

Glossary of ALSEP Terminology

PAGE 1 OF 5 PAGES

10/4/66

This ATM is prepared in response to Action Item B6-0921-01B:

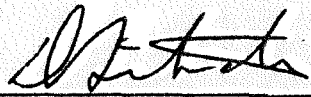
"Glossary of ALSEP terminology to be submitted to MSC.
Murtaugh to Gerke, 5 October 1966."

The items as shown represent preferred Bendix terminology and will be used unless specific disapproval is received from MSC. In case of disapproval of certain items, a revised version of this ATM will be issued.

Prepared by:


C. R. Murtaugh

Approved by:


D. Bitondo, Manager
ALSEP Engineering

ep
Ext. 653



10/4/66

Experiment:

A particular scientific investigation, not a piece of hardware.

Instrument:

A piece of hardware used in performing an experiment, usually limited to the sensing elements and items housed in the same package (i. e., deployed equipment).

Experiment Subsystem:

All hardware required for an experiment; typically the instrument plus cables, non-deployed electronics, and tools, as applicable.

Subsystem Titles and Abbreviations:

Passive Seismic Experiment Subsystem	(PSE Subsystem)
Magnetometer Experiment Subsystem	(ME Subsystem)
Solar Wind Experiment Subsystem	(SWE Subsystem)
Suprathermal Ion Detector Experiment Subsystem	(SIDE Subsystem)
Heat Flow Experiment Subsystem	(HFE Subsystem)
Charged-Particle Lunar Environment Experiment Subsystem	(CPLEE Subsystem)
Active Seismic Experiment Subsystem	(ASE Subsystem)
Data Subsystem	(Data Subsystem)
Electrical Power Subsystem	(Power Subsystem)
Structure/Thermal Subsystem	(S/T Subsystem)
Lunar Geological Equipment Subsystem	(LGE Subsystem)

(Note that the PI prefers "Lunar Surface Magnetometer" for internal reasons but the first two words are superfluous in the context of ALSEP.)

The instrument of the Solar Wind Experiment is called a "Solar Wind Spectrometer" by the PI; however, the shorter title is preferred.

The Cold Cathode Ionization Gauge (CCIG) is a component of the SIDE Subsystem. It is not the Cold Cathode Gauge Experiment (CCGE) although it has a separate PI (refer to Contract Incentive Plan).

Glossary of ALSEP Terminology

10/4/66

PAGE 3 OF 5 PAGES

The Dust Detector is a component of the Structure/Thermal Subsystem (not an experiment).

Subpackage No. 1:

Subpackage No. 2:

These are the portions of ALSEP that go inside Compartments 1 and 2 of the Apollo Lunar Module (LM), formerly LEM.

RTG:

Radioisotope thermoelectric generator, technically is limited to the unfueled generator assembly. General Electric prefers to call the fueled generator an IPU; however, this is confusing to most other people and RTG is preferred as a descriptive name for the ALSEP power supply.

Handling Tool:

This simplified terminology is preferred unless clarity requires use of the longer name (RTG Fuel Capsule Handling Tool". The distinction made by General Electric between ("Flight Handling Tool" and "Ground Handling Tool" is inconsistent with ALSEP practice of subordinating GSE (i. e., preferred terminology would be "Handling Tool-Ground Support Model").

Command:

A seven-bit digital code word transmitted to ALSEP. Commands are also identified by serial numbers from 1 to 100. Also, a command transmission includes preamble, address, command, and complement totalling 61 digital bits. Note that "Uplink Telemetry", as used on the Apollo program, refers to data transmission such as clock update and navigation coordinates.

Telemetry:

As used on ALSEP, this includes all downlink transmissions. Further subdivision can be made into three categories: sync, scientific data, and engineering data. Engineering includes both housekeeping and status. Housekeeping is defined as quantitative information (temperature, voltage, etc) while status is defined as discrete information (Channel A "ON", experiment Y "OFF", etc.).



Frame.

Sixty-four ALSEP 10-bit telemetry words (or an equivalent amount of Active Seismic data) starting with sync. The frames are numbered; hence even and odd frames are self-explanatory.

Field, Cycle, and SIDE Frame:

Terms peculiar to the data format of the SIDE Experiment to be used in accordance with the PI's definitions. Note that it is SIDE frame, not side frame.

Sequence:

A term peculiar to the data format of the Solar Wind Experiment.

Subcommutation:

Process of assigning multiple data sources, in sequence, to a single word of an ALSEP frame. Example: The ALSEP housekeeping word which cycles through 90 sources. Subcommutation is also used in several experiments and is asynchronous; that is, the process is not necessarily applied to a single word location of the ALSEP frame. Furthermore, in at least one case a subcommutated experiment word is further subcommutated resulting in sub-subcommutation (erroneously referred to as super-commutation).

Mode:

A generic term applied to different operational set-ups, generally selected by command. Examples include the Data Subsystem modes: Normal (1060 bps), Slow (530 bps), and Active Seismic (10,600 bps). The Heat Flow Experiment has heat flow and conductivity modes. The Magnetometer Experiment has field vector, field gradient, and flip/calibrate modes. The Active Seismic Experiment has both modes and submodes since the two operational set-ups are Engineering Mode (where engineering data is replaced by geophone output only when seismic activity is sensed) and Scientific Mode (where scientific data occupies the bulk of the format at all times). The Scientific Mode is arbitrarily



10/4/66

divided into an Active Submode (when thumper or grenades are operating) and a "Listening Submode" when no energy sources are being used. Unfortunately, the term "Listening Mode" had a different definition in earlier versions of the design.