



Antenna Model: **TFU-25JSC/VP-R 04**

Proposal Number: **C-70864-3**
Date: **30-May-18**
Customer: **Nexstar**
Location: **Fort Smith, AR**

Electrical Specifications

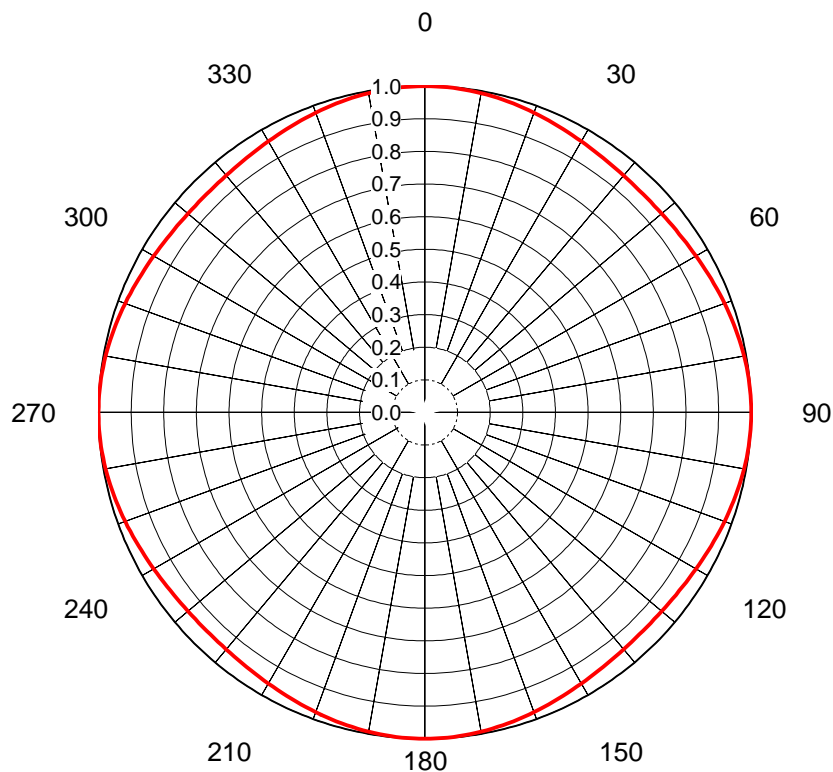
Polarization: **Elliptical**
Azimuth Pattern: **Omni**
Antenna Input: **6-1/8"** **75 Ohm** **EIA/DCA**
VSWR: **Channel** **1.08 : 1** **Band**
Bandwidth: **6 MHz**
Rated Input Power: **50 kW** **(16.99 dBk)** **Maximum Average Power**

Mechanical Specifications

Mounting: **Side Mounted**
Environmental Protection: **Full Radome**
Height: **47.2 ft (14.4m)**
Weight: **1250 lb (0.6t)** **Excludes Mounts**
Effective Projected Area: **39.8 ft² (3.7m²)** **TIA-222-G** **Basic Wind Speed: 90 m/h (144.8 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
KNWA	33	587 MHz	820 kW (29.14 dBk)	205 kW (23.12 dBk)	48.3 kW (16.84 dBk)	19.60 (12.92dB)	4.90 (6.90dB)	13.18 (11.20dB)	3.29 (5.18dB)



AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-70864-3**
 Date **30-May-18**
 Call Letters **KNWA**
 Channel **33**
 Frequency **587 MHz**
 Antenna Type **TFU-25JSC/VP-R 04**
 Gain **1.06 (0.24dB)**
 Calculated
 Circularity **+/- 1.0 dB**

