

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
CATHOLIC, APOSTOLIC & ROMAN CHURCH IN PUERTO RICO
RADIO STATION WKVM
SAN JUAN, PUERTO RICO
FACILITY ID 8096

June 15, 2009

810 KHZ 50 KW-U DA-1

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Technical Narrative

The technical exhibit of which this narrative is part has been prepared on behalf of Catholic, Apostolic & Roman Church in Puerto Rico, licensee of AM broadcast station WKVM in San Juan, PR. WKVM is licensed to operate on 810 KHz unlimited time with a power of 50 kilowatts using a directional antenna system (File Number: BL-RC1104FB). By means of this application for construction permit, it is proposed to change the transmitter site of WKVM and modify operating parameters to meet all allocation criteria. The proposal is classified as a minor change according to 47 CFR 73.3571(a)(2). As a Class B station authorized on one of the channels listed in 73.25(b), the proposal satisfies 47 CFR 73.21(a)(2) which permits operation with a nominal power of not less than 0.25 kilowatt nor more than 50 kilowatts at any time. The proposal is acceptable for filing under the criteria set forth in 47 CFR 73.37.

The proposed facility will use three towers of identical height, 86.6 meters (284 feet) overall height AGL. The Federal Aviation Administration has been notified of the proposed construction of the towers, Study Numbers (ASN): 2009-ASO-2141-OE, 2009-ASO-2142-OE, 2009-ASO-2143-OE. A final determinations of no hazard to air navigation has been issued by the FAA. Upon completion of the required environmental studies and local construction permits, the applicant will file applications for antenna structure registration numbers. It is believed that the proposed facility will not have a significant environmental impact as defined by 47 CFR 1.1307.

Proposed Transmitter Location

The proposed NAD 27 coordinates are:

18° 26' 22" North Latitude

066° 13' 28" West Longitude

The antenna site plat is shown as Figure 1. The transmitter site map is shown as Figure 2 and the aerial photograph of the site is included as Figure 3. There is no other existing or proposed AM station within 3.2 kilometers of the proposed site.

Quiet Zones and FCC Monitoring Stations

Pursuant to Section 73.1030 of the FCC Rules the National Astronomy and Ionosphere Center (Arecibo Observatory) at Arecibo, Puerto Rico has been notified of the proposal. Copy of the notification letter to the Arecibo Observatory and of the letter of consent of the Observatory is included in Appendix 1.

The proposed facility is located 50.44 km at a bearing of 162 degrees from the FCC monitoring station at Santa Isabel, Puerto Rico, where the field strength of the proposed facility is estimated to be significantly lower than 10 mV/m.

Directional Antenna System

Three towers of identical height will be employed for the proposed unlimited time directional antenna pattern. All radiating elements are 86.6 meters (284 feet) or 84.2 electrical degrees in height and have an overall height of

89 meters (292 feet) above ground level. The sketch of the antenna elements is shown in Figure 4. Specifications for the antenna system are included in Figure 5.

A single directional pattern is proposed for both daytime and nighttime operation. The directional antenna pattern has been calculated in accordance with 47 CFR 73.150 assuming a one-ohm lumped loss resistance at the current loop of each tower in the array. The standard radiation pattern is shown herein as Figure 6 and is tabulated in Figure 7.

Section 73.24 (g)

The provisions of 47 CFR 73.24(g) require that the population within the 1,000 mV/m contour be less than 300 persons or not exceed 1 percent of the population within the 25 mV/m groundwave contour. At the proposed location the proposed 1,000 mV/m contour encompasses 14,632 persons, which is 0.8 % of the 1,798,505 persons predicted to be covered by the 25 mV/m groundwave contour. Thus, Section 73.24 (g) of *The Rules* is satisfied. Nevertheless, should there be complaints of blanketing interference, the applicant will undertake the necessary steps to mitigate blanketing effects, as per the requirements of Section 73.88.

Daytime Coverage

The proposed and existing WKVM daytime field strength contours are depicted on Figure 8. As indicated on Figure 8, the proposed daytime 5 mV/m contour will completely encompass the city limits of San Juan. The San Juan city limits were obtained from the TIGER 2000 U.S. census files.

Daytime Allocation Study

A daytime allocation study was made utilizing FCC Region 2 conductivities for both domestic and foreign stations. The daytime allocation study is shown on Figure 9. Daytime field strength contours were calculated in accordance with 47 CFR 73.183. Figure 10 is a tabulation of the data employed in the calculation of daytime contours.

Figure 9, Sheet 1 shows the allocation situation with co-channel station YVLP; as shown in this figure, the existing contours overlap of WKVM licensed facility with YVLP is being reduced. Figure 9, Sheet 2 shows the allocation situation with co-channel station CMMB; as shown in this figure, the existing and proposed contours overlaps between the two stations fall on the ocean. Figure 9, Sheet 3A and Sheet 3B show the allocation situation of WKVM with a 1st adjacent channel, Class A station listed at Conaree, Saint Kitts & Nevis. Since the normally protected contours of both stations fall way beyond their territorial limits, these figures demonstrate that the groundwave contours required to cover their respective territory is adequately protected and that any significant signal overlap is predicted to fall on the ocean. Figure 9, Sheet 4 shows the allocation situation with 1st adjacent channel station PJB3; as shown in this figure, the predicted signal of WKVM towards PJB3 is being reduced by the proposed facility. The existing overlap of PJB3 to WKVM, which encompasses all of Puerto Rico, is unchanged. Figure 9, Sheet 5 shows the allocation situation with 1st adjacent channel station HIAZ; as shown in this figure, any contour overlap is predicted to fall on the ocean. Figure 9, Sheet 6 shows that there is no contours overlap with 1st adjacent station 4VRD for the proposed facility. Figure 9, Sheet 7 shows that there is no contours overlap with 2nd adjacent stations HIJB and HIL. Figure 9, Sheet 8 shows that there is no contour overlap with 3rd adjacent domestic station WXEW. Based on this analysis, the proposed WKVM facility complies with all relevant daytime allocation criteria.

Nighttime Coverage

The proposed and existing nighttime field strength contours of WKVM are depicted on Figure 11; the proposed and current night-interference-free (NIF) contours are shown in this figure. As can be seen from Figure 11, the proposed nighttime contours fully encompass the city limits of San Juan.

Nighttime Allocation Study


The proposed WKVM facility will afford nighttime protection to all domestic stations operating on 800 kHz, 810 kHz and 820 kHz and international allotments on 810 kHz. Figure 12 contains pertinent calculation data to support that this proposal complies with all nighttime interference protection requirements. Figure 12, Sheet 3 shows the permissible nighttime radiation for the proposed facilities. The proposed WKVM facility will not enter the 50% or 25% nighttime interference limit of any domestic station studied.

Environmental Considerations¹

The proposed WKVM operation was evaluated in terms of both the electric and magnetic field components, which will be present at the base of each tower. Using Tables 1 through 4 of Supplement A to OET Bulletin 65, the worst-case scenario of distance at which the electric and magnetic fields would fall below ANSI guidelines is 4.85 meters. This would occur if the maximum power of WKVM (50 kW) were feed into a single tower (0.23 wavelength radiator at 810 kHz). Accordingly, the areas surrounding the base of each tower will be appropriately restricted with a locked fence having a minimum radius of 4.9 meters (16 feet), unless data obtained after construction

¹ This statement addresses only human exposure to radiofrequency radiation and not to other non-radiofrequency radiation matters listed in the National Environmental Policy Act of 1969.

has been completed indicates otherwise. The locked fences will assure that persons on the property outside the fenced area will not be exposed to radiofrequency field levels in excess of those recommended by the ANSI guidelines. In addition, appropriate warning signs will be posted along the fences.

