

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
STATION WFGC-DT  
PALM BEACH, FLORIDA

October 18, 2002

CH 49      800 KW (MAX-DA)      125 M

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Technical Narrative

This Technical Exhibit supports an application for modification of construction permit for the digital operation of station WFGC(TV), on analog channel 61 at Palm Beach, Florida. Specifically, this application will modify the WFGC-DT authorized construction permit (BPCDT-19991028ABC), by changing the transmitter site location, the directional antenna system, and also decreasing the proposed effective radiated power and the antenna radiation center height above average terrain (HAAT). No other changes are proposed.

Station WFGC-DT is currently authorized for operation on channel 49 with a directional antenna maximum ERP of 900 kilowatts and an HAAT of 294 meters. It is proposed to relocate the WFGC-DT operation back to its currently licensed NTSC site and duplex both the DTV and NTSC operations into the same antenna.<sup>1</sup> It is proposed to decrease the maximum ERP to 800 kilowatts and the HAAT to 125 meters.

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<sup>1</sup> The NTSC operation was not permitted to relocate to the currently authorized WFGC-DT CP site, therefore this application proposes to move the DTV facility back to the NTSC site, so that both facilities can share the same antenna.

The transmitter site is located at 10500 60th St., Royal Palm Beach, Florida. The coordinates of the proposed site are N26-45-47, W80-12-19.

An MCI UTV-01/36 (12x4) horizontally polarized panel antenna will be side-mounted on the existing 134.7 meter (442 foot tower/antenna structure). The antenna will be oriented such that the major lobes will be at 0° and 180° true.

Figure 1 is a tower sketch showing the location of the proposed WFGC-DT antenna system. Notification to the FAA is not necessary, as there is no proposed change in the overall height of the existing structure. The FCC Tower Registration number for the existing structure is 1018586.

Figure 2 provides the antenna data for the proposed MCI UTV-01/36 directional antenna system. A graph and tabulation of both the horizontal and vertical relative field patterns are included.

AM station WJNO(AM) on 1290 at West Palm Beach, Florida, is the only AM station within 5 kilometers (3 miles) of the proposed transmitter site. The following is a tabulation of authorized FM stations and full service TV stations within 16 kilometers (10 miles) of the proposed DTV site.

Call Sign	City	State	Channel	Distance (km)
WIRK-FM	West Palm Beach	FL	300C1	0.0
WAYF (FM)	West Palm Beach	FL	201C2	13.5
WRLX (FM)	West Palm Beach	FL	221C3	13.5
WPXP (TV)	Lake Worth	FL	67	0.0
WHDT-DT	Stuart	FL	59	13.1

Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems which are a result of its proposed DTV operation.

The proposed transmitter site is more than 1600 kilometers from the closest point of the Canadian border. The proposed DTV site is more than 800 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Vero Beach, Florida, approximately 103 kilometers to the north-northwest. The proposed DTV site is outside the National Radio Quiet Zone (VA/WV), the closest point being more than 1100 kilometers to the north. The closest point of the Table Mountain Radio Quiet Zone (CO) is approximately 2700 kilometers to the northwest. The closest radio astronomy site operating on TV channel 37 is at Green Bank, West Virginia, approximately 1250 kilometers to the north. These separations are sufficient to not be a concern for coordination purposes.

Figure 3 is a map showing the predicted 41 dBu f(50,90) and 48 dBu f(50,90) contours for the proposed WFGC-DT operation. The extent of the contours has been calculated using the normal FCC prediction method and employing the N.G.D.C. 30-second terrain database. The Palm Beach city limits were derived from information contained in the 2000 U.S. Census for Florida.

The proposed WFGC-DT Channel 49 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other existing NTSC facilities and DTV allotments and assignments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such

interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.<sup>2</sup> Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. The results of the interference analyses for the proposed WFGC-DT facility are summarized below herein as Figure 4.

