

**FCC PART 15 SUBPART B & C
TEST REPORT***for***PERSONAL HELP BUTTON
Model: 2GIG-PHB1-345**

Prepared for

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

Prepared by: _____

TOREY OLIVER

Approved by: _____

MATT HARRISON

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CALIFORNIA 92630
(949) 587-0400

DATE: SEPTEMBER 10, 2015

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	18	2	2	2	11	17	52

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1	Plot Map And Layout of Test Site Below 1GHz
2	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 endorsement by NVLAP, NIST, or any other agency of the U.S. Government or other governments.

Device Tested: Personal Help Button
Model: 2GIG-PHB1-345
S/N: N/A

Product Description: The Personal Help Button (2GIG-PHB1-345) is a miniature, water-resistant, supervised transmitter designed for use with the 2GIG Security Panels. The transmitter ships attached to a permanent mounting accessory, which can be worn either on its adjustable lanyard with a breakaway release or on the optional wristband.

Modifications: The EUT was not modified during testing.

Manufacturer: NORTEK SECURITY & CONTROL
1950 Camino Vida Roble, Suite 150
Carlsbad, CA 92008

Test Date: June 22nd, 2015
August 7th, 2015

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B Sections 15.109
CFR Title 47, Part 15 Subpart C Sections 15.205, 15.209 and 15.231

Test Procedure: ANSI C63.4
ANSI C63.10



SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	The EUT is battery powered; therefore this test was not performed.
2	Radiated RF Emissions & Harmonics, 9 kHz – 4 GHz.	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109 and Part 15 Subpart C Section 15.205, 15.209, and 15.231.



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Personal Help Button Model: 2GIG-PHB1-345. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 and 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 the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.109 and Part 15 Subpart C sections 15.205, 15.209 and 15.231.



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 Engineer

Compatible Electronics, Inc.

Matt Harrison Test Engineer
Torey Oliver Test Technician
Jeff Klinger Director of Engineering

2.4 Date Test Sample was Received

The test sample was received on June 22nd, 2015.

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 2009	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: 2009	American National Standard for Testing Unlicensed Wireless Devices



4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Personal Help Button Model: 2GIG-PHB1-345 (EUT) was setup in a tabletop configuration. The EUT was powered by a 3V battery. The EUT was continuously transmitting a signal and continuously receiving for the duration of the testing. The EUT was checked in all 3 axis, and the worst case was found to be the X-Axis.

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



4.1.2 Cable Construction and Termination

The EUT has no interconnecting cables.



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

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER	FCC ID
1	PERSONAL HELP BUTTON (EUT)	NORTEK SECURITY & CONTROL	2GIG-PHB1-345	N/A	WDQ-PHB1345
2	BATTERY (3V)	RENATA	CR2032	NONE	N/A



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	9/5/2014	9/5/2015
Antenna, Loop	Com Power	AL-130	121049	12/6/2013	12/6/2015
Antenna, CombiLog	Com Power	AC-220	25857	5/21/2014	5/21/2016
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	7/1/2014	7/1/2016
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551034	2/6/2014	2/6/2016
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Turntable	Sunol Science Corporation	FM2011VS	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A



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, which was placed on the ground plane.

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 is 1 operating channel.

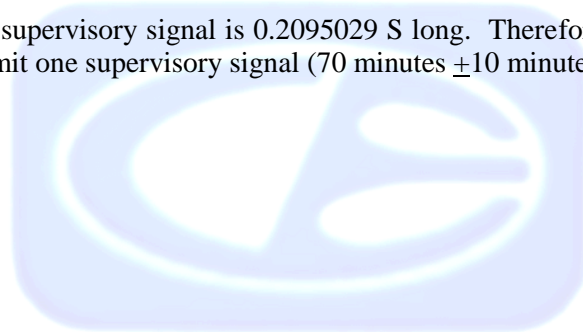
1 == 345 MHz

7.2 Antenna

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

7.3 Supervisory Signal

The on time for the supervisory signal is 0.2095029 S long. Therefore in a period of 60 minutes the EUT can only transmit one supervisory signal (70 minutes \pm 10 minutes).



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

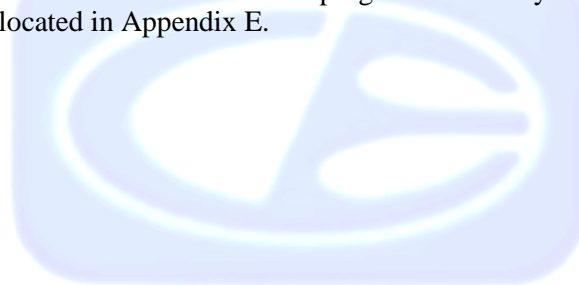
8.1.1 Conducted Emissions Test

The EUT is battery powered; therefore this test was not performed.

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.



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 Fundamental and Harmonic emissions a duty cycle correction factor 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
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, EN 50147-2, and CISPR 22. 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 sections 15.109 and CFR Title 47 Part 15 Subpart C sections 15.205, 15.209 and 15.231.



8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured at a 3-meter test distance using the EMI Receiver 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 15.231.

8.1.4 Occupied Bandwidth

The Occupied Bandwidth measurement was made using the EMI Receiver 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 15.231.

8.1.5 Transmit Time Out

The Transmit Time Out measurement was made using the EMI Receiver 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 15.231.

8.1.6 Duty Cycle

Duty Cycle Correction Factor = -20.00dB

$$\delta(\text{dB}) = 20 \log \left[\sum (nt_1 + mt_2 + \dots + \xi t_x) / T \right]$$

where

n is the number of pulses of duration t_1

m is the number of pulses of duration t_2

ξ is the number of pulses of duration t_x

T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

Pulse Type 1: $145.2334669\mu\text{s} * 42 = 6.099806 \text{ mS}$; Pulse Type 2: $273.547094\mu\text{s} * 11 = 3.009018\text{mS}$

$6.099806\text{ms} + 3.009018\text{mS} = 9.108824 \text{ mS} / 100\text{ms} = 0.091088$
 $20 \log (0.091088) = -20.811 \text{ dB}$

Maximum Duty Cycle Correction Factor = -20.00dB



9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Personal Help Button Model: 2GIG-PHB1-345 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.109 and Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.209 and 15.231.



APPENDIX A

***LABORATORY ACCREDITATIONS AND
RECOGNITIONS***



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

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>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

APPENDIX B

MODIFICATIONS TO THE EUT



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during testing.



APPENDIX C

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



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Personal Help Button
Model: 2GIG-PHB1-345
S/N: None

Client provided additional models not tested but covered by similarity are listed below.

According to the manufacturer, all models are electrically and mechanically identical. The only difference between the various models is the plastic enclosure.

Model: 2GIG-PHB2-345
S/N: None

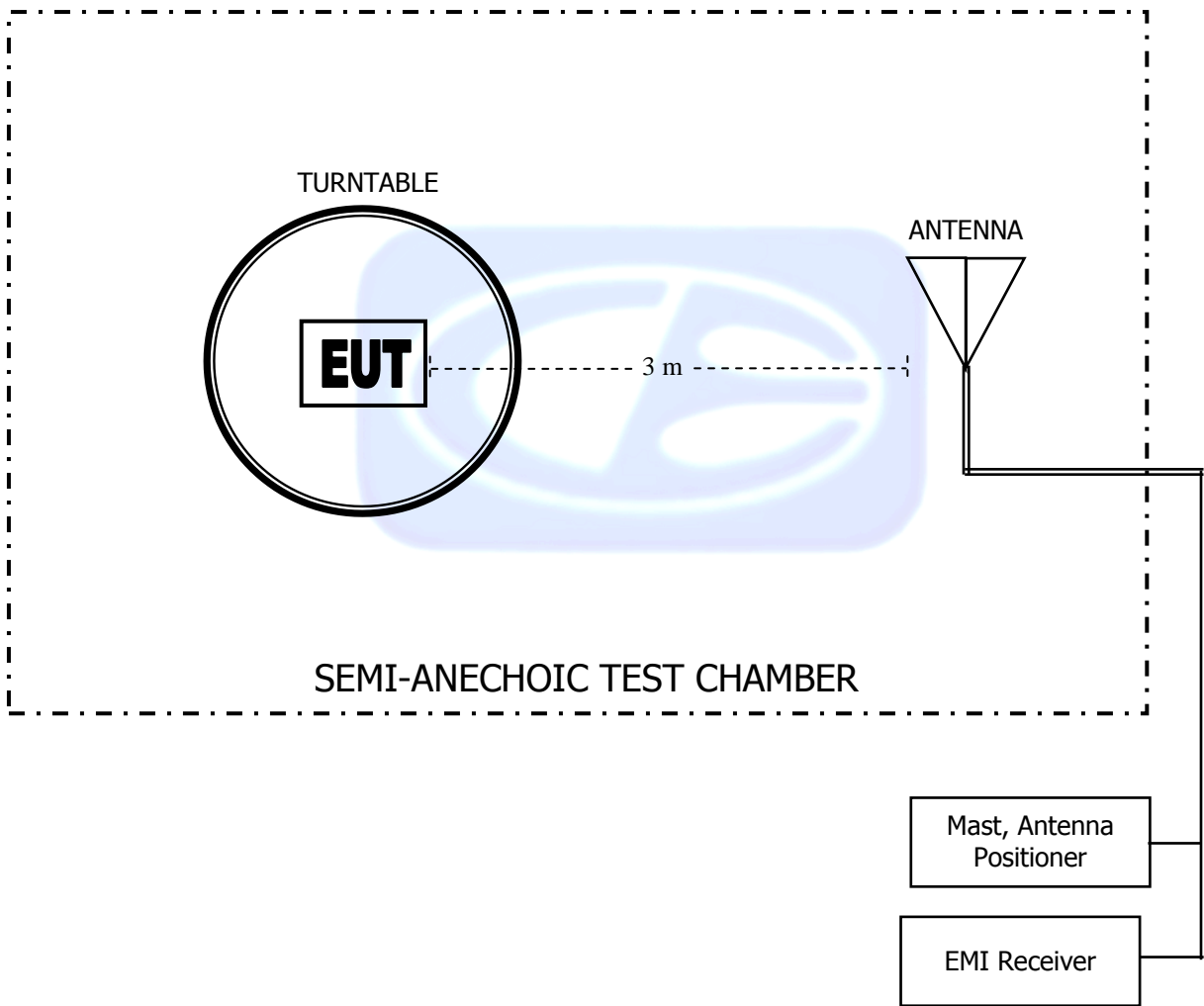


APPENDIX D

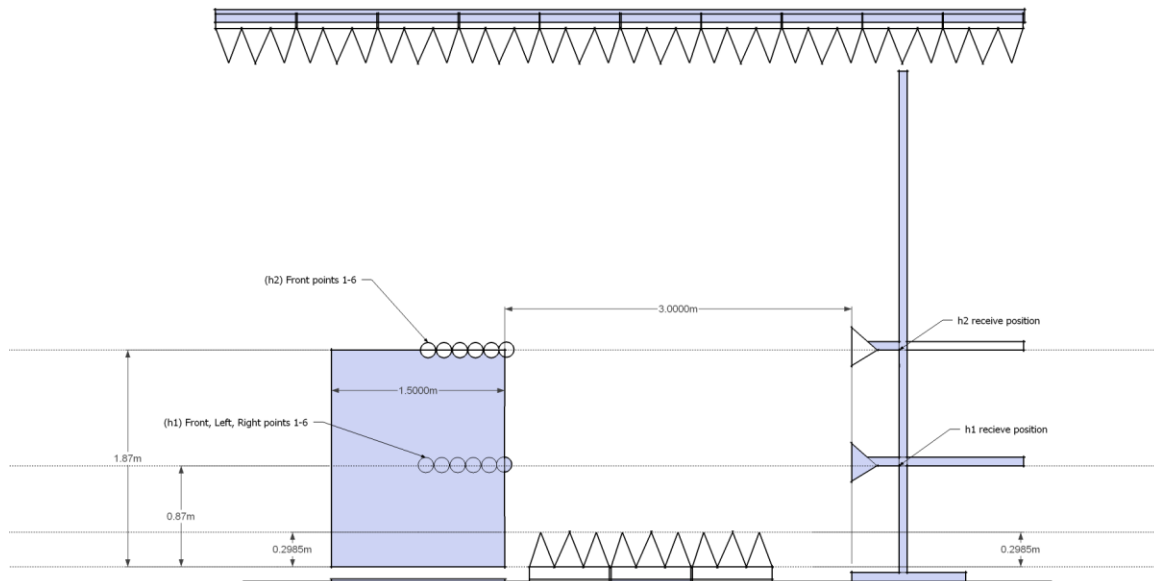
DIAGRAMS, CHARTS, AND PHOTOS



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



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



COM-POWER AL-130**LOOP ANTENNA**

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2015

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 21, 2016

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



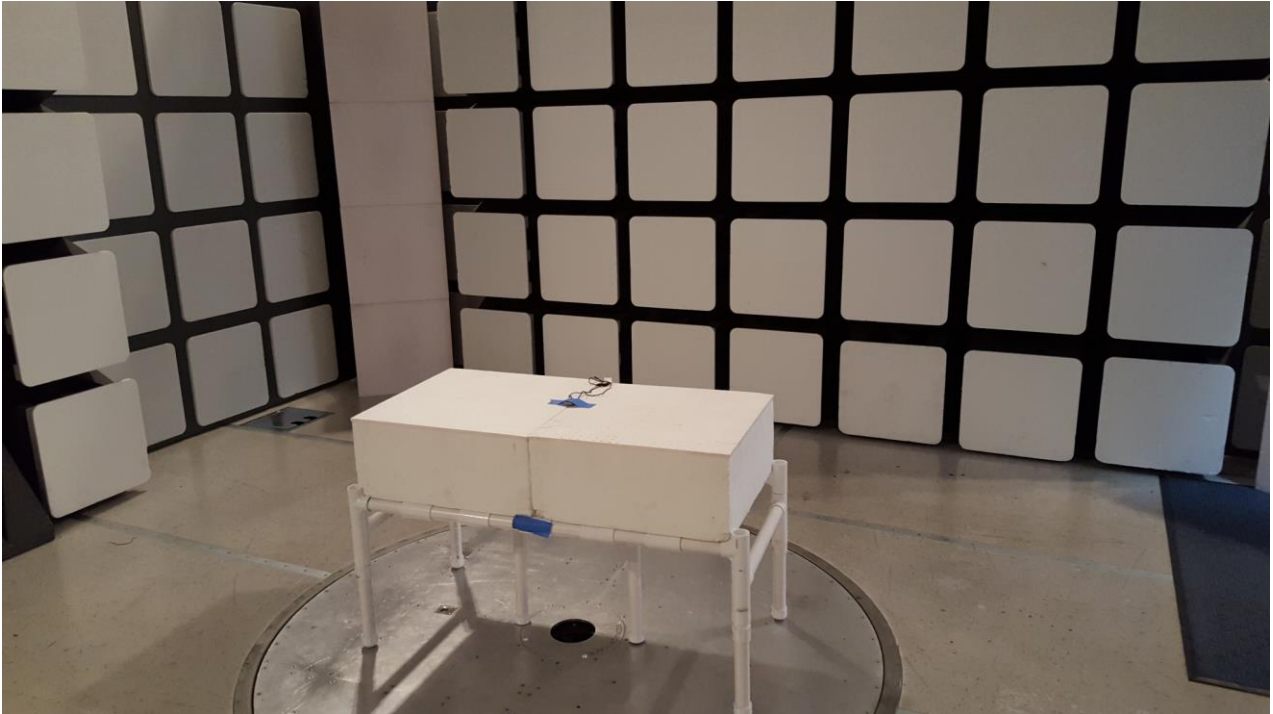
COM-POWER PAM-118A**1-18GHz - PREAMPLIFIER**

S/N: 551034

CALIBRATION DUE: FEBRUARY 6, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	36.77	5500	39.82
1000	38.63	6000	38.74
1100	38.72	6500	39.60
1200	38.97	7000	35.52
1300	38.59	7500	36.61
1400	39.18	8000	36.92
1500	38.71	8500	37.13
1600	39.28	9000	36.50
1700	39.25	9500	38.92
1800	39.06	10000	38.74
1900	40.34	11000	35.23
2000	40.07	12000	35.64
2500	39.69	13000	36.73
3000	40.94	14000	36.48
3500	40.41	15000	37.57
4000	40.44	16000	38.10
4500	41.20	17000	37.34
5000	39.35	18000	36.80





FRONT VIEW

NORTEK SECURITY AND CONTROL
PERSONAL HELP BUTTON
MODEL: 2GIG-PHB1-345
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

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





REAR VIEW

NORTEK SECURITY & CONTROL
PERSONAL HELP BUTTON
MODEL: 2GIG-PHB1-345
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

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



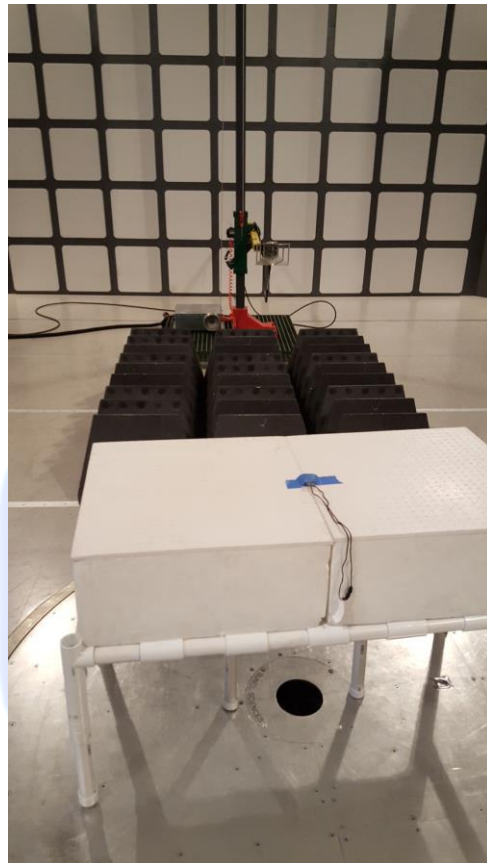


FRONT VIEW

NORTEK SECURITY & CONTROL
PERSONAL HELP BUTTON
MODEL: 2GIG-PHB1-345
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

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





REAR VIEW

NORTEK SECURITY & CONTROL
PERSONAL HELP BUTTON
MODEL: 2GIG-PHB1-345
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

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



APPENDIX E

RADIATED EMISSIONS DATA SHEETS



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

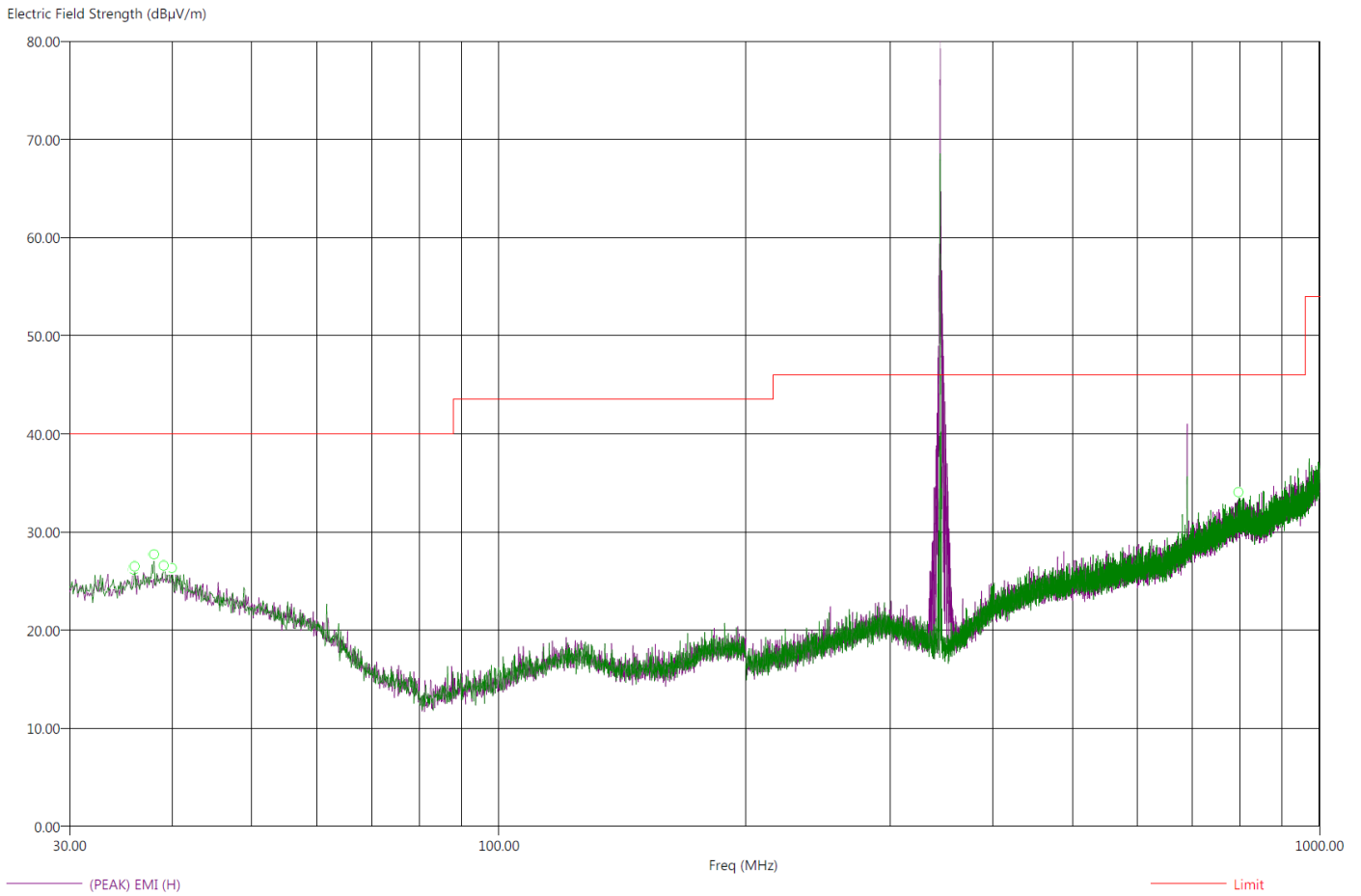
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Torey Oliver
EUT Type: 2GIG-PHB1-345
EUT Condition: The EUT is constantly transmitting.
Comments: Temp: 76f
Hum: 43%
Battery

6/22/2015 2:14:21 PM
Sequence: Preliminary Scan

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



There were no radiated emissions other than harmonics found below 30 MHz or above 1000MHz



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

Title: FCC 15.209
File: Radiated Final 30-1000Mhz.set
Operator: Torey Oliver
EUT Type: 2GIG-PHB1-345
EUT Condition: The EUT is constantly transmitting.
Comments: Temp: 76f
Hum: 43%
Battery

6/22/2015 2:43:33 PM
Sequence: Final Measurements

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

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dB μ V/m)	(PEAK) EMI (dB μ V/m)	Limit (dB μ V/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable(dB)
35.90	-19.61	20.39	25.09	40.00	H	185.50	371.50	22.60	1.08
36.00	-19.27	20.73	25.86	40.00	V	35.50	333.11	22.61	1.08
38.00	-19.42	20.58	26.18	40.00	V	282.00	150.61	22.81	1.19
39.10	-19.19	20.81	26.34	40.00	V	312.25	348.82	22.91	1.25
40.00	-19.03	20.97	26.58	40.00	V	168.00	336.94	22.97	1.29
797.50	-17.78	28.22	33.88	46.00	V	39.75	323.74	25.94	3.28

There were no radiated emissions other than harmonics found below 30 MHz or above 1000MHz



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

***FUNDAMENTAL & HARMONICS
DATA SHEETS***



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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20621 Pascal Way
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FCC 15.231NORTEK SECURITY &
CONTROL

Personal Help Button

Model: 2GIG-PHB1-345

Duty Cycle Correction Factor: -20.00

Date: 6/22/2015

Lab: R

Tested By: Torey Oliver

Fundamental Field Strength

Freq. (MHz)	Level (dB μ V)	Pol (v/h)	Limit (dB μ V)	Margin (dB)	Peak / QP / Avg	Table Angle (deg)	Tower Height (m)	Comments
345.00	94.43	H	97.26	-2.83	Peak	274.25	1.08	X-Axis
345.00	74.43	H	77.26	-2.83	Avg	274.25	1.08	X-Axis
345.00	74.65	V	97.26	-22.61	Peak	240.00	1.00	X-Axis
345.00	54.65	V	77.26	-22.61	Avg	240.00	1.00	X-Axis

Test distance

3 meter



HARMONICS - HORIZONTAL

FCC 15.231

Company: Nortek
 EUT: Personal Help Button
 Model: 2GIG-PHB1-345
 Duty Cycle Correction Factor: -20.00

Date: 6/22/2015
 Lab: R
 Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
690.00	--	H	--	--	Peak			No Emissions Found
690.00	--	H	--	--	Avg			
1035.00	--	H	73.98	--	Peak			In Restricted Band
1035.00	--	H	53.98	--	Avg			No Emissions Found
1380.00	--	H	73.98	--	Peak			In Restricted Band
1380.00	--	H	53.98	--	Avg			No Emissions Found
1725.00	--	H	77.26	--	Peak			No Emissions Found
1725.00	--	H	57.26	--	Avg			
2070.00	--	H	77.26	--	Peak			No Emissions Found
2070.00	--	H	57.26	--	Avg			
2415.00	--	H	77.26	--	Peak			No Emissions Found
2415.00	--	H	57.26	--	Avg			
2760.00	--	H	73.98	--	Peak			In Restricted Band
2760.00	--	H	53.98	--	Avg			No Emissions Found
3105.00	39.34	H	77.26	-37.92	Peak	1.38	12	
3105.00	19.34	H	57.26	-37.92	Avg	1.38	12	
3450.00	--	H	77.26	--	Peak			No Emissions Found
3450.00	--	H	57.26	--	Avg			

Test distance
 3 meter



HARMONICS - VERTICAL

FCC 15.231

Company: Nortek
 EUT: Personal Help Button
 Model: 2GIG-PHB1-345
 Duty Cycle Correction Factor: -20.00

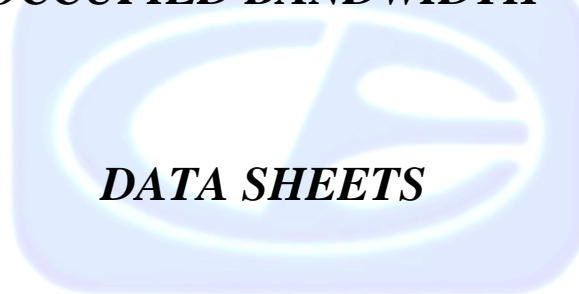
Date: 6/22/2015
 Lab: R
 Tested By: Torey Oliver

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
690.00		V	--	--	Peak			No Emissions Found
690.00		V	--	--	Avg			
1035.00		V	73.98	--	Peak			In Restricted Band
1035.00		V	53.98	--	Avg			No Emissions Found
1380.00		V	73.98	--	Peak			In Restricted Band
1380.00		V	53.98	--	Avg			No Emissions Found
1725.00		V	77.26	--	Peak			No Emissions Found
1725.00		V	57.26	--	Avg			
2070.00		V	77.26	--	Peak			No Emissions Found
2070.00		V	57.26	--	Avg			
2415.00	37.50	V	77.26	-39.76	Peak	1.42	359	
2415.00	17.50	V	57.26	-39.76	Avg	1.42	359	
2760.00		V	73.98	--	Peak			In Restricted Band
2760.00		V	53.98	--	Avg			No Emissions Found
3105.00		V	77.26	--	Peak			No Emissions Found
3105.00		V	57.26	--	Avg			
3450.00		V	77.26	--	Peak			No Emissions Found
3450.00		V	57.26	--	Avg			

Test distance
 3 meter



OCCUPIED BANDWIDTH



DATA SHEETS



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

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

OCCUPIED BANDWIDTH

FCC 15.231

Date: 6/22/2015

Company: Nortek
Personal Help

Lab: R

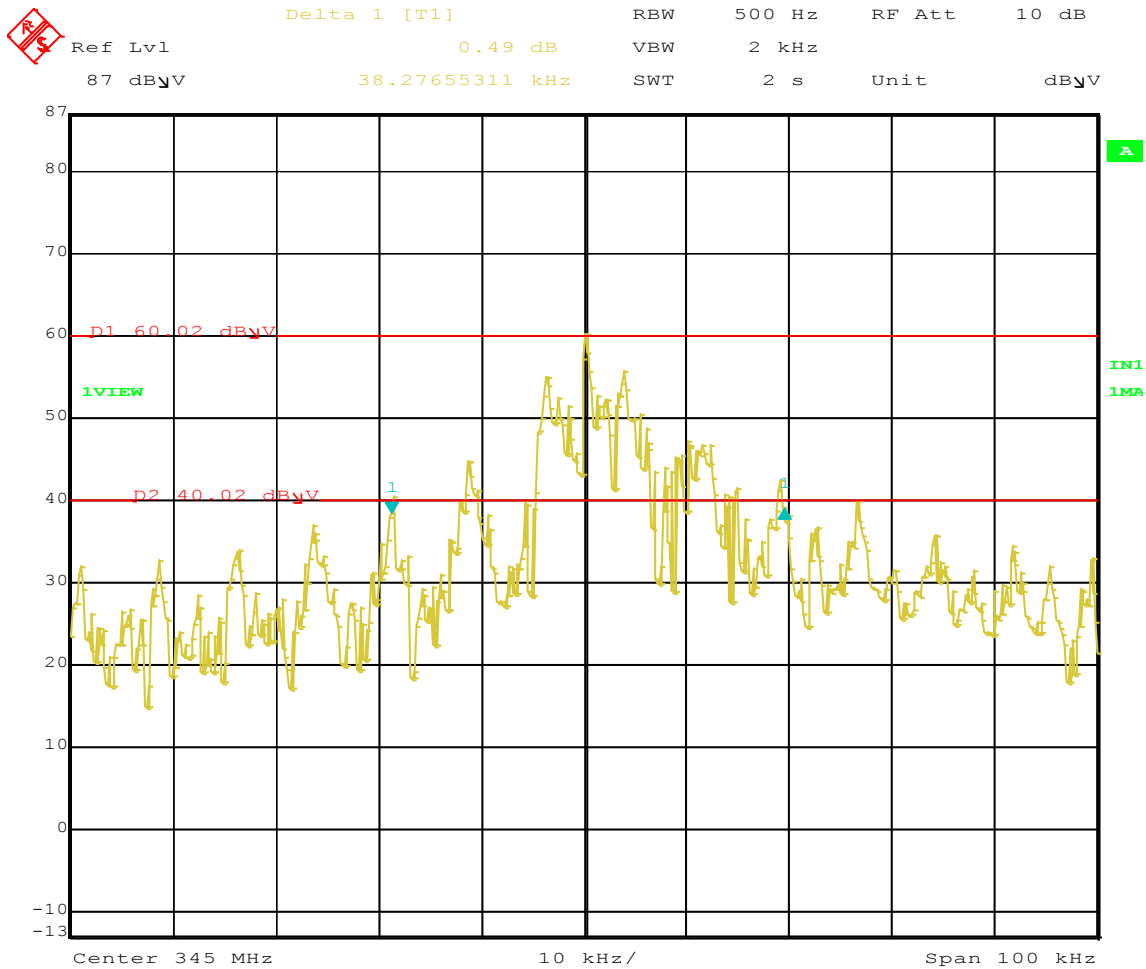
EUT: Button
Model: 2GIG-PHB1-345

Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC-3

FCC 20dB Occupied Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (kHz)	Margin (kHz)	Comments
345.00	38.27	862.50	-824.23	



Title: 2GIG-PHB-345
 Comment A: Bandwidth.
 Date: 12.SEP.2015 00:24:25

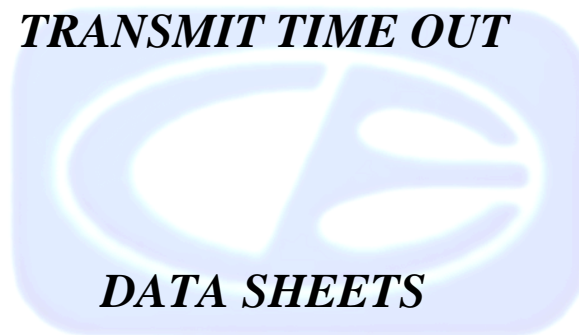
Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Agoura Division
 2337 Troutdale Drive
 Agoura, CA 91301
 (818) 597-0600

Silverado Division
 19121 El Toro Road
 Silverado, CA 92676
 (949) 589-0700

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

TRANSMIT TIME OUT



DATA SHEETS



Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
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20621 Pascal Way
Lake Forest, CA 92630
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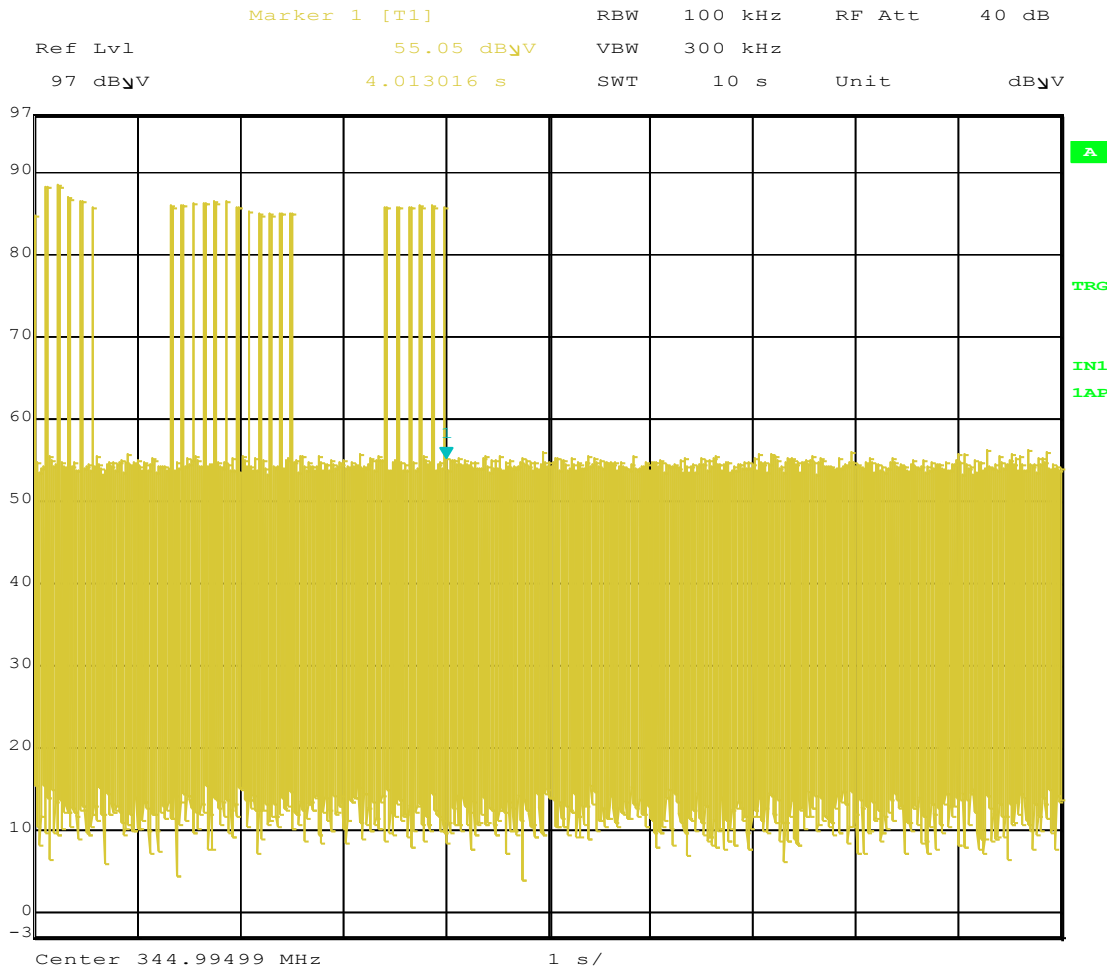
TRANSMIT TIMEOUT

FCC 15.231

Company: Nortek
 EUT: Help Button
 Model: 2GIG-PHB1-345

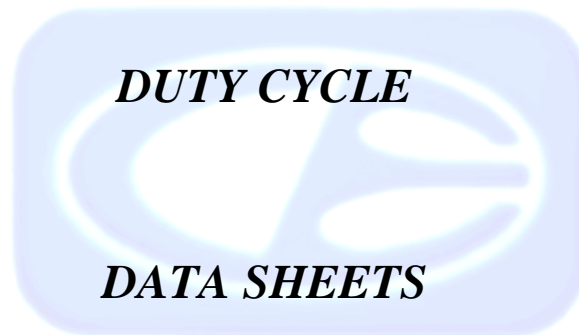
Date: 6/23/2015
 Lab: R
 Tested By: Torey Oliver

Freq. (MHz)	Time (S)	Limit (S)	Margin	Comments
345.00	4.013016	5	-0.986984	



Title: 2GIG-PHB1-345
 Comment A: Transmit Time Out
 Date: 7.AUG.2015 01:55:52





Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
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DUTY CYCLE TRAIN



Marker 1 [T1]

RBW 100 kHz RF Att 50 dB

Ref Lvl 71.14 dB μ V

VBW 500 kHz

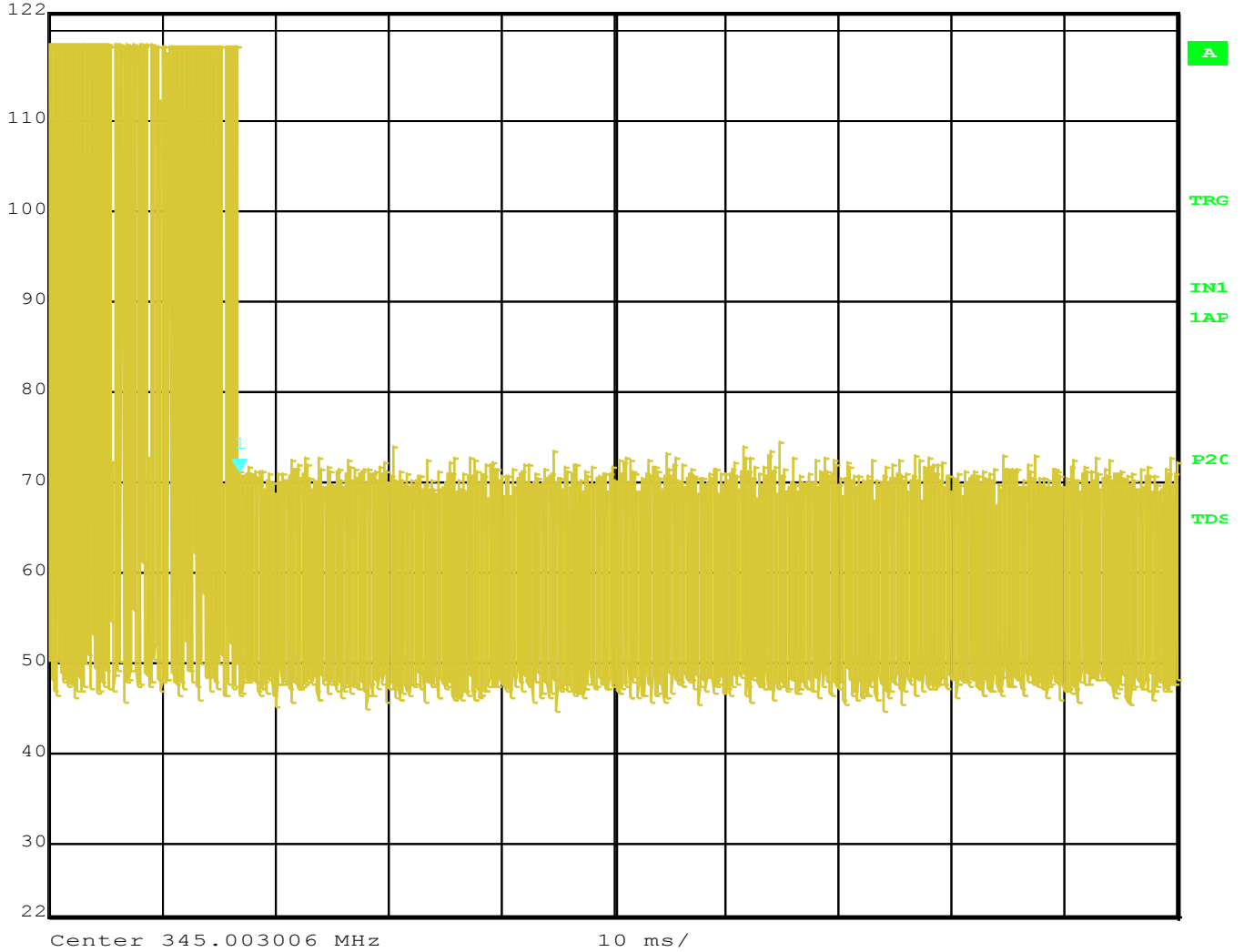
122 dB μ V

16.822445 ms

SWT 100 ms

Unit

dB μ V



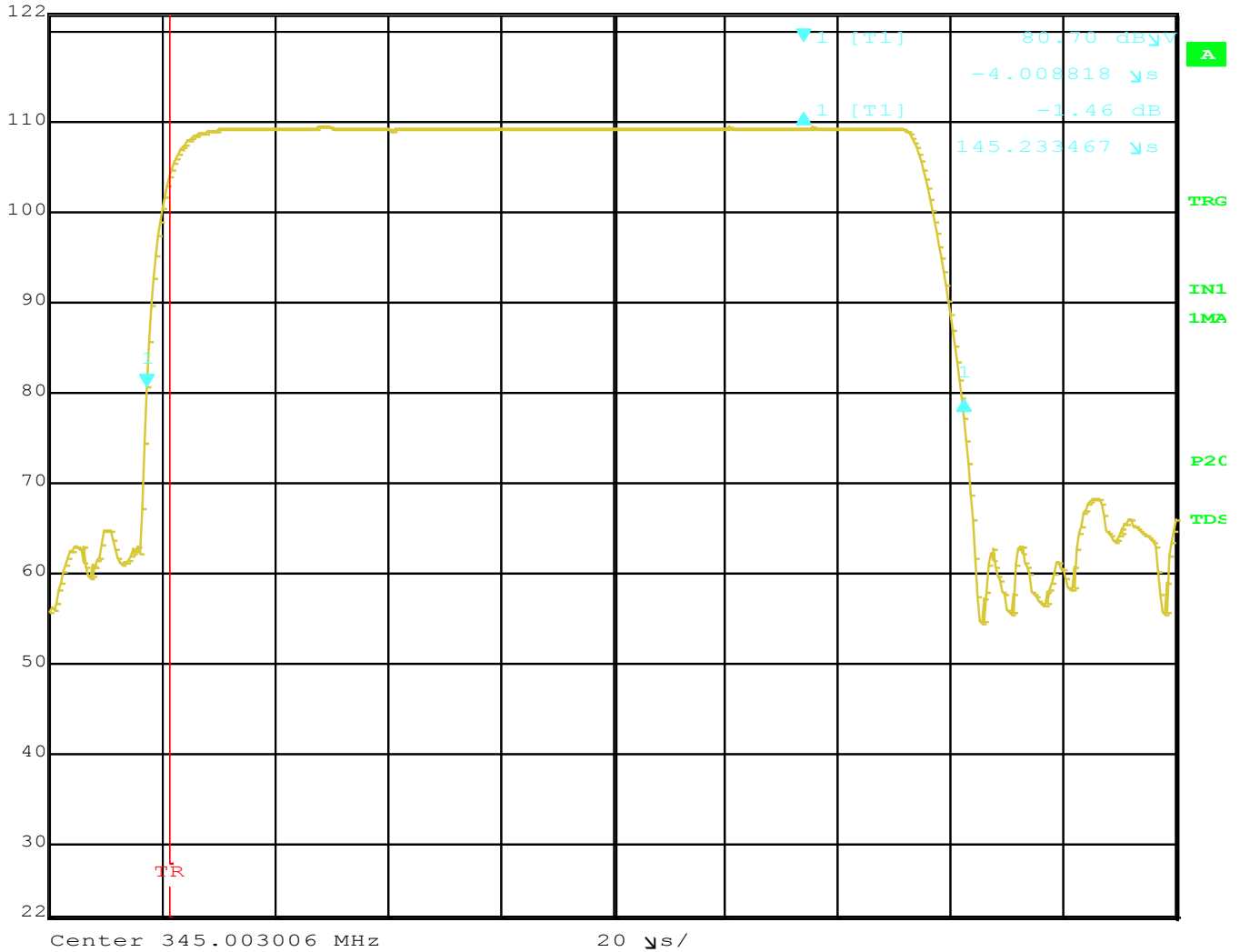
Title: 2GIG-PHB-345
 Comment A: Duty Cycle
 Date: 22.JUN.2015 13:23:14



DUTY CYCLE PULSE TYPE 1 WIDTH



	Delta 1 [T1]	RBW	100 kHz	RF Att	50 dB
Ref Lvl	-1.46 dB	VBW	500 kHz		
122 dB μ V	145.233467 μ s	SWT	200 μ s	Unit	dB μ V



Title: 2GIG-PHB-345
 Comment A: Duty Cycle
 Date: 22.JUN.2015 13:29:22

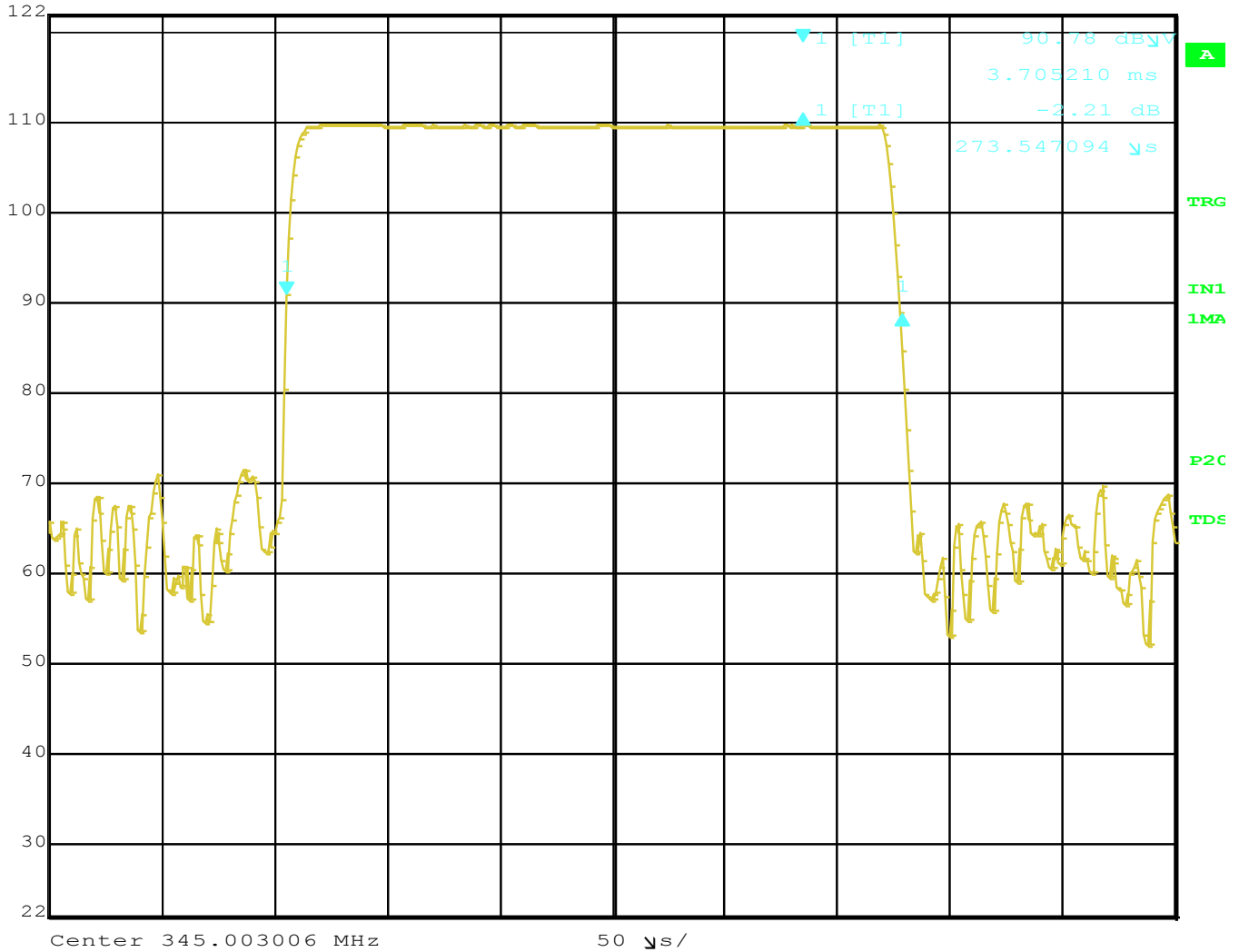
Pulse width = 145.233467 μ s



DUTY CYCLE PULSE TYPE 2 WIDTH



	Delta 1 [T1]	RBW	100 kHz	RF Att	50 dB
Ref Lvl	-2.21 dB	VBW	500 kHz		
122 dB μ V	273.547094 μ s	SWT	500 μ s	Unit	dB μ V



Title: 2GIG-PHB-345
 Comment A: Duty Cycle
 Date: 22.JUN.2015 13:30:34

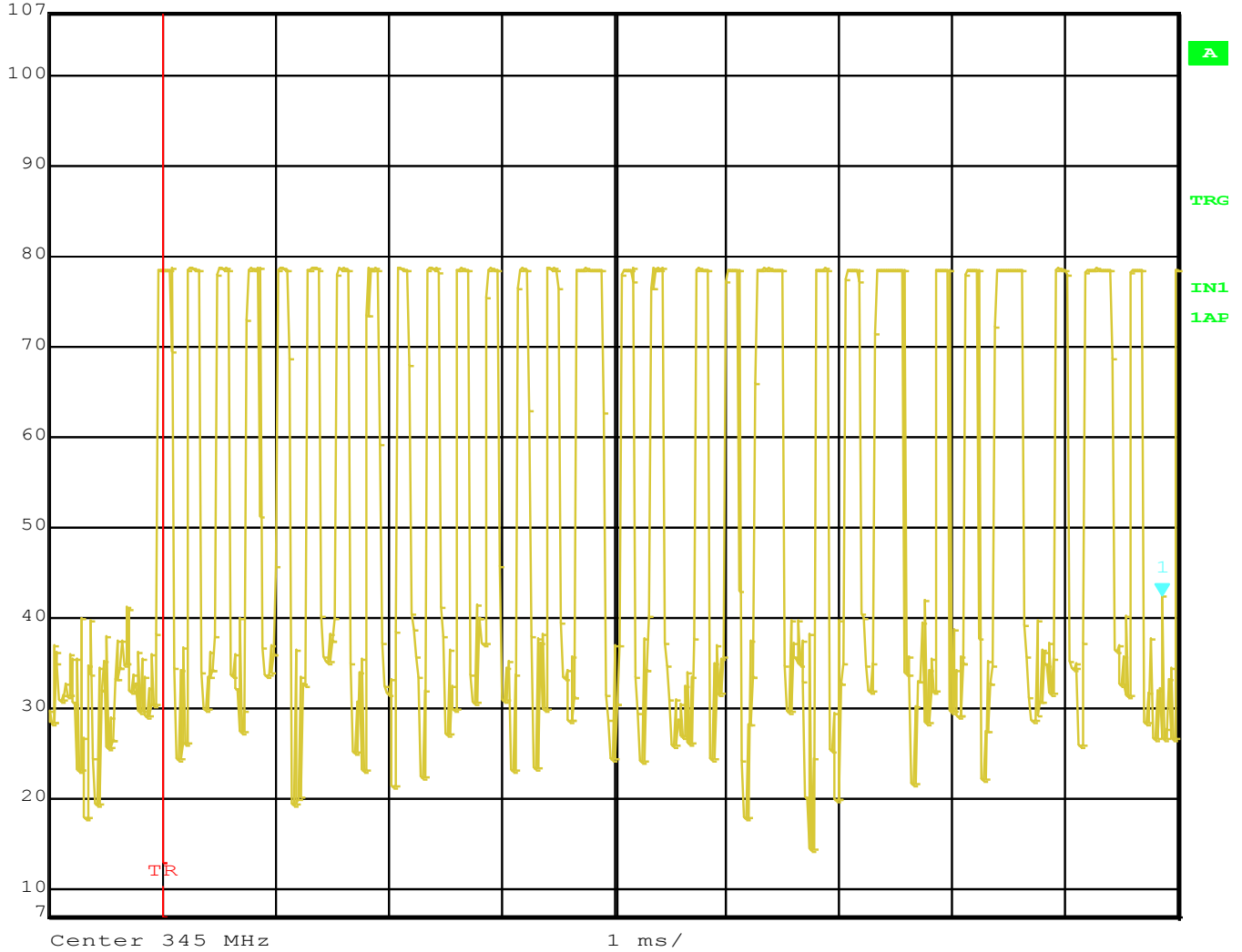
Pulse width = 273.547 μ s



DUTY CYCLE PULSE TRAIN (1st 10mS of Train)



	Marker 1 [T1]	RBW	100 kHz	RF Att	30 dB
Ref Lvl	42.39 dB μ V	VBW	300 kHz		
107 dB μ V	8.859719 ms	SWT	10 ms	Unit	dB μ V



Title: 2GIG-PHB-345
 Comment A: 2GIG-PHB-345
 Date: 22.JUN.2015 15:05:12



Brea Division
 114 Olinda Drive
 Brea, CA 92823
 (714) 579-0500

Agoura Division
 2337 Troutdale Drive
 Agoura, CA 91301
 (818) 597-0600

Silverado Division
 19121 El Toro Road
 Silverado, CA 92676
 (949) 589-0700

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

