How the vibe figures were determined:

Found in MIL-STD-810H METHOD 514.8, this table shows that the missile platform most closely aligns with the launch vehicle the time card would be on (a rocket). It references Test I and IV for missiles.

Table 514.8-I. Vibration environment categories.

Life Phase	Platform	Category	Materiel Description	Annex	Test[1]
Manufacture / Maintenance	Plant Facility / Maintenance Facility	1. Manufacture / Maintenance processes	Materiel / Assembly / Part	B	2
		2. Shipping, handling			2
		3. ESS			3
Transportation	Trucks and Trailers	4. Secured Cargo	Materiel as secured cargo[4]	C	I
		5. Loose Cargo	Materiel as loose cargo[4]		II
		6. Large Assembly Transport	Large assemblies, shelters, van and trailer units[4]		III
	Aircraft	7. Jet	Materiel as cargo		I
		8. Propeller			
		9. Helicopter			
	Watercraft[5]	10. Marine Vehicles			
	Railroad	11. Train			
Operational	Aircraft	12. Jet	Installed Materiel	D	I
		13. Propeller			
		14. Helicopter			
	Aircraft Stores	15. Jet	Assembled stores		IV
		16. Jet	Installed in stores		I
		17. Propeller	Assembled / Installed in stores		IV/I
		18. Helicopter			
	Missiles	19. Tactical Missiles	Assembled / installed in missiles (free flight)		
	Ground	20. Ground Vehicles	Installed Materiel in wheeled / tracked / trailer		I/III
	Watercraft[5]	21. Marine Vehicles	Installed Materiel		I
	Engines	22. Turbine Engines	Materiel Installed on Engines		
	Personnel	23. Personnel	Materiel carried by/on personnel		2
Supplemental	All	24. Minimum Integrity	Installed on Isolators / Life cycle not defined	E	I
	All Vehicles	25. External Cantilevered	Antennae, airfoils, masts, etc.		2

[1] Test procedure – see paragraph 4.
[2] See Annexes B, C, D, & E, and the paragraphs related to categories identified in the "Category" column. It is highly recommended that users read Annex A before applying Annex B, C, D and E vibration schedules
[3] Refer to the applicable ESS procedure (for additional guidance see Annex A, Paragraph 2.1.6).
[4] See paragraph 2.3.2 below.
[5] For Navy vessels, see Method 528.1.

The following section describes the differences among the procedures. Note that Procedure IV states that Procedure I should not be used for free flight phases.

2.2.2 Difference among procedures.

a. Procedure I - General Vibration. Use Procedure I for materiel to be transported as secured cargo or deployed for use on a vehicle. This procedure applies to ground vehicles as well as fixed and rotary wing aircraft. For this procedure, the test item is secured to a vibration exciter, and vibration is applied to the test item as an input at the fixture/test item interface. Steady state or transient vibration may be applied as appropriate.

b. Procedure II - Loose Cargo Transportation. Use this procedure for materiel to be carried in/on trucks, trailers, or tracked vehicles and not secured to (tied down in) the carrying vehicle. The test severity is not tailorable, and represents loose cargo transport in military vehicles traversing rough terrain.

c. Procedure III - Large Assembly Transportation. This procedure is intended to replicate the vibration and shock environment incurred by large assemblies of materiel installed or transported by wheeled or tracked vehicles. It is applicable to large assemblies or groupings forming a high proportion of vehicle mass, and to materiel forming an integral part of the vehicle. In this procedure, use the specified vehicle type to provide the mechanical excitation to the test materiel. The vehicle is driven over surfaces representative of service conditions, resulting in realistic simulation of both the vibration environment and the dynamic response of the test materiel to the environment. Generally, measured vibration data are not used to define this test. However, measured data are often acquired during this test to verify that vibration and shock criteria for materiel subassemblies are realistic.

d. Procedure IV - Assembled Aircraft Store Captive Carriage and Free Flight. Apply Procedure IV to fixed wing aircraft carriage and free flight portions of the environmental life cycles of all aircraft stores, and to the free flight phases of ground or sea-launched missiles. Use Procedure I, II, or III for other portions of the store's life cycle as applicable. Steady state or transient vibration may be applied as appropriate. Do not apply Procedure I to fixed wing aircraft carriage or free flight phases.

MIL-STD-810H Method 514.8D contains the vibration figures for missiles.

METHOD 514.8, ANNEX D

Operational Tailoring Guidance for Vibration Exposure Definition

NOTE: Unless specifically noted, all document references refer to paragraph 6.1 of the front part of this Method.

1. SCOPE.

1.1 Purpose.

This Annex provides information intended to be useful in determining the vibration levels and durations of operational environmental life cycle events, and in defining the tests necessary to develop materiel to operate in and survive these environments.

1.2 Application.

Recommend actual environments be measured and materiel life cycle durations be used to develop materiel design and test criteria whenever possible. Existing databases can sometimes be used in lieu of measurements. A preliminary environmental life cycle based on data provided herein can be useful as a planning tool. A preliminary life cycle definition can be used to concentrate limited resources on those vibration exposures most significant to the materiel. Guidance for setting design and test exposure values is given below with descriptions of vibration environments of many typical life cycle events. Suggested alternate criteria (levels and durations) or other guidance is recommended for those cases where measured data defining the actual environments are not available. Table 514.8-I in the front part of this Method contains an outline of the following paragraphs with references to the paragraph numbers.

1.3 Limitations.

See paragraph 1.3 in the front part of this Method.

2. OPERATIONAL SERVICE.

This paragraph applies to materiel installed in a vehicle, aircraft store, turbine engine, or carried by personnel. Such materiel may be permanently installed or removable.

Paragraph 2.8 specifically states what figures and table to use for missiles and also calls out paragraphs 2.4.3 and 2.5 for free flight environments. Note that paragraph 2.5 calls out the same figures and table as paragraph 2.8. These figures and the table are what is called out in our engineering requirement and will be used for structural analysis.

2.8 Category 19 - Missiles - Tactical missiles (free flight).

There is no known source of general guidance or measured data for tactical missile carriage or launch vibration environments. Environments for jet aircraft, propeller aircraft, and helicopter carried missiles (stores) are discussed in paragraphs 2.4 through 2.7. Tactical carriage ground environments are discussed in paragraph 2.9. Free flight environments are covered in paragraphs 2.4.3 and 2.5 in regard to aircraft carried missiles. These environments should be generally applicable to tactical missiles during free flight mission segments.

a. Exposure levels. There is no known source of data. For accurate definition of tactical missile free flight vibration, measurement of the actual environment is essential. The aircraft store criteria of Table 514.8D-IV and Figures 514.8D-6 and 514.8D-9 may be used to develop preliminary estimates of free flight vibration.

b. Exposure durations. Take durations from the Life Cycle Environment Profile.

2.4.3 Free flight.

Vibration will be experienced by stores that are deployed from aircraft, ground vehicles, or surface ships. The sources of vibration for the free flight environment are engine exhaust noise, vibration, and noise produced by internal equipment and boundary layer turbulence.

a. Generally, engine exhaust noise levels will be too low to excite significant vibration in the store. This is because the engine only operates when the ratio of the exhaust velocity to the ambient air speed is low and

(except in unusual cases) the exhaust plume is behind the store.

b. Vibration produced by onboard materiel can be severe in specific cases. Examples are ram air turbines, engines, and propellers. There is no general basis for predicting store vibrations from such sources. Each case must be evaluated individually, and it is likely that measurements will be required.

c. Boundary layer turbulence induced vibration should be as for captive carriage except that store vibration mode frequencies may shift, flight dynamic pressures may be different, and turbulence from the carrier aircraft and nearby stores will be absent.

2.5 Category 16 - Aircraft stores - materiel, jet aircraft.

Materiel installed within a jet aircraft store will experience the store vibration discussed in paragraph 2.4. The input exposure levels for materiel within the store are essentially the same as response levels of the store. If gunfire, cavity resonance, buffet-maneuver, and free-flight conditions occur for the store, the materiel will also be exposed to these conditions.

a. Exposure levels. Base vibration criteria on in-flight measurements when possible. If satisfactory flight measurements are not available, derive levels from Table 514.8D-IV and Figure 514.8D-9.

Note: Use input control for vibration testing of this materiel rather than response control (see paragraph 4.2.1 in the front part of this Method).

b. Exposure durations. Take durations from the Life Cycle Environment Profile.