

ENGINEERING EXHIBIT  
APPLICATION FOR LICENSE  
RADIO STATION WFJO(FM)  
ST. PETERSBURG, FLORIDA

May 9, 2001

CH 268C 100 KW 470 M

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ENGINEERING EXHIBIT  
APPLICATION FOR MODIFICATION OF  
CONSTRUCTION PERMIT  
RADIO STATION WFJO(FM)  
ST. PETERSBURG, FLORIDA  
CH 268C 100 KW 470 M

Engineering Statement

This Engineering Exhibit was prepared on behalf of radio station WFJO(FM), St. Petersburg, Florida in support of an application for license. This exhibit provides details concerning the WFJO operation and its use of electrical beam tilt.

Figure 1 is a tabulation of the operational specifications for the WFJO facility, as built. As indicated therein, there is a total transmission loss of 1.2 dB (75.9% efficiency), which, given a maximum beam ERP of 100 kW and an antenna power gain of 4.0, results in a transmitter power output of 33.0 kW.

The facility employs a Dielectric, TDM-9 FM transmitting antenna with 0.9 degree of downward electrical beam tilt.\* The Appendix contains the antenna vertical pattern data. The horizontal plane ERP is calculated to be 95.0 kW, with a maximum beam ERP of 100 kW, based on the manufacturer-supplied data,

Louis Robert du Treil, Jr.

May 9, 2001

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\* This is the same antenna pattern specified in the application for construction permit. There is no change in the radio-frequency energy exposure calculation for the WFJO facility.

**Figure 1**

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Operational Specifications

Transmitter	Harris, HT35
Transmitter power output	33.0 kW
Transmission line 1	Dielectric, EIA 3 in
Length	27 ft
Loss	0.03 dB
Transmission line 2	Dielectric, EIA 4 in
Length	68 ft
Loss	0.04 dB
Transmission line 3	Dielectric, EIA 6-1/8 in
Length	1542 ft
Loss	0.81 dB
Switch 1	
Loss	0.10 dB
Switch 2	
Loss	0.10 dB
Combiner	
Loss at 101.5 MHz	0.12 dB
Total transmission loss	1.20 dB (75.9% efficiency)
Antenna	Dielectric, TDM-9 FM
Polarization	Circular
Maximum power gain	4.0
Antenna input power	25.0 kW
Effective radiated power at main beam maximum	100 kW

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Vertical Plane Radiation Pattern for Proposed Transmitting Antenna

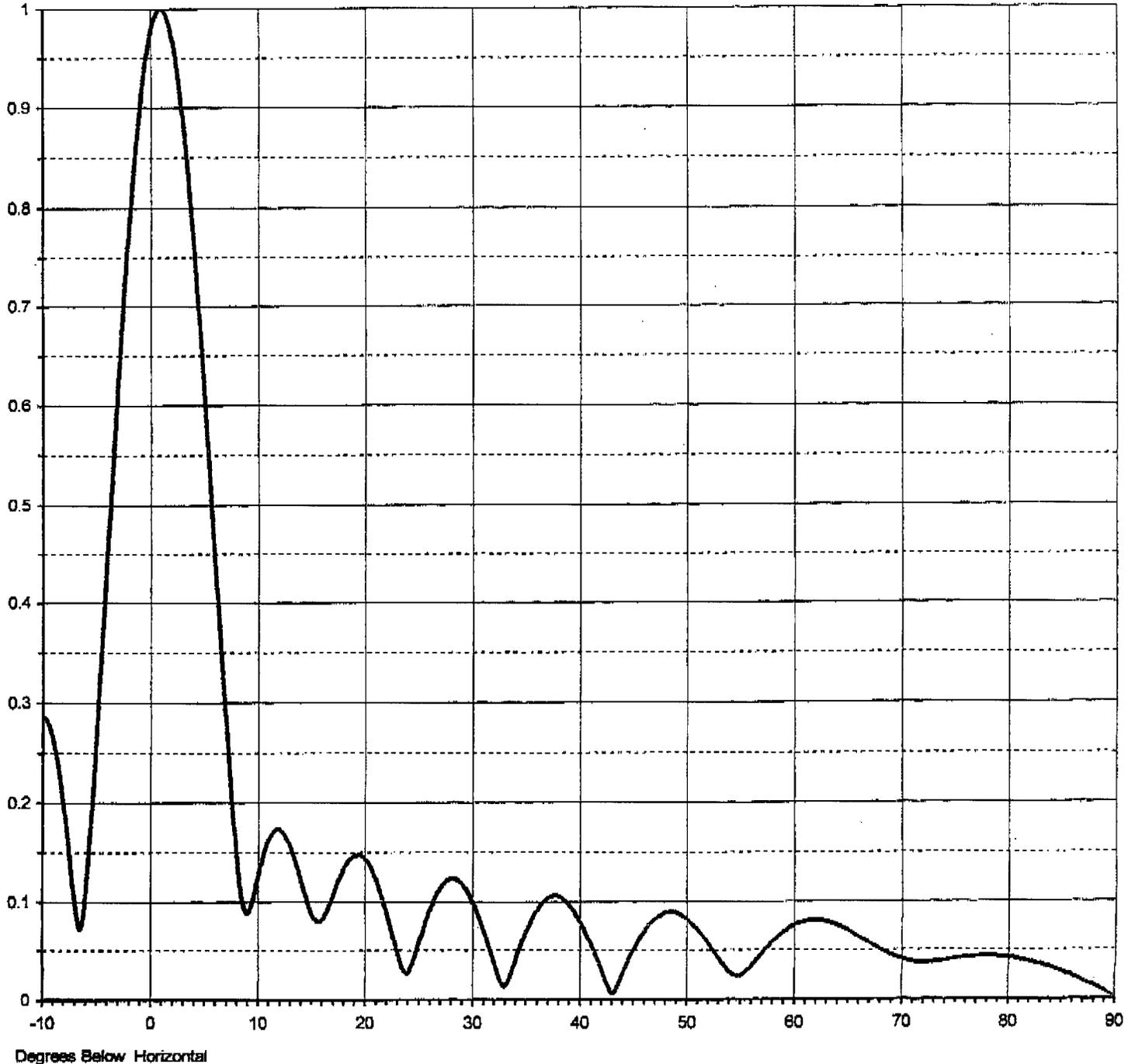
*(two sheets follow)*



Proposal Number **DCA-8875**  
Date **28-Jul-00**  
Call Letters **WFJO-FM** Channel **268**  
Location **Tampa, FL**  
Customer **ATS**  
Antenna Type **TDM-9 FM**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>4.00 ( 6.02 dB )</b>	Beam Tilt	<b>0.90 deg</b>
RMS Gain at Horizontal	<b>3.80 ( 5.80 dB )</b>	Frequency	<b>101.50 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>9D040090-90</b>



Degrees Below Horizontal



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 Antenna Type **TDM-9 FM**

### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **9D040090-90**

Angle	Field										
-10.0	0.288	2.4	0.939	10.6	0.147	30.5	0.089	51.0	0.073	71.5	0.037
-9.5	0.280	2.6	0.922	10.8	0.154	31.0	0.075	51.5	0.068	72.0	0.037
-9.0	0.263	2.8	0.903	11.0	0.161	31.5	0.058	52.0	0.059	72.5	0.037
-8.5	0.234	3.0	0.883	11.5	0.171	32.0	0.041	52.5	0.051	73.0	0.038
-8.0	0.196	3.2	0.861	12.0	0.173	32.5	0.024	53.0	0.043	73.5	0.038
-7.5	0.150	3.4	0.838	12.5	0.169	33.0	0.013	53.5	0.036	74.0	0.039
-7.0	0.100	3.6	0.813	13.0	0.159	33.5	0.022	54.0	0.029	74.5	0.040
-6.5	0.072	3.8	0.786	13.5	0.144	34.0	0.037	54.5	0.025	75.0	0.040
-6.0	0.107	4.0	0.759	14.0	0.126	34.5	0.053	55.0	0.024	75.5	0.041
-5.5	0.179	4.2	0.730	14.5	0.107	35.0	0.067	55.5	0.027	76.0	0.042
-5.0	0.264	4.4	0.700	15.0	0.091	35.5	0.079	56.0	0.032	76.5	0.042
-4.5	0.353	4.6	0.669	15.5	0.081	36.0	0.090	56.5	0.038	77.0	0.043
-4.0	0.445	4.8	0.638	16.0	0.081	36.5	0.098	57.0	0.045	77.5	0.043
-3.5	0.535	5.0	0.606	16.5	0.090	37.0	0.103	57.5	0.052	78.0	0.043
-3.0	0.623	5.2	0.574	17.0	0.103	37.5	0.105	58.0	0.058	78.5	0.043
-2.8	0.657	5.4	0.541	17.5	0.118	38.0	0.106	58.5	0.063	79.0	0.042
-2.6	0.689	5.6	0.508	18.0	0.130	38.5	0.103	59.0	0.068	79.5	0.042
-2.4	0.721	5.8	0.474	18.5	0.140	39.0	0.098	59.5	0.072	80.0	0.041
-2.2	0.752	6.0	0.441	19.0	0.146	39.5	0.091	60.0	0.075	80.5	0.041
-2.0	0.781	6.2	0.408	19.5	0.147	40.0	0.082	60.5	0.078	81.0	0.040
-1.8	0.808	6.4	0.376	20.0	0.144	40.5	0.072	61.0	0.080	81.5	0.039
-1.6	0.835	6.6	0.344	20.5	0.137	41.0	0.060	61.5	0.081	82.0	0.037
-1.4	0.859	6.8	0.312	21.0	0.125	41.5	0.047	62.0	0.081	82.5	0.036
-1.2	0.882	7.0	0.281	21.5	0.110	42.0	0.033	62.5	0.081	83.0	0.035
-1.0	0.903	7.2	0.252	22.0	0.093	42.5	0.019	63.0	0.080	83.5	0.033
-0.8	0.922	7.4	0.223	22.5	0.073	43.0	0.007	63.5	0.078	84.0	0.031
-0.6	0.939	7.6	0.196	23.0	0.052	43.5	0.011	64.0	0.076	84.5	0.029
-0.4	0.954	7.8	0.171	23.5	0.034	44.0	0.024	64.5	0.073	85.0	0.028
-0.2	0.967	8.0	0.148	24.0	0.027	44.5	0.036	65.0	0.071	85.5	0.025
0.0	0.978	8.2	0.127	24.5	0.037	45.0	0.048	65.5	0.067	86.0	0.023
0.2	0.987	8.4	0.110	25.0	0.054	45.5	0.058	66.0	0.064	86.5	0.021
0.4	0.993	8.6	0.098	25.5	0.072	46.0	0.068	66.5	0.061	87.0	0.019
0.6	0.998	8.8	0.090	26.0	0.088	46.5	0.075	67.0	0.057	87.5	0.016
0.8	1.000	9.0	0.088	26.5	0.102	47.0	0.081	67.5	0.054	88.0	0.014
1.0	1.000	9.2	0.091	27.0	0.112	47.5	0.086	68.0	0.050	88.5	0.011
1.2	0.997	9.4	0.098	27.5	0.119	48.0	0.088	68.5	0.047	89.0	0.008
1.4	0.993	9.6	0.106	28.0	0.123	48.5	0.089	69.0	0.045	89.5	0.005
1.6	0.986	9.8	0.111	28.5	0.123	49.0	0.089	69.5	0.042	90.0	0.000
1.8	0.977	10.0	0.121	29.0	0.119	49.5	0.087	70.0	0.040		
2.0	0.967	10.2	0.130	29.5	0.112	50.0	0.083	70.5	0.039		
2.2	0.954	10.4	0.139	30.0	0.102	50.5	0.079	71.0	0.038		