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(54) **STRONG-MOTION SEISMOLOGICAL ACCELEROMETER SYSTEM**

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(52) **U.S. Cl.** **73/649**; 73/1.85
(58) **Field of Search** ..... 73/493, 497, 514.33, 73/649, 652, 1.37, 1.38, 1.82, 1.85; 702/14, 99; 33/1 HH; 181/108

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(57) **ABSTRACT**

An accelerometer system principally for use in high spatial density urban arrays for near-real-time mapping of strong shaking due to large earthquakes. The present accelerometer system offers research-grade "16-bit resolution" (=90.3 dB dynamic range =20log(2^{15})), and yet it is inexpensive to buy and inexpensive to maintain. A more efficient and accurate calibration and compensation procedure is also disclosed. The improved accelerometer system is ideally suited to any situation requiring large numbers of instruments, low installation costs, high robustness, low maintenance costs, and near-real-time response. The price/performance point achieved by the present invention far exceeds past instrumentation and opens many new markets.

18 Claims, 11 Drawing Sheets