



# EV Remote Internship Project Report

Created by

**Gideon Dsouza**

B.E Mechanical (Mumbai University)  
Diploma in CAD (Siemens)

Project Name

**Nissan Leaf comparison for different drive cycle.**

Case Studies: FTP-75/MENDC/WLTP Drive Cycle/Acceleration Test



# Assignment Plan

## Project 1

---

Ather Energy 450  
Modeling for,

- FTP-75 Drive Cycle
- MNEDC Drive Cycle
- WLTP Drive Cycle
- Acceleration Test

## Project 2

---

Nissan Leaf Modeling  
for,

- FTP-75 Drive Cycle
- NEDC Drive Cycle
- WLTP Drive Cycle
- Acceleration Test

## Project 3

---

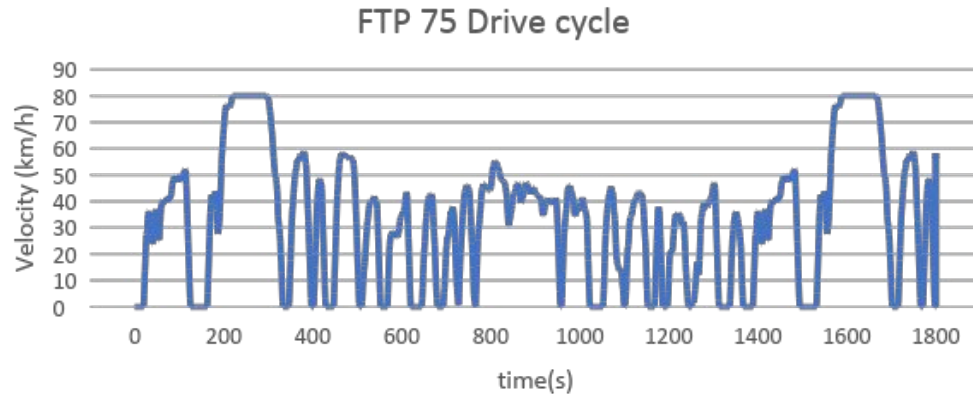
Student Electric Racing  
Car,

- Race Track
- FTP-75 Drive Cycle
- NEDC Drive Cycle
- WLTP Drive Cycle
- Acceleration Test

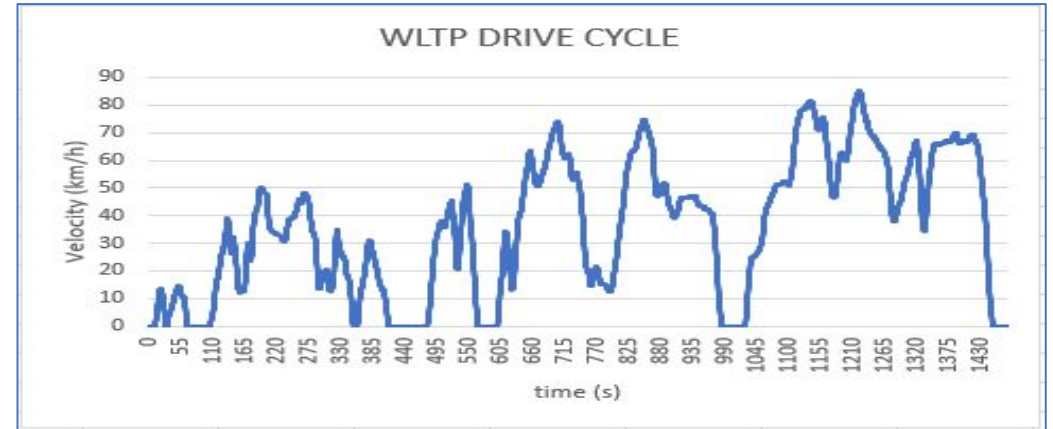


# Drive Cycles

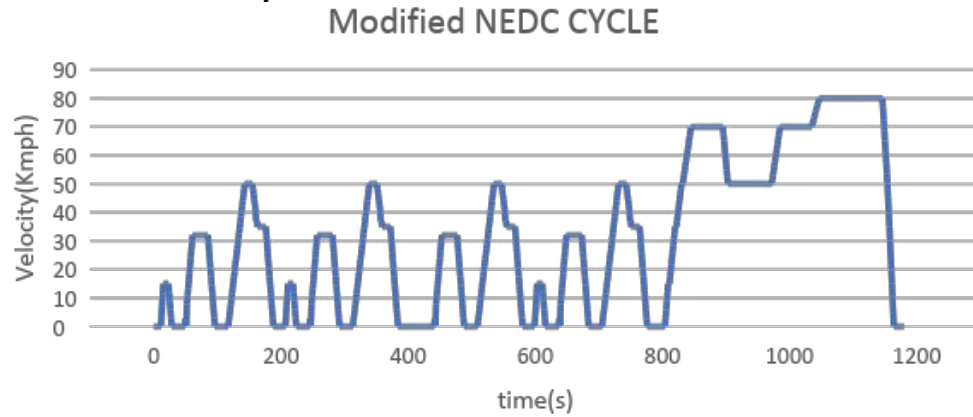
## FTP-75 Drive Cycle



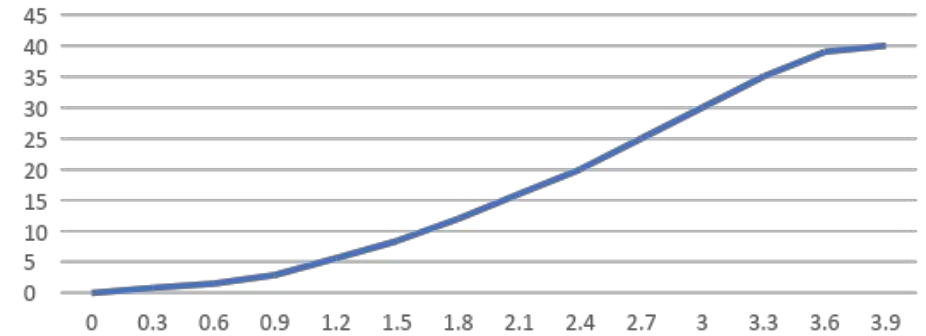
## WLTP Drive Cycle



## NEDC Drive Cycle



## Acceleration test





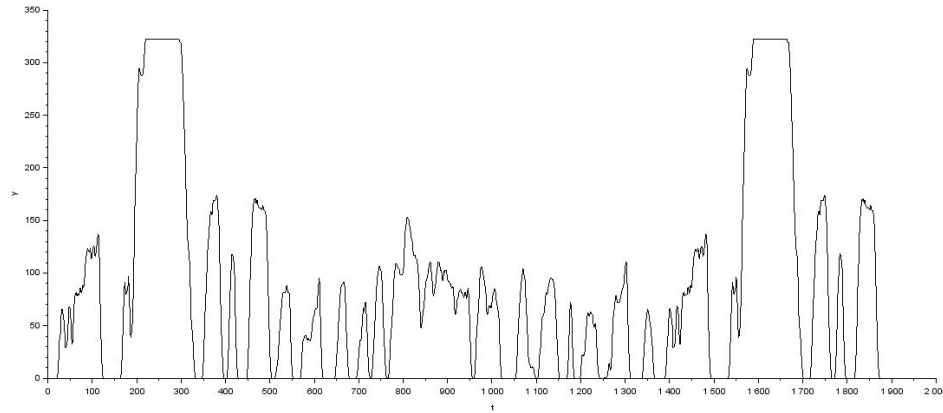
# Range comparison for different Drive Cycle

FTP	MNEDC	WLTP
94.9	108.6	94.4

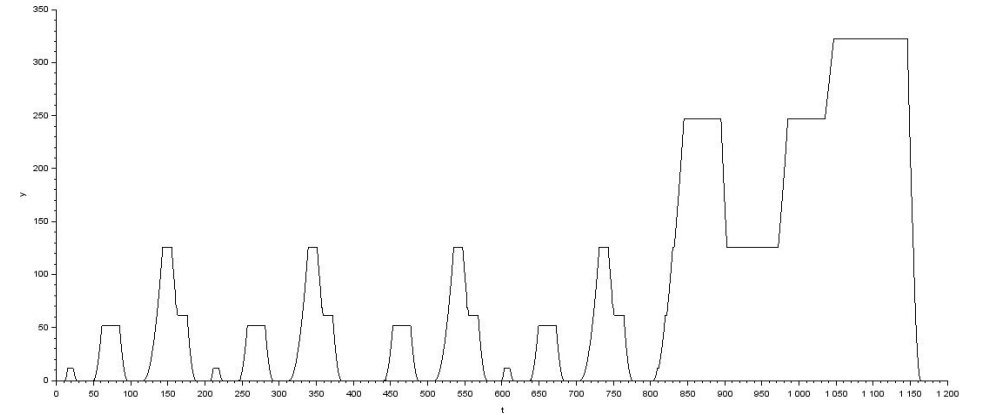


# Aerodynamic Force comparison for different Drive Cycles

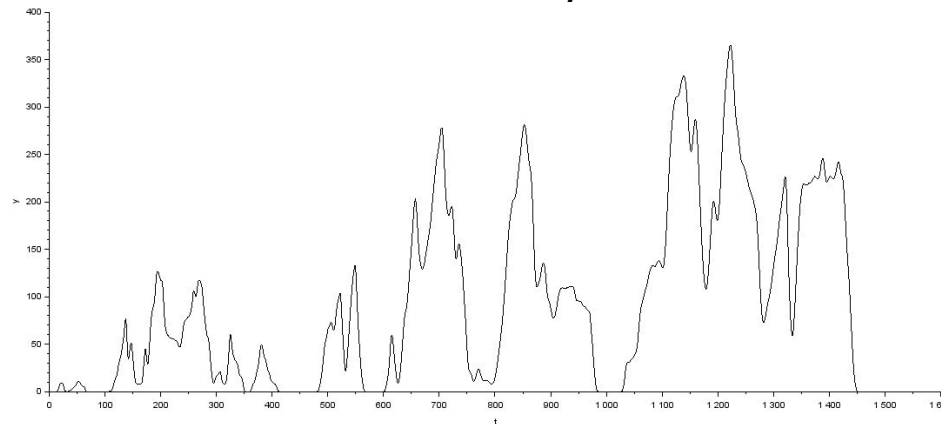
## 1. FTP-75 Drive Cycle



## 2. MNEDC Drive Cycle



## 3. WLTP Drive Cycle



**1. Max Force = 320 N**

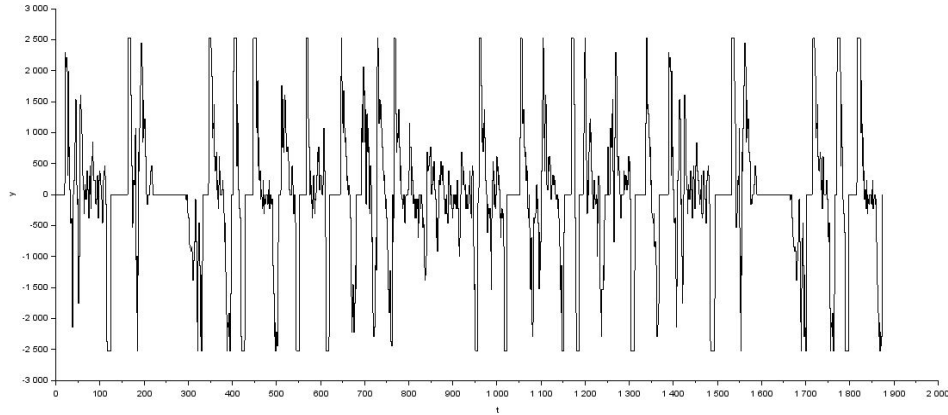
**2. Max Force = 320 N**

**3. Max Force = 370 N**

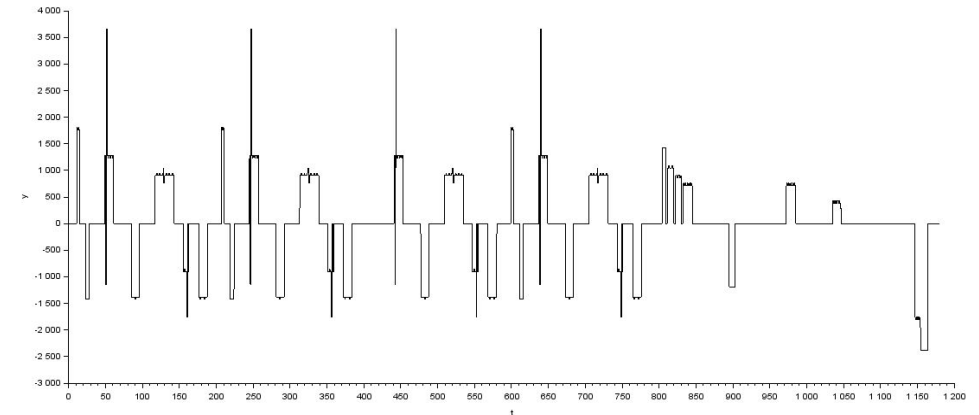


# Acceleration Force comparison for different Drive Cycles

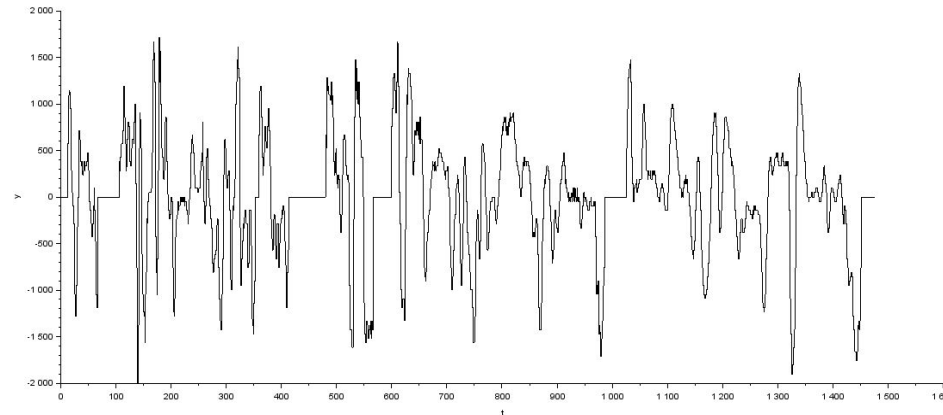
## 1.FTP-75 Drive Cycle



## 2.MNEDC Drive Cycle



## 3.WLTP Drive Cycle



**1.Max Force = 2500 N**

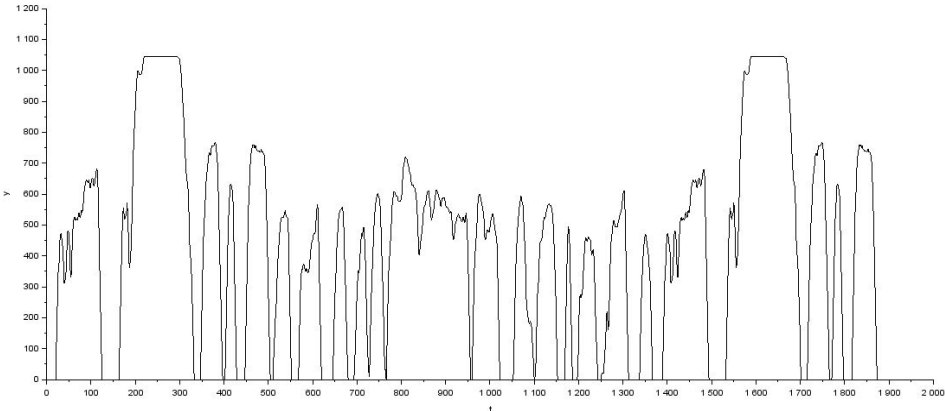
**2.Max Force = 3700 N**

**3.Max Force = 1700 N**

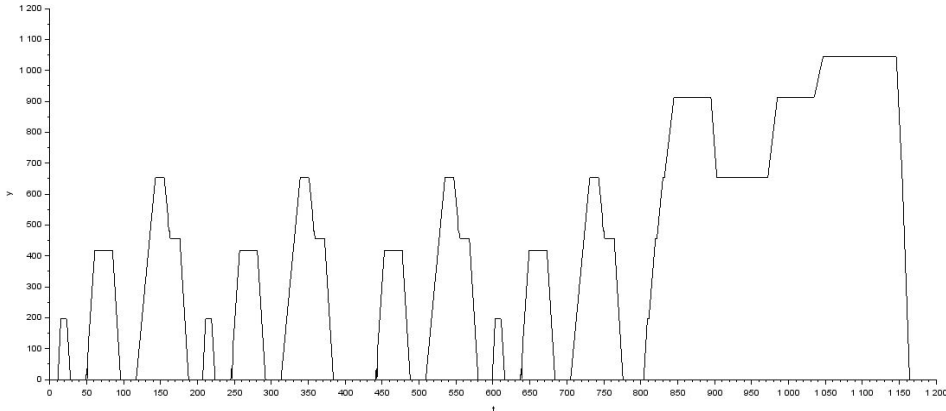


# Wheel Speed comparison for different Drive Cycles

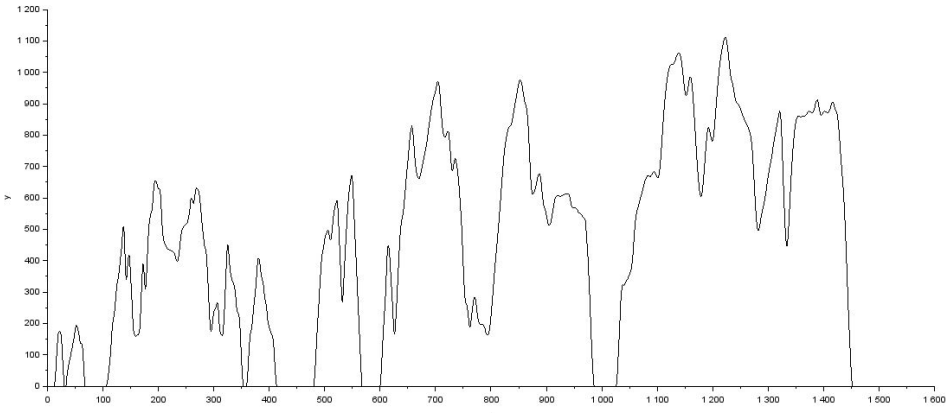
1.FTP-75 Drive Cycle



2.MNEDC Drive Cycle



3.WLTP Drive Cycle



**1.Max Speed = 1050 rpm**

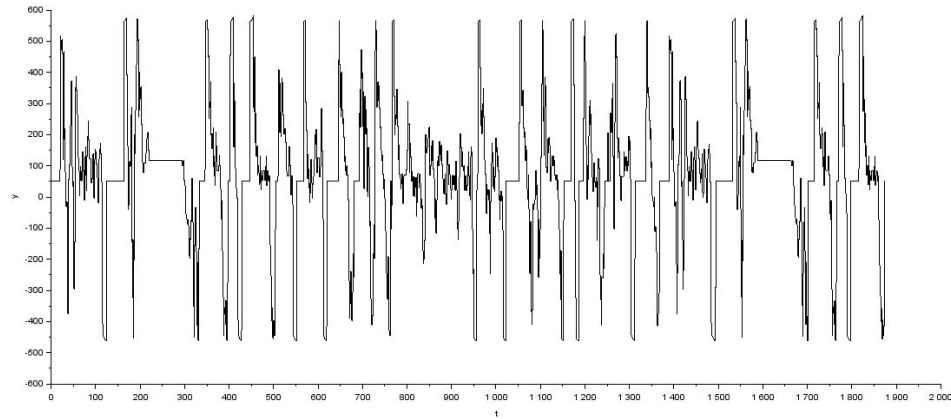
**2.Max Speed = 1050 rpm**

**3.Max Speed = 1100 rpm**

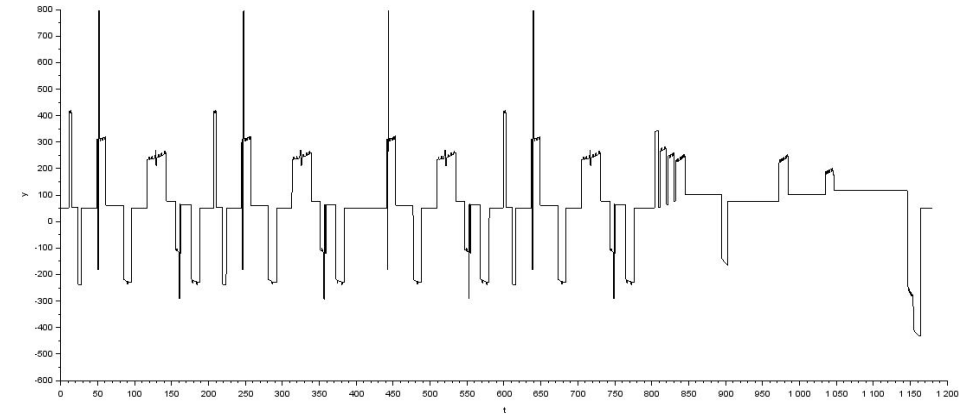


# Wheel Torque Comparison for different Drive Cycles

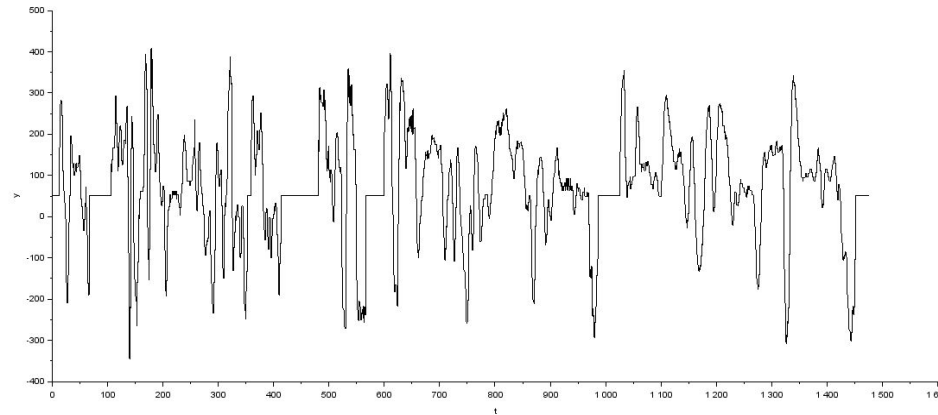
## 1.FTP-75 Drive Cycle



## 2.MNEDC Drive Cycle



## 3.WLTP Drive Cycle



**1.Nominal Torque = 350 N-m**

Peak Torque = 600 N-m

**2.Nominal Torque = 300 N-m**

Peak Torque = 800 N-m

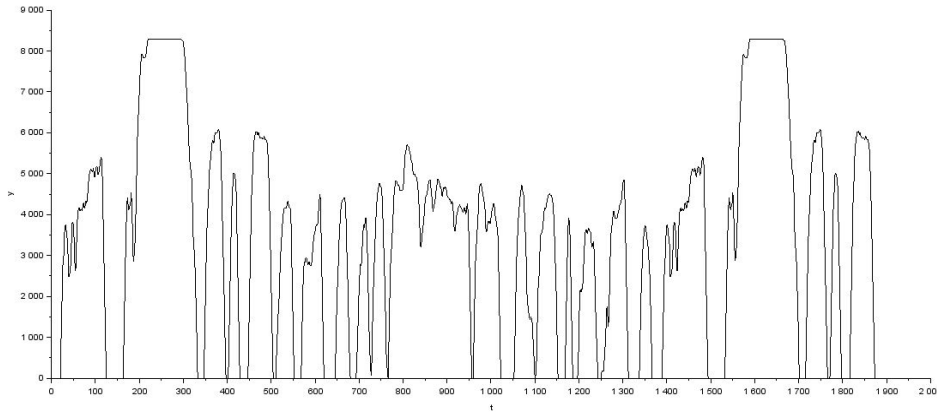
**3.Nominal Torque = 250 N-m**

Peak Torque = 400 N-m

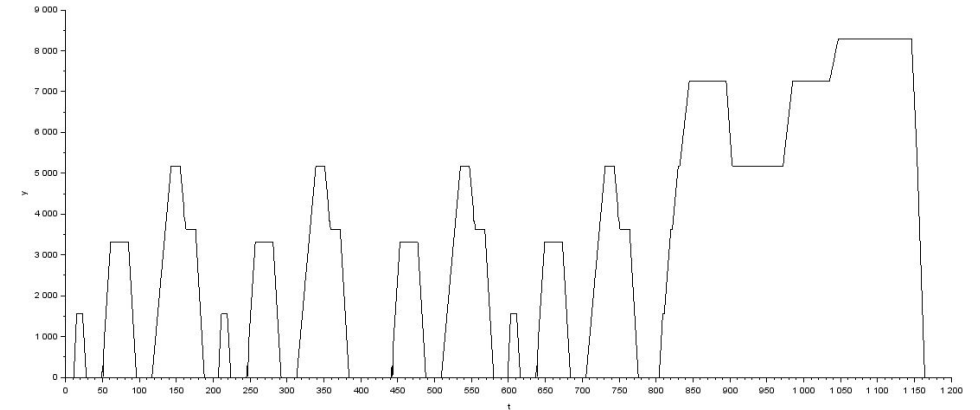


# Motor Speed comparison for different Drive Cycles

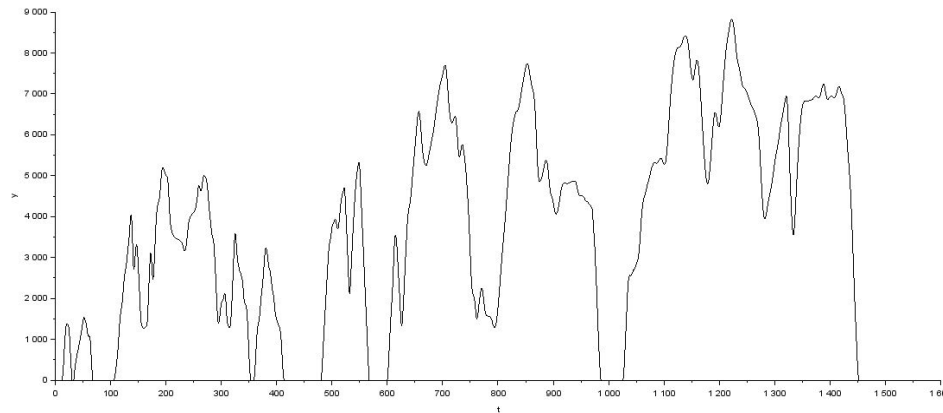
## 1.FTP-75 Drive Cycle



## 2.MNEDC Drive Cycle



## 3.WLTP Drive Cycle



**1.Max Speed = 8250 rpm**

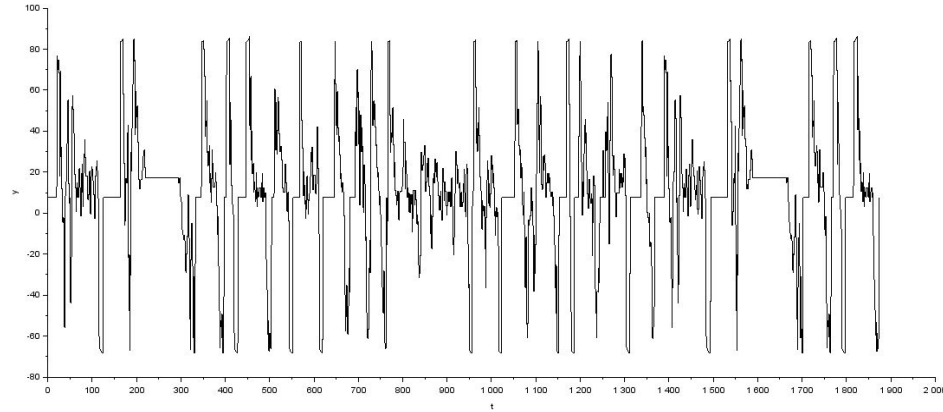
**2.Max Speed = 8300 rpm**

**3.Max Speed = 8750 rpm**

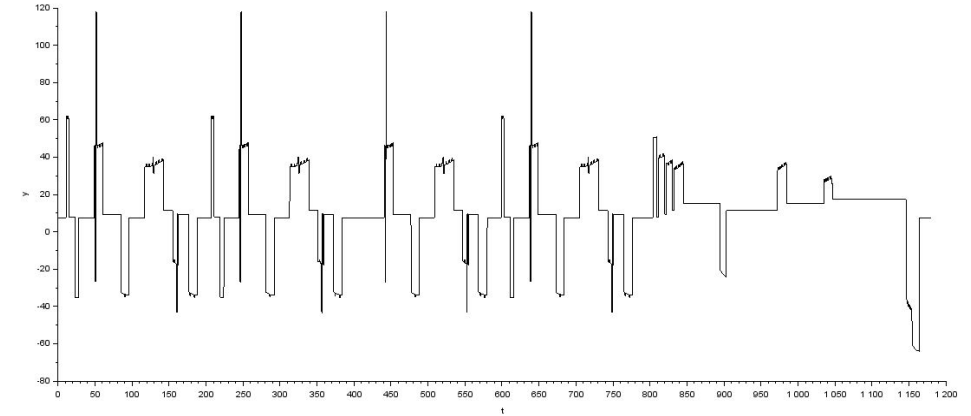


# Motor Torque comparison for different Drive Cycles

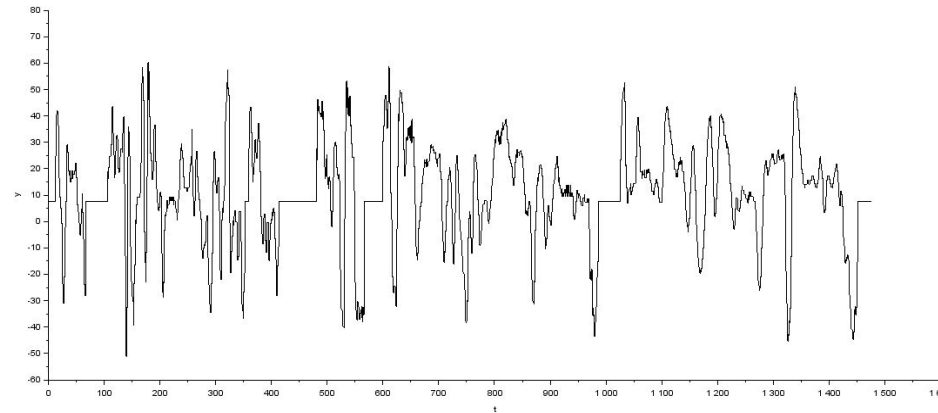
## 1.FTP-75 Drive Cycle



## 2.MNEDC Drive Cycle



## 3.WLTP Drive Cycle



**1.Nominal Torque = 50 N-m**

**Peak Torque = 80.5 N-m**

**2.Nominal Torque = 40 N-m**

**Peak Torque = 119 N-m**

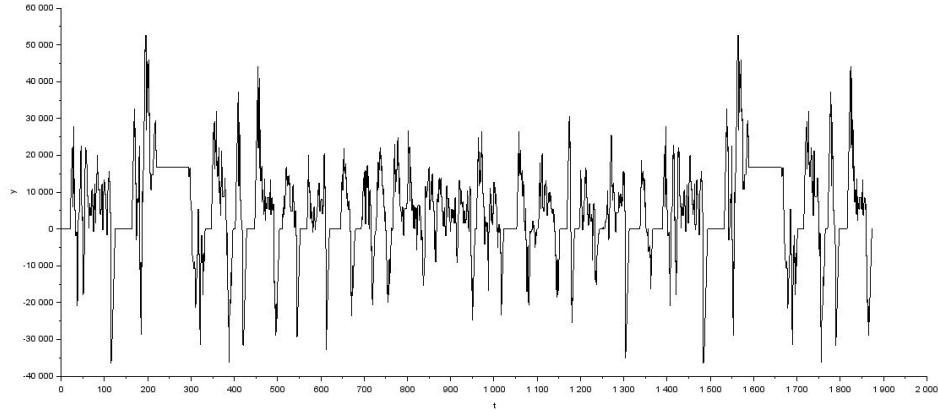
**3.Nominal Torque = 35 N-m**

**Peak Torque = 60 N-m**

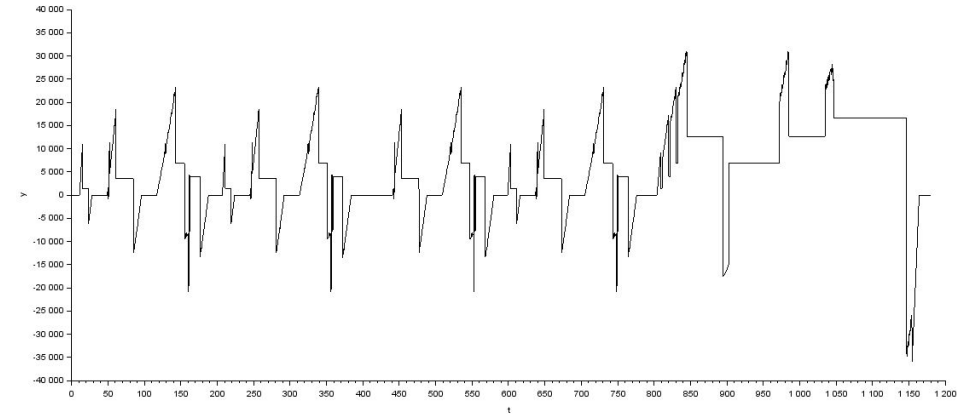


# Motor Power comparison for different Drive Cycles

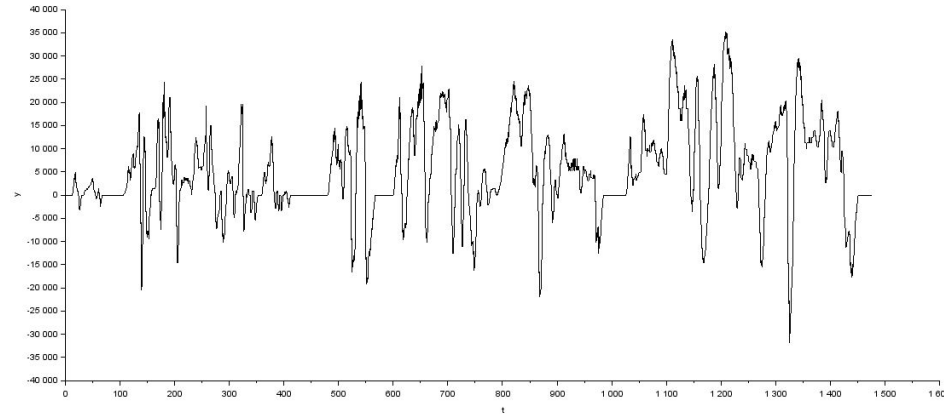
## 1.FTP-75 Drive Cycle



## 2.MNEDC Drive Cycle



## 3.WLTP Drive Cycle



**1.Max Power = 52500 W**

**2.Max Power = 31000 W**

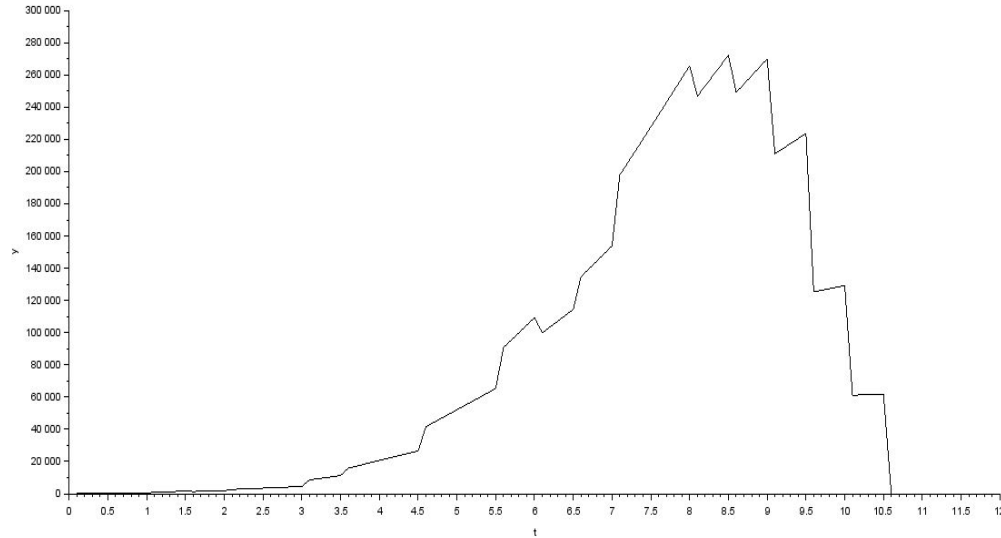
**3.Max Power = 35000 W**



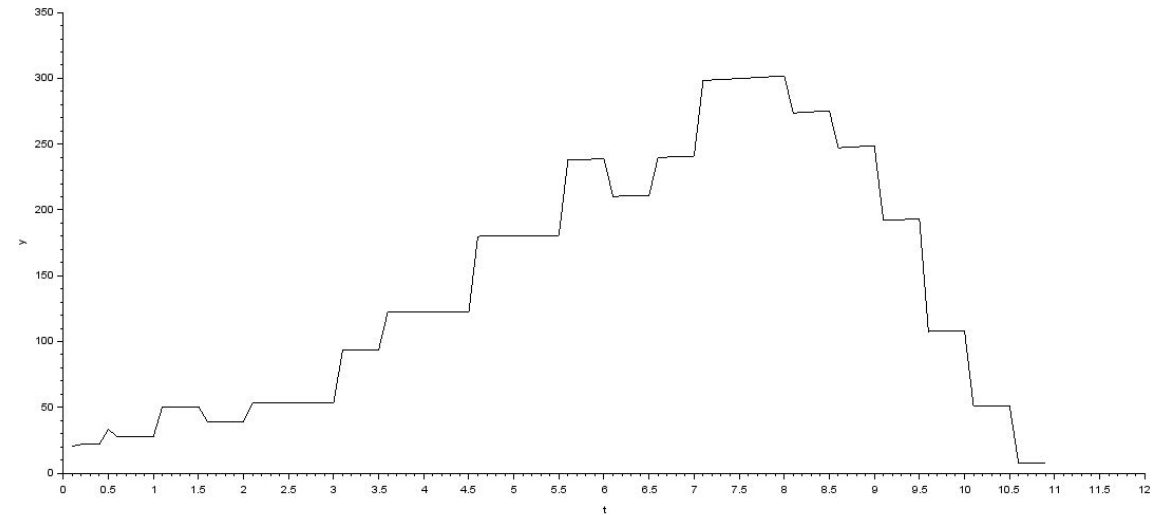
# Acceleration test data comparison for project

## Graphs:

### 1. Motor Power



### 2. Motor Torque



**Max Power = 270000 W**

**Max Torque = 300 N-m**



# Thank you

---

Email-id : [dsouzagideon07@gmail.com](mailto:dsouzagideon07@gmail.com)  
Mobile no:9167746269