Plasma Antennas

SelectaBeam SC-1020

Overview

The SelectaBeam SC-1020 is a high-performance dual-polar selectable multi-beam antenna operating in the license exempt 5.4-5.9GHz band.

Based on Plasma Antennas' advanced beam-forming technologies, the SC-1020 offers ultra-fast switching between 20 high-gain directional beams across 360° in azimuth. An omni-directional mode is also available to support broadcast operations, typically required for node discovery and registration scenarios.

The SC-1020 provides 15dBi of peak directional antenna gain and in excess of 12dBi of gain at inter-beam crossovers. This high-performance antenna is delivered in compact, lightweight form factor.

Fully Electronic Alignment

The SelectaBeam SC-1020 enables wireless network equipment to align the antennas' high-gain directional beam fully electronically. This dramatically simplifies system installation – particularly in remote locations and hostile environments – and allows the network to re-organise when traffic patterns alter and operating conditions change.

Applications

The SelectaBeam SC-1020 is ideally suited to applications in which flexible beam alignment across a 360° field of view is required.

Example applications include:

- Remote and nomadic subscriber stations
- Relay nodes and base stations within ad-hoc mesh networks
- Point-to-multipoint military communications
- Public safety communications (e.g. at major incident centres)
- Video surveillance and CCTV networks

A New Generation of Smart Antennas

Plasma Antennas has developed a range of next-generation smart multi-beam antennas for applications that include small cell backhaul, broadband wireless access and mesh network applications.

Based on state-of-the-art and patented technologies, Plasma Antennas' smart multi-beam antennas increase throughput, extend range and reduce interference, resulting in greatly enhanced spectral efficiency.

Key Features

- **Electronic beam steering** simplifies installation and network management by enabling automatic alignment and re-alignment of wireless links.
- **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 license exempt bands.
- **Ultra-fast beam switching** enables high-speed time-division multiplexing of spatial channels on a sub-frame basis.
- **Maintenance free** - requires no calibration or on-going maintenance, minimizing total cost of ownership.

General Specification

Parameter	SC-1020
Operational Band	5.475 to 5.850GHz
Polarization	Dual (V&H)
Field of View (in Az)	360°
Number of Directional Beams	20 (per polarization)
Peak Directional Antenna Gain	15dBi
Antenna Gain at Beam Cross-overs	>12dBi
Az Beamwidth	40° typical
El Beamwidth	>8° (11° typical)
Typical sidelobe attenuation	> 15dB (>20db typical)
Azimuth Step	18°
Omnidirectional Mode	Yes
Omnidirectional Antenna Gain	> 6dBi typical
Cross-Polar Discrimination	20dB
Beam-to-Beam Switching Time	< 500ns

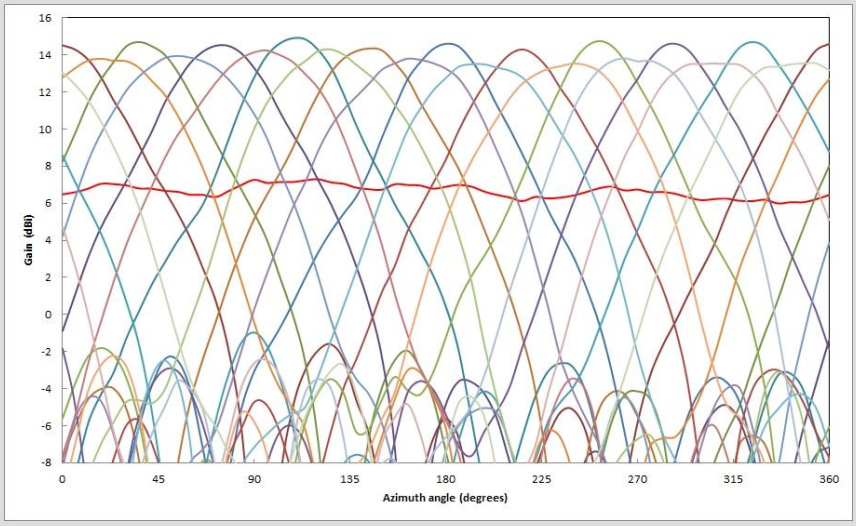
Interface Specification

RF Antenna Interface	2 x N-Type (Female)
Control & Power Connector	Lumberg P/N: 0315-1
Control Interface	RS-485
Power Supply	3.3Vdc, 200mA

Mechanical and Environmental Specification

Dimensions (Height x Diameter)	430 x 120mm
Radome Diameter	100mm
Weight	< 2 kg
Operating Temperature Range	-40°C to +55°C
Ingress Protection	IP67

Typical Beam Patterns



About Plasma Antennas

Headquartered and manufacturing in the UK, Plasma Antennas has developed a range of next-generation smart multi-beam antennas for small cell backhaul, broadband wireless access and mesh network applications.

Plasma Antennas works with wireless communications OEMs enabling them to deliver strongly differentiated solutions to customers in the mobile, industrial and defence sectors.

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