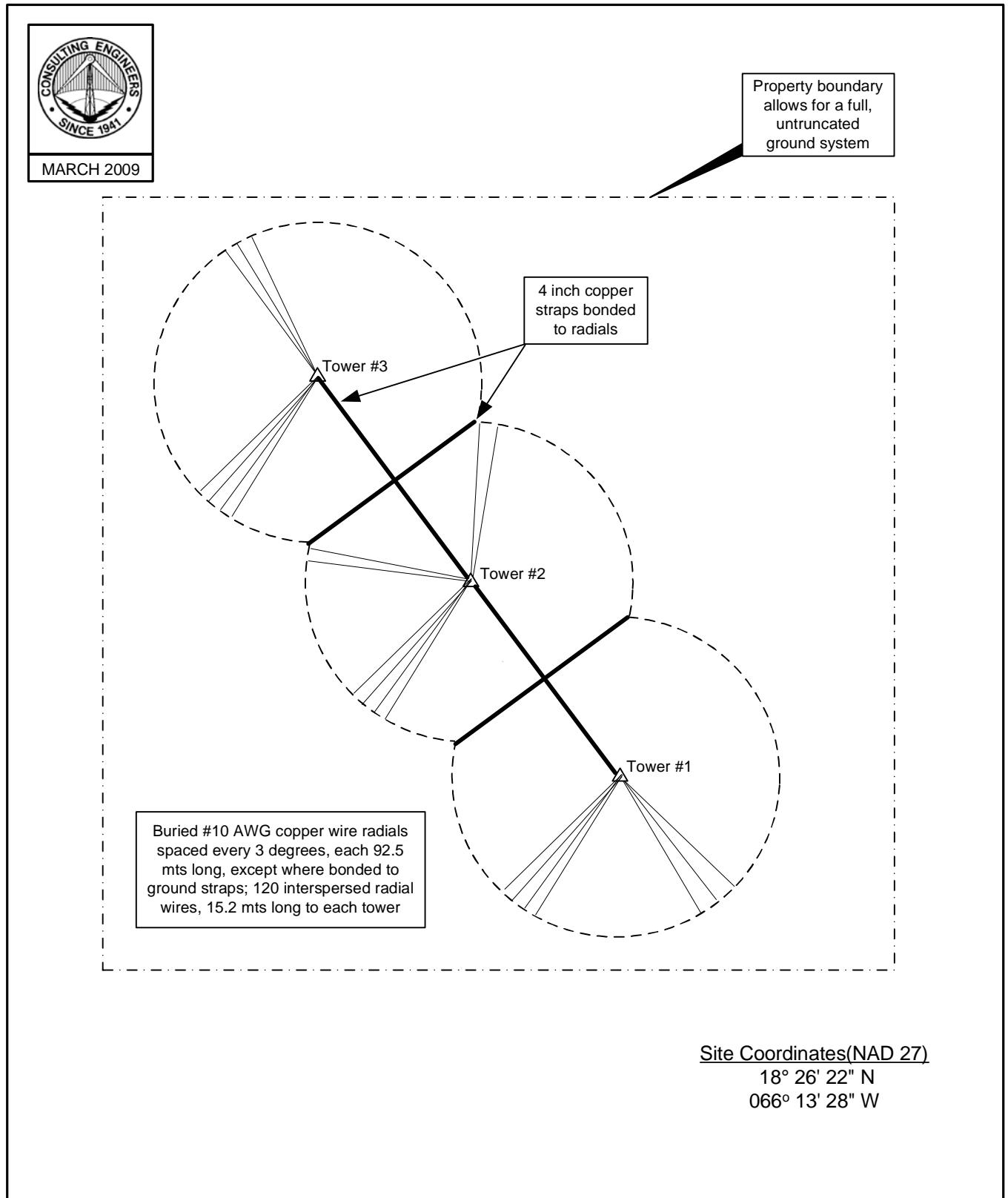


Grafton Olivera, P.E.
du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237

(941) 329-6000

June 15, 2009

Figure 1

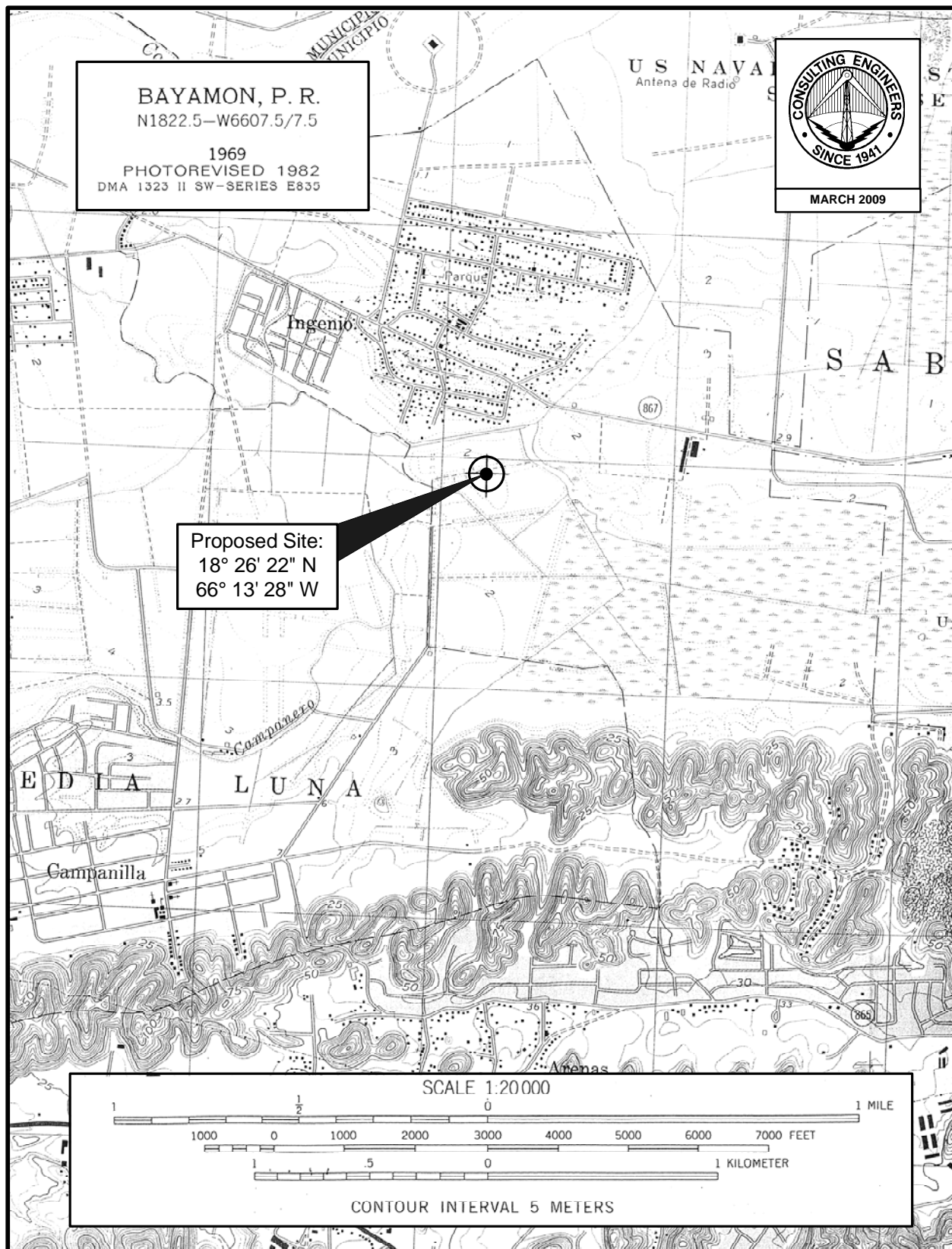


PLAT OF TRANSMITTER LOCATION

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1

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

Figure 2



TRANSMITTER SITE LOCATION

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1

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

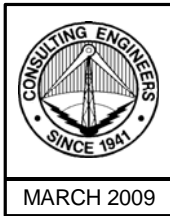
Figure 3



TRANSMITTER SITE AERIAL PHOTO

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1

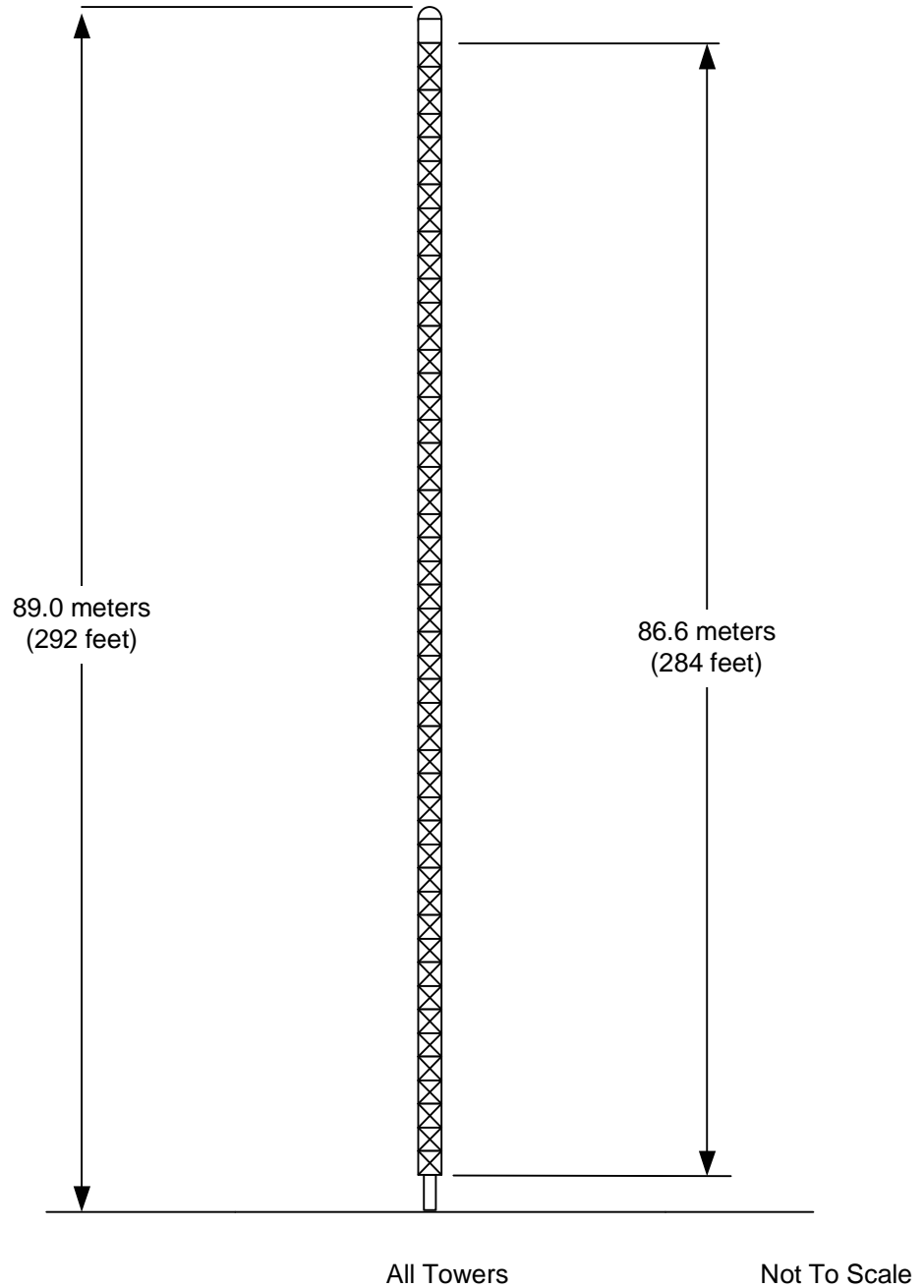
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Site Coordinates(NAD 27)

18° 26' 22" N

066° 13' 28" W



SKETCH OF ANTENNA ELEMENTS

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
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810 KHZ 50 KW-U DA-1

Specification for
Directional Antenna System

Frequency: 810 kHz

Hours of Operation: Unlimited

Power: 50 KW Unlimited

Number of Towers: 3

Type of Tower: Guyed, Uniform Cross-section,
base-insulated

All Towers - height above
base insulator 86.6 m (284 ft)
84.2 degrees

All Towers - overall height 89.0 m (292 ft)

Tower Arrangement:

| <u>Tower No.</u> | <u>Spacing (deg.)/(m)</u> | <u>Orientation (deg. True)</u> |
|----------------------|-------------------------------|------------------------------------|
| 1 | 0.0/0.0 | 0.0 |
| 2 | 65.0/66.8 | 329.5 |
| 3 | 130.0/133.7 | 329.5 |

Element Field Parameters - Unlimited:

| <u>Tower No.</u> | <u>Field Ratio</u> | <u>Phase (degrees)</u> |
|----------------------|------------------------|----------------------------|
| 1 | 1.000 | 0.0 |
| 2 | 1.079 | 68.7 |
| 3 | 1.000 | 118.0 |

Ground System:

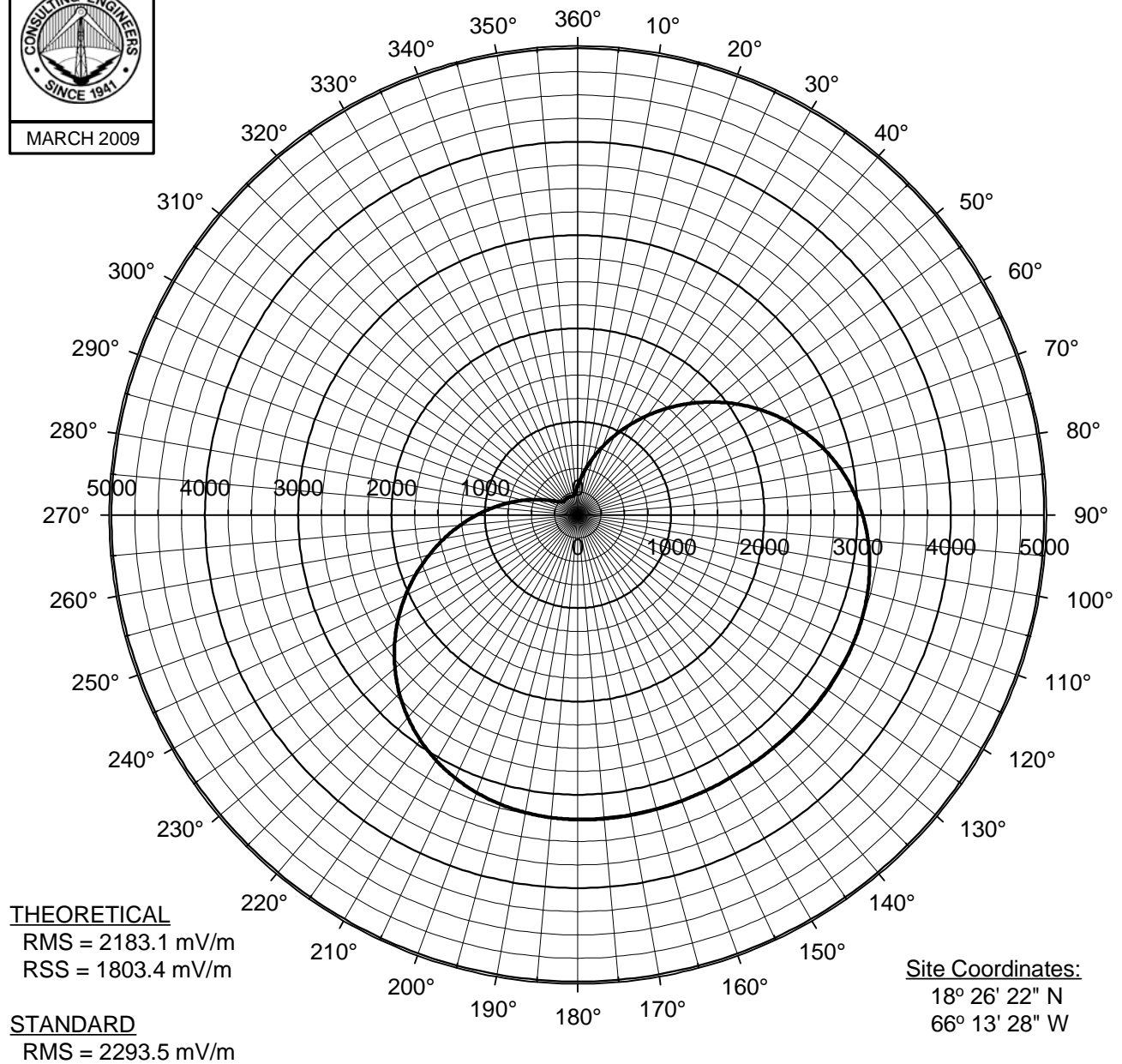
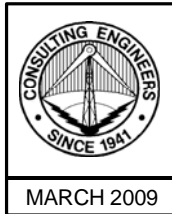
Installed about the base of each tower, 120 evenly spaced, buried copper wire radials (#10 AWG), extending at least 92.5 meters (304 ft) from all towers except where shortened and bonded to transverse copper strap between towers.

Geographic Coordinates (NAD27)
of Center of Antenna Array:

18° 26' 22" North Latitude

66° 13' 28" West Longitude

Figure 6



DIRECTIONAL ANTENNA PATTERN

| <u>Tower Number</u> | <u>Field Ratio</u> | <u>Phase (deg.)</u> | <u>Spacing (deg.)</u> | <u>Bearing (deg.)</u> | <u>Height (deg.)</u> |
|---------------------|--------------------|---------------------|-----------------------|-----------------------|----------------------|
| 1 | 1.000 | 0.0 | 0.0 | 0.0 | 84.2 |
| 2 | 1.079 | 68.7 | 65.0 | 329.5 | 84.2 |
| 3 | 1.000 | 118.0 | 130.0 | 329.5 | 84.2 |

**PROPOSED HORIZONTAL PLANE
STANDARD RADIATION PATTERN
RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**

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

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RADIO STATION WKVM
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810 KHZ 50 KW-U DA-1

STANDARD RADIATION PATTERN
(Radiation Values at One Kilometer)

| Tower <u>Number</u> | Field <u>Ratio</u> | Phase <u>(deg.)</u> | Spacing <u>(deg.)</u> | Bearing <u>(deg.)</u> | Height <u>(deg.)</u> |
|------------------------|-----------------------|------------------------|--------------------------|--------------------------|-------------------------|
| 1 | 1.000 | 0.0 | 0.0 | 0.0 | 84.2 |
| 2 | 1.079 | 68.7 | 65.0 | 329.5 | 84.2 |
| 3 | 1.000 | 118.0 | 130.0 | 329.5 | 84.2 |

| Input Power <u>(kW)</u> | Loop Loss <u>(ohms)</u> | Theo. RMS <u>(mV/m)</u> | Theo. RSS <u>(mV/m)</u> | Q Factor <u>(mV/m)</u> | Standard RMS <u>(mV/m)</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|----------------------------------|
| 50 | 1.0 | 2183.1 | 1803.4 | 70.7 | 2293.5 |

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) |
| 0 | 311 | 315 | 326 | 345 | 371 | 404 | 439 |
| 5 | 396 | 400 | 411 | 429 | 454 | 482 | 513 |
| 10 | 504 | 507 | 517 | 532 | 552 | 575 | 598 |
| 15 | 632 | 634 | 642 | 653 | 667 | 682 | 696 |
| 20 | 778 | 779 | 783 | 789 | 795 | 801 | 804 |
| 25 | 940 | 940 | 939 | 939 | 936 | 931 | 921 |
| 30 | 1114 | 1113 | 1108 | 1100 | 1087 | 1070 | 1046 |
| 35 | 1299 | 1296 | 1286 | 1270 | 1247 | 1216 | 1178 |
| 40 | 1491 | 1486 | 1471 | 1446 | 1412 | 1368 | 1314 |
| 45 | 1686 | 1679 | 1659 | 1626 | 1580 | 1521 | 1452 |
| 50 | 1881 | 1873 | 1847 | 1805 | 1747 | 1675 | 1590 |
| 55 | 2073 | 2062 | 2031 | 1981 | 1911 | 1826 | 1725 |
| 60 | 2256 | 2244 | 2208 | 2150 | 2070 | 1971 | 1856 |
| 65 | 2429 | 2415 | 2375 | 2309 | 2219 | 2108 | 1979 |
| 70 | 2588 | 2573 | 2529 | 2456 | 2357 | 2236 | 2095 |
| 75 | 2731 | 2715 | 2667 | 2589 | 2483 | 2352 | 2200 |
| 80 | 2857 | 2840 | 2789 | 2706 | 2594 | 2456 | 2295 |
| 85 | 2964 | 2946 | 2893 | 2807 | 2690 | 2546 | 2378 |
| 90 | 3053 | 3034 | 2980 | 2891 | 2771 | 2622 | 2449 |
| 95 | 3123 | 3105 | 3050 | 2959 | 2837 | 2685 | 2509 |
| 100 | 3177 | 3159 | 3103 | 3013 | 2889 | 2736 | 2558 |
| 105 | 3216 | 3198 | 3142 | 3052 | 2929 | 2776 | 2596 |
| 110 | 3242 | 3224 | 3169 | 3080 | 2957 | 2805 | 2626 |
| 115 | 3258 | 3240 | 3186 | 3098 | 2977 | 2826 | 2648 |
| 120 | 3266 | 3248 | 3195 | 3108 | 2989 | 2840 | 2664 |
| 125 | 3268 | 3250 | 3198 | 3113 | 2996 | 2848 | 2674 |
| 130 | 3266 | 3249 | 3198 | 3114 | 2998 | 2853 | 2681 |
| 135 | 3263 | 3246 | 3196 | 3113 | 2999 | 2855 | 2685 |
| 140 | 3259 | 3243 | 3193 | 3111 | 2999 | 2856 | 2687 |
| 145 | 3257 | 3240 | 3191 | 3110 | 2998 | 2857 | 2688 |
| 150 | 3256 | 3240 | 3191 | 3110 | 2998 | 2857 | 2688 |
| 155 | 3257 | 3241 | 3192 | 3110 | 2998 | 2857 | 2688 |
| 160 | 3260 | 3243 | 3194 | 3112 | 2999 | 2856 | 2687 |
| 165 | 3263 | 3247 | 3196 | 3113 | 2999 | 2855 | 2684 |
| 170 | 3267 | 3249 | 3198 | 3114 | 2998 | 2852 | 2680 |
| 175 | 3268 | 3250 | 3198 | 3112 | 2995 | 2847 | 2672 |

Standard Radiation Pattern
(at One Kilometer)

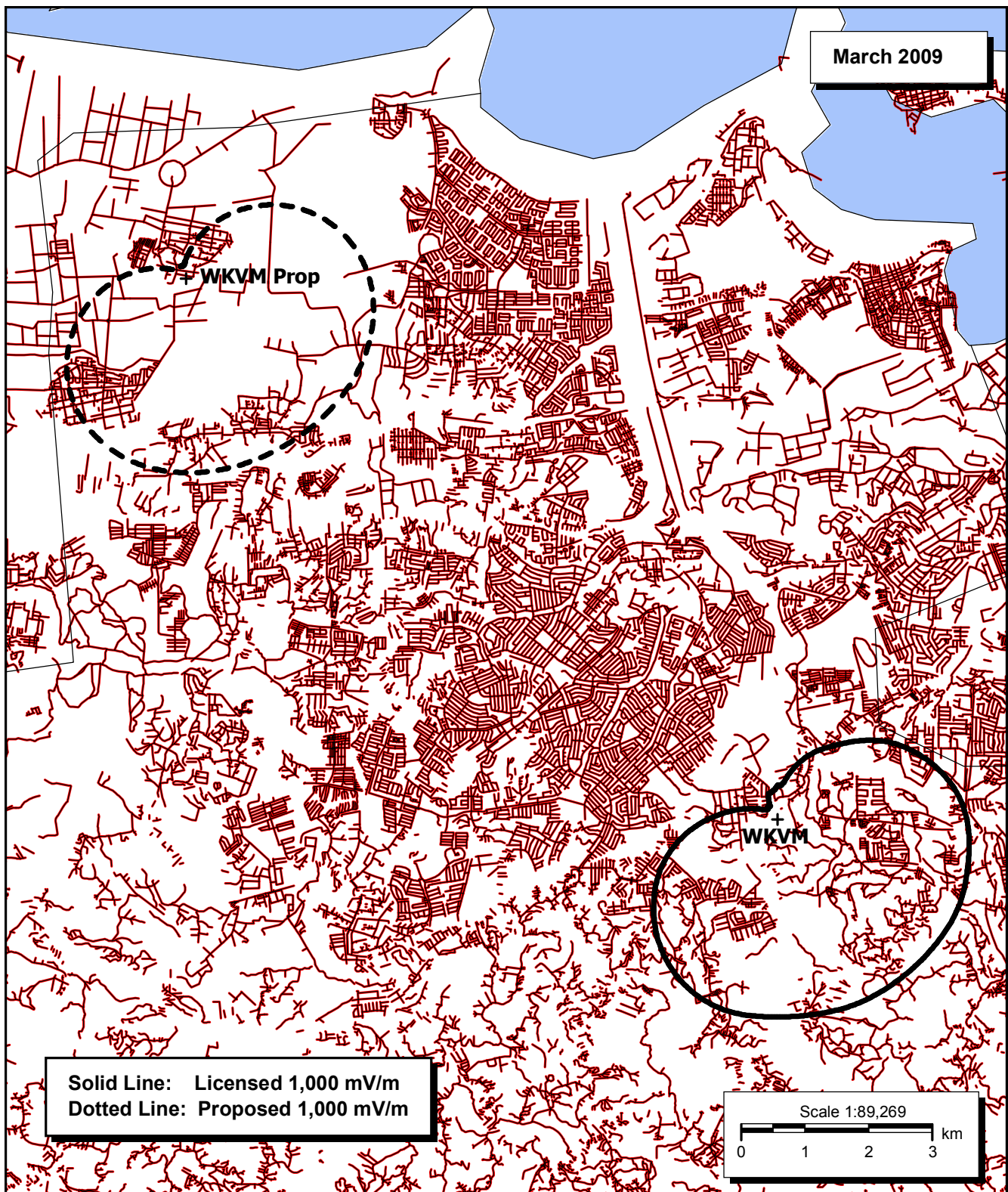
| Azimuth Angle (deg) | Elevation Angle in Degrees | | | | | | |
|---------------------------|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 35 (mV/m) | 40 (mV/m) | 45 (mV/m) | 50 (mV/m) | 55 (mV/m) | 60 (mV/m) | 65 (mV/m) |
| 0 | 476 | 509 | 536 | 552 | 555 | 540 | 506 |
| 5 | 542 | 568 | 586 | 594 | 587 | 565 | 523 |
| 10 | 619 | 635 | 643 | 640 | 624 | 592 | 543 |
| 15 | 706 | 711 | 707 | 692 | 664 | 622 | 564 |
| 20 | 802 | 793 | 776 | 749 | 709 | 655 | 586 |
| 25 | 906 | 883 | 851 | 809 | 756 | 690 | 611 |
| 30 | 1016 | 978 | 930 | 873 | 806 | 727 | 637 |
| 35 | 1132 | 1077 | 1013 | 940 | 857 | 765 | 663 |
| 40 | 1251 | 1179 | 1098 | 1008 | 911 | 805 | 691 |
| 45 | 1372 | 1282 | 1184 | 1078 | 964 | 845 | 718 |
| 50 | 1493 | 1386 | 1270 | 1147 | 1018 | 885 | 746 |
| 55 | 1611 | 1487 | 1355 | 1216 | 1072 | 924 | 774 |
| 60 | 1726 | 1586 | 1437 | 1283 | 1124 | 963 | 802 |
| 65 | 1836 | 1680 | 1516 | 1347 | 1175 | 1001 | 828 |
| 70 | 1938 | 1769 | 1591 | 1408 | 1223 | 1037 | 854 |
| 75 | 2032 | 1850 | 1660 | 1465 | 1268 | 1072 | 879 |
| 80 | 2117 | 1925 | 1724 | 1518 | 1310 | 1104 | 902 |
| 85 | 2192 | 1991 | 1781 | 1566 | 1349 | 1134 | 924 |
| 90 | 2257 | 2050 | 1832 | 1609 | 1384 | 1161 | 944 |
| 95 | 2312 | 2100 | 1877 | 1647 | 1416 | 1186 | 962 |
| 100 | 2358 | 2142 | 1915 | 1681 | 1444 | 1209 | 979 |
| 105 | 2396 | 2177 | 1947 | 1709 | 1468 | 1228 | 994 |
| 110 | 2425 | 2206 | 1974 | 1733 | 1489 | 1246 | 1007 |
| 115 | 2448 | 2228 | 1996 | 1753 | 1507 | 1261 | 1019 |
| 120 | 2464 | 2246 | 2013 | 1770 | 1522 | 1273 | 1028 |
| 125 | 2476 | 2259 | 2026 | 1783 | 1533 | 1283 | 1037 |
| 130 | 2485 | 2268 | 2036 | 1793 | 1543 | 1291 | 1043 |
| 135 | 2490 | 2275 | 2043 | 1800 | 1550 | 1298 | 1048 |
| 140 | 2493 | 2279 | 2048 | 1805 | 1555 | 1302 | 1052 |
| 145 | 2495 | 2282 | 2051 | 1808 | 1557 | 1304 | 1054 |
| 150 | 2496 | 2282 | 2052 | 1809 | 1558 | 1305 | 1054 |
| 155 | 2495 | 2281 | 2051 | 1808 | 1557 | 1304 | 1053 |
| 160 | 2493 | 2279 | 2047 | 1804 | 1554 | 1301 | 1051 |
| 165 | 2489 | 2274 | 2042 | 1799 | 1549 | 1296 | 1047 |
| 170 | 2483 | 2267 | 2034 | 1791 | 1541 | 1290 | 1042 |
| 175 | 2474 | 2257 | 2024 | 1780 | 1531 | 1281 | 1035 |

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 | 3265 | 3247 | 3194 | 3107 | 2987 | 2837 | 2661 |
| 185 | 3256 | 3238 | 3184 | 3095 | 2974 | 2822 | 2644 |
| 190 | 3238 | 3220 | 3165 | 3075 | 2952 | 2800 | 2621 |
| 195 | 3210 | 3191 | 3136 | 3045 | 2922 | 2769 | 2589 |
| 200 | 3168 | 3149 | 3094 | 3003 | 2880 | 2727 | 2549 |
| 205 | 3110 | 3092 | 3037 | 2947 | 2825 | 2674 | 2498 |
| 210 | 3036 | 3018 | 2964 | 2876 | 2756 | 2608 | 2436 |
| 215 | 2944 | 2926 | 2874 | 2788 | 2672 | 2529 | 2362 |
| 220 | 2833 | 2816 | 2766 | 2684 | 2573 | 2436 | 2277 |
| 225 | 2704 | 2688 | 2641 | 2564 | 2459 | 2330 | 2180 |
| 230 | 2558 | 2543 | 2499 | 2428 | 2331 | 2211 | 2073 |
| 235 | 2396 | 2382 | 2343 | 2278 | 2190 | 2082 | 1955 |
| 240 | 2220 | 2208 | 2174 | 2116 | 2039 | 1942 | 1830 |
| 245 | 2035 | 2025 | 1995 | 1946 | 1879 | 1796 | 1698 |
| 250 | 1842 | 1834 | 1810 | 1769 | 1714 | 1644 | 1562 |
| 255 | 1647 | 1641 | 1621 | 1590 | 1546 | 1491 | 1424 |
| 260 | 1452 | 1447 | 1434 | 1411 | 1378 | 1337 | 1286 |
| 265 | 1261 | 1259 | 1250 | 1235 | 1214 | 1186 | 1151 |
| 270 | 1078 | 1077 | 1073 | 1067 | 1056 | 1041 | 1021 |
| 275 | 906 | 906 | 907 | 908 | 907 | 904 | 897 |
| 280 | 747 | 749 | 754 | 761 | 769 | 776 | 781 |
| 285 | 605 | 608 | 615 | 628 | 643 | 659 | 675 |
| 290 | 481 | 484 | 494 | 510 | 531 | 555 | 580 |
| 295 | 377 | 381 | 392 | 411 | 436 | 465 | 497 |
| 300 | 297 | 301 | 312 | 331 | 357 | 390 | 426 |
| 305 | 244 | 246 | 255 | 271 | 296 | 329 | 368 |
| 310 | 215 | 217 | 221 | 231 | 252 | 283 | 323 |
| 315 | 207 | 207 | 206 | 210 | 224 | 250 | 289 |
| 320 | 210 | 207 | 203 | 201 | 208 | 230 | 266 |
| 325 | 214 | 211 | 204 | 198 | 201 | 219 | 254 |
| 330 | 215 | 212 | 205 | 198 | 199 | 217 | 250 |
| 335 | 213 | 210 | 204 | 198 | 202 | 221 | 256 |
| 340 | 209 | 207 | 203 | 202 | 210 | 233 | 270 |
| 345 | 208 | 207 | 208 | 213 | 228 | 256 | 295 |
| 350 | 219 | 221 | 226 | 238 | 259 | 291 | 331 |
| 355 | 252 | 255 | 264 | 281 | 306 | 340 | 379 |

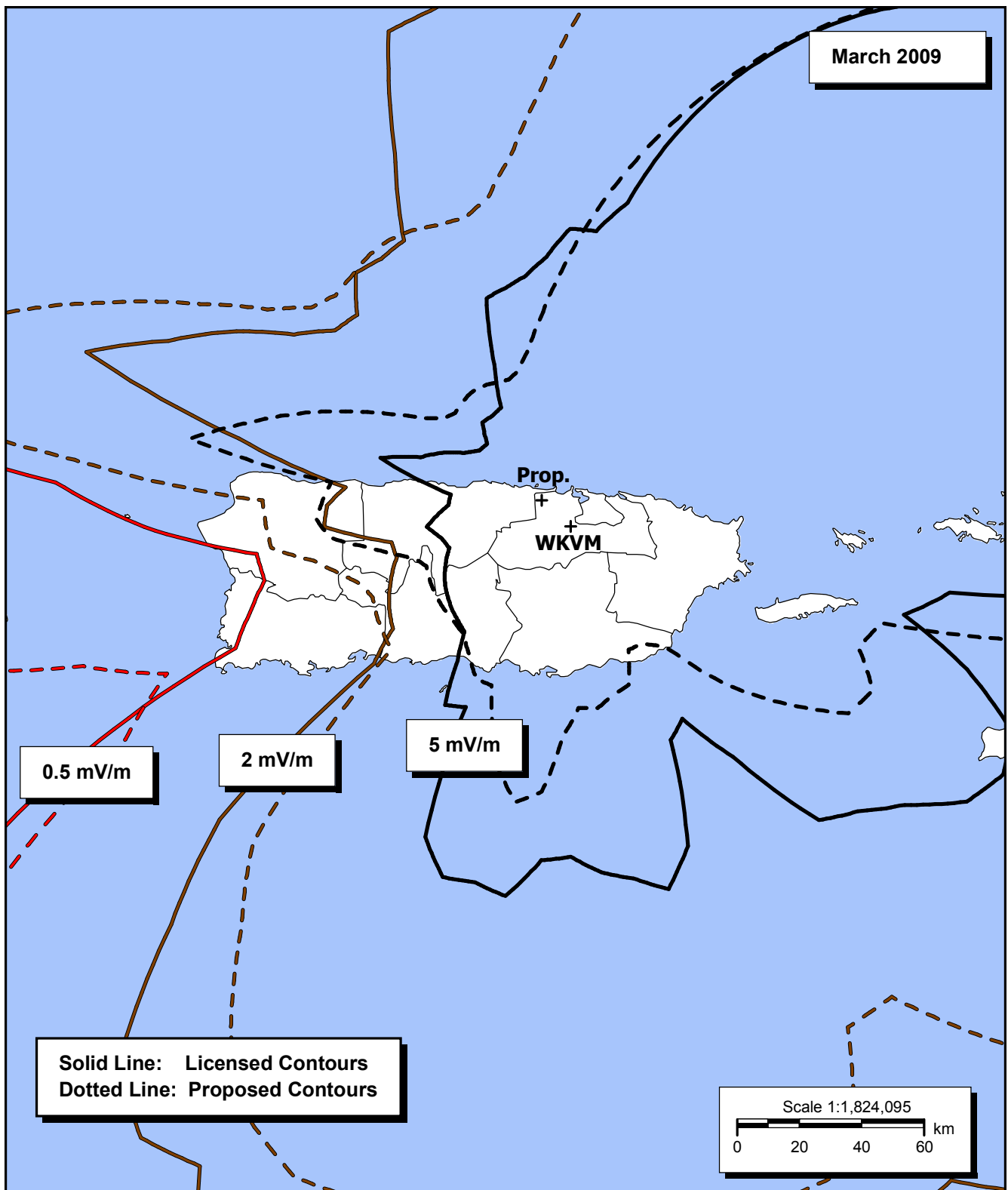
Standard Radiation Pattern
(at One Kilometer)

| 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 | 2461 | 2243 | 2010 | 1767 | 1519 | 1271 | 1027 |
| 185 | 2444 | 2224 | 1992 | 1750 | 1504 | 1258 | 1017 |
| 190 | 2420 | 2201 | 1969 | 1729 | 1485 | 1242 | 1005 |
| 195 | 2389 | 2171 | 1941 | 1704 | 1464 | 1225 | 991.1 |
| 200 | 2350 | 2134 | 1908 | 1674 | 1438 | 1204 | 975.8 |
| 205 | 2302 | 2090 | 1868 | 1640 | 1410 | 1181.6 | 958.7 |
| 210 | 2245 | 2039 | 1822 | 1601 | 1377 | 1156.2 | 939.8 |
| 215 | 2178 | 1979 | 1770 | 1557 | 1341 | 1128.2 | 919.4 |
| 220 | 2100 | 1911 | 1712 | 1508 | 1302 | 1097.7 | 897.3 |
| 225 | 2014 | 1835 | 1647 | 1454 | 1259 | 1065.0 | 873.8 |
| 230 | 1918 | 1752 | 1576 | 1396 | 1213 | 1030.2 | 848.9 |
| 235 | 1814 | 1662 | 1501 | 1334 | 1165 | 993.6 | 823.0 |
| 240 | 1704 | 1567 | 1421 | 1270 | 1114 | 955.6 | 796.2 |
| 245 | 1588 | 1467 | 1338 | 1202 | 1061 | 916.4 | 768.7 |
| 250 | 1469 | 1365 | 1253 | 1133 | 1008 | 876.6 | 740.8 |
| 255 | 1348 | 1262 | 1167 | 1064 | 954 | 836.5 | 712.9 |
| 260 | 1227 | 1158 | 1081 | 995 | 900 | 796.7 | 685.1 |
| 265 | 1108 | 1057 | 996 | 926 | 847 | 757.5 | 657.8 |
| 270 | 993 | 958 | 914 | 860 | 795 | 719.4 | 631.3 |
| 275 | 884 | 864 | 836 | 797 | 746 | 682.8 | 605.9 |
| 280 | 782 | 776 | 762 | 737 | 699 | 648.2 | 581.8 |
| 285 | 688 | 695 | 693 | 681 | 656 | 615.9 | 559.3 |
| 290 | 603 | 621 | 631 | 630 | 616 | 586.2 | 538.6 |
| 295 | 528 | 556 | 576 | 585 | 580 | 559.5 | 519.9 |
| 300 | 464 | 499 | 527 | 545 | 549 | 535.9 | 503.4 |
| 305 | 410 | 451 | 486 | 511 | 522 | 515.7 | 489.2 |
| 310 | 367 | 412 | 453 | 483 | 500 | 499.1 | 477.5 |
| 315 | 335 | 383 | 427 | 462 | 483 | 486.1 | 468.3 |
| 320 | 313 | 362 | 408 | 446 | 471 | 477 | 461.8 |
| 325 | 300 | 350 | 398 | 437 | 463 | 471 | 458 |
| 330 | 296 | 347 | 395 | 435 | 461 | 470 | 457 |
| 335 | 302 | 352 | 399 | 439 | 464 | 472 | 459 |
| 340 | 316 | 365 | 412 | 449 | 473 | 478 | 463 |
| 345 | 341 | 388 | 431 | 465 | 486 | 488 | 470 |
| 350 | 375 | 419 | 459 | 488 | 504 | 502 | 480 |
| 355 | 420 | 460 | 494 | 517 | 527 | 519 | 492 |



DAYTIME FIELD STRENGTH CONTOURS

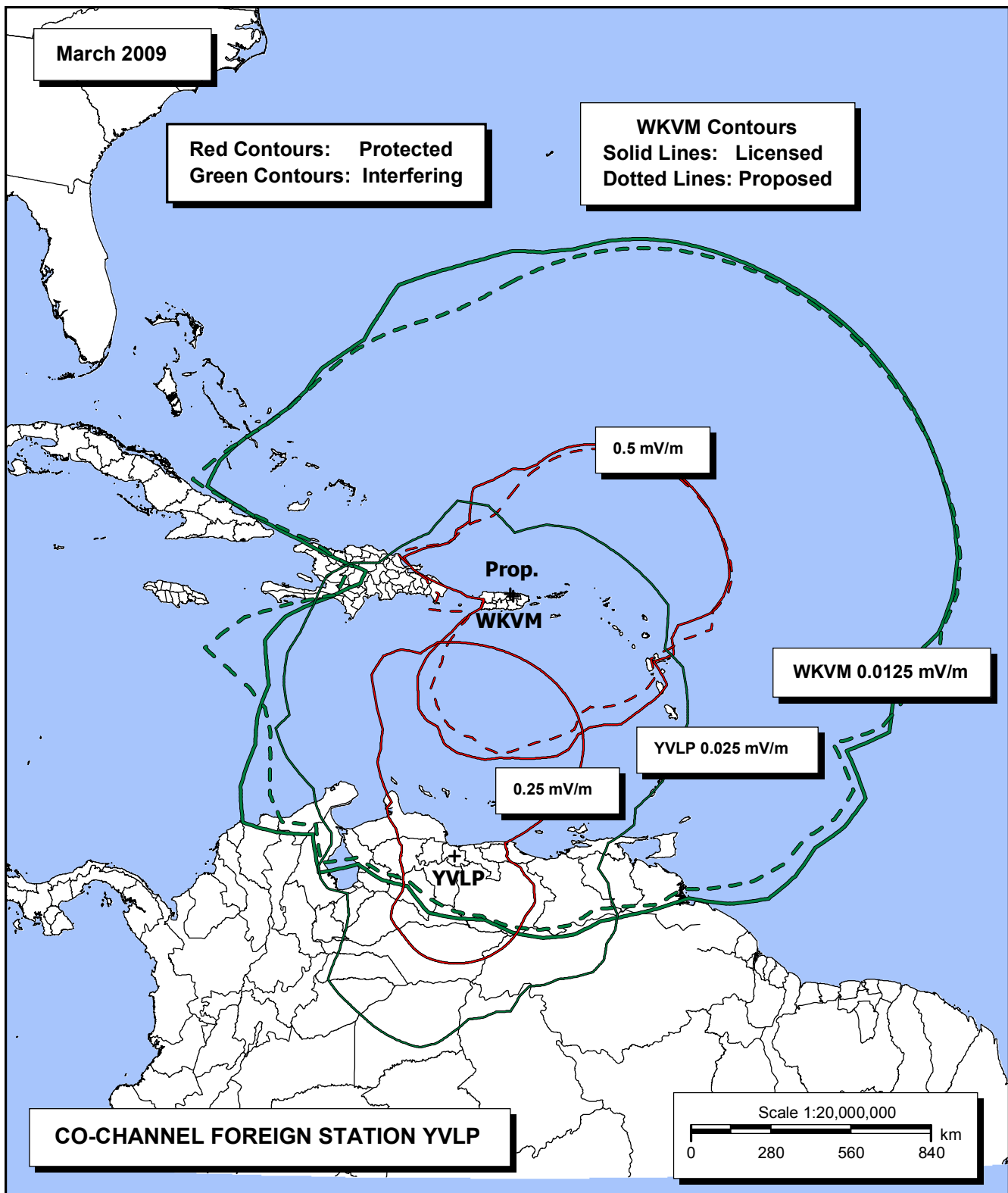
**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**



DAYTIME FIELD STRENGTH CONTOURS

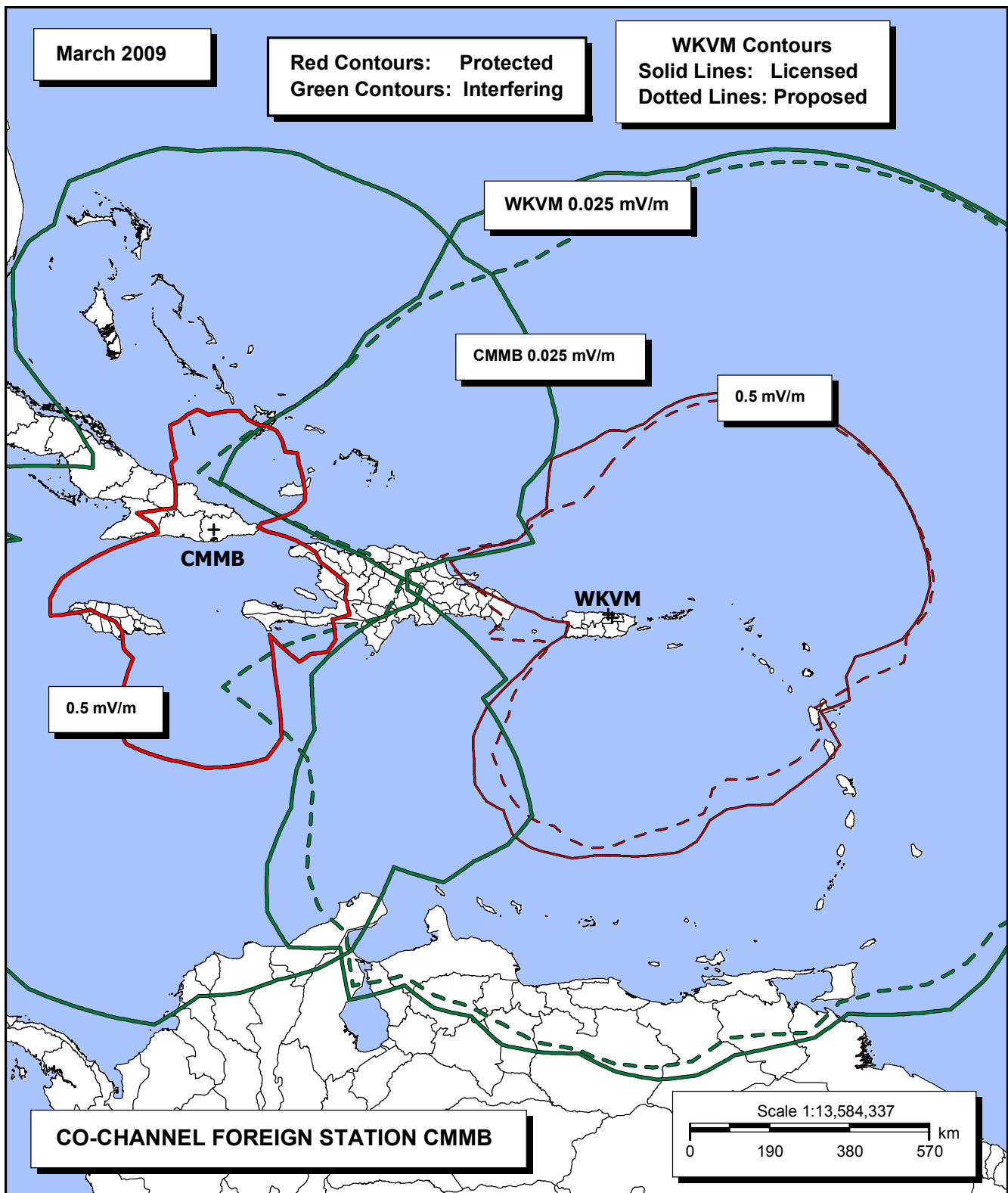
**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**

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



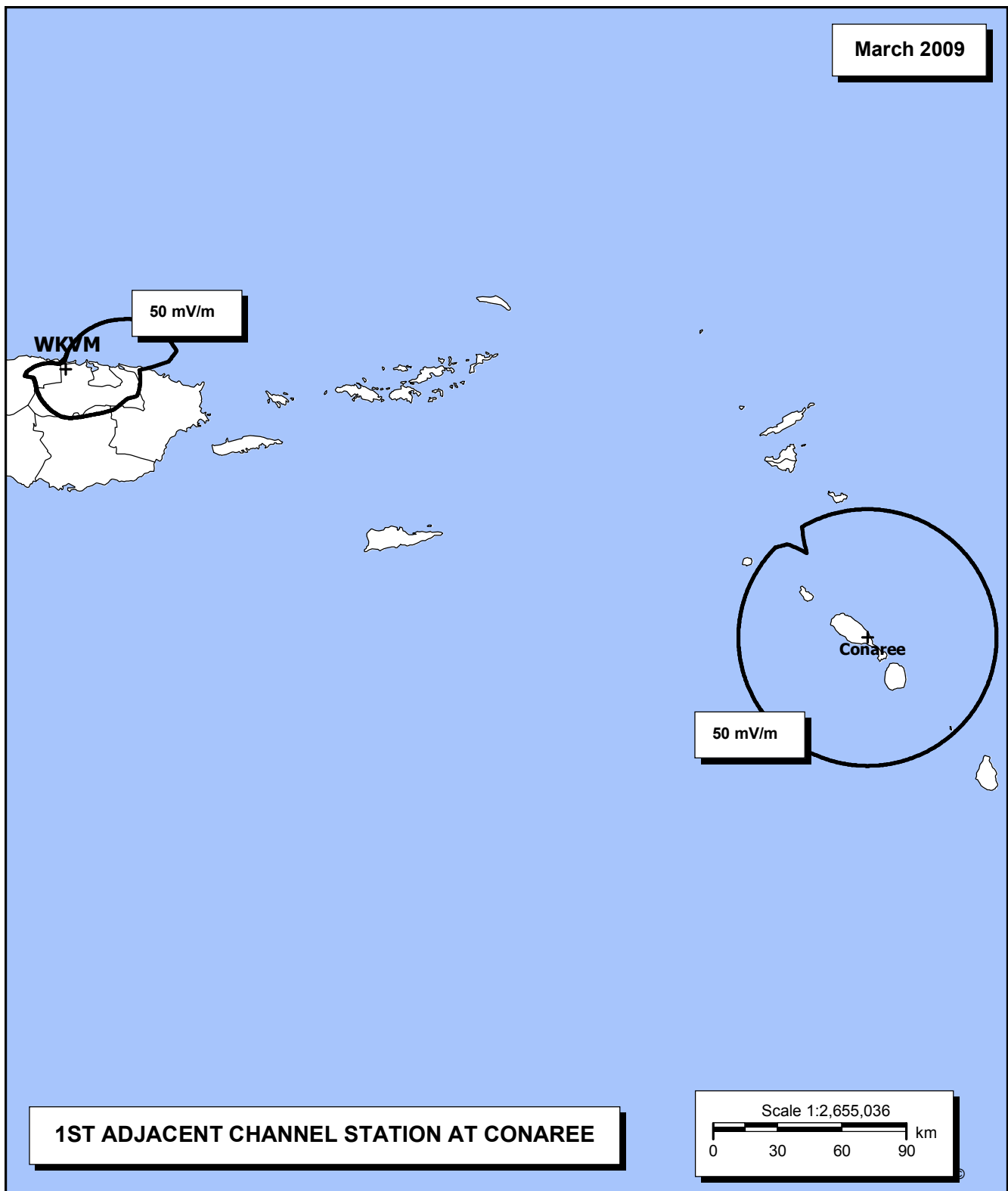
DAYTIME ALLOCATION STUDY

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1



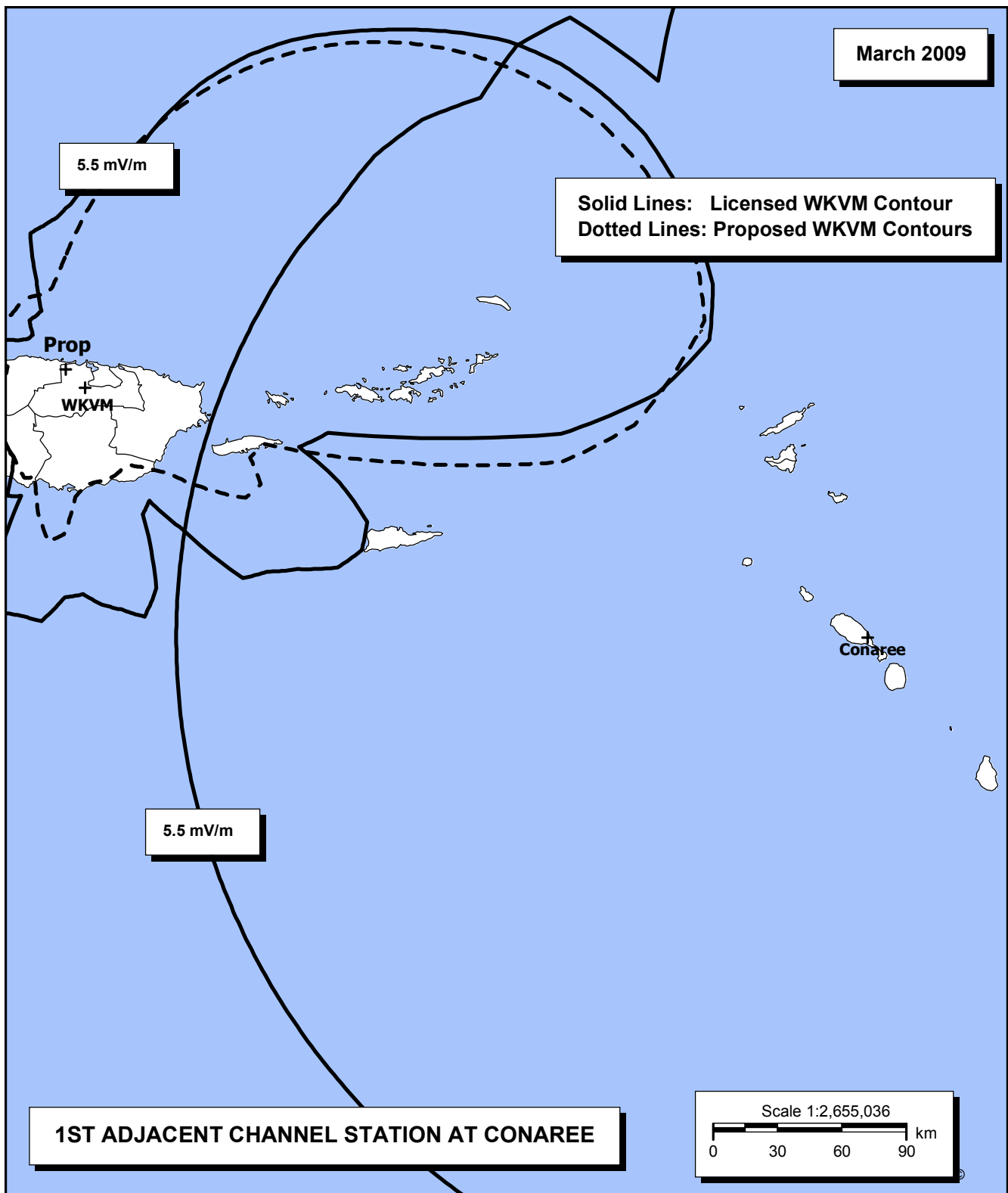
DAYTIME ALLOCATION STUDY

**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**



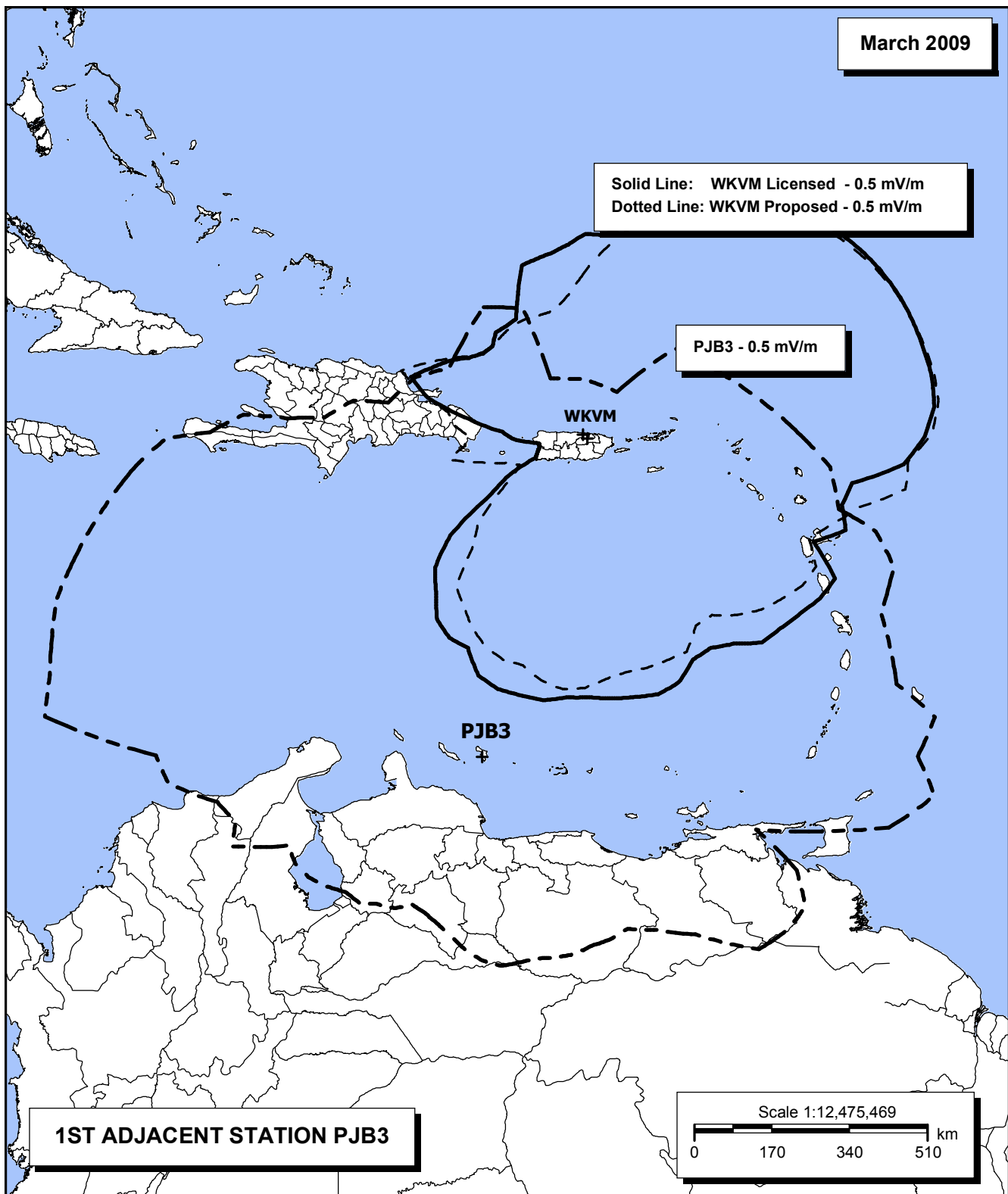
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**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
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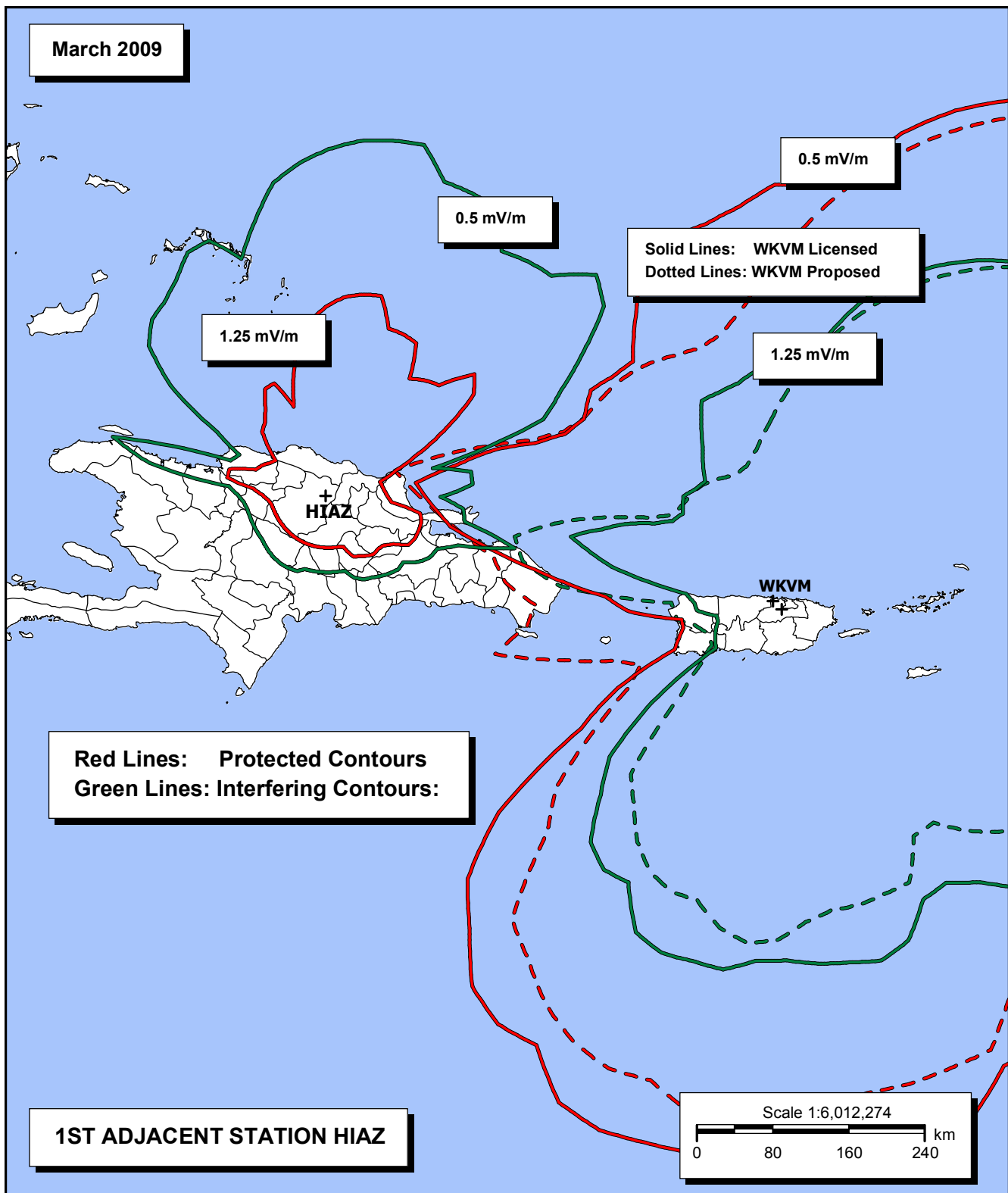
DAYTIME ALLOCATION STUDY

**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**



DAYTIME ALLOCATION STUDY

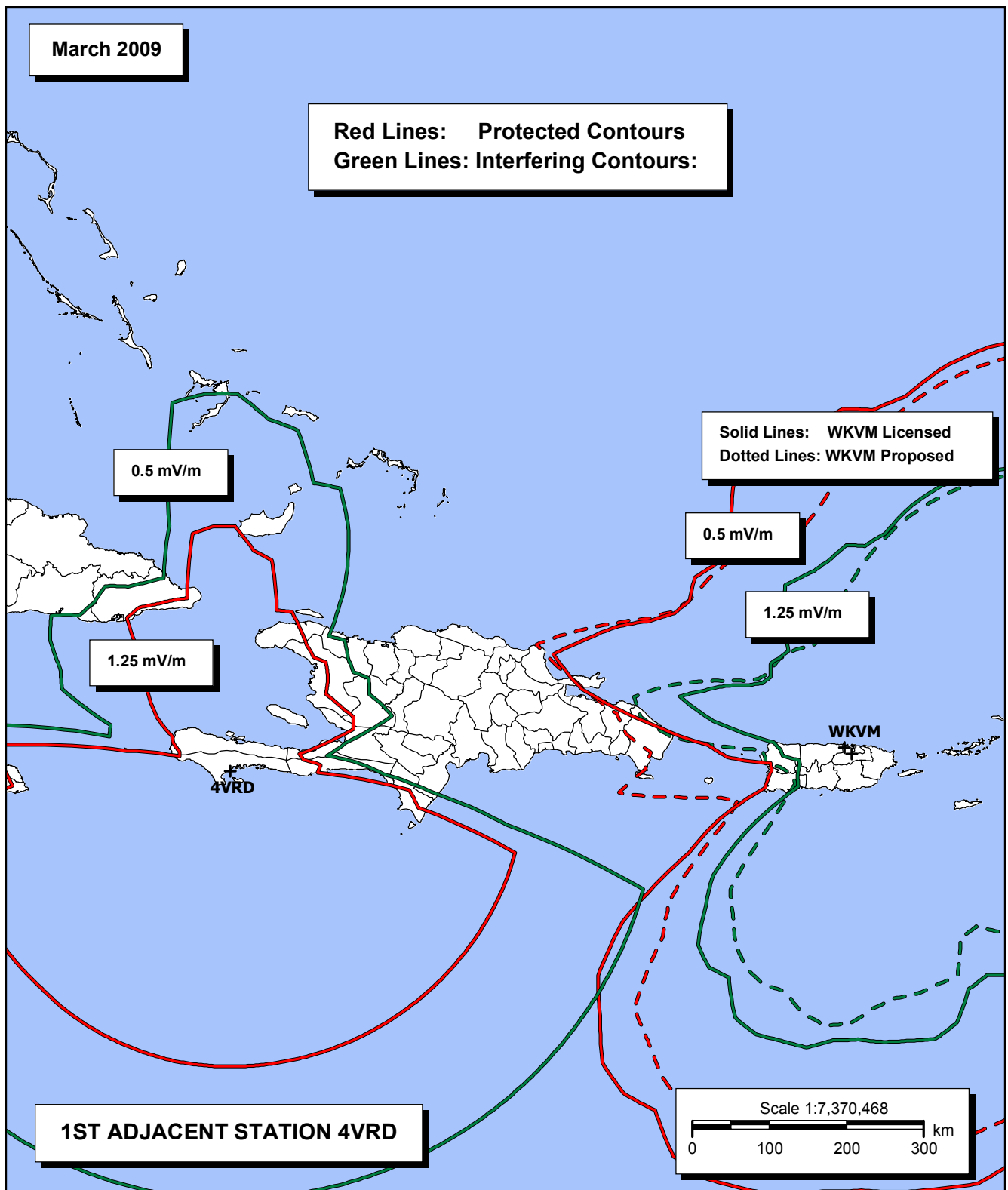
**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**



DAYTIME ALLOCATION STUDY

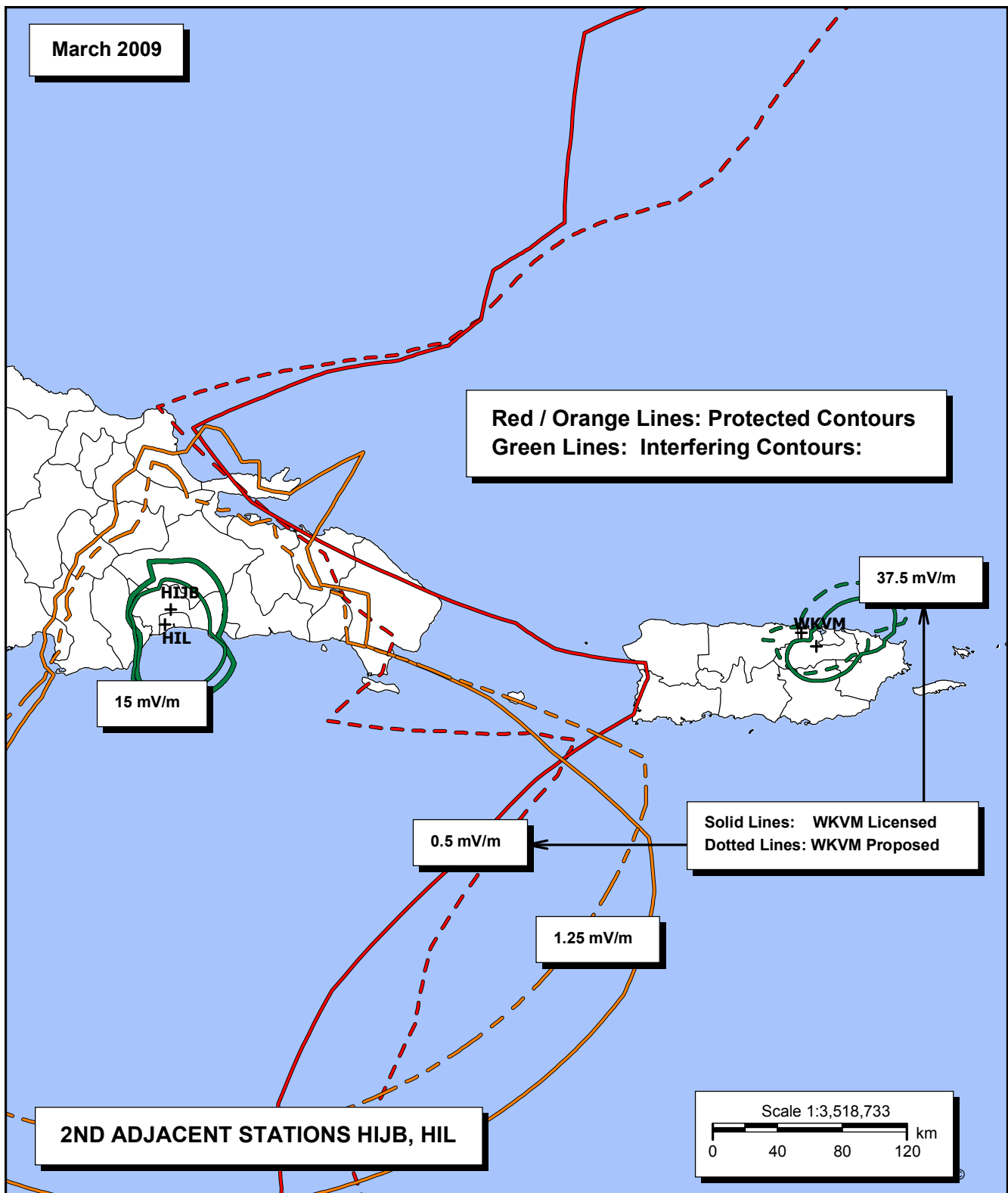
RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1

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



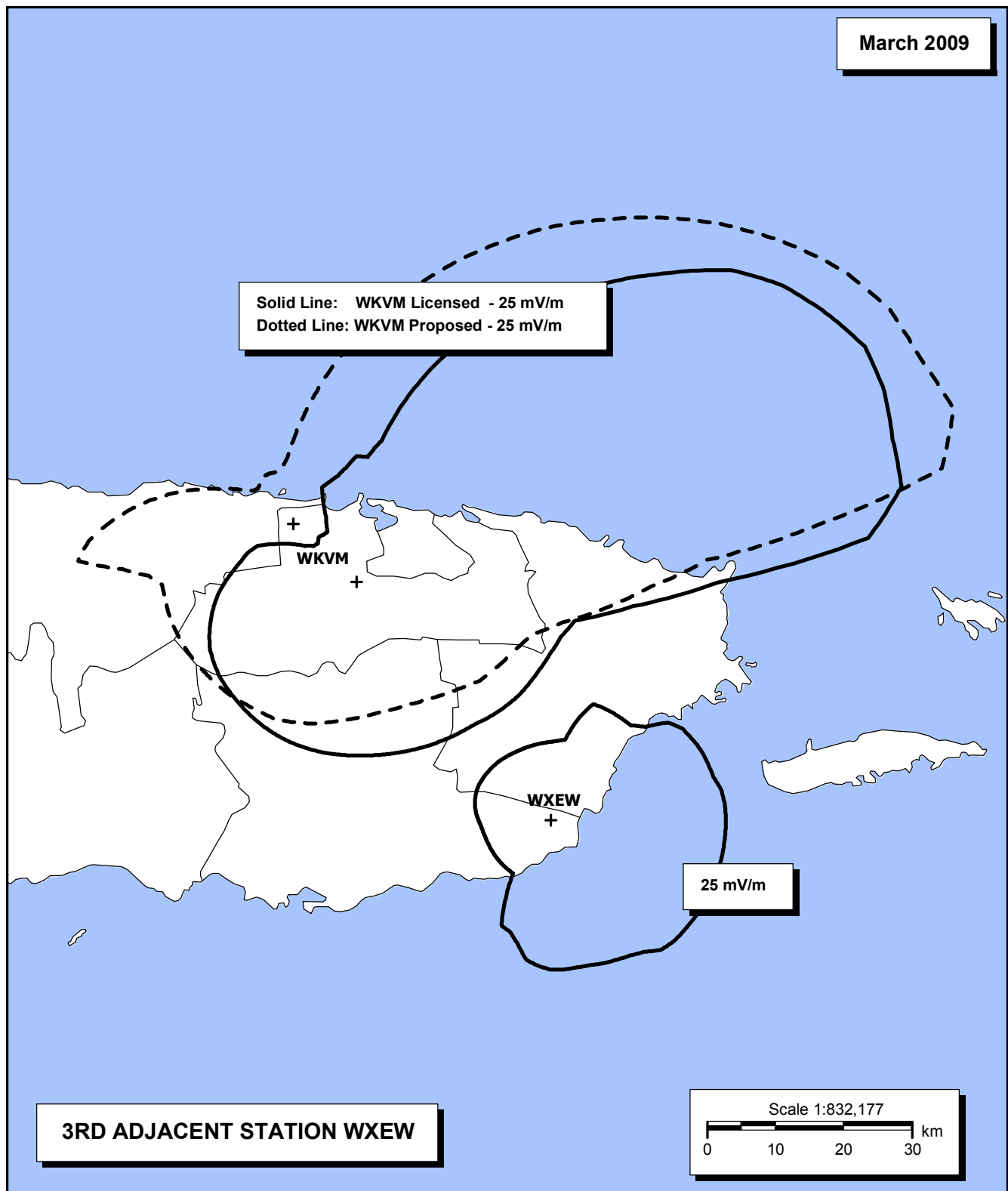
DAYTIME ALLOCATION STUDY

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1



DAYTIME ALLOCATION STUDY

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1



DAYTIME ALLOCATION STUDY

RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1

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

TECHNICAL EXHIBIT
 APPLICATION FOR CONSTRUCTION PERMIT
 CATHOLIC, APOSTOLIC & ROMAN CHURCH IN PUERTO RICO
 RADIO STATION WKVM
 SAN JUAN, PUERTO RICO
 FACILITY ID 142788

810 KHZ 50 KW-U DA-1

**Tabulation of Data Employed in
 Calculation of Groundwave Contours**

Reference Station: WKVM Prop, 810 kHz
 Location: 18-26-22 N, 066-13-28 W

*** 790 kHz (-2) ***
 391.8 km HIL 18-29-00 N 069-56-00 W 5.0 kW ND1 - 300.4 mV/m@1km
 243.4 mi Azi: 270.1 Class: C Sched: U File #:
 Location: S DOMINGO 14, , DR

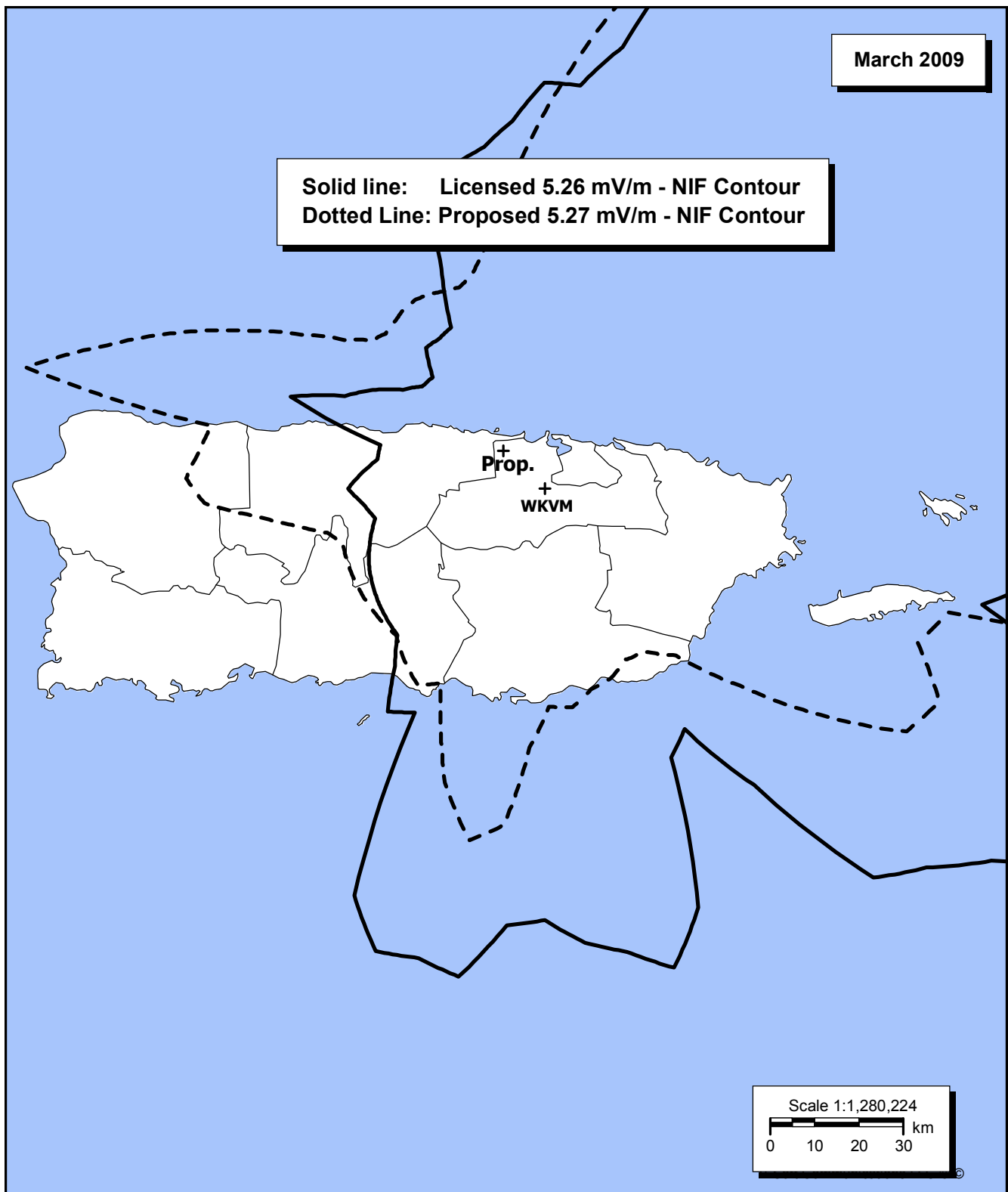
*** 800 kHz (-1) ***
 735.4 km PJB3 12-06-00 N 068-17-00 W 500.0 kW ND1 - 342.5 mV/m@1km
 457.0 mi Azi: 197.2 Class: A Sched: U File #:
 Location: TRANSWORLD R, , NA

*** 810 kHz (CO) ***
 935.1 km YVLP 10-10-00 N 068-00-00 W 50.0 kW ND1 - 318.2 mV/m@1km
 581.0 mi Azi: 191.6 Class: A Sched: U File #:
 Location: VALENCIA 1, , VE
 958.6 km CMMB 20-09-00 N 075-10-00 W 10.0 kW ND1 - 325.2 mV/m@1km
 595.7 mi Azi: 279.9 Class: B Sched: U File #:
 Location: GUANTANAMO, , CU

*** 820 kHz (+1) ***
 392.8 km 17-19-00 N 062-42-30 W 100.0 kW ND1 - 300.0 mV/m@1km
 244.1 mi Azi: 109.0 Class: A Sched: U File #:
 Location: CONAREE, , SC
 482.8 km HIAZ 19-27-00 N 070-41-00 W 5.0 kW ND1 - 300.4 mV/m@1km
 300.0 mi Azi: 282.7 Class: C Sched: U File #:
 Location: SANTIAGO 7, , DR
 794.3 km 4VRD 18-11-00 N 073-44-00 W 10.0 kW ND1 - 309.5 mV/m@1km
 493.5 mi Azi: 266.8 Class: B Sched: U File #:
 Location: LES CAYES, , HA

*** 830 kHz (+2) ***
 388.4 km HIJB 18-34-00 N 069-54-00 W 10.0 kW ND1 - 300.0 mV/m@1km
 241.3 mi Azi: 271.5 Class: C Sched: U File #:
 Location: S DOMINGO 10, , DR

*** 840 kHz (+3) ***
 57.3 km WXEW L 18-02-58 N 065-52-07 W 5.0 kW DAN - 292.9 mV/m@1km
 35.6 mi Azi: 139.0 Class: B Sched: U File #: BL19820120AG
 Location: YABUCOA, PR, US



NIGHTTIME FIELD STRENGTH CONTOURS

**RADIO STATION WKVM
SAN JUAN, PUERTO RICO
810 KHZ 50 KW-U DA-1**

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

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
CATHOLIC, APOSTOLIC & ROMAN CHURCH IN PUERTO RICO
RADIO STATION WKVM
SAN JUAN, PUERTO RICO
FACILITY ID 142788

810 KHZ 50 KW-U DA-1

Nighttime Allocation Study

Call: WKVM Prop
Freq: 810 kHz
SAN JUAN, PR, US
Hours: U
Lat: 18-26-22 N
Lng: 066-13-28 W
Power: 50.0 kW
Theo RMS: 2183.11 mV/m @ 1km @ 50.0 kW

| Field Ratio | Phase (deg) | Spacing (deg) | Orient (deg) | Height (deg) | Ref Swch | TL Swch | A (deg) | B (deg) | C (deg) | D (deg) |
|----------------|----------------|------------------|-----------------|-----------------|-------------|------------|------------|------------|------------|------------|
| 1 | 1.000 | 0.0 | 0.0 | 84.2 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 1.079 | 68.7 | 65.0 | 84.2 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 | 1.000 | 118.0 | 130.0 | 84.2 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |

RSS Calculation to WKVM

Call: WKVM Prop
 Freq: 810 kHz
 SAN JUAN, PR, US
 Hours: U
 Lat: 18-26-22 N
 Lng: 066-13-28 W
 Power: 50.0 kW
 Theo RMS: 2183.11 mV/m @ 1km @ 50.0 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [10%]

Contributors:

| Call | Freq (kHz) | City | St | Ct | Limit (mV/m) | (%) | RSS Limit (mV/m) |
|--------------|---------------|--------------|----|----|-----------------|-------|------------------------|
| WGY | 0810 | SCHENECTADY | NY | US | 4.111 | 100.0 | 4.111 |
| CX14-A | 0810 | MONTEVIDEO 1 | | UY | 3.299 | 80.2 | 5.271 (25%) |
| ZYH-589-0810 | 0810 | FORTALEZA 1 | | BR | 1.115 | 21.1 | 5.387 |
| HCVT2-A | 0810 | ATALAYA | | EC | 0.914 | 17.0 | 5.465 |
| YVSH-A | 0820 | UPATA | | VE | 0.910 | 16.7 | 5.540 |
| HIAZ-C | 0820 | SANTIAGO 7 | | DR | 0.806 | 14.6 | 5.598 |
| XEOE/A | 0810 | TAPACHULA | CS | MX | 0.744 | 13.3 | 5.647 |
| HJED-A | 0820 | CALI 12 | | CO | 0.715 | 12.7 | 5.693 |
| WEUS | 0810 | ORLOVISTA | FL | US | 0.590 | 10.4 | 5.723 |
| ZYH472-A0810 | 0810 | JEQUIE | | BR | 0.580 | 10.1 | 5.752 (10%) |

du Treil,Lundin, and Rackley
Sarasota, FLNight Permissible Vertical Radiation From Station: WKVM
Coordinates: 18-26-22 N 066-13-28 W

| Call Letters | Ct | St | City | SWFF (100uV/m) | Req Prot (mV/m) | Permis (mV/m) | Cur Rad (mV/m) | Margin (mV/m) |
|-----------------|----|----|---------------------------------------|-------------------|--------------------|------------------|-------------------|------------------|
| CMMB-D | CU | | GUANTANAMO | 27.32 | 3.672 | 672.15 | 669.74 | 2.41 |
| | | | 50% = 3.672, 25% = 3.863; WKVM=3.67 | | | WGY=1.20 | | |
| TGMM-B (40) | GT | | RADIOMOPAN | 3.29 | 0.500 | 866.63E | 846.51 | 20.12 |
| WGY (205) | US | NY | SCHENECTADY | 12.86 | 0.500 | 245.44E | 214.99 | 30.46 |
| YSAX-D (355) | ES | | SAN SALVADOR | 2.35 | 0.500 | 1117.97E | 1073.75 | 44.22 |
| YVLP-B (40) | VE | | VALENCIA 1 | 40.84 | 1.250 | 3166.94E | 3120.63 | 46.30 |
| HJCY-B (55) | CO | | BOGOTA 22 | 30.23 | 1.250 | 3244.57E | 3195.65 | 48.92 |
| YSFA-B (355) | ES | | SAN VICENTE | 2.39 | 0.500 | 1405.50E | 1329.56 | 75.93 |
| ZYH-589-A (125) | BR | | FORTALEZA 1 | 0.75 | 0.500 | 3375.99E | 3267.56 | 108.44 |
| WEUS | US | FL | ORLOVISTA | 19.27 | 2.384 | 618.53 | 220.25 | 398.28 |
| | | | 50% = 8.976, 25% = 9.534; WGY=8.98 | | | WCKA=3.22 | | |
| KGO (120) | US | CA | SAN FRANCISCO | 2.89 | 0.500 | 865.88S | 326.97 | 538.91 |
| XERB1/O | MX | QR | COZUMEL | 8.18 | 2.451 | 1498.30 | 766.68 | 731.62 |
| | | | 50% = 4.902, 25% = 6.805; XEOE/A=4.90 | | | WGY=2.38 | | |
| | | | XEIN/A=2.27 WSJC=2.20 | | | WCKA=1.95 | | |
| | | | WEUS=1.69 | | | | | |
| HOG-B | PM | | RADIO MUNDIA | 6.02 | 4.000 | 3324.60 | 2373.20 | 951.40 |
| | | | 50% = 2.947, 25% = 3.128; WKVM=2.95 | | | HCVT2-A=1.05 | | |
| XEOE/A | MX | CS | TAPACHULA | 4.24 | 1.933 | 2281.38 | 1230.04 | 1051.34 |
| | | | 50% = 3.866, 25% = 4.471; XEIN/A=3.87 | | | XEAGR/A=1.38 | | |
| | | | WGY=1.31 WHB=1.19 | | | | | |
| WCKA | US | AL | JACKSONVILLE | 10.31 | 2.843 | 1378.31 | 207.31 | 1171.01 |
| | | | 50% = 11.372, 25% = 11.372; WGY=11.37 | | | | | |
| XE/O | MX | QR | FELIPE CARRILLO | 6.99 | 2.942 | 2102.82 | 844.35 | 1258.47 |
| | | | 50% = 5.883, 25% = 7.079; XEOE/A=5.88 | | | XEIN/A=2.72 | | |
| | | | WGY=2.12 WSJC=1.91 | | | | | |
| CX14-A (350) | UY | | MONTEVIDEO 1 | 0.55 | 0.500 | 4534.80S | 3266.27 | 1268.53 |
| C6B3-B | BF | | FREEPORT | 9.16 | 2.820 | 1538.84 | 228.84 | 1310.00 |
| | | | 50% = 2.837, 25% = 3.24; WGY=2.84 | | | WEUS=1.30 | | |
| | | | WCKA=0.86 | | | | | |
| XEMQ1/O | MX | YC | MERIDA | 5.95 | 2.803 | 2355.35 | 729.30 | 1626.04 |
| | | | 50% = 6.213, 25% = 7.688; XEOE/A=5.54 | | | XEIN/A=2.80 | | |
| | | | WSJC=2.49 WGY=2.25 | | | WHB=2.24 | | |
| | | | WCKA=2.06 | | | | | |
| WDDD | US | IL | JOHNSTON CITY | 6.72 | 2.768 | 2058.64 | 208.85 | 1849.78 |
| | | | 50% = 11.071, 25% = 11.071; WGY=11.07 | | | | | |
| WSJC | US | MS | MAGEE | 9.33 | 3.920 | 2100.95 | 229.70 | 1871.25 |
| | | | 50% = 15.154, 25% = 15.68; WCKA=10.33 | | | WHB=8.31 | | |
| | | | WGY=7.34 WBAP=4.03 | | | | | |
| WHB | US | MO | KANSAS CITY | 4.82 | 2.025 | 2100.46 | 207.35 | 1893.11 |
| | | | 50% = 7.268, 25% = 8.1; WGY=6.41 | | | WBAP=3.43 | | |
| | | | WDDD=2.70 XEROK/A=2.35 | | | | | |

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
CATHOLIC, APOSTOLIC & ROMAN CHURCH IN PUERTO RICO
RADIO STATION WKVM
SAN JUAN, PUERTO RICO
FACILITY ID 142788

810 KHZ 50 KW-U DA-1

Notification to the National Astronomy and Ionosphere Center
and Letter of Consent from the Observatory

{two sheets follow}



201 Fletcher Ave.
Sarasota, FL 34237-6019
941-329-6000
941-329-6031 FAX

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

March 31, 2009

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, Catholic, Apostolic & Roman Church in Puerto Rico, licensee of AM broadcast station WKVM of San Juan, PR, in accordance with Section 73.1030 of the FCC Rules, we hereby notify of an application for construction permit to change site. The particulars of the proposal are as follows:

Proposed Facility

Geographical coordinates of antenna location (NAD83): 18-26-15.19 / 66-13-26.11
Antenna system and pattern: see attachment
Operating frequency: 810 kHz
Type of emission: A3E
Radiated power: 50 kW (maximum).

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

Very truly yours,

Grafton Olivera, P.E.

NATIONAL ASTRONOMY AND IONOSPHERE CENTER
ARECIBO OBSERVATORY



April 21, 2009

Mr. Grafton Olivera Jr., P.E.
du Treil, lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, FL. 34237-6019

Re: Catholic, Apostolic & Roman Church in Puerto Rico
AM Broadcast Station WKVM of San Juan PR

Dear 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 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,

Reinaldo Velez
Spectrum Manager

RV:ws

Cc: FCC
PRCZ files [File # 00904015]