~~ZAMAN/TOP SECRET~~

REVISED 3 WAN FN

9 October 1970

SUMMARY OF A 1700 10/8 DISCUSSION WITH L. DIRKS AND C. E. ROTH

1. [redacted] t IV

500 MHz bandwidth
12 channels; each with redundant TWT [redacted] (b)(1)
per satellite (4) (b)(3)
launch costs [redacted] (4)

(The cost of single channel 324 MBps the EHF and the 2-hop capability are not required for the Intelsat). (b)(3)

2. [redacted] indicated it probably wasn't profitable to merely cut down the current baseline R/S [redacted] but that we should be considering cheaper versions. CER noted that with an in-house Aerospace effort, [redacted] was looking at Configuration B. He further noted that the 4 I/S's were to look at Configuration B, and there were indications that they would not be responsive. However, CER noted that he could sharpen their interest during the next review at HQ. The net effect is that primary reliance will be placed on [redacted] analysis. (b)(1) (b)(3) (b)(3) (b)(3)

3. The feasibility of having [redacted] in before 29 October was explored and found to be impractical. (b)(3)

SUBJECT: Summary of a 1700 10/8 discussion with L. Dirks and C. E. Roth.

(b)(3)

C. [redacted] was then directed to make certain that [redacted] studies were looking at the correct problem. (b)(3)

4. Guidance: (Lower cost configuration)

a. SAMSO CDP contractors proceed as is with baseline R/S.

b. Aerospace/Keller is not to study Configuration B but will be used to evaluate.

c. The non-EOI costs resulting from the other Options (i.e., II or III) should be considered.

d. Options RD should consider:

(1) Basic requirement of Sino-Soviet coverage; 162MBps; recorder for rest of coverage.

(2) Same coverage but 324MBps; tape recorder for rest of coverage.

(3) Is there a case in between (a) and (b)?

(4) For each of the above, look at cost "cliffs": Possible areas

(a) Repositioning rates

(b) Command system

(c) Tracking requirements

(d) Foot print control

(5) Get the lowest cost scheme that makes sense; then consider how it might be logically

SUBJECT: Summary of a 1700 10/8 discussion with L. Dirks and C. E. Roth.

upgraded to a baseline scheme. (Including 324MBps and world-wide coverage.)

(6) Any requirements or costs of the foregoing schemes that reflect back on the I/S and/or R/F should be defined.

5. Downlink security:

a. EOI is possibly paying too much for footprint control and the R/F to O/F link.

b. Do the "downlinks" to the R/F have to have special protection?

(1) Wide band data link

(2) Tracking link

(3) Telemetry link

(4) Command link

Considerations:

(1) How much and what kind of information could an eavesdropper receive?

(2) What are the different levels (from no security to full encryption) of previous that can be achieved, when, cost, reliability, and approach used. At least transducer data manipulation, the use of current non-crypto schemes for command protection, the use of

SUBJECT: Summary of a 1700 10/8 discussion with L. Dirks and C. E. Roth

non-crypto approaches and devices to limit technical information, to permit reconstruction only of seriously degraded images and to make the eavesdropper's problem more difficult should all be considered.

(b)(3)

c. [redacted] mentioned a [redacted] study for th (b)(1) (b)(3) purpose.

d. Philco/Spilker and TRW were mentioned as possible contractors. TRW was believed to be too heavily motivated toward potential hardware sales. Some explanation with Philco was indicated.

(b)(3)

e. [redacted] indicated that jamming eavesdropping offshore trawlers was not an acceptable approach from a U.S. policy standpoint. Subsequent USSR retaliation on our collection capability by similar jamming would probably result in a serious net loss.

f. To determine the ability to decode the wide band link, the possibility of getting a slowed-down image bit stream from the IPL or elsewhere was mentioned. Whether such an analysis could be performed

SUBJECT: Summary of a 1700 10/8 discussion with L. Dirks and C. E. Roth

by computer or if a picture waste-out device is necessary would have to be explored. TRW and Aerospace/WESTWING have this analytic capability. No definite action was indicated in this area but it is essential to have an understanding of how easily the wide band image stream could be decoded.

(b)(3)

[redacted]

cc to CER 10/11/70