

*FCC PART 15, SUBPART B AND C
TEST METHOD: ANSI C63.4-1992*

for

POWER TRACKER VIII

Model: AV1004

Prepared for

**AVID MARKETING, INC.
3179 HAMNER AVENUE, SUITE 5
NORCO, CALIFORNIA 91760**

**COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500**

DATE: MARCH 14, 2000

	REPORT BODY	APPENDICES				TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	
PAGES	16	2	2	13	17	50

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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 in any form unless done so in full with the written permission of Compatible Electronics.

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

Device Tested: Power Tracker VIII
Model: AV1004
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was modified during the testing. Please see the list located in Appendix A.

Manufacturer: AVID Marketing, Inc.
3179 Hamner Avenue, Suite 5
Norco, California 91760

Test Dates: March 7 and 10, 2000

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B and Subpart C, Sections 15.205, 15.207, and 15.209

Test Procedure: ANSI C63.4: 1992

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

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 450 kHz to 30 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Radiated RF Emissions from the transmitter, 128 kHz – 1 GHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205 and 15.209
3	Radiated RF Emissions from the digital circuitry, 30 MHz – 1 GHz	Complies with the Class A limits of CFR Title 47, Part 15, Subpart B

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Power Tracker VIII Model: AV1004. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as the EUT hereafter, are within the specification limits defined by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.207, and 15.209 for the transmitter portion of the EUT and the Class A specification limits defined by CFR Title 47, Part 15, Subpart B for the digital portion of the EUT.



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 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 Marketing, Inc.

Michael F. Cruz Director of Engineering

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer

Scott McCutchan Lab Manager

2.4 Date Test Sample was Received

The test sample was received on February 28, 2000

2.5 Disposition of the Test Sample

The test sample was returned to AVID Marketing, Inc. on March 14, 2000.

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
Tx	Transmitter



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 1992	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 EUT was setup and configured in two different ways for the testing.

Battery Power Mode: The Power Tracker VIII Model: AV1004 (EUT) was connected to the laptop via its RS-232 port. The laptop was also connected to the printer and AC Adapter via its parallel and power ports, respectively.

AC Power Mode: The Power Tracker VIII Model: AV1004 (EUT) was connected to the laptop through an “extender” cable via its RS-232 port. An AC Adapter was also connected to the power port on the interface cable going from the EUT to the “extender” cable. The laptop was also connected to the printer and AC Adapter via its parallel and power ports, respectively.

The EUT was operated as follows:

Transmitter Portion: The EUT was continuously transmitting and sending the message on the LCD screen to the laptop. The fundamental and harmonics of the 128 kHz transmitter along with the sidebands that appeared 128 kHz away from the clock harmonics of the digital portion were tested to the limits of section 15.209. **Note:** the 128 kHz sidebands only appeared when the EUT was transmitting.

Digital Portion: The EUT was turned on but NOT transmitting (idle mode). The clock harmonics of the EUT were tested to the **Class A** specification limits defined by CFR Title 47, Part 15, Subpart B. **Note:** Since the clock harmonics were either at the same level or LOWER when the transmitter was turned on, this part of the test was done with the EUT running in idle mode.

Conducted Emissions: During the initial investigation, the EUT was tested in both transmit and idle modes. It was determined the conducted emission levels were highest when the EUT was continuously transmitting. The conducted emissions were tested to the limits of section 15.207.

During the initial investigation, it was determined the EUT's highest emissions for all operating modes was when the EUT was operating on AC power. The final radiated as well as conducted data are located in Appendix D of this report. A spectral plot showing the 128 kHz sidebands when the transmitter is on are also located in Appendix D.



4.1.1 Cable Construction and Termination

Battery Power Setup

- Cable 1** This is a 4 foot foil shielded cable connecting the EUT to the laptop. It has a D-9 pin metallic connector at the EUT end and a D-9 pin metallic and a 1/8 inch power connector at the other end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors. The 1/8 inch power connector was left unterminated for this mode.
- Cable 2** This is a 5 foot braid and foil shielded cable connecting the printer to the laptop. It has a D-25 pin metallic connector at the laptop end and a Centronics metallic type connector at the printer end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.
- Cable 3** This is a 6 foot unshielded cable connecting the laptop to the AC Adapter. It has a 3 pin power connector at the laptop end and is hard wired into the AC Adapter. The cable was bundled to a length of 1 meter.

AC Power Setup

- Cable 1** This is a 4 foot foil shielded cable connecting the EUT to cable #4. It has a D-9 pin metallic connector at the EUT end and a D-9 pin metallic and a 1/8 inch power connector at the other end. The cable (along with cable #4) was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors. The 1/8 inch power connector was connected to an AC Adapter (see cable #5).
- Cable 2** This is a 5 foot braid and foil shielded cable connecting the printer to the laptop. It has a D-25 pin metallic connector at the laptop end and a Centronics metallic type connector at the printer end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.
- Cable 3** This is a 6 foot unshielded cable connecting the laptop to the AC Adapter. It has a 3 pin power connector at the laptop end and is hard wired into the AC Adapter. The cable was bundled to a length of 1 meter.
- Cable 4** This is a 6 foot foil shielded cable connecting the laptop to cable #1. It has a D-9 pin metallic connector at each end. The cable (along with cable #1) was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.
- Cable 5** This is a 3 meter unshielded cable connecting the cable #1 to the AC Adapter. It has a 1/8 inch power connector at the cable #1 end and is hard wired into the AC Adapter.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID
POWER TRACKER VIII (EUT)	AVID MARKETING, INC.	AV1004	N/A	IOL-128-AV1004
AC ADAPTER FOR POWER TRACKER VIII	AVID MARKETING, INC.	LPS-016	P/N: AVS-003	N/A
PRINTER	CITIZEN	LSP-10	1130060-73	DLK66TLSP-10
LAPTOP	NEC	PC-410-0511	C37000221N	A3DP50
AC ADAPTER	NEC	OP-520-4001	N/A	N/A



5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	3638A08768	Dec. 14, 1999	Dec. 14, 2000
Preamplifier	Com Power	PA-102	1017	Jan. 11, 2000	Jan. 11, 2001
Quasi-Peak Adapter	Hewlett Packard	85650A	3303A01688	Nov. 10, 1999	Nov. 10, 2000
RF Attenuator	Sertek	412-10	N/A	Nov. 22, 1999	Nov. 22, 2000
LISN	Com Power	LI-215	12075	Nov. 13, 1999	Nov. 13, 2000
LISN	Com Power	LI-215	12078	Nov. 13, 1999	Nov. 13, 2000
Biconical Antenna	Com Power	AB-100	1548	Oct. 14, 1999	Oct. 14, 2000
Log Periodic Antenna	Com Power	AL-100	16039	Oct. 14, 1999	Oct. 14, 2000
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	D5251A 888	US74458128	N/A	N/A
Printer	Hewlett Packard	C5886A	SG7CM1P090	N/A	N/A
Monitor	Hewlett Packard	D5258A	DK74889705	N/A	N/A
Loop Antenna	Com-Power	AL-130	25309	Apr. 13, 1999	Apr. 13, 2000



6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 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.



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 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 detector was used only where indicated in the data sheets. A 10 dB attenuation pad 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: 1992. 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 0.45 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 HP 9000/300 in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave.



7.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. A preamplifier was 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. 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. The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets. 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

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: 1992. 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).



Radiated Emissions (Spurious and Harmonics) Test (con't)

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.

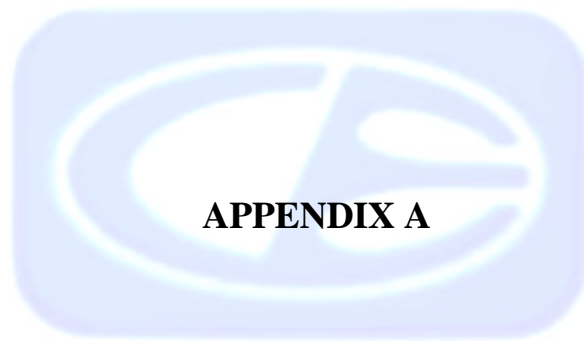
The EUT was tested at a 3 meter test distance to obtain final test data for the sidebands that appeared 128 kHz away from the clock harmonics. The EUT was tested at a 10 meter test distance for the fundamental and harmonics of the Tx, and for the digital portion of the EUT.



8. CONCLUSIONS

The Power Tracker VIII Model: AV1004 meets all of the specification limits defined in CFR Title 47, Part 15 Subpart C sections 15.205, 15.207, and 15.209 for the transmitter portion and the **Class A** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital portion.





APPENDIX A

MODIFICATIONS TO THE EUT



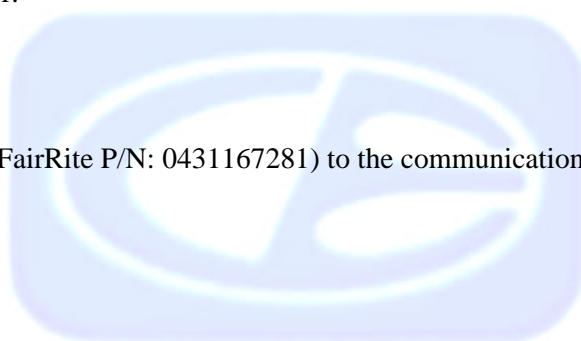
MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and C 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.

Modifications:

- 1) Add a Clamp-on Ferrite (FairRite P/N: 0431167281) to the communications interface cable on the EUT.





APPENDIX B

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



ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Power Tracker VIII

Model: AV1004

S/N: N/A

There were no additional models covered under this report.





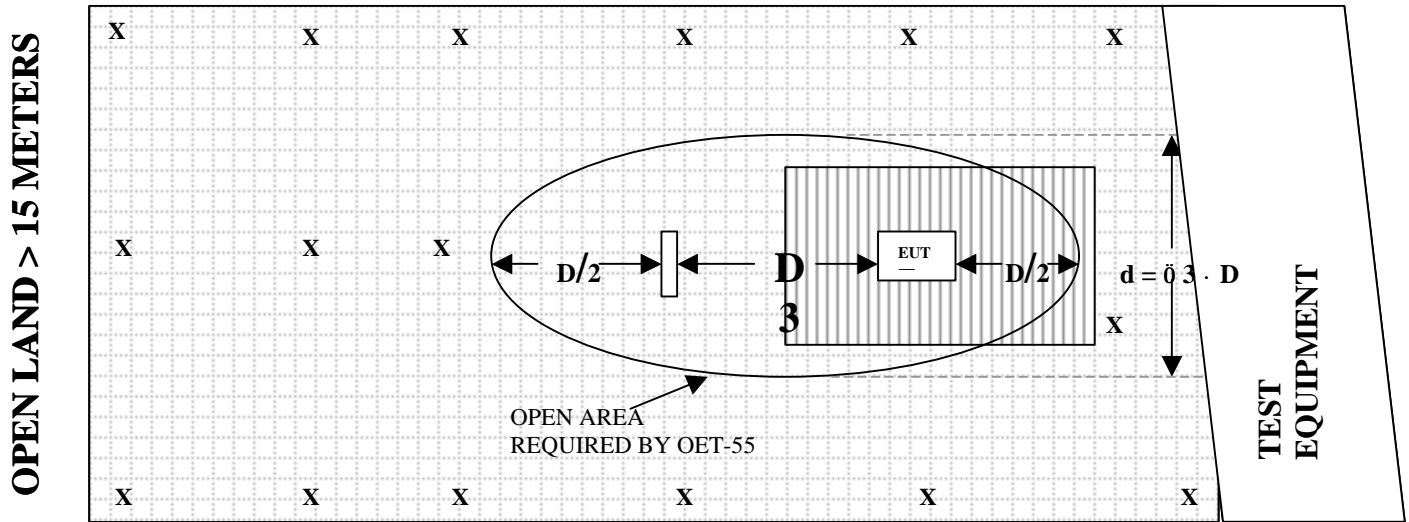
APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

