

EMC Test Facility Sale



Radiated Emissions Pre-Compliance
Conducted Emissions Full-Compliance
Radiated & Conducted Immunity Full-Compliance

Please find an information pack attached for an EMC test facility.

Equipment Included in Package

- Compact semi-anechoic chamber (Panashield Model 1024 compact chamber) for emissions pre-compliance and radiated immunity full-compliance testing.
- Biconical & Biconilog antennas covering the frequency range 20 MHz to 6 GHz.
- Conducted emissions equipment.
- ESD: Haefely Onyx 16 kV simulator.
- EFT/Burst: Haefley 1ph/3ph EFT generator, several CDNs, capacitive clamp and verification equipment.
- Surge: Haefely 1ph/3ph Surge generator and CDNs.
- Conducted immunity: Signal generator, RF power amplifier, EM clamp, current probe and calibration jig to achieve 10 V/, across 150 kHz to 80 MHz.
- Radiated immunity: signal generator, power amplifiers, power meter, field probe and automation control to achieve 10 V/m across 80 MHz – 1 GHz.

All equipment was purchased new in 2012 and has been very lightly used (mint condition).

Test facility offered at \$295k USD.

Please see the following pages for further details.

If you have any questions, please call me on 250-898-4567 or email me at andy@emcfastpass.com

Best regards,

Andy Eadie
Owner, EMC FastPass.

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Chamber Details

History

The chamber and all equipment were factory installed new in 2012.

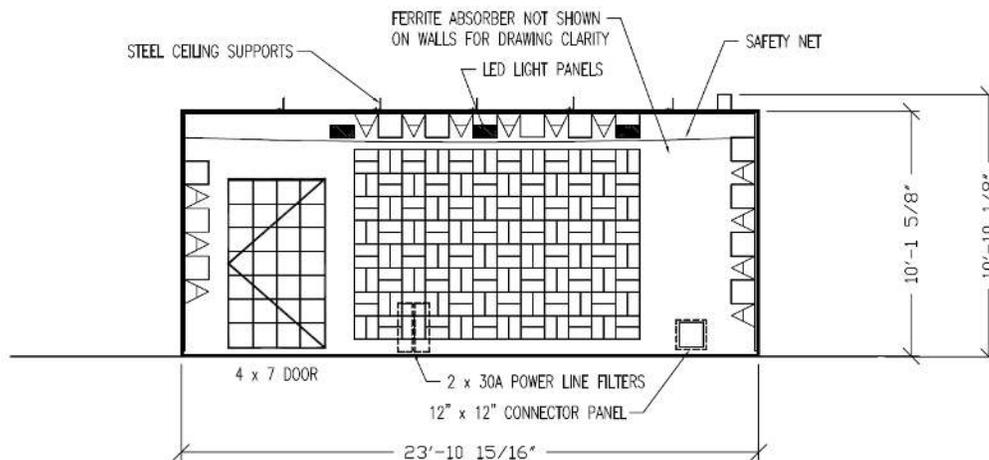
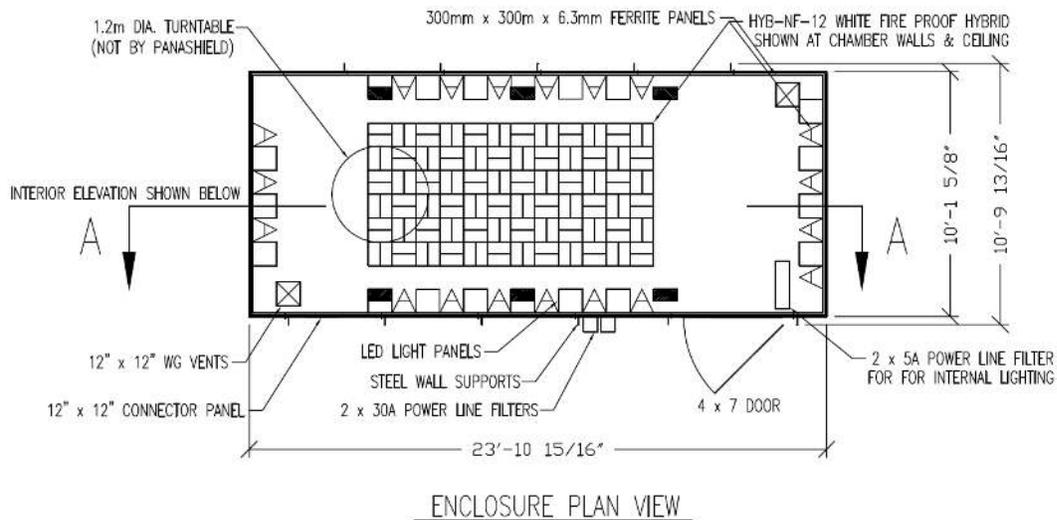
The facility has been lightly used since that time by one manufacturer. It was professionally dismantled and packaged in Feb 2018.

Dimensions

Exterior dimensions: Approx. 23'11" long x 10'10" wide x 10'10" high.

Door dimensions: 4' wide x 7' high.

Drawings (full construction drawings available):



Description

The Panashield Model 1024 Compact 3M Chamber is designed for EMC assessment for full compliance radiated immunity testing to EN61000-4-3 and pre-compliant radiated emission measurements for EN5022, FCC Part 15 Class B, CISPR 22 and ANSI C63.4. It is constructed as a semi-anechoic chamber using an advanced hybrid absorber technology to provide performance from 30 MHz to 18 GHz.

Compact chambers are a common solution for manufacturers who need to meet the international and domestic EMC standards. They are cost effective relative to a full 3 Meter chamber, and provide for a high degree of performance certainty before sending product to an independent test lab for certification. With a Panashield Model 1024, manufacturers can reduce product development cycles and costs associated with the third party test services.

Power filters

5 x high quality power filters included.



Absorber

Absorber treatment consists of full coverage of ferrite tiles, and also partial coverage with low-profile, fire-proof [HYB-NF-12 hybrid absorber](#). Floor coverage consists of removable ferrite panels with a smaller patch of HYB-NF-12 Hybrid for performance to IEC 61000-4-3 to 6 GHz.

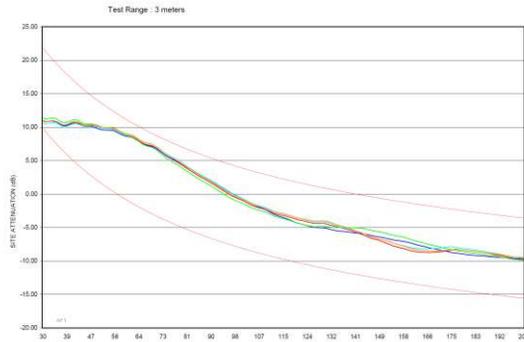
White absorbing wedges are included as shown in the chamber picture on the front page and the construction drawings.

The chamber is specified for measurements up to 18 GHz.

Performance

NSA report from the original installation available. Sample plots below:

6.1. Horizontal Polarization: 30 MHz–200 MHz at 1 meter TX height 6.5. Horizontal Polarization: 200 MHz–1 GHz at 1 meter TX height



Guarantees

Due to the nature of chamber construction, it is not possible to offer performance guarantees. Shielding effectiveness and measurement accuracy are dependent on the correct assembly of a chamber so we recommend the use of experienced chamber installers to maximize the shielding effectiveness upon re-assembly.

