



ADDENDUM TO GARMIN AT TEST REPORT FC04-015

FOR THE
APOLLO, SL40
FCC PART 87
COMPLIANCE

DATE OF ISSUE: APRIL 9, 2004

PREPARED FOR:

Garmin AT
2345 Turner Rd. S.E.
Salem, OR 97302

P.O. No.: 223091
W.O. No.: 81863

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: February 19-25, 2004

Report No.: FC04-015A

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ADMINISTRATIVE INFORMATION

DATE OF TEST: February 19-25, 2004

DATE OF RECEIPT: February 19, 2004

PURPOSE OF TEST: To demonstrate the compliance of the Apollo, SL40 with the requirements for FCC Part 87 devices. **Addendum A** is to revise the FCC ID number on page 5 and the power output on page 6.

TEST METHOD: FCC Part 87

FREQUENCY RANGE TESTED: 9 kHz-2 GHz

MANUFACTURER: Garmin AT
2345 Turner Rd. S.E.
Salem, OR 97302

REPRESENTATIVE: George Cooley

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the Garmin AT Apollo, SL40 was found to be fully compliant with the following standards and specifications:

United States

➤ FCC Part 87

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

A handwritten signature in black ink, appearing to read "Joyce Walker".

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

A handwritten signature in black ink, appearing to read "Amrinder Brar".

Amrinder Brar, EMC Test Engineer

A handwritten signature in black ink, appearing to read "Randy Clark".

Randy Clark, EMC Engineer

A handwritten signature in black ink, appearing to read "Mike Wilkinson".

Mike Wilkinson, Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit

EQUIPMENT UNDER TEST

Apollo

Manuf: Garmin AT
Model: SL40
Serial: 2
FCC ID: E0JCOMM25-10 (pending)

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Fan

Manuf: ETRI
Model: 125DH
Serial: 125DH1LP31000
FCC ID: DoC

Modulation Meter

Manuf: RACAL-DANA
Model: 9008
Serial: 5598
FCC ID: DoC

COM Interface Box

Manuf: II Morrow
Model: ENU Test
Serial: B
FCC ID: DoC

30dB 100 Watts Attenuator

Manuf: Bird
Model: 100-SA-MFN-30
Serial: 9949
FCC ID: DoC

Power Supply

Manuf: Sorenson
Model: DCR50-30B
Serial: 0176
FCC ID: NA

MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

FCC 2.1033(c)(3) USER'S MANUAL

The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS

6K00A3E

FCC 2.1033 (c)(5) FREQUENCY RANGE

118-136.975.

FCC 2.1033 (c)(6) OPERATING POWER

10.47 Watts

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

55 Watts

FCC 2.1033 (c)(8) DC VOLTAGES

The necessary information is contained in a separate document.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE

The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION

The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT

The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS

The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION

AM

FCC 2.1033(c)(14)/2.1046(a)/87.131 - RF POWER OUTPUT

Test Conditions: Test setup is in accordance with TIA/EIA 603. EUT is a VHF Comm Radio with an operating frequency range of 118.0 to 136.975 MHz. 28VDC is supplied via external DC power supply. Power is routed through the COM Interface Box to the EUT via a DB 15 connector. EUT is transmitting un-modulated (CW) signal. RF power output of the transmitter is routed to a spectrum analyzer through suitable attenuation. Bandwidth settings: RBW=VBW=100kHz.

<i>Frequency (MHz)</i>	<i>Power Output (Watts)</i>	<i>Limit (Watts)</i>
118.000	10.00	55
127.500	10.47	55
136.975	8.91	55

Test Equipment:

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Spectrum Analyzer	783	HP	8596E	3346A00225	6/24/02	6/24/04
30dB Attenuator	1572	Bird	100-SA-MFN-30	9949	5/9/03	5/9/05

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



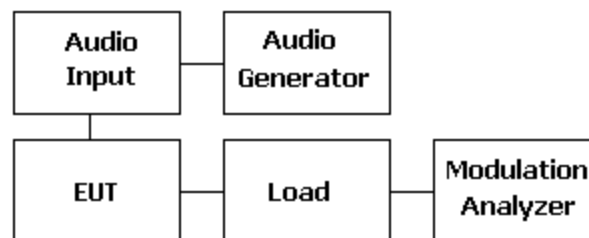
FCC 2.1033(c)(8)/87.131 – POWER OUTPUT, DC VOLTAGES AND CURRENTS

CKC Laboratories did not perform this testing. This information is to be supplied in a separate document.

FCC 2.1033(c)(14)/2.1047(a)/87.141 - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

