Finite element analysis of the noise prototype structure

Tim Hayler
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Introduction

An analysis was done on the final design of the noise prototype structure to understand it's modal frequencies. Models were run at various stages of the structures construction to gather data points for comparison with physical tests.

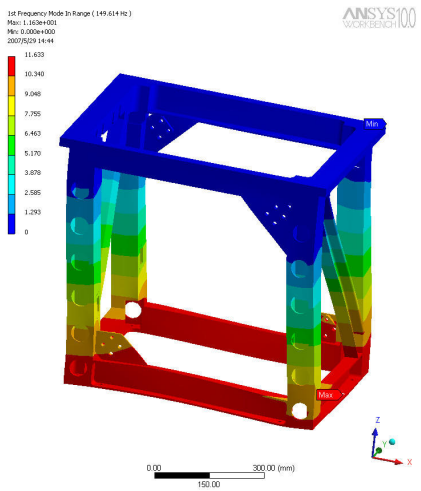

Fig 1. Upper structure without removable member, first frequency 150Hz, traverse.

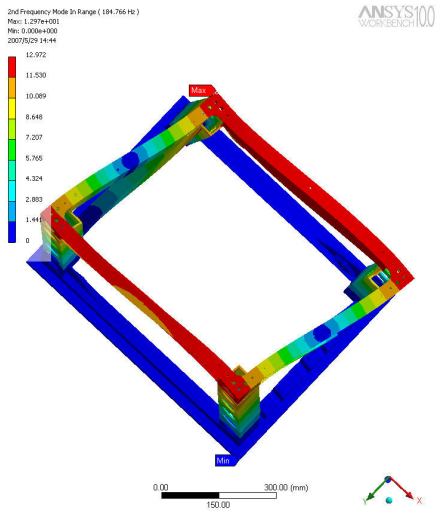

Fig 2. Upper structure without removable member, second frequency 185Hz, torsion.

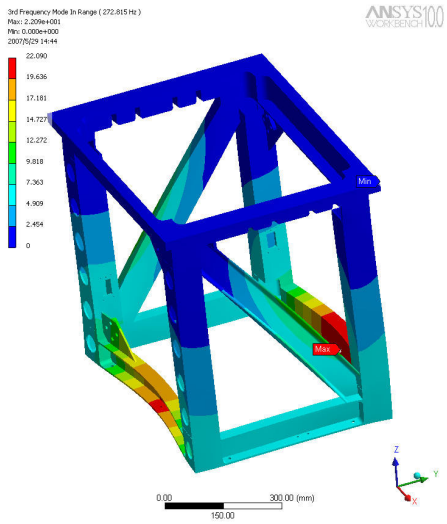

Fig 3. Upper structure without removable member, first frequency 273Hz, longitudinal.

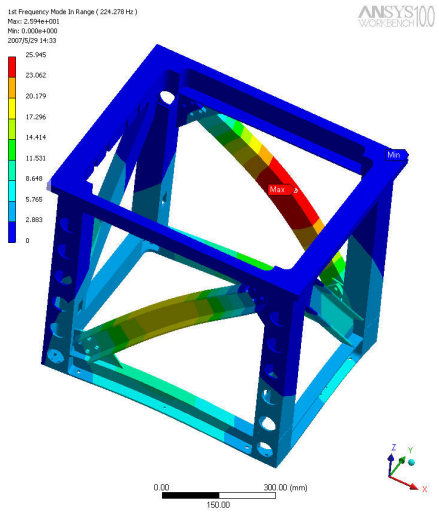

Fig 4. Upper structure with removable member, first frequency 224Hz.

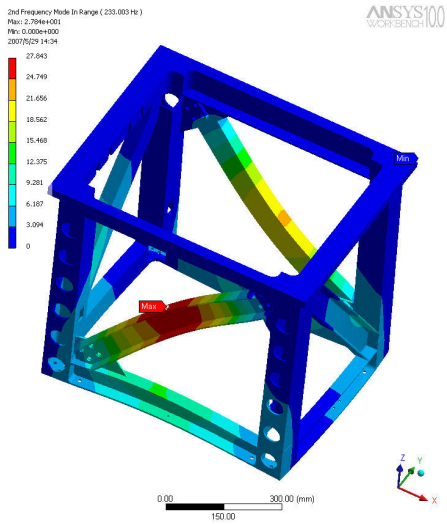

Fig 5. Upper structure with removable member, second frequency 230Hz

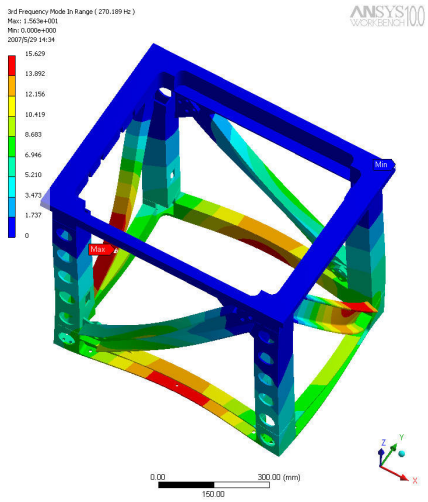

Fig 6. Upper structure with removable member, third frequency 270Hz

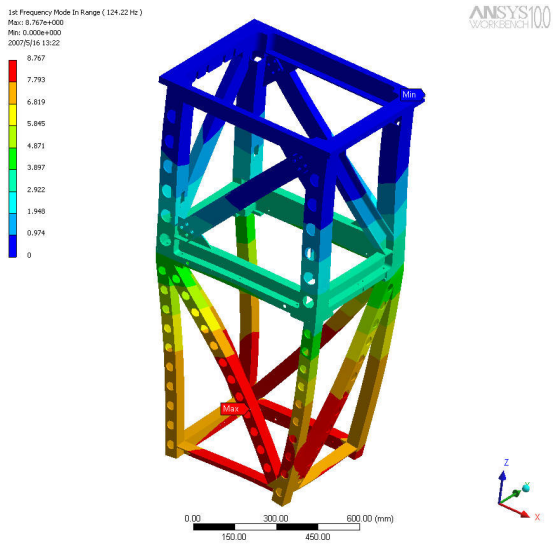

Fig 7. Upper structure and sleeve, first frequency 124Hz

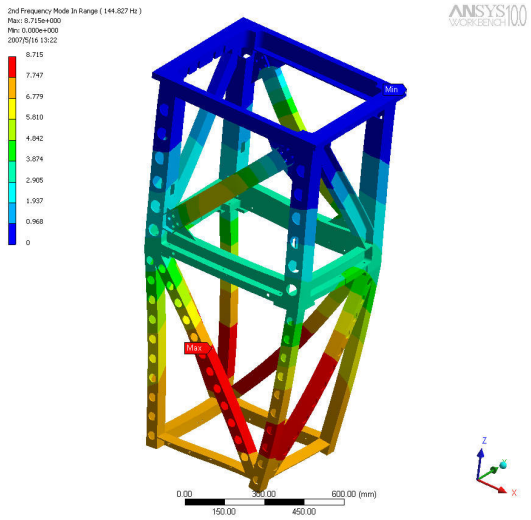

Fig 8. Upper structure and sleeve, second frequency 144Hz

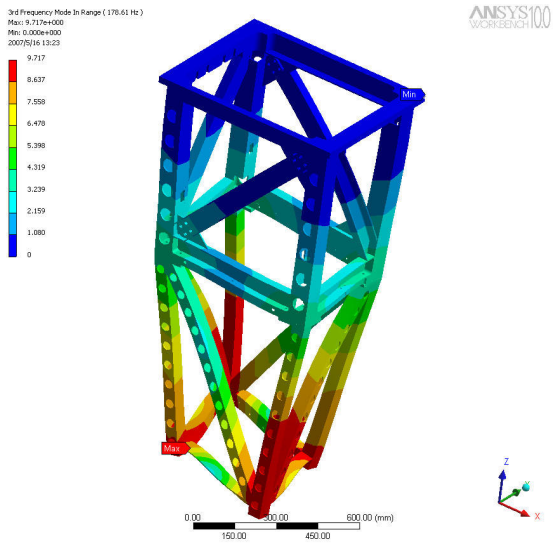

Fig 9. Upper structure and sleeve, third frequency 179Hz

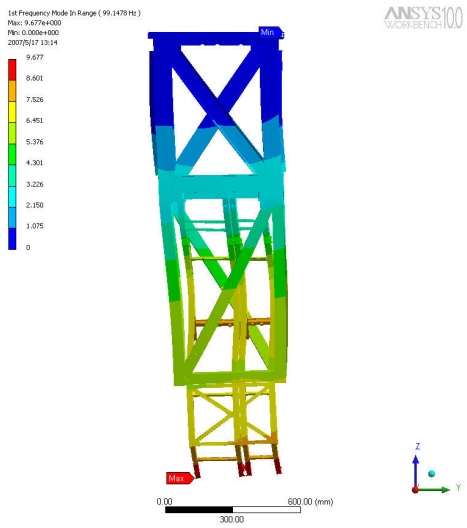

Fig 10. Upper structure, sleeve and lower structure first frequency 99Hz

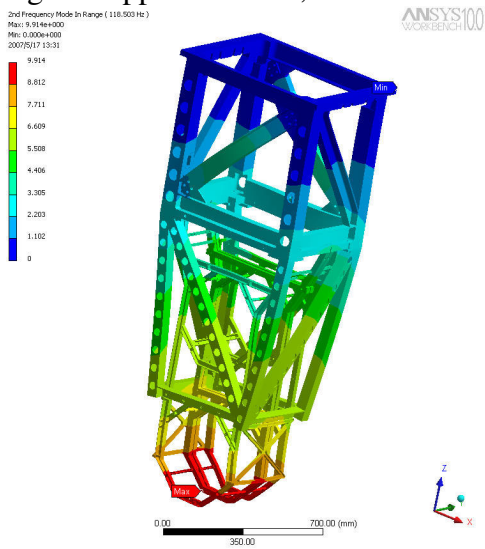

Fig 11. Upper structure, sleeve and lower structure, second frequency 119Hz

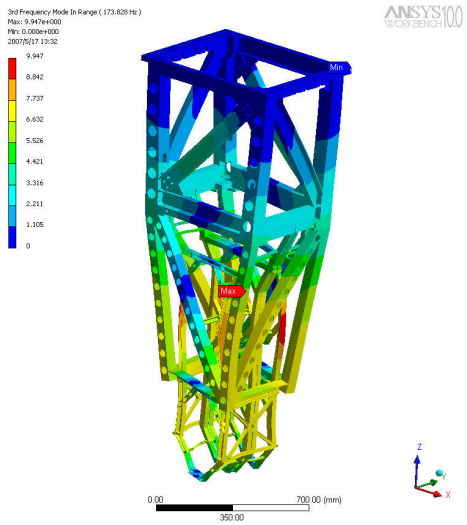

Fig 12. Upper structure, sleeve and lower structure, third frequency 174Hz