

ENGINEERING EXHIBIT

Digital Television Station Application for Minor Modification of Licensed Facility

prepared for

Gray Television Licensee, LLC

WWSB(DT) Sarasota, FL

Facility ID 61251

Ch. 24 410 kW 234 m

Gray Television Licensee, LLC (“Gray”) is the licensee of television station WWSB(DT), Channel 24, Facility ID 61251, Sarasota FL. WWSB is licensed to operate at 90 kW effective radiated power (“ERP”) with a nondirectional antenna having a height above average terrain (“HAAT”) of 234 meters (file# 0000217791). Gray herein seeks a minor modification Construction Permit to authorize increased power for WWSB.

No change to the site location or antenna is proposed. The WWSB antenna is top-mounted on the tower structure corresponding to FCC Antenna Structure Registration (“ASR”) number 1028035.

As proposed herein, the WWSB ERP will be increased to 410 kW. The transmitting antenna is an elliptically polarized nondirectional Dielectric model TFU-24JTH/VP-R O4 (25 percent vertical polarization). The proposed horizontally polarized ERP is 410 kW and the corresponding vertically polarized ERP is 102.5 kW.

Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed WWSB facility’s predicted population exceeds 95 percent of the baseline facility’s population as described in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“CCRPN”, DA 17-317, released April 13, 2017).

The proposed WWSB service contour area expands beyond that established by the *CCRPN*. Interference study per FCC OET Bulletin 69¹ shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby full service and Class A television stations as required by §73.616. FCC processing of this proposal is requested using a 2.0 km cell size and 0.1 km terrain profile increment. The interference study output report is provided as Table 1.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and considering 10 percent antenna relative field in downward elevations (pattern data shows less than 10 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $3.1 \mu\text{W}/\text{cm}^2$, which is 0.9 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to WWSB in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field.

¹FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 0.1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

Engineering Exhibit
Gray Television Licensee, LLC (WWSB)
(page 3 of 3)

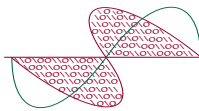


List of Attachments

| | |
|-----------|---|
| Figure 1 | Proposed Coverage Contours |
| Table 1 | TVStudy Analysis of Proposal |
| Form 2100 | Saved Version of Engineering Sections from FCC Form at Time of Upload |

Chesapeake RF Consultants, LLC

| | | |
|-----------------------|--------------------|--------------|
| Joseph M. Davis, P.E. | July 24, 2023 | |
| 207 Old Dominion Road | Yorktown, VA 23692 | 703-650-9600 |

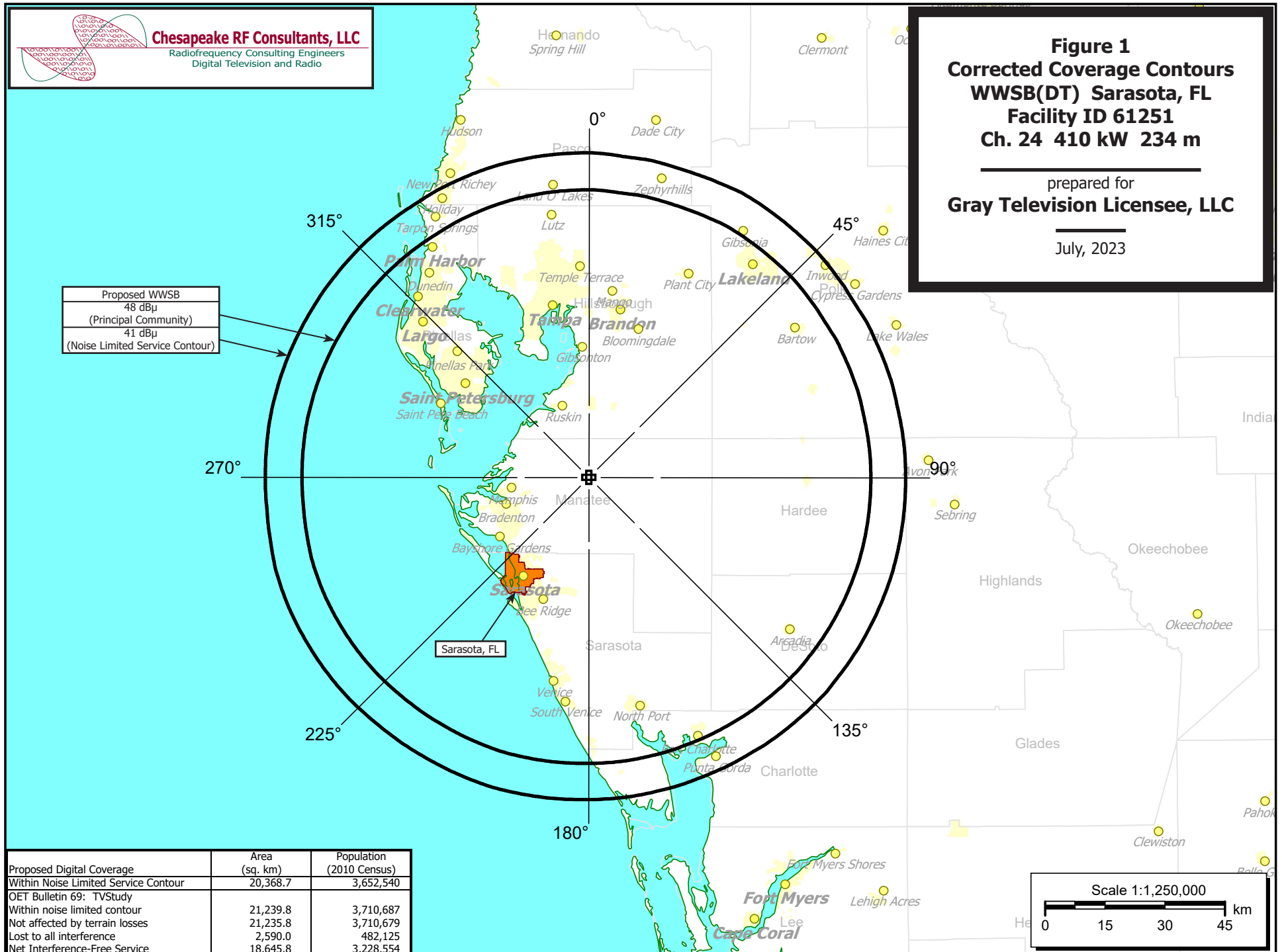


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 1
Corrected Coverage Contours
WWSB(DT) Sarasota, FL
Facility ID 61251
Ch. 24 410 kW 234 m

prepared for
Gray Television Licensee, LLC
July, 2023

| |
|---------------------------------|
| Proposed WWSB |
| 48 dBu |
| (Principal Community) |
| 41 dBu |
| (Noise Limited Service Contour) |



| Proposed Digital Coverage | Area (sq. km) | Population (2010 Census) |
|--------------------------------------|------------------|-----------------------------|
| Within Noise Limited Service Contour | 20,368.7 | 3,652,540 |
| OET Bulletin 69: TVStudy | | |
| Within noise limited contour | 21,239.8 | 3,710,687 |
| Not affected by terrain losses | 21,235.8 | 3,710,679 |
| Lost to all interference | 2,590.0 | 482,125 |
| Net Interference-Free Service | 18,645.8 | 3,228,554 |

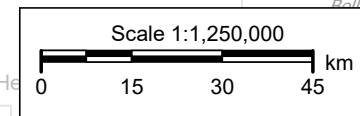


Table 1 WWSB TVStudy Analysis of Proposal
(page 1 of 3)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: WWSB_410kW 2.0-0.1, Model: Longley-Rice
Start: 2023.07.24 09:21:02

Study created: 2023.07.24 09:21:02

Study build station data: LMS TV 2023-07-24

Proposal: WWSB D24 DT APP SARASOTA, FL
File number: WWSB_410kW
Facility ID: 61251
Station data: User record
Record ID: 38
Country: U.S.
Zone: III

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:

| IX | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-----|---------|------|-----|--------|-----------------------|------------------|----------|
| Yes | WKCF | D23 | DT | LIC | CLERMONT, FL | BLANK0000143772 | 170.0 km |
| No | WLTW-DT | D23 | DT | LIC | MIAMI, FL | BLANK0000205147 | 276.5 |
| No | WAMI-DT | D24 | DT | LIC | HOLLYWOOD, FL | BLANK0000068250 | 277.5 |
| Yes | WYKE-CD | D24 | DC | LIC | INGLIS/YANKEETOWN, FL | BLANK0000099919 | 148.1 |
| Yes | WDSC-TV | D24 | DT | LIC | NEW SMYRNA BEACH, FL | BLANK0000090505 | 173.4 |
| No | WTLF | D24 | DT | LIC | TALLAHASSEE, FL | BLANK0000210947 | 380.5 |
| No | WPXC-TV | D24 | DT | LIC | BRUNSWICK, GA | BLCDT20110426AAQ | 368.4 |
| No | WBEC-TV | D25 | DT | LIC | BOCA RATON, FL | BLANK0000064037 | 277.5 |
| Yes | WFTT-TV | D25 | DT | LIC | VENICE, FL | BLANK0000001148 | 30.8 |

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D24
Latitude: 27 33 30.40 N (NAD83)
Longitude: 82 21 57.10 W
Height AMSL: 247.7 m
HAAT: 233.9 m
Peak ERP: 410 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 0.50

39.8 dBu contour:

| Azimuth | ERP | HAAT | Distance |
|---------|--------|---------|----------|
| 0.0 deg | 410 kW | 240.6 m | 82.8 km |
| 45.0 | 410 | 230.2 | 81.9 |
| 90.0 | 410 | 218.3 | 81.0 |
| 135.0 | 410 | 227.2 | 81.7 |
| 180.0 | 410 | 233.4 | 82.2 |
| 225.0 | 410 | 243.2 | 83.0 |
| 270.0 | 410 | 237.7 | 82.5 |
| 315.0 | 410 | 240.1 | 82.7 |

Distance to Canadian border: 1569.2 km

Distance to Mexican border: 1454.6 km

Conditions at FCC monitoring station: Vero Beach FL
Bearing: 87.8 degrees Distance: 170.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 309.5 degrees Distance: 2518.4 km

Study cell size: 2.00 km
Profile point spacing: 0.10 km

Table 1 WWSB TV Study Analysis of Proposal
(page 2 of 3)



Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000143772 LIC scenario 1

| | | | | | | | | | |
|--------------|--------------|-----------------|-----------|-----------------|-----------------------------|--------------------------------|-----------|------------------|-------|
| Desired: | Call WKCF | Chan D23 | Svc DT | Status LIC | City, State CLERMONT, FL | File Number BLANK0000143772 | Distance | | |
| Undesireds: | WWSB | D24 | DT | BL | SARASOTA, FL | DTVBL61251 | 170.0 km | | |
| | WWSB | D24 | DT | APP | SARASOTA, FL | WWSB_410kW | 170.0 | | |
| | WLTV-DT | D23 | DT | LIC | MIAMI, FL | BLANK0000205147 | 303.1 | | |
| | WYKE-CD | D24 | DC | LIC | INGLIS/YANKEETOWN, FL | BLANK0000099919 | 144.1 | | |
| Service area | | Terrain-limited | | IX-free, before | | IX-free, after | | Percent New IX | |
| 40690.7 | 4,241,181 | 40650.2 | 4,239,361 | 40461.1 | 4,233,928 | 40416.6 | 4,214,314 | 0.11 | 0.46 |
| Undesired | | | | Total IX | | Unique IX, before | | Unique IX, after | |
| WWSB | D24 | DT | BL | 4.1 | 2,272 | 0.0 | 0 | | |
| WWSB | D24 | DT | APP | 48.6 | 21,886 | | 44.6 | 19,614 | |
| WLTV-DT | D23 | DT | LIC | 24.3 | 2,609 | 20.3 | 337 | 20.3 | 337 |
| WYKE-CD | D24 | DC | LIC | 164.8 | 2,824 | 164.8 | 2,824 | 164.8 | 2,824 |

Interference to BLANK0000099919 LIC scenario 1

| | | | | | | | | | | |
|--------------|-----------------|-----------------|-----------|---------------|--------------------------------------|--------------------------------|----------------|------------------|-------|------|
| Desired: | Call WYKE-CD | Chan D24 | Svc DC | Status LIC | City, State INGLIS/YANKEETOWN, FL | File Number BLANK0000099919 | Distance | | | |
| Undesireds: | WWSB | D24 | DT | BL | SARASOTA, FL | DTVBL61251 | 148.4 km | | | |
| | WWSB | D24 | DT | APP | SARASOTA, FL | WWSB_410kW | 148.1 | | | |
| | WTLF | D24 | DT | LIC | TALLAHASSEE, FL | BLANK0000210947 | 243.8 | | | |
| Service area | | Terrain-limited | | | IX-free, before | IX-free, after | Percent New IX | | | |
| 4394.3 | 231,446 | 4390.2 | 231,061 | | 4358.0 | 227,740 | 4354.0 | 227,733 | 0.09 | 0.00 |
| Undesired | | | | Total IX | | Unique IX, before | | Unique IX, after | | |
| WWSB | D24 | DT | BL | 8.1 | 1,033 | 8.1 | 1,033 | | | |
| WWSB | D24 | DT | APP | 20.1 | 2,429 | | | 12.1 | 1,040 | |
| WTLF | D24 | DT | LIC | 24.2 | 2,288 | 24.2 | 2,288 | 16.1 | 899 | |

Interference to BLANK0000090505 LIC scenario 1

| | | | | | | | | | |
|--------------------|-----------|-----------------|-----------|-----------------|-----------------------|------------------|------------------|----------------|------|
| | Call | Chan | Svc | Status | City, State | File Number | Distance | | |
| Desired: | WDSC-TV | D24 | DT | LIC | NEW SMYRNA BEACH, FL | BLANK0000090505 | | | |
| Undesireds: | WWSB | D24 | DT | BL | SARASOTA, FL | DTVBL61251 | 173.4 km | | |
| | WWSB | D24 | DT | APP | SARASOTA, FL | WWSB_410kW | 173.4 | | |
| | WKCF | D23 | DT | LIC | CLERMONT, FL | BLANK0000143772 | 3.4 | | |
| | WYKE-CD | D24 | DC | LIC | INGLIS/YANKEETOWN, FL | BLANK0000099919 | 145.8 | | |
| | WTLF | D24 | DT | LIC | TALLAHASSEE, FL | BLANK0000210947 | 363.5 | | |
| | WPXC-TV | D24 | DT | LIC | BRUNSWICK, GA | BLCDT20110426AAQ | 255.1 | | |
| | WJGV-CD | D25 | DC | LIC | PALATKA, FL | BLDTA20110519ACL | 124.5 | | |
| Service area | | Terrain-limited | | IX-free, before | | IX-free, after | | Percent New IX | |
| 28958.3 | 3,389,559 | 28958.3 | 3,389,559 | 28402.8 | 3,346,398 | 28205.0 | 3,333,057 | 0.70 | 0.40 |
| Undesired | | | | Total IX | Unique IX, before | | Unique IX, after | | |
| WWSB D24 DT BL | | 101.1 | | 14,812 | 64.7 | 11,483 | | | |
| WWSB D24 DT APP | | 431.7 | | 31,425 | | | 262.5 | 24,824 | |
| WKCF D23 DT LIC | | 261.9 | | 14,142 | 165.2 | 5,473 | 96.6 | 5,002 | |
| WYKE-CD D24 DC LIC | | 249.3 | | 20,772 | 136.7 | 12,275 | 104.5 | 11,246 | |
| WTLF D24 DT LIC | | 8.0 | | 0 | 0.0 | 0 | 0.0 | 0 | |
| WPXC-TV D24 DT LIC | | 60.1 | | 4,034 | 32.0 | 2,005 | 28.0 | 1,910 | |
| WJGV-CD D25 DC LIC | | 20.0 | | 663 | 20.0 | 663 | 20.0 | 663 | |

Interference to BLANK0000001148 LIC scenario 1

| Call | Chan | Svc | Status | City, State | File Number | Distance |
|------|------|-----|--------|-------------|-------------|----------|
|------|------|-----|--------|-------------|-------------|----------|

Table 1 WWSB TV Study Analysis of Proposal
(page 3 of 3)



| | | | | | | | | | | |
|-------------------------------------|-----------|-----------------|-----------|-----------------|-----------------------|-------------------|-----------|------------------|-------|--|
| Desired: | WFTT-TV | D25 | DT | LIC | VENICE, FL | BLANK0000001148 | | | | |
| Undesireds: | WWSB | D24 | DT | BL | SARASOTA, FL | DTVBL61251 | | 31.0 km | | |
| | WWSB | D24 | DT | APP | SARASOTA, FL | WWSB_410kW | | 30.8 | | |
| | WYKE-CD | D24 | DC | LIC | INGLIS/YANKEETOWN, FL | BLANK0000099919 | | 121.0 | | |
| | WBEC-TV | D25 | DT | LIC | BOCA RATON, FL | BLANK0000064037 | | 289.0 | | |
| | WHDN-CD | D26 | DC | CP | NAPLES, FL | BLANK0000159121 | | 151.6 | | |
| | WKMG-TV | D26 | DT | LIC | ORLANDO, FL | BLANK0000149963 | | 146.8 | | |
| Service area | | Terrain-limited | | IX-free, before | | IX-free, after | | Percent New IX | | |
| 32904.6 | 4,523,828 | 32896.6 | 4,523,596 | 32392.1 | 4,468,200 | 32388.1 | 4,468,200 | 0.01 | 0.00 | |
| Undesired | | | | Total IX | | Unique IX, before | | Unique IX, after | | |
| WWSB D24 DT BL | 0.0 | | 0 | | 0.0 | | 0 | | | |
| WWSB D24 DT APP | 4.0 | | 0 | | | | 4.0 | | 0 | |
| WYKE-CD D24 DC LIC | 144.9 | | 5,008 | | 144.9 | | 5,008 | | 144.9 | |
| WBEC-TV D25 DT LIC | 4.0 | | 1,121 | | 4.0 | | 1,121 | | 4.0 | |
| WKMG-TV D26 DT LIC | 355.6 | | 49,267 | | 355.6 | | 49,267 | | 355.6 | |
| ----- | | | | | | | | | | |
| Interference to proposal scenario 1 | | | | | | | | | | |
| 12.99% interference received | | | | | | | | | | |
| Desired: | Call | Chan | Svc | Status | City, State | File Number | | Distance | | |
| | WWSB | D24 | DT | APP | SARASOTA, FL | WWSB_410kW | | | | |
| Undesireds: | WYKE-CD | D24 | DC | LIC | INGLIS/YANKEETOWN, FL | BLANK0000099919 | | 148.1 km | | |
| | WDSC-TV | D24 | DT | LIC | NEW SMYRNA BEACH, FL | BLANK0000090505 | | 173.4 | | |
| | WFTT-TV | D25 | DT | LIC | VENICE, FL | BLANK0000001148 | | 30.8 | | |
| Service area | | Terrain-limited | | IX-free | | Percent IX | | | | |
| 21239.8 | 3,710,687 | 21235.8 | 3,710,679 | 18645.8 | 3,228,554 | 12.20 | 12.99 | | | |
| Undesired | | | | Total IX | | Unique IX | | Prcnt Unique IX | | |
| WYKE-CD D24 DC LIC | 20.2 | | 5,627 | | 0.0 | | 0.00 | | 0.00 | |
| WDSC-TV D24 DT LIC | 830.0 | | 162,826 | | 93.0 | | 13,271 | | 0.44 | |
| WFTT-TV D25 DT LIC | 2496.9 | | 468,854 | | 1743.8 | | 313,756 | | 8.21 | |
| | | | | | | | | 8.46 | | |

**Channel and
Facility
Information**

| Section | Question | Response |
|-------------------------------|------------------------|---------------------------|
| Proposed Community of License | Facility ID | 61251 |
| | State | Florida |
| | City | SARASOTA |
| | DTV Channel | 24 |
| | Designated Market Area | Tampa-St. Pete (Sarasota) |
| Facility Type | Facility Type | Commercial |
| | Station Type | Main |
| Zone | Zone | 3 |

**Antenna Location
Data**

| Section | Question | Response |
|--------------------------------|---|--|
| Antenna Structure Registration | Do you have an FCC Antenna Structure Registration (ASR) Number? | Yes |
| | ASR Number | 1028035 |
| Coordinates (NAD83) | Latitude | 27° 33' 30.4" N+ |
| | Longitude | 082° 21' 57.1" W- |
| | Structure Type | GTOWER-Guyed Structure Used for Communication Purposes |
| | Overall Structure Height | 248.4 meters |
| | Support Structure Height | 230.4 meters |
| | Ground Elevation (AMSL) | 9.7 meters |
| Antenna Data | Height of Radiation Center Above Ground Level | 238 meters |
| | Height of Radiation Center Above Average Terrain | 233.9 meters |
| | Height of Radiation Center Above Mean Sea Level | 247.7 meters |
| | Effective Radiated Power | 410 kW |

Antenna Technical Data

| Section | Question | Response |
|--------------------------------|---|-----------------|
| Antenna Type | Antenna Type | Non-Directional |
| | Do you have an Antenna ID? | |
| | Antenna ID | |
| Antenna Manufacturer and Model | Manufacturer: | Dielectric |
| | Model | TFU-24JTH/VP O4 |
| | Rotation | |
| | Electrical Beam Tilt | 0.5 |
| | Mechanical Beam Tilt | Not Applicable |
| | toward azimuth | |
| | Polarization | Elliptical |
| DTV and DTS: Elevation Pattern | Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt? | No |
| | Uploaded file for elevation antenna (or radiation) pattern data | |