

# SYSTEMS WITH RELIABILITY, LP

Broadcast Antennas & Transmission Systems



## SYSTEM DATA SHEET

Customer: Morris Network  
 Call letters: WXXV-TV STA  
 Contact: Ray Luke  
 Location: Gulfport, Mississippi  
 Antenna Model: SWDDP0-4-4-4/25  
 Channel / Frequency: 25 / 539 MHz

### ELECTRICAL SPECIFICATION

Polarization Type	Horizontal		
Polarization Ratio			
H-Pol. (PRH)	100.00	%	
Elevation Directivity (ED)	9.937		
Azimuth Directivity (AD) H-Pol.	1.793		
Antenna Efficiency	100.000	%	
Antenna Gain (G)			
H-Pol. (GH)	17.821		
dB Gain (AG)			
H-Pol. (AGH)	12.509	dB	
ERP			
H-Pol. (ERPH)	42.650	kW	
Beam Tilt	-1.00	Degrees	
Null Fill	0, 0, 0	%	
Line Type	3" RFS	HCA300-50J	
Attenuation per 100 ft.	0.320	dB/100ft	
Line Length (LL) (AGL+50')	1000.00	ft.	
Total Line Attenuation	3.200	dB	
Line Efficiency (LE)	47.86	%	
Line Loss (LPL)	2.607	kW	
Antenna Input Power (AIP)	2.393	kW	
Req'd. Transmitter Output Power	5.000	kW	

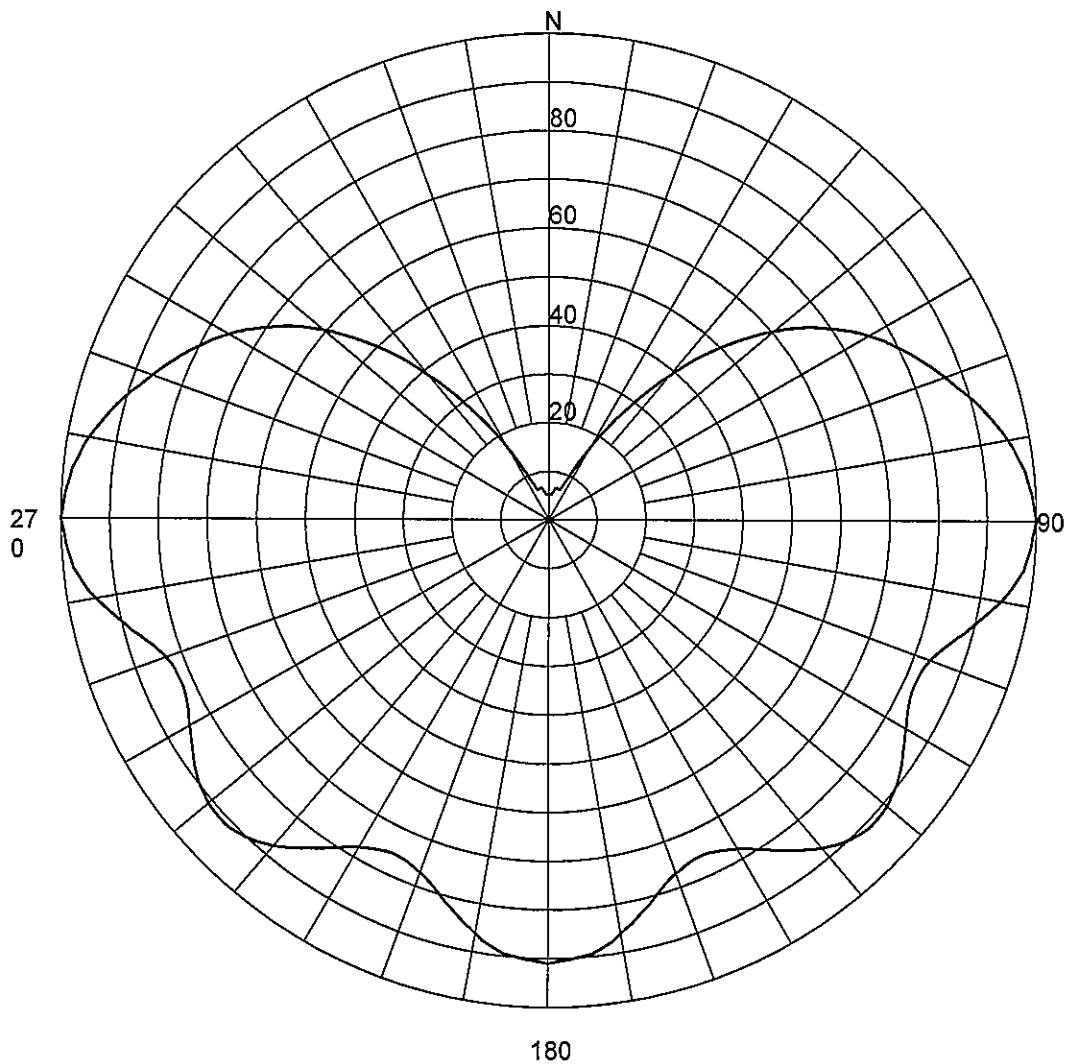
### MECHANICAL SPECIFICATION

No. Of Bays	4		3	Around
Center of Radiation AGL	900.00	ft.	274.32	m
Antenna Aperture	13.69	ft.	4.17	m
Antenna Total Length	20.14	ft.	6.14	m
Antenna Weight	750.00	lbs.	340.91	kg
Windload CaAc / 50/33 psf	45.00	ft^2	1575.00	lbs.

Specifications will be certified upon final construction and testing.  
 The given values can be used for planning the system.

Prepared by:

Umesh Babu, Manedi  
 SWR, LP, Engineering



Azimuth Pattern

Systems With Reliability, LP (SWR)

Scale: Linear

Unit: Relative Field

CLIENT: Ray Luke

Date: 11/4/2020

ANTENNA TYPE: SWDDP0-4-4-4/25

FREQUENCY: 539

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.7934/2.5368

PATTERN RMS: 0.747

## Relative Field Tabulation(Azimuth)

Azimuth Heading	Normalized Field(dB)	Azimuth Heading	Normalized Field(dB)
0	.0500 (-26.02 )	180	.9095 (-0.82 )
5	.0519 (-25.69 )	185	.8966 (-0.95 )
10	.0600 (-24.43 )	190	.8628 (-1.28 )
15	.0658 (-23.64 )	195	.8154 (-1.77 )
20	.0650 (-23.74 )	200	.7704 (-2.27 )
25	.0954 (-20.41 )	205	.7558 (-2.43 )
30	.1695 (-15.42 )	210	.7774 (-2.19 )
35	.2753 (-11.2 )	215	.8247 (-1.67 )
40	.3906 (-8.17 )	220	.8751 (-1.16 )
45	.5035 (-5.96 )	225	.9066 (-0.85 )
50	.6050 (-4.36 )	230	.9087 (-0.83 )
55	.6904 (-3.22 )	235	.8834 (-1.08 )
60	.7603 (-2.38 )	240	.8477 (-1.43 )
65	.8152 (-1.77 )	245	.8239 (-1.68 )
70	.8636 (-1.27 )	250	.8335 (-1.58 )
75	.9142 (-0.78 )	255	.8844 (-1.07 )
80	.9557 (-0.39 )	260	.9421 (-0.52 )
85	.9849 (-0.13 )	265	.9834 (-0.15 )
90	1.0000 ( 0 )	270	1.0000 ( 0 )
95	.9834 (-0.15 )	275	.9849 (-0.13 )
100	.9421 (-0.52 )	280	.9557 (-0.39 )
105	.8844 (-1.07 )	285	.9142 (-0.78 )
110	.8335 (-1.58 )	290	.8636 (-1.27 )
115	.8239 (-1.68 )	295	.8152 (-1.77 )
120	.8477 (-1.43 )	300	.7603 (-2.38 )
125	.8834 (-1.08 )	305	.6904 (-3.22 )
130	.9087 (-0.83 )	310	.6050 (-4.36 )
135	.9066 (-0.85 )	315	.5035 (-5.96 )
140	.8751 (-1.16 )	320	.3906 (-8.17 )
145	.8247 (-1.67 )	325	.2753 (-11.2 )
150	.7774 (-2.19 )	330	.1695 (-15.42 )
155	.7558 (-2.43 )	335	.0954 (-20.41 )
160	.7704 (-2.27 )	340	.0650 (-23.74 )
165	.8154 (-1.77 )	345	.0658 (-23.64 )
170	.8628 (-1.28 )	350	.0600 (-24.43 )
175	.8966 (-0.95 )	355	.0519 (-25.69 )

## Systems With Reliability, LP (SWR)

CLIENT: *Ray Luke*

Date: 11/4/2020

ANTENNA TYPE: SWDDP0-4-4-4/25

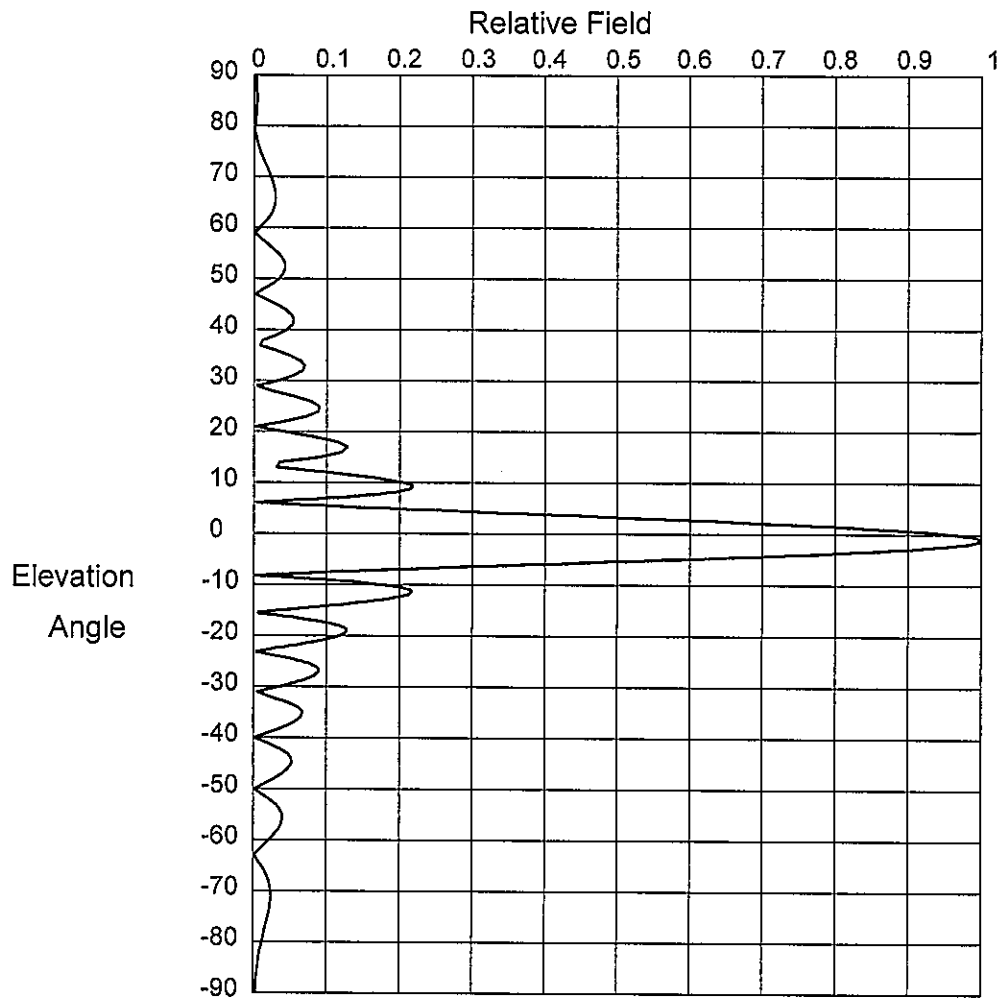
FREQUENCY: 539

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.7934/2.5368

PATTERN RMS: 0.747



Elevation Pattern

Scale: Linear

Units: Field, Relative

## Systems With Reliability (SWR)

CLIENT: *Channel 25*

Date: 11/4/2020

ANTENNA TYPE: SWDDP4-4-0-4/25

FREQUENCY: 539

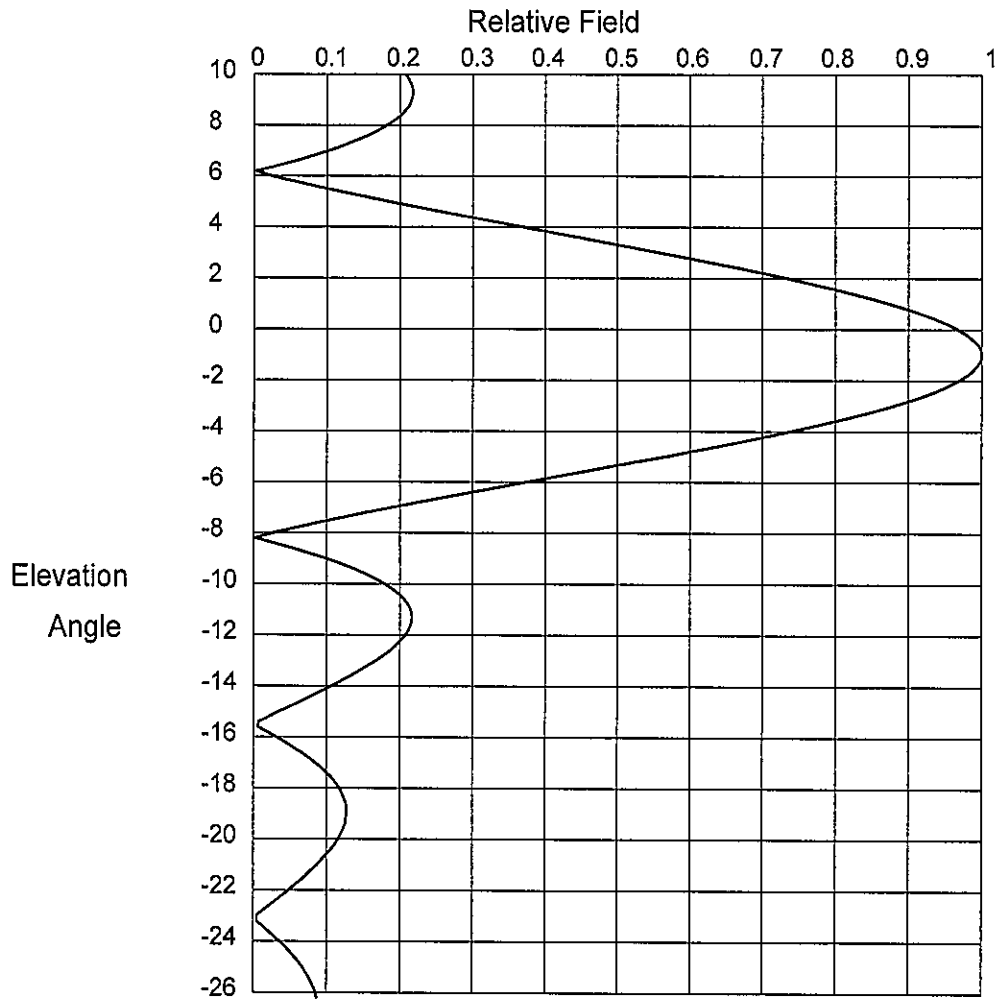
PATTERN POL.: Horizontal

DIRECTIVITY(Peak): 9.937/9.973 dBd

Beam Tilt (Deg.): -1

DIRECTIVITY(Horiz): 9.321/9.695 dBd

Null Fill(s)(%): 0, 0, 0



## Elevation Pattern

### Systems With Reliability, LP (SWR)

Scale: Linear

Units: Field, Relative

CLIENT: Ray Luke  
ANTENNA TYPE: SWDDP0-4-4-4/25  
FREQUENCY: 539  
PATTERN POL.: Horizontal  
DIRECTIVITY(Peak): 9.937/9.973 dBd  
DIRECTIVITY(Horiz): 9.321/9.695 dBd

Date: 11/4/2020

Beam Tilt (Deg.) : -1  
Null Fill(s)(%) : 0, 0, 0

## Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
90.0	.003 (-51.516)	52.0	.042 (-27.493)	14.0	.036 (-28.913 )
89.0	.003 (-50.32)	51.0	.04 (-28.057)	13.0	.031 (-30.122 )
88.0	.003 (-49.433)	50.0	.034 (-29.484)	12.0	.103 (-19.778 )
87.0	.004 (-48.832)	49.0	.024 (-32.267)	11.0	.166 (-15.605 )
86.0	.004 (-48.518)	48.0	.012 (-38.117)	10.0	.208 (-13.653 )
85.0	.004 (-48.515)	47.0	.001 (-56.772)	9.8	.212 (-13.46 )
84.0	.004 (-48.882)	46.0	.016 (-35.846)	9.6	.216 (-13.329 )
83.0	.003 (-49.737)	45.0	.03 (-30.384)	9.4	.217 (-13.26 )
82.0	.003 (-51.324)	44.0	.042 (-27.47)	9.2	.217 (-13.255 )
81.0	.002 (-54.247)	43.0	.051 (-25.877)	9.0	.216 (-13.316 )
80.0	.001 (-60.824)	42.0	.055 (-25.269)	8.8	.213 (-13.448 )
79.0	.00 (-68.115)	41.0	.052 (-25.6)	8.6	.208 (-13.655 )
78.0	.002 (-54.064)	40.0	.044 (-27.056)	8.4	.201 (-13.945 )
77.0	.004 (-48.271)	39.0	.031 (-30.289)	8.2	.192 (-14.329 )
76.0	.006 (-44.407)	38.0	.012 (-38.261)	8.0	.182 (-14.819 )
75.0	.008 (-41.467)	37.0	.009 (-41.02)	7.8	.169 (-15.434 )
74.0	.011 (-39.095)	36.0	.03 (-30.369)	7.6	.155 (-16.201 )
73.0	.014 (-37.127)	35.0	.049 (-26.148)	7.4	.139 (-17.16 )
72.0	.017 (-35.476)	34.0	.063 (-24.012)	7.2	.121 (-18.371 )
71.0	.02 (-34.095)	33.0	.069 (-23.203)	7.0	.101 (-19.937 )
70.0	.022 (-32.957)	32.0	.066 (-23.592)	6.8	.079 (-22.044 )
69.0	.025 (-32.051)	31.0	.053 (-25.435)	6.6	.056 (-25.103 )
68.0	.027 (-31.376)	30.0	.032 (-29.857)	6.4	.03 (-30.34 )
67.0	.028 (-30.944)	29.0	.004 (-47.052)	6.2	.004 (-48.86 )
66.0	.029 (-30.778)	28.0	.026 (-31.678)	6.0	.025 (-32.125 )
65.0	.028 (-30.916)	27.0	.055 (-25.2)	5.8	.055 (-25.256 )
64.0	.027 (-31.425)	26.0	.078 (-22.209)	5.6	.086 (-21.327 )
63.0	.024 (-32.418)	25.0	.09 (-20.954)	5.4	.118 (-18.538 )
62.0	.02 (-34.109)	24.0	.088 (-21.101)	5.2	.152 (-16.362 )
61.0	.014 (-36.985)	23.0	.072 (-22.87)	5.0	.187 (-14.575 )
60.0	.007 (-42.623)	22.0	.042 (-27.527)	4.8	.222 (-13.058 )
59.0	.00 (-69.286)	21.0	.002 (-53.244)	4.6	.259 (-11.74 )
58.0	.009 (-41.187)	20.0	.042 (-27.53)	4.4	.296 (-10.577 )
57.0	.017 (-35.243)	19.0	.083 (-21.576)	4.2	.334 (-9.538 )
56.0	.026 (-31.868)	18.0	.114 (-18.834)	4.0	.371 (-8.602 )
55.0	.033 (-29.699)	17.0	.128 (-17.848)	3.8	.41 (-7.752 )
54.0	.038 (-28.328)	16.0	.12 (-18.42)	3.6	.448 (-6.978 )
53.0	.042 (-27.603)	15.0	.088 (-21.073)	3.4	.486 (-6.269 )

## Systems With Reliability, LP (SWR)

Page 1 of 3

CLIENT: Ray Luke  
 ANTENNA TYPE: SWDDP0-4-4-4/25  
 FREQUENCY: 539  
 PATTERN POL.: Horizontal  
 DIRECTIVITY(Peak): 9.937/9.973 dBd  
 DIRECTIVITY(Horiz): 9.321/9.695 dBd

Date: 11/4/2020

Beam Tilt (Deg.) : -1  
 Null Fill(s)(%) : 0, 0, 0

## Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
3.2	.524 (-5.618)	-4.4	.668 (-3.499)	-12.0	.207 (-13.666)
3.0	.561 (-5.019)	-4.6	.633 (-3.967)	-12.2	.202 (-13.909)
2.8	.598 (-4.468)	-4.8	.597 (-4.474)	-12.4	.195 (-14.215)
2.6	.634 (-3.959)	-5.0	.561 (-5.024)	-12.6	.186 (-14.586)
2.4	.669 (-3.491)	-5.2	.524 (-5.621)	-12.8	.177 (-15.026)
2.2	.703 (-3.059)	-5.4	.486 (-6.27)	-13.0	.167 (-15.539)
2.0	.736 (-2.663)	-5.6	.448 (-6.976)	-13.2	.156 (-16.132)
1.8	.767 (-2.299)	-5.8	.41 (-7.747)	-13.4	.144 (-16.814)
1.6	.797 (-1.966)	-6.0	.372 (-8.592)	-13.6	.132 (-17.597)
1.4	.826 (-1.663)	-6.2	.334 (-9.522)	-13.8	.119 (-18.498)
1.2	.852 (-1.388)	-6.4	.297 (-10.554)	-14.0	.105 (-19.54)
1.0	.877 (-1.14)	-6.6	.26 (-11.708)	-14.2	.092 (-20.756)
.8	.90 (-0.918)	-6.8	.224 (-13.013)	-14.4	.078 (-22.196)
.6	.92 (-0.722)	-7.0	.188 (-14.514)	-14.6	.064 (-23.941)
.4	.939 (-0.55)	-7.2	.153 (-16.278)	-14.8	.049 (-26.134)
.2	.955 (-0.402)	-7.4	.12 (-18.417)	-15.0	.035 (-29.058)
.0	.968 (-0.278)	-7.6	.088 (-21.146)	-15.2	.021 (-33.436)
-.2	.98 (-0.177)	-7.8	.057 (-24.951)	-15.4	.008 (-42.401)
-.4	.989 (-0.099)	-8.0	.027 (-31.424)	-15.6	.006 (-44.745)
-.6	.995 (-0.044)	-8.2	.001 (-57.037)	-15.8	.019 (-34.537)
-.8	.999 (-0.011)	-8.4	.028 (-31.023)	-16.0	.031 (-30.107)
-1.0	1.00 (0)	-8.6	.053 (-25.483)	-16.2	.043 (-27.299)
-1.2	.999 (-0.012)	-8.8	.077 (-22.317)	-16.4	.054 (-25.278)
-1.4	.995 (-0.046)	-9.0	.098 (-20.154)	-16.6	.065 (-23.73)
-1.6	.988 (-0.102)	-9.2	.118 (-18.554)	-16.8	.075 (-22.501)
-1.8	.979 (-0.181)	-9.4	.136 (-17.318)	-17.0	.084 (-21.504)
-2.0	.968 (-0.283)	-9.6	.152 (-16.341)	-17.2	.092 (-20.687)
-2.2	.954 (-0.408)	-9.8	.167 (-15.559)	-17.4	.10 (-20.013)
-2.4	.938 (-0.556)	-10.0	.179 (-14.931)	-17.6	.106 (-19.459)
-2.6	.92 (-0.728)	-10.2	.19 (-14.431)	-17.8	.112 (-19.008)
-2.8	.899 (-0.926)	-10.4	.199 (-14.037)	-18.0	.117 (-18.646)
-3.0	.876 (-1.148)	-10.6	.206 (-13.738)	-18.2	.121 (-18.365)
-3.2	.851 (-1.396)	-10.8	.211 (-13.521)	-18.4	.124 (-18.157)
-3.4	.825 (-1.672)	-11.0	.214 (-13.38)	-18.6	.126 (-18.016)
-3.6	.797 (-1.975)	-11.2	.216 (-13.31)	-18.8	.127 (-17.94)
-3.8	.767 (-2.308)	-11.4	.216 (-13.305)	-19.0	.127 (-17.926)
-4.0	.735 (-2.672)	-11.6	.215 (-13.364)	-19.2	.126 (-17.97)
-4.2	.702 (-3.068)	-11.8	.212 (-13.485)	-19.4	.125 (-18.074)

### Systems With Reliability, LP (SWR)

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CLIENT: Ray Luke  
 ANTENNA TYPE: SWDDP0-4-4-4/25  
 FREQUENCY: 539  
 PATTERN POL.: Horizontal  
 DIRECTIVITY(Peak): 9.937/9.973 dBd  
 DIRECTIVITY(Horiz): 9.321/9.695 dBd

Date: 11/4/2020

Beam Tilt (Deg.) : -1  
 Null Fill(s)(%) : 0, 0, 0

## Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
-19.6	.123 (-18.236)	-27.2	.088 (-21.087)	-54.0	.036 (-28.896 )
-19.8	.119 (-18.458)	-27.4	.087 (-21.215)	-55.0	.039 (-28.182 )
-20.0	.116 (-18.741)	-27.6	.085 (-21.396)	-56.0	.039 (-28.087 )
-20.2	.111 (-19.087)	-27.8	.083 (-21.631)	-57.0	.037 (-28.525 )
-20.4	.106 (-19.501)	-28.0	.08 (-21.923)	-58.0	.034 (-29.479 )
-20.6	.10 (-19.987)	-28.2	.077 (-22.273)	-59.0	.028 (-30.998 )
-20.8	.094 (-20.552)	-28.4	.073 (-22.686)	-60.0	.022 (-33.228 )
-21.0	.087 (-21.206)	-28.6	.069 (-23.166)	-61.0	.015 (-36.536 )
-21.2	.08 (-21.961)	-28.8	.065 (-23.721)	-62.0	.008 (-42.043 )
-21.4	.072 (-22.833)	-29.0	.061 (-24.359)	-63.0	.001 (-58.576 )
-21.6	.064 (-23.846)	-29.2	.056 (-25.09)	-64.0	.005 (-46.034 )
-21.8	.056 (-25.034)	-29.4	.051 (-25.932)	-65.0	.01 (-39.656 )
-22.0	.048 (-26.447)	-29.6	.045 (-26.905)	-66.0	.015 (-36.519 )
-22.2	.039 (-28.167)	-29.8	.04 (-28.039)	-67.0	.019 (-34.652 )
-22.4	.03 (-30.339)	-30.0	.034 (-29.381)	-68.0	.021 (-33.494 )
-22.6	.022 (-33.255)	-31.0	.005 (-46.578)	-69.0	.023 (-32.807 )
-22.8	.013 (-37.656)	-32.0	.023 (-32.738)	-70.0	.024 (-32.462 )
-23.0	.005 (-46.866)	-33.0	.046 (-26.784)	-71.0	.024 (-32.384 )
-23.2	.004 (-48.199)	-34.0	.061 (-24.296)	-72.0	.024 (-32.523 )
-23.4	.012 (-38.321)	-35.0	.067 (-23.428)	-73.0	.023 (-32.845 )
-23.6	.02 (-33.918)	-36.0	.065 (-23.739)	-74.0	.022 (-33.324 )
-23.8	.028 (-31.097)	-37.0	.055 (-25.201)	-75.0	.02 (-33.94 )
-24.0	.035 (-29.05)	-38.0	.039 (-28.163)	-76.0	.018 (-34.679 )
-24.2	.042 (-27.468)	-39.0	.02 (-34.087)	-77.0	.017 (-35.526 )
-24.4	.049 (-26.201)	-40.0	.00 (-66.024)	-78.0	.015 (-36.471 )
-24.6	.055 (-25.163)	-41.0	.019 (-34.256)	-79.0	.013 (-37.503 )
-24.8	.061 (-24.301)	-42.0	.035 (-29.127)	-80.0	.012 (-38.612 )
-25.0	.066 (-23.58)	-43.0	.046 (-26.753)	-81.0	.01 (-39.786 )
-25.2	.071 (-22.977)	-44.0	.052 (-25.736)	-82.0	.009 (-41.015 )
-25.4	.075 (-22.474)	-45.0	.052 (-25.676)	-83.0	.008 (-42.287 )
-25.6	.079 (-22.058)	-46.0	.048 (-26.463)	-84.0	.007 (-43.589 )
-25.8	.082 (-21.72)	-47.0	.039 (-28.173)	-85.0	.006 (-44.909 )
-26.0	.085 (-21.452)	-48.0	.028 (-31.147)	-86.0	.005 (-46.233 )
-26.2	.087 (-21.248)	-49.0	.015 (-36.576)	-87.0	.004 (-47.553 )
-26.4	.088 (-21.105)	-50.0	.002 (-55.78)	-88.0	.004 (-48.866 )
-26.6	.089 (-21.02)	-51.0	.011 (-39.324)	-89.0	.003 (-50.179 )
-26.8	.089 (-20.989)	-52.0	.022 (-33.317)	-90.0	.003 (-51.516 )
-27.0	.089 (-21.012)	-53.0	.03 (-30.437)	90.0	.00 (-50 )

## Systems With Reliability, LP (SWR)

Page 3 of 3

CLIENT: Ray Luke  
 ANTENNA TYPE: SWDDP0-4-4-4/25  
 FREQUENCY: 539  
 PATTERN POL.: Horizontal  
 DIRECTIVITY(Peak): 9.937/9.973 dBd  
 DIRECTIVITY(Horiz): 9.321/9.695 dBd

Date: 11/4/2020

Beam Tilt (Deg.) : -1  
 Null Fill(s)(%) : 0, 0, 0