FCC PART 15 SUBPART B & SUBPART C SECTION 15.249
&
RSS GEN & RSS 210

TEST REPORT

for

SMART WATER FLOW DETECTOR
Model: WL00Z-1

Prepared for

NORTEK SECURITY & CONTROL
1950 CAMINO VIDA ROBLE, SUITE 150
CARLSBAD, CA 92008

Prepared by:_____

MATT HARRISON

Reviewed by:_____

TOREY OLIVER

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DATE: APRIL 5, 2016

	REPORT BODY	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Device Tested:	Smart Water Flow Detector Model: WL00Z-1 S/N: None
Product Description:	The WL00Z-1 is a wireless Smart Water Flow Detector utilizing a 500 series Z-Wave chip. The Smart Water Flow Detector can be wirelessly connected to a compatible Z-Wave controller/hub and controlled via your home automation software.
Modifications:	The EUT was not modified in order to comply with specifications.
Manufacturer:	Nortek Security & Control 1950 Camino Vida Roble, Suite 150 Carlsbad, CA 92008
Test Date:	February 16 & 20, 2016
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, Subpart C Sections 15.205, 15.207, 15.209 and 15.249. RSS GEN & RSS 210
Test Procedure:	ANSI C63.4 & C63.10

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	Complies with the limits of CFR Title 47 Part 15 Subpart B, Section 15.107 and Subpart C Sections 15.207, RSS GEN, and RSS 210
2	Radiated RF Spurious Emissions 9 kHz – 10,000 MHz.	Complies with the limits of CFR Title 47 Part 15Subpart B Section 15.109 & Subpart C Section 15.205, 15.209, & 15.249, RSS GEN, and RSS 210
3	Radiated RF Fundamental & Harmonic Emissions 9 kHz – 10,000 MHz.	Complies with the limits of CFR Title 47 Part 15Subpart B Section 15.109 & Subpart C Section 15.205, 15.209, & 15.249, RSS GEN, and RSS 210

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Smart Water Flow Detector Model: WL00Z-1. The EMI measurements were performed according to the measurement procedure described in ANSI. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by RSS GEN, RSS210, and the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109, & Part 15 Subpart C sections 15.205, 15.207, 15.209 and 15.249.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Nortek Security & Control

Verdin Orozco	Regulatory Engineer

Compatible Electronics, Inc.

Torey Oliver	Test Technician
Matt Harrison	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on February 16, 2016.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc. as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Test Report.

SPEC	TITLE
RSS 210	License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
RSS GEN	General Requirements for Compliance of Radio Apparatus
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10: 2013	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Smart Water Flow Detector Model: WL00Z-1 (EUT) was setup in a normal use case configuration. The EUT was mounted on a copper pipe fixture and was connected to the EUT PSU and flow sensor strip via hardwired connection and power port respectively. The EUT was checked all 3 axis. The worst case was found to be the Z-Axis. The EUT was continuously transmitting a data stream during transmit tests and continuously receiving during receiver tests. For spurious emissions, the worst case emissions was when the EUT was monitoring water flow and the transmitter was awaiting a trigger.

The voltage was varied ±15%; the transmitting signal amplitude and frequency did not vary.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

4.1.1 Photograph Test Configuration (Fundamental Emissions Z-Axis)

4.1.2 Cable Construction and Termination

Cables 1

This is a 3-meter, unshielded cable. It connects the EUT to the power supply. It was hardwired into the power supply end and has a barrel connector at the EUT end. The cable was bundled to a length of 1-meter.

Cable 8

This is a 30 centimeter, unshielded cable. It is connecting the EUT to the flow sensor strip. It is hardwired at the both ends. The cable was not bundled.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	SMART WATER FLOW DETECTOR (EUT)	NORTEK	WL00Z-1	NONE
2	EUT POWER SUPPLY	ZB	ZB-A140017A-J	NONE
3	FLOW SENSOR STRIP	NORTEK	NONE	NONE

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100219	9/3/2015	9/3/2016
EMI Receiver	Rohde & Schwarz	ESIB40	100712	9/22/2015	9/22/2016
Antenna, Loop	Com Power	AL-130	121049	12/06/2013	12/06/2016
Antenna, CombiLog	Com Power	AC-220	003	5/21/2014	5/21/2016
Antenna, Horn 1-18GHz	Com Power	AH-118	071225	7/1/2014	7/1/2016
Pre-Amp, 1-18GHz	Com Power	PAM-118	551033	8/25/2015	8/25/2016
Notch Filter	AMTI Microwave Circuits	N03019-01	3709-01 DC0415	1/6/2015	1/6/2017
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A
Power Source	Chroma ATE Inc.	61511	615114800078	2/8/2016	2/8/2017
LISN	Com-Power	LI-150	191937	4/7/2015	4/7/2016

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 0.8m high copper fixture, which was placed on the ground plane.

For above 1GHz the EUT was mounted 1.5 meters high.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

There are 2 operating channels and the EUT uses 2-key FSK/GFSK modulation schemes. The 908.4MHz channel uses the FSK modulation with a 40kbps or a 9kbps data rate. The 40kbps data rate was used for all testing since it was found to be the worst case. The 916MHz channel uses GFSK at a data rate of 100kbps. The gain settings were set to 13 for all units and channels.

7.2 Antenna

The antenna is made up of a wire soldered to the PCB.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.107, & Subpart C section 15.207, RSS GEN, and RSS 210.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. There were preamplifiers used for frequencies above 1 GHz.

For spurious emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

For the Harmonic emissions a linear average detector was used.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz (120kHz for QP Measurements)
1000 to 10000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4 & ANSI C63.10. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109, & Part 15 Subpart C sections 15.205, 15.209 and 15.249, RSS GEN, and RSS 210.

8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.249, and RSS 210.

8.1.4 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The lower and upper channels were tuned during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205 & 15.249, and RSS 210.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Smart Water Flow Detector Model: WL00Z-1 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B section 15.107, 15.109, & Subpart C sections 15.205, 15.207, 15.209, 15.249, RSS GEN, and RSS 210.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links

Agoura Division - http://ts.nist.gov/Standards/scopes/2000630.htm
Brea Division - http://ts.nist.gov/Standards/scopes/2005280.htm
Silverado/Lake Forest Division - http://ts.nist.gov/Standards/scopes/2005270.htm

ANSI listing

CETCB
https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

We are also certified/listed for IT products by the following country/agency:

VCCI Listing, from VCCI site

Enter "Compatible" in search form http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html

FCC Listing, from FCC OET site

FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Industry Canada Industrie Canada

Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications were made during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	SMART WATER FLOW DETECTOR Model: WL00Z-1 S/N: None

No additional models were tested.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

