The Top Speed of the beast is ***45 kmph (~12.5 mps)*** and its approximate mass is ***260 Kgs*** (with driver)

The following scenarios of impact have been considered:

**Front Impact Tests**

This Test considers the vehicle, travelling at its full speed, to collide with a wall. Two scenarios are considered:

* Frontal Impact with no overlap
  + Driver has no reaction and crashes face forward into the wall
  + Force applied on the entire frontmost member
* Frontal Impact with overlap
  + Driver attempts to avoid the collision but is unable to do so completely
  + Force applied on a node rather than a member

In both cases the magnitude of the force is same and the basis for its calculation is as follows:

It must be noted that the actual scenario of impact would involve the chassis and another chassis or a tree or some other deformable object. In this case the time of impact will be higher, estimated to in the range of 0.4 – 0.5 seconds (The higher impact time will allow the force to distribute). Hence, this is a worst-case scenario accounting for cases such as the colliding object (other than the chassis) itself travelling at a higher speed.

Forces under the influence of whom the average human passes out are around 9g and hence the above worst-case scenario too won’t cause the driver to faint.

**Side Impact Test**

This Test considers a test vehicle (of the same mass and travelling at a max velocity same as the chassis) to collide with the chassis which is stationery.

Considering the time of contact to be roughly twice that in case of the front impact (to accommodate time during which the momentum distributes) The force can be calculated as follows:

As the chassis is not symmetric (due to the Lateral Diagonal Bracing’s members), A side impact from both sides has been investigated.

**Rear Impact Tests**

This test involves forces like those involved in the front impact test, only applied to the rear of the chassis.

**Rollover Test**

This test is conducted to identify the strength of the “roof” of the vehicle. It is highly likely that the chassis topples down a steep hill or a rocky terrain and lands on it roof.

A force equal to the weight of the chassis is considered to act on the RRH members of the chassis