

TECHNICAL EXHIBIT  
MINOR MODIFICATION APPLICATION  
STATION WSFX-DT (FACILITY ID 72871)  
WILMINGTON, NORTH CAROLINA

OCTOBER 22, 2004

CH 30 547 KW (MAX-DA) 404 M

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Technical Narrative

This Technical Exhibit was prepared on behalf of digital television broadcast station WSFX-DT at Wilmington, North Carolina. Station WSFX-DT is authorized for operation on channel 30 with a directional antenna maximum effective radiated power (ERP) of 1000 kW and an antenna height above average terrain (HAAT) of 501 meters (BPCDT-19991006AAT).

The proposed facility will not result in any extension of the authorized noise-limited contour as shown in Figure 3. Therefore, the proposal meets the terms of the FCC Filing Freeze for digital television stations.<sup>1</sup>

Proposed Facilities

This application proposes to decrease ERP and antenna HAAT, change the directional antenna and correct the site coordinates (latitude by 2 seconds and longitude by 1 second). There is no proposed change in site, channel (30) or city of license (Wilmington). The corrected site coordinates are (NAD27): 34-07-53 N, 78-11-17 W. A directional antenna maximum ERP of 547 kW and antenna HAAT of 404 meters are proposed. The FCC antenna structure registration number is 1008242.

Figure 3 is a map showing the predicted noise-limited (41 dBu) and city-grade (48 dBu) contours for the proposed operation, along with the noise-limited contour for the authorized WSFX-DT operation. The Wilmington city limits were derived from information

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<sup>1</sup> See August 2004 Filing Freeze PN, DA 04-2446 (MB released Aug. 3, 2004).

contained in the 2000 U.S. Census for North Carolina. The proposal complies with the city coverage requirements of Section 73.625(a).

Nearby Broadcast Facilities

There are no known authorized full service AM stations within 3.2 kilometers of the proposed transmitter site. The following is a list of known authorized full service FM and TV stations within 16 kilometers (10 miles) of the proposed site.

<u>Station</u>	<u>Channel</u>	<u>Bearing(°True)</u>	<u>Distance(km)</u>
WHQR, Wilmington, NC	217C	0	0.0
WKXS-FM, Leland, NC	231A	78	10.2
WLTT, Shallote, NC	292A	219	12.0
WMNX, Wilmington, NC	247C1	133	13.3
WGNI, Wilmington, NC	274C1	133	13.3
WKXB, Burgaw, NC	260C1	26	14.5
WDVV, Wilmington, NC	209A	68	14.5
WWIL-FM, Wilmington, NC	213C3	68	14.5
WWAY, Wilmington, NC	3	0	0.0
WSFX-TV, Wilmington, NC	26	0	0.0
WUNJ-TV, Wilmington, NC	39	0	0.0
WWAY-DT, Wilmington, NC	46	0	0.0

Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems that may result from its proposed operation.

Allocation Considerations

Interference calculations have been made using the procedures outlined in the FCC's OET-69 bulletin, using a 2 kilometer grid spacing. The proposed WSFX-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment. Below is the list of stations considered in the OET-69 analysis.

Stations Potentially Affected by Proposed WSFX-DT						
Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
15	WPDE-TV	FLORENCE SC	108.1	LIC	BLCT	-19810210KE
23	WHMC	CONWAY SC	87.1	LIC	BLET	-19820118KE
26	WSFX-TV	WILMINGTON NC	0.1	LIC	BLCT	-20000120AAF
29	WUNJ-DT	WILMINGTON NC	0.1	PLN	DTVPLN	-DTVP0750
29	WUNJ-TV	WILMINGTON NC	21.4	CP MOD	BMPEDT	-20010913AAA
30	WAGT	AUGUSTA GA	346.3	LIC	BLCDT	-20030530AON
30	WAGT-DT	AUGUSTA GA	346.4	PLN	DTVPLN	-DTVP0782
30	WRAY-TV	WILSON NC	189.0	LIC	BLCT	-19981014KE
30	WRAY-TV	WILSON NC	189.0	CP	BPCT	-20030327ADO
30	WNSC-TV	ROCK HILL SC	271.0	APP	BPET	-20041012AJA
30	WNSC-TV	ROCK HILL SC	271.0	LIC	BLCT	-2595
30	WLSL-DT	ROANOKE VA	384.3	PLN	DTVPLN	-DTVP0807
30	WLSL-TV	ROANOKE VA	384.3	CP	BPCDT	-19991025ADC
31	WUNU	LUMBERTON NC	107.9	LIC	BLET	-19960828KF
32	960920IK	MYRTLE BEACH SC	104.5	APP	BPCT	-19960920IK
32	960920WV	MYRTLE BEACH SC	96.0	APP	BPCT	-19960920WV

From the above list of stations considered, the table below shows the calculated interference caused to each station. Only stations that are predicted to receive interference from the proposed WSFX-DT operation are shown in the interference table.

Study Station	Baseline	Net Population Change/Interference
29 WUNJ-DT WILMINGTON NC (CP)	634,852	-17,913 (2.8%) <b>Less Net Interference</b>
29 WAGT-DT AUGUSTA GA (LIC)	667,177	2,469 (0.4%) New Interference
29 WAGT-DT AUGUSTA GA (PLN)	667,177	0 (0.0%) New Interference
29 WRAY-TV WILSON NC (LIC)	1,409,418	11,551 (0.8%) New Interference
29 WRAY-TV WILSON NC (CP)	1,351,969	15,661 (1.2%) New Interference
29 WNSC-TV ROCK HILL SC (APP)	999,891	1,723 (0.2%) New Interference
29 WNSC-TV ROCK HILL SC (LIC)	1,031,959	5,832 (0.2%) New Interference
29 WUNU LUMBERTON NC (LIC)	855,560	3,981 (0.5%) New Interference

The proposed WSFX-DT operation does not cause calculated interference to any other analog or DTV station. Therefore, it is believed the proposal complies with the FCC's "de minimis" interference policy.

With respect to Class A TV station protection, the proposal has been evaluated according to the requirements of Section 73.613 of the FCC Rules. The analysis reveals no potential impact to any Class A stations.

Radiofrequency Electromagnetic Field Exposure

The proposed WSFX-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 400 meters above ground level with a maximum ERP of 547 kW. A conservative relative field value of 0.2 was assumed for the antenna's downward radiation (see Figure 2B). The calculated power density at a point 2 meters (6.6 feet) above ground level is 0.0046 mW/cm<sup>2</sup>. This is 1.2 % of the FCC's recommended limit of 0.38 mW/cm<sup>2</sup> for channel 30 for an "uncontrolled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. 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.

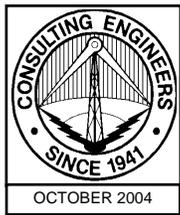
It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner as part of the tower registration process.



Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000

October 22, 2004



Tower Reg. No. 1008242

614.8 m AMSL  
(2017 ft AMSL)

595.6 m  
(1954 ft)

Proposed WSFX DTV-30 Antenna

Radiation Center  
419.2 m AMSL  
(1375 ft AMSL)

400 m  
(1312 ft)

Site Coordinates:  
34° 07' 53" N  
78° 11' 17" W  
(NAD 27)

19.2 m AMSL  
(63 ft AMSL)

Not to Scale

## ANTENNA AND SUPPORTING STRUCTURE

STATION WSFX-DT

WILMINGTON, NORTH CAROLINA

CH 30 547 KW (MAX-DA) 404 M

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

# Dielectric

Exhibit No.  
**Figure 2A**

Date **21 Oct 2004**  
Call Letters **WSFX-DT** Channel **30**  
Location  
Customer  
Antenna Type **TFU-24DSB-M (C)**

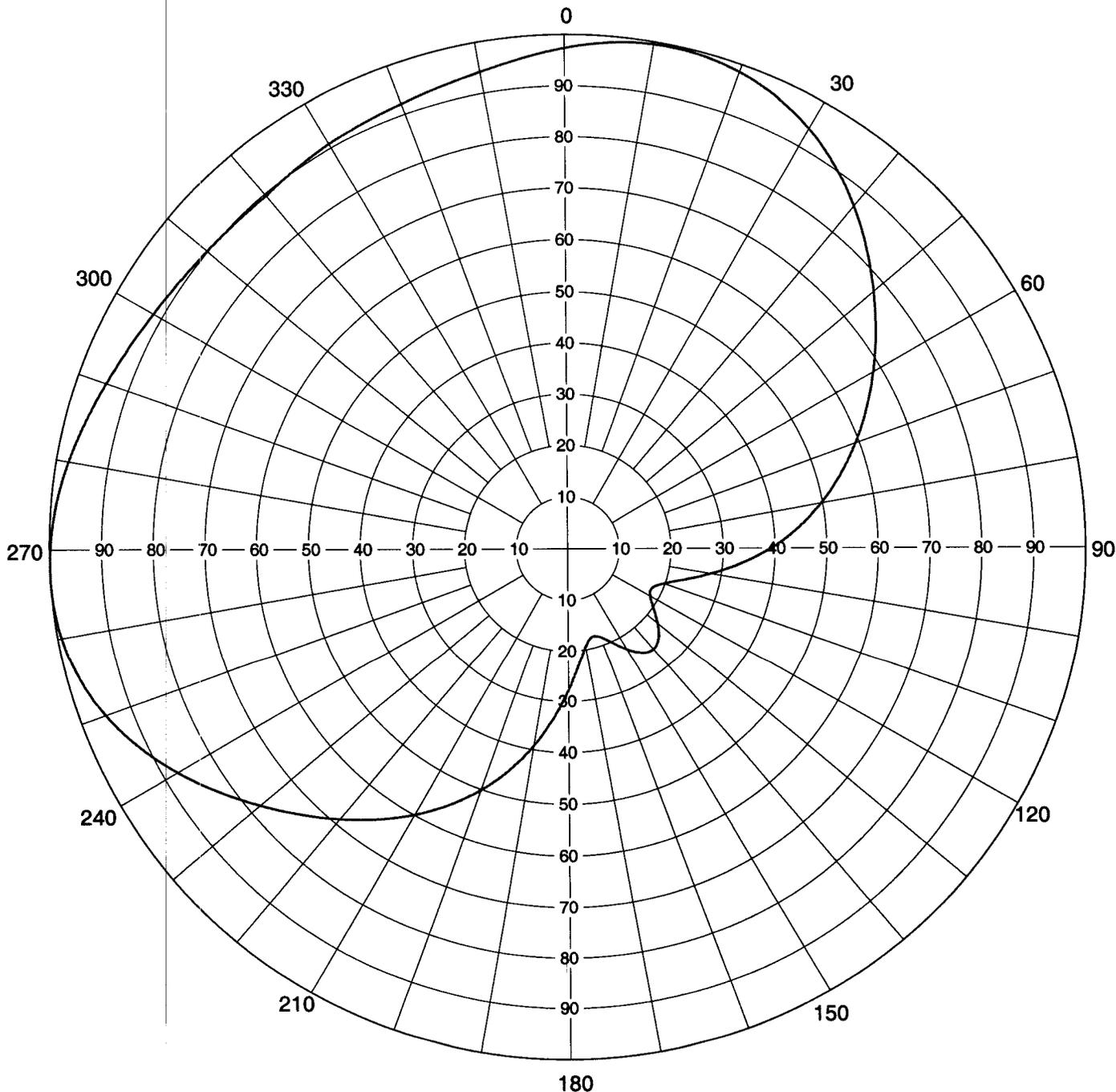
## AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

**1.90 (2.79 dB)**  
**Calculated**

Frequency  
Drawing #

**569 MHz**  
**DSB-M**

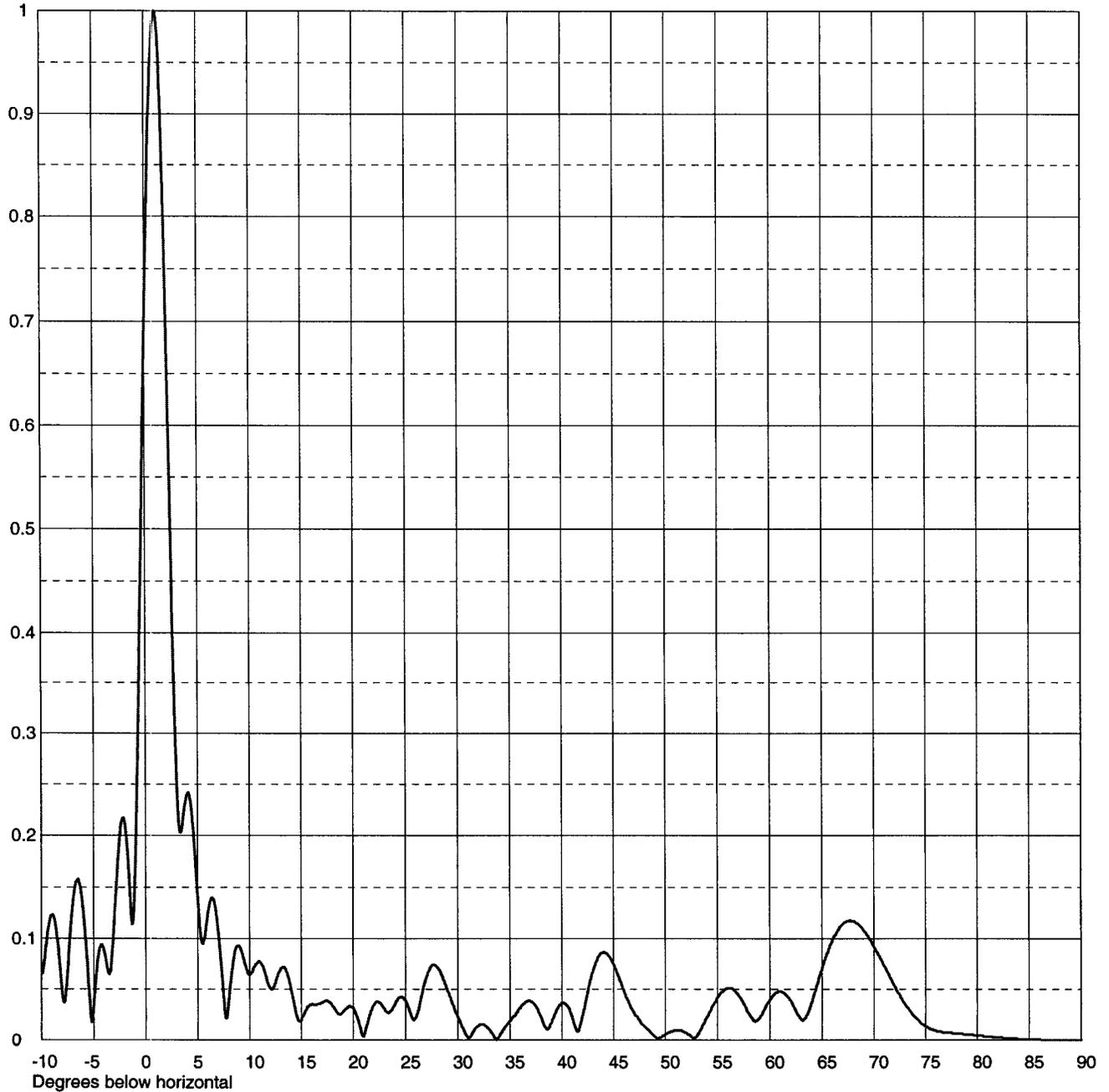


Remarks:

Date **21 Oct 2004**  
Call Letters **WSFX-DT** Channel **30**  
Location  
Customer  
Antenna Type **TFU-24DSB-M (C)**

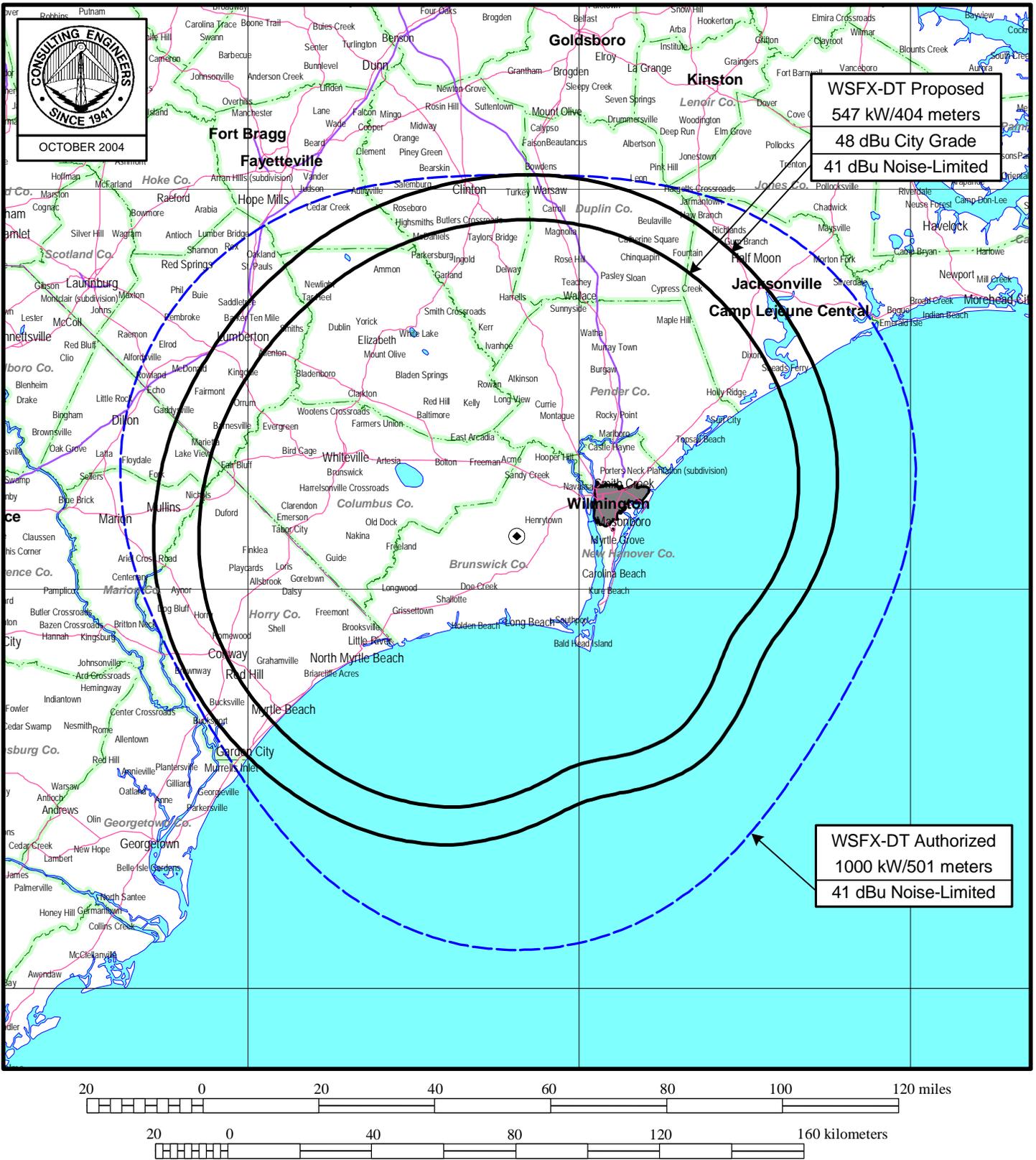
### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>24.0 (13.80 dB)</b>	Beam Tilt	<b>1.00 Degrees</b>
RMS Gain at Horizontal	<b>11.9 (10.76 dB)</b>	Frequency	<b>569.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>24B240100-90</b>



Remarks:

Figure 3



**PREDICTED F(50,90) COVERAGE CONTOURS**

STATION WSFX-DT

WILMINGTON, NORTH CAROLINA

CH 30 547 KW (MAX-DA) 404 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida