ETS·LINDGREN™
An ESCO Technologies Company

Antennas

H/V Electric Field Generator

Model 5502

FEATURES:

- Generates Horizontal or Vertical Electric Fields
- Generates Fields 200 V/m in the 10 kHz to 30 MHz Frequency Range
- Fully Adjustable Height and Separation of Main Conductors
- Large Immunity Volume
- Chamber Supported

ETS-Lindgren's Model 5502 with Optional 8 m Long Elements (4340 Shielded CCTV Camera Not Included)

ETS-LINDGREN'S 5502 HORIZONTAL/ VERTICAL (H/V) ELECTRIC FIELD GENERATOR is a two conductor transmission line system that generates a Transverse Electromagnetic wave (TEM). The Model 5502 is also known as an E/H field generator for its ability to excite a vertical electric or magnetic field over the conductive ground of the chamber.

FEATURES

Either Horizontal or Vertical Field Generation

The Model 5502 has two modes of operation, a switch located in the balun/feed box to change between modes. The E-Mode (or vertical electric field generation) occurs when the two elements are driven against the ground of the chamber. A vertical electric field is generated between the two elements and the ground. The H-Mode (or horizontal electric field generation) occurs when the elements are isolated from ground by means of an isolating transformer. One element is then driven against the other element. A horizontal electric field and a vertical magnetic field is created between the two elements simultaneously.

Frequency Range

The Model 5502 has a frequency range of 10 kHz to 30 MHz when operating on the E-Mode. The H-Mode is limited to 100 kHz to 30 MHz with a band break at 1.5 MHz. The frequency range makes the Model 5502 ideal for ISO-11451-2 and SAE J551/11. The Model 5502 can also be used for MIL-STD 461 testing of military vehicles.

Adjustable Height and Separation

The Model 5502 allows for the elements to be located between 1 m to 6 m (3.28 ft to 19.69 ft) over the ground. When not in use, the elements are disconnected and stored (with the balun and load boxes) outside the chamber. The non-metallic frame can be raised and stored nested in the ceiling absorber. Element to element separation can be adjusted from 1 m to 4.5 m (3.28 ft to 14.76 ft).

Large Immunity Volume

The Model 5502 provides a large volume for immunity at low frequencies (under 30 MHz), provided the TEM mode is supported by the structure. At the upper limit of its frequency range, the element separation and height may require adjustment to improve the performance. Internal resonances of the chamber can also affect the performance. Ferrite lined chambers are preferred, but not required.

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Chamber Supported

The two conductors are supported by a non-metallic frame, suspended from the ceiling of the chamber. Shielded penetrations of up to 18 GHz attach the supporting cables to the pulley and motor system mounted on top of the chamber.

When installing the unit inside an existing chamber, ETS-Lindgren engineers will examine the chamber drawings to ensure proper support of the frame and pulley/motor system. Penetrations and grounding sockets must be installed in the chamber to support the operation of the unit.

APPLICATIONS

- ISO-11451-2
- SAE J551/11
- MIL-STD 461

STANDARD CONFIGURATION

- 6 m (19.7 ft) long Conducting Elements with Retracting Wire Bundles
- Support Frame Assembly
- Motorized Winch and Pulley Assembly
- RF Load with Ground Connections
- RF Feed Box with Ground Connections
- Waveguide Feed-thru Penetrations for the Chamber Ceiling
- Ground Connection Sockets for the Chamber Floor

OPTIONAL EQUIPMENT

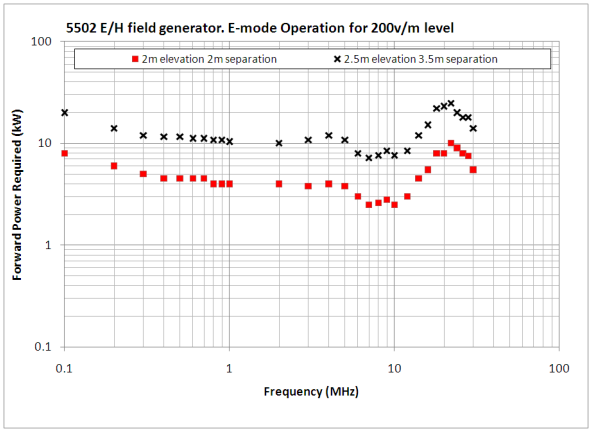
- Automation of Balun Box Switches
- Height/separation Control Connection Outside of the Chamber
- 8 m (26.2 ft) long Elements

Electrical Specifications

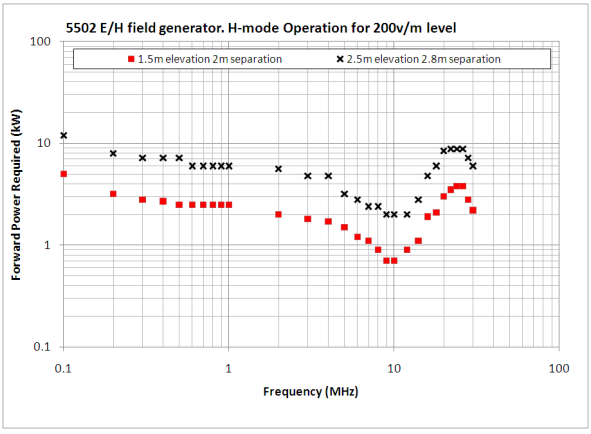
MODEL	FREQUENCY RANGE	VSWR	MAX CONTINUOUS POWER	IMPEDANCE	RF CONNECTOR
5502	E Mode: 10 kHz - 30 MHz H Mode: 100 kHz -300 MHz	Max.: 4:1 Avg.: 2:1	10 kW	50 Ω	1-5/8" EIA Flange

Physical Specifications

MODEL	FRAME WIDTH	FRAME LENGTH	TOTAL WEIGHT FRAME PLUS ELEMENTS	ELEMENT LENGTH	ELEMENT DIAMETER
5502	7.6 m 23.5 ft	5.58 m 18.3 ft	1,134 kg 2,500 lb	6 m Standard (8 m Optional) 19.7 ft Standard (26.2 ft Optional)	30.5 cm 1.0 ft



Typical E-mode Power Requirements to Generate 200 v/m Measured Inside a Chamber



Typical H-mode Power Requirements to Generate 200 v/m Measured Inside a Chamber

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