~~T O P S E C R E T~~

~~HANDLE VIA BYEMAN/TALENT KEYHOLE CHANNELS JOINTLY~~

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HANDLE VIA BYEMAN/TALENT KEYHOLE CHANNELS JOINTLY
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SUBJECT: MISSION 7244 SIGINT SUMMARY
1. MISSION 7244 (GLORIA II) WAS AN EXPERIMENTAL CENTIMETER WAVE COLLECTION PLATFORM THAT [redacted] ITS PURPOSE WAS TO PERFORM A SIGNAL SURVEY FOR PULSED EMITTERS IN THE 18-26 GHZ RF RANGE. GLORIA II WAS THE SECOND IN A SERIES OF VEHICLES DESIGNED TO TEST THE FEASIBILITY OF LOW-COST, QUICK-REACTION SATALLITES. MISSION LIFE WAS ORIGINALLY SCHEDULED FOR ONE YEAR; HOWEVER, DUE TO FAILURE IN THE SECOND ORBIT-RAISING BURN, THE SPACECRAFT NEVER REACHED ITS 232-NM CIRCULAR ORBIT. THIS LIMITED THE MISSION LIFE TO [redacted] 25X1
2. OVER THE COURSE OF THE MISSION THERE WERE 27 SIGNALS INTERCEPTED. THE FIRST INTERCEPT OCCURRED ON [redacted] DURING POS-LAUNCH 25X1
VERIFICATION. THE 27 INTERCEPTS WERE COMPRISED OF 4 DIFFERENT SIGNALS; 2 KNOWN [redacted] AND 2 HARMONICS OF KNOWN [redacted] 25X1
[redacted] SIGNALS. (BOTH HARMONICS WERE RECEIVED ONLY ONCE DURING 25X1
GLORIA II'S ENTIRE MISSION). ROUTINE REPORTS FOR ALL SIGNALS WERE MADE VIA ROSTER 174 AND/OR ROSTER 178 TECHNICAL PRODUCT REPORTS.
A. THE [redacted] (ASDE-2) AND THE [redacted] (ASDE-62) ARE HIGH-RESOLUTION, 25X1
GROUND-SURVEILLANCE PULSED RADARS, INTENDED TO PROVIDE RADAR OBSERVATION OF AIRPORT OPERATIONAL AREAS, INCLUDING ALL RUNWAYS, TAXIWAYS AND APRON AREAS, EXCEPT DURING MODERATE TO HEAVY RAND AND SNOW. THESE SYSTEMS ARE A TRAFFIC CONTROL AID FOR DETECTING POSITION AND HEADING OF AIRCRAFT AND OTHER VEHICLES WITHIN THE AIRPORT BOUNDARY. THE [redacted] WAS INTERCEPTED FROM THE SAN FRANCISCO 25X1
INTERNATIONAL AIRPORT IN CALIFORNIA AND THE SEATTLE/TACOMA
INTERNATIONAL AIRPORT IN WASHINGTON. THE [redacted] WAS INTERCEPTED FROM 25X1
THREE DIFFERENT LOCATIONS IN [redacted] ALTHOUGH EXACT AIRPORTS COULD NOT 25X1
BE IDENTIFIED DUE TO THE LARGE GROLOCATION ELLIPSES.

[redacted] 25X1

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[redacted] 25X1

3. DESPITE GLORIA II'S EXCELLENT SENSITIVITY AND PAYLOAD CAPABILITIES, THE SCARCITY OF INTERCEPTS SHOWED A LACK OF ACTIVITY IN THIS FREQUENCY BAND. THE FAILURE OF THE SECOND BURN PLACED THE VEHICLE IN AN ELLIPTICAL ORBIT WITH A PERIGEE CLOSER TO THE EARTH THAN ORIGINALLY PLANNED (234 NM APOGEE BY 145 NM PERIGEE). THE LOWER ORBITH INCREASED GLORIA II'S SENSITIVITY BY ALMOST 3 DB AT PERIGEE. ATMOSPHERIC ATTENUATION, DUE TO THE INCLEMENT WEATHER, WAS EXPECTED IN THE GLORIA II FREQUENCY RANGE. THIS PHENOMENON WAS WITNESSED IN TWO CALIBRATION TESTS WHICH WERE TRANSMITTED DURING A LIGHT RAIN AND NOT RECEIVED BY THE PAYLOAD. THE HARMONIC INTERCEPTS, ESPECIALLY THE [redacted] WHICH WAS RECEIVED AT THE HORIZON WHERE ATMOSPHERIC AND 25X1
ISOTROPIC ATTENUATION IS AT ITS GREATEST, PROVED THAT GLORIA II WAS ABLE TO ACHIEVE LINK CLOSURE AT WEAK SIGNAL LEVELS.

4. THE EXPERIMENT COMPLETED ITS SURVEY OF THE 18-26 GHZ RF REGION ON 14 AUGUST 1991. DURING THE MISSION, GLORIA II'S TOTAL TASKING WAS 19437 MINUTES, WITH A DAILY AVERAGE OF 200 MINUTES PER DAY VERSUS THE PRE-LAUNCH SPECIFICATION OF 80 MINUTES PER DAY.

5. EVEN THOUGH FEW SIGNALS WERE INTERCEPTED DURING THE LIMITED LIFE OF GLORIA II, IT PROVIDED VALUABLE SIGINT INFORMATION IN THAT THIS SURVEY SHOWED LITTLE ACTIVITY IN PULSE EMITTER EXPLOITATION OF THE 18-26 GHZ RF REGION.

[redacted] 25X1

DECL: OADR

MSG CORRECTION: LINE 08, CORRECTS COMPARTMENT CAVEAT FROM GLORIA TO [redacted] DESTROY PREVIOUS COPY. 25X1

T O P S E C R E T

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