WaveLynx Technologies Corporation

TEST REPORT FOR

Ethos
Models: ET20-2, ET20-3, ET20-6, ET20-7,
ET25-2, ET25-3, ET25-6 and ET25-7

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207 & 15.225
(13.110-14.010 MHz)

Report No.: 97757-40

Date of issue: June 24, 2016

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

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.

Testing the Future
CKC LABORATORIES, INC.

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

WaveLynx Technologies Corporation
12303 Airport Way, Suite 200
Broomfield, CO 80021

REPRESENTATIVE: Daniel Field
Customer Reference Number: CKPO030916

REPORT PREPARED BY:

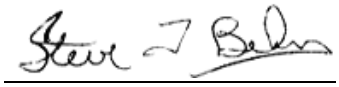
Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 97757

DATE OF EQUIPMENT RECEIPT: April 20, 2016
DATE(S) OF TESTING: April 20 - May 21, 2016

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	5.03.02

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Mariposa D	US0103	SL2-IN-E-1147R	3082A-1	784962	A-0136

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.225

Test Procedure	Description	Modifications	Results
15.215(c)	Occupied Bandwidth	NA	Pass
15.225(a)-(c)	Field Strength of Fundamental	NA	Pass
15.225(e)	Frequency Stability	NA	Pass
15.225(d)	Field Strength of Spurious Emissions	NA	Pass
15.207	AC Conducted Emissions	NA	Pass

NA = Not Applicable

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

During testing numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-3	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 2

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-2	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 3

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 4

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-6	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 5

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-3	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 6

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-2	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 7

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 8

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-6	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 12

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-6	NA
Ethos	WaveLynx Technologies Corporation	ET20-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 14

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-6	NA
Ethos	WaveLynx Technologies Corporation	ET25-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 15

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-2	NA
Ethos	WaveLynx Technologies Corporation	ET20-3	NA
Ethos	WaveLynx Technologies Corporation	ET20-6	NA
Ethos	WaveLynx Technologies Corporation	ET20-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 16

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-2	NA
Ethos	WaveLynx Technologies Corporation	ET25-3	NA
Ethos	WaveLynx Technologies Corporation	ET25-6	NA
Ethos	WaveLynx Technologies Corporation	ET25-7	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 11

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET20-2	NA
Ethos	WaveLynx Technologies Corporation	ET20-3	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

Configuration 13

Equipment Tested:

Device	Manufacturer	Model #	S/N
Ethos	WaveLynx Technologies Corporation	ET25-2	NA
Ethos	WaveLynx Technologies Corporation	ET25-3	NA

Support Equipment:

Device	Manufacturer	Model #	S/N
DC Power Supply	HP	6205C	2228A01775

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type: (All 8 EUTs)	Stand-Alone Equipment
Modulation Type(s): (All 8 EUTs)	ASK with 847kHz subcarrier
Maximum Duty Cycle: (Measured)	Configuration 1 = 2.58% Configuration 2 and Configuration 8 = 2.81% Configuration 3 and Configuration 6 = 3.08% Configuration 4 = 3.09% Configuration 5 = 3.05% Configuration 7 = 2.82%
Antenna Type(s) and Gain:	Configuration 15 and Configuration 16 = PCB Trace 65mm x 110mm
Antenna Connection Type: (All 8 EUTs)	Integral
Nominal Input Voltage: (All 8 EUTs)	12VDC
Firmware / Software used for Test: (All 8 EUTs)	Wallmount Reader FCC LF Version 1

FCC Part 15 Subpart C

15.215(c) Occupied Bandwidth (20dB BW)

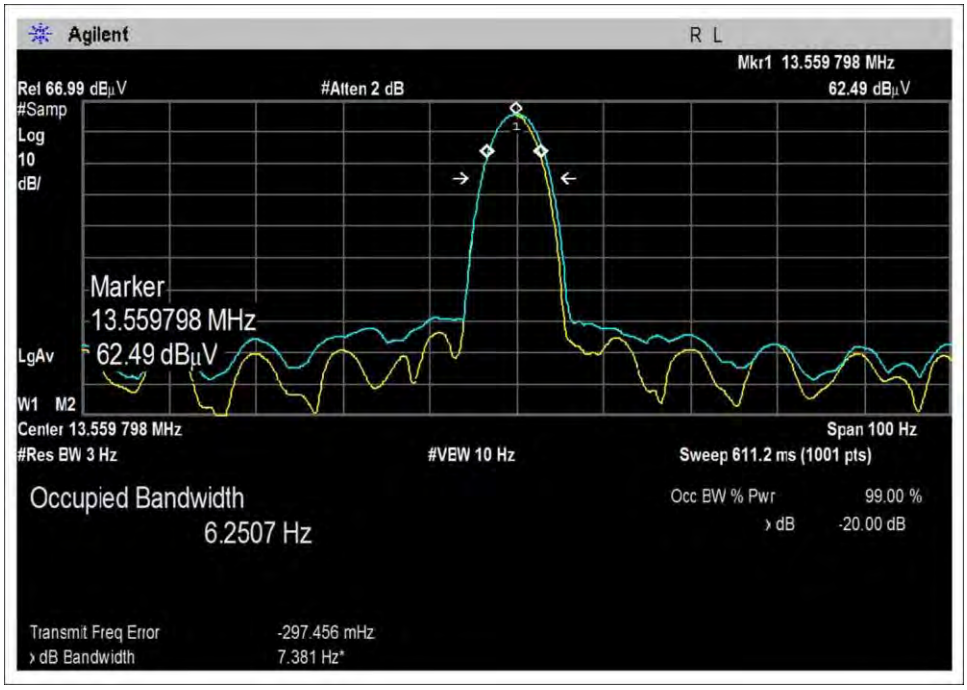
Test Setup/Conditions			
Test Location:	Mariposa Lab D	Test Engineer:	Benny Lovan / Skip Doyle
Test Method:	ANSI C63.10 (2013)	Test Date(s):	4/20/2016, 04/25/16 – 04/27/16
Configuration:	1, 2, 3, 4, 5, 6, 7 and 8		
Test Setup:	Modulation: ASK 847kHz Subcarrier Antenna Type: Integral Antenna Gain 2 dBi EUT Orientation: Y-Axis The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright (Y-axis) orientation. The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.		

Environmental Conditions			
Temperature (ºC)	10 – 14.2	Relative Humidity (%):	48-76

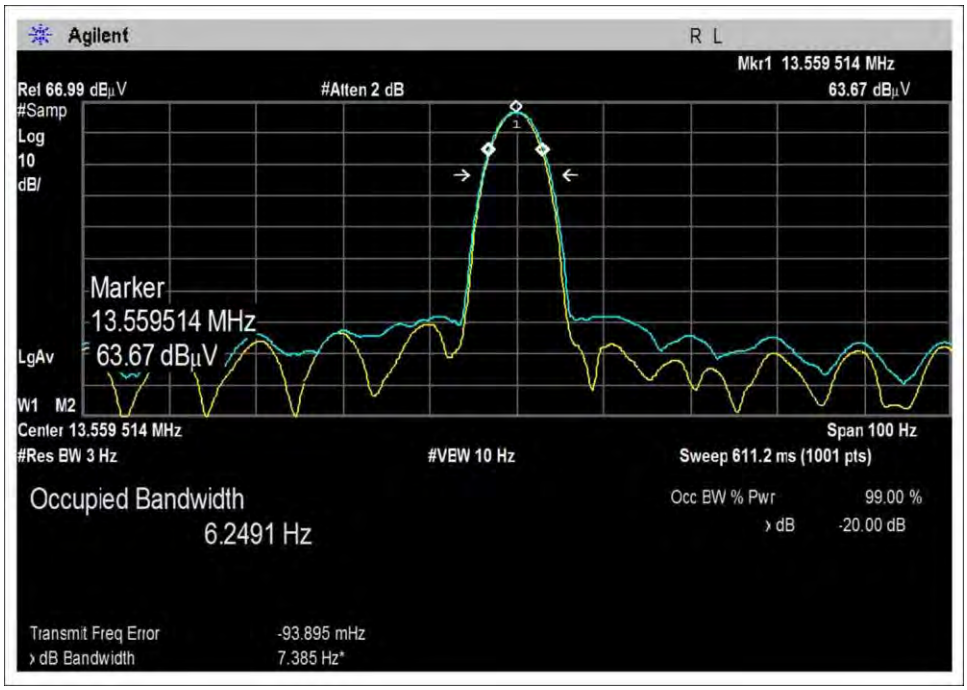
Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
ANSITED 3M	Cable	None	None	11/15/2014	11/15/2016
ANP06884	Cable	TMS	LMR195-FR-4	10/27/2015	10/27/2017
AN00226	Loop Antenna	EMCO	6502	4/4/2016	4/4/2018

Test Data Summary					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
Configuration 1 13.559	Integral	ASK with 847kHz subcarrier	.007381	None	NA
Configuration 2 13.559	Integral	ASK with 847kHz subcarrier	.007386	None	NA
Configuration 3 13.559	Integral	ASK with 847kHz subcarrier	.007386	None	NA
Configuration 4 13.560	Integral	ASK with 847kHz subcarrier	.007386	None	NA
Configuration 5 13.560	Integral	ASK with 847kHz subcarrier	.007384	None	NA
Configuration 6 13.559	Integral	ASK with 847kHz subcarrier	.007386	None	NA
Configuration 7 13.560	Integral	ASK with 847kHz subcarrier	.007386	None	NA
Configuration 8 13.559	Integral	ASK with 847kHz subcarrier	.007384	None	NA

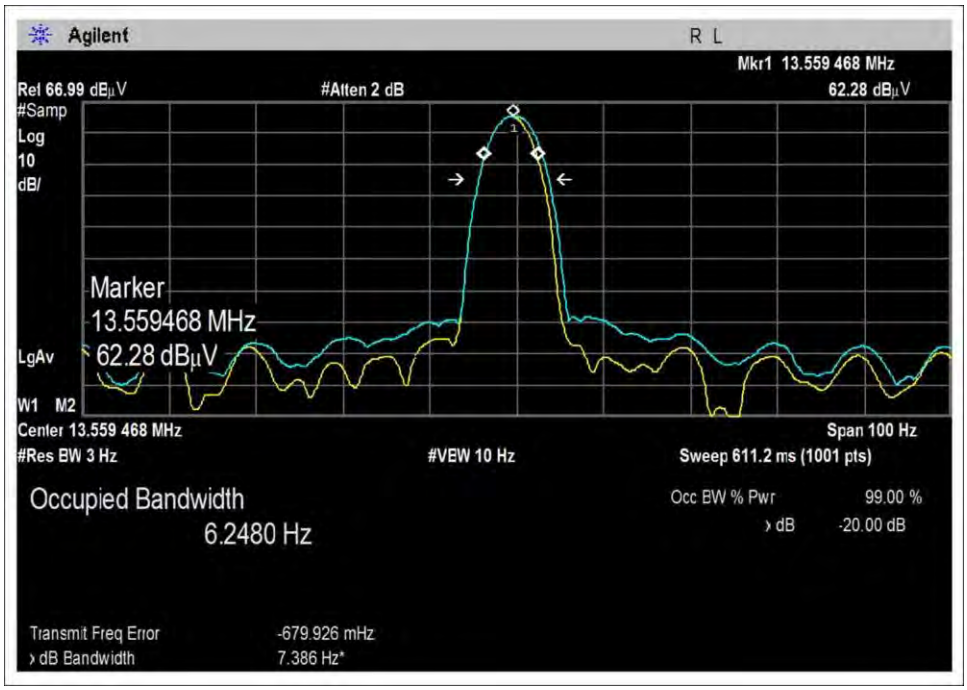
Plots



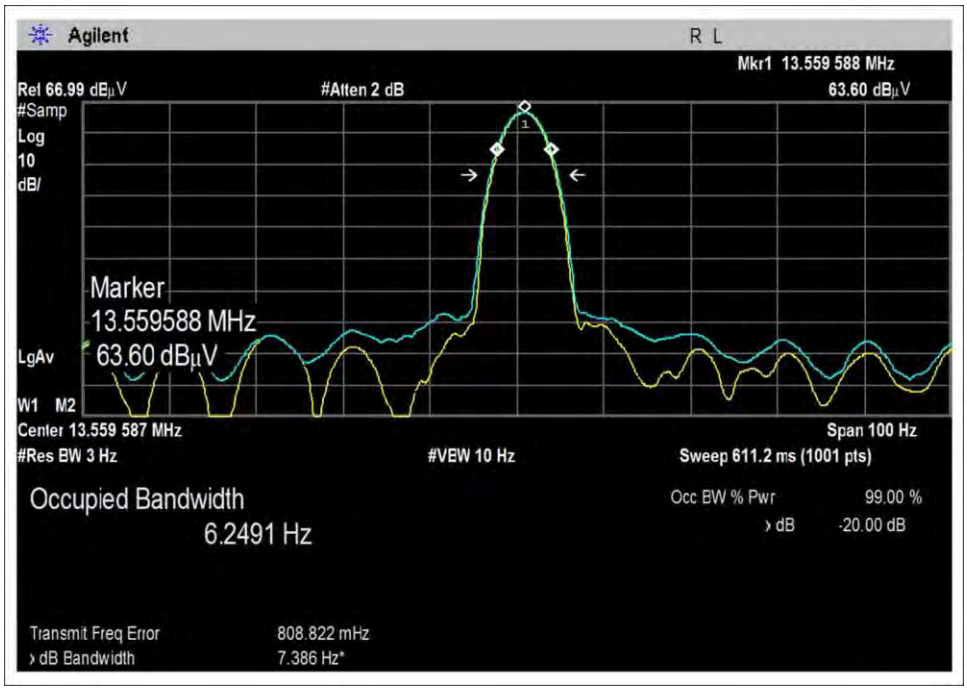
Configuration 1



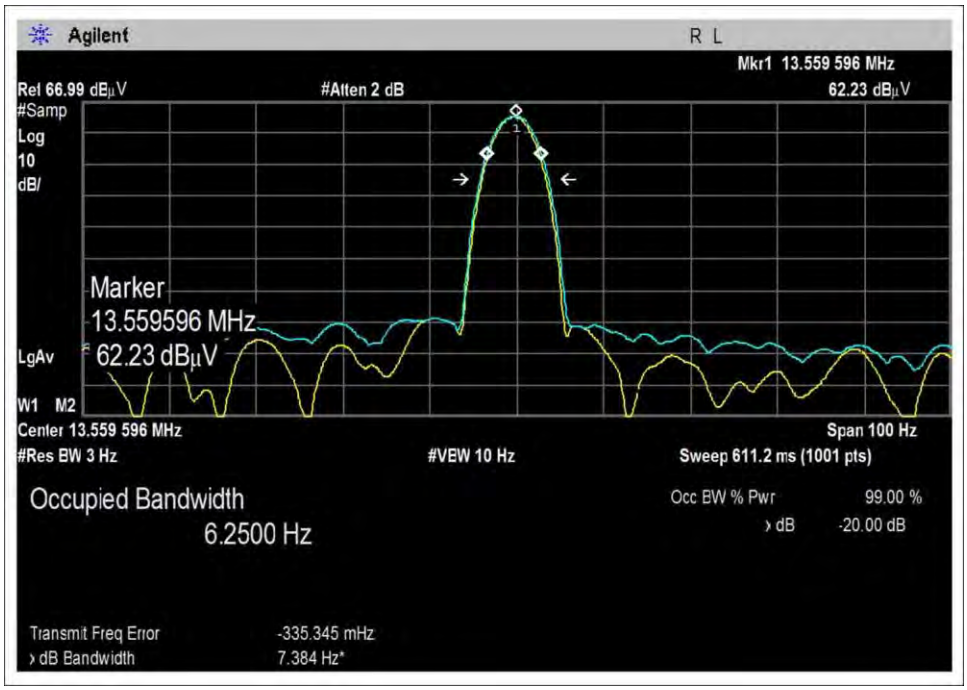
Configuration 2



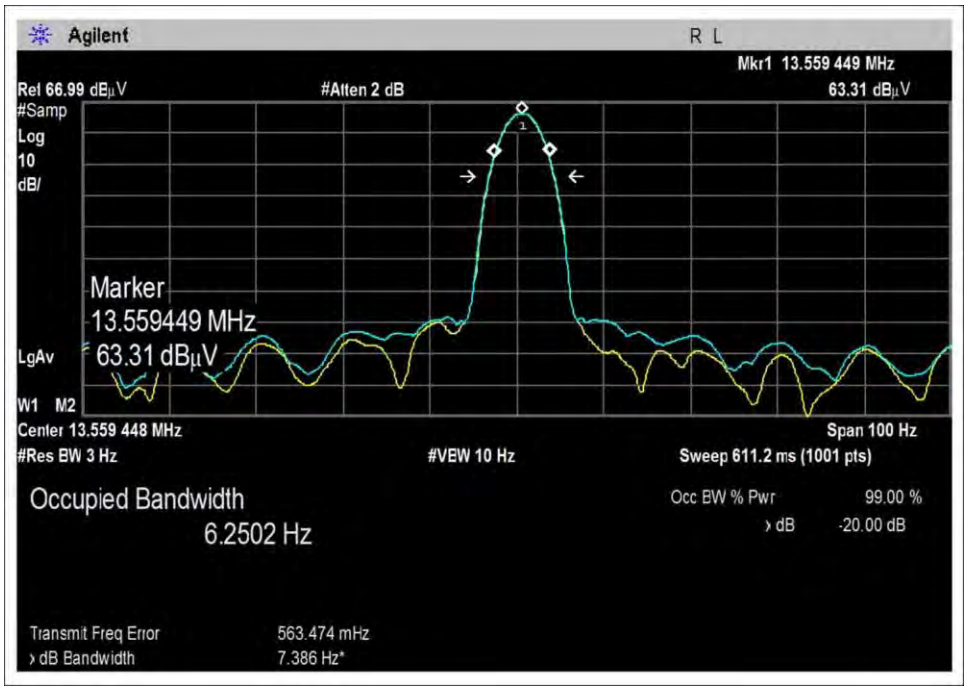
Configuration 3



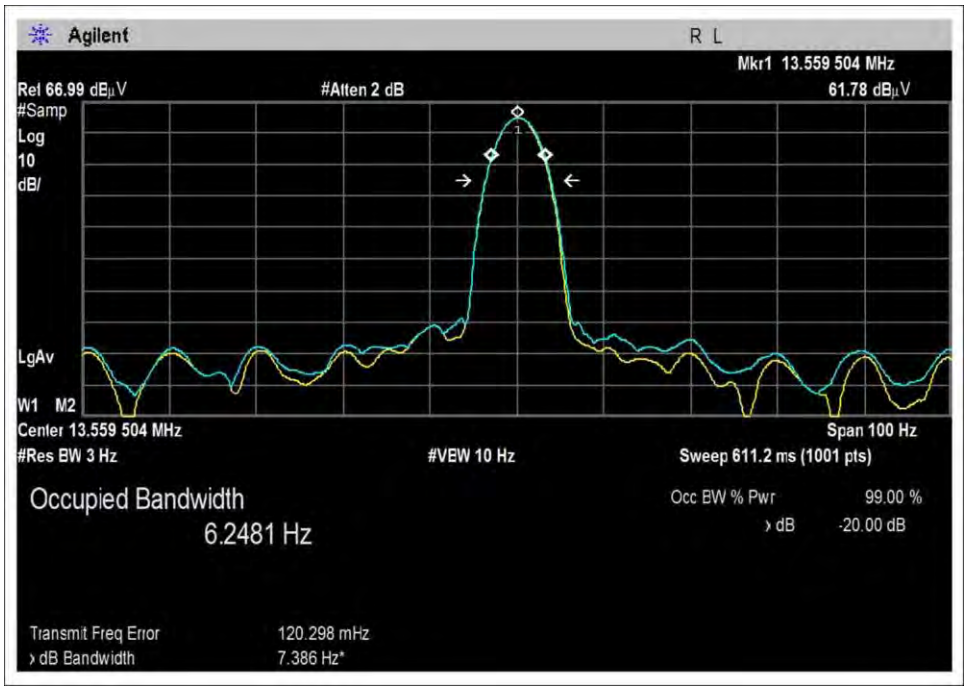
Configuration 4



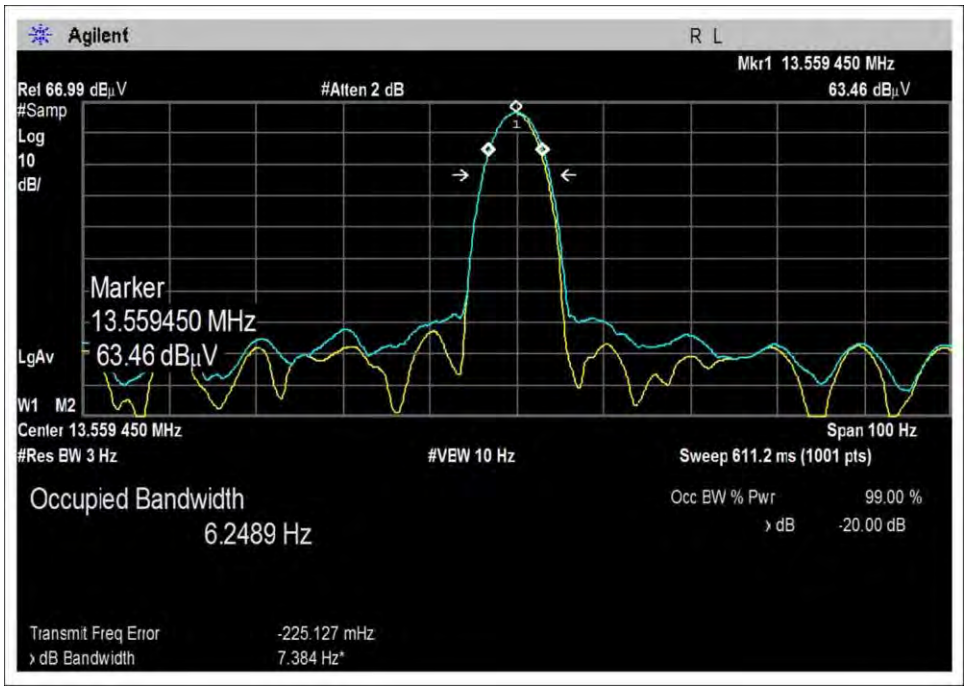
Configuration 5



Configuration 6



Configuration 7



Configuration 8

Test Setup Photo

15.225(a)-(c) Field Strength of Fundamental

Test Data Summary - Voltage Variations					
Frequency (MHz)	Modulation / Ant Port	$V_{Minimum}$ (dBuV/m)	$V_{Nominal}$ (dBuV/m)	$V_{Maximum}$ (dBuV/m)	Max Deviation from $V_{Nominal}$ (dB)
Configuration 1					
13.560 Parallel	ASK with 847kHz subcarrier / Integral Antenna	32.9	32.9	32.8	0.1
13.56 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	30.2	30.1	30.1	0.1
Configuration 2					
13.559 Parallel	ASK with 847kHz subcarrier / Integral Antenna	34.1	34.1	34.1	0.0
13.560 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	31.1	31.0	31.1	0.1
Configuration 3					
13.559 Parallel	ASK with 847kHz subcarrier / Integral Antenna	32.7	32.8	32.7	0.1
13.560 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	29.1	29.1	29.1	0.0
Configuration 4					
13.56 Parallel	ASK with 847kHz subcarrier / Integral Antenna	34.1	34.0	34.1	0.1
13.56 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	29.7	29.8	29.7	0.1
Configuration 5					
13.560 Parallel	ASK with 847kHz subcarrier / Integral Antenna	32.6	32.7	32.6	0.1
13.560 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	28.8	28.8	28.8	0.0
Configuration 6					
13.559 Parallel	ASK with 847kHz subcarrier / Integral Antenna	33.7	33.7	33.7	0.0
13.559 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	30.3	30.3	30.3	0.0
Configuration 7					
13.559 Parallel	ASK with 847kHz subcarrier / Integral Antenna	32.3	32.2	32.3	0.1
13.560 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	29.4	29.4	29.4	0.0
Configuration 8					
13.559 Parallel	ASK with 847kHz subcarrier / Integral Antenna	33.9	33.9	33.9	0.0
13.560 Perpendicular	ASK with 847kHz subcarrier / Integral Antenna	30.3	30.3	30.3	0.0

Test performed using operational mode with the highest output power, representing worst case.

Parameter Definitions:

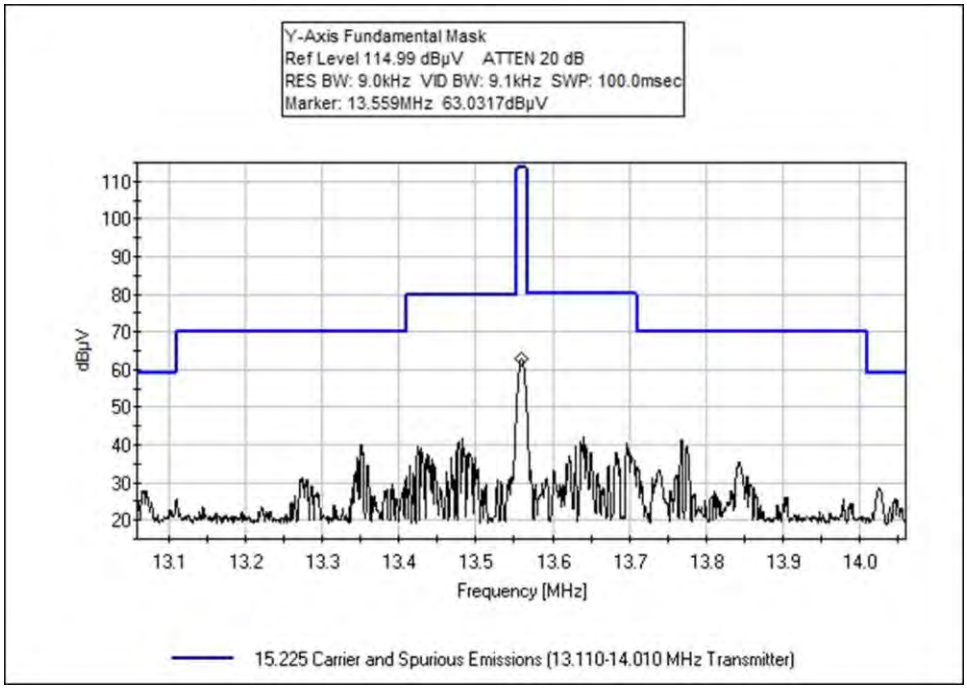
Measurements performed at input voltage Vnominal ± 15%.

Parameter	Value
$V_{Nominal}$:	12 VDC
$V_{Minimum}$:	10.2 VDC
$V_{Maximum}$:	13.8 VDC

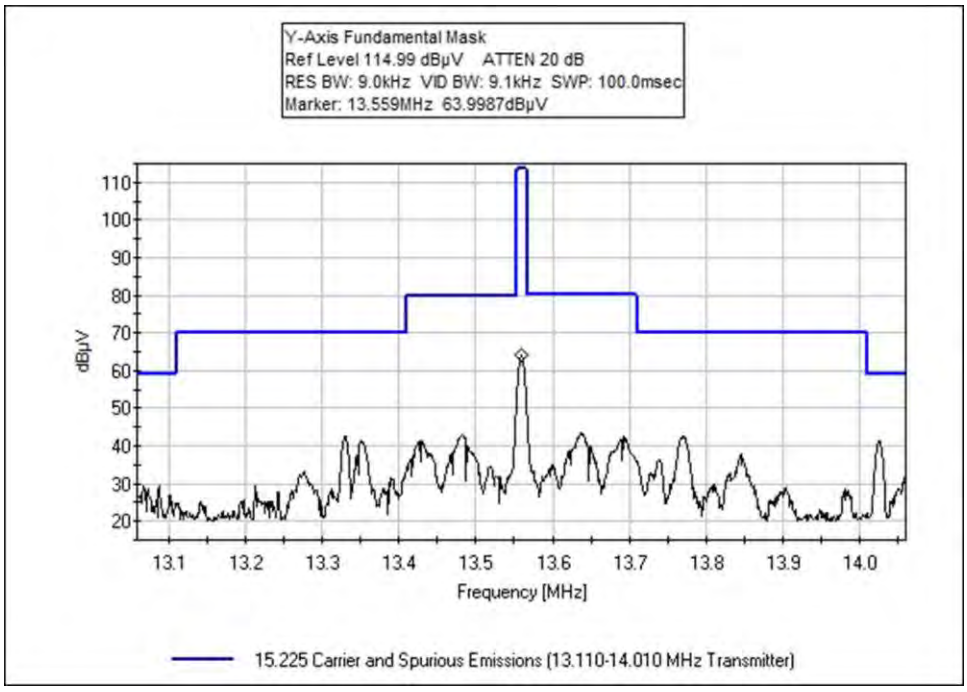
Test Data Summary – Radiated Field Strength Measurement					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Measured (dBuV/m @ 30m)**	**Limit (dBuV/m @ 30m)**	**Results**
Configuration 1					
13.560 Parallel	ASK with 847kHz subcarrier	Integral	32.9	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	30.1	≤84	Pass
Configuration 2					
13.559 Parallel	ASK with 847kHz subcarrier	Integral	34.1	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	31.0	≤84	Pass
Configuration 3					
13.560 Parallel	ASK with 847kHz subcarrier	Integral	32.8	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	29.1	≤84	Pass
Configuration 4					
13.560 Parallel	ASK with 847kHz subcarrier	Integral	34.0	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	29.8	≤84	Pass
Configuration 5					
13.560 Parallel	ASK with 847kHz subcarrier	Integral	32.7	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	28.8	≤84	Pass

Test Data Summary – Radiated Field Strength Measurement					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Measured (dBuV/m @ 30m)**	**Limit (dBuV/m @ 30m)**	**Results**
Configuration 6					
13.559 Parallel	ASK with 847kHz subcarrier	Integral	33.7	≤84	Pass
13.559 Perpendicular	ASK with 847kHz subcarrier	Integral	30.3	≤84	Pass
Configuration 7					
13.559 Parallel	ASK with 847kHz subcarrier	Integral	32.2	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	29.4	≤84	Pass
Configuration 8					
13.559 Parallel	ASK with 847kHz subcarrier	Integral	33.9	≤84	Pass
13.560 Perpendicular	ASK with 847kHz subcarrier	Integral	30.3	≤84	Pass

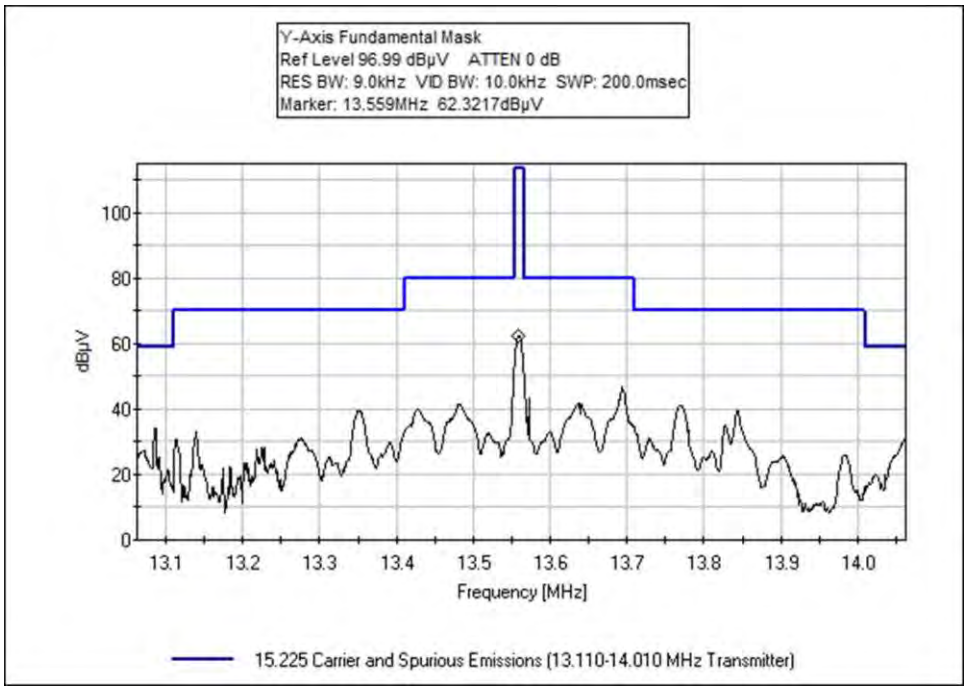
Emissions Mask Data



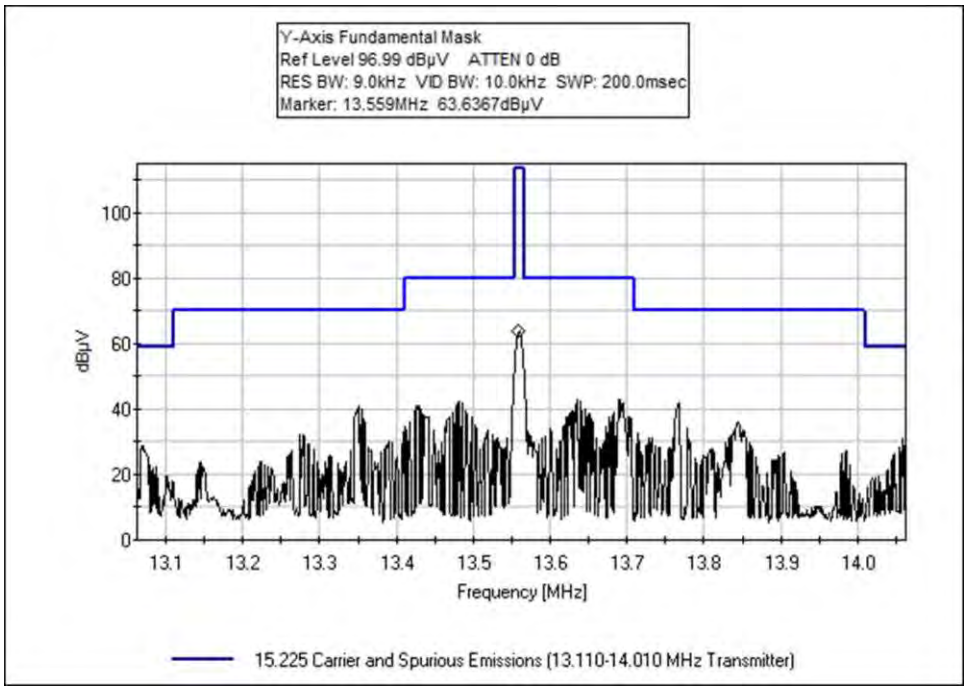
Configuration 1



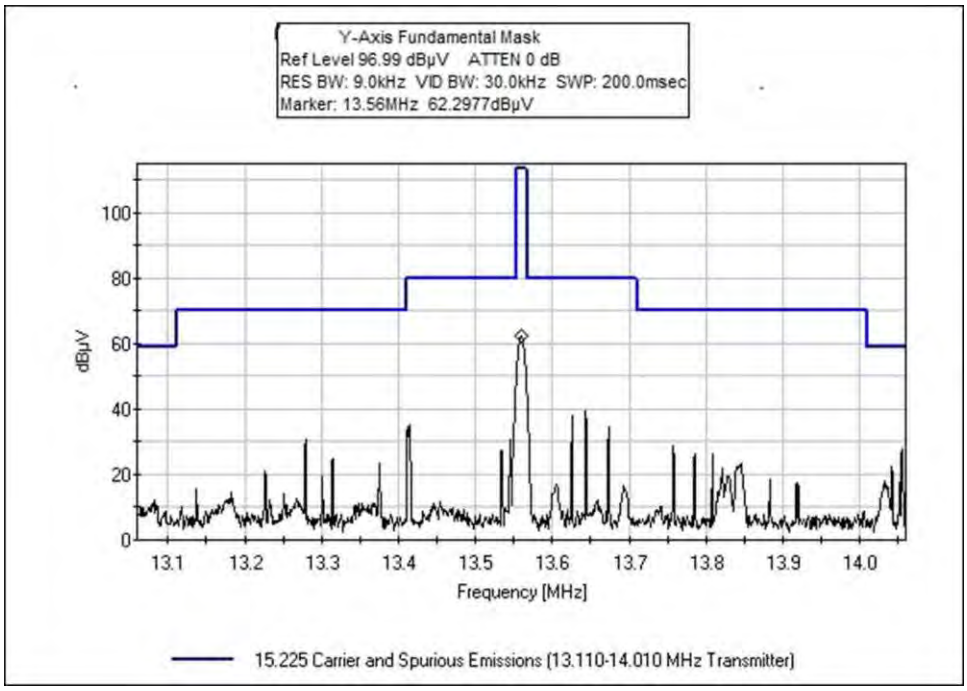
Configuration 2



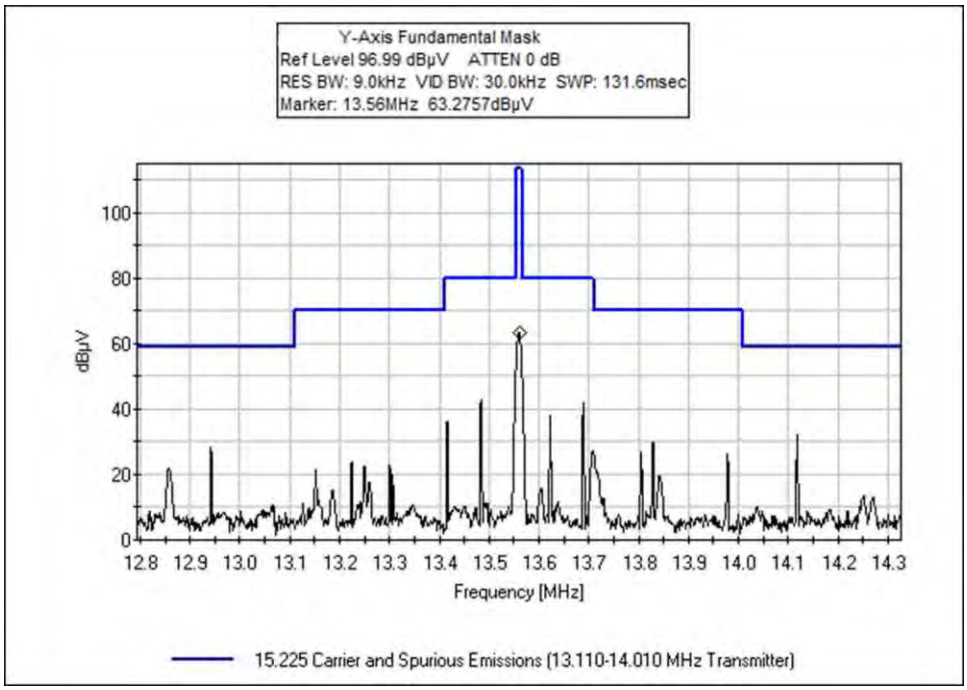
Configuration 3



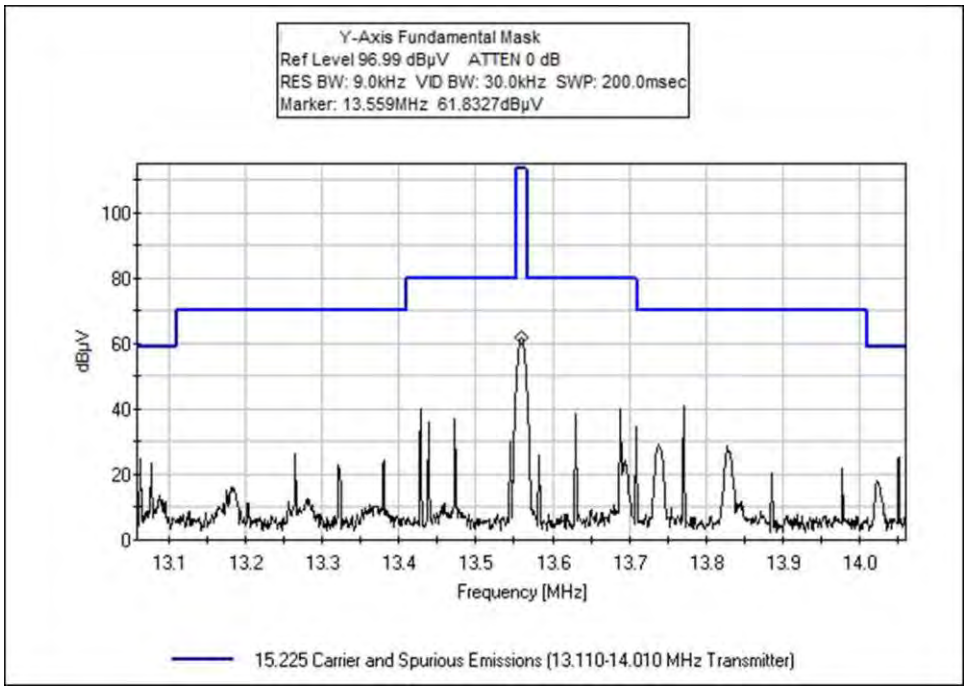
Configuration 4



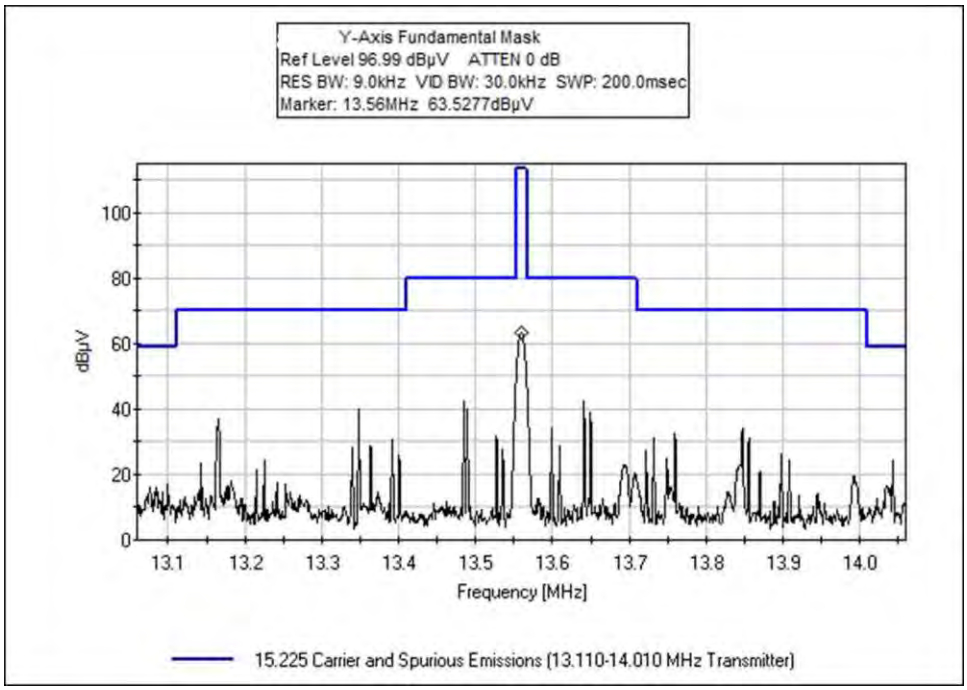
Configuration 5



Configuration 6



Configuration 7



Configuration 8

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/20/2016
Test Type:	**Radiated Scan**	Time:	17:38:17
Tested By:	Benny Lovan	Sequence#:	1
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

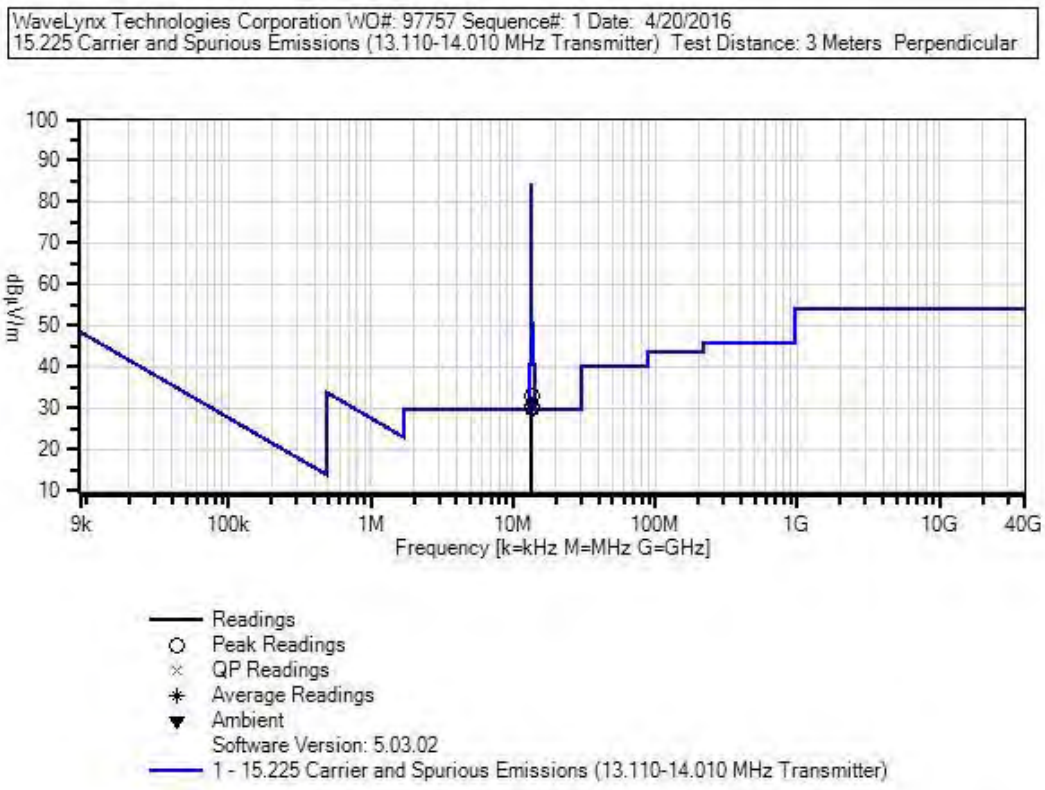
Radiated Emissions Fundamental Measurements

Temperature: 20°C
Humidity:40%
Atmospheric Pressure: 97.4 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	62.5	+0.1	+0.7	+9.6		-40.0	32.9	84.0	-51.1	Paral
									10.2VDC, Y- Axis		
2	13.560M	62.5	+0.1	+0.7	+9.6		-40.0	32.9	84.0	-51.1	Paral
									Nominal 12VDC, Y- Axis		
3	13.560M	62.4	+0.1	+0.7	+9.6		-40.0	32.8	84.0	-51.2	Paral
									13.8VDC, Y- Axis		
4	13.560M	59.8	+0.1	+0.7	+9.6		-40.0	30.2	84.0	-53.8	Perpe
									10.2VDC, Y- Axis		
5	13.560M	59.7	+0.1	+0.7	+9.6		-40.0	30.1	84.0	-53.9	Perpe
									Nominal 12VDC, Y- Axis		
6	13.560M	59.7	+0.1	+0.7	+9.6		-40.0	30.1	84.0	-53.9	Perpe
									13.8VDC, Y- Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/20/2016
Test Type:	**Radiated Scan**	Time:	16:37:24
Tested By:	Benny Lovan	Sequence#:	2
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

Test Conditions / Notes:

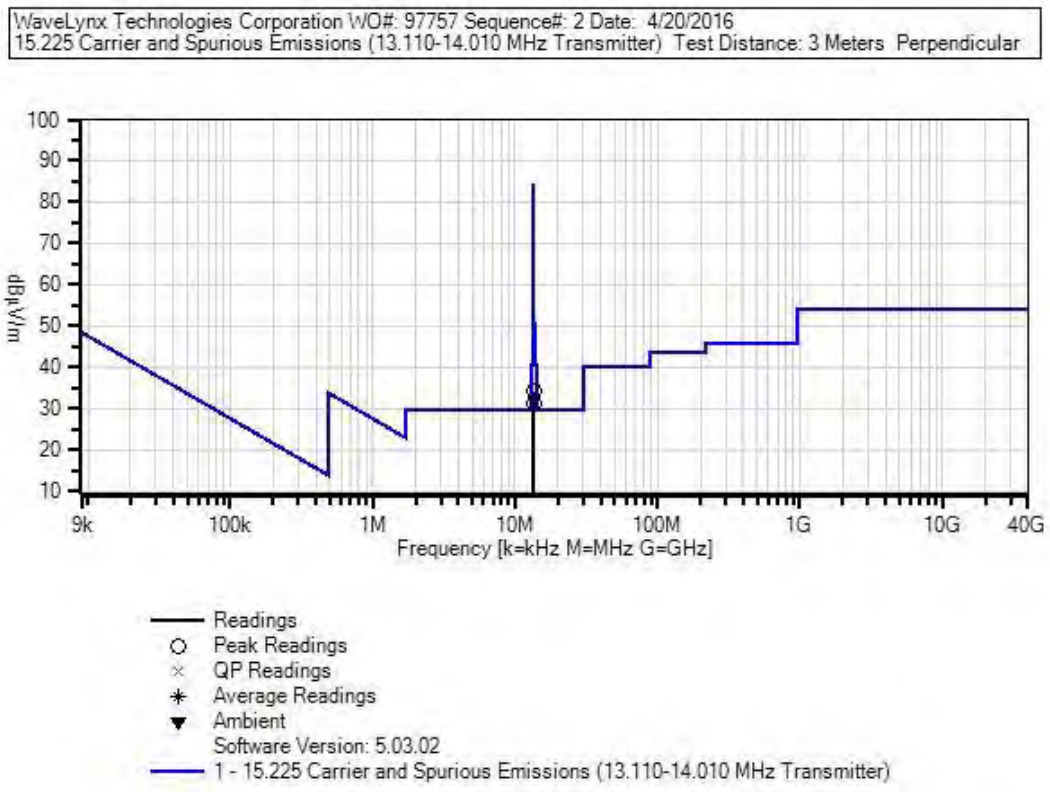
Radiated Emissions Fundamental Measurements

Temperature: 20°C
Humidity:40%
Atmospheric Pressure: 97.4 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.559M	63.7	+0.1	+0.7	+9.6		-40.0	34.1	84.0	-49.9	Paral
									13.8VDC, Y- Axis		
2	13.560M	63.7	+0.1	+0.7	+9.6		-40.0	34.1	84.0	-49.9	Paral
									10.2VDC, Y- Axis		
3	13.559M	63.7	+0.1	+0.7	+9.6		-40.0	34.1	84.0	-49.9	Paral
									Nominal 12VDC, Y- Axis		
4	13.559M	60.7	+0.1	+0.7	+9.6		-40.0	31.1	84.0	-52.9	Perpe
									10.2VDC, Y- Axis		
5	13.559M	60.7	+0.1	+0.7	+9.6		-40.0	31.1	84.0	-52.9	Perpe
									13.8VDC, Y- Axis		
6	13.560M	60.6	+0.1	+0.7	+9.6		-40.0	31.0	84.0	-53.0	Perpe
									Nominal 12VDC, Y- Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/25/2016
Test Type:	**Radiated Scan**	Time:	14:44:38
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

Test Conditions / Notes:

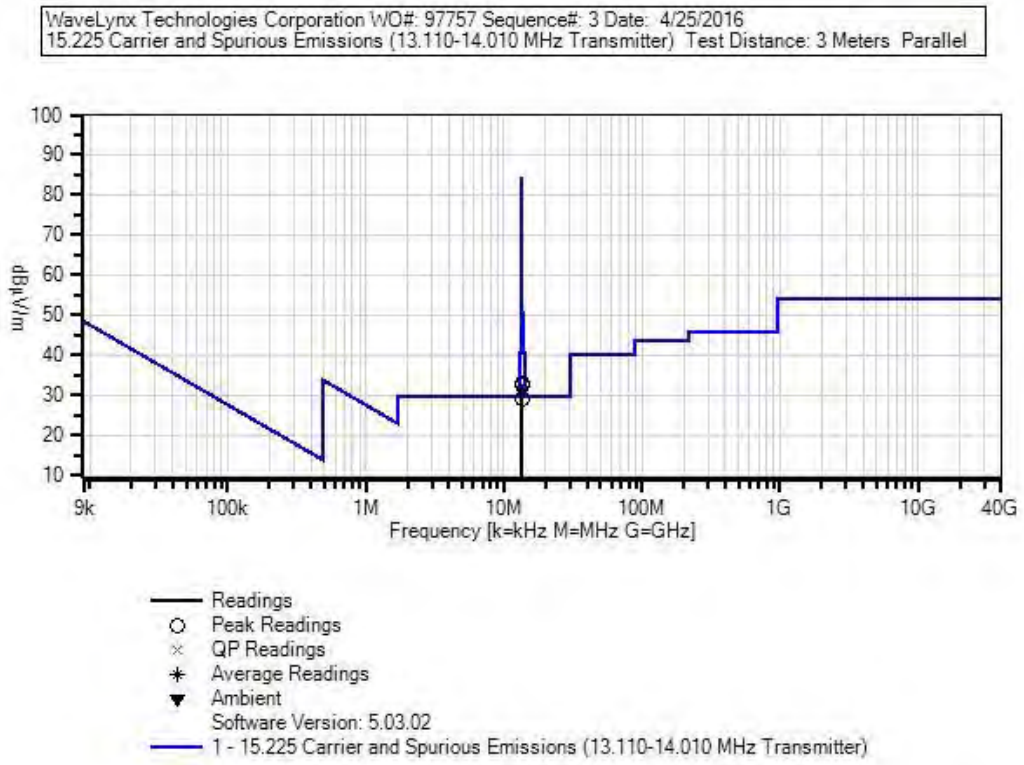
Radiated Emissions Fundamental Measurements

Temperature: 13°C
Humidity:76%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 3 Date: 4/25/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Parallel
100
90
80
70
60
50
40
30
20
10
dBuV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.559M	62.4	+0.1	+0.7	+9.6		-40.0	32.8	84.0	-51.2	Paral
									Nominal 12VDC, Parallel, Y-Axis		
2	13.559M	62.3	+0.1	+0.7	+9.6		-40.0	32.7	84.0	-51.3	Paral
									10.2VDC, Parallel, Y-Axis		
3	13.559M	62.3	+0.1	+0.7	+9.6		-40.0	32.7	84.0	-51.3	Paral
									13.8VDC, Parallel, Y-Axis		
4	13.559M	58.7	+0.1	+0.7	+9.6		-40.0	29.1	84.0	-54.9	Perpe
									13.8VDC, Parallel, Y-Axis		
5	13.560M	58.7	+0.1	+0.7	+9.6		-40.0	29.1	84.0	-54.9	Perpe
									Nominal 12VDC, Parallel, Y-Axis		
6	13.560M	58.7	+0.1	+0.7	+9.6		-40.0	29.1	84.0	-54.9	Perpe
									10.2VDC, Parallel, Y-Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/25/2016
Test Type:	**Radiated Scan**	Time:	11:50:37
Tested By:	Benny Lovan	Sequence#:	4
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

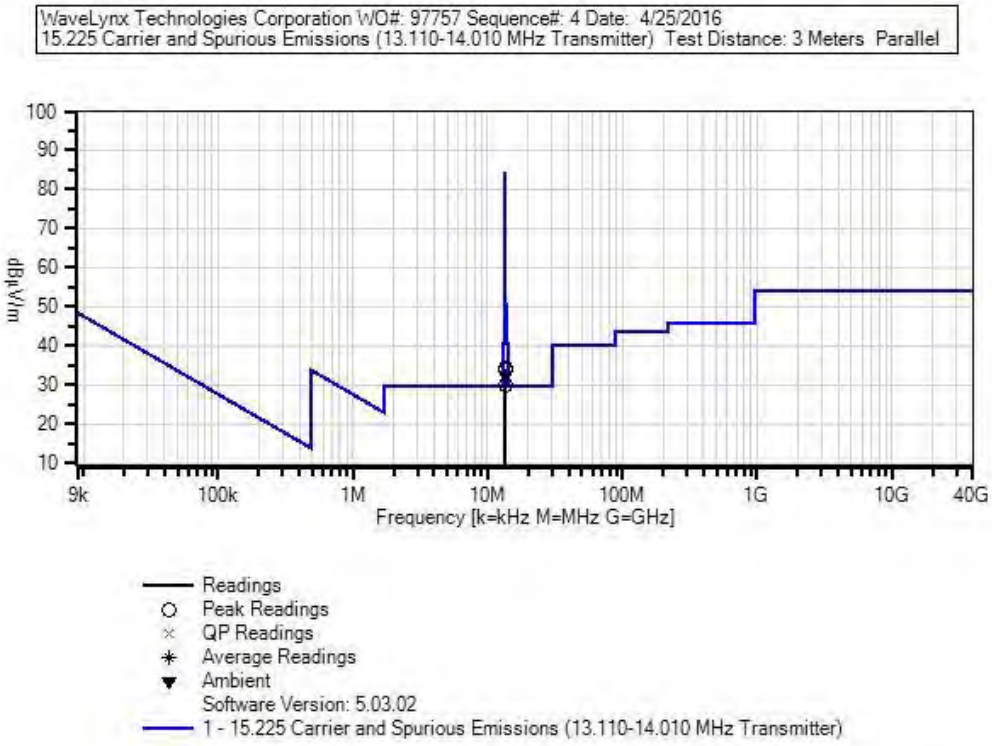
Radiated Emissions Fundamental Measurements

Temperature: 13°C
Humidity:76%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	63.7	+0.1	+0.7	+9.6		-40.0	34.1	84.0	-49.9	Paral
									13.8VDC, Y- Axis		
2	13.560M	63.7	+0.1	+0.7	+9.6		-40.0	34.1	84.0	-49.9	Paral
									10.2VDC, Y- Axis		
3	13.560M	63.6	+0.1	+0.7	+9.6		-40.0	34.0	84.0	-50.0	Paral
									Nominal 12VDC, Y- Axis		
4	13.560M	59.4	+0.1	+0.7	+9.6		-40.0	29.8	84.0	-54.2	Perpe
									Nominal 12VDC, Y- Axis		
5	13.560M	59.3	+0.1	+0.7	+9.6		-40.0	29.7	84.0	-54.3	Perpe
									13.8VDC, Y- Axis		
6	13.560M	59.3	+0.1	+0.7	+9.6		-40.0	29.7	84.0	-54.3	Perpe
									10.2VDC, Y- Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/27/2016
Test Type:	**Radiated Scan**	Time:	11:53:42
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

Test Conditions / Notes:

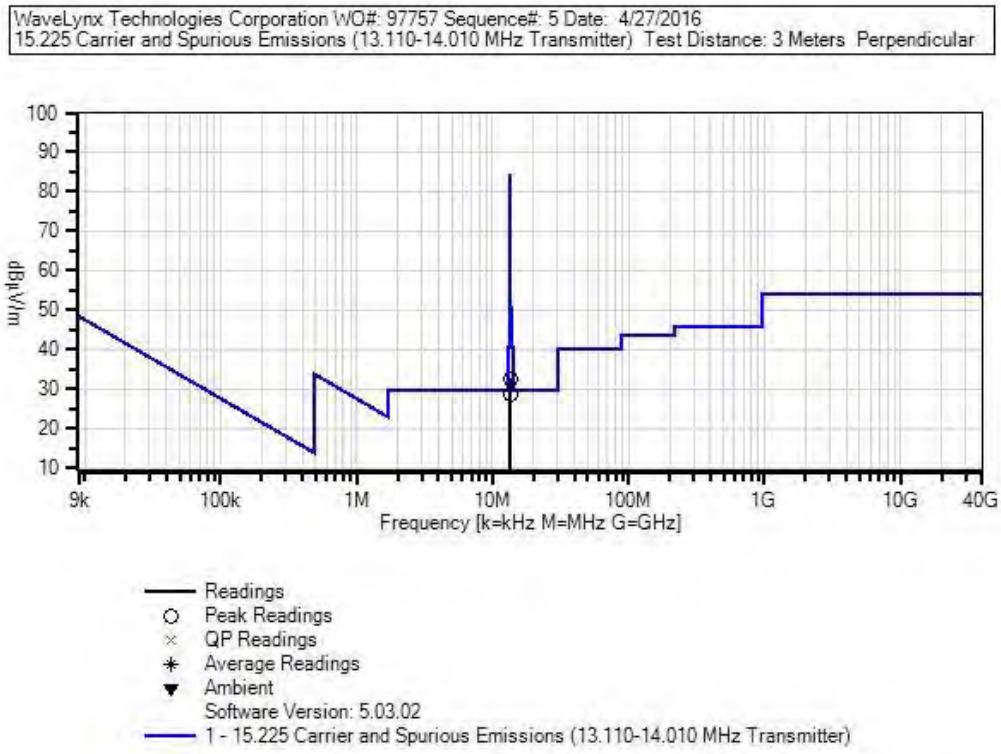
Radiated Emissions Fundamental Measurements

Temperature: 13°C
Humidity:76%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	62.3	+0.1	+0.7	+9.6		-40.0	32.7	84.0	-51.3	Paral
									Nominal 12VDC, Y- Axis		
2	13.560M	62.2	+0.1	+0.7	+9.6		-40.0	32.6	84.0	-51.4	Paral
									13.8VDC, Y- Axis		
3	13.560M	62.2	+0.1	+0.7	+9.6		-40.0	32.6	84.0	-51.4	Paral
									10.2VDC, Y- Axis		
4	13.560M	58.4	+0.1	+0.7	+9.6		-40.0	28.8	84.0	-55.2	Perpe
									Nominal 12VDC, Y- Axis		
5	13.560M	58.4	+0.1	+0.7	+9.6		-40.0	28.8	84.0	-55.2	Perpe
									10.2VDC, Y- Axis		
6	13.560M	58.4	+0.1	+0.7	+9.6		-40.0	28.8	84.0	-55.2	Perpe
									13.8VDC, Y- Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/25/2016
Test Type:	**Radiated Scan**	Time:	16:06:43
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 6			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 6			

Test Conditions / Notes:

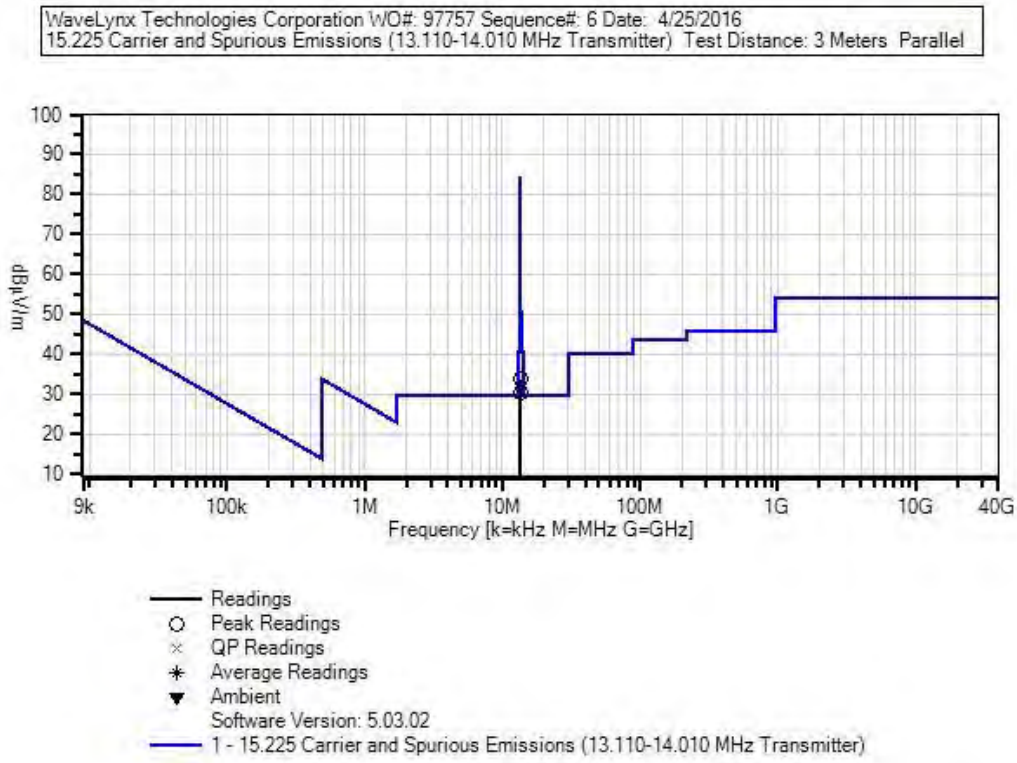
Radiated Emissions Fundamental Measurements

Temperature: 13°C
Humidity:76%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	63.3	+0.1	+0.7	+9.6		-40.0	33.7	84.0	-50.3	Paral
									13.8VDC, Y- Axis		
2	13.559M	63.3	+0.1	+0.7	+9.6		-40.0	33.7	84.0	-50.3	Paral
									10.2VDC, Y- Axis		
3	13.559M	63.3	+0.1	+0.7	+9.6		-40.0	33.7	84.0	-50.3	Paral
									Nominal 12VDC, Y- Axis		
4	13.559M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									Nominal 12VDC, Y- Axis		
5	13.560M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									10.2VDC, Y- Axis		
6	13.560M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									13.8VDC, Y- Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/27/2016
Test Type:	**Radiated Scan**	Time:	13:57:32
Tested By:	Benny Lovan	Sequence#:	7
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 7			

Test Conditions / Notes:

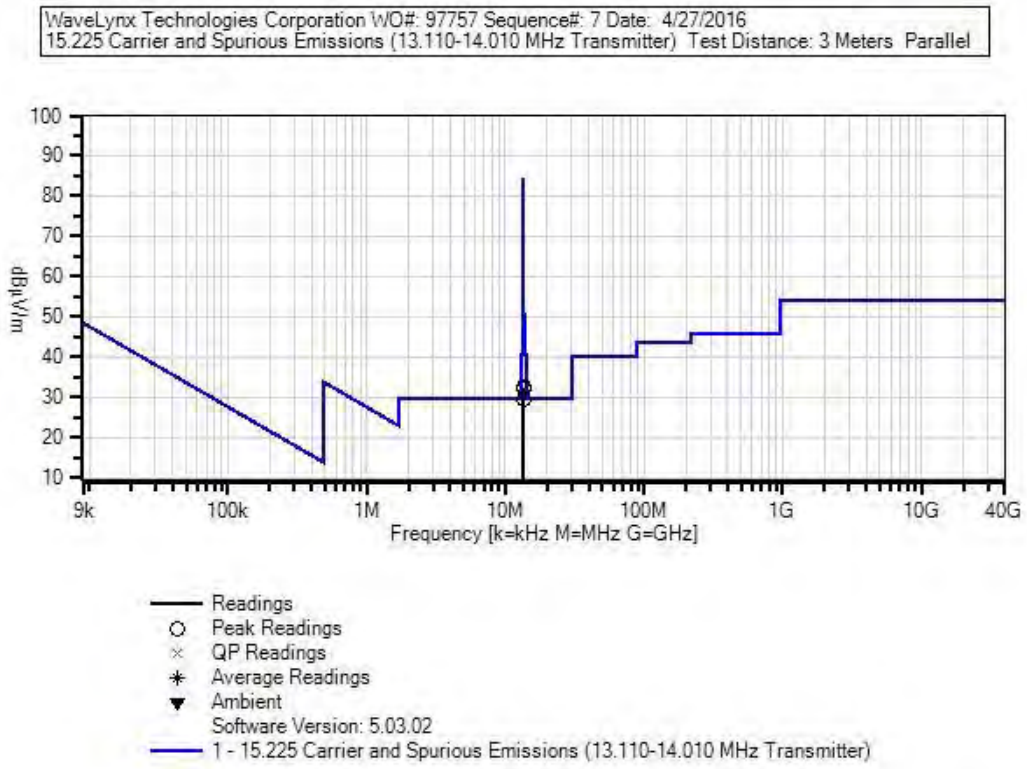
Radiated Emissions Fundamental Measurements

Temperature: 16.2°C
Humidity:36%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	61.9	+0.1	+0.7	+9.6		-40.0	32.3	84.0	-51.7	Paral
									13.8Vdc, Y-Axis		
2	13.559M	61.9	+0.1	+0.7	+9.6		-40.0	32.3	84.0	-51.7	Paral
									10.2Vdc, Y-Axis		
3	13.559M	61.8	+0.1	+0.7	+9.6		-40.0	32.2	84.0	-51.8	Paral
									Nominal 12.0Vdc, Y-Axis		
4	13.560M	59.0	+0.1	+0.7	+9.6		-40.0	29.4	84.0	-54.6	Perpe
									Nominal 12.0Vdc, Y-Axis		
5	13.560M	59.0	+0.1	+0.7	+9.6		-40.0	29.4	84.0	-54.6	Perpe
									13.8Vdc, Y-Axis		
6	13.560M	59.0	+0.1	+0.7	+9.6		-40.0	29.4	84.0	-54.6	Perpe
									10.2Vdc, Y-Axis		

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	4/27/2016
Test Type:	**Radiated Scan**	Time:	12:47:11
Tested By:	Benny Lovan	Sequence#:	8
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 8			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 8			

Test Conditions / Notes:

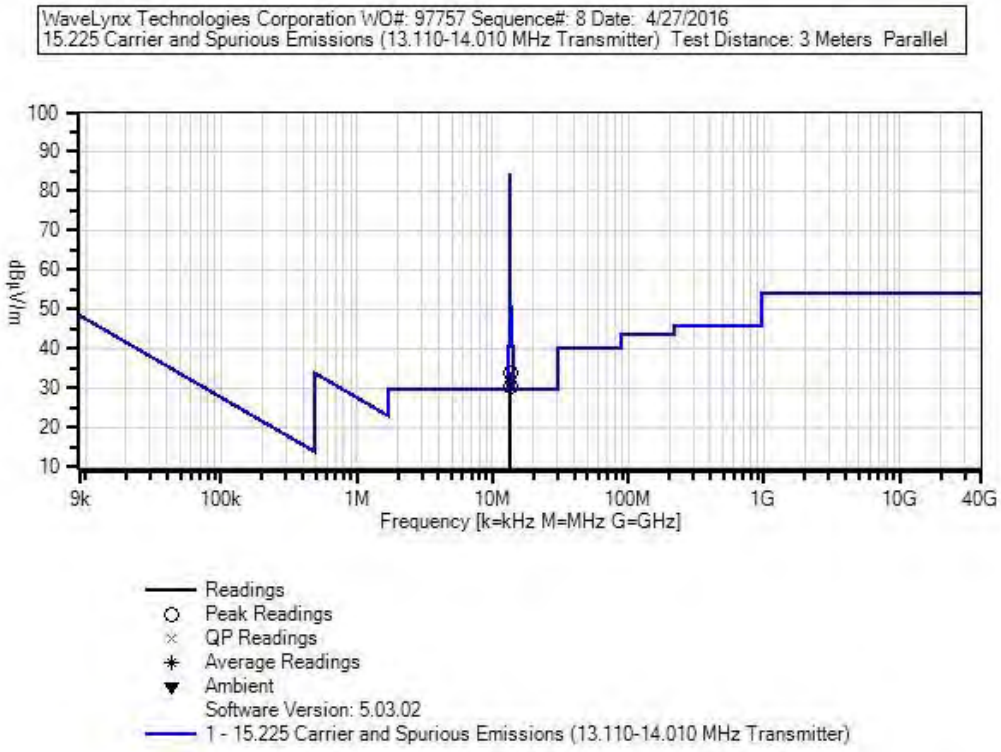
Radiated Emissions Fundamental Measurements

Temperature: 16.2°C
Humidity:42%
Atmospheric Pressure: 97.3 kPa

Method: ANSI C63.10 2013

Modulation: ASK 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi

The EUT is powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.
Measurements will be made in both polarities as well as with the voltage variation of 10.2VDC and 13.8VDC (+/-15% of nominal).



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	ANSITED 3M	Cable		11/15/2014	11/15/2016
T3	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	63.5	+0.1	+0.7	+9.6		-40.0	33.9	84.0	-50.1	Paral
									13.8VDC, Y- Axis		
2	13.559M	63.5	+0.1	+0.7	+9.6		-40.0	33.9	84.0	-50.1	Paral
									10.2VDC, Y- Axis		
3	13.559M	63.5	+0.1	+0.7	+9.6		-40.0	33.9	84.0	-50.1	Paral
									Nominal 12VDC, Y- Axis		
4	13.560M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									Nominal 12VDC, Y- Axis		
5	13.559M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									10.2VDC, Y- Axis		
6	13.559M	59.9	+0.1	+0.7	+9.6		-40.0	30.3	84.0	-53.7	Perpe
									13.8VDC, Y- Axis		

Test Setup Photo

15.225(e) Frequency Stability

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Benny Lovan and Skip Doyle
Test Method:	ANSI C63.10 (2013)	Test Date(s):	5/12/2016
Configuration:	3, 4, 7 and 8		
Test Setup:	Configurations 4 and 8 were tested simultaneously within the temperature chamber. Once testing was complete, the two units were replaced with Configurations 3 and 7. The manufacturer declares that Configurations 3, 4, 7 and 8 are worse case and testing performed on these would satisfy the testing for configurations 1, 2, 5 and 6.		

Environmental Conditions			
Temperature (ºC)	19	Relative Humidity (%):	59

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
03197	Multimeter	Extech	MM570A	9/14/2014	9/14/2016
02668	Spectrum Analyzer	Agilent	E4446A	8/14/2015	8/14/2016
01879	Temperature Chamber	Thermotron	S-1.2 Min.	12/5/2014	12/5/2016
00170	Loop Antenna	Solar	7334-1	NCR	NCR

NCR = No Calibration Required

Test Data Summary – Configuration 3

Temperature (ºC)	Voltage	Frequency (MHz)	Deviation (%)	Limit (%)	Results
-20	$V_{Nominal}$	13.5598	-0.00147	±0.01	Pass
-10	$V_{Nominal}$	13.5599	-0.00074	±0.01	
0	$V_{Nominal}$	13.5598	-0.00147	±0.01	
10	$V_{Nominal}$	13.5597	-0.00221	±0.01	
20	$V_{Minimum}$	13.5598	-0.00147	±0.01	
20	$V_{Nominal}$	13.5598	-0.00147	±0.01	
20	$V_{Maximum}$	13.5598	-0.00147	±0.01	
30	$V_{Nominal}$	13.5598	-0.00147	±0.01	
40	$V_{Nominal}$	13.5597	-0.00221	±0.01	
50	$V_{Nominal}$	13.5598	-0.00147	±0.01	
Nominal Frequency:		13.560000			

Test Data Summary – Configuration 4

Temperature (ºC)	Voltage	Frequency (MHz)	Deviation (%)	Limit (%)	Results
-20	$V_{Nominal}$	13.5597	-0.00221	±0.01	Pass
-10	$V_{Nominal}$	13.5597	-0.00221	±0.01	
0	$V_{Nominal}$	13.5596	-0.00295	±0.01	
10	$V_{Nominal}$	13.5597	-0.00221	±0.01	
20	$V_{Minimum}$	13.5596	-0.00295	±0.01	
20	$V_{Nominal}$	13.5595	-0.00369	±0.01	
20	$V_{Maximum}$	13.5596	-0.00295	±0.01	
30	$V_{Nominal}$	13.5596	-0.00295	±0.01	
40	$V_{Nominal}$	13.5595	-0.00369	±0.01	
50	$V_{Nominal}$	13.5595	-0.00369	±0.01	
Nominal Frequency:		13.560000			

Test Data Summary – Configuration 7

Temperature (ºC)	Voltage	Frequency (MHz)	Deviation (%)	Limit (%)	Results
-20	$V_{Nominal}$	13.5597	-0.00221	±0.01	Pass
-10	$V_{Nominal}$	13.5597	-0.00221	±0.01	
0	$V_{Nominal}$	13.5596	-0.00295	±0.01	
10	$V_{Nominal}$	13.5596	-0.00295	±0.01	
20	$V_{Minimum}$	13.5595	-0.00369	±0.01	
20	$V_{Nominal}$	13.5596	-0.00295	±0.01	
20	$V_{Maximum}$	13.5596	-0.00295	±0.01	
30	$V_{Nominal}$	13.5596	-0.00295	±0.01	
40	$V_{Nominal}$	13.5595	-0.00369	±0.01	
50	$V_{Nominal}$	13.5594	-0.00442	±0.01	
Nominal Frequency:		13.560000			

Test Data Summary – Configuration 8

Temperature (ºC)	Voltage	Frequency (MHz)	Deviation (%)	Limit (%)	Results
-20	$V_{Nominal}$	13.5596	-0.00295	±0.01	Pass
-10	$V_{Nominal}$	13.5596	-0.00295	±0.01	
0	$V_{Nominal}$	13.5596	-0.00295	±0.01	
10	$V_{Nominal}$	13.5594	-0.00442	±0.01	
20	$V_{Minimum}$	13.5595	-0.00369	±0.01	
20	$V_{Nominal}$	13.5595	-0.00369	±0.01	
20	$V_{Maximum}$	13.5594	-0.00442	±0.01	
30	$V_{Nominal}$	13.5594	-0.00442	±0.01	
40	$V_{Nominal}$	13.5594	-0.00442	±0.01	
50	$V_{Nominal}$	13.5594	-0.00442	±0.01	
Nominal Frequency:		13.560000			

Parameter Definitions:

Measurements performed at input voltage Vnominal ± 15%.

Parameter	Value
$V_{Nominal}$:	12VDC
$V_{Minimum}$:	10.2VDC
$V_{Maximum}$:	13.8VDC

Test Setup Photos

15.225(d) Radiated Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/4/2016
Test Type:	**Radiated Scan**	Time:	16:37:07
Tested By:	Benny Lovan	Sequence#:	9
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 11			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 11			

Test Conditions / Notes:

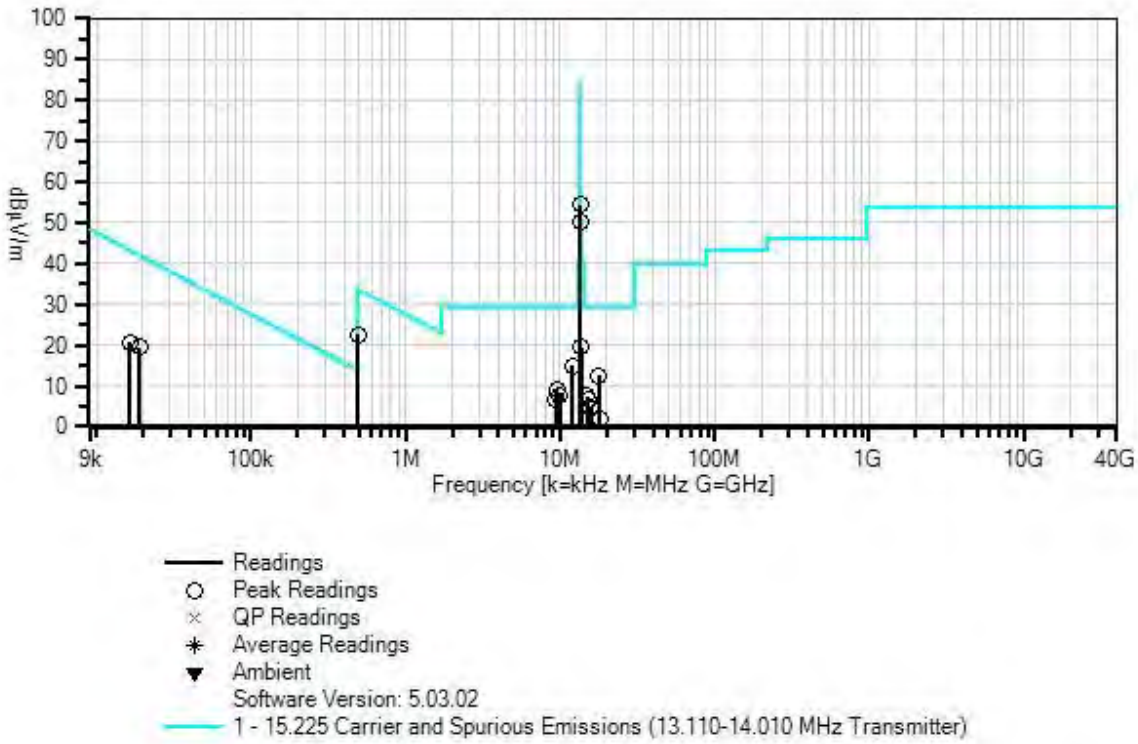
Radiated Spurious Emissions Measurements

Temperature: 22°C
Humidity: 41%
Atmospheric Pressure: 97.1 kPa

Frequency Range: 9kHz – 30MHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 9 Date: 5/4/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Perpendicular



Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T3	ANMD3M	Cable		3/17/2016	3/17/2018
T4	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	494.600k	32.6	+0.0	+9.7	+0.1	+0.1	-20.0	22.5	33.7	-11.2	Perpe
2	11.954M	24.4	+0.1	+9.7	+0.4	+0.3	-20.0	14.9	29.5	-14.6	Paral
3	17.739M	22.9	+0.1	+8.7	+0.5	+0.4	-20.0	12.6	29.5	-16.9	Paral
4	9.477M	18.6	+0.1	+9.8	+0.3	+0.3	-20.0	9.1	29.5	-20.4	Paral
5	9.981M	17.2	+0.1	+9.8	+0.4	+0.3	-20.0	7.8	29.5	-21.7	Paral
6	15.002M	17.1	+0.1	+9.6	+0.4	+0.4	-20.0	7.6	29.5	-21.9	Paral
7	16.400k	46.7	+0.0	+14.1	+0.0	+0.0	-40.0	20.8	43.3	-22.5	Perpe
8	18.900k	45.9	+0.0	+13.5	+0.0	+0.0	-40.0	19.4	42.1	-22.7	Paral
9	9.352M	16.1	+0.1	+9.8	+0.3	+0.3	-20.0	6.6	29.5	-22.9	Paral
10	15.232M	16.1	+0.1	+9.5	+0.4	+0.4	-20.0	6.5	29.5	-23.0	Paral
11	15.790M	14.7	+0.1	+9.3	+0.4	+0.4	-20.0	4.9	29.5	-24.6	Perpe
12	17.930M	12.0	+0.1	+8.7	+0.5	+0.4	-20.0	1.7	29.5	-27.8	Perpe
13	13.559M	64.0	+0.1	+9.6	+0.4	+0.4	-20.0	54.5	84.0 Fundamental	-29.5	Paral
14	13.652M	29.0	+0.1	+9.6	+0.4	+0.4	-20.0	19.5	50.5	-31.0	Perpe
15	13.560M	59.6	+0.1	+9.6	+0.4	+0.4	-20.0	50.1	84.0 Fundamental	-33.9	Perpe

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/4/2016
Test Type:	**Radiated Scan**	Time:	17:06:55
Tested By:	Benny Lovan	Sequence#:	10
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 12			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 12			

Test Conditions / Notes:

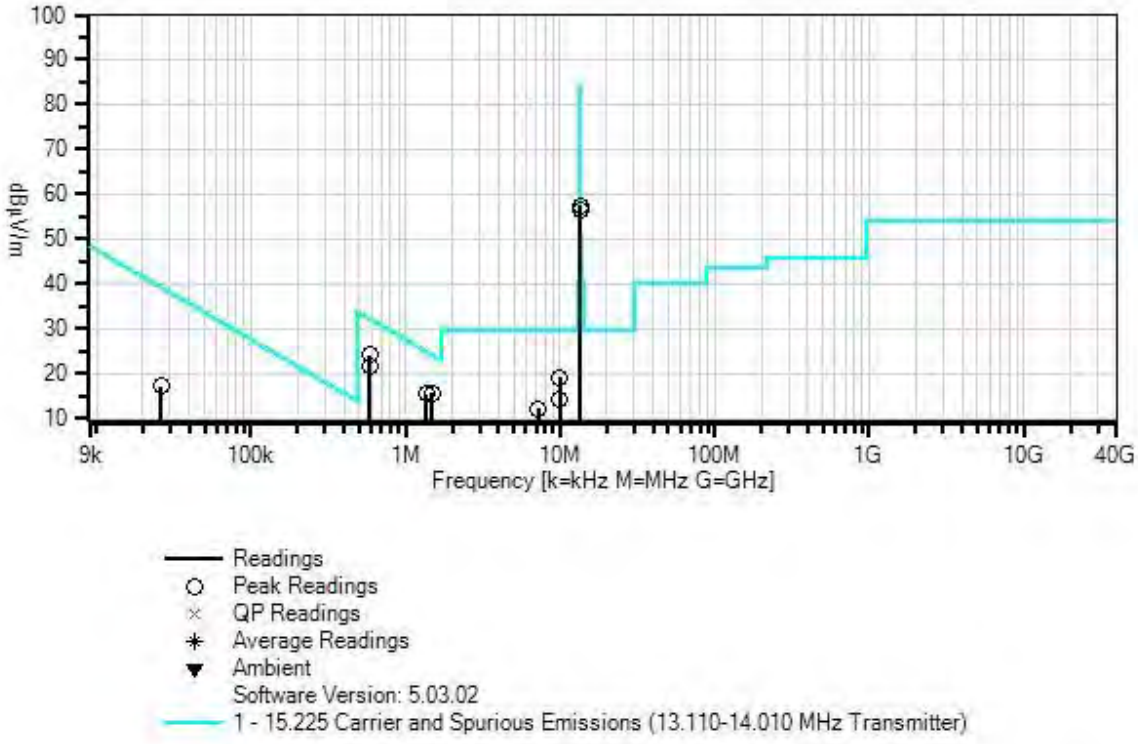
Radiated Spurious Emissions Measurements

Temperature: 22°C
Humidity:41%
Atmospheric Pressure: 97.1 kPa

Frequency Range: 9kHz – 30MHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 10 Date: 5/4/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Parallel



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T3	ANMD3M	Cable		3/17/2016	3/17/2018
T4	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	586.300k	34.0	+0.0	+10.0	+0.1	+0.1	-20.0	24.2	32.2	-8.0	Perpe
2	1.484M	25.4	+0.0	+10.1	+0.1	+0.1	-20.0	15.7	24.1	-8.4	Perpe
3	1.365M	25.2	+0.0	+10.1	+0.1	+0.1	-20.0	15.5	24.8	-9.3	Perpe
4	10.003M	28.5	+0.1	+9.8	+0.4	+0.3	-20.0	19.1	29.5	-10.4	Paral
5	586.300k	31.5	+0.0	+10.0	+0.1	+0.1	-20.0	21.7	32.2	-10.5	Paral
6	10.008M	23.8	+0.1	+9.8	+0.4	+0.3	-20.0	14.4	29.5	-15.1	Perpe
7	9.987M	23.6	+0.1	+9.8	+0.4	+0.3	-20.0	14.2	29.5	-15.3	Perpe
8	7.191M	21.5	+0.1	+9.9	+0.3	+0.3	-20.0	12.1	29.5	-17.4	Paral
9	7.210M	17.7	+0.1	+9.9	+0.3	+0.3	-20.0	8.3	29.5	-21.2	Perpe
10	26.300k	44.8	+0.0	+12.4	+0.0	+0.0	-40.0	17.2	39.2	-22.0	Perpe
11	7.234M	15.3	+0.1	+9.9	+0.3	+0.3	-20.0	5.9	29.5	-23.6	Perpe
12	13.560M	67.0	+0.1	+9.6	+0.4	+0.4	-20.0	57.5	84.0 Fundamental	-26.5	Paral
13	13.560M	66.0	+0.1	+9.6	+0.4	+0.4	-20.0	56.5	84.0 Fundamental	-27.5	Perpe

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/4/2016
Test Type:	**Radiated Scan**	Time:	14:44:50
Tested By:	Benny Lovan	Sequence#:	11
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 13			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 13			

Test Conditions / Notes:

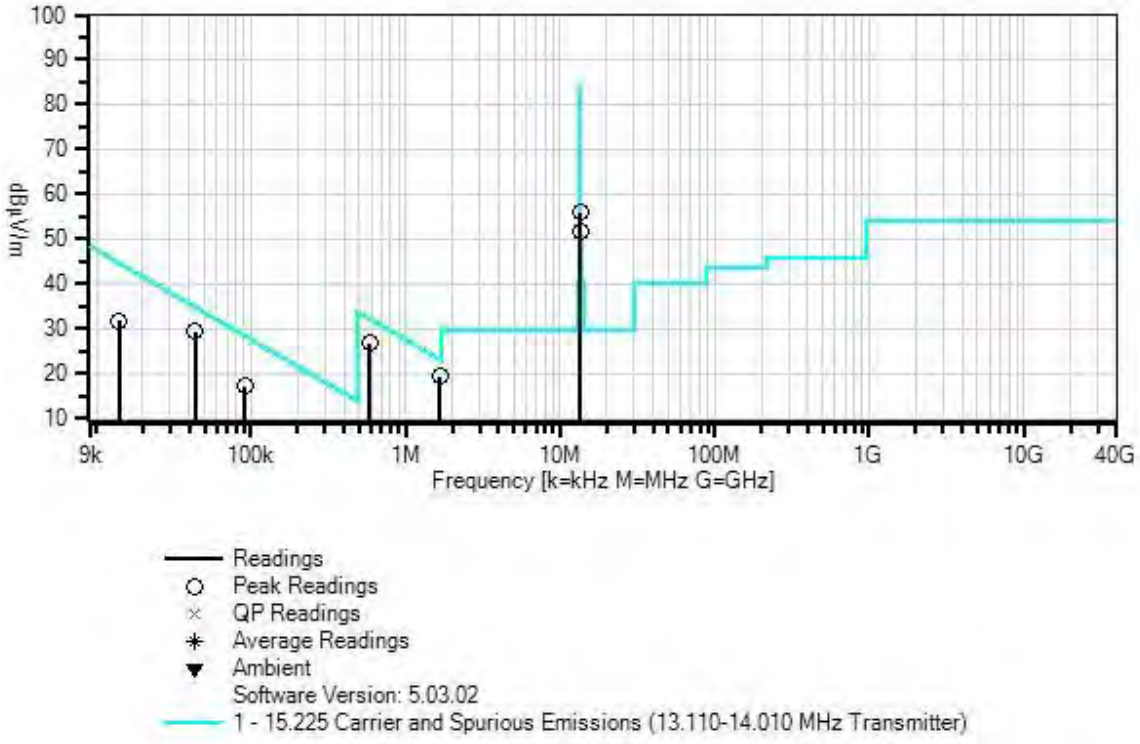
Radiated Spurious Emissions Measurements

Temperature: 20°C
Humidity:52%
Atmospheric Pressure: 97.31 kPa

Frequency Range: 9kHz – 30MHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 11 Date: 5/4/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Parallel



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T3	ANMD3M	Cable		3/17/2016	3/17/2018
T4	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.667M	29.0	+0.0	+10.1	+0.1	+0.1	-20.0	19.3	23.1	-3.8	Paral
2	586.300k	36.5	+0.0	+10.0	+0.1	+0.1	-20.0	26.7	32.2	-5.5	Perpe
3	43.700k	58.2	+0.0	+11.1	+0.0	+0.0	-40.0	29.3	34.8	-5.5	Perpe
4	90.800k	46.9	+0.0	+10.2	+0.0	+0.0	-40.0	17.1	28.4	-11.3	Perpe
5	14.000k	56.8	+0.0	+14.8	+0.0	+0.0	-40.0	31.6	44.7	-13.1	Perpe
6	13.560M	65.5	+0.1	+9.6	+0.4	+0.4	-20.0	56.0	84.0 Fundamental	-28.0	Paral
7	13.560M	61.0	+0.1	+9.6	+0.4	+0.4	-20.0	51.5	84.0 Fundamental	-32.5	Perpe

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/4/2016
Test Type:	**Radiated Scan**	Time:	14:18:34
Tested By:	Benny Lovan	Sequence#:	12
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 14			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 14			

Test Conditions / Notes:

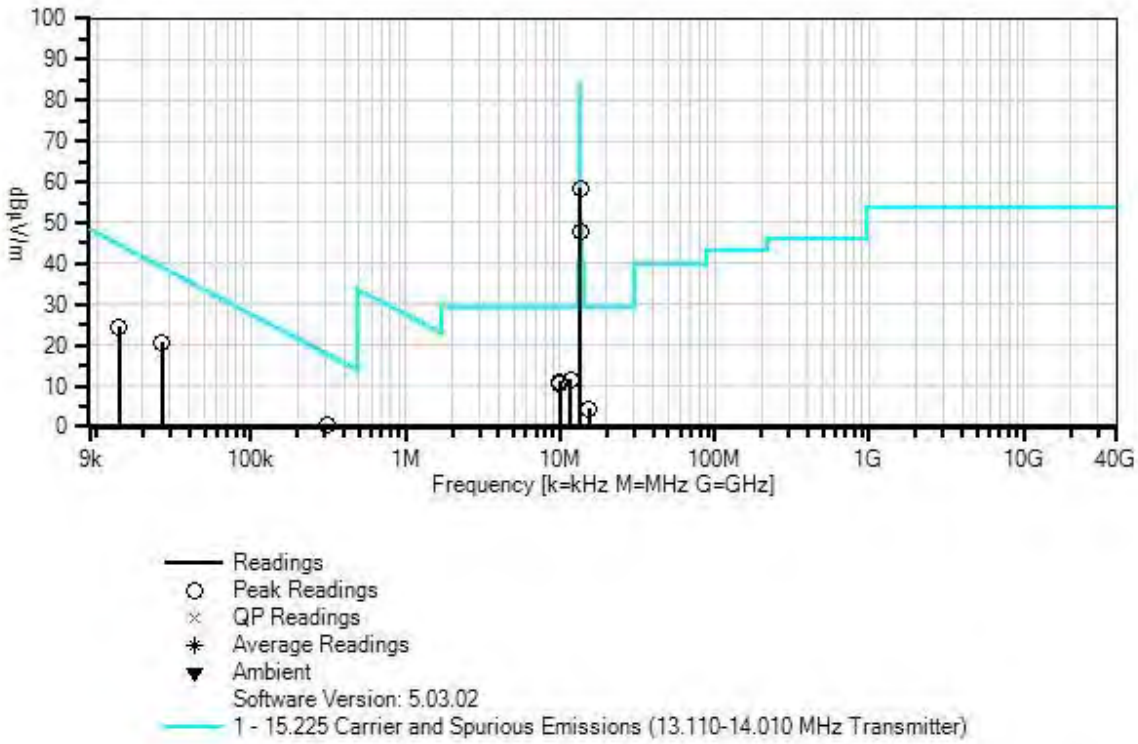
Radiated Spurious Emissions Measurements

Temperature: 20°C
Humidity:52%
Atmospheric Pressure: 97.31 kPa

Frequency Range: 9kHz – 30MHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 12 Date: 5/4/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Perpendicular



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T2	AN00226	Loop Antenna	6502	4/4/2016	4/4/2018
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T3	ANMD3M	Cable		3/17/2016	3/17/2018
T4	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	307.400k	30.4	+0.0	+9.8	+0.1	+0.0	-40.0	0.3	17.8	-17.5	Paral
2	11.636M	21.1	+0.1	+9.7	+0.4	+0.3	-20.0	11.6	29.5	-17.9	Perpe
3	347.600k	28.9	+0.0	+9.8	+0.1	+0.1	-40.0	-1.1	16.8	-17.9	Paral
4	9.934M	20.5	+0.1	+9.8	+0.4	+0.3	-20.0	11.1	29.5	-18.4	Paral
5	26.600k	48.3	+0.0	+12.4	+0.0	+0.0	-40.0	20.7	39.1	-18.4	Paral
6	10.000M	20.0	+0.1	+9.8	+0.4	+0.3	-20.0	10.6	29.5	-18.9	Perpe
7	14.000k	49.6	+0.0	+14.8	+0.0	+0.0	-40.0	24.4	44.7	-20.3	Perpe
8	15.480M	14.2	+0.1	+9.4	+0.4	+0.4	-20.0	4.5	29.5	-25.0	Perpe
9	13.559M	68.0	+0.1	+9.6	+0.4	+0.4	-20.0	58.5	84.0 Fundamental	-25.5	Paral
10	15.444M	8.0	+0.1	+9.4	+0.4	+0.4	-20.0	-1.7	29.5	-31.2	Paral
11	13.559M	57.3	+0.1	+9.6	+0.4	+0.4	-20.0	47.8	84.0 Fundamental	-36.2	Perpe

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	14:55:56
Tested By:	Skip Doyle	Sequence#:	13
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

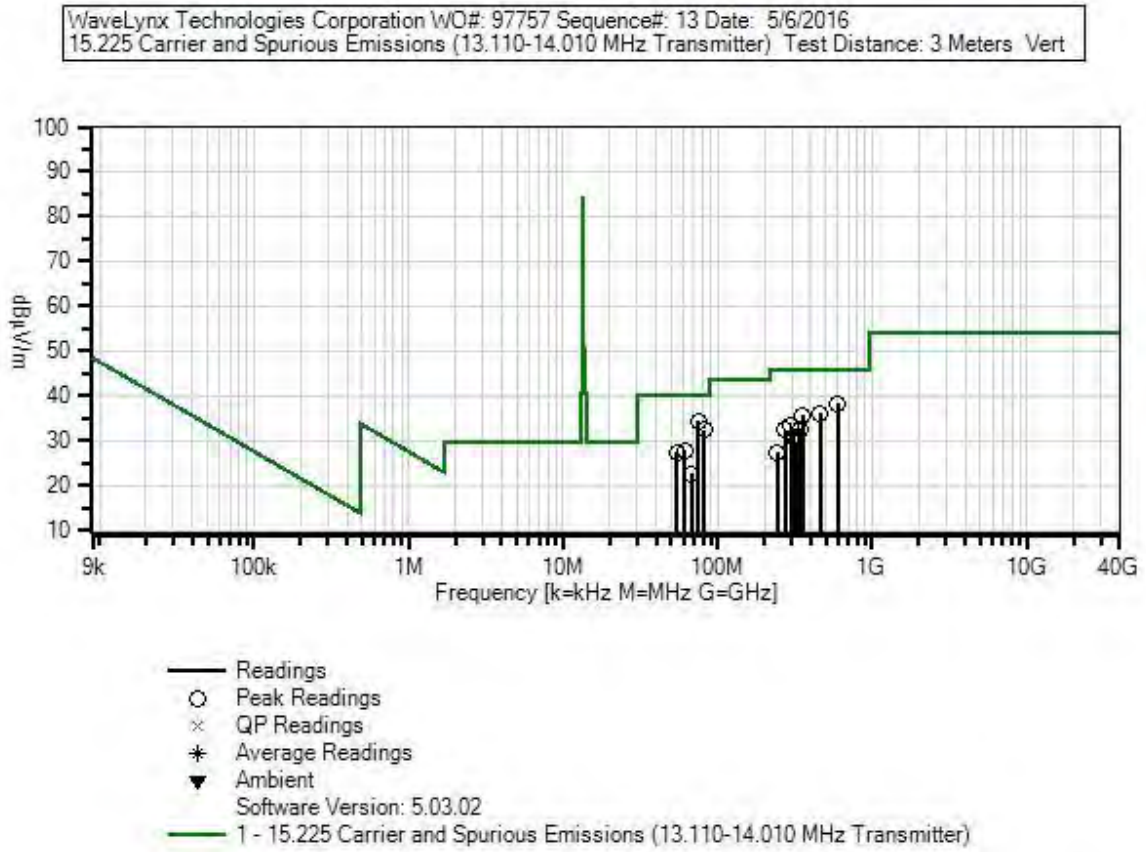
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 13 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	74.680M	46.9	+7.0 +0.2	+0.9 +6.0	+0.9 -27.8	+0.2	+0.0	34.3	40.0	-5.7	Vert
2	81.430M	44.8	+7.2 +0.2	+1.0 +6.0	+0.9 -27.8	+0.2	+0.0	32.5	40.0	-7.5	Vert
3	596.661M	34.3	+19.9 +0.5	+2.7 +6.0	+2.8 -28.4	+0.4	+0.0	38.3	46.0	-7.8	Vert
4	461.061M	35.3	+17.3 +0.5	+2.3 +6.0	+2.5 -28.1	+0.4	+0.0	36.2	46.0	-9.8	Vert
5	352.581M	37.0	+14.9 +0.4	+2.1 +6.0	+2.1 -27.3	+0.4	+0.0	35.6	46.0	-10.4	Vert
6	61.050M	41.8	+5.9 +0.2	+0.8 +6.0	+0.8 -27.8	+0.1	+0.0	27.8	40.0	-12.2	Vert
7	54.180M	40.0	+7.3 +0.2	+0.8 +6.0	+0.8 -27.8	+0.1	+0.0	27.4	40.0	-12.6	Vert
8	298.300M	36.3	+13.4 +0.4	+1.9 +6.0	+1.9 -27.0	+0.4	+0.0	33.3	46.0	-12.7	Vert
9	339.050M	34.4	+14.5 +0.4	+2.0 +6.0	+2.1 -27.2	+0.4	+0.0	32.6	46.0	-13.4	Vert
10	271.221M	36.2	+12.8 +0.4	+1.8 +6.0	+1.8 -26.9	+0.3	+0.0	32.4	46.0	-13.6	Horiz
11	311.930M	33.4	+13.8 +0.4	+1.9 +6.0	+2.0 -27.0	+0.3	+0.0	30.8	46.0	-15.2	Vert
12	325.430M	32.1	+14.2 +0.4	+2.0 +6.0	+2.0 -27.1	+0.3	+0.0	29.9	46.0	-16.1	Vert
13	67.821M	35.6	+6.8 +0.2	+0.9 +6.0	+0.9 -27.8	+0.1	+0.0	22.7	40.0	-17.3	Horiz
14	244.101M	32.5	+11.9 +0.4	+1.7 +6.0	+1.7 -27.0	+0.3	+0.0	27.5	46.0	-18.5	Horiz

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	15:12:29
Tested By:	Skip Doyle	Sequence#:	14
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 2			

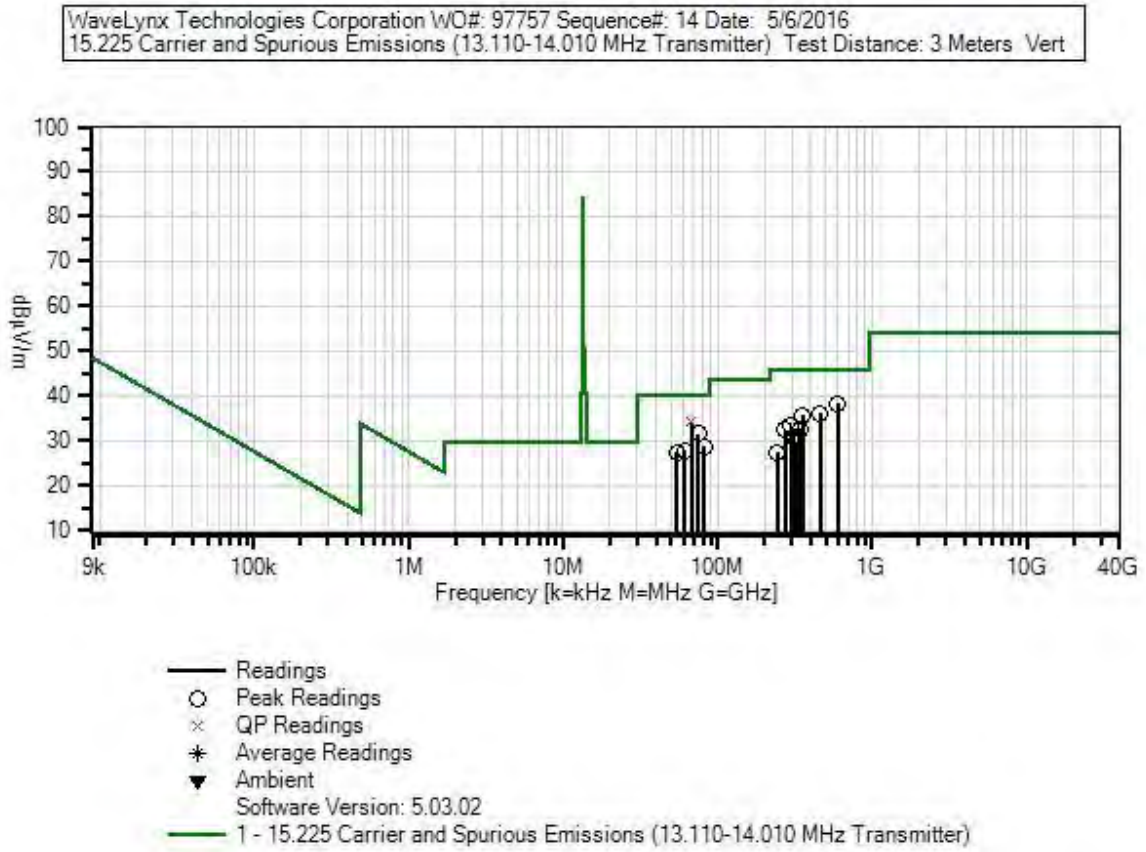
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 14 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	67.812M	47.0	+6.8	+0.9	+0.9	+0.1	+0.0	34.1	40.0	-5.9	Vert
	QP		+0.2	+6.0	-27.8						
^	67.810M	47.8	+6.8	+0.9	+0.9	+0.1	+0.0	34.9	40.0	-5.1	Vert
			+0.2	+6.0	-27.8						
3	596.661M	34.3	+19.9	+2.7	+2.8	+0.4	+0.0	38.3	46.0	-7.8	Vert
			+0.5	+6.0	-28.4						
4	74.593M	44.1	+7.0	+0.9	+0.9	+0.2	+0.0	31.5	40.0	-8.5	Vert
			+0.2	+6.0	-27.8						
5	461.061M	35.3	+17.3	+2.3	+2.5	+0.4	+0.0	36.2	46.0	-9.8	Vert
			+0.5	+6.0	-28.1						
6	352.581M	37.0	+14.9	+2.1	+2.1	+0.4	+0.0	35.6	46.0	-10.4	Vert
			+0.4	+6.0	-27.3						
7	81.376M	41.0	+7.2	+1.0	+0.9	+0.2	+0.0	28.8	40.0	-11.3	Vert
			+0.2	+6.0	-27.8						
8	61.050M	41.8	+5.9	+0.8	+0.8	+0.1	+0.0	27.8	40.0	-12.2	Vert
			+0.2	+6.0	-27.8						
9	54.180M	40.0	+7.3	+0.8	+0.8	+0.1	+0.0	27.4	40.0	-12.6	Vert
			+0.2	+6.0	-27.8						
10	298.300M	36.3	+13.4	+1.9	+1.9	+0.4	+0.0	33.3	46.0	-12.7	Vert
			+0.4	+6.0	-27.0						
11	339.050M	34.4	+14.5	+2.0	+2.1	+0.4	+0.0	32.6	46.0	-13.4	Vert
			+0.4	+6.0	-27.2						
12	271.221M	36.2	+12.8	+1.8	+1.8	+0.3	+0.0	32.4	46.0	-13.6	Horiz
			+0.4	+6.0	-26.9						
13	311.930M	33.4	+13.8	+1.9	+2.0	+0.3	+0.0	30.8	46.0	-15.2	Vert
			+0.4	+6.0	-27.0						
14	325.430M	32.1	+14.2	+2.0	+2.0	+0.3	+0.0	29.9	46.0	-16.1	Vert
			+0.4	+6.0	-27.1						
15	244.101M	32.5	+11.9	+1.7	+1.7	+0.3	+0.0	27.5	46.0	-18.5	Horiz
			+0.4	+6.0	-27.0						

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	16:33:48
Tested By:	Skip Doyle	Sequence#:	15
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 3			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 3			

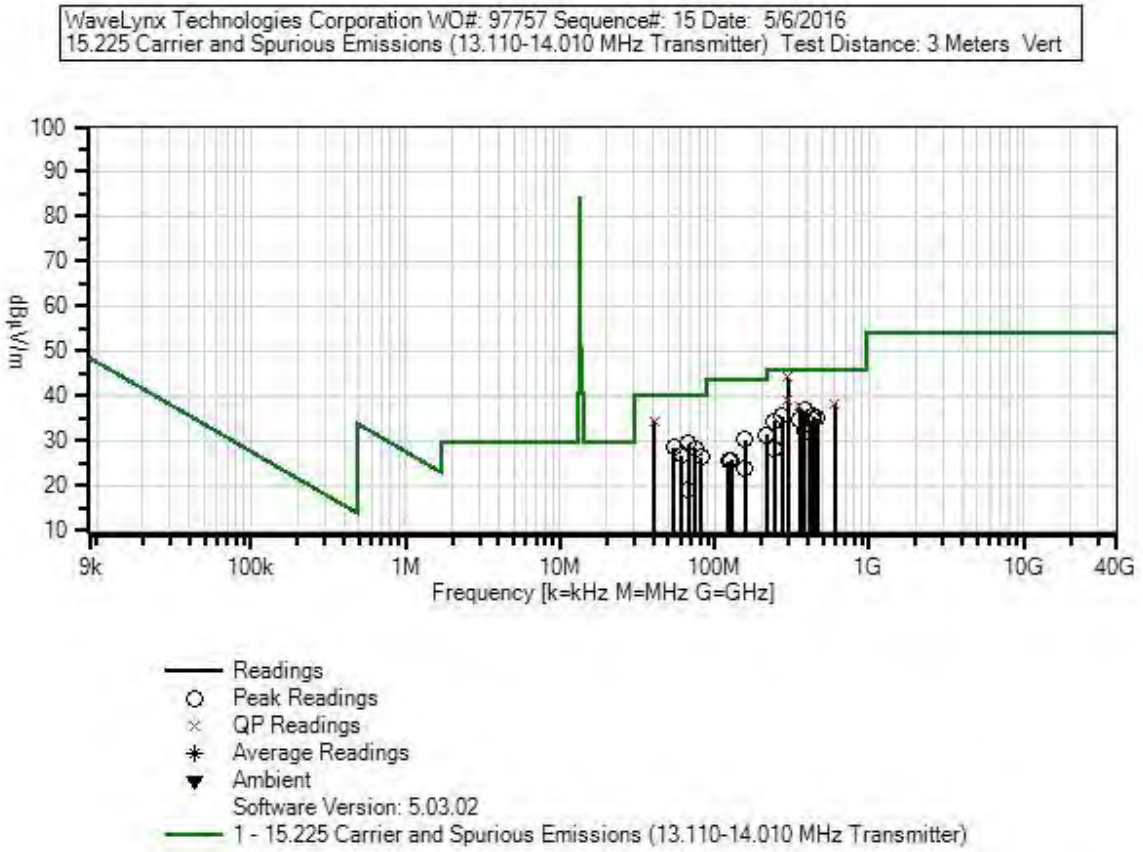
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 15 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	298.324M	47.2	+13.4	+1.9	+1.9	+0.4	+0.0	44.2	46.0	-1.8	Vert
	QP		+0.4	+6.0	-27.0						
^	298.341M	48.4	+13.4	+1.9	+1.9	+0.4	+0.0	45.4	46.0	-0.6	Vert
			+0.4	+6.0	-27.0						
3	40.694M	40.6	+14.0	+0.7	+0.7	+0.1	+0.0	34.4	40.0	-5.6	Vert
	QP		+0.2	+6.0	-27.9						
^	40.692M	42.9	+14.0	+0.7	+0.7	+0.1	+0.0	36.7	40.0	-3.3	Vert
			+0.2	+6.0	-27.9						
5	298.323M	42.0	+13.4	+1.9	+1.9	+0.4	+0.0	39.0	46.0	-7.0	Horiz
	QP		+0.4	+6.0	-27.0						
^	298.317M	42.7	+13.4	+1.9	+1.9	+0.4	+0.0	39.7	46.0	-6.3	Horiz
			+0.4	+6.0	-27.0						
7	596.635M	34.3	+19.9	+2.7	+2.8	+0.4	+0.0	38.2	46.0	-7.8	Vert
	QP		+0.5	+6.0	-28.4						
^	596.639M	35.5	+19.9	+2.7	+2.8	+0.4	+0.0	39.4	46.0	-6.6	Vert
			+0.5	+6.0	-28.4						
9	352.563M	39.1	+14.9	+2.1	+2.1	+0.4	+0.0	37.7	46.0	-8.3	Vert
	QP		+0.4	+6.0	-27.3						
^	352.564M	41.3	+14.9	+2.1	+2.1	+0.4	+0.0	39.9	46.0	-6.1	Vert
			+0.4	+6.0	-27.3						
11	379.679M	37.6	+15.6	+2.1	+2.2	+0.4	+0.0	36.8	46.0	-9.2	Vert
			+0.4	+6.0	-27.5						
12	271.167M	39.3	+12.8	+1.8	+1.8	+0.3	+0.0	35.5	46.0	-10.5	Horiz
			+0.4	+6.0	-26.9						
13	433.919M	35.0	+16.8	+2.3	+2.4	+0.4	+0.0	35.5	46.0	-10.6	Vert
			+0.5	+6.0	-27.9						
14	67.807M	42.3	+6.8	+0.9	+0.9	+0.1	+0.0	29.4	40.0	-10.6	Vert
			+0.2	+6.0	-27.8						
15	461.039M	34.2	+17.3	+2.3	+2.5	+0.4	+0.0	35.1	46.0	-10.9	Vert
			+0.5	+6.0	-28.1						
16	433.917M	34.4	+16.8	+2.3	+2.4	+0.4	+0.0	34.9	46.0	-11.1	Horiz
			+0.5	+6.0	-27.9						
17	352.557M	36.0	+14.9	+2.1	+2.1	+0.4	+0.0	34.6	46.0	-11.4	Horiz
			+0.4	+6.0	-27.3						
18	54.273M	41.0	+7.3	+0.8	+0.8	+0.1	+0.0	28.4	40.0	-11.6	Vert
			+0.2	+6.0	-27.8						

19	244.086M	39.3	+11.9 +0.4	+1.7 +6.0	+1.7 -27.0	+0.3	+0.0	34.3	46.0	-11.7	Vert
20	74.592M	40.8	+7.0 +0.2	+0.9 +6.0	+0.9 -27.8	+0.2	+0.0	28.2	40.0	-11.8	Vert
21	406.799M	34.1	+16.2 +0.4	+2.2 +6.0	+2.3 -27.7	+0.4	+0.0	33.9	46.0	-12.1	Vert
22	155.952M	37.8	+10.8 +0.3	+1.3 +6.0	+1.4 -27.5	+0.2	+0.0	30.3	43.5	-13.2	Vert
23	61.027M	40.8	+5.9 +0.2	+0.8 +6.0	+0.8 -27.8	+0.1	+0.0	26.8	40.0	-13.3	Vert
24	81.372M	38.7	+7.2 +0.2	+1.0 +6.0	+0.9 -27.8	+0.2	+0.0	26.4	40.0	-13.6	Vert
25	379.677M	33.0	+15.6 +0.4	+2.1 +6.0	+2.2 -27.5	+0.4	+0.0	32.2	46.0	-13.8	Horiz
26	216.973M	38.3	+10.1 +0.4	+1.6 +6.0	+1.6 -27.1	+0.3	+0.0	31.2	46.0	-14.8	Vert
27	128.832M	32.6	+11.7 +0.3	+1.2 +6.0	+1.2 -27.6	+0.2	+0.0	25.6	43.5	-17.9	Vert
28	244.083M	33.1	+11.9 +0.4	+1.7 +6.0	+1.7 -27.0	+0.3	+0.0	28.1	46.0	-17.9	Horiz
29	122.052M	32.5	+11.6 +0.3	+1.2 +6.0	+1.2 -27.6	+0.2	+0.0	25.4	43.5	-18.1	Vert
30	155.943M	31.4	+10.8 +0.3	+1.3 +6.0	+1.4 -27.5	+0.2	+0.0	23.9	43.5	-19.6	Horiz
31	67.803M	31.9	+6.8 +0.2	+0.9 +6.0	+0.9 -27.8	+0.1	+0.0	19.0	40.0	-21.0	Horiz

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	15:49:55
Tested By:	Skip Doyle	Sequence#:	16
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 4			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 4			

Test Conditions / Notes:

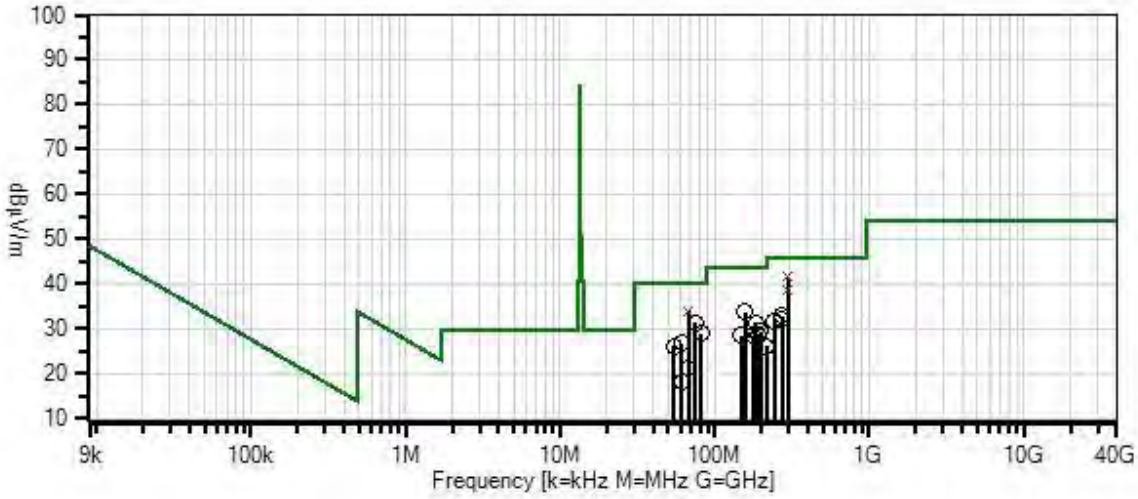
Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 16 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Horiz



Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	298.327M	44.6	+13.4	+1.9	+1.9	+0.4	+0.0	41.6	46.0	-4.4	Vert
	QP		+0.4	+6.0	-27.0						
^	298.319M	45.2	+13.4	+1.9	+1.9	+0.4	+0.0	42.2	46.0	-3.8	Vert
			+0.4	+6.0	-27.0						
3	67.813M	46.8	+6.8	+0.9	+0.9	+0.1	+0.0	33.9	40.0	-6.1	Vert
	QP		+0.2	+6.0	-27.8						
^	67.814M	48.0	+6.8	+0.9	+0.9	+0.1	+0.0	35.1	40.0	-4.9	Vert
			+0.2	+6.0	-27.8						
5	298.326M	41.7	+13.4	+1.9	+1.9	+0.4	+0.0	38.7	46.0	-7.3	Horiz
	QP		+0.4	+6.0	-27.0						
^	298.322M	43.8	+13.4	+1.9	+1.9	+0.4	+0.0	40.8	46.0	-5.2	Horiz
			+0.4	+6.0	-27.0						
7	74.584M	43.8	+7.0	+0.9	+0.9	+0.2	+0.0	31.2	40.0	-8.8	Vert
			+0.2	+6.0	-27.8						
8	155.959M	41.1	+10.8	+1.3	+1.4	+0.2	+0.0	33.6	43.5	-9.9	Vert
			+0.3	+6.0	-27.5						
9	81.365M	41.3	+7.2	+1.0	+0.9	+0.2	+0.0	29.0	40.0	-11.0	Vert
			+0.2	+6.0	-27.8						
10	183.081M	40.0	+9.2	+1.5	+1.5	+0.2	+0.0	31.4	43.5	-12.1	Vert
			+0.3	+6.0	-27.3						
11	61.022M	40.8	+5.9	+0.8	+0.8	+0.1	+0.0	26.8	40.0	-13.2	Vert
			+0.2	+6.0	-27.8						
12	271.195M	36.6	+12.8	+1.8	+1.8	+0.3	+0.0	32.8	46.0	-13.2	Vert
			+0.4	+6.0	-26.9						
13	54.251M	38.7	+7.3	+0.8	+0.8	+0.1	+0.0	26.1	40.0	-13.9	Vert
			+0.2	+6.0	-27.8						

14	271.207M	35.9	+12.8 +0.4	+1.8 +6.0	+1.8 -26.9	+0.3	+0.0	32.1	46.0	-13.9	Horiz
15	196.636M	38.1	+8.9 +0.3	+1.5 +6.0	+1.5 -27.2	+0.3	+0.0	29.4	43.5	-14.1	Vert
16	244.089M	36.4	+11.9 +0.4	+1.7 +6.0	+1.7 -27.0	+0.3	+0.0	31.4	46.0	-14.6	Vert
17	189.845M	37.5	+9.0 +0.3	+1.5 +6.0	+1.5 -27.3	+0.3	+0.0	28.8	43.5	-14.7	Vert
18	176.285M	37.2	+9.3 +0.3	+1.4 +6.0	+1.4 -27.4	+0.2	+0.0	28.4	43.5	-15.1	Vert
19	149.170M	35.6	+11.2 +0.3	+1.3 +6.0	+1.3 -27.5	+0.2	+0.0	28.4	43.5	-15.1	Vert
20	67.806M	33.9	+6.8 +0.2	+0.9 +6.0	+0.9 -27.8	+0.1	+0.0	21.0	40.0	-19.0	Horiz
21	216.959M	33.2	+10.1 +0.4	+1.6 +6.0	+1.6 -27.1	+0.3	+0.0	26.1	46.0	-19.9	Vert
22	61.019M	32.3	+5.9 +0.2	+0.8 +6.0	+0.8 -27.8	+0.1	+0.0	18.3	40.0	-21.7	Horiz

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	17:32:57
Tested By:	Skip Doyle	Sequence#:	17
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 5			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 5			

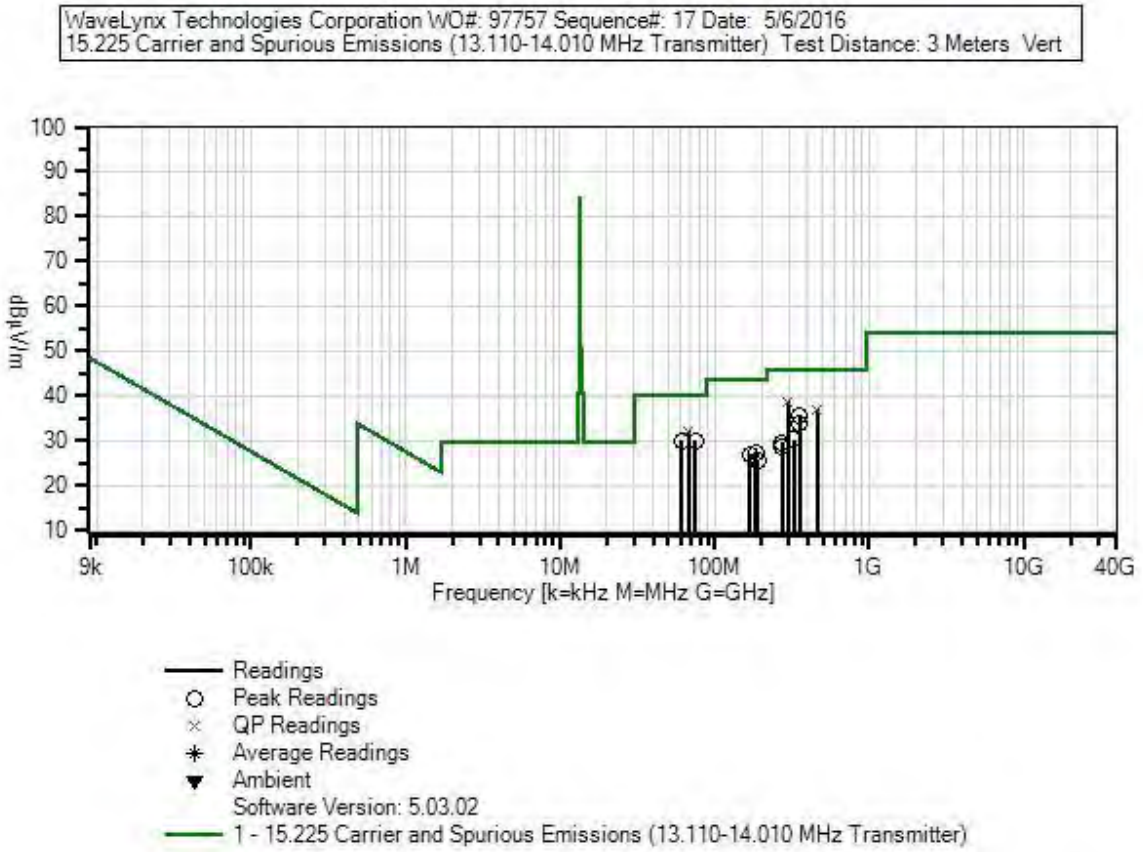
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 17 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	298.328M	41.7	+13.4	+1.9	+1.9	+0.4	+0.0	38.7	46.0	-7.3	Horiz
	QP		+0.4	+6.0	-27.0						
^	298.323M	42.3	+13.4	+1.9	+1.9	+0.4	+0.0	39.3	46.0	-6.7	Horiz
			+0.4	+6.0	-27.0						
3	67.815M	45.2	+6.8	+0.9	+0.9	+0.1	+0.0	32.3	40.0	-7.7	Vert
	QP		+0.2	+6.0	-27.8						
^	67.798M	46.2	+6.8	+0.9	+0.9	+0.1	+0.0	33.3	40.0	-6.7	Vert
			+0.2	+6.0	-27.8						
5	461.041M	36.0	+17.3	+2.3	+2.5	+0.4	+0.0	37.0	46.0	-9.0	Vert
	QP		+0.5	+6.0	-28.1						
^	461.044M	37.4	+17.3	+2.3	+2.5	+0.4	+0.0	38.3	46.0	-7.7	Vert
			+0.5	+6.0	-28.1						
7	74.595M	42.7	+7.0	+0.9	+0.9	+0.2	+0.0	30.1	40.0	-9.9	Vert
			+0.2	+6.0	-27.8						
8	61.035M	44.1	+5.9	+0.8	+0.8	+0.1	+0.0	30.1	40.0	-9.9	Vert
			+0.2	+6.0	-27.8						
9	352.558M	37.0	+14.9	+2.1	+2.1	+0.4	+0.0	35.6	46.0	-10.4	Vert
			+0.4	+6.0	-27.3						
10	352.559M	35.2	+14.9	+2.1	+2.1	+0.4	+0.0	33.8	46.0	-12.2	Horiz
			+0.4	+6.0	-27.3						
11	325.435M	32.5	+14.2	+2.0	+2.0	+0.3	+0.0	30.3	46.0	-15.7	Vert
			+0.4	+6.0	-27.1						
12	183.066M	35.9	+9.2	+1.5	+1.5	+0.2	+0.0	27.3	43.5	-16.2	Vert
			+0.3	+6.0	-27.3						
13	271.224M	33.5	+12.8	+1.8	+1.8	+0.3	+0.0	29.6	46.0	-16.4	Horiz
			+0.4	+6.0	-26.9						
14	169.519M	35.3	+9.8	+1.4	+1.4	+0.2	+0.0	27.0	43.5	-16.5	Vert
			+0.3	+6.0	-27.4						
15	271.206M	32.4	+12.8	+1.8	+1.8	+0.3	+0.0	28.6	46.0	-17.4	Vert
			+0.4	+6.0	-26.9						
16	189.860M	34.3	+9.0	+1.5	+1.5	+0.3	+0.0	25.6	43.5	-17.9	Horiz
			+0.3	+6.0	-27.3						

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	17:10:55
Tested By:	Skip Doyle	Sequence#:	18
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 6			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 6			

Test Conditions / Notes:

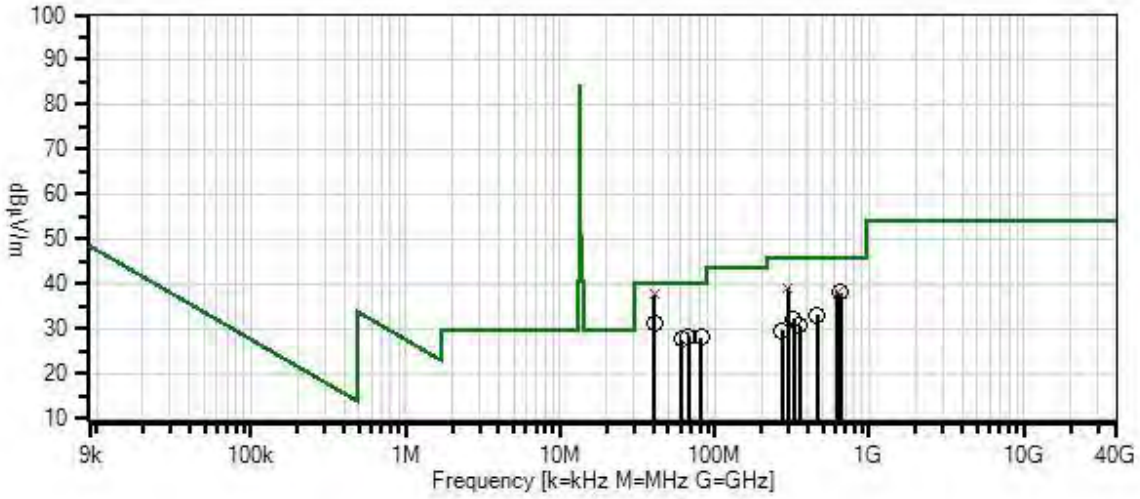
Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.

WaveLynx Technologies Corporation WO#: 97757 Sequence#: 18 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Horiz



Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	40.696M	43.7	+14.0	+0.7	+0.7	+0.1	+0.0	37.5	40.0	-2.5	Vert
	QP		+0.2	+6.0	-27.9						
^	40.685M	45.1	+14.1	+0.7	+0.7	+0.1	+0.0	39.0	40.0	-1.0	Vert
			+0.2	+6.0	-27.9						
3	298.325M	42.1	+13.4	+1.9	+1.9	+0.4	+0.0	39.1	46.0	-6.9	Vert
	QP		+0.4	+6.0	-27.0						
^	298.325M	43.4	+13.4	+1.9	+1.9	+0.4	+0.0	40.4	46.0	-5.6	Vert
			+0.4	+6.0	-27.0						
5	298.324M	41.9	+13.4	+1.9	+1.9	+0.4	+0.0	38.9	46.0	-7.1	Horiz
	QP		+0.4	+6.0	-27.0						
^	298.326M	42.3	+13.4	+1.9	+1.9	+0.4	+0.0	39.3	46.0	-6.7	Horiz
			+0.4	+6.0	-27.0						
7	623.754M	33.9	+20.3	+2.7	+2.9	+0.4	+0.0	38.3	46.0	-7.7	Vert
	QP		+0.5	+6.0	-28.4						
^	623.754M	35.3	+20.3	+2.7	+2.9	+0.4	+0.0	39.7	46.0	-6.3	Vert
			+0.5	+6.0	-28.4						
9	650.879M	32.9	+20.7	+2.8	+3.0	+0.5	+0.0	38.0	46.0	-8.0	Vert
			+0.5	+6.0	-28.4						
10	40.685M	37.1	+14.1	+0.7	+0.7	+0.1	+0.0	31.0	40.0	-9.0	Horiz
			+0.2	+6.0	-27.9						
11	67.805M	41.2	+6.8	+0.9	+0.9	+0.1	+0.0	28.3	40.0	-11.7	Vert
			+0.2	+6.0	-27.8						
12	81.365M	40.3	+7.2	+1.0	+0.9	+0.2	+0.0	28.0	40.0	-12.0	Vert
			+0.2	+6.0	-27.8						
13	61.025M	41.7	+5.9	+0.8	+0.8	+0.1	+0.0	27.7	40.0	-12.3	Vert
			+0.2	+6.0	-27.8						
14	461.036M	32.1	+17.3	+2.3	+2.5	+0.4	+0.0	33.0	46.0	-13.0	Vert
			+0.5	+6.0	-28.1						
15	325.429M	34.2	+14.2	+2.0	+2.0	+0.3	+0.0	32.0	46.0	-14.0	Vert
			+0.4	+6.0	-27.1						
16	352.556M	32.1	+14.9	+2.1	+2.1	+0.4	+0.0	30.7	46.0	-15.3	Vert
			+0.4	+6.0	-27.3						
17	271.204M	33.3	+12.8	+1.8	+1.8	+0.3	+0.0	29.5	46.0	-16.5	Horiz
			+0.4	+6.0	-26.9						

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	18:25:30
Tested By:	Skip Doyle	Sequence#:	19
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 7			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 7			

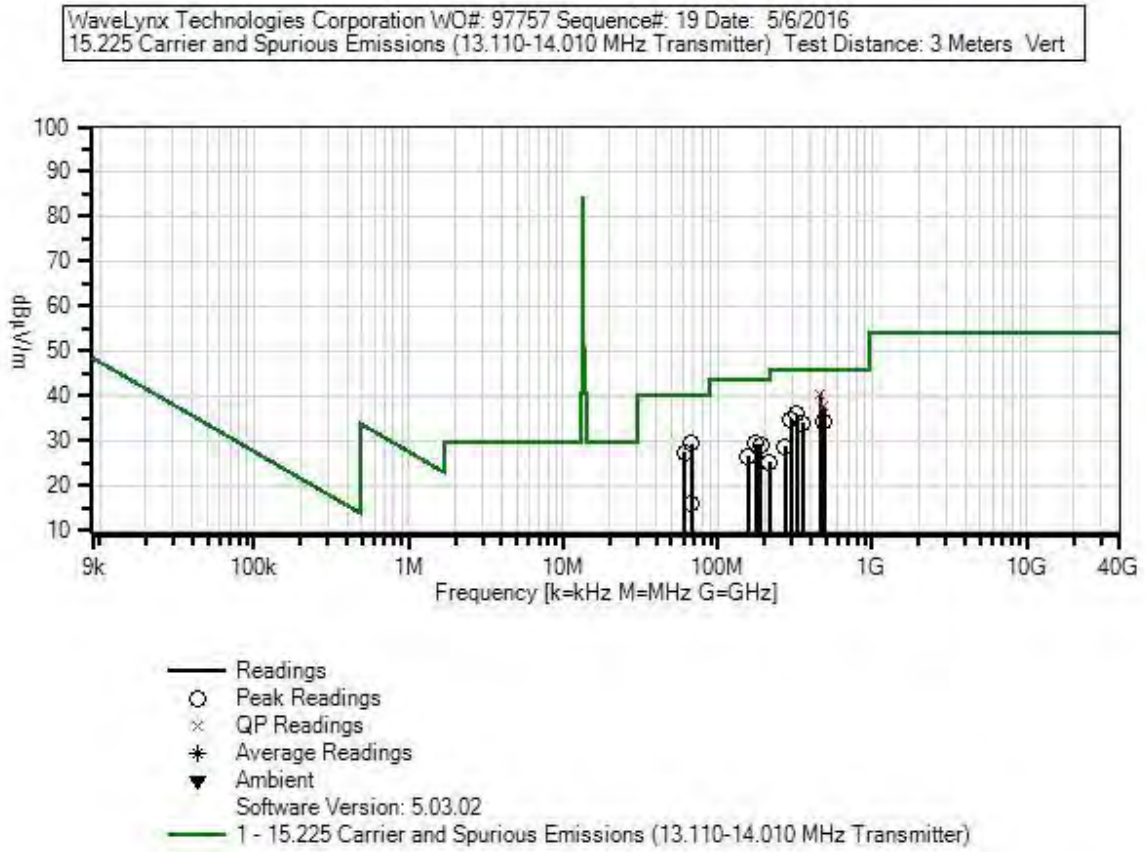
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 19 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	461.042M	39.5	+17.3	+2.3	+2.5	+0.4	+0.0	40.4	46.0	-5.6	Vert
	QP		+0.5	+6.0	-28.1						
^	461.044M	40.7	+17.3	+2.3	+2.5	+0.4	+0.0	41.6	46.0	-4.4	Vert
			+0.5	+6.0	-28.1						
3	488.161M	36.1	+17.8	+2.4	+2.5	+0.4	+0.0	37.5	46.0	-8.5	Vert
	QP		+0.5	+6.0	-28.2						
^	488.162M	37.4	+17.8	+2.4	+2.5	+0.4	+0.0	38.8	46.0	-7.2	Vert
			+0.5	+6.0	-28.2						
5	325.445M	38.0	+14.2	+2.0	+2.0	+0.3	+0.0	35.8	46.0	-10.2	Horiz
			+0.4	+6.0	-27.1						
6	67.815M	42.2	+6.8	+0.9	+0.9	+0.1	+0.0	29.3	40.0	-10.7	Vert
			+0.2	+6.0	-27.8						
7	298.330M	37.7	+13.4	+1.9	+1.9	+0.4	+0.0	34.7	46.0	-11.3	Horiz
			+0.4	+6.0	-27.0						
8	488.172M	32.8	+17.8	+2.4	+2.5	+0.4	+0.0	34.2	46.0	-11.8	Horiz
			+0.5	+6.0	-28.2						
9	352.570M	35.3	+14.9	+2.1	+2.1	+0.4	+0.0	33.9	46.0	-12.1	Horiz
			+0.4	+6.0	-27.3						
10	61.033M	41.4	+5.9	+0.8	+0.8	+0.1	+0.0	27.4	40.0	-12.6	Vert
			+0.2	+6.0	-27.8						
11	176.287M	38.1	+9.3	+1.4	+1.4	+0.2	+0.0	29.3	43.5	-14.2	Vert
			+0.3	+6.0	-27.4						
12	189.833M	37.8	+9.0	+1.5	+1.5	+0.3	+0.0	29.1	43.5	-14.4	Horiz
			+0.3	+6.0	-27.3						
13	155.961M	34.0	+10.8	+1.3	+1.4	+0.2	+0.0	26.5	43.5	-17.0	Horiz
			+0.3	+6.0	-27.5						
14	271.201M	32.5	+12.8	+1.8	+1.8	+0.3	+0.0	28.7	46.0	-17.3	Vert
			+0.4	+6.0	-26.9						
15	216.967M	32.4	+10.1	+1.6	+1.6	+0.3	+0.0	25.3	46.0	-20.7	Vert
			+0.4	+6.0	-27.1						
16	67.815M	28.8	+6.8	+0.9	+0.9	+0.1	+0.0	15.9	40.0	-24.1	Horiz
			+0.2	+6.0	-27.8						

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**WaveLynx Technologies Corporation**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97757**	Date:	5/6/2016
Test Type:	**Radiated Scan**	Time:	18:07:10
Tested By:	Skip Doyle	Sequence#:	20
Software:	EMITest 5.03.02		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 8			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 8			

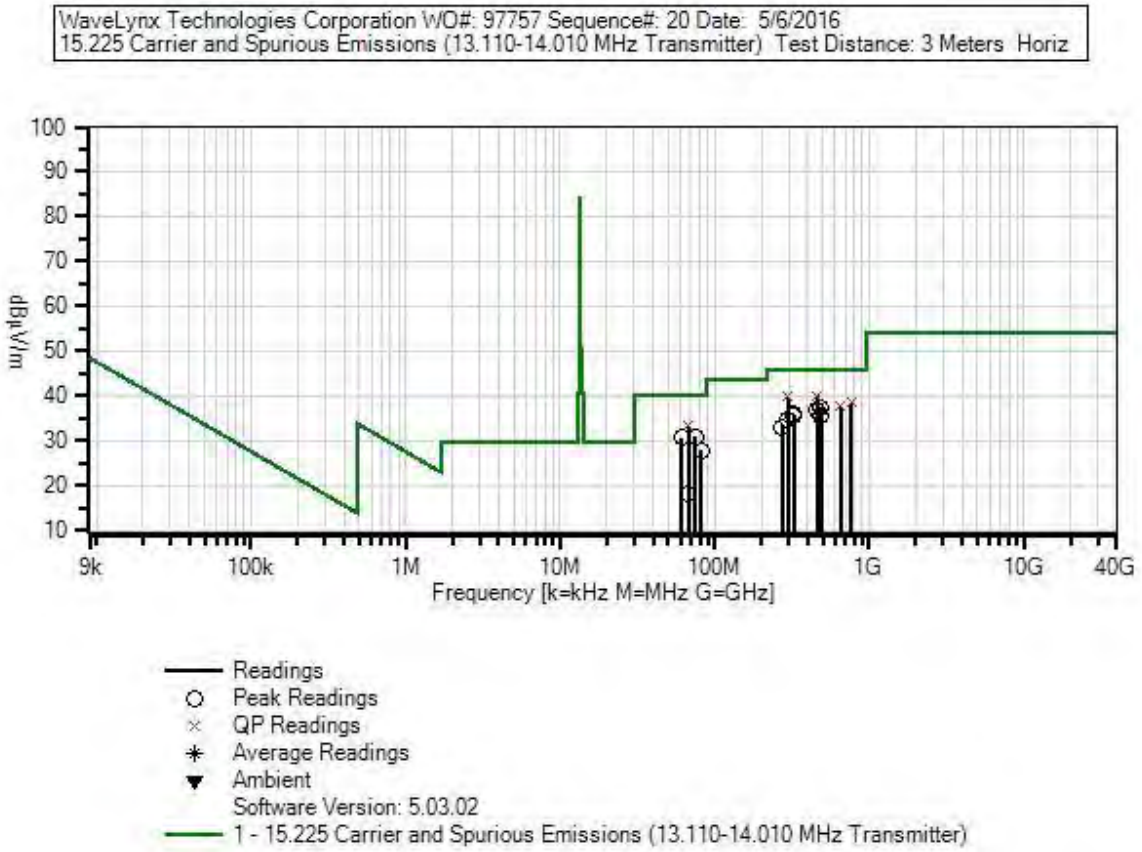
Test Conditions / Notes:

Radiated Spurious Emissions Measurements

Temperature: 12°C
Humidity:69%
Atmospheric Pressure: 97.0 kPa

Frequency Range: 30MHz -1GHz
Modulation: ASK with an 847kHz Subcarrier
Antenna Type: Integral
Antenna Gain 2 dBi
Transmit Frequency: 13.56MHz

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
The EUT is setup on an 80cm foam block. It has been programmed to continuously transmit the RFID signal at 13.56MHz.


WaveLynx Technologies Corporation WO#: 97757 Sequence#: 20 Date: 5/6/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Horiz
100
90
80
70
60
50
40
30
20
10
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.02
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

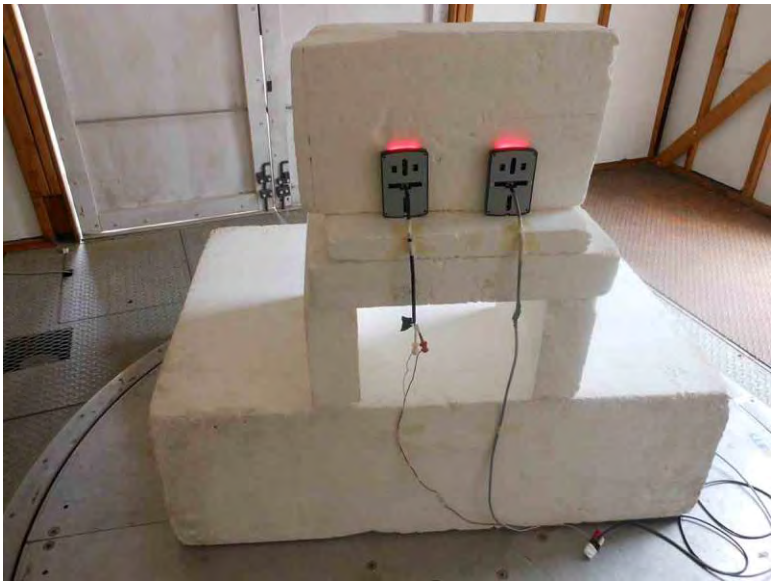
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN01991	Biconilog Antenna	CBL6111C	3/11/2016	3/11/2018
T2	ANMD3M	Cable		3/17/2016	3/17/2018
T3	ANP06229	Cable	CXTA04A-50	3/17/2016	3/17/2018
T4	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T6	ANP05657	Attenuator	PE7004-6	12/22/2015	12/22/2017
T7	AN00282	Preamp	8447D	4/7/2016	4/7/2018

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	461.041M	39.2	+17.3	+2.3	+2.5	+0.4	+0.0	40.1	46.0	-5.9	Vert
	QP		+0.5	+6.0	-28.1						
^	461.039M	40.2	+17.3	+2.3	+2.5	+0.4	+0.0	41.0	46.0	-4.9	Vert
			+0.5	+6.0	-28.1						
3	298.325M	42.8	+13.4	+1.9	+1.9	+0.4	+0.0	39.8	46.0	-6.2	Vert
	QP		+0.4	+6.0	-27.0						
^	298.328M	43.3	+13.4	+1.9	+1.9	+0.4	+0.0	40.3	46.0	-5.7	Vert
			+0.4	+6.0	-27.0						
^	298.324M	40.7	+13.4	+1.9	+1.9	+0.4	+0.0	37.7	46.0	-8.3	Vert
			+0.4	+6.0	-27.0						
6	67.814M	46.3	+6.8	+0.9	+0.9	+0.1	+0.0	33.4	40.0	-6.6	Vert
	QP		+0.2	+6.0	-27.8						
^	67.811M	46.9	+6.8	+0.9	+0.9	+0.1	+0.0	34.0	40.0	-6.0	Vert
			+0.2	+6.0	-27.8						
8	759.349M	30.2	+23.2	+3.0	+3.3	+0.5	+0.0	38.6	46.0	-7.4	Horiz
	QP		+0.6	+6.0	-28.2						
^	759.362M	33.0	+23.2	+3.0	+3.3	+0.5	+0.0	41.4	46.0	-4.6	Horiz
			+0.6	+6.0	-28.2						
10	650.870M	32.5	+20.7	+2.8	+3.0	+0.5	+0.0	37.6	46.0	-8.4	Vert
	QP		+0.5	+6.0	-28.4						
^	650.873M	34.6	+20.7	+2.8	+3.0	+0.5	+0.0	39.7	46.0	-6.3	Vert
			+0.5	+6.0	-28.4						
12	488.150M	35.9	+17.8	+2.4	+2.5	+0.4	+0.0	37.3	46.0	-8.7	Horiz
			+0.5	+6.0	-28.2						
13	74.590M	43.6	+7.0	+0.9	+0.9	+0.2	+0.0	31.0	40.0	-9.0	Vert
			+0.2	+6.0	-27.8						

14	461.030M	36.1	+17.3 +0.5	+2.3 +6.0	+2.5 -28.1	+0.4	+0.0	37.0	46.0	-9.0	Horiz
15	61.032M	44.7	+5.9 +0.2	+0.8 +6.0	+0.8 -27.8	+0.1	+0.0	30.7	40.0	-9.3	Vert
16	325.444M	38.1	+14.2 +0.4	+2.0 +6.0	+2.0 -27.1	+0.3	+0.0	35.9	46.0	-10.1	Vert
17	325.439M	38.0	+14.2 +0.4	+2.0 +6.0	+2.0 -27.1	+0.3	+0.0	35.8	46.0	-10.2	Horiz
18	488.170M	34.2	+17.8 +0.5	+2.4 +6.0	+2.5 -28.2	+0.4	+0.0	35.6	46.0	-10.4	Vert
19	298.325M	37.9	+13.4 +0.4	+1.9 +6.0	+1.9 -27.0	+0.4	+0.0	34.9	46.0	-11.1	Horiz
20	81.370M	40.1	+7.2 +0.2	+1.0 +6.0	+0.9 -27.8	+0.2	+0.0	27.8	40.0	-12.2	Vert
21	271.210M	36.9	+12.8 +0.4	+1.8 +6.0	+1.8 -26.9	+0.3	+0.0	33.1	46.0	-12.9	Vert
22	67.815M	30.8	+6.8 +0.2	+0.9 +6.0	+0.9 -27.8	+0.1	+0.0	17.9	40.0	-22.1	Horiz

Test Setup Photo



15.207 AC Conducted Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**WaveLynx Technologies Corporation.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97757**	Date:	5/3/2016
Test Type:	**Conducted Emissions**	Time:	13:22:30
Tested By:	Skip Doyle	Sequence#:	21
Software:	EMITest 5.03.02		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 15			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 15			

Test Conditions / Notes:

Testing the 115VAC/60Hz input to the 12VDC power supply

Test Method: ANSI C63.10: 2013

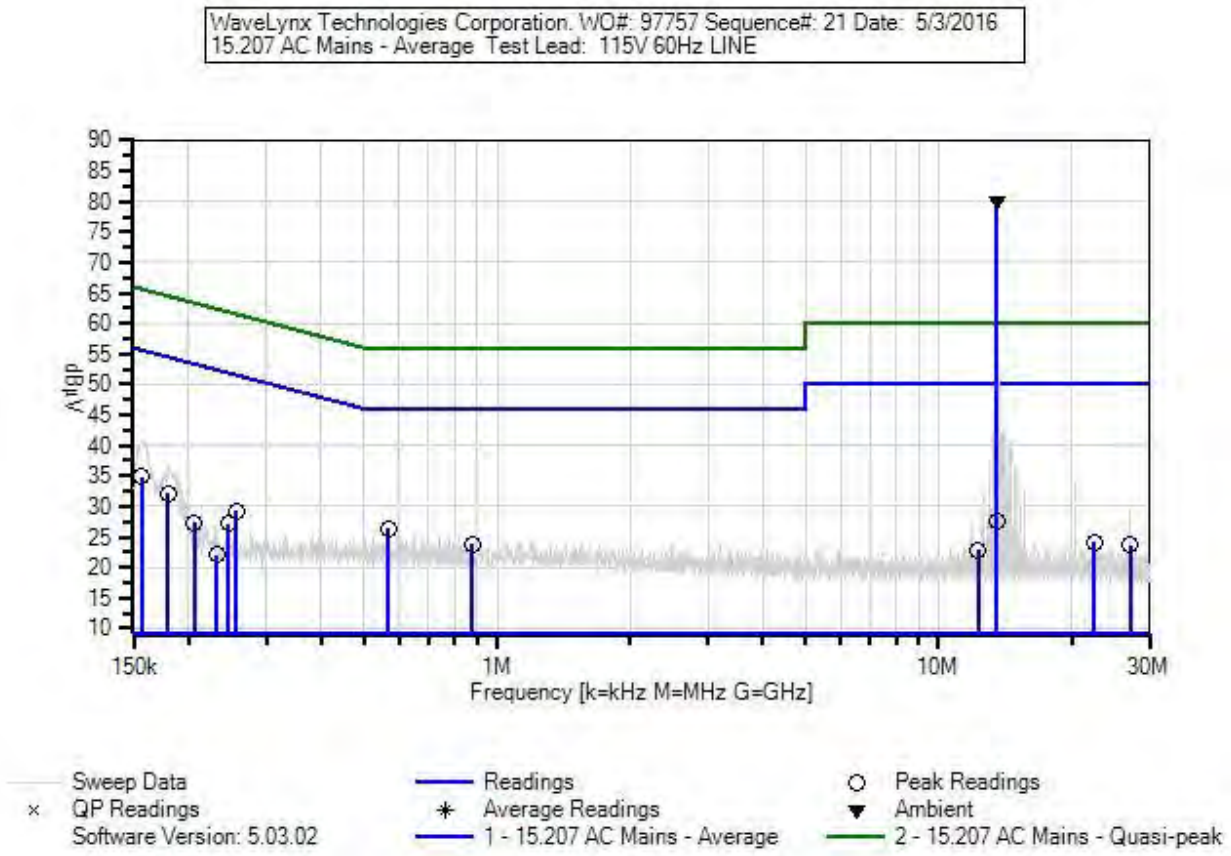
Frequency Range of Interest:
0.150-30MHz

RBW = 9kHz; VBW > 9kHz

Environmental Conditions:
Temperature: 20°C
Relative Humidity: 35%
Atmospheric Pressure: 97.1kPa

The EUTs are powered by a DC power supply at 12VDC. The customer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
It has been programmed to continuously transmit the RFID signal at 125kHz.

Configuration 15 is made up of Configurations 1, 2, 3 and 4. All were tested simultaneously. A quick "preview" of one-unit vs four units connected to the LISN was performed while the measuring instrument was set to a wide span, there was no difference in the rescan emission observed.


WaveLynx Technologies Corporation. WO#: 97757 Sequence#: 21 Date: 5/3/2016
15.207 AC Mains - Average Test Lead: 115V 60Hz LINE
dBµV
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.02
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T2	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T5	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T6	ANMD INT	Cable	Underground cables only	3/17/2016	3/17/2018
T7	ANP01153	Cable	NA	3/3/2016	3/3/2018

Measurement Data: Reading listed by margin. Test Lead: LINE

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.560M Ambient	69.1	+10.1 +0.1	+0.3 +0.2	+0.2 +0.1	+0.0	+0.0	80.1	50.0 Fundamental	+30.1	LINE
2	568.000k	15.8	+10.1 +0.0	+0.1 +0.0	+0.3 +0.0	+0.0	+0.0	26.3	46.0	-19.7	LINE
3	156.900k	23.6	+10.1 +0.0	+0.1 +0.0	+1.0 +0.0	+0.0	+0.0	34.8	55.6	-20.8	LINE
4	880.000k	13.3	+10.1 +0.0	+0.2 +0.0	+0.2 +0.0	+0.0	+0.0	23.8	46.0	-22.2	LINE
5	180.000k	21.7	+10.1 +0.0	+0.1 +0.0	+0.3 +0.0	+0.0	+0.0	32.2	54.5	-22.3	LINE
6	13.561M	16.6	+10.1 +0.1	+0.3 +0.2	+0.2 +0.1	+0.0	+0.0	27.6	50.0 Fundamental - antenna disconnected, under load	-22.4	LINE
7	256.300k	18.8	+10.1 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0	+0.0	29.2	51.6	-22.4	LINE
8	245.700k	16.7	+10.1 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0	+0.0	27.1	51.9	-24.8	LINE
9	22.540M	12.6	+10.1 +0.1	+0.6 +0.2	+0.3 +0.2	+0.0	+0.0	24.1	50.0	-25.9	LINE
10	205.800k	16.9	+10.1 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0	+0.0	27.3	53.4	-26.1	LINE
11	27.120M	12.6	+10.1 +0.1	+0.1 +0.2	+0.3 +0.2	+0.0	+0.0	23.6	50.0	-26.4	LINE
12	12.300M	12.0	+10.1 +0.1	+0.3 +0.2	+0.1 +0.1	+0.0	+0.0	22.9	50.0	-27.1	LINE
13	232.000k	11.7	+10.1 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0	+0.0	22.1	52.4	-30.3	LINE

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**WaveLynx Technologies Corporation.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97757**	Date:	5/3/2016
Test Type:	**Conducted Emissions**	Time:	13:30:48
Tested By:	Skip Doyle	Sequence#:	22
Software:	EMITest 5.03.02		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 15			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 15			

Test Conditions / Notes:

Testing the 115VAC/60Hz input to the 12VDC power supply

Test Method: ANSI C63.10: 2013

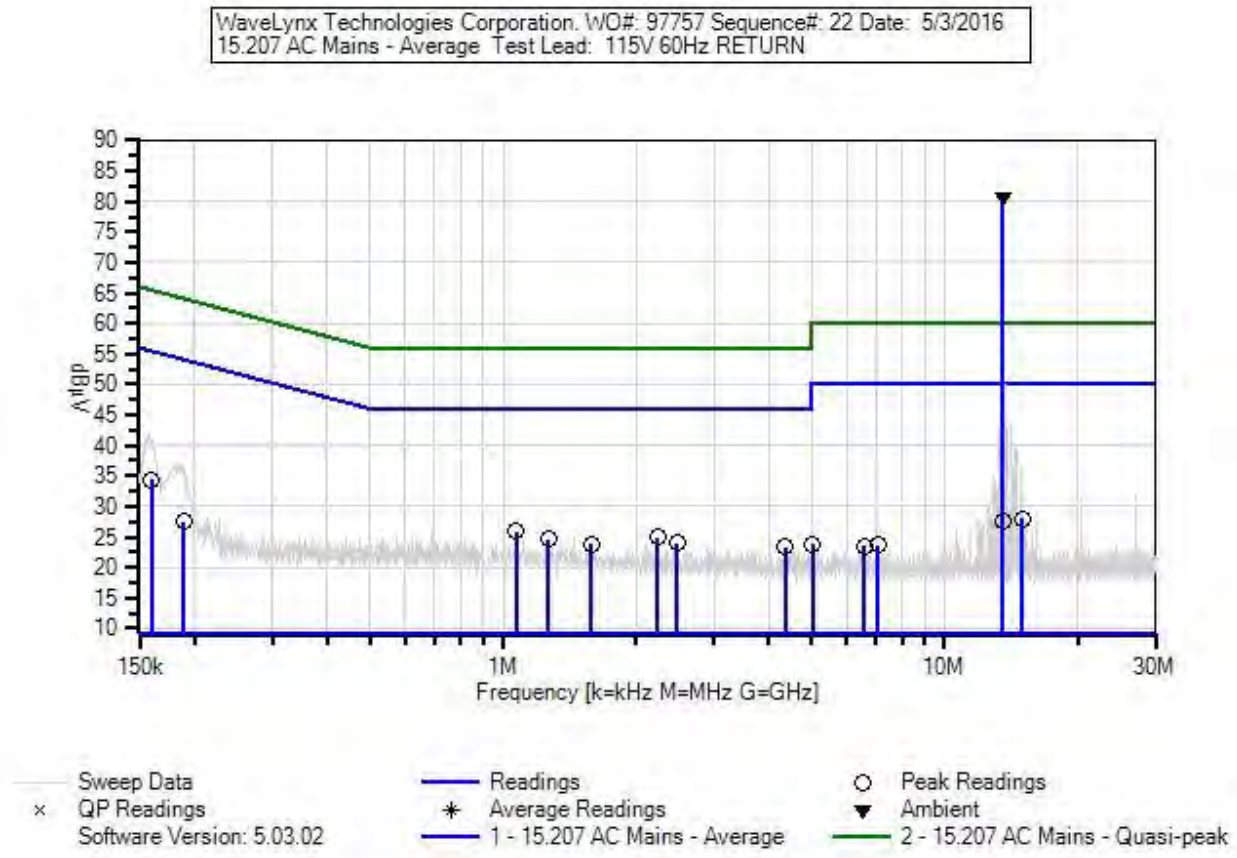
Frequency Range of Interest:
0.150-30MHz

RBW = 9kHz; VBW > 9kHz

Environmental Conditions:
Temperature: 20°C
Relative Humidity: 35%
Atmospheric Pressure: 97.1kPa

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
It has been programmed to continuously transmit the RFID signal at 125kHz.

Configuration 15 is made up of Configurations 1, 2, 3 and 4. All were tested simultaneously. A quick "preview" of one-unit vs four units connected to the LISN was performed while the measuring instrument was set to a wide span, there was no difference in the rescan emission observed.


WaveLynx Technologies Corporation. WO#: 97757 Sequence#: 22 Date: 5/3/2016
15.207 AC Mains - Average Test Lead: 115V 60Hz RETURN
dBµV
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.02
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T5	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T6	ANMD INT	Cable	Underground cables only	3/17/2016	3/17/2018
T7	ANP01153	Cable	NA	3/3/2016	3/3/2018

Measurement Data: Reading listed by margin. Test Lead: RETURN

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.560M	69.5	+10.1	+0.4	+0.2	+0.0	+0.0	80.6	50.0	+30.6	RETUR
	Ambient		+0.1	+0.2	+0.1				Fundamental		
2	1.072M	15.4	+10.1	+0.1	+0.2	+0.0	+0.0	25.9	46.0	-20.1	RETUR
			+0.0	+0.1	+0.0						
3	2.233M	14.4	+10.1	+0.1	+0.2	+0.0	+0.0	24.9	46.0	-21.1	RETUR
			+0.0	+0.1	+0.0						
4	160.000k	23.5	+10.1	+0.1	+0.6	+0.0	+0.0	34.3	55.5	-21.2	RETUR
			+0.0	+0.0	+0.0						
5	1.266M	14.1	+10.1	+0.1	+0.2	+0.0	+0.0	24.6	46.0	-21.4	RETUR
			+0.0	+0.1	+0.0						
6	2.476M	13.6	+10.1	+0.1	+0.1	+0.0	+0.0	24.0	46.0	-22.0	RETUR
			+0.0	+0.1	+0.0						
7	15.000M	16.8	+10.1	+0.4	+0.2	+0.0	+0.0	27.9	50.0	-22.1	RETUR
			+0.1	+0.2	+0.1						
8	1.585M	13.3	+10.1	+0.1	+0.2	+0.0	+0.0	23.8	46.0	-22.2	RETUR
			+0.0	+0.1	+0.0						
9	13.560M	16.6	+10.1	+0.4	+0.2	+0.0	+0.0	27.7	50.0	-22.3	RETUR
			+0.1	+0.2	+0.1				Fundamental-Antenna Disconnected and Loaded		
10	4.357M	12.8	+10.1	+0.1	+0.1	+0.0	+0.0	23.3	46.0	-22.7	RETUR
			+0.0	+0.1	+0.1						
11	5.032M	13.3	+10.1	+0.1	+0.1	+0.0	+0.0	23.8	50.0	-26.2	RETUR
			+0.0	+0.1	+0.1						
12	7.066M	12.9	+10.1	+0.2	+0.2	+0.0	+0.0	23.7	50.0	-26.3	RETUR
			+0.1	+0.1	+0.1						
13	6.562M	12.6	+10.1	+0.2	+0.2	+0.0	+0.0	23.4	50.0	-26.6	RETUR
			+0.1	+0.1	+0.1						
14	189.000k	17.0	+10.1	+0.1	+0.3	+0.0	+0.0	27.5	54.1	-26.6	RETUR
			+0.0	+0.0	+0.0						

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**WaveLynx Technologies Corporation.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97757**	Date:	5/3/2016
Test Type:	**Conducted Emissions**	Time:	13:34:55
Tested By:	Skip Doyle	Sequence#:	24
Software:	EMITest 5.03.02		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 16			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 16			

Test Conditions / Notes:

Testing the 115VAC/60Hz input to the 12VDC power supply

Test Method: ANSI C 63.4 2014

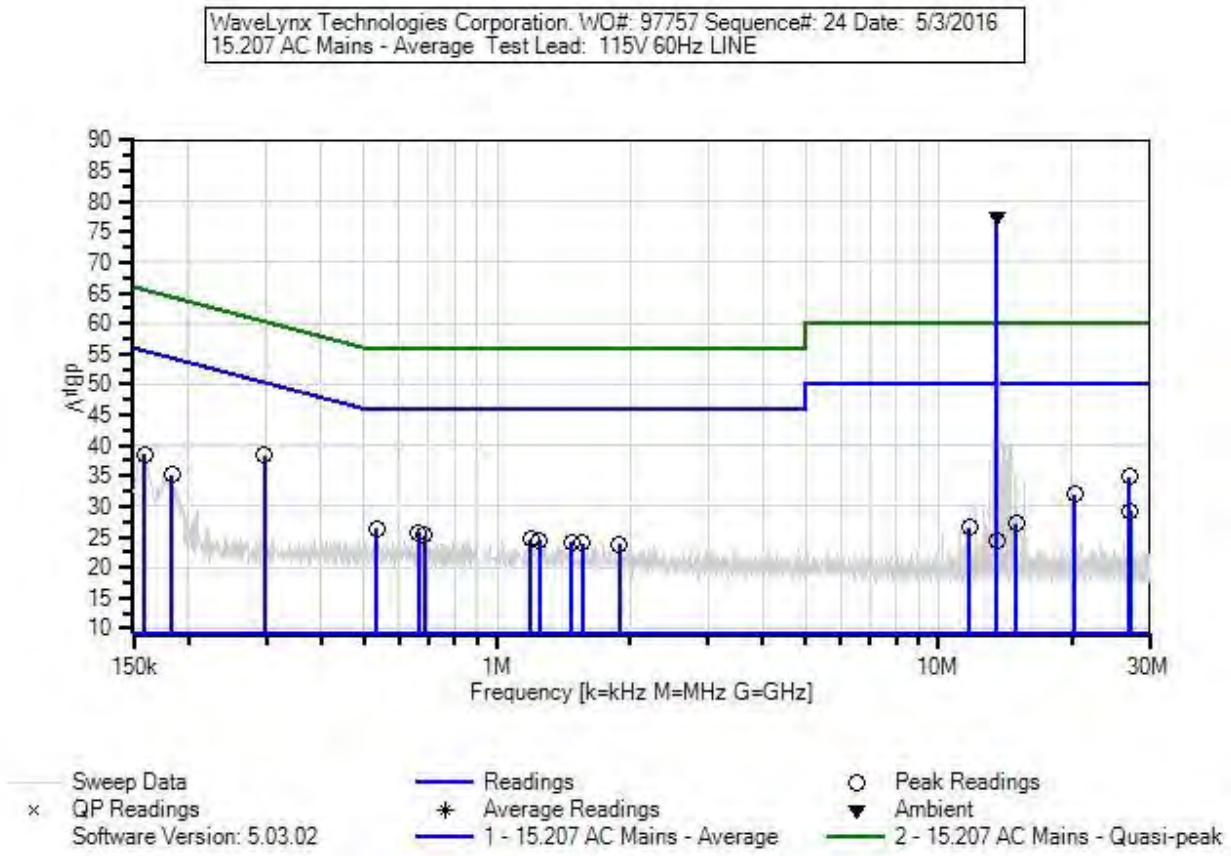
Frequency Range of Interest:
0.150-30MHz

RBW = 9kHz; VBW > 9kHz

Environmental Conditions:
Temperature: 20°C
Relative Humidity: 35%
Atmospheric Pressure: 97.1kPa

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
It has been programmed to continuously transmit the RFID signal at 13.56MHz.

Configuration 16 is made up of Configurations 5, 6, 7 and 8. All were tested simultaneously. A quick "preview" of one-unit vs four units connected to the LISN was performed while the measuring instrument was set to a wide span, there was no difference in the rescan emission observed.


WaveLynx Technologies Corporation. WO#: 97757 Sequence#: 24 Date: 5/3/2016
15.207 AC Mains - Average Test Lead: 115V 60Hz LINE
dBµV
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.02
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T2	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T5	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T6	ANMD INT	Cable	Underground cables only	3/17/2016	3/17/2018
T7	ANP01153	Cable	NA	3/3/2016	3/3/2018

Measurement Data: Reading listed by margin. Test Lead: LINE

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.560M	66.5	+10.1	+0.3	+0.2	+0.0	+0.0	77.5	50.0	+27.5	LINE
	Ambient		+0.1	+0.2	+0.1				Fundamental		
2	296.896k	27.9	+10.1	+0.1	+0.2	+0.0	+0.0	38.3	50.3	-12.0	LINE
			+0.0	+0.0	+0.0						
3	27.026M	23.9	+10.1	+0.1	+0.3	+0.0	+0.0	34.9	50.0	-15.1	LINE
			+0.1	+0.2	+0.2						
4	158.726k	27.6	+10.1	+0.1	+0.8	+0.0	+0.0	38.6	55.5	-16.9	LINE
			+0.0	+0.0	+0.0						
5	20.337M	20.7	+10.1	+0.4	+0.2	+0.0	+0.0	31.9	50.0	-18.1	LINE
			+0.1	+0.2	+0.2						
6	183.451k	24.6	+10.1	+0.1	+0.3	+0.0	+0.0	35.1	54.3	-19.2	LINE
			+0.0	+0.0	+0.0						
7	532.510k	15.8	+10.1	+0.1	+0.3	+0.0	+0.0	26.3	46.0	-19.7	LINE
			+0.0	+0.0	+0.0						
8	663.407k	15.1	+10.1	+0.2	+0.3	+0.0	+0.0	25.7	46.0	-20.3	LINE
			+0.0	+0.0	+0.0						
9	683.041k	14.7	+10.1	+0.2	+0.3	+0.0	+0.0	25.3	46.0	-20.7	LINE
			+0.0	+0.0	+0.0						
10	27.122M	18.2	+10.1	+0.1	+0.3	+0.0	+0.0	29.2	50.0	-20.8	LINE
			+0.1	+0.2	+0.2						

11	1.192M	13.8	+10.1 +0.0	+0.4 +0.1	+0.2 +0.0	+0.0	+0.0	24.6	46.0	-21.4	LINE
12	1.247M	13.6	+10.1 +0.0	+0.4 +0.1	+0.2 +0.0	+0.0	+0.0	24.4	46.0	-21.6	LINE
13	1.473M	13.3	+10.1 +0.0	+0.4 +0.1	+0.2 +0.0	+0.0	+0.0	24.1	46.0	-21.9	LINE
14	1.558M	13.1	+10.1 +0.0	+0.4 +0.1	+0.2 +0.0	+0.0	+0.0	23.9	46.0	-22.1	LINE
15	1.889M	13.0	+10.1 +0.0	+0.4 +0.1	+0.2 +0.0	+0.0	+0.0	23.8	46.0	-22.2	LINE
16	15.000M	16.2	+10.1 +0.1	+0.3 +0.2	+0.2 +0.1	+0.0	+0.0	27.2	50.0	-22.8	LINE
17	11.760M	15.6	+10.1 +0.1	+0.3 +0.2	+0.1 +0.1	+0.0	+0.0	26.5	50.0	-23.5	LINE
18	13.560M	13.5	+10.1 +0.1	+0.3 +0.2	+0.2 +0.1	+0.0	+0.0	24.5	50.0 Fundamental - antenna disconnected, under load	-25.5	LINE

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**WaveLynx Technologies Corporation.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97757**	Date:	5/3/2016
Test Type:	**Conducted Emissions**	Time:	13:41:59
Tested By:	Skip Doyle	Sequence#:	23
Software:	EMITest 5.03.02		115V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 16			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 16			

Test Conditions / Notes:

Testing the 115VAC/60Hz input to the 12VDC power supply

Test Method: ANSI C 63.4 2014

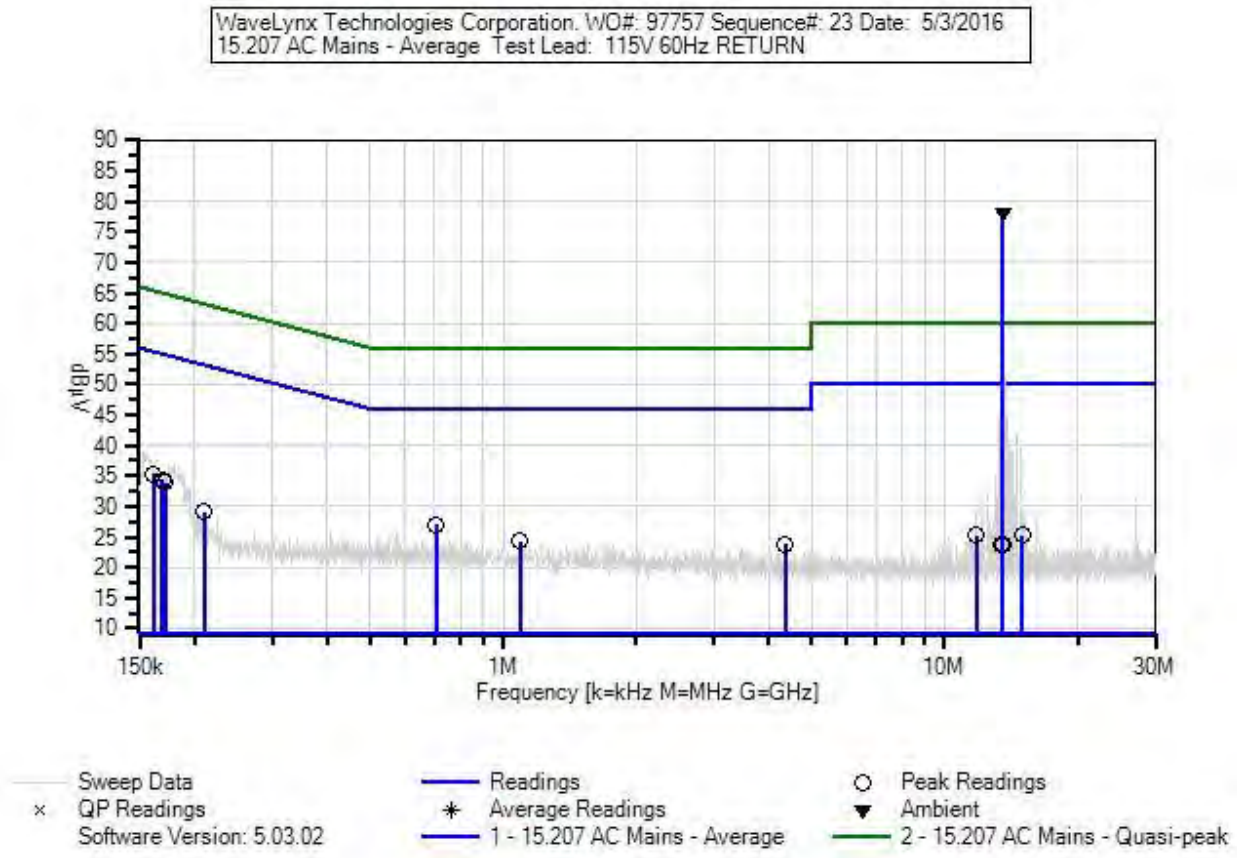
Frequency Range of Interest:
0.150-30MHz

RBW = 9kHz; VBW > 9kHz

Environmental Conditions:
Temperature: 20°C
Relative Humidity: 35%
Atmospheric Pressure: 97.1kPa

The EUTs are powered by a DC power supply at 12VDC. The manufacturer declares it will only ever be wall mounted in an upright/vertical (Y-axis) orientation.
It has been programmed to continuously transmit the RFID signal at 13.56MHz.

Configuration 16 is made up of Configurations 5, 6, 7 and 8. All were tested simultaneously. A quick "preview" of one-unit vs four units connected to the LISN was performed while the measuring instrument was set to a wide span, there was no difference in the rescan emission observed.


WaveLynx Technologies Corporation. WO#: 97757 Sequence#: 23 Date: 5/3/2016
15.207 AC Mains - Average Test Lead: 115V 60Hz RETURN
dBµV
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.02
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T3	AN02609	High Pass Filter	HE9615-150K-50-720B	2/18/2016	2/18/2018
T4	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T5	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T6	ANMD INT	Cable	Underground cables only	3/17/2016	3/17/2018
T7	ANP01153	Cable	NA	3/3/2016	3/3/2018

Measurement Data: Reading listed by margin. Test Lead: RETURN

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.560M	67.1	+10.1	+0.4	+0.2	+0.0	+0.0	78.2	50.0	+28.2	RETUR
	Ambient		+0.1	+0.2	+0.1				Fundamental		
2	704.340k	16.6	+10.1	+0.1	+0.3	+0.0	+0.0	27.1	46.0	-18.9	RETUR
			+0.0	+0.0	+0.0						
3	161.640k	24.5	+10.1	+0.1	+0.6	+0.0	+0.0	35.3	55.4	-20.1	RETUR
			+0.0	+0.0	+0.0						
4	168.660k	23.7	+10.1	+0.1	+0.4	+0.0	+0.0	34.3	55.0	-20.7	RETUR
			+0.0	+0.0	+0.0						
5	171.290k	23.3	+10.1	+0.1	+0.4	+0.0	+0.0	33.9	54.9	-21.0	RETUR
			+0.0	+0.0	+0.0						
6	1.090M	13.8	+10.1	+0.1	+0.2	+0.0	+0.0	24.3	46.0	-21.7	RETUR
			+0.0	+0.1	+0.0						
7	4.357M	13.3	+10.1	+0.1	+0.1	+0.0	+0.0	23.8	46.0	-22.2	RETUR
			+0.0	+0.1	+0.1						
8	209.840k	18.7	+10.1	+0.1	+0.2	+0.0	+0.0	29.1	53.2	-24.1	RETUR
			+0.0	+0.0	+0.0						
9	11.780M	14.3	+10.1	+0.3	+0.1	+0.0	+0.0	25.2	50.0	-24.8	RETUR
			+0.1	+0.2	+0.1						
10	15.000M	14.1	+10.1	+0.4	+0.2	+0.0	+0.0	25.2	50.0	-24.8	RETUR
			+0.1	+0.2	+0.1						
11	13.450M	12.7	+10.1	+0.4	+0.2	+0.0	+0.0	23.8	50.0	-26.2	RETUR
			+0.1	+0.2	+0.1						
12	13.560M	12.6	+10.1	+0.4	+0.2	+0.0	+0.0	23.7	50.0	-26.3	RETUR
			+0.1	+0.2	+0.1				Fundamental - antenna disconnected, under load		

Test Setup Photos

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.