

*FCC PART 15, SUBPART B and C  
TEST REPORT*
*for*
**MINITRACKER 3B**
**MODEL: AVID1034-3B**

Prepared for

 AVID IDENTIFICATION SYSTEMS INC.  
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 NORCO, CALIFORNIA 92860

 Prepared by: 

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DATE: NOVEMBER 3, 2016

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	17	2	2	15	5	43	

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## 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 without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested: MiniTracker 3B  
Model: AVID1034-3B  
S/N: N/A

Product Description: The MiniTracker3B is an electronic identification tag reader.

Modifications: The EUT was not modified during the testing.

Customer: AVID Identification Systems Inc.  
3185 Hamner Ave  
Norco, California 92860

Test Date: October 31; and November 1 and 2, 2016

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

Test Specification covered by accreditation:

Emissions requirements CFR Title 47, Part 15, Subpart B;  
and Subpart C, sections 15.205  
and 15.209

Test Procedure: ANSI C63.4: 2014, ANSI C63.10: 2013



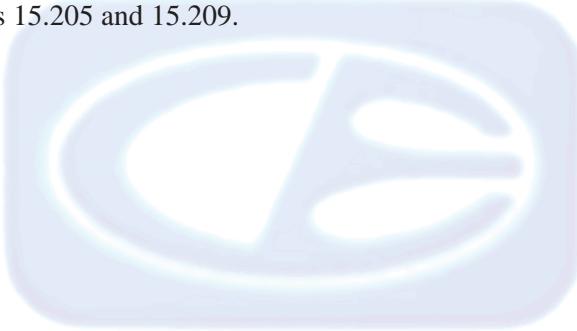
## SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 25,000 MHz (Transmitter and Digital portion)	Complies with the <b>Class B</b> limits of <b>CFR Title 47</b> , Part 15, Subpart B; and Subpart C, Sections 15.205 and 15.209.
2	Conducted RF Emissions, 150 kHz to 30 MHz	This test was not performed for the EUT is battery powered and does not connect to the AC power mains.

---

**1. PURPOSE**

This document is a qualification test report based on the emissions tests performed on the MiniTracker 3B, Model: AVID1034-3B. The emissions 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; and Subpart C, sections 15.205 and 15.209.



## 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

AVID Identification Systems Inc.

GuiYang Lu Director of R&D

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 31, 2016.

### 2.5 Disposition of the Test Sample

The test sample has not been returned to AVID Identification System Inc. since 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
N/A	Not Applicable
BLE	Bluetooth Low Energy
USB	Universal Serial Bus

### **3. APPLICABLE DOCUMENTS**

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

<b>SPEC</b>	<b>TITLE</b>
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
ANSI C63.10 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

## **4. DESCRIPTION OF TEST CONFIGURATION**

### **4.1 Description of Test Configuration - Emissions**

The MiniTracker3B, Models: AVID1034-3B (EUT) was tested as a stand alone unit. The EUT was tested in three orthogonal axis. A fresh set of batteries were inserted in the EUT prior to the testing

The EUT was tested with the BLE turned off and also tested when the BLE was transmitting at the same time as the 125 kHz transmitter. The BLE transmitting does not affect the emissions from the EUT.

The BLE was also verified with the 125 kHz transmitter operating at the same time and was confirmed that it was still in compliance with the limits and that the emissions levels did not change.

The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

The EUT was placed in continuous transmit mode by holding down the read button on the EUT. The BLE transmitter was also activated to continuously transmit at the low, middle, and high channel for both data and advertising modes by reading a special credit-card sized tag.

The firmware used was “uartkbd\_dev\_FCC\_test” version 1.

Note: The EUT had no emissions detected above 1 GHz other than from the BLE module.

The final radiated data for the EUT as was taken in the mode described above. Please see Appendix E for the data sheets.

#### **4.1.1 Cable Construction and Termination**

The EUT has no external cables.

## 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

### 5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
MINITRACKER 3B (EUT)	AVID IDENTIFICATION SYSTEMS INC	MINITRACKER 3B	N/A	IOL-125-AV1034-3B
FIRMWARE FOR TEST	AVID IDENTIFICATION SYSTEMS INC	uartkbd_dev_FCC_test	VERSION 1	N/A

### 5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
<b>RF RADIATED EMISSIONS TEST EQUIPMENT</b>					
TDK Emissions Lab	TDK	TDK TestLab	Version 9.22	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 14, 2016	2 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	June 14, 2016	2 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 14, 2016	2 Year
EMI Receiver	Keysight	N9038A	MY51210150	December 29, 2015	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
CombiLog Antenna	Com-Power	AC-220	61060	September 3, 2015	2 Year
Preamplifier	Com-Power	PA-103	1641	December 29, 2015	1 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Turntable	Com Power	TT-100	N/A	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Preamplifier	Com-Power	PAM-118A	551024	May 12, 2016	1 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 26, 2016	2 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2016	1 Year
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A

## 6. TEST SITE DESCRIPTION

### 6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for emissions 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 Radiated Emissions (Spurious and Harmonics) Test – Lab A

The spectrum analyzer was used as a measuring meter. The spectrum analyzer was 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.

A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1000 MHz	120 kHz	CombiLog 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. 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 loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

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 (except for the fundamental) was tested at a 10-meter test distance to obtain the final test data.

**Radiated Emissions (Spurious and Harmonics) Test – Lab A (con't)**

For the fundamental the EUT was tested at a 10-meter test distance.

The correct spec limit at 10 meters is based on the following formula: [(40) Log (spec test distance / actual test distance)] + spec limit

The final qualification data sheets are located in Appendix E.

Only the emission below 30 MHz were tested in Lab A.

The reading was measured using a loop antenna. The final corrected reading is obtained by taking the final measurement and adding the appropriate electric field factor. The e-filed factor is derived from the magnetic field factor plus 51.5, which is the characteristic impedance of the medium. Please see Appendix D for a table of magnetic and electric field factors.

**Test Results:**

The EUT complies with CFR Title 47, Part 15, Subpart B and 15.209 (**transmitter portion**) for radiated emissions from 10 kHz to 30 MHz.

### 7.1.3

### Radiated Emissions (Spurious and Harmonics) Test – Lab D

The EMI Receiver was used as the measuring meter. A built-in, internal preamplifier was used to increase the sensitivity of the instrument. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured (200 Hz for 10 kHz to 150 kHz, 9 kHz for 150 kHz to 30 MHz, 120 kHz for 30 MHz to 1 GHz and 1 MHz for 1 GHz to 25 GHz).

The EMI 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 (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

The EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.0.

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	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

#### Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C sections 15.205 and 15.209 for radiated emissions.

### 7.1.3 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. 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 offset was adjusted accordingly to read the actual data measured. 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 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 TKD TestLab software in several overlapping sweeps by running the EMI Receiver at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

#### **Test Results:**

The EUT does not connect to the AC mains, thus this test was not performed.

### 7.1.4 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS  
 MINITRACKER 3B, MODEL: AVID1034-3B

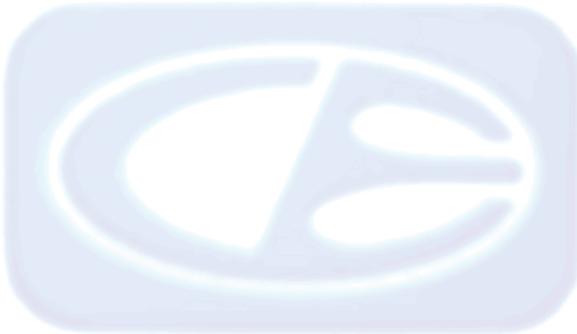
Frequency MHz	QP Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
240.00 (V)	38.13	46.00	-7.87
288.00 (V)	38.00	46.00	-8.00
312.00 (V)	36.96	46.00	-9.04
276.00 (V)	34.73	46.00	-11.27
264.00 (V)	34.70	46.00	-11.30
306.00 (V)	34.51	46.00	-11.49

Notes:

- (H) Horizontal
- (V) Vertical
- (BL)Black Lead
- (WL) White Lead
- (QP)Quasi Peak

## 8. CONCLUSIONS

The MiniTracker 3B, Model: AVID1034-3B, as tested, meets all of the Class B specification limits defined in CFR Title 47, Part 15, Subpart B for the digital portion; and the limits defined in Subpart C, sections 15.205 and 15.209 for the transmitter portion.



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## APPENDIX A

### ***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

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## LABORATORY ACCREDITATIONS AND RECOGNITIONS



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

**For the most up-to-date version of our scopes and certificates please visit <http://celectronics.com/quality/scope/>**

Quote from ISO-ILAC-IAF Communiqué on 17025:

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



## **APPENDIX B**

### ***MODIFICATIONS TO THE EUT***

---

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## MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.209 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 modifications were made to the EUT during the testing.



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## APPENDIX C

### ***ADDITIONAL MODELS***

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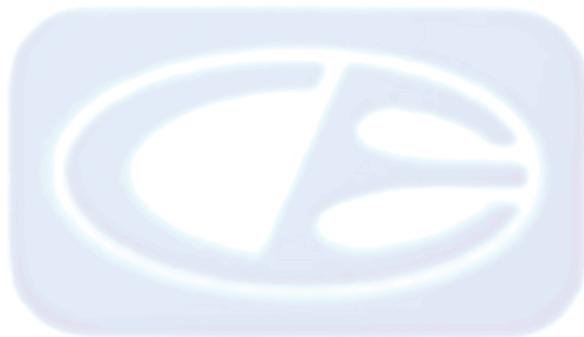
**Lake Forest Division**  
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## ADDITIONAL MODELS COVERED UNDER THIS REPORT

**USED FOR THE PRIMARY TEST**

MINITRACKER 3B  
Model: AVID1034-3B  
S/N: N/A

There were no additional models covered under this report.



