

## RD Series

The RD Series of broadband UHF antennas are lightweight in design, yet rugged in approach. They solve the critical question of using a single UHF antenna for multichannel Analog and DTV Broadcasting.

- Multichannel operation
- Broadband / Low VSWR
- Power rating up to 160kW Average
- Top or Side mount
- Light weight/ Low wind load.

Utilizing slot cavity geometry, the RD series antenna is capable of wideband, low VSWR transmission for up to 20 channels. This capability makes it possible for stations to utilize a single antenna for Analog and DTV channel allocation and relocation assignments which fall within 20 channels of each other. Cavities are segmented into four groups of twenty channels. This allows overlapping of sizes to cover the channel range. A unique one-piece aluminium extrusion integrates the antenna cavity and tower mounting backstructure, providing each four bay section with greater strength and power handling. The BU series is a single channel option of the RD for this requirement. The patterns and performance of this option are equivalent to that of the RD except it has not been optimized for multichannel operation. Considering the requirements of tomorrow's broadcasting needs, the RD Series antenna combined with HELIFLEX transmission line, provides an alternative systems solution to heavy, stacked, slotted antennas and panel array antennas, minimizing tower load and maximizing tower space.

The RD antenna can also be used in various stacked arrangements especially in situations where adjacent channel combining may not be desired. By stacking an RD antenna either atop a panel antenna or another RD, increased channel capacity is obtained without pattern degradation as occurs in some other systems where an external feed is used to the top antenna.



### SPECIFICATIONS (ALL MODELS)

Polarization	Horizontal
Number of Channels	Multichannel
Bandwidth, MHz	Up to 120
Impedance, ohms	50 unbalanced



# Band IV/V (UHF) TV Slot Antennas

470 - 806 MHz

## RD Series System Gain

	A		B		D		G/H		OM		O	
	Directive dbd		Directive dbd		Directive dbd		Directive dbd		Directive dbd		Directive dbd	

### 4 Bay

Vertical Directivity	5.2	7.2	5.2	7.2	5.2	7.2	5.2	7.2	5.2	7.2	5.2	7.2
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	8.9	9.5	13.2	11.2	30.6	14.9	15.9	12.0	8.8	9.5	6.3	8.0
RMS Gain											5.2	7.2

### 8 Bay

Vertical Directivity	9.8	9.9	9.8	9.9	9.8	9.9	9.8	9.9	9.8	9.9	9.8	9.9
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	16.6	12.2	24.5	13.9	57.5	17.6	29.5	14.7	16.6	12.2	11.7	10.7
RMS Gain											9.8	9.9

### 12 Bay

Vertical Directivity	13.4	11.3	13.4	11.3	13.4	11.3	13.4	11.3	13.4	11.3	13.4	11.3
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	22.8	13.6	33.9	15.3	79.9	19.0	40.5	16.1	22.8	13.6	16.1	12.1
RMS Gain											13.4	11.3

### 16 Bay

Vertical Directivity	17.6	12.5	17.6	12.5	17.6	12.5	17.6	12.5	17.6	12.5	17.6	12.5
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	29.5	14.7	43.7	16.5	52.6	20.2	53.7	17.3	30.2	14.8	21.1	13.2
RMS Gain											17.6	12.5

### 24 Bay

Vertical Directivity	25.4	14.0	25.4	14.0	25.4	14.0	25.4	14.0	25.4	14.0	25.4	14.0
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	43.1	16.3	63.1	18.0	149.3	21.7	76.6	18.8	43.1	16.3	30.5	14.8
RMS Gain											25.4	14.0

### 32 Bay

Vertical Directivity	32.9	15.2	32.9	15.2	32.9	15.2	32.9	15.2	32.9	15.2	32.9	15.2
Horizontal Directivity	1.7	2.3	2.5	4.0	5.9	7.7	3.0	4.8	1.7	2.3	1.2	0.8
Peak Gain	56.2	17.5	83.2	19.2	193.6	22.9	98.7	20.0	55.8	17.5	39.5	16.0
RMS Gain											32.9	15.2

## RD Series Power rating

	Low Power			Medium Power			High Power		
	Peak	Average	Input	Peak	Average	Input	Peak	Average	Input
<b>4 Bay</b>	3 Kw	2 kW	1-5/8" EIA, 50 ohm	6 kW	4 kW	1-5/8" EIA, 50 ohm	14 kW	10 kW	3-1/8" EIA, 50 ohm
<b>8 Bay</b>	6 kW	4 kW	1-5/8" EIA, 50 ohm	11 kW	8 kW	3-1/8" EIA, 50 ohm	29 kW	20 kW	4-1/16", 50 ohm
<b>12 Bay</b>	9 kW	6 kW	3-1/8" EIA, 50 ohm	17 kW	12 kW	3-1/8" EIA, 50 ohm	43 kW	30 kW	6-1/8" EIA, 50 ohm
<b>16 Bay</b>	11 kW	8 kW	3-1/8" EIA, 50 ohm	23 kW	16 kW	3-1/8" EIA, 50 ohm	57 kW	40 kW	6-1/8" EIA, 50 ohm
<b>24 Bay</b>	17 kW	12 kW	3-1/8" EIA, 50 ohm	34 kW	24 kW	6-1/8" EIA, 50 ohm	86 kW	60 kW	6-1/8" EIA, 50 ohm Note#1
<b>32 Bay</b>	23 kW	16 kW	3-1/8" EIA, 50 ohm	45 kW	32 kW	6-1/8" EIA, 50 ohm	86 kW*	60 kW**	6-1/8"EIA, 50 ohm Note#1

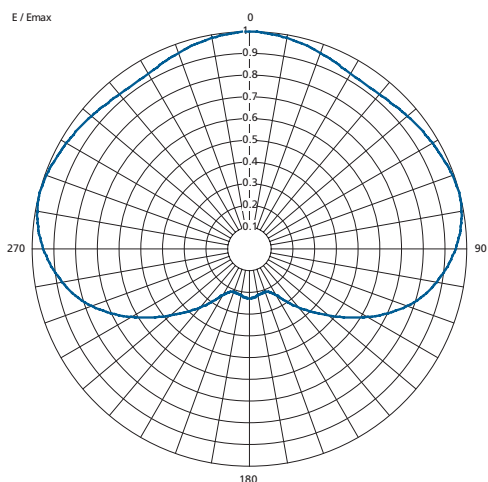
Note 1  
80kW with 7-3/16" 75 ohm connector option

Note 2 Power ratings  
Power ratings are for single input models. Dual input cavity versions can provide higher power ratings. Contact RFS for details. 32 bay High power version Optional 115kW NTSC, 80kW DTV with dual 6-1/8" inputs or single 7-3/16" input.

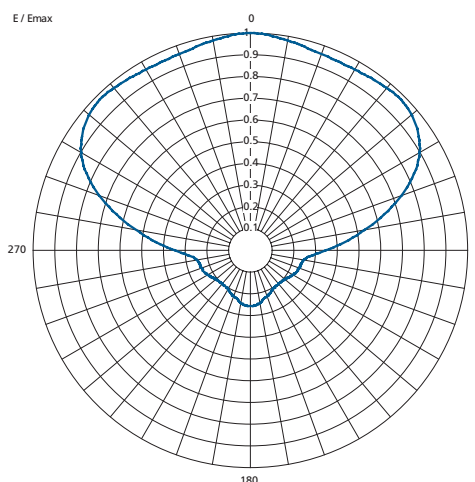
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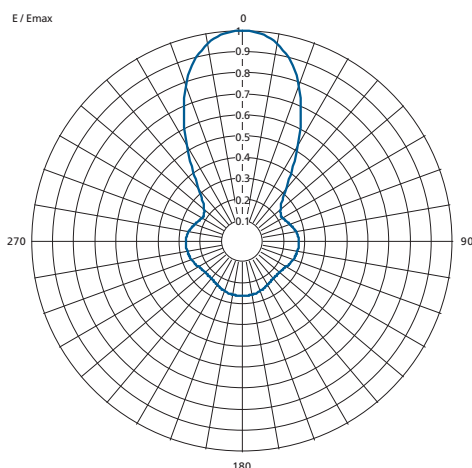
## RD Series Azimuth Patterns



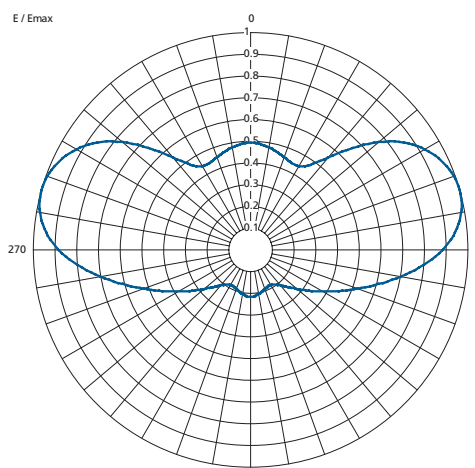
**Pattern A Horizontal Gain 1.7 (2.3 dB)**



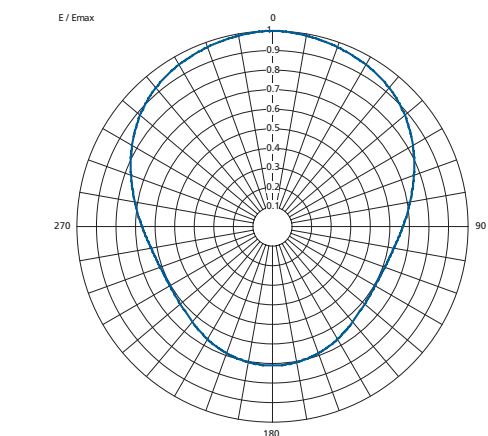
**Pattern B Horizontal Gain 2.5 (4.0 dB)**



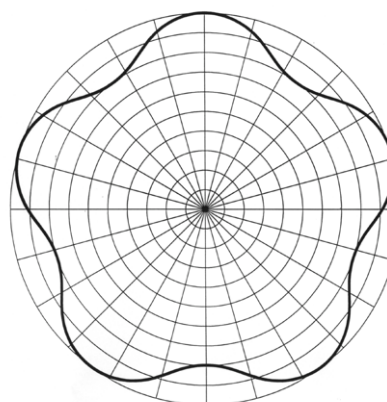
**Pattern D Horizontal Gain 5.9 (7.7 dB)**



**Pattern G Horizontal Gain 3.0 (4.7 dB)**



**Pattern OM Horizontal Gain 1.7 (2.3 dB)**



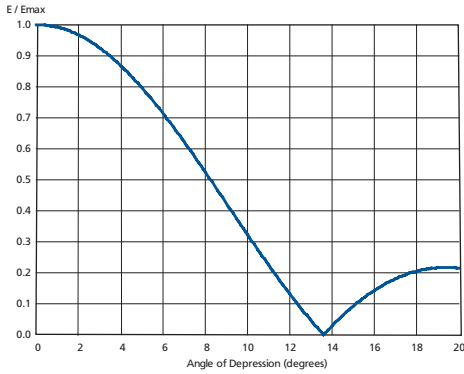
**Pattern O Horizontal Gain 1.2 (0.8 dB)**

Note 1 Azimuth Radiation Patterns.

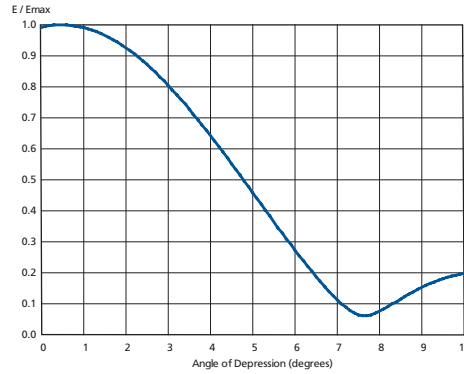
The RD series is available in several radiation pattern options. Pattern A - Broad cardioid; Pattern B - Medium cardioid; Pattern D - 45 degree sector; Pattern G/H - Peanut/Skewed Peanut; Pattern OM - Offset Omnidirectional; Pattern O - Omnidirectional. For information relating to the various patterns contact RFS.



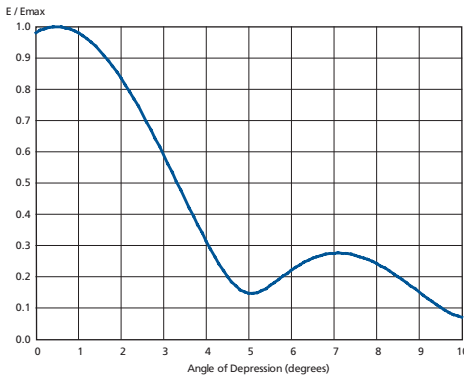
## RD Series



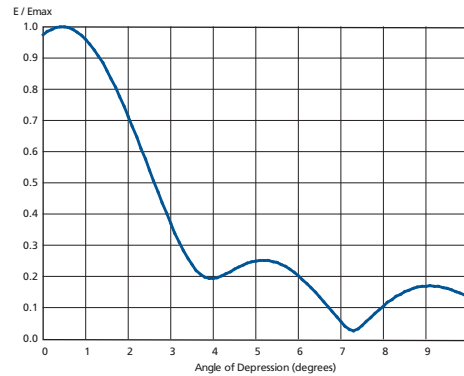
**Elevation Pattern 4 Bay Vertical Directivity  
5.21 (7.16 dBd) Beam Tilt (deg) 0**



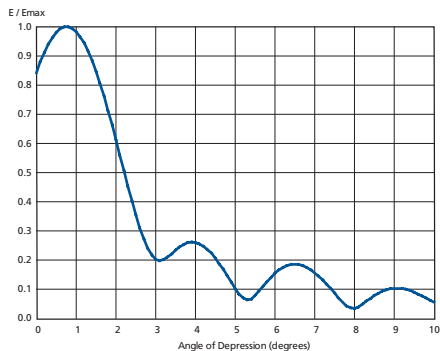
**Elevation Pattern 8 Bay Vertical Directivity  
9.77 (9.90 dBd) Beam Tilt (deg) 0.5**



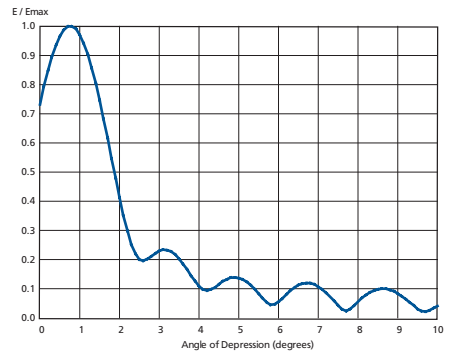
**Elevation Pattern 12 Bay Vertical Directivity  
13.38 (11.27 dBd) Beam Tilt (deg) 0.5**



**Elevation Pattern 16 Bay Vertical Directivity  
17.55 (12.44 dBd) Beam Tilt (deg) 0.5**



**Elevation Pattern 24 Bay Vertical Directivity  
25.36 (14.04 dBd) Beam Tilt (deg) 0.75**



**Elevation Pattern 32 Bay Vertical Directivity  
32.90 (15.17 dBd) Beam Tilt (deg) 0.75**

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## RD Series Mechanical Data

Channel Number	-----Top Mounted Windload-----							Side mount Windload	Height (ft)		Weight (lbs)	
	Pattern A	Pattern B	Pattern D	Pattern G	Pattern H	Pattern OM	Pattern O		Top Mt	Side Mt	Top Mt	Side Mt
<b>4 Bay</b>												
14-24	533	732	529	497	496	519	569	293	10.7	8.2	341	108
17-36	482	621	450	423	423	439	503	255	9.7	7.3	332	96
32-52	380	489	376	353	353	374	445	195	8.8	6.4	266	82
46-69	345	440	340	297	317	362	394	168	8.1	5.6	261	74
<b>8 Bay</b>												
14-24	1052	1451	1044	979	979	1024	1137	586	18.7	16.3	764	216
17-36	921	1255	913	859	859	890	1006	510	16.7	14.4	686	192
32-52	750	967	741	695	695	737	889	390	15	12.6	608	164
46-69	656	847	648	501	601	692	788	336	13.5	11.1	548	148
<b>12 Bay</b>												
14-24	1575	2173	1563	1466	1466	1533	1705	879	26.7	24.4	1490	324
17-36	1379	1880	1366	1285	1285	1332	1509	765	23.8	21.1	1316	288
32-52	1120	1445	1107	1038	1038	1101	1334	585	21.1	18.8	875	246
46-69	981	1267	969	899	899	1034	1182	504	18.9	16.5	780	222
<b>16 Bay</b>												
14-24	2210	3007	2194	2064	2064	2154	2274	1172	34.7	32.5	2711	432
17-36	1932	2600	1915	1806	1806	1870	2012	1020	30.8	28.5	1709	384
32-52	1486	1921	1469	1377	1377	1461	1778	780	27.3	25.0	1580	328
46-69	1305	1687	1290	1196	1196	1377	1576	672	24.3	22.0	1080	296
<b>24 Bay</b>												
14-24	3489	4814	3466	3272	3272	3406	3410	1758	51.4	48.6	5544	648
17-36	2913	4053	2887	2724	2724	2829	3017	1530	45.5	42.7	4411	576
32-52	2375	3026	2349	2210	2210	2337	2667	1170	40.3	37.5	3375	492
46-69	1894	2414	2391	2172	2141	2355	2364	1008	35.7	32.9	2595	444
<b>32 Bay</b>												
14-24	4769	6578	4737	4479	4479	4658	4547	2344	67.4	64.5	10436	864
17-36	4058	5694	4024	3808	3808	3934	4023	2040	59.6	56.9	7594	768
32-52	3322	4191	3288	3103	3103	3272	3556	1560	52.6	49.9	5675	656
46-69	3690	4453	3658	3471	3471	3833	3152	1344	46.5	43.8	4522	592

**Note 1**

The weights, dimensions and windload data are approximate and site dependant. Weight does not include power divider and cable harness.

**Note 2 Mechanical data**

Structural design to TIA/EIA-222-f code with 136Km/h (85mph) basic windspeed. For use in areas with basic windspeed greater than 136Km/h (85mph) contact RFS. Sidemount windloads are for A, D, G, H, OM patterns. For B pattern add 40%. Top mount pattern A weight data listed and for 136 km/h (85 mph) basic wind speed. For other Patterns contact RFS.

**Note 3**

Windload data is on boresight.

## RD/BU Series

The BU Series Cavity Slot antenna is a single or adjacent channel version of the RD antenna offering a low cost alternative to panel antennas. This rugged design can be top or side mounted with the versatility of multipattern capacity.

- Single or adjacent channel operation
- Power ratings up to 160 kW Average
- Top or side mount
- Light weight/ low wind load
- Pattern and power capacity is equivalent to the RD series.



### SPECIFICATIONS (ALL MODELS)

Polarization	Horizontal
Number of Channels	Single or adjacent channel
Bandwidth, MHz	12

Note 1 Azimuth Radiation Patterns

The RD series/BU series is available in several radiation pattern options. Pattern A - Broad cardioid; Pattern B - Medium cardioid; Pattern D - 45 degree sector; Pattern G/H - Peanut/Skewed Peanut; Pattern OM - Offset Omnidirectional; Pattern O - Omnidirectional. For information relating to the various patterns contact RFS.

### RD/BU Series Power Rating

	Low Power			Medium Power			High Power		
	Peak	Average	Input	Peak	Average	Input	Peak	Average	Input
<b>4 Bay</b>	3 Kw	2 kW	1-5/8" EIA, 50 ohm	6 kW	4 kW	1-5/8" EIA, 50 ohm	14 kW	10 kW	3-1/8" EIA, 50 ohm
<b>8 Bay</b>	6 kW	4 kW	1-5/8" EIA, 50 ohm	11 kW	8 kW	3-1/8" EIA, 50 ohm	29 kW	20 kW	4-1/16", 50 ohm
<b>12 Bay</b>	9 kW	6 kW	3-1/8" EIA, 50 ohm	17 kW	12 kW	3-1/8" EIA, 50 ohm	43 kW	30 kW	6-1/8" EIA, 50 ohm
<b>16 Bay</b>	11 kW	8 kW	3-1/8" EIA, 50 ohm	23 kW	16 kW	3-1/8" EIA, 50 ohm	57 kW	40 kW	6-1/8" EIA, 50 ohm
<b>24 Bay</b>	17 kW	12 kW	3-1/8" EIA, 50 ohm	34 kW	24 kW	6-1/8" EIA, 50 ohm	86 kW	60 kW	6-1/8" EIA, 50 ohm Note#1
<b>32 Bay</b>	23 kW	16 kW	3-1/8" EIA, 50 ohm	45 kW	32 kW	6-1/8" EIA, 50 ohm	86 kW*	60 kW**	6-1/8" EIA, 50 ohm Note#1

Note 1

80kW with 7-3/16" 75 ohm connector option

Note 2 Power ratings

Power ratings are for single input models. Dual input cavity versions can provide higher power ratings. Contact RFS for details. 32 bay High power version Optional 115kW NTSC, 80kW DTV with dual 6-1/8" inputs or single 7-3/16" input.

## RD/BU Series Mechanical Data

Channel Number	-----Top Mounted Windload-----								Side mount Windload	Height (ft) Top Mt	Note#1 Weight (lbs)	
	Pattern A	Pattern B	Pattern D	Pattern G	Pattern H	Pattern OM	Pattern O	Side Mt			Top Mt	Side Mt
<b>4 Bay</b>												
14-24	533	732	529	497	496	519	569	293	10.7	8.2	341	108
17-36	482	621	450	423	423	439	503	255	9.7	7.3	332	96
32-52	380	489	376	353	353	374	445	195	8.8	6.4	266	82
46-69	345	440	340	297	317	362	394	168	8.1	5.6	261	74
<b>8 Bay</b>												
14-24	1052	1451	1044	979	979	1024	1137	586	18.7	16.3	764	216
17-36	921	1255	913	859	859	890	1006	510	16.7	14.4	686	192
32-52	750	967	741	695	695	737	889	390	15	12.6	608	164
46-69	656	847	648	501	601	692	788	336	13.5	11.1	548	148
<b>12 Bay</b>												
14-24	1575	2173	1563	1466	1466	1533	1705	879	26.7	24.4	1490	324
17-36	1379	1880	1366	1285	1285	1332	1509	765	23.8	21.1	1316	288
32-52	1120	1445	1107	1038	1038	1101	1334	585	21.1	18.8	875	246
46-69	981	1267	969	899	899	1034	1182	504	18.9	16.5	780	222
<b>16 Bay</b>												
14-24	2210	3007	2194	2064	2064	2154	2274	1172	34.7	32.5	2711	432
17-36	1932	2600	1915	1806	1806	1870	2012	1020	30.8	28.5	1709	384
32-52	1486	1921	1469	1377	1377	1461	1778	780	27.3	25.0	1580	328
46-69	1305	1687	1290	1196	1196	1377	1576	672	24.3	22.0	1080	296
<b>24 Bay</b>												
14-24	3489	4814	3466	3272	3272	3406	3410	1758	51.4	48.6	5544	648
17-36	2913	4053	2887	2724	2724	2829	3017	1530	45.5	42.7	4411	576
32-52	2375	3026	2349	2210	2210	2337	2667	1170	40.3	37.5	3375	492
46-69	1894	2414	2391	2172	2141	2355	2364	1008	35.7	32.9	2595	444
<b>32 Bay</b>												
14-24	4769	6578	4737	4479	4479	4658	4547	2344	67.4	64.5	10436	864
17-36	4058	5694	4024	3808	3808	3934	4023	2040	59.6	56.9	7594	768
32-52	3322	4191	3288	3103	3103	3272	3556	1560	52.6	49.9	5675	656
46-69	3690	4453	3658	3471	3471	3833	3152	1344	46.5	43.8	4522	592

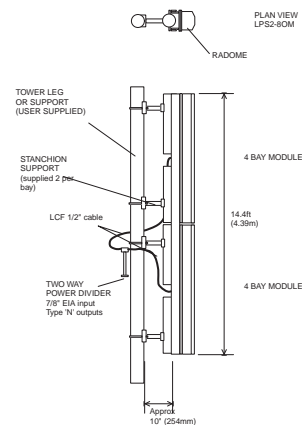
Note 1  
The weights, dimensions and windload data are approximate and site dependant.

Note 2 Mechanical data  
Side mount weight without optional mounting brackets/pipes. Loads are typical for 7.4 kPa (50 lbs/sq ft) for flat surface and 1.6 kPa (33 lbs/sq ft) for cylindrical surface and calculated to EIA-222-C. Structural design to TIA/EIA-222-f code with 136Km/h (85mph) basic windspeed. For use in areas with basic windspeed greater than 136Km/h (85mph) contact RFS. Sidemount windloads are for A, D, G, H, OM patterns. For B pattern add 40%. Top mount pattern A weight data listed and for 136 km/h (85 mph) basic wind speed. For other Patterns contact RFS.

## RD/LR Series

The LR Series Cavity Slot antenna has been specifically designed for the low power DTV market. This antenna is similar in design and features to the RD but tailored to meet the power, pattern, and size requirements for LP DTV.

- Single or multiple channel
- Power ratings up to 2 kW
- Type N or 7/8 EIA input connectors
- Horizontally polarized
- Top or side mount
- Light weight/ low windload



### SPECIFICATIONS (ALL MODELS)

Polarization	Horizontal
Number of Channels	Single, Multichannel
Bandwidth, MHz	Up to 120
Input Connector	N type; 7/8" EIA
Power Rating, kW	2 average
Impedance, ohms	50 unbalanced

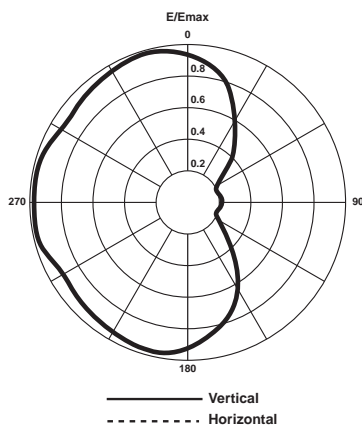


## RD/LR Series

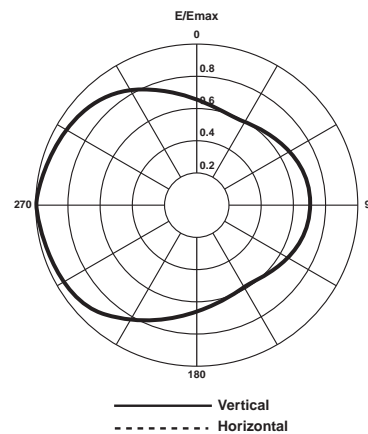
### RD/LR Series Mechanical Data

Channel Number	-Top Mounted Windload-		Side mount Windload	Height (ft)		Weight (lbs)	
	Pattern A	Pattern OM		Top Mt	Side Mt	Top Mt	Side Mt
<b>4 Bay</b>							
14-24	533	519	293	10.7	8.2	341	108
17-36	482	439	255	9.7	7.3	332	96
32-52	380	374	195	8.8	6.4	266	82
46-69	345	362	168	8.1	5.6	261	74
<b>8 Bay</b>							
14-24	1052	1024	586	18.7	16.3	764	216
17-36	921	890	510	16.7	16.3	686	192
32-52	750	967	390	15	12.6	608	164
46-69	656	692	336	13.5	11.1	548	148

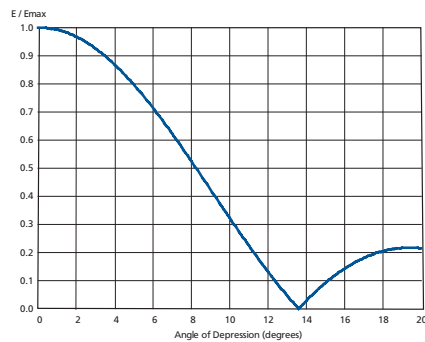
The weights, dimensions and windload data are approximate.



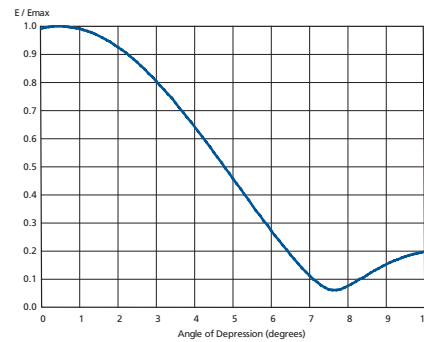
**Pattern A Horizontal Gain 1.7 (2.3 dB)**



**Pattern OM Horizontal Gain 1.7 (2.3 dB)**



**Elevation Pattern 4 Bay Vertical  
Directivity 5.21 (7.16 dBd) Beam Tilt (deg) 0**



**Elevation Pattern 8 Bay Vertical  
Directivity 9.77 (9.90 dBd) Beam Tilt (deg) 0.5**