

# Commercial Space Transportation



Federal Aviation  
Administration

COMSTAC-STANDARD WORKING  
GROUP (SWG)

OCTOBER 20-21, 2015

OBSERVATIONS, FINDINGS AND  
RECOMMENDATIONS (OFR'S)

Chair: Oscar S. Garcia

Vice-Chair: Livingston Holder



# Agenda

1. Standards and Recommended Practices (SARP's)
2. Roadmap to Regulation
3. Finding: Need for a Roadmap to Regulation and Task Group
4. Recommendation: SARP's Sub-Committee
7. Next Steps



# Standards and Recommended Practices (SARP's)

- Progress made through SWG-AST standards conf calls, June and Sep 4<sup>th</sup> , 2015, and ad-hoc meetings, emails and conversations (i.e. ASTM COMSTAC briefing)
- SWG held 2 conf calls July 10<sup>th</sup> and September 17<sup>th</sup>
- **Standards (how industry “shall” do something)**
  - Industry (CSF), company, consortium or government
  - Voluntary consensus (OMB 119B)
    - Used by FAA as Means of Compliance (MOC)
- **Recommended Practices (how industry “should” do something)**
  - **RP's are standards but without the technical detail**
- Standards and Recommended Practices (SARP's) as a unit

# Roadmap to Regulation

- Mid Term 2015-2020
  - Roadmap Task Team reports to AST to meet congressional deliverables
  - SARP's to address occupant safety
  - Cluster SARP's into areas of possible future regulation
  - SARP's would become MOC's when regulation applies

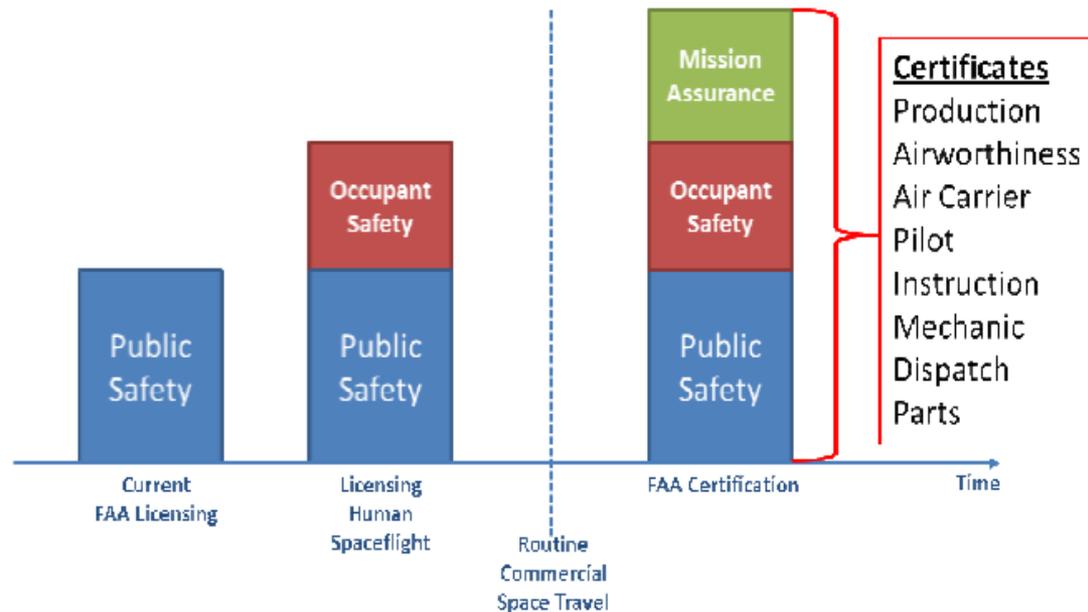


Fig. 1: The Evolution of Commercial Space Transportation Regulation

# Safety Roadmap to Regulation

- SARP's driven by "actual" industry experience, challenges and opportunities to enhance safety and self-regulate
- Initial focus on occupant safety
- Scalable to all spaceflight safety areas

TIMELINE	2015	20XX	20YY	20ZZ
STAGE	LEARNING PERIOD	PRE-REGULATON	REGULATIONS	CERTIFICATIONS
MILESTONE	INITIAL OPERATIONS	ROUTINE OPS	COMMON CARRIAGE	
METHOD	INFORMED CONSENT	NPRM	REGS 14CFR 400.XX	FAA FORMS XXXX-X
INDUSTRY/AST COLAB	SARP	ARC	ARC	FAA=POLICY/VERIF/INSPECT
			INDUSTRY= SARP'S AS MOC	INDUSTRY= SARP'S AS MOC
SAFETY AREAS	DESIGN	DESIGN&PERF	VEHICLES	AIR/SPACE WORTHINESS CERT
	MANUFACTURING	REQD EQUIP	AIR/SPACE CARRIER	COMMON CARRIAGE CERT
	OPERATIONS	QLTYASSURANCE	PILOT/ASTRONAUT	LICENSE
		PRODUCTION	INSTRUCTION	PROGRAM CERT
		OPS MANUALS	MECHANIC	LICENSE
		MAINT&INSP	DISPATCH	LICENSE
		AIRWORTHINESS	PARTS	PMA
	ETC	ETC	ETC	ETC

# Finding:

- COMSTAC finds that industry should draft a Standards and Recommended Practices (SARP's) roadmap to prepare for future regulation.
  - The SARP's roadmap will address subject areas for possible future regulation, concepts to define “routine” operations and concepts to build a safety framework by managing knowledge and operational experience gained while flying for compensation or hire
  - The SWG is forming a roadmap drafting task group, Co-led by Paul Damphousse (Gen-Astro) and James Duffy (R&S Rizing)

# Recommendation

- The COMSTAC recommends that AST participate in a Standards and Recommended Practices (SARP) Subcommittee which will operate under the auspices of the SWG.
  - The SARP Subcommittee's initial focus area will be to prioritize areas needing work within human spaceflight occupant safety.

# Recommendation Rationale

- SARP Guiding Principles:
  - COOPERATION-CONSENSUS-COMPLIANCE-COMMITMENT
- The SARP initial focus is occupant safety and incorporate industry leadership from the COMSTAC, industry associations (i.e. CSF), and other government entities (i.e. NASA), as well as industry consensus standards development orgs (i.e. ASTM, AIAA, SAE), companies, academia and other stakeholders.
- The SARP will, amongst other tasks; prioritize, select, develop and adopt human spaceflight occupant recommended voluntary consensus standards and recommended practices

# Recommendation Rationale

- SARP Guiding Principles:
  - COOPERATION-CONSENSUS-COMPLIANCE-COMMITMENT
- This platform could immediately focus on current industry and any AST standards currently in development as a process pathfinder and test of joint efforts.
- The sub committee efforts are to be aligned in purpose and time with FAA/AST human spaceflight Occupant Safety Recommended Practices (v1.0) and business plans, the Congressional Space Act of 2015 and Space Launch Competitiveness Act industry voluntary consensus standards mandates, milestones, and reports.

# Next Steps

## Q1-2 2016

- SWG task group submits roadmap first report draft
- SARP's sub committee established and operating