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COMOR-D-13/52-1

NRO SIGINT PROGRAM, LONG RANGE

INTRODUCTION

The payload and vehicle designs now available to the Satellite SIGINT Program plus those not yet approved but under consideration have evolved from what were at one time unproven concepts. The SIGINT Program is dynamic and flexible in nature to respond quickly to changes in requirements. Unlike photo, where changes in targeting generally involve only software changes, new SIGINT targets quite frequently require new payload designs. For instance, increasing the requirement for photographic coverage of the Sary Shagan complex involves changes to camera programs, booster orbits and possibly schedule. Yet, the nature of SIGINT is such that emphasis on coverage of the ▓▓▓ emitter at Sary Shagan dictated new payload designs to obtain the required emitter parameters.

I. SYSTEMS ALREADY REPORTED TO COMOR

a. ▓▓▓▓▓▓ - will be the basic ROB system using a standardized Agena vehicle with operationally flexible receivers and variable tasking control capability. Three 30-day missions per year starting mid 1966 will satisfy nearly all of the ROB requirements over the bands 125-12,400 mc expected through 1968.

b. POPPY - is the preliminary search system which provides early indications of new signals and highly accurate locations of specific emitters with a very long life tasking capability. One major launch (4 vehicles) or two 2-vehicle launches per year will maintain full coverage (100-15,000 mc) in orbit at all times.

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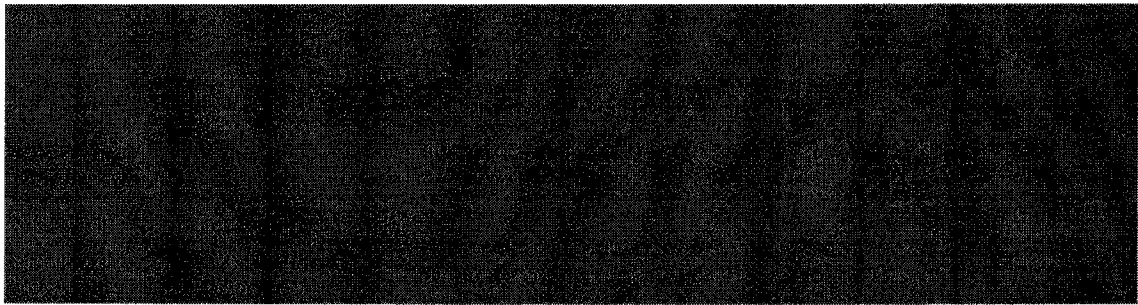
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II.   SYSTEMS UNDER CONSIDERATION

New payloads not yet approved but under study for ▮▮▮▮▮
vehicles to be launched starting FY 67 against present
requirements include: ▮▮▮▮▮▮ to be based on results of the
present SQUARE TWENTY Mission against ▮▮▮▮▮▮▮▮
▮▮▮▮▮▮▮▮▮▮ to NEW HAMPSHIRE designed to
intercept ▮▮▮▮▮▮ Repeat missions of the ▮▮▮▮▮▮▮▮
payloads or any of the above are possible as active payloads expire,
new requirements develop, or improvements become available.

▮▮▮▮▮▮▮ aft-rack package will be flown on a
space-available basis in response to the present COMOR requirement.

III.   ADVANCED CONCEPTS

Some of the many payload designs under consideration,
but not yet selected for actual use were discussed above. These
designs evolved from what were only concepts a relatively short
time ago. Additional concepts are under consideration by the NRO
which have not yet been translated into preliminary payload or
vehicle designs but appear to offer the potential of increasing the
effectiveness of the program. A given concept may eventually prove
to be inapplicable or may be supplanted by other approaches prior to
design. Some of the many concepts under consideration by the NRO
are listed below. While these are divided into the categories of
Payload, Vehicle, and Operational, there is overlap between
categories.

a.   PAYLOAD CONCEPTS

1.   Step tuned YIG filters in POPPY. This will
permit the command station to select a given "receiver" (YIG step)
for a pass. When the YIG receivers in ▮▮▮▮▮ are set to the same
step, ▮▮▮▮▮▮ capability using the ▮▮▮▮▮ or similar
technique results.

2.   Improved signal recognition techniques for
high priority, low power COMINT type emitters are continuously
being investigated.

b.   VEHICLE

1.   Simpler, longer life, stabilized EOB type payloads.

2. ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

3.   Multiple vehicles for increasing probability of intercept.

4.   Use of manned orbiting vehicles with large antennas.

    c.   OPERATIONAL

1.   Use of operators in peripheral sites to selectively "tune" and adjust payloads (via radio links) for optimizing or recognizing high priority target signals.

2. ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

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