

Antenna Radiation Pattern Data

prepared 01/17/2019 for

UniMas Partnership of Phoenix

K16FB-D Globe, AZ

Ch 18 10 kW-DA 1001 m

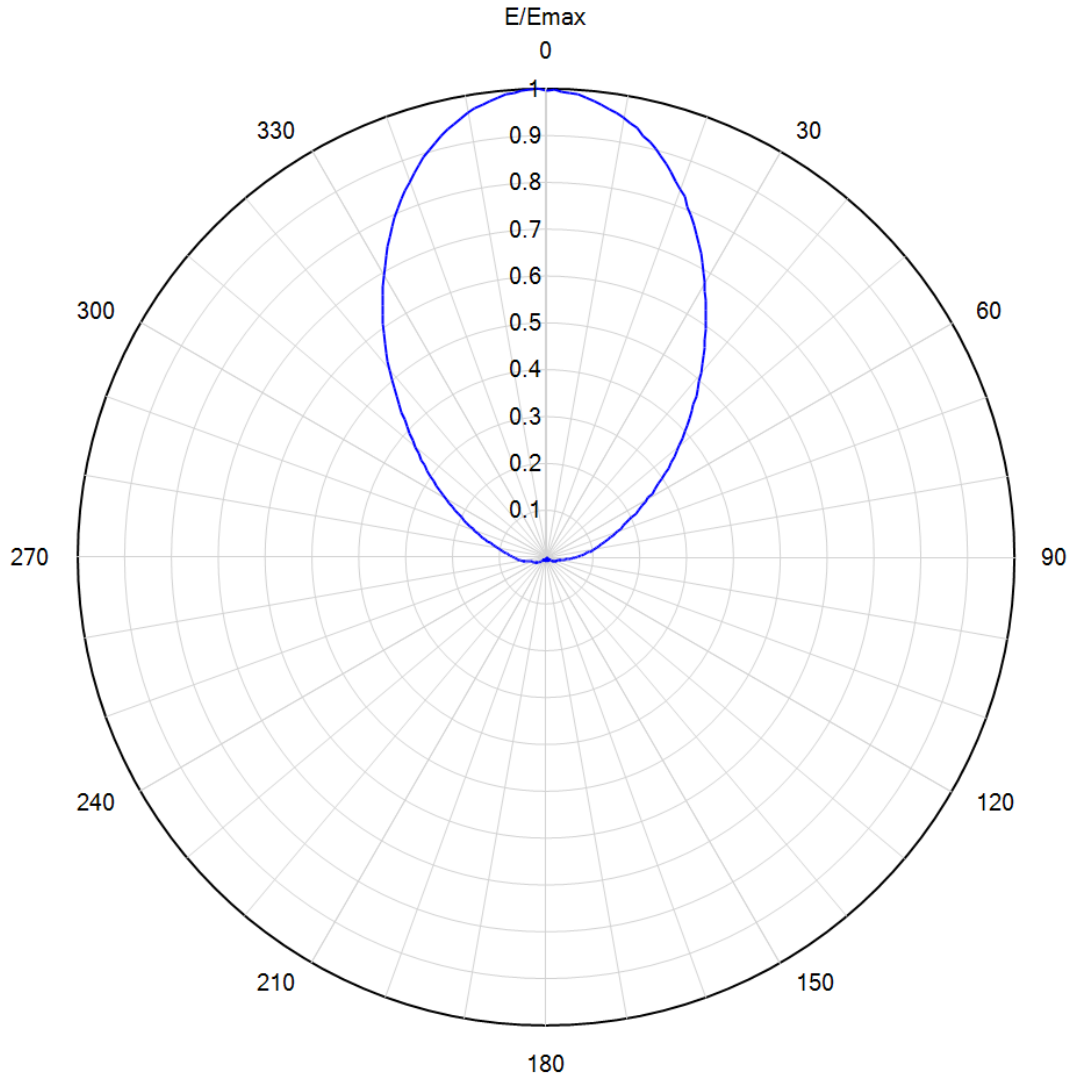
The RFS PEPL-3A antenna proposed for use by K16FB-D comprises three stacked antenna panels. Rearward radiation is highly suppressed, being the vector sum of panel reflector screen leakage and scatter around the screen edges. Consequently, the radiation values (suppressed > 21 dB) for angles 90° and farther from the antenna lobe centerline vary considerably, with the vertically polarized component sometimes exceeding the horizontally polarized component. By the random nature of radiation within this suppression zone, it is not possible to guarantee that the vertically-polarized component of actual radiation will not exceed the horizontally-polarized component within that wide sector.

The radiation values shown on the Application for Minor Modification, from 90° through 260° from the lobe center bearing, are “envelope”, “not to exceed” values that accommodate both the horizontally- and vertically-polarized components. The suppression specified within much of this sector averages 35 dB.

The attached RFS antenna data is for the actual antenna, not the “envelope” pattern specified in the Form.



Azimuth Pattern



Model: PEPL3A
Location: Globe, AZ.
Customer: Univision Communications, Inc.
Date: January 16, 2019
Rotation Angle: 0 degrees

Polarization: Horizontal
Frequency: 497.00 MHz
Directivity: 5.8 (7.64 dB)
Elevation Angle: 2.00 degrees
Horizontal Unit Pattern:
File = az_h_imm_unit_497.pat

Note: Pattern Tolerance +/-5% of Emax



Model: **PEPL3A**
Location: **Globe, AZ.**
Customer: **Univision Communications,**
Date: **January 16, 2019**

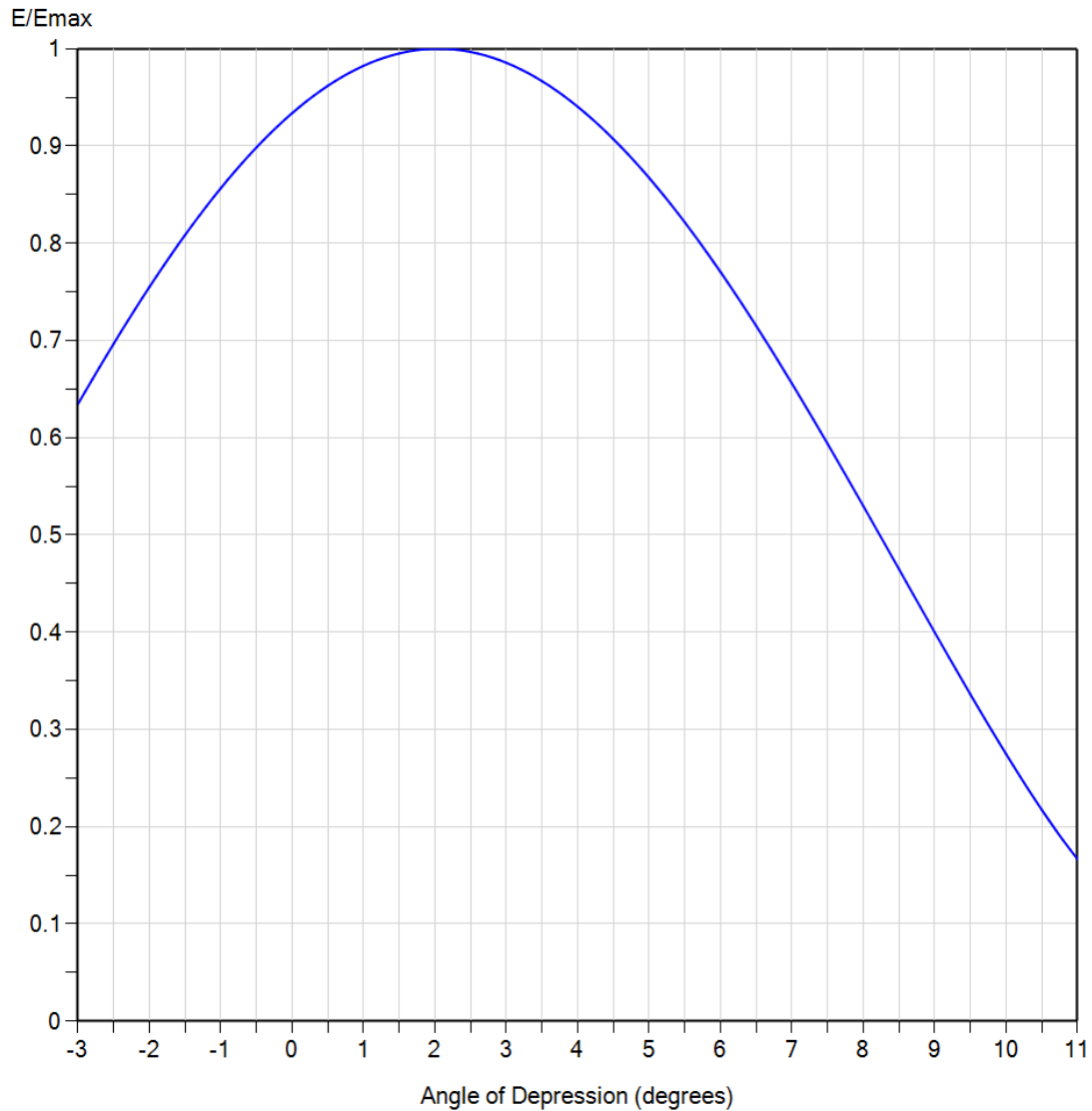
Polarization: **Horizontal**
Frequency (MHz): **497.00**
Directivity: **5.8 (7.64 dB)**
Elevation Angle: **2.00 degrees**
Rotation Angle: **0 degrees**

TABULATED AZIMUTH PATTERN

Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field
0	0.995	45	0.442	90	0.066	135	0.006	180	0.009	225	0.008	270	0.072	315	0.437
1	0.998	46	0.426	91	0.062	136	0.003	181	0.008	226	0.010	271	0.074	316	0.452
2	0.993	47	0.413	92	0.057	137	0.004	182	0.009	227	0.009	272	0.075	317	0.469
3	0.991	48	0.400	93	0.055	138	0.004	183	0.009	228	0.012	273	0.077	318	0.484
4	0.990	49	0.385	94	0.053	139	0.005	184	0.008	229	0.013	274	0.082	319	0.502
5	0.984	50	0.372	95	0.048	140	0.005	185	0.010	230	0.015	275	0.083	320	0.519
6	0.978	51	0.361	96	0.047	141	0.010	186	0.008	231	0.017	276	0.087	321	0.536
7	0.974	52	0.347	97	0.042	142	0.007	187	0.007	232	0.019	277	0.091	322	0.553
8	0.965	53	0.334	98	0.040	143	0.010	188	0.006	233	0.018	278	0.093	323	0.570
9	0.961	54	0.322	99	0.039	144	0.009	189	0.007	234	0.020	279	0.098	324	0.590
10	0.952	55	0.312	100	0.036	145	0.007	190	0.008	235	0.022	280	0.102	325	0.607
11	0.944	56	0.299	101	0.035	146	0.011	191	0.007	236	0.021	281	0.107	326	0.624
12	0.935	57	0.286	102	0.034	147	0.011	192	0.009	237	0.023	282	0.111	327	0.641
13	0.923	58	0.274	103	0.031	148	0.009	193	0.007	238	0.024	283	0.117	328	0.659
14	0.913	59	0.264	104	0.031	149	0.009	194	0.008	239	0.025	284	0.122	329	0.676
15	0.903	60	0.252	105	0.027	150	0.011	195	0.006	240	0.024	285	0.129	330	0.693
16	0.890	61	0.242	106	0.027	151	0.012	196	0.006	241	0.023	286	0.135	331	0.711
17	0.877	62	0.233	107	0.027	152	0.009	197	0.008	242	0.024	287	0.140	332	0.728
18	0.865	63	0.222	108	0.026	153	0.010	198	0.008	243	0.027	288	0.147	333	0.745
19	0.849	64	0.214	109	0.024	154	0.010	199	0.005	244	0.026	289	0.153	334	0.760
20	0.836	65	0.202	110	0.024	155	0.006	200	0.006	245	0.026	290	0.161	335	0.778
21	0.824	66	0.194	111	0.022	156	0.009	201	0.008	246	0.028	291	0.167	336	0.794
22	0.807	67	0.186	112	0.025	157	0.007	202	0.006	247	0.027	292	0.175	337	0.809
23	0.793	68	0.178	113	0.024	158	0.007	203	0.010	248	0.030	293	0.185	338	0.824
24	0.775	69	0.171	114	0.020	159	0.007	204	0.008	249	0.031	294	0.193	339	0.838
25	0.759	70	0.162	115	0.023	160	0.007	205	0.007	250	0.031	295	0.200	340	0.852
26	0.744	71	0.157	116	0.021	161	0.006	206	0.009	251	0.030	296	0.209	341	0.866
27	0.727	72	0.150	117	0.021	162	0.002	207	0.008	252	0.034	297	0.218	342	0.880
28	0.710	73	0.144	118	0.018	163	0.002	208	0.008	253	0.035	298	0.227	343	0.893
29	0.693	74	0.138	119	0.018	164	0.003	209	0.007	254	0.037	299	0.237	344	0.905
30	0.676	75	0.131	120	0.016	165	0.003	210	0.008	255	0.040	300	0.246	345	0.915
31	0.660	76	0.126	121	0.020	166	0.002	211	0.007	256	0.042	301	0.257	346	0.926
32	0.644	77	0.122	122	0.016	167	0.002	212	0.007	257	0.044	302	0.267	347	0.936
33	0.627	78	0.116	123	0.018	168	0.004	213	0.006	258	0.049	303	0.278	348	0.945
34	0.609	79	0.111	124	0.013	169	0.005	214	0.008	259	0.047	304	0.289	349	0.954
35	0.594	80	0.107	125	0.014	170	0.008	215	0.008	260	0.051	305	0.300	350	0.964
36	0.575	81	0.103	126	0.013	171	0.005	216	0.007	261	0.052	306	0.314	351	0.971
37	0.561	82	0.098	127	0.010	172	0.008	217	0.007	262	0.054	307	0.325	352	0.975
38	0.545	83	0.094	128	0.008	173	0.007	218	0.007	263	0.057	308	0.337	353	0.982
39	0.530	84	0.090	129	0.010	174	0.007	219	0.007	264	0.060	309	0.350	354	0.986
40	0.514	85	0.085	130	0.005	175	0.010	220	0.007	265	0.061	310	0.365	355	0.991
41	0.499	86	0.081	131	0.005	176	0.008	221	0.006	266	0.064	311	0.378	356	0.993
42	0.483	87	0.076	132	0.004	177	0.008	222	0.008	267	0.064	312	0.394	357	0.997
43	0.469	88	0.073	133	0.003	178	0.009	223	0.007	268	0.066	313	0.407	358	0.999
44	0.453	89	0.068	134	0.003	179	0.008	224	0.006	269	0.069	314	0.421	359	1.000



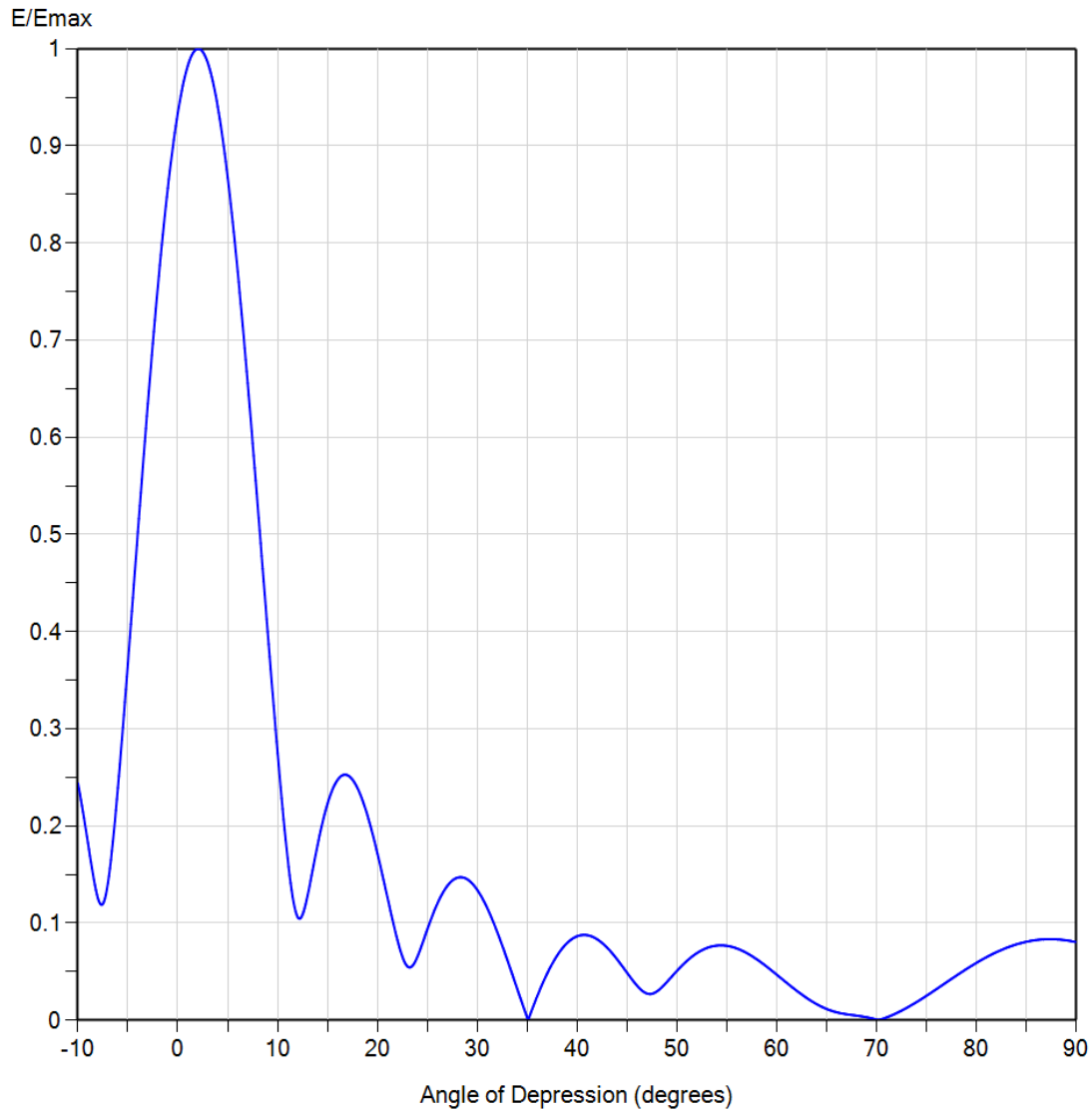
Elevation Pattern



Model:	PEPL3A	Frequency:	497.00 MHz
Polarization:	<u>Horizontal</u>	Directivity (Main Lobe):	6.4 (8.05 dBd)
Location:	Globe, AZ.	Directivity (At Horizon):	5.6 (7.46 dBd)
Customer:	Univision Communications, Inc.	Beam Tilt:	2.00 degrees
Date:	January 16, 2019	Azimuth Angle:	359 degrees



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Location: **Globe, AZ.**
Customer: **Univision Communications,**
Date: **January 16, 2019**

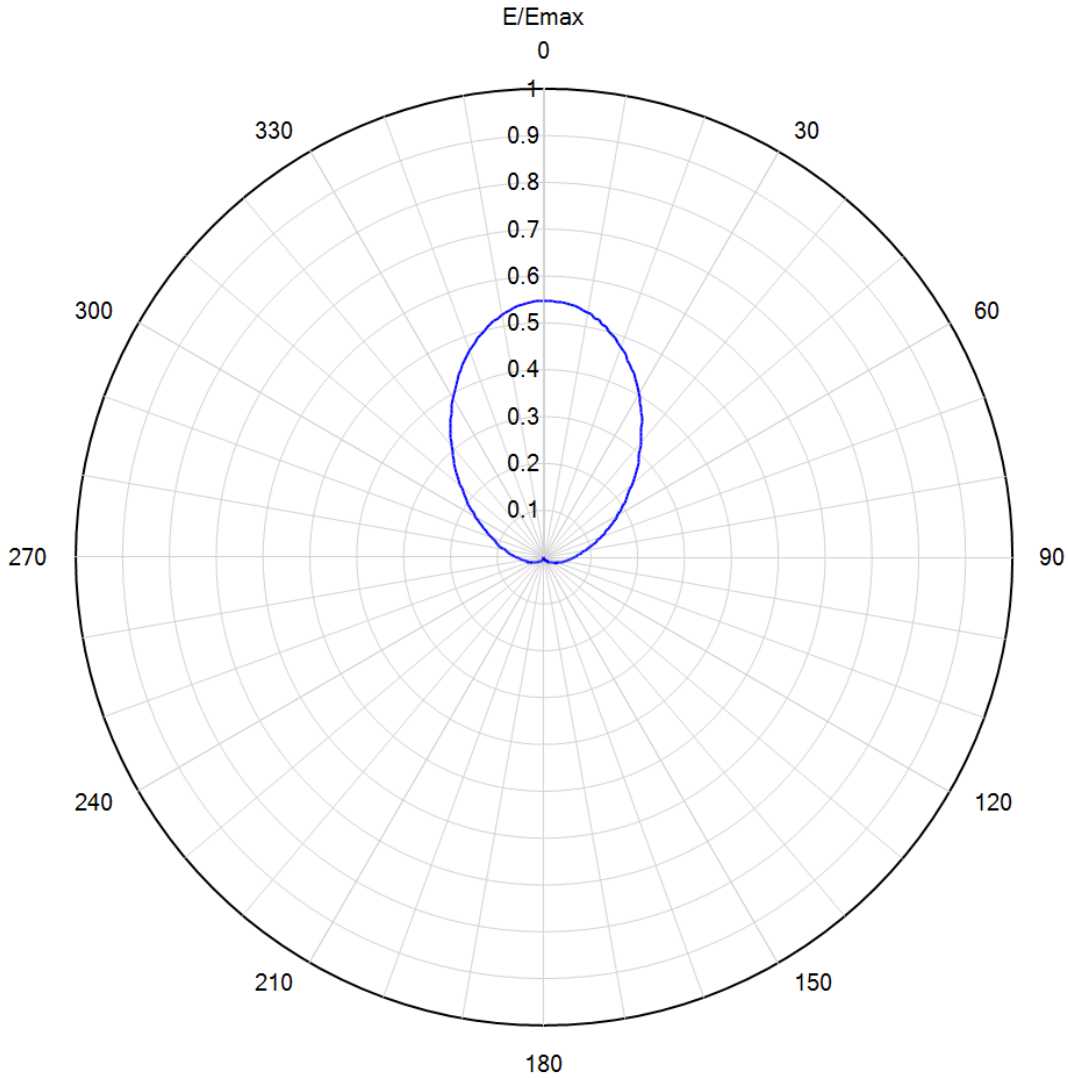
Polarization: **Horizontal**
Frequency (MHz): **497.00**
Directivity (Main Lobe): **6.4 (8.05 dB)**
Directivity (At Horizon): **5.6 (7.46 dB)**
Beam Tilt: **2.00 degrees**

TABULATED ELEVATION PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.244	2.4	0.998	10.6	0.207	30.5	0.126	51.0	0.061	71.5	0.005
-9.5	0.215	2.6	0.995	10.8	0.186	31.0	0.115	51.5	0.065	72.0	0.007
-9.0	0.182	2.8	0.991	11.0	0.167	31.5	0.104	52.0	0.069	72.5	0.010
-8.5	0.150	3.0	0.986	11.5	0.127	32.0	0.091	52.5	0.072	73.0	0.013
-8.0	0.126	3.2	0.979	12.0	0.106	32.5	0.077	53.0	0.074	73.5	0.016
-7.5	0.120	3.4	0.971	12.5	0.109	33.0	0.062	53.5	0.076	74.0	0.019
-7.0	0.141	3.6	0.962	13.0	0.128	33.5	0.047	54.0	0.077	74.5	0.022
-6.5	0.184	3.8	0.952	13.5	0.154	34.0	0.032	54.5	0.077	75.0	0.025
-6.0	0.239	4.0	0.940	14.0	0.180	34.5	0.017	55.0	0.077	75.5	0.029
-5.5	0.301	4.2	0.928	14.5	0.204	35.0	0.003	55.5	0.075	76.0	0.032
-5.0	0.367	4.4	0.914	15.0	0.223	35.5	0.012	56.0	0.074	76.5	0.036
-4.5	0.435	4.6	0.900	15.5	0.238	36.0	0.025	56.5	0.072	77.0	0.039
-4.0	0.503	4.8	0.884	16.0	0.247	36.5	0.037	57.0	0.069	77.5	0.043
-3.5	0.570	5.0	0.867	16.5	0.252	37.0	0.048	57.5	0.066	78.0	0.046
-3.0	0.635	5.2	0.850	17.0	0.252	37.5	0.058	58.0	0.063	78.5	0.049
-2.8	0.660	5.4	0.831	17.5	0.248	38.0	0.067	58.5	0.059	79.0	0.053
-2.6	0.685	5.6	0.812	18.0	0.239	38.5	0.074	59.0	0.055	79.5	0.056
-2.4	0.709	5.8	0.791	18.5	0.226	39.0	0.080	59.5	0.051	80.0	0.059
-2.2	0.732	6.0	0.771	19.0	0.211	39.5	0.084	60.0	0.047	80.5	0.062
-2.0	0.755	6.2	0.749	19.5	0.192	40.0	0.086	60.5	0.043	81.0	0.065
-1.8	0.777	6.4	0.726	20.0	0.171	40.5	0.088	61.0	0.038	81.5	0.068
-1.6	0.798	6.6	0.703	20.5	0.149	41.0	0.088	61.5	0.034	82.0	0.070
-1.4	0.819	6.8	0.680	21.0	0.126	41.5	0.086	62.0	0.030	82.5	0.072
-1.2	0.838	7.0	0.656	21.5	0.104	42.0	0.083	62.5	0.026	83.0	0.075
-1.0	0.857	7.2	0.631	22.0	0.082	42.5	0.079	63.0	0.023	83.5	0.076
-0.8	0.874	7.4	0.606	22.5	0.065	43.0	0.075	63.5	0.019	84.0	0.078
-0.6	0.891	7.6	0.581	23.0	0.055	43.5	0.069	64.0	0.016	84.5	0.080
-0.4	0.906	7.8	0.556	23.5	0.056	44.0	0.063	64.5	0.014	85.0	0.081
-0.2	0.921	8.0	0.530	24.0	0.065	44.5	0.056	65.0	0.011	85.5	0.082
0.0	0.934	8.2	0.504	24.5	0.079	45.0	0.049	65.5	0.010	86.0	0.083
0.2	0.946	8.4	0.478	25.0	0.094	45.5	0.042	66.0	0.008	86.5	0.083
0.4	0.957	8.6	0.452	25.5	0.108	46.0	0.035	66.5	0.007	87.0	0.083
0.6	0.967	8.8	0.426	26.0	0.120	46.5	0.030	67.0	0.006	87.5	0.083
0.8	0.975	9.0	0.400	26.5	0.130	47.0	0.027	67.5	0.005	88.0	0.083
1.0	0.983	9.2	0.374	27.0	0.138	47.5	0.027	68.0	0.005	88.5	0.083
1.2	0.989	9.4	0.349	27.5	0.144	48.0	0.030	68.5	0.004	89.0	0.082
1.4	0.993	9.6	0.324	28.0	0.147	48.5	0.034	69.0	0.003	89.5	0.081
1.6	0.997	9.8	0.299	28.5	0.147	49.0	0.040	69.5	0.002	90.0	0.000
1.8	0.999	10.0	0.275	29.0	0.145	49.5	0.045	70.0	0.001		
2.0	1.000	10.2	0.251	29.5	0.141	50.0	0.051	70.5	0.001		
2.2	1.000	10.4	0.228	30.0	0.134	50.5	0.056	71.0	0.003		



Azimuth Pattern



Model: PEPL3A
Location: Globe, AZ.
Customer: Univision Communications, Inc.
Date: January 16, 2019
Rotation Angle: 0 degrees

Polarization: Vertical
Frequency: 497.00 MHz
Directivity: 5.3 (7.22 dB)
Elevation Angle: 2.00 degrees
Horizontal Unit Pattern:
File = az_v_imm_unit_497.pat

Note: Pattern Tolerance +/-5% of Emax
Peak directivity figure is shown



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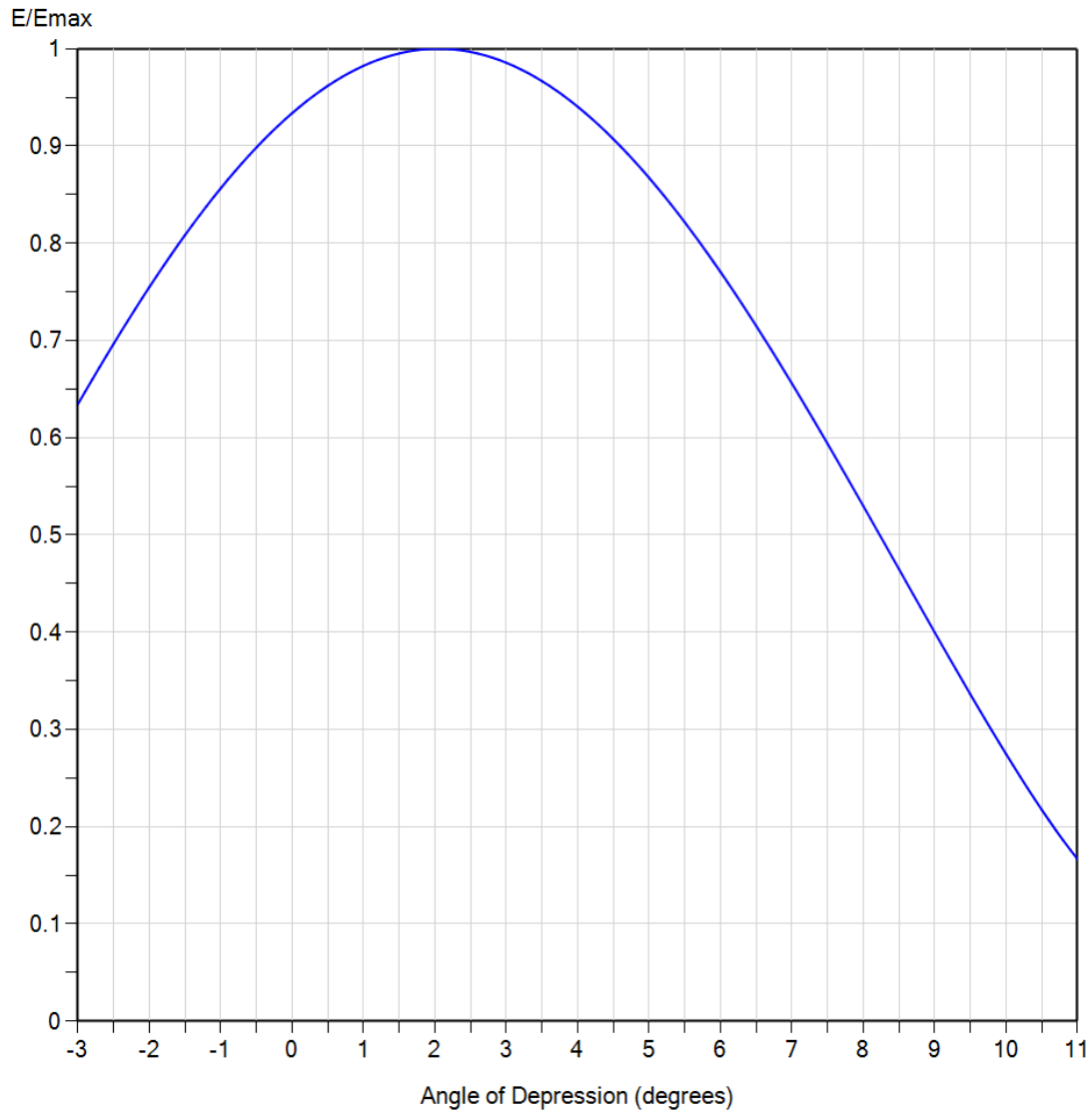
Polarization: **Vertical**
Frequency (MHz): **497.00**
Directivity: **5.3 (7.22 dB)**
Elevation Angle: **2.00 degrees**
Rotation Angle: **0 degrees**

TABULATED AZIMUTH PATTERN

Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field	Angl	Field
0	0.547	45	0.284	90	0.066	135	0.018	180	0.004	225	0.013	270	0.061	315	0.267
1	0.546	46	0.276	91	0.064	136	0.016	181	0.004	226	0.014	271	0.064	316	0.275
2	0.546	47	0.269	92	0.062	137	0.015	182	0.005	227	0.015	272	0.066	317	0.282
3	0.546	48	0.261	93	0.059	138	0.015	183	0.004	228	0.016	273	0.067	318	0.290
4	0.545	49	0.255	94	0.058	139	0.014	184	0.003	229	0.015	274	0.070	319	0.298
5	0.544	50	0.247	95	0.056	140	0.011	185	0.004	230	0.017	275	0.072	320	0.307
6	0.542	51	0.240	96	0.055	141	0.013	186	0.003	231	0.017	276	0.075	321	0.315
7	0.540	52	0.233	97	0.052	142	0.011	187	0.003	232	0.018	277	0.078	322	0.323
8	0.537	53	0.226	98	0.050	143	0.014	188	0.004	233	0.018	278	0.080	323	0.332
9	0.533	54	0.220	99	0.049	144	0.013	189	0.002	234	0.019	279	0.083	324	0.339
10	0.531	55	0.214	100	0.049	145	0.010	190	0.001	235	0.019	280	0.085	325	0.348
11	0.528	56	0.207	101	0.046	146	0.012	191	0.001	236	0.021	281	0.088	326	0.356
12	0.522	57	0.200	102	0.045	147	0.010	192	0.000	237	0.021	282	0.091	327	0.364
13	0.519	58	0.195	103	0.043	148	0.009	193	0.001	238	0.023	283	0.094	328	0.372
14	0.512	59	0.189	104	0.042	149	0.008	194	0.001	239	0.023	284	0.098	329	0.381
15	0.509	60	0.183	105	0.041	150	0.009	195	0.002	240	0.024	285	0.102	330	0.390
16	0.502	61	0.176	106	0.041	151	0.009	196	0.002	241	0.025	286	0.104	331	0.398
17	0.497	62	0.172	107	0.039	152	0.007	197	0.002	242	0.026	287	0.109	332	0.405
18	0.492	63	0.166	108	0.038	153	0.009	198	0.004	243	0.026	288	0.112	333	0.414
19	0.484	64	0.161	109	0.036	154	0.007	199	0.004	244	0.027	289	0.115	334	0.421
20	0.478	65	0.156	110	0.035	155	0.008	200	0.004	245	0.029	290	0.119	335	0.430
21	0.472	66	0.150	111	0.034	156	0.008	201	0.005	246	0.030	291	0.124	336	0.437
22	0.466	67	0.145	112	0.034	157	0.007	202	0.007	247	0.030	292	0.127	337	0.445
23	0.457	68	0.141	113	0.032	158	0.008	203	0.007	248	0.032	293	0.132	338	0.453
24	0.450	69	0.136	114	0.030	159	0.007	204	0.008	249	0.031	294	0.135	339	0.460
25	0.443	70	0.131	115	0.032	160	0.007	205	0.008	250	0.033	295	0.141	340	0.467
26	0.437	71	0.127	116	0.028	161	0.007	206	0.008	251	0.037	296	0.146	341	0.473
27	0.428	72	0.122	117	0.028	162	0.007	207	0.009	252	0.035	297	0.150	342	0.480
28	0.421	73	0.118	118	0.027	163	0.006	208	0.010	253	0.035	298	0.156	343	0.488
29	0.414	74	0.114	119	0.027	164	0.007	209	0.010	254	0.038	299	0.161	344	0.493
30	0.406	75	0.110	120	0.026	165	0.005	210	0.011	255	0.038	300	0.167	345	0.498
31	0.396	76	0.106	121	0.024	166	0.005	211	0.011	256	0.038	301	0.172	346	0.504
32	0.388	77	0.102	122	0.024	167	0.006	212	0.011	257	0.040	302	0.178	347	0.511
33	0.380	78	0.099	123	0.023	168	0.005	213	0.011	258	0.041	303	0.184	348	0.515
34	0.372	79	0.096	124	0.022	169	0.004	214	0.012	259	0.042	304	0.190	349	0.519
35	0.364	80	0.092	125	0.022	170	0.005	215	0.013	260	0.044	305	0.197	350	0.524
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38	0.338	83	0.082	128	0.020	173	0.004	218	0.012	263	0.048	308	0.217	353	0.535
39	0.330	84	0.080	129	0.019	174	0.004	219	0.013	264	0.049	309	0.223	354	0.538
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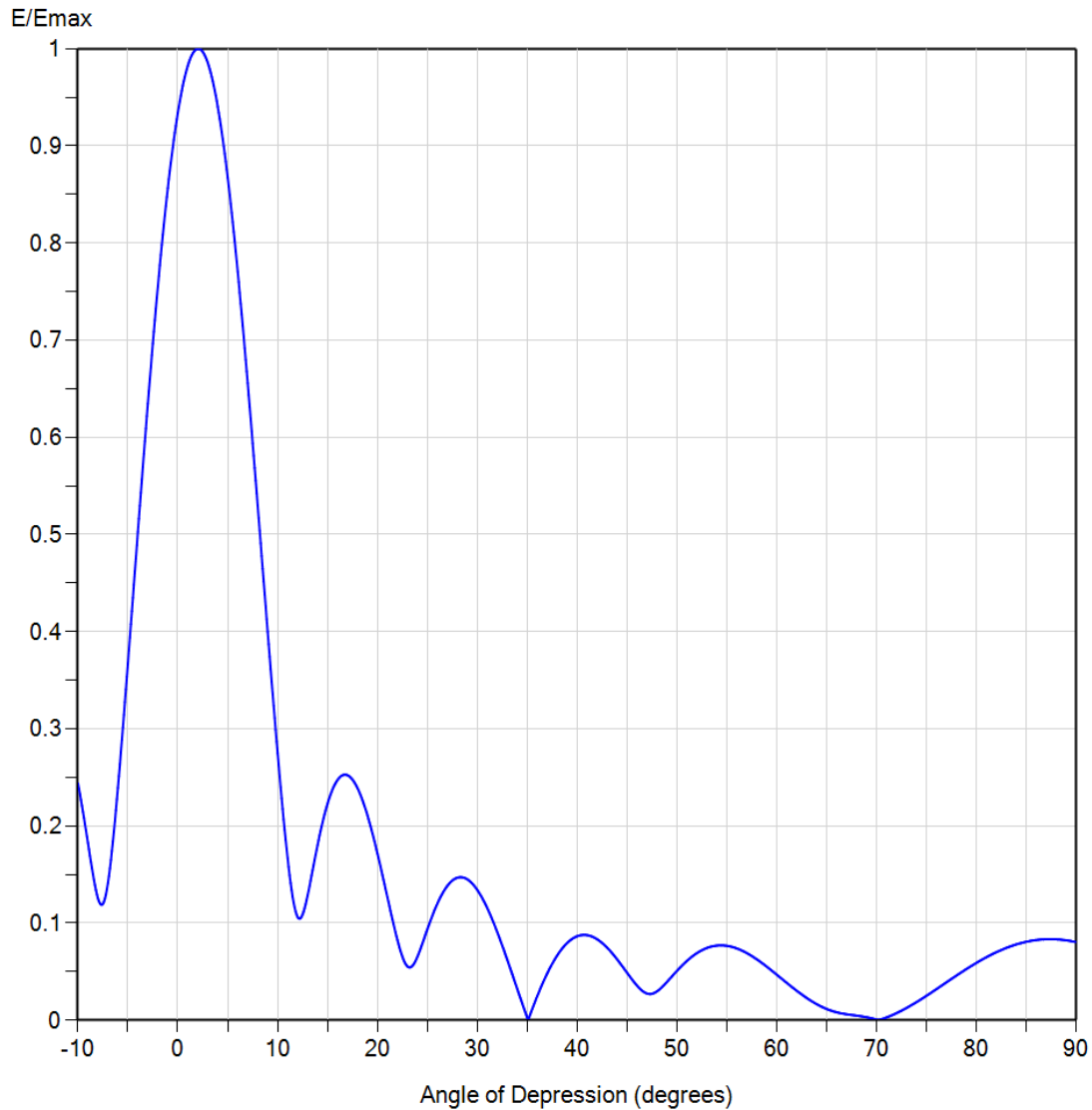
Elevation Pattern



Model:	PEPL3A	Frequency:	497.00 MHz
Polarization:	<u>Vertical</u>	Directivity (Main Lobe):	6.4 (8.05 dBd)
Location:	Globe, AZ.	Directivity (At Horizon):	5.6 (7.46 dBd)
Customer:	Univision Communications, Inc.	Beam Tilt:	2.00 degrees
Date:	January 16, 2019	Azimuth Angle:	359 degrees



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Location: **Globe, AZ.**
Customer: **Univision Communications,**
Date: **January 16, 2019**

Polarization: **Vertical**
Frequency (MHz): **497.00**
Directivity (Main Lobe): **6.4 (8.05 dB)**
Directivity (At Horizon): **5.6 (7.46 dB)**
Beam Tilt: **2.00 degrees**

TABULATED ELEVATION PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.244	2.4	0.998	10.6	0.207	30.5	0.126	51.0	0.061	71.5	0.005
-9.5	0.215	2.6	0.995	10.8	0.186	31.0	0.115	51.5	0.065	72.0	0.007
-9.0	0.182	2.8	0.991	11.0	0.167	31.5	0.104	52.0	0.069	72.5	0.010
-8.5	0.150	3.0	0.986	11.5	0.127	32.0	0.091	52.5	0.072	73.0	0.013
-8.0	0.126	3.2	0.979	12.0	0.106	32.5	0.077	53.0	0.074	73.5	0.016
-7.5	0.120	3.4	0.971	12.5	0.109	33.0	0.062	53.5	0.076	74.0	0.019
-7.0	0.141	3.6	0.962	13.0	0.128	33.5	0.047	54.0	0.077	74.5	0.022
-6.5	0.184	3.8	0.952	13.5	0.154	34.0	0.032	54.5	0.077	75.0	0.025
-6.0	0.239	4.0	0.940	14.0	0.180	34.5	0.017	55.0	0.077	75.5	0.029
-5.5	0.301	4.2	0.928	14.5	0.204	35.0	0.003	55.5	0.075	76.0	0.032
-5.0	0.367	4.4	0.914	15.0	0.223	35.5	0.012	56.0	0.074	76.5	0.036
-4.5	0.435	4.6	0.900	15.5	0.238	36.0	0.025	56.5	0.072	77.0	0.039
-4.0	0.503	4.8	0.884	16.0	0.247	36.5	0.037	57.0	0.069	77.5	0.043
-3.5	0.570	5.0	0.867	16.5	0.252	37.0	0.048	57.5	0.066	78.0	0.046
-3.0	0.635	5.2	0.850	17.0	0.252	37.5	0.058	58.0	0.063	78.5	0.049
-2.8	0.660	5.4	0.831	17.5	0.248	38.0	0.067	58.5	0.059	79.0	0.053
-2.6	0.685	5.6	0.812	18.0	0.239	38.5	0.074	59.0	0.055	79.5	0.056
-2.4	0.709	5.8	0.791	18.5	0.226	39.0	0.080	59.5	0.051	80.0	0.059
-2.2	0.732	6.0	0.771	19.0	0.211	39.5	0.084	60.0	0.047	80.5	0.062
-2.0	0.755	6.2	0.749	19.5	0.192	40.0	0.086	60.5	0.043	81.0	0.065
-1.8	0.777	6.4	0.726	20.0	0.171	40.5	0.088	61.0	0.038	81.5	0.068
-1.6	0.798	6.6	0.703	20.5	0.149	41.0	0.088	61.5	0.034	82.0	0.070
-1.4	0.819	6.8	0.680	21.0	0.126	41.5	0.086	62.0	0.030	82.5	0.072
-1.2	0.838	7.0	0.656	21.5	0.104	42.0	0.083	62.5	0.026	83.0	0.075
-1.0	0.857	7.2	0.631	22.0	0.082	42.5	0.079	63.0	0.023	83.5	0.076
-0.8	0.874	7.4	0.606	22.5	0.065	43.0	0.075	63.5	0.019	84.0	0.078
-0.6	0.891	7.6	0.581	23.0	0.055	43.5	0.069	64.0	0.016	84.5	0.080
-0.4	0.906	7.8	0.556	23.5	0.056	44.0	0.063	64.5	0.014	85.0	0.081
-0.2	0.921	8.0	0.530	24.0	0.065	44.5	0.056	65.0	0.011	85.5	0.082
0.0	0.934	8.2	0.504	24.5	0.079	45.0	0.049	65.5	0.010	86.0	0.083
0.2	0.946	8.4	0.478	25.0	0.094	45.5	0.042	66.0	0.008	86.5	0.083
0.4	0.957	8.6	0.452	25.5	0.108	46.0	0.035	66.5	0.007	87.0	0.083
0.6	0.967	8.8	0.426	26.0	0.120	46.5	0.030	67.0	0.006	87.5	0.083
0.8	0.975	9.0	0.400	26.5	0.130	47.0	0.027	67.5	0.005	88.0	0.083
1.0	0.983	9.2	0.374	27.0	0.138	47.5	0.027	68.0	0.005	88.5	0.083
1.2	0.989	9.4	0.349	27.5	0.144	48.0	0.030	68.5	0.004	89.0	0.082
1.4	0.993	9.6	0.324	28.0	0.147	48.5	0.034	69.0	0.003	89.5	0.081
1.6	0.997	9.8	0.299	28.5	0.147	49.0	0.040	69.5	0.002	90.0	0.000
1.8	0.999	10.0	0.275	29.0	0.145	49.5	0.045	70.0	0.001		
2.0	1.000	10.2	0.251	29.5	0.141	50.0	0.051	70.5	0.001		
2.2	1.000	10.4	0.228	30.0	0.134	50.5	0.056	71.0	0.003		