## APPENDIX D

### **DIAGRAMS AND CHARTS**

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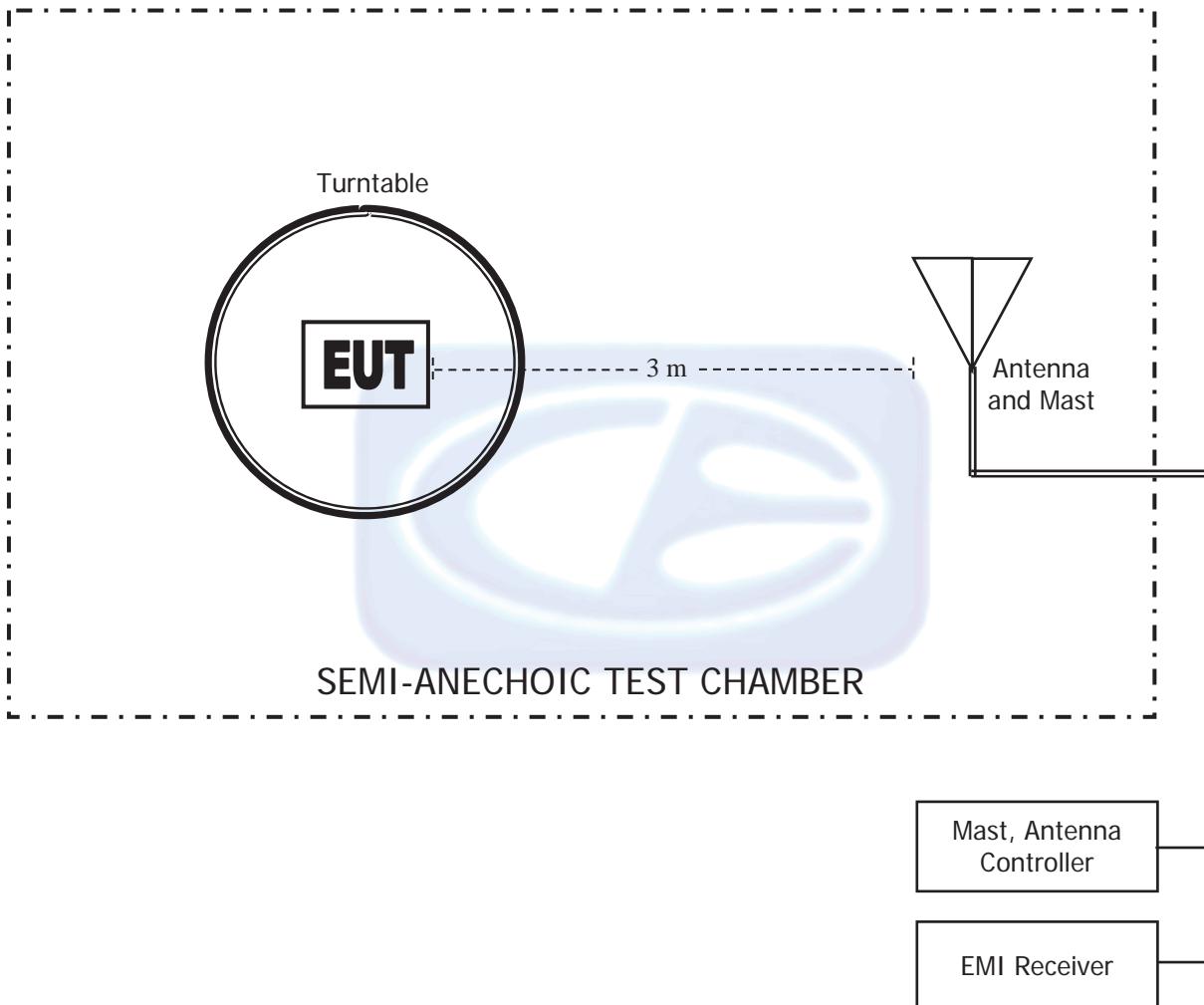
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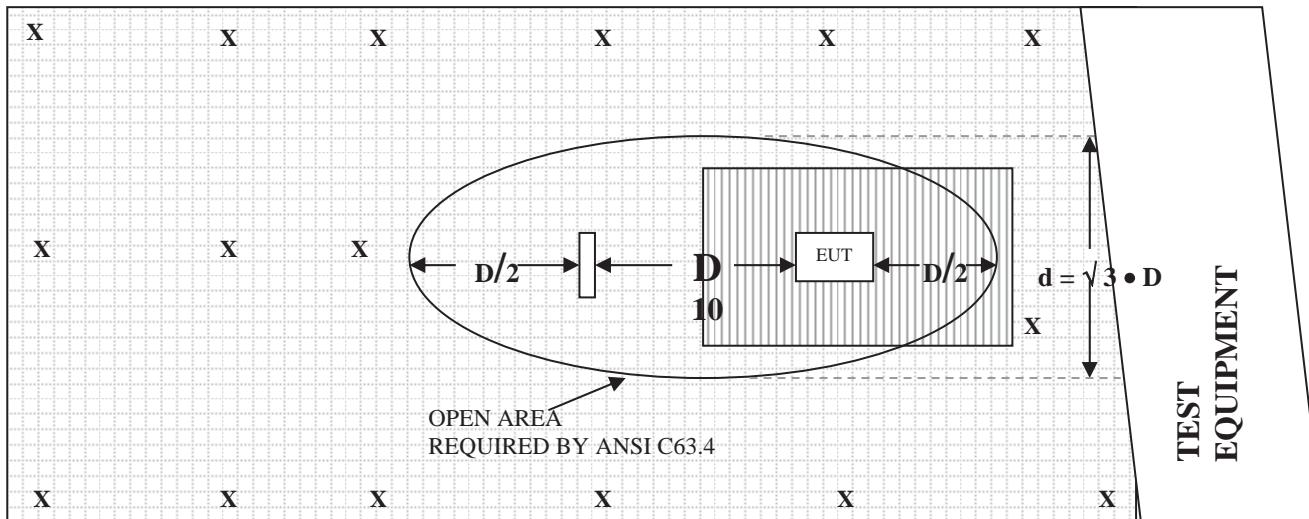
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**FIGURE 1: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER**



**FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE**

OPEN LAND &gt; 15 METERS



OPEN LAND &gt; 15 METERS

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

# COM POWER AH-118

## HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 26, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.93	10.0	39.33
1.5	25.54	10.5	39.64
2.0	28.09	11.0	41.04
2.5	30.21	11.5	44.29
3.0	30.15	12.0	41.22
3.5	30.17	12.5	41.50
4.0	31.90	13.0	41.62
4.5	33.51	13.5	40.63
5.0	33.87	14.0	39.94
5.5	35.08	14.5	41.84
6.0	34.81	15.0	42.69
6.5	34.26	15.5	39.03
7.0	36.33	16.0	39.07
7.5	37.03	16.5	41.40
8.0	37.56	17.0	43.18
8.5	40.07	17.5	47.01
9.0	38.92	18.0	46.48
9.5	38.21		

# COM-POWER AL-130

## LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: FEBRUARY 6, 2015

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-33.18	18.32
0.01	-34.10	17.40
0.02	-38.65	12.85
0.03	-39.28	12.22
0.04	-40.09	11.41
0.05	-40.85	10.65
0.06	-40.88	10.62
0.07	-41.07	10.43
0.08	-41.04	10.46
0.09	-41.19	10.31
0.1	-41.20	10.30
0.2	-41.52	9.98
0.3	-41.53	9.97
0.4	-41.42	10.08
0.5	-41.53	9.97
0.6	-41.53	9.97
0.7	-41.43	10.07
0.8	-41.23	10.27
0.9	-41.13	10.37
1	-41.14	10.36
2	-40.80	10.70
3	-40.66	10.84
4	-40.61	10.89
5	-40.33	11.17
6	-40.53	10.97
7	-40.47	11.03
8	-40.48	11.02
9	-39.93	11.57
10	-39.81	11.69
15	-43.35	8.15
20	-39.16	12.34
25	-40.24	11.26
30	-43.18	8.32

**COM-POWER AC-220**
**COMBILOG ANTENNA**
**S/N: 61060**
**CALIBRATION DATE: SEPTEMBER 3, 2015**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	24.00	200	13.00
35	24.30	250	15.30
40	25.40	300	18.20
45	21.50	350	17.90
50	22.50	400	18.60
60	15.40	450	19.80
70	12.70	500	21.60
80	11.10	550	22.40
90	13.40	600	23.70
100	13.80	650	24.30
120	15.40	700	24.00
125	15.40	750	24.50
140	13.10	800	24.30
150	17.20	850	26.30
160	13.20	900	26.90
175	14.20	950	26.00
180	14.30	1000	25.60

# COM-POWER PA-103

## PREAMPLIFIER

S/N: 551024

CALIBRATION DATE: MAY 12, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	39.84	6.0	39.05
1.1	39.40	6.5	38.94
1.2	39.58	7.0	39.25
1.3	39.68	7.5	39.09
1.4	39.91	8.0	39.01
1.5	39.78	8.5	38.60
1.6	39.50	9.0	38.64
1.7	39.81	9.5	39.67
1.8	39.89	10.0	39.30
1.9	39.94	11.0	39.15
2.0	39.57	12.0	39.24
2.5	40.39	13.0	39.49
3.0	40.63	14.0	39.44
3.5	40.80	15.0	39.94
4.0	40.86	16.0	40.09
4.5	39.94	17.0	40.06
5.0	34.47	18.0	39.76
5.5	39.32		

# COM-POWER AH-826

## 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-840

## MICROWAVE PREAMPLIFIER

S/N: 711013

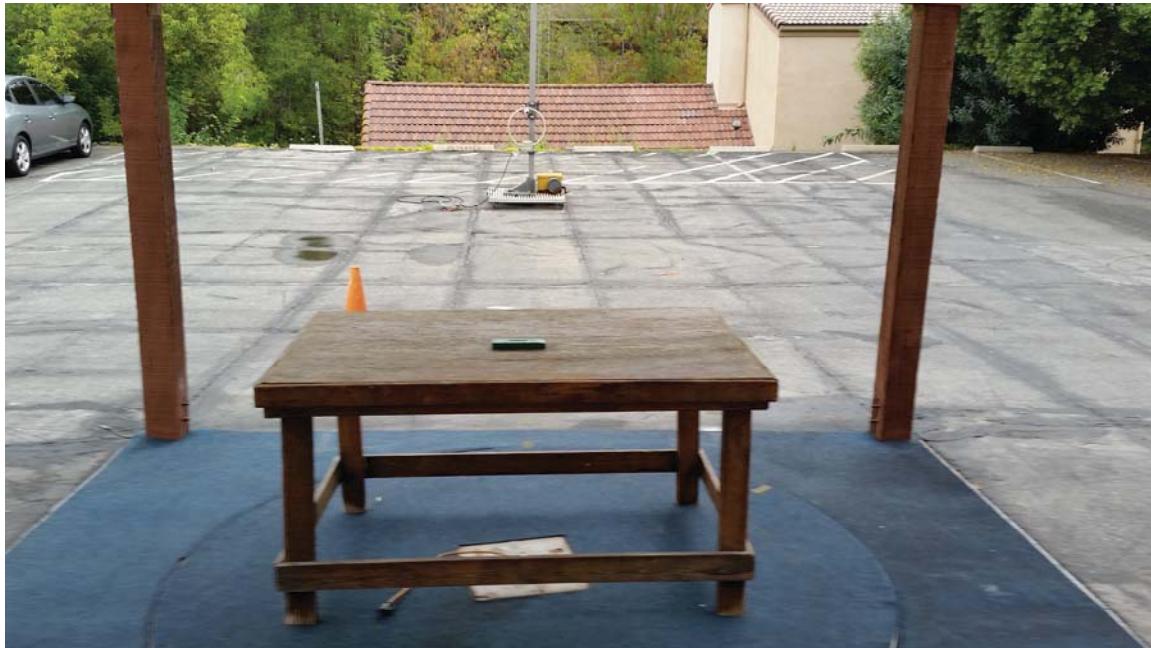
CALIBRATION DATE: MAY 13, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	25.33	36.5	23.71
28.0	24.49	37.0	26.35
28.5	24.74	37.5	23.49
29.0	25.93	38.0	25.42
29.5	26.28	38.5	24.87
30.0	26.17	39.0	22.60
30.5	26.11	39.5	20.57
		40.0	19.15

