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Engineering Statement
CP Modification for W35DW-D
Channel 35 at Greenville, NC
March 2021

I. Background

This Engineering Statement has been prepared on behalf of DTV America Corporation ("DTVA"), the permittee of low power digital station W35DW-D at Greenville, NC. This material has been prepared in connection with an application for minor modification of construction permit.

It is noted that the proposed facility will be located on a tower which just meets the geographic spacing requirement of 75 miles/121 kilometers to the Raleigh market. The Commission's list of coordinates for the Top 100 markets is presumably in NAD27 datum, since that is what was used by the Commission for TV licensing at the time this facility was first applied for. When the proposed site coordinates are converted to NAD27, the distance to the Raleigh coordinates is found to be 75.1 miles/120.8 kilometers.

II. Interference Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any authorized or pending proposed facilities. This study was performed using the Commission's TVStudy software.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on the foregoing interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Study created: 2021.03.09 15:06:52

Study build station data: LMS TV 2021-02-27

```
    Proposal: W35DW-D D35 LD APP GREENVILLE, NC
 File number: W35DW-306402
 Facility ID: 184554
Station data: User record
   Record ID: 1163
     Country: U.S.
```

Build options:
Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WPEM-LD	D34	LD	LIC	LUMBERTON, NC	BLANK0000121677	174.5 km
No	WPEM-LD	D34	LD	CP	LUMBERTON, NC	BLANK0000124896	174.5
No	WACN-LP	D34z	LD	CP	RALEIGH, NC	BLANK0000050869	143.4
No	WACN-LP	N34z	TX	LIC	RALEIGH, NC	BLTTL20060609AAA	107.8
No	WITN-TV	D34	DT	LIC	WASHINGTON, NC	BLANK0000091433	9.1
No	WIDO-LD	D34	LD	CP	WILMINGTON, NC	BLANK0000071898	145.5
No	WJHJ-LP	D34+	LD	CP	NEWPORT NEWS, ETC., VA	BLANK0000054621	181.8
No	W35DF-D	D35	LD	CP	SALISBURY, MD	BNPDTL20100204AAW	364.6
No	WHOB-LD	D35	LD	CP	BUXTON, NC	BLANK0000029488	161.1
Yes	WFMY-TV	D35	DT	LIC	GREENSBORO, NC	BLANK0000113927	228.1
No	WTMV-LD	D35	LD	LIC	OGDEN, NC	BLANK0000058471	133.1
No	WMYA-TV	D35	DT	LIC	ANDERSON, SC	BLANK0000120378	454.7
No	WVIR-CD	D35	DC	LIC	CHARLOTTESVILLE, VA	BLANK0000091348	299.1
No	WPXW-TV	D35	DT	LIC	MANASSAS, VA	BLANK0000098055	391.8
No	WJDW-LD	D35	LD	LIC	TAZEWELL, VA	BLDTL20110525ADU	420.1
No	W24CP-D	D36	LD	CP	DURHAM, NC	BLANK0000052041	168.6
No	WEPX-TV	D36	DT	LIC	GREENVILLE, NC	BLANK0000090758	31.8
No	WBFT-CD	D36	DC	LIC	SANFORD, NC	BLANK0000124673	161.0
No	WFXB	D36	DT	LIC	MYRTLE BEACH, SC	BLANK0000081825	216.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

```
    Channel: D35
       Mask: Full Service
   Latitude:  35 26 42.60 N (NAD83)
  Longitude:  77 22  7.10 W
Height AMSL: 202.4 m
       HAAT: 0.0 m
   Peak ERP: 15.0 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
```

50.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	185.0 m	49.2 km
45.0	15.0	187.4	49.3
90.0	15.0	190.4	49.5
135.0	15.0	193.9	49.7
180.0	15.0	193.7	49.7
225.0	15.0	187.6	49.3
270.0	15.0	187.6	49.3
315.0	15.0	182.6	49.1

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 189 m

Distance to Canadian border: 807.0 km

Distance to Mexican border: 2138.9 km

Conditions at FCC monitoring station: Laurel MD

```
Bearing: 6.5 degrees   Distance: 416.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 290.4 degrees   Distance: 2490.8 km


Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%


---- Below is IX received by proposal W35DW-306402 ----

Proposal receives 21.75% interference from scenario 1
No IX check failures found.
```

III. RF Exposure Study

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground using the manufacturer's vertical plane pattern for the circularly-polarized ERI ALP8L3 antenna proposed in this application. The highest calculated power density from the proposed antenna alone occurs at a point 72 meters from the base of the antenna support structure. At this point the power density from the proposed facility is calculated to be 1.6 μW/cm², which is 0.4% of 397.3 μW/cm² (the FCC maximum for uncontrolled environments at the Channel 35 frequency).

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 500 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 applicant's 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.

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. 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 exposure in excess of FCC guidelines.

March 9, 2021
Erik C. Swanson, P.E.

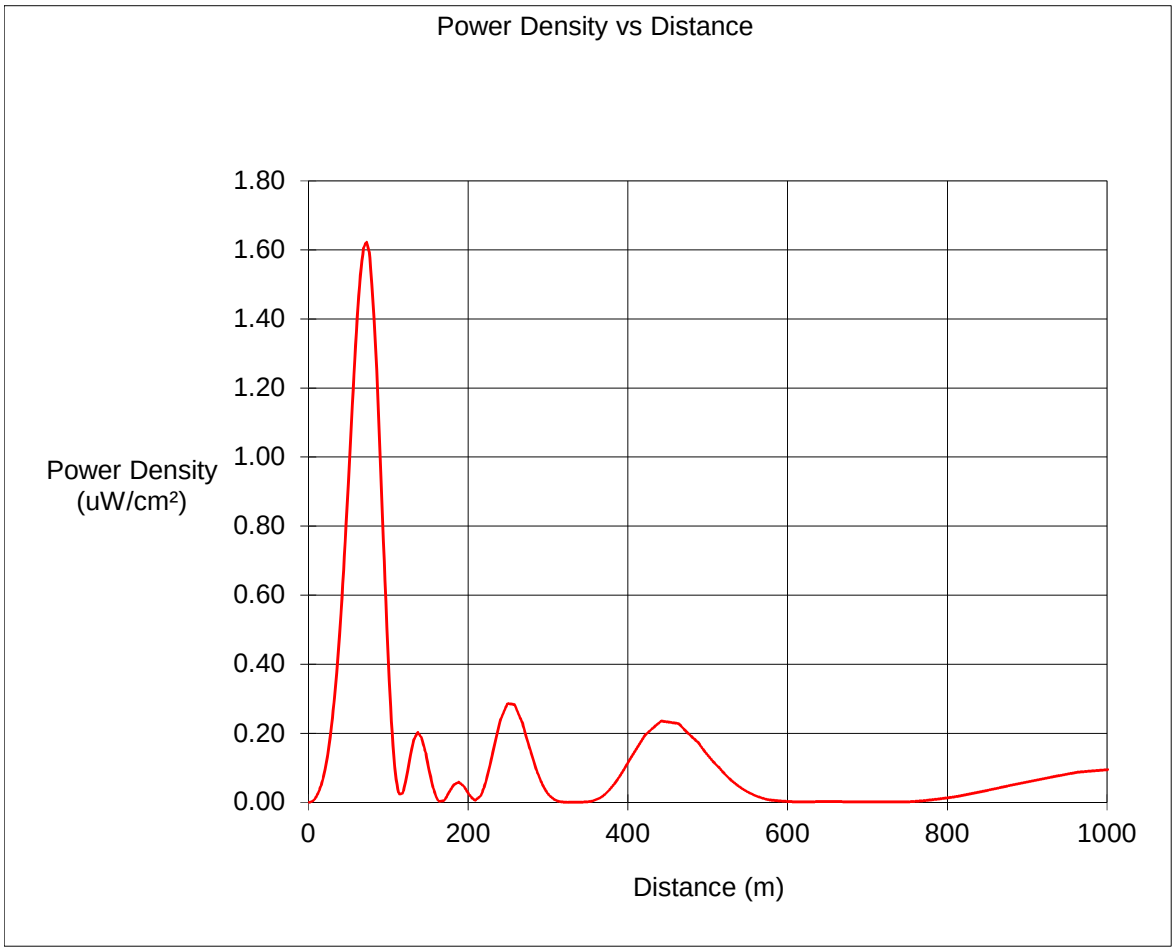
W35DW-D Greenville

Ground-Level Power Density Calculations

Using Manufacturer's Vertical Plane Pattern

Antenna	ERI ALP8L3			
ERP	15,000	Watts H (avg)		
	15,000	Watts V (avg)		
Antenna AGL	189	meters less 2m is	187	meters above the reference plane
MBT	0	degrees		

Calculated Maximum is	1.6	uW/cm² at	72	meters from the tower



W35DW-D Greenville
Ground-Level Power Density Calculations
Using Manufacturer's Vertical Plane Pattern

Distance From Tower (meters)	Hypotenuse (meters)	Depression Angle (with MBT adjust) (degrees)	Interpolated Rel Field	Adjusted ERP (watts)	Power Density uW/cm²
0	187.00	90.00	0.000	0.0	0.00
1	187.00	89.69	0.003	0.2	0.00
2	187.01	89.39	0.006	0.9	0.00
3	187.02	89.08	0.008	2.1	0.00
4	187.04	88.77	0.011	3.5	0.00
5	187.07	88.47	0.013	5.3	0.01
6	187.10	88.16	0.016	7.4	0.01
7	187.13	87.86	0.018	10.2	0.01
8	187.17	87.55	0.021	13.9	0.01
9	187.22	87.24	0.025	18.1	0.02
10	187.27	86.94	0.028	22.8	0.02
11	187.32	86.63	0.030	27.5	0.03
12	187.38	86.33	0.033	32.8	0.03
13	187.45	86.02	0.036	38.4	0.04
14	187.52	85.72	0.039	45.2	0.04
15	187.60	85.41	0.042	52.6	0.05
16	187.68	85.11	0.045	60.5	0.06
17	187.77	84.81	0.048	69.5	0.07
18	187.86	84.50	0.051	79.5	0.08
19	187.96	84.20	0.055	90.1	0.09
20	188.07	83.90	0.058	101.8	0.10
21	188.18	83.59	0.062	114.9	0.11
22	188.29	83.29	0.066	128.8	0.12
23	188.41	82.99	0.069	143.5	0.14
24	188.53	82.69	0.073	160.2	0.15
25	188.66	82.39	0.077	177.8	0.17
26	188.80	82.08	0.081	196.4	0.18
27	188.94	81.78	0.085	216.9	0.20
28	189.08	81.48	0.089	238.8	0.22
29	189.24	81.18	0.093	261.8	0.24
30	189.39	80.89	0.098	285.8	0.27
31	189.55	80.59	0.102	310.8	0.29
32	189.72	80.29	0.106	336.7	0.31
33	189.89	79.99	0.110	363.8	0.34
34	190.07	79.70	0.115	393.8	0.36
35	190.25	79.40	0.119	425.0	0.39
36	190.43	79.10	0.123	457.2	0.42
37	190.63	78.81	0.128	492.1	0.45
38	190.82	78.51	0.133	529.0	0.49
39	191.02	78.22	0.137	567.1	0.52
40	191.23	77.93	0.142	607.1	0.55
41	191.44	77.63	0.147	650.3	0.59
42	191.66	77.34	0.152	694.9	0.63
43	191.88	77.05	0.157	740.9	0.67
44	192.11	76.76	0.162	788.2	0.71

45	192.34	76.47	0.167	836.9	0.76
46	192.57	76.18	0.172	886.9	0.80
47	192.82	75.89	0.177	937.0	0.84
48	193.06	75.60	0.181	986.5	0.88
49	193.31	75.32	0.186	1037.1	0.93
50	193.57	75.03	0.191	1088.9	0.97
51	193.83	74.74	0.195	1141.7	1.02
52	194.10	74.46	0.200	1195.7	1.06
53	194.37	74.18	0.204	1250.7	1.11
54	194.64	73.89	0.209	1305.5	1.15
55	194.92	73.61	0.213	1359.1	1.20
56	195.21	73.33	0.217	1413.5	1.24
57	195.49	73.05	0.221	1468.9	1.28
58	195.79	72.77	0.225	1518.9	1.32
59	196.09	72.49	0.229	1568.3	1.36
60	196.39	72.21	0.232	1618.3	1.40
61	196.70	71.93	0.236	1666.1	1.44
62	197.01	71.66	0.238	1705.5	1.47
63	197.33	71.38	0.241	1745.1	1.50
64	197.65	71.11	0.244	1785.1	1.53
65	197.97	70.83	0.246	1818.0	1.55
66	198.31	70.56	0.248	1846.3	1.57
67	198.64	70.29	0.250	1874.8	1.59
68	198.98	70.02	0.252	1903.3	1.61
69	199.32	69.75	0.253	1916.6	1.61
70	199.67	69.48	0.254	1928.9	1.62
71	200.02	69.21	0.254	1941.2	1.62
72	200.38	68.94	0.255	1949.9	1.62
73	200.74	68.68	0.255	1945.8	1.61
74	201.11	68.41	0.254	1941.7	1.60
75	201.48	68.15	0.254	1937.7	1.59
76	201.85	67.88	0.253	1922.9	1.58
77	202.23	67.62	0.251	1895.1	1.55
78	202.62	67.36	0.250	1867.6	1.52
79	203.00	67.10	0.248	1840.4	1.49
80	203.39	66.84	0.245	1801.6	1.46
81	203.79	66.58	0.242	1756.3	1.41
82	204.19	66.32	0.239	1711.8	1.37
83	204.59	66.07	0.236	1667.9	1.33
84	205.00	65.81	0.232	1609.0	1.28
85	205.41	65.56	0.227	1546.0	1.22
86	205.83	65.30	0.222	1484.5	1.17
87	206.25	65.05	0.218	1424.5	1.12
88	206.67	64.80	0.212	1353.1	1.06
89	207.10	64.55	0.207	1280.7	1.00
90	207.53	64.30	0.201	1210.6	0.94
91	207.97	64.05	0.195	1142.8	0.88
92	208.41	63.80	0.189	1066.0	0.82
93	208.85	63.56	0.182	989.5	0.76
94	209.30	63.31	0.175	916.1	0.70
95	209.75	63.07	0.168	845.9	0.64
96	210.20	62.83	0.160	770.3	0.58