

Proposed Location - 39° 00' 45" N. Lat. 95° 01' 46" W. Long. [NAD 27]

NOT DRAWN TO SCALE

Proposed antenna - 8 element.

ASRN: 1044528

Note: KCHZ (95.7 MHz ) will have an 8-bay interleaved antenna with KMAJ.  
See attached pages for description of the separate interleaved antennas.



**FM Proposal**

**KCHZ  
95.7 MHz**

**Topeka, KS**

**HDRM8CFE**  
DCRM 8 bay FE

**8/12/2004**

## **Table of Contents**

### **KCHZ**

- Elevation Pattern
- Elevation Pattern Tabulation
- System Summary
- Mechanical Specifications



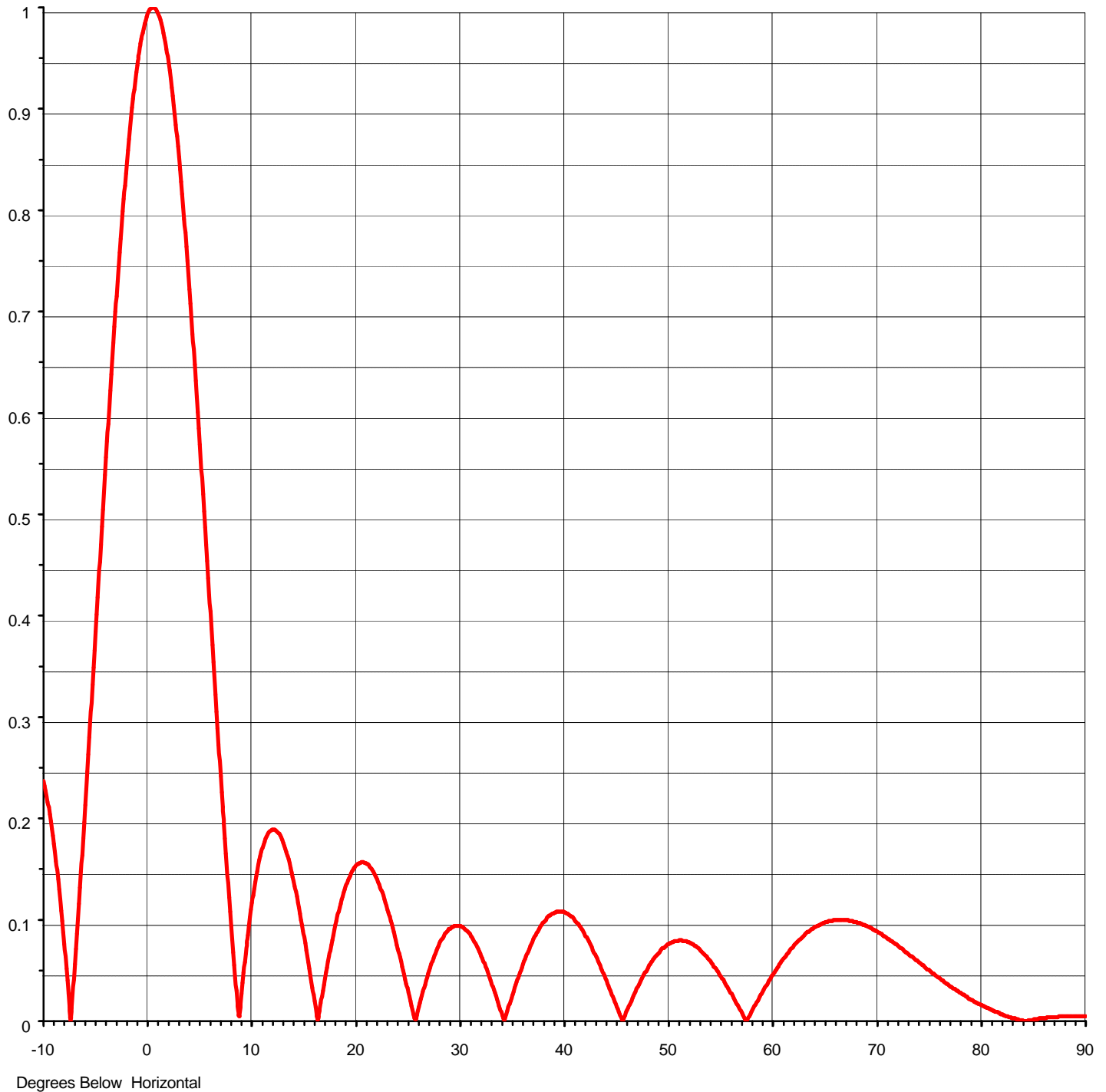
Proposal Number **DCA070104**  
Date **1-Jul-04**  
Call Letters **KCHZ**  
Location **Topeka, KS**  
Customer **Cumulus**  
Antenna Type **HDRM8CFE**

Channel **239**

## ELEVATION PATTERN

RMS Gain at Main Lobe **4.09 ( 6.12 dB )**  
RMS Gain at Horizontal **4.04 ( 6.06 dB )**  
Calculated / Measured **Calculated**

Beam Tilt **0.50 deg**  
Frequency **95.70 MHz**





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 Date **1-Jul-04**  
 Call Letters **KCHZ**  
 Location **Topeka, KS**  
 Customer **Cumulus**  
 Antenna Type **HDRM8CFE**

### TABULATION OF ELEVATION PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.237	2.4	0.913	10.6	0.148	30.5	0.091	51.0	0.079	71.5	0.078
-9.5	0.211	2.6	0.894	10.8	0.159	31.0	0.086	51.5	0.079	72.0	0.074
-9.0	0.175	2.8	0.873	11.0	0.167	31.5	0.077	52.0	0.078	72.5	0.070
-8.5	0.130	3.0	0.852	11.5	0.182	32.0	0.067	52.5	0.075	73.0	0.066
-8.0	0.076	3.2	0.828	12.0	0.189	32.5	0.054	53.0	0.071	73.5	0.062
-7.5	0.014	3.4	0.804	12.5	0.187	33.0	0.040	53.5	0.066	74.0	0.058
-7.0	0.056	3.6	0.778	13.0	0.179	33.5	0.025	54.0	0.060	74.5	0.054
-6.5	0.132	3.8	0.750	13.5	0.163	34.0	0.009	54.5	0.053	75.0	0.050
-6.0	0.213	4.0	0.722	14.0	0.142	34.5	0.007	55.0	0.045	75.5	0.046
-5.5	0.297	4.2	0.693	14.5	0.117	35.0	0.023	55.5	0.037	76.0	0.042
-5.0	0.384	4.4	0.663	15.0	0.089	35.5	0.039	56.0	0.028	76.5	0.038
-4.5	0.470	4.6	0.632	15.5	0.058	36.0	0.053	56.5	0.019	77.0	0.034
-4.0	0.556	4.8	0.601	16.0	0.026	36.5	0.067	57.0	0.010	77.5	0.031
-3.5	0.638	5.0	0.569	16.5	0.005	37.0	0.078	57.5	0.000	78.0	0.028
-3.0	0.715	5.2	0.536	17.0	0.036	37.5	0.088	58.0	0.009	78.5	0.024
-2.8	0.744	5.4	0.503	17.5	0.064	38.0	0.097	58.5	0.018	79.0	0.021
-2.6	0.772	5.6	0.470	18.0	0.090	38.5	0.103	59.0	0.027	79.5	0.018
-2.4	0.799	5.8	0.437	18.5	0.112	39.0	0.106	59.5	0.036	80.0	0.016
-2.2	0.824	6.0	0.404	19.0	0.130	39.5	0.108	60.0	0.045	80.5	0.013
-2.0	0.848	6.2	0.371	19.5	0.143	40.0	0.108	60.5	0.053	81.0	0.011
-1.8	0.870	6.4	0.338	20.0	0.152	40.5	0.105	61.0	0.060	81.5	0.009
-1.6	0.891	6.6	0.305	20.5	0.156	41.0	0.101	61.5	0.067	82.0	0.007
-1.4	0.910	6.8	0.273	21.0	0.156	41.5	0.094	62.0	0.073	82.5	0.005
-1.2	0.928	7.0	0.242	21.5	0.151	42.0	0.086	62.5	0.079	83.0	0.003
-1.0	0.943	7.2	0.211	22.0	0.142	42.5	0.077	63.0	0.084	83.5	0.002
-0.8	0.957	7.4	0.180	22.5	0.129	43.0	0.066	63.5	0.088	84.0	0.000
-0.6	0.969	7.6	0.151	23.0	0.114	43.5	0.055	64.0	0.092	84.5	0.001
-0.4	0.979	7.8	0.122	23.5	0.096	44.0	0.042	64.5	0.095	85.0	0.002
-0.2	0.987	8.0	0.094	24.0	0.075	44.5	0.030	65.0	0.098	85.5	0.003
0.0	0.994	8.2	0.068	24.5	0.054	45.0	0.017	65.5	0.099	86.0	0.003
0.2	0.998	8.4	0.042	25.0	0.033	45.5	0.004	66.0	0.100	86.5	0.004
0.4	1.000	8.6	0.018	25.5	0.011	46.0	0.009	66.5	0.100	87.0	0.004
0.6	1.000	8.8	0.005	26.0	0.010	46.5	0.020	67.0	0.100	87.5	0.005
0.8	0.998	9.0	0.027	26.5	0.029	47.0	0.032	67.5	0.099	88.0	0.005
1.0	0.994	9.2	0.048	27.0	0.047	47.5	0.042	68.0	0.098	88.5	0.005
1.2	0.988	9.4	0.067	27.5	0.062	48.0	0.051	68.5	0.096	89.0	0.005
1.4	0.980	9.6	0.085	28.0	0.074	48.5	0.059	69.0	0.094	89.5	0.005
1.6	0.970	9.8	0.094	28.5	0.084	49.0	0.066	69.5	0.091	90.0	0.005
1.8	0.959	10.0	0.110	29.0	0.091	49.5	0.072	70.0	0.088		
2.0	0.945	10.2	0.124	29.5	0.094	50.0	0.076	70.5	0.085		
2.2	0.930	10.4	0.137	30.0	0.094	50.5	0.078	71.0	0.081		



Proposal Number	<b>DCA070104</b>
Date	<b>1-Jul-04</b>
Call Letters	<b>KCHZ</b>
Location	<b>Topeka, KS</b>
Customer	<b>Cumulus</b>
Antenna Type	<b>HDRM8CFE</b>

## SYSTEM SUMMARY

### Antenna:

Type:	<b>HDRM8CFE</b>	ERP:	<b>100 kW ( 20.00 dBk )</b>
Channel:	<b>239</b>	Peak Gain*:	<b>4.1 ( 6.12 dB )</b>
Location:	<b>Topeka, KS</b>	Input Power:	<b>24.45 kW ( 13.88 dBk )</b>

### Transmission Line

Type:	<b>Flexline</b>	Attenuation:	<b>1.42 dB</b>
Size:	<b>3-1/8</b>	Efficiency:	<b>72.1%</b>
Length:	<b>1,200 ft</b>		<b>365.8 m</b>

### Transmitter Output

Power Required: **33.91 kW ( 15.30 dBk )**

\* Gain is with respect to half wave dipole.



## Mechanical Specifications

### Antenna:

Type: **HDRM8CFE**  
Channel: **239**  
Frequency: **95.7**  
Location: **Topeka, KS**

**Antenna Length (H2): 65 ft      Windload\*: 1308 lbs**

**Center of Radiation (H3): 32.5 ft      Weight\*: 764 lbs**

\*Windload based on EIA-RS-222-C (50/33 lb/ft<sup>2</sup>). Windload and weight do not include custom mounts, feed system, radomes nor pattern shapers.



**FM Proposal**

**KMAJ  
107.7 MHz**

**Topeka, KS**

**DCRM8B**  
DCRM 8 bay branch fed

**8/12/2004**



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### **KMAJ**

- Elevation Pattern
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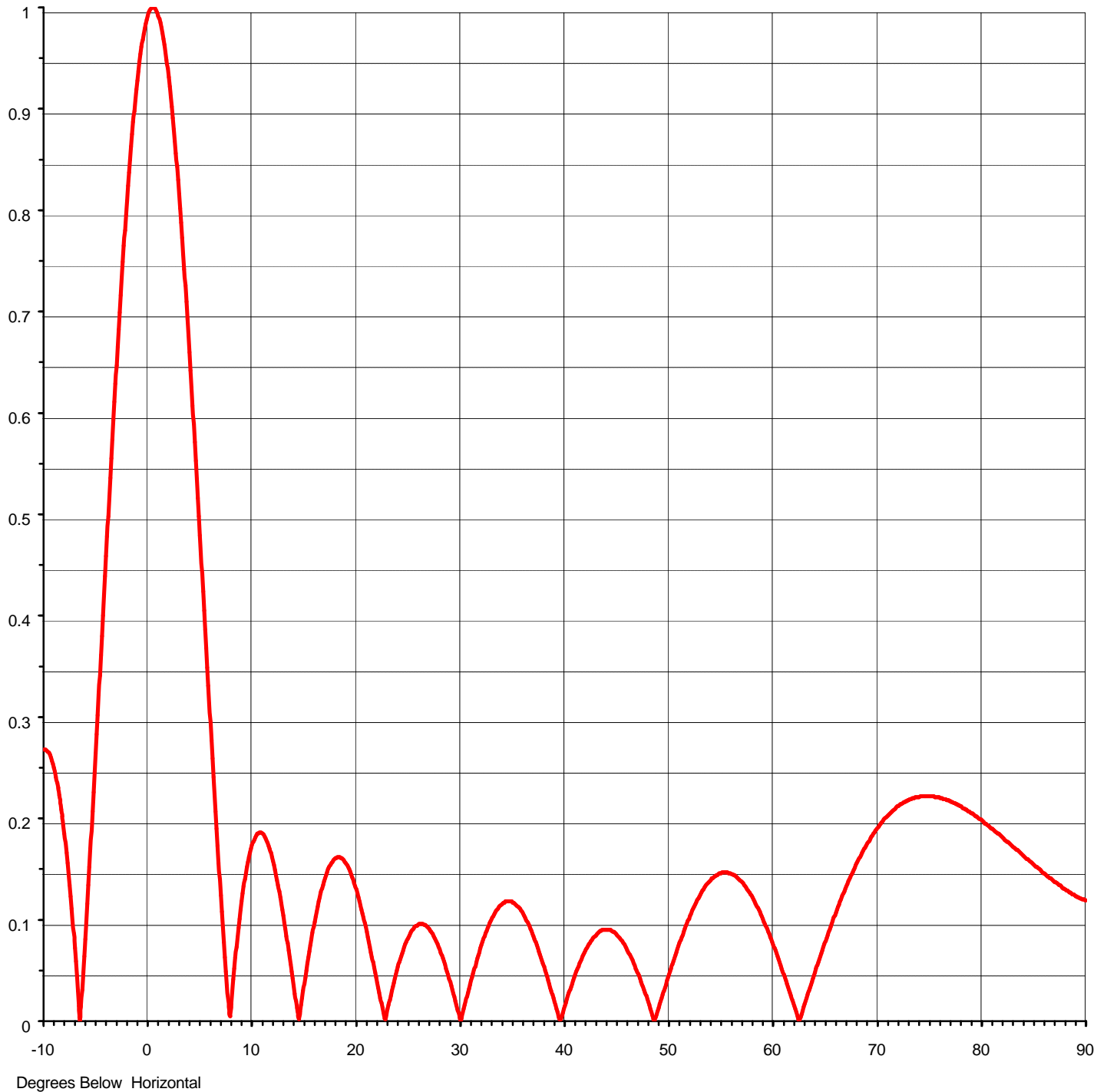
Proposal Number **DCA070104**  
Date **1-Jul-04**  
Call Letters **KMAJ**  
Location **Topeka, KS**  
Customer **Cumulus**  
Antenna Type **DCRM8B**

Channel **299**

## ELEVATION PATTERN

RMS Gain at Main Lobe **4.24 ( 6.28 dB )**  
RMS Gain at Horizontal **4.18 ( 6.21 dB )**  
Calculated / Measured **Calculated**

Beam Tilt **0.50 deg**  
Frequency **107.70 MHz**





Proposal Number **DCA070104**  
 Date **1-Jul-04**  
 Call Letters **KMAJ**  
 Location **Topeka, KS**  
 Customer **Cumulus**  
 Antenna Type **DCRM8B**

### TABULATION OF ELEVATION PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.268	2.4	0.891	10.6	0.185	30.5	0.016	51.0	0.074	71.5	0.208
-9.5	0.265	2.6	0.868	10.8	0.186	31.0	0.036	51.5	0.088	72.0	0.212
-9.0	0.250	2.8	0.843	11.0	0.186	31.5	0.054	52.0	0.101	72.5	0.216
-8.5	0.223	3.0	0.816	11.5	0.178	32.0	0.072	52.5	0.113	73.0	0.218
-8.0	0.185	3.2	0.788	12.0	0.162	32.5	0.087	53.0	0.123	73.5	0.220
-7.5	0.134	3.4	0.757	12.5	0.139	33.0	0.099	53.5	0.132	74.0	0.221
-7.0	0.072	3.6	0.726	13.0	0.110	33.5	0.109	54.0	0.138	74.5	0.222
-6.5	0.000	3.8	0.693	13.5	0.077	34.0	0.115	54.5	0.143	75.0	0.222
-6.0	0.081	4.0	0.660	14.0	0.042	34.5	0.118	55.0	0.146	75.5	0.221
-5.5	0.170	4.2	0.625	14.5	0.006	35.0	0.118	55.5	0.147	76.0	0.220
-5.0	0.264	4.4	0.589	15.0	0.030	35.5	0.114	56.0	0.146	76.5	0.219
-4.5	0.361	4.6	0.553	15.5	0.063	36.0	0.108	56.5	0.143	77.0	0.217
-4.0	0.459	4.8	0.516	16.0	0.093	36.5	0.098	57.0	0.138	77.5	0.214
-3.5	0.555	5.0	0.479	16.5	0.118	37.0	0.086	57.5	0.132	78.0	0.212
-3.0	0.647	5.2	0.442	17.0	0.138	37.5	0.072	58.0	0.124	78.5	0.209
-2.8	0.682	5.4	0.405	17.5	0.152	38.0	0.057	58.5	0.114	79.0	0.205
-2.6	0.716	5.6	0.368	18.0	0.160	38.5	0.040	59.0	0.103	79.5	0.202
-2.4	0.749	5.8	0.331	18.5	0.162	39.0	0.023	59.5	0.091	80.0	0.198
-2.2	0.780	6.0	0.295	19.0	0.157	39.5	0.005	60.0	0.078	80.5	0.194
-2.0	0.809	6.2	0.259	19.5	0.148	40.0	0.012	60.5	0.064	81.0	0.190
-1.8	0.837	6.4	0.224	20.0	0.133	40.5	0.028	61.0	0.049	81.5	0.185
-1.6	0.863	6.6	0.190	20.5	0.114	41.0	0.043	61.5	0.034	82.0	0.181
-1.4	0.887	6.8	0.156	21.0	0.093	41.5	0.057	62.0	0.018	82.5	0.177
-1.2	0.909	7.0	0.124	21.5	0.068	42.0	0.068	62.5	0.002	83.0	0.172
-1.0	0.928	7.2	0.093	22.0	0.043	42.5	0.077	63.0	0.014	83.5	0.168
-0.8	0.946	7.4	0.063	22.5	0.018	43.0	0.084	63.5	0.030	84.0	0.163
-0.6	0.961	7.6	0.035	23.0	0.007	43.5	0.089	64.0	0.045	84.5	0.159
-0.4	0.974	7.8	0.008	23.5	0.030	44.0	0.090	64.5	0.064	85.0	0.154
-0.2	0.984	8.0	0.017	24.0	0.050	44.5	0.090	65.0	0.079	85.5	0.150
0.0	0.992	8.2	0.041	24.5	0.067	45.0	0.086	65.5	0.093	86.0	0.146
0.2	0.997	8.4	0.063	25.0	0.081	45.5	0.080	66.0	0.107	86.5	0.141
0.4	1.000	8.6	0.083	25.5	0.090	46.0	0.072	66.5	0.120	87.0	0.137
0.6	1.000	8.8	0.101	26.0	0.095	46.5	0.062	67.0	0.133	87.5	0.134
0.8	0.997	9.0	0.118	26.5	0.096	47.0	0.050	67.5	0.145	88.0	0.130
1.0	0.992	9.2	0.133	27.0	0.092	47.5	0.036	68.0	0.156	88.5	0.127
1.2	0.985	9.4	0.146	27.5	0.084	48.0	0.022	68.5	0.166	89.0	0.123
1.4	0.975	9.6	0.157	28.0	0.073	48.5	0.006	69.0	0.175	89.5	0.121
1.6	0.963	9.8	0.162	28.5	0.059	49.0	0.010	69.5	0.183	90.0	0.119
1.8	0.948	10.0	0.170	29.0	0.042	49.5	0.026	70.0	0.191		
2.0	0.931	10.2	0.177	29.5	0.024	50.0	0.043	70.5	0.197		
2.2	0.912	10.4	0.181	30.0	0.004	50.5	0.059	71.0	0.203		



Proposal Number	<b>DCA070104</b>
Date	<b>1-Jul-04</b>
Call Letters	<b>KMAJ</b>
Location	<b>Topeka, KS</b>
Customer	<b>Cumulus</b>
Antenna Type	<b>DCRM8B</b>

## SYSTEM SUMMARY

### Antenna:

Type:	<b>DCRM8B</b>	ERP:	<b>100 kW ( 20.00 dBk )</b>
Channel:	<b>299</b>	Peak Gain*:	<b>4.2 ( 6.28 dB )</b>
Location:	<b>Topeka, KS</b>	Input Power:	<b>23.57 kW ( 13.72 dBk )</b>

### Transmission Line

Type:	<b>Flexline</b>	Attenuation:	<b>1.51 dB</b>
Size:	<b>3-1/8</b>	Efficiency:	<b>70.6%</b>
Length:	<b>1,200 ft</b>		<b>365.8 m</b>

### Transmitter Output

Power Required: **33.37 kW ( 15.23 dBk )**

\* Gain is with respect to half wave dipole.



## Mechanical Specifications

### Antenna:

Type: **DCRM8B**  
Channel: **299**  
Frequency: **107.7**  
Location: **Topeka, KS**

**Antenna Length (H2): 65 ft      Windload\*: 1380 lbs**

**Center of Radiation (H3): 32.5 ft      Weight\*: 732 lbs**

\*Windload based on EIA-RS-222-C (50/33 lb/ft<sup>2</sup>). Windload and weight do not include custom mounts, feed system, radomes nor pattern shapers.