

## Formation Evaluation

## FEATURES

- Integrated tool string for open- and cased-hole sonic logging
- Continuous sampling from 1 to 20 ft for near- and far-field formation analysis
- Real-time telemetry providing compressional, dipole shear, and Stoneley slowness data
- Capability to perform 3-ft cement bond logs and 5-ft QC waveform measurements in cased holes
- Measurement of advanced sonic attributes including P-wave slowness, shear-wave velocities, dispersion, compressive fluids, anisotropy orientation, and Thomsen gamma ( $\gamma$ )

## BENEFITS

- Delivers accurate formation properties beyond altered zones
- Supports fracture identification and anisotropy evaluation for better reservoir insight
- Enhances geomechanical analysis and supports wellbore stability and completion design
- Improves seismic processing and 3D formation stiffness modeling
- Reduces operational time and cost by minimizing the need for additional tools or corrections
- Ensures high data integrity for real-time decision-making and post-job analysis
- Extends logging capability in formations with slownesses up to 1,500  $\mu\text{s/ft}$

Xaminer<sup>®</sup> sonic imager service

Crossed-dipole sonic tool with four monopoles delivers high-resolution elastic properties for improved seismic processing and geomechanics

## Overview

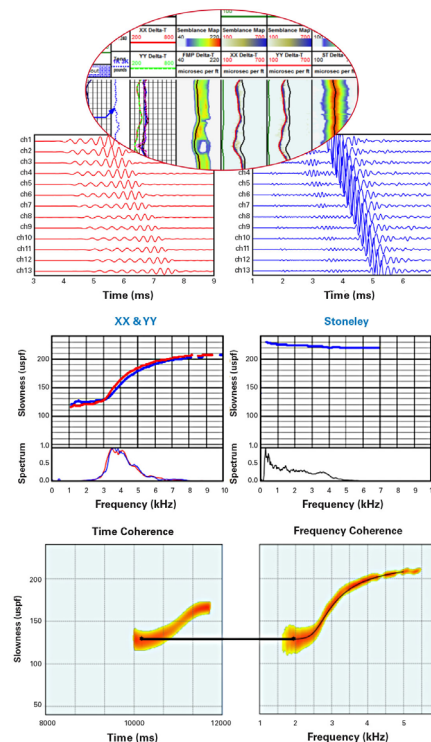
The Halliburton Xaminer<sup>®</sup> Sonic Imager (XSI<sup>™</sup>) service redefines acoustic formation evaluation with its proven performance and advanced capabilities. It delivers high-fidelity data and advanced processing capabilities that help operators to more accurately characterize seismic properties, geomechanics, and completion needs across a wide range of reservoirs, from poorly consolidated, high-porosity, gas-saturated sandstones to low-porosity carbonates.

The XSI service reduces risk by measuring true formation P-wave velocity beyond the altered zone, using the farthest-spaced monopole in the industry. It also measures S-wave velocity in all formation types in real time without the need for additional dispersion correction processing.

Its unique onboard memory guarantees high-resolution data integrity and augments real-time data streams. In addition, in-hole tool programmability allows quick configuration changes between logging programs, from conventional cement bond log mapping in cased holes to deep formation imaging in open holes.

## Comprehensive sonic evaluation for reservoir insights

Halliburton integrates all Xaminer<sup>®</sup> acoustic components and processing technologies into a single, state-of-the-art tool string for both open- and cased-hole sonic logging. This information is vital for geomechanical analysis, wellbore stability, and production-enhancement treatment design.

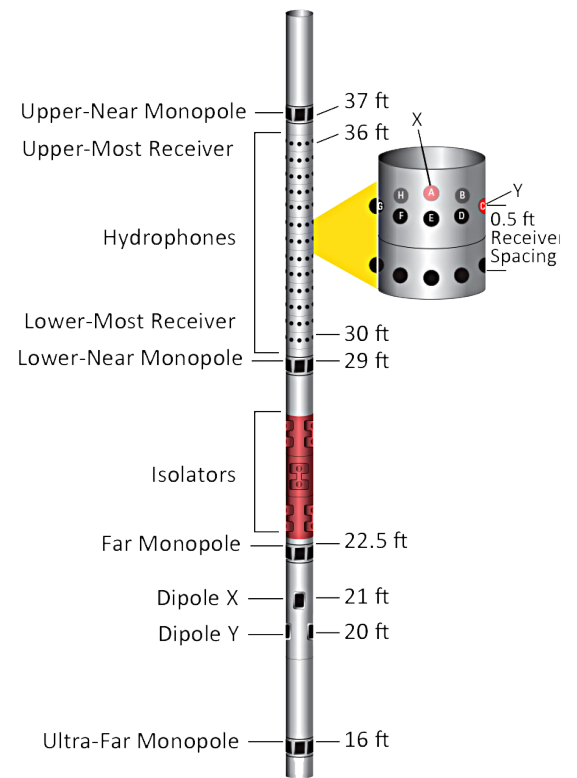


The XSI tool fractures four broadband monopole sources that provide greater designs. It supports a wide range of applications, including cement bond evaluation, advanced P-wave analysis (such as radial profiling and altered zone detection), acoustic imaging, and Stoneley wave analysis for identifying borehole-intersecting fractures and measuring vertical transverse isotropy for Thomsen gamma ( $\gamma$ ).

Sonic attributes, such as P-wave slowness, fast and slow shear-wave velocities and dispersion, identification of compressive fluids in the pore space, and anisotropy orientation and Thomsen gamma, aid in better seismic processing and characterizing formation 3D stiffness, natural fractures, and shales.

### Xaminer® Sonic Imager specifications

Max temp	350°F (177°C)
Max pressure	20,000 psi (138 MPa)
Max tension	35,000 lbf (48 kN m)
Max compression	5 klbf > 8-in. Hole, 7 klbf 8-in. Hole, 9 klbf 6-in. hole (7 kN.m > 20-cm hole, 10 kN.m 20-cm hole, 12 kN.m 15-cm hole)
Max weight below Tool	1,500 lb (680 kg)
Torsion strength	600 lb-ft (813 N-m)
Bending strength	5,000 lb-ft (6779 N-m)
Length	25.4 ft (774.2 cm) basic / 51.1 ft (1557.5 cm) full service
Max OD	3.69 in. (9.37 cm) (receivers and transmitters)
Nominal OD	3.625 in. (9.21 cm) (electronic instruments)
MP Delta-T range	38 to 300 $\mu$ s/ft ( $\pm 2\%$ , $\pm 5\%$ 14 to 22-in. borehole)
DP Delta-T range	50 to 1,500 $\mu$ s/ft ( $\pm 2\%$ , $\pm 5\%$ 14 to 22-in. borehole)
ST Delta-T range	185 to 1,500 $\mu$ s/ft ( $\pm 2\%$ , $\pm 5\%$ 14 to 22-in. borehole)
Borehole range	OH: 4.5 to 22 in. (11.4 to 56 cm) CBL: 4.5 to 20 in. (11.4 to 51 cm)



Xaminer® Sonic Imager measurements from base of tool

For more information, contact your local Halliburton representative or visit us on the web at [www.halliburton.com](http://www.halliburton.com)

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