MEDLI2 Mechanical Environmental Testing

Random Vibration Testing for Pressure Transducers

Heat Shield and Backshell Assemblies	Frequency, Hz		Qualification/ Protoflight Level
- Pressure Transducers	20 – 40 40 - 100 100 – 150 150 – 400 400 - 2000 Overall		+ 6 dB/oct 0.8 g^2/Hz -5.9 dB/oct 0.36 g^2/Hz - 5.8 dB/oct 17.1 g_{rms}
Duration: 1 minute/axis			

Shock Testing for all Pressure Transducers

Zone	**Frequency, Hz**	**QUAL, PF Peak SRS Response (Q=10)**
	100	30 g
3	100 - 1,600	+ 10.0 dB / Oct.
	1,600 - 10,000	3,000 g

All of the Pressure Transducers (heatshield and backshell) should be tested for a zone 3.

Tolerances for the Dynamic Testing (Random Vibration and Shock)

Parameter	**Discussion**
Static loads (Centrifuge or Shaker)	Shall be within +/- 5% of the specified value.
Random vibration spectral shape	Measured in frequency bands no more than 25 Hz wide, the power spectral density test spectra shall be within +/- 3 dB.
Random vibration wide-band (RMS) level	Shall be within +/- 1.0 dB (true RMS) of the specified level.
Frequency	Shall be within +/- 5% or +/- 1 Hz, whichever is greater.
Time	Shall be within +/- 5%.
Shock response spectrum shape	Measured with a minimum resolution of 1/12 octave frequency band. For shaker test, the maximum shaker response spectrum shall be within +/- 3 dB of the specified shock spectrum level, above 3000 Hz the lower tolerance may be eliminated if the test hardware shock sensitive frequency is far below this frequency. For other shock-generating apparatus tests (such as impact devices), the tolerances shall be within +/- 6 dB for frequencies below 3000 Hz, and +9/-6dB for frequencies above 3000Hz, but at least 50% of the maximum spectrum values shall exceed the nominal values.