

RJE Technologies, Inc.

TEST REPORT FOR

**Pool Safety Alarm
Model: Safety Turtle**

Tested To The Following Standards:

**FCC Part 15 Subpart C Section(s)
15.249**

Report No.: 96218-4

Date of issue: December 1, 2014



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

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

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

RJE Technologies, Inc.
15375 Barranca Parkway I-112
Irvine, CA 92618

REPORT PREPARED BY:

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

REPRESENTATIVE: Corinne Zemla

Project Number: 96218

DATE OF EQUIPMENT RECEIPT:

November 18, 2014

DATE(S) OF TESTING:

November 18, 2014

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.

A handwritten signature in black ink, reading "Steve Behm", is written over a horizontal line.

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.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Test Procedure	Description	Modifications*	Results
15.31(e)	Voltage Variation	NA	Pass
15.215(c)	Occupied Bandwidth	NA	Pass
15.249(a)	RF Power Output	NA	Pass
15.249(b)	Field Strength of Harmonics	NA	Pass
15.249(d)	Radiated Spurious Emissions and Band Edge	NA	Pass

Modifications*/Conditions During Testing

This list is a summary of the conditions noted for or 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.**

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Pool Safety Alarm

Manuf: RJE Technologies, Inc.

Model: Safety Turtle

Serial: NA

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

DC Power Supply

Manuf: Xantrex

Model: XTS30-2X

Serial: 58738

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) CFR 47 Section 15 Subpart C requirements for Intentional Radiators.

15.31(e) Voltage Variations

Test Conditions / Setup / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714 993-6112

Customer: **RJE Technologies, Inc.**

Specification: **15.31(e)**

Work Order #: **96218**

Date: 11/18/2014

Test Type: **Maximized Emissions**

Equipment: **Pool safety alarm**

Sequence#: 1

Manufacturer: RJE Technologies, Inc.

Tested By: S. Yamamoto

Model: Safety Turtle

S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
T2	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T3	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

Test Conditions / Notes:

The EUT is a standalone on the Styrofoam table top.

The EUT is powered from an external DC power supplying output 3.0VDC.

The EUT transmits solely on a single channel 915 MHz.

The relay is wired closed so the EUT is in a continuous transmitting mode.

The EUT is positioned in three different axes and data is taken in each axis.

Fundamental emissions of this data sheet represent worst case emission levels for each axis and antenna polarity.

Frequency range of data sheet 915.0 to 915.05MHz. RBW=VBW=120kHz.

Temperature: 23°C

Relative Humidity: 30%

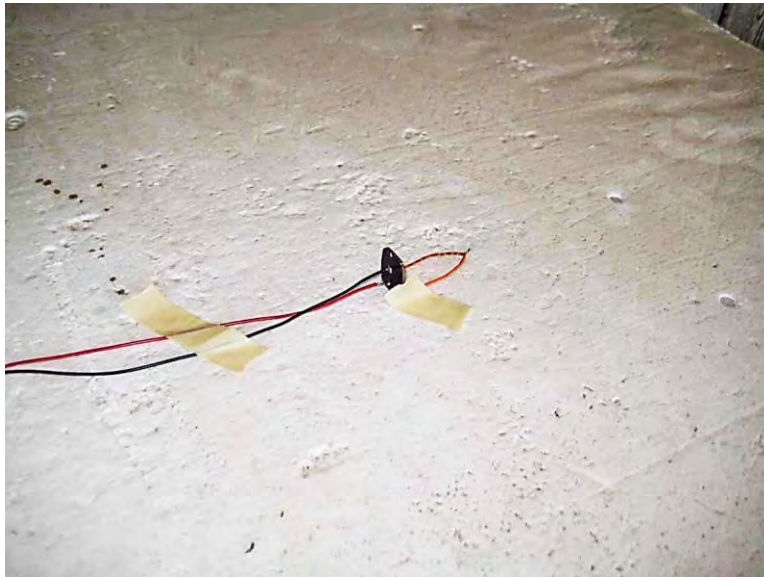
Pressure: 100kPa

Site A

An external power supply set at 3.0VDC was utilized to simulate a new battery.

The actual battery used in the EUT is a 3.0VDC CR2032 battery.

