

Engineering Statement  
In Support of an Application to  
Change Frequency,  
Increase Daytime Power  
And Add Nighttime Service  
KLDC, Brighton, Colorado  
810 kHz, 2.2 kW-D/0.227 kW-N, DA-2

The Corporate Engineering Department of the Crawford Broadcasting Company, on behalf of its subsidiary, KLZ Radio, Inc., has prepared this Engineering Statement and associated exhibits to accompany an Application for Construction Permit to change frequency, increase the daytime power and add nighttime service to KLDC, Brighton, Colorado.

KLDC is currently authorized as a class D AM station operating on 800 kHz with 1 kW directional daytime and with secondary nighttime service at 7 watts non-directional. 800 kHz is a Mexican clear channel on which the dominant class A station is XEROK in Ciudad Juarez, Chihuahua. XEROK is notified at 150 kW and produces a calculated RSS night limit of 44.13 mV/m. With its authorized nighttime power of 7 watts, KLDC produces very little meaningful nighttime coverage. The station provides the only licensed local aural service to its principal community, Brighton, Colorado.

The instant application proposes in a minor change to move KLDC to the adjacent channel, 810 kHz. On that frequency, the daytime allocation will support directional operation with the existing three-tower array at 2.2 kW.

It would be impossible to provide 80% or more of Brighton with interference-free service at night from the daytime site due to property limitations and the existing tower line. The applicant is also licensee of radio station KLZ, Denver, Colorado (560 kHz, 5 kW-U, DA-1). The KLZ transmitter site contains adequate property to construct a three-tower directional array which will allow KLDC to operate with 227 watts nighttime at a standard pattern RMS of 156.93 mV/m, in excess of the 141 mV/m threshold for class B designation. The KLZ site is so situated as to permit 88.5% of the community of Brighton to receive interference-free service. Two additional towers, both 61 meters (200 feet) in overall height, are proposed; the third tower (#2) in the proposed KLDC nighttime array is an existing tower in the two-tower KLZ directional array.

The daytime towers are all vertical, uniform cross-section, steel, guyed radiators 81.7 meters in overall height and 79.3 meters above base insulator (77.0 electrical degrees at 810 kHz). None of the towers employ top loading or sectionalization. All towers are series fed. The daytime ground system consists of 120 equally-spaced, buried copper radials about the base of each tower,

93.9 meters in length except where intersecting radials are shortened and bonded to a transverse strap. In addition, 120 15.2-meter copper radials are interspersed with the longer radials. No changes are proposed to the existing ground system.

The nighttime directional array will utilize three vertical, uniform cross-section, steel, guyed radiators. Two of the proposed nighttime towers (#1 and #3) are new structures 61.0 meters in overall height and 59.6 meters above base insulator (58.0 electrical degrees at 810 kHz). The other tower (#2) will be shared with the existing KLZ directional array (also #2 in the KLZ array). Tower #2 is 137 meters in overall height and 135.8 meters above base insulator (132.0 electrical degrees at 810 kHz). None of the daytime towers employ top loading or sectionalization. All towers are series fed. The nighttime ground system consists of 120 equally-spaced, buried copper radials about the base of each tower, 92.6 meters in length except where intersecting radials are shortened and bonded to a transverse strap. In addition, a 14.6 meter by 14.6 meter square copper ground screen will be installed about the base of towers #1 and #2. The existing KLZ ground system, which consists of 120 equally-spaced, buried copper radials 134.11 meters in length plus a 14.6 meter by 14.6 meter copper ground screen about the base of each tower, will remain in place for tower #2.

The entire technical operation will be in compliance with all applicable FCC Rules and will be constructed in accordance with the standards of good engineering practice. All elements of the proposed daytime antenna system are well in excess of the minimum physical vertical heights specified by 47 C.F.R. §73.189. The main element (#2) of the nighttime directional antenna system meets the minimum requirements of 47 C.F.R. §73.189 with respect to both height and effective field strength. The calculated effective field of the nighttime array is 312.98 mV/m at 1 km (adjusted for 1 kW). This value exceeds the 282 mV/m class minimum prescribed by 47 C.F.R. §73.182(m).

There are no population centroids within the daytime 1 V/m contour. The total population within the daytime 25 mV/m contour has been determined to be 389,251 (2000 Census). The area within the 1 V/m contour is largely rural in nature with a low population density. There are no houses within the 1 V/m contour. As such, the total population within the 1 V/m contour can be presumed to be well below the threshold of 1% of the population within the 25 mV/m specified in 47 C.F.R. §73.24(g).

Similarly, there are no population centroids within the nighttime 1 V/m contour. The total population within the nighttime 25 mV/m contour has been determined to be 77,490 (2000 Census). The area within the 1 V/m contour is largely rural in nature with a low population density. There are no houses within the 1 V/m contour. As such, the total population within the 1

V/m contour can be presumed to be well below the threshold of 1% of the population within the 25 mV/m specified in 47 C.F.R. §73.24(g).

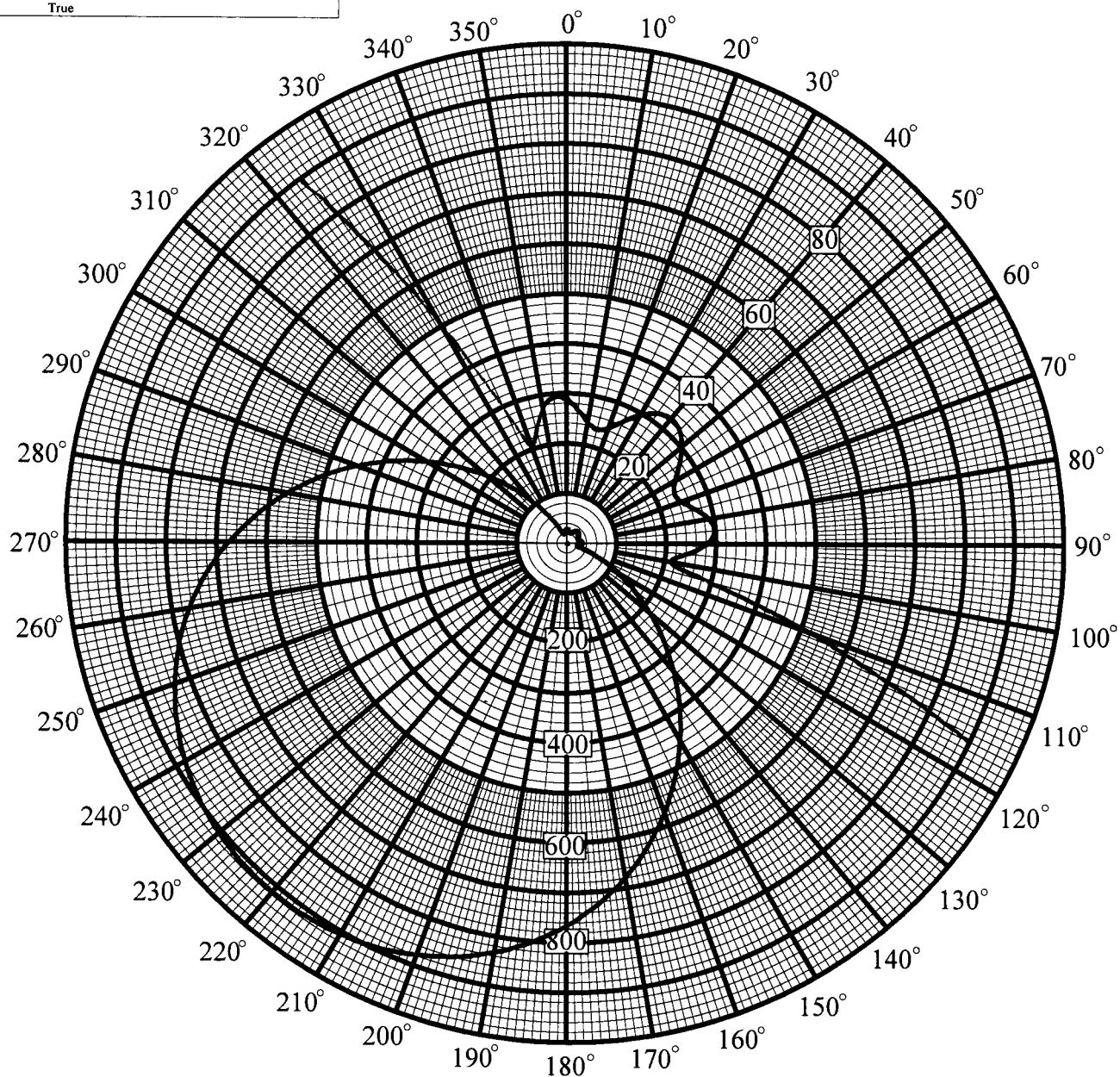
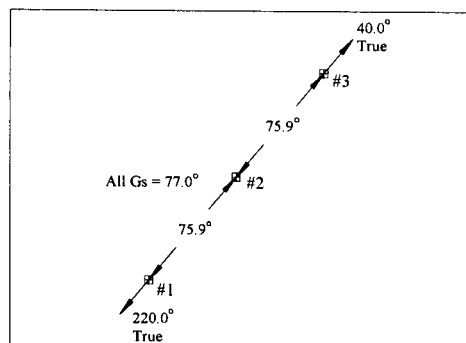
The proposed facility is in compliance with all the engineering standards of allocation specified in the Commission's Rules.

Respectfully submitted,

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W.C. Alexander  
Director of Engineering  
Crawford Broadcasting Company

Exhibit 10  
Figure 1



Twr.	Field	Phasing
1	0.525	-127.5
2	1.000	0.0
3	0.510	+124.5

RMS(TH) = 471.72  
RMS(STD) = 495.60  
RSS(TH) = 646.86  
Q = 16.17

PROJECT TITLE	Proposed Daytime Standard Horizontal Pattern	PROJECT NO.	
DATE	11/19/2003	SCALE	
PROJECT	KLDC - Brighton, Colorado 810 kHz, 2.2 kW-D/0.227 kW-N, DA-2	DRAWN BY	WCA
		CHECKED BY	
Crawford Broadcasting Company Corporate Engineering 2150 W. 29th Ave., Suite 300, Denver, Co 80211 (303) 433-0104		REVISIONS	
		1 OF 1 SHEETS	

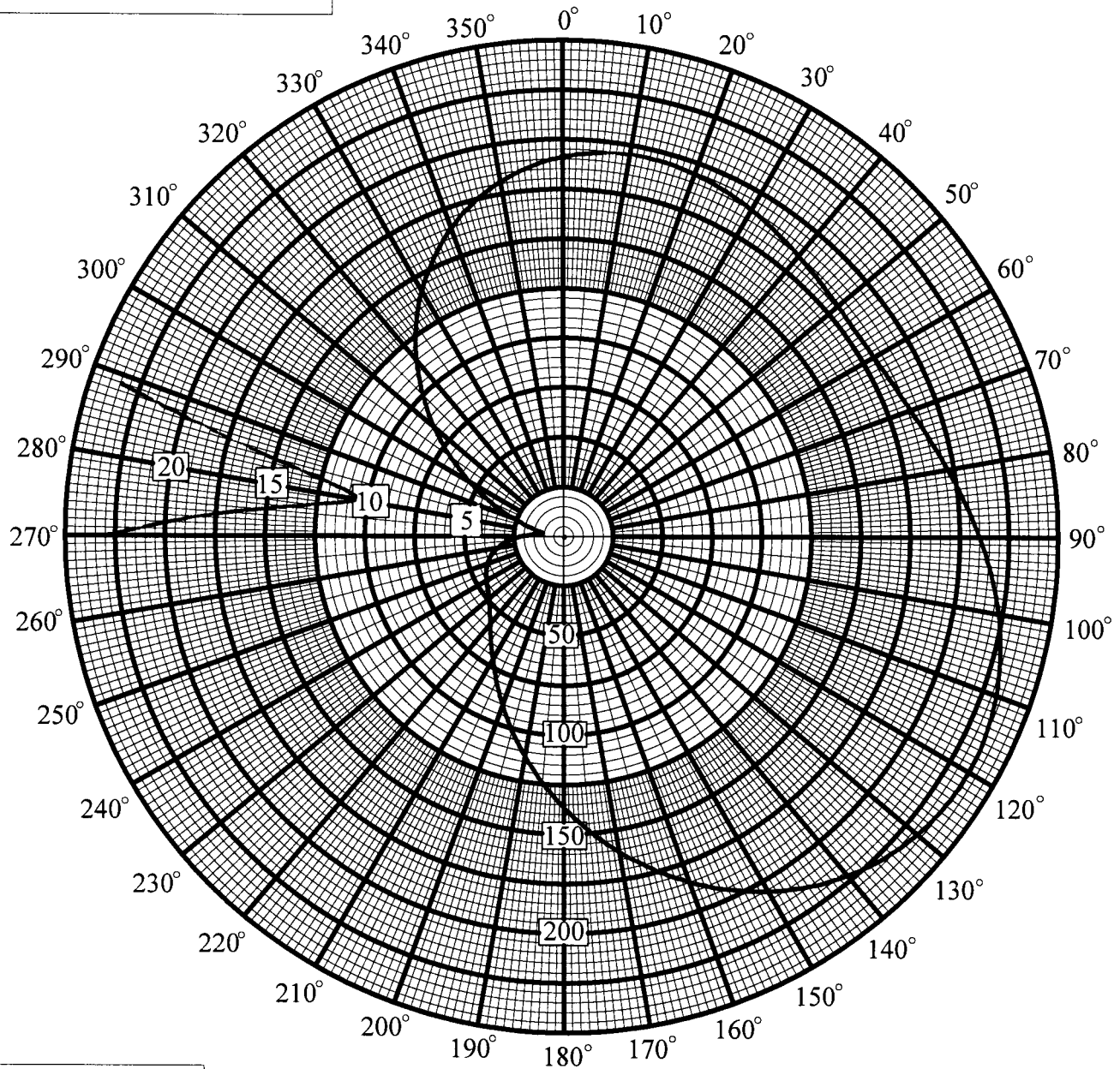
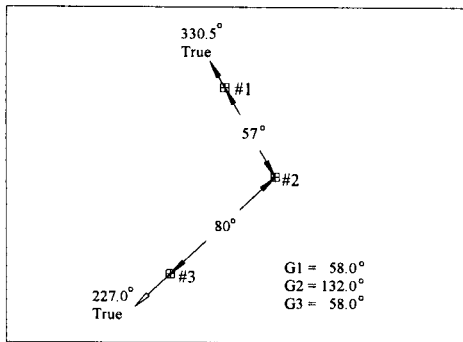
11-21-2003 06:13

KLDC-D	40-01-41 N	104-49-21 W	2.200 kW
Crawford Broadcasting			
Twr. No.	Field	Phasing	Spacing
1	0.525	-127.5	75.9
2	1.000	0.0	0.0
3	0.510	124.5	75.9
RMS	471.72 mV/m	(kilometer)	Q 16.17 mV/m

## Standard Horizontal Plane Radiation Pattern

Azi.	mV/m	Azi.	mV/m
0	28.0	180	761.9
5	25.9	185	798.3
10	23.6	190	829.4
15	22.7	195	855.3
20	23.8	200	876.0
25	26.3	205	891.9
30	29.0	210	903.1
35	31.1	215	909.7
40	31.8	220	911.9
45	31.1	225	909.7
50	29.0	230	903.1
55	26.3	235	891.9
60	23.8	240	876.0
65	22.7	245	855.3
70	23.6	250	829.4
75	25.9	255	798.3
80	28.0	260	761.9
85	28.7	265	720.3
90	26.8	270	673.7
95	22.5	275	622.5
100	19.9	280	567.4
105	29.0	285	509.4
110	50.8	290	449.3
115	81.7	295	388.5
120	120.0	300	328.3
125	164.8	305	270.1
130	215.2	310	215.2
135	270.1	315	164.8
140	328.3	320	120.0
145	388.5	325	81.7
150	449.3	330	50.8
155	509.4	335	29.0
160	567.4	340	19.9
165	622.5	345	22.5
170	673.7	350	26.8
175	720.3	355	28.7

Exhibit 10  
Figure 2



Twr.	Field	Phasing
1	0.605	+180.0
2	1.000	0.0
3	0.635	+97.0

RMS(TH) = 149.12  
RMS(STD) = 156.93  
RSS(TH) = 224.69  
Q = 10.00

PROJECT TITLE		PROJECT NO.
Proposed Nighttime Standard Horizontal Pattern		SCALE
PROJECT		DATE
KLDC - Brighton, Colorado 810 kHz, 2.2 kW-D/0.227 kW-N, DA-2		11/19/2003
DRAWN BY		WCA
CHECKED BY		
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		1 OF 1 SHEETS

11-21-2003 06:08

KLDC-N		39-50-36 N	104-57-08 W	0.227 kW	
		Crawford Broadcasting			
Twr. No.	Field	Phasing	Spacing	Azimuth	Height
1	0.605	180.0	57.0	330.5	58.0
2	1.000	0.0	0.0	0.0	132.0
3	0.635	97.0	80.0	227.0	58.0
RMS	149.12 mV/m	(kilometer)		Q 10.00 mV/m	

## Standard Horizontal Plane Radiation Pattern

Azi.	mV/m	Azi.	mV/m
0	191.3	180	136.1
5	194.0	185	123.9
10	195.2	190	112.1
15	195.2	195	100.7
20	194.1	200	90.1
25	192.2	205	80.2
30	189.7	210	71.4
35	186.9	215	63.8
40	184.2	220	57.5
45	181.9	225	52.7
50	180.3	230	49.1
55	179.8	235	46.6
60	180.4	240	44.8
65	182.5	245	43.0
70	185.9	250	41.0
75	190.6	255	38.2
80	196.3	260	34.3
85	202.7	265	29.1
90	209.4	270	22.7
95	216.0	275	15.6
100	222.1	280	10.7
105	227.3	285	14.9
110	231.3	290	25.8
115	233.9	295	39.1
120	234.9	300	53.7
125	234.2	305	68.9
130	231.7	310	84.4
135	227.4	315	99.9
140	221.5	320	114.8
145	214.0	325	129.1
150	205.2	330	142.3
155	195.2	335	154.3
160	184.3	340	164.9
165	172.7	345	173.9
170	160.7	350	181.4
175	148.4	355	187.1

Exhibit E-10  
Figure 3  
Nighttime Towers & Ground System  
KLDC - Brighton, Colorado  
810 kHz, 2.2 kW-D/0.227 kW-N

