



Exhibit No.
I

Date	26 Nov 02		
Call Letters	WNUV-DT	Channel	40
Location	Baltimore, MD		
Customer			
Antenna Type	TUD-C5SP-10/36SPH-1-B		

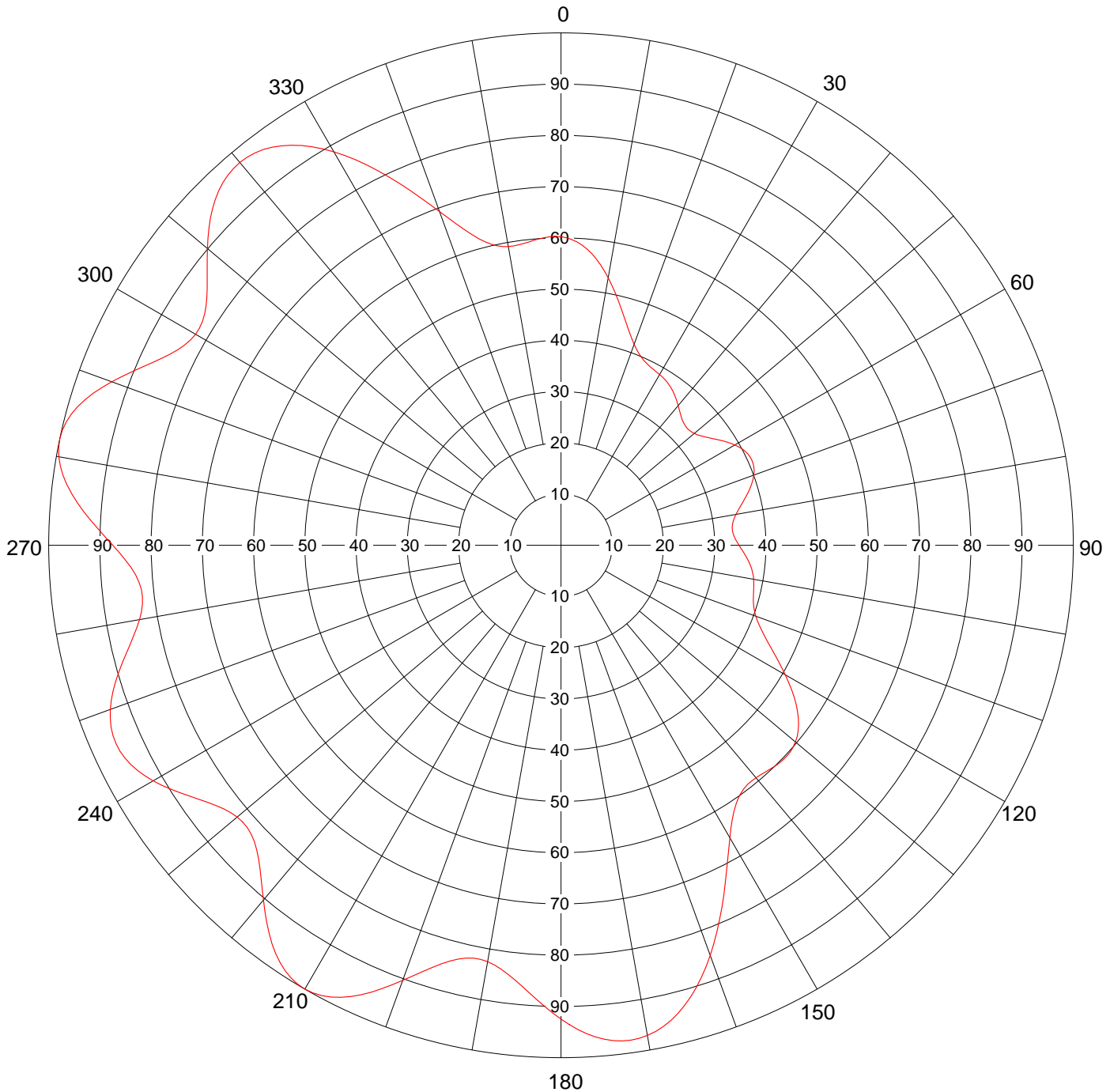
AZIMUTH PATTERN

Gain
Calculated / Measured

1.90 (2.79 dB)
Calculated

Frequency
Drawing #

629 MHz
TUD-C5SP-629



Remarks:



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Call Letters **WNUV-DT** Channel **40**
Location **Baltimore, MD**
Customer
Antenna Type **TUD-C5SP-10/36SPH-1-B**

TABULATION OF AZIMUTH PATTERNAzimuth Pattern Drawing # **TUD-C5SP-629**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.602	45	0.338	90	0.348	135	0.601	180	0.925	225	0.840	270	0.875	315	0.954
1	0.600	46	0.337	91	0.352	136	0.600	181	0.913	226	0.832	271	0.889	316	0.962
2	0.597	47	0.336	92	0.356	137	0.598	182	0.901	227	0.827	272	0.904	317	0.968
3	0.593	48	0.336	93	0.360	138	0.596	183	0.889	228	0.824	273	0.919	318	0.972
4	0.587	49	0.337	94	0.364	139	0.594	184	0.876	229	0.823	274	0.933	319	0.974
5	0.581	50	0.340	95	0.368	140	0.592	185	0.865	230	0.825	275	0.947	320	0.975
6	0.573	51	0.343	96	0.372	141	0.591	186	0.854	231	0.829	276	0.960	321	0.974
7	0.563	52	0.347	97	0.375	142	0.592	187	0.844	232	0.836	277	0.972	322	0.971
8	0.553	53	0.352	98	0.378	143	0.594	188	0.836	233	0.844	278	0.982	323	0.967
9	0.542	54	0.357	99	0.380	144	0.597	189	0.829	234	0.853	279	0.989	324	0.960
10	0.530	55	0.363	100	0.382	145	0.603	190	0.825	235	0.864	280	0.995	325	0.952
11	0.518	56	0.369	101	0.383	146	0.610	191	0.823	236	0.875	281	0.999	326	0.942
12	0.505	57	0.375	102	0.385	147	0.620	192	0.824	237	0.887	282	1.000	327	0.930
13	0.493	58	0.381	103	0.386	148	0.631	193	0.827	238	0.898	283	0.999	328	0.917
14	0.480	59	0.386	104	0.387	149	0.644	194	0.832	239	0.909	284	0.995	329	0.903
15	0.468	60	0.392	105	0.389	150	0.659	195	0.840	240	0.919	285	0.989	330	0.887
16	0.456	61	0.396	106	0.391	151	0.676	196	0.850	241	0.928	286	0.982	331	0.870
17	0.445	62	0.400	107	0.393	152	0.693	197	0.862	242	0.936	287	0.972	332	0.851
18	0.435	63	0.404	108	0.396	153	0.712	198	0.875	243	0.943	288	0.960	333	0.833
19	0.426	64	0.406	109	0.400	154	0.732	199	0.889	244	0.947	289	0.947	334	0.813
20	0.418	65	0.408	110	0.405	155	0.752	200	0.904	245	0.950	290	0.933	335	0.793
21	0.410	66	0.408	111	0.410	156	0.772	201	0.919	246	0.951	291	0.919	336	0.772
22	0.405	67	0.408	112	0.418	157	0.793	202	0.933	247	0.950	292	0.904	337	0.752
23	0.400	68	0.406	113	0.426	158	0.813	203	0.947	248	0.947	293	0.889	338	0.732
24	0.396	69	0.404	114	0.435	159	0.833	204	0.960	249	0.943	294	0.875	339	0.712
25	0.393	70	0.400	115	0.445	160	0.851	205	0.972	250	0.936	295	0.862	340	0.693
26	0.391	71	0.396	116	0.456	161	0.870	206	0.982	251	0.928	296	0.850	341	0.676
27	0.389	72	0.392	117	0.468	162	0.887	207	0.989	252	0.919	297	0.840	342	0.659
28	0.387	73	0.386	118	0.480	163	0.903	208	0.995	253	0.909	298	0.832	343	0.644
29	0.386	74	0.381	119	0.493	164	0.917	209	0.999	254	0.898	299	0.827	344	0.631
30	0.385	75	0.375	120	0.505	165	0.930	210	1.000	255	0.887	300	0.824	345	0.620
31	0.383	76	0.369	121	0.518	166	0.942	211	0.999	256	0.875	301	0.823	346	0.610
32	0.382	77	0.363	122	0.530	167	0.952	212	0.995	257	0.864	302	0.825	347	0.603
33	0.380	78	0.357	123	0.542	168	0.960	213	0.989	258	0.853	303	0.829	348	0.597
34	0.378	79	0.352	124	0.553	169	0.967	214	0.982	259	0.844	304	0.836	349	0.594
35	0.375	80	0.347	125	0.563	170	0.971	215	0.972	260	0.836	305	0.844	350	0.592
36	0.372	81	0.343	126	0.573	171	0.974	216	0.960	261	0.829	306	0.854	351	0.591
37	0.368	82	0.340	127	0.581	172	0.975	217	0.947	262	0.825	307	0.865	352	0.592
38	0.364	83	0.337	128	0.587	173	0.974	218	0.933	263	0.823	308	0.876	353	0.594
39	0.360	84	0.336	129	0.593	174	0.972	219	0.919	264	0.824	309	0.889	354	0.596
40	0.356	85	0.336	130	0.597	175	0.968	220	0.904	265	0.827	310	0.901	355	0.598
41	0.352	86	0.337	131	0.600	176	0.962	221	0.889	266	0.832	311	0.913	356	0.600
42	0.348	87	0.338	132	0.602	177	0.954	222	0.875	267	0.840	312	0.925	357	0.601
43	0.344	88	0.341	133	0.603	178	0.946	223	0.862	268	0.850	313	0.936	358	0.603
44	0.341	89	0.344	134	0.603	179	0.936	224	0.850	269	0.862	314	0.946	359	0.603

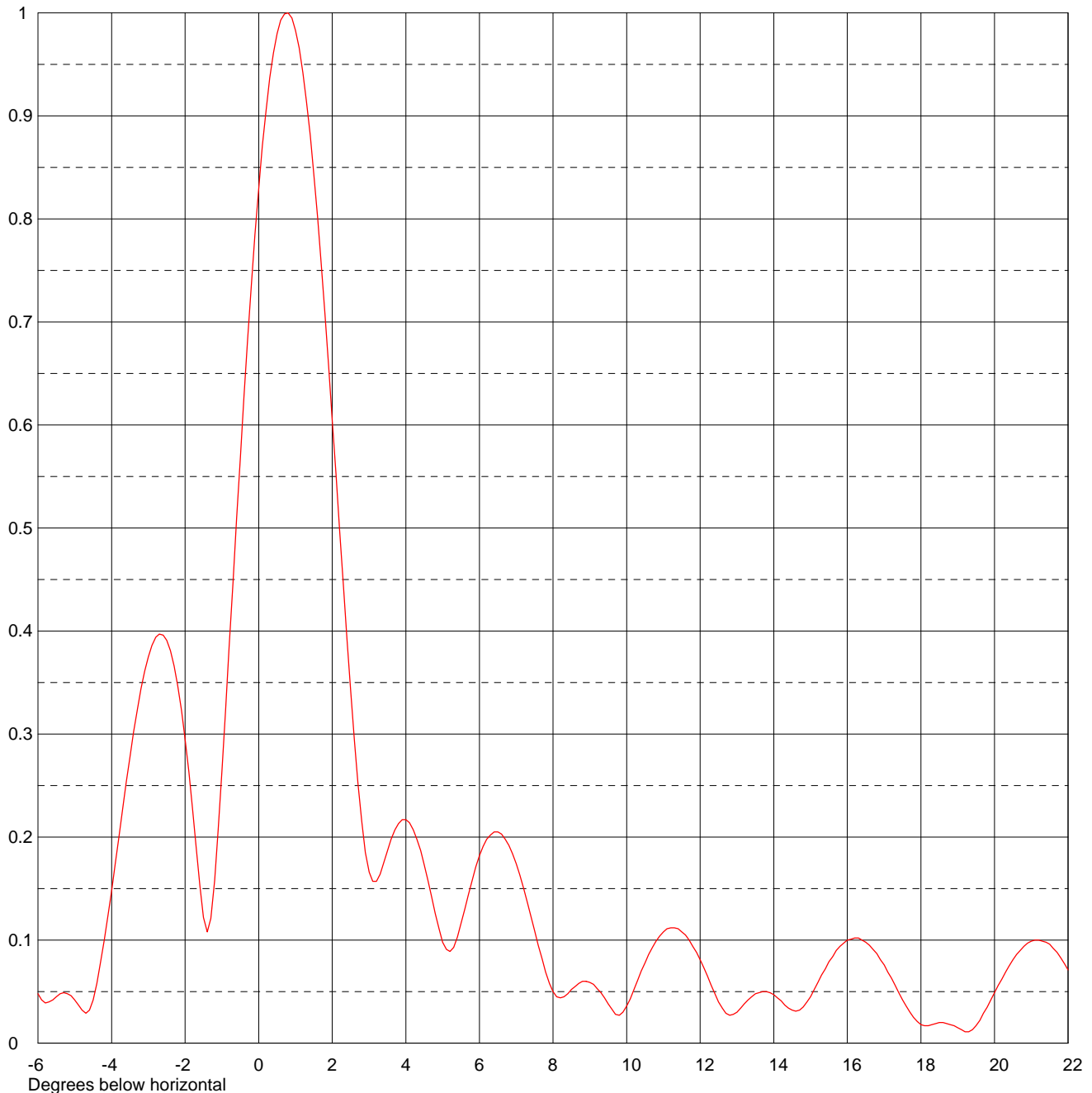
Remarks:



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Customer		
Antenna Type	TUD-C5SP-10/36SPH-1-B	

ELEVATION PATTERN

RMS Gain at Main Lobe	17.7 (12.48 dB)	Beam Tilt	0.80 Degrees
RMS Gain at Horizontal	12.2 (10.86 dB)	Frequency	629.00 MHz
Calculated / Measured	Calculated	Drawing #	10U215075-6290



Remarks:



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 Customer
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TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **10U215075-6290**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.063	2.4	0.392	10.6	0.086	30.5	0.015	51.0	0.106	71.5	0.015
-9.5	0.051	2.6	0.294	10.8	0.099	31.0	0.025	51.5	0.097	72.0	0.013
-9.0	0.049	2.8	0.215	11.0	0.108	31.5	0.033	52.0	0.077	72.5	0.010
-8.5	0.099	3.0	0.166	11.5	0.108	32.0	0.034	52.5	0.048	73.0	0.008
-8.0	0.152	3.2	0.157	12.0	0.081	32.5	0.029	53.0	0.027	73.5	0.006
-7.5	0.176	3.4	0.175	12.5	0.040	33.0	0.019	53.5	0.051	74.0	0.005
-7.0	0.158	3.6	0.198	13.0	0.030	33.5	0.010	54.0	0.091	74.5	0.004
-6.5	0.105	3.8	0.213	13.5	0.048	34.0	0.013	54.5	0.131	75.0	0.004
-6.0	0.048	4.0	0.217	14.0	0.047	34.5	0.016	55.0	0.166	75.5	0.004
-5.5	0.045	4.2	0.207	14.5	0.032	35.0	0.013	55.5	0.192	76.0	0.004
-5.0	0.042	4.4	0.187	15.0	0.045	35.5	0.008	56.0	0.208	76.5	0.004
-4.5	0.042	4.6	0.158	15.5	0.079	36.0	0.015	56.5	0.213	77.0	0.004
-4.0	0.148	4.8	0.126	16.0	0.100	36.5	0.027	57.0	0.209	77.5	0.004
-3.5	0.278	5.0	0.098	16.5	0.098	37.0	0.037	57.5	0.195	78.0	0.004
-3.0	0.375	5.2	0.089	17.0	0.076	37.5	0.040	58.0	0.175	78.5	0.004
-2.8	0.394	5.4	0.103	17.5	0.042	38.0	0.036	58.5	0.149	79.0	0.004
-2.6	0.396	5.6	0.130	18.0	0.018	38.5	0.026	59.0	0.120	79.5	0.003
-2.4	0.381	5.8	0.158	18.5	0.020	39.0	0.014	59.5	0.092	80.0	0.003
-2.2	0.347	6.0	0.182	19.0	0.015	39.5	0.013	60.0	0.066	80.5	0.003
-2.0	0.295	6.2	0.198	19.5	0.017	40.0	0.020	60.5	0.044	81.0	0.002
-1.8	0.228	6.4	0.205	20.0	0.049	40.5	0.023	61.0	0.030	81.5	0.002
-1.6	0.153	6.6	0.203	20.5	0.081	41.0	0.020	61.5	0.027	82.0	0.002
-1.4	0.108	6.8	0.192	21.0	0.099	41.5	0.016	62.0	0.030	82.5	0.001
-1.2	0.158	7.0	0.174	21.5	0.096	42.0	0.021	62.5	0.033	83.0	0.001
-1.0	0.264	7.2	0.150	22.0	0.071	42.5	0.036	63.0	0.034	83.5	0.001
-0.8	0.386	7.4	0.123	22.5	0.033	43.0	0.049	63.5	0.033	84.0	0.001
-0.6	0.509	7.6	0.095	23.0	0.027	43.5	0.058	64.0	0.029	84.5	0.001
-0.4	0.628	7.8	0.069	23.5	0.063	44.0	0.059	64.5	0.024	85.0	0.001
-0.2	0.736	8.0	0.050	24.0	0.088	44.5	0.053	65.0	0.019	85.5	0.002
0.0	0.830	8.2	0.044	24.5	0.096	45.0	0.040	65.5	0.014	86.0	0.002
0.2	0.906	8.4	0.048	25.0	0.085	45.5	0.026	66.0	0.012	86.5	0.002
0.4	0.961	8.6	0.055	25.5	0.066	46.0	0.014	66.5	0.014	87.0	0.002
0.6	0.993	8.8	0.060	26.0	0.042	46.5	0.013	67.0	0.017	87.5	0.002
0.8	1.000	9.0	0.059	26.5	0.024	47.0	0.015	67.5	0.020	88.0	0.002
1.0	0.983	9.2	0.053	27.0	0.011	47.5	0.012	68.0	0.022	88.5	0.002
1.2	0.942	9.4	0.044	27.5	0.007	48.0	0.010	68.5	0.023	89.0	0.002
1.4	0.881	9.6	0.033	28.0	0.007	48.5	0.026	69.0	0.023	89.5	0.002
1.6	0.801	9.8	0.027	28.5	0.012	49.0	0.049	69.5	0.023	90.0	0.002
1.8	0.708	10.0	0.036	29.0	0.016	49.5	0.072	70.0	0.022		
2.0	0.605	10.2	0.052	29.5	0.014	50.0	0.092	70.5	0.020		
2.2	0.498	10.4	0.070	30.0	0.010	50.5	0.104	71.0	0.017		

Remarks: