

# Plasma Antennas

## ReflectaBeam RS-4045



### Overview

The ReflectaBeam RS-4045 is high gain wideband multibeam antenna operating over the frequency range 9GHz to 26.5GHz. High-speed switching between 19 beams positions provides coverage across  $\pm 45^\circ$  in azimuth. Low sidelobes on all directional beams provide excellent levels of interference rejection.

### Dual Polar Operation

The ReflectaBeam RS-4540 Series has a dual polar option which allows vertically and horizontally polarized beams to be simultaneously and independently selected. The dual V and H, RF channels can be combined to permit circular, diagonal and elliptical polarization single beam operation.

### Passive and Active Options

Available in passive and active receive product versions, the ReflectaBeam RS-4045 is a high-performance smart antenna that is ideally suited to multi-band sensing applications.

In passive form, the ReflectaBeam RS-4045 provides approximately 16dBi of gain and 1.5dB inter-beam crossovers. With integrated amplification the gain can typically be increased to over 20dBi and feed-cable losses minimised.

The internal architecture of the ReflectaBeam RS-4045 is able to accommodate active transmit and receive sections, with by-pass and/or stepped attenuation options.

Multiple simultaneous high gain beams are an additional customer option for the ReflectaBeam RS-4045 (e.g. staring fan beams with multiple radios or multiple RF I/O channels). In addition, controllable polarization (LHC, RHC and  $\pm 45^\circ$  diagonal) options are also available.

Incorporation of mast-head, customer-defined radios and sensing units is offered as a bespoke service, subject to contract.

### A New Generation of Smart Antennas

Plasma Antennas' ReflectaBeam range of selectable multi-beam antennas represents a new class of smart, electronically steerable antennas. Based on advanced beam-forming technologies, these antennas provide high gain and reduce interference, significantly improving the performance of wireless networks and sensing systems.

Plasma Antennas' selectable multi-beam antennas provide similar advantages to full phased array antennas but at a fraction of the cost, together with significantly lighter and more compact form factors.

### Key Features

- **High directional gain** provides increased link budget, significantly enhancing range and data capacity.
- **Low sidelobes** suppress interference and improve signal-to-noise-and-interference ratios.
- **Multiple simultaneous beams** dramatically enhance coverage and reduce response time.
- **Independent V and H beams** double the instantaneous bandwidth and improve network capacity.
- **Circular and diagonal** polarizations increase utilization.
- **Multi-band wideband operation** allows simultaneous microwave communications and radar sensing
- **Application specific switch technology** that is client-selectable for power, speed or minimum loss

## General Specification

Parameter	RS-4045
Operational Band	9GHz to 19GHz
Polarization	Dual (Vertical & Horizontal)
Field of View (in Az)	$\pm 45^\circ$
Number of Directional Beams	19 & 18
Peak Directional Gain (9GHz)	14dBi
Peak Directional Gain (14GHz)	18dBi
Peak Directional Gain (18GHz)	19dBi
Sidelobe attenuation (azimuth)	> 16dB
Sidelobe attenuation (elevation)	> 12dB
Backlobe attenuation	> 20dB
Cross-polar discrimination	> 12dB
Interface return loss (s1 l)	12dB minimum

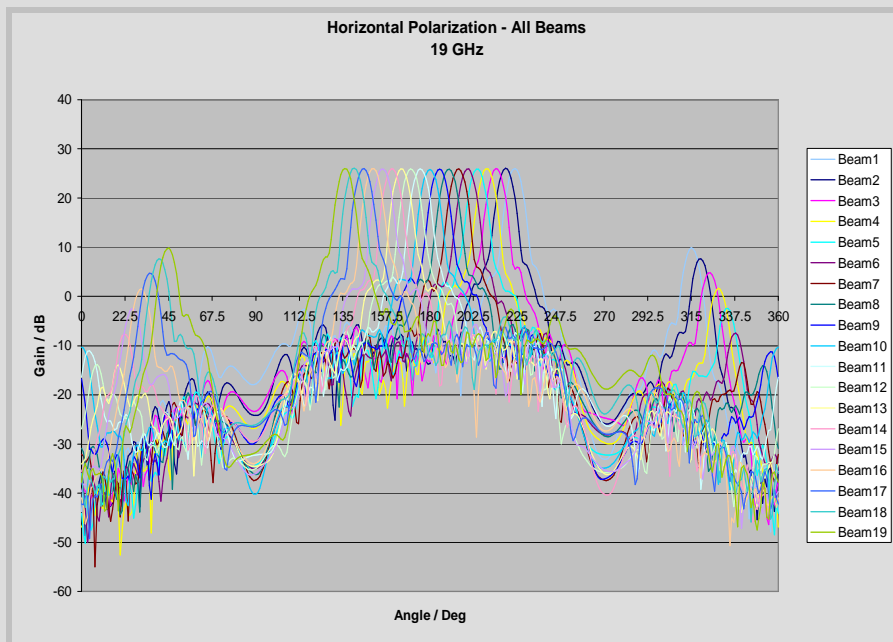
## Interface Specification

RF Antenna Interface	2 x SMA
Control Interface	Parallel TTL

## Mechanical Specification

Dimensions (H x W x D)	450mm x 400mm x 210mm
Weight	< 20 kg
Radome material	FR4 or GRP
Enclosure material	Aluminium

## Simulated Beam Patterns



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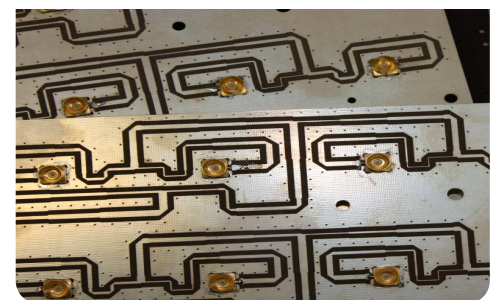


## About Plasma Antennas

Plasma Antennas Limited is the leading provider of integrated selectable multi-beam antennas targeted at wide range of wireless communications and sensing applications.

Based on advanced and patented beamforming technologies, Plasma Antennas' selectable multi-beam antennas extend range, reduce interference and increase throughput, greatly enhancing spectral efficiency.

Our products provide similar benefits to electronically steered phased arrays - but at a fraction of the cost, together with much wider band operation.



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