

This document explains  
common acronyms and  
abbreviations used in  
aerospace and Cougs in  
Space and their meaning

# Acronyms

Common Acronyms and  
Abbreviations and Their  
Meanings

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# 1 List of Acronyms and Abbreviations

The purpose of abbreviations and acronyms is for ease of speaking and writing. The ones listed in section 1.1.1 – 1.1.26 are commonly used in aerospace and are applicable to Cougs in Space

## 1.1.1 A

**ADCS** – Attitude Determination Control System  
System responsible for orienting the satellite in free space

**ALT** – Altitude  
Elevation of the satellite above mean sea level

**ATT** – Attitude  
Orientation of the satellite relative to the direction of travel

**AWG** – American Wire Gauge  
Standard wire sizes

## 1.1.2 B

**BOM** – Bill of Materials  
List of components for a system

## 1.1.3 C

**CAD** – Computer-Aided Design  
Computer software to aid in the creation, modification, analysis, and optimization of a design

**CDR** – Critical Design Review  
Demonstrates that the maturity of the design is appropriate to support proceeding with full-scale fabrication, assembly, integration, and test. CDR determines that the technical effort is on track to complete the flight and ground system development and mission operations, meeting mission performance requirements within the identified cost and schedule constraints

**CIS** – Cougs in Space  
Washington State University's picosatellite club

**CMF** – Critical Mission Failure  
Failure of a device that prevents completion of the mission

**CMT** – Critical Mission Task  
Operation that is integral to the success of the mission

**CONOPS** – Concept of Operations (ConOps)  
A description of the characteristics of a system from a user's perspective, similar to use cases. Answers "what I do with this system?"

**1.1.4 D**

**DIA** – Diameter

Length of a straight line passing from one side of a body the other through the center

**DOF** – Degrees of Freedom

The number of independent ways by which a dynamic system can move, without violating any constraint imposed on it

**1.1.5 E**

**ECS** – Environmental Control System

System responsible for maintaining safe environmental conditions include, but not limited to, temperature and radiation exposure

**EES** – Electrical Energy System

System responsible for gathering, storing, regulating, and distributing energy

**EM** – Engineering Model

A replica of the satellite, form, fit and functionally equivalent, used for testing, prototyping, repairing, and iterating before changes are integrated onto the flight unit

**EMI** – Electromagnetic Interference

A disturbance generated by an external source that affects an electrical circuit by electromagnetic induction

**ETA** – Estimated Time of Arrival

The time the satellite is expected to become visible to communication

**ETC** – Estimated Time of Completion

The time the satellite is expected to complete a task

**ETD** – Estimated Time of Departure

The time the satellite is expected to become invisible to communication

**1.1.6 F**

**FRR** – Flight Readiness Review

Examines tests, demonstrations, analyses, and audits that determine the system's readiness for a safe and successful flight or launch and for subsequent flight operations

Also ensures that all flight and ground hardware, software, personnel, and procedures are operationally ready

**FU** – Flight Unit

The satellite that is launched into space

### 1.1.7 G

**GND** – Ground

Operational center on earth responsible to communicating to the satellite including sending commands and receiving data

Also, Ground Control

Also, zero electric potential from which voltages are measured

**GNSS** – Global Navigation Satellite System

System using a constellation of satellites to allow device to determine their precise location, including USA's GPS, Russia's GLONASS, and European Union's Galileo

### 1.1.8 H

**HAZMAT** – Hazardous Material

State when radio communication has stop functioning, usually due to the satellite setting in the horizon.

### 1.1.9 I

**IFJR** – In-Flight JTAG Reprogrammer

Processor in charge of updating every programmable processor

**IFSD** – In-Flight Shutdown

State when satellite must shutdown during low power periods

**IHU** – Internal Housekeeping Unit

Processor responsible for organizing communication between systems

Also, the main processor of the satellite

**IMU** – Inertial Measurement Unit

An electronic device that measures the satellite's acceleration, angular rate, and surrounding magnetic field

### 1.1.10 J

### 1.1.11 K

### 1.1.12 L

**LED** – Light Emitting Diode

An electrical component that emits light, at a specified wavelength (color), when energized, commonly used for indication

**LEO** – Low Earth Orbit

An orbit around earth at an altitude less than 2,000 km

**LKP** – Last Known Position

Last confirmed location of the satellite just before LOS

LOM – Loss of Mission

State when the mission can no longer be completed usually due to a critical mission failure

LOS – Loss of Signal

State when radio communication has stop functioning, usually due to the satellite setting in the horizon

### 1.1.13 M

MOP – Mission Operation Plan

A plan that describes all actions regarding the mission when the mission is operational, including, but not limited to, operations planning, flight control, mission data receipt/delivery, tracking and navigation, maintenance and support, spacecraft support and analysis, and mission data processing and achieving

MRR – Mission Readiness Review

Examines tests, demonstrations, analyses, and audits that determine the system's readiness for successful completion of the mission  
Also ensures that all flight and ground hardware, software, personnel, and procedures are functionally ready

MSL – Mean Sea Level

An average level of the surface of earth's oceans

MST – Mission Sequence Test

Tests the ground operations and satellite for successful execution of a mission

MTOF – Maximum Take-Off Weight

Maximum weight the satellite may be to be launched by the launch provider

### 1.1.14 N

N/A – Not Applicable

Indication that information does not apply to a particular case in question

NWR – Not Worth Reporting

Indication that information is not significant to record and report

### 1.1.15 O

### 1.1.16 P

PDR – Preliminary Design Review

Demonstrates that the preliminary design meets all system requirements with acceptable risk and within the cost and schedule constraints and establishes the basis for proceeding with detailed design

**PFM – Photo Flight Model**

A replica of the satellite, exteriorly equivalent, used for photography and demonstrative purposes

**PMIC – Power Management Integrate Circuit**

Processor responsible for managing the power system

**PNR – Point of No Return**

Point beyond which one must on one's current course of action because turning back is physically impossible, prohibitively expensive, or dangerous

**1.1.17 Q****QA – Quality Assurance**

A way of preventing mistakes or defects in the satellite

**1.1.18 R****RCS – Radio Communication System**

System responsible for communicating to and from the ground

**RBF – Remove Before Flight**

Device intended to be removed from the satellite before launch

**1.1.19 S****SOP – Standard Operating Procedure**

Set of step-by-step instructions compiled by an organization to help workers carry out complex routine operations. SOPs aim to achieve efficiency, quality output and uniformity of performance, while reducing miscommunication and failure to comply with industry regulations.

**SRR – System Requirements Review**

Review of the system requirements to ensure they have been completely and properly identified. It ensures the that the system can proceed into initial systems development and that all system and performance requirements are defined and testable, and are consistent with cost, schedule, risk, technology readiness, and other system constraints.

**1.1.20 T****TBD – To Be Determined**

Placeholder term to indicate details about something have yet to be decided

**TBR – To Be Resolved**

Placeholder term to indicate an issue about something is yet to be fixed

**TLMY – Telemetry**

Automated communications process by which measurements and other data are collected at the satellite and transmitted to the ground

### 1.1.21 U

UHF – Ultra High Frequency

Radio frequencies in the range 300MHz to 3GHz

### 1.1.22 V

VHF – Very High Frequency

Radio frequencies in the range 30MHz to 300MHz

### 1.1.23 W

WBS – Work Breakdown Structure

A hierarchal structure that splits a project into individual components or sub-projects until the end of each branch is a single or list of single deliverables

WDT – Watch Dog Timer

An electronic timer used to detect and recover from computer malfunctions. If it is not pet on time, it barks and resets the system

### 1.1.24 X

### 1.1.25 Y

### 1.1.26 Z