

TECHNICAL SUMMARY
APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT
FCC FILE NO. BNPFT-20190724AAH
FM TRANSLATOR STATION W283DO
TORRINGTON, CONNECTICUT
CHANNEL 283 (104.5 MHZ) 0.25 KW (DA)

1. Application Purpose: It is proposed to change the authorized W283DO directional antenna (DA) system model from a Dielectric model DCRT-3HW to a Dielectric model DCRH3B50RD. No other changes are proposed, including no change in channel, transmitter site, antenna height, DA pattern envelope or ERP.

2. Fill-in Translator Coverage/Minor Change Compliance: W283DO is a fill-in FM translator for AM station WSNG on 610 kHz at Torrington, CT (Facility ID 13716). Figure 1 is a map demonstrating that the proposed 60 dBu contour is entirely within the greater of the WSNG daytime 2 mV/m contour and a 25 mile circle from the WSNG transmitter site as required for fill-in compliance. Furthermore, as there will be no change in the authorized transmitter site, the proposal is considered to be a minor change in facilities.

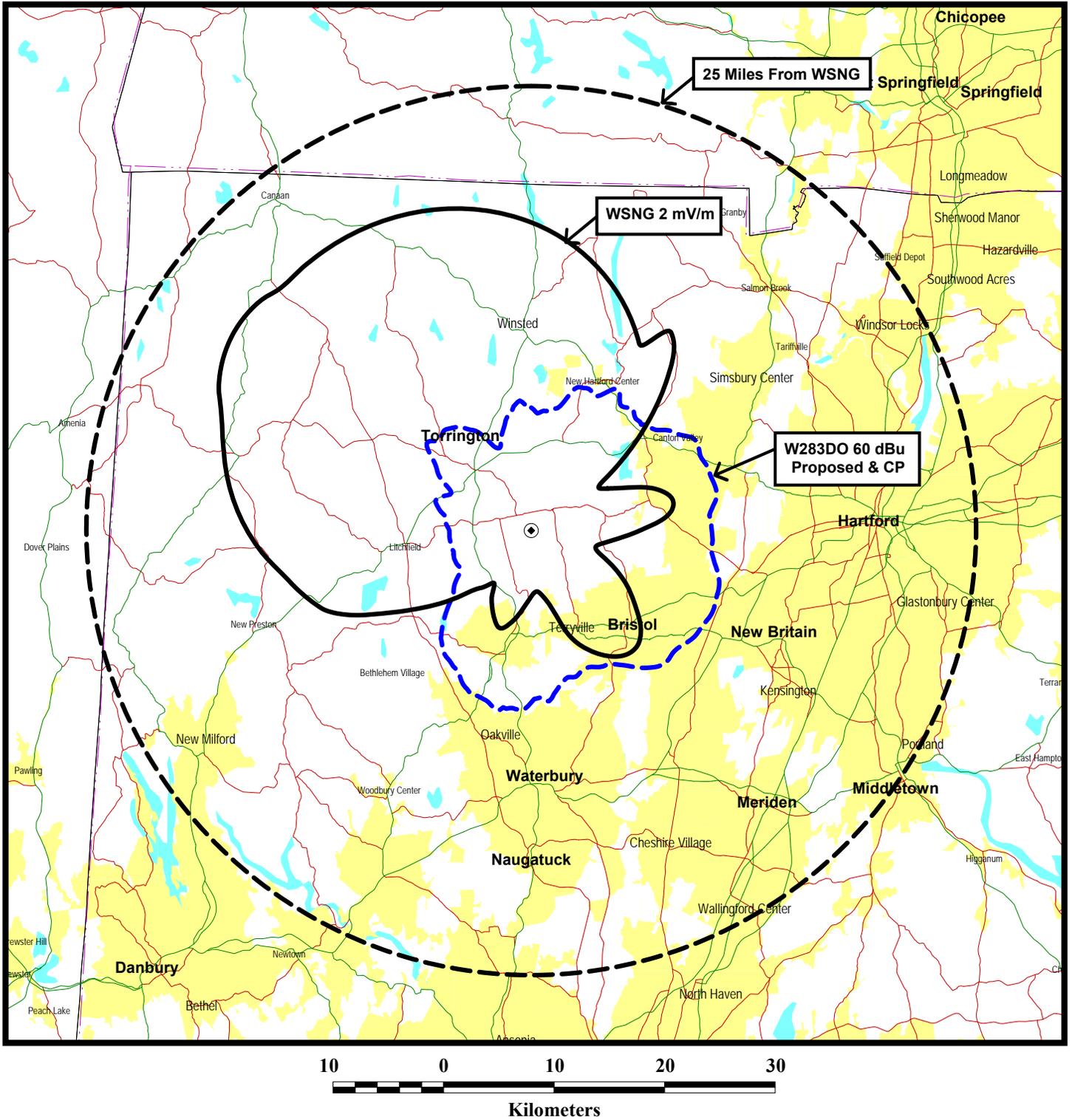
3. Section 74.1204 Compliance: Figure 2 is an allocation study for channel 283 based on Section 74.1204. Figure 2 lists the results of a numerical analysis of the potential for contour overlap to all nearby co-channel, first, second and third-adjacent channel facilities as well as IF related stations. For the purposes of the numerical study, the maximum HAAT (200 meters) and ERP (0.25 Watts) values were used in determining the maximum distance in any direction to the predicted coverage and interfering contours. Figure 3 demonstrates that the proposal complies with the contour overlap provisions of Section 73.1204 of the FCC rules, except with respect to the licensed operation of WMRQ-FM discussed below.

