

**Kessler and Gehman Associates, Inc.**

Consultants • Broadcast • Wireless

[www.kesslerandgehman.com](http://www.kesslerandgehman.com)



WITV-FM CHANNEL 7 (174-180 MHz)

MINOR MODIFICATION OF  
CONSTRUCTION PERMIT APPLICATION

*CHARLESTON, SOUTH CAROLINA*

*(SOUTH CAROLINA EDUCATIONAL TELEVISION COMMISSION)*

**ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR., TECHNICAL CONSULTANT WITH THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH A MINOR MODIFICATION OF CONSTRUCTION PERMIT APPLICATION FOR THE SOUTH CAROLINA EDUCATIONAL TELEVISION COMMISSION'S WSCIC-FM CHANNEL 207, NON-COMMERCIAL EDUCATIONAL FM BROADCAST FACILITY (FILE NO. 0000013486).**

## **DETAILS**

The original plan for the antenna location was based on tower drawings provided by the owner station, WCSC-TV. When actual installation work began for the WITV-DT Channel 7 construction permit (-0000013486), it was discovered there was an error in the tower mapped location of two microwave antennas. To accommodate this error, SCETV must lower the WITV-DT antenna from the licensed authorized antenna height radiation center of 560 m AGL (1,837.4 ft) to the new antenna height radiation center of 558.9 m AGL (1,833.6 ft). This will result in a decrease of only 1.1 m. No other changes are requested. SCETV filed an STA (File No. 0000016402) requesting temporary authorization to operate at the correct antenna height and it was granted on October 26, 2016. SCETV will withdraw the STA as soon as the FCC issues a CP for the corrected antenna height requested herein and the license application is filed.

## **ENVIRONMENTAL IMPACT**

The WITV-DT Channel 7 facility will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The DTV transmitter, transmission line and antenna system will produce an ERP of 20.0 kW (circular polarization). Assuming the maximum lobe of radiation were oriented toward the base of the tower, the proposed WITV-DT facility's power density six feet above the ground would be 0.0043 mW/cm<sup>2</sup>. That would equate to only 0.43% of the Maximum Permissible Exposure ("MPE") limits for Occupational/Controlled

Exposure and only 2.15% of the MPE limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute ("ANSI"). Since operation of the WITV-DT facility will not exceed 5.0% of the MPE limit for Occupational/Controlled Exposure or General Population/Uncontrolled Exposure at any point on the ground, the proposed facility is not considered a "significant contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were not accounted for in this analysis. It is safe to conclude that the emissions would be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. It is also understood that additional antennas on the support structure could increase the overall RF exposure levels and it is the responsibility of each licensee to ensure that the total RF exposure resulting from the operation of all antennas on the support structure do not exceed the MPE level at any point on the ground.

### **Certification**

This technical statement was prepared by William T. Godfrey, Jr., Engineering Associate with the firm Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida, and has been working with the firm in the field of radio and television broadcast consulting since 1998. Mr. Godfrey was a graduate from the University of North Florida and a Distinguished Military Graduate from the University of Florida. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

  
\_\_\_\_\_  
WILLIAM T. GODFREY, JR., CBT  
Engineering Associate

27 October, 2016

**WITV-DT CHANNEL 7***Charleston, South Carolina***ENGINEERING SPECIFICATIONS****A. Transmitter Site:**

Geographic coordinates (NAD27):

North Latitude ..... 32° 55' 28"

West Longitude ..... 79° 41' 58"

Transmitter Site Address: **5035 Sewee Road  
Awendaw, SC****B. Main Studio Site Address: 1101 George Rogers Boulevard  
Columbia, South Carolina 29201****DTV Facility:**DTV Channel ..... Number ..... 7  
Frequency ..... 174-180 MHz  
Offset ..... N/A**C. Antenna Height:**

Height of Site Above Mean Sea Level (AMSL): ..... 4.9 M

Overall Height of Structure Above Ground: ..... 609.6 M  
(including all appurtenances)Overall Height of Structure Above Mean Sea Level: ..... 614.5 M  
(including all appurtenances)

Height of Site Above Average Terrain: ..... 1.9 M

Antenna Height Radiation Center (R/C) Above Ground: ..... 558.9 M

Antenna Height R/C Above Mean Sea Level: ..... 563.8 M

Average of All Non-Odd Radials: ..... 3.0 M

Antenna Height R/C Above Average Terrain: ..... 560.8 M

**D. System Parameters – Circular Polarization:**

Transmitter Power Required: ..... 3.7 kW

Maximum Power Input to Antenna: ..... 2.8 kW

Transmission Line Loss: ..... 1.19 dB

Transmission Line Efficiency: ..... 76.0%

Maximum Antenna Gain in Beam Maximum: ..... 8.57 dB

Maximum Antenna Gain in Horizontal Plane: ..... 8.45 dB

Maximum Effective Radiated Power: ..... 13.01 dBk

In Beam Maximum: ..... 20.0 kW

Maximum Effective Radiated Power: ..... 12.86 dBk

In Horizontal Plane: ..... 19.30 kW

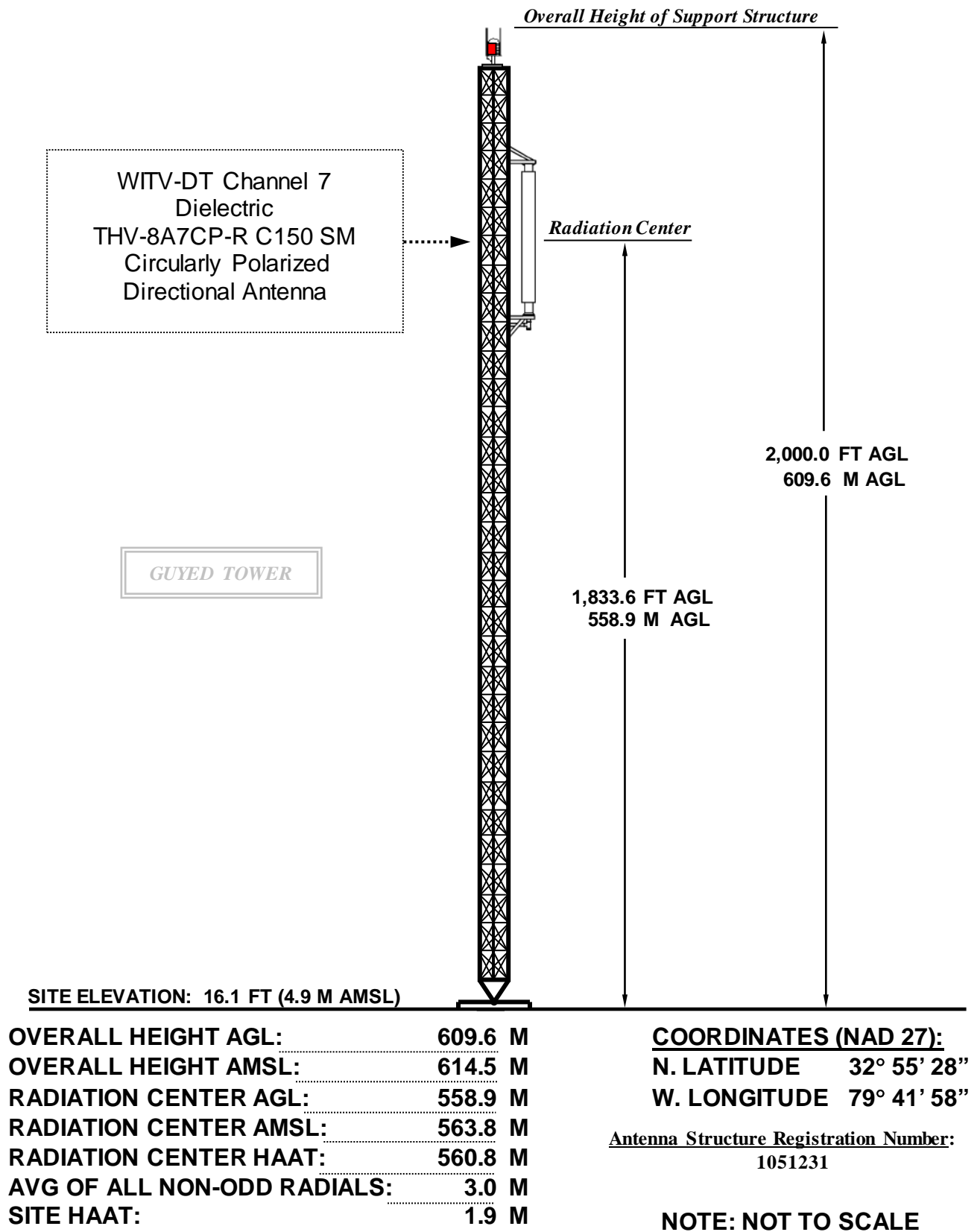
**WITV-DT CHANNEL 7**

*Charleston, South Carolina*

**DATA FOR PROPOSED DIRECTIONAL  
TRANSMITTING ANTENNA**

- A. **Antenna:** Dielectric Model THV-8A7CP-R C150 SM, Circularly Polarized, Directional, Side-mount Antenna.
- B. **Electrical Beam Tilt:** 0.75 degrees
- C. **Mechanical Beam Tilt:** None
- D. **Maximum Power Gain**  
Maximum: 7.2 (8.57 dB)  
Horizontal: 7.0 (8.45 dB)
- E. **Transmitter Power Output:** 3.7 kW
- F. **Null Fill:** 19.1%
- G. **Transmission Line:** 6-1/8" 50 ohm EIA
- H. **Transmission Line Loss:** 0.061 dB/100-feet
- I. **Total Transmission Line:** 1,950 feet (594.4 m)
- J. **Transmission Line Attenuation:** 1.19 dB

## WITV-DT POST-TRANSITION ELEVATION VIEW



**Kessler and Gehman Associates, Inc.**



Consultants • Broadcast • Wireless  
507 NW 60th Street, Suite C  
Gainesville, FL 32607  
[www.kesslerandgehman.com](http://www.kesslerandgehman.com)

**WITV-DT CHANNEL 7**

**CHARLESTON, SOUTH CAROLINA**

**20161027**

**EXHIBIT 3**

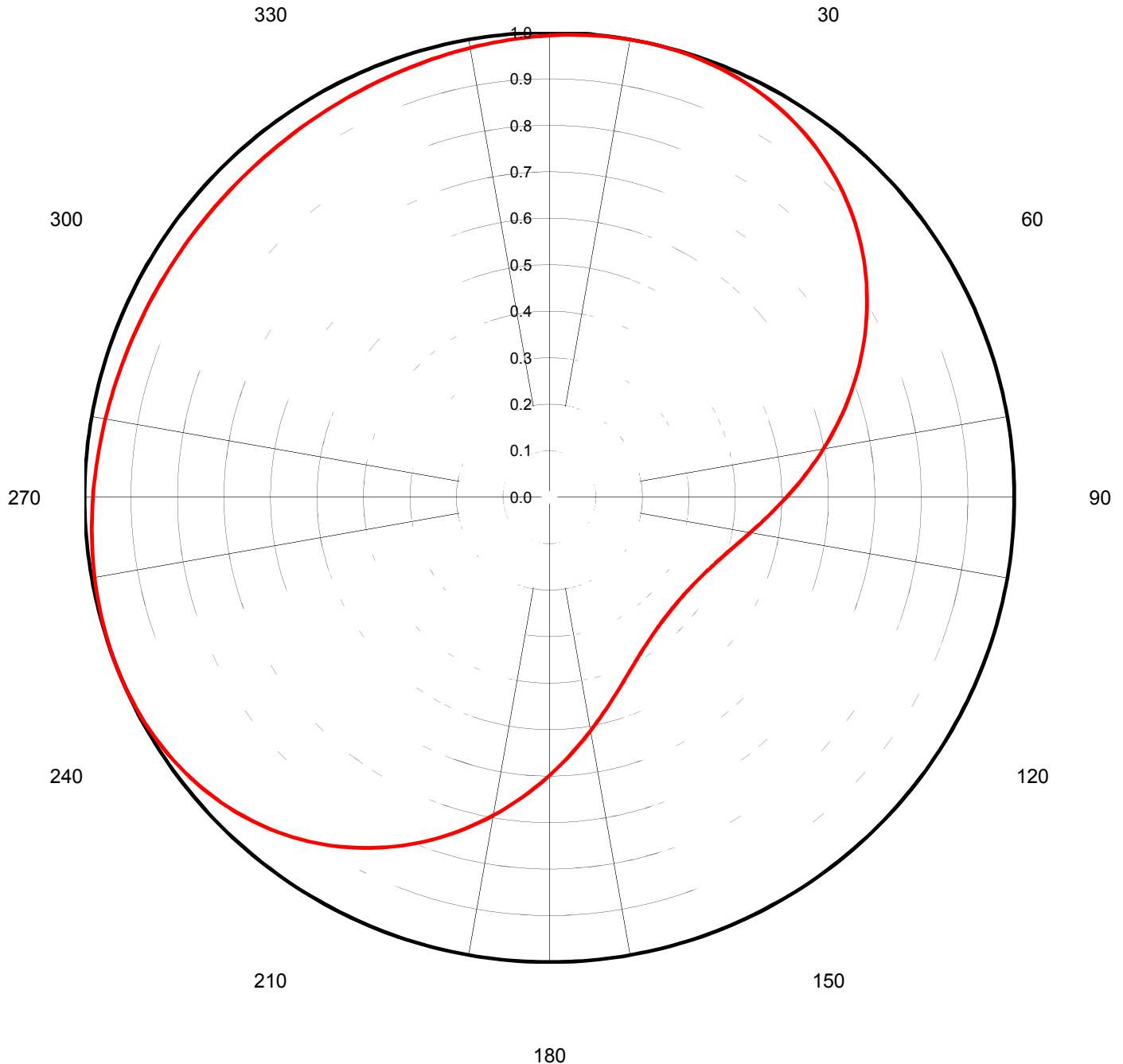
## AZIMUTH PATTERN

Gain **1.50**  
Calculated / Measured

**( 1.76 dB)**  
**Calculated**

Frequency **177.00 MHz**  
Drawing # **WITV\_HPOL**

**177.00 MHz**  
**WITV\_HPOL**





Proposal Number

Revision:

1

Date

2-Jun-16

Call Letters

WITV

Channel

7

Location

Charleston, SC

Customer

SC ETV

Antenna Type

THV-8A7CP-R C150 SM

**TABULATION OF AZIMUTH PATTERN**Azimuth Pattern Drawing #: **WITV\_HPOL**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.993	45	0.904	90	0.510	135	0.358	180	0.598	225	0.956	270	0.982	315	0.954
1	0.994	46	0.897	91	0.501	136	0.359	181	0.608	226	0.960	271	0.981	316	0.954
2	0.995	47	0.891	92	0.494	137	0.360	182	0.617	227	0.964	272	0.979	317	0.954
3	0.996	48	0.884	93	0.486	138	0.361	183	0.627	228	0.968	273	0.978	318	0.954
4	0.997	49	0.877	94	0.478	139	0.362	184	0.636	229	0.971	274	0.977	319	0.955
5	0.998	50	0.870	95	0.471	140	0.364	185	0.646	230	0.974	275	0.976	320	0.955
6	0.998	51	0.862	96	0.464	141	0.365	186	0.656	231	0.977	276	0.975	321	0.955
7	0.999	52	0.855	97	0.457	142	0.367	187	0.666	232	0.980	277	0.973	322	0.956
8	0.999	53	0.847	98	0.451	143	0.369	188	0.675	233	0.983	278	0.972	323	0.956
9	1.000	54	0.839	99	0.444	144	0.372	189	0.685	234	0.985	279	0.971	324	0.957
10	1.000	55	0.831	100	0.438	145	0.374	190	0.695	235	0.987	280	0.970	325	0.957
11	1.000	56	0.823	101	0.432	146	0.377	191	0.704	236	0.989	281	0.969	326	0.958
12	1.000	57	0.814	102	0.427	147	0.380	192	0.714	237	0.991	282	0.968	327	0.959
13	1.000	58	0.806	103	0.421	148	0.383	193	0.723	238	0.993	283	0.967	328	0.959
14	1.000	59	0.797	104	0.416	149	0.386	194	0.733	239	0.994	284	0.966	329	0.960
15	0.999	60	0.788	105	0.411	150	0.390	195	0.742	240	0.995	285	0.965	330	0.961
16	0.999	61	0.779	106	0.406	151	0.394	196	0.752	241	0.996	286	0.964	331	0.961
17	0.998	62	0.770	107	0.402	152	0.398	197	0.761	242	0.997	287	0.963	332	0.962
18	0.997	63	0.761	108	0.398	153	0.402	198	0.770	243	0.998	288	0.962	333	0.963
19	0.996	64	0.752	109	0.394	154	0.406	199	0.779	244	0.999	289	0.961	334	0.964
20	0.995	65	0.742	110	0.390	155	0.411	200	0.788	245	0.999	290	0.961	335	0.965
21	0.994	66	0.733	111	0.386	156	0.416	201	0.797	246	1.000	291	0.960	336	0.966
22	0.993	67	0.723	112	0.383	157	0.421	202	0.806	247	1.000	292	0.959	337	0.967
23	0.991	68	0.714	113	0.380	158	0.427	203	0.814	248	1.000	293	0.959	338	0.968
24	0.989	69	0.704	114	0.377	159	0.432	204	0.823	249	1.000	294	0.958	339	0.969
25	0.987	70	0.695	115	0.374	160	0.438	205	0.831	250	1.000	295	0.957	340	0.970
26	0.985	71	0.685	116	0.372	161	0.444	206	0.839	251	1.000	296	0.957	341	0.971
27	0.983	72	0.675	117	0.369	162	0.451	207	0.847	252	0.999	297	0.956	342	0.972
28	0.980	73	0.666	118	0.367	163	0.457	208	0.855	253	0.999	298	0.956	343	0.973
29	0.977	74	0.656	119	0.365	164	0.464	209	0.862	254	0.998	299	0.955	344	0.975
30	0.974	75	0.646	120	0.364	165	0.471	210	0.870	255	0.998	300	0.955	345	0.976
31	0.971	76	0.636	121	0.362	166	0.478	211	0.877	256	0.997	301	0.955	346	0.977
32	0.968	77	0.627	122	0.361	167	0.486	212	0.884	257	0.996	302	0.954	347	0.978
33	0.964	78	0.617	123	0.360	168	0.494	213	0.891	258	0.995	303	0.954	348	0.979
34	0.960	79	0.608	124	0.359	169	0.501	214	0.897	259	0.994	304	0.954	349	0.981
35	0.956	80	0.598	125	0.358	170	0.510	215	0.904	260	0.993	305	0.954	350	0.982
36	0.952	81	0.589	126	0.357	171	0.518	216	0.910	261	0.992	306	0.953	351	0.983
37	0.947	82	0.580	127	0.357	172	0.526	217	0.916	262	0.991	307	0.953	352	0.984
38	0.943	83	0.570	128	0.356	173	0.535	218	0.922	263	0.990	308	0.953	353	0.986
39	0.938	84	0.561	129	0.356	174	0.543	219	0.927	264	0.989	309	0.953	354	0.987
40	0.933	85	0.552	130	0.356	175	0.552	220	0.933	265	0.988	310	0.953	355	0.988
41	0.927	86	0.543	131	0.356	176	0.561	221	0.938	266	0.987	311	0.953	356	0.989
42	0.922	87	0.535	132	0.356	177	0.570	222	0.943	267	0.986	312	0.953	357	0.990
43	0.916	88	0.526	133	0.357	178	0.580	223	0.947	268	0.984	313	0.953	358	0.991
44	0.910	89	0.518	134	0.357	179	0.589	224	0.952	269	0.983	314	0.953	359	0.992

This document contains proprietary and confidential information of Dielectric . It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

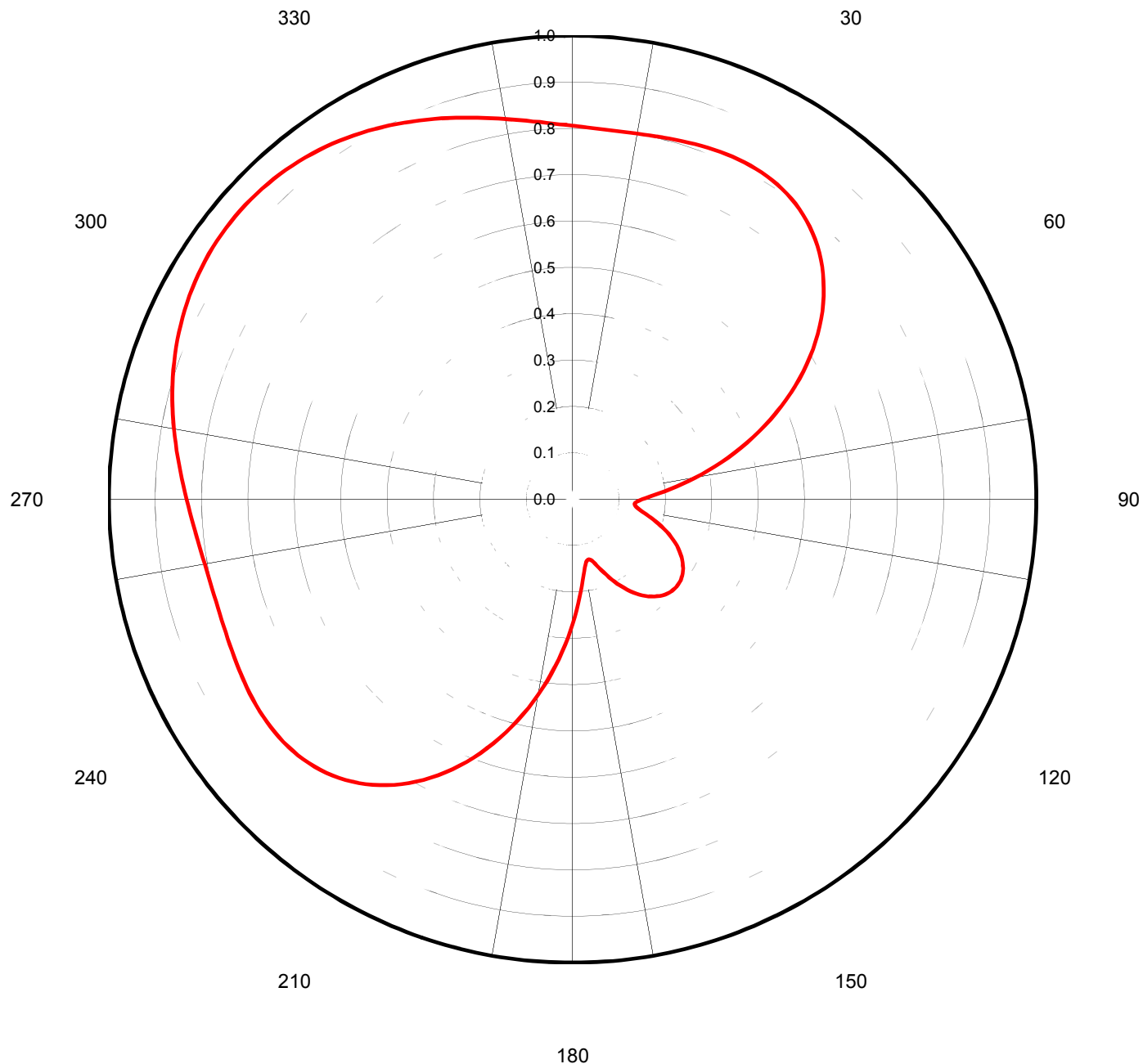
**EXHIBIT 5**



Proposal Number	<b>C-06218</b>	Revision:	<b>1</b>
Date	<b>2-Jun-16</b>		
Call Letters	<b>WITV</b>	Channel	<b>7</b>
Location	<b>Charleston, SC</b>		
Customer	<b>SC ETV</b>		
Antenna Type	<b>THV-8A7CP-R C150 SM</b>		

## AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	<b>2.00</b>	<b>( 3.01 dB)</b>	Frequency	<b>177.00 MHz</b>
Calculated / Measured	<b>Calculated</b>		Drawing #	<b>WITV_VPOL</b>





Proposal Number	<b>C-06218</b>	Revision:	<b>1</b>
Date	<b>2-Jun-16</b>		
Call Letters	<b>WITV</b>	Channel	<b>7</b>
Location	<b>Charleston, SC</b>		
Customer	<b>SC ETV</b>		
Antenna Type	<b>THV-8A7CP-R C150 SM</b>		

## TABULATION OF AZIMUTH PATTERN/VERTICAL POLARIZATION

Azimuth Pattern Drawing #: **WITV\_VPOL**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.806	45	0.752	90	0.150	135	0.288	180	0.268	225	0.805	270	0.833	315	0.948
1	0.804	46	0.744	91	0.144	136	0.286	181	0.284	226	0.808	271	0.836	316	0.946
2	0.803	47	0.736	92	0.139	137	0.283	182	0.299	227	0.810	272	0.840	317	0.945
3	0.802	48	0.727	93	0.136	138	0.281	183	0.315	228	0.812	273	0.844	318	0.944
4	0.801	49	0.717	94	0.134	139	0.278	184	0.331	229	0.813	274	0.848	319	0.942
5	0.801	50	0.707	95	0.134	140	0.274	185	0.347	230	0.814	275	0.852	320	0.940
6	0.800	51	0.697	96	0.136	141	0.270	186	0.363	231	0.815	276	0.856	321	0.938
7	0.800	52	0.686	97	0.138	142	0.266	187	0.379	232	0.816	277	0.860	322	0.936
8	0.800	53	0.674	98	0.142	143	0.261	188	0.395	233	0.816	278	0.865	323	0.934
9	0.801	54	0.662	99	0.147	144	0.257	189	0.412	234	0.816	279	0.869	324	0.931
10	0.801	55	0.650	100	0.152	145	0.251	190	0.428	235	0.816	280	0.873	325	0.928
11	0.802	56	0.637	101	0.158	146	0.246	191	0.444	236	0.815	281	0.877	326	0.926
12	0.802	57	0.624	102	0.165	147	0.240	192	0.460	237	0.814	282	0.882	327	0.923
13	0.803	58	0.611	103	0.172	148	0.234	193	0.476	238	0.814	283	0.886	328	0.919
14	0.804	59	0.597	104	0.179	149	0.228	194	0.492	239	0.813	284	0.890	329	0.916
15	0.806	60	0.583	105	0.186	150	0.221	195	0.508	240	0.811	285	0.894	330	0.913
16	0.807	61	0.568	106	0.193	151	0.214	196	0.523	241	0.810	286	0.898	331	0.909
17	0.808	62	0.554	107	0.200	152	0.207	197	0.539	242	0.809	287	0.902	332	0.905
18	0.809	63	0.539	108	0.207	153	0.200	198	0.554	243	0.808	288	0.905	333	0.902
19	0.810	64	0.523	109	0.214	154	0.193	199	0.568	244	0.807	289	0.909	334	0.898
20	0.811	65	0.508	110	0.221	155	0.186	200	0.583	245	0.806	290	0.913	335	0.894
21	0.813	66	0.492	111	0.228	156	0.179	201	0.597	246	0.804	291	0.916	336	0.890
22	0.814	67	0.476	112	0.234	157	0.172	202	0.611	247	0.803	292	0.919	337	0.886
23	0.814	68	0.460	113	0.240	158	0.165	203	0.624	248	0.802	293	0.923	338	0.882
24	0.815	69	0.444	114	0.246	159	0.158	204	0.637	249	0.802	294	0.926	339	0.877
25	0.816	70	0.428	115	0.251	160	0.152	205	0.650	250	0.801	295	0.928	340	0.873
26	0.816	71	0.412	116	0.257	161	0.147	206	0.662	251	0.801	296	0.931	341	0.869
27	0.816	72	0.395	117	0.261	162	0.142	207	0.674	252	0.800	297	0.934	342	0.865
28	0.816	73	0.379	118	0.266	163	0.138	208	0.686	253	0.800	298	0.936	343	0.860
29	0.815	74	0.363	119	0.270	164	0.136	209	0.697	254	0.800	299	0.938	344	0.856
30	0.814	75	0.347	120	0.274	165	0.134	210	0.707	255	0.801	300	0.940	345	0.852
31	0.813	76	0.331	121	0.278	166	0.134	211	0.717	256	0.801	301	0.942	346	0.848
32	0.812	77	0.315	122	0.281	167	0.136	212	0.727	257	0.802	302	0.944	347	0.844
33	0.810	78	0.299	123	0.283	168	0.139	213	0.736	258	0.803	303	0.945	348	0.840
34	0.808	79	0.284	124	0.286	169	0.144	214	0.744	259	0.804	304	0.946	349	0.836
35	0.805	80	0.268	125	0.288	170	0.150	215	0.752	260	0.806	305	0.948	350	0.833
36	0.802	81	0.254	126	0.290	171	0.158	216	0.760	261	0.808	306	0.948	351	0.829
37	0.798	82	0.239	127	0.291	172	0.167	217	0.767	262	0.809	307	0.949	352	0.826
38	0.794	83	0.225	128	0.292	173	0.177	218	0.773	263	0.812	308	0.950	353	0.823
39	0.790	84	0.212	129	0.292	174	0.188	219	0.779	264	0.814	309	0.950	354	0.820
40	0.785	85	0.200	130	0.293	175	0.200	220	0.785	265	0.817	310	0.950	355	0.817
41	0.779	86	0.188	131	0.292	176	0.212	221	0.790	266	0.820	311	0.950	356	0.814
42	0.773	87	0.177	132	0.292	177	0.225	222	0.794	267	0.823	312	0.950	357	0.812
43	0.767	88	0.167	133	0.291	178	0.239	223	0.798	268	0.826	313	0.949	358	0.809
44	0.760	89	0.158	134	0.290	179	0.254	224	0.802	269	0.829	314	0.948	359	0.808



Proposal Number

Revision: **1**

Date

**2-Jun-16**

Call Letters

**WITV**

Channel

**7**

Location

**Charleston, SC**

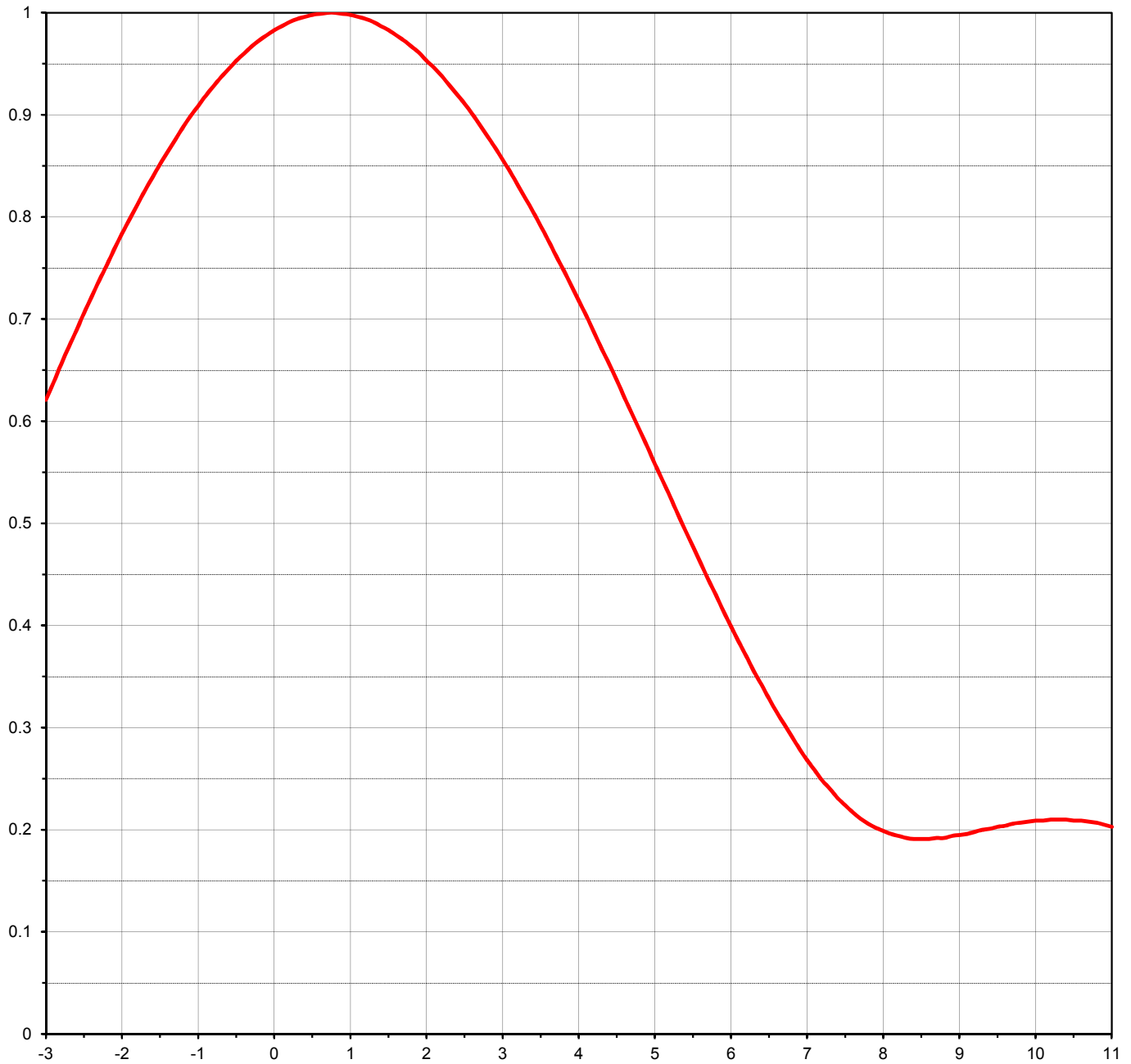
Customer

**SC ETV**

Antenna Type

**THV-8A7CP-R C150 SM**

## ELEVATION PATTERN

RMS Gain at Main Lobe **8.00 ( 9.03 dB )**Beam Tilt **0.75 deg**RMS Gain at Horizontal **7.70 ( 8.86 dB )**Frequency **177.00 MHz**Calculated / Measured **Calculated**Drawing # **08V080075**

Degrees Below Horizontal

EXHIBIT 8



Proposal Number

Revision: **1**

Date

**2-Jun-16**

Call Letters

**WITV**

Channel

**7**

Location

**Charleston, SC**

Customer

**SC ETV**

Antenna Type

**THV-8A7CP-R C150 SM**

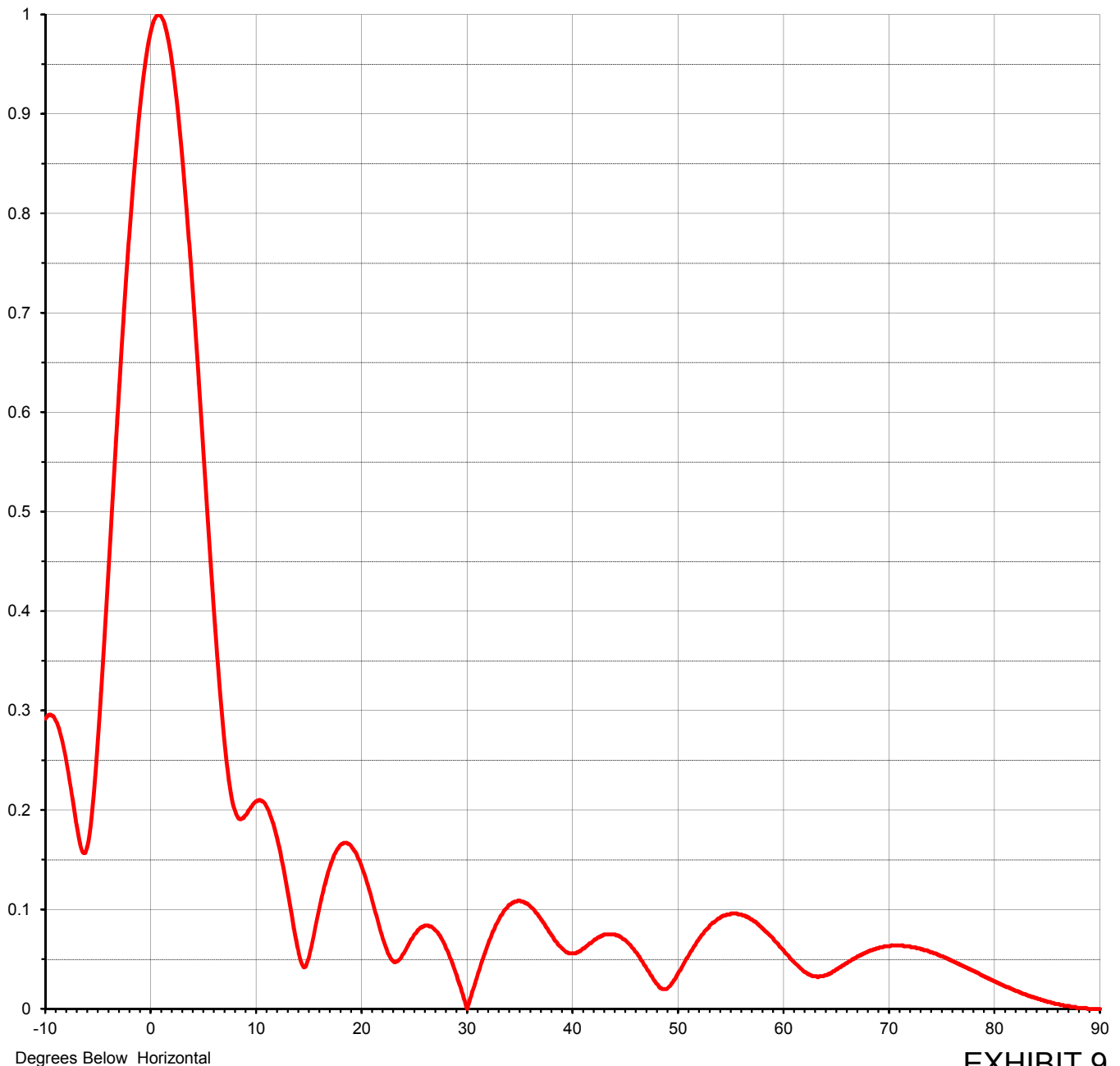
## ELEVATION PATTERN

RMS Gain at Main Lobe **8.00 ( 9.03 dB )**Beam Tilt **0.75 deg**RMS Gain at Horizontal **7.70 ( 8.86 dB )**

Frequency

**177.00 MHz**Calculated / Measured **Calculated**

Drawing #

**08V080075-90****EXHIBIT 9**



Proposal Number  
Date  
Call Letters  
Location  
Customer  
Antenna Type

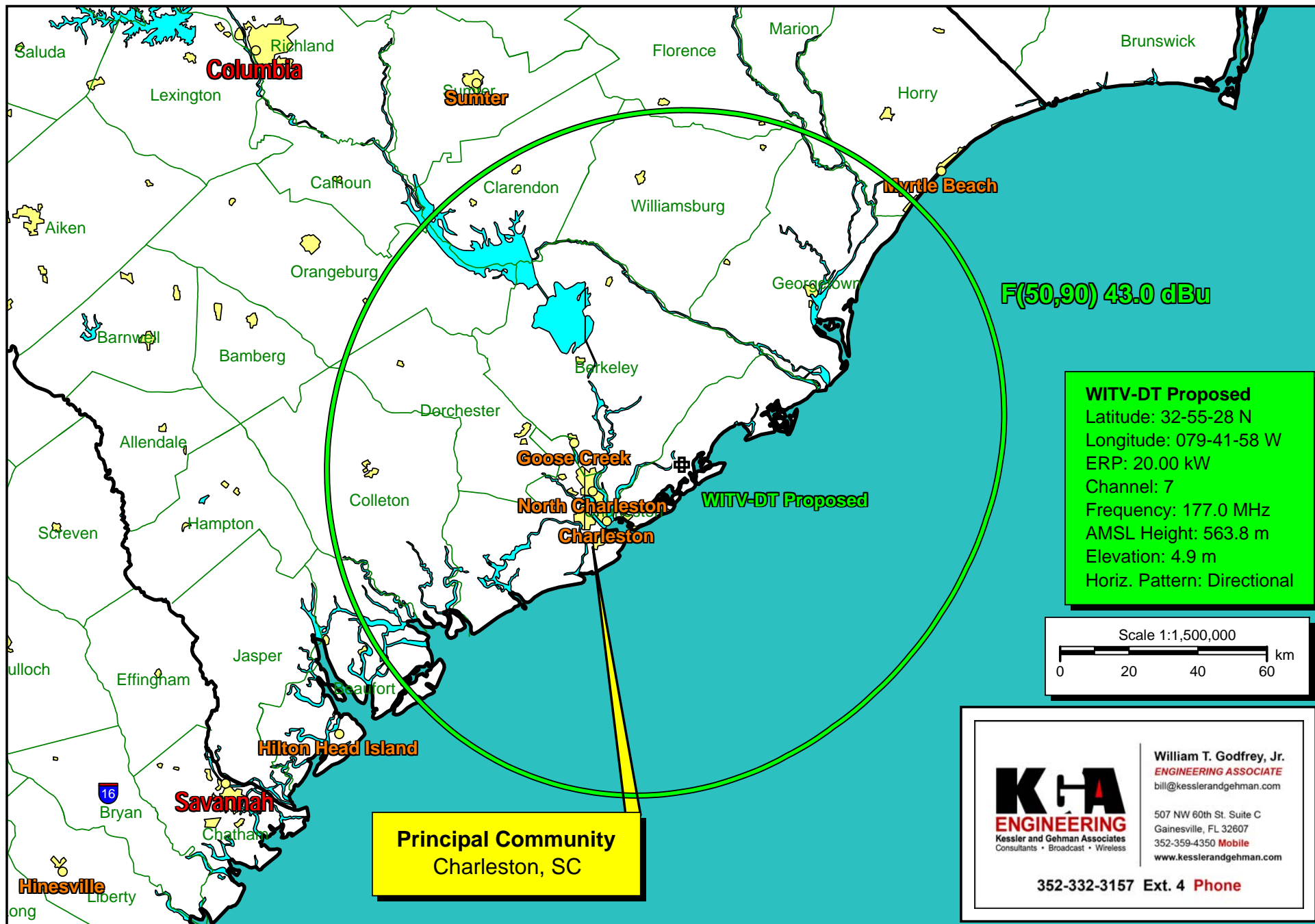
Revision: 1  
2-Jun-16  
WITV  
Charleston, SC  
SC ETV  
THV-8A7CP-R C150 SM

Channel 7

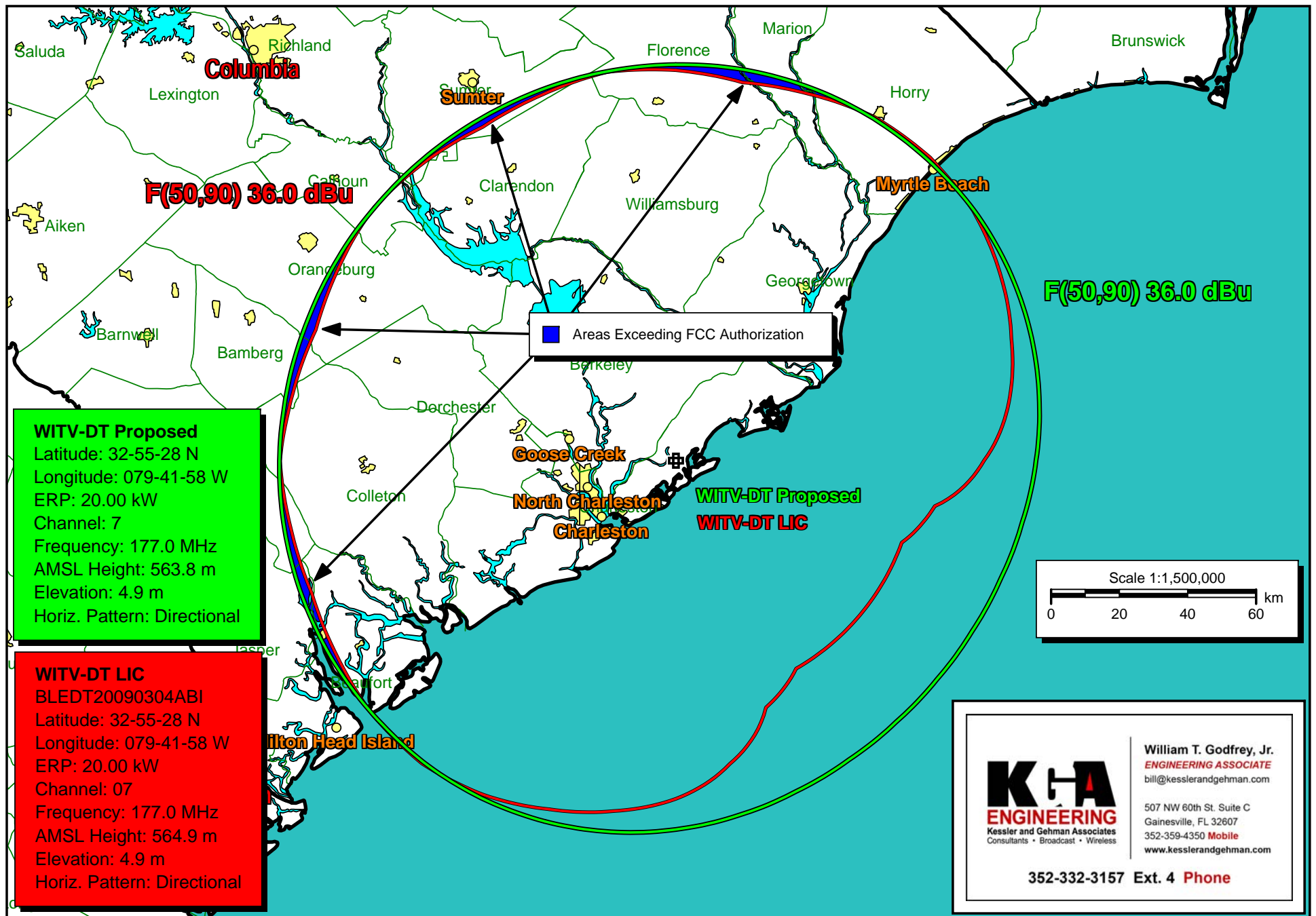
## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: 08V080075-90

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.292	2.4	0.920	10.6	0.209	30.5	0.014	51.0	0.052	71.5	0.063
-9.5	0.296	2.6	0.901	10.8	0.208	31.0	0.031	51.5	0.061	72.0	0.063
-9.0	0.290	2.8	0.879	11.0	0.205	31.5	0.048	52.0	0.069	72.5	0.062
-8.5	0.274	3.0	0.856	11.5	0.193	32.0	0.063	52.5	0.076	73.0	0.060
-8.0	0.249	3.2	0.831	12.0	0.175	32.5	0.077	53.0	0.082	73.5	0.059
-7.5	0.217	3.4	0.805	12.5	0.151	33.0	0.088	53.5	0.087	74.0	0.057
-7.0	0.183	3.6	0.777	13.0	0.123	33.5	0.097	54.0	0.091	74.5	0.055
-6.5	0.159	3.8	0.748	13.5	0.093	34.0	0.104	54.5	0.094	75.0	0.053
-6.0	0.164	4.0	0.718	14.0	0.063	34.5	0.107	55.0	0.095	75.5	0.051
-5.5	0.205	4.2	0.687	14.5	0.044	35.0	0.109	55.5	0.096	76.0	0.048
-5.0	0.272	4.4	0.656	15.0	0.049	35.5	0.107	56.0	0.095	76.5	0.046
-4.5	0.353	4.6	0.623	15.5	0.071	36.0	0.104	56.5	0.093	77.0	0.043
-4.0	0.441	4.8	0.591	16.0	0.097	36.5	0.099	57.0	0.090	77.5	0.041
-3.5	0.532	5.0	0.558	16.5	0.121	37.0	0.092	57.5	0.087	78.0	0.038
-3.0	0.621	5.2	0.526	17.0	0.140	37.5	0.084	58.0	0.082	78.5	0.036
-2.8	0.656	5.4	0.493	17.5	0.155	38.0	0.076	58.5	0.077	79.0	0.033
-2.6	0.689	5.6	0.461	18.0	0.164	38.5	0.068	59.0	0.072	79.5	0.030
-2.4	0.722	5.8	0.430	18.5	0.167	39.0	0.062	59.5	0.066	80.0	0.028
-2.2	0.753	6.0	0.399	19.0	0.165	39.5	0.057	60.0	0.060	80.5	0.025
-2.0	0.784	6.2	0.370	19.5	0.158	40.0	0.056	60.5	0.054	81.0	0.023
-1.8	0.812	6.4	0.342	20.0	0.146	40.5	0.057	61.0	0.048	81.5	0.021
-1.6	0.839	6.6	0.315	20.5	0.131	41.0	0.060	61.5	0.043	82.0	0.018
-1.4	0.864	6.8	0.291	21.0	0.113	41.5	0.064	62.0	0.038	82.5	0.016
-1.2	0.888	7.0	0.268	21.5	0.094	42.0	0.068	62.5	0.035	83.0	0.014
-1.0	0.909	7.2	0.248	22.0	0.075	42.5	0.072	63.0	0.033	83.5	0.012
-0.8	0.928	7.4	0.231	22.5	0.059	43.0	0.074	63.5	0.033	84.0	0.011
-0.6	0.945	7.6	0.217	23.0	0.049	43.5	0.075	64.0	0.034	84.5	0.009
-0.4	0.960	7.8	0.206	23.5	0.048	44.0	0.075	64.5	0.036	85.0	0.007
-0.2	0.973	8.0	0.199	24.0	0.055	44.5	0.073	65.0	0.040	85.5	0.006
0.0	0.983	8.2	0.194	24.5	0.064	45.0	0.070	65.5	0.043	86.0	0.005
0.2	0.991	8.4	0.191	25.0	0.073	45.5	0.065	66.0	0.046	86.5	0.004
0.4	0.996	8.6	0.191	25.5	0.080	46.0	0.058	66.5	0.050	87.0	0.003
0.6	0.999	8.8	0.192	26.0	0.083	46.5	0.051	67.0	0.053	87.5	0.002
0.8	1.000	9.0	0.195	26.5	0.083	47.0	0.043	67.5	0.055	88.0	0.001
1.0	0.998	9.2	0.198	27.0	0.080	47.5	0.034	68.0	0.058	88.5	0.001
1.2	0.994	9.4	0.201	27.5	0.074	48.0	0.026	68.5	0.060	89.0	0.000
1.4	0.987	9.6	0.204	28.0	0.064	48.5	0.021	69.0	0.061	89.5	0.000
1.6	0.978	9.8	0.206	28.5	0.051	49.0	0.020	69.5	0.063	90.0	0.000
1.8	0.967	10.0	0.208	29.0	0.037	49.5	0.026	70.0	0.063		
2.0	0.953	10.2	0.209	29.5	0.021	50.0	0.034	70.5	0.064		
2.2	0.938	10.4	0.210	30.0	0.003	50.5	0.043	71.0	0.064		

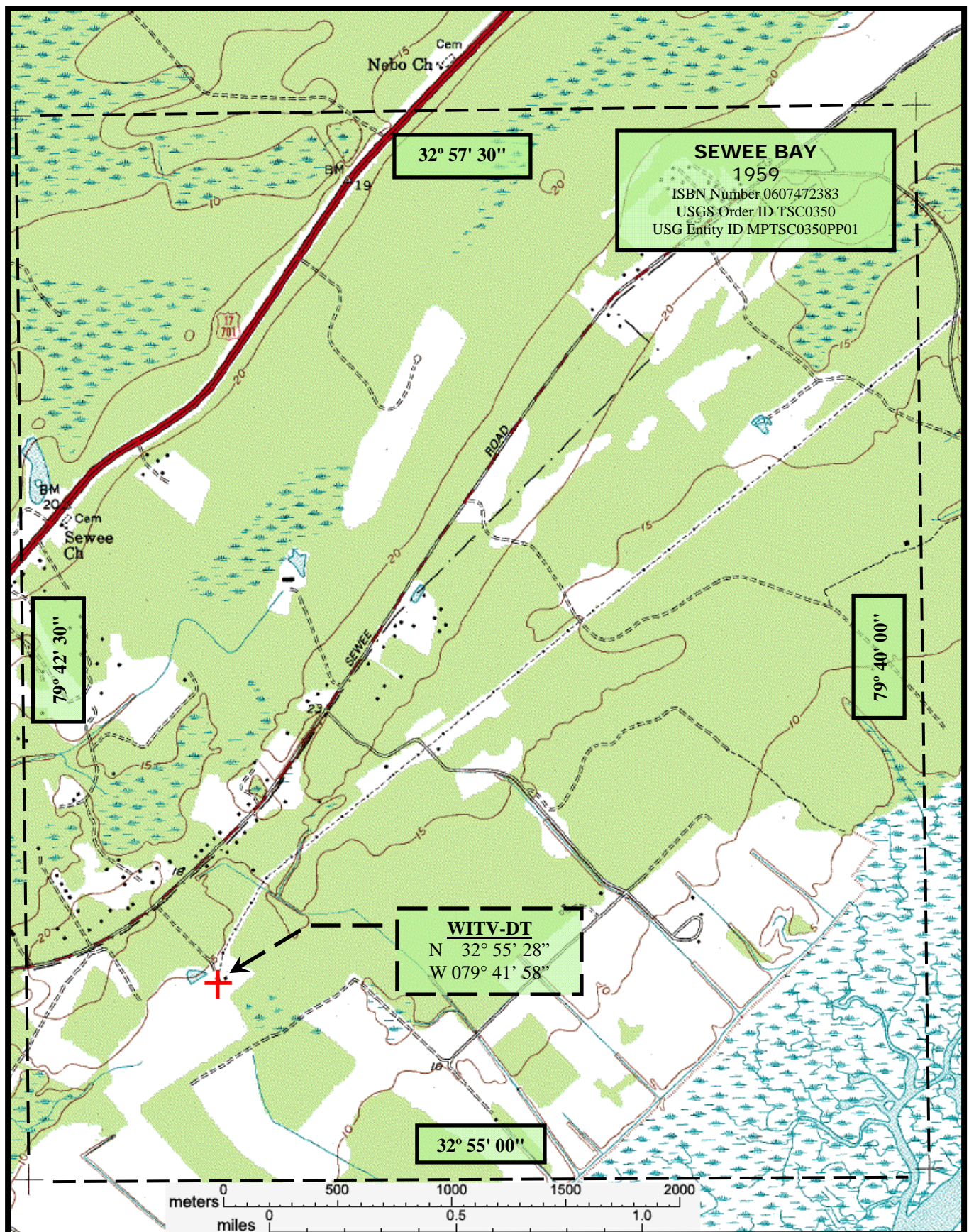


Proposed WITV-DT F(50,90) 43.0 dBu Principal Community Contour



WITV-DT Licensed vs. Proposed WITV-DT F(50,90) 36.0 dBu Contours





**Kessler and Gehman Associates, Inc.**



Consultants • Broadcast • Wireless  
507 NW 60th Street, Suite C  
Gainesville, FL 32607  
[www.kesslerandgehman.com](http://www.kesslerandgehman.com)

**WITV-DT CHANNEL 7**

*Charleston, South Carolina*

20160708

EXHIBIT 13



## Interference Analysis

Percent allowed new interference: 0.500  
Percent allowed new interference to non Class A LPTV: 2.000  
Census data selected 2000  
Data Base Selected  
./data\_files/pt\_tvdb.sff

### WARNING WARNING WARNING

The following list of station records has been excluded from the analysis due to the fact that they have the same state, city and channel as the proposed station - This could cause the program to not find a potential fail situation

You can force the program to include these records by setting the state of the proposed record to ZZ and re-running the analysis

WITV 07 CHARLESTON SC BLEDT 20090304ABI

### TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 07-11-2016 Time: 10:20:07

#### Record Selected for Analysis

WITV-DT USERRECORD-01 CHARLESTON SC US  
Channel 07 ERP 20. kW HAAT 561. m RCAMSL 00564 m  
Latitude 032-55-28 Longitude 0079-41-58  
Status APP Zone 2 Border Site number: 01  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility (site # 01) meets maximum height/power limits

Site number	1			
Azimuth	ERP	HAAT	36.0 dBu F(50,90)	
(Deg)	(kW)	(m)	(km)	
0.0	19.721	557.6	115.9	
45.0	16.254	560.6	114.3	
90.0	5.202	563.6	105.3	
135.0	2.592	563.9	99.7	
180.0	7.152	564.0	107.8	
225.0	18.183	560.3	115.3	

## Interference Analysis

270.0	19.286	562.3	115.9
315.0	18.202	556.3	115.1

Evaluation toward Class A Stations from site # 01

No Spacing violations or contour overlap  
to Class A stations from site # 01

Class A Evaluation Complete

### SPACING VIOLATION FOUND BETWEEN STATION

WITV-DT 07 CHARLESTON SC USERRECORD01 Site # 01

and station

SHORT TO: WITV 07 CHARLESTON SC DTVPLN DTVP0091  
32 -55-28 79 -41-58  
Req. separation 273.6 Actual separation 0.0 Short 273.6 km

SHORT TO: WGSC-CD 08 MURRELLS INLET SC BLANK 0000001599  
033-35-27 0079-02-54  
Req. separation => 23.0 <= 110.0 Actual separation 95.6 Short 14.4(  
72.6) km

### Checks to Site Number 01

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

## Interference Analysis

\*\*\*\*\*

### Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
07	WITV-DT	CHARLESTON SC	USERRECORD01

#### Stations Potentially Affected by Proposed Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
07	WJCT	JACKSONVILLE FL	343.1	LIC	BLEDT
20090617ACD					
07	WMUM-TV	COCHRAN GA	336.4	LIC	BLEDT
20080423AAM					
07	WSPA-TV	SPARTANBURG SC	345.3	LIC	BLCDT
20090918ACF					
08	WOLO-TV	COLUMBIA SC	165.2	LIC	BLCDT
20100614AIP					
08	WGSC-CD	MURRELLS INLET SC	95.6	LIC	BLANK
0000001599					

%%%

#### Analysis of Interference to Affected Station 1

##### Analysis of current record

Channel	Call	City/State	Application Ref. No.
07	WJCT	JACKSONVILLE FL	BLEDT -20090617ACD

#### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
07	WFLA-TV	TAMPA FL	279.3	LIC	BLCDT -
20090612AAU					
07	WMUM-TV	COCHRAN GA	291.1	LIC	BLEDT -
20080423AAM					
07	WITV	CHARLESTON SC	343.1	PLN	DTVPLN -
DTVP0091					
08	WXGA-TV	WAYCROSS GA	141.8	LIC	BLEDT -
20090612ACD					
07	WITV-DT	CHARLESTON SC	343.1	APP	USERRECORD-01

Proposal causes no interference

#####

#### Analysis of Interference to Affected Station 2

## Interference Analysis

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
07	WMUM-TV	COCHRAN GA	BLEDT	-20080423AAM

### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
07	WCIQ	MOUNT CHEAHA AL	263.5	LIC	BLEDT	-
20120828AAV						
07	WJCT	JACKSONVILLE FL	291.1	LIC	BLEDT	-
20090617ACD						
07	WITV	CHARLESTON SC	336.4	PLN	DTVPLN	-
DTVP0091						
07	WSPA-TV	SPARTANBURG SC	313.1	LIC	BLCDT	-
20090918ACF						
07	WKNX-TV	KNOXVILLE TN	398.4	LIC	BLCDT	-
20040810ABE						
08	WGTW	ATHENS GA	170.0	LIC	BLEDT	-
20090612ACE						
08	WACS-TV	DAWSON GA	135.8	LIC	BLEDT	-
20080516AAO						
08	WXGA-TV	WAYCROSS GA	152.9	LIC	BLEDT	-
20090612ACD						
07	WITV-DT	CHARLESTON SC	336.4	APP	USERRECORD-01	

Total scenarios = 1

Result key: 1  
 Scenario 1 Affected station 2  
 Before Analysis

Results for: 7A GA COCHRAN BLEDT 20080423AAM LIC  
 HAAT 332.0 m, ATV ERP 31.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	801446	33787.4
not affected by terrain losses	798360	33376.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	18387	1127.2
lost to ATV IX only	18387	1127.2
lost to all IX	18387	1127.2

Potential Interfering Stations Included in above Scenario 1

7A AL MOUNT CHEAHA	BLEDT	20120828AAV	LIC
7A FL JACKSONVILLE	BLEDT	20090617ACD	LIC
7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A GA DAWSON	BLEDT	20080516AAO	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
7A SC CHARLESTON	DTVPLN	DTVP0091	PLN

After Analysis

## Interference Analysis

Results for: 7A GA COCHRAN                      BLEDT                      20080423AAM    LIC  
              HAAT 332.0 m, ATV ERP 31.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	801446	33787.4
not affected by terrain losses	798360	33376.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	18521	1151.3
lost to ATV IX only	18521	1151.3
lost to all IX	18521	1151.3

Potential Interfering Stations Included in above Scenario                      1

7A AL MOUNT CHEAHA	BLEDT	20120828AAV	LIC
7A FL JACKSONVILLE	BLEDT	20090617ACD	LIC
7A SC SPARTANBURG	BLCDDT	20090918ACF	LIC
8A GA DAWSON	BLEDT	20080516AAO	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
7A SC CHARLESTON	USERRECORD01		APP

Percent new IX =            0.0172%

Worst case new IX            0.0172% Scenario                      1

#####

Analysis of Interference to Affected Station                      3

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
07	WSPA-TV	SPARTANBURG SC	BLCDDT	-20090918ACF

Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
07	WCIQ	MOUNT CHEAHA AL	373.3	LIC	BLEDT	-
20120828AAV						
07	WMUM-TV	COCHRAN GA	313.1	LIC	BLEDT	-
20080423AAM						
07	WLJC-TV	BEATTYVILLE KY	298.3	LIC	BLCDDT	-
20120217AAO						
07	WITV	CHARLESTON SC	345.3	PLN	DTVPLN	-
DTVP0091						
07	WKNX-TV	KNOXVILLE TN	175.3	LIC	BLCDDT	-
20040810ABE						
08	WGTW	ATHENS GA	227.7	LIC	BLEDT	-
20090612ACE						
08	WOLO-TV	COLUMBIA SC	182.2	LIC	BLCDDT	-
20100614AIP						
07	WITV-DT	CHARLESTON SC	345.3	APP	USERRECORD-01	

Total scenarios =            1

## Interference Analysis

Result key: 2  
Scenario 1 Affected station 3  
Before Analysis

Results for: 7A SC SPARTANBURG BLCDT 20090918ACF LIC  
HAAT 667.0 m, ATV ERP 25.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2991883	47896.2
not affected by terrain losses	2861319	43873.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	12851	656.4
lost to ATV IX only	12851	656.4
lost to all IX	12851	656.4

Potential Interfering Stations Included in above Scenario 1

7A AL MOUNT CHEAHA	BLEDT	20120828AAV	LIC
7A GA COCHRAN	BLEDT	20080423AAM	LIC
7A KY BEATTYVILLE	BLCDT	20120217AAO	LIC
7A TN KNOXVILLE	BLCDT	20040810ABE	LIC
8A SC COLUMBIA	BLCDT	20100614AIP	LIC

After Analysis

Results for: 7A SC SPARTANBURG BLCDT 20090918ACF LIC  
HAAT 667.0 m, ATV ERP 25.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2991883	47896.2
not affected by terrain losses	2861319	43873.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	12851	656.4
lost to ATV IX only	12851	656.4
lost to all IX	12851	656.4

Potential Interfering Stations Included in above Scenario 1

7A AL MOUNT CHEAHA	BLEDT	20120828AAV	LIC
7A GA COCHRAN	BLEDT	20080423AAM	LIC
7A KY BEATTYVILLE	BLCDT	20120217AAO	LIC
7A TN KNOXVILLE	BLCDT	20040810ABE	LIC
8A SC COLUMBIA	BLCDT	20100614AIP	LIC
7A SC CHARLESTON	USERRECORD01		APP

Percent new IX = 0.0000%

Worst case new IX 0.0000% Scenario 1

#####

Analysis of Interference to Affected Station 4

## Interference Analysis

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
08	WOLO-TV	COLUMBIA SC	BLCDT	-20100614AIP

### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
07	WITV	CHARLESTON SC	165.2	PLN	DTVPLN	-
DTVP0091						
07	WSPA-TV	SPARTANBURG SC	182.2	LIC	BLCDT	-
20090918ACF						
08	WGTW	ATHENS GA	313.5	LIC	BLEDT	-
20090612ACE						
08	WACS-TV	DAWSON GA	428.2	LIC	BLEDT	-
20080516AAO						
08	WXGA-TV	WAYCROSS GA	363.5	LIC	BLEDT	-
20090612ACD						
08	WFXI	MOREHEAD CITY NC	399.2	LIC	BLCDT	-
20090708AIS						
08	WVNS-TV	LEWISBURG WV	406.5	LIC	BLCDT	-
20050923AGX						
08	WVNS-TV	LEWISBURG WV	406.5	LIC	BLANK	-
0000004085						
09	WHMC	CONWAY SC	153.6	LIC	BLEDT	-
20090622ADN						
09	WNTV	GREENVILLE SC	176.5	LIC	BLEDT	-
20100628BQF						
07	WITV-DT	CHARLESTON SC	165.2	APP	USERRECORD-01	

Total scenarios = 2

Result key: 3  
 Scenario 1 Affected station 4  
 Before Analysis

Results for: 8A SC COLUMBIA BLCDT 20100614AIP LIC

HAAT 529.0 m, ATV ERP 43.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2234769	46563.5
not affected by terrain losses	2190088	45675.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	17624	1056.4
lost to ATV IX only	17624	1056.4
lost to all IX	17624	1056.4

Potential Interfering Stations Included in above Scenario 1

7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A GA ATHENS	BLEDT	20090612ACE	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
8A WV LEWISBURG	BLCDT	20050923AGX	LIC

## Interference Analysis

9A SC CONWAY	BLEDT	20090622ADN	LIC
9A SC GREENVILLE	BLEDT	20100628BQF	LIC
7A SC CHARLESTON	DTVPLN	DTVP0091	PLN

After Analysis

Results for: 8A SC COLUMBIA                      BLCDT              20100614AIP    LIC  
HAAT 529.0 m, ATV ERP 43.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2234769	46563.5
not affected by terrain losses	2190088	45675.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	21378	1160.4
lost to ATV IX only	21378	1160.4
lost to all IX	21378	1160.4

Potential Interfering Stations Included in above Scenario              1

7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A GA ATHENS	BLEDT	20090612ACE	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
8A WV LEWISBURG	BLCDT	20050923AGX	LIC
9A SC CONWAY	BLEDT	20090622ADN	LIC
9A SC GREENVILLE	BLEDT	20100628BQF	LIC
7A SC CHARLESTON	USERRECORD01		APP

Percent new IX =        0.1728%

Result key:              4  
Scenario              2    Affected station              4  
Before Analysis

Results for: 8A SC COLUMBIA                      BLCDT              20100614AIP    LIC  
HAAT 529.0 m, ATV ERP 43.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2234769	46563.5
not affected by terrain losses	2190088	45675.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	17624	1056.4
lost to ATV IX only	17624	1056.4
lost to all IX	17624	1056.4

Potential Interfering Stations Included in above Scenario              2

7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A GA ATHENS	BLEDT	20090612ACE	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
8A WV LEWISBURG	BLANK	0000004085	LIC
9A SC CONWAY	BLEDT	20090622ADN	LIC
9A SC GREENVILLE	BLEDT	20100628BQF	LIC
7A SC CHARLESTON	DTVPLN	DTVP0091	PLN

After Analysis



## Interference Analysis

Results for: 8A SC COLUMBIA                      BLCDT              20100614AIP    LIC  
            HAAT 529.0 m, ATV ERP 43.7 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2234769	46563.5
not affected by terrain losses	2190088	45675.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	21378	1160.4
lost to ATV IX only	21378	1160.4
lost to all IX	21378	1160.4

Potential Interfering Stations Included in above Scenario              2

7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A GA ATHENS	BLEDT	20090612ACE	LIC
8A GA WAYCROSS	BLEDT	20090612ACD	LIC
8A WV LEWISBURG	BLANK	0000004085	LIC
9A SC CONWAY	BLEDT	20090622ADN	LIC
9A SC GREENVILLE	BLEDT	20100628BQF	LIC
7A SC CHARLESTON	USERRECORD01		APP

Percent new IX =              0.1728%

Worst case new IX              0.1728% Scenario              1

#####

Analysis of Interference to Affected Station              5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
08	WGSC-CD	MURRELLS INLET SC	BLANK	-0000001599

Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
07	WITV	CHARLESTON SC	95.6	PLN	DTVPLN	-
DTVP0091						
08	WFXI	MOREHEAD CITY NC	274.3	LIC	BLCDT	-
20090708AIS						
08	WOLO-TV	COLUMBIA SC	168.8	LIC	BLCDT	-
20100614AIP						
09	WHMC	CONWAY SC	40.2	LIC	BLEDT	-
20090622ADN						
07	WITV-DT	CHARLESTON SC	95.6	APP	USERRECORD-01	
Proposal causes no interference						

#####

Analysis of Interference to Affected Station              6

## Interference Analysis

Analysis of current record

Channel	Call	City/State	Application Ref. No.
07	WITV-DT	CHARLESTON SC	USERRECORD-01

### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
07	WJCT	JACKSONVILLE FL	343.1	LIC	BLEDT -
20090617ACD					
07	WMUM-TV	COCHRAN GA	336.4	LIC	BLEDT -
20080423AAM					
07	WSPA-TV	SPARTANBURG SC	345.3	LIC	BLCDT -
20090918ACF					
08	WOLO-TV	COLUMBIA SC	165.2	LIC	BLCDT -
20100614AIP					

Total scenarios = 1

Result key: 5  
Scenario 1 Affected station 6  
Before Analysis

Results for: 7A SC CHARLESTON USERRECORD01 APP

HAAT 561.0 m, ATV ERP 20.0 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	925002	38968.5
not affected by terrain losses	925002	38968.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1468	116.1
lost to ATV IX only	1468	116.1
lost to all IX	1468	116.1

Potential Interfering Stations Included in above Scenario 1

7A SC SPARTANBURG	BLCDT	20090918ACF	LIC
8A SC COLUMBIA	BLCDT	20100614AIP	LIC

#####

FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED