

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
RADIO STATION WJSM-FM
MARTINSBURG, PENNSYLVANIA

June 10, 2005

CH 224A 1.9 KW 180 M

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Table of Contents

	Technical Statement
Figure 1	Technical Specifications
Figure 2	Proposed Transmitter Location
Figure 3	Tower Sketch
Figure 4	Predicted Coverage Contours
Figure 5	Allocation Study
Appendix	Antenna Vertical Radiation Pattern

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Technical Statement

This Technical Exhibit was prepared on behalf of Martinsburg Broadcasting, Inc (herein “applicant”), licensee of radio station WJSM-FM, channel 224A, Martinsburg, Pennsylvania, in support of a minor change application to modify the facilities of WJSM-FM. By means of this application, the applicant proposes to relocate the station’s transmitter site and continue operation on channel 224A from the new site.

Proposed Facilities

The proposed transmitting facility will operate on Channel 224A with an effective radiated power (ERP) of 1.9 kW (circular polarization) and an antenna height above average terrain (HAAT) of 180 M. It is proposed to employ a non-directional antenna to be side-mounted on a new 180-foot tower. The proposed facilities are equivalent to the maximum for a class A FM station. The FAA is being notified of the proposed construction, and antenna structure registration will be completed upon receipt of the FAA’s determination. Specifications for the proposed operation are provided in Figure 1. A site map is provided as Figure 2, and a tower sketch is provided as Figure 3.

Environmental Considerations

With respect to human exposure to radiofrequency radiation, the proposed facility is categorically excluded from environmental processing. The proposed 3-bay antenna is to be mounted 50 meters above ground level. Based on the

WJSM-FM
Martinsburg, Pennsylvania

Page 2

vertical radiation pattern for a typical 3-bay FM antenna^{*}, the relative field is less than 0.45 at all angles greater than 15° below the horizontal. Assuming 3.8 kW of radiated power (1.9 kW horizontal/1.9 kW vertical) and a “worst-case” pattern relative field in the downward direction of 0.45, the “worst-case” calculated RFR power density from Equation 8 on page 22 of OET Bulletin 65 (Edition 97-01, August 1997) at 2 meters above ground level at the tower base is 0.011 mW/cm² or 5.5% of the FCC limit for uncontrolled environments.

The only other known transmitting facility nearby is a tower, 250 feet in height and approximately 250 feet away, that supports commercial wireless antennas. The RFR contribution from these facilities is estimated to be minimal. Therefore, the proposal complies with the FCC limits for human exposure to RF radiation, and with respect to RF radiation it is categorically excluded from environmental processing. The applicant certifies that access to the tower will be restricted by means of a fence, and that it will reduce power or cease operation, as necessary, to protect persons having access to the tower from RFR exposure in excess of the FCC guidelines.

The applicant will address certification with respect to all other environmental issues in the antenna structure registration process.

Predicted Coverage Contours

The predicted coverage contours were calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the U.S.G.S 3-second terrain database. The distances to the predicted coverage contours were determined using the average elevations of 3-16 km portions of radials spaced every 5-degrees of azimuth. The antenna radiation center HAAT in each radial direction and the ERP were used in

^{*} See the Appendix for a typical 3-bay FM antenna vertical radiation pattern.

WJSM-FM
Martinsburg, Pennsylvania

Page 3

conjunction with the propagation prediction curves of Section 73.333 to determine the distances to contours. Figure 4 is a map showing the predicted coverage contours.

As indicated in Figure 4, the normally predicted 70 dBu contour does encompass 100 percent of Martinsburg, PA. The city limits shown for Martinsburg were obtained from the 2000 U.S. Census.

Allocation Considerations

Figure 5 is an allocation study for channel 224A at Martinsburg. As outlined in Sheet 1 of Figure 5, the proposed facility meets the separation requirements of Section 73.207 of the FCC Rules with respect to all pertinent allotments and assignments with the exception of the licensed operation of second-adjacent channel station WQMU, channel 223A, Indiana, Pennsylvania. With respect to WQMU, the proposal provides contour protection, and processing pursuant to 47 CFR 73.215 is requested.

It is noted that there is an error in the HAAT for WQMU in the Commission's CDBS database and on the station's authorization. The station license (pulled electronically), and the CDBS database both show an HAAT of 33 meters for WQMU. The correct HAAT is 100 meters. A search of the engineering files in the Commission's reference room revealed that WQMU filed a letter with the Commission, dated April 12, 1999 correcting the HAAT for the station to specify 100 meters. Apparently, the Commission's CDBS database has not been adjusted to specify the correct value. Therefore, when considering protection to an assumed maximum class A facility for WQMU (6 kW ERP at 100 m HAAT), the actual WQMU radiation center of 505 m AMSL was used.

The proposed site is within 320 kilometers of the U.S./Canadian border. The channel 224A allotment at Martinsburg, Pennsylvania has been coordinated with

WJSM-FM
Martinsburg, Pennsylvania

Page 4

Canada. Since no change in station class or community of license is proposed, it is believed that the proposal does not require coordination with Canada. However, if Canadian concurrence is required, coordination with Canada is respectfully requested.

There are no known, existing TV or FM stations within 10 kilometers of the proposed transmitter site. The predicted blanketing contour extends approximately 0.8 km from the transmitter site. No problems with blanketing interference are anticipated, however, if any problems arise the applicant recognizes its responsibility to remedy complaints of blanketing interference as required by 47 CFR 73.318.

Protection of AM Station WKMC

The transmitting facility of AM station WKMC, 1370 kHz, Roaring Spring, Pennsylvania, is located some 3.16 km (based on coordinates from the CDBS database) from the proposed new tower. This distance is just under the 3.2 kilometer limit of 47 CFR 73.1692 for separation distance from an AM directional antenna system. Therefore, protection of AM station WKMC is addressed below.

WKMC(AM) employs a two-tower directional antenna to operate with 5 kW of power during daytime hours. WKMC is licensed as a secondary operation during nighttime hours with 38 Watts of power employing the same two-tower directional antenna pattern. An examination of the WKMC pattern reveals that the pattern has two nulls (one at 140° T and one at 256°T). The nulls in the pattern are not deep; the daytime standard pattern radiation value at each of these nulls is 368.4 mV/m at 1 km (32.7% of the standard pattern maximum radiation of 1125.1 mV/m at 1 km). Given the facts that the proposed tower is so far away from WKMC (almost at the 3.2 km limit of 47 CFR 73.1692) and that the directional antenna pattern for WKMC is a simple two-tower pattern without deep nulls, the amount of re-radiation which may be generated as a result of the new tower is predicted to be minimal and to have no adverse effect on the

WJSM-FM
Martinsburg, Pennsylvania

Page 5

directional antenna pattern for WKMC. Because of these facts, it is requested that the Commission not require a partial proof of performance on WKMC.

David E. Dickmann

June 10, 2005

Figure 1

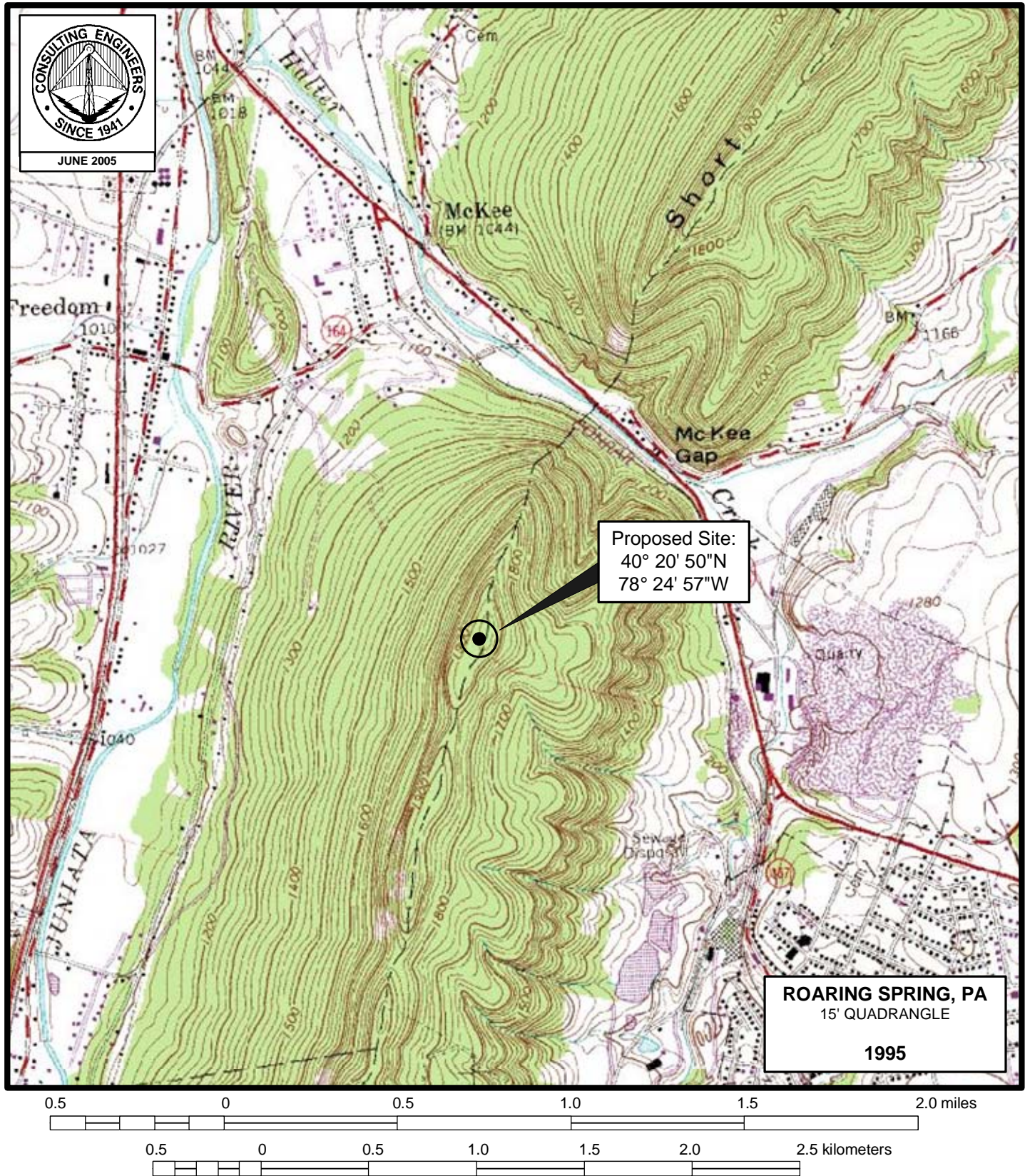
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Technical Specifications

Channel / Frequency	224A / 92.7 MHz
Site Coordinates (NAD'27)	40°20'50"North Latitude 78°24'57"West Longitude
Site elevation	592.5 m (1944 feet) AMSL
Overall height of proposed structure	55.8 m (183 feet) AGL / 648.3 m (2127 feet) AMSL
Height of antenna radiation center	50.3 m (165 feet) AGL / 642.8 m (2109 feet) AMSL
Antenna radiation center HAAT	180 M
Transmitter	as required
Transmitter power output	1.33 kW
Transmission line	Andrew, HJ7-50A*
Transmission line length	56 m (185 ft)
Transmission line efficiency	91.9 %
Antenna	3-bay
Polarization	Circular
Power gain	1.56
Antenna input power	1.22 kW
Effective radiated power (H & V)	1.90 kW

*or equivalent

Figure 2

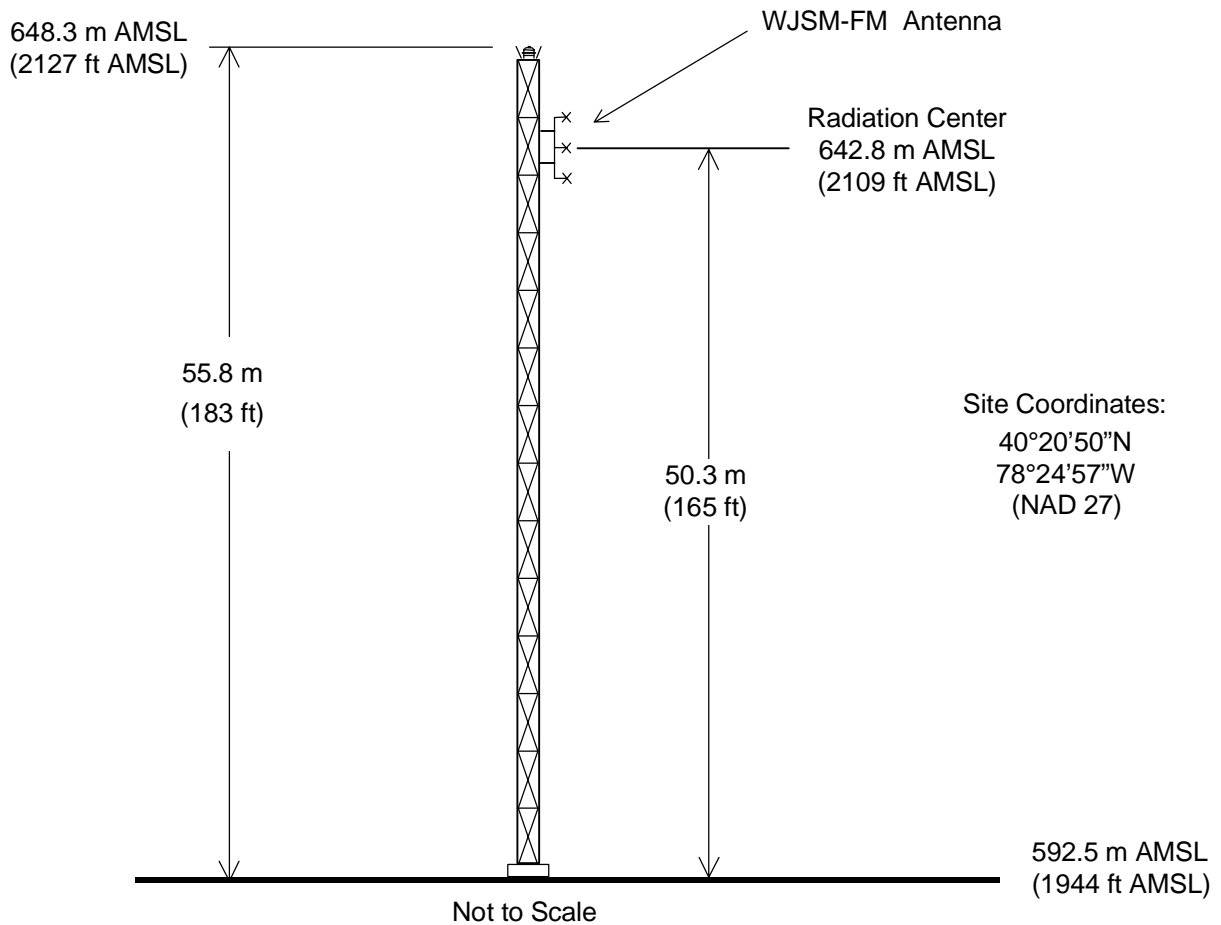
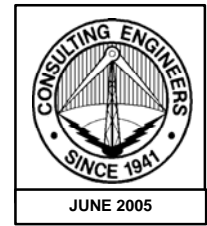


PROPOSED TRANSMITTER LOCATION

RADIO STATION WJSM-FM
MARTINSBURG, PENNSYLVANIA
CH 224A 1.9 KW 180 M

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

Figure 3

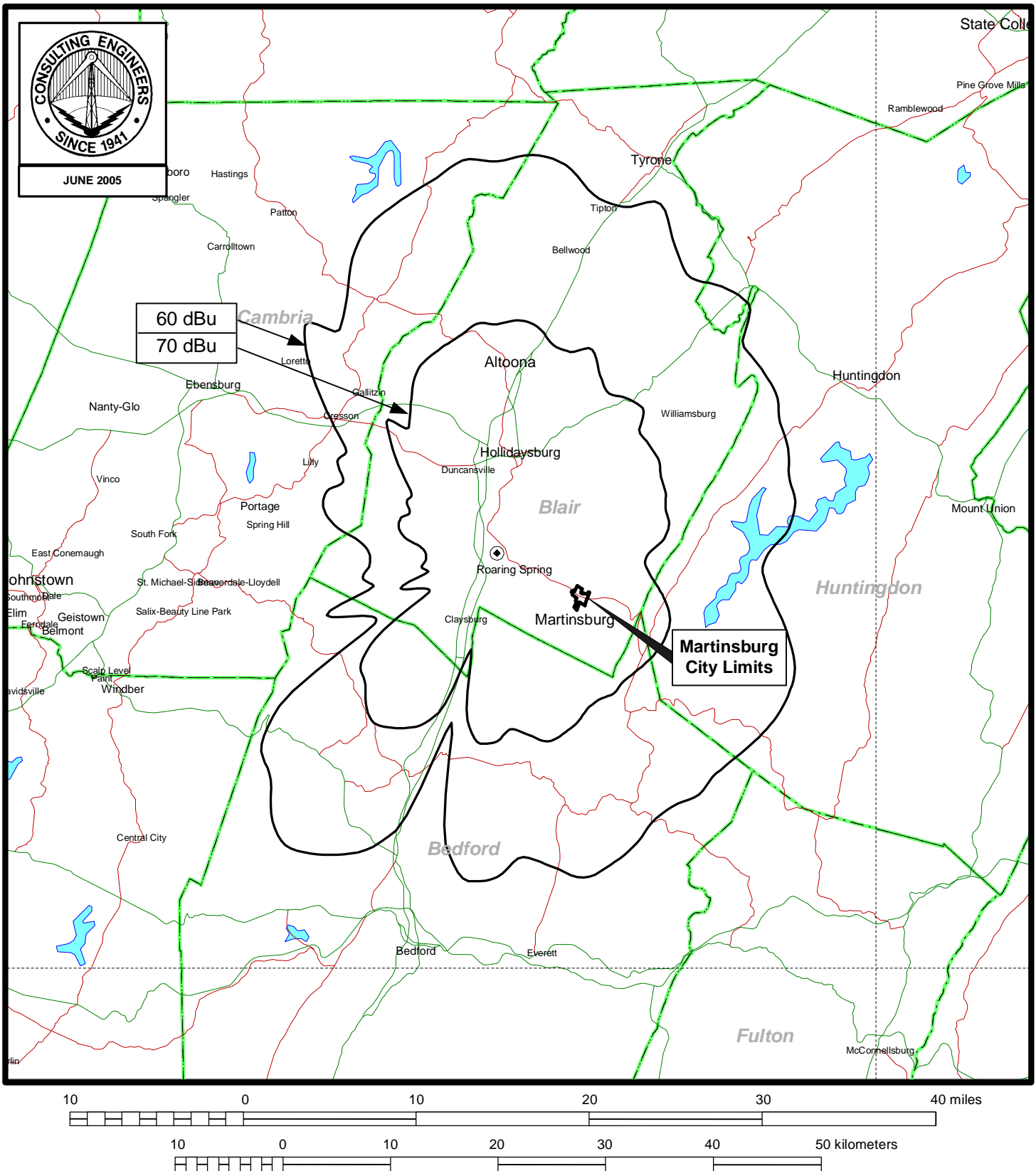


PROPOSED ANTENNA AND SUPPORTING STRUCTURE

RADIO STATION WJSM-FM
MARTINSBURG, PENNSYLVANIA
CH 224A 1.9 KW 180 M

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

Figure 4



PREDICTED COVERAGE CONTOURS

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MARTINSBURG, PENNSYLVANIA
CH 224A 1.9 KW 180 M

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ALLOCATION STUDY

RADIO STATION WJSM-FM

MARTINSBURG, PENNSYLVANIA

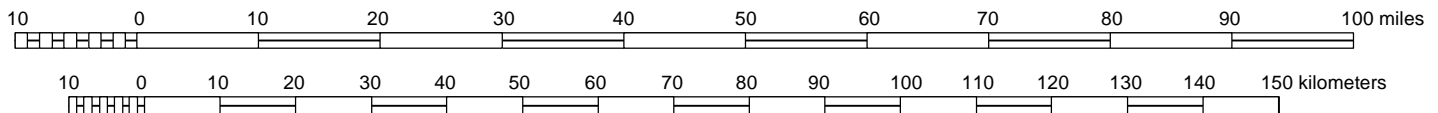
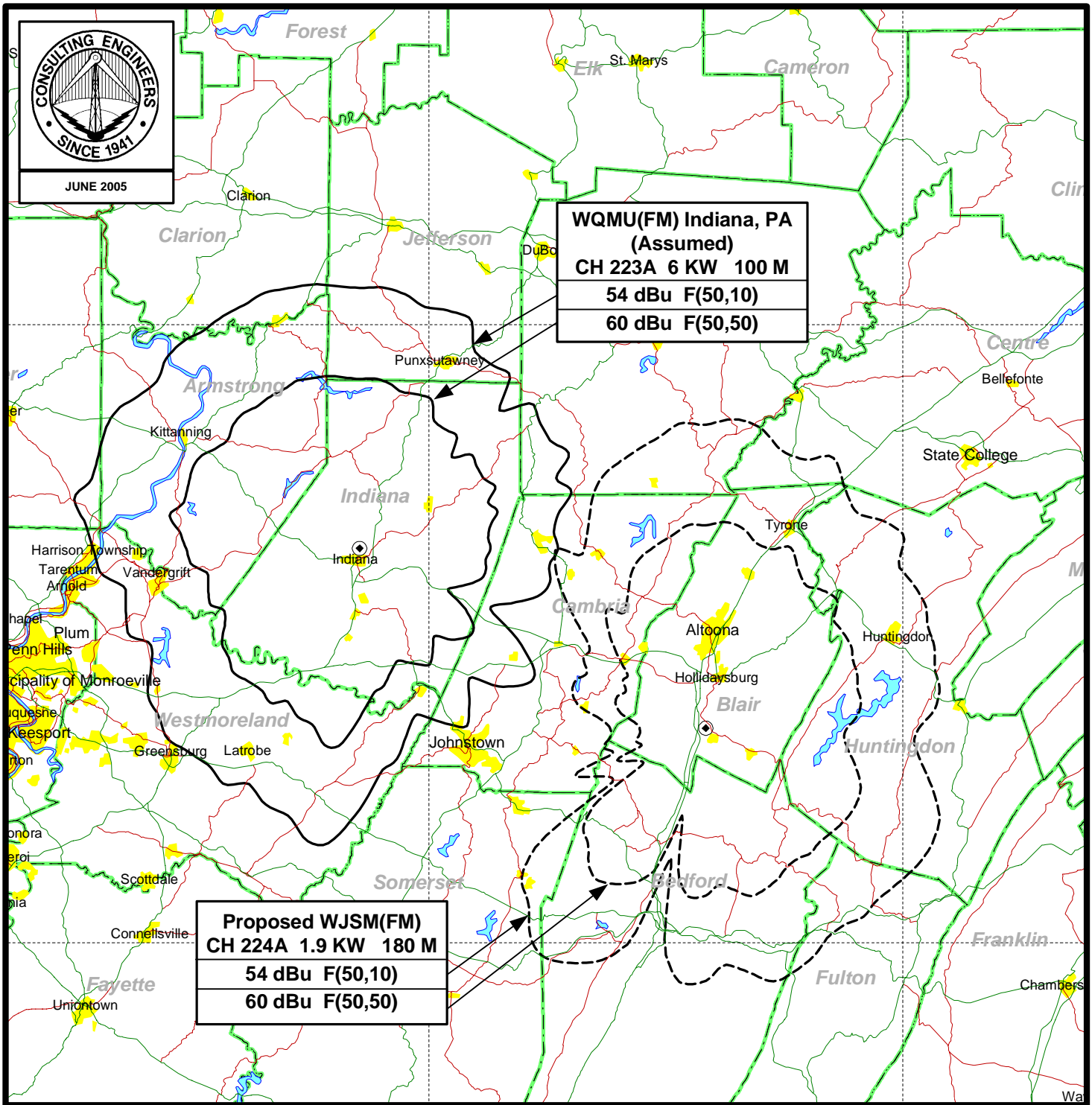
CH 224 1.90 KW 180 M

Job Title: Proposed WJSM-FM
Channel: 224 A

Separation Buffer: 32 km
Coordinates: 402050 0782457

Call Id	City St	File Status	File Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km)
WRKW 64848	JOHNSTOWN PA	LIC C	BMLH 19991018ABR	221 A 92.1	0.580 318	N 29491	40-22-15 078-59-02	N	273.3	48.33	31.0
WKVR-FM 32952	HUNTINGDON PA	LIC C	BLD 19890324KA	222 D 92.3	0.013 -81	N	40-30-00 078-00-52	N	63.3	38.05	27.0
WQMU 56644	INDIANA PA	LIC C	BMLH 19980918KB	223 A 92.5	3.000 33	N	40-38-17 079-08-47	N	297.9	69.85	72.0 ¹
WJUN-FM 62367	MEXICO PA	LIC C	BLH 19961127KC	223 A 92.5	0.440 360	N	40-34-58 077-29-48	Y	71.1	82.23	72.0
WCCR 11661	CLARION PA	LIC C	BLH 19850712KA	224 A 92.7	3.000 85	N	41-14-41 079-15-42	N	324.8	122.59	115.0
WSJW 62368	STARVIEW PA	LIC C	BLH 20040322AFY	224 A 92.7	0.700 291	N	40-04-32 076-48-03	N	101.9	140.76	115.0
WDHC 68204	BERKELEY WV	SP CP	BPH 20040601ATJ	225 A 92.9	3.200 139	N	39-37-00 078-13-03	N	168.2	82.87	72.0
WLTJ 73889	PITTSBURGH PA	CP C	BPH 20050218ABW	225 B 92.9	43.000 260	N	40-29-43 080-00-17	Y	277.5	135.85	113.0
WLTJ 73889	PITTSBURGH PA	LIC C	BLH 4834	225 B 92.9	47.000 271	N	40-29-38 080-01-09	N	277.4	137.05	113.0
WLAK 42135	HUNTINGDON PA	LIC C	BLH 19890224KD	278 A 103.5	0.160 435	N	40-29-51 078-08-00	N	55.0	29.21	10.0

¹ Contour protection provided per 47 CFR 73.215.



ALLOCATION MAP **RADIO STATION WJSM-FM** **MARTINSBURG, PENNSYLVANIA** **CH 224A 1.9 KW 180 M**

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

APPENDIX – ANTENNA VERTICAL RADIATION PATTERN
(one page follows)

ELECTRONICS RESEARCH, INC.
108 MARKET STREET
NEWBURGH, IN. 47630

-----THEORETICAL-----
VERTICAL PLANE RELATIVE FIELD

MAY 24, 1993
ELEMENT SPACING:
1.0 WAVELENGTH

8 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS
0 DEGREE(S) BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL

FIGURE F3

POWER GAIN IS 1.559 IN THE HORIZONTAL PLANE(1.559 IN THE MAX.)

