Architecture Framework
Conformity Forecast
Ground System Architecture Framework (GSAF) Version 1.0

ARCHITECTURE FRAMEWORK OBJECT (AO)

Ground System Architecture Framework (GSAF) (this is the "assessment object" / item being assessed)	This conformity forecast is based upon: The Joint Center for Ground Vehicles (JCGV) Ground System Architecture Framework (GSAF) Version 1.0 June 26, 2012. [GSAF1] US RDECOM, Science & Technology Architecture Tutorial (abridged), undated. [S&TAT]

This assessment summary is based upon:	
___	Full Conformity Assessment
_X_	Conformity Forecast

RESULT AND DISCREPANCIES

	Conforming (not a possible result of a Conformity Forecast)
_X_	Non-Conforming

The bases of the result and any areas of discrepancy are recorded below. These are organized by the architecture framework requirements from ISO/IEC/IEEE 42010:2011, Clause 6. References to that Standard are given in the form, IS x.y.x.

An architecture framework shall include [per IS 6.1]:	
AF-1a	a) information identifying the architecture framework;
	[GSAF1, 5.1] provides an overview of GSAF. [GSAF1, 5.2] establishes the scope of GSAF over a portfolio of systems of interest.
AF-1b	b) the identification of one or more concerns [per IS 5.3];
	[GSAF1, 5.4] identifies 5 concerns. [S&TAT, 13, 16] identifies a "sample set" of concerns.
AF-1c	c) the identification of one or more stakeholders having those concerns [per IS 5.3];
	[GSAF1, 5.3] identifies 8 stakeholders. [S&TAT]: no stakeholders identified.

AF-1d	d) one or more architecture viewpoints that frame those concerns [per IS 7];
	[GSAF1, 5.5] identifies 9 "commonality" viewpoints. "The commonality viewpoints identify the minimum viewpoints required for stakeholders to assess physical and logical structural commonality." [GSAF1, 5.6] Each GSAF viewpoint specifies the concerns it frames. "The architecture framework does not address architecture viewpoints related to system design or C4 interoperability other than to require that the underlying models used to construct architecture views be consistent across all architecture views of the system." [GSAF1, 5.1] "Specific system and design viewpoints are not identified in this version of the GSAF." [GSAF1, 5.6] However, [S&TAT] provides a set of system analysis and design viewpoints not included in the GSAF. Viewpoints include descriptions, concerns, presentation methods and consistency rules [GSAF1, 5.5; S&TAT]. [GSAF1] documents viewpoints with text descriptions (5.5.X) and via example (appendix C). [S&TAT] provides text descriptions and examples. Constituent model kinds not identified; implied by "Pen" example in [S&TAT], showing possible model kinds in terms of SysML diagram types listed for each viewpoint within the set of minimum viewpoints. SysML is "encouraged but not required" [S&TAT, 24].
AF-1e	e) any correspondence rules [per IS 5.7].
	No explicit correspondence rules are given. [S&TAT, 14] refers to "mappings" between viewpoints. [S&TAT, 28] show possible relationships between views. These items, and the "consistency rules" presented in [GSAF1] and [S&TAT] appear to have the intent of correspondence rules—although not specified IAW IS 5.7.3.
AF-2	An architecture framework should include conditions on applicability. [IS 6.1]
	No explicit conditions on applicability are presented. However, [GSAF1, 5.6] notion of "minimum required viewpoints and [S&TAT, 14] "minimum view presentation elements" could be intended as relating to such conditions.
AF-3	An architecture framework shall establish its consistency with the provisions of the conceptual model in [IS 4.2].
	In [GSAF1, 4.8], the definition of "core architecture" is inconsistent with use of term *architecture*. [S&TAT, 11] defines "view" as "architecture description." [S&TAT] confuses "view" and "viewpoint" (e.g., slide 24). In [GSAF1, Figure 1], the framework does not depict model kinds (or equivalent). [S&TAT, 11] appears to confuse AD elements with "models".

OBSERVATIONS

[GSAF1, Figure 1] depicts a "hierarchy" of viewpoints. This hierarchy is not explained.

It is unclear how Network Viewpoint frames concern #1 in 5.4 in regard to compliance with "mandated standards".

It is unclear how "required timelines" information cited by UI Viewpoint is represented.

Several viewpoints refer to "interconnects" but these may be very different things (e.g., power interconnections would not be the same as interconnects in Cooling viewpoint).

Division of labor (or redundancy) between Power, Cooling and SWAP Viewpoints is unclear.

The [S&TAT, 13] list of concerns does not match those in [GSAF1]

The [S&TAT, 14] list of viewpoints does not match those in [GSAF1].

Using DoDAF "viewpoints" in a GSAF architecture description could prevent conformity of the AD—as DoDAF does not provide viewpoints IAW the Standard. (See IS 6.2)

On [S&TAT, 48], it is unclear if "variants" of Component view[point] are alternative conventions (completely replace the viewpoint), or model kinds (parts of the viewpoint). Discussion of cross-referencing implies 3 required model kinds are involved.

Model kinds could be used to good effect (e.g., in organization of User Interface View in terms of models for each crew position. Similarly, multi-function displays may require a different model kind).

References to the Standard are inconsistent ("ISO/IEC 42010", "ISO/IEEE/IEC 42010"). Correct reference is: ISO/IEC/IEEE 42010.

BACKGROUND

ADCA is a **conformity assessment scheme** for Architecture Frameworks, following ISO/IEC/IEEE 42010:2011, *System and software engineering—Architecture description*.

One part of the ADCA scheme is the Architecture Framework Conformity Forecast (AFCF). The AFCF allows the application of the AFCA scheme for "quick looks" at candidate Architecture Frameworks for purposes such as planning, comparison, etc. The present document utilizes version 1.0 of the AFCF.

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DISCLAIMER

This Conformity Forecast is based on a quick analysis of the Architecture Framework Object identified above, based on inspection of the referenced artifacts and using the same methods and analysis techniques as the AFCA. It is not intended as a substitute for a full Architecture Framework Conformity Assessment and cannot be used as basis to claim conformance to the Standard. The result, discrepancies and observations have not been reviewed by the AFO Originator.