

**Comprehensive Engineering Exhibit
Westchester, MA
Facility ID No. 138663**

This exhibit is for a new translator, facility ID 138663 which is seeking a change in antenna type and orientation, a change in antenna height and a power increase from the original application. The proposed facility will be a fill-in translator for WSRS, Facility ID# 35225, Worcester MA.

It is proposed to locate the transmit antenna 95 meters above ground on a 99.1 meter self supported tower in Holden, MA as identified by ASR# 1007890 which also serves as an element in the WTAG AM antenna array. The proposed antenna is a vertically polarized Scala 2xCL-FM/VRM/VV, (2 sections) with an ERP of 0.140KW.

Below as Figure 1 is a spacing study from which it can be determined that this proposal is within the protected contour of pending application BNPFT-20030312ATI for a new translator in Worcester MA which is on a 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 BNPFT-20030312ATI 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 contours of BNPFT-20030312ATI at the proposed translator location utilizing the FCC F50:50 curve. The pending application is predicted to present a 64.3 dBu signal level at the translator tower location. The 104.3 dBu contour (64.3 dBu + 40 dB) of this proposal is the lowest value predicted to cause interference to the pending application. Also shown in Figure 2 are the contours of this proposal and that of the original application, along with the primary station.

Figure 3 depicts the predicted signal strength from the translator both at ground level and at receiving antenna locations up to 10 meters above ground level of the translator. The 10 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 10 meters above ground does the predicted signal of the proposed translator exceed that of 40 dB greater than pending the application BNPFT-20030312ATI.

Figure 4 is an aerial photograph of the support tower. It can be determined from the image that no habitable space exists near the tower which exceeds 10 meters, or 33 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 has been evaluated using "FM Model", as a worst case "Ring Stub" single bay being mounted with its center of radiation 95 meters above ground level, with an effective radiated power of 0.140 kilowatts in the vertical plane.

At 2 meters above the surface, at 21.2 meters from the closest point of approach, this proposal will contribute worst case, .515 microwatts per square centimeter, or 0.0515% of the allowable ANSI limit for controlled exposure, and 0.258% of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit and thus is categorically excluded from environmental processing for purposes of RF compliance, pursuant to Section 1.1307(b)(3)(ii).

The tower is surrounded by a fence with a locked gate restricting access from the general public with appropriate warning signs posted. 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 access the tower for maintenance or inspection.

Figure 1. Spacing Study

Comstudy 2.2 Search of Channel 249 (97.7 MHz Class D) at 42-20-09.7 N, 71-49-10.7 W									
Callsign	State	City	Freq	Channel	ERP_w	Class	Status	Distance_km	Clr
NEW	MA	WESTCHESTER	97.7	249	140	D	APP	0.01	-55.64 dB
NEW	MA	WORCESTER	97.3	247	10	D	APP	7.41	-5.94 dB
NEW	MA	WORCESTER	97.3	247	3	D	APP	7.41	-3.96 dB
WKAF	MA	BROCKTON	97.7	249	2050	A	LIC	59.82	2.73 dB
WNRC-LP	MA	DUDLEY	97.5	248	100	LP100	LIC	33.67	3.23 dB
WCTY	CT	NORWICH	97.7	249	1900	A	LIC	98.56	9.14 dB
WKAF	MA	BROCKTON	97.7	249	2700	A	LIC	71.52	9.03 dB
WCTY	CT	NORWICH	97.7	249	3000	A	LIC	98.56	9.19 dB
WCTY	CT	NORWICH	97.7	249	0	A	USE	98.56	17.65 dB
WYAJ	MA	SUDBURY	97.7	249	4	D	LIC	34.21	17.09 dB
WOKQ	NH	DOVER	97.5	248	50000	B	LIC	120.6	18.97 dB
WJFD-FM	MA	NEW BEDFORD	97.3	247	50000	B	LIC	110.44	18.22 dB
WCTK	MA	NEW BEDFORD	98.1	251	47000	B	LIC	108.89	18.25 dB
WSNI	NH	KEENE	97.7	249	2150	A	LIC	76.88	19.19 dB
WJDF	MA	ORANGE	97.3	247	5800	A	LIC	54.92	19.57 dB
WJFD-FM	MA	NEW BEDFORD	97.3	247	29200	B	LIC	110.44	21.92 dB
WHAI	MA	GREENFIELD	98.3	252	2000	A	LIC	72.73	21.44 dB
WUCS	CT	WINDSOR LOCKS	97.9	250	3400	A	LIC	95.08	23.64 dB
WKAF	MA	BROCKTON	97.7	249	0	A	USE	70.76	24.10 dB
W250AB	NH	MANCHESTER	97.9	250	250	D	LIC	78.57	25.70 dB
WILI-FM	CT	WILLIMANTIC	98.3	252	1050	A	LIC	79.6	26.50 dB
NEW	CT	TORRINGTON	97.7	249	10	D	APP	123.97	30.84 dB
NEW	CT	TORRINGTON	97.7	249	10	D	APP	124.01	30.80 dB
WALK-FM	NY	PATCHOGUE	97.5	248	39000	B	LIC	194.11	32.59 dB
WALK-FM	NY	PATCHOGUE	97.5	248	20500	B	LIC	194.11	33.89 dB
WHAI	MA	GREENFIELD	98.3	252	1450	A	LIC	71.45	34.96 dB
WAZK	MA	NANTUCKET	97.7	249	6000	A	CP	181.95	35.24 dB
880816NC	MA	ORANGE	97.3	247	0	A	USE	52.99	35.24 dB
WAZK	MA	NANTUCKET	97.7	249	1750	A	LIC	181.95	36.55 dB
WJBQ	ME	PORTLAND	97.9	250	16000	B	LIC	207.62	38.36 dB
W246CC	CT	BOLTON	97.1	246	100	D	LIC	78.48	39.27 dB

Figure 2. Contour Map

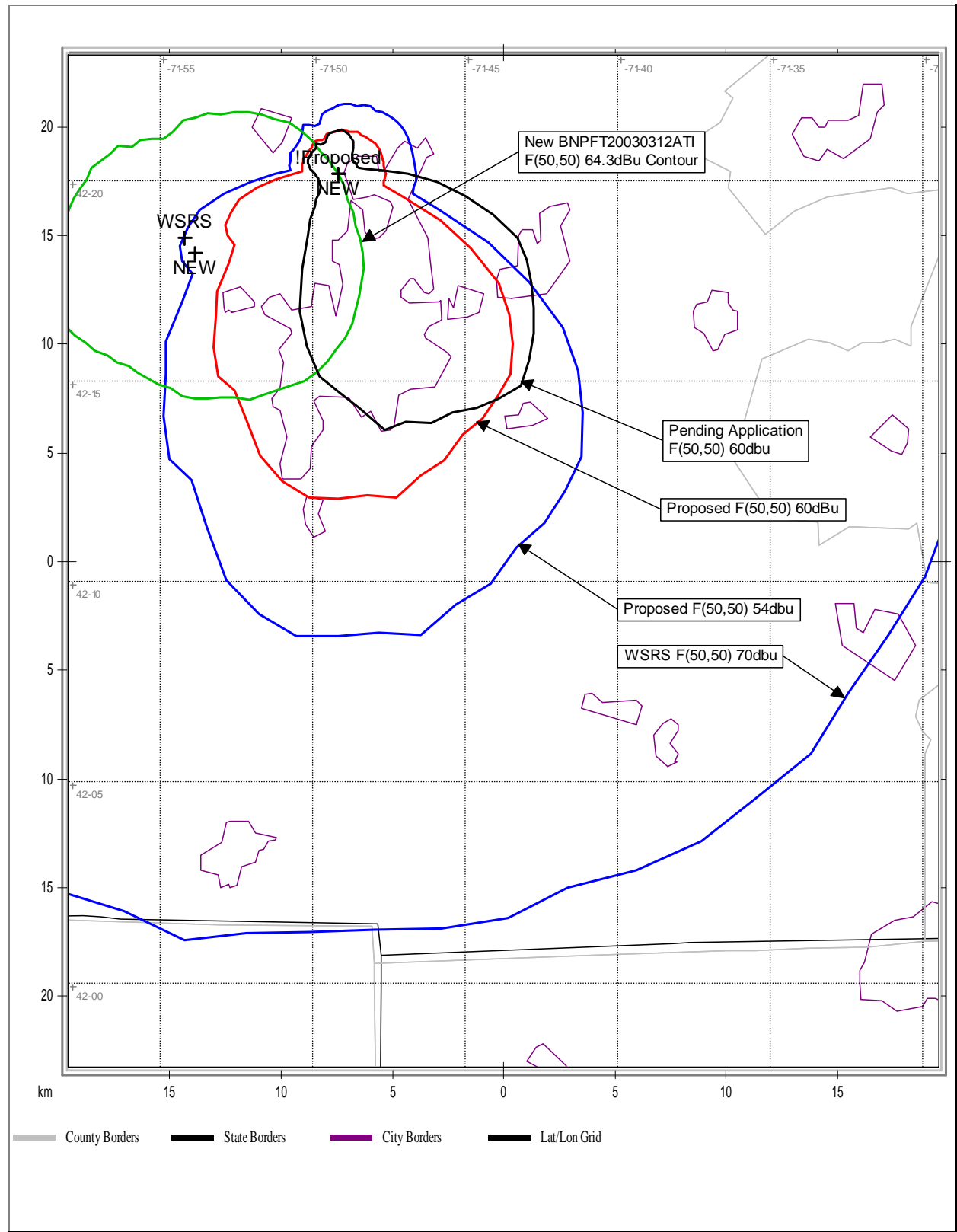


Figure 3. Distance to Interference Contour With Antenna Vertical Pattern

Proposed Antenna:		Scala 2xCL-FM/VRM/VV											
Proposed Power:		0.14	kW										
Antenna Height AGL:		95	meters										
Interference Contour:		104.3	dBu f(50:10)										
Artificial Rcv Antenna Height:		10	meters										
Distance (Free Space) Equation:		$=(10^{((106.92-[\text{desired dBu}]+[\text{ERP in dBk}])/20))} \times 1000$											
Field Strength (dBu) Equation		$=106.92-(20 \times (\text{LOG10}[\text{DistMeters}/1000]))+[\text{ERP in dBk}]$											
Depression				Distance									
Angle	Antenna			from Ant.	Distance	Field	Distance	Field					
Below	Relative	ERP	ERP	to Interf	from Ant.	Strength	from Ant.	Strength					
					to	in dBu @	to	in dBu @					
Horizon	Field	in kW	in dBk	Contour	Artificial	Artificial	Ground	Ground					
					Plane	Plane	Level	Level					
0°	1.000	0.140	-8.54	505.90 m	infinite	---	infinite	---					
-5°	0.948	0.126	-9.00	479.59 m	975.27 m	98.13 dBu	1090.00 m	97.17 dBu					
-10°	0.828	0.096	-10.18	418.88 m	489.50 m	102.95 dBu	547.08 m	101.98 dBu					
-15°	0.646	0.058	-12.33	326.81 m	328.41 m	104.26 dBu	367.05 m	103.29 dBu					
-20°	0.436	0.027	-15.75	220.57 m	248.52 m	103.26 dBu	277.76 m	102.30 dBu					
-25°	0.233	0.008	-21.19	117.87 m	201.13 m	99.66 dBu	224.79 m	98.69 dBu					
-30°	0.061	0.001	-32.83	30.86 m	170.00 m	89.48 dBu	190.00 m	88.51 dBu					
-35°	0.069	0.001	-31.76	34.91 m	148.19 m	91.74 dBu	165.63 m	90.78 dBu					
-40°	0.151	0.003	-24.96	76.39 m	132.24 m	99.53 dBu	147.79 m	98.57 dBu					
-45°	0.178	0.004	-23.53	90.05 m	120.21 m	101.79 dBu	134.35 m	100.82 dBu					
-50°	0.159	0.004	-24.51	80.44 m	110.96 m	101.51 dBu	124.01 m	100.54 dBu					
-55°	0.116	0.002	-27.25	58.68 m	103.77 m	99.35 dBu	115.97 m	98.38 dBu					
-60°	0.071	0.001	-31.51	35.92 m	98.15 m	95.57 dBu	109.70 m	94.60 dBu					
-65°	0.040	0.000	-36.50	20.24 m	93.79 m	90.98 dBu	104.82 m	90.01 dBu					
-70°	0.019	0.000	-42.96	9.61 m	90.46 m	84.83 dBu	101.10 m	83.86 dBu					
-75°	0.010	0.000	-48.54	5.06 m	88.00 m	79.49 dBu	98.35 m	78.53 dBu					
-80°	0.010	0.000	-48.54	5.06 m	86.31 m	79.66 dBu	96.47 m	78.69 dBu					
-85°	0.010	0.000	-48.54	5.06 m	85.32 m	79.76 dBu	95.36 m	78.79 dBu					
-90°	0.010	0.000	-48.54	5.06 m	85.00 m	79.79 dBu	95.00 m	78.83 dBu					

Figure 4.

