

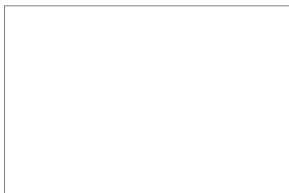
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**PHOTOGRAPHIC
INTERPRETATION
REPORT**

**NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER**

**EIGHT-ARM RADIAL PROBABLE
DIRECTION FINDING FACILITIES,
USSR**



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**JUNE 1970
COPY NO 118
12 PAGES
PIR-037/70**

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INSTALLATION OR ACTIVITY NAME					COUNTRY	
Eight-Arm Radial Probable Direction Finding Facilities					UR	
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NUMBER	COMIREX NO.	NIETS NO.	
NA	See Below	See Below	See Below	None	See Below	
MAP REFERENCE						
See Below						

		NEGATION DATE (if required)
		NA
		NPC PROJECT
		250659

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ABSTRACT

This report describes and locates seven known probable direction finding (DF) facilities which are unlike those in any previously identified Soviet DF system. These eight-arm radial probable DF facilities have diameters of approximately 1,000 meters (3,281 feet). The radial antenna arrays appear to be a type of wide-aperture interferometric array which could have direction finding capabilities. The electrical functions of these radial antenna arrays cannot be determined. The known facilities appear to form a network in the western USSR.

This report contains a basic description, annotated photography, and mensuration for the seven facilities listed below:

Petrozavodsk Probable Direction Finding Facility
61-52-00N 034-12-00E, [redacted]
ACIC. USATC, Series 200, Sheet 0102-11, scale 1:200,000
[redacted]

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Leningrad Probable Direction Finding Facility Krasnoye Selo 2
(Krasnoye Selo DF Radio Communications and Receiver Station 2)
59-43-30N 030-02-00E, [redacted]
ACIC. USATC, Series 200, Sheet 0153-4, scale 1:200,000
[redacted]

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Tallinn Probable Direction Finding Facility
59-26-00N 024-58-00E, [redacted]
ACIC. USATC, Series 200, Sheet 0153-2, scale 1:200,000
[redacted]

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Podolsk Probable Direction Finding Facility
55-18-00N 037-35-00E, [redacted]
ACIC. USATC, Series 200, Sheet 0167-5, scale 1:200,000
[redacted]

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Nikolayevka Probable Direction Finding Facility
44-59-45N 033-37-32E, BE None, [redacted]
ACIC. USATC, Series 200, Sheet 0250-20, scale 1:200,000
[redacted]

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Chernovtsy Probable Direction Finding Facility
48-19-//N 026-03-//E, BE None, [redacted]
ACIC. USATC, Series 200, Sheet 0233-21, scale 1:200,000
[redacted]

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Vinnitsa Probable Direction Finding Facility
49-13-00N 028-45-31E [redacted]
ACIC. USATC, Series 200, Sheet 0233-18, scale 1:200,000
[redacted]

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The radial antenna arrays appear to be a type of wide-aperture interferometric antenna and are probably passive (non-radiating). If the sensing point is at the end of the radials, the mast spacing and height would suggest that these arrays operate in the upper portion of the high frequency (HF) spectrum.

The radial antenna arrays at Leningrad and Nikolayevka are interspersed with HF receiving fishbone antennas and other HF antennas. The radial antenna array at Podolsk is associated with one, or possibly two, probable HF receiving communications antenna fields.

A comparison of similar features at individual radial antenna array facilities is given below:

DF Facility	Same Approx Diam	HF Antenna Fields (Receiving)	Similar Terminal Antennas	Right-Angle HF Dipole Antennas	Proximity HF/DF THICK 8 Facilities	True North Orientation
Petrozavodsk	X	--	X	X	X	X
Leningrad	X	X	X	--	X	--
Tallinn	X	--	X	X	--	--
Podolsk	X	X	UNDET	--	--	--
Nikolayevka	--	X	UNDET	--	--	--
Chernovsty	X	--	UNDET	--	--	--
Vinnitsa	X	--	UNDET	--	--	--

PETROZAVODSK PROBABLE DIRECTION FINDING FACILITY

The road-served facility (Figure 2) is located 7.0 nautical miles (nm) north-northwest of Petrozavodsk, USSR. It is situated in a wooded area at an elevation of 150 feet above sea level. The radial feedlines are 500 meters (1,640 feet) in length. Two HF horizontal dipole antennas (items 9 and 10, Figure 2) are inside the security fence surrounding the control area. The correspondents for these antennas are undetermined.

The Petrozavodsk THICK EIGHT HF/DF Facility [] is located 2.0 nm north of the radial array; however, no electrical or physical connections can be identified between the two facilities.

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LENINGRAD PROBABLE DIRECTION FINDING FACILITY KRASNOYE SELO 2

This road-served facility (Figure 3) is located 15 nm south-southeast of Leningrad and 1.5 nm west-southwest of Krasnoye Selo, USSR. The radial antenna array is collocated with an extensive HF communications antenna field. The overall facility is situated on open, level terrain at an elevation of 150 feet above sea level. The radial feedlines are 493 meters (1,618 feet) in length. Each alternate pair of masts appears to have been rotated in respect to the feedline radial azimuth. Because of the extreme obliquity of the available photography, the broadside azimuths given for the two masts are approximate.

The facility contains a large HF communications antenna field of at least 16 type 2-2-2 receiving fishbone antennas and four quadrant antennas. Correspondents for the fishbone antennas cannot be determined because the antennas cover almost 360 degrees of azimuth. Four probable very high frequency (VHF) antenna arrays are located on the north side of the antenna field, generally oriented on a north-south line. The reciprocal correspondents for these arrays cannot be determined. The control area contains one T-shaped control building and seven support buildings. A separate support area containing 25 support buildings is located on the south side of the antenna field.

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An HF communications facility is located north of the probable DF facility; however, no electrical or physical connections between the two can be identified. The Krasnoye Selo THICK EIGHT HF/DF Facility [redacted] is located approximately 1.5 nm southwest of the radial array; however, no connection to the probable DF facility can be identified.

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TALLINN PROBABLE DIRECTION FINDING FACILITY

The road-served facility (Figure 4) is located 7.0 nm east of Tallinn, USSR. The facility is situated in a sparsely wooded area at an elevation of 100 feet above sea level. The radial feedlines [redacted] [redacted] Two HF horizontal dipole antennas (items 11 and 12, Figure 4) are within the security fence surrounding the control area. The correspondents for these antennas are undetermined.

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The road-served facility (Figure 5) is located 8.0 nm south-southeast of Podolsk and approximately 27 nm south of Moscow, USSR. It is situated in a densely wooded area at an elevation of 600 feet above sea level. The control area contains a control building measuring 34 by 24 meters (112 by 79 feet) and the radial feedlines are 518 meters (1,698 feet) in length. The support area contains at least 40 buildings of various sizes and functions.

A large HF communications antenna field, consisting of antenna clearings in the woods for HF receiving fishbone and several single and double rhombic antennas, is on the eastern side of the radial array. The limited interpretability of available small-scale photography precludes an accurate antenna count. Another HF communications antenna field, possibly associated with the DF facility, is located 0.5 nm south of the radial antenna array. It contains a large number of HF single and double rhombic antennas and several receiving fishbone antennas. Podolsk Type I Ionospheric Scatter Communications Facility [redacted] [redacted] consisting of two antennas is located north of the radial array. These antennas are oriented in a northerly direction. The correspondents are probably the two Type I ionospheric antennas at Murmansk Ionospheric Scatter Station 2 [redacted]

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NIKOLAYEVKA PROBABLE DIRECTION FINDING FACILITY

The road-served facility (Figure 6) is located 1.5 nm north-northeast of Nikolayevka and 20 nm west-northwest of Simferopol, USSR. The facility, secured by a single fence, is situated on a bluff overlooking the Black Sea at an elevation of 100 feet above sea level. The control area contains a control building [redacted] and several support buildings. A small security building is located at the road entrance to the facility. The radial feedline extensions are 597 meters (1,959 feet) in length. At least four probable HF fishbone receiving antennas and several horizontal dipole antennas are interspersed around the radial array. The limited interpretability of available photography precludes determination of the correspondents for these antennas.

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CHERNOVTSY PROBABLE DF FACILITY

The road-served facility (Figure 7) is located 5.0 nm east of Chernovtsy, USSR. It is situated on level terrain 750 feet above sea level. The control area contains at least one control building and one support building. The radial feedline extensions [redacted] The limited interpretability of available photography precludes the determination of security fencing.

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VINNITSA PROBABLE DF FACILITY

The road-served facility (Figure 8), located 10.6 nm east of Vinnitsa, USSR, is situated on level terrain 900 feet above sea level. The radial feedline extensions [redacted] The limited interpretability of available photography precludes identification of a control building or a security fence.

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