Included Test Equipment

Manufacturer	Model	Description
Amplifier Research	EM10123	Injection Clamp 10 kHz-1 GHz
Fischer Custom Comm.	F-2031-23mm-CF-1	EM10123 Injection Clamp Cal Fixture Part 3 of 3
Amplifier Research	EM10123CF	EM10123 Injection Clamp Cal Fixture Part 3 of 3
Amplifier Research	AF06250	250W 6 dB attenuator
Amplifier Research	AF20050	50W 20 dB attenuator
Amplifier Research	AF10050	50W 10 dB attenuator
Amplifier Research	BP00250	Current Probe 1kHz-250MHz (monitor probe)
Agilent Technologies	N9010A	Signal Analyzer-EXA series 3.6 GHz, opts 503, B25, EA3, EMC, P03
Amplifier Research	SG1200	Signal Generator 9 kHz-1.2 GHz
Amplifier Research	PM2003	Power Meter 10 kHz-40 GHz
Amplifier Research	SC1000M	RF Switch Controller
Amplifier Research	75A250AM1	RF Amplifier 10kHz-250MHz
Amplifier Research	DC2600A	Dual Directional Coupler-75A250M1 amp
Amplifier Research	PH2000	RF Power Head
Amplifier Research	TL50050	RF Load
Amplifier Research	CD20032	DC Power Line CDN
Amplifier Research	CDN S9	Signal Line CDN
Amplifier Research	CD50032	3 Phase Power Line CDN
Amplifier Research	CD40032	3 Phase Power Line CDN
Amplifier Research	CD30032	Power Line CDN
Amplifier Research	150W1000M3	RF Amplifier 80MHz-1000MHz
Amplifier Research	DC6080A	Dual Directional Coupler-150W1000M3 amp
Amplifier Research	FM7004	RF Field Monitor
Amplifier Research	FI7000	Laser Probe Interface
Amplifier Research		Laser Probe Tripod
Amplifier Research	ATR80M6GM4	Emissions/RF Immunity Antenna 80MHz-6GHz
Amplifier Research	TP1000B	Antenna Tripod
Amplifier Research	FL7006	Laser Powered Field Probe
Haefely Test AG	PEFT4010	EFT Generator
Haefely Test AG	IP4A	Capacitive Coupling Clamp
Haefely Test AG	FP-EFT 32M	3 Phase Coupler Decoupler Network
Haefely Test AG	PSURGE4010	Surge Generator
Haefely Test AG	FP-Surge 32.1	3 Phase Coupler Decoupler Network
Haefely Test AG	ONYX16	ESD Simulator 16 kV
ETS-Lindgren	3104C	Biconical Antenna 20MHz-300MHz
Amplifier Research	IN54025	3 Phase Line Impedance Stabilization Network
Tekbox	TBOH01, TBLC08	DC (CISPR 25) and AC (CISPR 16) LISNs
EMC Partner	VERI1K EFT-1520	1000 Ohm 60 dB attenuator
EMC Partner	VERI50 EFT-1524	50 Ohm 54 dB attenuator
EMC Partner	VERI-CP-EFT-1512	EFT Transducer Plate

Equipment Pictures

Radiated Emissions

Antenna

Two antennas are used to cover the frequency range of interest.

ETS-Lindgren	3104C	Biconical Antenna 20MHz-300MHz
Amplifier Research	ATR80M6GM4	Emissions/RF Immunity Antenna 80MHz-6GHz



Analyzer

Agilent Technologies	N9010A	Signal Analyzer-EXA series 3.6 GHz, opts 503, B25, EA3, EMC, P03
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Automation Software

Radiated emissions testing is undertaken using the software “EMCWare” from Amplifier Research. (Host computer not included)

USB to GPIB adaptor included.

Conducted Emissions

In conjunction with the spectrum analyzer, the following equipment allows measurement of conducted emissions.

LISNs

Amplifier Research	IN54025	3-Phase Line Impedance Stabilization Network (480V, 32A max)
Tekbox	TBOH01	DC (CISPR 25) LISN (60V, 10A mas)
Tekbox	TBLC08	AC (CISPR 16) LISN (250V, 8A max)

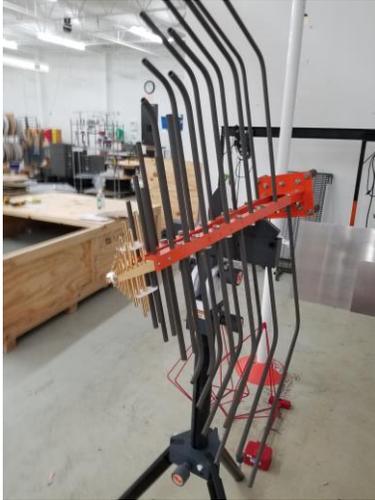


Radiated Immunity

The chamber and support equipment allow for full-compliance radiated immunity testing in accordance with EN/IEC61000-4-3 (or similar).

Antenna

Amplifier Research	ATR80M6GM4	RF Immunity Antenna 80MHz-6GHz
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SPECIFICATIONS	
FREQUENCY	80–6000 MHz
POWER GAIN (over isotropic)	6 dB
GAIN FLATNESS	±1.5 dB
IMPEDANCE	50 ohms nominal
VSWR	3.0:1 (maximum), 2.0:1 (typical)
BEAMWIDTH (average).....	See graph
CONNECTOR	See Model Configurations
SIZE (W x H x D).....	132.1 x 20.32 x 97.8 cm (52 x 8.0 x 38.5 in)
WEIGHT (maximum)	7.94 kg (17.5 lb)
EXPORT CLASSIFICATION	EAR99

Laser Powered Field Probe & Monitor

Amplifier Research	FM7004	RF Field Monitor
Amplifier Research	FI7000	Laser Probe Interface
Amplifier Research		Laser Probe Tripod

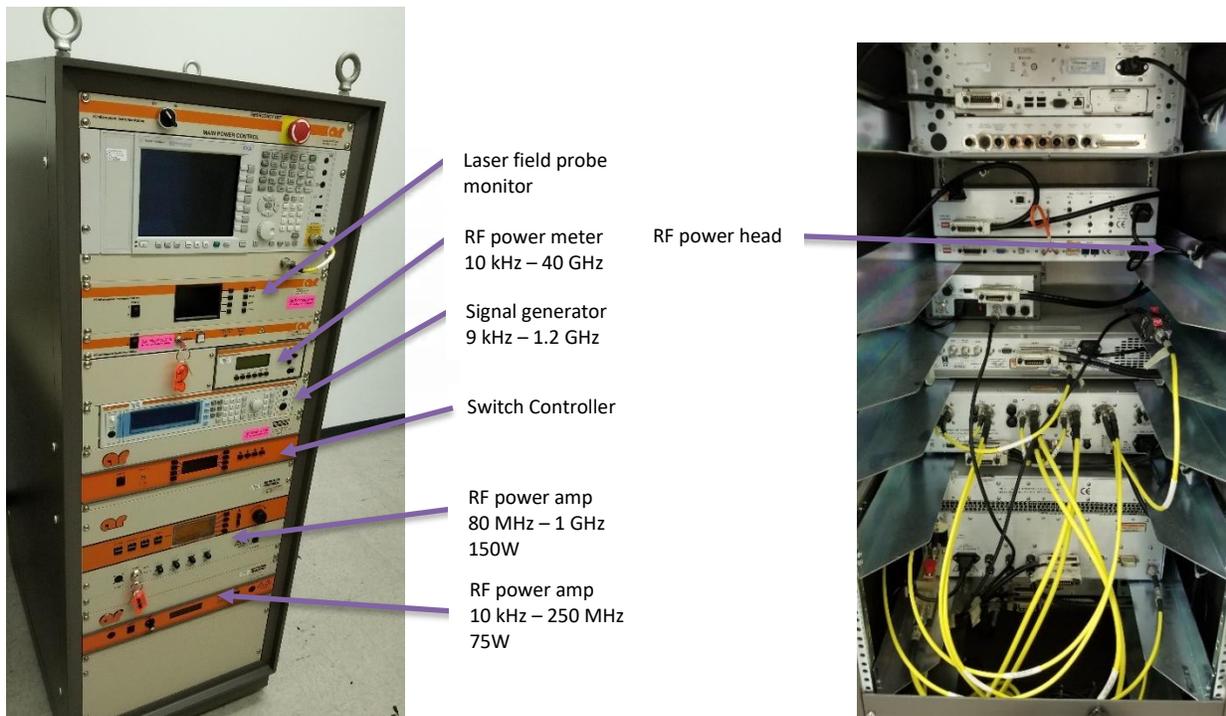


Signal Generator, Power Amplifiers & Controller

The radiated emissions test setup includes an RF switch controller that speeds up test time by automatically switching between RF amplifiers. This automated system is controlled by the EMCWare software from Amplifier Research.

Using the included amplifiers, a field strength of 10 V/m can be achieved over the frequency range 80 MHz – 1 GHz.

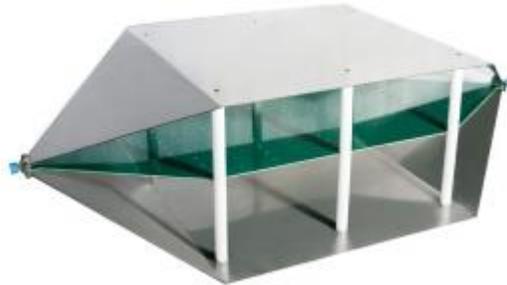
Amplifier Research	SG1200	Signal Generator 9 kHz-1.2 GHz
Amplifier Research	PM2003	Power Meter 10 kHz-40 GHz
Amplifier Research	SC1000M	RF Switch Controller
Amplifier Research	PH2000	RF Power Head
Amplifier Research	150W1000M3	RF Amplifier 80MHz-1000MHz
Amplifier Research	DC6080A	Dual Directional Coupler-150W1000M3 amp



TEM Cell

To accommodate other standards that demand testing to higher field strengths, a TEM cell is included. This allows for much higher field strengths to be generated for a given amplifier output power.

The TEM cell should be used within the chamber to avoid breaking regulatory emission limits.



TBTC3, applied RF power	Maximum field strength between septum and wall
10W (40 dBm)	148 V/m
1 W (30 dBm)	47 V/m
0.1 W (20 dBm)	14 V/m
0.01 W (10dBm)	5 V/m

Table 4 – TBTC3, field strength vs. RF power

Length: 1038 mm
 Width: 501 mm
 Height: 305 mm
 Septum height: 150 mm

Conducted Immunity

Conducted immunity testing according to EN/IEC61000-4-6 (or similar equivalents) can be performed with the following equipment.

Clamps/Probes and Accessories

Amplifier Research	EM10123	Injection Clamp 10 kHz-1 GHz
Fischer Custom Comm.	F-2031-23mm-CF-1	EM10123 Injection Clamp Cal Fixture Part 3 of 3
Amplifier Research	EM10123CF	EM10123 Injection Clamp Cal Fixture Part 3 of 3
Amplifier Research	BP00250	Current Probe 1kHz-250MHz (monitor probe)



ESD

Full-compliance ESD testing in accordance with EN/IEC61000-4-2 (or similar) can be performed using the equipment below.

Horizontal coupling plane also included.

ESD Simulator

Haefely Test AG	ONYX16	ESD Simulator 16 kV
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EFT

The Haefely PEFT 4010 is a complete stand-alone EFT/Burst Generator designed to meet the requirements of IEC/EN 61000-4-4 edition 1 & 2. It covers a voltage range from 100V to 4.8kV and has an integrated 16A single phase CDN.

The additional 3-phase CDN, capacitive coupling clamp and verification kit add to the capability.

EFT/Burst Generator

Haefely Test AG	PEFT4010	EFT Generator
Haefely Test AG	FP-EFT 32M	3 Phase Coupler Decoupler Network
EMC Partner	VERI1K EFT-1520	1000 Ohm 60 dB attenuator
EMC Partner	VERI50 EFT-1524	50 Ohm 54 dB attenuator
EMC Partner	VERI-CP-EFT-1512	EFT Transducer Plate



Capacitive Coupling Clamp

Haefely Test AG	IP4A	Capacitive Coupling Clamp
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Surge

The PSURGE 4010 allows evaluation of the performance (full-compliance) of equipment when subject to high-energy disturbances on power and interconnection lines. This is a test solution for EN/IEC 61000-4-5, EN/IEC 61000-6-1, and EN/IEC 61000-6-2 amongst many other standards.

The additional 3-phase CDN allows for testing of 3-phase equipment.

Surge Generator

Haefely Test AG	PSURGE4010	Surge Generator
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3 Phase CDN

Haefely Test AG	FP-Surge 32.1	3 Phase Coupler Decoupler Network
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Other CDNs

5 more standalone CDNs are included for additional test capability.

Amplifier Research	CD20032	DC Power Line CDN
Amplifier Research	CDN S9	Signal Line CDN
Amplifier Research	CD50032	3 Phase Power Line CDN
Amplifier Research	CD40032	3 Phase Power Line CDN
Amplifier Research	CD30032	Power Line CDN



Logistics

Location

The chamber and equipment are currently located in storage in Houston, Texas. Available for inspection upon request.

Packaging

The equipment was professionally crated and packaged. Ready to ship at short notice.



Shipping

Shipping costs are in addition to the sale price. A quote can be provided for shipping and insurance at time of purchase.

Taxes/Import Fees

Local taxes, import fees and tariffs may be applicable and will be calculated at time of sale once destination is known. Buyer is responsible for all applicable taxes, fees and tariffs.

Installation

An experienced chamber installer is recommended to assemble the chamber to ensure that shielding effectiveness and room performance is maintained.

Pricing does not include installation.