July 2016
FM Translator W283CD
Silver Spring, MD Channel 228D
Allocation Study

250 Mile Window Application
This application is being filed as an amendment to BPFT-20160129AGH, a "250 Mile Window Application" to modify an authorized FM translator for use with an AM station. This amendment makes changes in the proposed channel, transmitter site, and technical parameters, in order to remove BPFT-20160129AGH from a mutual exclusive application group.

AM Station Callsign: WBQH
AM Station Class: D

Translator Move Distance: 33 kilometers

Allocation Study
The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

WPOC 226B Baltimore: The proposed translator transmitter site is located within the 54 dBu protected contour of second-adjacent channel station WPOC 226B Baltimore. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
WPOC 238B License	37.11 km 223 deg True	3.863 kW 250 meters	60.9 dBu F(50,50)	100.9 dBu	see following
WPOC 238B App	37.12 km 223 deg True	3.863 kW 249 meters	60.9 dBu F(50,50)	100.9 dBu	see following

Given that the transmitting antenna will be installed at a height of 88 meters above ground, and taking into consideration the vertical plane pattern of the PSIFMT-4A-6DB-0.75 antenna, the attached calculations demonstrate that the interference area will not reach ground level except

within 65 meters of the tower. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to WPOC.

65 Meter Radius From Proposed Tower
(omni assumed for convenience, but actually has reduced power southbound)

WKYS 230B Washington: The proposed translator transmitter site is located within the 54 dBu protected contour of second-adjacent channel station WKYS 230B Washington. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	**Distance & Bearing to Proposal**	**Station ERP and HAAT on that azimuth**	**Station Field Strength at Proposal**	**Corresponding Translator Interfering Contour**	**Distance to Translator Interfering Contour**
WKYS 230B	11.74 km 15 deg True	24.5 kW 186 meters	87.1 dBu Free Space	127.1 dBu	35 meters Free Space

The interfering contour does not reach ground level. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to WKYS.

FMSTUDY.EXE Copyright 2016, Hatfield & Dawson, LLC Version 4.01

SEARCH PARAMETERS FM Database Date: 160705

Channel: 228A 93.5 MHz

Latitude: 39 2 32

Longitude: 77 2 49

Safety Zone: 50 km

Job Title: SILVER SPRING 228

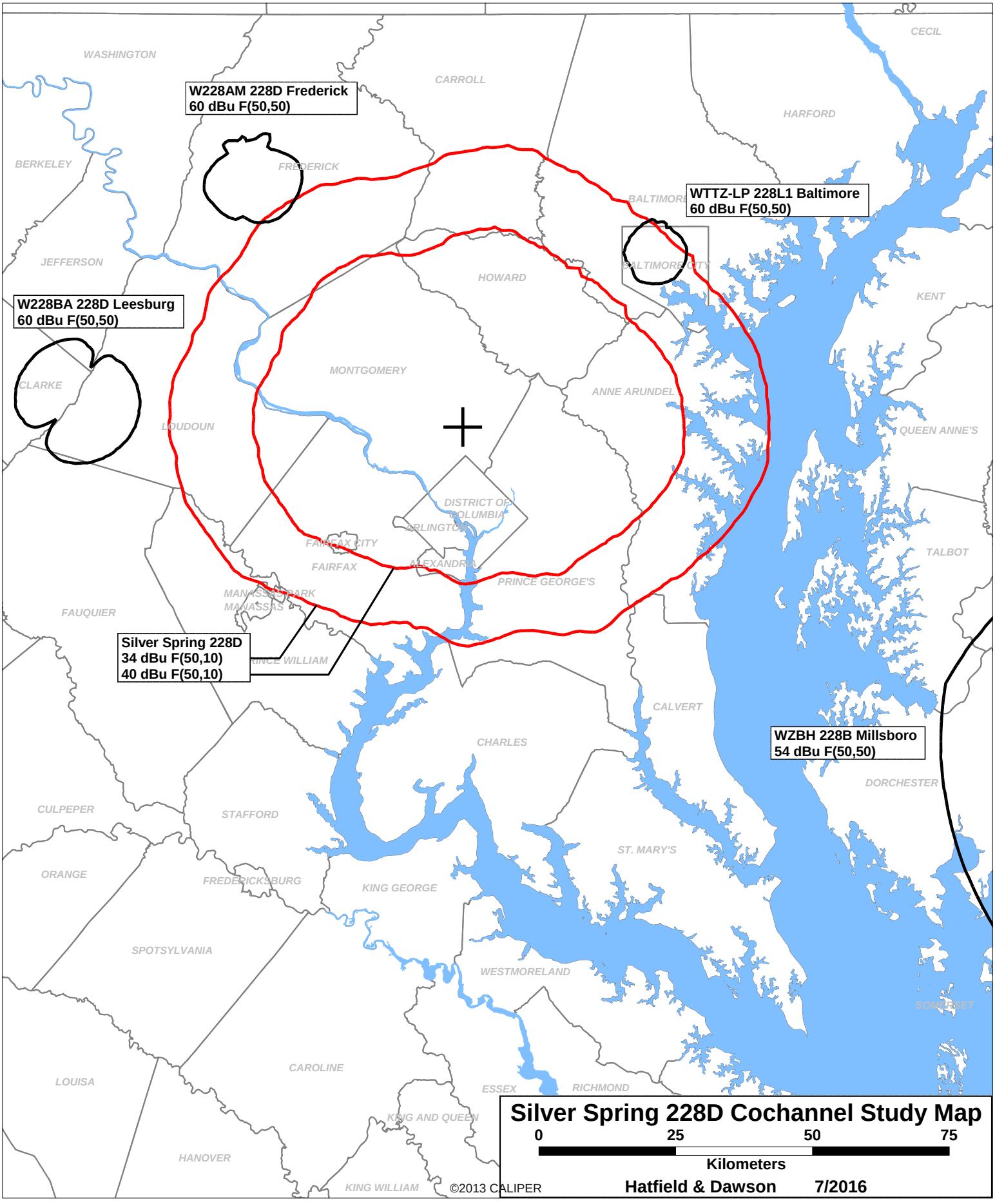
Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)		Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
W227BM	CENTREVILLE		225D	0.025		38-51-18	233.8	35.19	0
CP	VA	BPFT-60324AAG	92.9	156.0		077-22-28		0.00	TRANS
WPOC	BALTIMORE		226B	16.000	DA	39-17-14	42.7	37.12	69
APP	MD	BPH-60526AAJ	93.1	264.0		076-45-17		-31.88	SHORT
WPOC	BALTIMORE		226B	16.000	DA	39-17-13	42.7	37.11	69
LIC	MD	BLH-00714ABE	93.1	264.0		076-45-16		-31.89	SHORT
WFLS-FM	FREDERICKSBURG		227B	50.000		38-18-46	202.9	87.86	113
LIC	VA	BLH-880809LD	93.3	150.0		077-26-20		-25.14	SHORT
W227BM	WINCHESTER		227D	0.013		39-11-40	280.2	98.73	0
LIC	VA	BLFT-21120AFE	93.3	120.0		078-10-18		0.00	TRANS
WZBH	MILLSBORO		228B	50.000	DA	38-31-24	110.3	162.47	178
LIC	DE	BLH-60425AAP	93.5	150.0		075-17-55	SS	-15.53	SHORT
WTTZ-LP	BALTIMORE		228L1	0.004		39-20-10	46.2	47.35	67
LIC	MD	BLL-50724ACD	93.5	151.7		076-38-59		-19.65	SHORT
W228AM	FREDERICK, ETC		228D	0.019	DA	39-29-35	322.3	63.51	0
LIC	MD	BLFT-890922TA	93.5	452.0		077-30-00		0.00	TRANS
W228AB	PARAMOUNT, ETC.		228D	0.013		39-38-35	318.1	90.03	0
LIC	MD	BLFT-20629ABM	93.5	131.0		077-44-54		0.00	TRANS
WWKL	MECHANICSBURG		228A	1.250		40-10-38	6.5	126.85	115
LIC	PA	BMLH-50115AAI	93.5	219.0		076-52-38		11.85	CLEAR
W228BA	LEESBURG		228D	0.010		39-05-05	274.1	70.58	0
LIC	VA	BLFT-950830TH	93.5	418.0		077-51-38		0.00	TRANS
WSTW	WILMINGTON		229B	47.100		39-48-57	56.1	156.34	113
LIC	DE	BMLH-00629AZK	93.7	153.0		075-31-47	SS	43.34	CLEAR
WRGG-LP	GREENCASTLE		229L1	0.029		39-47-29	327.3	99.21	56
LIC	PA	BLL-60606ACO	93.7	55.0		077-40-30		43.21	CLEAR

SEARCH PARAMETERS FM Database Date: 160705

Channel: 228A 93.5 MHz
Latitude: 39 2 32
Longitude: 77 2 49
Safety Zone: 50 km
Job Title: SILVER SPRING 228

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)		Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
W229CM	MARTINSBURG		229D	0.250	DA	39-27-48	300.4	93.60	0
CP MOD	WV	BMPFT-60129AJB	93.7	105.0		077-59-11		0.00	TRANS
WKYS	WASHINGTON		230B	24.500		38-56-24	194.8	11.74	69
LIC	DC	BMLH-80505ACH	93.9	215.0		077-04-54		-57.26	SHORT
WPRS-FM	WALDORF		281B	20.000		38-37-07	159.5	50.21	15
LIC	MD	BMLH-70809ABE	104.1	244.0		076-50-39		35.21	CLEAR
WZFT	BALTIMORE		282B	13.000	DA	39-20-10	46.2	47.35	15
LIC	MD	BLH-90123AAG	104.3	294.0		076-38-59	SS	32.35	CLEAR

==== END OF FM SPACING STUDY FOR CHANNEL 228 ====


W228AM 228D Frederick
60 dBu F(50,50)
WTTZ-LP 228L1 Baltimore
60 dBu F(50,50)
W228BA 228D Leesburg
60 dBu F(50,50)
Silver Spring 228D
34 dBu F(50,10)
40 dBu F(50,10)
WZBH 228B Millsboro
54 dBu F(50,50)
WASHINGTON
CARROLL
CECIL
HARFORD
BERKELEY
FREDERICK
JEFFERSON
HOWARD
KENT
MONTGOMERY
CLARKE
ANNE ARUNDEL
LOUDOUN
QUEEN ANNE'S
DISTRICT OF COLUMBIA
ARLINGTON
FAIRFAX CITY
FAIRFAX
ALEXANDRIA
PRINCE GEORGE'S
TALBOT
MANASSAS PARK
MANASSAS
FAUQUIER
CALVERT
CHARLES
DORCHESTER
CULPEPER
STAFFORD
ST. MARY'S
ORANGE
FREDERICKSBURG
KING GEORGE
SPOTSYLVANIA
WESTMORELAND
SOMERSET
CAROLINE
LOUISA
ESSEX
RICHMOND
KING AND QUEEN
HANOVER
KING WILLIAM
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Silver Spring 228D Cochannel Study Map
0
25
50
75
Kilometers
Hatfield & Dawson
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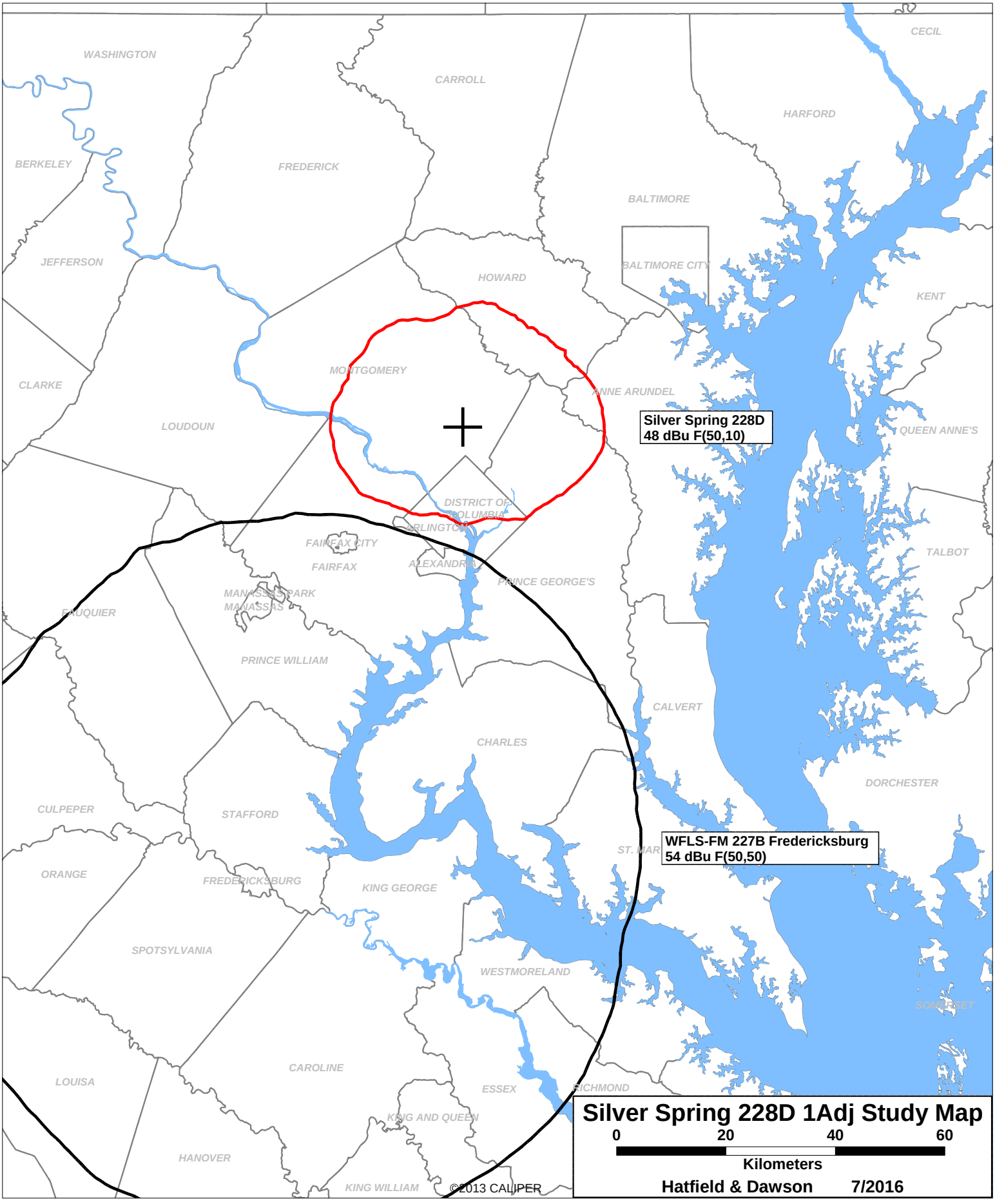
WASHINGTON
CARROLL
CECIL
HARFORD
BERKELEY
FREDERICK
BALTIMORE
JEFFERSON
HOWARD
BALTIMORE CITY
KENT
MONTGOMERY
CLARKE
ANNE ARUNDEL
Silver Spring 228D
48 dBu F(50,10)
LOUDOUN
QUEEN ANNE'S
DISTRICT OF COLUMBIA
ARLINGTON
FAIRFAX CITY
TALBOT
FAIRFAX
ALEXANDRIA
PRINCE GEORGE'S
MANASSAS PARK
MANASSAS
FAUQUIER
PRINCE WILLIAM
CALVERT
CHARLES
DORCHESTER
CULPEPER
STAFFORD
WFLS-FM 227B Fredericksburg
54 dBu F(50,50)
ST. MAR
ORANGE
FREDERICKSBURG
KING GEORGE
SPOTSYLVANIA
WESTMORELAND
SOMERSET
CAROLINE
LOUISA
ESSEX
RICHMOND
KING AND QUEEN
HANOVER
KING WILLIAM
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Silver Spring 228D 1Adj Study Map
0
20
40
60
Kilometers
Hatfield & Dawson
7/2016

Silver Spring 228D Free Space Interference Area Calculator
Interference Area to WPOC 226B

Antenna Height: 88 meters AGL
Contour Level: 100.9 dBu equals 0.1 V/m
ERP in Watts: 130 Watts

Maximum distance
to interfering contour is: 2364.3 feet equals 720.6 meters

Antenna: PSIFMT-4 3/4

Depression Angle (degrees)	PSI PSIFMT-4 3/4 Relative Field	Adjusted ERP (Watts)	Free Space Distance To 100.9 dBu Contour Along the depression angle	Horizontal Distance (meters)	Contour AGL (meters)
-90	0.001	0.0	0.7 meters	0	87.3
-89	0.001	0.0	0.7	0.0	87.3
-88	0.001	0.0	0.7	0.0	87.3
-87	0.001	0.0	0.7	0.0	87.3
-86	0.001	0.0	0.7	0.1	87.3
-85	0.001	0.0	0.7	0.1	87.3
-84	0.002	0.0	1.4	0.2	86.6
-83	0.003	0.0	2.2	0.3	85.9
-82	0.004	0.0	2.9	0.4	85.1
-81	0.006	0.0	4.3	0.7	83.7
-80	0.008	0.0	5.8	1.0	82.3
-79	0.011	0.0	7.9	1.5	80.2
-78	0.014	0.0	10.1	2.1	78.1
-77	0.018	0.0	13.0	2.9	75.4
-76	0.022	0.1	15.9	3.8	72.6
-75	0.027	0.1	19.5	5.0	69.2
-74	0.032	0.1	23.1	6.4	65.8
-73	0.037	0.2	26.7	7.8	62.5
-72	0.044	0.3	31.7	9.8	57.8
-71	0.050	0.3	36.0	11.7	53.9
-70	0.057	0.4	41.1	14.0	49.4
-69	0.065	0.5	46.8	16.8	44.3
-68	0.072	0.7	51.9	19.4	39.9
-67	0.080	0.8	57.7	22.5	34.9
-66	0.088	1.0	63.4	25.8	30.1
-65	0.097	1.2	69.9	29.5	24.6
-64	0.105	1.4	75.7	33.2	20.0
-63	0.112	1.6	80.7	36.6	16.1
-62	0.120	1.9	86.5	40.6	11.6
-61	0.127	2.1	91.5	44.4	8.0
-60	0.133	2.3	95.8	47.9	5.0
-59	0.139	2.5	100.2	51.6	2.1
-58	0.144	2.7	103.8	55.0	-0.0
-57	0.148	2.8	106.7	58.1	-1.4
-56	0.150	2.9	108.1	60.4	-1.6
-55	0.152	3.0	109.5	62.8	-1.7
-54	0.152	3.0	109.5	64.4	-0.6
-53	0.150	2.9	108.1	65.1	1.7
-52	0.146	2.8	105.2	64.8	5.1
-51	0.141	2.6	101.6	63.9	9.0
-50	0.133	2.3	95.8	61.6	14.6
-49	0.124	2.0	89.4	58.6	20.6

-48	0.112	1.6	80.7	54.0	28.0
-47	0.099	1.3	71.3	48.7	35.8
-46	0.083	0.9	59.8	41.5	45.0
-45	0.066	0.6	47.6	33.6	54.4
-44	0.047	0.3	33.9	24.4	64.5
-43	0.027	0.1	19.5	14.2	74.7
-42	0.004	0.0	2.9	2.1	86.1
-41	0.018	0.0	13.0	9.8	79.5
-40	0.043	0.2	31.0	23.7	68.1
-39	0.067	0.6	48.3	37.5	57.6
-38	0.092	1.1	66.3	52.2	47.2
-37	0.116	1.7	83.6	66.8	37.7
-36	0.139	2.5	100.2	81.0	29.1
-35	0.161	3.4	116.0	95.0	21.5
-34	0.181	4.3	130.4	108.1	15.1
-33	0.199	5.1	143.4	120.3	9.9
-32	0.215	6.0	154.9	131.4	5.9
-31	0.226	6.6	162.9	139.6	4.1
-30	0.234	7.1	168.6	146.0	3.7
-29	0.238	7.4	171.5	150.0	4.8
-28	0.237	7.3	170.8	150.8	7.8
-27	0.230	6.9	165.7	147.7	12.8
-26	0.219	6.2	157.8	141.8	18.8
-25	0.201	5.3	144.8	131.3	26.8
-24	0.178	4.1	128.3	117.2	35.8
-23	0.149	2.9	107.4	98.8	46.0
-22	0.114	1.7	82.2	76.2	57.2
-21	0.073	0.7	52.6	49.1	69.1
-20	0.027	0.1	19.5	18.3	81.3
-19	0.025	0.1	18.0	17.0	82.1
-18	0.081	0.9	58.4	55.5	70.0
-17	0.141	2.6	101.6	97.2	58.3
-16	0.205	5.5	147.7	142.0	47.3
-15	0.272	9.6	196.0	189.3	37.3
-14	0.341	15.1	245.7	238.4	28.6
-13	0.411	22.0	296.2	288.6	21.4
-12	0.481	30.1	346.6	339.1	15.9
-11	0.550	39.3	396.3	389.1	12.4
-10	0.617	49.5	444.6	437.9	10.8
-9	0.682	60.5	491.5	485.4	11.1
-8	0.743	71.8	535.4	530.2	13.5
-7	0.799	83.0	575.8	571.5	17.8
-6	0.850	93.9	612.5	609.2	24.0
-5	0.894	103.9	644.2	641.8	31.9
-4	0.931	112.7	670.9	669.3	41.2
-3	0.961	120.1	692.5	691.6	51.8
-2	0.982	125.4	707.7	707.2	63.3
-1	0.996	129.0	717.8	717.6	75.5
0	1.000	130.0	720.6	720.6	88.0

July 2016
FM Translator W283CD
Silver Spring, MD Channel 228D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 228D (93.5 MHz) with a maximum lobe effective radiated power of 130 watts. Operation is proposed with an antenna to be mounted on an existing tower with FCC Antenna Structure Registration Number 1053549.

RF Exposure Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

> When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . .For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

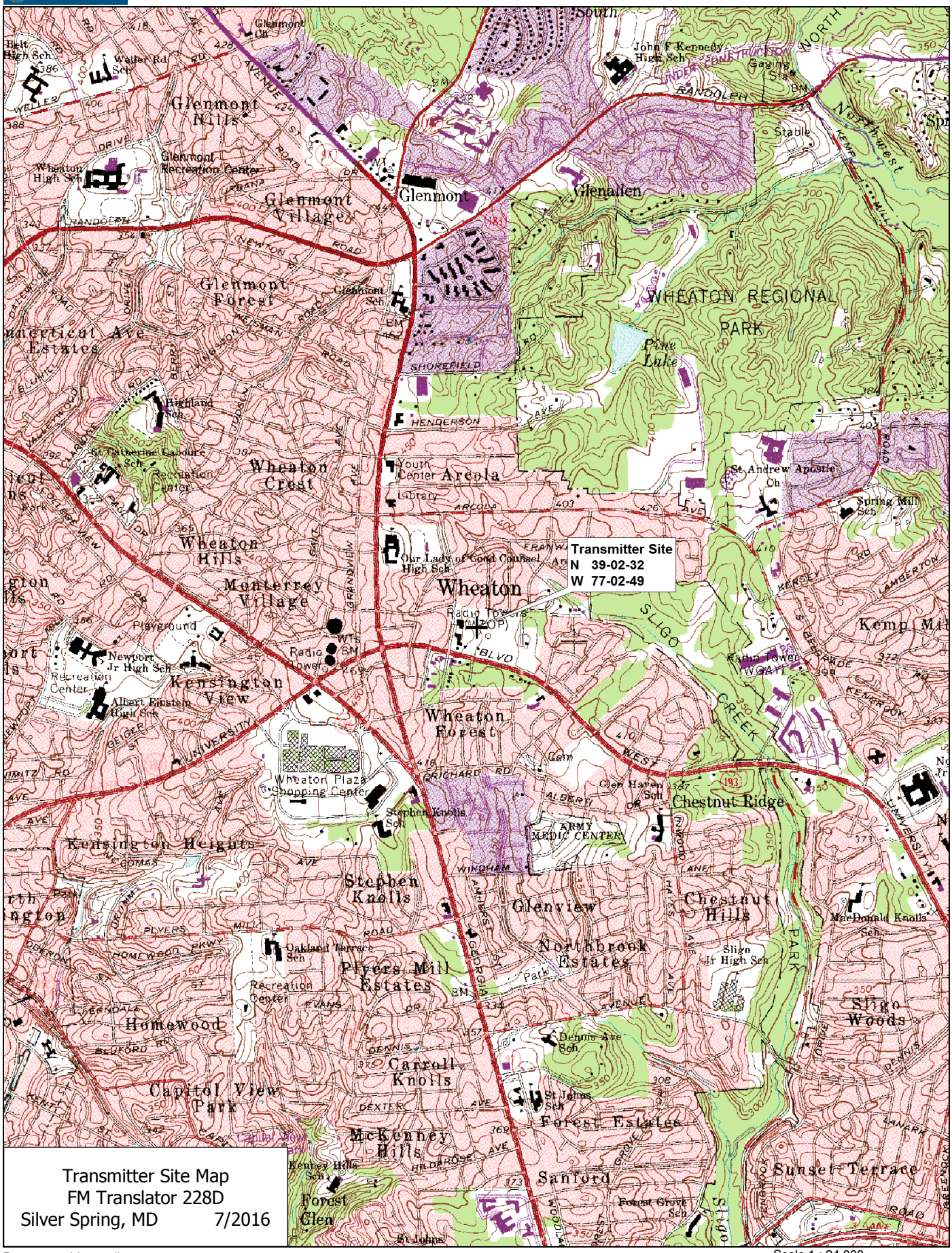
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system have been made assuming that the antenna will radiate 100% power straight down to a point 2 meters above ground at the base of the tower (86 meters below the antenna). Under this worst-case assumption, the

highest calculated ground level power density from this proposal occurs at the base of the antenna support structure. At this point the power density is calculated to be 1.2 $\mu W/cm^2$, which is 0.6% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



Transmitter Site Map
FM Translator 228D
Silver Spring, MD 7/2016

TN
MN (10.8°W)

Scale 1 : 24,000
0 600 1200 1800 2400 3000 ft
0 200 400 600 800 1000 m
1 cm = 240.0 m Data Zoom 13-1