

Technical Report W252DC Minor Modification

This technical report is submitted for a minor modification to W252DC at Reston, VA, FCC file number BLFT-20160113ABB. Changes in tower site, COR, antenna and ERP are submitted for the translator to serve as a fill-in facility to rebroadcast WTOP-FM 278B HD3 at Washington, DC, FCC facility I.D. 11845.

W252DC Modification Analysis:

An overlap study in exhibit E-1 shows the W252DC modification is within the WMZQ-FM 254B second adjacent protected contour. The +40 141.03 F(50-10) dBu interfering contour (exhibit E-2) will not encompass any population, buildings or roads (exhibit E-3). The 60 dBu F(50-50) contour overlaps the licensed 60 dBu contour and the 54 dBu contour is contained within the WTOP-FM 278B HD3 54 dBu contour (exhibit E-4).

Antenna System:

The W252DC modification will be located on the existing 88 meter tower, ASR 1049508, at coordinates:

38 53 45N 77 08 08W NAD 27

Two Scala CL-FM circularly-polarized, directional antennas skewed 75 degrees and pointed at a 350 degree azimuth (exhibit E-5) will be mounted at a COR AGL of 79 meters, 202 meters AMSL, 122 meter HAAT (exhibit E-6) and operate at 0.150 kW ERP.

RF Exposure Calculation:

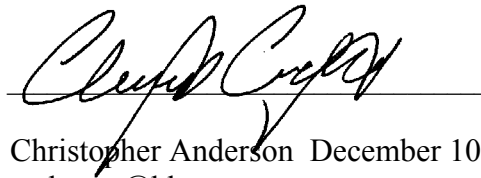
The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2\text{)} = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (height of radiation center in meters -2m)}}$$

Using a worst-case vertical (F) factor of 1.000, the RF is calculated to be $1.69 \mu\text{W}/\text{cm}^2$ to the ground, which is well below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for controlled exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the W252DC modification complies with all Commission rules and policies.

A handwritten signature in black ink, appearing to read 'Christopher Anderson', is written over a horizontal line.

Christopher Anderson December 10, 2018
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E-1 W252DC Mod. Overlap Study

REFERENCE 38 53 45.0 N. 77 08 08.0 W.		CH# 252D - 98.3 MHz, Pwr= 0.15 kW DA, HAAT= 123.0 M, COR= 202 M Average Protected F(50-50)= 12.53 km Standard Directional						DISPLAY DATES DATA 12-10-18 SEARCH 12-10-18		
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*
254B Washington	WMZQ-FM	LIC _CX DC	260.1 80.1	5.73 BMLH20060228AMC	38 53 13.0 77 12 03.0	50.000 149	6.1 232	66.0 Amfm Radio Licenses, L.I.C	-6.7*	-60.9*(1)
252D Reston	W252DC	CP DC_ VA	19.2 199.3	8.01 BPFT20160127ACL	38 57 50.0 77 06 18.0	0.200	261	---Reference--- Reston Translator, Lic		
252D Reston	W252DC	LIC _C_ VA	310.3 130.2	17.74 BLFT20160113ABB	38 59 56.0 77 17 32.0	0.250	150	---Reference--- Reston Translator, Lic		
252A Stephens City	AL2329	RSV-A _ VA	287.7 107.2	84.97 RM10627	39 07 30.0 78 04 26.0	6.000 100	92.2 298	31.0	-17.2*	22.9
252A Mechanicsville	WSMD-FM	LIC _CN MD	149.6 329.9	62.07 BLH19880913KA	38 24 49.0 76 46 31.0	3.000 100	71.1 125	21.3 Somar Communications, Inc.	-12.4*	31.3
250B Baltimore	WIYY	LIC _CN MD	40.4 220.7	64.26 BLH19880914KA	39 20 05.0 76 39 03.0	13.500 288	5.2 373	62.9 Hearst Stations Inc.	48.8	0.1
251D Manassas	W264BJ	CP DC_ VA	234.5 54.4	20.66 BPFT20160729ALF	38 47 16.0 77 19 47.0	0.250	10.7 230	7.7 Capital Broadcasting Va, L	4.3	5.1
252A Stephens City	WKSJ-FM	LIC _CX VA	288.1 107.4	102.40 BLH20040920ADJ	39 10 38.0 78 15 53.0	1.750 188	87.8 468	31.8 Amfm Radio Licenses, L.I.C	4.6	40.8
249D Reston	W249DX	LIC DC_ VA	287.4 107.2	19.88 BLFT20180720AAI	38 56 56.6 77 21 18.1	0.050	0.2 205	5.2 Metro Radio, Inc.	10.5	13.4
253B York-hanover	WYCR	LIC _CN PA	8.5 188.6	108.09 BMLH20170223AAD	39 51 26.0 76 56 54.0	10.500 283	70.0 462	60.0 Fm Radio Licenses, Lic	25.8	22.5
252D Edgemere	W252BR	LIC _V_ MD	57.5 237.9	70.93 BLFT20070808ADV	39 14 13.0 76 26 28.0	0.005 3	8.5 7	2.7 Hope Christian Church Of M	52.8	36.1
Terrain database is GLOBE 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM In & Out distances between contours are shown at closest points. 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 restricted contour.										