Specifically, the proposal does not comply with the contour overlap provisions of Section 73.1204 of the FCC rules with respect to second lower adjacent channel station WMRQ-FM (Ch. 281B/104.1 MHz, Waterbury, CT). However, based on the undesired-to-desired (U/D) signal strength interference ratio methodology, which is permitted by the FCC (per *Living Way Ministries, Inc.*, 17 FCC Rcd 17054, 17056, 2002), it has been determined that no actual interference would occur due to lack of population under Section 74.1204(d). Specifically, the calculated WMRQ-FM f(50,50) field strength at the proposed site is 70.3 dBu. Using the 40 dB U/D ratio contained in Section 74.1204 of the FCC rules, the proposed f(50,10) interfering signal is 110.3 dBu. The proposed antenna will be located 96 meters (315 feet) above ground level on the tower. Figure 4 is a graph of the proposed 110.3 dBu signal using the vertical plane relative field pattern for the proposed Dielectric model DCRH3B50RD antenna (see Figure 5) and assuming free-space propagation. As shown on Figure 4, the interfering 110.3 dBu signal will not reach ground level and, therefore, will contain no population.

4. RFR Compliance: The proposed facilities were evaluated in terms of potential radiofrequency radiation (RFR) exposure at ground level to workers and the general public. The radiation center for the proposed antenna will be located 96 meters above ground level. The total ERP is 0.5 kW (horizontal & vertical polarization). A worst-case vertical plane relative field value of 1.0 is presumed for the antenna's downward radiation (for angles below 60 degrees downward). The calculated power density at a point 2 meters above ground level is 1.89 uW/cm^2 which is only 0.945% of the FCC's recommended limit of 200 uW/cm^2 for FM frequencies for an uncontrolled environment. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the RF emission rules.

Access to the transmitting site is restricted and appropriately marked with RFR warning signs. Furthermore, as this is a multi-user site, a formal RFR protection protocol is in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measure will be taken to assure worker safety with respect to RFR exposure. Such measures include limiting the exposure time, wearing protective clothing, reducing power to an acceptable level or termination of transmitter output power all together until workers leave the restricted area.

Figure 1



AM FILL-IN COMPLIANCE MAP

FM TRANSLATOR STATION W283DO
TORRINGTON, CONNECTICUT
CH 283 (104.5 MHz) 0.25 KW (DA)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

FM Contour Study LMS

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida



Channel: 283 **Coordinates:** 041-45-31 073-03-07 (NAD 83) **ERP:** 0.25 kW **Max. HAAT:** 200 m **Considering Only Interference Caused**

Comment: Proposed W283DO

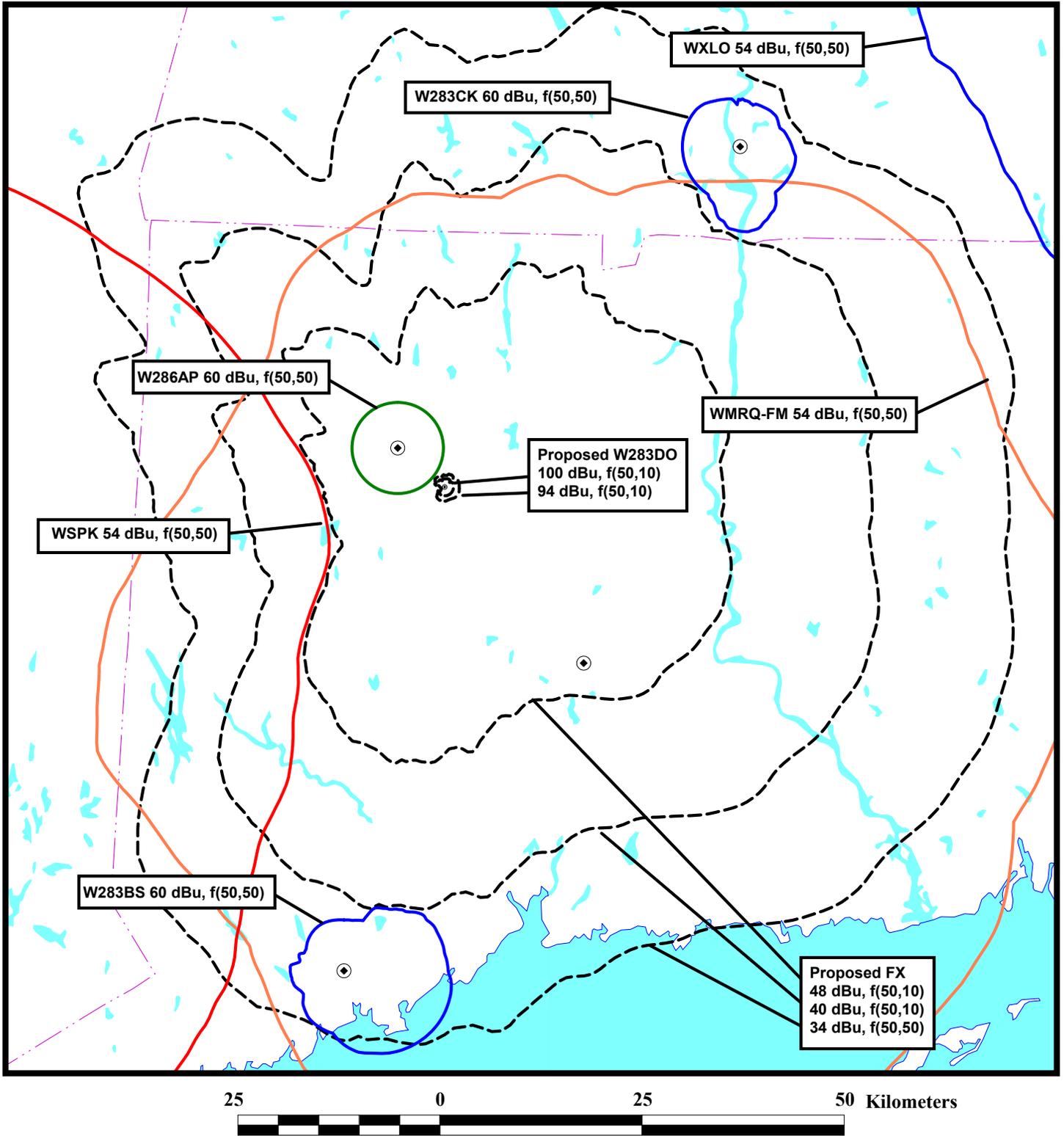
Callsign	Chan.	Service	Status	Freq.	City	State	Co.	Rec.	Latitude	Dist. (km)	Sep. (km)	Spac. (km)
Facility ID	ARN			Class	DA	73.215	ERP (kW)	HAAT (m)	Longitude	Bear. (deg)	Comment	
WMRQ-FM	281	FM	L2C	104.1	WATERBURY	CT	US	C	41-33-42.4	27.88	69.65	-41.77
74279	BLANK	BLH-20120622A	B	DRI			14	255	072-50-39.4	141.69	SHORT	/1
WMRQ-FM 54.0 dBu desired distance: 67.7 km Proposed 94.0 dBu undesired distance: 1.9 km												
W283DO	283	FX	CP	104.5	TORRINGTON	CT	US	C	41-45-31.4	0.02	76.49	-76.47
202639	BLANK	BNPFT-2019072	D	DRI			0.25		073-03-07.4	323.28	SHORT	/2
W283DO 60.0 dBu desired distance: 18.5 km Proposed 40.0 dBu undesired distance: 58.0 km												
WXLO	283	FM	MOD	104.5	FITCHBURG	MA	US	C	42-30-27.3	131.1	151.03	-19.93
43557	BLANK	BMLH-19910920I	B	NDI			37	172	071-49-35.2	50.1	SHORT	/3
WXLO 54.0 dBu desired distance: 75.6 km Proposed 34.0 dBu undesired distance: 75.4 km												
W283CK	283	FX	L2C	104.5	WEST SPRINGFIELD	MA	US	C	42-08-11.3	55.65	68.76	-13.11
139393	BLANK	BLFT-20160411A	D	DRI			0.25		072-36-40.3	40.8	SHORT	/3
W283CK 60.0 dBu desired distance: 10.8 km Proposed 40.0 dBu undesired distance: 58.0 km												
W283BS	283	FX	L2C	104.5	BRIDGEPORT	CT	US	C	41-13-10.3	61.16	73.26	-12.1
15398	BLANK	BLFT-20121220A	D	DRI			0.25	81.4	073-12-04.4	191.77	SHORT	/3
W283BS 60.0 dBu desired distance: 15.3 km Proposed 40.0 dBu undesired distance: 58.0 km												
WSPK	284	FM	L2C	104.7	POUGHKEEPSIE	NY	US	C	41-29-19.3	80.42	108.87	-28.45
19630	BLANK	BLH-19840802Cf	B	OT			7.4	381	073-56-50.4	248.34	SHORT	/3
WSPK 54.0 dBu desired distance: 70.3 km Proposed 48.0 dBu undesired distance: 38.6 km												
W286AP	286	FX	L2C	105.1	TORRINGTON	CT	US	C	41-48-04.3	7.45	6.73	0.72
158594	BLANK	BLFT-20160324A	D	NDI			0.1		073-07-16.3	309.53	CLOSE	
W286AP 60.0 dBu desired distance: 5.6 km Proposed 100.0 dBu undesired distance: 1.1 km												

/1 There will be overlap normally prohibited by Section 74.1204. However, based on the U/D signal strength interference ratio method which is permitted by the FCC (per Living Way), no actual interference would occur due to lack of population under Section 74.1204(d). See Exhibit 17 and Figure 4.

/2 Current authorization being modified by the instant application.

/3 Proposal complies with the contour overlap provisions of Section 74.1204(a). See Exhibit 17 and Figure 3.

Figure 3

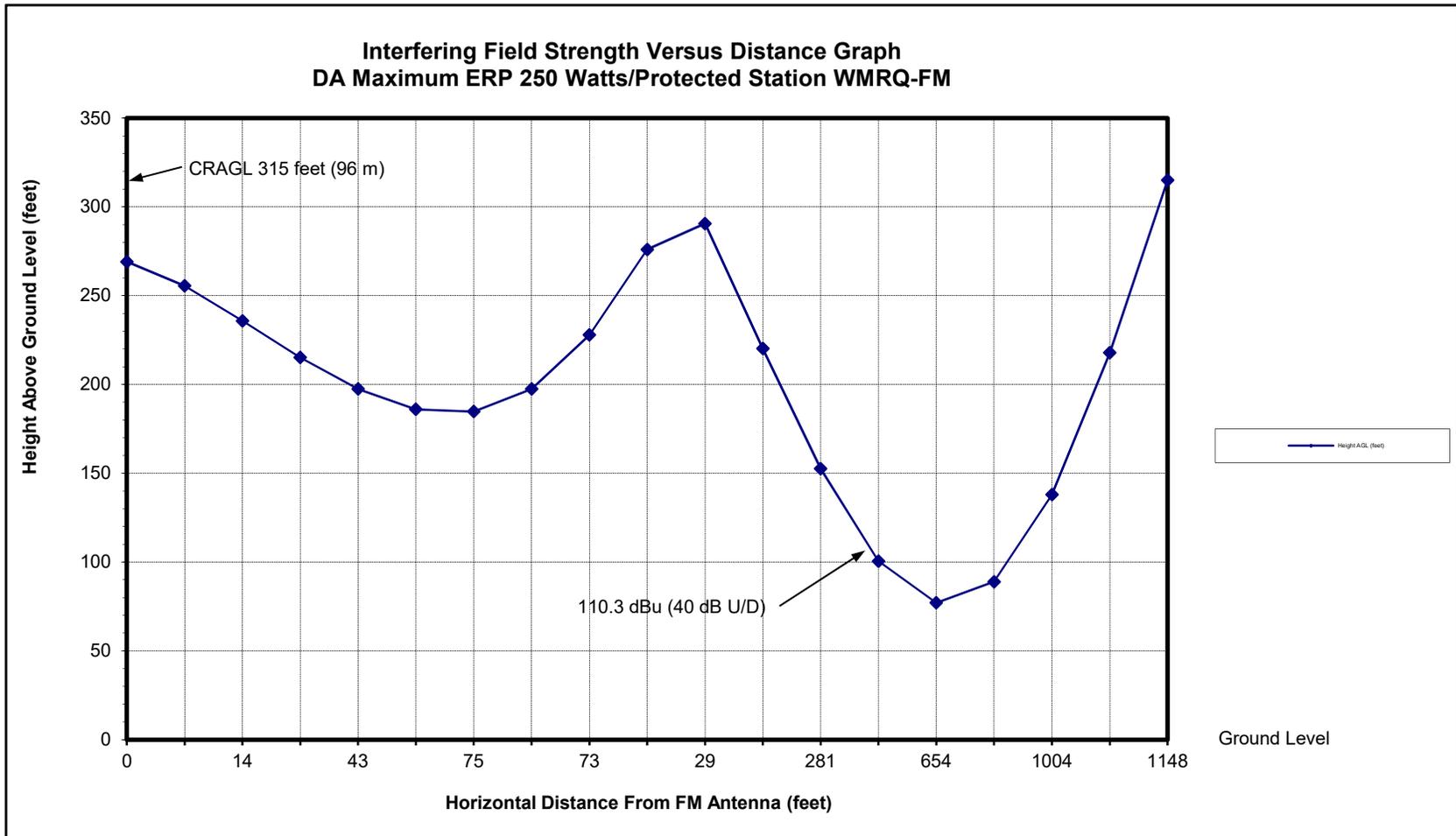


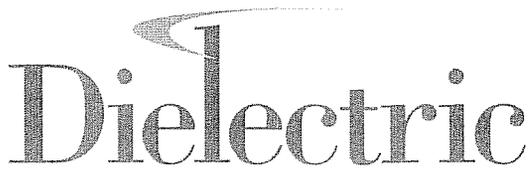
COMPLIANCE WITH SECTION 74.1204

NEW FM TRANSLATOR STATION
TORRINGTON, CONNECTICUT
CH 283 (104.5 MHZ) 0.25 KW (DA)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 4





Date **22 Jul 2019**
 Call Letters **NEW** Channel **283**
 Location **Torrington, CT**
 Customer **Red Wolf Broadcasting Corp.**
 Antenna Type **DCR-L3E**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **FE03L5000019000-90**

Angle	Field										
-10.0	0.888	2.4	0.993	10.6	0.874	30.5	0.268	51.0	0.106	71.5	0.103
-9.5	0.898	2.6	0.992	10.8	0.870	31.0	0.254	51.5	0.109	72.0	0.101
-9.0	0.908	2.8	0.991	11.0	0.865	31.5	0.239	52.0	0.112	72.5	0.099
-8.5	0.918	3.0	0.989	11.5	0.853	32.0	0.225	52.5	0.115	73.0	0.097
-8.0	0.927	3.2	0.988	12.0	0.841	32.5	0.211	53.0	0.117	73.5	0.095
-7.5	0.935	3.4	0.986	12.5	0.829	33.0	0.197	53.5	0.120	74.0	0.094
-7.0	0.944	3.6	0.985	13.0	0.816	33.5	0.183	54.0	0.122	74.5	0.092
-6.5	0.951	3.8	0.983	13.5	0.803	34.0	0.170	54.5	0.123	75.0	0.090
-6.0	0.958	4.0	0.981	14.0	0.789	34.5	0.157	55.0	0.125	75.5	0.088
-5.5	0.965	4.2	0.979	14.5	0.775	35.0	0.144	55.5	0.127	76.0	0.086
-5.0	0.971	4.4	0.977	15.0	0.761	35.5	0.132	56.0	0.128	76.5	0.084
-4.5	0.976	4.6	0.975	15.5	0.746	36.0	0.120	56.5	0.129	77.0	0.082
-4.0	0.981	4.8	0.973	16.0	0.732	36.5	0.108	57.0	0.130	77.5	0.080
-3.5	0.986	5.0	0.971	16.5	0.717	37.0	0.096	57.5	0.130	78.0	0.078
-3.0	0.989	5.2	0.969	17.0	0.701	37.5	0.085	58.0	0.131	78.5	0.076
-2.8	0.991	5.4	0.966	17.5	0.686	38.0	0.074	58.5	0.131	79.0	0.074
-2.6	0.992	5.6	0.964	18.0	0.670	38.5	0.063	59.0	0.131	79.5	0.072
-2.4	0.993	5.8	0.961	18.5	0.655	39.0	0.053	59.5	0.131	80.0	0.070
-2.2	0.994	6.0	0.958	19.0	0.639	39.5	0.043	60.0	0.131	80.5	0.068
-2.0	0.995	6.2	0.956	19.5	0.622	40.0	0.033	60.5	0.131	81.0	0.066
-1.8	0.996	6.4	0.953	20.0	0.606	40.5	0.023	61.0	0.131	81.5	0.064
-1.6	0.997	6.6	0.950	20.5	0.590	41.0	0.014	61.5	0.130	82.0	0.063
-1.4	0.998	6.8	0.947	21.0	0.574	41.5	0.005	62.0	0.130	82.5	0.061
-1.2	0.998	7.0	0.944	21.5	0.557	42.0	0.003	62.5	0.129	83.0	0.059
-1.0	0.999	7.2	0.940	22.0	0.541	42.5	0.011	63.0	0.128	83.5	0.057
-0.8	0.999	7.4	0.937	22.5	0.524	43.0	0.019	63.5	0.127	84.0	0.056
-0.6	1.000	7.6	0.934	23.0	0.508	43.5	0.027	64.0	0.126	84.5	0.054
-0.4	1.000	7.8	0.930	23.5	0.491	44.0	0.034	64.5	0.125	85.0	0.052
-0.2	1.000	8.0	0.927	24.0	0.475	44.5	0.041	65.0	0.124	85.5	0.051
0.0	1.000	8.2	0.923	24.5	0.458	45.0	0.048	65.5	0.123	86.0	0.049
0.2	1.000	8.4	0.920	25.0	0.442	45.5	0.054	66.0	0.121	86.5	0.048
0.4	1.000	8.6	0.916	25.5	0.425	46.0	0.060	66.5	0.120	87.0	0.046
0.6	1.000	8.8	0.912	26.0	0.409	46.5	0.066	67.0	0.119	87.5	0.045
0.8	0.999	9.0	0.908	26.5	0.393	47.0	0.072	67.5	0.117	88.0	0.044
1.0	0.999	9.2	0.904	27.0	0.377	47.5	0.077	68.0	0.115	88.5	0.043
1.2	0.998	9.4	0.900	27.5	0.361	48.0	0.082	68.5	0.114	89.0	0.042
1.4	0.998	9.6	0.896	28.0	0.345	48.5	0.087	69.0	0.112	89.5	0.041
1.6	0.997	9.8	0.892	28.5	0.329	49.0	0.091	69.5	0.110	90.0	0.040
1.8	0.996	10.0	0.888	29.0	0.314	49.5	0.095	70.0	0.109		
2.0	0.995	10.2	0.883	29.5	0.298	50.0	0.099	70.5	0.107		
2.2	0.994	10.4	0.879	30.0	0.283	50.5	0.103	71.0	0.105		

Remarks: