~~TOP SECRET~~

CORONA
IBIT
LANYARD

Handle via BYEMAN Control System

LANYARD STATUS AND CAPABILITY

1. FLIGHT RESULTS

The only LANYARD flight results are from Mission 8003 which was launched 31 July 1963 and recovered 2 August 1963.

The camera stopped on Orbit 22 due to a short or open in the tachnometer wires which allowed the metering servo to overspeed and jam. Examination of other tachometers revealed a sharp edge which was considered to be the cause of the wire breakage.

The system resolution was approximately a factor of two lower than predicted from preflight ground tests. Four to five foot ground resolution was predicted. There was also a sudden drop in performance observed on Rev 9 which could have been a structural element suddenly relieving itself. The low performance was attributed to out of tolerance temperatures which caused structural deformations and focus shifts.

2. STATUS AND TEST RESULTS

There are five complete LANYARD payloads available for flight, two at LMSC and three at the CIA Storage Facility on the West Coast. The two at LMSC are being used for state-of-the-art evaluation tests by ITEK and the three at the Storage Facility are in sealed containers.

SYSTEM NR	LOCATION OF TEST	LINES/MM	CONTRAST	REMARKS
L-4	Boston	106	3.3:1	1/200 sec exposure time all others at 1/400sec.
	Palo Alto	111	3.5:1	
L-5	Palo Alto	99	3.5:1	
L-6	Palo Alto	105	3.5:1	
L-7	Palo Alto	115	3.5:1	
		100	1.9:1	
L-8	Boston	89	3.3:1	

(This would indicate an average ground resolution of 3.5ft from 100 miles.)

Five of the recent CORONA systems performed as follows during their acceptance tests:

MSN NR	TEST LOCATION	LINES/MM (Fwd/Aft)	CONTRAST	REMARKS
1005	Boston	127/131	2.34:1	60"collimators
	Palo Alto	105/113	2.09:1	
1006	Boston	129/129	2.34:1	
	Palo Alto	109/106	2.09:1	
1007	Boston	126/123	2.34:1	
	Palo Alto	105/110	2.09:1	
1008	Boston	131/127	2.34:1	
	Palo Alto	112/113	2.09:1	
1009	Boston	131/133	2.34:1	
	Palo Alto	102/110	2.09:1	

(This would indicate an average ground resolution of 8.5 feet from 100 miles.)

The LANYARD tests were conducted with different test equipment, different collimators and different targets; however, it is felt that the tests on both systems accomplished at Palo Alto are nearly comparable and that the variations, if any, due to the different procedures are small.

Recent GAMBIT instruments have been averaging approximately 125 lines/mm during acceptance which would indicate a ground resolution of 2.5 feet from 100 miles.

3. PREVIOUSLY SUBMITTED PROPOSALS.

ITEK has previously proposed two modifications to insure that thermal distortions do not degrade the photography. The first proposal was to install heated magnesium rods with thermostatic controls to compensate for platten-lens distance shifts due to temperature variations. The second proposal was to stow the mirror horizontally to minimize temperature gradients across it.

4. First flight with an unmodified payload can be sixteen weeks from go-ahead. Additional flights at one per month are possible. Costs would be approximately two million.

If the magnesium rods and mirror stowage modification is accomplished General Greer estimates that the first flight would be in six months and the cost would be 3.4 million.