

**FCC PART 15 SUBPART B & SUBPART C SECTION 15.249, RSS 210 and RSS GEN  
TEST REPORT**

*for*

**GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345**

Prepared for

NORTEK SECURITY & CONTROL  
5919 SEA OTTER PLACE STE. 100  
CARLSBAD, CA 92010

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DATE: NOVEMBER 12<sup>th</sup>, 2018

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	17	2	2	2	14	17	54

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## GENERAL REPORT SUMMARY

This electromagnetic emission 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 except in full, without the written permission of Compatible Electronics.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: Go Control Security Panel  
Model: 2GIG-GC2E-345

Product Description: The Go Control Security Panel (2GIG-GC2E-345) is an AC powered security panel equipped with battery backup. The security panel is designed to receive 345MHz wireless transmissions from intrusion security and life safety sensors installed at the installed location. It additionally has capabilities of acting as a Z-Wave hub for the purpose of home automation.

Modifications: The EUT was not modified during the testing.

Manufacturer: Nortek Security & Control  
5919 Sea Otter Place STE. 100  
Carlsbad, CA 92010

Test Date: November 9<sup>th</sup> & 12<sup>th</sup>, 2018

Test Specifications Covered by Accreditation:



## EMI requirements

CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, Subpart C Sections 15.205, 15.207, 15.209, 15.249, RSS 210, and RSS Gen

Test Procedure: ANSI C63.4 & C63.10



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## SUMMARY OF TEST RESULTS

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



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**1. PURPOSE**

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Go Control Security Panel Model: 2GIG-GC2E-345. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10. 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-210, RSS-GEN, 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.



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## 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

Josh Hansen	Regulatory & Compliance Engineering Manager
David Shepard	Regulatory Compliance Engineer

Compatible Electronics, Inc.

Jeff Klinger	Director EMC Engineering
Matt Harrison	Lab Manager
Sam Kerckhoff	Test Technician

### 2.4 Date Test Sample was Received

The test sample was received on November 9<sup>th</sup>, 2018.

### 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 EUT was set up in a tabletop configuration. The EUT was constantly transmitting at 908MHz and 916MHz and the 345MHz receiver continuously receiving. The approved cellular radio module 2GIG-GC2E-345 was in standby mode (constantly scanning for cellular network). The EUT's were connected to their power supply via barrel connector. This mode was found to be the worst case.

The highest emissions were found when the EUT was running in the above configuration. The cables were moved to maximize the emissions. The final radiated and conducted data was taken in this mode of operation. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. The cables were and routed as shown in the photographs in Appendix D.

#### 4.1.1 Photograph Test Configuration



#### 4.1.2 *Cable Construction and Termination*

##### Cable 1

This is 2.5-meter (1.0-meter bundled), unshielded, cable that connects the EUT to the EUT PSU. The cable is connected to the EUT via a barrel and to the EUT PSU via a hard-wired connection.



**5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT****5.1 EUT and Accessory List**

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	GO CONTROL SECURITY PANEL	NORTEK SECURITY & CONTROL, LLC.	2GIG-GC2E-345	1852020009972038
2	CELLULAR RADIO MODULE	NORTEK SECURITY & CONTROL, LLC.	2GIG-LTEV1-A-GC2 FCC ID: RI7LE910SVL IC: 5131A-LE910SVL IMEI: 35365007-4496451	1816020007676187
3	EUT PSU	HON-KWANK	HK-AX-140A170-CP	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	100172	3/5/2018	3/5/2019
Antenna, CombiLog	Com Power	AC-220	061105	3/12/2018	3/12/2019
Antenna, Horn	Com Power	AH-118	071225	7/5/2018	7/5/2019
Antenna, Loop	Com Power	AL-130	121049	02/09/2017	02/09/2019
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551033	05/16/2017	05/16/2019
LISN	Com Power	LI-215	191944	6/27/2018	6/27/2019
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
Variable Power Supply	Chroma	61511	615114800078	4/9/2018	4/9/2019



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## 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 1.0 by 1.5 by 0.8-meter-high non-conductive table for below 1GHz which was placed on the ground plane. For above 1 GHz the EUT was mounted 1.5 meters high.

The EUT was grounded thru the power cord.

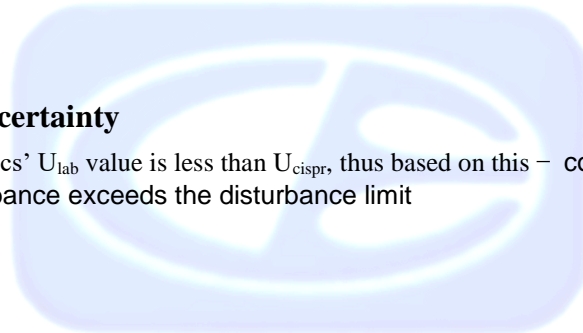
### 6.3 Facility Environmental Characteristics

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

### 6.4 Measurement Uncertainty

“Compatible Electronics’  $U_{lab}$  value is less than  $U_{cispr}$ , thus based on this – compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 u^2(x_i)}$$



Measurement		$U_{cispr}$	$U_{lab} = 2 u_c(y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	4,0 dB	2.88
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	5,2 dB	4.04



## 7. CHARACTERISTICS OF THE TRANSMITTER

### 7.1 Channel Number and Frequencies

The EUT was programmed to be in the Z-Wave mode. There are 2 operating channels

1 == 908.4 MHz

2 == 916.0 MHz

### 7.2 Antenna

The antenna is made up of a wire located on the PCB.

### 7.3 Software

FIRMWARE v1.21



## 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*

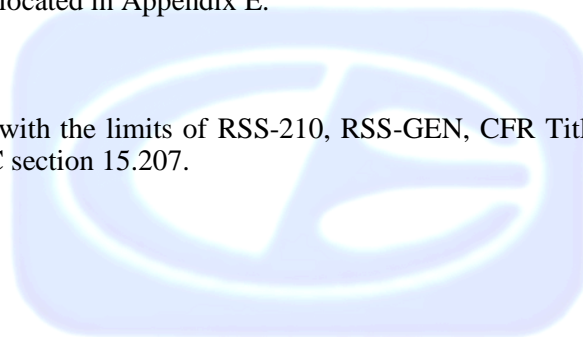
The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for 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 C63.4. 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 RSS-210, RSS-GEN, CFR Title 47 Part 15 Subpart B section 15.107, & Subpart C section 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 Microwave Preamplifier 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 RSS-210, RSS-GEN, CFR Title 47 Part 15 Subpart B section 15.109, & 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 EUT complies with RSS-210 & 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 EUT complies with RSS-210 & 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 Go Control Security Panel Model: 2GIG-GC2E-345 meets all of the relevant specification requirements defined in RSS-210, RSS-GEN, and 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 and 15.249.



**APPENDIX A**

***LABORATORY ACCREDITATIONS AND  
RECOGNITIONS***



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## LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

**For the most up-to-date version of our scopes and certificates please visit**

**<http://celectronics.com/quality/scope/>**

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

IC OAT's Test Site Registration Number: 2154C-1



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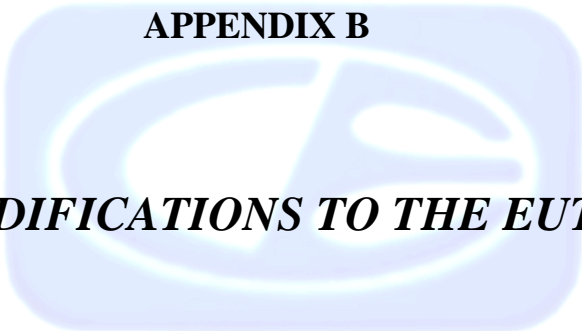
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**APPENDIX B**



***MODIFICATIONS TO THE EUT***



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## MODIFICATIONS TO THE EUT

There were no modifications were made during testing.



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**APPENDIX C**

***ADDITIONAL MODELS COVERED  
UNDER THIS REPORT***



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## ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Go Control Security Panel  
Model: 2GIG-GC2E-345

No additional models were tested.



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**APPENDIX D**

***DIAGRAMS, CHARTS, AND PHOTOS***



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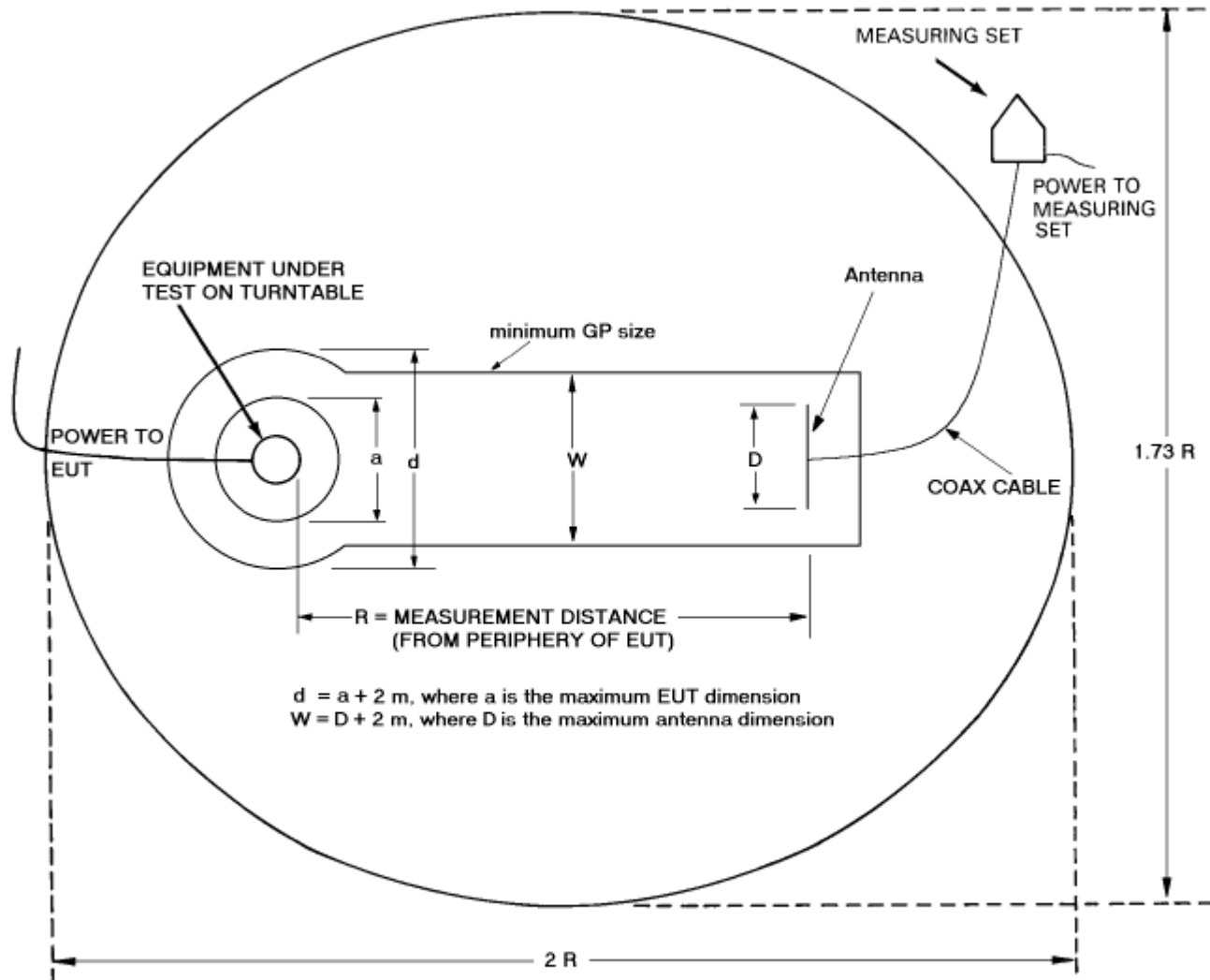
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## FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

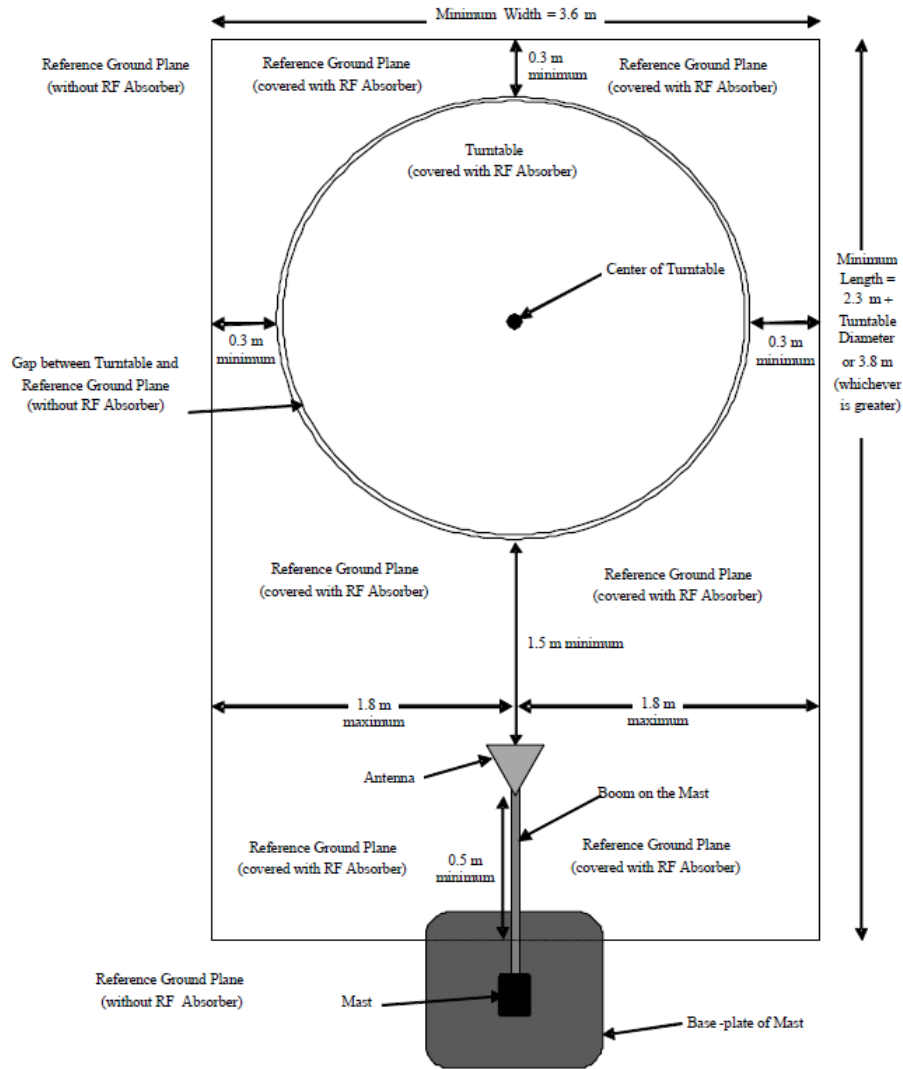


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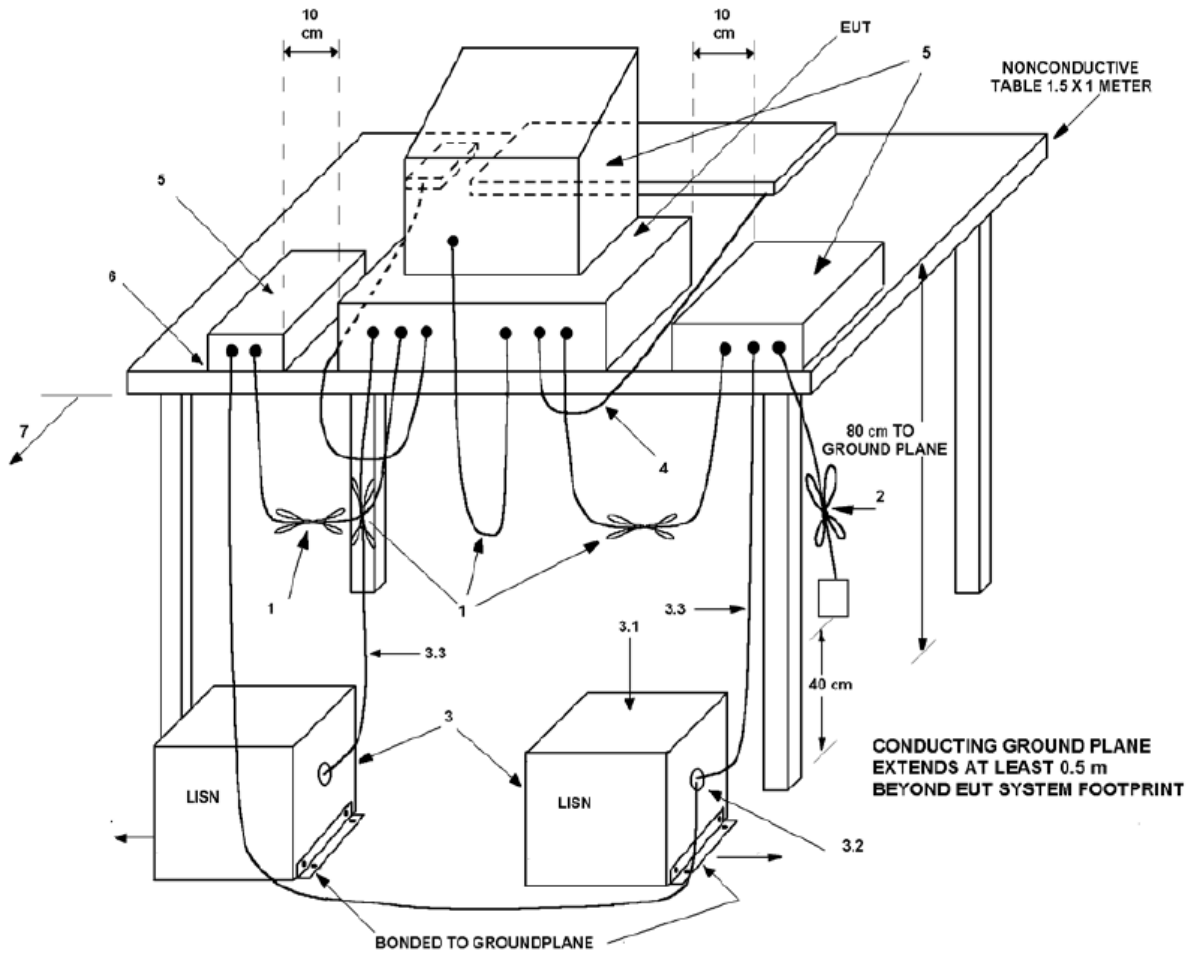
	R = 3m	R = 10 m
	6 m x 5.2 m	20 m x 17.3 m
		60 m x 52 m



## 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: FEBRUARY 9, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.68	16.82	0.8	-37.44	14.06
0.01	-35.54	15.96	0.9	-37.34	14.16
0.02	-37.22	14.28	1	-37.34	14.16
0.03	-36.44	15.06	2	-37.03	14.47
0.04	-36.90	14.60	3	-37.02	14.48
0.05	-37.56	13.94	4	-37.12	14.38
0.06	-37.45	14.05	5	-36.92	14.58
0.07	-37.55	13.95	6	-37.12	14.38
0.08	-37.46	14.04	7	-37.02	14.48
0.09	-37.56	13.94	8	-36.81	14.69
0.1	-37.56	13.94	9	-36.81	14.69
0.2	-37.75	13.75	10	-36.70	14.80
0.3	-37.75	13.75	15	-37.08	14.42
0.4	-37.65	13.85	20	-36.60	14.90
0.5	-37.75	13.75	25	-38.62	12.88
0.6	-37.75	13.75	30	-38.92	12.58
0.7	-37.64	13.86			

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**COM-POWER AC-220****LAB P - COMBILOG ANTENNA**

S/N: 061105

**CALIBRATION DUE: MARCH 12, 2019**

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
<b>30</b>	24.05	<b>160</b>	13.57
<b>35</b>	22.46	<b>180</b>	14.07
<b>40</b>	19.36	<b>200</b>	14.72
<b>45</b>	17.42	<b>250</b>	18.27
<b>50</b>	15.77	<b>300</b>	20.95
<b>60</b>	12.86	<b>400</b>	23.16
<b>70</b>	11.22	<b>500</b>	21.86
<b>80</b>	11.84	<b>600</b>	23.54
<b>90</b>	13.48	<b>700</b>	23.85
<b>100</b>	14.80	<b>800</b>	25.91
<b>120</b>	16.38	<b>900</b>	26.71
<b>140</b>	14.41	<b>1000</b>	27.60

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(949) 587-0400

**COM-POWER AH-118****HORN ANTENNA**

S/N: 071225

**CALIBRATION DUE: JULY 5, 2019**

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
1000	24.45	9500	38.91
1500	25.34	10000	39.38
2000	28.06	10500	39.64
2500	28.82	11000	39.42
3000	29.80	11500	39.84
3500	30.65	12000	39.66
4000	31.28	12500	40.12
4500	32.24	13000	40.27
5000	33.09	13500	40.42
5500	33.55	14000	40.85
6000	34.45	14500	42.06
6500	35.37	15000	42.33
7000	36.91	15500	39.45
7500	37.39	16000	39.54
8000	37.62	16500	39.57
8500	37.40	17000	41.79
9000	37.39	17500	43.87
		18000	44.53



**COM-POWER PAM-118A****1-18GHz - PREAMPLIFIER**

S/N: 551033

CALIBRATION DUE: MAY 16, 2019

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
500	37.97	5500	39.80
1000	40.16	6000	37.91
1100	39.17	6500	39.05
1200	40.50	7000	39.12
1300	39.94	7500	38.88
1400	40.82	8000	37.62
1500	39.64	8500	37.38
1600	41.54	9000	38.67
1700	40.90	9500	37.72
1800	40.03	10000	38.69
1900	39.54	11000	38.65
2000	39.69	12000	37.75
2500	39.67	13000	40.25
3000	40.99	14000	39.54
3500	41.89	15000	39.64
4000	39.96	16000	35.76
4500	39.41	17000	39.34
5000	39.70	18000	37.64

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**FRONT VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



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**REAR VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

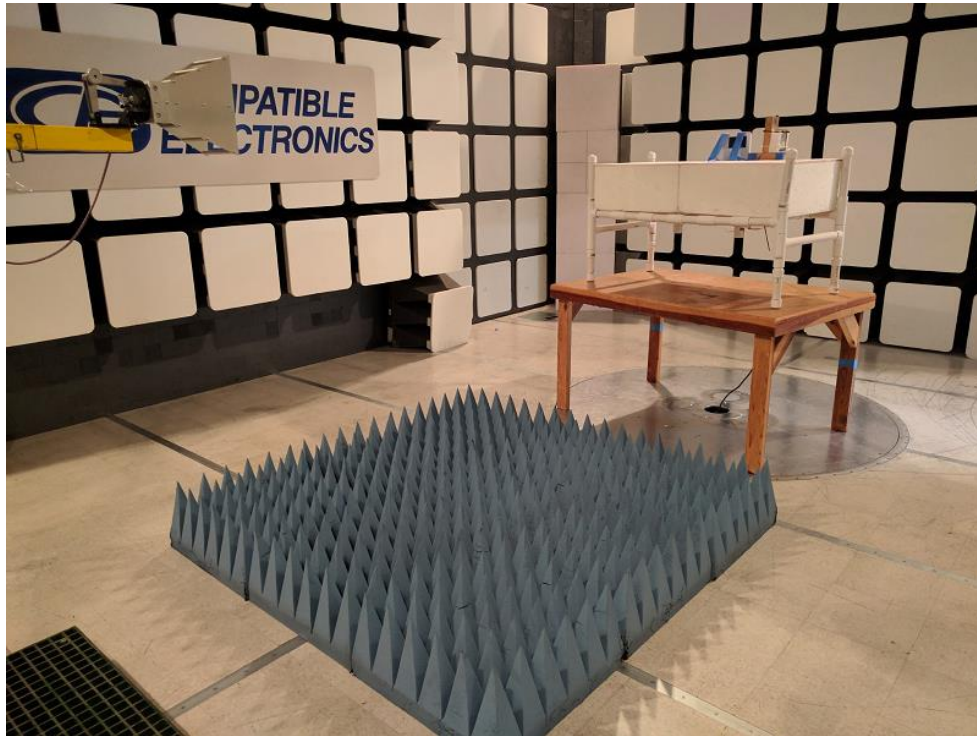


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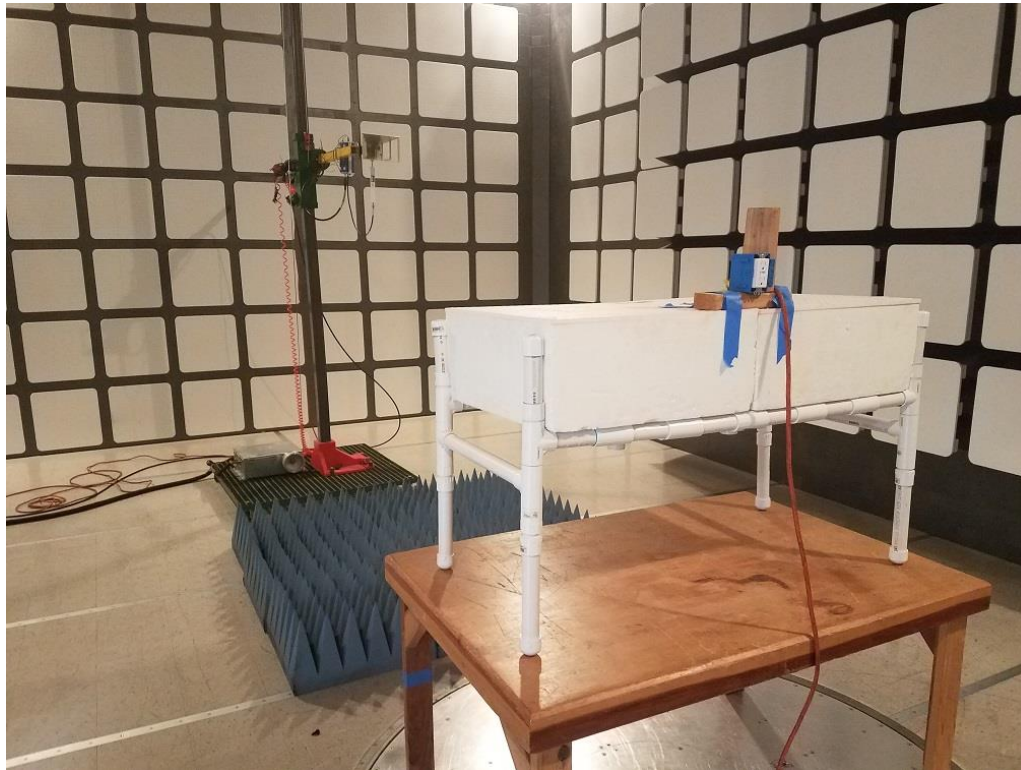


**FRONT VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**





**REAR VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**





**FRONT VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART B & C - CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**





**REAR VIEW**

NORTEK SECURITY & CONTROL  
GO CONTROL SECURITY PANEL  
MODEL: 2GIG-GC2E-345  
FCC SUBPART B & C - CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



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**APPENDIX E**

***RADIATED EMISSIONS DATA SHEETS***



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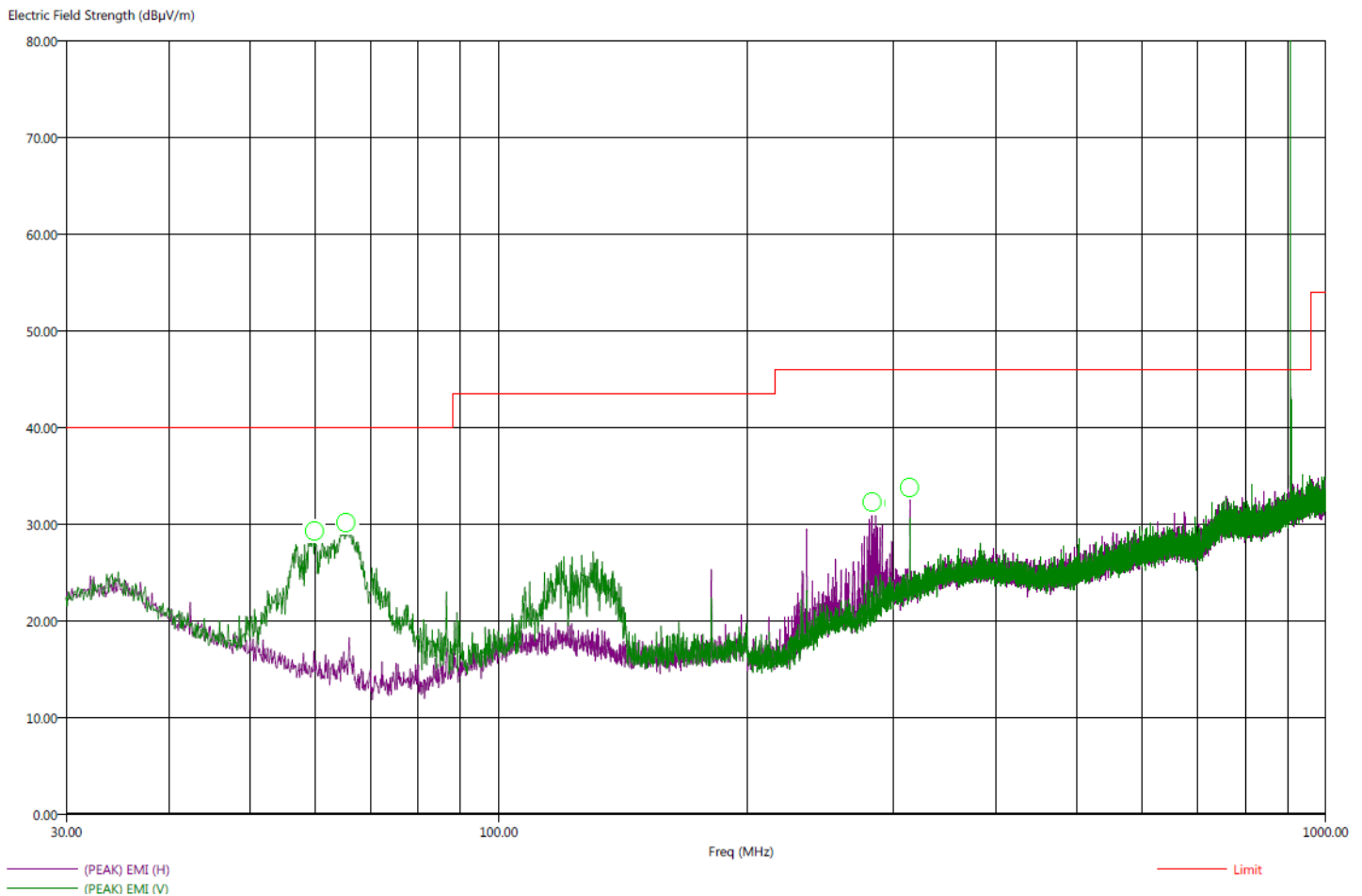
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**Lake Forest Division**  
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(949) 587-0400

Title: FCC 15.209  
 File: Radiated Pre-Scan 30-1000Mhz.set  
 Operator: Sam Kerckhoff  
 EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
 EUT Condition: Normal Operation  
 Comments: 908.42MHz, Baud 9.6kHz, Power level: 25  
 Temp: 72f  
 Hum: 38%  
 120V 60Hz

11/9/2018 11:10:24 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.  
 The EUT was also tested in a receive mode for both channels but this was found to be the worst-case mode.*



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Title: FCC 15.209  
 File: Radiated Final 30-1000Mhz.set  
 Operator: Sam Kerckhoff  
 EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
 EUT Condition: Normal Operation  
 Comments: 908.42MHz, Baud 9.6kHz, Power level: 25.  
 Temp: 72f  
 Hum: 38%  
 120V 60Hz

11/9/2018 11:34:47 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)
59.90	-14.69	25.31	30.52	40.00	H	100.00	101.76	12.91	0.61
65.50	-13.81	26.19	29.85	40.00	V	86.75	148.70	11.92	0.65
65.70	-12.78	27.22	30.75	40.00	V	117.00	100.11	11.88	0.65
283.10	-14.28	31.72	34.89	46.00	H	360.00	127.58	19.17	1.46
285.90	-13.82	32.18	35.14	46.00	V	359.00	104.41	19.47	1.47
314.60	-10.46	35.54	37.50	46.00	H	306.75	108.88	21.55	1.54

*There were no radiated emissions other than harmonics found below 30 MHz or above 1GHz.*

*This is worst case channel.*

*The EUT was also tested in a receive mode for both channels but this was found to be the worst case mode.*



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***CONDUCTED EMISSIONS  
DATA SHEETS***



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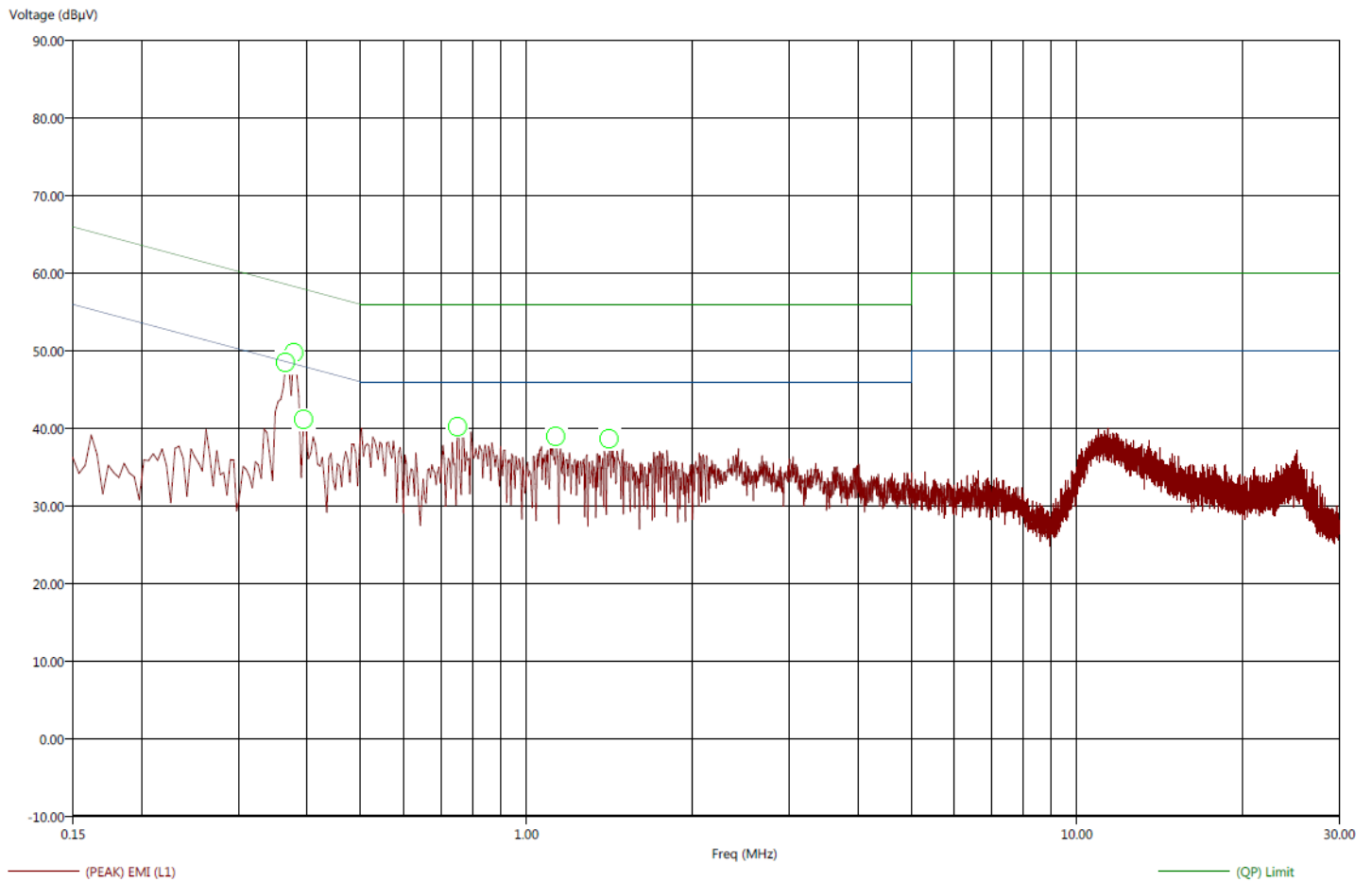
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Title: FCC 15.207  
File: Conducted Pre-Line.set  
Operator: Sam Kerckhoff  
EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
EUT Condition: Normal Operation  
Comments: 916MHz, Baud 100kHz, Power level: 24  
Temp: 72f  
Hum: 38%  
120V 60Hz

11/9/2018 3:01:28 PM  
Sequence: Preliminary Scan

**Compatible Electronics, Inc. FAC-3 (LAB R)**



*This is the worst case channel and configuration.*



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Title: FCC 15.207  
 File: Conducted Final-Line.set  
 Operator: Sam Kerckhoff  
 EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
 EUT Condition: Normal Operation  
 Comments: 916MHz, Baud 100kHz, Power level: 24.  
 Temp: 72f  
 Hum: 38%  
 120V 60Hz

11/9/2018 3:08:12 PM  
 Sequence: Final Measurements

**Compatible Electronics, Inc. FAC-3 (LAB R)**

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)
0.37	-15.63	-14.23	32.96	44.36	47.86	48.59	58.59	0.04	0.14
0.38	-9.62	-9.42	38.70	48.90	51.31	48.32	58.32	0.03	0.14
0.39	-17.68	-16.28	30.30	41.70	44.91	47.98	57.98	0.03	0.14
0.75	-22.51	-18.63	23.49	37.37	41.54	46.00	56.00	0.03	0.13
1.13	-22.13	-20.34	23.87	35.66	38.26	46.00	56.00	0.04	0.12
1.42	-22.45	-20.62	23.55	35.38	37.68	46.00	56.00	0.04	0.15

*This is the worst case channel and configuration.*



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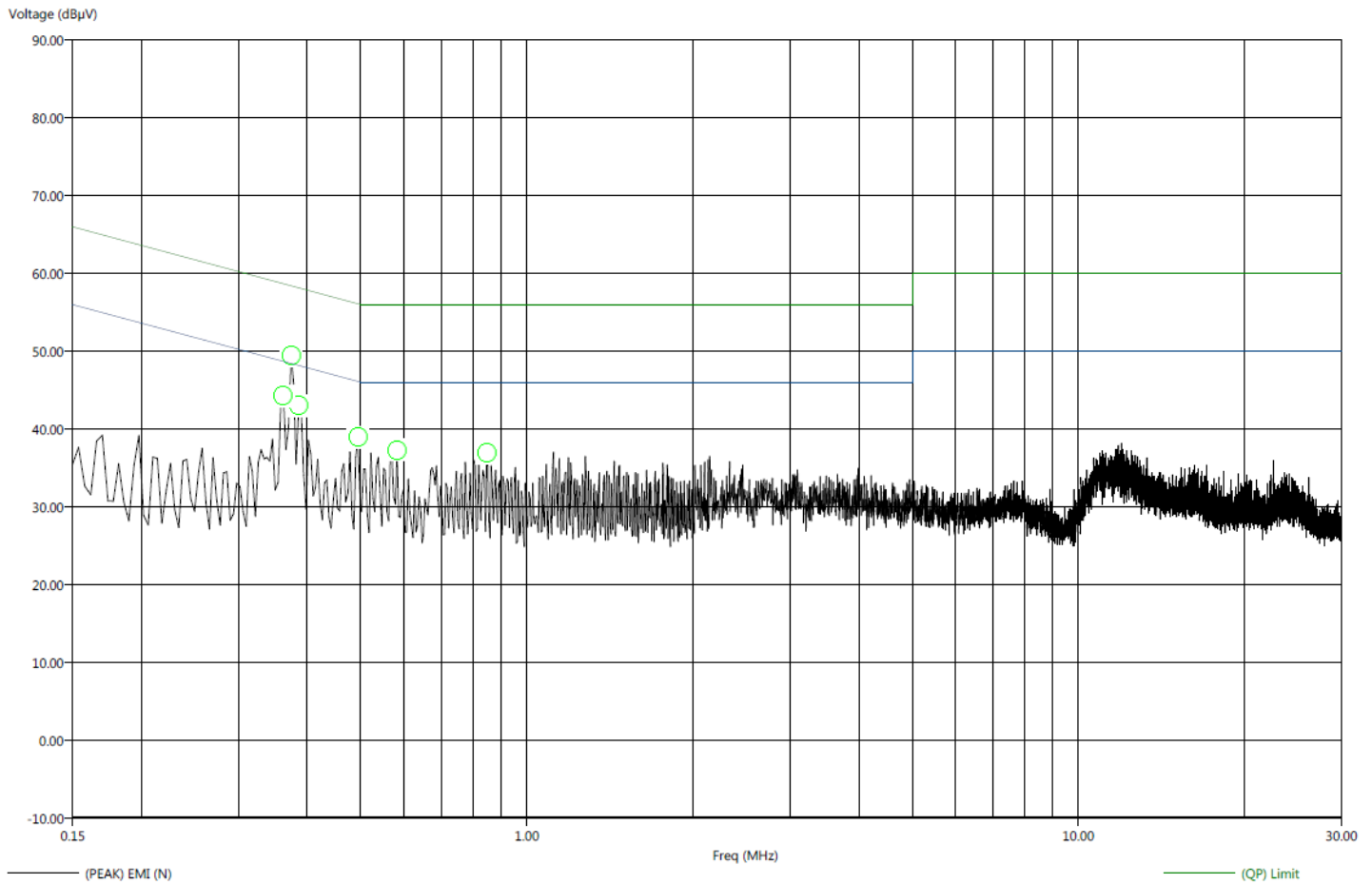
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**Lake Forest Division**  
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 (949) 587-0400

Title: FCC 15.207  
 File: Conducted Pre-Neutral.set  
 Operator: Sam Kerckhoff  
 EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
 EUT Condition: Normal Operation  
 Comments: 916MHz, Baud 100kHz, Power level: 24.  
 Temp: 72f  
 Hum: 38%  
 120V 60Hz

11/9/2018 3:52:25 PM  
 Sequence: Preliminary Scan

**Compatible Electronics, Inc. FAC-3 (LAB R)**



*This is the worst case channel and configuration.*



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Title: FCC 15.207  
 File: Conducted Final-Neutral.set  
 Measurements

11/9/2018 4:11:53 PM  
 Sequence: Final

Operator: Sam Kerckhoff  
 EUT Type: Go Control Security Panel / GC2E with 2GIG-GC2E-345 Control Panel  
 EUT Condition: Normal Operation  
 Comments: 916MHz, Baud 100kHz, Power level: 24.  
 Temp: 72f  
 Hum: 38%  
 120V 60Hz

**Compatible Electronics, Inc. FAC-3 (LAB R)**

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dB $\mu$ V)	(QP) EMI (dB $\mu$ V)	(PEAK) EMI (dB $\mu$ V)	(AVG) Limit (dB $\mu$ V)	(QP) Limit (dB $\mu$ V)	Transducer (dB)	Cable (dB)
0.36	-22.50	-20.42	26.19	38.27	44.05	48.68	58.68	0.04	0.13
0.37	-16.78	-13.42	31.63	45.00	48.13	48.41	58.41	0.04	0.14
0.39	-21.02	-18.21	27.13	39.93	45.87	48.15	58.15	0.04	0.14
0.49	-27.51	-22.45	18.59	33.65	36.86	46.10	56.10	0.04	0.17
0.58	-25.69	-25.66	20.31	30.34	35.85	46.00	56.00	0.04	0.16
0.85	-28.16	-24.97	17.84	31.03	37.05	46.00	56.00	0.03	0.12

*This is the worst case channel and configuration.*



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***FUNDAMENTAL & HARMONICS  
DATA SHEETS***



---

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## FUNDAMENTAL FIELD STRENGTH

**FCC 15.249**

 Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

 Date: 11/09/2018  
 Lab: P  
 Tested By: Matt Harrison

Freq. (MHz)	Level (dBμV/m)	Plane of Polarization (V/H)	Limit (dBμV/m)	Margin (dB)	Peak / QP / Avg	Table Angle (deg)	Tower Height (m)	Comments
908.40	93.70	H	--	--	Peak	360.00	100.00	Pwr 25 / Baud 48k
908.40	91.48	H	93.97	-2.49	QP	360.00	100.00	Pwr 25 / Baud 48k
908.40	92.50	V	--	--	Peak	0.00	134.00	Pwr 25 / Baud 48k
908.40	91.58	V	93.97	-2.39	QP	0.00	134.00	Pwr 25 / Baud 48k
916.00	93.65	H	--	--	Peak	360.00	100.00	Pwr 24 / Baud 100k
916.00	92.75	H	93.97	-1.22	QP	360.00	100.00	Pwr 24 / Baud 100k
916.00	91.92	V	--	--	Peak	0.00	135.82	Pwr 24 / Baud 100k
916.00	90.53	V	93.97	-3.44	QP	0.00	135.82	Pwr 24 / Baud 100k

 Test distance  
 3 meters

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## HARMONICS LOW CHANNEL HORIZONTAL

**FCC 15.249**

 Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

 Date: 11/09/2018  
 Lab: P  
 Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.80	--	H	73.98	--	Peak	--	--	No Emissions Found
1816.80	--	H	53.98	--	Avg	--	--	No Emissions Found
2725.20	53.83	H	73.98	-20.15	Peak	1.23	270.50	
2725.20	41.69	H	53.98	-12.29	Avg	1.23	270.50	
3633.60	--	H	73.98	--	Peak	--	--	No Emissions Found
3633.60	--	H	53.98	--	Avg	--	--	No Emissions Found
4542.00		H	73.98	--	Peak			No Emissions Found
4542.00		H	53.98	--	Avg			No Emissions Found
5450.40	--	H	73.98	--	Peak	--	--	No Emissions Found
5450.40	--	H	53.98	--	Avg	--	--	No Emissions Found
6358.80	--	H	73.98	--	Peak	--	--	No Emissions Found
6358.80	--	H	53.98	--	Avg	--	--	No Emissions Found
7267.20	--	H	73.98	--	Peak	--	--	No Emissions Found
7267.20	--	H	53.98	--	Avg	--	--	No Emissions Found
8175.60	--	H	73.98	--	Peak	--	--	No Emissions Found
8175.60	--	H	53.98	--	Avg	--	--	No Emissions Found
9084.00	--	H	73.98	--	Peak	--	--	No Emissions Found
9084.00	--	H	53.98	--	Avg	--	--	No Emissions Found

 Test distance  
 3 meter

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## HARMONICS LOW CHANNEL VERTICAL

**FCC 15.249**

 Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

 Date: 11/09/2018  
 Lab: P  
 Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.80	--	V	73.98	--	Peak	--	--	No Emissions Found
1816.80	--	V	53.98	--	Avg	--	--	No Emissions Found
2725.20	51.40	V	73.98	-22.58	Peak	1.25	259.00	
2725.20	38.67	V	53.98	-15.31	Avg	1.25	259.00	
3633.60	--	V	73.98	--	Peak	--	--	No Emissions Found
3633.60	--	V	53.98	--	Avg	--	--	No Emissions Found
4542.00	--	V	73.98	--	Peak	--	--	No Emissions Found
4542.00	--	V	53.98	--	Avg	--	--	No Emissions Found
5450.40	--	V	73.98	--	Peak	--	--	No Emissions Found
5450.40	--	V	53.98	--	Avg	--	--	No Emissions Found
6358.80	--	V	73.98	--	Peak	--	--	No Emissions Found
6358.80	--	V	53.98	--	Avg	--	--	No Emissions Found
7267.20	--	V	73.98	--	Peak	--	--	No Emissions Found
7267.20	--	V	53.98	--	Avg	--	--	No Emissions Found
8175.60	--	V	73.98	--	Peak	--	--	No Emissions Found
8175.60	--	V	53.98	--	Avg	--	--	No Emissions Found
9084.00	--	V	73.98	--	Peak	--	--	No Emissions Found
9084.00	--	V	53.98	--	Avg	--	--	No Emissions Found

 Test distance  
 3 meter

**Headquarters**  
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**Brea Division**  
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**Newbury Park Division**  
 1050 Lawrence Drive  
 Newbury Park, CA 91320  
 (949) 480-4044

**Lake Forest Division**  
 20621 Pascal Way  
 Lake Forest, CA 92630  
 (949) 587-0400

## HARMONICS HIGH CHANNEL HORIZONTAL

**FCC 15.249**

 Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

 Date: 11/09/2018  
 Lab: P  
 Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.00	--	H	73.98	--	Peak	--	--	No Emissions Found
1832.00	--	H	53.98	--	Avg	--	--	No Emissions Found
2748.00	52.22	H	73.98	-21.76	Peak	1.00	273.25	
2748.00	34.21	H	53.98	-19.77	Avg	1.00	273.25	
3664.00	--	H	73.98	--	Peak	--	--	No Emissions Found
3664.00	--	H	53.98	--	Avg	--	--	No Emissions Found
4580.00	--	H	73.98	--	Peak	--	--	No Emissions Found
4580.00	--	H	53.98	--	Avg	--	--	No Emissions Found
5496.00	--	H	73.98	--	Peak	--	--	No Emissions Found
5496.00	--	H	53.98	--	Avg	--	--	No Emissions Found
6412.00	--	H	73.98	--	Peak	--	--	No Emissions Found
6412.00	--	H	53.98	--	Avg	--	--	No Emissions Found
7328.00	--	H	73.98	--	Peak	--	--	No Emissions Found
7328.00	--	H	53.98	--	Avg	--	--	No Emissions Found
8244.00	--	H	73.98	--	Peak	--	--	No Emissions Found
8244.00	--	H	53.98	--	Avg	--	--	No Emissions Found
9160.00	--	H	73.98	--	Peak	--	--	No Emissions Found
9160.00	--	H	53.98	--	Avg	--	--	No Emissions Found

 Test distance  
 3 meters

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## HARMONICS HIGH CHANNEL VERTICAL

**FCC 15.249**

 Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

 Date: 11/09/2018  
 Lab: P  
 Tested By: Matt Harrison

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.00	--	V	73.98	--	Peak	--	--	No Emissions Found
1832.00	--	V	53.98	--	Avg	--	--	No Emissions Found
2748.00	52.25	V	73.98	-21.73	Peak	1.64	37.00	
2748.00	34.74	V	53.98	-19.24	Avg	1.64	37.00	
3664.00	--	V	73.98	--	Peak	--	--	No Emissions Found
3664.00	--	V	53.98	--	Avg	--	--	No Emissions Found
4580.00	--	V	73.98	--	Peak	--	--	No Emissions Found
4580.00	--	V	53.98	--	Avg	--	--	No Emissions Found
5496.00	--	V	73.98	--	Peak	--	--	No Emissions Found
5496.00	--	V	53.98	--	Avg	--	--	No Emissions Found
6412.00	--	V	73.98	--	Peak	--	--	No Emissions Found
6412.00	--	V	53.98	--	Avg	--	--	No Emissions Found
7328.00	--	V	73.98	--	Peak	--	--	No Emissions Found
7328.00	--	V	53.98	--	Avg	--	--	No Emissions Found
8244.00	--	V	73.98	--	Peak	--	--	No Emissions Found
8244.00	--	V	53.98	--	Avg	--	--	No Emissions Found
9160.00	--	V	73.98	--	Peak	--	--	No Emissions Found
9160.00	--	V	53.98	--	Avg	--	--	No Emissions Found

 Test distance  
 3 meter

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***EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL  
FREQUENCY BAND***

***DATA SHEETS***



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## BAND EDGES LOW CHANNEL

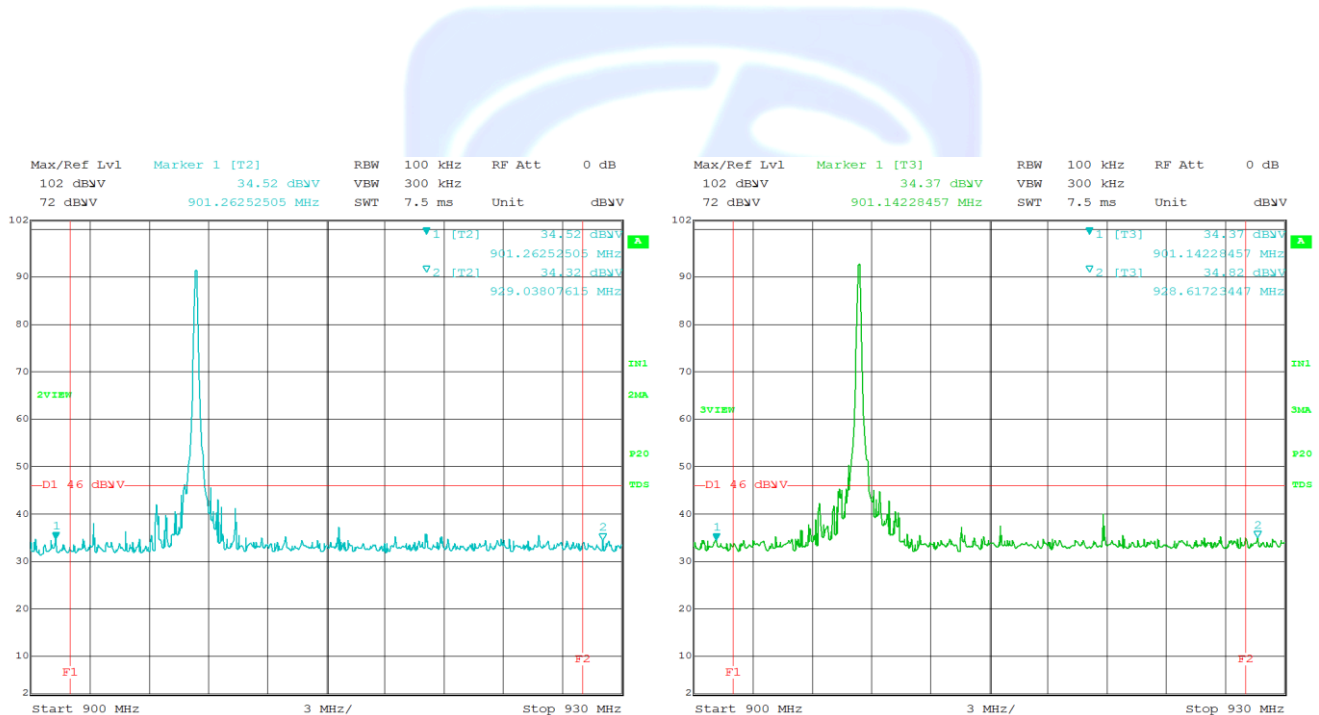
**FCC 15.249**

Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

Date: 11/09/2018  
 Lab: P  
 Test ENG: Matt Harrison

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
901.26	34.52	H	46.00	-11.48	Peak	1.00	360.00	No Marker Delta
901.14	34.37	V	46.00	-11.63	Peak	1.34	360.00	No Marker Delta
929.04	34.32	H	46.00	-11.68	Peak	1.00	360.00	No Marker Delta
928.61	34.82	V	46.00	-11.18	Peak	1.34	360.00	No Marker Delta

Test distance  
 3 meter



Title: 2GIG-GC2E-345  
 Comment A: Band Edge Horizontal

Title: 2GIG-GC2E-345  
 Comment A: Band Edge Vertical



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## BAND EDGES HIGH CHANNEL

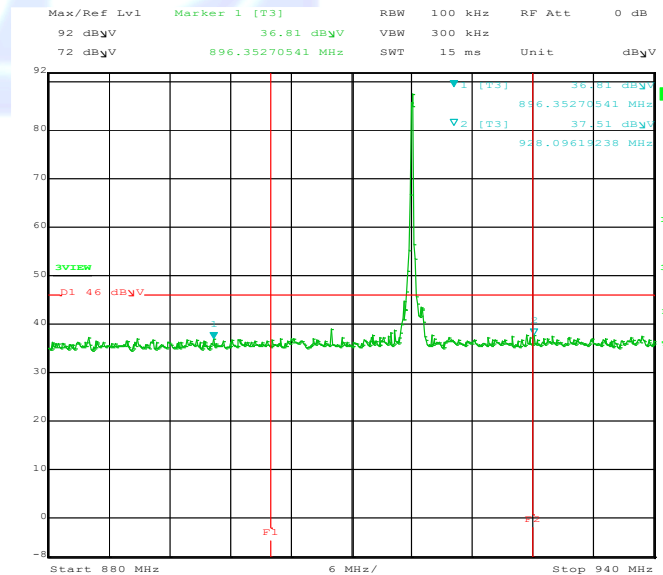
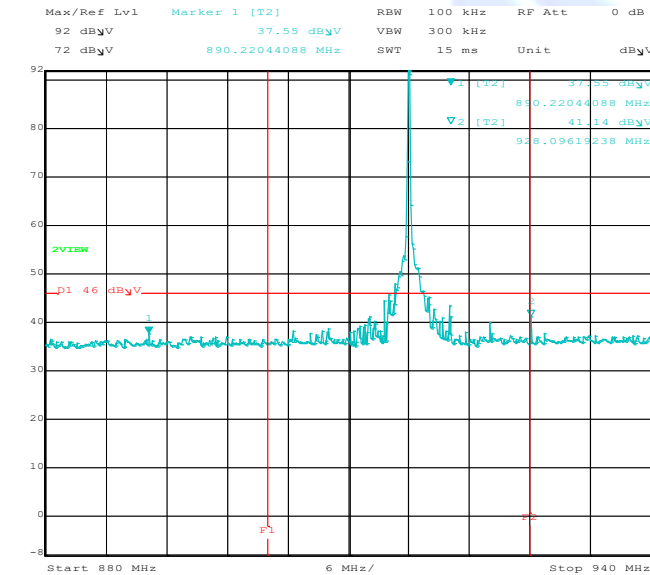
**FCC 15.249**

Company: Nortek  
 EUT: Go Control Security Panel  
 Model: 2GIG-GC2E-345

Date: 11/09/2018  
 Lab: P  
 Test ENG: Matt Harrison

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
890.22	37.55	H	46.00	-8.45	Peak	1.44	337.00	No Marker Delta
896.35	36.81	V	46.00	-9.19	Peak	1.00	247.00	Method Used
928.10	41.14	H	46.00	-4.86	Peak	1.44	337.00	No Marker Delta
928.10	37.51	V	46.00	-8.49	Peak	1.00	247.00	Method Used

Test distance  
 3 meter



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