FCC PART 15, SUBPART B
FCC 15.249 TEST REPORT
TEST METHOD: ANSI C63.4: 2009

For

CORDLESS SCREWDRIVER
Model: EYFGA1NR

Prepared for

C.E. ELECTRONICS, INC.
2107 INDUSTRIAL DRIVE
BRYAN, OHIO 43506

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

JAMES ROSS

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
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DATE: NOVEMBER 8, 2013

	REPORT BODY	APPENDICES					TOTAL
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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:	Cordless Screwdriver Model: EYFGA1NR S/N: N/A
Product Description:	Please see the expository statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	C.E. Electronics, Inc. 2107 Industrial Drive Bryan, Ohio 43506
Test Date:	October 3, 2013
Test Specifications:	Emissions requirements CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249 Test Procedure: ANSI C63.4: 2009.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	This test was not performed because the EUT will only operate on battery power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions, 10 kHz – 25000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15 Subpart C, 15.209 and 15.249

1. PURPOSE

This document is a qualification test report based on the Emissions tests performed on the Cordless Screwdriver, Model: EYFGA1NR. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4: 2009. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.

Note: for the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15 Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

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

C.E. Electronics, Inc.

Garry L. Courtney	Owner / President

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on October 3, 2013.

2.5 Disposition of the Test Sample

The test sample has not been returned to C.E. Electronics, Inc. as of November 11, 2013.

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

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this test report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
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
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – (Emissions)

The Cordless Screwdriver, Model: EYFGA1NR (EUT) was tested as a stand-alone device and tested in three orthogonal axis.

The EUT was put in a special test mode to allow the transmitter to continuously operate during the testing. The emissions were also investigated with the tool continuously operating the drill to insure the emissions did not go higher in that mode.

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

4.1.2 Cable Construction and Termination

The EUT had no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED IN LAB B					
Computer	Compaq	CQ5210F	CNX9360CF9	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MD	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
GENERAL TEST EQUIPMENT USED IN LAB A					
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	2637A03618	May 30, 2013	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A13404	May 30, 2013	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	May 30, 2013	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	61060	May 29, 2013	1 Year
Preamplifier	Com-Power	PA-103	1582	December 28, 2012	1 Year
Preamplifier	Com-Power	PA-118	181656	December 27, 2012	1 Year
Preamplifier	Com-Power	PA-840	711013	May 17, 2012	2 Year
Loop Antenna	Com-Power	AL-130	17089	January 29, 2013	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 29, 2012	2 Year
Horn Antenna	Com-Power	AH-826	0071957	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. TEST PROCEDURES

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

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the spectrum analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter 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 initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz, and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave.

Test Results:

This test was not performed because the EUT will only operate on battery power only and cannot be plugged into the AC public mains.

7.1.2 Radiated Emissions Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-103 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifiers Models: PA-118 and PA-840 were used for frequencies above 1 GHz. The spectrum analyzer and EMI Receiver were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer or EMI Receiver records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. 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 by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions Test (Continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 10-meter test distance from 10 kHz to 30 MHz, and at a 3 meter test distance from 30 MHz to 25 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249 for radiated emissions. Please see Appendix E for the data sheets

7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
Cordless Screwdriver
Model: EYFGA1NR

Frequency MHz	Corrected Reading* dBuV/m	Spec. Limit dBuV/m	Delta dB
2435 (X-Axis) (Horizontal)	92.99(A)	94.00	-1.01
2465 (Z-Axis) (Horizontal)	92.05 (A)	94.00	-1.95
2435 (Z-Axis) (Horizontal)	91.52 (A)	94.00	-2.48
2465 (X-Axis) (Horizontal)	91.21 (A)	94.00	-2.79
2465 (Z-Axis) (Vertical)	90.48 (A)	94.00	-3.52
2410 (Y-Axis) (Vertical)	90.03 (A)	94.00	-3.97

Notes:

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

\# Quasi-Peak Reading

A Average Reading

8. CONCLUSIONS

The Cordless Screwdriver, Model: EYFGA1NR, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

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, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

Agoura Division / **Brea Division** / **Silverado/Lake Forest Division**

.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."

ANSI listing CETCB

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

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).
APEC MRA list NIST MRA site

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

VCCI Support member: Please visit http://www.vcci.jp/vcci_e/

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

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during the test.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Cordless Screwdriver Model: EYFGA1NR S/N: N/A
ADDITIONAL MODELS	EYFGA2NR EYFGA3NR

The EYFGA2NR and EYFGA3NR are identical to the unit used for the primary except the output gearing differs to achieve different torque levels.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

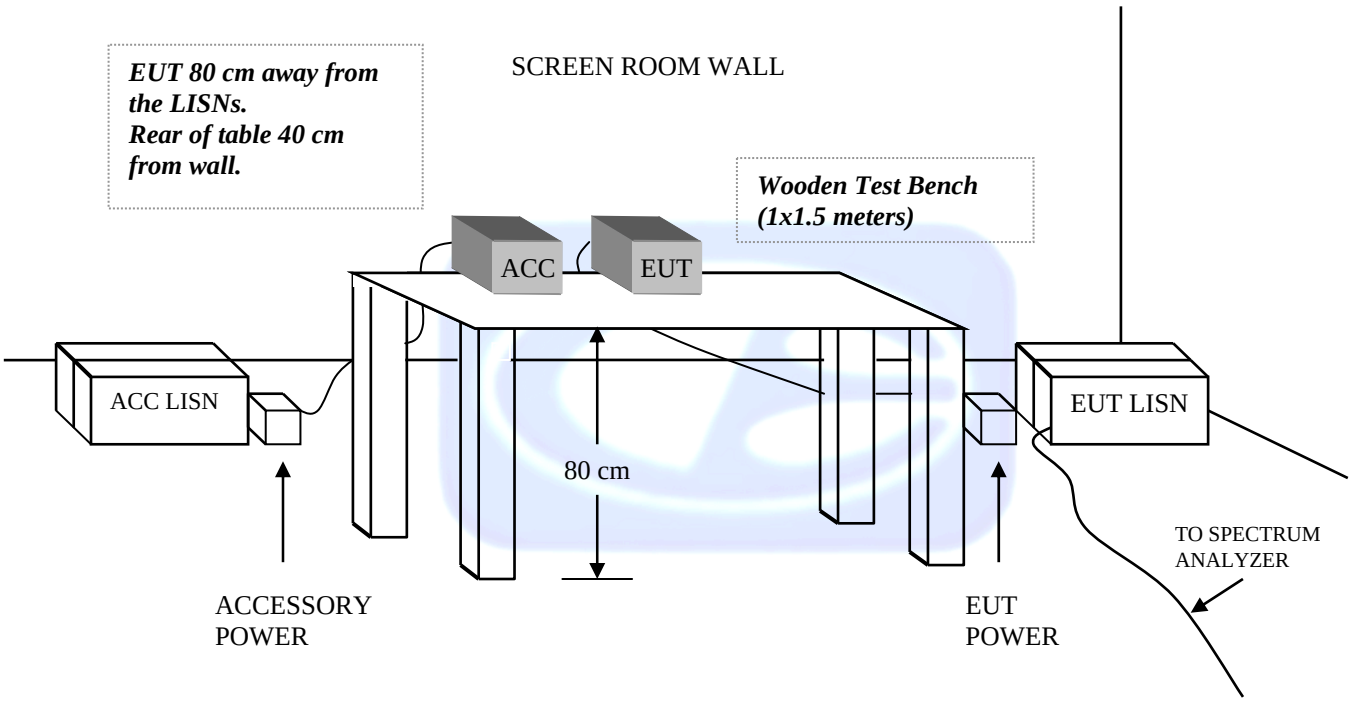


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

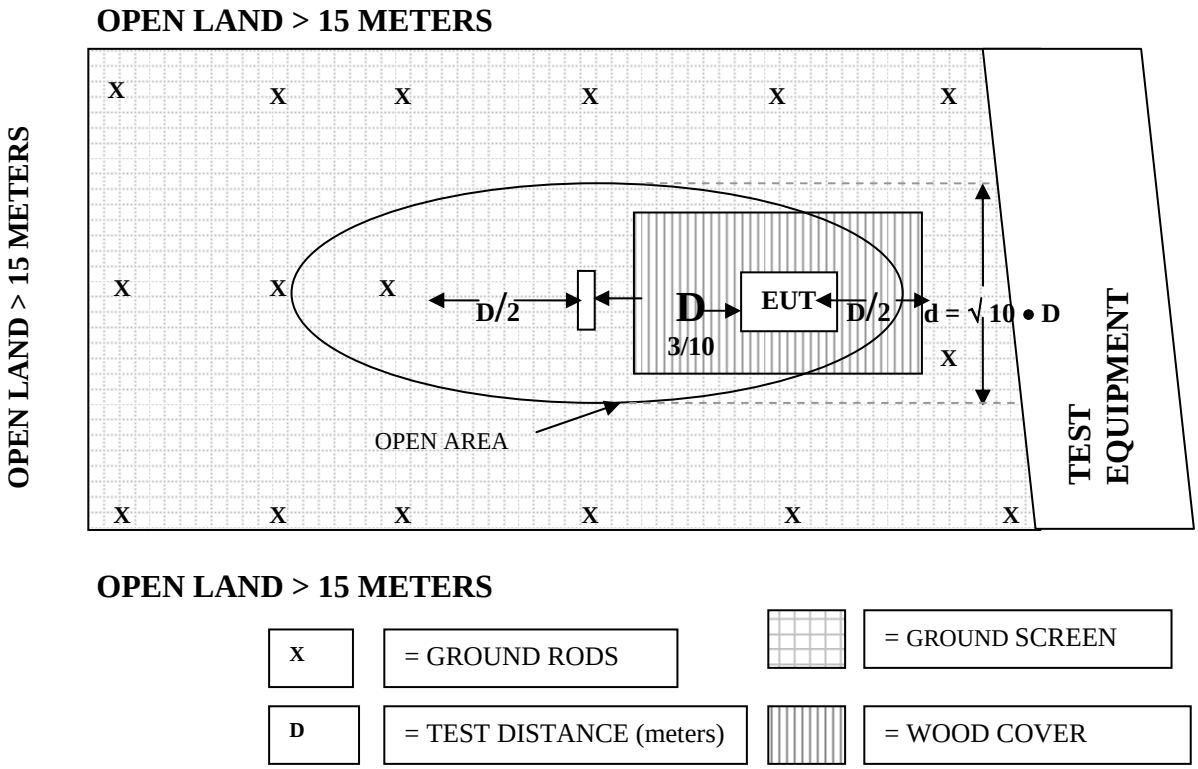
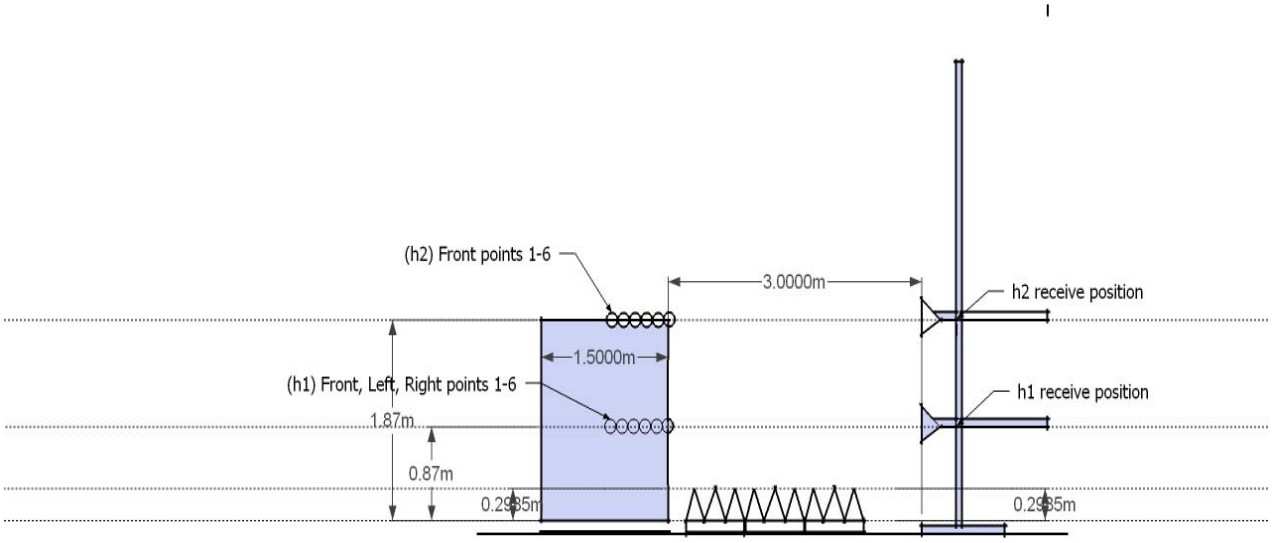


FIGURE 3: HIGH FREQUENCY TEST VOLUME



COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2013

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-42.5	9
0.01	-42.3	9.2
0.02	-42.1	9.4
0.03	-41.4	10.1
0.04	-41.8	9.7
0.05	-42.4	9.1
0.06	-42.3	9.2
0.07	-42.5	9
0.08	-42.4	9.1
0.09	-42.5	9
0.1	-42.5	9
0.2	-42.7	8.8
0.3	-42.6	8.9
0.4	-42.5	9
0.5	-42.7	8.8
0.6	-42.7	8.8
0.7	-42.5	9
0.8	-42.3	9.2
0.9	-42.2	9.3
1	-42.2	9.3
2	-41.8	9.7
3	-41.7	9.8
4	-41.7	9.8
5	-41.5	10
6	-41.6	9.9
7	-41.4	10.1
8	-41	10.5
9	-40.8	10.7
10	-41.3	10.2
15	-41.4	10.1
20	-41.2	10.3
25	-42.6	8.9
30	-41.7	9.8

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: MAY 29, 2013

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	19.40	200	9.10
35	19.10	250	11.40
40	19.70	300	11.90
45	18.00	350	14.20
50	16.80	400	15.20
60	12.50	450	16.50
70	7.30	500	17.10
80	4.40	550	16.20
90	8.00	600	17.70
100	8.80	650	19.10
120	10.50	700	20.00
125	10.60	750	21.50
140	8.60	800	21.50
150	11.20	850	21.70
160	8.90	900	22.70
175	9.60	950	22.10
180	8.50	1000	22.90

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 29, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.6	10.0	37.7
1.5	22.0	10.5	38.4
2.0	28.7	11.0	38.0
2.5	29.3	11.5	38.2
3.0	30.6	12.0	39.0
3.5	30.4	12.5	42.4
4.0	31.1	13.0	40.8
4.5	33.4	13.5	40.0
5.0	35.3	14.0	39.7
5.5	35.1	14.5	43.5
6.0	36.9	15.0	42.7
6.5	37.4	15.5	39.7
7.0	37.6	16.0	39.2
7.5	36.2	16.5	39.7
8.0	38.4	17.0	42.2
8.5	39.3	17.5	47.6
9.0	37.4	18.0	51.2
9.5	38.0		

COM-POWER AH826

HORN ANTENNA

S/N: 71957

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

COM-POWER PA-103

PREAMPLIFIER

S/N: 1582

CALIBRATION DATE: DECEMBER 28, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.80	300	32.26
40	33.10	350	32.23
50	33.10	400	32.17
60	33.10	450	32.16
70	33.00	500	32.11
80	33.00	550	32.07
90	33.10	600	32.02
100	33.00	650	31.97
125	33.00	700	31.87
150	33.00	750	31.81
175	32.90	800	31.73
200	32.80	850	31.57
225	32.34	900	31.43
250	32.32	950	31.29
275	32.28	1000	31.14

COM-POWER PA-118

PREAMPLIFIER

S/N: 181656

CALIBRATION DATE: DECEMBER 27, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
0.50	25.29	6.00	25.75
0.60	25.26	6.50	25.28
0.70	25.23	7.00	24.83
0.80	25.13	7.50	24.49
0.90	24.91	8.00	24.38
1.00	24.68	8.50	25.06
1.25	25.85	9.00	25.55
1.50	26.23	9.50	25.32
1.75	26.42	10.0	25.25
2.00	26.48	10.5	25.31
2.25	26.55	11.0	24.99
2.50	26.59	11.5	24.84
2.75	26.64	12.0	25.08
3.00	26.67	12.5	24.64
3.25	26.67	13.0	24.44
3.50	26.66	13.5	24.85
3.75	26.58	14.0	25.02
4.00	26.82	14.5	25.41
4.25	26.60	15.0	26.12
4.50	26.46	15.5	26.74
4.75	26.36	16.0	25.67
5.00	26.22	16.5	24.48
5.25	26.11	17.0	24.33
5.50	25.98	17.5	25.19
5.75	25.90	18.0	26.75

COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 17, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.81	31.0	25.77
19.0	24.57	31.5	25.36
20.0	23.46	32.0	25.15
21.0	22.51	32.5	25.13
22.0	23.85	33.0	25.52
23.0	23.31	33.5	25.24
24.0	24.44	34.0	25.08
25.0	25.42	34.5	25.27
26.0	25.71	35.0	23.99
26.5	25.66	35.5	24.67
27.0	25.84	36.5	24.80
27.5	25.29	37.0	26.27
28.0	25.46	37.5	24.86
28.5	25.58	38.0	24.64
29.0	26.16	38.5	23.46
29.5	26.14	39.0	21.29
30.0	26.01	39.5	20.83
30.5	25.67	40.0	19.96

FRONT VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1000 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1000 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 10 kHz to 30 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 10 kHz to 30 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 1000 MHz to 25000 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

C.E. ELECTRONICS, INC.
CORDLESS SCREWDRIVER
Model: EYFGA1NR
FCC SUBPART B AND C – RADIATED EMISSIONS – 1000 MHz to 25000 MHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSION

DATA SHEETS

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	90.93	V	114	-23.07	Peak	1.25	90	
2410	87.93	V	94	-6.07	Avg	1.25	90	
4820	50.43	V	74	-23.57	Peak	1.25	155	
4820	37.71	V	54	-16.29	Avg	1.25	155	
7230	49.54	V	74	-24.46	Peak	1.35	165	
7230	37.25	V	54	-16.75	Avg	1.35	165	
9640								**No Emission**
9640								**Detected**
12050								**No Emission**
12050								**Detected**
14460								**No Emission**
14460								**Detected**
16870								**No Emission**
16870								**Detected**
19280								**No Emission**
19280								**Detected**
21690								**No Emission**
21690								**Detected**
24100								**No Emission**
24100								**Detected**

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	91.8	H	114	-22.2	Peak	1.25	155	
2410	89.49	H	94	-4.51	Avg	1.25	155	
4820	51.68	H	74	-22.32	Peak	1.25	155	
4820	43.43	H	54	-10.57	Avg	1.25	155	
7230	49.21	H	74	-24.79	Peak	1.35	165	
7230	29.11	H	54	-24.89	Avg	1.35	165	
9640								No Emission
9640								Detected
12050								No Emission
12050								Detected
14460								No Emission
14460								Detected
16870								No Emission
16870								Detected
19280								No Emission
19280								Detected
21690								No Emission
21690								Detected
24100								No Emission
24100								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	92.47	V	114	-21.53	Peak	1.25	135	
2410	90.03	V	94	-3.97	Avg	1.25	135	
4820	53.58	V	74	-20.42	Peak	1.25	135	
4820	42.63	V	54	-11.37	Avg	1.25	135	
7230	47.65	V	74	-26.35	Peak	1.25	90	
7230	37.41	V	54	-16.59	Avg	1.25	90	
9640								No Emission
9640								Detected
12050								No Emission
12050								Detected
14460								No Emission
14460								Detected
16870								No Emission
16870								Detected
19280								No Emission
19280								Detected
21690								No Emission
21690								Detected
24100								No Emission
24100								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	91.07	H	114	-22.93	Peak	1.25	155	
2410	88.51	H	94	-5.49	Avg	1.25	155	
4820	53.62	H	74	-20.38	Peak	1.35	145	
4820	43.73	H	54	-10.27	Avg	1.35	145	
7230	49.28	H	74	-24.72	Peak	1.25	165	
7230	37.64	H	54	-16.36	Avg	1.25	165	
9640								No Emission
9640								Detected
12050								No Emission
12050								Detected
14460								No Emission
14460								Detected
16870								No Emission
16870								Detected
19280								No Emission
19280								Detected
21690								No Emission
21690								Detected
24100								No Emission
24100								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	90.55	V	114	-23.45	Peak	1.25	155	
2410	87.91	V	94	-6.09	Avg	1.25	155	
4820	55.46	V	74	-18.54	Peak	1.25	155	
4820	44.53	V	54	-9.47	Avg	1.25	155	
7230	49.44	V	74	-24.56	Peak	1.25	165	
7230	37.66	V	54	-16.34	Avg	1.25	165	
9640								No Emission
9640								Detected
12050								No Emission
12050								Detected
14460								No Emission
14460								Detected
16870								No Emission
16870								Detected
19280								No Emission
19280								Detected
21690								No Emission
21690								Detected
24100								No Emission
24100								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	89.32	H	114	-24.68	Peak	1.25	135	
2410	86.98	H	94	-7.02	Avg	1.25	135	
4820	53.29	H	74	-20.71	Peak	1.25	145	
4820	37.45	H	54	-16.55	Avg	1.25	145	
7230	48.96	H	74	-25.04	Peak	1.25	165	
7230	37.55	H	54	-16.45	Avg	1.25	165	
9640								No Emission
9640								Detected
12050								No Emission
12050								Detected
14460								No Emission
14460								Detected
16870								No Emission
16870								Detected
19280								No Emission
19280								Detected
21690								No Emission
21690								Detected
24100								No Emission
24100								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	91.31	V	114	-22.69	Peak	1.25	155	
2435	89.07	V	94	-4.93	Avg	1.25	155	
4870	51.99	V	74	-22.01	Peak	1.35	165	
4870	37.72	V	54	-16.28	Avg	1.35	165	
7305	50.18	V	74	-23.82	Peak	1.25	175	
7305	37.01	V	54	-16.99	Avg	1.25	175	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	95.47	H	114	-18.53	Peak	1.25	135	
2435	92.99	H	94	-1.01	Avg	1.25	135	
4870	51.69	H	74	-22.31	Peak	1.15	135	
4870	41.34	H	54	-12.66	Avg	1.15	135	
7305	49.11	H	74	-24.89	Peak	1.25	155	
7305	36.83	H	54	-17.17	Avg	1.25	155	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	93.69	V	114	-20.31	Peak	1.25	315	
2435	89.89	V	94	-4.11	Avg	1.25	315	
4870	50.99	V	74	-23.01	Peak	1.25	155	
4870	41.11	V	54	-12.89	Avg	1.25	155	
7305	50.69	V	74	-23.31	Peak	1.35	165	
7305	36.85	V	54	-17.15	Avg	1.35	165	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	91.94	H	114	-22.06	Peak	1.25	155	
2435	89.05	H	94	-4.95	Avg	1.25	155	
4870	53.12	H	74	-20.88	Peak	1.25	165	
4870	40.79	H	54	-13.21	Avg	1.25	165	
7305	49.74	H	74	-24.26	Peak	1.35	175	
7305	37.31	H	54	-16.69	Avg	1.35	175	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	88.56	V	114	-25.44	Peak	1	155	
2435	86.11	V	94	-7.89	Avg	1	155	
4870	52.79	V	74	-21.21	Peak	1.25	135	
4870	43.19	V	54	-10.81	Avg	1.25	135	
7305	49.54	V	74	-24.46	Peak	1.15	145	
7305	37.28	V	54	-16.72	Avg	1.15	145	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2435	94.78	H	114	-19.22	Peak	1.25	155	
2435	91.52	H	94	-2.48	Avg	1.25	155	
4870	51.29	H	74	-22.71	Peak	1.25	145	
4870	40.41	H	54	-13.59	Avg	1.25	145	
7305	49.34	H	74	-24.66	Peak	1.35	155	
7305	37.31	H	54	-16.69	Avg	1.35	155	
9740								No Emission
9740								Detected
12175								No Emission
12175								Detected
14610								No Emission
14610								Detected
17045								No Emission
17045								Detected
19480								No Emission
19480								Detected
21915								No Emission
21915								Detected
24350								No Emission
24350								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	91.28	V	114	-22.72	Peak	1.25	90	
2465	86.36	V	94	-7.64	Avg	1.25	90	
4930	51.84	V	74	-22.16	Peak	1.25	155	
4930	38.78	V	54	-15.22	Avg	1.25	155	
7395	48.29	V	74	-25.71	Peak	1.35	165	
7395	36.61	V	54	-17.39	Avg	1.35	165	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	94.21	H	114	-19.79	Peak	1.25	155	
2465	91.21	H	94	-2.79	Avg	1.25	155	
4930	51.01	H	74	-22.99	Peak	1.25	145	
4930	38.86	H	54	-15.14	Avg	1.25	145	
7395	48.95	H	74	-25.05	Peak	1.15	135	
7395	36.45	H	54	-17.55	Avg	1.15	135	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	91.51	V	114	-22.49	Peak	1.25	225	
2465	89.16	V	94	-4.84	Avg	1.25	225	
4930	45.85	V	74	-28.15	Peak	1.35	135	
4930	35.77	V	54	-18.23	Avg	1.35	135	
7395	49.94	V	74	-24.06	Peak	1.25	145	
7395	36.85	V	54	-17.15	Avg	1.25	145	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	91.72	H	114	-22.28	Peak	1.25	155	
2465	89.11	H	94	-4.89	Avg	1.25	155	
4930	48.91	H	74	-25.09	Peak	1.25	165	
4930	37.14	H	54	-16.86	Avg	1.25	165	
7395	49.62	H	74	-24.38	Peak	1.25	175	
7395	36.68	H	54	-17.32	Avg	1.25	175	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	93	V	114	-21	Peak	1.25	155	
2465	90.48	V	94	-3.52	Avg	1.25	155	
4930	50.83	V	74	-23.17	Peak	1.35	165	
4930	39.29	V	54	-14.71	Avg	1.35	165	
7395	49.61	V	74	-24.39	Peak	1.25	175	
7395	36.61	V	54	-17.39	Avg	1.25	175	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	94.49	H	114	-19.51	Peak	1.25	155	
2465	92.05	H	94	-1.95	Avg	1.25	155	
4930	50.78	H	74	-23.22	Peak	1.25	165	
4930	38.76	H	54	-15.24	Avg	1.25	165	
7395	48.98	H	74	-25.02	Peak	1.35	175	
7395	37.41	H	54	-16.59	Avg	1.35	175	
9860								No Emission
9860								Detected
12325								No Emission
12325								Detected
14790								No Emission
14790								Detected
17255								No Emission
17255								Detected
19720								No Emission
19720								Detected
22185								No Emission
22185								Detected
24650								No Emission
24650								Detected

FCC 15.249 and FCC Class B
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Labs: A and B
Tested By: Kyle Fujimoto

Digital Portion and Non-Harmonic Emissions from the Transmitter
10 kHz to 25 GHz

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Digital Portion
								from 10 kHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								No Non Harmonic
								Emissions Found
								for the Tx Mode
								from 10 kHz to 25 GHz
								for both Vertical and Horizontal
								Polarizations
								Investigated in the
								X, Y, and Z-Axis

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Band Edges
Low Channel

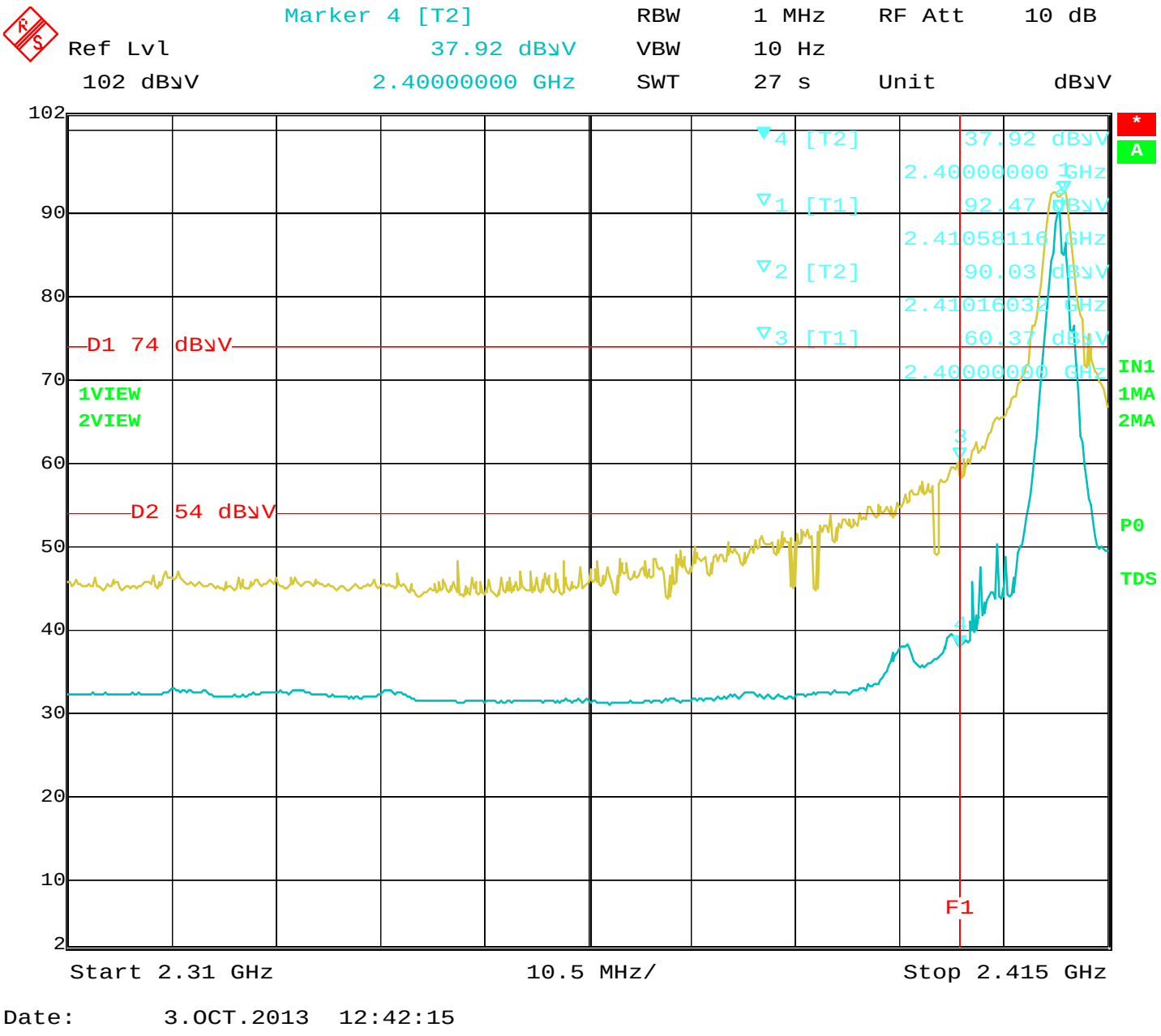
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	92.47	V	114	-21.53	Peak	1.25	135	Fundamental of
2410	90.03	V	94	-3.97	Avg	1.25	135	Low Channel - Y-Axis
2400	60.37	V	74	-13.63	Peak	1.25	135	Band Edge of
2400	37.92	V	54	-16.08	Avg	1.25	135	Lower Channel
2410	91.8	H	114	-22.2	Peak	1.25	155	Fundamental of
2410	89.49	H	94	-4.51	Avg	1.25	155	Low Channel - X-Axis
2400	56.32	H	74	-17.68	Peak	1.25	155	Band Edge of
2400	38.1	H	54	-15.9	Avg	1.25	155	Lower Channel

