



DCR-H / HDR-H

- DCR-H: Right Hand Circularly Polarized
- HDR-H: Left Hand Circularly Polarized
- DCR-H/HDR-H IBOC compatible
- Interleaved provides -40 dB of isolation
- Stainless steel elements
- Ideal for Class A and B stations
- 4 kW for a single bay
- Fine matcher included
- Radomes or integral deicers optional
- VSWR field adjustable
- No circulators required

The DCR-H/HDR-H antenna is a low-power version of the DCR-C/HDR-C and is available in one through twelve bays with an input power rating up to 12 kW. Each array is supplied with an input fine matcher for field optimization. For situations where ice formation is common, the arrays can be equipped with optional electrical deicers or radomes. The antenna is DC grounded for lightning protection and does not require shorting stubs. Each array is supplied with an input fine matcher for field optimization.

End-Fed or Center-Fed Arrays

Two power distribution methods are used with the DCR-H/HDR-H antenna. The array is usually end-fed unless it includes beam tilt and/or null fill. In this case, the sections are fed from a center point. The input connection in either case is 1 5/8" EIA.

Beam Tilt & Null Fill

Beam tilt and/or null fill are optional extras on the DCR-H/HDR-H series. If optional beam tilt or null fill is specified, the antenna is designed as a center-fed array.

Directional Arrays

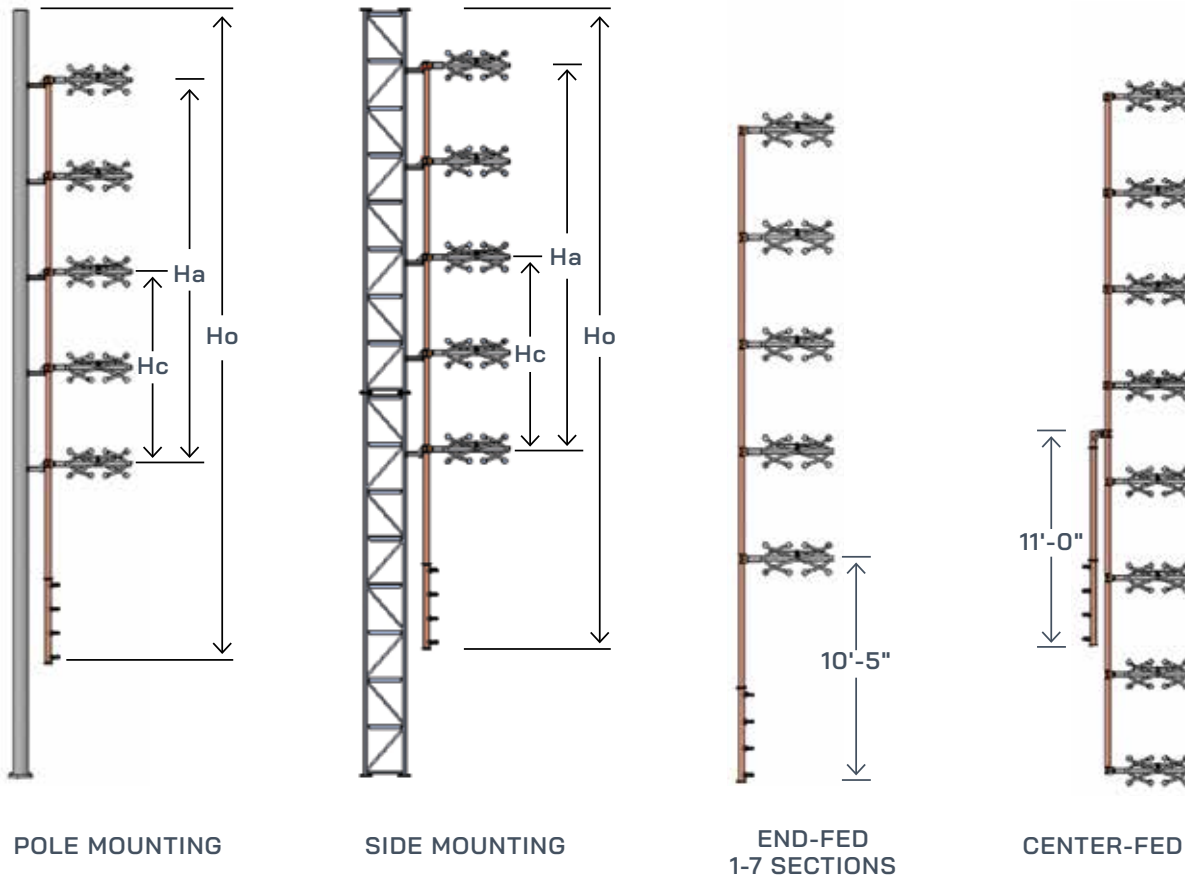
The DCR-H/HDR-H antenna is available in directional arrays which are custom-built to the needs of the station.

Low downward radiation options available – contact factory.

General Specifications

Polarization	Circular
Pattern Circularity in Free Space	± 1 dB
VSWR (max.) at Input w/o field trim	Top Mounted: 1.2:1 / Side-Mounted: 1.5:1
VSWR (max.) at Input w/ field trim, Top or Side Mounted (± 100 KHz)	1.07:1
Input	1 1/8" EIA
Bay Dimensions (w/o Radome)	Diameter: 20.7" (526mm) / Height: 20" (503mm)

Mounting Dimensions



Ha = Antenna aperture length
 Hc = Antenna center of radiation
 Ho = Antenna overall length needed for mounting
 $Ha = 984 / f \times [s(x-1)]$
 $Hc = Ha / 2$
 $Ho \text{ end-fed} = Ha + 5' \text{top} + 10' - 5'' \text{bottom}$
 $Ho \text{ center-fed} = Ha + 5' \text{top} + 5' \text{bottom}$
 All dimensions in feet
 f = frequency in megahertz (MHz)
 s = bay spacing in fraction of wavelengths
 example: $\frac{1}{2}$ wavelength = .5
 x = number of antenna bays

Note: Antennas ordered w/beam tilt and/or null fill are supplied with center feed and require even number of bays.

Deicer Specifications:
 Power (nominal per bay): 600 W
 Voltage: may be wired for 208 V or 240 V service, single or three phase.

Deicer Specifications

Power (nominal, per bay): 600 W
 Voltage: May be wired for 208 V or 240 V service, single- or three-phase

Optional

Ice sensor and deicer controller.

Electrical Specifications

Antenna Type DCR-H or HDR-H	Gain Polarization Spacing				Power Rating kW ³
	λ Spacing		$\frac{1}{2} \lambda$ Spacing		
	Power Gain	dB	Power Gain	dB	
DCR-H1 HDR-H1	0.46	-3.37	—	—	4
DCR-H2 HDR-H2	1.0	0	0.7	-1.55	8
DCR-H3 HDR-H3	1.5	1.76	1.0	0	12
DCR-H4 HDR-H4	2.1	3.22	1.3	1.14	12
DCR-H5 HDR-H5	2.7	4.31	1.6	1.76	12
DCR-H6 HDR-H6	3.2	5.05	1.8	2.55	12
DCR-H7 HDR-H7	3.8	5.80	2.1	3.22	12
DCR-H8 HDR-H8	4.3	6.34	2.4	3.80	12
DCR-H10 HDR-H10	5.5	7.40	3.0	4.77	12
DCR-H12 HDR-H12	6.6	8.2	3.6	5.56	12

Notes:

1. RMS gain data is given relative to dipole. Values are for midband and include standard harness configurations. Actual gain will vary depending on feed system, frequency, null fill, and beam tilt.
2. Average power ratings are nominal @ 40°C ambient. Assumes constant pressurization with dry air or nitrogen. Ratings may vary based on specific feed system design and local conditions.
3. Higher power ratings and custom feed systems may be available on request.
4. Antenna components and feed harnesses are optimized for FM channels of interest.
5. Specs. are for a single DCR-H antenna array or HDR-H antenna array, not both.

Mechanical Specifications

Without Radomes					
Antenna Type	# of Bays	Weight lbs (kg)		EPA (ft ²)	
		λ Spaced	$1/2 \lambda$ Spaced	λ Spaced	$1/2 \lambda$ Spaced
DCRH-1 HCRH-1	1	82		4	
DCRH-2 HCRH-2	2	129	122	7.7	6.3
DCRH-3 HCRH-3	3	177	163	11.5	8.6
DCRH-4 HCRH-4	4	224	204	15.3	10.9
DCRH-5 HCRH-5	5	272	245	19.1	13.2
DCRH-6 HCRH-6	6	319	285	22.9	15.6
DCRH-7 HCRH-7	7	367	326	26.6	17.9
DCRH-8 HCRH-8	8	414	367	30.4	20.2
DCRH-10 HCRH-10	10	510	449	38	24.8
DCRH-12 HCRH-12	12	605	530	45.6	29.5

Loads per ANSI/TIA 222G, reference frequency 98Mhz, end fed antenna

Notes:

1. CaAc and weights include bays and standard extension brackets for mounting. Excludes feed custom mounts. For antennas that include pattern studies, contact factory for additional information.
2. Dimensions are for antennas at 98.0 MHz and can vary $\pm 10\%$ across the band.
3. Ice shields are strongly recommended for areas subject to icing conditions. Dielectric is not responsible for antenna damage caused by impact from falling ice.
4. Calculated area (CaAc) expressed in TIA/EIA-222-G standard.
5. Specs. are for a single DCR-H antenna array or HDR-H antenna array, not both.

With Radomes				With Deicers			
Weight lbs (kg)		EPA (ft ²)		Weight lbs (kg)		EPA (ft ²)	
λ Spaced	$\frac{1}{2} \lambda$ Spaced	λ Spaced	$\frac{1}{2} \lambda$ Spaced	λ Spaced	$\frac{1}{2} \lambda$ Spaced	λ Spaced	
112		6.4		87		6	
189	182	12.5	11.1	139	132	12.1	10.3
267	253	18.7	15.8	192	178	18.1	14.7
344	324	24.9	20.5	244	224	24.2	19
422	395	31.1	25.2	297	270	30.2	23.3
499	465	37.2	29.9	349	315	36.3	27.6
577	536	43.4	34.6	402	361	42.4	32
654	607	49.6	39.3	454	407	48.4	36.3
810	749	61.9	48.8	560	499	60.5	44.9
965	890	74.3	58.2	665	590	72.6	53.6