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Proposal Number	C-01147	
Date	8-Mar-07	
Call Letters	KCSM-DT	Channel 43
Location	San Francisco, CA	
Customer	Sutro Tower Inc.	
Antenna Type	TUA-C4SP-12/40U-1-S	

SYSTEM SUMMARY

Antenna:

Type:	TUA-C4SP-12/40U-1-S	ERP:	250 kW	H Pol (23.98 dBk)
Channel:	43	Peak Gain*:	42.4	(16.27 dB)
Location:	San Francisco, CA	Input Power:	5.9 kW	(7.71 dBk)

Transmission Line:

Type:	EHT DigiTLine	Attenuation:	0.53 dB
Size:	8-3/16 in	Efficiency:	88.5%
Impedance:	75 ohm		
Length:	575 ft	175.3 m	

Combiner:	DCA	Attenuation:	0.25 dB
		Efficiency:	94.4%

Combiner Input:

Power Required:	7.1 kW	(8.49 dBk)
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* Gain is with respect to half wave dipole.

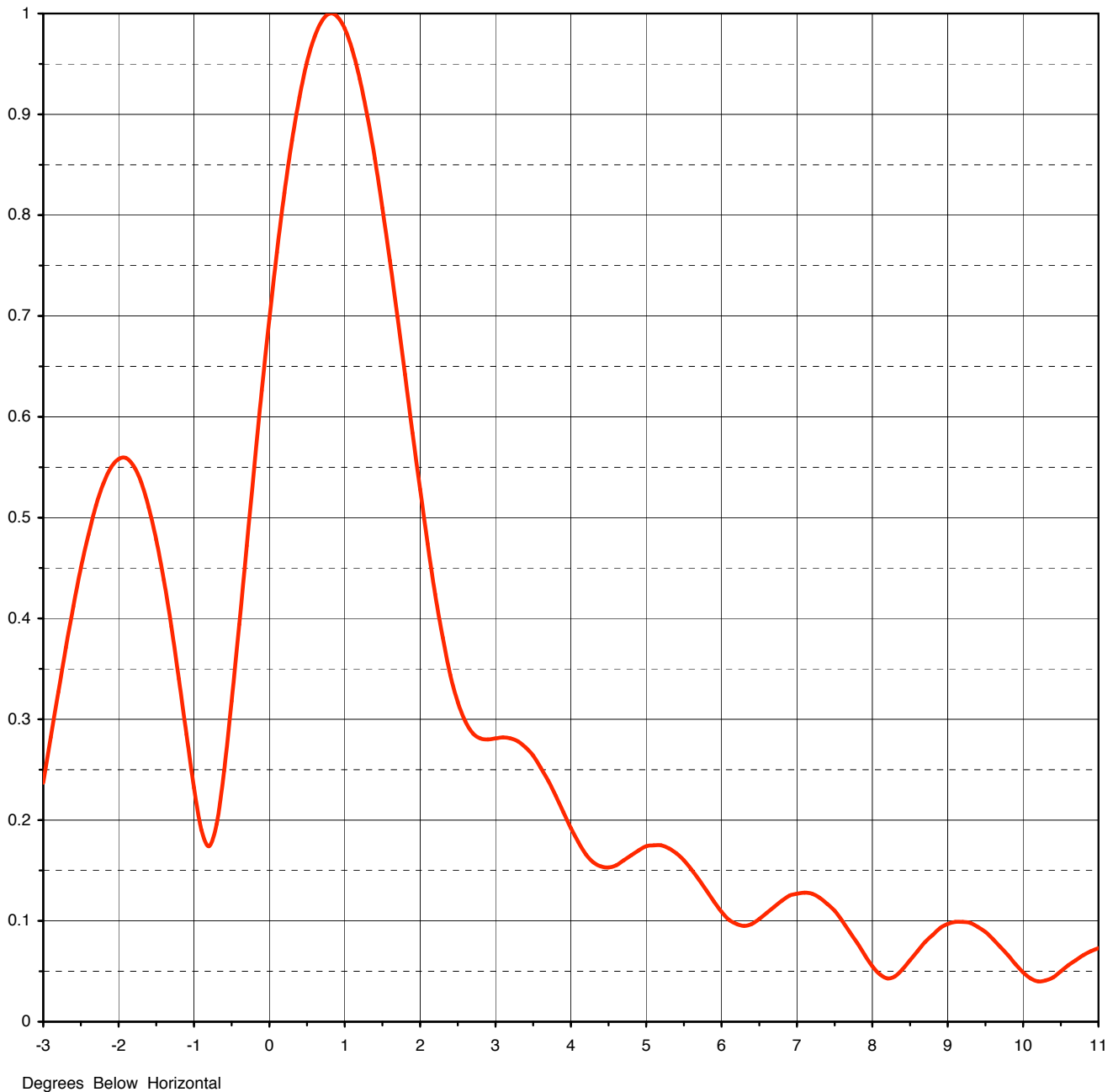
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ELEVATION PATTERN

RMS Gain at Main Lobe	21.20 (13.26 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	10.30 (10.13 dB)	Frequency	647.00 MHz
Calculated / Measured	Calculated	Drawing #	12U227075

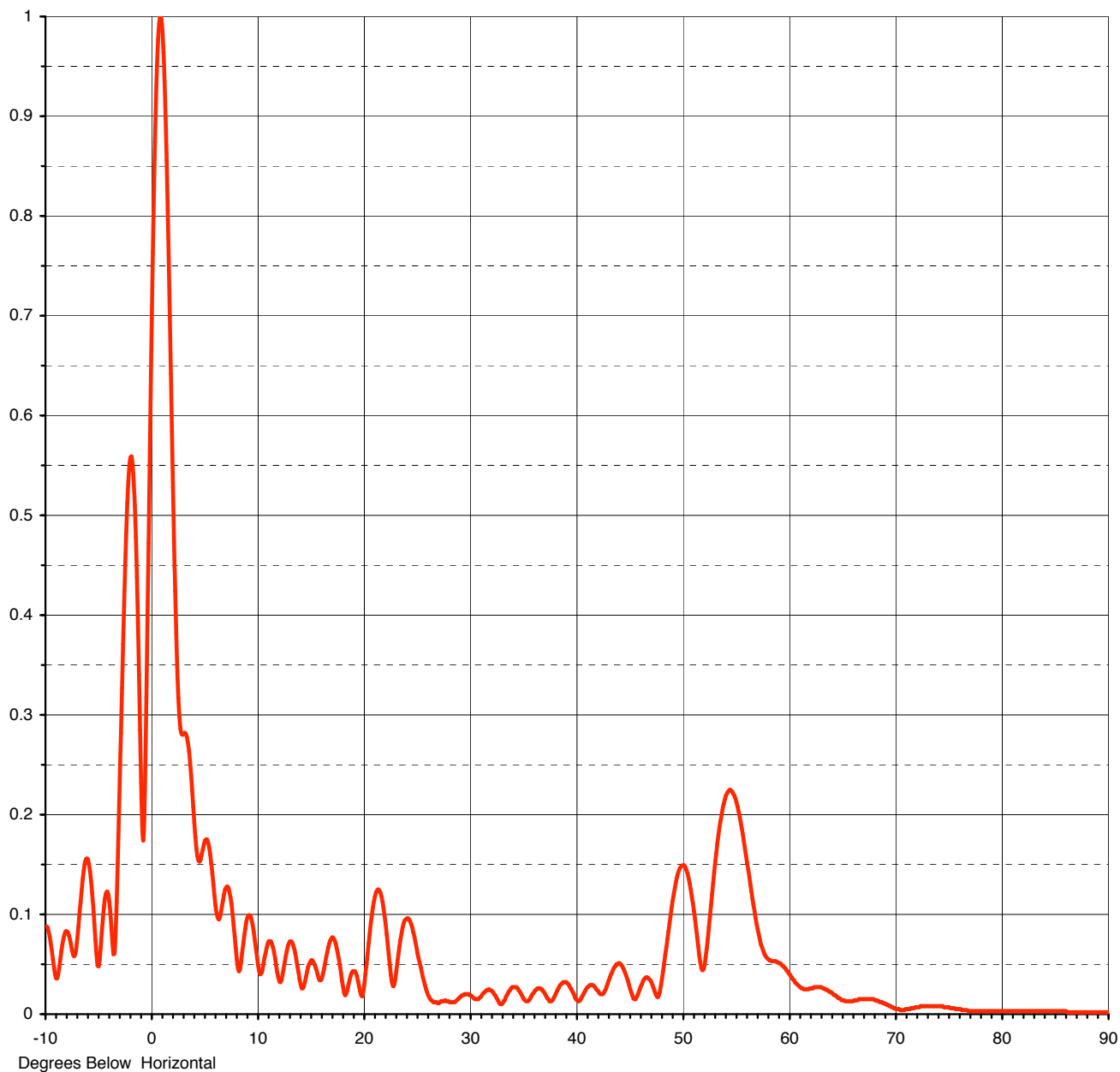




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ELEVATION PATTERN

RMS Gain at Main Lobe	21.20 (13.26 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	10.30 (10.13 dB)	Frequency	647.00 MHz
Calculated / Measured	Calculated	Drawing #	12U227075-90





Proposal Number **C-01147**
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 Call Letters **KCSM-DT** Channel **43**
 Location **San Francisco, CA**
 Customer **Sutro Tower Inc.**
 Antenna Type **TUA-C4SP-12/40U-1-S**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **12U227075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.088	2.4	0.344	10.6	0.050	30.5	0.015	51.0	0.111	71.5	0.006
-9.5	0.071	2.6	0.298	10.8	0.061	31.0	0.017	51.5	0.068	72.0	0.007
-9.0	0.036	2.8	0.281	11.0	0.070	31.5	0.023	52.0	0.045	72.5	0.008
-8.5	0.063	3.0	0.281	11.5	0.067	32.0	0.024	52.5	0.087	73.0	0.008
-8.0	0.083	3.2	0.281	12.0	0.037	32.5	0.017	53.0	0.142	73.5	0.008
-7.5	0.064	3.4	0.272	12.5	0.045	33.0	0.010	53.5	0.187	74.0	0.008
-7.0	0.076	3.6	0.252	13.0	0.071	33.5	0.019	54.0	0.215	74.5	0.007
-6.5	0.135	3.8	0.224	13.5	0.066	34.0	0.027	54.5	0.225	75.0	0.007
-6.0	0.155	4.0	0.192	14.0	0.035	34.5	0.026	55.0	0.216	75.5	0.006
-5.5	0.106	4.2	0.166	14.5	0.032	35.0	0.017	55.5	0.192	76.0	0.005
-5.0	0.048	4.4	0.154	15.0	0.052	35.5	0.013	56.0	0.159	76.5	0.004
-4.5	0.107	4.6	0.155	15.5	0.047	36.0	0.021	56.5	0.123	77.0	0.003
-4.0	0.113	4.8	0.165	16.0	0.034	36.5	0.026	57.0	0.090	77.5	0.003
-3.5	0.061	5.0	0.174	16.5	0.057	37.0	0.022	57.5	0.067	78.0	0.003
-3.0	0.237	5.2	0.175	17.0	0.076	37.5	0.013	58.0	0.056	78.5	0.003
-2.8	0.327	5.4	0.167	17.5	0.066	38.0	0.018	58.5	0.053	79.0	0.003
-2.6	0.412	5.6	0.151	18.0	0.033	38.5	0.029	59.0	0.052	79.5	0.003
-2.4	0.483	5.8	0.130	18.5	0.024	39.0	0.032	59.5	0.048	80.0	0.003
-2.2	0.534	6.0	0.109	19.0	0.043	39.5	0.026	60.0	0.041	80.5	0.003
-2.0	0.558	6.2	0.097	19.5	0.033	40.0	0.015	60.5	0.034	81.0	0.003
-1.8	0.551	6.4	0.097	20.0	0.023	40.5	0.016	61.0	0.028	81.5	0.003
-1.6	0.510	6.6	0.108	20.5	0.071	41.0	0.026	61.5	0.025	82.0	0.003
-1.4	0.438	6.8	0.120	21.0	0.113	41.5	0.029	62.0	0.026	82.5	0.003
-1.2	0.340	7.0	0.127	21.5	0.124	42.0	0.024	62.5	0.027	83.0	0.003
-1.0	0.232	7.2	0.127	22.0	0.098	42.5	0.020	63.0	0.027	83.5	0.003
-0.8	0.174	7.4	0.117	22.5	0.049	43.0	0.031	63.5	0.025	84.0	0.003
-0.6	0.249	7.6	0.100	23.0	0.035	43.5	0.045	64.0	0.022	84.5	0.003
-0.4	0.394	7.8	0.078	23.5	0.075	44.0	0.051	64.5	0.017	85.0	0.003
-0.2	0.550	8.0	0.055	24.0	0.095	44.5	0.045	65.0	0.014	85.5	0.003
0.0	0.697	8.2	0.043	24.5	0.090	45.0	0.029	65.5	0.013	86.0	0.003
0.2	0.822	8.4	0.052	25.0	0.067	45.5	0.015	66.0	0.013	86.5	0.002
0.4	0.917	8.6	0.070	25.5	0.042	46.0	0.025	66.5	0.015	87.0	0.002
0.6	0.977	8.8	0.086	26.0	0.022	46.5	0.036	67.0	0.015	87.5	0.002
0.8	1.000	9.0	0.097	26.5	0.013	47.0	0.034	67.5	0.015	88.0	0.002
1.0	0.985	9.2	0.099	27.0	0.011	47.5	0.020	68.0	0.014	88.5	0.002
1.2	0.935	9.4	0.094	27.5	0.013	48.0	0.029	68.5	0.012	89.0	0.002
1.4	0.856	9.6	0.082	28.0	0.013	48.5	0.067	69.0	0.010	89.5	0.002
1.6	0.755	9.8	0.074	28.5	0.012	49.0	0.107	69.5	0.008	90.0	0.002
1.8	0.642	10.0	0.057	29.0	0.016	49.5	0.137	70.0	0.005		
2.0	0.528	10.2	0.043	29.5	0.020	50.0	0.149	70.5	0.004		
2.2	0.424	10.4	0.041	30.0	0.019	50.5	0.141	71.0	0.005		

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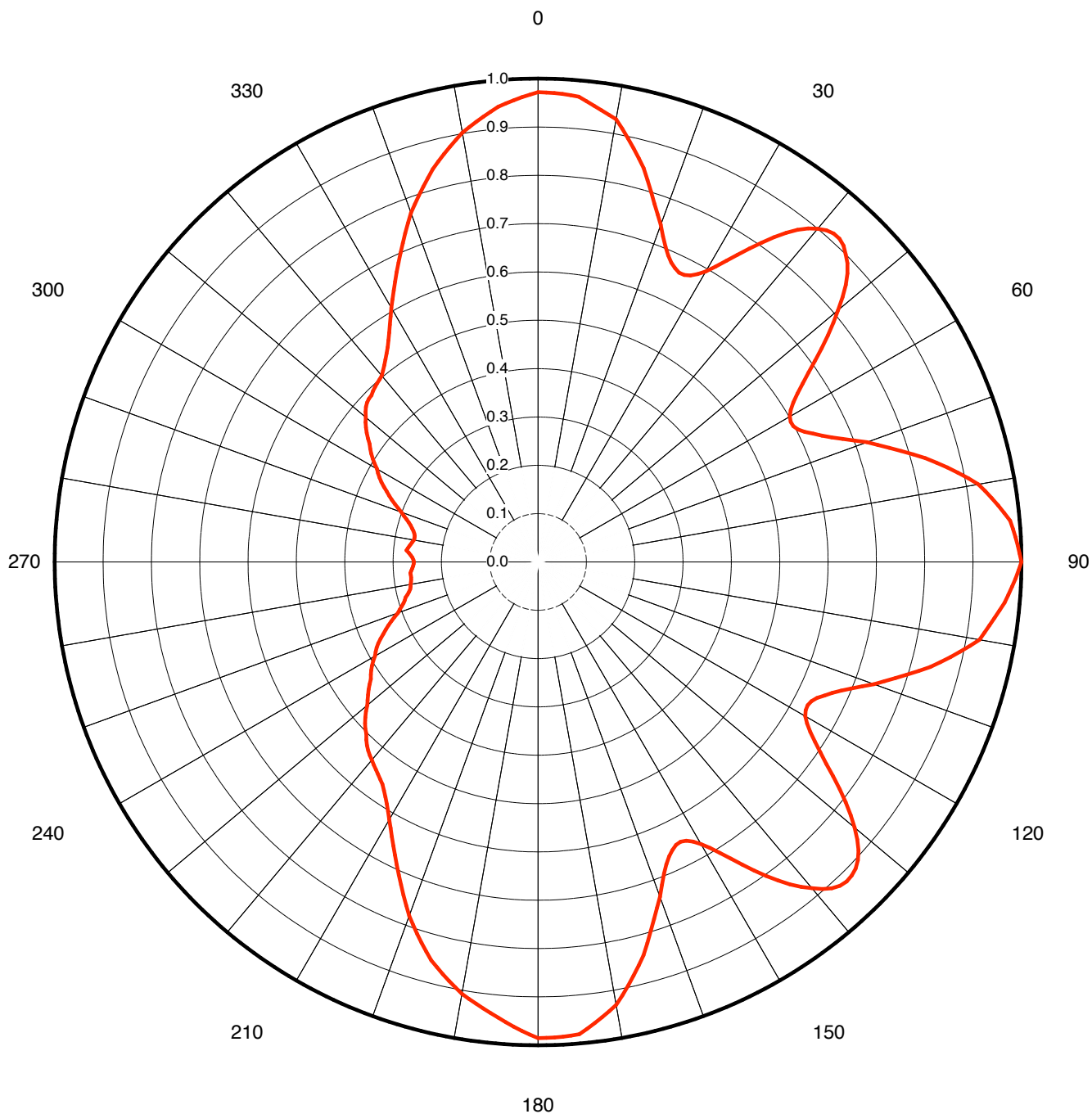


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Customer	Sutro Tower Inc.	
Antenna Type	TUA-C4SP-12/40U-1-S	

AZIMUTH PATTERN

Gain	2.00	(3.01 dB)
Calculated / Measured	Calculated	

Frequency	647.00 MHz
Drawing #	TUA-C4SP-6470



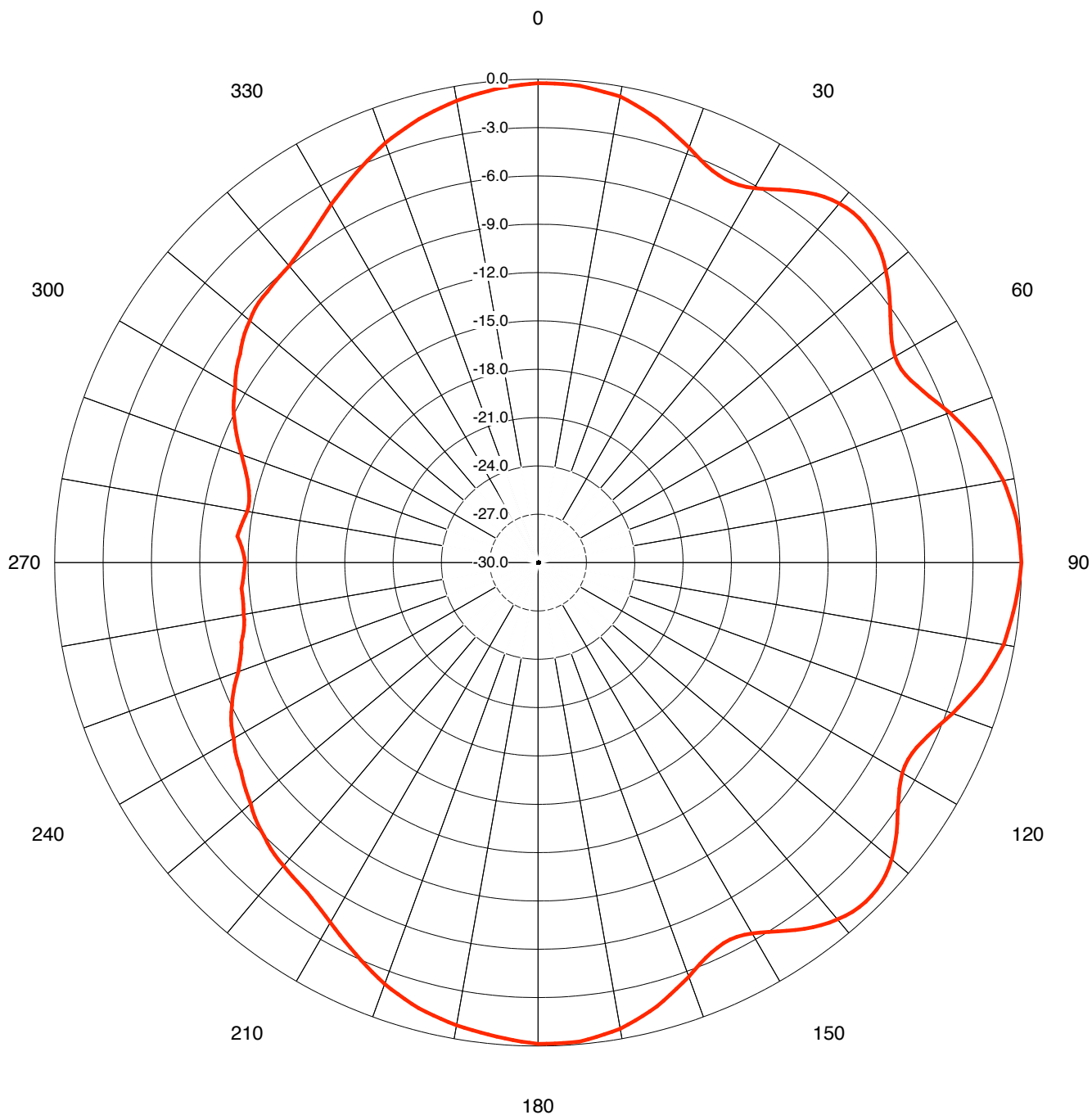


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AZIMUTH PATTERN (dB)

Gain	2.00	(3.01 dB)
Calculated / Measured		Calculated

Frequency	647.00 MHz
Drawing #	TUA-C4SP-6470





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Customer **Sutro Tower Inc.**
Antenna Type **TUA-C4SP-12/40U-1-S**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TUA-C4SP-6470**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.972	45	0.900	90	1.000	135	0.918	180	0.985	225	0.503	270	0.257	315	0.487
1	0.971	46	0.890	91	0.994	136	0.919	181	0.978	226	0.497	271	0.258	316	0.491
2	0.971	47	0.875	92	0.988	137	0.916	182	0.971	227	0.489	272	0.260	317	0.495
3	0.970	48	0.857	93	0.982	138	0.908	183	0.963	228	0.481	273	0.264	318	0.497
4	0.968	49	0.835	94	0.975	139	0.897	184	0.955	229	0.472	274	0.268	319	0.500
5	0.966	50	0.810	95	0.969	140	0.881	185	0.946	230	0.461	275	0.273	320	0.503
6	0.958	51	0.786	96	0.960	141	0.865	186	0.939	231	0.454	276	0.271	321	0.510
7	0.951	52	0.761	97	0.951	142	0.846	187	0.931	232	0.446	277	0.268	322	0.517
8	0.944	53	0.734	98	0.943	143	0.825	188	0.923	233	0.439	278	0.266	323	0.524
9	0.937	54	0.708	99	0.935	144	0.803	189	0.915	234	0.431	279	0.263	324	0.533
10	0.930	55	0.683	100	0.927	145	0.779	190	0.907	235	0.422	280	0.261	325	0.542
11	0.913	56	0.661	101	0.910	146	0.755	191	0.897	236	0.417	281	0.260	326	0.554
12	0.896	57	0.640	102	0.893	147	0.732	192	0.886	237	0.412	282	0.261	327	0.566
13	0.878	58	0.623	103	0.875	148	0.710	193	0.875	238	0.405	283	0.263	328	0.579
14	0.861	59	0.610	104	0.858	149	0.690	194	0.865	239	0.398	284	0.266	329	0.592
15	0.844	60	0.601	105	0.840	150	0.674	195	0.854	240	0.389	285	0.270	330	0.607
16	0.822	61	0.597	106	0.819	151	0.662	196	0.839	241	0.384	286	0.274	331	0.621
17	0.800	62	0.598	107	0.798	152	0.653	197	0.824	242	0.378	287	0.280	332	0.636
18	0.779	63	0.604	108	0.777	153	0.650	198	0.809	243	0.371	288	0.286	333	0.651
19	0.760	64	0.614	109	0.758	154	0.651	199	0.794	244	0.362	289	0.294	334	0.667
20	0.742	65	0.628	110	0.739	155	0.658	200	0.779	245	0.353	290	0.301	335	0.683
21	0.722	66	0.643	111	0.718	156	0.666	201	0.761	246	0.345	291	0.310	336	0.700
22	0.704	67	0.660	112	0.699	157	0.679	202	0.743	247	0.337	292	0.319	337	0.716
23	0.689	68	0.679	113	0.681	158	0.696	203	0.726	248	0.327	293	0.328	338	0.733
24	0.678	69	0.701	114	0.666	159	0.715	204	0.708	249	0.318	294	0.337	339	0.751
25	0.670	70	0.724	115	0.654	160	0.737	205	0.692	250	0.309	295	0.345	340	0.769
26	0.666	71	0.743	116	0.642	161	0.756	206	0.675	251	0.302	296	0.355	341	0.783
27	0.666	72	0.764	117	0.635	162	0.777	207	0.659	252	0.296	297	0.364	342	0.797
28	0.671	73	0.785	118	0.632	163	0.798	208	0.644	253	0.291	298	0.371	343	0.812
29	0.681	74	0.807	119	0.633	164	0.820	209	0.629	254	0.287	299	0.379	344	0.826
30	0.694	75	0.830	120	0.639	165	0.843	210	0.616	255	0.284	300	0.385	345	0.841
31	0.713	76	0.849	121	0.649	166	0.861	211	0.603	256	0.278	301	0.395	346	0.854
32	0.734	77	0.869	122	0.664	167	0.878	212	0.591	257	0.274	302	0.403	347	0.866
33	0.758	78	0.888	123	0.683	168	0.896	213	0.580	258	0.270	303	0.412	348	0.878
34	0.782	79	0.907	124	0.704	169	0.914	214	0.570	259	0.268	304	0.419	349	0.890
35	0.806	80	0.925	125	0.728	170	0.930	215	0.562	260	0.268	305	0.425	350	0.902
36	0.830	81	0.936	126	0.754	171	0.941	216	0.556	261	0.266	306	0.435	351	0.911
37	0.853	82	0.948	127	0.781	172	0.951	217	0.550	262	0.265	307	0.444	352	0.919
38	0.872	83	0.959	128	0.808	173	0.961	218	0.545	263	0.265	308	0.452	353	0.928
39	0.888	84	0.970	129	0.832	174	0.971	219	0.540	264	0.265	309	0.459	354	0.937
40	0.900	85	0.980	130	0.855	175	0.981	220	0.535	265	0.265	310	0.465	355	0.945
41	0.909	86	0.985	131	0.875	176	0.982	221	0.530	266	0.263	311	0.473	356	0.951
42	0.914	87	0.989	132	0.892	177	0.984	222	0.525	267	0.261	312	0.479	357	0.957
43	0.914	88	0.993	133	0.905	178	0.984	223	0.519	268	0.259	313	0.484	358	0.962
44	0.910	89	0.996	134	0.913	179	0.985	224	0.512	269	0.258	314	0.486	359	0.967