



TFU-26GBH-R 06

**Proposal Number:** C-70188-3  
**Date:** 31-Jan-18  
**Customer:** TEGNA  
**Location:** San Antonio, TX

#### Electrical Specifications

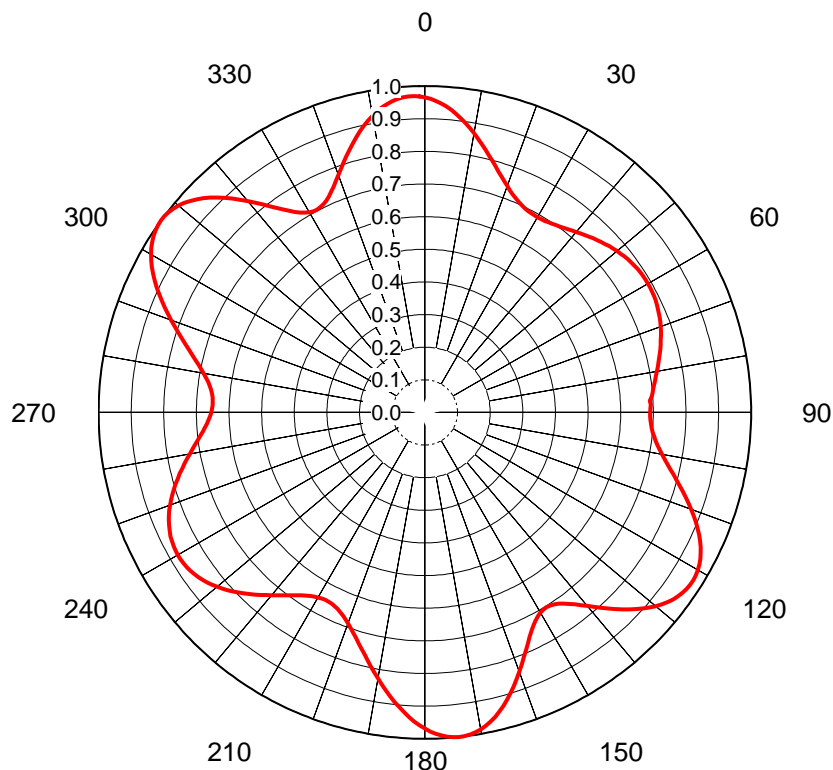
<b>Polarity</b>	Horizontal					
<b>Azimuth Pattern</b>	Omni					
<b>Antenna Input</b>	6-1/8" 75	75 Ohm	EIA/DCA			
<b>VSWR</b>	Channel	1.08 : 1		Band		1.08 : 1
<b>Bandwidth</b>	6 MHz					
<b>Rated Input Power</b>	47 kW	(16.72 dBk)	Maximum Average Power			

#### Mechanical Specifications

<b>Mounting</b>	Bottom of Stack					
<b>Environmental Protection</b>	Full Radome					
<b>Height</b>	48.8 ft (14.9m)	less Lightning Protector				
<b>Weight</b>	16500 lb (7.5t)					
<b>Effective Projected Area</b>	65.2 ft <sup>2</sup> (6.1m <sup>2</sup> )	TIA-222-G	<b>Basic Wind Speed</b>	90 m/h (144.8 km/h)		

#### Channel Specifications

Call	CH	Freq	Hpol ERP	TPO	RMS Main Lob Hpol Gain	RMS at Horizontal Hpol Gain
KENS	29	563 MHz	1000.0 kW (30.00 dBk)	57.8 kW (17.62 dBk)	24.50 (13.89dB)	19.02 (12.79dB)



## AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70188-3**  
 Date **31-Jan-18**  
 Call Letters **KENS 29**  
 Frequency **563 MHz**  
 Antenna Type **TFU-26GBH-R 06**  
  
 Gain **1.51 (1.79dB)**  
**Calculated**  
 Circularity **+/- 2.0 dB**  
 Drawing # **TFU-O6H D29**

with 6 1/8 in feed through at 60 deg.

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.966	36	0.704	72	0.761	108	0.840	144	0.724	180	0.969	216	0.692	252	0.814	288	0.795	324	0.775
1	0.962	37	0.708	73	0.756	109	0.855	145	0.716	181	0.959	217	0.701	253	0.804	289	0.812	325	0.760
2	0.956	38	0.713	74	0.752	110	0.869	146	0.710	182	0.947	218	0.711	254	0.795	290	0.828	326	0.746
3	0.949	39	0.717	75	0.747	111	0.882	147	0.706	183	0.934	219	0.721	255	0.784	291	0.844	327	0.733
4	0.940	40	0.722	76	0.742	112	0.895	148	0.704	184	0.921	220	0.731	256	0.774	292	0.860	328	0.723
5	0.930	41	0.727	77	0.737	113	0.908	149	0.705	185	0.907	221	0.742	257	0.763	293	0.876	329	0.714
6	0.920	42	0.732	78	0.732	114	0.920	150	0.708	186	0.892	222	0.753	258	0.753	294	0.892	330	0.708
7	0.908	43	0.737	79	0.727	115	0.930	151	0.714	187	0.876	223	0.763	259	0.742	295	0.907	331	0.705
8	0.895	44	0.742	80	0.722	116	0.940	152	0.723	188	0.860	224	0.774	260	0.731	296	0.921	332	0.704
9	0.882	45	0.747	81	0.717	117	0.949	153	0.733	189	0.844	225	0.784	261	0.721	297	0.934	333	0.706
10	0.869	46	0.752	82	0.713	118	0.956	154	0.746	190	0.828	226	0.795	262	0.711	298	0.947	334	0.710
11	0.855	47	0.756	83	0.708	119	0.962	155	0.760	191	0.812	227	0.804	263	0.701	299	0.959	335	0.716
12	0.840	48	0.761	84	0.704	120	0.966	156	0.775	192	0.795	228	0.814	264	0.692	300	0.969	336	0.724
13	0.826	49	0.765	85	0.701	121	0.969	157	0.792	193	0.780	229	0.823	265	0.684	301	0.978	337	0.735
14	0.812	50	0.769	86	0.697	122	0.970	158	0.810	194	0.764	230	0.831	266	0.676	302	0.986	338	0.747
15	0.798	51	0.773	87	0.690	123	0.970	159	0.828	195	0.750	231	0.839	267	0.669	303	0.992	339	0.760
16	0.785	52	0.776	88	0.693	124	0.968	160	0.846	196	0.736	232	0.846	268	0.663	304	0.996	340	0.774
17	0.772	53	0.779	89	0.691	125	0.964	161	0.864	197	0.722	233	0.853	269	0.658	305	0.999	341	0.790
18	0.760	54	0.782	90	0.691	126	0.959	162	0.882	198	0.710	234	0.858	270	0.655	306	1.000	342	0.806
19	0.749	55	0.784	91	0.691	127	0.952	163	0.899	199	0.699	235	0.863	271	0.652	307	0.999	343	0.822
20	0.738	56	0.786	92	0.692	128	0.944	164	0.915	200	0.688	236	0.867	272	0.651	308	0.997	344	0.838
21	0.729	57	0.788	93	0.694	129	0.935	165	0.931	201	0.679	237	0.870	273	0.651	309	0.992	345	0.854
22	0.720	58	0.789	94	0.697	130	0.924	166	0.945	202	0.671	238	0.872	274	0.652	310	0.986	346	0.869
23	0.713	59	0.789	95	0.701	131	0.912	167	0.958	203	0.664	239	0.874	275	0.655	311	0.978	347	0.884
24	0.706	60	0.790	96	0.707	132	0.898	168	0.969	204	0.659	240	0.874	276	0.659	312	0.969	348	0.898
25	0.701	61	0.789	97	0.713	133	0.884	169	0.978	205	0.655	241	0.874	277	0.664	313	0.958	349	0.912
26	0.697	62	0.789	98	0.720	134	0.869	170	0.986	206	0.652	242	0.872	278	0.671	314	0.945	350	0.924
27	0.694	63	0.788	99	0.729	135	0.854	171	0.992	207	0.651	243	0.870	279	0.679	315	0.931	351	0.935
28	0.692	64	0.786	100	0.738	136	0.838	172	0.997	208	0.651	244	0.867	280	0.688	316	0.915	352	0.944
29	0.691	65	0.784	101	0.749	137	0.822	173	0.999	209	0.652	245	0.863	281	0.698	317	0.899	353	0.952
30	0.691	66	0.782	102	0.760	138	0.806	174	1.000	210	0.655	246	0.858	282	0.710	318	0.882	354	0.959
31	0.691	67	0.779	103	0.772	139	0.790	175	0.999	211	0.658	247	0.853	283	0.722	319	0.864	355	0.964
32	0.693	68	0.776	104	0.785	140	0.774	176	0.996	212	0.663	248	0.846	284	0.736	320	0.846	356	0.968
33	0.695	69	0.773	105	0.798	141	0.760	177	0.992	213	0.669	249	0.839	285	0.750	321	0.828	357	0.970
34	0.697	70	0.769	106	0.812	142	0.747	178	0.986	214	0.676	250	0.831	286	0.764	322	0.810	358	0.970
35	0.701	71	0.765	107	0.826	143	0.735	179	0.978	215	0.684	251	0.823	287	0.780	323	0.792	359	0.969

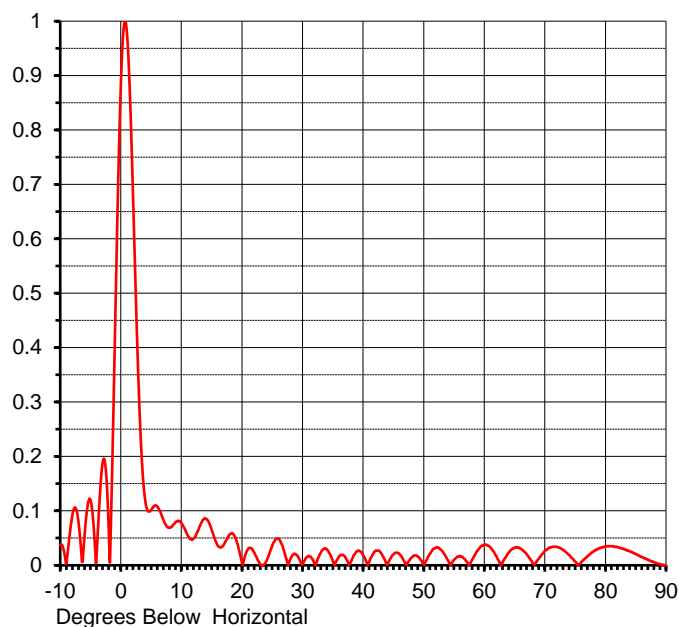
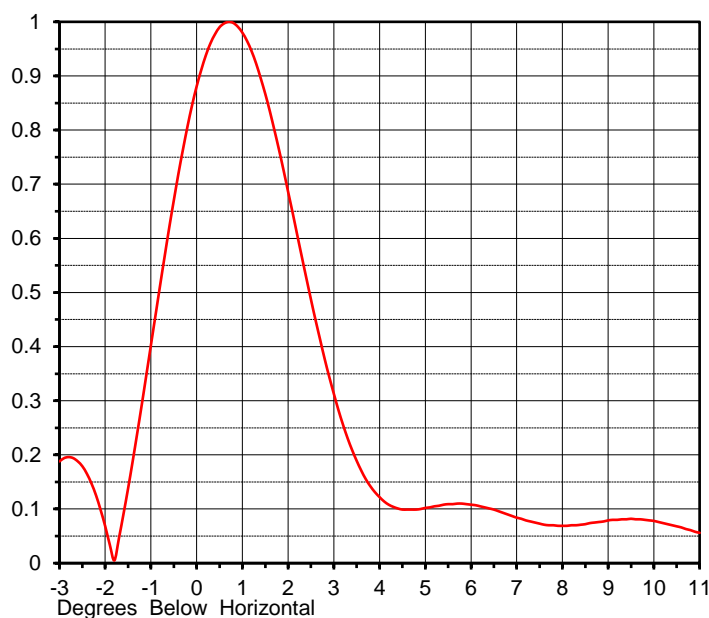
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## ELEVATION PATTERN

Proposal No. **C-70188-3**  
 Date **31-Jan-18**  
 Call Letters **KENS 29**  
 Frequency **563 MHz**  
 Antenna Type **TFU-26GBH-R 06**

RMS Directivity at Main Lobe **24.50 ( 13.89 dB )**  
 RMS Directivity at Horizontal **19.00 ( 12.79 dB )**  
**Calculated**

Beam Tilt **0.70 deg**  
 Drawing Number **26G245070**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.037	10.0	0.078	30.0	0.002	50.0	0.001	70.0	0.026
-9.0	0.002	11.0	0.056	31.0	0.017	51.0	0.021	71.0	0.033
-8.0	0.092	12.0	0.049	32.0	0.003	52.0	0.032	72.0	0.034
-7.0	0.081	13.0	0.071	33.0	0.023	53.0	0.027	73.0	0.028
-6.0	0.052	14.0	0.086	34.0	0.030	54.0	0.009	74.0	0.019
-5.0	0.120	15.0	0.065	35.0	0.008	55.0	0.010	75.0	0.007
-4.0	0.017	16.0	0.036	36.0	0.016	56.0	0.017	76.0	0.005
-3.0	0.188	17.0	0.038	37.0	0.016	57.0	0.008	77.0	0.016
-2.0	0.068	18.0	0.057	38.0	0.007	58.0	0.010	78.0	0.025
-1.0	0.403	19.0	0.048	39.0	0.026	59.0	0.029	79.0	0.031
0.0	0.881	20.0	0.005	40.0	0.019	60.0	0.038	80.0	0.034
1.0	0.980	21.0	0.030	41.0	0.006	61.0	0.033	81.0	0.035
2.0	0.686	22.0	0.024	42.0	0.026	62.0	0.017	82.0	0.033
3.0	0.313	23.0	0.002	43.0	0.022	63.0	0.005	83.0	0.030
4.0	0.122	24.0	0.007	44.0	0.001	64.0	0.023	84.0	0.026
5.0	0.102	25.0	0.036	45.0	0.020	65.0	0.032	85.0	0.021
6.0	0.108	26.0	0.049	46.0	0.021	66.0	0.031	86.0	0.015
7.0	0.084	27.0	0.024	47.0	0.003	67.0	0.020	87.0	0.010
8.0	0.069	28.0	0.011	48.0	0.014	68.0	0.004	88.0	0.006
9.0	0.079	29.0	0.019	49.0	0.016	69.0	0.012	89.0	0.002
								90.0	0.000

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## MECHANICALS

Proposal No. **C-70188-3**  
 Date **31-Jan-18**  
 Call Letters **KENS** **29**  
 Frequency **563 MHz**  
 Antenna Type **TFU-26GBH-R 06**

## Preliminary Specifications

### Bottom of Stack

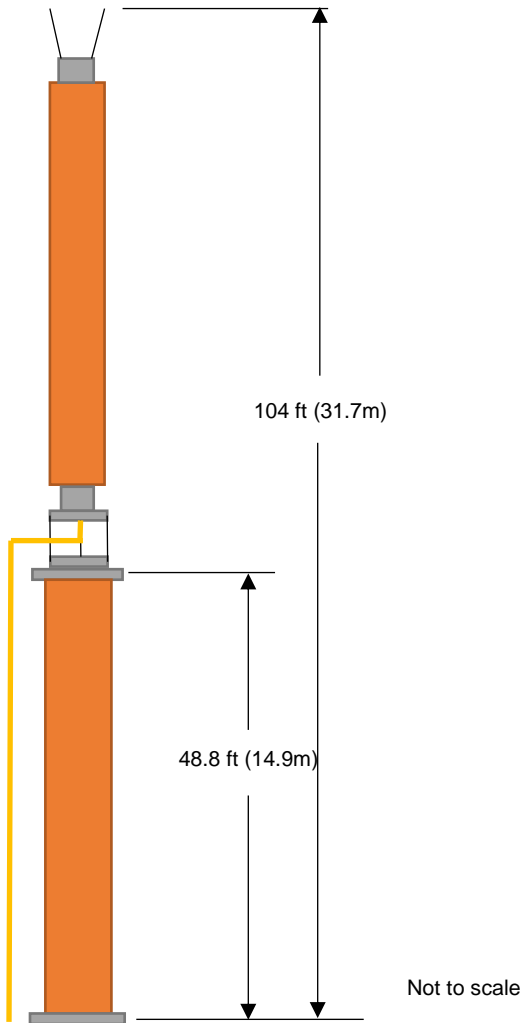
#### Mechanical Specification without ice TIA-222-G

Height AGL(z) 1425 ft (434.3 m)  
 Basic Wind Speed 90 m/h (144.8 km/h)

Structure Class II  
 Exposure Category C  
 Topography Category 1

#### Mechanical Specifications with ice TIA-222-G

Design Ice 0.5 in  $t_{iz} = 1.40$  in  
 Wind Speed w/Ice 30 m/h (48.3 km/h)



### Mechanical Specifications

		without ice	with ice	full stack	full stack with ice
Height with Lightning Protector	H4			104 ft (31.7m)	
Height less Lightning Protector	H2	48.8 ft (14.9m)		100 ft (30.5m)	
Height of Center of Radiation	H3	24.4 ft (7.4m)		24.4 ft (7.4m)	
Effective Projected Area	(EPA) <sub>S</sub>	65.2 ft <sup>2</sup> (6.1m <sup>2</sup> )	148 ft <sup>2</sup> (13.7m <sup>2</sup> )	192.3 ft <sup>2</sup> (17.9m <sup>2</sup> )	318.1 ft <sup>2</sup> (29.6m <sup>2</sup> )
Moment Arm	D1	24.4 ft (7.4m)	24.4 ft (7.4m)	38.9 ft (11.9m)	45.8 ft (14m)

Weight	W	16500 lb (7.5t)	19000 lb (8.6t)	22600 lb (10.3t)	28400 lb (12.9t)
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Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA-222-G

Prepared by:	KLP	Date:	31-Jan-18	ME:	EE:
Rev. No.3 by:	JBC	Date:	31-Jan-18		

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## Summary

Proposal No.	<b>C-70188-3</b>	
Date	<b>31-Jan-18</b>	
Call Letters	<b>KENS</b>	<b>29 DTV</b>
Frequency	<b>563 MHz</b>	
Antenna Type	<b>TFU-26GBH-R 06</b>	

## Antenna

	<b>Hpol</b>	
ERP:	<b>1000.0 kW</b>	<b>( 30.00 dBk )</b>
RMS Gain*	24.50	( 13.89 dB )

<b>Antenna Input Power</b>	<b>40.8 kW</b>	<b>( 16.11 dBk )</b>
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## Transmission Line

Type	Rigid	Attenuation	( 1.51 dB )
Size	Size 7-3/16"	Efficiency	70.6%
Impedence	75 Ohm		
Length	1520 ft	463.3 m	

## Transmitter Output

<b>57.8 kW</b>	<b>( 17.62 dBk )</b>
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Transmitter filter losses not included

\* Directivity and Gain are with respect to half wave dipole.

\*\*Antenna Gain includes feed system losses

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