REASONS FOR PROPOSED MINOR CHANGE OF LICENSED FACILITY OF WVEO DT

COMPLIANCE WITH FCC DTV REQUIREMENTS

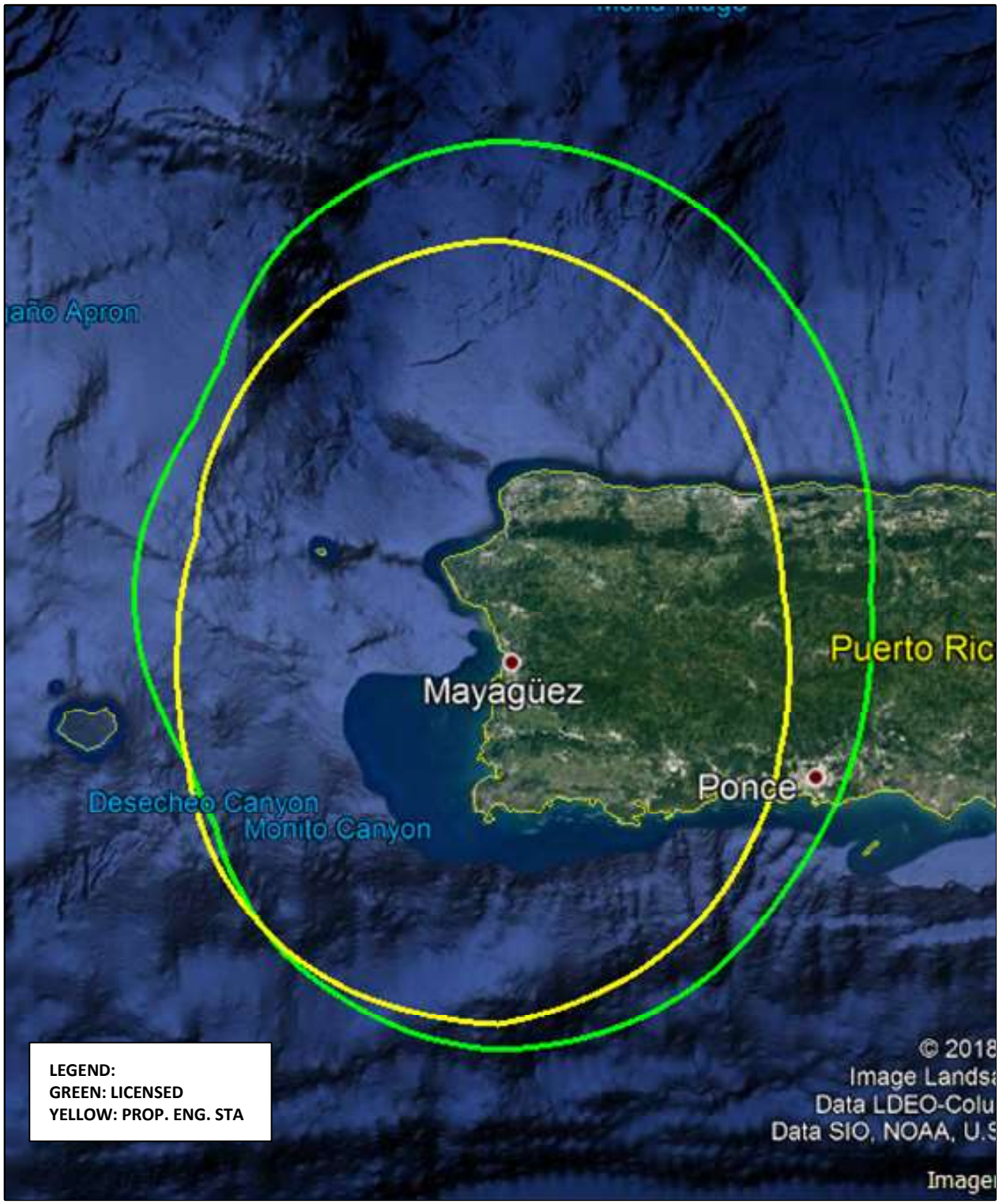
WVEO (DT), a station of Spanish Broadcasting System Holding Company, Inc. (SBS), in Aguadilla, PR, Facility ID 61573, lost its site due to the destruction of the tower caused by hurricane Maria. The reconstruction of this tower is mired with complications and the tower is no longer available again for lease to SBS. Thus WVEO effectively lost its licensed site and it is been forced to relocate; it is proposed under the herein Minor Change of licensed facilities application, to permanently relocate WVEO to the WIOB (FM) site.

The proposed facility will operate on the DTV channel for this station, as established in the post-incentive auction channel reassignment public notice. It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice; see attached Figure 1. It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice. The current licensed facility is predicted to have an IX-free Pop coverage of 947,129, of which 5% equals 47,356. The proposed facility is predicted to have an IX-free Pop coverage of 918,345, which is 28,784 less than the licensed facility; see attached TVStudy report, done using a cell size of 0.5 km and L-R profile increment of 0.5 km.

The antenna structure to be used by this facility does not require registration to support the proposed antenna; it is proposed to use the existing tower of FM station WIOB.

The Arecibo Observatory had been previously notified of an identical proposal in the facilities of WVEO (DT); see attached Arecibo Observatory notification letter and letter of consent.

Figure 1



PREDICTED COVERAGE CONTOURS

LICENSED AND ENGINEERING STA STATION WVEO (DT)

AGUADILLA, PUERTO RICO

CH 17 35.2 KW 305 M

Grafton Olivera, P.E. Consulting Engineer

WVEO DT IX TVSTUDY

tvstudy v2.2.5 (4uoc83)
Database: 127.0.0.1, Study: BLANK0000073606 #178, Model: Longley-Rice
Start: 2020.10.11 10:40:30

Study created: 2020.10.11 10:40:29
Study build station data: LMS TV 2020-10-11

    Proposal: WVEO D17 DT APP AGUADILLA WIOB SITE, PR
 File number: BLANK0000073606
 Facility ID: 61573
Station data: User record
   Record ID: 95
     Country: U.S.
        Zone: II

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	WRUA	D16	DT	CP	FAJARDO, PR	BLANK0000081351	145.1 km
No	WQQZ-CD	D16	DC	BL	PONCE, PR	DTVBL32142	52.1
Yes	WVXF	D17	DT	LIC	CHARLOTTE AMALIE, VI	BLCDT20090623ABB	234.6
Yes	WECN	D18	DT	LIC	NARANJITO, PR	BLCDT20090610ABG	95.4

No non-directional AM stations found within 0.8 km
No directional AM stations found within 3.2 km

Record parameters as studied:
    Channel: D17
   Latitude: 18 19 25.80 N (NAD83)
  Longitude: 67 10 11.70 W
Height AMSL: 363.0 m
       HAAT: 305.0 m
   Peak ERP: 35.2 kW
    Antenna: PSILP8APR 90.0 deg
Elev Pattrn: Generic

39.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	28.1 kW	351.8 m	78.1 km
45.0	30.9	249.5	70.5
90.0	19.0	222.3	66.1
135.0	30.9	256.2	70.9
180.0	28.1	361.4	79.0
225.0	3.43	358.1	65.5
270.0	1.72	329.1	60.1
315.0	3.43	342.6	64.6

Database HAAT does not agree with computed HAAT
Database HAAT: 305 m Computed HAAT: 309 m

Distance to Canadian border: 2939.9 km
Distance to Mexican border: 3170.9 km

Conditions at FCC monitoring station: Santa Isabel PR
Bearing: 112.7 degrees Distance: 91.1 km
Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 311.9 degrees Distance: 4364.6 km
No land mobile station failures found

Study cell size: 0.50 km
Profile point spacing: 0.50 km

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

Interference to BLANK0000081351 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WRUA	D16	DT	CP	FAJARDO, PR	BLANK0000081351	
Undesireds:	WVEO	D17	DT	BL	AGUADILLA, PR	DTVBL61573	146.0 km
	WVEO	D17	DT	APP	AGUADILLA WIOB SITE, PR	BLANK0000073606	145.1
	WMTJ	D15	DT	LIC	FAJARDO, PR	BLANK0000065487	0.1
	WQQZ-CD	D16	DC	BL	PONCE, PR	DTVBL32142	104.1
	WVXF	D17	DT	LIC	CHARLOTTE AMALIE, VI	BLCDT20090623ABB	89.6

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
32341.3	2,838,957	31085.6	2,602,492	30597.0	2,587,333	30597.2	2,587,333	-0.00	0.00

Undesired		Total IX		Unique IX, before		Unique IX, after	
WVEO D17 DT BL	0.7	0		0.7	0		
WVEO D17 DT APP	0.5	0				0.5	0
WMTJ D15 DT LIC	55.7	12,983		37.4	12,983	37.4	12,983
WQQZ-CD D16 DC BL	441.6	544		423.3	544	423.3	544
WVXF D17 DT LIC	8.9	1,632		8.9	1,632	8.9	1,632

Interference to BLCDT20090623ABB LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVXF	D17	DT	LIC	CHARLOTTE AMALIE, VI	BLCDT20090623ABB	
Undesireds:	WVEO	D17	DT	BL	AGUADILLA, PR	DTVBL61573	235.4 km
	WVEO	D17	DT	APP	AGUADILLA WIOB SITE, PR	BLANK0000073606	234.6
	WRUA	D16	DT	CP	FAJARDO, PR	BLANK0000081351	89.6

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
11226.5	84,402	11066.6	79,469	11027.0	79,217	11037.8	79,217	-0.10	0.00

Undesired		Total IX		Unique IX, before		Unique IX, after	
WVEO D17 DT BL	16.5	0		16.5	0		
WVEO D17 DT APP	5.7	0				5.7	0
WRUA D16 DT CP	23.1	252		23.1	252	23.1	252

Interference to BLCDT20090610ABG LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WECN	D18	DT	LIC	NARANJITO, PR	BLCDT20090610ABG	
Undesireds:	WVEO	D17	DT	BL	AGUADILLA, PR	DTVBL61573	96.2 km
	WVEO	D17	DT	APP	AGUADILLA WIOB SITE, PR	BLANK0000073606	95.4
	WQTO	D19	DD	LIC	PONCE, PR	BLANK0000082201	56.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
14279.5	2,887,611	13334.9	2,642,485	13317.2	2,639,739	13323.6	2,640,424	-0.05	-0.03

Undesired		Total IX		Unique IX, before		Unique IX, after	
WVEO D17 DT BL	15.3	2,395		15.0	2,395		
WVEO D17 DT APP	8.9	1,710				8.6	1,710
WQTO D19 DD LIC	2.7	351		2.5	351	2.5	351

Interference to proposal scenario 1
0.85% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVEO	D17	DT	APP	AGUADILLA WIOB SITE, PR	BLANK0000073606	
Undesireds:	WRUA	D16	DT	CP	FAJARDO, PR	BLANK0000081351	145.1 km
	WQQZ-CD	D16	DC	BL	PONCE, PR	DTVBL32142	52.1
	WVXF	D17	DT	LIC	CHARLOTTE AMALIE, VI	BLCDT20090623ABB	234.6
	WECN	D18	DT	LIC	NARANJITO, PR	BLCDT20090610ABG	95.4

Service area		Terrain-limited		IX-free		Percent IX	
15133.2	1,094,285	14424.2	926,258	14288.1	918,345	0.94	0.85

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WRUA D16 DT CP	11.3	1,358	4.9	1,002	0.03	0.11
WQQZ-CD D16 DC BL	33.6	0	33.6	0	0.23	0.00
WVXF D17 DT LIC	0.2	0	0.2	0	0.00	0.00
WECN D18 DT LIC	97.4	6,911	91.0	6,555	0.63	0.71

Grafton Olivera, P.E.
Consulting Engineer

October 6, 2018

Via email (prcz@naic.edu)

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

Gentlemen:

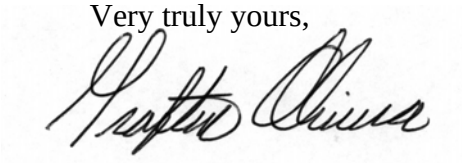
On behalf of our client, Spanish Broadcasting System Holding Company, Inc., Inc., licensee of DT station WVEO, Aguadilla, PR, Facility ID 61573, in accordance with Section 73.1030 of the FCC Rules, we hereby notify of the proposed Minor Change modification of the licensed facility. The particulars of the proposal are as follows:

Proposed Facility:
Geographical coordinates of antenna location (NAD83): 18-19-25.8 / 67-10-11.7
Antenna height (radiation center): 28 m AGL; 363 m AMSL
Max Antenna Gain: 15.03 dBd
Main Lobe Orientation: (90° true)
Digital Channel: 17 (488-494 MHz)
Type of emission: 6M00D7W
Max. Effective isotropic radiated power (horizontal polarization, average power): 57.7 kW

Please review this proposal and let us know your findings. Please feel free to communicate via email (mailto:Grafton@dlr.com), telefax (941-329-6030) or regular mail.

Please review this proposal and let me know your findings. Please feel free to communicate via email (mailto:Grafton.Olivera@me.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@me.com

ARECIBO OBSERVATORY

The William E. Gordon Telescope
Angel Ramos Foundation Science and Visitor Center

October 08, 2018

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

Re: Digital Channel: 17 (488-494 MHz)) station WVEO, Aguadilla, PR
Antenna location (NAD83): 18-19-25.8 / 67-10-11.7
Facility ID 61573

Dear Eng. Grafton Olivera,

Thank you very much for the copy of your FCC application sent to us in accordance with the Puerto Rico Coordination zone agreements. We have considered the technical aspects of your application and find that your installation of the proposed Digital Channel: 17 (488-494 MHz) Station WVEO, Aguadilla, PR is unlikely to cause harmful interference to the passive use of the Radio Astronomy bands at the Observatory.

We therefore have no objection to your proposed installation.

Sincerely yours,

Angel M. Vázquez
Spectrum Manager

AV: ic

Cc: PRCZ files [File # 08Oct2018_05]

Grafton Olivera, P.E.
Consulting Engineer

RF COMPLIANCE EXHIBIT

October 11, 2020

The proposed WVEO DT facility will comply with the FCC Rules concerning human exposure to radio frequency (RF) energy. The calculation of RF energy at 2-m above ground was made under the procedures of OET Bulletin No. 65. The formula employed is as follows:

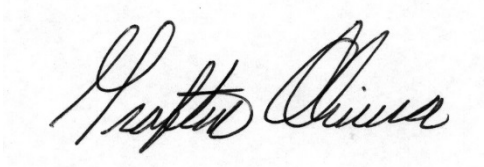
$$S = \frac{(33.4)F^2P}{R^2}$$

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.

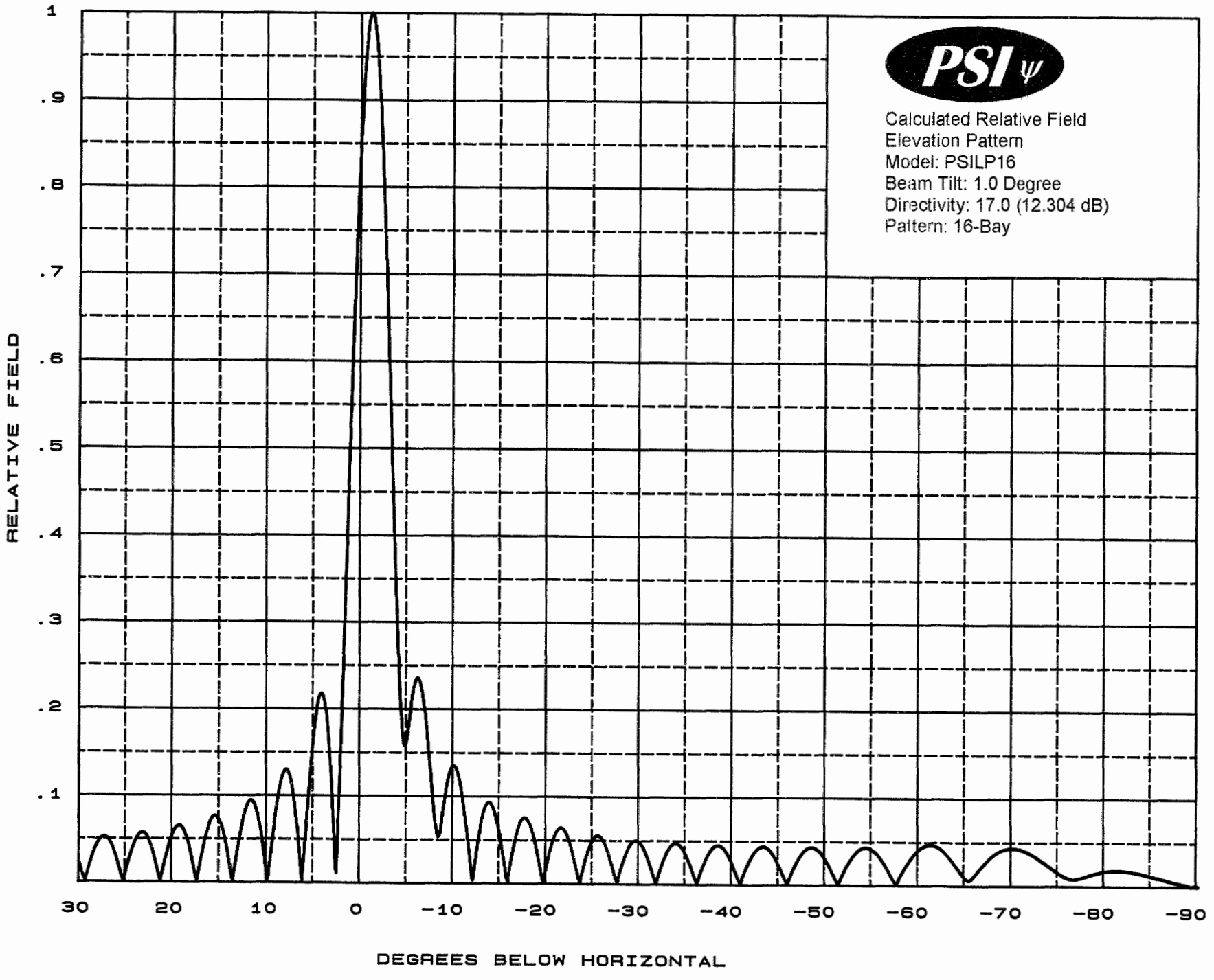
The power density at 2 meters above ground level at the base of the tower, based on a "worst-case" vertical relative field value of 0.135 for any depression angle below horizon greater than 10 degrees (see attached Antenna Pattern Data), a total ERP of 35.2 kW (H) and an antenna center of radiation height above ground level of 28 meters, the calculated power density is 31.7 microwatts per square centimeter (uW/cm^2), or 9.7 % of the Commission's recommended limit for uncontrolled exposure areas, 327.3 uW/cm^2, for channel 17.

Since the total RF exposure will not exceed the FCC limits for uncontrolled environments, the proposal it is believed complies with the FCC limits for human exposure to RF radiation.

The applicant will verify that access to the tower site is restricted and the site will be appropriately marked with RFR warning signs. In addition, as this is a multiuser site, in the event that workers or other authorized personnel need to enter the restricted area or climb the tower, coordination with other users will be done and appropriate measures taken to assure worker safety with respect to radio frequency radiation exposure. Such procedures will include scheduling work when station WVEO DT is shut down.



Grafton Olivera, P.E.


PSI ψ
Calculated Relative Field
Elevation Pattern
Model: PSILP16
Beam Tilt: 1.0 Degree
Directivity: 17.0 (12.304 dB)
Pattern: 16-Bay
RELATIVE FIELD
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
DEGREES BELOW HORIZONTAL

Propagation Systems Inc.

Relative Field Tabulation

Standard 16-Bay Elevation Pattern

Antenna Model: PSILP16

Beam Tilt: -1.0 degree

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90	0.001	-60.0	-50	0.029	-30.8	-10	0.135	-17.4
-89	0.001	-58.3	-49	0.042	-27.6	-9	0.094	-20.6
-88	0.003	-49.5	-48	0.042	-27.6	-8	0.071	-23.0
-87	0.006	-44.3	-47	0.028	-31.1	-7	0.188	-14.5
-86	0.009	-40.8	-46	0.004	-47.1	-6	0.235	-12.6
-85	0.012	-38.4	-45	0.021	-33.6	-5	0.168	-15.5
-84	0.015	-36.7	-44	0.039	-28.1	-4	0.273	-11.3
-83	0.017	-35.6	-43	0.043	-27.3	-3	0.602	-4.4
-82	0.018	-35.0	-42	0.031	-30.2	-2	0.891	-1.0
-81	0.018	-34.9	-41	0.005	-45.3	-1	1.000	0.0
-80	0.017	-35.4	-40	0.022	-33.0	0	0.876	-1.2
-79	0.015	-36.7	-39	0.042	-27.6	1	0.568	-4.9
-78	0.012	-38.8	-38	0.043	-27.3	2	0.200	-14.0
-77	0.008	-41.6	-37	0.025	-32.0	3	0.089	-21.0
-76	0.009	-40.7	-36	0.005	-46.3	4	0.214	-13.4
-75	0.015	-36.5	-35	0.034	-29.5	5	0.174	-15.2
-74	0.023	-32.9	-34	0.047	-26.6	6	0.042	-27.6
-73	0.030	-30.4	-33	0.038	-28.5	7	0.083	-21.6
-72	0.037	-28.6	-32	0.009	-41.3	8	0.130	-17.7
-71	0.042	-27.6	-31	0.026	-31.8	9	0.087	-21.2
-70	0.043	-27.3	-30	0.048	-26.4	10	0.003	-51.3
-69	0.041	-27.7	-29	0.045	-27.0	11	0.077	-22.3
-68	0.035	-29.2	-28	0.017	-35.6	12	0.092	-20.7
-67	0.024	-32.3	-27	0.023	-32.9	13	0.047	-26.5
-66	0.011	-38.9	-26	0.051	-25.8	14	0.022	-33.3
-65	0.008	-41.6	-25	0.051	-25.8	15	0.070	-23.1
-64	0.023	-32.9	-24	0.020	-33.8	16	0.070	-23.1
-63	0.036	-28.9	-23	0.025	-32.0	17	0.027	-31.2
-62	0.045	-27.0	-22	0.059	-24.6	18	0.028	-30.9
-61	0.047	-26.6	-21	0.059	-24.6	19	0.063	-24.1
-60	0.041	-27.8	-20	0.022	-33.3	20	0.057	-25.0
-59	0.028	-31.1	-19	0.033	-29.6	21	0.017	-35.2
-58	0.009	-40.7	-18	0.071	-22.9	22	0.029	-30.7
-57	0.011	-39.0	-17	0.066	-23.6	23	0.056	-25.1
-56	0.029	-30.6	-16	0.016	-36.1	24	0.048	-26.3
-55	0.041	-27.8	-15	0.051	-25.8	25	0.014	-37.3
-54	0.043	-27.4	-14	0.092	-20.8	26	0.027	-31.4
-53	0.033	-29.5	-13	0.072	-22.8	27	0.050	-25.9
-52	0.015	-36.4	-12	0.003	-49.2	28	0.045	-26.9
-51	0.008	-42.2	-11	0.093	-20.7	29	0.016	-36.0