FCC PART 15 SUBPART C SECTION 15.249
TEST REPORT

for

PLUGZ DIMMER
Model: PD300EMZ5-1

Prepared for

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

Prepared by:_____

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DATE: JUNE 20th, 2016

	REPORT BODY	APPENDICES					TOTAL
		A	*B*	*C*	*D*	*E*	
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1	Conducted Emissions Test Setup
2	Plot Map And Layout of Test Site Below 1GHz
3	Plot Map And Layout of Test Site Above 1GHz

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.

Devices Tested:	PlugZ Dimmer Model: PD300EMZ5-1 S/N: None
Product Description:	The PD300EMZ5-1 contains a Z-Wave 500 Series Module that supports Z-Wave Plus® features. A Z-Wave certified portable or stationary Controller can communicate with the Z-Wave 500 Series Module.
Modifications:	The EUT was not modified in order to comply with specifications.
Manufacturer:	Nortek Security & Control LLC 1950 Camino Vida Roble Suite 150 Carlsbad, CA 92008
Test Date:	June 13th & 20th, 2016
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart C Sections 15.205, 15.207, 15.209 and 15.249
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 C Section 15.207, & 15.249
2	Radiated RF Emissions & Harmonics, 9 kHz – 10,000 MHz.	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.205, 15.209, & 15.249
3	Fundamental Field Strength	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.249
4	Emissions Radiated Outside of the Fundamental Frequency Band	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.205, 15.209, & 15.249

SIX HIGHEST EMISSIONS

PlugZ Dimmer: PD300EMZ5-1

Frequency MHz	Corrected Reading* dBuV/m	Specification Limit dBuV/m	Delta (Cor. Reading – Spec. Limit) dB
908.42 H	93.00 #	93.97	-0.97
916.00 H	92.80 #	93.97	-1.17
901.32 H	42.39 #	46.00	-1.66
928.00 H	41.33 #	46.00	-4.67
908.42 V	88.49 #	93.97	-5.48
901.20 V	37.01 #	46.00	-6.54

Notes:

* The complete emissions data is given in Appendix E of this report.

** The factors for the antenna are attached in Appendix D of this report.

\# Quasi-Peak Reading

A Average Reading

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the PlugZ Dimmer Model: PD300EMZ5-1. 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 the Code of Federal Regulations Title 47, 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 LLC

Josh Hansen	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 June 13th, 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
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

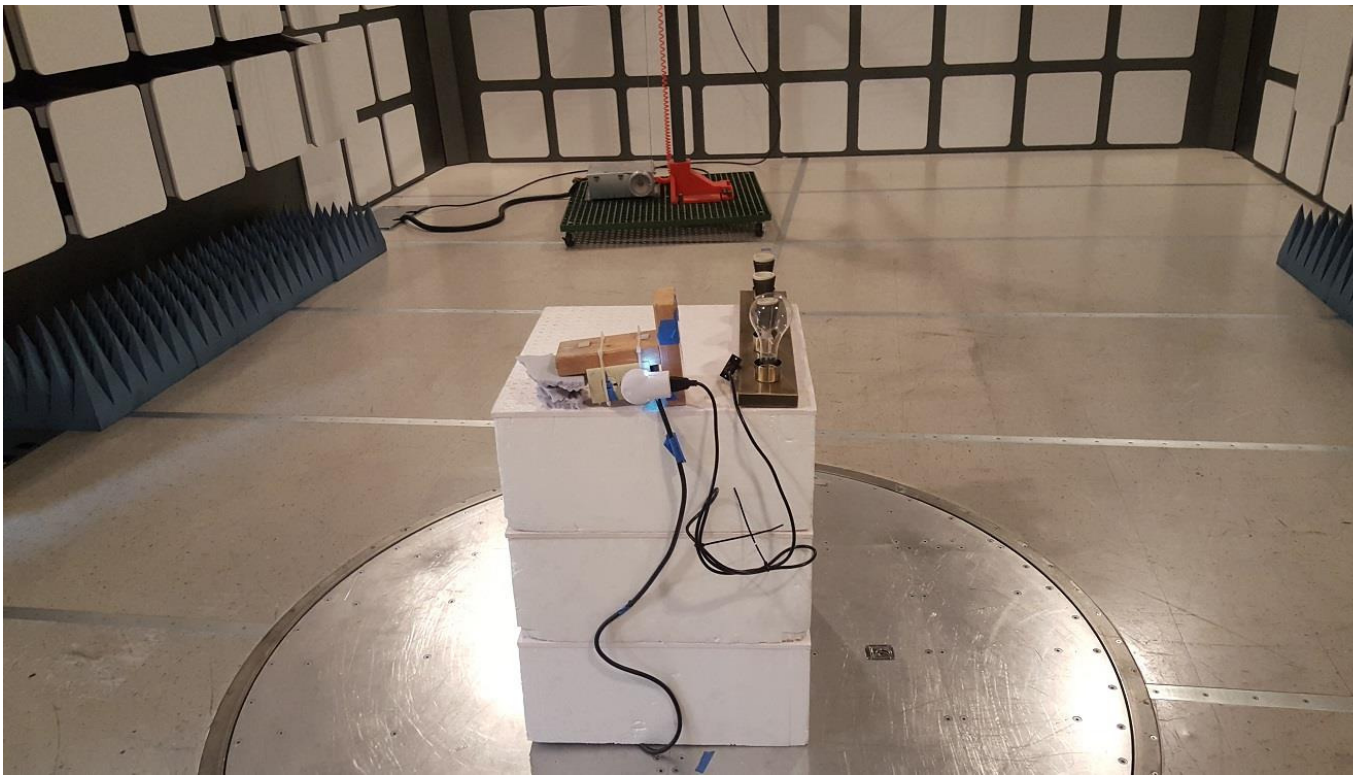
4.1 Description of Test Configuration

The PlugZ Dimmer Model: PD300EMZ5-1 (EUT) was setup in a test fixture to simulate a real life scenario use. The EUT was connected to a resistive load fixture. The EUT was checked in all three axis (X, Y, & Z) for the worst case. The worst case was found to be the Z-Axis. The EUT was continuously transmitting a data stream during transmit tests.

The EUTs power was varied +/- 15% and no changes in amplitude or frequency were found.

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 (Z Axis)



4.1.2 Cable Construction and Termination

Cable 1

This is a 1 meter, unshielded, IEC cable that connects the EUT to the resistive load fixture. The cable has a US plug at the EUT end and had a female IEC connector at the fixture end of the cable. The cable was in a 1 meter bundle.

Cable 2

This is a 1 meter, unshielded, IEC cable that connects the EUT to the AC mains. The cable was hardwired at the EUT end and had a male US plug connected to AC mains under the turntable via wall port. The cable was not bundled.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUTs and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	PLUGZ DIMMER (EUT)	NORTEK SECURITY & CONTROL LLC	PD300EMZ5-1	NONE
2	LAPTOP	LENOVO	W530	R9-WRFYR 13/01
3	LAPTOP POWER SUPPLY	LENOVO	45N0113	11S45M0113Z1ZHX82CB1M9
4	LIGHT FIXTURE	GENERIC	GENERIC	NONE
5	RESISTIVE LOAD (x3)	GENERIC	500W	NONE
6	LIGHT BULB	GENERIC	300W	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	09/03/2015	09/03/2016
Antenna, Loop	Com Power	AL-130	121049	12/06/2013	12/06/2016
Antenna, CombiLog	Com Power	AC-220	25857	05/19/2015	05/19/2017
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	07/01/2014	07/01/2016
Pre-Amp, 1-18GHz	Com Power	PAM-118	551034	08/25/2015	08/25/2016
Notch Filter	AMTI Microwave Circuits	N03019-01	3709-01 DC0415	01/06/2015	01/06/2017
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
LISN	Com-Power	LI-150	191935	5/19/2016	5/19/2017

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 EUTs were mounted on a on a table, which was placed on the ground plane. The height of the table was 0.8 meters below 1 GHz and 1.5 meters for testing done above 1 GHz.

The EUT was grounded through the AC power cable.

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 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 preset for all units.

1 == 908.4 MHz
2 == 916.0 MHz

7.2 Antenna

The antenna is made up of a wire connected 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 EUTs complies with the limits of CFR Title 47 Part 15 Subpart C sections 15.207.

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 was one Preamplifier used for frequencies above 1 GHz.

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

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

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
0.009 to .150	Active Loop Antenna	200 Hz
0.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz (120kHz for Quasi-Peak 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. 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 EUTs complies with the limits of CFR Title 47 Part 15 Subpart C sections 15.205, 15.209 and 15.249.

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 EUTs complies with Part 15 Subpart C, Section 15.249.

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 EUTs complies with Part 15 Subpart C, Section 15.205 & 15.249.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The PlugZ Dimmer Model: PD300EMZ5-1 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.207, 15.209 and 15.249.

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 EUTS

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	PLUGZ DIMMER Model: PD300EMZ5-1 S/N: None

No additional models were tested.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

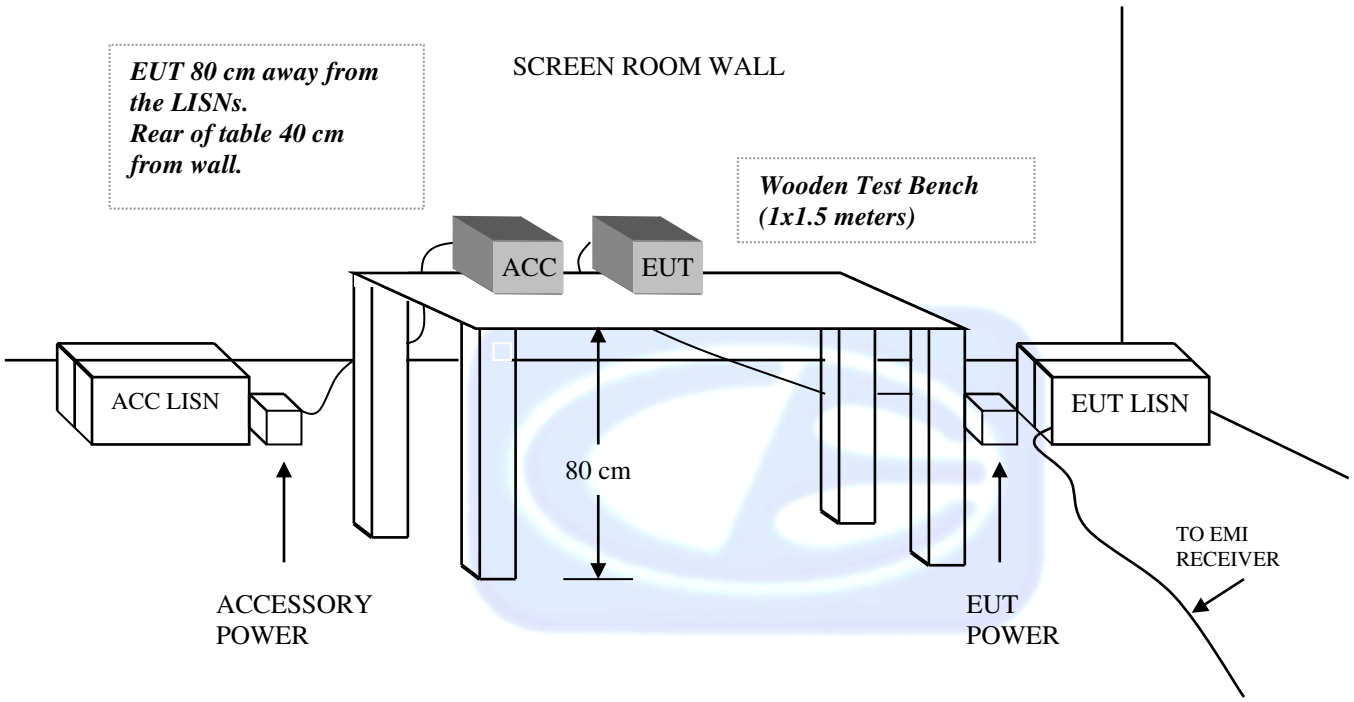


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

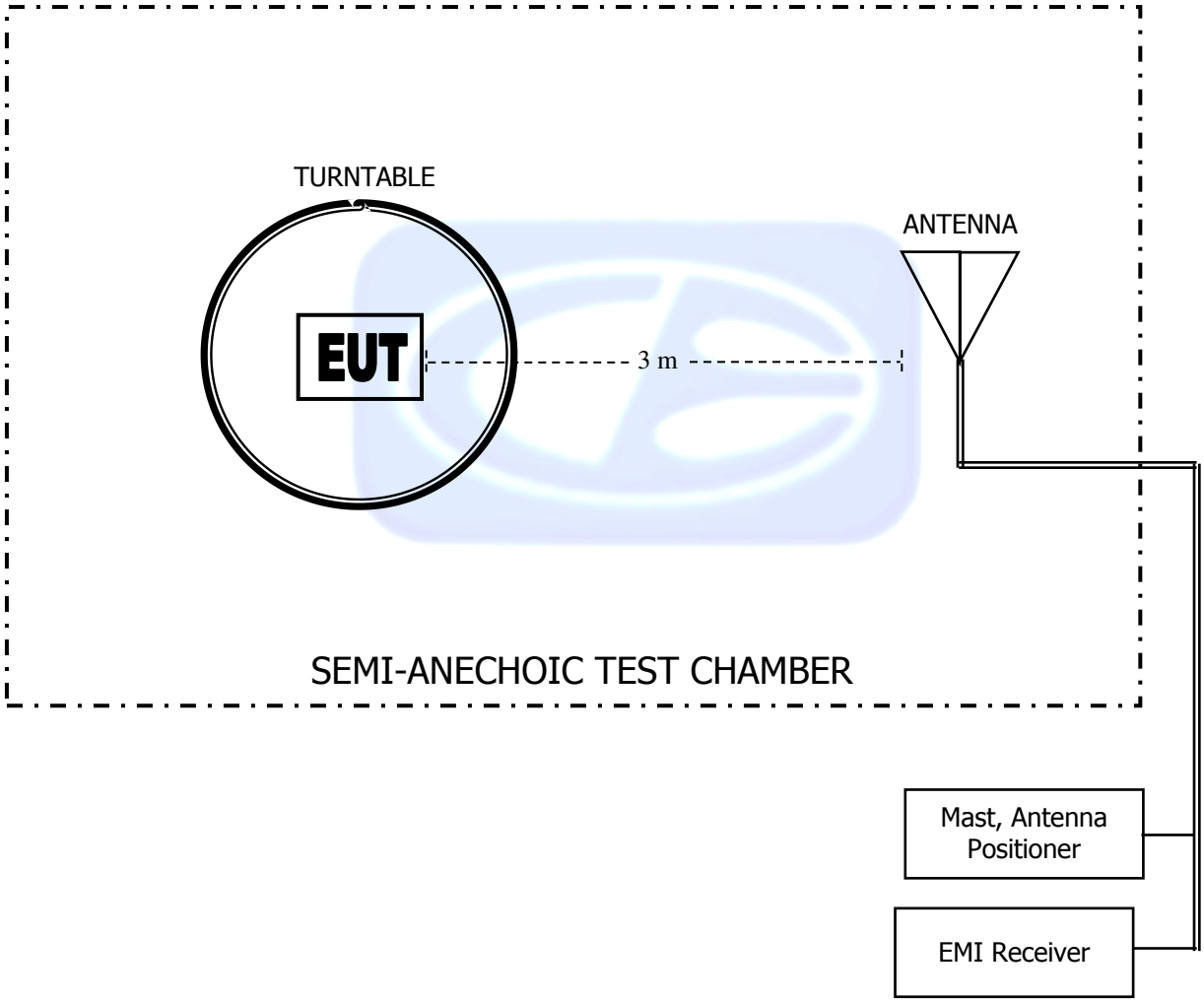
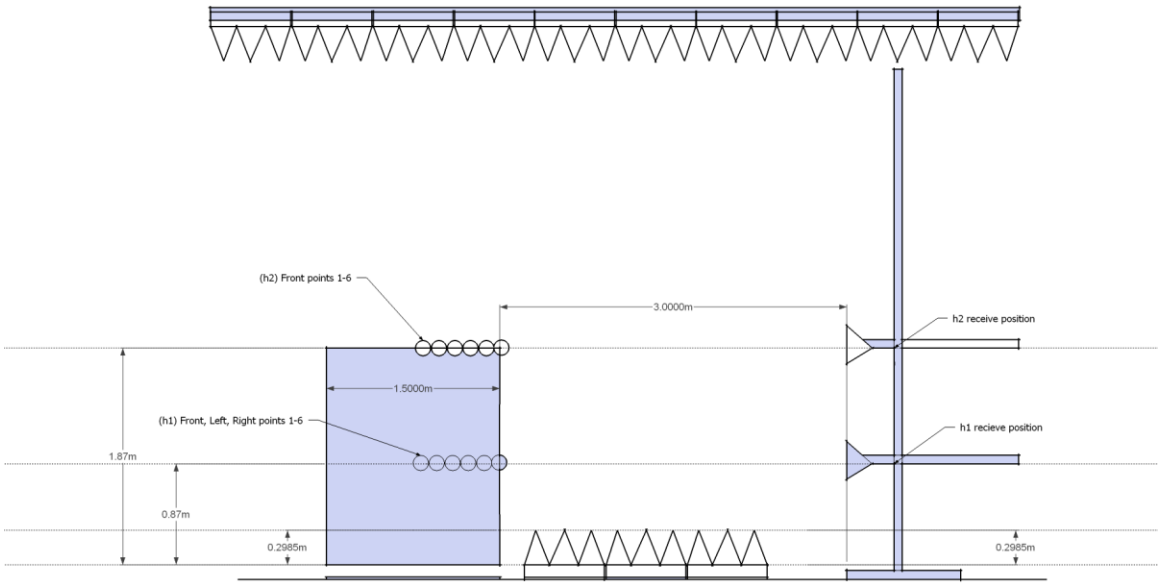


FIGURE 3: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



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 R - COMBILOG ANTENNA

S/N: 25857

CALIBRATION DUE: MAY 19, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.5	**160**	13.3
35	22.5	**180**	15.0
40	23.0	**200**	14.6
45	21.5	**250**	16.5
50	21.3	**300**	18.1
60	18.2	**400**	19.4
70	13.2	**500**	21.4
80	11.6	**600**	21.6
90	11.9	**700**	23.7
100	12.6	**800**	26.0
120	15.1	**900**	26.6
140	13.6	**1000**	28.5

COM-POWER AH-118

HORN ANTENNA

S/N: 071250

CALIBRATION DUE: JULY 1, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	30.1	**9500**	44.2
1500	29.2	**10000**	43.4
2000	31.6	**10500**	44.6
2500	35.5	**11000**	45.1
3000	33.7	**11500**	45.7
3500	36.0	**12000**	46.2
4000	35.4	**12500**	45.4
4500	35.5	**13000**	44.8
5000	40.1	**13500**	46.7
5500	37.8	**14000**	47.8
6000	39.0	**14500**	46.4
6500	39.9	**15000**	47.2
7000	40.4	**15500**	45.5
7500	44.4	**16000**	45.0
8000	44.1	**16500**	44.5
8500	43.1	**17000**	47.0
9000	43.0	**17500**	47.8
		18000	44.2

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 551034

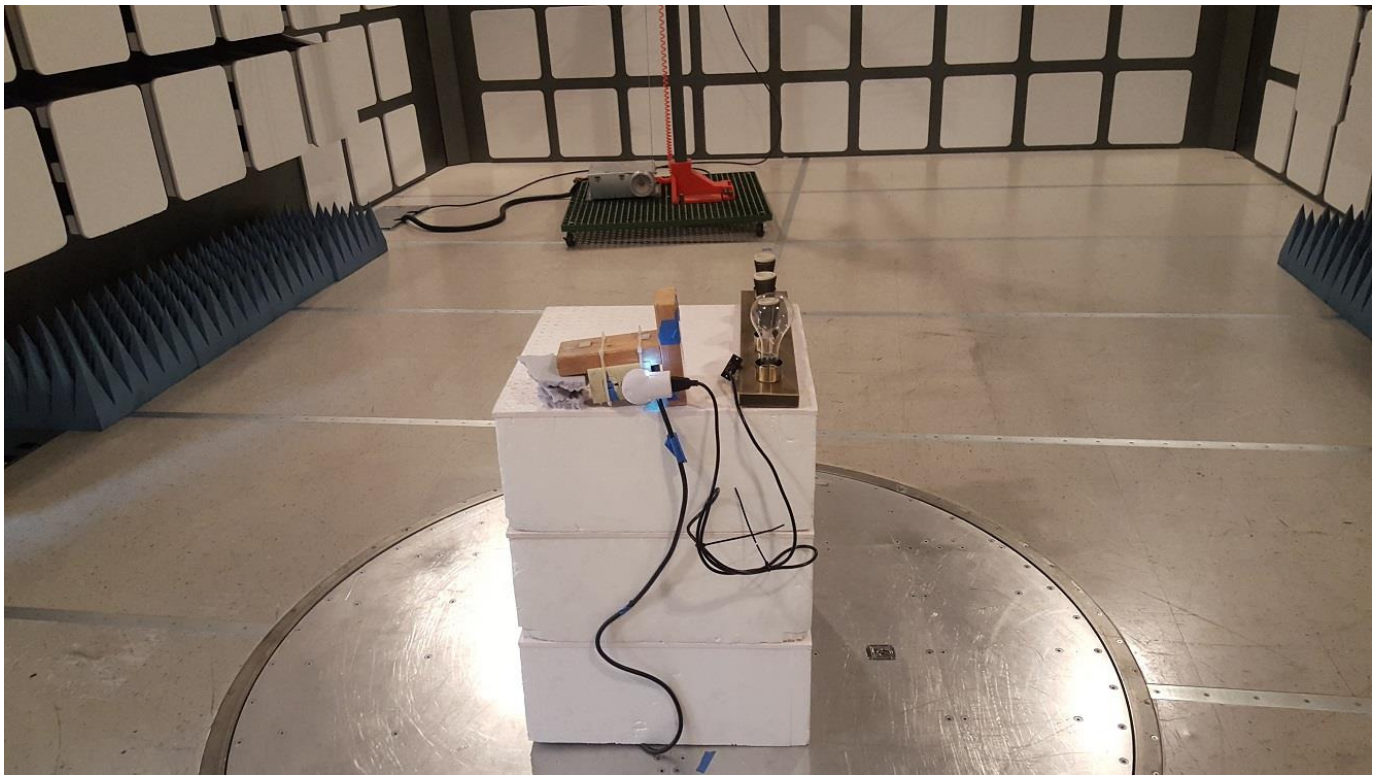
CALIBRATION DUE: August 25, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	26.2	**5500**	25.3
1000	25.6	**6000**	25.0
1100	25.9	**6500**	24.7
1200	25.9	**7000**	23.6
1300	26.3	**7500**	23.3
1400	26.5	**8000**	23.7
1500	26.3	**8500**	24.0
1600	26.1	**9000**	24.3
1700	26.2	**9500**	24.1
1800	26.3	**10000**	23.7
1900	25.8	**11000**	24.2
2000	26.0	**12000**	23.2
2500	26.0	**13000**	22.8
3000	25.8	**14000**	22.6
3500	25.9	**15000**	22.9
4000	26.4	**16000**	22.3
4500	26.0	**17000**	22.6
5000	25.6	**18000**	23.9

FRONT VIEW

NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

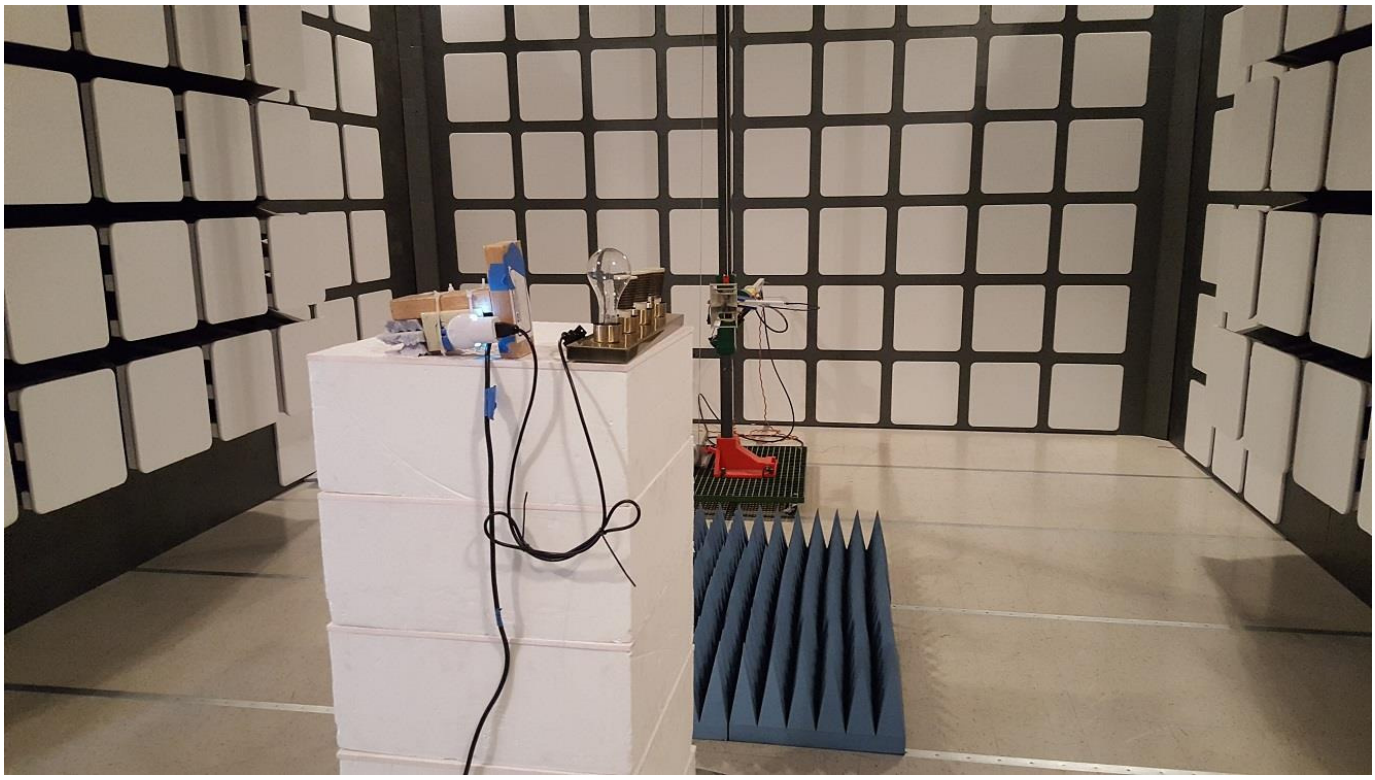
NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

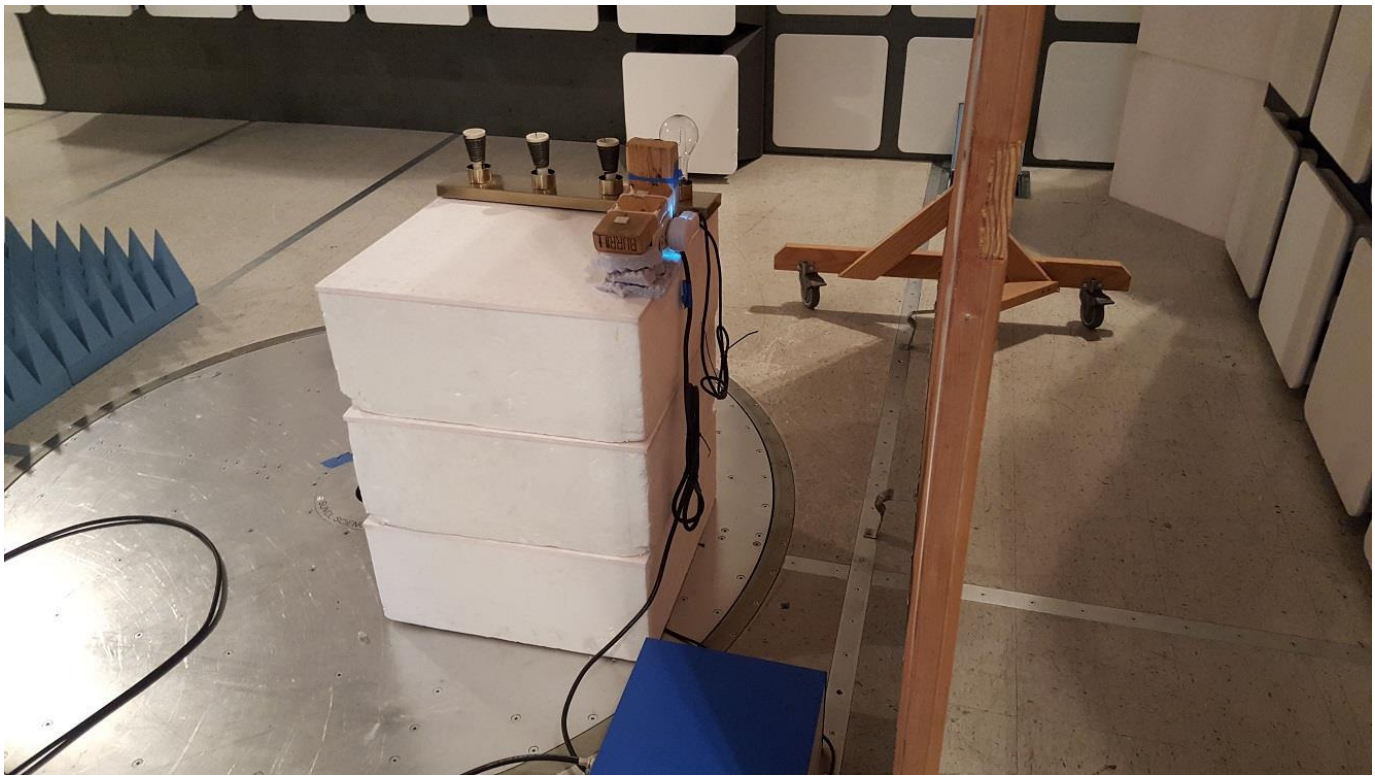
NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C – CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

NORTEK SECURITY & CONTROL LLC
PLUGZ DIMMER
MODEL: PD300EMZ5-1
FCC SUBPART C – CONDUCTED EMISSIONS

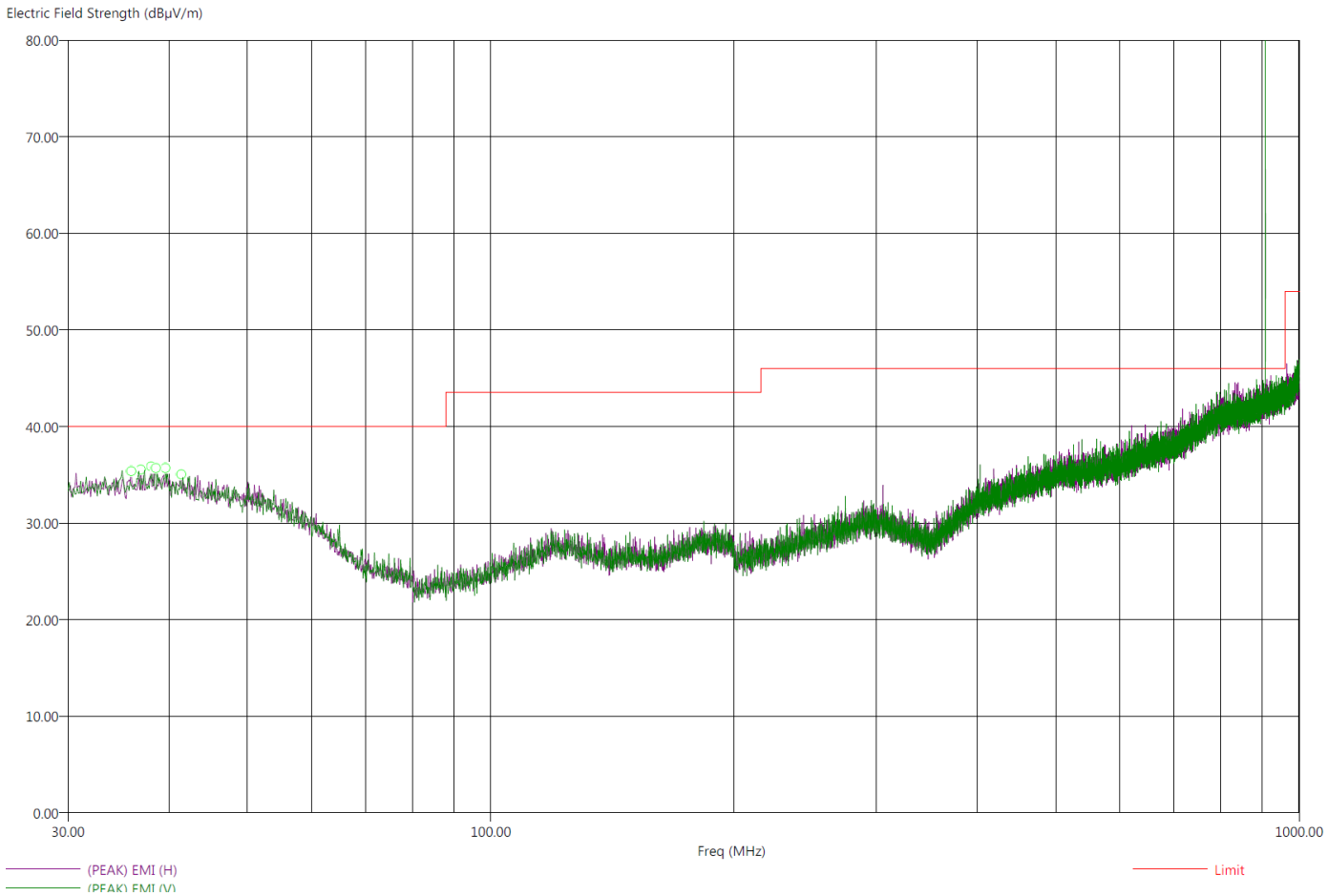
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209 6/15/2016 1:23:35 PM
File: Radiated Pre-Scan 30-1000Mhz Tx 908.42MHz.set Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: Plug Z Dimmer / PD300EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

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



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

Title: FCC 15.209 6/15/2016 1:50:19 PM
File: Radiated Final-Scan 30-1000Mhz Tx 908.42MHz.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: Plug Z Dimmer / PD300EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz.
Comments: Temp: 71f
Hum: 41%
120V 60Hz

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

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)
35.90	-20.47	19.53	25.46	40.00	H	228.00	334.20	22.59	0.56
36.90	-20.36	19.64	24.78	40.00	H	360.00	293.55	22.69	0.57
38.00	-20.18	19.82	25.26	40.00	H	321.75	218.38	22.80	0.58
38.50	-20.09	19.91	25.66	40.00	V	284.00	192.17	22.88	0.59
39.60	-19.93	20.07	26.16	40.00	V	224.00	155.88	22.96	0.60
41.40	-20.16	19.84	25.08	40.00	H	320.75	201.01	22.58	0.61

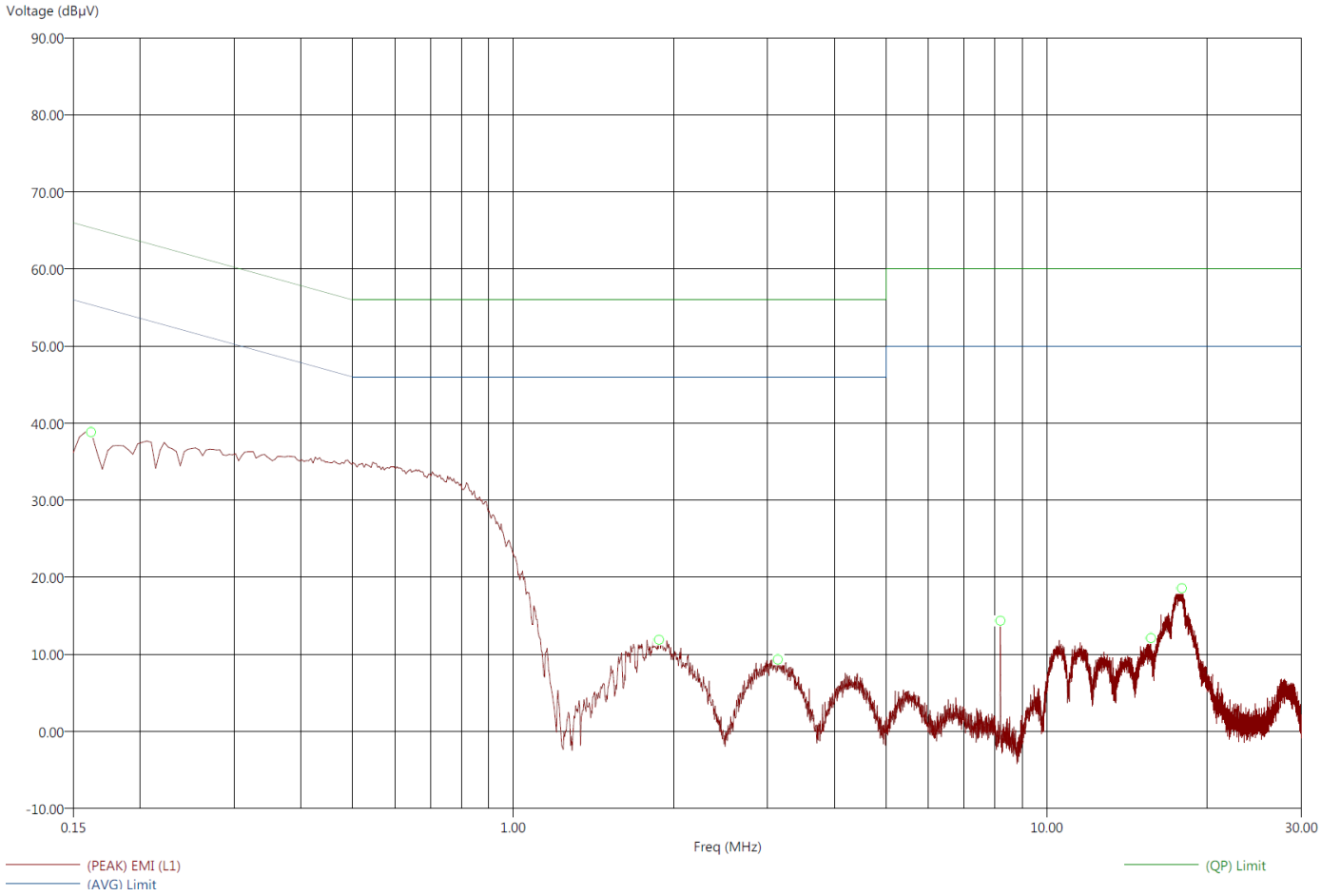
There were no radiated spurious emissions other than harmonics found below 30 MHz or above 1GHz.
This is the worst case operating mode.

CONDUCTED EMISSIONS DATA SHEETS

Title: FCC 15.207
File: Conducted Pre-Line 120V.set
Operator: Torey Oliver
EUT Type: PlugZ Dimmer / PD300EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz
Comments: Temp: 74f
Hum: 33%
120V 60Hz

6/20/2016 5:00:27 PM
Sequence: Preliminary Scan

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



This is the worst case operating mode.

Title: FCC 15.207 6/20/2016 5:37:07 PM
File: Conducted Final-Line 120V.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: PlugZ Dimmer / PD300EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

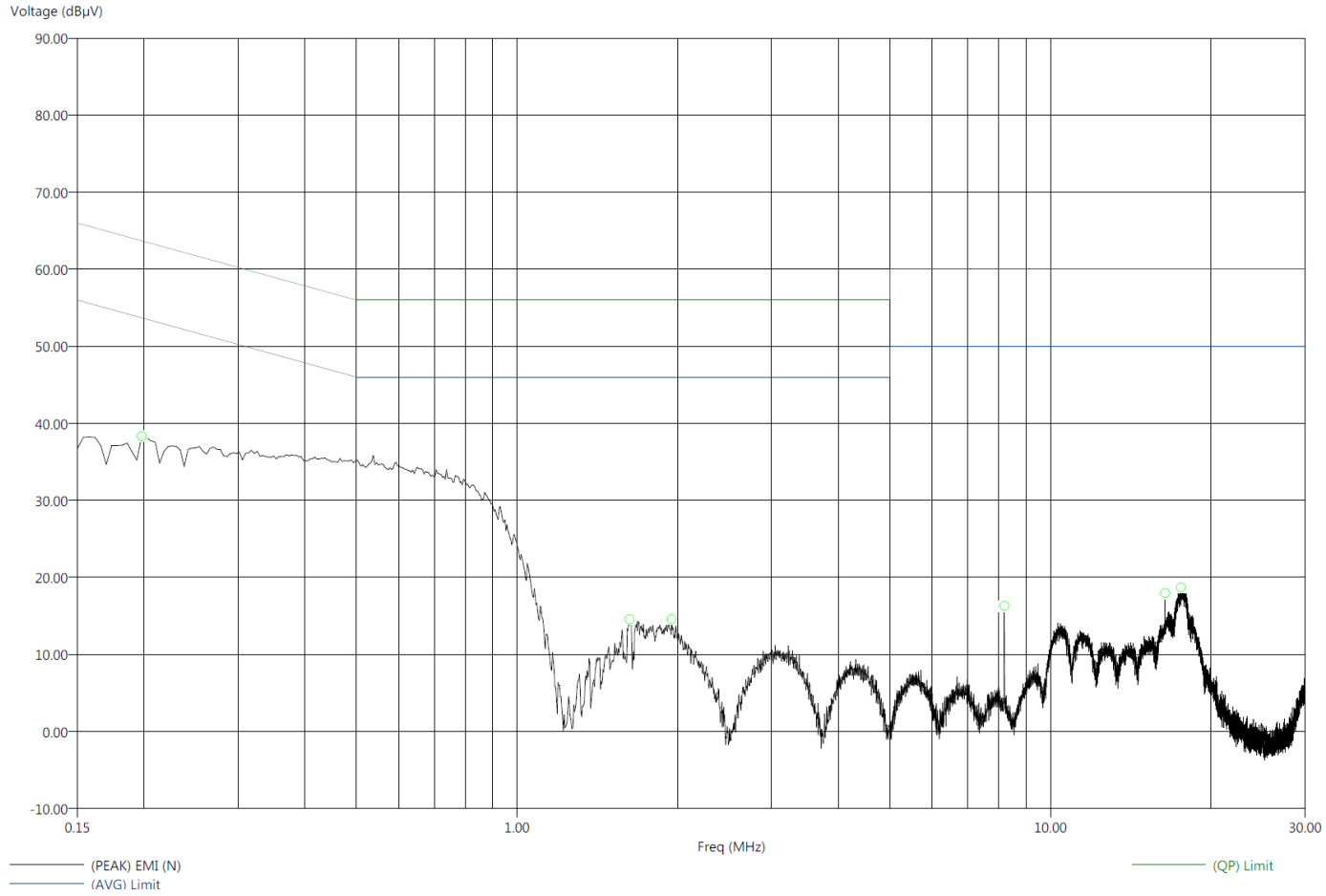
Compatible Electronics, Inc. FAC-3 (Lab R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(Peak) EMI (dBµV/m)	(AVG) Limit (dBµV/m)	(QP) Limit (dBµV/m)	Transducer(dB)	Cable(dB)
0.16	-21.64	-27.98	33.72	37.38	39.01	55.36	65.36	0.41	0.03
1.88	-40.74	-47.17	5.26	8.83	13.44	46.00	56.00	0.04	0.03
3.14	-43.49	-49.88	2.51	6.12	10.68	46.00	56.00	0.04	0.05
8.19	-38.00	-47.06	12.00	12.94	15.34	50.00	60.00	0.02	0.22
15.68	-50.67	-53.86	-0.67	6.14	11.91	50.00	60.00	0.11	0.22
17.91	-41.62	-44.95	8.38	15.05	18.42	50.00	60.00	0.15	0.21

This is the worst case operating mode.

Title: FCC 15.207 6/20/2016 5:44:21 PM
File: Conducted Pre-Neutral 120V.set Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: PlugZ Dimmer / PD300EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

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



This is the worst case operating mode.

Title: FCC 15.207 6/20/2016 5:46:38 PM
File: Conducted Final-Neutral 120V.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: PlugZ Switch / PS15EMZ5-1
EUT Condition: The EUT is constantly transmitting 908.42MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

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

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(Peak) EMI (dBµV/m)	(AVG) Limit (dBµV/m)	(QP) Limit (dBµV/m)	Transducer(dB)	Cable(dB)
0.20	-11.72	-16.65	41.97	47.04	52.87	53.69	63.69	0.31	0.04
1.63	-13.68	-20.67	32.32	35.33	43.89	46.00	56.00	0.03	0.03
1.95	-13.53	-19.92	32.47	36.08	43.09	46.00	56.00	0.03	0.03
8.19	-16.01	-22.42	33.99	37.58	45.10	50.00	60.00	0.01	0.22
16.39	-15.98	-22.37	34.02	37.63	45.91	50.00	60.00	0.06	0.22
17.59	-15.90	-22.36	34.10	37.64	45.68	50.00	60.00	0.07	0.21

This is the worst case operating mode.

FUNDAMENTAL DATA SHEETS

FUNDAMENTAL FIELD STRENGTH

FCC 15.249

Company: Nortek
EUT: PlugZ Dimmer
Model: PD300EMZ5-1

Date: 6/13/2016
Lab: R
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	95.46	H	113.97	-18.51	Peak	352	1.86	Z Axis
908.42	93.00	H	93.97	-0.97	QP	352	1.86	Z Axis
908.42	92.20	V	113.97	-21.77	Peak	250	1.03	Z Axis
908.42	88.49	V	93.97	-5.48	QP	250	1.03	Z Axis
916.00	95.65	H	113.97	-18.32	Peak	343	1.85	Z-Axis
916.00	92.80	H	93.97	-1.17	QP	343	1.85	Z-Axis
916.00	90.30	V	113.97	-23.67	Peak	240	1.30	Z-Axis
916.00	85.19	V	93.97	-8.78	QP	240	1.30	Z-Axis

Test distance 3 meter

HARMONIC DATA SHEETS

1

HARMONIC EMISSIONS LOW CHANNEL HORIZONTAL

FCC 15.249

Company: Nortek
EUT: Plug Z Dimmer
Model: PD300Z5-1

Date: 6/20/2016
Lab: R
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8		H	73.98		Peak			No emission found
1816.8		H	53.98		Avg			No emission found
2725.3		H	73.98		Peak			No emission found
2725.3		H	53.98		Avg			No emission found
3633.7		H	73.98		Peak			No emission found
3633.7		H	53.98		Avg			No emission found
4542.1	50.81	H	73.98	-23.17	Peak	1.47	220	
4542.1	41.49	H	53.98	-12.49	Avg	1.47	220	
5450.5		H	73.98		Peak			No emission found
5450.5		H	53.98		Avg			No emission found
6358.9	53.75	H	73.98	-20.23	Peak	1.58	196	
6358.9	39.32	H	53.98	-14.66	Avg	1.58	196	
7267.4	53.67	H	73.98	-20.31	Peak	1.63	147	
7267.4	38.50	H	53.98	-15.48	Avg	1.63	147	
8175.8	50.60	H	73.98	-23.38	Peak	1.17	240	
8175.8	38.00	H	53.98	-15.98	Avg	1.17	240	
9084.2		H	73.98		Peak			No emission found
9084.2		H	53.98		Avg			No emission found

Test distance
3 meter

HARMONIC EMISSIONS LOW CHANNEL VERTICAL

FCC 15.249

Company: Nortek
EUT: Plug Z Dimmer
Model: PD300Z5-1

Date: 6/20/2016
Lab: R
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8		V	73.98		Peak			No emission found
1816.8		V	53.98		Avg			No emission found
2725.3		V	73.98		Peak			No emission found
2725.3		V	53.98		Avg			No emission found
3633.7		V	73.98		Peak			No emission found
3633.7		V	53.98		Avg			No emission found
4542.1	41.49	V	73.98	-32.49	Peak	1.41	321	
4542.1	29.05	V	53.98	-24.93	Avg	1.41	321	
5450.5		V	73.98		Peak			No emission found
5450.5		V	53.98		Avg			No emission found
6358.9	52.21	V	73.98	-21.77	Peak	1.25	171	
6358.9	37.73	V	53.98	-16.25	Avg	1.25	171	
7267.4		V	73.98		Peak			No emission found
7267.4		V	53.98		Avg			No emission found
8175.8		V	73.98		Peak			No emission found
8175.8		V	53.98		Avg			No emission found
9084.2		V	73.98		Peak			No emission found
9084.2		V	53.98		Avg			No emission found

Test distance
3 meter

HARMONIC EMISSIONS HIGH CHANNEL HORIZONTAL

FCC 15.249

Company: Nortek
EUT: Plug Z Dimmer
Model: PD300Z5-1

Date: 6/20/2016
Lab: R
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0		H	73.98		Peak			No emission found
1832.0		H	53.98		Avg			No emission found
2748.0		H	73.98		Peak			No emission found
2748.0		H	53.98		Avg			No emission found
3664.0		H	73.98		Peak			No emission found
3664.0		H	53.98		Avg			No emission found
4580.0	50.05	H	73.98	-23.93	Peak	1.72	223	
4580.0	32.42	H	53.98	-21.56	Avg	1.72	223	
5496.0		H	73.98		Peak			No emission found
5496.0		H	53.98		Avg			No emission found
6412.0	46.06	H	73.98	-27.92	Peak	1.63	198	
6412.0	33.82	H	53.98	-20.16	Avg	1.63	198	
7328.0	49.79	H	73.98	-24.19	Peak	1.31	360	
7328.0	36.32	H	53.98	-17.66	Avg	1.31	360	
8244.0		H	73.98		Peak			No emission found
8244.0		H	53.98		Avg			No emission found
9160.0		H	73.98		Peak			No emission found
9160.0		H	53.98		Avg			No emission found

Test distance
3 meter

HARMONIC EMISSIONS HIGH CHANNEL VERTICAL

FCC 15.249

Company: Nortek
EUT: Plug Z Dimmer
Model: PD300Z5-1

Date: 6/20/2016
Lab: R
Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0		V	73.98		Peak			No emission found
1832.0		V	53.98		Avg			No emission found
2748.0		V	73.98		Peak			No emission found
2748.0		V	53.98		Avg			No emission found
3664.0		V	73.98		Peak			No emission found
3664.0		V	53.98		Avg			No emissions found
4580.0	48.38	V	73.98	-25.60	Peak	3.85	297	
4580.0	31.41	V	53.98	-22.57	Avg	3.85	297	
5496.0		V	73.98		Peak			No emission found
5496.0		V	53.98		Avg			No emission found
6412.0	52.02	V	73.98	-21.96	Peak	1.13	222	
6412.0	34.86	V	53.98	-19.12	Avg	1.13	222	
7328.0		V	73.98		Peak			No emission found
7328.0		V	53.98		Avg			No emission found
8244.0	50.98	V	73.98	-23.00	Peak	1.20	176	
8244.0	38.27	V	53.98	-15.71	Avg	1.20	176	
9160.0		V	73.98		Peak			
9160.0		V	53.98		Avg			No emissions found

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND
DATA SHEETS

BAND EDGE LOW CHANNEL

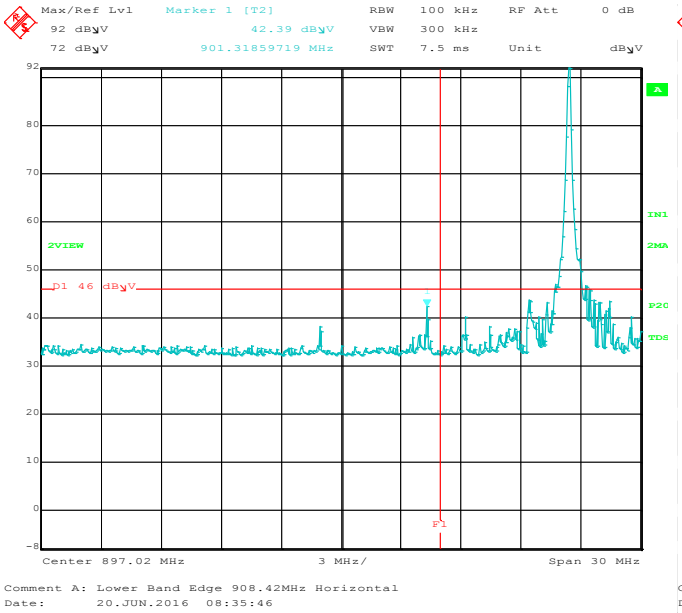
FCC 15.249

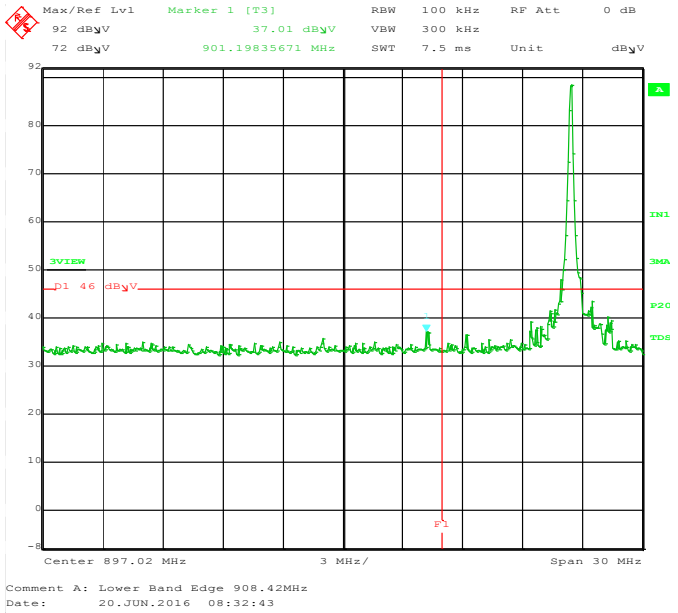
Company:	Nortek	Date:	6/20/2016
EUT:	Plug Z Dimmer	Lab:	R
Model:	PD300Z5-1	Test ENG:	Torey Oliver

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

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Table Angle (Deg)	Tower Height (m)	Comments
901.32	42.39	H	46.00	-1.66	Peak	352	1.86	No Marker Delta
901.32	--	H	--	--	QP	--	--	Method Used
901.20	37.01	V	46.00	-6.54	Peak	250	1.03	No Marker Delta
901.20	--	V	--	--	QP	--	--	Method Used

Test distance
3 meter





BAND EDGE HIGH CHANNEL

FCC 15.249

Company:	Nortek	Date:	6/20/2016
EUT:	Plug Z Dimmer	Lab:	R
Model:	PD300Z5-1	Test ENG:	Torey Oliver

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

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Table Angle (Deg)	Tower Height (m)	Comments
928.00	41.33	H	46.00	-4.67	Peak	343	1.85	No Marker Delta
928.00	--	H	--	--	QP	--	--	Method Used
928.03	37.00	V	46.00	-9.00	Peak	180	1.32	No Marker Delta
928.03	--	V	--	--	QP	--	--	Method Used

Test distance
3 meter