

**COPY**

**RADIO BROADCAST STATION LICENSE**

Licensee Name: UNIVERSITY OF MICHIGAN

Radio Service: RP AUXILIARY REMOTE PICKUP

License Effective Date: 11/05/1985

Call Sign: WZZ759

File Number: 850920MB

License Expiration Date: 10/01/2005

Associated Broadcast Station: WFUM

981215M 39 1 1Z

UNIVERSITY OF MICHIGAN  
1321 E COURT ST.  
FLINT MI 48503

**Station Technical Specifications**

| FCC ID   | Frequencies MHZ                                   | Station Class | No. of units | Emission Designator | Output Power (Watts) | Overall Height | Ground Elev. | Ant. Ht. to Tip | Antenna Latitude | Antenna Longitude |
|--|---|---------------|--------------|---------------------|----------------------|----------------|--------------|-----------------|------------------|-------------------|
| A:   | 455.01000   | FB            | 1            | 10K0F3E             | 10.000               | 283            | 280          | 101             | 42-53-57         | 083-27-42         |
| TRANSMITTER STREET ADDRESS   |   |               |              |                     |                      | CITY           |              | COUNTY          |                  | STATE             |
| A:   | 0.39 MI S OF GREN RD                              |               |              | 0.7 MI W OF         |                      | GOODRICH       | GENESEE      |                 | MI               |                   |
| AZIMUTH  |   |               |              |                     |                      |                |              |                 |                  |                   |
| SITE   | A: 308.0  |               |              |                     |                      |                |              |                 |                  |                   |
| POLARIZATION   |   |               |              |                     |                      |                |              |                 |                  |                   |
| SITE   | A: H  |               |              |                     |                      |                |              |                 |                  |                   |
| PAINTING AND LIGHTING SPECIFICATIONS   |   |               |              |                     |                      |                |              |                 |                  |                   |
| SITE   | A: SEE ATTACHED FORM 715/715A PARAGRAPHS: A B D H |               |              |                     |                      |                |              |                 |                  |                   |
| SPECIAL COND: (FAC ID 69273)   |   |               |              |                     |                      |                |              |                 |                  |                   |
| The latitude/longitude are authorized in North American Datum 1927 (NAD27). Additionally, the antenna height to tip, ground elevation, AAT and area of operation units are authorized in metric. |   |               |              |                     |                      |                |              |                 |                  |                   |
| EMISSION DESIGNATOR(S) CONVERTED TO CONFORM TO DESIGNATOR(S)<br>SET OUT IN PART 2 OF THE COMMISSION'S RULES.   |   |               |              |                     |                      |                |              |                 |                  |                   |



## HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES

COPY

It is to be expressly understood that the issuance of these specifications is in no way to be considered as precluding additional or modified marking or lighting as may hereafter be required under the provisions of Section 303(q) of the Communications Act of 1934, as amended.

### TOP LIGHTING

A. There shall be installed at the top of the antenna structure a white capacitor discharge omnidirectional light which conforms to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. This light shall be mounted on the highest point of the structure. If the antenna or other appurtenance at its highest point is incapable of supporting the omnidirectional light, one or more such lights shall be installed on a suitable adjacent support with the lights mounted not more than 20 feet below the tip of the appurtenance. The lights shall be positioned so as to permit unobstructed viewing of at least one light from aircraft at any normal angle of approach. The light unit(s) shall emit a beam with a peak intensity around its periphery of approximately 20,000 candelas during daytime and twilight, and approximately 4,000 candelas at night.

B. There shall be installed at the top of the skeletal or other main support structure three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000 candelas (daytime) uniformly about the antenna structure in the horizontal plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The units will normally be adjusted so that the center of the beam is in the horizontal plane.

### INTERMEDIATE LIGHTING

C. At the approximate one-half level of the skeletal tower there shall be installed three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000 candelas (daytime) uniformly about the antenna structure in the horizontal plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The normal angular adjustment of the beam centers above the horizontal shall be two degrees (2°).

D. At the approximate one-third and two-thirds levels of the skeletal tower there shall be installed three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000

candelas (daytime) uniformly about the antenna structure in the horizontal plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The normal angular adjustment of the beam centers above the horizontal shall be two degrees (2°) at the one-third level and one degree (1°) at the two-thirds level.

E. At the approximate one-fourth, one-half and three-fourths levels of the skeletal tower there shall be installed three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000 candelas (daytime) uniformly about the antenna structure in the horizontal plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The normal angular adjustment of the beam centers above the horizontal shall be three degrees (3°) at the one-fourth level, two degrees (2°) at the one-half level and one degree (1°) at the three-fourths level.

F. At the approximate one-fifth, two-fifths, three-fifths and four-fifths levels of the skeletal tower there shall be installed three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000 candelas (daytime) uniformly about the antenna structure in the horizontal plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The normal angular adjustment of the beam centers above the horizontal shall be three degrees (3°) at the one-fifth level, two degrees (2°) at the two-fifths level, one degree (1°) at the three-fifths level and zero degrees (0°) at the four-fifths level.

G. At the approximate one-sixth, one-third, one-half, two-thirds and five-sixths levels of the skeletal tower there shall be installed three or more high intensity light units which conform to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems. The complement of units shall emit a white high intensity light and produce an effective intensity of not less than 200,000 candelas (daytime) uniformly about the antenna structure in the horizontal

plane. The effective intensity shall be reduced to approximately 20,000 candelas at twilight, and to approximately 4,000 candelas at night. The light units shall be mounted in a manner to ensure unobstructed viewing from aircraft at any normal angle of approach, so that the effective intensity of the full beam is not impaired by any structural member of the skeletal framework. The normal angular adjustment of the beam centers above the horizontal shall be three degrees (3°) at the one-sixth level, two degrees (2°) at the one-third level, two degrees (2°) at the one-half level, one degree (1°) at the two-thirds level and zero degrees (0°) at the five-sixths level.

H. All lights shall be synchronized to flash simultaneously at 40 pulses per minute. The light system shall be equipped with a light sensitive control device which shall face the north sky and cause the intensity steps to change automatically when the north sky illumination on a vertical surface is as follows:

1. Day to Twilight: Shall not occur before the illumination drops to 60 footcandles, but shall occur before it drops below 30 footcandles.

2. Twilight to Night: Shall not occur before the illumination drops to 5 footcandles, but shall occur before it drops to 2 footcandles.

3. Night to Day: The intensity changes listed in 1. and 2. above shall be reversed in transitioning from the night to day modes.

### TEMPORARY LIGHTING

I. During construction of an antenna structure for which high intensity lighting is required, at least two lights shall be installed at the uppermost part of the structure. In addition, at each level where permanent obstruction lighting will be required, two similar lights shall be installed. Each temporary light shall consist of at least 1,500 candelas (peak effective intensity), synchronized to flash simultaneously at 40 pulses per minute. Temporary lights shall be operated continuously, except for periods of actual construction, until the permanent obstruction lights have been installed and placed in operation. Lights shall be positioned to ensure unobstructed viewing from aircraft at any normal angle of approach. If practical, the permanent obstruction lights may be installed at each level as the structure progresses. *NOTE:* If battery operated, the batteries should be replaced or recharged at regular intervals to preclude failure during operation.

### OPTIONAL LIGHTING

J. Antenna structures shall be equipped with:

1. High intensity lighting for daytime use and red lighting for nighttime use as specified in FCC Form 715; or

2. High intensity lighting, 24 hours a day, which conforms to FAA/DOD Specification L-856, High Intensity Obstruction Lighting Systems.