Test Photo



15.215(c) Occupied Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714 993-6112

Customer: **RJE Technologies, Inc.**
 Specification: **15.215 Occupied Bandwidth**
 Work Order #: **96218**
 Test Type: **Maximized Emissions**
 Equipment: **Pool safety alarm**
 Manufacturer: RJE Technologies, Inc.
 Model: Safety Turtle
 S/N: NA

Date: 11/18/2014

Sequence#: 1
 Tested By: S. Yamamoto

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
T2	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T3	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

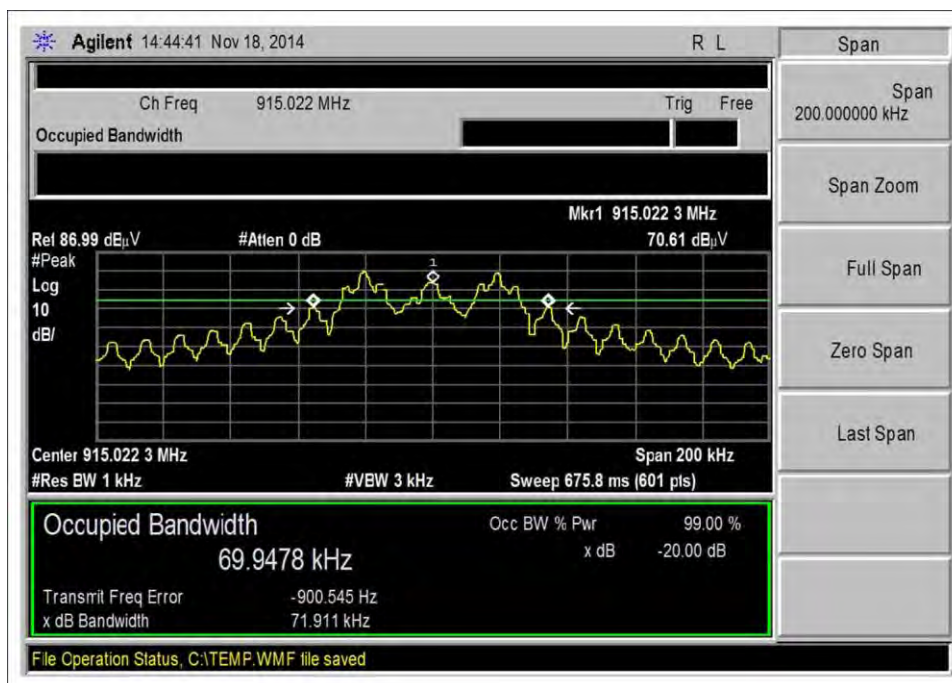
Test Conditions / Notes:

The EUT is a standalone on the Styrofoam table top.
 The EUT is powered from an external DC power supplying output 3.0VDC.
 The EUT transmits solely on a single channel 915 MHz.
 The relay is wired closed so the EUT is in a continuous transmitting mode.

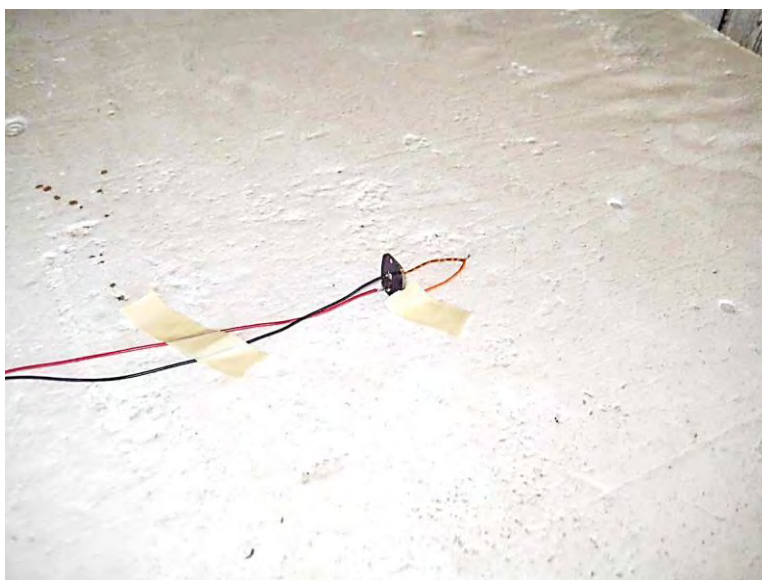
Temperature: 23°C
 Relative Humidity: 30%
 Pressure: 100kPa

Site A

Test Data



Test Setup Photo



15.249(a) RF Power Output

Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 7149936112

Customer: **RJE Technologies, Inc.**
 Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
 Work Order #: **96218** Date: 11/18/2014
 Test Type: **Maximized Emissions** Time: 09:30:32
 Equipment: **Pool safety alarm** Sequence#: 1
 Manufacturer: RJE Technologies, Inc. Tested By: S. Yamamoto
 Model: Safety Turtle
 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
T2	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T3	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

Test Conditions / Notes:

The EUT is a standalone on the Styrofoam table top.
 The EUT is powered from an external DC power supplying output 3.0VDC.
 The EUT transmits solely on a single channel 915 MHz.
 The relay is wired closed so the EUT is in a continuous transmitting mode.
 The EUT is positioned in three different axes and data is taken in each axis.

Fundamental emissions of this data sheet represent worst case emission levels for each axis and antenna polarity.
 Frequency range of data sheet 915.0 to 915.05MHz. RBW=VBW=120kHz.

Temperature: 23°C
 Relative Humidity: 30%
 Pressure: 100kPa

Site A

Ext Attn: 0 dB

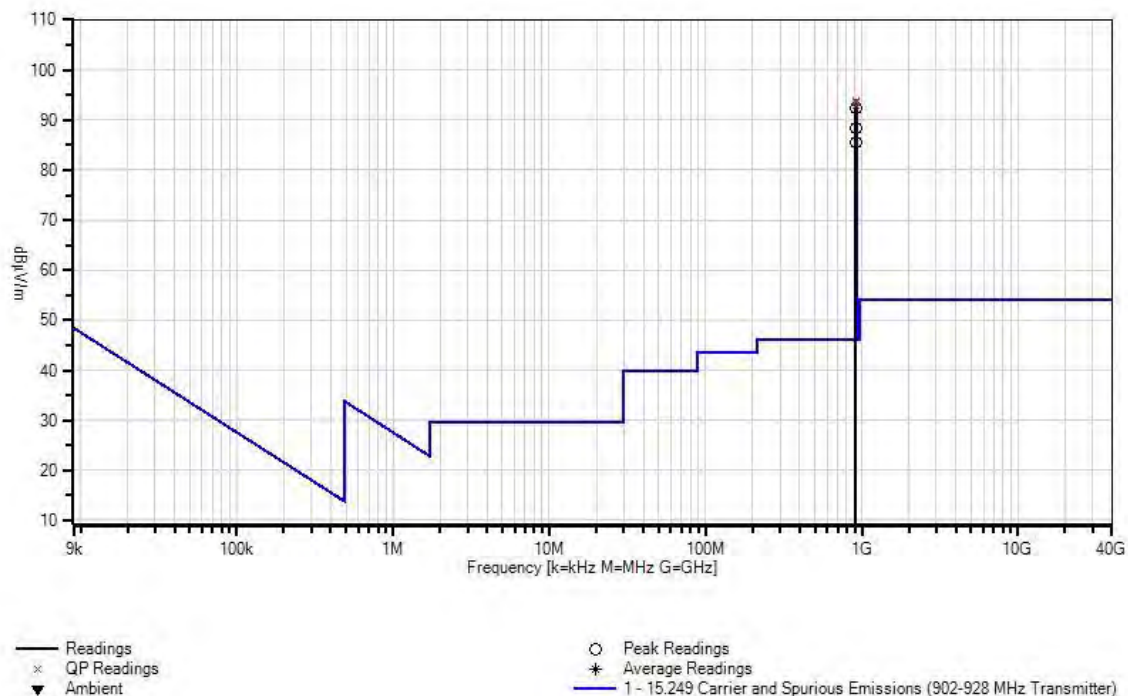
Measurement Data:

Reading listed by margin.

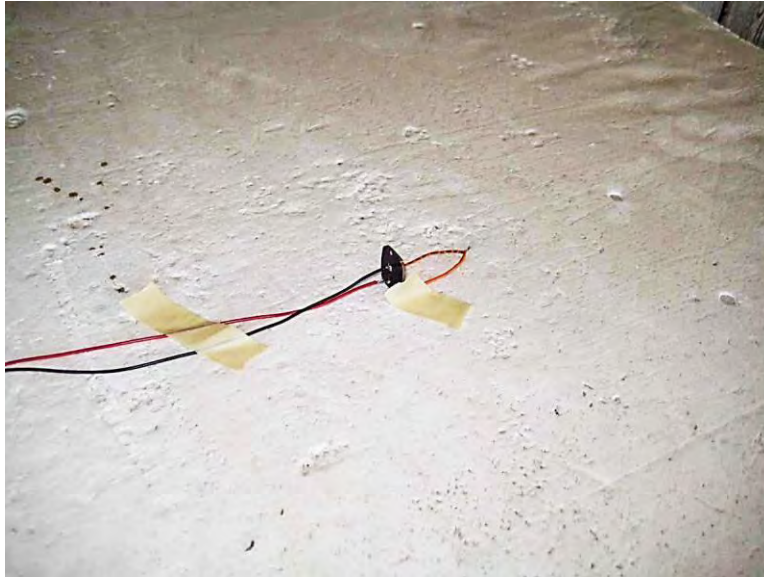
Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	915.000M	64.1	+0.0	+5.9	+23.7		+0.0	93.7	94.0	-0.3	Horiz
QP											
2	915.046M	64.0	+0.0	+5.9	+23.7		+0.0	93.6	94.0	-0.4	Horiz
QP											
3	915.005M	63.4	+0.0	+5.9	+23.7		+0.0	93.0	94.0	-1.0	Horiz
QP											
^	915.000M	64.3	+0.0	+5.9	+23.7		+0.0	93.9	94.0	-0.1	Horiz
^	915.046M	64.3	+0.0	+5.9	+23.7		+0.0	93.9	94.0	-0.1	Horiz
^	915.005M	63.6	+0.0	+5.9	+23.7		+0.0	93.2	94.0	-0.8	Horiz
7	915.004M	62.7	+0.0	+5.9	+23.7		+0.0	92.3	94.0	-1.7	Vert
8	915.041M	58.8	+0.0	+5.9	+23.7		+0.0	88.4	94.0	-5.6	Vert
9	915.038M	55.8	+0.0	+5.9	+23.7		+0.0	85.4	94.0	-8.6	Vert

CKC Laboratories, Inc. Date: 11/18/2014 Time: 09:30:32 RJE Technologies, Inc. WO#: 96218
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Sequence#: 1 Ext
ATTN: 0 dB



Test Setup Photo



15.249(b) Field Strength of Harmonics

Test Conditions / Setup / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714 993-6112

Customer: **RJE Technologies, Inc.**
 Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
 Work Order #: **96218** Date: 11/18/2014
 Test Type: **Maximized Emissions** Time: 10:46:25
 Equipment: **Pool safety alarm** Sequence#: 2
 Manufacturer: RJE Technologies, Inc. Tested By: S. Yamamoto
 Model: Safety Turtle
 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
T1	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
T2	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
T3	AN00786	Preamp	83017A	4/25/2014	4/25/2016
T4	ANP06543	Cable	32022-29094K-29094K-24TC	11/20/2013	11/20/2015
T5	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
T6	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

Test Conditions / Notes:

The EUT is a standalone on the Styrofoam table top.
 The EUT is powered from an external DC power supplying output 3.0VDC.
 The EUT transmits solely on a single channel 915 MHz.
 The relay is wired closed so the EUT is in a continuous transmitting mode.
 The EUT is positioned in three different axes and data is taken in each axis.

Harmonic emissions of this data sheet represent worst case emission levels for each axis and antenna polarity.
 Frequency range of data sheet 1800 to 10000MHz. RBW=VBW=1MHz.

Temperature: 23°C
 Relative Humidity: 30%
 Pressure: 100kPa

Site A

Ext Attn: 0 dB

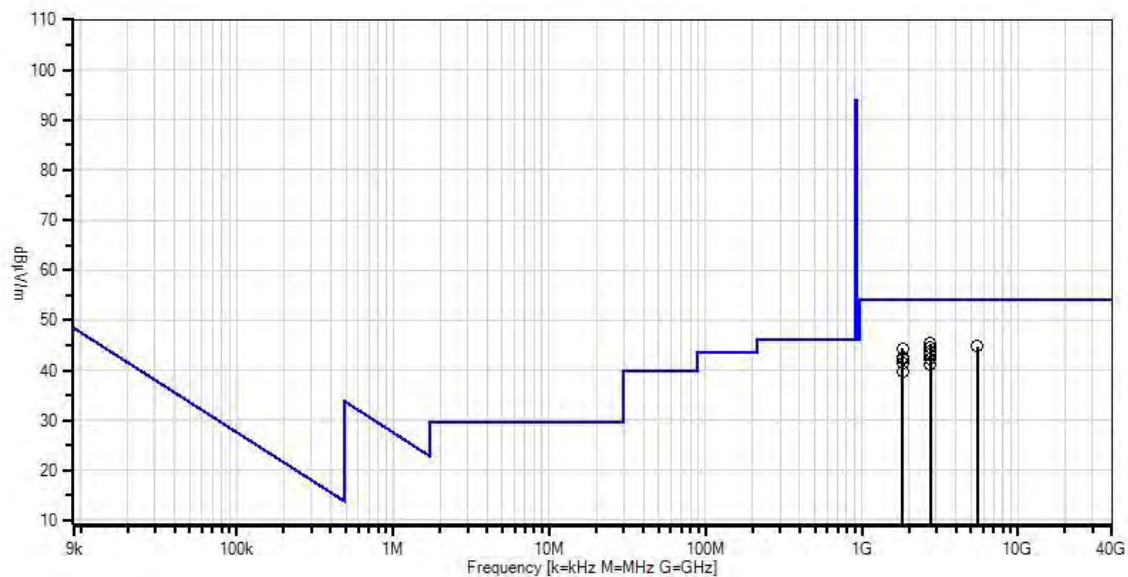
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	2745.126M	51.4	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	45.4	54.0	-8.6	Horiz
2	5490.268M	42.2	+2.1 +0.2	+6.5 +31.0	-37.9	+0.7	+0.0	44.8	54.0	-9.2	Vert
3	2745.129M	50.5	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	44.5	54.0	-9.5	Horiz
4	1830.084M	53.2	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	44.3	54.0	-9.7	Horiz
5	2745.005M	49.6	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	43.6	54.0	-10.4	Horiz
6	2745.167M	49.0	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	43.0	54.0	-11.0	Vert
7	1829.995M	51.4	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	42.5	54.0	-11.5	Horiz
8	1830.042M	51.4	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	42.5	54.0	-11.5	Vert
9	2744.998M	48.3	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	42.3	54.0	-11.7	Vert
10	1830.085M	51.1	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	42.2	54.0	-11.8	Vert
11	1830.083M	50.4	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	41.5	54.0	-12.5	Horiz
12	2745.008M	47.1	+1.4 +0.2	+4.4 +26.4	-38.9	+0.5	+0.0	41.1	54.0	-12.9	Vert
13	1829.997M	48.7	+0.8 +0.3	+3.5 +24.4	-38.3	+0.4	+0.0	39.8	54.0	-14.2	Vert

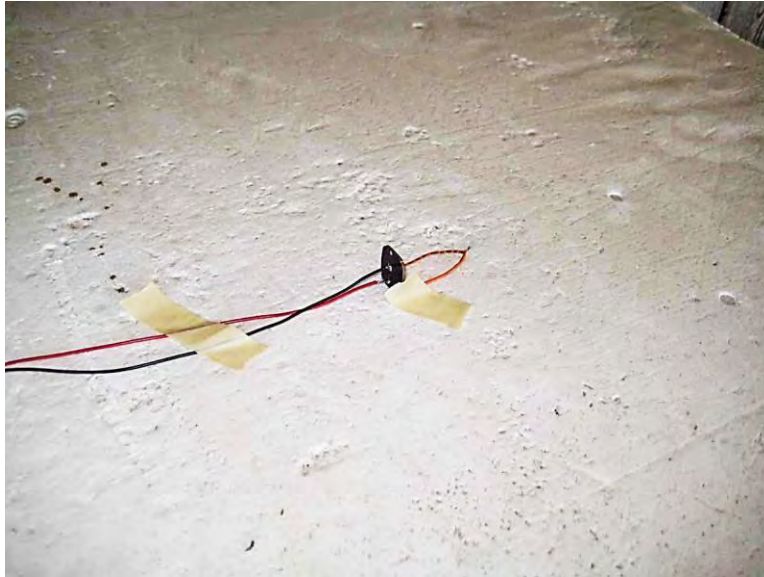
CKC Laboratories, Inc. Date: 11/18/2014 Time: 10:46:25 RJE Technologies, Inc. WO#: 96218
 15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Sequence#: 2 Ext
 ATTN: 0 dB



Readings
 × QP Readings
 ▼ Ambient

○ Peak Readings
 * Average Readings
 — 1 - 15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)

Test Setup Photo



15.249(d) / 15.209 Radiated Spurious Emissions and Band Edge

Test Conditions / Setup / Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714 993-6112

Customer: **RJE Technologies, Inc.**
 Specification: **15.249(d)/15.209 Radiated Emissions**
 Work Order #: **96218**
 Test Type: **Maximized Emissions**
 Equipment: **Pool safety alarm**
 Manufacturer: RJE Technologies, Inc.
 Model: Safety Turtle
 S/N: NA

Date: 11/18/2014
 Time: 14:41:03
 Sequence#: 3
 Tested By: S. Yamamoto

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	ANP05421	Cable	Sucoflex 104A	1/8/2014	1/8/2016
	ANP06661	Cable	LDF1-50	4/15/2014	4/15/2016
	AN00786	Preamp	83017A	4/25/2014	4/25/2016
	ANP06543	Cable	32022-29094K-29094K-24TC	11/20/2013	11/20/2015
	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
	AN00849	Horn Antenna	3115	3/18/2014	3/18/2016
T1	AN00309	Preamp	8447D	3/12/2014	3/12/2016
T2	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016
T3	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T4	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
	AN00314	Loop Antenna	6502	7/2/2014	7/2/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

Test Conditions / Notes:

The EUT is a standalone on the Styrofoam table top.
The EUT is powered from an external DC power supplying output 3.0VDC.
The EUT transmits solely on a single channel 915 MHz.
The relay is wired closed so the EUT is in a continuous transmitting mode.
The EUT is positioned in three different axes and data is taken in each axis.

Spurious emissions of this data sheet represent worst case emission levels for each axis and antenna polarity.
Frequency range of data sheet 0.009 to 10000MHz.
0.009 - 0.15MHz, RBW=VBW=0.2kHz. 0.15 - 30MHz, RBW=VBW=9kHz.
30 - 1000MHz, RBW=VBW=120kHz. 1000 - 10000MHz, RBW=VBW=1MHz.

Temperature: 23°C
Relative Humidity: 30%
Pressure: 100kPa

Site A

Ext Attn: 0 dB

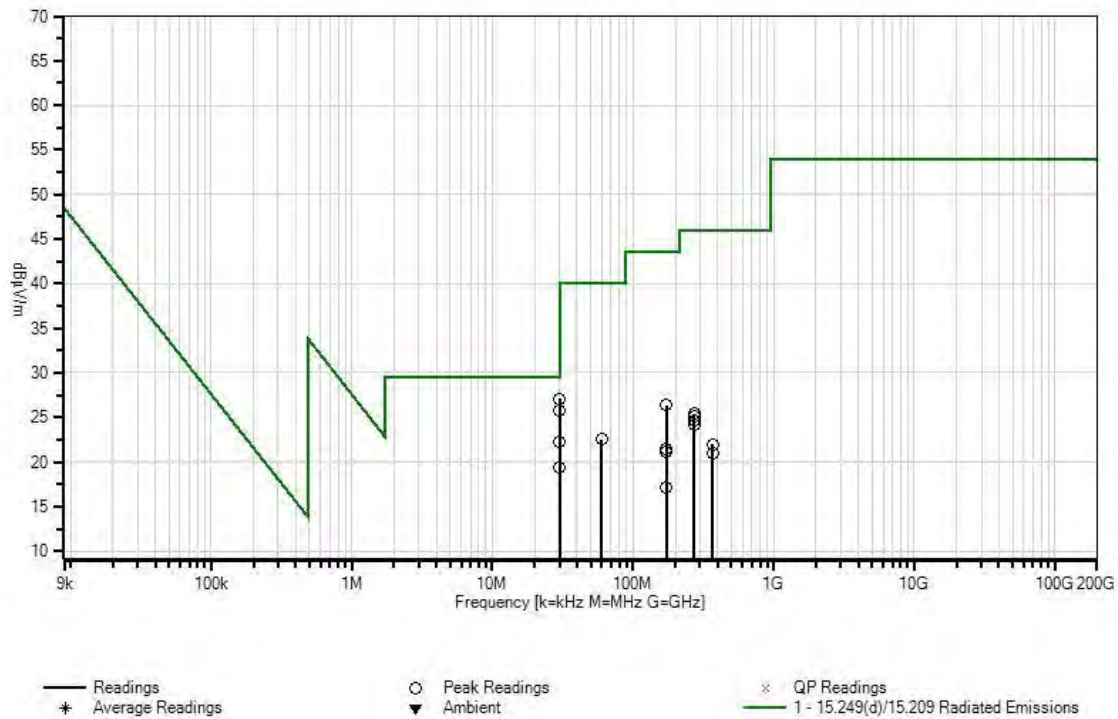
Measurement Data:

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	30.050M	35.8	-28.2	+18.6	+0.0	+0.9	+0.0	27.1	40.0	-12.9	Vert
2	30.001M	34.4	-28.2	+18.6	+0.0	+0.9	+0.0	25.7	40.0	-14.3	Vert
3	172.261M	42.5	-28.0	+9.4	+0.2	+2.3	+0.0	26.4	43.5	-17.1	Vert
4	60.092M	43.5	-28.2	+5.8	+0.1	+1.3	+0.0	22.5	40.0	-17.5	Vert
5	30.006M	31.0	-28.2	+18.6	+0.0	+0.9	+0.0	22.3	40.0	-17.7	Horiz
6	30.000M	28.1	-28.2	+18.6	+0.0	+0.9	+0.0	19.4	40.0	-20.6	Vert
7	270.733M	37.1	-28.0	+13.0	+0.3	+3.0	+0.0	25.4	46.0	-20.6	Horiz
8	270.583M	36.9	-28.0	+13.0	+0.3	+3.0	+0.0	25.2	46.0	-20.8	Vert
9	270.721M	36.4	-28.0	+13.0	+0.3	+3.0	+0.0	24.7	46.0	-21.3	Vert
10	270.755M	35.8	-28.0	+13.0	+0.3	+3.0	+0.0	24.1	46.0	-21.9	Vert
11	172.296M	37.5	-28.0	+9.4	+0.2	+2.3	+0.0	21.4	43.5	-22.1	Horiz
12	172.300M	37.2	-28.0	+9.4	+0.2	+2.3	+0.0	21.1	43.5	-22.4	Vert
13	369.127M	30.5	-27.9	+15.6	+0.3	+3.5	+0.0	22.0	46.0	-24.0	Vert
14	369.219M	29.4	-27.9	+15.6	+0.3	+3.5	+0.0	20.9	46.0	-25.1	Vert
15	172.222M	33.3	-28.0	+9.4	+0.2	+2.3	+0.0	17.2	43.5	-26.3	Vert

CKC Laboratories, Inc. Date: 11/18/2014 Time: 14:41:03 RJE Technologies, Inc. WO#: 96218
 15.249(d)/15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 3 Ext ATTN: 0 dB



Band Edge

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • 714 993-6112

Customer: **RJE Technologies, Inc.**

Specification: **Band Edge Compliance**

Work Order #: **96218**

Date: 11/18/2014

Test Type: **Maximized Emissions**

Equipment: **Pool safety alarm**

Sequence#: 1

Manufacturer: RJE Technologies, Inc.

Tested By: S. Yamamoto

Model: Safety Turtle

S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
T2	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T3	AN01995	Biconilog Antenna	CBL6111C	4/30/2014	4/30/2016

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pool safety alarm*	RJE Technologies, Inc.	Safety Turtle	NA

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Xantrex	XTS30-2X	58738

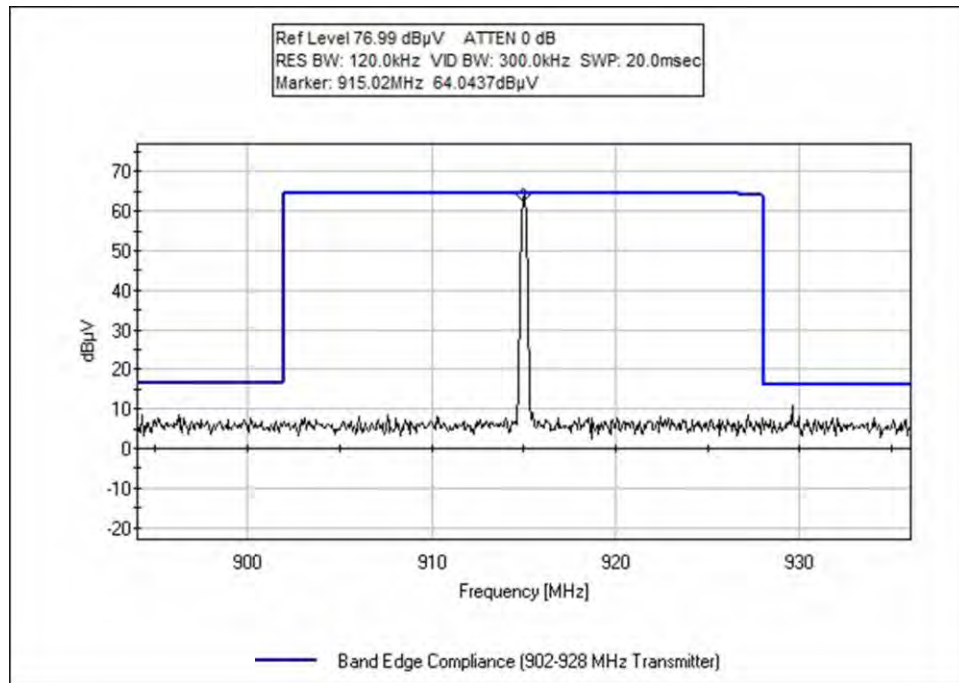
Test Conditions / Notes:

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The EUT is powered from an external DC power supplying output 3.0VDC.
The EUT transmits solely on a single channel 915 MHz.
The relay is wired closed so the EUT is in a continuous transmitting mode.

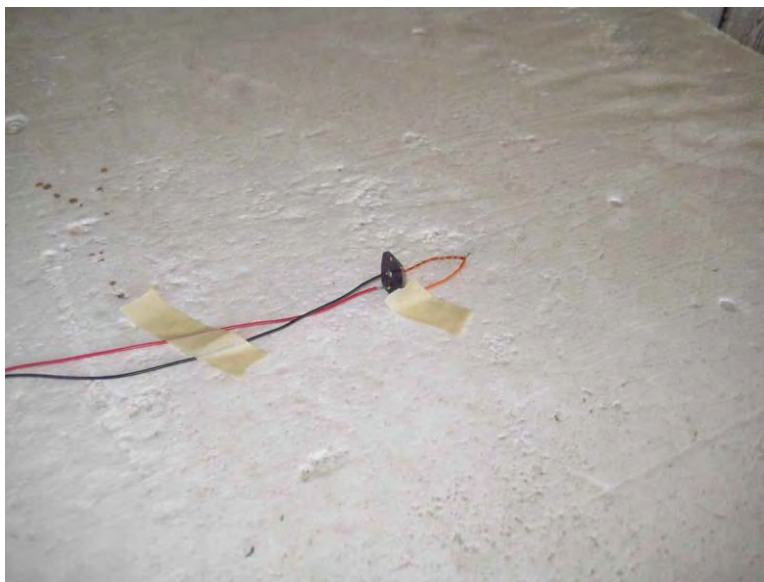
Temperature: 23°C
Relative Humidity: 30%
Pressure: 100kPa

Site A

Test Data



Test Setup Photo



SUPPLEMENTAL INFORMATION

Measurement Uncertainty

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

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. 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 $\text{dB}\mu\text{V}/\text{m}$, the spectrum analyzer reading in $\text{dB}\mu\text{V}$ was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBμV)
+	Antenna Factor	(dB)
+	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 carrot ("^") 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.