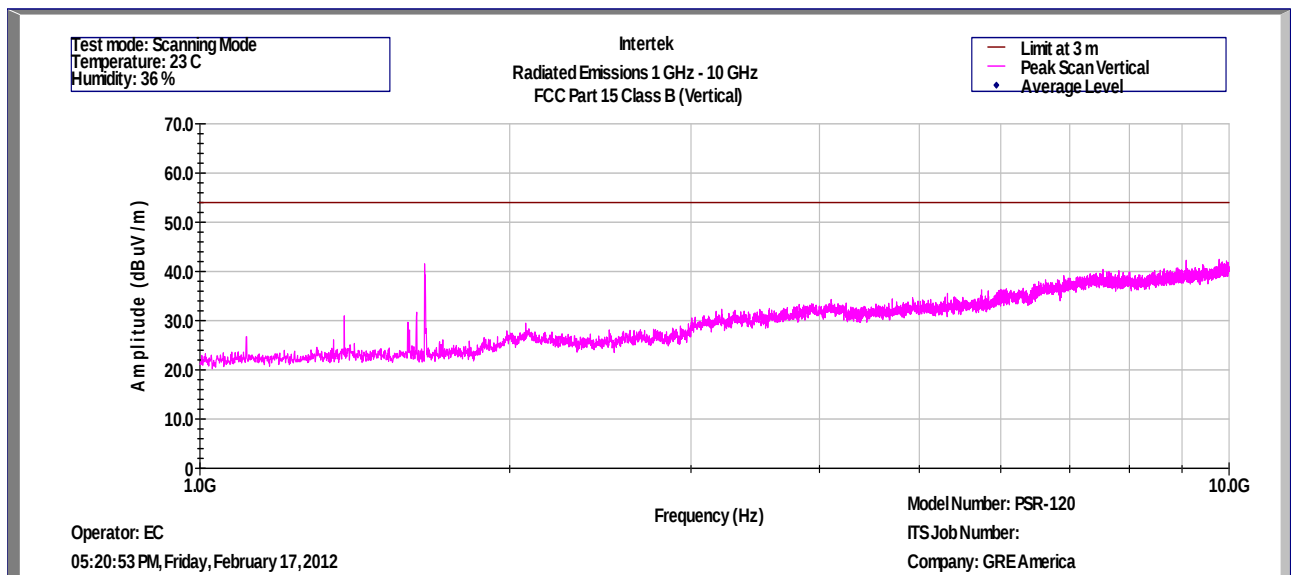
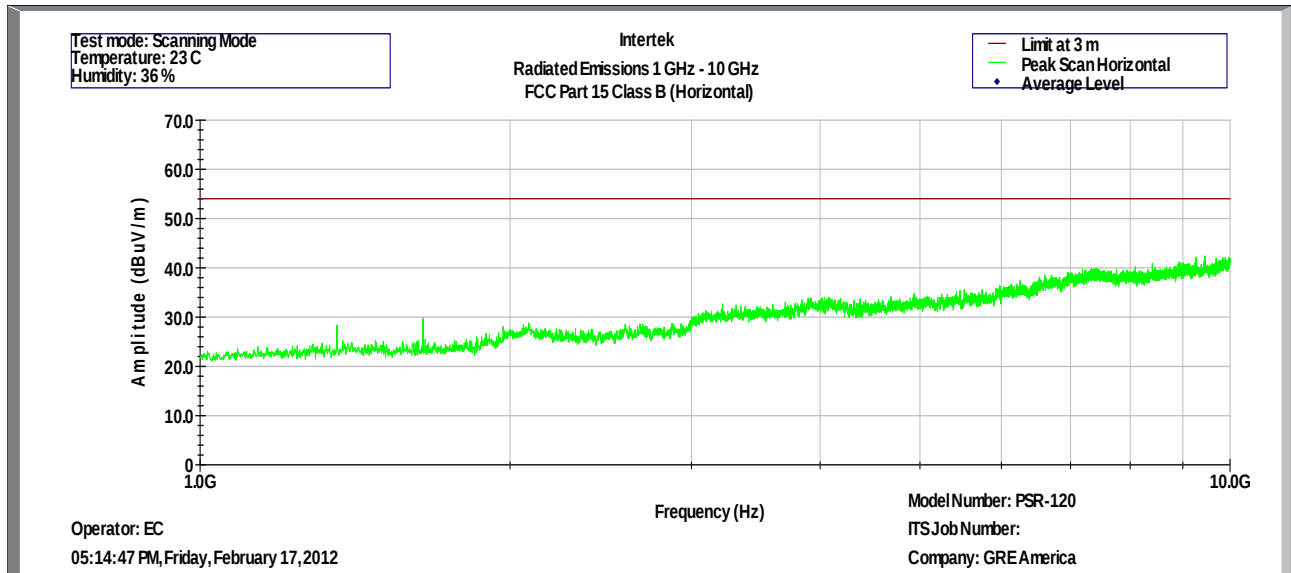
Operator: EC
February 17, 2012

Model Number: PSR-120
Company: GRE

Frequency (Hz)	Pk FS dB(uV/m)	Limit@3m dB(uV/m)	Margin dB	RA dB(uV)	PA dB	CF dB	AF dB(1/m)
7.916E+08	32.5	46	-13.5	40.9	32.2	2.3	21.5
7.927E+08	31.3	46	-14.7	39.6	32.2	2.3	21.6
7.898E+08	31.1	46	-14.9	39.5	32.2	2.3	21.5
4.582E+08	30.5	46	-15.5	43.7	32.0	1.7	17.2
7.934E+08	30.2	46	-15.8	38.5	32.2	2.3	21.6
7.879E+08	29.7	46	-16.3	38.1	32.2	2.3	21.5

Test Mode: Scanning Mode
Temp: 22.5C
Humidity: 45.7%

3.2 Test Data (Continued)





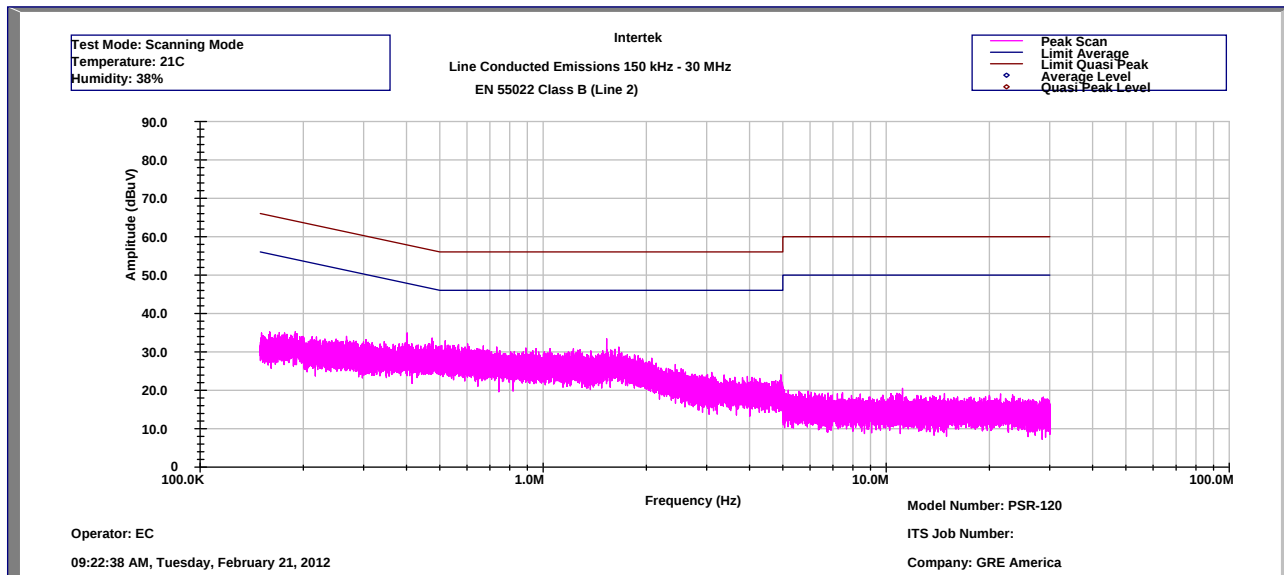
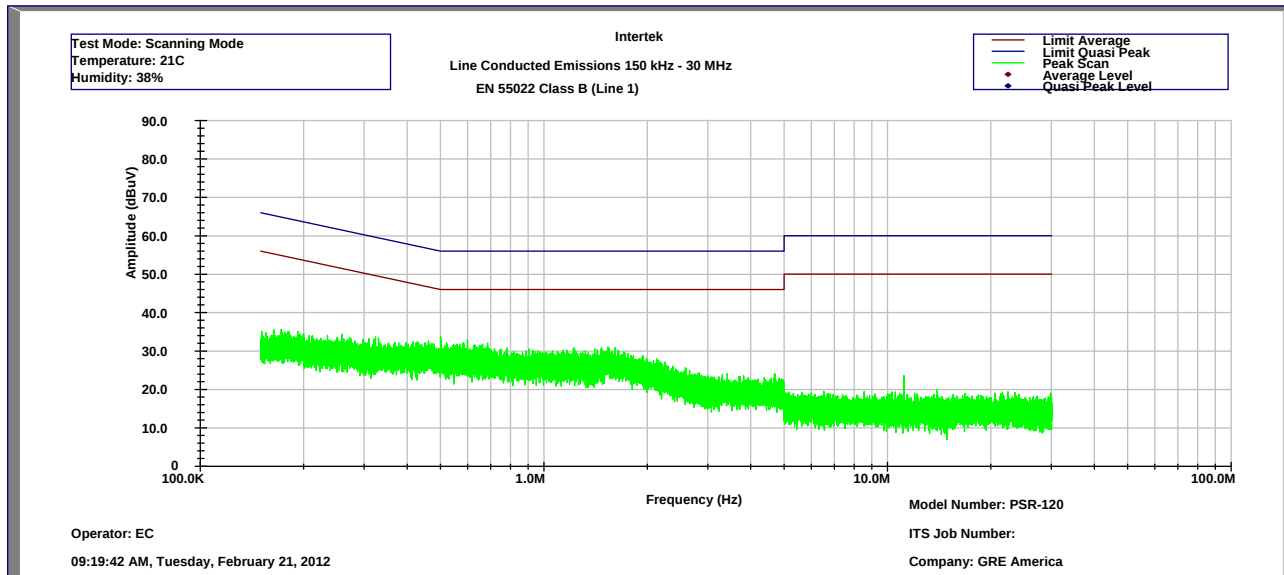
3.3 AC Line Conducted Emission Data

Tested By:	Edmund Cruz
Test Date:	February 21, 2012

The results on the following page(s) were obtained when the device was tested in the condition described in Section 2.

Results:	Complies
-----------------	-----------------

3.3 Test Data



3.4 Antenna Conducted Emission Data

Tested By:	Edmund Cruz
Test Date:	February 27, 2012

The results on the following page(s) were obtained when the device was tested in the condition described in Section 2.

Results:	Complies
-----------------	-----------------

Note: Tests were performed with the EUT operating in the low, middle and high channels. The worst-case emissions were detected in the low channel and are presented in this report.

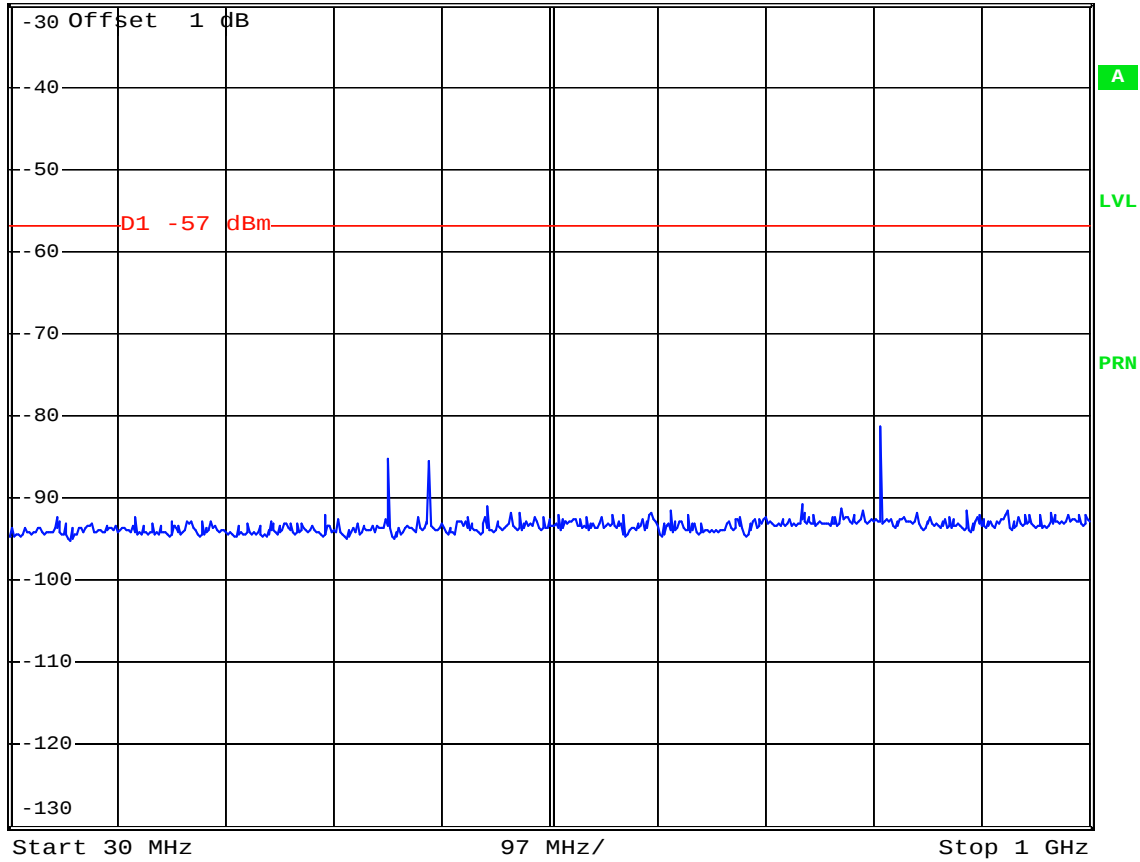


* RBW 100 kHz
VBW 300 kHz
SWT 100 ms

Ref -30 dBm

* Att 0 dB

1 PK
MAXH



Date: 27.FEB.2012 13:17:22

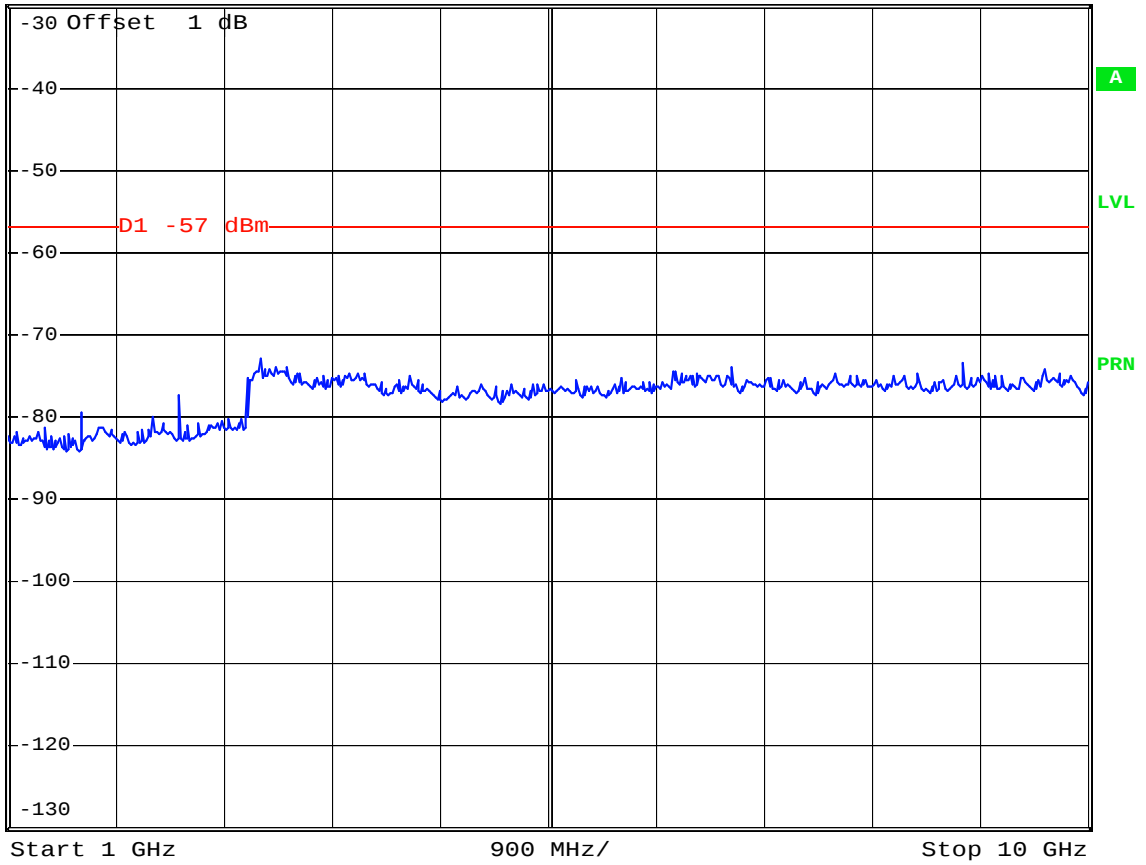


* RBW 1 MHz
VBW 3 MHz
SWT 180 ms

Ref -30 dBm

* Att 0 dB

1 PK
MAXH



Date: 27.FEB.2012 13:24:16

4.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list.

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
Spectrum Analyzer	Rohde & Schwarz	FSP-40	100030	12	11/09/12
BI-Log Antenna	ARA	LPB-2513/A	1154	12	07/06/12
Pre-Amplifier	Sonoma	310N	293620	12	11/11/12
LISN	FCC	FCC-LISN-50-50-M-H	2012	12	06/28/12

Appendix A – Local Oscillator Frequency Calculation

FCC ID: ADV0908900 / IC No.: 5088A-PSR120

1 LOCAL OSC FREQUENCY CALCULATION

–1 FCC ID: ADV0908900 formula for 1st, 2nd and 3rd Local oscillation frequencies are as follow :

RECEIVING BAND (FR STEP)	FREQ. STEP (kHz)	RECEIVING FREQ. FR (MHz)	1st LOCAL PLL 1 / VCO 1 or VCO 2 (MHz)	2nd LOCAL PLL 2 / VCO 3 (MHz)	3rd LOCAL X' TAL (MHz)
VHF Low	10	25.0000 ~ 26.9600	$A = (FR + 380.800) / 0.050$ $= A.xxx$ (Cut away decimal) 1st Local = $A \times 0.050$ 1st IF = 1st Local – FR	2nd Local = 1st IF – 10.7	11.150
	10	26.9650 ~ 27.4050			
	5	27.4100 ~ 29.5050			
	5	29.5100 ~ 29.7000			
	10	29.7100 ~ 49.8300			
	5	49.8350 ~ 54.0000			
FM Radio	100	88.0000 ~ 107.9000	FR DENOTES Frequency Received.		
VHF High	8.33	108.0000 ~ 136.99166			
	5	137.0000 ~ 137.9950			
	12.5	138.0000 ~ 143.9875			
	5	144.0000 ~ 147.9950			
