



Symphony[®] Broadband Seismic Acquisition

Safety. Acquisition. Experience.

Symphony®

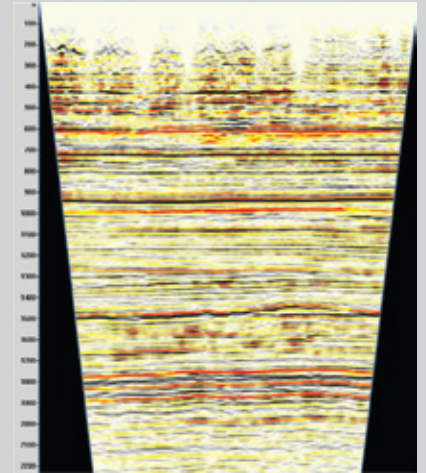
Broadband Seismic Acquisition

Optimally Sampled Broadband Seismic Reduces Survey Execution Time

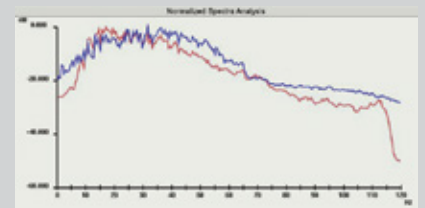


INTRODUCTION:

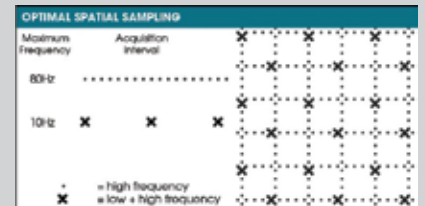
SAE's Patent Pending technology, Symphony®, resulted from the recognition that modern field parameters were trending to tighter receiver and source spacing to improve the spatial sampling of seismic data, and as a consequence were substantially oversampling the longer wavelengths. This oversampling raises the overall cost of surveys, a situation that can be avoided by adopting a multi-grid approach. The analogy is often made with a home music system, in which the bass is projected by just one element (the woofer), but the higher frequencies are broadcast by several elements (the tweeters).



Post-Stack Migration of Symphony® Broadband data.



Normalized spectral analysis of Symphony® (blue) versus conventional baseline survey (red). Similar overall acquisition effort.



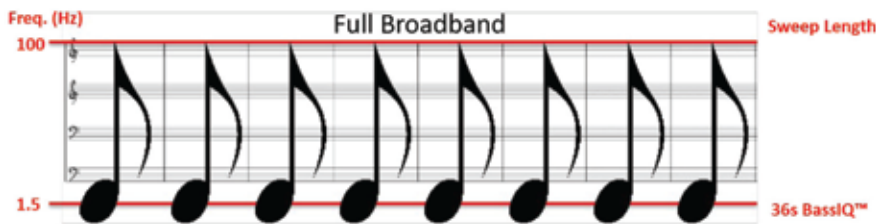
The very low frequency grid is significantly coarser than the high frequency grid, yet still meets the spatial sampling requirements of the survey.

Symphony® Broadband Seismic Acquisition

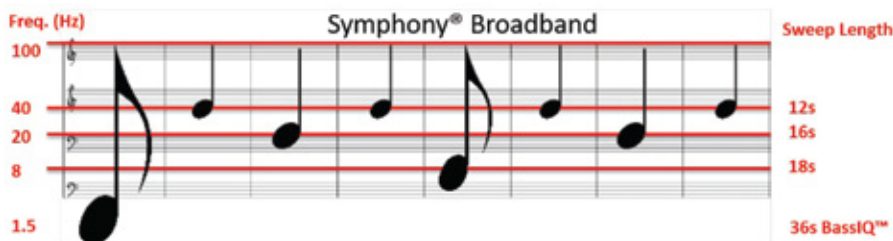
Optimally Sampled Broadband Seismic Reduces Survey Execution Time



Conventional linear sweeps are designed to prevent aliasing of high frequency dip reflections, but do not include the very low frequencies required for true broadband acquisition.



Typical full broadband sweeps generate the complete range of frequencies at each vibration point, however at the cost of a significantly longer sweep necessary to overcome the low frequency limitations of the vibrators.



Symphony Broadband uses multiple grids of sweeps across a survey area, where the high frequencies are closely spaced, and the very low frequencies coarsely spaced, resulting in acquisition time and cost reductions compared to full broadband sweeps.

RESULTS:

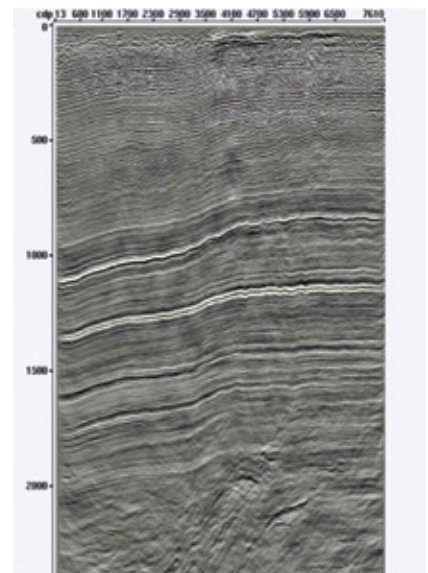
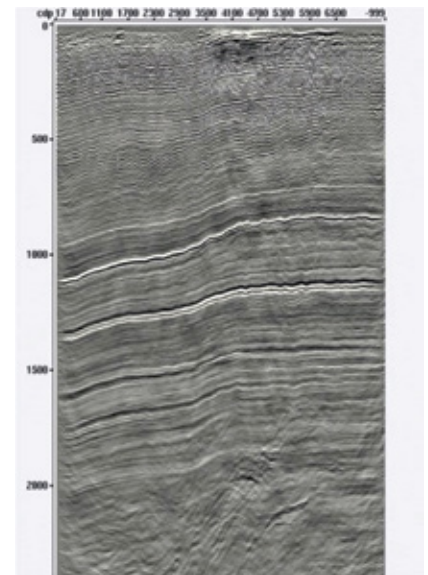


Figure 1. 2014 Proof of Concept – 2D, N. Mexico. Full broadband acquisition (L), 19hrs sweep time; Symphony® Broadband acquisition (R) 8.9 hrs sweep time.



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