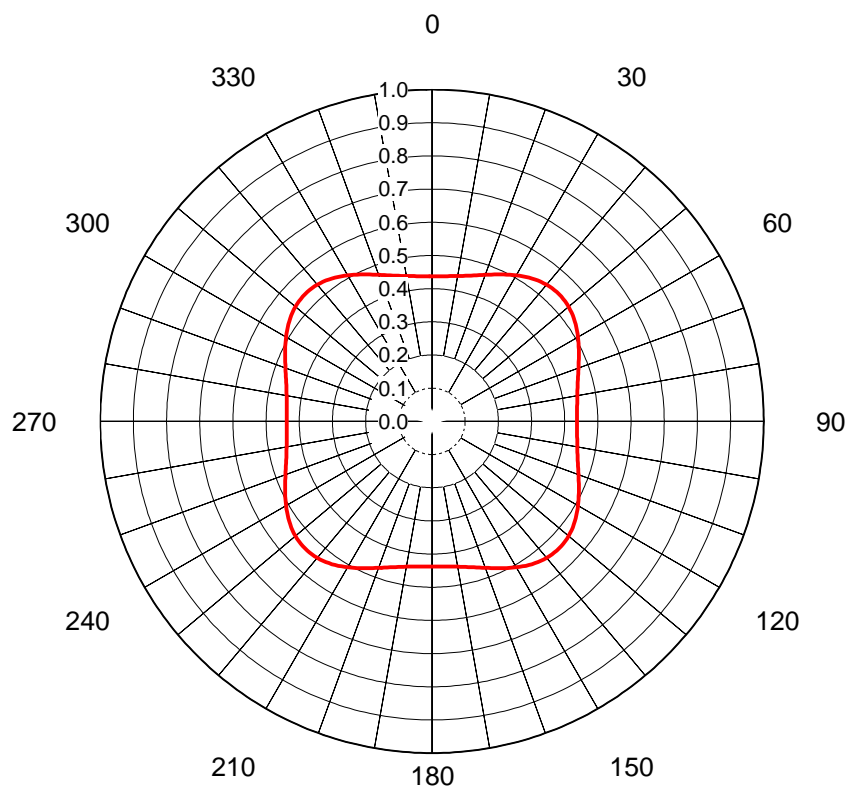
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.951	72	0.981	108	0.981	144	0.951	180	1.000	216	0.951	252	0.981	288	0.981	324	0.951
1	1.000	37	0.950	73	0.983	109	0.979	145	0.952	181	1.000	217	0.950	253	0.983	289	0.979	325	0.952
2	1.000	38	0.949	74	0.985	110	0.977	146	0.953	182	1.000	218	0.949	254	0.985	290	0.977	326	0.953
3	0.999	39	0.948	75	0.986	111	0.975	147	0.955	183	0.999	219	0.948	255	0.986	291	0.975	327	0.955
4	0.999	40	0.948	76	0.988	112	0.974	148	0.956	184	0.999	220	0.948	256	0.988	292	0.974	328	0.956
5	0.998	41	0.947	77	0.989	113	0.972	149	0.958	185	0.998	221	0.947	257	0.989	293	0.972	329	0.958
6	0.998	42	0.947	78	0.991	114	0.970	150	0.959	186	0.998	222	0.947	258	0.991	294	0.970	330	0.959
7	0.997	43	0.946	79	0.992	115	0.968	151	0.961	187	0.997	223	0.946	259	0.992	295	0.968	331	0.961
8	0.996	44	0.946	80	0.994	116	0.966	152	0.963	188	0.996	224	0.946	260	0.994	296	0.966	332	0.963
9	0.995	45	0.946	81	0.995	117	0.964	153	0.964	189	0.995	225	0.946	261	0.995	297	0.964	333	0.964
10	0.994	46	0.946	82	0.996	118	0.963	154	0.966	190	0.994	226	0.946	262	0.996	298	0.963	334	0.966
11	0.992	47	0.946	83	0.997	119	0.961	155	0.968	191	0.992	227	0.946	263	0.997	299	0.961	335	0.968
12	0.991	48	0.947	84	0.998	120	0.959	156	0.970	192	0.991	228	0.947	264	0.998	300	0.959	336	0.970
13	0.989	49	0.947	85	0.998	121	0.958	157	0.972	193	0.989	229	0.947	265	0.998	301	0.958	337	0.972
14	0.988	50	0.948	86	0.999	122	0.956	158	0.974	194	0.988	230	0.948	266	0.999	302	0.956	338	0.974
15	0.986	51	0.948	87	0.999	123	0.955	159	0.975	195	0.986	231	0.948	267	0.999	303	0.955	339	0.975
16	0.985	52	0.949	88	1.000	124	0.953	160	0.977	196	0.985	232	0.949	268	1.000	304	0.953	340	0.977
17	0.983	53	0.950	89	1.000	125	0.952	161	0.979	197	0.983	233	0.950	269	1.000	305	0.952	341	0.979
18	0.981	54	0.951	90	1.000	126	0.951	162	0.981	198	0.981	234	0.951	270	1.000	306	0.951	342	0.981
19	0.979	55	0.952	91	1.000	127	0.950	163	0.983	199	0.979	235	0.952	271	1.000	307	0.950	343	0.983
20	0.977	56	0.953	92	1.000	128	0.949	164	0.985	200	0.977	236	0.953	272	1.000	308	0.949	344	0.985
21	0.975	57	0.955	93	0.999	129	0.948	165	0.986	201	0.975	237	0.955	273	0.999	309	0.948	345	0.986
22	0.974	58	0.956	94	0.999	130	0.948	166	0.988	202	0.974	238	0.956	274	0.999	310	0.948	346	0.988
23	0.972	59	0.958	95	0.998	131	0.947	167	0.989	203	0.972	239	0.958	275	0.998	311	0.947	347	0.989
24	0.970	60	0.959	96	0.998	132	0.947	168	0.991	204	0.970	240	0.959	276	0.998	312	0.947	348	0.991
25	0.968	61	0.961	97	0.997	133	0.946	169	0.992	205	0.968	241	0.961	277	0.997	313	0.946	349	0.992
26	0.966	62	0.963	98	0.996	134	0.946	170	0.994	206	0.966	242	0.963	278	0.996	314	0.946	350	0.994
27	0.964	63	0.964	99	0.995	135	0.946	171	0.995	207	0.964	243	0.964	279	0.995	315	0.946	351	0.995
28	0.963	64	0.966	100	0.994	136	0.946	172	0.996	208	0.963	244	0.966	280	0.994	316	0.946	352	0.996
29	0.961	65	0.968	101	0.992	137	0.946	173	0.997	209	0.961	245	0.968	281	0.992	317	0.946	353	0.997
30	0.959	66	0.970	102	0.991	138	0.947	174	0.998	210	0.959	246	0.970	282	0.991	318	0.947	354	0.998
31	0.958	67	0.972	103	0.989	139	0.947	175	0.998	211	0.958	247	0.972	283	0.989	319	0.947	355	0.998
32	0.956	68	0.974	104	0.988	140	0.948	176	0.999	212	0.956	248	0.974	284	0.988	320	0.948	356	0.999
33	0.955	69	0.975	105	0.986	141	0.948	177	0.999	213	0.955	249	0.975	285	0.986	321	0.948	357	0.999
34	0.953	70	0.977	106	0.985	142	0.949	178	1.000	214	0.953	250	0.977	286	0.985	322	0.949	358	1.000
35	0.952	71	0.979	107	0.983	143	0.950	179	1.000	215	0.952	251	0.979	287	0.983	323	0.950	359	1.000

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AZIMUTH PATTERN Vertical Polarization

In Free Space

Proposal No. **C-70864-3**
Date **30-May-18**
Call Letters **KNWA**
Channel **33**
Frequency **587 MHz**
Antenna Type **TFU-25JSC/VP-R 04**
Gain **1.24 (0.95dB)**
Circularity **+/- 1.0 dB**



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.437	36	0.528	72	0.463	108	0.463	144	0.528	180	0.437	216	0.528	252	0.463	288	0.463
1	0.438	37	0.531	73	0.460	109	0.467	145	0.525	181	0.438	217	0.531	253	0.460	289	0.467
2	0.438	38	0.534	74	0.458	110	0.470	146	0.522	182	0.438	218	0.534	254	0.458	290	0.470
3	0.438	39	0.536	75	0.455	111	0.473	147	0.519	183	0.438	219	0.536	255	0.455	291	0.473
4	0.439	40	0.537	76	0.453	112	0.477	148	0.515	184	0.439	220	0.537	256	0.453	292	0.477
5	0.439	41	0.539	77	0.450	113	0.481	149	0.512	185	0.439	221	0.539	257	0.450	293	0.481
6	0.440	42	0.540	78	0.448	114	0.485	150	0.508	186	0.440	222	0.540	258	0.448	294	0.485
7	0.441	43	0.541	79	0.446	115	0.488	151	0.504	187	0.441	223	0.541	259	0.446	295	0.488
8	0.442	44	0.542	80	0.445	116	0.492	152	0.500	188	0.442	224	0.542	260	0.445	296	0.492
9	0.443	45	0.542	81	0.443	117	0.496	153	0.496	189	0.443	225	0.542	261	0.443	297	0.496
10	0.445	46	0.542	82	0.442	118	0.500	154	0.492	190	0.445	226	0.542	262	0.442	298	0.500
11	0.446	47	0.541	83	0.441	119	0.504	155	0.488	191	0.446	227	0.541	263	0.441	299	0.504
12	0.448	48	0.540	84	0.440	120	0.508	156	0.485	192	0.448	228	0.540	264	0.440	300	0.508
13	0.450	49	0.539	85	0.439	121	0.512	157	0.481	193	0.450	229	0.539	265	0.439	301	0.512
14	0.453	50	0.537	86	0.439	122	0.515	158	0.477	194	0.453	230	0.537	266	0.439	302	0.515
15	0.455	51	0.536	87	0.438	123	0.519	159	0.473	195	0.455	231	0.536	267	0.438	303	0.519
16	0.458	52	0.534	88	0.438	124	0.522	160	0.470	196	0.458	232	0.534	268	0.438	304	0.522
17	0.460	53	0.531	89	0.438	125	0.525	161	0.467	197	0.460	233	0.531	269	0.438	305	0.525
18	0.463	54	0.528	90	0.437	126	0.528	162	0.463	198	0.463	234	0.528	270	0.437	306	0.528
19	0.467	55	0.525	91	0.438	127	0.531	163	0.460	199	0.467	235	0.525	271	0.438	307	0.531
20	0.470	56	0.522	92	0.438	128	0.534	164	0.458	200	0.470	236	0.522	272	0.438	308	0.534
21	0.473	57	0.519	93	0.438	129	0.536	165	0.455	201	0.473	237	0.519	273	0.438	309	0.536
22	0.477	58	0.515	94	0.439	130	0.537	166	0.453	202	0.477	238	0.515	274	0.439	310	0.537
23	0.481	59	0.512	95	0.439	131	0.539	167	0.450	203	0.481	239	0.512	275	0.439	311	0.539
24	0.485	60	0.508	96	0.440	132	0.540	168	0.448	204	0.485	240	0.508	276	0.440	312	0.540
25	0.488	61	0.504	97	0.441	133	0.541	169	0.446	205	0.488	241	0.504	277	0.441	313	0.541
26	0.492	62	0.500	98	0.442	134	0.542	170	0.445	206	0.492	242	0.500	278	0.442	314	0.542
27	0.496	63	0.496	99	0.443	135	0.542	171	0.443	207	0.496	243	0.496	279	0.443	315	0.542
28	0.500	64	0.492	100	0.445	136	0.542	172	0.442	208	0.500	244	0.492	280	0.445	316	0.542
29	0.504	65	0.488	101	0.446	137	0.541	173	0.441	209	0.504	245	0.488	281	0.446	317	0.541
30	0.508	66	0.485	102	0.448	138	0.540	174	0.440	210	0.508	246	0.485	282	0.448	318	0.540
31	0.512	67	0.481	103	0.450	139	0.539	175	0.439	211	0.512	247	0.481	283	0.450	319	0.539
32	0.515	68	0.477	104	0.453	140	0.537	176	0.439	212	0.515	248	0.477	284	0.453	320	0.537
33	0.519	69	0.473	105	0.455	141	0.536	177	0.438	213	0.519	249	0.473	285	0.455	321	0.536
34	0.522	70	0.470	106	0.458	142	0.534	178	0.438	214	0.522	250	0.470	286	0.458	322	0.534
35	0.525	71	0.467	107	0.460	143	0.531	179	0.438	215	0.525	251	0.467	287	0.460	323	0.531

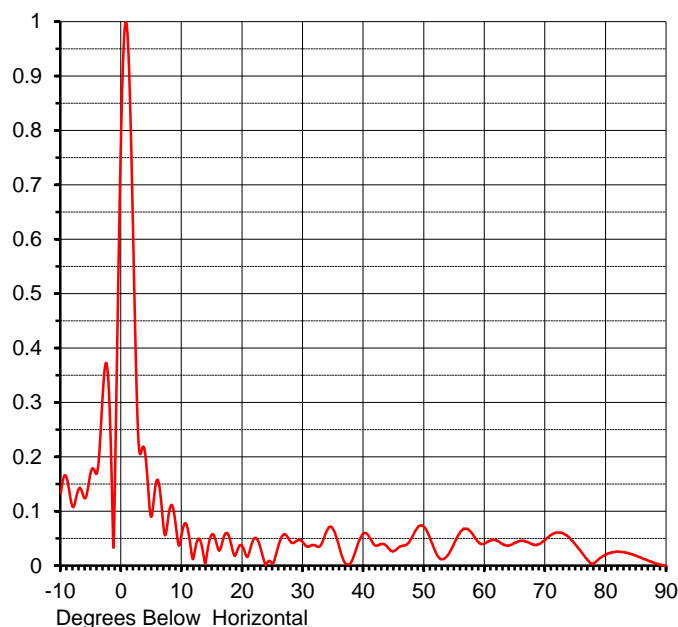
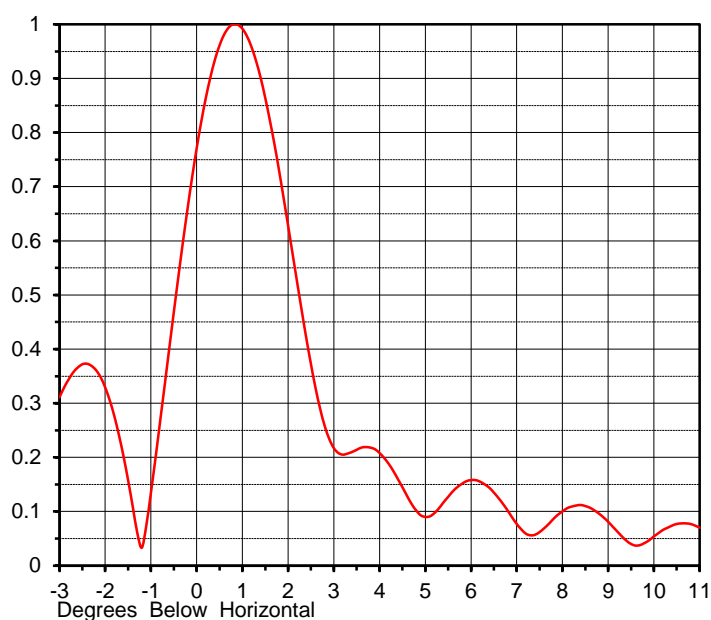
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ELEVATION PATTERN

Proposal No. **C-70864-3**
 Date **30-May-18**
 Call Letters **KNWA**
 Channel **33**
 Frequency **587 MHz**
 Antenna Type **TFU-25JSC/VP-R 04**

RMS Directivity at Main Lobe **24.5 (13.89 dB)**
 RMS Directivity at Horizontal **16.5 (12.17 dB)**
Calculated

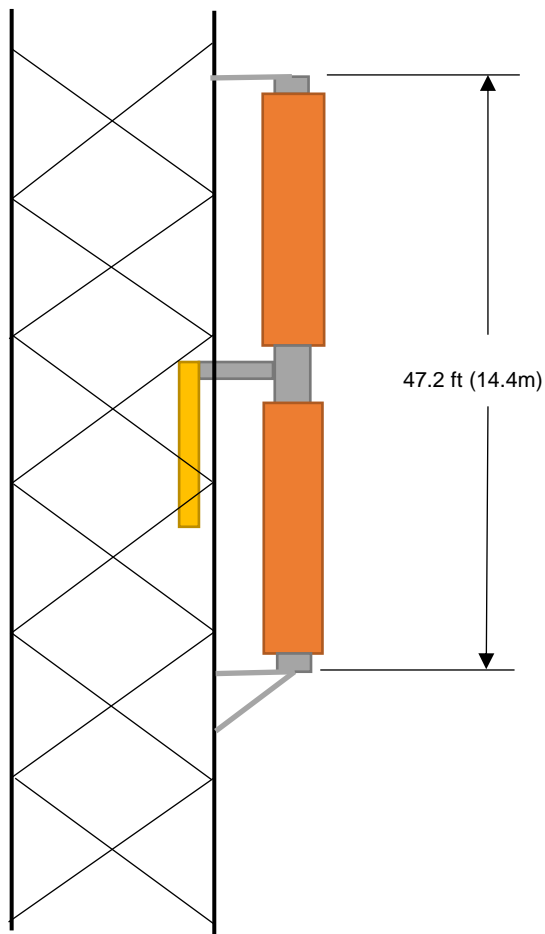
Beam Tilt **0.75 deg**
 Pattern Number **25Z245075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.134	10.0	0.060	30.0	0.042	50.0	0.071	70.0	0.048
-9.0	0.160	11.0	0.065	31.0	0.036	51.0	0.049	71.0	0.057
-8.0	0.108	12.0	0.020	32.0	0.037	52.0	0.022	72.0	0.061
-7.0	0.142	13.0	0.047	33.0	0.039	53.0	0.012	73.0	0.059
-6.0	0.124	14.0	0.013	34.0	0.066	54.0	0.021	74.0	0.051
-5.0	0.174	15.0	0.058	35.0	0.066	55.0	0.043	75.0	0.038
-4.0	0.172	16.0	0.030	36.0	0.033	56.0	0.063	76.0	0.024
-3.0	0.329	17.0	0.056	37.0	0.004	57.0	0.068	77.0	0.010
-2.0	0.305	18.0	0.045	38.0	0.008	58.0	0.058	78.0	0.005
-1.0	0.199	19.0	0.024	39.0	0.039	59.0	0.042	79.0	0.014
0.0	0.820	20.0	0.035	40.0	0.060	60.0	0.041	80.0	0.021
1.0	0.978	21.0	0.021	41.0	0.051	61.0	0.047	81.0	0.025
2.0	0.575	22.0	0.051	42.0	0.037	62.0	0.046	82.0	0.026
3.0	0.208	23.0	0.031	43.0	0.040	63.0	0.039	83.0	0.025
4.0	0.199	24.0	0.004	44.0	0.033	64.0	0.037	84.0	0.022
5.0	0.091	25.0	0.004	45.0	0.027	65.0	0.042	85.0	0.018
6.0	0.158	26.0	0.040	46.0	0.035	66.0	0.046	86.0	0.014
7.0	0.067	27.0	0.058	47.0	0.038	67.0	0.044	87.0	0.009
8.0	0.106	28.0	0.043	48.0	0.053	68.0	0.039	88.0	0.005
9.0	0.072	29.0	0.046	49.0	0.072	69.0	0.040	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS



Proposal No. **C-70864-3**
 Date **30-May-18**
 Call Letters **KNWA**
 Channel **33**
 Frequency **587 MHz**
 Antenna Type **TFU-25JSC/VP-R 04**

Preliminary Specifications

Side Mounted

With ice TIA-222-G

Basic Wind Speed 90 m/h (144.8 km/h)

Structure Class II
Exposure Category C
Topography Category 5 Kzt=1.425
Height of Crest 200 ft (61 m)

Design Ice 1 in $t_{iz} = 2.81$ in
Wind Speed w/Ice 30 m/h (48.3 km/h)

Mechanical Specifications

		without ice	with ice	
Height	H2	47.2 ft (14.4m)		
Height of Center of Radiation	H3	23.6 ft (7.2m)		
Effective Projected Area	(EPA) _A	39.8 ft ² (3.7m ²)	106.1 ft ² (9.9m ²)	Mounts Excluded
Weight	W	1250 lb (0.6t)	5200 lb (2.4t)	Mounts Excluded

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

Prepared by: KLP
Rev. No.3 by: JBC

Date: 30-May-18
Date: 30-May-18

ME:
EE:

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Summary

Proposal No. **C-70864-3**
Date **30-May-18**
Call Letters **KNWA**
Channel **33**
Frequency **587 MHz**
Antenna Type **TFU-25JSC/VP-R 04**

Antenna

	Hpol		Vpol	
ERP:	820 kW	(29.14 dBk)	205 kW	(23.12 dBk)
RMS Gain*	19.60	(12.92 dB)	4.90	(6.90 dB)

Antenna Input Power **41.8 kW (16.22 dBk)**

Transmission Line

Type:	Rigid	Attenuation:	(0.62 dB)
Size:	6-1/8"	Efficiency:	86.7%
Impedance:	75 Ohm		
Length:	525 ft	160.0 m	

Transmitter Output

48.3 kW (16.84 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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