DCR-C / HDR-C

- DCR-C: Right Hand Circularly Polarized
- HDR-C: Left Hand Circularly Polarized
- DCR-C/HDR-C IBOC compatible
- Interleaved provides -40 dB of isolation
- Stainless steel elements
- Ideal for Class B and C stations
- 10 kW for a single bay
- Fine matcher included
- Radomes or integral deicers optional
- VSWR field adjustable

The DCR-C/HDR-C is circularly polarized with a power rating of 10 kW for a single bay, and is available in stacked arrays of up to 12 bays with an input rating to 40 kW. 14 and 16-bay arrays are available with special VSWR specifications. 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-C/HDR-C 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 3 1/8" EIA.

Beam Tilt & Null Fill

Beam tilt and/or null fill are optional extras on the DCR-C/HDR-C series. These options are ordinarily specified for arrays of 8 bays or more. Arrays with 6 bays or less may include one or both options and typically are designed as a center-fed array.

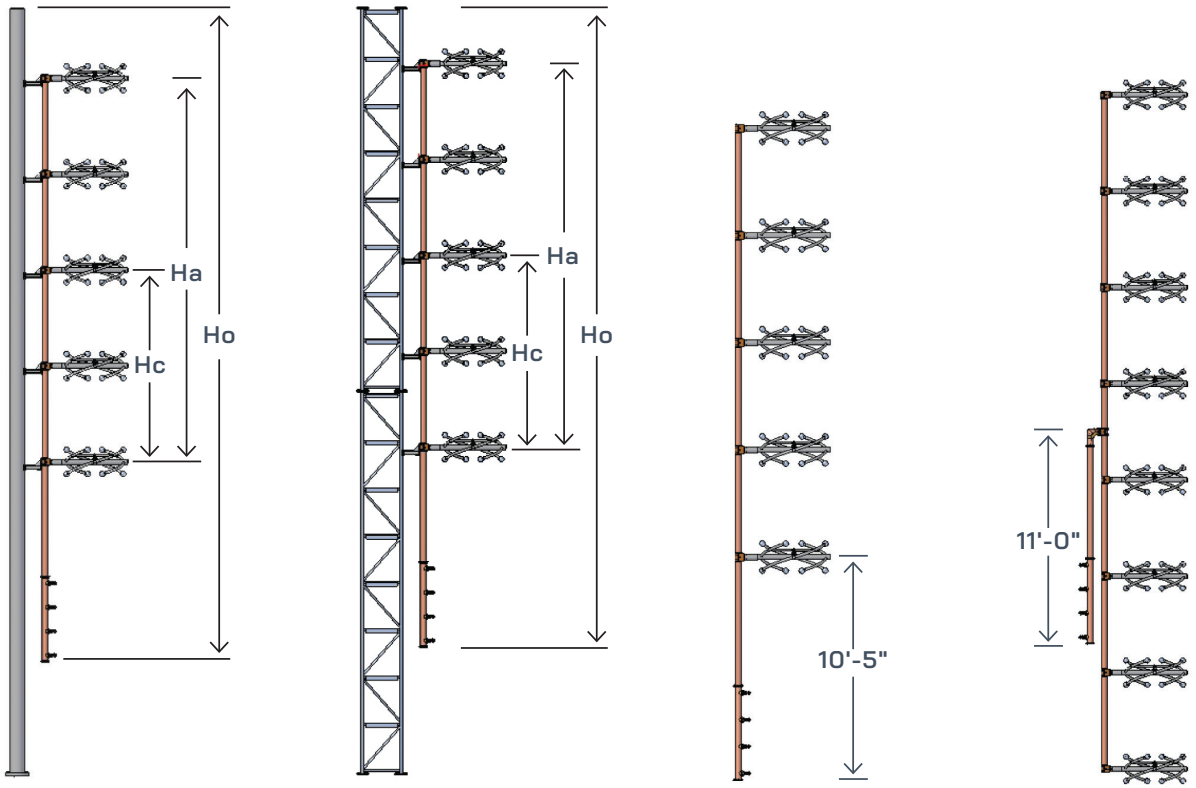
Directional Arrays

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

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	3 1/8" EIA
Bay Dimensions (w/o Radome)	Diameter: 20.7" (526mm) / Height: 20" (503mm)
Bay Dimensions (w/ Radome)	Diameter: 30" (762mm) / Height: 29" (737mm)

Mounting Dimensions



POLE MOUNTING | SIDE MOUNTING | END-FED 1-7 SECTIONS | CENTER-FED

Ha = Antenna aperture length
Hc = Antenna center of radiation
Ho = Antenna overall length needed for mounting
Ha = 984/f x [s(x-1)]
Hc = Ha/2
Ho end-fed = Ha + 5'top + 10' - 5"bottom
Ho center-fed = Ha + 5'top + 5'bottom

All dimensions in feet
f = frequency in megahertz (MHz)
s = bay spacing in fraction of wavelengths
example: ½ 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): 1200 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.

Mechanical Specifications

Antenna Type	# of Bays	Without Randomes			
		Weight lbs (kg)		EPA (ft^2)	
		λ Spaced	$^1/_2$ λ Spaced	λ Spaced	$^1/_2$ λ Spaced
DCRC-1 HCRC-1	1	57		3	
DCRC-2 HCRC-2	2	104	98	6.1	5.2
DCRC-3 HCRC-3	3	152	138	9.1	7.5
DCRC-4 HCRC-4	4	200	179	12.1	9.7
DCRC-5 HCRC-5	5	247	220	15.2	11.9
DCRC-6 HCRC-6	6	295	261	18.2	14.1
DCRC-7 HCRC-7	7	342	302	21.2	16.3
DCRC-8 HCRC-8	8	390	342	24.3	18.6
DCRC-10 HCRC-10	10	485	424	30.4	23
DCRC-12 HCRC-12	12	580	505	36.4	27.5

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 ± 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-F standard.
5. Specs. are for a single DCR-C antenna array or HDR-C antenna array, not both.

With Randomes				With Deicers			
Weight lbs (kg)		EPA (ft^2)		Weight lbs (kg)		EPA (ft^2)	
λ Spaced	$^1/_2$ λ Spaced	λ Spaced	$^1/_2$ λ Spaced	λ Spaced	$^1/_2$ λ Spaced	λ Spaced	
87		5.1		62		4.9	
164	158	10.2	9.4	114	108	9.8	9
242	228	15.3	13.7	167	153	14.7	13
320	299	20.4	18	220	199	19.6	17.1
397	370	25.5	22.3	272	245	24.4	21.2
475	441	30.7	26.6	325	291	29.3	25.3
552	512	35.8	30.9	377	337	34.2	29.3
630	582	40.9	35.2	430	382	39.1	33.4
785	724	51.1	43.8	535	474	48.9	41.6
940	865	61.3	52.4	640	565	58.7	49.7

Electrical Specifications

Gain Polarization Spacing[1]

Antenna Type	λ Spacing		½ λ Spacing		Power Rating kW[3]
	Power Gain	dB	Power Gain	dB	
DCR-C1 HDR-C1	0.46	-3.37	—	—	10
DCR-C2 HDR-C2	1.0	0	0.7	-1.55	20
DCR-C3 HDR-C3	1.5	1.76	1.0	0	30
DCR-C4 HDR-C4	2.1	3.22	1.3	1.14	40
DCR-C5 HDR-C5	2.7	4.31	1.6	2.04	40
DCR-C6 HDR-C6	3.2	5.05	1.8	2.55	40
DCR-C7 HDR-C7	3.8	5.80	2.1	3.22	40
DCR-C8 HDR-C8	4.3	6.34	2.4	3.8	40
DCR-C10 HDR-C10	5.5	7.40	3.1	4.91	40
DCR-C12 HDR-C12	6.6	8.2	3.7	5.68	40

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-C antenna array or HDR-C antenna array, not both.