

**Comprehensive Engineering Exhibit**  
**Milbrook, CT**  
**Facility ID No. 139897**

This exhibit is for a minor change of facility ID 139897 which is seeking a different antenna type, orientation, height, location, power and a change in frequency. The proposed facility will continue to be a fill-in translator for WKCI-FM, Facility ID# 11930, Hamden CT.

It is proposed to locate the transmit antenna 55 meters above ground on a 64 meter self supported tower as identified by ASR# 1259121. The proposed antenna is a vertically polarized Scala CL-FMV/RM with an ERP of 250W.

Below as Figure 1 is a spacing study from which it can be determined that this proposal is within the protected contour of WRCH New Britain CT 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 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 WRCH 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 WRCH at the proposed translator location utilizing the FCC F(50:50) curve. WRCH is predicted to present a 66.3 dBu signal level at the translator tower location. The 106.3 dBu contour (66.3 dBu + 40 dB) of this proposal is the lowest value predicted to cause interference to WRCH. Also shown in Figure 2 are the F(50,50) contours of this proposal and that of the currently authorized facility, along with the primary station.

Figure 3 is an aerial photograph showing the 106.3dBu interfering contour. The site and surrounding area is not populated and not accessible to the general public and all access roads are restricted by locked gates. The only structures on the hill are unmanned communications sites.

As can be seen, a small portion of RT-15 before it enters a tunnel is within the contour. The elevation of the roadway is 59M below the tower base elevation. This location is at an azimuth of 135 degrees and the radiated power from the antenna is 227W. At this location the antenna elevation is 114M above the roadway (55M tower + 59M terrain difference). This location is 485M horizontally from the tower, thus the straight line distance to the antenna is 490.5M, with an elevation angle of 13.2 degrees. Figure 4 depicts the predicted signal strength from the translator both at ground level, and at receiving antenna locations up to 2 meters above ground level. The 2 meter data is identified in the table as the "artificial plane". At an elevation angle of 13.2 degrees, the predicted signal level does not exceed 106.3dBu, therefore no interference to WRCH is predicted to occur at this location.

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 55 meters above ground level, with an effective radiated power of 0.250 kilowatts in the vertical plane.

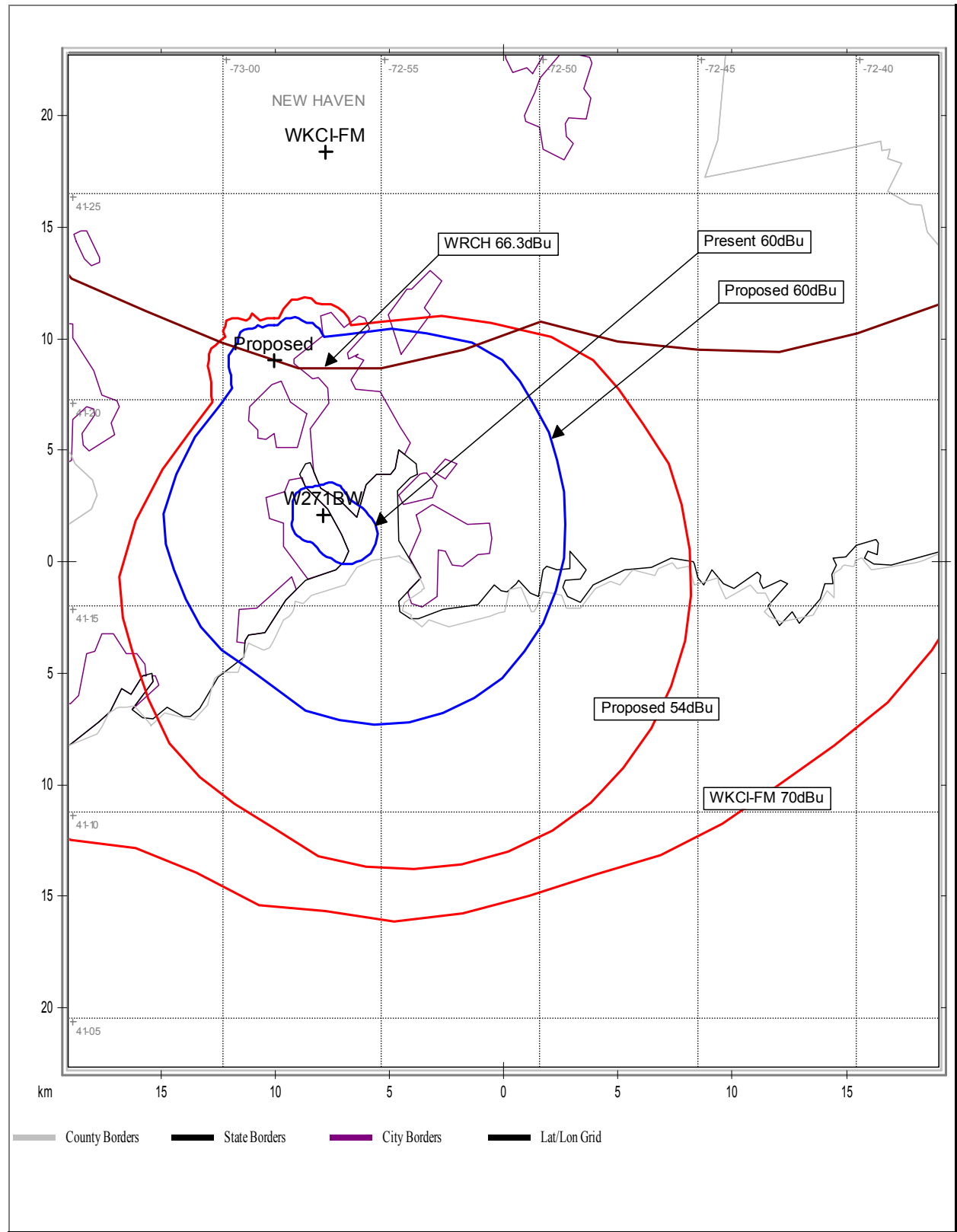
At 2 meters above the surface, at 12 meters from the closest point of approach, this proposal will contribute worst case, 2.83 microwatts per square centimeter, or 0.283% of the allowable ANSI limit for controlled exposure, and 1.42% of the allowable limit for uncontrolled exposure. This figure is less 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 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.

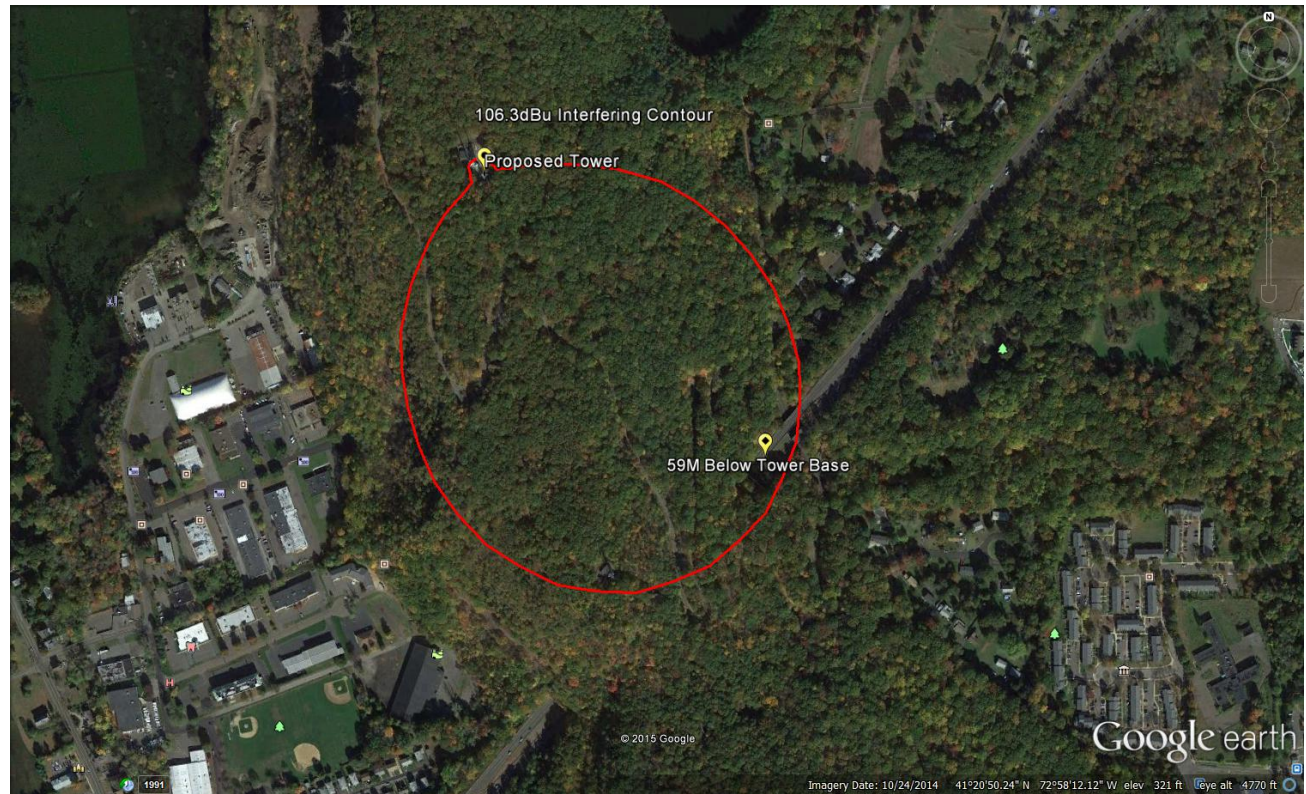
**Figure 1. Spacing Study**

Comstudy 2.2 Search of Channel 265 (100.9 MHz Class D) at 41-20-58.9 N, 72-58-22.3 W									
Callsign	State	City	Freq	Channel	ERP_w	Class	Status	Distance_km	Clr
WKCI-FM	CT	HAMDEN	101.3	267	15000	B	LIC	8.32	-39.47 dB
WKCI-FM	CT	HAMDEN	101.3	267	12000	B	LIC	9.6	-38.43 dB
WKCI-FM	CT	HAMDEN	101.3	267	9000	B	LIC	9.6	-36.63 dB
W271BW	CT	MILBROOK	101.5	268	5	D	CP MOD	7.29	-14.90 dB
WKCI-FM	CT	HAMDEN	101.3	267	0	B	USE	8.35	-13.11 dB
WRCH	CT	NEW BRITAIN	100.5	263	18500	B	LIC	41.03	-12.61 dB
WRCH	CT	NEW BRITAIN	100.5	263	18500	B	LIC	41.03	-12.61 dB
WRCH	CT	NEW BRITAIN	100.5	263	7500	B	LIC	41.03	-12.50 dB
WRCH	CT	NEW BRITAIN	100.5	263	15500	B	LIC	42.9	-2.96 dB
WRCH	CT	NEW BRITAIN	100.5	263	5000	B	CP	49.17	-1.88 dB
WSVV-LP	NY	CENTER MORICHES	100.9	265	25	LP100	LIC	60.87	0.56 dB
WHUD	NY	PEEKSKILL	100.7	264	50000	B	LIC	77.17	0.32 dB
WRXC	CT	SHELTON	90.1	211	45	A	LIC	11.84	1.8
WKNL	CT	NEW LONDON	100.9	265	6000	A	LIC	70.27	3.50 dB
WKNL	CT	NEW LONDON	100.9	265	3000	A	LIC	70.27	6.52 dB
WKNL	CT	NEW LONDON	100.9	265	3000	A	LIC	70.27	6.28 dB
WCBS-FM	NY	NEW YORK	101.1	266	6700	B	LIC	108.24	8.94 dB
WCBS-FM	NY	NEW YORK	101.1	266	7200	B	LIC	108.26	9.02 dB
WPDH	NY	POUGHKEEPSIE	101.5	268	4400	B	LIC	94.77	10.82 dB
WCBS-FM	NY	NEW YORK	101.1	266	16800	B	LIC	107.63	10.81 dB
WRCH	CT	NEW BRITAIN	100.5	263	0	B	USE	41.03	15.43 dB
W264AJ	NY	SOUTHAMPTON	100.7	264	250	D	LIC	70.06	16.96 dB
WHTZ	NJ	NEWARK	100.3	262	6000	B	LIC	108.24	16.87 dB
WHTZ	NJ	NEWARK	100.3	262	13000	B	LIC	107.74	17.18 dB
WKNL	CT	NEW LONDON	100.9	265	0	A	USE	70.27	19.88 dB
WWPT	CT	WESTPORT	90.3	212	330	A	LIC	35.75	25.7
W262AS	NY	BRIDGEHAMPTON	100.3	262	27	D	LIC	67.13	29.56 dB
WRNX	MA	AMHERST	100.9	265	870	A	LIC	103.87	32.26 dB
WZLX	MA	BOSTON	100.7	264	21500	B	LIC	192.12	33.48 dB
W266CK	MA	GREAT BARRINGTON	101.1	266	250	D	CP	100.95	33.03 dB
WKXW	NJ	TRENTON	101.5	268	19000	B	LIC	186.91	35.18 dB
WKXW	NJ	TRENTON	101.5	268	15500	B	LIC	186.91	35.51 dB
WPDH	NY	POUGHKEEPSIE	101.5	268	0	B	USE	94.77	37.37 dB
WHUD	NY	PEEKSKILL	100.7	264	0	B	USE	77.17	38.98 dB
W265CS	NJ	MANAHAWKIN	100.9	265	250	D	CP	213.6	38.70 dB
WGIR-FM	NH	MANCHESTER	101.1	266	11500	B	LIC	214.33	39.73 dB

**Figure 2. Contour Map**



**Figure 3. Predicted Interfering Contour**



**Figure 4.**

<b>Proposed Antenna:</b>		Scala CL-FM V Pol						
<b>Proposed Power:</b>		0.227	kW					
<b>Antenna Height AGL:</b>		114	meters					
<b>Interference Contour:</b>		106.3	dBu f(50:10)					
<b>Artificial Rcv Antenna Height:</b>		2	meters					
<b>Distance (Free Space)</b>		Equation: =(10^((106.92-[desired dBu]+[ERP in dBk])/20))*1000						
<b>Field Strength (dBu) Equation</b>		"=106.92-(20*(LOG10[DistMeters]/1000)))+[ERP in dBk]						
<b>Depression</b>				<b>Distance</b>				
<b>Angle</b>	<b>Antenna</b>			<b>from Ant.</b>	<b>Distance</b>	<b>Field Strength</b>	<b>Distance</b>	<b>Field Strength</b>
<b>Below</b>	<b>Relative</b>	<b>ERP</b>	<b>ERP</b>	<b>to Interf</b>	<b>from Ant. to</b>	<b>in dBu @</b>	<b>from Ant. to</b>	<b>in dBu @</b>
<b>Horizon</b>	<b>Field</b>	<b>in kW</b>	<b>in dBk</b>	<b>Contour</b>	<b>Artificial Plane</b>	<b>Artificial Plane</b>	<b>to Ground Level</b>	<b>Ground Level</b>
0.0	1.000	0.227	-6.44	511.70 m	infinite	---	infinite	---
-5.0	0.980	0.218	-6.62	501.46 m	1285.06 m	98.13 dBu	1308.00 m	97.97 dBu
-10.0	0.950	0.205	-6.89	486.11 m	644.98 m	103.84 dBu	656.50 m	103.69 dBu
-11.0	0.939	0.200	-6.99	480.48 m	586.97 m	104.56 dBu	597.46 m	104.41 dBu
-12.0	0.928	0.195	-7.09	474.85 m	538.69 m	105.20 dBu	548.31 m	105.05 dBu
-13.2	0.917	0.191	-7.19	469.23 m	490.47 m	105.92 dBu	499.23 m	105.76 dBu
-14.0	0.906	0.186	-7.30	463.60 m	462.96 m	106.31 dBu	471.23 m	106.16 dBu
-15.0	0.895	0.182	-7.40	457.97 m	432.73 m	106.79 dBu	440.46 m	106.64 dBu
-20.0	0.820	0.153	-8.16	419.59 m	327.47 m	108.45 dBu	333.31 m	108.30 dBu
-25.0	0.735	0.123	-9.11	376.10 m	265.01 m	109.34 dBu	269.75 m	109.19 dBu
-30.0	0.645	0.094	-10.25	330.04 m	224.00 m	109.67 dBu	228.00 m	109.51 dBu
-35.0	0.562	0.072	-11.45	287.57 m	195.27 m	109.66 dBu	198.75 m	109.51 dBu
-40.0	0.470	0.050	-13.00	240.50 m	174.24 m	109.10 dBu	177.35 m	108.95 dBu
-45.0	0.360	0.029	-15.31	184.21 m	158.39 m	107.61 dBu	161.22 m	107.46 dBu
-50.0	0.250	0.014	-18.48	127.92 m	146.21 m	105.14 dBu	148.82 m	104.99 dBu
-55.0	0.155	0.005	-22.63	79.31 m	136.73 m	101.57 dBu	139.17 m	101.42 dBu
-60.0	0.085	0.002	-27.85	43.49 m	129.33 m	96.83 dBu	131.64 m	96.68 dBu
-65.0	0.045	0.000	-33.38	23.03 m	123.58 m	91.71 dBu	125.79 m	91.55 dBu
-70.0	0.020	0.000	-40.42	10.23 m	119.19 m	84.98 dBu	121.32 m	84.82 dBu
-75.0	0.010	0.000	-46.44	5.12 m	115.95 m	79.19 dBu	118.02 m	79.04 dBu
-80.0	0.010	0.000	-46.44	5.12 m	113.73 m	79.36 dBu	115.76 m	79.21 dBu
-85.0	0.010	0.000	-46.44	5.12 m	112.43 m	79.46 dBu	114.44 m	79.31 dBu
-90.0	0.010	0.000	-46.44	5.12 m	112.00 m	79.50 dBu	114.00 m	79.34 dBu