Antenna Model: **TFU-17ETT/VP-R 4C190**

Proposal Number:	C-70449-6a
Date:	15-Mar-17
Customer:	Nexstar
Location:	Phoenix, AZ

Electrical Specifications

Polarization:	Elliptical		
Azimuth Pattern:	Directional		
Antenna Input:	6-1/8"	75 Ohm	EIA/DCA
VSWR:	Channel	1.08 : 1	
Bandwidth:	6 MHz		
Rated Input Power:	35 kW	(15.44 dBk)	Maximum Average Power

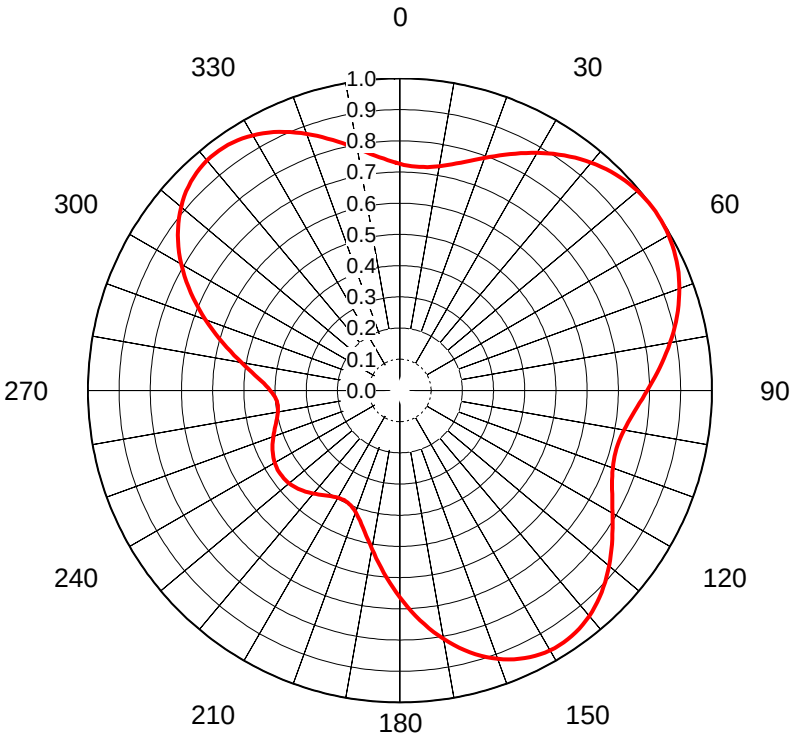
Mechanical Specifications

Mounting:	Top Mounted			
Environmental Protection:	Full Radome			
Height:	35.8 ft (10.9m)	less Lightning Protector	39.8 ft (12.1m)	with Lightning Protector
Weight:	5550 lb (2.5t)			
Effective Projected Area:	47.8 ft² (4.4m²)	TIA-222-G	**Basic Wind Speed:**	90 m/h (144.8 km/h)

Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
KASW	27	551 MHz	420 kW (26.23 dBk)	105 kW (20.21 dBk)	19.3 kW (12.86 dBk)	22.92 (13.60dB)	5.73 (7.58dB)	17.51 (12.43dB)	4.38 (6.41dB)

CN=Andre J Skalina, C=US,
OU=SInclair Broadcasting Group,
O=Dielectric,
E=andre.skalina@dielectric.com
I have reviewed this document
2018/04/17 12:43:29 -05'00'

