# Pro Range

**SIL PICO**
**SIL MICRO**
**SIL LITE**
**SIL MAX**
**SIL BASE**

## 5.1GHz – 5.8GHz
## Wireless Links

### OVERVIEW

The PRO Range is a class leading outdoor wireless transmission system that is designed to be easy to install and is extremely compact and rugged. Optimised for the highest capacity and long range. The PRO Range also supports Advanced Encryption Standard (**AES**) approved for use to protect Government Classified Information.

The PRO range is ideal for connecting networks in distant buildings and is perfect for use with CCTV and VoIP transmission due to ultra low latency.

### Features

- **Point-to-Point** up to 1, 2, 6 or 40km with Integrated Antenna
- Up to **100 Mbps**, upgradable up to **500 Mbps** duplex data Throughput
- Up to **1000 Mbps** on the SIL MAX 1000
- **Point-to-MultiPoint**
- External Omni or Sector Antenna
- Built in 360° or 90° Sector
- Rugged case design for outdoor applications
- SNMP
- AES Encryption up to 256bit
- MIMO with Spatial Multiplexing
- DFS (Dynamic Frequency Selection)
- TPC (Transmit Power Control)
- PoE 802.3af
- WEB Management
- Surge protected radio and PSU
- Rugged mounting brackets
- SilverView Network Management Software
- 2 Year warranty

CE 0

Distributed By:

# Technical Specifications

| PRO Range | SIL PICO PCP (up to 1km paired Link) | SIL MICRO PCP (up to 2km paired Link) | SIL LITE PCP (up to 6km paired Link) | SIL MAX PCP (up to 40km paired Link) SIL MAX 1000-PCP (up to 20km paired Link) |
|---|---|---|---|---|
| **Radio Specification** | | | | |
| **Transmission rate** | 11ac: Up to 1.3Gbps, 11n: Up to 300Mbps, 11a Backwards Compatible | | | |
| **MIMO** | 2x2 or 3x3 (MAX 1000) Spatial Multiplexed Streams | | | |
| **Throughput** | Up to 100Mbps as standard, upgradable up to 500Mbps via software key. SIL MAX 1000-PCP up to 1000Mbps | | | |
| **Modulation** | HT-OFDM with BPSK,QPSK, 16QAM, 64QAM, 256QAM | | | |
| **Standards** | IEEE802.11ac, IEEE802.11n, IEEE802.11a | | | |
| **Channel Size** | 5MHz, 10MHz, 20MHz, 20/40/80/160MHz | | | |
| **Channel (Country Dependent)** | USA (FCC): 5.15GHz - 5.825GHz Europe (ETSI): 5.47GHz - 5.850GHz UK and EU Band B: 5.47GHz - 5.725GHz UK and EU Band C: 5.725GHz – 5.850GHz | | | |
| **Operating frequency** | 5.1GHz - 5.8GHz | | | |
| **RF output power** | Up to 30dBm from ports | | | |
| **Sensitivity** | -82dBm@54Mbps, -74dBm@300Mbps, -68dBm@1.3Gbps | | | |
| **Operating Mode** | AP, Station and Bridge | | | |
| **Antenna** | 12dBi Integrated Dual polarised Antenna (H+V) | 15dBi Integrated Dual polarised Antenna (H+V) | 18dBi Integrated Dual polarised Antenna (H+V) | 23dBi Integrated Dual polarised Antenna (H+V) 18dBi - Tri polarised Antenna (45° +45° +V) |
| **Horizontal/ Vertical BW** | 35° x 35° | 30° x 30° | 20° x 20° | 10° x 10° 60° x 8° for MAX-1000 |
| **Security - Network** | | | | |
| **802.1x, Radius, QoS, Vlan** | Supports 802.1x Client and Server and Supports Radius Client, 802.11i, Asymmetric Bandwidth Control, 802.1Q: Management, trunk, access and transparent mode | | | |
| **Electrical – Interface** | | | | |
| **LAN/WAN** | 10/100/1000BASE-T(RJ-45) LAN Port (with Auto MDI/MDIX) | | | |
| **Power** | 6 watts (typical), 16 watts (max) DC 24~48 (48~56) Volt or POE (included in kit 100-240vac) | | | |
| **Surge Protection** | 6KV | | | |
| **Management** | | | | |
| **Remote Connection** | Web, Telnet, ssh, SilverView Monitoring | | | |
| **SNMP** | SNMP V2 | | | |
| **Firmware** | Upgradeable via web | | | |
| **Physical** | | | | |
| **Dimensions** | Unpacked radio 11.9 x 12 x 4.5 (cm) each | Unpacked radio 17.9 x 12 x 4.5 (cm) each | Unpacked radio 21.5 x 21.5 x 7.7 (cm) each | Unpacked radio 37 x 37 x 9 (cm) each |
| **Weight** | Unpacked radio 0.3Kg Each | Unpacked radio 0.5Kg Each | Unpacked radio 1.6Kg Each | Unpacked radio 2.5Kg Each |
| **Dust and Waterproof** | IP66 Certified | | IP67 Certified | |
| **Mounting Bracket** | Steel Bracket | 3 Axis Magnesium alloy , wall or pole mount (included in kit) | | |
| **Environment** | | | | |
| **Operating Temperature** | -20~70℃ (Storage -40~90℃) | | | |
| **Humidity** | 0～95 % (non-condensing) | | | |
| **Other** | | | | |
| **Warranty** | 2 Year Parts and labour (extendable to 5 Years) | | | |
| **MTBF** | 60000 Hrs | | | |
| **Pack Contents** | 2x Radios, 2 x POE injector, 2 x Basic Mounting bracket sets | 2x Radios, 2 x POE injector, 2 x Mounting bracket sets | 2x Radios, 2 x POE injector, 2 x Mounting bracket sets | 2x Radios, 2 x POE injector, 2 x Mounting bracket sets |

