

DEPARTMENT OF COMMERCE  
NAVIGATION SERVICE

OFFICE OF RADIO INSPECTOR  
CUSTOMHOUSE  
NEW ORLEANS, LA.

June 11th, 1920.

Department of Electrical Engineering,  
University of Arkansas,  
Fayetteville, Arkansas.

Sirs:-

Enclosed find Technical & Training School License.

Please acknowledge receipt.

Respectfully,

*Theodore G. Deiler,*

Asst. U. S. Radio Inspector.

*ack. June 17.*

TGD/LHP- Encl.

# LICENSE FOR LAND RADIO STATION

CLASS TECHNICAL & TRAINING SCHOOL.

DEPARTMENT OF COMMERCE  
BUREAU OF NAVIGATION  
RADIO SERVICE

Pursuant to the act to regulate radio communication, approved August 13, 1912,

Department of Electrical Engineering. University of Arkansas

a citizen of the State of \_\_\_\_\_, a company incorporated under the laws of the State of Arkansas, having applied therefor, is hereby granted by the Secretary of Commerce for a period of one year on and subject to the restrictions and conditions hereinafter stated and revocable for cause by him, this License to use or operate the apparatus for radio communication (identified in the schedule hereinafter) for the purpose of transmitting to and receiving from ship stations and other land stations public correspondence, Government and service correspondence, and distress signals and messages, at rates of compensation not in excess of those fixed by the international agreement to which the Government of the United States has adhered, which have been submitted to and approved by the Secretary of Commerce, as included in the schedule hereinafter, or for the purpose of conducting experiments for the development of the science of radio communication or the apparatus pertaining thereto, to carry on special tests, using any amount of power or any wave lengths, at such hours and under such conditions as will insure the least interference with the sending or receipt of commercial or Government radiograms, of distress signals and radiograms, or with the work of other stations, the purpose of the station being designated by the classification at the head of this License.

2. Public correspondence or limited commercial correspondence authorized by this License shall be limited to certain stations, ships or lines of ships named hereinafter, which designation is authorized in view of the nature of the service and is independent of the radio system employed.

3. The use or operation of apparatus for radio communication pursuant to this License shall be subject also to the articles and regulations established by the International Radiotelegraphic Convention, ratified by the Senate of the United States and caused to be made public by the President, and shall be subject also to such regulations as may be established from time to time by authority of subsequent acts and treaties of the United States, in so far as they apply to the class of station indicated by this License.

4. The authority conferred by this License is subject to the provisions of the act of February 4, 1887, entitled "An Act to regulate commerce," as amended by the act of June 18, 1910, so far as the Licensee may be within the operation of said act, and except as provided in the act of August 13, 1912, or in the International Radiotelegraphic Convention and regulations made part thereof, the station shall transmit all messages offered by those who tender lawful rates on equal terms without discrimination, whether as regards rates, order of transmission, or otherwise.

5. The Licensee shall render to the Secretary of Commerce such accounts as the Secretary of Commerce shall direct in respect of all charges due or payable under the International Radiotelegraphic Convention in respect of messages exchanged between the station hereby licensed and other stations and shall pay to the Secretary of Commerce, at such times and in such manner as the Secretary of Commerce shall direct, all sums which shall be due from the Licensee under such accounts.

6. The apparatus shall at all times while in use and operation be in charge or under the supervision of a person or persons licensed for that purpose by the Secretary of Commerce, and the operator of the apparatus shall not willfully or maliciously interfere with any other radio communication.

7. The station shall give absolute priority to signals and radiograms relating to ships in distress; shall cease all sending on hearing a distress signal; and, except when engaged in answering or aiding the ship in distress, shall refrain from sending until all signals and radiograms relating thereto are completed.

8. The station shall use the minimum amount of energy necessary to carry out any communication desired, except in case of signals or radiograms relating to vessels in distress.

9. The station shall not use a transmitter during the first 15 minutes of each hour, local standard time, except for distress signals, whenever the Secretary of Commerce by notice in writing shall require it to observe a division of time, pursuant to the Twelfth Regulation of the act of August 13, 1912.

10. The President of the United States in time of war or public peril or disaster is authorized by law to close the station and cause the removal therefrom of all radio apparatus or may authorize the use or control of the station or apparatus by any department of the Government upon just compensation to the owners.

11. The Secretary of Commerce and Collectors of Customs or other officers of the Government authorized by him may at all reasonable times enter upon the station for the purpose of inspecting and may inspect any apparatus for radio communication of such station and the operation and operators of such apparatus.

12. The apparatus shall not be altered or modified in respect of any of the particulars mentioned in the following schedule, except with the approval of the Secretary of Commerce.

## SCHEDULE OF STATION AND APPARATUS

Name of owner, Department of Electrical Engineering. University of ArkansasLocation: State, Arkansas; County, WashingtonCity or town, Fayetteville; Street, --; No. \_\_\_\_\_Geographical location: Latitude, N. 36 ° 3 ' --"; Longitude, W. 94 ° 10 ' --"

This station is licensed for communication only with the following land stations, ships, or lines of ships:

Technical & Training SchoolSpecific hours during which the station <sup>must</sup> be open to service (local standard time): \_\_\_\_\_  
<sub>may</sub>No specific hours.Power: Transformer input, Variable KW?Normal day range in nautical miles, --

Time and method, if any, of sending time signals and hydrographic and meteorological radiograms:

Call letters, 5 I M

\_\_\_\_\_; Coast charges: per word \_\_\_\_\_, minimum per radiogram \_\_\_\_\_

\_\_\_\_\_; Coast charges: per word \_\_\_\_\_, minimum per radiogram \_\_\_\_\_

\_\_\_\_\_; Coast charges: per word \_\_\_\_\_, minimum per radiogram \_\_\_\_\_

Radiotelegraphic system employed, Composite

Characteristics of transmitting system:

Type of spark gap, rotary non-synchronousApproximate spark frequency, VariableInductive, Audion detector.Wave length range of receiving system: From 200 meters to 6000 meters.Antenna: Number of masts 2, Height, --, \_\_\_\_\_, \_\_\_\_\_Type of aerial, └Wires: Number, 2; Size and kind, † 12 Ga.Essential dimensions: Maximum height above water, 90 feet; Length of horizontal part, 100 feet; Length of vertical part, 35 feet; Total length measured from apparatus, 135 feet; Length of ground connection, 10 feet; Fundamental wave length -- meters.

## WAVE LENGTHS

The normal sending and receiving wave length shall be 200 meters.

If the station be classified as a coast station it shall be prepared to transmit or relay distress calls

or messages using the distress wave length as provided by the International Radiotelegraphic Convention in force.

In view of special conditions the station is authorized to use for communication exclusively with stations licensed by the United States the following additional wave lengths under 600 or over 1,600 meters:

Meters, 200; Meters, 375; Meters, \_\_\_\_\_; Meters, \_\_\_\_\_

The energy, if radiated by the transmitter in two or more wave lengths as indicated by a sensitive wave meter, shall not in any one of the lesser waves exceed 10 per cent of that in the greatest; and the logarithmic decrement per complete oscillation in the wave trains shall not exceed two-tenths, except when sending signals or messages relating to vessels in distress.

SENDING WAVE LENGTH	ANTENNA CURRENT (AMPERES)	LOGARITHMIC DECREMENT	READING OF WAVE METER INDICATING INSTRUMENT*	
			PRINCIPAL WAVE	WAVE NEXT IN ENERGY
300 meters . . .				
600 meters . . .				
200 meters . . .	200 meters for ordinary communication; 375 for relay or other communi-			
375 meters . . .	cation.			
_____ meters . . .	Artificial antenna to be used whenever possible for experiments requiring			
_____ meters . . .	high power or long wave lengths.			

\* Type of indicating instrument, \_\_\_\_\_

The station insures rapid exchange with land wire stations at

\_\_\_\_\_  
 (Company) (Location telegraph office)  
 \_\_\_\_\_  
 (Company) (Location telegraph office)

in the following manner \_\_\_\_\_

Satisfactory proof has been furnished that the station was actually operating August 13, 1912.

This License will expire on the 3rd. day of June, 1921, 19



*David Rogers*  
 Acting Secretary of Commerce.

*A. J. W. W.*  
 Acting Commissioner of Navigation.

Washington, D. C., June 4, 1920. 19

INSPECTIONS

DATE	INSPECTOR	REMARKS

# APPLICANT'S DESCRIPTION OF APPARATUS

## DEPARTMENT OF COMMERCE BUREAU OF NAVIGATION RADIO SERVICE

The following form of description of apparatus will be filled out in duplicate and forwarded to the radio inspector by each applicant for a license for apparatus for radio communication of any class (ship or land), except amateur stations (general or restricted) for which Form 762 is provided. The inspector, if necessary, will then arrange for an inspection of the station, or, when feasible, the inspector may accompany the applicant and make the inspection during the filling of this form.

Where the form calls for a statement of details of apparatus with which the station is not equipped, the applicant will please draw a line through the space provided for the appropriate answer.

The information is desired primarily as the basis of the description of the apparatus to be inserted in the license, but many of the details are desired to facilitate the classification and particularly the inspection of stations, and will not, of course, be incorporated in the license. This form when filled will not be open to public inspection.

**NOTICE.—This Form Must be Submitted in Duplicate to the Proper Radio Inspector.**

### GENERAL SPECIFICATIONS OF STATION.

Name of applicant: Department of Electrical Engineering, University of Arkansas  
 Address: Fayetteville, Arkansas  
 A citizen of the State of \_\_\_\_\_ Or a company incorporated in the State of \_\_\_\_\_  
 Name and address of owner of radio apparatus same

IF SHIP STATION—Name of ship: \_\_\_\_\_ Owner of ship: \_\_\_\_\_  
 Type of vessel: \_\_\_\_\_ Official number: \_\_\_\_\_ International signal code letters: \_\_\_\_\_  
 Home port (where permanent document issues): \_\_\_\_\_ Average speed of vessel (nautical miles): \_\_\_\_\_  
 Number of persons in crew: \_\_\_\_\_ Number of passengers vessel is licensed to carry: \_\_\_\_\_  
 Is vessel subject to the Act of June 24, 1910, as amended by the Act of July 23, 1912? \_\_\_\_\_

IF LAND STATION—Coast or inland? Inland Location—State: Ark.  
 County: Washington City or Town: Fayetteville Street: \_\_\_\_\_ No.: \_\_\_\_\_  
 Exact Latitude, North: 36° 3'; Longitude, West: 94° 10'

Class of license desired (see regulations): Technical & Training School Nature of service: Instructional Experimentation  
 Specific hours open to public service: \_\_\_\_\_

If limited station—Corresponds only with (state names of land stations, names of ships or lines of ships): \_\_\_\_\_

Transformer input (normal conditions): 1 K. W.  
 Approximate day-transmitting range (nautical miles) with average ship: \_\_\_\_\_; with similar land station: \_\_\_\_\_

### PRIMARY SOURCE OF POWER SUPPLY.

Engine—Type and horsepower: \_\_\_\_\_  
 Electric power—Source and available K. W.: Fay Gas & Elec. Co Is power continuously available? yes

### SHIP OR COAST CHARGES.

(State class of service, such as North and South American or Transoceanic.)

\_\_\_\_\_ per word: \_\_\_\_\_; minimum per radiogram: \_\_\_\_\_  
 \_\_\_\_\_ per word: \_\_\_\_\_; minimum per radiogram: \_\_\_\_\_  
 \_\_\_\_\_ per word: \_\_\_\_\_; minimum per radiogram: \_\_\_\_\_

Relay charges \_\_\_\_\_

Make and type of radio system to be used: \_\_\_\_\_

Type of spark gap (plain, rotary synchronous, quenched, etc.): rotary (non-synchronous)

Approximate spark frequency (pitch of note) per second: \_\_\_\_\_

Type and make of receiving apparatus (conductive or inductive coupling, etc.): Inductive coupling

Type of detector: Audion

Wave length range of receiving system: From 200 meters to 6000 meters.

### ANTENNA.

Type of antenna (T, T, umbrella, fan, etc.): T

Masts—Number: 2 Steel or wood? 1 steel, 1 wood Other supports: \_\_\_\_\_

Essential dimensions—Maximum height above ground or water: 90 ft. Length of horizontal part: 100 ft.

Length of vertical part (including lead-in): 85 ft. Total length measured from apparatus: 135 ft.

Length of ground connection: 10 ft. Fundamental wave length: \_\_\_\_\_ meters.

Other essential dimensions: \_\_\_\_\_

Number of wires: 2 Size and kind of wire used: #12 Cae. Spacing between wires: 8 7/8

Insulators—Material: composition Sizes: 10 in.

Location: \_\_\_\_\_

Ground connection—Type: Soldered to water main

Lightning protective switch—Type: knife switch Location: Entrance

How operated: hand

Remarks: \_\_\_\_\_

<sup>1</sup> Person, company, or corporation controlling and operating station and responsible, under the law, for operation and radio accounts.  
<sup>2</sup> Show address of office to which should be sent communications concerning radio accounts and operation of station.

**AUXILIARY APPARATUS (IF SHIP STATION)**

Type and make: \_\_\_\_\_ Wave length: \_\_\_\_\_ meters.  
 Source of power: \_\_\_\_\_ Normal day range (nautical miles) with ships: \_\_\_\_\_  
 Plain aerial or coupled circuits? \_\_\_\_\_ Condenser in aerial circuit? \_\_\_\_\_

**NORMAL WAVE LENGTH AND OTHER WAVE LENGTHS APPLIED FOR.**  
 (UNDERSCORE NORMAL.)

SENDING WAVE LENGTH.	ANTENNA CURRENT.	LOGARITHMIC DECREMENT.
300 meters		
600 meters	2	
_____ meters		
_____ meters		
_____ meters		
_____ meters		

If public service coast station, the station insures rapid exchange with land wire stations as follows:

Company: \_\_\_\_\_ Place: \_\_\_\_\_ By direct wire or telephone? \_\_\_\_\_  
 Company: \_\_\_\_\_ Place: \_\_\_\_\_ By direct wire or telephone? \_\_\_\_\_  
 Number of operators required—First grade: \_\_\_\_\_ Second grade: \_\_\_\_\_ Others: \_\_\_\_\_

**POWER SUPPLY TO TRANSMITTER.**

(a) Motor generator:

<i>Motor.</i>	<i>Generator.</i>
Voltage—A. C. or D. C. and cycles: _____	Volts (rated) and cycles: _____
H. P. (rated): _____ Speed: _____	K. W. (rated): _____
Location: _____	K. V. A. (rated): _____
Remarks: _____	

(b) Power-measuring instruments:  
 Type, make, range, etc. \_\_\_\_\_  
 Motor starter—Direct or distant control? \_\_\_\_\_ Are motor field rheostat and generator field rheostat provided? \_\_\_\_\_

(c) Storage battery:  
 Make: \_\_\_\_\_ Type: \_\_\_\_\_  
 Capacity (ampere hours): \_\_\_\_\_ Number of cells: \_\_\_\_\_ Location: \_\_\_\_\_

(d) Internal-combustion engine:  
 Make: \_\_\_\_\_ Type: \_\_\_\_\_  
 K. W. of generator (rated): \_\_\_\_\_ Location: \_\_\_\_\_

**RADIO APPARATUS.**

(a) Transmitter:  
 Is proper means provided for reducing the range of the station as required by the London Convention? yes  
 Condenser in aerial circuit for \_\_\_\_\_ meters, \_\_\_\_\_ meters.  
 Coupling—Inductive or conductive? Inductive Type of primary condenser: Air

(b) Receiver:  
 Is secondary circuit tuned or untuned? tuned Are complete duplicate receivers installed? no  
 Are tuning positions for 300 meters and 600 meters plainly marked on apparatus? yes  
 Method used for disconnecting receiver when transmitting (hand switch or automatic "break"): Hand Switch

Was the station in actual operation on or prior to August 13, 1912? no

Signature of applicant: Electrical Engineering Dept. University of Arkansas  
 By: W. B. Stegner

**INSTRUCTIONS TO RADIO INSPECTORS.**

Send out this form in triplicate—one for the applicant's files if he desires it. When received back, fill in the following; preserve one copy for your records and forward the original to the Commissioner of Navigation with report and recommendation.

Received by (inspector): \_\_\_\_\_ at \_\_\_\_\_ Date: \_\_\_\_\_  
 Date of inspection of station: \_\_\_\_\_ Inspected by: \_\_\_\_\_

**REPORT AND RECOMMENDATION.**

The license, when approved by the Secretary of Commerce, will be forwarded to the inspector for delivery to the applicant. The inspector will fill in from the license the following on his file copy:

Class of license: \_\_\_\_\_ Serial No.: \_\_\_\_\_ Date of delivery to applicant: \_\_\_\_\_