



Proposal Number

Revision

Date

**29 Nov 2001**

Call Letters

**WNEM-DT**

Channel

**22**

Location

**Saginaw, MI**

Customer

Antenna Type

**TFU-30DSC-R 4C140**

### AZIMUTH PATTERN

RMS Gain at Main Lobe

**1.40 (1.46 dB)**

Frequency

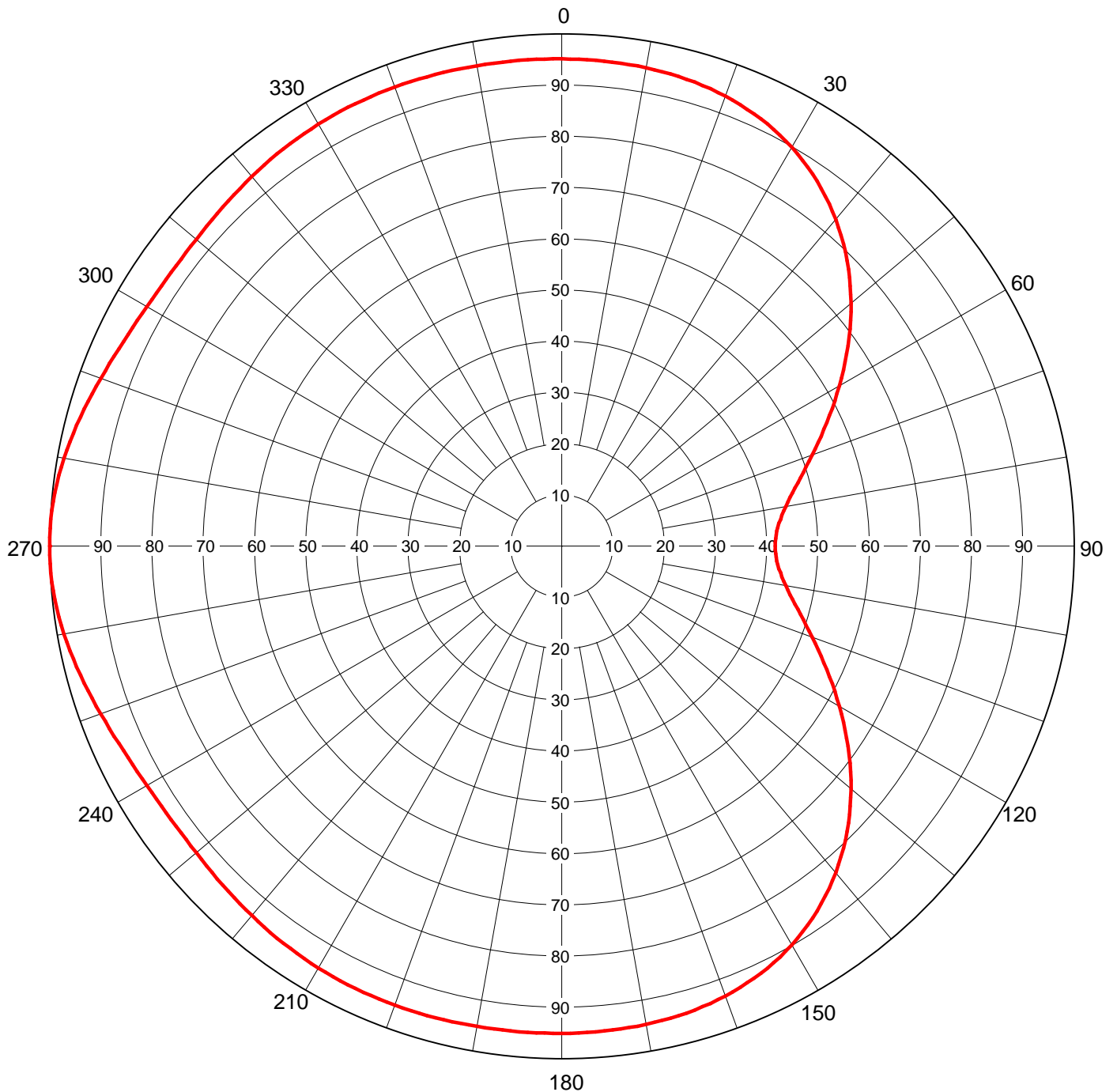
**521 MHz**

Calculated / Measured

**Calculated**

Drawing #

**4C140-22**



Remarks:



