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25X1

basic imagery interpretation report

Soviet KRUG Facilities (S)

DEPLOYED COMMO/ELEC/RADAR FACILITIES
BE: Various
USSR

Secret

WNINTEL

Z-20074/81
RCA-03/0004/81
JUNE 1981
Copy 47

[redacted]

INSTALLATION OR ACTIVITY NAME					COUNTRY
Soviet KRUG Facilities					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	See Table 1	See Table 1	See Table 1	See Table 1	See Table 1

MAP REFERENCE

ACIC. USATC, Series 200, Various sheets, scale 1:200,000 (UNCLASSIFIED)

LATEST IMAGERY USED	NEGATION DATE (If required)
[redacted]	

ABSTRACT

1. (S/D) The KRUG high-frequency (HF)/direction-finding antenna plus its HF communications support facilities form a basic unit in the Soviet intelligence collection and warning networks. This report describes and locates the 30 known KRUG facilities and their associated communications support facilities and updates information in NPIC reports [redacted]

2. (S/D) The report includes 40 annotated photographs, a location map, and mensural data for each facility with the exception of Isakogorka Transmitter 1, Isakogorka Receiver 2, and Isakogorka Transmitter 2, of which dimensions could not be acquired because of poor-quality imagery.

INTRODUCTION

3. (U) The KRUG system is a wide-aperture, HF, long-range, direction-finding (DF) system designed and developed from the basic principles of the German World War II Brommy and Wullenweber systems. In operation since 1954, the KRUG system appears to operate at frequencies between 2.0 and 20 megahertz (MHz) with a theoretical range of 6,000 to 8,000 nautical miles (nm).

4. (S/D) The 30 known KRUG facilities are deployed at 20 widely scattered locations throughout the Soviet Union (Figure 1 and Table 1). Four of the facilities are near Moscow, seven locations have two or more KRUG facilities, and the remaining locations are single facilities.

5. (S/D) Prior to 1980, there were 31 KRUG facilities; however, the Sital Chay KRUG (BE [redacted] was dismantled and has not been rebuilt.

6. (S/D) A typical KRUG unit consists of a KRUG site, a transmitting site, and a receiving site. Frequently in urban areas, the transmitter site is on one side of the city and the receiving site on the other. The KRUG site is generally collocated with the receiving site.

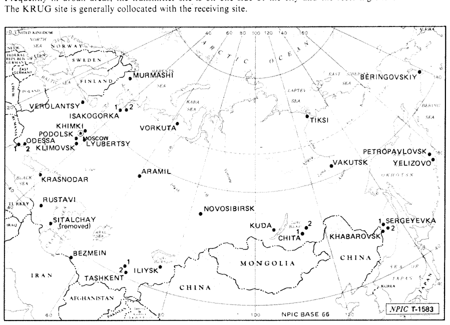


FIGURE 1. LOCATIONS OF SOVIET KRUG FACILITIES

Table 1.
Soviet KRUG Facilities
This table in its entirety is classified SECRET/WNINTEL

Item	Facility	Coordinates	BE No	Category	NIETB (MRN) No	Subordination*
1	Aramil DF Fac KRUG	56-47-30N 060-54-33E				
	Aramil Radcom Rcvr Sta KRUG Spt	56-46-03N 061-02-25E				
	Aramil Radcom Rcvr Sta KRUG Spt 2	56-47-19N 060-55-37E				
2	Beringovskiy DF Fac KRUG	63-03-37N 179-06-40E				
	Beringovskiy Radcom Rcvr Sta KRUG Spt	63-03-22N 179-07-54E				
	Beringovskiy Radcom Xmtr Sta KRUG Spt	63-02-43N 179-11-44E				
3	Bezmein DF Fac KRUG	38-10-33N 058-05-40E				
	Bezmein Radcom Rcvr Sta KRUG Spt	38-11-30N 058-06-30E				
	Izgant Radcom Xmtr Sta	38-12-34N 058-08-19E				
4	Chita 1 DF Site KRUG	52-08-26N 113-27-30E				
	Chita Radcom Rcvr Sta KRUG 1 Spt	52-12-21N 113-28-37E				
	Chita Radcom Xmtr Sta KRUG 1 Spt	52-09-03N 113-30-23E				
5	Chita DF Fac KRUG 2	52-10-18N 113-34-50E				
	Chita Radcom Rcvr Sta KRUG 2 Spt	52-09-06N 113-34-50E				
6	Iliysk DF Fac KRUG	43-57-51N 077-31-02E				
	Shengeldy Radcom Rcvr E/Iliysk KRUG Spt	43-58-50N 077-33-00E				
	Shengeldy Radcom Rcvr/Iliysk KRUG Spt	43-59-27N 077-28-50E				
	Shengeldy Radcom Xmtr/Iliysk KRUG Spt	44-00-13N 077-29-25E				
	Sary-Ozek Radcom Sta	44-11-48N 077-42-00E				
7	Isakogorka DF Fac KRUG	64-24-30N 040-40-45E				
	Isakogorka Radcom Rcvr Sta KRUG 1 Spt	64-24-30N 040-19-31E				
	Isakogorka Radcom Xmtr Sta KRUG 1 Spt	64-14-50N 040-37-17E				
8	Isakogorka DF Fac KRUG	64-29-58N 040-45-33E				
	Isakogorka Radcom Rcvr Sta KRUG 2 Spt	64-30-00N 040-44-08E				
	Isakogorka Radcom Rcvr Sta KRUG 2 Spt	64-29-53N 040-53-30E				
	Isakogorka Radcom Xmtr Sta KRUG 2 Spt	64-22-08N 041-14-00E				
9	Khabarovsk DF Fac KRUG	48-22-52N 135-15-17E				
10	Khimki DF Fac KRUG	55-56-01N 037-36-43E				
11	Klimovsk DF Fac KRUG	55-22-59N 037-28-23E				
	Klimovsk Radcom Rcvr KRUG Spt	55-22-29N 037-29-36E				
	Klimovsk Radcom Rcvr Site KRUG Spt	55-21-52N 037-28-10E				
12	Krasnodar DF Fac KRUG	45-09-17N 038-46-55E				
	Krasnodar Radcom Rcvr Sta KRUG Spt	45-10-29N 038-49-44E				
13	Kuda DF Fac KRUG	52-35-02N 104-32-13E				
	Kuda Radcom Rcvr Sta KRUG Spt	52-35-58N 104-32-12E				
	Kuda Radcom Xmtr Sta KRUG Spt	52-37-14N 104-28-26E				
14	Lyubertsy DF Fac KRUG	55-43-06N 038-00-16E				
15	Murmashi DF Fac KRUG	68-46-53N 032-55-06E				
	Murmashi Radcom Rcvr KRUG Spt	68-46-48N 032-58-44E				
	Murmashi Radcom Xmtr Sta KRUG Spt	68-46-30N 033-05-50E				
16	Novosibirsk DF Fac KRUG	55-15-24N 083-19-01E				
	Novosibirsk Radcom Rcvr Sta KRUG Spt	55-14-39N 083-18-21E				
17	Odessa DF Fac KRUG 1	46-26-02N 030-30-12E				
	Odessa Radcom Rcvr Sta KRUG 1 Spt	46-26-33N 030-29-59E				
18	Odessa DF Fac KRUG 2	46-31-49N 030-33-40E				
19	Petropavlovsk DF Site KRUG	53-02-06N 158-47-57E				
	Petropavlovsk Radcom Rcvr Sta NE	53-03-02N 158-47-44E				
	Petropavlovsk Radcom Xmtr Sta NE	53-03-42N 158-46-40E				
20	Podolsk DF Site KRUG	55-27-51N 037-22-09E				
21	Rustavi DF Fac KRUG	41-24-17N 045-07-21E				
	Rustavi Radcom Rcvr Sta 1 KRUG Spt	41-27-00N 045-09-00E				
	Rustavi Radcom Xmtr Sta 2 KRUG Spt	41-26-32N 045-09-25E				
22	Sergeyevka DF Fac KRUG 1	48-30-21N 135-17-38E				
	Sergeyevka Radcom Rcvr Sta KRUG 1 Spt	48-28-59N 135-17-09E				
	Sergeyevka Radcom Xmtr Sta KRUG 1 Spt	48-33-13N 135-17-20E				
23	Sergeyevka DF Fac KRUG 2	48-26-05N 135-21-25E				
	Sergeyevka Radcom Rcvr Sta KRUG 2 Spt	48-26-56N 135-22-18E				
24	Tashkent DF Fac KRUG 1	41-19-24N 069-25-46E				
25	Tashkent DF Fac KRUG 2	41-07-04N 069-24-09E				
26	Tiksi DF Fac KRUG	71-39-39N 128-40-30E				
	Tiksi Radcom Xmtr Sta KRUG Spt	71-38-55N 128-38-30E				
	Tiksi Radcom Rcvr Sta KRUG Spt	71-39-40N 128-44-00E				
27	Verolantsy DF Fac KRUG	59-34-20N 029-49-21E				
	Verolantsy Radcom Rcvr Sta KRUG Spt	59-33-51N 029-52-37E				
	Verolantsy Radcom Xmtr Sta KRUG Spt	59-32-04N 029-55-16E				
28	Vorkuta DF Fac KRUG	67-38-26N 063-54-31E				
	Vorkuta Radcom Rcvr Sta KRUG Spt	67-37-49N 064-07-18E				
	Vorkuta Radcom Xmtr Sta KRUG Spt	67-36-59N 064-02-20E				
29	Yakutsk DF Site KRUG	61-55-50N 129-38-20E				
	Khatassy Radcom Xmtr Sta KRUG Spt	61-55-08N 129-38-05E				
30	Yelizovo DF Fac KRUG	53-05-09N 158-22-11E				

* Organizational subordination was acquired from previous reports.[1,2,3]

Table 2.
Aramil Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 2)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator	Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
2	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
3	Fishbone	3BS2 21/8 200/4.5 25	3.0 – 24.0	
4	Fishbone	3BS2 21/8 200/4.5 25	3.0 – 24.0	
5	Fishbone	3BS2 21/8 200/4.5 25	3.0 – 24.0	
6	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
7	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
8	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
9	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
10	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
11	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
12	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
13	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
14	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
15	Fishbone	BS 21/8 200/4.5 17	3.0 – 24.0	
16	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
17	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
18	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
19	Fishbone	BS 21/8 200/4.5 17	3.0 – 24.0	
20	Fishbone	BS 21/8 200/4.5 17	3.0 – 24.0	
21	Fishbone	BS 21/8 200/4.5 17	3.0 – 24.0	
22	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
23	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
24	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
25	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
26	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
27	Fishbone	BS2 21/8 200/4.5 17	3.0 – 24.0	
28	Rhombic	RGD 65/4 1	12.0 – 25.0	
29	Dipole	VGD 30/25 d	2.5 – 6.25	
30	Dipole	VGD 30/25 d	2.5 – 6.25	
31	Dipole	VGD 8/12 d	9.38 – 23.45	
32	Dipole*	VGD 50/26 d	1.5 – 3.75	
33	Dipole	VGDsh 25/25 d	1.91 – 6.0	
34	Dipole	VGDsh 31/25 d	1.54 – 4.84	
35	Dipole	VGD 30/25 d	2.5 – 6.25	
36	Dipole	VGD 30/25 d	2.5 – 6.25	
37	Dipole	VGD 30/25 d	2.5 – 6.25	
38	Dipole	VGD 30/28 d	2.5 – 6.25	
39	Dipole	VGD 30/27 d	2.5 – 6.25	
40	Dipole	VGD 30/22 d	2.5 – 6.25	
41	Dipole	VGD 30/22 d	2.5 – 6.25	
42	Quadrant	VGDsh-2U 31/23	3.0 – 7.5	
43	Quadrant	VGDsh-2U 31/23	3.0 – 7.5	

**Nonstandard*

7. (S/D) The KRUG antenna array consists of 40 vertical caged monopole elements symmetrically spaced apart in a circular arrangement 121 meters in diameter, a circular reflector screen 109 meters in diameter, and a second circular antenna array 105 meters in diameter consisting of 120 masts positioned inside the reflector screen. All KRUG antennas have a T-shaped control building in the center of the antenna except Petropavlovsk, Novosibirsk, and Yakutsk which have circular control buildings. Each control building has a vertical dipole antenna mounted on its roof. 25X1 25X1

8. (S/D) Originally, the KRUG antenna consisted of the 40 vertical caged monopoles, a reflector screen, and a rectangular control building. Beginning in 1969, the antennas were modified with the addition of the second antenna array inside the reflector screen and an addition to the control building, making it T-shaped. Currently, all 30 KRUG antennas have been modified.[illegible] 25X1

Associated HF Communications Facilities

9. (S/D) A typical transmitter site contains a control building and HF antennas which transmit to other KRUG facilities within the same network and generally to Moscow. There are no microwave or very-high-frequency/ultra-high-frequency (VHF/UHF) antennas at the site.

10. (S/D) All of the receiver sites have fishbone antennas and some have rhombic antennas. The Aramil, Beringovskiy, and Verolantsy receiving sites have more than one control building.

BASIC DESCRIPTION

Aramil DF Facility KRUG

11. (S/D) This KRUG facility, 10.5 nm east-southeast of Sverdlovsk, consists of a standard KRUG antenna. Two separate communications receiver support facilities are associated with the KRUG site. All three of the facilities are operated by the KGB. No associated transmitter site could be identified.

Associated Facilities

12. (S/D) **Aramil Radio Communications Receiver Station KRUG Support.** This secured station (Figure 2 and Table 2) is 15 nm northeast of Sverdlovsk and consists of one C-shaped administration building, three additional administration buildings, a vehicle park with one single-bay garage, and 22 support buildings. The antenna field contains a two-story control building, 27 fishbone antennas, one double rhombic antenna, two quadrant antennas, and 13 dipole antennas.

13. (S/D) **Aramil Radio Communications Receiver Station KRUG Support 2.** This station (Figure 3 and Table 3) is 6 nm north-northeast of Aramil and 0.6 nm east of the KRUG facility and consists of a T-shaped control building, a T-shaped administration building, and eight support buildings. The antenna field consists of six fishbone antennas, one horizontal dipole antenna, three quadrant antennas, and a mast with a circular plane.

Beringovskiy DF Facility KRUG

14. (S/D) The Beringovskiy KRUG antenna facility is 6 nm west of Beringovskiy. Associated facilities include separate transmitter and receiver communications support facilities. No organizational subordination could be determined for these facilities.

Associated Facilities

15. (S/D) **Beringovskiy Radio Communications Receiver Station KRUG Support.** This station (Figure 4 and Table 4) is 1 nm southeast of the Beringovskiy KRUG Facility. It is the support area and radio communications receiver station for the KRUG. The support area contains 50 buildings and the receiver station consists of two T-shaped control buildings, ten fishbone antennas, and two horizontal dipole antennas.

16. (S/D) **Beringovskiy Radio Communications Transmitter Station KRUG Support.** This station (Figure 5 and Table 5), 5 nm west of Beringovskiy, consists of six double rhombic antennas, four single rhombic antennas, nine horizontal dipole antennas, a control building, and three support buildings.

Bezmein DF Facility KRUG

17. (S/D) The Bezmein KRUG antenna facility, 19 nm northwest of Ashkhabad, is operated by the GRU/KGB. The KRUG antenna has a separate associated transmitter and receiver communications support facility.

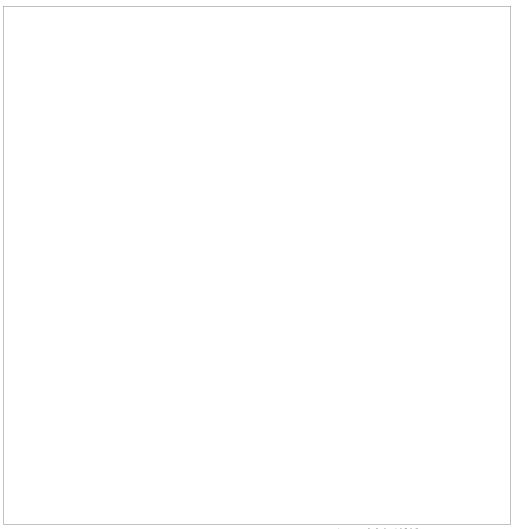


FIGURE 3. ARAMIL RADIO COMMUNICATIONS RECEIVER STATION KRUG 2 SUPPORT

Table 3.
Aramil Radcom Rcvr Sta KRUG Spt 2
(Keyed to Figure 3)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Dipole	VGD	20/15	d		3.75–9.38	
2	Quadrant	UGD	12/18	d		9.35–15.9	
3	Quadrant	UGD	25/23	d		3.51–5.97	
4	Quadrant	UGD	20/22	d		5.62–9.55	
5	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
7	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
8	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
9	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
10	Fishbone	BS	21/8	200/4.5	19	3.0–24.0	
11	Mast with a circular ground plane						

Table 4.
Beringovskiy Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 4)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone*	BS	21/8	200/4.5	17	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
4	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
5	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
7	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
8	Fishbone**	BS	21/8	200/4.5	17	3.0–24.0	
9	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
10	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
11	Dipole	VGD	15/17	d		5.0–12.5	
12	Dipole	VGD	20/17	d	17	3.75–9.38	

* 1 mast missing
** 3 masts missing

Table 5.
Beringovskiy Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 5)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	8.0–16.7	
2	Rhombic	RGD	65/4	1	9.6–25.0	
3	Rhombic	RGD	65/4	1	6.9–14.3	
4	Rhombic	RGD	65/4	1	16.0–33.0	
5	Rhombic	RG	65/4	1	13.7–28.6	
6	Rhombic	RG	65/4	1	6.9–14.3	
7	Rhombic	RG	65/4	1	13.7–28.6	
8	Rhombic	RG	65/4	1	6.9–14.3	
9	Rhombic	RGD	65/4	1	6.9–14.3	
10	Rhombic	RGD	65/4	1	6.0–12.5	
11	Dipole	VGD	8/25	d	9.38–23.45	
12	Dipole	VGD	30/24	d	2.5–6.25	
13	Dipole	VGD	15/24	d	5.0–12.5	
14	Dipole	VGD	15/24	d	5.0–12.5	
15	Dipole	VGD	15/24	d	5.0–12.5	
16	Dipole	VGD	15/24	d	5.0–12.5	
17	Dipole	VGD	15/12	d	5.0–12.5	
18	Dipole	VGD	15/14	d	5.0–12.5	
19	Dipole	VGD	30/25		2.5–6.25	

Associated Facilities

18. (S/D) **Bezmein Radio Communications Receiver Station KRUG Support.** This secured station (Figure 6 and Table 6), 10 nm north-northwest of Bezmein, consists of ten fishbone antennas, two single rhombic antennas, nine horizontal dipole antennas, five masts, a control building, and five support buildings. The adjacent support area contains an administration building, ten family-type dwellings, four barracks, a messhall, and 25 support buildings.

[redacted]

Table 6.
Bezmein Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 6)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RG	64/1	1	12.0–25.0	
2	Rhombic	RG	64/1	1	6.0–12.5	
3	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
6	Fishbone	BS2	21/8	200/4.5 11	3.0–24.0	
7	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
8	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
9	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
10	Fishbone	BS2	21/8	200/4.5 14	3.0–24.0	
11	Fishbone	BS2	21/8	200/4.5 13	3.0–24.0	
12	Fishbone	BS2	21/8	200/4.5 11	3.0–24.0	
13	Dipole	VGD	8/11	d	9.38–23.45	
14	Dipole	VGD	8/11	d	9.38–23.45	
15	Dipole	VGD	8/13	d	9.38–23.45	
16	Dipole	VGD	8/11	d	9.38–23.45	
17	Dipole	VGD	20/28	d	3.75–9.38	
18	Dipole	VGD	30/30	d	2.5–6.25	
19	Dipole	VGD	30/30	d	2.5–6.25	
20	Dipole	VGD	30/30	d	2.5–6.25	
21	Dipole	VGD	30/30	d	2.5–6.25	

Table 7.
Izgant Radcom Xmtr Sta
(Keyed to Figure 7)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	8.0–16.7	
2	Rhombic	RGD	65/4	1	13.7–28.6	
3	Rhombic	RGD	65/4	1	8.0–16.7	
4	Rhombic	RGD	65/4	1	13.7–28.6	
5	Rhombic	RGD	65/4	1	8.0–16.7	
6	Rhombic	RGD	65/4	1	13.7–28.6	
7	Rhombic	RGD	65/4	1	13.7–28.6	
8	Rhombic	RGD	65/4	1	8.0–16.7	
9	Dipole	VGD	15/36	d	5.0–12.5	
10	Dipole	VGD	8/18	d	9.38–23.45	
11	Dipole	VGD	8/18	d	9.38–23.45	
12	Dipole	VGD	15/36	d	5.0–12.5	

[redacted] 25X1

25X1
25X1

19. (S/D) **Izgant Radio Communications Transmitter Station.** This station (Figure 7 and Table 7), 1 nm north of Izgant and 21 nm northwest of Ashkhabad, consists of eight double rhombic antennas, four horizontal dipole antennas, a control building, two support buildings, and one five-bay vehicle storage building.

Chita 1 DF Site KRUG

20. (S/D) This KRUG antenna site is 15 nm northeast of Iliysk and 7 nm north-northwest of Chita. It has associated transmitter and receiver communications support facilities and is KGB associated.

Associated Facilities

21. (S/D) **Chita Radio Communications Receiver Station KRUG 1 Support.** This secured station (Figure 8 and Table 8) is 10 nm north of Chita and consists of two double rhombic antennas, four single rhombic antennas, four fishbone antennas, and two horizontal dipole antennas. The support area contains a control building and ten support buildings. 25X1

Table 8.
Chita Radcom Rcvr Sta KRUG 1 Spt
(Keyed to Figure 8)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)	Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	3BS2	21/8	200/4.5 12	3.0–24.0		7	Rhombic	RG	57/1.7	0.5	3.1–7.8	
2	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0		8	Rhombic	RGD	65/2.5	0.6	8.4–21.0	
3	Fishbone	BS2	21/8	200/4.5 12	3.0–24.0		9	Rhombic	RGD	65/4	1	8.0–16.7	
4	Fishbone	BS2	21/8	200/4.5 12	3.0–24.0		10	Rhombic	RG	57/1.7	0.5	2.6–6.5	
5	Rhombic	RG	57/1.7	0.5	3.5–8.7		11	Dipole	VGD	8/14	d	9.0–23.0	
6	Rhombic	RG	57/1.7	0.5	5.2–13.0		12	Dipole	VGD	15/20	d	5.0–12.0	

225X1

Table 10.
Chita Radcom Rcvr Sta KRUG 2 Spt
(Keyed to Figure 10)
This table in its entirety is classified SECRET/WINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
WEST ANTENNA FIELD							
1	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
6	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
7	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
8	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
9	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
10	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
11	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
12	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
13	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
14	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
15	Quadrant	VGDsh	12.5/20		d	3.8–12.0	
16	Quadrant	VGDsh	8/13		d	6.0–18.7	
17	Quadrant	VGDsh	12.5/20		d	3.8–12.0	
18	Quadrant	VGDsh	8/13		d	6.0–18.7	
19	Quadrant	VGDsh	12.5/20		d	3.8–12.0	
20	Quadrant	VGDsh	8/13		d	6.0–18.7	
EAST ANTENNA FIELD							
1	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
6	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
7	Helix	Unid				Unid	

25X1

25X1

Chita DF Facility KRUG 2

23. (S/D) This facility is 8.5 nm north of Chita. It has an associated communications receiver support facility; however, no transmitter facility could be identified. No command subordination has been determined.

Associated Facility

24. (S/D) **Chita Radio Communications Receiver Station KRUG 2 Support.** This station (Figure 10 and Table 10) is 7 nm north-northeast of Chita and consists of two separately secured antenna fields. The western antenna field contains 14 fishbone antennas, six quadrant antennas, a control building in the center of the antenna field, and a support area with 24 buildings.

25. (S/D) The eastern antenna field contains six fishbone antennas, a self-support lattice tower with a Helix antenna on top (inset, Figure 10) next to the control building, and six support buildings.

Iliysk (Kapchagay) DF Facility KRUG

26. (S/D) This KRUG antenna facility is 15 nm northeast of Kapchagay, formerly Iliysk. It has separate, associated transmitter and receiver communications support facilities. These facilities are GRU/Navy associated.

Associated Facilities

27. (S/D) **Shengeldy Radio Communications Receiver East/Iliysk (Kapachagay) KRUG Support.** This secured facility (Figure 11 and Table 11), 25 nm northeast of Kapchagay, consists of 15 fishbone antennas, four horizontal dipole antennas, two quadrant antennas, a control building which is cable connected to the Iliysk (Kapchagay) DF Facility KRUG, and two support buildings. The support area contains three administration-type buildings and 11 support buildings.

Table 11.
Shengeldy Radcom Rcvr E/Iliysk KRUG Spt
(Keyed to Figure 11)
This table in its entirety is classified SECRET/WINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	3BS	21/8		28	3.0–24.0	
2	Fishbone	3BS	21/8		28	3.0–24.0	
3	Fishbone	3BS	21/8		28	3.0–24.0	
4	Fishbone	3BS	21/8		28	3.0–24.0	
5	Fishbone	2BS	21/8		30	3.0–24.0	
6	Fishbone	3BS	21/8		28	3.0–24.0	
7	Fishbone	3BS	21/8		28	3.0–24.0	
8	Fishbone	3BS	21/8		28	3.0–24.0	
9	Fishbone	2BS	21/8		30	3.0–24.0	
10	Fishbone	3BS	21/8		28	3.0–24.0	
11	Fishbone	3BS	21/8		28	3.0–24.0	
12	Fishbone	3BS	21/8		28	3.0–24.0	
13	Fishbone	2BS	21/8		28	3.0–24.0	
14	Fishbone	3BS	21/8		28	3.0–24.0	
15	Fishbone	2BS	21/8		28	3.0–24.0	
16	Quadrant	UGD	20		d	5.62–9.55	
17	Quadrant	UGD	20/21		d	5.62–9.55	
18	Horizontal dipole	VGD	15		d	5.0–12.5	
19	Horizontal dipole	VG	30		d	2.5–6.25	
20	Horizontal dipole	VG	30		d	2.5–6.25	
21	Horizontal dipole	VG	15		d	5.0–12.5	

25X1X1

Table 12.
Shengeldy Radcom Rcvr/Iliysk KRUG Spt
(Keyed to Figure 12)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5 15	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
6	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
7	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
8	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
9	Fishbone	BS2	21/8	200/4.5 15	3.0–24.0	
10	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
11	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
12	Fishbone	BS2	21/8	200/4.5 15	3.0–24.0	
13	Fishbone	BS2	21/8	200/4.5 17	3.0–24.0	
14	Fishbone	BS2	21/8	200/4.5 16	3.0–24.0	
15	Fishbone	BS2	21/8	200/4.5 15	3.0–24.0	
16	Rhombic	RG	65/4	1	8.0–16.7	
17	Rhombic	RG	65/4	1	16.0–33.0	
18	Rhombic	RG	65/4	1	16.0–33.0	
19	Rhombic	RG	65/4	1	16.0–33.0	
20	Rhombic	RG	65/4	1	8.0–16.7	
21	Curtain array	SG	5/7	R	18.5–26.1	
22	Curtain array	SG	5/7	R	18.5–26.1	
23	Quadrant	UGD	30/77	d	3.75–6.37	
24	Horizontal dipole	VGD	15/30	d	5.0–12.5	
25	Horizontal dipole	VGD	30/30	d	2.5–6.25	
26	Horizontal dipole	VGD	30/30	d	2.5–6.25	
27	Quadrant	UGD	15/30	d	7.5–12.75	
28	Horizontal dipole	VGD	30/30	d	2.5–6.25	
29	Horizontal dipole	VGD	30/30	d	2.5–6.25	

*Nonstandard

28. (S/D) **Shengeldy Radio Communications Receiver/Iliysk (Kapchagay) KRUG Support.** This fence-secured station (Figure 12 and Table 12), 20 nm northeast of Kapchagay, contains a control building, four administration buildings, seven barracks, five family-type quarters, one messhall, 11 utility buildings, a small motor pool, 15 fishbone antennas, five single rhombic antennas, five horizontal dipole antennas, two quadrant antennas, two single-bay curtain arrays, and two masts.

29. (S/D) **Shengeldy Radio Communications Transmitter/Iliysk (Kapchagay) KRUG Support.** This fence-secured station (Figure 13 and Table 13), 20.5 nm northeast of Kapchagay, consists of eight double rhombic antennas, one single rhombic antenna, three horizontal dipole antennas, six masts, a control building, and four support buildings.

Table 13.
Shengeldy Radcom Xmtr Iliysk KRUG Spt
(Keyed to Figure 13)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	6.9–14.3	
2	Rhombic	RGD	65/4	1	12.0–25.0	
3	Rhombic	RGD	65/4	1	9.6–20.0	
4	Rhombic	RGD	65/4	1	19.2–40.0	
5	Rhombic	RGD	65/4	1	9.6–20.0	
6	Rhombic	RGD	65/4	1	19.2–40.0	
7	Rhombic	RGD	65/4	1	13.7–28.6	
8	Rhombic	RGD	65/4	1	13.7–28.6	
9	Rhombic	RGD	65/4	1	8.0–16.7	
10	Dipole	VGDsh	25/18	d	1.91–6.0	
11	Dipole	VGD	20/17	d	3.75–9.38	
12	Dipole*	VGD	90/17	d	1.5–3.75	
13	Mast					
14	Mast					
15	Mast					
16	Mast					
17	Mast					
18	Mast					

*Nonstandard

25X1

Table 14.
Sary-Ozek Radcom Sta SW
(Keyed to Figure 14)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Designator		Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD $\frac{65}{1}$	1	8.0 – 16.7	
2	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
3	Rhombic	RGD $\frac{65}{1}$	1	8.0 – 16.7	
4	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
5	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
6	Rhombic	RGD $\frac{65}{1}$	1	8.0 – 16.7	
7	Rhombic	RGD $\frac{65}{4}$	1	9.6 – 20.0	
8	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
9	Rhombic	RGD $\frac{65}{4}$	1	13.7 – 28.6	
10	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
11	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
12	Rhombic	RGD $\frac{65}{1}$	1	16.0 – 33.0	
13	Rhombic	RGD $\frac{65}{1}$	1	16.0 – 33.0	
14	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
15	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
16	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
17	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
18	Rhombic	RGD $\frac{65}{4}$	1	12.8 – 26.7	
19	Rhombic	RGD $\frac{65}{4}$	1	12.0 – 25.0	
20	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
21	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	

Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)
22	Rhombic	RGD $\frac{65}{1}$	3	9.6 – 20.0	
23	Rhombic	RGD $\frac{65}{4}$	1	9.6 – 20.0	
24	Rhombic	RGD $\frac{65}{4}$	0.6	4.2 – 10.5	
25	Rhombic	RGD $\frac{65}{4}$	0.6	4.2 – 10.5	
26	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
27	Rhombic	RGD $\frac{65}{1}$	3	9.6 – 20.0	
28	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
29	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
30	Rhombic	RGD $\frac{65}{4}$	1	8.0 – 16.7	
31	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
32	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
33	Rhombic	RGD $\frac{65}{4}$	1	10.7 – 22.2	
34	Rhombic	RGD $\frac{65}{4}$	1	10.7 – 22.2	
35	Rhombic	RGD $\frac{65}{4}$	1	12.0 – 25.0	
36	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
37	Rhombic	RGD $\frac{65}{4}$	1	16.0 – 33.0	
38	Quadrant	UGD $\frac{12\frac{1}{2}}{20}$	d	3.81 – 5.97	
39	Quadrant	VGDsb $\frac{21}{20}$	s	10.0 – 25.0	
40	Quadrant	VGDsb $\frac{21}{16}$	s d	10.0 – 25.0	
41	Dipole	VGD $\frac{15}{21}$	d	5.0 – 12.5	
42	Dipole	VGD $\frac{15}{21}$	d	5.0 – 12.5	

25X1

Table 15.
Isakogorka Radcom Rcvr Sta KRUG 1 Spt
(Keyed to Figure 15)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BSVN2 $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
2	Fishbone	BSVN $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
3	Fishbone	BSVN $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
4	Fishbone	BSVN $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
5	Fishbone	BSVN $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
6	Fishbone	BSVN $\frac{21}{12\frac{1}{2}}$	$\frac{400}{45}$ 17	3.0 – 24.0	
7	Quadrant	VGD $\frac{12\frac{1}{2}}{21}$	d	3.84 – 12.0	
8	Quadrant	VGD $\frac{18}{12\frac{1}{2}}$	d	6.0 – 18.7	

Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)
9	Quadrant	VGD $\frac{12\frac{1}{2}}{21}$	d	3.84 – 12.0	
10	Quadrant	VGD $\frac{18}{12\frac{1}{2}}$	d	6.0 – 18.7	
11	Quadrant	VGD $\frac{12\frac{1}{2}}{21}$	d	3.84 – 12.0	
12	Quadrant	VGD $\frac{18}{12\frac{1}{2}}$	d	6.0 – 18.7	
13	Dipole	VGD $\frac{18}{21}$	d	9.38 – 23.45	
14	Dipole	VGD $\frac{400}{45}$	d	3.75 – 9.38	
15	Dipole	VGD $\frac{18}{21}$	d	9.38 – 23.45	

25X1

30. (S/D) **Sary-Ozek Radio Communications Station Southwest.** This secured station (Figure 14 and Table 14) is 15 nm southwest of Sary-Ozek and 34 nm northeast of Kapchagay. It consists of 37 double rhombic antennas, three quadrant antennas, two horizontal dipole antennas, a control building, one support building, and one building under construction. The support area at the north end of the station consists of three administration-type buildings and eight other buildings. This station appears to be the transmitter for Shengeldy Radio Communications Receiver East/Iliysk (Kapchagay) KRUG Support which is 14.5 nm to the southwest.

Isakogorka DF Facility KRUG 1

31. (S/D) This KRUG antenna facility, 1.5 nm southeast of Isakogorka, has separate associated transmitter and receiver communications support facilities. These stations are SAF associated.

Associated Facilities

32. (S/D) **Isakogorka Radio Communications Receiver Station KRUG 1 Support.** This fence-secured station (Figure 15 and Table 15) is 7.5 nm southwest of Isakogorka and 3.5 nm southwest of Arkhangelsk Airfield. It consists of a control building, 17 support buildings, six fishbone antennas, six quadrant antennas, and three horizontal dipole antennas.

33. (S/D) **Isakogorka Radio Communications Transmitter Station KRUG 1 Support.** This fence-secured station (Figure 16 and Table 16) is 11.7 nm south of Isakogorka and consists of a T-shaped control building, an administration building, five probable apartment/barracks buildings, and 12 support buildings. The antenna field consists of eight double rhombic antennas, three quadrant antennas, and numerous horizontal dipole antennas.

Table 16.
Isakogorka Radcom Xmtr Sta KRUG 1 Spt
(Keyed to Figure 16)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator	Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	Undet	Undet	Undet
2	Rhombic	Undet	Undet	Undet
3	Rhombic	Undet	Undet	Undet
4	Rhombic	Undet	Undet	Undet
5	Rhombic	Undet	Undet	Undet
6	Rhombic	Undet	Undet	Undet
7	Rhombic	Undet	Undet	Undet
8	Rhombic	Undet	Undet	Undet
9	Quadrant	Undet	Undet	Undet
10	Quadrant	Undet	Undet	Undet
11	Quadrant	Undet	Undet	Undet

Isakogorka DF Facility KRUG 2

34. (S/D) This KRUG antenna is 5.5 nm northeast of Isakogorka and 5 nm southeast of Arkhangelsk. One transmitter and two receiver communications support facilities are associated with the KRUG site. These facilities are associated with the KGB.

Associated Facilities

35. (S/D) **Isakogorka Radio Communications Receiver Station KRUG 2 Support.** This station (Figure 17 and Table 17) is 5 nm southeast of Arkhangelsk and 0.5 nm west of Isakogorka DF Facility KRUG 2. It consists of five fishbone antennas, three quadrant antennas, four horizontal dipole antennas, a T-shaped control building, and 35 support buildings.

Table 17.
Isakogorka Radcom Rcvr Sta KRUG 2 Spt
(Keyed to Figure 17)
This table in it entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
4	Fishbone						
5	Fishbone						
6	Quadrant	UGD	12/22	d		9.35–15.9	
7	Quadrant*	UGD	44/22	d		2.55–4.34	
8	Quadrant*	UGD	44/16	d		2.55–4.34	
9	Dipole	VGD	20/12	d		3.75–9.38	
10	Dipole	VGD	8/12	d		9.38–23.45	
11	Dipole	VGD	8/12	d		9.38–23.45	
12	Dipole	VGD	8/12	d		9.38–23.45	

*Nonstandard

25X1
25X1

25X1

25X1

36. (S/D) **Isakogorka Radio Communications Receiver Station KRUG 2 Support.** This secured station (Figure 18 and Table 18) is 10 nm southeast of Arkhangelsk and consists of eight fishbone antennas, five horizontal dipole antennas, one pair of TWIN DISH antennas, two control bunkers, and 15 support buildings.

37. (S/D) **Isakogorka Radio Communications Transmitter Station KRUG 2 Support.** This station (Figure 19 and Table 19) is 8 nm east-northeast of Isakogorka and 2.5 nm west-northwest of Koskovo. It consists of ten single rhombic antennas, seven quadrant antennas, three horizontal dipole antennas, numerous masts, a control building, 13 support buildings, and a control bunker.

Table 18.
Isakogorka Radcom Rcvr Sta KRUG 2 Spt
(Keyed to Figure 18)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21 / 200	18 / 4.5	3.0-24.0	
2	Fishbone*	BS				
3	Fishbone	BS	21 / 200	18 / 4.5	3.0 – 24.0	
4	Fishbone*	BS				
5	Fishbone*	BS		4.5		
6	Fishbone*	BS		4.5		
7	Fishbone	BS	21 / 200	/ 4.5	3.0 – 24.0	
8	Fishbone	BS	21 / 200	/ 4.5	3.0 – 24.0	
9	Horizontal dipole	VGDsh	23 / 25	d	1.91 – 6.0	
10	Horizontal dipole	VGD	15 / 17	d	5.0 – 12.5	
11	Horizontal dipole	VGDsh	16 / 33	d	3.0 – 9.37	
12	Horizontal dipole	VGD	30 / 40	d	2.5 – 6.25	
13	Horizontal dipole	VGD	35 / 38	d	2.14 – 5.35	
14	TWIN DISH	R-408			450 – 900	
15	TWIN DISH	R-408			450 – 900	

*Nonstandard

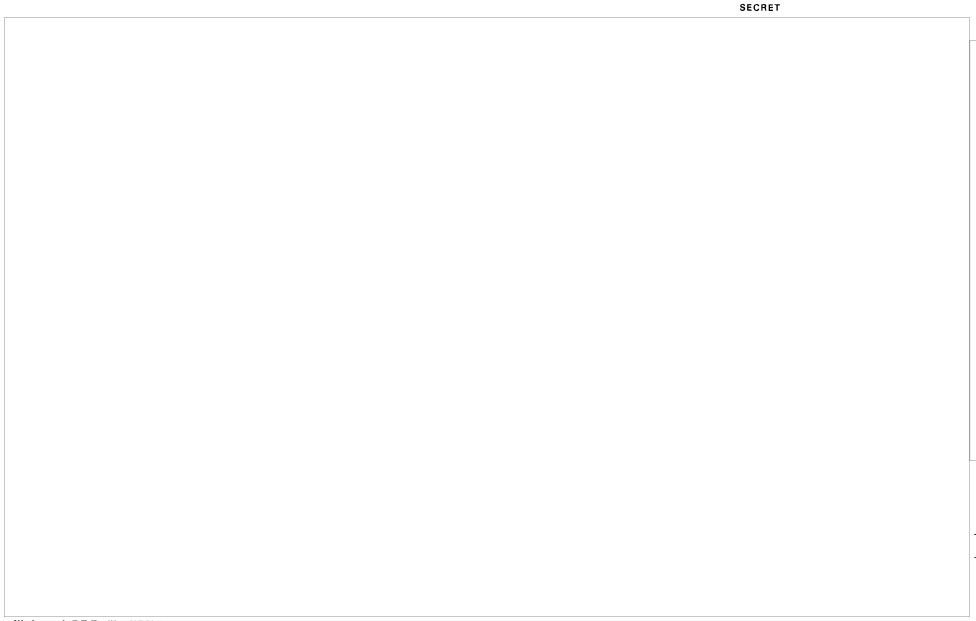
Table 19.
Isakogorka Radcom Xmtr Sta KRUG 2 Spt
(Keyed to Figure 19)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator*	Frequency (MHz)*	Azimuth (Degrees)*
1	Rhombic			
2	Rhombic			
3	Rhombic			
4	Rhombic			
5	Rhombic			
6	Rhombic			
7	Rhombic			
8	Rhombic			
9	Rhombic			
10	Rhombic			
11	Quadrant			
12	Quadrant			
13	Quadrant			
14	Quadrant			
15	Quadrant			
16	Quadrant			
17	Quadrant			
18	Dipole			
19	Dipole			
20	Dipole			

*Film quality precluded positive identification

25X1

25X1



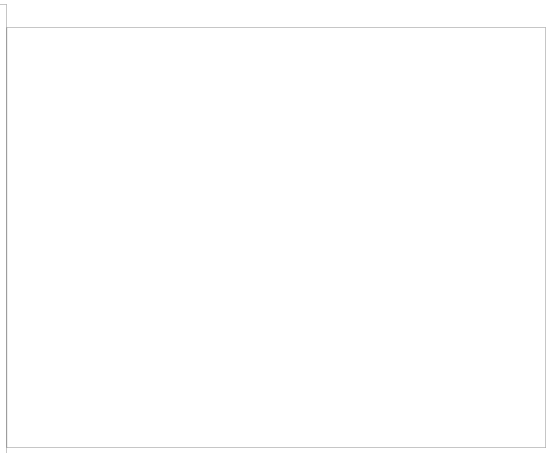


FIGURE 21. KRASNODAR RADIO COMMUNICATIONS RECEIVER STATION KRUG SUPPORT

Table 20.
Klimovsk Radcom Rcvr Site KRUG Spt
(Keyed to Figure 20)

This table in its entirety is classified SECRET/WINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
2	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
3	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
4	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
5	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
6	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
7	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
8	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
9	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
10	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
11	Fishbone	BS2	2/8	400/4.5	25	3.0–24.0	
	Fishbone	BSVN2	2/8	400/4.5		3.0–24.0	
12	Fishbone	BS2	2/8	400/4.5	25	3.0–24.0	
	Fishbone	BSVN2	2/8	400/4.5		3.0–24.0	
13	Fishbone	BS2	2/8	400/4.5	25	3.0–24.0	
	Fishbone	BSVN2	2/8	400/4.5		3.0–24.0	
14	Fishbone	BS2	2/8	400/4.5	25	3.0–24.0	
	Fishbone	BSVN2	2/8	400/4.5		3.0–24.0	
15	Fishbone	BS2	2/8	400/4.5	25	3.0–24.0	
	Fishbone	BSVN2	2/8	400/4.5		3.0–24.0	
16	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
17	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
18	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
19	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
20	Fishbone	3BS2	2/8	400/4.5	26	3.0–24.0	
21	Fishbone	BS2	2/8	400/4.5	26	3.0–24.0	
22	Caged dipole array	Unk				Unk	
23	Dipole	VGD	10/15	d		2.5–6.25	
24	Dipole	VGD	20/21	d		3.75–938	

25X1X1

25X1

Khabarovsk DF Facility KRUG

38. (S/D) This KRUG antenna site is 7 nm southeast of Khabarovsk and is KGB associated. No communications support facilities have been identified.

Khimki DF Facility KRUG

39. (S/D) This KRUG antenna is 10 nm north of Moscow. No subordination or communications support facilities have been identifed.

Klimovsk DF Facility KRUG

40. (S/D) This KRUG antenna is 4 nm northwest of Klimovsk and has two companion receiver communications support facilities. The facilities are GRU associated. The transmitter station could not be identified.

Associated Facilities

41. (S/D) **Klimovsk Radio Communications Receiver KRUG Support.** The fence-secured station (Figure 20), 2 nm west of Klimovsk and 5.3 nm southwest of Podolsk, consists of a 26-meter-diameter antenna building with a 12-meter communications satellite antenna mounted on top, a control building, and two support buildings. This station is adjacent to Klimovsk Radio Communications Receiver Site KRUG Support

42. (S/D) **Klimovsk Radio Communications Receiver Site KRUG Support.** This fence-secured site (Figure 20 and Table 20), 2 nm northwest of Klimovsk and adjacent to Klimovsk Radio Communications Receiver KRUG Support, consists of one vertical cage dipole array, 21 fishbone antennas, two horizontal dipole antennas, a T-shaped control building, a bunker, and 13 support buildings. The housing and administration area contains approximately 30 buildings, a heating plant, and a motor pool.

Krasnodar DF Facility KRUG

43. (S/D) The KRUG antenna is 10.8 nm northwest of Krasnodar and has an associated receiver communications support facility. No subordination or transmitter station could be identified.

Associated Facility

44. (S/D) **Krasnodar Radio Communications Receiver Station KRUG Support.** This station (Figure 21 and Table 21) is 10 nm northwest of Krasnodar and consists of nine fishbone antennas, four quadrant antennas, one horizontal dipole antenna, a control building, and six support buildings.

Kuda DF Facility KRUG

45. (S/D) The KRUG antenna, 9.5 nm northeast of Kuda and 3 nm east of Oyek, has separate companion transmitter and receiver communications support facilities. The facilities are GRU/Navy associated.

Associated Facilities

46. (S/D) **Kuda Radio Communications Receiver Station KRUG Support.** This fence-secured station (Figure 22 and Table 22), 10.5 nm northeast of Kuda and 20 nm northeast of Irkutsk, consists of two nested pairs of double rhombic antennas, eight double rhombic antennas, two single rhombic antennas, 15 fishbone antennas, six horizontal dipole antennas, a communications satellite building with a 12-meter dish antenna mounted on top, a control building, and approximately 44 buildings.

Table 21.
Krasnodar Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 21)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
6	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
7	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
8	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
9	Fishbone	BS2	21/8	200/4.5	25	3.0–24.0	
10	Quadrant	UGD	20/25	d		5.62–9.55	
11	Quadrant	UGD	8/12	d		14.05–23.9	
12	Quadrant	UGD	20/25	d		5.62–9.55	
13	Quadrant	UGD	8/12	d		14.05–23.9	
14	Dipole	VGD	8/20	d		9.38–23.45	

Table 22.
Kuda Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 22)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
4	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
5	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
7	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
8	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
9	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
10	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
11	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
12	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
13	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
14	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
15	Fishbone	BS	21/8	200/4.5	17	3.0–24.0	
16	Rhombic	RG	65/4	1		12.0–25.0	
17	Rhombic	RG	65/4	1		6.0–12.5	
18	Rhombic*	RGD	65/4	1		6.0–12.5	
19	Rhombic*	RGD	65/4	1		10.26–21.37	
20	Rhombic	RGD	65/4	1		6.0–12.5	
21	Rhombic	RGD	65/4	1		10.26–21.37	
22	Rhombic	RGD	65/4	1		8.0–16.7	
23	Rhombic	RGD	65/4	1		13.7–28.6	
24	Rhombic	RGD	65/4	1		13.7–28.6	
25	Rhombic	RGD	65/4	1		8.0–16.7	
26	Rhombic	RGD	65/4	1		13.7–28.6	
27	Rhombic	RGD	65/4	1		10.26–21.37	
28	Rhombic	RGD	65/4	1		6.0–12.5	
29	Rhombic	RGD	65/4	1		6.0–12.5	
30	Dipole	VGDsh	25/22	d		1.91–6.0	
31	Dipole	VGD	8/12	d		9.38–23.45	
32	Dipole	VGD	8/14	d		9.38–23.45	
33	Dipole	VGD	8/14	d		9.38–23.45	
34	Dipole	VGD	30/22	d		2.5–6.25	
35	Dipole	VGD	30/22	d		2.5–6.25	

*Removed in Spring 1980

25X1

25X1

25X1

47. (S/D) **Kuda Radio Communications Transmitter Station KRUG Support.** This station (Figure 23 and Table 23), 11 nm north-northeast of Kuda and 19 nm northeast of Irkutsk, consists of 14 double rhombic antennas, four double-nested double rhombic antennas, 15 horizontal dipole antennas, a control building, and 12 support buildings.

FIGURE 23. KUDA RADIO COMMUNICATIONS TRANSMITTER STATION KRUG SUPPORT

Table 23.
Kuda Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 23)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)
1	Rhombic	RGD	65/4	1	12.0–25.0
2	Rhombic	RGD	65/4	1	6.0–12.5
3	Rhombic	RGD	65/4	1	6.0–12.5
4	Rhombic	RGD	65/4	1	12.0–25.0
5	Rhombic	RGD	65/4	1	12.0–25.0
6	Rhombic	RGD	65/4	1	6.0–12.5
7	Rhombic	RGD	65/4	1	6.0–12.5
8	Rhombic	RGD	65/4	1	12.0–25.0
9	Rhombic	RGD	65/4	1	12.0–25.0
10	Rhombic	RGD	65/4	1	6.0–12.5
11	Rhombic	RGD	65/4	1	12.0–25.0
12	Rhombic	RGD	65/4	1	6.0–12.5
13	Rhombic	RGD	65/4	1	12.0–25.0
14	Rhombic	RGD	65/4	1	6.0–12.5
15	Rhombic	RGD	65/4	1	12.0–25.0
16	Rhombic	RGD	65/4	1	6.0–12.5
17	Rhombic	RGD	65/4	1	6.0–12.5
18	Rhombic	RGD	65/4	1	12.0–25.0
19	Rhombic	RGD	65/4	1	12.0–25.0
20	Rhombic	RGD	65/4	1	8.0–16.7
21	Rhombic	RGD	65/4	1	16.0–33.0
22	Rhombic	RGD	65/4	1	8.0–16.7
23	Dipole	VGD	8/13	d	9.38–23.45
24	Dipole	VGD	8/16	d	9.38–23.45
25	Dipole	VGD	8/14	d	9.38–23.45
26	Dipole	VGD	8/14	d	9.38–23.45
27	Dipole	VGD	15/17	d	5.0–12.5
28	Dipole	VGDsh	25/30	d	1.91–6.0
29	Dipole	VGDsh	25/30	d	1.91–6.0
30	Dipole	VGDsh	25/30	d	1.91–6.0
31	Dipole	VGDsh	25/30	d	1.91–6.0
32	Dipole	VGDsh	8/15	d	9.38–23.45
33	Dipole	VGDsh	25/28	d	1.91–6.0
34	Dipole	VGD	15/27	d	5.0–12.5
35	Dipole	VGD	15/25	d	5.0–12.5
36	Dipole	VGD	8/13	d	9.38–23.45
37	Dipole	VGD	8/13	d	9.38.23.45

25X1

25X1

25X1

Table 24.
Murmashi Radcom Rcvr KRUG Spt
(Keyed to Figure 24)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	2BS2	21/8	200/4.5	30	3.0–24.0
2	Fishbone	2BS2	21/8	200/4.5	30	3.0–24.0
3	Fishbone	BS2	21/8	200/4.5	27	3.0–24.0
4	Fishbone	3BS2	21/8	200/4.5	29	3.0–24.0
5	Fishbone	2BS2	21/8	200/4.5	27	3.0–24.0
6	Fishbone	2BS2	21/8	200/4.5	25	3.0–24.0
7	Fishbone	2BS2	21/8	200/4.5	25	3.0–24.0
8	Fishbone	BS2	21/8	200/4.5	29	3.0–24.0
9	Fishbone	BS2	21/8	200/4.5	29	3.0–24.0
10	Rhombic	RGD	65/4		1	9.6–20.0

Table 25.
Murmashi Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 25)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	6.9–14.3	
2	Rhombic	RGD	65/4	1	9.6–20.0	
3	Rhombic	RGD	65/4	1	8.0–16.7	
4	Rhombic	RGD	65/2.8	0.6	11.2–28.0	
5	Rhombic	RGD	65/4	1	6.0–12.5	
6	Rhombic	RGD	65/4	1	13.7–23.6	
7–15	Mast					

Lyubertsy DF Facility KRUG

48. (S/D) The KRUG antenna is 5 nm northeast of Lyubertsy and is KGB associated. No communications support facilities have been identified.

Murmashi DF Facility KRUG

25X1

49. (S/D) The KRUG antenna is 3.5 nm southeast of Murmashi and is GRU associated. It has separate companion transmitter and receiver communications support facilities.

Associated Facilities

50. (S/D) **Murmashi Radio Communications Receiver KRUG Support.** This facility (Figure 24 and Table 24) is 4.5 nm southeast of Murmashi and consists of nine fishbone antennas, one double rhombic antenna, a multistory control building, a steamplant, and 32 support buildings.

51. (S/D) **Murmashi Radio Communications Transmitter Station KRUG Support.** This station (Figure 25 and Table 25), 6 nm east of Murmashi, consists of three double-nested rhombic antennas, nine masts, a control building, and two support buildings.

25X1

25X1

Table 26.
Novosibirsk Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 26)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
4	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
5	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
7	Quadrant	UGD	12/10	d	9.35–15.9	
8	Quadrant	UGD	12/10	d	9.35–15.9	
9	Quadrant	UGD	20/19	d	5.62–9.55	
10	Quadrant	UGD	12/10	d	9.35–15.9	
11	Quadrant	UGD	12/10	d	9.35–15.9	
12	Quadrant	UGD	20/17	d	5.62–9.55	
13	Dipole	VGD	8/12	d	9.38–23.45	

Table 27.
Odessa Radcom Rcvr Sta KRUG 1 Spt
(Keyed to Figure 27)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
4	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
5	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
7	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
8	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
9	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
10	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
11	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
12	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
13	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
14	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
15	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
16	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
17	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
18	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
19	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
20	Fishbone	BS2	21/8	200/4.5 27	3.0–24.0	
21	Rhombic	RGD	65/4	1	12.0–25.0	
22	Rhombic	RGD	65/4	1	9.6–20.0	
23	Rhombic	RGD	65/4	1	12.0–25.0	
24	Rhombic	RGD	65/4	1	9.6–20.0	
25	Dipole	VGDsh	12,2/28	d	3.84–12.0	
26	Dipole	VGDsh	8/27	d	6.0–15.7	
27	Dipole	VGD	30/28	d	2.5–6.25	
28	Quadrant	UGD	18/18	d	7.5–12.75	

25X1

25X1

Novosibirsk DF Facility KRUG

52. (S/D) The KRUG antenna site is 21 nm northeast of Novosibirsk and is KGB associated. It has an associated receiver communications support facility.

Associated Facility

53. (S/D) **Novosibirsk Radio Communications Receiver Station KRUG Support.** This station (Figure 26 and Table 26) is 17.5 nm northeast of Novosibirsk and consists of six fishbone antennas, six quadrant antennas, one horizontal dipole antenna, a control building, and 16 support buildings.

25X1

Odessa DF Facility KRUG

54. (S/D) The KRUG facility is 10 nm west of Odessa and is GRU associated. It has a receiver communications support facility.

Associated Facility

55. (S/D) **Odessa Radio Communications Receiver Station KRUG 1 Support.** This facility (Figure 27 and Table 27) is 10 nm south-southwest of Odessa and consists of two control buildings (one separately secured), 20 fishbone antennas, four double rhombic antennas, three horizontal dipole antennas, one quadrant antenna, five masts, and a support area containing approximately 22 buildings.

Odessa DF Facility KRUG 2

56. (S/D) This KRUG facility is 7.5 nm northwest of Odessa and is KGB associated. No communications support facilities have been identified.

Petropavlovsk DF Site KRUG

57. (S/D) The KRUG antenna is 5.5 nm east of Petropavlovsk/Kamchatskiy and is KGB associated. It has separate associated transmitter and receiver communications support facilities.

Associated Facilities

58. (S/D) **Petropavlovsk Radio Communications Receiving Station Northeast.** This fence-secured station (Figure 28 and Table 28) is 6 nm northeast of Petropavlovsk and consists of six fishbone antennas, four quadrant antennas, a T-shaped control building, and 30 support buildings.

59. (S/D) **Petropavlovsk Radio Communications Transmitter Station Northeast.** This fence-secured station (Figure 29 and Table 29) is 6 nm northeast of Petropavlovsk and consists of four double rhombic antennas and a control building.

Table 28.
Petropavlovsk Radcom Rcvr Sta NE
(Keyed to Figure 28)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
4	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
5	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
6	Fishbone	BSVN	21/8	400/4.5	18	3.0–24.0	
7	Quadrant	VGDsh	8/21		d	6.0–18.7	
8	Quadrant	VGDsh	8/21		d	6.0–18.7	
9	Quadrant	VGDsh	12.5/23		d	3.84–12.0	
10	Quadrant	VGDsh	16/26		d	3.0–9.37	

Table 29.
Petropavlovsk Radcom Xmtr Sta NE
(Keyed to Figure 29)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	16.0–33.0	
2	Rhombic	RGD	65/4	1	8.0–16.7	
3	Rhombic	RGD	65/4	1	12.0–25.0	
4	Rhombic	RGD	65/4	1	9.6–20.0	

25X1

25X1

FIGURE 28. PETROPAVLOVSK RADIO COMMUNICATIONS RECEIVER STATION NORTHEAST

25X1

25X1

25X1

Podolsk DF Site KRUG

60. (S/D) The KRUG antenna site is 7.0 nm northwest of Podolsk. No communications support facilities or organization subordination have been identified.

Rustavi DF Facility KRUG

61. (S/D) The KRUG antenna site is 8.4 nm south-southeast of Rustavi and is KGB/GRU associated. It has associated transmitter and receiver communications support facilities.

Associated Facilities

62. (S/D) **Rustavi Radio Communications Receiver Station 1 KRUG Support.** This fence-secured station (Figure 30 and Table 30) is 7.5 nm southeast of Rustavi and consists of 12 fishbone antennas, two single rhombic antennas, seven horizontal dipole antennas, several masts, a control building, and eight support buildings. The adjoining support area, which is shared with Rustavi Radio Communications Transmitter Station 2, consists of one administration building, three multistory barracks-type buildings, five quarters-type buildings, a motor pool, a steamplant, a messhall, an athletic field, an obstacle course, a small-arms firing range, and at least 25 storage and support buildings.

63. (S/D) **Rustavi Radio Communications Transmitter Station 2 KRUG Support.** This fence-secured station (Figure 30) is 8 nm south-southeast of Rustavi and consists of two arch-shaped curtain arrays (each with nine towers), two rail-mounted feed towers, a control building, and one support building. The station shares support facilities with Rustavi Radio Communications Receiver Station 1 KRUG Support.

Table 30.
Rustavi Radcom Rcvr Sta KRUG 1 Spt
(Keyed to Figure 30)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
2	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
3	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
4	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
5	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
6	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
7	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
8	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
9	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
10	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
11	Fishbone	BS	21/8	200/4.5 17	3.0–24.0	
12	Fishbone	BS2	21/8	200/4.2 15	3.0–24.0	
13	Rhombic	RG	65/4	1	12.8–26.7	
14	Rhombic	RG	65/4	1	8.0–16.7	
15	Horizontal dipole	VGDsh	12.5/30	d	3.84–12.0	
16	Horizontal dipole	VGDsh	12.5/30	d	3.84–12.0	
17	Horizontal dipole	VGD	30/24	d	2.5–6.25	
18	Horizontal dipole	VGD	30/24	d	2.5–6.25	
19	Horizontal dipole	VGDsh	12.5/20	d	3.84–12.0	
20	Horizontal dipole	VGD	8/30	d	6.0–18.7	
21	Horizontal* dipole	VGD	50/23	d	1.5–3.75	

*Nonstandard

25X1

Sergeyevka DF Facility KRUG 1

64. (S/D) The KRUG site, 4 nm northwest of Sergeyevka and 7.5 nm northeast of Khabarovsk, has separate companion transmitter and receiver communications support facilities. The facilities are KGB associated.

Associated Facilities

65. (S/D) **Sergeyevka Radio Communications Receiver Station KRUG 1 Support.** This station (Figure 31 and Table 31) is 3.8 nm west-northwest of Sergeyevka and 7 nm east of Khabarovsk. It consists of 23 fishbone antennas, 12 double rhombic antennas, six quadrant antennas, six horizontal dipole antennas, a T-shaped control building, 11 support buildings, and numerous houses.

Table 31.
Sergeyevka Radcom Rcvr Sta KRUG 1 Spt
(Keyed to Figure 31)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
2	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
3	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 25	3.0–24.0	
4	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 26	3.0–24.0	
5	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 26	3.0–24.0	
6	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 26	3.0–24.0	
7	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 28	3.0–24.0	
8	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
9	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
10	Fishbone	2BS2	$\frac{21}{8}\frac{400}{4.5}$ 25	3.0–24.0	
11	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
12	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
13	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
14	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 24	3.0–24.0	
15	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 17	3.0–24.0	
16	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 30	3.0–24.0	
17	Fishbone poss	may not be a complete antenna; masts missi			
18	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
19	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
20	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
21	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
22	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 28	3.0–24.0	
23	Fishbone	BS2	$\frac{21}{8}\frac{400}{4.5}$ 27	3.0–24.0	
24	Rhombic	RGD	$\frac{65}{4}$ 1	6.0–12.5	
25	Rhombic poss	may not be a complete antenna; masts missing			
26	Rhombic	RGD	$\frac{65}{4}$ 1	10.7–22.2	
27	Rhombic	RGD	$\frac{65}{4}$ 1	12.0–25.6	
28	Rhombic	RGD	$\frac{65}{4}$ 1	10.7–22.2	
29	Rhombic	RGD	$\frac{65}{4}$ 1	9.6–20.0	
30	Rhombic	RGD	$\frac{65}{4}$ 1	10.7–22.2	
31	Rhombic	RGD	$\frac{65}{4}$ 1	10.7–22.2	
32	Rhombic	RGD	$\frac{65}{4}$ 1	12.0–25.0	
33	Rhombic	RGD	$\frac{65}{4}$ 1	10.7–22.2	
34	Rhombic	RGD	$\frac{65}{4}$ 1	16.0–33.0	
35	Rhombic	RGD	$\frac{65}{4}$ 1	6.0–12.5	
36	Quadrant	UGD	$\frac{20}{20}$ d	5.62–9.55	
37	Quadrant	UGD	$\frac{20}{20}$ d	5.62–9.55	
38	Quadrant	UGD	$\frac{44}{14}$ d	2.55–4.34	
39	Quadrant	VGDsh	$\frac{8}{22}$ d	10.0–25.0	
40	Quadrant	UGD	$\frac{8}{16}$ d	14.0–23.9	
41	Quadrant	UGD	$\frac{8}{16}$ d	14.0–23.9	
42	Dipole	VGDsh	$\frac{12.5}{24}$ d	3.84–12.0	
43	Dipole	VGD	$\frac{30}{37}$ d	3.75–9.38	
44	Dipole	VGD	$\frac{15}{11}$ d	5.0–12.5	
45	Dipole	VGD	$\frac{15}{11}$ d	5.0–12.5	
46	Dipole	VGD	$\frac{25}{25}$ d	1.91–6.0	
47	Dipole	VGD	$\frac{20}{20}$ d	3.75–9.38	

25X1

25X1

66. (S/D) **Sergeyevka Radio Communications Transmitter Station KRUG 1 Support.** This station (Figure 32 and Table 32) is 6.5 nm northwest of Sergeyevka and 9 nm northeast of Khabarovsk. It consists of 16 horizontal dipole antennas, four quadrant antennas, two masts, a control building, and four support buildings. 25X1

Sergeyevka DF Facility KRUG 2

67. (S/D) This facility, 2.2 nm southwest of Sergeyevka and 9.5 nm east of Khabarovsk, is GRU/Navy associated. It has an associated receiver communications support facility; however, no transmitter facility could be identified. 25X1

Table 32.
Sergeyevka Radcom Xmtr Sta KRUG 1 Spt
(Keyed to Figure 32)

This table in its entirety is classified SECRET WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Horizontal dipole	VGD		d	3.75 – 9.38	
2	Horizontal dipole	VGD		d	3.75 – 9.38	
3	Horizontal dipole	VGDsh		d	1.91 – 6.0	
4	Horizontal dipole	VGDsh		d	1.91 – 6.0	
5	Horizontal dipole	VGDsh		d	1.91 – 6.0	
6	Horizontal dipole	VGDsh		d	1.54 – 4.84	
7	Horizontal dipole*	VGD		d	2.14 – 5.35	
8	Horizontal dipole*	VGD		d	2.14 – 5.35	
9	Horizontal dipole*	VGD		d	2.14 – 5.35	
10	Horizontal dipole*	VGD		d	1.5 – 3.75	
11	Horizonal dipole	VGDsh		d	1.91 – 6.0	
12	Horizontal dipole	VGD		d	5.0 – 12.5	
13	Horizontal dipole	VGD		d	3.75 – 9.38	
14	Horizontal dipole*	VGD				
15	Horizontal dipole	VGDsh		d	1.54 – 4.84	
16	Horizontal dipole	VGDsh		d	1.91 – 6.0	
17	Quadrant	UGDsh		d	3.51 – 5.97	
18	Quadrant	UGDsh		d	3.51 – 5.97	
19	Quadrant*	UGDsh		d	2.55 – 4.34	
20	Quadrant	UGDsh 19		d	3.51 – 5.97	
21	Mast					
22	Mast					

*Nonstandard

25X1

Associated Facility

68. (S/D) **Sergeyevka Radio Communications Receiver Station KRUG 2 Support.** This station (Figure 33 and Table 33) is 1 nm southwest of Sergeyevka and 12 nm east of Khabarovsk. It consists of 16 fishbone antennas, a single TWIN DISH antenna, a probable VLF/DF array,[1] five masts, a control building, two storage buildings, and three personnel bunkers.

Tashkent DF Facility KRUG 1

69. (S/D) The KRUG antenna is 1.1 nm east of Tashkent and is KGB/GRU associated. No communications support facilities have been identified.

Tashkent DF Facility KRUG 2

70. (S/D) This KRUG facility is 10 nm south-southwest of Tashkent and has no identified communications support facilities or command subordination.

Table 33.
Sergeyevka Radcom Rcvr Sta KRUG 2 Spt
(Keyed to Figure 33)

This table in its entirety is classified SECRET/WINTEL

Item	Antenna Type	Soviet Designator	Frequency (MHz)	Azimuth (Degrees)	Item	Antenna Type	Soviet Designator	Frequency (MHz)	Azimuth (Degrees)	Item	Antenna Type	Soviet Designator	Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		7	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		13	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.7}$ 17	3.0–24.0	
2	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		8	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		14	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.7}$ 17	3.0–24.0	
3	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		9	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		15	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.7}$ 17	3.0–24.0	
4	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		10	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		16	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.7}$ 17	3.0–24.0	
5	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		11	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		17	TWIN DISH	R-408	450.900	
6	Fishbone	BS2 $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		12	Fishbone	BS $\frac{21}{9}$ $\frac{200}{4.5}$ 17	3.0–24.0		18	Probable VLF/DF Array			
										19–23	Masts			

25X1

Z-20074/81

RCA-03/0004/81

25X1

Tiksi DF Facility KRUG

71. (S/D) This KRUG facility is 3 nm west-northwest of Tiksi, has associated transmitter and receiver communications support facilities, and is GRU associated.

Associated Facilities

72. (S/D) **Tiksi Radio Communications Transmitter Station KRUG Support.** This fence-secured station (Figure 34 and Table 34) is 4 nm west-northwest of Tiksi and consists of 11 double rhombic antennas, four single rhombic antennas, a control building, and one support building.

Table 34.
Tiksi Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 34)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RG	65/4	1	8.0–16.7	
2	Rhombic	RG	65/4	1	13.7–28.6	
3	Rhombic	RGD	65/4	1	6.9–14.3	
4	Rhombic	RGD	65/4	1	12.0–25.0	
5	Rhombic	RG	65/4	1	13.7–28.6	
6	Rhombic	RG	65/4	1	8.0–16.7	
7	Rhombic	RGD	65/4	1	12.0–25.0	
8	Rhombic	RGD	65/4	1	6.9–14.3	
9	Rhombic	RGD	65/4	1	6.9–14.3	
10	Rhombic	RGD	65/4	1	6.9–14.3	
11	Rhombic	RGD	65/4	1	12.0–25.0	
12	Rhombic	RGD	65/4	1	6.9–14.3	
13	Rhombic	RGD	65/4	1	12.0–25.0	
14	Rhombic	RGD	65/4	1	12.0–25.0	
15	Rhombic	RGD	65/4	1	6.9–14.3	

25X1

Table 35.
Tiksi Radcom Rcvr Sta KRUG Support
(Keyed to Figure 35)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RG	65/4	1		9.6–20.0	
2	Rhombic	RG	65/4	1		6.9–14.3	
3	Rhombic	RG	65/4	1		9.6–20.0	
4	Rhombic	RG	65/4	1		9.6–20.0	
5	Rhombic	RG	65/4	1		9.6–20.0	
6	Rhombic	RG	65/4	1		9.6–20.0	
7	Rhombic	RG	65/4	1		9.6–20.0	
8	Rhombic	RG	65/4	1		9.6–20.0	
9	Rhombic	RG	65/4	1		9.6–20.0	
10	Rhombic	RG	65/4	1		9.6–20.0	
11	Rhombic	RG	65/4	1		9.6–20.0	
12	Rhombic	RG	65/4	1		9.6–20.0	
13	Rhombic	RG	65/4	1		9.6–20.0	
14	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
15	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
16	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
17	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
18	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
19	Fishbone	BS	21/8	200/4.5	18	3.0–24.0	
20	Dipole	VGD	15/17	d		5.0–12.5	
21	Dipole	VGD	30/40	d		2.5–6.25	
22	Dipole	VGD	30/40	d		2.5–6.25	
23	Dipole	VGD	15/17	d		5.0–12.5	
24	Dipole	VGD	15/17	d		5.0–12.5	
25	Dipole	VGD	30/40	d		2.5–6.25	
26	Dipole	VGD	30/40	d		2.5–6.25	
27	Dipole	VGD	15/17	d		5.0–12.5	
28	Dipole	VGD	15/17	d		5.0–12.5	
29	Dipole	VGD	30/40	d		2.5–6.25	
30	Dipole	VGD	15/17	d		5.0–12.5	
31	Dipole	VGD	30/40	d		2.5–6.25	
32	Dipole	VGD	35/40	d		2.14–5.35	
33	Dipole	VGD	30/40	d		2.5–6.25	

73. (S/D) **Tiksi Radio Communications Receiver Station KRUG Support.** This station (Figure 35 and Table 35) is 4.5 nm northwest of Tiksi and consists of 13 single rhombic antennas, six fishbone antennas, 14 horizontal dipole antennas, one mast, and a control building. The adjacent support area consists of one administration building, eight two-story barracks/apartment buildings, ten single-story buildings, one vehicle storage building, and eight support buildings.

25X1
25X1

FIGURE 35. TIKSI RADIO COMMUNICATIONS RECEIVER STATION KRUG SUPPORT

Verolantsy DF Facility KRUG

25X1

74. (S/D) This KRUG facility is 5 nm north-northeast of Verolantsy, has associated transmitter and receiver communications support facilities, and is GRU associated.

Associated Facilities

75. (S/D) **Verolantsy Radio Communications Receiver Station KRUG Support.** This fence-secured station (Figure 36 and Table 36) is 4 nm northeast of Verolantsy and consists of a multistory control building, 12 fishbone antennas, and 44 support buildings.

Table 36.
Verolantsy Radcom Rcvr Sta KRUG Spt
(Keyed to Figure 36)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Fishbone	BS2	21/8	200/4.5	28	3.0–24.0	
2	Fishbone	BS2	21/8	200/4.5	28	3.0–24.0	
3	Fishbone	BS2	21/8	200/4.5	18	3.0–24.0	
4	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
5	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
6	Fishbone	2BS2	21/8	200/4.5	27	3.0–24.0	
7	Fishbone*	2BS2	21/8	200/4.5	27	3.0–24.0	
8	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
9	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
10	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
11	Fishbone*	3BS2	21/8	200/4.5	27	3.0–24.0	
12	Fishbone	3BS2	21/8	200/4.5	27	3.0–24.0	
13–14	Mast						

25X1

*Nonstandard

76. (S/D) **Verolantsy Radio Communications Transmitter Station KRUG Support.** This fence-secured station (Figure 37 and Table 37) is 4 nm northeast of Verolantsy and consists of five double rhombic antennas, six horizontal dipole antennas, several masts, a control building, and two support buildings. 25X1

Table 37.
Verolantsy Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 37)
This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)	Item	Antenna Type	Soviet Designator		Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4 l	8.0–16.7		7	Horizonal dipole	VGD	20/20 d	3.75–9.38	
2	Rhombic	RGD	65/4 l	6.9–14.3		8	Horizontal dipole	VGDsh	12.5/16 d	3.84–12.0	
3	Rhombic	RGD	65/4 l	8.0–16.7		9	Horizontal dipole	VGD	20/20 d	3.75–9.38	
4	Rhombic	RGD	65/4 l	13.7–28.6		10	Horizontal dipole	VGD	20/31 d	3.75–9.38	
5	Rhombic	RGD	65/4 l	6.9–14.3		11	Horizontal dipole	VGD	15/31 d	5.0–12.5	
6	Horizontal dipole	VGDsh	12.5/16 d	3.84–12.0							

25X1

25X1

Vorkuta DF Facility KRUG

77. (S/D) This KRUG site is 9.5 nm northwest of Vorkuta, has associated transmitter and receiver communications support facilities, and is GRU associated.

Associated Facilities

78. (S/D) **Vorkuta Radio Communications Receiver Station KRUG Support.** This station (Figure 38 and Table 38) is 8.5 nm northeast of Vorkuta and consists of 16 single rhombic antennas, six fishbone antennas, three quadrant antennas, a possible VLF/DF array,[4] five masts, a control building, and three support buildings.

25X1

Table 38.
Vorkuta Radcom Rcvr Sta DF Spt
(Keyed to Figure 38)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator				Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1		9.6–20.0	
2	Rhombic	RGD	65/4	1		9.6–20.0	
3	Rhombic	RGD	65/4	1		9.6–20.0	
4	Rhombic	RGD	65/4	1		9.6–20.0	
5	Rhombic	RGD	65/4	1		9.6–20.0	
6	Rhombic	RGD	65/4	1		9.6–20.0	
7	Rhombic	RGD	65/4	1		9.6–20.0	
8	Rhombic	RGD	65/4	1		9.6–20.0	
9	Rhombic	RGD	65/4	1		9.6–20.0	
10	Rhombic	RGD	65/4	1		9.6–20.0	
11	Rhombic	RGD	65/4	1		9.6–20.0	
12	Rhombic	RGD	65/4	1		9.6–20.0	
13	Rhombic	RGD	65/4	1		9.6–20.0	
14	Rhombic	RGD	65/4	1		9.6–20.0	
15	Rhombic	RGD	65/4	1		9.6–20.0	
16	Rhombic	RGD	65/4	1		9.6–20.0	
17	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
18	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
19	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
20	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
21	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
22	Fishbone	BS2	21/8	200/4.5	17	3.0–24.0	
23	Shunted dipole	VGDsh2U	21/42		d	3.0–7.5	
24	Shunted dipole	VGDsh2U	16/16		d	6.0–15.0	
25	Shunted dipole	VGDsh2U	16/19		d	6.0–15.0	
26	VLF DF array						
27–30	Mast						

FIGURE 38. VORKUTA RADIO COMMUNICATIONS RECEIVER STATION KRUG SUPPORT

25X1

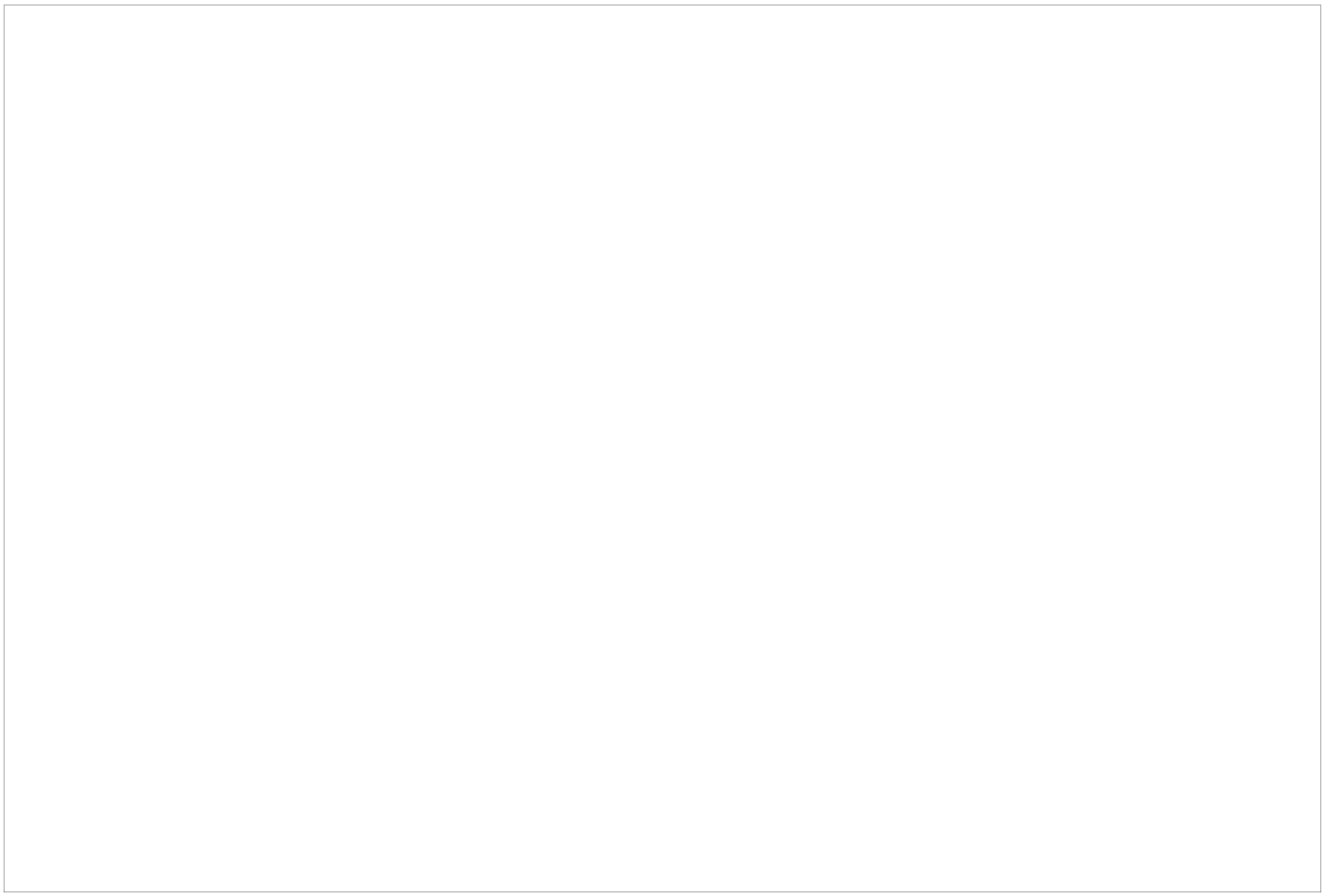


Table 39.
Vorkuta Radcom Xmtr Sta KRUG Spt
(Keyed to Figure 39)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Rhombic	RGD	65/4	1	9.6–20.0	
2	Rhombic	RGD	65/4	1	13.7–28.6	
3	Rhombic	RGD	65/4	1	13.7–28.6	
4	Rhombic	RGD	65/4	1	9.6–20.0	
5	Rhombic	RGD	65/4	1	8.0–16.7	
6	Rhombic	RGD	65/4	1	16.0–33.0	
7	Rhombic	RGD	65/4	1	13.7–28.6	
8	Rhombic	RGD	65/4	1	8.0–16.7	
9	Rhombic	RGD	65/4	1	8.0–16.7	
10	Rhombic	RGD	65/4	1	12.8–26.7	
11	Rhombic	RGD	65/4	1	12.8–26.7	
12	Rhombic	RGD	65/4	1	8.0–16.7	
13	Rhombic	RGD	65/4	1	8.0–16.7	
14	Rhombic	RGD	65/4	1	16.0–33.0	
15	Rhombic*	RGD	65/4	1	8.0–16.7	
16	Quadrant	UGDsh	16/22	d	3.0–9.37	

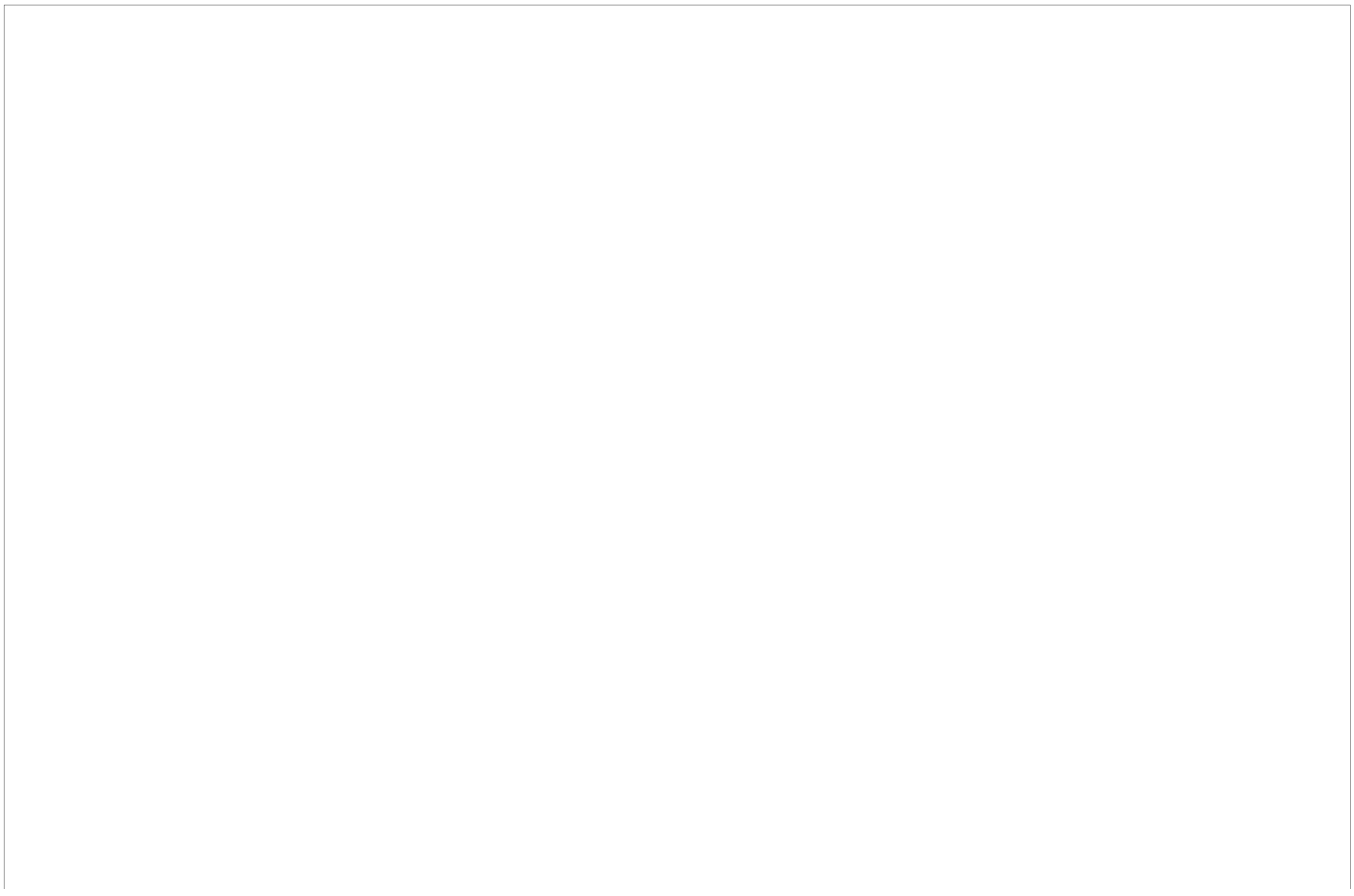
*Partially dismantled

25X1

Z-20074/81

RCA-03/0004/81

25X1



79. (S/D) **Vorkuta Radio Communications Transmitter Station KRUG Support.** This facility (Figure 39 and Table 39) is 7 nm north of Vorkuta and consists of ten double rhombic antennas, five single rhombic antennas, one quadrant antenna, a control building, and eight support buildings.

Yakutsk DF Site KRUG

80. (S/D) The KRUG antenna is 7.5 nm south-southwest of Yakutsk, has an associated transmitter communications support facility, and is KGB/GRU associated.

Associated Facility

81. (S/D) **Khatassy Radio Communications Transmitter Station KRUG Support.** This fence-secured station (Figure 40 and Table 40), 0.5 nm northwest of Khatassy and 1.5 nm south of Yakutsk DF Site KRUG, consists of four quadrant antennas, two horizontal dipole antennas, one mast, one administration/control building, three single-story barracks, one vehicle storage building, a heating plant, three earth-covered buildings, and 13 support buildings.

Yelizovo DF Facility KRUG

82. (S/D) This KRUG facility is 5.8 nm south of Yelizovo and has no identified communications support facilities or command subordination.

Table 40.
Khatassy Radcom Xmtr Sta
(Keyed to Figure 40)

This table in its entirety is classified SECRET/WNINTEL

Item	Antenna Type	Soviet Designator			Frequency (MHz)	Azimuth (Degrees)
1	Horizontal dipole	VGDsh	16/30	d	3.0–9.37	
2	Horizontal dipole	VGDsh	16/30	d	3.0–9.37	
3	Shunted dipole	VGDsh2U	16/28	d	6.0–15.0	
4	Shunted dipole*	UGD	44/33	d	2.55–4.34	
5	Shunted dipole	VGDsh2U	8/17	d	10.0–25.0	
6	Shunted dipole	VGDsh2U	16/22	d	6.0–15.0	
7	Mast					

*Nonstandard

25X1

REFERENCES

IMAGERY

[redacted] 25X1

MAPS OR CHARTS

ACIC. US Air Target Chart, Series 200, Various sheets, scale 1:200,000 (UNCLASSIFIED)

DOCUMENTS

1. NPIC. [redacted] *Soviet KRUG Facilities,* Jul 70 (TOP SECRET CODEWORDS)* 25X1
2. NPIC. [redacted] *Soviet KRUG Facilities,* Jun 71 (TOP SECRET CODEWORDS)*
3. NPIC. [redacted] *Soviet KRUG Facilities,* Jul 72 (TOP SECRET CODEWORDS)*
4. NPIC. [redacted] PIR-052/74, *Possible VLF/DF Arrays at Soviet KRUG Communications Support Facilities, USSR,* Aug 74 (TOP SECRET CODEWORD, [redacted] 25X1 25X1 25X1

*Extracted material is classified SECRET/WNINTEL.

REQUIREMENT

COMIREX C03
Project 541013C

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Soviet Strategic Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1 25X1

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