IMPERIAL COLLEGE LONDON

Mechanical Engineering Department

ME2 Dynamics - Vibration Experiment Report

Name  
CID  
Tutor Group  
Date  
Test Rig Number

The report should contain the following information:

# 1. Introduction

Short section describing the purpose of this experiment, the test setup and equipment as well as the measurement procedure.

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# 2. Free decay test results

Show the obtained free decay data (acceleration over time) from the free decay test, making sure that your axes are correctly labelled. Shortly comment on how you obtained the data and its quality.

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# 3. Logarithmic decrement

Shortly explain how to extract natural frequency and damping ratio from the free decay plot, then compute the two values from your data set and report them in a table.

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# 4. Force and acceleration

Extract the magnitude of the measured Force [N], Acceleration [m/s2] and Phase as a function of frequency for all data sets and present them in a table. Clearly state what data processing steps have been performed to obtain these plots.

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# 5. Frequency Response Functions (FRF)

Compute the FRF values () for each frequency from your obtained data and add it to the table above. Plot these data in a Bode plot showing magnitude and phase of the measured frequency response function. Clearly explain how you can identify the natural frequency of the system.

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