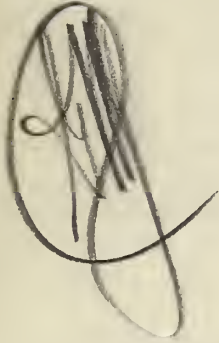


HEINL RADIO BUSINESS LETTER

INSURANCE BUILDING

WASHINGTON, D. C.

ISSUED TWICE A WEEK AND CONTAINING THE LATEST INFORMATION REGARDING THE RULINGS OF THE FEDERAL RADIO COMMISSION, RADIO LEGISLATION, DEPARTMENT OF COMMERCE REGULATIONS, CHANGES IN WAVELENGTH, CALL LETTERS AND POWER, PATENTS, EXPORTS, FEDERAL TRADE COMMISSION RULINGS AND OTHER MATTERS OF INTEREST TO BROADCASTERS AND MANUFACTURERS. :: :: **CONFIDENTIAL—NOT FOR PUBLICATION.** :: ::



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No. 438

INDUSTRY RADIO COUNT ONLY 14 PER CENT OFF

There has been a great deal of comment recently on the fact that the preliminary tabulations by the Census Bureau of radio receivers in the various States are falling below the estimates of the Department of Commerce and the radio industry in 1930. Following is the first authentic comparison of these figures and the first prediction as to the probable total of the Census Bureau count.

Tabulations of the preliminary count of radio receiving sets in 25 of the 48 States and in the District of Columbia, as of April 1, 1930, reveal that there is a radio in every third household with a few thousand to spare. It also shows that the estimate of the Department of Commerce and the radio industry, made in the Fall of 1930, was only 14 per cent too high for the States involved.

While these calculations reflect the optimism of the industry last Fall, at the same time they reveal that the trade estimates were not off as much as was indicated by reports on the first few States which fell as much as 50 per cent below the Department of Commerce predictions.

As David Sarnoff, President of the Radio Corporation of America stated recently in an address to his Directors, the Census Bureau figures uncover an unexpected market for new receivers.

The average percentage of families in the 25 States and the District of Columbia reporting radio sets in the census is 35.46 per cent. A total of 2,374,287 sets have been counted as against 2,764,800 estimated for the same area. Thus the estimate, issued by the Department of Commerce but based on a survey conducted by the National Electrical Manufacturers' Association was 390,513 too high, or a little more than 14 per cent.

If the same percentage prevails for the remaining 23 States, the total count of radio receivers in the United States when the census was taken will be approximately 11,500,000 instead of 13,478,600, as estimated.

The average number of families reporting radio sets in the 25 States and the District of Columbia is 91,319 as compared to the estimate of 106,338. While the trade figures are far too high in such States as Alabama, Arizona, Arkansas and Nevada, they prove too conservative for New Hampshire, West Virginia, Wisconsin, Kentucky and Maryland.

In Nevada, for instance, the census figure is 7,869 while the estimate was 23,000; in Arkansas, the respective counts are 40,248 and 90,500; but in Wisconsin, the official tabulation is 364,425 while the estimate was 322,000.

The District of Columbia, while achieving the highest percentage thus far recorded, viz., 53.9, falls far below the Department of Commerce figure. The census takers found only 67,800 sets, while the trade count was 105,000.

Mississippi is so far the State with the fewest proportional number of radio receivers. Only 5.4 per cent of its families reported them.

States in which the counts were fairly close are Connecticut, Delaware, Iowa, Kansas, Maine and North Dakota.

The average number of persons in a household, as found by the Census Bureau, has been about four. The number of radio listeners could, therefore, be estimated at four times the number of receivers, or more than 45,000,000. The Department of Commerce estimate last year was 50,000,000.

Following are the States on which totals have been announced by the Census Bureau, together with their percentages of radio-equipped families, as compared with the estimates of the Department of Commerce for the same States in October, 1930:

STATES	CENSUS COUNT	PERCENTAGE	1930 ESTIMATES
Alabama	56,491	9.5	87,700
Arizona	19,295	18.1	46,600
Arkansas	40,248	9.2	90,500
Colorado	101,376	37.8	172,000
Connecticut	213,821	54.9	219,000
Delaware	27,183	45.8	29,000
District of Columbia	67,880	53.9	105,000
Florida	58,446	15.5	124,000
Georgia	64,902	9.9	111,000
Idaho	32,869	30.3	42,000
Iowa	309,327	48.6	310,000
Kansas	189,527	38.8	195,000
Kentucky	111,452	18.3	92,000
Maine	77,803	39.2	80,000
Maryland	165,465	42.9	115,000
Mississippi	25,475	5.4	48,000
Nevada	7,869	30.6	23,000
New Hampshire	53,111	44.4	47,000
New Mexico	11,404	11.5	28,000
North Dakota	59,352	40.8	61,000
Oklahoma	121,973	21.6	182,000
Utah	47,729	41.1	72,000
Vermont	49,913	44.6	45,000
West Virginia	87,469	23.4	86,000
Wisconsin	364,425	51.1	322,000
Wyoming	19,482	34.0	32,000
Totals	2,374,287	35.46 (average)	2,764,800

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CHANGE IN NEW TRANSMITTERS ORDERED

Broadcasting transmitters more nearly standardized and of less expensive design are required under a new General Order adopted this week by the Federal Radio Commission to govern all new equipment installed and all replacements. The regulation calls for the first major change in transmitter design since crystal control was ordered in 1925.

The new order (No. 115), which amends a previous regulation (No. 91), permits adoption of a new circuit design to supplement the two designs now permitted.

Andrew D. Ring, broadcast engineer of the Radio Commission explained that the new type of transmitter allowed under the order does not have any special improvement over former types, "but it permits a much simpler circuit design and is less expensive."

The text of the order follows in full:

That General Order No. 91 be and the same is hereby amended to read as follows:

Section 1. The maximum rated carrier power of all broadcast transmitters installed after this date shall be determined by the authorized power as given in Table I of this Section. The maximum rated carrier power shall be determined as provided in Section 2 of this General Order.

TABLE I

<u>Authorized Power</u>	<u>Maximum Rated Carrier Power Allowed To Be Installed</u>
(a)	
5 to 100 watts	100 watts
100 watts night and 250 watts day	250 watts
(b)	
250 to 1000 watts	1000 watts
2500 to 5000 watts	5000 watts
(c)	

The maximum rated carrier power of transmitters hereafter installed in stations with an authorized power of over 5000 watts shall be not more than twice the authorized power.

Applicants requesting power from 5 to 50 watts, or from 250 to 500 watts, inclusive, may be allowed to install transmitters of the same maximum rated carrier power as the authorized power.

Section 2. The maximum rated carrier power of all broadcast transmitters shall be determined by the installed vacuum tube capacity of the last radio stage (i.e. oscillator or radio frequency power amplifier which supplies power to the antenna), depending on the system of modulation employed.

(a) The maximum rated carrier power of transmitters employing high-level modulation shall be considered the same as the total installed tube power capacity of the last radio stage as determined by Table II.

(b) The maximum rated carrier power of transmitters employing low-level modulation shall be considered as one-fourth the total installed tube power capacity of the last radio stage as determined by Table II.

(c) The maximum rated carrier power of transmitters employing grid bias modulation on the last radio stage shall be considered the same as the total installed tube power capacity of the last radio stage as determined by Table III.

(d) If the methods of rating in paragraphs (a), (b) and (c) of this Section do not give an even power rating, the nearest rating recognized in the Commission's plan of allocation will be accepted.

(e) The power capacity of standard vacuum tubes commonly used in broadcast transmitters having a power rating of 50 watts and above as oscillators, Class 3 or Class C amplifiers, is fixed and approved as set out in Tables II and III hereafter set out in this Section. Any vacuum tube of a type number and power rating not listed in Tables II or III may be specified and accepted on an application to the Commission, provided the manufacturer's complete maximum and normal operating constants as oscillator or Class 3 or Class C amplifier and for class of service for which vacuum tube is specified in the application and complete curves which are considered necessary to determine the complete characteristics of the vacuum tube are submitted to and approved by the Commission.

TABLE II

<u>Power Rating Watts</u>	<u>De Forest Type No.</u>	<u>RCA - Radiotron Type No.</u>	<u>Western Electric Type No.</u>
50	503-A	UV-203-A	211-D
	511	UV-211	211-E
	545	UV-845	242-A
			248-A
75	552	UX-852	262-A
	560	UX-860	-
250	504	UV-204-A	212-D
	504-A		
350	549	UV-849	-

TABLE II (Continued)

<u>Power Rating Watts</u>	<u>DeForest Type No.</u>	<u>RCA - Radiotron Type No.</u>	<u>Western Electric Type No.</u>
500	561	UV-861	270-A
1000	-	UV-851	-
5000	520-B 520-M 521	RCA-1652	228-A
10000	507 548 563	UV-207 UV-848 UV-863	220-B
20000	-	UV-858	-
35000	-	-	232-A
100000	-	UV-862	-

TABLE III

50	-	-	270-A
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Section 3. No licensee shall change the number of vacuum tubes or change to vacuum tubes of different power rating in the last radio stage, or change the system of modulation except upon authority from the Commission.

Section 4. The operating carrier power of broadcast stations shall be determined from the antenna input power either (a) by direct measurement or, (b) by indirect measurement by means of the plate input power of the last radio stage.

(a) The antenna input power determined by direct measurement is the square of the antenna current times the antenna resistance at the place where the current is measured and at the operating frequency. The direct measurement of the antenna input power will be accepted as operating power provided the data on the antenna resistance measurements are submitted under oath, giving detailed description of the method used and the data taken. The antenna current shall be measured by an ammeter of accepted accuracy. This data must be submitted to and approved by the Commission before any licensee will be authorized to operate by this method of power determination.

Any licensee authorized by the Commission to determine the operating power by direct measurement of antenna input power shall not make any changes in the antenna system except upon authority from the Commission.

(b) The antenna input power shall be determined by indirect measurement from the plate input power of the last radio stage by multiplying plate voltage by the total plate current of the last radio stage and by the proper percentage given in Tables IV, V, or VI, in accordance with the power and system of modulation used.

The operating power of transmitters employing high-level modulation shall be computed from the maximum rated carrier power of the transmitter as determined by Section 2 of this Order and the plate input power in accordance with Table IV.

TABLE IV.

<u>Maximum Rated Carrier Power of Transmitters as Determined by Section 2</u>	<u>The Operating Power shall be this Per Cent of the Total Plate Input</u>
5 to 100 watts	50%
250 to 1000 "	60%
2500 to 50000 "	65%

The operating power of transmitters employing low-level modulation shall be computed from the maximum percentage of satisfactory modulation and the total plate input power in accordance with Table V. No distinction will be recognized between transmitters of different powers.

TABLE V.

<u>Maximum Percentage of Satisfactory Modulation</u>	<u>The Operating Power shall be this Percent of the Total Plate Input</u>
100 to 86%	35-1/3%
85 to 75%	40%

The operating power of transmitters employing grid bias modulation in the last radio stage shall be computed from the maximum percentage of satisfactory modulation and the total plate input power in accordance with Table VI. No distinction will be recognized between transmitters of different powers.

TABLE VI.

<u>Maximum Percentage of Satisfactory Modulation</u>	<u>The Operating Power shall be this Per Cent of the Total Plate Input</u>
100 to 86%	22½%
85 to 75%	27%

In computing the operating power of stations by indirect measurement, the above percentages shall apply in all cases and no distinction will be recognized due to the operating power being less than the maximum rated carrier power.

Section 5. The operating power of broadcast stations determined by the radiated power computed from field intensity measurements may be accepted in lieu of antenna input power, provided a sufficient number of measurements are taken to insure accuracy and an analysis of the antenna system is submitted indicating the relative distribution of the radiation (i.e. ground and sky wave radiation). The data on the antenna resistance, complete description of the antenna system with dimensions and method of taking field intensity measurements and of relating these measurements to the operating power shall be submitted to and approved by the Commission before any licensee will be authorized to operate by this method of power determination.

Any licensee authorized by the Commission to determine the operating power from radiated power shall not make any changes in the antenna system except upon the authority from the Commission.

Section 6. All broadcast stations shall be required to maintain their operating power in exact accordance with their licensed power at all times during the broadcast day and no departure from the licensed power will be permitted in any case except upon specific authorization from the Commission.

Section 7. Unless specifically authorized by the Commission to do otherwise, all broadcast licensees shall compute their operating power by the antenna input indirect measurement, and any broadcast licensee which has at any time been authorized by the Commission to compute its operating power by any other method (i.e. antenna input direct measurement or radiated power measurement) shall upon making any change in its antenna system or in the antenna current measuring instruments, revert to the use of the antenna input indirect measurement until further order of the Commission.

Section 8. (a) All broadcast stations shall be equipped with indicating instruments of accepted accuracy to measure the antenna current, direct plate circuit voltage, and the direct plate circuit current on the last radio stage.

(b) These indicating instruments shall not be changed or replaced except upon authority from the Commission.

This order shall be effective on the day first above written, (May 25, 1931).

Definition Of Technical Terms Used In G. O. No. 115

The following definitions apply to the terms used in General Order No. 115 above:

- (1) Authorized or Licensed Power - the power assigned by the Commission and specified in the instrument of authorization.

- (2) Maximum Rated Carrier Power - determined by the design of the transmitter and orders of the Commission and is independent of operating power except that generally it is the greatest power at which the transmitter can be satisfactorily operated.
- (3) Operating Power - the power that is actually transmitted by the station. It must be determined by one of the several methods set out in General Order No. 115 and must agree with the authorized or licensed power.
- (4) Plate Input Power - the product of the direct plate voltage applied to the tubes in the last radio stage and the total direct plate current of these tubes, measured under conditions of no modulation.
- (5) Radiated Power - the total power radiated from the antenna at all angles. In the absence of actual measurements, it is considered to be 50% of the antenna input power for all computations.
- (6) Antenna Input Power or Antenna Power - product of the total antenna resistance and the square of the antenna current.
- (7) Last Radio Stage - the oscillator or radio frequency power amplifier stage which supplies the power to the antenna.
- (8) Modulation - the superimposing of audio frequency power on radio frequency power resulting in the generation of side bands or varying the peak amplitude of the output current and voltage. May be accomplished by several methods.
- (9) System of Modulation - determined by stage modulated, the method, and subsequent amplification.
- (10) Modulator - the last audio frequency amplifier stage which modulates a radio stage by plate modulation or otherwise.
- (11) Modulated Stage - the radio frequency amplifier stage which is coupled to the modulator and is modulated by one of the several methods.
- (12) Percentage of Modulation - the ratio of the amplitude of the difference between the maximum or minimum rectified antenna current during modulation and the rectified carrier under conditions of no modulation to the rectified carrier under conditions of no modulation, multiplied by 100. If the positive and negative modulation are of different percentages, the one giving the lesser percentage is considered as determining.
- (13) Maximum Percentage of Satisfactory Modulation - defined as the greatest percentage that may be obtained by supplying sound energy to the station microphone without over 10% combined audio harmonics in the output being generated by the entire transmitter.
- (14) High Level Modulation - the plate circuit of the last radio stage is modulated.

- (15) Low Level Modulation - a stage before the last radio stage is modulated and the last stage operates only as a linear power amplifier.
- (16) Grid Bias Modulation In The Last Radio Stage - the grid bias voltage of the stage which supplies power to the antenna is controlled at audio frequency. If such modulation is employed in other than the last radio stage, it is low level modulation.
- (17) Antenna Resistance - the total resistance of the antenna system at the operating frequency and at the place of measuring the antenna current.
- (18) Antenna Current - the radio frequency current at the operating frequency under conditions of no modulation.

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COMMISSION DENIES FOUR APPEALS

Four appeals from Examiners' reports were denied by the Federal Radio Commission this week. In three of the cases there was dissension among the Commissioners.

Chief Examiner Yost was upheld in his ruling on the application of the Georgia School of Technology (WGST) for a construction permit. Henry Field Company, of Shenandoah, Iowa, was denied oral argument by the Commission. Station WGST was permitted to operate full time but was denied an increase in power. Commissioners Saltzman and Starbuck dissented.

In the combined case of the Mobile Broadcasting Company (WODX) of Mobile, Ala., for modification of license, and the Woodmen of the World Life Insurance Association (WOW), of Omaha, Nebra., both applications were denied. Commissioner Sykes dissented in the first and Commissioner Lafount in the second request.

The application of W. E. Riker (KFQU), of Holy City, Calif., for a license renewal was denied. Commissioner Lafount dissented.

W. J. Beard's request to change the frequency of KBTM, Paragould, Ark., was denied.

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EDGAR L. BILL BUYS PEORIA STATION

Edgar L. Bill, for seven years Director of Station WLS, has organized the Peoria Broadcasting Association to take over the ownership and operation of Station WMBD, Peoria. He has resigned his WLS position and will take active charge of WMBD, following the approval of transfer of ownership by the Federal Radio Commission.

Mr. Bill is a pioneer in the broadcasting field, becoming director of WLS when it went on the air in April, 1924. Previously, he served several years in farm and daily newspaper work. By making the Prairie Farmer station outstanding in farm and home service, through farm markets, agricultural and home speakers, dramatic productions, folk songs and other old-time music, and disaster relief campaigns, Mr. Bill was largely responsible for the position WLS holds nationally as a leader in its field.

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LANGMUIR DECISION BRINGS STATEMENTS

The decision of the Supreme Court early this week in the Langmuir patent case has again stirred up considerable speculation as to the future of the Radio Corporation of America and again has brought out statements from the major parties concerned.

O. S. Schairer, Vice-President of RCA, in charge of Patents, has the following to say:

"The Langmuir patent on radio vacuum tubes, which the Supreme Court of the United States held to be invalid, is among the patents under which the Radio Corporation of America acquired rights for the protection of its business, and under which it has granted licenses to competitive radio tube manufacturers. This patent has been in process of adjudication for an extended period and has been the subject of conflicting decisions in the lower courts. The decision, of course, does not affect the right of the Radio Corporation of America to manufacture and sell radio tubes.

"The decision of the Supreme Court deals only with the Langmuir patent, and has no relation to the other patents under which the Radio Corporation has rights and has granted licenses."

A statement of the DeForest Radio Company, after reviewing the history of its battle with General Electric and RCA, reads:

"Both within the radio industry proper and in the industrial applications of the vacuum tube, this decision definitely circumscribes the licensing field of the General Electric-RCA group, since, if held valid, the high vacuum patent would have covered every radio tube in use today and would have created a virtual monopoly of all the industries which depend for their operation on

vacuum tubes. This is so because the vacuum tube has become the heart and soul of the electrical arts."

The Supreme Court opinion, the announcement of which was carried in the previous Business Letter, stated in part:

"That the production of the high vacuum tube was no more than the application of the skill of the art to the problem in hand is apparent when it is realized that the invention involved only the application of this knowledge to the common forms or low vacuum discharge devices such as the Fleming and DeForest tubes.

"Once known that gas ionization in the tube caused a regularity of current which did not occur in a high vacuum, it did not need the inventor to recognize and act upon the truth that a better tube for amplifying could be made by taking out the gas.

"Arnold, who was skilled in the art and who had made studies of electrical discharges in high vacuua, when shown a DeForest audion for the first time on November 14, 1912, immediately recognized and said that by increasing the vacuum, the discharge would be sufficiently stable and have adequate power levels to enable the tube to be employed as a relay device in transcontinental telephony.

"The very fact that all of significance in the Langmuir improvement was obvious to one skilled in the art as soon as he saw the unimproved tube, as the District Court said, 'lies athwart a finding of invention.'"

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APPLICATIONS RECEIVED BY FEDERAL RADIO COMMISSION

May 23 - H. Carlton Henry, Adrian, Mich., C. P. amended to request 1200 kc., instead of 1440 kc.; KTW, The First Presbyterian Church, Seattle, Wash., modification of license to change frequency from 1270 kc., to 1220 kc.

May 25 - Aroostock Broadcasting Corp., Presque Isle, Maine, C. P. amended to request 100 watts instead of 125 watts, also change in studio location; Rice Massie, T. E. Sanders, and J. C. Taylor, d/b as Voice of the Blue Grass, Owensboro, Ky., application resubmitted to request 940 kc., instead of 680 kc., and share with WFIW instead of unlimited; KGFF, KGFF Broadcasting Co., Inc., Shawnee, Okla., license to cover C. P. granted 11/21/30 to move transmitter from Alva, Okla., to Shawnee; KSAC, Kansas State Agricultural College, Manhattan, Kans., license to cover C. P. granted 4/24/31 for change in equipment.

May 26 - WBZA, Westinghouse Electric & Manufacturing Co., Boston, Mass., license to cover C. P. granted 10/24/30, to move transmitter from Boston to East Springfield, Mass., and change equipment; Theodore Frank Zemla, Pontiac, Mich., C. P. amended to request 800 kilocycles, 500 watts, daytime hours, formerly requested 1210 kc., 100 watts, unlimited hours; KRZ Broadcasting Co. Alva, Okla., C. P. amended to request to share with KUT instead of unlimited hours, amended as to name also, formerly filed under the name of C. B. Chick & Elton M. Baker, doing business as KRZ Broadcasting Co.; KFJB, Marshall Electric Co., Inc., Marshalltown, Ia., license to cover C. P. granted 1/23/31 for change in equipment.

Applications Other Than Broadcasting

May 23 - Alaskan Airways, Inc.: KHTFU, NC-9190, KHTEV, NC-9153; KHTAZ, NC-153-H, KHTDW, NC-539-V, renewal of aircraft licenses for 3184, 5600 kc., 30 watts; W2XDF, Faske Engineering Co., Brooklyn, N. Y., modification of experimental license for extension of completion date to 11/1/31; WNAO, Aeronautical Radio, Inc., Plainfield, N. J., modification of license for additional frequencies of 3166, 3172, 3178, 5660, 5570 kc.; W2XBJ, RCA Communications, Inc., Rocky Point, N. Y., renewal of special experimental license for 6740, 8930, 9490, 13900, 14815, 17880, 17900, 18980 kc., 80 KW.

May 25 - Aeronautical Radio, Inc.: KGUM, Guadalupe, Texas, renewal 2326, 2344, 4120, 6260, 6275, 12210 kc., 150 w.; WAFF, Newark, N. J., renewal, 2722, 2734, 4108, 6365, 8015, 12180 kc., 400 w.; WAEC, Pittsburgh, Pa., WAEE, Camden, N. J.; KGTR, Robertson, Mo., renewals, 2722, 2734, 4108, 6365, 8015, 12180 kc., 400 w.; KST, Kansas City, Mo., renewal, 2722, 2734, 4108, 6365, 6350, 8015, 12180 kc., 150 and 400 watts; KGTL, Kingman, Arizona, renewal, 2722, 2734, 4108, 6350, 8015, 12180 kc., 150 w.; KG TJ, Las Vegas, Nevada, KGTH, Salt Lake City, Utah, KGSR, Pueblo, Calif., renewals 2722, 2734, 4108, 6350, 8015, 12180 kc., 500 w.; KGTA, Winslow, Ariz., KGSV, Wichita Falls, Texas., and KGSP, Denver, Colo., 2722, 2734, 4108, 6350, 8015, 12180 kc., 400 w.; KGSC, Oklahoma City, Okla., renewal, 278, 5070, 3460, 6350, 12180, 8015 kc., 400 watts and 15 watts on 278 kc. - all aeronautical service, point-to-point.

Also, WMDU, Pan American Airways, Inc., San Juan, Porto Rico, renewal, 4164, 6305, 6320, 8015, 12210 kc., aeronautical 200 and 350 watts, point-to-point; W3XT, American Telephone & Telegraph Co., Lawrenceville, N. J., 6755, 9170, 9750, 9870, 10550, 13390, 14470, 14590, 16270, 18340, 19220, 19820, 21060, 21420 plus and minus 500 kc., for each frequency, 500 watts on frequencies listed 10 watts on frequencies, adjacent to those listed, special experimental; Franz Telewski, North Bergen, N. J., new C. P. 11000-12000 kc., 150 watts, special experimental; KPH, Radiomarine Corporation of America, Bolinas, Calif., renewal for 143, 500, 5525, 11050, 16580, 22100, 126, 136, 436, 6500, 8390, 12550, 12730, 16700, 21940, 21980 kc., (2) 5 KW, 100 w., 1200 w. (2) 70 KW, marine relay; Alaskan Airways, Inc.: KHTBY, Plane NC-154-H, KHTGT, Plane NC-9193; KHTCX, Plane NC-174-H, renewals, 3184, 5600 kc., 30 watts, aircraft.

May 26 - Pan-American Airways, Inc.: WKDL, Miami, Florida, renewal for 278, 333, 414, 500, 2662, 5405, 5690, 8015, 12210, 6350, 3070 kc., 750 w., point-to-point aeronautical; KGJW, Brownsville, Texas, renewal for 4164, 6305, 6320, 8015, 12210 kc., 200 w., 350 w., point-to-point aeronautical; Aeronautical Radio, Inc.: KGSB, Alameda, Calif., renewal for 2722, 2734, 4108, 6350, 8015, 12180 kc., 150 w.; WAEB, Columbus, Ohio; renewal for 2722, 2734, 4108, 6365, 8015, 12180 kc., 400 watts; KGUN, Douglas, Ariz., KGUQ, Indio, Calif., KGUR, Burbank, Calif., renewals for 2326, 2344, 4140, 6260, 6275, 12210 kc., 150 w.; KSX, Albuquerque, N. Mexico, renewal for 2722, 4108, 6350, 8015, 12180 kc., 150 watts, 500 watts; WAEQ, Cresson, Pa., KGTO, Springfield, Mo., WAEA, Indianapolis, Ind.; KGUP, Phoenix, Arizona and WAED, Burbank, Calif., renewals for 2722, 2734, 4108, 6365, 8015, 12180 kc., 400 watts; KSI, Los Angeles, Calif., renewals for 12180, 2722, 2734, 4108, 6350, 8015 kc., 500 w., 150 w., - all point to point aeronautical.

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DECISIONS OF THE FEDERAL RADIO COMMISSION

The following applications were granted on May 26th:

KFRU, Stephens College, Columbia, Mo., license covering changes of equipment 630 kc., 500 watts, sharing with WGBF and WOS; also, modification of license to increase hours of operation from sharing with WOS and WGBF to include additional specified evening hours, also simultaneous daytime operation with WGBF; KPJM, George R. Klahn (co-licensee) A. P. Jiller & Geo. R. Klahn, d/b as Miller & Klahn, Prescott, Ariz., voluntary assignment of C. P. to assign his half interest in C. P. of KPJM to A. P. Miller; WHBQ, Broadcasting Station WHBQ, Inc., Memphis, Tenn., modification of C. P. to make changes in equipment to conform to G.O. 91 and 111; WISJ, Wisconsin State Journal Broadcasting Co., Madison, Wis., further extension of authority given April 24th, to operate on temporary basis until decision on hearing is reached; extension granted to July 1.; KGFF, KGFF Broadcasting Co., Inc., Shawnee, Oklahoma, license covering removal of transmitter and studio from Alva to Shawnee, Okla., 1420 kc., 100 w., unlimited time.

Also, Aroostook Broadcasting Corp., Presque Isle, Maine, C. P. for new station to operate on 1420 kc., 100 w., unlimited time; WILL, University of Illinois, Urbana, Ill., authority to suspend operation from June 1st to Sept. 20, 1931, with following exceptions during month of June: June 7, Sunday - 9:30 to 10:30 A.M.; June 14, Sunday - 9:30 to 10:30 A.M., and 3:30 to 5:15 P.M.; June 17th, Wednesday - 9:00 to 11:15 A.M.; WCAD, St. Lawrence University, Canton, N. Y., authority to suspend operation from June 9th to July 8, 1931, while overhauling transmitter; WBAA, Purdue University, West Lafayette, Ind., authority to suspend operation May 24th to October 3, 1931, during summer vacation; KRMD, Robert M. Dean, Shreveport, La., authority to install automatic frequency control.

Also, KYM, Bristol Bay Packing Co., Kvichak, Alaska, and KZV, Alaska Salmon Co., Nushagak, Alaska, C. P. to install new tube transmitters, coastal service; WAX, Tropical Radio Telegraph Co., Hialeah, Fla., modification of 2 C.P.s to extend completion date to June 22, 1921; Press Wireless, Inc.: WJQ, Long Island, N. Y., and KFG, Honolulu, T. H., modification of C.P.s extending completion dates to 6/30/31 and 12/31/31 respectively; WPDU, City of Pittsburgh, Pittsburgh, Pa., license for police service, 1712 kc., 400 watts; WLXAK, Westinghouse Electric & Manufacturing Co., Chicopee Falls, Mass., renewal of license; Radiomarine Corp. of America: KDI, Nushagak River, Alaska, modification of license to July 15, 1931, for change in name plates on radio transmitter; W2XBG, Garden City, N. Y., authority to use 2368 kc., 200 watts, to communicate with Eastern Air Transport Plane NC-985-V on Saturday May 23, 1931; KFVM, Painless Parker, "Idalia", authority to operate as follows pending issuance of formal ship radio station license; 500 kc., calling; 410, 425, 454 kc., working, 375 kc., radio compass, 500 watts.

Set For Hearing

Harry Byron Lee, Lamar, Colo., requests C. P. 1310 kc., 100 watts, daytime, (facilities of KFUP); WJDX, Lamar Life Insurance Co., Jackson, Miss., requests modification of license to change frequency from 1270 to 600 kc., change power from 1 KW to 500 watts night, 1 KW, day; KOCW, Oklahoma College for Women, Chickasha, Okla., requests voluntary assignment of license to J. T. Griffin, if C. P. to move to Muskogee, Okla. is granted; KOCW, J. T. Griffin, Chickasha, Okla., requests C. P. to move transmitter and studio from Chickasha to Muskogee, Okla. and install new equipment.

Applications Reconsidered And Granted

WGBF, Evansville on the Air, Evansville, Ind., application for simultaneous operation with WOS and KFRU, to share with WCS and KFRU night time, simultaneous operation daytime with WOS and KFRU, 630 kc., 500 watts.

Action Taken May 25, 1931

W2BVC and W2BSW, Jack Stewart, Brooklyn, N. Y., and W2CHM, Henry Meyers, Brooklyn, N. Y., amateur licenses revoked because of use of unauthorized call letters assigned to some other party; KSO, Berry Seed Co., Clarinda, Iowa., denied motion of KSO asking that amended application of WLAS, Ottumwa, Iowa, be dismissed; both stations seeking removal to Des Moines, Ia.

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: BUSINESS LETTER BRIEFS :
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How interference sounds to a listener was demonstrated this week by use of a phonograph record at the hearing on four broadcasting station license renewals ordered by District of Columbia Court of Appeals because of litigation started by WTMJ, of Milwaukee. The disk was used to show the conditions prevailing on the 620 kilocycle channel which is occupied by the stations.

Sir John C. W. Reith, Director General of the British Broadcasting Corporation, called Wednesday on the Federal Radio Commission and on President Hoover.

He told the Commissioners that synchronization experiments in Great Britain are proving satisfactory and that a new radio chain system is being installed to serve the British Isles. The plan calls for nine stations of 30,000 watts each, one station of 50,000 watts, and a few smaller stations.

Examiner R. H. Hyde recommended this week that the application of the State Journal Company, of Lansing, Mich., for a construction permit be denied on the ground that the station would cause interference.

Lawrence Richey, secretary to President Hoover, has vigorously denied the report in the Washington Post that "Amos 'n' Andy" were being considered as aides to the President in the 1932 campaign.

Besides Freeman Gosden and Charles Correll, Mr. Richey had as guests at his Maryland camp last week-end: M. H. Aylesworth, President of NBC; Charles Francis Coe, magazine writer; Thomas Shipp, of Washington, and Frank Russell, Vice-President of NBC, of Washington.

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PATENTS, PATENT SUITS, AND TRADE-MARKS

The following patents were granted during the week ending May 26, 1931:

- 1,806,598. Acoustic Receiver. Rene Denoux, Paris, France. Filed December 19, 1929, and in France, July 6, 1929.
- 1,806,617. Synchronized Photographic and Sound Recording and Reproducing Mechanism. Charles W. Ebeling, New York, N. Y., assignor to Harrison W. Rogers, Inc. Filed December 13, 1927.
- 1,806,638. Television. Pierre Mertz, Bellerose Manor, N. Y., assignor to American Telephone and Telegraph Co. Filed July 24, 1928.
- 1,806,666. Radio Broadcasting System. Ralph Bown, Maplewood, N.J., assignor to American Telephone and Telegraph Co. Filed December 11, 1928.
- 1,806,744. Silent Drive Mechanism for Talking Motion Picture Machines. Lee DeForest, New York, N. Y., assignor, by mesne assignments, to General Talking Pictures Corp. Filed May 24, 1924.
- 1,806,745. Sound Producing Device. Lee DeForest, New York, N. Y., assignor, by mesne assignments to General Talking Pictures Corp. Filed December 10, 1927.
- 1,806,755. Antenna. Clarence W. Hansell, Rocky Point, N. Y., assignor to Radio Corporation of America. Filed October 28, 1927.
- 1,806,796. Power-Circuit Control for Radio Receiving Systems. Howard A. Gates, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill. Filed February 13, 1928.
- 1,806,813. Electron Tube Energizing Method and Apparatus. Benjamin F. Miessner, Short Hills, N. J., assignor, by mesne assignments to Radio Corporation of America, New York, N. Y. Filed February 4, 1928.
- 1,806,871. Sound Intensity Measuring System. Ward E. Bower, Washington, D. C. Filed January 30, 1929.
- 1,806,914. Loud Speaker Motor. Charles W. Peterson, Cincinnati, Ohio. Filed March 7, 1930.

- 1,806,935. Light Valve. Philo T. Farnsworth, Berkeley, Calif., assignor, by mesne assignments, to Television Laboratories, Inc., San Francisco, Calif. Filed (Original application) Jan. 7, 1927. Divided and this application filed November 7, 1927.
- 1,807,010. Quartz Tuning Fork Drive. Richard Howland Ranger, Newark, N. J., assignor to Radio Corporation of America. Filed May 3, 1929.
- 1,807,011. Analyzing System for Multiplex Facsimile Transmission. Richard Howland Ranger, Newark, N. J., assignor to Radio Corporation of America. Filed May 3, 1929.
- 1,807,012. Multiplex Reproducing, Richard Howland Ranger, Newark, N. J., assignor to Radio Corporation of America. Filed May 3, 1929.
- 1,807,022. Radio Transformer. Trygve D. Yensen, Forest Hills, Pa., assignor to Westinghouse Electric & Manufacturing Co. Original application filed March 29, 1924. Divided and this application filed February 15, 1930.
- 1,807,027. Horn for Radio Speakers. William A. Brockway, Marietta Township, Whatcom Co., Wash. Filed August 18, 1930.
- 1,807,073. Record Changing Mechanism. Paul H. Schulz, Moline, Ill. Filed May 31, 1929.
- 1,807,097. Magnetron Circuit Controlling Apparatus. Theodore Bodde, Niagara Falls, N. Y., assignor to The Regan Safety Device Co., Inc., New York, N. Y. Filed July 11, 1923.
- 1,807,098. Magnetron Circuit Controlling Apparatus. Theodore Bodde, Niagara Falls, N. Y., assignor to The Regan Safety Device Co., Inc., New York, N. Y. Filed August 13, 1924.
- 1,807,135. Coupling Transformer. John Albert Proctor, Lexington, Mass., assignor to Wireless Specialty Apparatus Co., Boston, Mass. Filed September 12, 1928.
- 1,807,140. Discharge Tube. Carl J. R. H. von Wedel, Berlin, Germany, assignor, by mesne assignments, to Electrons, Inc. Filed March 7, 1928.
- 1,807,168. Loud Speaker. Hehrli D. Pack, Salt Lake City, Utah, assignor to Utah Radio Products Co., Inc., Filed December 14, 1926.
- 1,807,177. Gas Discharge Tube. Johannes Michael Schmierer, Lichterfelde, near Berlin, Germany, assignor to Radio Patents Corp., New York, N. Y. Filed November 10, 1924, and in Germany Dec. 31, 1923.

- 1,807,225. Sound Propagating Diaphragm. Wehrli D. Pack, Salt Lake City, Utah, assignor to Utah Radio Products Co., Inc. Filed March 9, 1928.
- 1,807,300. Radio Frequency Amplifying System. Reuben B. Benjamin, Chicago, Ill., assignor to Benjamin Electric Mfg. Co., Chicago, Ill. Filed October 6, 1927.
- 1,807,326. Photo-Electric Cell. Samuel Ruben, New York, N. Y., assignor, by mesne assignments, to Ruben Tube Co., New York, N. Y. Filed August 24, 1928.
- 1,807,343. Radio Receiving Apparatus. Alexis Poncel, Long Island, N. Y., assignor to forty-nine per cent to Paul Desfosse, New York, N. Y. Filed May 14, 1930.
- 1,807,386. Cabinet for Radio Receiving Apparatus. Carole A. Clarke, Moorestown, N. J., assignor to Victor Talking Machine Company. Filed October 10, 1928.
- 1,807,409. Sound Recording Apparatus. Charles A. Hoxie, Alplaus, N. Y., assignor to General Electric Co. Filed June 25, 1929.
- 1,807,464. Television and Like Apparatus. John Logie Baird, London, England, assignor to Television Limited, London, England. Filed October 7, 1929, and in Great Britain October 10, 1928.
- 1,807,465. Television and Like Apparatus. John Logie Baird, London, England, assignor to Television, Limited, London, England. Filed October 7, 1929, and in Great Britain October 12, 1928.
- 1,807,510. Silent Wave Radio Transmission System. Edward E. Clement, Washington, D. C., assignor to Edward F. Colladay, Washington, D. C. Filed August 7, 1926.

Patent Suits

- 1,141,402, R.D. Mershon, Electrolytic apparatus employing filmed electrodes; 1,784,674, same, Film formation and operation of electrolytic condensers and other apparatus, filed Feb. 26, 1931, D.C., E.D., N. Y., Doc. 5405, R. D. Mershon et al. v. J. F. O'Neill (Radio Service Engineers).
- 1,466,701, L. de Forest, Method of and means for controlling electric currents by and in accordance with light variations; 1,693,071, same, Sound recording attachment for motion picture cameras; 1,695,414, same Talking moving picture machine; 1,607,480, E.E. Ries, Method of reproducing photographic sound records, C.C.A., 3d Circuit, Doc. 4461-4462, General Talking Pictures Corp. et al. v. Stanley Co. of America. Decree to effect that no one of the patents in suit is infringed March 2, 1931.

Trade-Marks

Ser. No. 311,230. Consolidated Electric Lamp Company, Danvers, Mass.,
Filed February 19, 1931. Trade-Mark: "CHECKER" written in
black circle. For incandescent electric lamps and electron
radio tubes. Claims use since September 9, 1924.

Ser. No. 309,266. Drei-S-Werk Schwabacher Spinnereinadel-U, Stahl-
spitzen-Werk Fr. Reingruber, Schwabach, Bavaria, Germany.
Filed Dec. 23, 1930. Trade-Mark: Picture of little man holding
up phonograph needle in front of picture of talking machine.
The representation of a talking machine is disclaimed apart
from the mark shown in the drawing. For talking machine
needles. Claims use since October, 1930.

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