

# SARTI VIBRATIONS LABORATORY

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SARTI research group has a vibration laboratory that can offer services for companies in order to test their components, equipments or another devices in a vibration bank that follows the UNE-EN 60068-2-6, EN 60068-2-6 or CEI 60-2-6:1995 standards (Environmental testing of sinusoidal vibrations).

The laboratory consists of a shaker table (figure 1) controlled by a calibrator BERAN 455 (figure 2) that can operate from 0,2 to 100 Hz and from 1mg to 1g of acceleration. The vibration lab can test equipment of up to 23 Kg and carries out frequency sweep, acceleration step or frequency step up to 80 points and four tests in a row, to characterize the device under test in units of acceleration, velocity or displacement.

The AIR BEARING HORIZONTAL SHAKER of APS ElectroSeis Model 129 consists of a force generator coupled to a horizontal table (254mm x 254mm) that vibrates by means of compressed air. The reference transducer is an accelerometer PCB model 393B31 with a sensitivity of 1,02V/m/s<sup>2</sup>. The shaker is on top of an anti-vibration table of 400 Kg in order to isolate the measurement from ground (Figure 4). The vibration system includes a power amplifier Model 144 (APS Dynamics) between the calibrator and the shaker to ensure the excitation on the table.

This vibration system that generates low excitation at low frequency is used spe-

cially to calibrate geophones, accelerometers and other types of inertial transducers and follows the standard ISO 16063-21:2003 (Methods for the calibration of vibration and shock transducers –Part 21: Vibration calibration by comparison to a reference transducer).

The calibration data obtained can be stored or listed on a certificate where Sensitivity vs frequency or amplitude appears. The vibration measurement system can also work under GPIB commands and can operate as a virtual instrument with a LabView program.

The diagram of figure 3 shows the vibration measurement system composed of the shaker, reference accelerometer, the device under test, the calibrator (signal conditioning unit), the linear amplifier and a computer.

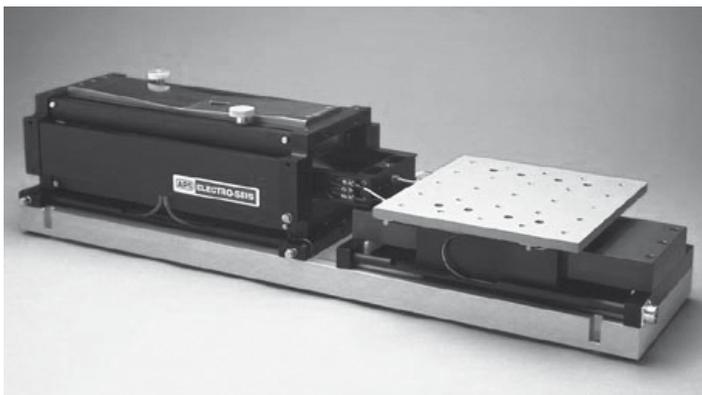


Figure 1 Shaker table for vibrations from 0,2Hz to 100 Hz.



Figure 2 Front panel of Calibrator BERAN 455

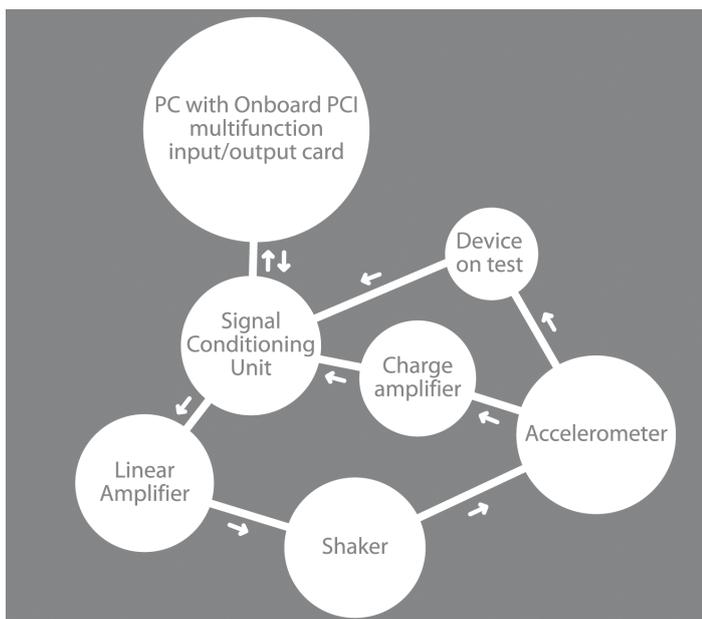


Figure 3. Vibration measurement complete system

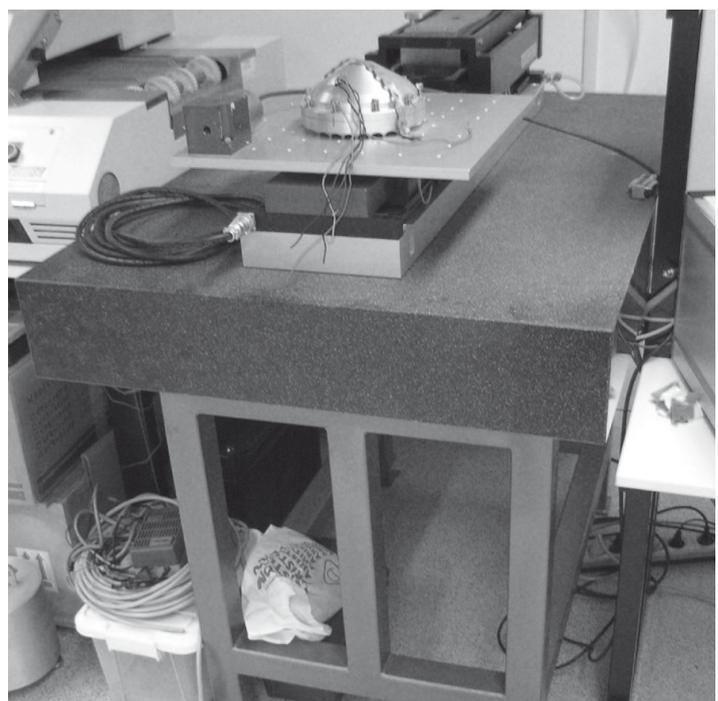


Figure 4. Geophone under test in a shaker on top of antivibrational table