



**STATEMENT OF JOHN E. HIDLE, P.E.
IN SUPPORT OF AN APPLICATION TO MODIFY
CONSTRUCTION PERMIT BMPCDT-20040524AOI
KDEN-DT- LONGMONT, COLORADO
DTV - CH. 29 - 540 kW - 379.1 M HAAT**

Prepared for: Longmont Channel 25, Inc.

I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a registered Professional Engineer in the Commonwealth of Virginia, Registration No. 7418, and in the State of New York, Registration No. 63418.

GENERAL

This office has been authorized by Longmont Channel 25, Inc., permittee of KDEN-DT, channel 29, Longmont, Colorado, to prepare this statement, FCC Form 301, Sections III and III-D, and the associated exhibits in support of this application to modify its current authorization, construction permit BMPCDT-20040524AOI, to relocate the transmitter site, to change the directional antenna model number, while maintaining the authorized antenna azimuth pattern, add mechanical beam tilt to the antenna, decrease the Effective Radiated Power (ERP) and increase the antenna centerline Height Above Average Terrain (HAAT).

The permittee is herein proposing to relocate the KDEN-DT transmission facility to a tower support structure on a site located at a distance of approximately 340 meters in a direction approximately 281 degrees True from its authorized site. The geographic coordinates of the proposed tower are: 40 05' 59" North latitude, 104 54' 02" West

STATEMENT OF JOHN E. HIDLE, P.E.
KDEN-DT - LONGMONT, COLORADO
PAGE 2

longitude, North American Datum 1927. The tower has been registered in the Commission tower registration database, Number 1251550. The permittee proposes herein to change the directional antenna model number, while maintaining the authorized antenna horizontal azimuth pattern, to add mechanical beam tilt to the antenna, decrease the authorized ERP from 650 kW to 540 kW and increase the authorized antenna centerline HAAT from 357.5 meters to 379.1 meters. No other changes are herein proposed.

PROPOSED DIRECTIONAL ANTENNA

It is proposed to install a new Dielectric model TFU-24ETT/VP-R CT220SP directional antenna at a centerline height of 344.8 meters Above Ground Level (AGL) and 1896.2 meters Above Mean Sea Level (AMSL). The antenna centerline Height Above Average Terrain (HAAT) is proposed to be 379.1 meters. The proposed antenna shall employ an electrical beam tilt of 1.00 degrees below the horizontal plane, and an additional mechanical beam tilt of 0.4 degrees below the horizontal plane in a direction of 10 degrees True. The manufacturer's horizontal plane azimuth radiation pattern is shown in exhibit 2 and tabulated in exhibit 3. The manufacturer's vertical plane elevation radiation pattern, illustrating the proposed antenna's radiation characteristics above and below the horizontal plane, is shown in exhibits 4A and 4B, and tabulated in exhibit 5. The antenna manufacturer's horizontal azimuth patterns and vertical plane elevation patterns due to the mechanical beam tilt are shown in Appendix B. A vertical plan antenna sketch is shown in exhibit 1.

PREDICTED COVERAGE CONTOURS

The predicted coverage contours were calculated in accordance with Section 73.625 using the method described in Section 73.684 of the Rules. The appropriate F(50,90) propagation curves (47 CFR Section 73.699, Figure 9), power, and antenna height above average terrain were used, as determined for each profile radial. The average terrain on the eight cardinal radials from 3 kilometers to 16 kilometers from the site, was determined using the National Geophysical Data Center Thirty Second Point Database (TPG-0050) as prescribed in the FCC Rules. In compliance with Section 73.625(a) of the Commission's rules, the predicted principal community (48 dBu) service contour, as shown in exhibit 6A, completely encompasses Longmont, Colorado, the principal community of license. Exhibit 6A shows the predicted 41 dBu noise limited service contour. In exhibit 6B is a comparison between the proposed 41 dBu contour and the currently authorized 41 dBu contour.

ALLOCATION CONSIDERATIONS

NTSC Allocation Considerations

An interference study was performed, using the Commission's application analysis program, tv_process, to ensure that the proposed DTV facility, as modified herein, remains in compliance with the Commission's *de minimis* interference requirement contained in Section 73.623(c)(2) of the Commission's rules. The study showed that the DTV facility proposed herein is predicted to cause no increase in the interference population in excess of the Commission's *de minimis* criteria to any authorized NTSC television facility, or relevant pending application.

DTV Allocation Considerations

A second study was performed, using tv_process with the study parameters set to a finer resolution, 1 km cells and 0.5 km terrain point resolution, as allowed by Commission policy. That study was evaluated to determine if changes in ERP and HAAT proposed herein would be predicted to cause any level of new prohibited interference to other authorized DTV facilities, including other authorized DTV stations, DTV expansion construction permits, DTV allotments (including checklist CPs), or pending DTV applications. Regarding KGWN-DT; although the applicant clearly intended to submit a “checklist” application, the Commission staff have correctly determined that the DTV construction permit for KGWN-DT, channel 30, Cheyenne, Wyoming does not qualify to be a “checklist” CP. Therefore the study was evaluated in light of the effect the instant proposal might have on that CP. KGWN-DT’s baseline population, according to Appendix B in the Second MO&O on Reconsideration, is 359,000 persons. In the study’s only scenario the “before analysis” interference free population is shown to be 327,374 persons, or 91.2% of the relevant baseline population. The “after analysis” interference population is shown to be 325,564 persons, or 90.7% of the baseline population. The instant proposal is predicted to reduce the interference free population of KGWN-DT by 0.5%, and does not reduce the interference free population below 90% of the stations baseline. The instant proposal is predicted to cause no unacceptable level of new interference to the populations served by any other relevant DTV facility, and thereby complies with the 2% and 10% *de minimis* interference criteria contained in Section 73.623(c)(2) of the Commission’s Rules.

Class A Television Allocation Considerations

As required in Section 73.623(c)(5) of the FCC's Rules, a study of interference contour overlap was performed to establish compliance with the protection requirements specified therein. The study shows that there are no class A LPTV stations potentially affected by the instant proposal to modify the subject construction permit.

Table Mountain Radio Receiving Zone

Section 73.1030(b) of the Commission's Rules requires all applicants to protect the area therein designated from potentially harmful interference. The predicted signal strength value from any proposed facility operating in the 470 MHz to 890 MHz band should not, at any location at, or within, the boundary of the protected site, exceed a field strength value of 30 millivolts per meter within its authorized bandwidth. As shown in exhibit 7, the Table Mountain Radio Receiving Zone is located entirely outside the predicted KDEN-DT 30 mV/m (89.5 dBu) signal strength contour.

BLANKETING AND INTERMODULATION INTERFERENCE

A number of both broadcast and non-broadcast facilities are located within 10 km of KDEN-DT's proposed site. The permittee recognizes its responsibility to investigate and remedy complaints of interference which might be created by this proposal in accordance with applicable Rules.

ENVIRONMENTAL CONSIDERATIONS

RADIO FREQUENCY IMPACT

Effective October 15, 1997, the FCC adopted new guidelines and procedures for evaluating environmental effects of radio frequency (RF) emissions. The guidelines are generally based on recommendations by the National Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86 (1986), and by the American National Standards Institute and the Institute of Electrical and Electronic Engineers, LLC (IEEE) in ANSI/IEEE C95.1-1992 (IEEE C95.1-1991). The guidelines provide a maximum permissible exposure (MPE) level for occupational or "controlled" situations that apply in cases that affect the general public. The FCC Office of Engineering and Technology's technical bulletin No. 65 entitled, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" (Edition 97-01, August 1997), provides assistance to determine whether FCC-regulated transmitting facilities, operations or devices comply with guidelines for human exposure to radio frequency electromagnetic fields as adopted by the Commission in 1996. Bulletin No. 65 contains the technical information necessary to evaluate compliance with the FCC's policies and guidelines.

The Commission's Maximum Permitted Exposure (MPE) level for "uncontrolled" environments is 0.2 milliwatts per centimeter squared (mW/cm^2) when applied to broadcast facilities operating between 30 MHz and 300 MHz, and for broadcast facilities operating between 300 MHz and 1500 MHz, primarily UHF TV stations, is derived from the formula, (frequency/1500). The MPE level for "controlled" environments is 1.0 milliwatts per

STATEMENT OF JOHN E. HIDLE, P.E.
KDEN-DT - LONGMONT, COLORADO
PAGE 7

centimeter squared (mW/cm^2) for operations between 30 MHz and 300 MHz, and for broadcast stations operating between 300 MHz and 1500 MHz is derived from the formula, $(\text{frequency}/300)$. The predicted emissions of KDEN-DT, channel 29, must be considered, along with the predicted emissions from other proposed and existing stations at the current site. For KDEN-DT, which will operate on television Channel 29 (560-566 MHz), the MPE is 0.375 milliwatts per centimeter squared (mW/cm^2) in an "uncontrolled" environment and 1.875 mW/cm^2 in a "controlled" environment. The proposed KDEN-DT facility will operate with a maximum ERP of 540 kW from a horizontally polarized directional transmitting antenna with a centerline height of 344.8 meters above ground level (AGL). Considering the relevant conservative vertical plane relative field factor of 0.3, the KDEN-DT facility is predicted to produce a power density at two meters above ground level of 0.01381 mW/cm^2 , which is 3.68% of the FCC guideline value for "uncontrolled" environments, and 0.74% of the FCC guideline value for "controlled" environments (see Appendix A). The total percentage of the ANSI value at the proposed site, considering the cumulative radiation of all stations to be located at the subject site is only 11.25% of the guideline's limit for "uncontrolled" environments, and 2.25% of the limit for "controlled" environments

OCCUPATIONAL SAFETY

The permittee of KDEN-DT is committed to the protection of station personnel and/or tower contractors working in the vicinity of the antenna. The permittee is committed to reducing power and/or ceasing operation during times of service or maintenance of the transmission systems, when necessary, to ensure protection to personnel. In light of the

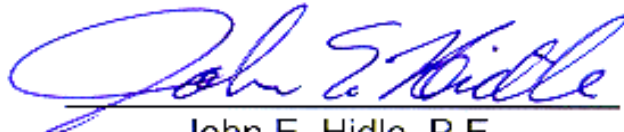
STATEMENT OF JOHN E. HIDLE, P.E.
KDEN-DT - LONGMONT, COLORADO
PAGE 8

above, the proposed facility should be categorically excluded from RF environmental processing under Section 1.1307(b) of the Commission's Rules.

SUMMARY

It is submitted that the instant application to modify KDEN-DT's construction permit, BMPCDT-20040524AOI, as described herein, complies with the Rules, Regulations and Policies of the Federal Communications Commission. This statement, FCC Form 301, and the attached exhibits were prepared by me or under my direct supervision and are believed to be true and correct to the best of my knowledge and belief.

DATED: February 7, 2006


John E. Hidle, P.E.



COORDINATES NAD-27
NORTH LATITUDE: 40° 05' 59"
WEST LONGITUDE: 104° 54' 02"

TOWER REGISTRATION # 1251550

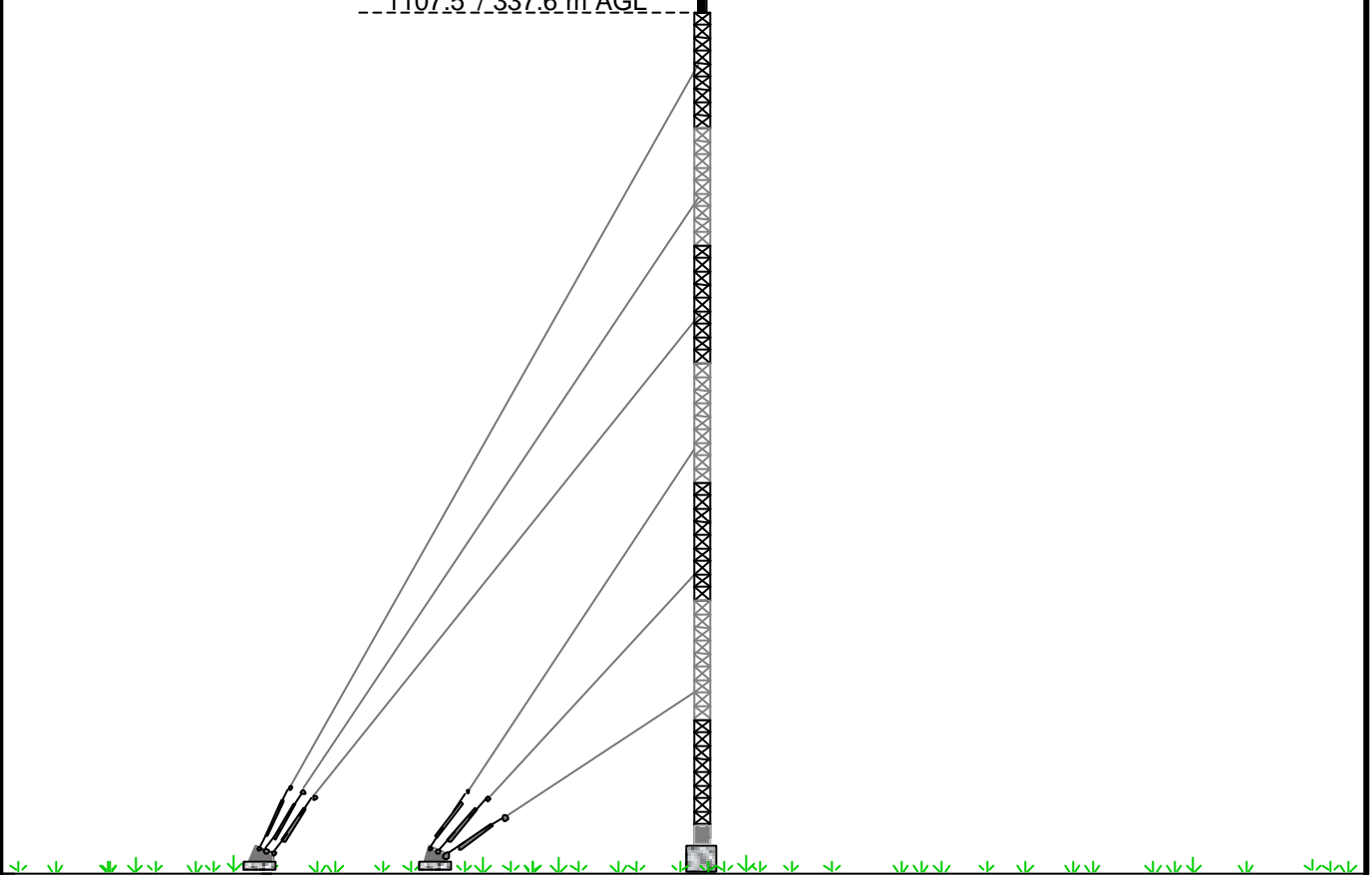
EXHIBIT 1

COORDINATES NAD-83
NORTH LATITUDE: 40° 05' 59"
WEST LONGITUDE: 104° 54' 04"

6248.7' / 1904.6 m AMSL - 1158.8' / 353.2 m AGL

6221.1' / 1896.2 m AMSL - 344.8 m / 1131.2' AGL
----- 379.1 m HAAT -----

--- 1107.5' / 337.6 m AGL ---



GROUND ELEVATION = 5089.9' / 1551.4 m AMSL / AVERAGE TERRAIN = 1517.1 m AMSL

VERTICAL PLAN ANTENNA SKETCH
KDEN-DT - LONGMONT, COLORADO
Ch. 29 - 540 kW - 379.1 m HAAT
FEBRUARY, 2006

CARL T. JONES
CORPORATION

NOTE : NOT DRAWN TO SCALE



Proposal Number

DCA-11368

Revision:

1

Date

1-Feb-06

Exhibit 2

Call Letters

KDEN-DT

Channel

29

Location

Longmont, Co

Customer

Antenna Type

TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN

Gain

2.20

(3.42 dB)

Calculated / Measured

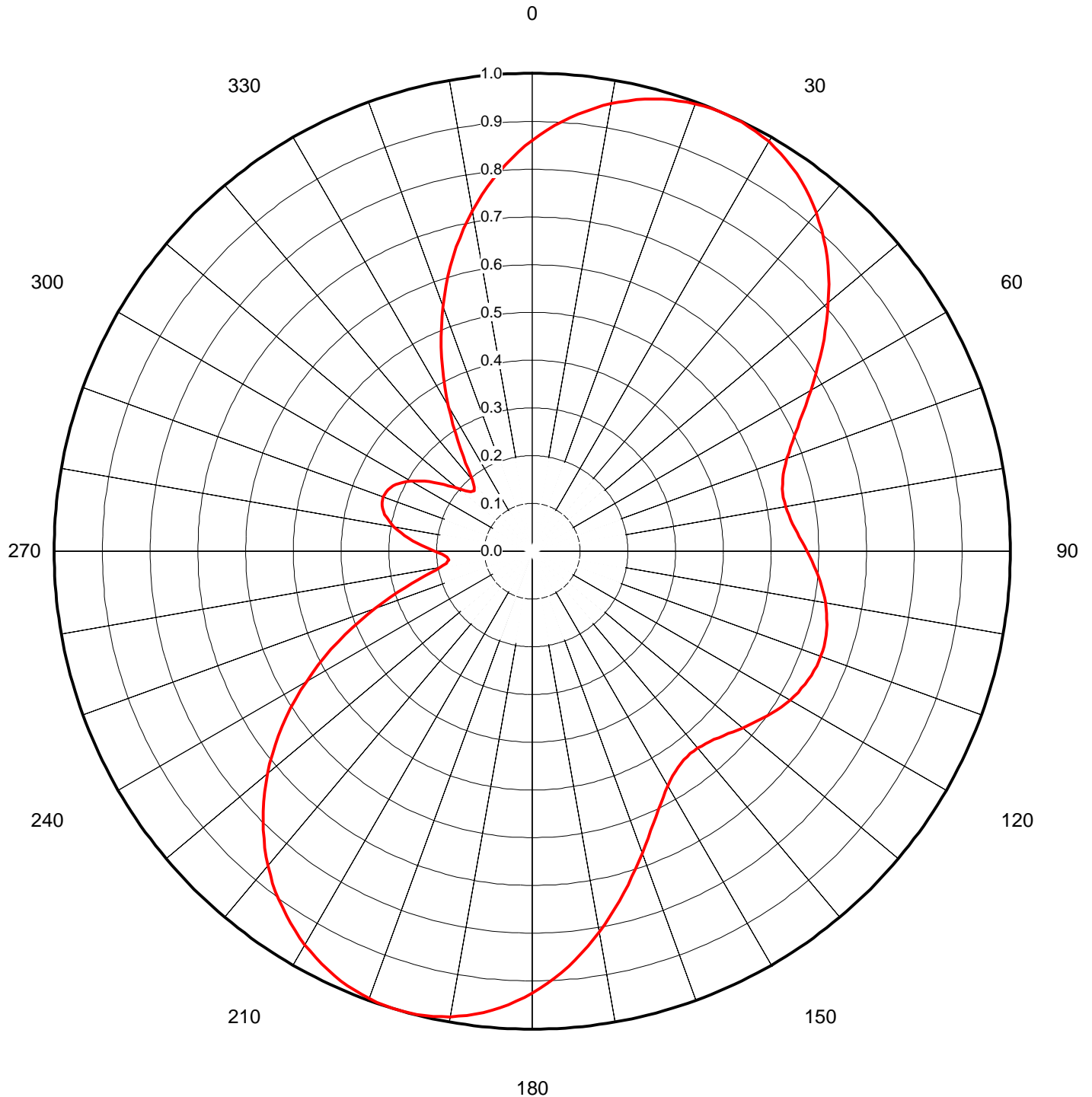
Calculated

Frequency

563.00 MHz

Drawing #

TFU-CT220SP



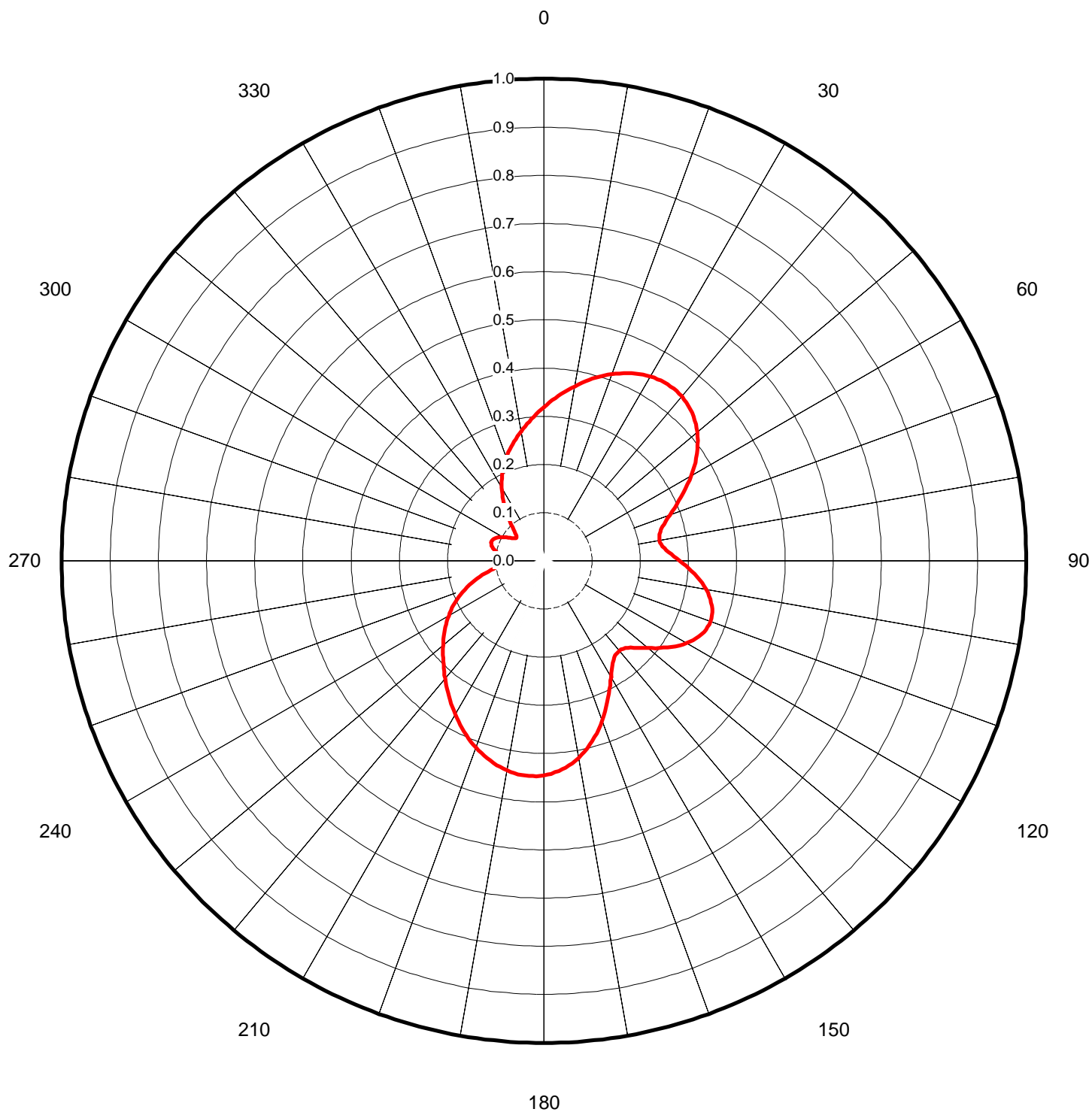


Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06	Exhibit 2B	
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	2.10	(3.22 dB)
Calculated / Measured	Calculated	

Frequency	563.00 MHz
Drawing #	TFU-CT210SP-VP





Proposal Number **DCA-11368** Revision: **1**
 Date **1-Feb-06** **Exhibit 3**
 Call Letters **KDEN-DT** Channel **29**
 Location **Longmont, Co**
 Customer
 Antenna Type **TFU-24ETT/VP-R CT220SP**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TFU-CT220SP**

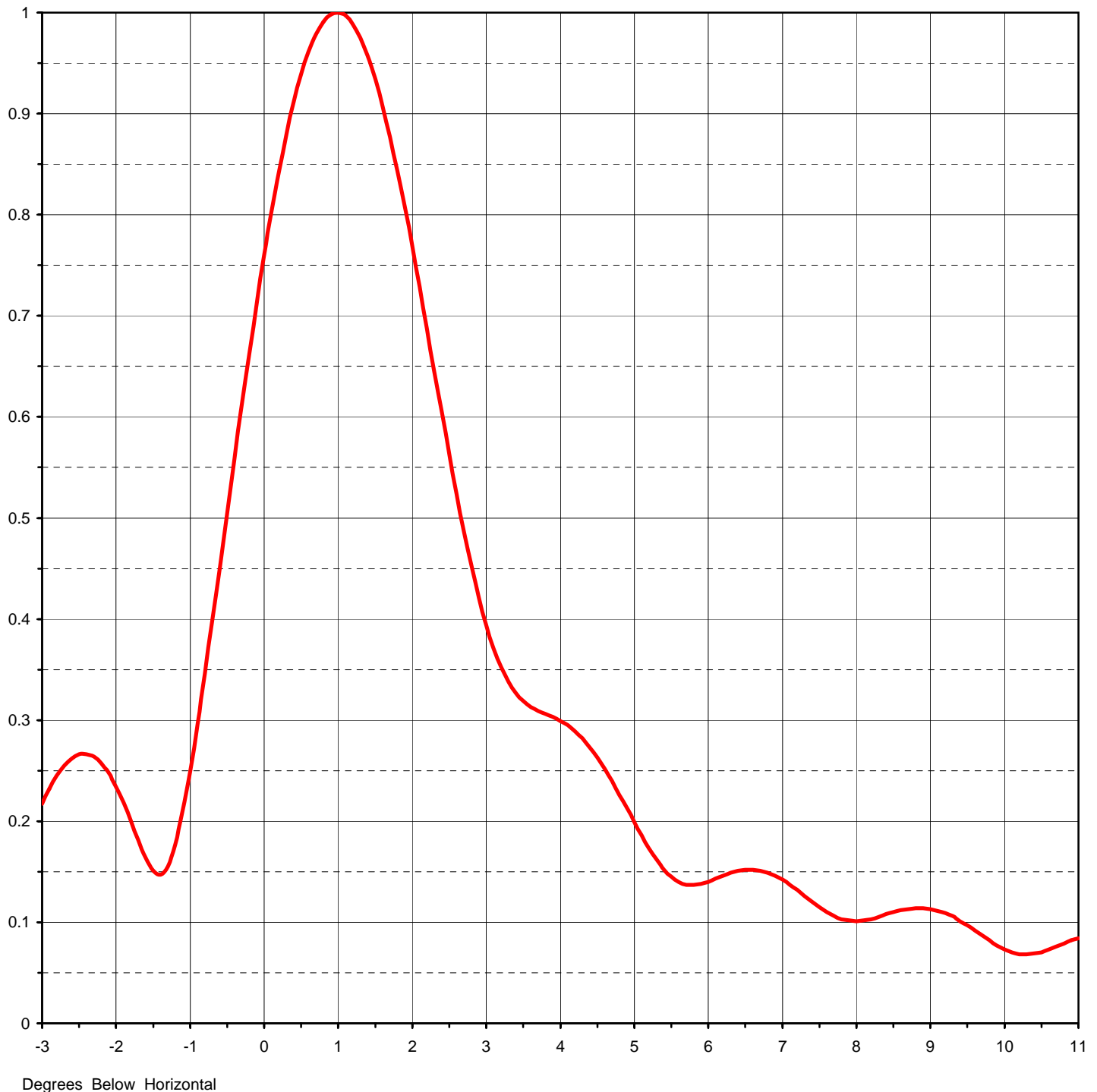
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.860	45	0.872	90	0.574	135	0.552	180	0.925	225	0.797	270	0.204	315	0.177
1	0.871	46	0.860	91	0.580	136	0.548	181	0.933	226	0.783	271	0.213	316	0.176
2	0.881	47	0.847	92	0.585	137	0.545	182	0.942	227	0.768	272	0.222	317	0.178
3	0.892	48	0.835	93	0.590	138	0.542	183	0.950	228	0.754	273	0.232	318	0.181
4	0.902	49	0.822	94	0.595	139	0.540	184	0.957	229	0.738	274	0.241	319	0.188
5	0.911	50	0.809	95	0.600	140	0.538	185	0.964	230	0.723	275	0.250	320	0.195
6	0.920	51	0.795	96	0.605	141	0.538	186	0.970	231	0.706	276	0.260	321	0.206
7	0.928	52	0.782	97	0.610	142	0.537	187	0.976	232	0.690	277	0.269	322	0.217
8	0.936	53	0.768	98	0.614	143	0.539	188	0.981	233	0.673	278	0.277	323	0.231
9	0.944	54	0.754	99	0.618	144	0.540	189	0.985	234	0.656	279	0.285	324	0.245
10	0.951	55	0.740	100	0.622	145	0.542	190	0.989	235	0.638	280	0.293	325	0.261
11	0.957	56	0.726	101	0.626	146	0.545	191	0.992	236	0.620	281	0.300	326	0.277
12	0.964	57	0.713	102	0.629	147	0.550	192	0.995	237	0.602	282	0.307	327	0.295
13	0.969	58	0.699	103	0.632	148	0.554	193	0.997	238	0.584	283	0.312	328	0.313
14	0.975	59	0.686	104	0.635	149	0.561	194	0.999	239	0.565	284	0.318	329	0.331
15	0.979	60	0.672	105	0.637	150	0.567	195	0.999	240	0.546	285	0.322	330	0.350
16	0.984	61	0.660	106	0.639	151	0.575	196	1.000	241	0.526	286	0.326	331	0.369
17	0.987	62	0.647	107	0.640	152	0.583	197	1.000	242	0.507	287	0.328	332	0.389
18	0.991	63	0.635	108	0.642	153	0.592	198	0.999	243	0.487	288	0.330	333	0.408
19	0.993	64	0.623	109	0.642	154	0.602	199	0.998	244	0.468	289	0.331	334	0.428
20	0.996	65	0.612	110	0.643	155	0.612	200	0.996	245	0.448	290	0.332	335	0.448
21	0.998	66	0.602	111	0.642	156	0.623	201	0.993	246	0.428	291	0.331	336	0.468
22	0.999	67	0.592	112	0.642	157	0.635	202	0.991	247	0.408	292	0.330	337	0.487
23	1.000	68	0.583	113	0.640	158	0.647	203	0.987	248	0.389	293	0.328	338	0.507
24	1.000	69	0.575	114	0.639	159	0.660	204	0.984	249	0.369	294	0.326	339	0.526
25	0.999	70	0.567	115	0.637	160	0.672	205	0.979	250	0.350	295	0.322	340	0.546
26	0.999	71	0.561	116	0.635	161	0.686	206	0.975	251	0.331	296	0.318	341	0.565
27	0.997	72	0.554	117	0.632	162	0.699	207	0.969	252	0.313	297	0.312	342	0.584
28	0.995	73	0.550	118	0.629	163	0.713	208	0.964	253	0.295	298	0.307	343	0.602
29	0.992	74	0.545	119	0.626	164	0.726	209	0.957	254	0.277	299	0.300	344	0.620
30	0.989	75	0.542	120	0.622	165	0.740	210	0.951	255	0.261	300	0.293	345	0.638
31	0.985	76	0.540	121	0.618	166	0.754	211	0.944	256	0.245	301	0.285	346	0.656
32	0.981	77	0.539	122	0.614	167	0.768	212	0.936	257	0.231	302	0.277	347	0.673
33	0.976	78	0.537	123	0.610	168	0.782	213	0.928	258	0.217	303	0.269	348	0.690
34	0.970	79	0.538	124	0.605	169	0.795	214	0.920	259	0.206	304	0.260	349	0.706
35	0.964	80	0.538	125	0.600	170	0.809	215	0.911	260	0.195	305	0.250	350	0.723
36	0.957	81	0.540	126	0.595	171	0.822	216	0.902	261	0.188	306	0.241	351	0.738
37	0.950	82	0.542	127	0.590	172	0.835	217	0.892	262	0.181	307	0.232	352	0.754
38	0.942	83	0.545	128	0.585	173	0.847	218	0.881	263	0.178	308	0.222	353	0.768
39	0.933	84	0.548	129	0.580	174	0.860	219	0.871	264	0.176	309	0.213	354	0.783
40	0.925	85	0.552	130	0.574	175	0.872	220	0.860	265	0.177	310	0.204	355	0.797
41	0.915	86	0.555	131	0.570	176	0.883	221	0.848	266	0.179	311	0.196	356	0.810
42	0.905	87	0.560	132	0.565	177	0.894	222	0.836	267	0.184	312	0.189	357	0.823
43	0.894	88	0.565	133	0.560	178	0.905	223	0.823	268	0.189	313	0.184	358	0.836
44	0.883	89	0.570	134	0.555	179	0.915	224	0.810	269	0.197	314	0.179	359	0.848



Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06	Exhibit 4A	
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)	Beam Tilt	1.00 deg
RMS Gain at Horizontal	12.70 (11.04 dB)	Frequency	563.00 MHz
Calculated / Measured	Calculated	Drawing #	24E220100



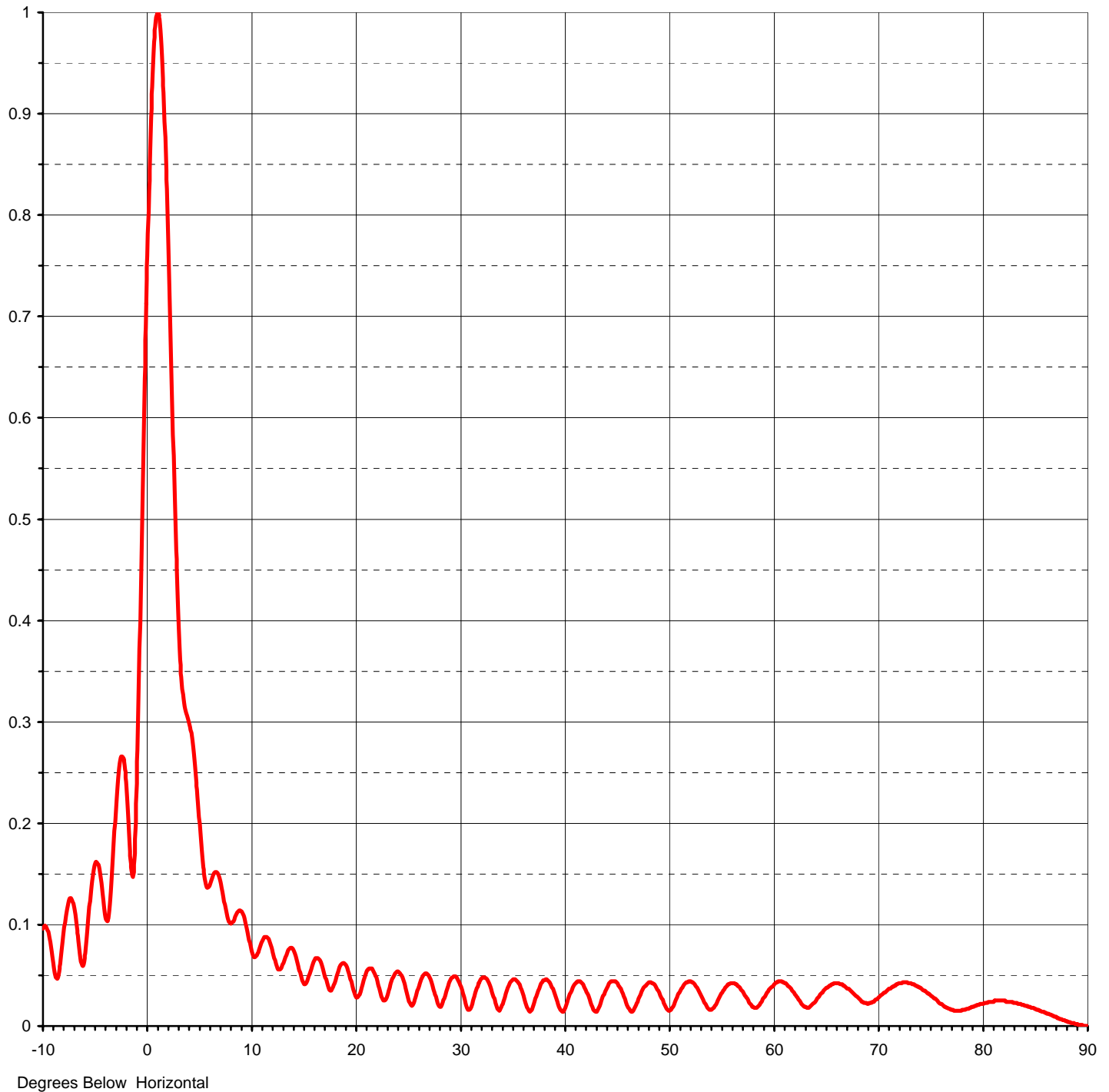


Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06	Exhibit 4B	
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)
RMS Gain at Horizontal	12.70 (11.04 dB)
Calculated / Measured	Calculated

Beam Tilt	1.00 deg
Frequency	563.00 MHz
Drawing #	24E220100-90



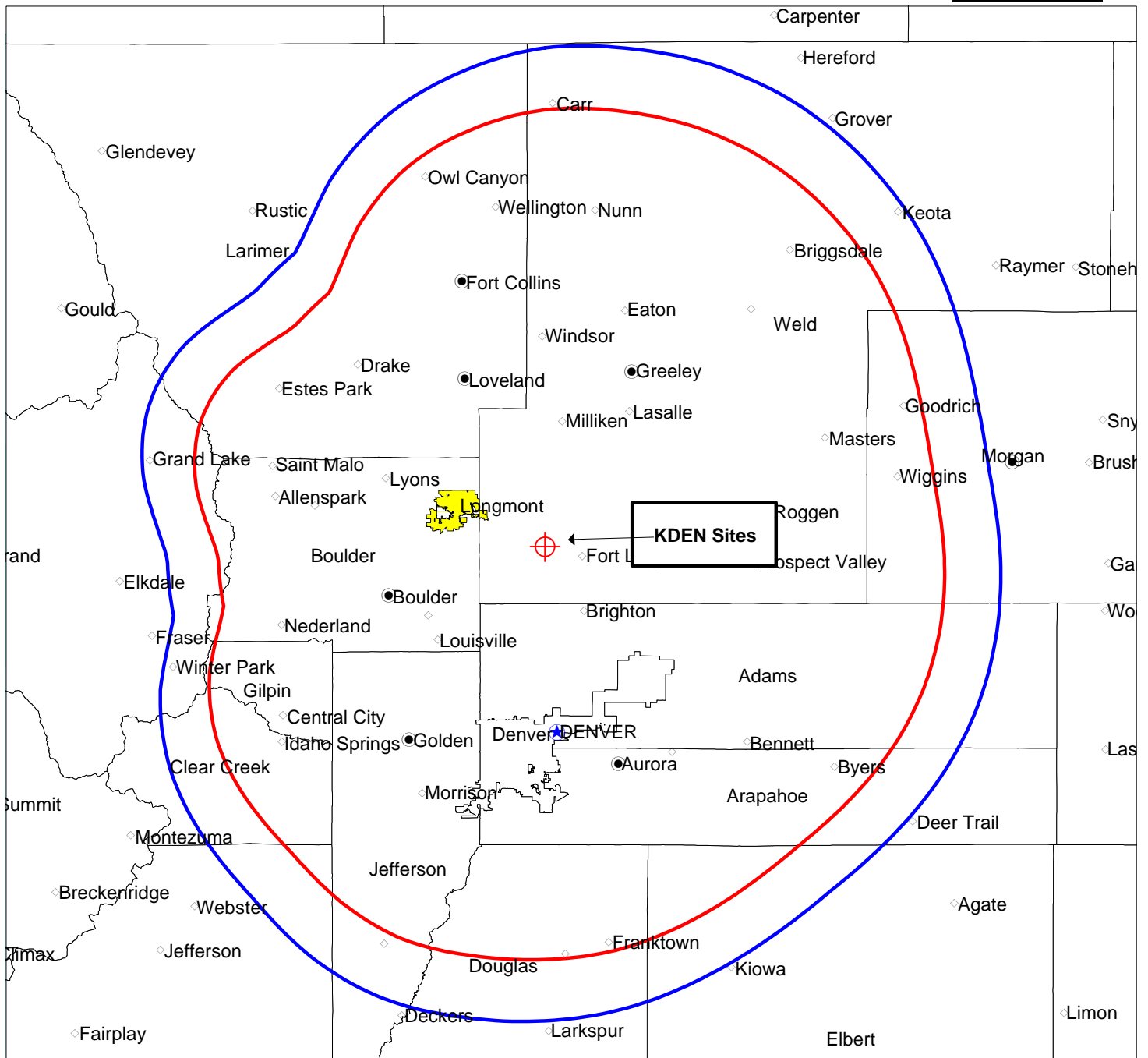


Proposal Number **DCA-11368** Revision: **1**
 Date **1-Feb-06** **Exhibit 5**
 Call Letters **KDEN-DT** Channel **29**
 Location **Longmont, Co**
 Customer
 Antenna Type **TFU-24ETT/VP-R CT220SP**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **24E220100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.096	2.4	0.604	10.6	0.070	30.5	0.025	51.0	0.033	71.5	0.040
-9.5	0.093	2.6	0.524	10.8	0.076	31.0	0.017	51.5	0.041	72.0	0.042
-9.0	0.062	2.8	0.452	11.0	0.082	31.5	0.033	52.0	0.044	72.5	0.043
-8.5	0.051	3.0	0.394	11.5	0.088	32.0	0.046	52.5	0.041	73.0	0.042
-8.0	0.093	3.2	0.352	12.0	0.077	32.5	0.047	53.0	0.032	73.5	0.040
-7.5	0.124	3.4	0.327	12.5	0.058	33.0	0.037	53.5	0.022	74.0	0.038
-7.0	0.116	3.6	0.313	13.0	0.059	33.5	0.020	54.0	0.016	74.5	0.034
-6.5	0.075	3.8	0.306	13.5	0.073	34.0	0.019	54.5	0.021	75.0	0.030
-6.0	0.067	4.0	0.299	14.0	0.076	34.5	0.035	55.0	0.031	75.5	0.026
-5.5	0.123	4.2	0.289	14.5	0.061	35.0	0.045	55.5	0.039	76.0	0.022
-5.0	0.160	4.4	0.273	15.0	0.043	35.5	0.044	56.0	0.042	76.5	0.018
-4.5	0.148	4.6	0.252	15.5	0.047	36.0	0.033	56.5	0.041	77.0	0.016
-4.0	0.107	4.8	0.226	16.0	0.063	36.5	0.017	57.0	0.035	77.5	0.015
-3.5	0.133	5.0	0.199	16.5	0.066	37.0	0.019	57.5	0.027	78.0	0.016
-3.0	0.217	5.2	0.173	17.0	0.053	37.5	0.035	58.0	0.019	78.5	0.017
-2.8	0.245	5.4	0.152	17.5	0.036	38.0	0.045	58.5	0.019	79.0	0.019
-2.6	0.262	5.6	0.140	18.0	0.042	38.5	0.044	59.0	0.026	79.5	0.021
-2.4	0.266	5.8	0.137	18.5	0.058	39.0	0.034	59.5	0.034	80.0	0.022
-2.2	0.257	6.0	0.140	19.0	0.061	39.5	0.019	60.0	0.040	80.5	0.024
-2.0	0.234	6.2	0.146	19.5	0.048	40.0	0.016	60.5	0.044	81.0	0.024
-1.8	0.200	6.4	0.151	20.0	0.030	40.5	0.030	61.0	0.043	81.5	0.025
-1.6	0.164	6.6	0.152	20.5	0.034	41.0	0.041	61.5	0.039	82.0	0.025
-1.4	0.147	6.8	0.149	21.0	0.051	41.5	0.044	62.0	0.033	82.5	0.024
-1.2	0.177	7.0	0.142	21.5	0.057	42.0	0.037	62.5	0.025	83.0	0.023
-1.0	0.250	7.2	0.132	22.0	0.048	42.5	0.024	63.0	0.019	83.5	0.022
-0.8	0.346	7.4	0.120	22.5	0.029	43.0	0.014	63.5	0.019	84.0	0.020
-0.6	0.451	7.6	0.110	23.0	0.028	43.5	0.023	64.0	0.024	84.5	0.019
-0.4	0.559	7.8	0.103	23.5	0.045	44.0	0.036	64.5	0.032	85.0	0.017
-0.2	0.664	8.0	0.101	24.0	0.054	44.5	0.044	65.0	0.038	85.5	0.015
0.0	0.760	8.2	0.103	24.5	0.048	45.0	0.043	65.5	0.041	86.0	0.013
0.2	0.844	8.4	0.108	25.0	0.030	45.5	0.034	66.0	0.042	86.5	0.011
0.4	0.912	8.6	0.112	25.5	0.021	46.0	0.021	66.5	0.041	87.0	0.009
0.6	0.961	8.8	0.114	26.0	0.037	46.5	0.014	67.0	0.037	87.5	0.007
0.8	0.991	9.0	0.113	26.5	0.050	47.0	0.024	67.5	0.033	88.0	0.005
1.0	1.000	9.2	0.109	27.0	0.050	47.5	0.036	68.0	0.028	88.5	0.003
1.2	0.988	9.4	0.101	27.5	0.036	48.0	0.042	68.5	0.024	89.0	0.002
1.4	0.957	9.6	0.092	28.0	0.020	48.5	0.042	69.0	0.022	89.5	0.001
1.6	0.907	9.8	0.087	28.5	0.027	49.0	0.035	69.5	0.024	90.0	0.000
1.8	0.844	10.0	0.077	29.0	0.043	49.5	0.023	70.0	0.028		
2.0	0.769	10.2	0.070	29.5	0.049	50.0	0.015	70.5	0.033		
2.2	0.687	10.4	0.068	30.0	0.042	50.5	0.021	71.0	0.037		

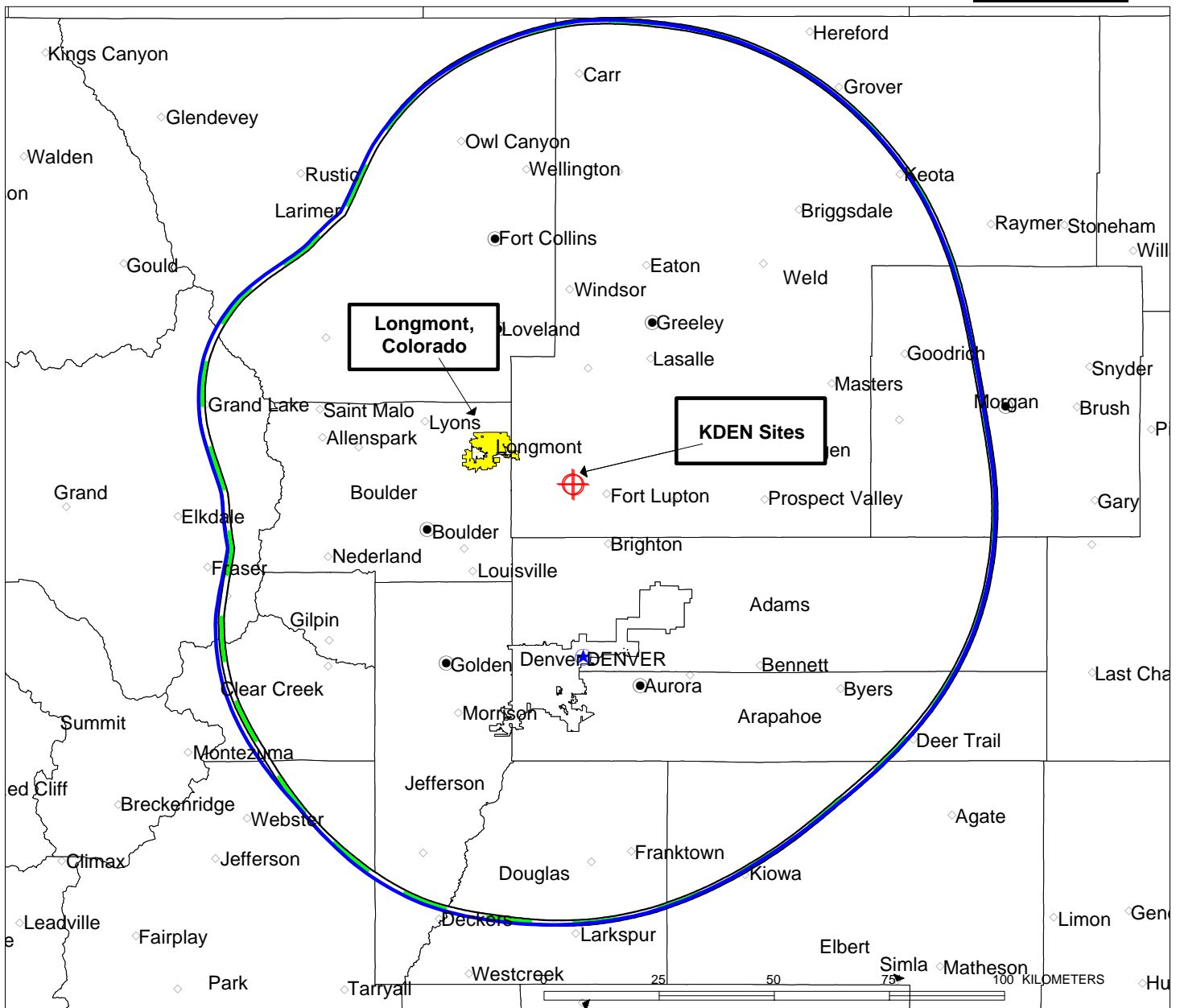


PREDICTED COVERAGE CONTOURS
KDEN-DT, LONGMONT, COLORADO
CH. 29, 540 kW ERP (DA-MAX);
379.1 m HAAT
FEBRUARY, 2006



 KDEN-DT Proposed City Grade Coverage Contour
 48 dBu F(50,90)

 KDEN-DT Proposed Noise-Limited Coverage Contour
 41 dBu F(50,90)

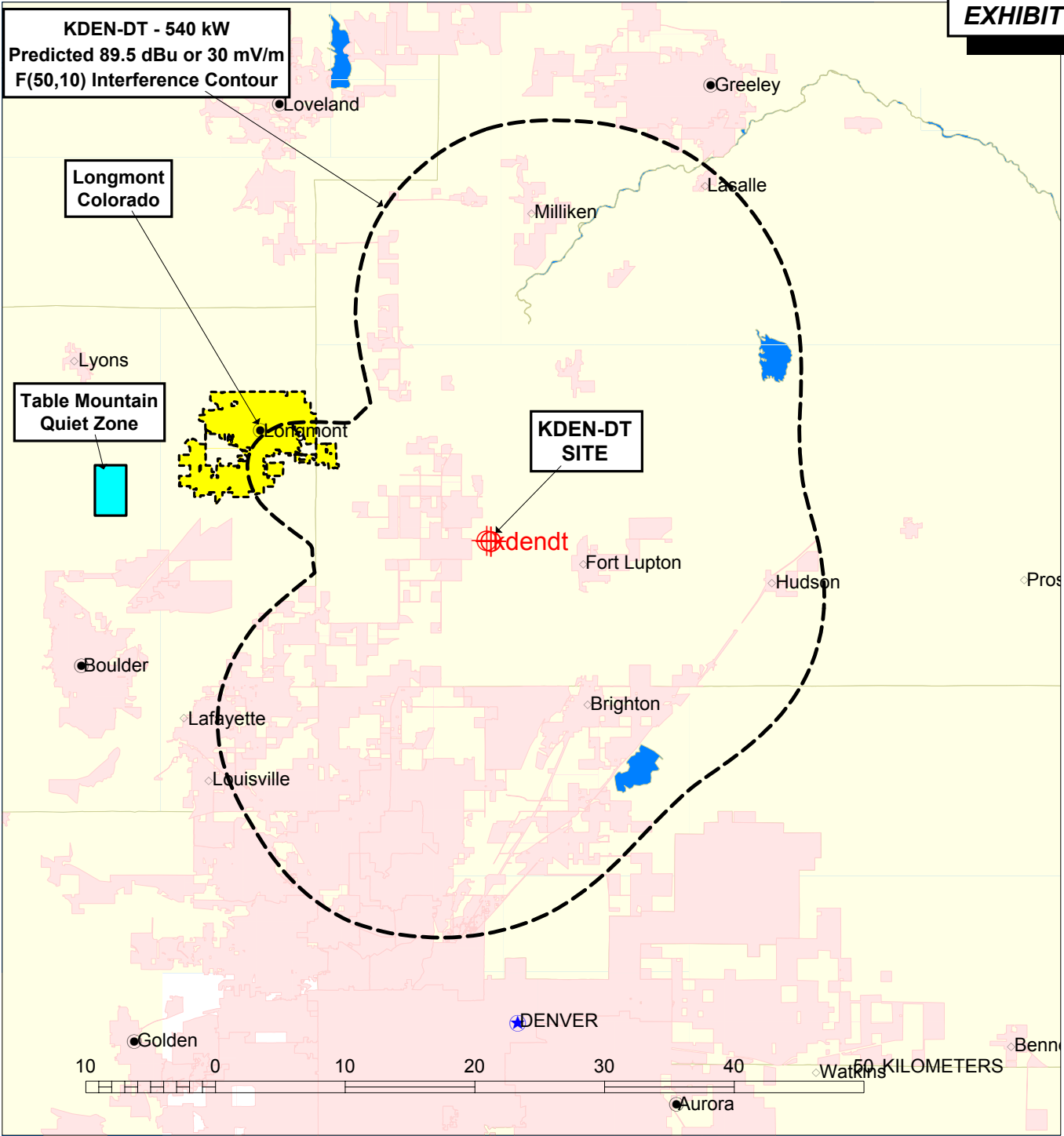
CARL T. JONES
CORPORATION



COMPARISON OF 41dBu COVERAGE CONTOURS
KDEN-DT, LONGMONT, COLORADO
CH. 29, 540 kW ERP (DA-MAX);
379.1 m HAAT
FEBRUARY, 2006

-  **KDEN-DT Proposed Facility on Alternate Tower**
Predicted Noise Limited Coverage Contour; 41 dBu F(50,90)
540 kW ERP (DA-Max); 379.1 m HAAT
-  **KDEN-DT Construction Permit BMPCDT-20040524AOI**
Authorized Noise Limited Coverage Contour; 41 dBu F(50,90)
650 kW ERP (DA-Max); 357.5 m HAAT

CARL T. JONES
CORPORATION



PREDICTED INTERFERENCE CONTOUR
KDEN-DT - LONGMONT, COLORADO
PROPOSED MODIFICATION OF CONSTRUCTION PERMIT
CHANNEL 29 - 540.0 kW - 379.1 m HAAT
PROTECTION OF TABLE MOUNTAIN QUIET ZONE
89.5 dBu - or 30.0 mV/m Interference Contour

**SUMMARY OF RADIOFREQUENCY
RADIATION STUDY**
KDEN-DT, LONGMONT, COLORADO
CHANNEL 29, 540 kW ERP, 379.1 m HAAT
Feb-06

<u>CALL</u>	<u>SERVICE</u>	<u>CHANNEL</u>	<u>FREQUENCY</u>	<u>POLARIZATION</u>	<u>ANTENNA HEIGHT ** mAGL</u>	<u>ERP (kW)</u>	<u>VERT. RELATIVE FIELD FACTOR</u>	<u>PREDICTED POWER DENSITY (mW/cm²)</u>	<u>FCC UNCONTROLLED LIMIT (mW/cm²)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
KDEN-DT	DT	29	563	H	342.8	540.000	0.300	0.01381	0.375	3.68%
KDEN(TV)	TV	25	539	H	348.6	2200.000	0.300	0.02722	0.359	7.57%
TOTAL PERCENTAGE OF ANSI VALUE=										11.25%

*** The antenna heights indicated above are 2 meters less than the actual antenna heights so that the predicted power densities consider the 2 meter human height allowance.*

APPENDIX B



Date 1-Feb-06
Call Letters KDEN-DT Channel 29
Location Longmont, CO
Customer
Antenna Type TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

0.00° Depression Angle

Gain

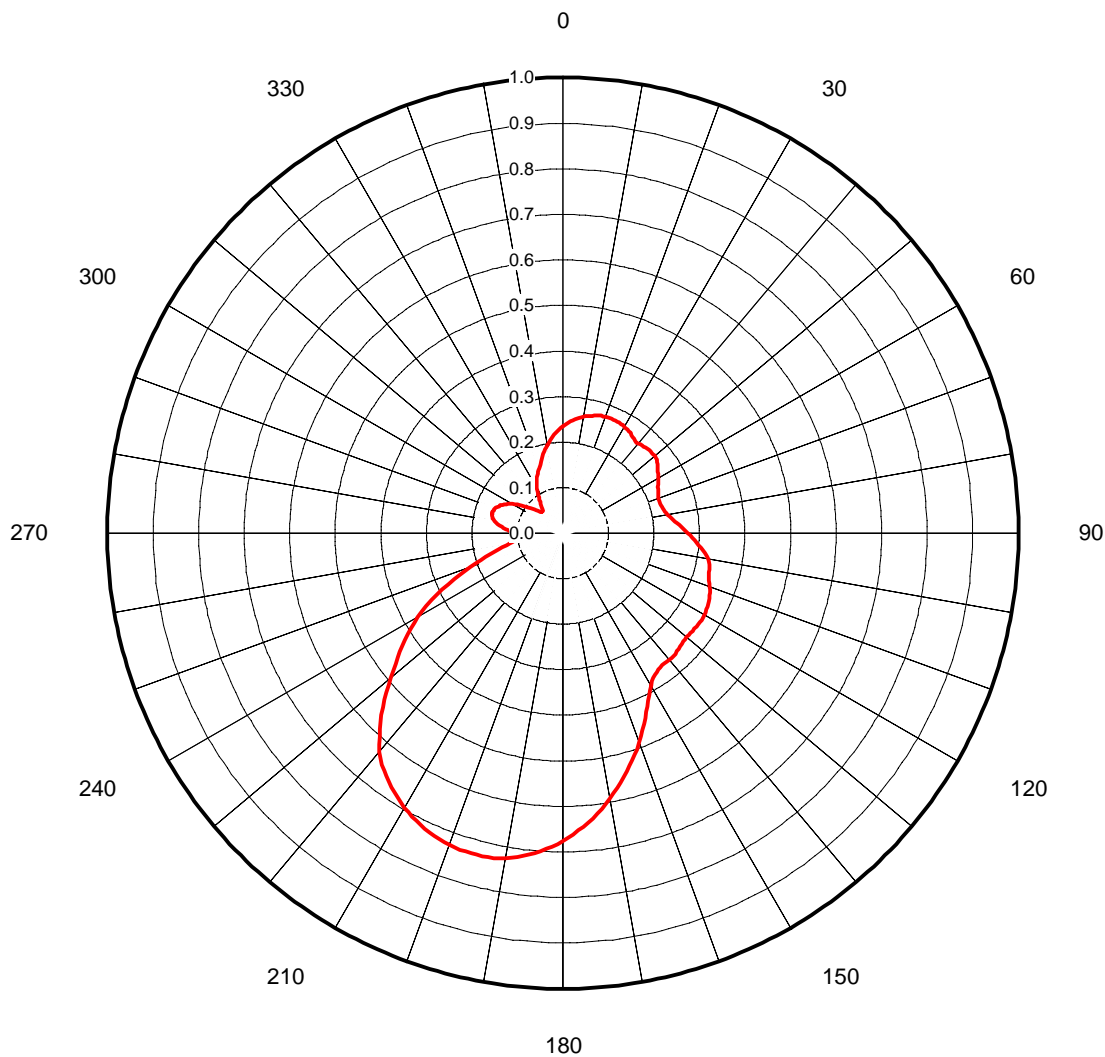
Frequency

719.00 MHz

Calculated / Measured

Calculated

Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.235	45	0.262	90	0.274	135	0.359	180	0.676	225	0.563	270	0.109	315	0.067
1	0.238	46	0.263	91	0.279	136	0.360	181	0.682	226	0.550	271	0.113	316	0.065
2	0.241	47	0.263	92	0.284	137	0.362	182	0.689	227	0.536	272	0.117	317	0.066
3	0.243	48	0.263	93	0.289	138	0.363	183	0.694	228	0.522	273	0.121	318	0.066
4	0.246	49	0.263	94	0.295	139	0.364	184	0.700	229	0.508	274	0.126	319	0.068
5	0.249	50	0.263	95	0.300	140	0.363	185	0.705	230	0.493	275	0.130	320	0.070
6	0.251	51	0.263	96	0.305	141	0.362	186	0.709	231	0.478	276	0.135	321	0.073
7	0.253	52	0.261	97	0.310	142	0.362	187	0.714	232	0.465	277	0.140	322	0.077
8	0.256	53	0.259	98	0.315	143	0.363	188	0.718	233	0.454	278	0.145	323	0.081
9	0.258	54	0.257	99	0.320	144	0.364	189	0.721	234	0.442	279	0.149	324	0.085
10	0.260	55	0.254	100	0.324	145	0.366	190	0.724	235	0.430	280	0.153	325	0.090
11	0.261	56	0.252	101	0.326	146	0.368	191	0.726	236	0.418	281	0.155	326	0.094
12	0.263	57	0.249	102	0.328	147	0.371	192	0.728	237	0.406	282	0.157	327	0.099
13	0.265	58	0.247	103	0.329	148	0.374	193	0.729	238	0.393	283	0.159	328	0.105
14	0.266	59	0.244	104	0.331	149	0.380	194	0.730	239	0.381	284	0.160	329	0.110
15	0.267	60	0.241	105	0.332	150	0.387	195	0.731	240	0.368	285	0.161	330	0.114
16	0.269	61	0.239	106	0.333	151	0.395	196	0.731	241	0.355	286	0.161	331	0.118
17	0.270	62	0.237	107	0.334	152	0.404	197	0.731	242	0.340	287	0.161	332	0.123
18	0.270	63	0.235	108	0.337	153	0.413	198	0.730	243	0.324	288	0.161	333	0.127
19	0.271	64	0.232	109	0.340	154	0.422	199	0.729	244	0.307	289	0.160	334	0.131
20	0.272	65	0.230	110	0.343	155	0.433	200	0.728	245	0.291	290	0.158	335	0.135
21	0.272	66	0.229	111	0.345	156	0.443	201	0.726	246	0.276	291	0.157	336	0.138
22	0.273	67	0.227	112	0.348	157	0.454	202	0.724	247	0.260	292	0.155	337	0.142
23	0.273	68	0.226	113	0.350	158	0.466	203	0.722	248	0.245	293	0.152	338	0.145
24	0.273	69	0.225	114	0.352	159	0.478	204	0.719	249	0.230	294	0.150	339	0.149
25	0.273	70	0.224	115	0.354	160	0.489	205	0.716	250	0.216	295	0.146	340	0.152
26	0.273	71	0.223	116	0.355	161	0.501	206	0.712	251	0.203	296	0.143	341	0.155
27	0.272	72	0.223	117	0.356	162	0.511	207	0.708	252	0.190	297	0.140	342	0.159
28	0.272	73	0.223	118	0.357	163	0.521	208	0.704	253	0.178	298	0.136	343	0.164
29	0.271	74	0.224	119	0.358	164	0.531	209	0.700	254	0.167	299	0.132	344	0.169
30	0.270	75	0.224	120	0.359	165	0.541	210	0.695	255	0.156	300	0.127	345	0.174
31	0.269	76	0.225	121	0.359	166	0.551	211	0.690	256	0.145	301	0.123	346	0.179
32	0.268	77	0.227	122	0.359	167	0.561	212	0.684	257	0.136	302	0.118	347	0.184
33	0.266	78	0.229	123	0.359	168	0.571	213	0.678	258	0.127	303	0.113	348	0.188
34	0.265	79	0.231	124	0.358	169	0.581	214	0.672	259	0.120	304	0.109	349	0.193
35	0.263	80	0.234	125	0.358	170	0.591	215	0.666	260	0.113	305	0.104	350	0.197
36	0.261	81	0.237	126	0.357	171	0.601	216	0.659	261	0.108	306	0.099	351	0.202
37	0.259	82	0.240	127	0.356	172	0.610	217	0.652	262	0.103	307	0.094	352	0.206
38	0.257	83	0.243	128	0.356	173	0.620	218	0.644	263	0.100	308	0.089	353	0.210
39	0.256	84	0.247	129	0.355	174	0.629	219	0.636	264	0.098	309	0.085	354	0.214
40	0.257	85	0.251	130	0.354	175	0.637	220	0.626	265	0.098	310	0.081	355	0.217
41	0.259	86	0.255	131	0.355	176	0.646	221	0.614	266	0.098	311	0.077	356	0.221
42	0.260	87	0.260	132	0.356	177	0.654	222	0.602	267	0.100	312	0.073	357	0.225
43	0.260	88	0.264	133	0.357	178	0.662	223	0.589	268	0.102	313	0.071	358	0.228
44	0.261	89	0.269	134	0.358	179	0.669	224	0.576	269	0.106	314	0.068	359	0.231



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel 29
Longmont, CO
TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

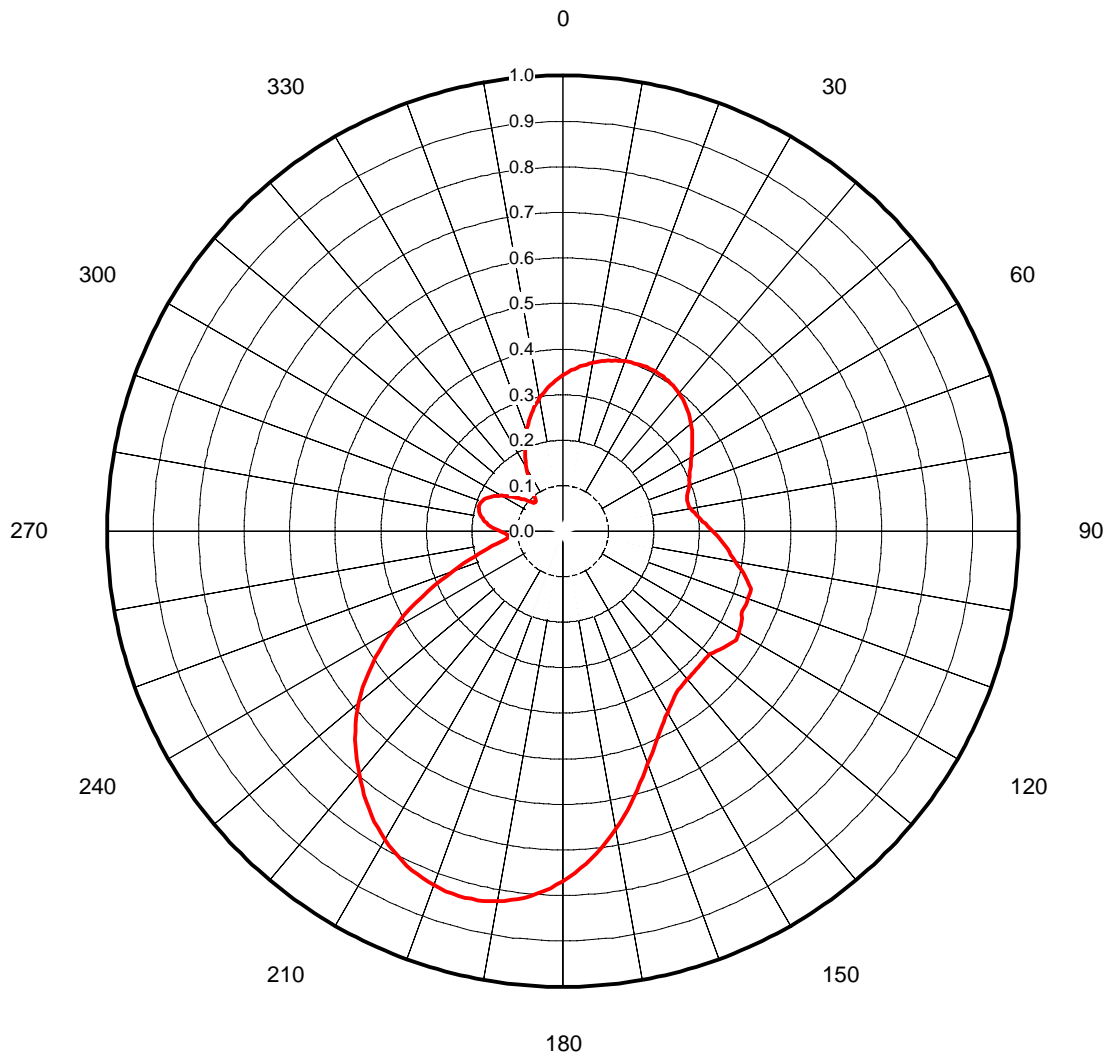
0.20° Depression Angle

Gain
Calculated / Measured

Calculated

Frequency
Drawing #

719.00 MHz



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.342	45	0.383	90	0.329	135	0.421	180	0.768	225	0.644	270	0.138	315	0.089
1	0.346	46	0.381	91	0.334	136	0.421	181	0.776	226	0.633	271	0.144	316	0.088
2	0.350	47	0.377	92	0.340	137	0.422	182	0.784	227	0.622	272	0.150	317	0.088
3	0.353	48	0.374	93	0.345	138	0.423	183	0.790	228	0.610	273	0.156	318	0.089
4	0.357	49	0.370	94	0.351	139	0.424	184	0.797	229	0.597	274	0.160	319	0.092
5	0.360	50	0.367	95	0.356	140	0.424	185	0.803	230	0.585	275	0.165	320	0.095
6	0.364	51	0.363	96	0.362	141	0.425	186	0.808	231	0.572	276	0.169	321	0.099
7	0.367	52	0.359	97	0.367	142	0.426	187	0.813	232	0.558	277	0.172	322	0.104
8	0.370	53	0.355	98	0.373	143	0.429	188	0.818	233	0.542	278	0.176	323	0.110
9	0.372	54	0.351	99	0.378	144	0.431	189	0.821	234	0.527	279	0.178	324	0.116
10	0.375	55	0.347	100	0.384	145	0.434	190	0.825	235	0.511	280	0.181	325	0.122
11	0.378	56	0.343	101	0.391	146	0.438	191	0.827	236	0.495	281	0.183	326	0.129
12	0.380	57	0.339	102	0.398	147	0.443	192	0.830	237	0.479	282	0.186	327	0.136
13	0.383	58	0.334	103	0.405	148	0.448	193	0.831	238	0.463	283	0.188	328	0.144
14	0.385	59	0.330	104	0.412	149	0.454	194	0.832	239	0.446	284	0.190	329	0.151
15	0.387	60	0.326	105	0.419	150	0.459	195	0.832	240	0.430	285	0.191	330	0.159
16	0.390	61	0.322	106	0.425	151	0.465	196	0.832	241	0.413	286	0.192	331	0.166
17	0.391	62	0.318	107	0.432	152	0.471	197	0.832	242	0.396	287	0.192	332	0.174
18	0.393	63	0.315	108	0.433	153	0.479	198	0.831	243	0.378	288	0.192	333	0.182
19	0.395	64	0.311	109	0.433	154	0.487	199	0.829	244	0.360	289	0.191	334	0.189
20	0.397	65	0.308	110	0.433	155	0.495	200	0.827	245	0.342	290	0.190	335	0.197
21	0.398	66	0.305	111	0.433	156	0.504	201	0.824	246	0.324	291	0.188	336	0.205
22	0.400	67	0.302	112	0.433	157	0.514	202	0.822	247	0.307	292	0.186	337	0.212
23	0.401	68	0.300	113	0.432	158	0.523	203	0.818	248	0.290	293	0.183	338	0.219
24	0.402	69	0.298	114	0.431	159	0.534	204	0.814	249	0.273	294	0.181	339	0.226
25	0.403	70	0.295	115	0.433	160	0.544	205	0.810	250	0.256	295	0.177	340	0.233
26	0.404	71	0.292	116	0.436	161	0.555	206	0.805	251	0.242	296	0.174	341	0.240
27	0.404	72	0.289	117	0.439	162	0.567	207	0.800	252	0.229	297	0.169	342	0.247
28	0.405	73	0.286	118	0.442	163	0.579	208	0.794	253	0.216	298	0.165	343	0.254
29	0.405	74	0.284	119	0.444	164	0.591	209	0.788	254	0.203	299	0.160	344	0.260
30	0.405	75	0.283	120	0.446	165	0.604	210	0.782	255	0.191	300	0.155	345	0.267
31	0.405	76	0.281	121	0.448	166	0.616	211	0.774	256	0.179	301	0.150	346	0.273
32	0.405	77	0.281	122	0.449	167	0.628	212	0.767	257	0.169	302	0.145	347	0.279
33	0.404	78	0.280	123	0.446	168	0.641	213	0.759	258	0.159	303	0.140	348	0.285
34	0.404	79	0.283	124	0.442	169	0.653	214	0.751	259	0.149	304	0.135	349	0.290
35	0.403	80	0.285	125	0.439	170	0.665	215	0.743	260	0.140	305	0.130	350	0.296
36	0.402	81	0.288	126	0.435	171	0.676	216	0.734	261	0.134	306	0.126	351	0.301
37	0.400	82	0.291	127	0.431	172	0.688	217	0.724	262	0.127	307	0.121	352	0.307
38	0.399	83	0.295	128	0.427	173	0.699	218	0.715	263	0.124	308	0.116	353	0.311
39	0.397	84	0.299	129	0.424	174	0.710	219	0.705	264	0.121	309	0.111	354	0.316
40	0.396	85	0.304	130	0.421	175	0.721	220	0.695	265	0.120	310	0.106	355	0.321
41	0.394	86	0.308	131	0.421	176	0.731	221	0.686	266	0.120	311	0.102	356	0.326
42	0.391	87	0.313	132	0.420	177	0.741	222	0.676	267	0.124	312	0.097	357	0.330
43	0.389	88	0.318	133	0.421	178	0.750	223	0.666	268	0.127	313	0.094	358	0.334
44	0.386	89	0.323	134	0.421	179	0.759	224	0.656	269	0.132	314	0.091	359	0.338



Date **1-Feb-06**
Call Letters **KDEN-DT** Channel **29**
Location **Longmont, CO**
Customer
Antenna Type **TFU-24ETT/VP-R CT220SP**

AZIMUTH PATTERN:

0.40° Depression Angle

Gain

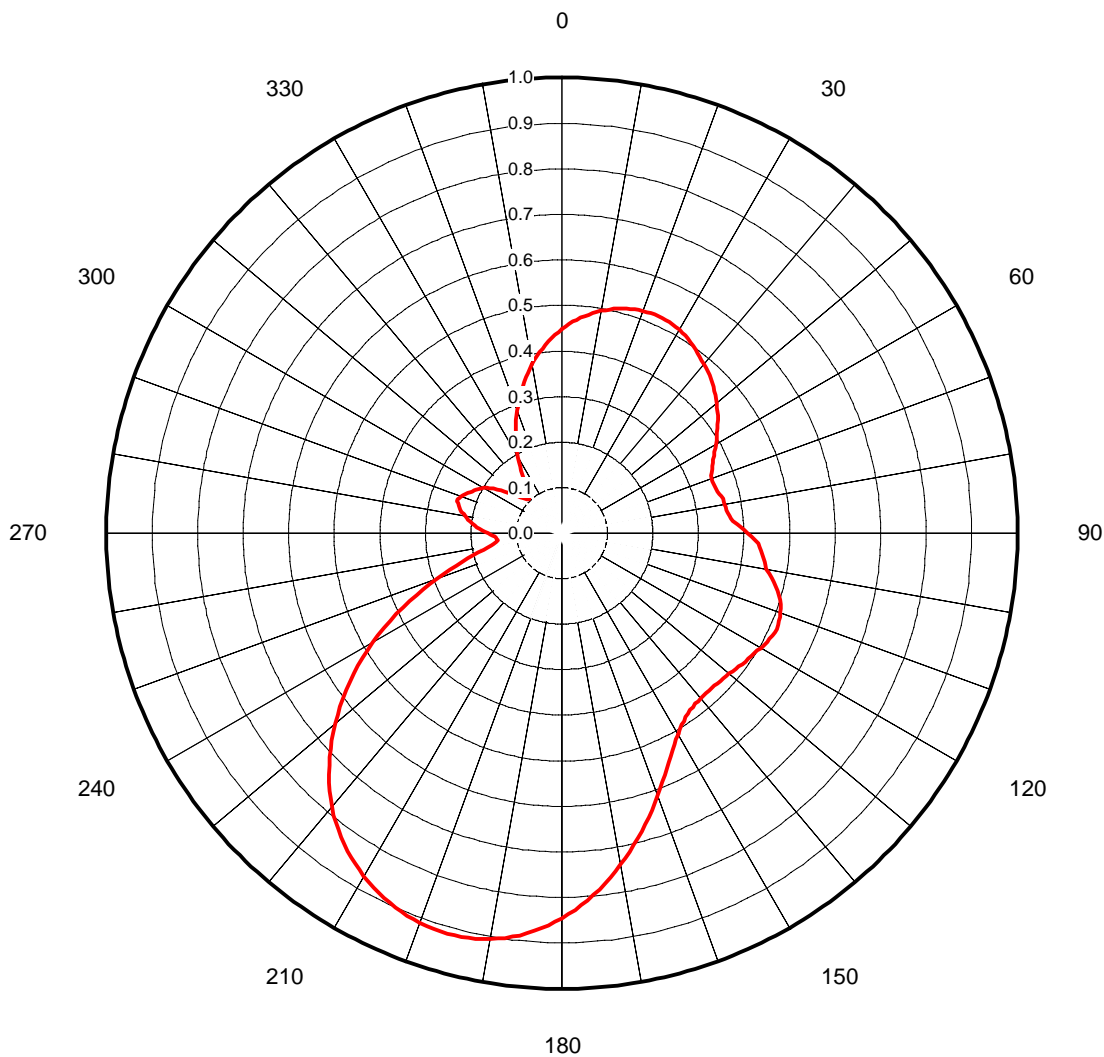
Calculated / Measured

Calculated

Frequency

719.00 MHz

Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.448	45	0.467	90	0.408	135	0.474	180	0.845	225	0.722	270	0.162	315	0.106
1	0.454	46	0.463	91	0.416	136	0.473	181	0.853	226	0.708	271	0.168	316	0.104
2	0.459	47	0.458	92	0.424	137	0.473	182	0.861	227	0.694	272	0.175	317	0.105
3	0.464	48	0.454	93	0.431	138	0.473	183	0.868	228	0.680	273	0.181	318	0.106
4	0.470	49	0.449	94	0.435	139	0.474	184	0.875	229	0.665	274	0.187	319	0.110
5	0.474	50	0.444	95	0.439	140	0.473	185	0.881	230	0.650	275	0.193	320	0.113
6	0.479	51	0.439	96	0.442	141	0.474	186	0.887	231	0.634	276	0.198	321	0.119
7	0.484	52	0.433	97	0.446	142	0.475	187	0.892	232	0.618	277	0.203	322	0.125
8	0.488	53	0.428	98	0.449	143	0.477	188	0.897	233	0.601	278	0.207	323	0.132
9	0.492	54	0.423	99	0.452	144	0.479	189	0.901	234	0.585	279	0.211	324	0.139
10	0.495	55	0.417	100	0.456	145	0.483	190	0.905	235	0.568	280	0.215	325	0.147
11	0.499	56	0.412	101	0.463	146	0.486	191	0.907	236	0.551	281	0.219	326	0.155
12	0.502	57	0.406	102	0.470	147	0.491	192	0.910	237	0.533	282	0.224	327	0.164
13	0.505	58	0.401	103	0.477	148	0.496	193	0.911	238	0.516	283	0.228	328	0.173
14	0.508	59	0.395	104	0.484	149	0.503	194	0.913	239	0.498	284	0.232	329	0.183
15	0.510	60	0.390	105	0.490	150	0.509	195	0.913	240	0.480	285	0.235	330	0.192
16	0.513	61	0.385	106	0.496	151	0.518	196	0.914	241	0.462	286	0.238	331	0.202
17	0.514	62	0.380	107	0.502	152	0.526	197	0.914	242	0.443	287	0.240	332	0.211
18	0.516	63	0.375	108	0.505	153	0.535	198	0.913	243	0.423	288	0.240	333	0.221
19	0.518	64	0.370	109	0.508	154	0.544	199	0.912	244	0.404	289	0.238	334	0.230
20	0.519	65	0.366	110	0.510	155	0.555	200	0.910	245	0.385	290	0.236	335	0.240
21	0.520	66	0.362	111	0.512	156	0.566	201	0.908	246	0.366	291	0.233	336	0.249
22	0.521	67	0.358	112	0.514	157	0.577	202	0.906	247	0.347	292	0.229	337	0.259
23	0.521	68	0.354	113	0.515	158	0.589	203	0.902	248	0.328	293	0.225	338	0.268
24	0.521	69	0.352	114	0.516	159	0.601	204	0.899	249	0.310	294	0.221	339	0.277
25	0.521	70	0.349	115	0.515	160	0.614	205	0.895	250	0.292	295	0.217	340	0.286
26	0.520	71	0.349	116	0.514	161	0.627	206	0.891	251	0.275	296	0.214	341	0.295
27	0.519	72	0.350	117	0.512	162	0.639	207	0.886	252	0.259	297	0.210	342	0.304
28	0.518	73	0.351	118	0.509	163	0.651	208	0.881	253	0.243	298	0.207	343	0.314
29	0.517	74	0.352	119	0.506	164	0.664	209	0.875	254	0.228	299	0.202	344	0.323
30	0.515	75	0.354	120	0.504	165	0.677	210	0.869	255	0.214	300	0.198	345	0.332
31	0.513	76	0.356	121	0.500	166	0.689	211	0.862	256	0.200	301	0.192	346	0.342
32	0.511	77	0.360	122	0.497	167	0.702	212	0.856	257	0.188	302	0.187	347	0.351
33	0.508	78	0.362	123	0.495	168	0.715	213	0.848	258	0.176	303	0.179	348	0.360
34	0.506	79	0.362	124	0.493	169	0.727	214	0.841	259	0.167	304	0.172	349	0.368
35	0.502	80	0.363	125	0.491	170	0.739	215	0.832	260	0.158	305	0.163	350	0.377
36	0.499	81	0.364	126	0.489	171	0.751	216	0.824	261	0.152	306	0.156	351	0.385
37	0.495	82	0.365	127	0.487	172	0.763	217	0.815	262	0.146	307	0.148	352	0.393
38	0.491	83	0.367	128	0.484	173	0.775	218	0.806	263	0.144	308	0.140	353	0.400
39	0.487	84	0.369	129	0.481	174	0.786	219	0.796	264	0.142	309	0.133	354	0.408
40	0.484	85	0.372	130	0.479	175	0.797	220	0.785	265	0.143	310	0.126	355	0.415
41	0.481	86	0.377	131	0.478	176	0.807	221	0.773	266	0.144	311	0.120	356	0.422
42	0.478	87	0.384	132	0.477	177	0.817	222	0.761	267	0.148	312	0.115	357	0.429
43	0.474	88	0.392	133	0.476	178	0.827	223	0.748	268	0.151	313	0.111	358	0.435
44	0.471	89	0.400	134	0.475	179	0.836	224	0.736	269	0.157	314	0.107	359	0.442



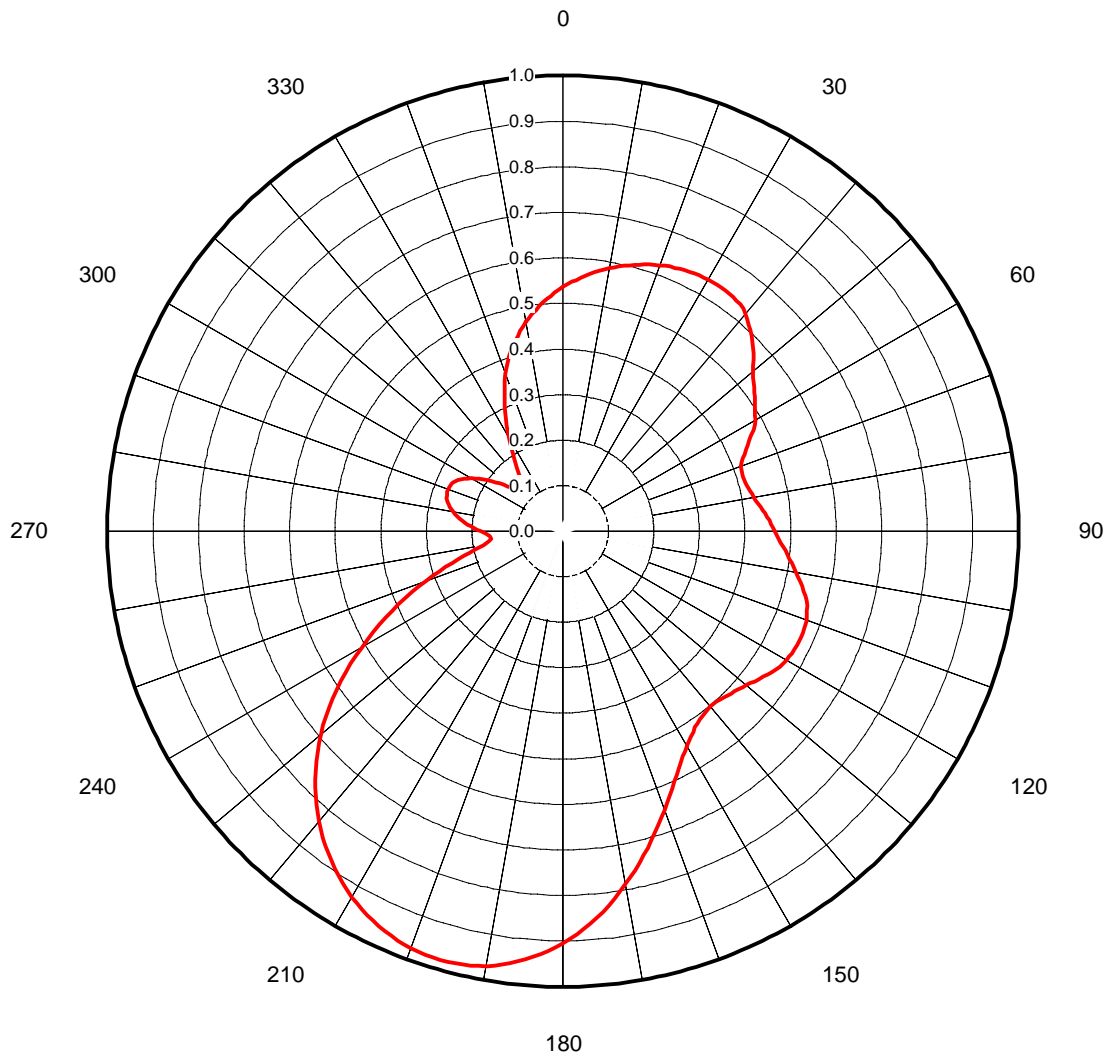
Date 1-Feb-06
Call Letters KDEN-DT Channel 29
Location Longmont, CO
Customer
Antenna Type TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

0.60° Depression Angle

Gain
Calculated / Measured **Calculated**

Frequency 719.00 MHz
Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.536	45	0.587	90	0.465	135	0.510	180	0.904	225	0.768	270	0.180	315	0.129
1	0.541	46	0.580	91	0.469	136	0.507	181	0.913	226	0.754	271	0.188	316	0.128
2	0.547	47	0.571	92	0.473	137	0.505	182	0.922	227	0.739	272	0.195	317	0.130
3	0.552	48	0.563	93	0.478	138	0.503	183	0.930	228	0.725	273	0.203	318	0.132
4	0.558	49	0.554	94	0.484	139	0.503	184	0.937	229	0.709	274	0.210	319	0.137
5	0.563	50	0.545	95	0.490	140	0.503	185	0.944	230	0.694	275	0.216	320	0.141
6	0.568	51	0.536	96	0.496	141	0.504	186	0.950	231	0.677	276	0.223	321	0.148
7	0.572	52	0.530	97	0.502	142	0.505	187	0.955	232	0.660	277	0.229	322	0.155
8	0.577	53	0.525	98	0.508	143	0.508	188	0.961	233	0.642	278	0.235	323	0.163
9	0.581	54	0.520	99	0.513	144	0.511	189	0.965	234	0.624	279	0.240	324	0.172
10	0.586	55	0.514	100	0.519	145	0.515	190	0.969	235	0.606	280	0.245	325	0.181
11	0.590	56	0.509	101	0.526	146	0.519	191	0.972	236	0.587	281	0.249	326	0.191
12	0.594	57	0.503	102	0.532	147	0.525	192	0.974	237	0.568	282	0.254	327	0.202
13	0.598	58	0.498	103	0.539	148	0.531	193	0.976	238	0.549	283	0.257	328	0.212
14	0.602	59	0.492	104	0.545	149	0.537	194	0.978	239	0.529	284	0.261	329	0.223
15	0.605	60	0.487	105	0.550	150	0.544	195	0.978	240	0.510	285	0.263	330	0.236
16	0.609	61	0.482	106	0.556	151	0.552	196	0.979	241	0.490	286	0.265	331	0.249
17	0.612	62	0.473	107	0.561	152	0.560	197	0.978	242	0.471	287	0.266	332	0.262
18	0.615	63	0.464	108	0.564	153	0.570	198	0.978	243	0.452	288	0.267	333	0.275
19	0.618	64	0.456	109	0.566	154	0.580	199	0.976	244	0.433	289	0.268	334	0.289
20	0.621	65	0.448	110	0.568	155	0.591	200	0.974	245	0.414	290	0.269	335	0.302
21	0.623	66	0.440	111	0.570	156	0.601	201	0.971	246	0.395	291	0.268	336	0.315
22	0.626	67	0.433	112	0.571	157	0.613	202	0.969	247	0.376	292	0.267	337	0.328
23	0.628	68	0.426	113	0.572	158	0.625	203	0.965	248	0.357	293	0.265	338	0.342
24	0.630	69	0.420	114	0.572	159	0.638	204	0.961	249	0.338	294	0.263	339	0.355
25	0.632	70	0.415	115	0.572	160	0.651	205	0.956	250	0.320	295	0.260	340	0.368
26	0.634	71	0.414	116	0.572	161	0.664	206	0.951	251	0.303	296	0.256	341	0.381
27	0.635	72	0.413	117	0.571	162	0.678	207	0.946	252	0.286	297	0.250	342	0.392
28	0.636	73	0.413	118	0.570	163	0.692	208	0.940	253	0.270	298	0.245	343	0.402
29	0.637	74	0.413	119	0.568	164	0.705	209	0.933	254	0.254	299	0.238	344	0.412
30	0.638	75	0.415	120	0.566	165	0.719	210	0.927	255	0.239	300	0.232	345	0.421
31	0.638	76	0.416	121	0.564	166	0.733	211	0.919	256	0.224	301	0.225	346	0.431
32	0.638	77	0.419	122	0.561	167	0.747	212	0.911	257	0.211	302	0.218	347	0.440
33	0.638	78	0.422	123	0.557	168	0.761	213	0.903	258	0.199	303	0.209	348	0.449
34	0.638	79	0.424	124	0.553	169	0.775	214	0.894	259	0.188	304	0.200	349	0.457
35	0.637	80	0.426	125	0.548	170	0.788	215	0.885	260	0.178	305	0.192	350	0.466
36	0.636	81	0.429	126	0.544	171	0.801	216	0.876	261	0.171	306	0.183	351	0.474
37	0.634	82	0.432	127	0.539	172	0.814	217	0.865	262	0.164	307	0.174	352	0.482
38	0.633	83	0.436	128	0.535	173	0.827	218	0.855	263	0.161	308	0.165	353	0.489
39	0.629	84	0.441	129	0.530	174	0.839	219	0.844	264	0.158	309	0.157	354	0.497
40	0.623	85	0.446	130	0.525	175	0.851	220	0.832	265	0.159	310	0.149	355	0.504
41	0.617	86	0.449	131	0.522	176	0.863	221	0.820	266	0.160	311	0.144	356	0.511
42	0.610	87	0.453	132	0.518	177	0.874	222	0.808	267	0.164	312	0.138	357	0.517
43	0.603	88	0.457	133	0.515	178	0.885	223	0.795	268	0.168	313	0.134	358	0.524
44	0.595	89	0.461	134	0.512	179	0.894	224	0.782	269	0.174	314	0.131	359	0.530



Date 1-Feb-06
Call Letters KDEN-DT Channel 29
Location Longmont, CO
Customer
Antenna Type TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

0.80° Depression Angle

Gain

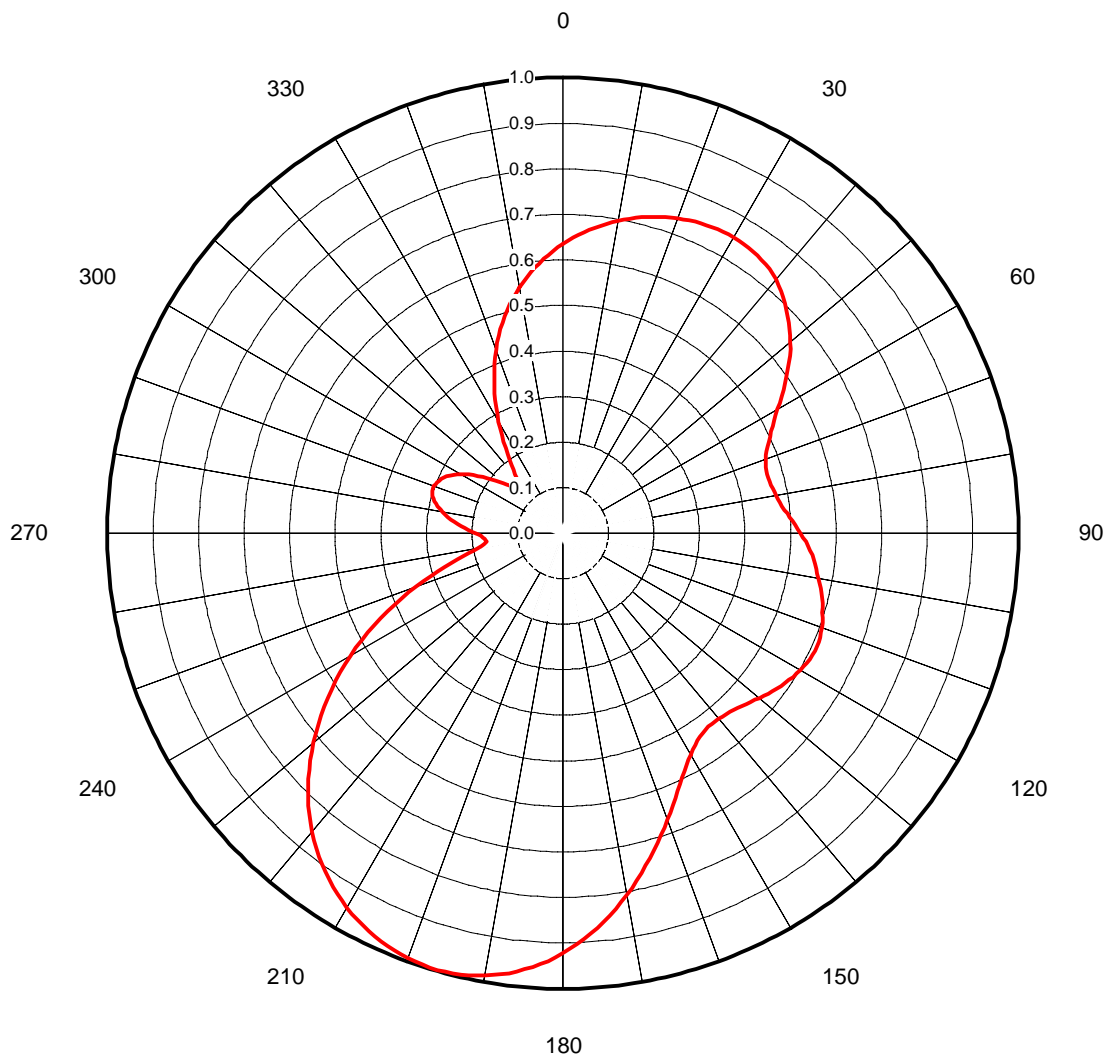
Frequency

719.00 MHz

Calculated / Measured

Calculated

Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.635	45	0.694	90	0.521	135	0.543	180	0.922	225	0.791	270	0.192	315	0.145
1	0.642	46	0.686	91	0.527	136	0.539	181	0.931	226	0.777	271	0.200	316	0.143
2	0.649	47	0.678	92	0.534	137	0.537	182	0.939	227	0.761	272	0.207	317	0.145
3	0.655	48	0.670	93	0.539	138	0.535	183	0.947	228	0.746	273	0.215	318	0.147
4	0.662	49	0.661	94	0.544	139	0.533	184	0.955	229	0.730	274	0.224	319	0.152
5	0.668	50	0.652	95	0.548	140	0.531	185	0.961	230	0.714	275	0.232	320	0.158
6	0.674	51	0.643	96	0.553	141	0.531	186	0.968	231	0.698	276	0.240	321	0.167
7	0.680	52	0.632	97	0.557	142	0.530	187	0.973	232	0.681	277	0.247	322	0.176
8	0.686	53	0.621	98	0.561	143	0.532	188	0.978	233	0.664	278	0.255	323	0.187
9	0.691	54	0.610	99	0.565	144	0.533	189	0.982	234	0.647	279	0.262	324	0.198
10	0.696	55	0.599	100	0.569	145	0.535	190	0.986	235	0.630	280	0.268	325	0.211
11	0.701	56	0.588	101	0.574	146	0.538	191	0.989	236	0.612	281	0.274	326	0.224
12	0.706	57	0.577	102	0.578	147	0.543	192	0.992	237	0.594	282	0.280	327	0.239
13	0.710	58	0.565	103	0.582	148	0.547	193	0.994	238	0.576	283	0.285	328	0.253
14	0.715	59	0.555	104	0.586	149	0.554	194	0.996	239	0.557	284	0.290	329	0.268
15	0.718	60	0.544	105	0.590	150	0.560	195	0.996	240	0.539	285	0.294	330	0.282
16	0.722	61	0.534	106	0.593	151	0.569	196	0.997	241	0.519	286	0.298	331	0.297
17	0.726	62	0.525	107	0.596	152	0.577	197	0.997	242	0.500	287	0.300	332	0.312
18	0.729	63	0.517	108	0.599	153	0.587	198	0.996	243	0.480	288	0.301	333	0.327
19	0.732	64	0.509	109	0.602	154	0.597	199	0.995	244	0.460	289	0.301	334	0.341
20	0.736	65	0.502	110	0.605	155	0.608	200	0.993	245	0.441	290	0.301	335	0.356
21	0.738	66	0.495	111	0.607	156	0.619	201	0.990	246	0.421	291	0.300	336	0.371
22	0.741	67	0.489	112	0.609	157	0.631	202	0.988	247	0.401	292	0.298	337	0.386
23	0.743	68	0.482	113	0.610	158	0.644	203	0.984	248	0.381	293	0.295	338	0.400
24	0.745	69	0.477	114	0.612	159	0.657	204	0.981	249	0.362	294	0.292	339	0.415
25	0.746	70	0.473	115	0.611	160	0.670	205	0.976	250	0.343	295	0.288	340	0.429
26	0.748	71	0.470	116	0.610	161	0.684	206	0.972	251	0.324	296	0.283	341	0.443
27	0.748	72	0.468	117	0.608	162	0.697	207	0.966	252	0.305	297	0.278	342	0.456
28	0.749	73	0.467	118	0.606	163	0.711	208	0.961	253	0.288	298	0.272	343	0.468
29	0.749	74	0.466	119	0.604	164	0.724	209	0.954	254	0.270	299	0.265	344	0.481
30	0.750	75	0.467	120	0.601	165	0.738	210	0.948	255	0.254	300	0.259	345	0.493
31	0.749	76	0.467	121	0.598	166	0.752	211	0.941	256	0.238	301	0.251	346	0.504
32	0.748	77	0.469	122	0.595	167	0.766	212	0.933	257	0.224	302	0.243	347	0.515
33	0.747	78	0.471	123	0.592	168	0.779	213	0.925	258	0.210	303	0.234	348	0.527
34	0.746	79	0.473	124	0.588	169	0.793	214	0.917	259	0.200	304	0.225	349	0.537
35	0.744	80	0.475	125	0.584	170	0.806	215	0.908	260	0.189	305	0.215	350	0.548
36	0.742	81	0.478	126	0.580	171	0.819	216	0.899	261	0.182	306	0.206	351	0.557
37	0.739	82	0.481	127	0.576	172	0.833	217	0.889	262	0.174	307	0.197	352	0.567
38	0.736	83	0.485	128	0.571	173	0.845	218	0.879	263	0.172	308	0.187	353	0.577
39	0.732	84	0.489	129	0.567	174	0.857	219	0.868	264	0.169	309	0.179	354	0.586
40	0.727	85	0.494	130	0.563	175	0.869	220	0.857	265	0.170	310	0.170	355	0.595
41	0.721	86	0.499	131	0.558	176	0.881	221	0.844	266	0.171	311	0.163	356	0.603
42	0.715	87	0.504	132	0.554	177	0.891	222	0.832	267	0.175	312	0.156	357	0.611
43	0.708	88	0.509	133	0.550	178	0.902	223	0.818	268	0.179	313	0.152	358	0.620
44	0.701	89	0.515	134	0.546	179	0.912	224	0.805	269	0.186	314	0.147	359	0.627



Date	1-Feb-06	
Call Letters	KDEN-DT	Channel 29
Location	Longmont, CO	
Customer		
Antenna Type	TFU-24ETT/VP-R CT220SP	

AZIMUTH PATTERN:

1.00° Depression Angle

Gain

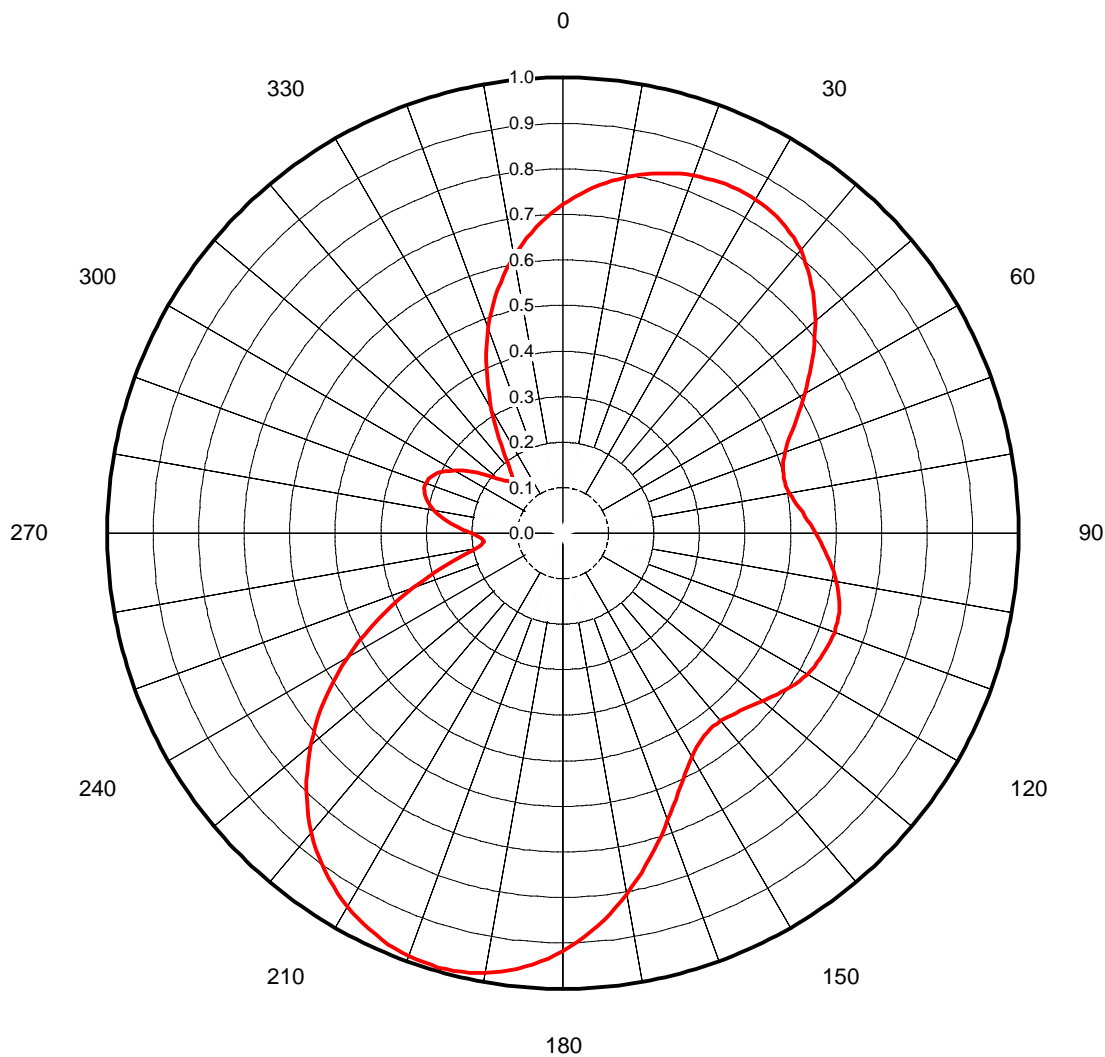
Frequency

719.00 MHz

Calculated / Measured

Calculated

Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.721	45	0.772	90	0.554	135	0.551	180	0.917	225	0.796	270	0.201	315	0.162
1	0.730	46	0.763	91	0.560	136	0.547	181	0.926	226	0.782	271	0.210	316	0.160
2	0.738	47	0.753	92	0.566	137	0.545	182	0.934	227	0.768	272	0.219	317	0.163
3	0.746	48	0.743	93	0.572	138	0.542	183	0.942	228	0.753	273	0.228	318	0.165
4	0.753	49	0.733	94	0.578	139	0.540	184	0.949	229	0.737	274	0.238	319	0.172
5	0.761	50	0.723	95	0.583	140	0.538	185	0.955	230	0.722	275	0.247	320	0.178
6	0.768	51	0.712	96	0.589	141	0.538	186	0.962	231	0.706	276	0.256	321	0.188
7	0.774	52	0.702	97	0.594	142	0.537	187	0.967	232	0.689	277	0.264	322	0.197
8	0.781	53	0.690	98	0.600	143	0.538	188	0.972	233	0.672	278	0.272	323	0.209
9	0.787	54	0.679	99	0.605	144	0.539	189	0.976	234	0.655	279	0.280	324	0.222
10	0.793	55	0.668	100	0.609	145	0.542	190	0.980	235	0.638	280	0.287	325	0.236
11	0.798	56	0.657	101	0.614	146	0.545	191	0.983	236	0.620	281	0.293	326	0.250
12	0.804	57	0.646	102	0.618	147	0.549	192	0.986	237	0.602	282	0.300	327	0.265
13	0.809	58	0.635	103	0.621	148	0.554	193	0.988	238	0.583	283	0.304	328	0.281
14	0.814	59	0.624	104	0.625	149	0.560	194	0.990	239	0.564	284	0.309	329	0.297
15	0.818	60	0.613	105	0.627	150	0.566	195	0.990	240	0.546	285	0.313	330	0.313
16	0.822	61	0.603	106	0.630	151	0.574	196	0.991	241	0.526	286	0.316	331	0.330
17	0.826	62	0.591	107	0.632	152	0.582	197	0.991	242	0.507	287	0.318	332	0.346
18	0.830	63	0.580	108	0.633	153	0.592	198	0.991	243	0.487	288	0.320	333	0.363
19	0.833	64	0.570	109	0.634	154	0.601	199	0.989	244	0.467	289	0.320	334	0.380
20	0.836	65	0.560	110	0.634	155	0.612	200	0.988	245	0.447	290	0.320	335	0.396
21	0.838	66	0.550	111	0.634	156	0.623	201	0.985	246	0.427	291	0.319	336	0.413
22	0.841	67	0.541	112	0.633	157	0.634	202	0.983	247	0.408	292	0.318	337	0.430
23	0.842	68	0.533	113	0.632	158	0.646	203	0.980	248	0.388	293	0.315	338	0.446
24	0.844	69	0.525	114	0.631	159	0.659	204	0.977	249	0.368	294	0.312	339	0.463
25	0.845	70	0.518	115	0.629	160	0.672	205	0.972	250	0.349	295	0.308	340	0.479
26	0.846	71	0.514	116	0.628	161	0.685	206	0.968	251	0.330	296	0.303	341	0.495
27	0.846	72	0.509	117	0.626	162	0.698	207	0.963	252	0.312	297	0.296	342	0.510
28	0.847	73	0.506	118	0.624	163	0.711	208	0.958	253	0.294	298	0.290	343	0.525
29	0.846	74	0.503	119	0.622	164	0.724	209	0.952	254	0.277	299	0.283	344	0.539
30	0.845	75	0.501	120	0.619	165	0.738	210	0.946	255	0.260	300	0.275	345	0.553
31	0.844	76	0.500	121	0.616	166	0.751	211	0.939	256	0.244	301	0.267	346	0.567
32	0.843	77	0.500	122	0.612	167	0.765	212	0.932	257	0.230	302	0.258	347	0.580
33	0.840	78	0.500	123	0.608	168	0.778	213	0.924	258	0.217	303	0.249	348	0.593
34	0.838	79	0.502	124	0.603	169	0.791	214	0.916	259	0.205	304	0.241	349	0.605
35	0.835	80	0.505	125	0.598	170	0.805	215	0.908	260	0.194	305	0.231	350	0.618
36	0.832	81	0.509	126	0.593	171	0.817	216	0.899	261	0.187	306	0.222	351	0.629
37	0.828	82	0.512	127	0.588	172	0.830	217	0.890	262	0.180	307	0.213	352	0.641
38	0.824	83	0.517	128	0.583	173	0.842	218	0.880	263	0.177	308	0.204	353	0.652
39	0.818	84	0.522	129	0.578	174	0.854	219	0.870	264	0.174	309	0.195	354	0.663
40	0.812	85	0.528	130	0.573	175	0.866	220	0.859	265	0.175	310	0.187	355	0.674
41	0.804	86	0.533	131	0.568	176	0.877	221	0.847	266	0.176	311	0.180	356	0.684
42	0.797	87	0.538	132	0.563	177	0.887	222	0.835	267	0.181	312	0.173	357	0.694
43	0.789	88	0.543	133	0.559	178	0.898	223	0.822	268	0.186	313	0.168	358	0.703
44	0.781	89	0.549	134	0.555	179	0.907	224	0.809	269	0.194	314	0.163	359	0.712



Date

1-Feb-06

Call Letters

KDEN-DT

Channel

29

Location

Longmont, CO

Customer

Antenna Type

TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

1.20° Depression Angle

Gain

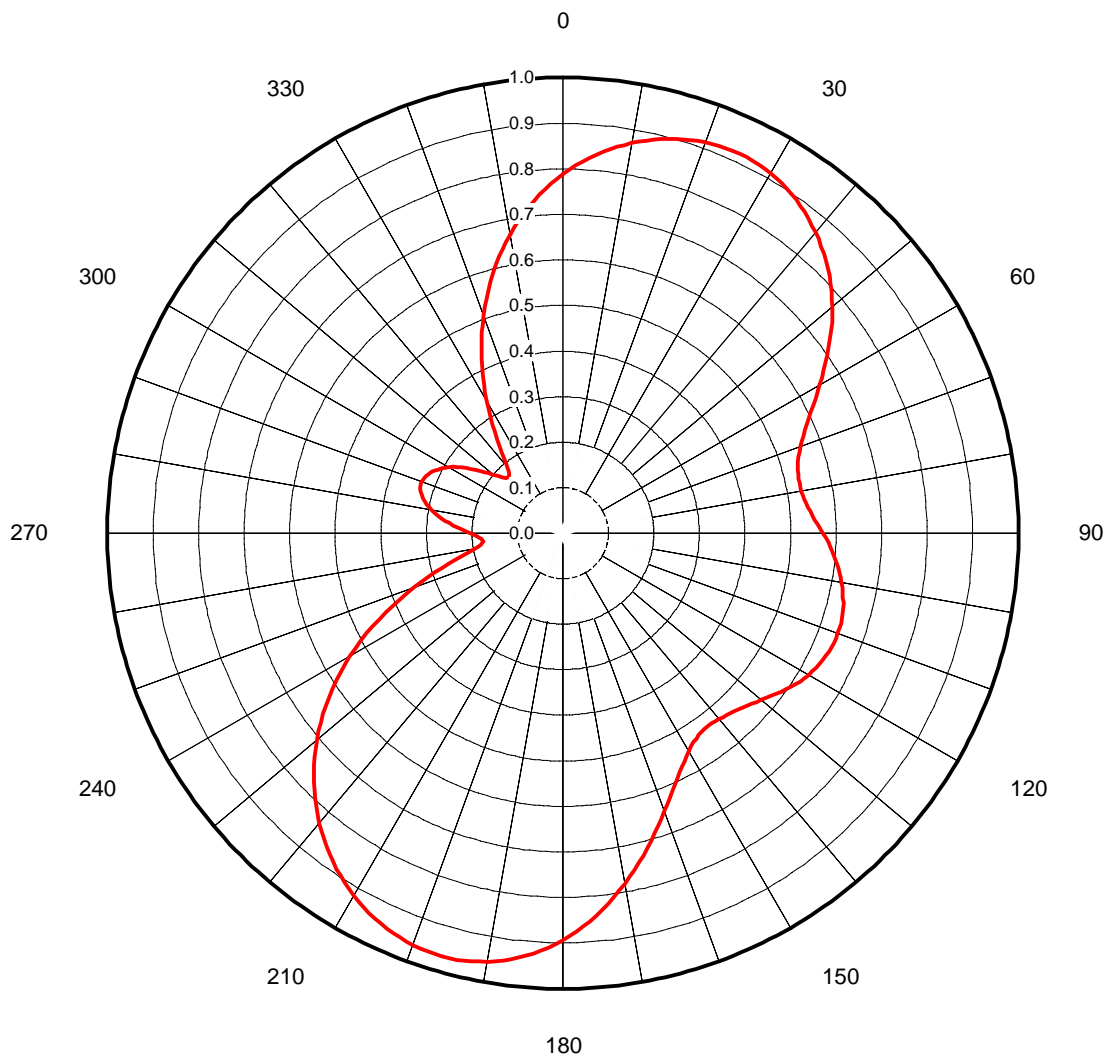
Frequency

719.00 MHz

Calculated / Measured

Calculated

Drawing #



Mech. Tilt: 0.40°

@

Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT
Longmont, CO
TFU-24ETT/VP-R CT220SP

Channel

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.788	45	0.822	90	0.571	135	0.547	180	0.893	225	0.773	270	0.204	315	0.172
1	0.797	46	0.813	91	0.577	136	0.543	181	0.902	226	0.760	271	0.213	316	0.171
2	0.807	47	0.803	92	0.583	137	0.540	182	0.910	227	0.747	272	0.222	317	0.173
3	0.816	48	0.793	93	0.588	138	0.537	183	0.918	228	0.733	273	0.232	318	0.176
4	0.825	49	0.783	94	0.593	139	0.535	184	0.925	229	0.719	274	0.241	319	0.182
5	0.833	50	0.772	95	0.598	140	0.532	185	0.931	230	0.704	275	0.250	320	0.189
6	0.841	51	0.762	96	0.603	141	0.531	186	0.937	231	0.689	276	0.259	321	0.199
7	0.849	52	0.750	97	0.608	142	0.530	187	0.942	232	0.674	277	0.268	322	0.210
8	0.856	53	0.737	98	0.612	143	0.530	188	0.947	233	0.658	278	0.277	323	0.223
9	0.863	54	0.725	99	0.616	144	0.530	189	0.951	234	0.642	279	0.285	324	0.236
10	0.869	55	0.712	100	0.621	145	0.532	190	0.955	235	0.626	280	0.292	325	0.251
11	0.875	56	0.700	101	0.624	146	0.534	191	0.958	236	0.609	281	0.299	326	0.267
12	0.881	57	0.687	102	0.628	147	0.538	192	0.961	237	0.592	282	0.306	327	0.283
13	0.886	58	0.675	103	0.631	148	0.541	193	0.963	238	0.575	283	0.311	328	0.300
14	0.891	59	0.663	104	0.634	149	0.547	194	0.965	239	0.557	284	0.317	329	0.317
15	0.896	60	0.651	105	0.637	150	0.552	195	0.965	240	0.539	285	0.321	330	0.334
16	0.900	61	0.639	106	0.639	151	0.560	196	0.966	241	0.521	286	0.325	331	0.352
17	0.904	62	0.627	107	0.640	152	0.567	197	0.966	242	0.502	287	0.327	332	0.369
18	0.907	63	0.617	108	0.642	153	0.576	198	0.965	243	0.483	288	0.329	333	0.387
19	0.910	64	0.606	109	0.642	154	0.584	199	0.964	244	0.463	289	0.330	334	0.405
20	0.913	65	0.596	110	0.642	155	0.594	200	0.962	245	0.444	290	0.330	335	0.422
21	0.914	66	0.586	111	0.642	156	0.604	201	0.960	246	0.424	291	0.329	336	0.440
22	0.916	67	0.578	112	0.641	157	0.615	202	0.957	247	0.405	292	0.327	337	0.457
23	0.917	68	0.569	113	0.640	158	0.626	203	0.954	248	0.385	293	0.325	338	0.475
24	0.918	69	0.562	114	0.639	159	0.638	204	0.950	249	0.366	294	0.322	339	0.492
25	0.918	70	0.555	115	0.637	160	0.650	205	0.946	250	0.347	295	0.317	340	0.509
26	0.918	71	0.550	116	0.634	161	0.662	206	0.942	251	0.329	296	0.314	341	0.525
27	0.917	72	0.544	117	0.632	162	0.675	207	0.936	252	0.310	297	0.308	342	0.542
28	0.916	73	0.540	118	0.629	163	0.688	208	0.931	253	0.293	298	0.303	343	0.559
29	0.914	74	0.536	119	0.625	164	0.702	209	0.925	254	0.276	299	0.296	344	0.575
30	0.912	75	0.534	120	0.622	165	0.715	210	0.919	255	0.260	300	0.289	345	0.591
31	0.909	76	0.532	121	0.618	166	0.729	211	0.911	256	0.244	301	0.282	346	0.607
32	0.906	77	0.531	122	0.614	167	0.742	212	0.904	257	0.231	302	0.274	347	0.622
33	0.902	78	0.530	123	0.608	168	0.755	213	0.896	258	0.217	303	0.265	348	0.637
34	0.898	79	0.531	124	0.603	169	0.768	214	0.889	259	0.206	304	0.256	349	0.652
35	0.893	80	0.531	125	0.598	170	0.781	215	0.880	260	0.195	305	0.246	350	0.666
36	0.888	81	0.533	126	0.592	171	0.794	216	0.871	261	0.188	306	0.237	351	0.680
37	0.882	82	0.535	127	0.586	172	0.807	217	0.861	262	0.181	307	0.227	352	0.694
38	0.876	83	0.538	128	0.581	173	0.819	218	0.852	263	0.178	308	0.218	353	0.707
39	0.869	84	0.541	129	0.575	174	0.831	219	0.841	264	0.175	309	0.209	354	0.720
40	0.862	85	0.544	130	0.569	175	0.842	220	0.831	265	0.177	310	0.200	355	0.732
41	0.855	86	0.549	131	0.564	176	0.853	221	0.820	266	0.179	311	0.192	356	0.744
42	0.848	87	0.554	132	0.559	177	0.864	222	0.809	267	0.184	312	0.185	357	0.755
43	0.839	88	0.559	133	0.555	178	0.874	223	0.797	268	0.189	313	0.179	358	0.767
44	0.831	89	0.565	134	0.550	179	0.884	224	0.786	269	0.196	314	0.174	359	0.777



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel 29
Longmont, CO
TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

1.40° Depression Angle

Gain

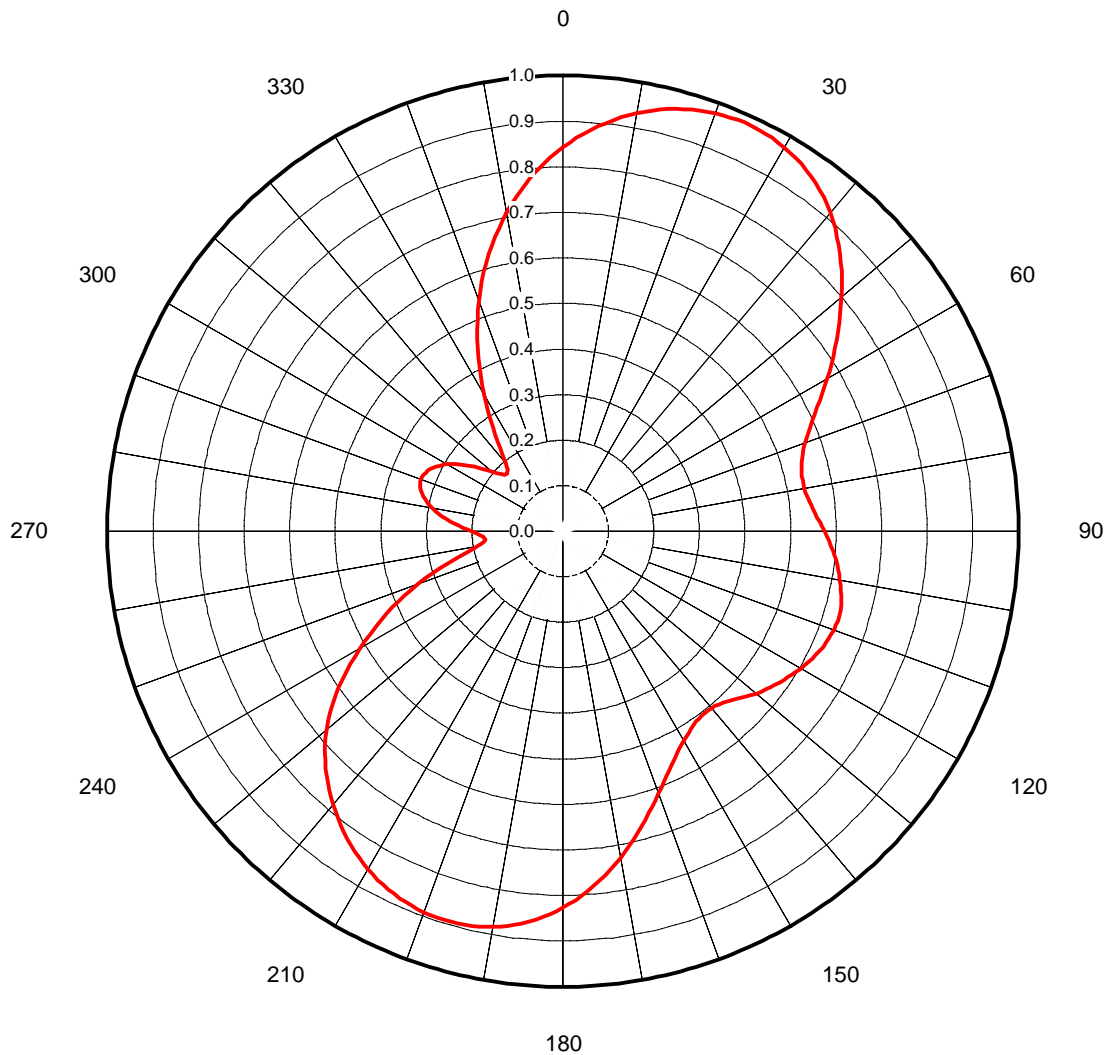
Calculated / Measured

Calculated

Frequency

719.00 MHz

Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.843	45	0.860	90	0.574	135	0.524	180	0.826	225	0.735	270	0.201	315	0.177
1	0.853	46	0.849	91	0.579	136	0.519	181	0.834	226	0.725	271	0.210	316	0.175
2	0.864	47	0.836	92	0.584	137	0.515	182	0.841	227	0.713	272	0.220	317	0.178
3	0.873	48	0.824	93	0.589	138	0.511	183	0.848	228	0.702	273	0.229	318	0.181
4	0.883	49	0.811	94	0.594	139	0.508	184	0.854	229	0.689	274	0.239	319	0.188
5	0.892	50	0.798	95	0.598	140	0.506	185	0.860	230	0.677	275	0.248	320	0.194
6	0.901	51	0.785	96	0.602	141	0.506	186	0.866	231	0.664	276	0.257	321	0.205
7	0.909	52	0.772	97	0.606	142	0.506	187	0.870	232	0.649	277	0.266	322	0.216
8	0.917	53	0.759	98	0.610	143	0.507	188	0.875	233	0.633	278	0.275	323	0.229
9	0.924	54	0.746	99	0.613	144	0.508	189	0.879	234	0.617	279	0.283	324	0.243
10	0.931	55	0.733	100	0.617	145	0.510	190	0.882	235	0.601	280	0.291	325	0.259
11	0.937	56	0.720	101	0.620	146	0.513	191	0.885	236	0.584	281	0.298	326	0.274
12	0.944	57	0.707	102	0.624	147	0.517	192	0.888	237	0.566	282	0.305	327	0.292
13	0.949	58	0.695	103	0.627	148	0.522	193	0.889	238	0.549	283	0.310	328	0.309
14	0.954	59	0.682	104	0.629	149	0.527	194	0.891	239	0.531	284	0.316	329	0.327
15	0.959	60	0.669	105	0.631	150	0.531	195	0.892	240	0.513	285	0.321	330	0.346
16	0.964	61	0.657	106	0.633	151	0.537	196	0.892	241	0.495	286	0.325	331	0.365
17	0.967	62	0.645	107	0.635	152	0.543	197	0.892	242	0.478	287	0.328	332	0.384
18	0.971	63	0.633	108	0.635	153	0.550	198	0.892	243	0.460	288	0.330	333	0.403
19	0.973	64	0.621	109	0.634	154	0.557	199	0.891	244	0.443	289	0.331	334	0.423
20	0.976	65	0.611	110	0.633	155	0.565	200	0.890	245	0.426	290	0.332	335	0.442
21	0.978	66	0.600	111	0.631	156	0.574	201	0.888	246	0.408	291	0.331	336	0.462
22	0.980	67	0.590	112	0.629	157	0.583	202	0.887	247	0.391	292	0.330	337	0.481
23	0.980	68	0.581	113	0.627	158	0.593	203	0.884	248	0.373	293	0.328	338	0.500
24	0.981	69	0.573	114	0.624	159	0.603	204	0.881	249	0.356	294	0.325	339	0.519
25	0.981	70	0.565	115	0.621	160	0.613	205	0.878	250	0.338	295	0.321	340	0.539
26	0.980	71	0.559	116	0.618	161	0.624	206	0.874	251	0.320	296	0.317	341	0.557
27	0.979	72	0.553	117	0.615	162	0.635	207	0.870	252	0.302	297	0.312	342	0.576
28	0.978	73	0.549	118	0.611	163	0.647	208	0.866	253	0.285	298	0.307	343	0.594
29	0.975	74	0.544	119	0.607	164	0.658	209	0.861	254	0.268	299	0.300	344	0.611
30	0.973	75	0.542	120	0.603	165	0.670	210	0.856	255	0.252	300	0.293	345	0.629
31	0.969	76	0.539	121	0.598	166	0.682	211	0.850	256	0.237	301	0.285	346	0.646
32	0.965	77	0.538	122	0.593	167	0.694	212	0.845	257	0.223	302	0.277	347	0.662
33	0.960	78	0.537	123	0.589	168	0.705	213	0.838	258	0.210	303	0.269	348	0.679
34	0.956	79	0.538	124	0.584	169	0.717	214	0.832	259	0.199	304	0.260	349	0.695
35	0.950	80	0.538	125	0.580	170	0.728	215	0.824	260	0.189	305	0.250	350	0.710
36	0.944	81	0.540	126	0.575	171	0.739	216	0.817	261	0.182	306	0.241	351	0.725
37	0.937	82	0.542	127	0.570	172	0.750	217	0.809	262	0.176	307	0.231	352	0.740
38	0.930	83	0.544	128	0.565	173	0.761	218	0.801	263	0.173	308	0.222	353	0.754
39	0.921	84	0.547	129	0.560	174	0.772	219	0.792	264	0.171	309	0.212	354	0.768
40	0.913	85	0.551	130	0.555	175	0.781	220	0.784	265	0.173	310	0.203	355	0.782
41	0.903	86	0.555	131	0.548	176	0.791	221	0.775	266	0.175	311	0.196	356	0.795
42	0.893	87	0.559	132	0.542	177	0.801	222	0.766	267	0.180	312	0.188	357	0.807
43	0.883	88	0.564	133	0.536	178	0.810	223	0.756	268	0.185	313	0.183	358	0.820
44	0.872	89	0.569	134	0.530	179	0.818	224	0.746	269	0.193	314	0.178	359	0.831



Date

1-Feb-06

Call Letters

KDEN-DT

Channel

29

Location

Longmont, CO

Customer

Antenna Type

TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

1.60° Depression Angle

Gain

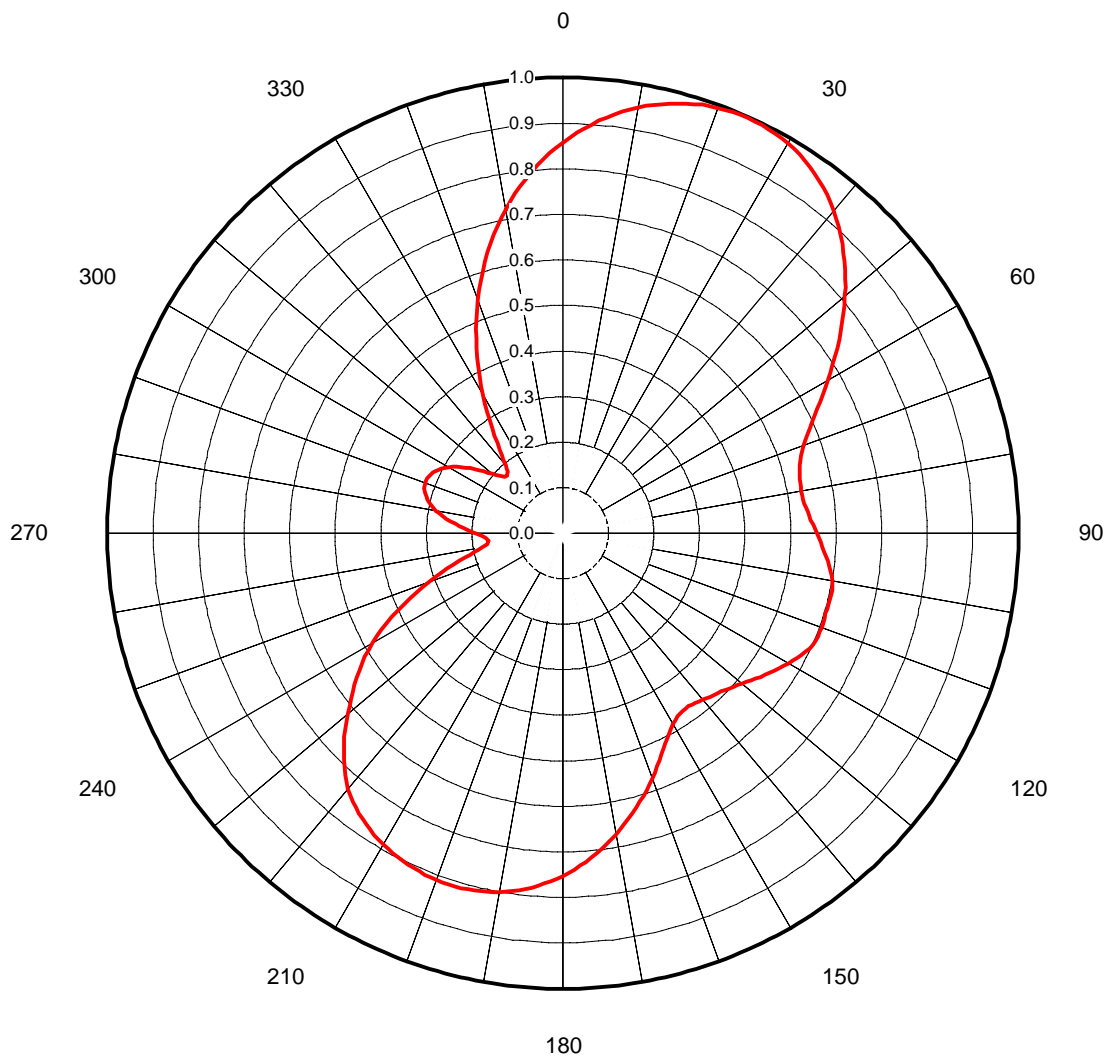
Frequency

719.00 MHz

Calculated / Measured

Calculated

Drawing #



Mech. Tilt: 0.40°

@

Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.857	45	0.871	90	0.557	135	0.492	180	0.752	225	0.679	270	0.192	315	0.176
1	0.868	46	0.859	91	0.561	136	0.489	181	0.758	226	0.668	271	0.200	316	0.175
2	0.879	47	0.847	92	0.565	137	0.486	182	0.765	227	0.655	272	0.209	317	0.178
3	0.889	48	0.834	93	0.570	138	0.483	183	0.770	228	0.643	273	0.218	318	0.181
4	0.899	49	0.821	94	0.575	139	0.481	184	0.776	229	0.630	274	0.228	319	0.188
5	0.908	50	0.808	95	0.580	140	0.477	185	0.780	230	0.617	275	0.237	320	0.195
6	0.917	51	0.795	96	0.584	141	0.474	186	0.785	231	0.603	276	0.247	321	0.206
7	0.925	52	0.781	97	0.589	142	0.472	187	0.789	232	0.590	277	0.257	322	0.217
8	0.934	53	0.767	98	0.593	143	0.470	188	0.793	233	0.578	278	0.266	323	0.231
9	0.941	54	0.753	99	0.597	144	0.469	189	0.797	234	0.565	279	0.275	324	0.245
10	0.948	55	0.740	100	0.601	145	0.470	190	0.800	235	0.552	280	0.283	325	0.261
11	0.954	56	0.726	101	0.602	146	0.470	191	0.802	236	0.539	281	0.290	326	0.277
12	0.961	57	0.712	102	0.603	147	0.472	192	0.805	237	0.526	282	0.296	327	0.295
13	0.966	58	0.698	103	0.604	148	0.474	193	0.806	238	0.512	283	0.302	328	0.312
14	0.972	59	0.685	104	0.604	149	0.478	194	0.808	239	0.498	284	0.307	329	0.331
15	0.976	60	0.672	105	0.604	150	0.484	195	0.809	240	0.483	285	0.311	330	0.350
16	0.981	61	0.659	106	0.604	151	0.490	196	0.810	241	0.468	286	0.315	331	0.369
17	0.985	62	0.646	107	0.603	152	0.497	197	0.810	242	0.452	287	0.317	332	0.388
18	0.988	63	0.633	108	0.604	153	0.505	198	0.811	243	0.435	288	0.320	333	0.408
19	0.991	64	0.621	109	0.604	154	0.513	199	0.810	244	0.417	289	0.321	334	0.428
20	0.993	65	0.610	110	0.605	155	0.522	200	0.810	245	0.399	290	0.322	335	0.448
21	0.995	66	0.598	111	0.604	156	0.532	201	0.809	246	0.382	291	0.322	336	0.467
22	0.997	67	0.588	112	0.604	157	0.542	202	0.808	247	0.364	292	0.321	337	0.487
23	0.997	68	0.579	113	0.603	158	0.552	203	0.807	248	0.347	293	0.319	338	0.507
24	0.998	69	0.570	114	0.602	159	0.563	204	0.805	249	0.330	294	0.318	339	0.526
25	0.997	70	0.562	115	0.598	160	0.573	205	0.803	250	0.312	295	0.314	340	0.546
26	0.997	71	0.556	116	0.593	161	0.584	206	0.801	251	0.296	296	0.311	341	0.565
27	0.995	72	0.549	117	0.588	162	0.594	207	0.798	252	0.280	297	0.306	342	0.583
28	0.993	73	0.545	118	0.583	163	0.603	208	0.795	253	0.265	298	0.302	343	0.602
29	0.991	74	0.540	119	0.577	164	0.613	209	0.792	254	0.250	299	0.295	344	0.620
30	0.988	75	0.538	120	0.571	165	0.623	210	0.789	255	0.236	300	0.289	345	0.638
31	0.984	76	0.535	121	0.565	166	0.632	211	0.785	256	0.222	301	0.282	346	0.655
32	0.980	77	0.534	122	0.559	167	0.642	212	0.781	257	0.210	302	0.275	347	0.672
33	0.975	78	0.532	123	0.553	168	0.652	213	0.776	258	0.198	303	0.266	348	0.689
34	0.970	79	0.532	124	0.548	169	0.661	214	0.771	259	0.188	304	0.257	349	0.705
35	0.963	80	0.531	125	0.542	170	0.671	215	0.766	260	0.179	305	0.248	350	0.722
36	0.957	81	0.532	126	0.536	171	0.680	216	0.761	261	0.173	306	0.239	351	0.737
37	0.950	82	0.533	127	0.530	172	0.689	217	0.755	262	0.168	307	0.229	352	0.752
38	0.942	83	0.534	128	0.524	173	0.698	218	0.749	263	0.166	308	0.220	353	0.767
39	0.933	84	0.536	129	0.518	174	0.707	219	0.742	264	0.164	309	0.211	354	0.781
40	0.925	85	0.539	130	0.512	175	0.715	220	0.733	265	0.166	310	0.202	355	0.795
41	0.915	86	0.542	131	0.508	176	0.723	221	0.723	266	0.168	311	0.195	356	0.808
42	0.905	87	0.545	132	0.504	177	0.731	222	0.713	267	0.173	312	0.188	357	0.821
43	0.894	88	0.549	133	0.500	178	0.738	223	0.702	268	0.178	313	0.183	358	0.834
44	0.883	89	0.553	134	0.495	179	0.745	224	0.691	269	0.185	314	0.178	359	0.846



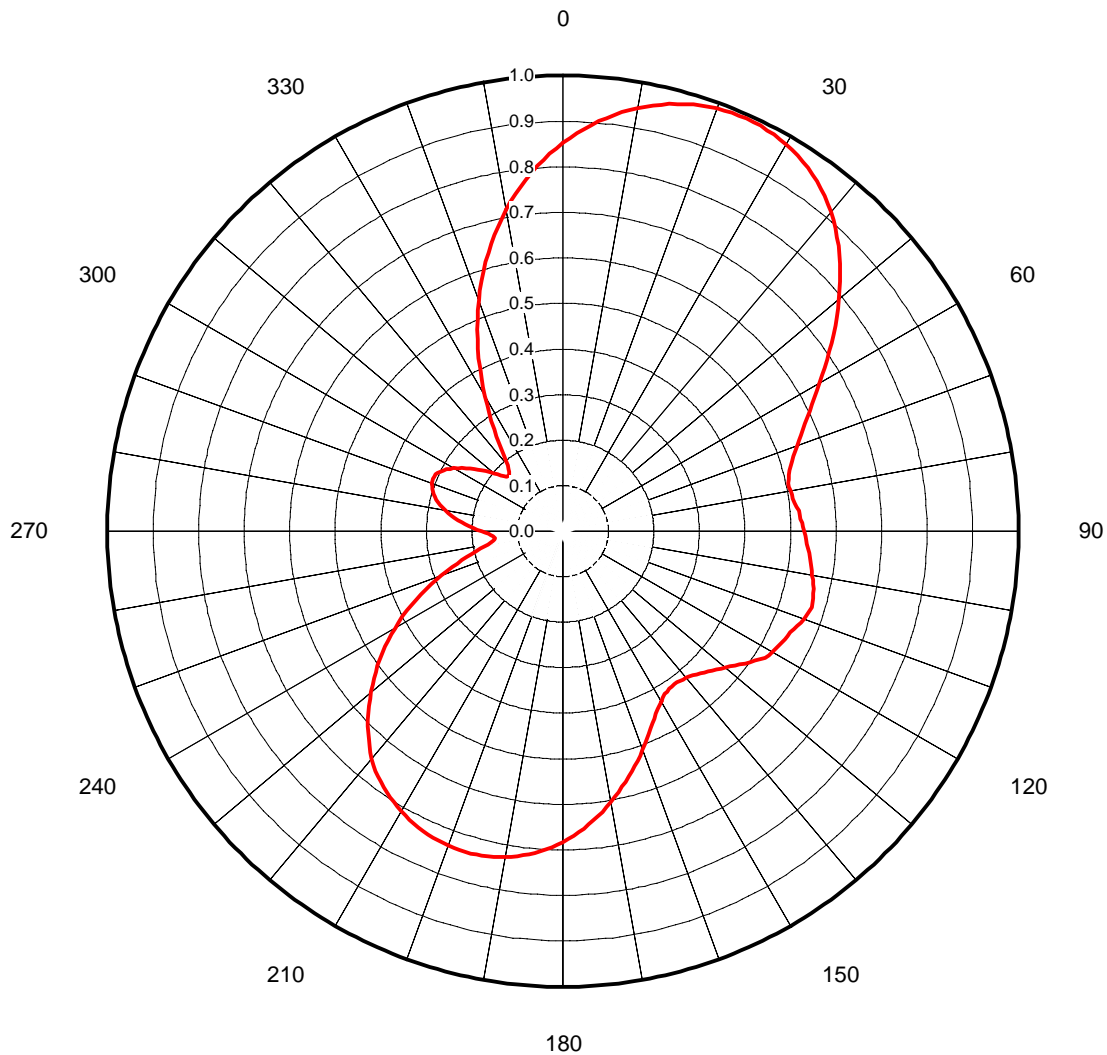
Date 1-Feb-06
Call Letters KDEN-DT Channel 29
Location Longmont, CO
Customer
Antenna Type TFU-24ETT/VP-R CT220SP

AZIMUTH PATTERN:

1.80° Depression Angle

Gain
Calculated / Measured **Calculated**

Frequency 719.00 MHz
Drawing #



Mech. Tilt: 0.40°
@
Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.852	45	0.858	90	0.529	135	0.438	180	0.682	225	0.605	270	0.179	315	0.171
1	0.863	46	0.845	91	0.532	136	0.434	181	0.688	226	0.595	271	0.188	316	0.170
2	0.874	47	0.832	92	0.534	137	0.430	182	0.694	227	0.584	272	0.197	317	0.172
3	0.883	48	0.819	93	0.536	138	0.426	183	0.699	228	0.573	273	0.207	318	0.175
4	0.893	49	0.805	94	0.540	139	0.423	184	0.704	229	0.561	274	0.215	319	0.182
5	0.902	50	0.791	95	0.543	140	0.420	185	0.709	230	0.549	275	0.223	320	0.189
6	0.912	51	0.776	96	0.546	141	0.419	186	0.713	231	0.537	276	0.232	321	0.200
7	0.920	52	0.762	97	0.548	142	0.417	187	0.717	232	0.525	277	0.240	322	0.211
8	0.928	53	0.748	98	0.551	143	0.416	188	0.720	233	0.514	278	0.248	323	0.224
9	0.935	54	0.734	99	0.553	144	0.416	189	0.723	234	0.502	279	0.255	324	0.238
10	0.942	55	0.720	100	0.555	145	0.417	190	0.726	235	0.490	280	0.262	325	0.254
11	0.949	56	0.706	101	0.558	146	0.417	191	0.728	236	0.478	281	0.268	326	0.270
12	0.955	57	0.692	102	0.561	147	0.420	192	0.731	237	0.465	282	0.275	327	0.287
13	0.960	58	0.678	103	0.564	148	0.422	193	0.732	238	0.453	283	0.281	328	0.305
14	0.966	59	0.664	104	0.567	149	0.426	194	0.734	239	0.439	284	0.286	329	0.324
15	0.970	60	0.650	105	0.568	150	0.431	195	0.735	240	0.426	285	0.291	330	0.342
16	0.975	61	0.637	106	0.570	151	0.437	196	0.736	241	0.412	286	0.295	331	0.362
17	0.978	62	0.625	107	0.571	152	0.443	197	0.736	242	0.399	287	0.298	332	0.381
18	0.982	63	0.613	108	0.569	153	0.450	198	0.736	243	0.384	288	0.302	333	0.401
19	0.984	64	0.602	109	0.566	154	0.457	199	0.735	244	0.370	289	0.304	334	0.421
20	0.987	65	0.592	110	0.563	155	0.465	200	0.735	245	0.356	290	0.306	335	0.441
21	0.989	66	0.581	111	0.559	156	0.474	201	0.733	246	0.341	291	0.307	336	0.461
22	0.990	67	0.572	112	0.555	157	0.483	202	0.732	247	0.327	292	0.307	337	0.481
23	0.991	68	0.563	113	0.551	158	0.492	203	0.730	248	0.312	293	0.306	338	0.501
24	0.991	69	0.555	114	0.546	159	0.501	204	0.728	249	0.298	294	0.306	339	0.520
25	0.990	70	0.547	115	0.544	160	0.511	205	0.726	250	0.283	295	0.303	340	0.540
26	0.990	71	0.540	116	0.542	161	0.521	206	0.723	251	0.270	296	0.299	341	0.559
27	0.988	72	0.532	117	0.539	162	0.530	207	0.720	252	0.256	297	0.294	342	0.578
28	0.986	73	0.526	118	0.537	163	0.539	208	0.717	253	0.243	298	0.289	343	0.597
29	0.983	74	0.520	119	0.534	164	0.548	209	0.714	254	0.230	299	0.282	344	0.615
30	0.980	75	0.515	120	0.531	165	0.558	210	0.710	255	0.218	300	0.276	345	0.632
31	0.976	76	0.511	121	0.527	166	0.567	211	0.706	256	0.206	301	0.269	346	0.650
32	0.972	77	0.508	122	0.523	167	0.576	212	0.701	257	0.196	302	0.261	347	0.667
33	0.967	78	0.506	123	0.516	168	0.586	213	0.696	258	0.185	303	0.253	348	0.684
34	0.962	79	0.506	124	0.509	169	0.595	214	0.692	259	0.176	304	0.246	349	0.700
35	0.955	80	0.506	125	0.501	170	0.604	215	0.686	260	0.167	305	0.238	350	0.716
36	0.949	81	0.508	126	0.494	171	0.613	216	0.680	261	0.161	306	0.230	351	0.732
37	0.941	82	0.510	127	0.486	172	0.621	217	0.674	262	0.154	307	0.221	352	0.747
38	0.934	83	0.513	128	0.479	173	0.630	218	0.668	263	0.152	308	0.213	353	0.761
39	0.925	84	0.515	129	0.472	174	0.638	219	0.661	264	0.150	309	0.205	354	0.776
40	0.915	85	0.519	130	0.464	175	0.646	220	0.653	265	0.151	310	0.197	355	0.789
41	0.904	86	0.521	131	0.459	176	0.654	221	0.644	266	0.153	311	0.190	356	0.803
42	0.894	87	0.523	132	0.453	177	0.661	222	0.635	267	0.158	312	0.183	357	0.816
43	0.882	88	0.525	133	0.448	178	0.669	223	0.626	268	0.163	313	0.178	358	0.828
44	0.870	89	0.527	134	0.443	179	0.675	224	0.616	269	0.171	314	0.173	359	0.840

AZIMUTH PATTERN:

2.00° Depression Angle

Gain

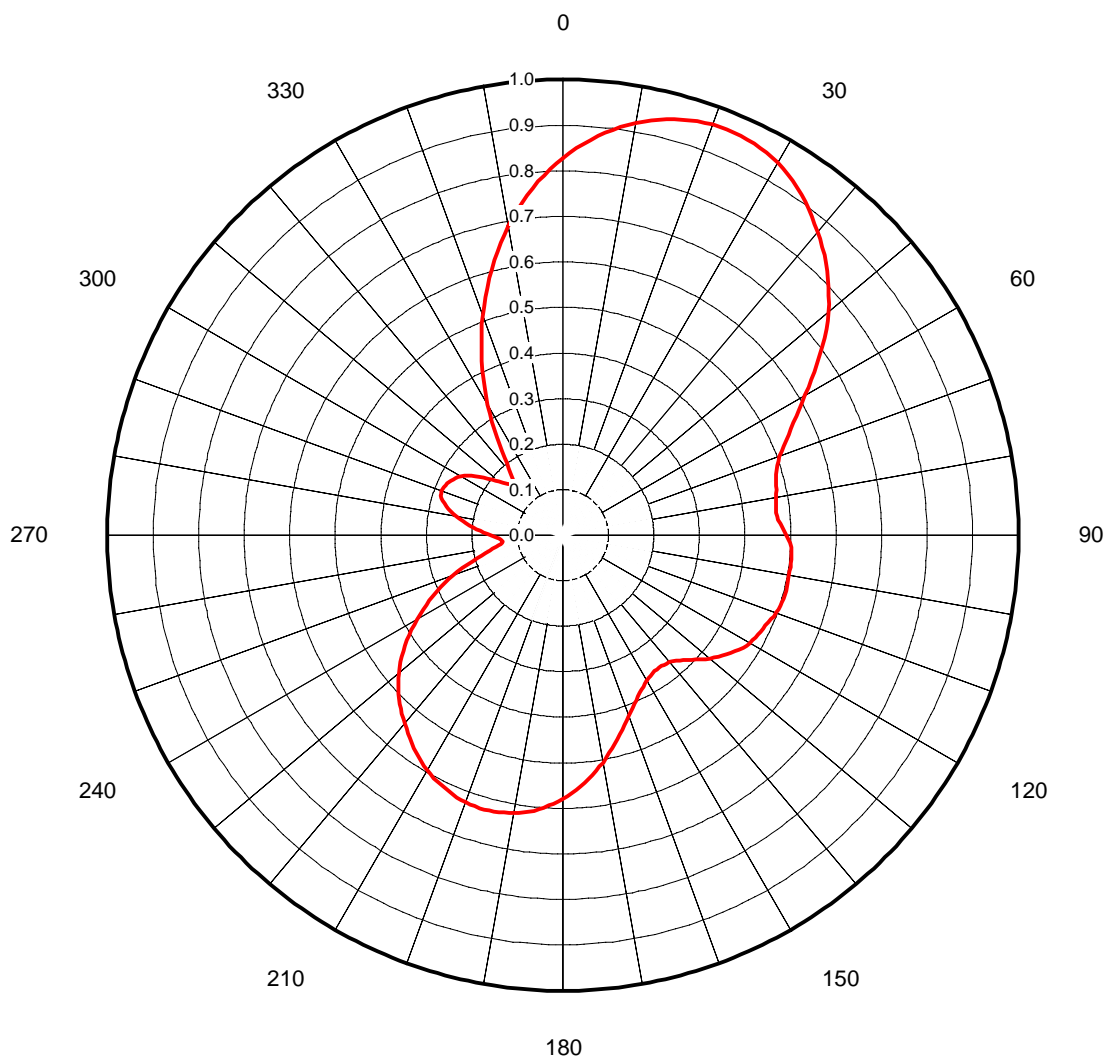
Calculated / Measured

Calculated

Frequency

719.00 MHz

Drawing #



Mech. Tilt: 0.40°
 @
 Azimuth: 10 deg



Date
Call Letters
Location
Customer
Antenna Type

1-Feb-06
KDEN-DT Channel
Longmont, CO
TFU-24ETT/VP-R CT220SP

29

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.827	45	0.820	90	0.490	135	0.387	180	0.579	225	0.508	270	0.158	315	0.160
1	0.838	46	0.809	91	0.494	136	0.381	181	0.584	226	0.501	271	0.166	316	0.159
2	0.849	47	0.797	92	0.499	137	0.376	182	0.590	227	0.494	272	0.174	317	0.162
3	0.859	48	0.786	93	0.502	138	0.371	183	0.595	228	0.486	273	0.182	318	0.164
4	0.869	49	0.773	94	0.503	139	0.367	184	0.599	229	0.478	274	0.190	319	0.171
5	0.879	50	0.761	95	0.503	140	0.364	185	0.603	230	0.470	275	0.198	320	0.178
6	0.888	51	0.748	96	0.504	141	0.362	186	0.607	231	0.461	276	0.207	321	0.189
7	0.896	52	0.734	97	0.504	142	0.361	187	0.611	232	0.452	277	0.215	322	0.200
8	0.904	53	0.719	98	0.504	143	0.360	188	0.614	233	0.443	278	0.222	323	0.213
9	0.911	54	0.703	99	0.503	144	0.359	189	0.616	234	0.433	279	0.230	324	0.227
10	0.918	55	0.688	100	0.503	145	0.360	190	0.619	235	0.423	280	0.237	325	0.243
11	0.924	56	0.673	101	0.504	146	0.360	191	0.621	236	0.413	281	0.244	326	0.259
12	0.930	57	0.658	102	0.505	147	0.362	192	0.623	237	0.402	282	0.252	327	0.276
13	0.935	58	0.643	103	0.505	148	0.363	193	0.624	238	0.392	283	0.258	328	0.294
14	0.941	59	0.629	104	0.505	149	0.366	194	0.625	239	0.380	284	0.265	329	0.312
15	0.945	60	0.614	105	0.505	150	0.368	195	0.626	240	0.369	285	0.270	330	0.329
16	0.949	61	0.601	106	0.504	151	0.372	196	0.626	241	0.358	286	0.275	331	0.348
17	0.952	62	0.588	107	0.503	152	0.376	197	0.626	242	0.347	287	0.279	332	0.366
18	0.955	63	0.575	108	0.502	153	0.381	198	0.625	243	0.336	288	0.282	333	0.384
19	0.957	64	0.563	109	0.500	154	0.385	199	0.624	244	0.325	289	0.283	334	0.403
20	0.959	65	0.553	110	0.498	155	0.391	200	0.623	245	0.314	290	0.283	335	0.421
21	0.959	66	0.542	111	0.495	156	0.396	201	0.622	246	0.303	291	0.283	336	0.440
22	0.960	67	0.532	112	0.493	157	0.402	202	0.620	247	0.292	292	0.282	337	0.458
23	0.960	68	0.522	113	0.490	158	0.408	203	0.618	248	0.280	293	0.280	338	0.477
24	0.960	69	0.514	114	0.487	159	0.415	204	0.616	249	0.269	294	0.278	339	0.495
25	0.958	70	0.506	115	0.484	160	0.422	205	0.613	250	0.257	295	0.275	340	0.513
26	0.957	71	0.500	116	0.483	161	0.429	206	0.610	251	0.244	296	0.273	341	0.531
27	0.954	72	0.495	117	0.481	162	0.438	207	0.607	252	0.232	297	0.270	342	0.550
28	0.951	73	0.490	118	0.478	163	0.446	208	0.603	253	0.219	298	0.267	343	0.568
29	0.947	74	0.486	119	0.476	164	0.455	209	0.599	254	0.207	299	0.263	344	0.586
30	0.943	75	0.484	120	0.473	165	0.463	210	0.595	255	0.196	300	0.258	345	0.604
31	0.938	76	0.481	121	0.470	166	0.472	211	0.591	256	0.185	301	0.253	346	0.622
32	0.933	77	0.480	122	0.467	167	0.481	212	0.586	257	0.175	302	0.247	347	0.639
33	0.927	78	0.479	123	0.461	168	0.489	213	0.581	258	0.165	303	0.240	348	0.656
34	0.920	79	0.477	124	0.456	169	0.498	214	0.576	259	0.157	304	0.232	349	0.673
35	0.913	80	0.474	125	0.450	170	0.506	215	0.570	260	0.148	305	0.223	350	0.689
36	0.905	81	0.473	126	0.444	171	0.515	216	0.564	261	0.143	306	0.215	351	0.705
37	0.896	82	0.472	127	0.439	172	0.523	217	0.558	262	0.138	307	0.207	352	0.720
38	0.888	83	0.471	128	0.433	173	0.531	218	0.552	263	0.136	308	0.198	353	0.735
39	0.878	84	0.471	129	0.428	174	0.538	219	0.545	264	0.133	309	0.190	354	0.750
40	0.870	85	0.472	130	0.422	175	0.546	220	0.539	265	0.135	310	0.182	355	0.764
41	0.861	86	0.474	131	0.414	176	0.553	221	0.534	266	0.136	311	0.176	356	0.777
42	0.852	87	0.478	132	0.407	177	0.560	222	0.528	267	0.141	312	0.169	357	0.790
43	0.841	88	0.482	133	0.400	178	0.567	223	0.521	268	0.145	313	0.165	358	0.803
44	0.831	89	0.486	134	0.393	179	0.573	224	0.515	269	0.152	314	0.161	359	0.815

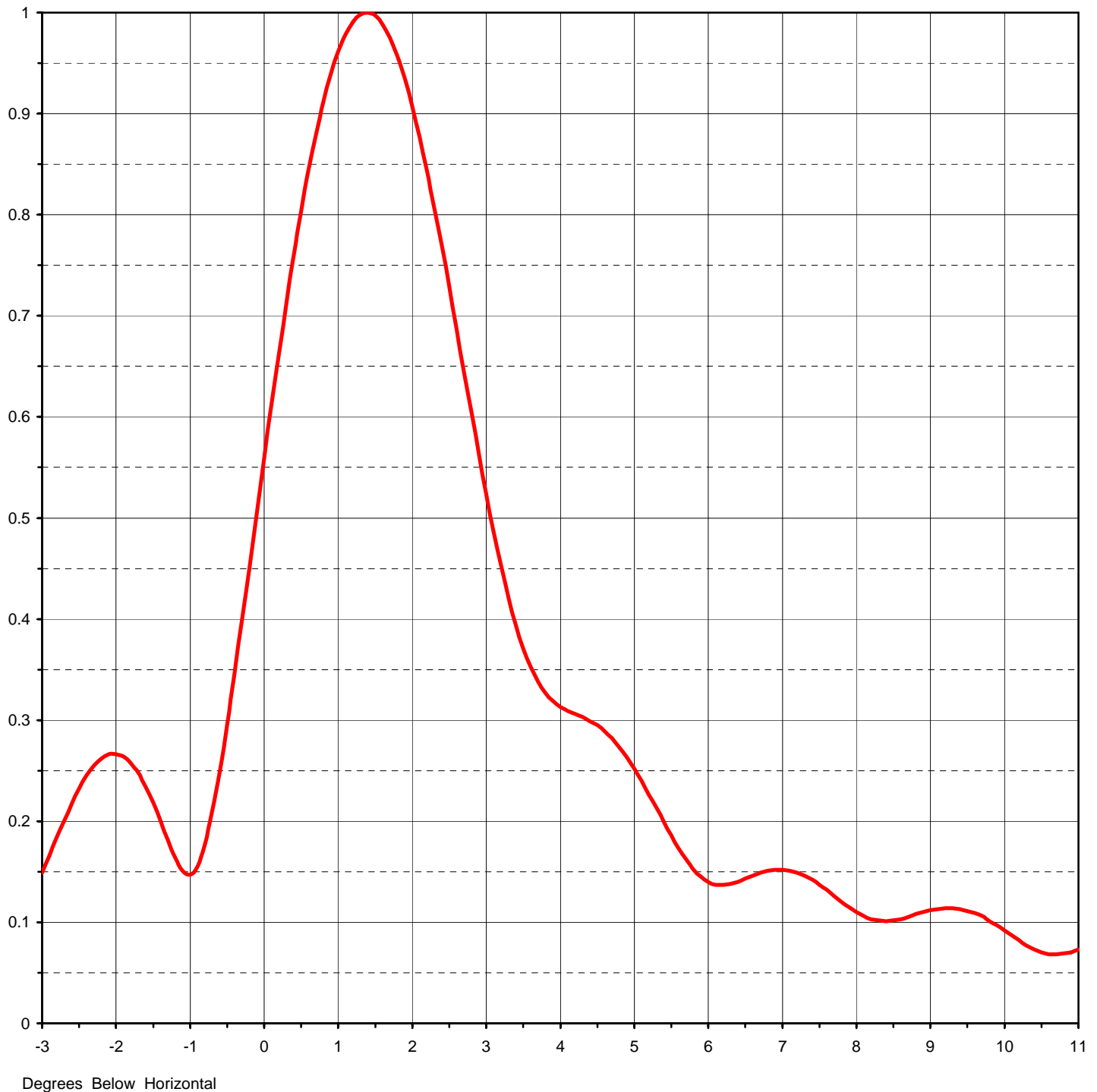


Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06		
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)
RMS Gain at Horizontal	6.90 (8.39 dB)
Calculated / Measured	Calculated

Beam Tilt	1.40 deg
Frequency	563.00 MHz
Drawing #	24E220140



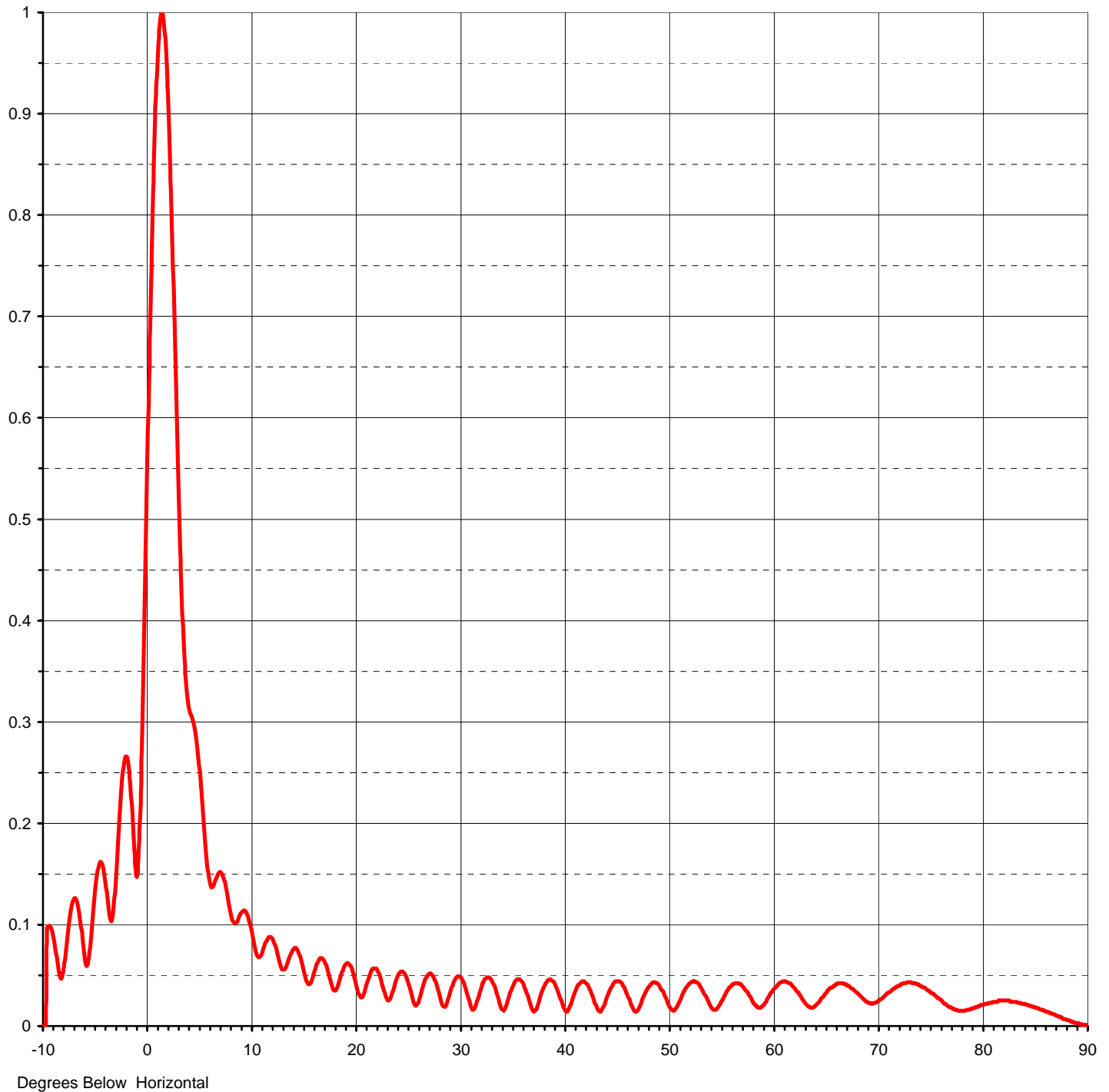


Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06		
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)
RMS Gain at Horizontal	6.90 (8.39 dB)
Calculated / Measured	Calculated

Beam Tilt	1.40 deg
Frequency	563.00 MHz
Drawing #	24E220140-90





Proposal Number **DCA-11368** Revision: **1**
 Date **1-Feb-06**
 Call Letters **KDEN-DT** Channel **29**
 Location **Longmont, Co**
 Customer
 Antenna Type **TFU-24ETT/VP-R CT220SP**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **24E220140-90**

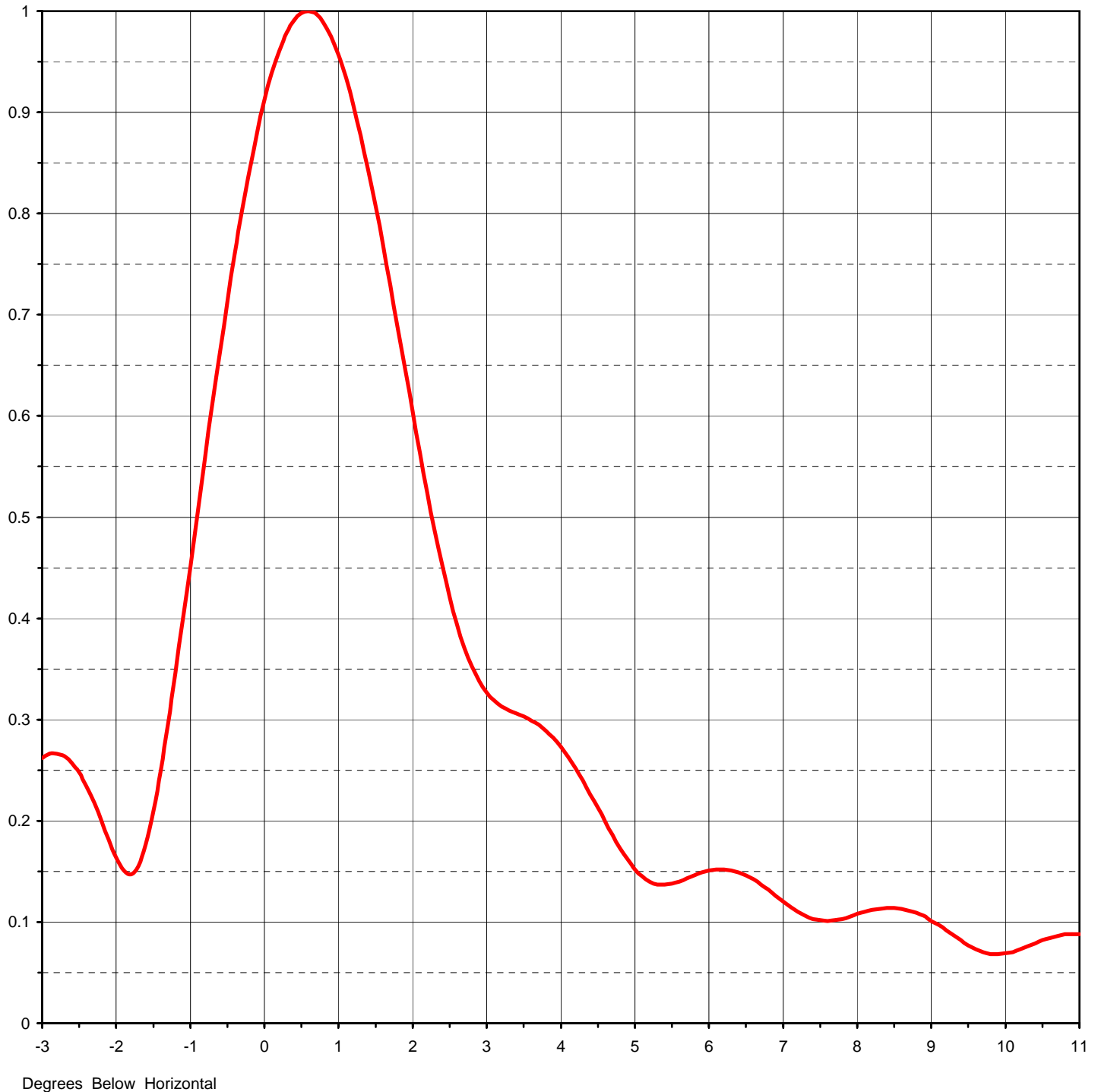
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.000	2.4	0.769	10.6	0.070	30.5	0.039	51.0	0.024	71.5	0.037
-9.5	0.098	2.6	0.687	10.8	0.068	31.0	0.021	51.5	0.035	72.0	0.040
-9.0	0.088	2.8	0.604	11.0	0.070	31.5	0.019	52.0	0.042	72.5	0.042
-8.5	0.055	3.0	0.524	11.5	0.084	32.0	0.036	52.5	0.044	73.0	0.043
-8.0	0.057	3.2	0.452	12.0	0.087	32.5	0.047	53.0	0.039	73.5	0.042
-7.5	0.102	3.4	0.394	12.5	0.073	33.0	0.046	53.5	0.030	74.0	0.040
-7.0	0.126	3.6	0.352	13.0	0.056	33.5	0.033	54.0	0.020	74.5	0.037
-6.5	0.110	3.8	0.327	13.5	0.062	34.0	0.017	54.5	0.016	75.0	0.033
-6.0	0.067	4.0	0.313	14.0	0.075	34.5	0.022	55.0	0.023	75.5	0.029
-5.5	0.077	4.2	0.306	14.5	0.074	35.0	0.038	55.5	0.033	76.0	0.025
-5.0	0.134	4.4	0.299	15.0	0.057	35.5	0.046	56.0	0.040	76.5	0.021
-4.5	0.162	4.6	0.289	15.5	0.041	36.0	0.043	56.5	0.042	77.0	0.018
-4.0	0.141	4.8	0.273	16.0	0.051	36.5	0.030	57.0	0.040	77.5	0.016
-3.5	0.104	5.0	0.252	16.5	0.065	37.0	0.015	57.5	0.034	78.0	0.015
-3.0	0.149	5.2	0.226	17.0	0.065	37.5	0.022	58.0	0.025	78.5	0.016
-2.8	0.184	5.4	0.199	17.5	0.049	38.0	0.037	58.5	0.019	79.0	0.017
-2.6	0.217	5.6	0.173	18.0	0.035	38.5	0.045	59.0	0.020	79.5	0.019
-2.4	0.245	5.8	0.152	18.5	0.045	39.0	0.043	59.5	0.028	80.0	0.021
-2.2	0.262	6.0	0.140	19.0	0.060	39.5	0.031	60.0	0.036	80.5	0.023
-2.0	0.266	6.2	0.137	19.5	0.060	40.0	0.017	60.5	0.041	81.0	0.024
-1.8	0.257	6.4	0.140	20.0	0.044	40.5	0.018	61.0	0.044	81.5	0.025
-1.6	0.234	6.6	0.146	20.5	0.028	41.0	0.033	61.5	0.042	82.0	0.025
-1.4	0.200	6.8	0.151	21.0	0.038	41.5	0.042	62.0	0.038	82.5	0.025
-1.2	0.164	7.0	0.152	21.5	0.054	42.0	0.043	62.5	0.031	83.0	0.024
-1.0	0.147	7.2	0.149	22.0	0.057	42.5	0.035	63.0	0.024	83.5	0.023
-0.8	0.177	7.4	0.142	22.5	0.044	43.0	0.021	63.5	0.019	84.0	0.022
-0.6	0.250	7.6	0.132	23.0	0.027	43.5	0.014	64.0	0.020	84.5	0.020
-0.4	0.346	7.8	0.120	23.5	0.031	44.0	0.026	64.5	0.027	85.0	0.018
-0.2	0.451	8.0	0.110	24.0	0.048	44.5	0.038	65.0	0.033	85.5	0.016
0.0	0.559	8.2	0.103	24.5	0.054	45.0	0.044	65.5	0.038	86.0	0.014
0.2	0.664	8.4	0.101	25.0	0.045	45.5	0.042	66.0	0.041	86.5	0.012
0.4	0.760	8.6	0.103	25.5	0.026	46.0	0.032	66.5	0.042	87.0	0.010
0.6	0.844	8.8	0.108	26.0	0.023	46.5	0.019	67.0	0.040	87.5	0.008
0.8	0.912	9.0	0.112	26.5	0.040	47.0	0.015	67.5	0.037	88.0	0.006
1.0	0.961	9.2	0.114	27.0	0.051	47.5	0.027	68.0	0.032	88.5	0.004
1.2	0.991	9.4	0.113	27.5	0.048	48.0	0.038	68.5	0.027	89.0	0.003
1.4	1.000	9.6	0.109	28.0	0.033	48.5	0.043	69.0	0.023	89.5	0.001
1.6	0.988	9.8	0.106	28.5	0.019	49.0	0.041	69.5	0.023	90.0	0.000
1.8	0.957	10.0	0.097	29.0	0.030	49.5	0.033	70.0	0.025		
2.0	0.907	10.2	0.087	29.5	0.045	50.0	0.021	70.5	0.029		
2.2	0.844	10.4	0.077	30.0	0.049	50.5	0.015	71.0	0.033		



Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06		
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)	Beam Tilt	0.60 deg
RMS Gain at Horizontal	18.30 (12.62 dB)	Frequency	563.00 MHz
Calculated / Measured	Calculated	Drawing #	24E220060



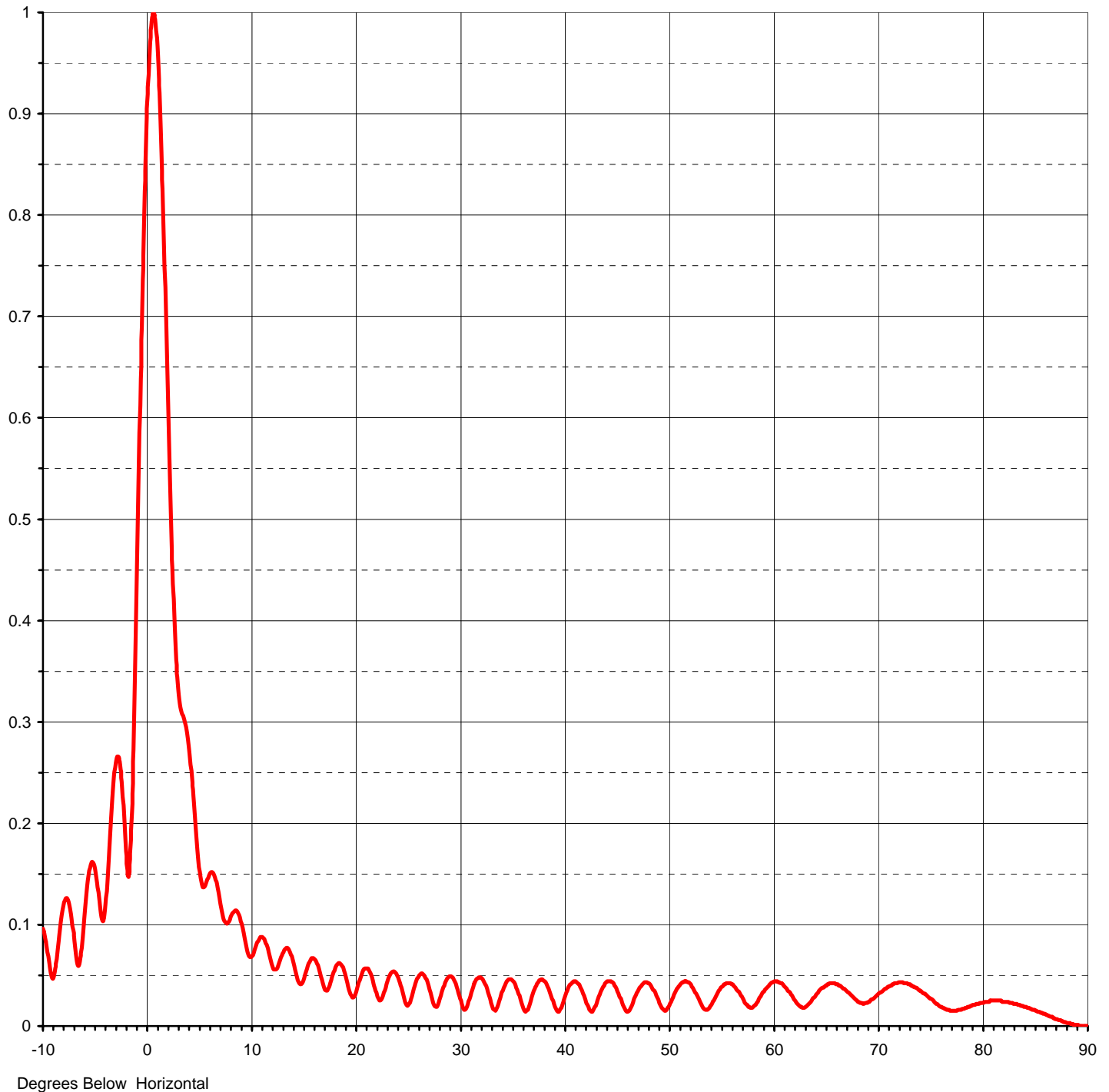


Proposal Number	DCA-11368	Revision:	1
Date	1-Feb-06		
Call Letters	KDEN-DT	Channel	29
Location	Longmont, Co		
Customer			
Antenna Type	TFU-24ETT/VP-R CT220SP		

ELEVATION PATTERN

RMS Gain at Main Lobe	22.00 (13.42 dB)
RMS Gain at Horizontal	18.30 (12.62 dB)
Calculated / Measured	Calculated

Beam Tilt	0.60 deg
Frequency	563.00 MHz
Drawing #	24E220060-90





Proposal Number **DCA-11368** Revision: **1**
 Date **1-Feb-06**
 Call Letters **KDEN-DT** Channel **29**
 Location **Longmont, Co**
 Customer
 Antenna Type **TFU-24ETT/VP-R CT220SP**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **24E220060-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.096	2.4	0.452	10.6	0.082	30.5	0.016	51.0	0.040	71.5	0.042
-9.5	0.069	2.6	0.394	10.8	0.086	31.0	0.029	51.5	0.044	72.0	0.043
-9.0	0.047	2.8	0.352	11.0	0.088	31.5	0.044	52.0	0.042	72.5	0.042
-8.5	0.084	3.0	0.327	11.5	0.080	32.0	0.048	52.5	0.034	73.0	0.041
-8.0	0.120	3.2	0.313	12.0	0.061	32.5	0.040	53.0	0.024	73.5	0.038
-7.5	0.121	3.4	0.306	12.5	0.057	33.0	0.023	53.5	0.016	74.0	0.035
-7.0	0.084	3.6	0.299	13.0	0.070	33.5	0.017	54.0	0.020	74.5	0.031
-6.5	0.061	3.8	0.289	13.5	0.077	34.0	0.032	54.5	0.029	75.0	0.027
-6.0	0.112	4.0	0.273	14.0	0.065	34.5	0.044	55.0	0.038	75.5	0.022
-5.5	0.156	4.2	0.252	14.5	0.045	35.0	0.045	55.5	0.042	76.0	0.019
-5.0	0.155	4.4	0.226	15.0	0.044	35.5	0.036	56.0	0.041	76.5	0.016
-4.5	0.114	4.6	0.199	15.5	0.060	36.0	0.020	56.5	0.036	77.0	0.015
-4.0	0.120	4.8	0.173	16.0	0.067	36.5	0.016	57.0	0.029	77.5	0.015
-3.5	0.201	5.0	0.152	16.5	0.057	37.0	0.032	57.5	0.021	78.0	0.017
-3.0	0.262	5.2	0.140	17.0	0.039	37.5	0.043	58.0	0.018	78.5	0.019
-2.8	0.266	5.4	0.137	17.5	0.039	38.0	0.045	58.5	0.024	79.0	0.021
-2.6	0.257	5.6	0.140	18.0	0.055	38.5	0.037	59.0	0.033	79.5	0.022
-2.4	0.234	5.8	0.146	18.5	0.062	39.0	0.022	59.5	0.039	80.0	0.023
-2.2	0.200	6.0	0.151	19.0	0.052	39.5	0.014	60.0	0.043	80.5	0.024
-2.0	0.164	6.2	0.152	19.5	0.033	40.0	0.027	60.5	0.043	81.0	0.025
-1.8	0.147	6.4	0.149	20.0	0.031	40.5	0.040	61.0	0.040	81.5	0.025
-1.6	0.177	6.6	0.142	20.5	0.048	41.0	0.044	61.5	0.034	82.0	0.024
-1.4	0.250	6.8	0.132	21.0	0.057	41.5	0.039	62.0	0.026	82.5	0.023
-1.2	0.346	7.0	0.120	21.5	0.051	42.0	0.027	62.5	0.020	83.0	0.022
-1.0	0.451	7.2	0.110	22.0	0.033	42.5	0.015	63.0	0.018	83.5	0.021
-0.8	0.559	7.4	0.103	22.5	0.026	43.0	0.020	63.5	0.023	84.0	0.019
-0.6	0.664	7.6	0.101	23.0	0.042	43.5	0.034	64.0	0.029	84.5	0.017
-0.4	0.760	7.8	0.103	23.5	0.053	44.0	0.043	64.5	0.037	85.0	0.015
-0.2	0.844	8.0	0.108	24.0	0.050	44.5	0.044	65.0	0.040	85.5	0.013
0.0	0.912	8.2	0.112	24.5	0.034	45.0	0.037	65.5	0.042	86.0	0.011
0.2	0.961	8.4	0.114	25.0	0.020	45.5	0.024	66.0	0.041	86.5	0.009
0.4	0.991	8.6	0.113	25.5	0.033	46.0	0.014	66.5	0.038	87.0	0.007
0.6	1.000	8.8	0.109	26.0	0.048	46.5	0.021	67.0	0.034	87.5	0.005
0.8	0.988	9.0	0.101	26.5	0.051	47.0	0.034	67.5	0.029	88.0	0.003
1.0	0.957	9.2	0.092	27.0	0.040	47.5	0.041	68.0	0.024	88.5	0.002
1.2	0.907	9.4	0.082	27.5	0.022	48.0	0.042	68.5	0.022	89.0	0.001
1.4	0.844	9.6	0.073	28.0	0.024	48.5	0.036	69.0	0.024	89.5	0.000
1.6	0.769	9.8	0.070	28.5	0.040	49.0	0.026	69.5	0.027	90.0	0.000
1.8	0.687	10.0	0.068	29.0	0.049	49.5	0.016	70.0	0.032		
2.0	0.604	10.2	0.070	29.5	0.044	50.0	0.019	70.5	0.036		
2.2	0.524	10.4	0.076	30.0	0.029	50.5	0.031	71.0	0.039		