



**ENGINEERING STATEMENT**  
OF  
**BENJAMIN L. PIDEK, P.E.**  
IN SUPPORT OF "FLASHCUT" APPLICATION  
FOR  
**K20GU**  
**RUIDOSO, NM**

**Background**

KOAT Hearst-Argyle Television, Inc. (KOAT) is the licensee of television translator station K20GU, Ch. 20, (BLTT-20040723ADO, Facility ID 53900) at Ruidoso, NM. KOAT now proposes to "flashcut" K20GU to digital operation.

**Site and Tower**

The site will remain the same as that of the licensed facility as will the height of the antenna radiation center. The overall height of the tower (57.9m AGL) is less than that required for notification to the FAA and, further, the tower passes the TOWAIR program.

**Antenna and Power**

KOAT is proposing to use a Scala 4DR-8-2HW directional antenna (specifications and dBk table attached hereto) for the facility with a horizontally polarized ERP of 1 kW (no vertical polarization component).



## **Interference**

An interference study was conducted using the proposed parameters with software that emulates that used by the Commission. The results of the OET-69 analysis indicate that there are no domestic full-service DTV or Class A stations predicted to receive more than the allowable 0.5% new interference from the proposed K20GU facility and, also, there are no analog or digital LPTV or translator stations predicted to receive more than the allowable 2% interference.

## **Environmental/RFR**

This report addresses only the conditions specified in 47CFR1.1307 that deal with Radio Frequency Radiation (RFR). Any other non-RFR conditions that might require the preparation of an EA are beyond the scope of this report; however, since the structure is existing, such conditions should not be an issue requiring further consideration as there will be no increase in height or change in width of the tower structure.

The location of the proposed facility is a multi-user site on a mountain top. Calculations based on the parameters of the existing facilities located at the site show that it is possible that RFR levels at some ground level areas of the summit (within 100m of the base of the towers) may already exceed MPE limits for the general public without consideration for the additional RFR contributed by the proposed facility; however, the location is considered a "remote" area as access to the site is impeded by the rugged terrain and lack of roads, making it highly improbable that the general public can get near the site. Furthermore, the area within 300m of the towers is enclosed by a locked fence<sup>1/</sup> and appropriate signage warning of potential RFR hazards is posted. Therefore, it is assumed that the site is currently "in compliance" with FCC guidelines for human exposure to RFR (as defined in OET-65) and there is no significant effect on the environment with regard to exposure of the general public.

---

<sup>1/</sup> The perimeter of the site not enclosed by the fence is access limited by the existence of a sheer rock cliff face (vertical drop off) making it highly improbable that access to the area will be gained from these directions.



The maximum ground level RFR contributed by the proposed facility (assuming an extremely conservative relative field value of 1.0) is calculated to be 0.012596 mW/cm<sup>2</sup> which is less than 5% of the limit (0.339333 mW/cm<sup>2</sup>) for maximum permissible exposure (MPE) in public areas<sup>2/</sup> at Ch. 20 (509 MHz). The site will therefore remain "in compliance" with FCC guidelines for human exposure to RFR.

KOAT agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers will be trained on RFR issues and encouraged to wear personal RFR monitors when on the structure.

### **Certification**

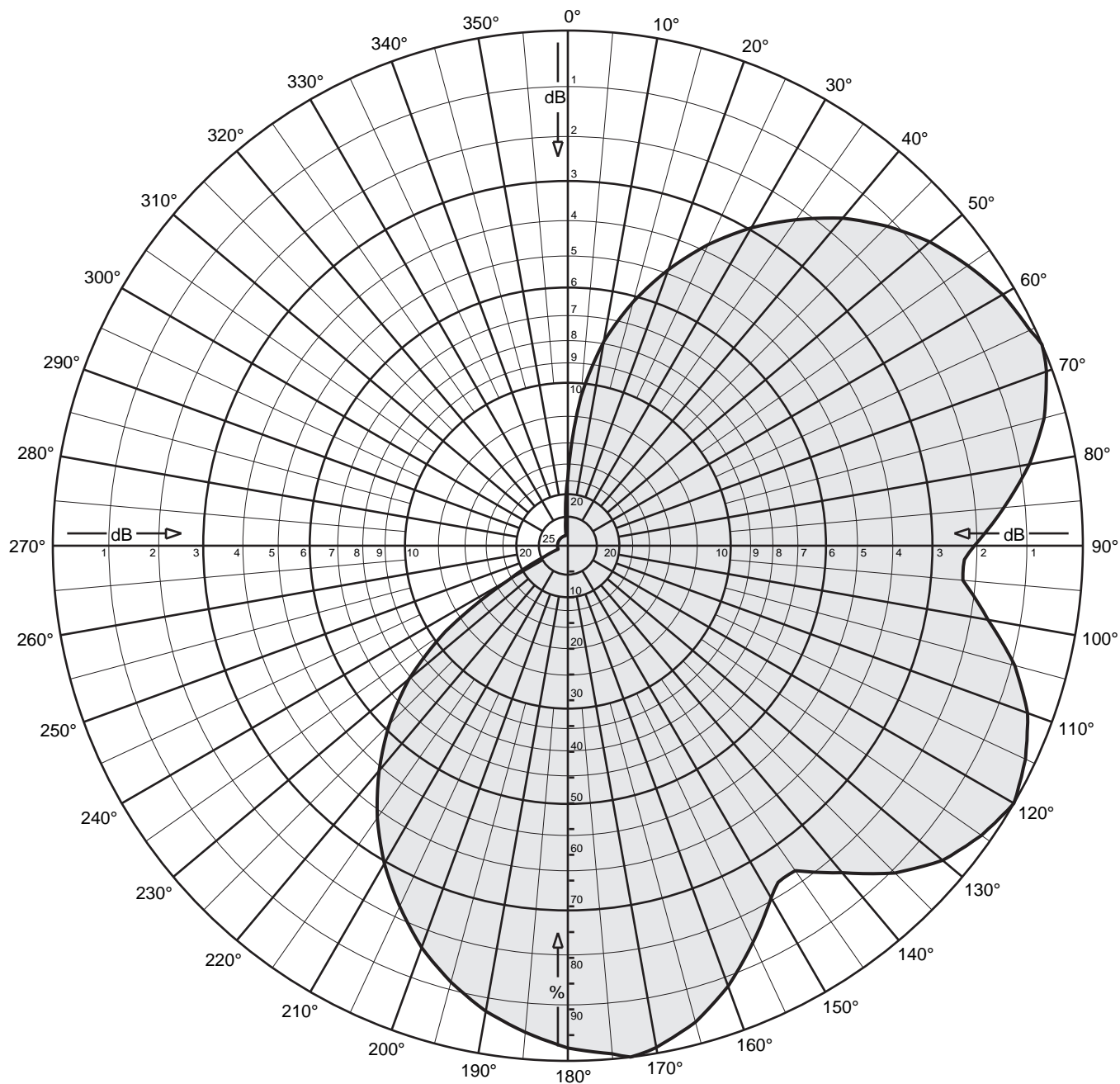
I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.

Benjamin L. Pidek, P.E.

John F. X. Browne, P.E.  
March 25, 2011

---

<sup>2/</sup> Since the RFR contributed by proposed facility will be less than 5% of the MPE limit for public exposure, the proposed facility is not considered a significant contributor to the RFR on the site.



4DR-8-2HW Parapanel Array

CH: 20

Oriented at 120 degrees

Gain: 8.5 dBd (x 7.1)

Horizontal Polarization

Vertical Stacked

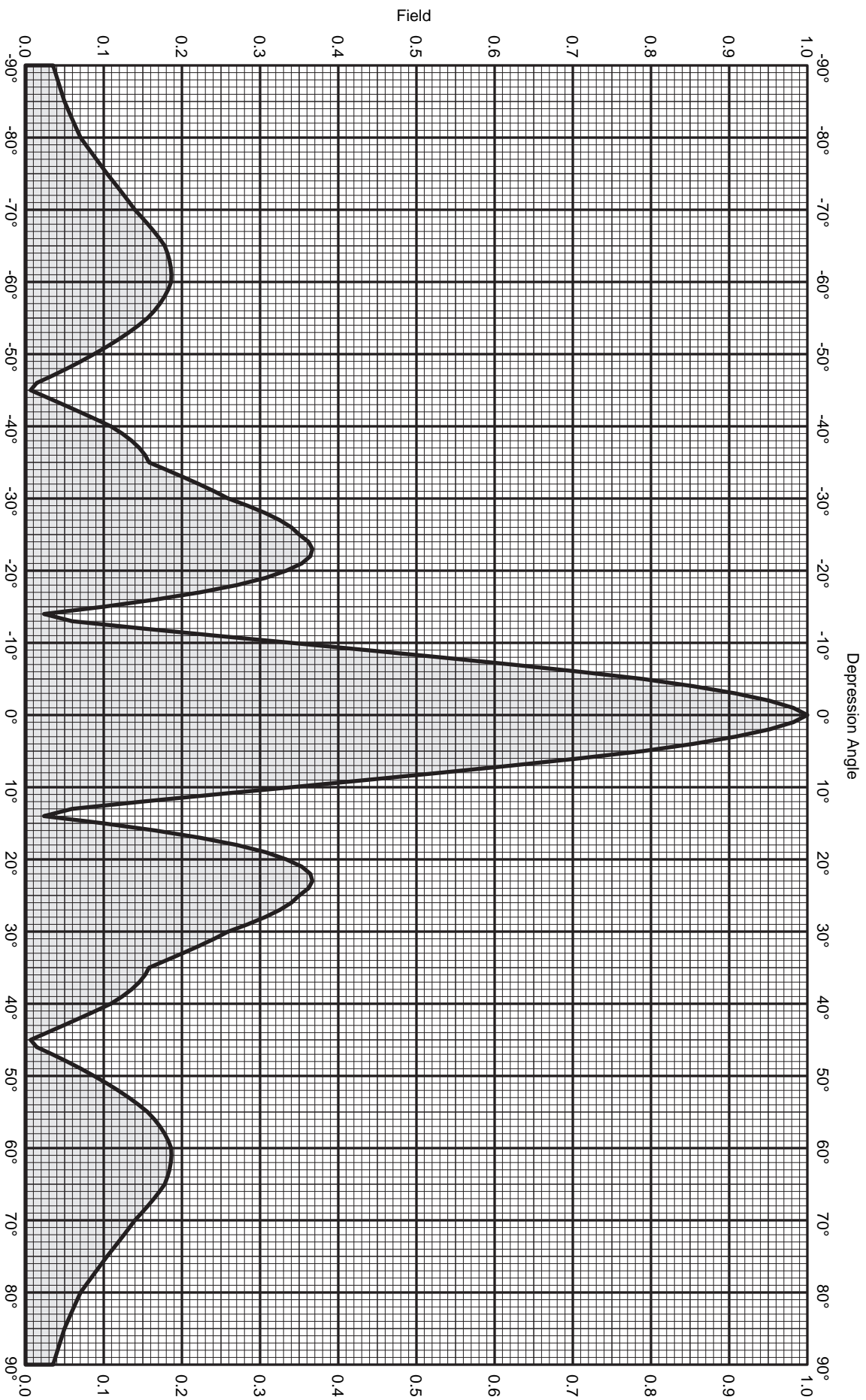
Horizontal plane Pattern



4DR-8-2HW Parapanel Array  
 CH: 20  
 Oriented at 120 degrees  
 Gain: 8.5 dBd (x 7.1)

Horizontal Polarization  
 Vertical Stacked  
 Horizontal plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	0.132	-17.56	-9.06	0.12	180	0.975	-0.22	8.28	6.73
5	0.290	-10.75	-2.25	0.60	185	0.948	-0.46	8.04	6.36
10	0.403	-7.90	0.60	1.15	190	0.917	-0.75	7.75	5.96
15	0.490	-6.20	2.30	1.70	195	0.877	-1.14	7.36	5.45
20	0.570	-4.88	3.62	2.30	200	0.830	-1.62	6.88	4.88
25	0.645	-3.81	4.69	2.95	205	0.772	-2.24	6.26	4.22
30	0.712	-2.94	5.56	3.59	210	0.712	-2.94	5.56	3.59
35	0.772	-2.24	6.26	4.22	215	0.645	-3.81	4.69	2.95
40	0.830	-1.62	6.88	4.88	220	0.570	-4.88	3.62	2.30
45	0.877	-1.14	7.36	5.45	225	0.490	-6.20	2.30	1.70
50	0.917	-0.75	7.75	5.96	230	0.403	-7.90	0.60	1.15
55	0.948	-0.46	8.04	6.36	235	0.290	-10.75	-2.25	0.60
60	0.975	-0.22	8.28	6.73	240	0.132	-17.56	-9.06	0.12
65	0.990	-0.09	8.41	6.94	245	0.050	-26.02	-17.52	0.02
70	0.989	-0.10	8.40	6.92	250	0.020	-33.98	-25.48	0.00
75	0.957	-0.38	8.12	6.49	255	0.020	-33.98	-25.48	0.00
80	0.910	-0.82	7.68	5.86	260	0.020	-33.98	-25.48	0.00
85	0.850	-1.41	7.09	5.11	265	0.020	-33.98	-25.48	0.00
90	0.789	-2.05	6.45	4.41	270	0.020	-33.98	-25.48	0.00
95	0.770	-2.27	6.23	4.20	275	0.020	-33.98	-25.48	0.00
100	0.829	-1.63	6.87	4.86	280	0.020	-33.98	-25.48	0.00
105	0.899	-0.93	7.57	5.72	285	0.020	-33.98	-25.48	0.00
110	0.950	-0.45	8.05	6.39	290	0.020	-33.98	-25.48	0.00
115	0.980	-0.17	8.33	6.81	295	0.020	-33.98	-25.48	0.00
120	1.000	0.00	8.50	7.08	300	0.020	-33.98	-25.48	0.00
125	0.980	-0.17	8.33	6.81	305	0.020	-33.98	-25.48	0.00
130	0.950	-0.45	8.05	6.39	310	0.020	-33.98	-25.48	0.00
135	0.899	-0.93	7.57	5.72	315	0.020	-33.98	-25.48	0.00
140	0.829	-1.63	6.87	4.86	320	0.020	-33.98	-25.48	0.00
145	0.770	-2.27	6.23	4.20	325	0.020	-33.98	-25.48	0.00
150	0.789	-2.05	6.45	4.41	330	0.020	-33.98	-25.48	0.00
155	0.850	-1.41	7.09	5.11	335	0.020	-33.98	-25.48	0.00
160	0.910	-0.82	7.68	5.86	340	0.020	-33.98	-25.48	0.00
165	0.957	-0.38	8.12	6.49	345	0.020	-33.98	-25.48	0.00
170	0.989	-0.10	8.40	6.92	350	0.020	-33.98	-25.48	0.00
175	0.990	-0.09	8.41	6.94	355	0.050	-26.02	-17.52	0.02



**KATHREIN**  
**SCALA DIVISION**

Post Office Box 4580  
Medford, OR 97501 (USA)  
Phone: (541) 779-6500  
Fax: (541) 779-3991  
<http://www.kathrein-scala.com>

4DR-8-2HW Parapanel Array

CH: 20

Oriented at 120 degrees

Gain: 8.5 dBi (x 7.1)

Horizontal Polarization

Vertical Stacked

Vertical plane Pattern



4DR-8-2HW Parapanel Array

CH: 20

Oriented at 120 degrees

Gain: 8.5 dBd (x 7.1)

Horizontal Polarization

Vertical Stacked

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.035	-29.05	-20.55	0.01	-45	0.010	-40.00	-31.50	0.00
-89	0.038	-28.38	-19.88	0.01	-44	0.028	-31.20	-22.70	0.01
-88	0.041	-27.75	-19.25	0.01	-43	0.048	-26.29	-17.79	0.02
-87	0.044	-27.15	-18.65	0.01	-42	0.069	-23.20	-14.70	0.03
-86	0.047	-26.59	-18.09	0.02	-41	0.089	-20.97	-12.47	0.06
-85	0.050	-26.05	-17.55	0.02	-40	0.109	-19.24	-10.74	0.08
-84	0.054	-25.38	-16.88	0.02	-39	0.124	-18.16	-9.66	0.11
-83	0.058	-24.75	-16.25	0.02	-38	0.136	-17.34	-8.84	0.13
-82	0.062	-24.16	-15.66	0.03	-37	0.146	-16.74	-8.24	0.15
-81	0.066	-23.59	-15.09	0.03	-36	0.153	-16.31	-7.81	0.17
-80	0.070	-23.06	-14.56	0.04	-35	0.158	-16.03	-7.53	0.18
-79	0.077	-22.27	-13.77	0.04	-34	0.180	-14.91	-6.41	0.23
-78	0.084	-21.54	-13.04	0.05	-33	0.201	-13.94	-5.44	0.29
-77	0.091	-20.86	-12.36	0.06	-32	0.222	-13.08	-4.58	0.35
-76	0.097	-20.23	-11.73	0.07	-31	0.241	-12.35	-3.85	0.41
-75	0.104	-19.64	-11.14	0.08	-30	0.259	-11.73	-3.23	0.48
-74	0.112	-19.05	-10.55	0.09	-29	0.284	-10.93	-2.43	0.57
-73	0.119	-18.50	-10.00	0.10	-28	0.306	-10.28	-1.78	0.66
-72	0.126	-17.99	-9.49	0.11	-27	0.325	-9.76	-1.26	0.75
-71	0.133	-17.52	-9.02	0.13	-26	0.340	-9.37	-0.87	0.82
-70	0.140	-17.09	-8.59	0.14	-25	0.350	-9.12	-0.62	0.87
-69	0.148	-16.58	-8.08	0.16	-24	0.362	-8.83	-0.33	0.93
-68	0.157	-16.11	-7.61	0.17	-23	0.367	-8.71	-0.21	0.95
-67	0.164	-15.69	-7.19	0.19	-22	0.364	-8.77	-0.27	0.94
-66	0.171	-15.32	-6.82	0.21	-21	0.353	-9.04	-0.54	0.88
-65	0.178	-14.99	-6.49	0.22	-20	0.334	-9.54	-1.04	0.79
-64	0.181	-14.83	-6.33	0.23	-19	0.307	-10.26	-1.76	0.67
-63	0.184	-14.70	-6.20	0.24	-18	0.270	-11.36	-2.86	0.52
-62	0.186	-14.62	-6.12	0.24	-17	0.223	-13.02	-4.52	0.35
-61	0.187	-14.58	-6.08	0.25	-16	0.166	-15.58	-7.08	0.20
-60	0.186	-14.60	-6.10	0.25	-15	0.100	-20.04	-11.54	0.07
-59	0.183	-14.77	-6.27	0.24	-14	0.024	-32.54	-24.04	0.00
-58	0.178	-15.00	-6.50	0.22	-13	0.060	-24.51	-16.01	0.03
-57	0.172	-15.29	-6.79	0.21	-12	0.149	-16.55	-8.05	0.16
-56	0.165	-15.67	-7.17	0.19	-11	0.243	-12.30	-3.80	0.42
-55	0.156	-16.13	-7.63	0.17	-10	0.340	-9.36	-0.86	0.82
-54	0.145	-16.79	-8.29	0.15	-9	0.436	-7.21	1.29	1.34
-53	0.132	-17.58	-9.08	0.12	-8	0.530	-5.51	2.99	1.99
-52	0.118	-18.54	-10.04	0.10	-7	0.622	-4.13	4.37	2.74
-51	0.103	-19.70	-11.20	0.08	-6	0.709	-2.99	5.51	3.55
-50	0.088	-21.16	-12.66	0.05	-5	0.790	-2.05	6.45	4.41
-49	0.071	-23.00	-14.50	0.04	-4	0.854	-1.37	7.13	5.16
-48	0.053	-25.52	-17.02	0.02	-3	0.908	-0.84	7.66	5.84
-47	0.034	-29.35	-20.85	0.01	-2	0.951	-0.44	8.06	6.40
-46	0.014	-36.94	-28.44	0.00	-1	0.982	-0.16	8.34	6.83
					0	1.000	0.00	8.50	7.08



4DR-8-2HW Parapanel Array

CH: 20

Oriented at 120 degrees

Gain: 8.5 dBd (x 7.1)

Horizontal Polarization

Vertical Stacked

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	8.50	7.08	45	0.010	-40.00	-31.50	0.00
1	0.982	-0.16	8.34	6.83	46	0.014	-36.94	-28.44	0.00
2	0.951	-0.44	8.06	6.40	47	0.034	-29.35	-20.85	0.01
3	0.908	-0.84	7.66	5.84	48	0.053	-25.52	-17.02	0.02
4	0.854	-1.37	7.13	5.16	49	0.071	-23.00	-14.50	0.04
5	0.790	-2.05	6.45	4.41	50	0.088	-21.16	-12.66	0.05
6	0.709	-2.99	5.51	3.56	51	0.103	-19.70	-11.20	0.08
7	0.622	-4.13	4.37	2.74	52	0.118	-18.54	-10.04	0.10
8	0.530	-5.51	2.99	1.99	53	0.132	-17.58	-9.08	0.12
9	0.436	-7.21	1.29	1.34	54	0.145	-16.79	-8.29	0.15
10	0.340	-9.36	-0.86	0.82	55	0.156	-16.13	-7.63	0.17
11	0.243	-12.29	-3.79	0.42	56	0.165	-15.67	-7.17	0.19
12	0.149	-16.55	-8.05	0.16	57	0.172	-15.29	-6.79	0.21
13	0.060	-24.50	-16.00	0.03	58	0.178	-15.00	-6.50	0.22
14	0.024	-32.55	-24.05	0.00	59	0.183	-14.77	-6.27	0.24
15	0.100	-20.04	-11.54	0.07	60	0.186	-14.60	-6.10	0.25
16	0.166	-15.58	-7.08	0.20	61	0.187	-14.58	-6.08	0.25
17	0.223	-13.02	-4.52	0.35	62	0.186	-14.62	-6.12	0.24
18	0.270	-11.36	-2.86	0.52	63	0.184	-14.70	-6.20	0.24
19	0.307	-10.26	-1.76	0.67	64	0.181	-14.83	-6.33	0.23
20	0.334	-9.54	-1.04	0.79	65	0.178	-14.99	-6.49	0.22
21	0.353	-9.04	-0.54	0.88	66	0.171	-15.32	-6.82	0.21
22	0.364	-8.77	-0.27	0.94	67	0.164	-15.69	-7.19	0.19
23	0.367	-8.71	-0.21	0.95	68	0.157	-16.11	-7.61	0.17
24	0.362	-8.83	-0.33	0.93	69	0.148	-16.58	-8.08	0.16
25	0.350	-9.12	-0.62	0.87	70	0.140	-17.09	-8.59	0.14
26	0.340	-9.37	-0.87	0.82	71	0.133	-17.52	-9.02	0.13
27	0.325	-9.76	-1.26	0.75	72	0.126	-17.99	-9.49	0.11
28	0.306	-10.28	-1.78	0.66	73	0.119	-18.50	-10.00	0.10
29	0.284	-10.93	-2.43	0.57	74	0.112	-19.05	-10.55	0.09
30	0.259	-11.73	-3.23	0.48	75	0.104	-19.64	-11.14	0.08
31	0.241	-12.35	-3.85	0.41	76	0.097	-20.23	-11.73	0.07
32	0.222	-13.08	-4.58	0.35	77	0.091	-20.86	-12.36	0.06
33	0.201	-13.94	-5.44	0.29	78	0.084	-21.54	-13.04	0.05
34	0.180	-14.91	-6.41	0.23	79	0.077	-22.27	-13.77	0.04
35	0.158	-16.03	-7.53	0.18	80	0.070	-23.06	-14.56	0.04
36	0.153	-16.31	-7.81	0.17	81	0.066	-23.59	-15.09	0.03
37	0.146	-16.74	-8.24	0.15	82	0.062	-24.16	-15.66	0.03
38	0.136	-17.34	-8.84	0.13	83	0.058	-24.75	-16.25	0.02
39	0.124	-18.16	-9.66	0.11	84	0.054	-25.38	-16.88	0.02
40	0.109	-19.24	-10.74	0.08	85	0.050	-26.05	-17.55	0.02
41	0.089	-20.97	-12.47	0.06	86	0.047	-26.59	-18.09	0.02
42	0.069	-23.20	-14.70	0.03	87	0.044	-27.15	-18.65	0.01
43	0.048	-26.29	-17.79	0.02	88	0.041	-27.75	-19.25	0.01
44	0.028	-31.20	-22.70	0.01	89	0.038	-28.38	-19.88	0.01
					90	0.035	-29.05	-20.55	0.01



**DIRECTIONAL ANTENNA DATA**  
**K20GU-LD**  
**dBk Table**

Actual Bearing	Pattern Azimuth	Relative Field	ERP (dBk)	CONTOUR F(50,90) - 51 dBu
N000E	0.00	0.132	-17.59	28.6
	10.00	0.403	-7.89	
	20.00	0.570	-4.88	
	30.00	0.712	-2.95	
	40.00	0.830	-1.62	
N045E	45.00	0.877	-1.14	55.0
	50.00	0.917	-0.75	
	60.00	0.975	-0.22	
	70.00	0.989	-0.10	
	80.00	0.910	-0.82	
N090E	90.00	0.789	-2.06	54.0
	100.00	0.829	-1.63	
	110.00	0.950	-0.45	
	120.00	1.000	0.00	
	130.00	0.950	-0.45	
N135E	135.00	0.899	-0.92	55.7
	140.00	0.829	-1.63	
	150.00	0.789	-2.06	
	160.00	0.910	-0.82	
	170.00	0.989	-0.10	
N180E	180.00	0.975	-0.22	51.4
	190.00	0.917	-0.75	
	200.00	0.830	-1.62	
	210.00	0.712	-2.95	
	220.00	0.570	-4.88	
N225E	225.00	0.490	-6.20	43.0
	230.00	0.403	-7.89	
	240.00	0.132	-17.59	
	250.00	0.020	-33.98	
	260.00	0.020	-33.98	
N270E	270.00	0.020	-33.98	10.8
	280.00	0.020	-33.98	
	290.00	0.020	-33.98	
	300.00	0.020	-33.98	
	310.00	0.020	-33.98	
N315E	315.00	0.020	-33.98	10.1
	320.00	0.020	-33.98	
	330.00	0.020	-33.98	
	340.00	0.020	-33.98	
	350.00	0.020	-33.98	

Maximum: N120E      0.00 dBk

Minima: N250E -      -33.98 dBk  
NE350