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AMATEUR RADIO OPERATION IN THE SOVIET UNION

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I. The Importance of Amateur Radio Activity in the Soviet Union

Having investigated the public system of radio and television communication in the Soviet Union,* we now shall concern ourselves with an appraisal of a radio network of which the functions are not quite so clearly defined, and of which the extent is somewhat more difficult to assess. There are several reasons why amateur radio communication per se is an important facet of radio and television communications in any country. These reasons hold true no less in the Soviet Union than in any other country in the world. Indeed, given the limitations of the conventional public Soviet system, some of these factors must assume added importance.

The amateur operator is an important source of experienced personnel in electronics and communications, skills which are useful in military and civilian crises and in exploratory situations. His capabilities may be summoned in supplement of, or in replacement of existing conventional public communication systems. Such situations have presented themselves repeatedly in the United States since the beginning of amateur radio in the early twentieth century. In the field of electronics, amateur radio has been the source of many important innovations and discoveries, partly because many engineers and inventors

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*Radio and Television in the Soviet Union, by this author. Center for International Studies, Massachusetts Institute of Technology, March, 1965.

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began their careers as amateur radio operators. Very high frequency, single sideband, and, currently, long range television broadcasting, all have had strong roots in radio amateur activity.

Perhaps the most contemporary example of the potential importance of amateur radio communications is the tracking of artificial earth satellites. Hams in the United States built the satellite OSCAR (Orbital Satellite Carrying Amateur Radio), which was launched by the U.S. Air Force in December, 1961. The project was designed to arouse and maintain world interest in amateur radio communications, and particularly in space communications. The radio amateurs of the world were invited to assist in tracking OSCAR, thus helping to develop and prove new concepts of space communications. Soviet amateurs participated in this operation on an unofficial basis, and have played an even larger role in the tracking of exclusively Soviet satellites, such as those of the Sputnik and Lunik series.

In the Soviet Union, radio amateurs perform certain official functions which in other countries are not considered such vital aspects of amateur communications. First, the operators of amateur radio in the USSR are expected to be one source in the development of radio equipment, and in its inculcation into the national economy. They are considered agents for such progress which at times has included such activities as repair campaigns; the agricultural assistance campaign of 1930 is an example of this type. In that instance, 250 amateurs were sent to rural areas where they repaired loudspeakers (radio-tochki)

which had been incorrectly installed. They found that only one-half of the 2,000 speakers worked properly and repaired the faulty installations. At the same time, they organized the local inhabitants into radio amateur clubs, increasing national membership and acting to institutionalize the maintenance of the work done by the original volunteers.[1] Soviet radio amateurs have also assisted in the radiofication of trains and railroad sections and similar places where the development of radio communications lagged.

Last, but most important in terms of explicit functions of Soviet radio-amateurism, is the constitution of a reserve cadre, from which the Soviet military forces draw radio operators and electronics technicians. While this situation is paralleled to some extent in the United States, recruitment is carried out on a voluntary basis, and on a much more limited scale. The relation of Soviet radio activity to government is to be discussed more thoroughly in the subsequent section; suffice it to say here that it is reflective of the great extent to which the Soviet government plays a decisive role in the lives of its citizens.

II. The Administration of Soviet Amateur Radio Activity

A highly organized activity in the Soviet Union, radio amateurism is under the jurisdiction of an organization popularly known by its initials, DOSAAF, the Voluntary Society for Assistance to the Army, Air Force and Navy.[2] This group, a para-military civil defense and military training association, is directly responsible to the Central Committee of the Communist Party of the Soviet Union. Its presidium, composed chiefly of high ranking military officers from all branches of the services, is responsible not only to the DOSAAF organization at large and to the Central Committee of the Party, but to the Ministry of Defense as well. The interests of DOSAAF extend beyond radio-amateurism, including rifle clubs, automobile clubs, motorcycle clubs, and glider flying, all activities which are potentially useful to the armed services.

DOSAAF Radio Clubs have a chief and a senior engineer, who are professionals and paid employees of the parent organization. All members of the DOSAAF Radio Clubs are called "RADIO-LYUBITELI" (radio amateurs), but only part of them are hams in the sense that we understand the term. One section of the Radio Club is composed of operators, those who work on short wave and ultra-short wave, and who either have their own stations or work on the Club station. There are two other sections in the DOSAAF Radio Club, however. The first of these consists of people who experiment with developing radios, tape recorders, phonographs and other equipment which we would classify as consumer items.

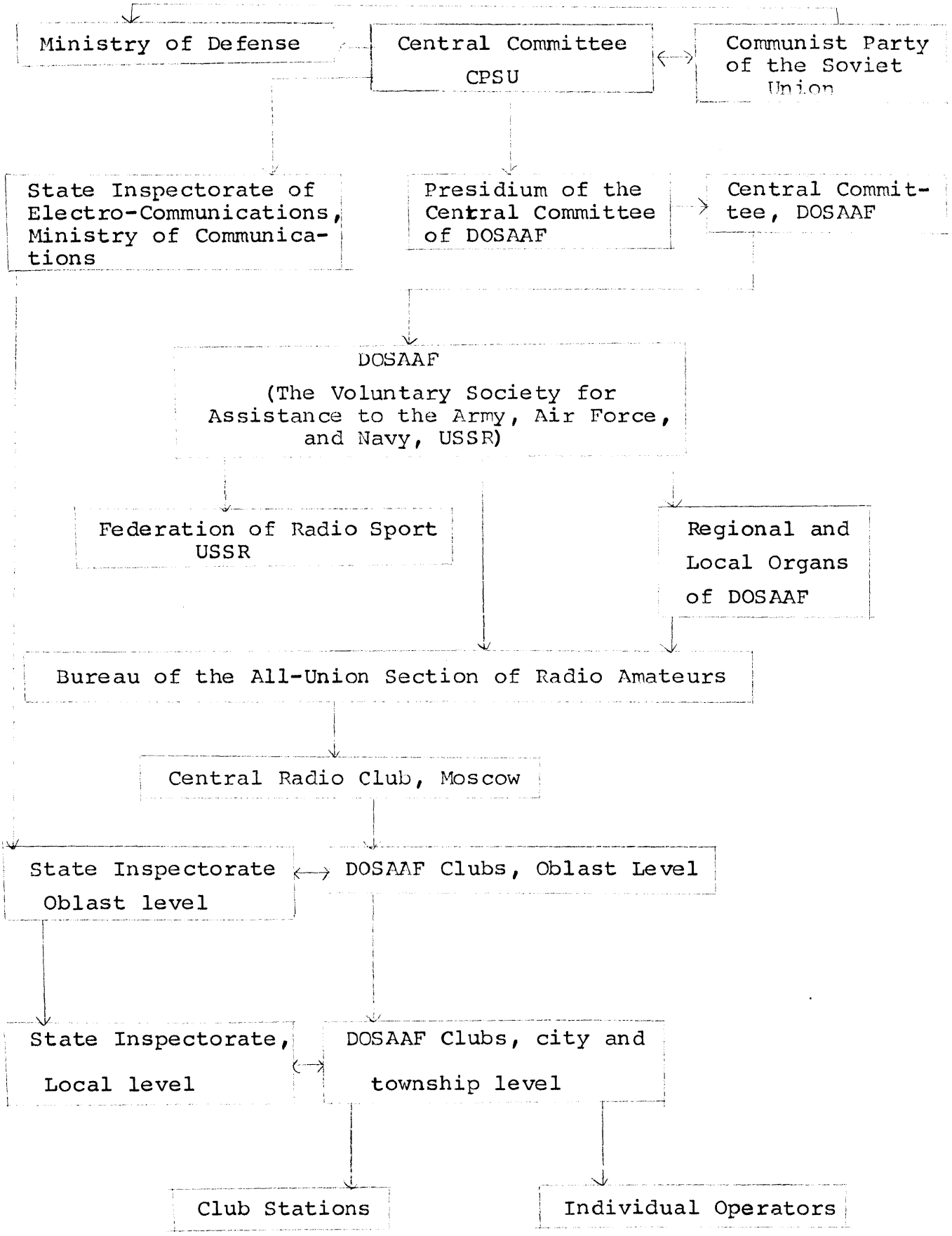
The second is also concerned with experimentation but for use of applied electronics in industry. Only those who belong to the section of operators (hams in our sense) are obligated to become members of the sponsoring organization, DOSAAF; others must join only if they use the facilities of the Club as members. Dues are one ruble, twenty kopeks* per year, or twenty kopeks for students; payment of dues is, apparently, not very strict. The DOSAAF Radio Club sections to which operators belong take two main forms. The first is an association of operators, as described above; it is usually attached to a university, an institute, or an enterprise. These in function are similar to American amateur radio clubs. The second type is a collective station which acts as a training center for young amateur radio enthusiasts. These are usually attached to Pioneer Camps or hobby centers. One of the largest such clubs is [illegible]KA5 which is attached to the Moscow Palace of Pioneers and Schoolchildren. The station is housed in several modern buildings near Moscow University; it contains several large military surplus sets and has rooms for instruction in code and theory.

Under DOSAAF's direction is the Federation of Radio-Sport of the USSR.[3] This organization, with which rests responsibility for competitive amateur radio activities, directs all contests and sets qualification norms for the winning of various awards and the awarding of various titles. The Federation is now a member of the International Amateur Radio Union. Subordinate to both DOSAAF and the Federation is the Bureau of

*One ruble equals $1.11.

the All-Union Section of Radio-Amateurs, created in 1957 supposedly in an attempt to further centralize government control over radio clubs. Directly under the Bureau are the Central Radio Club of Moscow, followed by regional and local clubs mentioned above. The third group which shares responsibility for amateur radio activity is the State Inspectorate of Electrical Communications. This body is the organization which actually grants an amateur radio license, as we shall note later in our discussion of that procedure. In addition, the State Inspectorate establishes rules for registration and operation of stations. A translation of these rules is included as an appendix to this paper.

Structure of the Administration of Soviet Amateur Radio Activity



III. RADIO, the Official Journal of Soviet Amateur Radio Activity

Published by DOSAAF, the official journal of Soviet radio amateurism is RADIO. Publication of this periodical was begun in 1924 under the name RADIO FRONT, which was subsequently changed to RADIO PO VSEM (RADIO TO ALL). The editor-in-chief of RADIO, F.S. Vishnevetskiy, is one of the Deputy Chairmen of the Presidium of the Federation of Radio-Sport; the chairman of the Presidium is also on the editorial board of RADIO, so that the relation between the organs of radio amateurism is clearly a very close one.

A single copy of RADIO presently costs 30 kopeks, or about 33 cents. A glance at its circulation figures[4] for selected years will give the reader some idea of the growth of interest in Soviet radio amateurism:

1946	20,000	copies per edition
1959	350,000	copies per edition
1962	470,000	copies per edition
1964	500,000	copies per edition
1965*	800,000	copies per edition

The journal contains articles dealing with the activities of radio amateurs in the Soviet Union and often, in the East European countries where organizations similar to DOSAAF have been established.[5] In the early pages of each edition are such articles preceded by a lead article containing the latest policy

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*February

statement of DOSAAF. After a CPSU congress, or a plenum of the Central Committee of the Party, for example, there may appear an editorial dealing with the main theme of the meeting, such as the priority development of chemistry, and an attempt is made to relate this then to radio amateurism. National events are similarly treated; recently Tereshkova and Bykovsky were pictured seated at their radio sets in preparation for their dual flight, while an accompanying article talked of the challenge to radio amateurs. A large part of each issue, generally the last three-quarters, is taken up with technical articles on the building of amateur radio or television sets. A recent issue even went so far as to explain the construction of an electronic musical instrument. Articles concerning the radiofication of the country and the development of the national television network are not uncommon, as are those dealing with possibilities for radio-electronics in agriculture and in other fields. RADIO, then, is a journal for "radio-lyubiteli" in the Soviet sense, including not only amateur radio operators, but also those who experiment with radio equipment. In function it encompasses a much broader scope than a comparable American magazine for amateurs, such as QST.

IV. The Amateur Radio Operator

The person who engages in amateur radio operation in the Soviet Union is generally the holder of a technical job, often closely related to radio communications. Thus, his hobby is rather closely related to his work. His reasons for becoming a radio amateur may vary. There are a limited number of hobbies in the country, especially ones that hold such a high degree of official approval. His radio contacts allow him to talk not only with faraway places in the Soviet Union but also with foreign hams. In addition to his own contacts, he may also listen to various broadcasts intended for the USSR, such as VOA, BBC, and the like, and he can also listen to other foreign hams talking to each other. Thus, radio hams are considered to be among the most well-informed people; they are aware of this reputation, and take pride in it. Although the radio conversations between Soviet hams and between Soviet hams and foreigners are formally supposed to be limited to the subject of radio communications only,[6] they frequently stray from the topic, and go on to the Olympics, weather, and so on. The ham may indulge in this practice until he abuses it, gaining a reputation as a trouble maker; then, even though this practice may not be cited as a reason, he may be chastised for infringements of other rules. Pressure may be made to bear in many ways, such as removal of license or stimulation of complaints about television interference (TVI), which is still a problem in the USSR.

It may be legitimately commented that this abundance of

two way radio activity could evoke a great deal of suspicion among certain elements of the Soviet society. Soviet radio amateurs realize this and feel rather uneasy about the freedom they enjoy on the air. Their feeling is that someday there might be unfortunate action from some authority who does not understand the significance of the service that amateur radio performs, or who does not consider it justified in the light of the amount of freedom it affords. In the present political situation, this seems less and less likely, but it is still being expressed as a doubt in the minds of those who remember previous crackdowns, such as the period 1951-1956 when almost no one was allowed to operate.

Technical Training

Some idea of the technical qualifications necessary for the operation of an amateur radio station in the USSR may be gained by examining the licensing procedure. The first step is enrollment in a DOSAAF course which is generally conducted by the local radio club. The club usually contains a high frequency section, a vhf/uhf section, several classrooms, a library and workshops. The person in charge of the club is paid by DOSAAF and is allowed up to three assistants, depending upon the size of the club. Admittance to the club's station is usually controlled rather strictly to prevent unauthorized persons from broadcasting.

After the prospective operator has learned to copy code

at a certain speed, generally about twelve words per minute, he is eligible to begin monitoring in the club station's receiving center. Before he is allowed to do this, he must join DOSAAF, for which there is an application process lasting about three weeks. If his application is approved, the applicant may begin short wave listening and is assigned a call sign. A Soviet short wave listener (swl) , it should be noted, is licensed in much the same way as one who transmits. He also sends out QSL's of reception of transmissions, just as does an operator licensed to transmit.

In order to build his own transmitter a Soviet amateur must receive permission from the State Inspectorate of Electro-Communications of the Regional Directorate of the Ministry of Communications. After approval of this application he has six months to complete the construction of his station. If this is done, he is then assigned to a certain class of short wave operation by the qualification commission of the local DOSAAF committee. The classed and their operating statuses are:

Class One: Phone and continuous wave operation on all amateur wave bands; class one stations are permitted up to 200 watts input power. This class usually requires a high level of skill, acquired usually after three to five years experience in operating a transmitter.

Class Two: Phone and continuous wave on all vhf/uhf bands, c.w. operations on 160, 80, 40, and 20 meters and power input of from 11 to 40 watts. He must be able to copy code at a speed of about 16-18 words per minute.

Class Three: Phone and c.w. operation on all vhf/uhf bands, c.w. on 160 and 80 meters, with a power input of 10 watts.[7]

Assignment to a class is not enough to put the amateur in a position to operate, however. Next he must submit a personal history statement together with a work record from his employer or school, petitions from the Central Committee of DOSAAF, and from the local committee, and a schematic diagram of his station. The local Inspectorate of Electro-Communications receives two copies of these papers. Most young amateurs belong to the Young Communists League (Komsomol), membership in which is desirable but not wholly necessary. Upon approval of this last application, the amateur may be licensed for a period of one year. After this, the license must be renewed by the State Inspectorate of Electro-Communications each year.

The qualifying commission which administers the examination for the license is elected by the members of the radio amateur operators section of the oblast club. Only oblast radio clubs give the examination, which is not standardized, and is usually oral. After the qualifying commission is satisfied as to the applicant's state of preparation it then gives the "permission" to the State Inspectorate of Electro-Communications, which almost automatically grants the license on the basis of this recommendation.

In past years it was extremely difficult for a citizen to obtain permission to operate a private radio station in his home. In 1956, however, after the Twentieth Party Congress, development of private stations began to be encouraged. In

1958 there was actually an all out boom of private stations, largely due to the rapid development of uhf radio. Also it was recognized that private stations give the individual vast experience which he cannot gain simply by taking a turn as an operator of a collective station. He learns to build his set, piecing it together from surplus equipment, and is able to repair and replace it; thus he becomes a valuable store of knowledge which may be tapped if necessary. Formerly there existed a fee for "use of the ether" in the amount of three rubles, sixty kopeks; this fee was very much resented by hams and was abolished two years ago.

Restrictions on Soviet hams may be seen by glancing at the "Instructions," included in the appendix. Most of these restrictions apply to hams the world over. The notable exception is, of course, the limitation on content of conversation described above. This rule was reaffirmed recently in a lead article in RADIO:

> We must pay greater attention to the strengthening of discipline in the ether. We cannot be reconciled to the fact that individual amateurs are operating on imperfect transmitters and on powers above those authorized, use frequencies not alloted to amateur communications, and carry on conversations not relating to amateur radio operation, etc.[8]

The restriction on power mentioned is that a station should not exceed 200 watts; it is well known, however, that many Soviet hams exceed this power, sometimes operating stations of up to a kilowatt of power.[9]

Call Signs

Amateur radio operators in all countries are assigned unique call signals, a series of letter and number combinations, for purposes of identification. This practice was instituted in the USSR in the 1920's, although it had begun several years earlier in the United States. In November, 1928, the amateur call signals were systematized. The country was divided into nine designated short wave amateur regions. After a number, which identified the region, letters of the Latin alphabet were assigned to individual transmitters. Club station call signs consisted of their region number, followed by three Latin letters the first of which was "K" for Klub. In subsequent years, the call signs changed, but the principle established for their designation remained the same.

The first letter of the Soviet amateur is "U". The second letter indicates the republic (A for the RSFSR, B for the Ukraine, and so on), which is followed by a number which indicates that the operator is in the Ukrainian SSR, in the fifth region, and that he has been assigned the letter combination VO. Although in most countries one can look up the name and address of the operator by simply knowing his call sign, this information is not available to non-

Soviet hams for the USSR.

For Soviet vhf stations there are sometimes three letters indicating the operator instead of the normal two. An amateur licensed to operate on all bands changes his call from "U" to "R" when he operates on frequencies higher than 29.7 mcs. This is optional for all but novice class operators, and is carried out by few.

A table of the all-Union prefixes follows:

UA1, 2, 3, 4, 6, 9, 0;	
UW1, 2, 3, 9, 0; UN1	---RSFSR
UB5/UT5	---Ukrainian SSR
UC2	---Byelorussian SSR
UD6	---Azerbaidzhanian SSR
UF6	---Georgian SSR
UG6	---Armenian SSR
UH8	---Turkmenian SSR
UI8	---Uzbek SSR
UJ8	---Tadzhik SSR
UI7	---Kazakh SSR
UM8	---Kirghiz SSR
UO5	---Moldavian SSR
UP2	---Lithuanian SSR
UQ2	---Latvian SSR
UR2	---Estonian SSR

The first official Russian call book was published in 1962,[10] containing call letters for hams registered up to November, 1961. The following two tables are based on information from this book.

Distribution of Types of Amateur Radio Stations, USSR, Region and Call Prefix

November 1961

Region	Call Number Prefix	Coll. SW Stations	Ind. SW Stations	Coll. USW Stations	Ind. USW Stations
I	UA1	86	283	55	258
	UN1	7	26	14	31
II	UA2	13	33	7	28
	UC2	31	57	34	90
	UP2	12	43	27	150
	UQ2	30	72	112	224
	UR2	14	48	--	75
III	UA3	170	421	171	814
	UW3	--	122	--	--
IV	UA4	72	176	68	488
V	UB5	166	406	196	1442
	UO5	15	45	13	59
	UT5	1	91	10	--
VI	UA6	43	149	64	21
	UD6	10	26	5	25
	UF6	8	37	5	47
	UG6	7	30	12	34
VII	UI7	26	70	28	137
VIII	UH8	3	23	26	127
	UI8	12	31	7	92
	UJ8	2	15	9	24
	UM8	5	12	1	1
IX	UA9	110	309	154	856
	UW9	5	22	3	--
X	UA0	81	256	61	339
	UW0	--	--	9	9
	Total	929	2803	1091	5362

Distribution of Types of Amateur Radio Stations, USSR, by Republic

November 1961

Republic	Coll. SW Stations	Ind. SW Stations	Coll. USW Stations	Ind. USW Stations	Total
RSFSR	587	1797	606	2835	5825
Ukrainian SSR	167	497	206	1442	2312
Byelorussian SSR	31	57	34	90	212
Moldavian SSR	15	45	13	59	132
Caucasus					
Azerbaidzhanian SSR	10	26	5	25	66
Georgian SSR	8	37	5	47	97
Armenian SSR	7	30	12	34	83
Central Asia					
Turkmen SSR	3	23	26	127	179
Uzbek SSR	12	31	7	92	142
Tadzhik SSR	2	15	9	24	50
Kazakh SSR	26	70	28	137	262
Kirghiz SSR	5	12	1	1	19
Baltics					
Lithuanian SSR	12	43	27	150	222
Latvian SSR	30	72	112	224	438
Estonian SSR	14	48	--	75	137

This chart shows that there are a total of 929 collective short wave stations, 2803 individual short wave stations, 1091 collective ultra-short wave stations, and 5362 individual ultra short wave stations. The over all proportion of collective stations (2020) to individual stations (8165) is approximately one to four. This is a good indication of the present importance attached to the experience gained from building and operating one's own station. It has been estimated that, of the total number of stations, at that time 10,185, about half of these stations were not active.[11] Judging from the growth of radio amateur station operation in the past several years, it seems a safe estimate to say that today there are in excess of 15,000 stations, probably closer to 20,000. Again, it should be noted that swl'ers are licensed as regular operators.

Frequency Allocations

The frequencies assigned to Soviet radio amateurs are those set forth in the International Radio Regulations (Geneva, 1959), Article Five. These frequencies are those of region one, which includes the Soviet Union.[12] As long as each country is consistent with the international regulations, it can decide how amateurs' stations will be used. The frequencies allocated to Soviet amateurs, and the types of transmissions permissible on them are as follows:[13]

Frequency	Transmission
1800 kc	telephony
3500-3650 kc	continuous wave (cw) and telephony
7000-7100 kc	cw, telephony
14,000-14,100 kc	cw
14,100-14,300 kc	telephony
14,300-14,350 kc	single sideband telephony
21,000-21,150 kc	cw
21,150-21,350 kc	telephony
21,350-21,450 kc	single sideband telephony
28,000-28,200 kc	cw
28,200-28,500 kc	telephony
28,500-29,700 kc	single sideband telephony
144-146 mc	cw, telephony
420-435 mc	cw, telephony

V. Types of Amateur Communications Being Encouraged

Short Wave, v.h.f., and u.h.f.*

Short wave radio, officially opened to amateur use in 1926, plays an important part in the reserve radio system for military communications. While the Party likes to maintain close surveillance over short wave radio, primarily because of the long distance communications possibilities it affords, it is at the same time actively encouraged. It is reported that General-Lieutenant Melnik, Deputy Chairman of the DOSAAF Central Committee, stated that Soviet short wave amateurs made more that 500,000 two-way radio contacts with amateurs in 250 countries in a period of 18 months in 1957-1958.[14] He mentioned that it would be a desirable development. The concern of the Central Committee of DOSAAF with short wave is good indication of the importance which DOSAAF attaches to its development, and of its concern for its control.

At the present time, and for the past several years, at least, the DOSAAF organizations have placed great emphasis on the development of v.h.f./u.h.f. Soviet amateurs who operate on these bands are known as "ultra-short wave" amateurs. The reason for emphasis on these bands of radio communications has been the comparatively low level of development

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*very high frequency (28-400 mc) and ultra high frequency (400-3,000 mc)

of vhf/uhf communications in the USSR. In 1953, in the Moscow region, for example, there were only about 8 or 9 stations on these bands. A second possible reason is the familiar one of controlled communication, since these bands are generally considered reliable for short distance communications only. Amateurs have, however, succeeded from time to time in establishing long range contacts on them.

Single Sideband Communications

Single sideband communication is a relatively recent development in amateur radio activity. Its function is well summarized in the following paragraph:

> When voice is impressed on a cw (continuous wave) carrier signal, by a process known as modulation, the basically sharp carrier is broadened out both above and below its normal frequency setting by amount equal to the frequencies of the voice currents. These upper and lower excursions are called sidebands, and all conventional a.m. (amplitude modulation) stations function in this way. It has been known a long time that an identical voice signal is being carried on these sidebands, and that one of them, and most of the carrier itself, can be eliminated without affecting the intelligibility of the signal at the receiving end. If one of the sidebands is filtered out, then the resulting system of communications is called sideband (SSB); the resultant carrier is usually reduced or suppressed. The advantage of this system is that the transmitted signal takes up just half the space in the spectrum as compared with a standard double sideband (DSB) signal. In addition, an SSB signal is much less susceptible to interference from other stations which are transmitting near this frequency.[15]

Until comparatively recently, the disadvantages of SSB have been complexity and resultant expense of operating equipment. Amateur radio operators, however, have developed equip-

ment to the point where it is reasonably inexpensive, reliable, and available to the average amateur; in addition, hams themselves have improved their operating techniques with SSB. Thus, SSB has evolved into a popular means of amateur radio communication. After its development by amateur radio operators, SSB spread into other areas of commercial communication. Soviet writers have pointed out that the use of SSB radio in aircraft reduces the size and weight of the aircraft's radio equipment, and improves radio communications. While SSB is more complicated and poses problems of reliability it is about eight times as effective.

Although the Soviet radio amateurs have begun to use SSB and DOSAAF has tended to encourage this use, the Soviet radio hams have for the past decade or so remained far behind those of the United States. Gradually this gap has narrowed, but even this development has been slight. As late as May, 1958, there were only two SSB stations on the air in the USSR.[16] This number grew to 75 in 1962,[17] and in 1963 the number had reached about 110-125. In the first All-Union Cup Competition on SSB of the Central Radio Club in March 17, 1963, there participated 119 SSB stations, of which number 25 were collective, and 94 were individual.[18] Although the American Radio Relay League, the organization unifying American hams, does not know the exact number of SSB stations operating in the United States, it reports that the number is in the thousands. DOSAAF's encouragement of SSB is reflected in the number of journal articles published on SSB in RADIO since March, 1960.

There is a frequent column entitled CQ SSB," written by a prominent ham who lives in Moscow. There have also been many articles devoted to SSB, containing information on the development of SSB in the USSR, techniques and theories of SSB, information on the construction of equipment, and so forth. In late 1964 a new book on SSB appeared by UB5UN[19], one of the Ukraine's most active operators. In addition to these published forms of encouragement, there was organized in 1961 an expedition of SSB communications. A mobile van, sponsored by the Federation of Radio Sport, USSR, the Central Radio Club, and RADIO magazine, traveled from Moscow to various Soviet cities. The radio amateurs with the van demonstrated SSB techniques to local DOSAAF radio clubs.[20]

Russian SSB is found on the following frequencies:[21]

3600-3650 kc
7050-7100 kc
14,100-14,110 kc
14,265-14,350 kc
21,400-21,450 kc
28,600-28,900 kc

One form of amateur radio activity which is not overtly sanctioned officially but which is gaining in popularity, is long range listening of television broadcasts. It has recently been announced that the first two-way long range contact on television by amateurs was accomplished in the USSR.

VI. Activities of Soviet Amateur Radio Operators

Contests, Titles, Awards

As previously mentioned, great incentive is offered to the amateur radio operator in the Soviet Union to increase his skill and to earn distinction in his "art." This incentive takes three main forms: competitions;[22] the awarding of titles; and the reception of awards. It was stated in a recent 1964 issue of RADIO that during the last two years (1962 and 1963) there were held more than 4,000 competitions in the various radio clubs and primary DOSAAF organs. In these competitions there participated more than 88,000 persons.[23] These figures refer to all branches of DOSAAF activity, not merely to amateur radio. In 1962 there were reportedly over 400 competitions in radio-amateurism, in which participated more than 10,000 members of the society. In these competitions, the title of "Master of Sport" was awarded to 600 persons.[24]

The Federation of Radio Sport of the USSR is responsible for the direction of these competitions in the field of radio-amateurism. In line with these duties, it sets the qualifications for the awards and titles. For 1965 the titles are as follows: (1) Master of Sport, USSR, International Class; (2) Master of Sport, USSR; (3) Candidate Master of Sport; (4) First Class Operator; (5) Second Class Operator; (6) Third Class Operator; (7) Junior First Class Operator; (8) Junior Second Class Operator.[25] Only those amateurs who have attained one of the first four ranks, that is, First Class and above,

are allowed to participate in international amateur radio contests.[26]

There has also been traditionally a "Champion of DOSAAF," who achieves top transmitting and receiving speed. Diplomas or awards are given for the amount of contacts attained over a certain time period. The following is a list of some of these diplomas and their norms of attainment:[27]

1. "Worked the Fifteen Republics of the USSR" (R-15-R) for establishment of two-way communications with Soviet Amateurs of the 15 republics in less than 24 hours.

2. "Heard the Fifteen Republics" (S-15-R)* for hearing the work of Soviet hams of the 15 republics in less than 24 hours.

3. "Worked 100 Oblasts" (R-100-0) for establishment of two-way communications with Soviet amateurs of 100 oblasts or more of the USSR in the period of one year.

4. "Worked 10 Raioni" (regions) (R-10-R) for establishment of two-way contacts with Soviet hams in each of the ten short wave regions of the USSR in less than 24 hours.

5. "Worked Six Continents" for establishment of two-way communications with hams in Europe, Africa, Asia, North America, South America, Oceania, the European and Asiatic part of the USSR.

6. "Worked 150 Countries" (R-150-C) for establishment of two-way communications with hams of 150 countries of the world, including the 15 republics.

Competitions are the highlight of performance each year for the radio amateur, since most of the titles listed on the

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*Each of the "R" awards has an "S" or "Heard..." equivalent which I have not listed separately; the time periods are the same for each.

previous page are won by virtue of performance during participation in these contests. Each year, on or about May 7 (Radio Day, in honor of the Russian "inventor" of the radio, A. Popov) an International Long-Range Communications (DX) Contest is held. In 1959 Soviet amateurs expressly invited world amateurs of 100 countries to participate in this annual event, which lasts for about twelve hours. Winners receive medals and diplomas from the Central Radio Club in Moscow.

"Field Day" (Polevoi Dyen') was instituted in 1956 as a nationwide competition among vhf/uhf operators. The contestants take their equipment to remote areas, set up their stations in tents, establishing radio communication with one another. The object is that Soviet amateurs should be able to "rough it," operating on an emergency power supply. The contest provides them with some practical experience which may be useful in military situations. No contestant may compete in a home or other building, but must operate his equipment in an open field. In 1961, 686 amateur stations representing 96 DOSAAF clubs participated in the event. The maximum contact distance on 145 mcs was 315 kilometres, and on 425 mcs was 207 kilometres.[28]

One radio amateur contest is an interesting combination of sport and communications. "Radio Network Operating" is a competition in which the contestants carry a 25-pound pack while cross-country. They stop at three points along their route, set up their equipment, then transmit and receive

"Radio-lovers" at work. Above, Carella and Maini Fechtel in their amateur station at Lvov, in the Ukrainian SSR. Below, an ex-champion in the "Fox Hunt" radio amateur contest, Igor Shalimov.

messages from each other. Demerits are given for not setting up equipment properly, not handling messages in the allotted time, and/or not completing the hike!

One of the most popular forms of amateur radio competition is the "Fox-Hunt" (Okhot na lis'). In this form of competition, the object is to test skill in radio direction finding. This sport is not an exclusively Soviet innovation. It is usually held in the summer months in the USSR. The operator who transmits signals of a pre-determined type for a specified period of time, and within pre-determined frequency limits in the amateur bands, is called the "fox." The "hunters" are amateurs who are familiar with the operation of portable receivers; each carries his own antenna, source of power, and direction-finding receiver. The "hunter" who finds the "fox" first wins the competition. This form of competition is taken very seriously by Soviet hams who invariably win European competitions in "Fox Hunting." It combines two qualities which Soviets consider most desirable: technical skill and physical fitness.

Tracking Artificial Earth Satellites

In 1957, several months before the launching of Sputnik I, articles began to appear in the journal RADIO dealing with the observation and tracking of artificial earth satellites by radio amateurs. In the June issue, two such articles appeared: "Artificial Earth Satellites--Information for Radio Amateurs," by V. Vakhin and "Observations of Radio Signals from Earth Satellites

and their Importance." The articles gave a description of a satellite's orbit, how to predict the position of the second appearance, and information on the satellite's radio transmitters and how the radio signals on 20 mcs and 40 mcs would be used. In the July issue there were articles on how to build a receiver and direction-finding attachment for tracking the forthcoming Soviet satellites.[29] It also contained an article from QST, the American amateur radio journal,[30] describing the Minitrack II system, which would enable amateurs to track American satellites. On page 25 of the issue, an announcement was addressed to the Soviet ham asking that he make preparations for tracking the earth satellites, and listing thirteen points on which information should be recorded.[31] It instructed the ham to mail the recording of signals to Moscow K-9, Mokhovaya Street, 11, Institute of Radio Engineering and Electronics of the Academy of Sciences, USSR, where the data would be processed. The hams were also requested to notify Moscow-Sputnik by telegram after the reception of radio-signals had been fully received. The August 1957 issue of the journal instructed the hams as to the method for making magnetic tape recordings of the signals.[32]

The November 1957 issue of RADIO (just after the October 1957 launching of Sputnik I) stated that there were 26 DOSAAF amateur radio clubs reporting radio observations of the satellite, and that thousands of individual hams were also sending in reports. From October 6, 1957 to October 16, 1957 PRAVDA

carried reports that radio amateurs from all over the USSR were reporting "valuable information" about the satellite. In the December 1957 issue of RADIO, various hams wrote of their personal experiences with tracking. This situation also surrounded subsequent launchings of Soviet satellites of the series Sputnik and Lunik, but with decreasing amounts of publicity. As previously noted, Soviet amateurs participated in tracking the artificial satellite OSCAR; their activities, however, were not publicized, and the report which they made was in the form of a collective letter from the Central Radio Club in Moscow, rather than individual response.

Military Significance of Radio-Amateurism

The tracking of satellites has obvious implications as to experience which the radio amateur gains. His skill at satellite tracking would serve the armed forces well. Other uses of amateurs during military situations include their acting as liaison communicators between various detachments of the Red Army, and informing the Army of the location and strengths of the enemy troops. The training which amateur communications provides has also proved invaluable to the army. Indications are that the non-amateur has a much more difficult and lengthy experience in becoming a good army radio communicator than does the former "ham." Such competitions as Field Day are designed to maximize experience in situations most helpful in military communications.

VII. Radio Equipment

The poor situation in regard to radio equipment for public radio communications extends into the amateur radio sphere as well. Beginning with the post war years, anyone who wished to have a radio or to replace the ham set which had been confiscated by the government at the start of the war, had to build it himself. If he wanted a short wave receiver, this was even more so the case. Repairs were often simply not available, and if they were, took an absurd amount of time. Most repair and modification of receiving sets was done at home. German technicians who were prisoners of war at this time were reportedly very helpful in instructing Soviet hams in adapting long and medium wave receivers to receive short wave broadcasting. Today, when sets capable of receiving broadcasts below the 25 metre band are simply not available, much of this "doctoring" takes place.

After 1954 it became somewhat easier for citizens to purchase radio sets, but, as usual, only those capable of receiving long and medium wave broadcasts. The post Stalin period saw the easing of certain restrictions on radio amateurism, but, as in other areas of Soviet life, surveillance yet remains a fairly effective prophylactic control. Because commercial radio equipment is comparatively expensive and scarce in the Soviet Union, most ham equipment is made by the amateurs themselves. There are few composite kits for radio

receiver construction, and most sets must be made from parts gathered at different times from various sources. This renders the six month period allotted for construction of the set a less generous amount of time than it would appear at first glance. Most equipment obtained by amateurs is obtained through DOSAAF radio club, which obtains it as surplus equipment from various branches of the armed forces, and also from various agencies under the Ministry of Communications. When new equipment is installed generally the old, outmoded equipment is designated for use by radio amateurs. There is sometimes a supply committee in the radio club, but often a group of the senior operators gather and dispense the equipment according to seniority, and in consideration of the equipment already in possession of the operators; those who have least equipment get first opportunity. The military sets are, of course, generally the most powerful. Much American equipment is in use, left over from Lend-Lease days. There is some private trade in equipment among hams, but this is largely limited to the receiver section.

The most common type of antenna used by Soviet hams is the "quad" arrangement, which resembles a spider-like figure. The reasons for this are that this is better for high frequency operation, and the materials for its construction are easier for the Soviet ham to obtain. Since aluminum rodding is next to impossible to get, this structure is built of bamboo supports, which hold the wires and last for about three or four

years under normal weather conditions there.

Exhibitions of Amateur-Built Equipment

Each year dozens of exhibitions prepared by radio amateurs are held in the Soviet Union, some of them showing amateur equipment. These exhibitions are climaxed each year by an All-Union Exhibit sponsored by DOSAAF. At these exhibits, not only radio apparatuses but also other electronic equipment built by amateurs is shown and demonstrated. In 1957 DOSAAF printed a booklet on the Twelfth All-Union Radio Exhibition. In this booklet 71 pages were devoted to radio receivers, 37 pages to short wave and vhf receivers, 45 pages to measuring instruments, 12 pages to recorders, and 86 pages to "Applications of Radio Methods in the National Economy," or in other words, electronic equipment. Apparently the level of equipment shown at these amateur exhibitions varies from year to year, depending upon the emphasis by DOSAAF and on the availability of parts. Thus there was reported a noticeable decline in the quality and quantity of radio equipment from the 16th All-Union Exhibition to the 17th such exhibition. The number of apparatuses shown declined from 207 to 84, "among them, many which by their level do not deserve to be shown at an All-Union Exhibition."[33]

VIII. Foreign Contacts of Soviet Amateur Radio Operators

The relations which Soviet amateur radio operators have with their Western counterparts takes four main forms. Besides actual contacts of speaking or listening via radio itself, there are contacts via the QSL cards which acknowledge reception of transmissions, international radio amateur competition, and visits of foreign hams to the USSR. The last two forms of contact have been significant only in recent years, and are still rather limited in quantity.

American hams have reported that as a rule, Soviet operators are good, their level of technical skill having improved markedly during the last decade. Their contacts as compared with those of other Western hams, however, are rather short, due to the rule on content, and they usually initiate the sign-off procedure. Language used is the international radio language based on English. It has been indicated that hams of Soviet and East European countries tend to Russify these expressions when speaking among themselves. In converting the code to Russian, the five extra Russian letters are never used in international contacts.

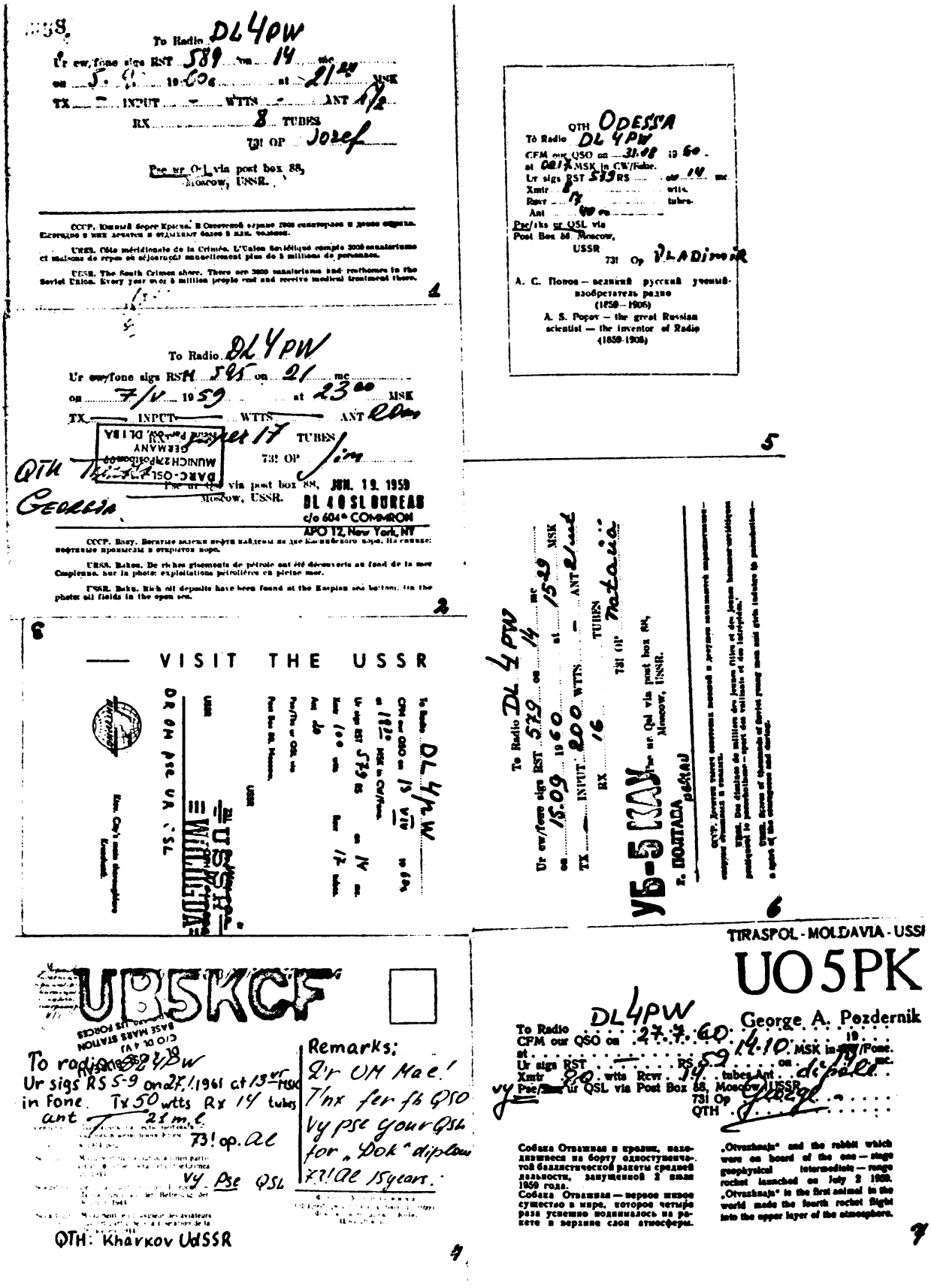
QSL Cards

The signal "QSL?" is the international code sign meaning "Can you acknowledge this contact?" This is done by the exchange of QSL cards among hams via mail, thereby verifying the radio contact on the air. The practice is widespread among

hams and is considered an important part of the operating procedure. For certain forms of competition the QSL card is required as proof of contact. Most hams collect QSL cards and often decorate their operating shacks with them. The minimum information which a QSL card should contain is the station's call sign in large block letters, the name and address of the operator, a short description of the equipment on which the contact was received, the date, time, type of transmission, and other data relating to the contact. These minimum points are usually the sole content of Soviet QSL cards, which are often printed on tourist-style postcards or plain cards. American hams print their own cards, or have them done, and often include elaborate pictures of homes, families, shacks, or other decorations. Soviet QSL cards are printed by DOSAAF, and distributed by the DOSAAF radio clubs. Some examples of Soviet QSL cards may be seen on the following page.

Although the usual custom among hams is to mail the QSL card directly from ham to ham, this practice is not followed by Soviet hams. The cards among Soviet hams are mailed through the DOSAAF radio club which authorizes free postage for the purpose. The amateur purchases the envelope for the QSL at the post office then takes it to the radio club to be stamped free postage.

The Soviet amateur call book lists only the ham's call sign, his name and initials, and his location, so that the card may be mailed to his local radio club. Between Soviet



Some Soviet QSL Cards: Back View(note propaganda blurbs)

hams and foreign contacts, the procedure is a little more elaborate. The Soviet ham mails his cards to Box 88 which then sends them to the foreign ham, again authorizing free postage. The foreign ham, on the other hand, must send his QSL to Box 88 which is the post address for the Central Radio Club. Box 88 then sends the cards on to the Soviet hams. Some censorship is exercised here; usually cards which are pornographic in nature or those which contain political enclosures (even stamps) are filtered out at this point. Mailing a QSL through Box 88 generally takes a couple of months. If the Soviet ham does not mind giving his address to his contact and if the QSL desired is an especially difficult one to get, he will sometimes have the card mailed directly to himself. He may mail his QSL directly out if he does not mind postage. However, since Soviet international mail is closely watched, this is not a particularly advisable procedure, especially if there is anything dubious about the contact. In 1956 DOSAAF printed Soviet QSL cards in the amount of 1,000,000, which amount was for both external and internal use.

Soviet participation in international contests has increased markedly in the past few years. Its quality, however, is somewhat unrepresentative since the limitations imposed on Soviet participation, i.e., that only the best hams are allowed to compete internationally, are designed to ensure maximum skill and performance on the part of those representing

the Soviet Union.

Soviet contacts with foreign hams visiting the USSR have been increasing as well. Up until the past year, this form of contact was limited to the visits of some twenty-five or so Western radio amateurs to the Soviet Union. During the second half of 1964, however, the American Exhibit "Communications-USA" afforded a great opportunity for exchange of information between Soviet and Western amateur radio. The exhibition included a station of Halicrafter Equipment operated by an American ham, W8NRB, from Michigan. W8NRB, otherwise known as Lawrence DeMilner, was visited at the exhibit by more than 500 Soviet hams. These people were able to ask any questions they liked of Mr. DeMilner who divided his time between talking to visitors and operating his rig. His contacts on radio, largely on SSB, allowed him to speak with scores of Soviet and foreign hams, including many American ones. In addition to meeting hams at the exhibit, Mr. DeMilner was invited to many of the Soviet hams' homes and inspected their equipment. Several times he was asked to say a few words over the Soviet hams' station. Visits from W8NRB became quite a status symbol among Soviet hams, as did contacts with him on the air by both Soviet and foreign hams. He used his own call letters plus Soviet suffixes to indicate his location: W8NRB/UAL (Leningrad), UB5 (Kiev), and UA3 (Moscow). This is the first time a Western ham has ever operated within the borders of the Soviet Union.

Conclusions and Prospects

Before attempting to make any generalizations about the future of ham radio activity in the Soviet Union, it would be well to review the prominent features of organizational affiliations of radio amateur operation. While the Federation of Radio Clubs is concerned with competitive activities and setting qualifying norms for titles and diplomas, the State Inspectorate of Electrical Communications' prime responsibility lies in the area of granting licenses and in regulating actual building and use of the equipment used by amateur operators. In cooperation with these two bodies, DOSAAF clearly occupies the position of greatest importance with regard to the regulation of amateur radio operation. As a sponsoring organization it develops initiative and attracts people to the "sport" of amateur radio operation, as it is conceived in the Soviet Union. It provides professional personnel which both trains young people to operate stations and renders assistance in building and operating amateur stations. In cooperation with the State Inspectorate, it participates in the qualifying procedures for licenses. It also is the main source for equipment and parts, and for QSL cards. By providing the continuous supervision that it does, DOSAAF is able to ensure that there will exist a trained body of persons capable of operating radio equipment; it is also possible to guide and direct the development of certain forms of radio amateur operation so that the activities of hams best serve the interests

of the Party and government.

The obvious problem of DOSAAF in regulating amateur radio activity in the Soviet Union is that characteristic of any control mechanism in a totalitarian political system. How far should undesired innovation be curtailed? Unfortunately, the dividing line between desirable innovation and politically dangerous innovation is rarely very sharp, given the multiplicity of variable factors influencing development. This difficulty makes conclusions and predictions even more complicated for the Western observer. He must both determine the rational course of action and the probable Soviet course of action. These reservations assumed, we may proceed to make certain tentative conclusions which should facilitate judgment as to the future of radio amateur activity in the USSR.

The policy of the Party and therefore, the government, will probably continue to be the encouragement of radio amateur activity for purposes useful (1) to the military services and (2) to the national economy. While radio contacts with the West will continue to provide effective propaganda and help to maintain the technical skill of Soviet amateurs, they will be limited both qualitatively and quantitatively, dealing largely with technical matters only. QSL cards will continue to be censored, at least for the immediate future. This is indicated by a recent statement in a RADIO lead article:

> It is a secret to no one that hostile propaganda in attacking our Marxist-Leninist ideology unremittingly conducts provocational subversive works, and stops at nothing in its attempts to deprave

> the soul and consciousness of the Soviet people. It seeks to exploit the ether, and not infrequently even the amateur bands of radio for dissemination of its base fabrications; in the guise of exchange of QSL cards and radio literature, it dispatches into our country postcards of religious content, foul smelling and clearly hostile (to us) advertising, etc. That is why we must do all in order to toughen our radio sportsmen ideologically, to increase their vigilance, to develop their class consciousness, their feeling of patriotic pride and their readiness to rebuff any onslaught of bourgeois ideology.[34]

Competition within the Soviet Union will continue to be important, probably with increasing emphasis on those activities which strengthen experience in militarily important situations. There will probably continue to be an interest in satellite tracking, especially with the increasing sophistication of communications satellites. Publicity on satellite tracking has dropped, however, and will probably continue to be low. Whatever tracking will be done by Soviet hams, however, will no doubt be carried out either solely by the Soviet hams in isolation from other hams of the world, or in conjunction with East European hams.

Emphasis on vhf/uhf will continue to increase, as will SSB communication. SSB will probably extend itself much more into the public sector in order to reduce crowding in the wave spectrum. There will be continued emphasis on experimentation by amateurs in television and in improving radio and electronics equipment. Soviet hams have shown a tendency to make their equipment smaller, more compact, and in general more suitable for mobile communications facilities.

Recent Criticisms of Soviet Radio Amateur Activity

Late 1963 and early 1964 have seen the publication of several lead articles in RADIO which have severly criticized certain aspects of amateur radio activity and pointed out the need for closer supervision of activities of the ham. These criticisms seem to deal with chronic ills of the "sport." We list them here in order of publication:

September, 1963 (No. 9);

(1) Radio amateurs have been using foreign names, such as Bob and Jack, in making international contacts. The magazine asks, "What's wrong with the good old Russian names Yurii, Evgenii, and Valentina?"

(2) Amateurs have been recording and broadcasting "croaking" music over the air-(obviously a breach of the content rule).

October, 1963 (No. 10);

(3) The activity of radio clubs in rural areas is lagging, even though over half of the membership in clubs lives in rural areas.

(4) Poor organizational work is carried on in schools, especially in recruitment of members, and interesting young people in radio-amateurism. In Georgia, where there are 2,300 schools, there are only five radio clubs, and in Penza and Ryazan there are none at all.

(5) Closer supervision by clubs over radio amateurs is needed: "No young man or girl who shows an interest in radio engineering should fall from the field of supervision and influence of the radio clubs."

January, 1964 (No. 1);

(6) The network of amateur stations is not being expanded as rapidly as it should be. In fact, in several oblasts such as in Chita, Penza, Tyumen, Tambov, and Smolensk, the rate of growth of radio clubs has declined in comparison with 1962.

(7) In some committees of DOSAAF radio amateurism is not taken seriously enough and in several oblasts and cities of Kazakhstan there are still no sections for radio sport. This last comment is interesting, since Kazakhstan in the past year has been the object of much criticism for "radio-hooliganism." Apparently, there has been a great increase in radio amateur interest and activity in the area with little control on the part of local Party and DOSAAF organs.

Leninskaya Smena for June 8, 1963, reported on the "hooliganism" rampant in the republic (Kazakhstan):

> But there is another kind of "ham operator." There are those who, having contrived a homemade transmitter, go on the air, litter it with trivial melodies, empty conversations, and sometimes even uncensored swearing. Being confident of not being punished, all these "kings of the happy kingdom," "alchemists," "cobras," and "broken wine glasses," carry on broadcasts in bands forbidden to amateur communications, willfully appropriate call signs for their radio stations, and interfere with normal communications work. Sometimes even fanatical worshippers of the all-high turn up among the radio-hooligans. They have no objection to using the "devil's invention" for propagandizing the "word of God." Jehovah's Witnesses from Dzhezkazgan, convinced of the uselessness of their efforts to attract people to the sect, decided to utilize the air waves for this. During Easter the Alma-Ata Orthodox did not lag behind them...They decided to use the radio waves for congratulating the faithful on Christ's resurrection.[35]

Apparently official annoyance with radio "hooliganism" has spread to the populace at large. Recent reports by individual citizens read:[36]

> A Donbas coal miner, Ukrainian SSR: "Radio hooligans are poisoning our lives. When you turn on your radio, you often get disgusting music and obscene language. Radio hooligans spoil our enjoyment, corrupt our youth, and make it impossible for children to listen to broadcasts."
>
> Another complaint: "These unscrupulous people have become a nightmare for a great number of TV fans. The moment a hooligan goes on the air, a

family watching the TV can consider the evening ruined. The image on the screen is distorted beyond recognition, and there is nothing left to do but to turn off the set."

Note: TVI has been a problem in almost every country where amateur radio operation and television have co-existed. In the USA the problem has been largely solved by improving television sets and other technical equipment. In the USSR the state of the relationship is such that, at first sign of difficulty with a television set, the local amateur radio operator is blamed; it is then up to the ham to prove that his set is TVI free.

Footnotes

1. Unpublished manuscript

2. This body has its origins in the organization OSOAVIAKHIM (The Society for Assisting Defense, Air Force, and Chemistry), formed January, 1927. In 1947 it was separated into DOSARM, DOSAV, and DOSFLOT. In 1951 these three were re-combined into the present organization, DOSAAF.

3. Officers of the Federation are: Chairman of the Presidium, E.T. Krenkel;* Deputy Chairmen, I.T. Peresypkin, F.S. Vishnevitskiy,** P.S. Kirienko.

   **Also Editor-in-Chief of the journal RADIO.

   *On the editorial board of the journal RADIO.

4. Statistics gathered from pertinent issues of RADIO.

5. Bulgaria is an example: "The Voluntary Society for Assistance in the Defense of the People's Republic of Bulgaria."

6. See Appendix #1, Instructions.

7. Unpublished manuscript.

8. RADIO, No. 10, 1963, lead article, p. 2.

9. DeMilner, interview.

10. Spisok Pozyvnykh Lyubitel'skykh Korotkovolnovykn i Ultrakorotkovolnovykn Radiostantsii SSSR (List of Call Letters of Amateur Short Wave and Ultra-Short Wave Radio Stations of the USSR), DOSAAF Publishing House, Moscow, 1962.

11. DeMilner, estimate

12. Frequencies may be found in this document.

13. RADIO, January 1960.

14. Unpublished manuscript.

15. Unpublished manuscript.

16. Unpublished manuscript.

17. Hannah, T.M., "Russian Amateur Radio--1962 Style," QST, August, 1962.

18. "Results of the First SSB All-Union Cup Competition of the Central Radio Club," RADIO, No. 8, 1963, p. 24.

19. Bunimovich, S. and Yailenko, L., Tekhnika Lywbitel'skoi Odnopolostnoi Radiosvyazi (Technology of Amateur SSB Radio Communications) DOSAAF Publishing House, 1964, 244 pp.

20. "An SSB Mobile Van Travels," RADIO, No. 3, March, 1962.

21. Hannah, T.M., op. cit., QST, 1962.

22. See list of Competitions for 1965, Appendix #3.

23. "Third All-Union Spartakiada," RADIO, No. 1, 1964, pp. 8-9.

24. RADIO, No. 10, 1963, lead article, p. 1.

25. RADIO, No. 1, 1965, insert in center of issue.

26. DeMilner, interview.

27. Burdeyniy, F.I., Karmanny Spravochnik Radiolyubitelya-korotkovolnovika (The Pocket Handbook of the Short Wave Radio Amateur), Moscow, 1959, DOSAAF, pp. 16-22.

28. RADIO, November, 1961.

29. Rzhiga, O., and Shakhovsky, A., "UKV Priyomnik" (USW Receiver), RADIO, No. 7, 1957, p. 17.

30. "Iskusstvenniye Sputniki Zapuskayemiye v SSHA," (Artificial Earth Satellites Launched in the USA), RADIO, No. 7, 1957, p. 24.

31. These points were:

(1) Place of observation

(2) Date of observation

(3) Time-Moscow--at beginning of reception, end, and time of greatest strength of the signal

(4) How the time was measured (by ordinary regulated watch or whether single time signals were used)

(5) Frequencies of signals received

(6) Peculiarities of reception (dying out of signal, disappearance of signal, rising of its pace, etc.)

(7) Speed of manipulation of signal

(8) Moment of passing through the radio signal zone (with use of direction-finding prefix) or moment of greatest passing

(9) Meteorological conditions at moment of reception (cloudiness, etc.)

(10) Type of receiving apparatus

(11) Type of antenna and place of its location (surrounding objects)

(12) Type of tape recorder and speed of turning of magnetic tape (mm/sec)

(13) Name of observer and his exact address and radio amateur status.

32. Rzhiga, O., and Shakhovsky, A., "International Geophysical Year--1957-1958; Observations of Signals of Artificial Earth Satellites: Methods of Observation." RADIO, No. 1957.

33. Sovietskiy Patriot, October 5, 1960.

34. RADIO, No. 9, 1963, pp. 1-2.

35. Ushakov, V., Leninskaya Smena, June 8, 1963.

36. Stevens, E., "Hooligans Jamming Soviet Radio, TV Broadcasts," Detroit Free Press, March 17, 1964, p. 12-A.

Appendix #1

Ministry of Communications, USSR

State Inspectorate of Electro-Communications

INSTRUCTIONS

On the Order of Registration and Use of Amateur Transmitting-Receiving Radio Stations of Individual and Collective Use

DOSAAF Publishing House

Moscow 1960

"Submitted by"
Minister of Communications USSR
N. Psurtsev, August 1, 1959

Section I

1. Amateur receiving-transmitting stations are those set up by individual radio amateurs or collective radio amateurs for experimental work on the study of the carrying on of short and ultra-short wave communication, experimental work with apparatus and antennae construction and practical training and sports work in the carrying on of radio communications.

   Amateur radio stations are divided into collectively operated radio stations and individually operated radio stations.

2. The installment and use of collective amateur radio stations is permitted to amateurs grouped together and supervised by committees of DOSAAF and also to stations of young technical operators and to Houses and Palaces of Pioneers, Trade Unions, Clubs, and Palaces of Culture. The installment and operation of amateur radio stations for individual usage is permitted to individual radio amateurs through personal petition to DOSAAF.

3. Amateur radio stations for collective and individual use are divided into three categories. The categories are authorized by qualifying commissions of the local committees of DOSAAF, depending on the qualifications and radio amateur work experience of the owner or chief of the station, and define the right of the amateur radio stations of a given category to work on one or another power in one or another amateur band.

4. Amateur radio stations of Category 3 (beginners) are permitted to work on the following frequencies:

short wave range:	3500-3650 kc.	
	7000-7100 kc.	telegraph only, with a power not to exceed 10 watts.
ultra-short wave range:	28.0-29.7 mc.	with telegraph and telephone power not to exceed 10 watts.
	144-146 mc. and 420-435 mc.	telegraph and telephone power not to exceed 5 watts.

Amateur radio stations of Category 2 are permitted to work on the following frequencies:

short wave range:	3500-3650 kc.	
	7000-7100 kc. and 14,000-14,350 kc.	telegraph only with a power not to exceed 40 watts.
ultra-short wave range:	28.0-29.7 mc.	telegraph and telephone power not to exceed 40 watts.
	144-146 mc. and 420-435 mc.	telegraph and telephone power of not more than 5 watts.

Amateur radio stations of Category 1 are permitted to work with telegraph and telephone on the short and ultra-short wave ranges:

3500-3650 kc.	
7000-7100 kc.	
14,000-14,350 kc.	
21,000-21,450 kc. and 28.0-29.7 mc.	at a power of not over 200 watts.
144-146 mc. and 420-435 mc.	at a power of not over 5 watts.

Note: 1. The assignment of radio amateurs and chiefs of collective stations to the first category is carried out by the Central Committee of DOSAAF USSR.

2. The power of amateur radio stations is accounted as the production of the anode current of the output cascade and the anode stress of this cascade in the telegraph scale.

regular annual operation fee accompanied by personal petition to the local committee of DOSAAF for extension of the permission.

10. In the event of changing the category of a radio station, the DOSAAF committee informs the local State Inspectorate of the Oblast (Republic, Krai) Administration of the Ministry of Communications, USSR by letter, giving the basis for the decision to change the category in the license.

11. When an amateur radio station is to be moved from one location to another within the boundaries of a single population point (town, village) the owner of the station is obliged to notify the local State Inspectorate of Electro-Communications no less than five days before the move.

The transfer of a radio station from one population point to another may be made by the responsible person of the station only after the corresponding permission for this move has been received. The responsible person of the radio station must present a declaration to the local State Inspectorate of Electro-Communications no later than ten days before the moving of the radio station.

Permission to move an amateur radio station (temporarily or permanently) from one town (population point) to another within the boundaries of a single oblast is under the jurisdiction of the State Inspectorate of Electro-Communications of the Oblast (Krai, Republic) Administration of the Ministry of Communications.

When the local State Inspectorate of Electro-Communications grants permission for the moving of an amateur radio station, it simultaneously notifies the State Inspectorate of Electro-Communications of the Ministry of Communications of the USSR of its decision.

When moving an amateur radio station permanently from one oblast to another, the responsible person at the station must register the closing down of the station through established procedure with the State Inspectorate of Electro-Communications in the former place of residence and must surrender to the local inspectorate the station's license to operate.

A license to operate a radio station which is being permanently moved from one oblast to another is established in the new place of residence in the same way as for the opening of a new radio station, through the fulfilling of all the requirements listed above in the current "In-Structions."

12. The responsible person at a radio station, in the event of a temporary stopping of work at the station for longer than three months and not more than six months, must inform the local State Inspectorate of Electro-Communications no later than three days after work has ceased, and must also send in a notification of the resumption of radio work no later than five days before the renewal of operations.

Upon the closing of a radio station or in the event of a cession of work for a period of more than six months, the owner must inform the local State Inspectorate of Electro-Communications within three days and return the operating license granted to the station. The transmitter must either be dismantled enough so that it cannot be operated, to prevent the possibility of its operation in the absence of the responsible person, or it may be turned over to the local DOSAAF organization. The closing down of a station is carried out by the representative of the State Inspectorate of Electro-Communications. A formal act is drawn up, stating the reasons for closing the station, and

describing the disposition of the apparatus.

The State Inspectorate of Electro-Communications of the USSR should be quickly informed of the closing of radio stations.

If the owner of the station does not dismantle the transmitter himself, the representative of the State Inspectorate of Electro-Communications seals it up pending its surrender to DOSAAF organization.

In the event that one of the deputies of the chief of a collective amateur radio station stops working, the chief informs the local State Inspectorate of Electro-Communications of this. In the event that the chief of a collective amateur radio station himself stops working, and in the absence of a registered deputy, the station's operating license must be handed in to the local State Inspectorate of Electro-Communications by the local DOSAAF committee.

13. Registration, adjustment and yearly operating fees for amateur radio stations, both individual and collective, are governed on the basis of the resolution of the Council of People's Commissars of the USSR no. 1817 of November 3, 1939, through the State Inspectorate of Electro-Communications of Oblast (Krai, Republic) Administration of the Ministry of Communications as follows:

a) Registration fee - 3 rubles (in new rubles, 30 kopeks)
b) Adjustment fee - 5 rubles (50 kopeks)
c) Operating fee - for each year, 36 rubles, or 9 rubles each quarter. (3 rubles 60 kopeks and 90 kopeks)

The fee is collected for one set (that is, 36 rubles a year) regardless of whether or not the radio amateur owns several sets for his individual use (one short wave and several short wave) or not.

Registration and adjustment fees are required for all transmitters.

These rules also hold for radio stations set up in secondary schools.

Note: 1. The registration fee is paid upon submitting documents for legalization.

2. Operating and adjustment fees are collected before the station begins operation and then the fee is levied and collected immediately before the end of the year, beginning with the quarter in which the radio station began operation.

Section II

14. Every functioning radio receiving station must have the following documents at all times and must show them at the first request of a representative of the appropriate administrative organs:

a) Permit for operation of a radio station;
b) Apparatus journals of the prescribed form;
c) A copy of the instructions on registration procedure and the operation of amateur radio stations.

In addition, the following must be found at collectively used radio stations:

d) A schedule of the times operators are on duty;
e) Rules for technical safety and fire prevention;
f) A schedule of communications with regular correspondents, if such exist.

15. Amateur radio stations, collectively and individually used, fall under the jurisdiction of the Central Committee of the Voluntary Society for Assistance to the Army, Air Force and Navy (DOSAAF), which exercises control over the work of these radio stations and bears responsibility for the amateurs' observance of the rules on technical safety, fire prevention, and the operation of the radio stations presented in these instructions.

16. Radio amateur operators may establish communications only with amateur radio stations and carry on conversations by radiotelegraph and radiotelephone in accordance with authorization given them and only on questions concerning technical information about the radio contacts being carried on and their radio sets, in accordance with the regulations and with the radio amateurs' code, set up and published by the Central Committee of USSR DOSAAF by agreement with the State Inspectorate of Electro-Communications of the USSR Ministry of Communications and

the Sh (Ш) code; and on ultra-short wave by open text only on technical themes.

Communications with wireless stations having other purposes (commercial, service and so on) are permitted only in cases of relay broadcasts by them of distress signals (SOS). The owner or supervisor of the radio station must inform the local State Inspectorate of Electro-Communications about each such communication immediately.

By agreement with the local Inspectorates of Electro-Communications, the use of mobile short wave and ultra-short wave radio stations for the purpose of covering various sports events and also for the conducting of various experimental projects is permitted.

In each separate case, the local Inspectorate of Electro-Communications must be informed about the conducting of such arrangements and the proposed approximate route no less than three days before the beginning of the work.

The DOSAAF Committee is permitted to use the collectively operated amateur radio stations for the transmission of telegrams on urgent questions of work with radio amateurs, and also for the conducting of radio roll calls (pereklichka), transmission of bulletins and so on. Telegrams, intended in these cases for transmission to collective amateur radio stations must without fail be undersigned for transmission by leading workers of the Central Committee of USSR DOSAAF or local DOSAAF committees with an indication of through which stations and where it is to be transmitted.

The organs of the Ministry of Communications may enlist the services of both collectively and individually operated amateur radio stations for the transmission of dispatches in emergencies only by the decision of the State

Inspectorate of Electro-Communications in each individual case.

17. The following are categorically prohibited:

a) The transmission of information which is secret and does not relate to radio;

b) The use of cipher or conditional codes;

c) The use of unauthorized call signs;

d) Work without the transmission of the call sign at least three times at the beginning and at the end of the communication and every ten to fifteen minutes throughout a prolonged communication;

e) Arbitrary abbreviations and discussions not stipulated in point 16 of these instructions;

f) Work on an unauthorized band;

g) Work at a higher power level than that indicated in the transmitter license;

h) Work by telephone in the absence of a license for this;

i) Work at radio stations which do not answer the technical safety rules and fire prevention regulations.

18. Owners of individual amateur radio stations and operators of collectively used radio stations must keep instrument journals for the radio station according to the established form. In these journals must be registered, without fail, the time of the beginning and the ending of the work of the session of the amateur radio station on a broadcast with an indication of the frequency. In addition, the whole text received and a short summary of the text sent must be recorded in the instrument journal.

Note: All calls made must be registered in the apparatus journal whether to general or individual radio stations regardless of whether communication was established, and also all sessions for the tuning of the radio station when the antenna is in use.

19. Amateur radio stations of all categories must guarantee

the stability of a frequency no less than 0.1 per cent from the nominal frequency.

Working frequencies with allowances for the instability of the transmitter must not vary beyond the limits of the frequency shown in the license.

20. Only amateur radio listeners (short wavers and ultra-short wavers registered with the Union Republic Committees of DOSAAF) and also owners of individual radio stations situated in the same area, are permitted to work at collectively operated radio stations. The head of the radio station or his deputy must be present when the station is in operation.

The premises of collective radio stations must be closed off so that strangers cannot enter, and at the end of work safely locked up and sealed.

Individual radio stations are located and maintained in private apartments so that in the absence of the owners no one can operate the radio station.

21. The director of a collectively operated radio station and his assistant are permitted to work at the radio station only after they have been officially registered by the local State Inspectorate of Electro-Communications.

Note: In the case of the replacement of one director or a collectively operated radio station by another, and in the absence of a deputy director for the radio station, the station is locked and sealed during the time that a new radio station director is being registered and the license for its use is given to the State Inspectorate of Electro-Communications.

22. The license for the right to operate on the air by code or microphone is given to owners of individual radio stations and to directors or deputy directors of collectively operated radio stations only when they have reached

18 years of age--and for work only on ultra-short wave collective and individual radio stations when they have reached 16 years of age. Only short wave listeners who have reached 14 years of age are permitted to serve in the capacity of operators of collective radio stations.

Note: Radio listeners who are at least 12 years old and are registered with the Union Republic Committee of DOSAAF can be allowed to work at collectively used ultra-short wave amateur radio stations.

23. Collectively and individually operated amateur radio stations are controlled by the State Inspectorate of Electro-Communications and representatives of the Voluntary Society for Assistance to Army, Air Force and Navy both in relation to their technical conditions and in their actual operating activities. Owners of individual radio stations and directors of collectively operated radio stations must permit representatives of the State Inspectorate of Electro-Communications and the Social Control Committees of the Voluntary Society for Assistance to Army, Air Force and Navy to inspect and examine the radio station without hindrance.

Representatives of the State Inspectorate of Electro-Communications and Public Control Commission must have with them appropriate identification and must present it upon the request of the radio stations.

Section III

24. On individual and collectively operated amateur transmitters for radio-controlled models, work is permitted at a power no greater than 10 watts on the band 28-29.7. megacycles.

25. One kind of work--telegraph (the sending of short-time impulses) is permitted for these transmitters.

26. A transmitter for radio-controlled models may be used only for purposes of control of models on the territory of the Oblast (Krai, Republic) where permission was given. The use of such transmitters for the carrying on of radio communications is categorically prohibited.

27. Upon departure for a competition in another Oblast (Krai, Republic) the owner of the transmitter must obtain from the local State Inspectorate of Electro-Communications a temporary license for the right of removal of the transmitter, with indication of the place of destination and period of participation in the competition. The license should be presented to the State Inspectorate of Electro-Communications at the place of competition.

Section IV

28. For violation of the regulations set down in these instructions by owners of individually operated radio stations and directors, their deputies and acting operators of collectively used radio stations, and chiefs and operators of radio stations for radio-controlled models in such cases where these violations do not involve criminal responsibility, the State Inspectorate of Electro-Communications of Oblast (Krai, Republic) Administrations of the Ministry of Communications will apply the following measures of penalty, on the basis of the Decree of the USSR Council of Ministers of June 30, 1949 and depending upon the degree of the violation:

    a) Issue a warning;
    b) Prohibit the use of one or another wave length or other aspect of work;
    c) Impose a fine;
    d) Prohibit the activities of the radio station.

29. a) For work on the air at a collectively or individually operated radio station in the absence of a license for its use;

    b) For the use of secret ciphers and provisory codes;

    c) For allowing any person other than the radio station owner to work in an individually operated radio station;

    d) For an unregistered transfer of a radio station from one point to another;

    e) For the storage of radio-transmitting equipment in the absence of a license for its installation whether or not the equipment is used for work on the air.

    f) For the closing of a radio station for a period longer than six months without informing the local State Inspectorate of Electro-Communications of it, or a complete closing of the radio station without appropriate official registration;

    g) Those guilty are subject to a fine of 100 to 300

rubles (10 to 30 new rubles), the Central Committee of USSR DOSAAF is informed, the radio station is closed, and the license obtained is withdrawn.

30. a) For work without call signs or with unauthorized call signs;

b) For conversations which in nature are carried on in violation of no. 16 of these instructions, and for the use of arbitrary abbreviations;

c) For work on a wave length which is not authorized in the license.

Radio stations guilty of these violations are closed for a period up to one month; upon repetition of the violation those guilty are subject to a fine of 50 to 100 rubles; upon the third violation those guilty are subject to a double fine, the station is closed, and the license obtained is withdrawn.

31. a) For increasing the power above the limit established in the license;

b) For work by telephone under a license restricted to telegraph work;

c) For incorrect use of the apparatus journal.

Those guilty are forbidden to use one of the frequency bands, at the discretion of the State Inspectorate of Electro-Communications, for a period of up to three months and the local committee of DOSAAF is informed of the violation.

32. In all cases where a collectively used radio station has been closed, the resumption of its work is permitted only on the authorization of the local State Inspectorate of Electro-Communications.

The authorized receiving of a license in such cases is effected in the same way as for the opening of a new radio station.

33. Fines up to and including 100 rubles (10 new rubles) are imposed by the regional (Oblast, Krai, Republic) State Inspectorate of Electro-Communications of the Ministry of Communications, not subject to further ratification. Fines over 100 rubles (10 new rubles) are ratified by the Union Republic State Inspectorate of Electro-Communications.

34. In the levying of a fine, the representative of the State Inspectorate of Electro-Communications draws up a bilateral act of violation and marks on the application his resolution of the sentence.

35. The imposed fines are exacted in a self-evident order and deposited in the local branches of Gosbank in the account of the Union budget.

The fines levied on workers, white collar workers, and students must not exceed 25 per cent of their monthly salary or stipend.

36. Persons on whom a fine has been levied have the right to appeal the decision (within a three day period) to the local State Inspectorate of Electro-Communications.

Grievances must be directed through the local State Inspectorate of Electro-Communications to the Union Republic State Inspectorate of Electro-Communications, the decisions of which are final.

With the publication of these instructions, the instructions of the Ministry of Communications on the order of registration and operation of individually and collectively used amateur receiving and transmitting radio stations of February 26, 1955, are superseded.

Chief of the State Inspectorate of Electro-Communications of the Ministry of Communications of the USSR

A. Zharov

Addenda to Rules

Fundamental Rules on the Carrying Out of Amateur Two-Way Radio Communications

1. Amateur radio short wavers carry on two-way radio communications only with amateur radio stations.

2. Conversations during amateur radio communications may be concerned only with the technical data of the communication, the apparatus of the radio stations, and experimental work being carried out by the amateur radio operators in the field of apparatus and antenna construction.

3. In telegraph work, only the international Sh (ш) and radio amateur codes published by the Central Committee of DOSAAF may be used.

4. In telephone work, conversations must be carried out within the bounds of the denotations of the Sh (ш) and amateur radio operators' international codes with an open text.

5. The carrying on of conversations not relating to the contact being made, to technical data of the apparatus of the radio station, and experimental work in the field of radio, is categorically forbidden.

6. A general call broadcast should not continue more than 2-3 minutes. Broadcasting of the signal "to all" and of the call sign should follow: three times "to all" and three times the call sign.

7. The broadcast of one's own call sign and that of the correspondent at the beginning and at the end of the radio communication are obligatory.

8. Every radio communication should be confirmed by a QSL card without fail.

9. Each entry of the radio station into the ether should be recorded without fail in the apparatus journal with an indication of the beginning and end of the work of the radio station and a note on all work done during the time of the session.

Appendix #2

Decree of the Presidium of the Russian Republic Soviet on Liability for the Illegal Construction and Use of Radio Transmitters.

The Presidium of the Russian Republic Supreme Soviet resolves:

1. To establish that the construction and use of radio transmitters without proper authorization is subject to measures of public influence or measures of administrative influence in the form of a fine in the amount of 500 rubles (50 new rubles) plus confiscation of the radio equipment. If a person who has previously been sentenced to the above mentioned measures of influence again makes and uses a radio transmitter, the fine will be trebled.

2. Materials on the illegal construction and use of a radio transmitter are to be examined by a people's judge personally within three days after the court receives them from the militia agencies; the person who has committed the violation, and when necessary, witnesses are to be summoned. The decision of the people's judge on the imposition of the fines is carried out immediately and is not subject to appeal.

3. At the prosecutor's request, the decision of a people's judge on liability for the illegal construction and use of a radio transmitter can be rescinded or modified by the people's judge himself, or by a representative of the corresponding region (national region), province, territory, or autonomous republic Supreme Court.

N. Organov, Chairman of the Presidium of the Russian Republic Supreme Soviet

S. Orlov, Secretary of the Presidium

April 7, 1960

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Appendix #3

Radio Amateur Competitions, 1965, USSR

Listed in RADIO, No. 1, 1965, p. 13:

All-Union

Type	Place	Time
"Fox Hunt"	Gorky	August 3-10
All-Round Radio Operator	Sverdlovsk	August 3-8
Competition on SW	local	September 5 and 12
Competition on receiving and transmitting radiograms	Alma-Ata	August 4-8
Competition on USW	Moscow	August 23-28

Zonal and All-Russian

Type	Place	Time
Zonal radio-competitions: "Fox Hunt," All-Round Radio Operator, and Sending and Receiving radiograms	Vologda, Kazan Yelets, Bryansk, Krasnodar, Sverdlovsk, Tomsk, Khabarovsk	July 6-11
"Fox Hunt," First Place RSFSR	Novosibirsk	Finals July 17-21
All-Round Radio Operator First Place, RSFSR	Orenburg	Finals July 17-21
Competition on Receiving and Sending Radiograms First Place RSFSR	Kurgan	Finals July 17-20

Listed in RADIO, No. 2, 1965, p. 11:

All-Union

Type	Place	Time
Ninth All-Union Individual-Team Competition of Junior USW'ers for prize of Radio magazine	local	March 28
Zonal Competitions of USW'ers	local	June 20
Second All-Union Competition of Junior Radio Sportsmen	Artyek	June 1
Tenth All-Union Team Competitions on USW, Field Day for RADIO magazine prize	local	July 3-4
Eleventh All-Union Competition of Female Radio Operators on SW for RADIO magazine prize	local	December 12

International Meetings:

Type	Place	Time
Championship of Europe in "Fox Hunt"	Poland	September
International Comrade Competition of "Fox Hunt" for Sportsmen of Socialist Countries	USSR	June
Comrade Competition of Socialist Countries for All-Round Radio Operator	Bulgaria	September
International Competition of Radio-Telegraph SW'ers under slogan "Miru-Mir" (Peace to the World)	local	May 8-9