Master of Science in Civil Engineering

Master Thesis

A driving simulation study on the effects of situational and route familiarity for different unsignalized mid-block pedestrian crossing layouts

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Alla mia famiglia

Nando, Margherita, Lorenzo e Ilaria.

Abstract

The 2021 edition of the Italian Highway Code includes for the very first time the vulnerable road user (VRU) category. This innovation reflects the growing awareness of the Italian legislator for the safety of pedestrians, two-wheelers, and persons with disabilities. In the urban context, a significant amount of vehicle-pedestrian collisions occurs at unsignalized crosswalks located between consecutive intersections, i.e. in the so-called “mid-block” section.

This study investigates the effects of two different crosswalk designs, (i) the linear sidewalk and (ii) the curb extension, on driver-pedestrian (DP) interaction. Two types of driver familiarity were explored: (i) the route and (ii) the situational one. The hypothesis is that drivers' familiarity with route and situation contributes to generating a wider spectrum of behaviours, which in turn can significantly affect pedestrian safety. Although the route familiarity has been repeatedly investigated in the literature through naturalistic and simulation studies, there is a lack of knowledge about the effects of familiarity in the DP interaction. The experiment aims to examine the driver behaviour after (i) repeated exposure to DP interactions and (ii) in the first exposure after several missed DP interactions at mid-block crosswalks.

This study was conducted at the fixed-base driving simulator of the Department of Environment, Land, and Infrastructure Engineering at the

Politecnico di Torino. A multi-level factorial experiment was designed to include: (i) mid-block crosswalk design, (ii) driver familiarity, and (iii) pedestrian time gap acceptance. Baseline (linear sidewalk) and curb extension are the two designed mid-block pedestrian crossing layouts and are embedded in an urban neighbourhood. Unfamiliarity, route-familiarity, and situational-familiarity are the three conditions in which the participants (drivers) were involved. Three different values of pedestrian time gap acceptance to model their crossing behaviour (4, 6 and 8 seconds) were adopted.

Fifty-two participants were involved. They were divided into four groups and stratified for age and gender. Four surrogate safety measures i.e., minimum instantaneous time to collision (MTTC), post encroachment time (PET), maximum car deceleration (MaxD) and maximum car speed within 100 m before the crosswalk (MaxS) were used to evaluate the driver response.

Two different analysis were carried out. The first with interaction plots exhibited the effects of the experimental factors on the measured variables. The second was performed through the calibration of mixed-effects models. Results reveal that the curb extension layout significantly improves the safety of the pedestrians, showing the more relevant effect on MTTC and MaxS. Furthermore, the analysis pointed out that route familiarity led to more aggressive driving behaviour than the other familiarity levels. Situational familiarity positively affects driving behaviour making them more prone to safely interact with pedestrians. The outcomes suggest adopting the curb extension at the unsignalized mid-block pedestrian crossing, and this conclusion is also supported by a lower number of collisions recorded during the simulations with this layout.

KEYWORDS: Pedestrians safety, Driving simulation, Drivers' familiarity, Surrogate measure for road safety, Human factor, Driver-pedestrian interaction.

Acknowledgements

2014 was the year that changed my life. I decided to leave my home, my beloved Alghero, to embark on the journey as a university student that is now reaching its final chapter. During the bachelor's degree I struggled to integrate in the city and with my other colleagues. The transition from a small city to one ten times larger was quite destabilizing for me. As time went by, I learned to appreciate Turin and now I can't stay away from it anymore (not in the summer honestly). I have met so many fantastic people who have supported me during this journey and who have made me happy and able to face the path to my master's degree in the best possible way. I want to adequately thank those who have been there for me during this long journey.

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GRAZIE!

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Chapter 1

Introduction

More than 50% of the whole road deaths involves vulnerable road users (VRU), which are mainly pedestrians, “two-wheelers”, and people with disabilities (WHO, world health organization, 2020). They are the most exposed road users to risks and therefore need to be protected. The statistics collected by the Italian National Statistics Institute (ISTAT - *Istituto Nazionale di Statistica*) revealed a higher fatality and injury rates for VRU compared to drivers (ISTAT, 2018).

Among VRU, pedestrians are the most exposed to death risk. The World Health Organization (WHO) reported that the 22% (270,000) of all road fatalities were pedestrians (WHO, 2013). The 2018 annual report of the European Road Safety Observatory exhibits that the number of pedestrian deaths in the urban area in 2016 was 3,853, which were more than twice of those occurred in the rural area (European Road Safety Observatory, 2018). In Italy, in 2018 the ISTAT observed that the number of injured pedestrians was 20,700 while the deaths were equal to 612 (ISTAT, 2018). The pedestrian’s fatality rate (3.2 each 100 accidents) was five times more than the one of car occupants (0.7).

American crash data revealed that the urban environment and locations outside intersections are the most unsafe. The National Highway Traffic Safety Administration (NHTSA) reports that most of pedestrian fatalities occur in the urban environment (80%) and mainly take place far from of the intersection areas (73%) (NHTSA, 2017). ISTAT reported that 14.4% of urban road crashes involve isolated vehicles and pedestrians, while 50% of them occurr at pedestrian crossing. The recorded number of crashes and pedestrian deaths is much higher in the urban environment (12,197 crash and 276 pedestrian deaths) than in the rural one (503 crashes and 71 pedestrian deaths). Furthermore, most of the pedestrian collisions took place at unsignalised crosswalks (no traffic lights or officers) than in the regulated pedestrian crossing (ASAPS, 2019). The statistics pointed out the importance of further study to increase protection of this VRU component in the urban environment.

Road accidents involving pedestrians are usually associated to improper driver behaviours, and the most common are (i) speeding, (ii) fail to yield, and (iii) distracted driving. ISTAT dataset supports this statement: 10,391 of pedestrian investments were due to driver fault, while 1,806 to pedestrian violations. Using a smartphone, arguing with passenger or watch the navigation system can be the source of the driver's misbehaviour. However, many other factors could produce this unwanted outcome.

Let us suppose driving in a city neighbourhood and cannot find a parking slot for a significant amount of time. Being exposed to the same road environment for a long time, it makes you better familiar with that street. Nevertheless, this repetitive action can generate frustration and make your driving mechanic. The trip home-work could be another example since usually everyone does it daily. Both situations are part of everyday life and could lead to a loss of attention or a disregard for one's surroundings, causing problems for oneself and other road users.

These examples well depict the driver familiarity concept. In general term, the familiarity indicates the custom or practice acquired through experience and assiduous effort. The past researches were mainly focused on familiarity with the route, and the findings reveal that it might be source of risk for road users. Anyway, drivers can be repeatedly exposed to a specific situation and not only to the route. The driver's high exposure to a situation or to an infrastructural configuration could promote the adaptation of the driver, that might represent a source of risk for other road users.

The performance of drivers approaching the pedestrian crossing is widely explored in the literature to investigate the effectiveness of safety countermeasures, and increase the overall road safety (Bella & Silvestri, 2015) (Chrysler, Ahmad, & Schwarz, 2015). However, the situational familiarity as experimental factor in the literature was not found, and this encourages to investigate its effects on driver behaviour and countermeasures effectiveness.

The global or national road safety is usually evaluated through the crash data analysis. However, crash database has several limitations due to miss data, underreported information, large fluctuation along time, errors in the localization of the events and many other issues. Hence, surrogate safety measures (SSM) have become popular because they refer to real or simulated interactions between road users, and lead to a direct classification of the same into safe or hazardous. The change in a factor which have an impact in the interaction is immediately revealed as per the variation of the time-to-collision or the post encroachment time, that represent the time proximity between conflicting road users. As a result, there's no need to wait a long time to read such benefits from the crash statistics, because the positive variation in the SSM is immediately captured.

The most suitable research tool to investigate the driver-pedestrian (DP) interaction is the driving simulator. Safety, efficiency, control of experimental parameters, and relative low cost are some advantages of conducting experiments in a virtual environment rather than in the field (Nilsson, 1993).

This research involved five main steps: (i) topic definition and literature review, (ii) design of the experiment, (iii) data collection and database organization, and (iv) data analysis and results, (v) conclusions and future needs.

Chapter 2

Problem statement and objectives

Previous statistics pointed out that most of the road crashes involving pedestrian occur along urban roads. The data revealed that pedestrian accidents are more frequent at unsignalized pedestrian crossing far from intersections. The literature was consulted to understand which factors can affect the DP interactions and what knowledge gap has to be filled.

2.1 Driver-Pedestrian interaction

The goal of road engineers is to guarantee a safe interaction between different road users. The coexistence of all road user categories is the specificity of the urban mobility. Pedestrians, "two-wheelers", people with disabilities are exposed to high risk and need to be adequately protected.

Harrel found that the drivers are more prone to stop when a pedestrian traverse the crosswalk than when he/she stay passive remaining on the sidewalk (Harrell, 1993). The "Threat Avoidance Model" (Fuller, 1984) reveals that the drivers' behaviour is strictly dependent on whether he/she perceives the presence of the pedestrian (discriminative stimulus). This external stimulus could generate two different behaviours: (i) slow down and give priority to the pedestrian (i.e. anticipatory avoidance response), or (ii) keep their speed having no intention to yield (non-avoidance response). However, the driver may not experience the discriminative stimulus because he/she does not perceive the pedestrian presence. If the pedestrian cross the road, the driver might be forced to perform a delayed evasive manoeuvre to avoid the collision. Bella and Silvestri found that the drivers reach a higher approaching speed to the zebra crossing when they do not perceive the interference with a pedestrian (Bella & Silvestri, 2015).

The DP interaction is also influenced by the risk that the pedestrian is willinged to accept. (Pawar & Patil, 2015) field study pointed out that the temporal gaps accepted by the pedestrian at mid-block croasswalks ranged from 4.1 s to 5.8 s. Another reasearch found out that the pedestrians time gaps acceptance were between 5.3 s and 9.4 s (Brewer, Fitzpatrick, Whitacre, & Lord, 2006). The wide ranges of the accepted gap showed the difficulty in representing a "real" pedestrian behaviour in the virtual environment.

The DP interactions have been already investigated through the driver simulator. Some aspects appeared as relevant, such as (i) the number of pedestrian crossing the road (Obeid, Abkarian, Abou-Zeid, & Kaysi, 2017), (ii) pedestrian walking speed, (iii) time of the day, and (iv) pedestrian dress colour (Wu, Radwan, & Abou-Senna, 2016).

2.2 Familiarity

Familiarity is the custom or practice acquired through experience and assiduous effort. Most of the research work has been focused on route familiarity, which the driver achieves by having excellent knowledge of the travelled road. Intini et al. made an extensive literature review about this topic (Intini, Colonna, & Ryeng, 2019). When the driver is familiar with the route, he/she adapt his/her behaviour to the well-known environment.

The hypothesis is that when the driver becomes familiar with the route or with the situation, automatic processes rather than controlled ones mainly govern his/her behaviour. In other terms, the drivers could pre-determine both longitudinal and transversal behaviour without adapting them to the actual traffic conditions. Sometimes the driver becomes familiar with the irregularity or anomalies of a specific road segment, such as patch or potholes position on the pavement or other kind of peculiarities.

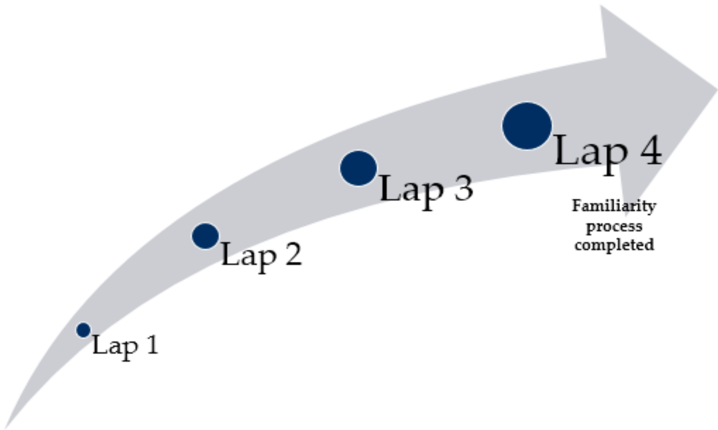


Figure 1-Outline of the familiarization process, which concludes after 4 laps

Drivers' route-familiarity has been mainly treated in the literature with two different approaches: (i) distance-based and (ii) frequency-based. The first considers drivers as familiar whether their residence and the location of the studied scenarios are in the same country or state, while unfamiliar people are mainly foreigner or unfamiliar with the location. The second is considered in this study: the user becomes familiar with a given route by driving several times on it. The definition of the number of drives to consider the driver familiar is not an easy task. Daily, weekly, and monthly driving distributions have been explored in the research.

Martens et al. founds that the trend of the route-familiar drivers is to reduce their glance duration at traffic signs (Martens & Fox, 2007). They involved forty-two drivers who drove nineteen times on the same route in five separate days. They found that familiarity influences the cognitive ability of drivers by making people less prone to correctly process the external sensory information, and this leads to inattention and mistakes.

The frequency-based approach was adopted by Yanko et al. who carried out three experiments involving sixty drivers (Yanko & Spalek, 2013). Participants drove four times on the same route to become route-familiar. Once the driver is route-familiar, he/she becomes less embedded in the environment and finds difficulty in considering a correct margin of safety.

There is not a standard number of participants which should be involved in the study to have significant results regarding the influence of the familiarity on the driving tasks. In the on-road test performed by Colonna et al., the experimental protocol considered six days of testing instead of just one (Colonna, Intini, Berloco, & Ranieri, 2016).

2.3 Surrogate Safety Measures

The assessment of the safety level is a complicated task, and usually it is evaluated through crash data statistics. However, some researchers consider the crash frequency to be the worst indicator of safety because of important limitations related to them. The crashes represent only the tip of the iceberg of the traffic events distribution, and the situations representing significant risk that do not lead to a collision are not detected. The spectrum of the traffic events describing the relationship between the severity and the frequency of road users interactions is usually represented by the "safety-pyramid" (Hyden, 1987). This representation allowed to consider the road events like conflicts and undisturbed passages (normal traffic process) that are more frequent than road crashes (Figure 2).

One of the main limitations of the crash data is related to their analysis. This methodology is subject to the phenomenon of regression-to-the-mean (RTM) effect, which requires several manipulations and a huge database (in time or space) to deal with it properly. The RTM effect is a statistical phenomenon related to the random fluctuation in crash numbers. The roads with a significant amount of crashes in a specific period are likely to have fewer collisions during the following period just because of this fluctuation. This phenomenon could lead to an overestimation of the effects produced by the countermeasure, in particular for road having a high number of crashes.

Furthermore, crashes are rare events, that need to be reported into official statistics by police officers. The crash event underreporting characterizes most of the official databases, so it is difficult to have accurate and reliable data, which in turn might lead to poor or wrong conclusions. The typical mixed spectrum of traffic also represents an issue because not all the

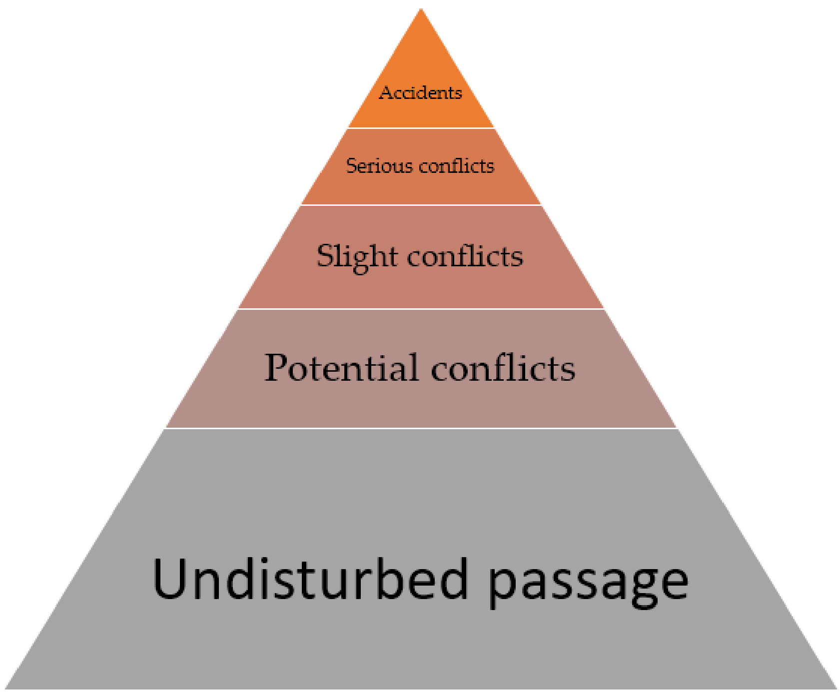


Figure 2-"Safety-pyramid" describing the possible interactions between road users (Hyden 1987)

accidents between road users are documented in the databases (e.g., the collision between a pedestrian and a biker).

Hence, surrogate safety measures (SSM) can be alternatively used to investigate the interactions between different road users (Wu, Radwan, & Abou-Senna, 2016) (Saulino, Persaud, & Bassani, 2014). The SSM evaluates the crash risk in a traffic event considering vehicle trajectories, speeds, and accelerations. These measures overcome the limitations due to the use of crash data. A SSM must be sensitive to the analysed traffic event and to the adopted countermeasures, so the safety improvement can be evaluated in a corrected way. The use of driving simulators has been already validated using surrogate safety measures (Yan, Abdel-Aty, Radwan, Wang, & Chilakapati, 2008).

To further explain the reason why surrogate safety measures have been adopted in this research, it is necessary to introduce the concept of traffic conflicts and crash-nearness. A traffic conflict is the situation in which road users follow trajectories that will lead them to a collision with a high probability of injury. This definition was formulated in the Dutch method of the traffic conflict technique (Horst & Kraay, 1986), in which both the imminence of the crash and the consequence for the involved users are included. Applying this definition to DP interaction, a conflict is a small separation between the two users and an evasive manoeuvre is necessary to avoid the collision.

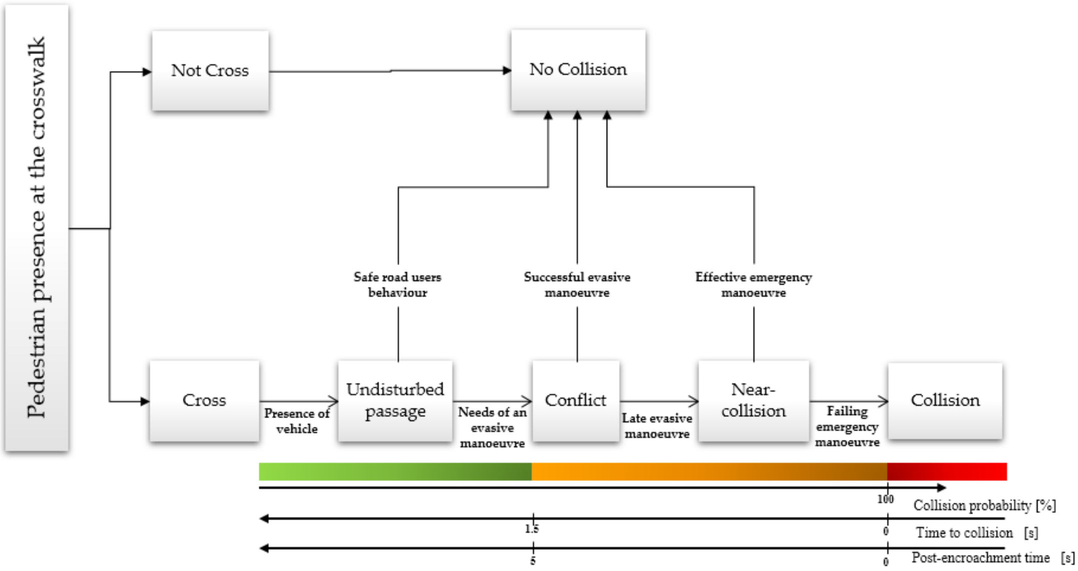


Figure 3-Outline of the driver-pedestrian interaction evolution related to surrogate safety measures.

If the driver carries out a late evasive manoeuvre, a near-collision event may occur. The crash nearness is related to the concept of road user's separation, which is the event that could have generated a damage but did not because of an effective emergency manoeuvre or a lucky coincidence. Even if near crashes do not produce material damage or injuries, they can create a feeling of unsafe conditions and anxiety in the road users. Moreover, these events are more frequent than collision and this overcome one of the main limitations of the crash data. The analysis of the near crashes might involve the concept of risk perception and allow to better evaluate the effectiveness of the adopted infrastructural countermeasures. Many surrogate safety measures have been used in the literature to express the crash nearness between the road users. In this study, (i) the minimum instantaneous time-to-collision (MTTC), (ii) the post-encroachment time (PET), (iii) the maximum deceleration (MaxD), and (iv) the maximum speed (MaxS) within 100 m before the crosswalk to evaluate the driver' response have been adopted.

Minimum time-to-collision

TTC is a surrogate safety measure, which has been widely used in the research field to evaluate the road users' safety (Wang, Cheng, Li, André, & Jiang, 2019). FHWA manual defined TTC as the time that remains until a potential collision between two road users, would occurred whether their trajectories and speed difference do not vary (U.S. Department of Transportation, 2008). It is a temporal proximal indicator, meaning that it expresses the distance between the road users in terms of time. The measurement of the TTC is based on the prediction of a hypothetical crash if both the road users maintain the same trajectory and speed. It allows to assess the severity of a conflict and the probability of a collision.

The instantaneous measurement of the TTC (ITTC) allowed to correctly detect the end of the driver's evasion manoeuvre during a conflict event (Tarko, 2020). It appeared clear as this manoeuvre comes to the end when the minimum value of the instantaneous TTC (MTTC) is achieved. A conflict event finished when the ITTC value increases and rises above the critical threshold. Typically, this SSM is automatically computed through SSAM (Surrogate Safety Assessment Model) that is a software application able to identify, classify, and evaluate traffic conflicts from microscopic traffic simulation models. The estimated TTC is based on the current location and speed of the two vehicles and it is evaluated at each time step. The default critical threshold adopted to identify a conflict event is equal to 1.5 s.

Post-encroachment time

FHWA manual defined PET as the time discrepancy between the moment an "offending" road user passes out of the point of potential collision and the moment of arrival at the same potential collision point by the "conflicted" road user. The minimum possible value of PET is equal to zero that corresponds to a collision. This variable has been already considered in literature both for vehicle-vehicle conflict events (Saulino, Persaud, & Bassani, 2014) and for DP interactions (Wang, Cheng, Li, André, & Jiang, 2019).

The nature of this measure could lead to misleading evaluation of the hazard because it is a post-event observation. It is possible to have a situation in which the driver manages to complete the evasive manoeuvre thanks to a strong deceleration when he is at a close distance from the pedestrian. To reach the potential conflict point the driver must restart from a standstill and

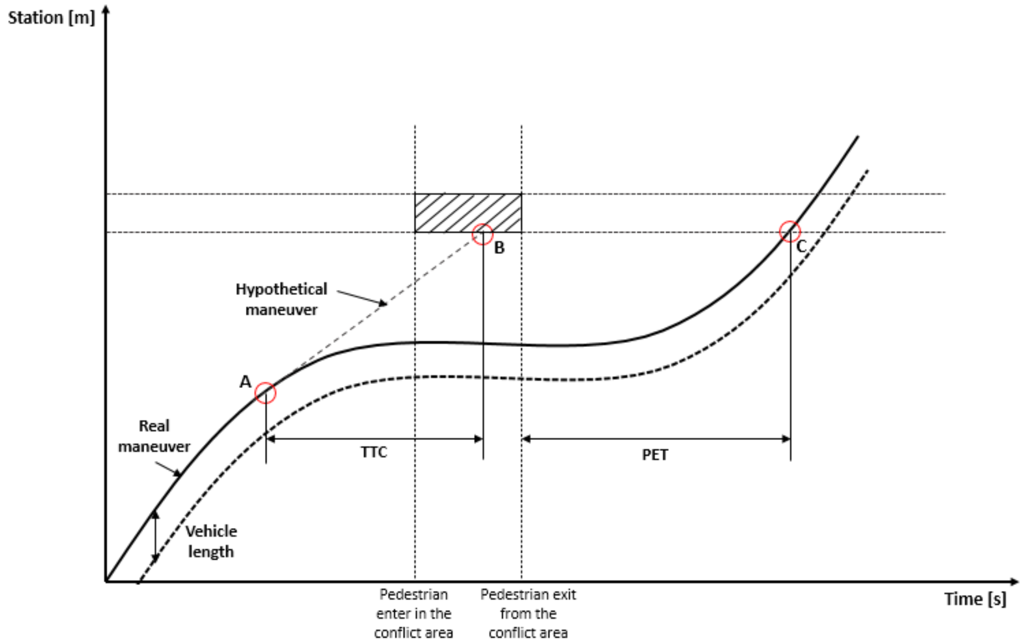


Figure 4-Definition of the TTC and PET in the time-space domain referring to the case in which the pedestrian reaches the conflict area earlier than the vehicle (with evasive maneuver) . (A) is the beginning point of the evasive maneuver, (B) is the potential conflict point, (C) is the actual at the potential conflict point of the second road user.

a considerable amount of time may pass. The time elapsing is clearly the observed PET. Even if the measure returns a high number, it does not reflect the high risk and probability of collision between users. It appeared as a good measure to count collisions but might not be an adequate measure to quantify the experienced risks by the users. The SSAM software adopt 5 s as critical threshold to detect traffic conflicts, and this study has been carried out consistently to this value.

2.4 Mid-block crosswalk designs

Crosswalks are dedicated to the pedestrian's circulation and allow a safe movement from one side to the other of the roadway. Road engineers must design them to limit any negative consequences (injuries and fatalities) using such facilities.

The crash statistics confirm that mid-block crossings are more critical than crosswalks at intersections (ASAPS, 2019). (Bella & Silvestri, 2015) (Bella & Silvestri, 2016) analysed the drivers' speed behaviour at the mid-block zebra crossings. They considered four treatments for the mid-block crossing area: (i) the baseline condition, i.e. no treatment; (ii) the parking restriction; (iii) the advanced yield marking; and (iv) the curb extension. These countermeasures were selected out of the ones analysed in the literature (Pulugurtha, Vasudevan, Nambisan, & Dangeti, 2012); (Zegeer & Bushell, 2012) because of their low cost, easiness of installation and effectiveness.

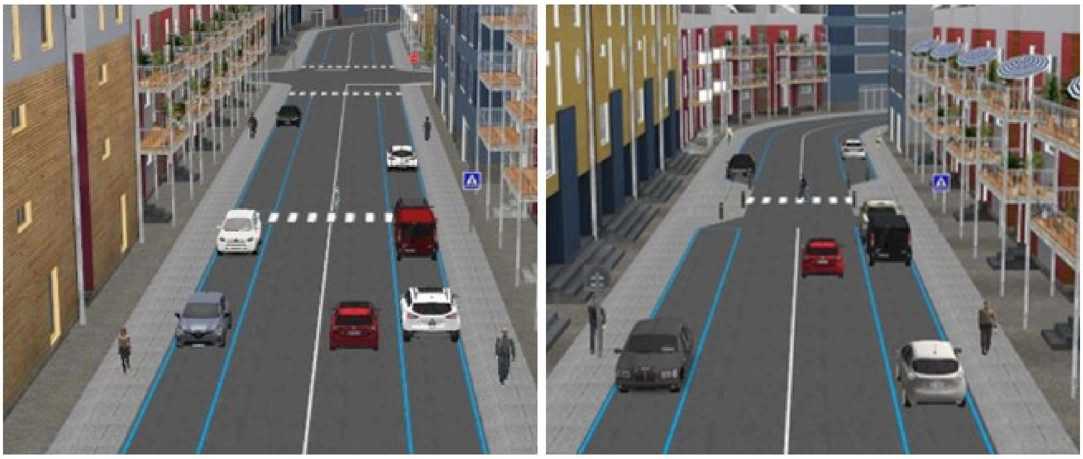
In this study, two layouts among the above-mentioned four have been selected accordingly to the published findings. (Bella & Silvestri, 2015) (Bella & Silvestri, 2016) indicates that the curb extension improves the visibility of the pedestrian and promotes the decrease in speed of the drivers allowing yield to a pedestrian and avoid abrupt evasive manoeuvre. Experimental evidence reveals that this countermeasure (i) reduces pedestrian exposure, (ii) increments the number of drivers that yield to pedestrians (Randal, 2005), and (iii) significantly reduce the operational speeds of vehicles (Replogle, 1992).

From this literature review, the main factors affecting the DP interactions at mid-block crosswalks are (i) the driver behaviour, and (ii) the pedestrian risk acceptance. However, the outcomes from previous studies do not account for the familiarity factor, either route or situational. In particular, the situational familiarity has never been considered as an experimental factor, and this support the decision to investigate this effect on driver behaviour and countermeasures effectiveness.

2.5 Objectives of the study

This study aims at investigating the DP interaction at unsignalized mid-block pedestrian crossing. This research investigates the effects of two different unsignalized mid-block crosswalk layouts, (i) the linear sidewalk (baseline) and (ii) the curb extension (Figure 6).

In addition to route-familiarity, which has been addressed in past research, the situational familiarity was investigated too. Drivers are intended to be familiar with the situation when they are accustomed to a specific circumstance, which in this study is interaction with pedestrians. The experimental activity aimed at examining the driver behaviour after (i) repeated exposure to DP interactions and (ii) in the first exposure after several missed DP interactions at mid-block crosswalks. The hypothesis is that driver's familiarity with route and situation contributes to generating a wider spectrum of behaviours, which could significantly affect the pedestrians' safety. The aim is to assess if the curb extension, rather than baseline condition, is still significant in reducing the risk of pedestrians when negotiating the road crossing even considering the familiarity factor.



(a) *(b)*

Figure 5- View of the baseline (a) and curb extension (b) mid-block crossing in the virtual environment.

Chapter 3

Methodology

3.1 Design of the experiment

A multi-level factorial experiment involving mid-block pedestrian crossing layouts, pedestrian time gap acceptance, and driver familiarity was designed. The term "multi-level" suggests that the factors did not have the same number of levels. The combination of the three experimental factors provide eighteen different configurations. Baseline (linear sidewalk) and curb extension are the two investigated mid-block pedestrian crossing designs and were embedded in an urban neighbourhood. Unfamiliarity, route-familiarity, and situational-familiarity were the three involvement types. Three different pedestrian time gaps (4, 6 and 8 seconds) were adopted.

The experimental activity was carried out in the Road Safety and Driving Simulation laboratory of the Department of Environment, Land and Infrastructure Engineering (DIATI) at the Politecnico di Torino. The lab is equipped with a fixed-base driving simulator with a three-screen view that allows a 130° view. Four urban road scenarios were designed, and each participant drove just in one of them. Each of the four scenarios include different combinations of the experimental factors. The detailed description was included in the dedicated paragraph (Road Scenarios).

The experiment required a 20-minute drive for each participant. The limited time spent at the simulator was adopted to mitigate any possible unpleasant sickness effects given by the simulation, and to be compliant with the anti-covid19 standards. Participants were asked to fill a questionnaire before the experiment.
Fifty-two drivers divided into four groups and stratified for age and gender were involved. Drivers completed five laps of the circuit, four of which allow them to accomplish the assigned familiarization process. The choice of the laps number was made in accordance with the results found by Yanko et al. (Yanko & Spalek, 2013) and the harmonized methodology proposed by Intini

et al. (Intini, Colonna, & Ryeng, 2019). At the end of the driving session, participants were asked to fill the post-drive questionnaire to check any simulation sickness effect and eventually exclude those data from the final processing.

Two different analyses were carried out. The first involved the interaction plots, which exhibit the effects of the experimental factors on the measured variables. The second was performed through the calibration of some mixed-effects models to include both fixed and random effects on the driver outputs.

3.2 Experimental factors

The multi-level factorial experiment was based on three independent factors: (i) mid-block pedestrian crossing layouts, (ii) pedestrian time gap acceptance, and (iii) driver familiarity (Figure 7).

These might be called controlled variables, which were varied in the experiment to produce a response in the observed variables that depict driver behaviour. The structure of the experiment requires the study of eighteen combinations obtained from the different levels of the independent factors. The mid-block pedestrian crossing treatment factor has two configurations,

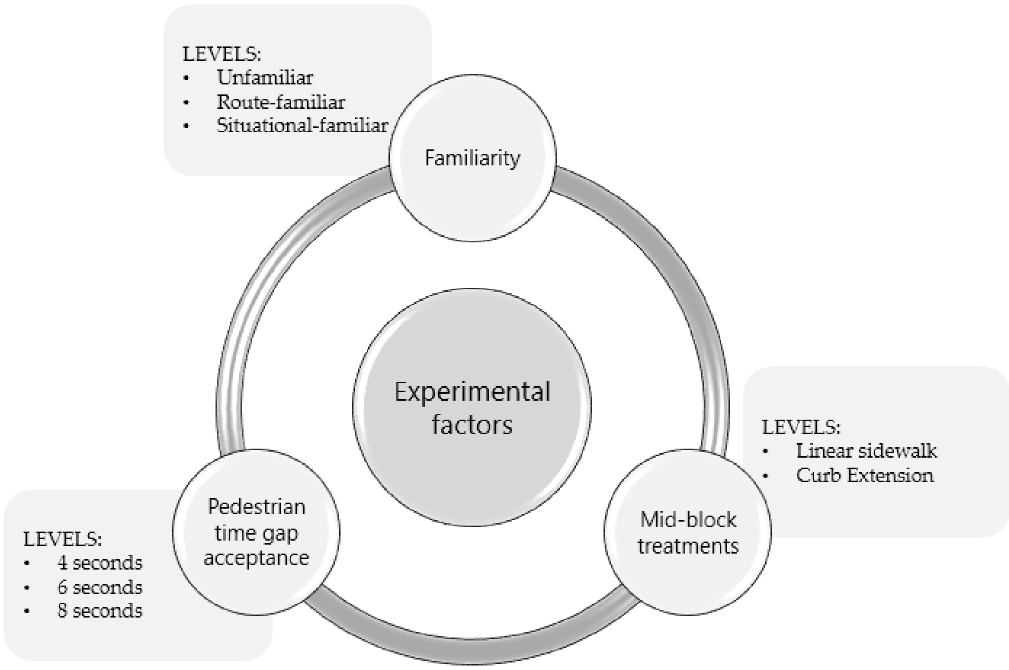


Figure 6-Outline of the experimental factors

the linear curb (baseline) and the curb extension. Unfamiliarity, route-familiarity, and situational-familiarity are the three conditions in which the drivers were involved. Three different values of pedestrian time gap acceptance to model their crossing behaviour (4, 6 and 8 seconds) were adopted. They are explained in detail in the following subsections.

3.2.1 Mid-block pedestrian crossing

The investigated mid-block pedestrian crossing layouts were the linear sidewalk (baseline) and the curb extension. The first one is the most used pedestrian crossing configuration in Italy, and it does not involve any protection for pedestrians. The second is the countermeasure found to be most effective in two studies by Bella and Silvestri (Bella & Silvestri, 2015) (Bella & Silvestri, 2016).

Baseline layout

This layout (Figure 7) includes two lanes 3 m wide for the circulation of vehicles, two parking lanes of 2.20 m in width, two sidewalks 2 m wide, and a vertical signal to indicate the crosswalks location.

The strips of the crosswalks have been designed accordingly to the Italian Highway Code, which establish that they must be 1.5 meters long, 0.5 meters wide and spaced 0.5 meters one from another (Ministero delle Infrastrutture e dei Trasporti, 1992).

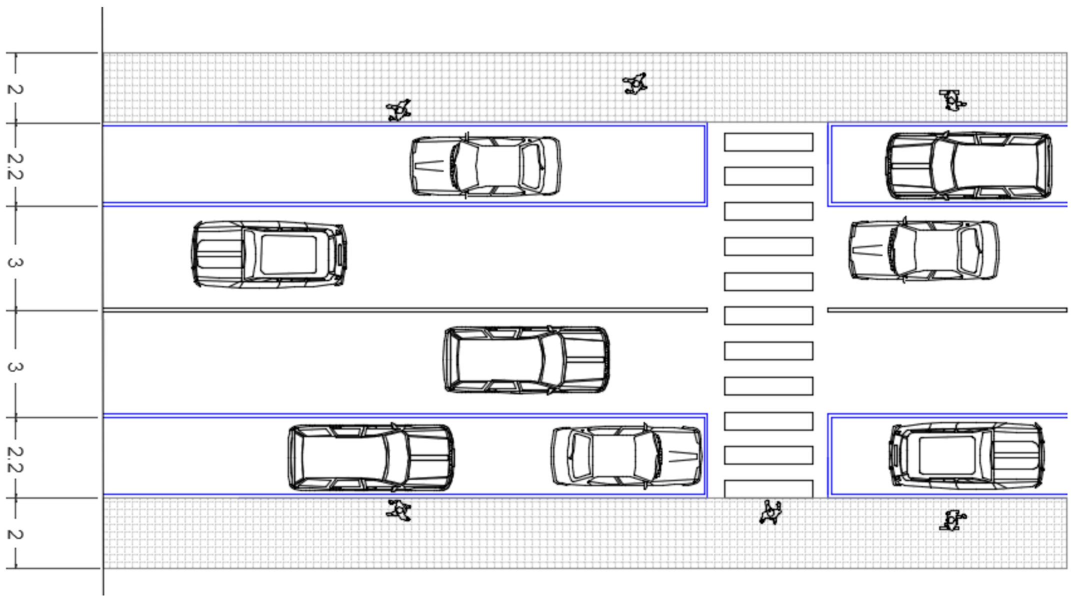


Figure 7-Baseline mid-block pedestrian crossing layout

Furthermore, in the proximity of the crosswalk two bulky vehicles were positioned to reduce the visibility of the pedestrian from the driver point of view.

Curb Extension

The geometry adopted for this layout is consistent with the Italian Policy, which requires a trapezoidal shape for the extension. The basic idea behind this layout is to improve the visibility for both the pedestrian and the driver. According to the ACI guidelines (Automobile Club d'Italia (ACI), 2011), the width of the sidewalk shall be of 1.5 m as a minimum, the length with a minimum of 2 m, and the width at least equal to the crosswalk. The final geometry was based on the case studies of Venice (Comune di Venezia, 2007) and Portogruaro (Portogruaro, 2007). The geometry adopted is shown in **Errore. L'origine riferimento non è stata trovata.**: 2 m wide sidewalk, 2.2 m of curb extension, and 12 m of crossing area. Small poles 0.9 meters high have been placed on the edges of the trapezoid to provide protection for pedestrians and to prevent cars from getting onto the sidewalk.

3.2.2 Pedestrian time gap acceptance

Modelling the driver-pedestrian interactions is not an easy task because of the difficulty in replicating a human-like behaviour. In this research, the pedestrian time gap acceptance (risk acceptance) concept was considered. Three time gaps of (i) 4, (ii) 6, and (iii) 8 s were adopted. The selected speed for pedestrians was set equal to 1.1 $\frac{m}{s}$, which was already considered in the

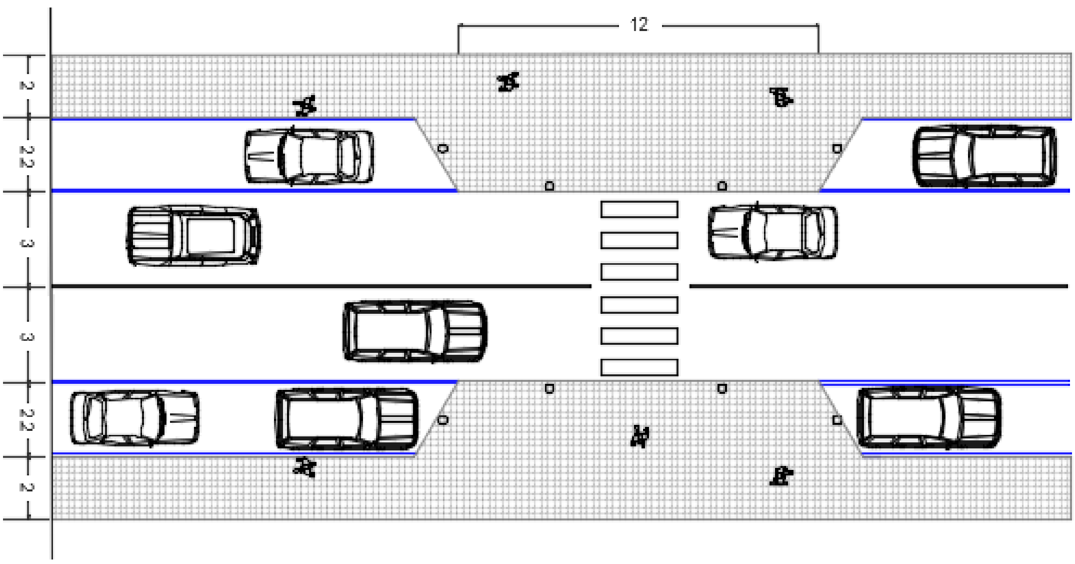


Figure 8-Curb extension mid-block pedestrian crossing layout

study of (Wu, Radwan, & Abou-Senna, 2016). With this speed value, the pedestrian needs 2 s to reach the vehicular lane along the crosswalk. In the baseline condition, this distance was on the asphalt pavement surface, while with the second layout on the sidewalk extension. To avoid the administration of an order effects, two different interaction sequences were provided: crosswalk No. 1, 3, and 6, and No. 2, 4 and 5.

The DP interaction was controlled through a fix-time trigger as per the following formula:

$$Trigger_{threshold} = \frac{D}{V_{veh}} \; [s]$$

where:

- D is the distance between the vehicle's bumper and the pedestrian;
- V_{veh} is the actual vehicle speed.

Finally, the DP interactions always involve the pedestrian coming from the right-side, which is the more hazardous.

3.2.3 Driver familiarity

Two kinds of driver familiarity were explored: (i) the route and (ii) the situational one.

According to Intini et al. (Intini, Colonna, & Ryeng, 2019), a frequency-based approach for the route-familiarisation process was adopted. Participants drove four times along the same track to reach a route-familiar condition. The whole procedure was carried out without interacting with other road users.

Furthermore, the situational familiarity was accomplished by introducing three DP interactions for each turn, in which pedestrians cross the roadway in the mid-block sections. In the second, third and fourth lap, pedestrians crossed whenever the vehicle was about 70 m far from the mid-block crosswalk. The crossing action was governed through a fixed-space trigger installed in the virtual scenario. This methodology allows a constant familiarization process for all drivers, regardless of their driving behaviour or adopted speed. In the experiment, pedestrians crossed also from the left, in pairs or at different speeds. This was done so as not to produce a systematic DP interaction.

3.3 Road Scenarios

One of the core parts of this work was the design of the scenario in which the drivers have been involved. The length, the shape of the circuit and its surroundings were designed to make drivers familiar with the route and the situation, to limit the driving sessions to reduce any simulation sickness, and to replicate a typical urban setting. Four different scenarios were designed. The common characteristics of the rectangular-shaped tracks (Figure 9) are:

- 6 mid-block pedestrian crossing areas;
- "urban-canyon" with surrounding building;
- rectangular shape and 1.6 km in length;
- distance between consecutive pedestrian crosswalks of 200 m;
- two intersections regulated with stop signal;
- posted speed limit of 50 $\frac{km}{h}$ according to the Italian regulations;
- two cars and five pedestrians moving in each mid-block crossing area to reproduce a typical urban traffic;
- the driven vehicle was isolated in the lane.

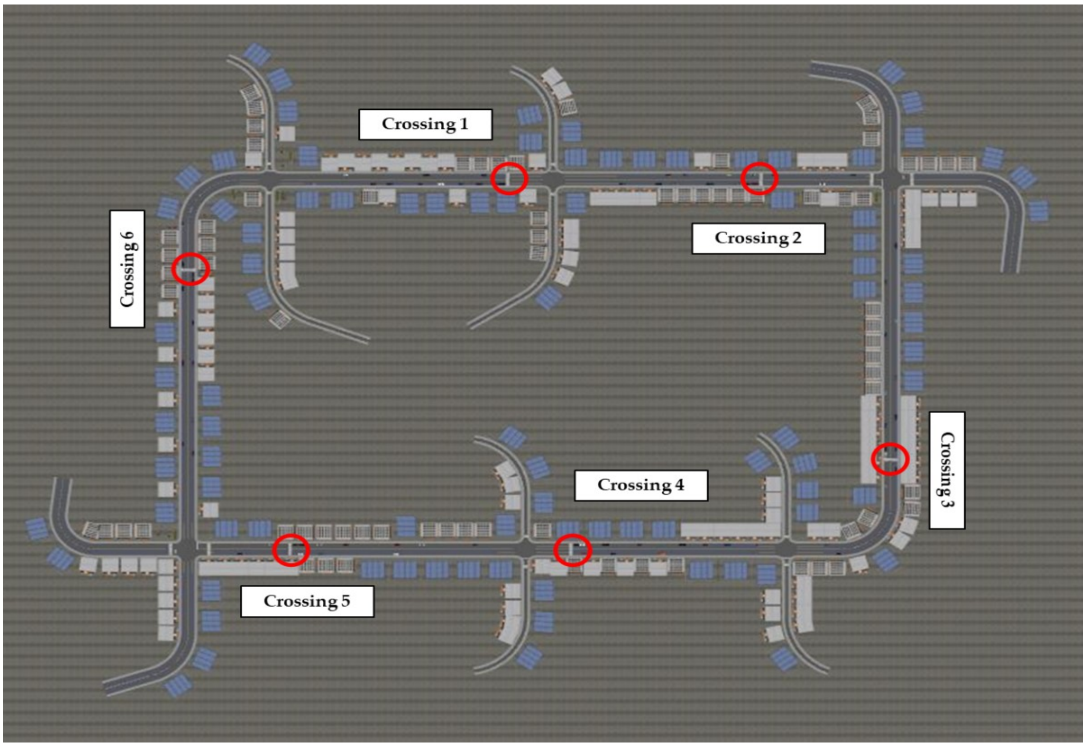


Figure 9-Top view of the experimental urban track

The track is made up of two legs 500 m long and other two 300 m long. The crossing zone were distributed along the track to comply with the distance of 200 m between consecutive crossings. A street view of the road scenario is shown in the Figure 10-Street view of the urban scenario.

To reproduce the urban environment, we needed to include other road users besides those needed for the tests. Five pedestrians per crossing were included to replicate pedestrian traffic along the sidewalks. Furthermore, two cars per crossing were included in the opposite lane to simulate city traffic. Therefore, there are thirty pedestrians and twelve cars that travel along the road scenario without interacting with the driver. The road users' behaviour was modelled through SCANeR™studio, which has a specific language called MICE to make users interact together. The implementation of the environment and the scripts were reported in the appendix (Scenario codes (MICE language).A). The vertical and horizontal markings have been installed following the standards specified for urban areas. Blue parking areas, horizontal markings, stop, posted speed limit, crosswalk signals are some of them. In particular, the posted speed limit signal was included at the beginning of each leg of the scenario, to remind the speed regulations during

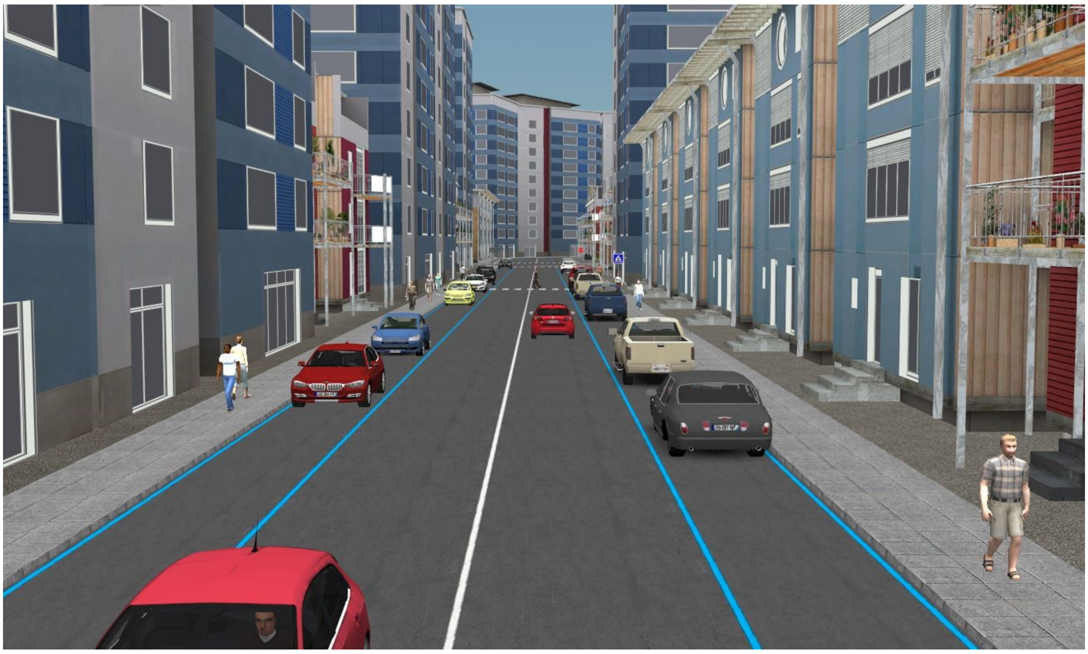


Figure 10-Street view of the urban scenario

the duration of the drive. The following sub-sections explain in detail the structure of each scenario.

Scenario 1

Route-familiarity and baseline mid-block pedestrian crossing are the two pillars of this scenario. In this road scenario, drivers undergo the route familiarity process. This process mainly consists of driving around the neighbourhood four times without any interactions with pedestrians. To make the driving more lifelike, we decided to make some pedestrians cross at the intersections. However, these road users do not interact with drivers because they start crossing the road when the vehicle is 150 meters away from the intersection and having only a visual function.

After driving four laps around the city block, drivers were considered familiar with the road (frequency-based approach). In the fifth lap, we observed the driver behaviour during the first exposure to a DP interaction at the mid-block crosswalks. The investigated crosswalk layout was the linear sidewalk, and it was reproduced in all the six mid-block locations. The Table 1 summarized the combinations included on this scenario.

Table 1-Scenario 1 combinations

Mid-block layout	Familiarity	Ped. time gap acceptance	Lap
Baseline	Route	4 seconds	5
Baseline	Route	6 seconds	5
Baseline	Route	8 seconds	5

Scenario 2

The second scenario involved the same mid-block layout as the first (linear curb), but in this instance, drivers were subjected to the process of becoming familiar both with the road and the situation. Route-familiarization process is the same as seen in the first scenario and it is reproduced here as well. To recap, the drivers travel the same road four times to be familiar with it.

The distinction with the previous configuration lies in the inclusion of the concept of familiarity with the situation. This process is accomplished through the introduction of three DP interactions per each lap, where pedestrians cross the roadway in the mid-block sections. The investigated DP interaction were approached by drivers in the first and last lap of the scenario. Those DP interactions were the same for both the laps, and this has been done to investigate a possible shift in driver's response between an initial situation (unfamiliar) and the final stage (route and situational familiar). The Table 2 illustrates the investigated combinations.

Table 2-Scenario 2 combinations

Mid-block layout	Familiarity	Ped. time gap acceptance	Lap
Baseline	Unfamiliar	4 seconds	1
Baseline	Unfamiliar	6 seconds	1
Baseline	Unfamiliar	8 seconds	1
Baseline	Route and Situational	4 seconds	5
Baseline	Route and Situational	6 seconds	5
Baseline	Route and Situational	8 seconds	5

Scenario 3

This scenario was designed to afford investigation regarding route-familiarity under curb extension mid-block crossing layout. The purpose of it is to represent a kind of safe island for pedestrians, improving drivers' visibility of the pedestrians. The procedure for road familiarization is the same as in scenario 1, in which drivers are required to drive four times

Figure 11-Frames of the designed scenarios

around the road scenario before being exposed to DP interactions. The Table 3 shows the analysed configuration of the interactions.

Table 3-Scenario 3 combinations

Mid-block layout	Familiarity	Pedestrian time gap acceptance	Lap
Curb extension	Route	4 seconds	5
Curb extension	Route	6 seconds	5
Curb extension	Route	8 seconds	5

Scenario 4

The latter scenario allowed to analyse the remaining combinations. Route and situational familiarity are both considered with curb extension as mid-block pedestrian crossing layout. Familiarity with the situation is achieved as explained for scenario 2, in which the driver started to interact with pedestrians from the first lap. The curb extension, as in scenario 3, follows the Italian custom of having a trapezoidal design shape. The Table 4 exhibit the obtained combinations.

Table 4-Scenario 4 combinations

Mid-block layout	Familiarity	Pedestrian time gap acceptance	Lap
Curb extension	Unfamiliar	4 seconds	1
Curb extension	Unfamiliar	6 seconds	1
Curb extension	Unfamiliar	8 seconds	1
Curb extension	Route and Situational	4 seconds	5
Curb extension	Route and Situational	6 seconds	5
Curb extension	Route and Situational	8 seconds	5

3.4 Participants

The participants (drivers) were chosen from external volunteers, professors, students, and employees of the Politecnico di Torino. All drivers took part in the activity voluntarily and without receiving any monetary compensation. The number of people involved is 52 and they were randomly distributed across the four designed scenarios. The drivers have been stratified by age and gender to have a good sample and an acceptable distribution of drivers among the four groups. Moreover, the drivers having a driving license for less than three years were excluded, consistently with the concept that unfamiliarity is different to unexperienced driver.

For each of the four designed tracks the number of involved drivers is equal to thirteen. This number allowed having thirteen observations of each measured variable for each combination. The age range of the sample is 23 to 60 years old and the mean driver age was about 36 years old. Age distribution by age and gender was summarized in the pie charts (Figure 12).

To test the goodness of fit between subgroups, f-tests and t-tests were conducted on the age characteristic per each couple of groups. The f-test is a preliminary test used to figure out whether two populations of data have equal variance. It was also needed to decide which t-test to use. If the p-value resulting from the f-test is lower or equal to 0.05, means that the populations have equal variance.

The t-test allowed to estimate the probability of obtaining a difference between the averages at least as large as that observed when the null hypothesis is true. This probability is expressed by the p-value, and if it is higher than 0.05 means that the discrepancy between the means of the two groups is not statistically significant. Mean values and the standard deviation can be represented through interval plots (Figure 13). The p-values of all t-tests are well above the 0.05 significance threshold, so all the drivers were considered (Table 6).

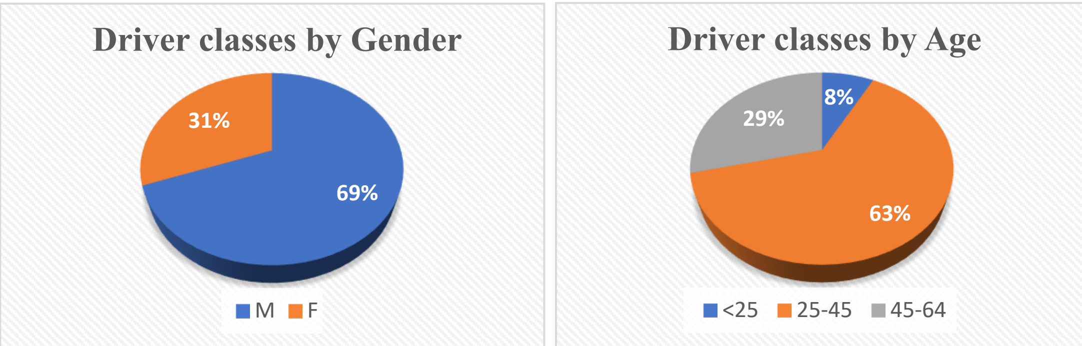


Figure 12-Pie charts describing the sample age distribution in terms of gender and age

Table 5-Age means and standard deviations of each group

	Age	
Group	Mean	Std Dev
1	35.31	11.24
2	36.46	10.08
3	36.23	11.58
4	37.69	12.43

Table 6-P-values of the T-tests and F-tests for each couple of groups

		Age		
Group	**F value**	**p-value (f test)**	**t value**	**p-value (t test)**
1-2	1.24	0.36	-0.28	0.79
1-3	0.94	0.46	-0.206	0.84
1-4	0.82	0.37	-0.513	0.61
2-3	0.76	0.32	0.05	0.96
2-4	0.66	0.24	-0.277	0.78
3-4	0.87	0.41	-0.31	0.76

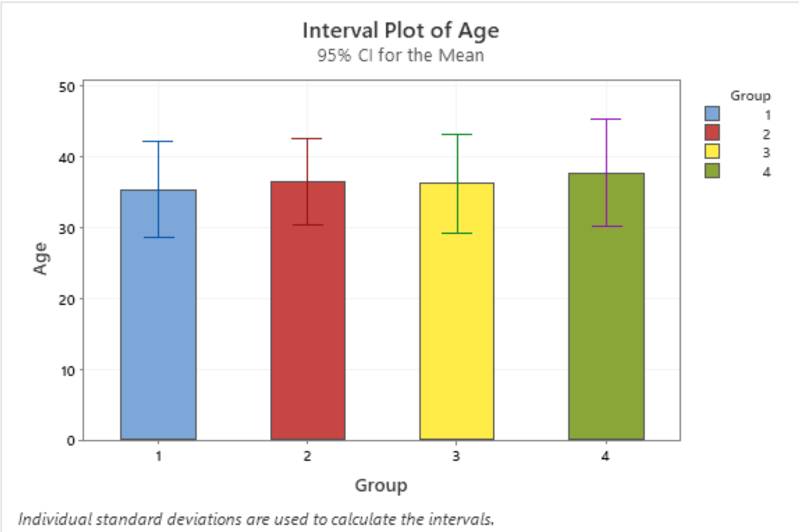


Figure 13-Interval plot of the drivers' age stratified by group

3.5 Experimental protocol

Driver recruitment

The starting step was driver recruitment, which initially involved drivers who had participated in previous experiments. They received an invitation email (Appendix K) asking for their availability to be involved and contacted for scheduling an appointment. It contained as attachments the presentation of the experiment (Appendix L), anti-covid19 procedure for laboratories and information for guests and visitors (Appendix M).

Age, average mileage driven in a year, number of incidents in which you have been involved, familiarity with driving software (i.e. videogame), and use of the contact lenses are some of the required information. If the driver is used to wearing contact lenses, he is asked to do so during the experiment to be able to replicate the actual situation more faithfully. A further question in the questionnaire concerns the weekly driving frequency. This request serves as a filter for the final definition of the sample, and it was decided to select people with similar driving frequency to have as homogeneous a sample as possible. The detailed questionnaire has been included in the appendix L. Given the difficulty determinates by the actual moment in finding drivers and the need to increase the sample size, new participants were invited through a google form which was forwarded to the internal staff of the university.

The participants were contacted by phone or WhatsApp message after giving their willingness to take part in the experiment. During the phone call, a day and time for the driving session were agreed upon, it was reminded to always wear a mask, and it was suggested that participants not consume coffee or similar beverages in the two hours before the drive, so as not to affect their perceptions and create possible discomfort. Appointments were reported on the Google Calendar cloud platform so that all students using the laboratory were known about them and the number of people within the room was limited.

Furthermore, to guarantee access to people who do not work at the Politecnico, it was necessary to inform the logistics office of the university through an email containing the name, surname, email, and access time of the participants. Once permission for access was granted, the logistics office sent an email to each driver communicating that authorization to take part in the experiment had been obtained.

Pre-guide session

When participants arrived at the laboratory, they were asked to sanitize their hands with gel and fill out some questionnaires. The first is the one regarding the anti-covid19 regulations, which was used for contact tracing and must be kept for 15 days (Appendix M). The second is the one containing the presentation of the research activity and the personal information of the participant (Appendix L). If the driver has already completed this form and emailed it, she/he is not required to fill it out again. The last one is the pre-guide questionnaire, which contains some questions concerning health conditions, medication intake and food ingested in the previous hours (Appendix N).

Training Scenario

This session aims to acclimate the drivers, to adapt themselves to the physical feelings involved in driving the simulator and to embed them safely in the virtual environment. The trial scenario about 2 km long and it is necessary to increase driver confidence with the equipment of the driving simulator, which is represented by the steering wheel, gearbox, and pedals. Participants were involved in a usual situation for them, since drivers have been seated in an ordinary car seat including belt and are required to use a six-speed manual transmission. As the instrumentation is commonly used, no long training time is required so two or three minutes of driving session are considered congruous. It was observed that only two drivers did not complete the training phase because they experienced simulation sickness. They were replaced with participants with similar characteristics.

Experimental session

If the driver did not feel any disease after the training session, he started the test phase. The participant drove 5 laps on the randomly assigned scenario. During the simulation it was not necessary to communicate with the driver, as directions were provided on the screen through arrows implemented with a proper code (Figure 14). A message indicating to park the car on the right was displayed to notify the driver of the end of the experiment. During the driving session we turn off the lights to give a context and to delete source of

Figure 14-Indications displayed through arrows on the three screens

possible distraction for the driver. The audio level has been kept the same for all the experiments (35%).

Post-drive questionnaire

At the end of the drive, the participant was asked to complete a post-drive questionnaire. It was written based on an experiment previously conducted by Tenca (Tenca, 2019). It is intended to collect information regarding simulation sickness and the driving experience. Feelings, consequences of experience, immersion, and presence are the four sections into which the questionnaire is divided. Responses to this form were provided based on a 4-point Likert scale (Appendix O). The driving simulator was sanitized at the end of each experimental session so that the tests could be safely conducted.

3.6 Observed measures

Four surrogate safety measures i.e., (i) minimum instantaneous time to collision (MTTC), (ii) post encroachment time (PET), (iii) maximum car deceleration (MaxD) and (iv) maximum car speed within 100 m before the crosswalk (MaxS) were used to evaluate the driver's response.

3.6.1 Minimum instantaneous time to collision

The TTC is a surrogate safety measure which is used to evaluate the crash nearness between two road users. In this study an instantaneous calculation of the time-to-collision (ITTC) was adopted, meaning that the distance between the potential collision points and the users' speed difference have been computed at each instant.

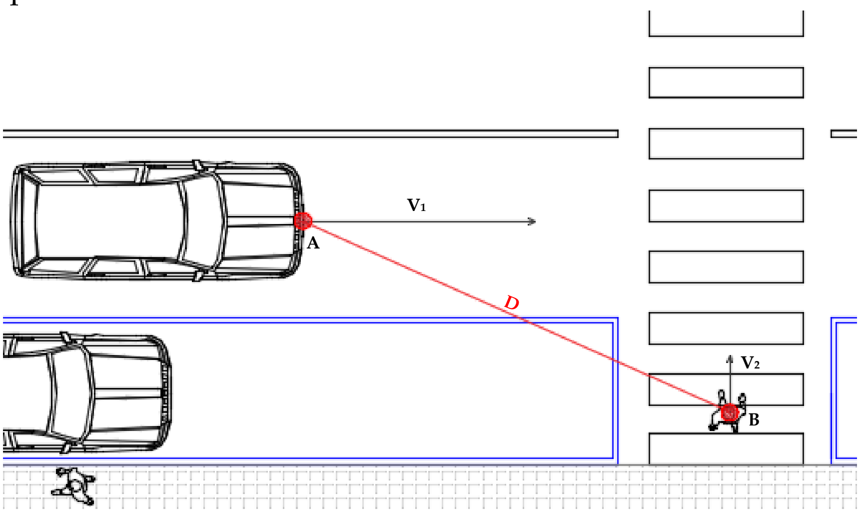


Figure 15-Outline of the ITTC calculation

The equation that allowed to compute the ITTC is the following one:

$$ITTC(t)\ [s] = \frac{D}{\|\Delta V\|}$$

Where:

- D is the current distance between the potential collision points (on car's bumper and pedestrian).
- $\|\Delta V\|$ is module of the actual relative speed difference of the road users.

To detect the end of the driver's evasive manoeuvre, it has been decided to consider the minimum value of the ITTC (MTTC). The MTTC has been already proposed as surrogate safety measure for traffic events (Hayward, 1971) (Wu, Radwan, & Abou-Senna, 2016). A low MTTC value corresponds a high probability of a collision between road users.

The computational procedure has been implemented in the SCANeR™ studio software through a script embedded into the main code (Appendix A). The post-processing phase has been carried out in Matlab® to build the

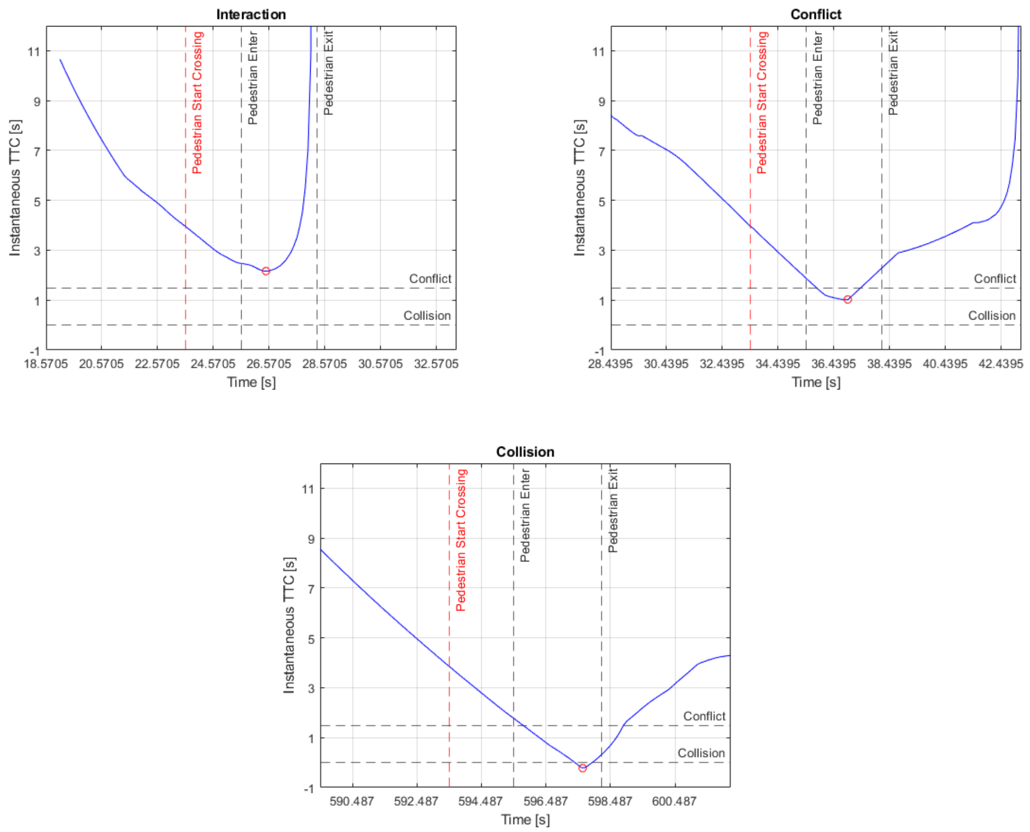


Figure 16-MTTC experimental graph for undisturbed passage, conflict, and collision events

graphs and highlight the MTTC values. Those minimum values were extracted and saved in Excel sheets to be analysed (Appendix B). Furthermore, the SSAM default threshold to classify the observed traffic events were adopted (Figure 16):

- if the MTTC > 1.5 s, event is classified as an undisturbed passage
- if the 0 < MTTC ≤ 1.5 s, event is classified as a conflict
- if the MTTC ≤ 0 s, event is classified as a collision

3.6.2 Post-encroachment time

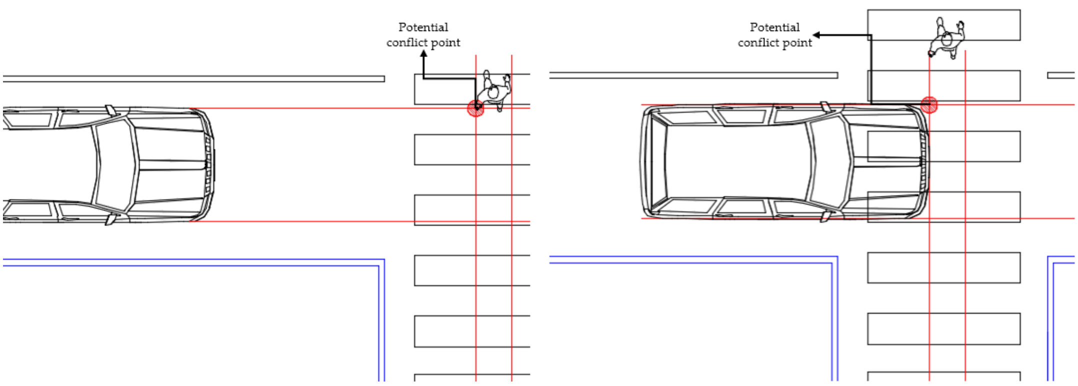
The second considered SSM was the post-encroachment time (PET). It is a measure of crash nearness, but differently to the TTC, it is a post-event observation. This variable has been already considered in the literature both for vehicle-vehicle conflict events (Saulino, Persaud, & Bassani, 2014) and for DP interactions (Wang, Cheng, Li, André, & Jiang, 2019). The PET was computed as follow (Figure 17):

$$PET[s] = t_2 - t_1$$

where:

- t_2 is the arrival time of the second user at the potential conflict point;
- t_1 is the time at which the first road user left the potential conflict point;

To carry out the PET calculation, we decided to implement in the virtual scenario some detection areas at the potential conflict areas (mid-block crossings). These areas match the portion of the crosswalks that are in the



(a) (b)

Figure 17-Example of PET observation. (a) describe the moment at which the pedestrian left the conflict point (t1), (b) represents the arrival of the driver at the same point (t2).

car's lane of responsibility. This operation allowed collecting images from the simulation when the two road users are inside the conflict area.

To save and extract the images and the corresponding simulation time it was necessary to use the "TimeMarker" function. Through this tool, it was possible to obtain the images in which the users were inside the conflict areas with a sampling time equal to 0.1 seconds (Appendix A). The images referring to the same traffic event were superimposed through a Matlab® code (Appendix B), to assess the location of the potential conflict point.

Similarly to what has been done for MTTC observations, three categories for the traffic events were identified:

- If the PET > 5 s, event is classified as an undisturbed passage.
- If the 0 < PET ≤ 5 s, event is classified as a conflict.
- If the PET = 0 s, event is classified as a collision.

3.6.3 Maximum Deceleration of the vehicle

FHWA defined MaxD as the maximum instantaneous deceleration rate of the vehicle observed during the conflict event (U.S. Department of Transportation, 2008). This surrogate safety measure has been used in previous study (Wu, Radwan, & Abou-Senna, 2016), in which the deceleration is evaluated during the DP interaction event. Max deceleration should change accordingly to the different drivers' behaviour, particularly if

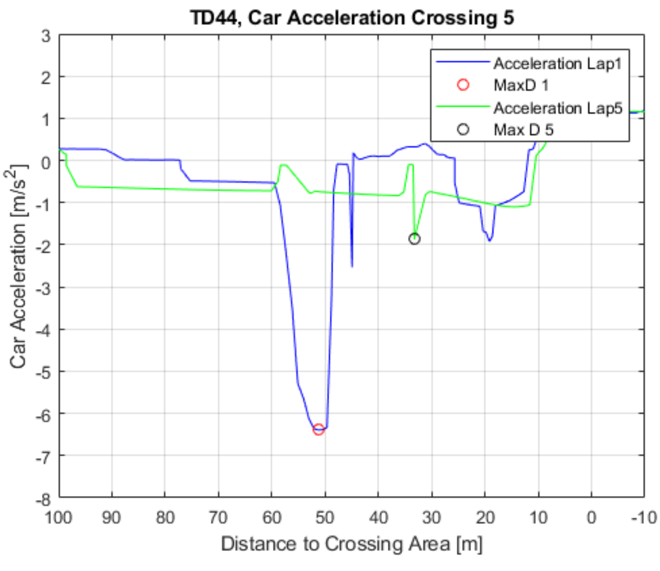


Figure 18-Experimental graph of the vehicle acceleration within 100 m the crossing area

the driver adopts a much higher speed than allowed, he will have a more rapid deceleration, representing a potential danger to other road users. It is usually adopted to measure the conflict severity.

The data were acquired through the SCANeR™ studio software. We wrote a code by which the acceleration is detected from the moment in which the car is 100 meters from the crossing, with a time frequency of 0.1 seconds (10 Hz). The data were extracted in csv format and post-processed in Matlab® to get the minimum acceleration and plot the graphs. The Matlab® and the MICE (e.g. SCANeR™ studio language) code for obtaining the data can be found in the attachment (Appendix A, B).

3.6.4 Maximum Speed of the vehicle

The maximum speed is a surrogate safety measure which is as the maximum speed of the vehicle during the conflict event. This value is extracted from the car speed profile that is recorded when a vehicle is 100 m away from the crossing area. This variable is used to denote the severity of the potential resulting collision whether the traffic event led to a collision instead of a near miss, meaning that the higher the maximum speed, the higher the severity of the conflict.

The data were recorded through the SCANeR™ studio software. The vehicle speed was detected from the moment at which the car was 100 meters from the crossing area. The data were extracted in csv format and post-processed

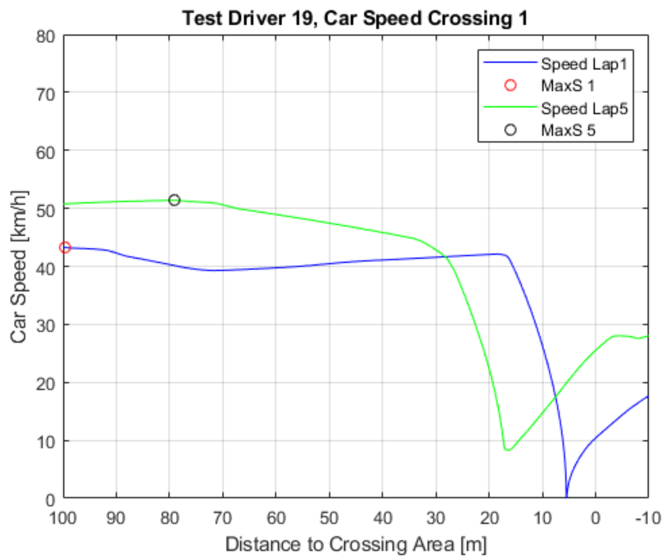


Figure 19-Experimental graph of the vehicle speed within 100 m the crossing area

in Matlab® to get the maximum speed and plot the graphs. The Matlab® and the MICE (e.g. SCANeR™ studio language) code for obtaining the data were included in the attachment (Appendix A, B).

3.7 Analysis methods

Two different analysis were carried out. The first with interaction plots exhibited the effects of the experimental factors on the measured variables. The second was performed through the calibration of mixed-effects models.

Interaction plots

The interaction plots revealed as the experimental factors differently impact on the observed measures. Interaction plots allowed to understand if there is a possible interaction between the considered fixed factors. These plots refer to the mean values of the observed variable and supported in assessing the effect of the different levels of the independent factors. The graphs must be interpreted observing the trends of the lines connecting the mean values. If the lines are not parallel, it means that the effect of one fixed variable depends on the other one. When a possible interaction between the variable is found, it is necessary to adopt a model to further investigate it.

MTTC, PET, MaxS, MaxD are the four measured variables and is obtained an interaction plot for each of them. These plots were obtained through Minitab, that is a statistical software for data analysis, statistical and process improvement.

The interaction plots allowed us to perform a graphic analysis on the observed measures. Those graphs have been obtained through Minitab, which is widely used statistical software. Whether the lines are not parrallel it means that the effects of one independent factor depend on the other one. The software generates a report card at the end of the analysis which helps the users to interpret the results. An example of the output is shown in Figure 20.

Mixed-effects model

The linear mixed effects model (LMM) allowed to do a step ahead in the data analysis with respect to the graphic analysis. The main reasons to adopt this model are: (i) inclusion of at least one random factor, (ii) the observed variable must be continuous, (iii) and the data sample must be random. It is an extension of the typical linear model (e.g. linear regression or fixed effects ANOVA) and is used for more complex experimental designs. Its choice is due to the multi-level design of this experiment, which requires an analysis on the considered factors and on the effect that their interaction might produce on the observed measures.

This model includes both fixed and random effects. Fixed effects are parameters that are investigated and does not vary (independent variables). But the main advantage of this model is that it explain the variation in the response which is not only explained by the fixed factors. Random effects associated to personal characteristics may be included in the model. In this

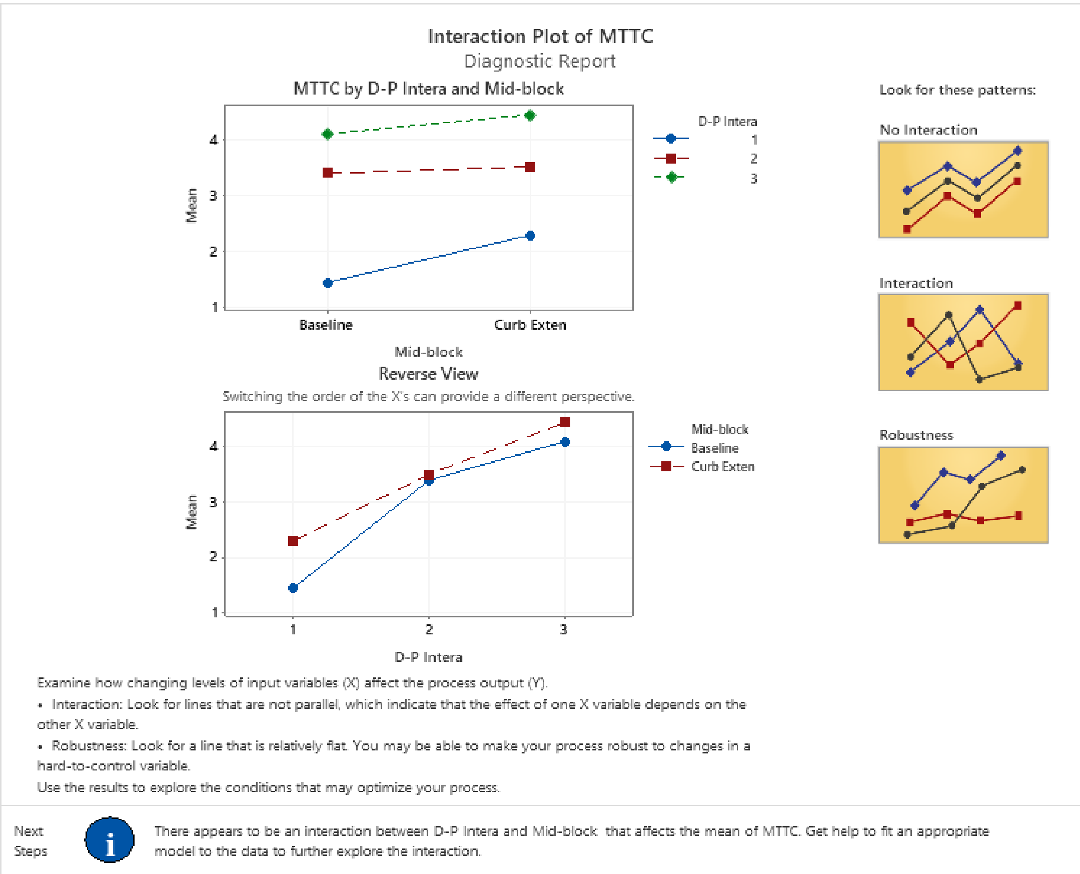


Figure 20-Example of diagnostic report on the interaction plots

study the identification factor (ID) of the test driver was . The ID acts as an anchor for repeated measures, and it allowed to associate each observation to a given driver. This represents the random factor in the investigated models.

A linear mixed-effects model for each of the four observed variables was fitted. These models were obtained through Jamovi (ver. 1.16.13), which is an open source statistical software. The variables included in the model are:

- Test Driver ID (TD ID);
- Test Driver Age (quantitative variable), (TDAge);
- Test Driver Gender (categorical variable), (TDGen);
- Mid-Block layout (categorical variable), (MidB);
- Familiarity (categorical variable), (Fam);
- Pedestrian time gap acceptance (categorical variable), (PTGA);
- MTTC, PET, MaxS, MaxD (observed variable)

The quantitative variables are continuous, while the categorical are used whether the measure is expressed in levels. To fit the LMM it was used a restricted-maximum likelihood (REML) approach, which perform the estimates through a likelihood function measuring the goodness of fit of a statistical model to the database. The equation 3.1 shows the general LMM formulation, where independent factors, their combinations, and random factors were considered:

$$Y \sim 1 + Fixed\ Factors + Combination\ of\ Fixed\ factors + Random\ Factors + Errors \quad (3.1)$$

The dependent variable (Y) is the observed one (i.e. MTTC, PET, MaxS or MaxD). The experimental factors (i.e. Familiarity, Mid-block layout, Pedestrian time gap acceptance), the test driver gender and age were considered as fixed factors. The random variable (cluster) was the test driver ID. The model allowed to evaluate the significance of each factor and of their combinations through "p-value" observations. The selected confidence interval is 95 % ($\alpha = 0.05$), and whether the p-value associated to the factor is lower than α, the factor had a significant effect on the output.

At the end of the analysis the model summary shows how well the model fits the data. The model summary results gave some important information on the outcomes. It contains the R-squared factor, that is the percentage of variation in the response explained by the model. The linear mixed-effects model includes two R-squared factors: (i) the marginal and (ii) the conditional one. The R-squared marginal (3.2) is the proportion of total variance explained through fixed effects, while the R-squared conditional (3.3) refer both to fixed and random effects.

$$R^2_{Marginal} = \frac{\sigma^2_{fixed}}{\sigma^2_{fixed} + \sigma^2_{random} + \sigma^2_{\varepsilon(error)}} \quad (3.2)$$

$$R^2_{Conditional} = \frac{\sigma^2_{fixed} + \sigma^2_{random}}{\sigma^2_{fixed} + \sigma^2_{random} + \sigma^2_{\varepsilon(error)}} \quad (3.3)$$

The model summary reports other two important results, which are the Akaike's information criterion (AIC) and the Bayesian information criterion (BIC). The AIC (equation 3.4) provides a measurement of quality of the estimation, considering both the complexity of the model and the goodness of fit. The BIC (equation 3.5) is a criterion devoted to the selection of a model among a set of different parametric model. The model with lower AIC and BIC values is the preferred one. Both attempts to resolve the possible overfitting problem caused by the addition of many parameters in the model. Their formulas include a reward (negative function) for the goodness of fit, and a penalty (positive function), which is regulated by an increasing function of the number of estimated model parameters. The penalty aims to discourage overfitting and promote model parsimony. The equations pointed out that the penalising term is higher in the BIC than in AIC:

$$AIC = 2k - 2\ln(\hat{L}) \quad (3.4)$$

$$BIC = k\ln(n) - 2\ln(\hat{L}) \quad (3.5)$$

where:

- k is the number of parameters estimated by the model;
- $\hat{L}$ is the maximized value of the likelihood function;
- n is the sample size;

After fitting the LMM, the Holm post-hoc test on the significant factors to contrast the issue of the multiple comparison was carried out. This method allowed to control the probability that one or more Type I error occur, which is the rejection of a true null hypothesis. The tables containing the post-hoc test results were included in the Annex H.

The mean values of each combination were plotted in the interval plots to display the model results. This is a graphic way to show the difference among the several investigated configurations.

3.8 Driving Simulator

The experiment was carried out through the use of a driving simulator. It is a research tool that investigate some aspects of the road infrastructure field and to explore some psychological discomfort. Many factors belonging to the reality could be replicated and controlled in the virtual environment: weather conditions, daytime, vibration deriving from the pavement texture, vehicles' technical characteristics, pedestrian model, and ADAS are some of them. Driving simulators has been widely adopted in the scientific research field and documented in the literature.

The DP interaction topic has been already investigated in several researches by using this tool. Results have shown that the virtual environment could represent a useful and safe tool to test the driver' behaviours approaching pedestrian crossing, and to explore the countermeasures' effectiveness. (Bella & Silvestri, 2015) (Chrysler, Ahmad, & Schwarz, 2015).

The driving simulator installed at the Road Safety and Driving Simulation laboratory was used. The laboratory is located within the Department of Environmental, Land and Infrastructure Engineering (DIATI), where research activities on geometric design of infrastructures with the aim of improving safety for road users are carried out. The driving simulator is of the fixed base model. The software and hardware components are provided by the French company *AV Simulation*.

3.8.1 Hardware

The driving simulator is of the 3-screen system and consists of three computers that allow to model and interact with the virtual environment. The main computer (*superior*) is in charge of running the scenarios and recording the output data. Its features are to have an Intel Xeon 3.70 GHz processor (E5 1620 v2), an 8 Gb RAM, a 512 Gb Hard Disk and a graphics card NVIDIA GTX 780 Ti. The other two computers are dedicated to putting scenarios on screen. The first (*visual*) is used to carry out the three-screen simulation, and its characteristics are quite analogous to those of the previous one. The last computer is dedicated to performing the activity with virtual reality, but it is not actually used in this experiment. The audio system consists of a subwoofer (*Dolby Surround 5.1*), which is located under the seat, and four speakers, two located on its sides and two on the side screens. It allows the reproduction of engine noise and sounds due to what is on the road environment.

Figure 21-Politecnico di Torino driving simulator

The central part of the instrumentation is what lets drivers interact with the virtual environment, it is showed in the *Figure 21* and in detail listed below:

- Three 32” Full HD Samsung LCD 16:9 screens that allow the virtual environment to be displayed. The field of view provided to drivers is 130°.
- Steering wheel with force feedback simulating pavement roughness and impacts, and includes two paddles that operate the turn signals, headlights, and windshield wipers.
- 9" screen representing the car's dashboard.
- Manual six-speed gearbox.
- The clutch, brake, and throttle pedals.
- Hand panel that has buttons for the ignition, horn, and handbrake.
- Seat that is the same as a real car seat, which can be translated and reclined.

3.8.2 Software

The software employed is SCANeR™ studio version 1.9. It is a software suite dedicated to driving simulation and provides all the necessary tools to build a virtual environment that can give the driver an immersive and realistic experience. It consists mainly of five modules each with a distinct function: (i) terrain, (ii) vehicle, (iii) scenario, (iv) simulation, and (v) analysis.

The terrain module is dedicated to the geometric modelling of the route and allows the insertion of elements that are part of the road environment, such as signs, parked cars, buildings, barriers, and vegetation.

The vehicle module controls the performance of the vehicle even if our university is not licensed to use it.

The scenario module allows to manage the entities included in the virtual environment. It is used to manage autonomous vehicles, sampling rate and script execution. Scripts are written in the language specific to this software (MICE), and extensive use is made of it in this thesis. These are used to give directions to drivers while driving, model pedestrian behaviour during the simulation, and quantify some of the observed variables. There are also traffic tools called triggers that allow you to manage parts of code or make events happen during the simulation. You can also adjust the weather conditions and time of the simulation to your preference.

The simulation section controls the events during the driving, in which is possible to enable or disable some sub-module. We displayed on the three screen the cockpit of the Renault scenic to better involve the drivers in the virtual scenario (Figure 22). It was done through the visual module, in which we attach the selected cockpit.

The function of the analysis module is to extract data mainly in csv format, and build graphs based on them.

Figure 22-Renault scenic cockpit displayed on the three-screen driving simulator

Chapter 4

Results and Discussion

4.1 Traffic events classification

This first rough analysis allowed to classify events according to the MTTC and PET critical thresholds. The traffic events can be classified as undisturbed passage, conflict, or collision.

Four bar charts exploring all the possible combinations are plotted. The graphs related to the time to collision observations point out that the conflict and collision events occur only when the pedestrian time gap acceptance is equal to 4 seconds (Figure 23 and Figure 24). The curb extension layout provides a strong decrease in the number of dangerous events. The collisions occurred with this countermeasure were only two, while without any treatment (baseline) seven crash events were counted. Moreover, the sidewalk extension does appear to prevent the collisions related to the unfamiliarity effect on the drivers' behaviour. The situational-familiarity effects were limited, but not eliminated.

Figure 25 and Figure 26 show the events frequency about PET observations. The number of collisions is clearly consistent with the one counted in MTTC measurements. This allowed to assess that the MTTC and PET observations were consistent among them and properly recorded. The conflict events were significantly more than in the MTTC graphs giving a different event risk evaluation for the road users. It is due to the different nature of the observations and to the different critical threshold values. PET is a post-event observation and sometimes it does not reflect the experienced risk by the users or the collision probability. It is considered as a good measure to count collisions but might not be an adequate measure to quantify the users perceived risks. The different mid-block layouts do not appear as significantly effective in reducing the number of conflict events.

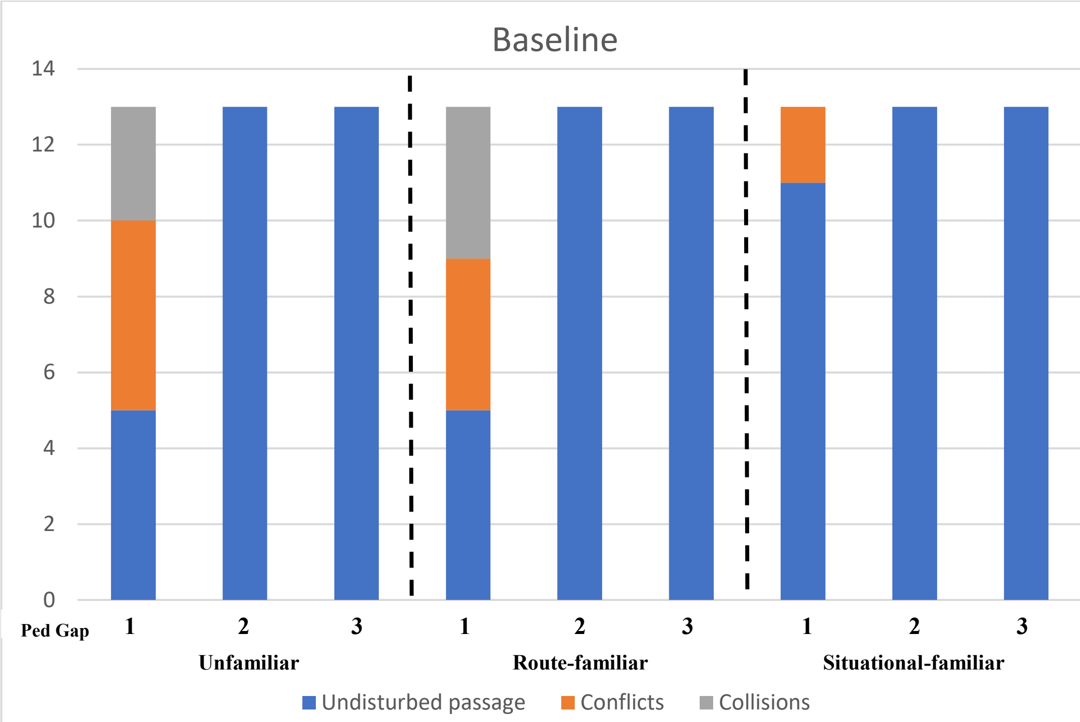


Figure 23- Traffic event classification according to the MTTC thresholds and baseline mid-block layout

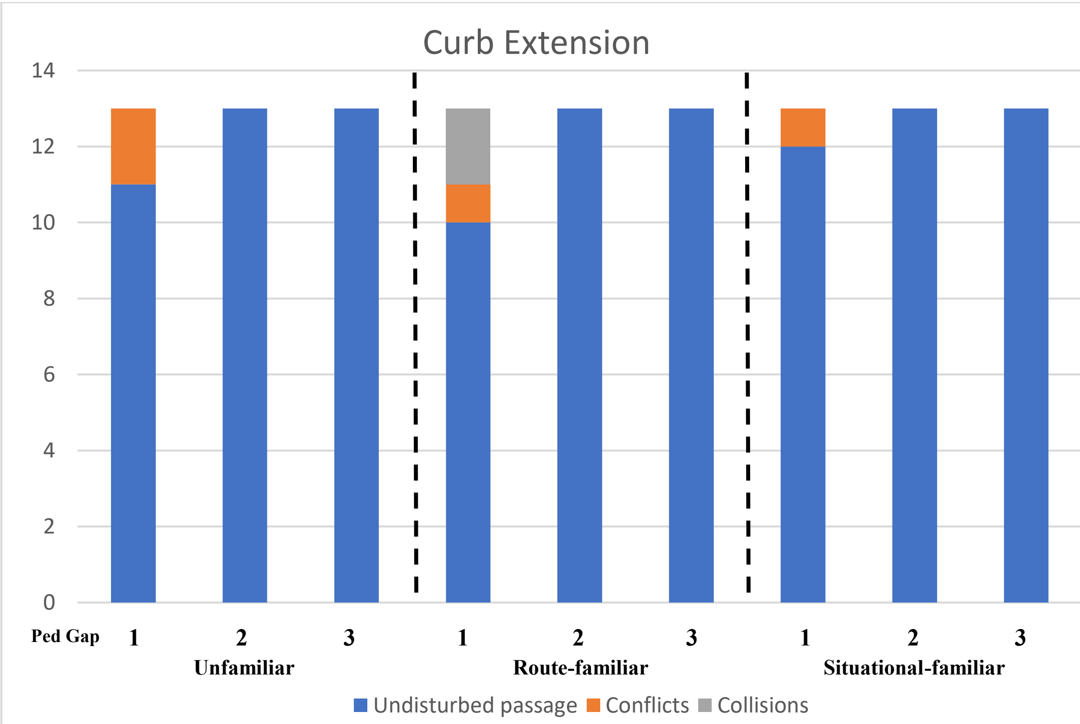


Figure 24-Traffic event classification according to the MTTC thresholds and curb extension mid-block layout

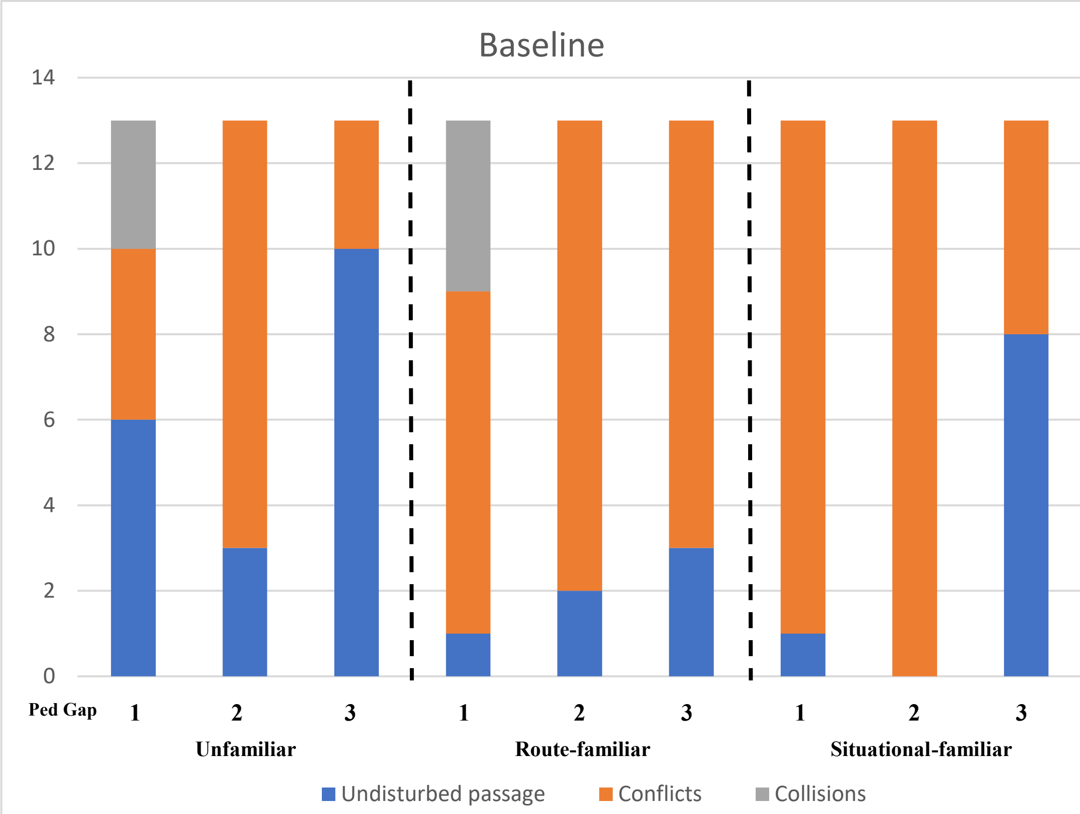


Figure 25-Traffic event classification according to the PET thresholds and baseline mid-block layout

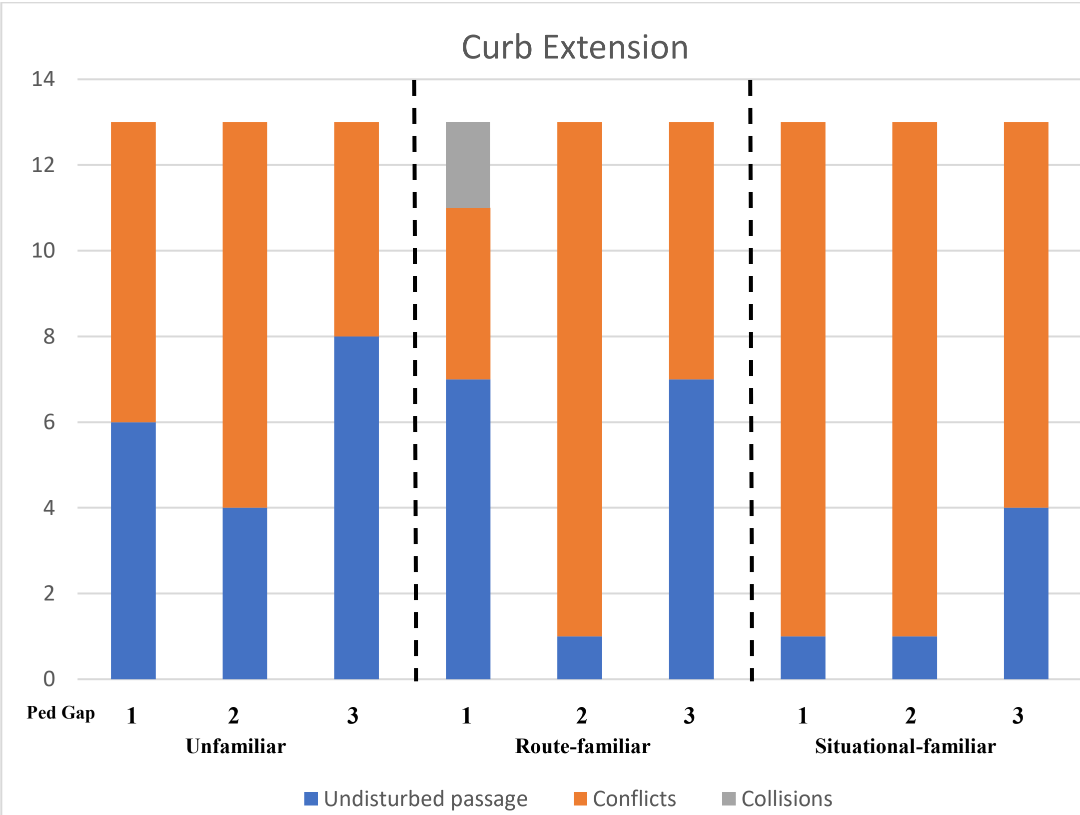


Figure 26-Traffic event classification according to the PET thresholds and curb extension mid-block layout

4.2 Interaction plots

MTTC interaction plot (Figure 27) shows that the effects of the pedestrian gap acceptance factor depend both on mid-block pedestrian crossing design and on familiarity. It does not appear to be an interaction between familiarity and mid-block pedestrian crossing designs factors, because the lines are almost parallell among them. Anyway, it can be evidenced a difference in the means of the MTTC across the levels of this independent variables, meaning that they can affect the MTTC but their influence is independent from the other fixed variable.

The graph referred to PET means (Figure 28) points out that the effects of the pedestrian time gap acceptance factor depend on mid-block pedestrian crossing design. Familiarity and mid-block do not interact and the mean values do not change significantly across mid-blocks. However, PET means are different among the familiarity levels. Familiarity and pedestrian time gap acceptance also exhibit only a change in the MTTC average but without interacting with each other.

MaxS interaction plot (Figure 29) reports no interaction between mid-block pedestrian crossing designs and pedestrian time gap acceptance. Focusing on these two variables, it shows a change in the means across the mid-block levels but not in the other one. Moreover, it does not appear to be an interaction between familiarity and pedestrian time gap acceptance, but just a change in the MaxS average across the familiarity levels. The last comparison is related to familiarity and mid-block designs. No interaction is showed between them, but a significant variation of the mean across their levels. The last observed variable is MaxD (Figure 30). Its plot shows that an interaction between familiarity and mid-block designs factors does not appear. The mean values change significantly only across mid-block levels. Pedestrian time gap acceptance and mid-block designs do not interact among them. Anyway, the MaxD means significantly vary across the level of both the fixed factors. The last combination regards familiarity and pedestrian time gap acceptance factors. No interaction is showed, but just a variation in the averages among the pedestrian time gap acceptance levels.

The analysis of these plots allowed to have a graphic evaluation of the interactions among the experimental factors and of theirs on the measured variables. For a more advanced analysis, the data modellling was used to further investigate the interactions. The linear mixed-effect model (LMM) was used.

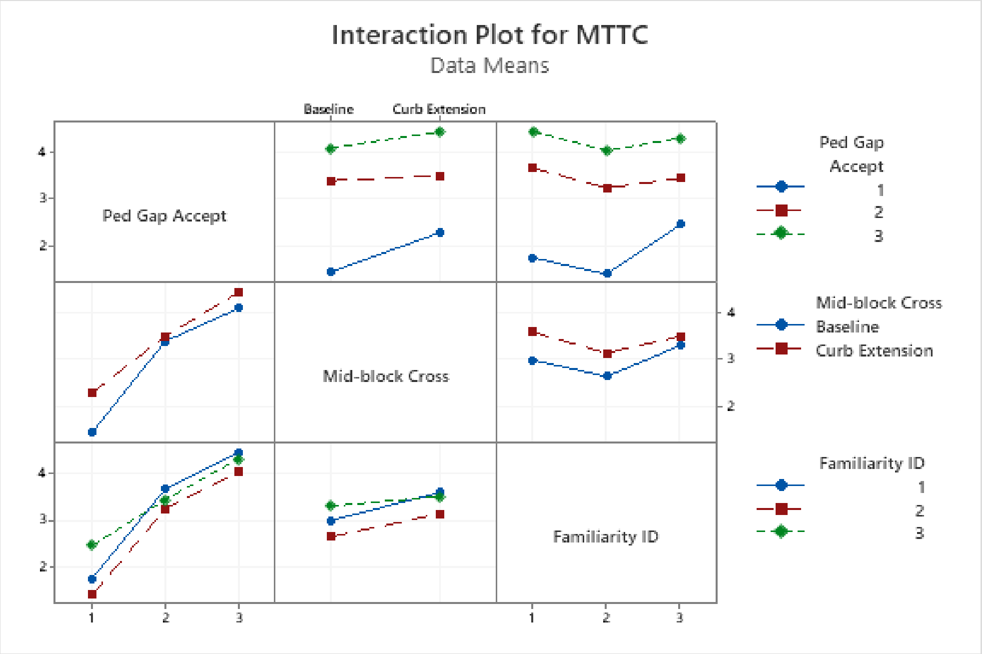


Figure 27-Interaction plot for the MTTC

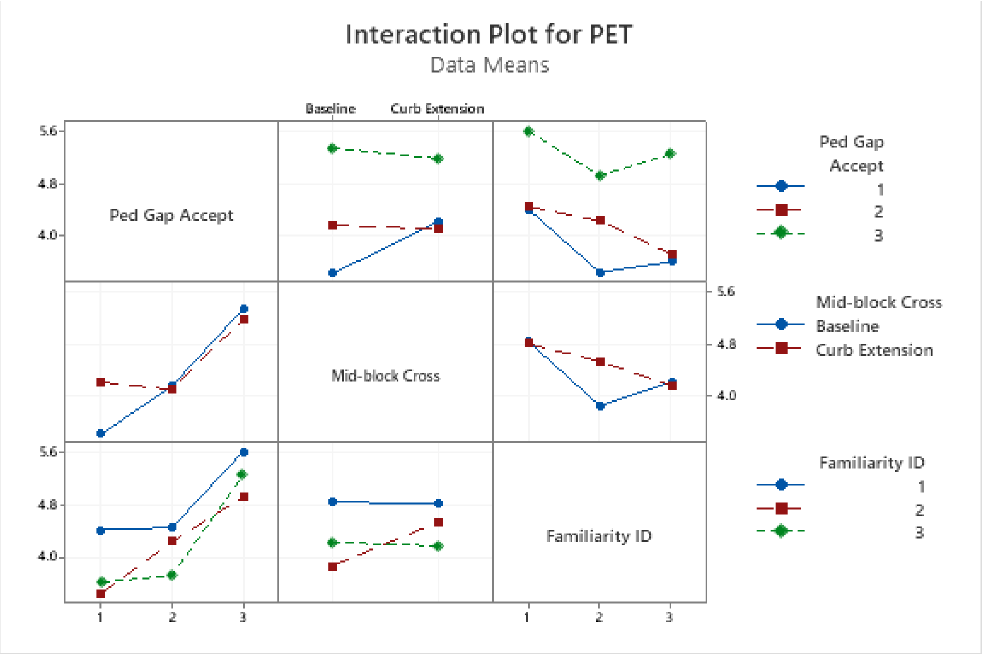


Figure 28-Interaction plot for PET

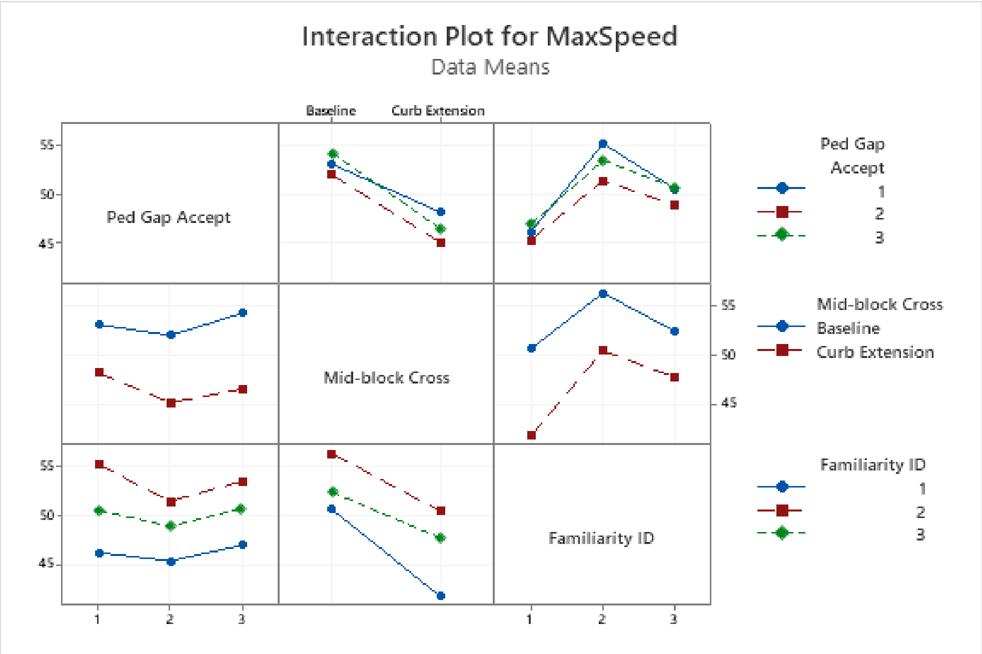


Figure 29-Interaction plot for MaxS

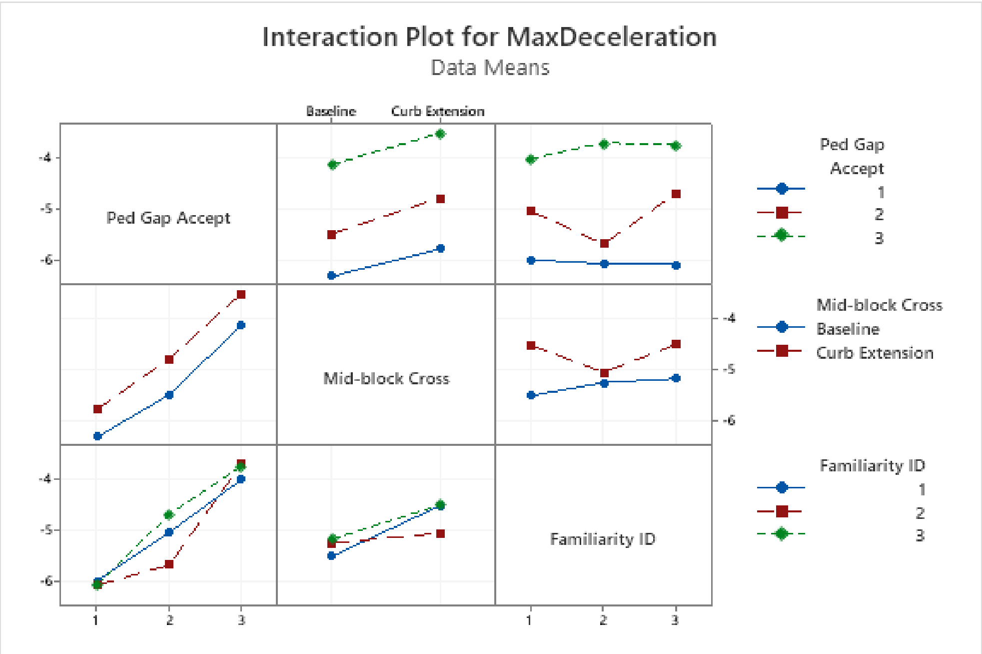


Figure 30-Interaction plot for MaxD

4.3 Linear Mixed-effects Models

Minimum time to collision

The output of the LMM with the MTTC is summerized in Table 7. The R-squared marginal shows that 65% of the variation in the response is explained through the fixed variables. This percentage increase till 75% whether the sum of the random variance components is included in the R-squared calculation (R-conditional). Being a behavioural model on driver response, it can be considered a remarkable result since more than 50% of the response variation is explained thorugh the considered factors. The R-conditional is higher than the marginal one, meaning that the driving behaviour of participants explain the MTTC model variance for an additional 10%.

Results show that (i) mid-block layouts, (ii) familiarity, and (iii) pedestrian time gap acceptance were relevant for the MTTC model. The Table 8 shows that familiarity (p-value = 0.013), pedestrian time gap acceptance (p-value < 0.001), and mid-block layout (p-value = 0.007) were significant for the model response. Furthermore, the older the driver the higher the MTTC (p-value = 0.016 and coefficient estimate = 0.0172). In other terms, older participants were more cautious than the younger ones in the DP interaction. The effects produced by the pedestrian time gap acceptance factor depend both on mid-block pedestrian crossing layout and on familiarity, which is consistent with the findings of the graphic analysis (interaction plot). This means that the variables interacted among them producing a significant effect on the model response.

The post-hoc test on the familiarity levels shows that the effect on MTTC produced by route-familiarity is significantly different respect to unfamiliarity (p-value = 0.045) and situational-familiarity (p-value = 0.011) effects, generating MTTC lower mean values than the others (Appendix C). The combinations which consider a PTGA equal to 4 s and the baseline layout stressed this difference. The mean MTTC associated to the situational familiarity (2.08 s) is twice the one found for route-familiar drivers (1.04 s). Moreover, according to MTTC means, the unfamiliar drivers were more cautious (1.23 s) in this configuration with respect to the route-familiar one.

The mid-block layout significant is confirmed by Holm test (p-value = 0.007). The MTTC mean values related to the curb extension layout are significantly higher than those found with the linear sidewalk. The most notable results are related to a PTGA equal to 4 s, for which the curb extension generated a higher MTTC mean value for each type of familiarity. The MTTC mean passed from 1.04 s of the baseline to 1.77 s of the curb extension, which is above the critical threshold that identify a conflict (1.5 s). This countermeasure produced similar effects also for unfamiliarity (from 1.23 s to 2.28 s) and situational-familiarity (from 2.08 s to 2.85 s) conditions. The levels of the PTGA generate significant different effects among them (p-value < 0.001). As we expected, a PTGA equal to 4 s generated the lower MTTC mean values (1.88 s) with respect to 6 s (3.46 s) and 8 s (4.28 s).

The interval plots revealed, as we expected, that the curb extension brings benefits in terms of reducing the risk of a potential collision, since the difference in the MTTC mean values between the two layouts appears to be significant across all the combinations (Figure 31). A further general trend

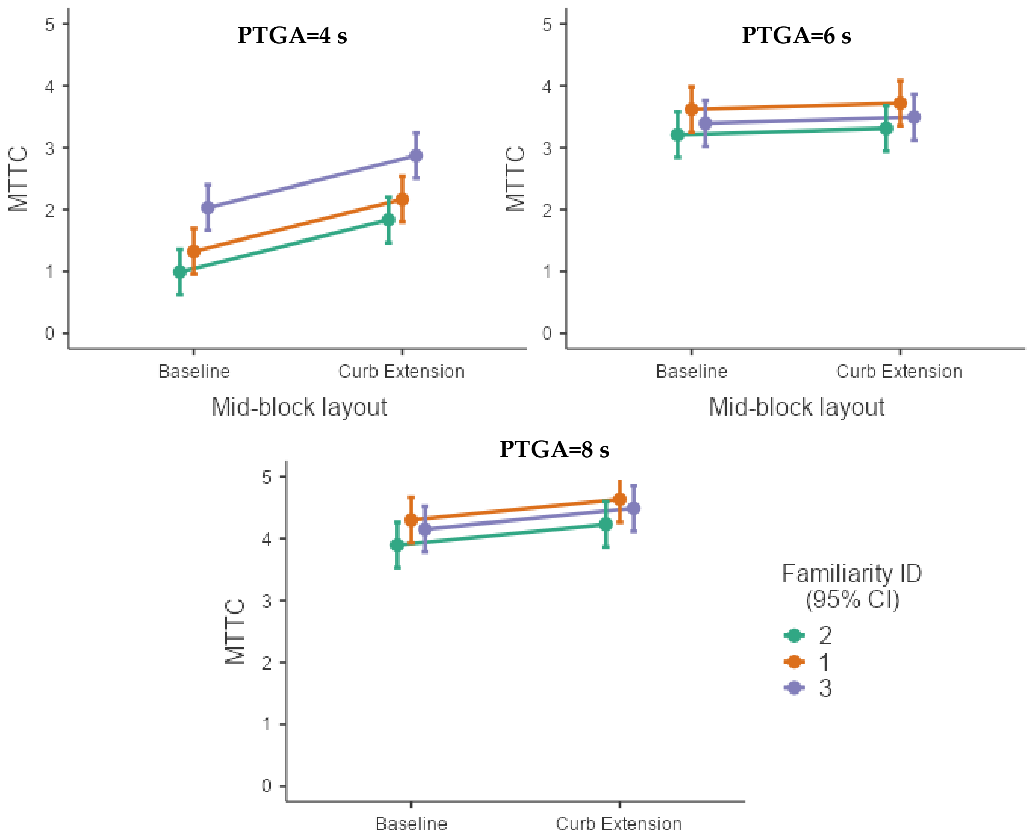


Figure 31-LMM interval plots of MTTC (Familiarity ID 1 = Unfamiliarity, ID 2= Route, ID 3 Situational)

was produced by the route-familiarity factor, that for each combination generated lower MTTC mean values.

Focusing on the plot referring to PTGA equal to 4s, which appears to be the most relevant, the baseline layout combined to the route-familiarity provided the lower value of MTTC. This result is consistent with our hypothesis that the linear sidewalk leads to more hazardous DP interactions. The higher level of pedestrian accepted risk (4 s) stressed the low effectiveness of this mid-block configuration. The higher effectiveness in terms of safety of the curb extension layout has been revealed by the observation of the same plot. An increasing trend of the MTTC mean values can be noticed across all the familiarity levels. Among the different familiarity levels, the situational one generates a higher value of MTTC, meaning that it results in a more prudent driver' behaviour. The unfamiliarity condition made the drivers significantly less aggressive when approaching to the pedestrian crossing than the route-familiarity. However, driver's unfamiliarity appeared to be more hazardous than situational-familiarity for pedestrians at crossings. The plots for PTGA equal to 6 and 8 s did not show a significant trend across the combinations. Anyway, the curb extension layout generated a smaller benefit with respect to the baseline condition.

Table 7-MTTC mixed effect model summary

Model Info	
Estimate	Linear mixed model fit by REML
AIC	579.533
BIC	742.697
LogLikel.	-264.97
R-squared Marginal	0.647
R-squared Conditional	0.756
Converged	yes

Table 8-Fixed Effect Omnibus tests of the MTTC mixed-effects model

Fixed Effect Omnibus tests				
	F	**Num df**	**Den df**	**p**
Test Driver Age	6.24	1	46.6	0.016
Mid-block layout	7.98	1	46.5	0.007
Familiarity ID	4.63	2	76.7	0.013
Pedestrian Time Gap Acceptance	250.74	2	173.2	< .001
Mid-block layout ✻ Pedestrian Time Gap Acceptance	6.01	2	173.2	0.003
Familiarity ID ✻ Pedestrian Time Gap Acceptance	4.59	4	173.2	0.002

Table 9-Random factor tests for the MTTC mixed-effects model

Random Components					
Factor	**Name**	**SD**	**Variance**	**ICC**	**p-value**
Test Driver ID	(Intercept)	0.456	0.208	0.308	<0.001
	Residual	0.684	0.467		

Note. Number of Obs: 234

Post-encroachment time

The PET model summary (Table 10) showed a R-squared marginal equal to 0.25, meaning that the 25% variance in the database is explained through the fixed variables. This percentage increases till 45% whether the sum of the random variance components is included in the R-squared calculation (R-conditional). The R-conditional is about twice the marginal, meaning that the variation explained by the random effects (drivers ID) is significant.

Two out of the three fixed experimental factors resulted as significant for the PET model (Table 11). The familiarity (p-value = 0.004) and pedestrian time gap acceptance (p-value < 0.001) factors appeared to affect PET observations. This results revealed that the different level of risk accepted by the virtual pedestrians and the three familiarization process affect the PET response model. The mid-block curb extension layout did not produce a significant beneficial effect in terms of safety (p-value = 0.310) and the PET mean value is about 4.5 for both configurations. This post-event observation appeared as not able to capture the effectiveness of the curb extension layout. The different interactions among the factors were found as not significant for this model. This result did not confirm the one assessed through the interaction plots, where the PTGA and mid-block layout factors appeared as interacting among them.

The interval plots (Figure 32) showed a general small upward trend in PET averages across mid-block levels, still demonstrating a small benefit generated by the curb extension countermeasure. The graphs referring to PTGA equal to 4 and 6 seconds looks like not significantly different among them. The higher PTGA (8 s) generated larger PET as one can expected. “Unfamiliar” drivers appeared to be more cautious than the familiar ones for all the PTGA levels. The situational and route familiar drivers produced a similar response among them.

The post-hoc test on the familiarity levels confirmed that the effect on PET produced by unfamiliarity factor is significantly different with respect to situational-familiarity (p-value = 0.005) effects. The unfamiliar drivers were more cautious than situational-familiars according to the PET mean values. The difference between route-familiarity and unfamiliarity is about to be significant (p-value = 0.053), while it does not appear any difference among route and situational familiarity (p-value = 0.990). The PET mean values pointed out that the most hazardous situation for the pedestrians refer to a PTGA equal to 4 s and the baseline layout, in which the unfamiliar drivers had a more prudent behaviour (4.03 s) than the ones familiar with route and situation (2.65 s and 3.61 s). The PET mean values for all the combination were included in the Appendix C.

The PTGAs equal to 4 s and 6 s do not appear as significantly different among them (p-value = 0.115), with mean PET values about 4.3 s. The differences across the other levels resulted as relevant (p-value < 0.001), in particular the PTGA equal to 8 s produce a higher mean PET value (5.3 s) than the others.

Table 10- PET mixed effect model summary

Model Info	
Estimate	Linear mixed model fit by REML
AIC	848.305
BIC	958.371
LogLikel.	-375.534
R-squared Marginal	0.25
R-squared Conditional	0.452
Converged	yes

Table 11-Fixed Effect Omnibus of PET mixed effect model

Fixed Effect Omnibus tests				
	F	**Num df**	**Den df**	**p**
Familiarity ID	5.82	2	74.9	0.004
Pedestrian Time Gap Acceptance	29.52	2	176.0	< .001

Table 12-Random factor test for PET mixed-effects model

Random Components					
Groups	**Name**	**SD**	**Variance**	**ICC**	**p-value**
Test Driver ID	(Intercept)	0.748	0.56	0.269	<0.001
	Residual	1.232	1.518		

Note. Number of Obs: 234

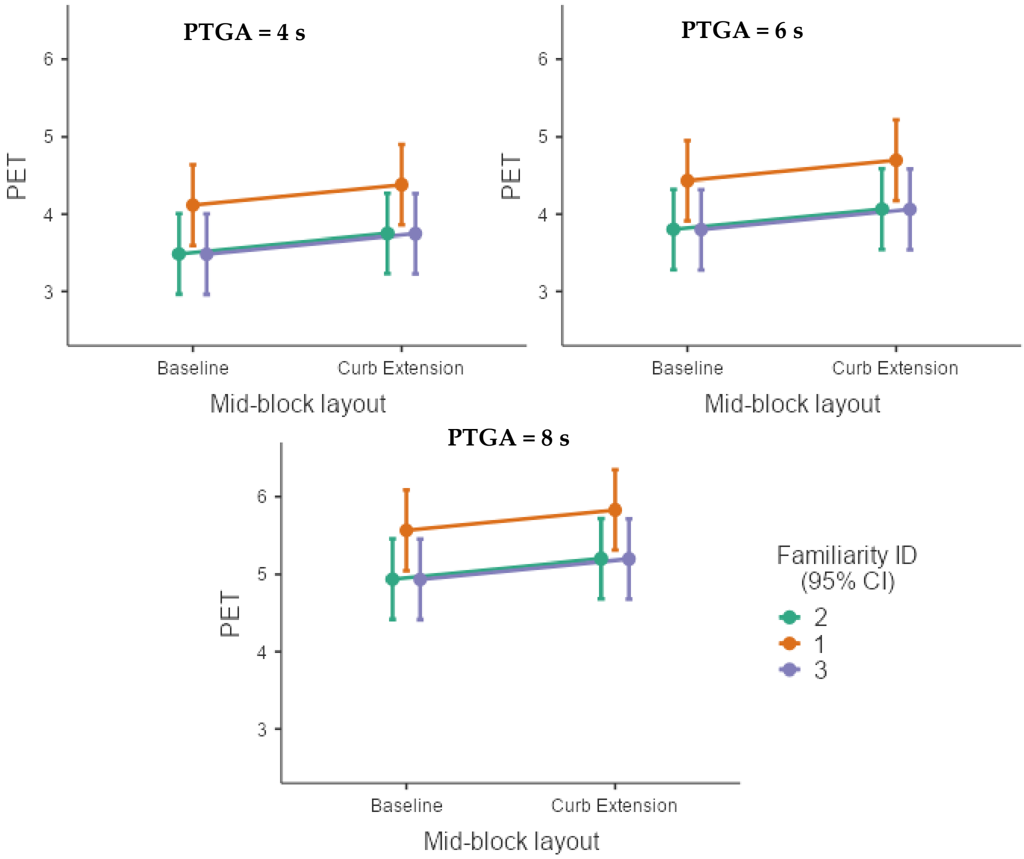


Figure 32-LMM interval plots of PET (Familiarity ID 1 = Unfamiliarity, ID 2= Route, ID 3 Situational)

Maximum car speed

The MaxS model summary (Table 13) showed a R-squared marginal equal to 0.22, meaning that the 22% variation in the response is explained through the controlled variables. This percentage significantly increase till 82 % whether the sum of the random variance components is included in the R-squared calculation (R-conditional). The huge difference pointed out the very significant impact of the drivers' behaviour on the model response.

Model results revealed (Table 14) that all the three experimental factors significantly affect the MaxS outputs. Mid-block layout and pedestrian time gap acceptance factors had the same p-value (0.009), while familiarity has even lower value (p-value < 0.001). Mid-block layout and familiarity factors seem to interact with each other, meaning that this combination produce an effect on the MaxS (p-value = 0.017). It means that the effect of one fixed variable depends on the other one. This result was not consistent with the finding of the graphic analysis, which did not show an interaction between these factors.

The post-hoc tests on the familiarity levels revealed that the effect on MaxS generated by unfamiliarity significantly differs with respect to situational-familiarity (p-value < 0.001) and route-familiarity (p-value = 0.006) effects. The route-familiar driver had a more aggressive behaviour approaching the mid-block crosswalks, and the higher mean MaxS was recorded with the baseline layout and PTGA equal to 4s (57 $\frac{km}{h}$).

The median PTGA (6 s) produced significantly different effects with respect to 4 s (p-value = 0.014) and 8 s (p-value = 0.027) values. The mean MaxS showed that drivers had a similar behaviour approaching the mid-block crosswalks whenever PTGA was equal to 4 s or 8 s (51 $\frac{km}{h}$). A PTGA equal to 4 s induced driver to adopt a lower mean MaxS (48 $\frac{km}{h}$).

Observing the interval plots containing the mean values, it is possible to notice a significant downward trend of the speed values across the mid-block levels (Figure 33). It demonstrates the effectiveness of the curb extension layout with respect to the baseline configuration. The designed infrastructural countermeasure promoted a more cautious drivers behaviour when approaching the crossing area. The most evident effect of this countermeasure is appreciated by looking at the measures associated with unfamiliar drivers. The discrepancy between the averages of MaxS measures is the largest among those observed. Route-familiarity appeared to generate a more aggressive behaviour of the drivers with respect to the other familiarity levels for every combination. The situational familiarity generated a beneficial effect compared to the familiarity with the route, meaning that the driver maximum adopted speed was lower.

Table 13-MaxS mixed effects model summary

Model Info	
Estimate	Linear mixed model fit by REML
AIC	1550.13
BIC	1552.223
LogLikel.	-672.461
R-squared Marginal	0.224
R-squared Conditional	0.818
Converged	yes

Table 14-Fixed Effect Omnibus test of MaxS mixed effect model

Fixed Effect Omnibus tests				
	F	Num df	Den df	p
Mid-block layout	7.36	1	45.8	0.009
Familiarity ID	16.82	2	73.9	< .001
Pedestrian Time Gap Acceptance	4.88	2	177.1	0.009
Mid-block layout ✻ Familiarity ID	4.28	2	73.9	0.017

Table 15-Random factor test for MaxS mixed-effects model

Random Components					
Groups	Name	SD	Variance	ICC	p-value
Test Driver ID	(Intercept)	8.21	67.4	0.765	<0.001
	Residual	4.55	20.7		

Note. Number of Obs: 234

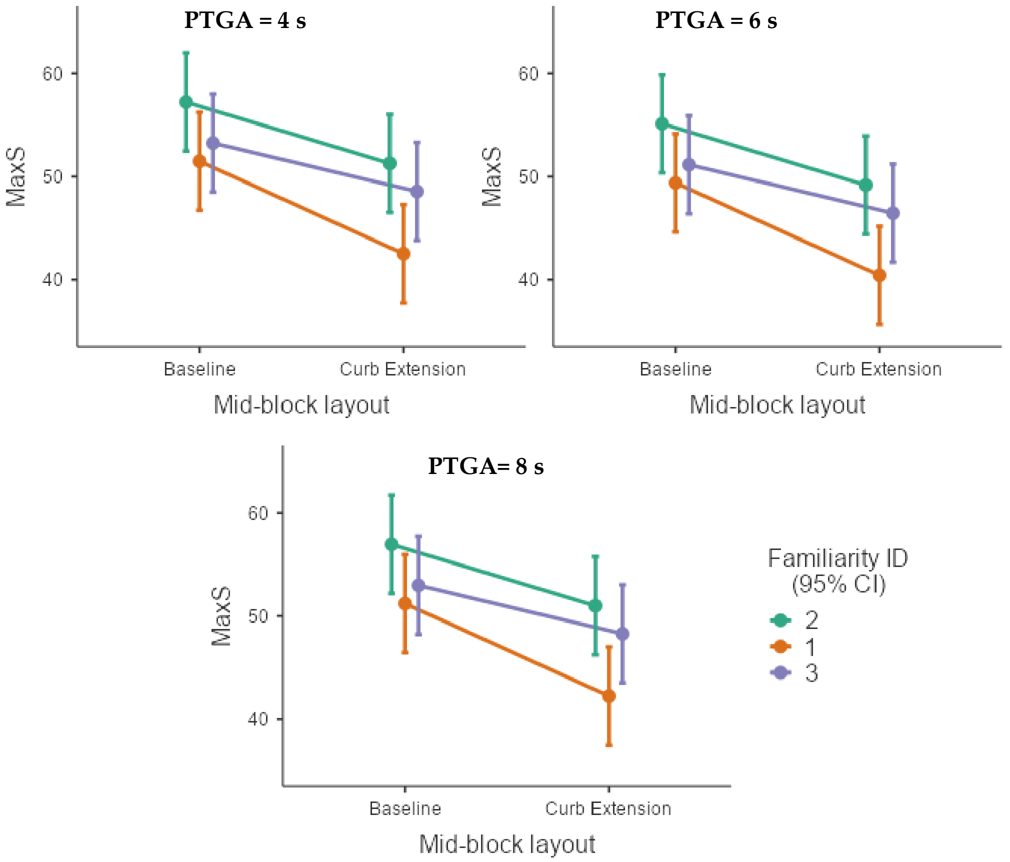


Figure 33-LMM interval plots of MaxS (Familiarity ID 1 = Unfamiliarity, ID 2= Route, ID 3 Situational)

Maximum car deceleration

The MaxD model summary (Table 16) shows the model estimations. The R-squared marginal pointed out that 28.5% of the variation in the response is explained through the fixed variables. This percentage becomes 45% whether the sum of the random variance components is included in the R-squared calculation (R-conditional). These results was consistent with the outcomes found for the other LMM, where R-conditional was larger than the marginal. This finding revealed that the human (driver) factor strongly affects the model responses.

The fixed effect omnibus tests revealed that familiarity (p-value = 0.519) does not appear to be an effect on the MaxD values, and the interval plots support this statement (Figure 34). Mid-block layout (p-value = 0.046) and pedestrian time gap acceptance (p-value<0.001) factors were both found as significant for this model (Table 16). Higher the pedestrian time gap acceptance, and higher the instantaneous maximum deceleration values (i.e. less severe DP interaction).

It may be observed that the curb extension layout promoted a less severe DP interaction with respect to the linear sidewalk configuration. This can be inferred from observation of the interval plots that exhibit an increasing trend between the baseline condition and the improved condition. The lines referring to the different familiarity levels are almost superposed for all the combinations, and it is consistent with the non-significance of this factor on the MaxD model response. It means that the drivers, among the familiarity levels, had a similar deceleration rate across all the drive for each PTGA. The higher mean MaxD observation was found for a PTGA equal to 4 and considering the linear sidewalk crosswalk layout (-6.3 $\frac{m}{s^2}$). This result pointed out the low effectiveness of the baseline condition on pedestrian protection.

The Holm post-hoc tests confirmed the significance of mid-block (p-value = 0.046) and pedestrian time gap acceptance (p-value<0.001) factors. The mean MaxD value associated to the curb extension (-4.5 $\frac{m}{s^2}$) is higher than the baseline layout (5.3 $\frac{m}{s^2}$), pointing out that this design promoted less severe DP interactions.

The levels of the pedestrian time gap acceptance generate significant different effects among them (p-value < 0.001). According to the mean PET values, the lower PTGA (4 s) induced drivers to a stronger deceleration rate (-6 $\frac{m}{s^2}$) with respect to 6 s (5.1 $\frac{m}{s^2}$) and 8 s (3.8 $\frac{m}{s^2}$). As we expected, a more imprudent behaviour of the pedestrians generated a more severe conflict, and require a strong evasive manouvre of the drivers.

Table 16-MaxD mixed effects model summary

Model Info	
Estimate	Linear mixed model fit by REML
AIC	882.598
BIC	987.388
LogLikel.	-390.043
R-squared Marginal	0.336
R-squared Conditional	0.492
Converged	yes

Table 17-Fixed Effect Omnibus tests of MaxD mixed effects model

Fixed Effect Omnibus tests				
	F	Num df	Den df	p
Mid-block layout	4.195	1	50.8	0.046
Pedestrian Time Gap Acceptance	54.536	2	182.9	< .001

Note. Satterthwaite method for degrees of freedom

Table 18-Random factor test for MaxD mixed-effects model

Random Components					
Groups	**Name**	**SD**	**Variance**	**ICC**	**p-value**
Test Driver ID	(Intercept)	0.743	0.552	0.235	<0.001
Residual		1.342	1.8		

Note. Number of Obs: 234

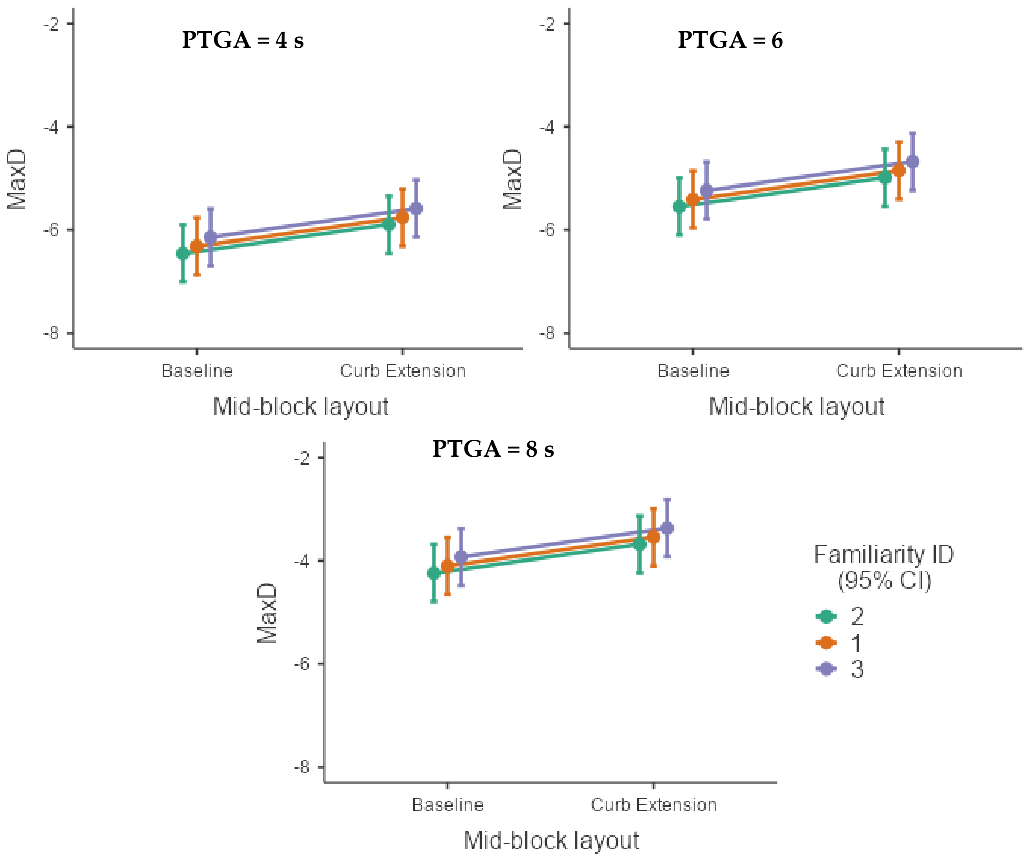


Figure 35--LMM interval plots of MaxD (Familiarity ID 1 = Unfamiliarity, ID 2= Route, ID 3 Situational)

4.4 Post-guide questionnaire analysis

The post-guide questionnaire (Appendix O) was written based on a previous experiment conducted by Tenca (Tenca, 2019). It is intended to collect information regarding simulation sickness and the driving experience. Feelings, consequences of experience, immersion, and presence are the four sections. Responses to this form were provided based on a 4-point Likert scale and the resulting graphs were included in Appendix I.

Feelings

This section is devoted investigating the drivers' feelings during the driving experience. The results reveal that the almost all drivers were comfortable (87%) and they were in full control of the situation (96%). Although driving five times around a neighbourhood can be a nerve-wracking experience, the 90% drivers didn't have that kind of feeling.

Consequences of the experience

This second part of the questionnaire allowed to detect possible simulation disease experienced by the drivers. Nausea, general discomfort, blurred vision, and fatigue are some of the checked conditions. In general, it can be observed that most drivers reported mild or no discomfort. The 15% of the drivers' sample reported a general disease, which may be related to the repeated turning maneuvers required by the presence of the intersections, or the frequent braking they had to do. Being a fixed-base simulator, the braking maneuver may cause discomfort to the driver (especially to novices), as they cannot perceive the lateral or frontal acceleration that they would experience in the real environment.

Immersion

In this section drivers were asked to give a feedback about the realism of the virtual scenario and about the immersiveness of the experience. The participants found the virtual environment to be highly realistic, especially the roadway (92%), vertical (94%) and horizontal (98%) markings. The presence of vehicles was considered by 87% of the sample to be good or excellent, which is an important indicator of how well we were able to recreate a credible urban environment. The correspondence between the real vehicle and the driving simulator was positively rated by the drivers. Truthfulness of on-board instrumentation (90%), gearbox(79%), steering wheel (63%) and throttle (81%) received positive appreciation from the participants. It must be noticed the negative rank given to the brake pedal perception, which was judge significantly far from the real one by the majority of the drivers (79%).

Presence

In this part of the questionnaire, drivers were asked to evaluate to what extent the simulated driving experience can be compared to the real one. Most drivers felt physically involved (96%) and stimulated (90%) by the virtual environment, and found a similar level of engagement (81%) as in the real world. The 65% of the drivers affirmed that they felt involved enough to not know what was going on around them. This allowed to check that they were properly isolated from the external environment.

Chapter 5

Conclusions

This study aimed at investigating the effects of two different unsignalized mid-block pedestrian crossing designs, (i) the linear sidewalk, and (ii) the curb extension, on driver-pedestrian (DP) interaction. The hypothesis is that the sidewalk extension better protects the pedestrian with respect to the baseline condition, by promoting a more cautious behaviour of drivers. However, the drivers negotiating a crosswalk can be influenced not only by the infrastructural solution of the crossing area, but also by other several factors. The effects of drivers' familiarity and pedestrian risk acceptance on drivers' behaviour approaching the two investigated mid-block layouts were investigated.

The hypothesis about drivers' familiarity is that it promotes a wide spectrum of behaviours, which in turn can significantly affect the safety of pedestrians at mid-block crossings. This research aims to investigate two types of familiarity: (i) the route and (ii) the situational one. Although the route familiarity has been investigated in the literature through naturalistic and simulation studies, there is a lack of knowledge about the effects of familiarity in the DP interaction.

Both familiarization process took place according to a frequency-based approach. Drivers route-familiarity was achieved by repeating four times the track containing the same mid-block layout without interacting with pedestrians. Drivers situational familiarity is accomplished through repeated exposure to DP interactions at mid-block crosswalks by interacting with pedestrians at three out of six crossings in each lap. This study investigated the driver behaviour in (i) unfamiliar conditions, (ii) after repeated exposure to DP interactions, and (iii) in the first exposure after several missed DP interactions at mid-block crosswalks.

A multi-level factorial experiment was designed to manage three experimental factors: (i) mid-block crosswalk design, (ii) driver' familiarity, and (iii) pedestrian time gap acceptance. The experimental activity was carried out through the fixed-base driving simulator of the Road Safety and Driving Simulation (RSDS) laboratory of the Department of Environment, Land and Infrastructure Engineering (DIATI) at the Politecnico di Torino. The driving sessions involved fifty-two participants (drivers), which were stratified by age and gender in four different groups.

Four different driving scenarios were designed, and drivers were asked to complete five laps around one of them. The road scenarios were specifically designed to investigate the DP interactions in an urban neighbourhood implemented in the driving simulation environment. Three different pedestrian time gap (risk) acceptance (4, 6 and 8 s) were adopted. The goal is to have a wide spectrum of possible pedestrian behaviour, from that of more cautious (8 s) to that of more imprudent ones (4 s). The pedestrians crossed the road regardless the driver behaviour, so the drivers need to properly react to avoid collisions.

This study aimed at measuring the severity of traffic conflicts related to the risk of a collision. The two dimensions allowing to evaluate both aspects and to quantify the traffic conflicts are the (i) collision proximity and (ii) the intensity of the evasive manoeuvre. For this purpose, four surrogate safety measures were adopted: (i) the minimum instantaneous time to collision (MTTC), (ii) the post encroachment time (PET), (iii) the maximum car deceleration (MaxD) and (iv) the maximum car speed within 100 m before the crosswalk (MaxS). Two analyses were carried out for each observed variable. The first was a graphic analysis through interaction plots. The second was performed calibrating a linear mixed-effects model for each observed variable. Furthermore, Holm post-hoc test on the significant factors was carried out to contrast the issue of the multiple comparison.

Results pointed out that the curb extension layout significantly improve the pedestrian safety, showing more evident and positive effects on MTTC and MaxS. This conclusion is also supported by the lower number of reported collisions with this layout respect to the baseline.

The familiarity factor was found significant for the MTTC, PET and MaxS.

The MTTC and MaxS model outcomes showed that route-familiarity led to more aggressive driving behaviour than the other familiarity levels. The LMM models revealed that situational familiarity positively affects the driving behaviour. The repeated exposition to DP interaction across all the driving session represents a continuous stimulus for drivers, which made the drivers always focused on their tasks. They appeared more prone to safely interact with pedestrians with respect to the route familiarity condition. The continuous exposition to the DP interaction limited the mind-wandering effects produced by the route-familiarity which made driver more aggressive.

Further studies need to focus on different familiarization processes. This procedure could take place across a week or a month instead of being completed in the same driving session and could be interesting to investigate their possible effects on the driver's behaviour. Further investigations on pedestrian modelling in the virtual environment are needed. To model more properly the pedestrian behaviour could be possible to perform some on-field observation regarding the time gap acceptance at unsignalized mid-block crossing. Further works are needed to investigate the safety of different VRUs in the urban environment, such as cyclists and two-wheelers.

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Appendix

A. Scenario codes (MICE language).

The rule “Indicazione 1” allowed us to display a green arrow on the screens to indicate the driver the road.

```
Rule Indicazione 1
  IF   isTriggeredByVehicle (Indicazione1, [0] SmallFamilyCar)
  THEN setImage (70, 30, 10, 15, GPS/right.png, ONALLCHANNEL, 8)
```

The following rule was necessary to communicate to the simulation software at which lap the driver was approaching. When the car passed through the installed trigger, we add 1 to the counter. (lap number)

```
Lap => Count 1 more (Cross3)
  IF   isTriggeredByVehicle (Cross3, [0] SmallFamilyCar)   BECOMES TRUE
  THEN setVariable (Counter3, Counter3 + 1)
    Counter3 + 1
  THEN doDebug (Lap = , Counter3)
  THEN exportChannel (86, Counter3)
```

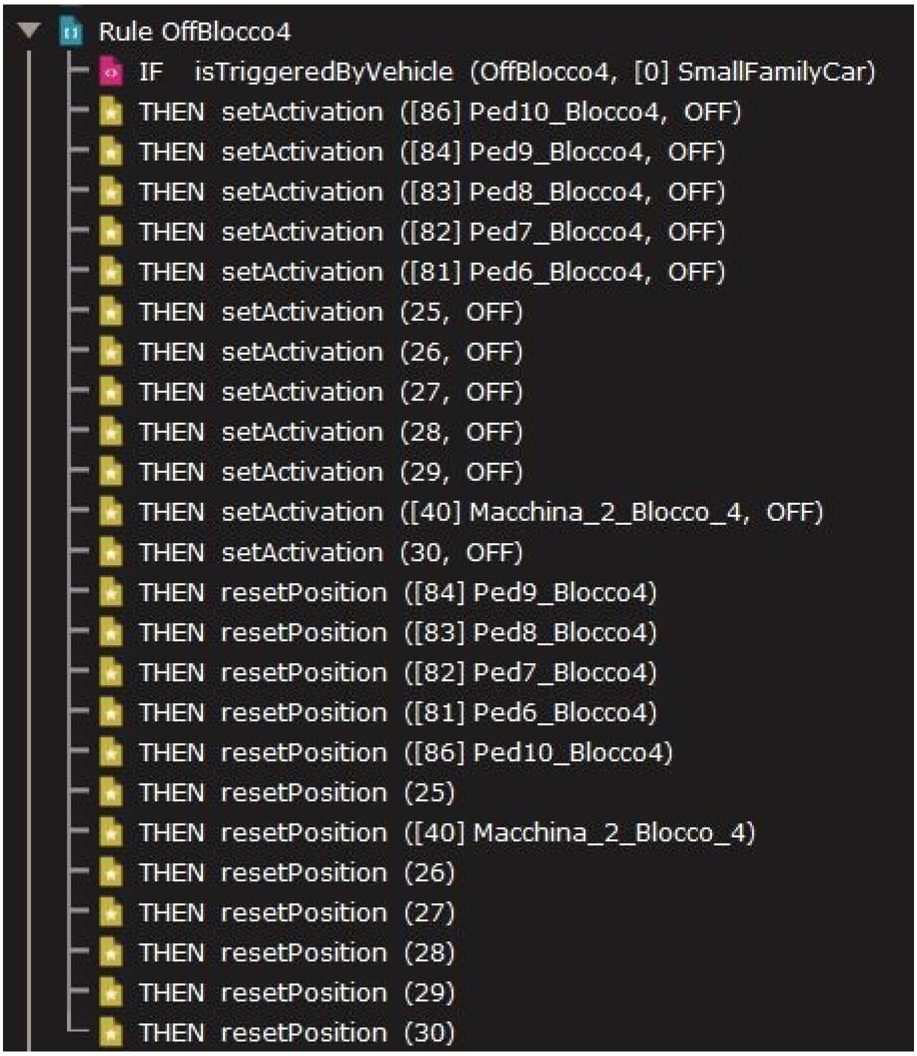
The “Delete pedestrian” rule allowed us to eliminate virtual pedestrian when they are not anymore necessary for the simulation purposes.

```
Rule Delete Pedestrian Blocco 2 Lap 1
  IF  [ Counter2 = 1 ] AND [ isTriggeredByVehicle (OffBlocco2, [0] SmallFamilyCar) ]
    Counter2 = 1
    isTriggeredByVehicle (OffBlocco2, [0] SmallFamilyCar)
  THEN deleteVehicle ([70] PedestrianCross2_Lap1)
```

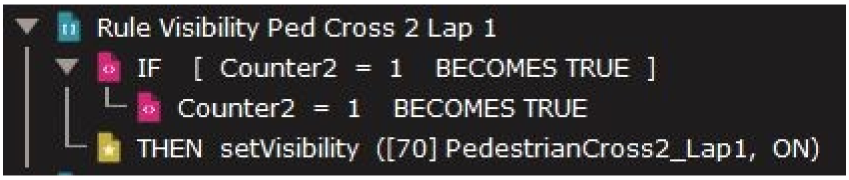
The “On Blocco” rule turned on the vehicles of a specific crossing block

```
Rule OnBlocco2
  IF   isTriggeredByVehicle (OnBlocco2, [0] SmallFamilyCar)
  THEN setActivation ([75] Ped10_Blocco2, ON)
  THEN setActivation ([68] Ped9_Blocco2, ON)
  THEN setActivation ([67] Ped8_Blocco2, ON)
  THEN setActivation ([66] Ped7_Blocco2, ON)
  THEN setActivation ([65] Ped6_Blocco2, ON)
  THEN setActivation ([101] Macchina_2_Blocco_2, ON)
  THEN setActivation ([13] MacchinaBlocco2, ON)
  THEN setActivation ([14] Ped1_Blocco2, ON)
  THEN setActivation ([15] Ped2_Blocco2, ON)
  THEN setActivation ([16] Ped3_Blocco2, ON)
  THEN setActivation ([17] Ped4_Blocco2, ON)
  THEN setActivation ([18] Ped5_Blocco2, ON)
```

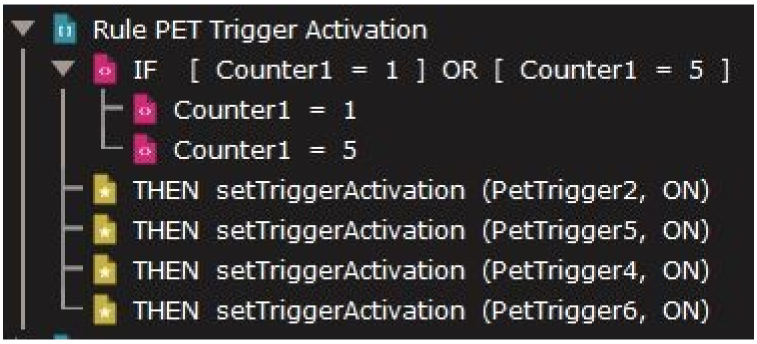
The “Off Blocco” rule was necessary to turned off the vehicles and the pedestrians of a specific crossing block. Furthermore, it allowed us to reset the position of the road users when the test drivers are far from them. This allows to replicate the same scenario across all the laps.



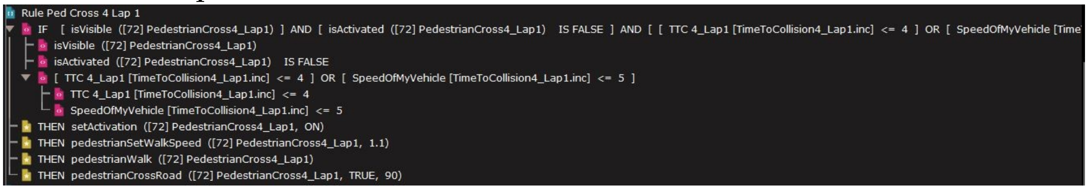
The rule governing the pedestrian visibility allowed us to make the pedestrian visible for the driver when the vehicle is about 150 meters from the crossing area. Counter 2 variable was necessary to display the pedestrian if the lap counter was equal to 1.



PET trigger activation rule was necessary to communicate to the system that since the driver was in the first or the fifth lap, the triggers which identified the conflict areas must be turned on.

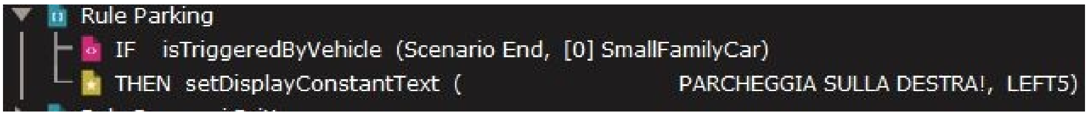


This rule allowed us to give the input to the pedestrians when the assigned time risk acceptance was reached.



The time marker rule is necessary to extract and save the images, regarding both the road users, when they were inside the conflict area.

The following rule allowed us to display on the central screen the indication about the end of the scenario. The drivers were invited to park on the right side of the carriageway.



B. Matlab® codes.

This section contains the Matlab® codes that were used for the post-processing step.

The following codes are dedicated to the minimum time to collision detection and plot. An example of how the work was done is given (test driver 2). The code is repeated in almost the same way for the other test drivers.

These strings allow to set pedestrian speed and the time to cross the lane.

```
PedSpeed=1.1; %m/s
ParkLen=2.2; %m
LaneWid=3; %m
ParkTime=ParkLen/PedSpeed; %Tempo impiegato dal pedone dal marciapiede alla fine
dell'area di parcheggio
LaneTime=LaneWid/PedSpeed; %Tempo impiegato dal pedone per percorrere l'intera
corsia
```

This section considers the test drivers which face the first crossing order. These are the thresholds which determine the pedestrian crossing. If the driver was subjected to a different scenario the crossing orders are changed.

```
TTC_Soglia1_ID1=8; %s
TTC_Soglia2_ID1=4;%s
TTC_Soglia3_ID1=6; %s
```

The following code string allows to import the Excel file related to the test driver 2 and that has been extracted from SCANeR™ Studio.

```
%load excel file TD 2
TD2_TTC_Lap5=xlsread('Base(R)\TD_2\TD2_TTC_Lap5.xlsx',1);
```

The following code allows to consider only the time window in which the pedestrian is inside the conflict area and to take the minimum value of the time to collision. This area can be seen as the portion of the zebra crossing which is located on the lane occupied by the car. This code is repeated for each crossing zone.

```
%per TTC2
TD2_Pos_Start8_2=find(TD2_TTC_Lap5(:,2)<TTC_Soglia1_ID1);
TD2_Tempo_Start=TD2_TTC_Lap5(TD2_Pos_Start8_2(1,1),1);
TD2_Tempo_Enter=TD2_Tempo_Start+ParkTime;
TD2_Tempo_End=TD2_Tempo_Enter+LaneTime;
TD2_Pos_Enter8_2=find(TD2_TTC_Lap5(:,1)<=TD2_Tempo_Enter);
TD2_Pos_End8_2=find(TD2_TTC_Lap5(:,1)<=TD2_Tempo_End);
TD2_TTC2_Lap5=TD2_TTC_Lap5(TD2_Pos_Enter8_2(end,1):TD2_Pos_End8_2(end,1),2);
TD2_minTTC2_Lap_5=min(TD2_TTC2_Lap5);
TD2_Pos_Min2=find(TD2_TTC2_Lap5==TD2_minTTC2_Lap_5);
TD2_x_min2=TD2_TTC_Lap5(TD2_Pos_Min2,1)+TD2_TTC_Lap5(TD2_Pos_Enter8_2(end,1),1);
```

This section is dedicated to the plot of the results. The minimum value is highlighted by a red dot.

```
plot(TD2_TTC_Lap5(:,1),TD2_TTC_Lap5(:,2),"b")
hold on
plot(TD2_x_min2,TD2_minTTC2_Lap_5,"or")
xline(TD2_Tempo_Start,"--r","Pedestrian Start Crossing")
xline(TD2_Tempo_Enter,"--","Pedestrian Enter")
xline(TD2_Tempo_End,"--","Pedestrian Exit") %--Dashed, -.Dash-dot, :Dotted
xlabel('Time [s]')
ylabel('Instantaneous TTC [s]')
xlim([TD2_Tempo_Start-5 TD2_Tempo_End+5])
ylim([-1 12])
hold off
title ("TTC 2 Lap5")
grid on
set(gca,'xtick',[TD2_Tempo_Start-5:2:TD2_Tempo_End+5])
set(gca,'ytick',[-1:2:12])
```

Published with MATLAB® R2020a.

The previous procedure is repeated for all the test drivers. The code and the graphs are included in the specific appendix.

The following codes are related to the maximum speed measures. An example of how the work was done is given (test driver 2). The code is repeated in almost the same way for the other test drivers.

```
%%%%%%%%%%%%%%%%%%ID 1%%%%%%%%%%%%%%%%
TD2_CarSpeed_Lap5=xlsread('Base(R)\TD_2\TD2_CarSpeed_Lap5.xlsx',1);
%%%%%%%%%Attraversamento 2%%%%%%%%%%%%
TD2_DistPos2_Lap5=find(TD2_CarSpeed_Lap5(:,5)<=100 & TD2_CarSpeed_Lap5(:,5)>=-10);
TD2_Speed2_Lap5=TD2_CarSpeed_Lap5(TD2_DistPos2_Lap5,2);
TD2_MaxSpeed2_Lap5=max(TD2_Speed2_Lap5);
TD2_Pos_Max2_Lap5=find(TD2_CarSpeed_Lap5(:,2)==TD2_MaxSpeed2_Lap5);
TD2_x_Max2_Lap5=TD2_CarSpeed_Lap5(TD2_Pos_Max2_Lap5,5);
```

This section is dedicated to the plot of the results. The maximum value is highlighted by a red dot.

```
%rappresentazione grafica
plot(TD2_CarSpeed_Lap5(:,5),TD2_CarSpeed_Lap5(:,2),'g')
hold on
plot(TD2_x_Max2_Lap5,TD2_MaxSpeed2_Lap5,'ok')
set(gca,'Xdir','reverse')
xlabel('Distance to Crossing Area [m]')
ylabel('Car Speed [km/h]')
title('Test Driver 2, Car Speed Crossing 2')
xlim([-10 100])
ylim([0 80])
legend('Speed Lap5','MaxS')
grid on
hold off
```

The following codes are related to the maximum deceleration measures. An example of how the work was done is given (test driver 2). The code is repeated in almost the same way for the other test drivers.

```
%%%%%%%%%%%%%%%%%%ID 1%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%TD 2%%%%%%%%%%%%%%%
TD2_Acceleration_Lap5=xlsread('Base(R)\TD_2\TD2_Acceleration_Lap5.xlsx',1);
%%%%%%%%%Attraversamento 2%%%%%%%%%%%%
TD2_DistPos2_Lap5=find(TD2_Acceleration_Lap5(:,5)<=100 &
TD2_Acceleration_Lap5(:,5)>=-10);
TD2_Acceleration2_Lap5=TD2_Acceleration_Lap5(TD2_DistPos2_Lap5,2);
TD2_MinAcceleration2_Lap5=min(TD2_Acceleration2_Lap5);
TD2_Pos_Min2_Lap5=find(TD2_Acceleration_Lap5(:,2)==TD2_MinAcceleration2_Lap5);
TD2_x_Min2_Lap5=TD2_Acceleration_Lap5(TD2_Pos_Min2_Lap5,5);
```

This section is dedicated to the plot of the results. The minimum value is highlighted by a red dot.

```
%rappresentazione grafica
plot(TD2_Acceleration_Lap5(:,5),TD2_Acceleration_Lap5(:,2),'g')
hold on
plot(TD2_x_Min2_Lap5,TD2_MinAcceleration2_Lap5,'ok')
set(gca,'Xdir','reverse')
xlabel('Distance to Crossing Area [m]')
ylabel('Car Acceleration [m/s^2]')
title('Test Driver 2, Car Acceleration Crossing 2')
xlim([-10 100])
ylim([-8 3])
legend('Acceleration Lap5','MaxD')
grid on
set(gca,'ytick',[-8:2:3])
hold off
```

The following code is necessary to extract and saved the minimum values directly in the excel sheet.

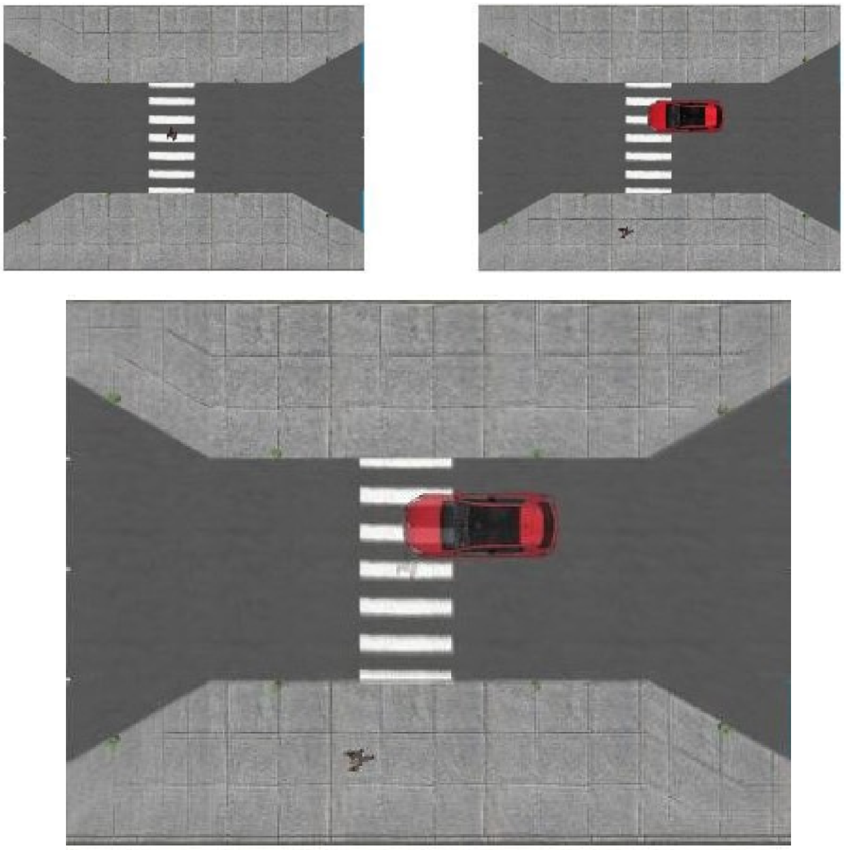
```
filename='Base_R_Lap5_MTTC4sec.xlsx';
writematrix(Base_R_Lap5_MTTC_4sec,filename,'Sheet',1)

filename='Base_R_Lap5_MTTC6sec.xlsx';
writematrix(Base_R_Lap5_MTTC_6sec,filename,'Sheet',1)

filename='Base_R_Lap5_MTTC8sec.xlsx';
writematrix(Base_R_Lap5_MTTC_8sec,filename,'Sheet',1)
```

The following code was used to superpose the images referring to the arrival time of the vehicle and pedestrian at the conflict point.

```
%# some image
I = im2double( imread('FotoPed.PNG') );
Z = im2double( imread('FotoCar.PNG') );
%# I create here a random mask (gaussian centered in middle of image)
%# show image and mask separately
subplot(121), imshow(I)
subplot(122), imshow(Z)
%# show overlayed images
figure, imshow(I), hold on
hImg = imshow(Z); set(hImg, 'AlphaData', 0.75);
```



C. Mean values of the observed variables

Table 19-Mean MTTC observations for each combination

Mean MTTC			
Mid-block layout	**Familiarity ID**	**Pedestrian Time Gap Acceptance**	**MTTC[s]**
Baseline	1	1	1.23
		2	3.6
		3	4.16
	2	1	1.04
		2	3.12
		3	3.78
	3	1	2.08
		2	3.48
		3	4.37
Curb Extension	1	1	2.28
		2	3.75
		3	4.77
	2	1	1.77
		2	3.37
		3	4.31
	3	1	2.85
		2	3.42
		3	4.27

Table 20--Mean PET observations for each combination

Mean PET			
Mid-block layout	**Familiarity ID**	**Pedestrian Time Gap Acceptance**	**PET[s]**
Baseline	1	1	4.03
		2	4.54
		3	6
	2	1	2.65
		2	4.26
		3	4.7
	3	1	3.61
		2	3.72
		3	5.37
Curb Extension	1	1	4.82
		2	4.38
		3	5.26
	2	1	4.25
		2	4.23
		3	5.16
	3	1	3.62
		2	3.74
		3	5.18

Table 21-Mean MaxS observations for each combination

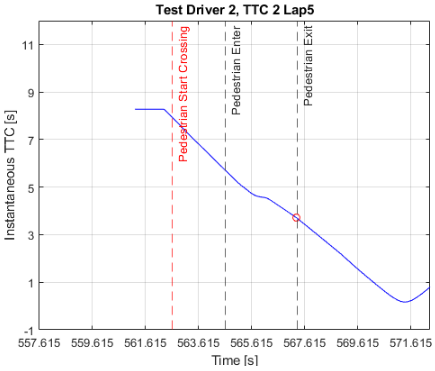
Mean MaxS			
Mid-block layout	**Familiarity ID**	**Pedestrian Time Gap Acceptance**	**MaxS[km/h]**
Baseline	1	1	50.4
		2	50.1
		3	51.5
	2	1	57
		2	54.9
		3	57.3
	3	1	52.1
		2	51.2
		3	54.1
Curb Extension	1	1	42.1
		2	40.7
		3	42.5
	2	1	53.5
		2	48.1
		3	49.8
	3	1	49.2
		2	46.7
		3	47.4

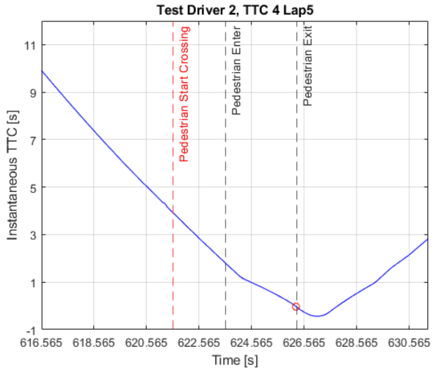
Table 22-Mean MaxD observations for each combination

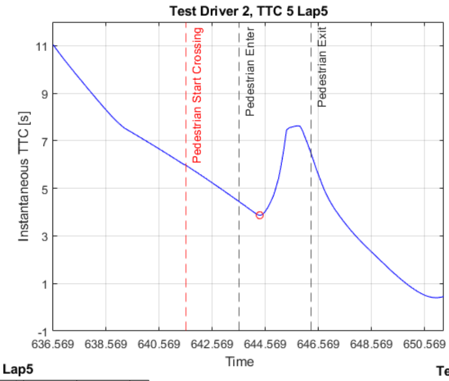
Mean MaxD			
Mid-block layout	**Familiarity ID**	**Pedestrian Time Gap Acceptance**	**MaxD[m/s^2]**
Baseline	1	1	-6.3
		2	-5.52
		3	-4.66
	2	1	-6.31
		2	-5.92
		3	-3.48
	3	1	-6.28
		2	-4.98
		3	-4.22
Curb Extension	1	1	-5.64
		2	-4.53
		3	-3.35
	2	1	-5.79
		2	-5.41
		3	-3.91
	3	1	-5.85
		2	-4.37
		3	-3.26

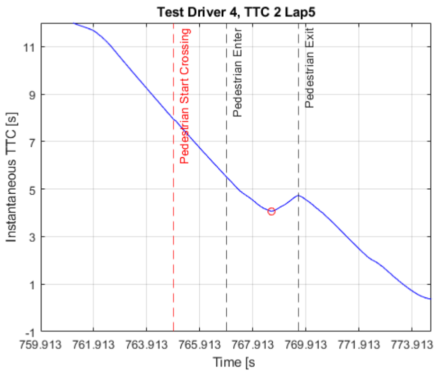
D.MTTC graphs

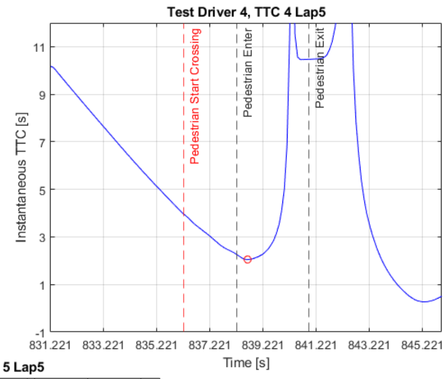
Scenario 1 results

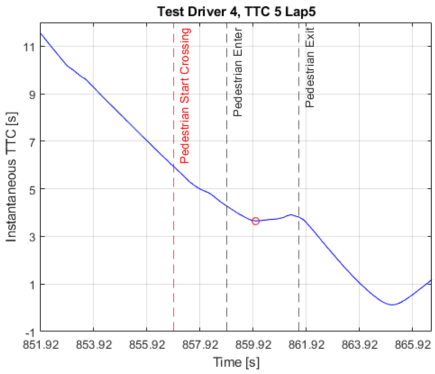


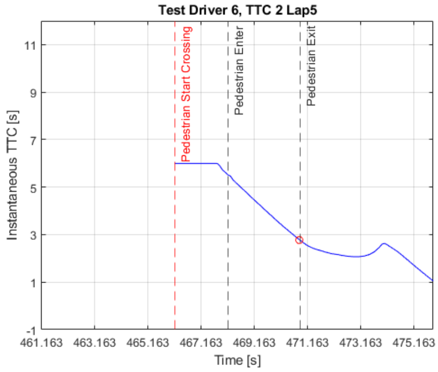


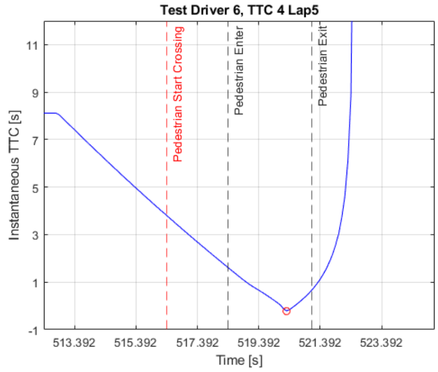


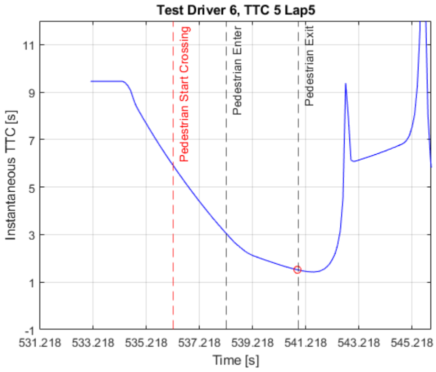


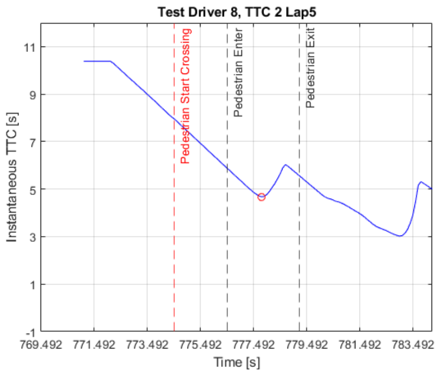


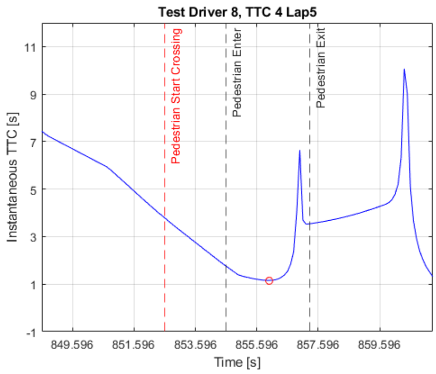


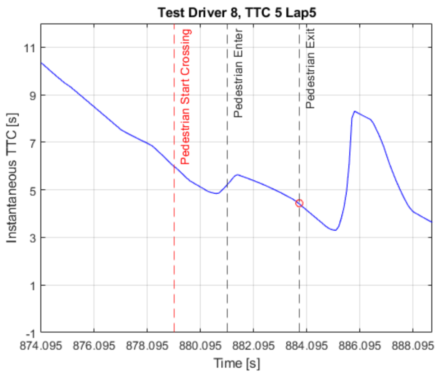

Test Driver 6, TTC 2 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
461.163 463.163 465.163 467.163 469.163 471.163 473.163 475.163
Time [s]

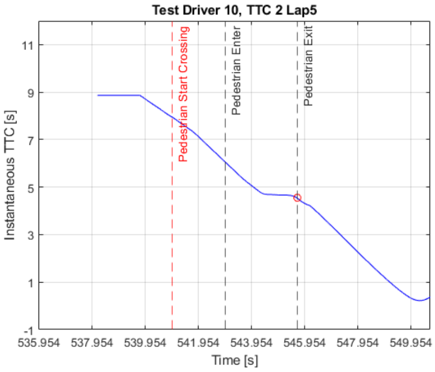

Test Driver 6, TTC 4 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
513.392 515.392 517.392 519.392 521.392 523.392
Time [s]

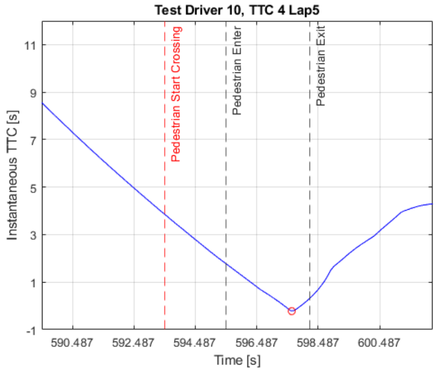

Test Driver 6, TTC 5 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
531.218 533.218 535.218 537.218 539.218 541.218 543.218 545.218
Time [s]

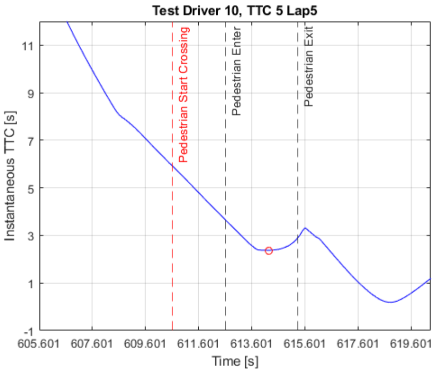

Test Driver 8, TTC 2 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
769.492 771.492 773.492 775.492 777.492 779.492 781.492 783.492
Time [s]

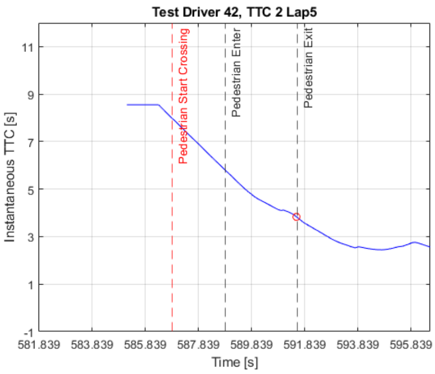

Test Driver 8, TTC 4 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
849.596 851.596 853.596 855.596 857.596 859.596
Time [s]

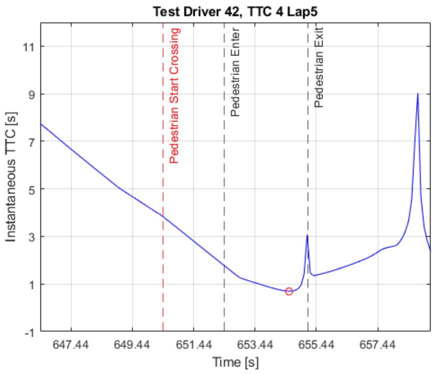

Test Driver 8, TTC 5 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
-1
1
3
5
7
9
11
874.095 876.095 878.095 880.095 882.095 884.095 886.095 888.095
Time [s]

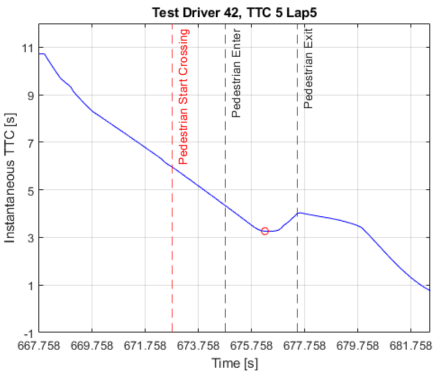

Test Driver 10, TTC 2 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
535.954 537.954 539.954 541.954 543.954 545.954 547.954 549.954

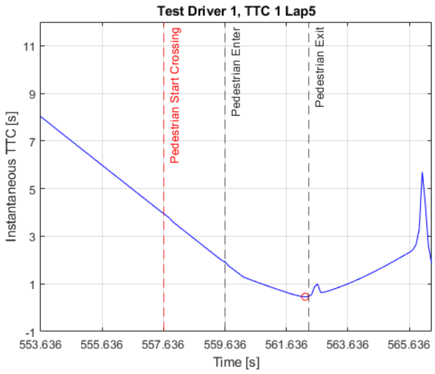

Test Driver 10, TTC 4 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
590.487 592.487 594.487 596.487 598.487 600.487

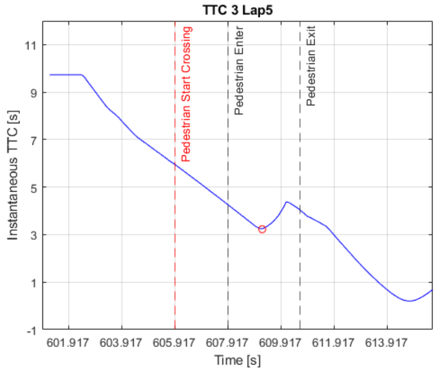

Test Driver 10, TTC 5 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
605.601 607.601 609.601 611.601 613.601 615.601 617.601 619.601

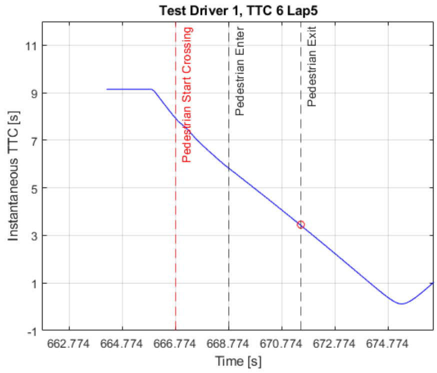

Test Driver 42, TTC 2 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
581.839 583.839 585.839 587.839 589.839 591.839 593.839 595.839

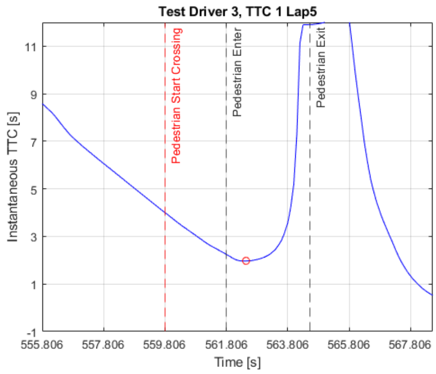

Test Driver 42, TTC 4 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
647.44 649.44 651.44 653.44 655.44 657.44

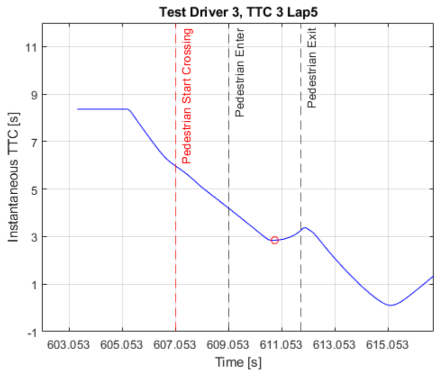

Test Driver 42, TTC 5 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
667.758 669.758 671.758 673.758 675.758 677.758 679.758 681.758

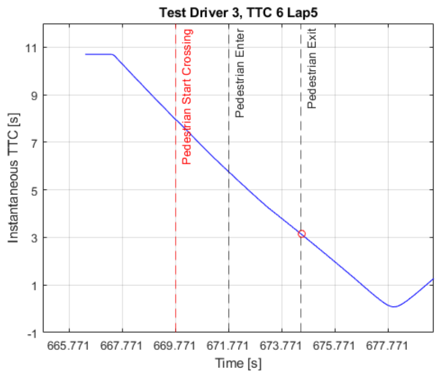

Test Driver 1, TTC 1 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

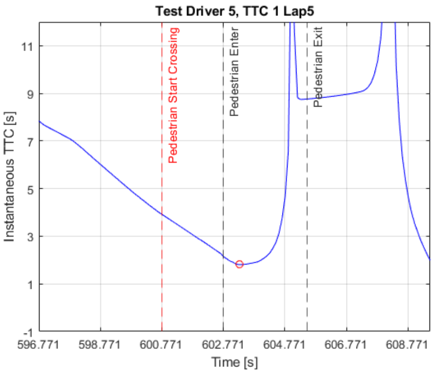

TTC 3 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

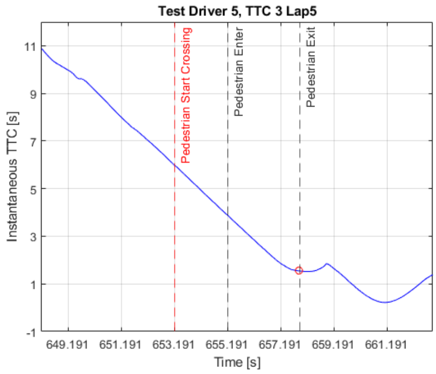

Test Driver 1, TTC 6 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

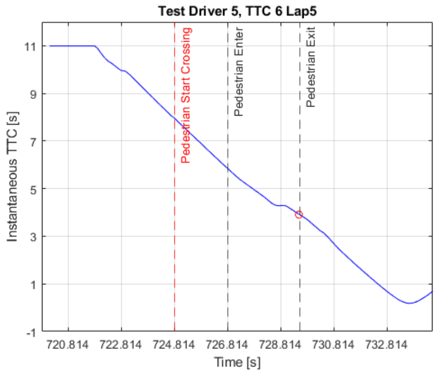

Test Driver 3, TTC 1 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

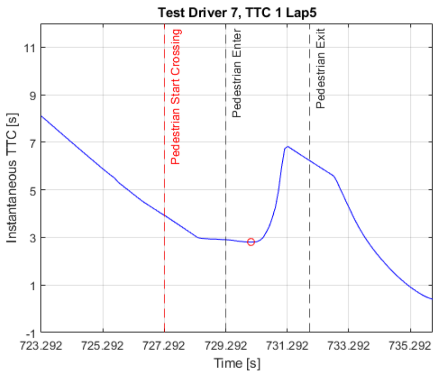

Test Driver 3, TTC 3 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

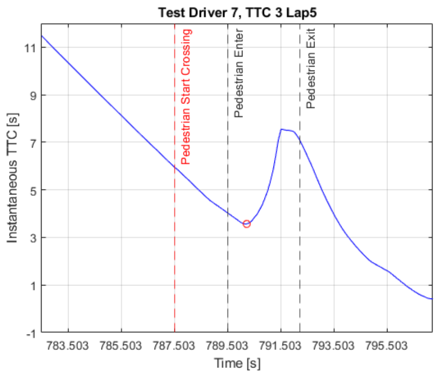

Test Driver 3, TTC 6 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

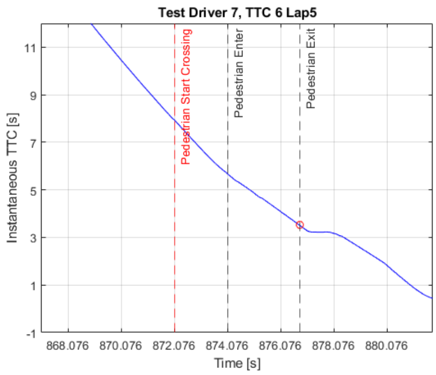

Test Driver 5, TTC 1 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
596.771
598.771
600.771
602.771
604.771
606.771
608.771

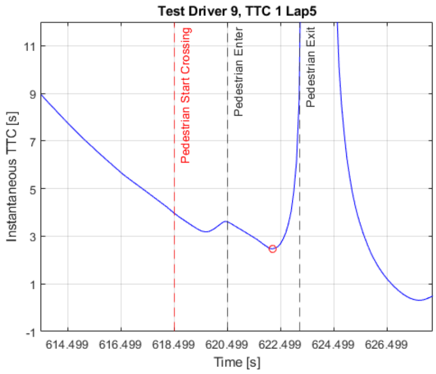

Test Driver 5, TTC 3 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
649.191
651.191
653.191
655.191
657.191
659.191
661.191

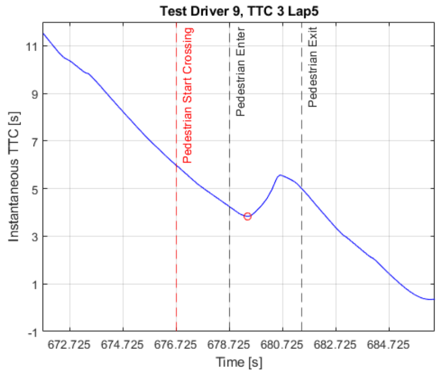

Test Driver 5, TTC 6 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
720.814
722.814
724.814
726.814
728.814
730.814
732.814

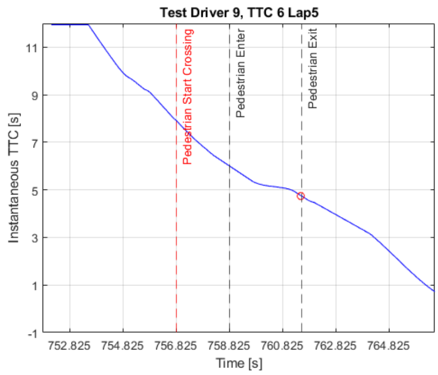

Test Driver 7, TTC 1 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
723.292
725.292
727.292
729.292
731.292
733.292
735.292

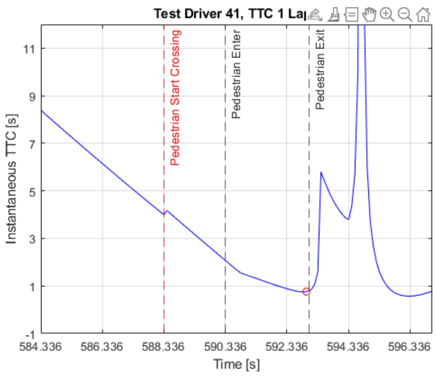

Test Driver 7, TTC 3 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
783.503
785.503
787.503
789.503
791.503
793.503
795.503

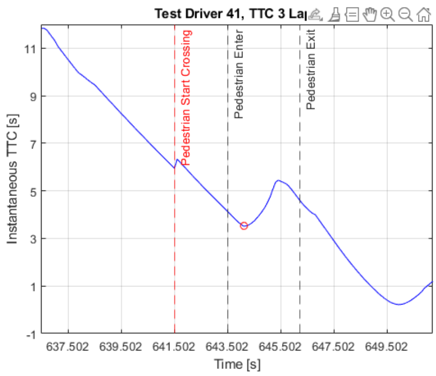

Test Driver 7, TTC 6 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
868.076
870.076
872.076
874.076
876.076
878.076
880.076

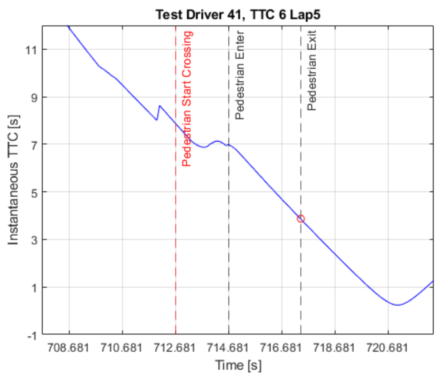

Test Driver 9, TTC 1 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
614.499 616.499 618.499 620.499 622.499 624.499 626.499
-1 1 3 5 7 9 11

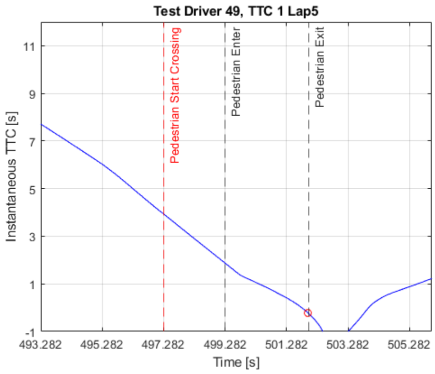

Test Driver 9, TTC 3 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
672.725 674.725 676.725 678.725 680.725 682.725 684.725
-1 1 3 5 7 9 11

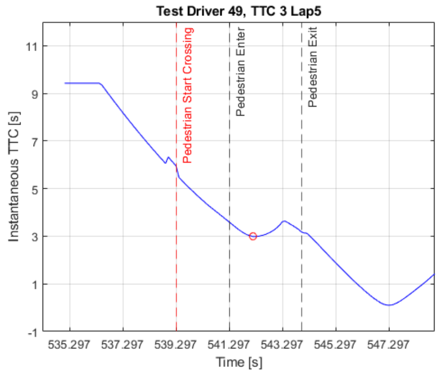

Test Driver 9, TTC 6 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
752.825 754.825 756.825 758.825 760.825 762.825 764.825
-1 1 3 5 7 9 11

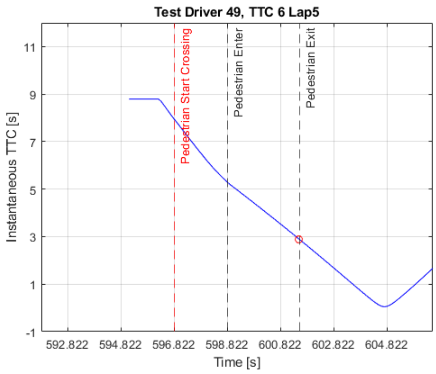

Test Driver 41, TTC 1 La
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
584.336 586.336 588.336 590.336 592.336 594.336 596.336
-1 1 3 5 7 9 11


Test Driver 41, TTC 3 La
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
637.502 639.502 641.502 643.502 645.502 647.502 649.502
-1 1 3 5 7 9 11

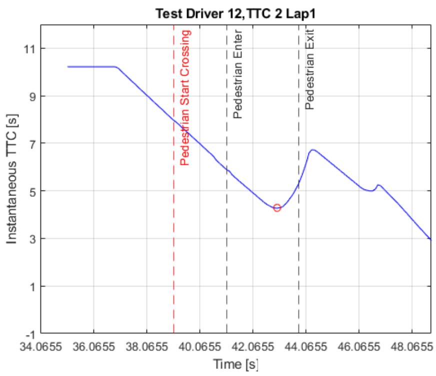

Test Driver 41, TTC 6 Lap5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
708.681 710.681 712.681 714.681 716.681 718.681 720.681
-1 1 3 5 7 9 11

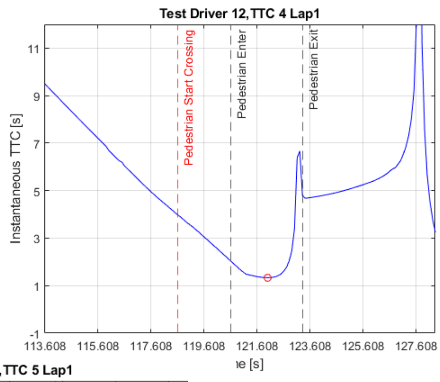

Test Driver 49, TTC 1 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
493.282 495.282 497.282 499.282 501.282 503.282 505.282
-1 1 3 5 7 9 11

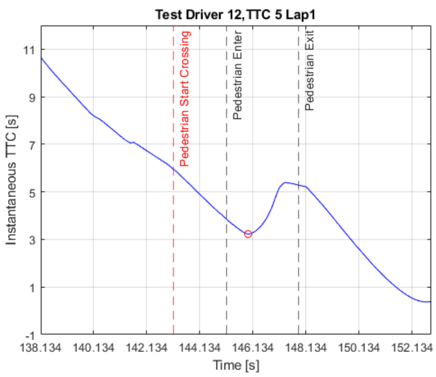

Test Driver 49, TTC 3 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
535.297 537.297 539.297 541.297 543.297 545.297 547.297
-1 1 3 5 7 9 11

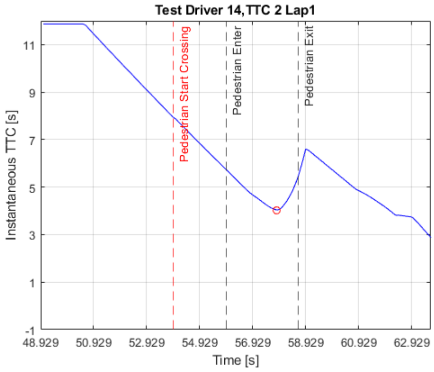

Test Driver 49, TTC 6 Lap5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
592.822 594.822 596.822 598.822 600.822 602.822 604.822
-1 1 3 5 7 9 11

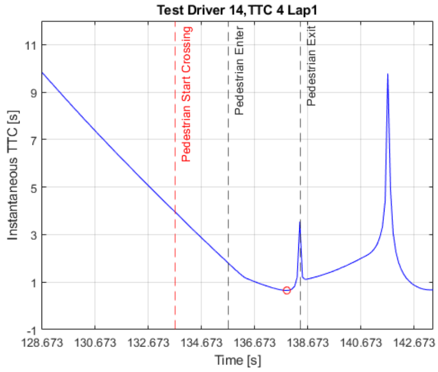
Scenario 2.

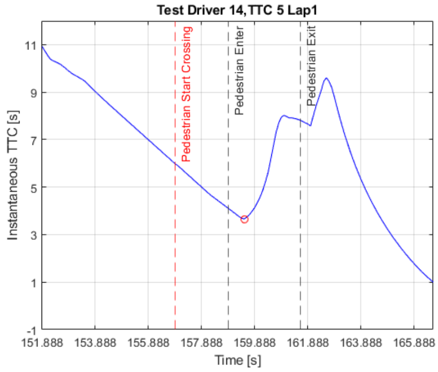

Test Driver 12,TTC 2 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
34.0655 36.0655 38.0655 40.0655 42.0655 44.0655 46.0655 48.0655
-1 1 3 5 7 9 11

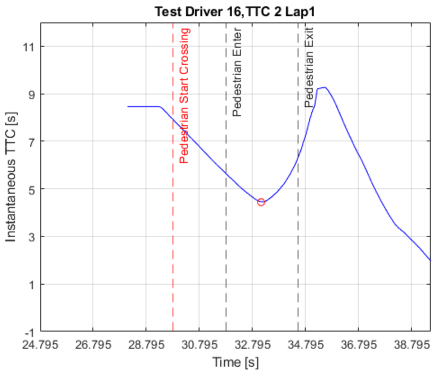

Test Driver 12,TTC 4 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
113.608 115.608 117.608 119.608 121.608 123.608 125.608 127.608
-1 1 3 5 7 9 11

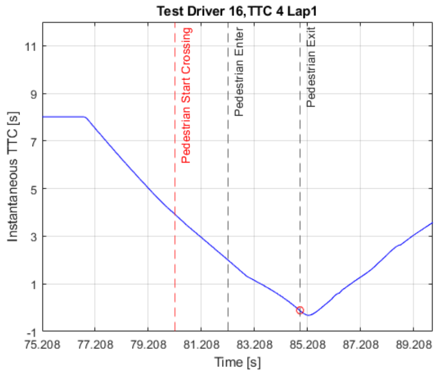

Test Driver 12,TTC 5 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
138.134 140.134 142.134 144.134 146.134 148.134 150.134 152.134
-1 1 3 5 7 9 11

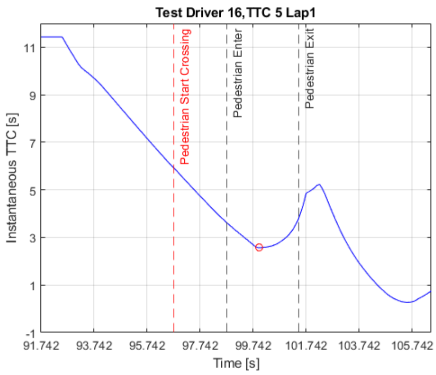

Test Driver 14, TTC 2 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
48.929 50.929 52.929 54.929 56.929 58.929 60.929 62.929
-1 1 3 5 7 9 11

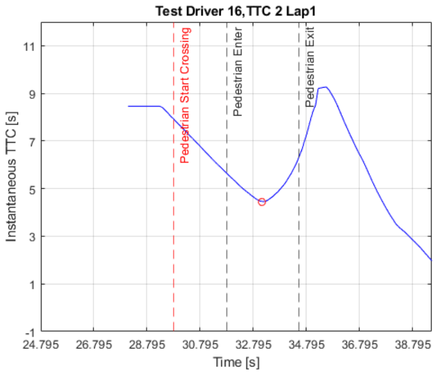

Test Driver 14, TTC 4 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
128.673 130.673 132.673 134.673 136.673 138.673 140.673 142.673
-1 1 3 5 7 9 11

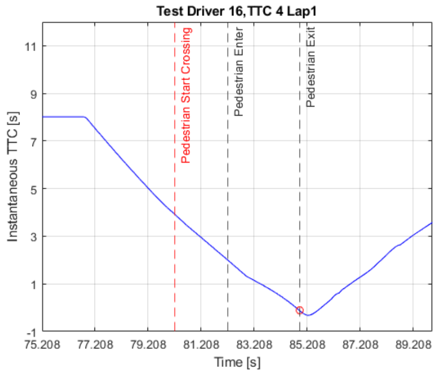

Test Driver 14, TTC 5 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
151.888 153.888 155.888 157.888 159.888 161.888 163.888 165.888
-1 1 3 5 7 9 11

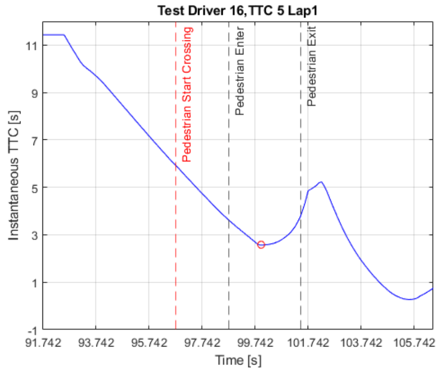

Test Driver 16, TTC 2 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
24.795 26.795 28.795 30.795 32.795 34.795 36.795 38.795
-1 1 3 5 7 9 11

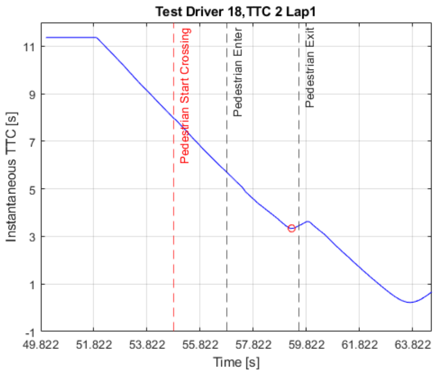

Test Driver 16, TTC 4 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
75.208 77.208 79.208 81.208 83.208 85.208 87.208 89.208
-1 1 3 5 7 9 11

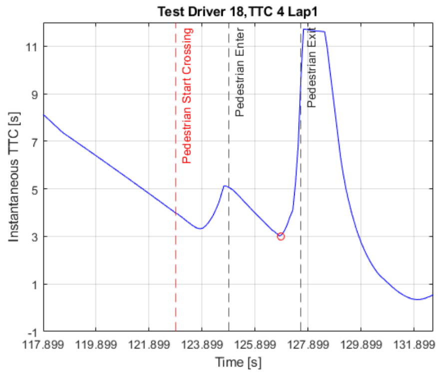

Test Driver 16, TTC 5 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
91.742 93.742 95.742 97.742 99.742 101.742 103.742 105.742
-1 1 3 5 7 9 11

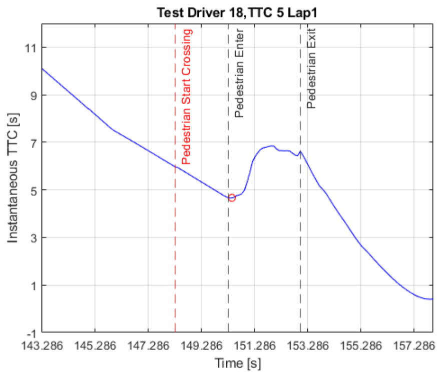

Test Driver 16,TTC 2 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
24.795 26.795 28.795 30.795 32.795 34.795 36.795 38.795

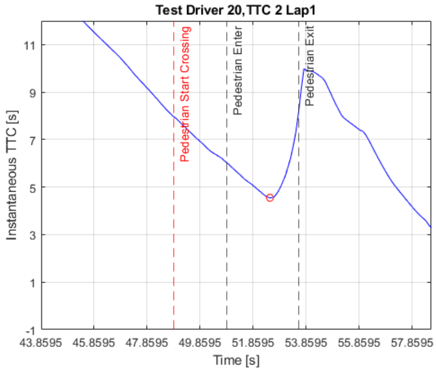

Test Driver 16,TTC 4 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
75.208 77.208 79.208 81.208 83.208 85.208 87.208 89.208

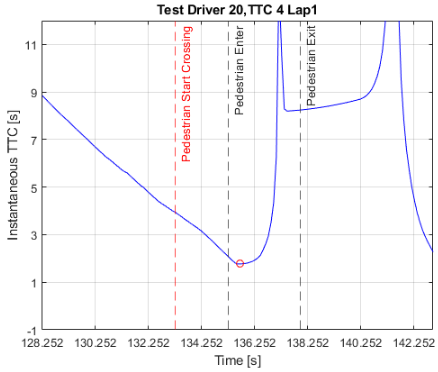

Test Driver 16,TTC 5 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
91.742 93.742 95.742 97.742 99.742 101.742 103.742 105.742

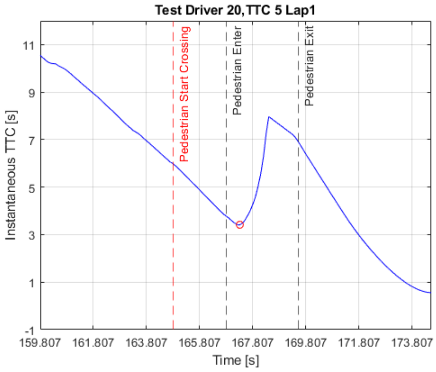

Test Driver 18,TTC 2 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
49.822 51.822 53.822 55.822 57.822 59.822 61.822 63.822

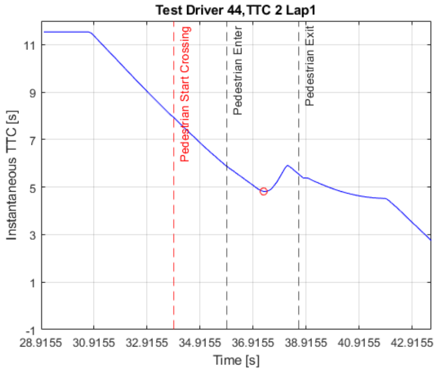

Test Driver 18,TTC 4 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
117.899 119.899 121.899 123.899 125.899 127.899 129.899 131.899

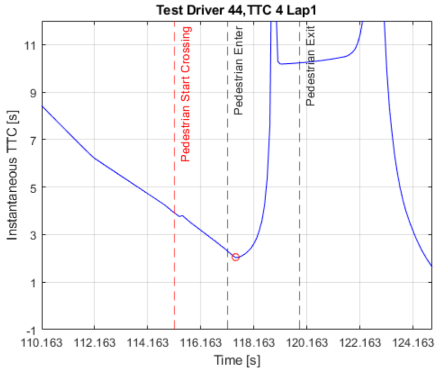

Test Driver 18,TTC 5 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1 1 3 5 7 9 11
143.286 145.286 147.286 149.286 151.286 153.286 155.286 157.286

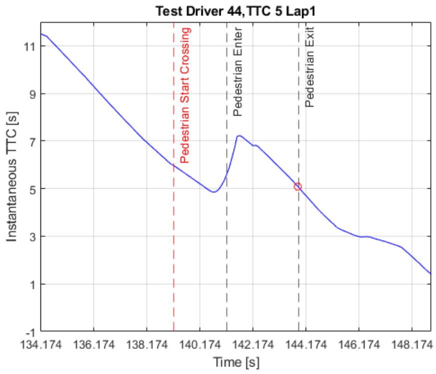

Test Driver 20, TTC 2 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

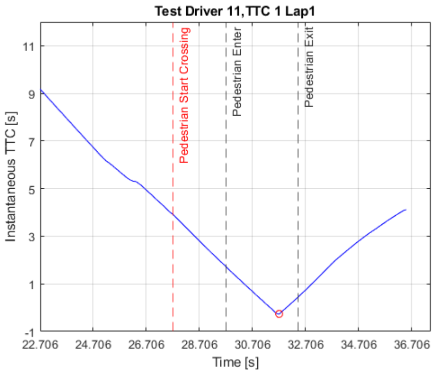

Test Driver 20, TTC 4 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

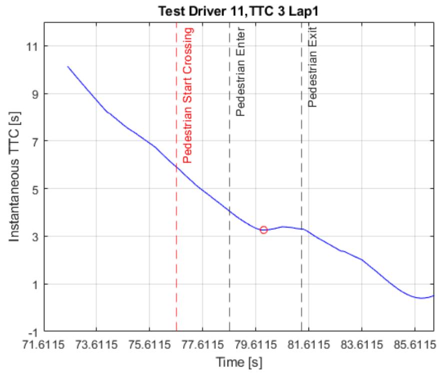

Test Driver 20, TTC 5 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

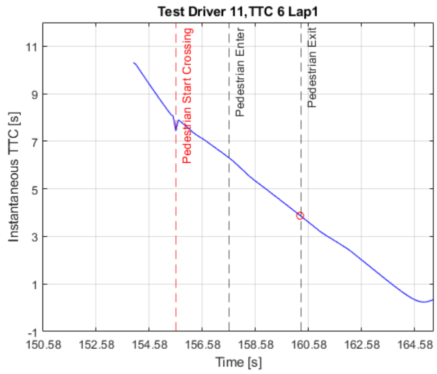

Test Driver 44, TTC 2 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

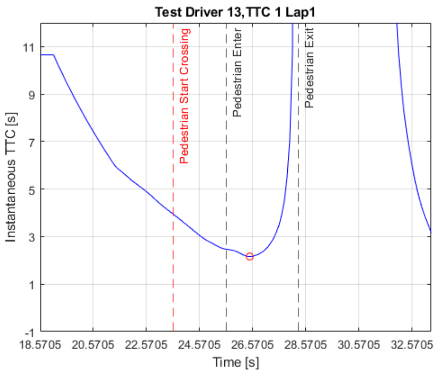

Test Driver 44, TTC 4 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

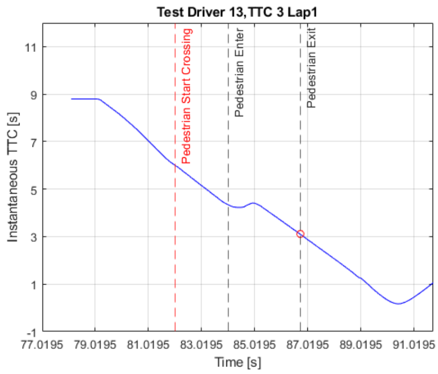

Test Driver 44, TTC 5 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

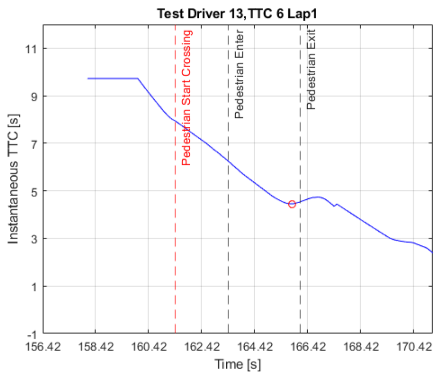

Test Driver 11,TTC 1 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
22.706
24.706
26.706
28.706
30.706
32.706
34.706
36.706
Time [s]

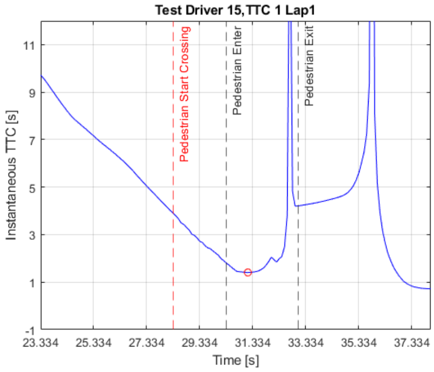

Test Driver 11,TTC 3 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
71.6115
73.6115
75.6115
77.6115
79.6115
81.6115
83.6115
85.6115
Time [s]

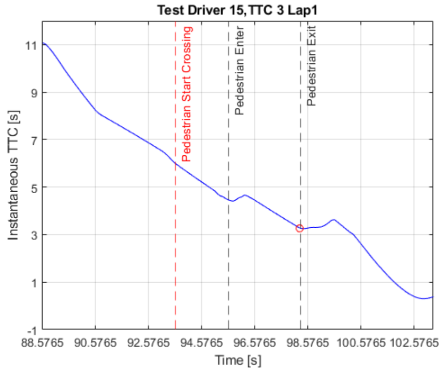

Test Driver 11,TTC 6 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
150.58
152.58
154.58
156.58
158.58
160.58
162.58
164.58
Time [s]

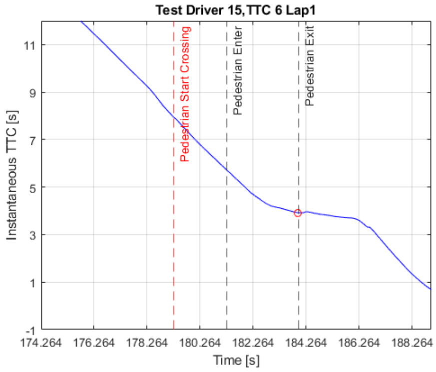

Test Driver 13,TTC 1 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
18.5705
20.5705
22.5705
24.5705
26.5705
28.5705
30.5705
32.5705
Time [s]

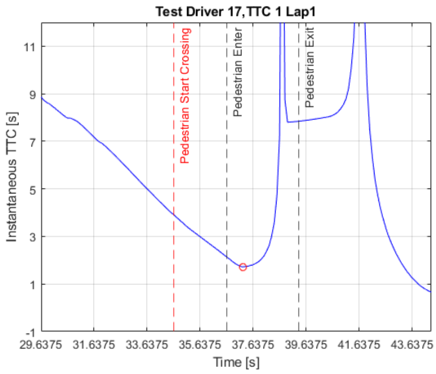

Test Driver 13,TTC 3 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
77.0195
79.0195
81.0195
83.0195
85.0195
87.0195
89.0195
91.0195
Time [s]

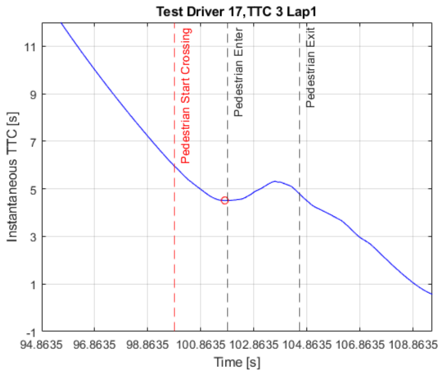

Test Driver 13,TTC 6 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
156.42
158.42
160.42
162.42
164.42
166.42
168.42
170.42
Time [s]

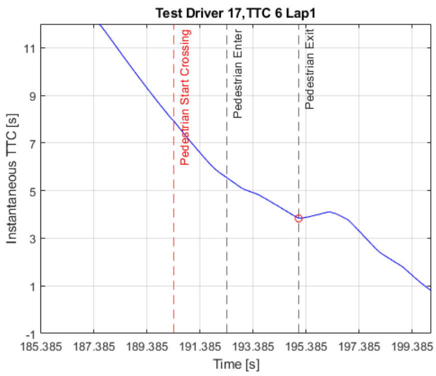

Test Driver 15,TTC 1 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
23.334 25.334 27.334 29.334 31.334 33.334 35.334 37.334
-1 1 3 5 7 9 11

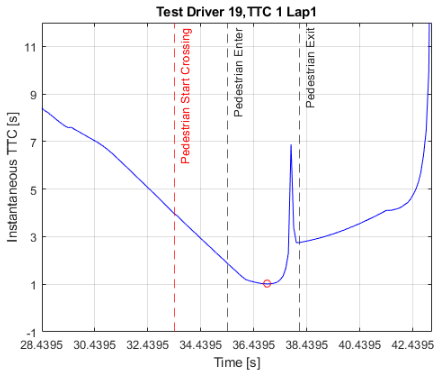

Test Driver 15,TTC 3 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
88.5765 90.5765 92.5765 94.5765 96.5765 98.5765 100.5765 102.5765
-1 1 3 5 7 9 11

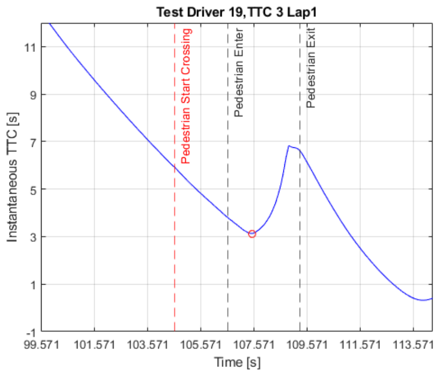

Test Driver 15,TTC 6 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
174.264 176.264 178.264 180.264 182.264 184.264 186.264 188.264
-1 1 3 5 7 9 11

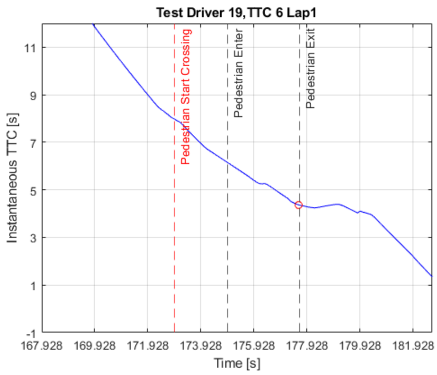

Test Driver 17,TTC 1 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
29.6375 31.6375 33.6375 35.6375 37.6375 39.6375 41.6375 43.6375
-1 1 3 5 7 9 11

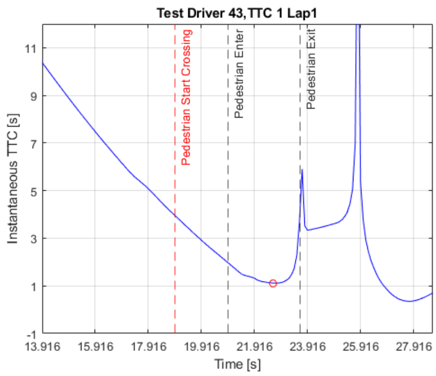

Test Driver 17,TTC 3 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
94.8635 96.8635 98.8635 100.8635 102.8635 104.8635 106.8635 108.8635
-1 1 3 5 7 9 11

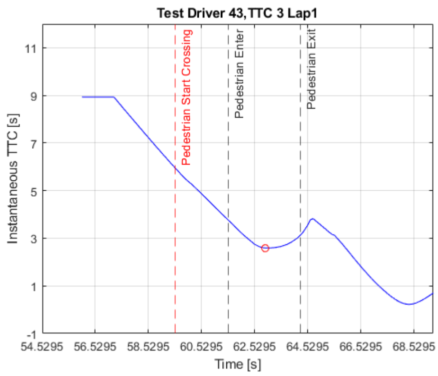

Test Driver 17,TTC 6 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
185.385 187.385 189.385 191.385 193.385 195.385 197.385 199.385
-1 1 3 5 7 9 11

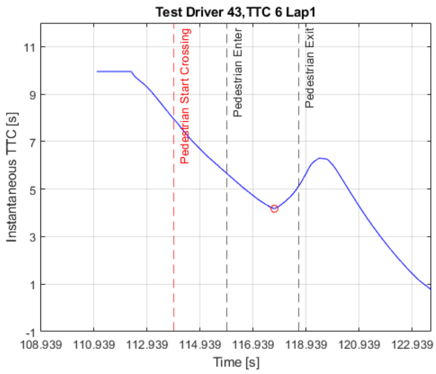

Test Driver 19, TTC 1 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
28.4395 30.4395 32.4395 34.4395 36.4395 38.4395 40.4395 42.4395
Time [s]

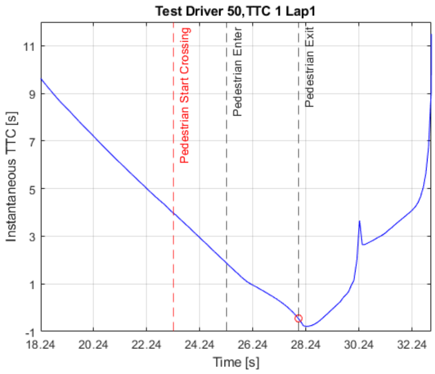

Test Driver 19, TTC 3 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
99.571 101.571 103.571 105.571 107.571 109.571 111.571 113.571
Time [s]

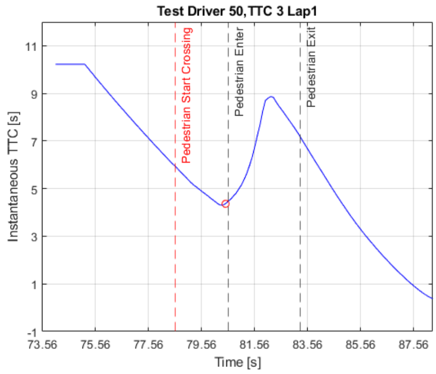

Test Driver 19, TTC 6 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
167.928 169.928 171.928 173.928 175.928 177.928 179.928 181.928
Time [s]

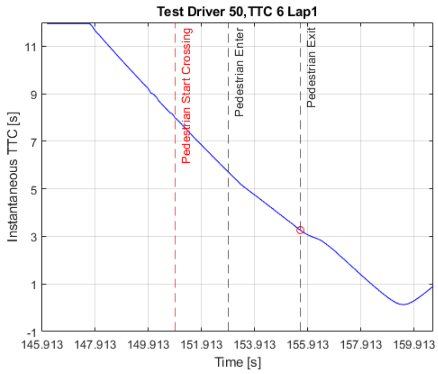

Test Driver 43, TTC 1 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
13.916 15.916 17.916 19.916 21.916 23.916 25.916 27.916
Time [s]

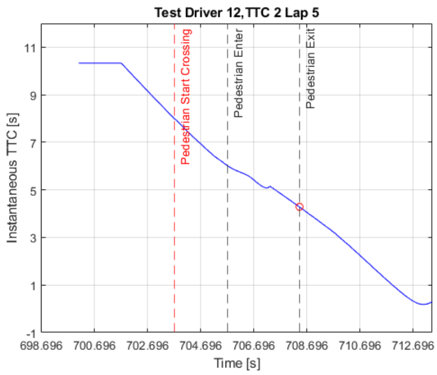

Test Driver 43, TTC 3 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
54.5295 56.5295 58.5295 60.5295 62.5295 64.5295 66.5295 68.5295
Time [s]

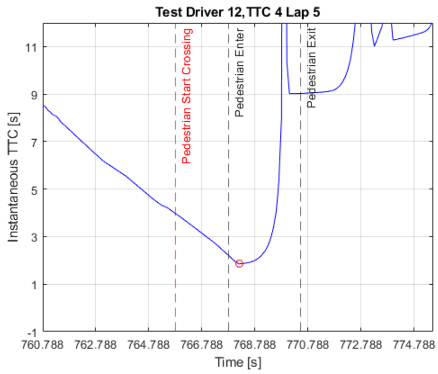

Test Driver 43, TTC 6 Lap1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
108.939 110.939 112.939 114.939 116.939 118.939 120.939 122.939
Time [s]

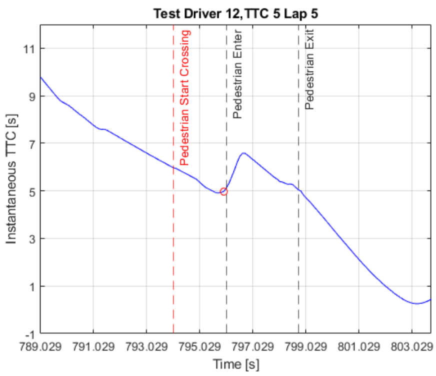

Test Driver 50, TTC 1 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
18.24
20.24
22.24
24.24
26.24
28.24
30.24
32.24

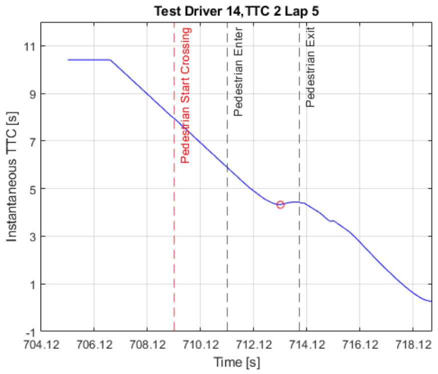

Test Driver 50, TTC 3 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
73.56
75.56
77.56
79.56
81.56
83.56
85.56
87.56

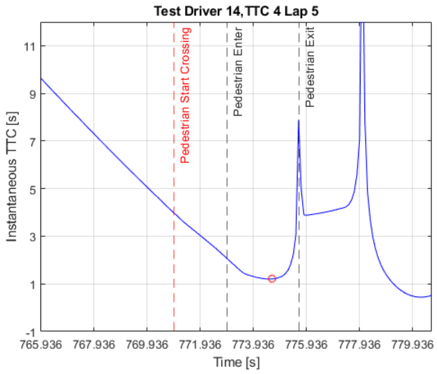

Test Driver 50, TTC 6 Lap1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
145.913
147.913
149.913
151.913
153.913
155.913
157.913
159.913

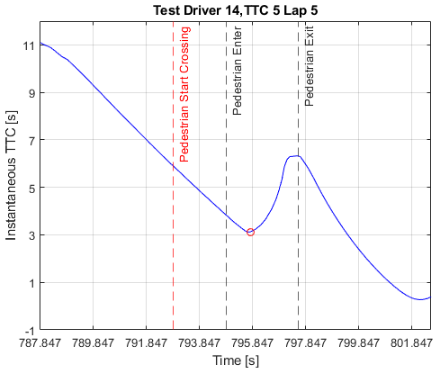

Test Driver 12, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
698.696
700.696
702.696
704.696
706.696
708.696
710.696
712.696

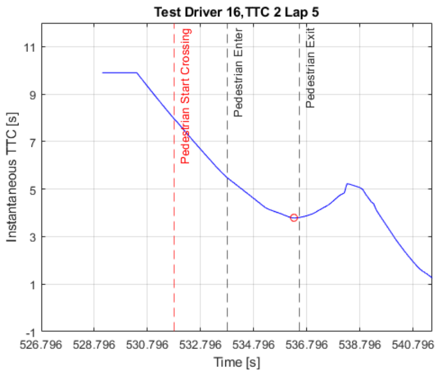

Test Driver 12, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
760.788
762.788
764.788
766.788
768.788
770.788
772.788
774.788

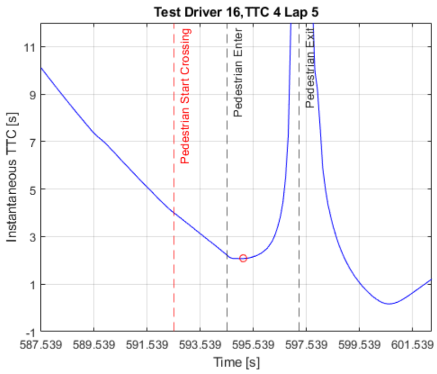

Test Driver 12, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
789.029
791.029
793.029
795.029
797.029
799.029
801.029
803.029

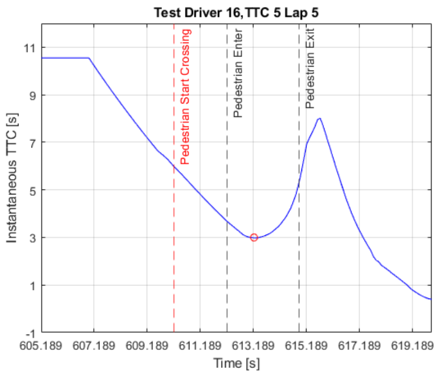

Test Driver 14,TTC 2 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

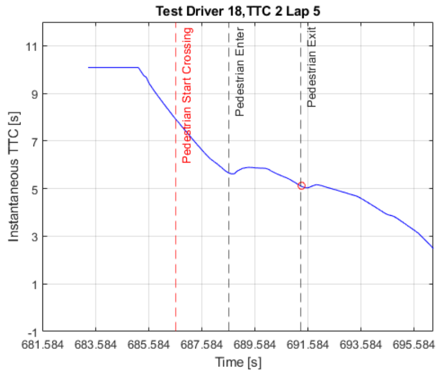

Test Driver 14,TTC 4 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

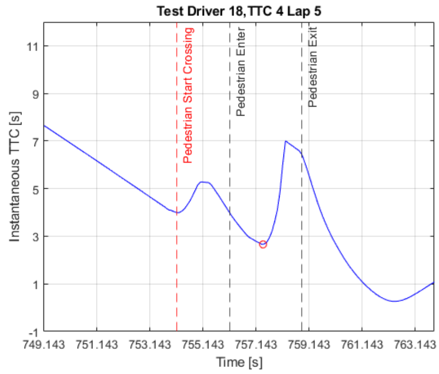

Test Driver 14,TTC 5 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

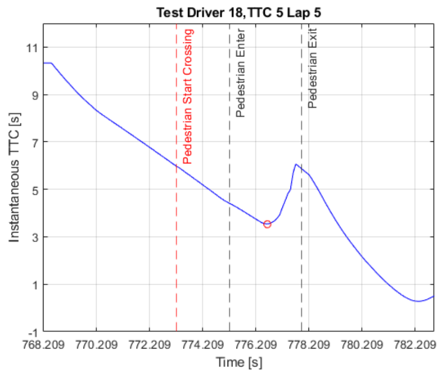

Test Driver 16,TTC 2 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

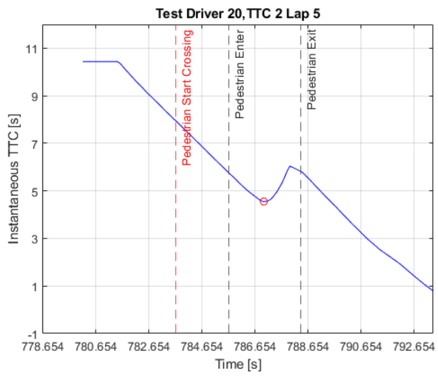

Test Driver 16,TTC 4 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

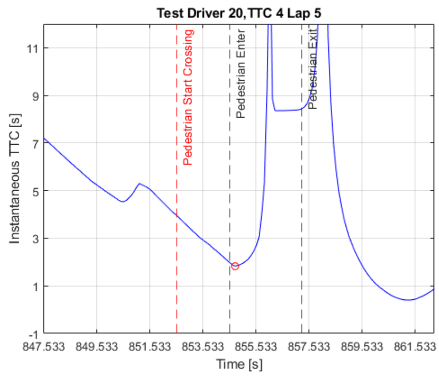

Test Driver 16,TTC 5 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

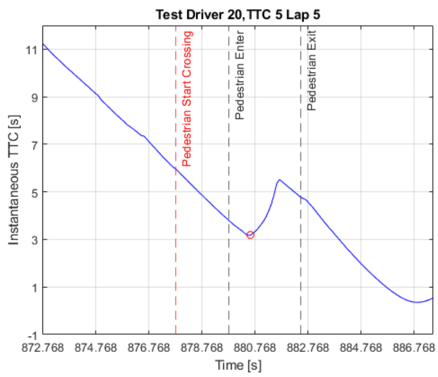

Test Driver 18, TTC 2 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
681.584 683.584 685.584 687.584 689.584 691.584 693.584 695.584

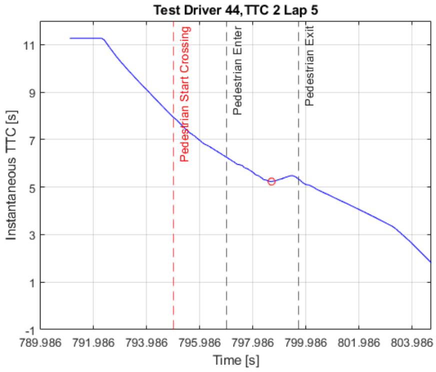

Test Driver 18, TTC 4 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
749.143 751.143 753.143 755.143 757.143 759.143 761.143 763.143

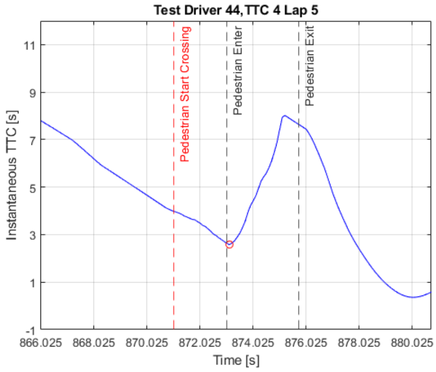

Test Driver 18, TTC 5 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
768.209 770.209 772.209 774.209 776.209 778.209 780.209 782.209

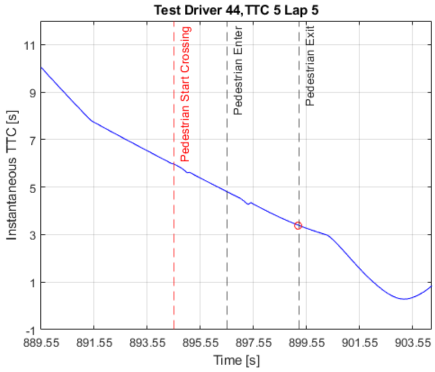

Test Driver 20, TTC 2 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
778.654 780.654 782.654 784.654 786.654 788.654 790.654 792.654

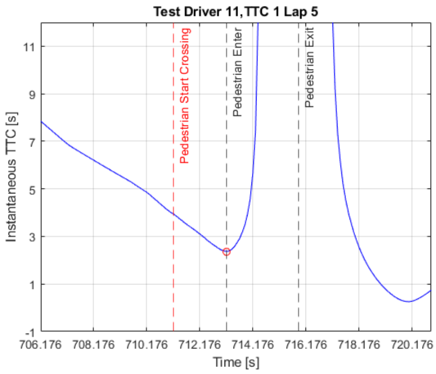

Test Driver 20, TTC 4 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
847.533 849.533 851.533 853.533 855.533 857.533 859.533 861.533

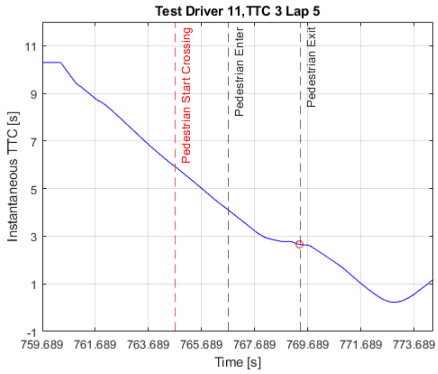

Test Driver 20, TTC 5 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
872.768 874.768 876.768 878.768 880.768 882.768 884.768 886.768

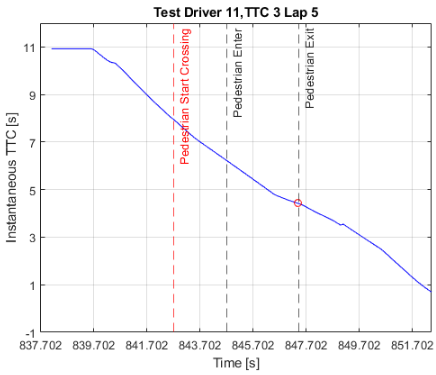

Test Driver 44, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

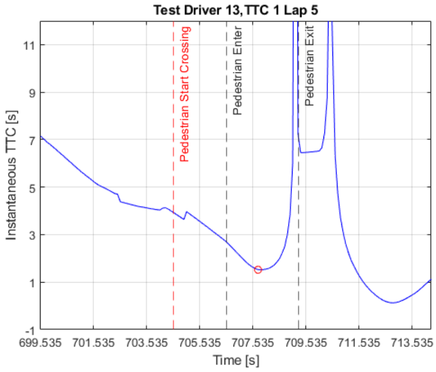

Test Driver 44, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

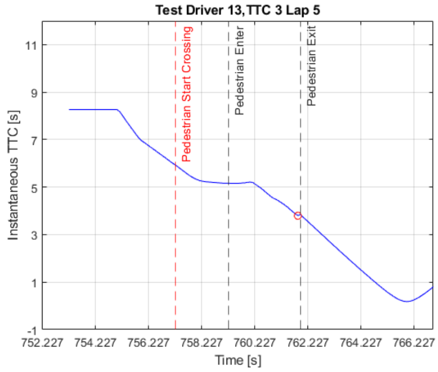

Test Driver 44, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

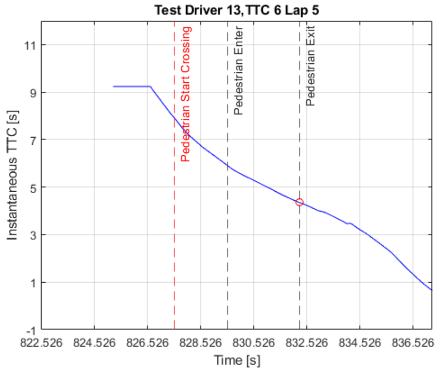

Test Driver 11, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

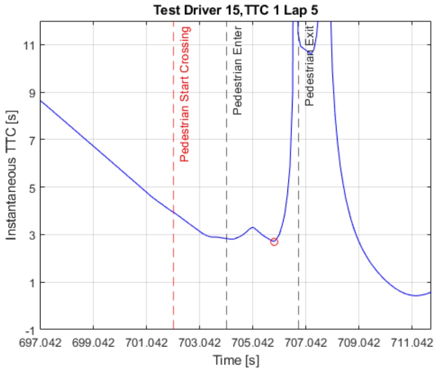

Test Driver 11, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

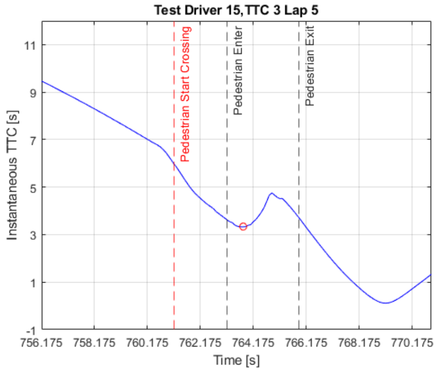

Test Driver 11, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

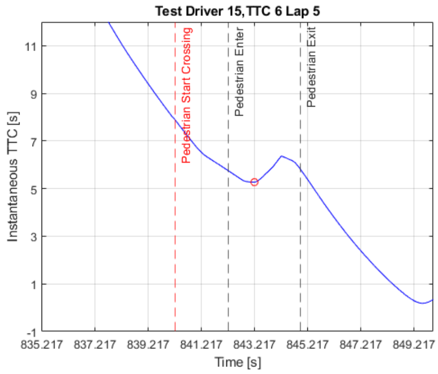

Test Driver 13, TTC 1 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
699.535
701.535
703.535
705.535
707.535
709.535
711.535
713.535
Time [s]

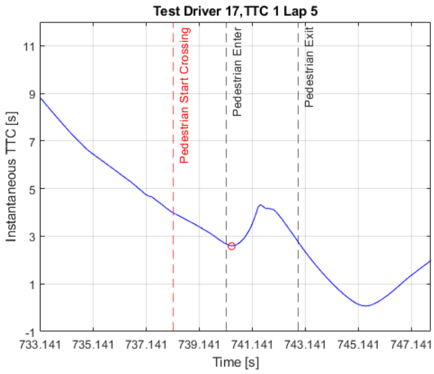

Test Driver 13, TTC 3 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
752.227
754.227
756.227
758.227
760.227
762.227
764.227
766.227
Time [s]

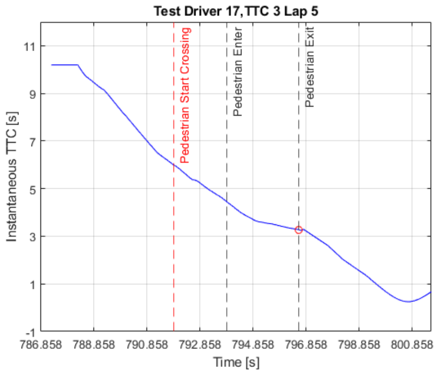

Test Driver 13, TTC 6 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
822.526
824.526
826.526
828.526
830.526
832.526
834.526
836.526
Time [s]

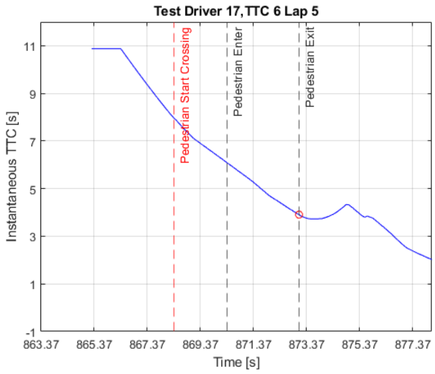

Test Driver 15, TTC 1 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
697.042
699.042
701.042
703.042
705.042
707.042
709.042
711.042
Time [s]

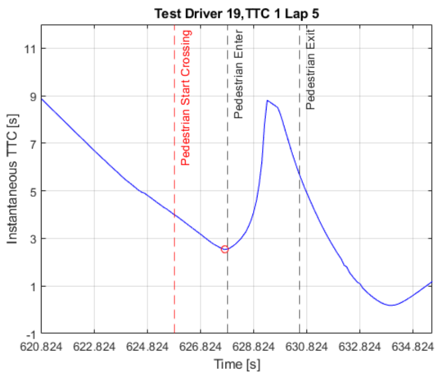

Test Driver 15, TTC 3 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
756.175
758.175
760.175
762.175
764.175
766.175
768.175
770.175
Time [s]

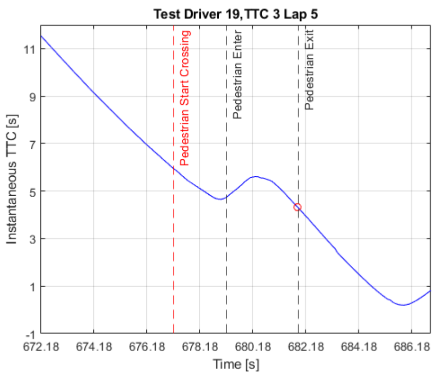

Test Driver 15, TTC 6 Lap 5
Instantaneous TTC [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
835.217
837.217
839.217
841.217
843.217
845.217
847.217
849.217
Time [s]

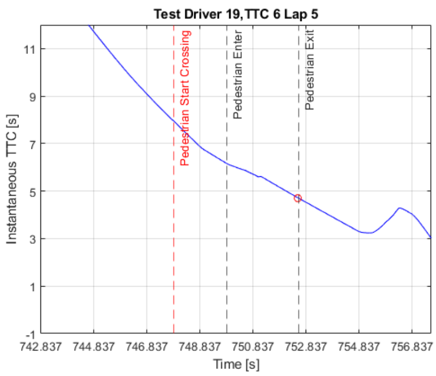

Test Driver 17, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
733.141 735.141 737.141 739.141 741.141 743.141 745.141 747.141
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

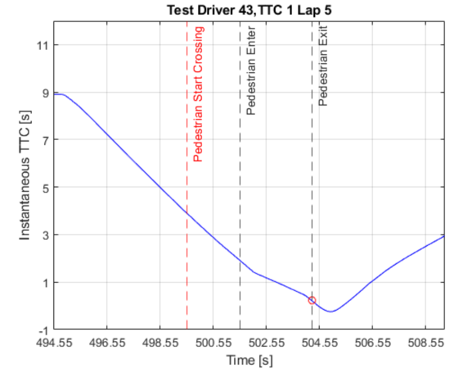

Test Driver 17, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
786.858 788.858 790.858 792.858 794.858 796.858 798.858 800.858
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

