

First Texas Products LLC

ADDENDUM TEST REPORT TO 94983-5

**Hobby Metal Detector
Model: T2**

Tested To The Following Standards:

**FCC Part 15 Subpart C Section 15.209
&
RSS - 210 Issue 8**

Report No.: 94983-5A

Date of issue: December 11, 2013



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

First Texas Products LLC
1465-H Henry Brennan
El Paso, TX 79936

REPORT PREPARED BY:

Chris Geis
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

REPRESENTATIVE: Art Nemirow
Customer Reference Number: 02110-00

Project Number: 94983

DATE OF EQUIPMENT RECEIPT:

November 14, 2013

DATE(S) OF TESTING:

November 14, 2013

Revision History

Original: Testing of Hobby Metal Detector to FCC Part 15 Subpart C Section 15.209 and RSS-210.

Addendum A: To correct the processor clock speed from 4MHz to 6MHz.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Mariposa A	US0103	SL2-IN-E-1147R	3082A-2	90477	A-0136

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C & RSS-210 Issue 8

Description	Test Procedure/Method	Results
RF Power Output	FCC Part 15 Subpart C Section 15.209	Pass
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C Section 15.209	Pass
99% Bandwidth	RSS-210 A8.2(a)	Pass
Radiated Spurious Emissions	FCC Part 15 Subpart C Section 15.209	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Hobby Metal Detector

Manuf: First Texas Products, LLC.

Model: T2

Serial: 091304183

Headphones

Manuf: Teknetic

Model: T2

Serial: None

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

FCC 15.209 RF Power Output

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240

Customer: **First Texas Products, LLC**

Specification: **15.209 Radiated Output**

Work Order #: **94983**

Date: 11/13/2013

Test Type: **Maximized Emissions**

Time: 11:46:09

Equipment: **Hobby Metal Detector**

Sequence#: 3

Manufacturer: First Texas Products, LLC.

Tested By: Chuck Kendall

Model: T2

S/N: 091304183

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00226	Loop Antenna	6502	3/28/2012	3/28/2014
T2	ANMA10M	Cable		8/17/2012	8/17/2014
	AN02111	Spectrum Analyzer	8593EM	5/20/2013	5/20/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Hobby Metal Detector*	First Texas Products, LLC.	T2	091304183
Headphones	Teknetic	T2	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

Unit is set up on a wooden table some 80 cm off the ground plane with the 11" antenna in the Vertical position. A pair of Teknetics Headphones are attached using ¼ "phono connector. Sensitivity is set to its maximum (100) and the discriminator is set to 0. A small piece of metal attached to one end of a short piece of wood is rotating in front of the antenna during the test.

There are 4 AA new Alkaline batteries installed in it In Accordance With 15.31(e).

Frequencies of Interest: 9kHz to 135kHz

From 9kHz to 150 kHz; RBW = 200Hz; VBW = 300 Hz

Environmental Conditions:

Temperature = 19.4°C

Relative Humidity = 40%

Barometric Pressure = 97.8 kPa

Transmitting is operating at 13 kHz

Processor Clock = 6MHz

Ext Attn: 0 dB

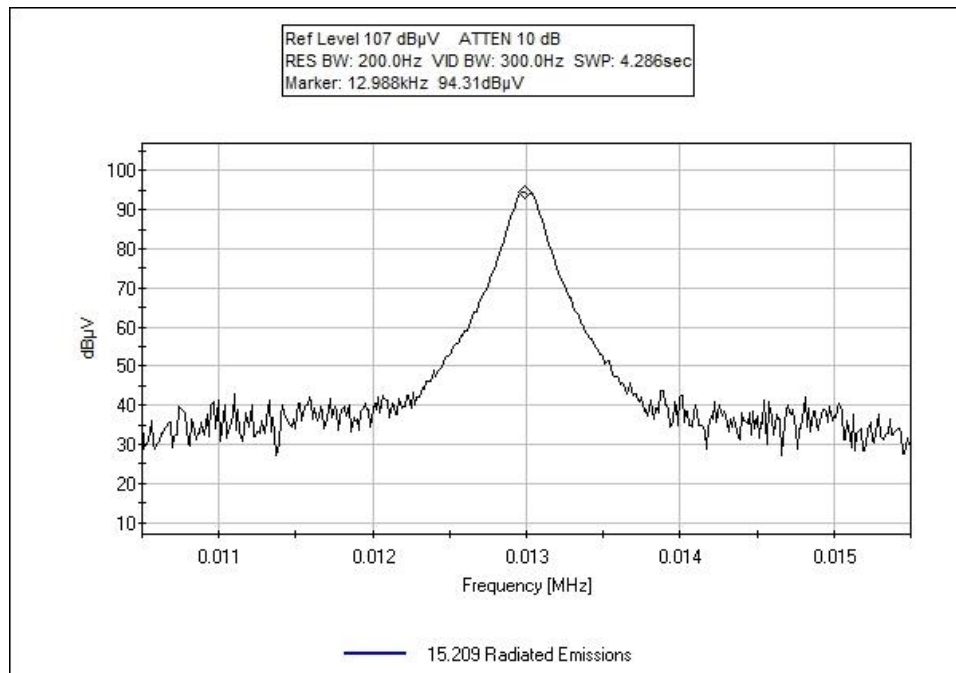
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	12.986k	94.4	+15.1	+0.3			-80.0	29.8	45.3	-15.5	Vert
Axis 1 with 11" loop antenna											

Test Plot



Test Setup Photos



Low Frequency – Horizontal Polarity



Low Frequency – Vertical Polarity

-20dBc Occupied Bandwidth

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240

Customer: **First Texas Products, LLC**

Specification: **15.209 Bandwidth**

Work Order #: **94983**

Date: 11/13/2013

Test Type: **Maximized Emissions**

Time: 11:46:09

Equipment: **Hobby Metal Detector**

Sequence#: 3

Manufacturer: First Texas Products, LLC.

Tested By: Chuck Kendall

Model: T2

S/N: 091304183

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00226	Loop Antenna	6502	3/28/2012	3/28/2014
T2	AN02660	Spectrum Analyzer	E4446A	8/23/2012	8/23/2014
T3	ANMA10M	Cable		8/17/2012	8/17/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Hobby Metal Detector*	First Texas Products, LLC.	T2	091304183
Headphones	Teknetic	T2	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

Unit is set up on a wooden table some 80 cm off the ground plane with the 11" antenna in the Vertical position. A pair of Teknetics Headphones is attached using ¼ "phono connector. Sensitivity is set to its maximum (100) and the discriminator is set to 0. A small piece of metal attached to one end of a short piece of wood is rotating in front of the antenna during the test.

There are 4 AA new Alkaline batteries installed in it In Accordance With 15.31(e).

Frequency in kHz	Bandwidth in Hz
13	31.68

Frequencies of Interest: 9kHz to 20kHz

From 9kHz to 135kHz; RBW = 15Hz; VBW = 300kHz

Environmental Conditions:

Temperature = 19.4°C

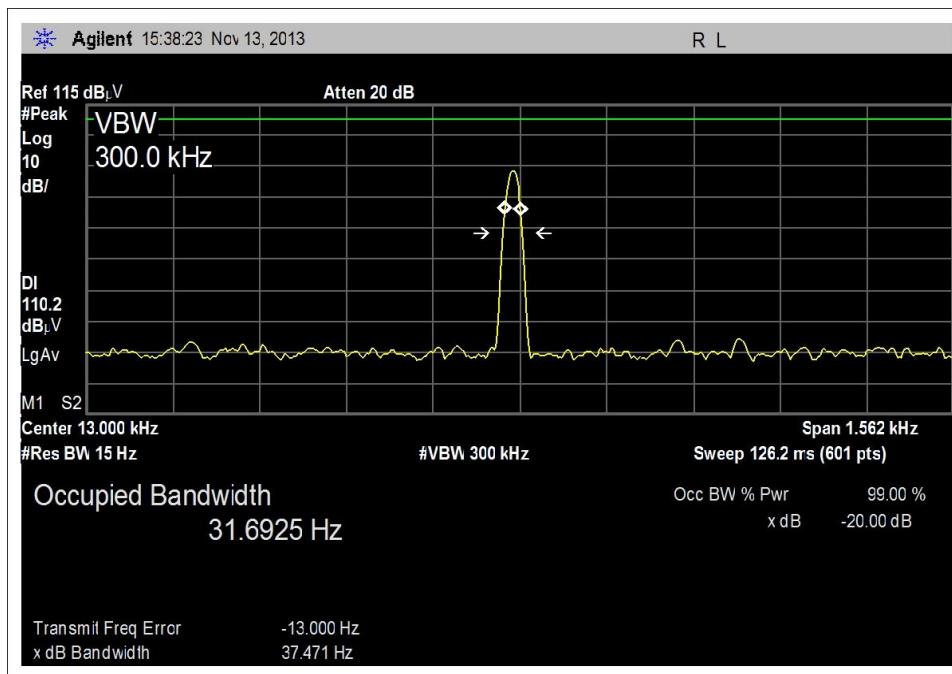
Relative Humidity = 40%

Barometric Pressure = 97.8 kPa

Transmitting is operating at 13 kHz

Processor Clock = 6MHz

Test Plots



Test Setup Photos



Low Frequency – Horizontal Polarity



Low Frequency – Vertical Polarity

RSS-210 A8.2(a) 99 % Bandwidth

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240

Customer: **First Texas Products, LLC**

Specification: **RSS-210 A8.2(a) Emissions Bandwidth Measurements**

Work Order #: **94983**

Date: 11/13/2013

Test Type: **Maximized Emissions**

Time: 11:46:09

Equipment: **Hobby Metal Detector**

Sequence#: 3

Manufacturer: First Texas Products, LLC.

Tested By: Chuck Kendall

Model: T2

S/N: 091304183

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00226	Loop Antenna	6502	3/28/2012	3/28/2014
T2	AN02660	Spectrum Analyzer	E4446A	8/23/2012	8/23/2014
T3	ANMA10M	Cable		8/17/2012	8/17/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Hobby Metal Detector*	First Texas Products, LLC.	T2	091304183
Headphones	Teknetic	T2	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

Unit is set up on a wooden table some 80 cm off the ground plane with the 11" antenna in the Vertical position. A pair of Teknetics Headphones is attached using ¼ "phono connector. Sensitivity is set to its maximum (100) and the discriminator is set to 0. A small piece of metal attached to one end of a short piece of wood is rotating in front of the antenna during the test.

There are 4 AA new Alkaline batteries installed in it In Accordance With 15.31(e).

Frequencies of Interest: 9kHz to 20kHz

From 9kHz to 135kHz; RBW = 15Hz; VBW = 300kHz

Environmental Conditions:

Temperature = 19.4°C

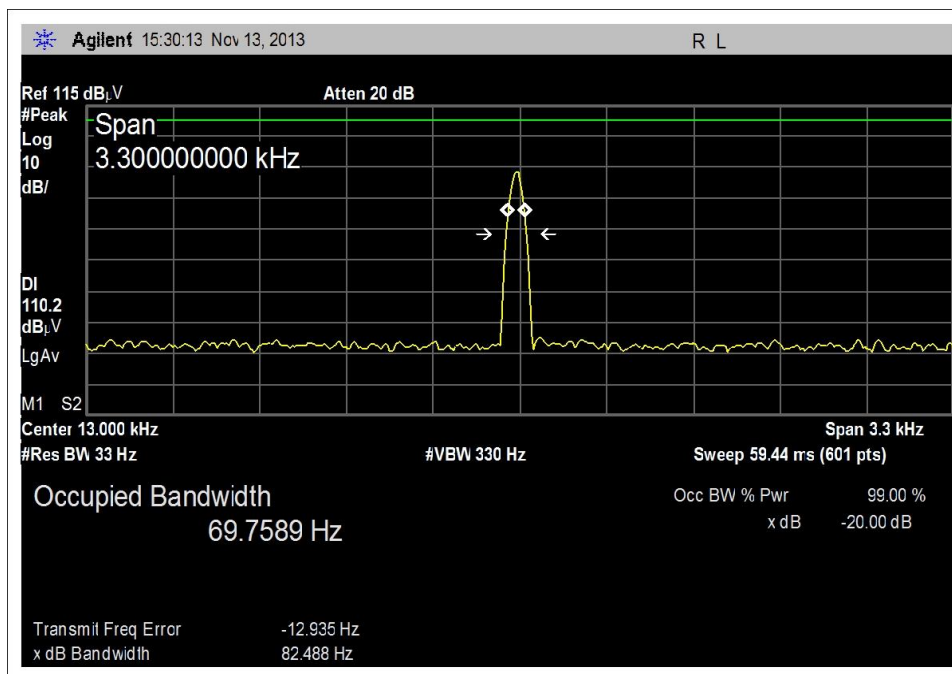
Relative Humidity = 40%

Barometric Pressure = 97.8 kPa

Transmitting is operating at 13 kHz

Processor Clock = 6MHz

Test Plot



Test Setup Photos



Low Frequency – Horizontal Polarity



Low Frequency– Vertical Polarity

FCC 15.209 Radiated Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240

Customer: **First Texas Products, LLC**

Specification: **15.209 Radiated Emissions**

Work Order #: **94983**

Date: 11/14/2013

Test Type: **Maximized Emissions**

Time: 15:16:07

Equipment: **Hobby Metal Detector**

Sequence#: 1

Manufacturer: First Texas Products, LLC.

Tested By: Chuck Kendall

Model: T2

S/N: 091304183

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00226	Loop Antenna	6502	3/28/2012	3/28/2014
	AN02660	Spectrum Analyzer	E4446A	8/23/2012	8/23/2014
T2	ANMA10M	Cable		8/17/2012	8/17/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Hobby Metal Detector*	First Texas Products, LLC.	T2	091304183
Headphones	Teknetic	T2	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

Unit is set up on a wooden table some 80 cm off the ground plane with the 11" antenna in the Vertical position. A pair of Teknetics Headphones are attached using $\frac{1}{4}$ " phono connector. Sensitivity is set to its maximum (100) and the discriminator is set to 0. A small piece of metal attached to one end of a short piece of wood is rotating in front of the antenna during the test.

Frequencies of Interest: 9kHz to 30MHz

From 9kHz to 150 kHz; RBW = 200Hz; VBW = 620 Hz

From 150 kHz to 30 MHz; RBW = 9kHz & VBW = 30kHz

Environmental Conditions:

Temperature = 19.4°C

Relative Humidity = 40%

Barometric Pressure = 97.8 kPa

Transmitting is operating at 13 kHz

Processor Clock = 6MHz

Ext Attn: 0 dB

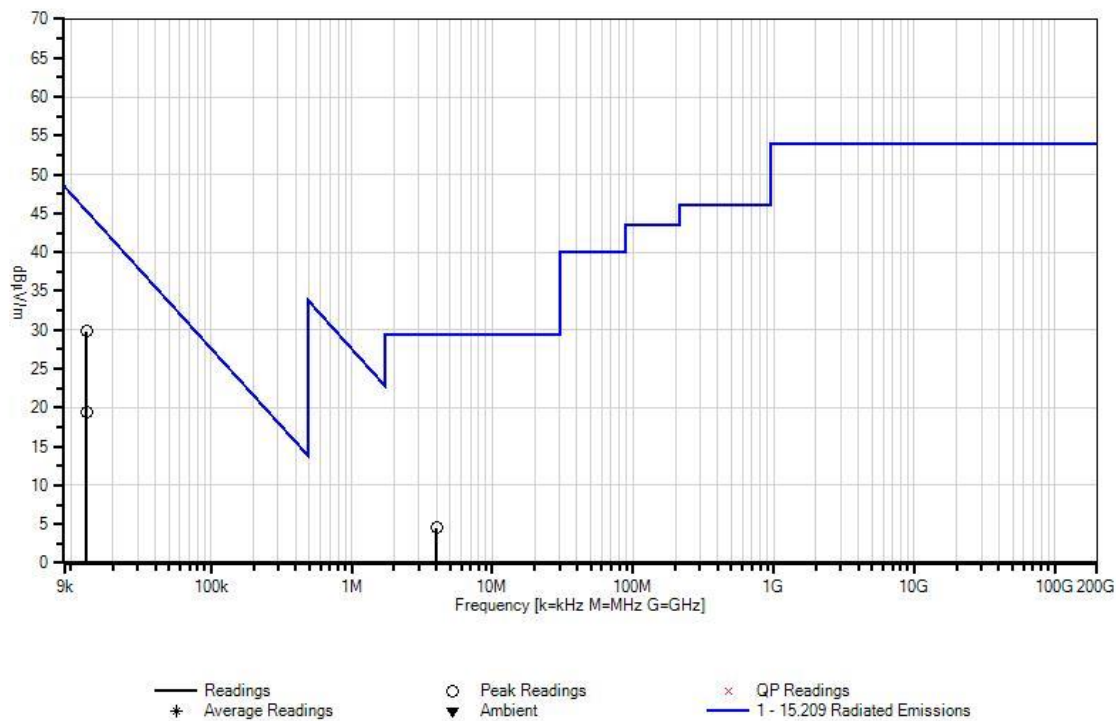
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB		Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	12.986k	94.4	+15.1	+0.3		-80.0	29.8	45.3	-15.5	Vert
Fundamental										
2	4.002M	34.0	+9.8	+0.7		-40.0	4.5	29.5	-25.0	Vert
3	12.985k	84.1	+15.1	+0.3		-80.0	19.5	45.3	-25.8	Horiz
4	2.001M	26.0	+9.9	+0.5		-40.0	-3.6	29.5	-33.1	Vert

CKC Laboratories, Inc. Date: 11/14/2013 Time: 15:16:07 First Texas Products, LLC WO#: 94983
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 1 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240

Customer: **First Texas Products, LLC**
 Specification: **15.209 Radiated Emissions**
 Work Order #: **94983**
 Test Type: **Maximized Emissions**
 Equipment: **Hobby Metal Detector**
 Manufacturer: **First Texas Products, LLC.**
 Model: **T2**
 S/N: **091304183**

Date: 11/13/2013
 Time: 10:11:06
 Sequence#: 1
 Tested By: Chuck Kendall

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01992	Biconilog Antenna	CBL6111C	8/1/2012	8/1/2014
T2	AN00062	Preamp	8447D	6/6/2012	6/6/2014
T3	ANMA10M	Cable		8/17/2012	8/17/2014
T4	AN02660	Spectrum Analyzer	E4446A	8/23/2012	8/23/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Hobby Metal Detector*	First Texas Products, LLC.	T2	091304183
Headphones	Teknetic	T2	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

Unit is set up on a wooden table some 80 cm off the ground plane with the 11" antenna in the Vertical position. A pair of Teknetics Headphones are attached using $\frac{1}{4}$ " phono connector. Sensitivity is set to its maximum (100) and the discriminator is set to 0. A small piece of metal attached to one end of a short piece of wood is rotating in front of the antenna during the test.

Transmitter is on and operating at 13kHz.
 Processor clock is 6MHz.

Frequencies of Interest: 30MHz to 1000MHz

From 30MHz to 1000MHz; RBW = 120kHz, VBW = 300kHz

Environmental Factors:

Temperature = 19.1°C
 Relative Humidity = 40%
 Barometric Pressure = 97.5 kPa

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

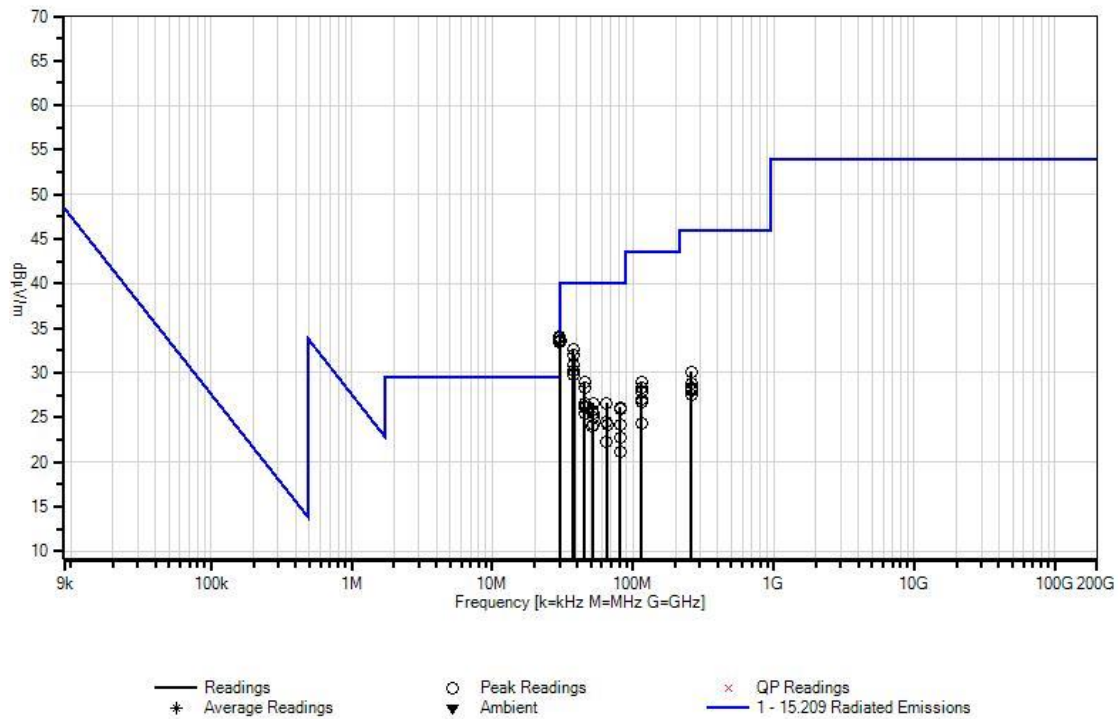
Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	30.181M	34.1	+18.3	-30.6	+1.7	+0.0	+10.5	34.0	40.0 Axis 2	-6.0	Horiz
2	30.079M	33.9	+18.4	-30.6	+1.7	+0.0	+10.5	33.9	40.0 Axis 3	-6.1	Horiz

3	30.278M	33.7	+18.3	-30.6	+1.7	+0.0	+10.5	33.6	40.0	-6.4	Vert
									Axis 1		
4	30.178M	33.6	+18.3	-30.6	+1.7	+0.0	+10.5	33.5	40.0	-6.5	Horiz
									Axis 1		
5	30.267M	33.6	+18.3	-30.6	+1.7	+0.0	+10.5	33.5	40.0	-6.5	Vert
									Axis 2		
6	30.182M	33.5	+18.3	-30.6	+1.7	+0.0	+10.5	33.4	40.0	-6.6	Vert
									Axis 3		
7	37.624M	36.3	+14.5	-30.5	+1.9	+0.0	+10.5	32.7	40.0	-7.3	Horiz
									Axis 3		
8	37.827M	35.8	+14.4	-30.5	+1.9	+0.0	+10.5	32.1	40.0	-7.9	Horiz
									Axis 1		
9	37.825M	35.7	+14.4	-30.5	+1.9	+0.0	+10.5	32.0	40.0	-8.0	Vert
									Axis 1		
10	37.725M	34.5	+14.5	-30.5	+1.9	+0.0	+10.5	30.9	40.0	-9.1	Horiz
									Axis 2		
11	37.725M	33.9	+14.5	-30.5	+1.9	+0.0	+10.5	30.3	40.0	-9.7	Vert
									Axis 2		
12	37.725M	33.4	+14.5	-30.5	+1.9	+0.0	+10.5	29.8	40.0	-10.2	Vert
									Axis 3		
13	45.395M	36.3	+10.6	-30.6	+2.1	+0.0	+10.5	28.9	40.0	-11.1	Horiz
									Axis 1		
14	45.395M	35.8	+10.6	-30.6	+2.1	+0.0	+10.5	28.4	40.0	-11.6	Vert
									Axis 2		
15	65.199M	38.6	+5.3	-30.3	+2.5	+0.0	+10.5	26.6	40.0	-13.4	Vert
									Axis 3		
16	52.125M	36.9	+7.5	-30.6	+2.3	+0.0	+10.5	26.6	40.0	-13.4	Vert
									Axis 1		
17	45.395M	33.9	+10.6	-30.6	+2.1	+0.0	+10.5	26.5	40.0	-13.5	Horiz
									Axis 2		
18	45.294M	33.6	+10.6	-30.6	+2.1	+0.0	+10.5	26.2	40.0	-13.8	Horiz
									Axis 3		
19	81.293M	35.3	+7.8	-30.3	+2.8	+0.0	+10.5	26.1	40.0	-13.9	Vert
									Axis 3		
20	45.495M	33.5	+10.5	-30.6	+2.1	+0.0	+10.5	26.0	40.0	-14.0	Vert
									Axis 1		
21	81.193M	35.2	+7.8	-30.3	+2.8	+0.0	+10.5	26.0	40.0	-14.0	Horiz
									Axis 3		
22	51.491M	35.8	+7.8	-30.6	+2.3	+0.0	+10.5	25.8	40.0	-14.2	Horiz
									Axis 3		
23	115.035M	34.4	+10.9	-30.1	+3.3	+0.0	+10.5	29.0	43.5	-14.5	Vert
									Axis 2		
24	52.025M	35.6	+7.6	-30.6	+2.3	+0.0	+10.5	25.4	40.0	-14.6	Horiz
									Axis 1		
25	45.395M	32.8	+10.6	-30.6	+2.1	+0.0	+10.5	25.4	40.0	-14.6	Vert
									Axis 3		
26	52.025M	35.2	+7.6	-30.6	+2.3	+0.0	+10.5	25.0	40.0	-15.0	Vert
									Axis 2		
27	114.935M	33.7	+10.9	-30.1	+3.3	+0.0	+10.5	28.3	43.5	-15.2	Horiz
									Axis 3		
28	65.200M	36.5	+5.3	-30.3	+2.5	+0.0	+10.5	24.5	40.0	-15.5	Horiz
									Axis 2		

29	65.200M	36.5	+5.3	-30.3	+2.5	+0.0	+10.5	24.5	40.0 Axis 2	-15.5	Vert
30	115.035M	33.2	+10.9	-30.1	+3.3	+0.0	+10.5	27.8	43.5 Axis 1	-15.7	Horiz
31	65.300M	36.2	+5.3	-30.3	+2.5	+0.0	+10.5	24.2	40.0 Axis 1	-15.8	Vert
32	52.023M	34.4	+7.6	-30.6	+2.3	+0.0	+10.5	24.2	40.0 Axis 2	-15.8	Horiz
33	81.300M	33.4	+7.8	-30.3	+2.8	+0.0	+10.5	24.2	40.0 Axis 2	-15.8	Vert
34	260.000M	31.2	+12.3	-29.0	+5.1	+0.0	+10.5	30.1	46.0 Axis 1	-15.9	Vert
35	51.591M	34.1	+7.7	-30.6	+2.3	+0.0	+10.5	24.0	40.0 Axis 3	-16.0	Vert
36	115.035M	32.5	+10.9	-30.1	+3.3	+0.0	+10.5	27.1	43.5 Axis 3	-16.4	Vert
37	115.135M	32.0	+11.0	-30.1	+3.3	+0.0	+10.5	26.7	43.5 Axis 1	-16.8	Vert
38	259.800M	30.0	+12.2	-29.0	+5.1	+0.0	+10.5	28.8	46.0 Axis 3	-17.2	Horiz
39	81.400M	31.9	+7.8	-30.3	+2.8	+0.0	+10.5	22.7	40.0 Axis 1	-17.3	Vert
40	259.899M	29.5	+12.2	-29.0	+5.1	+0.0	+10.5	28.3	46.0 Axis 2	-17.7	Vert
41	65.200M	34.2	+5.3	-30.3	+2.5	+0.0	+10.5	22.2	40.0 Axis 1	-17.8	Horiz
42	65.099M	34.2	+5.3	-30.3	+2.5	+0.0	+10.5	22.2	40.0 Axis 3	-17.8	Horiz
43	259.899M	29.3	+12.2	-29.0	+5.1	+0.0	+10.5	28.1	46.0 Axis 1	-17.9	Horiz
44	259.899M	29.1	+12.2	-29.0	+5.1	+0.0	+10.5	27.9	46.0 Axis 2	-18.1	Horiz
45	259.899M	28.7	+12.2	-29.0	+5.1	+0.0	+10.5	27.5	46.0 Axis 3	-18.5	Vert
46	81.351M	30.3	+7.8	-30.3	+2.8	+0.0	+10.5	21.1	40.0 Axis 2	-18.9	Horiz
47	115.035M	29.7	+10.9	-30.1	+3.3	+0.0	+10.5	24.3	43.5 Axis 2	-19.2	Horiz

CKC Laboratories, Inc. Date: 11/13/2013 Time: 10:11:06 First Texas Products, LLC WO#: 94983
 15.209 Radiated Emissions Test Distance: 10 Meters Sequence#: 1 Ext ATTN: 0 dB



Test Setup Photos



Low Frequency – Horizontal Polarity



Low Frequency – Vertical Polarity



Middle Frequency - Axis 1



Middle Frequency - Axis 2



Middle Frequency - Axis 3