FCC 15.249
CE Electronics, Inc.
Cordless Screwdriver
Model: EYFGA1NR

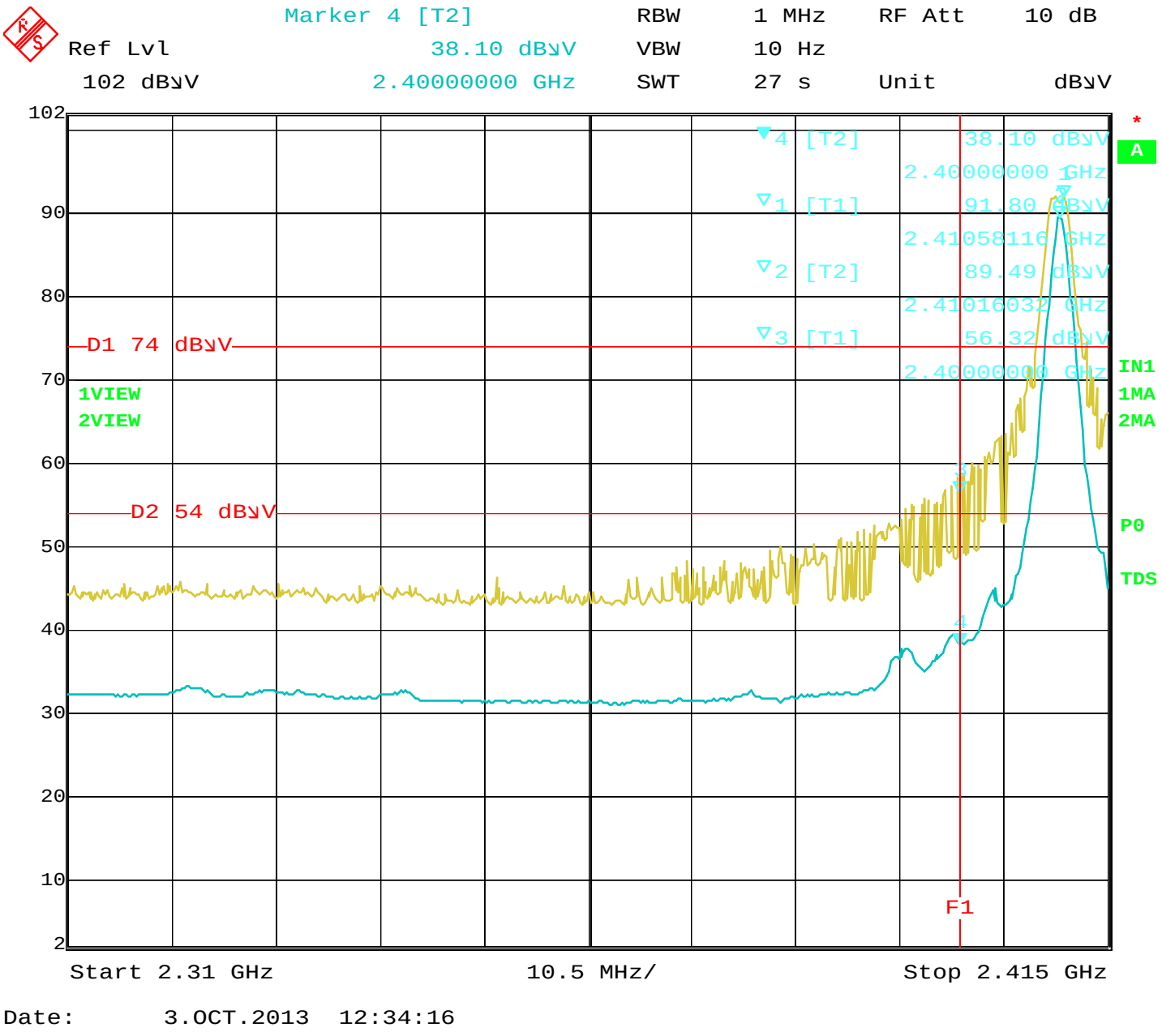
Date: 10/03/2013
Lab: B
Tested By: Kyle Fujimoto

Band Edges
High Channel

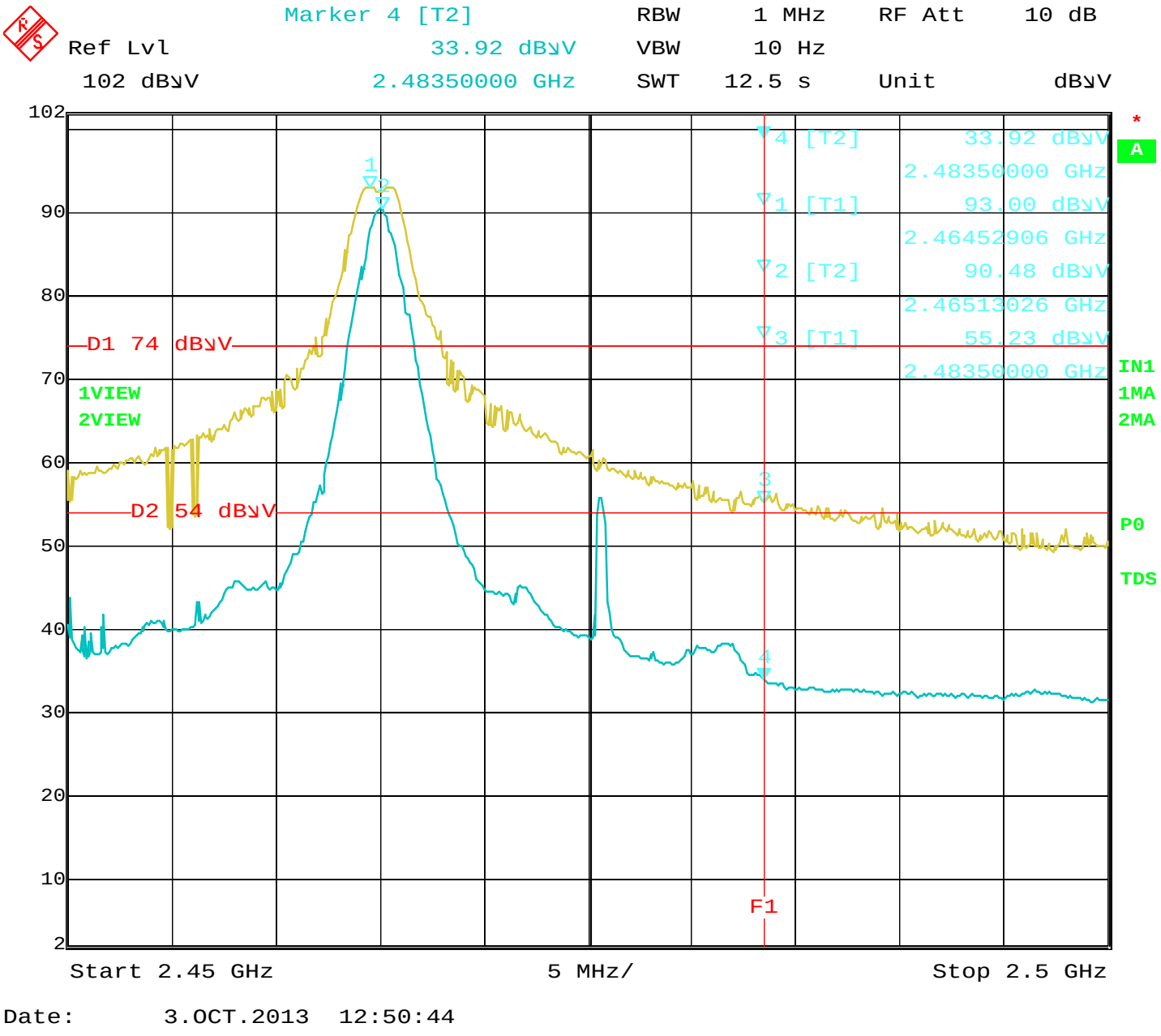
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2465	93	V	114	-21	Peak	1.25	155	**Fundamental of**
2465	90.48	V	94	-3.52	Avg	1.25	155	**High Channel - Z-Axis**
2483.5	55.23	V	74	-18.77	Peak	1.25	155	**Band Edge of**
2483.5	33.92	V	54	-20.08	Avg	1.25	155	**High Channel**
2465	94.49	H	114	-19.51	Peak	1.25	155	**Fundamental of**
2465	92.05	H	94	-1.95	Avg	1.25	155	**High Channel - Z-Axis**
2483.5	57.14	H	74	-16.86	Peak	1.25	155	**Band Edge of**
2483.5	36.12	H	54	-17.88	Avg	1.25	155	**High Channel**



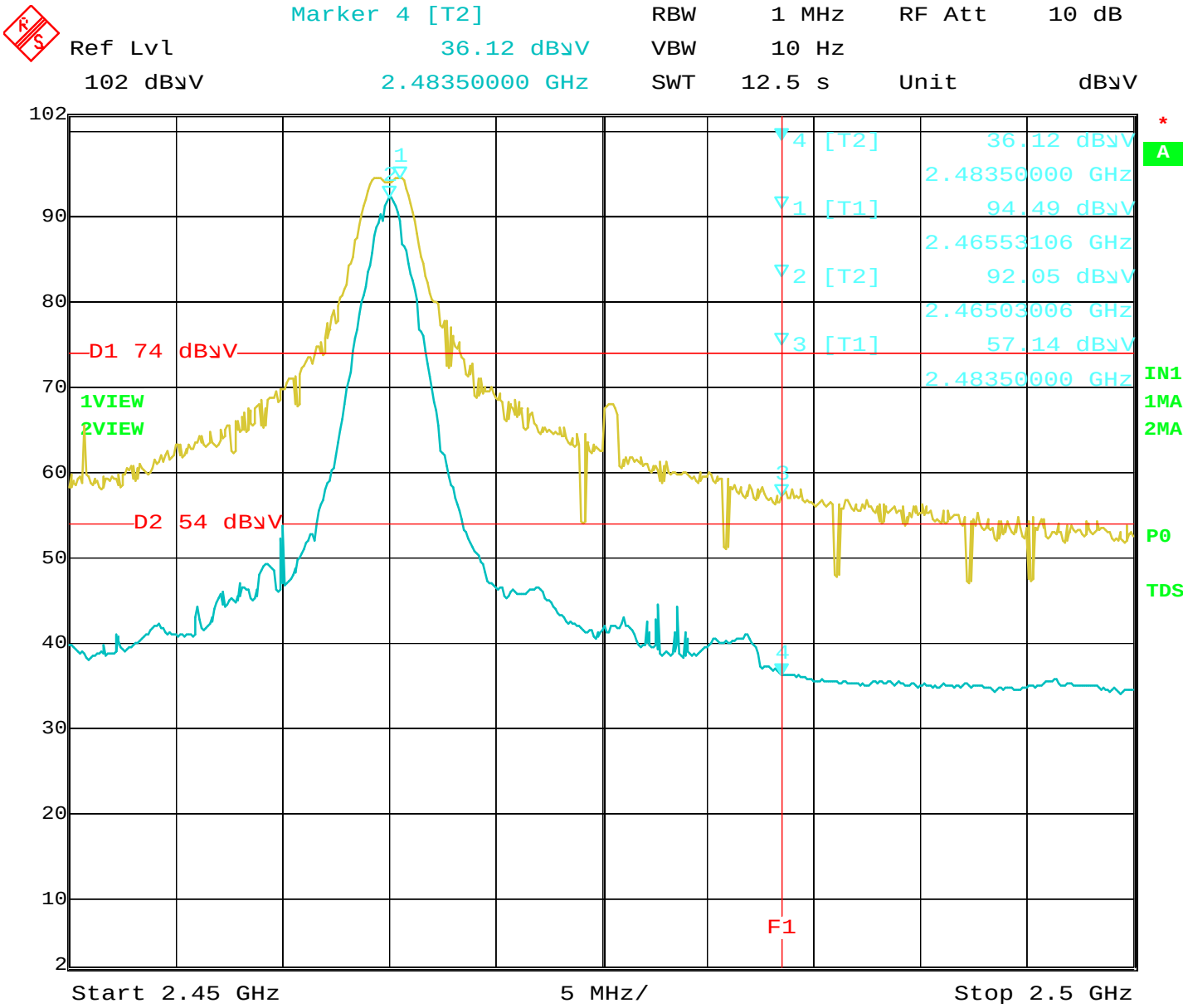
Band Edge – Low Channel – Vertical Polarization – Y-Axis (Worst Case)



Band Edge – Low Channel – Horizontal Polarization – X-Axis (Worst Case)



Band Edge – High Channel – Vertical Polarization – Z-Axis (Worst Case)



Band Edge – High Channel – Horizontal Polarization – Z-Axis (Worst Case)