Flom Test Labs
EMI, EMC, RF Testing Experts Since 1963
toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.flomlabs.com
info@flomlabs.com

Date: May 27, 2008

Applicant: Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

Equipment: TT-3672B
P.O. Number:
Specification: **Council Directive** of 3 May 1989 on the approximation of the laws of the member states relating to electromagnetic compatibility (89/336/EEC), as amended (92/31/EEC and 93/68/EEC)

Gentlemen:

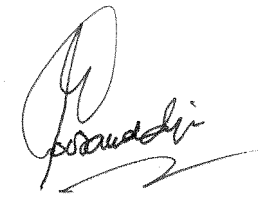
Enclosed please find your copy of the EMI/EMC Test Report per IEC 60945 Maritime navigation and radio communication equipment and systems. Please keep these documents on file in your company records.

The attached report indicates that the sample submitted for testing complied with relevant requirements of the pertinent EN standards. Production units meeting these standards can now be marketed after completion of the Manufacturer's Declaration of Conformity and application of the CE marking.

Our invoice for services has been directed to your Accounts Payable Department, with a copy attached for your information.

Should anything need clarification, do not hesitate to call or FAX. It has been a pleasure to work with you and we do thank you for your order.

Sincerely yours,



Hoosamuddin S. Bandukwala, Lab Director

enclosure(s)
HSB/lr

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EMC/EMI Test Report

for

TT-3672B

to

EN60945

Fourth Edition

Maritime navigation and radiocommunication equipment and system

Radio disturbance characteristics

Limits and methods of measurements

Date of Report: May 28, 2008
Revised June 30, 2008

On The Behalf Of The Applicant:

Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

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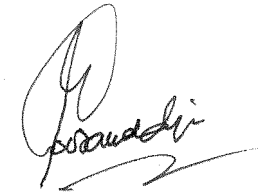

Supervised By: Hoosamuddin S. Bandukwala, Lab Director

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Table of abbreviations

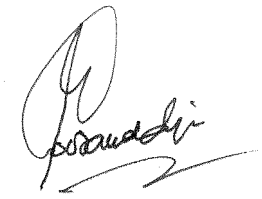
CF	Correction Factor
CL	Cable Loss
EFT	Electrical Fast Transients
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
ESD	Electrostatic Discharge
EUT	Equipment Under Test
HGP	Horizontal Ground Plane
HP	Hewlett Packard
IEC	International Electro technical Commission
P/N	Part Number
RF	Radio Frequency
S/N	Serial Number
TCF	Transducer Correction Factor
VCP	Vertical Coupling Plane
NA	Not Applicable

Required information per ISO 17025:2005

a) **Test Report**

b) Laboratory: (FCC: 31040/SIT) (Canada: IC 2044)	Flom Test Lab 3356 N. San Marcos Place, Suite 107 Chandler, AZ 85225
c) Report Number:	d0850053
d) Client:	Thrane & Thrane A/S Lundtoftegardsvej 93D DK-2800 Lyngby, Denmark
e) Identification:	TT-3672B
Description:	Wireless VoIP Handset
f) EUT Condition:	Not required unless specified in individual tests.
g) Report Date:	May 27, 2008 Rev 1 June 30, 2008
EUT Received:	May 20, 2008
h, j, k):	As indicated in individual tests.
i) Sampling method:	No sampling procedure used.
l) Uncertainty:	In accordance with Flom Test Lab's internal quality manual.

m) Supervised by:



Hoosamuddin S. Bandukwala, Lab Director

n) Results:	The results presented in this report relate only to the item tested.
o) Reproduction:	This report must not be reproduced, except in full, without written permission from this laboratory.

A2LA

"A2LA has accredited Flom Test Labs, Inc. Chandler, AZ for technical competence in the field of Electrical Testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to www.a2la.org for current scope of accreditation.

Certificate Number: **2152.01**

Declaration of Conformity

Client/ Manufacturer: Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

Model Number: TT-3672B

Type of Equipment: Wireless VoIP Handset

Serial Number: Prototype

Rating: Battery Operated

Test Dates: May 20,21,22, 2008
June 30, 2008

Report Date: May 27, 2008

P.O.:

Test performed by: Staff At Flom Test Lab

Voltage Input, Battery Operated

Normally Operated: Handheld

Grounded: No

Modifications: (none)

General: The results of this report apply only to the unit tested and clauses mention below.

Test Summary Table:

Immunity Standards	Pass/Fail N/A	Comments
(10.3) Immunity to conducted radio frequency disturbance per: EN 61000-4-6:1996 Immunity to conducted disturbances, induced by radio frequency fields	Pass	
(10.4) Immunity to radiated radio frequencies per: EN 61000-4-3:1995 Radiated, radio frequency, Electromagnetic field immunity	Pass	
(10.5) Immunity to fast transients on a.c. power, signal and control lines per: EN 61000-4-4:1995 Electrical Fast Transient/burst immunity test(EFT)	Pass	
(10.6) Immunity to surges on a.c. power lines per: EN 61000-4-5:1995 Surge Immunity	Pass	
(10.7) Immunity to power supply short-term variation per: EN 61000-4-11:1994 Voltage dips, short interruptions and voltage variations	Pass	
(10.8) Immunity to power supply failure per: EN 61000-4-11:1994 Voltage dips, short interruptions and voltage variations	Pass	
(10.9) Immunity to electrostatic discharge per: EN 61000-4-2:1995 Electrostatic Discharge (ESD)	Pass	
(11.2) Compass Safe Distance	Pass	
Conducted emissions	Pass	
Radiated emissions	Pass	

CONDITIONS DURING TESTING

Normal and extreme test conditions are defined in terms of environmental conditions and power supply parameters. The term “normal” shall be read in context, particularly noting that normal and extreme test conditions together cover the broad range of conditions, which may normally be found on ships.

The test power supply shall be capable of providing the normal and extreme test voltages and, for a.c. supplies, frequencies, for all variations of load imposed by the EUT, that is its internal impedance shall be low enough to have only negligible effect on the test results. The power supply voltage and frequency shall be measured at the input terminals to the EUT.

For equipment powered from integral batteries, the use of a test power supply is for convenience only, and shall be agreed with the manufacturer. In the event of any discrepancy, results obtained using the batteries shall take precedence over results obtained using a test power source.

Summary of Restrictions

1. Revocation of CE mark by the European Authorities can occur at any time if the equipment does not meet or continue to meet the rules.

2. A sample may be requested at any time.

Name of test: Conducted Emissions (Power Line)

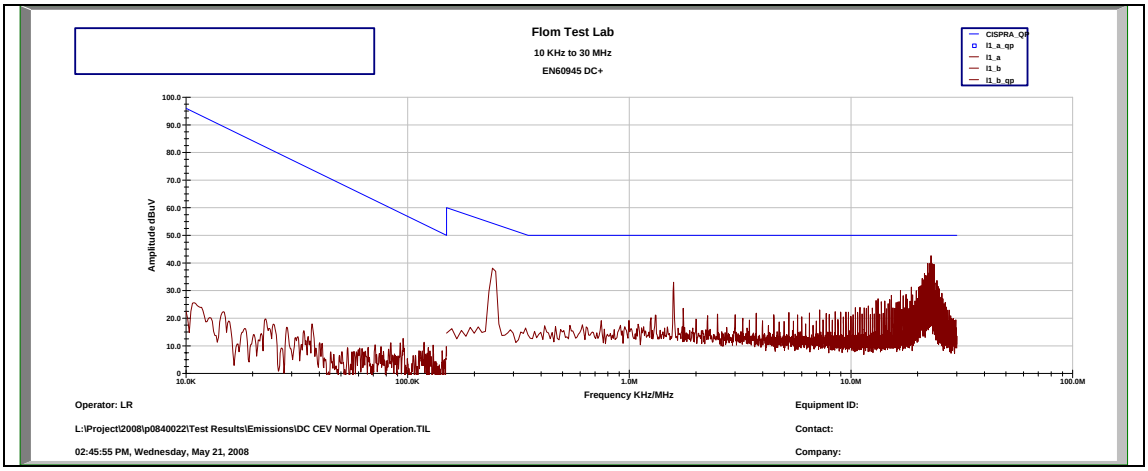
Test standard: IEC 60945
Maritime navigation and radiocommunication equipment and system - Radio disturbance characteristics – Limits and methods of measurements

Test equipment asset ID: i00088, i00089, i00033

Test Setup

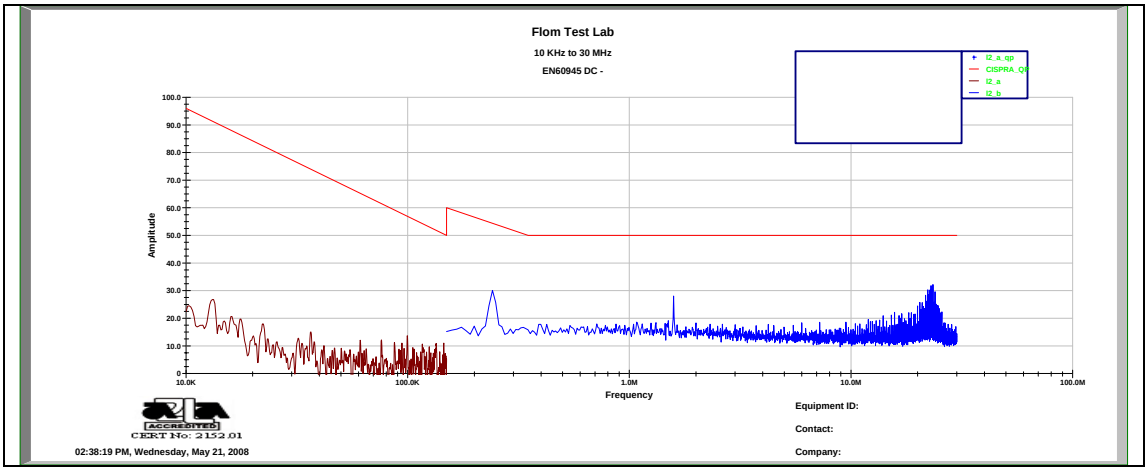
Results: Powerline Conducted Emissions – Line 1

Peak Plot



Results: Powerline Conducted Emissions – Line 2

Peak Plot



Note: The peak-conducted emissions did not exceed the Quasi-peak or the Average limits. No further measurements were performed

Performed By:

Lance Reid, NCT
Sr. Test Technician

Name of test: Radiated Emissions

Test standard: IEC 60945
Maritime navigation and radiocommunication equipment and system - Radio disturbance characteristics – Limits and methods of measurements

Test equipment asset ID: i00088, i00089, i00033

Front

Measurement Data

Measurement distance (D), m	=	x 3 / 10
All other emissions	=	20 dB Below Limit
Frequency of tests, MHz	=	30 to 1000

Note 1: Worst case of horizontal or vertical.

Note 2: The applied correction factors include transducer factors, cable loss, and distance correction.

Note 3: Measured peak values are reported. The corresponding quasi-peak level is always less than peak value.

Measurement Results

The EUT meets radiated disturbance limits per IEC 60945

Name of Test: Radiated Emissions

All other emissions in the required measurement range were more that 20 dB below the required limits.

g0850072: 2008-May-23 Fri 11:49:00
State: 0:General

Frequency Emission, MHz	Level, dBuV	@ m	C.F., dB	µV/m	@ m	Margin, dB
0.032768	57.7	1	20.7	8317.64	1	78.4
3.398720	13	1	16.3	29.17	1	29.3
25.000000	14.9	1	17.41	41.26	1	32.3

g0850071: 2008-May-23 Fri 11:23:00

Frequency Emission, MHz	Level @ 3M dBµV/m	CF dBµV (Ant, Cable)	CF dBµV (Distance)	CR dBµV/m	Limit @ 3 M dBµV	Margin dBµV
56.187800	14.7	10.9	0	25.6	40	-14.4
115.150000	22.7	13.6	0	36.3	40	-3.7
200.000580	13.6	17.3	0	30.8	40	-9.2
229.330000	18.9	18.2	0	37.1	40	-3.0
266.218000	23.7	16.9	0	40.6	47	-6.4
266.219000	22.8	16.9	0	39.7	47	-7.3
500.000000	16.7	20.3	0	36.7	47	-10.0
634.380000	16.1	24.0	0	40.1	47	-6.9
998.996000	13.9	27.0	0	40.9	47	-6.1

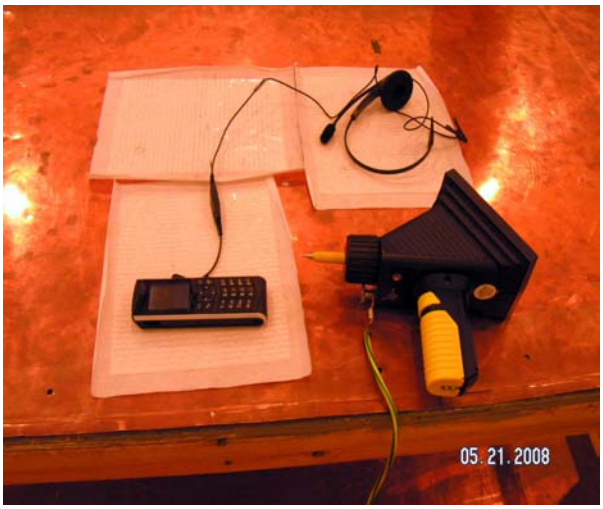
Performed By: Lance Reid, NCT
Sr. Test Technician

Name of test: 9.3 Electro-Static Discharge (ESD)

Test method: EN 61000-4-2: 1995 (A1: 1998, A2: 2001)
"Electromagnetic compatibility for industrial-process measurement and control equipment. Part 2: Electrostatic discharge requirements"

Test equipment asset ID: i00095

Test Setup



Measurement Data

Note: ESD was applied to all exposed surfaces of the EUT except where the user documentation specifically indicated a requirement for appropriate protective measures.

Name of Test: Electrostatic Discharge (ESD)

Contact Discharge								Location
1 2kV		2 4kV		3 6kV		4 8kV		
10 +	10 -	10 +	10 -	10 +	10 -	10 +	10 -	
N/A								No grounded metal surfaces

Horizontal Coupling Plane								Location
1 2kV		2 4kV		3 6kV		4 8kV		
10 +	10 -	10 +	10 -	10 +	10 -	10 +	10 -	
OK	OK	OK	OK	OK	OK	OK	OK	Front
OK	OK	OK	OK	OK	OK	OK	OK	Back
OK	OK	OK	OK	OK	OK	OK	OK	Left
OK	OK	OK	OK	OK	OK	OK	OK	Right

Vertical Coupling Plane								Location
1 2kV		2 4kV		3 6kV		4 8kV		
10 +	10 -	10 +	10 -	10 +	10 -	10 +	10 -	
OK	OK	OK	OK	OK	OK	OK	OK	Front
OK	OK	OK	OK	OK	OK	OK	OK	Back
OK	OK	OK	OK	OK	OK	OK	OK	Left
OK	OK	OK	OK	OK	OK	OK	OK	Right

Air Discharge								Location
1 2kV		2 4kV		3 8kV		4 15kV		
10 +	10 -	10 +	10 -	10 +	10 -	10 +	10 -	
ND	ND	ND	ND	ND	ND	NA	NA	All touchable surfaces

Criteria Met Remark
Criteria A There *was no* any degradation of performance noted

Performed By:

Lance Reid, NCT
Sr. Test Technician

Name of test: Radiated, Radio-frequency, electromagnetic field immunity test

Test standard EN 61000-4-3
Electromagnetic compatibility (EMC) Part 4-3: Testing and measurement techniques – Radiated, Radio-frequency, electromagnetic field immunity test

Test equipment asset ID: i00266, i00310, i00275, i00280, i00250, i00300

Test Setup

Results:

Criteria met	Freq. Range, MHz	Applied Severity Level	Polarization	Orientation (Degrees)	Comment
A	80–2000	3 (10 V/m)	Vertical	0	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Vertical	90	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Vertical	180	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Vertical	270	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Horizontal	0	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Horizontal	90	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Horizontal	180	No degradation of performance was noted.
A	80–2000	3 (10 V/m)	Horizontal	270	No degradation of performance was noted.

Performed By:

Lance Reid, NCT
Sr. Test Technician

Name of test: 9.4 Electrical Fast Transient/Burst (EFT)

Test method: EN 61000-4-4: 1995 (A1:2001, A2:2001)
"Electromagnetic compatibility for industrial-process measurement and control equipment. Part 4: Electrical fast transient/burst requirements"

Test equipment asset ID: i00062, i00063, i00168

TEST SETUP

Part I:
AC Mains

Measurement Data

Part I: Power supply lines and earth connections of cabinets
Applied Severity Level = 2 (1 kV)

Part II: I/O circuits and communications lines exceeding 3 meters
Applied Severity Level = 2 (0.5 kV)

Results:

Part	Performance criteria met	Remark
I	Criteria A	There *was not* any degradation of performance noted
II	Criteria A	There *was not* any degradation of performance noted

Performed By:

Lance Reid, NCT
Sr. Test Technician

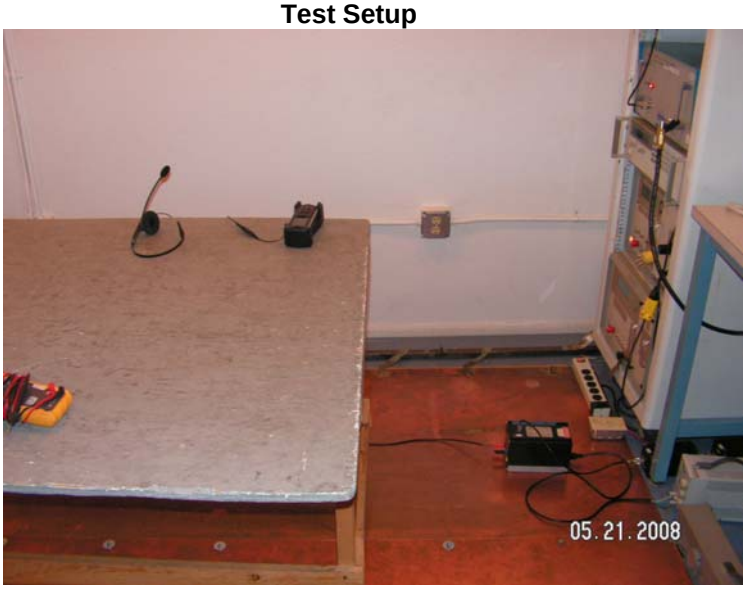
Name of test: 9.5 Radio frequency, common mode

Test method: EN 61000-4-6
Immunity to conducted disturbances, induced by radio-frequency fields

Test equipment asset ID: i00031, i00275, i00265, i00252 i00261, i00262, i00192,

The manufacturer declares that the following ports are not for use with cables exceeding 3 m:
1. None

Test Setup



Note: Voltage was applied via a coupling/decoupling network (CDN) or a capacitive coupling clamp (EM Clamp) to each port separately.

For AC Ports, DC ports, coax lines and 2- or 4 lines balanced communication lines a CDN was used to inject. On other multiple signal cables an EM Clamp was used for infection.

A signal level a type as specified was applied in the defined frequency range. The frequency was swept through the range with a step width and a dwell time per frequency as specified.

RESULTS

	Applied Level
Port	3Vrms
AC Mains	The EUT meets criteria A
Headphones	The EUT meets criteria A

Comments: No degradation of performance detected during or after the applied test.

Performed By: Lance Reid, NCT
Sr. Test Technician

Name of test: Voltage Dips and Interruptions

Test standard: EN 61000-4-11: 1994 (A1: 2001)
"Electromagnetic Compatibility Section 11 Voltage Dips, Short Interruptions and Voltage Variation Immunity Test."

Test equipment asset ID: i00062

Phenomena	% reduction	Time	Notes
Voltage dip 1	30	10 ms	EUT uses a battery
Voltage dip 2	60	100 ms	EUT uses a battery
Voltage interruption 1	95	5000 ms	EUT uses a battery

Phenomena	Performance criteria met	Remark
Voltage dip 1	A	There *was not* any degradation of performance noted
Voltage dip 2	A	There *was not* any degradation of performance noted
Voltage interruption 1	A	There *was not* any degradation of performance noted

Performed By:

Lance Reid, NCT
Sr. Test Technician

Name of test: Surge Immunity (MAINS)

Test standard: EN 61000-4-5: 1995 (A1: 2001)
"Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test"

Test equipment asset ID: i00192, i00193

Test Setup

Measurement Data

		Class	Line to Line	Line to Ground
Meets Requirements For	=	3	1.0 kV	N/A

Results:

Operation Mode	Criteria Met	Remark
Normal	Criteria A	No susceptibilities observed.

Performed By:

Lance Reid, NCT
Sr. Test Technician

Name of test: 11.2 Compass Safe Distance Test

Test standard IEC 60945 2002 Fourth Edition

Test equipment asset ID: i00314

Test Setup

Results:

The worst-case distance prior to the EUT affecting the above compass is 3 cm. The Walker Scientific Guass meter measured 14mG on the side of the EUT as shown.

The method of testing was based on the standard IEC 60945 Section 11.2.2

Performed By: Lance Reid, NCT
Sr. Test Technician

TEST EQUIPMENT CALIBRATION TABLE

Asset#	**Manufacturer**	Model	Serial Number	Cal Cycle	Calibration Due
i00008	Kenwood	PR19-3A	5080154	When used	Verified
i00017	HP	8903A	2216A01753	12 mo.	1/24/2009
I00020	HP	8901A	2105A01087	12 mo.	1/24/2009
i00021	HP	8945A	2146A00159	N/A	Verified
i00024	HP	6012A	2213A-01034	NA	Verified
i00027	Tenney	Tenney Jr	9083-76J-234	12 mo.	9/25/2008
i00028	HP	8449	2749A00121	12 mo.	1/28/2009
i00029	HP	8563E	3213A00104	12 mo.	5/5/2008
i00031	HP	8656A	2402A06180	When used	Verified
i00033	HP	85462A	3625A00357	12 mo.	10/1//2008
I00034	HP	8546A	3448A00225	12 mo.	10/1/2008
I00039	HP	436A	2709A26776	12 mo.	2/27/2008
i00048	HP	85662A	2511AD1467	12 mo.	8/18/2008
i00049	HP	8566B	2511AD1467	12 mo.	8/18/2008
i00050	HP	85685A	2510A00185	12 mo.	8/18/2008
i00051	HP	85650A	2521A00647	12 mo.	8/18/2008
i00054	HP	6286A	1612A02671	When used	Verified
i00055	HP	8447D	1726A01101	When used	Verified
i00062	HP	6842A	3531A00123	12 mo.	6/4/2008
i00063	Schaffner	NSG 2025-1	1057	12 mo.	11/15/2008
i00088	EMCO Biconical	3109B	2336	24 mo.	10/16/2009
i00089	Aprel Log Periodic	2001	001500	24 mo.	10/19/2009
i00092	Schaffner	NSG 2050	113	12 mo.	10/31/2008
i00093	Schaffner	PNW-2055	108	12 mo.	10/31/2008
i00095	Schaffner	NSG 435	001056	12 mo.	10/4/2008
i00103	EMCO Horn	3115	9028-3925	36 mo.	10/4/2009
i00114	Thermalane	8201	8321	When used	Verified
i00123	Narda	766-10		When used	Verified
i00168	S-5	168 Capacitive Clamp	None	12 mo.	Verified
i00170	Lindgren	LG170	4999	When used	Verified
I00171	Edelstahl	Rost frei	AQ2217	12 mo.	5/5/2009
i00192	Solar Electronics	6741-1	841402	24 mo.	10/24/2008
I00207	HP	8753D	3410A08514	12 mo.	8/4/2008
i00228	HP	*E4418B*	GB39512470	12 mo.	9/6/2008
i00231	Pasternak	PE7021-30dB		When used	Verified
i00244	FCC	50-25-2-01	2047	12 mo.	10/25/2007
i00250	S-5 Electronics	CDN	0250	When used	Verified
i00251	HP	53152A	US39270237	12 mo.	5/3/2008
i00252	Luthi	EM101	43773	24 mo.	10/24/2008
i00261	200 W 3dB Attenuator	50FH-003-200	153779	When used	Verified
i00262	200 W 3dB Attenuator	50FH-003-200	160851	When used	Verified
i00265	Amplifier Research	CDN M3	308436	36 mo.	10/24/2008
i00266	Rohde&Schwarz	SMT03	82611/005	When used	Verified
i00267	Schaffner	CBL611C	2910	24 mo.	11/6/2009
i00270	FCC	FCC-LISN-50-50-2-01	2050	24 mo.	10/22/2009
I00271	ARA	DRG-1181A	1176	36 mo.	3/6/2010
i00273	ARA	MWH-1826/B	1044	36 mo.	3/7/2010
i00275	EIN	440LA	231	When used	Verified
i00276	ETS Lindgren	26H – Anechoic	None	12 mo.	11/15/2007

		Chamber			
i00280	Amplifier Research	AT5080	312715	When used	Verified
i00281	Amplifier Research	60S1G3	300262	When used	Verified
i00290	HP	8566B	2140A01231	12 mo.	8/7/2008
i00291	HP	85662A	2152A02970	12 mo.	8/7/2008
i00300	ETS Lindgren	HI-6005	00059573	12 mo.	6/6/2008
i00310	EMPower	2024 BBS1C4ALP	1009 D/C0609	When used	Verified
I00315	HP	9142-1N	063802	36 mo.	5/26/2008
i00317	HP	8481A	*3318A28077*	12 mo.	9/7/2008
i00318	HP	54502A	2934A00688	12 mo.	10/17/2008
i00319	Fluke	87 III	69820635	12 mo.	11/5/2008
i00320	Fluke	75 III	71600135	12 mo	11/5/2008
i00321	HP	8901A	2239A02170	12 mo.	9/17/2008
i00324	HP	8903B	3011A09079	12 mo.	9/4/2008
i00325	Tektronix	TDS2021B	C010121	12 mo.	10/17/2008
i00326	EMCO Loop	6507	8112-1144	24 mo.	1/19/2009
i00329	HP	85662A	3144A20376	12 mo.	5/5/2009
i00330	HP	8566b	3138A07426	12 mo.	5/5/2009
i00331	HP	E4407B	MY45101313	12 mo.	10/31/2008