Verification Matrix

- Understand the Difference: Validation vs. Verification
  - Validation proves that a product accomplishes the intended purpose, that it meets the overall need.
    - "Did I build the right thing?"
  - Verification proves that a product complies with requirements.
    - "Did I build the thing right?"

- VERIFICATION DESCRIPTION
  - States how to show the system can perform the function or has the characteristic described in the system requirements.
  - States the level of assembly at which the requirement will be verified.
    - Verification level of assembly should mirror requirement level.
  - Ensures that the proper resources are available to verify the requirements.
  - Increases the probability that the provider will build exactly what we intended.

- VERIFICATION MATRIX
  - A Verification Matrix is a typical method used to document the verification approach.
  - A Verification Matrix typically includes:
    - Requirement ID
    - Requirement Title (optional)
    - Requirement
    - Rationale
    - Parent Requirement
    - Verification Method
    - Verification Description
    - Verification Level
    - Verification Documentation
    - Results with dates
    - Current Stats

- Verification Methods
  - **Test** – Method of verification of quantitative operational performance requirements by measurement during or after the controlled application of functional and environmental stimuli.
  - **Analysis –** Method of verification utilizing techniques and tools to confirm that requirements have been satisfied.
  - **Inspection** – Method of verification that determines compliance using methods such as visuals or gauges.
  - **Demonstration** – Method of verification used for determination of properties of an end item or component by observation of its operation or characteristics. It is a qualitative method of verification.
  - **Test is preferred** – communicate the risks associated with an alternate method

Example 1:

APPENDIX A VERIFICATION MATRIX

RUI	Req. Section #	Req. Title	Verification Method	Verification Tier	V. Strategy	V. Planning
RCDH_0027	4.1.2.7	SCT Jam (H/W)	Test	Subsystem Spacecraft Bus	T: Box ATP T: Timing Test	Subsystem: 461-CDH-PROC-0015 Section 4.18/5.18
RCDH_0028	4.1.2.8	SCT Jam (FSW)	Test	Subsystem Spacecraft Bus	T: Box ATP T: Timing Test	Subsystem: 461-CDH-PROC-0015 Section 4.18/5.18
RCDH_0029	4.1.2.9	SCT 1 PPS Generation	Analysis	Component		461-CDH-ANYS-0238 RCDH_0029 ANALYSIS.doc uploaded into MIS.
RCDH_0031	4.1.2.10.1	SCT 1 PPS Distribution	Inspection	Component	I: Processor Card Arbiter FPGA Specification	Review of design of FPGA bits in seconds counter register. 461-

Example 2:

Component	Static-Equivalent Acceleration (Sine Burst)	Modal Survey	Fundamental Frequency (Sine Sweep)	Sine Vibration	Random Vibration	Acoustics	Shock	Ambient Pressure	Proof Pressure	Thermal Vacuum	Thermal Cycling*	Deployment	Humidity	EMC	Magnetics	Radiation	Plasma
Structure	T	T															
Transceivers	T/A		T	T	T		T/A	A		T			A	T	T	A	
CIRAS	T/A		T	T	T		T/A	A		T			A	T	T	A	
PSEES	T/A		T	T	T		T/A	A		T			A	T	T	A	
Battery	T/A		T	T	T		T/A	A		T			A		T	A	
Sun Sensors	T/A		T	T	T		T/A	A		T			A	T/A	T	A	
Star Cameras	T/A		T	T	T		T/A	A		T			A	T/A	T	A	
Accelerometers	T/A		T/A	T/A	T/A		T/A	A		T			A	T/A	T	A	
Propellant Tanks	T/A		T	T	T		T/A	A	T	T			A		T	A	
Thrusters	T/A		T	T	T		T/A	A		T			A		T	A	
Latch Valves	T/A		T	T	T		T/A	A		T			A		T	A	
Antennas	T/A		T	T	T		T/A	A		T			A		T	A	
Mag Booms	T/A		T	T	T		T/A			TBD		TBD			A		
Solar Panels	T/A		T/A	T/A	T/A	T	T/A	A		T	QT		A		T	A	A
Harness										TB							

Notes:
I = Inspection, A = Analysis, T = Test, T/A = Test or Analysis, QT = Qual panels only, TB = Thermal Bake-Out
*At ambient pressure