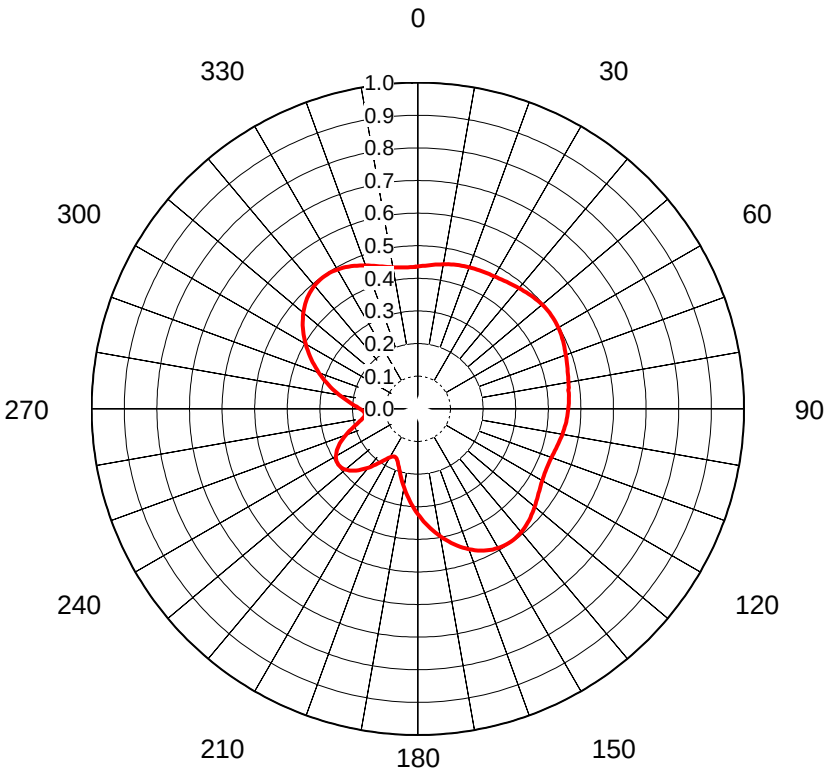


AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70449-6a**
Date	**15-Mar-17**
Call Letters	**KASW**
Channel	**27**
Frequency	**551 MHz**
Antenna Type	**TFU-17ETT/VP-R 4C190**
Gain	**1.72 (2.34dB)**
	Calculated

KASW DSB H D49

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.727	36	0.927	72	0.941	108	0.722	144	0.958	180	0.663	216	0.415	252	0.423	288	0.633	324	0.962
1	0.723	37	0.934	73	0.934	109	0.723	145	0.961	181	0.648	217	0.419	253	0.419	289	0.648	325	0.961
2	0.722	38	0.941	74	0.927	110	0.727	146	0.962	182	0.633	218	0.423	254	0.415	290	0.663	326	0.958
3	0.720	39	0.947	75	0.920	111	0.730	147	0.963	183	0.617	219	0.427	255	0.411	291	0.679	327	0.956
4	0.719	40	0.953	76	0.912	112	0.734	148	0.963	184	0.602	220	0.431	256	0.408	292	0.694	328	0.952
5	0.719	41	0.959	77	0.904	113	0.739	149	0.963	185	0.587	221	0.435	257	0.405	293	0.709	329	0.949
6	0.720	42	0.965	78	0.896	114	0.745	150	0.962	186	0.572	222	0.439	258	0.402	294	0.724	330	0.944
7	0.721	43	0.970	79	0.888	115	0.750	151	0.960	187	0.557	223	0.443	259	0.399	295	0.739	331	0.939
8	0.724	44	0.974	80	0.879	116	0.757	152	0.958	188	0.543	224	0.447	260	0.397	296	0.754	332	0.934
9	0.726	45	0.979	81	0.871	117	0.764	153	0.955	189	0.529	225	0.450	261	0.395	297	0.768	333	0.928
10	0.730	46	0.983	82	0.862	118	0.771	154	0.951	190	0.516	226	0.453	262	0.395	298	0.782	334	0.921
11	0.734	47	0.986	83	0.853	119	0.779	155	0.947	191	0.502	227	0.456	263	0.394	299	0.796	335	0.915
12	0.739	48	0.989	84	0.845	120	0.787	156	0.942	192	0.490	228	0.459	264	0.395	300	0.809	336	0.907
13	0.744	49	0.992	85	0.836	121	0.796	157	0.936	193	0.478	229	0.461	265	0.396	301	0.822	337	0.900
14	0.750	50	0.994	86	0.827	122	0.804	158	0.930	194	0.467	230	0.463	266	0.398	302	0.834	338	0.892
15	0.756	51	0.997	87	0.818	123	0.813	159	0.923	195	0.456	231	0.465	267	0.401	303	0.846	339	0.884
16	0.763	52	0.998	88	0.810	124	0.822	160	0.915	196	0.447	232	0.466	268	0.405	304	0.858	340	0.875
17	0.770	53	0.999	89	0.801	125	0.831	161	0.908	197	0.437	233	0.467	269	0.409	305	0.869	341	0.867
18	0.777	54	1.000	90	0.793	126	0.840	162	0.898	198	0.429	234	0.467	270	0.415	306	0.879	342	0.858
19	0.785	55	1.000	91	0.785	127	0.849	163	0.889	199	0.422	235	0.468	271	0.422	307	0.889	343	0.849
20	0.793	56	1.000	92	0.777	128	0.858	164	0.879	200	0.415	236	0.467	272	0.429	308	0.898	344	0.840
21	0.801	57	0.999	93	0.770	129	0.867	165	0.869	201	0.409	237	0.467	273	0.437	309	0.908	345	0.831
22	0.810	58	0.998	94	0.763	130	0.875	166	0.858	202	0.405	238	0.466	274	0.447	310	0.915	346	0.822
23	0.818	59	0.997	95	0.756	131	0.884	167	0.846	203	0.401	239	0.465	275	0.456	311	0.923	347	0.813
24	0.827	60	0.994	96	0.750	132	0.892	168	0.834	204	0.398	240	0.463	276	0.467	312	0.930	348	0.804
25	0.836	61	0.992	97	0.744	133	0.900	169	0.822	205	0.396	241	0.461	277	0.478	313	0.936	349	0.796
26	0.845	62	0.989	98	0.739	134	0.907	170	0.809	206	0.395	242	0.459	278	0.490	314	0.942	350	0.787
27	0.853	63	0.986	99	0.734	135	0.915	171	0.796	207	0.394	243	0.456	279	0.502	315	0.947	351	0.779
28	0.862	64	0.983	100	0.730	136	0.921	172	0.782	208	0.395	244	0.453	280	0.516	316	0.951	352	0.771
29	0.871	65	0.979	101	0.726	137	0.928	173	0.768	209	0.395	245	0.450	281	0.529	317	0.955	353	0.764
30	0.879	66	0.974	102	0.724	138	0.934	174	0.754	210	0.397	246	0.447	282	0.543	318	0.958	354	0.757
31	0.888	67	0.970	103	0.721	139	0.939	175	0.739	211	0.399	247	0.443	283	0.557	319	0.960	355	0.750
32	0.896	68	0.965	104	0.720	140	0.944	176	0.724	212	0.402	248	0.439	284	0.572	320	0.962	356	0.745
33	0.904	69	0.959	105	0.719	141	0.949	177	0.709	213	0.405	249	0.435	285	0.587	321	0.963	357	0.739
34	0.912	70	0.953	106	0.719	142	0.952	178	0.694	214	0.408	250	0.431	286	0.602	322	0.963	358	0.734
35	0.920	71	0.947	107	0.720	143	0.956	179	0.679	215	0.411	251	0.427	287	0.617	323	0.963	359	0.730



AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70449-6a**
Date	**15-Mar-17**
Call Letters	**KASW**
Channel	**27**
Frequency	**551 MHz**
Antenna Type	**TFU-17ETT/VP-R 4C190**
Gain	**1.53 (1.85dB)**
	Calculated

4C190V D27

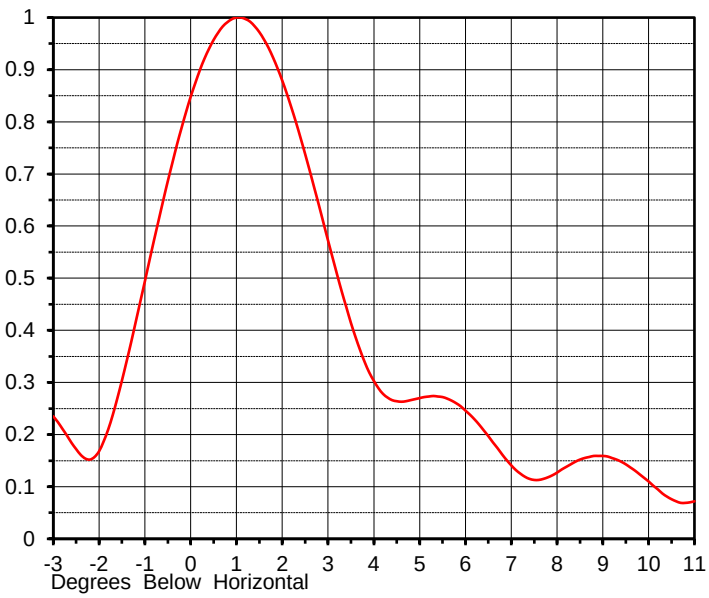
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.436	36	0.476	72	0.479	108	0.438	144	0.497	180	0.322	216	0.207	252	0.221	288	0.307	324	0.497
1	0.437	37	0.478	73	0.478	109	0.437	145	0.497	181	0.315	217	0.214	253	0.214	289	0.315	325	0.497
2	0.438	38	0.479	74	0.476	110	0.436	146	0.497	182	0.307	218	0.221	254	0.207	290	0.322	326	0.497
3	0.440	39	0.481	75	0.475	111	0.436	147	0.496	183	0.299	219	0.228	255	0.200	291	0.330	327	0.497
4	0.441	40	0.483	76	0.474	112	0.435	148	0.496	184	0.291	220	0.235	256	0.193	292	0.338	328	0.496
5	0.442	41	0.484	77	0.472	113	0.435	149	0.494	185	0.283	221	0.242	257	0.187	293	0.345	329	0.495
6	0.444	42	0.486	78	0.471	114	0.435	150	0.493	186	0.275	222	0.249	258	0.181	294	0.353	330	0.493
7	0.445	43	0.488	79	0.470	115	0.435	151	0.491	187	0.268	223	0.255	259	0.176	295	0.361	331	0.492
8	0.447	44	0.490	80	0.469	116	0.436	152	0.488	188	0.260	224	0.262	260	0.172	296	0.368	332	0.490
9	0.448	45	0.491	81	0.468	117	0.437	153	0.486	189	0.252	225	0.268	261	0.168	297	0.375	333	0.487
10	0.450	46	0.493	82	0.467	118	0.438	154	0.483	190	0.244	226	0.273	262	0.166	298	0.383	334	0.485
11	0.451	47	0.494	83	0.465	119	0.439	155	0.479	191	0.237	227	0.278	263	0.164	299	0.390	335	0.482
12	0.453	48	0.495	84	0.466	120	0.441	156	0.476	192	0.229	228	0.282	264	0.163	300	0.397	336	0.480
13	0.454	49	0.497	85	0.465	121	0.443	157	0.472	193	0.222	229	0.286	265	0.163	301	0.404	337	0.477
14	0.455	50	0.498	86	0.465	122	0.445	158	0.467	194	0.214	230	0.290	266	0.164	302	0.411	338	0.474
15	0.457	51	0.498	87	0.464	123	0.447	159	0.463	195	0.207	231	0.293	267	0.166	303	0.417	339	0.471
16	0.458	52	0.499	88	0.463	124	0.450	160	0.458	196	0.200	232	0.295	268	0.169	304	0.424	340	0.467
17	0.459	53	0.500	89	0.462	125	0.452	161	0.453	197	0.194	233	0.296	269	0.173	305	0.430	341	0.464
18	0.460	54	0.500	90	0.462	126	0.455	162	0.447	198	0.188	234	0.297	270	0.177	306	0.436	342	0.461
19	0.461	55	0.500	91	0.461	127	0.458	163	0.442	199	0.182	235	0.298	271	0.182	307	0.442	343	0.458
20	0.462	56	0.500	92	0.460	128	0.461	164	0.436	200	0.177	236	0.297	272	0.188	308	0.447	344	0.455
21	0.462	57	0.500	93	0.459	129	0.464	165	0.430	201	0.173	237	0.296	273	0.194	309	0.453	345	0.452
22	0.463	58	0.499	94	0.458	130	0.467	166	0.424	202	0.169	238	0.295	274	0.200	310	0.458	346	0.450
23	0.464	59	0.498	95	0.457	131	0.471	167	0.417	203	0.166	239	0.293	275	0.207	311	0.463	347	0.447
24	0.465	60	0.498	96	0.455	132	0.474	168	0.411	204	0.164	240	0.290	276	0.214	312	0.467	348	0.445
25	0.465	61	0.497	97	0.454	133	0.477	169	0.404	205	0.163	241	0.286	277	0.222	313	0.472	349	0.443
26	0.466	62	0.495	98	0.453	134	0.480	170	0.397	206	0.163	242	0.282	278	0.229	314	0.476	350	0.441
27	0.467	63	0.494	99	0.451	135	0.482	171	0.390	207	0.164	243	0.278	279	0.237	315	0.479	351	0.439
28	0.467	64	0.493	100	0.450	136	0.485	172	0.383	208	0.166	244	0.273	280	0.244	316	0.483	352	0.438
29	0.468	65	0.491	101	0.448	137	0.487	173	0.375	209	0.168	245	0.268	281	0.252	317	0.486	353	0.437
30	0.469	66	0.490	102	0.447	138	0.490	174	0.368	210	0.172	246	0.262	282	0.260	318	0.488	354	0.436
31	0.470	67	0.488	103	0.445	139	0.492	175	0.361	211	0.176	247	0.255	283	0.268	319	0.491	355	0.435
32	0.471	68	0.486	104	0.444	140	0.493	176	0.353	212	0.181	248	0.249	284	0.275	320	0.493	356	0.435
33	0.472	69	0.484	105	0.442	141	0.495	177	0.345	213	0.187	249	0.242	285	0.283	321	0.494	357	0.435
34	0.474	70	0.483	106	0.441	142	0.496	178	0.338	214	0.193	250	0.235	286	0.291	322	0.496	358	0.435
35	0.475	71	0.481	107	0.440	143	0.497	179	0.330	215	0.200	251	0.228	287	0.299	323	0.496	359	0.436

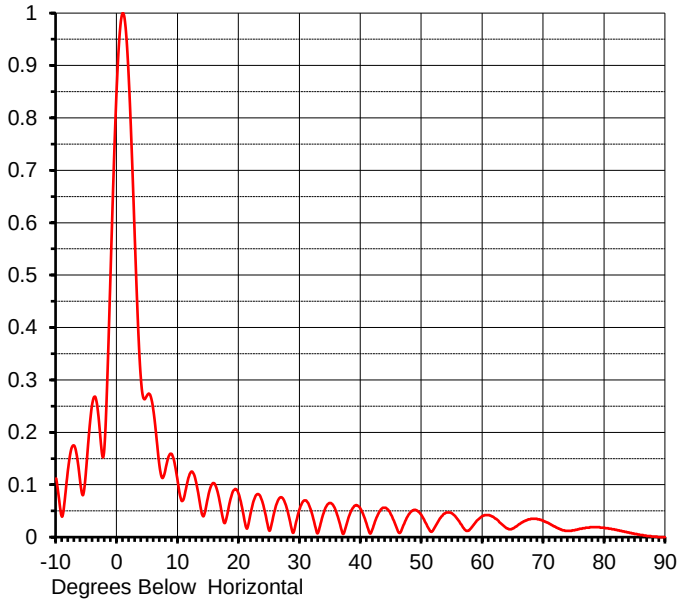
ELEVATION PATTERN

Proposal No.	**C-70449-6a**
Date	**15-Mar-17**
Call Letters	**KASW**
Channel	**27**
Frequency	**551 MHz**
Antenna Type	**TFU-17ETT/VP-R 4C190**

