

Ground Vibration Test

Experiment: The GVT experiment was conducted by hanging the aircraft with a very flexible spring to simulate free-free condition. The aircraft was excited at Point-12 (Figure-1) with an electrodynamic shaker and the force transferred to the aircraft was measured with a force transducer. The acceleration was measured at 34 points (Figure-1) with an accelerometer after amplifying the signal with a factor on 10.

Data: The time domain raw data from the Ground Vibration Test (GVT) conducted can be found in the zip file: 'GVT_Time_Data.zip' in hdf5 format. For example: The data for point 1 is stored in file 'GVT_AS_1' which has three measured quantities: Time, Applied Force and Measured Acceleration. The details about the measurements is shown in Table-1. These can be accessed in MATLAB with commands: 'h5info', 'h5disp' and 'h5read'.

Please note that the frequency domain data this experiment is also available on the website at:

- Using shaker: <http://hdl.handle.net/11299/164172>
- Using hammer: <http://hdl.handle.net/11299/164190>

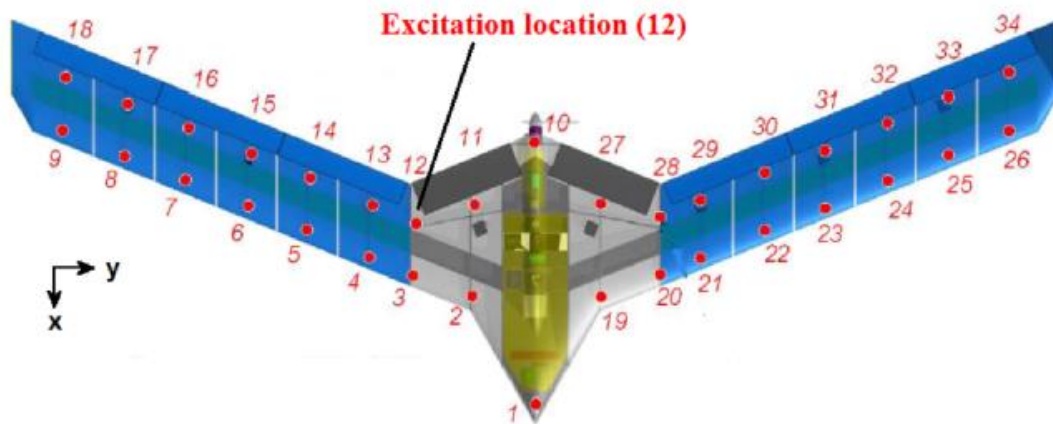


Figure-1: GVT grid

	Time	Applied Force	Measured Acceleration
Dataset Name	'time'	'force'	'accel'
Unit	Second	Volts	Volts
Amplification before measurement	-	1	10
Sensitivity of transducer	-	0.468 V / lb	0.010 V/g

Table-1: Dataset details

Reference: The details of the experiment can be found in:-

- Moreno, C., and A. Gupta, H. Pfifer, B. Taylor and G. Balas, "Structural Model Identification of a Small Flexible Aircraft," American Control Conference, pp. 4379-4384, 2014.