



ENGINEERING STATEMENT
OF
JOHN F.X. BROWNE, P.E.
IN SUPPORT OF APPLICATION FOR
MODIFICATION OF A CONSTRUCTION PERMIT
KYIN-DT
Mason City, IA

Background

The Iowa Public Broadcasting Board (IPTV) is licensee of KYIN-TV (BLET-19860923KJ, Facility ID# 29086), CH24, Mason City, IA and also holds a construction permit for KYIN-DT (BPEDT-20000427ACI Facility ID# 29086), CH18, Mason City, IA. IPTV intended to collocate its digital facility with its analog facility and mount its antenna on the same tower; however, a structural analysis of the tower revealed that it was not capable of holding both antennas. IPTV, in the instant application, now wishes modify its construction permit so that the digital facility can be moved approximately 9.5 miles northeast where its antenna will be mounted on a newly constructed antenna support structure. IPTV certified to the coverage authorized in its above referenced construction permit. A slightly different directional antenna is proposed and the ERP will be adjusted so that the new contour will not exceed the contour authorized construction permit in any direction, thus comporting the Commission's "freeze" order.

Tower/Antenna System

The tower is registered (ASRN 1253749) and the antenna will be side-mounted so as not to increase the overall height of the tower and, therefore, neither notification to the FAA nor modification of the Antenna Structure Registration is required.



The patterns for the proposed directional antenna (Dielectric TFU-22DCS-R 4P230) are attached as Exhibits 1a-d. A relative field/dBk table is included as Table 1 and a relative field/dBk table for the authorized construction permit is included as Table 2 for reference.

ERP/Interference

The proposed maximum ERP of 250 kW is designed so that the 41 dBu F(50,90) contour will not exceed the certified contour in any direction; the 48 dBu F(50,90) contour will continue to completely encompass the principal city of Mason City, IA. The population inside the certified contour is 595,433 (reported in the FCC's *Table I of Station Assignment and Service Information* dated December 21, 2004) while the population inside the proposed contour is predicted to be 476,374. IPTV recognizes that this is a significant population difference but there is no practical alternative to achieve the original coverage without exceeding the freeze order. This population reduction will be addressed by maximization after the "freeze" is lifted. There are no new interference problems created by the instant proposal as its interference contour does not exceed that authorized in the construction permit in any direction.

Environmental / RFR Considerations

The proposed construction does not require preparation of an Environmental Assessment as it does not involve any of the factors listed in Section 1.1306.

The additional ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.000410 mW/cm^2 which is less than 5% of the MPE for public exposure (0.331 mW/cm^2) at the proposed frequency.

IPTV agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a complaint environment for worker access. Workers will also be encouraged to wear personal RFR



monitors when on the structure. The tower base will be enclosed by a locked security fence and appropriate signage warning of RFR hazards will be posted.

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 herein are believed to be true and correct based on my 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.

John F.X. Browne PE
July 5, 2006

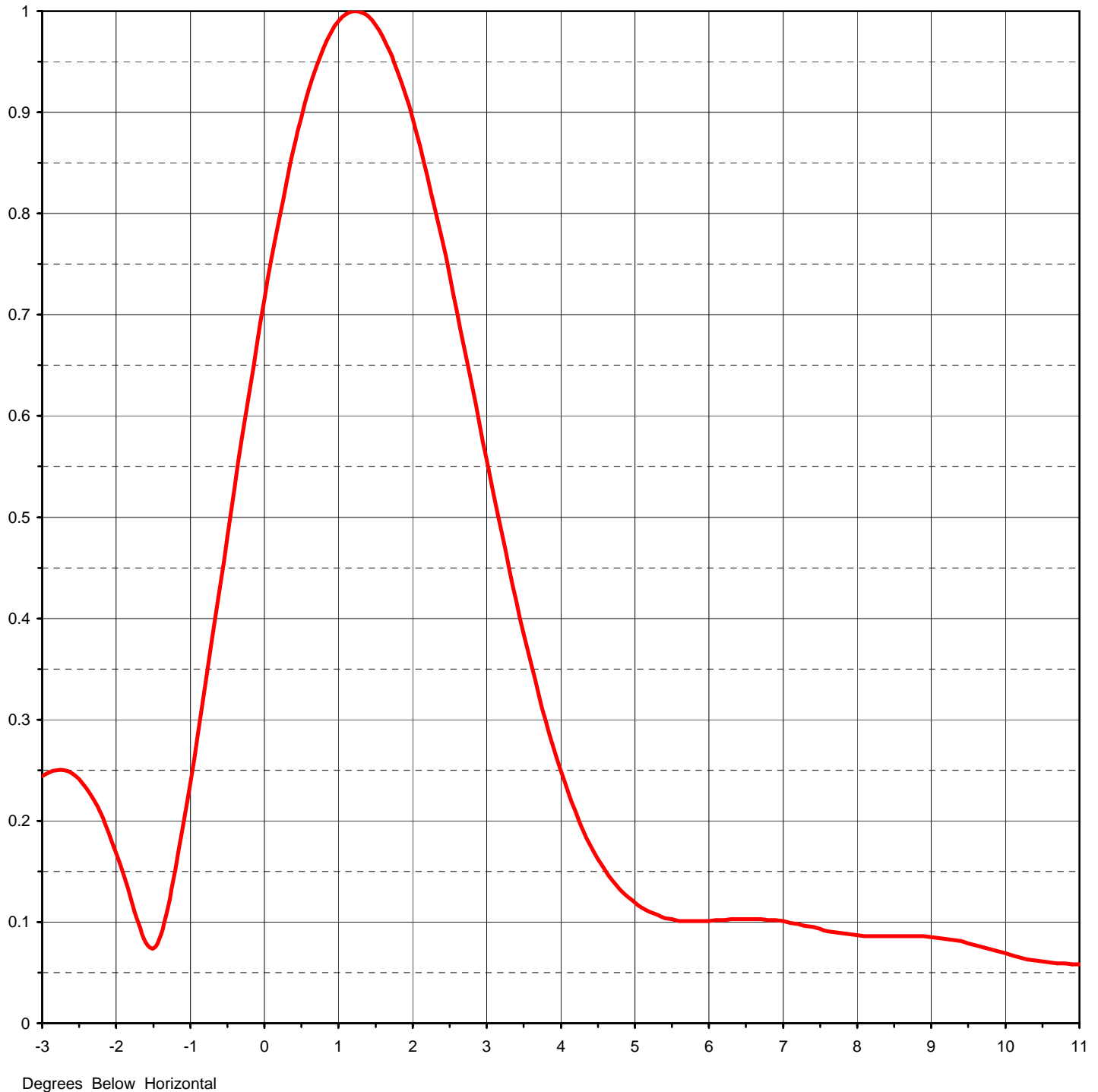


Proposal Number	DCA-11316		
Date	9-Dec-05		
Call Letters	KYIN-DT	Channel	18
Location	Mason City, IA		
Customer			
Antenna Type	TFU-22DSC-R 4P230		

ELEVATION PATTERN

RMS Gain at Main Lobe	18.50	(12.67 dB)
RMS Gain at Horizontal	9.50	(9.78 dB)
Calculated / Measured	Calculated	

Beam Tilt	1.25 deg
Frequency	497.00 MHz
Drawing #	22Q185125





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TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **22Q185125-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.142	2.4	0.773	10.6	0.061	30.5	0.060	51.0	0.067	71.5	0.044
-9.5	0.183	2.6	0.703	10.8	0.059	31.0	0.068	51.5	0.069	72.0	0.043
-9.0	0.236	2.8	0.630	11.0	0.058	31.5	0.065	52.0	0.068	72.5	0.041
-8.5	0.285	3.0	0.557	11.5	0.054	32.0	0.054	52.5	0.065	73.0	0.038
-8.0	0.314	3.2	0.485	12.0	0.045	32.5	0.038	53.0	0.061	73.5	0.034
-7.5	0.312	3.4	0.417	12.5	0.034	33.0	0.023	53.5	0.056	74.0	0.030
-7.0	0.278	3.6	0.354	13.0	0.038	33.5	0.016	54.0	0.054	74.5	0.026
-6.5	0.221	3.8	0.298	13.5	0.051	34.0	0.020	54.5	0.053	75.0	0.021
-6.0	0.162	4.0	0.249	14.0	0.058	34.5	0.027	55.0	0.054	75.5	0.016
-5.5	0.117	4.2	0.209	14.5	0.050	35.0	0.040	55.5	0.058	76.0	0.012
-5.0	0.092	4.4	0.176	15.0	0.028	35.5	0.056	56.0	0.064	76.5	0.009
-4.5	0.092	4.6	0.151	15.5	0.012	36.0	0.074	56.5	0.072	77.0	0.008
-4.0	0.133	4.8	0.132	16.0	0.038	36.5	0.089	57.0	0.082	77.5	0.010
-3.5	0.197	5.0	0.119	16.5	0.060	37.0	0.099	57.5	0.092	78.0	0.012
-3.0	0.244	5.2	0.110	17.0	0.067	37.5	0.102	58.0	0.102	78.5	0.015
-2.8	0.250	5.4	0.104	17.5	0.058	38.0	0.098	58.5	0.109	79.0	0.018
-2.6	0.247	5.6	0.101	18.0	0.040	38.5	0.090	59.0	0.114	79.5	0.020
-2.4	0.232	5.8	0.101	18.5	0.030	39.0	0.079	59.5	0.116	80.0	0.022
-2.2	0.206	6.0	0.101	19.0	0.041	39.5	0.069	60.0	0.114	80.5	0.023
-2.0	0.168	6.2	0.102	19.5	0.055	40.0	0.060	60.5	0.110	81.0	0.023
-1.8	0.122	6.4	0.103	20.0	0.060	40.5	0.055	61.0	0.103	81.5	0.024
-1.6	0.080	6.6	0.103	20.5	0.056	41.0	0.056	61.5	0.093	82.0	0.024
-1.4	0.087	6.8	0.102	21.0	0.048	41.5	0.061	62.0	0.083	82.5	0.023
-1.2	0.152	7.0	0.101	21.5	0.041	42.0	0.069	62.5	0.072	83.0	0.022
-1.0	0.238	7.2	0.098	22.0	0.038	42.5	0.076	63.0	0.061	83.5	0.021
-0.8	0.333	7.4	0.095	22.5	0.042	43.0	0.081	63.5	0.051	84.0	0.019
-0.6	0.432	7.6	0.091	23.0	0.056	43.5	0.080	64.0	0.043	84.5	0.018
-0.4	0.530	7.8	0.089	23.5	0.079	44.0	0.074	64.5	0.035	85.0	0.016
-0.2	0.626	8.0	0.087	24.0	0.101	44.5	0.063	65.0	0.030	85.5	0.014
0.0	0.715	8.2	0.086	24.5	0.115	45.0	0.050	65.5	0.026	86.0	0.012
0.2	0.796	8.4	0.086	25.0	0.117	45.5	0.035	66.0	0.024	86.5	0.010
0.4	0.866	8.6	0.086	25.5	0.104	46.0	0.022	66.5	0.022	87.0	0.008
0.6	0.922	8.8	0.086	26.0	0.080	46.5	0.012	67.0	0.022	87.5	0.006
0.8	0.964	9.0	0.085	26.5	0.050	47.0	0.007	67.5	0.023	88.0	0.005
1.0	0.990	9.2	0.083	27.0	0.027	47.5	0.002	68.0	0.026	88.5	0.003
1.2	1.000	9.4	0.081	27.5	0.025	48.0	0.006	68.5	0.030	89.0	0.002
1.4	0.995	9.6	0.077	28.0	0.029	48.5	0.017	69.0	0.034	89.5	0.001
1.6	0.974	9.8	0.075	28.5	0.025	49.0	0.029	69.5	0.038	90.0	0.000
1.8	0.940	10.0	0.071	29.0	0.015	49.5	0.042	70.0	0.041		
2.0	0.894	10.2	0.067	29.5	0.023	50.0	0.053	70.5	0.043		
2.2	0.837	10.4	0.063	30.0	0.044	50.5	0.062	71.0	0.044		



Proposal Number

DCA-11316

Date

9-Dec-05

Call Letters

KYIN-DT

Channel

18

Location

Mason City, IA

Customer

Antenna Type

TFU-22DSC-R 4P230

AZIMUTH PATTERN

Gain

2.30

(3.62 dB)

Calculated / Measured

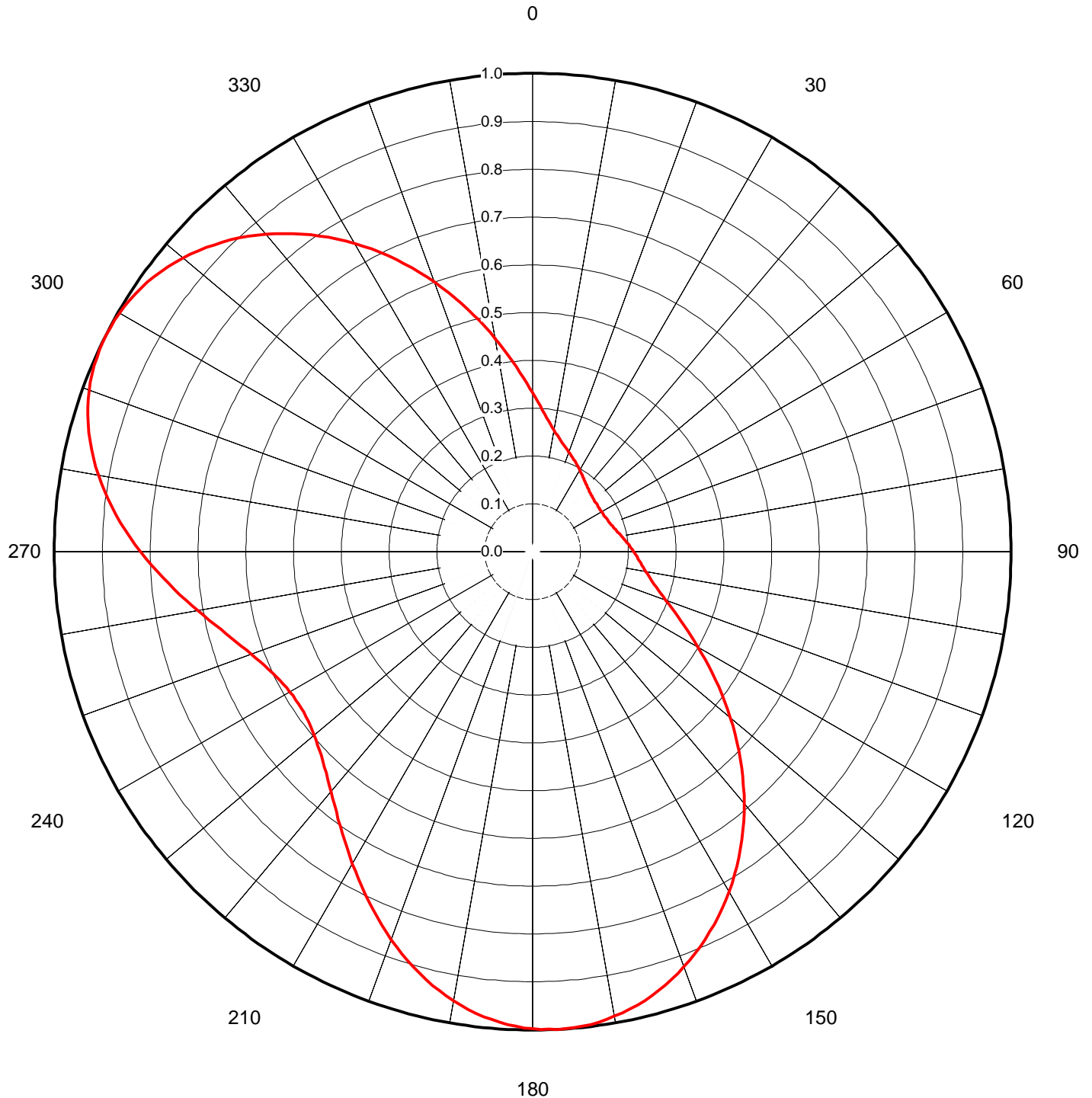
Calculated

Frequency

497.00 MHz

Drawing #

TFU 4P230-18





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Call Letters **KYIN-DT** Channel **18**
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Customer
Antenna Type **TFU-22DSC-R 4P230**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TFU 4P230-18**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.332	45	0.172	90	0.211	135	0.614	180	0.997	225	0.620	270	0.820	315	0.916
1	0.322	46	0.171	91	0.214	136	0.629	181	0.996	226	0.614	271	0.831	316	0.906
2	0.313	47	0.170	92	0.216	137	0.644	182	0.993	227	0.609	272	0.842	317	0.897
3	0.304	48	0.169	93	0.219	138	0.659	183	0.990	228	0.604	273	0.853	318	0.887
4	0.297	49	0.169	94	0.222	139	0.673	184	0.986	229	0.600	274	0.863	319	0.877
5	0.289	50	0.168	95	0.224	140	0.688	185	0.982	230	0.596	275	0.874	320	0.866
6	0.282	51	0.168	96	0.227	141	0.702	186	0.977	231	0.593	276	0.884	321	0.856
7	0.275	52	0.167	97	0.230	142	0.716	187	0.972	232	0.590	277	0.894	322	0.844
8	0.269	53	0.167	98	0.234	143	0.730	188	0.966	233	0.588	278	0.903	323	0.833
9	0.263	54	0.167	99	0.237	144	0.744	189	0.960	234	0.586	279	0.913	324	0.821
10	0.258	55	0.167	100	0.241	145	0.757	190	0.953	235	0.585	280	0.921	325	0.809
11	0.253	56	0.167	101	0.244	146	0.771	191	0.946	236	0.584	281	0.930	326	0.796
12	0.249	57	0.166	102	0.249	147	0.784	192	0.938	237	0.584	282	0.938	327	0.784
13	0.244	58	0.167	103	0.253	148	0.796	193	0.930	238	0.584	283	0.946	328	0.771
14	0.241	59	0.167	104	0.258	149	0.809	194	0.921	239	0.585	284	0.953	329	0.757
15	0.237	60	0.167	105	0.263	150	0.821	195	0.913	240	0.586	285	0.960	330	0.744
16	0.234	61	0.167	106	0.269	151	0.833	196	0.903	241	0.588	286	0.966	331	0.730
17	0.230	62	0.167	107	0.275	152	0.844	197	0.894	242	0.590	287	0.972	332	0.716
18	0.227	63	0.168	108	0.282	153	0.856	198	0.884	243	0.593	288	0.977	333	0.702
19	0.224	64	0.168	109	0.289	154	0.866	199	0.874	244	0.596	289	0.982	334	0.688
20	0.222	65	0.169	110	0.297	155	0.877	200	0.863	245	0.600	290	0.986	335	0.673
21	0.219	66	0.169	111	0.304	156	0.887	201	0.853	246	0.604	291	0.990	336	0.659
22	0.216	67	0.170	112	0.313	157	0.897	202	0.842	247	0.609	292	0.993	337	0.644
23	0.214	68	0.171	113	0.322	158	0.906	203	0.831	248	0.614	293	0.996	338	0.629
24	0.211	69	0.172	114	0.332	159	0.916	204	0.820	249	0.620	294	0.997	339	0.614
25	0.209	70	0.173	115	0.342	160	0.924	205	0.809	250	0.626	295	0.999	340	0.599
26	0.206	71	0.174	116	0.353	161	0.932	206	0.797	251	0.632	296	0.999	341	0.584
27	0.204	72	0.175	117	0.364	162	0.940	207	0.786	252	0.640	297	1.000	342	0.569
28	0.202	73	0.176	118	0.375	163	0.948	208	0.775	253	0.647	298	0.999	343	0.554
29	0.199	74	0.178	119	0.387	164	0.954	209	0.764	254	0.655	299	0.999	344	0.539
30	0.197	75	0.179	120	0.400	165	0.961	210	0.753	255	0.663	300	0.997	345	0.525
31	0.195	76	0.181	121	0.412	166	0.967	211	0.742	256	0.672	301	0.995	346	0.510
32	0.193	77	0.183	122	0.426	167	0.973	212	0.731	257	0.681	302	0.993	347	0.495
33	0.190	78	0.185	123	0.439	168	0.978	213	0.721	258	0.691	303	0.990	348	0.481
34	0.188	79	0.186	124	0.453	169	0.982	214	0.710	259	0.700	304	0.986	349	0.467
35	0.186	80	0.188	125	0.467	170	0.986	215	0.700	260	0.710	305	0.982	350	0.453
36	0.185	81	0.190	126	0.481	171	0.990	216	0.691	261	0.721	306	0.978	351	0.439
37	0.183	82	0.193	127	0.495	172	0.993	217	0.681	262	0.731	307	0.973	352	0.426
38	0.181	83	0.195	128	0.510	173	0.995	218	0.672	263	0.742	308	0.967	353	0.412
39	0.179	84	0.197	129	0.525	174	0.997	219	0.663	264	0.753	309	0.961	354	0.400
40	0.178	85	0.199	130	0.539	175	0.999	220	0.655	265	0.764	310	0.954	355	0.387
41	0.176	86	0.202	131	0.554	176	0.999	221	0.647	266	0.775	311	0.948	356	0.375
42	0.175	87	0.204	132	0.569	177	1.000	222	0.640	267	0.786	312	0.940	357	0.364
43	0.174	88	0.206	133	0.584	178	0.999	223	0.632	268	0.797	313	0.932	358	0.353
44	0.173	89	0.209	134	0.599	179	0.999	224	0.626	269	0.809	314	0.924	359	0.342

DIRECTIONAL ANTENNA DATA**KYIN-DT CH 18****(Mason City, IA)****Table 1**

Actual Bearing	Pattern Azimuth	Relative Field	ERP (dBk)	CONTOURS(km)	
				48 dBu	41 dBu
N000E	0.00	0.332	14.40	69.7	80.2
	10.00	0.258	12.21		
	20.00	0.222	10.91		
	30.00	0.197	9.87		
	40.00	0.178	8.99		
N045E	45.00	0.172	8.69	61.7	71.6
	50.00	0.168	8.49		
	60.00	0.167	8.43		
	70.00	0.173	8.74		
	80.00	0.019	-10.54		
N090E	90.00	0.211	10.47	64.0	74.2
	100.00	0.241	11.62		
	110.00	0.297	13.43		
	120.00	0.400	16.02		
	130.00	0.539	18.61		
N135E	135.00	0.614	19.74	79.1	89.8
	140.00	0.688	20.73		
	150.00	0.821	22.27		
	160.00	0.924	23.29		
	170.00	0.986	23.86		
N180E	180.00	0.997	23.95	86.2	98.8
	190.00	0.953	23.56		
	200.00	0.863	22.70		
	210.00	0.753	21.52		
	220.00	0.655	20.30		
N225E	225.00	0.620	19.83	79.8	90.6
	230.00	0.596	19.48		
	240.00	0.586	19.34		
	250.00	0.626	19.91		
	260.00	0.710	21.00		
N270E	270.00	0.820	22.26	83.0	94.5
	280.00	0.921	23.26		
	290.00	0.986	23.86		
	300.00	0.997	23.95		
	310.00	0.954	23.57		
N315E	315.00	0.916	23.22	84.1	95.9
	320.00	0.866	22.73		
	330.00	0.744	21.41		
	340.00	0.599	19.53		
	350.00	0.453	17.10		

Maxima: N177E 23.98 dBk
N297E 23.98 dBk

Minimum: N057E 8.38 dBk

DIRECTIONAL ANTENNA DATA
KYIN-DT CH 18 CP
(Mason City, IA)
Table 2

Actual Bearing	Pattern Azimuth	Relative Field	ERP (dBk)	CONTOURS(km)	
				48 dBu	41 dBu
N000E	0.00	0.759	24.59	84.4	96.0
	10.00	0.644	23.17		
	20.00	0.539	21.62		
	30.00	0.457	20.19		
	40.00	0.406	19.16		
N045E	45.00	0.394	18.90	76.4	86.7
	50.00	0.383	18.65		
	60.00	0.383	18.65		
	70.00	0.406	19.16		
	80.00	0.457	20.19		
N090E	90.00	0.539	21.62	80.9	91.8
	100.00	0.644	23.17		
	110.00	0.759	24.59		
	120.00	0.867	25.75		
	130.00	0.949	26.54		
N135E	135.00	0.972	26.74	89.0	102.3
	140.00	0.994	26.94		
	150.00	0.994	26.94		
	160.00	0.949	26.54		
	170.00	0.867	25.75		
N180E	180.00	0.759	24.59	86.2	98.8
	190.00	0.644	23.17		
	200.00	0.539	21.62		
	210.00	0.457	20.19		
	220.00	0.406	19.16		
N225E	225.00	0.394	18.90	77.6	88.0
	230.00	0.383	18.65		
	240.00	0.383	18.65		
	250.00	0.406	19.16		
	260.00	0.457	20.19		
N270E	270.00	0.539	21.62	81.2	92.1
	280.00	0.644	23.17		
	290.00	0.759	24.59		
	300.00	0.867	25.75		
	310.00	0.949	26.54		
N315E	315.00	0.972	26.74	88.7	102.0
	320.00	0.994	26.94		
	330.00	0.994	26.94		
	340.00	0.949	26.54		
	350.00	0.867	25.75		

Maxima: N145E 26.99 dBk
N335E 26.99 dBk
Minima: N055E 17.87 dBk
: N235E 17.87 dBk