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From: Director Naval Research Laboratory, Wasington D.C. To: Director National Reconnaissance Office. Via: Director, Program C.

Subj: MISSION 7107, proposed design goals for

Ref: (a)

(b) (c)

1. In order for the Naval Research Laboratory to complete the description of the potential of POPPY to contribute toward the solution of the ABM/AES threat it is essential that the time period eithteen to twenty-four months be considered in detail. For this reason MISSION 7107 is offered for consideration.

2. Basically, MISSICN 7107 Consists of four satellites with amamimicant

a great degree of technical similarity to those being studied for MIssion 7106. They will be deployed in

They would leave the booster at orbit injection with slightly different separation velocities so that but so that the would move giving the ground sites time to collect reorient their equipment in time to collect the tasking could be more intensive and the time over target for the entire all Mission could be doubled. Since the four satellites will/be instrumented in to cover the primary frequency bands thought to contain the threat (153 to 3300 mc) Thes group of satellites will permit roughly three times the looksper-day coverage over the specific target areas that have been possible with M<sup>I</sup>ssion 710h alone.

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3. The following are the desired orbital parameters required for M<sup>+</sup>ssion 7107:

Inclinati on =  $65^{\circ} + 0 - 2^{\circ}$ 

Altitude =  $600 \text{ n. mi. } \pm 25 \text{ n.mi.}$ 

variation of altidude less than 20 n. miles.

At payload injection, the vehicle performance must be such that all three axis (Pitch, yaw, and roll) do not exceed a velocity rate of 1 degree per second and do not exceed a maximum excursion of  $\pm$  2 degrees. A smooth clear separation of the payloads from the cehicle without **T**ipping the payloads is required.

Optimum launch time: requires that the orbital planes of  $M^{\perp}$ ssion 7106 be at right anlgles with that of Mission 7107 and that the payloads of each be at maximum separation within their respective orbital planes, in order that the use of common telemetry frequencies will avoid **xbm** interference and induce tracking and aiming problems at the collection sites.

 ${\tt L}_{\bullet}$  . The suggested ELINT Collection coverage proposed for MISSION 7107 are as follows:

Table # 1. Proposed Frequency Coverage for Mission 7107 (FY-70)

Band	7107A	7107B	71070	7107D
1.	153 - 165 mc	153 - 165 mc	153 <b>-</b> 165 mc	153- 165 mc
2.	165 - 220 mc	165 - 220	165 - 220	165 <b>-</b> 220
3.	220 - 350	220 - 350	220 - 350	220 - 350
4.	350 - 550	3 <b>5</b> 0 - 550	3 <b>5</b> 0 - 550	3£0 - 550
5.	550 - 920 *	550 - 920	550 - 920	550 - 920
6.	920 - 1800	920 - 1800**	920 - 1800	920 - 1800
7.	1800 - 2580	1800 - 2580	1800 - 2580***	1800 - 2580
8.	2580 - 2930	2580 - 2930	2580 - 2930***	2580 - 2930
9. 10.	2930 - 3300 5900 - 6500	2930 <b>-</b> 3300 5100 <b>-</b> 5 900	2930 - 3300*** 3300 - 4100***	2930 - 3300 · ·· 4100 - 4900
10.	4900 - 5070	4900 - 5070	4900 <b>-</b> 5070	4900 - 5070
_11.	6400 - 6900	6400 - 6900	6400 - 6900	6400 - 6900
12.	6900 - 7900-	6900 - 7900 /	7900 - 8700	7900 - 8700
13:	8700 - X548	6708 - 934d	8780 - 9340	8700 - 9340
14.	9340 - 10,000	9340 - 10,000	15,100-15,400	35,000-35,300

NOTE  $\underline{s}$  Denotes an R & D Experiment designed to divide the rf spectrum of 7107A Band 5 into approximately 25 narrow fixed-tuned  $f_{i}/f_{er5}$ , each about 15 mc wide. The design would allow tasking in specific groupings to enhance the resolution of frequency within this bands Design sensitivities approaching -70 dbm are expected.

\*\* Denotes a similar experiment in 7107B but having approximately 36 fixed-tuned filters each about 25 mc in width of pass-band.

36 fixed-tuned band pass filters, each with about 30 mc in width of pass-band.

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