



Antenna Model:

TFU-22GTH/VP-R 04 TC

Proposal Number: C-70468
Date: 14-Mar-17
Customer: Nexstar
Location: Austin, TX

Electrical Specifications

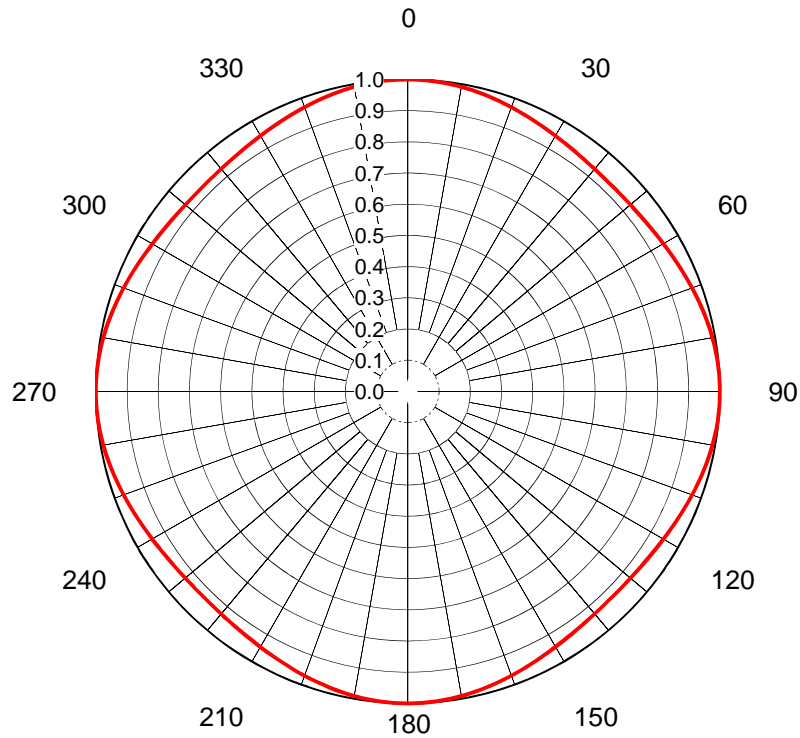
Polarization: Elliptical
Azimuth Pattern: Omni
Antenna Input: 6-1/8" 50 Ohm EIA/DCA
VSWR: Channel 1.10 : 1 Band 1.15 : 1
Bandwidth: 18 MHz
Rated Input Power: 65 kW (18.13 dBk) Maximum combined average power

Mechanical Specifications

Mounting: Top Mounted
Environmental Protection: Full Radome
Height: 41.2 ft (12.6m) less Lightning Protector 45.2 ft (13.8m) with Lightning Protector
Weight: 3290 lb (1.5t)
Effective Projected Area: TIA/EIA-222-F Basic Wind Speed: 70 m/h (112.7 km/h)

Channel Specifications

	Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	RMS Main Lobe Hpol Gain	RMS Main Lobe Vpol Gain	RMS at Horizontal Hpol Gain	RMS at Horizontal Vpol Gain
1	KNVA	23	527 MHz	298 kW (24.74 dBk)	52.6 kW (17.21 dBk)	24.6 kW (13.91 dBk)	15.56 (11.92dB)	2.75 (4.39dB)	12.97 (11.13dB)	2.29 (3.59dB)
2	KXAN	21	515 MHz	700.0 kW (28.45 dBk)	123.5 kW (20.92 dBk)	58.2 kW (17.65 dBk)	15.39 (11.87dB)	2.72 (4.34dB)	12.82 (11.08dB)	2.26 (3.55dB)

