

TECHNICAL EXHIBIT – STA REQUEST  
AM STATION WVJP  
CAGUAS, PUERTO RICO  
FACILITY ID 6442  
1110 KHZ 2.5 KW DAY 0.5 KW NIGHT ND UNLIMITED

Engineering Statement

This Technical Exhibit was prepared on behalf of Borinquen Broadcasting Corporation, licensee of AM station WVJP, Facility ID 6442, 1110 KHz, Caguas, Puerto Rico, in support of a request of an Engineering STA.

WVJP (AM) lost its tower during Hurricane Maria and was subsequently authorized to operate under an engineering STA, File Number BSTA-20171130ABT, with a reduced power temporary inverted “L” antenna system. The requested Engineering STA facility is for the use of a slightly shorter tower, 214 ft. of overall height (licensed structure is 225 ft. overall) and three top loading guy wires 5 meter long, which will significantly improve the existing STA facility and serve much better the City of License of WVJP, Caguas, closely mirroring the license facility. The Engineering STA facility requested herein is for a readily available tower acquired at a significant lower cost. A 90-day Engineering STA is being requested to allow WVJP enough time to file an application for a minor license change to permanently license the herein requested facility. The FAA will be notified of the lower height of the structure before the minor license change application is filed in the near future.

As no change of site, antenna mode, or operating power is proposed, and the radiation level will be slightly reduced from the licensed Theo RMS of 305.78 mV/m @ 1km @ 1kW to 305.70 mV/m @ 1km @ 1kW, no allocation study seems required. The station will use a shorter radiator at its licensed site, 62.4 meters (205 ft.), 83.2 electrical degrees tower and 5 meters, or 6.7 electrical degrees, of top loading using three guy wires. It is proposed to use its licensed power of 2.5 kW daytime, 0.5 kW nighttime and the existing, licensed, standard 120 radials, 90° (67.5 meters long) ground system. The requested radiating element in this Eng. STA is series fed and mounted on an insulator.

Proposed Transmitter Location

The facility is located at the licensed WVJP site, whose NAD 27 coordinates are:

18° 13' 24.0" North Latitude

66° 01' 12.8" West Longitude

As the existing station site and ground system is used, no antenna site plat or transmitter site map is shown.

Figure 1 is a sketch of the proposed tower. Figure 2 shows the electrical parameters. Figure 3 shows the licensed and new STA daytime contours using R2 conductivities; as shown in Figure 3, the licensed daytime coverage will not be exceeded and the COL will be adequately served. Figure 4 shows the NIF calculation and the Nighttime Allocation Protection Report. As shown in Figure 4, the new STA facility will not cause any impermissible nighttime interference to any domestic or foreign station. Figure 5 shows the licensed and new STA nighttime contours; as shown in Figure 5, the licensed nighttime coverage will not be exceeded and the COL will be properly served. As shown in Figure 3 and 5, the daytime and nighttime service contours of WVJP will be essentially unchanged.


#### Environmental Considerations

The STA tower requested herein is a replacement of the WVJP antenna damaged by Hurricane Maria, located at exactly the license location. As no increase in power or radiation level is proposed, there will be no increase of RF radiation around the tower.

#### Quiet Zones and FCC Monitoring Stations

As no change in site, antenna mode or power increase is proposed and, as noted above, the radiation level is been slightly decreased, the Arecibo Observatory, nor the FCC Station at Santa Isabel will be affected in any way, thus neither facility is being notified.

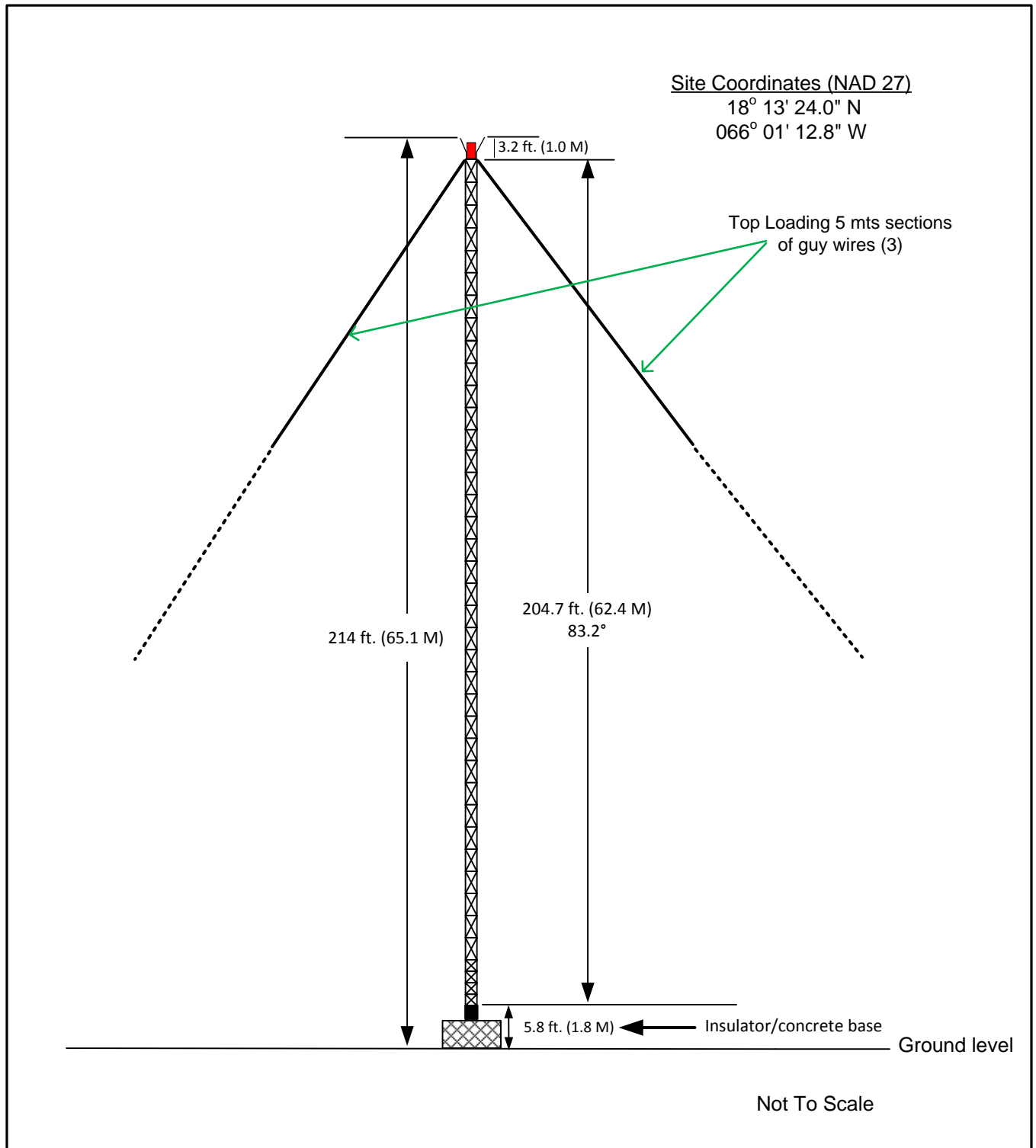
For the reasons stated above, it is believed that grant of the facility requested in this Engineering STA for WVJP (AM) will serve the public interest.



Ivan A. Feliu  
Technical Consultant  
PO Box 1535  
Mayaguez, PR 00681-1535

June 17, 2019

**Figure 1**



## **SKETCH OF PROPOSED ANTENNA STRUCTURE**

**RADIO STATION WVJP  
CAGUAS, PUERTO RICO  
1110 KHZ 2.5 KW-D 0.5 KW-N ND UNLIMITED**

*Ivan A. Feliu – Technical Consultant*

**Figure 2****Proposed and Licensed Operating Parameters****Proposed Facility:**

Call: WVJP-Prop

Freq: 1110 kHz

CAGUAS, PR, US

Hours: U

Lat: 18-13-24.0 N

Lng: 066-01-12.8 W

Power: 2.5 kW Day, 0.5 kW Night

Theo RMS: 305.70 mV/m @ 1km @ 1kW

	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Swch	Swch	(deg)	(deg)	(deg)	(deg)
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.000	0.0	0.0	0.0	83.2	0	1	83.2	6.7	0.0	0.0

**Licensed Facility:**

Call: WVJP

Freq: 1110 kHz

CAGUAS, PR, US

Hours: U

Lat: 18-13-24.0 N

Lng: 066-01-12.8 W

Power: 2.5 kW Day, 0.5 kW Night

Theo RMS: 305.78 mV/m @ 1km @ 1kW

	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Swch	Swch	(deg)	(deg)	(deg)	(deg)
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.000	0.0	0.0	0.0	89.4	0	0	0.0	0.0	0.0	0.0

## June 2019



**PROPOSED DAYTIME CONTOUR  
WVJP 1110 KHZ 2.5 KW ND  
CAGUAS, PUERTO RICO**

Figure 4

### NIF Calculation & Proposed Nighttime Allocation Report

#### NIF Calculation:

Call: WVJP-P  
 Freq: 1110 kHz  
 CAGUAS, PR, US  
 Hours: N  
 Lat: 18-13-24.03 N  
 Lng: 066-01-12.80 W  
 Power: 0.5 kW  
 Theo RMS: 305.70 mV/m @ 1km @ 1kW  
 Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]  
 Contributors:

Call	Freq (kHz)	City	St	Ct	Limit (mV/m)	RSS Limit (%)	Limit (mV/m)
HJZE.O-A1110		SINCELEJO 4		CO	9.081	100.0	9.081
WBT.L 1110		CHARLOTTE	NC	US	6.295	69.3	11.050
HJGP.O-A1110		VDEL RIO ARA		CO	5.715	51.7	12.440
HJDI.O-A1110		MEDELLIN 3		CO	5.525	44.4	13.612
HJJP.O-A1110		VILLAVICENCI		CO	5.455	40.0	14.664
HJNC.O-A1110		IBAGUE 2		CO	5.190	35.3	15.556
HJEW.O-A1110		CALI 3		CO	4.561	29.3	16.210
HIJJ.O-C1110		JARABACOA		DR	4.187	25.8	16.742
ZDK.O-A 1100		GRENVILLE RA		AC	4.057	24.2	17.227
.P-A 1110		MANAUS		BR	2.316	13.4	17.382

# Night Allocation Protection Report:

Call: WVJP-P

Freq: 1110 kHz

CAGUAS, PR, US

Hours: N

Lat: 18-13-24.03 N

Lng: 066-01-12.80 W

Power: 0.5 kW

Theo RMS: 305.70 mV/m @ 1km @ 1kW

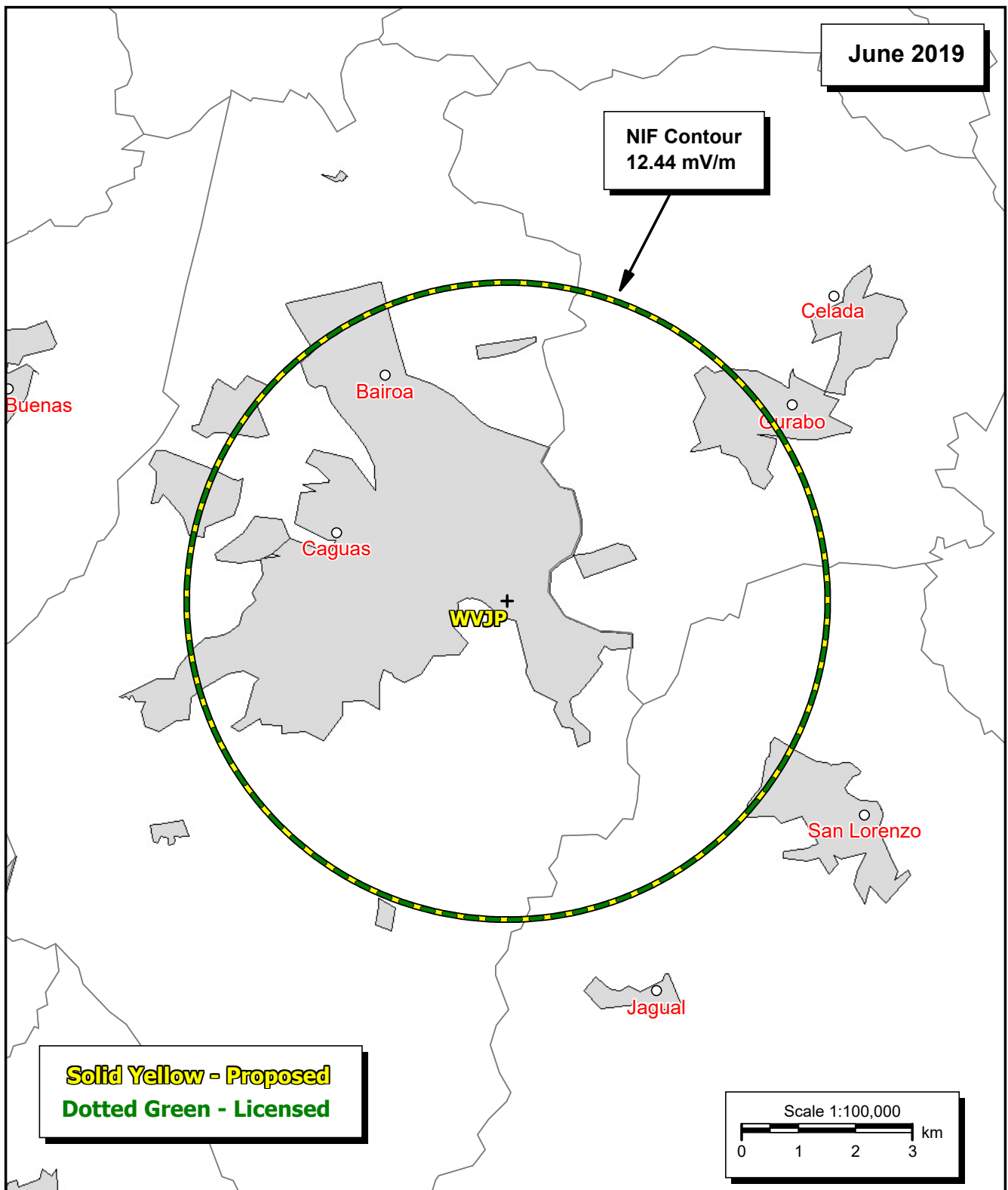
	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Swtch	Swtch	(deg)	(deg)	(deg)	(deg)
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.000	0.0	0.0	0.0	83.2	0	1	83.2	6.7	0.0	0.0

Call		Azi	Ang Low	Ang High	SWFF	Req Prot	Permis	Cur Rad	Margin
Letters	Ct St City	(deg)	(deg)	(deg)	(100uV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)
-----	-- --	-----	-----	-----	-----	-----	-----	-----	-----
WBT.L (228)	US NC CHARLOTTE	306.63	0.00	0.00	11.80	0.500	216.22E	216.16	0.06
WBT.L (229)	US NC CHARLOTTE	307.41	0.00	0.00	11.71	0.500	216.22E	216.16	0.06
WBT.L (230)	US NC CHARLOTTE	308.20	0.00	0.00	11.63	0.500	216.22E	216.16	0.06
WBT.L (249)	US NC CHARLOTTE	324.09	0.00	0.28	11.67	0.500	216.22E	216.16	0.06
WBT.L (250)	US NC CHARLOTTE	324.14	0.00	0.28	11.67	0.500	216.22E	216.16	0.06
WBT.L (251)	US NC CHARLOTTE	324.19	0.00	0.28	11.66	0.500	216.22E	216.16	0.06
WBT.L (252)	US NC CHARLOTTE	324.22	0.00	0.28	11.66	0.500	216.22E	216.16	0.06

Call Letters	Ct	St	City	Azi (deg)	Ang Low (deg)	Ang High (deg)	SWFF (100uV/m)	Req Prot (mV/m)	Permis (mV/m)	Cur Rad (mV/m)	Margin (mV/m)
KFAB.L (186)	US	NE	OMAHA	304.97	0.00	0.00	5.74	0.500	435.92S	216.16	219.75
KFAB.L (187)	US	NE	OMAHA	304.48	0.00	0.00	5.74	0.500	435.72S	216.16	219.56
KFAB.L (188)	US	NE	OMAHA	303.99	0.00	0.00	5.74	0.500	435.89S	216.16	219.73
YVQT.O-B	VE		CARUPANO	160.43	10.14	10.14	30.37	2.949	485.38	211.33	274.05
50% = 5.897, 25% = 6.636; HJGP.O-A=3.96 HJZE.O-A=3.45 HJJP.O-A=2.68 HJDI.O-A=2.20 HJNC.O-A=2.10											
WMSW.L	US	PR	HATILLO	287.72	57.54	68.98	444.50	3.585	403.31	98.45	304.87
50% = 13.373, 25% = 14.342; YVMF.O-A=11.78 HJKQ.O-A=6.33 HJGH.O-A=5.18											
CMKL.O-D	CU		HOLGUIN	286.89	7.26	7.26	21.35	3.502	820.33	213.63	606.70
50% = 7.005, 25% = 7.005; WBT.L=5.91 HJZE.O-A=3.76											
HIJJ.O-C	DR		JARABACOA	281.79	19.89	19.89	49.73	8.665	871.15	197.96	673.19
50% = 4.992, 25% = 6.011; HJZE.O-A=4.37 WBT.L=2.41 WVJP.L=1.97 HJGP.O-A=1.96 HJDI.O-A=1.87											
YVRX.O-B	VE		VALENCIA 1	193.66	9.67	9.67	28.93	5.557	960.39	211.70	748.69
50% = 11.628, 25% = 14.033; HJZE.O-A=7.88 HJGP.O-A=6.50 HJJP.O-A=5.56 HJDI.O-A=5.14 HJNC.O-A=4.76 HJEW.O-A=3.56											



Figure 5



**PROPOSED NIGHTTIME CONTOUR**  
**WVJP 1110 KHZ 0.5 KW ND**  
**CAGUAS, PUERTO RICO**