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MISSION 7107 Proposal for POPPY (FY-70)

1. Introduction:

a. Background

1. ABM Defensive Treat
2. General Search
3. Electronic Order of Battle (EOB)
4. Requirements assumed and extrapolation of contemporary requirements.

b. General:Design Goals:

a. Orbit characteristics

1. Altitude
2. Inclination
3. Minimum perigee of 125 n. mi.

c. Payload General Design Goals:

- a. Size and weight
- b. number of payloads
- c. stabilization
- d. power available
- e.

d. ELINT systems design goals;

- a. Philosophy of intercept system
- b. degree of intercept planned.
- c. Sensitivity considerations
- d. Improved rf Frequency resolution
- e. intra-band frequency discrimination. (sub-bands)
- f. TABLE

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e. Ground Station design considerations.

- a. All stations to be operating within permanent buildings
 1. Quality control (Analysis) complexes available.
 2. Analog to Digital conversion of data at site
 3. Analog back-up recording to be made for use of Manual analysis.
 - 4.

f. Specific ELINT Targets:

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1 INTRODUCTION:

a. Background.

This proposal by the Naval Research Laboratory is being made nearly two and ~~one-half~~ years prior to the actual expected flight of Mission 7107, but it represents the best appraisal of applying the POPPY techniques against the requirements as they are expected to exist in this future time frame. The Naval Research Laboratory staff along with members of the POPPY community of the (US Army, ^{US NAVY} and the National Security Agency) have cooperatively prepared the basis of this proposal.

b. Historically the POPPY Program has been ~~associated with the~~ contributing toward the General Search effort of the NRO with an increasing contribution toward the EOB effort in recent launches with the perfection of the [redacted] at NSA. ^{Because of intense} ~~Now under the overriding concern~~ ^{it presents} for the [redacted] threat this paper will to a great degree assume that the emphasis will ^{continue through} ~~be co-temporary with~~ ^{launched} the MISSION 7107 and the contribution toward the solution of this [redacted] should be maximized where possible.

It will be assumed that [redacted] has
c. MISSION 7106 ~~with the assumption that it~~ been a technical success with all systems functioning as planned, beginning about mid FY-68

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INTRODUCTION:

A. Background;

1. Under the recent impact of the [redacted] requirement this technical proposal for the MISSION 7107 of the POPPY Program is being prepared. It is the intent that the design goals stated herein be **specifically** responsive toward both the General Search and Electronic Order of Battle requirements ~~but~~ as well as the [redacted] threat as now known. It is assumed that the community will maintain the high degree of interest now devoted to the various new/~~evolved~~ ~~on the other~~ [redacted] systems, and that Mission 7107 will afford a continued contribution toward the solution of this general ~~xxx~~ problem.

B. General Design Goals; Mission 7107 is configured as four individual satellites, *to fly at 600 nmi. altitude and* ~~each having a maximum range of 1000 miles and a maximum range of 1000 miles~~ each weighing about 200 lbs for 800 lbs total. All ~~xx~~ payloads will utilize

[redacted]

of the National Security Agency (NSA). The physical structure of the satellites will be similar to those being built for MISSION 7105, (27" dia. Multifaceted) with approximately 15 watts of average power available for the on-board functions in each satellite.

C. ELINT System Design Goals: The POPPY system depends upon the intercept of the main lobe or beam of the radar system, and provides a [redacted] re-transmission of ~~this~~ the leading edge time/[redacted] The data stream from these POPPY systems on MISSION 7107 will be tagged to indicate

(in the most dense parts of the spectrum) the [redacted] and ~~for~~ the identity of the sub-band of the [redacted]

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C. continued....
 On it will identify the fractional portion of the frequency band of the intercept which contains the intercepted signal to allow improved frequency resolution. In addition the spectrum from [redacted] will utilize [redacted] R & D experiments which have [redacted] *will be tagged*



be attempted with the design goal set [redacted] for these individual [redacted] [redacted] as the effective system threshold sensitivity. Operational experience with MISION 7105 and Mission 7106 will provide operational basis for up-dating these design goals at a latter date.

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Mission 7107 Proposed Design Goals

Mission 7107 as proposed is four satellites with ELINT collection coverage designed to optimize the ABM/AES requirements set forth by USIB. These four satellites will all be [redacted] so that the [redacted] will just pass from the range of a collection site before the [redacted] reaches the horizon range of this site. The orbit will be approximately [redacted] looks per day at each spot in the Soviet Union. The basic POPPY configuration of standard sensitive collection bands from [redacted] with the option of [redacted]

[redacted] Also included is an additional digital data channel which will (1) permit reading the frequency [redacted] and (2) reading pulse width and (3) signal amplitude or a pulse-by-pulse basis.

The proposed ELINT Collection coverage is shown in the following table:

[Large empty rectangular box representing a table of ELINT Collection coverage data]

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