

A violin was suspended on a frame to a imitate free-free boundary condition. Sentek Dynamics' BT-100M shaker was used to excite a violin at the base of its front panel. Polytec's PSV500 laser scanner was used to measure and acquire the data from the back panel of the violin. Crystal Instrument's EDM Modal software processed and analyzed the dataset to provide the modal parameters of the violin. (Figure 1.)

The coordinates of 186 measurement points spread across the back of the violin were used to create the geometric model of the violin under test. (Figure 2.)



Figure 1. Violin Modal Test Experimental Setup

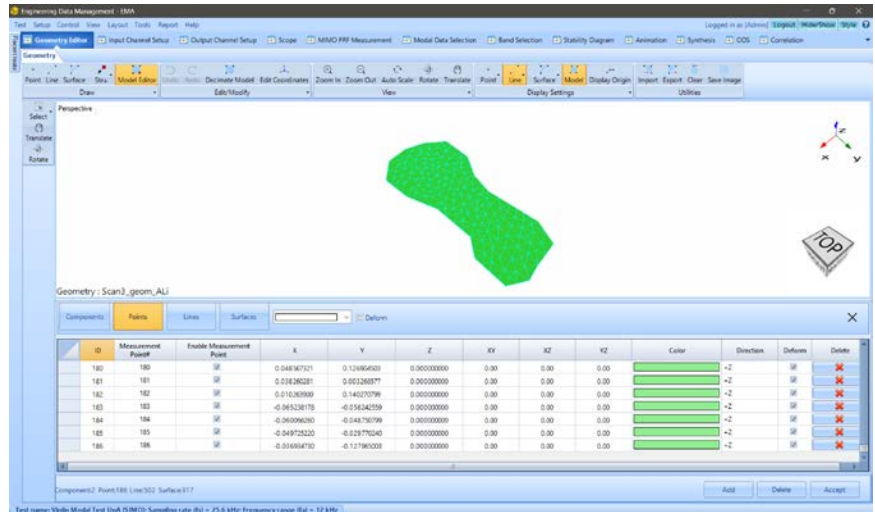


Figure 2. Violin Geometry Model

The measured FRFs were imported to analyze the dominant peaks in the desired frequency range. (Figure 3.)

Modes were appropriately identified in various stages using the Complex Mode Indicator Function (CMIF) and the Poly-X curve-fitter. (Figure 4)

