

Suman Kumar Sahu
2017 MEM 2526
EMA-Lab7

Plate Details: Material: Aluminium

Dimensions: 26.5cm x 25cm x 1.5mm (z*x*y directions) No.of nodes: 30

No of elements: 20

Element size: 6.25cm x 6.25cm

Fixed nodes: 26,27,28,29,30

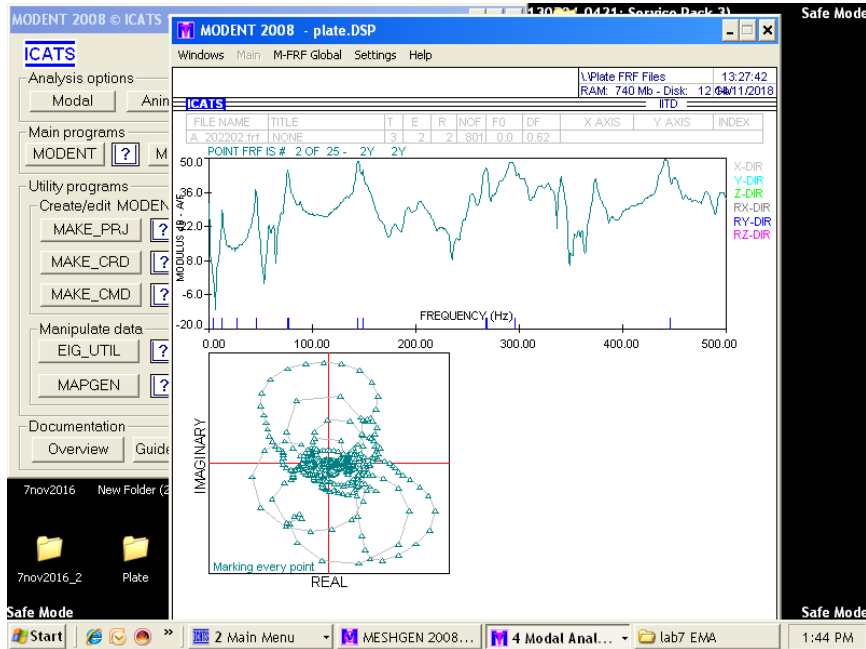
Force applied direction: Y

Procedure:

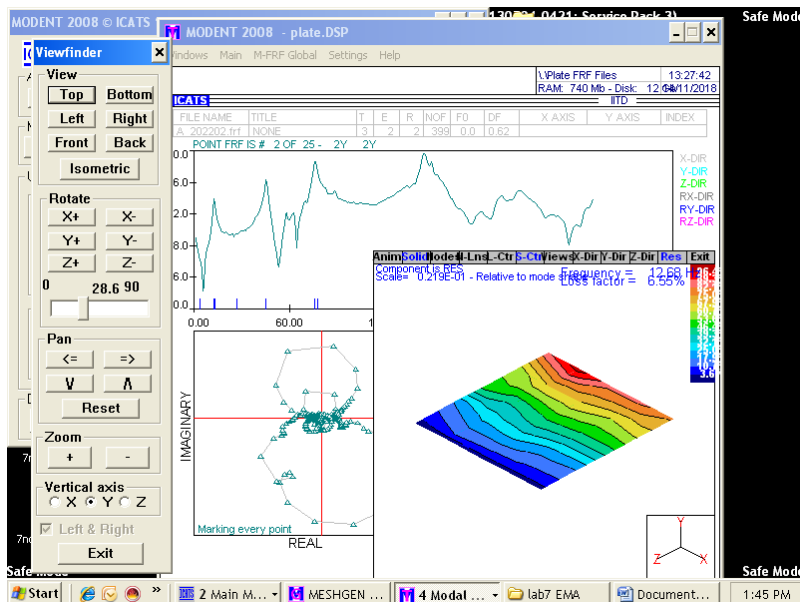
1. .CRD file was imported on to Modal analysis using modal hammer was done on the plate and captured using 2 channel FFT analyser.
2. ICATS was used for further analysis
3. Initially modeling was done using MESHGEN using 4 node shell element and Boundary conditions were applied and was converted to .DSP file
4. FFT data was converted to .FRF files using a MATLAB program and converted to .CRD file on the ICATS software.
5. the .DSP file in the MODENT module.
6. Using Global method and Multi FRF analysis, the FRF were generated and the modes shapes animated and the modal data were obtained

Results:

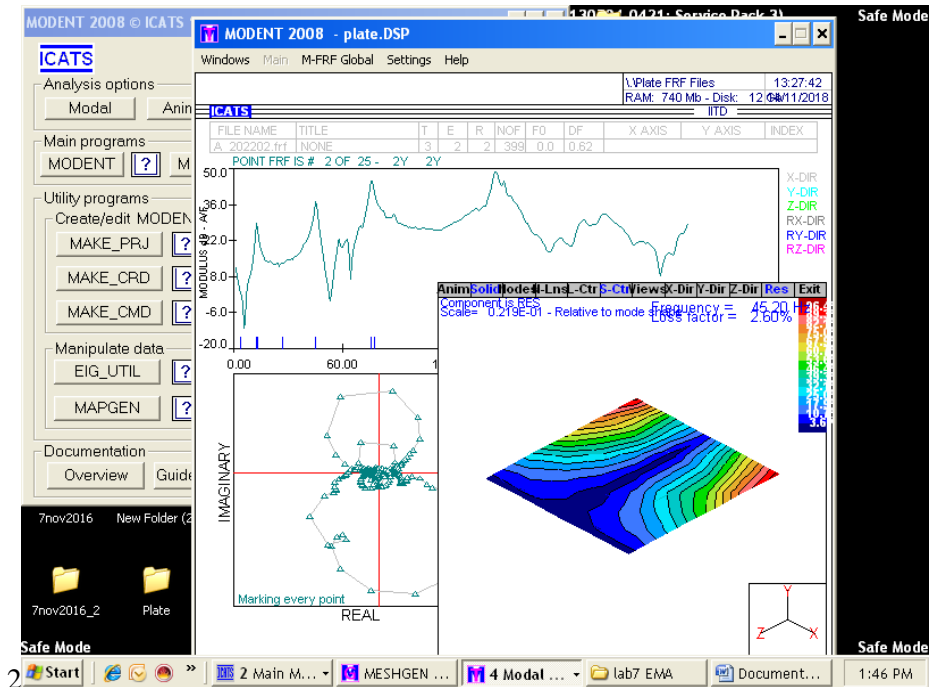
1. FRF generated



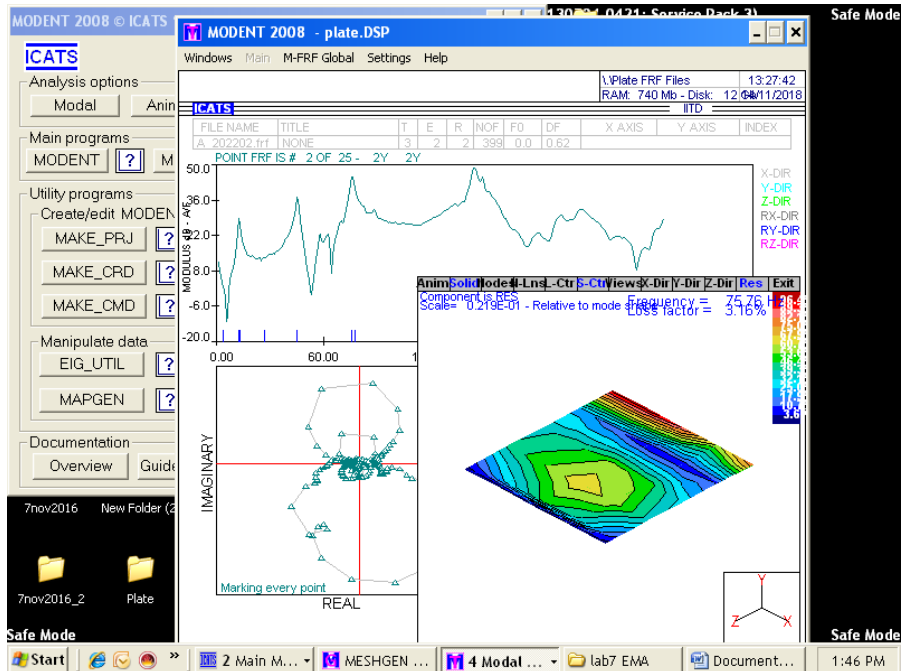
2. Mode 1



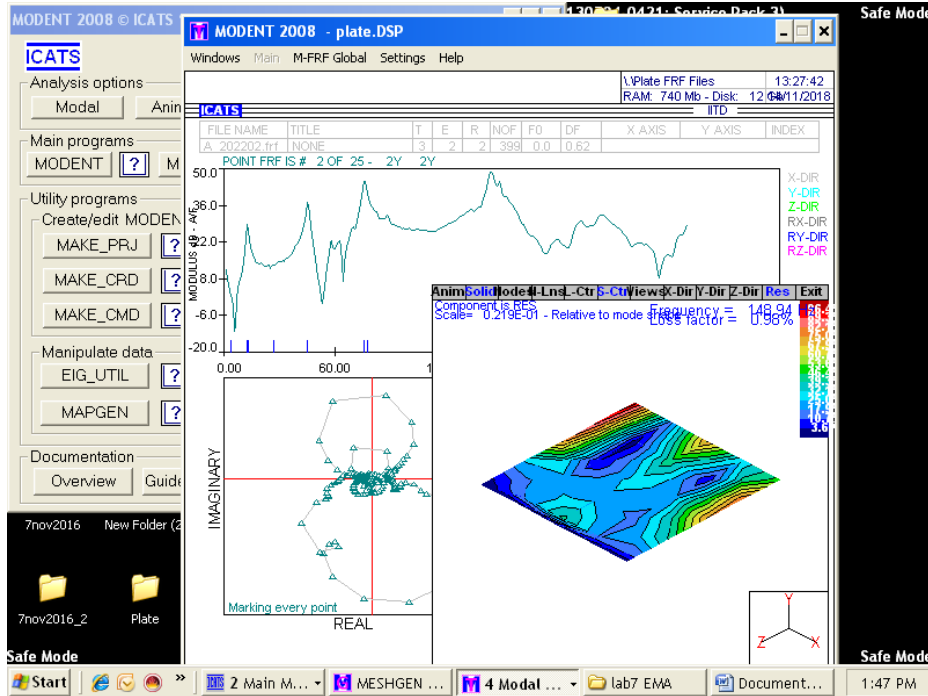
3. Mode 2



4. Mode 3



5. Mode 4



Modal Data

a) Using First half of the frequency Range

MODENT SUITE V2008 Rel(D) - Serial no 9503 |***** IITD *****

ANALYSIS ON 14/11/2018 AT 13:42:52

Mode	Freq (Hz)	Loss factor (%)
1	3.544	24.8
2	12.682	6.5
3	12.780	6.0
4	26.866	9.9
5	45.198	2.6
6	75.466	2.4
7	75.759	3.2
8	77.415	1.3
9	143.919	1.4
10	148.943	1.0
11	267.414	1.5
12	296.098	0.8
13	446.657	0.5

b) Using second half of the frequency Range

MODENT SUITE V2008 Rel(D) - Serial no 9503 |***** IITD *****

ANALYSIS ON 14/11/2018 AT 13:43:40

Mode	Freq (Hz)	Loss factor (%)
1	3.544	24.8
2	12.682	6.5
3	12.780	6.0
4	26.866	9.9
5	45.198	2.6
6	75.466	2.4
7	75.759	3.2
8	77.415	1.3
9	143.919	1.4
10	148.943	1.0
11	267.414	1.5
12	269.309	1.0
13	296.098	0.8
14	446.657	0.5