	12.5	148.0000 ~ 150.7875			
	5	150.8000 ~ 150.8450			
	7.5	150.8525 ~ 154.4975			
	5	154.5150 ~ 154.6400			
	7.5	154.6500 ~ 156.0450			
		156.0500			
	7.5	156.0525 ~ 156.1725			
		156.1750			
	7.5	156.1800 ~ 156.2475			
		156.2500			
		156.2550			
	25	156.2750 ~ 157.4500			
	7.5	157.4700 ~ 160.8225			
		160.8250			
	7.5	160.8300 ~ 161.5725			
	5	161.6000 ~ 161.9750			
	12.5	162.0000 ~ 174.0000			
UHF Low	12.5	380.0000 ~ 380.6750	$A = (FR + 380.600) / 0.050$ $A = (FR + 380.700) / 0.050$ $A = (FR + 380.800) / 0.050$ " " " "	2nd Local = 1st IF – 10.7	11.150
	"	380.6875 ~ 380.8000			
	"	380.8125 ~ 380.9250			
	"	380.9375 ~ 419.9875			
	5	420.0000 ~ 450.0000			
	6.25	450.00625 ~ 512.0000			
UHF High	12.5	806.0000 ~ 823.9875	$A = (FR - 380.800) / 0.050$ $= A.xxx$ (Cut away decimal) 1st Local = $A \times 0.050$ 1st IF = FR – 1st Local	2nd Local = 1st IF – 10.7	11.150
	"	849.0000 ~ 868.9875			
	"	894.0000 ~ 939.9875			
	6.25	940.0000 ~ 960.0000			
	"	1240.0000 ~ 1300.0000			



Appendix B – PSR-120 Specification

See attached document: [PSR-120 Specification](#).