<b>Protected NTSC/DTV Station</b>	<b>FCC Service Population</b>	<b>Proposed Interference Population</b>
WTVX(TV), Ch. 34, Fort Pierce, FL	--	None
WPXM(TV), Ch. 35, Miami, FL	--	None
WXEL-TV, Ch. 42, West Palm Beach, FL	--	None
WHFT-TV, Ch. 45, Miami, FL	--	None
WOPX-DT, Ch. 48, Melbourne, FL	--	None
WIRB-DT, Ch. 48, Melbourne, FL	--	None
WNTO-DT, Ch. 49, Daytona, FL	--	None
WRXY-TV, Ch. 49, Tice, FL BPCT-20020520AAU	--	None
WRXY-TV, Ch. 49, Tice, FL BLCT-19950208KE	--	None
WTVX-DT, Ch. 50, Fort Pierce, FL CP (BPCDT-19991027ABY)	--	None
WTVX-DT, Ch. 50, Fort Pierce, FL DTV Allotment	--	None
WSCV, Ch. 51, Fort Lauderdale, FL Authorized CP (BLCT-19991102AAI)	--	None
WSCV, Ch. 51, Fort Lauderdale, FL CP MOD (BMPCT-20010301ABZ)	3,779,326	2779, (0.1%)
WPXP-TV, Ch. 56, Lake Worth, FL	--	None

From the above, it is apparent that the proposed WFGC-DT operation on channel 49 complies with the FCC's

<sup>2</sup> The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed.

interference standard towards all authorized analog and DTV assignments.

A study has been conducted which indicates that the WFGC-DT proposal will not create prohibited interference to other existing, authorized or proposed Class A stations with the exception of the authorized construction permit (BMJPTTA-20020613AAL) of WTCN-CA on channel 48 at Stuart, FL. However, based on the provisions of the OET-69 Bulletin as permitted by FCC rules [Section 73.623(5)(iii)] it is believed that WFGC-DT's proposed operation complies with the FCC's interference criteria toward WTCN-CA. Specifically, calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 2 square kilometer grid. The results of the OET Bulletin No. 69 are summarized below and, as indicated, the proposal complies with the FCC's 0.5% interference threshold.

<b>Protected Class A Station</b>	<b>FCC Service Population</b>	<b>Proposed Interference Population</b>
WTCN-CA, NTSC Ch. 48 (CP) Stuart, FL	228,491	355(0.16%)


The proposed WFGC-DT facility causes prohibited contour overlap, defined pursuant to Section 73.613 of the Commission's Rules, to Class A low powered television station WTCN-CA on Channel 48 at Stuart, Florida. However, using the OET-69 methodology as suggested in Section 73.613(j), the proposed WFGC-DT facility is not predicted to cause prohibited interference to Class A station WTCN-CA. Therefore, based upon this OET-69 analysis, a waiver of the contour overlap requirements of Section 73.613 is hereby requested toward WTCN-CA.

Consideration has been given to the RF emission rules whose implementation date was October 15, 1997. The vertical relative field pattern and tabulation for the proposed antenna are shown on Figure 2. Based on a conservative relative field factor of 0.1, the proposed power density at 2 meters above ground at the tower base will be  $0.0186 \text{ mW/cm}^2$ , which is less than 5% of the recommended limit of  $0.46 \text{ mW/cm}^2$  for channel 49, applicable to general population/uncontrolled exposure areas. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the Commission's RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is a proposed multi-user site, an agreement will control access to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed operation appears to be otherwise categorically excluded from environmental processing.



If there are questions concerning the technical portion of this application, please contact the office of the undersigned.

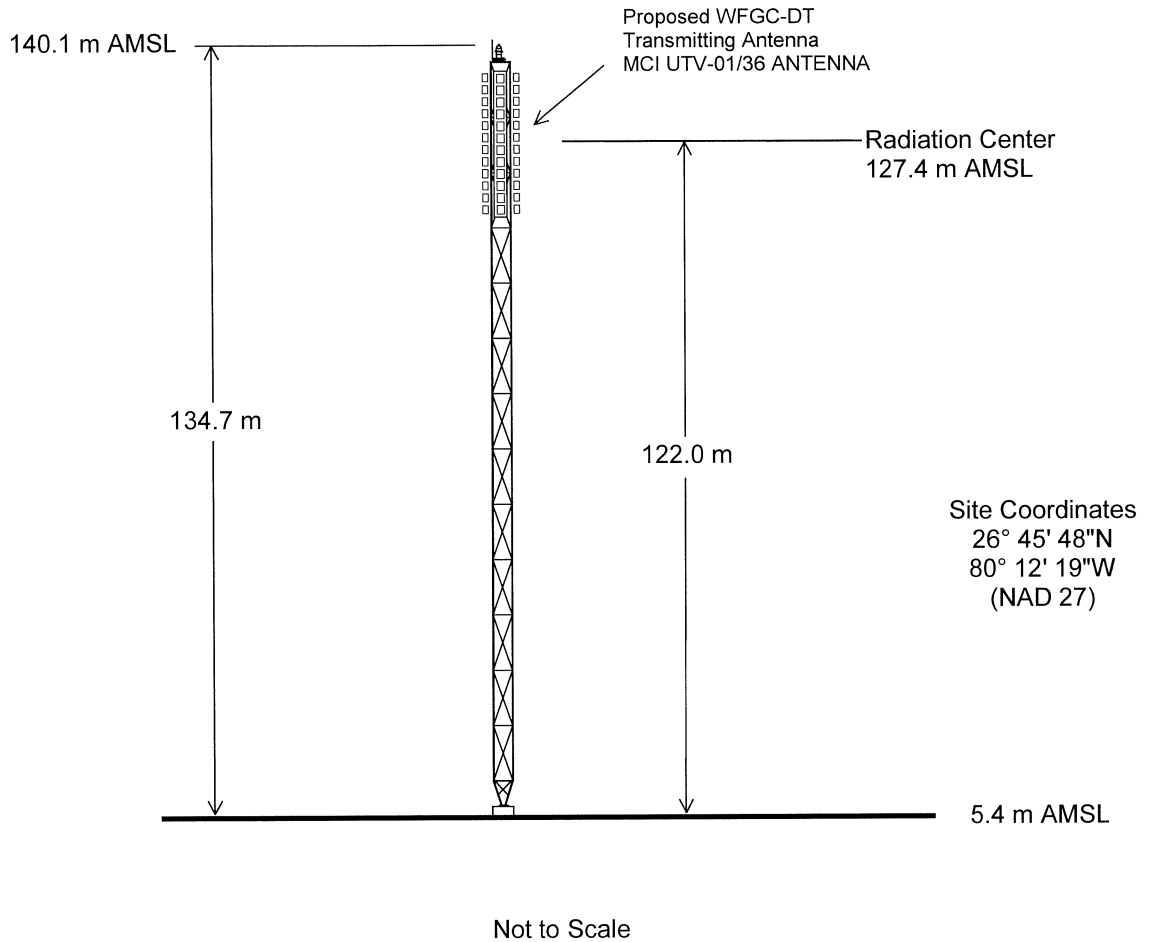
  
Jerome J. Manarchuck

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Ave.  
Sarasota, Florida 34237

October 18, 2002

Figure 1

FCC Tower ID: 1018586



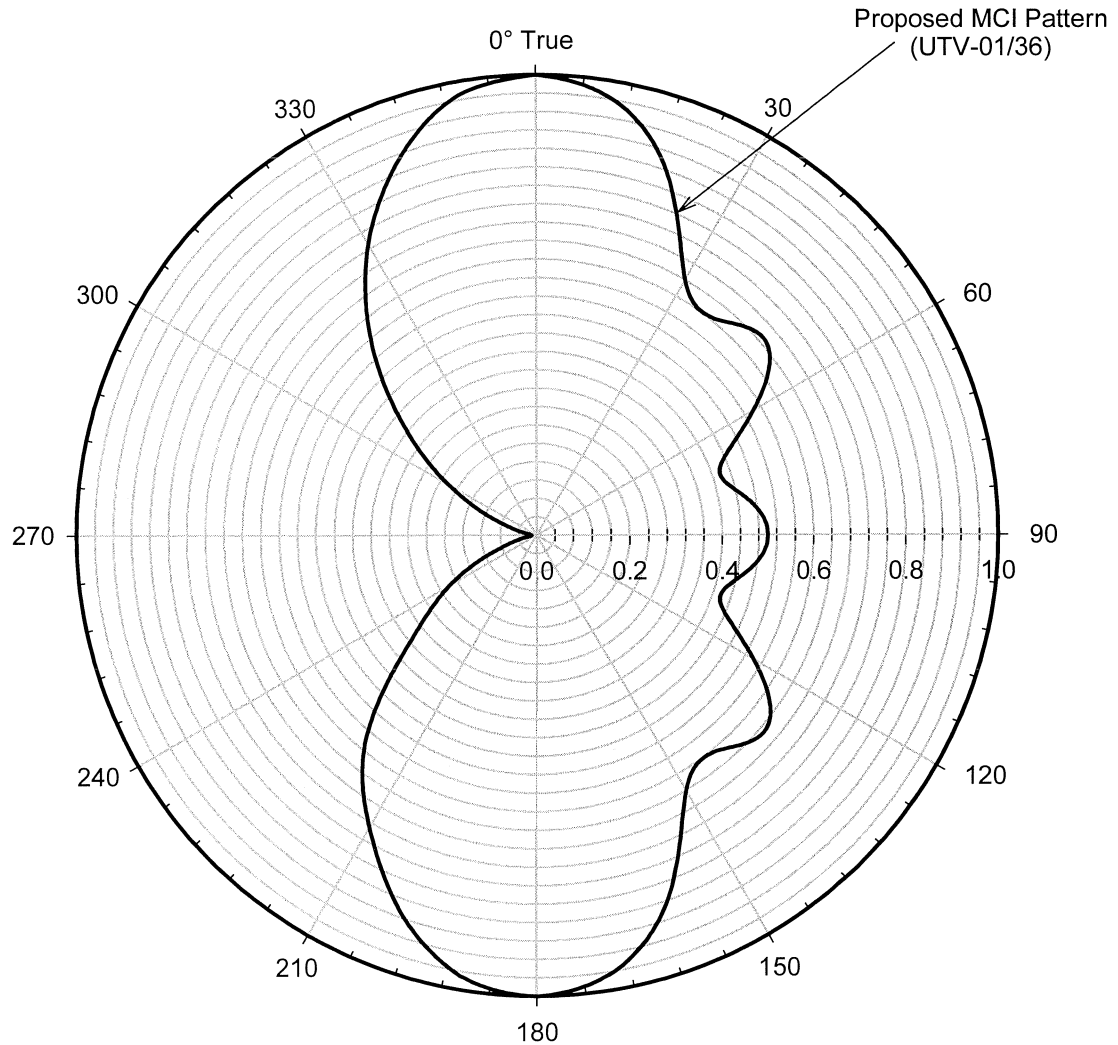
## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

STATION WFGC-DT

PALM BEACH, FLORIDA

CHANNEL 49 800 KW (MAX-DA) 125 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



## HORIZONTAL PLANE RELATIVE FIELD PATTERNS

STATION WFGC-DT  
PALM BEACH, FL  
CH 49 800 KW (MAX-DA) 125 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Tabulation of Directional Antenna Pattern

<u>Azimuth</u> <u>(deg. true)</u>	<u>Relative</u> <u>Field</u>	<u>Effective</u> <u>Radiated Power (kW)</u>	<u>Azimuth</u> <u>(deg true)</u>	<u>Relative</u> <u>Field</u>	<u>Effective</u> <u>Radiated Power (kW)</u>
0	1.00	800.00	180	1.00	800.00
10	0.96	737.28	190	0.97	752.72
20	0.83	551.12	200	0.87	605.52
30	0.64	327.68	210	0.73	426.32
40	0.61	297.68	220	0.58	269.12
50	0.65	338.00	230	0.36	103.68
60	0.54	233.28	240	0.22	38.72
70	0.42	141.12	250	0.09	6.48
80	0.46	169.28	260	0.02	0.32
90	0.50	200.00	270	0.01	0.32
100	0.46	169.28	280	0.02	0.32
110	0.42	141.12	290	0.09	6.48
120	0.54	233.28	300	0.22	38.72
130	0.65	338.00	310	0.38	115.52
140	0.61	297.68	320	0.56	250.88
150	0.64	327.68	330	0.73	426.32
160	0.83	551.12	340	0.87	605.52
170	0.96	737.28	350	0.97	752.72



ANTENNA TYPE UTV-01/36 (12x3)

PALM BEACH - FLORIDA -

HORIZONTAL POLARIZATION

## THEORETICAL VERTICAL PATTERN

(Linear scale)

FCC Channel 49

Total antenna

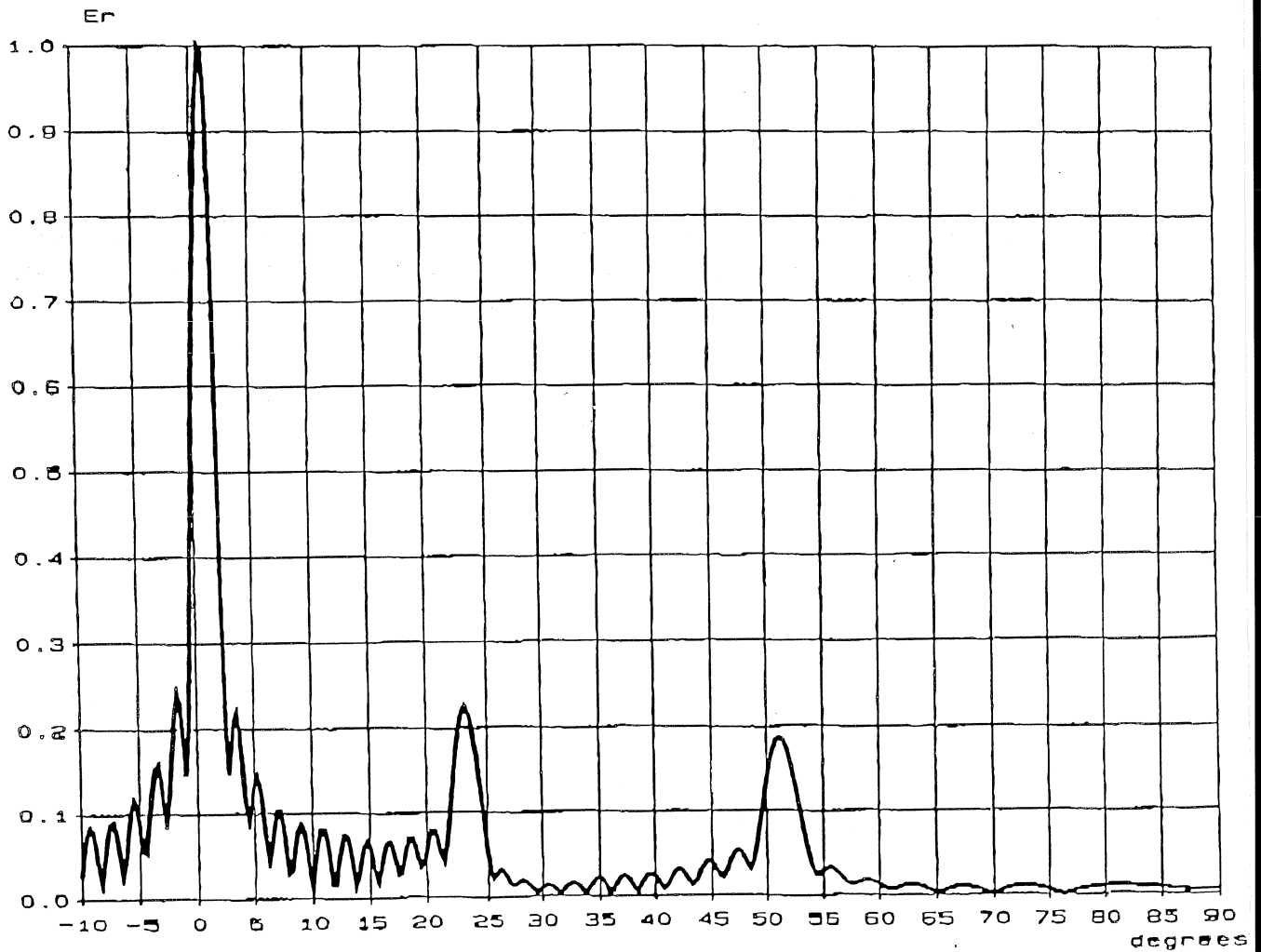
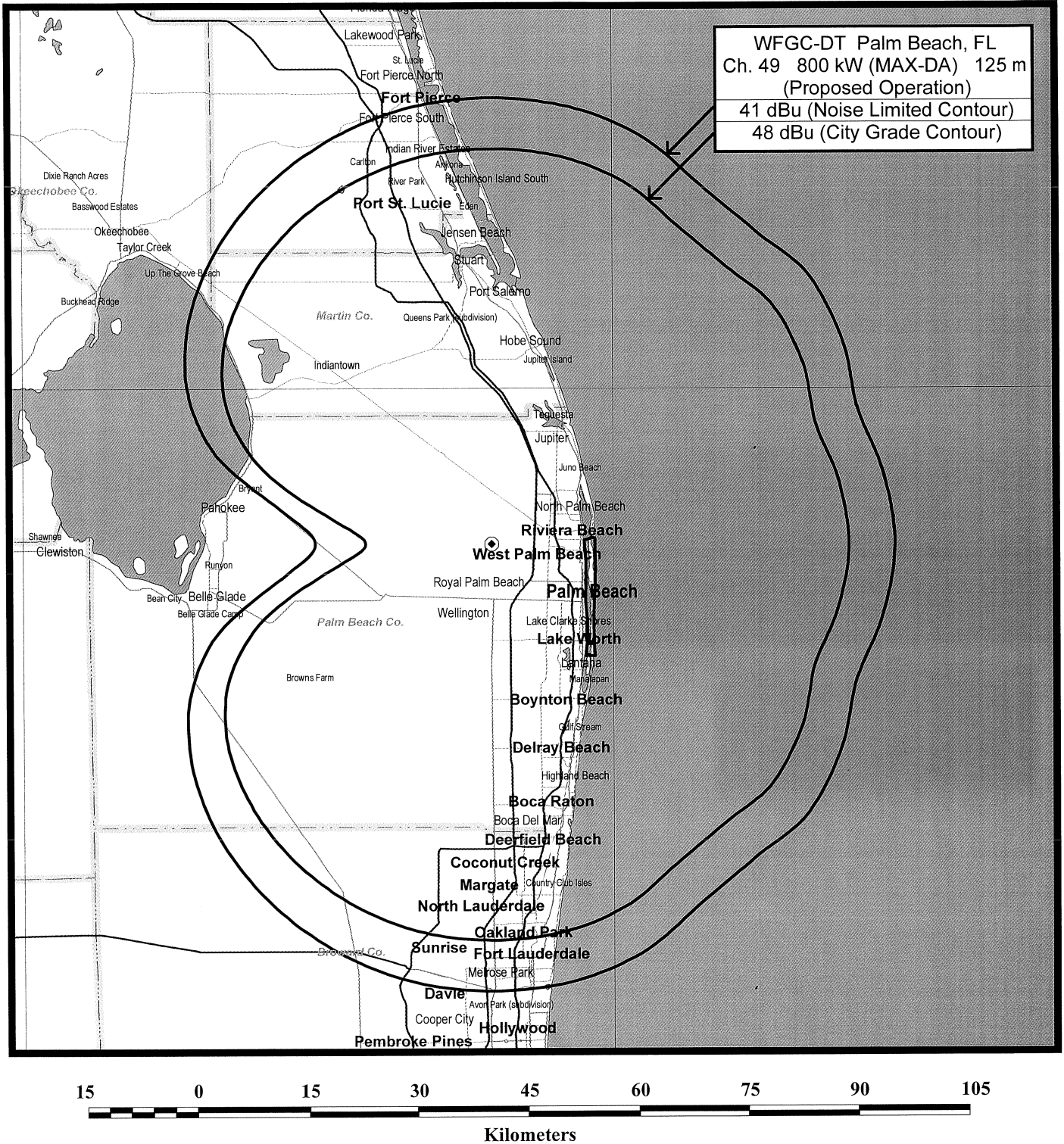


Figure 3



## PREDICTED COVERAGE CONTOURS

STATION WFGC-DT  
 PALM BEACH, FLORIDA  
 CH 49 800 kW (MAX-DA) 125 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida