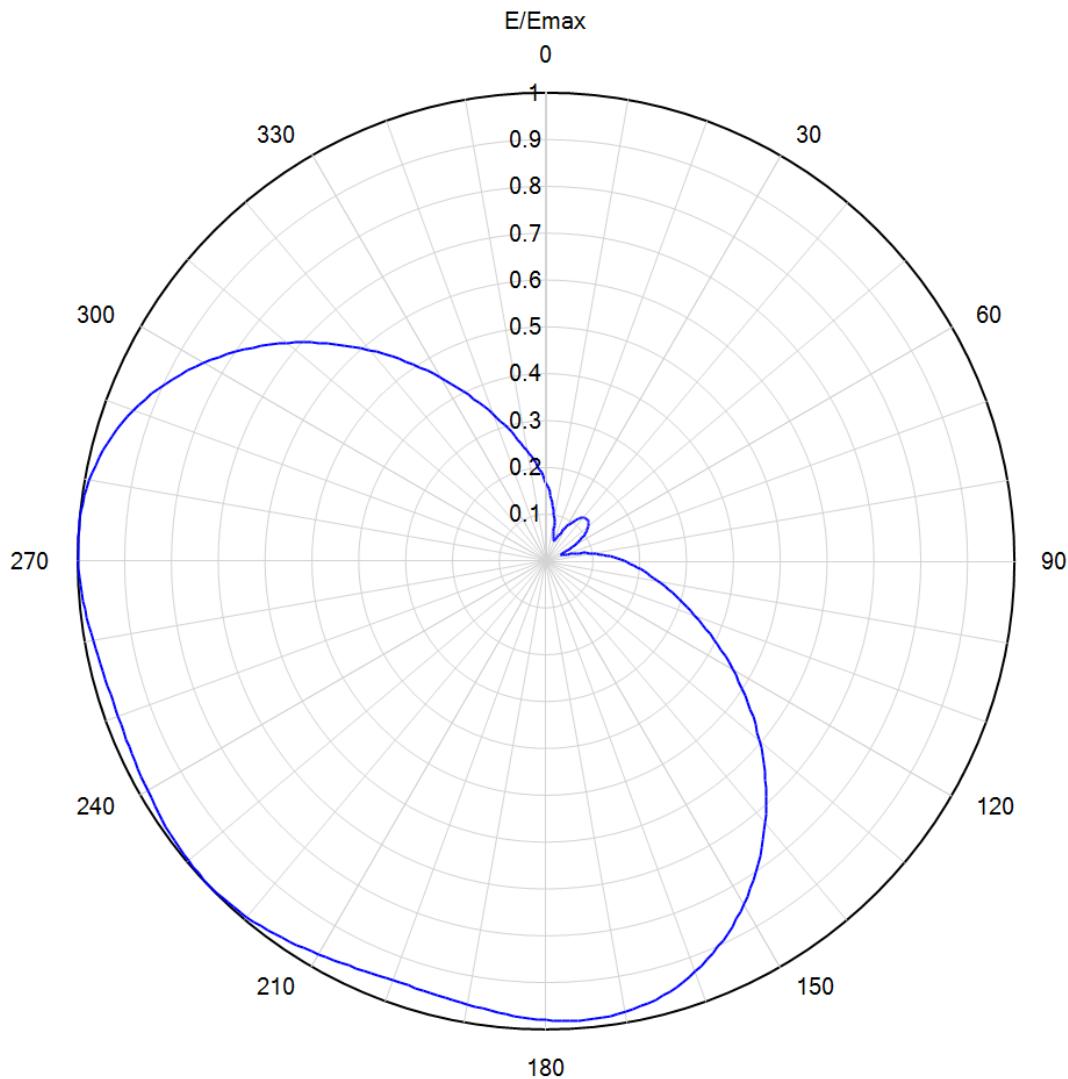




Azimuth Pattern



Model:	SAA20-KDTV-E600-ET5R-20	Polarization:	<u>Horizontal</u>
Location:		Frequency:	509.00 MHz
Customer:		Directivity:	2.1 (3.18 dB)
Date:	February 22, 2019	Elevation Angle:	1.50 degrees
Rotation Angle:	225 degrees	Horizontal Unit Pattern:	
Note: Pattern Tolerance +/-5% of Emax		File = KDTV-HRP-HP.pat	



Model: **SAA20-KDTV-E600-ET5R-20**
 Location:
 Customer:
 Date: **February 22, 2019**

Polarization: **Horizontal**
 Frequency (MHz): **509.00**
 Directivity: **2.1 (3.18 dB)**
 Elevation Angle: **1.50 degrees**
 Rotation Angle: **225 degrees**

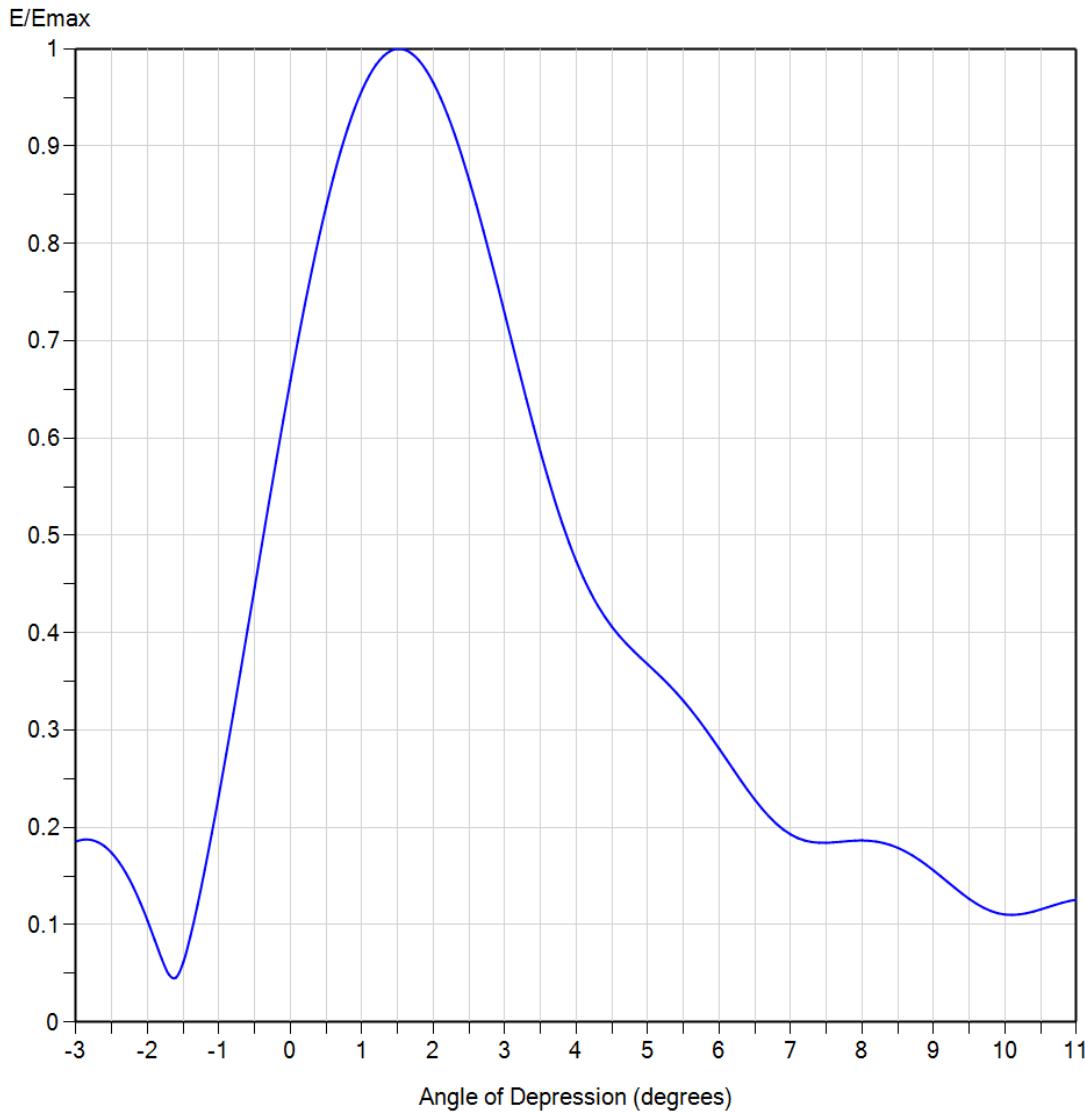


TABULATED AZIMUTH PATTERN

Angl	Field																
0	0.167	45	0.125	90	0.166	135	0.663	180	0.980	225	0.997	270	0.999	315	0.657		
1	0.160	46	0.125	91	0.174	136	0.676	181	0.979	226	0.998	271	0.999	316	0.643		
2	0.154	47	0.124	92	0.181	137	0.689	182	0.977	227	0.998	272	1.000	317	0.630		
3	0.147	48	0.122	93	0.188	138	0.702	183	0.975	228	0.998	273	1.000	318	0.616		
4	0.140	49	0.120	94	0.195	139	0.715	184	0.973	229	0.997	274	1.000	319	0.602		
5	0.133	50	0.118	95	0.203	140	0.728	185	0.971	230	0.997	275	0.999	320	0.588		
6	0.126	51	0.115	96	0.210	141	0.741	186	0.969	231	0.996	276	0.998	321	0.575		
7	0.119	52	0.112	97	0.218	142	0.753	187	0.967	232	0.995	277	0.997	322	0.561		
8	0.112	53	0.109	98	0.225	143	0.766	188	0.965	233	0.993	278	0.995	323	0.547		
9	0.105	54	0.105	99	0.233	144	0.778	189	0.963	234	0.992	279	0.993	324	0.534		
10	0.098	55	0.101	100	0.242	145	0.790	190	0.961	235	0.991	280	0.990	325	0.520		
11	0.091	56	0.096	101	0.250	146	0.801	191	0.959	236	0.989	281	0.987	326	0.507		
12	0.085	57	0.091	102	0.259	147	0.813	192	0.958	237	0.987	282	0.984	327	0.493		
13	0.078	58	0.086	103	0.268	148	0.824	193	0.956	238	0.986	283	0.980	328	0.480		
14	0.072	59	0.080	104	0.277	149	0.835	194	0.955	239	0.984	284	0.975	329	0.467		
15	0.066	60	0.075	105	0.286	150	0.846	195	0.954	240	0.982	285	0.970	330	0.454		
16	0.060	61	0.069	106	0.296	151	0.856	196	0.953	241	0.981	286	0.965	331	0.441		
17	0.055	62	0.063	107	0.306	152	0.866	197	0.953	242	0.979	287	0.959	332	0.428		
18	0.051	63	0.057	108	0.316	153	0.875	198	0.953	243	0.978	288	0.953	333	0.416		
19	0.048	64	0.052	109	0.327	154	0.885	199	0.953	244	0.976	289	0.946	334	0.403		
20	0.046	65	0.046	110	0.338	155	0.894	200	0.953	245	0.975	290	0.939	335	0.391		
21	0.046	66	0.042	111	0.349	156	0.902	201	0.954	246	0.974	291	0.931	336	0.380		
22	0.047	67	0.038	112	0.360	157	0.910	202	0.955	247	0.973	292	0.923	337	0.368		
23	0.049	68	0.035	113	0.372	158	0.918	203	0.956	248	0.973	293	0.914	338	0.357		
24	0.052	69	0.034	114	0.384	159	0.926	204	0.957	249	0.972	294	0.906	339	0.346		
25	0.056	70	0.035	115	0.396	160	0.933	205	0.959	250	0.972	295	0.896	340	0.335		
26	0.061	71	0.038	116	0.408	161	0.939	206	0.961	251	0.972	296	0.887	341	0.324		
27	0.066	72	0.042	117	0.420	162	0.945	207	0.963	252	0.972	297	0.877	342	0.314		
28	0.071	73	0.048	118	0.433	163	0.951	208	0.965	253	0.973	298	0.867	343	0.304		
29	0.076	74	0.054	119	0.446	164	0.956	209	0.967	254	0.974	299	0.856	344	0.294		
30	0.081	75	0.060	120	0.459	165	0.961	210	0.970	255	0.975	300	0.845	345	0.285		
31	0.086	76	0.067	121	0.472	166	0.965	211	0.972	256	0.976	301	0.834	346	0.275		
32	0.091	77	0.074	122	0.486	167	0.969	212	0.975	257	0.977	302	0.823	347	0.266		
33	0.096	78	0.081	123	0.499	168	0.972	213	0.977	258	0.979	303	0.811	348	0.258		
34	0.101	79	0.088	124	0.512	169	0.975	214	0.980	259	0.980	304	0.799	349	0.249		
35	0.105	80	0.095	125	0.526	170	0.977	215	0.982	260	0.982	305	0.787	350	0.241		
36	0.109	81	0.103	126	0.540	171	0.979	216	0.984	261	0.984	306	0.775	351	0.233		
37	0.112	82	0.110	127	0.553	172	0.981	217	0.987	262	0.986	307	0.762	352	0.225		
38	0.115	83	0.117	128	0.567	173	0.982	218	0.989	263	0.988	308	0.750	353	0.217		
39	0.118	84	0.124	129	0.581	174	0.983	219	0.991	264	0.990	309	0.737	354	0.210		
40	0.120	85	0.131	130	0.595	175	0.983	220	0.992	265	0.992	310	0.724	355	0.203		
41	0.122	86	0.138	131	0.608	176	0.983	221	0.994	266	0.993	311	0.711	356	0.195		
42	0.124	87	0.145	132	0.622	177	0.983	222	0.995	267	0.995	312	0.697	357	0.188		
43	0.124	88	0.152	133	0.636	178	0.982	223	0.996	268	0.996	313	0.684	358	0.181		
44	0.125	89	0.159	134	0.649	179	0.981	224	0.997	269	0.998	314	0.671	359	0.174		



Elevation Pattern

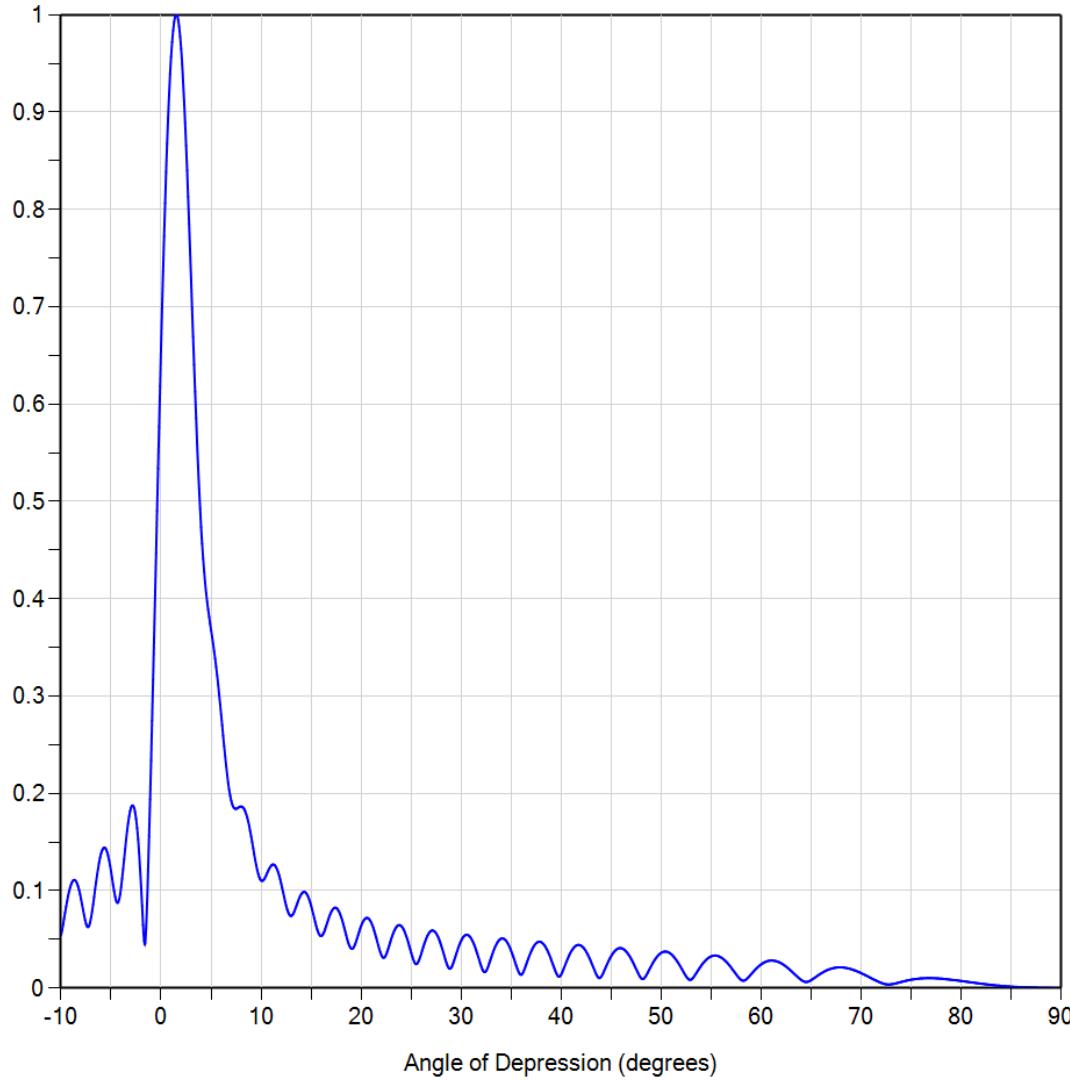


Model:	SAA20-KDTV-E600-ET5R-20	Frequency:	509.00 MHz
Polarization:	<u>Horizontal</u>	Directivity (Main Lobe):	18.8 (12.74 dBd)
Location:		Directivity (At Horizon):	8.2 (9.12 dBd)
Customer:		Beam Tilt:	1.50 degrees
Date:	February 22, 2019	Azimuth Angle:	154 degrees



Elevation Pattern

E/Emax



Model:	SAA20-KDTV-E600-ET5R-20	Frequency:	509.00 MHz
Polarization:	<u>Horizontal</u>	Directivity (Main Lobe):	18.8 (12.74 dBd)
Location:		Directivity (At Horizon):	8.2 (9.12 dBd)
Customer:		Beam Tilt:	1.50 degrees
Date:	February 22, 2019	Azimuth Angle:	154 degrees



Model: **SAA20-KDTV-E600-ET5R-20**
 Location:
 Customer:
 Date: **February 22, 2019**

Polarization: **Horizontal**
 Frequency (MHz): **509.00**
 Directivity (Main Lobe): **18.8 (12.74 dB)**
 Directivity (At Horizon): **8.2 (9.12 dB)**
 Beam Tilt: **1.50 degrees**

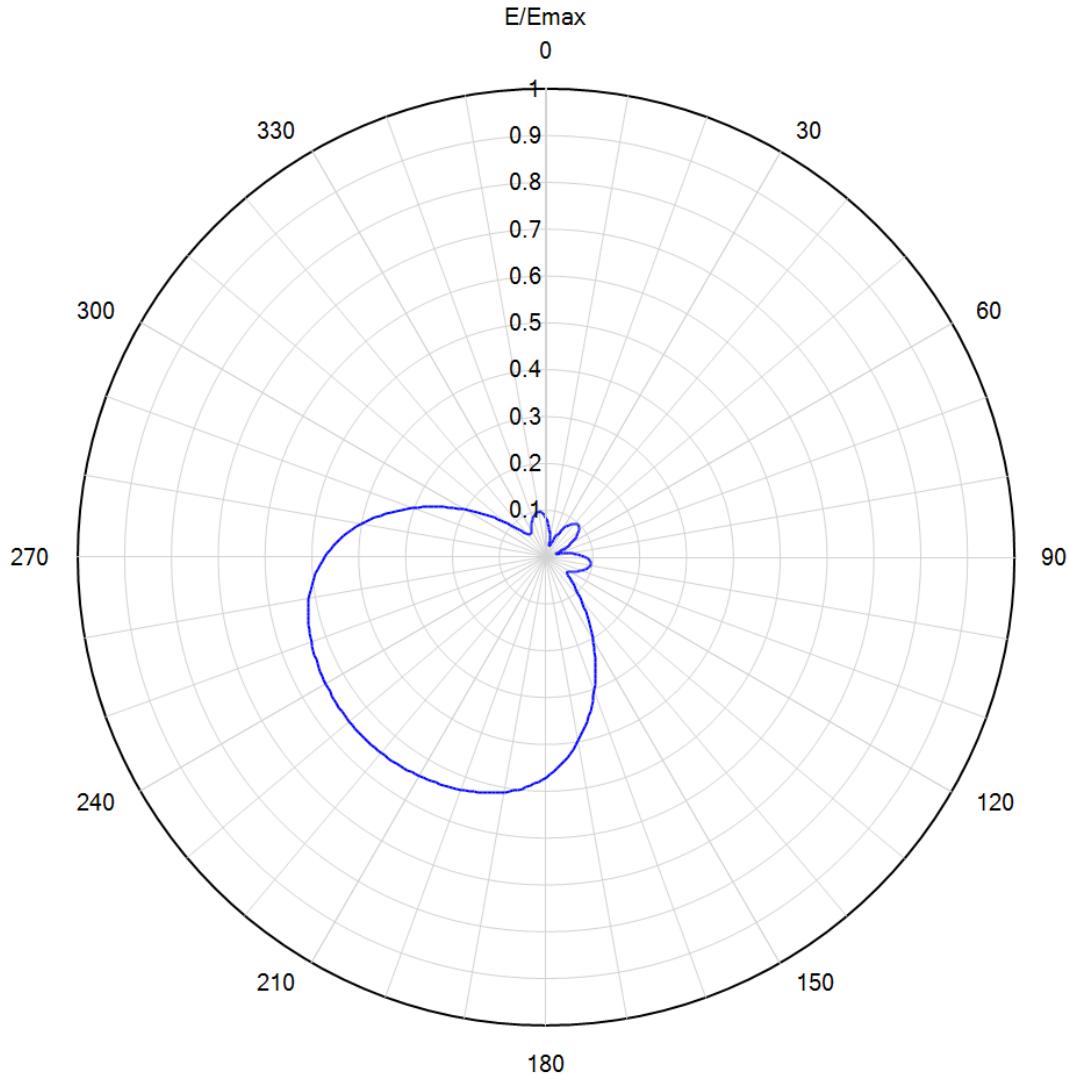


TABULATED ELEVATION PATTERN

Angle	Field										
-10.0	0.055	2.4	0.890	10.6	0.118	30.5	0.055	51.0	0.035	71.5	0.008
-9.5	0.084	2.6	0.840	10.8	0.123	31.0	0.051	51.5	0.029	72.0	0.005
-9.0	0.107	2.8	0.785	11.0	0.126	31.5	0.039	52.0	0.020	72.5	0.004
-8.5	0.110	3.0	0.728	11.5	0.124	32.0	0.022	52.5	0.012	73.0	0.004
-8.0	0.091	3.2	0.669	12.0	0.107	32.5	0.018	53.0	0.009	73.5	0.005
-7.5	0.066	3.4	0.613	12.5	0.085	33.0	0.031	53.5	0.015	74.0	0.006
-7.0	0.072	3.6	0.560	13.0	0.074	33.5	0.045	54.0	0.023	74.5	0.008
-6.5	0.109	3.8	0.513	13.5	0.084	34.0	0.051	54.5	0.029	75.0	0.009
-6.0	0.138	4.0	0.474	14.0	0.096	34.5	0.048	55.0	0.033	75.5	0.009
-5.5	0.143	4.2	0.441	14.5	0.098	35.0	0.038	55.5	0.033	76.0	0.010
-5.0	0.120	4.4	0.416	15.0	0.084	35.5	0.023	56.0	0.031	76.5	0.010
-4.5	0.090	4.6	0.397	15.5	0.064	36.0	0.014	56.5	0.027	77.0	0.010
-4.0	0.104	4.8	0.381	16.0	0.053	36.5	0.024	57.0	0.021	77.5	0.010
-3.5	0.152	5.0	0.368	16.5	0.064	37.0	0.038	57.5	0.014	78.0	0.010
-3.0	0.186	5.2	0.354	17.0	0.078	37.5	0.046	58.0	0.008	78.5	0.009
-2.8	0.187	5.4	0.338	17.5	0.082	38.0	0.047	58.5	0.009	79.0	0.009
-2.6	0.180	5.6	0.321	18.0	0.073	38.5	0.041	59.0	0.014	79.5	0.008
-2.4	0.164	5.8	0.302	18.5	0.054	39.0	0.029	59.5	0.020	80.0	0.007
-2.2	0.139	6.0	0.281	19.0	0.040	39.5	0.015	60.0	0.024	80.5	0.007
-2.0	0.104	6.2	0.259	19.5	0.048	40.0	0.014	60.5	0.027	81.0	0.006
-1.8	0.065	6.4	0.238	20.0	0.064	40.5	0.027	61.0	0.028	81.5	0.005
-1.6	0.046	6.6	0.219	20.5	0.072	41.0	0.038	61.5	0.028	82.0	0.004
-1.4	0.088	6.8	0.204	21.0	0.067	41.5	0.044	62.0	0.025	82.5	0.004
-1.2	0.156	7.0	0.193	21.5	0.052	42.0	0.043	62.5	0.022	83.0	0.003
-1.0	0.234	7.2	0.186	22.0	0.034	42.5	0.037	63.0	0.017	83.5	0.003
-0.8	0.317	7.4	0.184	22.5	0.034	43.0	0.026	63.5	0.013	84.0	0.002
-0.6	0.403	7.6	0.185	23.0	0.050	43.5	0.014	64.0	0.008	84.5	0.002
-0.4	0.491	7.8	0.186	23.5	0.062	44.0	0.012	64.5	0.006	85.0	0.001
-0.2	0.577	8.0	0.187	24.0	0.064	44.5	0.023	65.0	0.008	85.5	0.001
0.0	0.659	8.2	0.185	24.5	0.054	45.0	0.033	65.5	0.012	86.0	0.001
0.2	0.737	8.4	0.182	25.0	0.036	45.5	0.039	66.0	0.015	86.5	0.001
0.4	0.806	8.6	0.176	25.5	0.025	46.0	0.041	66.5	0.018	87.0	0.000
0.6	0.867	8.8	0.167	26.0	0.035	46.5	0.037	67.0	0.020	87.5	0.000
0.8	0.918	9.0	0.156	26.5	0.051	47.0	0.030	67.5	0.021	88.0	0.000
1.0	0.957	9.2	0.144	27.0	0.059	47.5	0.019	68.0	0.021	88.5	0.000
1.2	0.984	9.4	0.132	27.5	0.056	48.0	0.010	68.5	0.021	89.0	0.000
1.4	0.998	9.6	0.122	28.0	0.044	48.5	0.013	69.0	0.019	89.5	0.000
1.6	0.999	9.8	0.114	28.5	0.027	49.0	0.023	69.5	0.017	90.0	0.000
1.8	0.988	10.0	0.110	29.0	0.021	49.5	0.031	70.0	0.015		
2.0	0.965	10.2	0.111	29.5	0.035	50.0	0.036	70.5	0.013		
2.2	0.932	10.4	0.114	30.0	0.049	50.5	0.037	71.0	0.010		



Azimuth Pattern



Model:	SAA20-KDTV-E600-ET5R-20	Polarization:	<u>Vertical</u>
Location:		Frequency:	509.00 MHz
Customer:		Directivity:	3.2 (4.99 dB)
Date:	February 22, 2019	Elevation Angle:	1.50 degrees
Rotation Angle:	225 degrees	Horizontal Unit Pattern:	

Note: Pattern Tolerance +/-5% of Emax
Peak directivity figure is shown
File = KDTV-HRP-VP.pat



Model: **SAA20-KDTV-E600-ET5R-20**
 Location:
 Customer:
 Date: **February 22, 2019**

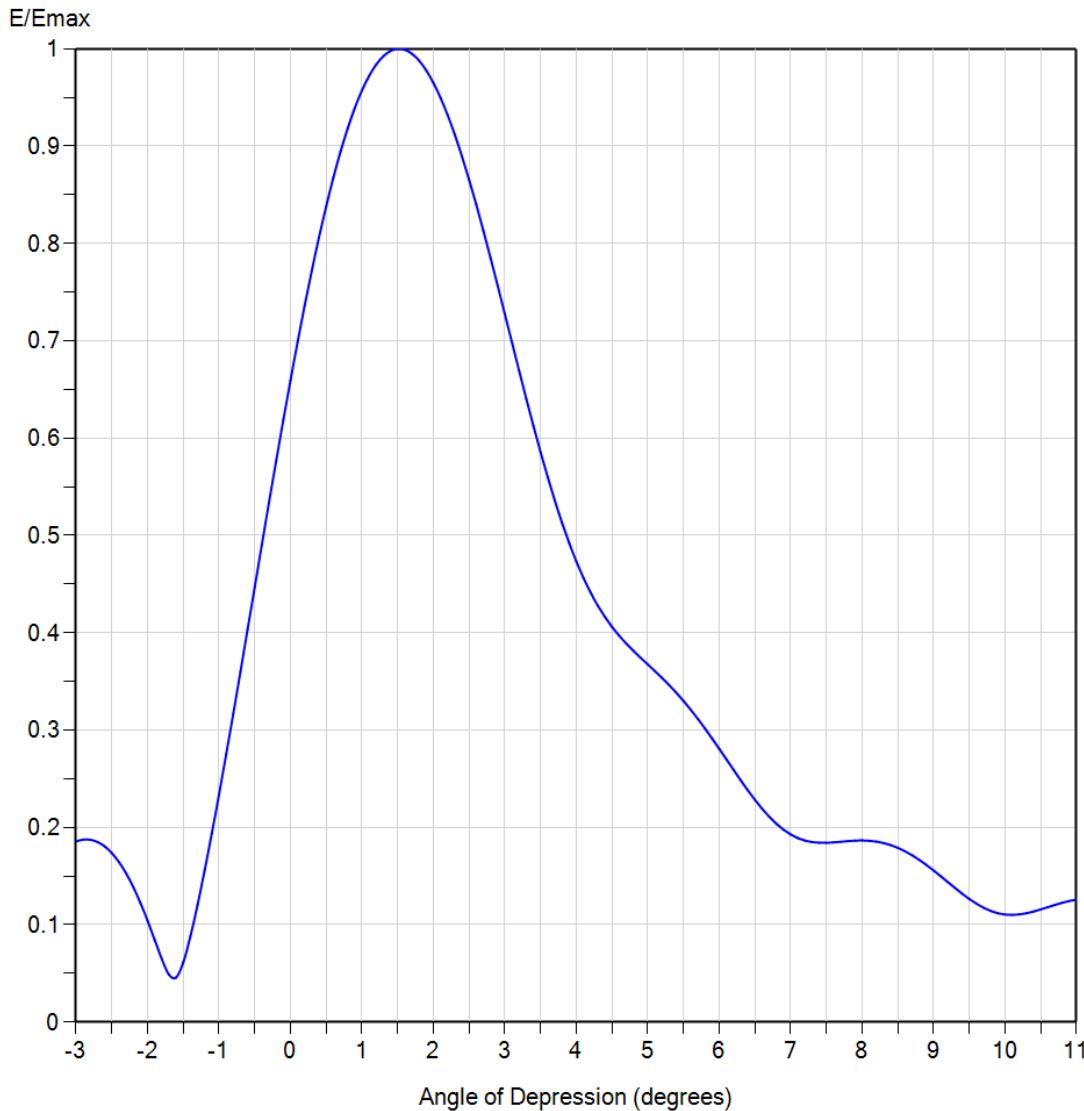
Polarization: **Vertical**
 Frequency (MHz): **509.00**
 Directivity: **3.2 (4.99 dB)**
 Elevation Angle: **1.50 degrees**
 Rotation Angle: **225 degrees**

TABULATED AZIMUTH PATTERN

Angl	Field																
0	0.083	45	0.097	90	0.083	135	0.081	180	0.470	225	0.548	270	0.473	315	0.085		
1	0.080	46	0.096	91	0.086	136	0.087	181	0.475	226	0.548	271	0.468	316	0.080		
2	0.077	47	0.096	92	0.088	137	0.093	182	0.480	227	0.548	272	0.462	317	0.076		
3	0.073	48	0.095	93	0.090	138	0.099	183	0.485	228	0.548	273	0.455	318	0.072		
4	0.070	49	0.094	94	0.093	139	0.106	184	0.489	229	0.548	274	0.449	319	0.068		
5	0.066	50	0.093	95	0.094	140	0.113	185	0.493	230	0.547	275	0.442	320	0.065		
6	0.062	51	0.091	96	0.096	141	0.120	186	0.497	231	0.547	276	0.434	321	0.063		
7	0.058	52	0.089	97	0.097	142	0.128	187	0.501	232	0.547	277	0.426	322	0.061		
8	0.054	53	0.087	98	0.097	143	0.136	188	0.504	233	0.547	278	0.419	323	0.060		
9	0.050	54	0.084	99	0.097	144	0.144	189	0.507	234	0.546	279	0.410	324	0.059		
10	0.046	55	0.082	100	0.097	145	0.153	190	0.510	235	0.546	280	0.402	325	0.059		
11	0.041	56	0.079	101	0.096	146	0.162	191	0.513	236	0.545	281	0.393	326	0.059		
12	0.037	57	0.075	102	0.096	147	0.171	192	0.515	237	0.545	282	0.384	327	0.060		
13	0.034	58	0.072	103	0.095	148	0.180	193	0.517	238	0.544	283	0.375	328	0.061		
14	0.031	59	0.068	104	0.094	149	0.189	194	0.519	239	0.543	284	0.365	329	0.062		
15	0.028	60	0.065	105	0.092	150	0.199	195	0.521	240	0.543	285	0.355	330	0.064		
16	0.026	61	0.061	106	0.091	151	0.209	196	0.523	241	0.542	286	0.345	331	0.066		
17	0.025	62	0.057	107	0.089	152	0.219	197	0.525	242	0.541	287	0.335	332	0.068		
18	0.026	63	0.053	108	0.087	153	0.229	198	0.526	243	0.540	288	0.325	333	0.070		
19	0.027	64	0.049	109	0.086	154	0.239	199	0.528	244	0.540	289	0.315	334	0.072		
20	0.029	65	0.045	110	0.084	155	0.250	200	0.529	245	0.539	290	0.305	335	0.074		
21	0.032	66	0.041	111	0.081	156	0.260	201	0.530	246	0.538	291	0.294	336	0.076		
22	0.035	67	0.037	112	0.079	157	0.270	202	0.532	247	0.537	292	0.284	337	0.078		
23	0.039	68	0.033	113	0.077	158	0.281	203	0.533	248	0.536	293	0.274	338	0.081		
24	0.043	69	0.030	114	0.075	159	0.291	204	0.534	249	0.534	294	0.263	339	0.083		
25	0.047	70	0.027	115	0.072	160	0.302	205	0.535	250	0.533	295	0.253	340	0.085		
26	0.050	71	0.025	116	0.070	161	0.312	206	0.536	251	0.532	296	0.243	341	0.087		
27	0.054	72	0.023	117	0.068	162	0.322	207	0.537	252	0.530	297	0.232	342	0.089		
28	0.058	73	0.023	118	0.066	163	0.332	208	0.538	253	0.529	298	0.222	343	0.090		
29	0.062	74	0.024	119	0.063	164	0.343	209	0.539	254	0.527	299	0.212	344	0.092		
30	0.066	75	0.026	120	0.061	165	0.352	210	0.540	255	0.525	300	0.203	345	0.093		
31	0.070	76	0.029	121	0.060	166	0.362	211	0.541	256	0.524	301	0.193	346	0.094		
32	0.073	77	0.033	122	0.058	167	0.372	212	0.541	257	0.521	302	0.183	347	0.095		
33	0.076	78	0.036	123	0.057	168	0.381	213	0.542	258	0.519	303	0.174	348	0.096		
34	0.080	79	0.040	124	0.056	169	0.390	214	0.543	259	0.517	304	0.165	349	0.097		
35	0.082	80	0.045	125	0.055	170	0.399	215	0.544	260	0.514	305	0.156	350	0.097		
36	0.085	81	0.049	126	0.055	171	0.407	216	0.544	261	0.511	306	0.148	351	0.097		
37	0.087	82	0.053	127	0.056	172	0.415	217	0.545	262	0.508	307	0.140	352	0.097		
38	0.090	83	0.058	128	0.057	173	0.423	218	0.546	263	0.505	308	0.132	353	0.097		
39	0.092	84	0.062	129	0.059	174	0.431	219	0.546	264	0.501	309	0.124	354	0.096		
40	0.093	85	0.066	130	0.061	175	0.438	220	0.546	265	0.497	310	0.117	355	0.095		
41	0.094	86	0.069	131	0.064	176	0.445	221	0.547	266	0.493	311	0.110	356	0.093		
42	0.096	87	0.073	132	0.068	177	0.452	222	0.547	267	0.489	312	0.103	357	0.091		
43	0.096	88	0.076	133	0.072	178	0.458	223	0.547	268	0.484	313	0.097	358	0.089		
44	0.097	89	0.080	134	0.076	179	0.464	224	0.548	269	0.479	314	0.091	359	0.086		



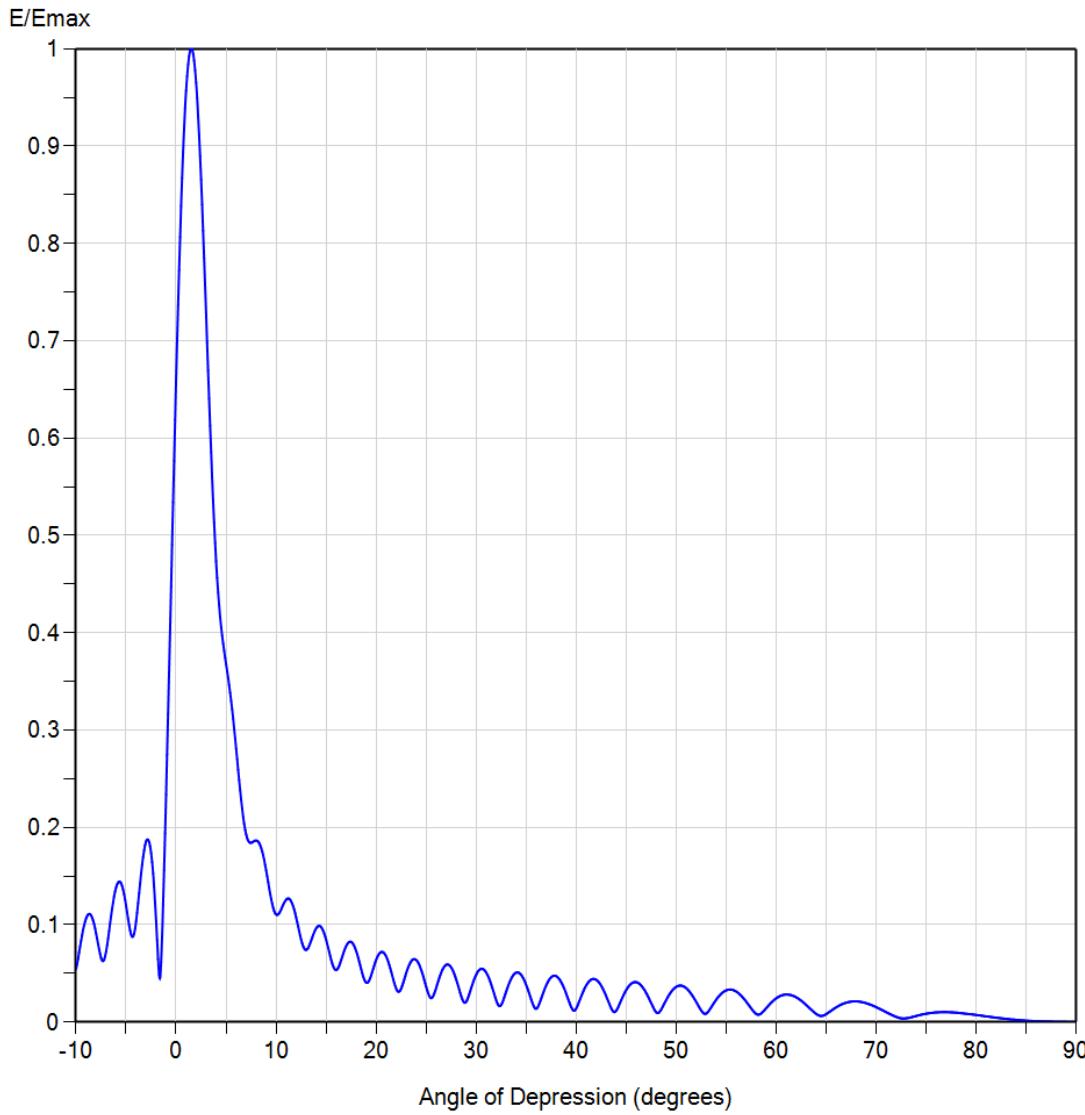
Elevation Pattern



Model:	SAA20-KDTV-E600-ET5R-20	Frequency:	509.00 MHz
Polarization:	<u>Vertical</u>	Directivity (Main Lobe):	18.8 (12.74 dBd)
Location:		Directivity (At Horizon):	8.2 (9.12 dBd)
Customer:		Beam Tilt:	1.50 degrees
Date:	February 22, 2019	Azimuth Angle:	225 degrees



Elevation Pattern



Model:	SAA20-KDTV-E600-ET5R-20	Frequency:	509.00 MHz
Polarization:	<u>Vertical</u>	Directivity (Main Lobe):	18.8 (12.74 dBd)
Location:		Directivity (At Horizon):	8.2 (9.12 dBd)
Customer:		Beam Tilt:	1.50 degrees
Date:	February 22, 2019	Azimuth Angle:	225 degrees



Model: **SAA20-KDTV-E600-ET5R-20**
 Location:
 Customer:
 Date: **February 22, 2019**

Polarization: **Vertical**
 Frequency (MHz): **509.00**
 Directivity (Main Lobe): **18.8 (12.74 dB)**
 Directivity (At Horizon): **8.2 (9.12 dB)**
 Beam Tilt: **1.50 degrees**



TABULATED ELEVATION PATTERN

Angle	Field										
-10.0	0.055	2.4	0.890	10.6	0.118	30.5	0.055	51.0	0.035	71.5	0.008
-9.5	0.084	2.6	0.840	10.8	0.123	31.0	0.051	51.5	0.029	72.0	0.005
-9.0	0.107	2.8	0.785	11.0	0.126	31.5	0.039	52.0	0.020	72.5	0.004
-8.5	0.110	3.0	0.728	11.5	0.124	32.0	0.022	52.5	0.012	73.0	0.004
-8.0	0.091	3.2	0.669	12.0	0.107	32.5	0.018	53.0	0.009	73.5	0.005
-7.5	0.066	3.4	0.613	12.5	0.085	33.0	0.031	53.5	0.015	74.0	0.006
-7.0	0.072	3.6	0.560	13.0	0.074	33.5	0.045	54.0	0.023	74.5	0.008
-6.5	0.109	3.8	0.513	13.5	0.084	34.0	0.051	54.5	0.029	75.0	0.009
-6.0	0.138	4.0	0.474	14.0	0.096	34.5	0.048	55.0	0.033	75.5	0.009
-5.5	0.143	4.2	0.441	14.5	0.098	35.0	0.038	55.5	0.033	76.0	0.010
-5.0	0.120	4.4	0.416	15.0	0.084	35.5	0.023	56.0	0.031	76.5	0.010
-4.5	0.090	4.6	0.397	15.5	0.064	36.0	0.014	56.5	0.027	77.0	0.010
-4.0	0.104	4.8	0.381	16.0	0.053	36.5	0.024	57.0	0.021	77.5	0.010
-3.5	0.152	5.0	0.368	16.5	0.064	37.0	0.038	57.5	0.014	78.0	0.010
-3.0	0.186	5.2	0.354	17.0	0.078	37.5	0.046	58.0	0.008	78.5	0.009
-2.8	0.187	5.4	0.338	17.5	0.082	38.0	0.047	58.5	0.009	79.0	0.009
-2.6	0.180	5.6	0.321	18.0	0.073	38.5	0.041	59.0	0.014	79.5	0.008
-2.4	0.164	5.8	0.302	18.5	0.054	39.0	0.029	59.5	0.020	80.0	0.007
-2.2	0.139	6.0	0.281	19.0	0.040	39.5	0.015	60.0	0.024	80.5	0.007
-2.0	0.104	6.2	0.259	19.5	0.048	40.0	0.014	60.5	0.027	81.0	0.006
-1.8	0.065	6.4	0.238	20.0	0.064	40.5	0.027	61.0	0.028	81.5	0.005
-1.6	0.046	6.6	0.219	20.5	0.072	41.0	0.038	61.5	0.028	82.0	0.004
-1.4	0.088	6.8	0.204	21.0	0.067	41.5	0.044	62.0	0.025	82.5	0.004
-1.2	0.156	7.0	0.193	21.5	0.052	42.0	0.043	62.5	0.022	83.0	0.003
-1.0	0.234	7.2	0.186	22.0	0.034	42.5	0.037	63.0	0.017	83.5	0.003
-0.8	0.317	7.4	0.184	22.5	0.034	43.0	0.026	63.5	0.013	84.0	0.002
-0.6	0.403	7.6	0.185	23.0	0.050	43.5	0.014	64.0	0.008	84.5	0.002
-0.4	0.491	7.8	0.186	23.5	0.062	44.0	0.012	64.5	0.006	85.0	0.001
-0.2	0.577	8.0	0.187	24.0	0.064	44.5	0.023	65.0	0.008	85.5	0.001
0.0	0.659	8.2	0.185	24.5	0.054	45.0	0.033	65.5	0.012	86.0	0.001
0.2	0.737	8.4	0.182	25.0	0.036	45.5	0.039	66.0	0.015	86.5	0.001
0.4	0.806	8.6	0.176	25.5	0.025	46.0	0.041	66.5	0.018	87.0	0.000
0.6	0.867	8.8	0.167	26.0	0.035	46.5	0.037	67.0	0.020	87.5	0.000
0.8	0.918	9.0	0.156	26.5	0.051	47.0	0.030	67.5	0.021	88.0	0.000
1.0	0.957	9.2	0.144	27.0	0.059	47.5	0.019	68.0	0.021	88.5	0.000
1.2	0.984	9.4	0.132	27.5	0.056	48.0	0.010	68.5	0.021	89.0	0.000
1.4	0.998	9.6	0.122	28.0	0.044	48.5	0.013	69.0	0.019	89.5	0.000
1.6	0.999	9.8	0.114	28.5	0.027	49.0	0.023	69.5	0.017	90.0	0.000
1.8	0.988	10.0	0.110	29.0	0.021	49.5	0.031	70.0	0.015		
2.0	0.965	10.2	0.111	29.5	0.035	50.0	0.036	70.5	0.013		
2.2	0.932	10.4	0.114	30.0	0.049	50.5	0.037	71.0	0.010		