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OUTLINE FOR CO[redacted]ORY AND FUTURE CAPABILITY (OPINTEL)

Introduction statement of historic performance

Project POPPY has functioned in the Intelligence category of General Search ELINT collection since June 1960. The satellite collection systems are tailored to intercept and transpond the main-beam signals from radar over the frequency range from 100 to 14,800 Mcs. The pulse for pulse transponded signals (system transponds the intercepted radar which exceed the triggering threshold thus the data is) preserved in their time domain so that [redacted] which is independant with frequency. Operationally the time resolution attainable, has been enhanced by the installation of Field-Digitizing equipment along with special receiving and adaptive type thresholding equipment so that the standard deviation of observation of time has been improved from plus and minus 25 microseconds to about [redacted] attainable today. This has resulted in improvement in the emittor location accuracy [redacted] The digitizer system has associated with it, a small general purpose computer to effect near real time diagnostic support in the quality control area. This instrument is also operationally programmed to assist in the search for Signals of Interest (SOI), to provide [redacted]

[redacted]

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Future ~~SECRET~~ P[redacted]ial toward OPINTEL Fleet usage.

Several areas where POPPY must be enhanced to fulfill this future roll:

1. [redacted] analysis must be developed....
2. Alert capability must be developed [redacted] which will satisfy both the specific threat area, and the general build-up threat.
3. Analysis at data collection site must be developed.
4.

[redacted]

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NOTES CONCERNING THE POPPY POTENTIAL IN OPINTEL:

I. Present Capability through monitoring regularily/broad spectrum the ELINT and developing the ~~xxxxxxxxxxx~~ data base to predict ~~xxx~~ statisticly the strategic posture of the opposition. Direct comparison of the observed data with the predicted would then be used to develope the implecation in support of OPINTEL. Over seven years of POPPY data are available with which one might establish this/data ELINT base in depth..... The long life attri- ~~xx~~ butes of POPPY coupled with the high accuracy and repeatable data make such a statistical aproach possible.

Historically several instances come to mind where POPPY data could have been used to predict the course of events:

A. The deployment of S-Band radar in the vacinity of [redacted] was observed well in advance [redacted] of this country by the Soviet Bloc. [redacted] techniques were used in these early days to locate to within [redacted] in these early days.

B. Deployment of Soviet type radar into the [redacted] countries was noted in the POPPY data, as well as into Indonesia.

C- Norwegian Sea exercise fall of 1966.

D-

II. Relative to other space programs the POPPY program does preserve one of the most valuable identifying parameters of the ELINT signature that is the [redacted] of the signals intercepted. Other programs are restrained in either frequency or receiving system aperature or both so they can effectively use higher sensitivity to intercept the minor lobes of the emittor radiation, thus making it difficult without a lower sensitivity sensing system to determine the main lobe of each emittor intercepted. Many of these other systems look down at the emittor and then inhibit against the intercept of Main lobes of horizon-looking radar. The [redacted] rate the highest importance in the identification parameters which disclose the purpose of the ~~xxxxx~~ radar i.e. whether it is a low power station-keeping, navigation, early warning [redacted] weapon aiming, target tracking or missel guiding emittor can not be determined by either RF Frequency, PRF, or [redacted] but by examination of the [redacted] one is most likely to be able to ascertain the purpose of the emittor. This attribute makes a system lik[redacted]PY a more likely choice than other space oriented systems for threat recognition and Alert functions of Opintel support.

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NOTES CONCERNING THE POTENTIAL FOR POPPY IN OPINTEL

1. Unique among the other space oriented systems, POPPY Provides a long operational life time where a statistical long look can be taken at the ambient in an infinite variety of cross section. This Gross overall study of the ELINT ambient could very definitely serve as the basis for a real operational thermometer.

2. Because of the limited sensitivity which is designed into POPPY the data from this system preserves the vital [redacted] of the Emittors.

[redacted]

4- Tactical use of POPPY not established but could be significantly enhanced if the goals were set from design concept of satellite:

a- Optimize
altitude
sensitivity
Signal Exploitation
Ground data collection

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Notes on Poppy's areas of support to Navy requirements

The basic poppy system is a broad-band omni directional radar intercept system and as such is just an extension of the standard ELint mission performed by the Navy. The 500 mile satellite orbits provide an instantaneous coverage over circle of 3700 mile diameter which equates to the area of the North atlantic Ocean. The frequency coverage is from 100mc to 15.7Gc with some gaps where foreign radars are not known to exist. The collection system is a series of crystal video receivers, thresholding systems and pulse transmitters, which operate in a real time transpond mode. This technique allows allows all significant parameters to be measured i.e.

1. PRF (the most accurate system in existance)
2. scan rate
3. [redacted]
4. [redacted]
5. [redacted]
6. [redacted]
7. [redacted]
8. Frequency (. . radar family)

A wide range of tasking flexiblity allows the 4 satellites in a Launch to be used in many different patterns for the various missions which may be required.

Operationally the system has been in use for a number

~~SECRET~~ [redacted] eatly there are 6 sa tel operational with

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some degree of constrain on 3 satellites. The
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use of [redacted] systems has been directed to the
SORS - NRO requirements almost exclusively which
have reflected the soviet E.W. and ABM tasking
with other programs and a General Search role
for soviet new developements in the interior of the
soviet Union. The results of this effort to these
requirements have been very outstanding with
most of the general intelligence in the ELint
field coming from Poppy (i.e) [redacted] The overall system responds in a number
of different fashions, (1) Tip off for other Programs on
[redacted] by message [redacted] of intercept (cited) (2) Signal
of Interest recognition and alert with in 24 to 72 hours.
(3) Location or detailed analysis of signals (Both by site and NSA)
1 week to 4 weeks. (4.) Strategic deployment (demonstrated
by NSA, but not currently being used).

There has been no direct requirement for Navy oriented
missions, but a number of items of interest have resulted
after the fact. The most noticable was the build up
and falloff of ship board emitters with a deployment, operation and
termination of a soviet North sea exercise in the fall of 1966.
There have been many other cases where after the fact an analysis
has shown signals or modes of operation of Navy interest. Just
recently, for example, [redacted] was analysed in a short term
[redacted] ing condition which was unique. To date.
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no ~~method~~ SECRET [redacted] getting regular Navy oriented analysis exists and [redacted] inputs for the tasking exist and as a result the intelligence has been very spotty, however, all of the parameters of signals have been measured and accidently such items as ship location have been analysed.

For the future Poppy could contribute in a much more significant fashion by:

1. Having tasking and collection over ocean areas
2. Directing tasking to Bands of Naval emitters

[redacted]

5. By directing analysis to ship board targets

NRL is currently up-dating the existing ground stations with new receivers, antennas, and digital processing equipment including a computer to allow the individual ground stations to provide highly accurate, reliable data. This type of ground station could easily provide additional input to tactical Navy's ELint needs.

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