

Environmental Statement

Question 16

The proposed site is not in an officially designated wilderness area, wildlife preserve, flood plain, or near a site that is either listed or eligible for listing in the National Register of Historic Places. The proposed construction will not adversely affect any listed or proposed threatened or endangered species or their critical habitats, or any sites significant to Native American Religious practice, and will not involve any significant change in surface features. The applicant does not propose to light the antenna support structure with high intensity white lighting.

The proposed facility is to be located at the apex of a hill. The closest significant rise in terrain is 941 meters from the proposed site. The closest residence is 930 meters Northwest of the proposed site, at an elevation 193 meters lower than the base of the tower. There are other significant emitters of radio frequency energy in the area. The transmitter and tower are enclosed with a locked chain-link fence. The site is located on the Yakima Indian Reservation which is patrolled on a regular basis. Access to the site is available only to authorized technical and maintenance personnel by the unimproved private road.

Page three of this Exhibit is a printout from the Commission's FM Model for Windows software for the FM antenna. As shown, at ground level RF exposure will be less than 10 $\mu\text{W}/\text{cm}^2$, or 5.0% of the general population/uncontrolled exposure limit of 200 $\mu\text{W}/\text{cm}^2$ and 1.0% of the occupational/controlled exposure limit of 1,000 $\mu\text{W}/\text{cm}$ for FM broadcast frequencies.

On the same tower is KAPP-TV's top mounted channel 35 RCA TFU-30J NTSC antenna with 646 kW ERP at 45.9 m AGL with a worst case relative field factor of 0.087 per Dielectric elevation pattern data shown in pages four thru six of this exhibit.

Also on the same tower is KAPP-TV's side-mounted channel 14 Dielectric TFU24DSBA Digital antenna which will operate with an initial ERP of 41 kW at 45.1 m AGL and with an authorized ERP of 200 kW. At 45.1 m AGL this antenna will have a worst case relative field factor of 0.117 per Dielectric elevation pattern data shown in pages seven thru nine of this exhibit. All calculations are made using the higher authorized ERP.

By reference to Table 1 of the Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65 Supplement A, Evaluating Compliance With FCC Guidelines For Human Exposure to Radio Frequency Electromagnetic Fields, using equation #2 in Section 3, Television Broadcast Stations, the calculated power density at ground level for the RCA TFU-30J antenna with a relative field factor of 0.087 is 38.76 $\mu\text{W}/\text{cm}^2$, or 9.7% of the general population/uncontrolled exposure limit of 400 $\mu\text{W}/\text{cm}^2$ and 1.9% of the occupational/controlled exposure limit of 2,000 $\mu\text{W}/\text{cm}$ for channel 35.

Again using equation #2 in Section 3, the calculated power density at ground level for the Dielectric TFU24DSBA antenna with a worst case relative field factor of 0.117 is 22.2 $\mu\text{W}/\text{cm}^2$, or 7.4% of the general population/uncontrolled exposure limit of 300 $\mu\text{W}/\text{cm}^2$ and 1.4% of the occupational/controlled exposure limit of 1,587 $\mu\text{W}/\text{cm}^2$ for channel 14.

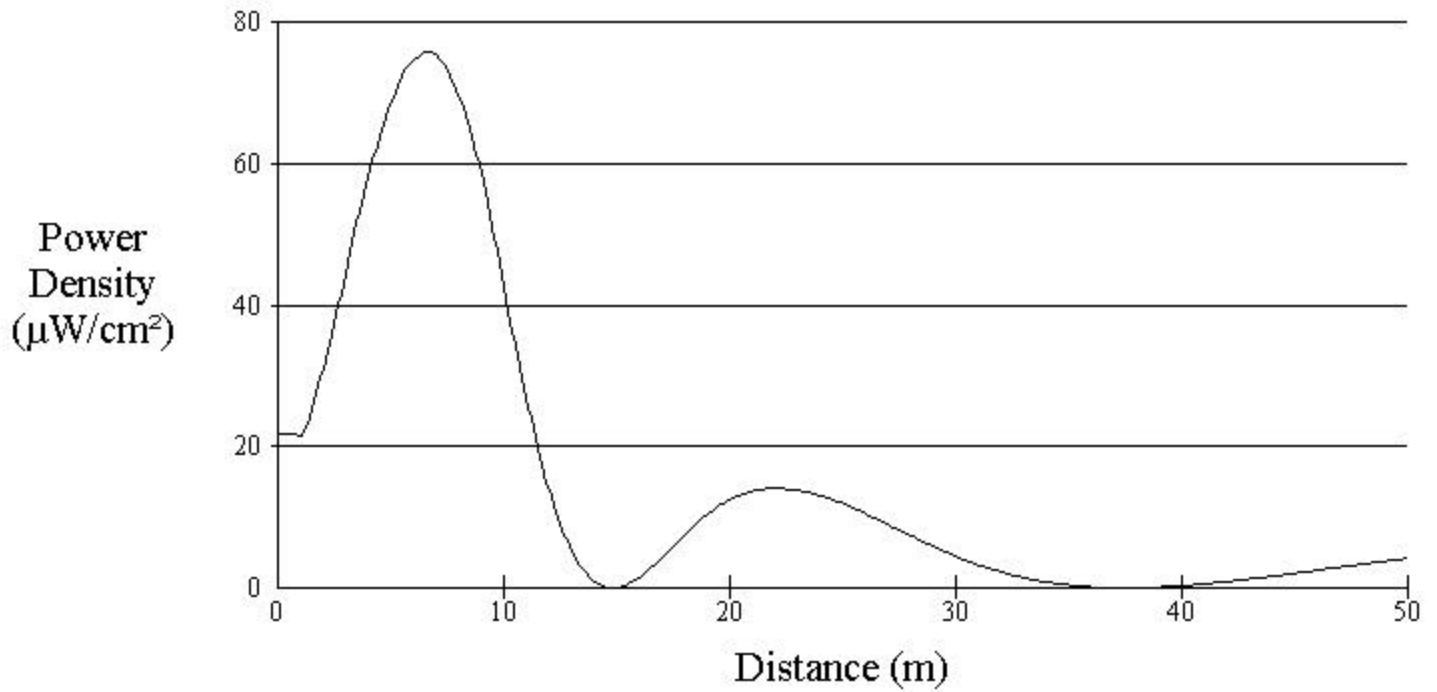
The total exposure at the base of the tower, will be 22.1% of the general population/uncontrolled limits using the higher values of the relative field factors from 70 to 90 degrees per the Dielectric tabulations. If the values shown in the tabulations for the two television antennas at 90 degrees are used the exposure levels would be so low as to be insignificant, leaving only the power density resulting from the FM antenna, which is only 5.0% of the general population/uncontrolled exposure limit.

This is *prima facie* evidence of compliance with the MPE requirements in the frequency ranges in use at this site, as regards to general population/uncontrolled and occupational exposure at or near ground levels. Because of the large margin of safety, the applicant does not believe that post construction measurements of the radio frequency power density are necessary.

The applicant is cognizant of its responsibility to protect those workers whose duties require that they be in the vicinity of the antenna from exposure to radio frequency fields in excess of those outlined above. To that end, signage is attached to the base of the antenna support structure and fence warning all workers of the potential for harmful exposure and directing them to contact the responsible person at the proposed broadcast station. That person will ascertain whether the worker will be in areas where there is an exposure hazard, and if so, arrange to shut down the transmitter. It will be assumed that an exposure hazard may exist on the antenna support structure at elevations above 10 meters, AGL.

For these reasons, the applicant believes that a Commission grant of this application would not have a significant environmental impact.

Power Density vs Distance



Office of Engineering and Technology

Distance (m): Antenna Type:

Horizontal ERP (W): Number of Elements:

Vertical ERP (W): Element Spacing:

Antenna Height (m):



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

18 Oct 2002

KAPP

Yakima, WA

TFU-30J

Revision

Channel

35

ELEVATION PATTERN

RMS Gain at Main Lobe

22.5 (13.52 dB)

Beam Tilt

1.00 Degrees

RMS Gain at Horizontal

9.6 (9.82 dB)

Frequency

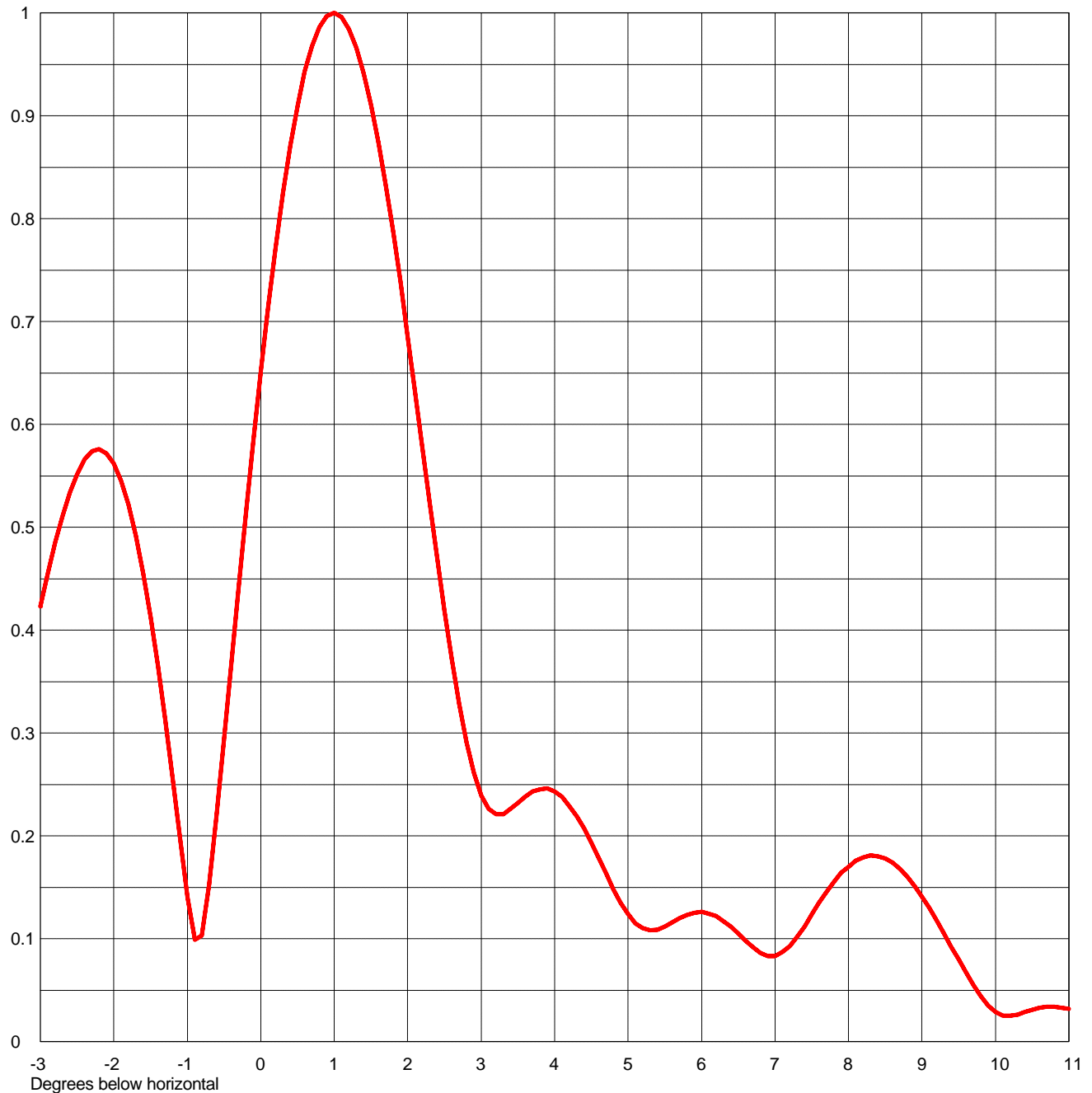
599.00 MHz

Calculated / Measured

Calculated

Drawing #

30J225100



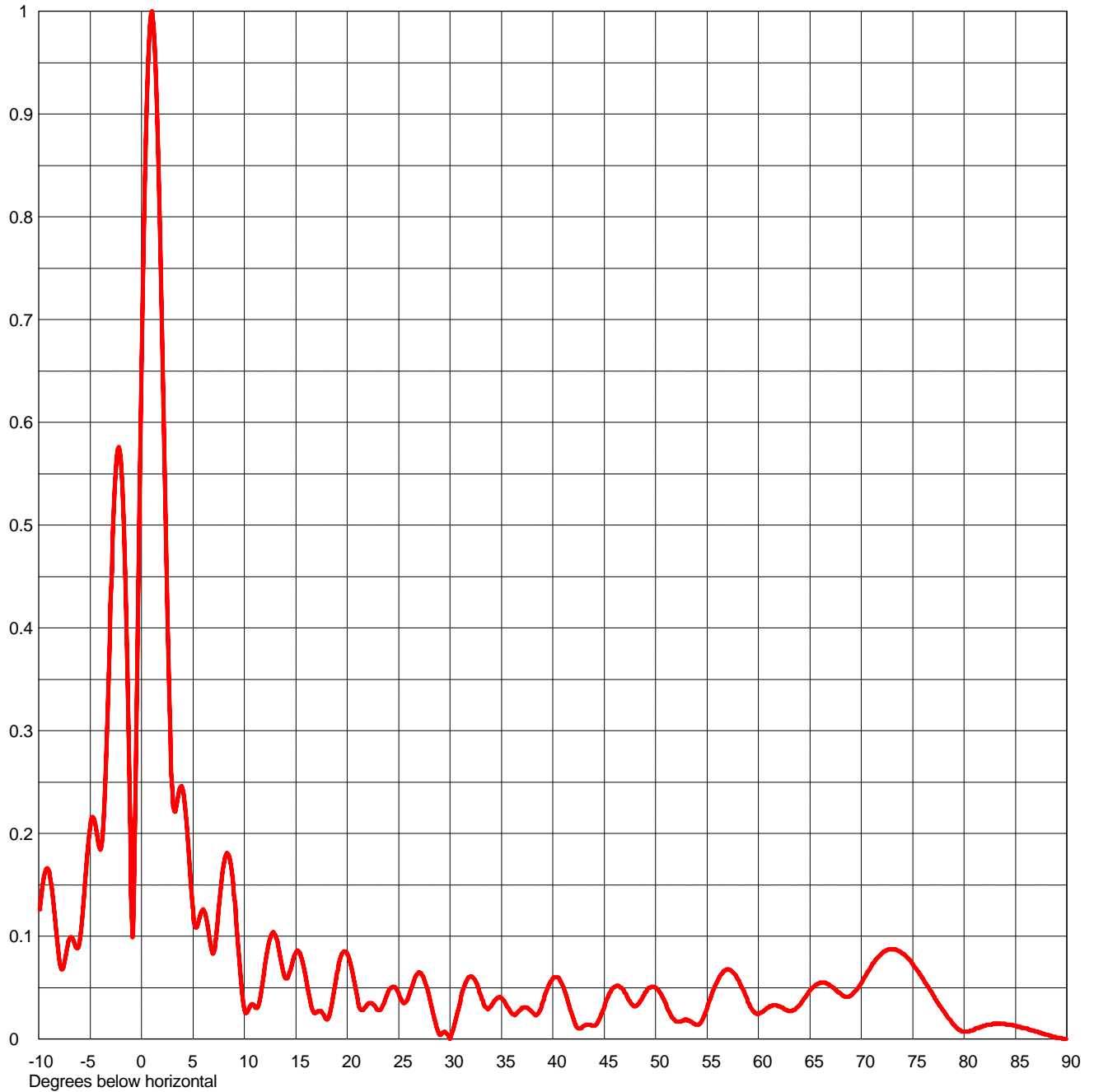
Remarks:



Proposal Number		Revision	
Date	18 Oct 2002		
Call Letters	KAPP	Channel	35
Location	Yakima, WA		
Customer			
Antenna Type	TFU-30J		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.5 (13.52 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	9.6 (9.82 dB)	Frequency	599.00 MHz
Calculated / Measured	Calculated	Drawing #	30J225100



Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

18 Oct 2002

KAPP

Yakima, WA

TFU-30J

Revision

Channel

35

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # 30J225100

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.115	2.4	0.471	10.6	0.033	30.5	0.017	51.0	0.034	71.5	0.078
-9.5	0.158	2.6	0.372	10.8	0.034	31.0	0.037	51.5	0.023	72.0	0.083
-9.0	0.163	2.8	0.291	11.0	0.032	31.5	0.054	52.0	0.017	72.5	0.086
-8.5	0.127	3.0	0.239	11.5	0.037	32.0	0.061	52.5	0.017	73.0	0.087
-8.0	0.077	3.2	0.221	12.0	0.071	32.5	0.056	53.0	0.019	73.5	0.086
-7.5	0.075	3.4	0.226	12.5	0.098	33.0	0.042	53.5	0.017	74.0	0.083
-7.0	0.098	3.6	0.238	13.0	0.101	33.5	0.031	54.0	0.014	74.5	0.079
-6.5	0.093	3.8	0.245	13.5	0.080	34.0	0.032	54.5	0.018	75.0	0.073
-6.0	0.096	4.0	0.243	14.0	0.059	34.5	0.039	55.0	0.030	75.5	0.066
-5.5	0.153	4.2	0.229	14.5	0.068	35.0	0.040	55.5	0.044	76.0	0.059
-5.0	0.207	4.4	0.207	15.0	0.084	35.5	0.033	56.0	0.056	76.5	0.051
-4.5	0.210	4.6	0.178	15.5	0.081	36.0	0.025	56.5	0.064	77.0	0.043
-4.0	0.184	4.8	0.148	16.0	0.059	36.5	0.025	57.0	0.068	77.5	0.035
-3.5	0.259	5.0	0.124	16.5	0.032	37.0	0.030	57.5	0.065	78.0	0.027
-3.0	0.423	5.2	0.110	17.0	0.026	37.5	0.030	58.0	0.058	78.5	0.020
-2.8	0.485	5.4	0.109	17.5	0.027	38.0	0.026	58.5	0.048	79.0	0.014
-2.6	0.534	5.6	0.116	18.0	0.019	38.5	0.024	59.0	0.036	79.5	0.009
-2.4	0.566	5.8	0.123	18.5	0.034	39.0	0.035	59.5	0.027	80.0	0.007
-2.2	0.576	6.0	0.126	19.0	0.063	39.5	0.049	60.0	0.024	80.5	0.007
-2.0	0.562	6.2	0.122	19.5	0.083	40.0	0.059	60.5	0.027	81.0	0.009
-1.8	0.522	6.4	0.112	20.0	0.083	40.5	0.060	61.0	0.031	81.5	0.011
-1.6	0.455	6.6	0.098	20.5	0.065	41.0	0.051	61.5	0.033	82.0	0.013
-1.4	0.365	6.8	0.086	21.0	0.039	41.5	0.036	62.0	0.032	82.5	0.014
-1.2	0.255	7.0	0.083	21.5	0.028	42.0	0.020	62.5	0.029	83.0	0.015
-1.0	0.140	7.2	0.093	22.0	0.034	42.5	0.010	63.0	0.027	83.5	0.015
-0.8	0.103	7.4	0.112	22.5	0.034	43.0	0.013	63.5	0.028	84.0	0.015
-0.6	0.220	7.6	0.135	23.0	0.028	43.5	0.014	64.0	0.033	84.5	0.014
-0.4	0.367	7.8	0.155	23.5	0.033	44.0	0.013	64.5	0.040	85.0	0.013
-0.2	0.515	8.0	0.170	24.0	0.046	44.5	0.019	65.0	0.047	85.5	0.012
0.0	0.652	8.2	0.179	24.5	0.051	45.0	0.031	65.5	0.052	86.0	0.010
0.2	0.772	8.4	0.180	25.0	0.044	45.5	0.044	66.0	0.055	86.5	0.009
0.4	0.871	8.6	0.174	25.5	0.035	46.0	0.051	66.5	0.055	87.0	0.007
0.6	0.943	8.8	0.160	26.0	0.042	46.5	0.051	67.0	0.052	87.5	0.006
0.8	0.986	9.0	0.141	26.5	0.057	47.0	0.045	67.5	0.048	88.0	0.004
1.0	1.000	9.2	0.118	27.0	0.065	47.5	0.037	68.0	0.044	88.5	0.003
1.2	0.984	9.4	0.092	27.5	0.058	48.0	0.032	68.5	0.041	89.0	0.001
1.4	0.941	9.6	0.067	28.0	0.041	48.5	0.037	69.0	0.042	89.5	0.001
1.6	0.874	9.8	0.044	28.5	0.019	49.0	0.045	69.5	0.047	90.0	0.000
1.8	0.787	10.0	0.029	29.0	0.004	49.5	0.050	70.0	0.054		
2.0	0.686	10.2	0.025	29.5	0.007	50.0	0.050	70.5	0.063		
2.2	0.578	10.4	0.029	30.0	0.000	50.5	0.044	71.0	0.071		

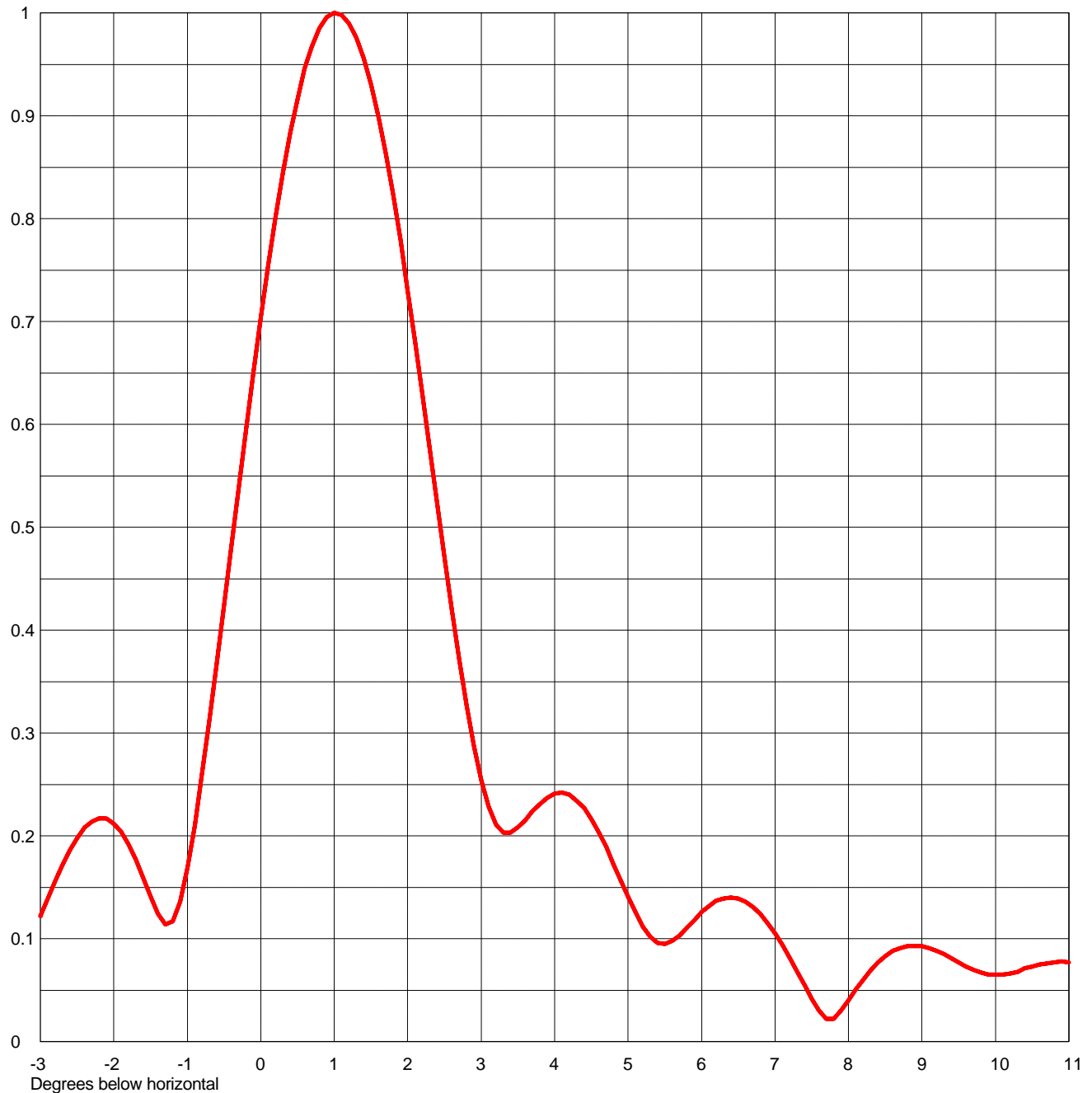
Remarks:



Proposal Number		Revision	
Date	18 Oct 2002		
Call Letters	KAPP-DT	Channel	14
Location	Yakima, WA		
Customer			
Antenna Type	TFU-24DSB-A (C)		

ELEVATION PATTERN

RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	473.00 MHz
Calculated / Measured	Calculated	Drawing #	24B240100



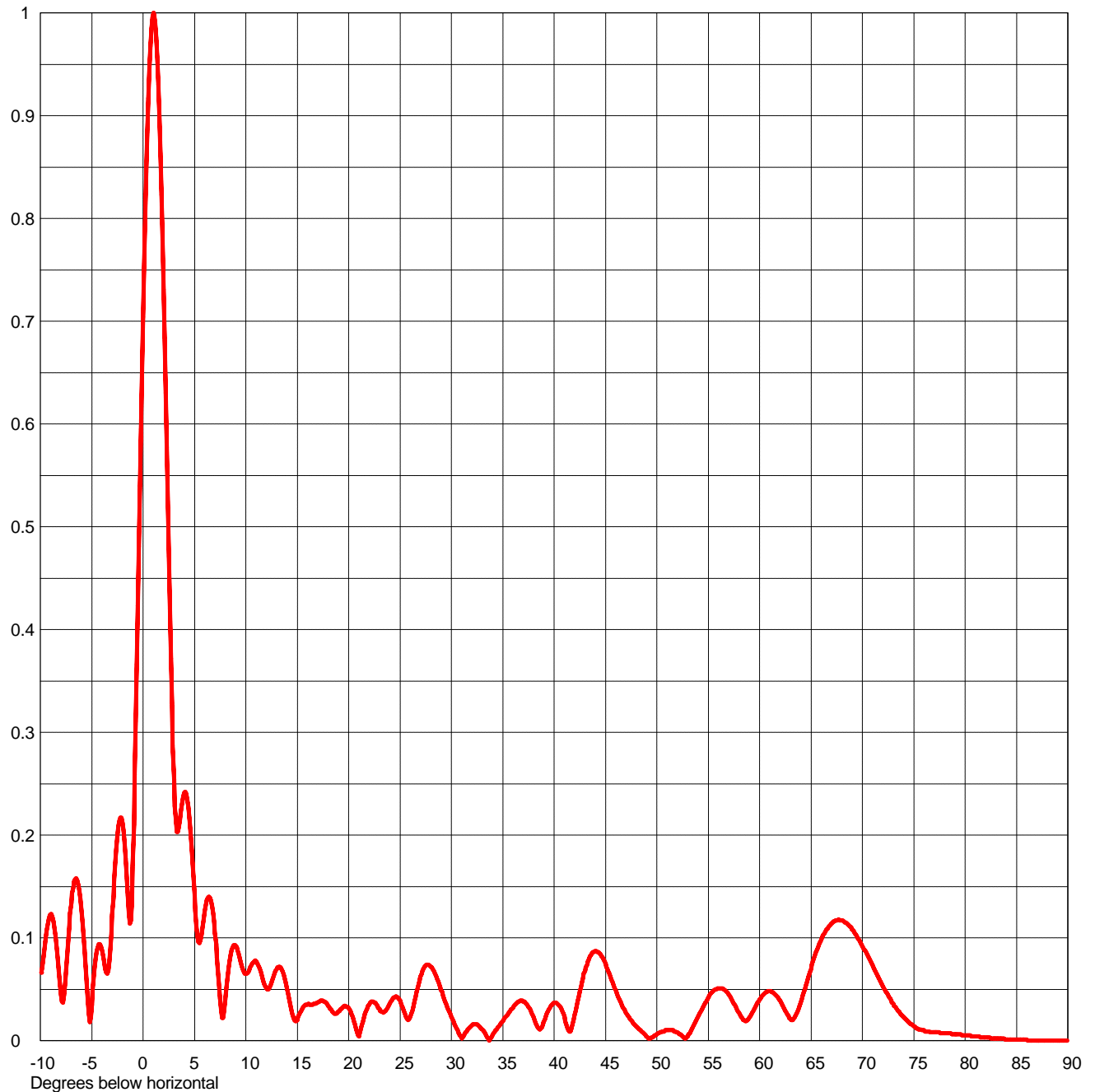
Remarks:



Proposal Number		Revision	
Date	18 Oct 2002		
Call Letters	KAPP-DT	Channel	14
Location	Yakima, WA		
Customer			
Antenna Type	TFU-24DSB-A (C)		

ELEVATION PATTERN

RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	473.00 MHz
Calculated / Measured	Calculated	Drawing #	24B240100



Remarks:



Proposal Number
Date **18 Oct 2002**
Call Letters **KAPP-DT** Channel **14**
Location **Yakima, WA**
Customer
Antenna Type **TFU-24DSB-A (C)**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **24B240100**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.063	2.4	0.524	10.6	0.075	30.5	0.012	51.0	0.010	71.5	0.063
-9.5	0.099	2.6	0.420	10.8	0.077	31.0	0.002	51.5	0.010	72.0	0.053
-9.0	0.123	2.8	0.327	11.0	0.077	31.5	0.009	52.0	0.008	72.5	0.044
-8.5	0.101	3.0	0.254	11.5	0.066	32.0	0.015	52.5	0.004	73.0	0.036
-8.0	0.045	3.2	0.211	12.0	0.051	32.5	0.016	53.0	0.004	73.5	0.029
-7.5	0.069	3.4	0.203	12.5	0.057	33.0	0.011	53.5	0.013	74.0	0.023
-7.0	0.134	3.6	0.215	13.0	0.070	33.5	0.003	54.0	0.023	74.5	0.018
-6.5	0.158	3.8	0.231	13.5	0.069	34.0	0.005	54.5	0.033	75.0	0.014
-6.0	0.127	4.0	0.241	14.0	0.051	34.5	0.013	55.0	0.042	75.5	0.011
-5.5	0.056	4.2	0.240	14.5	0.026	35.0	0.019	55.5	0.048	76.0	0.010
-5.0	0.035	4.4	0.227	15.0	0.020	35.5	0.025	56.0	0.051	76.5	0.009
-4.5	0.087	4.6	0.203	15.5	0.031	36.0	0.032	56.5	0.050	77.0	0.008
-4.0	0.088	4.8	0.173	16.0	0.035	36.5	0.038	57.0	0.045	77.5	0.008
-3.5	0.065	5.0	0.141	16.5	0.035	37.0	0.038	57.5	0.036	78.0	0.007
-3.0	0.122	5.2	0.112	17.0	0.037	37.5	0.033	58.0	0.027	78.5	0.007
-2.8	0.156	5.4	0.096	17.5	0.039	38.0	0.023	58.5	0.020	79.0	0.006
-2.6	0.186	5.6	0.098	18.0	0.034	38.5	0.012	59.0	0.022	79.5	0.006
-2.4	0.208	5.8	0.111	18.5	0.027	39.0	0.018	59.5	0.031	80.0	0.005
-2.2	0.217	6.0	0.126	19.0	0.028	39.5	0.030	60.0	0.040	80.5	0.005
-2.0	0.212	6.2	0.137	19.5	0.033	40.0	0.037	60.5	0.046	81.0	0.004
-1.8	0.192	6.4	0.140	20.0	0.032	40.5	0.034	61.0	0.048	81.5	0.003
-1.6	0.159	6.6	0.136	20.5	0.019	41.0	0.023	61.5	0.045	82.0	0.003
-1.4	0.124	6.8	0.124	21.0	0.004	41.5	0.009	62.0	0.039	82.5	0.002
-1.2	0.117	7.0	0.105	21.5	0.022	42.0	0.025	62.5	0.029	83.0	0.002
-1.0	0.169	7.2	0.081	22.0	0.035	42.5	0.048	63.0	0.021	83.5	0.002
-0.8	0.259	7.4	0.055	22.5	0.037	43.0	0.068	63.5	0.024	84.0	0.001
-0.6	0.366	7.6	0.030	23.0	0.031	43.5	0.082	64.0	0.037	84.5	0.001
-0.4	0.481	7.8	0.022	23.5	0.028	44.0	0.087	64.5	0.054	85.0	0.001
-0.2	0.595	8.0	0.040	24.0	0.036	44.5	0.084	65.0	0.070	85.5	0.001
0.0	0.704	8.2	0.060	24.5	0.042	45.0	0.075	65.5	0.086	86.0	0.001
0.2	0.802	8.4	0.077	25.0	0.039	45.5	0.062	66.0	0.098	86.5	0.000
0.4	0.884	8.6	0.088	25.5	0.026	46.0	0.049	66.5	0.108	87.0	0.000
0.6	0.946	8.8	0.093	26.0	0.023	46.5	0.037	67.0	0.114	87.5	0.000
0.8	0.985	9.0	0.093	26.5	0.042	47.0	0.027	67.5	0.117	88.0	0.000
1.0	1.000	9.2	0.088	27.0	0.062	47.5	0.020	68.0	0.117	88.5	0.000
1.2	0.990	9.4	0.081	27.5	0.073	48.0	0.014	68.5	0.114	89.0	0.000
1.4	0.956	9.6	0.073	28.0	0.072	48.5	0.009	69.0	0.108	89.5	0.000
1.6	0.899	9.8	0.067	28.5	0.063	49.0	0.004	69.5	0.101	90.0	0.000
1.8	0.823	10.0	0.065	29.0	0.049	49.5	0.003	70.0	0.092		
2.0	0.731	10.2	0.066	29.5	0.036	50.0	0.006	70.5	0.083		
2.2	0.630	10.4	0.071	30.0	0.023	50.5	0.009	71.0	0.073		

Remarks: