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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

19 April 1978

MEMORANDUM FOR: The Director of Central Intelligence

FROM : John N. McMahon
Deputy Director for Operations

SUBJECT : [redacted] Report

1. Enclosed is a [redacted] report. For convenience of reference by NFIB agencies, the codeword [redacted] has been assigned to the product of certain extremely sensitive agent sources of CIA's Directorate of Operations. The word [redacted] is classified [redacted] and is to be used only among persons authorized to read and handle this material.

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[redacted]

John N. McMahon

[redacted]

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[redacted]

[redacted]

Distribution:

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TS 788137
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15pp

[redacted]

Intelligence Information Special Report

COUNTRY Poland

[redacted]

DATE OF INFO. November 1977

DATE 19 April 1978

SUBJECT

Tropospheric Communications Lines in Poland

SOURCE Documentary

SUMMARY:

This report is a translation of a Polish document classified SECRET and entitled "Official Memorandum on Tropospheric Communications." The memorandum makes reference to related subject matter in [redacted] and should be considered in conjunction with it. This report provides information on the status and employment of tropospheric communications sets and on construction and costs of the planned tropospheric network. Five enclosures include: basic data on tropospheric sets; maps showing present and proposed routes of tropospheric lines; and the overlapping of frequency ranges between tropospheric sets and Polish television.

END OF SUMMARY

TS 788137
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OFFICIAL MEMORANDUM

On Tropospheric Communications

For the purpose of increasing the reliability of operation and reinforcement of communications systems in modern armies--apart from wire, radio relay, and radio communications--tropospheric communication is also employed. The advantage of this communication is the considerably greater resistance to various (radioelectronic, fire, deception) enemy actions in comparison with other types of communications. In addition, nuclear explosions affect the conditions for tropospheric propagation only to a small degree and do not degrade the quality of communications.

In the 1960's in the USSR, a tropospheric communications set of the R-408 type--designated for insuring communications in the theater of military operations--was developed and started to be introduced into the equipment of the armed forces. In recent years, modernized versions--R-410 and R-410M--have been introduced into the equipment inventory, and at present research is in progress for the next version of these sets (item 4 of table 1). "TORF" type sets designated for operational forces at the front-army-division level are also undergoing development. Enclosure number 1 includes basic tactical-technical data on tropospheric sets.

TS 788137
Copy # 9

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At present--in order to improve the reliability of currently operating communications systems in the theater of military operations--the development of tropospheric communications axes on the territory of the Polish Peoples' Republic by the forces of the Soviet Army and the Committee for State Security of the USSR is planned. One of these lines (R-410M), semi-mobile, is presently active on the territory of our country. Enclosure number 2 is a sketch tracing the routes of these lines.

The general guidelines for organization of command posts and the communications system of the Combined Armed Forces of the Warsaw Pact states, approved at the VI Session of the Committee of Ministers of Defense, establish the organization of tropospheric lines both by the forces of the national armies and the Combined Armed Forces. To cite the above guidelines in the framework of building a communications infrastructure in the theater of military operations, the Staff of the Combined Armed Forces has made a proposal in written form (22 Nov) to the Chief of the General Staff of the Polish Armed Forces for the development of a tropospheric communications network on the territory of the Polish Peoples' Republic by the forces and means of the Polish Armed Forces. The sketch in enclosure number 3 shows the route of these lines. The approximate cost of this undertaking would amount to about 700,000,000 zlotys. Included in this figure is the importation of equipment in the amount of about 646,900,000 zlotys, i.e., 15,300,000 rubles. To service these stations would require 500-700 people. The annual cost for the operation of equipment and maintenance services would amount to about 61,000,000 zlotys.

TS 788137
Copy # 9

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As a result of the discussions of the Chief of the General Staff of the Polish Armed Forces with the representatives of the Staff of the Combined Armed Forces during the last visit of Marshal KULIKOV to Poland, it was decided that the proposed tropospheric communications network would be developed with the use of new 24-channel long-range tropospheric sets (item 4 in table 1), by joint efforts of the Soviet Army and the Polish Armed Forces. Simultaneously it was agreed that the tropospheric line along the coast could be replaced by R-404 radio-relay stations from the Polish Armed Forces. The revised plan for the tropospheric network and participation by both sides in its realization is shown in the sketch in enclosure number 4.

The Staff of the Combined Armed Forces is making plans so that 30 percent of the communications potential (6-8 channels) on each route will be able to be utilized for the requirements of the Polish Armed Forces. This potential, with the proper configuration of the net, would allow for increasing the communications reliability of basic links: the General Staff of the Polish Armed Forces--military districts and the Navy; the central command post of the National Air Defense Forces--command posts of National Air Defense corps, and links between those command posts. The approximate cost of the network developed by the Polish Armed Forces as a variant of the network revised by the General Staff of the Polish Armed Forces will amount to about 302,000,000 zlotys. This figure includes 268,000,000 zlotys for importation of equipment, i.e., 6,100,000 rubles. To operate these stations, 250-300 people will be required. The annual cost for operation of equipment and maintenance services would amount to about 30,000,000 zlotys.

TS 788137
Copy # 9

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The Staff of the Combined Armed Forces is planning, jointly with the General (Main) Staffs, the development by 1980 of a specific organizational-technical design for the tropospheric network, and a schedule and understanding for completing the undertaking in the 1981-1985 5-year plan.

A fundamental problem, requiring solution in the course of planning, will be the assurance of electromagnetic compatibility* (mutual, interference-free operation) of tropospheric sets with television. Enclosure number 5 shows the state of overlapping of the frequency range of radio television within which the tropospheric sets function.

Independently of the development of the tropospheric network in the theater of military operations, the forecasts for development of field communications systems of the operational forces of the armies in the Warsaw Pact states anticipate increased participation of tropospheric communications in the front and army communications systems. In the framework of the foregoing forecasts, the plan of development for the signal troops of the Polish Peoples' Republic Armed Forces up to 1990 projects successive introduction in the 1980's of tropospheric radio relay sets of the "TORF" type to the communications systems of operational forces at the front-army-division level. Initiation of production of these sets in our country for our needs and those of allied armies is planned upon the termination of production of horizontal radio relay sets of the R-404 type.

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*--in the Russian language: "elektromagnitnaya sovmestimost"

TS 788137
Copy # 9

Enclosures:

1--Basic tactical-technical data on tropospheric sets.

2--Routes of tropospheric communications lines on the territory of the Polish Peoples' Republic being built by the Soviet Army and the Committee for State Security of the USSR.

3--Proposals for building tropospheric communications lines on the territory of the Polish Peoples' Republic (variant of the Staff of the Combined Armed Forces).

4--Proposals for building tropospheric communications lines on the territory of the Polish Peoples' Republic (revised variant).

5--State of overlapping of frequency range 470-638 MHz by military facilities and television.

CHIEF OF SIGNAL TROOPS
Brigadier General Leon KOLATKOWSKI

TS 788137
Copy # 9

TOP SECRET

TS 788137
Page 9
Copy # 9

Enclosure No. 1
to Official Memorandum

SECRET

BASIC TACTICAL-TECHNICAL DATA ON TROPOSPHERIC SETS

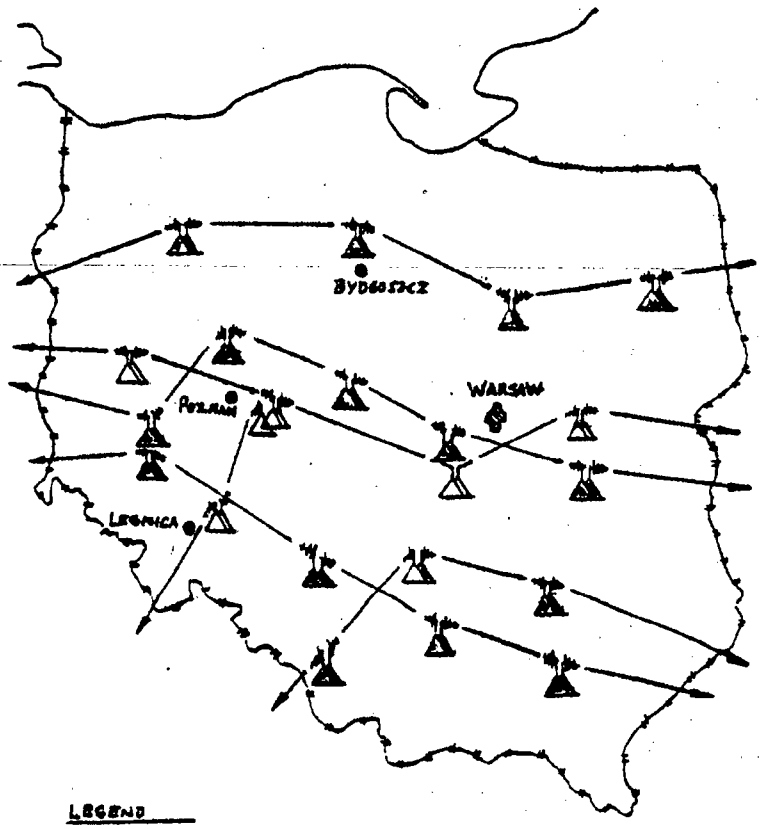
Item	Type of Set	Frequency Range	Number of Waves	Range (km)		Number of Communications Channels	Set-up Time	Crew	Transmitter Power (Watts)	Basic Means of Transport	Cost of Units (thousands of rubles)	Level of employment	Notes
				Max.	Inter-station								
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	R-408	475-625	12	1500	150	3-6	120	12		4xZIL-157		strategic	to be phased out
2	R-410	475-525 575-625	2x50	1000	150	6-12	90	7		4xZIL-131 1 URAL 4 trailers		"	"
3	R-410M	"	2x50	1200-1500	170	12	90	7	740	"	474	"	"
4	new longe-range set	"	2x50	2000	300-350	24	90	15-20	740	4xURAL 4 trailers	600	"	to be phased in (small quantity to be imported)
5	TORF-F	4435-4555 4630-4750	400		500	3-6 (480 kbit) (s)	60			ZIL-131 URAL		operational	"
6	TORF-A	"	400		170	"	30			2xURAL		operational-tactical	"
7	TORF-B	"	400		120	3 (480 kbit) (s)	20			MTLB-4		"	"

((To strive for production in our country from about 1981-1982 (upon terminating production of the R-404 line)-- for national needs (greater amount) and for export))

ENCL. 2
To official correspondence

SECRET

ROUTES OF TROPOSPHERIC COMMUNICATIONS LINES ON THE TERRITORY OF THE POLISH PEOPLES' REPUBLIC BEING BUILT BY THE SOVIET* ARMY AND THE COMMITTEE FOR STATE SECURITY OF THE USSR



LEGEND

- tropospheric stations presently operating
- tropospheric stations planned for a special period

TS 788137
Copy # 9

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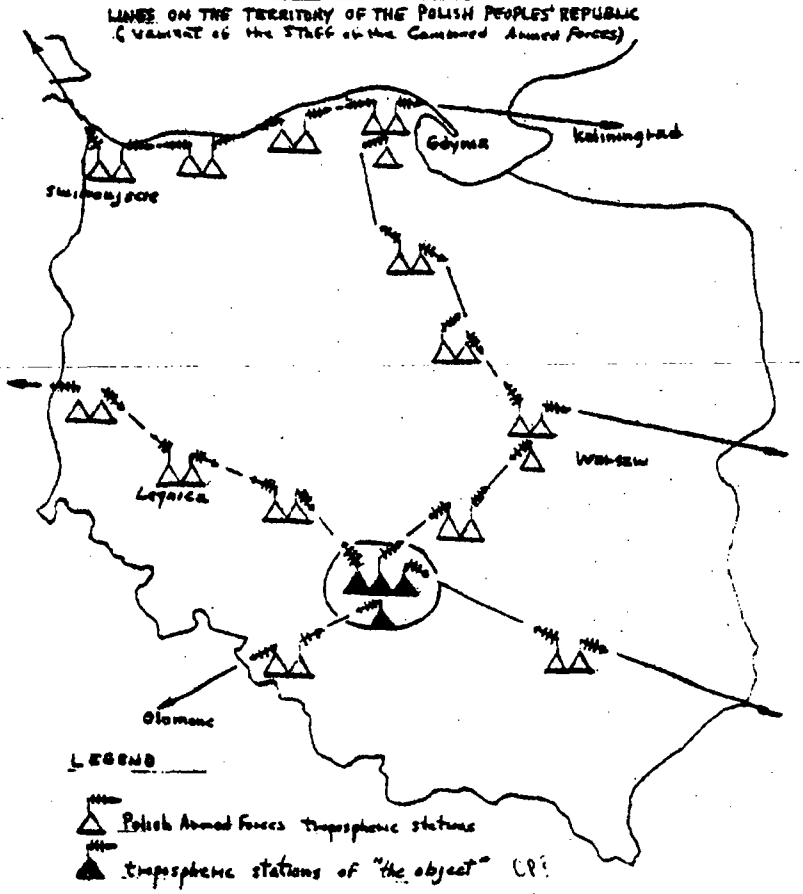
Enclosure 3 to official Memorandum SECRET

PROPOSALS FOR BUILDING TROPOSPHERIC COMMUNICATIONS LINES ON THE TERRITORY OF THE POLISH PEOPLES' REPUBLIC
(Variant of the STAFF of the Combined Armed Forces)



TS 788137
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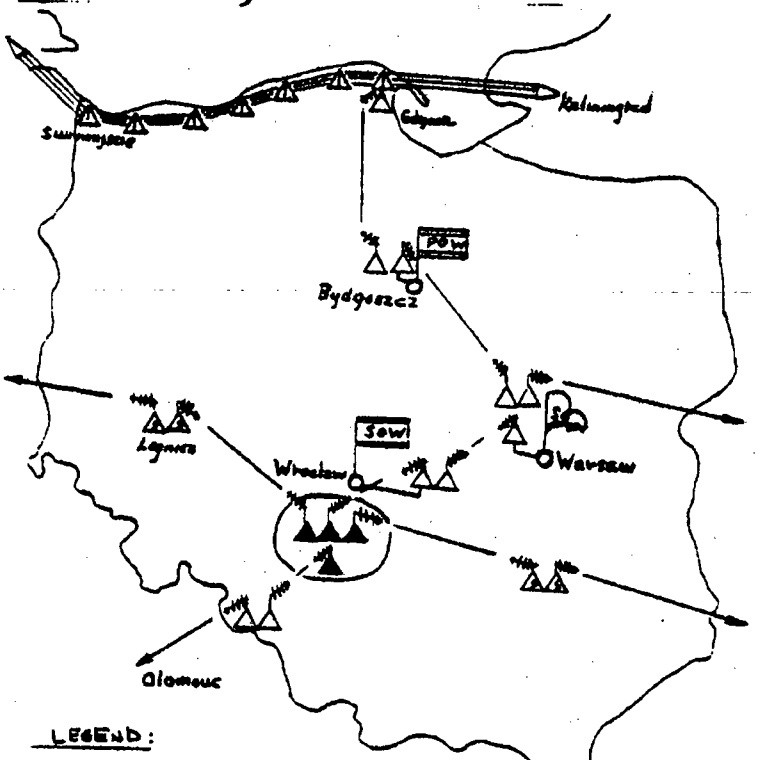
Enclosure 4 to ... memorandum SECRET

PROPOSALS FOR BUILDING TROPOSPHERIC COMMUNICATIONS LINES ON THE TERRITORY OF THE POLISH PEOPLES' REPUBLIC
(revised variant)



LEGEND:

- Polish Armed Forces R-404 radio relay stations (already available for this purpose in the Navy)
- Polish Armed Forces tropospheric stations (for procurement and use by Polish Armed Forces)
- Soviet Army tropospheric stations
- tropospheric stations of "the object"

POW = Pomeranian Military District
SOW = Silesian Military District
SG = the General Staff

TS 788137
Copy # 9

Enclosure No. 5
to Official Memorandum

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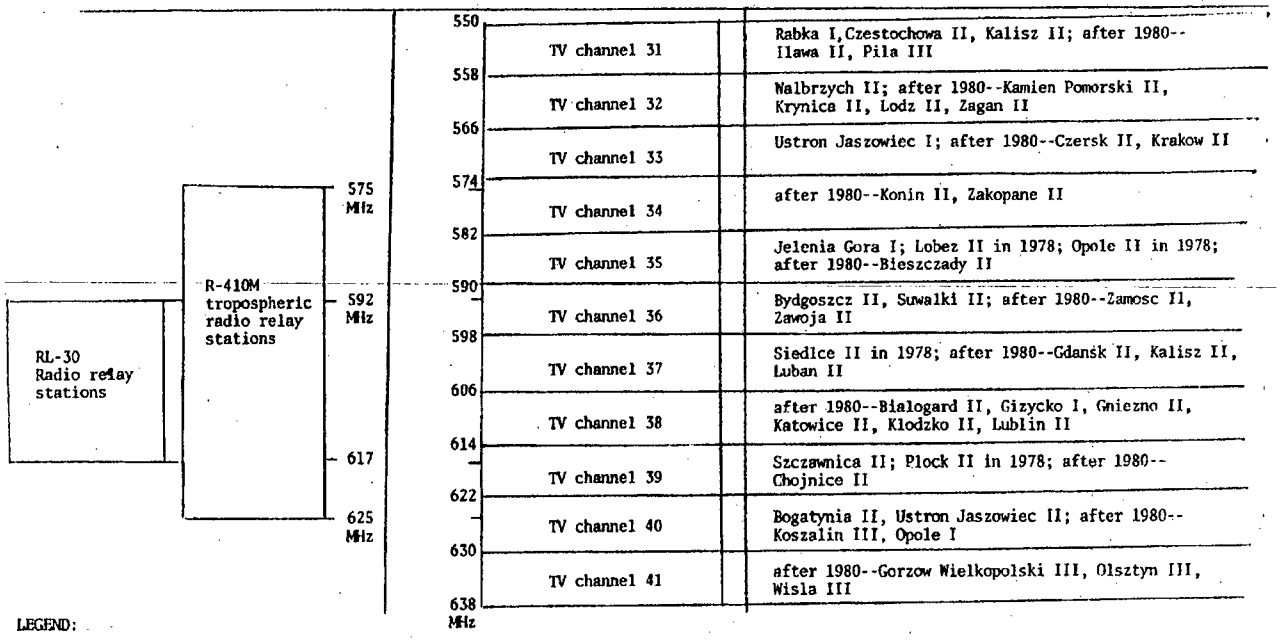
STATE OF OVERLAPPING OF FREQUENCY RANGE 470-638 MHz BY MILITARY FACILITIES AND TELEVISION

Frequency ranges utilized by tropospheric radio relay stations and other military facilities	Frequency ranges assigned for television and its division for TV channels		Names of active television stations and those planned for activation
	470 MHz		
		TV channel 21	Katowice II; after 1980--Elblag II, Radomsko I, Zagan I
475 MHz	478		
		TV channel 22	Tarnow II; after 1980--Bialystok II, Konin I
	486		
		TV channel 23	Opole I in 1978; after 1980--Koszalin II, Lublin III
	494		
R-410 M tropospheric radio relay stations		TV channel 24	Pila II, Ostroleka II, Cieszyn II; after 1980--Gizycko II, Przemysl I, Wisla II
	502		
		TV channel 25	Wroclaw II, Slupsk II; after 1980--Deblin II, Lebork II
	510		
		TV channel 26	after 1980--Gorzow Wielkopolski II, Lezajsk II, Olsztyn II, Radomsko II
	518		
		TV channel 27	Duszniki II; after 1980--Poznan II, Warsaw III
525 MHz	526		
		TV channel 28	Kielce II, Zakopane II, Kalish I; after 1980--Bialogard I, Lidzbark Warminski II
	534		
		TV channel 29	Rzeszow II, Zielona Gora II, Goldap II; after 1980--Plock I
	542		
		TV channel 30	after 1980--Jelenia Gora II, Opoczno II, Szczecin II
	550		

Enclosure No. 5 (Con't)



LEGEND:

- Katowice II -- TV stations active (Roman numeral denotes program)
- Elblag II -- TV stations planned for activation

NOTE: No further details on the frequency range of the new long-range set.