ENGINEERING EXHIBIT

Digital Low Power Television Station
Application for Minor Modification of Licensed Facility

prepared for

Gray Television Licensee, LLC
W16EK-D Lenox, GA
Facility ID 186166
Ch. 16 15 kW Nondirectional

Gray Television Licensee, LLC ("Gray") is the licensee of digital Low Power Television station W16EK-D, Channel 16, Facility ID 186166, Lenox GA. W16EK-D is licensed to operate at 0.7 kW effective radiated power ("ERP") with a directional antenna (file# 0000194555). *Gray* herein seeks a minor modification Construction Permit to utilize a nondirectional antenna at increased ERP and antenna height.

No change in site location is proposed. The proposed facility will employ a new antenna system to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1002824. No change to the overall structure height is proposed.

The proposed antenna is a Dielectric model TLP-12A/VP-R having elliptical polarization. The proposed ERP is 15 kW horizontally polarized and 4.5 kW vertically polarized using a "full service" out of channel emission mask.

Figure 1 depicts the 51 dBµ coverage contour of the proposed and licensed facilities, demonstrating compliance with §73.3572 for a minor change. Since the proposed 51 dBµ contour encompasses that of the licensed facility, no service loss area will be created. Considerable service improvement will result as the population within the 51 dBµ contour increases to 154,696 persons (2010 census), which is a 55-fold increase beyond the 2,814 persons within the licensed W16EK-D facility's 51 dBµ contour.

Interference study per OET Bulletin 69[1] shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the FCC's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and 20 percent antenna relative field in downward elevations (pattern data shows 20 percent or less relative field at angles 10 to 90 degrees below the antenna), the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is 1.4 $\mu W/cm^2$, which is 0.4 percent of the general population / uncontrolled maximum permissible exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

[1]FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 1 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCCs implementation of TVStudy show excellent correlation.

List of Attachments

Figure 1 Coverage Contour Comparison
Table 1 TVStudy Analysis of Proposal
Form 2100 Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC
Joseph M. Davis, P.E. September 12, 2022
207 Old Dominion Road Yorktown, VA 23692 703-650-9600

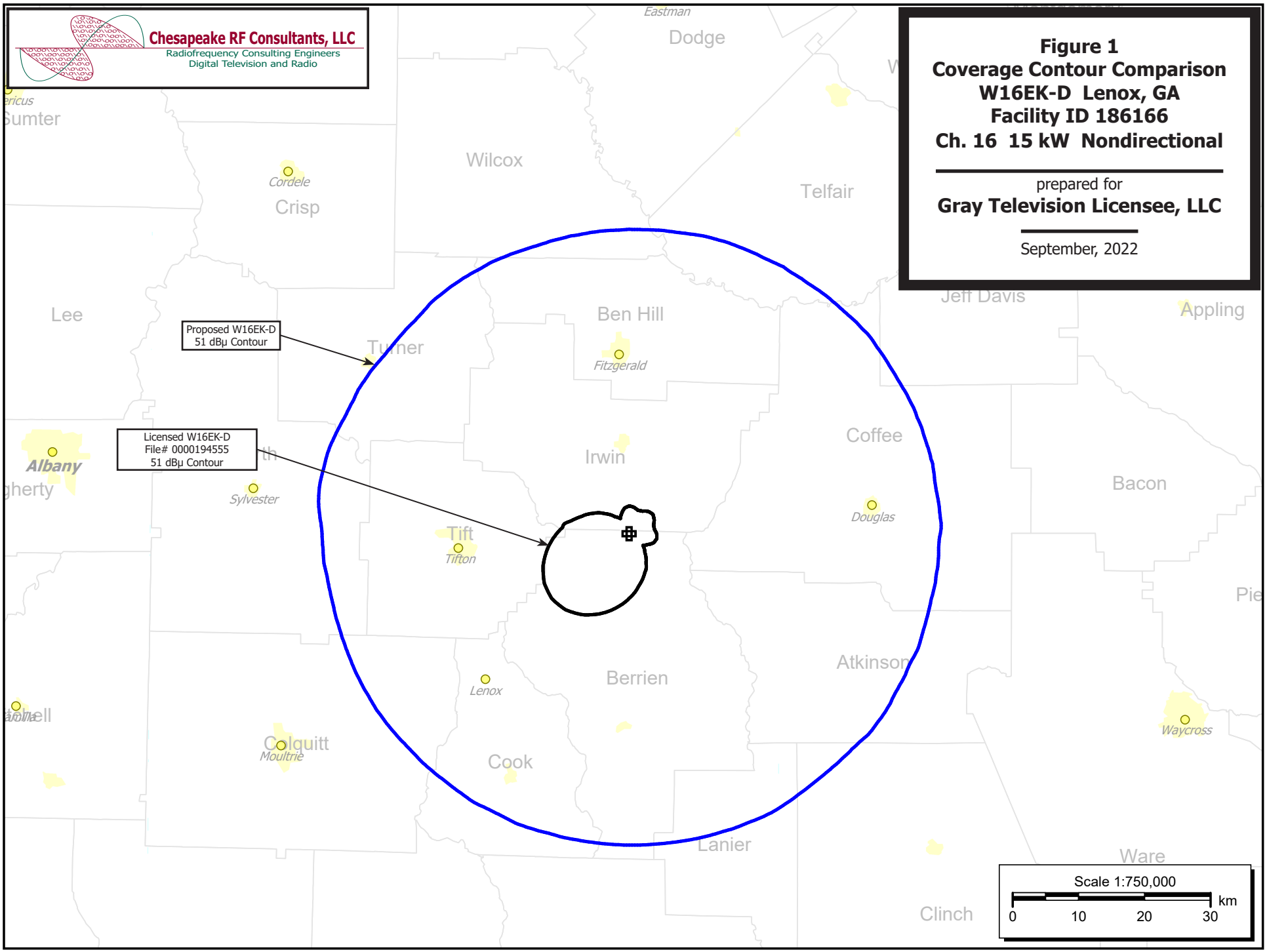
Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Coverage Contour Comparison
W16EK-D Lenox, GA
Facility ID 186166
Ch. 16 15 kW Nondirectional
prepared for
Gray Television Licensee, LLC
September, 2022
Proposed W16EK-D
51 dBµ Contour
Licensed W16EK-D
File# 0000194555
51 dBµ Contour
Eastman
Dodge
Wilcox
Telfair
Cordele
Crisp
Lee
Ben Hill
Fitzgerald
Jeff Davis
Appling
Albany
Sylvester
Irwin
Coffee
Bacon
Douglas
Tift
Tifton
Berrien
Atkinson
Lenox
Colquitt
Moultrie
Cook
Lanier
Ware
Clinch
Waycross
Scale 1:750,000
km
0
10
20
30

Table 1 W16EK-D TVStudy Analysis of Proposal

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

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tvstudy v2.2.5 (4uoc83)
Database: localhost,  Study: W16EK-D 1002824 460ft prop,  Model: Longley-Rice
Start: 2022.09.12 11:00:09

Study created: 2022.09.12 11:00:09

Study build station data: LMS TV 2022-09-11

    Proposal: W16EK-D D16 LD APP LENOX, GA
 File number: W16EK-D 1002824 460ft prop
 Facility ID: 186166
Station data: User record
   Record ID: 4655
     Country: U.S.

Build options:
Protect pre-transition records not on baseline channel

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:
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IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	W31FE-D	N14+	TX	LIC	Savannah, GA	BLTT20040915ADW	107.7 km
No	WNFT-LD	D15	LD	LIC	GAINESVILLE, FL	BLDTL20110714ACG	214.1
No	WNFT-LD	D15	LD	CP	GAINESVILLE, FL	BLANK0000106078	214.1
No	WUJX-LD	D15	LD	LIC	JACKSONVILLE, FL	BLANK0000121572	206.7
No	WTFL-LD	D15	LD	LIC	TALLAHASSEE, FL	BLANK0000150951	135.5
No	WPHJ-LD	D15+	LD	LIC	BAXLEY, GA	BLANK0000187241	189.8
No	WRBL	D15	DT	LIC	COLUMBUS, GA	BLCDT20061013ABV	174.6
No	W16DV-D	D16	LD	LIC	Alexander City, AL	BLANK0000190001	255.3
No	WALE-LD	D16	LD	LIC	MONTGOMERY, AL	BLANK0000152783	303.5
No	WCJB-TV	D16	DT	LIC	GAINESVILLE, FL	BLCDT20071119AJB	229.3
No	WRCF-CD	D16	DC	LIC	ORLANDO, FL	BLANK0000099575	381.6
No	WRCF-CD	D16	DC	LIC	ORLANDO, FL	BLANK0000121630	381.6
Yes	WJHG-TV	D16	DT	LIC	PANAMA CITY, FL	BLANK0000068516	240.1
No	W16DQ-D	D16	LD	LIC	TAMPA, FL	BLANK0000122658	416.5
No	DDW38EM-D	D16	LD	APP	ALBANY, GA	BLANK0000052733	104.2
No	W16EE-D	D16	LD	APP	AUGUSTA, GA	BLANK0000186170	255.9
No	W16EE-D	D16	LD	LIC	AUGUSTA, GA	BLANK0000179225	255.9
No	W16EL-D	D16	LD	LIC	AUGUSTA, GA	BLANK0000194477	234.4
No	WRDP-LD	D16	LD	LIC	COLUMBUS, GA	BLANK0000178766	190.4
No	WRDP-LD	D16	LD	CP	COLUMBUS, GA	BLANK0000185006	174.6
No	DDW26DS-D	D16	LD	APP	LA GRANGE, GA	BLANK0000053055	246.7
No	WDMA-CD	D16	DC	LIC	MACON, GA	BLANK0000074865	157.8
No	WPXA-TV	D16	DT	LIC	ROME, GA	BLANK0000081827	342.4
Yes	WSAV-TV	D16	DT	LIC	SAVANNAH, GA	BLANK0000055021	194.5
No	WJPM-TV	D16	DT	LIC	FLORENCE, SC	BLANK0000138174	451.5
No	WWYA-LD	D16	LD	LIC	HONEA PATH, SC	BLANK0000093423	393.3
No	WGBP-TV	D17	DD	APP	OPELIKA, AL	BLANK0000194947	185.6
No	WGBP-TV	D17	DD	LIC	OPELIKA, AL	BLANK0000129713	185.6
No	WJVF-LD	D17	LD	LIC	Jacksonville, FL	BLANK0000129911	170.4
No	WJVF-LD	D17	LD	CP	Jacksonville, FL	BLANK0000157569	207.4
No	WFXU	D17	DT	LIC	LIVE OAK, FL	BLANK0000112143	104.4
No	W17ES-D	D17	LD	LIC	ADEL, GA	BLANK0000194414	39.8
No	DW23AQ	N23-	TX	APP	LAKE CITY, FL	BLTT19931215JE	152.4

```
No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D16
       Mask: Full Service
   Latitude:  31 28 11.50 N (NAD83)
  Longitude:  83 14 12.30 W
Height AMSL: 236.8 m
       HAAT: 0.0 m
   Peak ERP: 15.0 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
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Elec Tilt: 0.50

48.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	141.1 m	48.5 km
45.0	15.0	152.0	49.2
90.0	15.0	155.0	49.5
135.0	15.0	152.3	49.3
180.0	15.0	155.6	49.5
225.0	15.0	147.5	48.9
270.0	15.0	146.7	48.9
315.0	15.0	136.1	48.2

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 148 m

Distance to Canadian border: 1135.6 km

Distance to Mexican border: 1465.8 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 332.8 degrees Distance: 300.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 302.1 degrees Distance: 2195.0 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000068516 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WJHG-TV	D16	DT	LIC	PANAMA CITY, FL	BLANK0000068516	
Undesireds:	W16EK-D	D16	LD	APP	LENOX, GA	W16EK-D 1002824 460ft	240.1 km
	WCJB-TV	D16	DT	LIC	GAINESVILLE, FL	BLCDT20071119AJB	302.0
	WMAH-TV	D16	DT	LIC	BILOXI, MS	BLEDT20110404AGM	343.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
36627.6	864,213	36575.1	859,368	36562.0	858,490	36550.0	858,436	0.03	0.01

Undesired	Total IX	Unique IX, before		Unique IX, after	
W16EK-D D16 LD APP	17.0	843		12.0	54
WCJB-TV D16 DT LIC	7.0	796	7.0	2.0	7
WMAH-TV D16 DT LIC	6.1	82	6.1	6.1	82

Interference to BLANK0000055021 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WSAV-TV	D16	DT	LIC	SAVANNAH, GA	BLANK0000055021	
Undesireds:	W16EK-D	D16	LD	APP	LENOX, GA	W16EK-D 1002824 460ft	194.5 km
	WCJB-TV	D16	DT	LIC	GAINESVILLE, FL	BLCDT20071119AJB	299.4
	WRCF-CD	D16	DC	LIC	ORLANDO, FL	BLANK0000099575	386.5
	WDMA-CD	D16	DC	LIC	MACON, GA	BLANK0000074865	239.0
	WPXA-TV	D16	DT	LIC	ROME, GA	BLANK0000081827	399.8
	WJPM-TV	D16	DT	LIC	FLORENCE, SC	BLANK0000138174	286.2
	WTAT-TV	D17	DT	LIC	CHARLESTON, SC	BLANK0000184941	179.4

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	

Table 1 W16EK-D TVStudy Analysis of Proposal

39843.8	1,000,457	39812.7	1,000,401	39652.4	998,580	39596.8	998,072	0.14	0.05

Undesired		Total IX		Unique IX, before		Unique IX, after	
W16EK-D D16 LD APP	63.7	603				55.6	508
WCJB-TV D16 DT LIC	2.0	84	0.0	0		0.0	0
WDMA-CD D16 DC LIC	10.0	97	2.0	0		1.0	0
WPXA-TV D16 DT LIC	16.0	91	10.0	78		10.0	78
WJPM-TV D16 DT LIC	2.0	0	2.0	0		2.0	0
WTAT-TV D17 DT LIC	138.2	1,646	138.2	1,646		138.2	1,646

Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W16EK-D	D16	LD	APP	LENOX, GA	W16EK-D 1002824 460ft	
Undesireds:	WCJB-TV	D16	DT	LIC	GAINESVILLE, FL	BLCDT20071119AJB	229.3 km
	W16EE-D	D16	LD	APP	AUGUSTA, GA	BLANK0000186170	255.9
	WRDP-LD	D16	LD	LIC	COLUMBUS, GA	BLANK0000178766	190.4
	WDMA-CD	D16	DC	LIC	MACON, GA	BLANK0000074865	157.8
	WSAV-TV	D16	DT	LIC	SAVANNAH, GA	BLANK0000055021	194.5

Service area		Terrain-limited		IX-free		Percent IX	
7564.1	168,189	7564.1	168,189	7537.7	167,997	0.35	0.11

Undesired		Total IX		Unique IX		Prcnt Unique IX	
WCJB-TV D16 DT LIC	1.0	0	0.0	0		0.00	0.00
WDMA-CD D16 DC LIC	1.0	0	0.0	0		0.00	0.00
WSAV-TV D16 DT LIC	26.3	192	24.3	192		0.32	0.11

Channel and Facility Information

Section	Question	Response
Facility ID	186166	
State	Georgia	
City	LENOX	
LPD Channel	16	

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1002824
Coordinates (NAD83)	Latitude	31° 28' 11.5" N+
	Longitude	083° 14' 12.3" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	151.4 meters
	Support Structure Height	151.2 meters
	Ground Elevation (AMSL)	96.6 meters
Antenna Data	Height of Radiation Center Above Ground Level	140.2 meters
	Height of Radiation Center Above Mean Sea Level	236.8 meters
	Effective Radiated Power	15 kW

Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-12A/VP-R
	Rotation	
	Electrical Beam Tilt	0.5
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
Elevation Radiation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	
	Out-of-Channel Emission Mask:	Full Service