

Kathrein Broadcast USA

900 MHz Antenna Selection Guide



BROADCAST

Revision 4/2021



KATHREIN

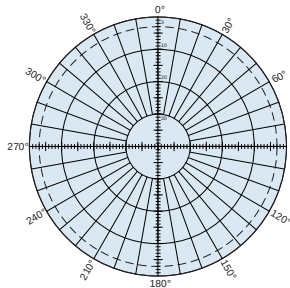
900 MHz Antenna Guide

Non-directional Antennas

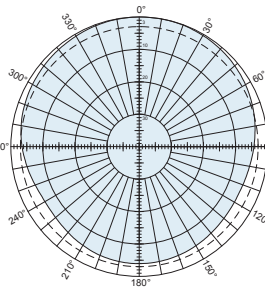
- ◆ Professional Grade
- ◆ Rugged construction
- ◆ Proven Designs



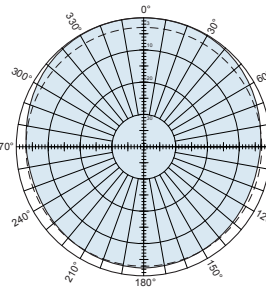
Model	OGB11-915/DT2	840 10250	SL11-915/DT2	SL11-940/DT2
Input Connector	50Ω 7-16 DIN Female	50Ω N Female	50Ω N Female	50Ω N Female
Max. power	250W	100W	300W	300W
Frequency range	790-960 MHz	902-928 MHz	902-928 MHz	928-953 MHz
VSWR	≤ 1.5:1	≤ 1.5	≤ 1.35	≤ 1.35
Gain:	10.5 dBi	10.15 dBi	13.55 dBi	13.55 dBi
Electrical downtilt:	2°	0°	2°	2°
Polarization	Vertical	Horizontal	Horizontal	Horizontal



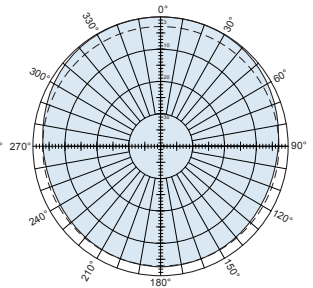
Azimuth Pattern



Azimuth Pattern



Azimuth Pattern



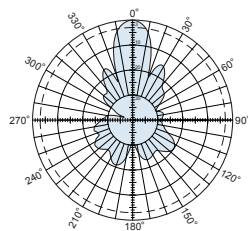
Azimuth Pattern

Half-parabolic antennas

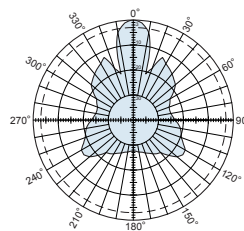
- ◆ Professional Grade
- ◆ Rugged construction
- ◆ Proven Designs
- ◆ Antennas breakdown to minimize shipping costs



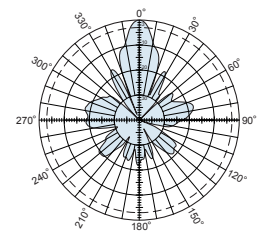
Model	MF-900B	MF-940B	PR-900
Input connector	50Ω N Female	50Ω N Female	50Ω N Female
Max. power	100W	100W	100W
Frequency range	890-960 MHz	928-953 MHz	890-960 MHz
VSWR	≤1.5:1	≤1.4:1	≤1.5:1
Gain (at mid-band)	16.15 dBi	16.15 dBi	18.15 dBi
Polarization	Vertical	Vertical	Horizontal or Vertical Mechanical downtilt bracket available



Azimuth Pattern



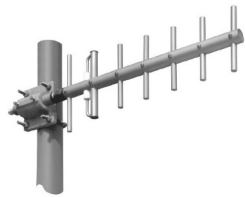
Azimuth Pattern



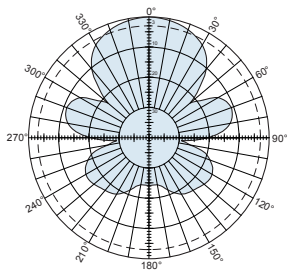
**Vertical Polarization
Azimuth Pattern**

Yagi antennas

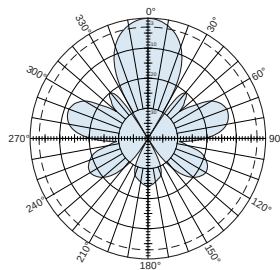
- ◆ Professional Grade
- ◆ Rugged construction
- ◆ Proven Designs
- ◆ The RY-900 is a radome enclosed version of the TY-900 offering protection from the effects of snow and ice



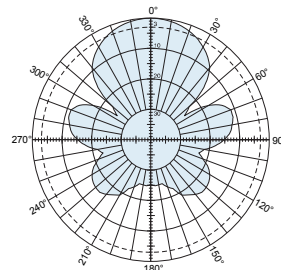
Model	TY-900	2TY-900VH	RY-900B	2RY-900B/VH/K
Input connector	50Ω N Female	50Ω N Female	50Ω N Female	50Ω N Female
Max. power	100W	100W	100W	100W
Frequency range	890-960 MHz	890-960 MHz	890-960 MHz	890-960 MHz
VSWR	≤ 1.5:1	≤ 1.5:1	≤ 1.5:1	≤ 1.5:1
Gain (at mid-band)	12.15 dBi	14.65 dBi	12.15 dBi	14.65 dBi
Polarization	Horizontal or Vertical Mechanical downtilt bracket available	Horizontal or Vertical	Horizontal or Vertical	Horizontal or Vertical



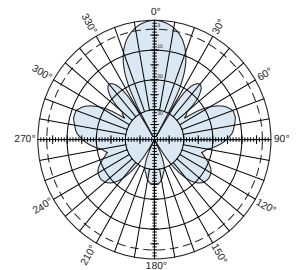
**Vertical Polarization
Azimuth Pattern**



**Vertical Polarization
Azimuth Pattern**



**Vertical Polarization
Azimuth Pattern**



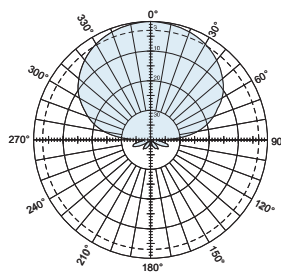
**Vertical Polarization
Azimuth Pattern**

Radome Log-Periodic antennas

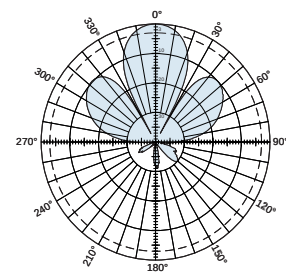
- ◆ Professional Grade
- ◆ Rugged construction
- ◆ Proven Designs
- ◆ Radomes offer protection from the effects of snow and ice
- ◆ Log-Periodic antennas have reduced rear radiation to offer protection against interference



Model	CL-900B	2CL-900B/VH/K
Input connector	50Ω N Female	50Ω N Female
Max. power	500W	100W
Frequency range	806-960 MHz	890-960 MHz
VSWR	≤ 1.5:1	≤ 1.5:1
Gain (at mid-band)	10.15 dBi	12.65 dBi
Polarization	Horizontal or Vertical High F/B Ratio	Vertical



**Vertical Polarization
Azimuth Pattern**



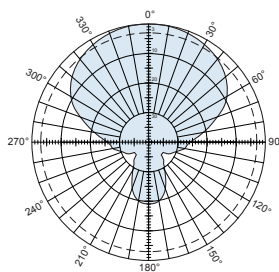
**Vertical Polarization
Azimuth Pattern**

Radome panel antennas

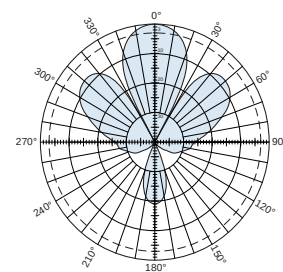
- ◆ Professional Grade
- ◆ Rugged construction
- ◆ Proven Designs
- ◆ Radomes offer protection from the effects of snow and ice



Model	HP9-915	HP9-915/2HN
Input connector	50Ω N Female	50Ω N Female
Max. power	100W	100W
Frequency range	902-928 MHz	902-928 MHz
VSWR	≤ 1.25:1	≤ 1.35:1
Gain (at mid-band)	11.65 dBi	14.15 dBi
Polarization	Horizontal	Horizontal



**Horizontal Polarization
Azimuth Pattern**



**Horizontal Polarization
Azimuth Pattern**

Tech tips:

1. If at all possible, conduct a detailed path study to determine feasibility of the link for a given site. For detailed antenna patterns in common path study software format email support-usa@kathrein-bca.com. Be sure to check compliance with all licensing and FCC rules governing your application before any system design or change to your system.
2. Once path is deemed feasible, it is critical to choose the proper antenna. Gain, polarization, environmental conditions and visual impact are all important factors. Listed below are basic antenna definitions and important antenna characteristics to consider.

Antenna Type	Typical Gain	Front to Back Ratio	Wind Load	Stacking to increase Gain	Radome Protection	Polarization Horizontal or Vertical
Yagi	10-14dBi	15-20dB Moderate	Low	Yes	Yes	Horizontal or Vertical
Log Periodic	8-12dBi	>25dB Excellent	Low	Yes	Yes	Horizontal or Vertical
Panel	10-14dBi	15-20dB Moderate	Moderate	Yes	Yes	Horizontal
Half Parabolic	16-18dBi	>25dB Excellent	High	No	No	*Horizontal or Vertical
Collinear		N/A	Low	No	Yes	Vertical
SL-Style	10-14dBi	N/A	Low	No	Yes	Horizontal

*MF-series antennas, Vertical polarization only

- i. Other characteristics to consider when choosing a directional antenna
 1. Lightning protection, an antenna designed with a DC grounded feed point will offer an additional layer of protection from lightning over a capacitively coupled feedpoint.
 2. Polarization, it is critical to match the polarization of antennas used within system. Cross polarization can add up to additional 30dB loss.
 3. Take a close look at Radomed antennas for areas that are prone to icy conditions. A radome will go a long way towards preserving antenna performance under icy conditions. Radomes can also lessen visual impact in ascetically sensitive sites.
- ii. Methods for reducing co-channel and or adjacent channel interference.
 1. In instances where unwanted signals are coming from the back side, consider using an antenna such as a Log-Periodic with a superior front to back ratio.
 2. Higher gain, narrow beamwidth antennas, such as half-parabolics may help with the reduction of unwanted signal off axis of the main lobe.
 3. Yagis, Panels or Log Periodic antennas can be arrayed to increase gain, narrow beamwidth or improve front to back ratio to combat interference.
 4. Horizontal Polarization can be utilized to combat interference. Most systems are designed for vertical polarization. A horizontally polarized system can offer up to 30dB of Isolation from an interfering vertically polarized signal.

For help choosing the right antenna for your application, or technical help in regards to any tip mentioned in this section please contact us @ support-usa@kathrein-bca.com