**FRONT VIEW**

AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 30 MHz

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

**REAR VIEW**

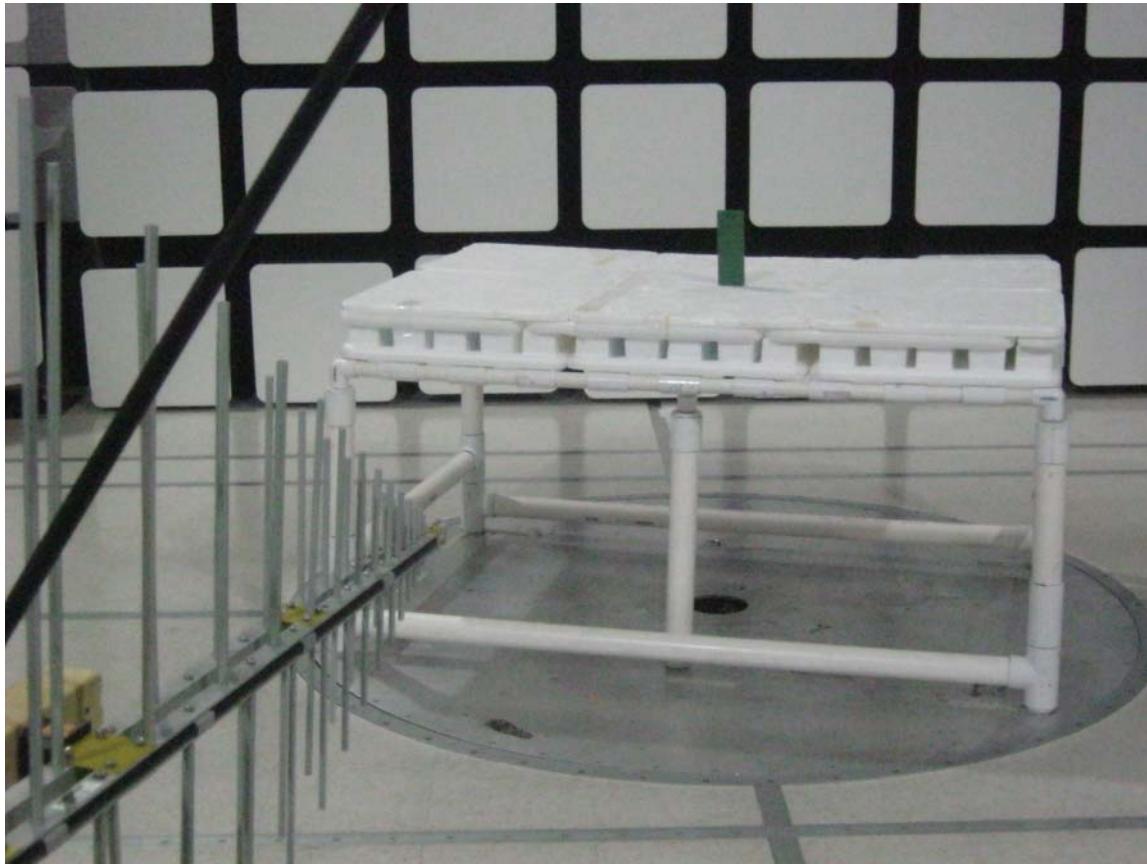
AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 30 MHz

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

**FRONT VIEW**

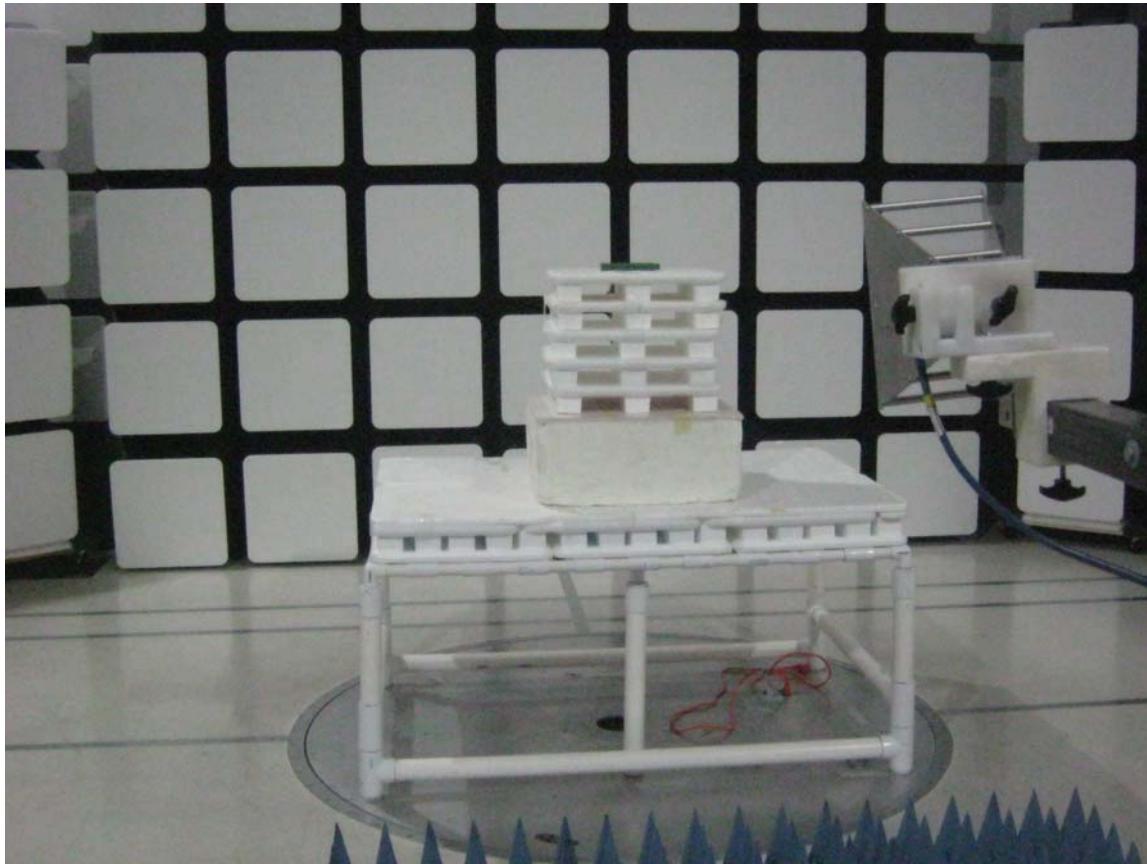
AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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

**REAR VIEW**

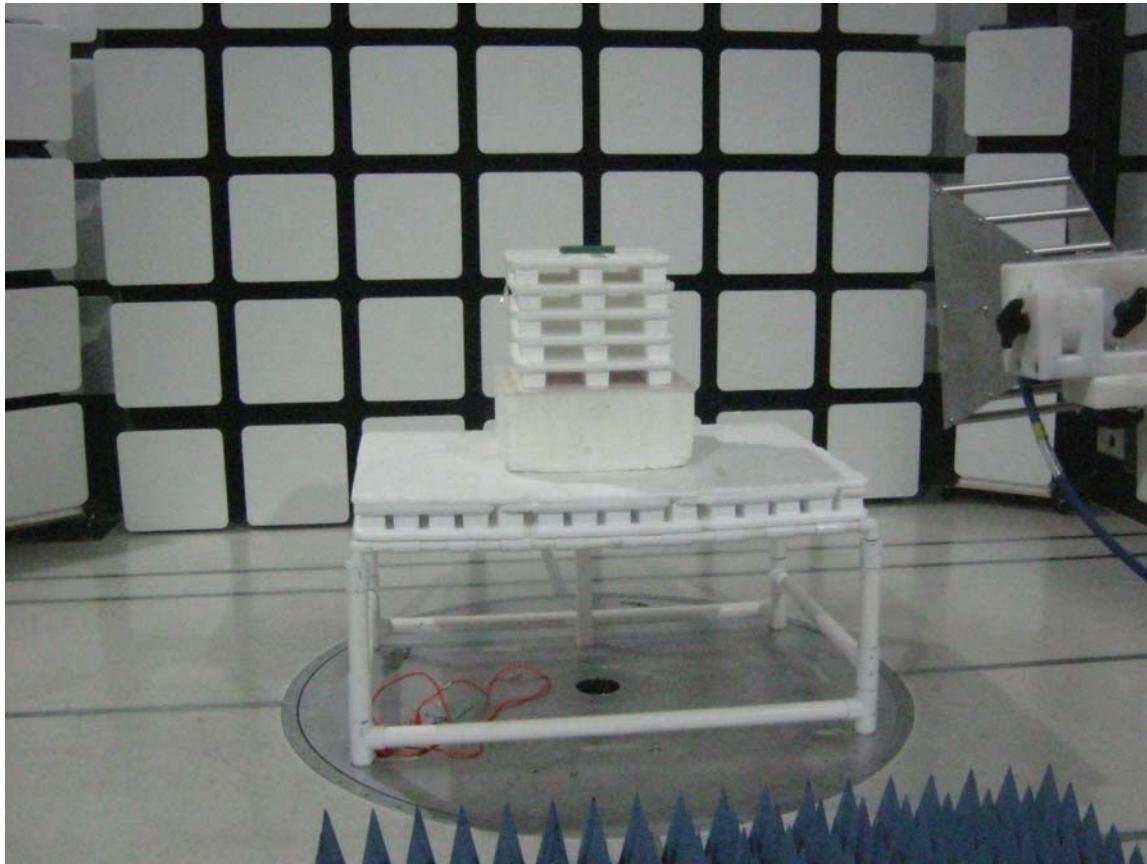
AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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

**FRONT VIEW**

AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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

**REAR VIEW**

AVID IDENTIFICATION SYSTEMS INC.  
MINITRACKER 3B  
MODEL: AVID1034-3B  
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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

**APPENDIX E**

***DATA SHEETS***

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

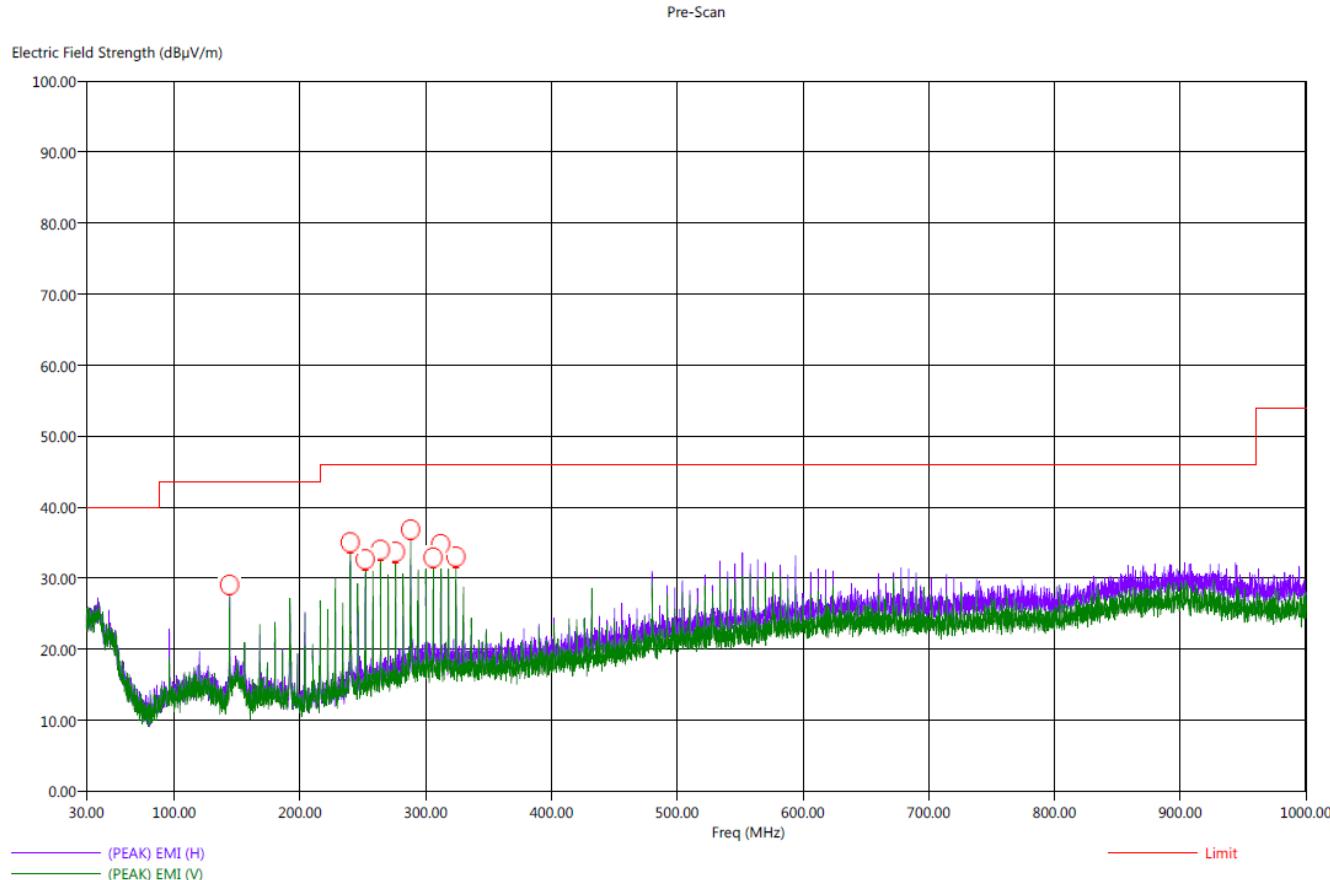
**Agoura Division**  
**2337 Troutdale Drive**  
**Agoura, CA 91301**  
**(818) 597-0600**

**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: Pre-Scan - FCC Class B  
 File: Radiated Pre-Scan 30-1000MHz - FCC Class B - 10-12-2016.set  
 Operator: James Ross  
 EUT Type: MiniTracker 3B  
 EUT Condition: The EUT was continuously searching for an ID during testing (Y-Axis)  
 Comments: Customer: Avid Identification Systems, Inc.  
 Model: AVID1034-3B  
 S/N: N/A

11/1/2016 1:42:08 PM  
 Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz - FCC Class B  
 File: Agilent - Radiated Final Scan 30-1000MHz - FCC Class B - 10-12-2016.set  
 Operator: James Ross  
 EUT Type: MiniTracker 3B  
 EUT Condition: The EUT was continuously searching for an ID during testing (Y-Axis)  
 Comments: Customer: Avid Identification Systems, Inc.  
 Model: AVID1034-3B  
 S/N: N/A

11/1/2016 2:30:06 PM  
 Sequence: Final Measurements

**Final Scan - FCC Class B**

Freq (MHz)	Pol	(PEAK) EMI (dB $\mu$ V/m)	(QP) EMI (dB $\mu$ V/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dB $\mu$ V/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Ttbl Aql (deg)
144.00	H	29.37	28.41	-14.13	-15.09	43.50	14.78	0.78	113.28	266.50
240.00	V	39.34	38.13	-6.66	-7.87	46.00	14.88	0.80	207.97	252.75
252.00	V	34.03	33.17	-11.97	-12.83	46.00	15.43	1.30	175.61	221.50
264.00	V	35.53	34.70	-10.47	-11.30	46.00	16.17	1.30	176.92	146.50
276.00	V	35.57	34.73	-10.43	-11.27	46.00	16.87	1.31	207.55	133.50
288.00	V	38.83	38.00	-7.17	-8.00	46.00	17.55	1.46	176.68	195.00
306.00	V	35.69	34.51	-10.31	-11.49	46.00	18.16	1.60	143.49	154.50
312.00	H	27.61	25.34	-18.39	-20.66	46.00	18.12	1.60	110.95	269.75
312.00	V	37.93	36.96	-8.07	-9.04	46.00	18.12	1.60	159.61	135.75
324.00	V	35.38	33.62	-10.62	-12.38	46.00	18.05	1.60	143.31	263.25



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

**Agoura Division**  
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**(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**

**FCC 15.209**

Avid Identification Systems, Inc.  
 MiniTracker 3B  
 Model: AVID1034-3B

Date: 10/31/2016  
 Lab: A  
 Tested By: Kyle Fujimoto

**Transmit Mode - 125 kHz**
**Test Distance: 10 Meters**
**Corrected Spec Limit at 10 Meters = [40 Log (spec test dist./actual test dist.)] + spec limit**

Freq. (kHz)	Level (dBuV)	Pol (v/h)	Spec Limit (at 10 Meters)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
125.00	77.60	V	84.75	-7.15	Peak	1.00	0.00	Fundamental - X-Axis
125.00	77.10	V	84.75	-7.65	Peak	1.00	0.00	Fundamental - Y-Axis
125.00	59.10	V	84.75	-25.65	Peak	1.00	0.00	Fundamental - Z-Axis
								Note #1: No Harmonics nor Emissions Detected Above the Fundamental Frequency to 30 MHz
								Investigated in the X-Axis, Y-Axis, and Z-Axis
								Note #2: Turning on the BLE does not change the amplitude of the fundamental
								The fundamentals were verified when the BLE was at 2402, 2404, 2426, 2440, 2478, and 2480 MHz

Limit in uV/m = 2400/F (kHz) at 300 Meters from 9 kHz to 490 kHz

Limit in uV/m = 24000/F (kHz) at 30 Meters from 490 kHz to 1705 kHz

Limit in uV/m = 30 at 30 Meters from 1705 kHz to 30 MHz

dBuV/m = 20 Log (uV/m)

<b>Brea Division</b> 114 Olinda Drive Brea, CA 92823 (714) 579-0500	<b>Agoura Division</b> 2337 Troutdale Drive Agoura, CA 91301 (818) 597-0600	<b>Silverado Division</b> 19121 El Toro Road Silverado, CA 92676 (949) 589-0700	<b>Lake Forest Division</b> 20621 Pascal Way Lake Forest, CA 92630 (949) 587-0400
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**FCC 15.209**

Avid Identification Systems, Inc.  
MiniTracker 3B  
Model: AVID1034-3B

Date: 10/31/2016  
Lab: A  
Tested By: Kyle Fujimoto

**Transmit Mode - 125 kHz**
**Test Distance: 10 Meters**
**Corrected Spec Limit at 10 Meters = [40 Log (spec test dist./actual test dist.)] + spec limit**

Freq. (kHz)	Level (dBuV)	Pol (v/h)	Spec Limit (at 10 Meters)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
125.00	68.20	H	84.75	-16.55	Peak	1.00	0.00	Fundamental - X-Axis
125.00	66.50	H	84.75	-18.25	Peak	1.00	0.00	Fundamental - Y-Axis
125.00	44.20	H	84.75	-40.55	Peak	1.00	0.00	Fundamental - Z-Axis
								Note #1: No Harmonics nor Emissions Detected Above the Fundamental Frequency to 30 MHz
								Investigated in the X-Axis, Y-Axis, and Z-Axis
								Note #2: Turning on the BLE does not change the amplitude of the fundamental
								The fundamentals were verified when the BLE was at 2402, 2404, 2426, 2440, 2478, and 2480 MHz

Limit in uV/m = 2400/F (kHz) at 300 Meters from 9 kHz to 490 kHz

Limit in uV/m = 24000/F (kHz) at 30 Meters from 490 kHz to 1705 kHz

Limit in uV/m = 30 at 30 Meters from 1705 kHz to 30 MHz

dBuV/m = 20 Log (uV/m)

<b>Brea Division</b> 114 Olinda Drive Brea, CA 92823 (714) 579-0500	<b>Agoura Division</b> 2337 Troutdale Drive Agoura, CA 91301 (818) 597-0600	<b>Silverado Division</b> 19121 El Toro Road Silverado, CA 92676 (949) 589-0700	<b>Lake Forest Division</b> 20621 Pascal Way Lake Forest, CA 92630 (949) 587-0400
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