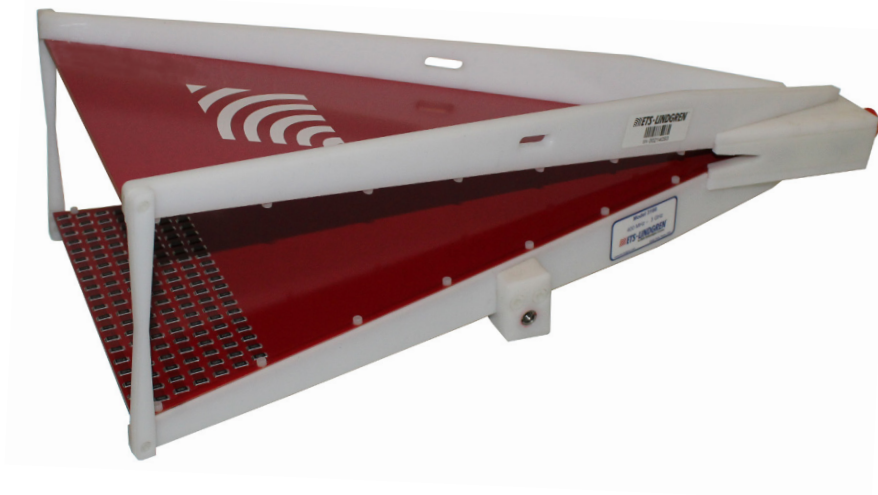


TEM Horn Antennas

Models 3166 and 3167

User Manual



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NOTES, CAUTIONS, AND WARNINGS

	<p>Note: Denotes helpful information intended to provide tips for better use of the product.</p>
	<p>Caution: Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.</p>
	<p>Warning: Denotes a hazard. Failure to follow instructions could result in SEVERE personal injury and/or property damage. Included text gives proper procedures.</p>


SAFETY INFORMATION

	<p>Refer to Manual: When product is marked with this symbol, see the instruction manual for additional information. If the instruction manual has been misplaced, download it from www.ets-lindgren.com, or contact ETS-Lindgren Customer Service.</p>
	<p>High Voltage: Indicates presence of hazardous voltage. Unsafe practice could result in severe personal injury or death.</p>
	<p>High Voltage: Indicates presence of hazardous voltage. Unsafe practice could result in severe personal injury or death.</p>
	<p>Protective Earth Ground (Safety Ground): Indicates protective earth terminal. You should provide uninterruptible safety earth ground from the main power source to the product input wiring terminals, power cord, or supplied power cord set.</p>



See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

GENERAL SAFETY CONSIDERATIONS

	<p>Only qualified personnel should operate (or service) this equipment.</p>
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INTRODUCTION

The ETS-Lindgren Model 3166 and 3167 TEM Horn Antennas generate homogeneous fields in the frequency range of 380 MHz to 6 GHz specifically for immunity testing in close proximity as per the IEC/EN 61000-4-39 standard. The 3166 model operates from 380 MHz to 3 GHz with less than 7:1 VSWR from 400 MHz to 700 MHz and 3:1 VSWR from 700 MHz and above. The 3167 operates from 3 GHz to 6 GHz with less than 2:1 VSWR.

Standard Configuration

Tripod

The 4-TR tripod is constructed of linen phenolic and delrin, designed with an adjustable center post for precise height adjustments.

Maximum Height	2.0 m (80.0 in)
Minimum Height	94 cm (37.0 in)
Maximum Load	11.8 kg (26.0 lb)



ETS-Lindgren Product Information Bulletin

See the ETS-Lindgren *Product Information Bulletin* included with your shipment for the following:

- Warranty information
- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information

MAINTENANCE

CAUTION

Before performing any maintenance, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.



Maintenance of the Model 3166 and 3167 is limited to external components such as cables or connectors.

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

Annual Calibration

See the Product Information Bulletin included with your shipment for information on ETS-Lindgren calibration services.

Replacement and Optional Parts



ETS-Lindgren may substitute a similar part or new part number with the same functionality for another part/part number. Contact ETS-Lindgren for questions about part numbers and ordering parts.

Following are the part numbers for ordering replacement or optional parts for the Model 3166.

Part Description	Part Number
4-TR Tripod	4-TR
4-TR Adjustable Mount	123627

Following are the part numbers for ordering replacement or optional parts for the Model 3167.

Part Description	Part Number
4-TR Tripod	4-TR
Post Mount	121268

Service Procedures

For the steps to return a system or system component to ETS-Lindgren for service, see the *Product Information Bulletin* included with your shipment.

SPECIFICATIONS

3166 Electrical Specifications

Application	IEC / EN 61000-4-39
Frequency Range	380 MHz to 3 GHz
VSWR	7:1 (400 MHz to 700 MHz) 3:1 (700 MHz to 3 GHz)
Maximum Continuous Power	250 W
Impedance (Nominal)	50 Ω
Connector	N type, female

3166 Physical Specifications

Width	21.6 cm (8.5 in)
Depth	47.6 cm (18.75 in)
Height	13.2 cm (5.2 in)
Approximate Weight	3.6 kg (8 lb)

3167 Electrical Specifications

Application	IEC / EN 61000-4-39
Frequency Range	3 GHz to 6 GHz
VSWR	2:1
Maximum Continuous Power	250 W
Impedance (Nominal)	50 Ω
Connector	N type, female

3167 Physical Specifications

Width	7.9 cm (3.1 in)
Depth	17.3 cm (6.8 in)
Height	6.4 cm (2.5 in)
Approximate Weight	0.2 kg (0.4 lb)

MOUNTING INSTRUCTIONS

CAUTION

Before connecting any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

CAUTION

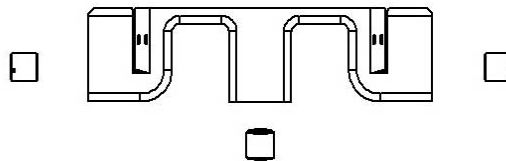
Model 3166 and Model 3167 are precision measurement devices. Handle with care.

Using Included Mounting Adapters

3166 Mounting Adapters

The Model 3166 TEM Horn Antenna ships with this mounting adapter:

- 123627 4-TR Mount, 3166 Retro with 7/8 – 14 thread receptacle
- 105861B 1/4–20 Thread Insert



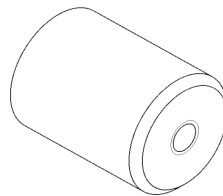
To use this adapter to mount the Model 3166 to a tripod:

1. Located on the bottom of the 4-TR Mount, 3166 Retro is a 7/8 – 14 thread receptacle; if you need to convert to a 1/4 - 20 receptacle, insert the 1/4 - 20 thread insert into the polarizing adapter.
2. Attach the 4-TR Mount, 3166 Retro to tripod.

3167 Mounting Adapters

The Model 3167 TEM Horn Antenna ships with 2 post mount adapters attached to the antenna:

- 121268 Post Mount with 1/4 - 20 Thread Receptacle

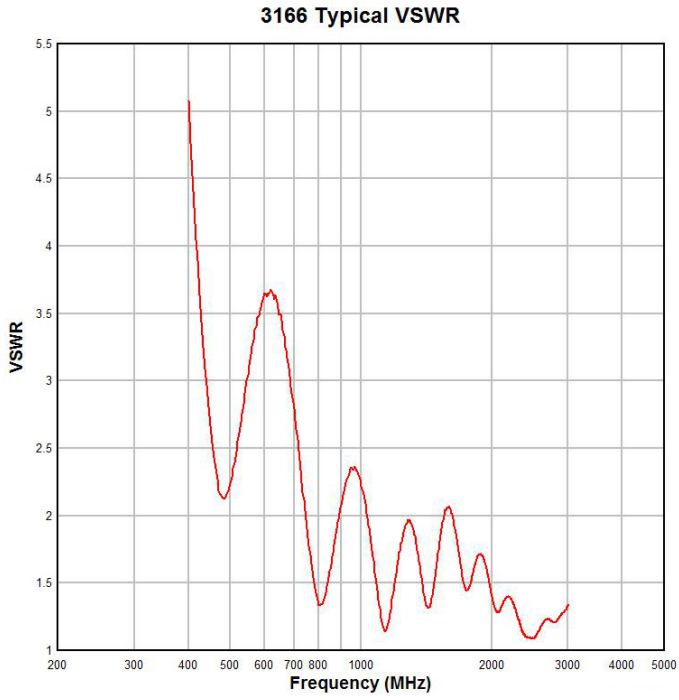


To use this adapter to mount the Model 3167 to a tripod:

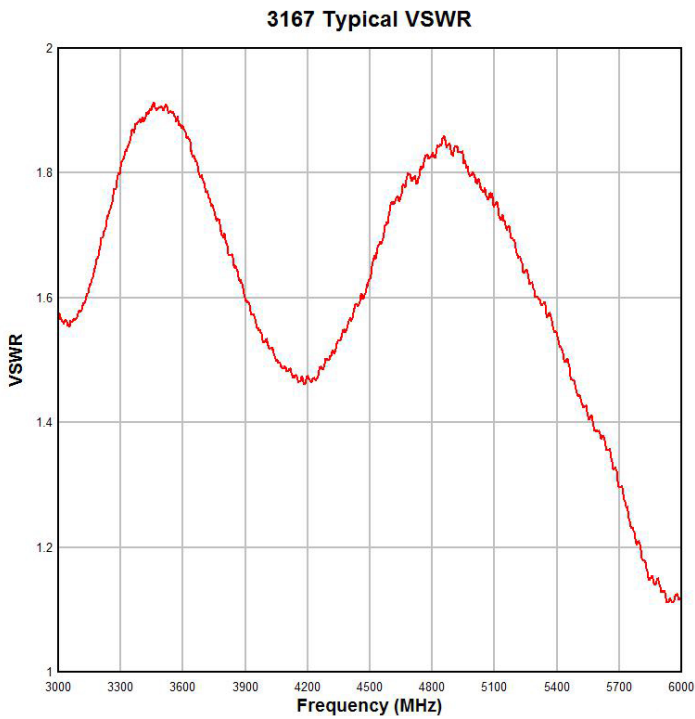
1. 1/4 - 20 thread receptacles are located on the ends of each post mount.
2. Attach post mount to tripod.

TYPICAL DATA

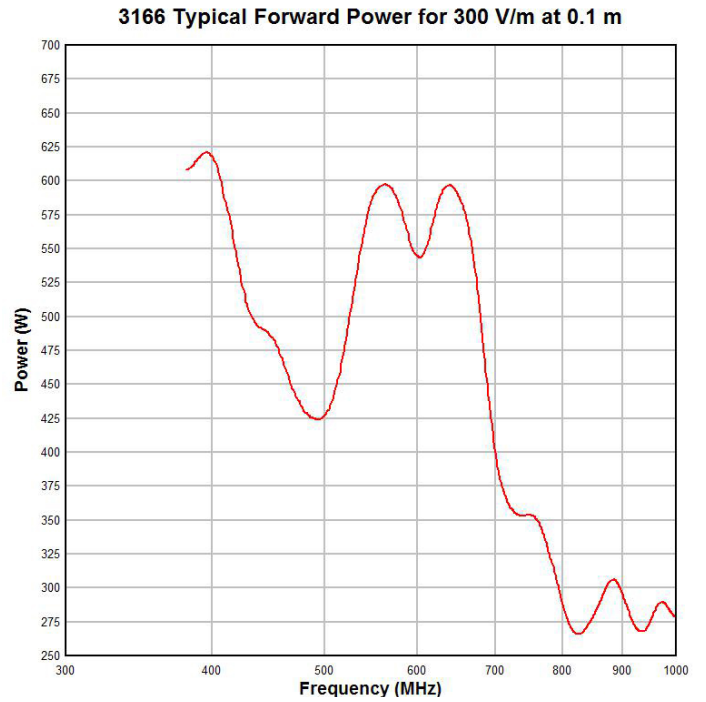
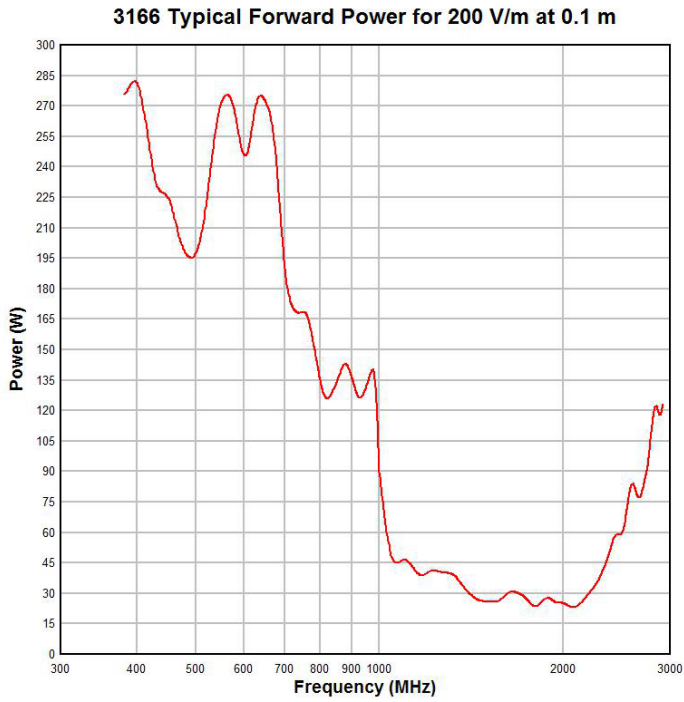
3166 VSWR



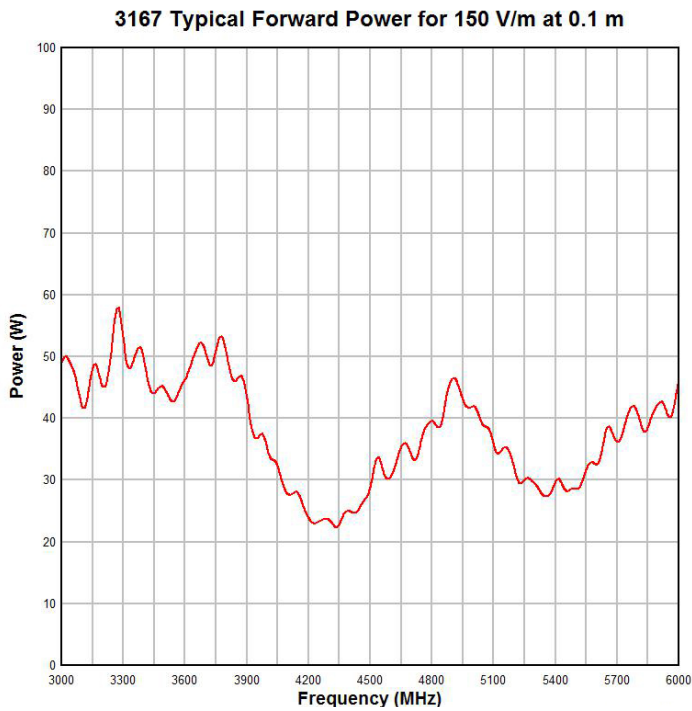
3167 VSWR



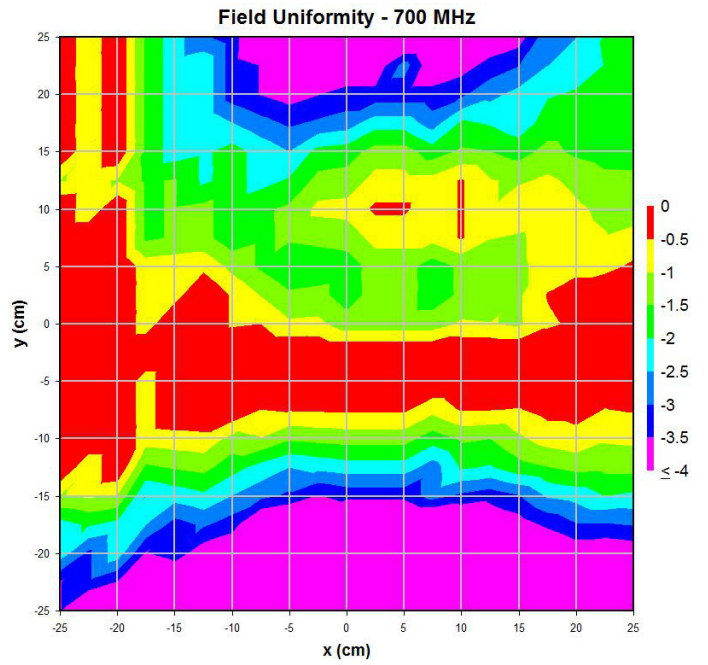
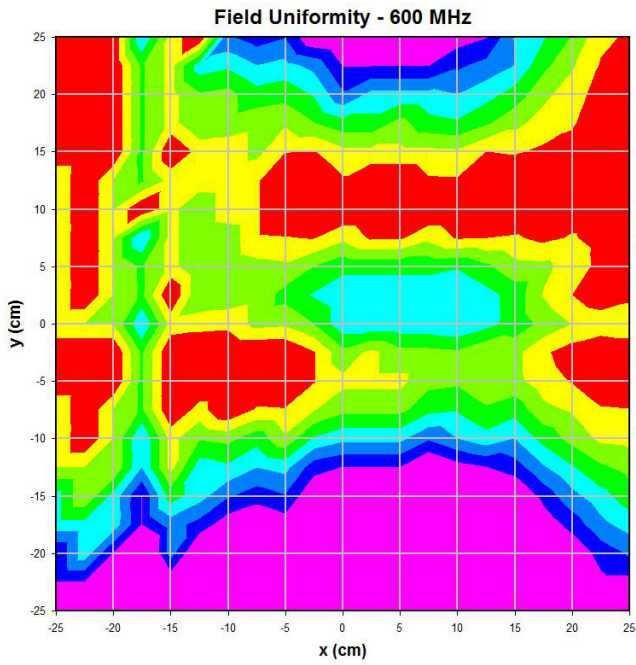
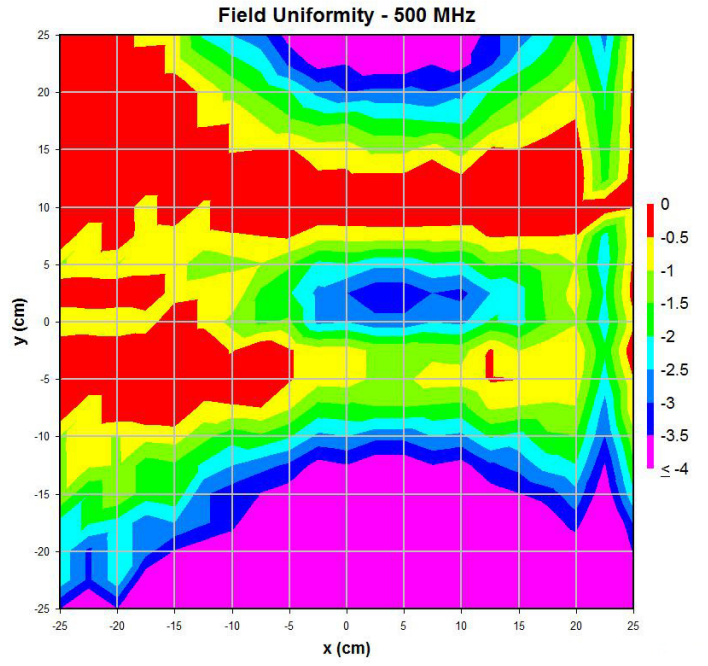
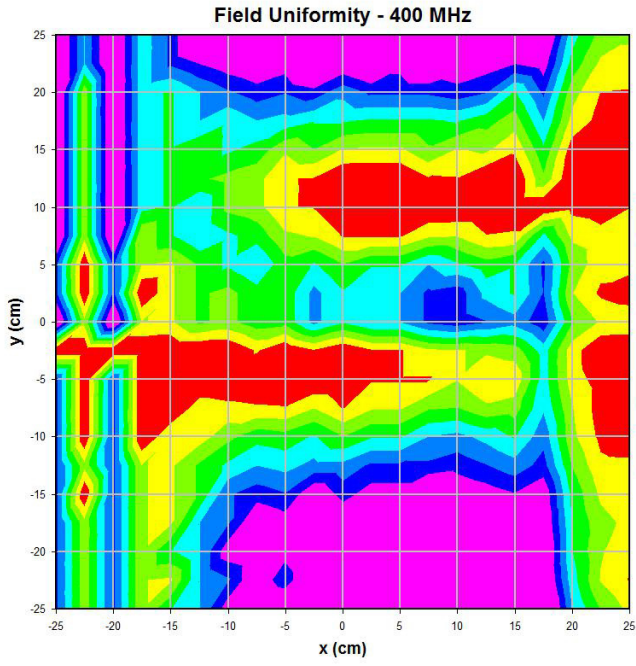
3166 Forward Power

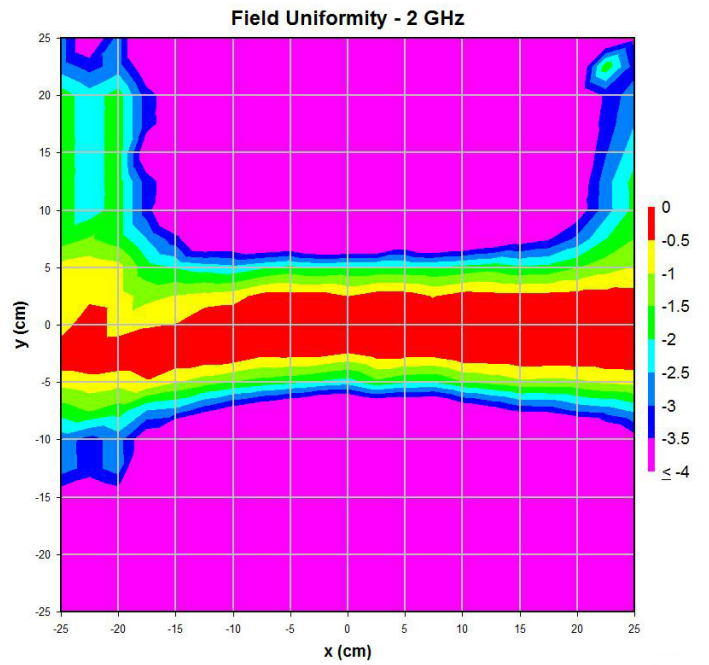
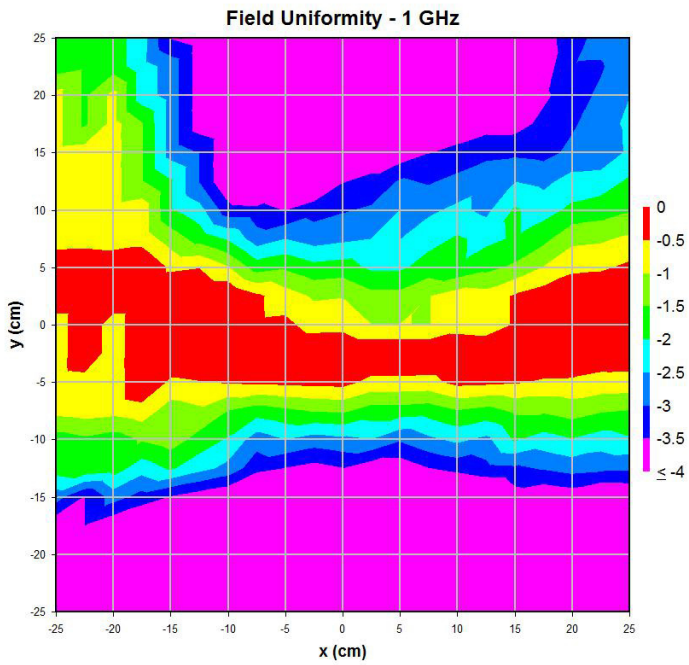
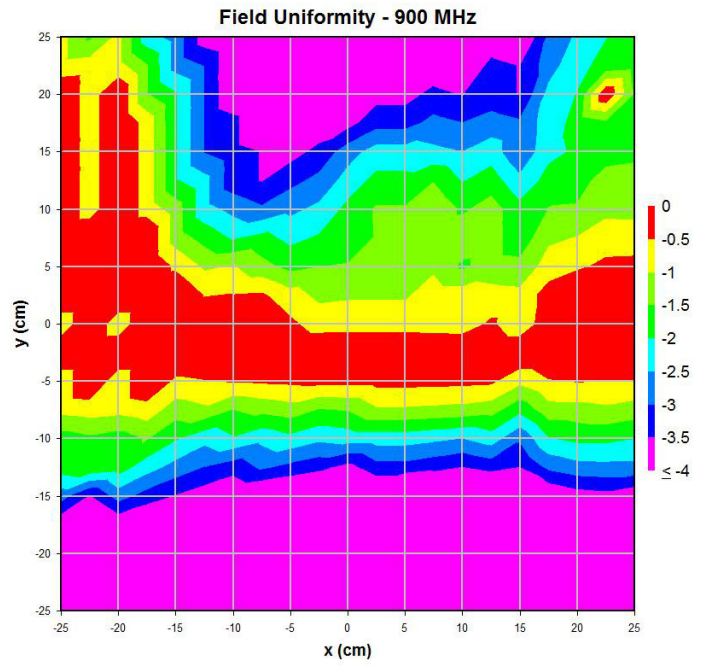
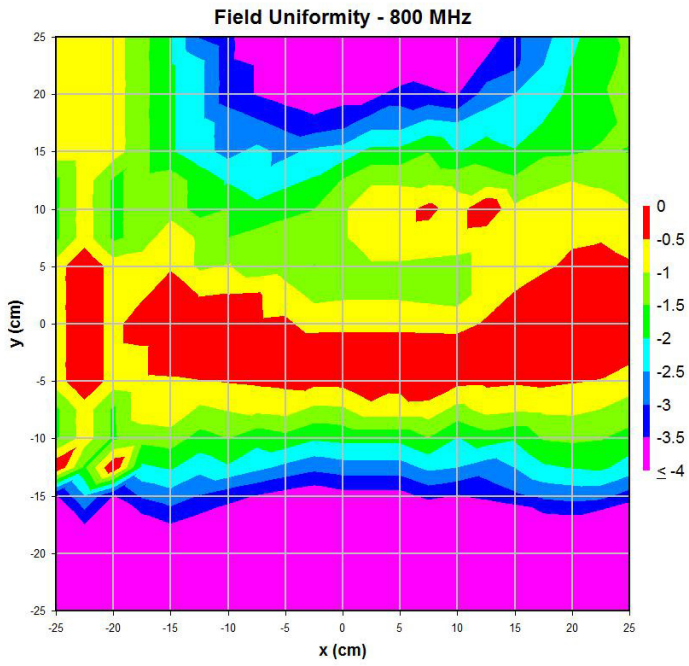


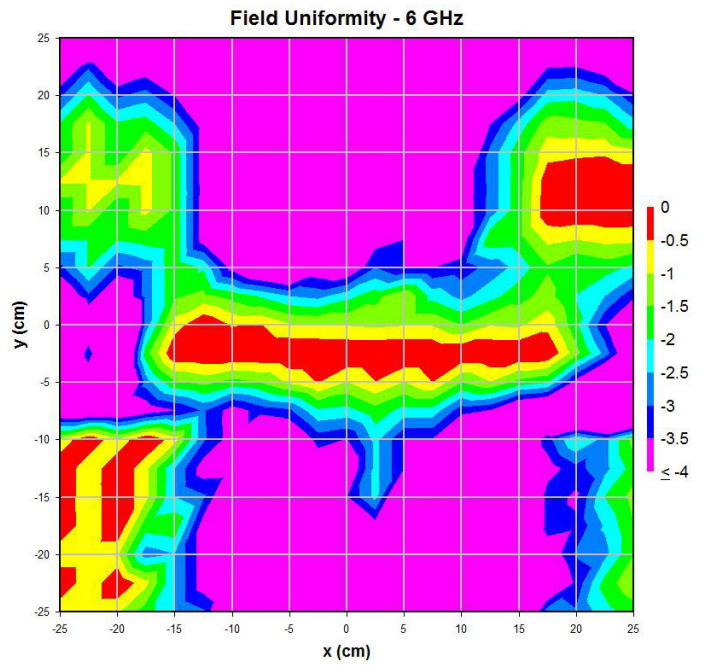
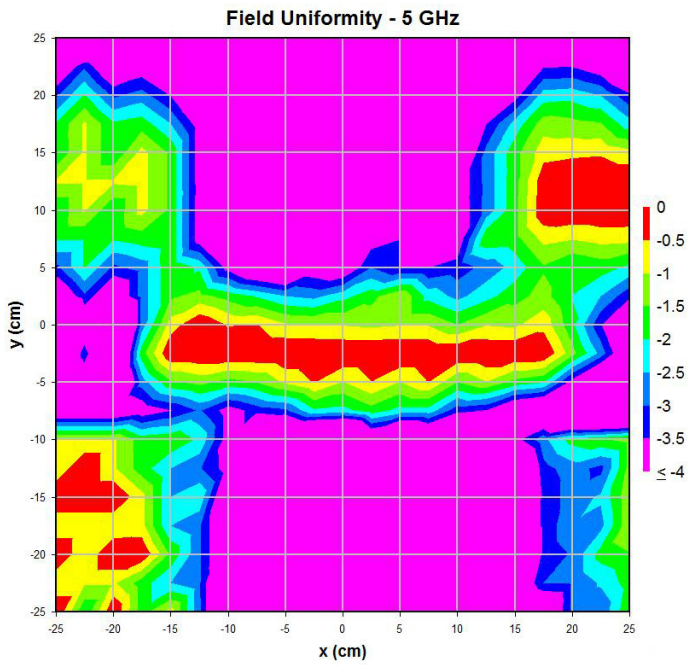
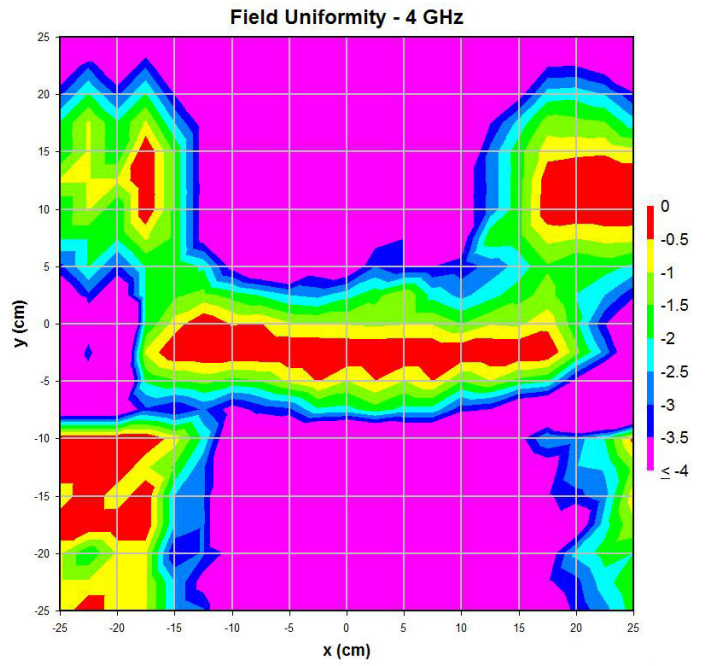
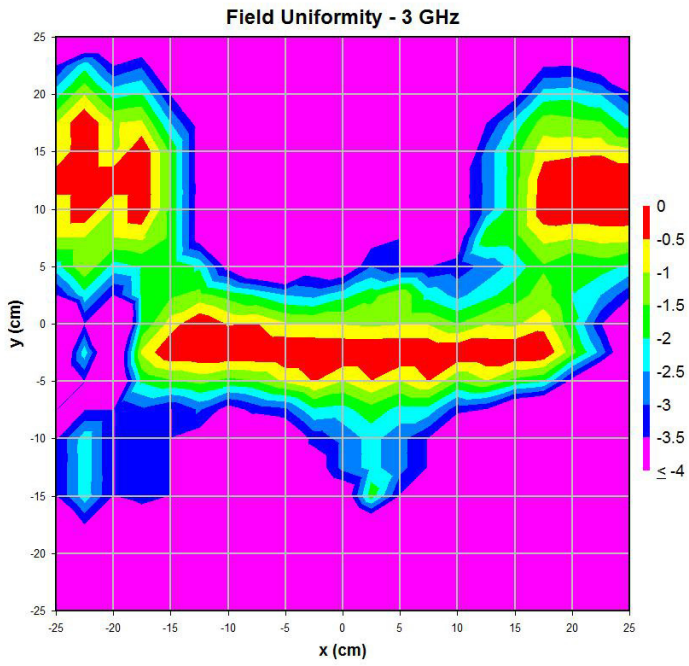
3167 Forward Power



Field Uniformity







Minimum Field Uniformity Grid Dimensions

The following table lays out the minimum grid dimensions in x and y directions that will satisfy the -4 dB Field Uniformity requirement as per IEC / EN 61000-4-39 standard.

Freq (MHz)	Measured Dimensions	
	Min x (cm)	Min y (cm)
400	40	30
425	55	25
450	55	30
475	55	35
500	55	25
525	55	25
550	55	25
575	55	30
600	55	25
625	55	30
650	55	30
675	55	30
700	55	35
750	55	25
800	55	30
850	55	25
900	55	30
950	55	25
1000	55	25
1500	55	20
2000	55	15
2500	55	10
3000	40	10
3000	40	10
3500	40	10
4000	40	10
4500	40	10
5000	40	10
5500	40	10
6000	40	10

Appendix A: Warranty



See the *Product Information Bulletin* included with your shipment for the complete ETS Lindgren warranty for your Model 3166 or Model 3167 TEM Horn Antenna.

DURATION OF WARRANTIES FOR MODELS 3166 AND 3167 TEM HORN ANTENNAS

All product warranties, except the warranty of title, and all remedies for warranty failures are limited to one year.

Product Warranted	Duration of Warranty Period
Model 3166 TEM Horn Antenna	1 Year
Model 3167 TEM Horn Antenna	1 Year

