

Infrasound Sensor Self-Noise

Sensor self-noise may be defined as the output signal from the sensor in the absence of an external stimulation. Typically this is measured using sealed instrument ports, and ideally in a chamber with significant environmental isolation. Such a measurement is referred to as a “static self-noise measurement.” It is also possible to apply a known signal to the sensor being tested, and obtain an estimate of the resulting “dynamic self-noise”. Dynamic self-noise measurements include non-linear effects, and the noise-floors obtained this way can provide a more realistic estimate of the actual measurement noise-floor in the presence of signals. Various algorithms for estimating dynamic self-noise will be considered here, as well as methods for improving the estimates for static self-noise. The effect of signal-to-noise and signal amplitude on the dynamic self-noise estimate will be considered. The utility of the Hyperion Model 5000 series sensor, which provides both seismic and pressure channels, for evaluating sensor-self noise methodologies will be discussed.

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