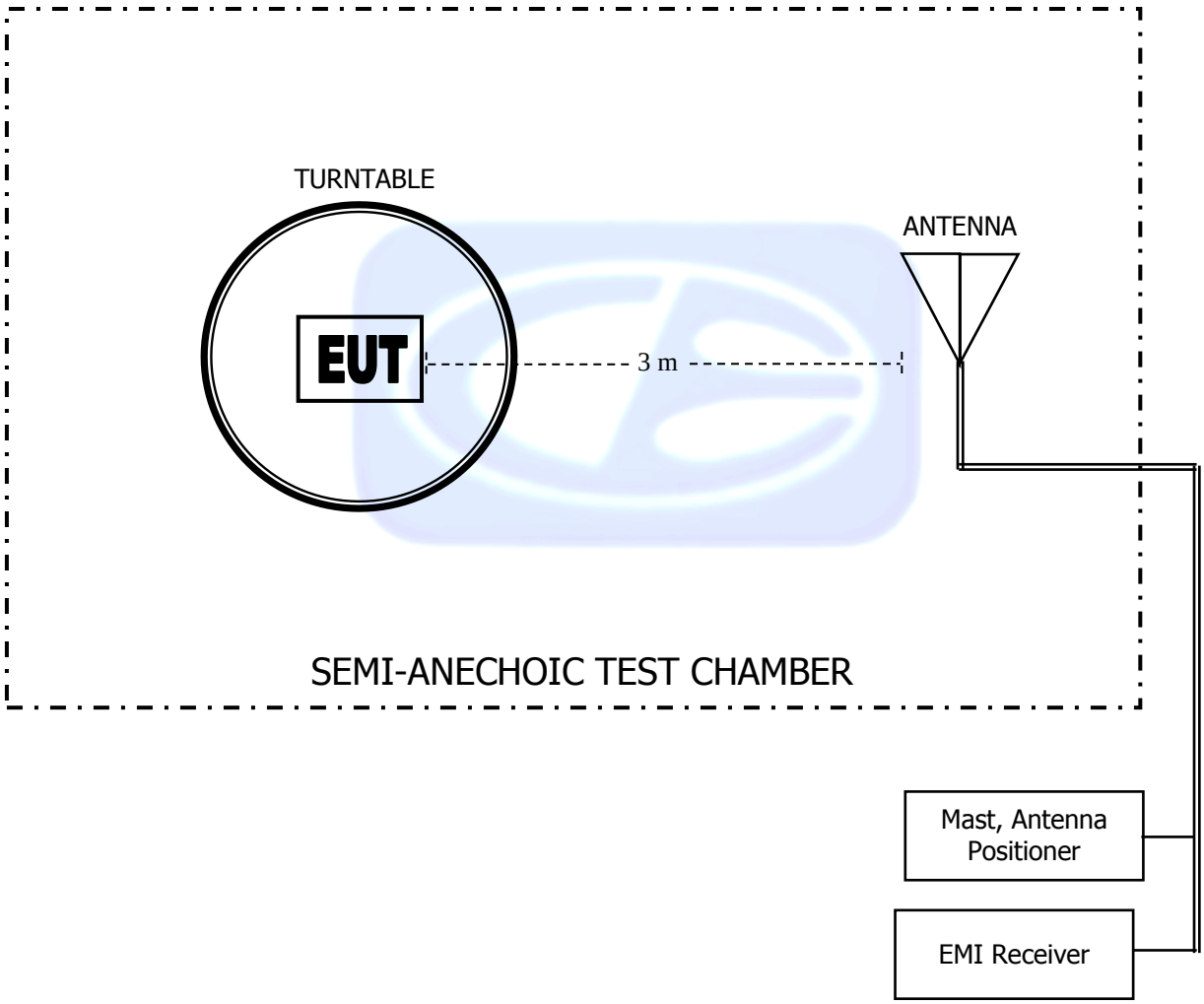


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ

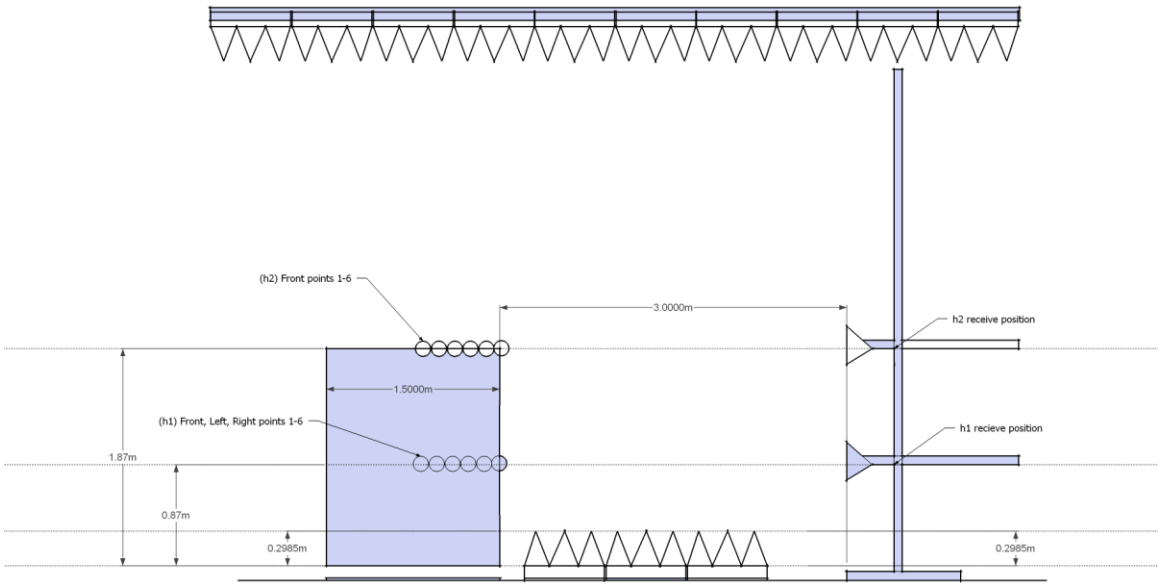
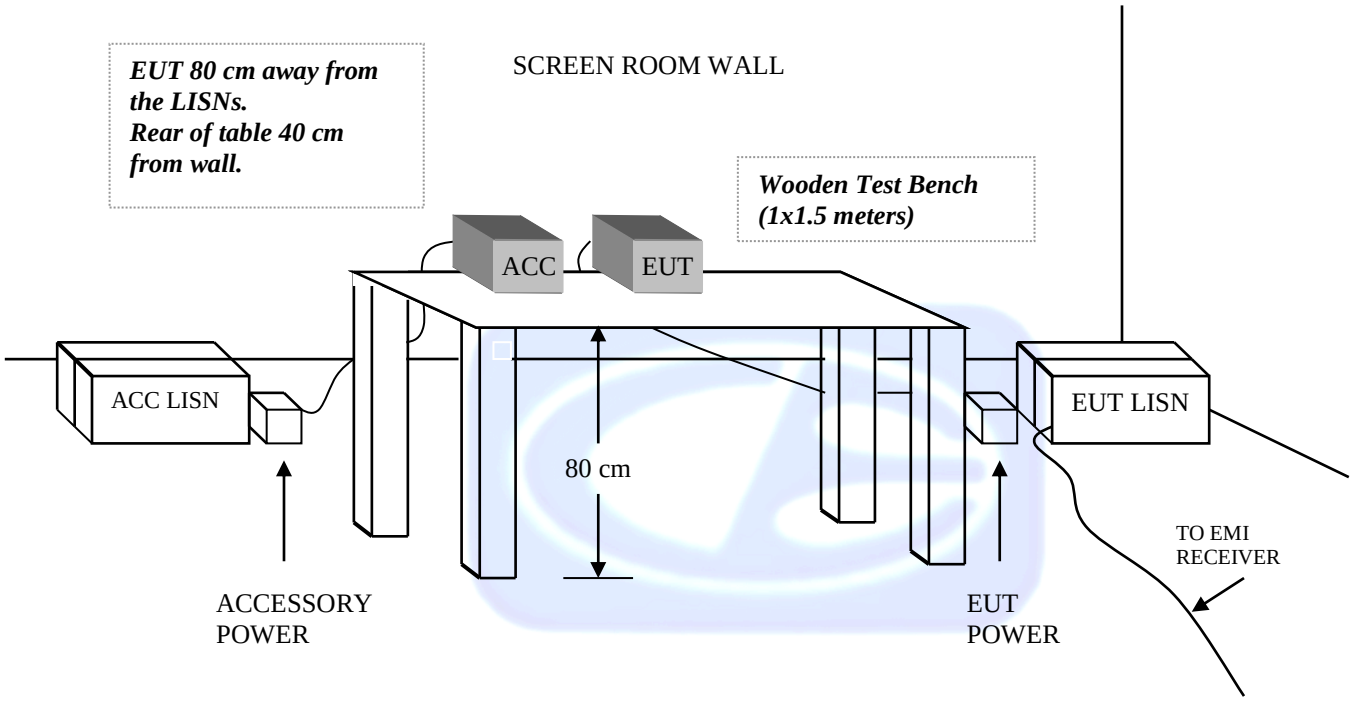


FIGURE 3: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2016

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.64	16.86	**0.8**	-36.32	15.18
0.01	-34.78	16.72	**0.9**	-36.22	15.28
0.02	-35.91	15.59	**1.0**	-36.22	15.28
0.03	-35.48	16.02	**2.0**	-35.91	15.59
0.04	-35.82	15.68	**3.0**	-35.91	15.59
0.05	-36.49	15.01	**4.0**	-36.01	15.49
0.06	-36.30	15.20	**5.0**	-35.80	15.70
0.07	-36.43	15.07	**6.0**	-36.00	15.50
0.08	-36.30	15.20	**7.0**	-35.90	15.60
0.09	-36.39	15.11	**8.0**	-35.70	15.80
0.1	-36.41	15.09	**9.0**	-35.70	15.80
0.2	-36.61	14.89	**10.0**	-35.60	15.90
0.3	-36.63	14.87	**15.0**	-36.52	14.98
0.4	-36.52	14.99	**20.0**	-35.75	15.75
0.5	-36.63	14.87	**25.0**	-37.78	13.72
0.6	-36.62	14.88	**30.0**	-38.62	12.88
0.7	-36.53	14.97			

COM-POWER AC-220

LAB P - COMBILOG ANTENNA

S/N: 003

CALIBRATION DUE: MAY 21, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.90	**160**	15.20
35	22.80	**180**	14.40
40	23.50	**200**	14.10
45	21.90	**250**	15.90
50	22.00	**300**	18.20
60	18.10	**400**	19.40
70	12.80	**500**	21.50
80	12.10	**600**	22.00
90	12.70	**700**	23.90
100	13.00	**800**	25.80
120	15.50	**900**	27.00
140	14.40	**1000**	27.90

COM-POWER AH-118

HORN ANTENNA

S/N: 071225

CALIBRATION DUE: JULY 1, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	30.2	**9500**	43.86
1500	29.46	**10000**	43.85
2000	31.81	**10500**	43.54
2500	35.95	**11000**	45.28
3000	33.6	**11500**	45.18
3500	36.43	**12000**	45.03
4000	35.85	**12500**	44.33
4500	36.32	**13000**	45.71
5000	40.11	**13500**	46.89
5500	38.7	**14000**	46.88
6000	39.33	**14500**	45.89
6500	40.08	**15000**	49.59
7000	41.17	**15500**	46.49
7500	43.58	**16000**	45.01
8000	41.55	**16500**	44.57
8500	42.63	**17000**	48.28
9000	43.5	**17500**	49.88
		18000	49.94

COM-POWER PAM-118A

1-18GHz - PREAMPLIFIER

S/N: 551033

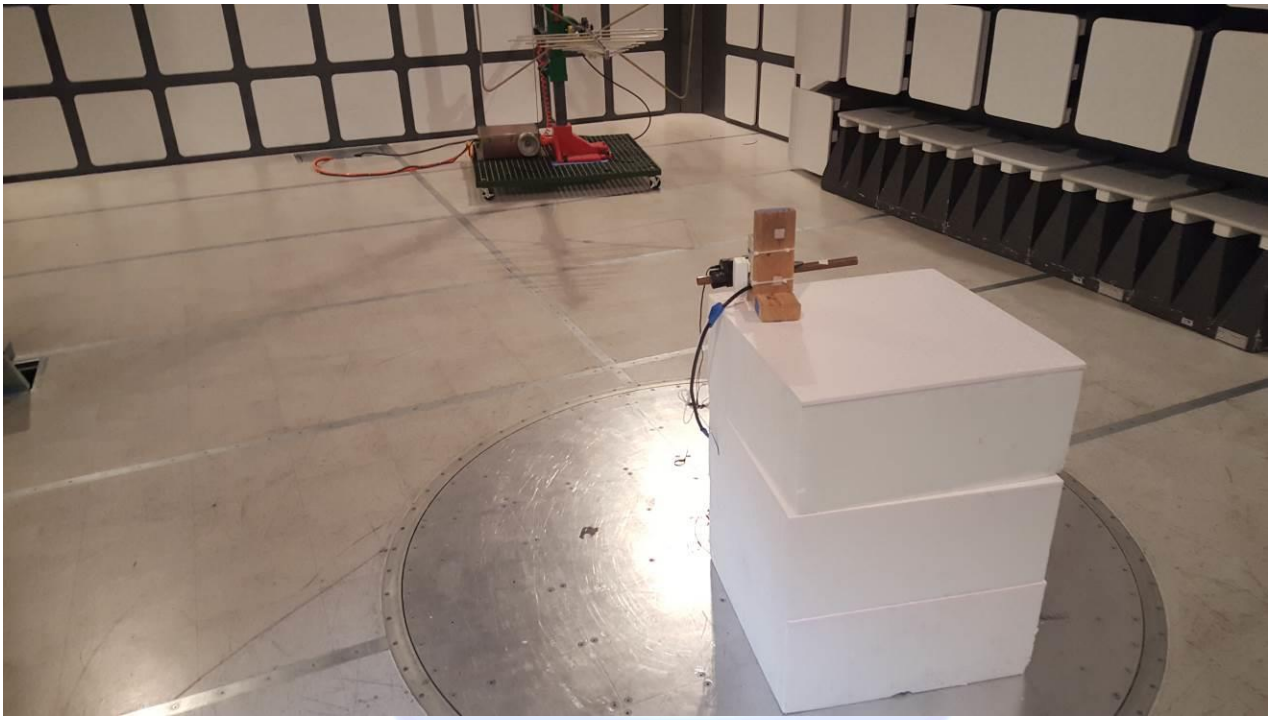
CALIBRATION DUE: AUGUST 25, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	36.57	**5500**	40.23
1000	38.49	**6000**	38.68
1100	38.83	**6500**	39.16
1200	39.05	**7000**	35.30
1300	39.06	**7500**	36.25
1400	38.83	**8000**	36.08
1500	38.52	**8500**	36.03
1600	38.69	**9000**	36.9
1700	39.54	**9500**	37.29
1800	39.66	**10000**	37.56
1900	40.49	**11000**	37.23
2000	40.03	**12000**	37.05
2500	39.30	**13000**	36.15
3000	41.29	**14000**	33.80
3500	40.61	**15000**	37.41
4000	41.49	**16000**	37.98
4500	41.51	**17000**	35.82
5000	40.41	**18000**	32.01

FRONT VIEW

Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C – FUNDAMENTAL RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C – FUNDAMENTAL RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

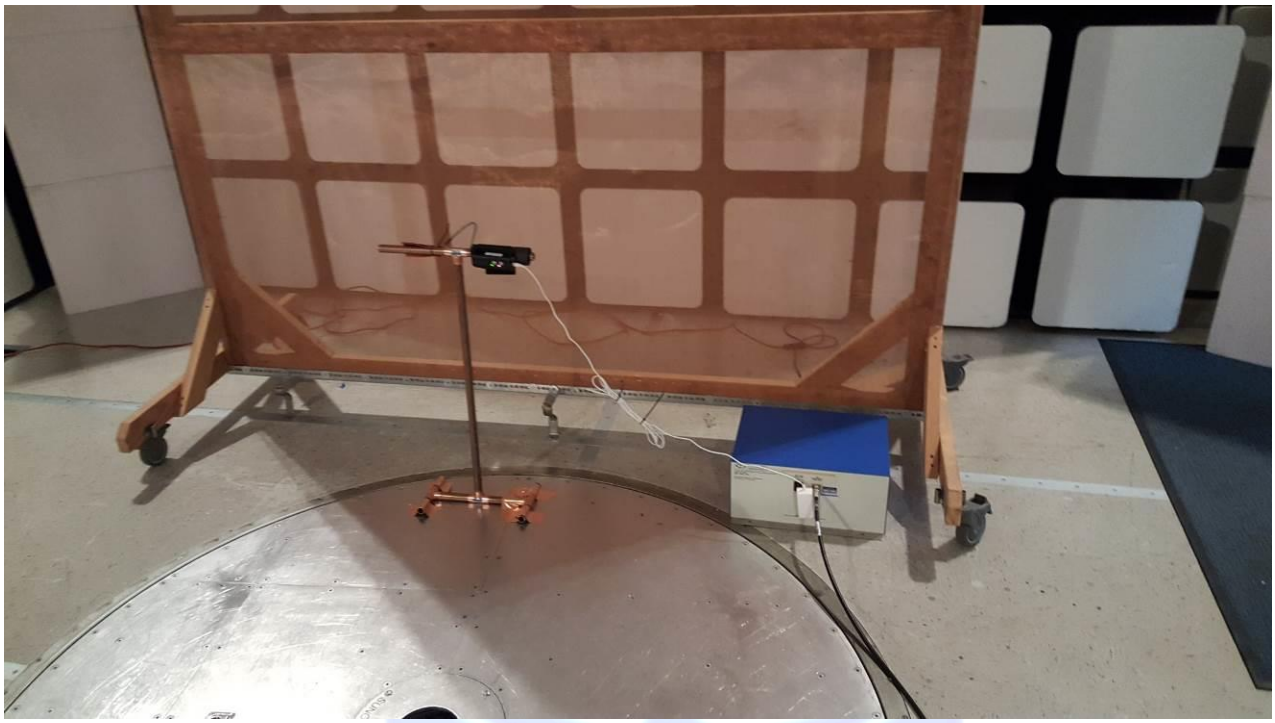
Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

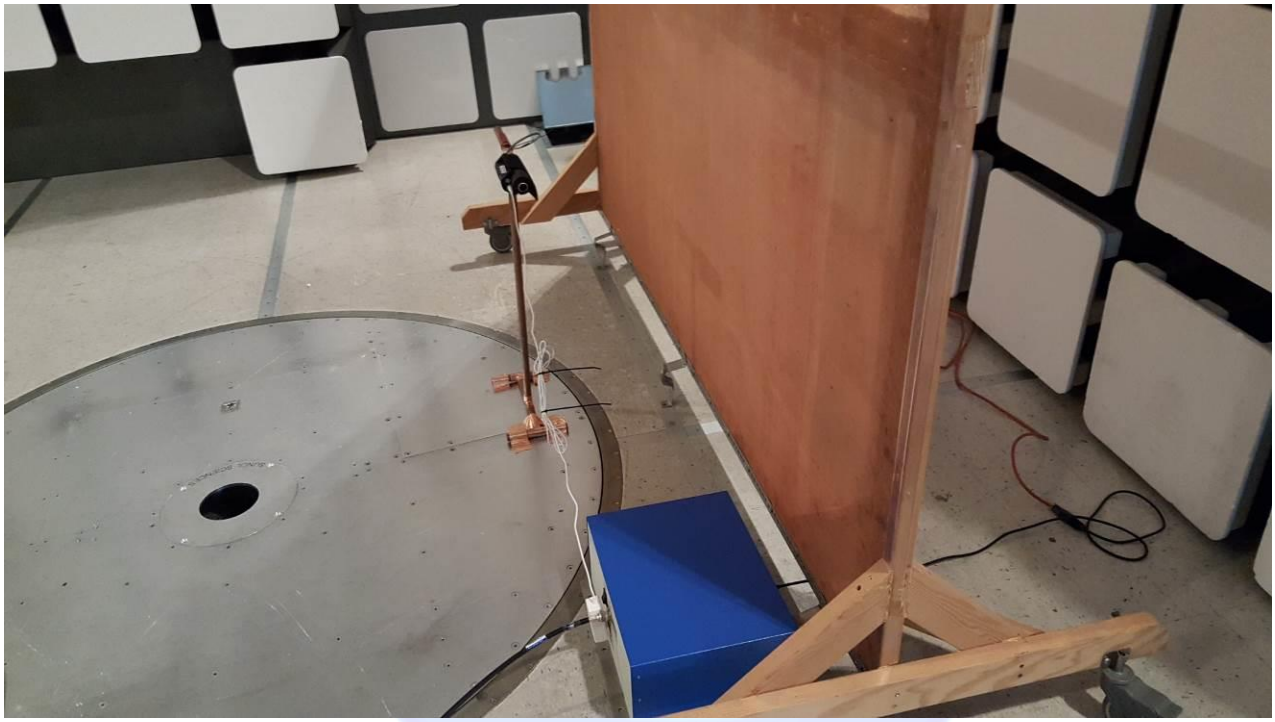
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

