Engineering Statement

Applicant: Local Community Broadcasting, Inc. (FRN 0023094246) Proposed: new FM translator, Channel 216 (91.1 MHz), McHenry, IL, rebroadcasting WYML-LP (Facility 195052)

Facility

- Site: new 30 ft tower with a 10 ft mast (40 ft overall) behind the building at 2904 IL-120, McHenry, IL. NAD83 42-20-36.9 N, 88-15-14.1 W. Ground 229.5 m (USGS 3DEP).
- Antenna: Nicom BKY3P, vertical polarization, main lobe 195 degrees true. Radiation center 10.7 m (35 ft) above ground, 240.2 m AMSL (11 m / 240.5 m if entered in whole meters; results identical).
- ERP: 0 kW horizontal, 0.150 kW vertical (maximum, toward 195 degrees).
- HAAT: average about -7.5 m; highest single radial 14.9 m. All radials are under 30 m, so 30 m is used for contour distances.

Relative field (true azimuth, Nicom official table rotated to 195 degrees)

0: 0.216, 10: 0.215, 20: 0.215, 30: 0.216, 40: 0.218, 50: 0.227, 60: 0.246, 70: 0.274, 80: 0.316, 90: 0.377, 100: 0.456, 110: 0.546, 120: 0.639, 130: 0.730, 140: 0.813, 150: 0.878, 160: 0.927, 170: 0.964, 180: 0.989, 190: 0.999, 195: 1.000, 200: 1.000, 210: 0.989, 220: 0.964, 230: 0.928, 240: 0.879, 250: 0.812, 260: 0.730, 270: 0.638, 280: 0.546, 290: 0.456, 300: 0.377, 310: 0.316, 320: 0.274, 330: 0.246, 340: 0.228, 350: 0.219

47 CFR 73.860(b): LPFM-owned translator

1. Overlap: the translator's 60 dBu contour (6.2 km toward 195 degrees) overlaps WYML-LP's 60 dBu contour (5.64 km); the sites are 10.38 km apart.
2. Simultaneous rebroadcast of WYML-LP's analog signal.
3. Input received over the air directly from WYML-LP (Yagi aimed south).
4. 10.38 km from WYML-LP's transmitter (73.208 formula), within 16.1 km, the limit for a top-50 market (McHenry County is in the Chicago Nielsen Audio market, a top-50 market).

WYML-LP holds no other translators or boosters.

47 CFR 74.1204(a): contour overlap

Method: every co-channel through third-adjacent record within 200 km in a fresh FCC fmq pull (all statuses: LIC, CP, APP, STA, MOD). Protected contours F(50,50): Class B 54 dBu, B1 57, all others 60. Translator interfering contours F(50,10) (F(50,50) inside 15 km): co-channel 40/37/34, first adjacent 54/51/48, second and third adjacent 100 (94 for Class B). Other stations' patterns from their filed relative fields. Contours sampled every 1 degree over ±90 degrees. A site inside another station's protected contour counts as overlap. Two terrain sets (NED 1 arc-second and GLOBE 30 arc-second). Checked at 165 W (10 percent above the proposed 150 W).

Results at 165 W, Nicom official table, NED terrain (52 records, no overlap):

Station	Ch	Relation	Class	Distance	Margin
WTZY	217	First adjacent	A	19.5 km	+1.38 km (+1.66 GLOBE)
WHAD	214	Second adjacent	B	77.0 km	+3.35 km
WILV	216	Co-channel	B1	62.3 km	+3.89 km
WBEZ	218	Second adjacent	B	71.8 km	+4.65 km
WZKL	219	Third adjacent	B1	28.3 km	+6.17 km
WGTD	216	Co-channel	A	44.4 km	over +8 km

The same check passes with the BKY3P table filed by other licensees (WTZY +1.75 km) and with a pattern built to Nicom's published specification, 150 degrees and 18 dB (WTZY +0.68 km NED, +0.94 km GLOBE).

47 CFR 74.1205: TV Channel 6

Channel 216 requires protection of any Channel 6 station within 133 km. Interfering contour: 80 dBu, F(50,10). Protected: the TV station's 47 dBu, F(50,50). Low power Channel 6 stations are protected (DA 26-601). Margins at 165 W, sampled ±20 degrees around each path, TV directional patterns applied:

Station	Status	Distance	Margin
WRME-LD Chicago (3 kW DA, rotation 277, 564 m AMSL)	LIC	71.8 km	+3.05 km (+2.13 to +3.47 across pattern versions)
NEW Milwaukee (LPD)	CP	88.4 km	+20.7 km
NEW Madison (LPD)	CP	127.8 km	+78.8 km

WRME-LD's directional pattern places only about 1.5 kW toward McHenry. Treated as non-directional, the site would fall inside its 47 dBu contour, so this exhibit relies on the licensed pattern.

47 CFR 74.1235(b): maximum ERP

All 12 radials have HAAT under 32 m, so the maximum is 250 W. 150 W is proposed.

47 CFR 74.1204(g): intermediate frequency

At 100 W or more, translators must meet the 73.207 IF separations as Class A to stations 53 or 54 channels removed (channels 269 and 270, 101.7 and 101.9 MHz). Within 60 km the only such station is W269BV (101.7, Elkhorn, WI), an FM translator (Class D, outside the 73.207 table). No station on 101.9 is within 29 km, the largest IF separation for a Class A. Complies.

FAA

Overall height 40 ft (12.2 m) above ground. Under 200 ft, and no public-use airport within 20,000 ft or heliport within 5,000 ft is known (Galt 10C and Lake in the Hills 3CK are over 11 km away; the McHenry hospital heliport is about 3.6 km away). FAA notice is not required.