Proposal Number  
 Date **29 Nov 2001**  
 Call Letters **WNEM-DT** Channel **22**  
 Location **Saginaw, MI**  
 Customer  
 Antenna Type **TFU-30DSC-R 4C140**

## TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **4C140-22**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.951	45	0.788	90	0.416	135	0.788	180	0.951	225	0.936	270	1.000	315	0.936
1	0.951	46	0.778	91	0.417	136	0.797	181	0.951	226	0.935	271	1.000	316	0.937
2	0.951	47	0.768	92	0.418	137	0.806	182	0.951	227	0.934	272	0.999	317	0.938
3	0.950	48	0.758	93	0.419	138	0.815	183	0.951	228	0.933	273	0.999	318	0.939
4	0.950	49	0.748	94	0.421	139	0.824	184	0.951	229	0.932	274	0.998	319	0.940
5	0.950	50	0.737	95	0.424	140	0.832	185	0.951	230	0.932	275	0.996	320	0.941
6	0.950	51	0.726	96	0.426	141	0.840	186	0.952	231	0.931	276	0.995	321	0.942
7	0.949	52	0.716	97	0.430	142	0.848	187	0.952	232	0.931	277	0.993	322	0.944
8	0.949	53	0.705	98	0.434	143	0.855	188	0.952	233	0.931	278	0.991	323	0.945
9	0.948	54	0.694	99	0.439	144	0.862	189	0.952	234	0.931	279	0.989	324	0.946
10	0.948	55	0.682	100	0.444	145	0.869	190	0.952	235	0.931	280	0.987	325	0.947
11	0.947	56	0.671	101	0.450	146	0.876	191	0.952	236	0.931	281	0.984	326	0.948
12	0.946	57	0.660	102	0.456	147	0.882	192	0.952	237	0.932	282	0.981	327	0.948
13	0.945	58	0.649	103	0.463	148	0.888	193	0.953	238	0.933	283	0.979	328	0.949
14	0.944	59	0.637	104	0.469	149	0.893	194	0.953	239	0.934	284	0.976	329	0.950
15	0.943	60	0.626	105	0.477	150	0.898	195	0.953	240	0.935	285	0.973	330	0.951
16	0.942	61	0.615	106	0.485	151	0.903	196	0.953	241	0.936	286	0.970	331	0.951
17	0.940	62	0.604	107	0.493	152	0.908	197	0.953	242	0.938	287	0.967	332	0.952
18	0.938	63	0.593	108	0.502	153	0.912	198	0.953	243	0.940	288	0.964	333	0.952
19	0.936	64	0.582	109	0.511	154	0.916	199	0.953	244	0.942	289	0.960	334	0.953
20	0.934	65	0.571	110	0.520	155	0.920	200	0.953	245	0.944	290	0.957	335	0.953
21	0.932	66	0.560	111	0.530	156	0.923	201	0.953	246	0.946	291	0.955	336	0.953
22	0.929	67	0.550	112	0.540	157	0.926	202	0.953	247	0.949	292	0.952	337	0.953
23	0.926	68	0.540	113	0.550	158	0.929	203	0.953	248	0.952	293	0.949	338	0.953
24	0.923	69	0.530	114	0.560	159	0.932	204	0.953	249	0.955	294	0.946	339	0.953
25	0.920	70	0.520	115	0.571	160	0.934	205	0.953	250	0.957	295	0.944	340	0.953
26	0.916	71	0.511	116	0.582	161	0.936	206	0.953	251	0.960	296	0.942	341	0.953
27	0.912	72	0.502	117	0.593	162	0.939	207	0.952	252	0.964	297	0.940	342	0.953
28	0.908	73	0.493	118	0.604	163	0.940	208	0.952	253	0.967	298	0.938	343	0.953
29	0.903	74	0.485	119	0.615	164	0.942	209	0.951	254	0.970	299	0.936	344	0.953
30	0.898	75	0.477	120	0.626	165	0.943	210	0.951	255	0.973	300	0.935	345	0.953
31	0.893	76	0.469	121	0.637	166	0.944	211	0.950	256	0.976	301	0.934	346	0.953
32	0.888	77	0.463	122	0.649	167	0.945	212	0.949	257	0.979	302	0.933	347	0.953
33	0.882	78	0.456	123	0.660	168	0.946	213	0.948	258	0.981	303	0.932	348	0.952
34	0.876	79	0.450	124	0.671	169	0.947	214	0.948	259	0.984	304	0.931	349	0.952
35	0.869	80	0.444	125	0.682	170	0.948	215	0.947	260	0.987	305	0.931	350	0.952
36	0.862	81	0.439	126	0.694	171	0.949	216	0.946	261	0.989	306	0.931	351	0.952
37	0.855	82	0.434	127	0.705	172	0.949	217	0.945	262	0.991	307	0.931	352	0.952
38	0.848	83	0.430	128	0.716	173	0.949	218	0.944	263	0.993	308	0.931	353	0.952
39	0.840	84	0.426	129	0.726	174	0.950	219	0.942	264	0.995	309	0.931	354	0.952
40	0.832	85	0.424	130	0.737	175	0.950	220	0.941	265	0.996	310	0.932	355	0.951
41	0.824	86	0.421	131	0.748	176	0.950	221	0.940	266	0.998	311	0.932	356	0.951
42	0.815	87	0.419	132	0.758	177	0.950	222	0.939	267	0.999	312	0.933	357	0.951
43	0.806	88	0.418	133	0.768	178	0.951	223	0.938	268	0.999	313	0.934	358	0.951
44	0.797	89	0.417	134	0.778	179	0.951	224	0.937	269	1.000	314	0.935	359	0.951

Remarks:



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Channel

**22**

Location

**Saginaw, MI**

Customer

Antenna Type

**TFU-30DSC-R 4C140****ELEVATION PATTERN**

RMS Gain at Main Lobe

**25.5 (14.07 dB)**

Beam Tilt

**0.75 Degrees**

RMS Gain at Horizontal

**15.4 (11.88 dB)**

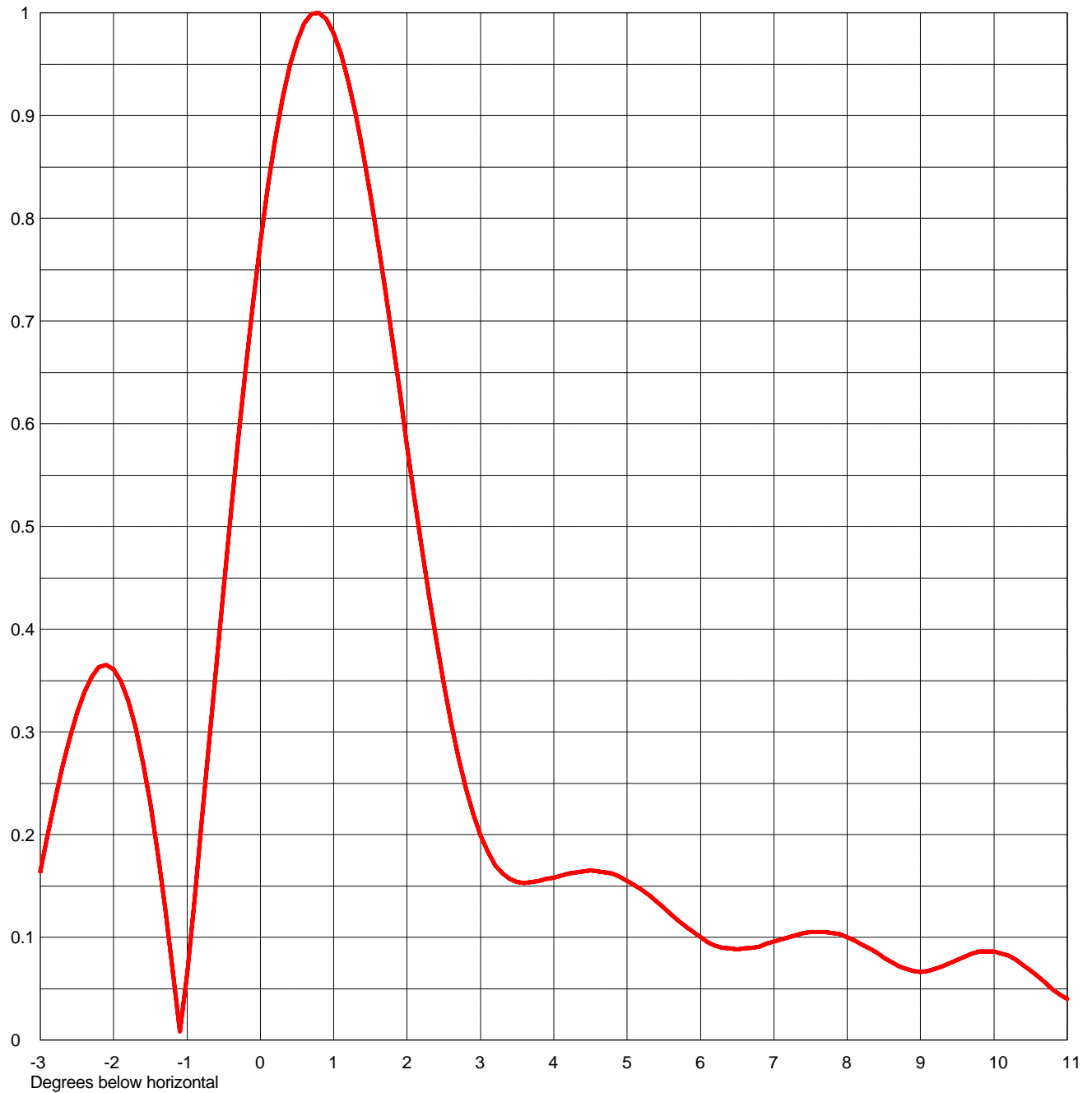
Frequency

**521.00 MHz**

Calculated / Measured

**Calculated**

Drawing #

**30Q255075**

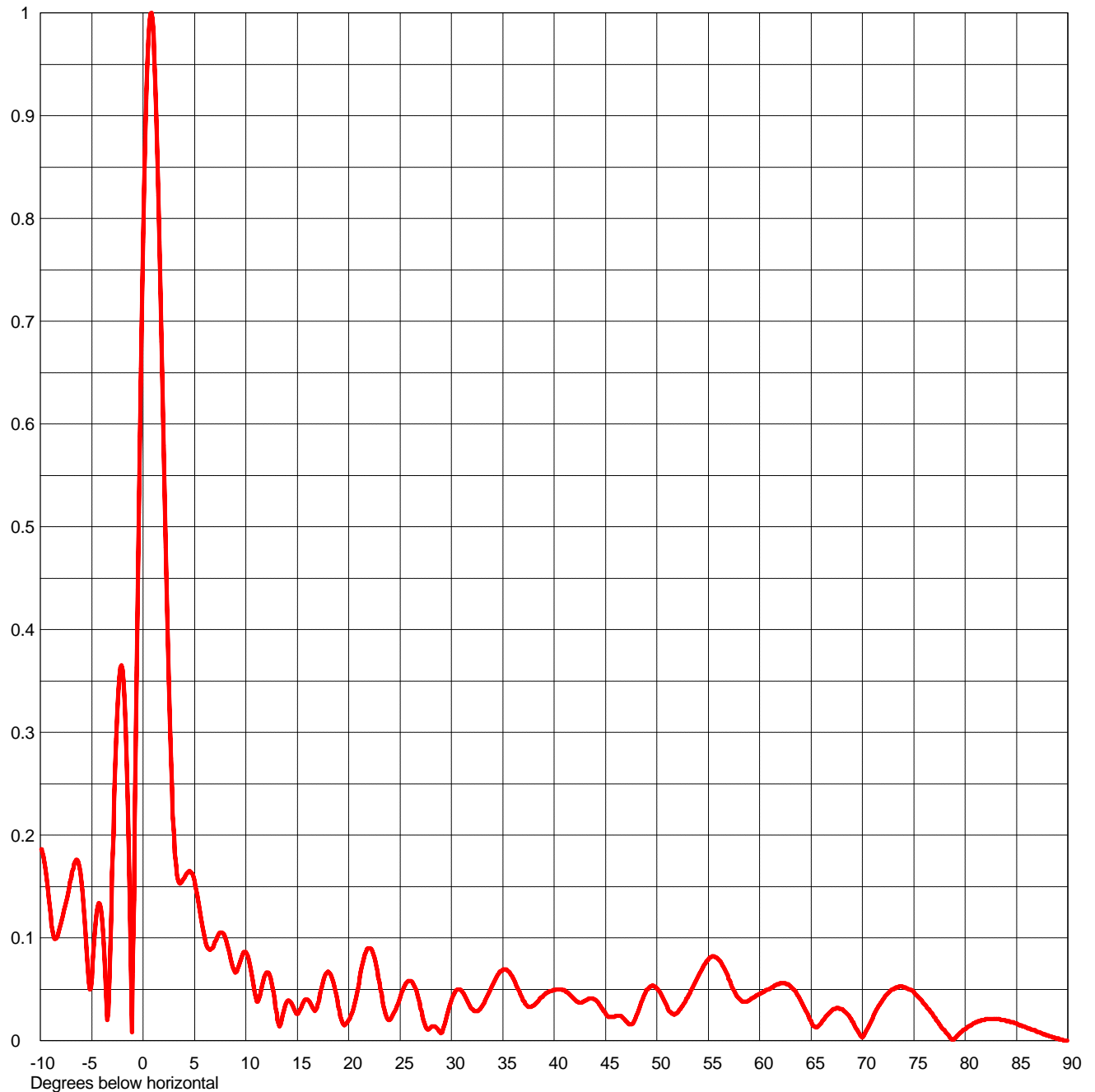
Remarks:



Proposal Number			
Date	<b>29 Nov 2001</b>	Revision	
Call Letters	<b>WNEM-DT</b>	Channel	<b>22</b>
Location	<b>Saginaw, MI</b>		
Customer			
Antenna Type	<b>TFU-30DSC-R 4C140</b>		

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>25.5 (14.07 dB)</b>	Beam Tilt	<b>0.75 Degrees</b>
RMS Gain at Horizontal	<b>15.4 (11.88 dB)</b>	Frequency	<b>521.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>30Q255075</b>



Remarks:



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 Date **29 Nov 2001**  
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## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **30Q255075**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.188	2.4	0.389	10.6	0.062	30.5	0.049	51.0	0.033	71.5	0.032
-9.5	0.166	2.6	0.309	10.8	0.049	31.0	0.048	51.5	0.026	72.0	0.040
-9.0	0.121	2.8	0.245	11.0	0.040	31.5	0.040	52.0	0.027	72.5	0.046
-8.5	0.099	3.0	0.199	11.5	0.049	32.0	0.031	52.5	0.034	73.0	0.050
-8.0	0.114	3.2	0.170	12.0	0.066	32.5	0.029	53.0	0.042	73.5	0.052
-7.5	0.135	3.4	0.157	12.5	0.056	33.0	0.034	53.5	0.052	74.0	0.052
-7.0	0.159	3.6	0.153	13.0	0.026	33.5	0.043	54.0	0.062	74.5	0.050
-6.5	0.176	3.8	0.155	13.5	0.020	34.0	0.054	54.5	0.072	75.0	0.047
-6.0	0.155	4.0	0.158	14.0	0.038	34.5	0.064	55.0	0.079	75.5	0.042
-5.5	0.086	4.2	0.162	14.5	0.035	35.0	0.069	55.5	0.082	76.0	0.036
-5.0	0.061	4.4	0.164	15.0	0.026	35.5	0.068	56.0	0.079	76.5	0.030
-4.5	0.125	4.6	0.164	15.5	0.035	36.0	0.061	56.5	0.071	77.0	0.023
-4.0	0.119	4.8	0.162	16.0	0.040	36.5	0.050	57.0	0.060	77.5	0.016
-3.5	0.020	5.0	0.155	16.5	0.032	37.0	0.039	57.5	0.049	78.0	0.010
-3.0	0.164	5.2	0.146	17.0	0.035	37.5	0.033	58.0	0.041	78.5	0.003
-2.8	0.234	5.4	0.135	17.5	0.056	38.0	0.034	58.5	0.038	79.0	0.002
-2.6	0.294	5.6	0.122	18.0	0.067	38.5	0.039	59.0	0.039	79.5	0.007
-2.4	0.339	5.8	0.110	18.5	0.057	39.0	0.044	59.5	0.042	80.0	0.011
-2.2	0.363	6.0	0.100	19.0	0.034	39.5	0.047	60.0	0.045	80.5	0.015
-2.0	0.361	6.2	0.092	19.5	0.016	40.0	0.049	60.5	0.048	81.0	0.018
-1.8	0.330	6.4	0.089	20.0	0.020	40.5	0.050	61.0	0.051	81.5	0.019
-1.6	0.270	6.6	0.089	20.5	0.033	41.0	0.049	61.5	0.054	82.0	0.021
-1.4	0.182	6.8	0.091	21.0	0.056	41.5	0.045	62.0	0.056	82.5	0.021
-1.2	0.069	7.0	0.096	21.5	0.080	42.0	0.040	62.5	0.056	83.0	0.021
-1.0	0.065	7.2	0.100	22.0	0.090	42.5	0.037	63.0	0.053	83.5	0.020
-0.8	0.211	7.4	0.104	22.5	0.081	43.0	0.039	63.5	0.048	84.0	0.019
-0.6	0.363	7.6	0.105	23.0	0.056	43.5	0.041	64.0	0.039	84.5	0.018
-0.4	0.514	7.8	0.104	23.5	0.030	44.0	0.040	64.5	0.029	85.0	0.017
-0.2	0.654	8.0	0.100	24.0	0.020	44.5	0.034	65.0	0.019	85.5	0.015
0.0	0.777	8.2	0.093	24.5	0.029	45.0	0.026	65.5	0.013	86.0	0.013
0.2	0.877	8.4	0.085	25.0	0.042	45.5	0.023	66.0	0.017	86.5	0.011
0.4	0.949	8.6	0.076	25.5	0.054	46.0	0.024	66.5	0.024	87.0	0.009
0.6	0.990	8.8	0.069	26.0	0.058	46.5	0.024	67.0	0.029	87.5	0.007
0.8	1.000	9.0	0.066	26.5	0.051	47.0	0.019	67.5	0.032	88.0	0.005
1.0	0.980	9.2	0.069	27.0	0.032	47.5	0.016	68.0	0.031	88.5	0.003
1.2	0.933	9.4	0.075	27.5	0.014	48.0	0.024	68.5	0.026	89.0	0.002
1.4	0.863	9.6	0.081	28.0	0.013	48.5	0.038	69.0	0.019	89.5	0.001
1.6	0.777	9.8	0.086	28.5	0.013	49.0	0.049	69.5	0.011	90.0	0.000
1.8	0.680	10.0	0.086	29.0	0.007	49.5	0.053	70.0	0.003		
2.0	0.579	10.2	0.082	29.5	0.021	50.0	0.051	70.5	0.012		
2.2	0.480	10.4	0.073	30.0	0.039	50.5	0.043	71.0	0.022		

Remarks: