

KHANNA & GULL, Inc. – CONSULTING ENGINEERS
Radio – Television

STANDARD HORIZONTAL PLANE PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
KGDP, OILDALE, CALIFORNIA
660 kHz – 2.5 kW N/2.5 kW D – DA-2

*Exhibit 20 - Form 301, Section III-A AM Engineering
Technical Specifications*

TABULATION OF
STANDARD HORIZONTAL PLANE PATTERN
FOR THE PROPOSED 2.5 kW NIGHTTIME OPERATION OF
KGDP, OILDALE, CALIFORNIA
OCTOBER 2004
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Call: KGDPp Frequency: 660.0 kHz

Power: 2.500 kW

ERSS: 677.37 mV/m at 1 km

Multiplying Constant (K factor): 318.30 mV/m at 1 km

Q Factor (elevation angle = 0 degrees): 16.93

Theoretical Pattern RMS: 488.95 mV/m at 1 km

Standard Pattern RMS: 513.71 mV/m at 1 km

ANTENNA TOWER PARAMETERS:

##	Field Ratio	Phase (degs.)	Spac. (degs.)	Bear. (degs.)	TL SW	HT (degs.)	TLA (degs.)	TLB (degs.)	TLC (degs.)	TLD (degs.)
1	1.000	.0	.0	.0	0	80.0	.0	.0	.0	.0
2	.952	-132.9	90.0	198.0	0	80.0	.0	.0	.0	.0
3	1.269	79.3	120.0	141.0	0	80.0	.0	.0	.0	.0
4	1.006	-36.5	162.6	174.0	0	80.0	.0	.0	.0	.0

CALCULATED STANDARD PATTERN DATA:

Azimuth (degs.)	Elevation Angle (degrees):								
	.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
.0	268.54	264.39	252.21	232.86	207.78	179.02	149.37	122.46	102.71
5.0	313.65	308.98	295.27	273.39	244.80	211.53	176.21	142.19	113.72
10.0	350.85	345.78	330.84	306.98	275.67	238.96	199.46	160.35	125.60
15.0	379.14	373.76	357.93	332.60	299.30	260.12	217.66	175.01	135.93
20.0	397.77	392.20	375.80	349.55	315.01	274.29	229.99	185.14	143.36
25.0	406.30	400.65	384.04	357.43	322.42	281.10	236.05	190.25	147.18
30.0	404.62	399.02	382.55	356.17	321.45	280.47	235.73	190.16	147.10
35.0	393.00	387.57	371.59	346.01	312.35	272.61	229.21	184.97	143.11
40.0	372.10	366.95	351.81	327.58	295.68	258.03	216.93	175.04	135.47
45.0	343.00	338.25	324.25	301.84	272.34	237.53	199.55	160.92	124.60
50.0	307.21	302.92	290.30	270.11	243.52	212.16	177.99	143.36	111.12
55.0	266.54	262.78	251.71	234.00	210.69	183.20	153.33	123.27	95.81
60.0	223.13	219.92	210.49	195.38	175.50	152.10	126.80	101.69	79.59
65.0	179.35	176.68	168.83	156.27	139.77	120.42	99.73	79.78	63.58
70.0	137.73	135.54	129.12	118.84	105.39	89.77	73.46	58.79	49.18
75.0	101.09	99.27	93.94	85.44	74.38	61.80	49.41	40.22	38.23
80.0	72.73	71.12	66.39	58.85	49.15	38.45	29.25	26.43	32.74
85.0	56.33	54.75	50.12	42.74	33.24	23.01	16.41	21.04	32.97
90.0	52.58	51.00	46.35	38.99	29.66	20.18	16.31	23.72	36.34

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CALCULATED STANDARD PATTERN DATA:

Azimuth (degs.)	Elevation Angle (degrees) :								
	.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
95.0	56.10	54.50	49.82	42.51	33.49	24.93	21.86	28.29	40.05
100.0	61.28	59.61	54.72	47.12	37.83	29.07	25.55	31.18	42.60
105.0	66.55	64.72	59.38	51.04	40.74	30.74	26.06	31.50	43.49
110.0	73.04	70.97	64.90	55.35	43.32	30.98	23.90	29.36	42.81
115.0	82.45	80.06	73.05	61.92	47.62	32.00	20.59	25.42	41.01
120.0	95.41	92.65	84.56	71.68	54.93	35.88	18.78	20.79	38.82
125.0	110.98	107.84	98.63	83.97	64.85	42.78	20.94	17.31	37.18
130.0	127.27	123.76	113.46	97.08	75.77	51.17	26.35	17.17	37.03
135.0	142.11	138.26	126.97	109.06	85.82	59.17	32.61	20.74	39.10
140.0	153.47	149.33	137.23	118.07	93.33	65.25	38.07	26.52	43.71
145.0	159.63	155.29	142.63	122.63	96.99	68.36	42.11	33.65	50.91
150.0	159.31	154.89	141.99	121.72	96.03	68.17	45.19	42.46	60.81
155.0	151.80	147.43	134.73	114.97	90.46	65.48	49.24	53.96	73.67
160.0	137.23	133.12	121.25	103.15	81.85	63.24	57.49	69.32	89.83
165.0	117.41	113.87	103.87	89.47	74.89	67.25	72.88	89.41	109.63
170.0	98.05	95.70	89.52	82.30	78.72	83.32	96.55	114.68	133.29
175.0	92.98	92.60	92.28	94.20	100.65	112.39	128.11	145.18	160.82
180.0	116.81	117.99	121.79	128.75	139.07	152.19	166.70	180.68	192.11
185.0	166.10	167.66	172.26	179.68	189.39	200.40	211.38	220.73	226.83
190.0	231.04	232.30	235.93	241.50	248.27	255.24	261.17	264.70	264.54
195.0	305.79	306.45	308.29	310.86	313.47	315.21	315.03	311.84	304.64
200.0	386.98	386.89	386.50	385.44	383.14	378.88	371.86	361.27	346.43
205.0	472.08	471.16	468.29	463.22	455.56	444.81	430.45	412.02	389.14
210.0	558.86	557.05	551.58	542.30	529.01	511.50	489.54	463.01	431.89
215.0	645.14	642.43	634.30	620.74	601.76	577.41	547.81	513.16	473.80
220.0	728.75	725.16	714.41	696.63	672.05	640.99	603.90	561.32	513.94
225.0	807.57	803.12	789.86	768.06	738.13	700.68	656.46	606.36	551.39
230.0	879.51	874.28	858.70	833.18	798.32	754.98	704.20	647.18	585.27
235.0	942.63	936.70	919.08	890.25	851.02	802.47	745.89	682.78	614.74
240.0	995.20	988.68	969.32	937.72	894.82	841.89	780.46	712.24	639.08
245.0	1035.72	1028.74	1008.04	974.28	928.53	872.19	806.99	734.81	657.69
250.0	1063.08	1055.79	1034.17	998.93	951.22	892.57	824.78	749.90	670.08
255.0	1076.54	1069.10	1047.01	1011.02	962.32	902.48	833.39	757.14	675.95
260.0	1075.84	1068.39	1046.30	1010.30	961.59	901.73	832.63	756.36	675.16
265.0	1061.13	1053.84	1032.19	996.91	949.15	890.42	822.57	747.63	667.77
270.0	1033.05	1026.05	1005.28	971.39	925.48	868.96	803.57	731.22	653.98
275.0	992.60	986.02	966.50	934.62	891.37	838.04	776.20	707.61	634.16
280.0	941.11	935.06	917.11	887.77	847.88	798.58	741.23	677.42	608.82
285.0	880.13	874.71	858.59	832.20	796.24	751.66	699.61	641.43	578.56
290.0	811.36	806.62	792.53	769.40	737.81	698.48	652.35	600.49	544.08
295.0	736.50	732.49	720.55	700.92	673.98	640.30	600.55	555.52	506.13
300.0	657.22	653.96	644.25	628.23	606.15	578.36	545.28	507.45	465.47

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CALCULATED STANDARD PATTERN DATA:

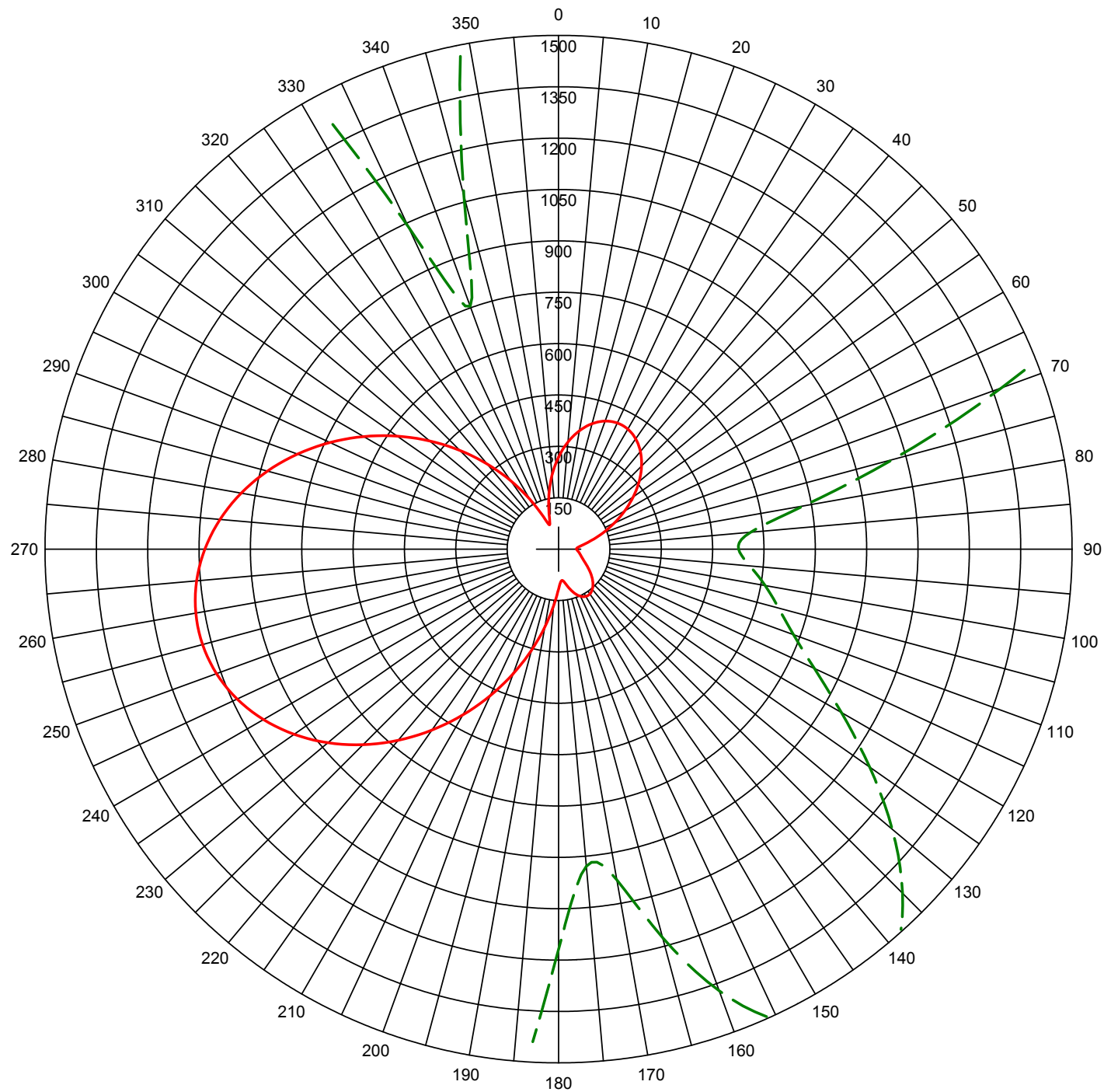
Azimuth (degs.)	Elevation Angle (degrees):								
	.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00
305.0	575.04	572.55	565.10	552.75	535.62	513.84	487.62	457.19	422.87
310.0	491.37	489.64	484.45	475.79	463.62	447.90	428.58	405.65	379.10
315.0	407.46	406.49	403.55	398.54	391.30	381.61	369.18	353.71	334.92
320.0	324.56	324.33	323.61	322.21	319.84	316.08	310.41	302.28	291.10
325.0	244.06	244.57	246.03	248.16	250.54	252.54	253.42	252.34	248.47
330.0	168.31	169.53	173.07	178.55	185.37	192.73	199.66	205.10	207.98
335.0	103.87	105.56	110.52	118.37	128.45	139.87	151.55	162.28	170.82
340.0	75.43	76.12	78.49	83.22	90.86	101.31	113.71	126.70	138.67
345.0	106.82	105.34	101.33	96.08	91.71	90.65	94.52	102.96	113.92
350.0	161.16	158.45	150.62	138.67	124.35	110.28	99.81	95.99	99.39
355.0	216.95	213.43	203.14	186.96	166.39	143.66	121.85	104.88	96.42

Azimuth (degs.)	Elevation Angle (degrees):			
	45.00	50.00	55.00	60.00
.0	93.68	94.56	100.00	104.29
5.0	95.48	89.61	92.33	96.75
10.0	100.01	87.51	86.67	90.50
15.0	105.05	87.05	82.59	85.40
20.0	109.04	87.07	79.55	81.27
25.0	111.04	86.70	77.08	77.93
30.0	110.58	85.38	74.78	75.19
35.0	107.52	82.85	72.43	72.95
40.0	101.98	79.11	69.98	71.13
45.0	94.27	74.37	67.50	69.73
50.0	84.92	69.03	65.19	68.77
55.0	74.62	63.65	63.31	68.31
60.0	64.25	58.90	62.14	68.38
65.0	54.91	55.46	61.85	68.99
70.0	47.86	53.82	62.52	70.11
75.0	44.16	54.07	64.05	71.67
80.0	43.96	55.88	66.23	73.56
85.0	46.27	58.65	68.80	75.67
90.0	49.63	61.75	71.51	77.92
95.0	52.90	64.72	74.18	80.21
100.0	55.43	67.28	76.68	82.51
105.0	56.98	69.33	78.99	84.83
110.0	57.64	70.95	81.17	87.19
115.0	57.70	72.33	83.34	89.67
120.0	57.64	73.76	85.68	92.38
125.0	58.00	75.59	88.40	95.43
130.0	59.37	78.19	91.72	98.95
135.0	62.24	81.90	95.88	103.09

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Azimuth (degs.)	Elevation Angle (degrees) :			
	45.00	50.00	55.00	60.00
140.0	67.03	87.04	101.08	107.96
145.0	74.02	93.86	107.51	113.68
150.0	83.44	102.58	115.32	120.33
155.0	95.49	113.37	124.63	128.00
160.0	110.33	126.32	135.50	136.71
165.0	128.10	141.52	147.98	146.48
170.0	148.86	158.97	162.04	157.29
175.0	172.59	178.60	177.62	169.07
180.0	199.13	200.28	194.62	181.75
185.0	228.24	223.80	212.85	195.20
190.0	259.54	248.88	232.11	209.26
195.0	292.58	275.14	252.12	223.75
200.0	326.82	302.18	272.59	238.44
205.0	361.62	329.53	293.16	253.12
210.0	396.33	356.67	313.47	267.52
215.0	430.22	383.07	333.14	281.40
220.0	462.59	408.18	351.77	294.48
225.0	492.70	431.47	368.99	306.51
230.0	519.86	452.43	384.42	317.25
235.0	543.44	470.56	397.73	326.48
240.0	562.87	485.45	408.61	333.98
245.0	577.66	496.75	416.83	339.61
250.0	587.47	504.18	422.18	343.22
255.0	592.04	507.56	424.54	344.74
260.0	591.26	506.82	423.84	344.13
265.0	585.17	501.96	420.10	341.37
270.0	573.92	493.09	413.39	336.54
275.0	557.80	480.42	403.84	329.70
280.0	537.17	464.23	391.66	321.00
285.0	512.53	444.87	377.08	310.58
290.0	484.40	422.73	360.39	298.66
295.0	453.36	398.26	341.92	285.43
300.0	420.04	371.93	321.99	271.13
305.0	385.05	344.22	300.97	256.01
310.0	349.02	315.62	279.21	240.31
315.0	312.58	286.61	257.09	224.29
320.0	276.36	257.71	234.96	208.20
325.0	241.03	229.41	213.20	192.30
330.0	207.30	202.23	192.17	176.83
335.0	175.98	176.72	172.22	162.01
340.0	148.06	153.46	153.72	148.07
345.0	124.76	133.08	136.99	135.19
350.0	107.42	116.19	122.34	123.53
355.0	97.10	103.30	109.98	113.22

AM Directional Pattern



Theo RMS: 488.955 mV/m@1km
Std RMS: 513.711 mV/m@1km
Q: 16.934 mV/m@1km

Horizontal Plane Standard Pattern

— Pattern (mV/m @ 1km)
- - - Pattern X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	80.0	0	0	0.0	0.0	0.0	0.0
2	0.952	-132.9	90.0	198.0	80.0	0	0	0.0	0.0	0.0	0.0
3	1.269	79.3	120.0	141.0	80.0	0	0	0.0	0.0	0.0	0.0
4	1.006	-36.5	162.6	174.0	80.0	0	0	0.0	0.0	0.0	0.0

Call: NEWKGD
Freq: 660 kHz
OILDALE, CA, US
Lat: 35-27-11 N
Lng: 118-56-35 W
Power: 2.5 kW
Theo RMS: 488.95 mV/m @ 1km