



Q-par Angus Ltd

IDEAS ENGINEERED



HiRF

EMC Solutions



Data Sheets



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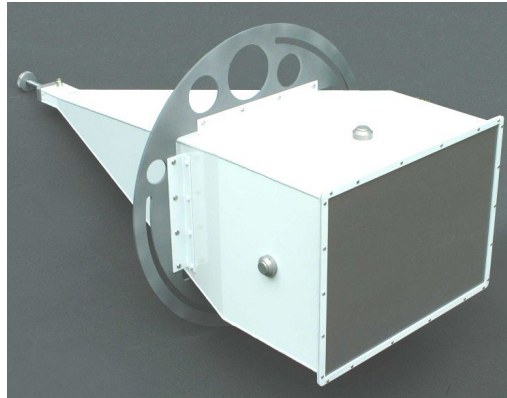


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High RF (HiRF) EMC Solutions Overview

Q-par Angus Ltd offers solutions that exceed the latest HiRF specifications. The horn antennas have been specially developed by Q-par Angus to deliberately focus the RF energy at a short distance from the aperture and thus overcome the near field limitations of traditional designs



Data sheet

Features

- Nine specialized antennas cover the frequency range 0.4 - 18 GHz.
- In excess of 3 kV / m at one meter is now achievable in free field tests.
- 3 dB spot sizes are 150 mm or greater.
- All exceed the Latest Category K specification.

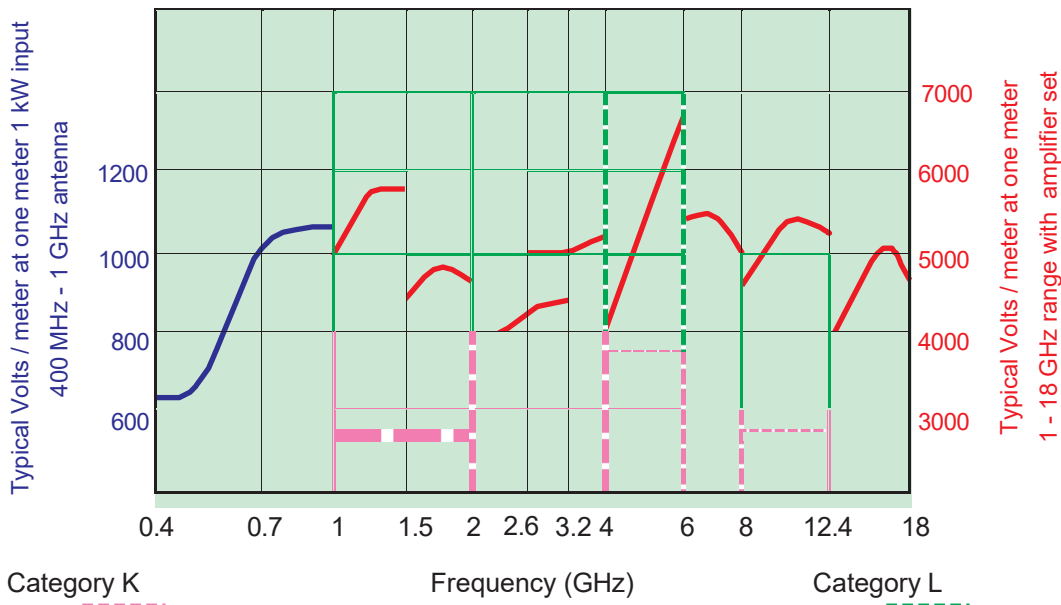
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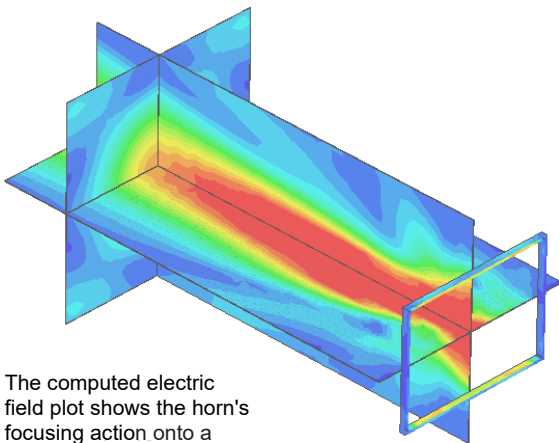
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System Performance



Function



The computed electric field plot shows the horn's focusing action onto a plane at one meter from the aperture, represented by the rectangular box.

Focusing is achieved either by using dielectric lenses or dividing the aperture into four co-phased smaller horn antennas. In the latter case, the horns are also squinted in towards the target. The squint angle is adjustable, allowing the spot size to be traded off against field intensity to suit test conditions.

Antennas, Accessories and Services

- Calibration and test antennas, traceable to National Standards.
- Mobile support tower with polarisation rotation facility and variable height adjustment.
- Field probe antennas.
- High power low loss cables, couplers and attenuators.
- Equipment racking.
- Assistance with on-site installation and system verification.

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Data Sheet

0.4 - 1 GHz WR420 Quad Array

Optimised for Near Field Working
Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 400 MHz - 1 GHz model, the RF energy is deliberately focussed at a short distance from the aperture by subdividing the aperture into four smaller co-phased horns and slightly squinting each of them inwards.



Summary of Features

- Optimised for operation at one metre.
- High field intensity achievable with modest power levels.
- Exceeds latest category K with 1 kW amplifier.
- 3 dB spot size 260 mm or greater.
- High peak and mean power rating.
- Compact mobile unit.

Typical Specification

Frequency	0.4 - 1 GHz
Effective gain at 1 metre	11.6 - 15.8 dBi
Input power for 700 V/m	0.5 - 1.1 kW
-3dB Beamwidth at 1m	260 - 660 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	2.0 kW (7:16 DIN); 1.5 kW (SC); 1.0 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	N, 7:16 DIN or SC socket available
Dimensions	~1400 x 1400 x 900 mm long
Weight	~60 kg



Data sheet

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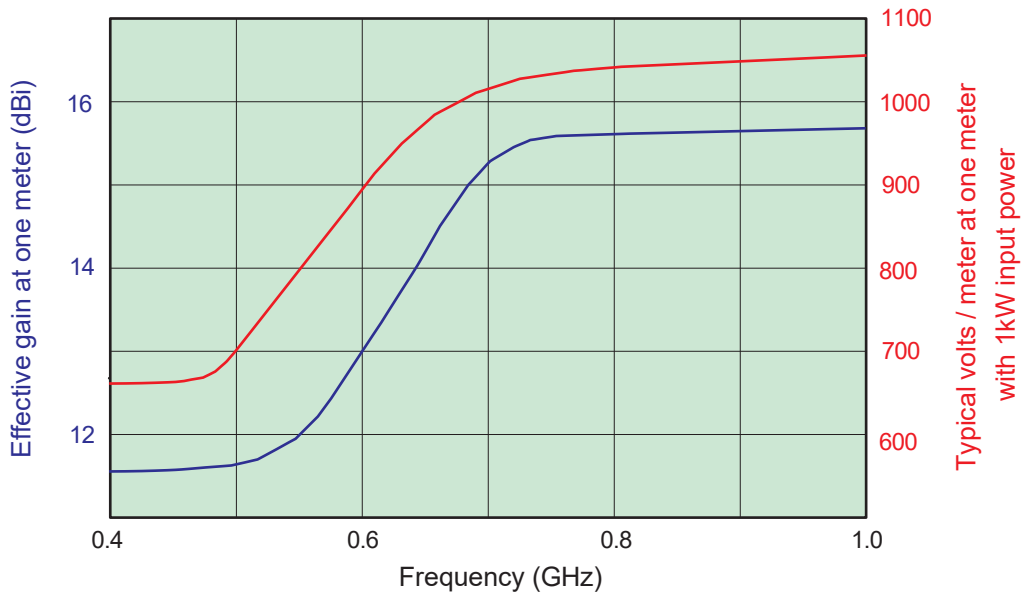


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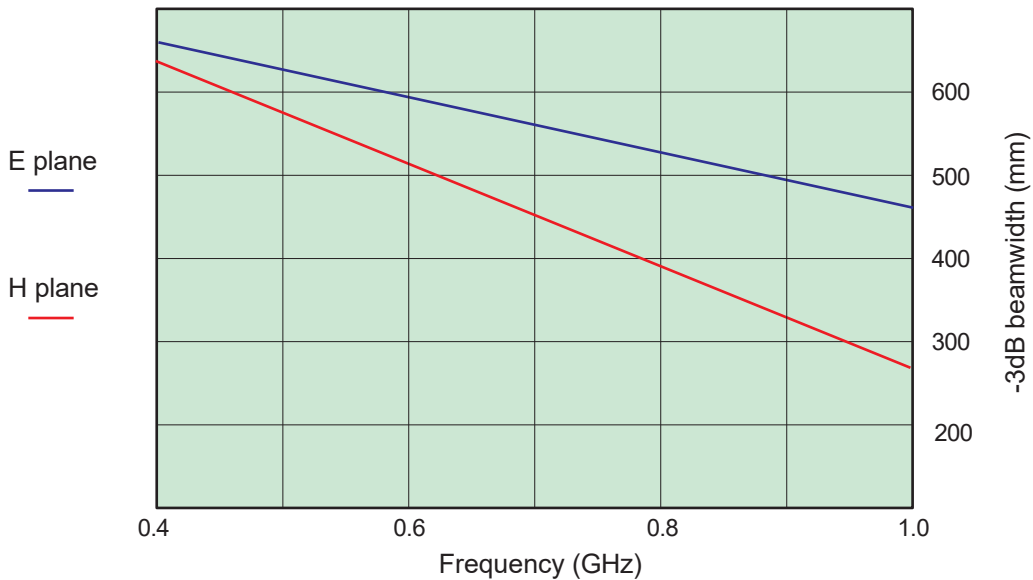


Effective Gain and Volts / metre



Note these values are obtained in free space conditions. A short low loss interconnecting cable is necessary to ensure the best performance.

Beamwidth



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1 - 1.6 GHz WG6 Quad Array Optimised for Near Field Working Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 1 - 1.6 GHz model, the RF energy is deliberately focussed at a short distance from the aperture by subdividing the aperture into four smaller cophased horns and slightly squinting each of them inwards.



Summary of Features

- Optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 182 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	1 - 1.6 GHz
Effective gain at 1 meter	18.9 - 20.6 dBi
Input power for 3 kV/m	2.8 - 3.8 kW
-3dB Beamwidth at 1m	182 - 296 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	1.6 kW (7:16 DIN); 1.2 kW (SC); 0.8 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	N, 7:16 DIN or SC socket available
Dimensions	~1250 x 1250 x 900 mm long
Weight	~60 kg

Data sheet

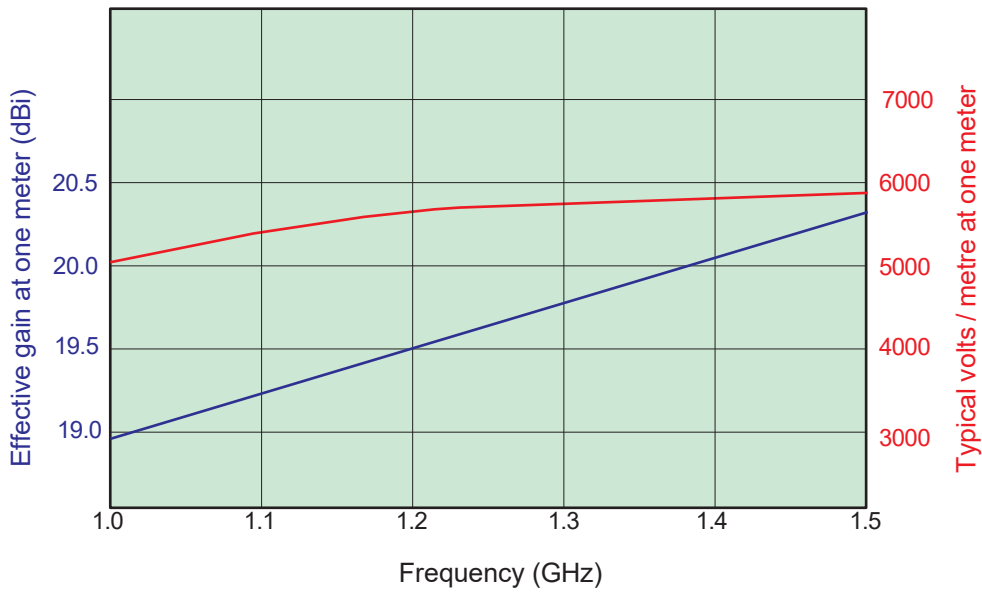
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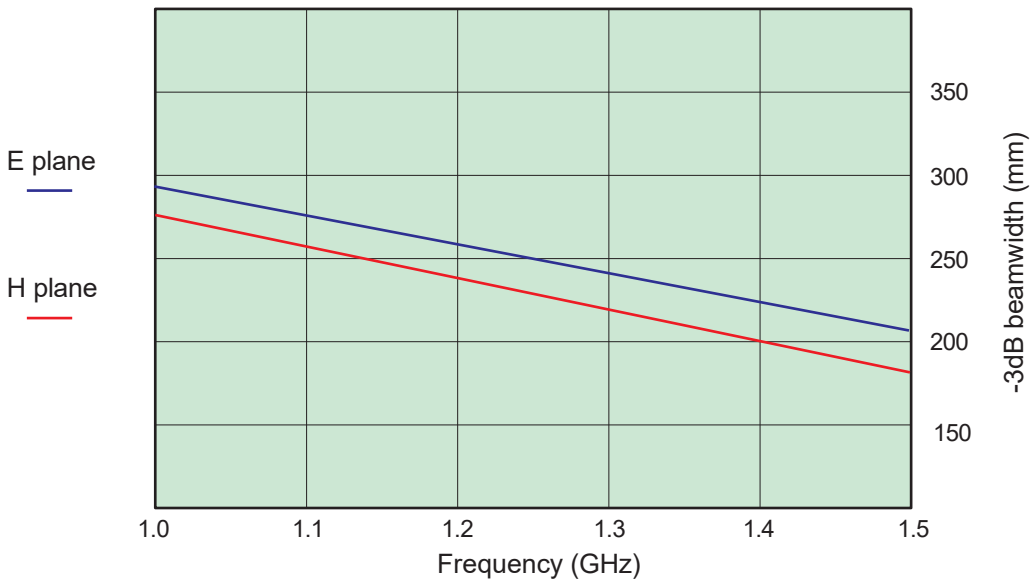
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Effective Gain and Volts / metre



Note these values are obtained in free space conditions. Therefore, a short, low-loss interconnecting cable is necessary to ensure the best performance.

Beamwidth



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1.5 - 2.6 GHz WG8 Quad Array Optimised for Near Field Working Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 1.5 - 2.6 GHz model the RF energy is deliberately focussed at a short distance from the aperture by subdividing the aperture into four smaller cophased horns, and slightly squinting each of them inwards.



Summary of Features

- Optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 156 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	1.5 - 2.6 GHz
Effective gain at 1 meter	20.3 - 22 dBi
Input power for 3 kV/m	2.5 - 2.8 kW
-3dB Beamwidth at 1m	156 - 246 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	1.4 kW (7:16 DIN); 1 kW (SC); 0.7 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	N, 7:16 DIN or SC socket available
Dimensions	~950 x 950 x 900 mm long
Weight	~40 kg

Data sheet

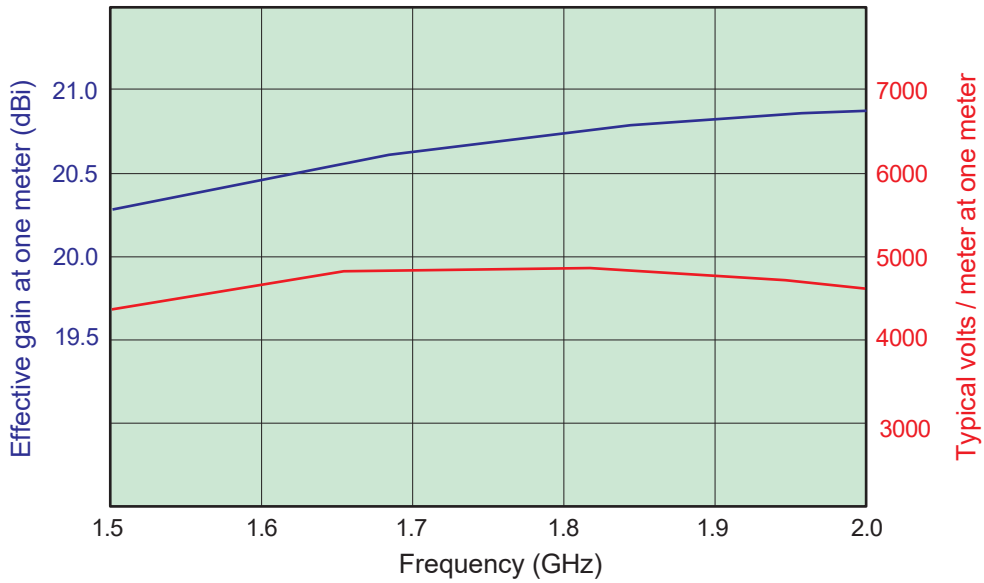
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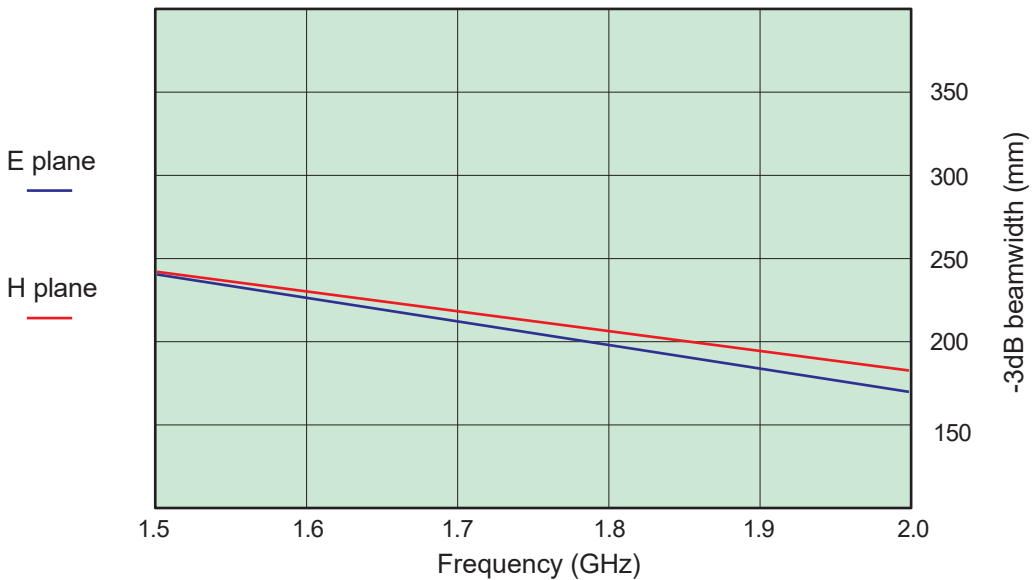
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Effective Gain and Field Strength



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Beamwidth



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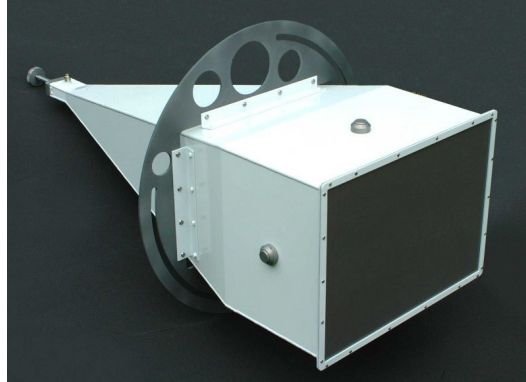


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2 - 3.2 GHz WG9A Lens Horn Optimised for Near Field Working Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 2 - 3.2 GHz model, a lens incorporated in the aperture deliberately focuses the RF energy at a point one meter away.



Summary of Features

- Optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 210 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	2 - 3.2 GHz
Effective gain at 1 meter	20.0 - 20.9 dBi
Input power for 3 kV/m	2.4 - 2.9 kW
-3dB Beamwidth at 1m	210 - 335 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	1.2 kW (7:16 DIN); 0.9 kW (SC); 0.6 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	7:16 DIN, N or SC socket available
Dimensions	~700 x 500 x 1650 mm long
Weight	~16 kg

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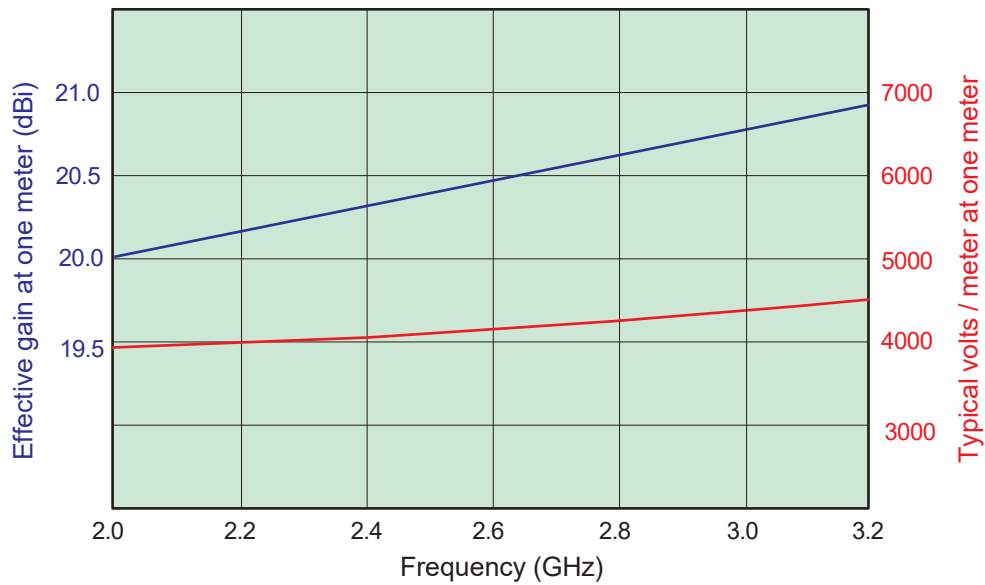


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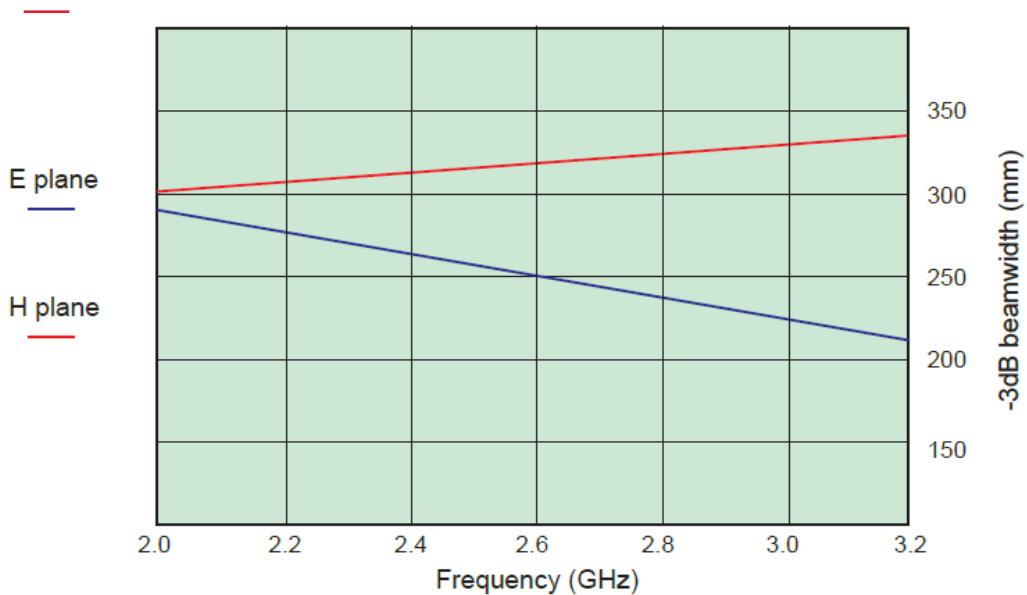
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Effective Gain and Field Strength



Note these values are obtained in free space conditions. A short low-loss interconnecting cable is necessary to ensure the best performance.

Beamwidth



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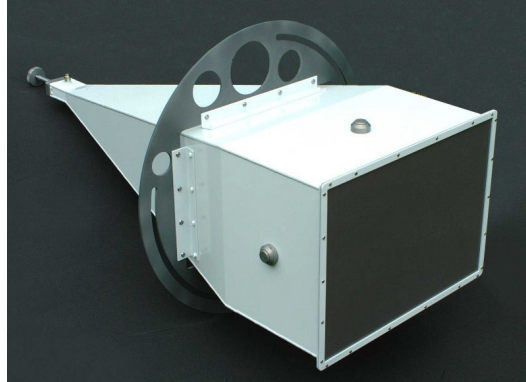
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2.6 - 4 GHz WG10 Lens Horn

Optimised for Near Field Working

Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 2.6 - 4 GHz model, a lens incorporated in the aperture deliberately focuses the RF energy at a point one meter away.



Summary of Features

- It is optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 204 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	2.6 - 4 GHz
Effective gain at 1 meter	20.2 - 22.8 dBi
Input power for 3 kV/m	1.6 - 2.3 kW
-3dB Beamwidth at 1m	204 - 304 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	1.2 kW (7:16 DIN); 0.75 kW (SC); 0.5 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	N, 7:16 DIN or SC socket available
Dimensions	~470 x 350 x 1150 mm long
Weight	~7.5 kg

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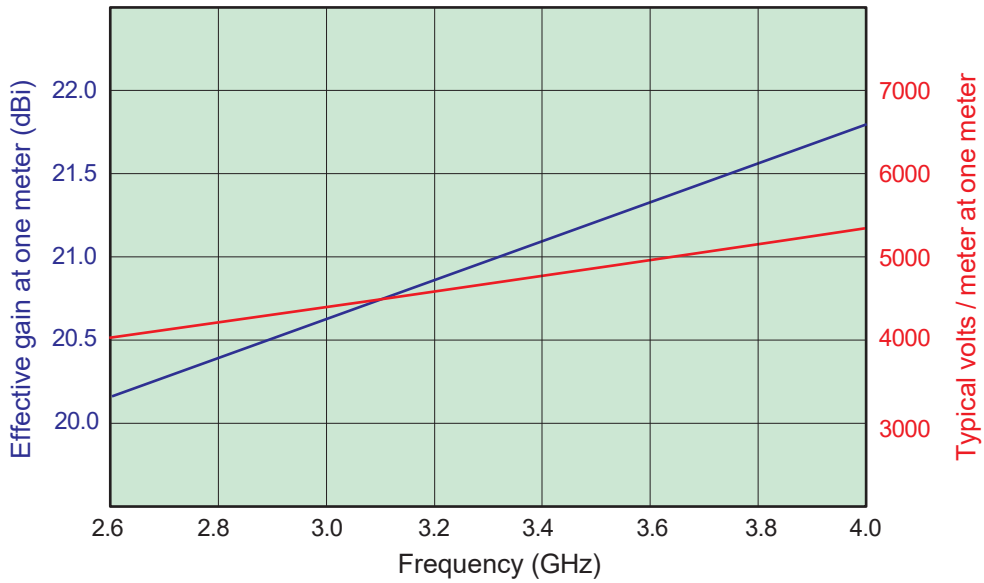


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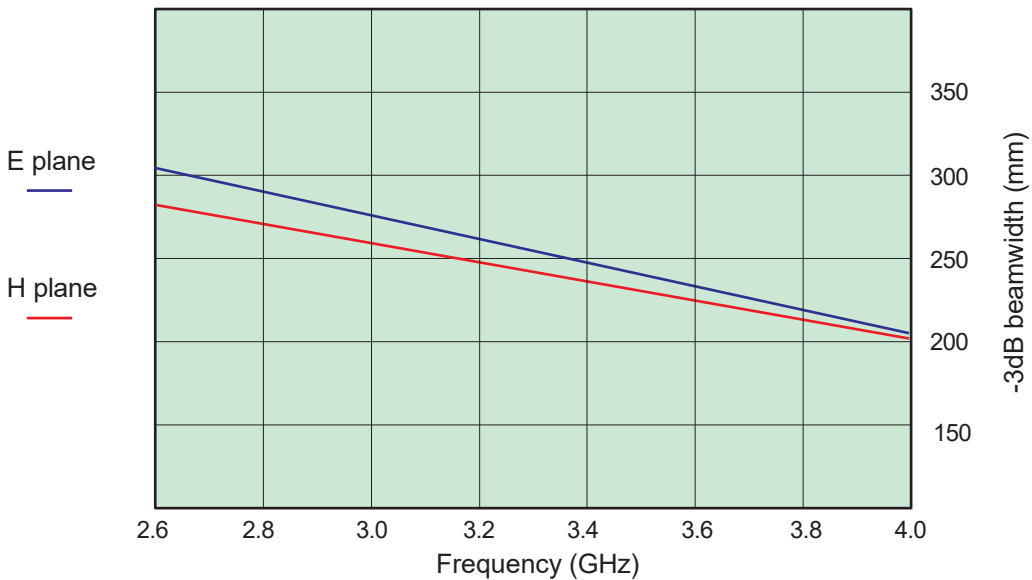
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Effective Gain and Field Strength



Note these values are obtained in free space conditions. A short low-loss interconnecting cable is necessary to ensure the best performance.

Beamwidth



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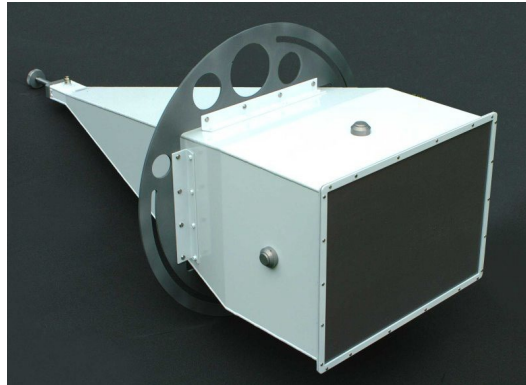
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4 - 6 GHz WG12 Lens Horn

Optimised for Near Field Working

Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. In the 4 - 6 GHz model, a lens incorporated in the aperture deliberately focuses the RF energy at a point one meter away.



Summary of Features

- It is optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 170 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	4 - 6 GHz (minimum)
Effective gain at 1 meter	21.1 - 23.6 dBi
Input power for 3 kV/m	1.3 - 2.3 kW
-3dB Beamwidth at 1m	170 - 260 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	0.8 kW (7:16 DIN); 0.6 kW (SC); 0.4 kW (N)
Peak power rating	13 kW (7:16 DIN); 10 kW (SC); 5 kW (N)
Connector types	N, 7:16 DIN or SC socket available
Dimensions	~400 x 300 x 900 mm long
Weight	~4.6 kg