Nortek
SMART WATER FLOW DETECTOR
Model: WL00Z-1
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

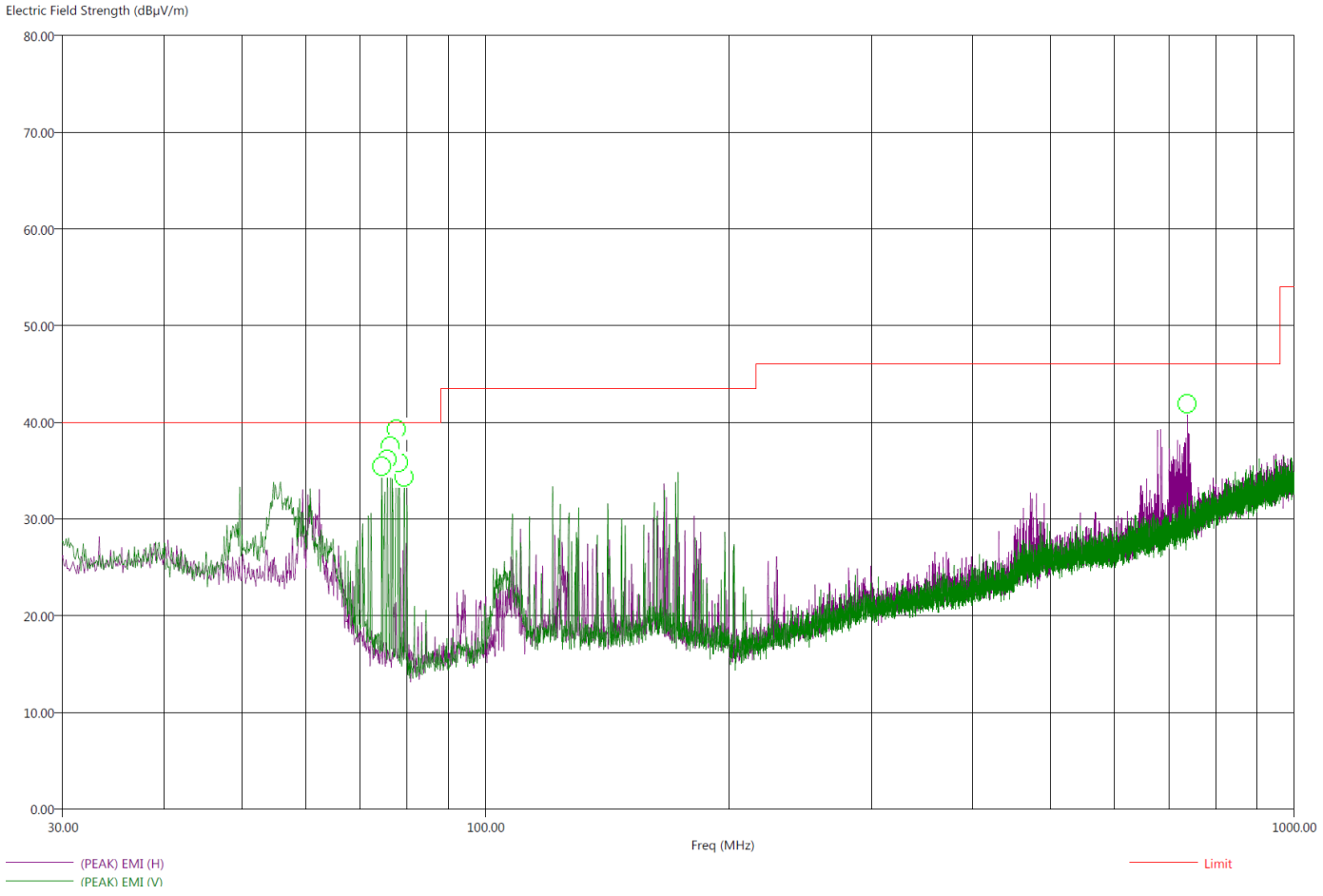
APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209 & 15.109 Class B
File: Radiated Pre-Scan 30-1000Mhz
Operator: Torey Oliver
EUT Type: Smart Water Flow Detector / 2GIG-WL00Z1
EUT Condition: The EUT is a normal operating state.
Comments: Temp: 72f
Hum: 43%
120V 60Hz

2/20/2016 9:08:52 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab P)



There were no radiated emissions other than harmonics found below 30 MHz or above 1GHz.
This is worst case channel and mode.

Title: FCC 15.209 & 15.109 Class B
File: Radiated Final 30-1000Mhz
Operator: Torey Oliver
EUT Type: Smart Water Flow Detector / 2GIG-WL00Z1
EUT Condition: The EUT is a normal operating state.
Comments: Temp: 72f
Hum: 43%
120V 60Hz

2/20/2016 9:31:00 AM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer(dB)	Cable(dB)
74.40	-15.32	24.68	36.62	40.00	V	102.50	145.47	12.49	0.69
75.60	-12.82	27.18	38.02	40.00	V	360.00	173.00	12.39	0.70
76.30	-14.17	25.83	37.71	40.00	V	359.00	190.94	12.36	0.70
77.60	-11.49	28.51	40.21	40.00	V	62.00	152.05	12.26	0.70
78.20	-13.01	26.99	38.53	40.00	V	17.50	135.82	12.22	0.70
79.30	-15.03	24.97	36.99	40.00	V	-0.75	124.76	12.15	0.71
738.20	-20.37	25.63	31.26	46.00	H	0.50	182.41	24.65	2.30

There were no radiated emissions other than harmonics found below 30 MHz or above 1GHz.
This is worst case channel and mode.

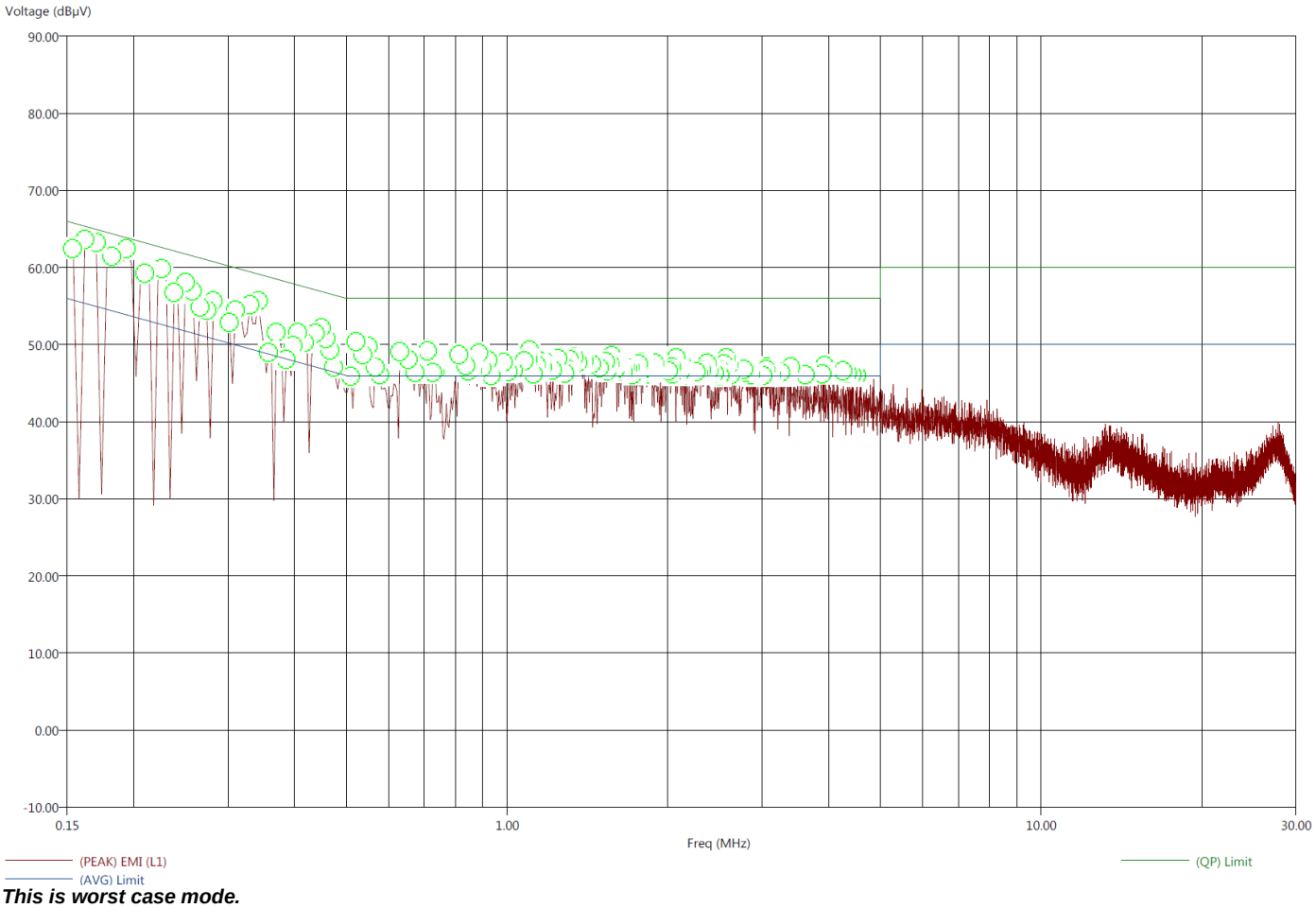
CONDUCTED EMISSIONS

DATA SHEETS

Title: FCC 15.207 & 15.107 Class B
File: Conducted Pre-Line
Operator: Torey Oliver
EUT Type: Smart Water Flow Detector / 2GIG-WL00Z-1
EUT Condition: The EUT is in a normal operating state.
Comments: Temp: 73f
Hum: 43%
120V 60Hz

2/20/2016 10:44:25 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)



This is worst case mode.

