

# Plasma Antennas

## ReflectaBeam RP-4210



### Overview

The ReflectaBeam RP-4210 is a robust, high gain and wideband selectable multi-beam antenna operating in the 3GHz to 9GHz band.

High-speed switching between 15 beam positions provides coverage across  $\pm 50^\circ$  in azimuth. Low sidelobes on all directional beams provide excellent levels of interference rejection.

### Dual Polar Operation

The ReflectaBeam RP-4210 provides 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 RP-4210 is a high-performance smart antenna that is ideally suited to multi-band sensing applications.

The passive ReflectaBeam RP-4210 provides approximately 16dBi of gain and 1.5dB inter-beam cross-overs. With integrated amplification the gain is increased to approximately 20dBi and cable losses minimised.

The internal architecture of the ReflectaBeam RP-4210 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 RP-4210 (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	RP-4210
Operational Band	3GHz to 9GHz
Polarization	Dual (Vertical & Horizontal)
Field of View (in Az)	$\pm 45^\circ$ or $\pm 60^\circ$
Number of Directional Beams	15
Receive mode	Selectable beam
Transmit mode	Selectable beam (Only available when amplifiers by-passed)
Peak Directional AntennGain	16dBi (passive)
Antenna Gain at Beam Cross-overs	14.5dBi
Sidelobe attenuation (centre beam)	> 20dB
Backlobe attenuation	> 20dB
Cross-polar discrimination	> 15dB

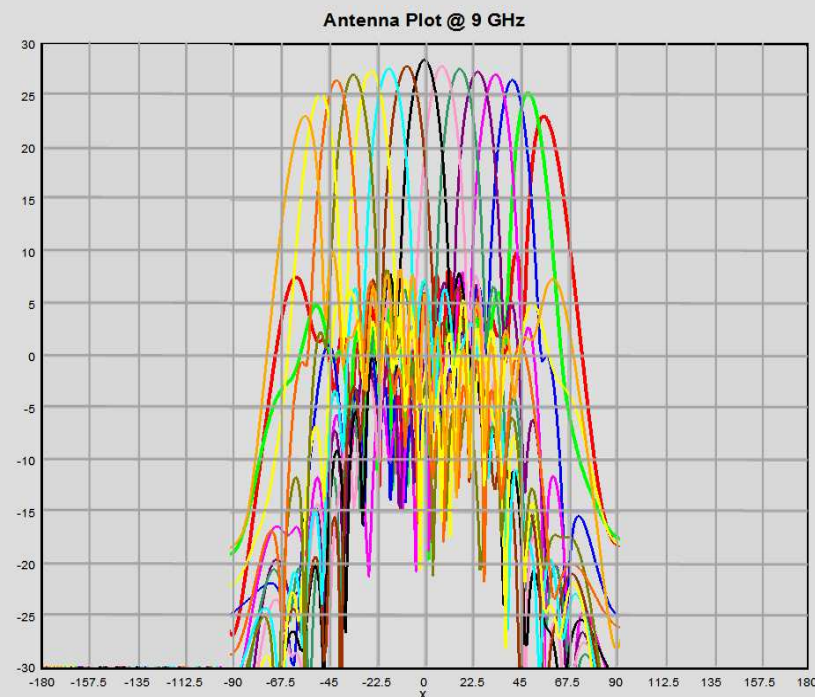
## Interface Specification

RF Antenna Interface	2 x SMA
Control Interface	Parallel TTL

## Mechanical Specification

Dimensions (H x W x D)	520mm x 420mm x 150mm
Weight	< 20 kg
Radome material	Fibre reinforced PTFE
Enclosure material	GRP
Ingress Protection	IP65

## Simulated Beam Patterns



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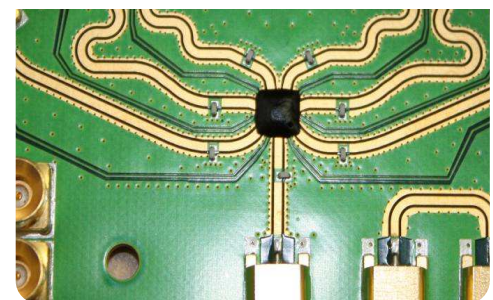


## About Plasma Antennas

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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