

**Educational Media Foundation**  
5700 West Oaks Boulevard  
Rocklin, CA 95765

WKGV  
Swansboro, NC

### **Purpose of Application**

The purpose of this WKGV proposed minor modification to a licensed facility is to change the operating class of WKGV from 281A to 281C3. To identify a WKGV 281C3 fully spaced reference site location, a new WCXL reference site location is also proposed.

The exhibits contained in this application support these proposed reference site locations as meeting the separation requirements of 47 C.F.R. 73.207 pertaining to WKGV and WCXL.

WKGV 281C3 proposed reference site coordinates: 34° 44' 12.0" N 77° 13' 10.6" W (NAD83).

WCXL proposed reference site coordinates: 36° 18' 00.1" N 75° 48' 56.9" W (NAD83).  
WCXL proposes no technical changes. The only proposed change is in the WCXL 281C1 reference site location.

## **WKGV 281C3 Channel Study**

### **1. Compliance with 47 C.F.R. 73.207**

The proposed facility meets all minimum distance separation requirements with regard to co-channel, first, second, or third adjacent channel stations, and those separated by 53/54 channels, except the licensed facilities of the following station:

Station	Channel	City of License	Facility ID	Distance Short-Spaced
WCXL	281C1	Kill Devil Hill, NC	55248	7.4km
WYAV	281C1	Myrtle Beach, SC	36947	2.4km

This application proposes contour protection (47 C.F.R. 73.215. 47 C.F.R. 73.215(e)) for WCXL and WYAV.

The minimum separation requirement between a class C3 and a class C1 facility (WKGV and WCXL), which are co-channels, is 200 km. Exhibit 1-A shows that WCXL is separated from the proposed facility by 203.14 km.

The minimum separation requirement between a class C3 and a class C1 facility (WKGV and WYAV), which are co-channels, is 200 km. Exhibit 1-A shows that WCXL is separated from the proposed facility by 208.08 km.

Therefore, the proposed facility is permitted to use contour protection toward the short-spaced facility (See Exhibit 2 for compliance with contour protection requirements).

### **2. Fully Spaced Theoretical Site**

A theoretical allotment site has been identified. It is located at 34° 44' 12.0" N by 77° 13' 10.6" W (NAD83) and is, in fact, fully spaced except for WCXL (FIN 55248). Exhibit 5 proposes a new allotment site for WCXL which allows the proposed WKGV allotment site to meet Class C3 spacing requirements. The distance and azimuth between the proposed WKGV C3 allotment coordinates 34-44-12.0 N 77-13-10.6 W (NAD83) and the proposed WCXL allotment coordinates of 36-18-00.1 N 75-48-56.9 W (NAD83) is 215.3km as shown in Exhibit 1-B. The minimum distance requirement between a C3 and C1 which are cochannel is 210.5km.

If necessary, the applicant could construct a tower at this theoretical fully spaced WKGV 281C3 location. However, to construct a new tower would cause financial hardship.

**Exhibit Index:**

- Exhibit 1-A shows the spacing at the WKGV proposed site.
- Exhibit 1-B demonstrates the WKGV theoretical allotment site meets the minimum distance separation requirements of 47 C.F.R. 73.207 except for WCXL (FIN 55248). Exhibit 5 proposes new allotment geographic coordinates for WCXL which allows the proposed WKGV allotment site to meet Class C3 spacing requirements.
- Exhibit 1-C shows the WKGV city of license coverage map from the theoretical allotment site.
- Exhibit 2 shows the protected and interfering contours for the proposed WKGV operation and the short-spaced stations.

### WKGV Site Spacing Table

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REFERENCE
34 43 27.50 N.          CLASS = C3
77 14 54.00 W.          Current Spacings to 3rd Adj.
----- Channel 281 - 104.1 MHz -----
DISPLAY DATES
DATA 01-11-24
SEARCH 01-11-24

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Call	Channel	Location	Azi	Dist	FCC	Margin
WKGV	LIC 281A	Swansboro NC	0.0	0.00	141.5	-141.5
WCXL	LIC 281C1	Kill Devil Hills NC	39.0	203.14	210.5	-7.4
WYAV	LIC 281C1	Myrtle Beach SC	233.2	208.08	210.5	-2.4
WZUP	LIC-N 284C2	La Grange NC	331.2	67.89	55.5	12.4
NEW	APP 281L1	Cedar Island NC	73.0	92.09	77.5	14.6
WFXK	LIC 282C1	Bunn NC	333.5	163.73	143.5	20.2
W281CH	LIC-D 281D	Washington NC	10.0	90.42	56.5	33.9
WILT	LIC-N 279C2	Wrightsville Beach NC	223.8	96.17	55.5	40.7
WERO	LIC 227C	Washington NC	349.5	72.49	30.5	42.0
AL9816	RSV-A 279C2	Wrightsville Beach NC	217.1	100.90	55.5	45.4
WSTK	LIC 283A	Aurora NC	43.8	89.39	41.5	47.9

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RSV-R = reserved - needs protection, RSV-A = allocation.
All separation margins include rounding

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## WKGV Theoretical Site Spacing

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REFERENCE
34 44 12.00 N.          CLASS = C3
77 13 10.60 W.          Current Spacings to 1st Adj.
----- Channel 281 - 104.1 MHz -----
DISPLAY DATES
DATA 02-08-24
SEARCH 02-08-24

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Call	Channel	Location	Azi	Dist	FCC	Margin
WKGV	LIC 281A	Swansboro	NC 242.4	2.96	141.5	-138.5
WCXL	LIC 281C1	Kill Devil Hills	NC 38.7	200.37	210.5	-10.1
WCXL	Allot 281C1	Kill Devil Hills	NC 35.8	215.3	210.5	4.8*
WYAV	LIC 281C1	Myrtle Beach	SC 233.4	211.15	210.5	0.7
NEW	APP 281L1	Cedar Island	NC 73.4	89.36	77.5	11.9
WFXX	LIC 282C1	Bunn	NC 332.4	163.51	143.5	20.0

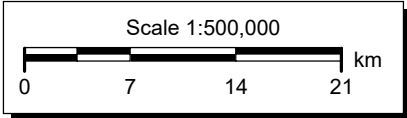
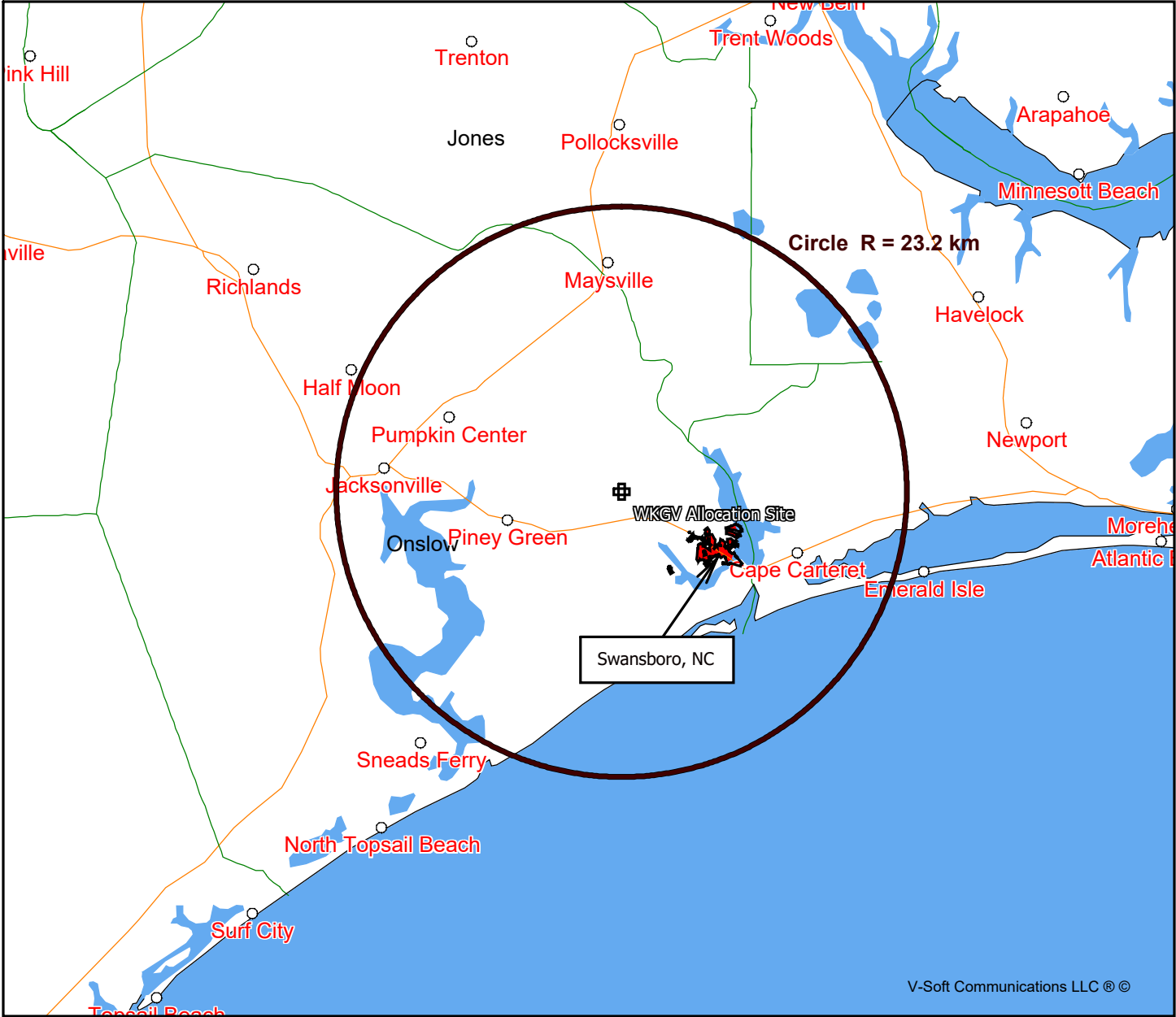
All separation margins include rounding

- Spacing Shown Between New WKGV and WCXL Proposed Allotment Coordinates

WKGV 281C3 Swansboro, NC  
FCC Class C3 Hypothetical 70dbu Contour (23.2km)

Exhibit 1-C

**WKGV Allocation Site**  
BLED20140610AAB  
Latitude: 34-44-12 N  
Longitude: 077-13-10.60 W  
ERP: 25.00 kW  
Channel: 281  
Frequency: 104.1 MHz  
AMSL Height: 111.5 m  
Elevation: 13.1 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None



## Contour Protection Channel Study

REFERENCE CH# 281C3- 104.1 MHz, Pwr= 7.7 kW, HAAT= 100.7 M, COR= 111.5 M DISPLAY DATES  
 34 43 27.5 N. Average Protected F(50-50)= 30.0 km DATA 01-11-24  
 77 14 54.0 W. Omni-directional SEARCH 01-11-24

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr (kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*
281A	WKGV!	LIC	CN	0.0	0.00	34 43 27.50	5.400		---	Reference---	
Swansboro			NC	0.0	BLD20140610AAB	77 14 54.00	106	112	Educational Media Foundati		
281D	W281CH!	LIC	DCN	10.0	90.42	35 31 36.60	0.250	28.1	8.5	32.5	-8.6*<
Washington			NC	190.1	BLFT20190828AAM	77 04 29.80		71	Pirate Media Group, LLC		
281C1	WCXL	LIC	CN	39.0	203.14	36 08 08.60	100.000	171.6	72.1	1.7	40.5
Kill Devil Hills			NC	219.8	BLH20040324AER	75 49 26.70	296	296	Jam Media Solutions, LLC		
281C1	WYAV	LIC	CN	233.2	208.08	33 35 27.60	100.000	171.4	72.0	5.9	44.6
Myrtle Beach			SC	52.2	BLH19980731KA	79 02 54.10	299	301	Dick Broadcasting Company,		
284C2	WZUP<	LIC	NCN	331.2	67.81	35 15 31.60	29.000	3.7	36.1	55.5R	12.3M
La Grange			NC	151.0	BLH20140225ABU	77 36 31.90	76	97	Conner Media Corporation		
281L1	NEW<	APP	HN	73.0	92.27	34 57 44.20	0.090			77.5R	14.8M
Cedar Island			NC	253.6	0000231562	76 16 53.90	33	34	Weather Alert Radio Networ		
282C1	WFXK<	LIC	CN	333.5	163.53	36 02 20.50	100.000	106.2	73.3	143.5R	20.0M
Bunn			NC	153.0	BLH20120508AAW	78 03 44.00	299	375	Radio One Licenses, LLC		
279C2	WILT<	LIC	NCN	223.8	96.17	34 05 52.30	22.000	4.8	44.8	55.5R	40.7M
Wrightsville Beach			NC	43.4	BLH20140121MLI	77 58 17.20	151	156	Sunrise Broadcasting, LLC		
227C	WERO<	LIC	CN	349.5	72.34	35 21 55.50	100.000	0.0	0.0	30.5R	41.8M
Washington			NC	169.5	BLH19791206AF	77 23 36.80	543	554	Dick Broadcasting Company,		
279C2	AL9816<	RSV-A		217.1	100.84	33 59 56.63	50.000	6.0	52.6	55.5R	45.3M
Wrightsville Beach			NC	36.8	RM11295	77 54 33.95	150	153	From CDBS		
283A	WSTK<	LIC	CN	43.8	89.39	35 18 09.60	4.200	2.7	28.2	41.5R	47.9M
Aurora			NC	224.2	BLH20041203AFD	76 33 58.70	120	120	Media East, LLC		

Terrain database is GLOBE 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM

Contour distances are on direct line to and from reference station. Reference Zone= - ZN2, Co to 3rd adjacent.

All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.

Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)

"\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

< = Station meets FCC minimum distance spacing for its class.

< = Contour Overlap

FMCommander Single Allocation Study - 02-08-2024 - GLOBE 30 Sec  
WKGV's Overlaps (In= 1.7 km, Out= 40.5 km)

WKGV CH 281 C3

Lat= 34 43 27.50, Lng= 77 14 54.00

7.7 kW 100.7 m HAAT, 111.5 m COR

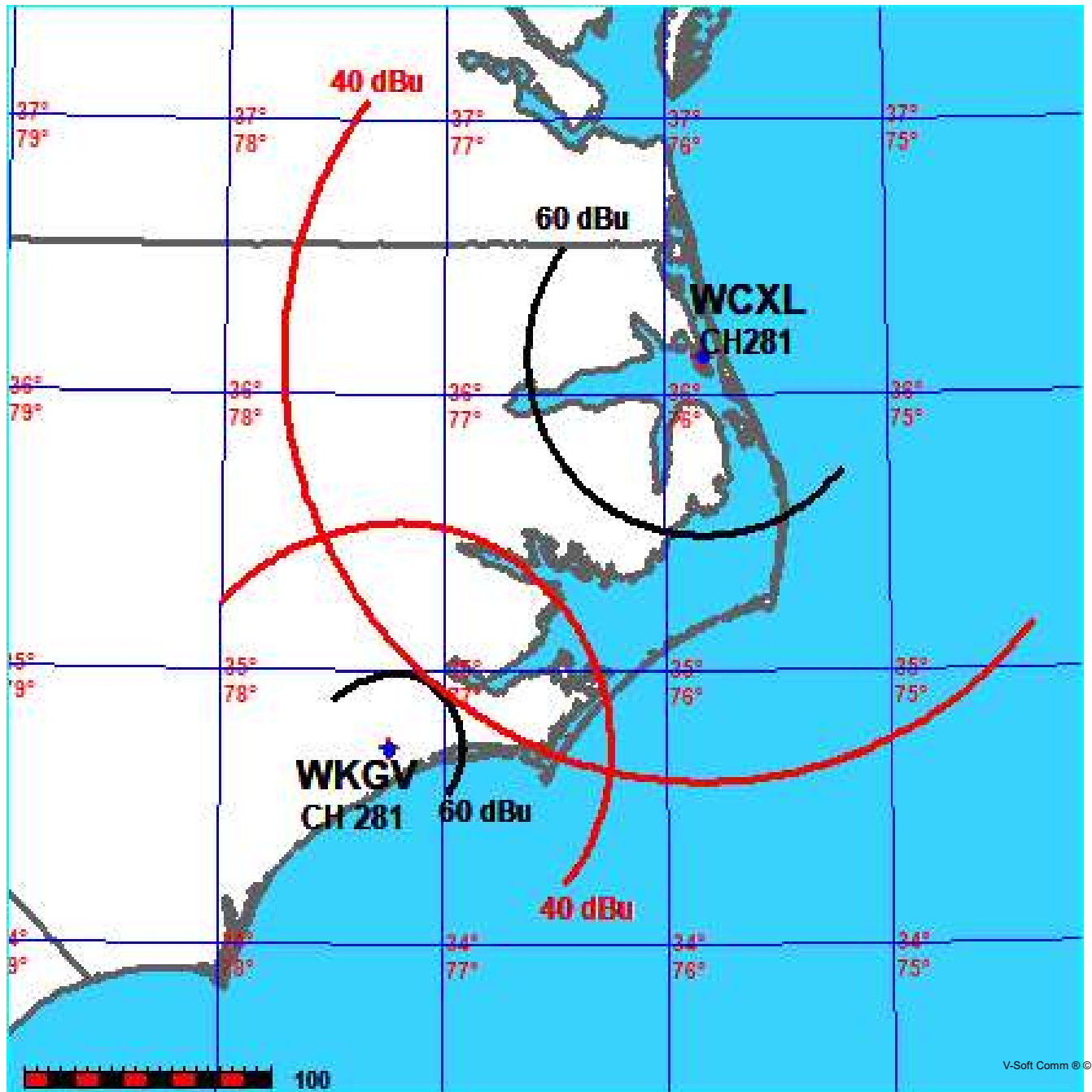
Prot.= 60 dBu, Intef.= 40 dBu

WCXL CH 281 C1 BLH20040324AER

Lat= 36 08 08.60, Lng= 75 49 26.70

100.0 kW 296 m HAAT, 296 m COR

Prot.= 60 dBu, Intef.= 40 dBu





Educational Media Foundation

FMCommander Single Allocation Study - 02-08-2024 - GLOBE 30 Sec  
WKGV's Overlaps (In= 1.7 km, Out= 40.5 km)

WKGV CH 281 C3

Lat= 34 43 27.50, Lng= 77 14 54.00

7.7 kW 100.7 m HAAT, 111.5 m COR

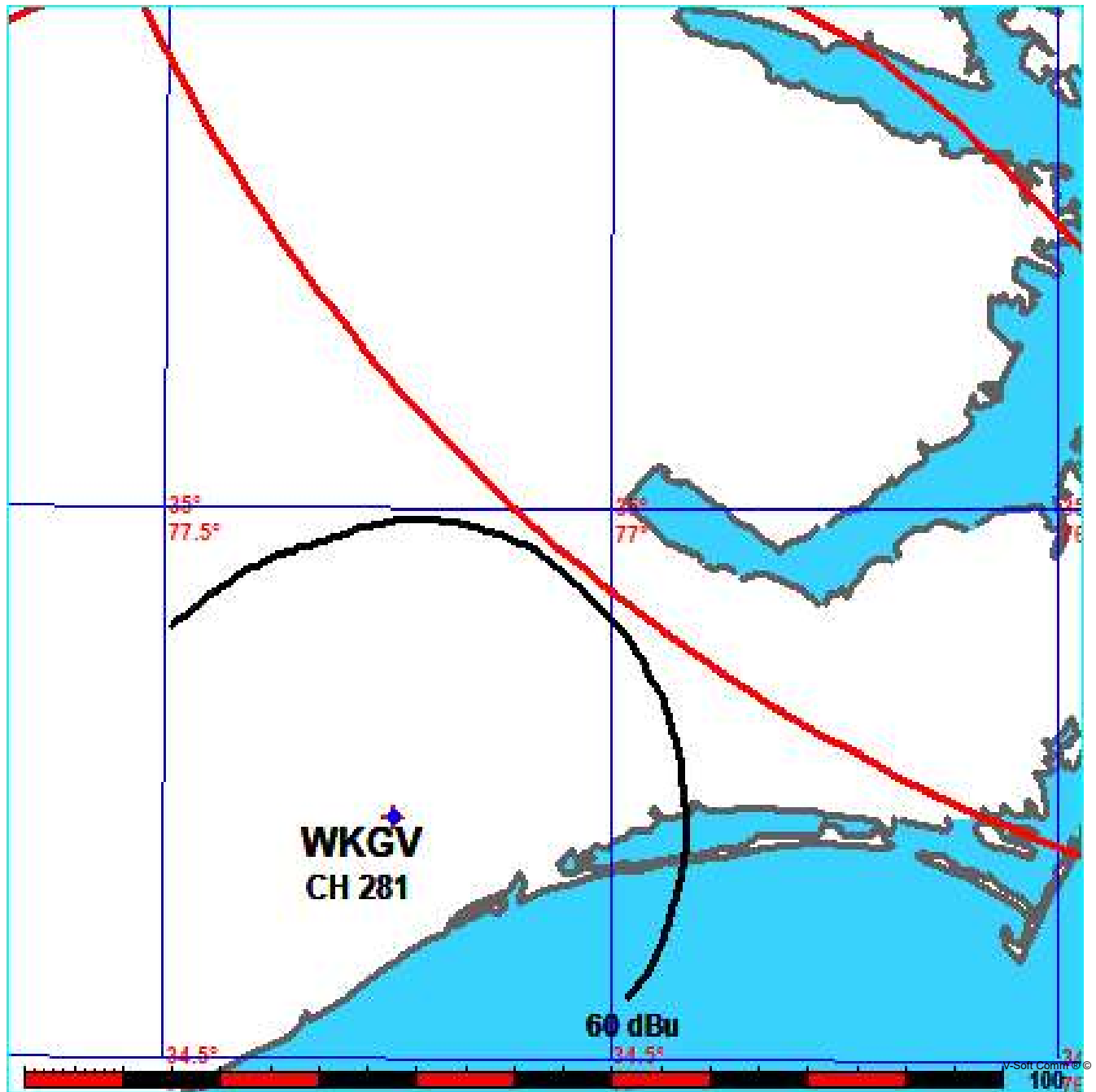
Prot.= 60 dBu, Intef.= 40 dBu

WCXL CH 281 C1 BLH20040324AER

Lat= 36 08 08.60, Lng= 75 49 26.70

100.0 kW 296 m HAAT, 296 m COR

Prot.= 60 dBu, Intef.= 40 dBu



FMCommander Single Allocation Study - 02-08-2024 - GLOBE 30 Sec  
WKGV's Overlaps (In= 5.94 km, Out= 44.59 km)

WKGV CH 281 C3

Lat= 34 43 27.50, Lng= 77 14 54.00

7.7 kW 100.7 m HAAT, 111.5 m COR

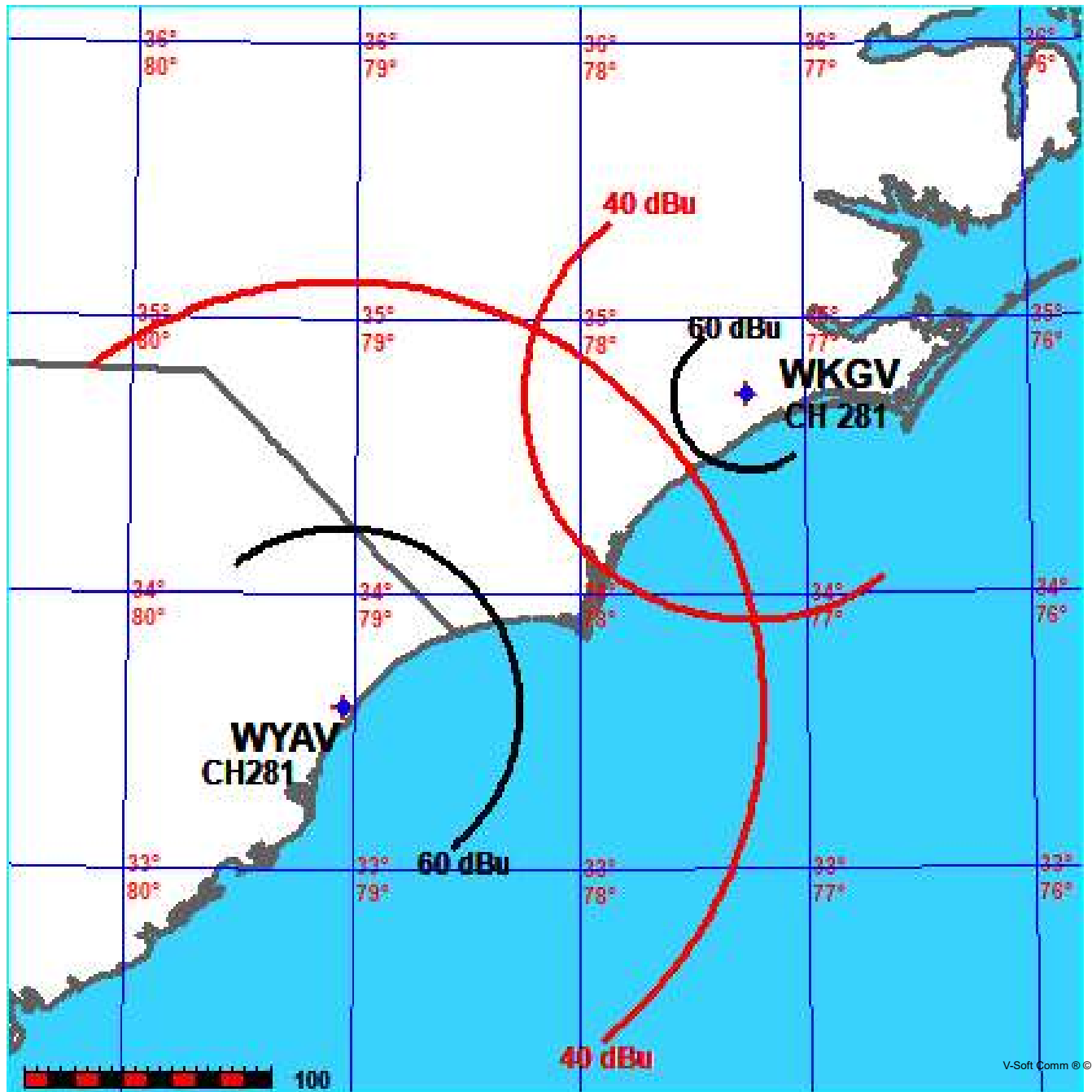
Prot.= 60 dBu, Intef.= 40 dBu

WYAV CH 281 C1 BLH19980731KA

Lat= 33 35 27.60, Lng= 79 02 54.10

100.0 kW 299 m HAAT, 301 m COR

Prot.= 60 dBu, Intef.= 40 dBu



Overlap Population Report  
WKGV Proposed Site (281) / Swansboro, NC

Overlap Area Type: Intersection  
Areas Included:  
WKGV Proposed Site (281): FCC F(50-50) 70.00 dBu (FCC HAAT)  
PLST: Swansboro, NC

Population Database: 2020 US Census (PL)

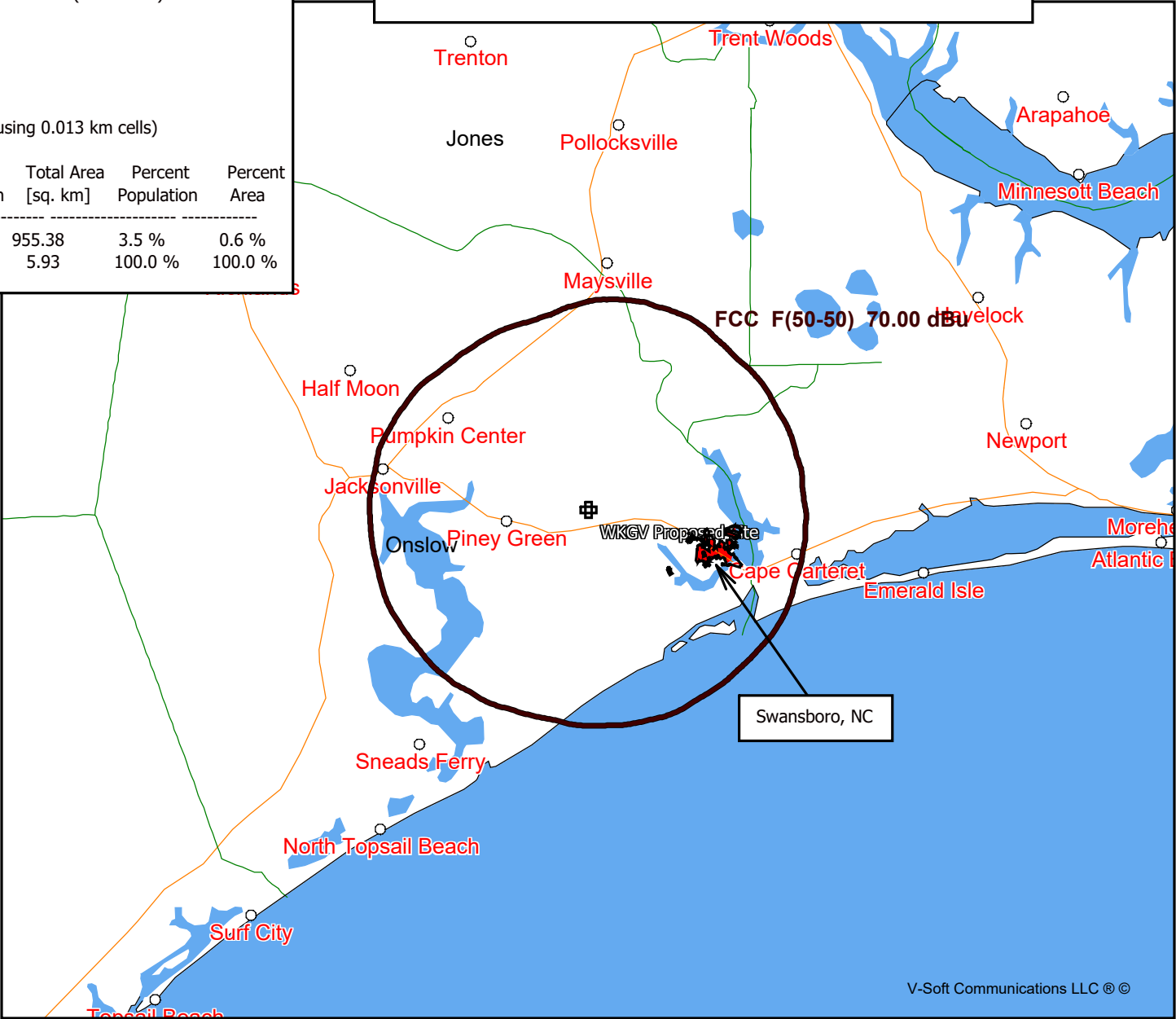
Total Population: 3,723  
Overlap Area: 5.93 sq. km (Area determined using 0.013 km cells)

Area Description	Total Population	Total Area [sq. km]	Percent Population	Percent Area
WKGV Proposed Site (281): FCC	107,121	955.38	3.5 %	0.6 %
PLST: Swansboro, NC	3,723	5.93	100.0 %	100.0 %

**WKGV Proposed Site**  
Swansboro, NC  
Latitude: 34-43-27.50 N  
Longitude: 077-14-54 W  
ERP: 7.70 kW  
Channel: 281  
Frequency: 104.1 MHz  
AMSL Height: 111.5 m  
Elevation: 13.1 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

WKGV 281C3 Swansboro, NC  
Community of License Coverage  
Note: 100% of the Population and Area of Swansboro are contained within the 70dbu Service Contour

Exhibit 3



## **Environmental Protection**

There are two main factors that need to be addressed in order to make sure that the environment around a proposed facility is protected.

### **1) Significant affects to the environment.**

EMF's proposed facility will be constructed on an existing tower (tower ID 1260998) and will cause no adverse effects to the surrounding environment at the site.

### **2) Human exposure to excess levels of radiofrequency radiation.**

The proposed facility is to be built using an ERI LPX-2E 2-bay full-waved EPA Type 3 circularly polarized antenna.

According to OET 65, "Applicants and licensees should be able to calculate, based on considerations of frequency, power and antenna characteristics the distance from their transmitter where their signal produces an RF field equal to, or greater than, the 5% threshold limit. The applicant or licensee then shares responsibility for compliance in any accessible area or areas within this 5% "contour" where the appropriate limits are found to be exceeded."

The proposed facility's maximum contribution to RF on the site is  $7.6\mu\text{W}/\text{cm}^2$  at a distance of 66 meters from the tower, which is 3.8% of the uncontrolled (public) exposure limit.

Therefore, because the proposed facility will not cause an RF field that is equal to or greater than 5% of the  $200\mu\text{W}/\text{cm}^2$  limit for uncontrolled exposure at any point, the proposed facility complies with the requirements of OET 65.

EMF will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.