



Technical Note

## **WipLL 900 MHz**

Wireless IP-Based Local Loop System

# **External Antenna Specifications**

Connecting the World with Wireless Access Solutions

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## 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.

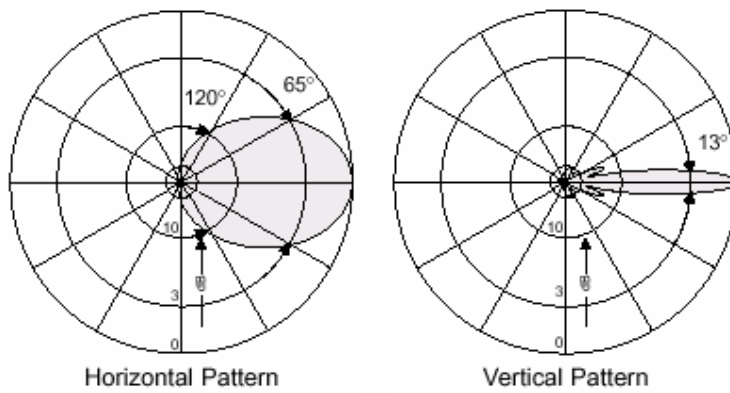
## 2. BSR External Antennas

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

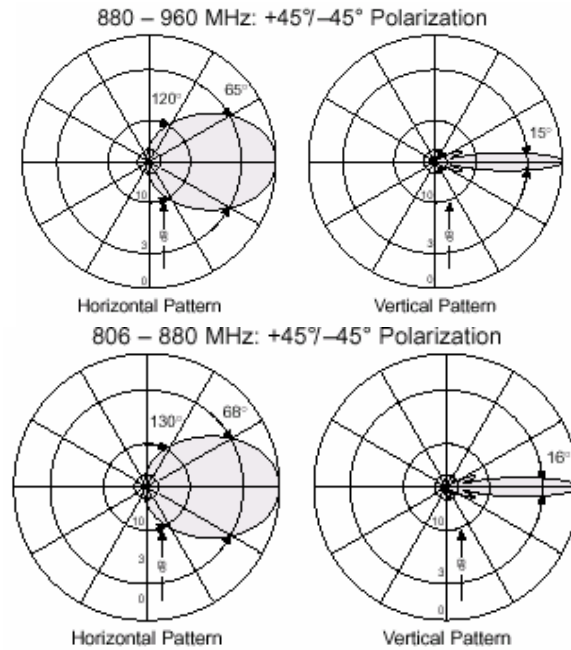
This antenna is designed for best non-line of sight performance with Airspan's BSR operating in the 900 MHz band. Advanced features include: high gain and mechanical downtilt.



<b>Electrical specifications</b>	
<b>Frequency range</b>	870 –960 MHz
<b>Polarization</b>	Vertical
<b>Gain</b>	15.5 dBi
<b>Half-power beam width</b>	<ul style="list-style-type: none"> <li>• H-plane:65°</li> <li>• E-plane:13°</li> </ul>
<b>Front-to-back ratio</b>	>25 dB
<b>Impedance</b>	50 .
<b>VSWR</b>	<1.3
<b>Intermodulation IM3 (2 x 43 dBm carrier)</b>	<-150 dBc
<b>Max.power</b>	500 W (at 50 °C ambient temperature)
<b>Mechanical specifications</b>	
<b>Input</b>	7-16 female
<b>Connector position</b>	Bottom
<b>Weight</b>	6 kg
<b>Wind load</b>	<ul style="list-style-type: none"> <li>• Frontal: 220 N (at 150 km/h)</li> <li>• Lateral: 140 N (at 150 km/h)</li> <li>• Rearside: 490 N (at 150 km/h)</li> </ul>
<b>Max.wind velocity</b>	200 km/h
<b>Packing size</b>	1422 x 272 x 160 mm
<b>Height/width/depth</b>	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.



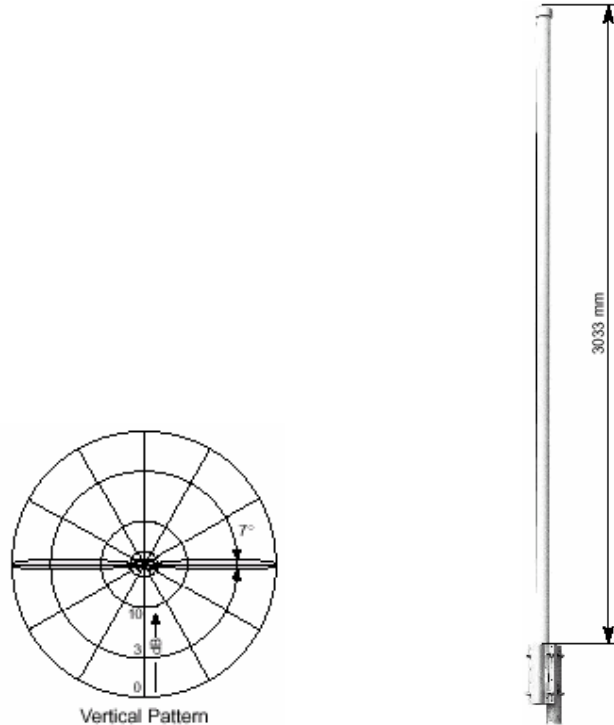
<b>Electrical specifications</b>		
<b>Frequency range</b>	<b>806 –880 MHz</b>	<b>880 –960 MHz</b>
<b>Polarization</b>	+45°, –45°	+45°, –45°
<b>Gain</b>	2 x 15 dBi	2 x 15.5 dBi
<b>Half-power beam width Copolars +45°/ –45°</b>	<ul style="list-style-type: none"> <li>• Horizontal: 68°</li> <li>• Vertical: 16°</li> </ul>	<ul style="list-style-type: none"> <li>• Horizontal: 65°</li> <li>• Vertical: 15°</li> </ul>
<b>Front-to-back ratio, copolar</b>	>30 dB	
<b>Isolation</b>	>30 dB	
<b>Impedance</b>	50Ω	
<b>VSWR</b>	<1.4	
<b>Intermodulation IM3 (2 x 43 dBm carrier)</b>	<-150 dBc	
<b>Max. power per input</b>	600 W (at 50 °C ambient temperature)	
<b>Mechanical specifications</b>		
<b>Input</b>	2 x 7-16 female	
<b>Connector position*</b>	Bottom or top	
<b>Weight</b>	10 kg	
<b>Wind load</b>	<ul style="list-style-type: none"> <li>• Frontal:230 N (at 150 km/h)</li> <li>• Lateral:130 N (at 150 km/h)</li> <li>• Rearside:500 N (at 150 km/h)</li> </ul>	
<b>Max. wind velocity</b>	200 km/h	
<b>Packing size</b>	1422 x 287 x 165 mm	
<b>Height/width/depth</b>	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
- 6.5 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)	<ul style="list-style-type: none"> <li>• Azimuth: 65 (typ)</li> <li>• Elevation: 55 (typ)</li> </ul>			
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	Temperature	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 Operation	-	-	-	220 Km/h 160 Km/h
Wind load (survival): • Front thrust • Side thrust	-	-	-	• 26.8 kg • 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	<ul style="list-style-type: none"> <li>• Azimuth</li> <li>• Elevation</li> </ul>			
	<ul style="list-style-type: none"> <li>• 80° (typ)</li> <li>• 80° (typ)</li> </ul>			
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 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 Operation	-	-	-	220 Km/h 160 Km/h
Wind load (survival):	-	-	-	<ul style="list-style-type: none"> <li>• 10 kg</li> <li>• 1.6 kg</li> </ul>