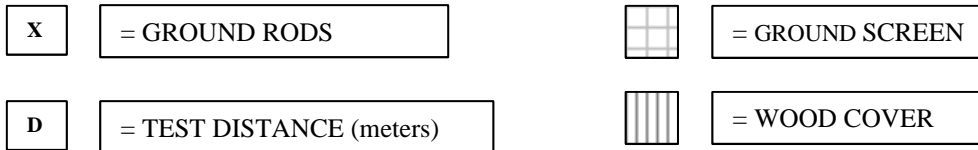


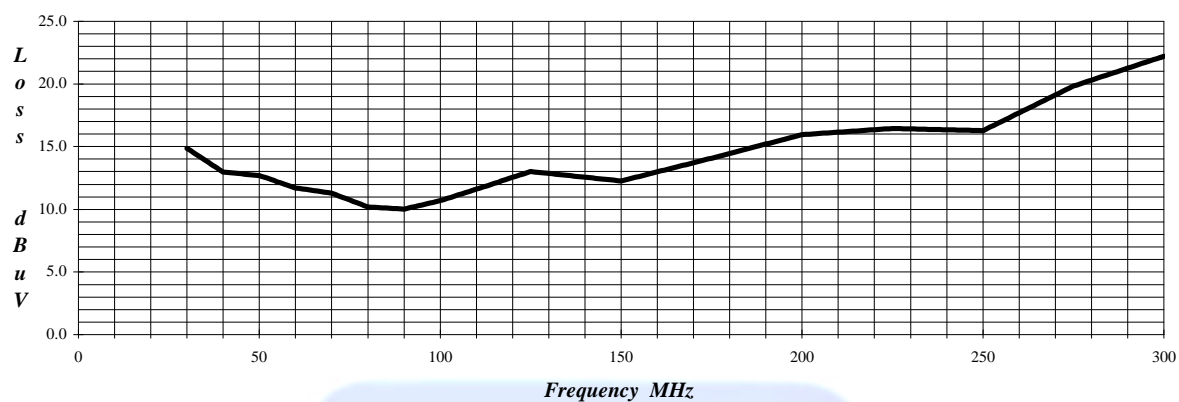
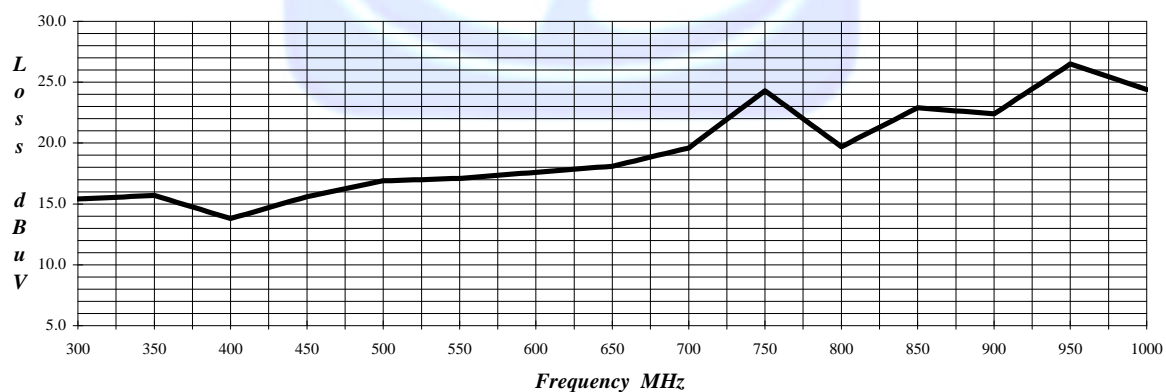
FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE

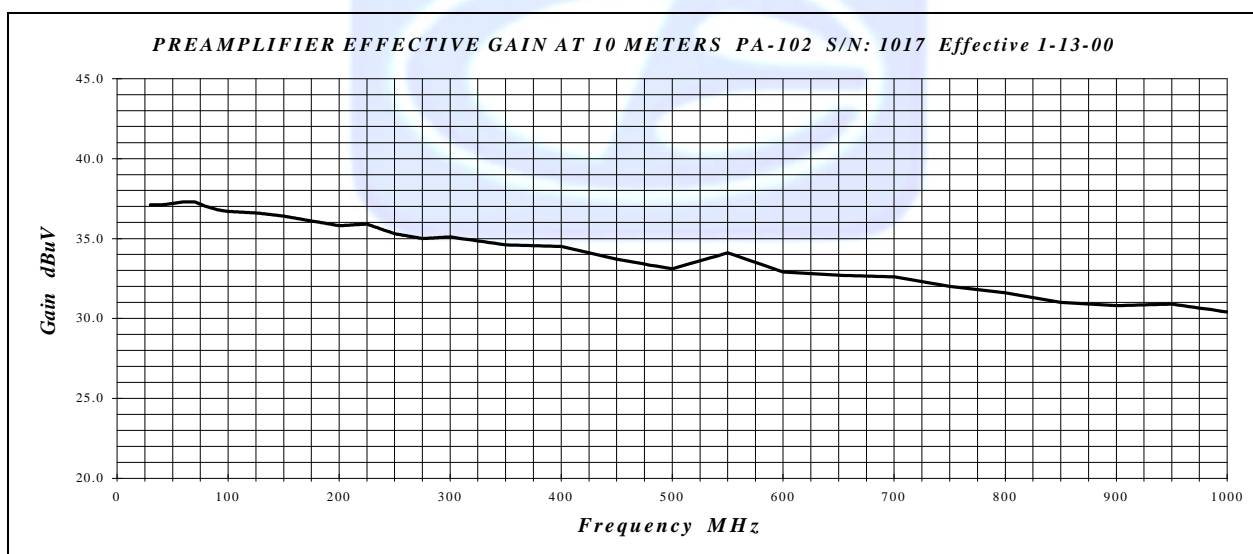
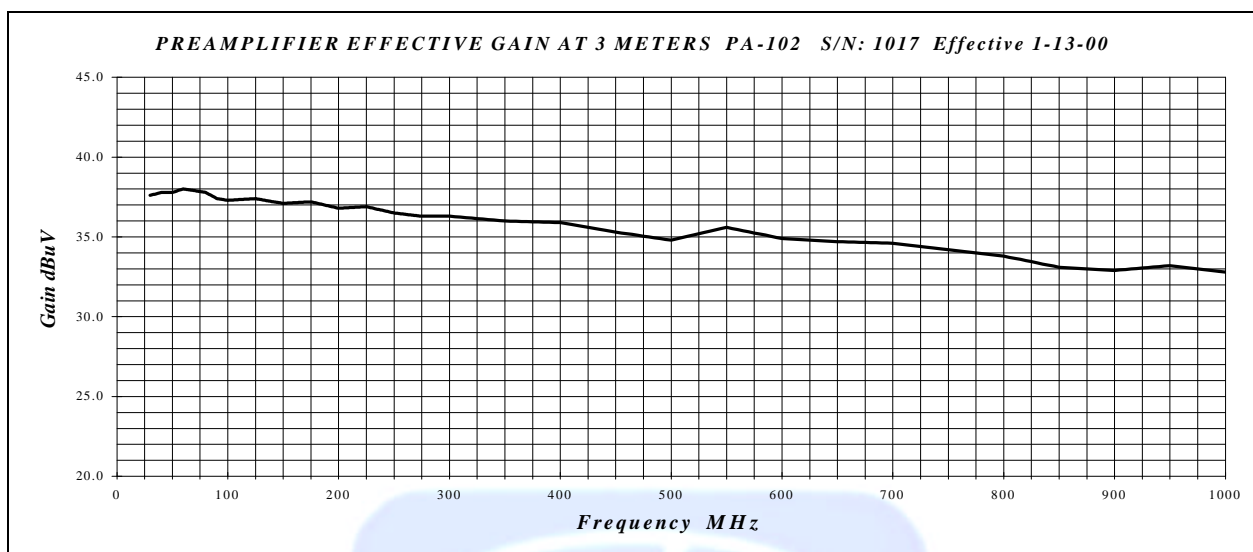
OPEN LAND > 15 METERS



OPEN LAND > 15 METERS



LAB "D" BICONICAL ANTENNA AB-100 S/N 01548 Cal: 10-14-99**LAB "D" LOG PERIODIC ANTENNA AL-100 S/N 16039 Cal: 10-14-99**





FRONT VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C -10 kHz to 30 MHz - RADIATED EMISSIONS – 3-07-00

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





REAR VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C - 10 kHz to 30 MHz - RADIATED EMISSIONS – 3-07-00

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





FRONT VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C - 30 MHz to 1 GHz - RADIATED EMISSIONS – 3-07-00

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





REAR VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C - 30 MHz to 1 GHz - RADIATED EMISSIONS – 3-07-00

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
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MODEL: AV1004

FCC SUBPART B - 30 MHz to 1 GHz - RADIATED EMISSIONS – 3-07-00

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





REAR VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART B - 30 MHz to 1 GHz - RADIATED EMISSIONS – 3-07-00

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





FRONT VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C – CONDUCTED EMISSIONS – 3-10-00

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





REAR VIEW

AVID MARKETING, INC.
POWER TRACKER VIII
MODEL: AV1004

FCC SUBPART C – CONDUCTED EMISSIONS – 3-10-00

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



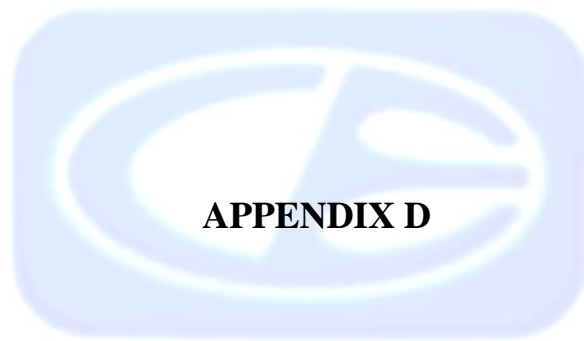
Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:		Loop Antenna	
Model:		AL-130	
Serial Number:		25309	
Calibration Date:		4/13/99	
Frequency MHz	Magnetic (dB/m)	Electric dB/m	
0.01	-40.6	10.9	
0.02	-41.5	10.0	
0.03	-39.9	11.6	
0.04	-40.2	11.3	
0.05	-41.5	10.0	
0.06	-41.1	10.4	
0.07	-41.3	10.2	
0.08	-41.6	9.9	
0.09	-41.7	9.8	
0.1	-41.7	9.8	
0.2	-44.0	7.5	
0.3	-41.6	9.9	
0.4	-41.6	9.9	
0.5	-41.7	9.8	
0.6	-41.5	10.0	
0.7	-41.4	10.1	
0.8	-41.5	10.0	
0.9	-41.6	9.9	
1	-41.2	10.3	
2	-40.5	11.0	
3	-40.8	10.7	
4	-41.0	10.5	
5	-40.5	11.0	
6	-40.5	11.0	
7	-40.7	10.8	
8	-40.8	10.7	
9	-40.1	11.4	
10	-40.4	11.1	
12	-41.0	10.5	
14	-42.1	9.4	
15	-42.3	9.2	
16	-42.7	8.8	
18	-41.0	10.5	
20	-41.1	10.4	
25	-43.4	8.1	
30	-45.3	6.2	

Trans. Antenna Height	2 meter
Receiving Antenna Height	2 meter



APPENDIX D

DATA SHEETS





***RADIATED DATA SHEETS
FOR THE TRANSMITTER PORTION***





RADIATED EMISSIONS

COMPANY NAME: AVIb DATE: 3-7-00

EUT: POWER TRACKVER VIII EUT S/N: N/A

EUT MODEL: AV1004 LOCATION: ☒ BREA ☐ SILVERADO ☐ AGOURA

SPECIFICATION: FCC 15.209 CLASS: _____ TEST DISTANCE: 10m LAB: D

ANTENNA: ☒ LOOP ☐ BICONICAL ☐ LOG ☐ HORN **POLARIZATION:** ☐ VERT ☐ HORIZ

■ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT ☐ ENGINEER: Kyle F.

NOTES: DISTANCE FACTOR $40 \text{ LOG } \frac{300}{10} = 59.0 \text{ dB}$

AXIS
OF
ANT.

[illegible]

FACTOR

* CORRECTED READING = METER READING - DISTANCE FACTOR + ANTENNA

**** DELTA = CORRECTED READING - SPECIFICATION LIMIT**

Test location: Compatible Electronics

Customer : AVID

Date : 3/ 7/2000

Manufacturer : AVID

Time : 10.25

EUT name : POWER TRACKER VIII

Model: AV1004

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$)

: 0.00

Test Mode :

HORIZONTAL POLARIZATION 30 TO 1000 MHz

SIDE BANDS 128 kHz AWAY FROM THE CLOCK HARMONICS

TEMPERATURE 60 DEGREES F., RELATIVE HUMIDITY 75%

TESTED BY:

Kyle Fujimoto
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
1H	36.80	44.60	0.77	13.57	38.50	20.43	40.00	-19.57
2H	37.10	47.60	0.77	13.51	38.51	23.37	40.00	-16.63
3H	86.27	44.90	1.13	10.10	38.67	17.45	40.00	-22.55
4H	110.56	51.10	1.34	11.70	38.68	25.46	43.50	-18.04
5H	110.81	54.20	1.34	11.72	38.69	28.58	43.50	-14.92
6H	135.14	55.80	1.48	12.70	38.76	31.22	43.50	-12.28
7H	135.40	57.20	1.48	12.69	38.76	32.62	43.50	-10.88
8H	147.40	65.50	1.58	12.33	38.71	40.70	43.50	-2.80
9H	147.66	66.70	1.58	12.32	38.71	41.89	43.50	-1.61
10H	147.66	66.15	1.58	12.32	38.71	41.34Qp	43.50	-2.16
11H	159.71	63.20	1.60	12.96	38.74	39.02	43.50	-4.48
12H	159.97	62.40	1.60	12.98	38.74	38.24	43.50	-5.26
13H	172.01	59.20	1.60	13.85	38.79	35.86	43.50	-7.64
14H	172.24	55.90	1.60	13.87	38.79	32.58	43.50	-10.92
15H	184.29	48.90	1.67	14.77	38.73	26.62	43.50	-16.88
16H	184.56	51.70	1.68	14.79	38.72	29.44	43.50	-14.06
17H	208.88	52.80	1.84	16.12	38.67	32.09	43.50	-11.41
18H	209.14	53.60	1.84	16.13	38.67	32.89	43.50	-10.61
19H	221.17	51.80	1.88	16.36	38.77	31.28	46.00	-14.72
20H	221.42	52.70	1.89	16.37	38.77	32.18	46.00	-13.82
21H	233.46	53.00	1.97	16.38	38.73	32.62	46.00	-13.38
22H	233.72	52.10	1.97	16.38	38.73	31.72	46.00	-14.28

Test location: Compatible Electronics

Customer : AVID

Date : 3/ 7/2000

Manufacturer : AVID

Time : 15.08

EUT name : POWER TRACKER VIII

Model: AV1004

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$)

: 0.00

Test Mode : VERTICAL POLARIZATION 30 TO 1000 MHz

SIDE BANDS 128 kHz AWAY FROM THE CLOCK HARMONICS

TEMPERATURE 60 DEGREES F., RELATIVE HUMIDITY 75%

TESTED BY:

Kyle Fujimoto
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	61.41	61.50	0.83	11.66	38.81	35.18	40.00	-4.82
2V	86.13	61.90	1.12	10.10	38.68	34.45	40.00	-5.55
3V	110.86	58.00	1.34	11.72	38.69	32.38	43.50	-11.12
4V	122.95	58.30	1.39	12.82	38.78	33.73	43.50	-9.77
5V	135.13	60.70	1.48	12.70	38.76	36.12	43.50	-7.38
6V	135.41	61.30	1.48	12.70	38.76	36.72	43.50	-6.78
7V	147.39	65.10	1.58	12.33	38.71	40.30	43.50	-3.20
8V	147.69	65.10	1.58	12.32	38.71	40.29	43.50	-3.21
9V	159.73	62.10	1.60	12.96	38.74	37.92	43.50	-5.58
10V	159.98	62.10	1.60	12.97	38.74	37.93	43.50	-5.57
11V	172.03	58.40	1.60	13.85	38.79	35.07	43.50	-8.43
12V	172.15	57.90	1.60	13.86	38.79	34.57	43.50	-8.93
13V	184.29	57.30	1.68	14.79	38.72	35.04	43.50	-8.46
14V	196.68	56.60	1.77	15.70	38.63	35.45	43.50	-8.05
15V	196.60	53.40	1.77	15.69	38.63	32.24	43.50	-11.26
16V	196.81	52.90	1.77	15.71	38.63	31.76	43.50	-11.74
17V	208.88	54.10	1.84	16.13	38.67	33.39	43.50	-10.11
18V	209.14	58.60	1.84	16.13	38.67	37.89	43.50	-5.61
19V	221.15	48.60	1.88	16.36	38.77	28.08	46.00	-17.92
20V	221.41	48.00	1.89	16.37	38.77	27.48	46.00	-18.52



***RADIATED DATA SHEETS
FOR THE DIGITAL PORTION***



Test location: Compatible Electronics

Customer : AVID

Date : 3/ 7/2000

Manufacturer : AVID

Time : 15.14

EUT name : POWER TRACKER VIII

Model: AV1004

Specification: Fcc_A Test distance: 10.0 mtrs Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00

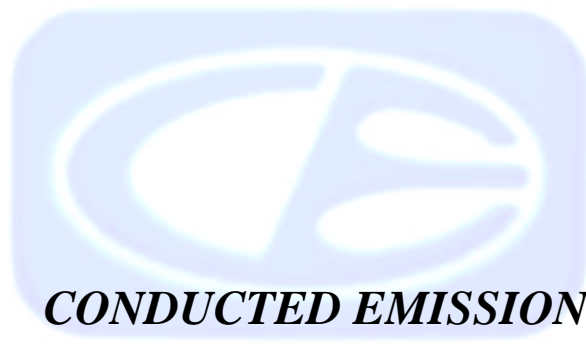
Test Mode :

VERTICAL AND HORIZONTAL POLARIZATION 30 TO 1000 MHz

TEMPERATURE 60 DEGREES F., RELATIVE HUMIDITY 77%

TESTED BY: Kyle Fujimoto
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
VERTICAL POLARIZATION								
1V	36.92	60.80	0.77	13.54	38.51	36.61	39.10	-2.49
2V	36.92	59.90	0.77	13.54	38.51	35.71Qp	39.10	-3.39
3V	49.23	58.00	0.89	12.70	38.69	32.90	39.10	-6.20
4V	61.50	42.70	0.83	11.66	38.81	16.38	39.10	-22.72
5V	98.40	56.50	1.28	10.63	38.60	29.81	43.50	-13.69
6V	110.70	56.50	1.34	11.71	38.69	30.87	43.50	-12.63
7V	122.99	51.40	1.39	12.83	38.78	26.84	43.50	-16.66
8V	135.28	51.10	1.48	12.70	38.76	26.52	43.50	-16.98
9V	172.15	49.70	1.60	13.86	38.79	26.37	43.50	-17.13
10V	184.43	48.50	1.68	14.78	38.72	26.23	43.50	-17.27
11V	221.30	49.10	1.89	16.37	38.77	28.58	46.40	-17.82
12V	368.76	48.10	2.64	14.96	38.60	27.10	46.40	-19.30
13V	442.51	43.50	2.79	15.32	38.17	23.43	46.40	-22.97
HORIZONTAL POLARIZATION								
14H	36.97	47.20	0.77	13.54	38.51	23.00	39.10	-16.10
15H	110.69	52.30	1.34	11.71	38.69	26.67	43.50	-16.83
16H	147.57	52.30	1.58	12.32	38.71	27.49	43.50	-16.01
17H	159.87	48.40	1.60	12.97	38.74	24.23	43.50	-19.27
18H	184.47	47.70	1.68	14.78	38.72	25.43	43.50	-18.07
19H	221.30	48.70	1.89	16.37	38.77	28.18	46.40	-18.22
20H	307.31	41.50	2.34	15.45	38.60	20.69	46.40	-25.71
21H	368.77	44.90	2.64	14.96	38.60	23.90	46.40	-22.50
22H	381.06	44.80	2.66	14.49	38.60	23.35	46.40	-23.05
23H	442.50	38.80	2.78	15.32	38.18	18.73	46.40	-27.67



***CONDUCTED EMISSION
DATA SHEETS***





**COMPATIBLE
ELECTRONICS**

3/10/2000

19:13:44

AVID

POWER TRACKER VIII

MODEL: AV1004

FCC B - BLACK LEAD

TEST ENGINEER : Kyle Fujimoto

KYLE FUJIMOTO

30 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	27.361	47.43	48.00	-0.57
2	27.139	47.34	48.00	-0.66
3	27.583	47.33	48.00	-0.67
4	28.671	47.31	48.00	-0.69
5	27.825	47.23	48.00	-0.77
6	26.805	46.84	48.00	-1.16
7	28.066	46.72	48.00	-1.28
8	28.308	46.22	48.00	-1.78
9	26.361	46.05	48.00	-1.95
10	26.583	45.75	48.00	-2.25
11	26.028	45.36	48.00	-2.64
12	25.805	44.76	48.00	-3.24
13	28.912	44.41	48.00	-3.59
14	29.154	44.10	48.00	-3.90
15	29.637	44.00	48.00	-4.00
16	25.259	43.37	48.00	-4.63
17	29.396	43.20	48.00	-4.80
18	25.583	42.96	48.00	-5.04
19	25.054	42.67	48.00	-5.33
20	24.544	42.28	48.00	-5.72
21	24.748	41.88	48.00	-6.12
22	23.726	41.59	48.00	-6.41
23	6.535	40.95	48.00	-7.05
24	24.237	40.89	48.00	-7.11
25	24.033	40.79	48.00	-7.21
26	0.476	40.30	48.00	-7.70
27	23.224	40.30	48.00	-7.70
28	6.789	40.06	48.00	-7.94
29	0.456	39.70	48.00	-8.30
30	23.522	39.70	48.00	-8.30

SEE QUASI-PEAK
READINGS ON NEXT
PAGE AND ON PLOT

**COMPATIBLE
ELECTRONICS**

3/10/2000

19:13:44

AVID

POWER TRACKER VIII

MODEL: AV1004

FCC B - BLACK LEAD

TEST ENGINEER : Kyle Fujimoto

KYLE FUJIMOTO

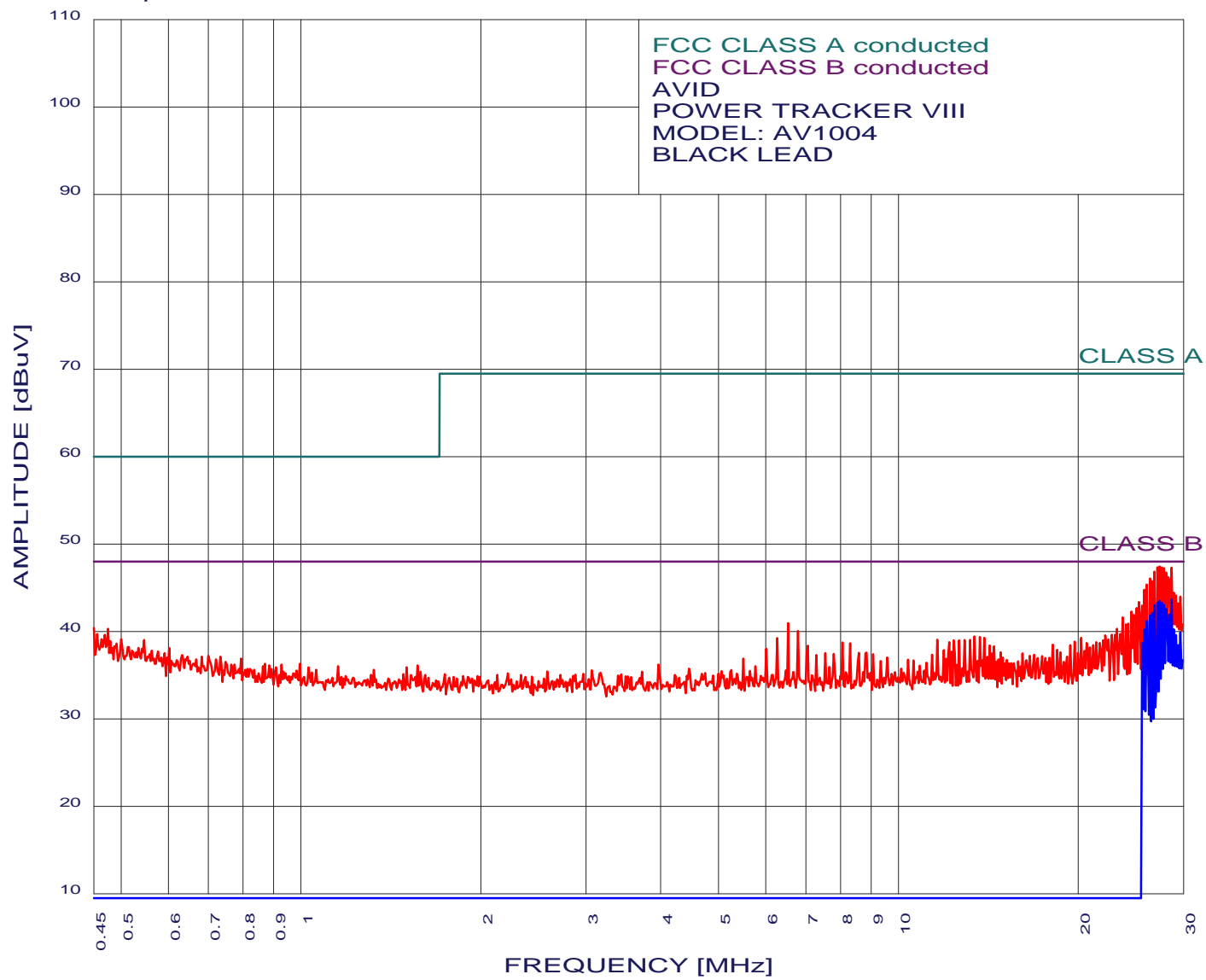
18 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 0.10 dB, Curve : Quasi-peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	28.671	43.66	48.00	-4.34
2	27.361	43.48	48.00	-4.52
3	27.583	43.30	48.00	-4.70
4	27.139	43.30	48.00	-4.70
5	27.825	43.02	48.00	-4.98
6	26.805	42.98	48.00	-5.02
7	28.066	42.59	48.00	-5.41
8	26.583	42.12	48.00	-5.88
9	28.429	41.95	48.00	-6.05
10	26.361	41.82	48.00	-6.18
11	26.028	41.17	48.00	-6.83
12	28.912	40.23	48.00	-7.77
13	25.805	40.21	48.00	-7.79
14	29.637	39.91	48.00	-8.09
15	29.154	39.56	48.00	-8.44
16	25.583	38.66	48.00	-9.34
17	29.396	38.41	48.00	-9.59
18	29.879	36.69	48.00	-11.31

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Quasi-Peak

3/10/2000 19:13:44





**COMPATIBLE
ELECTRONICS**

3/10/2000

19:25:14

AVID

POWER TRACKER VIII

MODEL: AV1004

FCC B - WHITE LEAD

TEST ENGINEER : Kyle Fujimoto

KYLE FUJIMOTO

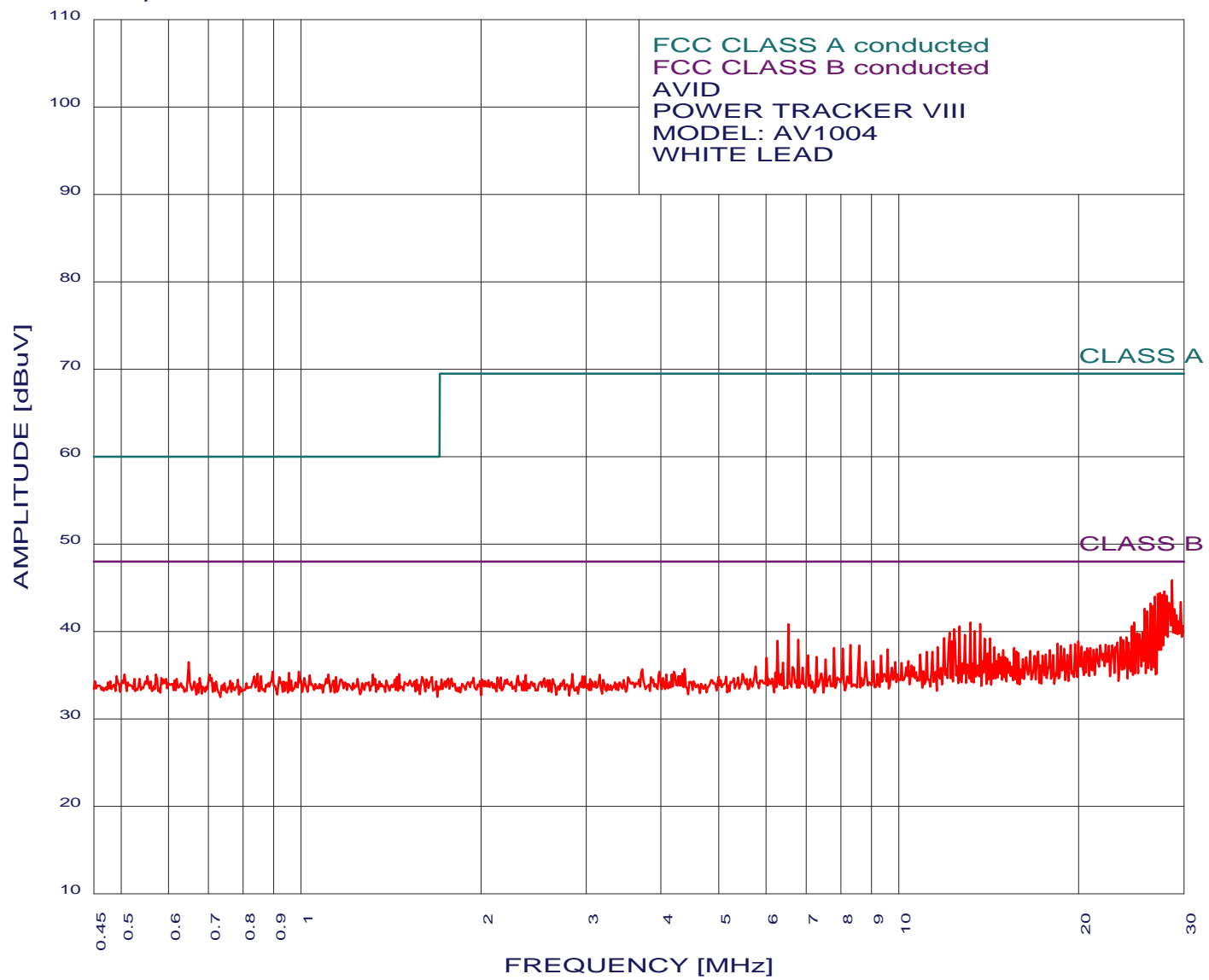
30 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	28.671	45.86	48.00	-2.14
2	27.825	44.57	48.00	-3.43
3	27.361	44.38	48.00	-3.62
4	27.139	44.28	48.00	-3.72
5	27.583	44.18	48.00	-3.82
6	28.066	44.07	48.00	-3.93
7	26.805	43.99	48.00	-4.01
8	29.637	43.35	48.00	-4.65
9	28.308	43.27	48.00	-4.73
10	26.361	43.19	48.00	-4.81
11	26.583	42.89	48.00	-5.11
12	25.805	42.60	48.00	-5.40
13	28.912	42.56	48.00	-5.44
14	26.028	42.29	48.00	-5.71
15	29.154	41.86	48.00	-6.14
16	29.396	41.16	48.00	-6.84
17	13.179	41.02	48.00	-6.98
18	24.748	41.01	48.00	-6.99
19	13.690	40.86	48.00	-7.14
20	6.535	40.83	48.00	-7.17
21	29.879	40.65	48.00	-7.35
22	24.544	40.61	48.00	-7.39
23	12.639	40.58	48.00	-7.42
24	12.378	40.26	48.00	-7.74
25	13.406	40.04	48.00	-7.96
26	25.583	39.90	48.00	-8.10
27	12.169	39.84	48.00	-8.16
28	25.054	39.80	48.00	-8.20
29	25.259	39.70	48.00	-8.30
30	12.900	39.60	48.00	-8.40

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

3/10/2000 19:25:14





***SPECTRAL PLOT SHOWING THE SIDEBANDS
128 kHz AWAY FROM CLOCK HARMONICS***



EXAMPLE OF 128 KHz SIDEBANDS

REF 100.0 dB μ V ATTEN 10 dB

MKR Δ 128 kHz

-13.00 dB

hp

10 dB/

DL
60.0
dB μ V

MARKER Δ
128 kHz
-13.00 dB

\leftarrow 128 kHz \rightarrow

CORR'D



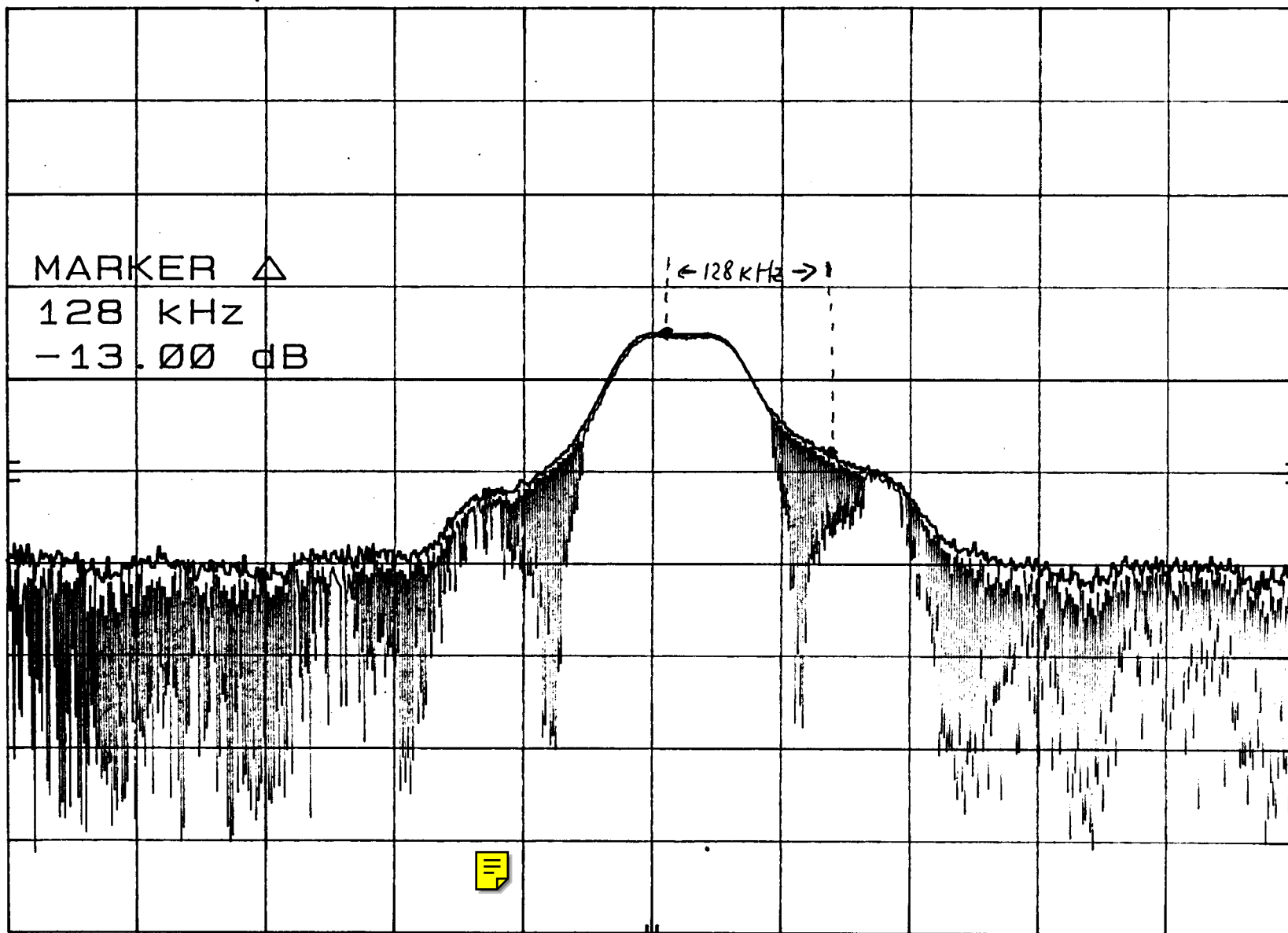
CENTER 135.24 MHz

RES BW 1 MHz

VBW 1 MHz

SPAN 1.00 MHz

SWP 20.0 msec





***SPECTRAL PLOT SHOWING THE CLOCK
HARMONICS WHEN THE Tx IS OFF***



EXAMPLE OF CLOCK HARMONIC - Tx IS OFF

MKR 135.247 MHz

hp

REF 100.0 dB μ V ATTEN 10 dB

65.20 dB μ V

10 dB/

MARKER

135.247 MHz

65.20 dB μ V

DL
60.0
dB μ V

CORR'D

CENTER 135.24 MHz
RES BW 1 MHz

VBW 1 MHz

SPAN 1.00 MHz
SWP 20.0 msec

