ATTACHMENT 12

GLOSSARY OF NOMENCLATURE AND DEFINITIONS

It is essential that a consistent set of nomenclature by utilized by all concerned in the EOI System development. The purpose of this glossary is to establish standard nomenclature to be used during System Definition. This list will be expanded periodically as required.

1.0 GENERAL SYSTEM

EOI System	-	Standard reference to system under development, defined as Electro-Optical Imaging System.
System Segment	-	The portion of the EOI System that performs the functions as defined in Attachments 3, 4 and 5.
I/S	-	Imaging Satellite
R/S	-	Relay Satellite
O/F	-	Operations Facility
P/F	-	Processing Facility

Functional Requirement - The requirement for a function to be performed, specified by the Program Office.

Performance Requirement - The required capability of a system, subsystem, or component to perform a function, specified by the contractor and approved by the Program Office.

2.0 PERFORMANCE PARAMETERS

GSD - Ground sample distance, the center-to-center distance between contiguous ground samples in both the along-track and across-track directions.

SNR - Signal-to-Noise ratio, as measured at the detector output for a ground plane signal of 6.8 watts/m^2-ster. peak-to-peak sine wave of radiance (6000^{o} light bandlimited from 0.4 to 0.8 microns) at the limiting spatial frequency.

NES - Noise equivalent signal, an energy density at the detector plane which

gives rise to a detector output signal just equal to the rms value of internal detector noise.

Obliquity Angle - The angle measured at the vehicle between the vehicle nadir line and the line of sight to a point on the earth's surface.

Frame - The image data obtained from the continuous operation of the transducer in acquiring a contiguous area on the ground prior to a repositioning maneuver.

Subframe - That portion of a frame obtained from a single array in a multi-array transducer configuration.

Image - Defined to be identical to a frame; not recommended for use.

Frame Time - The time required to acquire a frame of image data (includes settling time).

Settling Time - The time required between termination of a vehicle repositioning maneuver

and the initiation of acquiring image data.

3.0 TRANSDUCER

Detector	-	A single photosensitive element with its associated amplifiers and switches.
Chip	-	A grouping of numerous detectors on a single silicon substrate.
Array	-	The assembly of numerous chips mounted end-to-end that represent the total across-track capability.
Transducer	-	The assembly of one or more arrays and associated electronics that produce analog signals.
Data Processor	-	The electronics necessary to transform the analog signals received from the transducer into a serial bit stream for transmission.

4.0 PROCESSING FACILITY

Reformatting	-	The reordering of the image data on a line by line basis to compensate for the spatial offsets of the transducer

elements and array element scanning sequence.

Differential Pulse Code Modulation (DPCM) - The encoding of the detector output differentials to conserve signal bandwidth.

Demodulation - The reverse of the DPCM process, where the DPCM word is added to the memory update PCM word.

Calibration - The process of determining the detector element electrical transfer characteristics.

Failed Detector Compensation - The process of compensating for a photosensitive element whose output is not usable.

Detector Response Equalization - The process of using predetermined calibration data to compensate for variations in the detector electrical transfer characteristics.

Modulation Transfer Function (MTF) Compensation - The process of compensating for higher spatial frequency roll-off

caused by image motion, optics, transducer, and reconstruction device.

Demultiplexing - The conversion from a multi-array serial bit stream time division multiplex signal to separate detector signal outputs - one for each array.

Rectification - The correction for scene errors caused by high angles of obliquity and earth curvature.

Registration - The process of matching the subframe edges to form a single contiguous picture.

Fusing - The merging of the subframes into a single frame based on a close approximation alignment.

Image Data Rate - Transmission data rate of transducer outputs.

On-Line Processing - The processing of image data at the same rate as it is being received. This includes real time processing and buffered processing.

Real Time Processing - The processing of image data at the same rate as it is being received.

Buffered Processing - Processing image data at a reduced data rate than the actual transmitted data rate. For example, the data could be recorded at the R/F and retransmitted at a reduced data rate.

Off-Line Processing - Any mode of operation that is not an on-line mode. This can include the following functions:

(1) Special processing not available with the on-line processor (e.g. fusing, rectification, additional MTF compensation);

(2) Archival storage and retrieval;

(3) Processing of later requests for standard images;

(4) On-line processing back-up;

(5) Maintenance and testing.