

Horizontal Polarization AZIMUTH PATTERN

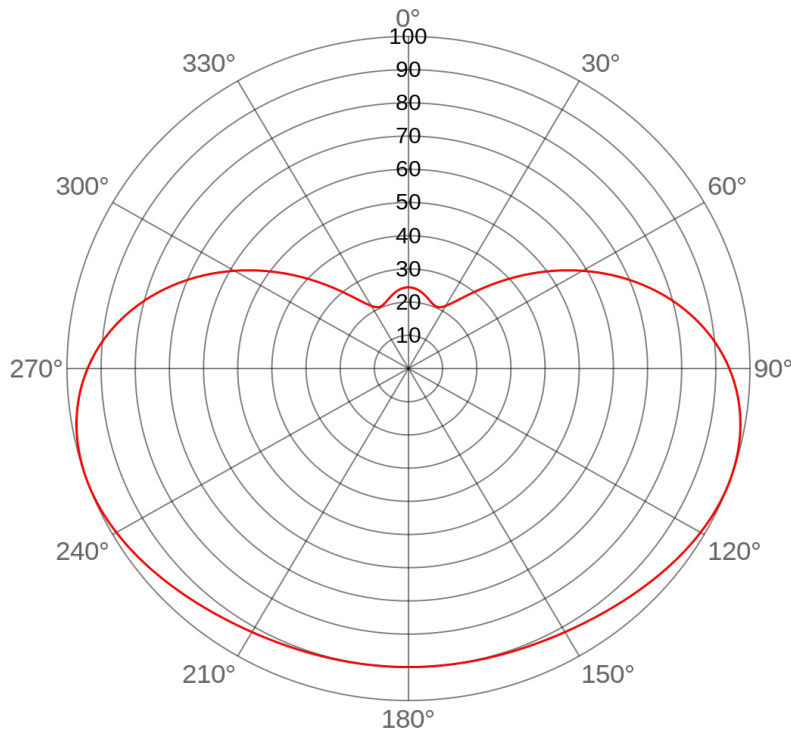


Exhibit No.
Date **25 Jun 2017**
Call Letters **WSBS**
Channel **19**
Antenna Type **TFU-10GTH TFU**
Location **Miami**
Customer **Spanish Broadcasting**

Gain **1.7 (2.30 dB)**
Calculated
Drawing # **TFU-C170**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.245	36	0.260	72	0.760	108	1.000	144	0.928	180	0.899	216	0.928	252	1.000	288	0.760	324	0.260
1	0.244	37	0.269	73	0.773	109	1.000	145	0.926	181	0.899	217	0.930	253	0.999	289	0.747	325	0.251
2	0.244	38	0.280	74	0.785	110	1.000	146	0.924	182	0.899	218	0.932	254	0.998	290	0.733	326	0.243
3	0.243	39	0.290	75	0.797	111	1.000	147	0.922	183	0.899	219	0.934	255	0.997	291	0.720	327	0.235
4	0.242	40	0.302	76	0.809	112	0.999	148	0.920	184	0.899	220	0.936	256	0.996	292	0.706	328	0.229
5	0.241	41	0.313	77	0.821	113	0.998	149	0.918	185	0.900	221	0.939	257	0.994	293	0.692	329	0.223
6	0.240	42	0.326	78	0.832	114	0.997	150	0.917	186	0.900	222	0.941	258	0.992	294	0.677	330	0.218
7	0.238	43	0.338	79	0.843	115	0.996	151	0.915	187	0.900	223	0.944	259	0.990	295	0.663	331	0.214
8	0.236	44	0.352	80	0.854	116	0.995	152	0.914	188	0.900	224	0.946	260	0.987	296	0.648	332	0.210
9	0.234	45	0.365	81	0.864	117	0.993	153	0.912	189	0.900	225	0.949	261	0.984	297	0.634	333	0.207
10	0.232	46	0.379	82	0.874	118	0.992	154	0.911	190	0.900	226	0.952	262	0.981	298	0.619	334	0.206
11	0.229	47	0.393	83	0.883	119	0.990	155	0.910	191	0.901	227	0.954	263	0.977	299	0.604	335	0.204
12	0.227	48	0.407	84	0.893	120	0.988	156	0.909	192	0.901	228	0.957	264	0.973	300	0.588	336	0.204
13	0.224	49	0.422	85	0.901	121	0.986	157	0.908	193	0.901	229	0.960	265	0.968	301	0.573	337	0.204
14	0.222	50	0.437	86	0.910	122	0.983	158	0.907	194	0.902	230	0.963	266	0.963	302	0.558	338	0.205
15	0.219	51	0.451	87	0.918	123	0.981	159	0.906	195	0.902	231	0.965	267	0.958	303	0.543	339	0.206
16	0.216	52	0.466	88	0.925	124	0.978	160	0.905	196	0.903	232	0.968	268	0.952	304	0.527	340	0.207
17	0.214	53	0.482	89	0.933	125	0.976	161	0.905	197	0.903	233	0.971	269	0.946	305	0.512	341	0.209
18	0.211	54	0.497	90	0.940	126	0.973	162	0.904	198	0.904	234	0.973	270	0.940	306	0.497	342	0.211
19	0.209	55	0.512	91	0.946	127	0.971	163	0.903	199	0.905	235	0.976	271	0.933	307	0.482	343	0.214
20	0.207	56	0.527	92	0.952	128	0.968	164	0.903	200	0.905	236	0.978	272	0.925	308	0.466	344	0.216
21	0.206	57	0.543	93	0.958	129	0.965	165	0.902	201	0.906	237	0.981	273	0.918	309	0.451	345	0.219
22	0.205	58	0.558	94	0.963	130	0.963	166	0.902	202	0.907	238	0.983	274	0.910	310	0.437	346	0.222
23	0.204	59	0.573	95	0.968	131	0.960	167	0.901	203	0.908	239	0.986	275	0.901	311	0.422	347	0.224
24	0.204	60	0.588	96	0.973	132	0.957	168	0.901	204	0.909	240	0.988	276	0.893	312	0.407	348	0.227
25	0.204	61	0.604	97	0.977	133	0.954	169	0.901	205	0.910	241	0.990	277	0.883	313	0.393	349	0.229
26	0.206	62	0.619	98	0.981	134	0.952	170	0.900	206	0.911	242	0.992	278	0.874	314	0.379	350	0.232
27	0.207	63	0.634	99	0.984	135	0.949	171	0.900	207	0.912	243	0.993	279	0.864	315	0.365	351	0.234
28	0.210	64	0.648	100	0.987	136	0.946	172	0.900	208	0.914	244	0.995	280	0.854	316	0.352	352	0.236
29	0.214	65	0.663	101	0.990	137	0.944	173	0.900	209	0.915	245	0.996	281	0.843	317	0.338	353	0.238
30	0.218	66	0.677	102	0.992	138	0.941	174	0.900	210	0.917	246	0.997	282	0.832	318	0.326	354	0.240
31	0.223	67	0.692	103	0.994	139	0.939	175	0.900	211	0.918	247	0.998	283	0.821	319	0.313	355	0.241
32	0.229	68	0.706	104	0.996	140	0.936	176	0.899	212	0.920	248	0.999	284	0.809	320	0.302	356	0.242
33	0.235	69	0.720	105	0.997	141	0.934	177	0.899	213	0.922	249	1.000	285	0.797	321	0.290	357	0.243
34	0.243	70	0.733	106	0.998	142	0.932	178	0.899	214	0.924	250	1.000	286	0.785	322	0.280	358	0.244
35	0.251	71	0.747	107	0.999	143	0.930	179	0.899	215	0.926	251	1.000	287	0.773	323	0.269	359	0.244

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Vertical Polarization AZIMUTH PATTERN

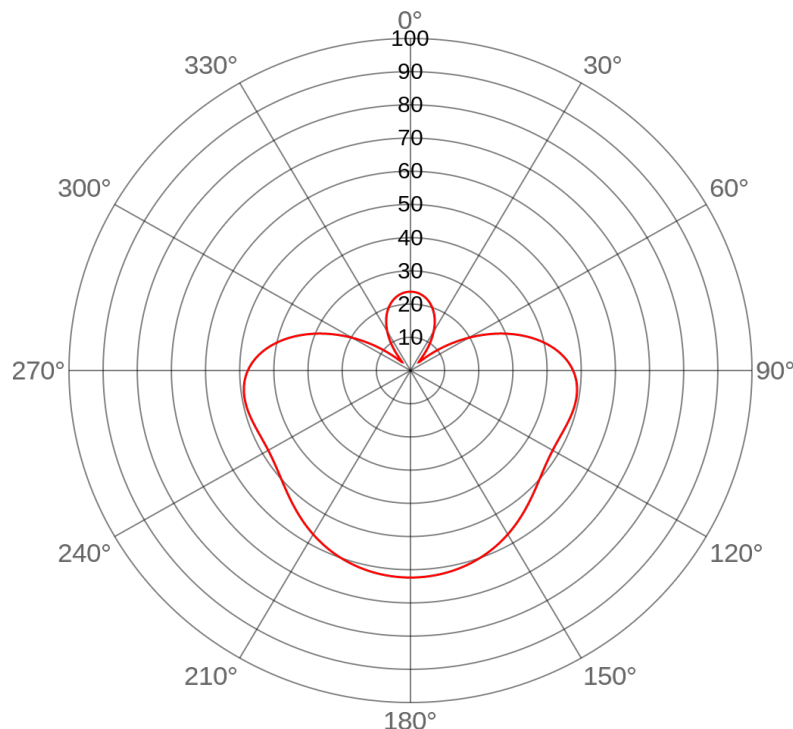


Exhibit No.
Date **25 Jun 2017**
Call Letters **WSBS**
Channel **19**
Antenna Type **TFU-10GTH TFU**
Location **Miami**
Customer **Spanish Broadcasting**

Gain **1.7 (2.30 dB)**
Calculated
Drawing # **TFU-C170**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.237	36	0.090	72	0.342	108	0.488	144	0.548	180	0.624	216	0.548	252	0.488	288	0.342	324	0.090
1	0.237	37	0.082	73	0.353	109	0.486	145	0.551	181	0.624	217	0.544	253	0.489	289	0.331	325	0.098
2	0.237	38	0.073	74	0.363	110	0.485	146	0.555	182	0.623	218	0.540	254	0.490	290	0.320	326	0.106
3	0.236	39	0.065	75	0.373	111	0.484	147	0.559	183	0.623	219	0.536	255	0.491	291	0.308	327	0.114
4	0.236	40	0.057	76	0.383	112	0.483	148	0.563	184	0.623	220	0.532	256	0.491	292	0.297	328	0.122
5	0.235	41	0.049	77	0.392	113	0.483	149	0.566	185	0.622	221	0.528	257	0.492	293	0.285	329	0.129
6	0.234	42	0.043	78	0.401	114	0.482	150	0.570	186	0.622	222	0.524	258	0.493	294	0.273	330	0.136
7	0.232	43	0.038	79	0.410	115	0.481	151	0.573	187	0.621	223	0.521	259	0.493	295	0.260	331	0.143
8	0.231	44	0.035	80	0.418	116	0.481	152	0.577	188	0.620	224	0.517	260	0.493	296	0.248	332	0.150
9	0.229	45	0.036	81	0.426	117	0.480	153	0.580	189	0.619	225	0.513	261	0.493	297	0.235	333	0.156
10	0.227	46	0.040	82	0.433	118	0.480	154	0.583	190	0.618	226	0.510	262	0.492	298	0.223	334	0.162
11	0.225	47	0.047	83	0.440	119	0.481	155	0.586	191	0.616	227	0.507	263	0.492	299	0.210	335	0.168
12	0.222	48	0.056	84	0.447	120	0.481	156	0.589	192	0.615	228	0.503	264	0.490	300	0.197	336	0.174
13	0.219	49	0.065	85	0.453	121	0.481	157	0.592	193	0.614	229	0.500	265	0.489	301	0.185	337	0.179
14	0.216	50	0.076	86	0.458	122	0.482	158	0.595	194	0.612	230	0.498	266	0.487	302	0.172	338	0.184
15	0.213	51	0.087	87	0.463	123	0.483	159	0.597	195	0.610	231	0.495	267	0.485	303	0.160	339	0.189
16	0.210	52	0.099	88	0.468	124	0.485	160	0.600	196	0.608	232	0.492	268	0.483	304	0.147	340	0.194
17	0.206	53	0.110	89	0.472	125	0.486	161	0.602	197	0.606	233	0.490	269	0.480	305	0.135	341	0.198
18	0.202	54	0.122	90	0.476	126	0.488	162	0.604	198	0.604	234	0.488	270	0.476	306	0.122	342	0.202
19	0.198	55	0.135	91	0.480	127	0.490	163	0.606	199	0.602	235	0.486	271	0.472	307	0.110	343	0.206
20	0.194	56	0.147	92	0.483	128	0.492	164	0.608	200	0.600	236	0.485	272	0.468	308	0.099	344	0.210
21	0.189	57	0.160	93	0.485	129	0.495	165	0.610	201	0.597	237	0.483	273	0.463	309	0.087	345	0.213
22	0.184	58	0.172	94	0.487	130	0.498	166	0.612	202	0.595	238	0.482	274	0.458	310	0.076	346	0.216
23	0.179	59	0.185	95	0.489	131	0.500	167	0.614	203	0.592	239	0.481	275	0.453	311	0.065	347	0.219
24	0.174	60	0.197	96	0.490	132	0.503	168	0.615	204	0.589	240	0.481	276	0.447	312	0.056	348	0.222
25	0.168	61	0.210	97	0.492	133	0.507	169	0.616	205	0.586	241	0.481	277	0.440	313	0.047	349	0.225
26	0.162	62	0.223	98	0.492	134	0.510	170	0.618	206	0.583	242	0.480	278	0.433	314	0.040	350	0.227
27	0.156	63	0.235	99	0.493	135	0.513	171	0.619	207	0.580	243	0.480	279	0.426	315	0.036	351	0.229
28	0.150	64	0.248	100	0.493	136	0.517	172	0.620	208	0.577	244	0.481	280	0.418	316	0.035	352	0.231
29	0.143	65	0.260	101	0.493	137	0.521	173	0.621	209	0.573	245	0.481	281	0.410	317	0.038	353	0.232
30	0.136	66	0.273	102	0.493	138	0.524	174	0.622	210	0.570	246	0.482	282	0.401	318	0.043	354	0.234
31	0.129	67	0.285	103	0.492	139	0.528	175	0.622	211	0.566	247	0.483	283	0.392	319	0.049	355	0.235
32	0.122	68	0.297	104	0.491	140	0.532	176	0.623	212	0.563	248	0.483	284	0.383	320	0.057	356	0.236
33	0.114	69	0.308	105	0.491	141	0.536	177	0.623	213	0.559	249	0.484	285	0.373	321	0.065	357	0.236
34	0.106	70	0.320	106	0.490	142	0.540	178	0.623	214	0.555	250	0.485	286	0.363	322	0.073	358	0.237
35	0.098	71	0.331	107	0.489	143	0.544	179	0.624	215	0.551	251	0.486	287	0.353	323	0.082	359	0.237

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ELEVATION PATTERN

Exhibit No. **1**
Date **25 Jun 2017**
Call Letters **WSBS**
Channel **19**
Antenna Type **TFU-10GTH TFU**
Location **Miami**
Customer **Spanish Broadcasting**

Future fill is available!

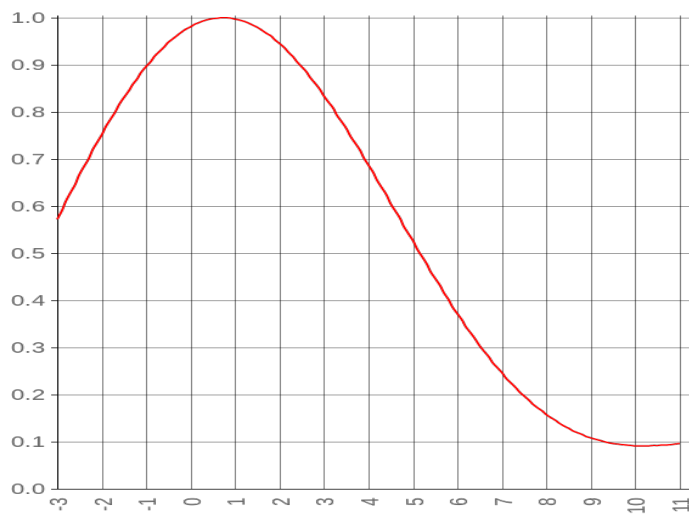
RMS Gain at Main Lobe **9.0 (9.54 dB)**

RMS Gain at Horizontal **8.7 (9.38 dB)**

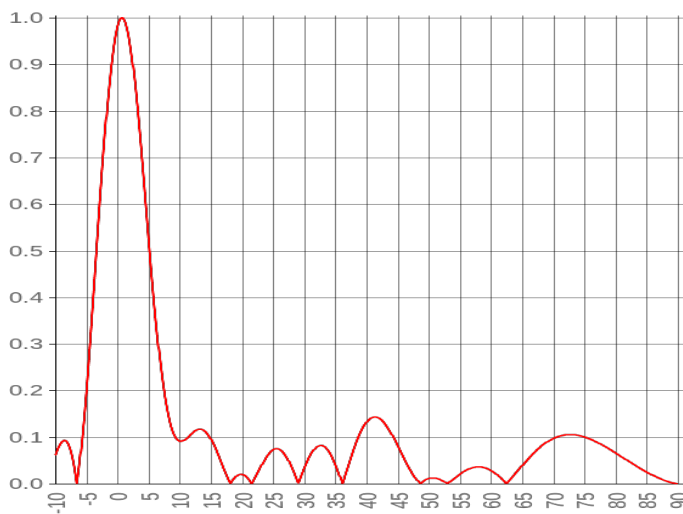
Calculated

Beam Tilt **0.75 Degrees**

Drawing # **10G090075**



Degrees below horizontal



Degrees below horizontal

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.061	10	0.091	30	0.033	50	0.011	70	0.097
-9	0.089	11	0.096	31	0.061	51	0.012	71	0.102
-8	0.087	12	0.108	32	0.079	52	0.008	72	0.105
-7	0.042	13	0.117	33	0.081	53	0.001	73	0.105
-6	0.055	14	0.113	34	0.068	54	0.010	74	0.104
-5	0.199	15	0.096	35	0.041	55	0.020	75	0.100
-4	0.379	16	0.067	36	0.005	56	0.029	76	0.095
-3	0.572	17	0.034	37	0.036	57	0.034	77	0.089
-2	0.753	18	0.005	38	0.076	58	0.036	78	0.082
-1	0.896	19	0.015	39	0.109	59	0.034	79	0.074
0	0.981	20	0.020	40	0.132	60	0.028	80	0.066
1	0.997	21	0.010	41	0.142	61	0.019	81	0.057
2	0.945	22	0.010	42	0.141	62	0.006	82	0.049
3	0.835	23	0.036	43	0.128	63	0.008	83	0.041
4	0.687	24	0.059	44	0.107	64	0.023	84	0.032
5	0.525	25	0.073	45	0.081	65	0.039	85	0.025
6	0.372	26	0.074	46	0.055	66	0.054	86	0.018
7	0.246	27	0.060	47	0.030	67	0.067	87	0.012
8	0.158	28	0.034	48	0.010	68	0.080	88	0.006
9	0.108	29	0.002	49	0.004	69	0.089	89	0.002

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System Summary

Exhibit No.	
Date	25 Jun 2017
Call Letters	WSBS
Channel	19
Antenna Type	TFU-10GTH TFU
Location	Miami
Customer	Spanish Broadcasting

Antenna

ERP:	6.9 kW (8.38 dBk)	2.7 kW (4.28 dBk)
Peak Gain*:	11.8 (10.71 dB)	4.6 (6.60 dB)

Antenna Input Power:

0.6 kW

Transmission Line

Type:	Transmission Line		
Size:	3-1/8"		
Impedance:	50 ohm		
Length:	1000 ft (304.8 m)	Attenuation:	2.3 dB
		Efficiency:	58.56 %

Transmitter Output

1.0 kW (0.00 dBk)

* Gain is with respect to half wave dipole.

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Mechanicals

Exhibit No.

Date **25 Jun 2017**

Call Letters **WSBS**

Channel **19**

Antenna Type **TFU-10GTH TFU**

Location **Miami**

Customer **Spanish Broadcasting**

Preliminary Specifications

Top Mounted

Mechanical Specification without ice TIA-222-G

Basic Wind Speed 90 mph

Structure Class II

Exposure Category C

Topography Category 1

Mechanical Specifications

Height less Lightning Protector (H2) 22.5 ft (6.9 m)

Height with Lightning Protector (H4) 26.5 ft (8.1 m)

Center of Radiation (H3) 11.3 ft (3.4 m)