

MODEL 3106

Model 3106
200 MHz – 2 GHz

Model 3115
1 GHz – 18 GHz

Model 3116
18 GHz – 40 GHz

- Uniform Gain
- Power Handling up to 1.6 kW
- Low VSWR
- Quality Construction



Double-Ridged Waveguide Horn

PROVIDING UNIFORM GAIN, LOW VSWR AND A BROAD FREQUENCY RANGE, EMCO's three models of Double-Ridged Waveguide Horn Antennas are ideally suited for IEC 61000-4-3 and MIL-STD 461E immunity tests and ANSI C63.4 and EN 55022 emissions testing.

As a set, these linearly polarized broadband antennas have an average VSWR of less than 1.6 to 1 and cover a multi-octave bandwidth of 200 MHz to 40 GHz. These antennas are specifically designed for EMI measurements, but can also be used for EW, antenna gain and pattern measurement, surveillance, and other applications.

The mounting brackets for Models 3115 and 3116 are adjustable for changing polarization of the antenna. Standard 1/4 in x 20 threads are used on the mounting brackets of all double-ridge waveguides for mounting on an EMCO tripod or most other tripods.

EMCO Double-Ridged Waveguide Horn Features

Uniform Gain

All models have uniform gain throughout their frequency span, providing efficient performance characteristics and directionality.

Power Handling

Model 3106 can handle 1600 W peak and 800 W continuously.

Low VSWR

EMCO's double-ridged waveguides have an average VSWR of less than 1.6:1.

Quality Construction

Double-ridged waveguide antennas are constructed of light-weight corrosion-resistant aluminum and fiberglass, providing years of trouble-free indoor and outdoor service. To maximize performance, Type N connectors are used on Models 3115 and 3106, and Type K connectors are used on Model 3116.

Choosing Your Model: Three Models with Frequency Ranges of 200 MHz to 40 GHz

200 MHz to 2 GHz

The **Model 3106** has high gain and excellent VSWR characteristics over its entire frequency range. It is especially effective for generating high electromagnetic fields with relatively low power input. The antenna is also useful for receiving low-level signals where high gain characteristics are needed. Although large in size, 93.3 cm (36.7 in), this antenna weighs only 11.8 kg (26 lb). A Type N female connector is used for increased power handling.

1 to 18 GHz

The **Model 3115** has excellent gain and VSWR characteristics. This antenna is small and portable with a length of 24.4 cm (9.6 in). The feed system uses a Precision Type N female connector so the antenna can handle considerable power with low losses above 12 GHz.

18 to 40 GHz

The **Model 3116** is an extremely small antenna, offering portability and increased efficiency. The Model 3116 has a length of only 13.0 cm (5.25 in), and weighs just 135 g (4.74 oz). A Type K female connector is used for increased performance at high frequencies.

Standard Configuration

- ▶ Antenna
- ▶ Mounting bracket drilled to accept EMCO or other tripod mount with 1/4 in x 20 threads
- ▶ Individually calibrated at 1 m per SAE ARP 958. Calibration of Model 3115 at 3 m available at additional charge. Actual factors and signed Certificate of Conformance included in Manual.

Options

Custom sizes

Larger models for higher gain at lower frequencies are also available.

EMCO Tripod

EMCO offers several nonmetallic, non-reflective tripods for use at EMC test sites. The 7-TR has been specifically designed for the 3106.

f y i

One of the earliest horn antennas was constructed by Jagadis Chandra Bose in 1897. Horn antennas are essentially flared waveguides that produce a uniform phase front larger than the waveguide itself. Adding a ridged waveguide to the horn antenna increases its bandwidth by lowering the cut off frequency of the dominant mode, while raising the cut off frequency of the next higher order mode.

Applications

MODEL	FCC-15	FCC-18	IEC/CISPR/EN	SAE J1113	SAE J551	MIL-STD-461E	MIL-STD-1541	MIL-STD-285	IEEE STD 299	NACSIM
3106	RE	RE	RE, RI	RE, RI	RE, RI	RE, RI	RE, RI			RE
3115	RE	RE	RE, RI	RE, RI	RE, RI	RE, RI	RE, RI	TX, RX	RX	RE
3116	RE	RE				RE, RI	RE	TX, RX	RX	RE

RE = Radiated Emissions RI = Radiated Immunity (Susceptibility) TX = Transmit RX = Receive

Electrical Specifications

MODEL	FREQUENCY RANGE	VSWR RATIO (AVG)	MAXIMUM CONTINUOUS POWER	PEAK POWER	IMPEDANCE (NOMINAL)	CONNECTOR
3106	200 MHz – 2 GHz	< 1.6:1	800 W	1600 W	50 Ω	Type N female
3115	1 GHz – 18 GHz	< 1.5:1	300 W	500 W	50 Ω	Type N precision female
3116	18 GHz – 40 GHz	< 1.6:1	50 W	70 W	50 Ω	Type K female

Physical Specifications

MODEL	WIDTH ¹	DEPTH	HEIGHT ¹	WEIGHT
3106	93.3 cm 36.7 in	97.8 cm 38.5 in	72.9 cm 28.7 in	11.8 kg 26.0 lb
3115	24.4 cm 9.6 in	27.9 cm 11.0 in	15.9 cm 6.2 in	1.8 kg 4.0 lb
3116	13.0 cm 5.2 in	10.0 cm 4.0 in	6.0 cm 2.4 in	135.0 g 4.7 oz

¹ At aperture

USA:

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SINGAPORE:

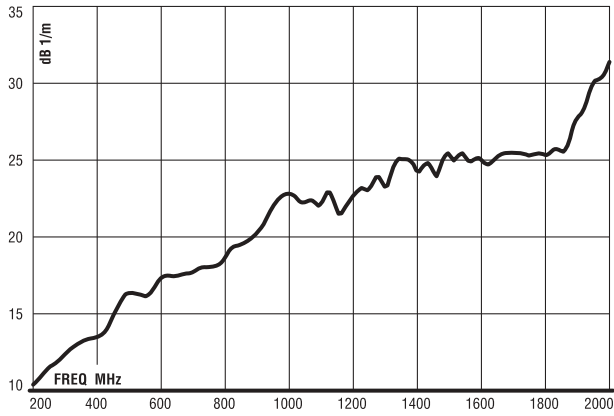
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Fax +65.536.7093

ONLINE:

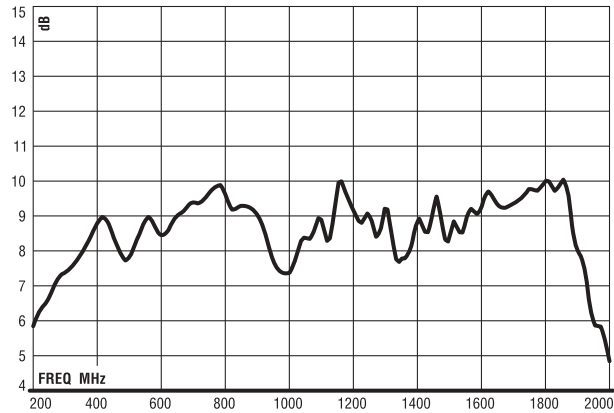
info@ets-lindgren.com
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Model 3106 Technical Data

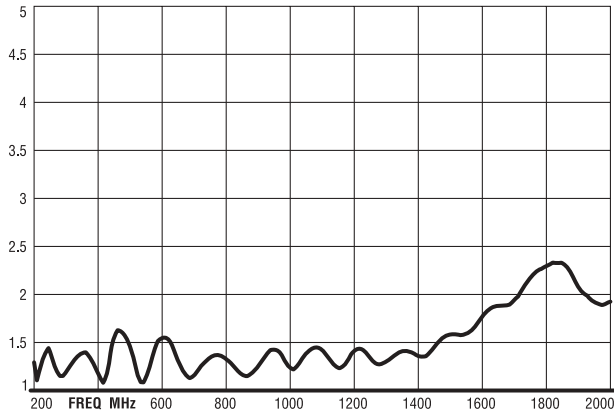
Model 3106 Antenna Factor



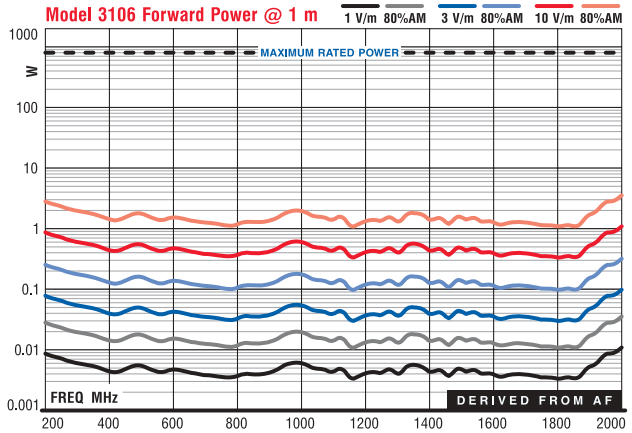
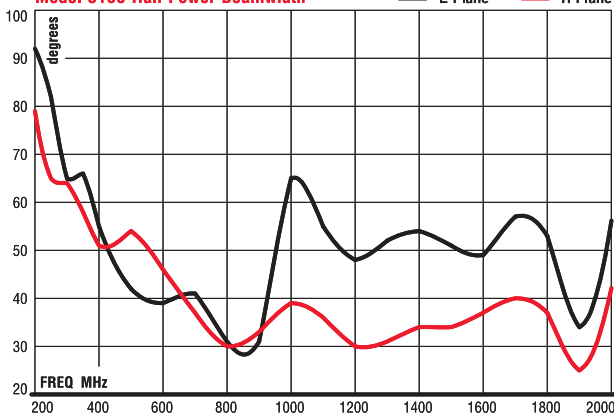
Model 3106 Gain



Model 3106 VSWR

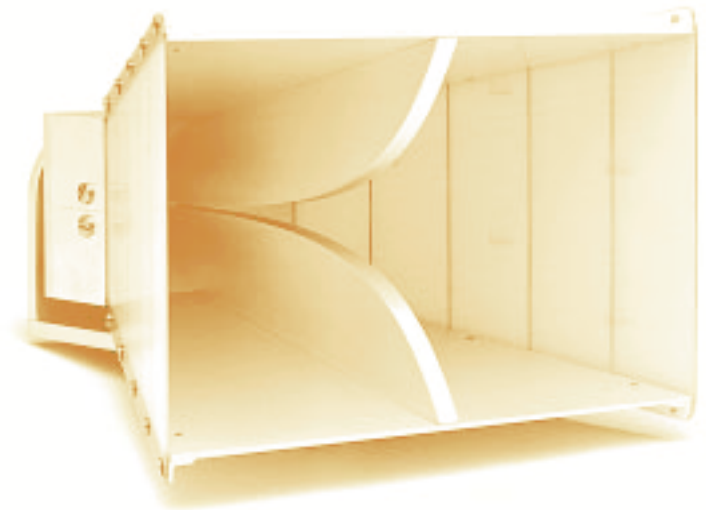
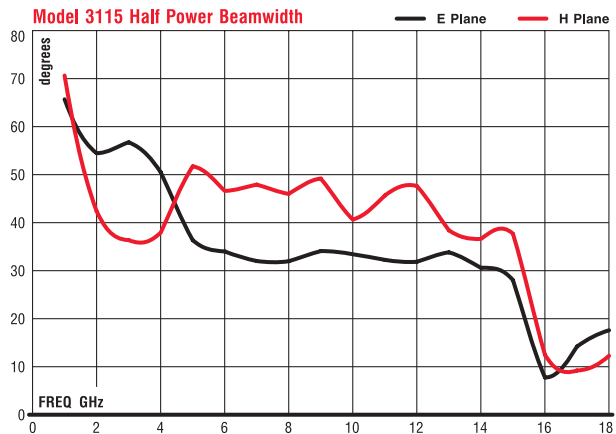
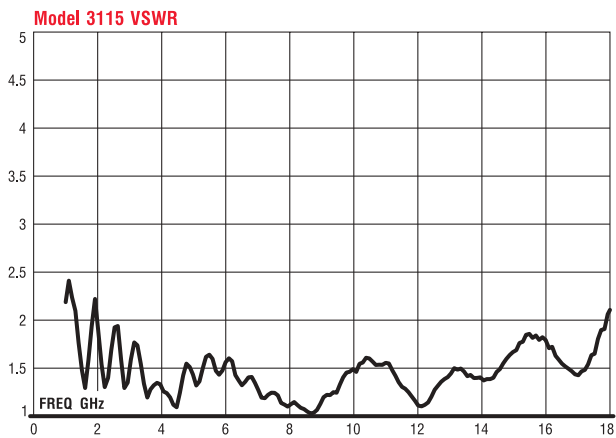
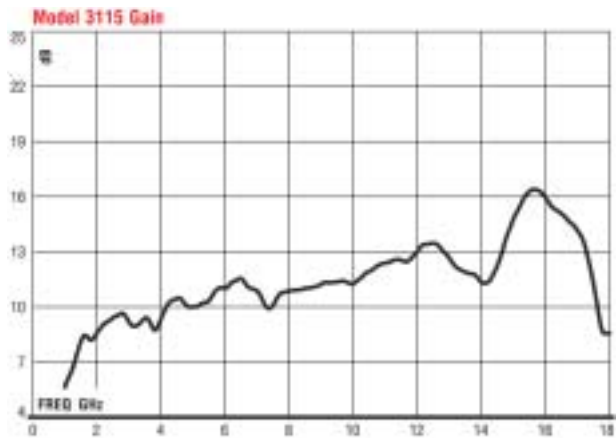
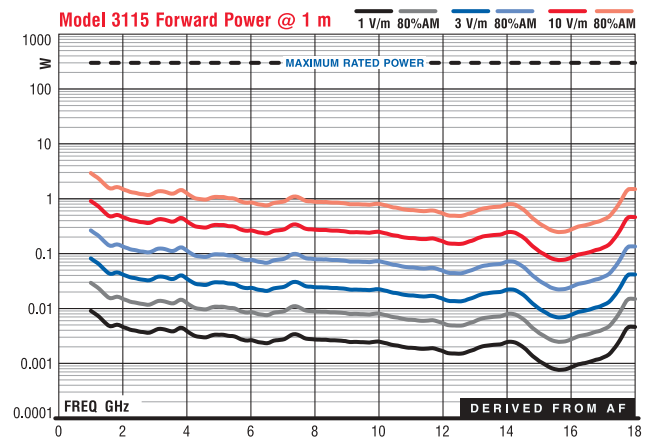
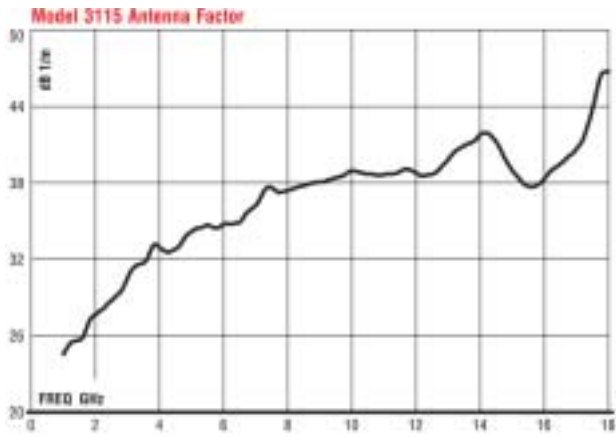


Model 3106 Half Power Beamwidth



Model 3115 Technical Data

Double-Ridged Waveguide Horn



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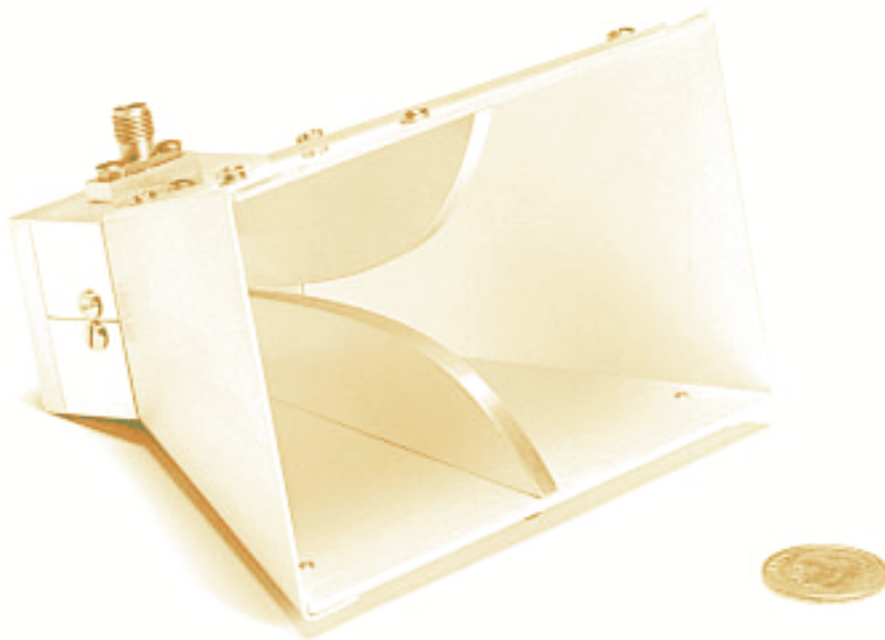
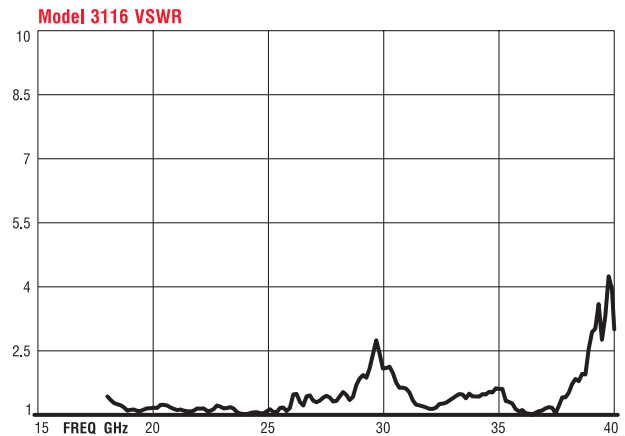
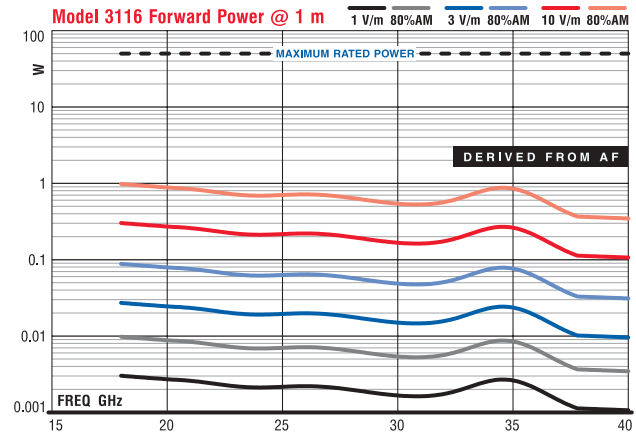
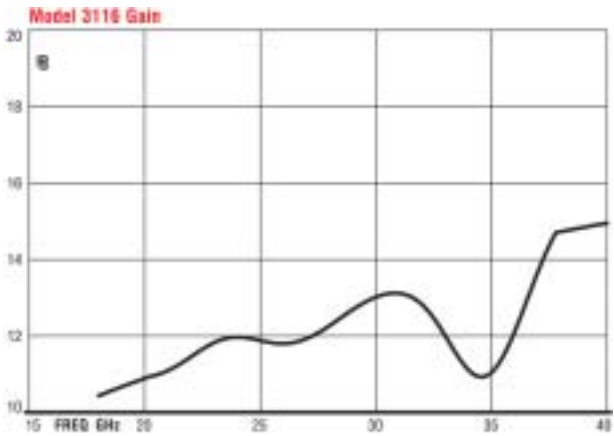
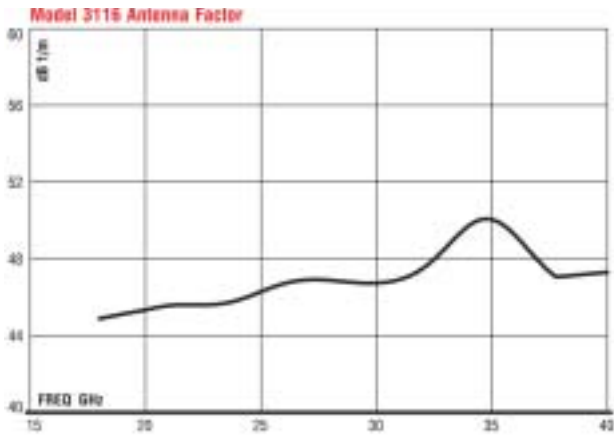
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