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Dear Sir/Madam,

Please find an information pack attached for the 5m chamber and shielded control room.

**Equipment Included in Package**

- Model 81 shielded enclosure manufactured by EMC Test Systems of Austin, Texas (Now ETS Lindgren)  
Exterior dimensions: 40 ft. long by 29 ft. wide by 18 ft. high  
Door dimensions: Double doors - 8 ft. wide x 16 ft. high  
Single door - 3 ft. wide x 7 ft. high  
Viewing window: Dimensions - TBA  
Structural supports included
- Ferrite absorbing tile. Manufactured by Fair-rite. Approximately 1700 sq. feet. Effective over the frequency range 30 MHz - 1500 MHz. Part number 3742011901 (Datasheet included)
- Automated antenna mast and controller (EMCO 1050) (Datasheet included)
- Computer with automation software and GPIB card (CKC automation software)
- EMCO 3141 Broadband Antenna (Datasheet included)
- Shielded control room: Model 81 shielded enclosure manufactured by EMC Test Systems  
Exterior dimensions: 16 ft. long by 8 ft. wide by 8 ft. high.
- RF antenna cable manufactured by AH systems (18m long, 18 GHz)

Package price: \$150k 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](mailto:andy@emcfastpass.com)

Thanks and regards,

Andy Eadie  
CEO, EMC FastPass.

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## 5m Chamber Details

### History

The chamber was originally installed into the current location (an industrial equipment manufacturer) in approximately 1998.

In 2002, approximately 1700 sq. feet of absorbing ferrite tiles were installed to reduce the reflections within the chamber and bring down the measurement uncertainty. Simulation software was used to strategically place the ferrite tiles to maximize effectiveness (a specular anechoic upgrade).

The chamber has been in use at the facility since that date.

Island Compliance Services purchased the chamber in January 2016 and the chamber is scheduled for disassembly in April 2016.

### Dimensions

Exterior dimensions: 40 ft. long by 29 ft. wide by 18 ft. high

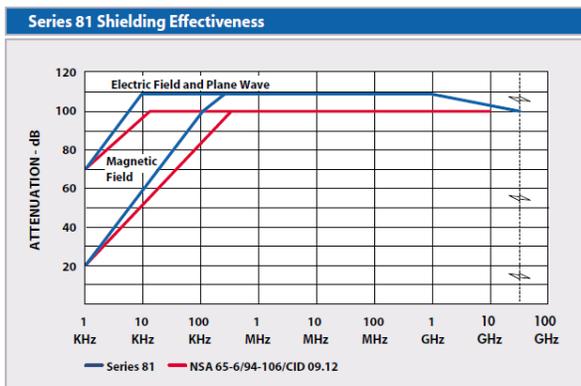
Door dimensions: Double doors - 8 ft. wide x 16 ft. high  
Single door - 3 ft. wide x 7 ft. high

This chamber can easily be modified into a smaller room if required. Reducing down to a standard 3m chamber size (24ft. x 12ft x 11ft), the existing tile absorber would be sufficient to fully line the chamber.

This chamber can be made into a fully compliant 3m chamber with the addition of absorber foam. Please contact me for pricing for the foam upgrade.

### Shielding Performance

When installed, the shielding performance of the chamber was verified to be at least 100dB up to 18 GHz as per the specifications outlined in the datasheet.



## Measurement accuracy

The chamber generally meets the following measurement accuracy specifications when compared to the measurements from a full compliance chamber.

Plus/minus:

- 8 dB from 30 MHz to 80 MHz
- 6 dB from 80MHz to 300 MHz
- 4 dB from 300 MHz to 1 GHz

Depending on the size and shape of the EUT, the chamber may not always meet these specifications, with any increase in tolerance usually occurring at the lower end.

By measuring the output of a comb generator with and without an EUT in-situ, it is possible to estimate the effect of the EUT on measurement accuracy and compensate accordingly.

Further tile and/or absorbing foam would be required to increase the measurement accuracy.

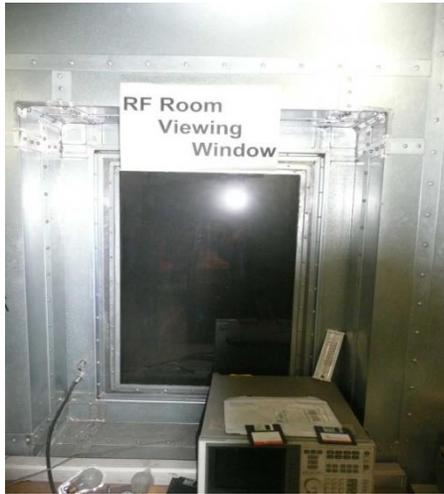
## Shielded Doors



Main door:16ftx8ft

Side Door

***Shielded window***



***Power filters***



### ***Chamber maintenance***

The chamber comes with spare finger stock and cleaning/maintenance kit.

Door knife edge and finger stock shown which will be cleaned when we dismantle the chamber.



### ***Performance Guarantees***

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

There have been no indications of issues with shielding effectiveness at all.

### ***Ferrite Tiles***

The chamber is partially lined with approximately 1700 sq. ft of absorbing tile.

The tiles are manufactured by Fair-rite (Part number 3742011901).



Inside chamber - tile on wall/roof



Spare box of left over tile

### **Shielding frequency range**

The tile absorption is specified over the frequency range 30 MHz - 1.5 GHz as shown below.

**6.3mm Return Loss (dB)**

Freq (MHz)						
30	100	200	400	600	1000	1500
-18	-25	-30	-25	-20	-12	-9

See datasheet for more details.

### **Construction**

The tiles come in 24"x24" panels, bonded to plywood. 5 screws hold each panel in place.



### **Flooring**

The floor panels show signs of wear due to activity.



## Shielded Control Room

A separate shielded control room is provided. This is also a model 81 shielded room manufactured by EMC Test Systems (now ETS Lindgren).



Shielded control room exterior



Shielded control room panels

### ***Dimensions***

Exterior dimensions:                    16 ft. long by 8 ft. wide by 8 ft. high

Door dimensions:                        Single door - TBA

This shielded room could perceivably be lined with tile/absorber to make separate smaller pre-compliance chamber.

**Note:** If this room is not required, the package price can be reduced by \$10k.

## Accessories

### ***EMCO 1050 Mast/Controller***

The mast was imported from the UK to Canada in 2010, where it was used for 3 1/2 years at an OATS. It performed well and was placed in storage in March 2014 in fully working condition.

It comes with 2 identical controllers (1 backup, never required) and a filter for entry/exit from a chamber.



#### Condition

Note that the mast is quite old and has been open to the elements at an OATS. It shows signs of wear, but is guaranteed to be fully functional.

There was some noise leakage when the motor was running during measurements, but that was solved by sealing all joints with aluminum tape. The mast comes with an instruction manual including full schematics.

## ***EMCO 3141 Broadband Antenna***

Frequency range:	26 - 2000 MHz
Input impedance:	50 $\Omega$
VSWR:	2:1 average
CW power:	1 kW, above 60 MHz 500 W, below 60 MHz
Symmetry:	+/- 0.5 dB
Connector:	N female



### Condition

Again, this antenna is dated and it has been used outside at an OATS for several years. A couple of the rods are slightly bent, but it has been calibrated in this condition and the data shows no degradation in performance.

The manual fibreglass stand in the picture can also be included if it will be of use (useful for NSAs).

Calibration data can be provided from last cal (performed at Liberty Labs, Iowa).

### ***Computer with automation software***

An older PC can be provided loaded with a version of CKC's automation software. It has cal data already for the antenna and RF cable. I believe the software license can be transferred to a new PC, but no updates are available as it is now obsolete. It does have a large database of drivers though for many analyzers and more can be manually added via text files.

A free current alternative is Amplifier Research's "emcware" software.

### ***RF Cable***

A very high performance 18 meter high frequency (18 GHz) cable with N-type connectors is provided.

Part number: AH Systems SAC-18G-18. Only 14dB attenuation at 18 GHz.

In good condition.

## **Logistics**

### ***Location***

The chamber and shielded control room are currently located near Binghamton, NY. They are being disassembled in April 2016 and will be carefully placed and stored in a shipping container until a new home is found.

The rest of the equipment (Antenna, mast, controller, computer etc..) are located in BC and will be couriered to the buyer.

### ***Shipping***

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

### ***Taxes***

Local sales taxes may be applicable and will be calculated at time of sale once destination is known.

### ***Installation***

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

Prices will vary depending on whether you need modifications (e.g. chamber re-sizing), what support structures are available, and whether you need a subfloor installed etc.