

**ENGINEERING EXHIBIT**  
  
**Long-Form Application  
for FM Translator Construction Permit**

prepared for

**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**  
New (FX) Norfolk, VA  
Facility ID 141072  
Ch. 242 96.3 MHz 0.12 kW

*Sinclair Telecable, Inc. D/B/A Sinclair Communications* (“*Sinclair*”) is an Auction 83 Filing Window applicant for a new FM translator to operate on Channel 242 (96.3 MHz), Facility ID 141072, Norfolk, VA (“tech box” application BNPFT-20030317ECQ, as amended). Pursuant to the FCC’s Public Notice<sup>1</sup> of July 31, 2013, *Sinclair* is herein filing its “long-form” application on Form 349. *Sinclair* herein seeks authorization to construct the translator facility utilizing the same technical parameters as the pending “tech box” proposal except for a 2.5 meter reduction in antenna elevation.

It is proposed to utilize a rooftop transmitting antenna atop an apartment building known as “*The Towers*,” an existing 12 story building. The proposed translator antenna will be attached to a rooftop mast and centered 40.5 meters above ground level (“AGL”). An elevation sketch is provided as Figure 1 and supplies elevations to the nearest tenth of a meter (CDBS accepts only integer values for FM translator elevations). FCC Antenna Structure Registration and notification to the FAA are not required since the overall structure height does not exceed 61 meters AGL and there are no known landing areas within 8 km of the site.

---

<sup>1</sup>*Media Bureau Announces FM Translator Auction 83 Filing Window and Filing Procedures*, DA 13-1675, July 31, 2013.

The proposed effective radiated power (“ERP”) is 0.12 kW (120 Watts), nondirectional. Figure 2 shows that the resulting 54 dBμ contour will be encompassed by that of the proposed commonly-owned primary station to be rebroadcast, WROX-FM (Ch. 241B, Facility ID 60479, Exmore, VA). Figure 2 also demonstrates that the proposed translator’s 60 dBμ contour overlaps that of the original tech-box application. The tech-box application was amended in April 2013 to specify Channel 242 which is first adjacent to the original Channel 243 proposal. The final application herein does not specify a “major change” from the initial Auction 83 tech box proposal.

### **Interference Protection**

Table 1 supplies a summary of the proposal’s compliance with the interference protection requirements of §74.1204(a) and (g). The proposed facility complies with the prohibited contour overlap requirements of 74.1204(a) regarding all other FM full power, low power, and translator stations except for two full power stations. The exceptions are with respect to stations WVKL(FM) (Ch. 239B Norfolk, VA BMLH-19920706KA) and WROX-FM. The proposal complies with §74.1204(d) with respect to WVKL and with §74.1204(e) with respect to WROX-FM.

As described in FCC 02-244<sup>2</sup> the “ratio” undesired-to-desired signal method of interference determination may be used by an FM translator applicant to demonstrate compliance with §74.1204(d). WVKL is on a third adjacent channel and is located 18.0 km distant from the proposed translator site. The WVKL signal level at the proposed translator site is 85.0 dBμ based on standard FCC F(50,50) propagation curves. The corresponding undesired interfering signal level is 125.0 dBμ.

The worst-case (free space) distance to the proposed translator’s 125 dBμ interfering signal at elevations horizontal to the antenna is 0.0429 km (42.9 meters). An aerial view of *The Towers* apartment building and vicinity is provided in Figure 3 along with the 125 dBμ interfering contour (a 42.9 meter radius). There no other buildings within or immediately adjacent to this contour area and the surrounding terrain is flat.

---

<sup>2</sup>*Living Way Ministries, Inc.* Memorandum Opinion and Order, Released September 9, 2002, FCC 02-244, 17 FCC Rcd 17054-60.

Applying the proposed antenna's elevation pattern, calculated signal levels of 125 dBμ or more (the "125 dBμ contour") are well elevated above the ground and *The Towers* building such that the 125 dBμ contour does not reach any potentially populated location, including occupied locations within *The Towers* apartment building. The rooftop elevator penthouse is considered an unoccupied location and there is no rooftop sundeck or other access. The proposed antenna is an ERI model 100A-4F-HW having four sections vertically spaced at 0.5 wavelength. This antenna configuration limits the power at downward angles as shown in the elevation plot of Figure 4. An elevation profile plot of the 125 dBμ contour is supplied in Figure 5. The elevation pattern data and detailed free-space calculations are supplied in Table 2.

Figure 5 and Table 2 show that the 125 dBμ contour never falls below an elevation of 33.7 meters above ground level. Occupied locations within *The Towers* apartment building are not within the 125 dBμ contour by virtue of the antenna's elevation pattern. These exhibits demonstrate that the high signal levels that would exceed the 40 dBμ undesired-to-desired ratio with respect to WVKL are at locations which are well-elevated, inaccessible, and unpopulated. Thus, the proposal complies with §74.1204(d) with respect to WVKL.

Regarding WROX-FM, Figure 6 shows that WROX-FM 54 dBμ protected contour is overlapped by the proposed translator's 48 dBμ F(50,10) interfering contour. Such overlap is permitted in this instance by §74.1204(e), as the overlap affects the proposed translator's primary station on a first adjacent channel and does not occur over WROX-FM's principal community of Exmore, VA.

### **LPFM Preclusion Showing**

The proposed site is within the Norfolk-Virginia Beach-Newport News, VA market which is designated as Spectrum Limited in FCC 12-29<sup>3</sup>. Further, the proposed site is within the 30x30 second LPFM grid for Norfolk, VA. Therefore, a Preclusion Showing was provided within the April 2013 tech-box proposal amendment. The final translator facility proposal herein utilizes the

---

<sup>3</sup>Creation of a Low Power Radio Service, MM Docket 99-25, Amendment of Service and Eligibility Rules for FM Broadcast Translator Stations, MB Docket 07-172, Fourth Report and Order and Third Order on Reconsideration, released March 19, 2012.

same technical parameters as the tech box application as amended except for a 2.5 meter reduction in antenna elevation. Since the 2.5 meter antenna height reduction is the only change, a new Preclusion Showing should not be necessary as the prior results remain valid. Nonetheless, in an abundance of caution, a Preclusion Showing is provided in the following.<sup>4</sup>

Pertinent portions of the FCC's LPFM "Grid Tool" computer program output (version lpfm6.20121206.zip) for the Norfolk-Virginia Beach-Newport News, VA market are attached in Table 3. The center-city reference coordinates (36° 50' 48" N-Lat, 76° 17' 08" W-Lon) were taken from the computer file accompanying the Grid Tool program. As shown on the Grid Tool channel summary (Table 3 page 1 of 2), there are no protected LPFM grid points on Channels 242 and 241, co-channel and first-adjacent channel to the proposed Channel 242, respectively

Protected LPFM grid points do exist for Channel 243 which is first-adjacent to the proposed Channel 242. The detailed channel availability grid for Channel 243 is supplied on Table 3, page 2.

The proposed translator will operate with 0.12 kW ERP at an antenna height above average terrain ("HAAT") of 43 meters (based on USGS 3-arc second terrain data and 8 radials). This ERP/HAAT combination results in a distance to the 60 dBμ contour of 7.0 km. Therefore, the §73.807(c) minimum distance separation between the translator site and any first-adjacent LPFM grid point is 15 km.

Figure 7 supplies a map depicting the proposed Channel 242 translator site and the nearest Channel 243 LPFM protected grid points as extracted from the LPFM Grid Tool output. The coordinates of the nearest protected grid points, identified on the map as "A" through "H", are listed

---

<sup>4</sup>The July 31, 2013 Public Notice warns that "...any Form 349 proposal which differs from the most recent tech box proposal must include a Preclusion Showing for any Tech Box amendment specifying a transmitter site within 39 kilometers of any Appendix A Market grid and/or at any location within any Top-50 Spectrum Limited Market. ... Form 349 applications that fail to include a required Preclusion Showing will be dismissed. A Preclusion Showing filing may not be submitted, amended, corrected, completed, or resubmitted for further consideration after the Application Deadline. Moreover, a Preclusion Showing will not be treated as a matter subject to amendment pursuant to Section 73.3522(a) of the Rules after the Application Deadline."

on Table 4. The distances between the proposed translator site and each of these grid points are also supplied on Table 4, computed per §73.808 and §73.208(c).

When rounded to the nearest kilometer as specified in §73.208(c)(8), the proposed translator site location satisfies the 15 km minimum distance separation requirement of §73.807(c) with respect to the Channel 243 protected grid points. Thus, the final translator proposal herein does not preclude any protected LPFM grid points.

### **Other Factors**

The nearest FCC monitoring station is 246 km distant at Laurel, MD. This exceeds by a great margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). No authorized directional AM stations are located within 0.8 km and no authorized nondirectional AM stations are located within 3.2 km of the proposed site. The site is beyond the border areas regarding international coordination.

### **Human Exposure to Radiofrequency Electromagnetic Field**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission’s OET Bulletin Number 65. Based on OET-65 equation (10), and considering the worst-case of 100 percent antenna relative field in downward elevations, the calculated signal density near the building at two meters above ground level attributable to the proposed facility is  $5.4 \mu\text{W}/\text{cm}^2$ , which is 2.7 percent of the general population/uncontrolled maximum permitted exposure (“MPE”) limit. No other nonexcluded or significant emitters are known to be present near enough to have a significant impact. The calculated RF exposure will be much lower when the antenna’s actual elevation pattern is considered.

As to locations on the rooftop, upon construction of the proposed facility, *Sinclair* will conduct RF exposure measurements to evaluate the level of RF exposure resulting from the translator facility. Measurements will be taken on the roof and at appropriate locations within the building to determine if there are any areas that exceed FCC guidelines for human exposure to RF

electromagnetic field. Based on these results appropriate exposure abatement procedures will be established and followed in order to comply with the Commission's exposure limits. Such abatement procedures may involve the restriction of access to certain areas and/or facility modifications to reduce RF levels. RF exposure warning signs will be posted near the antenna.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. With respect to worker safety, the applicant will coordinate exposure procedures and will reduce power or cease operation as necessary to protect persons having access to the rooftop 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.

### **Certification**

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



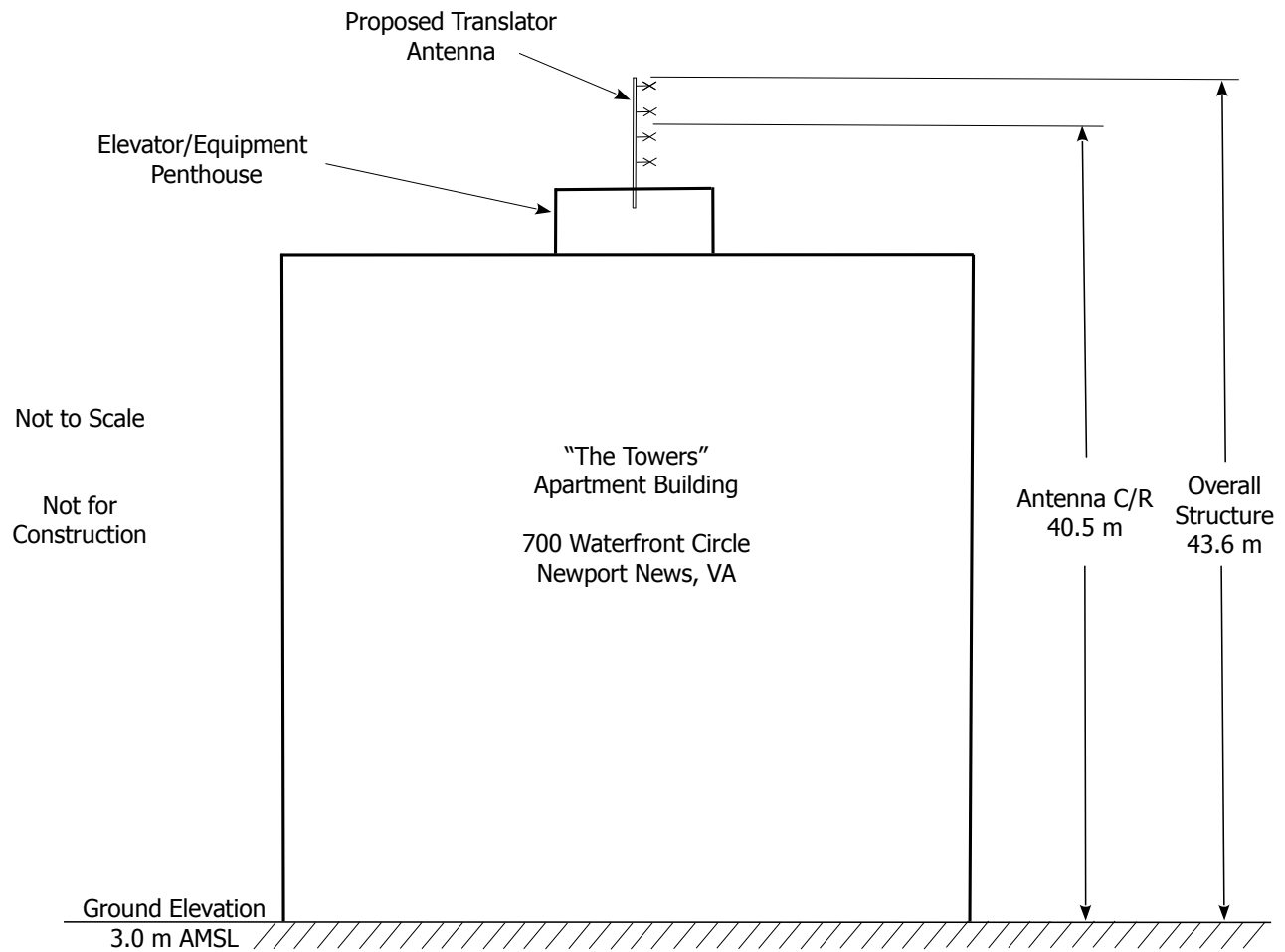
Joseph M. Davis, P.E.  
August 28, 2013

**Chesapeake RF Consultants, LLC**  
207 Old Dominion Road  
Yorktown, VA 23692  
703-650-9600

### List of Attachments

Figure 1	Antenna and Structure Elevations
Figure 2	Coverage Contour Comparison
Figure 3	Interference Protection to WVKL - Aerial View of 125 dB $\mu$ Contour
Figure 4	Antenna Elevation Pattern
Figure 5	Interference Protection to WVKL - Profile Along Downward Elevations
Figure 6	Interfering Contour Overlap to Primary Station WROX-FM
Figure 7	Preclusion Showing – Protection of LPFM Grid Points
Table 1	Channel Allocation Summary
Table 2	U/D Interference Calculation to WVKL
Table 3	LPFM Grid Tool Report
Table 4	Distance to LPFM Grid Points
Form 349	Saved Version of Engineering Sections from FCC Form at Time of Upload

*This material was entered August 28, 2013 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.*

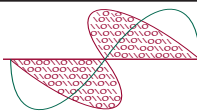


**Figure 1**  
**Antenna and Structure Elevations**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013





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

**Figure 2**  
**Coverage Contour Comparison**  
**Minor Change Compliance**  
**Primary and Translator Stations**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

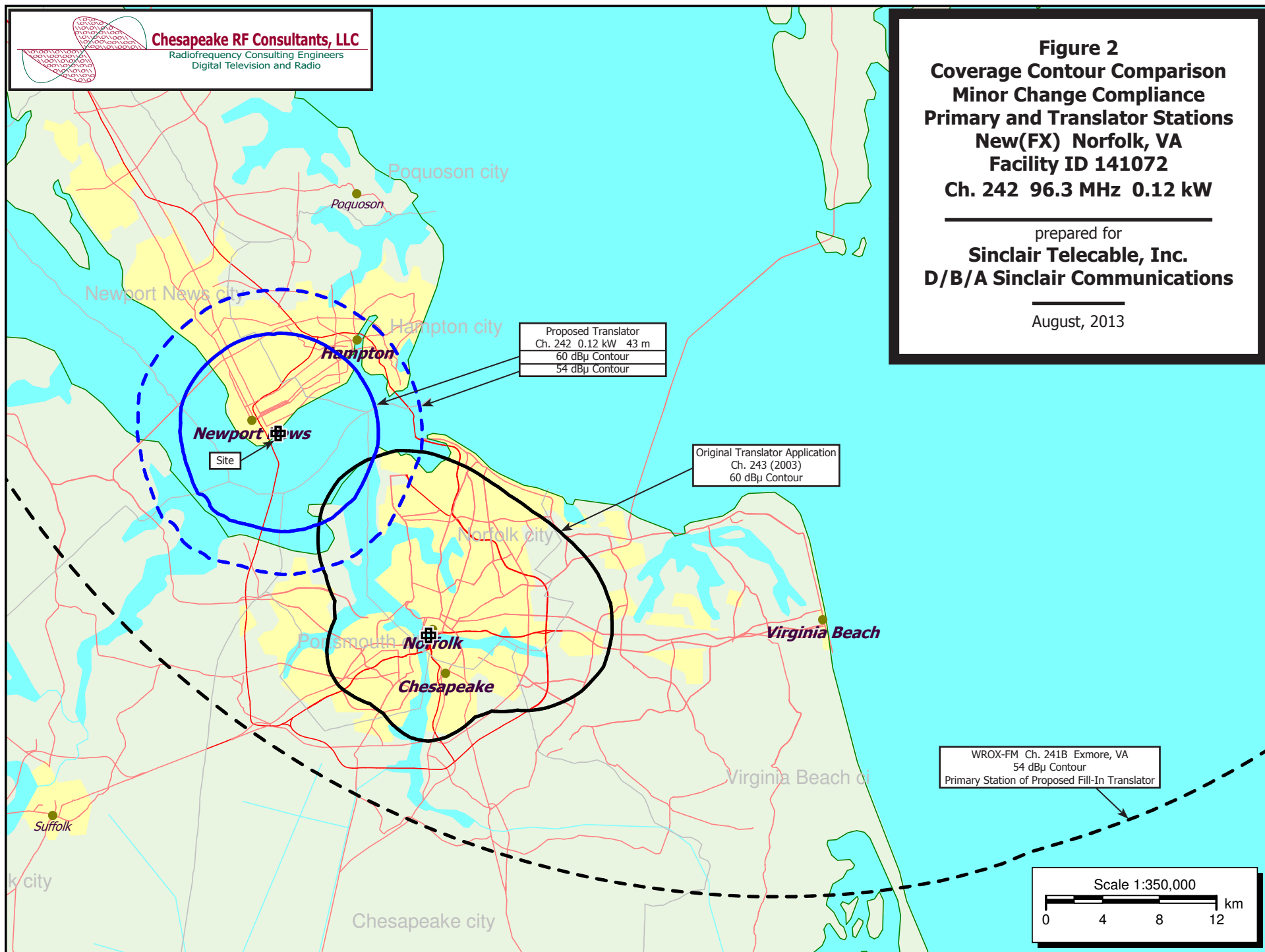
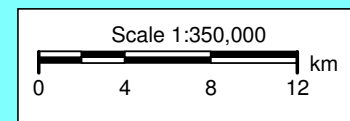
prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

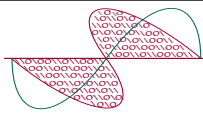
August, 2013

Proposed Translator  
Ch. 242 0.12 kW 43 m  
60 dBμ Contour  
54 dBμ Contour

Original Translator Application  
Ch. 243 (2003)  
60 dBμ Contour

WROX-FM Ch. 241B Exmore, VA  
54 dBμ Contour  
Primary Station of Proposed Fill-In Translator





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



**Figure 3**  
**Interference Protection to WVKL(FM)**  
**Aerial View of 125 dB $\mu$  Contour**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013

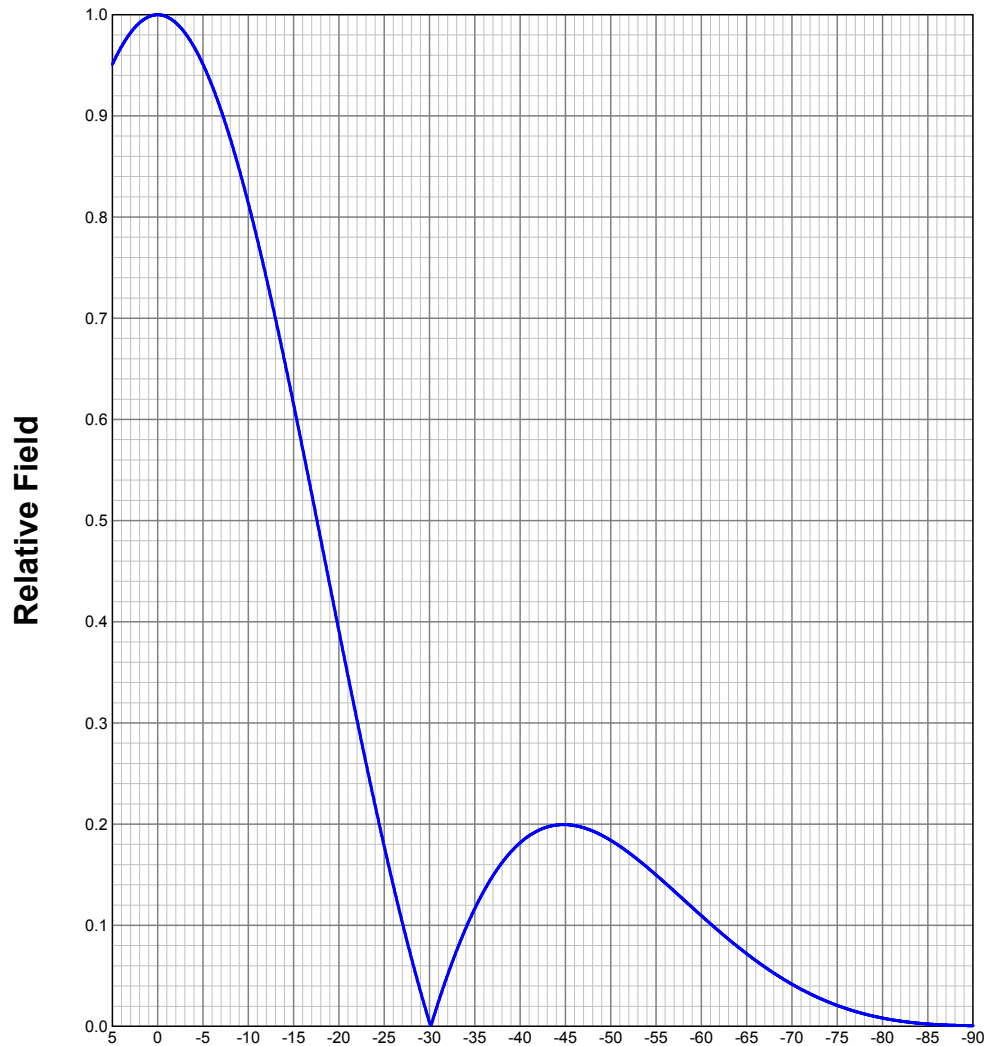
Free-space interfering contour: 125 dB $\mu$   
At Main Beam 40.5 m AGL  
Contour Radius: 42.9 m

© 2013 Google

Google earth

**ELEVATION PATTERN**

Type:	1004H		Channel:	251
Directivity:	Numeric	dBd	Location:	
Main Lobe:	1.18	0.70	Beam Tilt:	0.00
Horizontal:	1.18	0.70	Polarization:	Circular



Preliminary, subject to final design and review.

**ELECTRONICS RESEARCH, INC. ERI**



**Figure 4**  
**Antenna Elevation Pattern**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013

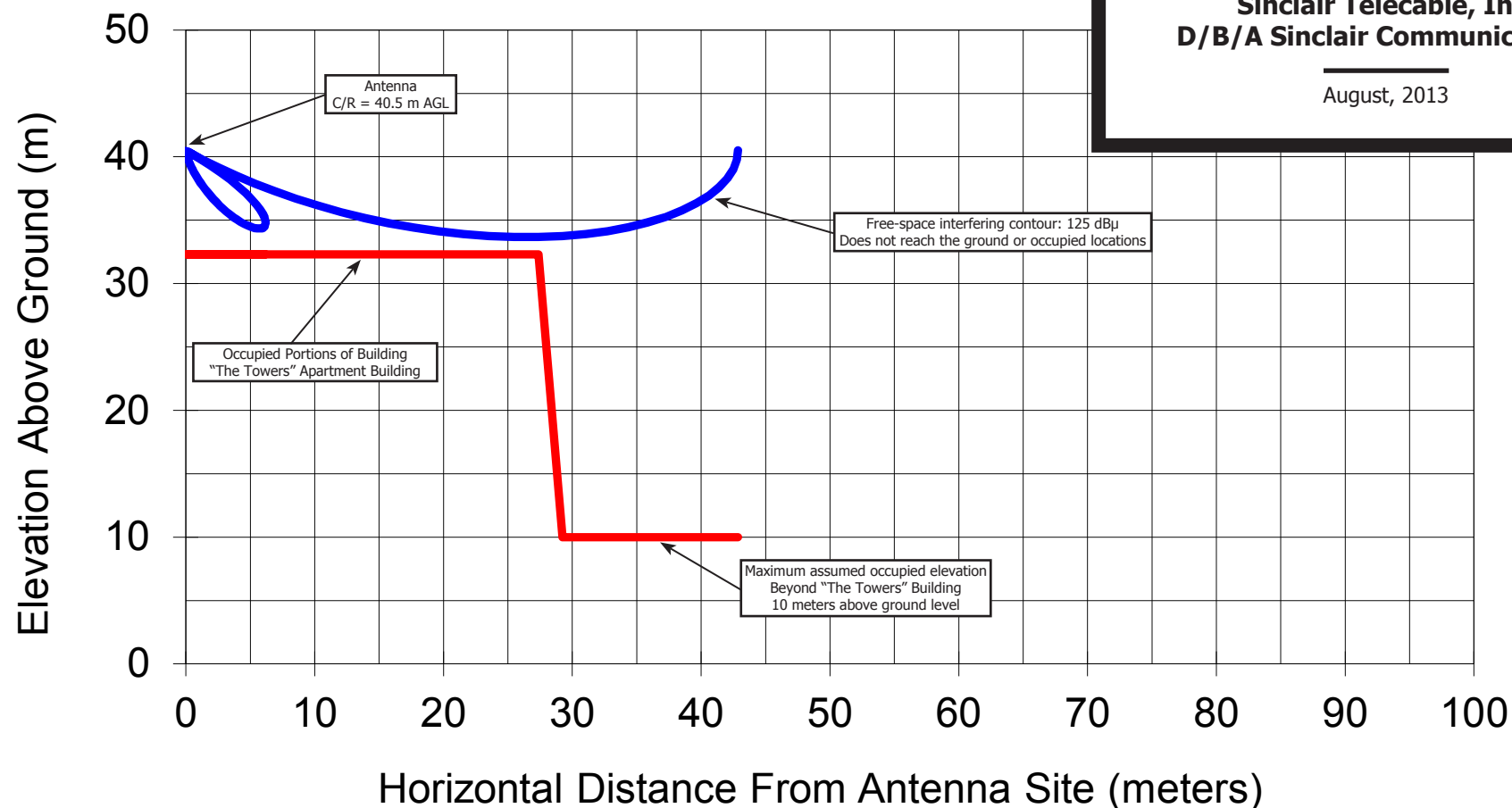


**Protection of WVKL(FM) Ch. 239B 95.7 MHz Norfolk, VA**  
 WVKL F(50,50) signal level at proposed translator site: 85 dBμ  
 Translator Interfering signal level = 85 dBμ + 40 dB = 125 dBμ  
 Proposed translator ERP = 0.12 kW Antenna C/R = 40.5 m AGL

**Figure 5**  
**Interference Protection to WVKL(FM)**  
**Profile Along Downward Elevations**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013



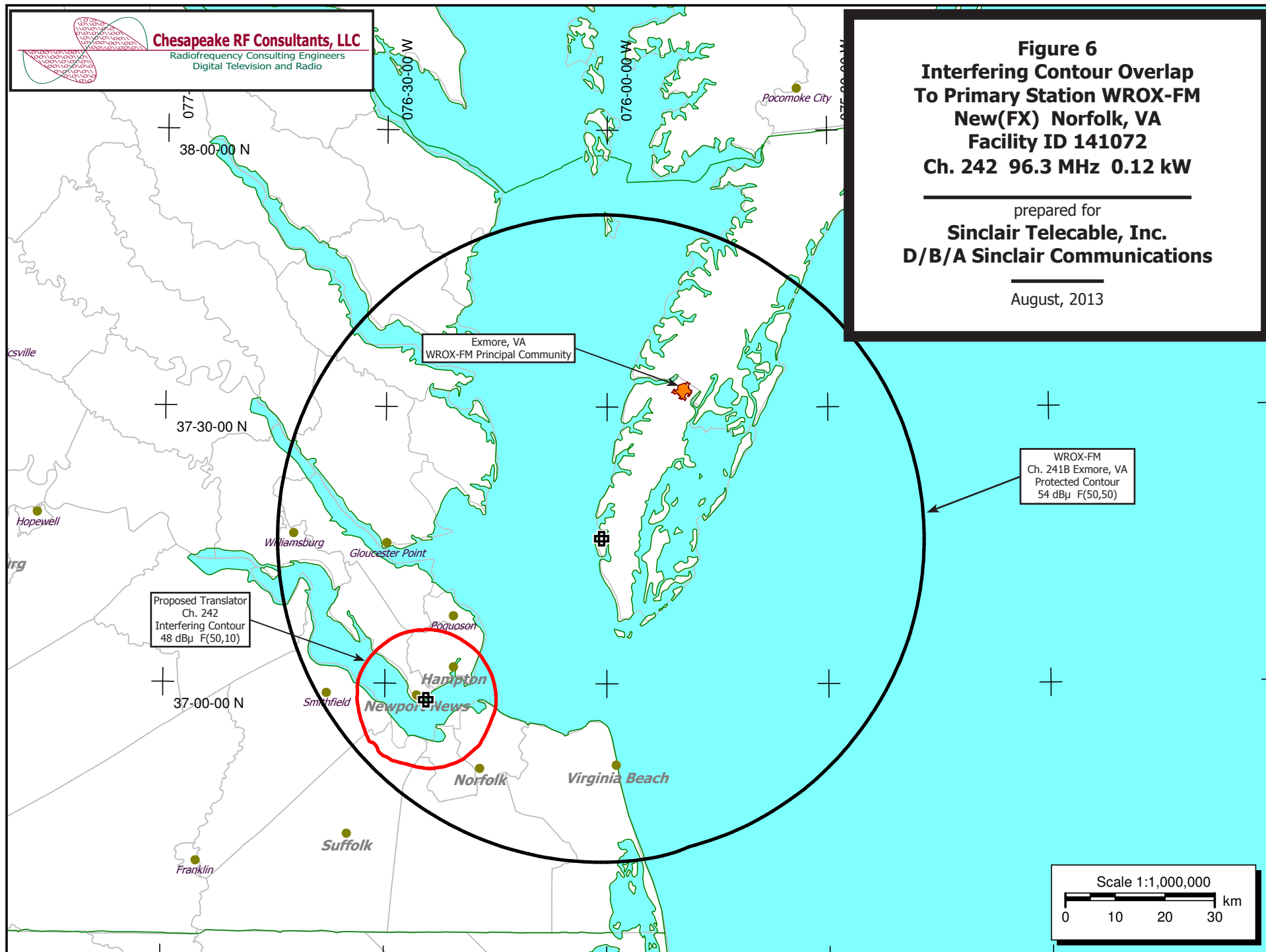


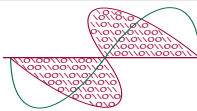
**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 6**  
**Interfering Contour Overlap**  
**To Primary Station WROX-FM**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013





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

**Figure 7**  
**Preclusion Showing**  
**Protection of LPFM Grid Points**  
**New(FX) Norfolk, VA**  
**Facility ID 141072**  
**Ch. 242 96.3 MHz 0.12 kW**

prepared for  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**

August, 2013

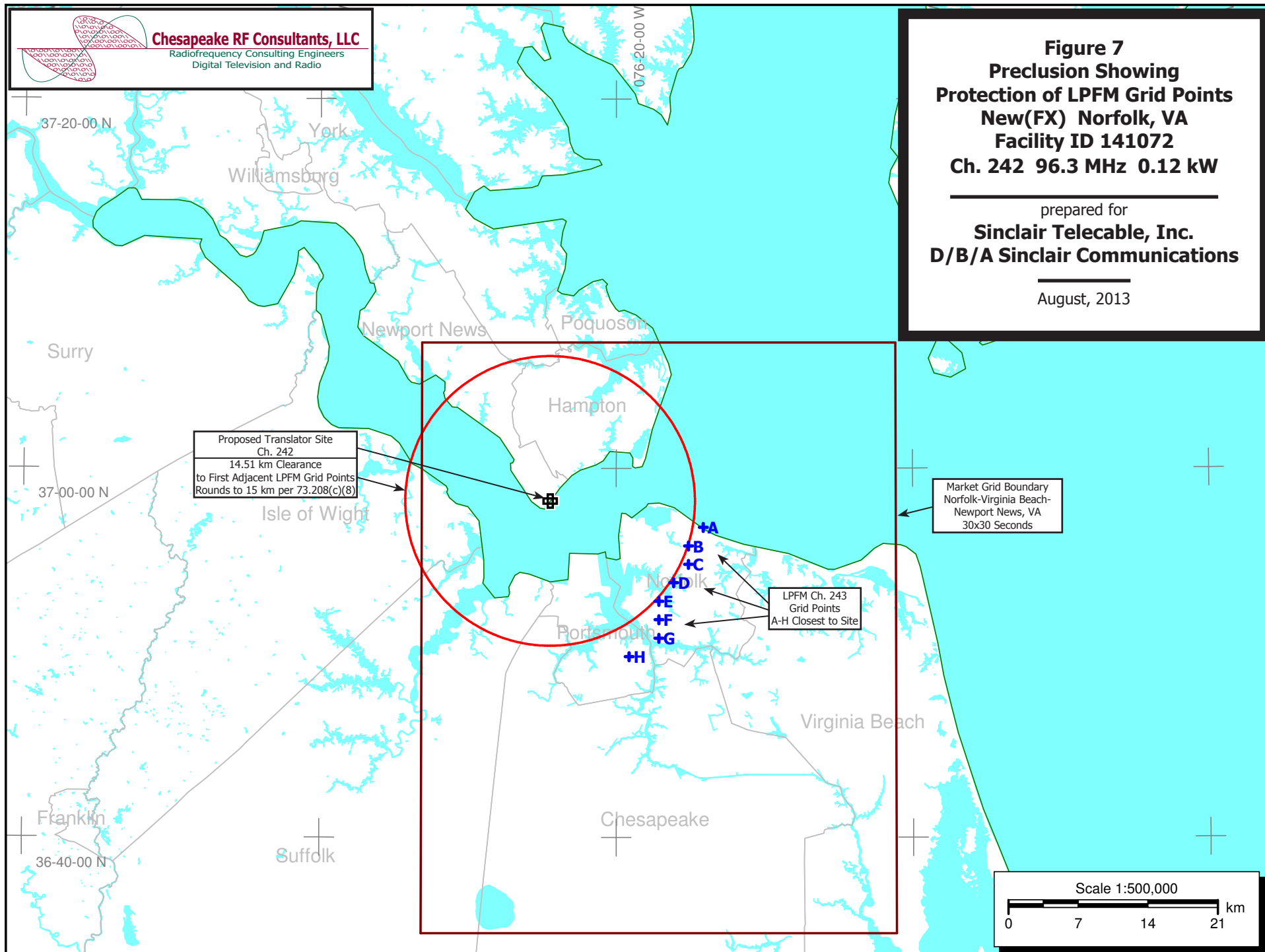
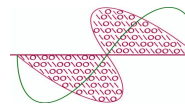


Table 1

**Channel Allocation Study Summary**  
**Sinclair Telecable, Inc.**  
**D/B/A Sinclair Communications**  
 New(FX) Norfolk, VA



Chesapeake RF Consultants, LLC

Radiofrequency Consulting Engineers  
Digital Television and Radio

Long Form											
Sinclair Telecable, Inc. D/b/a Sinclair Communications											
REFERENCE				CH# 242D - 96.3 MHz, Pwr= 0.12 kW, HAAT= 42.6 M, COR= 43.5 M				DISPLAY DATES			
36 58 14.0 N.				Average Protected F(50-50)= 7.0 km				DATA 08-27-13			
76 24 28.0 W.				Omni-directional				SEARCH 08-28-13			
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*
239B Norfolk	WVKL	LIC	CN VA	196.9 16.9	18.01 BMLH19920706KA	36 48 56.0 76 28 00.0	40.000 268	7.4 269	74.2 Entercom Norfolk License,	3.9	-57.7*<
241B Exmore	WROX-FM	LIC	CX VA	47.1 227.3	47.76 BLH20040317ABS	37 15 45.0 76 00 45.0	23.000 220	76.8 221	64.9 Sinclair Telecable, Inc.	-36.1*<	-31.2*<
245D Newport News	W245BB	CP	DC VA	325.1 145.1	13.84 BPFT20130325AGJ	37 04 21.5 76 29 49.2	0.099 86	0.7 86	9.3 Liberty University, Inc.	6.2	3.7
245D Newport News	W245BB	LIC	C VA	344.0 164.0	12.43 BLFT20071019ASD	37 04 41.0 76 26 47.0	0.080 50	0.6 51	6.8 Liberty University, Inc.	4.8	4.8
295C Suffolk	WAFX«	LIC	CX VA	238.9 58.7	36.15 BLH20021227ABL	36 48 09.0 76 45 19.0	100.000 300	12.8 316	58.8 Tidewater Communications,	28.5R	7.7M
243B Fort Lee	WKLR	LIC	CN VA	295.1 114.5	97.70 BLH19980929KA	37 20 22.0 77 24 31.0	50.000 138	77.1 173	64.1 Sm-wklr, LLC	13.6	19.5
243D Suffolk	1548481	APP	C VA	212.9 32.8	31.36 BNPFT20030317MBP	36 44 01.0 76 35 57.0	0.080	9.8 54	6.8 Delmarva Educational Assoc	14.6	14.6
243D Suffolk	1567557	APP	C VA	212.9 32.8	31.36 BNPFT20130815ABW	36 44 01.0 76 35 57.0	0.080	9.8 54	6.8 Delmarva Educational Assoc	14.6	14.6
245B1 Nassawadox	WFAJ	LIC	NCX VA	35.1 215.4	76.05 BLH20100428AAV	37 31 46.0 75 54 44.0	13.500 87	3.2 90	37.7 Hispanic Target Media, Inc	65.8	37.3
244C2 Elizabeth City	WKJX	LIC	CX NC	150.6 330.9	97.80 BLH20040618AAH	36 12 10.0 75 52 23.0	50.000 124	5.4 124	48.5 East Carolina Radio Of Eli	85.4	48.5

Terrain database is USGS 03 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= East Zone, Co to 3rd  
 adjacent.

All separation margins (if shown) include rounding

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 protected contour.

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

< = Contour Overlap

Table 2

**U/D Interference Calculation to WVKL(FM)**

**Sinclair Telecable, Inc.**

**D/B/A Sinclair Communications**

New(FX) Norfolk, VA

Page 1 of 2

Antenna: **ERI 100A-4F-HW**  
C/R Elevation: **40.5** m AGL  
ERP: **0.12** kW  
Ix Signal Level: **125.0** dBu

Depr Angle (degrees)	Antenna Elevation Relative Field	ERP at Angle (kW)	Distance to 125 dBu Ix Contour					Observation Point at Occupied Elevation		
			Slant From C/R (m)	Horizontal From Base (m)	Vertical From Base (m)	Occupied Elevation (m)	Margin (m)	Horiz Distance (m)	Slant Distance (m)	Ix Signal at Endpoint (dBu)
90	0.001	0.0000	0.0	0.0	40.5	32.3	8.2	0.0	8.20	79.4
89	0.001	0.0000	0.0	0.0	40.5	32.3	8.2	0.1	8.20	79.4
88	0.001	0.0000	0.0	0.0	40.5	32.3	8.2	0.3	8.20	79.4
87	0.001	0.0000	0.0	0.0	40.5	32.3	8.2	0.4	8.21	79.4
86	0.002	0.0000	0.1	0.0	40.4	32.3	8.1	0.6	8.22	85.4
85	0.002	0.0000	0.1	0.0	40.4	32.3	8.1	0.7	8.23	85.4
84	0.003	0.0000	0.1	0.0	40.4	32.3	8.1	0.9	8.25	88.9
83	0.004	0.0000	0.2	0.0	40.3	32.3	8.0	1.0	8.26	91.3
82	0.005	0.0000	0.2	0.0	40.3	32.3	8.0	1.2	8.28	93.3
81	0.007	0.0000	0.3	0.0	40.2	32.3	7.9	1.3	8.30	96.2
80	0.008	0.0000	0.3	0.1	40.2	32.3	7.9	1.4	8.33	97.3
79	0.010	0.0000	0.4	0.1	40.1	32.3	7.8	1.6	8.35	99.2
78	0.012	0.0000	0.5	0.1	40.0	32.3	7.7	1.7	8.38	100.8
77	0.015	0.0000	0.6	0.1	39.9	32.3	7.6	1.9	8.42	102.7
76	0.018	0.0000	0.8	0.2	39.8	32.3	7.5	2.0	8.45	104.2
75	0.021	0.0001	0.9	0.2	39.6	32.3	7.3	2.2	8.49	105.5
74	0.024	0.0001	1.0	0.3	39.5	32.3	7.2	2.4	8.53	106.6
73	0.028	0.0001	1.2	0.4	39.4	32.3	7.1	2.5	8.57	107.9
72	0.032	0.0001	1.4	0.4	39.2	32.3	6.9	2.7	8.62	109.0
71	0.037	0.0002	1.6	0.5	39.0	32.3	6.7	2.8	8.67	110.2
70	0.042	0.0002	1.8	0.6	38.8	32.3	6.5	3.0	8.73	111.3
69	0.047	0.0003	2.0	0.7	38.6	32.3	6.3	3.1	8.78	112.2
68	0.053	0.0003	2.3	0.9	38.4	32.3	6.1	3.3	8.84	113.2
67	0.059	0.0004	2.5	1.0	38.2	32.3	5.9	3.5	8.91	114.1
66	0.065	0.0005	2.8	1.1	38.0	32.3	5.7	3.7	8.98	114.8
65	0.072	0.0006	3.1	1.3	37.7	32.3	5.4	3.8	9.05	115.7
64	0.079	0.0007	3.4	1.5	37.5	32.3	5.2	4.0	9.12	116.4
63	0.086	0.0009	3.7	1.7	37.2	32.3	4.9	4.2	9.20	117.1
62	0.094	0.0011	4.0	1.9	36.9	32.3	4.6	4.4	9.29	117.7
61	0.102	0.0012	4.4	2.1	36.7	32.3	4.4	4.5	9.38	118.4
60	0.110	0.0015	4.7	2.4	36.4	32.3	4.1	4.7	9.47	118.9
59	0.118	0.0017	5.1	2.6	36.2	32.3	3.9	4.9	9.57	119.5
58	0.126	0.0019	5.4	2.9	35.9	32.3	3.6	5.1	9.67	119.9
57	0.134	0.0022	5.7	3.1	35.7	32.3	3.4	5.3	9.78	120.4
56	0.142	0.0024	6.1	3.4	35.5	32.3	3.2	5.5	9.89	120.8
55	0.150	0.0027	6.4	3.7	35.2	32.3	2.9	5.7	10.01	121.2
54	0.157	0.0030	6.7	4.0	35.1	32.3	2.8	6.0	10.14	121.4
53	0.165	0.0033	7.1	4.3	34.9	32.3	2.6	6.2	10.27	121.8
52	0.172	0.0036	7.4	4.5	34.7	32.3	2.4	6.4	10.41	122.0
51	0.178	0.0038	7.6	4.8	34.6	32.3	2.3	6.6	10.55	122.2
50	0.184	0.0041	7.9	5.1	34.5	32.3	2.2	6.9	10.70	122.3
49	0.189	0.0043	8.1	5.3	34.4	32.3	2.1	7.1	10.87	122.5
48	0.193	0.0045	8.3	5.5	34.4	32.3	2.1	7.4	11.03	122.5
47	0.196	0.0046	8.4	5.7	34.4	32.3	2.1	7.6	11.21	122.5
46	0.199	0.0048	8.5	5.9	34.4	32.3	2.1	7.9	11.40	122.5
45	0.200	0.0048	8.6	6.1	34.4	32.3	2.1	8.2	11.60	122.4
44	0.199	0.0048	8.5	6.1	34.6	32.3	2.3	8.5	11.80	122.2
43	0.197	0.0047	8.4	6.2	34.7	32.3	2.4	8.8	12.02	121.9
42	0.194	0.0045	8.3	6.2	34.9	32.3	2.6	9.1	12.25	121.6
41	0.189	0.0043	8.1	6.1	35.2	32.3	2.9	9.4	12.50	121.2
40	0.182	0.0040	7.8	6.0	35.5	32.3	3.2	9.8	12.76	120.7
39	0.173	0.0036	7.4	5.8	35.8	32.3	3.5	10.1	13.03	120.1
38	0.162	0.0031	6.9	5.5	36.2	32.3	3.9	10.5	13.32	119.3
37	0.149	0.0027	6.4	5.1	36.7	32.3	4.4	10.9	13.63	118.4
36	0.134	0.0022	5.7	4.6	37.1	32.3	4.8	11.3	13.95	117.3
35	0.117	0.0016	5.0	4.1	37.6	32.3	5.3	11.7	14.30	115.9



Table 2

**U/D Interference Calculation to WVKL(FM)**

**Sinclair Telecable, Inc.**

**D/B/A Sinclair Communications**

New(FX) Norfolk, VA

Page 2 of 2

Depr Angle (degrees)	Antenna Elevation Relative Field	ERP at Angle (kW)	Distance to 125 dBμ Ix Contour					Observation Point at Occupied Elevation			
			Slant From C/R (m)	Horizontal From Base (m)	Vertical From Base (m)	Occupied Elevation (m)	Margin (m)	Horiz Distance (m)	Slant Distance (m)	Ix Signal at Endpoint (dBμ)	
34	0.097	0.0011	4.2	3.4	38.2	32.3	5.9	12.2	14.66	114.1	
33	0.075	0.0007	3.2	2.7	38.7	32.3	6.4	12.6	15.06	111.6	
32	0.051	0.0003	2.2	1.9	39.3	32.3	7.0	13.1	15.47	108.0	
31	0.025	0.0001	1.1	0.9	39.9	32.3	7.6	13.6	15.92	101.6	
30	0.004	0.0000	0.2	0.1	40.4	32.3	8.1	14.2	16.40	85.4	
29	0.035	0.0001	1.5	1.3	39.8	32.3	7.5	14.8	16.91	104.0	
28	0.068	0.0006	2.9	2.6	39.1	32.3	6.8	15.4	17.47	109.4	
27	0.103	0.0013	4.4	3.9	38.5	32.3	6.2	16.1	18.06	112.8	
26	0.140	0.0024	6.0	5.4	37.9	32.3	5.6	16.8	18.71	115.1	
25	0.178	0.0038	7.6	6.9	37.3	32.3	5.0	17.6	19.40	116.9	
24	0.218	0.0057	9.3	8.5	36.7	32.3	4.4	18.4	20.16	118.3	
23	0.260	0.0081	11.1	10.3	36.1	32.3	3.8	19.3	20.99	119.5	
22	0.303	0.0110	13.0	12.0	35.6	32.3	3.3	20.3	21.89	120.5	
21	0.347	0.0144	14.9	13.9	35.2	32.3	2.9	21.4	22.88	121.3	
20	0.391	0.0183	16.8	15.7	34.8	32.3	2.5	22.5	23.98	121.9	
19	0.436	0.0228	18.7	17.7	34.4	32.3	2.1	23.8	25.19	122.4	
18	0.481	0.0278	20.6	19.6	34.1	32.3	1.8	25.2	26.54	122.8	
17	0.526	0.0332	22.5	21.6	33.9	32.3	1.6	26.8	28.05	123.1	
16	0.571	0.0391	24.5	23.5	33.8	32.3	1.5	28.6	29.75	123.3	
15	0.615	0.0454	26.4	25.5	33.7	32.3	1.4	30.6	31.68	123.4	
14	0.658	0.0520	28.2	27.4	33.7	32.3	1.4	32.9	33.90	123.4	
13	0.700	0.0588	30.0	29.2	33.8	10.0	23.8	132.1	135.59	111.9	
12	0.740	0.0657	31.7	31.0	33.9	10.0	23.9	143.5	146.70	111.7	
11	0.778	0.0726	33.3	32.7	34.1	10.0	24.1	156.9	159.85	111.4	
10	0.814	0.0795	34.9	34.4	34.4	10.0	24.4	173.0	175.64	111.0	
9	0.847	0.0861	36.3	35.9	34.8	10.0	24.8	192.6	194.97	110.4	
8	0.878	0.0925	37.6	37.3	35.3	10.0	25.3	217.0	219.15	109.7	
7	0.905	0.0983	38.8	38.5	35.8	10.0	25.8	248.4	250.27	108.8	
6	0.930	0.1038	39.9	39.6	36.3	10.0	26.3	290.2	291.79	107.7	
5	0.951	0.1085	40.8	40.6	36.9	10.0	26.9	348.6	349.95	106.3	
4	0.968	0.1124	41.5	41.4	37.6	10.0	27.6	436.2	437.24	104.5	
3	0.982	0.1157	42.1	42.0	38.3	10.0	28.3	582.0	582.77	102.2	
2	0.992	0.1181	42.5	42.5	39.0	10.0	29.0	873.4	873.94	98.7	
1	0.998	0.1195	42.8	42.8	39.8	10.0	29.8	1747.3	1747.61	92.8	
0	1.000	0.1200	42.9	42.9	40.5	10.0	30.5	---	---	---	
			Min:		33.7	Min:		1.4	Max:		123.4

## LPFM Grid Tool Report

Sinclair Telecable, Inc. D/B/A Sinclair Communications  
(page 1 of 2)



Norfolk, VA  
Latitude 36-50-48  
Longitude 076-17-08  
Grid Size 31 x 31  
Micro FM 100 Watts at 30m HAAT  
Co-Channel and 1st Adjacent Protected  
2nd Adjacent Channel Not Protected  
3rd Adjacent Channel Not Protected  
I.F. Not Protected  
TV Channel 6 Protected  
CP Records Protected  
APP Records Protected  
FM Translators Protected  
TV Channel 6 Translators/LP Protected  
Auc83 FX App Records Not Protected

[illegible]

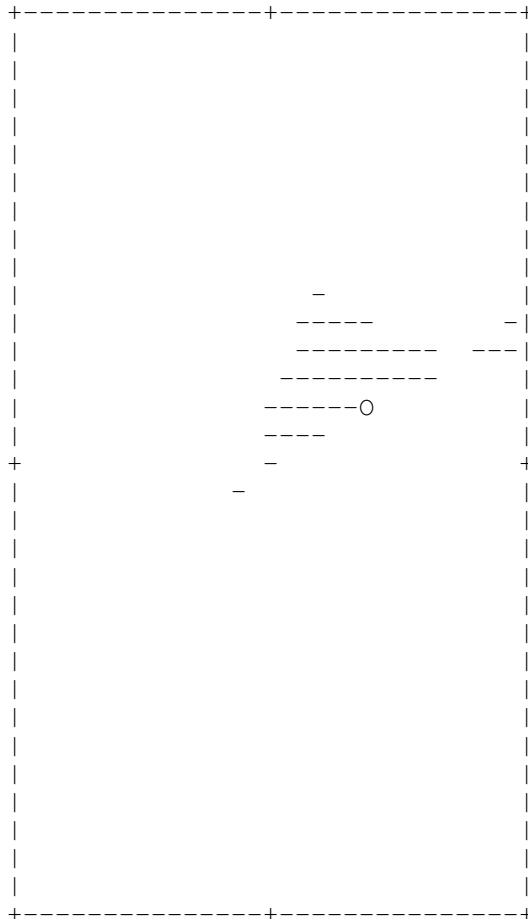
Table 3

**LPFM Grid Tool Report**

Sinclair Telecable, Inc. D/B/A Sinclair Communications  
(page 2 of 2)

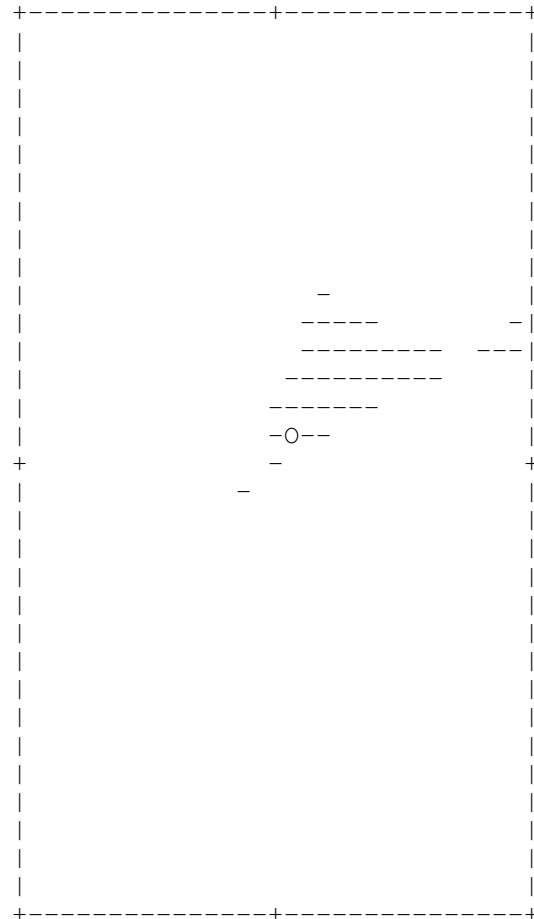
**Channel 243**  
**First-Adjacent to Proposed Channel 242**

Norfolk, VA  
Latitude 36-50-48  
Longitude 076-17-08  
Least preclusive siting  
Availability of Channel 243 (X)



Point #297 at 36-52-48 076-11-08

Norfolk, VA  
Latitude 36-50-48  
Longitude 076-17-08  
Most preclusive siting  
Availability of Channel 243 (X)



Point #451 at 36-51-48 076-16-08

**Table 4**

**Distance to LPFM Grid Points**

Sinclair Telecable, Inc. D/B/A Sinclair Communications

Translator site coords:	--latitude--			--longitude--				
	36	58	14	76	24	28		
LPFM Grid Point	--latitude--			--longitude--			Distance from translator (km)	Distance from translator (km - rounded)
A	36	56	48	76	14	08	15.57	16
B	36	55	48	76	15	08	14.57	15
C	36	54	48	76	15	08	15.24	15
D	36	53	48	76	16	08	14.84	15
E	36	52	48	76	17	08	14.82	15
F	36	51	48	76	17	08	16.13	16
G	36	50	48	76	17	08	17.54	18
H	36	49	48	76	19	08	17.49	17

Center of Grid

**SECTION III - PREPARER'S CERTIFICATION**

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature		Date 08/28/2013	
Mailing Address CHESAPEAKE RF CONSULTANTS, LLC 207 OLD DOMINION ROAD			
City YORKTOWN		State or Country (if foreign address) VA	Zip Code 23692 -
Telephone Number (include area code) 7036509600		E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

**Section III-A - Engineering****TECHNICAL SPECIFICATIONS**

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

**TECH BOX**

1.	Channel: 242											
2.	Primary Station:											
	Facility ID Number		Call Sign		City				State			
	60479		WROX-FM		EXMORE				VA			
3.	Delivery Method (Select One): <input type="radio"/> Off-air <input checked="" type="radio"/> Microwave <input type="radio"/> Satellite <input type="radio"/> Via <input type="radio"/> Other											
4.	Antenna Location Coordinates: (NAD 27)											
	Latitude:											
	Degrees 36 Minutes 58 Seconds 14 <input checked="" type="radio"/> North <input type="radio"/> South											
	Longitude:											
	Degrees 76 Minutes 24 Seconds 28 <input checked="" type="radio"/> West <input type="radio"/> East											
5.	Antenna Structure Registration Number: <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA											
6.	Antenna Location Site Elevation Above Mean Sea Level:									3 meters		
7.	Overall Tower Height Above Ground Level:									44 meters		
8.	Height of Radiation Center Above Ground Level:									41 meters(H) 41 meters(V)		
9.	Effective Radiated Power:									0.12 kW(H) 0.12 kW(V)		
10.	Transmitting Antenna:											
	Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under <a href="http://licensing.fcc.gov/prod/cdb/menu/pubacc/prod/cdb_pa.htm">CDBS Public Access</a> ( <a href="http://licensing.fcc.gov/prod/cdb/menu/pubacc/prod/cdb_pa.htm">http://licensing.fcc.gov/prod/cdb/menu/pubacc/prod/cdb_pa.htm</a> ). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.											
	<input checked="" type="radio"/> Nondirectional <input type="radio"/> Directional Off-the Shelf <input type="radio"/> Directional composite											
	Manufacturer ERI Model 100A-4F-HW											
	Rotation:degrees <input type="checkbox"/> No Rotation											
	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
	0		10		20		30		40		50	

60		70		80		90		100		110	
120		130		140		150		160		170	
180		190		200		210		220		230	
240		250		260		270		280		290	
300		310		320		330		340		350	
Additional Azimuths											

Relative Field Polar Plot

11.	<p><b>For FM Boosters and Fill-in translators only.</b></p> <p>a. <b>FM Fill-in translators.</b> Applicant certifies that the FM translator's (a) coverage contour does not extend beyond the protected contour of the commercial FM primary station to be rebroadcast, or (b) entire 60 dBu contour is contained within the lesser of: (i) the 2 mV/m daytime contour of the AM primary station to be rebroadcast, or (ii) a 25-mile radius centered at the AM primary station's transmitter site.</p> <p>b. <b>FM Boosters.</b> Applicant certifies that the FM Booster station's service contour is entirely within the primary station's protected coverage contour.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A</p> <p>See Explanation in [Exhibit 10]</p> <p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p> <p>See Explanation in [Exhibit 11]</p>
12.	<p><b>Interference.</b> The proposed facility complies with all of the following applicable rule sections. Check all that apply:</p> <p><b>Overlap Requirements.</b> <input checked="" type="checkbox"/> a) 47 C.F.R. Section 74.1204 <b>Exhibit Required.</b></p> <p><b>Television Channel 6 Protection.</b> <input type="checkbox"/> b) 47 C.F.R. Section 74.1205 with respect to station(s) <b>Exhibit Required.</b></p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 12]</p> <p>[Exhibit 13]</p> <p>[Exhibit 14]</p>
13.	<p><b>Unattended operation.</b> Applicant certifies that unattended operation is not proposed, or if this application proposes unattended operation, the applicant certifies that it will comply with the requirements of 47 C.F.R. Section 74.1234.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 15]</p>
14.	<p><b>Multiple Translators.</b> Applicant certifies that it does not have any interest in an application or an authorization for an FM translator station that serves substantially the same area and rebroadcasts the same signal as the proposed FM translator station.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 16]</p>
15.	<p><b>Environmental Protection Act.</b> Applicant certifies that the proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an <b>Exhibit is required.</b></p> <p>By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 17]</p>

**PREPARER'S CERTIFICATION ON PAGE 4 MUST BE COMPLETED AND SIGNED.**