

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of THE UNION MISSION, licensee of Class A digital television station WJGN-CD, Channel 27 in Chesapeake, Virginia, in support of its Application for Construction Permit to correct the station's transmitter site coordinates based on the tower owner's revised FCC Antenna Structure Registration. No change in tower height, antenna azimuth pattern, effective radiated power or antenna height is proposed herein.

The licensed SWR omnidirectional antenna is mounted at the 111-meter level of the existing 152.1-meter tower located off Broadway Street, 0.12 miles west of State Route 164 in Portsmouth, Virginia. The corrected site is approximately 60 meters west-northwest of the licensed WJGN-CD transmitter site. The effective radiated power for the facility remains at 12.0 kW, as licensed. Exhibit B is a map upon which the predicted 51 dBu service contour is plotted. An elevation pattern for the licensed omnidirectional antenna is provided in Exhibit C.

Included, as Exhibit D, is a summary report from a TVStudy interference analysis for the corrected facility. Our study employed a cell size of 1.0 kilometer and an increment spacing of 1.0 kilometer. Further the applicant proposes use of a stringent mask filter. The results indicate that the proposed WJGN-CD facility meets the Commission's interference requirements to all full-power, Class A and low-power co-channel and adjacent-channel full-power television facilities.

A detailed power density calculation is provided in Exhibit E.

Since no change in the overall height or location of the existing WJGN-CD tower is proposed herein, the Federal Aviation Administration has not been notified of this application. In

addition, the Federal Communications Commission issued Antenna Structure Registration Number 1047304 to this tower.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read "K. T. Fisher". The signature is stylized with a large "K" and "F".

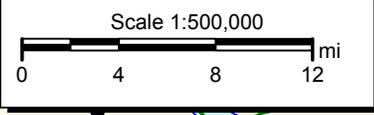
KEVIN T. FISHER

February 8, 2023

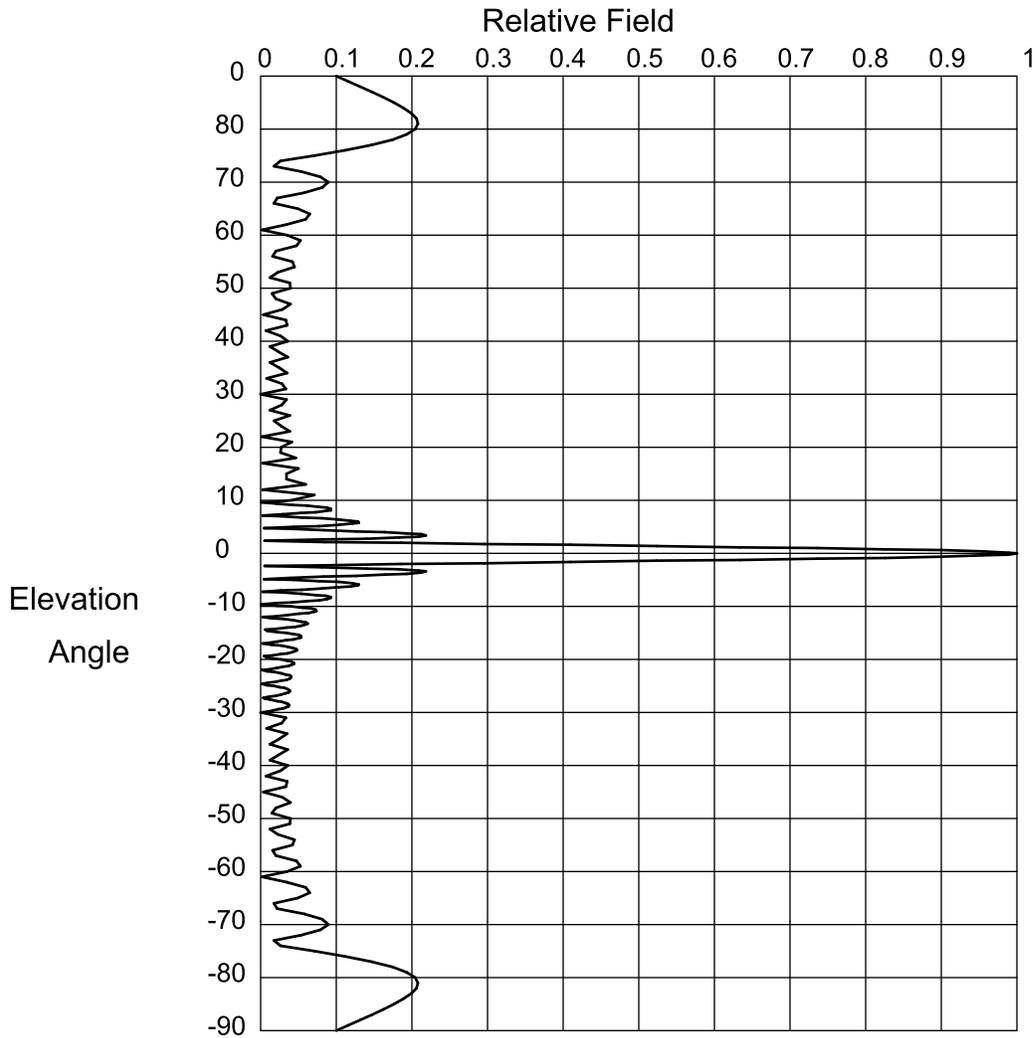
**CONTOUR POPULATION  
2020 U.S. CENSUS DATA  
1,567,086 (653,448 HH)**

**SMITH AND FISHER, LLC**

**WJGN-CD 51 DBU FCC  
SERVICE CONTOUR**



**EXHIBIT B  
PREDICTED SERVICE CONTOUR  
WJGN-CD  
CH. 27 - CHESAPEAKE, VIRGINIA**



## Elevation Pattern

Scale: Linear

Units: Field, Relative

### Systems With Reliability (SWR)

CLIENT: *Test*

Date: 3/8/2021

ANTENNA TYPE: 24 Bay

FREQUENCY: 539

PATTERN POL.: Horizontal

DIRECTIVITY(Peak): 27.293/14.36 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 27.293/14.36 dBd

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

TVSTUDY INTERFERENCE ANALYSIS RESULTS  
 PROPOSED WJGN-CD  
 CHANNEL 27 – CHESAPEAKE, VIRGINIA

Study created: 2023.02.08 14:08:06

Study build station data: LMS TV 2023-01-24  
 Proposal: WJGN-CD D27 DC LIC CHESAPEAKE, VA  
 File number: BLANK0000097777  
 Facility ID: 66549  
 Station data: User record  
 Record ID: 118  
 Country: U.S.

Build options:  
 Protect LPTV records from Class A

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WBFF	D26	DT	LIC	BALTIMORE, MD	BLANK0000136477	276.4 km
No	WRDE-LD	D26	LD	LIC	Salisbury, MD	BLANK0000138066	193.1
No	W26EY-D	D26	LD	LIC	MANTEO, NC	BLANK0000144443	127.3
No	WHTJ	D26	DT	LIC	CHARLOTTESVILLE, VA	BLANK0000112378	225.7
Yes	W26EV-D	D26	LD	LIC	PORTSMOUTH, VA	BLANK0000093428	11.3
Yes	WMAR-TV	D27	DT	LIC	BALTIMORE, MD	BLANK0000136334	276.2
No	W27DP-D	D27	LD	LIC	NEW BERN, NC	BLANK0000190660	252.0
No	W27DP-D	D27	LD	CP	NEW BERN, NC	BLANK0000202220	252.0
Yes	WUNP-TV	D27	DT	LIC	ROANOKE RAPIDS, NC	BLANK0000121047	146.7
No	WPSJ-CD	D27	DC	LIC	HAMMONTON, NJ	BLANK0000194450	366.3
No	WNYW	D27	DT	LIC	NEW YORK, NY	BLANK0000079881	473.7
No	WRZH-LD	N27+	TX	LIC	RED LION-HARRISBURG, PA	BLTTL19870929IH	269.2
No	WPDE-TV	D27	DT	LIC	FLORENCE, SC	BLANK0000120367	386.2
Yes	WPXR-TV	D27	DT	LIC	ROANOKE, VA	BLANK0000081460	339.0
No	W27EE-D	D27	LD	LIC	MARTINSBURG, WV	BLANK0000204148	325.2
No	W27EI-D	D27	LD	LIC	MOOREFIELD, WV	BLANK0000081243	325.3
No	WGDV-LD	D28	LD	LIC	SALISBURY, MD	BLANK0000125653	190.3
No	WUNM-TV	D28	DT	LIC	JACKSONVILLE, NC	BLANK0000094088	214.3
No	W28CJ-D	D28	LD	LIC	MANTEO, NC	BLDTL20150311AAM	127.3

SMITH AND FISHER

Yes WRIC-TV D28 DT LIC PETERSBURG, VA BLANK0000186787 132.2

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:

WGPL 1350 L DA2 D PORTSMOUTH, VA BL19810309AT

WGPL 1350 L DA2 N PORTSMOUTH, VA BL19810309AT

Record parameters as studied:

Channel: D27

Mask: Stringent

Latitude: 36 51 39.10 N (NAD83)

Longitude: 76 21 9.60 W

Height AMSL: 113.9 m

HAAT: 111.2 m

Peak ERP: 12.0 kW

Antenna: Omnidirectional

Elev Pattn: Generic

Elec Tilt: 0.75

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	12.0 kW	113.6 m	44.1 km
45.0	12.0	112.1	44.0
90.0	12.0	110.5	43.8
135.0	12.0	109.9	43.8
180.0	12.0	110.3	43.8
225.0	12.0	110.5	43.8
270.0	12.0	110.0	43.8
315.0	12.0	113.1	44.1

Distance to Canadian border: 692.6 km

Distance to Mexican border: 2288.2 km

Conditions at FCC monitoring station: Laurel MD

Bearing: 351.0 degrees Distance: 259.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 287.2 degrees Distance: 2526.5 km

Study cell size: 1.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

No IX check failures found.

EXHIBIT E

POWER DENSITY CALCULATION

PROPOSED WJGN-CD  
CHANNEL 27 – CHESAPEAKE, VIRGINIA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Chesapeake facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 12.0 kW, an antenna radiation center 111 meters above ground, and based on the specific elevation pattern for the proposed SWR antenna, maximum power density two meters above ground of  $0.0021 \text{ mW/cm}^2$  is calculated to occur 53 meters from the base of the tower. Since this value is only 0.6 percent of the  $0.37 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 27 (548-554 MHz), a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing radiation.