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AMENDMENT TO THE PFRM FOR DIGITAL TELEVISION BROADCAST STATION WXGA-DT TO OPERATE ON DTV CHANNEL 9 WITH AN ERP OF 4.6 KW AT AN ANTENNA HEIGHT RADIATION CENTER OF 286.3 METERS ABOVE AVERAGE TERRAIN WAYCROSS, GEORGIA

(GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION)

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

KGA

20011016

Prepared by William T. Godfrey

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH AN AMENDMENT TO THE GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION'S (GPTC) PETITION FOR RULE MAKING ON FILE WITH THE FCC TO AMEND THE DTV TABLE OF ALLOTMENTS IN ORDER TO SUBSTITUTE THE PROPOSED DTV VHF CHANNEL 9 FOR THE ALLOTTED WXGA-DT UHF CHANNEL 18 AT THE LICENSED SITE LOCATED IN MILLWOOD, GEORGIA.

The firm Kessler and Gehman Associates, Inc. has been retained by the Georgia Public Telecommunications Commission (GPTC), Atlanta, Georgia in order to amend the WXGA-DT Petition for Rule Making (PFRM) on file with the FCC. The PFRM currently on file with the FCC respectfully requested authorization for an amendment of the DTV Table of Allotments by substituting the proposed DTV VHF Channel 9 for the allotted DTV UHF Channel 18.

The WXGA-DT PFRM was submitted based on the fact that it was permissible to submit a waiver requesting use of the alternative methods for protecting Class A stations (Longley-Rice). After reviewing the PFRM, the FCC informed all applicable parties that PFRMs cannot be submitted with waivers. Therefore, we have amended the parameters contained within the existing WXGA-DT PFRM and have verified that no unacceptable contour overlap exists with any applicable Class A or Class A eligible stations (see Exhibits 13 and 14). Accordingly, there are no waivers contained within this amended WXGA-DT PFRM due to the fact that all Class A protection criteria and all other interference protection criteria for the various types of applicable broadcast stations have been met in accordance with the FCC rules.

With the amended parameters in place, the proposed WXGA-DT station will still meet the existing principal community requirements as well as the upcoming 2005 principal community requirements (see Exhibits 12 and 13).

The only change that this amendment proposes with respect to the existing PFRM is to reduce the effective radiated power ("ERP) from 20 kW to 4.6 kW. The decreased ERP reduces the proposed WXGA-DT PFRM F(50,10) 34 dBuV/m interfering contour enough to avoid overlapping any applicable Class A F(50,50) protected service contours. In this case, the only applicable Class A station is W09CF Channel 9. The protected service contour for a high-band VHF Class A station is the 68 dBuV/m contour. The FCC rules state that a +34 D/U ratio is required for co-channel DTV stations into analog stations and therefore, the proposed WXGA-DT PFRM interfering contour must be plotted using the 34 dBuV/m contour (34+34=68).

Discussion

The GPTC is the licensee of nine NTSC broadcast stations and has been assigned a paired DTV channel for each of the nine stations. The enclosed WXGA-DT PFRM for the GPTC is just one of six PFRMs requesting a change from its assigned UHF channel to a desired VHF channel. Kessler and Gehman Associates, Inc. initially conducted a detailed spacing study and determined that two of the nine GPTC stations presently would not be able to convert to VHF without causing above *de minimis*[1]

[1] *De minimis* interference is defined as interference to such stations affecting less than two percent of the population they serve. Where a station is receiving interference to between eight and ten percent of the

interference to one or more applicable surrounding station(s). Of the nine DTV channels allotted to the GPTC, one station was assigned a VHF channel. Therefore, the GPTC is requesting a "Fleet VHF Conversion" of six of its nine broadcast stations in order to utilize improved signal coverage, heavily reduce support structure upgrade expenses, save on equipment and operational costs and continue digital VHF operation on the proposed channels after the DTV transition has ceased.

Authorization of the "Fleet VHF conversion" will equip the GPTC with seven VHF stations and will serve the public interest significantly with huge savings in tax dollars ranging from the substantial amount of money saved during the DTV purchasing/building phase to the magnitude of electrical savings that low power VHF transmitters offer over high power UHF transmitters. Conversion of the two remaining UHF channels to VHF shall be pursued after the DTV transition when spectrum becomes available so that the GPTC can simulcast efficiently on all nine VHF stations to the entire state of Georgia and beyond.

The objective of the enclosed DTV PFRM is to amend the DTV Table of Allotments as follows: (1) substitute DTV Channel 9 for assigned DTV Channel 18; (2) change effective radiated power (ERP) from assigned 531.9kW to 4.6 kW using a nondirectional antenna (omni); and (3) change the antenna radiation center (R/C) height above average terrain (HAAT) from the assigned 314.0 meters to 286.3 meters.

The GPTC is licensed to operate WXGA-TV on VHF, NTSC Channel 8(+) with an ERP of 316kW at an antenna height R/C of 314.0 meters AAT using a nondirectional antenna. The assigned principal community for WXGA is Waycross, Georgia and the file number for WXGA-TV is BLCT-1161.

According to the initial allotment plan and reference coordinates (DTV Table of Allotments) set forth in Appendix B of the *Sixth Report and Order* in MM Docket 87-268, FCC 97-115, adopted April 3, 1997, WXGA is allotted UHF, DTV Channel 18 at an antenna height R/C of 314.0 meters AAT and an ERP of 531.9kW in order to replicate its licensed VHF, Channel 8 Grade B Contour.

The GPTC has a construction permit for DTV Channel 18 (file number BPEDT-200000425AAS), which authorizes WXGA to operate with an ERP of 952.8kW at an antenna height radiation of 288.0 meters AAT using a directional antenna (peanut). Specifically, the GPTC requests authorization to substitute WXGA-DT Channel 9 in lieu of the WXGA-DT Channel 18 construction permit, and to take any other steps necessary to enable WXGA to construct and ultimately operate its digital facilities on Channel 9.

Transmitter

It is proposed to side-mount a Dielectric model THV-13A9-R 04 circularly polarized, nondirectional (omni), VHF, DTV antenna on the existing WXGA-TV support structure owned by the GPTC. The tower is registered with the FCC and has a registration number of 1018780. The support structure is located at 6433 TV Tower Road in Millwood, GA. The antenna height radiation center is 287.1 meters above ground level (AGL). The antenna's highest point will extend to 298.4 meters AGL and the overall height of the structure will extend to 331.9 meters AGL as depicted in Exhibit 4's elevation view of the support structure.

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population it would otherwise serve, additional interference is considered *de minimis* if it does not cause interference to the station to exceed the ten-percent threshold.

Interference Studies

The enclosed interference studies were computed using a Pentium Pro, 1 GHz, 512-megabyte, Pentium III processor. The calculations were performed using V-Soft Communication's Probe II, professional signal propagation software and interference studies program, which complies with the FCC-mandated application-processing guidelines for digital television. This software is in accordance with the standards established in the FCC Public Notice #3060-0841 pertaining to DTV studies and DTV application preparation dated August 10, 1998.

Initial spacing studies, which considered DTV allotments (allot), DTV/NTSC licenses (lic), DTV/NTSC construction permits (cp), DTV/NTSC applications (app) and Class A/Class A-eligible low power television (LPTV) stations in the applicable areas surrounding Millwood, GA revealed that VHF Channel 9 was a possible option for the GPTC station. After the spacing studies were completed additional studies were conducted to verify that the proposed station met the principal community coverage requirements of §73.625(a) in the Federal Communications Commission's (FCC) rules. Exhibit 12 depicts the proposed WXGA-DT F(50,90) 36 dBuV/m noise limited contour and verifies that the proposed station's noise limited contour fully encompasses the assigned principal community of Waycross, GA. After it was determined that the principal community coverage requirement was met, we performed detailed interference studies on all applicable surrounding stations using the terrain dependent Longley-Rice, point-to-point propagation algorithm detailed in the FCC's Office of Engineering and Technology Bulletin Number 69 (OET 69).

