

**Comprehensive Engineering Exhibit**  
**W296AT Catskill, NY**  
**Facility ID No. 37231**

This exhibit is for a minor change for translator W296AT, facility ID 37231, BLFT19891025TK which is seeking a change in frequency to a 1<sup>st</sup> adjacent channel, change in antenna location, increase in antenna height and an increase in power. It is also proposed to change the primary station from WPYX Albany NY, to WHUC (AM) Hudson NY.

It is proposed to locate the transmit antenna 124 meters above ground on a tower identified by registration number 1041890. The proposed directional antenna is an "off the shelf" Scala FMV-MP3 vertically polarized, with a proposed ERP of 0.125KW.

Below as Figure 1 is a spacing study from which it can be determined that this proposal is within the protected contour of station WPYX which is on the second adjacent channel. With respect to all other authorized facilities this proposal will not create any prohibited contour overlap.

Section 74.1204(d) states that *"The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable."*

We will demonstrate that a lack of population and/ or other factors allow this proposal to be compliant with 74.1204. The process commonly called "Living Way", as recently described in FCC 08-242 in connection with BPFT-19981001TA, allows for the use of U/D Analysis, also known as "signal strength ratio methodology." In this instant case the facilities of WPYX and this proposal are second adjacent channels, which are to be afforded protection from signals 40 dB stronger.

Figure 2 is a map showing the predicted signal contour of WPYX at the proposed translator location utilizing the FCC F50:50 curve. WPYX is predicted to present a 59.95 dBu signal at the translator tower location. Thus the 99.95 dB contour (59.95 dBu + 40 dBu) of this proposal is the lowest value predicted to cause interference to WPYX. Also Shown in Figure 2 are the contours of the primary station, this proposal, and that of the currently licensed facility.

Figure 3 depicts the predicted signal strength from the translator both at ground level, and at receiving antenna locations up to 14 meters above ground level of the translator. The 14 meter data is identified in the table as the "artificial plane," and as can be determined by the columns colored green, at no location from ground level to 14 meters above ground does the predicted signal of the proposed translator exceed that of 40 dB greater than WPYX.

Figure 4 is a photograph of the 136 meter overall height support tower. It can be determined from the image that no habitable space exists near the tower which exceeds 14 meters (46 feet) above ground level, thus compliance with Section 74.1204(d) has been demonstrated.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation."

The proposed antenna system is not modeled in "FM Model". A worst case EPA type 1 "Ring-Stub", 1 bay antenna full wave element spaced, has been evaluated using "FM Model", as being mounted with its center of radiation 124 meters above ground level, with an effective radiated power of 0.125 kilowatts in both the horizontal and vertical planes.

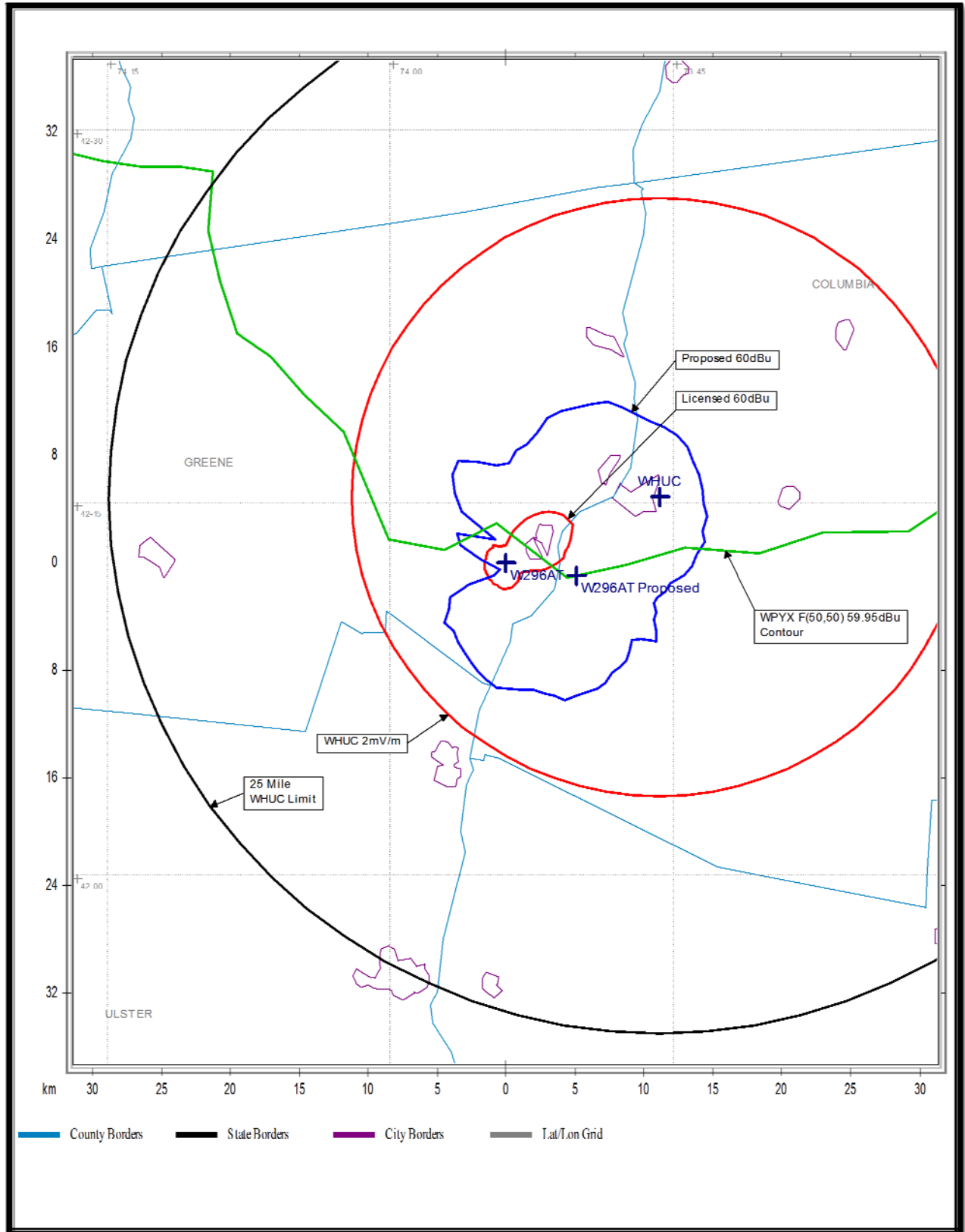
At 2 meters above the surface, at 33 meters from the closest point of approach, this proposal will contribute worst case, 0.338 microwatts per square centimeter, or 0.0338 percent of the allowable ANSI limit for controlled exposure, and 0.169 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the tower is surrounded by a fence with a locked gate with appropriate warning signs and the applicant will see that signs remain posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

**Figure 1. Spacing Study**

Comstudy 2.2 Search of Channel 295 (106.9 MHz Class D) at 42-12-03N, 73-50-09 W									
Callsign	State	City	Freq	Channel	ERP_w	Class	Status	Distance_km	Clr
W296AT	NY	CATSKILL	107.1	296	7	D	LIC	5.26	-46.39 dB
WPYX	NY	ALBANY	106.5	293	15500	B	LIC	50.2	-6.61 dB
WPYX	NY	ALBANY	106.5	293	5000	B	LIC	50.2	-1.48 dB
WCCC-FM	CT	HARTFORD	106.9	295	23000	B	LIC	97.02	0.10 dB
W295BK	NY	POUGHKEEPSIE	106.9	295	7	D	LIC	57.39	8.41 dB
WRWD-FM	NY	HIGHLAND	107.3	297	330	A	LIC	57.39	17.81 dB
W295AU	VT	MANCHESTER	106.9	295	51	D	LIC	132.7	20.64 dB
W295AQ	PA	MILFORD	106.9	295	250	D	LIC	124.35	21.90 dB
WKVU	NY	UTICA	107.3	297	50000	B	LIC	151.82	25.48 dB
WFFG-FM	NY	CORINTH	107.1	296	2850	A	LIC	116.05	27.74 dB
WLTW	NY	NEW YORK	106.7	294	17000	B	LIC	160.95	27.99 dB
WLTW	NY	NEW YORK	106.7	294	13000	B	LIC	160.95	28.56 dB
WLTW	NY	NEW YORK	106.7	294	6000	B	LIC	161.8	28.40 dB
WLTW	NY	NEW YORK	106.7	294	4700	B	LIC	161.8	30.63 dB
WSYR-FM2	NY	SYRACUSE	106.9	295	1740	D	LIC	212.04	31.65 dB
WEZX	PA	SCRANTON	106.9	295	1450	A	APP	178.19	32.32 dB
WEZX	PA	SCRANTON	106.9	295	1450	A	LIC	178.19	32.32 dB
WSYR-FM	NY	SOLVAY	106.9	295	9000	B1	LIC	213.45	32.78 dB
W292CM	NY	POUGHKEEPSIE	106.3	292	8	D	LIC	54.81	33.91 dB
WBLS	NY	NEW YORK	107.5	298	4200	B	LIC	161.8	34.34 dB
WEZX	PA	SCRANTON	106.9	295	64	A	LIC	180.53	34.21 dB
WBZX	NY	HANCOCK	107.1	296	2100	A	LIC	121.71	35.91 dB
W295AL	VT	WOODSTOCK	106.9	295	100	D	LIC	193.93	35.40 dB
NEW	NY	PATCHOGUE	106.9	295	10	D	APP	164.86	36.75 dB
WAAF	MA	WESTBOROUGH	107.3	297	9600	B	LIC	175.55	36.47 dB
WBLS	NY	NEW YORK	107.5	298	3300	B	LIC	161.8	36.30 dB
WEIB	MA	NORTHAMPTON	106.3	292	3000	A	LIC	97.74	38.70 dB
W293AE	NY	NEWBURGH	106.5	293	99	D	CP	79.63	38.70 dB
WWIQ	NJ	CAMDEN	106.9	295	38000	B	LIC	275.8	38.33 dB
WMJX	MA	BOSTON	106.7	294	21500	B	LIC	227.68	38.27 dB
WXPB	NY	BRIARCLIFF	107.1	296	1900	A	LIC	124.48	38.16 dB
NEW	NY	MANOR	107.1	296	1900	A	LIC	124.48	38.16 dB
W296BD	NY	DOVER PLAINS	106.3	292	9	D	APP	59.55	38.01 dB
WWIQ	NJ	WARWICK	107.1	296	10	D	LIC	111.19	39.00 dB
WWIQ	NJ	CAMDEN	106.9	295	9000	B	CP	273.65	39.37 dB

**Figure 2. Contour Map**



**Figure 3. Distance to Interference Contour With Antenna Vertical Pattern**

<div> <div>Proposed Antenna:</div> <div>Scala FMVMP-3</div> </div> <div> <div>Proposed Power:</div> <div>0.125 kW</div> </div> <div> <div>Antenna Height AGL:</div> <div>124 meters</div> </div> <div> <div>Interference Contour:</div> <div>99.95 dBu f(50:10)</div> </div> <div> <div>Artificial Rcv Antenna Height:</div> <div>14 meters</div> </div> <div> <div>Distance (Free Space) Equation:</div> <div><math>= (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)}) * 1000</math></div> </div> <div> <div>Field Strength (dBu) Equation</div> <div><math>" = 106.92 - (20 * (\text{LOG10}[\text{DistMeters} / 1000])) + [\text{ERP in dBk}]</math></div> </div>								
Depression				Distance				
Angle	Antenna			from Ant.	Distance from Ant. to	Field Strength	Distance	Field Strength
Below	Relative	ERP	ERP	to Interf	Artificial Plane	in dBu @	from Ant.	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	0.125	-9.03	788.78 m	infinite	---	infinite	---
-5°	0.921	0.106	-9.75	726.46 m	1262.11 m	95.15 dBu	1422.74 m	94.11 dBu
-10°	0.708	0.063	-12.03	558.77 m	633.46 m	98.86 dBu	714.09 m	97.82 dBu
-15°	0.418	0.022	-16.62	329.31 m	425.01 m	97.73 dBu	479.10 m	96.69 dBu
-20°	0.126	0.002	-27.03	99.31 m	321.62 m	89.74 dBu	362.55 m	88.70 dBu
-25°	0.100	0.001	-29.00	79.19 m	260.28 m	89.61 dBu	293.41 m	88.57 dBu
-30°	0.224	0.006	-22.05	176.29 m	220.00 m	98.03 dBu	248.00 m	96.99 dBu
-35°	0.242	0.007	-21.34	191.20 m	191.78 m	99.92 dBu	216.19 m	98.88 dBu
-40°	0.186	0.004	-23.66	146.40 m	171.13 m	98.59 dBu	192.91 m	97.55 dBu
-45°	0.093	0.001	-29.68	73.20 m	155.56 m	93.40 dBu	175.36 m	92.36 dBu
-50°	0.001	0.000	-69.03	0.79 m	143.59 m	54.75 dBu	161.87 m	53.71 dBu
-55°	0.069	0.001	-32.23	54.58 m	134.29 m	92.13 dBu	151.38 m	91.09 dBu
-60°	0.108	0.001	-28.37	85.11 m	127.02 m	96.47 dBu	143.18 m	95.43 dBu
-65°	0.118	0.002	-27.57	93.31 m	121.37 m	97.67 dBu	136.82 m	96.63 dBu
-70°	0.107	0.001	-28.44	84.48 m	117.06 m	97.12 dBu	131.96 m	96.08 dBu
-75°	0.082	0.001	-30.72	64.92 m	113.88 m	95.07 dBu	128.37 m	94.03 dBu
-80°	0.050	0.000	-35.05	39.44 m	111.70 m	90.91 dBu	125.91 m	89.87 dBu
-85°	0.015	0.000	-45.51	11.83 m	110.42 m	80.55 dBu	124.47 m	79.51 dBu
-90°	0.020	0.000	-42.97	15.85 m	110.00 m	83.13 dBu	124.00 m	82.08 dBu

**Figure 4.**

