

# Plasma Antennas

## SelectaBeam SP-2510



### Overview

The SelectaBeam SP-2510 is a high-performance selectable multi-beam antenna operating over the frequency range 5.3-5.8GHz and providing vertical polarization.

Based on Plasma Antennas' advanced beam-forming technologies, the SelectaBeam SP-2510 offers very fast switching between 9 high-gain directional beams, combined with a sectoral floodlight beam pattern providing full coverage across a 90° sector.

### Interference Rejection

The license-exempt frequencies between 5-5.9GHz represent an attractive band of spectrum for a range of fixed and nomadic wireless communications applications. The major challenge facing equipment providers and network operators seeking to exploit this spectrum is the increasing amount of interference present in these bands.

Developed with this challenge in mind, the SelectaBeam SP-2510 supports very high-speed beam switching, enabling a high-gain directional beam to be multiplexed between target network nodes on a sub-frame basis. With low sidelobes, these directional beams ensure optimal signal-to-interference ratios are maintained for each communication link in a point to multi-point network.

In addition, with selectable nulling the SelectaBeam SP-2510 allows selection of derivative beam patterns that contain deep nulls at various positions adjacent to the main beam. These deep nulls enable suppression of particularly powerful or close-in sources of interference.

### Applications

Example applications include:

- Fixed WiMAX (802.16d) and proprietary wireless basestations
- High-performance WiFi access points
- Mesh networks (gateways, relays and access points)
- Remote and rural broadband wireless
- Public safety communications
- Video surveillance networks
- Point-to-multipoint military communications

### A New Generation of Smart Antennas

Plasma Antennas' SelectaBeam range of selectable multi-beam antennas represent a new class of smart, electronically steerable antennas. Based on advanced beam-forming technologies, these antennas provide high gain and reduce interference, resulting in increased range and data capacity for wireless networks.

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

- **Excellent directional gain** provides increased link budget, significantly enhancing network coverage and capacity.
- **Low sidelobes** suppress interference and improve signal-to-interference ratios – key issues for wireless communication systems operating in the unlicensed bands.
- **Selectable Nulling** allows deep nulls to be created close to the main beam patterns, minimizing the impact of strong or close-in sources of interference.
- **Fast beam switching** enables high-speed time-division multiplexing of spatial channels on a sub-frame basis.
- **Passive antenna design** interfaces directly to a wide range of WiMAX and WiFi radios.
- **Maintenance free** - requires no calibration or on-going maintenance, minimizing total cost of ownership.

## General Specification

Parameter	SP-2510
Operational Band	5.3 to 5.8GHz
Polarizations	Vertical
Field of View (in Az)	90°
Number of Directional Beams	9
Peak Directional Gain	16.5dBi
Gain at Beam Cross-overs	15.5dBi
Az Beamwidth	< 17°
El Beamwidth	> 10°
Sidelobe attenuation	> 20dB
Backlobe attenuation	> 25dB
Azimuth Step	< 15°
Sectoral Floodlight Mode	Yes
Sectoral Floodlight Gain	> 6dBi
Selectable Nulling	Yes
Maximum Power	30dBm
Cross-polar discrimination	-20dB
Beam-to-Beam Switching Time	< 400ns

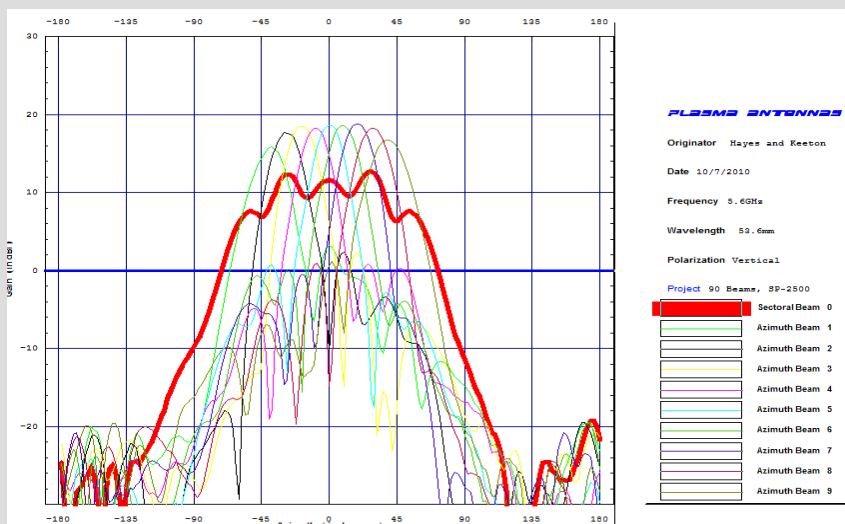
## Interface Specification

RF Antenna Interface	N-Type (Female)
Control Interface	Serial Peripheral Interface (SPI)
Power Supply	3.3v (+/- 0.1v), <500mA

## Mechanical and Environmental Specification

Dimensions (H x W x D)	< 340 x 250 x 30 mm
Weight	< 1.5 kg
Operating Temperature Range	-30°C to +55°C
Storage Temperature Range	-40°C to +70°C
Ingress Protection	IP66

## Beam Patterns



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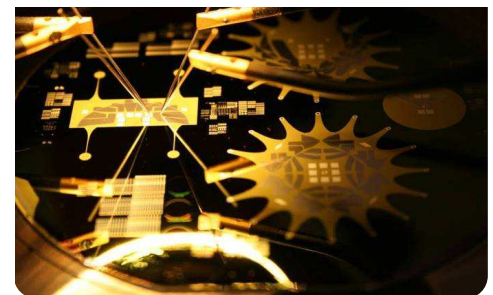


## About Plasma Antennas

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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