The initial interference studies predicted that the proposed WXGA-DT may cause interference to the stations listed below (Exhibit 15) and therefore, are the stations we performed detailed interference studies on to verify that all interference remains within the *de minimis* standard:

- WTVM-TV (LIC)
- WVAN-TV (LIC)
- WALB-TV (LIC)
- WPGX-DT (PFRM)

Exhibits 13 and 14 are studies showing the W09CF-LP (Class A) station's F(50,50) 68 dBuV/m protected service contour and the proposed WXGA-DT station's F(50,10) 34 dBuV/m interfering contour. As you can see, there is no contour overlap between the two stations and therefore, is in compliance with the FCC rules with respect to Class A protection from co-channel DTV stations. Exhibit 14 is an enlarged view of Exhibit 13 and clearly verifies that no contour overlap exists between the two stations.

Exhibit 15 is a pictorial view of all applicable surrounding stations that are predicted to receive interference from WXGA-DT using the proposed azimuth pattern with an ERP of 4.6 kW at an antenna R/C HAAT of 286.3 meters. Exhibit 15A is a tabular exhibit which identifies the potential stations that may receive interference from the proposed WXGA-DT, including Class A and Class A eligible LPTV stations. Since this study did not take masking into account, each station was studied in detail in order to determine the exact amount of *unique interference*[2] caused to each station from the proposed WXGA-DT.

[2] Unique interference is defined as the predicted interference a DTV station would cause beyond the amount of interference "built into" the DTV allotment table.

NOTE: Starting from Exhibit 15, each pictorial exhibit will also be followed by a tabulation exhibit. For example, Exhibit 15 will be a pictorial exhibit and Exhibit 15A will be a tabulation exhibit.

Exhibits 16 and 17 are studies showing interference from all stations to the WTVM-TV (LIC) station without and with WXGA-DT respectively. Exhibit 16 shows that without WXGA-DT, populations of 46,246 people are receiving DTV only interference and the interference free population is 680,482. Exhibit 17 shows that with WXGA-DT, populations of 46,259 people are receiving DTV only interference and the interference free population is 680,469. Therefore, the proposed WXGA-DT causes [680,482 (IX free without WXGA-DT) – 680,469 (IX free with WXGA-DT) = 13] interference to a total of 13 people. Exhibits 16 and 17 calculated the WTVM-TV baseline population to be 1,004,608. Therefore, the total amount of unique interference caused by the proposed WXGA-DT is [13/1,004,608] 0.0% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met since no additional interference would be caused.

Exhibits 18 and 19 are studies showing interference from all stations to the WVAN-TV GPTC station without and with WXGA-DT respectively. Exhibit 18 shows that without WXGA-DT, populations of 5,665 people are receiving DTV only interference and the interference free population is 591,770. Exhibit 19 shows that with WXGA-DT, populations of 32,847 people are receiving DTV only interference and the interference free population is 564,588. Therefore, WXGA-DT causes [591,770 (IX free without WXGA-DT) – 564,588 (IX free with WXGA-DT) = 27,182] interference to a total of 27,182 people. Exhibits 18 and 19 calculated the WVAN-TV baseline population to be 641,795. Therefore, the total amount of unique interference caused by WXGA-DT is [27,182/641,795] 4.24%, which is not less than 2.0% and therefore does not comply with the 2% de minimis threshold requirement.

Exhibit A depicts the WVAN-TV interference free area that currently exists. Exhibit B depicts the WVAN-TV interference free area that currently exists <u>with</u> the Longley-rice coverage area of the surrounding GPTC stations (WCES-TV, WDCO-TV & WXGA-TV) being considered. As you can see, the surrounding GPTC station's combined Longley-Rice coverage actually fills in all the areas receiving interference within the WVAN-TV Grade B contour.

Exhibit C depicts the interference free area of WVAN-TV based on DTV Table of Allotment parameters and NTSC licenses. Exhibit D depicts the interference free area of WVAN-TV based on DTV Table of Allotment parameters and NTSC licenses <u>with</u> the Longley-rice coverage area of the three surrounding GPTC stations. As you can see, the surrounding GPTC station's combined Longley-Rice coverage fills in all the areas receiving interference within the WVAN-TV Grade B contour.

Exhibit E depicts the interference free area of WVAN-TV based on the enclosed WXGA-DT Channel 9 PFRM parameters and all applicable surrounding station's existing licenses, construction permits and/or allotments. Exhibit E, when compared to Exhibits A and C, shows that the proposed PFRM application does indeed cause additional interference to the WVAN-TV station.

Exhibit F depicts the interference free area of WVAN-TV based on the enclosed WXGA-DT Channel 9 PFRM parameters and all applicable surrounding station's existing licenses, construction permits and/or allotments <u>with</u> the Longley-rice coverage area of the three surrounding GPTC stations. As you can see, the surrounding GPTC station's combined Longley-Rice coverage significantly fills in most of the areas predicted to receive interference within the WVAN-TV Grade B contour. Demographic studies predicted that only 1,526 people would be affected within the WVAN-TV Grade B contour

when the proposed WXGA-DT CH 9 is in operation as well as the three aforementioned GPTC NTSC stations surrounding WVAN-TV.

Therefore, the predicted percentage of population within the WVAN-TV Grade B contour that would not be able to receive programming from the GPTC would only be 0.24% (1,526/638,334). As previously mentioned, Exhibit 18 predicted that WVAN-TV would receive approximately 4.24% interference from the proposed WXGA-DT, but that did not take the GPTC's surrounding stations into consideration. Since the GPTC is the licensee of the station predicted to receive 4.24% interference (WVAN-TV), the GPTC has documented and enclosed a letter with this application stating that they are willing to accept the interference which happens to actually be less than the de minimis threshold when the signals from WCES-TV, WDCO-TV and WXGA-TV are taken into consideration.

Exhibits 20 and 21 are studies showing interference from all stations to the WALB-TV (LIC) station without and with WXGA-DT respectively. Exhibit 20 shows that without WXGA-DT, populations of 18,321 people are receiving DTV only interference and the interference free population is 527,641. Exhibit 21 shows that with WXGA-DT, populations of 18,321 people are receiving DTV only interference and the interference free population is 527,641. Therefore, WXGA-DT causes [527,641 (IX free without WXGA-DT) – 527,641 (IX free with WXGA-DT) = 0.0] interference to a total of zero (0.0) people. Exhibits 20 and 21 calculated the WALB-TV baseline population to be 594,518. Therefore, the total amount of unique interference caused by WXGA-DT is [0.0/594,518] 0.0% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met since no additional interference would be caused.

Exhibits 22 and 23 are studies showing interference from all stations to the WPXG-DT PFRM without and with WXGA-DT respectively. Exhibit 22 shows that without WXGA-DT, populations of 10,269 people are receiving DTV only interference and the interference free population is 280,674. Exhibit 23 shows that with WXGA-DT, populations of 10,269 people are receiving DTV only interference and the interference free population is still 280,674. Therefore, WXGA-DT causes [280,674 (IX free without WXGA-DT) – 280,674 (IX free with WXGA-DT) = 0.0] interference to a total of zero (0.0) people. Exhibits 22 and 23 calculated the WPXG-DT (PFRM APP) baseline population to be 412,011. Therefore, the total amount of unique interference caused by WXGA-DT is [0.0/412,011] 0.0% ≤ 2.0% and thus, all requirements under the definition of *de minimis* have been met since no additional interference would be caused.

Exhibits

Exhibit 1 is a listing by Section and Question Number of the portions of the pending application that are being revised as required in FCC Form 340, Section I number 4d.

Exhibits 2 and 3 represent WXGA-DT's administration data, antenna and antenna structure specifications as per §VII item 10 in the DTV Engineering Technical Specifications portion of the application regarding directional antennas and beam tilt.

Exhibit 4 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations as per §VII item 10 in the DTV Engineering Technical Specifications portion of the application regarding supporting structures and elevations.

Exhibits 5 and 6 display the azimuth pattern and the elevation pattern tabulation respectively.

Exhibits 7 and 8 display the elevation pattern and the elevation pattern tabulation respectively.

Exhibits 9 and 10 display the ERP/dBk pattern and the ERP/dBk pattern tabulation respectively.

Exhibit 11 depicts the site location of the proposed WXGA-DT site on a 7.5-Minute (Series) Topographic Map as per §VII item 10 in the DTV Engineering Technical Specifications portion of the application regarding topographic maps.

Exhibit 12 depicts the proposed WXGA-DT coverage contour, boundaries of the principal community to be served, and the proposed transmitting location with radials every 45° as per §VII item 10 in the DTV Engineering Technical Specifications portion of the application regarding Sectional Aeronautical Charts.

Exhibits 13 and 14 depict the contour separation between the proposed WXGA-DT PFRM and the W09CF Class A station.

Exhibits 15 through 23 are detailed interference studies and demographic results as required.

Exhibits A through F are interference-free Longley-Rice studies depicting the total predicted GPTC coverage within the WVAN-TV Grade B contour with the proposed WXGA-DT in operation and taking WCES-TV, WXGA-TV and WDCO-TV into consideration.

Environmental Impact

The proposed construction will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The DTV transmitter, 1-5/8 inch (50-ohm) transmission line and antenna system will produce an ERP of 4.6 kW. Assuming that the maximum lobe of radiation is oriented at the base of the tower, it will produce a power density six feet above the ground of 0.0021 mW/cm^2. This is only 0.21% of the maximum permissible exposure (MPE) authorized by the American National Standards Institute (ANSI). Since the proposed operation of WXGA-DT Channel 9 will not exceed 5.0% of the MPE limit for population/uncontrolled at any point on the ground, WXGA-DT is not considered to be 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 will be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the applicant 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. The tower will be enclosed within a fence with warning signs posted at the locked gate.

Certification

The applicant accepts full responsibility for the elimination of any objectionable interference including that caused by intermodulation to facilities in existence or authorized prior to the grant of this application.

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics and received a Commission in the Aviation Branch of the United States Army in 1993. As a Professional in the field of Telecommunications and as a Captain in the United States Army, 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
Telecommunications Consultant

25 October, 2001

KESSLER AND GEHMAN ASSOCIATES, INC.

Listing by Section and Question Number of the Portions of the Pending Petition for Rule Making that are being Revised.

1) Tech Box: Number 9 – Maximum Effective Radiated Power (average power).

2) Exhibits A through F and Exhibits 1 through 23

– END –

WXGA-DT
WAYCROSS, GA

ENGINEERING SPECIFICATIONS

A. ***Transmitter Site:***
Geographic coordinates determined by licensed surveyor:

North Latitude	**31° 13' 17"**
West Longitude	**82° 34' 24"**

Transmitter Site Address: **6433 TV Tower Road**
Millwood, Georgia

B. ***Main Studio Site Address:*** **260 14th Street N.W., Atlanta, GA 30318.**

C. ***Proposed Facility:***

DTV Channel	Number	**9**
	Frequency	**186-192 MHz**

D. ***Antenna Height:***

Height of Site Above Mean Sea Level (AMSL)	**48.7 M**
Overall Height of Structure Above Ground (including all appurtenances)	**331.9 M**
Overall Height of Structure Above Mean Sea Level (including all appurtenances)	**380.6 M**
Height of Site Above Average Terrain	**-0.8 M**
Antenna Height Radiation Center (R/C) Above Ground	**287.1 M**
Antenna Height R/C Above Mean Sea Level	**335.8 M**
Average of All Non-Odd Radials	**49.5 M**
Antenna Height R/C Above Average Terrain	**286.3 M**

E. ***System Parameters – Horizontal Polarization:***

Transmitter Power Required	**1.40 kW**
Maximum Power Input to Antenna	**0.71 kW**
Total System Loss	**2.97 dB**
Transmission Line Efficiency	**50.4%**
Maximum Antenna Gain in Beam Maximum	**11.14 dB**
Maximum Antenna Gain in Horizontal Plane	**10.79 dB**
Maximum Effective Radiated Power	**6.63 dBk**
In Beam Maximum	**4.6 kW**
Maximum Effective Radiated Power	**6.28 dBk**
In Horizontal Plane	**4.25 kW**

WXGA-DT
WAYCROSS, GA

DATA FOR PROPOSED DTV OMNIDIRECTIONAL TRANSMITTING ANTENNA

A. ***Antenna:*** Dielectric THV-13A9-R 04, Circularly Polarized, Omnidirectional, Side-mount Antenna.

B. ***Electrical Beam Tilt:*** 0.75°

C. ***Mechanical Beam Tilt:*** 0.0°

D. ***Maximum Power Gain***

	Horizontal Polarization
Maximum:	13.0 (11.14 dB)
Horizontal:	12.0 (10.79 dB)

E. ***Length:*** 74.3 feet (22.6 meters) not including appurtenances.

F. ***Average Power DTV:*** 1.40 kW

G. ***Null Fill:*** 13.8%

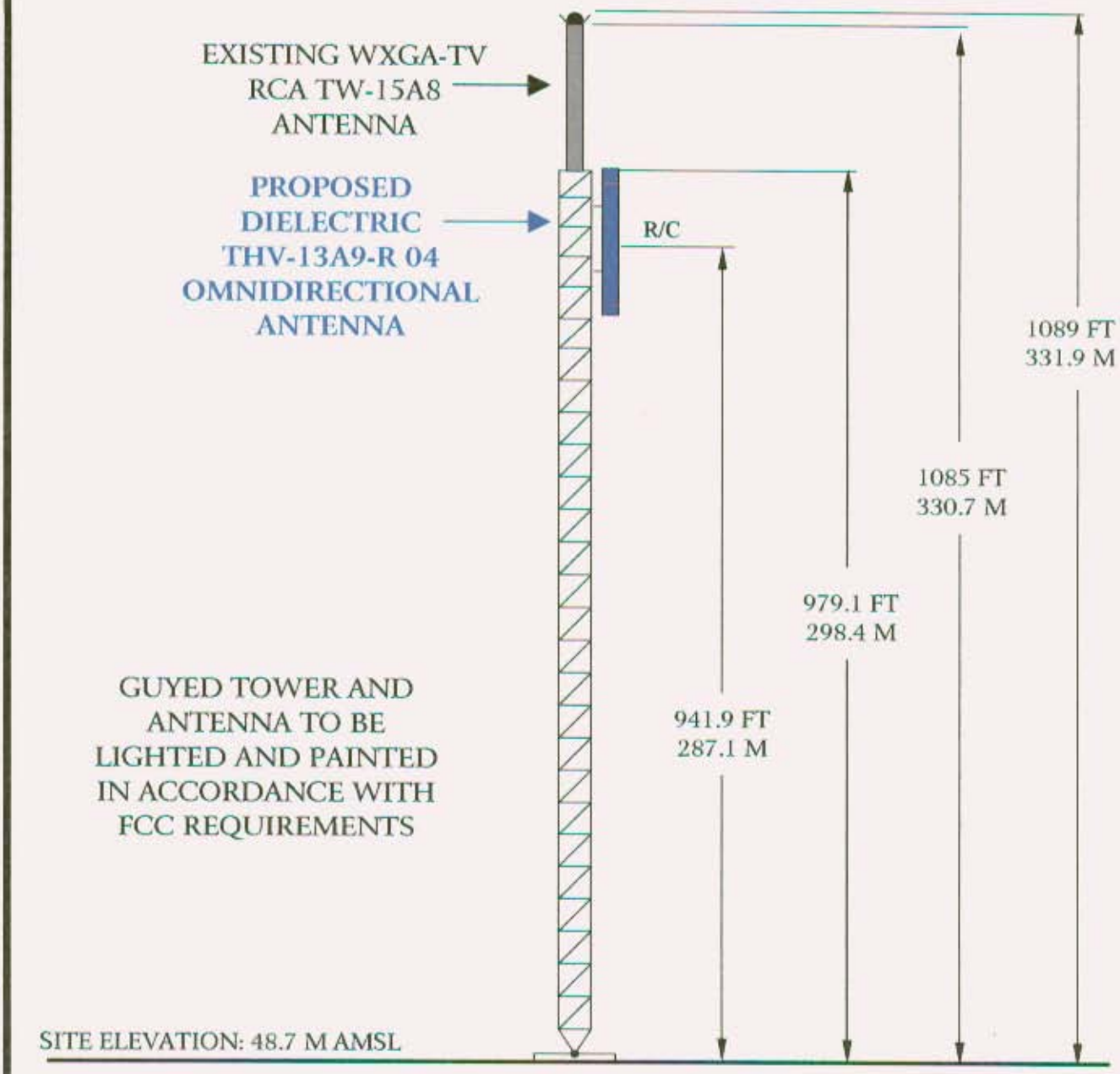
H. ***Transmission Line:*** 1-5/8" 50-ohm Coaxial Cable.

I. ***Transmission Line Loss:*** 0.286dB/100-feet

J. ***Total Transmission Line:*** 1,040 feet

K. ***Transmission Line Attenuation:*** 2.97 dB

ELEVATION VIEW



OVERALL HEIGHT AGL:	331.9 M
OVERALL HEIGHT AMSL:	380.6 M
RADIATION CENTER AGL:	287.1 M
RADIATION CENTER AMSL:	335.8 M
RADIATION CENTER AAT:	286.3 M
AVG OF NON-ODD RADIALS:	49.5 M

NAD 27 COORDINATES:

N. LATITUDE	31 ° 13 ' 17 "
W. LONGITUDE	82 ° 34 ' 24 "

Antenna Structure Registration Number:
1018780

NOTE: NOT TO SCALE

KESSLER & GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

WXGA-DT

WAYCROSS, GEORGIA

20011018 EXHIBIT 4

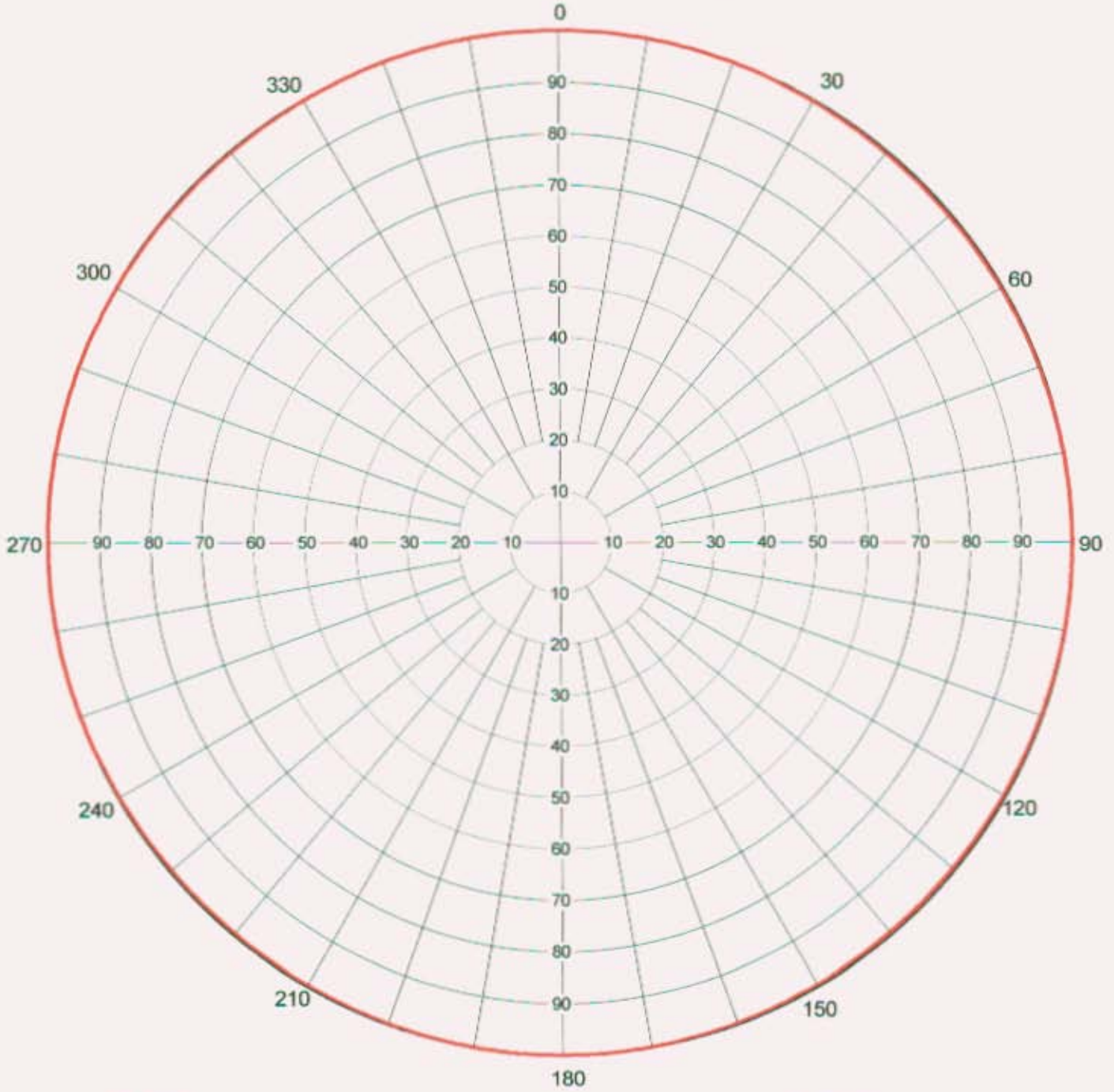
Exhibit No.
Exhibit 5

Dielectric

Date	**18 Oct 2001**		
Call Letters	**WXGA-DT**	Channel	**9**
Location	**Waycross, GA**		
Customer	**GPTC**		
Antenna Type	**THV-13A9-R O4**		

AZIMUTH PATTERN

RMS Gain at Main Lobe	**1.00 (0.00 dB)**	Frequency	**189 MHz**
Calculated / Measured	**Calculated**	Drawing #	**THV-O4**



Remarks:

Exhibit 5

Exhibit No.
Exhibit 6

Dielectric

Date	**18 Oct 2001**		
Call Letters	**WXGA-DT**	Channel	**9**
Location	**Waycross, GA**		
Customer	**GPTC**		
Antenna Type	**THV-13A9-R O4**		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **THV-O4**

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

Remarks:

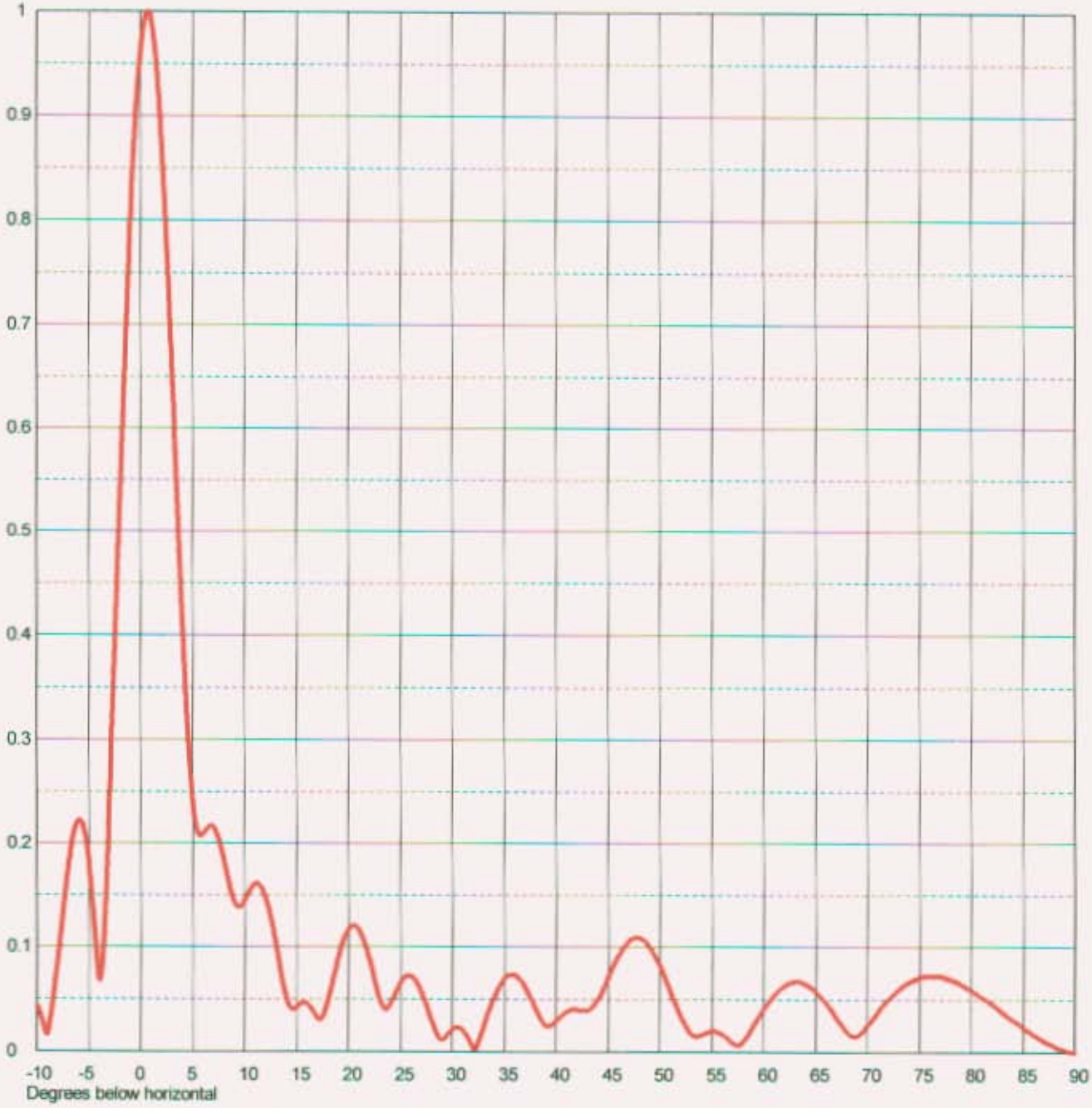
Exhibit No.
Exhibit 7

Dielectric

Date	**18 Oct 2001**		
Call Letters	**WXGA-DT**	Channel	**9**
Location	**Waycross, GA**		
Customer	**GPTC**		
Antenna Type	**THV-13A9-R O4**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**13.0 (11.14 dB)**	Beam Tilt	**0.70 Degrees**
RMS Gain at Horizontal	**12.0 (10.79 dB)**	Frequency	**189.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**13V130070-90**



Remarks: Exhibit 7

Exhibit No.
Exhibit 8

Dielectric

Date	**18 Oct 2001**		
Call Letters	**WXGA-DT**	Channel	**9**
Location	**Waycross, GA**		
Customer	**GPTC**		
Antenna Type	**THV-13A9-R O4**		

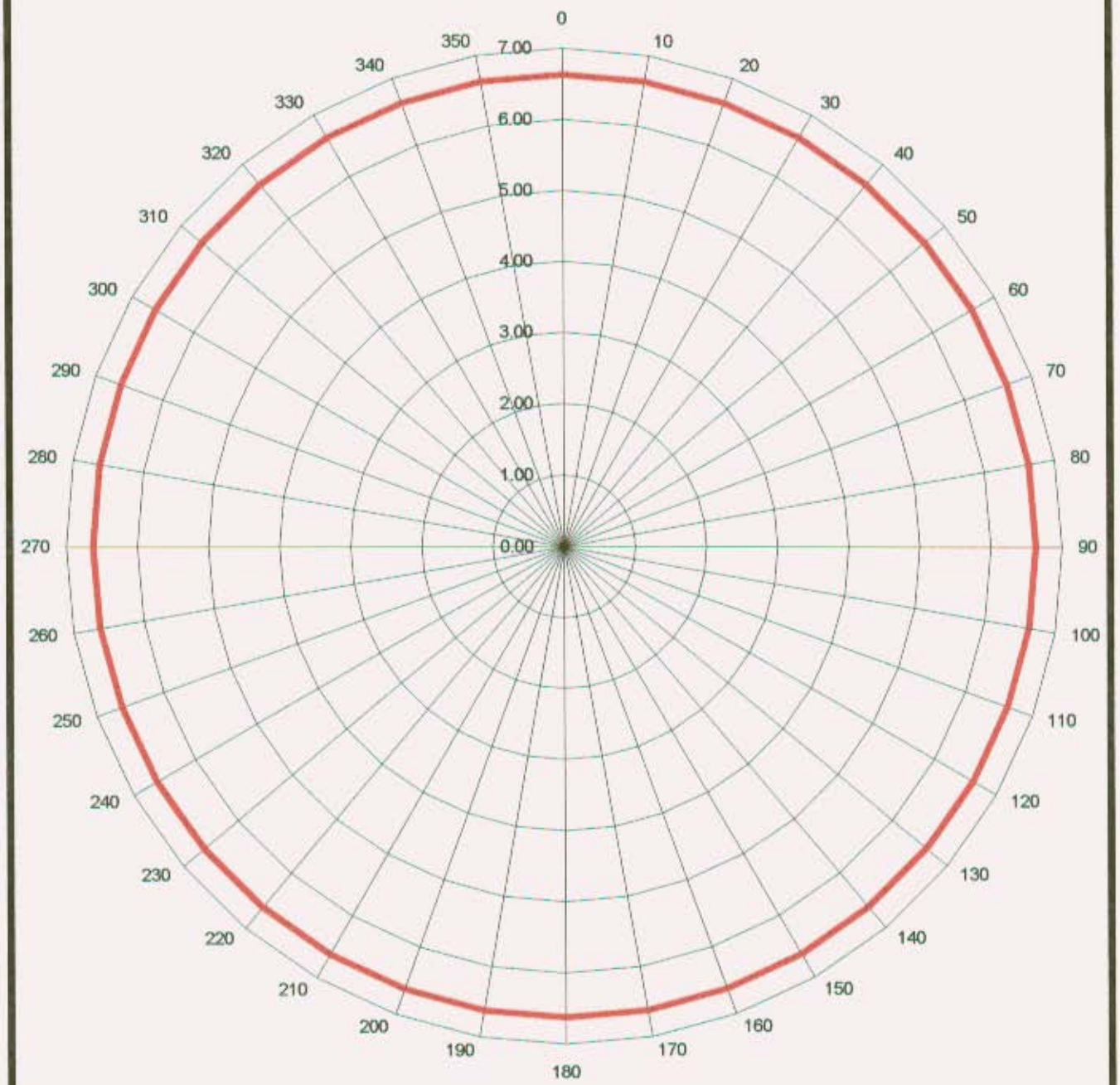
TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **13V130070-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.043	2.4	0.808	10.6	0.156	30.5	0.023	51.0	0.059	71.5	0.044
-9.5	0.031	2.6	0.764	10.8	0.159	31.0	0.021	51.5	0.046	72.0	0.050
-9.0	0.016	2.8	0.718	11.0	0.160	31.5	0.015	52.0	0.035	72.5	0.055
-8.5	0.041	3.0	0.670	11.5	0.159	32.0	0.005	52.5	0.025	73.0	0.059
-8.0	0.084	3.2	0.621	12.0	0.148	32.5	0.008	53.0	0.018	73.5	0.063
-7.5	0.131	3.4	0.571	12.5	0.129	33.0	0.022	53.5	0.015	74.0	0.066
-7.0	0.174	3.6	0.521	13.0	0.104	33.5	0.037	54.0	0.016	74.5	0.069
-6.5	0.206	3.8	0.472	13.5	0.077	34.0	0.050	54.5	0.018	75.0	0.071
-6.0	0.222	4.0	0.424	14.0	0.054	34.5	0.061	55.0	0.020	75.5	0.072
-5.5	0.215	4.2	0.380	14.5	0.041	35.0	0.069	55.5	0.019	76.0	0.072
-5.0	0.184	4.4	0.338	15.0	0.041	35.5	0.073	56.0	0.017	76.5	0.072
-4.5	0.129	4.6	0.302	15.5	0.045	36.0	0.073	56.5	0.014	77.0	0.072
-4.0	0.070	4.8	0.270	16.0	0.046	36.5	0.069	57.0	0.009	77.5	0.071
-3.5	0.115	5.0	0.245	16.5	0.040	37.0	0.062	57.5	0.006	78.0	0.069
-3.0	0.236	5.2	0.227	17.0	0.033	37.5	0.053	58.0	0.010	78.5	0.067
-2.8	0.291	5.4	0.215	17.5	0.032	38.0	0.042	58.5	0.016	79.0	0.065
-2.6	0.348	5.6	0.209	18.0	0.046	38.5	0.032	59.0	0.024	79.5	0.062
-2.4	0.406	5.8	0.207	18.5	0.066	39.0	0.025	59.5	0.033	80.0	0.059
-2.2	0.465	6.0	0.208	19.0	0.088	39.5	0.025	60.0	0.040	80.5	0.056
-2.0	0.523	6.2	0.211	19.5	0.105	40.0	0.029	60.5	0.047	81.0	0.053
-1.8	0.580	6.4	0.214	20.0	0.116	40.5	0.034	61.0	0.054	81.5	0.049
-1.6	0.636	6.6	0.216	20.5	0.121	41.0	0.038	61.5	0.059	82.0	0.046
-1.4	0.690	6.8	0.217	21.0	0.117	41.5	0.040	62.0	0.063	82.5	0.042
-1.2	0.741	7.0	0.216	21.5	0.106	42.0	0.040	62.5	0.066	83.0	0.038
-1.0	0.789	7.2	0.213	22.0	0.090	42.5	0.039	63.0	0.067	83.5	0.035
-0.8	0.833	7.4	0.208	22.5	0.070	43.0	0.039	63.5	0.067	84.0	0.031
-0.6	0.872	7.6	0.202	23.0	0.051	43.5	0.042	64.0	0.065	84.5	0.028
-0.4	0.907	7.8	0.194	23.5	0.041	44.0	0.049	64.5	0.062	85.0	0.024
-0.2	0.937	8.0	0.185	24.0	0.044	44.5	0.058	65.0	0.058	85.5	0.021
0.0	0.961	8.2	0.176	24.5	0.054	45.0	0.070	65.5	0.053	86.0	0.017
0.2	0.980	8.4	0.166	25.0	0.065	45.5	0.081	66.0	0.047	86.5	0.014
0.4	0.992	8.6	0.157	25.5	0.071	46.0	0.091	66.5	0.040	87.0	0.011
0.6	0.999	8.8	0.150	26.0	0.072	46.5	0.099	67.0	0.033	87.5	0.009
0.8	1.000	9.0	0.144	26.5	0.067	47.0	0.105	67.5	0.026	88.0	0.006
1.0	0.994	9.2	0.140	27.0	0.058	47.5	0.108	68.0	0.020	88.5	0.004
1.2	0.983	9.4	0.138	27.5	0.046	48.0	0.108	68.5	0.016	89.0	0.002
1.4	0.966	9.6	0.138	28.0	0.031	48.5	0.106	69.0	0.015	89.5	0.001
1.6	0.944	9.8	0.140	28.5	0.018	49.0	0.100	69.5	0.019	90.0	0.000
1.8	0.917	10.0	0.144	29.0	0.012	49.5	0.092	70.0	0.025		
2.0	0.884	10.2	0.148	29.5	0.016	50.0	0.082	70.5	0.031		
2.2	0.848	10.4	0.152	30.0	0.021	50.5	0.071	71.0	0.038		

Remarks: Exhibit 8

ERP - dBk



DIELECTRIC MODEL THV-13A9-R 04
OMNIDIRECTIONAL ANTENNA
0.75 DEGREES ELECTRICAL BEAM TILT
MAXIMUM ANTENNA GAIN IN BEAM MAXIMUM 11.14 dB

KESSLER & GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

WXGA-DT CHANNEL 9
WAYCROSS, GEORGIA

20011018 EXHIBIT 9

WXGA-DT CHANNEL 9

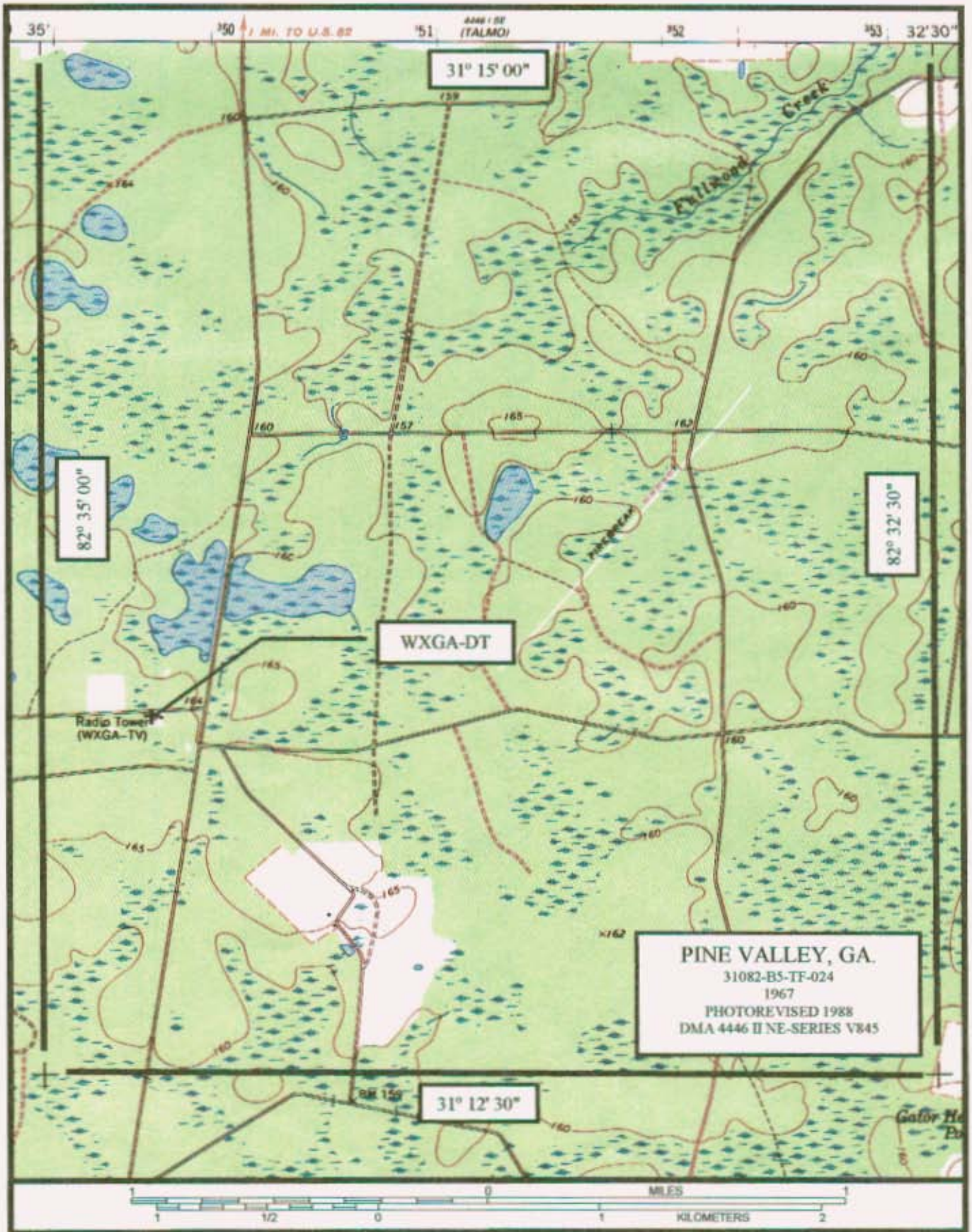
WAYCROSS, GEORGIA

TABULATION OF RELATIVE FIELDS FOR PROPOSED OMNIDIRECTIONAL ANTENNA

AZIMUTH	RELATIVE FIELD	AZIMUTH	RELATIVE FIELD
N000°E	1.000	N180°E	1.000
N010°E	0.999	N190°E	0.999
N020°E	0.998	N200°E	0.998
N030°E	0.997	N210°E	0.997
N040°E	0.996	N220°E	0.996
N050°E	0.996	N230°E	0.996
N060°E	0.997	N240°E	0.997
N070°E	0.998	N250°E	0.998
N080°E	0.999	N260°E	0.999
N090°E	1.000	N270°E	1.000
N100°E	0.999	N280°E	0.999
N110°E	0.998	N290°E	0.998
N120°E	0.999	N300°E	0.997
N130°E	1.000	N310°E	0.996
N140°E	0.996	N320°E	0.996
N150°E	0.997	N330°E	0.997
N160°E	0.998	N340°E	0.998
N170°E	0.999	N350°E	0.999

MINIMUM OF 0.995

MAXIMA OF 1.000



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WXGA-DT CHANNEL 9
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EXHIBIT 11

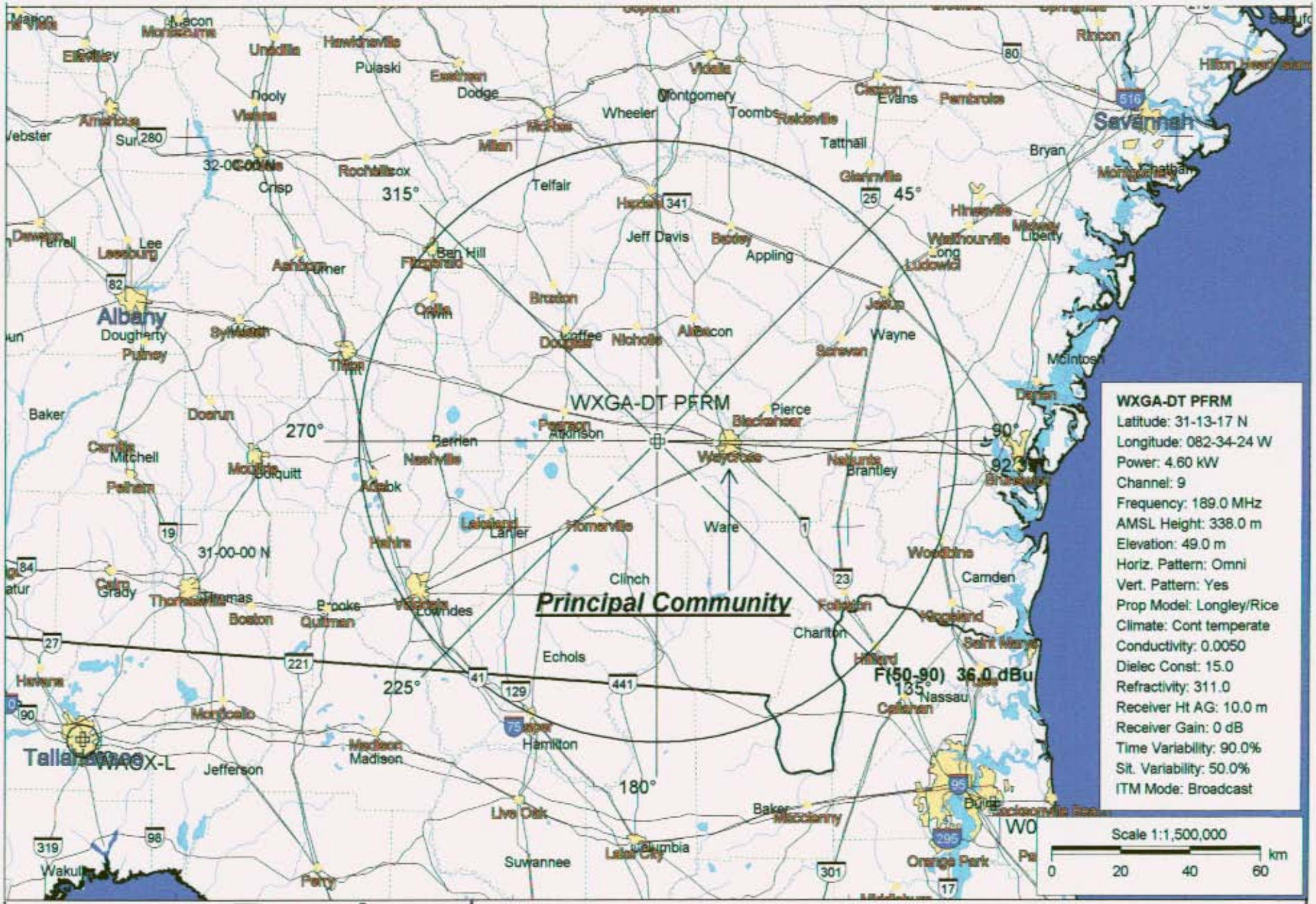
WXGA-DT PFRM
Latitude: 31-13-17 N
Longitude: 082-34-24 W
Power: 4.60 kW
Channel: 9
Frequency: 189.0 MHz
AMSL Height: 338.0 m
Elevation: 49.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
Scale 1:1,500,000
0 20 40 60 km
WXGA-DT PFRM
Principal Community
F(50-90) 36.0 dBu
315°
45°
270°
90°
225°
135°
180°
31-00-00 N
Albany
Savannah
Tallahassee
WAOX-L
Waycross
Ware
Clinch
Brantley
Appling
Jeff Davis
Telfair
Wayne
Pierce
Atkinson
Berrien
Echols
Charlton
Nassau
Hamilton
Madison
Jefferson
Suwannee
Baker
Columbia
Orange Park
Camden
Glynn
Liberty
Bryan
Chatham
Tattnall
Toombs
Montgomery
Wheeler
Dodge
Pulaski
Crisp
Dougherty
Lee
Mitchell
Grady
Thomas
Brooks
Lowndes
Colquitt
Worth
Ben Hill
Coffee
Bacon
Appling
Long
Ware
Lanier
Clinch
Charlton
Nassau
Duval
Clay
Putnam
Flagler
Volusia
Marion
Levy
Gilchrist
Alachua
Bradford
Baker

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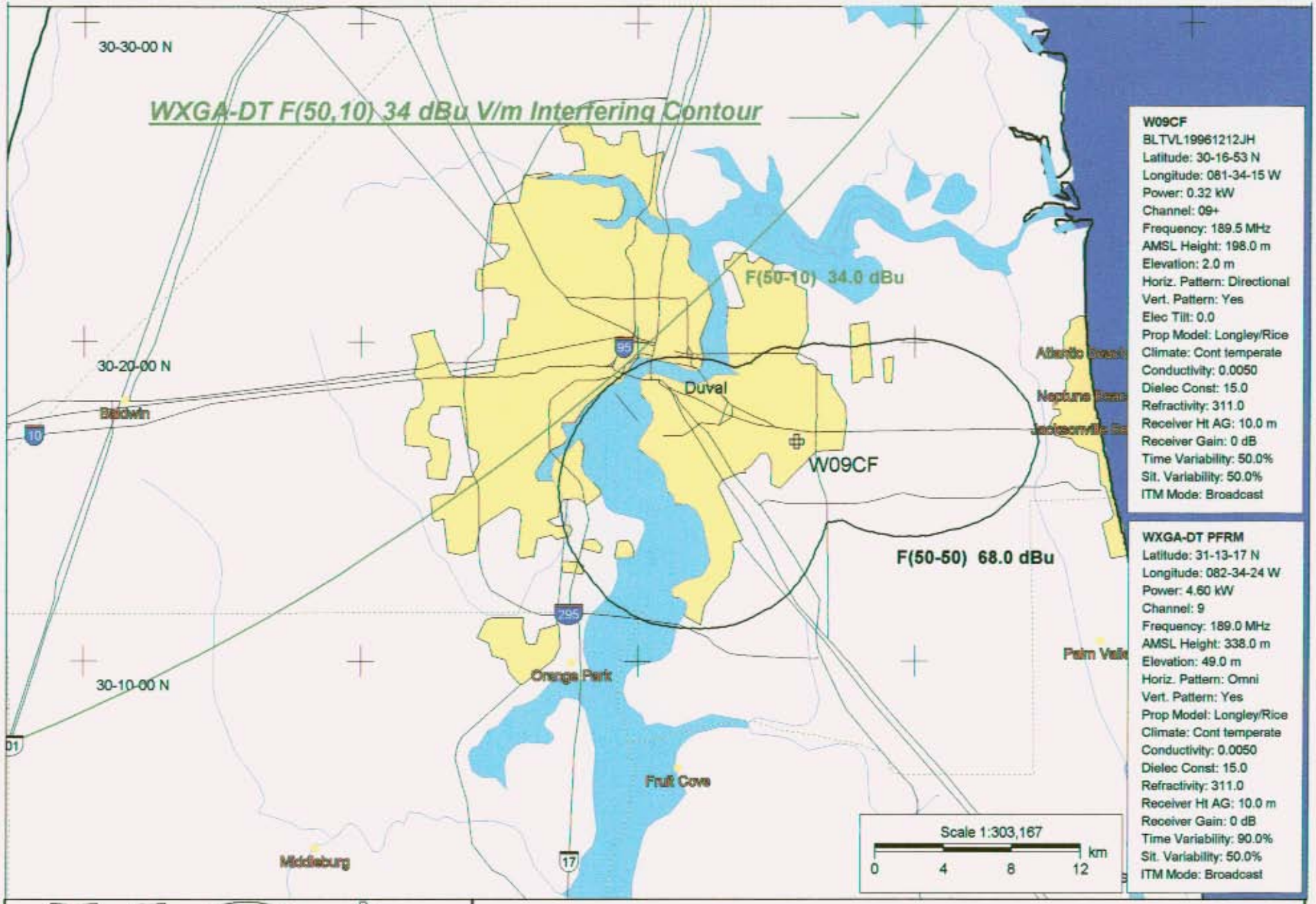
EXHIBIT 13



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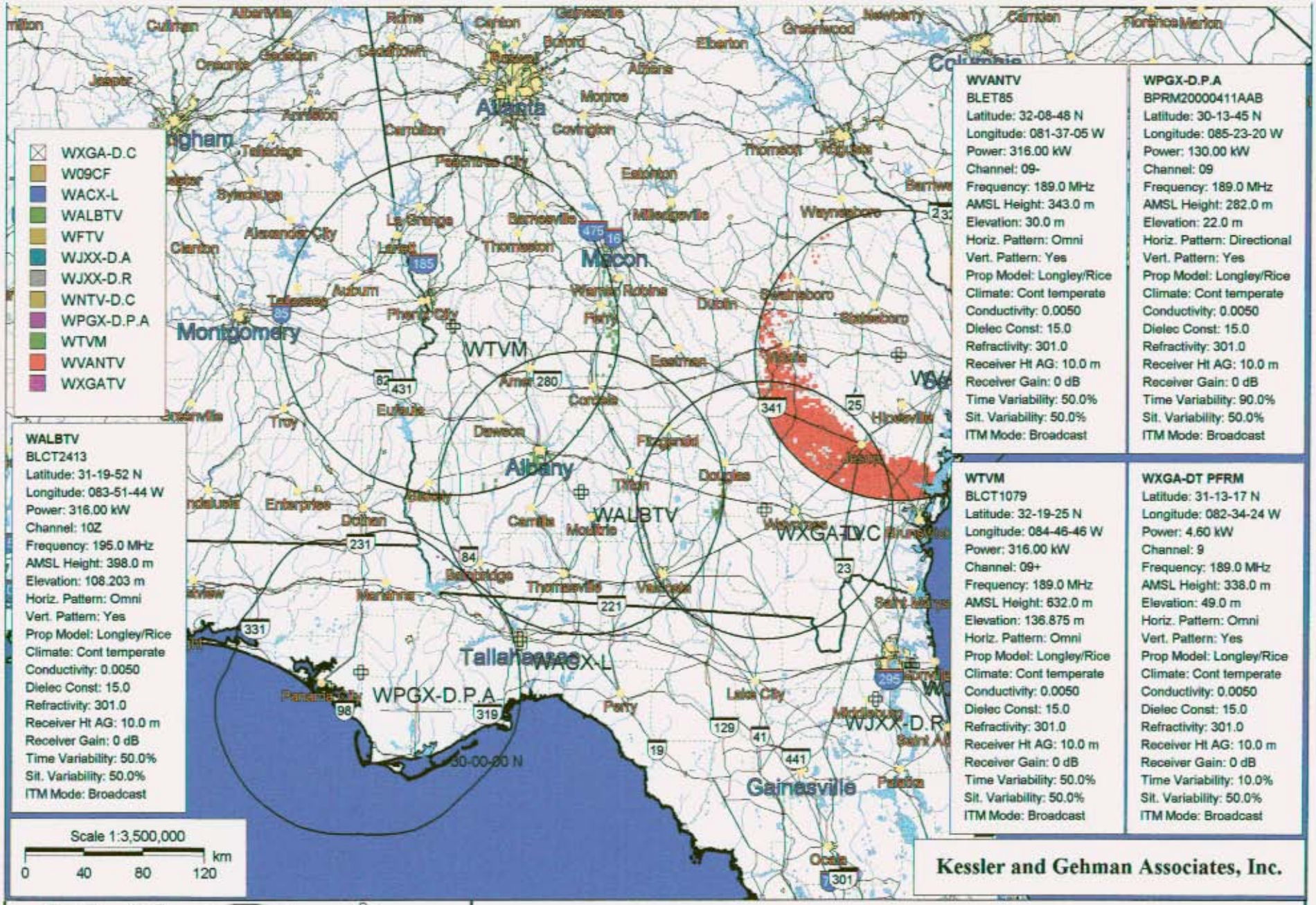

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EXHIBIT 15