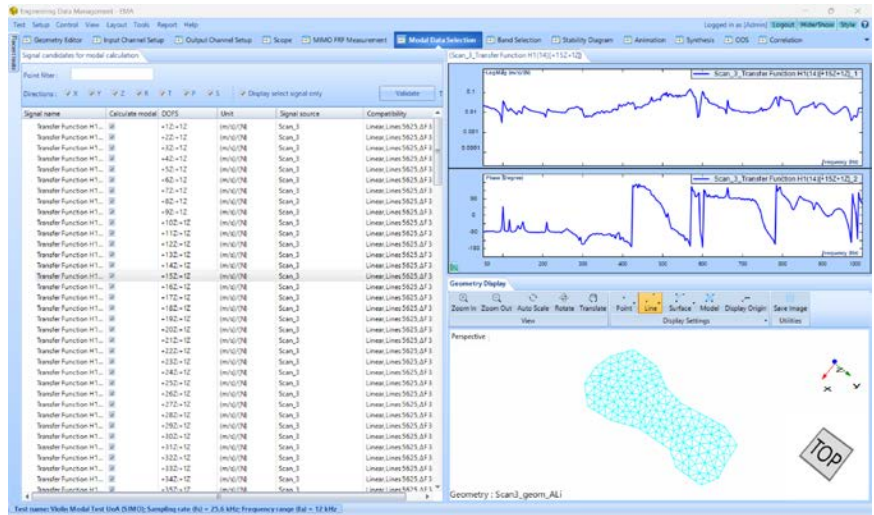


Figure 3. Modal Data Selection tab showing the Measured FRFs

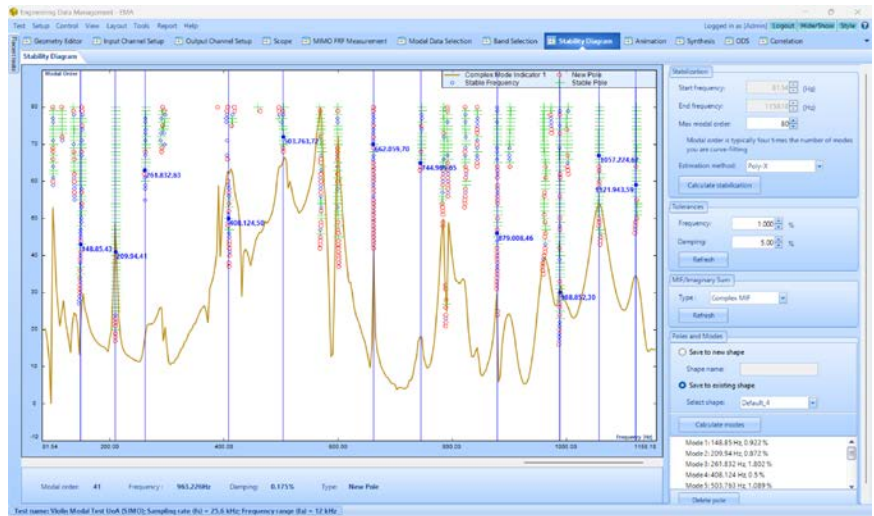


Figure 4. Stability diagram for selected modes

Some of the extracted modes are animated below.

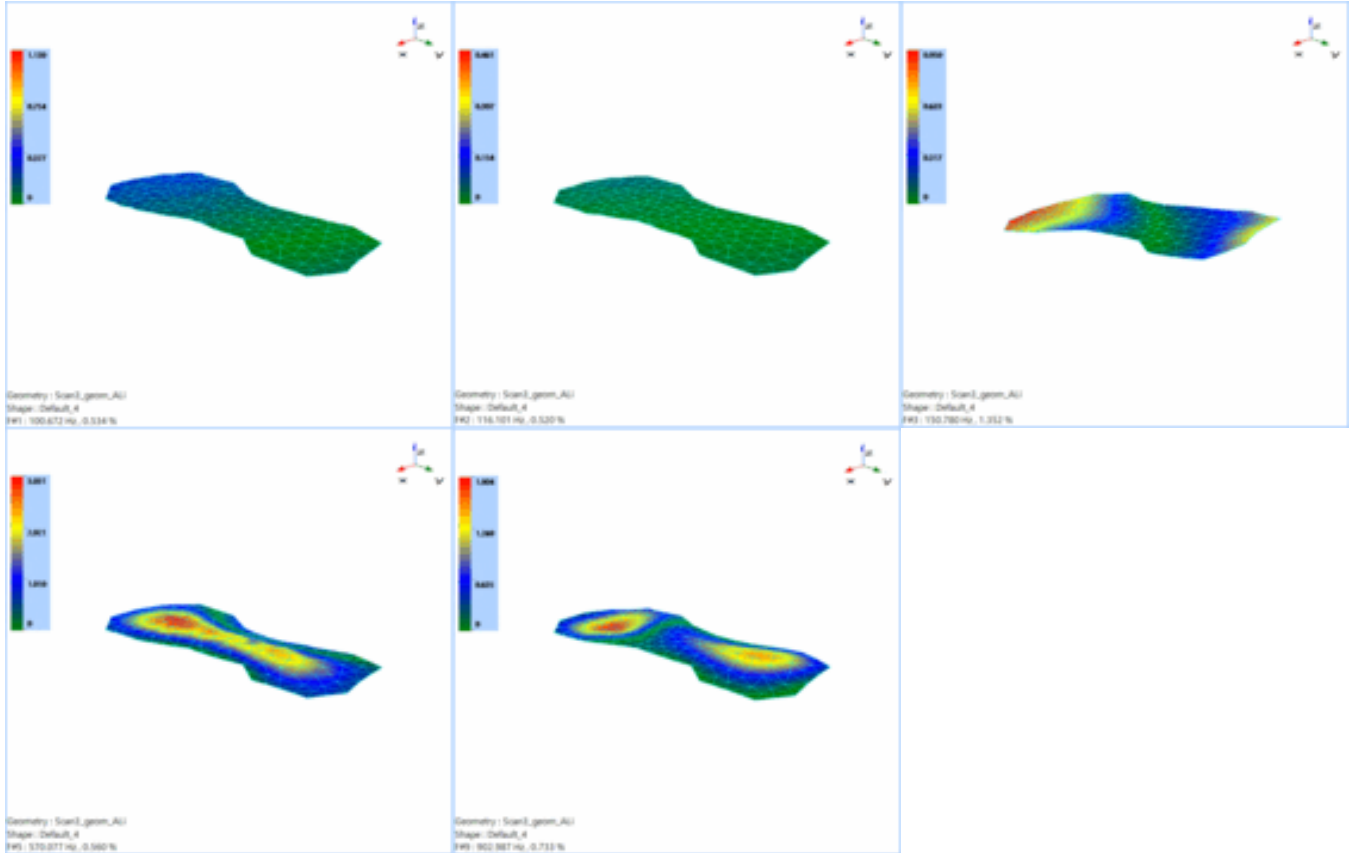


Figure 5. Mode Shapes of the violin

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