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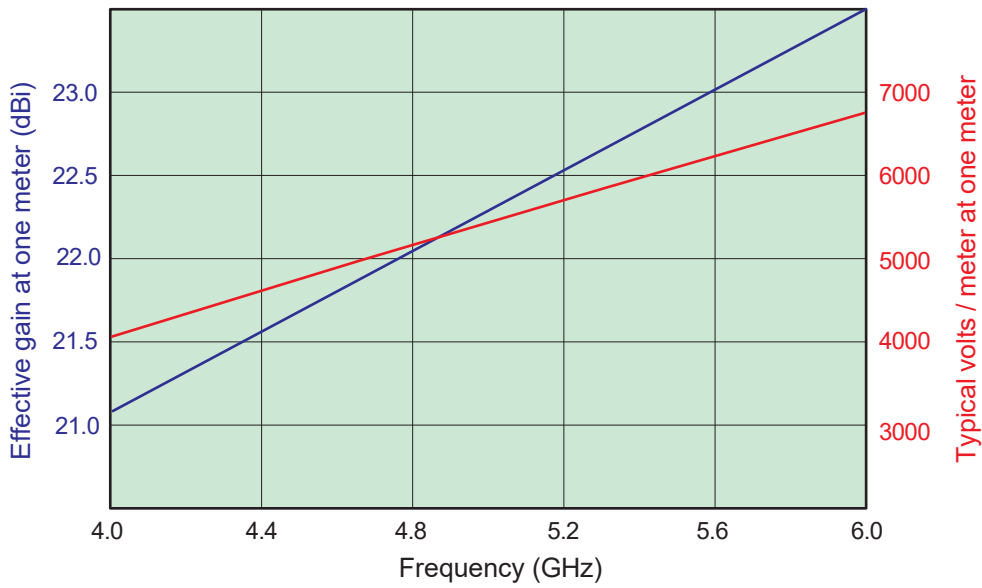


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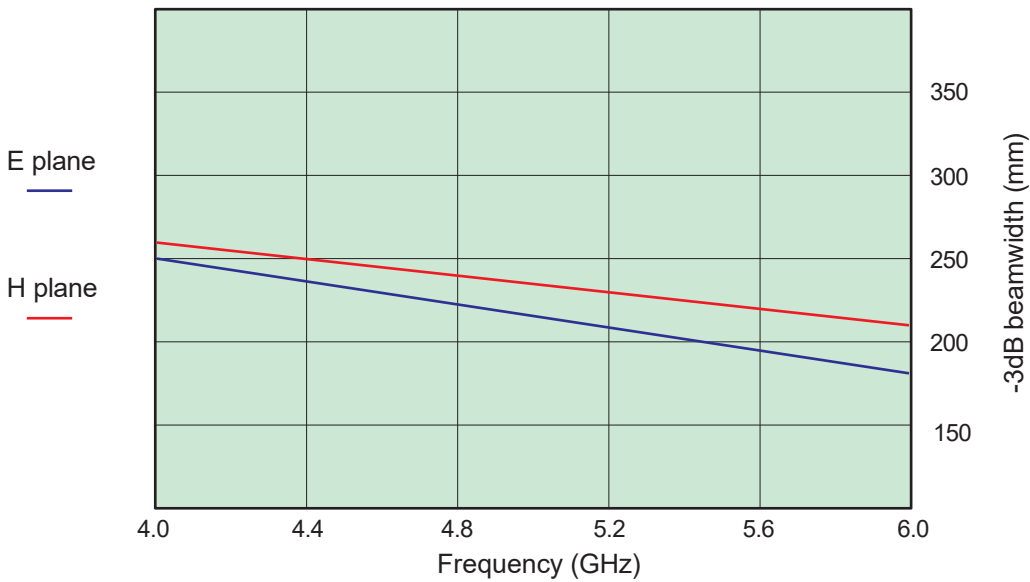
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Effective Gain and Field Strength



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Beamwidth



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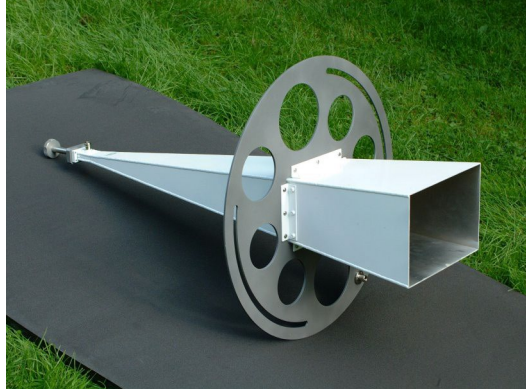
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6 - 8.2 GHz WG14 Horn

Optimised for Near Field Working

Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. The 6 - 8.2 GHz model is based on a conventional very high gain pyramidal horn, designed to produce optimum field strength at one meter from the aperture.



Summary of Features

- Optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 180 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	6 - 8.2 GHz
Effective gain at 1 meter	21.8 - 23.1 dBi
Input power for 3 kV/m	1.5 - 2.0 kW
-3dB Beamwidth at 1m	180 - 240 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	0.5 kW (SC); 0.35 kW (N)
Peak power rating	10 kW (SC); 5 kW (N)
Connector types	N or SC socket available
Dimensions	~280 x 190 x 1080 mm long
Weight	~3.6 kg

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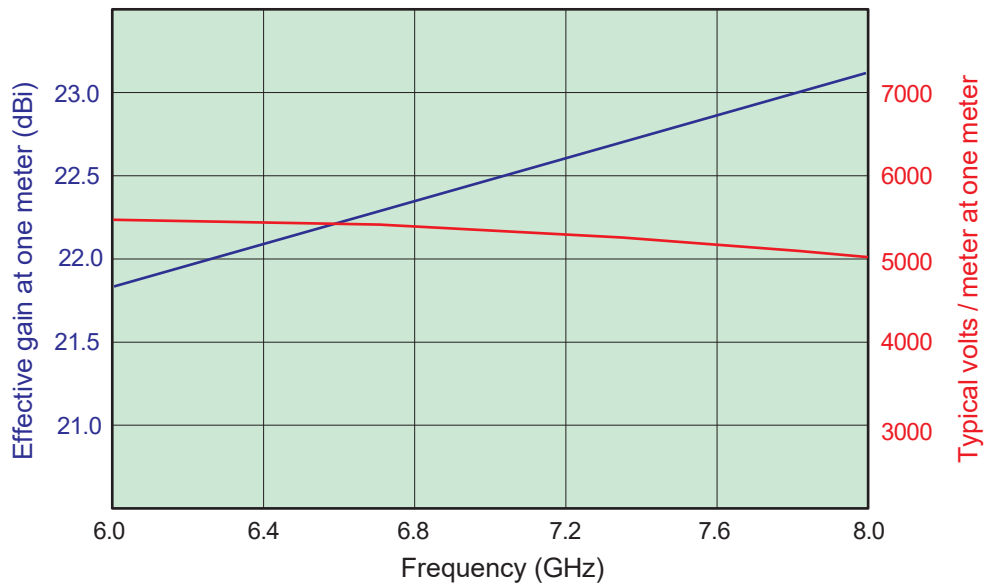


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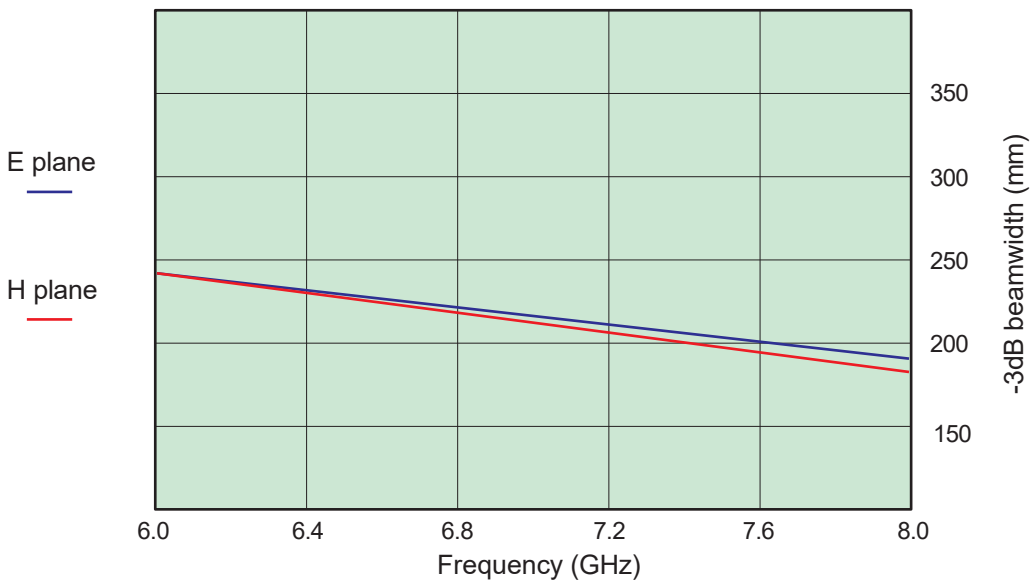
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Effective Gain and Field Strength



Note these values are obtained in free space conditions. A short low loss interconnecting cable is necessary to ensure the best performance.

Beamwidth



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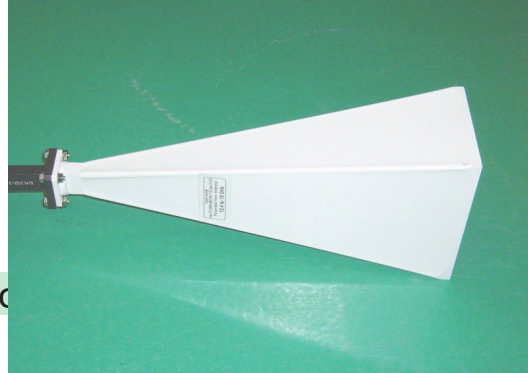


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8 - 12.4 GHz WG16 Horn Optimised for Near Field Working Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. The 8 - 12.4 GHz model is based on a conventional very high gain pyramidal horn, designed to produce optimum field strength at one meter from the aperture.



Summary of

- It is optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 200 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	8 - 12.4 GHz
Effective gain at 1 meter	20.7 - 23.3 dBi
Input power for 3 kV/m	1.4 - 2.5 kW
-3dB Beamwidth at 1m	200 - 300 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	10 kW
Peak power rating	10 kW
Connector types	WG16 (WR90)
Dimensions	~170 x 110 x 530mm long
Weight	~1.1 kg

Data sheet

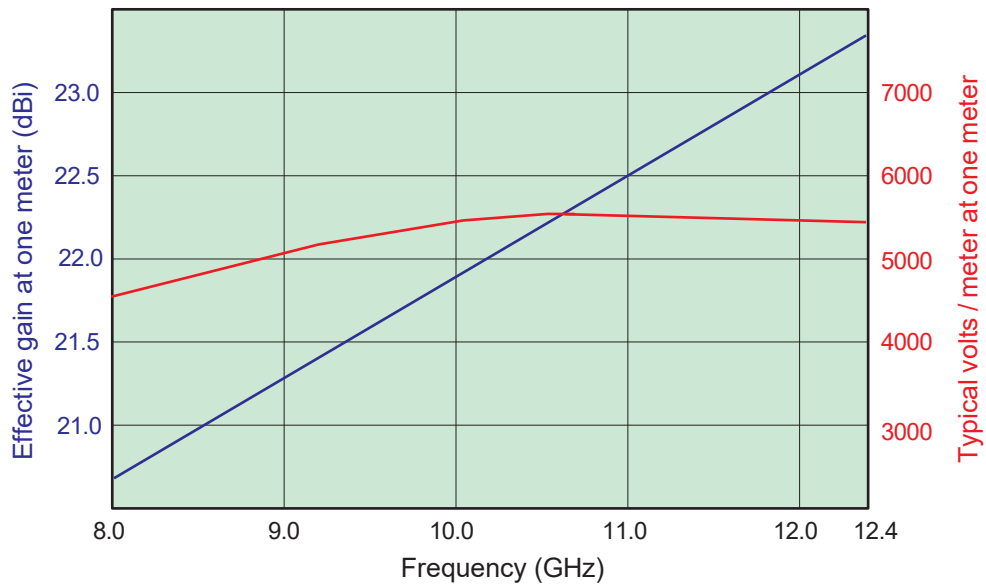
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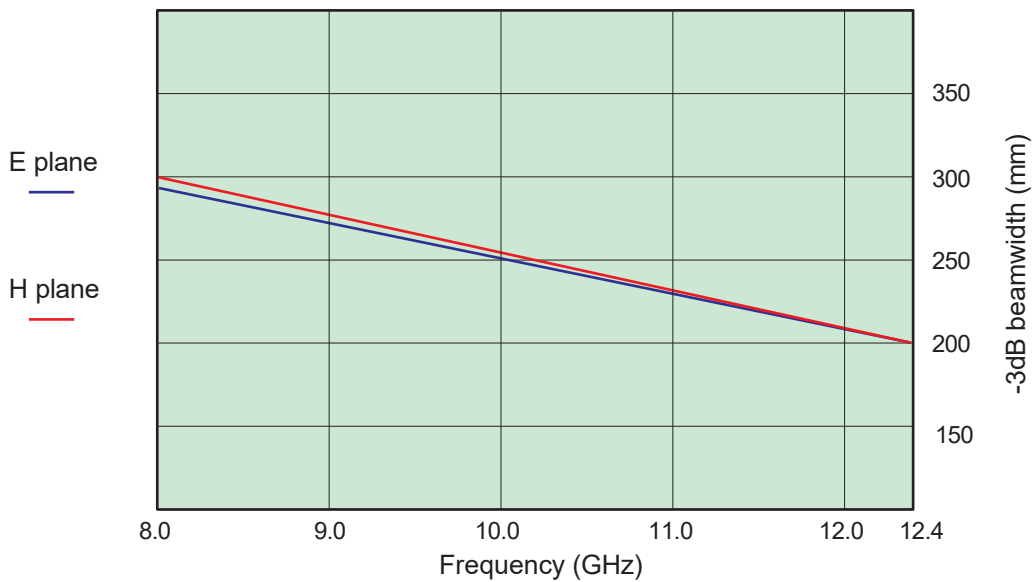
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Effective Gain and Field Strength



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Beamwidth



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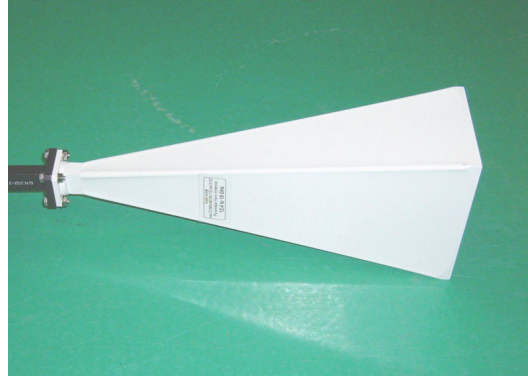
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12.4 - 18 GHz WG18 Horn

Optimised for Near Field Working

Designed to meet the latest HiRF Test Specifications

Q-par Angus Ltd. has developed a range of antennas that overcome the near-field limitations of traditional designs. The 12.4 - 18 GHz model is based on a conventional very high gain pyramidal horn, designed to produce optimum field strength at one meter from the aperture.



Summary of Features

- It is optimized for operation at one meter.
- High field intensity is achievable with modest powers.
- Exceeds latest category K.
- 3 dB spot size 180 mm or greater.
- High peak and mean power rating.
- Various mounting and polarisation rotation options.

Typical Specification

Frequency	12.4 - 18 GHz (minimum)
Effective gain at 1 meter	21.6 - 23.2 dBi
Input power for 3 kV/m	1.4 - 2.1 kW
-3dB Beamwidth at 1m	180 - 250 mm
VSWR	< 1.5 : 1 typical. 2 : 1 max.
Mean power rating	10 kW
Peak power rating	10 kW
Connector types	WG18 (WR62)
Dimensions	120 x 85 x 300 mm long
Weight	1.0 kg

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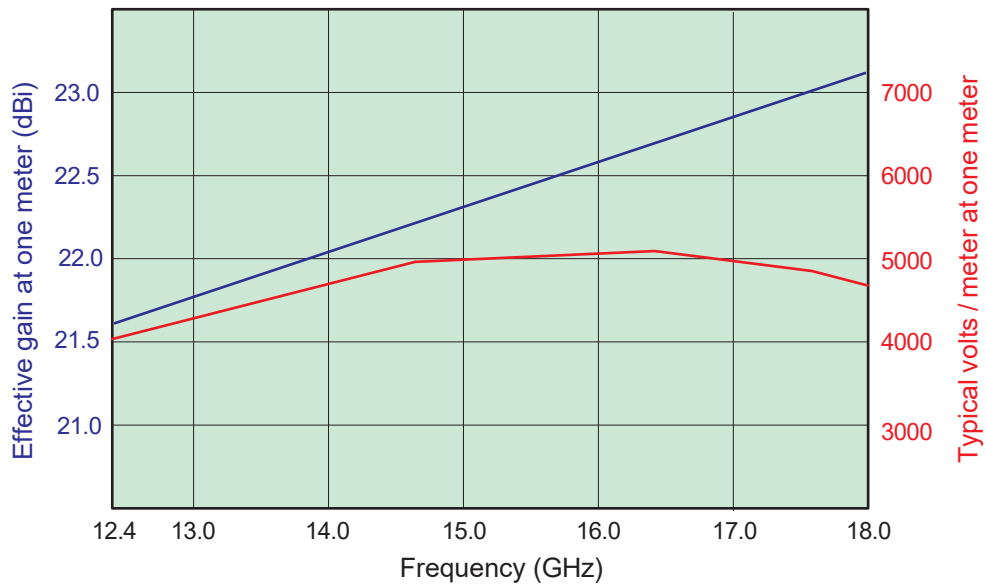


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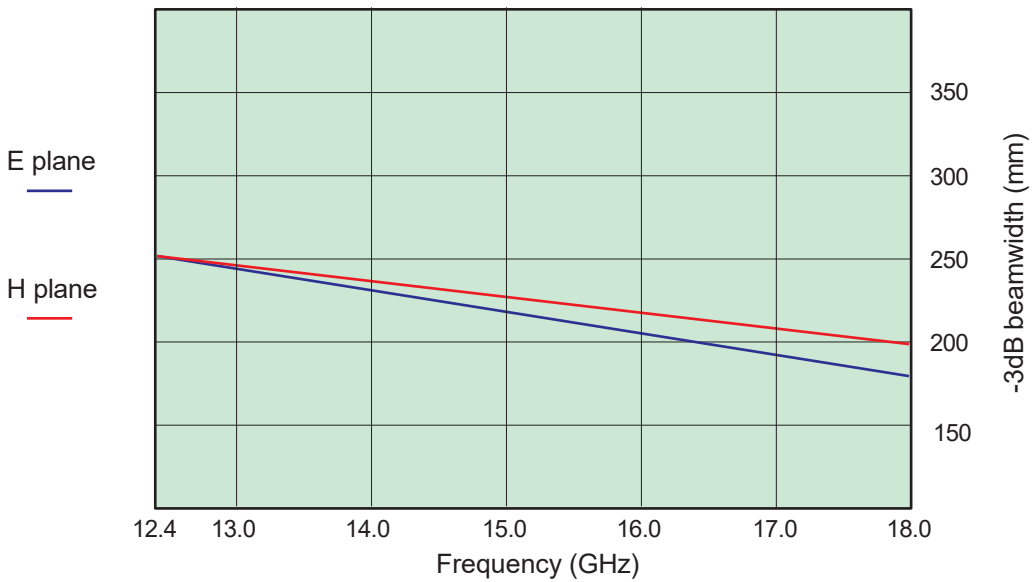
Data sheet

Effective Gain and Field Strength



Note these values are obtained in free space conditions.

Beamwidth



Designed and Manufactured in England to the Highest Standards