

Small Satellite Industrial Base Study: Foundational Findings

See the report at - <http://hdl.handle.net/2060/20190034098>

Objective:

- Gain better understanding of the SmallSat community's technical practices, engineering approaches, common processes, requirements flow-downs
- Glean recommendations for how the government can further capitalize on SmallSat capabilities

Key Findings:

- Requirements flowed to suppliers are fragmented and are not easily categorized.
 - Widely variable and dependent upon what suppliers and procurers are willing to agree to vs a codified set of standards
- Rich diversity of perspectives and common themes can sharpen insight as new norms are established

General Alignment with Gov't Standards:		STRONG	MODERATE	WEAK	MINIMAL	NONE
Respondent Practices Used	A	B	C	D	E	
Amount of alternate-grade parts usage	COTS, Enhanced Product, Automotive, Military, Space	COTS, Medical, Aircraft Military, Space	COTS, Rad Tolerant, Automotive, Military, Space	COTS, Industrial, Automotive, Medical, Military, Space	COTS, used in Automotive, Medical, Military, Space applications	
Data provided to customers						
Basic requirements flowed						
Standards referenced						
Estimating reliability or risk	Piece-Part Suppliers					

General Alignment with Gov't Standards:		STRONG	MODERATE	WEAK	MINIMAL	NONE				
Respondent Practices Used	A	B	C	D	E	F	G	H	I	J
Amount of alternate-grade parts usage	Very little. Space-grade parts preferred	COTS is most-used part grade	COTS ~50%, Auto/Indus ~25%, Space/Rad Hard ~25%	Industrial 90%, COTS 5%, Aviation/ Auto 5%	Avoid commercial, use some industrial, lot of JAN, lot of upscreening	Many COTS, the rest are a mixture of multiple grades	Many COTS	95% COTS	100% COTS	Small amount of non-Class-S
Data provided to customers	Depends on customer	Functional tests for custom parts	Determined by customer spec and Statement of Work		Temperature screening and burn-in, qualification, End Item Data Package	Not much different from flight/mission. Extensive testing etc. to ensure meeting requirements.	Depends on customer and mission	Depends on customer. Does more for a cost.	Parts traceability, wafer traceability when possible	Acceptance testing at supplier
Basic requirements flowed										
Standards referenced	Not available									
Estimating reliability or risk	Spacecraft & Launch Vehicle Builders									

General Alignment with Gov't Standards:		STRONG	MODERATE	WEAK	MINIMAL	NONE						
Respondent Practices Used	A	B	C	D	E	F	G	H	I	J	K	L
Standards referenced			Not Applicable									
Basic requirements flowed to subs			Not Applicable									
Tests and validation performed												
	Assembly & Subsystem Providers											

Note: No assessments. Simply indicators of similarities/differences between respondent's organization's practices and Government's traditional practices, based on responses to interview questions.