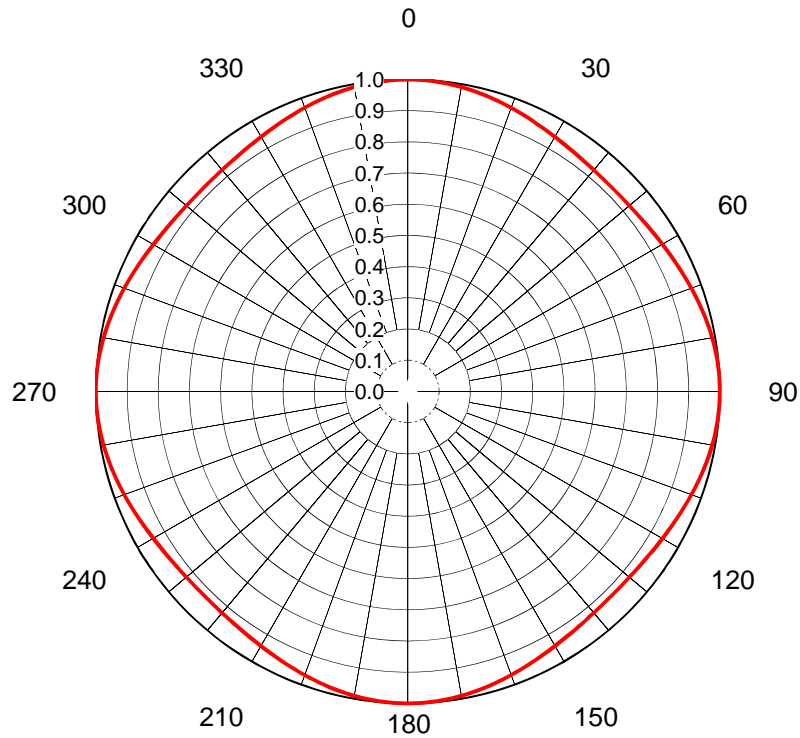


AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KXAN**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**
 Gain **1.08 (0.32dB)**
 Calculated
 Circularity **+/- 1.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.935	72	0.974	108	0.974	144	0.935	180	1.000	216	0.935	252	0.974	288	0.974
1	1.000	37	0.934	73	0.977	109	0.972	145	0.937	181	1.000	217	0.934	253	0.977	289	0.972
2	1.000	38	0.933	74	0.979	110	0.970	146	0.938	182	1.000	218	0.933	254	0.979	290	0.970
3	0.999	39	0.932	75	0.981	111	0.967	147	0.940	183	0.999	219	0.932	255	0.981	291	0.967
4	0.999	40	0.931	76	0.984	112	0.965	148	0.942	184	0.999	220	0.931	256	0.984	292	0.965
5	0.998	41	0.930	77	0.986	113	0.962	149	0.944	185	0.998	221	0.930	257	0.986	293	0.962
6	0.997	42	0.930	78	0.988	114	0.960	150	0.946	186	0.997	222	0.930	258	0.988	294	0.960
7	0.996	43	0.929	79	0.990	115	0.957	151	0.948	187	0.996	223	0.929	259	0.990	295	0.957
8	0.994	44	0.929	80	0.991	116	0.955	152	0.950	188	0.994	224	0.929	260	0.991	296	0.955
9	0.993	45	0.929	81	0.993	117	0.953	153	0.953	189	0.993	225	0.929	261	0.993	297	0.953
10	0.991	46	0.929	82	0.994	118	0.950	154	0.955	190	0.991	226	0.929	262	0.994	298	0.950
11	0.990	47	0.929	83	0.996	119	0.948	155	0.957	191	0.990	227	0.929	263	0.996	299	0.948
12	0.988	48	0.930	84	0.997	120	0.946	156	0.960	192	0.988	228	0.930	264	0.997	300	0.946
13	0.986	49	0.930	85	0.998	121	0.944	157	0.962	193	0.986	229	0.930	265	0.998	301	0.944
14	0.984	50	0.931	86	0.999	122	0.942	158	0.965	194	0.984	230	0.931	266	0.999	302	0.942
15	0.981	51	0.932	87	0.999	123	0.940	159	0.967	195	0.981	231	0.932	267	0.999	303	0.940
16	0.979	52	0.933	88	1.000	124	0.938	160	0.970	196	0.979	232	0.933	268	1.000	304	0.938
17	0.977	53	0.934	89	1.000	125	0.937	161	0.972	197	0.977	233	0.934	269	1.000	305	0.937
18	0.974	54	0.935	90	1.000	126	0.935	162	0.974	198	0.974	234	0.935	270	1.000	306	0.935
19	0.972	55	0.937	91	1.000	127	0.934	163	0.977	199	0.972	235	0.937	271	1.000	307	0.934
20	0.970	56	0.938	92	1.000	128	0.933	164	0.979	200	0.970	236	0.938	272	1.000	308	0.933
21	0.967	57	0.940	93	0.999	129	0.932	165	0.981	201	0.967	237	0.940	273	0.999	309	0.932
22	0.965	58	0.942	94	0.999	130	0.931	166	0.984	202	0.965	238	0.942	274	0.999	310	0.931
23	0.962	59	0.944	95	0.998	131	0.930	167	0.986	203	0.962	239	0.944	275	0.998	311	0.930
24	0.960	60	0.946	96	0.997	132	0.930	168	0.988	204	0.960	240	0.946	276	0.997	312	0.930
25	0.957	61	0.948	97	0.996	133	0.929	169	0.990	205	0.957	241	0.948	277	0.996	313	0.929
26	0.955	62	0.950	98	0.994	134	0.929	170	0.991	206	0.955	242	0.950	278	0.994	314	0.929
27	0.953	63	0.953	99	0.993	135	0.929	171	0.993	207	0.953	243	0.953	279	0.993	315	0.929
28	0.950	64	0.955	100	0.991	136	0.929	172	0.994	208	0.950	244	0.955	280	0.991	316	0.929
29	0.948	65	0.957	101	0.990	137	0.929	173	0.996	209	0.948	245	0.957	281	0.990	317	0.929
30	0.946	66	0.960	102	0.988	138	0.930	174	0.997	210	0.946	246	0.960	282	0.988	318	0.930
31	0.944	67	0.962	103	0.986	139	0.930	175	0.998	211	0.944	247	0.962	283	0.986	319	0.930
32	0.942	68	0.965	104	0.984	140	0.931	176	0.999	212	0.942	248	0.965	284	0.984	320	0.931
33	0.940	69	0.967	105	0.981	141	0.932	177	0.999	213	0.940	249	0.967	285	0.981	321	0.932
34	0.938	70	0.970	106	0.979	142	0.933	178	1.000	214	0.938	250	0.970	286	0.979	322	0.933
35	0.937	71	0.972	107	0.977	143	0.934	179	1.000	215	0.937	251	0.972	287	0.977	323	0.934

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AZIMUTH PATTERN Horizontal Polarization

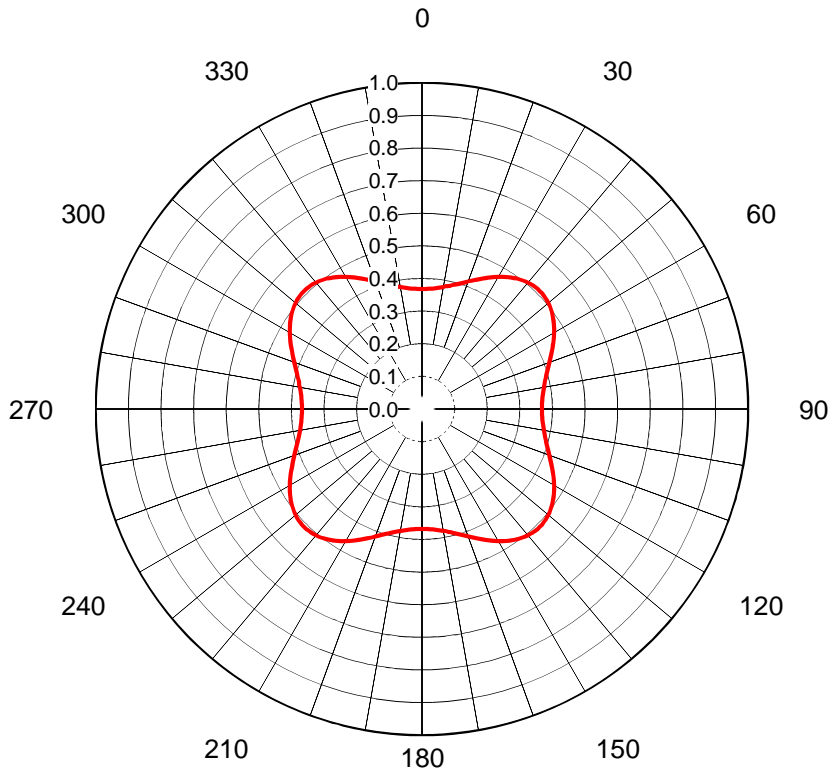
Proposal No. **C-70468**
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 Channel **23**
 Frequency **527 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**
 Gain **1.08 (0.34dB)**
 Calculated
 Circularity **+/- 1.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.931	72	0.973	108	0.973	144	0.931	180	1.000	216	0.931	252	0.973	288	0.973
1	1.000	37	0.930	73	0.975	109	0.970	145	0.933	181	1.000	217	0.930	253	0.975	289	0.970
2	1.000	38	0.929	74	0.978	110	0.967	146	0.934	182	1.000	218	0.929	254	0.978	290	0.967
3	0.999	39	0.928	75	0.980	111	0.965	147	0.936	183	0.999	219	0.928	255	0.980	291	0.965
4	0.998	40	0.927	76	0.982	112	0.962	148	0.938	184	0.998	220	0.927	256	0.982	292	0.962
5	0.998	41	0.926	77	0.985	113	0.960	149	0.940	185	0.998	221	0.926	257	0.985	293	0.960
6	0.997	42	0.925	78	0.987	114	0.957	150	0.942	186	0.997	222	0.925	258	0.987	294	0.957
7	0.995	43	0.925	79	0.989	115	0.954	151	0.945	187	0.995	223	0.925	259	0.989	295	0.954
8	0.994	44	0.925	80	0.991	116	0.952	152	0.947	188	0.994	224	0.925	260	0.991	296	0.952
9	0.992	45	0.925	81	0.992	117	0.949	153	0.949	189	0.992	225	0.925	261	0.992	297	0.949
10	0.991	46	0.925	82	0.994	118	0.947	154	0.952	190	0.991	226	0.925	262	0.994	298	0.947
11	0.989	47	0.925	83	0.995	119	0.945	155	0.954	191	0.989	227	0.925	263	0.995	299	0.945
12	0.987	48	0.925	84	0.997	120	0.942	156	0.957	192	0.987	228	0.925	264	0.997	300	0.942
13	0.985	49	0.926	85	0.998	121	0.940	157	0.960	193	0.985	229	0.926	265	0.998	301	0.940
14	0.982	50	0.927	86	0.998	122	0.938	158	0.962	194	0.982	230	0.927	266	0.998	302	0.938
15	0.980	51	0.928	87	0.999	123	0.936	159	0.965	195	0.980	231	0.928	267	0.999	303	0.936
16	0.978	52	0.929	88	1.000	124	0.934	160	0.967	196	0.978	232	0.929	268	1.000	304	0.934
17	0.975	53	0.930	89	1.000	125	0.933	161	0.970	197	0.975	233	0.930	269	1.000	305	0.933
18	0.973	54	0.931	90	1.000	126	0.931	162	0.973	198	0.973	234	0.931	270	1.000	306	0.931
19	0.970	55	0.933	91	1.000	127	0.930	163	0.975	199	0.970	235	0.933	271	1.000	307	0.930
20	0.967	56	0.934	92	1.000	128	0.929	164	0.978	200	0.967	236	0.934	272	1.000	308	0.929
21	0.965	57	0.936	93	0.999	129	0.928	165	0.980	201	0.965	237	0.936	273	0.999	309	0.928
22	0.962	58	0.938	94	0.998	130	0.927	166	0.982	202	0.962	238	0.938	274	0.998	310	0.927
23	0.960	59	0.940	95	0.998	131	0.926	167	0.985	203	0.960	239	0.940	275	0.998	311	0.926
24	0.957	60	0.942	96	0.997	132	0.925	168	0.987	204	0.957	240	0.942	276	0.997	312	0.925
25	0.954	61	0.945	97	0.995	133	0.925	169	0.989	205	0.954	241	0.945	277	0.995	313	0.925
26	0.952	62	0.947	98	0.994	134	0.925	170	0.991	206	0.952	242	0.947	278	0.994	314	0.925
27	0.949	63	0.949	99	0.992	135	0.925	171	0.992	207	0.949	243	0.949	279	0.992	315	0.925
28	0.947	64	0.952	100	0.991	136	0.925	172	0.994	208	0.947	244	0.952	280	0.991	316	0.925
29	0.945	65	0.954	101	0.989	137	0.925	173	0.995	209	0.945	245	0.954	281	0.989	317	0.925
30	0.942	66	0.957	102	0.987	138	0.925	174	0.997	210	0.942	246	0.957	282	0.987	318	0.925
31	0.940	67	0.960	103	0.985	139	0.926	175	0.998	211	0.940	247	0.960	283	0.985	319	0.926
32	0.938	68	0.962	104	0.982	140	0.927	176	0.998	212	0.938	248	0.962	284	0.982	320	0.927
33	0.936	69	0.965	105	0.980	141	0.928	177	0.999	213	0.936	249	0.965	285	0.980	321	0.928
34	0.934	70	0.967	106	0.978	142	0.929	178	1.000	214	0.934	250	0.967	286	0.978	322	0.929
35	0.933	71	0.970	107	0.975	143	0.930	179	1.000	215	0.933	251	0.970	287	0.975	323	0.930

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AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KNVA**
 Channel **23**
 Frequency **527 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**
 Gain **1.37 (1.36dB)**
 Calculated
 Circularity **+/- 2.0 dB**

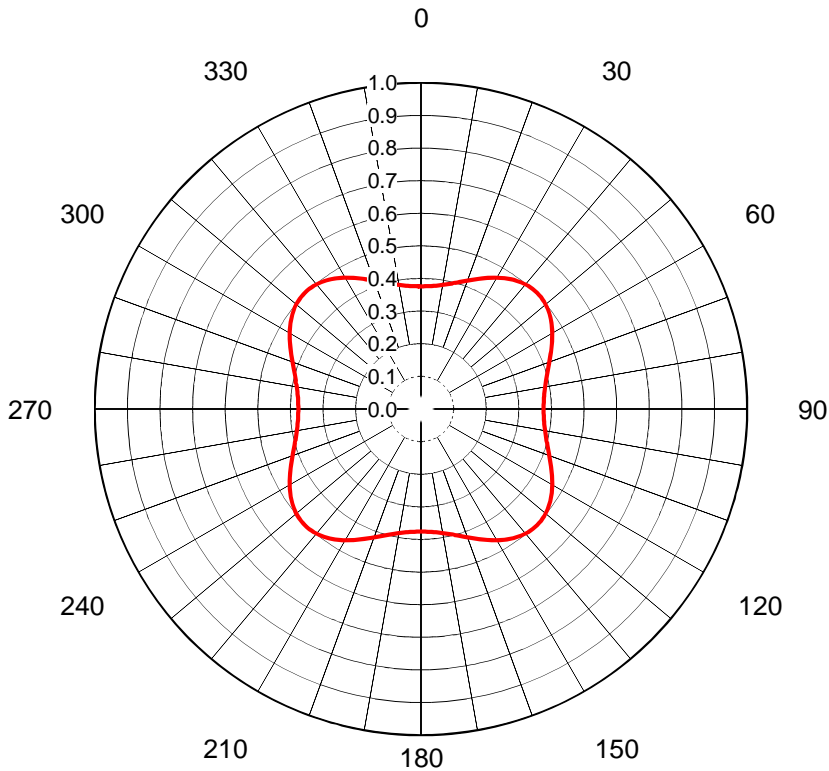


Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.368	36	0.494	72	0.407	108	0.407	144	0.494	180	0.368	216	0.494	252	0.407	288	0.407	324	0.494
1	0.368	37	0.498	73	0.403	109	0.411	145	0.490	181	0.368	217	0.498	253	0.403	289	0.411	325	0.490
2	0.368	38	0.501	74	0.399	110	0.416	146	0.486	182	0.368	218	0.501	254	0.399	290	0.416	326	0.486
3	0.369	39	0.503	75	0.395	111	0.421	147	0.482	183	0.369	219	0.503	255	0.395	291	0.421	327	0.482
4	0.370	40	0.506	76	0.391	112	0.426	148	0.477	184	0.370	220	0.506	256	0.391	292	0.426	328	0.477
5	0.371	41	0.508	77	0.388	113	0.431	149	0.473	185	0.371	221	0.508	257	0.388	293	0.431	329	0.473
6	0.372	42	0.509	78	0.385	114	0.436	150	0.468	186	0.372	222	0.509	258	0.385	294	0.436	330	0.468
7	0.373	43	0.510	79	0.382	115	0.442	151	0.463	187	0.373	223	0.510	259	0.382	295	0.442	331	0.463
8	0.375	44	0.511	80	0.379	116	0.447	152	0.457	188	0.375	224	0.511	260	0.379	296	0.447	332	0.457
9	0.377	45	0.511	81	0.377	117	0.452	153	0.452	189	0.377	225	0.511	261	0.377	297	0.452	333	0.452
10	0.379	46	0.511	82	0.375	118	0.457	154	0.447	190	0.379	226	0.511	262	0.375	298	0.457	334	0.447
11	0.383	47	0.510	83	0.373	119	0.463	155	0.442	191	0.382	227	0.510	263	0.373	299	0.463	335	0.442
12	0.385	48	0.509	84	0.372	120	0.468	156	0.436	192	0.385	228	0.509	264	0.372	300	0.468	336	0.436
13	0.388	49	0.508	85	0.371	121	0.473	157	0.431	193	0.388	229	0.508	265	0.371	301	0.473	337	0.431
14	0.391	50	0.506	86	0.370	122	0.477	158	0.426	194	0.391	230	0.506	266	0.370	302	0.477	338	0.426
15	0.395	51	0.503	87	0.369	123	0.482	159	0.421	195	0.395	231	0.503	267	0.369	303	0.482	339	0.421
16	0.399	52	0.501	88	0.368	124	0.486	160	0.416	196	0.399	232	0.501	268	0.368	304	0.486	340	0.416
17	0.403	53	0.498	89	0.368	125	0.490	161	0.411	197	0.403	233	0.498	269	0.368	305	0.490	341	0.411
18	0.407	54	0.494	90	0.368	126	0.494	162	0.407	198	0.407	234	0.494	270	0.368	306	0.494	342	0.407
19	0.411	55	0.490	91	0.368	127	0.498	163	0.403	199	0.411	235	0.490	271	0.368	307	0.498	343	0.403
20	0.416	56	0.486	92	0.368	128	0.501	164	0.399	200	0.416	236	0.486	272	0.368	308	0.501	344	0.399
21	0.421	57	0.482	93	0.369	129	0.503	165	0.395	201	0.421	237	0.482	273	0.369	309	0.503	345	0.395
22	0.426	58	0.477	94	0.370	130	0.506	166	0.391	202	0.426	238	0.477	274	0.370	310	0.506	346	0.391
23	0.431	59	0.473	95	0.371	131	0.508	167	0.388	203	0.431	239	0.473	275	0.371	311	0.508	347	0.388
24	0.436	60	0.468	96	0.372	132	0.509	168	0.385	204	0.436	240	0.468	276	0.372	312	0.509	348	0.385
25	0.442	61	0.463	97	0.373	133	0.510	169	0.382	205	0.442	241	0.463	277	0.373	313	0.510	349	0.382
26	0.447	62	0.457	98	0.375	134	0.511	170	0.379	206	0.447	242	0.457	278	0.375	314	0.511	350	0.379
27	0.452	63	0.452	99	0.377	135	0.511	171	0.377	207	0.452	243	0.452	279	0.377	315	0.511	351	0.377
28	0.457	64	0.447	100	0.379	136	0.511	172	0.375	208	0.457	244	0.447	280	0.379	316	0.511	352	0.375
29	0.463	65	0.442	101	0.383	137	0.510	173	0.373	209	0.463	245	0.442	281	0.383	317	0.510	353	0.373
30	0.468	66	0.436	102	0.385	138	0.509	174	0.372	210	0.468	246	0.436	282	0.385	318	0.509	354	0.372
31	0.473	67	0.431	103	0.388	139	0.508	175	0.371	211	0.473	247	0.431	283	0.388	319	0.508	355	0.371
32	0.477	68	0.426	104	0.391	140	0.506	176	0.370	212	0.477	248	0.426	284	0.391	320	0.506	356	0.370
33	0.482	69	0.421	105	0.395	141	0.503	177	0.369	213	0.482	249	0.421	285	0.395	321	0.503	357	0.369
34	0.486	70	0.416	106	0.399	142	0.501	178	0.368	214	0.486	250	0.416	286	0.399	322	0.501	358	0.368
35	0.490	71	0.411	107	0.403	143	0.498	179	0.368	215	0.490	251	0.411	287	0.403	323	0.498	359	0.368

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 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**
 Gain **1.33 (1.23dB)**
 Calculated
 Circularity **+/- 2.0 dB**



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.376	36	0.488	72	0.411	108	0.411	144	0.488	180	0.376	216	0.488	252	0.411	288	0.411
1	0.376	37	0.491	73	0.407	109	0.415	145	0.485	181	0.376	217	0.491	253	0.407	289	0.415
2	0.376	38	0.494	74	0.403	110	0.419	146	0.481	182	0.376	218	0.494	254	0.403	290	0.419
3	0.377	39	0.497	75	0.400	111	0.423	147	0.478	183	0.377	219	0.497	255	0.400	291	0.423
4	0.378	40	0.499	76	0.397	112	0.428	148	0.473	184	0.378	220	0.499	256	0.397	292	0.428
5	0.379	41	0.501	77	0.394	113	0.432	149	0.469	185	0.379	221	0.501	257	0.394	293	0.432
6	0.380	42	0.502	78	0.391	114	0.437	150	0.465	186	0.380	222	0.502	258	0.391	294	0.437
7	0.381	43	0.503	79	0.389	115	0.441	151	0.460	187	0.381	223	0.503	259	0.389	295	0.441
8	0.383	44	0.503	80	0.386	116	0.446	152	0.456	188	0.383	224	0.503	260	0.386	296	0.446
9	0.384	45	0.504	81	0.384	117	0.451	153	0.451	189	0.384	225	0.504	261	0.384	297	0.451
10	0.386	46	0.503	82	0.383	118	0.456	154	0.446	190	0.386	226	0.503	262	0.383	298	0.456
11	0.389	47	0.503	83	0.381	119	0.460	155	0.441	191	0.389	227	0.503	263	0.381	299	0.460
12	0.391	48	0.502	84	0.380	120	0.465	156	0.437	192	0.391	228	0.502	264	0.380	300	0.465
13	0.394	49	0.501	85	0.379	121	0.469	157	0.432	193	0.394	229	0.501	265	0.379	301	0.469
14	0.397	50	0.499	86	0.378	122	0.473	158	0.428	194	0.397	230	0.499	266	0.378	302	0.473
15	0.400	51	0.497	87	0.377	123	0.478	159	0.423	195	0.400	231	0.497	267	0.377	303	0.478
16	0.403	52	0.494	88	0.376	124	0.481	160	0.419	196	0.403	232	0.494	268	0.376	304	0.481
17	0.407	53	0.491	89	0.376	125	0.485	161	0.415	197	0.407	233	0.491	269	0.376	305	0.485
18	0.411	54	0.488	90	0.376	126	0.488	162	0.411	198	0.411	234	0.488	270	0.376	306	0.488
19	0.415	55	0.485	91	0.376	127	0.491	163	0.407	199	0.415	235	0.485	271	0.376	307	0.491
20	0.419	56	0.481	92	0.376	128	0.494	164	0.403	200	0.419	236	0.481	272	0.376	308	0.494
21	0.423	57	0.478	93	0.377	129	0.497	165	0.400	201	0.423	237	0.478	273	0.377	309	0.497
22	0.428	58	0.473	94	0.378	130	0.499	166	0.397	202	0.428	238	0.473	274	0.378	310	0.499
23	0.432	59	0.469	95	0.379	131	0.501	167	0.394	203	0.432	239	0.469	275	0.379	311	0.501
24	0.437	60	0.465	96	0.380	132	0.502	168	0.391	204	0.437	240	0.465	276	0.380	312	0.502
25	0.441	61	0.460	97	0.381	133	0.503	169	0.389	205	0.441	241	0.460	277	0.381	313	0.503
26	0.446	62	0.456	98	0.383	134	0.503	170	0.386	206	0.446	242	0.456	278	0.383	314	0.503
27	0.451	63	0.451	99	0.384	135	0.504	171	0.384	207	0.451	243	0.451	279	0.384	315	0.504
28	0.456	64	0.446	100	0.386	136	0.503	172	0.383	208	0.456	244	0.446	280	0.386	316	0.503
29	0.460	65	0.441	101	0.389	137	0.503	173	0.381	209	0.460	245	0.441	281	0.389	317	0.503
30	0.465	66	0.437	102	0.391	138	0.502	174	0.380	210	0.465	246	0.437	282	0.393	318	0.502
31	0.469	67	0.432	103	0.394	139	0.501	175	0.379	211	0.469	247	0.432	283	0.394	319	0.501
32	0.473	68	0.428	104	0.397	140	0.499	176	0.378	212	0.473	248	0.428	284	0.397	320	0.499
33	0.478	69	0.423	105	0.400	141	0.497	177	0.377	213	0.478	249	0.423	285	0.400	321	0.497
34	0.481	70	0.419	106	0.403	142	0.494	178	0.376	214	0.481	250	0.419	286	0.403	322	0.494
35	0.485	71	0.415	107	0.407	143	0.491	179	0.376	215	0.485	251	0.415	287	0.407	323	0.491

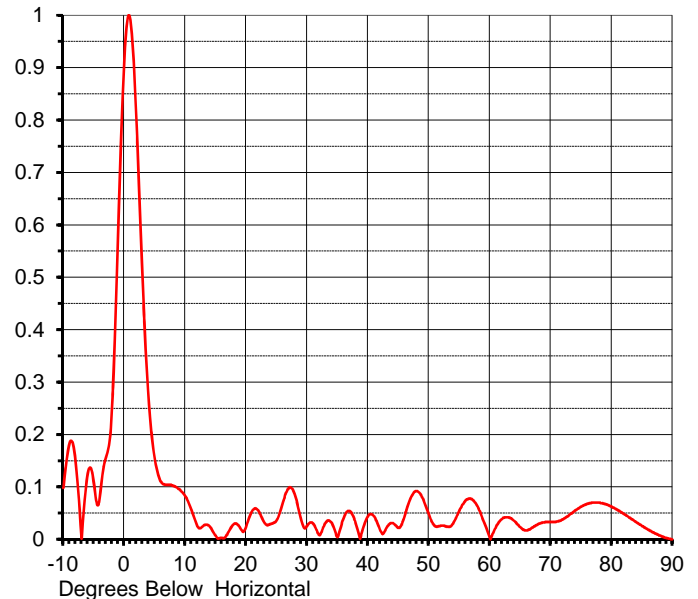
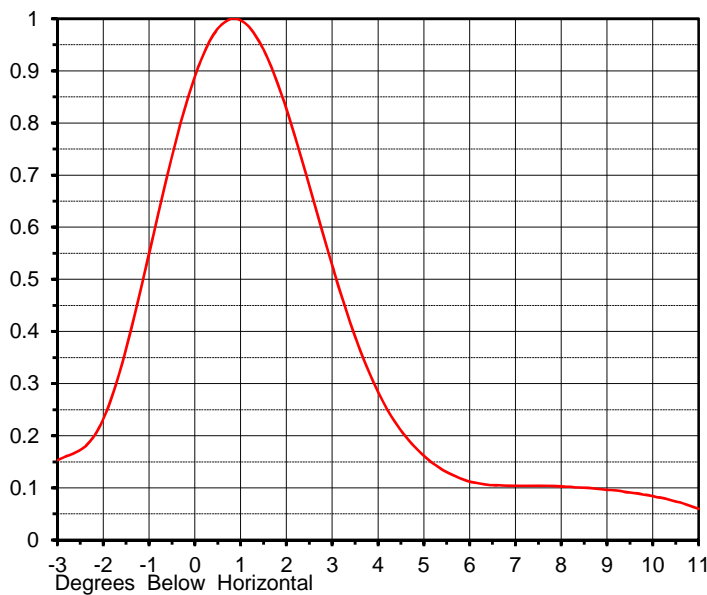
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ELEVATION PATTERN

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KNVA**
 Channel **23**
 Frequency **527 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**

RMS Directivity at Main Lobe **18.3 (12.62 dB)**
 RMS Directivity at Horizontal **15.3 (11.85 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **22G183075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.098	10.0	0.082	30.0	0.026	50.0	0.047	70.0	0.033
-9.0	0.182	11.0	0.057	31.0	0.030	51.0	0.025	71.0	0.034
-8.0	0.150	12.0	0.025	32.0	0.008	52.0	0.026	72.0	0.038
-7.0	0.001	13.0	0.026	33.0	0.031	53.0	0.024	73.0	0.046
-6.0	0.125	14.0	0.025	34.0	0.032	54.0	0.031	74.0	0.055
-5.0	0.108	15.0	0.007	35.0	0.004	55.0	0.055	75.0	0.062
-4.0	0.082	16.0	0.003	36.0	0.040	56.0	0.074	76.0	0.068
-3.0	0.157	17.0	0.012	37.0	0.054	57.0	0.077	77.0	0.070
-2.0	0.253	18.0	0.029	38.0	0.030	58.0	0.062	78.0	0.070
-1.0	0.587	19.0	0.022	39.0	0.013	59.0	0.034	79.0	0.067
0.0	0.913	20.0	0.024	40.0	0.044	60.0	0.003	80.0	0.062
1.0	0.991	21.0	0.054	41.0	0.044	61.0	0.023	81.0	0.056
2.0	0.799	22.0	0.055	42.0	0.017	62.0	0.039	82.0	0.048
3.0	0.497	23.0	0.032	43.0	0.021	63.0	0.042	83.0	0.041
4.0	0.267	24.0	0.029	44.0	0.031	64.0	0.035	84.0	0.033
5.0	0.154	25.0	0.036	45.0	0.022	65.0	0.023	85.0	0.025
6.0	0.110	26.0	0.069	46.0	0.044	66.0	0.017	86.0	0.018
7.0	0.104	27.0	0.098	47.0	0.079	67.0	0.022	87.0	0.012
8.0	0.102	28.0	0.085	48.0	0.092	68.0	0.029	88.0	0.007
9.0	0.096	29.0	0.039	49.0	0.078	69.0	0.032	89.0	0.002
								90.0	0.000

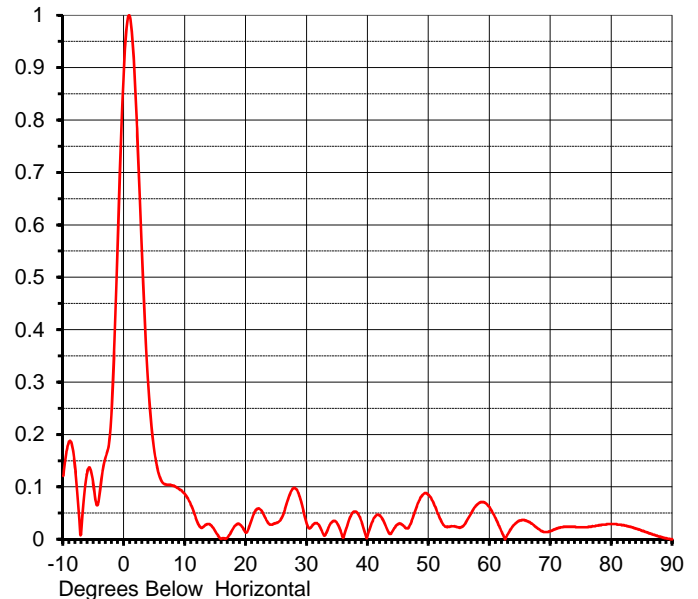
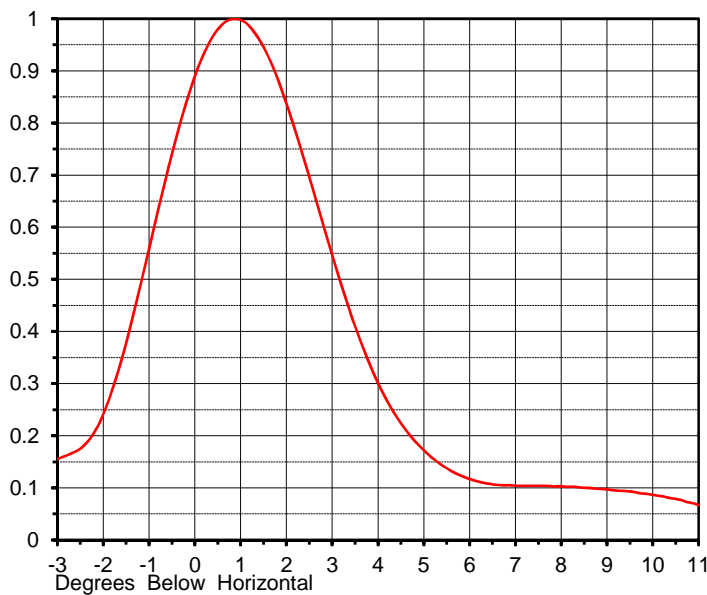
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ELEVATION PATTERN

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KXAN**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**

RMS Directivity at Main Lobe **18.1 (12.58 dB)**
 RMS Directivity at Horizontal **15.1 (11.79 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **22G181075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.121	10.0	0.085	30.0	0.028	50.0	0.084	70.0	0.016
-9.0	0.187	11.0	0.064	31.0	0.028	51.0	0.063	71.0	0.021
-8.0	0.129	12.0	0.033	32.0	0.026	52.0	0.035	72.0	0.023
-7.0	0.025	13.0	0.024	33.0	0.008	53.0	0.023	73.0	0.024
-6.0	0.132	14.0	0.029	34.0	0.032	54.0	0.025	74.0	0.024
-5.0	0.098	15.0	0.014	35.0	0.029	55.0	0.022	75.0	0.023
-4.0	0.091	16.0	0.001	36.0	0.004	56.0	0.031	76.0	0.023
-3.0	0.159	17.0	0.004	37.0	0.040	57.0	0.051	77.0	0.025
-2.0	0.263	18.0	0.023	38.0	0.053	58.0	0.067	78.0	0.027
-1.0	0.596	19.0	0.028	39.0	0.032	59.0	0.071	79.0	0.028
0.0	0.913	20.0	0.013	40.0	0.009	60.0	0.060	80.0	0.029
1.0	0.993	21.0	0.041	41.0	0.041	61.0	0.039	81.0	0.028
2.0	0.811	22.0	0.059	42.0	0.045	62.0	0.013	82.0	0.027
3.0	0.517	23.0	0.044	43.0	0.023	63.0	0.011	83.0	0.024
4.0	0.283	24.0	0.028	44.0	0.015	64.0	0.028	84.0	0.020
5.0	0.164	25.0	0.031	45.0	0.029	65.0	0.036	85.0	0.016
6.0	0.114	26.0	0.045	46.0	0.024	66.0	0.035	86.0	0.012
7.0	0.104	27.0	0.081	47.0	0.030	67.0	0.029	87.0	0.008
8.0	0.102	28.0	0.098	48.0	0.063	68.0	0.020	88.0	0.005
9.0	0.096	29.0	0.073	49.0	0.085	69.0	0.014	89.0	0.002
								90.0	0.000

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***FutureFill** refers to broadband panels or limited bandwidth slotted coaxial antennas that can be modified in the field to provide the flexibility to customize the null structure at a future date.*

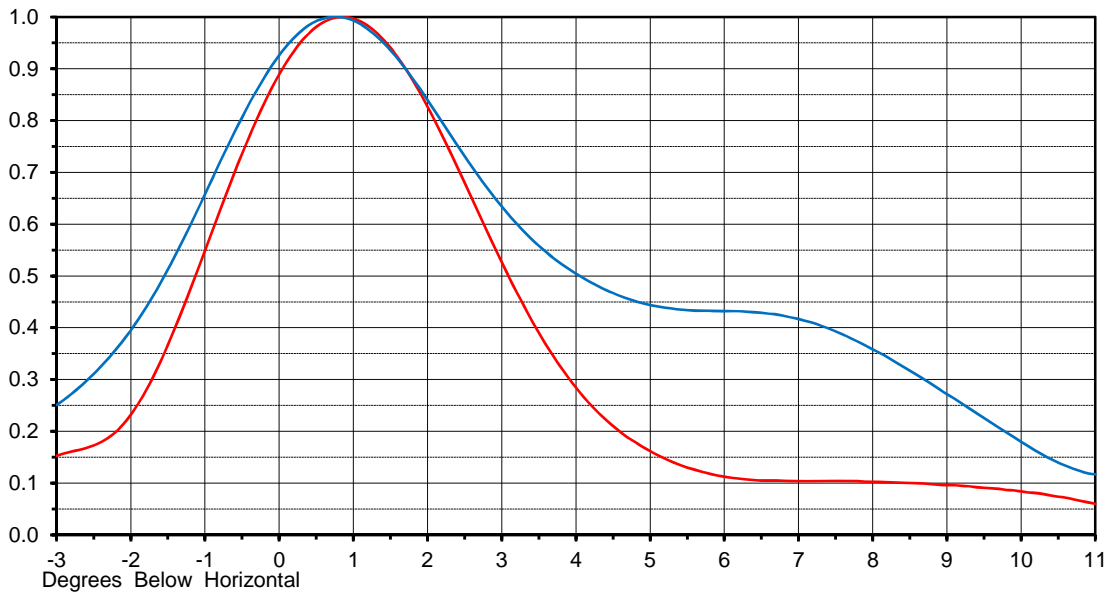
FutureFill OVERLAY

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KNVA**
 Channel **23**
 Frequency **527 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**

RMS Directivity 18.3 **(12.62dB)**
 RMS Directivity 11.3 **(10.52dB)**
 Calculated

Beam Tilt 0.75
 Beam Tilt 0.75

Pattern No. 22G183075 **Red**
 Pattern No. 22G19007-FF **Blue**



Tabulations for 22G19007-FF

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.311	10.0	0.180	30.0	0.080	50.0	0.084	70.0	0.045
-9.0	0.437	11.0	0.117	31.0	0.093	51.0	0.069	71.0	0.045
-8.0	0.368	12.0	0.136	32.0	0.085	52.0	0.062	72.0	0.047
-7.0	0.226	13.0	0.161	33.0	0.113	53.0	0.062	73.0	0.049
-6.0	0.352	14.0	0.143	34.0	0.135	54.0	0.073	74.0	0.051
-5.0	0.388	15.0	0.119	35.0	0.106	55.0	0.105	75.0	0.053
-4.0	0.261	16.0	0.110	36.0	0.058	56.0	0.145	76.0	0.055
-3.0	0.251	17.0	0.079	37.0	0.072	57.0	0.171	77.0	0.056
-2.0	0.395	18.0	0.036	38.0	0.084	58.0	0.173	78.0	0.055
-1.0	0.658	19.0	0.026	39.0	0.055	59.0	0.150	79.0	0.054
0.0	0.926	20.0	0.034	40.0	0.024	60.0	0.113	80.0	0.050
1.0	0.993	21.0	0.082	41.0	0.038	61.0	0.081	81.0	0.046
2.0	0.840	22.0	0.108	42.0	0.030	62.0	0.079	82.0	0.041
3.0	0.634	23.0	0.088	43.0	0.004	63.0	0.096	83.0	0.035
4.0	0.504	24.0	0.061	44.0	0.030	64.0	0.110	84.0	0.029
5.0	0.444	25.0	0.064	45.0	0.031	65.0	0.111	85.0	0.023
6.0	0.432	26.0	0.071	46.0	0.004	66.0	0.100	86.0	0.017
7.0	0.417	27.0	0.073	47.0	0.046	67.0	0.083	87.0	0.011
8.0	0.358	28.0	0.053	48.0	0.082	68.0	0.065	88.0	0.006
9.0	0.272	29.0	0.041	49.0	0.095	69.0	0.052	89.0	0.002
								90.0	0.000

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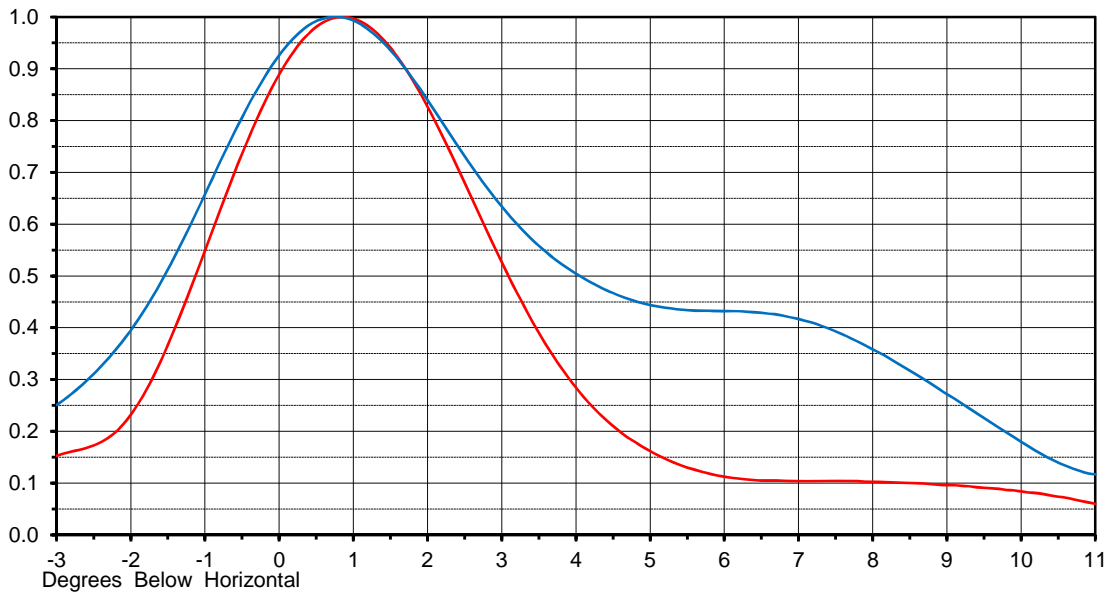
FutureFill OVERLAY

Proposal No. **C-70468**
 Date **14-Mar-17**
 Call Letters **KXAN**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-22GTH/VP-R 04 TC**

RMS Directivity 18.3 **(12.62dB)**
 RMS Directivity 11.3 **(10.52dB)**
 Calculated

Beam Tilt 0.75
 Beam Tilt 0.75

Pattern No. 22G183075 **Red**
 Pattern No. 22G19007-FF **Blue**



Tabulations for 22G19007-FF

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.311	10.0	0.180	30.0	0.080	50.0	0.084	70.0	0.045
-9.0	0.437	11.0	0.117	31.0	0.093	51.0	0.069	71.0	0.045
-8.0	0.368	12.0	0.136	32.0	0.085	52.0	0.062	72.0	0.047
-7.0	0.226	13.0	0.161	33.0	0.113	53.0	0.062	73.0	0.049
-6.0	0.352	14.0	0.143	34.0	0.135	54.0	0.073	74.0	0.051
-5.0	0.388	15.0	0.119	35.0	0.106	55.0	0.105	75.0	0.053
-4.0	0.261	16.0	0.110	36.0	0.058	56.0	0.145	76.0	0.055
-3.0	0.251	17.0	0.079	37.0	0.072	57.0	0.171	77.0	0.056
-2.0	0.395	18.0	0.036	38.0	0.084	58.0	0.173	78.0	0.055
-1.0	0.658	19.0	0.026	39.0	0.055	59.0	0.150	79.0	0.054
0.0	0.926	20.0	0.034	40.0	0.024	60.0	0.113	80.0	0.050
1.0	0.993	21.0	0.082	41.0	0.038	61.0	0.081	81.0	0.046
2.0	0.840	22.0	0.108	42.0	0.030	62.0	0.079	82.0	0.041
3.0	0.634	23.0	0.088	43.0	0.004	63.0	0.096	83.0	0.035
4.0	0.504	24.0	0.061	44.0	0.030	64.0	0.110	84.0	0.029
5.0	0.444	25.0	0.064	45.0	0.031	65.0	0.111	85.0	0.023
6.0	0.432	26.0	0.071	46.0	0.004	66.0	0.100	86.0	0.017
7.0	0.417	27.0	0.073	47.0	0.046	67.0	0.083	87.0	0.011
8.0	0.358	28.0	0.053	48.0	0.082	68.0	0.065	88.0	0.006
9.0	0.272	29.0	0.041	49.0	0.095	69.0	0.052	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	C-70468
Date	14-Mar-17
Call Letters	KNVA
Channel	23
Frequency	527 MHz
Antenna Type	TFU-22GTH/VP-R 04 TC

Preliminary Specifications

Top Mounted

Without ice TIA/EIA-222-F

Height AGL	1150 ft (350.5 m)
Basic Wind Speed	70 m/h (112.7 km/h)

Mechanical Specifications

Height with Lightning Protector	H4	45.2 ft (13.8m)
Height less Lightning Protector	H2	41.2 ft (12.6m)
Height of Center of Radiation	H3	20.6 ft (6.3m)
Force Coeff. x Projected Area	CaAc	42,8 ft² (m²)
Moment Arm	D1	22.5 ft (6.9m)

Weight	W	3290 lb (1.5t)
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Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA/EIA-222-F

Prepared by:	KLP	Date:	14-Mar-17	ME:	EE:
	jls	Date:	18-Mar-17		

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Summary

Proposal No.	C-70468
Date	14-Mar-17
Call Letters	KNVA
Channel	23
Frequency	527 MHz
Antenna Type	TFU-22GTH/VP-R 04 TC

Antenna

	Hpol	Vpol
ERP:	298 kW (24.74 dBk)	52.6 kW (17.21 dBk)
RMS Gain*	15.56 (11.92 dB)	2.75 (4.39 dB)

Antenna Input Power	19.2 kW (12.82 dBk)
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Transmission Line

Type:	Rigid Digiline	Attenuation:	(1.08 dB)
Size:	8-3/16"	Efficiency:	77.9%
Impedance:	75 Ohm		
Length:	1300 ft	396.2 m	

Transmitter Output

24.6 kW (13.91 dBk)

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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Summary

Proposal No.	C-70468
Date	14-Mar-17
Call Letters	KXAN
Channel	21
Frequency	515 MHz
Antenna Type	TFU-22GTH/VP-R 04 TC

Antenna

	Hpol	Vpol
ERP:	700 kW (28.45 dBk)	124 kW (20.92 dBk)
RMS Gain*	15.39 (11.87 dB)	2.72 (4.34 dB)

Antenna Input Power	45.5 kW (16.58 dBk)
----------------------------	------------------------------

Transmission Line

Type:	Rigid Digiline	Attenuation:	(1.07 dB)
Size:	8-3/16"	Efficiency:	78.1%
Impedance:	75 Ohm		
Length:	1300 ft	396.2 m	

Transmitter Output

58.2 kW (17.65 dBk)

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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