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26 September 1963

MEMORANDUM FOR: Committee on Overhead Reconnaissance
SUBJECT: Results of SIGINT Satellite Collection:
Extract from a DIA Briefing of
13 September 1963

Attached for the information of the COMOR is an
extract from a DIA SIGINT satellite briefing designed to provide some
measure of the value of the SIGINT thus far collected.

James Q. Reber
James Q. Reber
Chairman
Committee on Overhead Reconnaissance

Attachment:
subject paper

- Copies 2, 3 State TCO
- 4 DIA (Col. Ainsworth)
- 5, 6, 7, 8 DIA TCO
- 9 OACSI TCO
- 10, 11 ONI TCO
- 12-15 AFNIN TCO
- 16, 17 NSA TCO
- 18, 19 NRO TCO

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Results of SIGINT Satellite Collection: Extract from
a DIA Briefing of 13 September 1963

1. This extract is classified TOP SECRET/DINAR/ZARF/RUFF/NOFORN EXCEPT UK and handled in the TALENT-KEYHOLE Control System.

2. DIA records reflect that over 40 SIGINT vehicles have been placed into orbit since June of 1960. Over 50% of these vehicles have successfully met the intelligence objectives against which they were designed. The current collection concept under which this satellite program is oriented is divided into three phases.

a. A General Search Program covering a broad frequency spectrum between 60 to 10,000 mcs implemented into vehicles which have been designed to remain in orbit ~~TOP SECRET-DINAR~~ monitoring the electronic environment on a day-to-day basis.

b. ROB vehicles launched against known emitters primarily for update of the JCS SIOP.

c. Directed Coverage programs launched as required against high priority electronic signals associated with communications, ABM, and ICBM systems.

3. Currently requirements for the SIGINT ESV program are forwarded to DIA where they are researched, validated, and processed into a consolidated SIGINT objectives list. This list is forwarded to COMOR which maintains a master ESV index system covering all target parameters. COMOR is now in the process of mechanizing this objectives index in order to streamline the tasking of vehicles, particularly those which remain in orbit for extended periods. In conjunction with the mechanizing of the intelligence objectives index the NRO(S) is also developing an automatic tasking program to insure that all intelligence targets are met, based on periodicity and priority of coverage. This automatic tasking system divides the Sino-Soviet Bloc into specific geographic areas. Within each geographic

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area approximately 32 frequency spectrums are listed which are priority weighted, based on the information obtained in the COMOR SIGINT objectives index. This automatic tasking of vehicles should insure maximum system efficiency since all data input will be updated in a timely manner based on current requirements.

4. Raw data collected by vehicles in orbit is forwarded to the NSA which has been charged by the DOD as the prime contractor for readout of all SIGINT ESV programs. NSA has subcontracted a portion of this responsibility to the Strategic Air Command, the Air Force Security Service and the Naval Research Lab. Processing is accomplished both manually and by machine. Electrical reports concerning system performance after initial screening of the collected data are forwarded to the operator to insure that all collection systems are in a "go" condition. NSA also forwards electrical messages concerning any new and unusual data which may be of possible value to consumers. Mission summary reports (hard copy) are published periodically and forwarded to consumers as data processing progresses.

5. At this time we would like to present a review of SIGINT missions in the three areas of collection, i. e., General Search, ROB and Directed Coverage since June 1960.

a. In the General Search Program four vehicles have been launched to date which have provided a significant amount of intelligence. These packages were designed with the primary objective of an environmental study of various frequency spectrums which, when correlated over a time period could possibly provide an early warning indicator of impending hostilities. Data collected against this objective by vehicles in this program is not presented since this material is extremely extensive.

(1) DYN0 I launched in June of 1960 was the first ESV in this series. This package demonstrated that valuable intelligence information could be collected on an electronic environment by satellite means. This package covered a limited portion of the S-Band and though as indicated above had as its primary objective an environmental study of this

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band from ground analysis a certain amount of radar order of battle was refined on Soviet V-Beam, early warning radars and height finder radars.

- 117 Radar Sites confirmed
- 52 New Sites activated
- 35 Sites Equipment updated
- 12 Suspense Sites created

(2) DYN0 II was launched in June 1961 and covered two frequency spectrums in the L-Band region. In addition to environmental information considerable radar order of battle was derived, in addition to providing us with our first specific frequency band for possible ABM associated emissions.

- 178 Radar Sites confirmed
- 17 Sites activated
- 24 Suspense Sites
- 50 Sites Equipment updated

(3) [REDACTED] (POPPY) in this series was launched on 13 December 1962. Again the primary objective included environmental data of the Soviet radars covering a broader band of frequencies, plus a long look for new/unusual emitters and EW / GCI radar locations. [REDACTED]

[REDACTED] From this system it was hoped that we could obtain definitive ROB information from a General Search vehicle having a long life orbital capability. The vehicle was also designed to test a new and improved Ground Data Handling System. [REDACTED] contained four receivers covering frequencies as indicated.

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[redacted]

To date over [redacted] orbits have been tasked from [redacted] and the vehicle is still fully operational. Analysis indicated that there has been no evidence of new threats within its intercept capability. Continued intercept of a high volume of TALL KINGs and [redacted] radars has been noted, indicating that these systems are deployed extensively and are the primary Soviet long range EW/GCI radar systems. The long-range surveillance capability of the TALL KING radar has been further developed on this mission by high volume intercept and long intercept periods. As you may know, the theoretical early warning range of a TALL KING radar is approximately 400 NM. Tests conducted by other collection efforts have indicated that the TALL KING may have a capability well in excess of 400NM. Data collected by this ESV should further refine this intelligence. It has also been noted through regular intercepts of the TALL KING radar in the months of January through March and in northern severe weather areas that the TALL KING has a possible all-weather capability. In addition, regular and frequent intercept of Soviet, ChiCom and Polish radars of the EW/GCI/HF types has provided considerable information for ROB update.

(4) [redacted] (POPPY) in the same family, launched 15 June 1963, though designed as a long life vehicle discontinued operation on [redacted] due to an elliptical orbit. The vehicle was heavily tasked during its operation and data is currently being processed. This vehicle contained [redacted] to once again test the [redacted]

[redacted]

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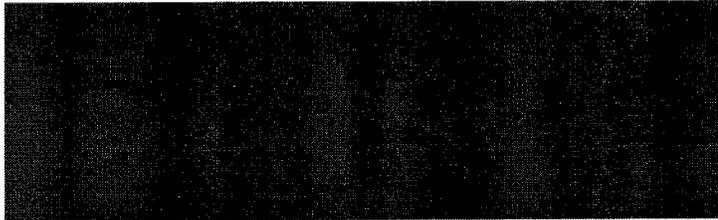
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b. In the Radar Order of Battle program, [redacted] vehicles to date have been launched.

(1) Vehicle 2301, launched in February 62, had as its primary objective the detection and location of emitters in the "S" and "X" frequency ranges. A vast amount of intelligence was collected which was used as operational intelligence for such items as SIOP update. The location accuracy on this vehicle from multiple intercepts on a single pass averaged 28 to 46 NM and on multiple intercepts from multiple passes an average of 10 to 15 NM was achieved.

300 Radar Sites confirmed
90 Sites Equipment update
46 Sites Activated
260 Suspense Sites created

(2) In the same series, [redacted] was launched in [redacted]. Once again the objective was to detect and locate emitters in the frequency ranges indicated.



It should be noted that as R&D continues we are able to increase the frequency coverage on the various types of vehicles. Although this vehicle experienced a power failure after 25 orbits, two productive orbits provided some useable intelligence.

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26 Radar Sites confirmed
3 New Sites activated
27 Suspense Sites created

(3) [REDACTED] was launched [REDACTED]

Its primary purpose was these four objectives: detection, and location of satellite and mission tracking signals, TALL KING and [REDACTED] emissions, normal S-Band air defense radar employment, and deployment of S-Band [REDACTED] SAM systems. It had a capability to cover the frequency bands of [REDACTED]

[REDACTED] Results of this mission once again indicated that this particular system was capable of producing significant ROB information, but unfortunately the useful life of the vehicle terminated after only 24 orbits due to a system malfunction. The final results of the mission were as follows:

220 Radar Sites confirmed
6 New Sites activated
19 Sites Equipment update
101 Suspense Sites created

In addition to this ROB type information, there were four special areas of signal interest.

(a) As you probably know, peripheral collection platforms for the past six to eight months have had limited success in intercepting the L-Band [REDACTED] emitter indicating that possibly this emitter was being phased out of the Soviet inventory. This vehicle collected a vast amount of L-Band [REDACTED] from the interior, which confirms that the Soviets are still utilizing this capability but only as a second or third line defense.

(b) In the 590 to 600 mc range a series of intercepts were made which resemble the Polish NYSA-C radar. This is the third

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ESV mission where emitters of this type have been intercepted. Although none of the vehicles were able to define a specific geographic area of concentration, the intercepts appear to originate from the areas north of the Caspian and Black Sea. There is some speculation that this emitter could equate to a Soviet space tracking system since from collateral and T-KH RUFF photography we have identified several Soviet electronic installations in these general areas.

(c) Two other significant signals of interest in the "L" Band are under investigation and no valid intelligence can be applied at this time.

(d) One other signal which is under study is a 339 mc emitter which could possibly have originated in the Sary Shagan area. It has not been positively determined whether this signal was internally or externally generated by the satellite package.

(4) [redacted] launched [redacted] is the latest in this ROB series. Its objectives and capabilities were similar to those of [redacted] This mission is currently in process, however, preliminary results received 30 July 63 indicate that the data collected is of the highest quality yet received for ROB exploitation. The following items from preliminary analysis are noted. Possible [redacted] located near

[redacted]

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c. In the Directed Coverage Program there are several classes of collectors. The first of these which we will review are those directed against the ABM problem. As you know, from RUFF photography we have identified suspected or confirmed ABM installations in the Leningrad, Sary Shagan, Kamchatka and Moscow areas. To date from ESV collection there has only been one signal we could tag as a possible ABM emission. This was collected by DYN011 in the frequency range of 550 to 620 mcs. There is still a big question mark assigned to the HEN series antenna systems associated with ABM complexes. The Directed Coverage program is programmed against any suspect frequencies derived from any intelligence source.

(1) The first ESV series in the Directed Coverage program was called the TOP SOC series. These systems demonstrated a capability to intercept radars within the frequency capability indicated such as our own BMEWS, however, from analysis no emitters located could be directly associated with the Soviet ABM installations.

(2) The second ABM series was more specifically directed at frequencies in which we had a suspect emitter. The first two were unsuccessful. Missions 7207 (WILD BILL) and 7216, launched in June of this year, are currently in process. Our conclusions, therefore, at this time are that we have no valid evidence of Soviet emitters which could be ABM associated.

(3) From 1960 to 1962 a series of vehicles designated as the SOCTOP series were launched with the primary objective of determining whether or not the Soviets were tracking U. S. satellite systems. From this series there was no valid evidence that the Soviets were tracking U. S. satellites, other than

the possibility of the 600 mc signal mentioned earlier. A new program series is currently planned identified as the STOPPER series directed against the same objectives. Data from this program has not yet been made available to DIA.

(4) In addition, in the Directed Coverage program there is a series of special ESV ELINT packages programmed against the TALL KING radar, the Soviet C-Band [REDACTED] and the identification and location of high powered S-Band radar emitters.

(a) The first in this series was the TAKI packages directed against the TALL KING radar. Several launches have been made to date. The first was unsuccessful however the April 1962 launch provided limited suspense information. Mission 7204 launched in December 62 provided the first good data for SIOP purposes. Mission 7204 also provided an indication of TALL KING deployment apparently along the Trans-Siberian Railroad possibly co-located with operational ICBM sites.

(b) The PLYMOUTH ROCK series was directed against high powered S-Band radars to refine parametric information and search for new and unusual signals. In addition, a special mechanical frequency measuring device was tested in an effort to provide more definitive RF information. Although these packages were not designed with an inherent direction finding capability, ground analysis provided a significant amount of data which permitted either confirmation or updating of previously known sites plus at least eight new sites throughout the Soviet Bloc. Mission 7208, launched on June 1963, is currently in process and should provide a similar amount of data as that provided by 7201.

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6. In summary, the potential of the SIGINT ESV program is unlimited. In ELINT the program provides a singular capability to satisfy the majority of ELINT requirements including immediate recognition of any new emitter regardless of location, complete parametric information for capability assessment, ECM, etc., unambiguous indexing of emitter types to [redacted] accuracy. COMINT packages include a capability to index and sample contents of signals not otherwise collectable and the long range possibility of solving continuity problems.

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- 21-30 Asst/OPS(NPIC)
- 31 LS/PID(NPIC)
- 32 DDI TCO
- 33, 34 CGS
- 35, 36 CIA COMOR Member
- 37 CGS/ReqBr/ReconGrp
- 38 Ch/COMOR Wkg Grp
- 39 AD/SI
- 40 DDP TCO
- 41 DDS&T TCO
- 42 AD/OSA
- 43 FA/OSA
- 44 ID/OSA
- 45 SS/OSA
- 46 SAL/OSA
- 47-50 SA/DDS&T

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