

RFR Survey Report

Call Sign : WAQB

FCC Facility ID # 1542

Frequency Allocation : 90.9 MHz

Tupelo, MS

N. 34 deg, 28 min, 28 sec

W 88 deg, 43 min, 41 sec

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Prepared for :

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Scope of Work :

The purpose of this survey was to measure the levels of RFR exposure in the immediate vicinity of the WAQB transmitter facility, in order to determine compliance with the RF safety standards* as being set forth in FCC Bulletin OET 65.

* **General population/uncontrolled exposure.** For FCC purposes, applied to human exposure to RF fields when the general public is exposed or which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment related.

Note: FCC radiofrequency radiation limits are exposure limits and not emission limits. This is why only areas which the general public may have access to are of interest for this survey.

Note : The acceptable level of RFR exposure for the general population is equivalent to 1/5 (20 %) of the occupational safety limits.**

** **Occupational/controlled exposure.** For FCC purposes, applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of transient nature of incidental passage through a location where exposure may be above general population/uncontrolled limits. As long as the exposed person has been fully made aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

*(**) 1 FCC OET Bulletin 65 Edition 97-01

Measurement Instrument Information :

Narda Model NBM 550 Survey Meter

(Isotropic, shaped frequency response electric field probe)

Conforms to : FCC 1997 reg. Occupational Environments 300kHz-3.0 GHz
 NCRP Report 86 Occupational Environments 300kHz-3.0 GHz
 IEEE C95.1-1991 Controlled Environments 300kHz-1.5GHz

Site Description and Remarks :

The WAQB transmission facility is located on private property, in a small clearing within lightly forested terrain in a rural area some distance from the town of Guntown, MS.

The site is accessed from CR 503 via a narrow lane which is “gated” with a chain across the track. This chain is appropriately placarded.

The transmitter facility consists of one building, a perimeter fence around the building and a guyed tower within the small fenced compound.

The guy-wire anchor points are heavily overgrown with vegetation but are otherwise not barricaded or made inaccessible to the public.

The remote location and somewhat limited access mitigate against exposure to the general population, but the area is not completely secure and there are a number of routes which could provide access to the immediate vicinity of the facility, and more especially, to the guy-wire anchor points.

A sketch of this facility is included in this report, as well as an aerial view of the locale.

At the time of these measurements, WAQB and the co-located station WAFR were both operating at their nominal full power outputs.

Table of Measurement Results :

Area	Description	Average	Max
A	Spatial averaging : ~ 2 feet outside facility fence, measured around entire perimeter	-	< 5.5%
B	Spatial averaging : ~ 20 feet outside facility fence, measured around entire perimeter	-	< 3.7 %
C	NE guy-wire, inner anchor point, 6' radius around common connection	1.6 %	
D	NE guy-wire, outer anchor point, 6' radius around common connection	1.8 %	
E	SE guy-wire, inner anchor point, 6' radius around common connection	3.5 %	
F	SE guy-wire, outer anchor point, 6' radius around common connection	4.0 %	
G	NW guy-wire, inner anchor point, 6' radius around common connection	2.0 %	
H	NW guy-wire, outer anchor point, 6' radius around common connection	1.1 %	
I	Electrical power pole, approx 65' east of NE corner of transmitter building fence		7.2 %
J	West power-pole guy wire, max reading along portion of wire easily reachable		4.7 %
K	South-West power-pole guy wire, max reading along portion of wire easily reachable		3.5 %
L	Along access track, approx 200 feet from NE corner of fence	~ 2.0 %	
M	Along access track, approx 300 feet inside the "gate", near edge of clearing	~ 0.66 %	
N *	On tower, at guy-level 1 (approx 100' above ground)	3.9 %	
P*	On tower, at guy- level 2 (approx 200' above ground)	3.7 %	
Q*	On tower, at guy- level 3 (approx 300' above ground)	16.2 %	
R*	On tower, at guy- level 4 (approx 400' above ground)	38.5 %	
S*	On tower, at guy- level 5 (approx 500' above ground)	54.0 %	
T*	Inside transmitter building	< 1.0 %	5.5 %

Note: The measurement results are referenced to 100% of the Occupational Standard

* These measurements are not pertinent to General Population exposure level mitigation or protective measures, as they are inside the fenced area.

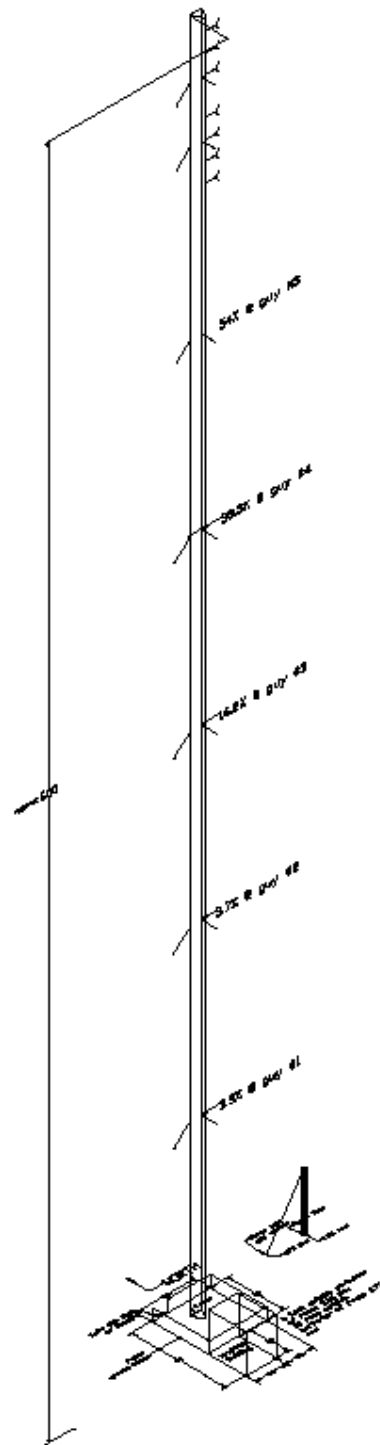
Table of Measurement Results, in immediate proximity to guy-wires at the various anchor points

Area	Description	Max
C	NE guy-wire, inner anchor point, within 12 inches of wire, at “hi-voltage node”	40 %
D	NE guy-wire, outer anchor point, within 12 inches of wire, at “hi-voltage node”	175 %
E	SE guy-wire, inner anchor point, within 12 inches of wire, at “hi-voltage node”	13 %
F	SE guy-wire, outer anchor point, within 12 inches of wire, at “hi-voltage node”	150 %
G	NW guy-wire, inner anchor point, within 12 inches of wire, at “hi-voltage node”	88 %
H	NW guy-wire, outer anchor point, within 12 inches of wire, at “hi-voltage node”	> 200 %

Note: The measurement results are referenced to 100% of the Occupational Standard.

While it is unlikely that any member of the general population would be in very close proximity to the anchor points, it is possible, and there is presently no barrier to prevent such proximity or actual contact with the guy-wires and anchor points.

Sketch of WAQB tower :



Conclusions and Recommendations:

The FCC RF safety guidelines are derived from whole body SAR values. Spatially averaged RF field levels measured over the height of a person allow to most accurately estimating whole body SAR values. Therefore, local MPE values exceeding the allowed levels may not result in non-compliance if the spatial average over the whole body does not exceed the MPE values.

100% MPE represents the maximum value a person can be continuously exposed to RF. Exposure duration less than 6 minutes allow higher MPE levels than 100%.

The FCC RF safety regulation show 2 tiers of exposure levels, one for a controlled environment and one for an uncontrolled environment. **The exposure levels for an uncontrolled environment are one fifth of the controlled environment.** To apply the levels of the controlled environment, personnel have to be made aware of the RF levels. This can be done by training and/or appropriate signage.

- None of the ground level measurements in areas readily accessible to the public indicated exposure exceeding $1/5$ (20%) of the occupational standards.
- The perimeter fence and placards at the access gate to the building compound are sufficient to meet the requirements.
- Measurements taken in very close proximity to the various guy-wire anchor points do exceed the public exposure limits.
- Public access to all areas above the uncontrolled MPE must be restricted to be in compliance. Because the public exposure level was exceeded at the various anchor points, public access must be restricted.
- The vegetation and overgrowth should be cleared away from the anchor points, fencing should be installed providing a clearance radius of at least 6 feet and appropriate placards installed.
- Measurements taken at the fifth guy level on the tower are below the MPE level. However, the level is approaching the limit and this should be considered the highest point at which personnel may work without taking action to ameliorate exposure. There are signs posted at the tower base cautioning of possible RF radiation hazards.

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Aerial View of Transmitter Location

1 Aerial overview of transmitter site



WAQB Transmitter building

2 General view of facility from ground level



3 SE inner anchor point



4 Closeup view of SE inner anchor point



5 SE outer anchor point



6 NE inner anchor point



7 NE inner anchor point, alternative view



8 NE outer anchor point



9 NW inner anchor



10 NW inner anchor, second view



11 NW outer anchor



12 NW outer anchor, alternative view



13 ZOOM-view of tower top region, showing the two antennas

