

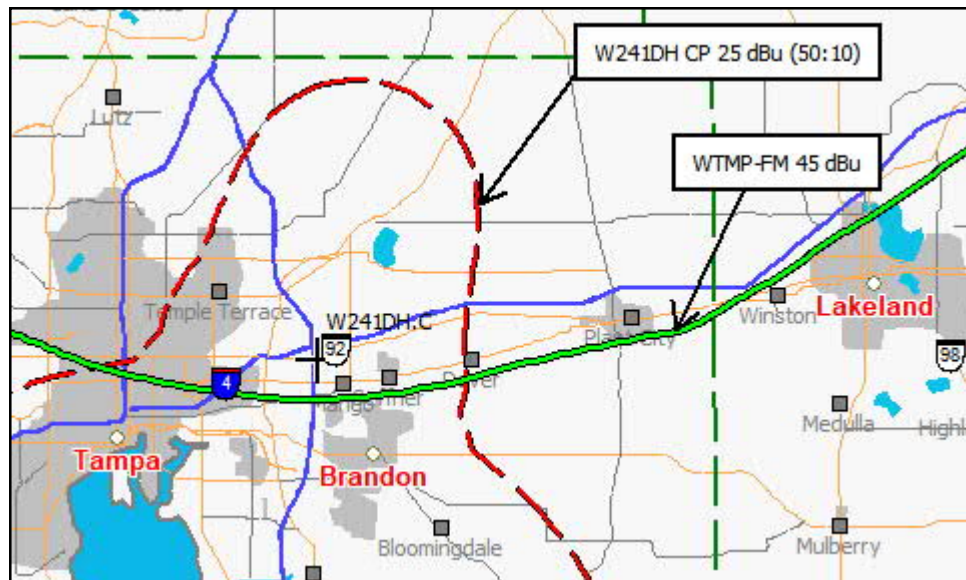
## TECHNICAL REPORT

### W241DH MINOR MODIFICATIONS

**Non-adjacent channel change from channel 241 (100.9 MHz) to Channel 233 (94.5 MHz) requested to substantially reduce interference received.**

This technical report is submitted in support of minor modifications to W241DH.CP at Brandon, FL, FCC Facility I.D. 83547.

The licensee of co-channel station WTMP-FM claims that the station has substantial listeners within the W241DH CP 60 dBu and that he will file interference objections against the W241DH CP immediately upon its construction. As illustrated below, W241DH's 25 dBu (50:10) overlaps the WTMP-FM's protected 45 dBu contour. Therefore, it is evident that the modified facility will not survive, nor can it feasibly be relocated within the WTPA(AM)'s 25 mile-2 mV/m radius.



Since the licensed W241DH facility is outside the WTPA 2 MV-25 mile radius, a new

primary station has been identified. Furthermore, a non--adjacent move to channel 233D is requested in accordance with CFR §74.1233(a)(1) since the licensed facility receives co-channel interference to 38.95% of its 60 dBu population, much of which is in the community of license - Bradenton, FL. In fact, only 9.2% of the Bradenton population receives an interference free 60 dBu from the licensed W241DH while 94.5% of the Bradenton population will be served on channel 233 (94.5 MHz) and with interference free 60 dBu or greater at the proposed site.

**Non-adjacent channel move per §74.1233(a)(1) analysis:**

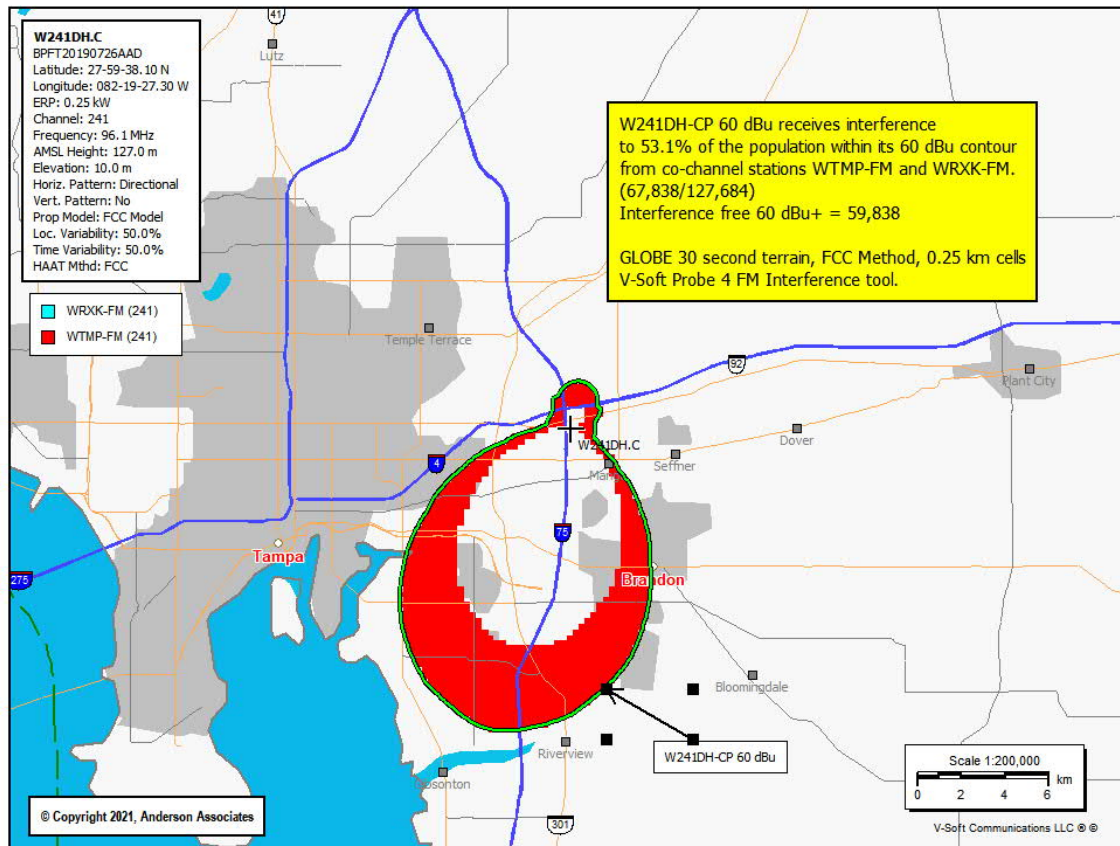
A non-adjacent channel change to 233D (94.5 MHz) is requested in accordance with CFR §74.1233(a)(1) as modified in *FCC 19-40, May 9, 2019*. In that Report and Order, the Commission explained that:

*6. For these reasons, we modify section 74.1233(a)(1) of the Commission's rules (Rules) to define an FM translator's change to any available same-band FM channel as a minor change, upon a showing of actual or predicted interference to or from any other broadcast station.*

A comparison of the W241DH licensed interference received (exhibit E-7) and the proposed interference received on channel 233 (exhibit E-8) show substantial reduced interference. The percentage of the 60 dBu contour population receiving interference is reduced from 38.95% to 27.1% while the 60 dBu interference free population increases from 33,823 to 240,736 (2018). Perhaps more importantly, the percentage of the Bradenton population receiving an interference free 60 dBu or greater signal increases from 9.2% to 94.5%.

Although the Commission staff may not consider interference received by the W241DH construction permit, it is noteworthy that 53.1% of its 60 dBu population

received co-channel interference and that the resulting interference free 60 dBu + is 59,846 or a fraction of that achieved by the proposed modification.



### Allocation Analysis:

The modified translator will serve as a fill-in facility to rebroadcast WLLD(FM) 231C HD3 at Lakeland, FL (FCC facility #51987).

An overlap study in exhibit E-1 shows the proposed facility complies with §74.1204 with the exception of second adjacent channel WWRM(FM) 235C at Tampa, FL and WLLD(FM) 231C. Using the vertical elevation pattern of the PSI FML-1 antenna (exhibit E-2), the +40 F(50-10) dBu contours within the second adjacent protected contours (exhibits E-3 and E-4) do not reach any population, buildings or roads

(exhibit E-5). Therefore, a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).

The W241DH.CP modified 60 F(50-50) dBu contour overlaps the licensed 60 dBu and is within the primary WLLD(FM) 231C HD3 60 dBu contour (exhibit E-6).

**Antenna System:**

The W241DH.CP modification to 233D will be located on the existing 152.4 meter tower, ASR #1027617, at coordinates:

**27 28 32.0N 082 32 10.0W NAD 83**

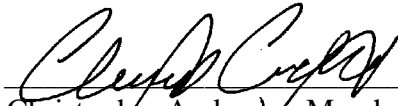
A PSI FML single bay directional antenna (exhibit E-9) will be mounted at a COR AGL of 143.9 meters, 149.3 meters AMSL, 145 meter HAAT (exhibit E-10) and operate at 0.250 kW ERP.

**RF Exposure Calculation:**

The RF contribution was calculated using FMModel (exhibit E-11). The RF is calculated to be  $0.23 \mu\text{W}/\text{cm}^2$  at a distance of 145 meters from the base of the tower, which is below 5% of the  $200 \mu\text{W}/\text{cm}^2$  maximum permissible for general population exposure, allowing exclusion from consideration.

**Conclusion:**

It is concluded that the W241DH.CP modification to 233D complies with all Commission rules and policies.

  
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Christopher Anderson March 29, 2021  
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# E-1 W241DH.CP Mod. 233D Overlap Study

REFERENCE 27 28 32.00 N. 82 32 10.00 W.		CH# 233D - 94.5 MHz, Pwr= 0.25 kW DA, HAAT= 145.0 M, COR= 149.3 M Average Protected F(50-50)= 15.57 km Standard Directional								DISPLAY DATES DATA 03-26-21 SEARCH 03-26-21	
CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
235C Tampa	WWRM	LIC_CN FL	35.3 215.4	46.90 BMLH20110307ABP	27 49 11.10 82 15 38.30	100.000 470	12.3 491	84.8 Cox Radio, LLC	27.9	-38.0*	(1)
233CO Naples	WARO	LIC_CN FL	146.8 327.2	150.30 0000120836	26 20 30.30 81 42 37.30	100.000 311	172.6 311	72.8 Sun Broadcasting, Inc.	-37.8*	26.6	
231C Lakeland	WLLD	LIC_CN FL	62.3 242.5	47.44 BLH19950713KB	27 40 24.10 82 06 34.30	100.000 455	12.2 489	84.2 Beasley Media Group Liens	25.1	-37.0*	(2)
233D Gulfport	W233AV	LIC_CN FL	331.7 151.6	47.07 BLFT20130128ACC	27 50 52.90 82 45 48.30	0.250 185	56.2 188	17.7 Ihm Licenses, LLC	-15.2*	13.2	
233C Daytona Beach	WCFL	LIC_CN FL	32.1 212.6	197.94 BLH20081117ACD	28 58 47.90 81 27 19.20	100.000 451	186.4 460	82.9 Cox Radio, LLC	4.9	99.3	
233D Brandon	W233CV	CP DCN FL	14.5 194.6	57.82 BNPFT20180507ACH	27 58 44.60 82 23 19.80	0.250	38.1 105	10.1 Genesis Communications Of	15.5	30.6	
233D Egypt Lake	W233CV	CP DCN FL	3.6 183.6	59.69 0000138511	28 00 41.00 82 29 52.00	0.001	8.1 73	2.5 Genesis Communications Of	46.8	41.2	

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.  
Reference station has protected zone issue: AM tower

- (1) The +40 116.0 F(50-10) dBu contour within the WWRM(FM) 235C second-adjacent protected contour (exhibit E-2) lowest point = 56.3 meters above the site elevation and does not reach any population, roads or buildings (exhibit E-4).
- (2) The +40 115.6 F(50-10) dBu contour within the WLLD(FM) 231C second-adjacent protected contour (exhibit E-3) lowest point = 51.5 meters above the site elevation and does not reach any population, roads or buildings (exhibit E-4).

# E-X W241DH.CP Mod. 233D Antenna Vertical Elevation Pattern and Tabulation





**Propagation Systems Inc.**  
Elevation Pattern Tabulation  
Antenna: PSIFML-1

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.0	0.001	-60.000	-50.0	0.643	-3.839	-10.0	0.985	-0.134
-89.0	0.017	-35.177	-49.0	0.656	-3.663	-9.0	0.988	-0.109
-88.0	0.035	-29.156	-48.0	0.669	-3.490	-8.0	0.990	-0.086
-87.0	0.052	-25.634	-47.0	0.682	-3.325	-7.0	0.992	-0.066
-86.0	0.070	-23.136	-46.0	0.695	-3.166	-6.0	0.994	-0.049
-85.0	0.087	-21.198	-45.0	0.707	-3.012	-5.0	0.996	-0.034
-84.0	0.104	-19.626	-44.0	0.719	-2.862	-4.0	0.997	-0.022
-83.0	0.122	-18.286	-43.0	0.731	-2.719	-3.0	0.998	-0.013
-82.0	0.139	-17.134	-42.0	0.743	-2.580	-2.0	0.999	-0.007
-81.0	0.156	-16.117	-41.0	0.755	-2.445	-1.0	1.000	-0.003
-80.0	0.174	-15.207	-40.0	0.766	-2.316	0.0	1.000	0.000
-79.0	0.191	-14.390	-39.0	0.777	-2.190	1.0	1.000	-0.003
-78.0	0.208	-13.644	-38.0	0.788	-2.071	2.0	0.999	-0.007
-77.0	0.225	-12.962	-37.0	0.798	-1.955	3.0	0.998	-0.013
-76.0	0.242	-12.330	-36.0	0.809	-1.842	4.0	0.997	-0.022
-75.0	0.259	-11.741	-35.0	0.819	-1.733	5.0	0.996	-0.034
-74.0	0.276	-11.194	-34.0	0.829	-1.630	6.0	0.994	-0.049
-73.0	0.292	-10.684	-33.0	0.839	-1.529	7.0	0.992	-0.066
-72.0	0.309	-10.203	-32.0	0.848	-1.432	8.0	0.990	-0.086
-71.0	0.325	-9.750	-31.0	0.857	-1.339	9.0	0.988	-0.109
-70.0	0.342	-9.320	-30.0	0.866	-1.251	10.0	0.985	-0.134
-69.0	0.358	-8.914	-29.0	0.875	-1.164	11.0	0.982	-0.162
-68.0	0.375	-8.530	-28.0	0.883	-1.082	12.0	0.978	-0.193
-67.0	0.391	-8.165	-27.0	0.891	-1.003	13.0	0.974	-0.227
-66.0	0.407	-7.815	-26.0	0.899	-0.928	14.0	0.970	-0.263
-65.0	0.423	-7.482	-25.0	0.906	-0.855	15.0	0.966	-0.301
-64.0	0.438	-7.164	-24.0	0.913	-0.786	16.0	0.961	-0.344
-63.0	0.454	-6.860	-23.0	0.920	-0.720	17.0	0.956	-0.389
-62.0	0.469	-6.569	-22.0	0.927	-0.657	18.0	0.951	-0.436
-61.0	0.485	-6.291	-21.0	0.933	-0.598	19.0	0.945	-0.487
-60.0	0.500	-6.023	-20.0	0.940	-0.542	20.0	0.940	-0.540
-59.0	0.515	-5.764	-19.0	0.945	-0.487	21.0	0.933	-0.598
-58.0	0.530	-5.517	-18.0	0.951	-0.437	22.0	0.927	-0.657
-57.0	0.545	-5.279	-17.0	0.956	-0.389	23.0	0.920	-0.720
-56.0	0.559	-5.050	-16.0	0.961	-0.344	24.0	0.913	-0.786
-55.0	0.573	-4.830	-15.0	0.966	-0.301	25.0	0.906	-0.855
-54.0	0.588	-4.616	-14.0	0.970	-0.263	26.0	0.899	-0.927
-53.0	0.602	-4.413	-13.0	0.974	-0.227	27.0	0.891	-1.003
-52.0	0.616	-4.214	-12.0	0.978	-0.193	28.0	0.883	-1.082
-51.0	0.629	-4.024	-11.0	0.982	-0.162	29.0	0.875	-1.164
						30.0	0.866	-1.251

file: FML 1-bay elevation tabulation

revision: A

Date: 1/28/08

E-2 W241DH.CP Mod. 233D +40 F(50-10) dBu Tabulation Within WWRM(FM) 235C

W241DH.CP Mod. Brandon, FL, Showing Protection to WWRM, Channel: 235  
Geographic Coordinates: N. 272832.0 W. 823210.0  
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database  
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 233  
Translator or LPFM Antenna Height AG = 143.9 meters  
W241DH.CP Mod. Antenna Model = PSI FML-1

Protected Station's Contour = 76.02821 dBu  
Translator's or LPFM's full Interference contour 116.02821

Review Azimuth = 180 Degrees True  
Horizontal Relative Field at Review Azimuth = 1.000  
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW  
Distance between stations = 46.9 km  
Protected Station= WWRM, 100 kW, 490.5 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) (1)
00.00	1.0	1.0	0.2500	175.2102	175.2102	143.900
01.00	0.999	1.0	0.2496	175.0701	175.0434	140.845
02.00	0.998	1.0	0.2492	174.9299	174.8233	137.795
03.00	0.998	1.0	0.2488	174.7897	174.5502	134.752
04.00	0.997	1.0	0.2484	174.6496	174.2241	131.717
05.00	0.996	1.0	0.2480	174.5094	173.8453	128.691
06.00	0.994	1.0	0.2469	174.1239	173.1701	125.699
07.00	0.992	1.0	0.2458	173.7385	172.4435	122.727
08.00	0.989	1.0	0.2447	173.3530	171.6660	119.774
09.00	0.987	1.0	0.2436	172.9676	170.8380	116.842
10.00	0.985	1.0	0.2426	172.5821	169.9602	113.931
11.00	0.981	1.0	0.2407	171.9163	168.7577	111.097
12.00	0.977	1.0	0.2388	171.2505	167.5083	108.295
13.00	0.974	1.0	0.2370	170.5847	166.2126	105.527
14.00	0.97	1.0	0.2351	169.9189	164.8716	102.793
15.00	0.966	1.0	0.2333	169.2531	163.4859	100.094
16.00	0.961	1.0	0.2308	168.3420	161.8207	097.499
17.00	0.956	1.0	0.2283	167.4309	160.1150	094.948
18.00	0.95	1.0	0.2258	166.5198	158.3698	092.443
19.00	0.945	1.0	0.2234	165.6087	156.5861	089.983
20.00	0.94	1.0	0.2209	164.6976	154.7652	087.570
21.00	0.933	1.0	0.2177	163.5062	152.6462	085.305
22.00	0.926	1.0	0.2146	162.3148	150.4956	083.096
23.00	0.92	1.0	0.2114	161.1233	148.3148	080.944
24.00	0.913	1.0	0.2083	159.9319	146.1051	078.850
25.00	0.906	1.0	0.2052	158.7405	143.8677	076.813
26.00	0.898	1.0	0.2016	157.3388	141.4152	074.927
27.00	0.89	1.0	0.1980	155.9371	138.9410	073.106
28.00	0.882	1.0	0.1945	154.5354	136.4467	071.350
29.00	0.874	1.0	0.1910	153.1338	133.9338	069.659
30.00	0.866	1.0	0.1875	151.7321	131.4038	068.034
31.00	0.857	1.0	0.1834	150.0851	128.6480	066.600
32.00	0.847	1.0	0.1794	148.4381	125.8827	065.240
33.00	0.838	1.0	0.1755	146.7912	123.1094	063.952
34.00	0.828	1.0	0.1716	145.1442	120.3300	062.736
35.00	0.819	1.0	0.1677	143.4972	117.5460	061.593
36.00	0.808	1.0	0.1634	141.6400	114.5891	060.646
37.00	0.798	1.0	0.1591	139.7827	111.6355	059.777
38.00	0.787	1.0	0.1549	137.9255	108.6868	058.985
39.00	0.777	1.0	0.1508	136.0683	105.7449	058.269
40.00	0.766	1.0	0.1467	134.2110	102.8116	057.631
41.00	0.754	1.0	0.1422	132.1436	099.7300	057.206
42.00	0.742	1.0	0.1378	130.0761	096.6654	056.862
43.00	0.731	1.0	0.1334	128.0086	093.6196	056.598
44.00	0.719	1.0	0.1292	125.9411	090.5945	056.414
45.00	0.707	1.0	0.1250	123.8736	087.5919	056.308 (1)
46.00	0.694	1.0	0.1205	121.6310	084.4920	056.406
47.00	0.681	1.0	0.1161	119.3883	081.4226	056.585
48.00	0.669	1.0	0.1118	117.1456	078.3857	056.844
49.00	0.656	1.0	0.1075	114.9029	075.3831	057.182
50.00	0.643	1.0	0.1034	112.6602	072.4166	057.597
51.00	0.629	1.0	0.0989	110.2072	069.3557	058.253
52.00	0.615	1.0	0.0946	107.7543	066.3402	058.988
53.00	0.601	1.0	0.0903	105.3014	063.3719	059.803
54.00	0.587	1.0	0.0861	102.8484	060.4528	060.694
55.00	0.573	1.0	0.0821	100.3955	057.5845	061.661
56.00	0.558	1.0	0.0780	097.8374	054.7100	062.789
57.00	0.544	1.0	0.0739	095.2793	051.8928	063.992
58.00	0.529	1.0	0.0700	092.7213	049.1348	065.268
59.00	0.515	1.0	0.0662	090.1632	046.4375	066.615
60.00	0.5	1.0	0.0625	087.6051	043.8026	068.032
61.00	0.485	1.0	0.0587	084.9069	041.1637	069.639
62.00	0.469	1.0	0.0550	082.2087	038.5946	071.314
63.00	0.454	1.0	0.0515	079.5104	036.0970	073.056
64.00	0.438	1.0	0.0480	076.8122	033.6722	074.862
65.00	0.423	1.0	0.0447	074.1139	031.3219	076.730



E-2 W241DH.CP Mod. 233D +40 F(50-10) dBu Tabulation Within WWRM(FM) 235C. cont.

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)
66.00	0.407	1.0	0.0414	071.2755	028.9904	078.787
67.00	0.391	1.0	0.0381	068.4371	026.7405	080.903
68.00	0.374	1.0	0.0350	065.5987	024.5737	083.078
69.00	0.358	1.0	0.0321	062.7603	022.4913	085.308
70.00	0.342	1.0	0.0292	059.9219	020.4945	087.592
71.00	0.325	1.0	0.0265	057.0134	018.5618	089.993
72.00	0.309	1.0	0.0238	054.1049	016.7193	092.443
73.00	0.292	1.0	0.0213	051.1964	014.9684	094.941
74.00	0.276	1.0	0.0190	048.2879	013.3100	097.483
75.00	0.259	1.0	0.0168	045.3795	011.7451	100.067
76.00	0.242	1.0	0.0146	042.4009	010.2577	102.759
77.00	0.225	1.0	0.0127	039.4223	008.8681	105.488
78.00	0.208	1.0	0.0108	036.4437	007.5771	108.253
79.00	0.191	1.0	0.0091	033.4652	006.3855	111.050
80.00	0.174	1.0	0.0076	030.4866	005.2939	113.877
81.00	0.157	1.0	0.0061	027.4379	004.2922	116.800
82.00	0.139	1.0	0.0048	024.3893	003.3943	119.748
83.00	0.122	1.0	0.0037	021.3406	002.6008	122.718
84.00	0.104	1.0	0.0027	018.2919	001.9120	125.708
85.00	0.087	1.0	0.0019	015.2433	001.3285	128.715
86.00	0.07	1.0	0.0012	012.2297	000.8531	131.700
87.00	0.053	1.0	0.0007	009.2161	000.4823	134.697
88.00	0.035	1.0	0.0003	006.2024	000.2165	137.701
89.00	0.018	1.0	0.0001	003.1888	000.0557	140.712
90.00	0.001	1.0	0.0000	000.1752	000.0000	143.725

(1) The +40 116.0 F(50-10) dBu contour lowest point = 56.3 meters above the site elevation and does not reach any population, buildings or roads (exhibit E-5).

E-4 W241DH.CP Mod. 233D +40 F(50-10) dBu Tabulation Within WLLD(FM) 231C

W241DH.CP Mod. Brandon, FL, Showing Protection to WLLD, Channel: 231  
Geographic Coordinates: N. 272832.0 W. 823210.0  
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database  
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 233  
Translator or LPFM Antenna Height AG = 143.9 meters  
W241DH.CP Mod. Antenna Model = PSI FML-1

Protected Station's Contour = 75.56529 dBu  
Translator's or LPFM's full Interference contour 115.56529

Review Azimuth = 180 Degrees True  
Horizontal Relative Field at Review Azimuth = 1.000  
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW  
Distance between stations = 47.4 km  
Protected Station= WLLD, 100 kW, 489 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) (1)
00.00	1.0	1.0	0.2500	184.8015	184.8015	143.900
01.00	0.999	1.0	0.2496	184.6537	184.6255	140.677
02.00	0.998	1.0	0.2492	184.5058	184.3934	137.461
03.00	0.998	1.0	0.2488	184.3580	184.1053	134.251
04.00	0.997	1.0	0.2484	184.2101	183.7614	131.050
05.00	0.996	1.0	0.2480	184.0623	183.3619	127.858
06.00	0.994	1.0	0.2469	183.6557	182.6496	124.703
07.00	0.992	1.0	0.2458	183.2492	181.8833	121.568
08.00	0.989	1.0	0.2447	182.8426	181.0632	118.453
09.00	0.987	1.0	0.2436	182.4361	180.1900	115.361
10.00	0.985	1.0	0.2426	182.0295	179.2640	112.291
11.00	0.981	1.0	0.2407	181.3272	177.9958	109.301
12.00	0.977	1.0	0.2388	180.6250	176.6779	106.346
13.00	0.974	1.0	0.2370	179.9228	175.3113	103.426
14.00	0.97	1.0	0.2351	179.2205	173.8969	100.543
15.00	0.966	1.0	0.2333	178.5183	172.4354	097.696
16.00	0.961	1.0	0.2308	177.5573	170.6790	094.959
17.00	0.956	1.0	0.2283	176.5963	168.8799	092.268
18.00	0.95	1.0	0.2258	175.6353	167.0391	089.626
19.00	0.945	1.0	0.2234	174.6744	165.1579	087.032
20.00	0.94	1.0	0.2209	173.7134	163.2372	084.487
21.00	0.933	1.0	0.2177	172.4568	161.0023	082.097
22.00	0.926	1.0	0.2146	171.2001	158.7340	079.767
23.00	0.92	1.0	0.2114	169.9435	156.4338	077.498
24.00	0.913	1.0	0.2083	168.6868	154.1031	075.289
25.00	0.906	1.0	0.2052	167.4302	151.7433	073.141
26.00	0.898	1.0	0.2016	165.9518	149.1564	071.152
27.00	0.89	1.0	0.1980	164.4733	146.5468	069.231
28.00	0.882	1.0	0.1945	162.9949	143.9160	067.379
29.00	0.874	1.0	0.1910	161.5165	141.2655	065.595
30.00	0.866	1.0	0.1875	160.0381	138.5971	063.881
31.00	0.857	1.0	0.1834	158.3010	135.6904	062.369
32.00	0.847	1.0	0.1794	156.5638	132.7737	060.934
33.00	0.838	1.0	0.1755	154.8267	129.8486	059.575
34.00	0.828	1.0	0.1716	153.0896	126.9170	058.293
35.00	0.819	1.0	0.1677	151.3524	123.9807	057.088
36.00	0.808	1.0	0.1634	149.3935	120.8619	056.089
37.00	0.798	1.0	0.1591	147.4346	117.7465	055.172
38.00	0.787	1.0	0.1549	145.4757	114.6364	054.336
39.00	0.777	1.0	0.1508	143.5168	111.5335	053.582
40.00	0.766	1.0	0.1467	141.5579	108.4397	052.908
41.00	0.754	1.0	0.1422	139.3773	105.1894	052.460
42.00	0.742	1.0	0.1378	137.1966	101.9570	052.098
43.00	0.731	1.0	0.1334	135.0160	098.7444	051.819
44.00	0.719	1.0	0.1292	132.8353	095.5537	051.625
45.00	0.707	1.0	0.1250	130.6547	092.3868	051.513 (1)
46.00	0.694	1.0	0.1205	128.2892	089.1172	051.616
47.00	0.681	1.0	0.1161	125.9237	085.8798	051.805
48.00	0.669	1.0	0.1118	123.5583	082.6766	052.078
49.00	0.656	1.0	0.1075	121.1928	079.5096	052.435
50.00	0.643	1.0	0.1034	118.8274	076.3808	052.873
51.00	0.629	1.0	0.0989	116.2401	073.1523	053.564
52.00	0.615	1.0	0.0946	113.6529	069.9717	054.340
53.00	0.601	1.0	0.0903	111.0657	066.8410	055.199
54.00	0.587	1.0	0.0861	108.4785	063.7621	056.139
55.00	0.573	1.0	0.0821	105.8913	060.7367	057.159
56.00	0.558	1.0	0.0780	103.1932	057.7049	058.349
57.00	0.544	1.0	0.0739	100.4951	054.7335	059.618
58.00	0.529	1.0	0.0700	097.7970	051.8245	060.963
59.00	0.515	1.0	0.0662	095.0989	048.9795	062.384
60.00	0.5	1.0	0.0625	092.4008	046.2004	063.879
61.00	0.485	1.0	0.0587	089.5548	043.4170	065.574
62.00	0.469	1.0	0.0550	086.7089	040.7073	067.341
63.00	0.454	1.0	0.0515	083.8629	038.0730	069.178
64.00	0.438	1.0	0.0480	081.0170	035.5155	071.082
65.00	0.423	1.0	0.0447	078.1710	033.0365	073.053

E-4 W241DH.CP Mod. 233D +40 F(50-10) dBu Tabulation Within WLLD(FM) 231C, cont.

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)
66.00	0.407	1.0	0.0414	075.1773	030.5773	075.222
67.00	0.391	1.0	0.0381	072.1835	028.2043	077.455
68.00	0.374	1.0	0.0350	069.1897	025.9189	079.748
69.00	0.358	1.0	0.0321	066.1959	023.7225	082.101
70.00	0.342	1.0	0.0292	063.2021	021.6164	084.509
71.00	0.325	1.0	0.0265	060.1344	019.5778	087.042
72.00	0.309	1.0	0.0238	057.0667	017.6346	089.626
73.00	0.292	1.0	0.0213	053.9990	015.7878	092.260
74.00	0.276	1.0	0.0190	050.9313	014.0386	094.942
75.00	0.259	1.0	0.0168	047.8636	012.3880	097.667
76.00	0.242	1.0	0.0146	044.7220	010.8192	100.506
77.00	0.225	1.0	0.0127	041.5803	009.3535	103.385
78.00	0.208	1.0	0.0108	038.4387	007.9919	106.301
79.00	0.191	1.0	0.0091	035.2971	006.7350	109.251
80.00	0.174	1.0	0.0076	032.1555	005.5837	112.233
81.00	0.157	1.0	0.0061	028.9399	004.5272	115.316
82.00	0.139	1.0	0.0048	025.7244	003.5801	118.426
83.00	0.122	1.0	0.0037	022.5088	002.7431	121.559
84.00	0.104	1.0	0.0027	019.2933	002.0167	124.712
85.00	0.087	1.0	0.0019	016.0777	001.4013	127.883
86.00	0.07	1.0	0.0012	012.8991	000.8998	131.032
87.00	0.053	1.0	0.0007	009.7206	000.5087	134.193
88.00	0.035	1.0	0.0003	006.5420	000.2283	137.362
89.00	0.018	1.0	0.0001	003.3634	000.0587	140.537
90.00	0.001	1.0	0.0000	000.1848	000.0000	143.715

(1) The +40 115.6 F(50-10) dBu contour lowest point = 51.5 meters above the site elevation and does not reach any population, buildings or roads (exhibit E-5).

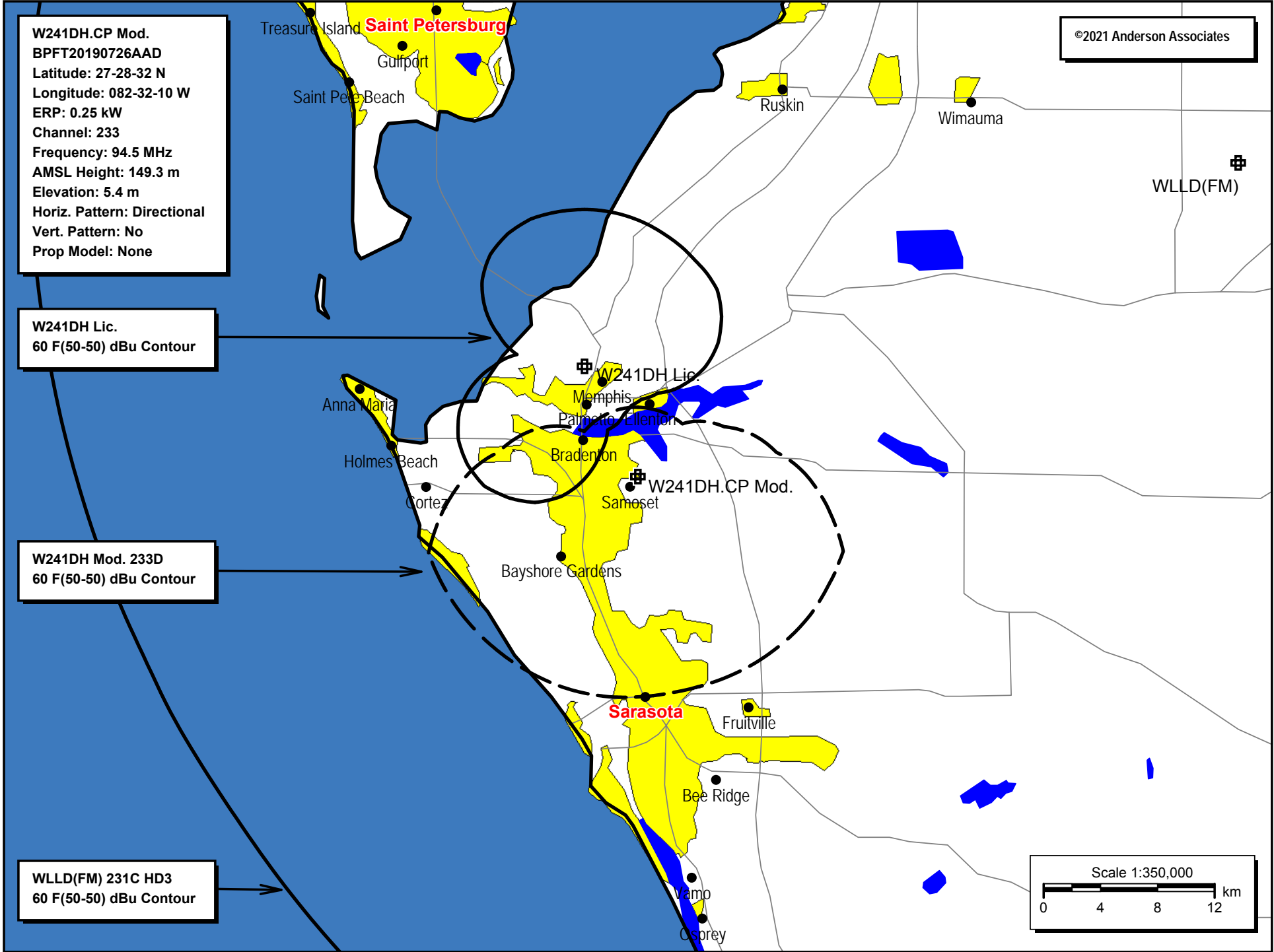


E-5 W241DH.CP Mod. 233D +40 F(50-10) dBu Contours Aerial Photo





E-6 W241DH.CP Mod. 233D 60 F(50-50) dBu Contour Plot



## E-7 W241DH Interference Plot

### W241DH LICENSED INTERFERENCE ANALYSIS

38.95% of population within licensed 60 dBu receives interference from WRXK-FM (RED).

Interference free 60 dBu population = 33,823

The W241DH 60 dBu encompasses only 61.3% of the population and 53.3% of the area of Bradenton, FL.

85% of that population (34,758/40,901) and 82.2% of that area (21.2 sq km/ 25.8 sq km) receive interference.

Therefore, only 9.2 of the Bradenton population and 9.5% Bradenton receives interference free 60 dBu service from the licensed W241DH.

Interference based on FCC model using GLOBE 30 second terrain and 0.25 km cells with the V-Soft Probe 4 software FM Interference tool. 2018 U.S. Census Estimated population database.

W241DH  
BLFT20190718AAD  
Latitude: 27-32-43.10 N  
Longitude: 082-34-26.30 W  
ERP: 0.10 kW  
Channel: 241  
Frequency: 96.1 MHz  
AMSL Height: 115.0 m  
Elevation: 3.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

WRXK-FM (241)

W241DH LIC 60 dBu

W241DH

Memphis

Palmetto

Ellenton

Bradenton

Samoset

Bradenton 2010 Boundary

Scale 1:250,000

0 3 6 9 km

## W241DH-AP INTERFERENCE ANALYSIS

Total unique interference received from WARO (red) and W233AV (orange) is 27.1% of the 60 dBu population.

Interference free 60 dBu population = 240,736

Bradenton Interference free 60 dBu service:

89% of the total area and 94.5% of the population = 63,515.

Only 9.2% of the Bradenton population is subject to interference.

FCC U/D interference method, GLOBE 30 second terrain and 0.25 km cells using V-Soft's Probe 4 FM Interference tool.

### W241DH-AP

Latitude: 27-28-32 N  
Longitude: 082-32-10 W  
ERP: 0.25 kW  
Channel: 233  
Frequency: 94.5 MHz  
AMSL Height: 150.4 m  
Elevation: 5.4 m  
Horiz. Pattern: Directional

W233AV (233)

WARO (233)

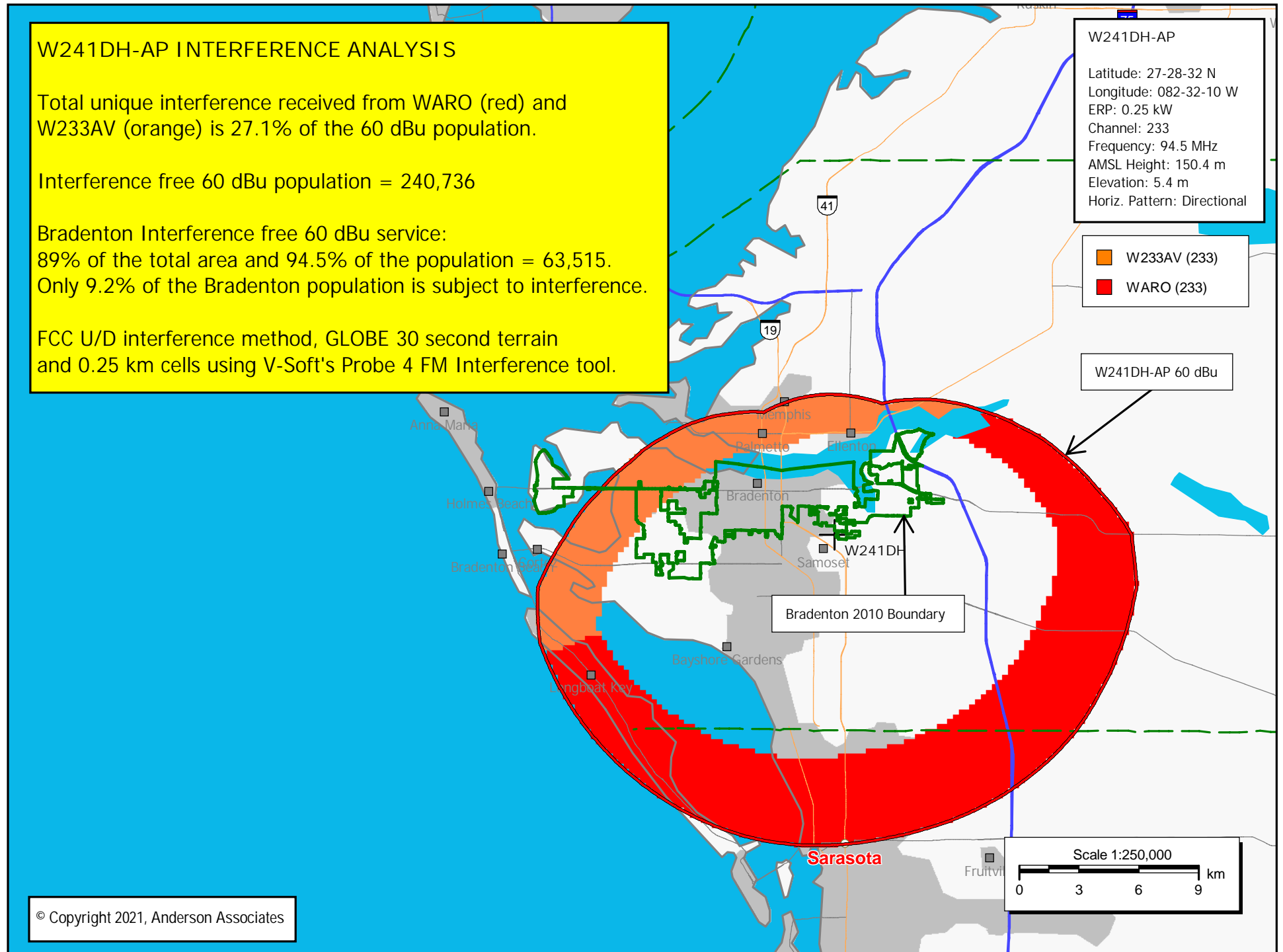
W241DH-AP 60 dBu

Bradenton 2010 Boundary

Sarasota

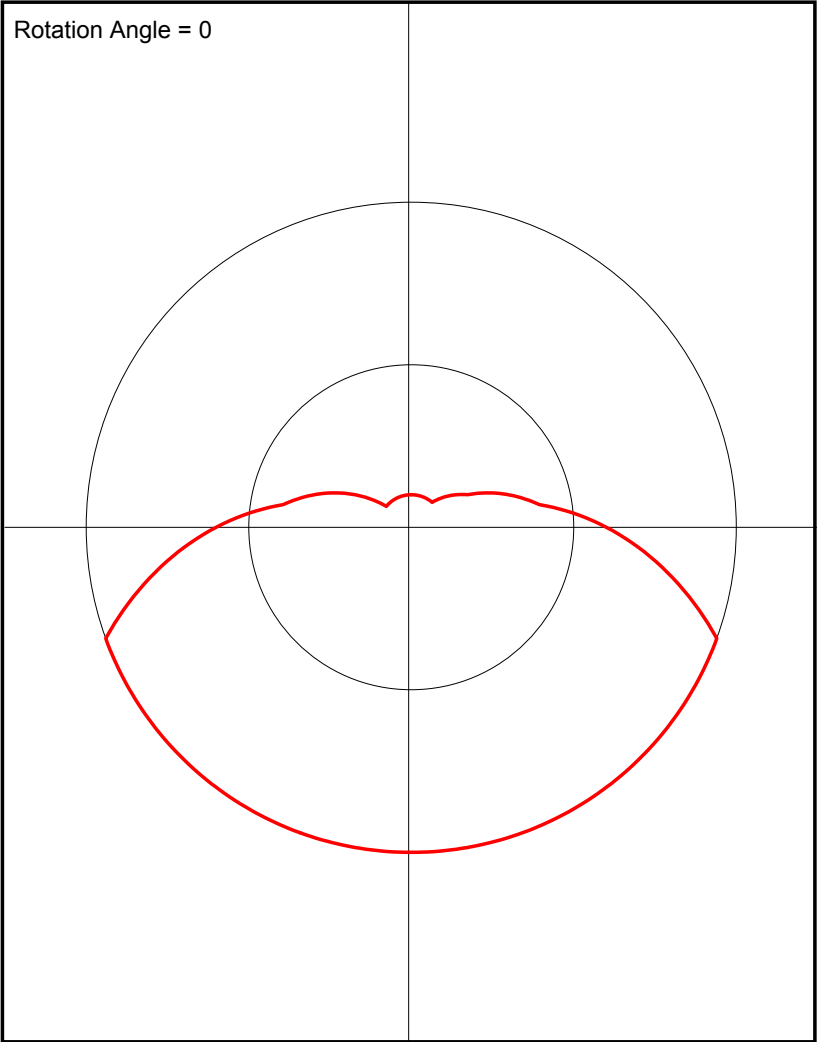
Scale 1:250,000

0 3 6 9 km



E-9 W241DH.CP Mod. 233D Directional Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.1
10.0	0.1
20.0	0.1
30.0	0.1
40.0	0.1
50.0	0.15
60.0	0.2
70.0	0.3
80.0	0.4
90.0	0.6
100.0	0.8
110.0	1.0
120.0	1.0
130.0	1.0
140.0	1.0
150.0	1.0
160.0	1.0
170.0	1.0
180.0	1.0
190.0	1.0
200.0	1.0
210.0	1.0
220.0	1.0
230.0	1.0
240.0	1.0
250.0	1.0
260.0	0.8
270.0	0.6
280.0	0.4
290.0	0.3
300.0	0.2
310.0	0.1
320.0	0.1
330.0	0.1
340.0	0.1
350.0	0.1





## Antenna Height Above Average Terrain Calculations -- Results

### Input Data

Latitude    **27° 28' 32"** North  
Longitude   **82° 32' 10"** West   (NAD 83)

Height of antenna radiation center above mean sea level: **149.3** meters AMSL

Number of Evenly Spaced Radials = **12**      0° is referenced to True North

### Results

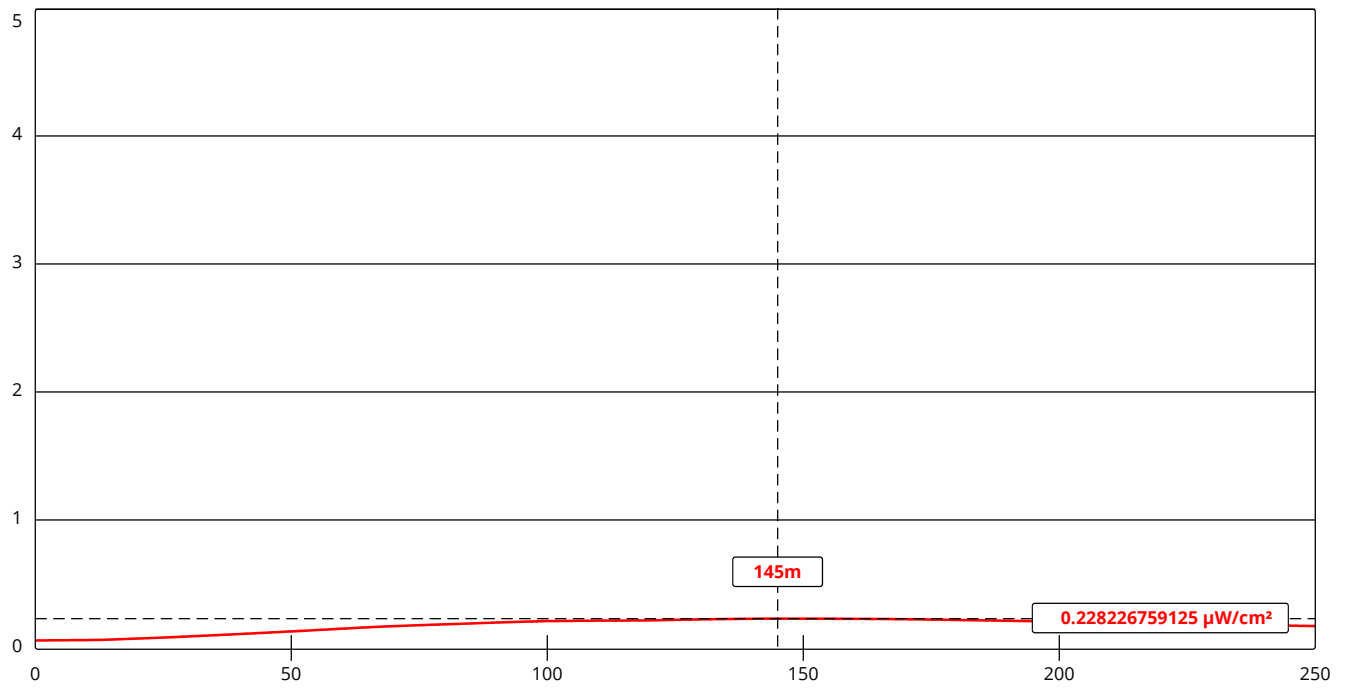
Calculated HAAT = **145 meters**

Antenna Height Above Average Terrain calculated  
using 1 km [GLOBE terrain data](#)

### Individual "Radial HAAT" Values, in meters

0°	145.3 m
30°	144.1 m
60°	145.6 m
90°	141.9 m
120°	141.9 m
150°	142.6 m
180°	142.9 m
210°	146.5 m
240°	146.1 m
270°	145.9 m
300°	148.5 m
330°	147.8 m

FM Model



Channel Selection	Channel 233 (94.5 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	143.9	Distance (m)	250
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500		

## E-12 W241DH.CP Mod. Tower ASR

### ASR Registration 1027617

#### Registration Detail

Reg Number	1027617	Status	Constructed
File Number	A0924824	Constructed	01/01/1973
EMI	No	Dismantled	
NEPA	No		

#### Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	27-28-32.0 N 082-32-10.0 W	Address	2148 26TH AVE E
City, State	BRADENTON , FL		
Zip	34208	County	MANATEE

Center of AM Array	Position of Tower in Array
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#### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
5.4	152.4
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
157.8	151.4

#### Painting and Lighting Specifications

FCC Paragraphs 1, 3, 4, 13, 21

#### FAA Notification

FAA Study	72-SO-1508-OE	FAA Issue Date	10/31/1972
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#### Owner & Contact Information

FRN	0024031619	Owner Entity Type	Limited Liability Company
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Assignor FRN

Assignor ID

Owner

Cell Site Capital LLC  
Attention To: Christopher Bland  
1165 Forsyth Lane  
Galena , OH 43021

P: (614)314-0303  
F:  
E: chris@cellsitecapital.com

Contact

P:  
F:  
E:

#### Last Action Status

Status	Constructed	Received	10/23/2014
Purpose	Change Owner	Entered	10/23/2014
Mode	Interactive		