

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
FM BOOSTER STATION WUKQ-FM1
PONCE, PUERTO RICO

October 7, 2008

CH 254 5 KW(MAX-DA) 59 M AMSL

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Engineering Statement

This technical exhibit was prepared on behalf of Univision Radio Puerto Rico, Inc., licensee of FM station WUKQ-FM, Mayaguez, Puerto Rico. By means of this application, the licensee seeks construction permit for minor changes in the licensed facilities of booster station WUKQ-FM1 (FCC File No. BLFTB-20040409AAU), to implement the change in channel ordered in MM Docket No. 91-259. In Docket No. 91-259, WUKQ-FM was ordered to move to Channel 254B. A separate construction permit, BPH-20080208AEW, has been obtained to change the operating channel of the main station, WUKQ-FM, to Channel 254B. The instant application also proposes an increase in the effective radiated power (ERP) to a maximum of 5 kW using a directional antenna. No change in site location, antenna-supporting structure or antenna height is proposed. The proposed booster facility will operate on Channel 254 (98.7 MHz) with an antenna radiation center height above mean sea level of 59 m and employ a Jampro, JAHD-1/1(1) directional transmitting antenna oriented at 90° True. Operating parameters for the licensed and proposed facilities are shown in Figure 1.

Tower Registration

The overall height above ground of the existing tower is 61.3 m. The tower has been registered with the FCC and bears Antenna Structure Registration Number (ASRN) 1217315. There will be no change in the overall height of the existing structure; the FAA is not being notified, as it is proposed to side-mount the new FM antenna on the existing tower. A tower sketch showing the proposed antenna system is shown in Figure 2.

FM Booster Station WUKQ-FM1
Ponce, Puerto Rico

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Notification to FCC Monitoring Station and Arecibo Observatory

The proposed facility is located 26.2 km from the closest FCC monitoring station at Santa Isabel, Puerto Rico. At this distance, stations with an ERP exceeding 25.0 kW are advised to notify the monitoring stations. Since the proposed facility is well below that ERP level, there is no potential for interference. Therefore, notification to the FCC monitoring station is not necessary.

As required by FCC rules pertaining to radio Quiet Zones, Section 73.1030(a), the National Astronomy and Ionosphere Center, located at Arecibo, Puerto Rico was notified of this application on October 7, 2008. Copy of the notification letter is included herein as Appendix 1.

Predicted Coverage Contours

The predicted 54 dBu coverage contours were calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the U.S.G.S. 3-second terrain database. The distances to the predicted 54 dBu coverage contour for the proposed booster was determined using the average elevations of radials spaced every 1-degree of azimuth. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour. Figure 3 is a map showing the predicted 54 dBu coverage contours of the WUKQ-FM main facility and the proposed WUKQ-FM1 booster. As indicated in Figure 3, the proposed predicted 54 dBu contour of WUKQ-FM1 will be contained within the WUKQ-FM main facility predicted 54 dBu contour over land. No change or expansion of the service contour of WUKQ-FM1 is predicted.

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Environmental Considerations

The proposed facility is categorically excluded from environmental processing pursuant to Section 1.1306 of the FCC Rules. With respect to the potential for human exposure to radio frequency (RF) radiation, the WUKQ(AM) transmission tower is restricted from access with a fence located not less than 7 m from the base of the tower in any direction. According to Supplement A of FCC Bulletin OET-65 (Edition 97-01), locations outside of the fenced area will not exceed an AM electric field level of 10 V/m and an AM magnetic field level of 0.11 A/m.* This is equivalent to 0.03% and 0.51%, respectively, of the FCC limits for uncontrolled environments for WUKQ(AM). The proposed antenna is predicted to produce field intensities below twelve percent (12%) of the maximum power density allowed for an uncontrolled environment. Since the total RF exposure outside the fenced area will not exceed 13% of the FCC limit for uncontrolled environments, the proposal complies with the FCC limits for human exposure to RF radiation.

The calculations of RF energy shown on Appendix 2 were made at a level of 2 meters above ground using the procedures outlined in OET Bulletin No. 65.[†] The calculated power density along any point on a plane 2-m above ground, S , will be given by the formula:

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

where, H = antenna radiation center height above ground in meters, F is the relative field factor and P is the total effective radiated power in watts. A detailed analysis was conducted of the power density along various points on a plane 2-m above ground, calculated for every degree of antenna depression angle, based on the vertical radiation pattern of the proposed antenna, for a

* This is based on an AM radiator of approximately 0.25 wavelength with a power of 1.0 kW. The limits for uncontrolled environments for electric and magnetic fields are 580 V/m and 1.54 A/m at 1420 kHz.

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

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total effective radiated power of 10 kilowatts (5 kW circular polarization) and a radiation center height of 57 meters above ground. The calculated power density along any point 2-m above ground for the proposed Jampro antenna will not exceed 24 uW/cm^2 . Therefore, the calculated RF worst-case exposure at 2 meters above ground will be less than 12% of the limit of 200 uW/cm^2 for the FM band, for the general population and uncontrolled environments. The applicant will reduce power or cease operation as necessary to protect persons having access to fenced area around the tower from RF energy in excess of the FCC guidelines.

Allocation Considerations

The adjacent-channel FM facilities in proximity to the proposed WUKQ-FM1 are WPRM-FM (San Juan, Puerto Rico, Channel 253B) and WYAS(FM), Vieques, Puerto Rico, Channel 255B. Since MM Docket No. 91-259 ordered WPRM-FM to channel 256B and WYAS to channel 252A, these stations are not considered in this application and should not be an impediment. Therefore, the proposed facility meets the adjacent-channel protection requirements outlined in the FCC Rules. The proposed booster facility meets all other allocation requirements.

Construction Permit Special Conditions or Restrictions

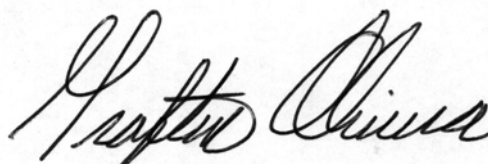
Like the existing WUKQ-FM1 facility, the proposed booster facility will employ the WUKQ(AM)¹ transmitting antenna tower. A sketch of the existing and proposed antenna installations on the WUKQ(AM) tower is included herein as Figure 2. The previous WUKQ-FM1 construction permit included conditions concerning measurements on nearby AM stations WISO(AM) and WPAB(AM). However, because there is no change in the WUKQ(AM) radiator and no effect on these nearby AM stations was predicted, before

¹ WUKQ(AM), Ponce, Puerto Rico, 1420 kW, 1 kW, U (FCC File No. BL-19800523AC)

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licensing the existing WUKQ-FM1 facility (File No. BLFTB-20040409AAU), the permittee notified the FCC of this finding and requested the deletion of these conditions from the previous WUKQ-FM1 construction permit². The FCC granted this request, but did not modified the construction permit³ (File No. BMPFTB-20030325ABL). Reference is made to the FCC action in this application for modification of Construction Permit. Thus, it is respectfully requested that these special conditions not be included in the construction permit requested in this instant application.



Grafton Olivera, P.E.
du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237
941/329-6000

October 7, 2008

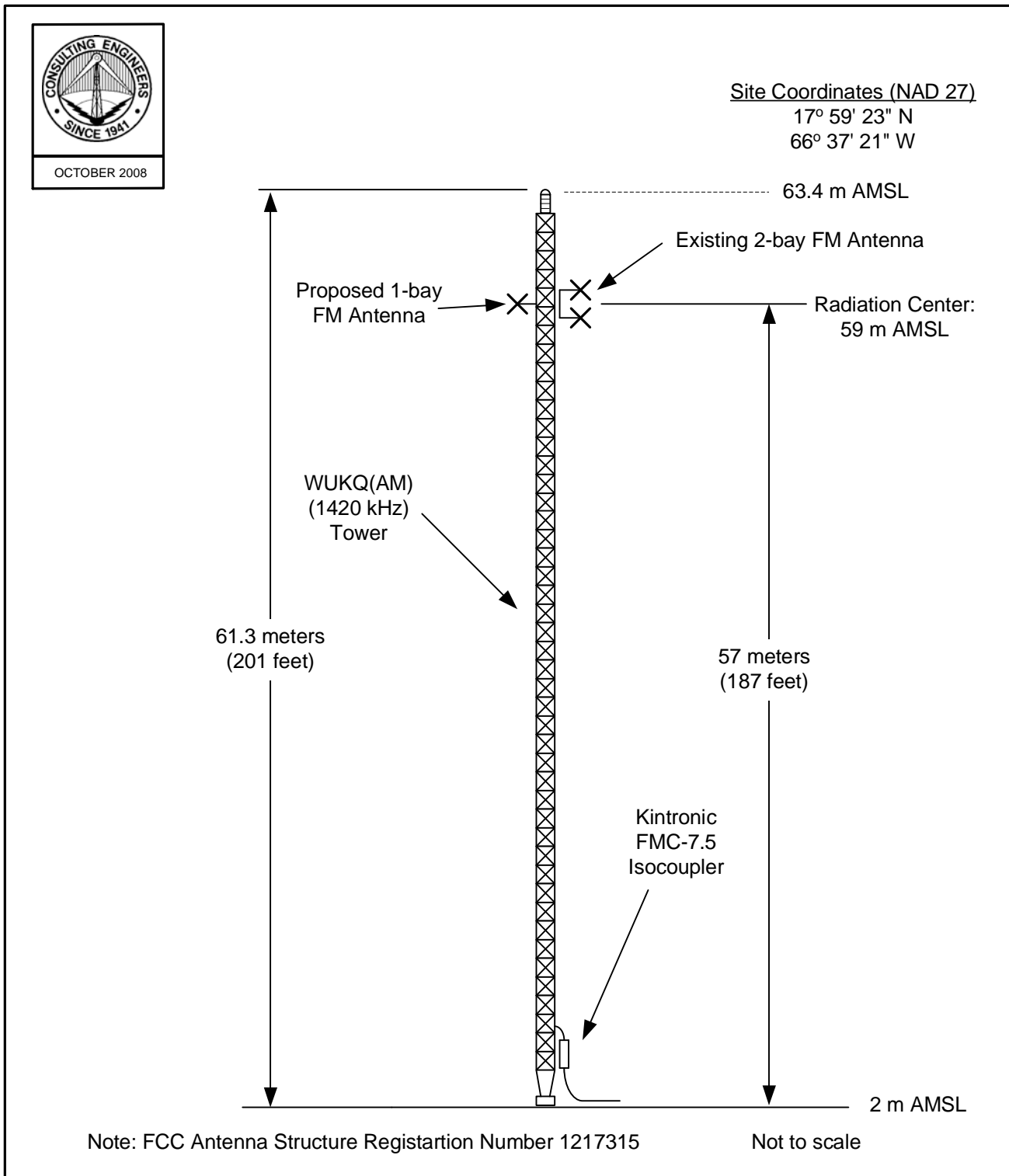
² See letter from J. Richard Carr, Counsel to El Mundo Broadcasting Corporation, to James D. Bradshaw, Associate Chief, Audio Division, Media Bureau, FCC dated June 26, 2003.

³ Telephone call from FCC staff to J. Richard Carr on July 7, 2003.

Figure 1**Existing and Proposed Operating Parameters**

	Existing	Proposed
Channel (Freq.)	256 (99.1 MHz)	254 (98.7 MHz)
Site Coordinates:	17° 59' 23" NL 66° 37' 21" WL	
Site Elevation (AMSL)	2 M (7 FT)	
Height of antenna radiation center (AGL):	57 M (187 FT)	
Height of antenna radiation center (AMSL):	59 M (194 FT)	
ERP (Circular):	3.8 kW	5.0 kW
Antenna Model / Gain	ERI LPX-3E / 1.56 X Power Gain	JAMPRO JAHD-1/1 / 2.0 X Power Gain
Transmission Line Type / Length	HJ5-50A / 81 M (266 FT)	
Isocoupler Model / Loss	Kintronic FMC-7.5 / 0.2 dB	
Transmission System Efficiency	76.2 %	
Transmitter Power Output	3.2 kW	3.3 kW

Figure 2



TOWER SKETCH

TECHNICAL EXHIBIT

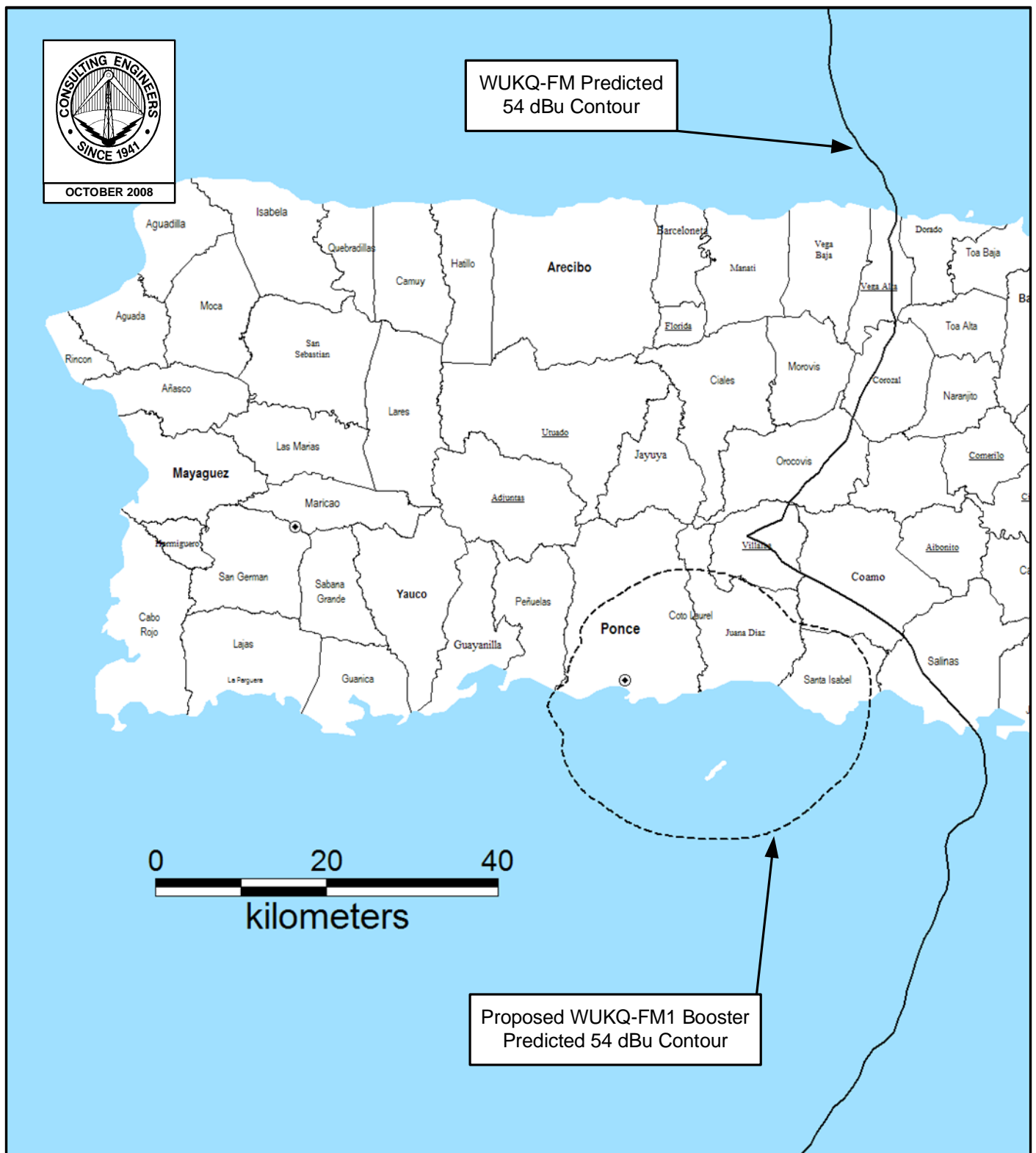
FM BOOSTER STATION WUKQ-FM1

PONCE, PUERTO RICO

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

Figure 3



PREDICTED COVERAGE CONTOURS
FM BOOSTER STATION WUKQ-FM1
PONCE, PUERTO RICO
CH 254 5 KW (MAX-DA) 59 M AMSL
du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Notification to the National Astronomy and Ionosphere Center

{one sheet follows}



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941-329-6000
941-329-6031 FAX

Grafton Olivera
Direct Dial 941-329-6001
e-mail: grifton@dlr.com

October 7, 2008

Via Telefax 787-878-1861

Dr. Tim Hankins, Director
Mr. Reinaldo Velez, Spectrum Manager
National Astronomy and Ionosphere Center
Arecibo Observatory
HC3 Box 53995
Arecibo, PR 00612

Gentlemen:

On behalf of our client, Univision Radio Puerto Rico, Inc., licensee of FM booster station WUKQ-FM1 in Ponce, Puerto Rico, in accordance with Section 73.1030 of the FCC Rules, we are hereby notifying of the proposed change in facilities. WUKQ-FM has been ordered by the FCC to move to Channel 254. The application also proposes an increase in the effective radiated power (ERP) to a maximum of 5 kW using a directional antenna. The particulars of the proposal are as follows:

Existing and Proposed Facilities

Geographical coordinates of antenna location (NAD83): 17-59-15.9 / 66-37-19.6
Antenna radiation center height: 57m AGL; 59 m AMSL
Antenna directivity: see attached antenna information
Operating channel, **Existing:** 256 (99.1 MHz), **Proposed:** 254 (98.7 MHz)
Type of emission: F3E
Effective isotropic radiated power: 8.2 kW (Circular Polarization)

Please review this proposal and if you find any cause of concern, let us know immediately. If we don't hear from you within the next 30 days, we will assume you have no objection to this proposal.

Please feel free to communicate via email (<mailto:Grafton@dlr.com>), telefax (941-329-6030) or regular mail.

Very truly yours,

Grafton Olivera, P.E.

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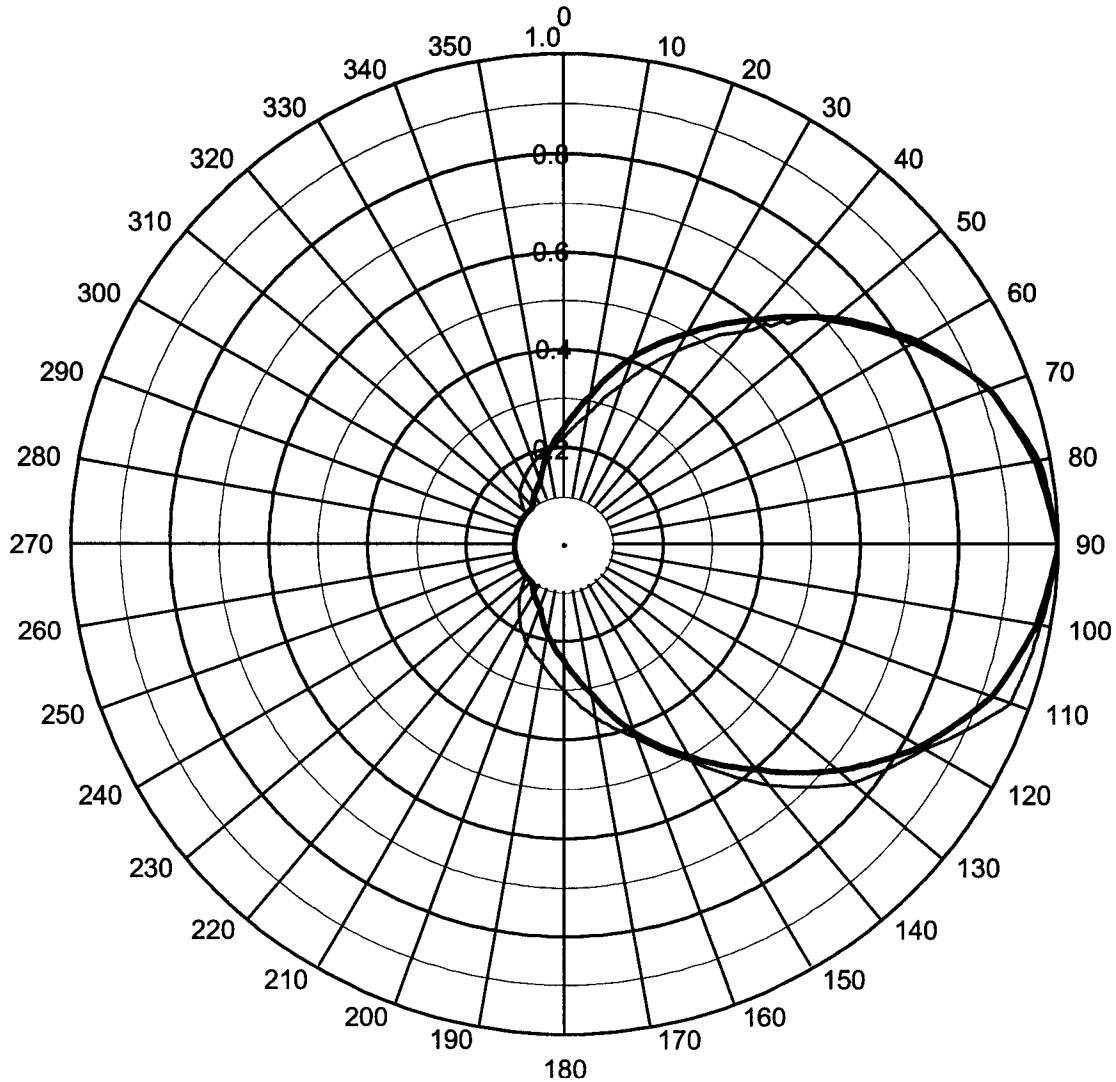
Antenna Pattern Data

Proposed Jampro JAHD-1/1Antenna

{four sheets follow}



Azimuth Pattern



FCC AZIMUTH PATTERN

Customer: duTreil, Lundin & Rackley

January 30, 2004

Model JAHD-1/1 (1)

Notes: ERP to be 5 W

Location: Puerto Rico

Frequency 99.1 MHz / Channel 256

Gain FCC Directional, expect about 2.0x / 4.19 dB



<u>AZIMUTH</u>	<u>HPOL</u>	<u>VPOL</u>	<u>AZIMUTH</u>	<u>HPOL</u>	<u>VPOL</u>
0	0.240	0.220	180	0.240	0.300
5	0.275	0.245	185	0.215	0.275
10	0.310	0.270	190	0.190	0.250
15	0.360	0.310	195	0.165	0.235
20	0.410	0.350	200	0.140	0.220
25	0.455	0.405	205	0.130	0.200
30	0.500	0.460	210	0.120	0.180
35	0.550	0.515	215	0.110	0.160
40	0.600	0.570	220	0.100	0.140
45	0.660	0.640	225	0.100	0.120
50	0.720	0.710	230	0.100	0.100
55	0.775	0.765	235	0.100	0.100
60	0.830	0.820	240	0.100	0.100
65	0.875	0.870	245	0.100	0.100
70	0.920	0.920	250	0.100	0.100
75	0.945	0.950	255	0.100	0.100
80	0.970	0.980	260	0.100	0.100
85	0.985	0.990	265	0.100	0.100
90	1.000	1.000	270	0.100	0.100
95	0.985	0.990	275	0.100	0.100
100	0.970	0.980	280	0.100	0.100
105	0.945	0.970	285	0.100	0.100
110	0.920	0.960	290	0.100	0.100
115	0.875	0.900	295	0.100	0.100
120	0.830	0.840	300	0.100	0.100
125	0.775	0.800	305	0.100	0.100
130	0.720	0.760	310	0.100	0.100
135	0.660	0.700	315	0.100	0.120
140	0.600	0.640	320	0.100	0.140
145	0.550	0.575	325	0.110	0.150
150	0.500	0.510	330	0.120	0.160
155	0.455	0.465	335	0.130	0.170
160	0.410	0.420	340	0.140	0.180
165	0.360	0.390	345	0.165	0.190
170	0.310	0.360	350	0.190	0.200
175	0.275	0.330	355	0.215	0.210

FCC AZIMUTH PATTERN

Customer: duTreil, Lundin & Rackley

January 30, 2004

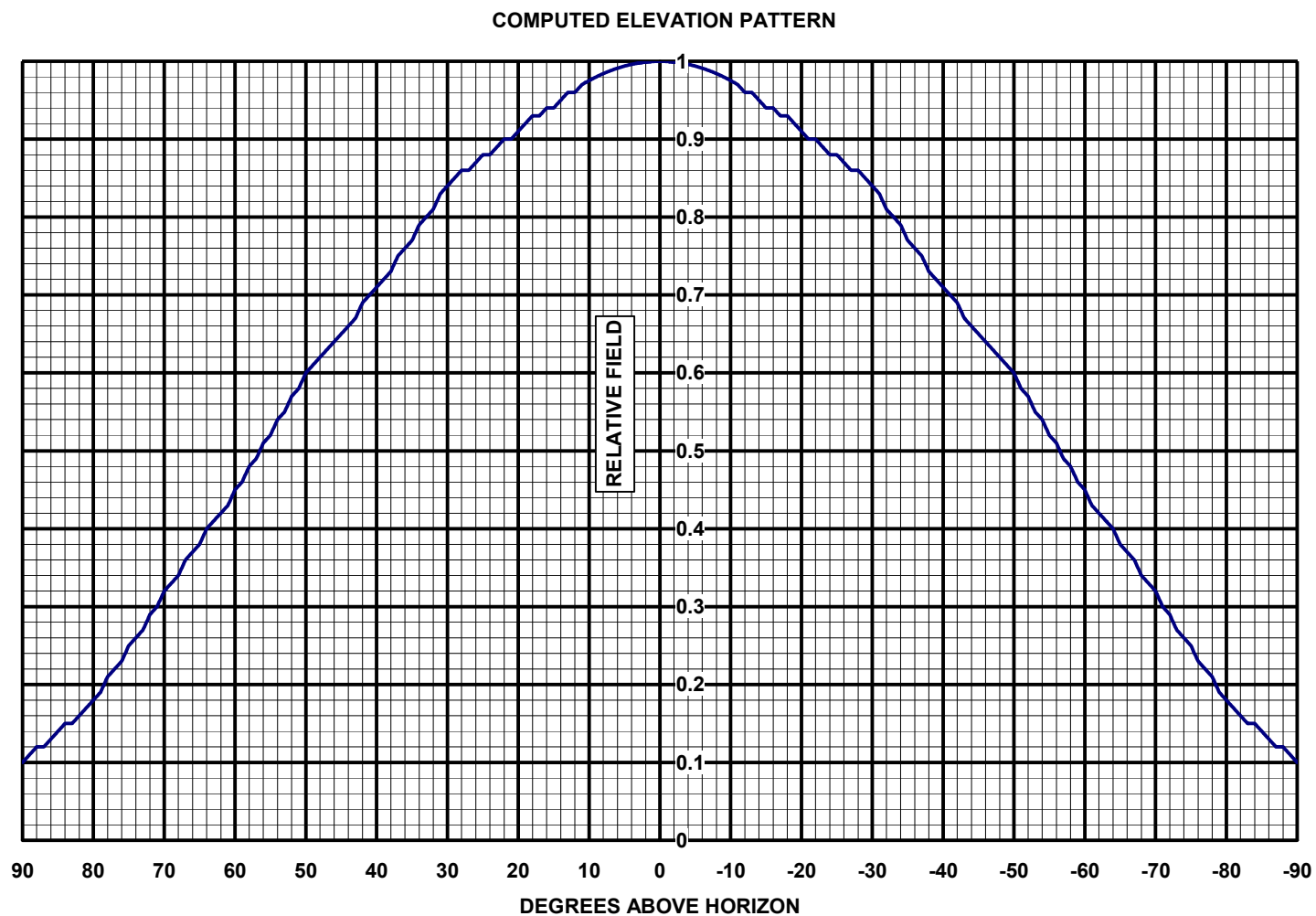
Model JAHD-1/1 (1)

Notes: ERP to be 5 W

Location: Puerto Rico

Frequency 99.1 MHz / Channel 256

Gain FCC Directional, expect about 2.0x / 4.19 dB



ELEVATION PATTERN

Customer: WUKQ FM
Frequency: 99.1 MHz

January 22, 2007
Model: JAHD-1/1 (1) DA

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6340 Sky Creek Road, Sacramento, CA 95828
TEL: 916-383-1177 FAX: 916-383-1182 WEB www.Jampro.com



TABULATION

ELEVATION PATTERN TABULATION

RELATIVE FIELD VS ELEVATION ANGLE

<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>
10	0.975	-26	0.870	-61	0.430
9	0.980	-27	0.860	-62	0.420
8	0.984	-28	0.860	-63	0.410
7	0.988	-29	0.850	-64	0.400
6	0.991	-30	0.840	-65	0.380
5	0.994	-31	0.830	-66	0.370
4	0.996	-32	0.810	-67	0.360
3	0.998	-33	0.800	-68	0.340
2	0.999	-34	0.790	-69	0.330
1	1.000	-35	0.770	-70	0.320
0	1.000	-36	0.760	-71	0.300
-1	1.000	-37	0.750	-72	0.290
-2	0.999	-38	0.730	-73	0.270
-3	0.998	-39	0.720	-74	0.260
-4	0.996	-40	0.710	-75	0.250
-5	0.994	-41	0.700	-76	0.230
-6	0.991	-42	0.690	-77	0.220
-7	0.988	-43	0.670	-78	0.210
-8	0.984	-44	0.660	-79	0.190
-9	0.980	-45	0.650	-80	0.180
-10	0.975	-46	0.640	-81	0.170
-11	0.970	-47	0.630	-82	0.160
-12	0.960	-48	0.620	-83	0.150
-13	0.960	-49	0.610	-84	0.150
-14	0.950	-50	0.600	-85	0.140
-15	0.940	-51	0.580	-86	0.130
-16	0.940	-52	0.570	-87	0.120
-17	0.930	-53	0.550	-88	0.120
-18	0.930	-54	0.540	-89	0.110
-19	0.920	-55	0.520	-90	0.100
-20	0.910	-56	0.510		
-21	0.900	-57	0.490		
-22	0.900	-58	0.480		
-23	0.890	-59	0.460		
-24	0.880	-60	0.450		
-25	0.880				

ELEVATION PATTERN

Customer: WUKQ FM

Frequency: 99.1 MHz.

January 22, 2007

Model: JAHD-1/1 (1) DA

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