Title: FCC 15.207 & 15.107 Class B 12/13/2015 12:49:04 PM
File: Conducted Final-Line.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: Irrigation Controller / WL00Z-1
EUT Condition: The EUT is in a loop.
Comments: The loop was in a faster than normal operation for worst case scenario.
Temp: 71f
Hum: 38%
120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB P)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV	Transducer (dB)	Cable (dB)
0.15	-27.58	-6.06	28.20	59.73	67.57	55.78	65.78	0.44	0.19
0.16	-28.44	-7.23	26.92	58.13	65.65	55.36	65.36	0.41	0.21
0.17	-27.76	-7.47	27.20	57.49	65.14	54.96	64.96	0.39	0.23
0.18	-26.28	-8.00	28.12	56.39	64.29	54.39	64.39	0.36	0.26
0.19	-15.75	-8.45	38.12	55.42	63.93	53.86	63.86	0.33	0.29
0.21	-21.41	-8.84	31.79	54.36	62.35	53.21	63.21	0.29	0.28
0.23	-29.36	-8.97	23.24	53.63	61.54	52.60	62.60	0.25	0.26
0.24	-29.21	-9.35	22.96	52.81	61.26	52.17	62.17	0.23	0.24
0.25	-25.60	-9.67	26.16	52.09	60.10	51.76	61.76	0.20	0.23
0.26	-21.65	-10.05	29.85	51.45	59.46	51.50	61.50	0.19	0.22
0.27	-20.34	-9.45	30.90	51.79	59.27	51.24	61.24	0.17	0.21
0.27	-21.74	-10.85	29.26	50.14	58.40	51.00	61.00	0.16	0.20
0.28	-27.79	-11.10	22.96	49.66	57.90	50.76	60.76	0.14	0.19
0.30	-30.46	-11.34	19.73	48.85	57.69	50.19	60.19	0.11	0.17
0.31	-25.06	-11.04	24.91	48.93	57.74	49.97	59.97	0.10	0.16
0.33	-11.59	-9.20	37.86	50.26	56.99	49.45	59.45	0.07	0.14
0.34	-11.84	-7.31	37.32	51.85	56.30	49.15	59.15	0.05	0.12
0.36	-26.14	-13.58	22.64	45.20	54.44	48.77	58.77	0.04	0.11
0.37	-28.03	-13.22	20.47	45.28	53.33	48.50	58.50	0.04	0.10
0.39	-23.92	-13.48	24.23	44.67	53.19	48.15	58.15	0.04	0.08
0.39	-22.27	-12.51	25.80	45.56	54.89	48.06	58.06	0.04	0.08
0.40	-17.51	-13.57	30.39	44.32	53.85	47.90	57.90	0.04	0.07
0.41	-15.25	-11.68	32.48	46.05	53.04	47.73	57.73	0.04	0.07
0.42	-17.99	-9.64	29.50	47.85	52.14	47.49	57.49	0.04	0.06
0.44	-18.56	-9.11	28.54	47.99	52.93	47.10	57.10	0.04	0.04
0.45	-12.14	-7.15	34.73	49.73	55.07	46.88	56.88	0.04	0.03
0.46	-11.73	-8.58	35.00	48.15	54.72	46.73	56.73	0.04	0.03
0.47	-13.29	-10.44	33.30	46.14	52.75	46.58	56.58	0.03	0.02
0.47	-14.92	-11.04	31.52	45.40	52.89	46.44	56.44	0.03	0.02
0.51	-18.95	-12.20	27.05	43.80	50.10	46.00	56.00	0.02	0.00
0.52	-15.61	-12.01	30.39	43.99	50.93	46.00	56.00	0.02	0.00

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV	Transducer (dB)	Cable (dB)
0.54	-14.85	-11.14	31.15	44.86	51.50	46.00	56.00	0.02	0.00
0.55	-15.60	-8.54	30.40	47.46	50.36	46.00	56.00	0.02	0.00
0.57	-18.06	-8.47	27.94	47.53	50.75	46.00	56.00	0.03	0.00
0.58	-15.59	-9.95	30.41	46.05	50.21	46.00	56.00	0.03	0.00
0.63	-18.14	-8.96	27.86	47.04	50.78	46.00	56.00	0.03	0.00
0.65	-13.85	-9.90	32.15	46.10	50.10	46.00	56.00	0.03	0.00
0.67	-15.20	-11.63	30.80	44.37	49.87	46.00	56.00	0.03	0.00
0.71	-17.73	-12.51	28.27	43.49	50.81	46.00	56.00	0.04	0.00
0.73	-18.21	-14.39	27.79	41.61	49.53	46.00	56.00	0.04	0.00
0.73	-19.29	-15.35	26.71	40.65	49.45	46.00	56.00	0.04	0.00
0.81	-16.95	-11.47	29.05	44.53	49.21	46.00	56.00	0.04	0.00
0.84	-16.60	-10.99	29.40	45.01	49.02	46.00	56.00	0.04	0.00
0.85	-17.45	-11.95	28.55	44.05	47.90	46.00	56.00	0.04	0.00
0.86	-17.47	-12.74	28.53	43.26	47.36	46.00	56.00	0.04	0.00
0.89	-15.14	-10.76	30.86	45.24	50.21	46.00	56.00	0.03	0.00
0.90	-14.62	-10.50	31.38	45.50	49.75	46.00	56.00	0.03	0.00
0.92	-16.27	-12.21	29.73	43.79	48.93	46.00	56.00	0.03	0.00
0.93	-16.75	-12.87	29.25	43.13	48.31	46.00	56.00	0.03	0.00
0.94	-16.30	-13.16	29.70	42.84	48.43	46.00	56.00	0.03	0.00
0.95	-15.81	-12.67	30.19	43.33	50.00	46.00	56.00	0.03	0.00
0.99	-19.30	-15.24	26.70	40.76	48.87	46.00	56.00	0.03	0.00
1.01	-19.94	-15.63	26.06	40.37	49.61	46.00	56.00	0.03	0.00
1.03	-19.27	-14.36	26.73	41.64	47.17	46.00	56.00	0.03	0.01
1.08	-16.70	-11.41	29.30	44.59	49.30	46.00	56.00	0.03	0.03
1.09	-15.41	-11.31	30.59	44.69	48.94	46.00	56.00	0.03	0.04
1.10	-15.09	-10.86	30.91	45.14	49.03	46.00	56.00	0.03	0.04
1.12	-16.65	-12.03	29.35	43.97	48.46	46.00	56.00	0.03	0.05
1.13	-15.75	-11.15	30.25	44.85	49.93	46.00	56.00	0.03	0.05
1.14	-15.42	-11.35	30.58	44.65	50.20	46.00	56.00	0.03	0.06
1.15	-14.67	-11.29	31.33	44.71	49.66	46.00	56.00	0.03	0.06
1.17	-14.90	-11.89	31.10	44.11	48.78	46.00	56.00	0.03	0.07
1.18	-14.90	-11.93	31.10	44.07	48.74	46.00	56.00	0.03	0.07
1.22	-15.99	-12.79	30.01	43.21	49.62	46.00	56.00	0.04	0.09
1.25	-17.26	-14.32	28.74	41.68	49.68	46.00	56.00	0.04	0.10
1.28	-18.99	-16.01	27.01	39.99	50.19	46.00	56.00	0.04	0.11
1.29	-18.28	-14.89	27.72	41.11	47.50	46.00	56.00	0.04	0.11
1.30	-18.09	-14.39	27.91	41.61	46.57	46.00	56.00	0.04	0.11
1.31	-17.75	-12.79	28.25	43.21	48.48	46.00	56.00	0.04	0.12
1.33	-17.02	-11.29	28.98	44.71	49.40	46.00	56.00	0.04	0.12
1.36	-15.84	-12.08	30.16	43.92	49.12	46.00	56.00	0.04	0.13
1.37	-15.33	-11.71	30.67	44.29	48.79	46.00	56.00	0.04	0.14
1.39	-15.29	-10.57	30.71	45.43	50.25	46.00	56.00	0.04	0.14
1.44	-15.78	-12.76	30.22	43.24	49.17	46.00	56.00	0.04	0.16
1.49	-16.20	-12.59	29.80	43.41	49.87	46.00	56.00	0.04	0.17
1.50	-17.22	-14.87	28.78	41.13	49.86	46.00	56.00	0.04	0.17
1.53	-17.73	-13.53	28.27	42.47	49.72	46.00	56.00	0.04	0.18
1.54	-18.27	-14.95	27.73	41.05	49.19	46.00	56.00	0.04	0.19
1.56	-17.23	-13.67	28.77	42.33	49.40	46.00	56.00	0.04	0.19
1.57	-16.35	-11.36	29.65	44.64	49.81	46.00	56.00	0.04	0.20
1.58	-16.06	-11.81	29.94	44.19	49.76	46.00	56.00	0.04	0.20

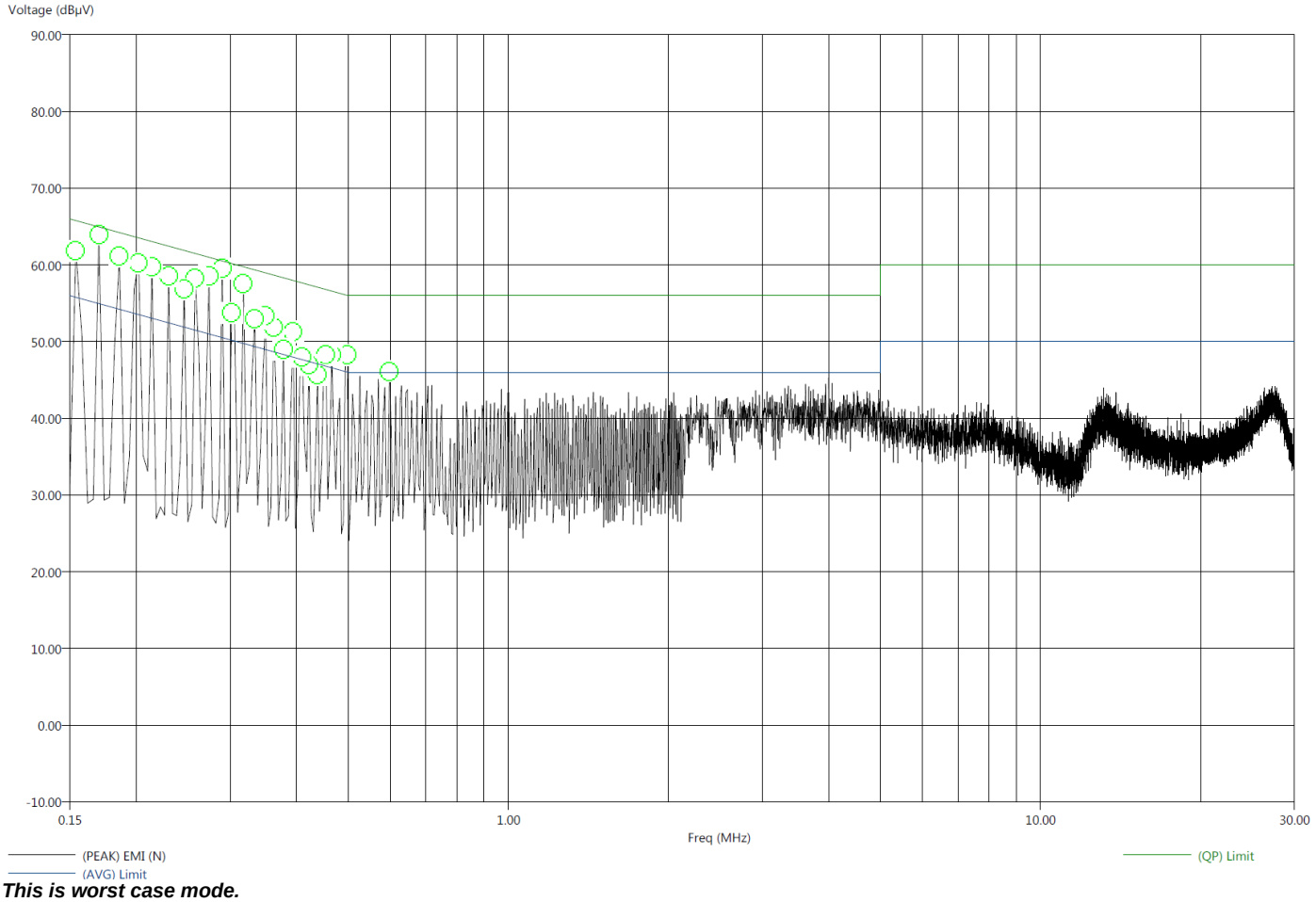
Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV	Transducer (dB)	Cable (dB)
1.60	-15.70	-11.16	30.30	44.84	49.06	46.00	56.00	0.04	0.20
1.61	-16.30	-11.99	29.70	44.01	48.37	46.00	56.00	0.04	0.21
1.63	-15.87	-12.06	30.13	43.94	48.65	46.00	56.00	0.04	0.21
1.65	-15.65	-11.53	30.35	44.47	49.57	46.00	56.00	0.04	0.22
1.67	-15.76	-11.69	30.24	44.31	49.67	46.00	56.00	0.04	0.22
1.68	-15.90	-12.18	30.10	43.82	49.65	46.00	56.00	0.05	0.23
1.70	-16.84	-13.78	29.16	42.22	49.44	46.00	56.00	0.05	0.23
1.72	-17.17	-13.36	28.83	42.64	48.97	46.00	56.00	0.05	0.23
1.74	-17.52	-14.79	28.48	41.21	48.74	46.00	56.00	0.05	0.24
1.77	-16.66	-13.46	29.34	42.54	48.93	46.00	56.00	0.05	0.25
1.78	-16.92	-14.07	29.08	41.93	47.50	46.00	56.00	0.05	0.25
1.79	-16.97	-13.55	29.03	42.45	49.67	46.00	56.00	0.05	0.25
1.80	-16.81	-12.90	29.19	43.10	48.52	46.00	56.00	0.05	0.25
1.81	-16.08	-12.55	29.92	43.45	48.66	46.00	56.00	0.05	0.26
1.82	-15.99	-11.38	30.01	44.62	49.73	46.00	56.00	0.05	0.26
1.84	-15.91	-12.10	30.09	43.90	49.38	46.00	56.00	0.05	0.26
1.85	-15.83	-12.15	30.17	43.85	49.17	46.00	56.00	0.05	0.27
1.87	-15.95	-11.85	30.05	44.15	48.94	46.00	56.00	0.05	0.27
1.89	-16.33	-12.07	29.67	43.93	48.88	46.00	56.00	0.05	0.28
1.90	-16.23	-12.36	29.77	43.64	48.93	46.00	56.00	0.05	0.28
2.01	-16.50	-13.76	29.50	42.24	49.66	46.00	56.00	0.05	0.30
2.03	-16.44	-13.53	29.56	42.47	48.46	46.00	56.00	0.05	0.30
2.04	-16.79	-13.90	29.21	42.10	49.18	46.00	56.00	0.05	0.30
2.05	-17.17	-14.42	28.83	41.58	48.25	46.00	56.00	0.05	0.30
2.07	-15.57	-13.11	30.43	42.89	47.94	46.00	56.00	0.05	0.30
2.08	-15.42	-12.01	30.58	43.99	49.30	46.00	56.00	0.05	0.30
2.09	-15.56	-12.08	30.44	43.92	49.38	46.00	56.00	0.05	0.30
2.11	-16.16	-12.75	29.84	43.25	48.92	46.00	56.00	0.05	0.29
2.12	-16.45	-12.86	29.55	43.14	48.47	46.00	56.00	0.05	0.29
2.13	-16.12	-13.13	29.88	42.87	48.30	46.00	56.00	0.05	0.29
2.14	-16.07	-13.07	29.93	42.93	47.98	46.00	56.00	0.05	0.29
2.26	-16.89	-14.15	29.11	41.85	47.95	46.00	56.00	0.05	0.29
2.28	-16.47	-14.02	29.53	41.98	47.77	46.00	56.00	0.05	0.29
2.31	-15.87	-14.44	30.13	41.56	47.26	46.00	56.00	0.05	0.28
2.32	-15.58	-13.25	30.42	42.75	47.78	46.00	56.00	0.05	0.28
2.33	-15.66	-13.16	30.34	42.84	48.75	46.00	56.00	0.05	0.28
2.34	-15.65	-13.06	30.35	42.94	48.80	46.00	56.00	0.05	0.28
2.37	-15.52	-12.75	30.48	43.25	48.96	46.00	56.00	0.05	0.28
2.39	-16.80	-13.75	29.20	42.25	47.86	46.00	56.00	0.05	0.28
2.45	-17.42	-15.25	28.58	40.75	46.85	46.00	56.00	0.04	0.28
2.51	-16.30	-14.17	29.70	41.83	47.41	46.00	56.00	0.04	0.28
2.52	-16.44	-14.29	29.56	41.71	48.12	46.00	56.00	0.04	0.27
2.53	-16.83	-14.84	29.17	41.16	46.88	46.00	56.00	0.04	0.27
2.55	-15.98	-14.34	30.02	41.66	46.86	46.00	56.00	0.04	0.27
2.58	-15.15	-13.14	30.85	42.86	47.96	46.00	56.00	0.04	0.27
2.61	-15.92	-13.39	30.08	42.61	48.94	46.00	56.00	0.04	0.27
2.62	-15.83	-13.48	30.17	42.52	48.70	46.00	56.00	0.04	0.27
2.77	-15.76	-14.09	30.24	41.91	48.08	46.00	56.00	0.04	0.26
2.79	-16.17	-14.69	29.83	41.31	47.91	46.00	56.00	0.04	0.26

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV	Transducer (dB)	Cable (dB)
2.80	-16.23	-14.35	29.77	41.65	47.67	46.00	56.00	0.04	0.26
2.81	-15.86	-14.34	30.14	41.66	47.87	46.00	56.00	0.04	0.26
2.83	-15.53	-13.96	30.47	42.04	48.01	46.00	56.00	0.04	0.26
2.86	-15.43	-13.57	30.57	42.43	48.21	46.00	56.00	0.04	0.26
2.87	-15.70	-13.67	30.30	42.33	48.29	46.00	56.00	0.04	0.26
3.02	-16.76	-14.86	29.24	41.14	48.53	46.00	56.00	0.04	0.25
3.06	-15.80	-14.24	30.20	41.76	48.02	46.00	56.00	0.04	0.25
3.07	-15.82	-14.29	30.18	41.71	48.43	46.00	56.00	0.04	0.25
3.08	-16.10	-14.67	29.90	41.33	47.67	46.00	56.00	0.04	0.25
3.09	-15.78	-14.48	30.22	41.52	48.67	46.00	56.00	0.04	0.25
3.09	-15.62	-14.04	30.38	41.96	47.65	46.00	56.00	0.04	0.25
3.13	-15.57	-13.90	30.43	42.10	47.87	46.00	56.00	0.04	0.25
3.25	-16.77	-14.64	29.23	41.36	46.84	46.00	56.00	0.04	0.25
3.27	-17.10	-15.32	28.90	40.68	48.01	46.00	56.00	0.04	0.25
3.29	-17.03	-15.53	28.97	40.47	47.51	46.00	56.00	0.04	0.25
3.32	-16.21	-14.80	29.79	41.20	46.94	46.00	56.00	0.04	0.24
3.33	-15.79	-14.62	30.21	41.38	47.48	46.00	56.00	0.04	0.24
3.40	-16.31	-14.30	29.69	41.70	47.86	46.00	56.00	0.04	0.24
3.62	-16.87	-15.13	29.13	40.87	47.86	46.00	56.00	0.03	0.24
3.90	-17.58	-15.77	28.42	40.23	46.01	46.00	56.00	0.03	0.23
3.93	-17.40	-15.81	28.60	40.19	47.30	46.00	56.00	0.03	0.23
4.26	-17.32	-16.02	28.68	39.98	47.61	46.00	56.00	0.03	0.22
4.34	-17.35	-16.09	28.65	39.91	45.55	46.00	56.00	0.03	0.22
4.42	-17.93	-16.33	28.07	39.67	46.77	46.00	56.00	0.03	0.21
4.52	-17.66	-16.24	28.34	39.76	45.29	46.00	56.00	0.03	0.21

Title: FCC 15.207 & 15.107 Class B
File: Conducted Pre-Neutral
Operator: Torey Oliver
EUT Type: Smart Water Flow Detector / 2GIG-WL00Z-1
EUT Condition: The EUT is in a normal operating state.
Comments: Temp: 73f
Hum: 43%
120V 60Hz

2/20/2016 11:31:19 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB P)



This is worst case mode.

Title: FCC 15.207 & 15.107 Class B
File: Conducted Final-Neutral
Operator: Torey Oliver
EUT Type: Smart Water Flow Detector / 2GIG-WL00Z-1
EUT Condition: The EUT is in a normal operating state.
Comments: Temp: 73f
Hum: 43%
120V 60Hz

2/20/2016 11:53:22 AM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (LAB P)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV	Transducer (dB)	Cable (dB)
0.15	-30.01	-10.76	25.77	55.02	64.00	55.78	65.78	0.43	0.19
0.17	-30.21	-10.83	24.75	54.13	62.67	54.96	64.96	0.38	0.23
0.19	-27.17	-12.38	27.04	51.83	60.55	54.21	64.21	0.34	0.27
0.20	-21.24	-12.26	32.29	51.26	58.28	53.53	63.53	0.30	0.30
0.21	-29.36	-13.85	23.69	49.20	58.43	53.05	63.05	0.27	0.28
0.23	-32.07	-14.42	20.38	48.03	56.75	52.45	62.45	0.24	0.25
0.25	-30.53	-14.34	21.36	47.55	56.10	51.89	61.89	0.21	0.23
0.26	-26.30	-15.54	25.20	45.96	55.16	51.50	61.50	0.18	0.22
0.27	-27.71	-15.65	23.28	45.35	53.47	51.00	61.00	0.16	0.20
0.29	-33.55	-16.50	16.98	44.03	52.40	50.52	60.52	0.13	0.18
0.30	-33.03	-17.06	17.15	43.13	53.15	50.19	60.19	0.11	0.17
0.32	-25.01	-16.23	24.75	43.53	52.36	49.76	59.76	0.09	0.15
0.33	-20.61	-14.84	28.75	44.51	51.31	49.35	59.35	0.06	0.13
0.35	-27.22	-17.24	21.75	41.73	50.94	48.96	58.96	0.04	0.12
0.36	-32.59	-17.47	16.09	41.22	49.44	48.68	58.68	0.04	0.11
0.38	-30.76	-18.69	17.56	39.63	47.54	48.32	58.32	0.03	0.09
0.39	-27.21	-18.74	20.77	39.24	50.35	47.98	57.98	0.03	0.08
0.41	-24.53	-16.60	23.12	41.05	48.28	47.65	57.65	0.03	0.06
0.42	-29.91	-19.67	17.50	37.74	48.38	47.41	57.41	0.03	0.06
0.44	-26.30	-17.10	20.80	40.00	48.67	47.10	57.10	0.03	0.04
0.45	-19.74	-13.61	27.06	43.20	48.30	46.80	56.80	0.03	0.03
0.47	-22.09	-15.60	24.50	40.98	47.16	46.58	56.58	0.03	0.02
0.50	-32.64	-22.97	13.39	33.06	44.61	46.03	56.03	0.03	0.00
0.60	-25.65	-20.43	20.35	35.57	41.50	46.00	56.00	0.03	0.00
0.15	-30.01	-10.76	25.77	55.02	64.00	55.78	65.78	0.43	0.19

This is worst case mode.

FUNDAMENTAL & HARMONICS

DATA SHEETS

FUNDAMENTAL FIELD STRENGTH

FCC 15.249

Company: Nortek
EUT: Smart Water Flow Detector
Model: WL00Z-1

Date: 2/6/16
Lab: P
Tested By: Torey Oliver

Compatible Electronics, Inc. FAC-3

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table	Tower	Comments
908.42	92.79	H	93.97	-1.18	QP	320.00	1.00	
908.42	85.92	V	93.97	-8.05	QP	360.00	1.69	
916.00	93.89	H	93.97	-0.08	QP	320.00	1.00	
916.00	87.03	V	93.97	-6.94	QP	360.00	1.63	

Test distance
3 meter

HARMONIC EMISSIONS LOW CHANNEL HORIZONTAL

FCC 15.249

Company: Nortek
Smart Water Flow
EUT: Detector
Model: WL00Z-1

Date: 2/16/2016
Lab: P
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8		H	73.98		Peak			No Emissions Found
1816.8		H	53.98		Avg			No Emissions Found
2725.3		H	73.98		Peak			No Emissions Found
2725.3		H	53.98		Avg			No Emissions Found
3633.7		H	73.98		Peak			No Emissions Found
3633.7		H	53.98		Avg			No Emissions Found
4542.1		H	73.98		Peak			No Emissions Found
4542.1		H	53.98		Avg			No Emissions Found
5450.5		H	73.98		Peak			No Emissions Found
5450.5		H	53.98		Avg			No Emissions Found
6358.9		H	73.98		Peak			No Emissions Found
6358.9		H	53.98		Avg			No Emissions Found
7267.4		H	73.98		Peak			No Emissions Found
7267.4		H	53.98		Avg			No Emissions Found
8175.8		H	73.98		Peak			No Emissions Found
8175.8		H	53.98		Avg			No Emissions Found
9084.2		H	73.98		Peak			No Emissions Found
9084.2		H	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS LOW CHANNEL VERTICAL

FCC 15.249

Company: Nortek Smart Water Flow
Date: 2/16/2016
EUT: Detector
Lab: P
Model: WL00Z-1
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8		V	73.98		Peak			No Emissions Found
1816.8		V	53.98		Avg			No Emissions Found
2725.3		V	73.98		Peak			No Emissions Found
2725.3		V	53.98		Avg			No Emissions Found
3633.7		V	73.98		Peak			No Emissions Found
3633.7		V	53.98		Avg			No Emissions Found
4542.1		V	73.98		Peak			No Emissions Found
4542.1		V	53.98		Avg			No Emissions Found
5450.5		V	73.98		Peak			No Emissions Found
5450.5		V	53.98		Avg			No Emissions Found
6358.9		V	73.98		Peak			No Emissions Found
6358.9		V	53.98		Avg			No Emissions Found
7267.4		V	73.98		Peak			No Emissions Found
7267.4		V	53.98		Avg			No Emissions Found
8175.8		V	73.98		Peak			No Emissions Found
8175.8		V	53.98		Avg			No Emissions Found
9084.2		V	73.98		Peak			No Emissions Found
9084.2		V	53.98		Avg			No Emissions Found

Test distance 3 meter

HARMONIC EMISSIONS HIGH CHANNEL HORIZONTAL

FCC 15.249

Company: Nortek
Smart Water Flow
EUT: Detector
Model: WL00Z-1

Date: 2/16/2016
Lab: P
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0		H	73.98		Peak			No Emissions Found
1832.0		H	53.98		Avg			No Emissions Found
2748.0		H	73.98		Peak			No Emissions Found
2748.0		H	53.98		Avg			No Emissions Found
3664.0		H	73.98		Peak			No Emissions Found
3664.0		H	53.98		Avg			No Emissions Found
4580.0		H	73.98		Peak			No Emissions Found
4580.0		H	53.98		Avg			No Emissions Found
5496.0		H	73.98		Peak			No Emissions Found
5496.0		H	53.98		Avg			No Emissions Found
6412.0		H	73.98		Peak			No Emissions Found
6412.0		H	53.98		Avg			No Emissions Found
7328.0		H	73.98		Peak			No Emissions Found
7328.0		H	53.98		Avg			No Emissions Found
8244.0		H	73.98		Peak			No Emissions Found
8244.0		H	53.98		Avg			No Emissions Found
9160.0		H	73.98		Peak			No Emissions Found
9160.0		H	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS HIGH CHANNEL VERTICAL

FCC 15.249

Company: Nortek
EUT: Smart Water Flow Detector
Model: WL00Z-1

Date: 2/16/2016
Lab: P
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0		V	73.98		Peak			No Emissions Found
1832.0		V	53.98		Avg			No Emissions Found
2748.0		V	73.98		Peak			No Emissions Found
2748.0		V	53.98		Avg			No Emissions Found
3664.0		V	73.98		Peak			No Emissions Found
3664.0		V	53.98		Avg			No Emissions Found
4580.0	46.65	V	73.98	-27.33	Peak	1.00	306	No Emissions Found
4580.0	39.55	V	53.98	-14.43	Avg	1.00	306	No Emissions Found
5496.0		V	73.98		Peak			No Emissions Found
5496.0		V	53.98		Avg			No Emissions Found
6412.0		V	73.98		Peak			No Emissions Found
6412.0		V	53.98		Avg			No Emissions Found
7328.0		V	73.98		Peak			No Emissions Found
7328.0		V	53.98		Avg			No Emissions Found
8244.0		V	73.98		Peak			No Emissions Found
8244.0		V	53.98		Avg			No Emissions Found
9160.0	58.84	V	73.98	-15.14	Peak	1.08	339	
9160.0	52.79	V	53.98	-1.19	Avg	1.08	339	

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND

DATA SHEETS

BAND EDGES LOW CHANNEL

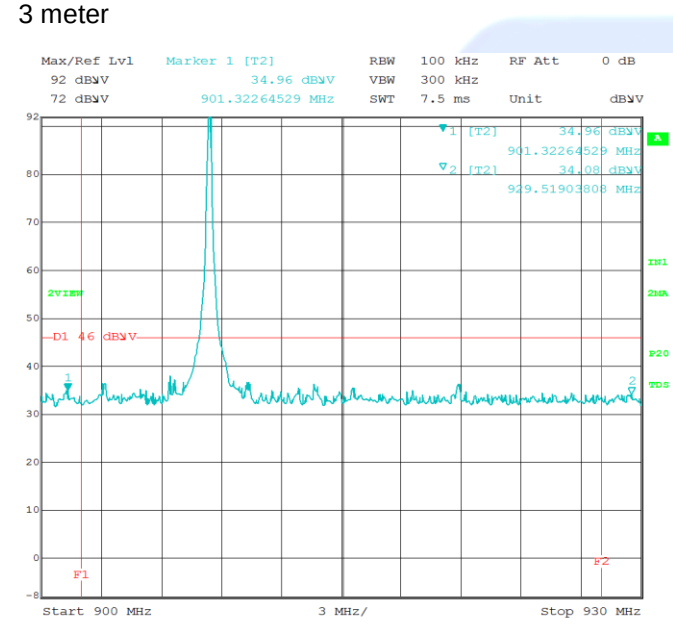
FCC 15.249

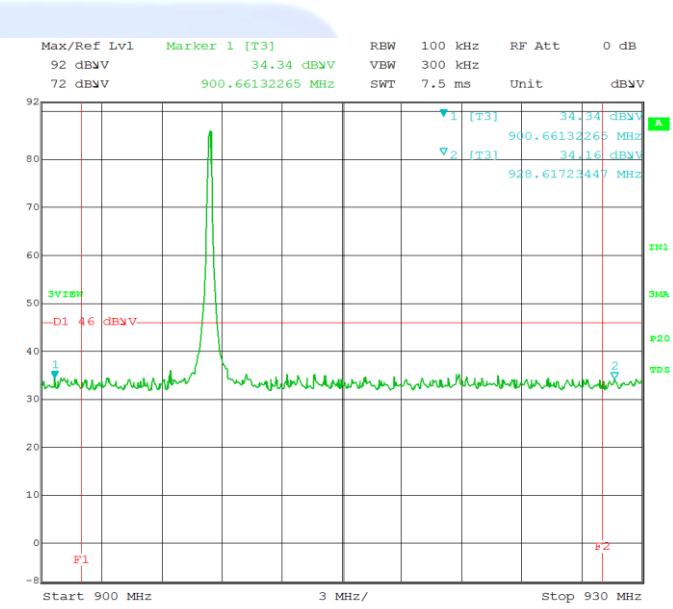
Company:	Nortek	Date:	2/16/2016
EUT:	Smart Water Flow Detector	Lab:	P
Model:	WL00Z-1	Test ENG:	Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Table Angle (Deg)	Tower Height (m)	Comments
901.32	34.96	H	46.00	-11.04	Peak	320	1	No Marker Delta
929.52	34.08	H	46.00	-11.92	Peak	320	1	Method Used
900.66	34.34	V	46.00	-11.66	Peak	360	1.69	No Marker Delta
928.62	34.16	V	46.00	-11.84	Peak	360	1.69	Method Used

Test distance
3 meter





BAND EDGES HIGH CHANNEL

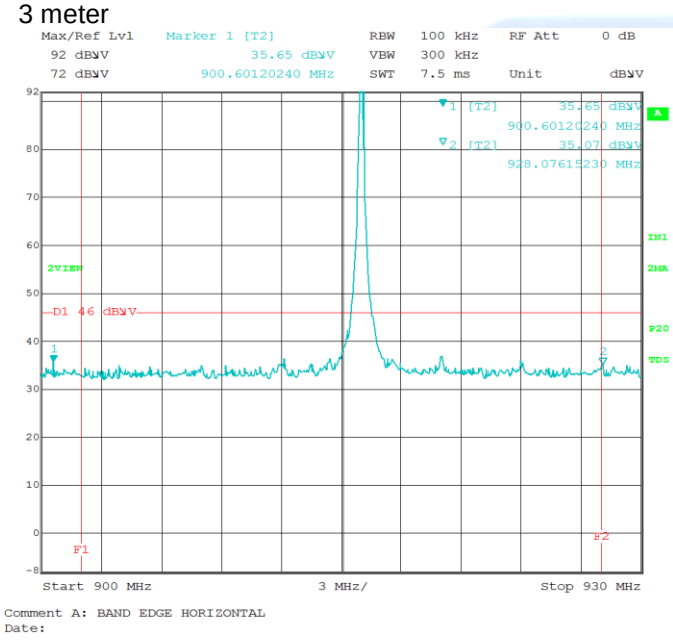
FCC 15.249

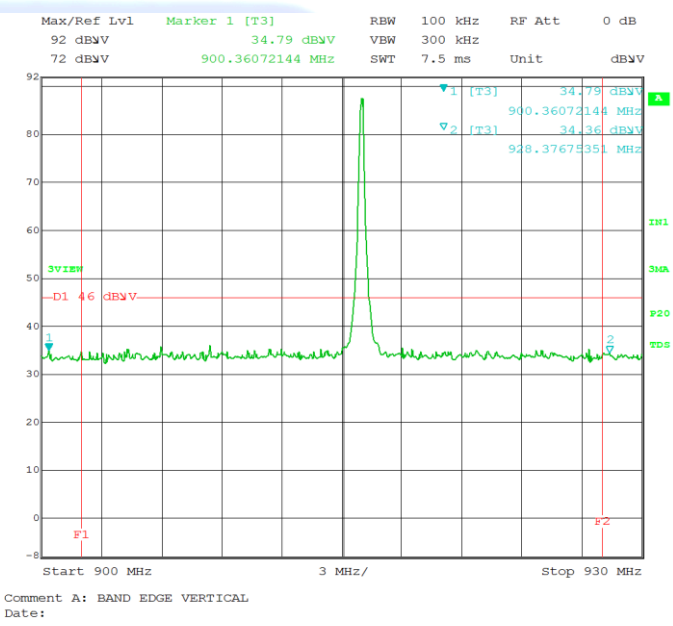
Company:	Nortek	Date:	2/16/2016
EUT:	Smart Water Flow Detector	Lab:	P
Model:	WL00Z-1	Test ENG:	Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Table Angle (Deg)	Tower Height (m)	Comments
900.60	35.55	H	46.00	-10.45	Peak	320	1	No Marker Delta
928.08	35.07	H	46.00	-10.93	Peak	320	1	Method Used
900.36	34.76	V	46.00	-11.21	Peak	360	1.63	No Marker Delta
928.37	34.36	V	46.00	-11.64	Peak	360	1.63	Method Used

Test distance
3 meter





OCCUPIED BANDWIDTH

DATA SHEETS

RSS 210

Company:	Nortek	Date:	2/16/2016
EUT:	Smart Water Flow Detector	Lab:	P
Model:	2GIG-WL00Z-1	Test ENG:	Torey Oliver

Freq. (MHz)	Bandwidth (kHz)	Comments
908.42	108.22	
916.00	132.26