

FEATURES:

- **80 MHz - 40 GHz Frequency Range**
- **Minimum Chamber Performance:**
 - 6 dB Reflectivity Loss From 80 MHz - 250 MHz
 - 10 dB Reflectivity Loss Above 250 MHz
- **Absorber Configuration per MIL-STD-461E/F**
 - Also meets RTCA DO 160
- **Accommodates 1 m sq. EUTs**
- **Test To These MIL-STD 461 E/F Specs:**
 - RE 101, 103, 105
 - RS 101, 103, 105
 - CE 101, 102, 103
 - CS 101, 103, 104, 105, 109, 114, 115, 116
- **Turnkey Package Available**



ETS-Lindgren's MIL-STD-461E/F Test Chamber
(Shown with Optional Full Absorber Coverage)

ETS-LINDGREN'S MIL-STD-461E/F CHAMBER is designed for testing in accordance with the military standard. The chamber's shell is constructed with Series 81™ modular cell-type shielding panels. Interior end walls, portions of the sidewalls and ceiling are lined in the manner required by MIL-STD-461E/F, using EMC-24PCL absorber.

PERFORMANCE
Specially Formulated Absorber
Our MIL-STD-461E/F chamber achieves its performance using EMC-24PCL absorber. The absorber has been specially formulated to meet or exceed the minimum RF absorption required by MIL-STD-461E/F. Finished

absorber is subjected to IEEE-1128 test procedures in the critical frequency range to assure that these requirements are met, as shown in the following table:

FREQUENCY	MINIMUM ABSORPTION
80 MHz - 250 MHz	6 dB
> 250 MHz	10 dB

EMC-24PCL has excellent power handling capabilities and can safely handle power densities up to 0.5 w/sq. in (775 w/m²).

Shielding Systems
Either of our modular structural panel systems - Series 81 cell or Series 101 pan type- can be used to construct the chamber. Both shield systems provide excellent attenua-

tion to magnetic and electric fields and plane waves. Series 81 attenuation values are listed here:

FIELD TYPE	MINIMUM ABSORPTION
Magnetic	20 dB at 1 kHz, increasing to 56 dB at 10 kHz, increasing to 100 dB at 200 kHz
Electric	100 dB from 200 kHz through 50 MHz
Plane Wave	100 dB from 50 MHz to 1 GHz
Microwave	100 dB from 1 GHz to 10 GHz, 100 dB at 10 GHz

Optional Configurations
Your MIL-STD-461E/F chamber can be configured with a variety of optional features and test equipment. Please review our options list for more information.

BASELINE CONFIGURATION

- Design and fabricate Series 81 RF shielded enclosure with interior shield-to-shield dimensions 5.49 m L x 5.49 m W x 3.05 m H (18.0 ft x 18.0 ft x 10 ft)
- One (1) Series 201 single-leaf, RCM, manually operated, RF shielded door 1.21 m W x 2.13 m H (4 ft x 7 ft), door will be strategically located in an area without absorber, including limit switch to accommodate optional immunity interlock switch
- One door maintenance kit
- .15 mm (6 mil) polyethylene vapor barrier
- 3.0 mm (1/8 in) thick dielectric floor underlay with 3.0 mm (1/8 in) vinyl floor tile
- Two (2) UL-listed 2 x 30 amp, 60 Hz power line filters; one for lights, one for power to EUT (wiring and electrical distribution not included)
- Two (2) connector panels, 15.2 cm x 61 cm (6 in x 24 in)
- Two (2) waveguide vents, 0.31 m x 0.61 m (12 in x 24 in)
- One (1) threaded brass ground stud, 1.3 cm dia. x 12.7 cm long (1/2 in x 5 in)
- Four (4) incandescent corner-mounted light fixtures with incandescent floodlights (electrical distribution not included)
- One (1) test bench, 3.51 m L x 0.91 m W x 0.91 m H (11 ft 6 in x 2 ft 11 in x 2 ft 11 in) with grounding attachments to chamber end wall per MIL-STD-461E/F

- Shield test per MIL-STD-285, one frequency test at 1 GHz
- EMC-24PCL pyramidal 24-inch absorber on the chamber end walls and partial areas of the ceiling and sidewalls
- Guaranteed performance and a five-year limited warranty; one-year warranty on doors, filters and moving parts; two-year warranty on optional ETS-Lindgren test equipment

OPTIONAL TEST EQUIPMENT

- One (1) Model 3110C biconical antenna with a frequency range of 30 MHz to 300 MHz (for RE 102)
- One (1) Model 3301C active rod antenna (for RE 103)
- One (1) Model 3109 biconical antenna with a frequency range of 20 MHz to 300 MHz (for RS 103)
- One (1) Model 3106B double-ridged horn with a frequency range of 200 MHz to 2 GHz (for RE 102 and RS 103)
- One (1) Model 3115 with a frequency range of 1 GHz to 18 GHz (for RE 102 and RS 103)
- One (1) Model 3116 with a frequency range of 18 GHz to 40 GHz (for RE 103 and RS 103)
- One (1) Model 7604 loop sensor (for RE 101)
- One (1) Model 3725 line impedance stabilization network (LISN)¹ for most MIL-STD-461E/F tests
- One (1) Model 7605 and one (1) Model 7606 magnetic field coil and sensor (for RS 101)
- One (1) Model HI-6005 electric field probe, 100 kHz to 6 GHz, 0.5 to 800 V/m.
- One (1) HI-6053 electric field probe 10 MHz to 40 GHz, 2 to 800 V/M (for RS 103)
- One (1) Model 91550-1 current probe (for most CE tests)
- Five (5) Model RG-223/u BNC cables:
 - four (4) at 3.05 m (10 ft) each for the LISN
 - one (1) at 6.10 m (20 ft) to be used for either the Model 7604 loop sensor or the Model 3301B rod antenna
- One (1) Model RG-214/u at 9.75 m (32 ft), type N cable to be used for either biconical antenna or Model 3106B double-ridged horn
- One (1) Model 7-TR tripod including an offset boom to accommodate the double-ridged horn Model 3106B
- Automatic polarization option for 7-TR tripod (required Model 2090 controller) plus bulkhead air penetration
- One (1) Model 4-TR tripod to accommodate the active rod antenna and the biconical-type antennas
- ETS-Lindgren Model 2090 dual device controller (required for Model 7-TR tripod with automatic polarization)

OPTIONAL CHAMBER EQUIPMENT

■ Shielded control room, 4.87 m L x 3.05 m W x 2.44 m H (16 ft x 10 ft x 8 ft)

■ Compact-sized shielded control room, 3.66 m L x 3.05 m W x 2.44 m H (12 ft x 10 ft x 8 ft)

■ Shielded amplifier room, 2.44 m L x 2.44 m W x 2.44 m L (8 ft x 8 ft x 8 ft)

■ Low profile door sill for Series 201 door

■ Other door options available

■ 1.83 m x 2.13 m (6 ft x 7 ft) double door in lieu of 1.21 m x 2.13 m (4 ft x 7 ft) single door

■ CCTV monitoring system

■ Intercom system

■ Immunity interlock switch

■ Electrical distribution

■ Anti-static vinyl floor tile

■ Fire detection and suppression systems

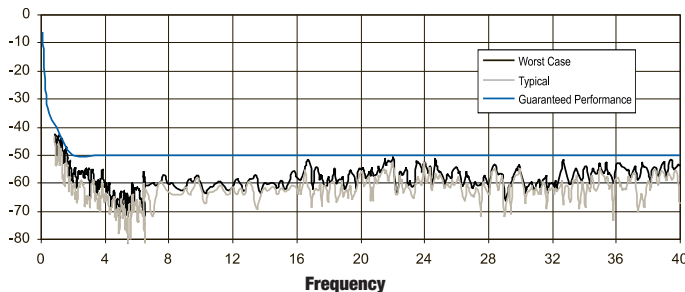
■ Seismic structural design

SPECIFICATIONS

MODEL #	ABSORBER TYPE	FREQUENCY RANGE	APPLICABLE STANDARDS AREA	INTERNAL WORKING INNER DIM L x W x H	SHIELD ROOM DIM L x W x H	OVERALL STRUCTURE DIM L x W x H
MIL-STD-461E/F	EMC-24PCL on approx. 2/3 of sidewall area EMC-24PCL full coverage on end walls EMC-24PCL on approx. 2/3 of ceiling	80 MHz to 40 GHz	MIL-STD-461E/F RTCA D0/160D/F ²	4.3 m x 4.3 m x 2.4 m 14.0 ft x 14.0 ft x 8.0 ft	5.5 m x 5.5 m x 3.1 m 18.0 ft x 18.0 ft x 10.0 ft	5.8 m x 5.8 m x 3.8 m 19.0 ft x 19.0 ft x 11.0 ft

² Requires additional grounding straps on both ends of the test bench.

Measured Reflections of Normal Incidence



Measured Reflectivity of EMC-24PCL Absorber

FREQUENCY/BAND	GUARANTEED REFLECTIVITY
60 MHz	-3 dB
80 MHz	-6 dB
100 MHz	-7 dB
200 MHz	-15 dB
250 MHz	-20 dB
300 MHz	-30 dB
500 MHz	-35 dB
1 GHz	-40 dB
2 GHz	-50 dB
3 GHz	-50 dB
6 GHz	-50 dB
10 GHz	-50 dB
18 GHz	-50 dB
40 GHz	-50 dB