

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION  
OF CONSTRUCTION PERMIT  
JAMES CRYSTAL ENTERPRISES II, L.L.C.  
RADIO STATION WFTL  
WEST PALM BEACH, FLORIDA

October 20, 2003

850 KHZ 50 KW-D 24 KW-N DA-2

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Technical Narrative

The technical exhibit of which this narrative is part has been prepared on behalf of James Crystal Enterprises II, L.L.C., licensee of AM broadcast station WFTL at West Palm Beach, Florida. WFTL is licensed as a Class B station for operation on 850 kilohertz with daytime power of 5.0 kilowatts and nighttime power of 1.0 kilowatts, operating with the different directional antenna patterns during daytime and nighttime hours. WFTL also has been issued a construction permit, number BP-19990521AI increasing daytime power to 50 kilowatts and nighttime power to 24 kilowatts both relocating to a new site. By means of this modification of construction permit, the licensee proposes to change daytime parameters at the same power level while maintaining the authorized nighttime pattern. The proposal is classified as a minor change according to 47 CFR 73.3571(a)(2). As a Class B station operating on one of the channels listed in 73.25(b), the proposal satisfies 47 CFR 73.21(a)(2) which permits operation with a nominal power of not less than 0.25 kilowatt nor more than 50 kilowatts at any time. The proposal is acceptable for filing under the criteria set forth in 47 CFR 73.37.

The proposed facility will not have a significant environmental impact with regard to potential radio frequency electromagnetic field exposure to humans as defined by 47 CFR 1.1307(b). The Federal Aviation Administration has not been notified of the proposal as new tower construction is not proposed.

#### Directional Antenna System

The same towers, as authorized in the construction permit, will be utilized for this proposal. A summary of specifications for the daytime directional antenna array is included herein as Figure 1.

The daytime directional antenna pattern has been calculated in accordance with 47 CFR 73.150 assuming a one-ohm lumped loss resistance at the current loop of each tower in the array. The daytime standard radiation pattern is shown herein as Figure 2 and is tabulated in Figure 3.

#### Section 73.24(g)

The provisions of 47 CFR 73.24(g) require that the population within the 1,000 mV/m contour not exceed 300 persons. At the proposed location the respective proposed 1,000 mV/m contours encompass 0 persons thus the proposal complies with Section 73.24(g).

#### Daytime Coverage

The proposed WFTL daytime field strength contours are depicted on Figure 4. As indicated on Figure 4, the proposed daytime 5 mV/m contour will completely encompass the city limits of West Palm Beach. The West

Palm Beach city limits depicted were obtained from a map contained in the TIGER 2000 U.S. census files.

#### Daytime Allocation Study

A daytime allocation study was made utilizing FCC Figure M-3 as shown on Figure 5. Daytime field strength contours were calculated in accordance with 47 CFR 73.183. Figure 6 is a tabulation of the data employed in the calculation of daytime contours. Based on this analysis, the proposed WFTL facility will comply with all relevant allocation criteria.

#### Critical Hours Study

During critical hours, WFTL adequately protects the 0.1 mV/m groundwave contour of co-channel Class A station KOA, Denver, Colorado. From the WFTL site, the closest point on the KSL 0.1 mV/m contour is 2211 kilometers on a true bearing of 307.3 degrees. The permissible field toward this KSL point, as determined by 47 CFR 73.187, is 2890 mV/m at one kilometer. The proposed WFTL directional antenna pattern in the vicinity of 307 degrees true has radiation values of less than 500 mV/m; therefore, KOA is protected during critical hours by the WFTL proposal.

#### Environmental Considerations

The proposed WFTL daytime operation was evaluated in terms of both the electric and magnetic field components which will be present at the base of each tower. Using Figures 1 through 4 of Supplement A to OET Bulletin 65, the worst case interpolated distance at which the electric and magnetic fields would fall below ANSI

guidelines is 4 meters. Presently, the areas surrounding the base of each tower are appropriately restricted with a fence having a minimum radius of 4 meters (13 feet). Unless data obtained after construction has been completed indicates otherwise, the fence should assure that persons on the property outside the fenced area will not be exposed to radiofrequency field levels in excess of those recommended by the ANSI. Appropriate measures will be taken if post-construction measurements shown field levels above the ANSI standards; however, the proposed operation is predicted to be within the standards specified in 47 CFR 1.1307(b) for human exposure to radiofrequency radiation.

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Specifications for Daytime  
Directional Antenna System

Frequency:	850 kHz
Hours of Operation:	Unlimited
Power:	50 kW
Number of Towers:	6
Type of Tower:	Guyed, Uniform Cross-section, base-insulated
Towers 1, 5 & 6 - height above base insulator	90.7 m (298 ft)
Towers 1, 5 & 6 - overall height	92.3 m (303 ft)
Tower 2 - height above base insulator	102.5 m (336 ft)
Tower 2 - overall height	104.2 m (342 ft)
Tower 3 - height above base insulator	109.6 m (360 ft)
Tower 3 - overall height	111.2 m (365 ft)
Tower 4 - height above base insulator	112.7 m (370 ft)
Tower 4 - overall height	114.6 m (376 ft)

Daytime Tower Arrangement:

<u>Tower No.</u>	<u>Spacing (deg.)/ (m)</u>	<u>Orientation (deg. True)</u>
1	0.0	0.0
2	112.7/110.5	281.0
3	212.0/207.8	279.0
4	231.9/227.4	151.4
5	181.3/177.7	180.9
6	195.4/191.6	210.5

Daytime Element Field Parameters:

<u>Tower No.</u>	<u>Field Ratio</u>	<u>Phase (degrees)</u>
1	1.000	+0.0
2	1.463	+109.0
3	0.515	-120.3
4	0.186	-51.8
5	0.772	+44.3
6	0.605	+124.5

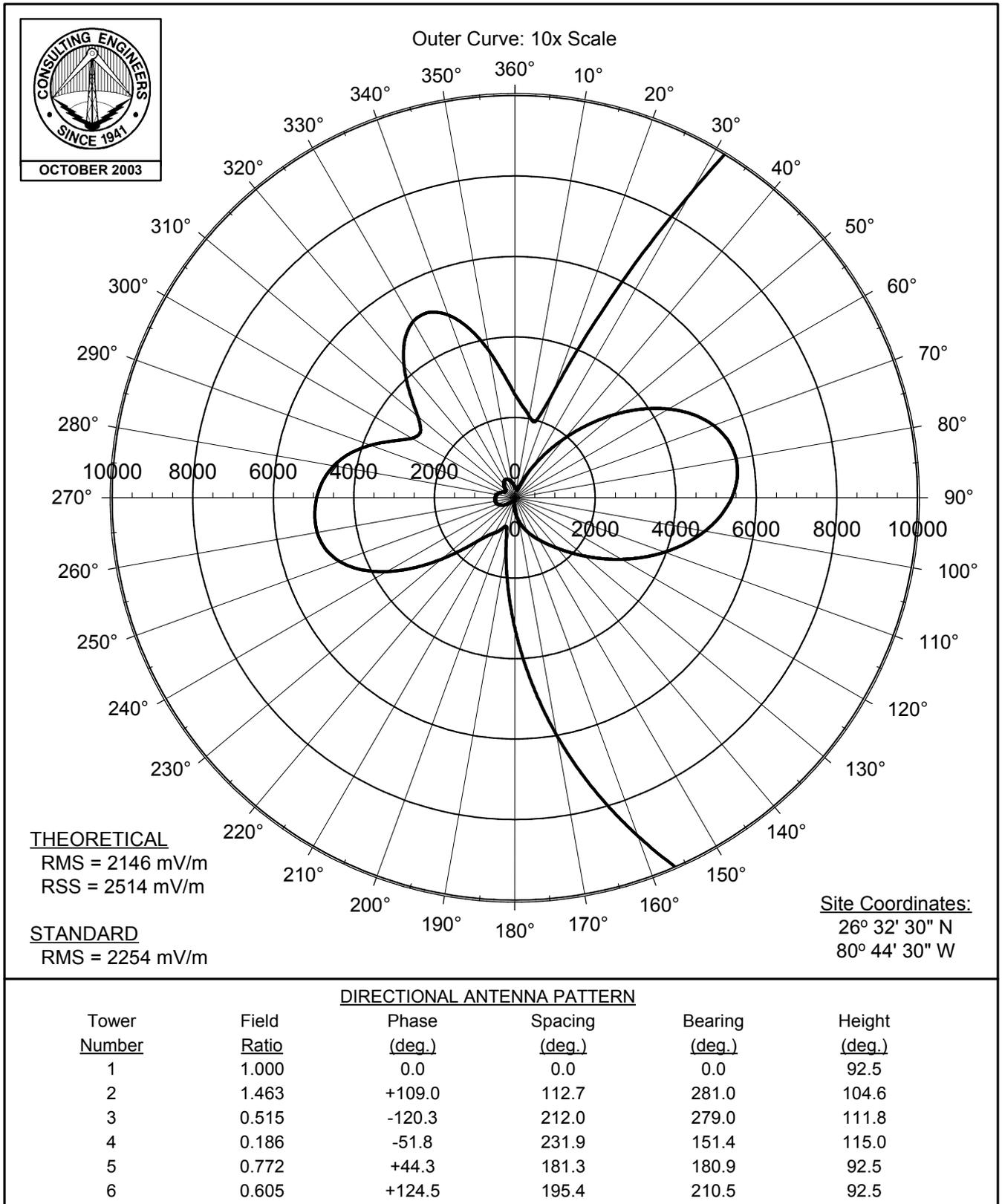
Daytime Ground System:

Installed about the base of each tower are 120 evenly spaced, buried copper wire radials (#10 AWG), extending 88.2 meters (289 ft) from all towers except where shortened and bonded to transverse copper strap between towers. In addition, copper strap runs from the transmitter and down the line of towers and is bonded to ground at the base of each tower.

Geographic Coordinates of  
Center of Antenna Array:

26° 32' 30" North Latitude  
80° 44' 30" West Longitude

Figure 2



**DIRECTIONAL ANTENNA PATTERN**

Tower Number	Field Ratio	Phase (deg.)	Spacing (deg.)	Bearing (deg.)	Height (deg.)
1	1.000	0.0	0.0	0.0	92.5
2	1.463	+109.0	112.7	281.0	104.6
3	0.515	-120.3	212.0	279.0	111.8
4	0.186	-51.8	231.9	151.4	115.0
5	0.772	+44.3	181.3	180.9	92.5
6	0.605	+124.5	195.4	210.5	92.5

**PROPOSED DAYTIME HORIZONTAL PLANE  
STANDARD RADIATION PATTERN**

RADIO STATION WFTL  
WEST PALM BEACH, FLORIDA  
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**Figure 3**

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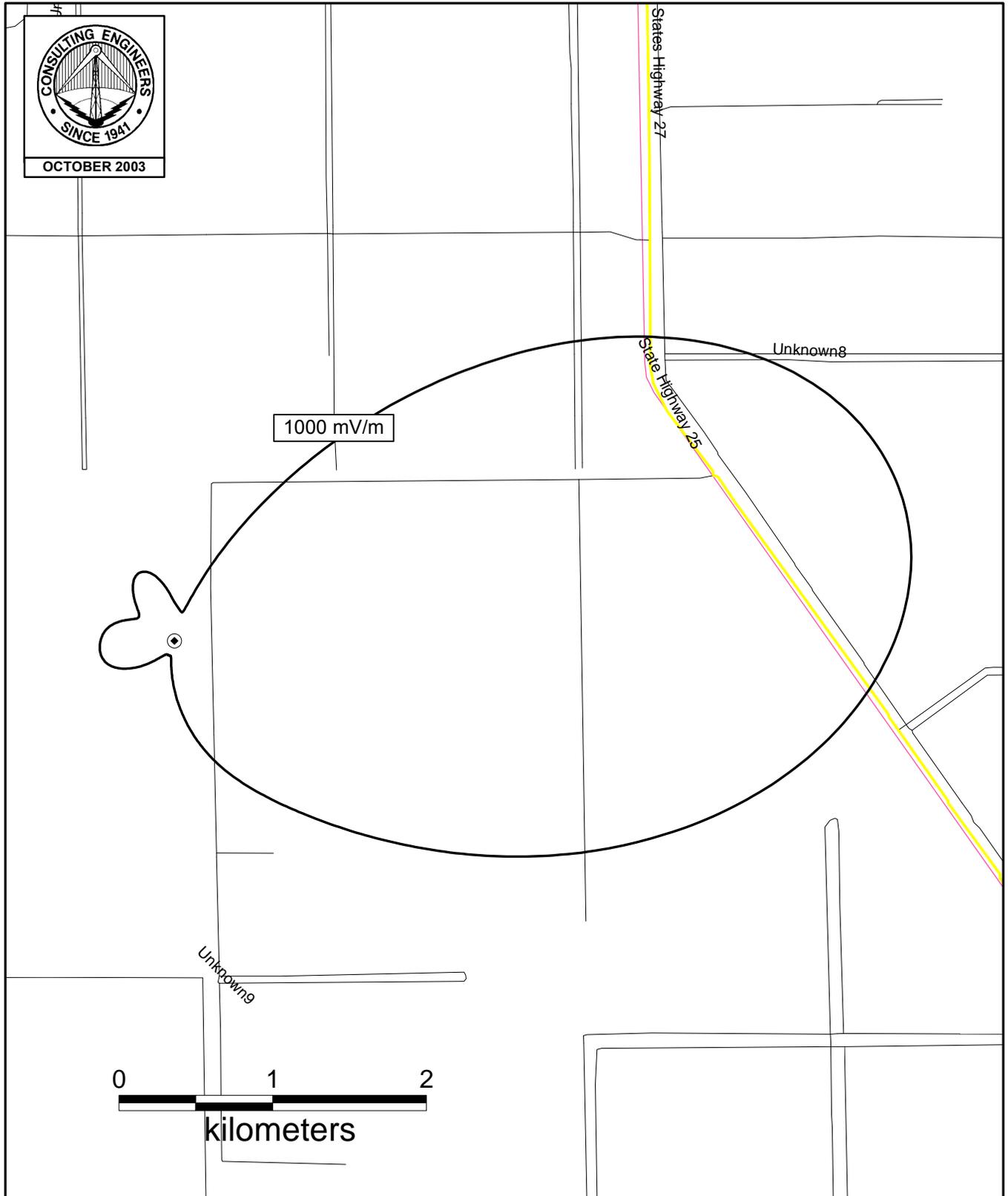
850 KHZ    50 KW    24 KW-N    U    DA-2

DAYTIME RADIATION PATTERN  
(Radiation Values at One Kilometer)

<u>Tower Number</u>	<u>Field Ratio</u>	<u>Phase (deg.)</u>	<u>Spacing (deg.)</u>	<u>Bearing (deg.)</u>	<u>Height (deg.)</u>
1	1.000	0.0	0.0	0.0	92.5
2	1.463	+109.0	112.7	281.0	104.6
3	0.515	-120.3	212.0	279.0	111.8
4	0.186	-51.8	231.9	151.4	115.0
5	0.772	+44.3	181.3	180.9	92.5
6	0.605	+124.5	195.4	210.5	92.5

<u>Input Power (kW)</u>	<u>Loop Loss (ohms)</u>	<u>Theo. RMS (mV/m)</u>	<u>Theo. RSS (mV/m)</u>	<u>Q Factor (mV/m)</u>	<u>Standard RMS (mV/m)</u>
50	1.0	2146	2514	70.7	2254

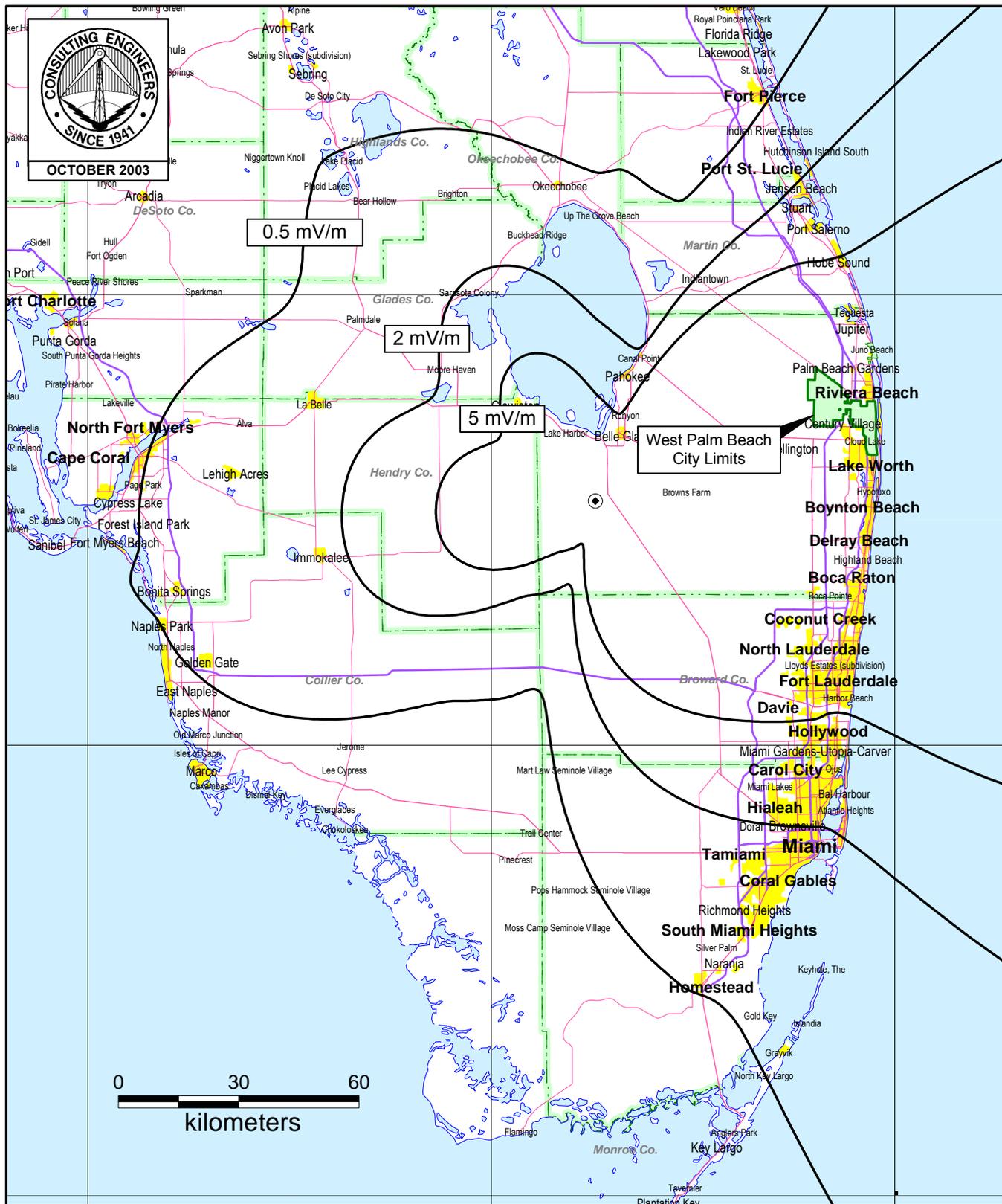
<u>Azimuth (mV/m)</u>	<u>Field (mV/m)</u>						
0	257	90	5391	180	323	270	492
5	227	95	5133	185	209	275	478
10	206	100	4793	190	123	280	457
15	195	105	4394	195	78.9	285	424
20	275	110	3958	200	77.4	290	381
25	506	115	3506	205	89.9	295	333
30	872	120	3060	210	101	300	295
35	1352	125	2637	215	114	305	285
40	1922	130	2252	220	139	310	314
45	2552	135	1917	225	181	315	368
50	3203	140	1635	230	238	320	427
55	3835	145	1404	235	303	325	477
60	4409	150	1212	240	367	330	505
65	4890	155	1047	245	422	335	508
70	5254	160	895	250	463	340	483
75	5486	165	746	255	487	345	435
80	5582	170	599	260	498	350	371
85	5546	175	455	265	498	355	306



### PROPOSED DAYTIME FIELD STRENGTH CONTOURS

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WEST PALM BEACH, FLORIDA  
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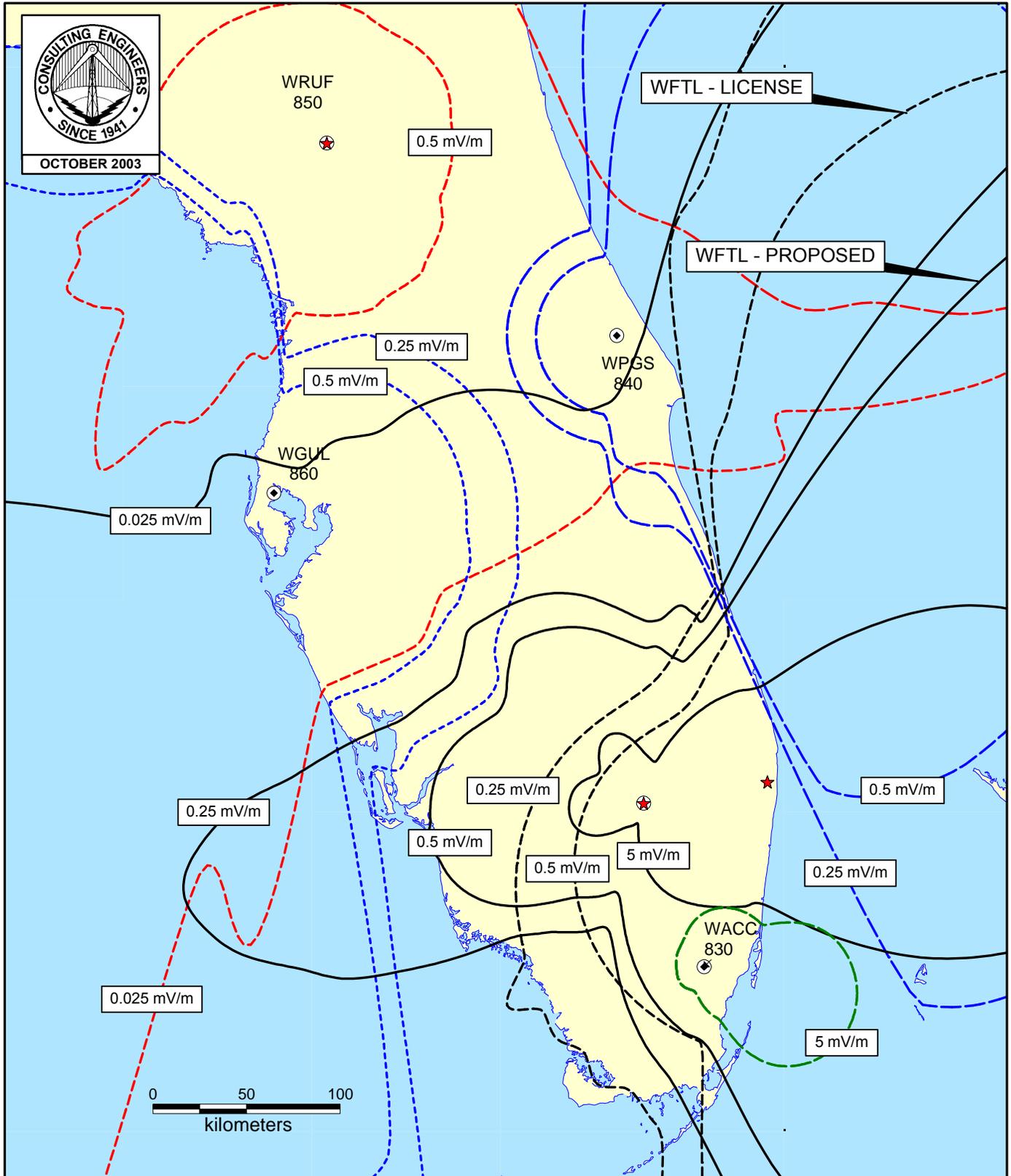
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



**PROPOSED DAYTIME FIELD STRENGTH CONTOURS**

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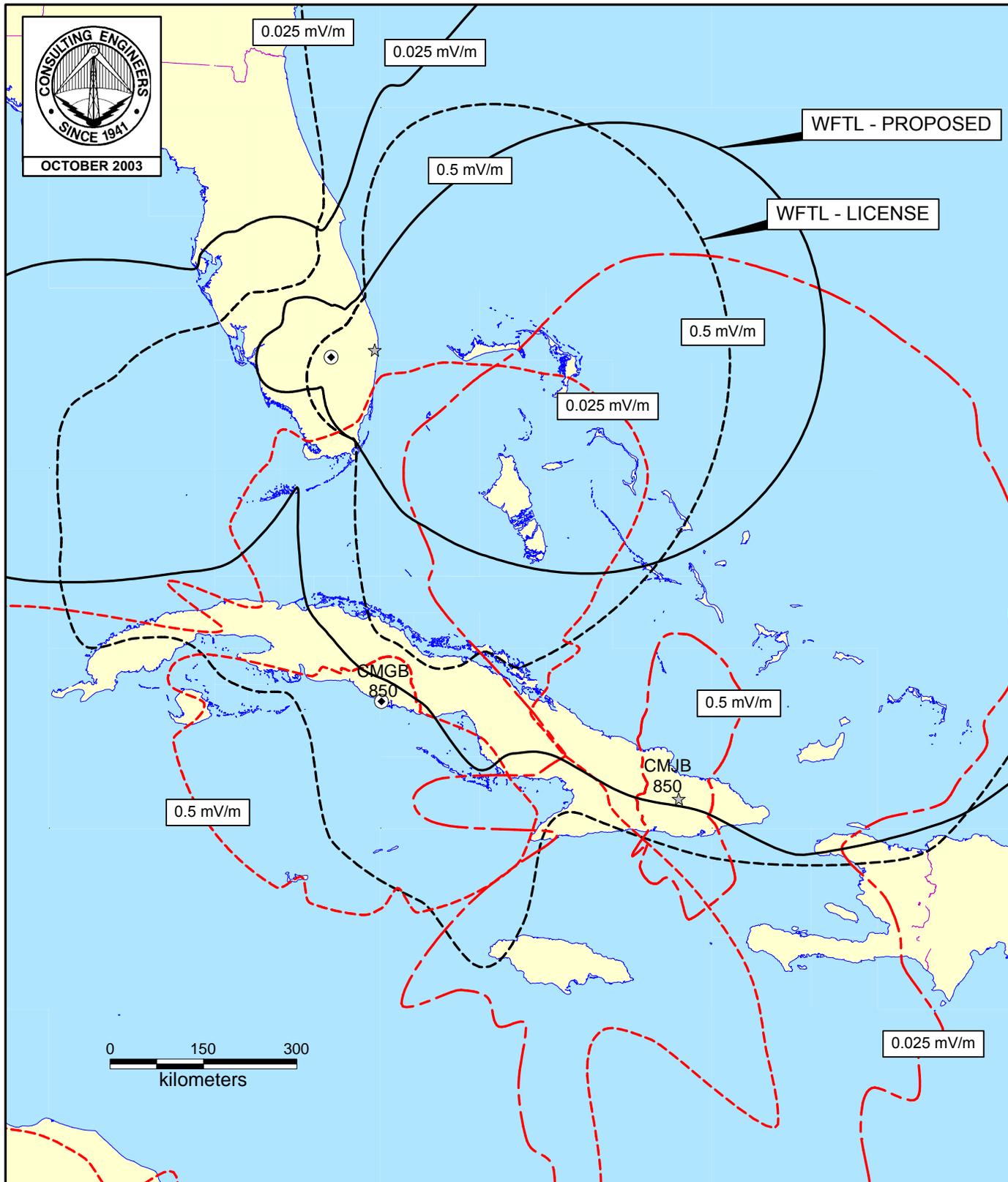
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## DAYTIME ALLOCATION STUDY

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Tabulation of Data Employed in  
Calculation of Groundwave Contours

Call: WFTL - Proposed  
West Palm Beach, FL  
Coordinates: 26-32-30 North 80-44-30 West  
Frequency: 850 kHz

FCC M3 conductivity employed along all other azimuths

Call: WFTL - License  
West Palm Beach, FL  
Coordinates: 26-38-28 North 80-05-08 West  
Frequency: 850 kHz

FCC M3 conductivity employed along all other azimuths

Call: WRUF - License  
Gainesville, FL  
Coordinates: 29-38-34 North 82-25-13 West  
Frequency: 850 kHz

FCC M3 conductivity employed along all azimuths

Call: WPGS - License  
Mims, FL  
Coordinates: 28-44-20 North 80-53-02 West  
Frequency: 840 kHz

FCC M3 conductivity employed along all azimuths

Call: WGUL - License  
Dunedin, FL  
Coordinates: 27-59-55 North 82-42-01 West  
Frequency: 860 kHz

FCC M3 conductivity employed along all azimuths

Call: WACC - License  
Hialeah, FL  
Coordinates: 25-46-22 North 80-25-16 West  
Frequency: 830 kHz

FCC M3 conductivity employed along all azimuths

Call: CMGB  
Trinidad, CU  
Coordinates: 21-46-00 North 79-59-00 West  
Frequency: 850 kHz

Region 2 conductivity employed along all azimuths

Call: CMJB  
Mayari Arrib, CU  
Coordinates: 20-25-00 North 75-30-00 West  
Frequency: 940 kHz

Region2 conductivity employed along all azimuths