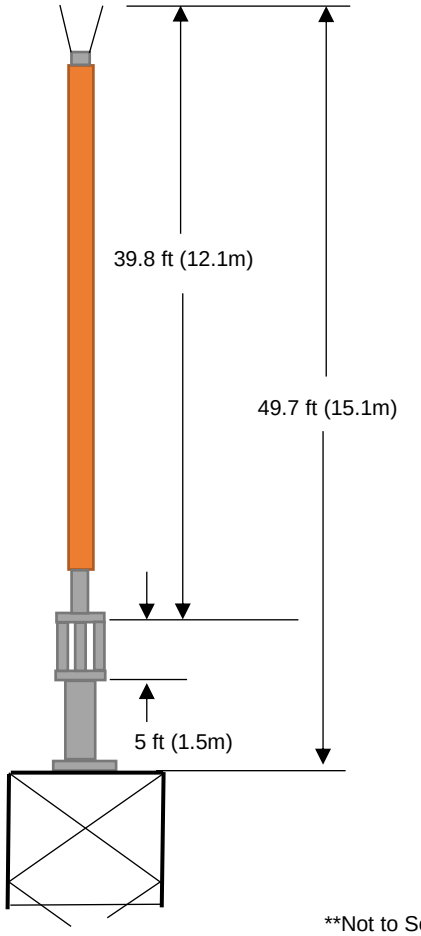
RMS Directivity at Main Lobe	**17.1 (12.33 dB)**	Beam Tilt	**0.95 deg**
RMS Directivity at Horizontal	**12.3 (10.90 dB)**	Pattern Number	**17E171095**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.112	10.0	0.102	30.0	0.055	50.0	0.041	70.0	0.031
-9.0	0.039	11.0	0.076	31.0	0.070	51.0	0.019	71.0	0.025
-8.0	0.134	12.0	0.122	32.0	0.044	52.0	0.016	72.0	0.019
-7.0	0.174	13.0	0.103	33.0	0.009	53.0	0.036	73.0	0.014
-6.0	0.100	14.0	0.042	34.0	0.050	54.0	0.047	74.0	0.012
-5.0	0.141	15.0	0.081	35.0	0.065	55.0	0.045	75.0	0.013
-4.0	0.259	16.0	0.102	36.0	0.047	56.0	0.032	76.0	0.016
-3.0	0.224	17.0	0.058	37.0	0.007	57.0	0.015	77.0	0.018
-2.0	0.187	18.0	0.039	38.0	0.038	58.0	0.016	78.0	0.019
-1.0	0.534	19.0	0.087	39.0	0.060	59.0	0.031	79.0	0.019
0.0	0.874	20.0	0.081	40.0	0.053	60.0	0.040	80.0	0.018
1.0	1.000	21.0	0.027	41.0	0.023	61.0	0.042	81.0	0.016
2.0	0.854	22.0	0.050	42.0	0.018	62.0	0.036	82.0	0.014
3.0	0.539	23.0	0.082	43.0	0.048	63.0	0.026	83.0	0.011
4.0	0.289	24.0	0.061	44.0	0.056	64.0	0.017	84.0	0.009
5.0	0.272	25.0	0.012	45.0	0.042	65.0	0.017	85.0	0.006
6.0	0.238	26.0	0.057	46.0	0.014	66.0	0.025	86.0	0.004
7.0	0.132	27.0	0.076	47.0	0.023	67.0	0.031	87.0	0.002
8.0	0.133	28.0	0.049	48.0	0.045	68.0	0.035	88.0	0.001
9.0	0.158	29.0	0.010	49.0	0.052	69.0	0.034	89.0	0.000
								90.0	0.000



Not to Scale

MECHANICAL SPECIFICATIONS

Proposal No.	**C-70449-6a**
Date	**15-Mar-17**
Call Letters	**KASW**
Channel	**27**
Frequency	**551 MHz**
Antenna Type	**TFU-17ETT/VP-R 4C190**

Preliminary Specifications

Top Mounted

Without ice TIA-222-G

Basic Wind Speed	90 m/h (144.8 km/h)
Structure Class	II
Exposure Category	C
Topography Category	4
Height of Crest	1428 ft (435.3 m)

Mechanical Specifications		**antenna only**	**full stack**
Height with Lightning Protector	H4	39.8 ft (12.1m)	49.7 ft (15.1m)
Height less Lightning Protector	H2	35.8 ft (10.9m)	45.7 ft (13.9m)
Height of Center of Radiation	H3	17.9 ft (5.5m)	27.8 ft (8.5m)
Effective Projected Area	$(EPA)_S$	47.8 ft² (4.4m²)	72.2 ft² (6.7m²)
Moment Arm	D1	19.3 ft (5.9m)	20.1 ft (6.1m)
Weight	W	5550 lb (2.5t)	8550 lb (3.9t)

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA-222-G

Prepared by: KLP **Date:** 15-Mar-17 **ME:** SPJC **EE:**

SPJC **Date:** 12-Apr-18

Summary

Proposal No.	**C-70449-6a**
Date	**15-Mar-17**
Call Letters	**KASW**
Channel	**27**
Frequency	**551 MHz**
Antenna Type	**TFU-17ETT/VP-R 4C190**

Antenna

	Hpol		Vpol	
ERP:	420 kW	**(26.23 dBk)**	105 kW	**(20.21 dBk)**
Peak Gain*	22.92	(13.60 dB)	5.73	(7.58 dB)

Antenna Input Power

18.3 kW **(12.63 dBk)**

Transmission Line

Type:	**Rigid**	Attenuation:	**(0.23 dB)**
Size:	**6-1/8"**	Efficiency:	**94.8%**
Impedance:	**75 Ohm**		
Length:	**205 ft**	**62.5 m**	

Transmitter Output

19.3 kW **(12.86 dBk)**

Transmitter filter losses not included

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