

ENGINEERING EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
WIFREDO G. BLANCO PI  
STATION WAPA  
SAN JUAN, PUERTO RICO  
FACILITY ID 8889

October 31, 2002

680 KHZ

10 KW

DA-N

U

ENGINEERING EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
WIFREDO G. BLANCO PI  
STATION WAPA  
SAN JUAN, PUERTO RICO  
FACILITY ID 8889

680 KHZ                      10 KW                      DA-N                      U

Table of Contents

	Engineering Statement
Figure 1	Property Plat and Antenna Ground System
Figure 2	Sketch of Existing and Proposed Towers
Figure 3	Proposed Nighttime Directional Antenna Standard Radiation Pattern
Figure 4	Tabulation of Proposed Nighttime Directional Antenna Standard Radiation Pattern
Figure 5	Proposed Nighttime Coverage Contours
Figure 6	Nighttime Allocation Study

ENGINEERING EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
WIFREDO G. BLANCO PI  
STATION WAPA  
SAN JUAN, PUERTO RICO  
FACILITY ID 8889

680 KHZ                      10 KW                      DA-N                      U

Engineering Statement

This engineering exhibit has been prepared on behalf of Wifredo G. Blanco Pi, licensee of AM broadcast station WAPA San Juan, Puerto Rico. Station WAPA operates on 680 kHz employing power of 10 kilowatts daytime and 9.5 kilowatts nighttime, Facility ID 8889. The applicant proposes to increase power during nighttime hours to 10 kilowatts, while employing a directional antenna. No changes are proposed in the non-directional daytime operation. The application is contingent upon the grant of a contemporaneously filed application seeking nighttime operation for experimental synchronous operation WA2XPA, located at Arecibo, Puerto Rico. If waiver of the provisions of 47 CFR 73.3517 is required, such waiver is hereby requested.

San Juan, Puerto Rico  
Page 2 of 5

The proposed facility will not have a significant environment impact as defined by 47 CFR 1.1307. The Federal Aviation Administration has not been notified of the proposal as the proposed new tower will be of lesser height will be shielded by the existing tower. In addition, the new tower is less than 61 meters in height.

Property Plat and Antenna Ground System

The attached Figure 1 shows the approximate dimensions of the transmitter site. A second tower will be added to the property, located to the west of the existing tower. The existing tower has been registered under number 1013233. The proposed shorter tower will be less than 61 meters in height and will be shielded by the taller existing tower. The attached sketch, Figure 2, shows the heights of the towers

The dimensions of the proposed ground system are shown on Figure 1. The ground system for the proposed tower will comprise 120 buried copper wire radials. The radials will be shortened at the property boundaries and at the copper strap between the towers. Shortened radials between the towers will be bonded to the copper strap.

San Juan, Puerto Rico  
Page 3 of 5

### Nighttime Directional Antenna

The nighttime directional antenna system will consist of the existing tower and a new tower spaced 50 electrical degrees on a bearing of 257 degrees true. The standard radiation pattern is shown in Figure 3 and tabulated in Figure 4. The directional antenna pattern was calculated employing the method outlined in 47 CFR 73.150.

### Nighttime Coverage Contours

The predicted 12.3 mV/m contour, as shown on Figure 5 will encompass the entire city of San Juan. There are 3,592 persons within the nighttime 1,000 mV/m contour, which is 0.24 percent of the 1,490,366 persons residing within the nighttime 25 mV/m contour. The applicant recognizes the obligation to satisfy any complaints of blanketing interference in accordance with 47 CFR 73.25(g).

### Nighttime Allocation Study

The proposed nighttime facility will afford interference protection to all pertinent stations operating on 680 kHz and the first adjacent channels, as shown on Figure 6. The directional antenna pattern results in a reduction in signal toward station WPTF Raleigh, North

San Juan, Puerto Rico  
Page 4 of 5

Carolina, which is greater than 10 percent. (See Note 1 following the table in 47 CFR 73.182.) The limit proposed at WPTF by the directional operation of WAPA and the signal of the proposed nighttime operation for experimental station WA2XPA Arecibo, PR added in quadrature, will not increase the newly reduced WPTF limit.

With regard to Class A station YVOR Cumana, Venezuela; protection of that station's 1.25 mV/m, 50 percent skywave contour is required by the Region 2 agreement. The proposed WAPA directional antenna will reduce energy toward the coverage area of YVOR, with the most critical point being the northeastern extreme of Venezuela where a 10 percent skywave signal of 1.25 mV/m is predicted. The northeastern extreme of Venezuela is *Punta Mejillones*, which has geographic coordinates of 10-43-15 north latitude, 61-51-10 west longitude (NAD27). *Punta Mejillones* is 962 kilometers at a bearing of 152 degrees true from WAPA. The proposed field strength toward this point in addition to the signal of the synchronous experimental station at Arecibo added in quadrature will not exceed the existing WAPA field.

The same is true for the protection of Dominican Republic station HIJX. The combined signals of the Arecibo synchronous station and the proposed operation of WAPA toward HIJX will not exceed the existing level.

San Juan, Puerto Rico  
Page 5 of 5

Environmental Considerations

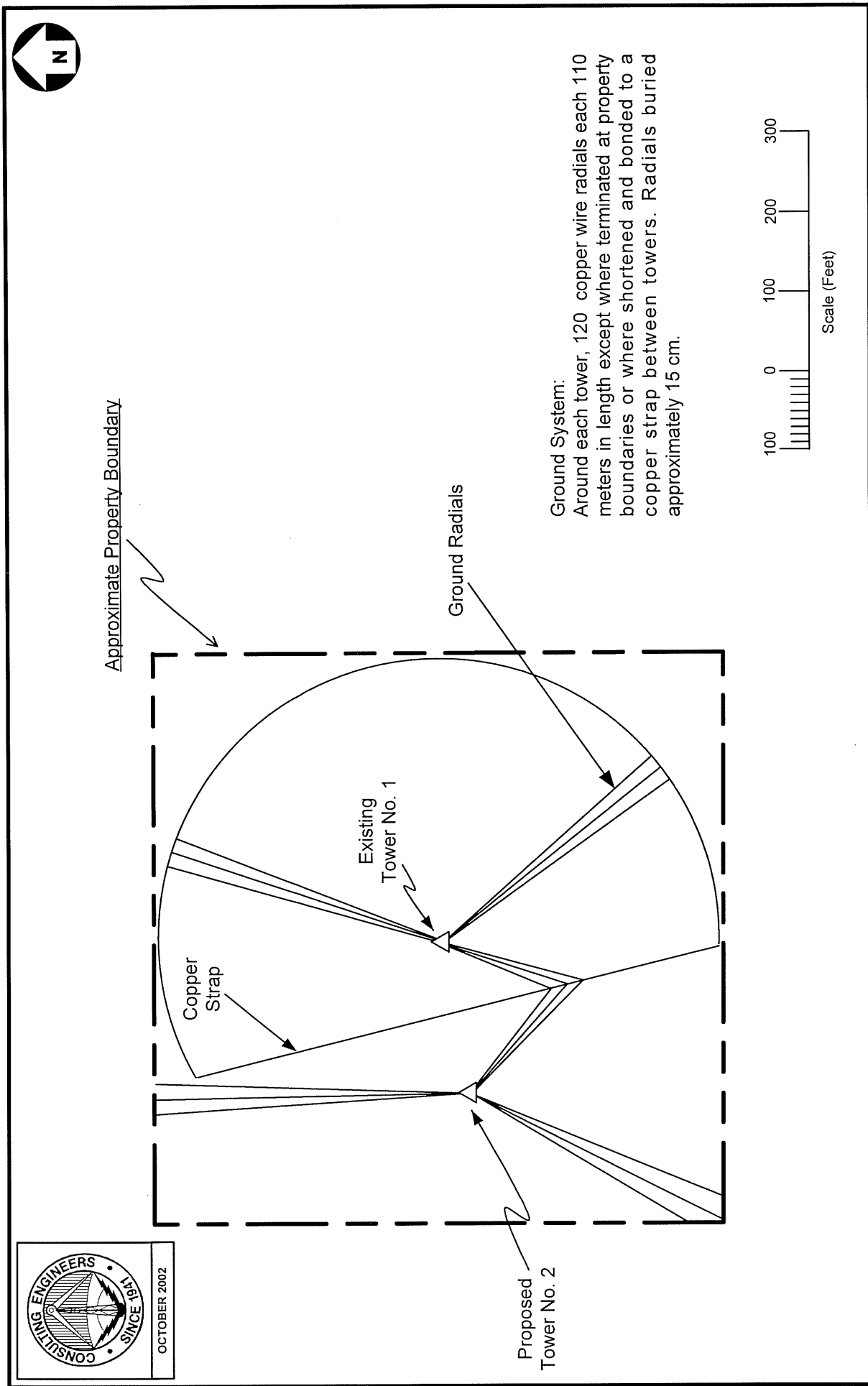
The proposed operation was evaluated in terms of both the electric and magnetic field components, which will be present at the base of the towers. The evaluation is based on the procedure outlined in OET Bulletin 65. The existing tower is adequately fenced and has warning signs posted. A fence will be installed around the new tower at a distance of three meters, unless data obtained after construction of the facility has been completed indicates otherwise. The fence will assure that persons on the property outside the fenced area will not be exposed to radiofrequency fields in excess of those recommended by the ANSI. In addition, warning signs will be posted.

The proposed construction is categorically excluded from environmental processing, as it meets all the criteria for such exclusion as specified in 47 CFR 1.1306.



Louis R. du Treil, Sr.  
du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237-6019  
941 329 6000

October 30, 2002

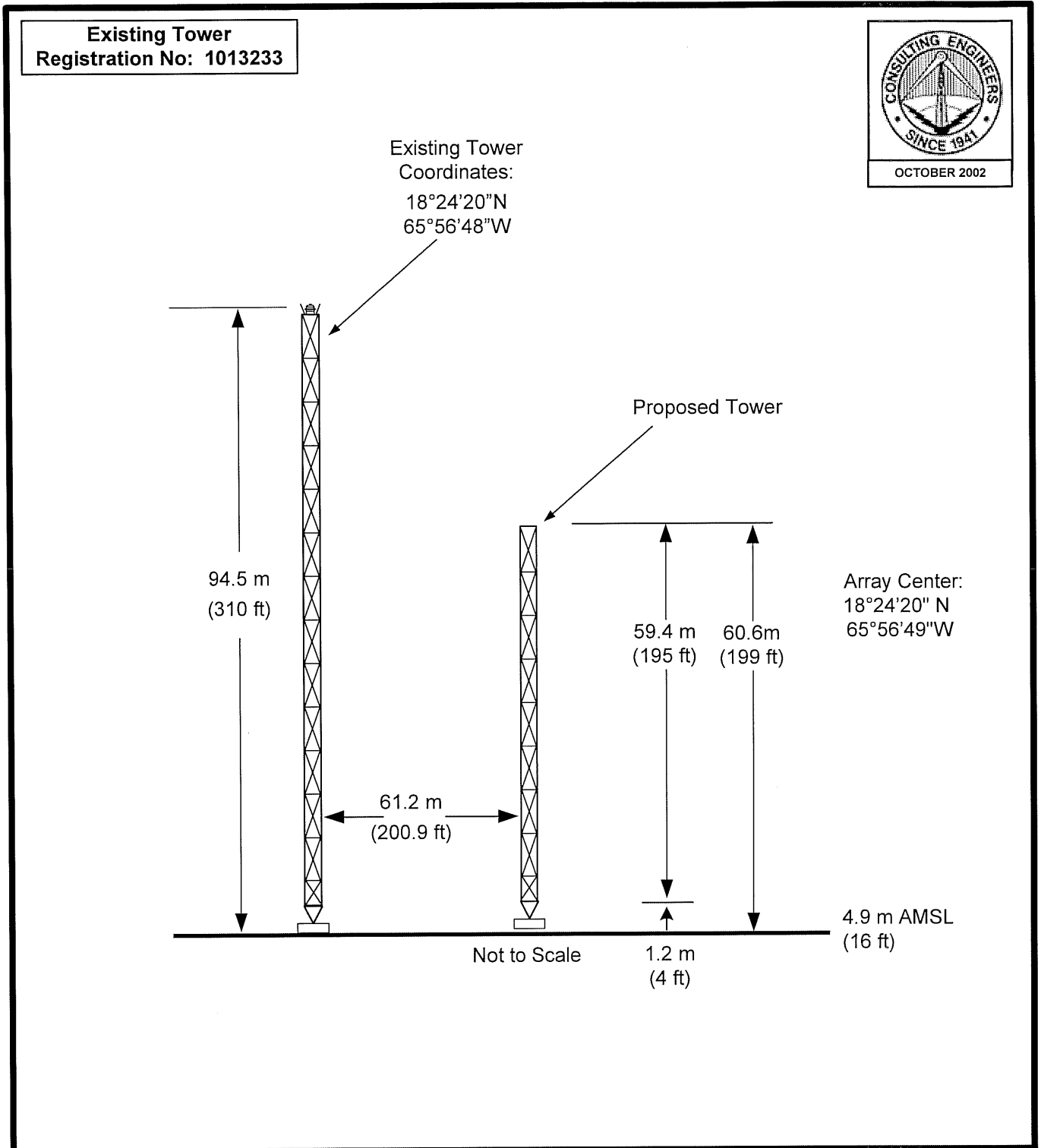


**PROPERTY PLAT AND ANTENNA GROUND SYSTEM**

STATION WAPA  
SAN JUAN, PUERTO RICO  
680 KHz 10 KW DA-N U



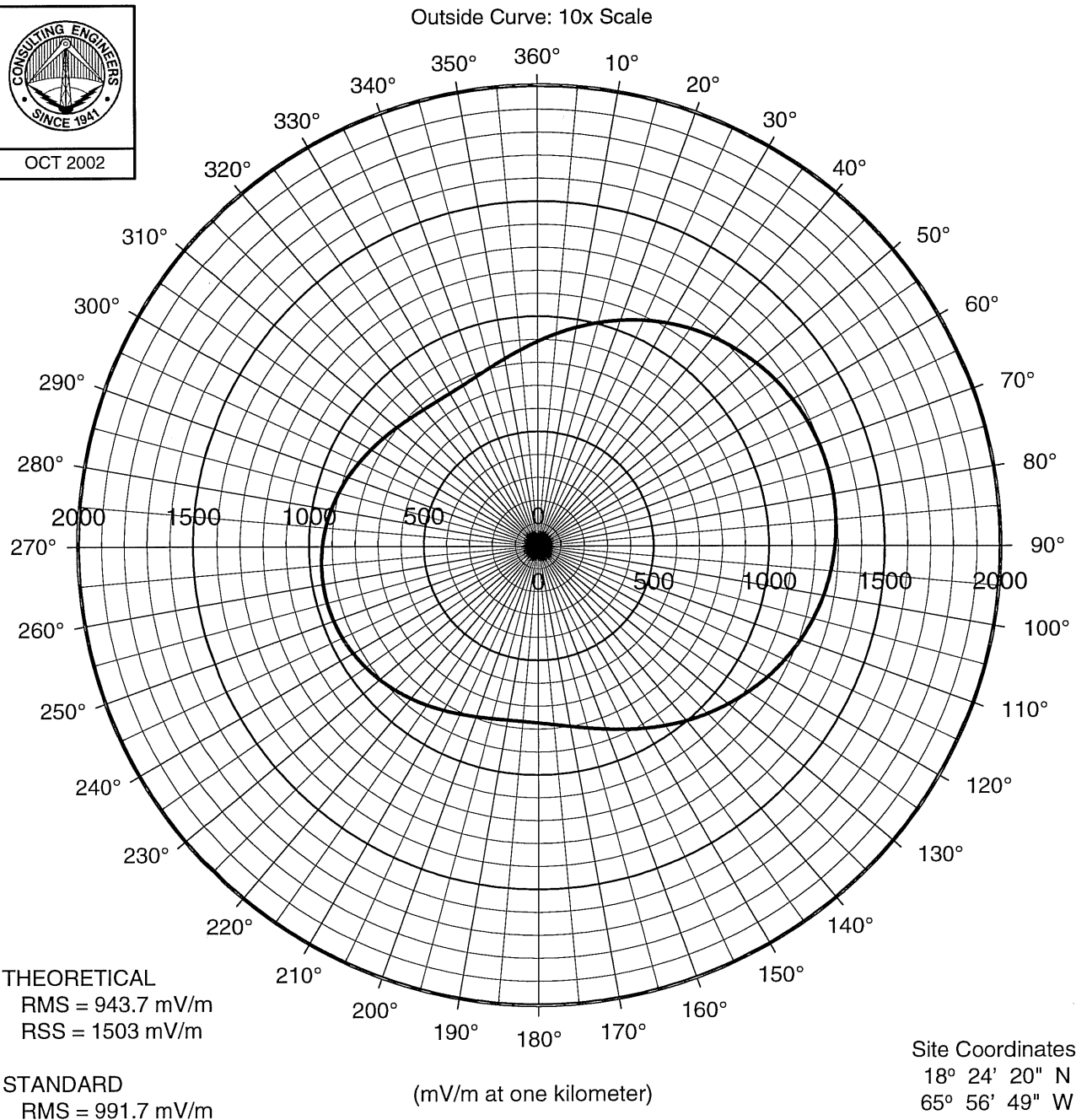
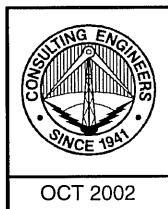
Figure 2



## EXISTING AND PROPOSED TOWER

STATION WAPA  
SAN JUAN, PUERTO RICO  
680 KHZ 10 KW DA-N U

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



DIRECTIONAL ANTENNA PATTERN						
Tower Number	Field Ratio	Phase (deg.)	Spacing (deg.)	Bearing (deg.)	Height (deg.)	Top Loading (deg.)
1	1.000	0.0	0.0	0.0	74.3	0.0
2	0.469	+164.2	50.0	257.0	48.5	5.0

## PROPOSED NIGHTTIME HORIZONTAL PLANE STANDARD RADIATION PATTERN

RADIO STATION WAPA  
SAN JUAN, PUERTO RICO  
680 KHZ 10 KW DA-N U

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
RADIO STATION WAPA  
SAN JUAN, PUERTO RICO

680 KHZ    10 KW    DA-N    U

NIGHTTIME RADIATION PATTERN  
(Radiation Values at One Kilometer)

<u>Tower</u> <u>Number</u>	<u>Field</u> <u>Ratio</u>	<u>Phase</u> <u>(deg.)</u>	<u>Spacing</u> <u>(deg.)</u>	<u>Bearing</u> <u>(deg.)</u>	<u>Height</u> <u>(deg.)</u>	<u>Top Load</u> <u>(deg.)</u>
1	1.000	0.0	0.0	0.0	74.3	0.0
2	0.469	+164.2	50.0	257.0	48.5	5.0

<u>Input</u> <u>Power</u> <u>(kW)</u>	<u>Loop</u> <u>Loss</u> <u>(ohms)</u>	<u>Theo.</u> <u>RMS</u> <u>(mV/m)</u>	<u>Theo.</u> <u>RSS</u> <u>(mV/m)</u>	<u>Q</u> <u>Factor</u> <u>(mV/m)</u>	<u>Standard</u> <u>RMS</u> <u>(mV/m)</u>
10	1.0	943.7	1503	37.6	991.7

Standard Radiation Pattern  
(at One Kilometer)

Azimuth Angle (deg)	Elevation Angle in Degrees						
	0	5	10	15	20	25	30
(mV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)	(mV/m)
0	887	882	867	842	809	768	720
5	924	919	903	877	842	798	747
10	964	958	941	914	876	830	776
15	1005	998	980	951	911	862	805
20	1045	1038	1019	988	946	894	833
25	1084	1077	1057	1024	980	925	862
30	1122	1114	1093	1059	1012	955	888
35	1157	1149	1127	1091	1043	983	914
40	1189	1181	1158	1121	1071	1009	937
45	1217	1210	1186	1148	1096	1032	958
50	1243	1234	1210	1171	1118	1052	976
55	1264	1255	1231	1190	1136	1069	992
60	1281	1272	1247	1206	1151	1083	1004
65	1293	1285	1260	1218	1162	1093	1014
70	1302	1293	1268	1226	1169	1100	1020
75	1306	1297	1272	1230	1173	1103	1023
80	1305	1297	1271	1229	1173	1103	1022
85	1301	1292	1266	1225	1168	1099	1019
90	1291	1283	1257	1216	1160	1091	1012
95	1278	1269	1244	1203	1148	1080	1002
100	1260	1252	1227	1187	1133	1066	989
105	1238	1230	1206	1166	1113	1048	973
110	1212	1204	1181	1143	1091	1027	954
115	1183	1175	1152	1115	1065	1004	933
120	1150	1142	1121	1085	1037	977	909
125	1114	1107	1086	1052	1006	949	883
130	1076	1070	1050	1017	973	919	856
135	1037	1030	1012	981	939	887	828
140	996	990	973	943	904	855	799
145	956	950	934	906	869	823	770
150	917	911	896	870	835	792	742
155	879	874	860	836	803	762	715
160	846	841	827	804	773	735	691
165	816	812	798	777	748	712	669
170	792	788	775	755	726	692	651
175	774	770	758	738	711	677	637

Standard Radiation Pattern  
(at One Kilometer)

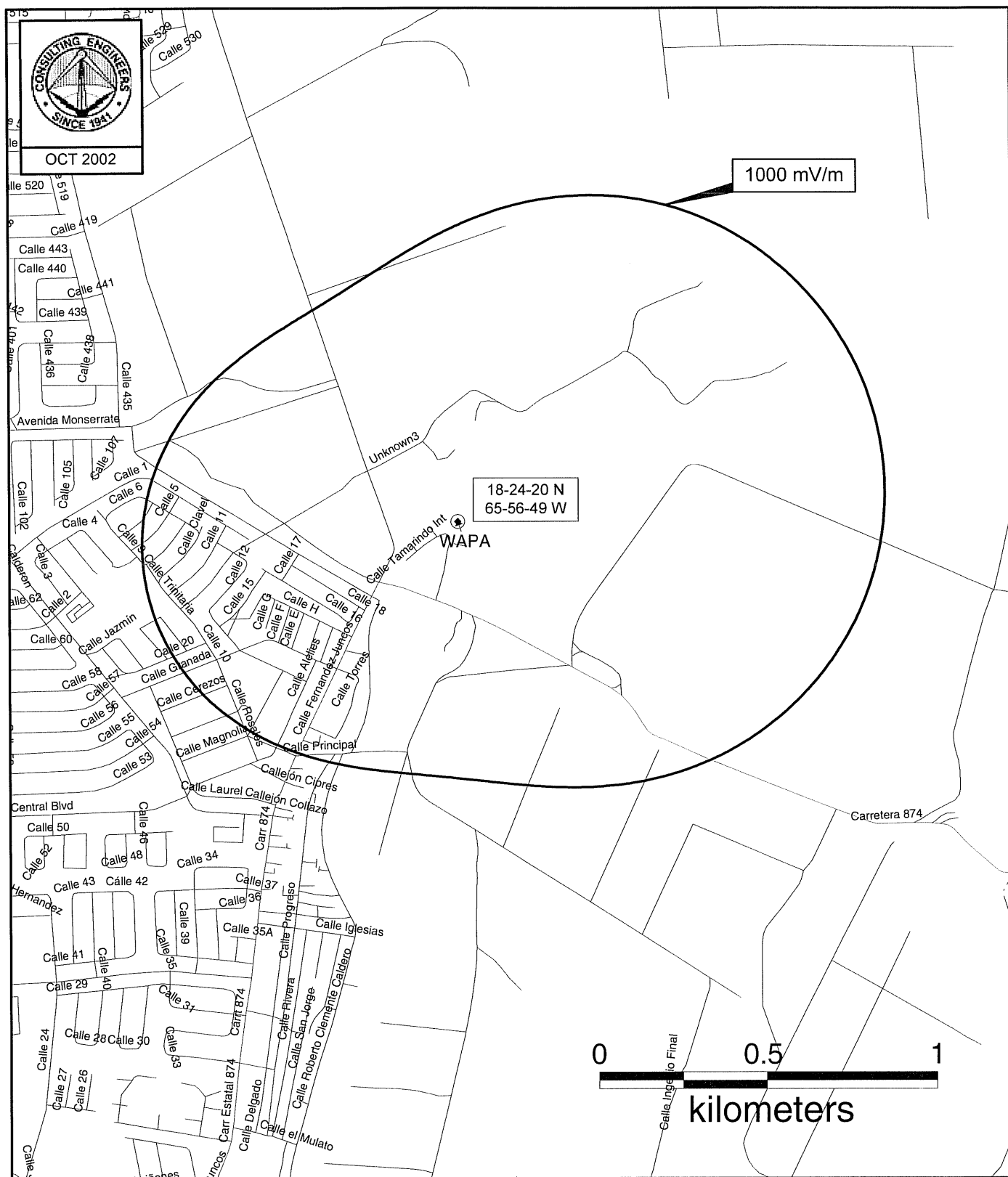
Azimuth Angle (deg)	Elevation Angle in Degrees						
	35 (mV/m)	40 (mV/m)	45 (mV/m)	50 (mV/m)	55 (mV/m)	60 (mV/m)	65 (mV/m)
0	667	610	550	487	424	360	297
5	691	630	566	501	434	368	303
10	716	652	584	515	445	376	308
15	741	673	602	529	456	384	314
20	767	695	620	544	468	392	319
25	791	716	638	558	478	400	325
30	815	736	655	572	489	408	330
35	837	756	671	584	499	415	335
40	858	773	685	596	508	422	339
45	876	789	699	607	516	428	344
50	892	803	710	616	524	433	347
55	906	815	720	624	530	438	350
60	917	824	728	631	535	442	353
65	926	832	734	636	539	444	355
70	931	836	738	639	541	446	356
75	934	839	740	641	542	447	357
80	933	838	740	640	542	447	357
85	930	836	738	639	541	446	356
90	924	830	733	635	538	444	354
95	915	823	727	630	534	441	352
100	904	813	718	623	529	437	350
105	889	800	708	615	522	432	347
110	873	786	696	605	515	427	343
115	854	770	683	594	506	421	339
120	833	752	668	582	497	414	334
125	810	732	651	569	487	407	329
130	786	712	634	555	476	399	324
135	762	691	617	541	465	391	318
140	736	669	599	527	454	383	313
145	711	647	581	512	443	375	307
150	686	626	563	498	432	367	302
155	663	606	546	485	422	359	296
160	641	588	531	472	412	352	291
165	622	571	517	461	403	345	287
170	606	557	505	451	395	339	282
175	593	546	495	442	388	334	278

Standard Radiation Pattern  
(at One Kilometer)

Azimuth Angle (deg)	Elevation Angle in Degrees						
	0 (mV/m)	5 (mV/m)	10 (mV/m)	15 (mV/m)	20 (mV/m)	25 (mV/m)	30 (mV/m)
180	763	759	747	727	700	667	628
185	760	755	743	723	696	662	623
190	762	758	745	724	696	662	622
195	771	766	753	731	702	666	625
200	784	779	765	743	712	675	632
205	801	796	782	758	726	686	641
210	821	816	800	775	741	700	652
215	842	836	820	793	758	714	665
220	863	857	840	812	775	729	677
225	883	877	859	830	791	744	690
230	902	895	877	847	807	758	702
235	918	912	893	862	820	770	712
240	932	925	906	874	832	780	721
245	942	935	916	884	840	788	728
250	949	942	922	890	846	793	732
255	952	946	926	893	849	796	735
260	952	945	925	893	849	795	734
265	948	941	921	889	845	792	732
270	940	934	914	882	839	786	727
275	929	923	903	872	830	778	719
280	915	909	890	859	818	768	710
285	898	892	873	844	804	755	699
290	879	873	855	827	788	741	687
295	858	853	836	808	771	726	675
300	837	832	816	790	754	711	662
305	817	812	796	771	738	697	650
310	798	793	778	755	723	684	639
315	781	776	763	740	710	673	630
320	769	764	751	730	701	665	624
325	761	757	744	724	696	662	622
330	760	756	743	723	696	662	623
335	765	761	749	729	702	668	629
340	777	773	761	741	713	679	640
345	796	792	779	759	730	695	655
350	822	817	804	782	752	716	673
355	852	847	833	810	779	740	696

Standard Radiation Pattern  
(at One Kilometer)

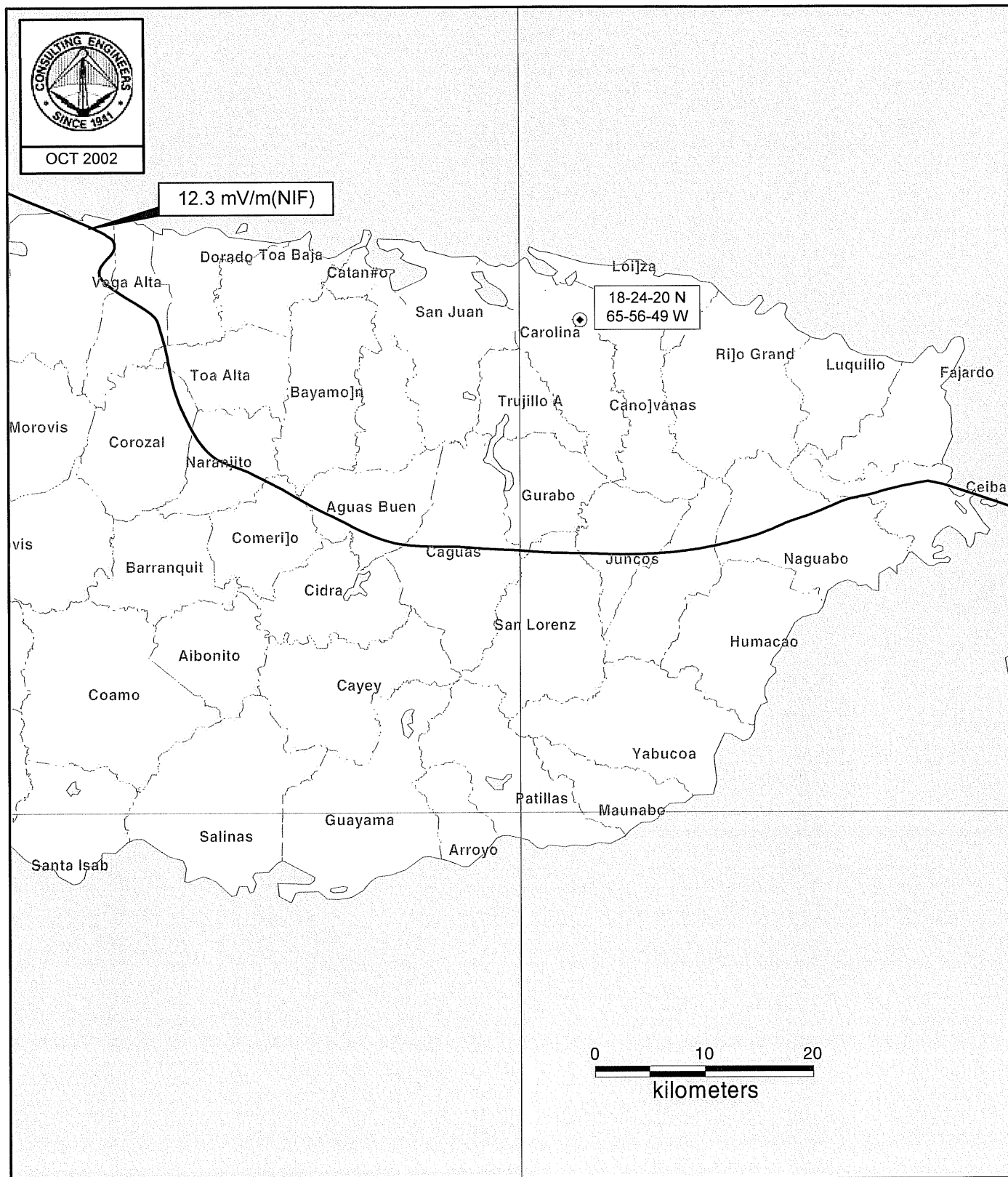
Azimuth Angle (deg)	Elevation Angle in Degrees						
	35 (mV/m)	40 (mV/m)	45 (mV/m)	50 (mV/m)	55 (mV/m)	60 (mV/m)	65 (mV/m)
180	584	537	487	436	383	329	275
185	579	532	482	431	379	326	272
190	578	530	480	428	376	323	270
195	579	530	479	427	374	321	268
200	584	533	481	427	373	320	267
205	591	539	484	429	374	319	266
210	600	545	488	431	375	320	266
215	610	553	494	435	377	320	265
220	621	561	500	439	379	321	265
225	631	569	506	443	381	322	266
230	641	577	511	447	384	323	266
235	649	584	517	450	386	325	267
240	657	589	521	453	388	326	267
245	662	594	525	456	389	327	267
250	666	597	527	458	391	327	268
255	668	599	528	458	391	327	268
260	668	598	528	458	391	327	268
265	666	597	526	457	390	327	267
270	661	593	524	455	389	326	267
275	655	588	520	453	388	325	267
280	648	582	516	450	386	324	266
285	639	575	510	446	383	323	266
290	629	567	504	442	381	322	266
295	618	559	498	438	378	321	265
300	608	551	493	434	376	320	265
305	598	544	487	431	375	319	266
310	590	537	483	428	374	319	266
315	583	533	480	427	373	320	267
320	579	530	479	427	374	321	268
325	578	530	480	429	376	323	270
330	580	533	483	432	379	326	273
335	586	539	489	437	384	330	276
340	596	548	497	444	390	335	279
345	609	559	507	453	397	340	283
350	626	574	519	463	405	346	288
355	645	591	534	474	414	353	292



## PROPOSED NIGHTTIME COVERAGE CONTOURS

RADIO STATION WAPA  
SAN JUAN, PUERTO RICO  
680 KHZ 10 KW DA-N U





## PROPOSED NIGHTTIME COVERAGE CONTOURS

RADIO STATION WAPA  
SAN JUAN, PUERTO RICO  
680 KHZ 10 KW DA-N U

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
RADIO STATION WAPA  
SAN JUAN, PUERTO RICO

680 KHZ    10 KW    DA-N    U

Nighttime Allocation Study

# WAPA NIF Calculation

duTreil, Lundin, and Rackley

10/28/2002

To Station (Call) WAPA 18-24-20 065-56-49

From Station(Call)	CARIB	WPTF	WRKO	HIJX	HOF 32	KKYX	WCBM
Frequency(kHz)	690.000	680.000	680.000	680.000	680.000	680.000	680.000
G.C. Distance(km)	309.600	2307.000	2723.600	578.900	2093.600	3546.500	2556.900
Slant Distance (km)	368.607	2315.691	2730.891	612.499	2103.118	3552.153	2564.754
Bearing degrees	274.216	143.560	167.864	101.061	56.370	102.856	152.633
Mid-Pt Latitude(deg)	18.320	27.240	30.470	18.960	13.560	24.850	29.000
Geo. M.P. Lat.	29.780	38.730	41.970	30.460	25.000	36.040	40.490
Min-Angle(deg)	24.230	0.000	0.000	12.650	0.000	0.000	0.000
Max-Angle(deg)	36.960	0.710	0.000	21.120	1.790	0.000	0.000
Horiz. Rad (mV/m)	2675.130	3494.740	3231.130	154.700	692.000	2053.710	1110.520
Max Vert. Rad. (mV/m)	1874.225	3494.736	3231.130	149.256	691.996	2053.710	1110.520
Skywave Mult.	233.612	12.303	8.097	118.859	20.821	6.102	9.524
Night Limit (mV/m)	8.757	8.599	5.232	3.548	2.882	2.506	2.115

From Station(Call)	NEW	WJCE	WCNN	KNBR	XELG	XE	XEKQ
Frequency(kHz)	680.000	680.000	680.000	680.000	680.000	680.000	680.000
G.C. Distance(km)	2931.100	3020.300	2507.900	5827.200	3743.700	2723.400	2825.900
Slant Distance (km)	2937.930	3026.876	2515.884	5830.657	3749.047	2730.692	2832.988
Bearing degrees	184.807	121.955	128.984	95.112	88.240	86.389	78.374
Mid-Pt Latitude(deg)	31.560	27.330	26.470	31.040	20.680	18.980	17.070
Geo. M.P. Lat.	43.030	38.700	37.920	41.550	31.770	30.290	28.380
Min-Angle(deg)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max-Angle(deg)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Horiz. Rad (mV/m)	1171.120	946.530	592.480	2560.430	619.870	305.600	287.060
Max Vert. Rad. (mV/m)	1171.120	946.530	592.480	2560.430	619.870	305.600	287.060
Skywave Mult.	6.747	7.431	10.908	1.573	6.442	12.024	11.814
Night Limit (mV/m)	1.580	1.407	1.293	0.806	0.799	0.735	0.678

RSS Night Limit to station

50 % Exclusion = 12.273 mV/m from CARIB WPTF  
25 % Exclusion = 13.805 mV/m from CARIB WPTF WRKO HIJX  
0 % Exclusion = 14.829

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation

du Treil,Lundin, and Rackley  
Sarasota, FL

Night Permissible Vertical Radiation From Station:WAPA(LICENSE)  
Coordinates: 18-24-17 065-56-54

Toward Station	Freq. (kHz)	GC Dist. (km)	Bear (degT)	Angles Min (deg)	Max (deg)	Skywav Mult. (mV/m)	50% Ex-RSS (mV/m)	25% Ex-RSS (mV/m)	Req. Prot. (mV/m)	Perm. Vert-Rad mV/m@1km
KDLG	670	8400.3	328.	0.0	0.0	.05	1.	1.	.25	254685.1
NEW	670	4737.8	297.5	0.0	0.0	3.09	10.45	11.57	2.89	46752.7
KIRN	670	5480.6	299.8	0.0	0.0	2.02	8.05	9.94	2.49	61546.4
KIRN	670	5445.4	300.4	0.0	0.0	2.03	8.1	10.19	2.55	62844.
KLTT	670	4410.5	311.2	0.0	0.0	2.98	10.65	10.65	2.66	44700.4
WWFE	670	1708.9	301.6	1.0	4.1	24.11	7.75	8.18	2.05	4241.1
KPUA	670	9238.4	288.6	0.0	0.0	.8	1.35	1.69	.42	26214.4
KBOI	670	5444.4	312.1	0.0	0.0	1.58	5.13	5.64	1.41	44474.4
WSCR	670	3349.9	326.1	0.0	0.0	5.32	1.5	1.71	.43	4015.6
NEW	670	5189.4	302.9	0.0	0.0	2.19	8.85	11.63	2.91	66499.5
NEW	670	5195.6	302.9	0.0	0.0	2.18	9.8	11.59	2.90	66444.
NEW	670	5204.1	303.	0.0	0.0	2.17	9.74	11.53	2.88	66546.5
CHFA	680	5628.	325.2	0.0	0.0	.92	8.35	8.35	4.17	22682.6
CJOB	680	4449.3	328.5	0.0	0.0	1.5	14.1	17.1	7.05	23524.7
CKXG	680	3523.6	13.	0.0	0.0	2.48	12.76	13.27	6.38	12891.9
NEW	680	2931.2	3.6	0.0	0.0	3.8	38.12	38.12	19.06	25098.1
NEW	680	2931.2	3.6	0.0	0.0	3.8	38.12	38.12	19.06	25098.1
CFTR	680	3041.7	338.	0.0	0.0	3.49	17.56	20.2	8.78	12596.8
* HJBU	680	1361.	226.1	4.9	4.9	13.68	5.84	6.79	2.92	1067.6
CMAC	680	1858.3	288.5	1.7	1.7	5.25	12.8	13.5	6.40	6099.8
CMIC	680	1387.1	288.3	4.7	4.7	13.02	11.65	11.65	5.82	2236.1
* CMMC	680	990.8	282.5	8.7	8.7	25.91	9.54	11.44	4.77	920.3
**HIJX	680	578.8	282.8	17.0	17.0	45.37	13.91	13.91	7.79	858.6
YSS	680	2474.5	261.6	0.0	0.0	2.33	5.54	6.53	2.77	5937.
TGVP	680	2616.9	266.6	0.0	0.0	2.	5.31	7.11	2.66	6646.8
HRNN 7	680	2252.2	261.	0.0	0.0	2.97	5.91	7.21	2.96	4977.5
HRNN 1	680	2199.3	262.	0.0	0.0	3.18	6.09	7.45	3.05	4785.5
HRNN 2	680	2369.3	265.5	0.0	0.0	2.62	5.63	6.96	2.82	5372.
HRN 31	680	2366.2	262.9	0.0	0.0	2.63	5.81	6.91	2.90	5524.7
XEFO1	680	4225.3	293.3	0.0	0.0	1.66	13.16	13.95	6.58	19777.4
XE	680	2723.2	274.7	0.0	0.0	4.55	15.24	20.32	7.62	8372.7
XEKQ	680	2825.8	266.	0.0	0.0	4.15	13.03	15.51	6.51	7847.4
XEKQ	680	2825.8	266.	0.0	0.0	4.15	13.03	15.51	6.51	7847.4
XECHG	680	3546.7	273.8	0.0	0.0	2.44	24.06	25.49	12.03	24647.5
XELG	680	3743.6	280.7	0.0	0.0	2.16	8.06	9.76	4.03	9349.
XENF	680	4072.3	281.5	0.0	0.0	1.81	15.08	16.16	7.54	20820.
XEOAX	680	3256.1	272.6	0.0	0.0	2.98	18.62	22.69	9.31	15645.4
XEFJ	680	3298.8	277.9	0.0	0.0	2.89	21.54	24.8	10.77	18630.1
XEFJ	680	3298.8	277.9	0.0	0.0	2.89	21.54	24.8	10.77	18630.1
XEORO	680	4435.6	288.1	0.0	0.0	1.51	9.87	10.39	4.94	16367.3

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation

Toward Station	Freq. (kHz)	GC Dist. (km)	Bear (degT)	Angles Min Max (deg) (deg)		Skywav Mult. (mV/m)	50% Ex-RSS (mV/m)	25% Ex-RSS (mV/m)	Req. Prot. (mV/m)	Perm. Vert-Rad mV/m@1km
XEORO1	680	4435.6	288.1	0.0	0.0	1.51	9.87	10.39	4.94	16367.3
XESON	680	4697.9	293.4	0.0	0.0	1.34	20.86	20.86	10.43	39066.4
HOF 32	680	2093.4	240.2	0.5	0.5	3.64	2.75	3.04	1.38	1887.3
KBRW	680	8092.5	340.3	0.0	0.0	.03	.47	.59	.15	25439.1
KNBR	680	5827.	303.7	0.0	0.0	1.57	2.16	2.34	.59	1860.2
KNBR	680	5827.2	303.7	0.0	0.0	1.57	2.16	2.34	.59	1859.9
WCNN	680	2507.9	317.2	0.0	0.0	10.91	36.35	39.08	9.77	4476.4
WCTT	680	2713.2	323.	0.0	0.0	8.85	7.13	9.55	2.39	1349.1
WCTT	680	2713.2	323.	0.0	0.0	8.85	7.13	9.55	2.39	1349.1
WDRD	680	2906.7	322.9	0.0	0.0	7.53	12.87	16.93	4.23	2811.8
* WRKO	680	2723.6	350.6	0.0	0.0	8.1	3.89	4.69	1.47	909.
WCBM	680	2557.1	338.2	0.0	0.0	9.52	12.13	12.13	3.03	1592.6
WCBM	680	2557.	338.	0.0	0.0	9.52	12.72	12.72	3.18	1669.6
WNZK	680	3104.8	331.8	0.0	0.0	6.23	27.48	28.83	7.21	5789.8
WDBC	680	3611.4	332.1	0.0	0.0	4.18	8.43	11.03	2.76	3296.9
KFEQ	680	3648.4	316.8	0.0	0.0	4.58	6.85	6.85	1.71	1867.4
* * WPTF	680	2307.	329.5	0.0	0.7	12.3	3.32	4.75	2.23	909.1
WRGC	680	2539.4	321.5	0.0	0.0	10.37	30.23	30.23	7.56	3645.3
KWKA	680	4083.1	303.3	0.0	0.0	4.04	11.66	11.66	2.92	3608.2
WINR	680	2797.7	342.5	0.0	0.0	7.71	11.46	11.46	2.87	1859.2
WJCE	680	3020.2	313.1	0.0	0.0	7.43	8.32	10.47	2.62	1761.3
KKYX	680	3546.4	296.6	0.0	0.0	6.1	9.64	11.67	2.92	2390.7
WOGO	680	3770.4	326.9	0.0	0.0	3.86	14.57	15.63	3.91	5065.1
WCAW	680	2679.9	328.9	0.0	0.0	8.8	26.54	27.61	6.90	3921.9
* * YVQR	680	899.5	167.5	10.0	10.0	29.91	5.33	5.6	5.33	889.7
* CMMC	680	990.8	282.5	8.7	8.7	25.91	9.54	11.44	4.77	920.3
CMAC	680	1858.3	288.5	1.7	1.7	5.25	12.8	13.5	6.40	6099.8
CMIC	680	1387.1	288.3	4.7	4.7	13.02	11.65	11.65	5.82	2236.1
* CMMC	680	990.8	282.5	8.7	8.7	25.91	9.54	11.44	4.77	920.3
WJOX	690	2672.7	312.9	0.0	0.0	9.78	8.6	10.57	2.64	13510.7
WOKV	690	2087.2	312.4	0.0	1.8	16.18	17.28	20.11	5.03	15538.8
KORL	690	9463.4	290.8	0.0	0.0	.7	1.45	1.45	.36	26061.2
KGGF	690	3549.6	312.	0.0	0.0	5.09	6.09	7.38	1.85	18125.4
WTIX	690	2744.9	302.4	0.0	0.0	9.93	7.92	9.44	2.36	11882.5
KRCO	690	5824.5	312.3	0.0	0.0	1.26	16.36	16.36	4.09	162264.2
KTSM	690	4306.	298.5	0.0	0.0	3.83	9.11	11.4	2.85	37220.5
KPET	690	3919.3	301.1	0.0	0.0	4.61	20.47	21.89	5.47	59357.9

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation

du Treil,Lundin, and Rackley  
Sarasota, FL

Page: 1  
10/28/2002

Night Permissible Vertical Radiation From Station:WAPA (PROPOSED)  
Coordinates: 18-24-20 065-56-49

Toward Station	Freq. (kHz)	GC Dist. (km)	Bear (degT)	Angles Min (deg)	Max (deg)	Skywav Mult. (mV/m)	50% Ex-RSS (mV/m)	25% Ex-RSS (mV/m)	Req. Prot. (mV/m)	Perm. Vert-Rad mV/m@1km
KDLG	670	8400.3	328.	0.0	0.0	.05	1.	1.	.25	254685.1
NEW	670	4737.9	297.5	0.0	0.0	3.09	10.45	11.57	2.89	46752.7
KIRN	670	5480.7	299.8	0.0	0.0	2.02	8.05	9.94	2.49	61546.4
KIRN	670	5445.5	300.4	0.0	0.0	2.03	8.1	10.19	2.55	62844.
KLTT	670	4410.5	311.2	0.0	0.0	2.98	10.65	10.65	2.66	44715.4
WWFE	670	1709.	301.6	1.0	4.1	24.11	7.75	8.18	2.05	4241.5
KPUA	670	9238.5	288.6	0.0	0.0	.8	1.35	1.69	.42	26247.
KBOI	670	5444.4	312.1	0.0	0.0	1.58	5.13	5.64	1.41	44474.4
WSCR	670	3349.9	326.1	0.0	0.0	5.32	1.5	1.71	.43	4015.6
NEW	670	5189.4	302.9	0.0	0.0	2.19	8.85	11.63	2.91	66499.5
NEW	670	5195.7	302.9	0.0	0.0	2.18	9.8	11.59	2.90	66444.
NEW	670	5204.2	303.	0.0	0.0	2.17	9.74	11.53	2.88	66546.5
CHFA	680	5628.1	325.2	0.0	0.0	.92	8.35	8.35	4.17	22682.6
CJOB	680	4449.3	328.5	0.0	0.0	1.5	14.1	17.1	7.05	23524.7
CKXG	680	3523.5	13.	0.0	0.0	2.48	12.76	13.27	6.38	12886.7
NEW	680	2931.1	3.6	0.0	0.0	3.8	38.12	38.12	19.06	25098.1
NEW	680	2931.1	3.6	0.0	0.0	3.8	38.12	38.12	19.06	25098.1
CFTR	680	3041.7	338.	0.0	0.0	3.49	17.56	20.2	8.78	12596.8
HJBU	680	1361.2	226.1	4.9	4.9	13.68	5.84	6.32	2.92	1068.
CMAC	680	1858.4	288.5	1.7	1.7	5.25	12.8	13.5	6.40	6100.9
CMIC	680	1387.2	288.3	4.7	4.7	13.02	11.65	11.65	5.82	2236.6
CMMC	680	990.9	282.5	8.7	8.7	25.91	9.54	10.46	4.77	920.5
HIJX	680	578.9	282.8	17.0	17.0	45.37	11.52	11.95	7.79	858.3
YSS	680	2474.6	261.6	0.0	0.0	2.33	5.54	6.53	2.77	5939.6
TGVP	680	2617.1	266.6	0.0	0.0	2.	5.31	7.11	2.66	6646.8
HRNN 7	680	2252.3	261.	0.0	0.0	2.97	5.91	7.21	2.96	4977.5
HRNN 1	680	2199.5	262.	0.0	0.0	3.18	6.09	7.45	3.05	4787.
HRNN 2	680	2369.4	265.5	0.0	0.0	2.62	5.63	6.96	2.82	5372.
HRN 31	680	2366.4	262.9	0.0	0.0	2.63	5.81	6.91	2.90	5526.8
XEFO1	680	4225.4	293.3	0.0	0.0	1.66	13.16	13.95	6.58	19789.3
XE	680	2723.4	274.7	0.0	0.0	4.55	15.24	20.32	7.62	8372.7
XEKQ	680	2825.9	266.	0.0	0.0	4.15	13.03	15.51	6.51	7847.4
XEKQ	680	2825.9	266.	0.0	0.0	4.15	13.03	15.51	6.51	7847.4
XECHG	680	3546.8	273.8	0.0	0.0	2.44	24.06	25.49	12.03	24647.5
XELG	680	3743.7	280.7	0.0	0.0	2.16	8.06	9.76	4.03	9349.
XENF	680	4072.4	281.5	0.0	0.0	1.81	15.08	16.16	7.54	20820.
XEOAX	680	3256.2	272.6	0.0	0.0	2.98	18.62	22.69	9.31	15645.4
XEFJ	680	3298.9	277.9	0.0	0.0	2.89	21.54	24.8	10.77	18630.1
XEFJ	680	3298.9	277.9	0.0	0.0	2.89	21.54	24.8	10.77	18630.1
XEORO	680	4435.7	288.1	0.0	0.0	1.51	9.87	10.39	4.94	16367.3

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation

Toward Station	Freq. (kHz)	GC Dist. (km)	Bear (degT)	Angles Min (deg) Max (deg)		Skywav Mult. (mV/m)	50% Ex-RSS (mV/m)	25% Ex-RSS (mV/m)	Req. Prot. (mV/m)	Perm. Vert-Rad mV/m@1km
XEOR01	680	4435.7	288.1	0.0	0.0	1.51	9.87	10.39	4.94	16367.3
XESON	680	4698.	293.4	0.0	0.0	1.34	20.86	20.86	10.43	39066.4
HOF 32	680	2093.6	240.2	0.5	0.5	3.64	2.75	3.04	1.38	1887.9
KBRW	680	8092.5	340.3	0.0	0.0	.03	.47	.59	.15	25439.1
KNBR	680	5827.1	303.7	0.0	0.0	1.57	2.16	2.34	.59	1860.2
KNBR	680	5827.2	303.7	0.0	0.0	1.57	2.16	2.34	.59	1859.9
WCNN	680	2507.9	317.2	0.0	0.0	10.91	36.35	39.08	9.77	4478.5
WCTT	680	2713.2	323.	0.0	0.0	8.85	7.13	9.55	2.39	1349.2
WCTT	680	2713.2	323.	0.0	0.0	8.85	7.13	9.55	2.39	1349.2
WDRD	680	2906.7	322.9	0.0	0.0	7.53	12.87	16.93	4.23	2811.8
WRKO	680	2723.6	350.6	0.0	0.0	8.1	3.89	4.46	1.47	911.2
WCBM	680	2557.1	338.2	0.0	0.0	9.52	12.13	12.13	3.03	1592.6
WCBM	680	2556.9	338.	0.0	0.0	9.52	12.72	12.72	3.18	1669.5
WNZK	680	3104.8	331.7	0.0	0.0	6.23	27.48	28.83	7.21	5789.8
WDBC	680	3611.4	332.1	0.0	0.0	4.18	8.43	11.03	2.76	3296.9
KFEQ	680	3648.5	316.8	0.0	0.0	4.58	6.85	6.85	1.71	1867.4
WPTF	680	2307.	329.5	0.0	0.7	12.3	3.25	4.35	2.01	814.6
WRGC	680	2539.4	321.5	0.0	0.0	10.37	30.23	30.23	7.56	3645.3
KWKA	680	4083.1	303.3	0.0	0.0	4.04	11.66	11.66	2.92	3608.2
WINR	680	2797.6	342.5	0.0	0.0	7.71	11.46	11.46	2.87	1859.2
WJCE	680	3020.3	313.1	0.0	0.0	7.43	8.32	10.47	2.62	1761.3
KKYX	680	3546.5	296.6	0.0	0.0	6.1	9.64	11.67	2.92	2390.7
WOGO	680	3770.4	326.9	0.0	0.0	3.86	14.57	15.63	3.91	5065.1
WCAW	680	2679.9	328.9	0.0	0.0	8.8	26.54	27.61	6.90	3921.9
YVQR	680	899.6	167.5	10.0	10.0	29.91	1.91	2.24	5.33	888.9
CMMC	680	990.9	282.5	8.7	8.7	25.91	9.54	10.46	4.77	920.5
CMAC	680	1858.4	288.5	1.7	1.7	5.25	12.8	13.5	6.40	6100.9
CMIC	680	1387.2	288.3	4.7	4.7	13.02	11.65	11.65	5.82	2236.6
CMMC	680	990.9	282.5	8.7	8.7	25.91	9.54	10.46	4.77	920.5
WJOX	690	2672.8	312.8	0.0	0.0	9.78	8.6	10.57	2.64	13510.7
WOKV	690	2087.3	312.3	0.0	1.8	16.18	17.28	20.11	5.03	15538.8
KORL	690	9463.5	290.8	0.0	0.0	.7	1.45	1.45	.36	26061.2
KGGF	690	3549.6	312.	0.0	0.0	5.09	6.09	7.38	1.85	18136.1
WTIX	690	2745.	302.4	0.0	0.0	9.93	7.92	9.44	2.36	11883.7
KRCO	690	5824.5	312.3	0.0	0.0	1.26	16.36	16.36	4.09	162264.2
KTSM	690	4306.1	298.5	0.0	0.0	3.83	9.11	11.4	2.85	37220.5
KPET	690	3919.4	301.1	0.0	0.0	4.61	20.47	21.89	5.47	59357.9

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation

RSS Study: Point to Point

Call	Mode	Location	WPTF Limit (mV/m)	YVQR Limit (mV/m)	HIJX Limit (mV/m)
WAPA	PROP	SAN JUAN	1.869	4.756	7.596
WAPA	PROP	ARECIBO	0.461	0.899	1.666
		RSS	1.925	4.840	7.777
WAPA	LIC	SAN JUAN	2.013	4.857	7.786

\*\* - enters the 50% RSS calculation

\* - enters the 25% RSS calculation