# Matlab code Testing Test Plan

## Test Plan Identifier

M\_A01\_A02\_A03TP

## References

Documents that support this test plan include the Matlab Test Strategy, Test Scenario

## Introduction

This test plan for the matlab code testing supports the following objectives:

1. To define the the tools to be used throughout the testing process.
2. To communicate to the responsible parties the items to be testedand define environmental needs.
3. To define how the tests will be conducted.

## Test Items

The systems to be tested are Matlab motors A1, A2 and A3. These systems should be tested in the Matlab environment.

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Description automatically generated**MotorA1:**

**MotorA2:**

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**MotorA3:**

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## Features to Be Tested

Features to be tested are the functionality of the DC brush motors. Each motor has **requirements** they must adhere to as stated below:

**MotorA1- Open Loop Motor  
motor to have the specified step response that has a settle time of 0.13.**

**Valid inputs:**

* motor.timeConstant = 2/60

**Invalid inputs:**

* motor.timeConstant= - 2/60
* motor.timeConstant= any positive value that is less than 2/60
* motor.timeConstant= any positive value that is more than 2/60
* motor.timeConstant= any negative value that is less than 2/60
* motor.timeConstant= any negative value that is more than 2/60
* motor.timeConstant= alphabet data inputs for the value of time constant

**MotorA2 Closed Loop Motor   
Closed loop motor to have step responses with settle times in the specified range of 0.106-0.264 seconds.**

**Valid inputs:**

* motor.timeConstant= 2/60
* motor.timeConstant= 3/60
* motor.timeConstant= 4/60
* motor.timeConstant= 5/60

**Invalid inputs:**

* motor.timeConstant= 1/60
* motor.timeConstant= 6/60
* motor.timeConstant= -2/60
* motor.timeConstant= -3/60
* motor.timeConstant= -4/60
* motor.timeConstant= -5/60
* motor.timeConstant= -1/60
* motor.timeConstant= -6/60
* motor.timeConstant= any positive value that is outside the range of 1/60<motor.timeConstant>6/60
* motor.timeConstant= any negative value that is outside the range of 1/60<motor.timeConstant>6/60
* motor.timeConstant= alphabet data inputs for the value of time constant

**MotorA3 Closed Loop Motor**The Response of the PID‐controlled motor to noise requirement: The closed‐loop performance objective is to minimise the motor’s overshoot, the PID design focus should be used is balanced as its the optimum controller design focus to minimise the motor’s overshoot.

**Valid input:**

* balanced

**Invalid input:**

* disturbance-rejection
* reference-tracking
* Any positive number
* Any negative number
* alphabet data inputs

## Features Not to Be Tested

Functionality of the graphs

## Approach

Tests will be conducted per the documented test cases stored in . The test manager will create test runs for each tester. The tester will execute the tests in the MATLAB R2020 environment and mark each case as Pass / Fail.

## Pass/Fail Criteria

All core functionality of the systems should function as expected and outlined in the individual test cases. All test cases should pass, and no failed cases should be crucial to the end-user’s ability to use the software as it shows that