

BYE-61784-92

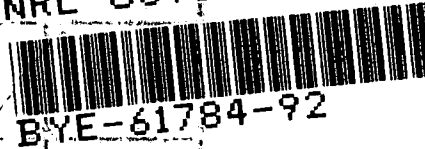
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Approved for Release: 2024/06/10 C05026041

SECRET [REDACTED]

[REDACTED] Past, Present and Future in POPPY.

As far back as 4 $\frac{1}{4}$ years ago the POPPY Program had demonstrated the ability to portray the manifestation of a [REDACTED] type signal,

[REDACTED] This particular Option used a system [REDACTED] in the [REDACTED] range where the upper 150 Mhz was further divided into the following sub-bands. When this option was tasked the data was a long pulse (500 microseconds in duration) with a 100 microsecond notch which would move into either of several positions along the top of the longer main pulse to indicate which of the sub-bands the ^{defined} incoming pulse was RF Frequency. This system did on numerous occasions demonstrate the ability of the system to intercept such a [REDACTED] signal. While the data format was not easy to handle on automatic data processing systems when bandwidth limited receiving systems were used, it did work quite well.

The standard POPPY spectrum segmentation does if adjacent collection bands are tasked at the same time provide an opportunity to observe the [REDACTED] This has not been reported to our knowledge, but this reflects the inhibitions of the analysis effort rather than the lack of the payload design to cope with the incoming signal.

SECRET [REDACTED]

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SECRET [REDACTED]

SORS committee to be supplied the following.....

- A. Presently planned systems capabilities with particular attention to the limitations on collection against other intelligence needs if ~~the~~ these systems were optimized for collection against known [REDACTED] systems.
- B. What is the size of the smallest increment of [REDACTED] that is discernible?
- C. What is the definition of the sector
- D. What is the main beam [REDACTED] shape and the relative [REDACTED]
- E. What is the Main Beam [REDACTED] if more than one beam is used.
- F. What is the type and accurate description of the Modulation and changes in the basic modulation format?
- G. Type and quality (Time-Bandwidth product to within 25%) and the extent of use of intrapulse modulation?
- H. Complete dynamic operation of the radar to determine:
- (1) If several beams are transmitted simultaneously, How used?
 - (2) When and how the targets are tracked?
 - ~~✱~~ (3) If Track and Search can be done simultaneously?
 - (4) Variations if any in Scans?
 - (5) When is intra pulse modulation used?
 - (6) Variations if any in Modulation of both the pulse train and within the pulse itself?

SECRET [REDACTED]

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a. ~~SECRET~~ ^{classified} ~~secret~~ ^{two} capabilities with particular attention to limitations on collection against ^{other intelligence needs of this syst.} were optimized for coll against known ^{signs}.

- (b) size of smallest
- (c) sector definition
- (d) beam

(e) Main Beam

- (f) Type & accurate description of mod & changes in basic mod format.
- (g) Type quality (Time-Bandwidth product to within 25% of stated)
- (h) use of intrapulse mod.
- (i) Complete dynamic operation of radar to determine:

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beams ^{how used} ^{handled via} ^{BYEMAN} ^{CONTROL SYSTEM ONLY}

(j) when & how targets are

SECRET

Search
[redacted] Search can be done
(4) Variations of any in search
(5) When pulse train is
(6) Variations of any in mod of both
the pulse train & within the
pulse itself

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The basic ~~idea~~ does not concern
 does not effect POPPY unless ☐ Bandwidth.
 why ☐ first, why not look for gross
 POPPY data by observations of crossover
 points in POPPY first.

Future:

under development at NRC for over
 the past year and proposed ~~for~~ in the
 concept for mission 7107 is a comb filter
 bank with a crystal detector and video
 amplifier for each segment of the filter bank.
 The bandpass is about 20 mc per segment
 in the range 1000 to 2000 mc and
 about 25 to 30 mc in the 2000 to 4000 mc
 band. The filter is a Yttrium Iron
 Garnet (YIG) which is mechanically
 tuned prior to launch. The burden of
 this system is its great magnitude of
 hardware but it does have a compensating
 blessing in that certain segments can
 easily be "turned-off" to eliminate
 cluttering (unwanted) data by RF discrimination.

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