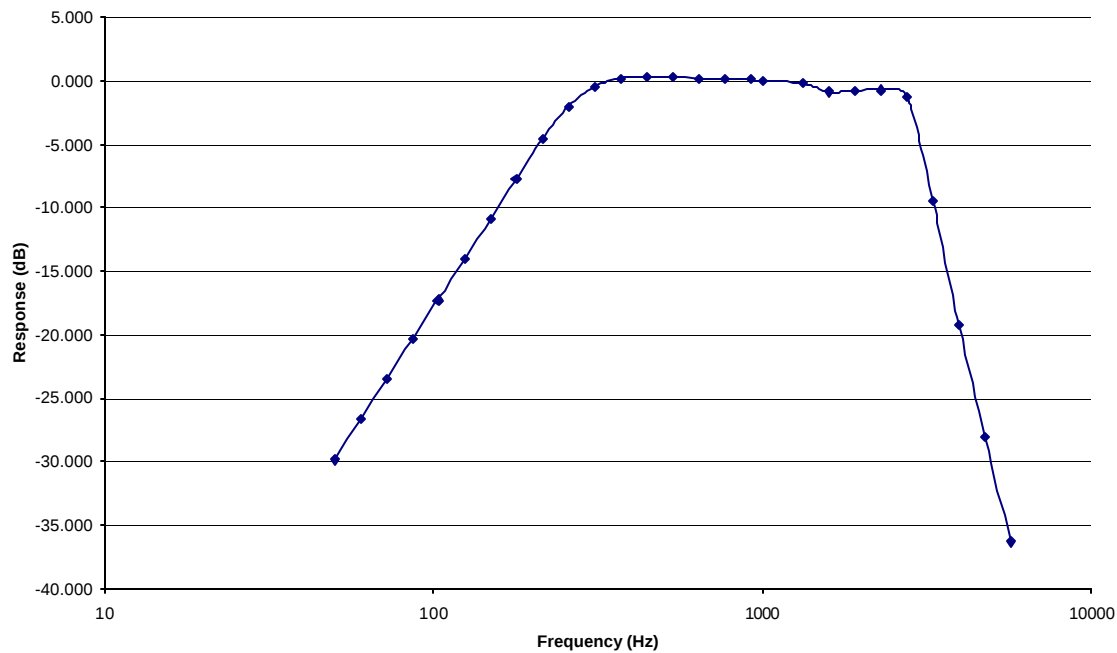
Test Conditions: The test setup is in accordance with TIA/EIA 603 2.2.6.2.2 Constant Input Method. EUT is powered by an external 28VDC power source. The EUT is functioning normally on the indicated frequency. Input voltage is held at 200mV RMS. The measured deviation is in % AM modulation.

Audio Frequency Response Setup Diagram



2.1047(a) Audio Frequency Response

Garmin AT SL40 118.0 MHz



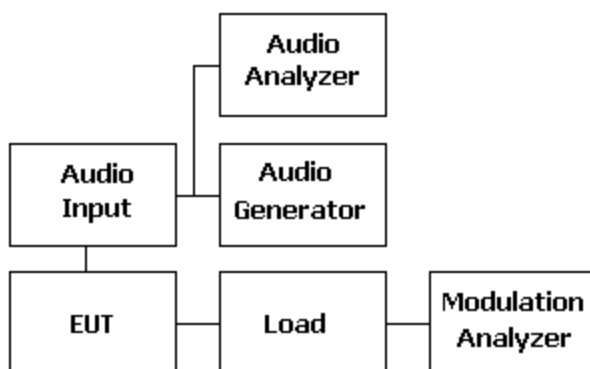
Test Equipment

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Analyzer, Audio	02338	HP	8903B	3011A09432	11/27/02	11/26/04
Analyzer, Modulation	02072	HP	8901A	2751A05181	11/27/02	11/26/04
Power Supply, DC	00762	HP	6205C	2228A01775	6/5/03	6/4/05

**FCC 2.1033(c)(14)/2.1047(a)(b)/87.141 MODULATION CHARACTERISTICS–
Modulation Limiting Response**

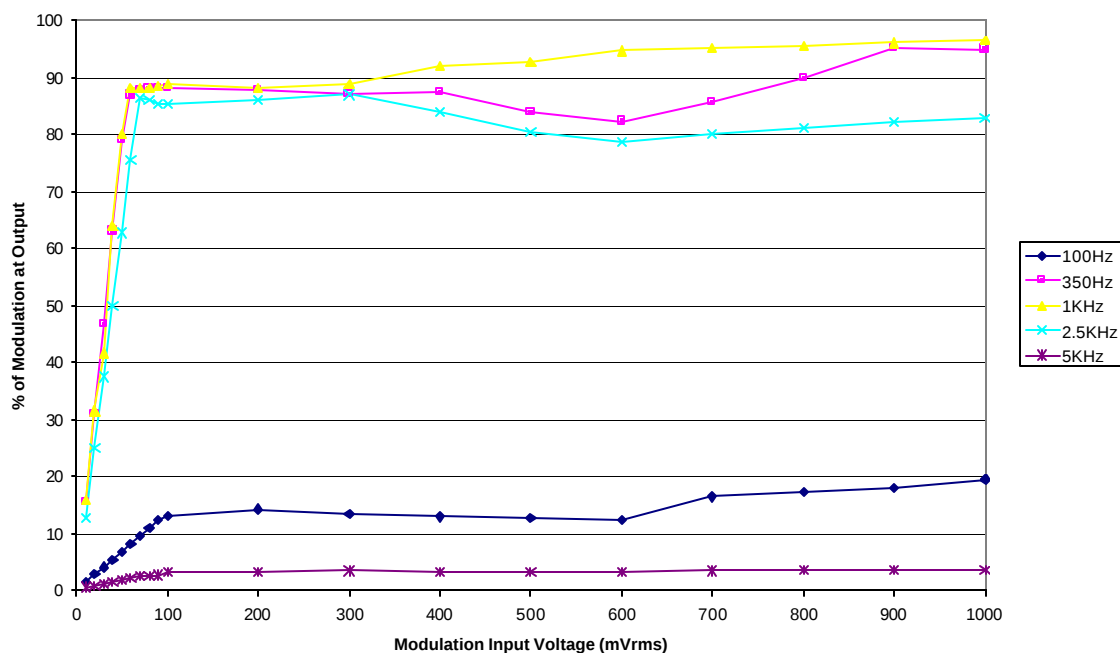
Test Conditions: The test setup is in accordance with TIA/EIA 603. The EUT is functioning normally on the indicated frequency. EUT is powered by an external 28VDC power source. A family of curves is plotted as a function of input modulation relative to 60% of the manufacturer's declared maximum system deviation. Input voltage is held at 200mV RMS. The measured deviation is in % AM modulation.

Modulation Limiting Setup



2.1047(b) Modulation Limiting

Garmin AT SL40 118.0 MHz



Test Equipment:

Description	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Analyzer, Audio	02338	HP	8903B	3011A09432	11/27/02	11/26/04
Analyzer, Modulation	02072	HP	8901A	2751A05181	11/27/02	11/26/04
Power Supply, DC	00762	HP	6205C	2228A01775	6/5/03	6/4/05

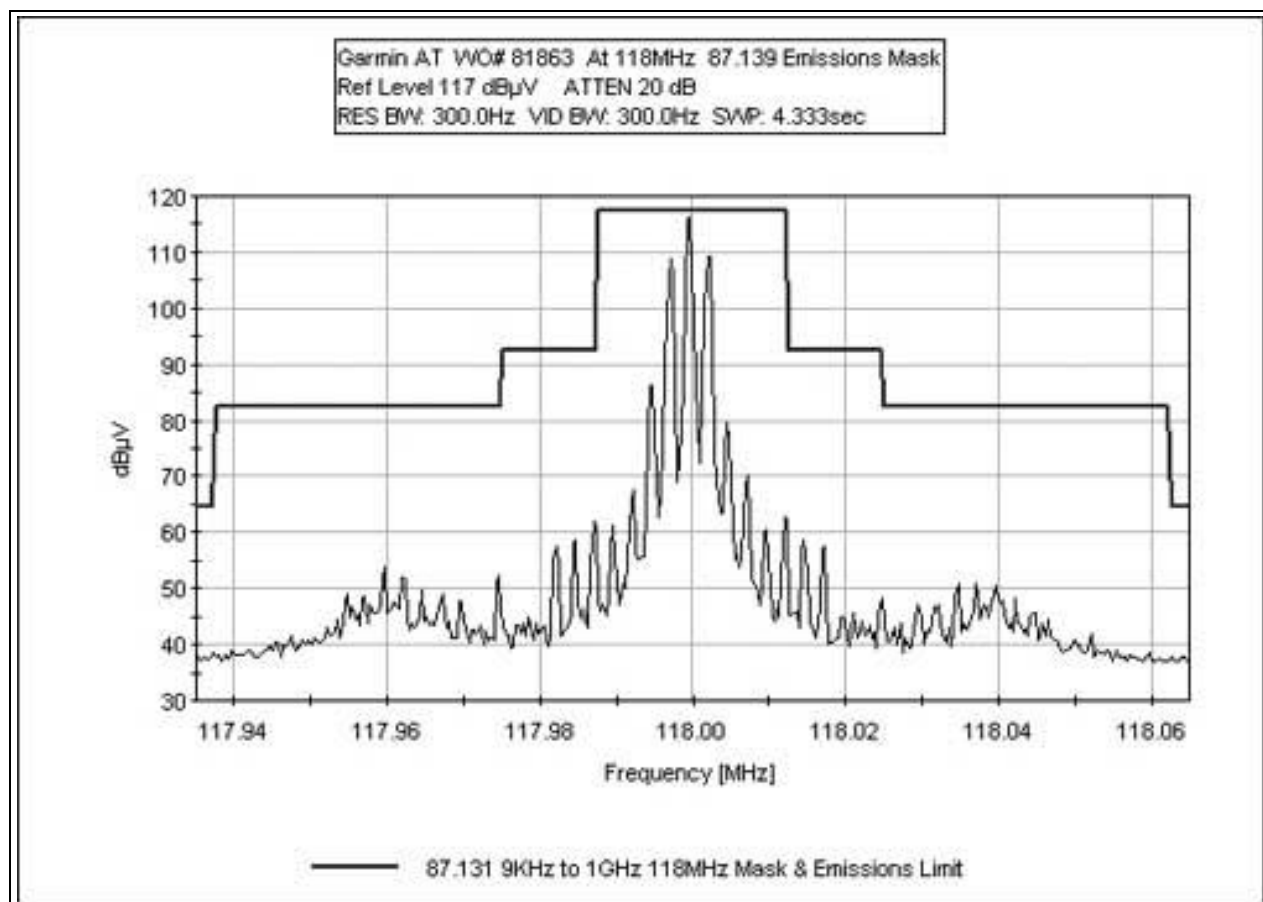
PHOTOGRAPH SHOWING MODULATION - AUDIO SETUP



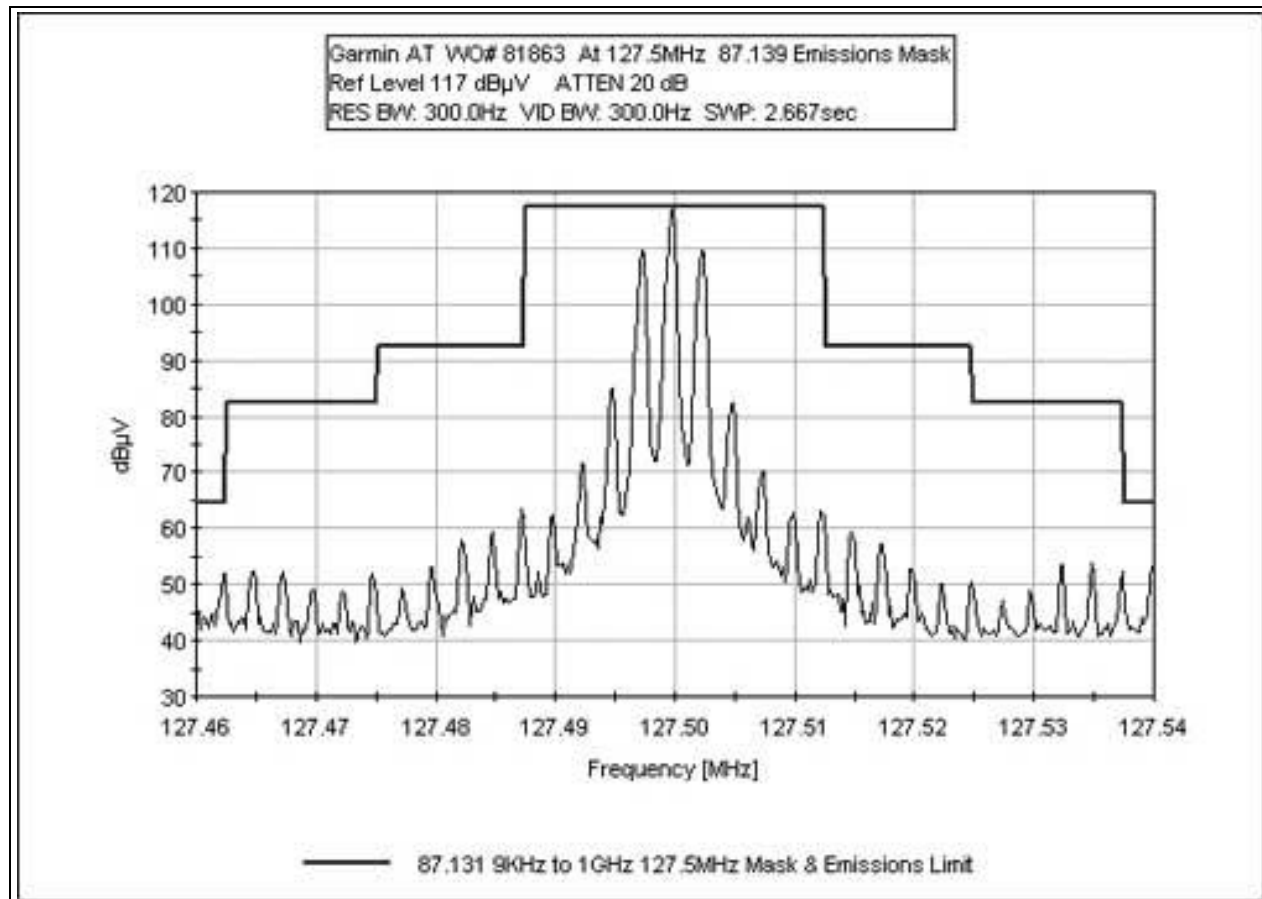
FCC 2.1033(c)(14)/2.1049(1)/87.139- EMISSIONS MASK

Test Conditions: The audio input level into the microphone will be 200 mv RMS. The audio frequency will be 2500 Hz.