# Technical Specifications

| PRO Range | SIL BASE-360 (Outdoor Radio with Built in 360° Omni Antenna) | SIL BASE-90 (Outdoor Radio Built in 90° Sector Antenna) | SIL BASE (Multipoint single radio) |
|---|---|---|---|
| **Radio Specification** | | | |
| **Transmission rate** | 11ac: Up to 867Mbps, 11n: Up to 300Mbps, 11a Backwards Compatible | | |
| **MIMO** | 2x2 Spatial Multiplexed Streams | | |
| **Throughput** | Up to 100Mbps as standard, upgradable up to 500Mbps via software key | | |
| **Modulation** | HT-OFDM with BPSK,QPSK, 16QAM, 64QAM, 256QAM | | |
| **Standards** | IEEE802.11ac, IEEE802.11n, IEEE802.11a | | |
| **Channel Size** | 5MHz, 10MHz, 20MHz, 20/40/80MHz | | |
| **Channel (Country Dependent)** | USA (FCC): 5.15GHz - 5.825GHz<br>Europe (ETSI): 5.47GHz - 5.850GHz<br>UK and EU Band B: 5.47GHz - 5.725GHz<br>UK and EU Band C: 5.725GHz – 5.850GHz | | |
| **Operating frequency** | 5.1GHz - 5.8GHz | | |
| **RF output power** | Up to 30dBm from ports | | |
| **Sensitivity** | -82dBm@54Mbps, -74dBm@300Mbps, -68dBm@1.3Gbps | | |
| **Operating Mode** | AP, Station and Bridge | | |
| **Antenna** | 4 x 360° x 45° Omni Antennas (Built in) | 13dBi Integrated Dual polarised 90° x 15°Sector Antenna (H+V) (Built in) | 2 x Ntype female Sockets (H+V) Optional – 120/90 Sector antenna or 12dBi Dual polarised Omni |
| **Security - Network** | | | |
| **802.1x, Radius, QoS, Vlan** | Supports 802.1x Client and Server and Supports Radius Client, 802.11i, Asymmetric Bandwidth Control, 802.1Q: Management, trunk, access and transparent mode | | |
| **Electrical – Interface** | | | |
| **LAN/WAN** | 10/100/1000BASE-T(RJ-45) LAN Port (with Auto MDI/MDIX) | | |
| **Power** | 6 watts (typical), 16 watts (max)<br>DC 24~48 (48~56) Volt or POE<br>(included in kit 100-240vac) | | |
| Surge Protection | 6KV | | |
| **Management** | | | |
| **Remote Connection** | Web, Telnet, ssh, SilverView Monitoring | | |
| **SNMP** | SNMP V2 | | |
| **Firmware** | Upgradeable via web | | |
| **Physical** | | | |
| **Dimensions and Weight** | Unpacked radio 18 x 18 x 25 (cm) 2Kg | Unpacked radio 45 x 17 x 6.5 (cm) 2.3Kg | Unpacked radio 22 x 22 x 7.5 (cm) 1.6Kg |
| **Dust and Waterproof** | IP66 Certified | IP67 Certified | |
| **Mounting Bracket** | Steel Bracket | 3 Axis Magnesium alloy , wall or pole mount (included in kit) | |
| **Environment** | | | |
| **Operating Temperature** | -20~70℃ (Storage -40~90℃) | | |
| **Humidity** | 0～95 % (non-condensing) | | |
| **Other** | | | |
| **Warranty** | 2 Year Parts and labour (extendable to 5 Years) | | |
| **MTBF** | 60000 Hrs | | |
| **Pack Contents** | 1x Radios, 1 x POE injector, 1 x Basic Mounting bracket set | 1x Radio, 1 x POE injector, 1 x Mounting bracket set | 1x Radio, 1 x POE injector, 1 x Mounting bracket set |

# SILVERNET
## WIRELESS-NETWORK-SOLUTIONS

# Antenna Examples

## Point to Point
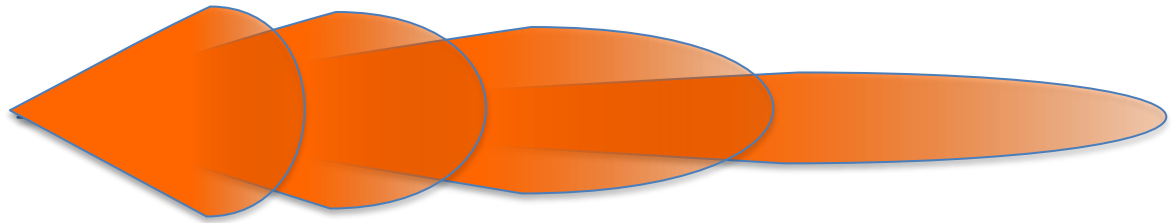
PICO 35°
≤ 1km

MICRO 30°
≤ 2km
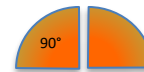
LITE 20°
≤ 6km

MAX 10°
≤ 40km

## Point to Multipoint

### Beam Patterns

90° Sector
≤ 5km

360° Omni
≤ 3km

120° Sector
≤ 5km

### Antenna System Options

90°

120°
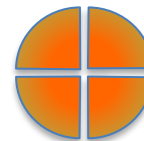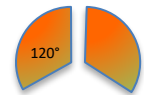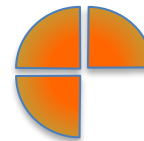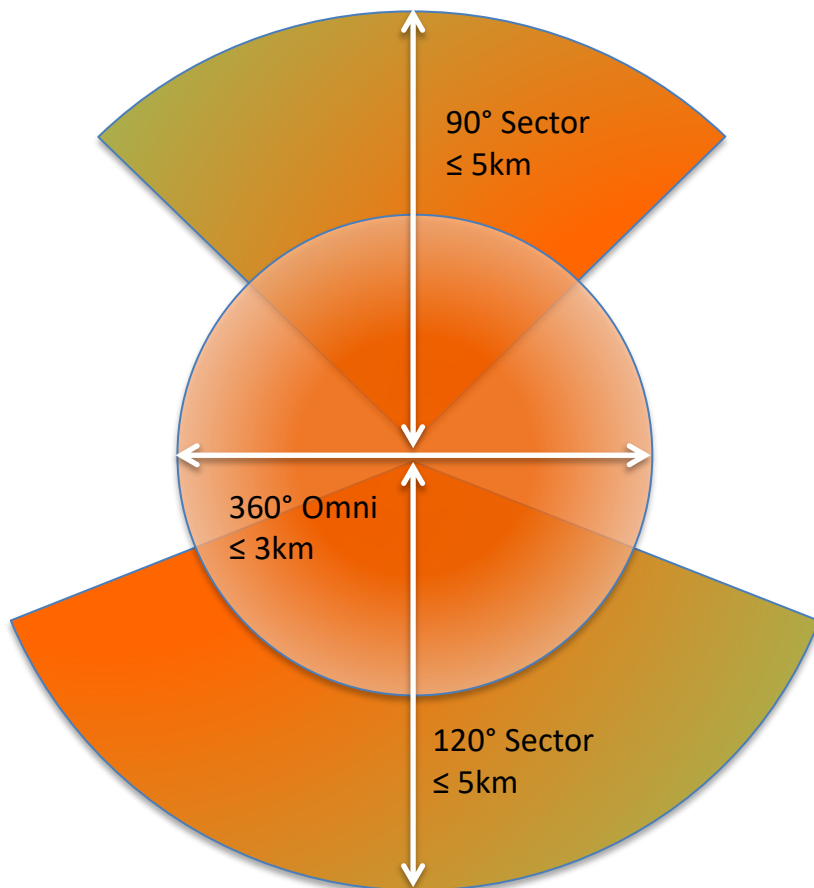
**NOTES:**
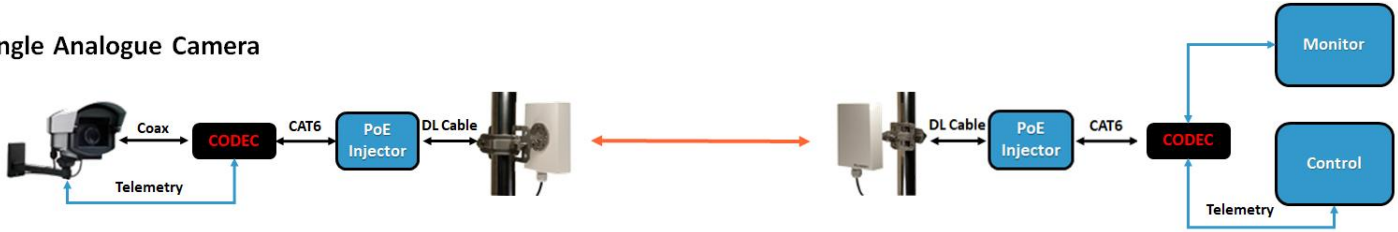The **SIL BASE** can be fitted with either;
- External 12dBi Omni Antenna (≤3km)
- External 16/20dBi 90°/120° Sector Antenna (≤5km)

The **SIL BASE 90** has a built in 90° Sector Antenna (≤5km)

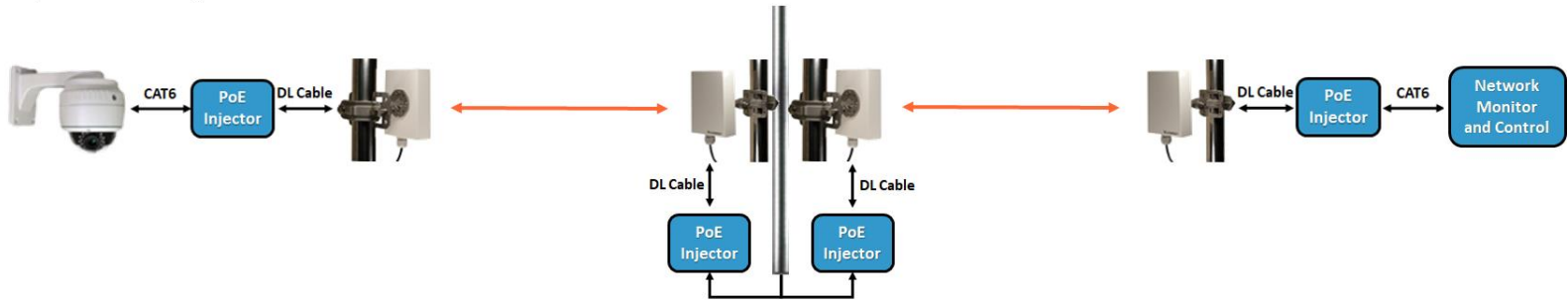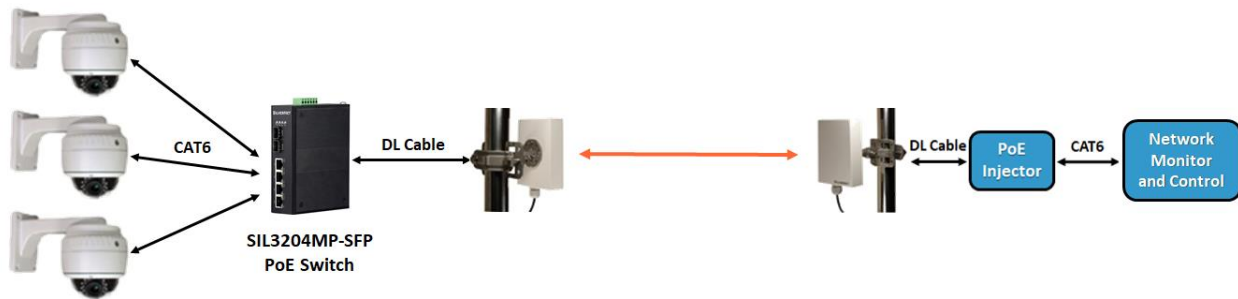The **SIL BASE 360** has built in 360° 5/7dBi Omni antennas (≤500m)

# SILVERNET
## WIRELESS-NETWORK-SOLUTIONS

## Point to Point

**Single Analogue Camera**



**Single IP Camera**



**Repeater for Single IP Camera**



**Multiple Camera Point to Point**



| Part Code | Description |
|---|---|
| SIL PICO PCP | 100Mbps up to 1km with built in dual polarised antenna. |
| SIL MICRO PCP | 100Mbps up to 2km with built in dual polarised antenna. |
| SIL LITE PCP | 100Mbps up to 6km with built in dual polarised antenna. |
| SIL MAX PCP | 100Mbps up to 40km with built in dual polarised antenna. |
| SIL 100-PCP-U240 | Single radio software upgrade from 100Mbps to 240Mbps. |
| SIL 240-PCP-U500 | Single radio software upgrade from 240Mbps to 500Mbps. |
| SIL 100-PCP-U500 | Single radio software upgrade from 100Mbps to 500Mbps. |
| SIL MAX 1000 PCP | 1000Mbps up to 20km with built in dual polarised antenna. |

# Point to Multi-Point

**Point to Multipoint with Base 500-90 and Relay with Backhaul**
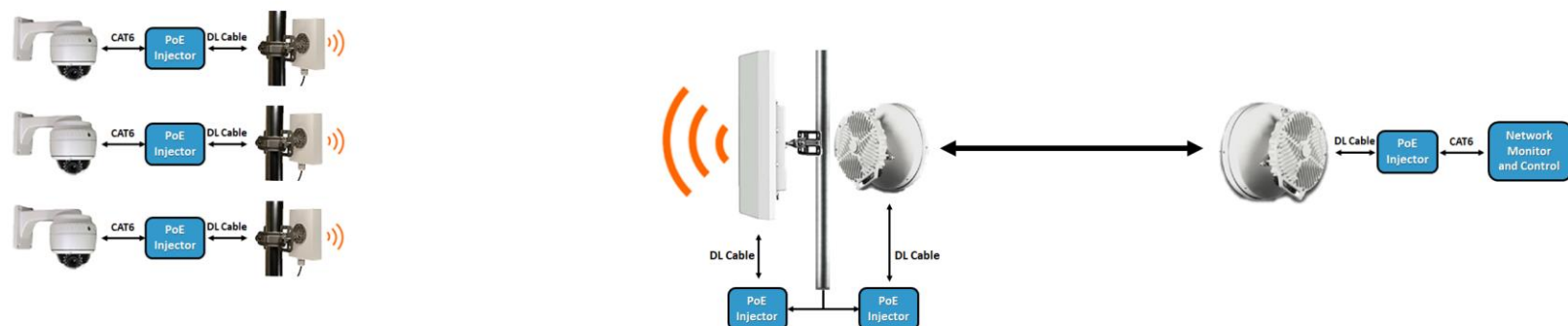


## Point to Multipoint with Omni Antenna



## Multipoint Base

| Part Code | Description |
|---|---|
| SIL BASE | Multipoint base, up to 100Mbps with 2 x Ntype connectors for external antenna. |
| SIL BASE 90 | Multipoint base, up to 100Mbps with built in dual polarised 90° sector antenna. |
| SIL BASE 360 | Multipoint base, up to 100Mbps with built in dual polarised 360° Omni antenna. |

## Multipoint Clients

| Part Code | Description |
|---|---|
| SIL PICO | 100Mbps up to 1km single radio with built in dual polarised antenna. |
| SIL MICRO | 100Mbps up to 2km single radio with built in dual polarised antenna. |
| SIL LITE | 100Mbps up to 6km single radio with built in dual polarised antenna. |
| SIL 100-PCP-U240 | Single radio software upgrade from 100Mbps to 240Mbps. |
| SIL 240-PCP-U500 | Single radio software upgrade from 240Mbps to 500Mbps. |
| SIL 100-PCP-U500 | Single radio software upgrade from 100Mbps to 500Mbps. |

# Long Range Point to Point

**Long Range Point to Point with Dish Antenna**



**Long Range Point to Point with Grid Dish Antenna**



| Part Code | Description |
|---|---|
| SIL BASE 500 DAN 5829 | Long range point to point link with 29dBi dish antenna. Includes 2 x radio, 2 x PoE injector PSU, 2 x tilt and swivel bracket, 2 x Ntype to Ntype cables. |
| SIL BASE 500 DAN 5832 | Long range point to point link with 32dBi dish antenna. Includes 2 x radio, 2 x PoE injector PSU, 2 x tilt and swivel bracket, 2 x Ntype to Ntype cables. |
| SIL BASE 500 DAN 5834 | Long range point to point link with 34dBi dish antenna. Includes 2 x radio, 2 x PoE injector PSU, 2 x tilt and swivel bracket, 2 x Ntype to Ntype cables. |
| SIL BASE 500 GAN 5824 | Long range point to point link with 24dBi grid antenna. Includes 2 x radio, 2 x PoE injector PSU, 2 x tilt and swivel bracket, 2 x Ntype to Ntype cables. |
| SIL BASE 500 GAN 5829 | Long range point to point link with 29dBi grid antenna. Includes 2 x radio, 2 x PoE injector PSU, 2 x tilt and swivel bracket, 2 x Ntype to Ntype cables. |

# SilverNet
WIRELESS-NETWORK-SOLUTIONS

## Pro Range Antennas

| | Dish Antenna | | | Grid Antenna | | Omni Antenna | |
|---|---|---|---|---|---|---|---|
| | DAN5829 | DAN5832 | DAN5834 | GAN5824 | GAN5829 | OAN2412 | OAN5812 |
| Frequency | 4.9-6.0GHz | 4.9-6.0GHz | 4.9-6.0GHz | 4.9-6.0GHz | 4.9-6.0GHz | 2.3-2.7GHz | 4.9-6.0GHz |
| Gain | 29dBi | 32dBi | 34dBi | 24dBi | 29dBi | 12dBi | 12dBi |
| Horizontal Beamwidth | 6° | 4° | 3° | 9° | 6° | 360° | 360° |
| Vertical Beamwidth | 6° | 4° | 3° | 9° | 6° | 7° | 7° |
| Max VSWR | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 |
| F/B Ratio | >35dB | >35dB | >38dB | N/A | N/A | N/A | N/A |
| Wind Loading | 125 mph | 125 mph | 125 mph | 150 mph | 150 mph | 150 mph | 150 mph |
| Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation |
| Connectors | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female |
| Dimensions (mm) | ø600 | ø950 | ø1250 | ø400 | ø600 | 1200*110*73 | 590*110*73 |
| Weight (kg) | 6.15 | 7 | 11.5 | 4.2 | 5.4 | 3.6 | 1.8 |
| Certification | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS |

# Pro Range Antennas

|  | 5GHz | | | 2.4GHz | | |
|---|---|---|---|---|---|---|
|  | SAN5819-120 | SAN5820-90 | SAN5818-90 | SAN2415-120 | SAN2417-90 | SAN2416-90 |
| Frequency | 4.9-6.0GHz | 4.9-6.0GHz | 4.9-6.0GHz | 2.3-2.7GHz | 2.3-2.7GHz | 2.3-2.7GHz |
| Gain | 19dBi | 20dBi | 18dBi | 15dBi | 17dBi | 16dBi |
| Horizontal Beamwidth | 120°(6dB) | 90°(6dB) | 90°(6dB) | 120°(6dB) | 90°(6dB) | 90°(6dB) |
| Vertical Beamwidth | 4° | 4° | 8° | 8° | 8° | 15° |
| Max VSWR | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 |
| F/B Ratio | >25dB | >25dB | >25dB | >25dB | >25dB | >25dB |
| Wind Loading | 150 mph | 150 mph | 150 mph | 150 mph | 150 mph | 150 mph |
| Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation | Dual Polarisation |
| Connectors | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female | 2*N-type Female |
| Dimensions (mm) | 700*133*57 | 700*133*57 | 450*165*35 | 700*133*57 | 700*133*57 | 450*165*35 |
| Weight (kg) | 2.1 | 2.1 | 2.0 | 2.1 | 2.1 | 2.0 |
| Certification | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS | CE, RoHS |