(1) The +40 141.03 F(50-10) dBu contour within the WMZQ-FM 254B second-adjacent protected contour (exhibit E-2) does not encompass any population, roads or buildings (exhibit E-3).

E-2 W252DC Mod. +40 dBu Tabulation Within WMZQ-FM 254B

W252DC Reston, VA, Showing Protection to WMZQ-FM
Geographic Coordinates: N. 38 53 45.00 W. 77 08 08.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.15
Translator or LPFM Antenna Height AG = 79 Meters
W252DC Antenna Model = CL-FM composite

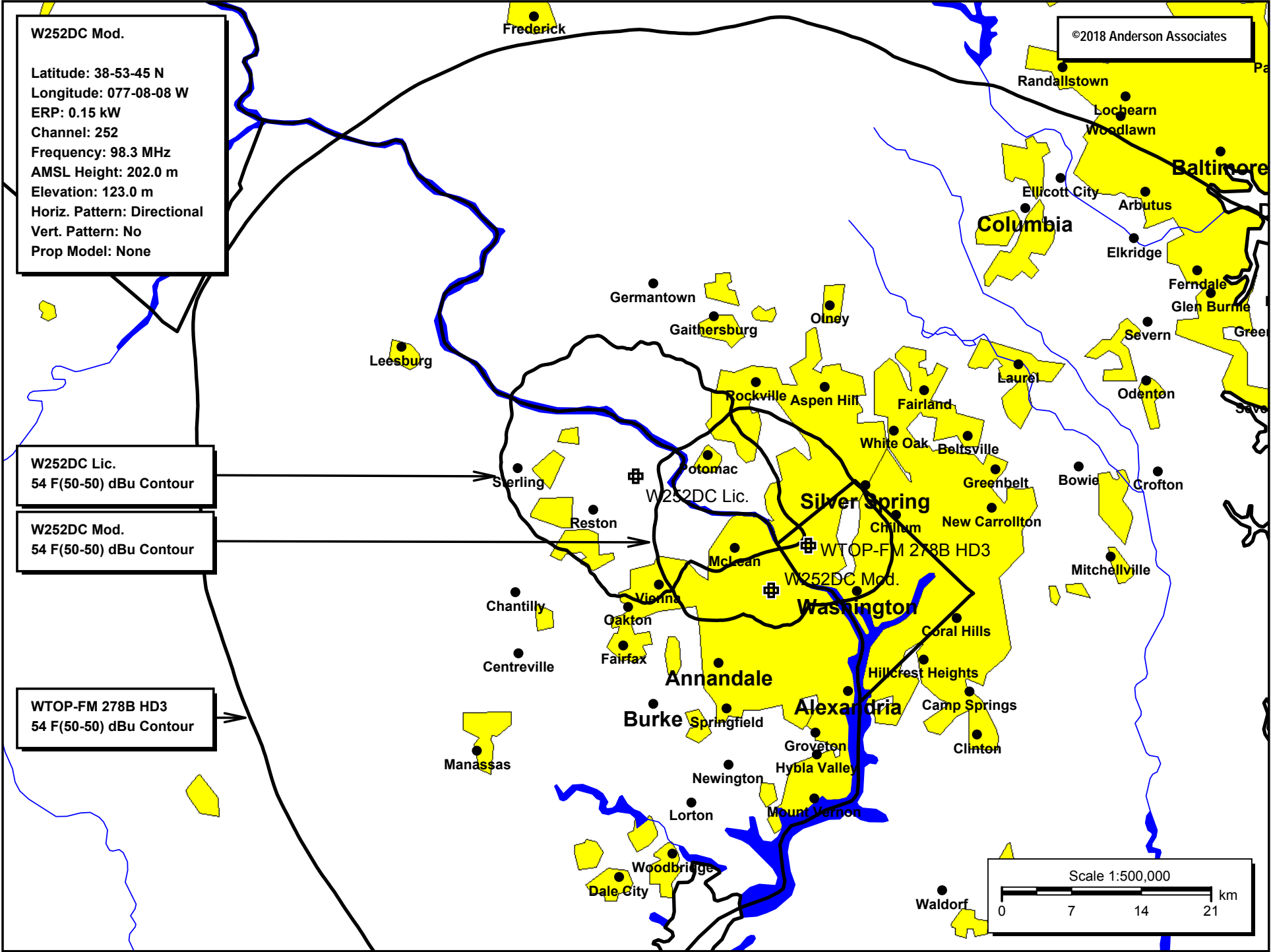
Protected Station's Contour = 101.0328 dBu
Translator's or LPFM's full Interference contour 141.0328

Review Azimuth = 350 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.15 kW
Distance between stations = 5.7 km
Protected Station= WMZQ-FM, 50 kW, 232 M Meters COR AMSL

Depression Angle From Degree (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.1500	007.6279	007.6279	079.000
05.00	0.994	1.0	0.1481	007.5783	007.5495	078.340
10.00	0.98	1.0	0.1441	007.4754	007.3618	077.702
15.00	0.953	1.0	0.1361	007.2656	007.0180	077.120
20.00	0.917	1.0	0.1260	006.9910	006.5694	076.609
25.00	0.873	1.0	0.1142	006.6554	006.0318	076.187
30.00	0.818	1.0	0.1002	006.2358	005.4004	075.882
35.00	0.756	1.0	0.0856	005.7629	004.7207	075.695
40.00	0.69	1.0	0.0714	005.2633	004.0319	075.617
45.00	0.618	1.0	0.0572	004.7102	003.3306	075.669
50.00	0.544	1.0	0.0443	004.1458	002.6648	075.824
55.00	0.468	1.0	0.0328	003.5660	002.0454	076.079
60.00	0.39	1.0	0.0228	002.9749	001.4874	076.424
65.00	0.3	1.0	0.0135	002.2884	000.9671	076.926
70.00	0.19	1.0	0.0054	001.4493	000.4957	077.638
75.00	0.11	1.0	0.0018	000.8391	000.2172	078.190
80.00	0.05	1.0	0.0004	000.3814	000.0662	078.624
85.00	0.03	1.0	0.0001	000.2288	000.0199	078.772
90.00	0.03	1.0	0.0001	000.2288	000.0000	078.771

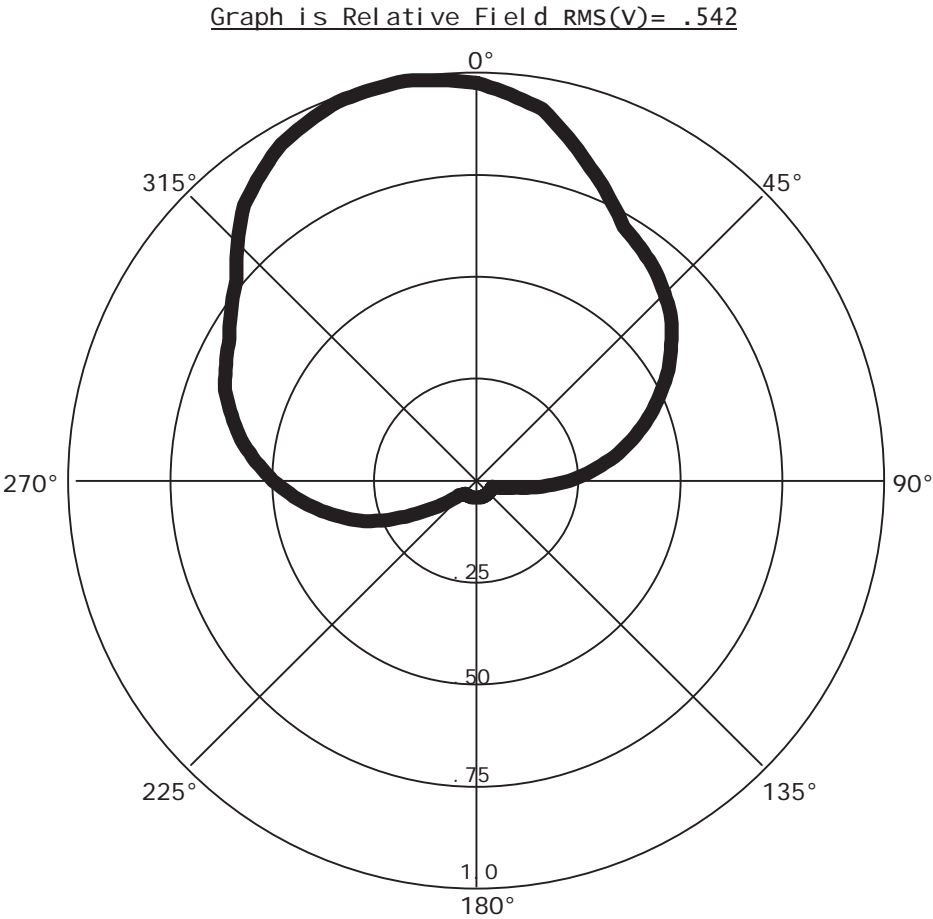


E-4 W252DC Mod. 54 dBu Contour Plot



E-5 W252DC Mod. Directional Antenna Pattern

Azi	Field	dBk	kW
000	0.980	-08.415	0.144
010	0.929	-08.879	0.129
020	0.819	-09.973	0.101
030	0.722	-11.068	0.078
040	0.680	-11.589	0.069
050	0.624	-12.335	0.058
060	0.543	-13.543	0.044
070	0.448	-15.214	0.030
080	0.344	-17.508	0.018
090	0.228	-21.080	0.008
100	0.097	-28.504	0.001
110	0.042	-35.774	0.000
120	0.042	-35.774	0.000
130	0.042	-35.774	0.000
140	0.042	-35.774	0.000
150	0.042	-35.774	0.000
160	0.042	-35.774	0.000
170	0.042	-35.774	0.000
180	0.042	-35.774	0.000
190	0.042	-35.774	0.000
200	0.042	-35.774	0.000
210	0.042	-35.774	0.000
220	0.042	-35.774	0.000
230	0.055	-33.432	0.000
240	0.152	-24.602	0.003
250	0.291	-18.961	0.013
260	0.397	-16.263	0.024
270	0.498	-14.295	0.037
280	0.586	-12.881	0.052
290	0.655	-11.914	0.064
300	0.699	-11.350	0.073
310	0.768	-10.532	0.088
320	0.886	-09.290	0.118
330	0.957	-08.621	0.137
340	0.993	-08.300	0.148
350	1.000	-08.239	0.150



E-6 W252DC HAAT Calculation

N 38-53-45 W 77-08-08

HAAT and Distance to Contour,

FCC, FM 2-10 Miles, 51 points Method - GLOBE 30 SEC

Azi.	AV EL	HAAT	ERP kW	60-F(50-50)
000	81.8	120.2	0.1441	12.28
030	88.3	113.7	0.0782	10.33
060	70.7	131.3	0.0442	9.62
090	27.0	175.0	0.0078	7.20
120	39.6	162.4	0.0003	2.58
150	43.3	158.7	0.0003	2.55
180	73.8	128.2	0.0003	2.37
210	96.9	105.1	0.0003	2.23
240	113.4	88.6	0.0035	4.17
270	128.1	73.9	0.0372	6.87
300	100.6	101.4	0.0733	9.62
330	90.5	111.5	0.1374	11.72

Ave El= 79.52 M HAAT= 122.48 M AMSL= 202

ASR Registration 1049508

Registration Detail

Reg Number	1049508	Status	Constructed
File Number	A0984821	Constructed	11/07/2008
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type LTOWER - Lattice Tower

Location (in NAD83 Coordinates)

Lat/Long	38-53-45.0 N 077-08-06.8 W	Address	5301 22ND STREET (088278 / ARLINGTON GARDEN CITY VA)
City, State	ARLINGTON , VA		
Zip	22207	County	ARLINGTON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
122.5	88.4
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
210.9	83.8

Painting and Lighting Specifications

FAA Chapters 4, 8, 12
Paint and Light in Accordance with FAA Circular Number 70/7460-1L

FAA Notification

FAA Study	2015-AEA-6908-OE	FAA Issue Date	12/10/2015
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Owner & Contact Information

FRN	0011498342	Owner Entity	Limited Liability Company
		Type	

Owner

American Towers LLC	P: (678)564-3236
Attention To: Regulatory Compliance FAA FCC	F:
10 Presidential Way	E: faa-fcc@americantower.com
Woburn , MA 01801	

Contact

Attention To: FAA FCC	P: (678)564-3236
10 Presidential Way	F:
Woburn , MA 01801	E: faa-fcc@americantower.com

Last Action Status

Status	Constructed	Received	12/15/2015
Purpose	Notification	Entered	12/15/2015