

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of JACKSONVILLE EDUCATORS BROADCASTING, INC., licensee of full-power digital television station WJEB-DT, Channel 44 in Jacksonville, Florida, in support of application for modification of Construction Permit LMS-0000028163, which authorizes operation on its post-repack channel, Channel 21. The purpose of this modification is to specify a different antenna than the one authorized in the referenced permit. No change in antenna pattern or orientation, antenna height, effective radiated power or transmitter site is proposed herein.

It is now proposed to mount an SWR directional horizontally-polarized slotted cylinder antenna at the 284-meter level of the existing 323-meter tower on which the present WJEB-DT antenna is mounted. The proposed effective radiated power for the facility remains unchanged at 622 kW, which is the allotted repack power level for WJEB-DT. No change in the authorized service contour for repacked WJEB-DT results from this change.

Azimuth and elevation pattern information for the proposed SWR antenna is provided in Exhibit B. Since the facility proposed herein essentially specifies the repack allotment facility assigned to WJEB-DT, no interference study is included herein. A revised power density calculation appears as Exhibit C.

Since no change in the overall height or location of the existing WJEB-DT 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 1020783 to this tower.

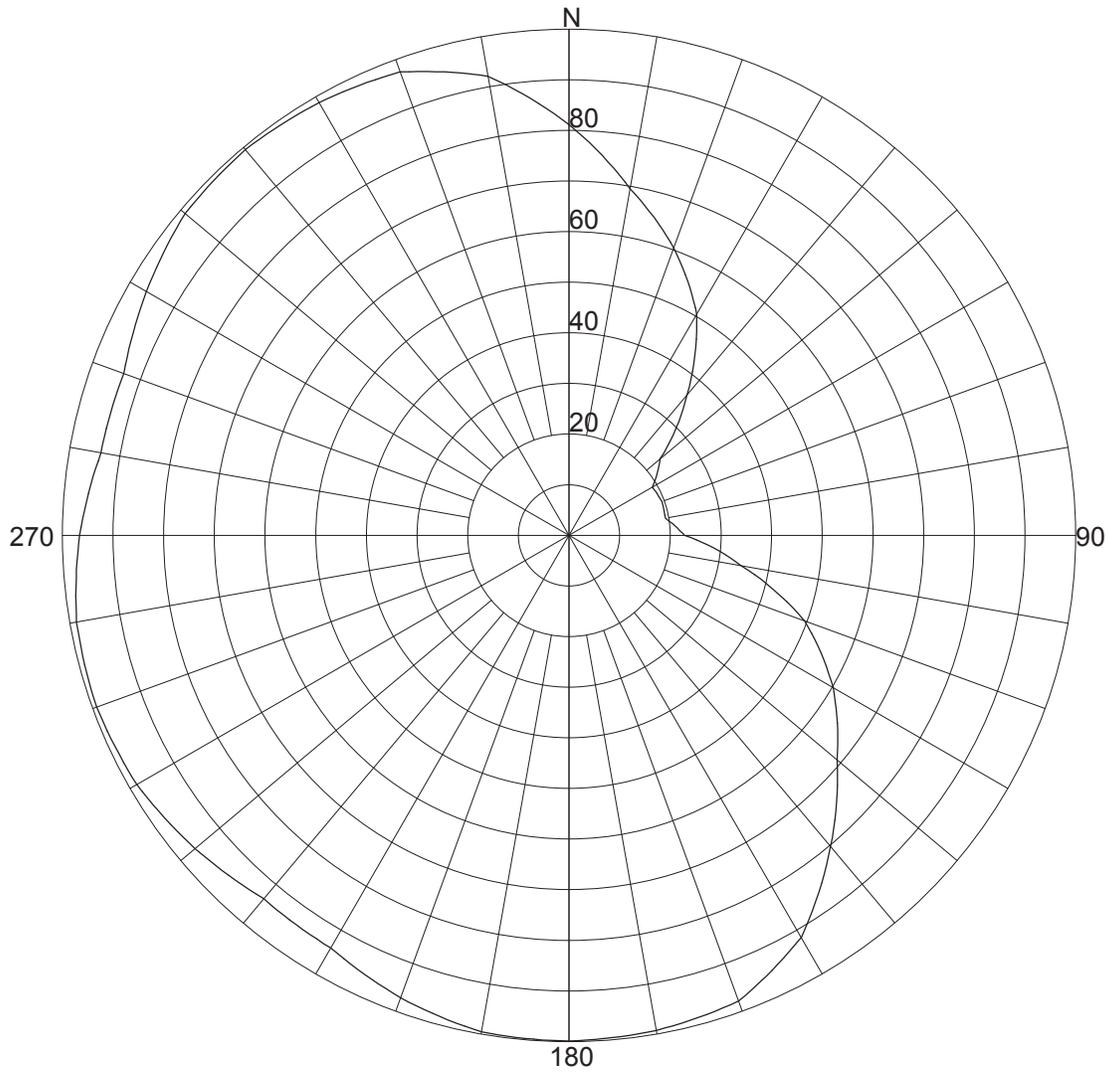
EXHIBIT A

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" and a smaller "T" in the middle.

KEVIN T. FISHER

January 27, 2020



### Azimuth Pattern

Scale: Linear

Unit: Relative Field

## Systems With Reliability

CLIENT: *WJEB*

Date: 7/19/2017

ANTENNA TYPE: SWCDS24WCS/21

FREQUENCY: 515mHz

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.52408 / 1.83dB

PATTERN RMS: 0.810

## Relative Field Tabulation(Azimuth)

Azimuth Heading	Normalized Field(dB)	Azimuth Heading	Normalized Field(dB)
0	.8110 (-1.82 )	180	.9990 (-0.01 )
5	.7530 (-2.46 )	185	.9975 (-0.02 )
10	.6950 (-3.16 )	190	.9960 (-0.03 )
15	.6495 (-3.75 )	195	.9840 (-0.14 )
20	.6040 (-4.38 )	200	.9720 (-0.25 )
25	.5540 (-5.13 )	205	.9565 (-0.39 )
30	.5040 (-5.95 )	210	.9410 (-0.53 )
35	.4335 (-7.26 )	215	.9390 (-0.55 )
40	.3630 (-8.8 )	220	.9370 (-0.57 )
45	.2990 (-10.49 )	225	.9500 (-0.45 )
50	.2350 (-12.58 )	230	.9630 (-0.33 )
55	.2125 (-13.45 )	235	.9740 (-0.23 )
60	.1900 (-14.42 )	240	.9850 (-0.13 )
65	.1925 (-14.31 )	245	.9885 (-0.1 )
70	.1950 (-14.2 )	250	.9920 (-0.07 )
75	.1940 (-14.24 )	255	.9895 (-0.09 )
80	.1930 (-14.29 )	260	.9870 (-0.11 )
85	.2105 (-13.53 )	265	.9765 (-0.21 )
90	.2280 (-12.84 )	270	.9660 (-0.3 )
95	.2865 (-10.86 )	275	.9520 (-0.43 )
100	.3450 (-9.24 )	280	.9380 (-0.56 )
105	.4200 (-7.54 )	285	.9365 (-0.57 )
110	.4950 (-6.11 )	290	.9350 (-0.58 )
115	.5485 (-5.22 )	295	.9490 (-0.45 )
120	.6020 (-4.41 )	300	.9630 (-0.33 )
125	.6465 (-3.79 )	305	.9760 (-0.21 )
130	.6910 (-3.21 )	310	.9890 (-0.1 )
135	.7470 (-2.53 )	315	.9915 (-0.07 )
140	.8030 (-1.91 )	320	.9940 (-0.05 )
145	.8600 (-1.31 )	325	.9905 (-0.08 )
150	.9170 (-0.75 )	330	.9870 (-0.11 )
155	.9480 (-0.46 )	335	.9805 (-0.17 )
160	.9790 (-0.18 )	340	.9740 (-0.23 )
165	.9860 (-0.12 )	345	.9475 (-0.47 )
170	.9930 (-0.06 )	350	.9210 (-0.71 )
175	.9960 (-0.03 )	355	.8660 (-1.25 )

## Systems With Reliability

CLIENT: *WJEB*

Date: 7/19/2017

ANTENNA TYPE: SWCDS24WCS/21

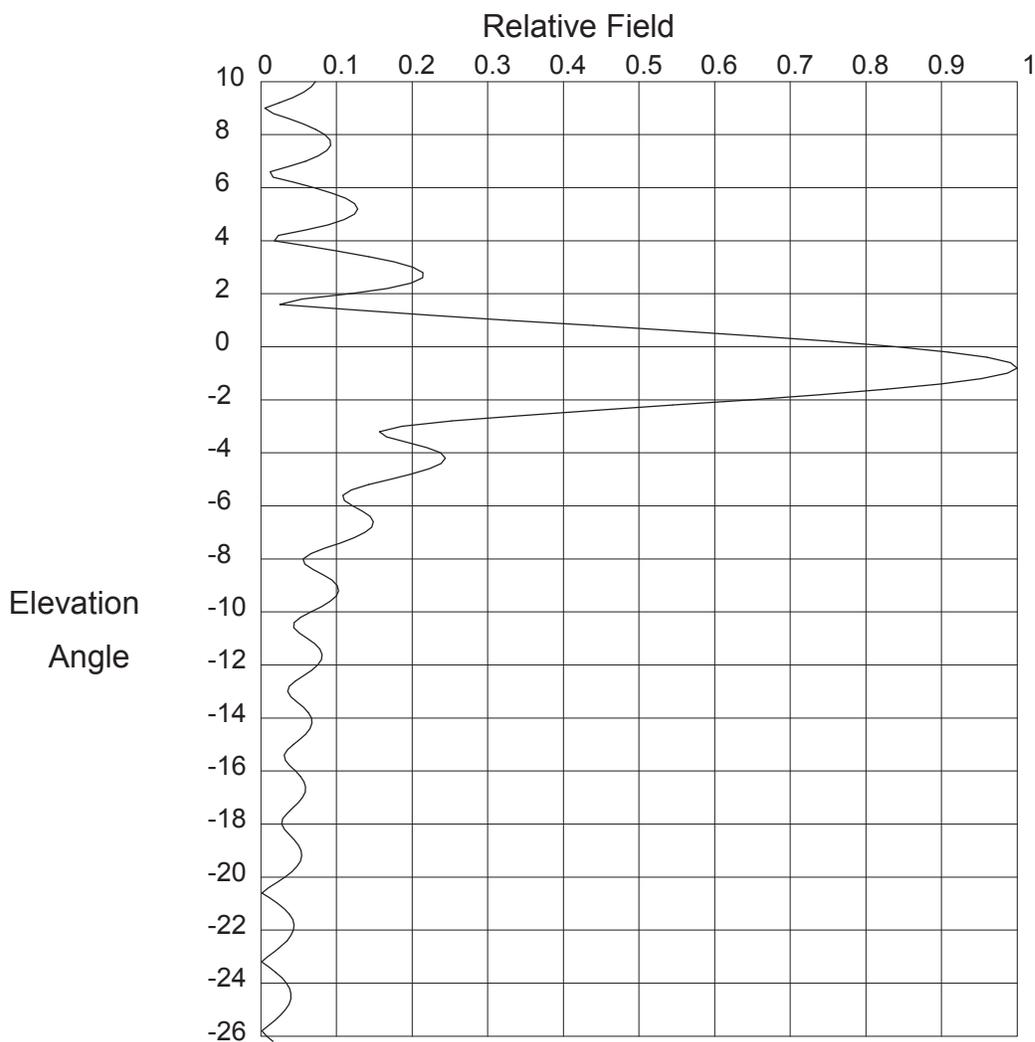
FREQUENCY: 515mHz

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.52408 / 1.83dB

PATTERN RMS: 0.810



### Elevation Pattern

Scale: Linear

Units: Field, Relative

## Systems With Reliability

CLIENT: <i>WJEB</i>	Date: 7/19/2017
ANTENNA TYPE: SWCDS24WCS/21	
FREQUENCY: 515mHz	
PATTERN POL.: Horizontal	
DIRECTIVITY(Peak): 26.405/14.217 dBd	Beam Tilt (Deg.) : -0.75
DIRECTIVITY(Horiz): 18.649/12.706 dBd	Null Fill(s)(%) : 15, 10, 5

POWER DENSITY CALCULATION

PROPOSED WJEB-DT  
CHANNEL 21 – JACKSONVILLE, FLORIDA  
[MODIFICATION OF LMS-0000028163]

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Jacksonville facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 622 kW, an antenna radiation center 284 meters above ground, and the specific elevation pattern of the proposed SWR antenna, maximum power density two meters above ground of  $0.0011 \text{ mW/cm}^2$  is calculated to occur 76 meters west-southwest of the base of the tower. Since this is only 0.3 percent of the  $0.34 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 21 (512-518 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.