



ASTM INTERNATIONAL
Helping our world work better

F47 Commercial Spaceflight

www.astm.org



Quick Facts

Established 2016

- 100 Members
- 9 Subcommittees
- 2 Approved Standards
 - *F3377-19 Commercial Spaceflight Terminology*
 - *F3344-19 Standard Guide for Storage, Use, and Handling of Liquid Rocket Propellants*

In Process

- 5 Active Work Items
- 7 Task Groups Collaboration Areas

Upcoming Events

- April 3, 2020: *El Pomar Penrose House*; Colorado Springs, CO US
- November 20 2020: *Marriott Marquis Houston*; Houston, TX US



F47 Subcommittee Focus & Scope



- [F47.01](#) Occupant Safety of Suborbital Vehicles
- [F47.02](#) Occupant Safety of Orbital Vehicles
- [F47.03](#) Unoccupied Launch and Reentry Vehicles
- [F47.04](#) Spaceports
- [F47.05](#) Cross-Cutting
- [F47.90](#) Executive
- [F47.91](#) Terminology
- [F47.92](#) Standards Roadmapping
- [F47.93](#) Regulatory Liaison

The scope of the Committee shall be the development and maintenance of voluntary consensus standards and recommended practices for the commercial spaceflight industry. Areas to address in standards include, but are not limited to, design, manufacturing and operational use of vehicles used for spaceflight. The committee shall also develop human spaceflight safety standards. The work of this Committee will be coordinated with other ASTM committees and organizations having mutual interest.



ASTM INTERNATIONAL
Helping our world work better

Kristy Straiton, Manager
610-832-9640
kstraiton@astm.org

www.astm.org



ASTM INTERNATIONAL
Helping our world work better

Supplemental Details for Info Only

www.astm.org

Subcommittee Scopes



F47.01 Occupant Safety of Suborbital Vehicles

Scope: The development and maintenance of standards for occupant safety on suborbital launch and reentry vehicles. This subcommittee will include suborbital spaceflight occupant considerations for, but not be limited to: (1) safety, (2) design, (3) reliability, and (4) human factors. All standards developed within this subcommittee will apply to new and upgraded systems

F47.02 Occupant Safety of Orbital Vehicles

Development and maintenance of standards for occupied orbital vehicles, inclusive of the launch vehicle, that include, but are not limited to, design, performance, safety, operations, and reliability. The work of this subcommittee will be coordinate with other ASTM F47 subcommittees, ASTM committees, and outside organization or entities having mutual interests.

F47.03 Unoccupied Launch and Re-entry

Scope: The development and maintenance of standards for unoccupied launch and reentry vehicles that include, but are not limited to, design, safety, interface, and reliability. The standards will address the characteristics that affect performance, durability and maintainability. The work of this activity will be coordinated with other ASTM Committees and outside organizations having mutual interest. The standards will apply to both new and upgrades systems.

Subcommittee Scopes continue



F47.04 - Spaceports

Scope: The development and maintenance of guidance documents, standards and other materials for all aspects related, but not limited to, spaceports: development, licensing, operations, safety, security, data, interfaces, and any other spaceports related aspects that members consider worthy of such actions. The work of this subcommittee will be coordinated with other ASTM F47 Subcommittees, ASTM Committees and outside organizations or entities having mutual interests.

F47.05 – Cross-cutting

Scope: The development and maintenance of standards and guidance for cross-cutting issues with in F47, which cover more than one subcommittee. The facilitation of communication between subcommittees to coordinate acceptable standards coverage, consistency and task distribution among other subcommittees. The work of this activity will be coordinated with other ASTM Committees and outside organizations having mutual interest.

F47.90 Executive

Scope: To give committee executive direction

F47.91 Terminology

Scope: The Terminology subcommittee maintains the commercial spaceflight terminology standards. The subcommittee also serves as an editorial resource for other subcommittees that need assistance to eliminate redundancies, harmonize variances, clarify meanings, and standardize formats of definitions. The work of this activity will be coordinated with other ASTM Committees and outside organizations having mutual interest.

F47.92 Standards Roadmapping (Unclassified)

Scope: The development and maintenance of a database or document that tracks and prioritizes potential topics, subjects, suggested timelines, and titles of standards for all subcommittees within F47; which will provide the basis for standards development within the other subcommittees. The facilitation of communication between subcommittees to coordinate acceptable standards coverage, consistency, and task distribution among other subcommittees. This activity will consider F47 participant and outside

F47.01 Task Groups



F47.01 Occupant Safety of Suborbital Vehicles	AC388 - Partial Pressure or Concentration of Oxygen	Dana Levin? *Need new TC
F47.01 Occupant Safety of Suborbital Vehicles	WK59508 Guide for Fault Tolerance for Occupant Safety of Suborbital Vehicles	Andrew Lake
F47.01 Occupant Safety of Suborbital Vehicles	AC370 - Solar Proton Event Mitigation	Rebecca Blue? * Need new TC
F47.01 Occupant Safety of Suborbital Vehicles	AC469 - Medical Certification for Crew and Passengers	Michael Schmidt

F47.02 Task Groups

F47.02 Occupant Safety of Orbital Vehicles	WK70011 Practice for Crew Safety	Trent Tresch
F47.02 Occupant Safety of Orbital Vehicles	Medical human orbital flight less than 30 days	TBD

F47.03 Task Groups

<p>F47.03 Unoccupied Launch and Reentry Vehicles</p>	<p>WK61254 Classification for Spacecraft vehicle types</p>	<p>Christopher Allison</p>
<p>F47.03 Unoccupied Launch and Reentry Vehicles</p>	<p>WK64814 - Guide for Flight controller Training</p>	<p>Lisa Loucks</p>

F47.04 Task Groups

**F47.04
Spaceports**

**F3344-19 Standard
Guide for Storage,
Use, and Handling of
Liquid Rocket
Propellants**

Jane Kinney

**F47.04
Spaceports**

**AC402 - Launch Site
Requirements guide**

Mark Greby

F47.05 Task Groups

F47.05 Cross-cutting	WK65152 - Classification for Reportable safety related events	Oscar Garcia
F47.05 Cross-cutting	AC466 - Qualification for Safety Critical Systems Task Group	Calvin Baker
F47.05 Cross-cutting	AC467 - Crew Rest	FAA - Lynda Bottos to lead?

F47.05 Task Groups

F47.05 Cross-cutting	AC468 - Safety Critical Personnel Qualifications	Task group created to work together	Mark Greby	The scope of this standard is anyone on the ground that are doing safety critical jobs that affect the spacecraft. ♣ Launch operators or launch site operators will fit within this purview. ♣ Launch operators or launch site operators will have to define safety critical positions. ♣ Will define how launch operators or launch site operators should train their safety critical employees.
F47.05 Cross-cutting	Reporting Safety Events Guide	Once WK65152 is published, this will help build a database companies can report the events into	Oscar Garcia	The next step in this standardization effort is to build a reporting system or database which companies could report into. • Companies would be stripped of their identity within the database. • It is expected that this database creation would take a long time. ♣ It is necessary to better define different levels of severity seeing that commercial space is an inherently risky and experimental industry

F47.05 & F47.91 Task Groups

F47.05 Cross-cutting	WK70413 - Guide for Guidance for Space Data Exchange to Support the Integration of Space Operations into Air Traffic Management	Zheng Tao
F47.05 Cross-cutting	AC369 - Informed Consent Task Group	Calvin Baker
F47.91 Terminology	F3377-19 Commercial spaceflight Terminology	Ron Desmarias