Grafton Olivera, P.E.
Consulting Engineer

TECHNICAL EXHIBIT
CONSTRUCTION PERMIT MODIFICATION APPLICATION
INTERNATIONAL BROADCASTING CORPORATION
FM STATION WIOA
SAN JUAN, PUERTO RICO
FACILITY ID 8151

May 2, 2021

CH 260B 37 KW 291 M

TECHNICAL EXHIBIT
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Technical Narrative

The technical exhibit of which this narrative is part has been prepared on behalf of International Broadcasting Corporation (IBC), licensee of FM broadcast station WIOA in San Juan, Puerto Rico. By means of this application, IBC seeks a modification of its existing construction permit (CP), File Number BHP-20181218AAQ, to make minor changes in the proposed facilities of WIOA. These changes have been made necessary by the antenna system failure due to a lightning strike – a new, slightly different antenna will replace the antenna specified in the current CP, and to correct tower coordinates errors brought by the FCC change from CDBS (NAD27) filing system used in the application, to the LMS (NAD83) filing system used when granting the CP. The tower coordinates and elevation have been revised by a recent site survey and more accurate parameters are being submitted. Specifications for the proposed operation are included in Figure 1.

It is proposed to mount the antenna on an existing 200 ft tower (of former WJSU-TV, relinquished in the TV repacking) whose structure was damaged by Hurricane Maria and has been repaired. The reconstructed tower is 61 meters (200 ft.) of overall height AGL and according to the TOWAIR study, shown in Appendix 1, does not require registration. The antenna radiation center will be at a HAAT of 291 M AMSL, per calculations performed using the FCC Web site HAAT Calculation tool, shown in Appendix 2. The applicant certifies that the proposed reconstruction will not have a significant environmental impact, as defined by 47 CFR 1.1307. There are no AM stations within 7.8 kilometers of the proposed site, thus no adverse effects to AM stations will be caused by the proposed facility.

It is believed that the proposal conforms to the applicable rules and regulations of the Federal Communications Commission.

Transmitter Location

The proposed transmitting facility will use a new PSI PSIFHR-8C, circularly polarized, 8 bay, full wavelength antenna that will be shared with station WQBS-FM (Channel 299B, also of IBC), also requesting relocation to this site. A properly designed combiner with a minimum isolation of 35 dB will be used to feed the signals of both stations to a common wide band antenna. The new PSI antenna will be side mounted with its radiation center (RC) at height of 50.3 M AGL on the self-supporting tower. It is proposed to use an ERP of 37 kW, circular polarization.

The following NAD83 geographic coordinates describe the proposed WIOA site location:

18° 16’ 23.8” North Latitude
66° 05’ 33.4” West Longitude

A map showing the location of the proposed transmitter site is included herein as Figure 2. A sketch showing the proposed antenna and supporting structure is included herein as Figure 3.

Quiet Zone Notification

As required by FCC rules pertaining to radio Quiet Zones, Section 73.1030(a), the National Astronomy and Ionosphere Center (NAIC) in Arecibo, Puerto Rico is being notified of the proposed modification. Copy of the notification letter to the Arecibo Observatory is included in Appendix 3.

Environmental Considerations

The proposed WIOA antenna will be side-mounted on the proposed tower with the antenna RC located 50.3 meters above ground level with a height above mean sea level of 501.3 meters. A maximum radiated power (ERP) of 37 kW circular polarization is proposed.

With respect to the potential for human exposure to radio frequency (RF) energy, calculations prepared in accordance with FCC Bulletin OET-65.* Indicate that the proposal will not result in human exposure to RF energy at ground level in excess of FCC standards. The calculation at 2-m above ground was made using the following formula from the OET-65 document:

$$S = \frac{(33.4)F^2P}{R^2}$$

where, S = power density in uW/cm^2, F = relative field factor at the angle to the calculation point, P = the total effective radiated power relative to a dipole in watts, and R = distance from the antenna radiation center to the calculation point in meters. Based on a "worst-case" vertical relative field value of 0.279 for any depression angle greater than 10 degrees below horizon (see vertical plane radiation tabulation in Appendix 4; antenna specifications and outline are shown in Figure 3 and Appendix 5), a total ERP of 74 kW (H+V) and an antenna center of radiation height above ground level of 50.3 meters, the calculated power density at two meters above ground level at the base of the tower is 82.5 microwatts per square centimeter (uW/cm^2), or 41.2 % of the Commission's recommended limit applicable to uncontrolled exposure areas (200 uW/cm^2 for the FM band). The other station to be collocated, WQBS-FM, has similar specifications, and based on a "worst-case" vertical relative field value of 0.279 for any depression angle greater than 10 degrees below horizon (see Appendix 4), a total ERP of 72 kW (H+V) and an antenna center of radiation height above ground level of 50.3 meters, the calculated power density at two meters above ground level at the base of the tower is 80.2 microwatts per square centimeter (uW/cm^2), or 40.1 % of the Commission's recommended limit applicable to uncontrolled exposure areas (200 uW/cm^2 for the FM band). Thus the total RF exposure caused by both stations would not exceed 81.3 % of the Commission's recommended limit for uncontrolled exposure areas. Therefore, the proposal is believed to comply with the FCC limits for human exposure to RF energy.

Access to the antenna tower will be restricted with a locked fence, appropriately marked with potential RF radiation exposure warning signs. Since this is a multiuser site, there will be in place a coordination agreement so the proposed transmission facilities, reduce power or cease operation altogether, as necessary, to prevent RF exposure above FCC limits.

FCC Monitoring Station at Santa Isabel

FCC rules pertaining to FCC monitoring stations, Section 73.1030(c), requires that the proposed facility does not produce a field strength greater than 10 mV/m at the FCC stations. Since the proposed site is located at a distance of 42 kilometers from the Santa Isabel

* Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

FCC monitoring station, the signal of WIOA (FM) will be well below 10 mV/m at the FCC station; no interference problems to the monitoring station at Santa Isabel are expected.

Allocation Considerations

Figure 4 summarizes the allocation study for the proposed facility of WIOA. Figure 4a shows the current CP channel allocation and Figure 4b shows the allocation situation of the proposed CP modification. As shown in Figure 4b, the proposed facility of WIOA will comply with FCC allocation requirements.

City Coverage and Impact on Radio Multiple Ownership

Figure 5 is a map showing the predicted coverage contours of the existing CP and proposed modified CP facilities of WIOA. Figure 5(a) shows the 54 dBu contours and Figure 5(b) shows the 70 dBu contours. The proposed 70 dBu will encompass 100% of the city and of the municipality of San Juan (obtained from the 2010 Census). A study of line-of-sight conditions with the city of San Juan from the proposed site shows that line-of-sight conditions are adequate.

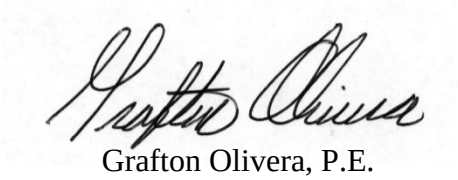
As can be appreciated in Figure 5(b), the coverage of WIOA of San Juan is fully adequate, not significantly changed and should have little impact in the situation of IBC as to Radio Multiple Ownership.

Coverage, Protected and Interfering Contours

The predicted coverage was calculated in accordance with the provisions of 47 CFR 73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The “blanketing” contour for a 37-kilowatt FM station, as defined by 47 CFR 73.318, extends approximately 2.4 kilometers from the transmitter site. There are several FM and TV stations within this distance. While no receiver-induced inter-modulation interference or blanketing interference is expected, the applicant is fully aware of its responsibility to remedy complaints of blanketing interference, as required by 47 CFR 73.318, and to protect existing facilities in accordance with all the applicable rules.

The predicted contours were calculated in accordance with Section 73.313 of the FCC Rules, using the V-Soft FMCommander@2020 software in conjunction with the 30-second Global terrain database; contour calculation were made using an evenly spaced set of 72 radials. The antenna height elevation above average terrain of the proposed RC height was used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to contours.



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May 2, 2021

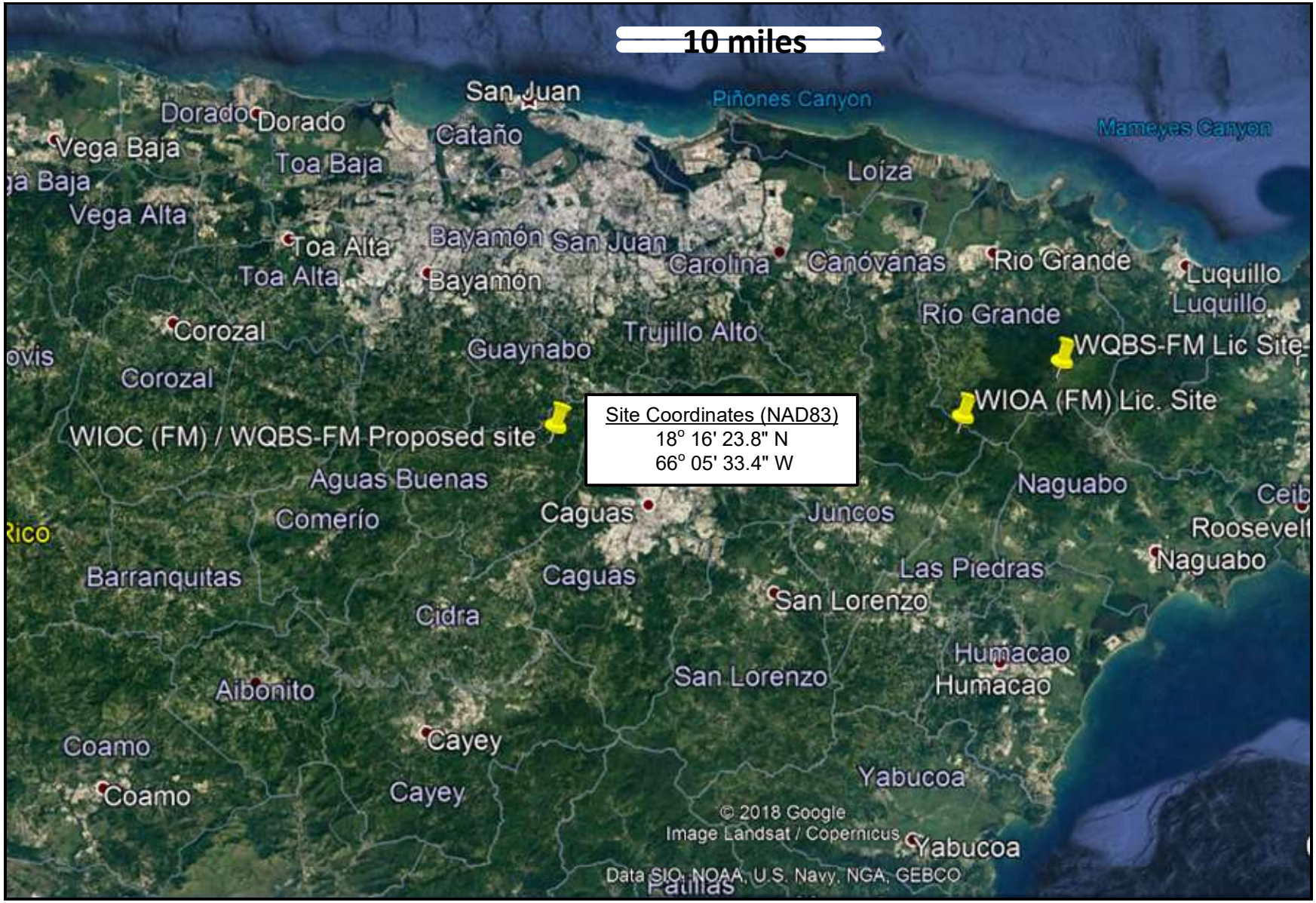
Figure 1

TECHNICAL EXHIBIT
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FM STATION WIOA
SAN JUAN, PUERTO RICO
FACILITY ID 8151
CH 260B 37 KW 291 M

Engineering Specifications

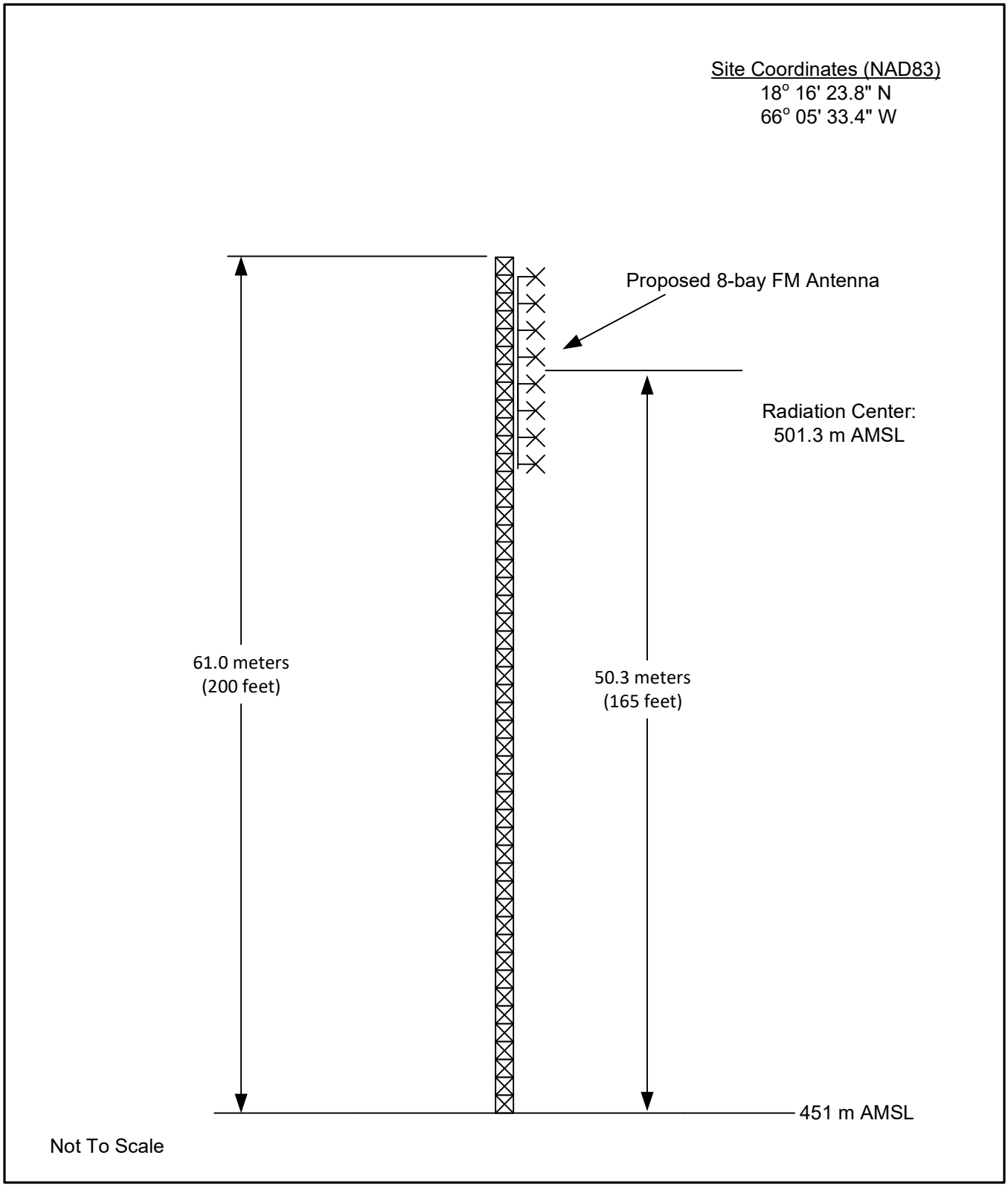
Channel / Frequency	260B / 99.9 MHz
Site Coordinates (NAD83)	18° 16' 23.8" North Latitude 66° 05' 33.4" West Longitude
Site elevation	451 m AMSL
Overall height of antenna structure	61 m AGL / 512 m AMSL
Height of antenna radiation center	50.3 m AGL / 501.3 m AMSL
Antenna radiation center HAAT	291 m AMSL
Transmitter	Type Approved
Transmitter power output	10 kW
Transmission line, 3“ air-dielectric	Andrew, HJ8-50B
Transmission line length	65.5 m
Transmission line efficiency, including 0.2 dB combiner loss	89.4 %
Antenna	PSI PSIFHR-8C, full wavelength
Polarization	Circular (50/50)
Power gain	4.18 Circular Pol
Antenna input power	8.94 kW
Effective radiated power	37 kW Circular Pol.

Figure 2



INTERNATIONAL BROADCASTING CORPORATION
FM STATION WIOA
SAN JUAN, PUERTO RICO
CH 260B 37 KW CPOL 291 M HAAT

Grafton Olivera, P.E. – Consulting Engineer



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

INTERNATIONAL BROADCASTING CORPORATION
FM STATION WIOA
SAN JUAN, PUERTO RICO
CH 260B 37 KW CPOL 291 M HAAT

Grafton Olivera, P.E. – Consulting Engineer

FIGURE 4a

EXISTING CP WIOA (FM)



Call	Type	Ch	Location		Azi	Dist	FCC	Margin
~~WIOA~~	CP	260B	San Juan	PR	90.9	0.00		---
WIOA	LIC	260B	San Juan	PR	89.5	25.41		---
~~WIOA-FM1~~	LIC	260D	Ceiba	PR	89.1	44.85		---
~~W258DT~~	CP-D	258D	San Juan	PR	346.0	8.55	53.5	-45.0
~~W260DR~~	CP	260D	Mayaguez	PR	265.4	112.91	111.5	1.4
WIDI	LIC	258B	Quebradillas	PR	261.7	95.15	73.5	21.7
WIVA-FM	LIC	262B	Aguadilla	PR	261.8	95.75	73.5	22.3
WJVP	LIC	207B	Culebra	PR	85.9	83.45	19.5	64.0
WSTX-FM	LIC	262B	Christiansted	VI	112.7	148.79	73.5	75.3
~~W206AF~~	LIC-D	206D	Mayaguez	PR	261.5	94.99	14.5	80.5
WVIQ	LIC	258B	Christiansted	VI	111.7	161.33	73.5	87.8

WIOA (FM) - EXIST. CP ALLOCATION STUDY
International Broadcasting Corporation

REFERENCE
18 16 30.00 N.
66 05 35.90 W.

CLASS = B
PR & VI Spacings to 3rd Adj.
Channel 260 - 99.9 MHz

DISPLAY DATES
DATA 04-30-21
SEARCH 04-30-21

Call	Channel		Location		Azi	Dist	FCC	Margin
WIOA	CP	260B	San Juan	PR	90.9	0.00	240.5	-240.5
WIOA	LIC	260B	San Juan	PR	89.5	25.41	240.5	-215.1
WIOA-FM1	LIC	260D	Ceiba	PR	89.1	44.85	177.5	-132.7
W258DT	CP -D	258D	San Juan	PR	346.0	8.55	53.5	-45.0
W260DR	CP	260D	Mayaguez	PR	265.4	112.91	111.5	1.4
WIDI	LIC	258B	Quebradillas	PR	261.7	95.15	73.5	21.7
WIVA-FM	LIC	262B	Aguadilla	PR	261.8	95.75	73.5	22.3
WJVP	LIC	207B	Culebra	PR	85.9	83.45	19.5	64.0
WSTX-FM	LIC	262B	Christiansted	VI	112.7	148.79	73.5	75.3
W206AF	LIC-D	206D	Mayaguez	PR	261.5	94.99	14.5	80.5
WVIQ	LIC	258B	Christiansted	VI	111.7	161.33	73.5	87.8

Reference station has protected zone issue: Arecibo
All separation margins include rounding

FIGURE 4b

PROP. CP MOD. WIOA (FM)



Call	Type	Ch	Location		Azi	Dist	FCC	Margin
WIOA	CP	260B	San Juan	PR	339.0	0.20	240.5	-240.3
WIOA	LIC	260B	San Juan	PR	89.1	25.34	240.5	-215.2
~~WIOA-FM1~~	LIC	260D	Ceiba	PR	88.8	44.78	177.5	-132.7
~~W258DT~~	CP-D	258D	San Juan	PR	345.8	8.76	53.5	-44.7
~~W260DR~~	CP	260D	Mayaguez	PR	265.5	112.97	111.5	1.5
WIDI	LIC	258B	Quebradillas	PR	261.8	95.20	73.5	21.7
WIVA-FM	LIC	262B	Aguadilla	PR	262.0	95.80	73.5	22.3
WJVP	LIC	207B	Culebra	PR	85.8	83.39	19.5	63.9
WSTX-FM	LIC	262B	Christiansted	VI	112.7	148.65	73.5	75.2
~~W206AF~~	LIC-D	206D	Mayaguez	PR	261.6	95.04	14.5	80.5
WVIQ	LIC	258B	Christiansted	VI	111.7	161.19	73.5	87.7

End of Screen List, Cardinal Radials = 72

WIOA (FM) PROP. CP ALLOCATION STUDY
International Broadcasting Corporation

REFERENCE
18 16 23.80 N.
66 05 33.40 W.

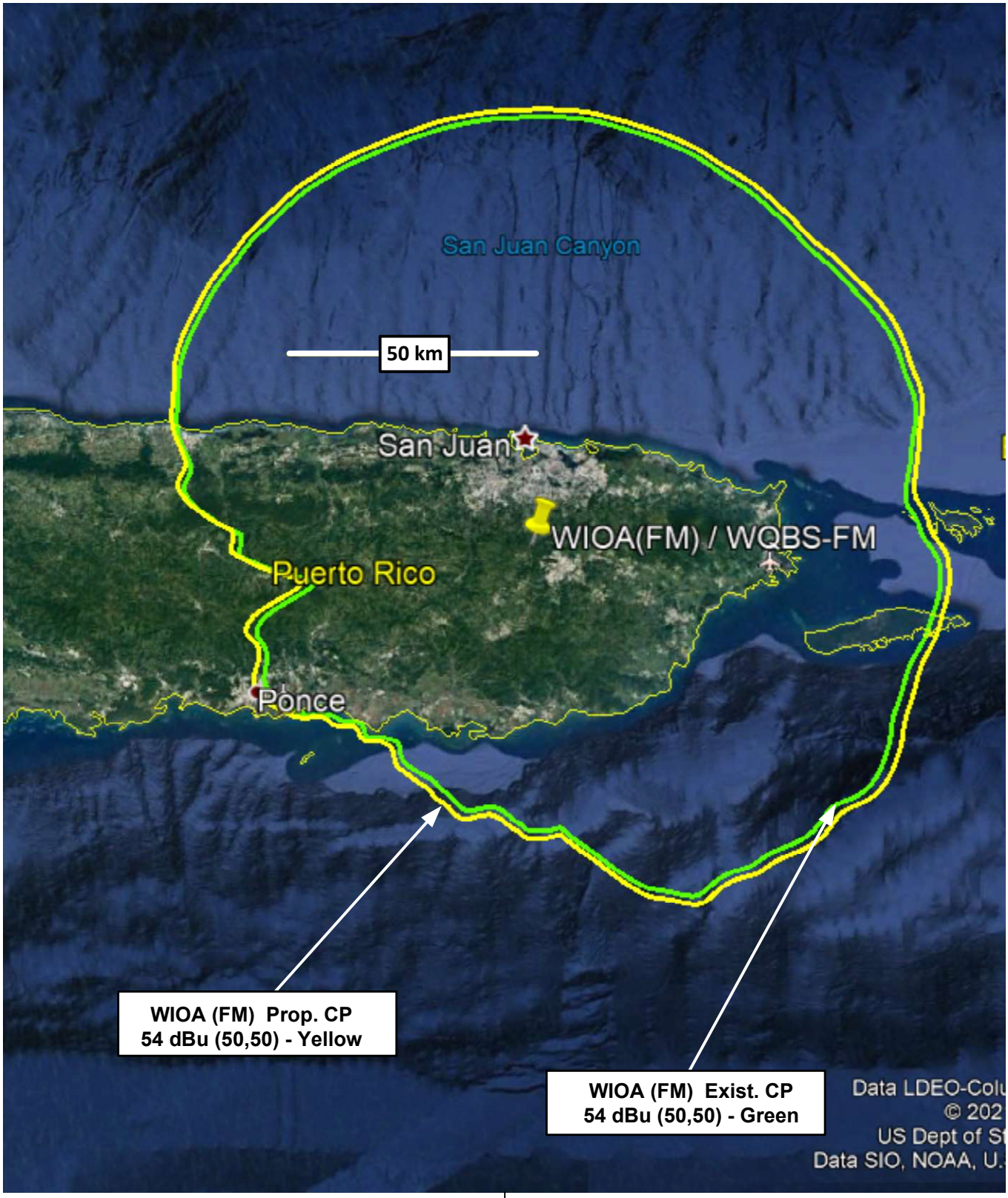
CLASS = B
PR & VI Spacings to 3rd Adj.
Channel 260 - 99.9 MHz

DISPLAY DATES
DATA 04-30-21
SEARCH 04-30-21

Call	Channel		Location		Azi	Dist	FCC	Margin
WIOA_%	CP	260B	San Juan	PR	339.0	0.20	240.5	-240.3
WIOA_%	LIC	260B	San Juan	PR	89.1	25.34	240.5	-215.2
WIOA-FM1	LIC	260D	Ceiba	PR	88.8	44.78	177.5	-132.7
W258DT	CP -D	258D	San Juan	PR	345.8	8.76	53.5	-44.7
W260DR	CP	260D	Mayaguez	PR	265.5	112.97	111.5	1.5
WIDI	LIC	258B	Quebradillas	PR	261.8	95.20	73.5	21.7
WIVA-FM	LIC	262B	Aguadilla	PR	262.0	95.80	73.5	22.3
WJVP	LIC	207B	Culebra	PR	85.8	83.39	19.5	63.9
WSTX-FM	LIC	262B	Christiansted	VI	112.7	148.65	73.5	75.2
W206AF	LIC-D	206D	Mayaguez	PR	261.6	95.04	14.5	80.5
WVIQ	LIC	258B	Christiansted	VI	111.7	161.19	73.5	87.7

Reference station has protected zone issue: Arecibo
% = Station Fails minimum 73.215 spacings
All separation margins include rounding

Figure 5(a)

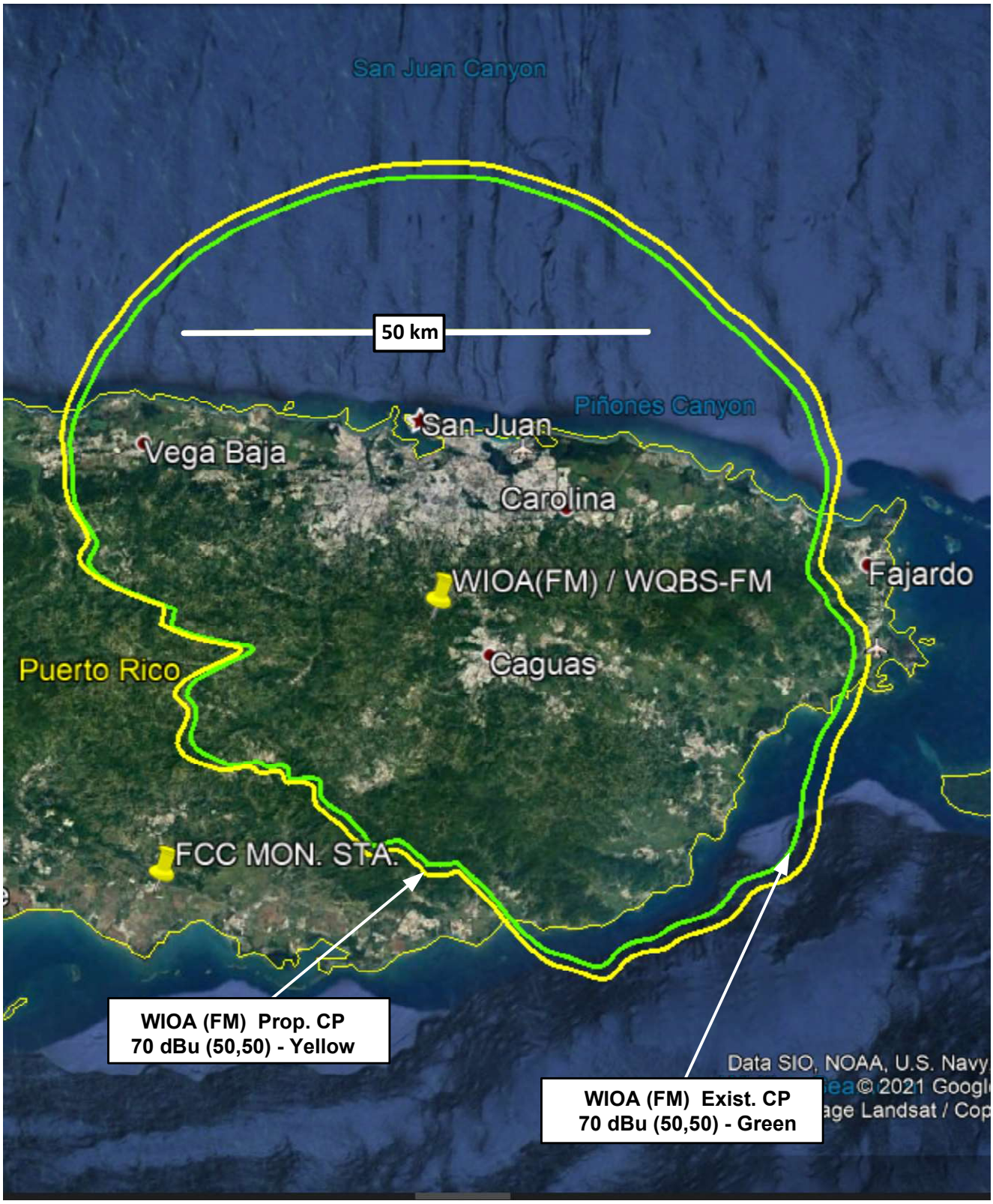


Predicted 54 dBu Contours – Exist. & Proposed CP

FM STATION WIOA
SAN JUAN, PUERTO RICO
CH 260B 37 KW CPOL 291 M HAAT

Grafton Olivera, P.E. – Consulting Engineer

Figure 5(b)



Predicted 70 dBu Contours – Exist. & Proposed CP

FM STATION WIOA

SAN JUAN, PUERTO RICO

CH 260B 37 KW CPOL 291 M HAAT

Grafton Olivera, P.E. – Consulting Engineer

Appendix 1

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	18-16-23.8 north
Longitude	066-05-33.4 west

Measurements (Meters)

Overall Structure Height (AGL)	61
Support Structure Height (AGL)	1
Site Elevation (AMSL)	451

Structure Type

LTOWER - Lattice Tower

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

Appendix 2

Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **18° 16' 23.8"** North
Longitude **66° 5' 33.4"** West (NAD 83)

Height of antenna radiation center above mean sea level: **501.3** meters AMSL

Number of Evenly Spaced Radials = **8** 0° is referenced to True North

Results

Calculated HAAT = **291 meters**

Antenna Height Above Average Terrain calculated
using 1 km GLOBE terrain data

Individual "Radial HAAT" Values, in meters

0°	442.7 m
45°	389.2 m
90°	372.7 m
135°	370.6 m
180°	123.7 m
225°	85.3 m
270°	137.1 m
315°	403.6 m

Print Results? New Calculation?

Appendix 3

Grafton Olivera, P.E.
Consulting Engineer

May 2, 2021

Via email (prcz@naic.edu)

Angel M. Vázquez, Spectrum Manager
National Astronomy and Ionosphere Center
Arecibo Observatory
HC3 Box 53995
Arecibo, PR 00612

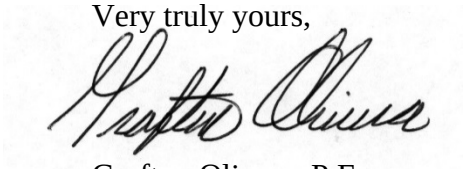
Gentlemen:

On behalf of our client, International Broadcasting Corporation, licensee of FM station WIOA in San Juan, Puerto Rico, in accordance with Section 73.1030 of FCC Rules, we hereby notify of a proposed modification of the Construction Permit (CP) for WIOA. The particulars of the proposal are as follows:

Geographical coordinates of antenna location (NAD83): 18-16-23.8 / 66-05-33.4
Antenna height: 50.3 m AGL; 501.3 m AMSL
Antenna Gain (horizontal plane): 0 dBd (non-directional)
Operating channel: 260B, 99.9 MHz
Type of emission: F3E
Effective isotropic radiated power: 60.7 kW (Circular Polarization)

Please review this proposal and let me know your findings; feel free to communicate via email (mailto:Grafton.Olivera@outlook.com), telephone (941-323-0381) or regular mail.

Very truly yours,



Grafton Olivera, P.E.
5119 60th Drive E
Bradenton, FL 34203

Tel. 941-323-0381
Email: Grafton.Olivera@outlook.com

Appendix 4 - Vertical Plane Radiation Pattern Tabulation

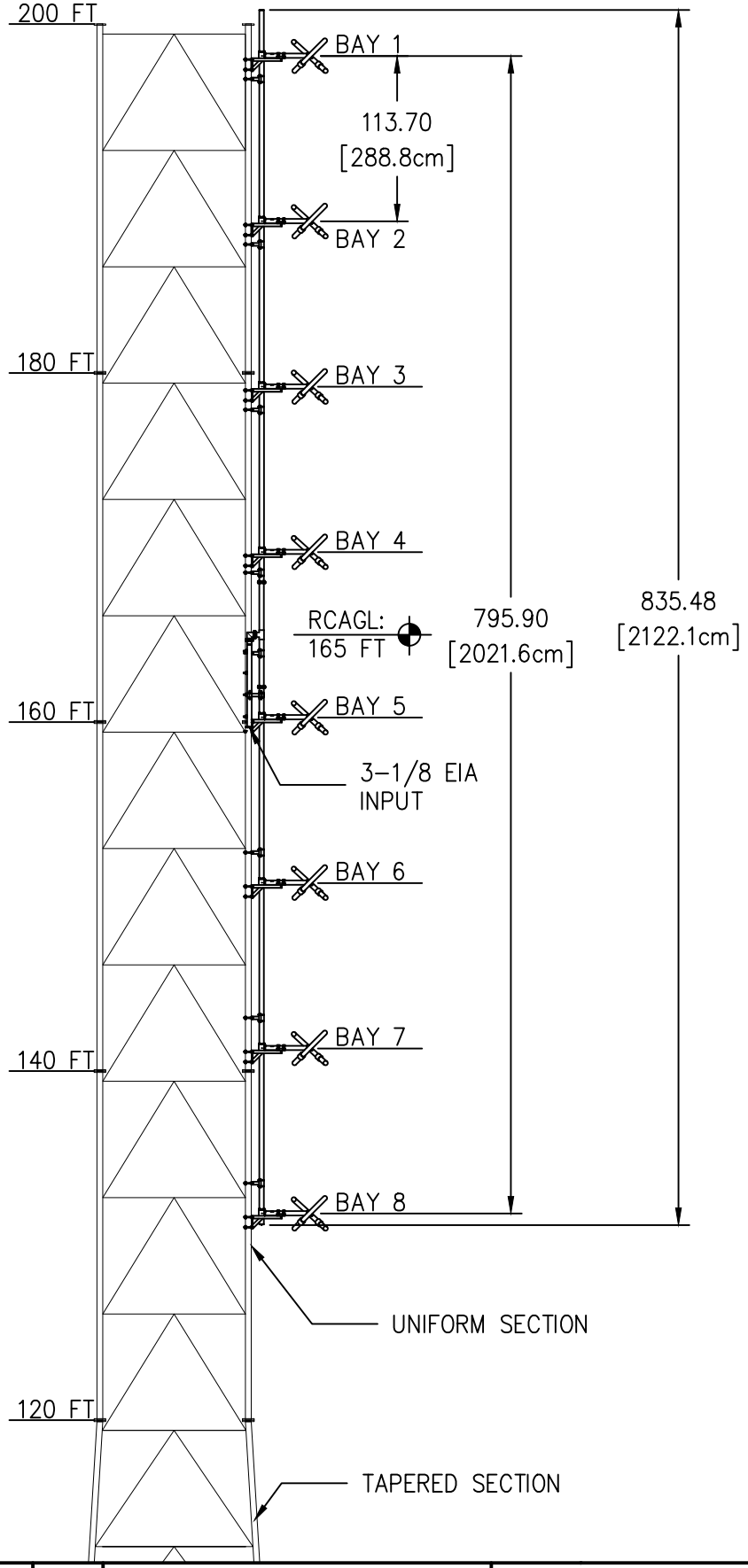
Station: WIOB
Model: PSIFHR-8C
Freq: 99.9 MHz
8-Bay fullwave
Elevation tabulation

Angle	Field	dB
-90.0	0.001	-60.00
-89.0	0.015	-36.57
-88.0	0.030	-30.50
-87.0	0.044	-27.05
-86.0	0.059	-24.64
-85.0	0.072	-22.80
-84.0	0.086	-21.35
-83.0	0.098	-20.17
-82.0	0.109	-19.22
-81.0	0.120	-18.44
-80.0	0.129	-17.81
-79.0	0.136	-17.33
-78.0	0.142	-16.97
-77.0	0.145	-16.75
-76.0	0.147	-16.65
-75.0	0.146	-16.69
-74.0	0.143	-16.87
-73.0	0.138	-17.21
-72.0	0.130	-17.72
-71.0	0.120	-18.41
-70.0	0.109	-19.28
-69.0	0.096	-20.32
-68.0	0.085	-21.43
-67.0	0.076	-22.34
-66.0	0.074	-22.64
-65.0	0.078	-22.14
-64.0	0.089	-21.03
-63.0	0.103	-19.75
-62.0	0.118	-18.59
-61.0	0.131	-17.66
-60.0	0.141	-17.00
-59.0	0.147	-16.64
-58.0	0.148	-16.58
-57.0	0.143	-16.88
-56.0	0.132	-17.58
-55.0	0.115	-18.77
-54.0	0.093	-20.67
-53.0	0.066	-23.66
-52.0	0.036	-28.93
-51.0	0.006	-44.14
-50.0	0.027	-31.29
-49.0	0.055	-25.17
-48.0	0.078	-22.12
-47.0	0.095	-20.47
-46.0	0.103	-19.77
-45.0	0.102	-19.86
-44.0	0.091	-20.81
-43.0	0.072	-22.89
-42.0	0.045	-26.88
-41.0	0.015	-36.39
-40.0	0.022	-32.99
-39.0	0.054	-25.39
-38.0	0.081	-21.82
-37.0	0.100	-19.96
-36.0	0.109	-19.24
-35.0	0.106	-19.53
-34.0	0.090	-20.93
-33.0	0.063	-24.03
-32.0	0.027	-31.24
-31.0	0.012	-38.11
-30.0	0.052	-25.68
-29.0	0.086	-21.29
-28.0	0.110	-19.15
-27.0	0.120	-18.41
-26.0	0.114	-18.87
-25.0	0.091	-20.78
-24.0	0.055	-25.19
-23.0	0.013	-38.01
-22.0	0.043	-27.26
-21.0	0.089	-21.03
-20.0	0.123	-18.19
-19.0	0.140	-17.11
-18.0	0.133	-17.49
-17.0	0.103	-19.75
-16.0	0.050	-26.02
-15.0	0.022	-33.16
-14.0	0.100	-20.01
-13.0	0.176	-15.09
-12.0	0.238	-12.46
-11.0	0.275	-11.21
-10.0	0.279	-11.10
-9.0	0.248	-12.12
-8.0	0.197	-14.10
-7.0	0.185	-14.64
-6.0	0.276	-11.18
-5.0	0.429	-7.35
-4.0	0.599	-4.45
-3.0	0.758	-2.40
-2.0	0.887	-1.04
-1.0	0.971	-0.26
0.0	1.000	0.00

Station: WQBS
Model: PSIFHR-8C
Freq: 107.7 MHz
8-Bay fullwave
Elevation tabulation

Angle	Field	dB
-90.0	0.001	-60.00
-89.0	0.015	-36.57
-88.0	0.030	-30.46
-87.0	0.045	-26.88
-86.0	0.061	-24.31
-85.0	0.077	-22.27
-84.0	0.093	-20.59
-83.0	0.111	-19.12
-82.0	0.128	-17.84
-81.0	0.146	-16.70
-80.0	0.165	-15.66
-79.0	0.184	-14.72
-78.0	0.203	-13.86
-77.0	0.222	-13.08
-76.0	0.241	-12.37
-75.0	0.258	-11.75
-74.0	0.275	-11.20
-73.0	0.291	-10.73
-72.0	0.304	-10.35
-71.0	0.314	-10.06
-70.0	0.321	-9.86
-69.0	0.324	-9.78
-68.0	0.323	-9.82
-67.0	0.316	-10.00
-66.0	0.304	-10.34
-65.0	0.287	-10.85
-64.0	0.264	-11.57
-63.0	0.236	-12.53
-62.0	0.204	-13.79
-61.0	0.170	-15.37
-60.0	0.137	-17.26
-59.0	0.110	-19.17
-58.0	0.097	-20.28
-57.0	0.102	-19.80
-56.0	0.121	-18.36
-55.0	0.142	-16.93
-54.0	0.161	-15.88
-53.0	0.172	-15.30
-52.0	0.174	-15.21
-51.0	0.165	-15.64
-50.0	0.146	-16.69
-49.0	0.118	-18.54
-48.0	0.083	-21.63
-47.0	0.043	-27.36
-46.0	0.005	-45.26
-45.0	0.039	-28.23
-44.0	0.072	-22.82
-43.0	0.097	-20.29
-42.0	0.109	-19.22
-41.0	0.109	-19.26
-40.0	0.095	-20.42
-39.0	0.070	-23.12
-38.0	0.036	-28.93
-37.0	0.010	-40.13
-36.0	0.045	-26.97
-35.0	0.079	-22.09
-34.0	0.103	-19.77
-33.0	0.113	-18.92
-32.0	0.108	-19.35
-31.0	0.087	-21.23
-30.0	0.052	-25.61
-29.0	0.009	-40.54
-28.0	0.036	-28.82
-27.0	0.078	-22.19
-26.0	0.108	-19.33
-25.0	0.122	-18.27
-24.0	0.116	-18.69
-23.0	0.091	-20.84
-22.0	0.049	-26.23
-21.0	0.011	-38.89
-20.0	0.061	-24.35
-19.0	0.107	-19.44
-18.0	0.136	-17.35
-17.0	0.140	-17.10
-16.0	0.115	-18.76
-15.0	0.063	-23.97
-14.0	0.013	-37.50
-13.0	0.097	-20.29
-12.0	0.179	-14.92
-11.0	0.245	-12.22
-10.0	0.279	-11.08
-9.0	0.274	-11.25
-8.0	0.230	-12.75
-7.0	0.182	-14.81
-6.0	0.221	-13.10
-5.0	0.365	-8.75
-4.0	0.546	-5.26
-3.0	0.723	-2.82
-2.0	0.870	-1.21
-1.0	0.966	-0.30
0.0	1.000	0.00

Appendix 5



SPECIFICATIONS	
SPACING:	λ
BAY SPACING ('S'):	9.5 FT (2.9 M)
APERTURE ('A'):	66.3 FT (20.2 M)
LENGTH ('L'):	69.6 FT (21.2 M)
RCAGL:	165 FT (50.3 M)
WEIGHT:	958 LB (434 Kg)
WIND AREA:	56.2 FT^2 (5.2 M^2)
POWER RATING:	39 kW
GAIN (99.9 MHz):	4.18 (6.21 dB)
GAIN (107.7 MHz):	4.00 (6.02 dB)
POLARIZATION:	CIRCULAR

NOTE: 1. WEIGHT AND WIND AREA ARE ESTIMATED. WIND AREA IN ACCORDANCE WITH TIA/EIA-222-F Σ(CaAc)
2. TIE WRAP COAX. CABLE AT ±16" O.C.

REV.	MADE BY CHECKED BY	DATE	CHANGE

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SIZE: A

PROPAGATION SYSTEMS, INC.

Ebensburg, Pennsylvania USA 814-472-5540

ANTENNA ELEVATION AND SPECIFICATIONS

MODEL:	DRAWN BY:	DATE:
PSIFHR-8C	H.POTTS	3/10/2021
CHANNEL/ FREQUENCY: 99.9 & 107.7 MHz	APPROVED BY:	DATE:
SCALE:	DRAWING NO.: PR2428-001	REV.