

HEINL RADIO BUSINESS LETTER

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No. 1236

May 21, 1940

FM DECISION SEEN STARTING NEW BOOM IN INDUSTRY

A new boom in the radio manufacturing industry that will mean increasing sales for both manufacturer and retailer and jobs in factories and for service men was forecast this week as the Federal Communications Commission announced it had set aside the frequency band of 42,000 to 50,000 kc. for commercial frequency modulation operation.

This allocation will provide 40 FM channels, each 200 kc. wide, of which 35 will go to regular high-frequency broadcasting stations and five to non-commercial educational stations.

One estimate in radio industry circles, as reported in the May issue of "Radio and Television Today", is that FM sales will amount to 24,400,000 units within the next five years. The trade magazine forecast 1,000,000 sales this year and a step-up each year to a peak of 7,500,000 in 1944.

"While only about ten percent of 1940 receivers are expected to be capable of FM reception", the magazine said, "it is estimated that this will grow to over 50 percent in five years."

Applications for FM broadcast stations will be considered by the Commission when revised rules and regulations are promulgated, and new application forms made available. Meanwhile, the 130 pending applications for high-frequency broadcast stations on an experimental basis, filed under the old rules and regulations, will be dismissed without prejudice and the way opened to file new applications for either experimental or regular FM broadcast stations, which may include the simultaneous transmission of facsimile programs, when the new regulations are announced. Likewise, authorization of existing high-frequency experimental stations are terminated by January 1 next, also without prejudice, for the filing of new applications for either type of service.

"Frequency modulation is highly developed", the Commission declared in unanimous report. "It is ready to move forward on a broad scale and on a full commercial basis. On this point there is complete agreement among the engineers of both the manufacturing and the broadcasting industries. A substantial demand for FM transmitting stations for full operation exists today. A comparable public demand for receiving sets is predicted. It can be expected, therefore, that this advancement in the broadcast art will create employment for thousands of persons in the manufacturing, installation and maintenance of transmitting and receiving equipment and the programming of such stations."

At the same time the Commission pointed out that there was agreement among witnesses at its recent hearing that this new service will not supplant the service of standard broadcast stations generally and that, therefore, FM will not make obsolete the receivers now in use.

"Standard broadcasting is on an entirely different frequency band from that to be occupied by frequency modulation," the FCC stated. "FM will not interfere with it. Present standard broadcasting will continue, and certainly for a number of years will render full service. The extent to which in future years the listeners will be attracted away from the standard band cannot be predicated. Testimony at the hearing indicated that manufacturers will provide receiving sets capable of receiving both services."

The chief claims for FM are that it gives more fidelity and less interference than standard broadcast. The principle of frequency modulation has long been known but its practical use was not demonstrated until recently.

There was unanimous agreement at the March hearing that FM is superior to amplitude modulation for broadcasting on frequencies above 25,000 kilocycles. The use of a wide band of frequencies makes possible a reduction of noise to a greater extent than attained with narrow-band standard broadcast. There was testimony that a band width of less than 200 kilocycles can be used for FM, but this lessens the noise-discriminating quality which has been established by experimental operation with the wide channel. Testimony advocating the narrower band width was not supported by experience in program service. Moreover, the narrower band width would jeopardize use of facsimile transmission on the same channel. The Commission believes that regular program service should begin on a 200-kilocycle band basis which can be conveniently reduced if developments warrant. By adopting the wide-band FM channels at this time, it will be possible for the public to continue the use of receivers designed for wide-band reception even though narrower channels may later be authorized.

"The opening of a new band for commercial broadcast will help to correct numerous defects and inequalities now existing in the standard broadcast system", the FCC predicted. "These inequalities result from the scarcity of frequencies, their technical characteristics, and the early growth of broadcasting without technical regulation. There is today a lack of stations in some communities, and other communities do not have sufficient choice of program service. The establishment of the new broadcast band in the higher frequencies will enable many communities to have their own broadcast stations."

Experimental operations show that FM stations can operate on the same channel without objectionable interference with much less mileage than is possible with standard broadcast stations. FM has the ability to exclude all except the strongest

signal. Also, FM stations require much less mileage separation than do standard broadcast stations. The service range of FM stations, though limited, will in many cases be greater than obtained from the primary service of comparable standard broadcast stations.

The licensing of classes of standard broadcast stations in the same area with different frequencies and different power has resulted in a wide disparity in the extent of service to the public. The system of classification now employed for standard broadcast stations will not be used for FM stations. The rules and regulations and engineering standards to be issued for FM in the near future will enable applications to be made for facilities to serve a specified area. FM stations will be rated on the basis of coverage rather than power. Competitive stations in the same center of population will be licensed to serve the same area.

The present situation of certain standard broadcast stations having large daytime coverage and restricted nighttime coverage on duplicated channels will be avoided. The coverage of FM stations will be substantially the same both day and night. However, FM stations do not have the long-distance coverage of the present high-powered clear-channel standard broadcast stations. The latter may be required indefinitely, for widespread rural coverage. But for covering centers of population and trade areas, the new class of station offers a distinct improvement.

The Commission deems it in the public interest to allocate a contiguous band of frequencies to accommodate both commercial and educational FM stations. The band between 42,000 and 50,000 kilocycles is particularly suited for this service. Under the new allocation, the same number of frequencies heretofore assigned to non-commercial educational stations has been retained, the only change being that the position of such stations has been moved 1,000 kilocycles higher in the spectrum. This arrangement permits the same receiver to be used for the two services. The three educational institutions now authorized to use amplitude modulation in the non-commercial band can continue to do so, but the Commission hopes that subsequent applicants for non-commercial educational broadcast facilities will find it economic and otherwise preferable to utilize FM.

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A memorial stone in gray Cornish granite has been erected on ground adjacent to the site of the original Royal Needles Hotel, Alum Bay, in the Isle of Wight, to mark the position occupied by the first permanent wireless station, where the late Marchese Marconi and engineers of Marconi's Wireless Telegraph Co., carried out a series of experiments which placed wireless communication on a firm foundation, the Electrical Review, London, reports. The station was dismantled in June, 1900. The suggestion that such a memorial should be erected was made in 1938, and it has just been completed and is now open for public inspection.

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HOW 40 FM FREQUENCIES WERE REALLOCATED

Readjustment of the ultra-high radio frequencies to provide the 40 FM channels between 40,000 and 50,000 kilocycles, as well as seven channels below 108,000 kilocycles for television service, is pursuant to allocations contained in Commission Order No. 67.

The solution to finding space in the crowded radio spectrum for the needs of these two services was achieved with the cooperation of the Interdepartment Radio Advisory Committee in shifting Government frequencies. This committee, representing 13 Federal agencies, advises the President in allocating radio channels for Government use.

The arrangement gives private services priority rights between 60,000 and 66,000 kilocycles and between 118,000 and 119,000 kilocycles in exchange for relinquishment to the Government of the bands 41,000 to 42,000 kilocycles and 132,000 to 140,000 kilocycles.

In addition, the Commission discontinued television service in the present television channels Nos. 1 and 8 (44,000-50,000 kilocycles and 156,000-162,000 kilocycles respectively). Accordingly, old television channel No. 2 will be renumbered television channel No. 1; and a new television channel No. 2 will be assigned from 60,000 to 66,000 kilocycles. Former television channel No. 8 (156,000-162,000 kilocycles), together with frequencies between 116,000 and 119,000 kilocycles, will be used to replace the assignments in the band 132,000 to 140,000 kilocycles. There is no change in the other eleven channels comprising the 162,000 to 300,000 television band.

The new allocations become effective immediately on a limited basis. After January 1, unlimited operation may be authorized. Regular commercial service employing wide-band FM, which may include the multiplexing of facsimile transmission simultaneously with aural broadcasting, will use the 43,000 to 50,000 kilocycle band, and non-commercial educational broadcasting stations are given the new frequencies 42,100, 42,300, 42,500, 42,700 and 42,900 kilocycles. This provides a continuous band for FM, thus assuring a degree of uniformity in the quality of the different frequency modulation channels and tending toward simplicity and economy of FM receiving sets.

The rearrangement permits the Commission to maintain seven television channels below 108,000 kilocycles and at the same time provide an adequate number of channels for frequency modulation. It expects these and other services to benefit by the changes.

It points out that sky wave interference on frequencies immediately below 50,000 kilocycles is greater than on the higher frequencies. While it likewise recognizes that shadows and fading

become more pronounced as the frequency increases, it nevertheless believes that such factors are not substantially different on frequencies in the vicinity of 60,000 kilocycles. Furthermore, it is generally conceded that the problem of diathermy interference is now most acute on frequencies immediately below 50,000 kilocycles. Thus, by allocating 60,000 to 66,000 kilocycles instead of 44,000 to 50,000 kilocycles to the television service, a good balance has been achieved between the effects of sky waves and diathermy interference on the lower frequencies and the effects of shadows and fading on the higher bands.

The miscellaneous radio services now assigned frequencies between 132,000 and 140,000 kilocycles will benefit by the changes in that 9,000 kilocycles are now allocated where formerly only 8,000 kilocycles were available. This can provide 70 channels as compared with 57 channels in the past. The change has the further advantage of providing two large blocks of frequencies for experimentation with different propagation characteristics.

"In considering these changes", explains the Commission, "it was necessary to weigh the particular needs and problems of the various non-Federal services as well as the Government's requirements, and to determine the permissibility of the allocation under our international undertakings; also to have regard for the future of radio operation in the services involved, from an international standpoint, so far as could be foreseen. The changes should result in improved service for all stations which are affected by the Commission's order and will fully meet the varied situations presented of a national and international character."

The Commission gives formal expression of its appreciation for the splendid cooperation and assistance rendered by the Government departments and agencies and by members of the Inter-department Radio Advisory Committee in helping to solve this difficult problem. Thousands of Government station assignments had to be shifted.

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WARNER ELECTED HEAD OF RADIO CORRESPONDENTS

Albert L. Warner, one-time President of the White House Correspondents' Association, was elected President of the Radio Correspondents' Association at the annual meeting of Washington radio news men yesterday (Monday, May 20). Mr. Warner heads the Columbia Broadcasting System's Washington Bureau.

William R. McAndrews, of the National Broadcasting Co. was elected Vice President; Fred W. Morrison, of Transradio Press, Secretary, and Frank McCormack, of the Mutual Broadcasting System, Treasurer.

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TELEVISION DECISION DELAYED; FM ORDER DISTURBS

The Federal Communications Commission apparently is having some difficulties reaching an agreement on its television policy, it was indicated this week, as Chairman James L. Fly moved up the probable time of the decision. The latest forecast was that the FCC order would be issued "within ten days".

The television decision previously had been promised prior to the FM order and had been expected last week or early this week. Meanwhile, the FM order taking from television its No. 1 channel was reported by the New York Times to have caused some disturbance among engineers in New York.

"The Federal Communications Commission's assignment of television's No. 1 channel to the frequency modulation broadcasters has left telecasters using this wavelength 'out on a limb', according to a round-up of opinion among the radio engineers in the New York area", the Times reported.

"Until specific provisions are made by the FCC, it is not known whether the displaced operators will be shifted to the channel now known as 2 or if new frequencies will be allocated to them in the new channel assigned to television between 60 and 66 megacycles.

"In New York, channel No. 1 has been used by the Radio Corporation of America for research work and by the National Broadcasting Company for public television program service."

A Times inquiry on whether NBC would stop operation of its No. 1 channel station atop the Empire State Building brought the following explanation from an NBC representative: "We must await the FCC's report on television, which we understand may be issued this week. Until then we will not know what provisions are to be made for television or to what channel we must move to when vacating No. 1.

"It will not be a big job to shift over to the channel now known as No. 2, which under the new set-up will be No. 1. But should we have to move to the new channel assigned to television between 60 and 66 megacycles, that would call for a new transmitter, and we might be off the air several months."

Since television receivers are pretuned to definite channels so that by the snap of a switch the operator shifts from one to the other, it will become necessary to retune the sets. This, it is explained, is a job for service men. It is estimated by NBC that 3,000 receivers are in use in the New York area.

Commenting on the FCC's decision, Major Edwin H. Armstrong, inventor of the "FM" system, said that the telecasters ought to be happy on being moved from their present No. 1 channel

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because the waves have reached Chicago and such overlapping causes interference. He explained that interference would be less likely on the 60-66 megacycle path.

"It might cost at a maximum \$20,000 to shift from the present No. 1 channel to the new 60-66 channel", continued Major Armstrong. "The important news in the FCC decision is that any town that can support an 'FM' broadcasting station now can get it because there will be plenty of channels which various towns can use without overlapping."

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U. S. RADIO EXPORTS RISE IN MARCH

United States exports of radio receiving sets in March were valued at \$1,073,925, as compared with \$730,417 in February and \$875,746 in March 1939, John H. Payne, Chief, Electrical Division, Bureau of Foreign and Domestic Commerce, announced last week.

The United Kingdom was our principal customer, taking 60,682 sets valued at \$440,182. Other major markets included Brazil, where sets valued at \$77,059 were sold; Mexico, \$60,810; Union of South Africa, \$56,375, and Venezuela, British India, Chile, and the Philippine Islands, all of which took shipments ranging from \$50,000 down to \$38,000.

Great Britain was also the outstanding customer for radio receiving tubes, with purchases of \$85,748. Canada followed at \$30,026 and Australia was next with purchases worth \$28,461. Total foreign shipments aggregated \$305,925.

Canada and the United Kingdom also dominated the export markets for receiving set components, their respective shares amounting to \$141,047 and \$139,739 out of total shipments valued at \$592,832. Argentina was also a good customer, accepting products in this field valued at \$73,414.

Canada's purchase of \$134,011 worth of miscellaneous telephone equipment represented almost 50 percent of the total of such shipments during the month under review.

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World Radio Market series released recently by the U. S. Commerce Department include: Trinidad and Togago, French Morocco, Anglo-Egyptian Sudan, Madeira, Turkey (regulations), British Honduras, and Mozambique.

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FCC HEARING TO AIR ROW BETWEEN LA GUARDIA AND CBS

The row between Mayor LaGuardia and the Columbia Broadcasting System that came out into the open in New York this week is expected to be aired thoroughly in Washington next week when the Federal Communications Commission hears testimony on the application of New York City's WNYC to operate nighttime on 810 kc.

The WNYC application is being opposed by Station WCCO, Minneapolis, a 50,000 watt station owned and operated by CBS, as well as by the State of Minnesota.

Mayor LaGuardia, in characteristic bluntness, attacked CBS and the Citizens Budget Commission of New York and said he would ask the FCC to investigate as possibly collusive their hostile attitude toward WNYC.

LaGuardia stated that a vice president of CBS, whose name he could not remember, had come to his office about a year ago and told him that WNYC's wavelength was to be allocated "to some commercial company".

"Needless to say, I threw the bum out of the office", the New York Times quoted the Mayor as saying.

CBS officials and officers of the Budget Commission issued immediate denials.

The CBS statement said, in part:

"Columbia is not seeking, and never sought, and has no intention of seeking, WNYC's wavelength and is therefore at a complete loss to understand the Mayor's language or its meaning.

"The meeting with a spokesman of the Citizens Budget Commission to which the Mayor referred had no connection whatsoever with this subject. As a matter of fact, the counsel for the Citizens Budget Commission, in the interest of the taxpayers of New York, sought expert advice on the operation of Station WNYC from the executives of various radio broadcasting companies, not merely Columbia. Two of Columbia's executives complied with this request in a spirit of rendering a public service to the City of New York...

"The statement that Columbia, at any time offered WNYC another wave length is wholly untrue. It is, moreover, obviously absurd because allocations under the law are the exclusive province of the FCC. The only thing CBS has offered WNYC is active and helpful cooperation in rendering a fuller broadcast service to New York listeners. . . ."

In reply to the CBS statement that "Columbia is not seeking, has never sought and has no intention of seeking WNYC's wave length", Mayor LaGuardia said, "If that is so, I assume they will withdraw their opposition which they have filed with the FCC against our application for full time. That ought to be a complete answer for them."

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 :::::TRADE NOTES:::::
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Gene Buck, President of the American Society of Composers, Authors and Publishers, has been subpoenaed to appear before a Federal grand jury in New York, with books and records of the Society, it was disclosed this week when attorneys for Mr. Buck moved to have the subpoena quashed.

Both attorneys for the anti-trust division of the Attorney General's office, who issued the subpoena, and Mr. Buck's counsel declined to comment on the nature of the investigation in which Mr. Buck was sought as a witness. It was pointed out, however, that a government suit that was brought against the society in 1934 had been defended successfully by the group.

Although Government collections in April of the 5 per cent Federal radio excise tax were 4.9 percent above April 1939 collections, the previous rate of increase, in the first quarter this year, was not maintained. Total radio tax collections last month were \$300,253.82, compared with March, 1940, collections of \$445,871.21 and comparable collections in April, 1939, of \$286,584.97. Tax collections last April on mechanical refrigerators totaled \$874,213.16, compared with April, 1939, refrigerator taxes of \$848,640.07.

Graham L. Tevis has been appointed Assistant Chief Engineer of WABC, New York City, Edwin K. Cohan, Director of Engineering for CBS has announced. Mr. Tevis assumes his new duties immediately, working with Henry Grossman, WABC's Chief Engineer.

An address by A. D. (Jess) Willard, General Manager of Station WJSV, Washington, was a feature of the meeting of the Men's Club of Pinkney Memorial Episcopal Church Tuesday night in the parish house of the church in Hyattsville, Md.

Station KROD, El Paso, Texas, joins the Columbia Broadcasting System on June 1 bringing the network total to 119 stations in 118 cities. KROD is a newly-authorized station, operating with 250 watts power on a frequency of 1500 kilocycles, and becomes a CBS outlet on the day of its inauguration. The station is owned and operated by the El Paso Herald-Post Times.

Sherman D. Gregory, who has been General Manager of Station KDKA during the past two years, has been appointed Manager of NBC's owned and operated stations and will make his headquarters in New York, it was announced last week in Pittsburgh by William S. Hedges, NBC Vice President in Charge of the Stations Department.

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MERGER OF U.S. INTERNATIONAL COMMUNICATIONS URGED

American companies engaged in international telegraphy, both by cable and radio, should be consolidated "in order that their present facilities and future expansion may be coordinated along lines that are economically sound and in the public interest", Frank W. Phelan, President of All America Cables and Radio, Inc., told the American Scientific Congress in Washington last week.

After describing the activities of his company, Mr. Phelan said:

"While it is obvious that lack of competition would not be to the advantage of the public, it is evident that there is no longer any danger of this and that we are confronted today with a situation where there is too much rather than too little competition with the confusion which such state of affairs entails.

"Whereas the air mail has been assisted by subsidies from the Government of the United States, the American communications companies have neither expected nor received such assistance. In Great Britain consolidation of competing cable and radio interests has long been an accomplished fact. In my opinion, it is necessary to consolidate the American companies engaged in international telegraphy, both by cable and radio, in order that their present facilities and future expansion may be coordinated along lines that are economically sound and in the public interest.

"These companies all compete with the air mail in varying degrees. But they render a service which the air mail, with its many advantages in comparison with the ordinary mail, will never be able to perform. They are able to transmit and deliver the written word over thousands of miles in seconds or minutes and this fact was never better illustrated than in August and September last, prior to and following the outbreak of war in Europe, when the demand for the use of the facilities, fortunately more than adequate, of the international communications companies was unprecedented.

"Today the governments and peoples of the American republics are being more closely drawn together than ever before. We are perhaps becoming more united in the face of common problems and common interests. Certainly the motives of this country are no longer distrusted by our neighbors to the south. In bringing us closer together, the efforts of the American communications companies to provide service of the highest quality have unquestionably been a contributing factor."

"The first radiotelegraph circuit between New York and Buenos Aires was established by the Radio Corporation of America working with Transradio Buenos Aires in 1924", Mr. Phelan recalled. "A direct radiotelegraph circuit working with Radio Brazil at Rio de Janeiro was added by the Radio Corporation in 1926, and by 1934

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the Radio Corporation was operating between the United States and the great majority of the Central and South American countries. The Tropical Radio Telegraph Company was also operating a number of radio stations in the Central American area which worked with each other and with the United States.

"In 1927 All America Cables, Inc. (formerly the Central and South American Telegraph Company) became an associated company of the International Telephone and Telegraph Corporation. The latter owned, or was shortly to acquire, extensive telephone properties in the American republics and, in conjunction with the American Telephone and Telegraph Company, had connected Cuba and the United States by telephone as early as 1921. This connection with Cuba was by submarine telephone cable, but subsequent international connections were to be made over much greater distances by radiotelephone. In connection with this development, a number of radio stations were erected by the companies associated with the International Telephone and Telegraph Corporation in the American republics. They worked telephonically with the stations of the American Telephone and Telegraph Company in the United States, with each other and with government or privately owned stations in Europe. Telegraphically they worked with the stations of the Mackay Radio and Telegraph Company in the United States, which also operates radiotelegraph circuits to certain other stations in Central America and the West Indies. International radiotelephone facilities between New York and Buenos Aires were opened to the public in 1930 between the American Telephone and Telegraph Company in this country and the Compania Internacional de Radio (Argentina).

"Broadcasting has made enormous strides in recent years, and I ought not to omit to mention the fact that today private broadcasting companies in the United States are transmitting over seven short wave broadcasting stations a variety of programs to the American republics. Special events occurring in this country are often re-broadcast through the facilities of local stations in Central and South America.

"It is my hope that I have described the history and growth of inter-American electrical communication in sufficient detail to give you a conception of the magnitude which today's facilities have assumed."

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