# McKinley-Ross Corp.

**ADDENDUM TO TEST REPORT 94389-4** 

Water Switch Transmitter
Model: WMS500

**Tested To The Following Standards:** 

FCC Part 15 Subpart C Sections 15.231 & RSS-210 Issue 8

Report No.: 94389-4A

Date of issue: January 9, 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: REPORT PREPARED BY:

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**DATE OF EQUIPMENT RECEIPT:** September 16, 2013

DATE(S) OF TESTING: September 16 - October 29, 2013

December 24, 2013

### **Revision History**

Original: Testing of the Water Switch Transmitter, WMS500 to FCC 15.231 and RSS 210 Issue 8.

**Addendum A:** To insert new test data for section 15.231(a) Types of Momentary Signals and Section 15.231(b) Fundamental and Spurious Emissions. Testing performed with three flow switches attached to the EUT posts to demonstrate automatic triggering of the EUT. Added peripheral devices that were used or simulated during testing for all EUT ports. See Appendix A for new test data.

# **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.

Stew JB

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# **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

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### **SUMMARY OF RESULTS**

## Standard / Specification: FCC Part 15 Subpart C 15.231 and RSS-210 Issue 8

Description	Test Procedure/Method	Results
AC Conducted	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4	NA
Voltage Variation	FCC Part 15 Subpart C Section 15.31(e)	Pass
Types of Momentary Signals	FCC Part 15 Subpart C Section 15.231(a)	Pass
Types of Momentary Signals	Section A1.1.1 / RSS-210 Issue 8	Pass
Field Strength of Fundamental and	FCC Part 15 Subpart C Section 15.231(b) / DO1 DTS	Pass
Spurious Emissions	MEAS Guidance V03	
Field Strength of Fundamental and	Section A1.1.2 / RSS-210 Issue 8 / DO1 DTS MEAS	Pass
Spurious Emissions	Guidance V03	
	FCC Part 15 Submart C Section 15 221/a) / DO1 DTS	
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C Section 15.231(c) / DO1 DTS MEAS Guidance V03	Pass
	IVIEAS Guidance VOS	
	Section A1.1.3 / RSS-210 Issue 8 / DO1 DTS MEAS	
99% Bandwidth	Guidance V03	Pass
Frequency Stability	FCC Part 15 Subpart C Section 15.231(d)	NA
Frequency Stability	Section A1.1.4 / RSS-210 Issue 8	NA
Reduced Field Strengths	FCC Part 15 Subpart C Section 15.231(e)	NA
Reduced Field Strengths	Section A1.1.5 / RSS-210 Issue 8	NA

NA = Not Applicable

# **Conditions During Testing**

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

Summary of Conditions	
None	

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# **EQUIPMENT UNDER TEST (EUT)**

#### **EQUIPMENT UNDER TEST**

### Water switch transmitter

Manuf: McKinley-Ross Corp.

Model: WMS500 Serial: None

#### **PERIPHERAL DEVICES**

The EUT was not tested with peripheral devices.

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# **FCC PART 15 SUBPART C**

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

### **15.207 AC Conducted Emissions**

Test Engineer:	Don Nguyen	Test Procedure:	15.207		
Test Level:	NA				
<b>Declarations:</b> The manufacturer declares the EUT operates on a 9V battery.					

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## 15.31(e) Voltage Variations

#### **Test Data**

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

Customer: McKinley-Ross Corp.

Specification: 15.31e

Work Order #: 94389 Date: 10/23/2013
Test Type: Maximized Emissions Time: 10:28:49
Equipment: Water switch transmitter Sequence#: 3

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
T4	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T5	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function Manufacturer Model # S/N

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

15.31e. EUT is installed with fresh 9V battery.

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## **Test Setup Photos**



Test Setup 15.31e



X - Axis





Y - Axis



Z - Axis



# 15.231(a) Types of Momentary Signals

#### **Test Data Sheets**

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

Customer: McKinley-Ross Corp.

Specification: Types of Momentary Signals

 Work Order #:
 94389
 Date: 10/23/2013

 Test Type:
 Maximized Emissions
 Time: 10:28:49

Equipment: Water switch transmitter Sequence#: 3

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
	ANP05198	Cable-Amplitude -15 to 15degC	8268	12/11/2012	12/11/2014
T4	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T5	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

**Equipment Under Test (\* = EUT):** 

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function Manufacturer Model # S/N

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

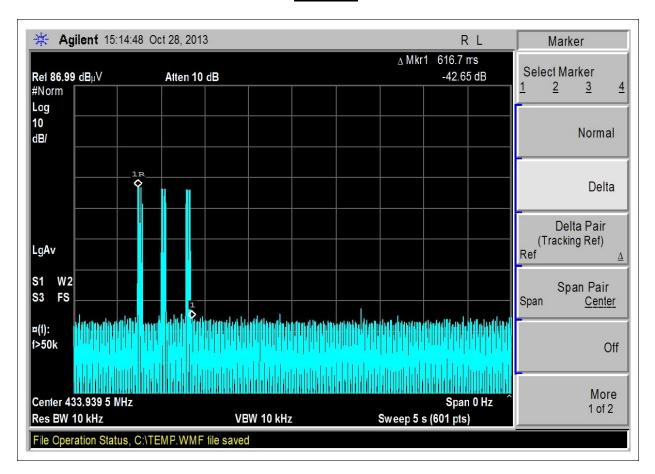
Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

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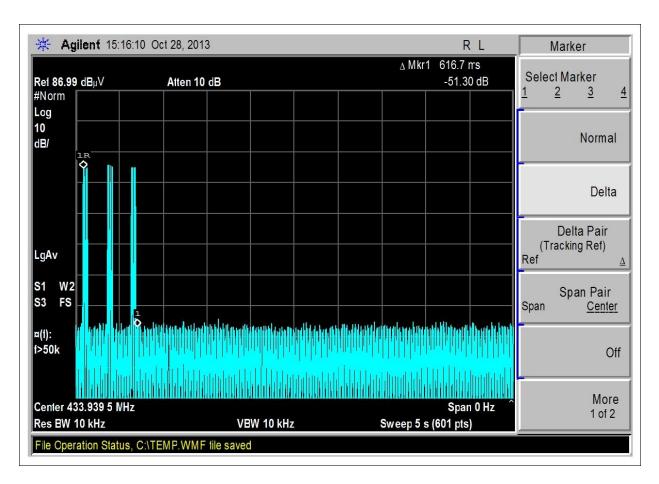
#### **Test Data**



Step 1: The switch was pressed and quickly released. The EUT transmitted and deactivated within 5 seconds.

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Step 2: The switch was pressed and hold for 5 seconds then released. EUT transmitted and deactivated within 5 seconds.

Note: In both step1 and step 2, the EUT has achieved the requirements of 15.231a (1): "A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released."



# Test Setup Photos



Test Setup



X - Axis





Y - Axis



Z - Axis



# RSS-210 A1.1.1 / Types of Momentary Signals

#### **Test Data Sheets**

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

Customer: McKinley-Ross Corp.

Specification: Types of Momentary Signals

 Work Order #:
 94389
 Date: 10/23/2013

 Test Type:
 Maximized Emissions
 Time: 10:28:49

Equipment: Water switch transmitter Sequence#: 3

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
	ANP05198	Cable-Amplitude -15 to 15degC	8268	12/11/2012	12/11/2014
T4	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T5	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function Manufacturer Model # S/N

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

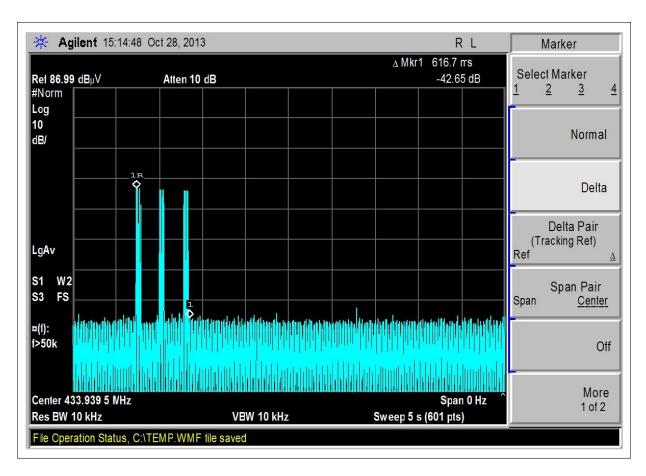
Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

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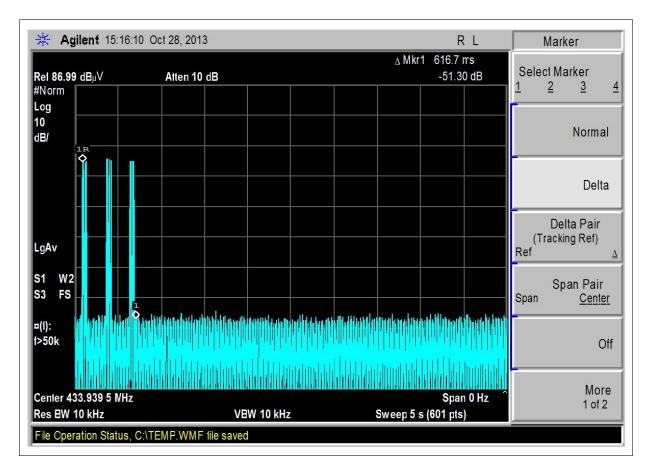
#### **Test Data**



Step 1: The switch was pressed and quickly released. The EUT transmitted and deactivated within 5 seconds.

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Step 2: The switch was pressed and hold for 5 seconds then released. EUT transmitted and deactivated within 5 seconds

Note: In both step 1 and step 2, the EUT achieved the requirements of A1.1.1 (a): "A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all transmission times. When released, the transmitter shall cease transmission (holdover time of up to 5 seconds is permitted)."

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# Test Setup Photos



Test Setup



X - Axis





Y - Axis



Z - Axis



## 15.231(b) Field Strength of Fundamental & Spurious Emissions

#### **Test Data**

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

Customer: McKinley-Ross Corp.

Specification: 15.231(b) Fundamental Field Strength

Work Order #: 94389 Date: 10/23/2013 Test Type: Time: 10:28:49 **Maximized Emissions** Equipment:

Sequence#: 3 Water switch transmitter

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

1	1				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T4	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T5	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			

**Equipment Under Test (\* = EUT):** 

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function Manufacturer S/N Model#

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor =  $20\log(\text{dwell time}/100 \text{ ms}) = 20\log(48.33/100) = -6.32 \text{db}$ 

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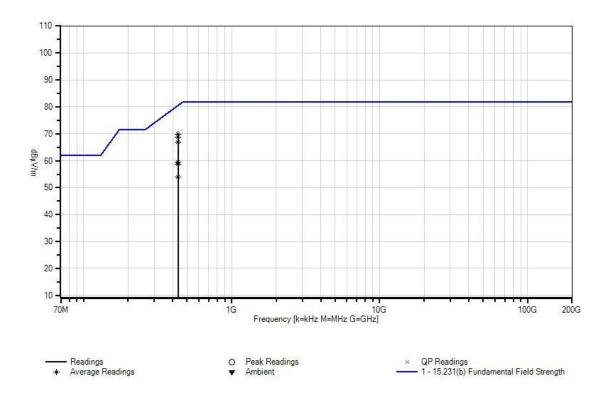
Ext Attn: 0 dB

Measi	irement Data:	Re	eading lis	ted by ma	argin.		Te	est Distanc	e: 3 Meters	1	
#	Freq	Rdng	T1 T5	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	$dB\mu V$	dB	dB	dB	dB	Table	$dB\mu V/m$	$dB\mu V/m$	dB	Ant
1	433.959M	77.9	-27.8	+0.4	+3.8	+21.9	+0.0	69.9	80.5	-10.6	Horiz
	Ave		-6.3						X axis		
2	433.955M	76.8	-27.8	+0.4	+3.8	+21.9	+0.0	68.8	80.5	-11.7	Horiz
	Ave		-6.3						Z axis		
3	433.955M	74.8	-27.8	+0.4	+3.8	+21.9	+0.0	66.8	80.5	-13.7	Vert
	Ave		-6.3						Y axis		
4	433.955M	67.5	-27.8	+0.4	+3.8	+21.9	+0.0	59.5	80.5	-21.0	Vert
	Ave		-6.3						X axis		
5	433.955M	66.6	-27.8	+0.4	+3.8	+21.9	+0.0	58.6		-21.9	Vert
	Ave		-6.3						Z axis		
^	433.955M	94.0	-27.8	+0.4	+3.8	+21.9	+0.0	92.3	80.5	+11.8	Vert
			+0.0						Y axis		
^	433.955M	85.2	-27.8	+0.4	+3.8	+21.9	+0.0	83.5	80.5	+3.0	Vert
			+0.0						X axis		
^	433.955M	84.5	-27.8	+0.4	+3.8	+21.9	+0.0	82.8	80.5	+2.3	Vert
			+0.0						Z axis		
9	433.955M	61.9	-27.8	+0.4	+3.8	+21.9	+0.0	53.9	80.5	-26.6	Horiz
	Ave		-6.3						Y axis		
^	433.955M	99.0	-27.8	+0.4	+3.8	+21.9	+0.0	97.3	80.5	+16.8	Horiz
			+0.0						Z axis		
^	433.959M	97.8	-27.8	+0.4	+3.8	+21.9	+0.0	96.1		+15.6	Horiz
			+0.0						X axis		
^	433.955M	78.7	-27.8	+0.4	+3.8	+21.9	+0.0	77.0	80.5	-3.5	Horiz
			+0.0						Y axis		

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CKC Laboratories, Inc. Date: 10/23/2013 Time: 10:28:49 McKinley-Ross Corp. WO#: 94389 15.231(b) Fundamental Field Strength Test Distance: 3 Meters Sequence#: 3 Ext ATTN: 0 dB



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

Customer: McKinley-Ross Corp.

Specification: 15.231(b) Spurious Field Strength (433.92 MHz Transmitter)

Work Order #: 94389 Date: 10/23/2013
Test Type: Maximized Emissions Time: 14:01:28
Equipment: Water switch transmitter Sequence#: 4

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

I esi Equi	pincin.				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
T4	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T5	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
Т6	AN00786	Preamp	83017A	6/20/2012	6/20/2014
T7	AN00849	Horn Antenna	3115	4/13/2012	4/13/2014
Т8	AN02946	Cable	32022-2-2909K-	7/31/2013	7/31/2015
			36TC		
Т9	ANP05421	Cable	Sucoflex 104A	2/8/2012	2/8/2014
T10	ANP05988	Cable	LDF1-50	3/12/2012	3/12/2014
T11	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
T12	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

**Equipment Under Test (\* = EUT):** 

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function	Manufacturar	Model #	C/N	
LEHINCHOH				

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#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

Frequency Range: 9KHz-4.7GHz

9 kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-47000MHz; RBW=1 MHz, VBW=1 MHz.

Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

Ext Attn: 0 dB

Measi	urement Data:	Re	eading lis	ted by ma	argin.		Те	est Distanc	e: 3 Meters		
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11	T12					
	MHz	dΒμV	dB	dB	dB	dB	Table	$dB\mu V/m$	dBμV/m	dB	Ant
1	3905.570M	58.2	+0.0	+0.0	+0.0	+0.0	+0.0	53.8	54.0	-0.2	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	-6.3					
2	3905.620M	58.1	+0.0	+0.0	+0.0	+0.0	+0.0	53.7	54.0	-0.3	Vert
	Ave		+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	-6.3					
3	3905.550M	57.9	+0.0	+0.0	+0.0	+0.0	+0.0	53.5	54.0	-0.5	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			Y axis		
			+1.6	+5.3	+0.3	-6.3					
4	3905.620M	56.3	+0.0	+0.0	+0.0	+0.0	+0.0	51.9	54.0	-2.1	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	-6.3					
^	3905.550M	69.2	+0.0	+0.0	+0.0	+0.0	+0.0	71.1	54.0	+17.1	Horiz
			+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	+0.0					
^	3905.550M	68.7	+0.0	+0.0	+0.0	+0.0	+0.0	70.6	54.0	+16.6	Horiz
			+0.0	-38.0	+31.7	+1.0			Y axis		
			+1.6	+5.3	+0.3	+0.0					
^	3905.620M	67.2	+0.0	+0.0	+0.0	+0.0	+0.0	69.1	54.0	+15.1	Horiz
			+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	+0.0					
8	3905.680M	56.1	+0.0	+0.0	+0.0	+0.0	+0.0	51.7	54.0	-2.3	Vert
	Ave		+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	-6.3					
9	2169.740M	61.8	+0.0	+0.0	+0.0	+0.0	+0.0	57.3	60.8	-3.5	Vert
			+0.0	-38.4	+27.9	+0.7			Z axis		
			+1.3	+3.8	+0.2	+0.0					

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10 867.917M	56.6	-27.2	+0.7	+5.7	+27.8	+0.0	57.3	60.8	-3.5	Horiz
Ave	30.0	+0.0	+0.7	+0.0	+0.0	+0.0	37.3	X axis	-3.3	HOHZ
Tive		+0.0	+0.0	+0.0	-6.3			ZY UZIS		
11 867.913M	56.4	-27.2	+0.7	+5.7	+27.8	+0.0	57.1	60.8	-3.7	Horiz
Ave	30.1	+0.0	+0.0	+0.0	+0.0	10.0	37.1	Z axis	3.7	HOHE
1110		+0.0	+0.0	+0.0	-6.3			2 ams		
12 3905.600M	54.5	+0.0	+0.0	+0.0	+0.0	+0.0	50.1	54.0	-3.9	Vert
Ave		+0.0	-38.0	+31.7	+1.0			Y axis		
		+1.6	+5.3	+0.3	-6.3					
^ 3905.620M	69.1	+0.0	+0.0	+0.0	+0.0	+0.0	71.0	54.0	+17.0	Vert
		+0.0	-38.0	+31.7	+1.0			Z axis		
		+1.6	+5.3	+0.3	+0.0					
^ 3905.680M	66.2	+0.0	+0.0	+0.0	+0.0	+0.0	68.1	54.0	+14.1	Vert
		+0.0	-38.0	+31.7	+1.0			X axis		
		+1.6	+5.3	+0.3	+0.0					
^ 3905.600M	64.6	+0.0	+0.0	+0.0	+0.0	+0.0	66.5	54.0	+12.5	Vert
		+0.0	-38.0	+31.7	+1.0			Y axis		
		+1.6	+5.3	+0.3	+0.0					
16 1735.862M	68.5	+0.0	+0.0	+0.0	+0.0	+0.0	56.0	60.8	-4.8	Vert
Ave		+0.0	-38.5	+27.1	+0.4			X axis		
		+1.1	+3.4	+0.3	-6.3					
17 3471.630M	59.8	+0.0	+0.0	+0.0	+0.0	+0.0	55.3	60.8	-5.5	Horiz
Ave		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5	+4.9	+0.2	-6.3					
18 3471.520M	59.7	+0.0	+0.0	+0.0	+0.0	+0.0	55.2	60.8	-5.6	Vert
Ave		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5		+0.2	-6.3					
^ 3471.520M	71.3	+0.0	+0.0	+0.0	+0.0	+0.0	73.1	60.8	+12.3	Vert
		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5	+4.9	+0.2	+0.0					
20 867.917M	54.3	-27.2	+0.7	+5.7	+27.8	+0.0	55.0	60.8	-5.8	Vert
Ave		+0.0	+0.0	+0.0	+0.0			Y axis		
		+0.0	+0.0	+0.0	-6.3					
21 4339.590M	46.3	+0.0	+0.0	+0.0	+0.0	+0.0	47.9	54.0	-6.1	Horiz
		+0.0	-37.9	+31.2	+0.9			Y axis		
		+1.7		+0.2	+0.0					
22 1735.840M	66.8	+0.0	+0.0	+0.0	+0.0	+0.0		60.8	-6.5	Horiz
Ave					+0.4			Y axis		
22 4220 5207 5	44.0	+1.1	+3.4	+0.3	-6.3	.0.0	4 < 4	£4.0	7.	TT '
23 4339.620M	44.8	+0.0	+0.0	+0.0	+0.0	+0.0	46.4		-7.6	Horiz
		+0.0	-37.9	+31.2	+0.9			X axis		
24 1725 7003 5	65.7	+1.7	+5.5	+0.2	+0.0	.0.0	52.2	<b>60.0</b>	7.	11. '
24 1735.790M	65.7	+0.0	+0.0	+0.0	+0.0	+0.0	53.2	60.8	-7.6	Horiz
Ave		+0.0	-38.5	+27.1	+0.4			Z axis		
25 2471 (00) 5	57.5	+1.1	+3.4	+0.3	-6.3	.0.0	52.0	(0.0	7.0	II'
25 3471.600M	57.5	+0.0	+0.0	+0.0	+0.0	+0.0	53.0		-7.8	Horiz
Ave		+0.0	-38.4	+32.6	+1.0			Y axis		
26 067 0173 4	£1.0	+1.5	+4.9	+0.2	-6.3	.0.0	50.6	(0.0	0.2	<b>17</b>
26 867.917M	51.9	-27.2	+0.7	+5.7	+27.8	+0.0	52.6		-8.2	Vert
Ave		+0.0	+0.0	+0.0	+0.0			X axis		
		+0.0	+0.0	+0.0	-6.3					

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27 2169.860M	56.6		+0.0	+0.0	+0.0	+0.0	52.1	60.8	-8.7	Vert
		+0.0	-38.4	+27.9	+0.7			X axis		
		+1.3	+3.8	+0.2	+0.0					
28 4339.580M	43.4	+0.0	+0.0	+0.0	+0.0	+0.0	45.0	54.0	-9.0	Horiz
		+0.0	-37.9	+31.2	+0.9			Z axis		
20 4525 050) 5		+1.7	+5.5	+0.2	+0.0	0.0	~			**
29 1735.850M	63.9	+0.0	+0.0	+0.0	+0.0	+0.0	51.4	60.8	-9.4	Vert
Ave		+0.0	-38.5	+27.1	+0.4			Y axis		
20 067 00014	40.0	+1.1	+3.4	+0.3	-6.3	. 0. 0	50.6	<b>60.0</b>	10.2	<b>X</b> 7 4
30 867.909M	49.9	-27.2	+0.7	+5.7	+27.8	+0.0	50.6	60.8	-10.2	Vert
Ave		+0.0	+0.0	+0.0	+0.0			Z axis		
A 0.67.017N/	<b>60.0</b>	+0.0	+0.0	+0.0	-6.3	. 0. 0	75.0	<b>60.0</b>	. 1.4.2	<b>X</b> 74
^ 867.917M	68.0	-27.2	+0.7	+5.7	+27.8	+0.0	/5.0	60.8	+14.2	Vert
		+0.0	+0.0	+0.0	+0.0			Y axis		
^ 867 917M	(2.2	+0.0	+0.0	+0.0	+0.0	. 0. 0	60.2	<b>60.0</b>	. 0. 4	<b>X</b> I 4
^ 867.917M	62.2	-27.2 +0.0	+0.7 +0.0	+5.7 +0.0	+27.8	+0.0	09.2	60.8 X axis	+8.4	Vert
		+0.0 +0.0	+0.0	+0.0 +0.0	$^{+0.0}_{+0.0}$			A axis		
^ 867.909M	59.6	-27.2	+0.0	+5.7		+0.0	66.6	60.8	+5.8	Vont
~ 807.909WI	39.0	+0.0	+0.7	+3.7	$+27.8 \\ +0.0$	+0.0	0.00	Z axis	+3.8	Vert
		+0.0 +0.0	+0.0	+0.0 +0.0	+0.0 +0.0			Z axis		
34 1735.830M	62.8	+0.0	+0.0	+0.0	+0.0	+0.0	50.2	60.8	-10.5	Horiz
Ave	02.8	+0.0	-38.5	+27.1	+0.0	+0.0	30.3	X axis	-10.3	попи
Ave		+1.1	+3.4	+0.3	-6.3			A axis		
^ 1735.840M	79.5	+0.0	+0.0	+0.0	+0.0	+0.0	72.2	60.8	+12.5	Horiz
1/33.040101	19.3	+0.0	-38.5	+27.1	+0.0	+0.0	13.3	Y axis	+12.3	попи
		+1.1	+3.4	+0.3	+0.4			1 axis		
^ 1735.790M	78.2	+0.0	+0.0	+0.0	+0.0	ι Ο Ο	72.0	60.8	+11.2	Horiz
1733.790101	70.2	+0.0	-38.5	+27.1	+0.0	+0.0	72.0	Z axis	⊤11.∠	110112
		+1.1	+3.4	+0.3	+0.0			Z dxis		
^ 1735.830M	74.2	+0.0	+0.0	+0.0	+0.0	+0.0	68.0	60.8	+7.2	Horiz
1733.030141	77.2	+0.0	-38.5	+27.1	+0.4	10.0	00.0	X axis	17.2	HOHZ
		+1.1	+3.4	+0.3	+0.0			TI WIII		
38 3037.690M	59.0	+0.0	+0.0	+0.0	+0.0	+0.0	50.2	60.8	-10.6	Vert
Ave	37.0	+0.0		+29.0	+0.9	10.0	30.2	Z axis	10.0	VOIT
11,0		+1.5		+0.2	-6.3					
39 2169.870M	54.6	+0.0	+0.0	+0.0	+0.0	+0.0	50 1	60.8	-10 7	Horiz
27 2107.070111	2 1.0	+0.0		+27.9	+0.7	. 0.0		X axis	20.7	110112
		+1.3	+3.8	+0.2	+0.0					
40 867.917M	49.3	-27.2	+0.7	+5.7	+27.8	+0.0	50.0	60.8	-10.8	Horiz
Ave		+0.0	+0.0	+0.0	+0.0			Y axis		
		+0.0	+0.0	+0.0	-6.3			-		
^ 867.917M	71.5	-27.2	+0.7	+5.7	+27.8	+0.0	78.5	60.8	+17.7	Horiz
		+0.0	+0.0	+0.0	+0.0			X axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.913M	70.2	-27.2	+0.7	+5.7	+27.8	+0.0	77.2	60.8	+16.4	Horiz
		+0.0	+0.0	+0.0	+0.0			Z axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.917M	60.6	-27.2	+0.7	+5.7	+27.8	+0.0	67.6	60.8	+6.8	Horiz
· · · · · · · · · ·		+0.0		+0.0						
		+0.0	+0.0	+0.0						
		+0.0	+0.0	+0.0	+0.0 +0.0			Y axis		

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4.4	2471 (50M	<i>E 1 1</i>	+0.0	.00	.00	.00	.00	40.0	<i>c</i> 0.9	10.0	<b>V</b> 4
	3471.650M Ave	54.4	+0.0 +0.0	+0.0 -38.4	+0.0 +32.6	$+0.0 \\ +1.0$	+0.0	49.9	60.8 Y axis	-10.9	Vert
	Ave		+1.5	-36.4 +4.9	+0.2	-6.3			1 axis		
15	2169.790M	54.4	+0.0	+0.0	+0.2	+0.0	ι Ο Ο	40.0	60.8	-10.9	Vert
43	2109.790W	34.4	+0.0	-38.4	+27.9	+0.0	+0.0	47.7	Y axis	-10.9	VEIL
			+1.3	+3.8	+0.2	+0.0			1 dx15		
16	3471.650M	54.3	+0.0	+0.0	+0.0	+0.0	+0.0	10.8	60.8	-11.0	Horiz
	Ave	37.3	+0.0	-38.4	+32.6	+1.0	10.0	77.0	X axis	-11.0	110112
	1110		+1.5	+4.9	+0.2	-6.3			21 dais		
^	3471.630M	72.0	+0.0	+0.0	+0.0	+0.0	+0.0	73.8	60.8	+13.0	Horiz
	3171.03011	72.0	+0.0	-38.4	+32.6	+1.0	10.0	73.0	Z axis	113.0	HOHE
			+1.5	+4.9	+0.2	+0.0			Z unis		
^	3471.600M	68.1	+0.0	+0.0	+0.0	+0.0	+0.0	69 9	60.8	+9.1	Horiz
	3 17 1.000141	00.1	+0.0	-38.4	+32.6	+1.0	10.0	07.7	Y axis	17.1	HOHE
			+1.5		+0.2	+0.0			1 42115		
٨	3471.650M	63.9	+0.0	+0.0	+0.0	+0.0	+0.0	65.7	60.8	+4.9	Horiz
	3171.03011	05.7	+0.0	-38.4	+32.6	+1.0	10.0	05.7	X axis	1 11.2	HOHE
			+1.5		+0.2	+0.0					
50	3037.700M	58.4	+0.0	+0.0	+0.0	+0.0	+0.0	49.6	60.8	-11.2	Horiz
	Ave		+0.0	-38.6	+29.0	+0.9			Z axis		
			+1.5		+0.2	-6.3					
51	1735.890M	61.9	+0.0	+0.0	+0.0	+0.0	+0.0	49.4	60.8	-11.4	Vert
	Ave		+0.0	-38.5	+27.1	+0.4			Z axis		
			+1.1	+3.4	+0.3	-6.3					
^	1735.862M	81.5	+0.0	+0.0	+0.0	+0.0	+0.0	75.3	60.8	+14.5	Vert
			+0.0	-38.5	+27.1	+0.4			X axis		
			+1.1	+3.4	+0.3	+0.0					
^	1735.850M	77.1	+0.0	+0.0	+0.0	+0.0	+0.0	70.9	60.8	+10.1	Vert
			+0.0	-38.5	+27.1	+0.4			Y axis		
			+1.1	+3.4	+0.3	+0.0					
^	1735.890M	73.5	+0.0	+0.0	+0.0	+0.0	+0.0	67.3	60.8	+6.5	Vert
			+0.0	-38.5	+27.1	+0.4			Z axis		
			+1.1	+3.4	+0.3	+0.0					
55	1301.900M	58.3	+0.0	+0.0	+0.0	+0.0	+0.0	42.2	54.0	-11.8	Horiz
	Ave		+0.0	-39.2	+24.4	+0.5			X axis		
			+1.0	+2.9	+0.6	-6.3					
56	3471.680M	53.3	+0.0	+0.0	+0.0	+0.0	+0.0	48.8	60.8	-12.0	Vert
	Ave		+0.0	-38.4	+32.6	+1.0			X axis		
			+1.5	+4.9	+0.2	-6.3					
^	3471.650M	64.0	+0.0	+0.0	+0.0	+0.0	+0.0	65.8		+5.0	Vert
			+0.0	-38.4	+32.6	+1.0			Y axis		
			+1.5	+4.9	+0.2	+0.0					
^	3471.680M	62.5	+0.0	+0.0	+0.0	+0.0	+0.0	64.3		+3.5	Vert
			+0.0	-38.4	+32.6	+1.0			X axis		
			+1.5	+4.9	+0.2	+0.0					
59	2603.750M	59.4	+0.0	+0.0	+0.0	+0.0	+0.0	48.5		-12.3	Horiz
	Ave		+0.0	-38.4	+27.2	+0.8			Z axis		
			+1.4	+4.2	+0.2	-6.3					
	1301.870M	56.4	+0.0	+0.0	+0.0	+0.0	+0.0	40.3	54.0	-13.7	Horiz
	Ave		+0.0	-39.2	+24.4	+0.5			Y axis		
			+1.0	+2.9	+0.6	-6.3					

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^ 1301.900M	67.8	+0.0	+0.0	+0.0	+0.0	+0.0	58.0	54.0	+4.0	Horiz
		$+0.0 \\ +1.0$	-39.2 +2.9	+24.4 +0.6	+0.5 +0.0			X axis		
^ 1301.870M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0	55.2	54.0	+1.3	Horiz
1301.870101	03.1	+0.0	-39.2	+24.4	+0.5	+0.0	33.3	Y axis	+1.5	HOHZ
		+1.0	+2.9	+0.6	+0.0			1 4115		
^ 1301.790M	59.2	+0.0	+0.0	+0.0	+0.0	+0.0	49.4	54.0	-4.6	Horiz
1301.77011	37.2	+0.0	-39.2	+24.4	+0.5	10.0	77.7	Z axis	4.0	HOHZ
		+1.0	+2.9	+0.6	+0.0			Z uni		
64 3037.740M	55.9	+0.0	+0.0	+0.0	+0.0	+0.0	47.1	60.8	-13.7	Horiz
Ave	00.5	+0.0	-38.6	+29.0	+0.9			Y axis	10.,	110112
		+1.5		+0.2	-6.3					
65 3037.710M	55.8	+0.0	+0.0	+0.0	+0.0	+0.0	47.0	60.8	-13.8	Vert
Ave		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5		+0.2	-6.3					
66 1301.850M	56.0	+0.0	+0.0	+0.0	+0.0	+0.0	39.9	54.0	-14.1	Vert
Ave		+0.0	-39.2	+24.4	+0.5			Y axis		
		+1.0	+2.9	+0.6	-6.3					
67 2603.770M	57.4	+0.0	+0.0	+0.0	+0.0	+0.0	46.5	60.8	-14.3	Horiz
Ave		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4	+4.2	+0.2	-6.3					
68 1301.860M	55.6	+0.0	+0.0	+0.0	+0.0	+0.0	39.5	54.0	-14.5	Vert
Ave		+0.0	-39.2	+24.4	+0.5			X axis		
		+1.0	+2.9	+0.6	-6.3					
^ 1301.850M	64.9	+0.0	+0.0	+0.0	+0.0	+0.0	55.1	54.0	+1.1	Vert
		+0.0	-39.2	+24.4	+0.5			Y axis		
		+1.0		+0.6	+0.0					
^ 1301.860M	64.9	+0.0	+0.0	+0.0	+0.0	+0.0	55.1	54.0	+1.1	Vert
		+0.0	-39.2	+24.4	+0.5			X axis		
		+1.0		+0.6	+0.0					
^ 1301.890M	60.7	+0.0	+0.0	+0.0	+0.0	+0.0	50.9	54.0	-3.1	Vert
		+0.0	-39.2	+24.4	+0.5			Z axis		
		+1.0		+0.6	+0.0					
72 3037.690M	54.9	+0.0	+0.0	+0.0	+0.0	+0.0	46.1	60.8	-14.7	Horiz
Ave		+0.0	-38.6	+29.0	+0.9			X axis		
A 2025 5003 5		+1.5			-6.3	0.0		60.0		** .
^ 3037.700M	70.7	+0.0	+0.0	+0.0	+0.0	+0.0		60.8	+7.4	Horiz
				+29.0				Z axis		
A 2027 7 403 5	<i>(( )</i>	+1.5	+4.5	+0.2	+0.0	.00	64.0	<b>60.0</b>	.22	TT. *
^ 3037.740M	66.5	+0.0	+0.0	+0.0	+0.0	+0.0	64.0		+3.2	Horiz
		+0.0	-38.6	+29.0	+0.9			Y axis		
A 2027 (00) 4	<i>CE</i> 1	+1.5	+4.5	+0.2	+0.0	+0.0	62.6	60.0	<sub>1</sub> 1 0	Hor:-
^ 3037.690M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0	62.6		+1.8	Horiz
		+0.0	-38.6 -4.5	+29.0 +0.2	+0.9 +0.0			X axis		
76 3037.750M	515	+1.5	+4.5		+0.0	ΙΛΛ	157	60.8	15 1	Vont
76 3037.750M Ave	54.5	$^{+0.0}_{+0.0}$	+0.0 -38.6	+0.0 +29.0	$+0.0 \\ +0.9$	+0.0	45.7	Y axis	-15.1	Vert
Ave		+1.5	-38.0 +4.5	+29.0	-6.3			1 4115		
^ 3037.690M	71.5	+0.0	+0.0	+0.2	+0.0	+0.0	69.0	60.8	+8.2	Vert
3037.070IVI	11.3	+0.0	-38.6	+29.0	+0.0	±0.0	07.0	Z axis	±0.∠	v CI t
		+1.5	+4.5	+29.0	+0.9			2 anis		
		11.5	17.3	10.4	10.0					

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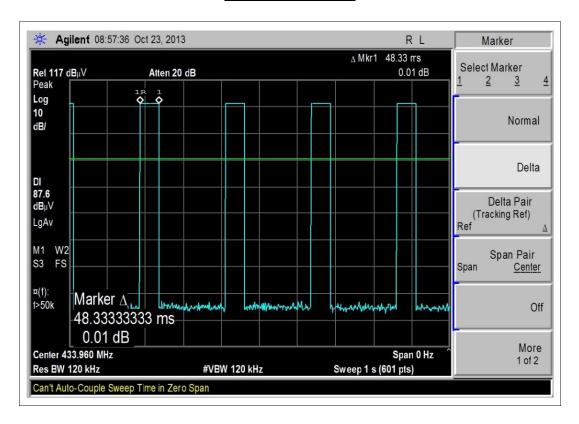
^ 3037.710M	66.9	+0.0	+0.0	+0.0	+0.0	+0.0	64.4	60.8	+3.6	Vert
		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5	+4.5	+0.2	+0.0					
^ 3037.750M	64.7	+0.0	+0.0	+0.0	+0.0	+0.0	62.2	60.8	+1.4	Vert
		+0.0	-38.6	+29.0	+0.9			Y axis		
		+1.5	+4.5	+0.2	+0.0					
80 2603.700M	55.6	+0.0	+0.0	+0.0	+0.0	+0.0	44.7	60.8	-16.1	Horiz
Ave		+0.0	-38.4	+27.2	+0.8			Y axis		
		+1.4	+4.2	+0.2	-6.3					
^ 2603.750M	70.9	+0.0	+0.0	+0.0	+0.0	+0.0	66.3	60.8	+5.5	Horiz
		+0.0	-38.4	+27.2	+0.8			Z axis		
		+1.4	+4.2	+0.2	+0.0					
^ 2603.770M	68.0	+0.0	+0.0	+0.0	+0.0	+0.0	63.4	60.8	+2.6	Horiz
		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4		+0.2	+0.0					
^ 2603.700M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0	60.5	60.8	-0.3	Horiz
		+0.0	-38.4	+27.2	+0.8			Y axis		
		+1.4		+0.2	+0.0					
84 2603.740M	55.3	+0.0	+0.0	+0.0	+0.0	+0.0	44.4	60.8	-16.4	Vert
Ave		+0.0	-38.4	+27.2	+0.8			Z axis		
05. 21.00 5.00 5		+1.4	+4.2	+0.2	-6.3	0.0	44.0	60.0	167	TT .
85 2169.760M	55.1	+0.0	+0.0	+0.0	+0.0	+0.0	44.3	60.8	-16.5	Horiz
Ave		+0.0	-38.4	+27.9	+0.7			Z axis		
A 2160.760M	647	+1.3	+3.8	+0.2	-6.3	. 0. 0	60.2	60.8	0.6	TT
^ 2169.760M	64.7	$+0.0 \\ +0.0$	+0.0 -38.4	$+0.0 \\ +27.9$	$+0.0 \\ +0.7$	+0.0	60.2	Z axis	-0.6	Horiz
		+1.3		+0.2	+0.7 +0.0			Z axis		
^ 2169.800M	56.5	+0.0	+0.0	+0.2	+0.0	+0.0	52.0	60.8	-8.8	Horiz
2109.800W	30.3	+0.0 +0.0	-38.4	+27.9	+0.0	+0.0	32.0	Y axis	-0.0	попи
		+1.3		+0.2	+0.0			1 4715		
88 4339.630M	41.7	+0.0	+0.0	+0.0	+0.0	+0.0	37.0	54.0	-17.0	Vert
Ave	71.7	+0.0	-37.9	+31.2	+0.9	10.0	37.0	X axis	17.0	VCIT
1110		+1.7		+0.2	-6.3			11 4/115		
^ 4339.630M	49.4	+0.0	+0.0	+0.0	+0.0	+0.0	51.0	54.0	-3.0	Vert
		+0.0	-37.9	+31.2	+0.9		- 1.0	X axis	2.0	. 320
		+1.7		+0.2	+0.0			-		
^ 4339.540M	48.1	+0.0	+0.0	+0.0	+0.0	+0.0	49.7	54.0	-4.3	Vert
				+31.2				Z axis		
		+1.7	+5.5	+0.2	+0.0					
^ 4339.590M	40.2	+0.0	+0.0	+0.0	+0.0	+0.0	41.8	54.0	-12.2	Vert
		+0.0	-37.9	+31.2	+0.9			Y axis		
		+1.7	+5.5	+0.2	+0.0					
92 2603.790M	54.1	+0.0	+0.0	+0.0	+0.0	+0.0	43.2	60.8	-17.6	Vert
Ave		+0.0	-38.4	+27.2	+0.8			Y axis		
		+1.4	+4.2	+0.2	-6.3					
93 2603.760M	53.9	+0.0	+0.0	+0.0	+0.0	+0.0	43.0	60.8	-17.8	Vert
Ave		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4	+4.2	+0.2	-6.3					
^ 2603.740M	65.5	+0.0	+0.0	+0.0	+0.0	+0.0	60.9		+0.1	Vert
		+0.0	-38.4	+27.2	+0.8			Z axis		
		+1.4	+4.2	+0.2	+0.0					
	_		_			_				

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^ 2603.790M	63.5	+0.0	+0.0	+0.0	+0.0	+0.0	58.9	60.8	-1.9	Vert
		+0.0	-38.4	+27.2	+0.8			Y axis		
		+1.4	+4.2	+0.2	+0.0					
^ 2603.760M	63.4	+0.0	+0.0	+0.0	+0.0	+0.0	58.8	60.8	-2.0	Vert
		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4	+4.2	+0.2	+0.0					

#### **Duty Cycle Test Plot**



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# Test Setup Photos



Test Setup



X - Axis





Y - Axis



Z - Axis



# RSS-210 A1.1.2 / Field Strength of Fundamental & Spurious Emissions

#### **Test Data**

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

Customer: McKinley-Ross Corp.

Specification: RSS 210 A1.1.2(1) Fundamental Field Strength

Work Order #: 94389 Date: 10/23/2013
Test Type: Maximized Emissions Time: 10:28:49
Equipment: Water switch transmitter Sequence#: 3

Equipment: Water switch transmitter Sequence#: 3
Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500

Model: WMS500 S/N: NA

#### Test Equipment:

I est Equip	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T4	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T5	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			

#### Equipment Under Test (\* = EUT):

(				
Function	Manufacturer	Model #	S/N	
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA	

#### Support Devices:

Function	Manufacturer	Model #	S/N

#### Test Conditions / Notes.

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode.

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

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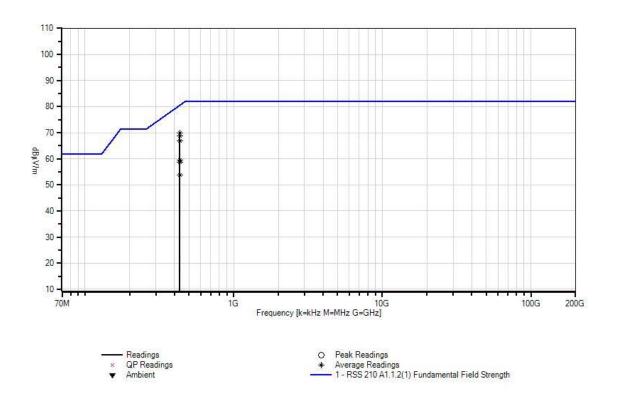
Ext Attn: 0 dB

Measi	irement Data:	Re	Reading listed by margin. Test Distance: 3 Meters								
#	Freq	Rdng	T1 T5	T2	Т3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	$dB\mu V$	dB	dB	dB	dB	Table	$dB\mu V/m$	$dB\mu V/m \\$	dB	Ant
1	433.959M	77.9	-27.8	+0.4	+3.8	+21.9	+0.0	69.9	80.5	-10.6	Horiz
	Ave		-6.3						X axis		
2	433.955M	76.8	-27.8	+0.4	+3.8	+21.9	+0.0	68.8	80.5	-11.7	Horiz
	Ave		-6.3						Z axis		
3	433.955M	74.8	-27.8	+0.4	+3.8	+21.9	+0.0	66.8	80.5	-13.7	Vert
	Ave		-6.3						Y axis		
4	433.955M	67.5	-27.8	+0.4	+3.8	+21.9	+0.0	59.5	80.5	-21.0	Vert
	Ave		-6.3						X axis		
5	433.955M	66.6	-27.8	+0.4	+3.8	+21.9	+0.0	58.6	80.5	-21.9	Vert
	Ave		-6.3						Z axis		
^	433.955M	94.0	-27.8	+0.4	+3.8	+21.9	+0.0	92.3	80.5	+11.8	Vert
			+0.0						Y axis		
^	433.955M	85.2	-27.8	+0.4	+3.8	+21.9	+0.0	83.5	80.5	+3.0	Vert
			+0.0						X axis		
^	433.955M	84.5	-27.8	+0.4	+3.8	+21.9	+0.0	82.8	80.5	+2.3	Vert
			+0.0						Z axis		
9	433.955M	61.9	-27.8	+0.4	+3.8	+21.9	+0.0	53.9	80.5	-26.6	Horiz
	Ave		-6.3						Y axis		
^	433.955M	99.0	-27.8	+0.4	+3.8	+21.9	+0.0	97.3	80.5	+16.8	Horiz
			+0.0						Z axis		
^	433.959M	97.8	-27.8	+0.4	+3.8	+21.9	+0.0	96.1	80.5	+15.6	Horiz
			+0.0						X axis		
^	433.955M	78.7	-27.8	+0.4	+3.8	+21.9	+0.0	77.0	80.5	-3.5	Horiz
			+0.0						Y axis		

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CKC Laboratories, Inc. Date: 10/23/2013 Time: 10:28:49 McKinley-Ross Corp. WO#: 94389 RSS 210 A1.1.2(1) Fundamental Field Strength Test Distance: 3 Meters Sequence#: 3 Ext ATTN: 0 dB



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

Customer: McKinley-Ross Corp.

Specification: RSS 210 A.1.1 Table A Spurious Field Strength (433.92 MHz Transmitter)

 Work Order #:
 94389
 Date:
 10/23/2013

 Test Type:
 Maximized Emissions
 Time:
 14:01:28

Equipment: Water switch transmitter Sequence#: 4

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

I est Equi	pincin.				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
T4	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T5	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T6	AN00786	Preamp	83017A	6/20/2012	6/20/2014
T7	AN00849	Horn Antenna	3115	4/13/2012	4/13/2014
T8	AN02946	Cable	32022-2-2909K-	7/31/2013	7/31/2015
			36TC		
T9	ANP05421	Cable	Sucoflex 104A	2/8/2012	2/8/2014
T10	ANP05988	Cable	LDF1-50	3/12/2012	3/12/2014
T11	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
T12	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

**Equipment Under Test (\* = EUT):** 

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function	Manufaatuman	Model #	C/NI	
LEHINCHON	wianinachirer	MOGEL#	3/18	

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#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

Frequency Range: 9KHz-4.7GHz

9 kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-47000 MHz; RBW=1 MHz, VBW=1 MHz.

Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

Ext Attn: 0 dB

Measi	ırement Data:	Re	eading lis	ted by ma	argin.		Τe	est Distanc	e: 3 Meters	;	
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11	T12					
	MHz	dΒμV	dB	dB	dB	dB	Table	$dB\mu V/m$	dBµV/m	dB	Ant
1	3905.570M	58.2	+0.0	+0.0	+0.0	+0.0	+0.0	53.8	54.0	-0.2	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	-6.3					
2	3905.620M	58.1	+0.0	+0.0	+0.0	+0.0	+0.0	53.7	54.0	-0.3	Vert
	Ave		+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	-6.3					
3	3905.550M	57.9	+0.0	+0.0	+0.0	+0.0	+0.0	53.5	54.0	-0.5	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			Y axis		
			+1.6	+5.3	+0.3	-6.3					
4	3905.620M	56.3	+0.0	+0.0	+0.0	+0.0	+0.0	51.9	54.0	-2.1	Horiz
	Ave		+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	-6.3					
^	3905.550M	69.2	+0.0	+0.0	+0.0	+0.0	+0.0	71.1	54.0	+17.1	Horiz
			+0.0	-38.0	+31.7	+1.0			Z axis		
			+1.6	+5.3	+0.3	+0.0					
^	3905.550M	68.7	+0.0	+0.0	+0.0	+0.0	+0.0	70.6	54.0	+16.6	Horiz
			+0.0	-38.0	+31.7	+1.0			Y axis		
			+1.6	+5.3	+0.3	+0.0					
^	3905.620M	67.2	+0.0	+0.0	+0.0	+0.0	+0.0	69.1	54.0	+15.1	Horiz
			+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	+0.0					
8	3905.680M	56.1	+0.0	+0.0	+0.0	+0.0	+0.0	51.7	54.0	-2.3	Vert
	Ave		+0.0	-38.0	+31.7	+1.0			X axis		
			+1.6	+5.3	+0.3	-6.3					
9		56.6	-27.2	+0.7	+5.7	+27.8	+0.0	57.3	60.8	-3.5	Horiz
	Ave		+0.0	+0.0	+0.0	+0.0			X axis		
			+0.0	+0.0	+0.0	-6.3					

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10, 21(0.7)	10) / (1.0	. 0. 0	. 0. 0	. 0. 0	. 0. 0	. 0. 0	57.2	<b>60.0</b>	2.5	<b>X</b> 74
10 2169.74	40M 61.8	$+0.0 \\ +0.0$	+0.0 -38.4	+0.0 +27.9	$+0.0 \\ +0.7$	+0.0	57.5	60.8 Z axis	-3.5	Vert
		+1.3	+3.8	+0.2	+0.7			L axis		
11 867.91	3M 56.4		+0.7	+5.7	+27.8	+0.0	57.1	60.8	-3.7	Horiz
Ave	3W1 30.4	+0.0	+0.7	+0.0	+0.0	+0.0	37.1	Z axis	-3.7	110112
Ave		+0.0	+0.0	+0.0	-6.3			Z axis		
12 3905.60	00M 54.5		+0.0	+0.0	+0.0	+0.0	50.1	54.0	-3.9	Vert
Ave	JOIVI J-1.5	+0.0	-38.0	+31.7	+1.0	10.0	30.1	Y axis	3.7	VCIT
11,0		+1.6	+5.3	+0.3	-6.3			1 unio		
^ 3905.62	20M 69.1		+0.0	+0.0	+0.0	+0.0	71.0	54.0	+17.0	Vert
	05.1	+0.0	-38.0	+31.7	+1.0	. 0.0	, 1.0	Z axis		, 610
		+1.6	+5.3	+0.3	+0.0					
^ 3905.68	30M 66.2		+0.0	+0.0	+0.0	+0.0	68.1	54.0	+14.1	Vert
		+0.0	-38.0	+31.7	+1.0			X axis		
		+1.6	+5.3	+0.3	+0.0					
^ 3905.60	00M 64.6		+0.0	+0.0	+0.0	+0.0	66.5	54.0	+12.5	Vert
		+0.0	-38.0	+31.7	+1.0			Y axis		
		+1.6	+5.3	+0.3	+0.0					
16 1735.86	68.5 68.5	+0.0	+0.0	+0.0	+0.0	+0.0	56.0	60.8	-4.8	Vert
Ave		+0.0	-38.5	+27.1	+0.4			X axis		
		+1.1	+3.4	+0.3	-6.3					
17 3471.63	30M 59.8	+0.0	+0.0	+0.0	+0.0	+0.0	55.3	60.8	-5.5	Horiz
Ave		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5	+4.9	+0.2	-6.3					
18 3471.52	20M 59.7	+0.0	+0.0	+0.0	+0.0	+0.0	55.2	60.8	-5.6	Vert
Ave		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5	+4.9	+0.2	-6.3					
^ 3471.52	20M 71.3		+0.0	+0.0	+0.0	+0.0	73.1	60.8	+12.3	Vert
		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5	+4.9	+0.2	+0.0					
20 867.91	7M 54.3		+0.7	+5.7	+27.8	+0.0	55.0	60.8	-5.8	Vert
Ave		+0.0	+0.0	+0.0	+0.0			Y axis		
		+0.0	+0.0	+0.0	-6.3					
21 4339.59	90M 46.3		+0.0	+0.0	+0.0	+0.0	47.9	54.0	-6.1	Horiz
		+0.0	-37.9	+31.2	+0.9			Y axis		
		+1.7		+0.2	+0.0					
22 1735.84	40M 66.8		+0.0	+0.0	+0.0	+0.0		60.8	-6.5	Horiz
Ave			-38.5					Y axis		
20 1707	)	+1.1	+3.4	+0.3	-6.3					** .
23 1735.79	90M 65.7		+0.0	+0.0	+0.0	+0.0	53.2		-7.6	Horiz
Ave		+0.0	-38.5	+27.1	+0.4			Z axis		
24 4220 5	NON 4 4 4 2	+1.1	+3.4	+0.3	-6.3	.00	1 < 1	540	7.	TT. *
24 4339.62	20M 44.8		+0.0	+0.0	+0.0	+0.0	46.4		-7.6	Horiz
		+0.0	-37.9	+31.2	+0.9			X axis		
05 2471 6	)OM 57.5	+1.7	+5.5	+0.2	+0.0	.00	F2.0	<i>(</i> 0 0	7.0	II'
25 3471.60	00M 57.5		+0.0	+0.0	+0.0	+0.0	53.0	60.8	-7.8	Horiz
Ave		+0.0	-38.4	+32.6	+1.0			Y axis		
26 967.01	714 510	+1.5	+4.9	+0.2	-6.3	.00	F0 (	<i>(</i> 0 0	0.0	<b>T</b> 74
26 867.91	7M 51.9		+0.7	+5.7	+27.8	+0.0	52.6		-8.2	Vert
Ave		+0.0	+0.0	+0.0	+0.0			X axis		
		+0.0	+0.0	+0.0	-6.3					

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27 2169.860M	56.6	+0.0	+0.0	+0.0	+0.0	+0.0	52.1	60.8	-8.7	Vert
		+0.0	-38.4	+27.9	+0.7			X axis		
20 4222 7227	10 :	+1.3	+3.8	+0.2	+0.0	0.0	4	<b></b>		** .
28 4339.580M	43.4	+0.0	+0.0	+0.0	+0.0	+0.0	45.0	54.0	-9.0	Horiz
		+0.0	-37.9	+31.2	+0.9			Z axis		
		+1.7	+5.5	+0.2	+0.0					
29 1735.850M	63.9	+0.0	+0.0	+0.0	+0.0	+0.0		60.8	-9.4	Vert
Ave		+0.0	-38.5	+27.1	+0.4			Y axis		
		+1.1	+3.4	+0.3	-6.3					
30 867.909M	49.9	-27.2	+0.7	+5.7	+27.8	+0.0	50.6	60.8	-10.2	Vert
Ave		+0.0	+0.0	+0.0	+0.0			Z axis		
		+0.0	+0.0	+0.0	-6.3					
^ 867.917M	68.0	-27.2	+0.7	+5.7	+27.8	+0.0	75.0	60.8	+14.2	Vert
		+0.0	+0.0	+0.0	+0.0			Y axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.917M	62.2	-27.2	+0.7	+5.7	+27.8	+0.0	69.2	60.8	+8.4	Vert
		+0.0	+0.0	+0.0	+0.0			X axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.909M	59.6	-27.2	+0.7	+5.7	+27.8	+0.0	66.6	60.8	+5.8	Vert
		+0.0	+0.0	+0.0	+0.0			Z axis		
		+0.0	+0.0	+0.0	+0.0					
34 1735.830M	62.8	+0.0	+0.0	+0.0	+0.0	+0.0	50.3	60.8	-10.5	Horiz
Ave		+0.0	-38.5	+27.1	+0.4			X axis		
		+1.1	+3.4	+0.3	-6.3					
^ 1735.840M	79.5	+0.0	+0.0	+0.0	+0.0	+0.0	73.3	60.8	+12.5	Horiz
		+0.0	-38.5	+27.1	+0.4			Y axis		
		+1.1	+3.4	+0.3	+0.0					
^ 1735.790M	78.2	+0.0	+0.0	+0.0	+0.0	+0.0	72.0	60.8	+11.2	Horiz
		+0.0	-38.5	+27.1	+0.4			Z axis		
		+1.1	+3.4	+0.3	+0.0					
^ 1735.830M	74.2	+0.0	+0.0	+0.0	+0.0	+0.0	68.0	60.8	+7.2	Horiz
		+0.0	-38.5	+27.1	+0.4			X axis		
		+1.1	+3.4	+0.3	+0.0					
38 3037.690M	59.0	+0.0	+0.0	+0.0	+0.0	+0.0	50.2	60.8	-10.6	Vert
Ave		+0.0	-38.6	+29.0	+0.9			Z axis		
		+1.5		+0.2	-6.3					
39 2169.870M	54.6	+0.0	+0.0	+0.0	+0.0	+0.0	50.1	60.8	-10.7	Horiz
		+0.0		+27.9	+0.7			X axis		
		+1.3	+3.8	+0.2	+0.0					
40 867.917M	49.3	-27.2	+0.7	+5.7	+27.8	+0.0	50.0	60.8	-10.8	Horiz
Ave		+0.0	+0.0	+0.0	+0.0			Y axis		
		+0.0	+0.0	+0.0	-6.3					
^ 867.917M	71.5	-27.2	+0.7	+5.7	+27.8	+0.0	78.5	60.8	+17.7	Horiz
		+0.0	+0.0	+0.0	+0.0			X axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.913M	70.2	-27.2	+0.7	+5.7	+27.8	+0.0	77.2	60.8	+16.4	Horiz
		+0.0	+0.0	+0.0	+0.0			Z axis		
		+0.0	+0.0	+0.0	+0.0					
^ 867.917M	60.6	-27.2	+0.7	+5.7	+27.8	+0.0	67.6	60.8	+6.8	Horiz
	10	+0.0	+0.0	+0.0	+0.0		20	Y axis		
		+0.0	+0.0	+0.0	+0.0					
		. 5.0	. 0.0	. 0.0	. 0.0					



44 3471.650M	54.4	+0.0	+0.0	+0.0	+0.0	+0.0		60.8	-10.9	Vert
Ave		+0.0	-38.4	+32.6	+1.0			Y axis		
		+1.5	+4.9	+0.2	-6.3					
45 2169.790M	54.4	+0.0	+0.0	+0.0	+0.0	+0.0	49.9	60.8	-10.9	Vert
		+0.0	-38.4	+27.9	+0.7			Y axis		
		+1.3	+3.8	+0.2	+0.0					
46 3471.650M	54.3	+0.0	+0.0	+0.0	+0.0	+0.0	49.8	60.8	-11.0	Horiz
Ave		+0.0	-38.4	+32.6	+1.0			X axis		
		+1.5	+4.9	+0.2	-6.3					
^ 3471.630M	72.0	+0.0	+0.0	+0.0	+0.0	+0.0	73.8	60.8	+13.0	Horiz
		+0.0	-38.4	+32.6	+1.0			Z axis		
		+1.5		+0.2	+0.0					
^ 3471.600M	68.1	+0.0	+0.0	+0.0	+0.0	+0.0	69.9		+9.1	Horiz
		+0.0	-38.4	+32.6	+1.0			Y axis		
		+1.5		+0.2	+0.0					
^ 3471.650M	63.9	+0.0	+0.0	+0.0	+0.0	+0.0	65.7	60.8	+4.9	Horiz
		+0.0	-38.4	+32.6	+1.0			X axis		
		+1.5		+0.2	+0.0					
50 3037.700M	58.4	+0.0	+0.0	+0.0	+0.0	+0.0	49.6	60.8	-11.2	Horiz
Ave		+0.0	-38.6	+29.0	+0.9			Z axis		
		+1.5	+4.5	+0.2	-6.3					
51 1735.890M	61.9	+0.0	+0.0	+0.0	+0.0	+0.0	49.4	60.8	-11.4	Vert
Ave		+0.0	-38.5	+27.1	+0.4			Z axis		
		+1.1	+3.4	+0.3	-6.3					
^ 1735.862M	81.5	+0.0	+0.0	+0.0	+0.0	+0.0	75.3	60.8	+14.5	Vert
		+0.0	-38.5	+27.1	+0.4			X axis		
A 1725 050M	77.1	+1.1	+3.4	+0.3	+0.0	0.0	70.0	60.0	10.1	X7 .
^ 1735.850M	77.1	+0.0	+0.0	+0.0	+0.0	+0.0	70.9	60.8	+10.1	Vert
		+0.0	-38.5	+27.1	+0.4			Y axis		
A 1725 000M	72.5	+1.1		+0.3	+0.0	. 0. 0	(7.2	<i>(</i> 0, 0		<b>X</b> 74
^ 1735.890M	73.5	+0.0	+0.0	+0.0	+0.0	+0.0	67.3	60.8	+6.5	Vert
		+0.0	-38.5	+27.1	+0.4			Z axis		
55 1201 000M	<b>50.2</b>	+1.1		+0.3	+0.0	+ O O	42.2	540	-11.8	II
55 1301.900M Ave	58.3	+0.0 +0.0	+0.0 -39.2	$+0.0 \\ +24.4$	+0.0 +0.5	+0.0	42.2	54.0 X axis	-11.8	Horiz
Ave								A axis		
56 3471.680M	53.3	+1.0	+2.9	+0.0	-6.3 +0.0	+0.0	100	60.8	-12.0	Vert
30 34/1.080WI Ave	23.3							X axis	-12.0	vert
Ave		+0.0	-36.4 +4.9	+0.2	-6.3			A aa18		
^ 3471.650M	64.0	+0.0	+0.0	+0.2	+0.0	+0.0	65.8	60.8	+5.0	Vert
J+/1.0J01VI	0+.0	+0.0	-38.4	+32.6	+0.0	10.0	05.0	Y axis	1.0.0	v CI t
		+1.5	-36.4 +4.9	+0.2	+0.0			1 4113		
^ 3471.680M	62.5	+0.0	+0.0	+0.0	+0.0	+0.0	64.3	60.8	+3.5	Vert
3-71.000IVI	02.3	+0.0	-38.4	+32.6	+1.0	10.0	07.3	X axis	1 3.3	V 011
		+1.5	+4.9	+0.2	+0.0			i will		
59 2603.750M	59.4	+0.0	+0.0	+0.0	+0.0	+0.0	48.5	60.8	-12.3	Horiz
Ave	57.7	+0.0	-38.4	+27.2	+0.8	10.0	10.5	Z axis	12.3	110112
11,0		+1.4	+4.2	+0.2	-6.3			_ 4110		
60 1301.870M	56.4	+0.0	+0.0	+0.0	+0.0	+0.0	40.3	54.0	-13.7	Horiz
Ave	20.7	+0.0	-39.2	+24.4	+0.5	10.0	10.5	Y axis	13.1	110112
		+1.0	+2.9	+0.6	-6.3			2 4/110		
		. 1.0	. 2.,	. 3.0	3.5					

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^ 1301.900M	67.8	+0.0	+0.0	+0.0	+0.0	+0.0	58.0	54.0	+4.0	Horiz
		+0.0	-39.2	+24.4	+0.5			X axis		
		+1.0	+2.9	+0.6	+0.0	0.0		<b>7</b> 40		** '
^ 1301.870M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0		54.0	+1.3	Horiz
		+0.0	-39.2	+24.4	+0.5			Y axis		
	<b>70.0</b>	+1.0	+2.9	+0.6	+0.0	0.0	40.4	<b>7</b> 4 0		** '
^ 1301.790M	59.2	+0.0	+0.0	+0.0	+0.0	+0.0	49.4	54.0	-4.6	Horiz
		+0.0	-39.2	+24.4	+0.5			Z axis		
		+1.0	+2.9	+0.6	+0.0	0.0				
64 3037.740M	55.9	+0.0	+0.0	+0.0	+0.0	+0.0	47.1	60.8	-13.7	Horiz
Ave		+0.0	-38.6	+29.0	+0.9			Y axis		
		+1.5	+4.5	+0.2	-6.3					
65 3037.710M	55.8	+0.0	+0.0	+0.0	+0.0	+0.0	47.0	60.8	-13.8	Vert
Ave		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5	+4.5	+0.2	-6.3					
66 1301.850M	56.0	+0.0	+0.0	+0.0	+0.0	+0.0	39.9	54.0	-14.1	Vert
Ave		+0.0	-39.2	+24.4	+0.5			Y axis		
		+1.0	+2.9	+0.6	-6.3					
67 2603.770M	57.4	+0.0	+0.0	+0.0	+0.0	+0.0	46.5	60.8	-14.3	Horiz
Ave		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4	+4.2	+0.2	-6.3					
68 1301.860M	55.6	+0.0	+0.0	+0.0	+0.0	+0.0	39.5	54.0	-14.5	Vert
Ave		+0.0	-39.2	+24.4	+0.5			X axis		
		+1.0	+2.9	+0.6	-6.3					
^ 1301.850M	64.9	+0.0	+0.0	+0.0	+0.0	+0.0	55.1	54.0	+1.1	Vert
		+0.0	-39.2	+24.4	+0.5			Y axis		
		+1.0	+2.9	+0.6	+0.0					
^ 1301.860M	64.9	+0.0	+0.0	+0.0	+0.0	+0.0	55.1	54.0	+1.1	Vert
		+0.0	-39.2	+24.4	+0.5			X axis		
		+1.0	+2.9	+0.6	+0.0					
^ 1301.890M	60.7	+0.0	+0.0	+0.0	+0.0	+0.0	50.9	54.0	-3.1	Vert
		+0.0	-39.2	+24.4	+0.5			Z axis		
		+1.0	+2.9	+0.6	+0.0					
72 3037.690M	54.9	+0.0	+0.0	+0.0	+0.0	+0.0	46.1	60.8	-14.7	Horiz
Ave		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5	+4.5	+0.2	-6.3					
^ 3037.700M	70.7	+0.0	+0.0	+0.0	+0.0	+0.0	68.2	60.8	+7.4	Horiz
		+0.0			+0.9			Z axis		
		+1.5	+4.5	+0.2	+0.0					
^ 3037.740M	66.5	+0.0	+0.0	+0.0	+0.0	+0.0	64.0	60.8	+3.2	Horiz
		+0.0	-38.6	+29.0	+0.9			Y axis		
		+1.5	+4.5	+0.2	+0.0					
^ 3037.690M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0	62.6	60.8	+1.8	Horiz
		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5	+4.5	+0.2	+0.0					
76 3037.750M	54.5	+0.0	+0.0	+0.0	+0.0	+0.0	45.7	60.8	-15.1	Vert
Ave		+0.0	-38.6	+29.0	+0.9			Y axis		
		+1.5	+4.5	+0.2	-6.3					
^ 3037.690M	71.5	+0.0	+0.0	+0.0	+0.0	+0.0	69.0	60.8	+8.2	Vert
2 32 7 10 7 0 1 7 1	. 1.0	+0.0	-38.6	+29.0	+0.9	. 0.0	57.0	Z axis	. 0.2	. 011
		+1.5	+4.5	+0.2	+0.0					
		, 1.5	. 1.0	. 0.2	10.0					

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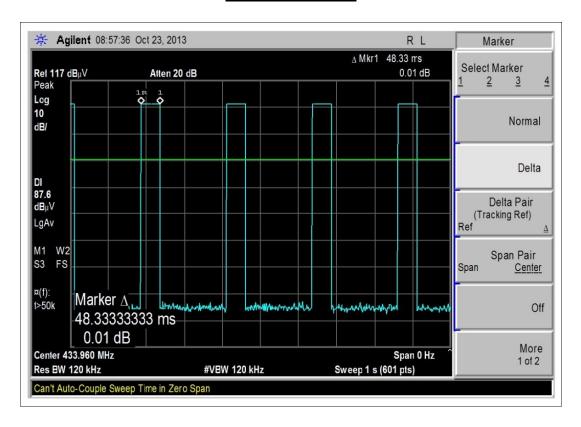
^ 3037.710M	66.9	+0.0	+0.0	+0.0	+0.0	+0.0	64.4	60.8	+3.6	Vert
		+0.0	-38.6	+29.0	+0.9			X axis		
		+1.5	+4.5	+0.2	+0.0					
^ 3037.750M	64.7	+0.0	+0.0	+0.0	+0.0	+0.0	62.2	60.8	+1.4	Vert
		+0.0	-38.6	+29.0	+0.9			Y axis		
00. 2602.70014	<i></i>	+1.5	+4.5	+0.2	+0.0	. 0. 0	447	60.0	1.6.1	
80 2603.700M	55.6	+0.0	+0.0	+0.0	+0.0	+0.0	44.7	60.8	-16.1	Horiz
Ave		+0.0	-38.4	+27.2	+0.8			Y axis		
A 2602.750M	70.0	+1.4	+4.2	+0.2	-6.3	. 0. 0	((2	60.8	. 5 5	II a ai-
^ 2603.750M	70.9	+0.0	+0.0	+0.0	+0.0	+0.0	00.3		+5.5	Horiz
		+0.0	-38.4	+27.2	+0.8			Z axis		
A 2602 770M	<b>CO.O.</b>	+1.4	+4.2	+0.2	+0.0	. 0. 0	(2.4	<b>60.0</b>	.2.6	TT
^ 2603.770M	68.0	+0.0	+0.0	+0.0	+0.0	+0.0	63.4	60.8 V	+2.6	Horiz
		+0.0	-38.4	+27.2	+0.8			X axis		
A 2602 700M	<i>CE</i> 1	+1.4	+4.2	+0.2	+0.0	. 0. 0	60.5	<b>60.0</b>	0.2	TT
^ 2603.700M	65.1	+0.0	+0.0	+0.0	+0.0	+0.0	60.5	60.8 V avis	-0.3	Horiz
		+0.0	-38.4	+27.2	+0.8			Y axis		
04 2602 74014	<i>55.</i> 2	+1.4	+4.2	+0.2	+0.0	. 0. 0	4.4.4	<b>60.0</b>	1.6.4	<b>X</b> 7
84 2603.740M	55.3	+0.0	+0.0	+0.0	+0.0	+0.0	44.4	60.8	-16.4	Vert
Ave		+0.0	-38.4	+27.2	+0.8			Z axis		
95 2160 760M	<i>EE</i> 1	+1.4	+4.2	+0.2	-6.3		44.2	<i>(</i> 0.9	165	II
85 2169.760M	55.1	+0.0	+0.0	+0.0	+0.0	+0.0	44.3	60.8	-16.5	Horiz
Ave		+0.0	-38.4	+27.9	+0.7			Z axis		
A 2160 760M	C 1 7	+1.3	+3.8	+0.2	-6.3	. 0. 0	(0.2	<b>60.0</b>	0.6	TT
^ 2169.760M	64.7	+0.0	+0.0	+0.0	+0.0	+0.0	60.2	60.8	-0.6	Horiz
		+0.0	-38.4	+27.9	+0.7			Z axis		
A 2160 000M	565	+1.3	+3.8	+0.2	+0.0	. 0. 0	52.0	<b>60.0</b>	0.0	TT
^ 2169.800M	56.5	+0.0 +0.0	+0.0	+0.0	+0.0	+0.0	52.0	60.8 Y axis	-8.8	Horiz
			-38.4 +3.8	$+27.9 \\ +0.2$	+0.7			1 axis		
88 4339.630M	41.7	+1.3		+0.2	+0.0	+0.0	27.0	54.0	-17.0	V
	41./	+0.0 +0.0	+0.0 -37.9	+31.2	+0.0 +0.9	+0.0	37.0	X axis	-17.0	Vert
Ave		+1.7	-57.9 +5.5	+31.2				A axis		
^ 4339.630M	49.4	+0.0	+0.0	+0.2	-6.3	+ O O	51.0	54.0	-3.0	Vont
^ 4559.050WI	49.4	+0.0	+0.0 -37.9	+31.2	+0.0 +0.9	+0.0	31.0	X axis	-3.0	Vert
		+1.7		+31.2	+0.9			A axis		
^ 4339.540M	48.1	+0.0	+0.0	+0.2	+0.0	+0.0	49.7	54.0	-4.3	Vort
^ 4339.340M	46.1	+0.0 +0.0		+31.2	+0.0	+0.0	49.7	Z axis	-4.3	Vert
			-37.9 +5.5					Z axis		
^ 4339.590M	40.2	+1.7	+0.0	+0.2	+0.0	+0.0	41.8	54.0	-12.2	Vert
4339.3901/1	40.2	+0.0 +0.0	+0.0 -37.9	+0.0 +31.2	+0.0 +0.9	+0.0	41.8	Y axis	-12.2	vert
		+0.0 +1.7	-57.9 +5.5	+31.2	+0.9			1 4318		
92 2603.790M	54.1	+0.0	+0.0	+0.2	+0.0	+0.0	43.2	60.8	-17.6	Vert
Ave	54.1	+0.0	-38.4	+27.2	+0.0 +0.8	±0.0	+3.2	Y axis	-17.0	v CI t
1110		+1.4	+4.2	+0.2	-6.3			1 uals		
93 2603.760M	53.9	+0.0	+0.0	+0.2	+0.0	+0.0	43.0	60.8	-17.8	Vert
Ave	33.7	+0.0	-38.4	+27.2	+0.0	±0.0	+5.0	X axis	-1/.0	v ei t
AVC		+1.4	+4.2	+27.2	-6.3			A anis		
^ 2603.740M	65.5	+0.0	+0.0	+0.2	+0.0	+0.0	60.9	60.8	+0.1	Vert
2003.740IVI	05.5	+0.0	-38.4	+27.2	+0.0	±0.0	00.9	Z axis	+0.1	v CI t
		+0.0 +1.4	-38.4 +4.2	+27.2	+0.8 $+0.0$			<b>L</b> ax18		
		<b>⊤1.4</b>	+4.∠	+0.∠	+0.0					

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^ 2603.790M	63.5	+0.0	+0.0	+0.0	+0.0	+0.0	58.9	60.8	-1.9	Vert
		+0.0	-38.4	+27.2	+0.8			Y axis		
		+1.4	+4.2	+0.2	+0.0					
^ 2603.760M	63.4	+0.0	+0.0	+0.0	+0.0	+0.0	58.8	60.8	-2.0	Vert
		+0.0	-38.4	+27.2	+0.8			X axis		
		+1.4	+4.2	+0.2	+0.0					

### **Duty Cycle Test Plot**



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### **Test Setup Photos**



Test Setup



X - Axis





Y - Axis



Z - Axis



# 15.231(c) -20dBc Occupied Bandwidth

#### **Test Data**

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

Customer: McKinley-Ross Corp.
Specification: Occupied Bandwidth

Work Order #: 94389 Date: 10/23/2013
Test Type: Maximized Emissions Time: 10:28:49
Equipment: Woten quitch transmitten

Equipment: Water switch transmitter Sequence#: 3

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
Т3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
T4	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T5	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N	
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA	

Support Devices:

Function Manufacturer Model # S/N

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

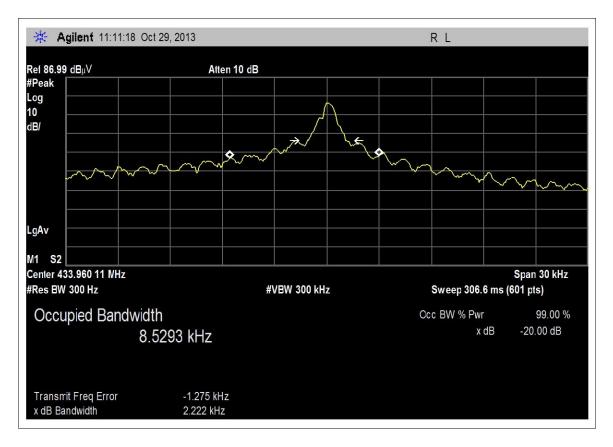
Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

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### **Test Data**



Occupied Bandwidth is less than limit of 0.25% of center frequency =0.25%\*433.96MHz=1.085MHz

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### Test Setup Photos



Test Setup



X - Axis





Y - Axis



Z - Axis



### RSS-210 A1.1.3 / 99% Bandwidth

#### **Test Data**

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

Customer: McKinley-Ross Corp.
Specification: 99% Bandwidth

 Work Order #:
 94389
 Date:
 10/23/2013

 Test Type:
 Maximized Emissions
 Time:
 10:28:49

Equipment: Water switch transmitter Sequence#: 3

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	ANP05198	Cable-Amplitude 15	8268	12/11/2012	12/11/2014
		to 45degC (dB)			
	ANP05198	Cable-Amplitude -15	8268	12/11/2012	12/11/2014
		to 15degC			
T4	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T5	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function Manufacturer Model # S/N

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode.

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

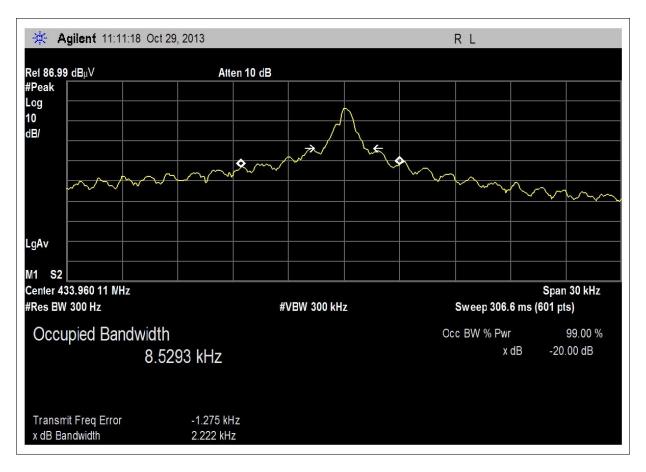
Temp: 18°C, 57% Relative Humidity, 100.1kpa

Site A

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#### **Test Data**



Occupied Bandwidth is less than limit of 0.25% of center frequency =0.25%\*433.96MHz=1.085MHz

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### Test Setup Photos



Test Setup



X - Axis





Y - Axis



Z - Axis



# 15.231(d) Frequency Stability

Test Engineer:	Don Nguyen	Test Procedure:	15.231(d)	
Test Level:	NA			
<b>Declarations:</b> The manufacturer declares the operating frequency of the EUT is 433.92MHz which is outside of				
band 40.66-40.70MHz. The EUT was tested with a new battery.				

### RSS-210 A1.1.4 / Frequency Stability

Test Engineer:	Don Nguyen	Test Procedure:	15.231(d)	
Test Level:	NA			
<b>Declarations:</b> The manufacturer declares the operating frequency of the EUT is 433.92MHz which is outside of				
hand 40 66-40 70MHz. The FLIT was tested with a new hattery				

### **Reduced Field Strengths**

Test Engineer:	Don Nguyen	Test Procedure:	15.231(e)	
Test Level:	NA			
<b>Declarations:</b> The manufacturer declares the manually operated transmitter employing a switch automatically				
deactivated the transmitter within not more than 5 seconds of being released.				

# RSS-210 A1.1.5 / Reduced Field Strengths

Test Engineer:	Don Nguyen	Test Procedure:	15.231(e)		
Test Level:	NA				
<b>Declarations:</b> The manufacturer declares the manually operated transmitter employing a switch automatically					
deactivated the transmitter within not more than 5 seconds of being released.					

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# **APPENDIX A: TEST DATE – 12/24/2013**

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### **SUMMARY OF RESULTS**

### Standard / Specification: FCC Part 15 Subpart C 15.231 and RSS-210 Issue 8

Description	Test Procedure/Method	Results
Types of Momentary Signals	FCC Part 15 Subpart C Section 15.231(a)	Pass
Types of Momentary Signals	Section A1.1.1 / RSS-210 Issue 8	Pass
Field Strength of Fundamental and	FCC Part 15 Subpart C Section 15.231(b) / DO1 DTS	Pass
Spurious Emissions	MEAS Guidance V03	PdSS
Field Strength of Fundamental and	Section A1.1.2 / RSS-210 Issue 8 / DO1 DTS MEAS	Docc
Spurious Emissions	Guidance V03	Pass

### **Conditions During Testing**

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

Summary of Cond	ions	
None		

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### **EQUIPMENT UNDER TEST (EUT)**

### **EQUIPMENT UNDER TEST**

#### **Water Switch Transmitter**

Manuf: McKinley-Ross Corp.

Model: WMS500 Serial: None

#### **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral devices:

#### Flow Switch (3)

Manuf: McKinley-Ross Corp.

Model: NA Serial: NA

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# **FCC PART 15.231**

### 15.231(a) Types of Momentary Signals

#### **Test Conditions / Setup**

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

Customer: McKinley-Ross Corp.

Specification: Types of Momentary Signals

Work Order #: 94389 Date: 12/24/2013
Test Type: Maximized Emissions Time: 11:39:33
Equipment: Water switch transmitter Sequence#: 6

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T2	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
T3	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
T5	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T6	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014

**Equipment Under Test (\* = EUT):** 

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function	Manufacturer	Model #	S/N	
Flow switch	McKinley-Ross Corp.	NA	NA	
Flow switch	McKinley-Ross Corp.	NA	NA	
Flow switch	McKinley-Ross Corp.	NA	NA	

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches. The EUT is installed with new 9V battery. Fundamental operating frequency: 433.92MHz RBW=VBW=120kHz

Temp: 20°C, 31% Relative Humidity, 100.1kpa

Site D

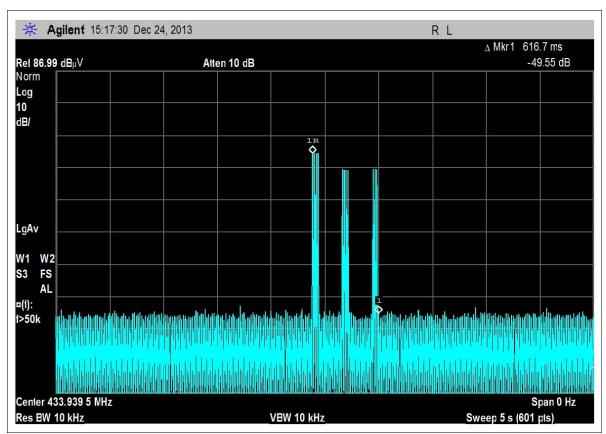
Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

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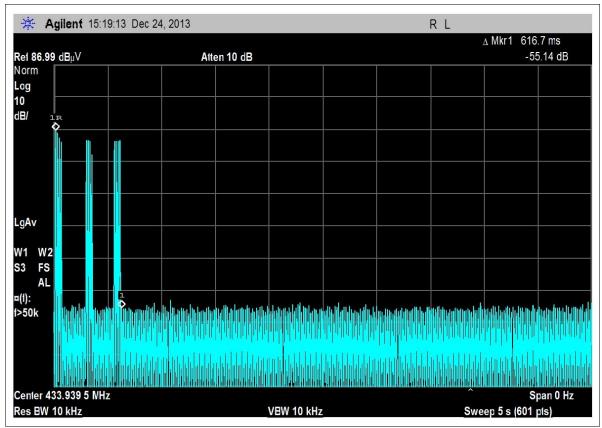
### **Test Data**



Step 1: The switch was pressed and quickly released. EUT transmitted and deactivated within 5 seconds.

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Step 2: The switch was pressed and held for 5 seconds then released. The EUT transmitted and deactivated within 5 seconds.

In both steps, the EUT was tested per 15.231a

- (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
- (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Note: The manufacturer declares the manual switch operation also simulates automatic triggering from external peripherals.

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### Test Setup Photos



Overall Test Setup

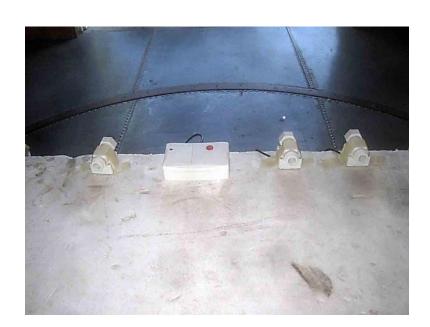


X Axis





Y Axis



Z Axis



### RSS-210 A1.1.1 / Types of Momentary Signals

### **Test Conditions / Setup**

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

Customer: McKinley-Ross Corp.

Specification: Types of Momentary Signals

Work Order #: 94389 Date: 12/24/2013
Test Type: Maximized Emissions Time: 11:39:33
Equipment: Water switch transmitter Sequence#: 6

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

	T				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T2	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
T3	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
T5	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T6	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014

Equipment Under Test (\* = EUT):

	,		
Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

TI			
Function	Manufacturer	Model #	S/N
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches. The EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 20°C, 31% Relative Humidity, 100.1kpa

Site D

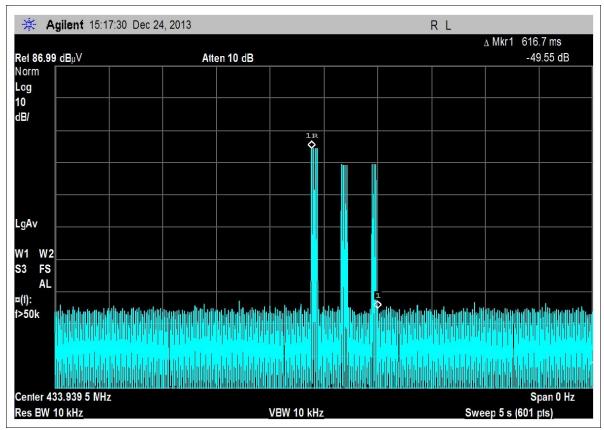
Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor =  $20\log(\text{dwell time}/100 \text{ ms}) = 20\log(48.33/100) = -6.32 \text{db}$ 

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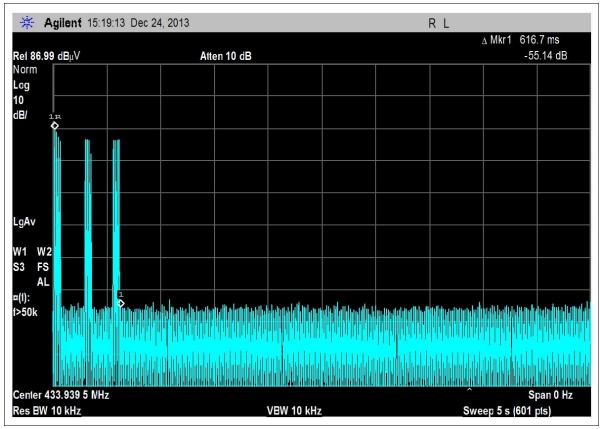
### **Test Data**



Step 1: The switch was pressed and quickly released. EUT transmitted and deactivated within 5 seconds.

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Step 2: The switch was pressed and hold for 5 seconds then released. The EUT transmitted and deactivated within 5 seconds.

In both steps, EUT testing performed to A1.1.1

- (a) A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all transmission times. When released, the transmitter shall cease transmission (holdover time of up to 5 seconds is permitted).
- (b) A transmitter activated automatically shall cease transmission within 5 seconds after activation (i.e. maximum 5 seconds of operation).

Note: The manufacturer declares the manual switch operation also simulates automatic triggering from external peripherals.

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### Test Setup Photos



Overall Test Setup



X Axis





Y Axis



Z Axis



### 15.231(b) Field Strength of Fundamental & Spurious Emissions

#### **Test Data**

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

Customer: McKinley-Ross Corp.

Specification: 15.231(b) Fundamental Field Strength

 Work Order #:
 94389
 Date:
 12/24/2013

 Test Type:
 Maximized Emissions
 Time:
 11:39:33

Equipment: Water switch transmitter Sequence#: 6

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T2	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
Т3	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
T5	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T6	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014

Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches. The EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 20°C, 31% Relative Humidity, 100.1kpa

Site D

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

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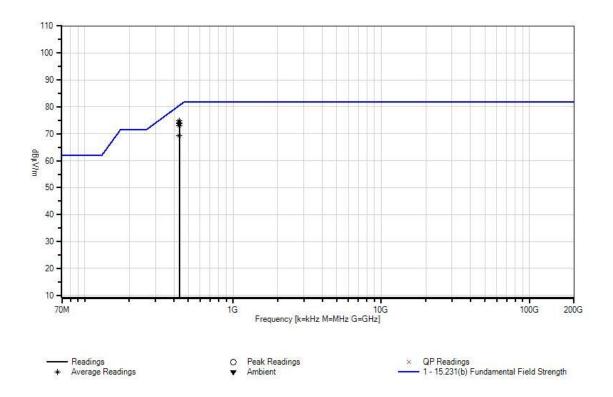
Ext Attn: 0 dB

Measi	irement Data:	Re	eading lis	ted by ma	argin.	Test Distance: 3 Meters					
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6							
	MHz	dΒμV	dB	dB	dB	dB	Table	$dB\mu V/m$	dBµV/m	dB	Ant
1	433.953M	81.6	+21.9	-6.3	-27.5	+2.4	+0.0	74.8	80.5	-5.7	Horiz
	Ave		+0.4	+2.3					Y axis		
2	433.953M	80.8	+21.9	-6.3	-27.5	+2.4	+0.0	74.0	80.5	-6.5	Vert
	Ave		+0.4	+2.3					Y axis		
3	433.953M	80.5	+21.9	-6.3	-27.5	+2.4	+0.0	73.7	80.5	-6.8	Vert
	Ave		+0.4	+2.3					X axis		
4	433.953M	79.7	+21.9	-6.3	-27.5	+2.4	+0.0	72.9	80.5	-7.6	Horiz
	Ave		+0.4	+2.3					X axis		
5	433.953M	76.2	+21.9	-6.3	-27.5	+2.4	+0.0	69.4	80.5	-11.1	Vert
	Ave		+0.4	+2.3					Z axis		
^	433.953M	94.5	+21.9	+0.0	-27.5	+2.4	+0.0	94.0	80.5	+13.5	Vert
			+0.4	+2.3					Y axis		
^	433.953M	94.3	+21.9	+0.0	-27.5	+2.4	+0.0	93.8	80.5	+13.3	Vert
			+0.4	+2.3					X axis		
^	433.953M	89.9	+21.9	+0.0	-27.5	+2.4	+0.0	89.4	80.5	+8.9	Vert
			+0.4	+2.3					Z axis		
9	433.948M	76.0	+21.9	-6.3	-27.5	+2.4	+0.0	69.2	80.5	-11.3	Horiz
	Ave		+0.4	+2.3					Z axis		
^	433.953M	95.2	+21.9	+0.0	-27.5	+2.4	+0.0	94.7	80.5	+14.2	Horiz
			+0.4	+2.3					Y axis		
^	433.953M	93.6	+21.9	+0.0	-27.5	+2.4	+0.0	93.1	80.5	+12.6	Horiz
			+0.4	+2.3					X axis		
^	433.948M	89.6	+21.9	+0.0	-27.5	+2.4	+0.0	89.1	80.5	+8.6	Horiz
			+0.4	+2.3					Z axis		

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CKC Laboratories, Inc. Date: 12/24/2013 Time: 11:39:33 McKinley-Ross Corp. WO#: 94389 15.231(b) Fundamental Field Strength Test Distance: 3 Meters Sequence#: 6 Ext ATTN: 0 dB





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

Customer: McKinley-Ross Corp.

Specification: 15.231(b) Spurious Field Strength (433.92 MHz Transmitter)

Work Order #: 94389 Date: 12/24/2013
Test Type: Maximized Emissions Time: 14:49:55
Equipment: Woten quitely transmitten

Equipment: Water switch transmitter Sequence#: 5

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

#### Test Equipment:

1 cst Equi	pintenti				
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014
T1	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
T2	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
Т3	AN00787	Preamp	83017A	5/31/2013	5/31/2015
T4	ANP06360	Cable	L1-PNMNM-48	8/29/2012	8/29/2014
T5	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
T6	AN02945	Cable	32022-2-2909K-	10/30/2013	10/30/2015
			36TC		
T7	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
Т8	AN00010	Preamp	8447D	3/29/2012	3/29/2014
Т9	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T10	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
T11	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

#### Equipment Under Test (\* = EUT):

Equipment Citater Test (	<u> </u>			
Function	Manufacturer	Model #	S/N	
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA	

## Support Devices:

Function	Manufacturer	Model #	S/N
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA

## Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches.

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

Frequency Range: 9KHz-4.7GHz

9 kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-47000 MHz; RBW=1 MHz, VBW=1MHz. Temp: 22°C, 34% Relative Humidity, 100.1kpa

Site D

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

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Ext Attn: 0 dB

	irement Data:	Re	eading lis	ted by ma	argin.		Te	est Distanc	e: 3 Meters		
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	-	_	T5	T6	T7	T8			•		
			T9	T10	T11						
	MHz	$dB\mu V$	dB	dB	dB	dB	Table	$dB\mu V/m$	$dB\mu V/m \\$	dB	Ant
1	3471.469M	60.9	-6.3	+0.2	-39.9	+3.9	+0.0	60.2	60.8	-0.6	Vert
	Ave		+32.3	+1.0	+8.1	+0.0			Y axis		
			+0.0	+0.0	+0.0						
^	3471.469M	74.2	+0.0	+0.2	-39.9	+3.9	+0.0	79.8	60.8	+19.0	Vert
			+32.3	+1.0	+8.1	+0.0			Y axis		
			+0.0	+0.0	+0.0						
3	3471.611M	59.5	-6.3	+0.2	-39.9	+3.9	+0.0	58.8	60.8	-2.0	Horiz
	Ave		+32.3	+1.0	+8.1	+0.0			Z axis		
			+0.0	+0.0	+0.0						
4	3471.628M	59.4	-6.3	+0.2	-39.9	+3.9	+0.0	58.7		-2.1	Vert
	Ave		+32.3	+1.0	+8.1	+0.0			Z axis		
			+0.0	+0.0	+0.0						
5	4339.410M	47.2	+0.0	+0.2	-39.8	+4.5	+0.0	51.3	54.0	-2.7	Horiz
			+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0			= 0.0	10.0		
6	3471.544M	58.7	-6.3	+0.2	-39.9	+3.9	+0.0	58.0	60.8	-2.8	Horiz
	Ave		+32.3	+1.0	+8.1	+0.0			Y axis		
	2007.74.75	<b></b>	+0.0	+0.0	+0.0		0.0		<b>7</b> 40	2.7	**
7	3905.544M	52.3	-6.3	+0.3	-39.9	+4.2	+0.0	50.5		-3.5	Vert
	Ave		+31.4	+1.0	+7.5	+0.0			Z axis		
	2005 4103 4	<b>71.0</b>	+0.0	+0.0	+0.0	. 1.0	. 0. 0	40.0	7.4.0	4.0	X7 .
8	3905.419M	51.0	-6.3	+0.3	-39.9	+4.2	+0.0	49.2		-4.8	Vert
	Ave		+31.4	+1.0	+7.5 +0.0	+0.0			Y axis		
	2005 410M	616	+0.0	+0.0		+4.2	+0.0	60.1	54.0	. 15 1	Vont
	3905.419M	64.6		+0.3	-39.9	+4.2	+0.0	69.1		+15.1	Vert
			+31.4	$+1.0 \\ +0.0$	$+7.5 \\ +0.0$	+0.0			Y axis		
10	3905.586M	50.8	+0.0	+0.0	-39.9	+4.2	+0.0	49.0	54.0	-5.0	Vert
10	Ave	30.8	-0.5 +31.4	+0.3	-39.9 +7.5	+4.2	+0.0	49.0	X axis	-3.0	vert
	Ave		+31.4	$^{+1.0}$	+0.0	+0.0			A axis		
	3905.544M	66.2	+0.0	+0.3	-39.9	+4.2	+0.0	70.7	54.0	+16.7	Vert
	3903.344WI	00.2	+31.4	+0.3 $+1.0$	+7.5	+0.0	+0.0	70.7	Z axis	+10.7	VEIL
			+0.0	$^{+1.0}$	+0.0	+0.0			L axis		
٨	3905.586M	64.2		+0.3	-39.9	+4.2	+0.0	68.7	54.0	+14.7	Vert
	5705.500IVI	04.2	+31.4	+1.0	+7.5	+0.0	10.0	00.7	X axis	114./	v CI t
			+0.0	+0.0	+0.0	10.0			11 U/110		
13	3471.636M	56.0	-6.3	+0.2	-39.9	+3.9	+0.0	55.3	60.8	-5.5	Horiz
	Ave	30.0	+32.3	+1.0	+8.1	+0.0	. 0.0	55.5	X axis	5.5	110112
			+0.0	+0.0	+0.0	. 0.0					
٨	3471.611M	73.1	+0.0	+0.2	-39.9	+3.9	+0.0	78.7	60.8	+17.9	Horiz
			+32.3	+1.0	+8.1	+0.0	. 0.0	. 0.,	Z axis	. = 1.12	
			+0.0	+0.0	+0.0						
٨	3471.544M	72.3	+0.0	+0.2	-39.9	+3.9	+0.0	77.9	60.8	+17.1	Horiz
			+32.3	+1.0	+8.1	+0.0			Y axis		
			+0.0	+0.0	+0.0						

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+32.3 +1.0 +8.1 +0.0 X axis +0.0 +0.0 +0.0	- ** ·
+0.0 +0.0 +0.0	.6 Horiz
17 3905.586M 50.3 -6.3 +0.3 -39.9 +4.2 +0.0 48.5 54.0 -5	5 Horiz
Ave +31.4 +1.0 +7.5 +0.0 X axis	3 попи
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
18 4339.536M 44.1 +0.0 +0.2 -39.8 +4.5 +0.0 48.2 54.0 -5	.8 Horiz
+31.0 +1.0 +7.2 +0.0 X axis	6 11011Z
+0.0 +0.0 +0.0	
19 3905.561M 49.3 -6.3 +0.3 -39.9 +4.2 +0.0 47.5 54.0 -6	.5 Horiz
Ave $+31.4 +1.0 +7.5 +0.0$ Z axis	J HOHZ
+0.0 +0.0 +0.0	
	.3 Horiz
+31.4 +1.0 +7.5 +0.0 X axis	.5 110112
+0.0 +0.0 +0.0	
	.2 Horiz
+31.4 +1.0 +7.5 +0.0 Z axis	.2 110112
+0.0 +0.0 +0.0	
22 3905.461M 49.3 -6.3 +0.3 -39.9 +4.2 +0.0 47.5 54.0 -6	5 Horiz
Ave $+31.4 +1.0 +7.5 +0.0$ Y axis	
+0.0 +0.0 +0.0	
	.0 Horiz
+31.4 +1.0 +7.5 +0.0 Y axis	
+0.0 +0.0 +0.0	
	8 Horiz
Ave $+0.0 +0.0 +3.5 -27.5$ X axis	
+0.6 +3.4 +27.8	
25 3471.636M 54.1 -6.3 +0.2 -39.9 +3.9 +0.0 53.4 60.8 -7	4 Vert
Ave $+32.3 +1.0 +8.1 +0.0$ X axis	
+0.0 +0.0 +0.0	
^ 3471.628M	.7 Vert
+32.3 +1.0 +8.1 +0.0 Z axis	
+0.0 +0.0 +0.0	
	.4 Vert
+32.3 +1.0 +8.1 +0.0 X axis	
+0.0 +0.0 +0.0	
	.5 Vert
+31.0 +1.0 +7.2 +0.0 Z axis	
+0.0 +0.0 +0.0	
29 3037.661M 58.7 -6.3 +0.2 -39.7 +3.7 +0.0 53.0 60.8 -7	8 Horiz
Ave $+29.4 +0.8 +6.2 +0.0$ Z axis	
+0.0 +0.0 +0.0	.6 Horiz
+0.0 +0.0 +0.0 30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8	
+0.0 +0.0 +0.0 30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis	
+0.0 +0.0 +0.0 30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0	
+0.0 +0.0 +0.0 30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0 31 3037.594M 57.2 -6.3 +0.2 -39.7 +3.7 +0.0 51.5 60.8 -9	3 Horiz
+0.0 +0.0 +0.0 30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0 31 3037.594M 57.2 -6.3 +0.2 -39.7 +3.7 +0.0 51.5 60.8 -9 Ave +29.4 +0.8 +6.2 +0.0 Y axis	3 Horiz
+0.0 +0.0 +0.0 +0.0  30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0  31 3037.594M 57.2 -6.3 +0.2 -39.7 +3.7 +0.0 51.5 60.8 -9 Ave +29.4 +0.8 +6.2 +0.0 Y axis +0.0 +0.0 +0.0 +0.0	
+0.0 +0.0 +0.0 +0.0  30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0  31 3037.594M 57.2 -6.3 +0.2 -39.7 +3.7 +0.0 51.5 60.8 -9 Ave +29.4 +0.8 +6.2 +0.0 Y axis +0.0 +0.0 +0.0  32 4339.536M 40.3 +0.0 +0.2 -39.8 +4.5 +0.0 44.4 54.0 -9	
+0.0 +0.0 +0.0 +0.0  30 4339.494M 41.3 +0.0 +0.2 -39.8 +4.5 +0.0 45.4 54.0 -8 +31.0 +1.0 +7.2 +0.0 Z axis +0.0 +0.0 +0.0  31 3037.594M 57.2 -6.3 +0.2 -39.7 +3.7 +0.0 51.5 60.8 -9 Ave +29.4 +0.8 +6.2 +0.0 Y axis +0.0 +0.0 +0.0 +0.0	

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33	867.903M	49.5		+0.0	+0.0	+0.0	+0.0		60.8	-9.8	Vert
	Ave		+0.0	+0.0	+3.5	-27.5			Y axis		
			+0.6	+3.4	+27.8						
34	3037.686M	56.6	-6.3	+0.2	-39.7	+3.7	+0.0	50.9	60.8	-9.9	Horiz
	Ave		+29.4	+0.8	+6.2	+0.0			X axis		
			+0.0	+0.0	+0.0						
^	3037.661M	72.4	+0.0	+0.2	-39.7		+0.0	73.0	60.8	+12.2	Horiz
			+29.4	+0.8	+6.2	+0.0			Z axis		
			+0.0	+0.0	+0.0						
^	3037.594M	71.0	+0.0	+0.2	-39.7		+0.0	71.6	60.8	+10.8	Horiz
			+29.4	+0.8	+6.2	+0.0			Y axis		
			+0.0	+0.0	+0.0					100	
^	3037.686M	70.2	+0.0	+0.2	-39.7	+3.7	+0.0	70.8	60.8	+10.0	Horiz
			+29.4	+0.8	+6.2	+0.0			X axis		
20	0.67.0003.6	40.1	+0.0	+0.0	+0.0	0.0	0.0	50.6	60.0	10.2	TT .
38	867.903M	49.1	-6.3	+0.0	+0.0		+0.0	50.6	60.8	-10.2	Horiz
	Ave		+0.0	+0.0	+3.5	-27.5			Z axis		
20	067.00214	47.7	+0.6	+3.4	+27.8	. 0. 0	. 0. 0	40.2	<i>c</i> 0.0	11.6	<b>X</b> I
39	867.903M	4/./		+0.0	+0.0		+0.0	49.2	60.8	-11.6	vert
	Ave		+0.0	+0.0	+3.5	-27.5			X axis		
40	2603.736M	577	+0.6	+3.4	+27.8	.2.4	. 0. 0	40.0	60.8	12.0	IIi.
40		51.1	-6.3 +27.1	$+0.2 \\ +0.7$	-39.7 +5.7	+3.4 +0.0	+0.0	48.8	X axis	-12.0	Horiz
	Ave		+27.1 +0.0	+0.7	+0.0	+0.0			A axis		
41	3037.686M	54.0	-6.3	+0.0	-39.7	+3.7	+0.0	10.2	60.8	-12.5	Vont
	Ave	34.0	-0.3 +29.4	+0.2	-39.7 +6.2	+0.0	+0.0	46.3	X axis	-12.3	vert
	Ave		+0.0	+0.8	+0.2	+0.0			A axis		
12	3037.678M	53.0	-6.3	+0.2	-39.7	+3.7	±0.0	18.2	60.8	-12.6	Vert
42	Ave	33.9	+29.4	+0.2	+6.2	+0.0	+0.0	40.2	Z axis	-12.0	VCIT
	1110		+0.0	+0.0	+0.0	10.0			Z unis		
43	867.903M	46.6	-6.3	+0.0	+0.0	+0.0	+0.0	48 1	60.8	-12.7	Vert
	Ave	10.0	+0.0	+0.0	+3.5	-27.5	10.0	10.1	Z axis	12.7	VOIC
			+0.6	+3.4	+27.8	_,					
٨	867.903M	61.6	+0.0	+46.5	-42.8	+1.9	+0.0	71.0	60.8	+10.2	Vert
	007.5051.1	01.0			+3.5	+0.0	10.0	,1.0	Y axis	110.2	, 611
					+0.0	. 0.0					
٨	867.903M	60.5	+0.0	+46.5	-42.8	+1.9	+0.0	69.9	60.8	+9.1	Vert
	222021.1								Z axis		
			+0.0	+0.0	+0.0						
٨	867.903M	59.9	+0.0	+46.5	-42.8	+1.9	+0.0	69.3	60.8	+8.5	Vert
			+0.0	+0.3	+3.5	+0.0			X axis		
			+0.0	+0.0	+0.0						
47	2603.644M	57.0	-6.3	+0.2	-39.7	+3.4	+0.0	48.1	60.8	-12.7	Horiz
	Ave		+27.1	+0.7	+5.7	+0.0			Y axis		
			+0.0	+0.0	+0.0						
48	867.903M	46.3	-6.3	+0.0	+0.0	+0.0	+0.0	47.8	60.8	-13.0	Horiz
	Ave		+0.0	+0.0	+3.5	-27.5			Y axis		
			+0.6	+3.4	+27.8						
٨	867.903M	65.6	+0.0	+46.5	-42.8	+1.9	+0.0	75.0	60.8	+14.2	Horiz
			+0.0	+0.3	+3.5	+0.0			X axis		
			+0.0	+0.0	+0.0						

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A 0.57.0003.5		0.0	4	40.0	1.0	0.0	<b>50.0</b>			** .
^ 867.903M	62.9		+46.5	-42.8	+1.9	+0.0		60.8	+11.5	Horiz
		+0.0	+0.3	+3.5	+0.0			Z axis		
^ 867 903M	<i>c</i> 0.4	+0.0	+0.0	+0.0	.1.0		60.0	<i>(</i> 0.9	.0.0	II
^ 867.903M	60.4	$^{+0.0}_{+0.0}$	+46.5 +0.3	-42.8 +3.5	+1.9 +0.0	+0.0		60.8 Y axis	+9.0	Horiz
		+0.0	+0.3	+3.3 +0.0	+0.0			1 axis		
52 3037.652M	52.6	-6.3	+0.0	-39.7	+3.7	+0.0	46.0	60.8	-13.9	Vert
Ave	32.0	+29.4	+0.2	+6.2	+0.0	+0.0		Y axis	-13.9	Vert
1110		+0.0	+0.0	+0.0	10.0			1 axis		
^ 3037.678M	67.7		+0.2	-39.7	+3.7	+0.0	68.3	60.8	+7.5	Vert
3037.07014	07.7	+29.4	+0.8	+6.2	+0.0	10.0	00.5	Z axis	17.5	VOIT
		+0.0	+0.0	+0.0	10.0			Z unio		
^ 3037.686M	67.4	+0.0	+0.2	-39.7	+3.7	+0.0	68.0	60.8	+7.2	Vert
0007.0001.1	07	+29.4	+0.8	+6.2	+0.0		00.0	X axis		, 610
		+0.0	+0.0	+0.0						
^ 3037.652M	65.5	+0.0	+0.2	-39.7	+3.7	+0.0	66.1	60.8	+5.3	Vert
		+29.4	+0.8	+6.2	+0.0			Y axis		
		+0.0	+0.0	+0.0						
56 2603.736M	54.8	-6.3	+0.2	-39.7	+3.4	+0.0	45.9	60.8	-14.9	Vert
Ave		+27.1	+0.7	+5.7	+0.0			X axis		
		+0.0	+0.0	+0.0						
57 2603.711M	54.8	-6.3	+0.2	-39.7	+3.4	+0.0	45.9	60.8	-14.9	Horiz
Ave		+27.1	+0.7	+5.7	+0.0			Z axis		
		+0.0	+0.0	+0.0						
^ 2603.736M	71.2	+0.0	+0.2	-39.7		+0.0	68.6	60.8	+7.8	Horiz
		+27.1	+0.7	+5.7	+0.0			X axis		
		+0.0	+0.0	+0.0						
^ 2603.644M	70.4	+0.0	+0.2	-39.7	+3.4	+0.0	67.8	60.8	+7.0	Horiz
		+27.1	+0.7	+5.7	+0.0			Y axis		
		+0.0	+0.0	+0.0						
^ 2603.711M	68.4	+0.0	+0.2	-39.7	+3.4	+0.0	65.8	60.8	+5.0	Horiz
		+27.1	+0.7	+5.7	+0.0			Z axis		
(1. 0 (00 700) /	7.1.1	+0.0	+0.0	+0.0	2.4	0.0	45.0	60.0	15.6	X7 .
61 2603.728M	54.1		+0.2	-39.7	+3.4	+0.0	45.2	60.8	-15.6	Vert
Ave		+27.1	+0.7	+5.7	+0.0			Z axis		
(2 1725 929M	<i>EE 2</i>	+0.0	+0.0	+0.0	.2.7	.00	45.0	<i>(</i> 0.9	15 0	<b>V</b>
62 1735.828M			+0.3			+0.0		60.8	-15.8	vert
Ave		$+27.0 \\ +0.0$	+0.0 +0.0	$+5.2 \\ +0.0$	+0.0			Z axis		
63 1735.836M	54.8	-6.3	+0.0	-39.8	+2.7	+0.0	44.5	60.8	-16.3	Vert
Ave	54.0	+27.0	+0.5	-39.8 +5.2	+2.7	+0.0	44.3	X axis	-10.3	v eit
Ave		+27.0	+0.0	+0.0	10.0			Λι αλίδ		
64 2169.694M	53.0	-6.3	+0.2	-39.7	+3.3	+0.0	44.5	60.8	-16.3	Horiz
Ave	55.0	+27.5	+0.2	+5.7	+0.0	10.0	тт.Э	Y axis	10.5	110112
- <del>-</del> , <del>-</del>		+0.0	+0.0	+0.0	. 0.0					
65 1735.794M	53.7	-6.3	+0.3	-39.8	+2.7	+0.0	43.4	60.8	-17.4	Horiz
Ave	22.7	+27.0	+0.6	+5.2	+0.0	. 0.0		Z axis	-/	
		+0.0	+0.0	+0.0						
66 1735.794M	53.5	-6.3	+0.3	-39.8	+2.7	+0.0	43.2	60.8	-17.6	Horiz
Ave		+27.0	+0.6	+5.2	+0.0			X axis		
		+0.0	+0.0	+0.0						

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	1301.844M	50.2		+0.6	-40.5	+2.4	+0.0		54.0	-18.1	Horiz
	Ave		+24.5	+0.6	+4.4	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	2169.786M	50.6	-6.3	+0.2	-39.7	+3.3	+0.0	42.1	60.8	-18.7	Horiz
	Ave		+27.5	+0.8	+5.7	+0.0			X axis		
			+0.0	+0.0	+0.0						
	1301.852M	49.6		+0.6	-40.5	+2.4	+0.0	35.3	54.0	-18.7	Vert
	Ave		+24.5	+0.6	+4.4	+0.0			X axis		
=0	1201.0501.5	40.4	+0.0	+0.0	+0.0	2.4	0.0	27.1	<b>7.1.0</b>	10.0	**
	1301.853M	49.4		+0.6	-40.5	+2.4	+0.0	35.1	54.0	-18.9	Vert
	Ave		+24.5	+0.6	+4.4	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	1735.769M	51.5		+0.3	-39.8	+2.7	+0.0	41.2	60.8	-19.6	Horiz
	Ave		+27.0	+0.6	+5.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
٨	1735.794M	67.0		+0.3	-39.8	+2.7	+0.0	63.0	60.8	+2.2	Horiz
			+27.0	+0.6	+5.2	+0.0			Z axis		
			+0.0	+0.0	+0.0						
٨	1735.794M	66.8		+0.3	-39.8		+0.0	62.8	60.8	+2.0	Horiz
			+27.0	+0.6	+5.2	+0.0			X axis		
			+0.0	+0.0	+0.0						
۸	1735.769M	65.0	+0.0	+0.3	-39.8		+0.0		60.8	+0.2	Horiz
			+27.0	+0.6	+5.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
	1301.844M			+0.6	-40.5		+0.0	34.0	54.0	-20.0	Horiz
	Ave		+24.5	+0.6	+4.4	+0.0			X axis		
			+0.0	+0.0	+0.0						
	4339.369M	36.1		+0.2	-39.8		+0.0	33.9	54.0	-20.1	Vert
	Ave		+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
٨	4339.369M	46.4	+0.0	+0.2	-39.8	+4.5	+0.0	50.5	54.0	-3.5	Vert
			+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
	2603.652M	49.2		+0.2	-39.7		+0.0	40.3	60.8	-20.5	Vert
	Ave		+27.1	+0.7	+5.7	+0.0			Y axis		
			+0.0		+0.0						
^	2603.736M			+0.2	-39.7				60.8	+5.5	Vert
			+27.1	+0.7		+0.0			X axis		
	0.500.75		+0.0	+0.0	+0.0		<u> </u>				
٨	2603.728M	67.7	+0.0	+0.2	-39.7	+3.4	+0.0	65.1		+4.3	Vert
			+27.1	+0.7	+5.7	+0.0			Z axis		
	2.00		+0.0	+0.0	+0.0		0.0				**
^	2603.652M	62.6	+0.0	+0.2	-39.7	+3.4	+0.0	60.0	60.8	-0.8	Vert
			+27.1	+0.7	+5.7	+0.0			Y axis		
0.7	2160 500 5	40.4	+0.0	+0.0	+0.0		0.0	20.0	60.0	20.0	<b>T</b> 7
	2169.786M	48.4	-6.3	+0.2	-39.7	+3.3	+0.0	39.9		-20.9	Vert
	Ave		+27.5	+0.8	+5.7	+0.0			X axis		
	1001 0103 5	45.5	+0.0	+0.0	+0.0		0.0	22.0	F. 0	<b>a</b>	** .
	1301.819M	47.3	-6.3	+0.6	-40.5	+2.4	+0.0	33.0		-21.0	Horiz
	Ave		+24.5	+0.6	+4.4	+0.0			Y axis		
			+0.0	+0.0	+0.0						

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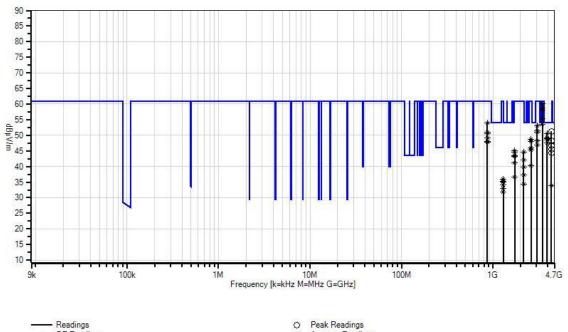
	1301.844M	62.6	+ O O	+0.6	-40.5	+2.4	ι Ο Ο	55.6	54.0	.1.6	Homin
	1301.844WI	05.0	+24.5	+0.6	-40.3 +4.4	+2.4 +0.0	+0.0	33.0	Z axis	+1.6	Horiz
			+24.5	+0.0	+0.0	+0.0			Z axis		
_	1301.844M	61.9		+0.6	-40.5	+2.4	+0.0	53.0	54.0	-0.1	Horiz
	1301.044101	01.9	+24.5	+0.6	-40.3 +4.4	+2.4 +0.0	+0.0	33.9	X axis	-0.1	110112
			+0.0	+0.0	+0.0	10.0			A dais		
^	1301.819M	60.5	+0.0	+0.6	-40.5	+2.4	+0.0	52.5	54.0	-1.5	Horiz
	1301.0191	00.5	+24.5	+0.6	+4.4	+0.0	+0.0	32.3	Y axis	-1.5	110112
			+0.0	+0.0	+0.0	10.0			1 uxis		
87	2169.744M	48.3	-6.3	+0.2	-39.7	+3.3	+0.0	39.8	60.8	-21.0	Horiz
	Ave	40.5	+27.5	+0.8	+5.7	+0.0	10.0	37.0	Z axis	21.0	HOHZ
	1110		+0.0	+0.0	+0.0	10.0			Z uxis		
٨	2169.694M	66.8		+0.2	-39.7	+3 3	+0.0	64.6	60.8	+3.8	Horiz
	2107.074141	00.0	+27.5	+0.8	+5.7	+0.0	10.0		Y axis	13.0	HOHZ
			+0.0	+0.0	+0.0	10.0			1 4215		
٨	2169.786M	64.0	+0.0	+0.2	-39.7	+3 3	+0.0	61.8	60.8	+1.0	Horiz
	2107.70014	01.0	+27.5	+0.8	+5.7	+0.0	10.0		X axis	11.0	HOHE
			+0.0	+0.0	+0.0	10.0			11 4/115		
٨	2169.744M	61.7		+0.2	-39.7	+3 3	+0.0	59.5	60.8	-1.3	Horiz
	210).711111	01.7	+27.5	+0.8	+5.7	+0.0	10.0	37.3	Z axis	1.5	HOHE
			+0.0	+0.0	+0.0	10.0			Zums		
91	1301.802M	46.1	-6.3	+0.6	-40.5	+2.4	+0.0	31.8	54.0	-22.2	Vert
	Ave	10.1	+24.5	+0.6	+4.4	+0.0	10.0	31.0	Y axis	22.2	VOIT
	11,0		+0.0	+0.0	+0.0	. 0.0			1 4.115		
٨	1301.853M	63.3	+0.0	+0.6	-40.5	+2.4	+0.0	55.3	54.0	+1.3	Vert
	10011000111	00.0	+24.5	+0.6	+4.4	+0.0	. 0.0	00.0	Z axis		, 510
			+0.0	+0.0	+0.0						
٨	1301.852M	62.9	+0.0	+0.6	-40.5	+2.4	+0.0	54.9	54.0	+0.9	Vert
	10011002111	02.7	+24.5	+0.6	+4.4	+0.0		0>	X axis		, 510
			+0.0	+0.0	+0.0						
٨	1301.802M	59.5	+0.0	+0.6	-40.5	+2.4	+0.0	51.5	54.0	-2.5	Vert
			+24.5	+0.6	+4.4	+0.0			Y axis		
			+0.0	+0.0	+0.0						
95	2169.778M	45.9	-6.3	+0.2	-39.7	+3.3	+0.0	37.4	60.8	-23.4	Vert
	Ave		+27.5	+0.8	+5.7	+0.0			Z axis		
			+0.0	+0.0	+0.0						
96	1735.752M	46.8	-6.3	+0.3	-39.8	+2.7	+0.0	36.5	60.8	-24.3	Vert
									Y axis		
			+0.0	+0.0	+0.0						
٨	1735.828M	68.8	+0.0	+0.3	-39.8	+2.7	+0.0	64.8	60.8	+4.0	Vert
	<del>-</del>		+27.0	+0.6	+5.2	+0.0			Z axis		
			+0.0	+0.0	+0.0						
٨	1735.836M	68.0	+0.0	+0.3	-39.8	+2.7	+0.0	64.0	60.8	+3.2	Vert
			+27.0	+0.6	+5.2	+0.0			X axis		
			+0.0	+0.0	+0.0						
٨	1735.752M	62.2	+0.0	+0.3	-39.8	+2.7	+0.0	58.2	60.8	-2.6	Vert
	-		+27.0	+0.6	+5.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						

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100 2169.702M	42.8	-6.3	+0.2	-39.7	+3.3	+0.0	34.3	60.8	-26.5	Vert
Ave		+27.5	+0.8	+5.7	+0.0			Y axis		
		+0.0	+0.0	+0.0						
^ 2169.786M	61.6	+0.0	+0.2	-39.7	+3.3	+0.0	59.4	60.8	-1.4	Vert
		+27.5	+0.8	+5.7	+0.0			X axis		
		+0.0	+0.0	+0.0						
^ 2169.778M	59.4	+0.0	+0.2	-39.7	+3.3	+0.0	57.2	60.8	-3.6	Vert
		+27.5	+0.8	+5.7	+0.0			Z axis		
		+0.0	+0.0	+0.0						
^ 2169.702M	56.3	+0.0	+0.2	-39.7	+3.3	+0.0	54.1	60.8	-6.7	Vert
		+27.5	+0.8	+5.7	+0.0			Y axis		
		+0.0	+0.0	+0.0						

CKC Laboratories, Inc. Date: 12/24/2013 Time: 14:49:55 McKinley-Ross Corp. WO#: 94389 15.231(b) Spurious Field Strength (433.92 MHz Transmitter) Test Distance: 3 Meters Sequence#: 5 Ext ATTN: 0 dB



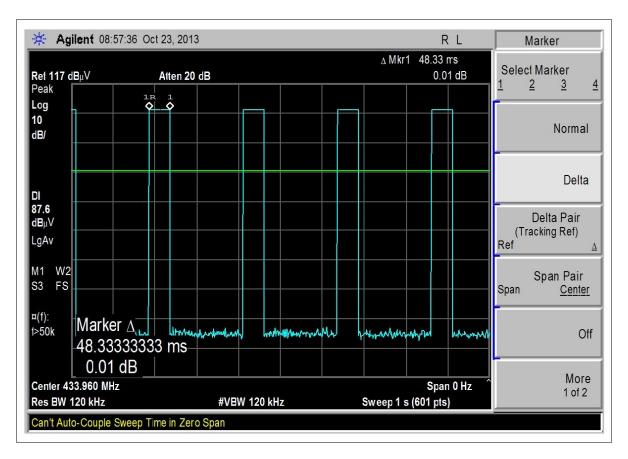
Readings
 × QP Readings
 ▼ Ambient

O Peak Readings

Average Readings
1 - 15.231(b) Spurious Field Strength (433.92 MHz Transmitter)



## **Duty Cycle Test Plot**



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# Test Setup Photos



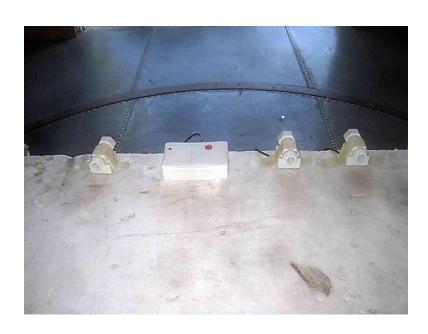
Overall Test Setup



X Axis









# RSS-210 A1.1.2 / Field Strength of Fundamental & Spurious Emissions

## Test Data

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

Customer: McKinley-Ross Corp.

Specification: RSS 210 A1.1.2(1) Fundamental Field Strength

Work Order #: 94389 Date: 12/24/2013
Test Type: Maximized Emissions Time: 11:39:33
Equipment: Woton quitch transmitten

Equipment: Water switch transmitter Sequence#: 6

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014
T2	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
T3	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
T5	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T6	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014

Equipment Under Test (\* = EUT):

(				
Function	Manufacturer	Model #	S/N	
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA	

Support Devices:

Function	Manufacturer	Model #	S/N
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA

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## Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches.

EUT is installed with new 9V battery.

Fundamental operating frequency: 433.92MHz

RBW=VBW=120kHz

Temp: 20°C, 31% Relative Humidity, 100.1kpa

Site D

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor = 20log(dwell time/100 ms)= 20log(48.33/100)=-6.32db

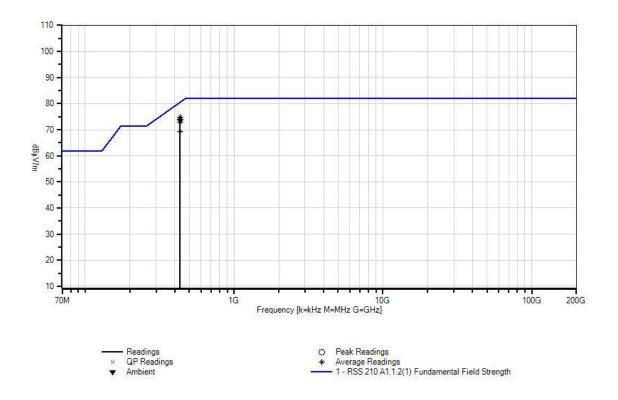
Ext Attn: 0 dB

Measi	urement Data:	Re	eading list	ted by ma	argin.	Test Distance: 3 Meters					
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6							
	MHz	dΒμV	dB	dB	dB	dB	Table	dBµV/m	dBμV/m	dB	Ant
1	433.953M	81.6	+21.9	-6.3	-27.5	+2.4	+0.0	74.8	80.5	-5.7	Horiz
	Ave		+0.4	+2.3					Y axis		
2	433.953M	80.8	+21.9	-6.3	-27.5	+2.4	+0.0	74.0	80.5	-6.5	Vert
	Ave		+0.4	+2.3					Y axis		
3	433.953M	80.5	+21.9	-6.3	-27.5	+2.4	+0.0	73.7	80.5	-6.8	Vert
	Ave		+0.4	+2.3					X axis		
4	433.953M	79.7	+21.9	-6.3	-27.5	+2.4	+0.0	72.9	80.5	-7.6	Horiz
	Ave		+0.4	+2.3					X axis		
5	433.953M	76.2	+21.9	-6.3	-27.5	+2.4	+0.0	69.4	80.5	-11.1	Vert
	Ave		+0.4	+2.3					Z axis		
^	433.953M	94.5	+21.9	+0.0	-27.5	+2.4	+0.0	94.0	80.5	+13.5	Vert
			+0.4	+2.3					Y axis		
^	433.953M	94.3	+21.9	+0.0	-27.5	+2.4	+0.0	93.8	80.5	+13.3	Vert
			+0.4	+2.3					X axis		
^	433.953M	89.9	+21.9	+0.0	-27.5	+2.4	+0.0	89.4	80.5	+8.9	Vert
			+0.4	+2.3					Z axis		
9	433.948M	76.0	+21.9	-6.3	-27.5	+2.4	+0.0	69.2	80.5	-11.3	Horiz
	Ave		+0.4	+2.3					Z axis		
^	433.953M	95.2	+21.9	+0.0	-27.5	+2.4	+0.0	94.7	80.5	+14.2	Horiz
			+0.4	+2.3					Y axis		
^	433.953M	93.6	+21.9	+0.0	-27.5	+2.4	+0.0	93.1	80.5	+12.6	Horiz
			+0.4	+2.3					X axis		
^	433.948M	89.6	+21.9	+0.0	-27.5	+2.4	+0.0	89.1	80.5	+8.6	Horiz
			+0.4	+2.3					Z axis		

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CKC Laboratories, Inc. Date: 12/24/2013 Time: 11:39:33 McKinley-Ross Corp. WO#: 94389 RSS 210 A1.1.2(1) Fundamental Field Strength Test Distance: 3 Meters Sequence#: 6 Ext ATTN: 0 dB



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

Customer: McKinley-Ross Corp.

Specification: RSS 210 A.1.1 Table A Spurious Field Strength (433.92 MHz Transmitter)

 Work Order #:
 94389
 Date:
 12/24/2013

 Test Type:
 Maximized Emissions
 Time:
 14:49:55

Equipment: Water switch transmitter Sequence#: 5

Manufacturer: McKinley-Ross Corp. Tested By: Don Nguyen

Model: WMS500 S/N: NA

## Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014
T1	AN01234	Duty Cycle		10/23/2013	10/23/2015
		Correction Factor			
T2	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015
Т3	AN00787	Preamp	83017A	5/31/2013	5/31/2015
T4	ANP06360	Cable	L1-PNMNM-48	8/29/2012	8/29/2014
T5	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
T6	AN02945	Cable	32022-2-2909K-	10/30/2013	10/30/2015
			36TC		
T7	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
Т8	AN00010	Preamp	8447D	3/29/2012	3/29/2014
Т9	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T10	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
T11	AN00266A	Dipole Antenna	Type I-IV	8/31/2012	8/31/2014

#### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Water switch transmitter*	McKinley-Ross Corp.	WMS500	NA

#### Support Devices:

Function	Manufacturer	Model #	S/N
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA
Flow switch	McKinley-Ross Corp.	NA	NA

#### Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is set to always transmitting mode. Three input terminals of EUT are connected to three support flow switches. EUT is installed with new 9V battery. Fundamental operating frequency: 433.92MHz

Frequency Range: 9KHz-4.7GHz

9 kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-47000 MHz; RBW=1 MHz, VBW=1MHz. Temp: 22°C, 34% Relative Humidity, 100.1kpa

Site D

Emission is investigated with EUT rotating in three axes.

Duty cycle correction factor =  $20\log(\text{dwell time}/100 \text{ ms}) = 20\log(48.33/100) = -6.32 \text{db}$ 

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Ext Attn: 0 dB

	attii: 0 ab i <b>rement Data:</b>	Re	eading lis	ted by ma	argin.		Те	est Distanc	e: 3 Meters		
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	1	υ	T5	T6	T7	T8			1	C	
			T9	T10	T11						
	MHz	dΒμV	dB	dB	dB	dB	Table	$dB\mu V/m$	$dB\mu V/m$	dB	Ant
1	3471.469M	60.9	-6.3	+0.2	-39.9	+3.9	+0.0	60.2	60.8	-0.6	Vert
	Ave		+32.3	+1.0	+8.1	+0.0			Y axis		
			+0.0	+0.0	+0.0						
^	3471.469M	74.2	+0.0	+0.2	-39.9	+3.9	+0.0	79.8	60.8	+19.0	Vert
			+32.3	+1.0	+8.1	+0.0			Y axis		
			+0.0	+0.0	+0.0						
3	3471.611M	59.5	-6.3	+0.2	-39.9	+3.9	+0.0	58.8	60.8	-2.0	Horiz
	Ave		+32.3	+1.0	+8.1	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	3471.628M	59.4	-6.3	+0.2	-39.9	+3.9	+0.0	58.7	60.8	-2.1	Vert
	Ave		+32.3	+1.0	+8.1	+0.0			Z axis		
			+0.0	+0.0	+0.0						
5	4339.410M	47.2	+0.0	+0.2	-39.8	+4.5	+0.0	51.3	54.0	-2.7	Horiz
			+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
	3471.544M	58.7	-6.3	+0.2	-39.9	+3.9	+0.0	58.0	60.8	-2.8	Horiz
	Ave		+32.3	+1.0	+8.1	+0.0			Y axis		
_			+0.0	+0.0	+0.0						
	3905.544M	52.3	-6.3	+0.3	-39.9	+4.2	+0.0	50.5		-3.5	Vert
	Ave		+31.4	+1.0	+7.5	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	3905.419M	51.0	-6.3	+0.3	-39.9	+4.2	+0.0	49.2	54.0	-4.8	Vert
	Ave		+31.4	+1.0	+7.5	+0.0			Y axis		
	2007 4403 5		+0.0	+0.0	+0.0		0.0		<b>7</b> 40		
^	3905.419M	64.6	+0.0	+0.3	-39.9	+4.2	+0.0	69.1	54.0	+15.1	Vert
			+31.4	+1.0	+7.5	+0.0			Y axis		
10	2005 50614	<b>50.0</b>	+0.0	+0.0	+0.0	. 1.0	. 0. 0	40.0	7.4.0	<i></i>	X7
	3905.586M	50.8	-6.3	+0.3	-39.9	+4.2	+0.0	49.0	54.0	-5.0	Vert
	Ave		+31.4	+1.0	+7.5	+0.0			X axis		
	2005 5443 5	(( )	+0.0	+0.0	+0.0	. 4 2	. 0. 0	70.7	E 4 O	, 1 6 7	<b>T</b> 7
^	3905.544M	66.2	+0.0	+0.3	-39.9	+4.2	+0.0	70.7		+16.7	Vert
			+31.4	+1.0	+7.5	+0.0			Z axis		
_	2005 50614	C1.2	+0.0	+0.0	+0.0	. 4.2	. 0. 0	60.7	540	. 1 4 7	<b>X</b> 74
	3905.586M	04.2	+0.0	+0.3	-39.9		+0.0	08./	54.0 V ovis	+14.7	Vert
			+31.4 +0.0	$+1.0 \\ +0.0$	+7.5 +0.0	+0.0			X axis		
12	3905.586M	50.2	-6.3	+0.0		+4.2	+0.0	105	54.0	-5.5	Цота
	3905.586M Ave	50.3	-6.3 +31.4	+0.3	-39.9 +7.5	+4.2	+0.0	40.3	X axis	-3.3	Horiz
	AVE		+31.4	+1.0 +0.0	+7.5	+0.0			A axis		
1.4	3471.636M	56.0	-6.3	+0.0	-39.9	+3.9	+0.0	55.2	60.8	-5.5	Horiz
		30.0					+0.0	33.3		-3.3	HOHZ
	Ave		+32.3 +0.0	$+1.0 \\ +0.0$	+8.1 +0.0	+0.0			X axis		
^	3471.611M	73.1	+0.0			12.0	+0.0	70 7	60.8	+17.9	Horiz
	34/1.011W	/3.1	+32.3	+0.2 +1.0	-39.9	+3.9	+0.0	18.1	Z axis	+1/.9	попи
					+8.1	+0.0			∠ axis		
			+0.0	+0.0	+0.0						

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T										
^ 3471.544M	72.3		+0.2	-39.9	+3.9	+0.0		60.8	+17.1	Horiz
		+32.3	+1.0	+8.1	+0.0			Y axis		
		+0.0	+0.0	+0.0						
^ 3471.636M	69.8		+0.2	-39.9	+3.9	+0.0		60.8	+14.6	Horiz
		+32.3	+1.0	+8.1	+0.0			X axis		
		+0.0	+0.0	+0.0						
18 4339.536M	44.1		+0.2	-39.8	+4.5	+0.0	48.2	54.0	-5.8	Horiz
		+31.0	+1.0	+7.2	+0.0			X axis		
		+0.0	+0.0	+0.0						
19 3905.561M	49.3		+0.3	-39.9	+4.2	+0.0		54.0	-6.5	Horiz
Ave		+31.4	+1.0	+7.5	+0.0			Z axis		
		+0.0	+0.0	+0.0						
^ 3905.586M	63.8		+0.3	-39.9	+4.2	+0.0	68.3	54.0	+14.3	Horiz
		+31.4	+1.0	+7.5	+0.0			X axis		
		+0.0	+0.0	+0.0						
^ 3905.561M	62.7	+0.0	+0.3	-39.9	+4.2	+0.0	67.2	54.0	+13.2	Horiz
		+31.4	+1.0	+7.5	+0.0			Z axis		
		+0.0	+0.0	+0.0						
22 3905.461M	49.3	-6.3	+0.3	-39.9	+4.2	+0.0	47.5	54.0	-6.5	Horiz
Ave		+31.4	+1.0	+7.5	+0.0			Y axis		
		+0.0	+0.0	+0.0						
^ 3905.461M	62.5	+0.0	+0.3	-39.9	+4.2	+0.0	67.0	54.0	+13.0	Horiz
		+31.4	+1.0	+7.5	+0.0			Y axis		
		+0.0	+0.0	+0.0						
24 867.903M	52.5	-6.3	+0.0	+0.0	+0.0	+0.0	54.0	60.8	-6.8	Horiz
Ave		+0.0	+0.0	+3.5	-27.5			X axis		
		+0.6	+3.4	+27.8						
25 3471.636M	54.1	-6.3	+0.2	-39.9	+3.9	+0.0	53.4	60.8	-7.4	Vert
Ave		+32.3	+1.0	+8.1	+0.0			X axis		
		+0.0	+0.0	+0.0						
^ 3471.628M	72.9	+0.0	+0.2	-39.9	+3.9	+0.0	78.5	60.8	+17.7	Vert
		+32.3	+1.0	+8.1	+0.0			Z axis		
		+0.0	+0.0	+0.0						
^ 3471.636M	67.6	+0.0	+0.2	-39.9	+3.9	+0.0	73.2	60.8	+12.4	Vert
		+32.3	+1.0	+8.1	+0.0			X axis		
		+0.0	+0.0	+0.0						
28 4339.494M	42.4		+0.2		+4.5	+0.0	46.5	54.0	-7.5	Vert
		+31.0						Z axis		
		+0.0	+0.0	+0.0						
29 3037.661M	58.7	-6.3	+0.2	-39.7	+3.7	+0.0	53.0	60.8	-7.8	Horiz
Ave		+29.4	+0.8	+6.2	+0.0			Z axis		
		+0.0	+0.0	+0.0						
30 4339.494M	41.3	+0.0	+0.2	-39.8	+4.5	+0.0	45.4	54.0	-8.6	Horiz
		+31.0	+1.0	+7.2	+0.0			Z axis		
		+0.0	+0.0	+0.0						
31 3037.594M	57.2	-6.3	+0.2	-39.7	+3.7	+0.0	51.5	60.8	-9.3	Horiz
Ave		+29.4	+0.8	+6.2	+0.0			Y axis		
		+0.0	+0.0	+0.0						
32 4339.536M	40.3	+0.0	+0.2	-39.8	+4.5	+0.0	44.4	54.0	-9.6	Vert
		+31.0	+1.0	+7.2	+0.0			X axis		
		+0.0	+0.0	+0.0						
L										

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Ave	33 867 903M	10.5	6.3	+0.0	+0.0	+0.0	+0.0	51.0	60.8	-9.8	Vert
Hole		49.5					+0.0			-9.0	VCIT
34 3037.686M	7100					27.3			1 axis		
Ave	34 3037 686M	56.6				+3 7	+0.0	50.9	60.8	_9 9	Horiz
1.00		30.0					10.0	30.7		7.7	HOHE
^ 3037.661M 72.4 +0.0 +0.2 -39.7 +3.7 +0.0 73.0 60.8 +12.2 Horiz +29.4 +0.8 +6.2 +0.0 Zaxis	11,0					. 0.0			11 41115		
+29,4	^ 3037.661M	72.4				+3.7	+0.0	73.0	60.8	+12.2	Horiz
+0.0											
A 3037.594M											
+29.4	^ 3037.594M	71.0				+3.7	+0.0	71.6	60.8	+10.8	Horiz
^ 3037,686M 70.2 +0.0 +0.2 -39.7 +3.7 +0.0 70.8 60.8 +10.0 Horiz +29.4 +0.8 +6.2 +0.0 +0.0 +0.0			+29.4	+0.8	+6.2	+0.0			Y axis		
+29.4			+0.0	+0.0	+0.0						
10.0   10.0	^ 3037.686M	70.2	+0.0	+0.2	-39.7	+3.7	+0.0	70.8	60.8	+10.0	Horiz
38 867.903M			+29.4	+0.8		+0.0			X axis		
Ave			+0.0	+0.0	+0.0						
+0.6	38 867.903M	49.1	-6.3		+0.0	+0.0	+0.0	50.6		-10.2	Horiz
39   867.903M	Ave					-27.5			Z axis		
Ave         +0.0         +0.0         +3.5         -27.5         X axis           40         2603.736M         57.7         -6.3         +0.2         -39.7         +3.4         +0.0         48.8         60.8         -12.0         Horiz           Ave         +27.1         +0.7         +5.7         +0.0         X axis         X axis           41         3037.686M         54.0         -6.3         +0.2         -39.7         +3.7         +0.0         48.3         60.8         -12.5         Vert           Ave         +29.4         +0.8         +6.2         +0.0         X axis         X axis           42         3037.678M         53.9         -6.3         +0.2         -39.7         +3.7         +0.0         48.2         60.8         -12.6         Vert           Ave         +29.4         +0.8         +6.2         +0.0         Z axis         Z axis           -0.0         +0.0         +0.0         +0.0         Z axis         Z axis           -29.4         +0.0         +0.0         +0.0         +0.0         48.1         60.8         -12.7         Vert           Ave         +0.0         +0.0         +0.0         +0.0											
+0.6	39 867.903M	47.7					+0.0	49.2		-11.6	Vert
40 2603.736M	Ave					-27.5			X axis		
Ave											
+0.0		57.7					+0.0	48.8		-12.0	Horiz
41 3037.686M	Ave					+0.0			X axis		
Ave											
+0.0		54.0					+0.0	48.3		-12.5	Vert
42         3037.678M         53.9         -6.3         +0.2         -39.7         +3.7         +0.0         48.2         60.8         -12.6         Vert           Ave         +29.4         +0.8         +6.2         +0.0         2 axis         Z axis           43         867.903M         46.6         -6.3         +0.0         +0.0         +0.0         +0.0         48.1         60.8         -12.7         Vert           Ave         +0.0         +0.0         +3.5         -27.5         Z axis         Z axis           ^         867.903M         61.6         +0.0         +46.5         -42.8         +1.9         +0.0         71.0         60.8         +10.2         Vert           +0.0         +0.0         +0.0         +0.0         Y axis         Y axis         +0.0         +0.0         Y axis         +0.0         +0.0         Y axis         +0.0         +0.0         +0.0         +0.0         +0.0         Y axis         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0 </td <td>Ave</td> <td></td> <td></td> <td></td> <td></td> <td>+0.0</td> <td></td> <td></td> <td>X axis</td> <td></td> <td></td>	Ave					+0.0			X axis		
Ave	42 2027 C70M	52.0				. 2.7	. 0. 0	40.2	<i>c</i> 0.0	10.6	XI
+0.0 +0.0 +0.0 +0.0 +0.0    43 867.903M		53.9					+0.0	48.2		-12.6	Vert
43       867.903M       46.6       -6.3       +0.0       +0.0       +0.0       +0.0       48.1       60.8       -12.7       Vert         Ave       +0.0       +0.0       +3.5       -27.5       Z axis         ^ 867.903M       61.6       +0.0       +46.5       -42.8       +1.9       +0.0       71.0       60.8       +10.2       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       Y axis       Y axis         ^ 867.903M       60.5       +0.0       +46.5       -42.8       +1.9       +0.0       69.9       60.8       +9.1       Vert         +0.0       +0.0       +0.0       +0.0       -0.0       -0.0       Z axis         -0.0       +0.0       +0.0       +0.0       -0.0	Ave					+0.0			Z axis		
Ave	12 967 002M	16.6				+0.0	+0.0	10 1	60.9	12.7	Vort
+0.6 +3.4 +27.8  ^ 867.903M 61.6 +0.0 +46.5 -42.8 +1.9 +0.0 71.0 60.8 +10.2 Vert +0.0 +0.3 +3.5 +0.0 Yaxis +0.0 +0.0 +0.0  ^ 867.903M 60.5 +0.0 +46.5 -42.8 +1.9 +0.0 69.9 60.8 +9.1 Vert +0.0 +0.0 +0.0		40.0					+0.0	40.1		-12.7	vert
^ 867.903M       61.6       +0.0       +46.5       -42.8       +1.9       +0.0       71.0       60.8       +10.2       Vert         +0.0       +0.0       +0.0       +0.0       Y axis       Y axis         ^ 867.903M       60.5       +0.0       +46.5       -42.8       +1.9       +0.0       69.9       60.8       +9.1       Vert         +0.0       +0.0       +0.0       +0.0       -0.0       2 axis       -0.0       2 axis       -0.0	Ave					-21.5			Z axis		
+0.0 +0.3 +3.5 +0.0 Y axis  +0.0 +0.0 +0.0  A 867.903M 60.5 +0.0 +46.5 -42.8 +1.9 +0.0 69.9 60.8 +9.1 Vert +0.0 +0.0 +0.0 +0.0  A 867.903M 59.9 +0.0 +46.5 -42.8 +1.9 +0.0 69.3 60.8 +8.5 Vert +0.0 +0.0 +0.0 +0.0  A 867.903M 59.9 +0.0 +46.5 -42.8 +1.9 +0.0 69.3 60.8 +8.5 Vert +0.0 +0.0 +0.0 +0.0  A 2603.644M 57.0 -6.3 +0.2 -39.7 +3.4 +0.0 48.1 60.8 -12.7 Horiz Ave +27.1 +0.7 +5.7 +0.0 Y axis +0.0 +0.0 +0.0  A 867.903M 46.3 -6.3 +0.0 +0.0  Ave +0.0 +0.0 +0.0  Ave +0.0 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  A 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 75.0 50.8 +14.2 Horiz	^ 867 903M	61.6				±1 9	+0.0	71.0	60.8	+10.2	Vert
+0.0 +0.0 +0.0 +0.0  ^ 867.903M 60.5 +0.0 +46.5 -42.8 +1.9 +0.0 69.9 60.8 +9.1 Vert +0.0 +0.3 +3.5 +0.0 Z axis +0.0 +0.0 +0.0 +0.0  ^ 867.903M 59.9 +0.0 +46.5 -42.8 +1.9 +0.0 69.3 60.8 +8.5 Vert +0.0 +0.0 +0.0 +0.0  47 2603.644M 57.0 -6.3 +0.2 -39.7 +3.4 +0.0 48.1 60.8 -12.7 Horiz Ave +27.1 +0.7 +5.7 +0.0 Y axis +0.0 +0.0 +0.0  48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0  48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  ^ 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	007.505141	01.0					10.0	71.0		110.2	VCIT
^ 867.903M       60.5       +0.0       +46.5       -42.8       +1.9       +0.0       69.9       60.8       +9.1       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       2 axis       2 axis         ^ 867.903M       59.9       +0.0       +46.5       -42.8       +1.9       +0.0       69.3       60.8       +8.5       Vert         +0.0       +0.0       +0.3       +3.5       +0.0       X axis       X axis         47       2603.644M       57.0       -6.3       +0.2       -39.7       +3.4       +0.0       48.1       60.8       -12.7       Horiz         Ave       +27.1       +0.7       +5.7       +0.0       Y axis       Y axis         +0.0       +0.0       +0.0       +0.0       +0.0       47.8       60.8       -13.0       Horiz         Ave       +0.0       +0.0       +3.5       -27.5       Y axis         ^ 867.903M       65.6       +0.0       +46.5       -42.8       +1.9       +0.0       75.0       60.8       +14.2       Horiz         +0.0       +0.3       +3.5       +0.0       X axis       X axis       X axis						10.0			1 Wills		
+0.0 +0.3 +3.5 +0.0 Z axis +0.0 +0.0 +0.0 +0.0  ^ 867.903M 59.9 +0.0 +46.5 -42.8 +1.9 +0.0 69.3 60.8 +8.5 Vert +0.0 +0.3 +3.5 +0.0 X axis +0.0 +0.0 +0.0 +0.0  47 2603.644M 57.0 -6.3 +0.2 -39.7 +3.4 +0.0 48.1 60.8 -12.7 Horiz Ave +27.1 +0.7 +5.7 +0.0 Y axis +0.0 +0.0 +0.0  48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  ^ 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	^ 867.903M	60.5				+1.9	+0.0	69.9	60.8	+9.1	Vert
+0.0 +0.0 +0.0 +0.0  ^ 867.903M 59.9 +0.0 +46.5 -42.8 +1.9 +0.0 69.3 60.8 +8.5 Vert +0.0 +0.3 +3.5 +0.0	207.50211	20.0									. 310
^ 867.903M       59.9       +0.0       +46.5       -42.8       +1.9       +0.0       69.3       60.8       +8.5       Vert         +0.0       +0.0       +0.0       +0.0       X axis         47 2603.644M       57.0       -6.3       +0.2       -39.7       +3.4       +0.0       48.1       60.8       -12.7       Horiz         Ave       +27.1       +0.7       +5.7       +0.0       Y axis       Y axis         48 867.903M       46.3       -6.3       +0.0       +0.0       +0.0       +0.0       47.8       60.8       -13.0       Horiz         Ave       +0.0       +0.0       +3.5       -27.5       Y axis         ^ 867.903M       65.6       +0.0       +46.5       -42.8       +1.9       +0.0       75.0       60.8       +14.2       Horiz         +0.0       +0.3       +3.5       +0.0       X axis       X axis											
+0.0 +0.3 +3.5 +0.0 X axis +0.0 +0.0 +0.0 +0.0  47 2603.644M 57.0 -6.3 +0.2 -39.7 +3.4 +0.0 48.1 60.8 -12.7 Horiz Ave +27.1 +0.7 +5.7 +0.0 Y axis +0.0 +0.0 +0.0 +0.0  48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  A 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	^ 867.903M	59.9	+0.0			+1.9	+0.0	69.3	60.8	+8.5	Vert
+0.0 +0.0 +0.0 +0.0  47 2603.644M 57.0 -6.3 +0.2 -39.7 +3.4 +0.0 48.1 60.8 -12.7 Horiz  Ave +27.1 +0.7 +5.7 +0.0 Y axis +0.0 +0.0 +0.0 +0.0  48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz  Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  A 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis											
Ave			+0.0	+0.0	+0.0						
Ave	47 2603.644M	57.0	-6.3	+0.2	-39.7	+3.4	+0.0	48.1	60.8	-12.7	Horiz
48 867.903M 46.3 -6.3 +0.0 +0.0 +0.0 +0.0 47.8 60.8 -13.0 Horiz Ave +0.0 +0.0 +3.5 -27.5 Y axis +0.6 +3.4 +27.8  ^ 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	Ave		+27.1	+0.7	+5.7	+0.0			Y axis		
Ave			+0.0	+0.0	+0.0						
+0.6 +3.4 +27.8 ^ 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	48 867.903M	46.3	-6.3		+0.0	+0.0	+0.0	47.8		-13.0	Horiz
^ 867.903M 65.6 +0.0 +46.5 -42.8 +1.9 +0.0 75.0 60.8 +14.2 Horiz +0.0 +0.3 +3.5 +0.0 X axis	Ave					-27.5			Y axis		
+0.0 +0.3 +3.5 +0.0 X axis			+0.6	+3.4	+27.8						
	^ 867.903M	65.6					+0.0	75.0		+14.2	Horiz
+0.0 +0.0 +0.0						+0.0			X axis		
10.0 10.0			+0.0	+0.0	+0.0						

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Hole				4	42.0	1.0	0.0	<b>50.0</b>			** .
Hole	^ 867.903M	62.9		+46.5	-42.8	+1.9	+0.0			+11.5	Horiz
A 867,903M						+0.0			Z axis		
10.0	A 967 002M	<i>c</i> 0.4				.1.0		60.0	<i>(</i> 0.9	.0.0	II
100   100	^ 807.903M	60.4					+0.0			+9.0	HOMZ
S2 3037.652M						+0.0			1 axis		
Ave	52 2027 652M	52.6				13.7	100	46.0	60 g	12.0	Vort
Holo		32.0					+0.0			-13.9	vert
A 3037.678M	Avc					+0.0			1 4715		
+29.4	^ 3037 678M	67.7				<b>⊥3</b> 7	±0.0	68.3	60.8	<b>⊥7</b> 5	Vert
*** A 3037.686M	3037.076141	07.7					10.0	00.5		17.5	VCIT
↑ 3037.686M						10.0			Z uxis		
+29.4	^ 3037 686M	67.4				+3.7	+0.0	68.0	60.8	+7.2	Vert
100   100	3037.0001	07.4					10.0	00.0		17.2	VCIT
^ 3037.652M         65.5         +0.0         +0.2         -39.7         +3.7         +0.0         66.1         60.8         +5.3         Vert 29.4           +29.4         +0.8         +6.2         +0.0         +0.0         +0.0         Yaxis         2           56 2603.736M         54.8         -6.3         +0.2         -39.7         +3.4         +0.0         45.9         60.8         -14.9         Vert           Ave         +27.1         +0.7         +5.7         +0.0         45.9         60.8         -14.9         Horiz           Ave         +27.1         +0.7         +5.7         +0.0         45.9         60.8         -14.9         Horiz           Ave         +27.1         +0.7         +5.7         +0.0         45.9         60.8         -14.9         Horiz           +27.1         +0.7         +5.7         +0.0         8.6         60.8         +7.8         Horiz           +27.1         +0.7         +5.7         +0.0         8.8         60.8         +7.0         Horiz           +27.1         +0.7         +5.7         +0.0         67.8         60.8         +7.0         Horiz           +27.1         +0.7						10.0			71 axis		
	^ 3037.652M	65.5				+3.7	+0.0	66.1	60.8	<b>+5</b> 3	Vert
100   100	3037.03211	05.5					10.0	00.1		13.3	VCIT
Section   Sect						10.0			1 dais		
Ave	56 2603 736M	54.8				+3 4	+0.0	45 9	60.8	-14 9	Vert
+0.0		<i>c</i>						,		2	, 010
57 2603.711M         54.8         -6.3         +0.2         -39.7         +3.4         +0.0         45.9         60.8         -14.9         Horiz           Ave         +27.1         +0.0         +5.7         +0.0         40.0         +0.0         2 axis         2 axis         -14.9         Horiz           ^ 2603.736M         71.2         +0.0         +0.2         -39.7         +3.4         +0.0         68.6         60.8         +7.8         Horiz           +27.1         +0.0         +0.0         +0.0         +0.0         -10.0         X axis         X axis           ^ 2603.644M         70.4         +0.0         +0.2         -39.7         +3.4         +0.0         67.8         60.8         +7.0         Horiz           +27.1         +0.0         +0.0         +0.0         -10.0         Y axis         -14.9         Horiz           -2603.711M         68.4         +0.0         +0.2         -39.7         +3.4         +0.0         65.8         60.8         +5.0         Horiz           -27.1         +0.0         +0.0         +0.0         +0.0         -14.0         40.0         45.2         60.8         -15.6         Vert           Ave											
Ave	57 2603.711M	54.8				+3.4	+0.0	45.9	60.8	-14.9	Horiz
100   100											
^ 2603.736M         71.2         +0.0         +0.2         -39.7         +3.4         +0.0         68.6         60.8         +7.8         Horiz           +27.1         +0.7         +5.7         +0.0         +0.0         X axis         X axis         Horiz           ^ 2603.644M         70.4         +0.0         +0.2         -39.7         +3.4         +0.0         67.8         60.8         +7.0         Horiz           +27.1         +0.0         +0.0         +0.0         +0.0         Y axis         Y axis           - 2603.711M         68.4         +0.0         +0.2         -39.7         +3.4         +0.0         65.8         60.8         +5.0         Horiz           +27.1         +0.7         +5.7         +0.0         5.8         60.8         +5.0         Horiz           Ave         +27.1         +0.7         +5.7         +0.0         45.2         60.8         -15.6         Vert           Ave         +27.0         +0.6         +5.2         +0.0         45.2         60.8         -15.8         Vert           Ave         +27.5         +0.8         +5.7         +0.0         44.5         60.8         -16.3         Horiz											
+27.1	^ 2603.736M	71.2				+3.4	+0.0	68.6	60.8	+7.8	Horiz
+0.0											
^ 2603.644M         70.4         +0.0         +0.2         -39.7         +3.4         +0.0         67.8         60.8         +7.0         Horiz           +27.1         +0.7         +5.7         +0.0         +0.0         Yaxis         +7.0         Horiz           ^ 2603.711M         68.4         +0.0         +0.2         -39.7         +3.4         +0.0         65.8         60.8         +5.0         Horiz           +27.1         +0.0         +0.0         +0.0         +0.0         2 axis         -15.6         Vert           61 2603.728M         54.1         -6.3         +0.2         -39.7         +3.4         +0.0         45.2         60.8         -15.6         Vert           Ave         +27.1         +0.7         +5.7         +0.0         2 axis         -15.6         Vert           Ave         +27.0         +0.6         +5.2         +0.0         2 axis         -15.8         Vert           Ave         +27.0         +0.6         +5.2         +0.0         44.5         60.8         -16.3         Horiz           Ave         +27.5         +0.8         +5.7         +0.0         44.5         60.8         -16.3         Horiz			+0.0								
+27.1	^ 2603.644M	70.4		+0.2		+3.4	+0.0	67.8	60.8	+7.0	Horiz
^ 2603.711M       68.4			+27.1	+0.7	+5.7	+0.0			Y axis		
+27.1			+0.0	+0.0	+0.0						
Ho.0	^ 2603.711M	68.4	+0.0	+0.2	-39.7	+3.4	+0.0	65.8	60.8	+5.0	Horiz
61 2603.728M       54.1       -6.3       +0.2       -39.7       +3.4       +0.0       45.2       60.8       -15.6       Vert         Ave       +27.1       +0.7       +5.7       +0.0       45.0       60.8       -15.6       Vert         62 1735.828M       55.3       -6.3       +0.3       -39.8       +2.7       +0.0       45.0       60.8       -15.8       Vert         Ave       +27.0       +0.6       +5.2       +0.0       2 axis       -15.8       Vert         63 2169.694M       53.0       -6.3       +0.2       -39.7       +3.3       +0.0       44.5       60.8       -16.3       Horiz         Ave       +27.5       +0.8       +5.7       +0.0       44.5       60.8       -16.3       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       44.5       60.8       -16.3       Vert         64 1735.794M       53.7       -6.3       +0.3       -39.8       +2.7       +0.0       43.4       60.8       -17.4       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       2 axis       2 axis         66 1735.794M       53.5       -6.3       +0.			+27.1	+0.7	+5.7	+0.0			Z axis		
Ave       +27.1 +0.0 +0.0 +0.0 +0.0       +5.7 +0.0 +0.0 +0.0       Z axis         62 1735.828M Ave       55.3 -6.3 +0.3 -39.8 +2.7 +0.0 +0.6 +5.2 +0.0 +0.0 +0.0 +0.0 +0.0       45.0 60.8 -15.8 Vert         63 2169.694M Ave       53.0 -6.3 +0.2 -39.7 +3.3 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0			+0.0	+0.0	+0.0						
+0.0	61 2603.728M	54.1	-6.3	+0.2	-39.7	+3.4	+0.0	45.2	60.8	-15.6	Vert
62         1735.828M         55.3         -6.3         +0.3         -39.8         +2.7         +0.0         45.0         60.8         -15.8         Vert           Ave         +27.0         +0.6         +5.2         +0.0         2 axis         2 axis         -15.8         Vert           63         2169.694M         53.0         -6.3         +0.2         -39.7         +3.3         +0.0         44.5         60.8         -16.3         Horiz           Ave         +27.5         +0.8         +5.7         +0.0         Y axis         Y axis           64         1735.836M         54.8         -6.3         +0.3         -39.8         +2.7         +0.0         44.5         60.8         -16.3         Vert           Ave         +27.0         +0.6         +5.2         +0.0         X axis         2 axis           65         1735.794M         53.7         -6.3         +0.3         -39.8         +2.7         +0.0         43.4         60.8         -17.4         Horiz           Ave         +27.0         +0.6         +5.2         +0.0         X axis         2 axis           66         1735.794M         53.5         -6.3         +0.3         -39	Ave		+27.1	+0.7	+5.7	+0.0			Z axis		
Ave       +27.0 +0.0 +0.0 +0.0 +0.0       +5.2 +0.0 +0.0       Z axis         63 2169.694M Ave       53.0 -6.3 +0.2 -39.7 +3.3 +0.0 +0.0 +0.0       44.5 60.8 -16.3 Horiz         64 1735.836M Ave       54.8 -6.3 +0.0 +0.0 +0.0 +0.0 +0.0       +27.0 +0.6 +5.2 +0.0 +0.0 +0.0       44.5 60.8 -16.3 Vert         65 1735.794M Ave       53.7 -6.3 +0.3 -39.8 +2.7 +0.0 +0.6 +5.2 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0       2 axis         66 1735.794M Ave       53.5 -6.3 +0.3 -39.8 +2.7 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0											
+0.0         +0.0         +0.0           63 2169.694M         53.0         -6.3         +0.2         -39.7         +3.3         +0.0         44.5         60.8         -16.3         Horiz           Ave         +27.5         +0.8         +5.7         +0.0         Y axis         Y axis           64 1735.836M         54.8         -6.3         +0.3         -39.8         +2.7         +0.0         44.5         60.8         -16.3         Vert           Ave         +27.0         +0.6         +5.2         +0.0         X axis         -16.3         Vert           Ave         +27.0         +0.6         +5.2         +0.0         X axis         -17.4         Horiz           66 1735.794M         53.5         -6.3         +0.3         -39.8         +2.7         +0.0         43.2         60.8         -17.6         Horiz           Ave         +27.0         +0.6         +5.2         +0.0         X axis         -17.6         Horiz           Ave         +27.0         +0.6         +5.2         +0.0         X axis         -17.6         Horiz	62 1735.828M						+0.0			-15.8	Vert
63 2169.694M 53.0 -6.3 +0.2 -39.7 +3.3 +0.0 44.5 60.8 -16.3 Horiz  Ave	Ave		+27.0	+0.6	+5.2	+0.0			Z axis		
Ave       +27.5 +0.0 +0.0 +0.0 +0.0       +0.0 +0.0 +0.0       Y axis         64 1735.836M Ave       54.8 -6.3 +0.3 -39.8 +2.7 +0.0 +0.6 +5.2 +0.0 +0.0 +0.0       +27.0 +0.6 +5.2 +0.0 +0.0 +0.0       X axis         65 1735.794M Ave       53.7 +6.3 +0.3 +0.3 +0.0 +0.0 +0.0 +0.0 +0.0 +0											
+0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       44.5       60.8       -16.3       Vert         Ave       +27.0       +0.6       +5.2       +0.0       X axis       X axis         65 1735.794M       53.7       -6.3       +0.3       -39.8       +2.7       +0.0       43.4       60.8       -17.4       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       Z axis         66 1735.794M       53.5       -6.3       +0.3       -39.8       +2.7       +0.0       43.2       60.8       -17.6       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       X axis	63 2169.694M	53.0			-39.7	+3.3	+0.0	44.5		-16.3	Horiz
64 1735.836M       54.8       -6.3       +0.3       -39.8       +2.7       +0.0       44.5       60.8       -16.3       Vert         Ave       +27.0       +0.6       +5.2       +0.0       X axis       X axis         65 1735.794M       53.7       -6.3       +0.3       -39.8       +2.7       +0.0       43.4       60.8       -17.4       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       Z axis         66 1735.794M       53.5       -6.3       +0.3       -39.8       +2.7       +0.0       43.2       60.8       -17.6       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       X axis	Ave					+0.0			Y axis		
Ave       +27.0 +0.6 +0.0 +0.0 +0.0       +5.2 +0.0 +0.0       X axis         65 1735.794M Ave       53.7 -6.3 +0.3 -39.8 +2.7 +0.0 +0.6 +5.2 +0.0 +0.0 +0.0 +0.0       +27.0 +0.6 +5.2 +0.0 +0.0 +0.0 +0.0       Z axis         66 1735.794M Ave       53.5 -6.3 +0.3 -39.8 +2.7 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0											
+0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       43.4       60.8       -17.4       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       Z axis         +0.0       +0.0       +0.0       +0.0       -17.6       Horiz         Ave       +27.0       +0.6       +5.2       +0.0       X axis       -17.6       Horiz		54.8					+0.0	44.5		-16.3	Vert
65 1735.794M 53.7 -6.3 +0.3 -39.8 +2.7 +0.0 43.4 60.8 -17.4 Horiz Ave +27.0 +0.6 +5.2 +0.0 Z axis  66 1735.794M 53.5 -6.3 +0.3 -39.8 +2.7 +0.0 43.2 60.8 -17.6 Horiz Ave +27.0 +0.6 +5.2 +0.0 X axis	Ave					+0.0			X axis		
Ave     +27.0 +0.6 +0.0 +0.0 +0.0     +5.2 +0.0 +0.0     Z axis       66 1735.794M Ave     +27.0 +0.3 +0.3 +0.3 +0.2 +0.0 +0.0     +2.7 +0.0 +0.0 +0.0 +0.0 +0.0     43.2 +0.0 +0.8 +0.16 +0.0 +0.0     +17.6 +0.0 +0.0 +0.0 +0.0       Ave     +27.0 +0.6 +5.2 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0.0 +0											
+0.0 +0.0 +0.0 66 1735.794M 53.5 -6.3 +0.3 -39.8 +2.7 +0.0 43.2 60.8 -17.6 Horiz Ave +27.0 +0.6 +5.2 +0.0 X axis		53.7					+0.0	43.4		-17.4	Horiz
66 1735.794M 53.5 -6.3 +0.3 -39.8 +2.7 +0.0 43.2 60.8 -17.6 Horiz Ave +27.0 +0.6 +5.2 +0.0 X axis	Ave					+0.0			Z axis		
Ave $+27.0 +0.6 +5.2 +0.0$ X axis											
		53.5					+0.0	43.2		-17.6	Horiz
+(0.0) +(0.0) +(0.0)	Ave					+0.0			X axis		
1000 1000 1000			+0.0	+0.0	+0.0						

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	1301.844M	50.2		+0.6	-40.5	+2.4	+0.0		54.0	-18.1	Horiz
	Ave		+24.5	+0.6	+4.4	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	2169.786M	50.6	-6.3	+0.2	-39.7	+3.3	+0.0	42.1	60.8	-18.7	Horiz
	Ave		+27.5	+0.8	+5.7	+0.0			X axis		
			+0.0	+0.0	+0.0						
	1301.852M	49.6		+0.6	-40.5	+2.4	+0.0	35.3	54.0	-18.7	Vert
	Ave		+24.5	+0.6	+4.4	+0.0			X axis		
			+0.0	+0.0	+0.0						
	1301.853M	49.4		+0.6	-40.5	+2.4	+0.0	35.1	54.0	-18.9	Vert
	Ave		+24.5	+0.6	+4.4	+0.0			Z axis		
			+0.0	+0.0	+0.0						
	1735.769M	51.5		+0.3	-39.8	+2.7	+0.0	41.2	60.8	-19.6	Horiz
	Ave		+27.0	+0.6	+5.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
٨	1735.794M	67.0		+0.3	-39.8	+2.7	+0.0	63.0	60.8	+2.2	Horiz
			+27.0	+0.6	+5.2	+0.0			Z axis		
			+0.0	+0.0	+0.0						
٨	1735.794M	66.8	+0.0	+0.3	-39.8	+2.7	+0.0	62.8	60.8	+2.0	Horiz
			+27.0	+0.6	+5.2	+0.0			X axis		
			+0.0	+0.0	+0.0						
٨	1735.769M	65.0	+0.0	+0.3	-39.8	+2.7	+0.0	61.0	60.8	+0.2	Horiz
			+27.0	+0.6	+5.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
75	1301.844M	48.3	-6.3	+0.6	-40.5	+2.4	+0.0	34.0	54.0	-20.0	Horiz
	Ave		+24.5	+0.6	+4.4	+0.0			X axis		
			+0.0	+0.0	+0.0						
76	4339.369M	36.1	-6.3	+0.2	-39.8	+4.5	+0.0	33.9	54.0	-20.1	Vert
	Ave		+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
٨	4339.369M	46.4	+0.0	+0.2	-39.8	+4.5	+0.0	50.5	54.0	-3.5	Vert
			+31.0	+1.0	+7.2	+0.0			Y axis		
			+0.0	+0.0	+0.0						
78	2603.652M	49.2		+0.2	-39.7	+3.4	+0.0	40.3	60.8	-20.5	Vert
	Ave		+27.1	+0.7	+5.7	+0.0			Y axis		
			+0.0	+0.0	+0.0						
٨	2603.736M	68.9		+0.2	-39.7	+3.4	+0.0	66.3	60.8	+5.5	Vert
			+27.1	+0.7					X axis		
			+0.0	+0.0	+0.0						
٨	2603.728M	67.7	+0.0	+0.2	-39.7	+3.4	+0.0	65.1	60.8	+4.3	Vert
			+27.1	+0.7	+5.7	+0.0			Z axis		
			+0.0	+0.0	+0.0				-		
٨	2603.652M	62.6	+0.0	+0.2	-39.7	+3.4	+0.0	60.0	60.8	-0.8	Vert
			+27.1	+0.7	+5.7	+0.0			Y axis		
			+0.0	+0.0	+0.0				-		
82	2169.786M	48.4	-6.3	+0.2	-39.7	+3.3	+0.0	39.9	60.8	-20.9	Vert
	Ave	.0.1	+27.5	+0.8	+5.7	+0.0	. 0.0	27.7	X axis	20.7	. 010
	· <del>·</del>		+0.0	+0.0	+0.0	. 0.0					
83	2169.744M	48.3	-6.3	+0.2	-39.7	+3.3	+0.0	39.8	60.8	-21.0	Horiz
	Ave	-10.5	+27.5	+0.2	+5.7	+0.0	10.0	37.0	Z axis	21.0	110112
	1100		+27.3 +0.0	+0.0	+0.0	10.0			۵ anis		
			10.0	10.0	10.0						

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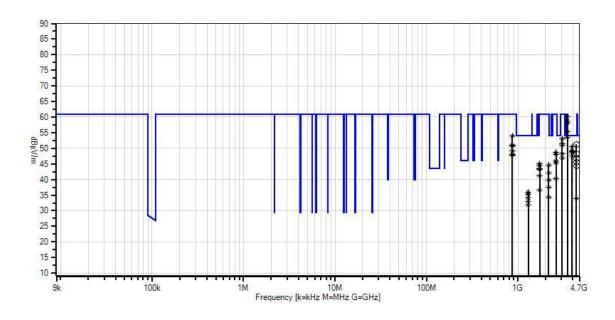
A 2169.694M												
100   100	^	2169.694M	66.8		+0.2	-39.7	+3.3	+0.0			+3.8	Horiz
\$\begin{array}{c c c c c c c c c c c c c c c c c c c							+0.0			Y axis		
+27.5												
100   100	^	2169.786M	64.0					+0.0	61.8		+1.0	Horiz
A 2169.744M							+0.0			X axis		
\$\begin{array}{c c c c c c c c c c c c c c c c c c c					+0.0	+0.0						
1301.819M	^	2169.744M	61.7	+0.0	+0.2	-39.7	+3.3	+0.0	59.5		-1.3	Horiz
87   1301.819M				+27.5	+0.8	+5.7	+0.0			Z axis		
Ave				+0.0	+0.0	+0.0						
1301.844M	87	1301.819M	47.3	-6.3	+0.6	-40.5	+2.4	+0.0	33.0	54.0	-21.0	Horiz
\begin{array}{c c c c c c c c c c c c c c c c c c c		Ave		+24.5	+0.6	+4.4	+0.0			Y axis		
+24.5				+0.0	+0.0	+0.0						
1301.844M	٨	1301.844M	63.6	+0.0	+0.6	-40.5	+2.4	+0.0	55.6	54.0	+1.6	Horiz
A   1301.844M				+24.5	+0.6	+4.4	+0.0			Z axis		
1301.819M				+0.0	+0.0	+0.0						
1301.819M	٨	1301.844M	61.9	+0.0	+0.6	-40.5	+2.4	+0.0	53.9	54.0	-0.1	Horiz
^ 1301.819M 60.5				+24.5	+0.6	+4.4	+0.0			X axis		
1301.802M				+0.0	+0.0	+0.0						
1301.802M	٨	1301.819M	60.5	+0.0	+0.6	-40.5	+2.4	+0.0	52.5	54.0	-1.5	Horiz
91 1301.802M												
91 1301.802M				+0.0								
Ave	91	1301.802M	46.1				+2.4	+0.0	31.8	54.0	-22.2	Vert
100   100												
^ 1301.853M       63.3												
+24.5	٨	1301.853M	63.3				+2.4	+0.0	55.3	54.0	+1.3	Vert
+0.0		10011000111	00.0					. 0.0	00.0		. 1.0	, 010
^ 1301.852M       62.9       +0.0       +0.6       -40.5       +2.4       +0.0       54.9       54.0       +0.9       Vert         +24.5       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       Yaxis       Vert         ^ 1301.802M       59.5       +0.0       +0.6       -40.5       +2.4       +0.0       51.5       54.0       -2.5       Vert         +24.5       +0.0       +0.0       +0.0       +0.0       Yaxis       -23.4       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       37.4       60.8       -23.4       Vert         Ave       +27.5       +0.8       +5.7       +0.0       36.5       60.8       -24.3       Vert         Ave       +27.0       +0.6       +5.2       +0.0       Yaxis       Yaxis         ^ 1735.828M       68.8       +0.0       +0.0       +0.0       +0.0       Yaxis       Yaxis         ^ 1735.836M       68.0       +0.0       +0.0       +0.0       +0.0       Yaxis       Yaxis       Yaxis         ^ 1735.836M       68.0       +0.0       +0.0       +0.0       +0.0       Yaxis       Yaxis       Yaxis												
+24.5	٨	1301 852M	62.9				+2.4	+0.0	54 9	54.0	+0.9	Vert
+0.0		1501.052111	02.7					10.0	5 1.5		10.5	, 611
^ 1301.802M       59.5       +0.0       +0.6       -40.5       +2.4       +0.0       51.5       54.0       -2.5       Vert         +24.5       +0.0       +0.0       +0.0       +0.0       10.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>. 0.0</td> <td></td> <td></td> <td>11 4.115</td> <td></td> <td></td>							. 0.0			11 4.115		
+24.5	٨	1301 802M	59.5				+2.4	+0.0	51.5	54.0	-2 5	Vert
+0.0         +0.0         +0.0           95 2169.778M         45.9         -6.3         +0.2         -39.7         +3.3         +0.0         37.4         60.8         -23.4         Vert           Ave         +27.5         +0.8         +5.7         +0.0         2 axis         2 axis           96 1735.752M         46.8         -6.3         +0.3         -39.8         +2.7         +0.0         36.5         60.8         -24.3         Vert           Ave         +27.0         +0.6         +5.2         +0.0         Y axis         Y axis           **-0.0         +0.0         +0.0         +0.0         Y axis         Y axis           **-1735.828M         68.8         +0.0         +0.3         -39.8         +2.7         +0.0         64.8         60.8         +4.0         Vert           **-27.0         +0.6         +5.2         +0.0         X axis         X axis         Y axis           **-27.0         +0.6         +5.2         +0.0         X axis         X axis         Y axis           **-27.0         +0.6         +5.2         +0.0         X axis         Y axis         Y axis           **-27.0         +0.6         +5.2		1501.002111	57.5					10.0	01.0		2.0	, 611
95 2169.778M							. 0.0			1 4.115		
Ave	95	2169 778M	45.9				+3 3	+0.0	37.4	60.8	-23.4	Vert
+0.0       +0.0       +0.0       +0.0       +0.0       96       1735.752M       46.8       -6.3       +0.3       -39.8       +2.7       +0.0       36.5       60.8       -24.3       Vert         Ave       +27.0       +0.6       +5.2       +0.0       Y axis       Y axis         ^ 1735.828M       68.8       +0.0       +0.3       -39.8       +2.7       +0.0       64.8       60.8       +4.0       Vert         +27.0       +0.6       +5.2       +0.0       2 axis       2 axis       2 axis       -2.6       Vert         * 1735.836M       68.0       +0.0       +0.3       -39.8       +2.7       +0.0       64.0       60.8       +3.2       Vert         * 27.0       +0.6       +5.2       +0.0       X axis       X axis       -2.6       Vert         * 1735.752M       62.2       +0.0       +0.3       -39.8       +2.7       +0.0       58.2       60.8       -2.6       Vert         * 27.0       +0.6       +5.2       +0.0       Y axis       Y axis         * 100       2169.702M       42.8       -6.3       +0.2       -39.7       +3.3       +0.0       34.3       60.8			73.7					10.0	37.4		23.4	VCIt
96 1735.752M		1110					10.0			Z uxis		
Ave	96	1735 752M	46.8				+2.7	+0.0	36.5	60.8	-24 3	Vert
+0.0 +0.0 +0.0 +0.0  1735.828M 68.8 +0.0 +0.3 -39.8 +2.7 +0.0 64.8 60.8 +4.0 Vert +27.0 +0.6 +5.2 +0.0 Z axis +0.0 +0.0 +0.0  1735.836M 68.0 +0.0 +0.3 -39.8 +2.7 +0.0 64.0 60.8 +3.2 Vert +27.0 +0.6 +5.2 +0.0 X axis +0.0 +0.0 +0.0  1735.752M 62.2 +0.0 +0.3 -39.8 +2.7 +0.0 58.2 60.8 -2.6 Vert +27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0 +0.0  100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis											-4 <b>4.</b> J	v CI t
^ 1735.828M       68.8       +0.0       +0.3       -39.8       +2.7       +0.0       64.8       60.8       +4.0       Vert         +27.0       +0.0       +0.0       +0.0       2 axis       Z axis       Z axis         1735.836M       68.0       +0.0       +0.3       -39.8       +2.7       +0.0       64.0       60.8       +3.2       Vert         +27.0       +0.6       +5.2       +0.0       X axis       X axis         1735.752M       62.2       +0.0       +0.3       -39.8       +2.7       +0.0       58.2       60.8       -2.6       Vert         +27.0       +0.6       +5.2       +0.0       Y axis       Y axis         100       2169.702M       42.8       -6.3       +0.2       -39.7       +3.3       +0.0       34.3       60.8       -26.5       Vert         Ave       +27.5       +0.8       +5.7       +0.0       Y axis		1110					10.0			1 uals		
+27.0 +0.6 +5.2 +0.0 Z axis +0.0 +0.0 +0.0  1735.836M 68.0 +0.0 +0.3 -39.8 +2.7 +0.0 64.0 60.8 +3.2 Vert +27.0 +0.6 +5.2 +0.0 X axis +0.0 +0.0 +0.0  1735.752M 62.2 +0.0 +0.3 -39.8 +2.7 +0.0 58.2 60.8 -2.6 Vert +27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0 +0.0  100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis	^	1735 828M	68 8				<b>⊥27</b>	±0.0	64.8	60.8	<u> </u>	Vert
+0.0 +0.0 +0.0 +0.0  1735.836M 68.0 +0.0 +0.3 -39.8 +2.7 +0.0 64.0 60.8 +3.2 Vert +27.0 +0.6 +5.2 +0.0 X axis +0.0 +0.0 +0.0 +0.0  1735.752M 62.2 +0.0 +0.3 -39.8 +2.7 +0.0 58.2 60.8 -2.6 Vert +27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0 +0.0  100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis		1/33.020WI	00.0					+0.0	04.0		± <b>4.</b> U	v CI t
^ 1735.836M       68.0       +0.0       +0.3       -39.8       +2.7       +0.0       64.0       60.8       +3.2       Vert         +27.0       +0.6       +5.2       +0.0       X axis         * 1735.752M       62.2       +0.0       +0.3       -39.8       +2.7       +0.0       58.2       60.8       -2.6       Vert         +27.0       +0.6       +5.2       +0.0       Y axis       Y axis         +0.0       +0.0       +0.0       +0.0       Y axis         100 2169.702M       42.8       -6.3       +0.2       -39.7       +3.3       +0.0       34.3       60.8       -26.5       Vert         Ave       +27.5       +0.8       +5.7       +0.0       Y axis							+0.0			<b>L</b> ax18		
+27.0 +0.6 +5.2 +0.0	^	1735 Q26M	68 U				_ 2 7		64.0	60.9	127	Vort
+0.0 +0.0 +0.0 +0.0  1735.752M 62.2 +0.0 +0.3 -39.8 +2.7 +0.0 58.2 60.8 -2.6 Vert +27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0  100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis		1/33.830W	08.0					+0.0	04.0		+3.2	vert
^ 1735.752M 62.2 +0.0 +0.3 -39.8 +2.7 +0.0 58.2 60.8 -2.6 Vert +27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0 100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis							+0.0			A axis		
+27.0 +0.6 +5.2 +0.0 Y axis +0.0 +0.0 +0.0  100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis	^	1725 750N#	62.2				12.7	ι Ο Ο	50.0	60.0	2.6	V.c+
+0.0 +0.0 +0.0 100 2169.702M 42.8 -6.3 +0.2 -39.7 +3.3 +0.0 34.3 60.8 -26.5 Vert Ave +27.5 +0.8 +5.7 +0.0 Y axis		1/33./32M	02.2					+0.0	38.2		-2.0	vert
100 2169.702M							+0.0			i axis		
Ave $+27.5 +0.8 +5.7 +0.0$ Y axis	100	2160 70214	42.0				.2.2	.0.0	242	(0.0	26.5	<b>V</b> I c ≃4
	100		42.8					+0.0	54.5		-26.5	vert
+0.0 +0.0 +0.0		Ave					+0.0			Y axis		
1010 1010 1010				+0.0	+0.0	+0.0						

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^ 2169.786M	61.6	+0.0	+0.2	-39.7	+3.3	+0.0	59.4	60.8	-1.4	Vert
		+27.5	+0.8	+5.7	+0.0			X axis		
		+0.0	+0.0	+0.0						
^ 2169.778M	59.4	+0.0	+0.2	-39.7	+3.3	+0.0	57.2	60.8	-3.6	Vert
		+27.5	+0.8	+5.7	+0.0			Z axis		
		+0.0	+0.0	+0.0						
^ 2169.702M	56.3	+0.0	+0.2	-39.7	+3.3	+0.0	54.1	60.8	-6.7	Vert
		+27.5	+0.8	+5.7	+0.0			Y axis		
		+0.0	+0.0	+0.0						

CKC Laboratories, Inc. Date: 12/24/2013 Time: 14:49:55 McKinley-Ross Corp. WO#: 94389 RSS 210 A.1.1 Table A Spurious Field Strength (433.92 MHz Transmitter) Test Distance: 3 Meters Sequence#: 5 Ext ATTN: 0 dB





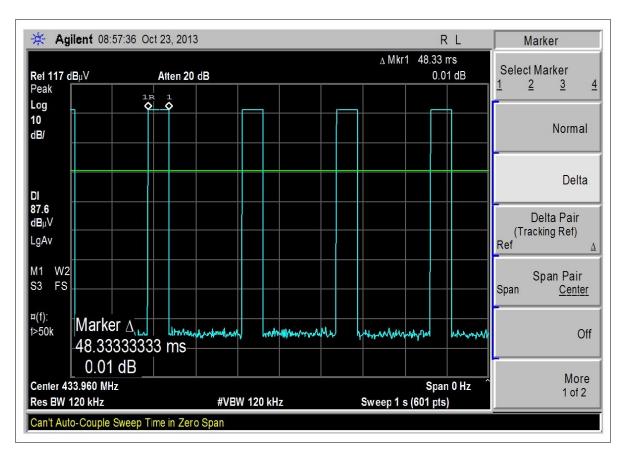
O Peak Readings

\* Average Readings

1 - RSS 210 A.1.1 Table A Spurious Field Strength (433.92 MHz Transmitter)



## **Duty Cycle Test Plot**



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# **Test Setup Photos**



Overall Test Setup

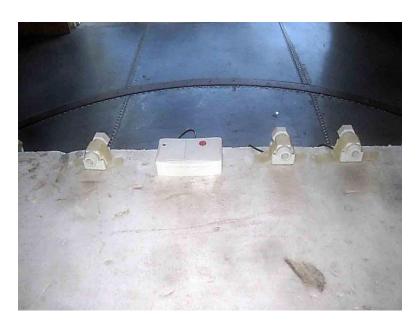


X Axis





Y Axis



Z Axis



# 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  $dB\mu V/m$ , the spectrum analyzer reading in  $dB\mu V$  was corrected by using the following formula. This reading was then compared to the applicable specification limit.

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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.

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