

**FCC PART 15 SUBPART B and C
TEST REPORT***for***POLARIS TIMER CONSOLE****MODEL: POLARIS**

Prepared for

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WYLIE, TEXAS 75098Prepared by: *Kyle Fujimoto*

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DATE: JANUARY 13, 2011

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	17	2	2	2	11	11	45

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1	Conducted Emissions Test Setup
2	Plot Map And Layout of Radiated Test Site – 3 Meters

GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, 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 without the written permission of Compatible Electronics, unless done so in full.

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

Device Tested: Polaris Timer Console
Model: Polaris
S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified in order to meet the specifications.

Customer: Farmtek, Inc.
1000-D Highway 78 North
Wylie, Texas 75098

Test Date(s): January 10, 2011

Test Specifications: EMI requirements
CFR Title 47, Part 15, Subpart B

Test Procedure: ANSI C63.4

Test Deviations: The test procedure was not deviated from during the testing.

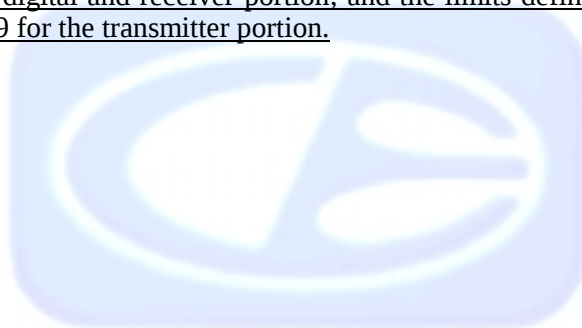
SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions 150 kHz to 30 MHz	This test was not performed because the EUT operates on battery power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions 10 kHz – 9300 MHz (Transmitter, Receive, and Digital Portion)	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249. Highest reading in relation to spec limit: 90.94 dBuV @ 921.37 MHz (*U = 3.59 dB)

*U = Expanded Uncertainty with a coverage factor of k=2

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Polaris Timer Console, Model: Polaris. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. 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 for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

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

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

Farmtek, Inc.

Mike Douglas President

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer

James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not yet been returned as of the date of this report.

2.6 Abbreviations and Acronyms

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

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
IR	Infrared

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4: 2009	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – EMI

The Polaris Timer Console, Model: Polaris (EUT), was connected to three simulators via its horn, output, and input ports. The EUT was constantly transmitting, or receiving, depending on the test being performed.

The antenna has a reverse polarity SMA connector.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 1.5-meter foil unshielded cable connecting the EUT's horn port to the simulator. The cable has a 1/8 inch stereo connector at the EUT end and is hard wired into the simulator. The cable was bundled to a length of 40 centimeters.
- Cable 2** This is a 1.5-meter foil unshielded cable connecting the EUT's input port to the simulator. The cable has a 1/8 inch stereo connector at the EUT end and is hard wired into the simulator. The cable was bundled to a length of 40 centimeters.
- Cable 3** This is a 1.5-meter foil unshielded cable connecting the EUT's output port to the simulator. The cable has a 1/8 inch stereo connector at the EUT end and is hard wired into the simulator. The cable was bundled to a length of 40 centimeters.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
POLARIS TIMER CONSOLE (EUT)	FARMTEK, INC.	POLARIS	N/A	NWNMI043
(3) SIMULATORS	N/A	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100218	April 9, 2009	April 9, 2011
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	2637A03618	June 1, 2010	June 1, 2011
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A13404	June 1, 2010	June 1, 2011
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	September 16, 2010	September 16, 2011
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Biconical Antenna	Com-Power	AB-900	15250	June 18, 2010	June 18, 2011
Log Antenna	Com-Power	AL-100	16252	June 9, 2010	June 9, 2011
Preamplifier	Com-Power	PA-102	1017	January 6, 2010	January 6, 2012
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	September 29, 2011
Microwave Preamplifier	Com-Power	PA-118	181656	December 22, 2010	December 22, 2011
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 EMI 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.

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. 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 measurement receiver was used as a measuring meter. The data was collected with the measurement receiver 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 measurement receiver's input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the measurement 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 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 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 Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

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

7.1.2 Radiated Emissions (Spurious and Harmonics) 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-102 was used for frequencies from 30 MHz to 1 GHz and the Com Power Microwave Preamplifier Model: PA-118 was 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 records the highest measured reading over all the sweeps.

The quasi-peak function 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 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

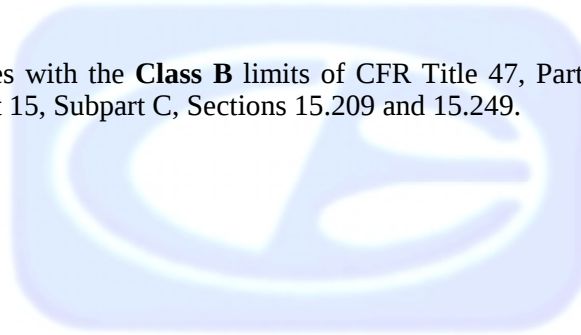
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. 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. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) 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 3-meter test distance 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.



7.1.3 RF Emissions Test ResultsTable 1.0 RADIATED EMISSION RESULTS
Polaris Timer Console, Model: Polaris

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
921.37	90.94	94.00	-3.06
912.37	90.84	94.00	-3.16
903.37	89.54	94.00	-4.46
75.695	31.43	40.00	-8.57
74.742	29.00	40.00	-11.00
148.182	31.50	43.50	-12.00

Notes:

- * The complete emissions data is given in Appendix E of this report.
A Average Reading

8. CONCLUSIONS

The Polaris Timer Console, Model: Polaris (EUT), as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.



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



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) <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

The modifications listed below were made to the EUT to pass FCC 15.249 and/or FCC **Class B** specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modification were made to the EUT during the testing.



APPENDIX C***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Polaris Timer Console
Model: Polaris
S/N: N/A

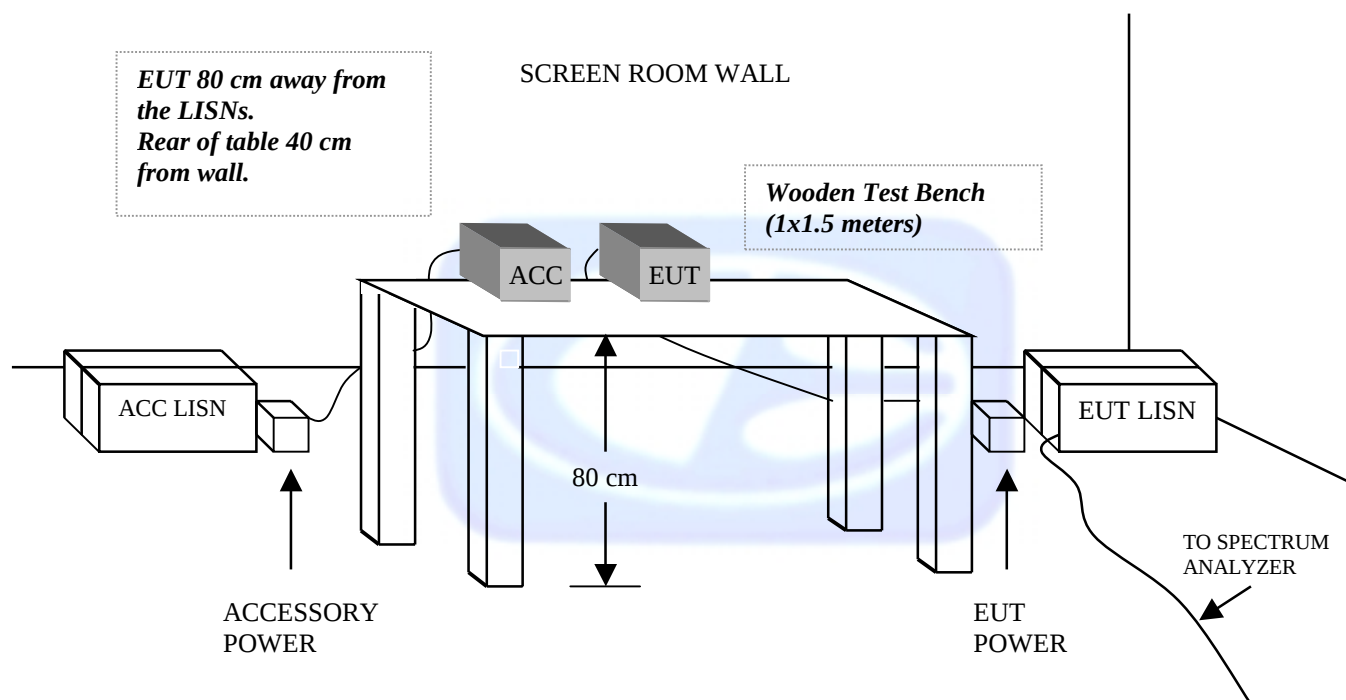
ALSO APPROVED UNDER THIS REPORT:

There were no additional models covered under this report.



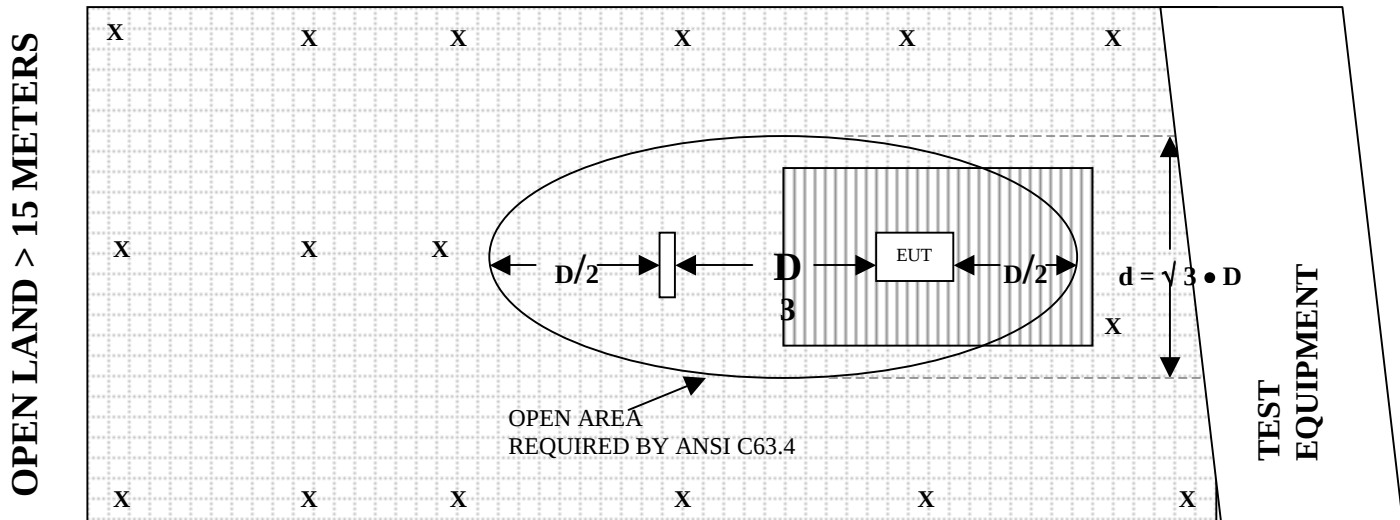
APPENDIX D***DIAGRAMS, CHARTS, AND PHOTOS***

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP



**FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE –
3 METERS**

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X	= GROUND RODS		= GROUND SCREEN
D	= TEST DISTANCE (meters)		= WOOD COVER

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15250

CALIBRATION DATE: JUNE 18, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.8	100	11.5
35	11.3	120	13.6
40	10.8	140	12.5
45	10.1	160	13.2
50	11.0	180	15.5
60	11.1	200	16.9
70	7.3	250	16.4
80	7.5	275	18.7
90	8.3	300	19.5

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: JUNE 9, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.7	700	19.5
400	16.1	800	20.9
500	16.9	900	20.8
600	20.1	1000	21.5

COM-POWER PA-102**PREAMPLIFIER****S/N: 1017****CALIBRATION DATE: JANUARY 6, 2010**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.3	300	38.2
40	38.4	350	38.1
50	38.2	400	38.5
60	38.2	450	38.0
70	38.3	500	37.9
80	38.1	550	38.2
90	38.2	600	38.2
100	38.3	650	37.7
125	38.2	700	38.3
150	38.3	750	38.3
175	38.3	800	37.4
200	38.1	850	37.5
225	38.2	900	37.6
250	38.3	950	37.4
275	38.2	1000	37.3

COM POWER AH-118**HORN ANTENNA****S/N: 071175****CALIBRATION DATE: MARCH 18, 2010**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM POWER PA-118**MICROWAVE PREAMPLIFIER****S/N: 181656****CALIBRATION DATE: DECEMBER 22, 2010**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	10.0	26.07
1.5	26.50	10.5	24.97
2.0	26.79	11.0	24.79
2.5	26.90	11.5	24.33
3.0	27.03	12.0	24.24
3.5	26.94	12.5	24.92
4.0	27.18	13.0	24.52
4.5	26.79	13.5	24.33
5.0	26.25	14.0	24.56
5.5	26.16	14.5	24.99
6.0	25.52	15.0	26.06
6.5	25.29	15.5	26.87
7.0	24.45	16.0	25.95
7.5	24.18	16.5	24.69
8.0	24.02	17.0	24.20
8.5	24.54	17.5	25.12
9.0	24.91	18.0	26.03
9.5	25.42		

COM-POWER AL-130**LOOP ANTENNA****S/N: 17089****CALIBRATION DATE: SEPTEMBER 29, 2008**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40



FRONT VIEW

FARMTEK, INC.
POLARIS TIMER CONSOLE
MODEL: POLARIS
FCC SUBPART B AND C – RADIATED EMISSIONS

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



REAR VIEW

FARMTEK, INC.
POLARIS TIMER CONSOLE
MODEL: POLARIS
FCC SUBPART B AND C – RADIATED EMISSIONS

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

APPENDIX E***DATA SHEETS***

RADIATED EMISSIONS***DATA SHEETS***

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	89.54	V	94	-4.46	Peak	1	180	
1806.6	41.95	V	74	-32.05	Peak	1.25	155	
1806.6	37.42	V	54	-16.58	Avg	1.25	155	
2709.9	44.13	V	74	-29.87	Peak	1.35	165	
2709.9	39.23	V	54	-14.77	Avg	1.35	165	
3613.2	39.61	V	74	-34.39	Peak	1.45	175	
3613.2	26.92	V	54	-27.08	Avg	1.45	175	
4516.5		V						No Emission
4516.5		V						Detected
5419.8		V						No Emission
5419.8		V						Detected
6323.1		V						No Emission
6323.1		V						Detected
7226.4		V						No Emission
7226.4		V						Detected
8129.7		V						No Emission
8129.7		V						Detected
9033		V						No Emission
9033		V						Detected

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	86.24	H	94	-7.76	Peak	1	180	
1806.6	35.61	H	74	-38.39	Peak	1.25	135	
1806.6	27.73	H	54	-26.27	Avg	1.25	135	
2709.9	43.01	H	74	-30.99	Peak	1.35	145	
2709.9	36.64	H	54	-17.36	Avg	1.35	145	
3613.2	40.26	H	74	-33.74	Peak	1.75	185	
3613.2	27.56	H	54	-26.44	Avg	1.75	185	
4516.5	41.97	H	74	-32.03	Peak	1.25	135	
4516.5	29.44	H	54	-24.56	Avg	1.25	135	
5419.8								No Emission
5419.8								Detected
6323.1								No Emission
6323.1								Detected
7226.4								No Emission
7226.4								Detected
8129.7								No Emission
8129.7								Detected
9033								No Emission
9033								Detected

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	90.84	V	94	-3.16	Peak	1	180	
1824.6	43.52	V	74	-30.48	Peak	1.25	135	
1824.6	35.46	V	54	-18.54	Avg	1.25	135	
2736.9	46.28	V	74	-27.72	Peak	1.35	145	
2736.9	40.33	V	54	-13.67	Avg	1.35	145	
3649.2	43.71	V	74	-30.29	Peak	1.45	185	
3649.2	31.06	V	54	-22.94	Avg	1.45	185	
4561.5	45.74	V	74	-28.26	Peak	1.25	195	
4561.5	33.71	V	54	-20.29	Avg	1.25	195	
5473.8	46.18	V	74	-27.82	Peak	1.35	205	
5473.8	34.74	V	54	-19.26	Avg	1.35	205	
6386.1	49.42	V	74	-24.58	Peak	1.45	215	
6386.1	36.25	V	54	-17.75	Avg	1.45	215	
7298.4								No Emission
7298.4								Detected
8210.7								No Emission
8210.7								Detected
9123								No Emission
9123								Detected

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	87.54	H	94	-6.46	Peak	1	180	
1824.6	35.76	H	74	-38.24	Peak	1.25	135	
1824.6	28.01	H	54	-25.99	Avg	1.25	135	
2736.9	41.24	H	74	-32.76	Peak	1.35	155	
2736.9	34.583	H	54	-19.417	Avg	1.35	155	
3649.2	38.81	H	74	-35.19	Peak	1.25	165	
3649.2	26.91	H	54	-27.09	Avg	1.25	165	
4561.5	42.35	H	74	-31.65	Peak	1.35	175	
4561.5	29.75	H	54	-24.25	Avg	1.35	175	
5473.8								No Emission
5473.8								Detected
6386.1								No Emission
6386.1								Detected
7298.4								No Emission
7298.4								Detected
8210.7								No Emission
8210.7								Detected
9123								No Emission
9123								Detected

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

High Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	90.94	V	94	-3.06	Peak	1	180	
1842.6	42.56	V	74	-31.44	Peak	3.5	180	
1842.6	38.21	V	54	-15.79	Avg	3.5	180	
2763.9	43.97	V	74	-30.03	Peak	1.25	165	
2763.9	38.61	V	54	-15.39	Avg	1.25	165	
3685.2	39.21	V	74	-34.79	Peak	1.35	175	
3685.2	26.74	V	54	-27.26	Avg	1.35	175	
4606.5	42.51	V	74	-31.49	Peak	1.45	185	
4606.5	29.32	V	54	-24.68	Avg	1.45	185	
5527.8	46.91	V	74	-27.09	Peak	1.35	195	
5527.8	34.49	V	54	-19.51	Avg	1.35	195	
6449.1								No Emission
6449.1								Detected
7370.4								No Emission
7370.4								Detected
8291.7								No Emission
8291.7								Detected
9213								No Emission
9213								Detected

FCC 15.249

Farmtek, Inc.
Polaris Timer Console
Model: Polaris

Date: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto

High Channel - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	88.04	H	94	-5.96	Peak	1	180	
1842.6	36.39	H	74	-37.61	Peak	1.25	135	
1842.6	28.11	H	54	-25.89	Avg	1.25	135	
2763.9	43.11	H	74	-30.89	Peak	1.35	145	
2763.9	33.39	H	54	-20.61	Avg	1.35	145	
3685.2	39.61	H	74	-34.39	Peak	1.45	155	
3685.2	26.67	H	54	-27.33	Avg	1.45	155	
4606.5	40.47	H	74	-33.53	Peak	1.55	165	
4606.5	29.24	H	54	-24.76	Avg	1.55	165	
5527.8								No Emission
5527.8								Detected
6449.1								No Emission
6449.1								Detected
7370.4								No Emission
7370.4								Detected
8291.7								No Emission
8291.7								Detected
9213								No Emission
9213								Detected

FCC Class B and RSS-210Farmtek, Inc.
Polaris Timer Console
Model: PolarisDate: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto**Receiver Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Spurious Emissions
								Detected 1000 MHz - 9300 MHz
								in the Receive Mode
								for both Polarizations

FCC 15.249Farmtek, Inc.
Polaris Timer Console
Model: PolarisDate: 1/10/2011
Lab: B
Tested By: Kyle Fujimoto**Transmit Mode****Digital Portion and Non-Harmonic Emissions From the Transmitter Above 1 GHz****Band Edges at 902 MHz and 928 MHz**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Spurious Emissions
								Detected 1 GHz - 9.3 GHz
								for Both Polarizations
								No Emissions Detected
								at the Band Edges at 902 MHz
								and 928 MHz for
								the Vertical and Horizontal Polarizations

Test Location	: Compatible Electronics	Page	: 1/1
Customer	: Farmtek, Inc.	Date	: 1/10/2011
Manufacturer	: Farmtek, Inc.	Time	: 9:16:06
Eut name	: Polaris Timing Console	Lab	: D
Model	: Polaris	Test Distance	: 3 Meters
Serial #	: N/A		
Specification	: FCC Class B		
Distance correction factor (20 * log(test/spec))			: 0.00
Test Mode	: FCC Class B - Transmit Mode (Worst Case)		
	10 kHz to 1000 MHz		
	Vertical and Horizontal Polarization		
	Tested By: Kyle Fujimoto		

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
1V	42.110	41.50	0.65	10.49	38.35	14.29	40.00	-25.71
2V	57.310	43.40	0.95	11.07	38.20	17.22	40.00	-22.78
3V	68.582	49.50	1.17	7.80	38.29	20.19	40.00	-19.81
4H	68.889	46.40	1.18	7.69	38.29	16.98	40.00	-23.02
5H	74.605	48.70	1.20	7.40	38.20	19.09	40.00	-20.91
6V	74.742	58.60	1.20	7.40	38.20	29.00	40.00	-11.00
7V	75.695	61.00	1.20	7.42	38.18	31.43	40.00	-8.57
8V	78.145	52.10	1.20	7.46	38.14	22.63	40.00	-17.37
9H	80.465	52.50	1.19	7.54	38.10	23.12	40.00	-16.88
10H	81.629	55.10	1.17	7.64	38.12	25.79	40.00	-14.21
11H	83.966	56.60	1.12	7.83	38.14	27.41	40.00	-12.59
12H	85.135	56.70	1.09	7.92	38.15	27.56	40.00	-12.44
13V	86.330	54.30	1.07	8.02	38.16	25.22	40.00	-14.78
14H	87.499	56.40	1.05	8.11	38.18	27.38	40.00	-12.62
15V	111.998	48.50	1.10	12.81	38.25	24.16	43.50	-19.34
16V	127.228	52.00	1.11	13.18	38.21	28.08	43.50	-15.42
17V	141.358	39.90	1.17	12.55	38.27	15.35	43.50	-28.15
18V	148.182	55.80	1.19	12.80	38.29	31.50	43.50	-12.00
19V	155.120	43.30	1.22	13.04	38.30	19.26	43.50	-24.24
20H	157.444	49.70	1.23	13.12	38.30	25.75	43.50	-17.75
21V	165.548	45.40	1.26	13.87	38.30	22.23	43.50	-21.27
22V	300.008	42.20	1.90	12.70	38.20	18.60	46.00	-27.40
23H	300.018	47.70	1.90	12.70	38.20	24.10	46.00	-21.90
24V	319.992	40.80	1.98	13.46	38.16	18.09	46.00	-27.91
25H	320.049	46.70	1.98	13.46	38.16	23.99	46.00	-22.01
26V	340.046	43.00	2.06	14.18	38.12	21.12	46.00	-24.88
27H	340.050	41.70	2.06	14.18	38.12	19.82	46.00	-26.18
28H	360.007	45.50	2.06	14.86	38.18	24.23	46.00	-21.77
29V	360.046	43.30	2.06	14.86	38.18	22.03	46.00	-23.97
30H	380.002	43.50	1.98	15.49	38.35	22.62	46.00	-23.38
31V	380.046	39.90	1.98	15.50	38.35	19.03	46.00	-26.97
32H	400.002	48.40	1.90	16.10	38.50	27.90	46.00	-18.10
33V	400.042	42.00	1.90	16.10	38.50	21.50	46.00	-24.50
34H	420.002	44.30	2.07	16.27	38.29	24.35	46.00	-21.65
35V	660.042	38.40	2.66	19.73	37.82	22.97	46.00	-23.03