Performance Metric	Broadband			Short Period	Strong Motion	
	Class A+	Class A	Class A-	Class A	Class A	Class B
Input sensor channels	6			6/4	6/4/3	3
Sampling rates	0.1, 1, 20, 50, 100, and 200 sps (200 sps preferred default)			1, 20, 50, 100, and 200 sps (200 sps preferred default)		
DAU Amplitude Resolution (signal-to-noise ratios) at 200 sps [resolved bits, PTP; and ANSS-method rms dB]	≥24 bits (135.5 dB) 23 bits (129.4 dB), 0.01 – 15 Hz 22 bits (123.4 dB), 15 – 30 Hz	≥22 bits (123.4 dB) 21 bits (117.4 dB), 0.01 – 15 Hz 20 bits (111.4 dB), 15 – 30 Hz	≥20 bits (111.4 dB), all frequencies	≥22 bits (123.4 dB) 21 bits (117.4 dB), 0.01 – 15 Hz 20 bits (111.4 dB), 15 – 30 Hz	≥22 bits (123.4 dB) 21 bits (117.4 dB), 0.01 – 15 Hz 20 bits (111.4 dB), 15 – 30 Hz	≥16 bits (87.3 dB), 0.1 – 35 Hz
Preamplifier Gains	1			1, 3.2, 10, 32, 100 (10 dB steps)	1	
Total Harmonic Distortion	≤–70 dB in sinusoidal excitation at ADC-system input (THD = ratio of power in the fundamental to the sum of power in observed harmonics, using ANSS-method PSD)					
Gainand Offset Stability and Accuracy over Temperature	Gain stable and accurate to 0.5% over 0 to 40 °C, to 1% over full operating temperature range, and to 0.25% at DC, 20 °C. Offset less then 0.5%FS from 0 to 40 °C.					Same except gain accurate to 0.5% at DC, 20 °C
Ground currents, supply- and reference-voltage stability	No part of the analog system, including amplifiers and ADC, shall suffer disturbance greater than the system's quiescent noise floor at any time due to disk spin up, GPS or telemetry power up, or any other system activity. An external connector to primary-ground, seperate and apart from the power pins, shall be supplied.					
Worst Timekeeping Error with Regular GPS Locks	<1 ms					<2 ms
Internal time reference accuracy (free running)	0.1 ppm/°C and 0.1 ppm/day (at ANSS option, WebSync and/or NTP capability)					The same, but with 0.2 ppm/°C and 0.2 ppm/day.
DAU Recording	Complete and continuous; storage buffer ≥12 hours, with compression enabled					**Required:** buffer ≥1 hour; **Desired:** As Class-A
Trigger Store-and-Forward	**Required:** ≥60-s pre- and ≥90-s post-event; save largest; storage buffer ≥8 Mbytes					
	Desired: ≥120-s pre- and ≥180-s post-event; save largest; storage buffer ≥32 Mbytes					
Trigger Algorithms for High-Rate Store-and-Forward	STA/LTA or equivalent, threshold (≤0.0008 to ≥1.0 g), and timed triggers, as well as any more sophisticated algorithms vendors may wish to supply. All triggers shall include minimum and maximum event-duration criteria.					Required: Threshold plus minimum duration Desired: as Class A
Telemetry Latency	≤30 s					ShakeMap parameters within 120 s of trigger
Telemetry	Format: IP required (TCP preferred); Carriers: Vsat, CDMA, ISM, ISPs, Frame Relay, …					
Expected Lifetime	Ten Years (manufacturer to justify)					
DAU sensor input	±20 V			±20 V	±20 V or ±10 V (matching sensors)	
Temperature Range for Meeting **All** Guidelines not otherwise indicated	–20 to +40 °C					
Operational Temperature Range	–40 to +60 °C					
Control signals	Lock/unlock and mass center (broadband only), self-test enable, ring-down or free period test, damping test, produce sine, step and random binary calibration signals, all to provide sensor output of 5 and 50 %FS.					**Desired:** Same as Class-A Accelerometers
Acquiring Sensor Parameters	Capable of acquiring parameters from seismometers and accelerometers (e.g., transfer functions).					