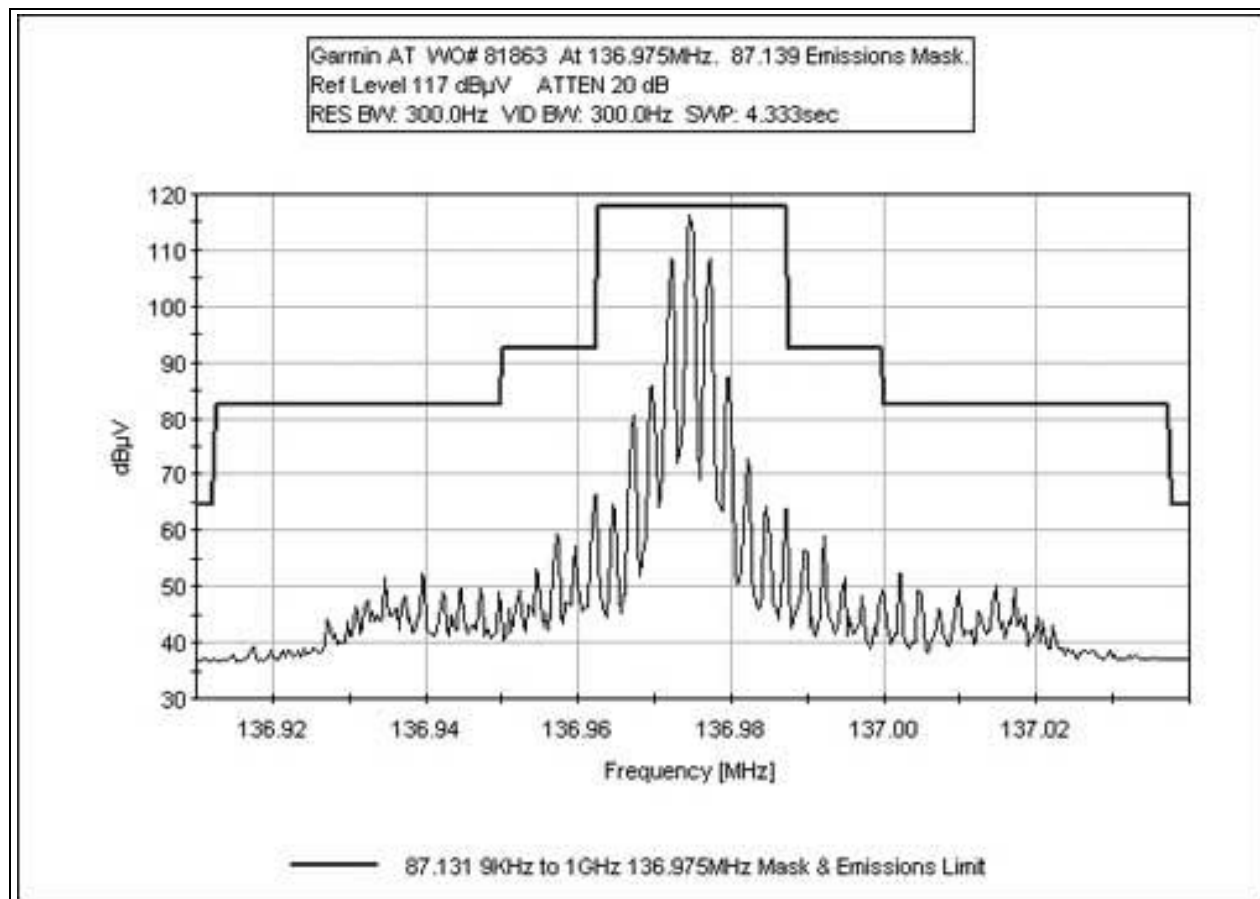
FCC 87.139 EMISSIONS MASK 118 MHz



FCC 87.139 EMISSIONS 127.5 MHz



FCC 87.139 EMISSIONS MASK 136.975 MHz



Test Equipment:

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Spectrum Analyzer	783	HP	8596E	3346A00225	6/24/02	6/24/04
30dB Attenuator	1572	Bird	100-SA-MFN-30	9949	5/9/03	5/9/05
Spectrum Analyzer	783	HP	8596E	3346A00225	6/24/02	6/24/04
30dB Attenuator	1572	Bird	100-SA-MFN-30	9949	5/9/03	5/9/05

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



FCC 2.1033(c)(14)/2.1051/87.139(3)- SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Garmin AT**
 Specification: **87.139(a) 118.000 MHz Emissions Limitations**
 Work Order #: **81863** Date: 02/20/2004
 Test Type: **Radiated Scan** Time: 08:59:40
 Equipment: **Apollo** Sequence#: 2
 Manufacturer: Garmin AT Tested By: Amrinder Brar
 Model: SL40
 S/N: 2

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Apollo*	Garmin AT	SL40	2

Support Devices:

Function	Manufacturer	Model #	S/N
Fan	ETRI	125DH	125DH1LP31000
Modulation Meter	RACAL-DANA	9008	5598
COM Interface Box	II Morrow	ENU Test	B
30dB 100 Watts	Bird	100-SA-MFN-30	9949
Attenuator			
Power Supply	Sorenson	DCR50-30B	0176

Test Conditions / Notes:

EUT is running at 28VDC. Power is supplied to COM Interface Box. From the COM Interface Box the power goes out to the EUT via a DB 15 connector. Output of the EUT is connected through a 30dB attenuator to the SA. Fundamental set to 118MHz. Frequency Range Investigated: 9kHz to 2GHz. RBW=VBW=300Hz in the range 9kHz to 150kHz, RBW=VBW=10kHz in the range 150kHz to 30MHz, RBW=VBW=100kHz in the range 30MHz to 2GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	118.000M	117.3	+29.5				+0.0	146.8	147.0	-0.2	None
									Fundamental		
2	235.930M	57.9	+29.5				+0.0	87.4	94.0	-6.6	None
3	107.200M	47.4	+29.6				+0.0	77.0	94.0	-17.0	None
4	354.003M	43.6	+29.5				+0.0	73.1	94.0	-20.9	None
5	944.002M	38.3	+29.7				+0.0	68.0	94.0	-26.0	None
6	78.788M	37.3	+29.6				+0.0	66.9	94.0	-27.1	None
7	826.000M	35.1	+29.6				+0.0	64.7	94.0	-29.3	None

8	340.375M	33.1	+29.6	+0.0	62.7	94.0	-31.3	None
9	471.993M	32.5	+29.6	+0.0	62.1	94.0	-31.9	None
10	160.013M	32.7	+29.4	+0.0	62.1	94.0	-31.9	None
11	708.000M	31.0	+29.6	+0.0	60.6	94.0	-33.4	None
12	589.985M	30.5	+29.6	+0.0	60.1	94.0	-34.0	None
13	1180.050M	43.0	+0.0	+0.0	43.0	94.0	-51.0	None
14	1298.000M	42.8	+0.0	+0.0	42.8	94.0	-51.2	None
15	1062.050M	41.8	+0.0	+0.0	41.8	94.0	-52.2	None
16	459.510k	5.7	+29.7	+0.0	35.4	94.0	-58.6	None
17	307.230k	4.5	+29.7	+0.0	34.2	94.0	-59.8	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Garmin AT**
 Specification: **87.139(a) 127.500 MHz Emissions Limitations**
 Work Order #: **81863** Date: 02/20/2004
 Test Type: **Radiated Scan** Time: 08:54:39
 Equipment: **Apollo** Sequence#: 3
 Manufacturer: **Garmin AT** Tested By: **Amrinder Brar**
 Model: **SL40**
 S/N: **2**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Apollo*	Garmin AT	SL40	2

Support Devices:

Function	Manufacturer	Model #	S/N
Fan	ETRI	125DH	125DH1LP31000
Modulation Meter	RACAL-DANA	9008	5598
COM Interface Box	II Morrow	ENU Test	B
30dB 100 Watts	Bird	100-SA-MFN-30	9949
Attenuator			
Power Supply	Sorenson	DCR50-30B	0176

Test Conditions / Notes:

EUT is running at 28VDC. Power is supplied to COM Interface Box. From the COM Interface Box the power goes out to the EUT via a DB 15 connector. Output of the EUT is connected through a 30dB attenuator to the SA. Fundamental set to 127.5MHz. Frequency Range Investigated: 9kHz to 2GHz. RBW=VBW=300Hz in the range 9kHz to 150kHz, RBW=VBW=10kHz in the range 150kHz to 30MHz, RBW=VBW=100kHz in the range 30MHz to 2GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	127.500M	117.1	+29.5				+0.0	146.6	147.0	-0.4	None
									Fundamental		
2	382.480M	58.8	+29.5				+0.0	88.3	94.0	-5.7	None
3	892.470M	58.1	+29.7				+0.0	87.8	94.0	-6.2	None
4	254.960M	58.2	+29.5				+0.0	87.7	94.0	-6.3	None
5	764.980M	56.7	+29.6				+0.0	86.3	94.0	-7.7	None
6	637.550M	49.8	+29.6				+0.0	79.4	94.0	-14.6	None
7	510.030M	48.4	+29.6				+0.0	78.0	94.0	-16.0	None
8	116.663M	48.0	+29.5				+0.0	77.5	94.0	-16.5	None

9	143.100M	36.7	+29.4	+0.0	66.1	94.0	-27.9	None
10	15.463M	34.7	+29.7	+0.0	64.4	94.0	-29.6	None
11	84.437M	32.4	+29.6	+0.0	62.0	94.0	-32.0	None
12	415.000k	27.8	+29.7	+0.0	57.5	94.0	-36.5	None
13	536.880k	26.7	+29.7	+0.0	56.4	94.0	-37.7	None
14	1275.050M	44.2	+0.0	+0.0	44.2	94.0	-49.8	None
15	1147.550M	44.2	+0.0	+0.0	44.2	94.0	-49.8	None
16	1020.050M	42.9	+0.0	+0.0	42.9	94.0	-51.1	None
17	307.150k	4.3	+29.7	+0.0	34.0	94.0	-60.0	None
18	149.000k	-1.3	+29.6	+0.0	28.3	94.0	-65.7	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Garmin AT**
 Specification: **87.139(a) 136.975 MHz Emissions Limitations**
 Work Order #: **81863** Date: 02/20/2004
 Test Type: **Radiated Scan** Time: 08:52:33
 Equipment: **Apollo** Sequence#: 4
 Manufacturer: **Garmin AT** Tested By: **Amrinder Brar**
 Model: **SL40**
 S/N: **2**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Apollo*	Garmin AT	SL40	2

Support Devices:

Function	Manufacturer	Model #	S/N
Fan	ETRI	125DH	125DH1LP31000
Modulation Meter	RACAL-DANA	9008	5598
COM Interface Box	II Morrow	ENU Test	B
30dB 100 Watts	Bird	100-SA-MFN-30	9949
Attenuator			
Power Supply	Sorenson	DCR50-30B	0176

Test Conditions / Notes:

EUT is running at 28VDC. Power is supplied to COM Interface Box. From the COM Interface Box the power goes out to the EUT via a DB 15 connector. Output of the EUT is connected through a 30dB attenuator to the SA. Fundamental set to 136.975MHz. Frequency Range Investigated: 9kHz to 2GHz. RBW=VBW=300Hz in the range 9kHz to 150kHz, RBW=VBW=10kHz in the range 150kHz to 30MHz, RBW=VBW=100kHz in the range 30MHz to 2GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	136.975M	116.4	+29.4				+0.0	145.8	147.0	-1.2	None
									Fundamental		
2	274.000M	60.2	+29.6				+0.0	89.8	94.0	-4.3	None
3	411.050M	58.8	+29.5				+0.0	88.3	94.0	-5.7	None
4	126.163M	48.3	+29.5				+0.0	77.8	94.0	-16.2	None
5	821.970M	47.5	+29.6				+0.0	77.1	94.0	-16.9	None
6	684.780M	45.8	+29.6				+0.0	75.4	94.0	-18.6	None
7	547.780M	45.5	+29.6				+0.0	75.1	94.0	-18.9	None
8	162.400M	40.0	+29.4				+0.0	69.4	94.0	-24.6	None

9	93.987M	35.0	+29.6	+0.0	64.6	94.0	-29.4	None
10	1.775M	21.1	+29.6	+0.0	50.7	94.0	-43.3	None
11	1232.820M	43.8	+0.0	+0.0	43.8	94.0	-50.2	None
12	1095.840M	42.8	+0.0	+0.0	42.8	94.0	-51.2	None
13	1369.800M	38.9	+0.0	+0.0	38.9	94.0	-55.1	None

Test Equipment:

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Spectrum Analyzer	783	HP	8596E	3346A00225	6/24/02	6/24/04
30dB Attenuator	1572	Bird	100-SA-MFN-30	9949	5/9/03	5/9/05

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



FCC 2.1033(c)(14)/2.1053 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Conditions: EUT is running at 28V DC. Power is routed through the COM Interface Box to the EUT via a DB 15 connector. Modulation input is supplied through the COM Interface Box: 1kHz at 200mV rms. Output of the EUT is connected through a 30dB attenuator to a shielded 50-ohm resistive load.

Carrier Frequency: 118.000MHz, 127.500MHz and 136.975MHz.

Frequency Range Investigated: 9kHz to 2GHz

RBW=VBW=300Hz in the range 9kHz to 150kHz

RBW=VBW=10kHz in the range 150kHz to 30MHz

RBW=VBW=100kHz in the range 30MHz to 2GHz

No other EUT signals detected within 20dB of the limit.

Operating Frequency: 118 MHz

Channels: Low

Highest Measured Output Power: 40.00 ERP(dBm)= 10 ERP(Watts)

Distance: 3 meters

Limit: $43+10\log(P)$ 53.00 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
236.08	-25.8	Horiz	65.80
472.07	-29.20	Vert	69.20
472.08	-24.30	Horiz	64.30
590.08	-31.90	Horiz	71.90
590.08	-32.40	Vert	72.40
708.06	-21.90	Vert	61.90
826.06	-23.10	Vert	63.10
826.09	-22.00	Horiz	62.00
944.08	-29.60	Vert	69.60

Operating Frequency: 127.5 MHz
 Channels: Mid
 Highest Measured Output Power: 40.20 ERP(dBm)= 10.47 ERP(Watts)
 Distance: 3 meters
 Limit: $43+10\log(P)$ 53.20 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
255.06	-31.9	Vert	72.10
382.57	-31.30	Horiz	71.50
382.57	-32.30	Vert	72.50
510.07	-22.40	Horiz	62.60
510.08	-24.30	Vert	64.50
637.57	-20.80	Horiz	61.00
637.58	-18.90	Vert	59.10
765.08	-18.30	Vert	58.50
765.08	-23.10	Horiz	63.30
892.58	-27.50	Horiz	67.70

Operating Frequency: 136.98
 Channels: Mid
 Highest Measured Output Power: 39.50 ERP(dBm)= 8.91 ERP(Watts)
 Distance: 3 meters
 Limit: $43+10\log(P)$ 52.50 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
255.06	-31.9	Vert	71.40
382.57	-31.30	Horiz	70.80
382.57	-32.30	Vert	71.80
510.07	-22.40	Horiz	61.90
510.08	-24.30	Vert	63.80
637.57	-20.80	Horiz	60.30
637.58	-18.90	Vert	58.40
765.08	-18.30	Vert	57.80
765.08	-23.10	Horiz	62.60
892.58	-27.50	Horiz	67.00

Test Equipment:

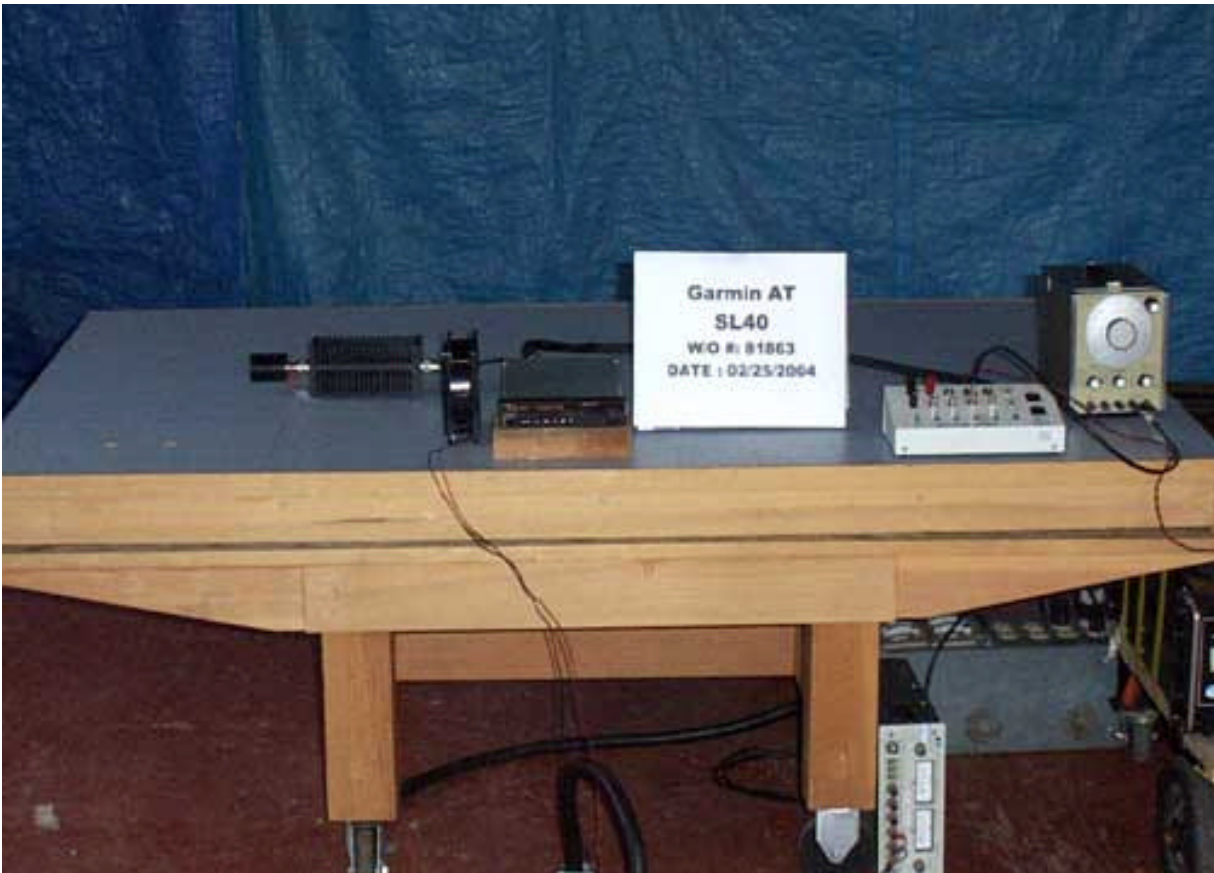
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577
Cable, Andrews Hardline	NA	06/04/2003	06/04/2005	P00740
Cable, Andrews Hardline HF-005-20	NA	06/03/2003	06/03/2005	P04275
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2004	00099
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
EMCO 3115 Horn Antenna	9006-3413	04/15/2003	04/25/2005	327
EMCO Loop Antenna	1074	05/21/2003	05/21/2005	00226

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

FCC 2.1033(c)(14)/2.1055/87.133- FREQUENCY STABILITY

Test Conditions: The EUT was transmitting CW at the low-mid-high frequencies. Temperature monitoring with temperature meter, frequency monitor with modulation analyzer.

Frequency Stability

Customer: Garmin AT
 WO#: 81863
 Date: 24-Feb-04
 Test Engineer: Randal Clark

Device Model #: SL 40
 Voltage Range: 10 - 32 VDC
 Frequency Limit: 30 PPM

Temperature Variations

Channel Frequency:		Channel 1 (MHz)	Dev. (MHz)	Channel 2 (MHz)	Dev. (MHz)	Channel 3 (MHz)	Dev. (MHz)
		118.000		127.500		136.975	
Temp (C)	Voltage						
-30	28.0	118.00000	0.00000	127.50000	0.00000	136.97490	0.00010
-20	28.0	118.00030	0.00030	127.50010	0.00010	136.97540	0.00040
-10	28.0	118.00040	0.00040	127.50040	0.00040	136.97540	0.00040
0	28.0	118.00050	0.00050	127.50050	0.00050	136.97550	0.00050
10	28.0	118.00030	0.00030	127.50030	0.00030	136.97540	0.00040
20	28.0	118.00010	0.00010	127.50030	0.00030	136.97510	0.00010
30	28.0	117.99990	0.00010	127.49990	0.00010	136.97490	0.00010
40	28.0	117.99970	0.00030	127.49970	0.00030	136.97470	0.00030
50	28.0	117.99970	0.00030	127.49970	0.00030	136.97470	0.00030

Voltage Variations

20	10.0	118.00020	0.00020	127.50030	0.00030	136.97501	0.00001
20	12.0	118.00020	0.00020	127.50030	0.00030	136.97501	0.00001
20	14.0	118.00020	0.00020	127.50020	0.00020	136.97501	0.00001
20	16.0	118.00010	0.00010	127.50020	0.00020	136.97491	0.00009
20	18.0	118.00010	0.00010	127.50020	0.00020	136.97491	0.00009
20	24.0	118.00010	0.00010	127.50020	0.00020	136.97491	0.00009
20	26.0	118.00010	0.00010	127.50030	0.00030	136.97501	0.00001
20	28.0	118.00010	0.00010	127.50040	0.00040	136.97511	0.00011
20	30.0	118.00020	0.00020	127.50030	0.00030	136.97511	0.00011
20	32.0	118.00020	0.00020	127.50030	0.00030	136.97501	0.00001

Max Deviation (MHz)	0.00050	0.00050	0.00050
Max Deviation (PPM)	4.23729	3.92157	3.65030
	PASS	PASS	PASS

Test Equipment:

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Temperature Chamber-AF	01879	Thermotron Corp.	S-1.2 MINI MAX	11899	1/31/2003	1/31/2005
Analyzer, Modulation	02072	HP	8901A	2751A05181	11/27/02	11/26/04
Thermometer	02242	Omega	HH-26K	T-202884	8/15/2003	8/15/2004

PHOTOGRAPH SHOWING TEMPERATURE TESTING

