
Technical Note

# WipLL 900 MHz

Wireless IP-Based Local Loop System

# External Antenna Specifications

Connecting the World with Wireless Access Solutions

| Revision Record: External Antenna Specifications | | |
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# Contents

# 1. Introduction

The WipLL BSR and IDR devices operating in the 900 MHz band, provide N-type receptacles for connecting external antennas. The BSR provides two N-type receptacles (for antenna diversity), and the IDR provides one TNC-type receptacle.

This document lists the specifications of these external antennas intended for the BSR and IDR devices.

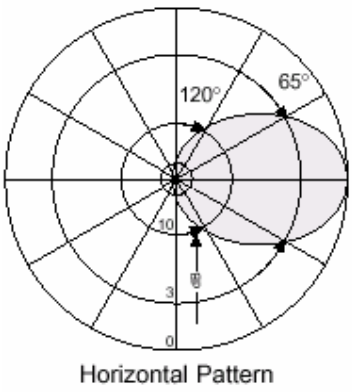
# 2. BSR External Antennas

Airspan provides the following external antennas for BSR devices operating in the 900 MHz band:

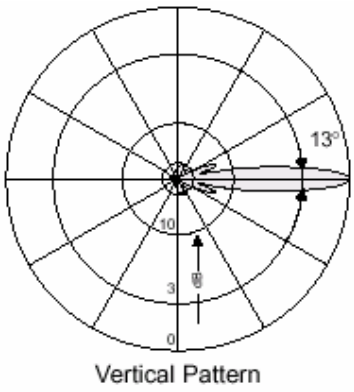
- Sector antenna
- Dual Polarization Sector antenna
- Omnidirectional antenna

## 2.1. Sector Antenna

This antenna is designed for best non-line of sight performance with Airspan's BSR operating in the 900 MHz band. Advanced features include: high gain and mechanical downtilt.



Horizontal Pattern

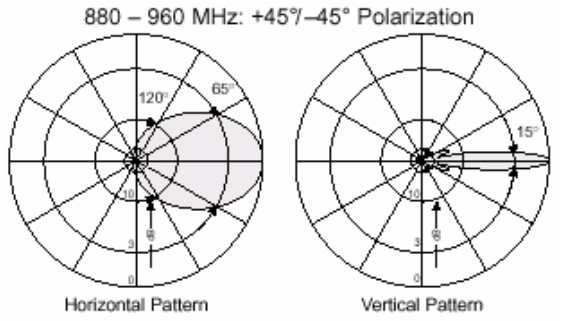


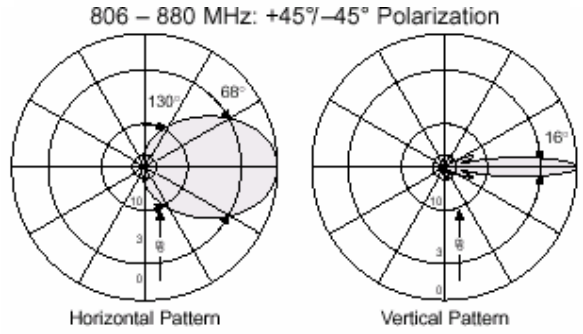
Vertical Pattern

| Electrical specifications | |
|---|---|
| **Frequency range** | 870 –960 MHz |
| **Polarization** | Vertical |
| **Gain** | 15.5 dBi |
| **Half-power beam width** | • H-plane:65°<br>• E-plane:13° |
| **Front-to-back ratio** | >25 dB |
| **Impedance** | 50 . |
| **VSWR** | <1.3 |
| **Intermodulation IM3 (2 x 43 dBm carrier)** | <–150 dBc |
| **Max.power** | 500 W (at 50 °C ambient temperature) |
| **Mechanical specifications** | |
| **Input** | 7-16 female |
| **Connector position** | Bottom |
| **Weight** | 6 kg |
| **Wind load** | • Frontal: 220 N (at 150 km/h)<br>• Lateral: 140 N (at 150 km/h)<br>• Rearside: 490 N (at 150 km/h) |
| **Max.wind velocity** | 200 km/h |
| **Packing size** | 1422 x 272 x 160 mm |
| **Height/width/depth** | 1294 /258 /103 mm |

## 2.2. Sector Antenna Dual Polarization

This antenna is designed for best non-line of sight performance with Airspan's BSR operating in the 900 MHz band. Advanced features include: high gain and mechanical downtilt.



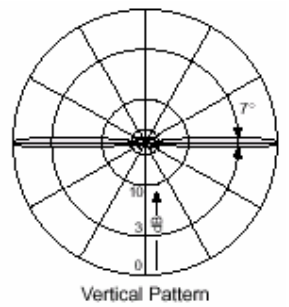



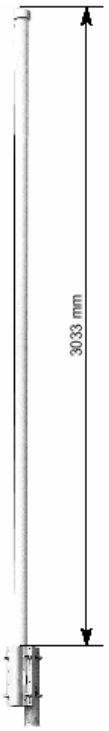

| Electrical specifications | | |
|---|---|---|
| **Frequency range** | **806 –880 MHz** | **880 –960 MHz** |
| **Polarization** | +45°, –45° | +45°, –45° |
| **Gain** | 2 x 15 dBi | 2 x 15.5 dBi |
| **Half-power beam width Copolar** +45°/ –45° | • Horizontal: 68°<br>• Vertical: 16° | • Horizontal: 65°<br>• Vertical: 15° |
| **Front-to-back ratio, copolar** | >30 dB | |
| **Isolation** | >30 dB | |
| **Impedance** | 50Ω | |
| **VSWR** | <1.4 | |
| **Intermodulation IM3 (2 x 43 dBm carrier)** | <–150 dBc | |
| **Max. power per input** | 600 W (at 50 °C ambient temperature) | |
| **Mechanical specifications** | | |
| **Input** | 2 x 7-16 female | |
| **Connector position*** | Bottom or top | |
| **Weight** | 10 kg | |
| **Wind load** | • Frontal:230 N (at 150 km/h)<br>• Lateral:130 N (at 150 km/h)<br>• Rearside:500 N (at 150 km/h) | |
| **Max. wind velocity** | 200 km/h | |
| **Packing size** | 1422 x 287 x 165 mm | |
| **Height/width/depth** | 1296 /262 /116 mm | |

* Inverted mounting: connector position top. Change drain hole screw

## 2.3. Omnidirectional Antenna

This antenna is designed for best non-line of sight performance with Airspan's BSR operating in the 900 MHz band.




| Electrical specifications | | |
|---|---|---|
| **Frequency range** | 870 – 960 MHz | |
| **Polarization** | Vertical | |
| **Gain** | 11 dBi | |
| **Impedance** | 50Ω | |
| **VSWR** | <1.5 | |
| **Intermodulation IM3 (2 x 43 dBm carrier)** | <–150 dBc | |
| **Max. power** | 500W (at 50 °C ambient temperature) | |
| **Mechanical specifications** | | |
| **Model Type** | **736 347** | **736 348** |
| **Input** | 7-16 female | 7-16 female |
| **Connector position** | Bottom | Top |
| **Weight** | 8 kg | |
| **Radome diameter** | 51 mm | |
| **Wind load** | 210 N (at 150 km/h) | |
| **Max.wind velocity** | 200 km/h | |
| **Packing size** | 3316 x 148 x 112 mm | |
| **Height/width/depth** | 3033 mm | 3022 mm |

# 3. IDR External Antennas

Airspan provides one of the following external antennas for the IDR device operating in the 900 MHz band:

- 10 dBi Panel antenna
- 65 dBi Panel antenna

## 3.1. 10 dBi Panel

| Electrical | | | | |
|---|---|---|---|---|
| **Frequency range** | 902 - 928 MHz | | | |
| **Gain** | 10 dBi (min) | | | |
| **VSWR** | 1.5:1 (max) | | | |
| **3 dB Beamwidth (related to vertical polarization)** | • Azimuth: 65 (typ)<br>• Elevation: 55 (typ) | | | |
| **Polarization** | Linear (Vertical or Horizontal) | | | |
| **Sidelobes level** | -18dB (max) @ +/-90 | | | |
| **Cross polarization** | -14dB (max) | | | |
| **F/B ratio** | -20dB (max) | | | |
| **Input impedance** | 50 (ohm) | | | |
| **Input power** | 6W (max) | | | |
| **Lightning protection** | Non | | | |
| **Mechanical** | | | | |
| Dimensions (LxWxD) | 305x305x25 mm (max) | | | |
| **Weight** | 1.5 kg (max) | | | |
| **Connector** | N-Type Female | | | |
| **Radome** | Plastic | | | |
| **Base plate** | Aluminum with chemical conversion coating | | | |
| **Mounting kit** | MT-120018 | | | |
| **Environmental** | | | | |
| **Test** | **Standard** | **Duration** | **Temperture** | **Notes** |
| **Low temperature** | IEC 68-2-1 | 72 h | -55°C | - |
| **High temperature** | IEC 68-2-2 | 72 h | +71°C | - |
| **Temp. cycling** | IEC 68-2-14 | 1 h | -45°C +70°C | 3 Cycles |
| **Vibration** | IEC 60721-3-4 | 30 min/axis | - | Random 4M3 |
| **Shock mechanical** | IEC 60721-3-4 | - | - | 4M3 |
| **Humidity** | ETSI EN300-2-4 T4.1E | 144 h | - | 95% |
| **Water tightness** | IEC 529 | - | - | IP67 |
| **Solar radiation** | ASTM G53 | 1000 h | - | - |
| **Flammability** | UL 94 | - | - | CLASS HB |
| **Salt spray** | IEC 68-2-11 Ka | 500 h | - | - |
| **Ice and snow** | - | - | - | 25mm radial |
| **Wind speed survival**<br>**Operation** | - | - | - | 220 Km/h<br>160 Km/h |
| **Wind load (survival):**<br>• **Front thrust**<br>• **Side thrust** | - | - | - | <br>• 26.8 kg<br>• 2.2 kg |

## 3.2. 6.5 dBi Panel

| Electrical | | | | |
|---|---|---|---|---|
| **Frequency range** | 902-928 MHz | | | |
| **Gain** | 6.5 dBi (min) | | | |
| **VSWR** | 1.5:1 (max) | | | |
| **3 dB Beamwidth**<br>• Azimuth<br>• Elevation | <br>• 80° (typ)<br>• 80° (typ) | | | |
| **polarization** | Linear (Vertical or Horizontal) | | | |
| **Cross polarization** | -14dB (max) | | | |
| **F/B ratio** | -11dB (max) | | | |
| **Input impedance** | 50 (ohm) | | | |
| **Input power** | 6W (max) | | | |
| **Lightning protection** | NON | | | |
| **Mechanical** | | | | |
| **Dimensions (LxWxD)** | 190x190x30 mm (max) | | | |
| **Weight** | 0.7kg (max) | | | |
| **Connector** | N-Type Female | | | |
| **Radome** | Plastic | | | |
| **Base plate** | Aluminum with chemical conversion coating | | | |
| **Outline drawing** | RD41245600C | | | |
| **Mounting kit** | MT-120018/A | | | |
| **Environmental** | | | | |
| **Test** | **Standard** | **Duration** | **Temperture** | **Notes** |
| **Low temperature** | IEC 68-2-1 | 72 h | -55°C | - |
| **High temperature** | IEC 68-2-2 | 72 h | +71°C | - |
| **Temp. cycling** | IEC 68-2-14 | 1 h | -45°C +70°C | 3 Cycles |
| **Vibration** | IEC 60721-3-4 | 30 min/axis | - | Random<br>4M3 |
| **Shock mechanical** | IEC 60721-3-4 | - | - | 4M3 |
| **Humidity** | ETSI EN300-2-4 T4.1E | 144 h | - | 95% |
| **Water tightness** | IEC 529 | - | - | IP67 |
| **Solar radiation** | ASTM G53 | 1000 h | - | - |
| **Flammability** | UL 94 | - | - | Class HB |
| **Salt spray** | IEC 68-2-11 Ka | 500 h | - | - |
| **Ice and snow** | - | - | - | 25mm radial |
| **Wind speed survival**<br>**Operation** | - | - | - | 220 Km/h<br>160 Km/h |
| **Wind load (survival):**<br>• **Front thrust**<br>• **Side thrust** | - | - | - | <br>• 10 kg<br>• 1.6 kg |