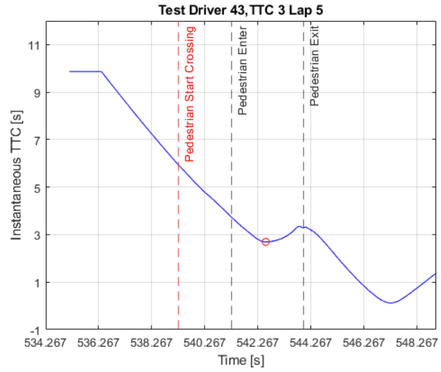

Test Driver 17, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
863.37 865.37 867.37 869.37 871.37 873.37 875.37 877.37
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

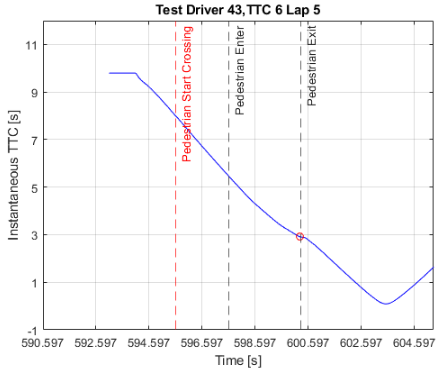

Test Driver 19, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
620.824 622.824 624.824 626.824 628.824 630.824 632.824 634.824
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

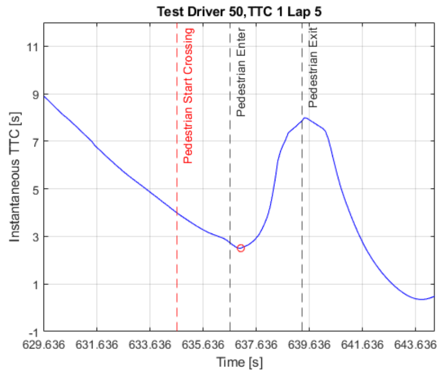

Test Driver 19, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
672.18 674.18 676.18 678.18 680.18 682.18 684.18 686.18
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

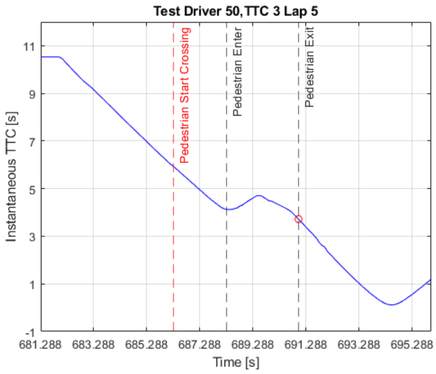

Test Driver 19, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
742.837 744.837 746.837 748.837 750.837 752.837 754.837 756.837
-1 1 3 5 7 9 11
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

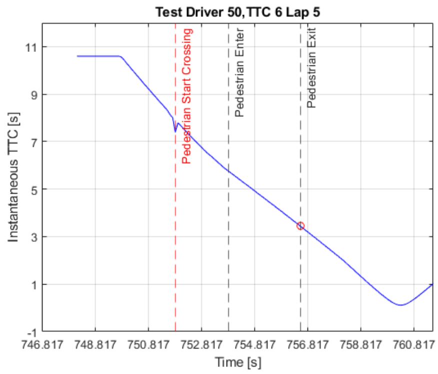

Test Driver 43, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
494.55 496.55 498.55 500.55 502.55 504.55 506.55 508.55
-1 1 3 5 7 9 11


Test Driver 43, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
534.267 536.267 538.267 540.267 542.267 544.267 546.267 548.267
-1 1 3 5 7 9 11

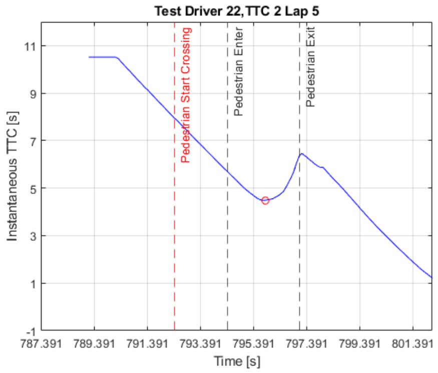

Test Driver 43, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
590.597 592.597 594.597 596.597 598.597 600.597 602.597 604.597
-1 1 3 5 7 9 11

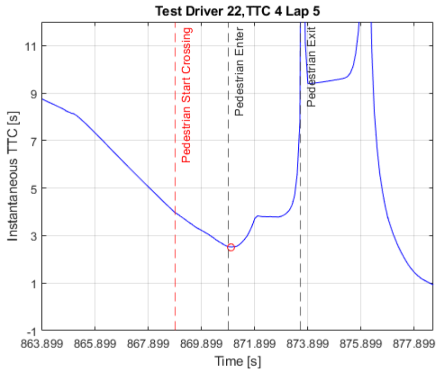

Test Driver 50, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
629.636 631.636 633.636 635.636 637.636 639.636 641.636 643.636
-1 1 3 5 7 9 11

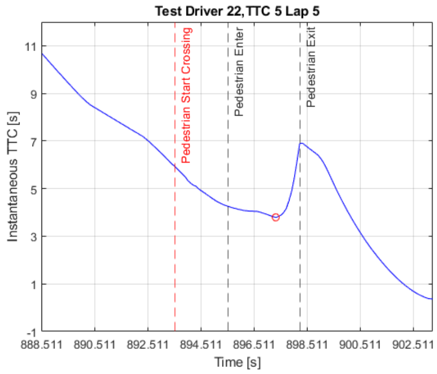

Test Driver 50, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
681.288 683.288 685.288 687.288 689.288 691.288 693.288 695.288
-1 1 3 5 7 9 11

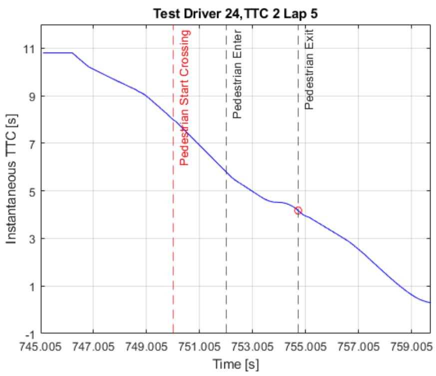

Test Driver 50, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
746.817 748.817 750.817 752.817 754.817 756.817 758.817 760.817
-1 1 3 5 7 9 11

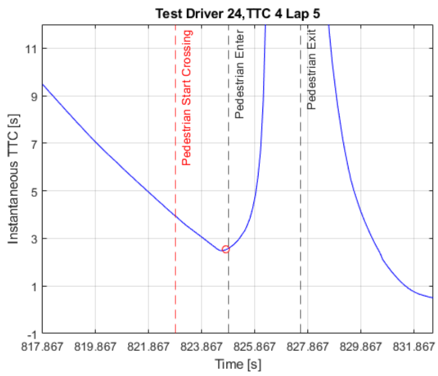
Scenario 3.

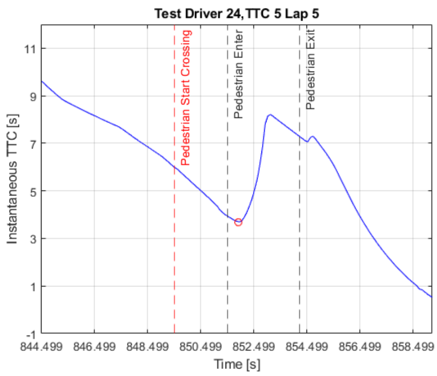

Test Driver 22, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
787.391
789.391
791.391
793.391
795.391
797.391
799.391
801.391

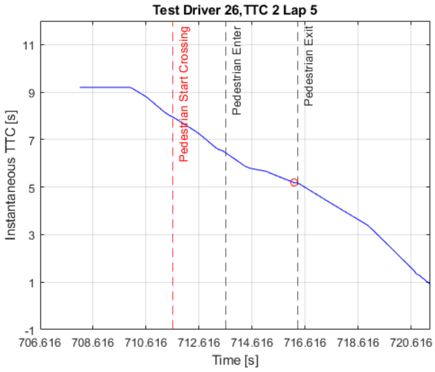

Test Driver 22, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
863.899
865.899
867.899
869.899
871.899
873.899
875.899
877.899

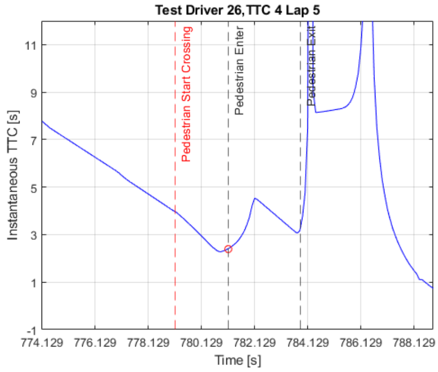

Test Driver 22, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
888.511
890.511
892.511
894.511
896.511
898.511
900.511
902.511

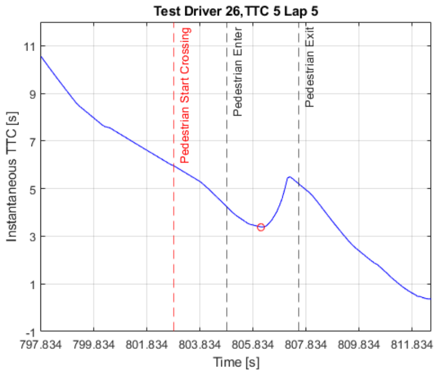

Test Driver 24, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
745.005
747.005
749.005
751.005
753.005
755.005
757.005
759.005

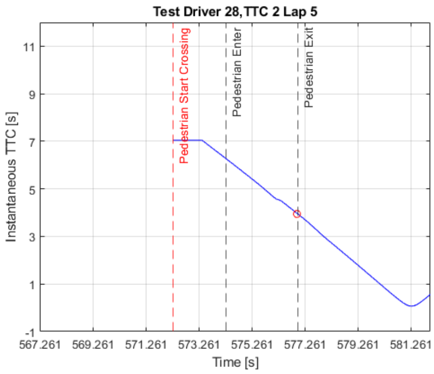

Test Driver 24, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
817.867
819.867
821.867
823.867
825.867
827.867
829.867
831.867

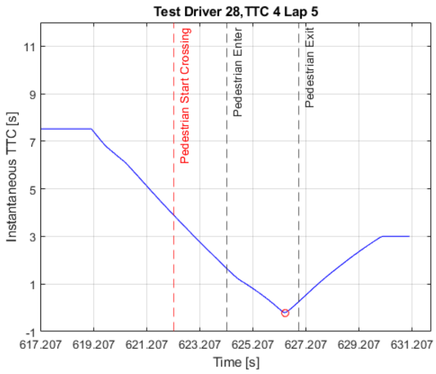

Test Driver 24, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
844.499
846.499
848.499
850.499
852.499
854.499
856.499
858.499

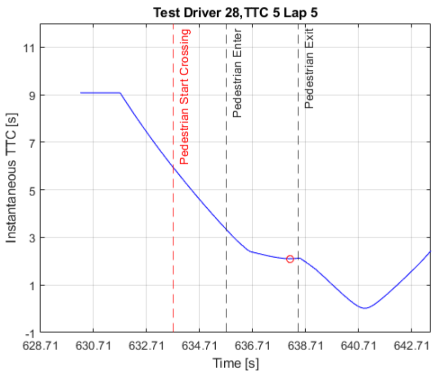

Test Driver 26, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
706.616
708.616
710.616
712.616
714.616
716.616
718.616
720.616

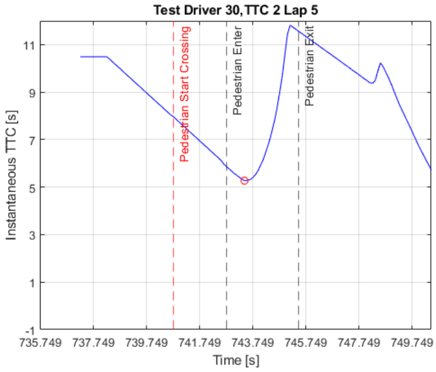

Test Driver 26, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
774.129
776.129
778.129
780.129
782.129
784.129
786.129
788.129

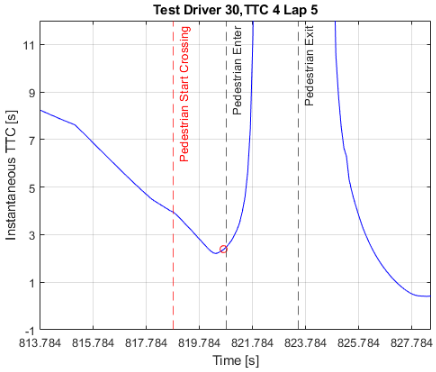

Test Driver 26, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
797.834
799.834
801.834
803.834
805.834
807.834
809.834
811.834

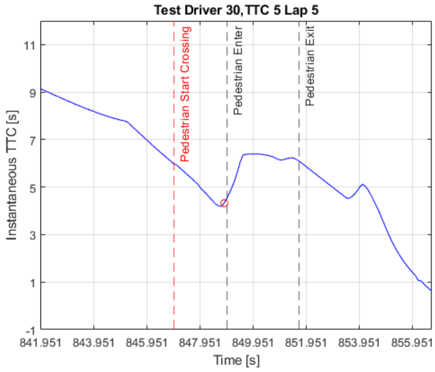

Test Driver 28, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
567.261
569.261
571.261
573.261
575.261
577.261
579.261
581.261

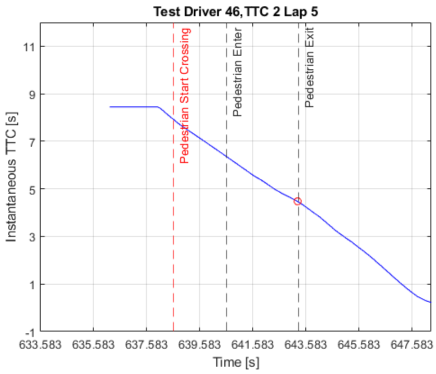

Test Driver 28, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
617.207
619.207
621.207
623.207
625.207
627.207
629.207
631.207

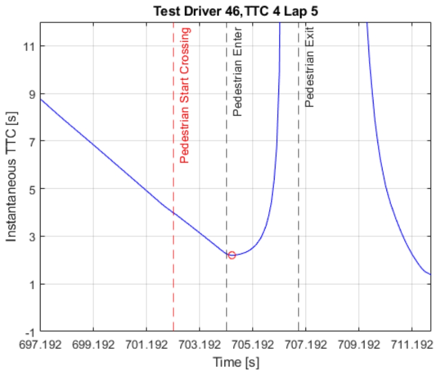

Test Driver 28, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
628.71
630.71
632.71
634.71
636.71
638.71
640.71
642.71

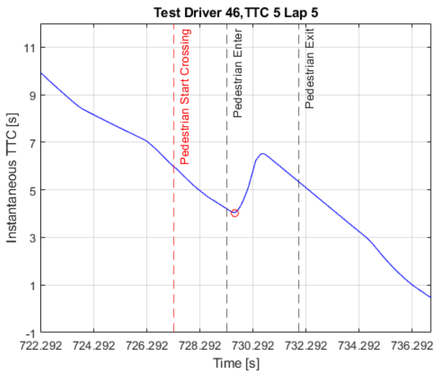

Test Driver 30, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
735.749
737.749
739.749
741.749
743.749
745.749
747.749
749.749

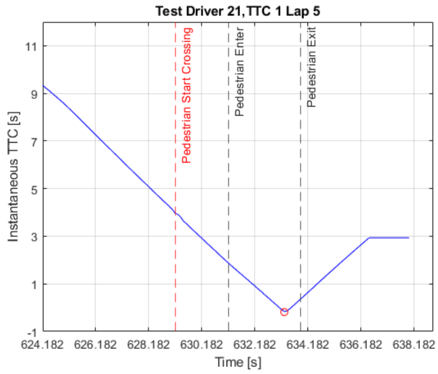

Test Driver 30, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
813.784
815.784
817.784
819.784
821.784
823.784
825.784
827.784

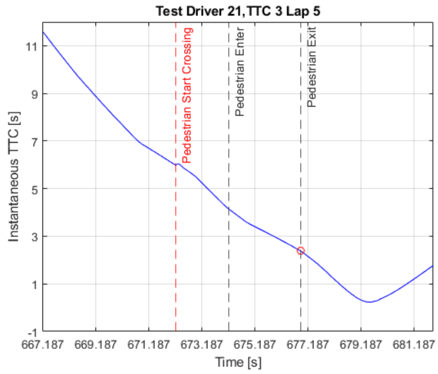

Test Driver 30, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
841.951
843.951
845.951
847.951
849.951
851.951
853.951
855.951

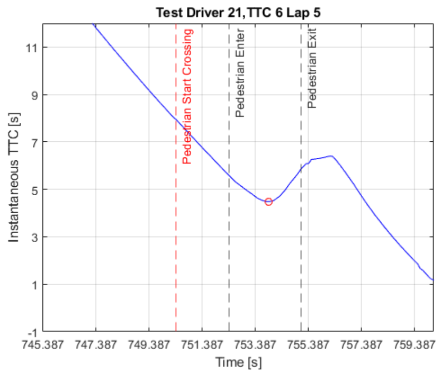

Test Driver 46, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
633.583
635.583
637.583
639.583
641.583
643.583
645.583
647.583

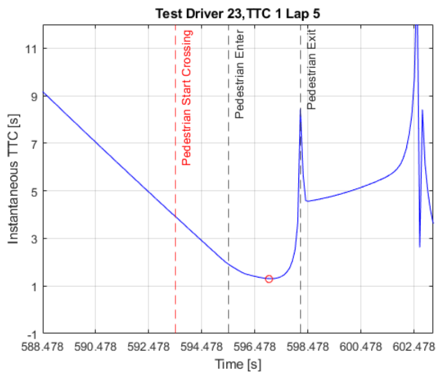

Test Driver 46, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
697.192
699.192
701.192
703.192
705.192
707.192
709.192
711.192

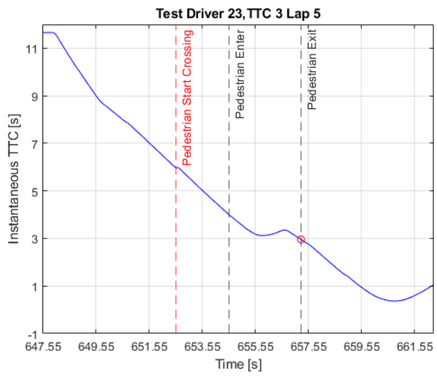

Test Driver 46, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
722.292
724.292
726.292
728.292
730.292
732.292
734.292
736.292

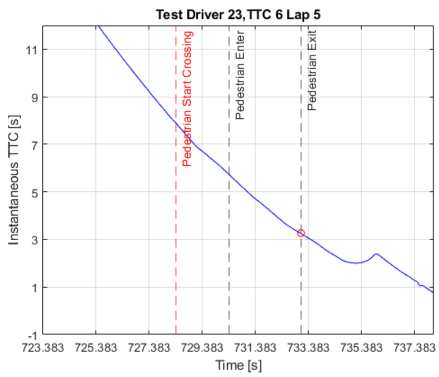

Test Driver 21, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
624.182 626.182 628.182 630.182 632.182 634.182 636.182 638.182

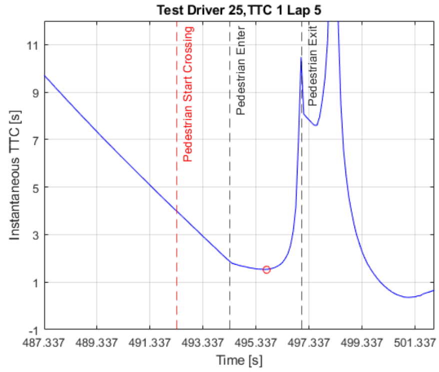

Test Driver 21, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
667.187 669.187 671.187 673.187 675.187 677.187 679.187 681.187

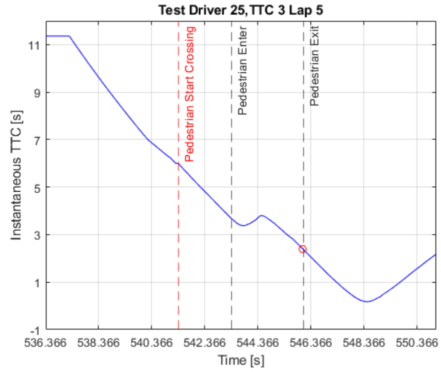

Test Driver 21, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
745.387 747.387 749.387 751.387 753.387 755.387 757.387 759.387

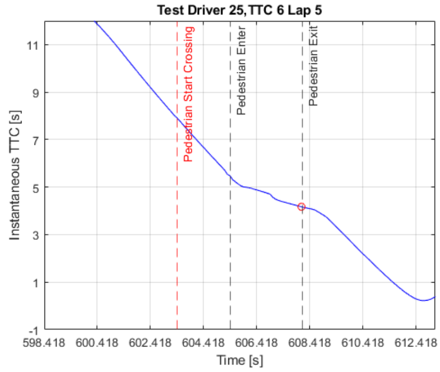

Test Driver 23, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
588.478 590.478 592.478 594.478 596.478 598.478 600.478 602.478

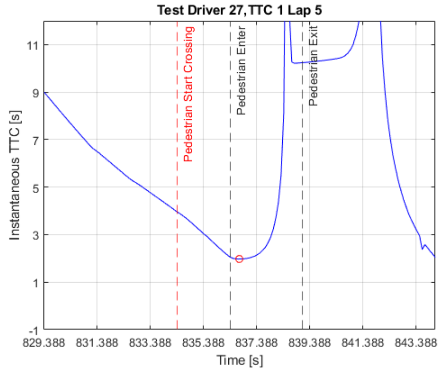

Test Driver 23, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
647.55 649.55 651.55 653.55 655.55 657.55 659.55 661.55

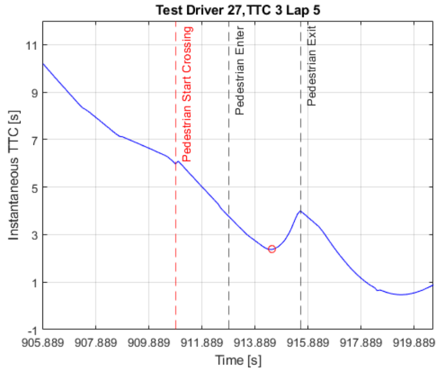

Test Driver 23, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
11
9
7
5
3
1
-1
723.383 725.383 727.383 729.383 731.383 733.383 735.383 737.383

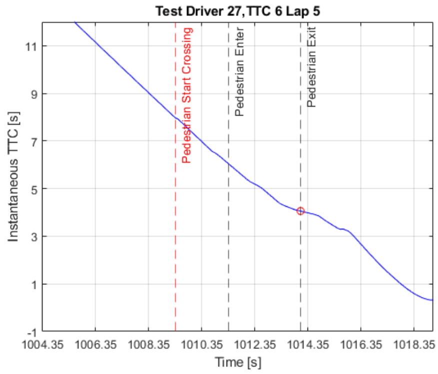

Test Driver 25,TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
487.337
489.337
491.337
493.337
495.337
497.337
499.337
501.337

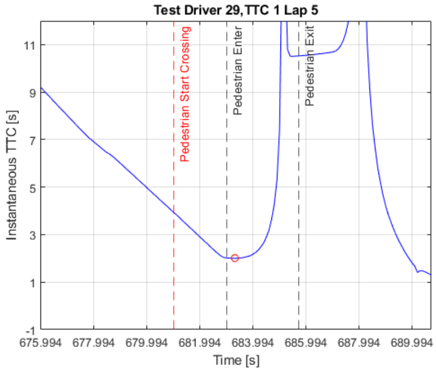

Test Driver 25,TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
536.366
538.366
540.366
542.366
544.366
546.366
548.366
550.366

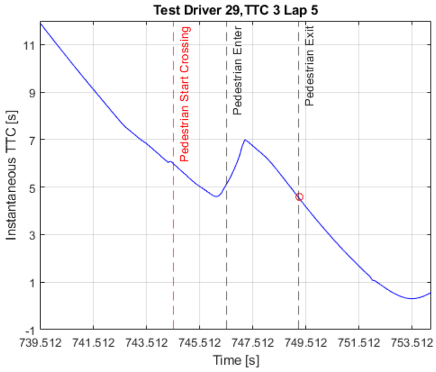

Test Driver 25,TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
598.418
600.418
602.418
604.418
606.418
608.418
610.418
612.418

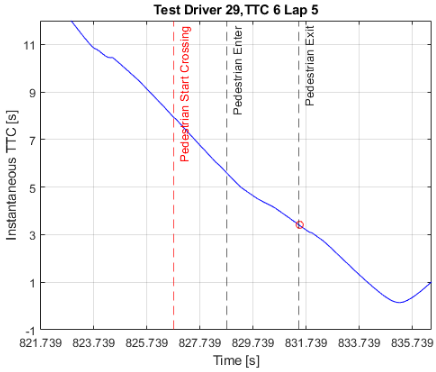

Test Driver 27,TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
829.388
831.388
833.388
835.388
837.388
839.388
841.388
843.388

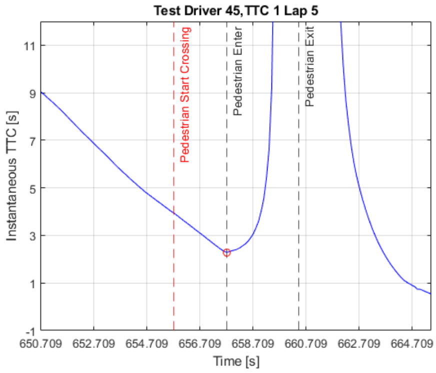

Test Driver 27,TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
905.889
907.889
909.889
911.889
913.889
915.889
917.889
919.889

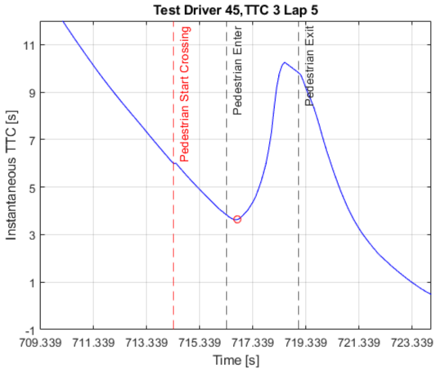

Test Driver 27,TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
1004.35
1006.35
1008.35
1010.35
1012.35
1014.35
1016.35
1018.35

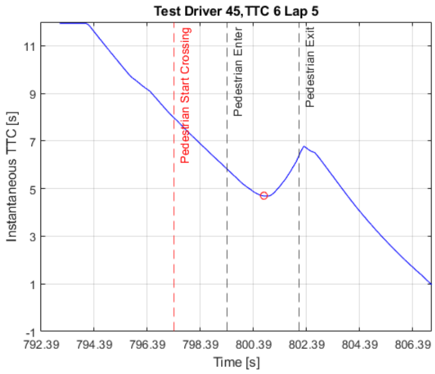

Test Driver 29, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
675.994
677.994
679.994
681.994
683.994
685.994
687.994
689.994
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

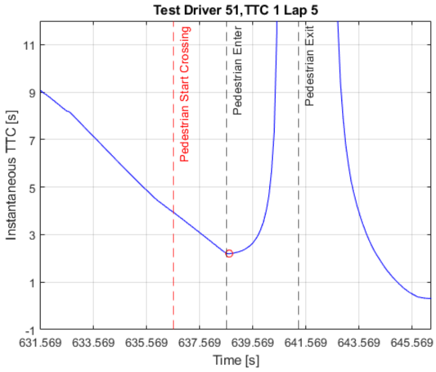

Test Driver 29, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
739.512
741.512
743.512
745.512
747.512
749.512
751.512
753.512
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

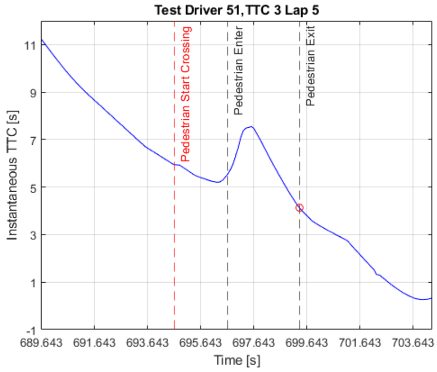

Test Driver 29, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
821.739
823.739
825.739
827.739
829.739
831.739
833.739
835.739
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

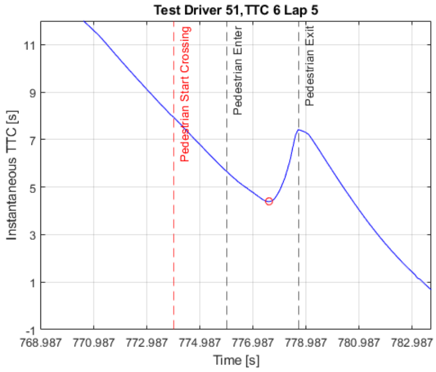

Test Driver 45, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
650.709
652.709
654.709
656.709
658.709
660.709
662.709
664.709
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit


Test Driver 45, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
709.339
711.339
713.339
715.339
717.339
719.339
721.339
723.339
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

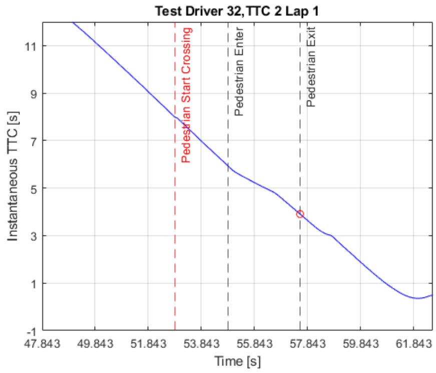

Test Driver 45, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
792.39
794.39
796.39
798.39
800.39
802.39
804.39
806.39
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

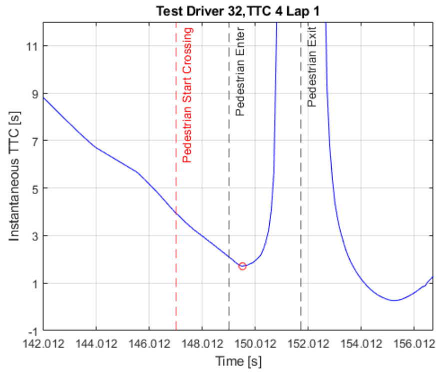

Test Driver 51, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
631.569
633.569
635.569
637.569
639.569
641.569
643.569
645.569

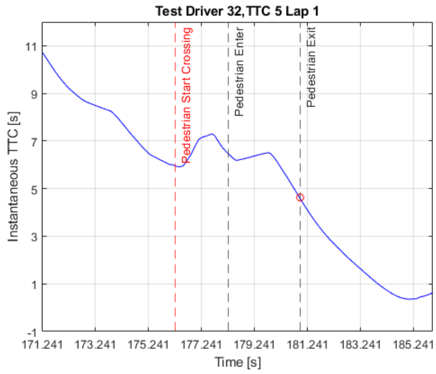

Test Driver 51, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
689.643
691.643
693.643
695.643
697.643
699.643
701.643
703.643

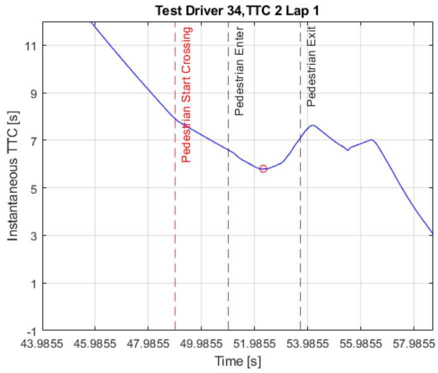

Test Driver 51, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
-1
1
3
5
7
9
11
768.987
770.987
772.987
774.987
776.987
778.987
780.987
782.987

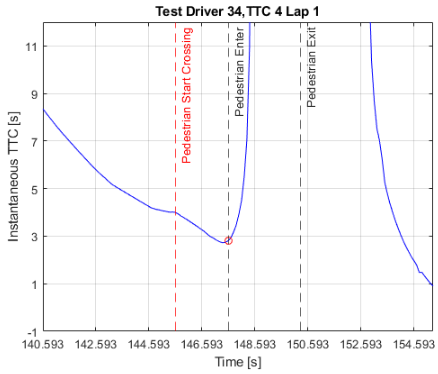
Scenario 4.

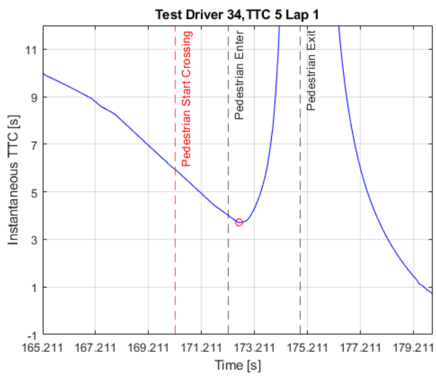

Test Driver 32, TTC 2 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

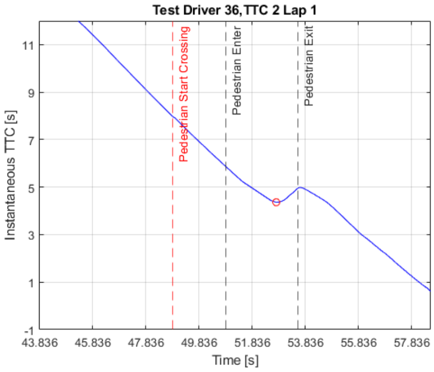

Test Driver 32, TTC 4 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

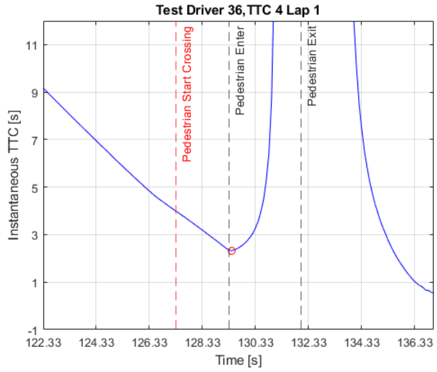

Test Driver 32, TTC 5 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

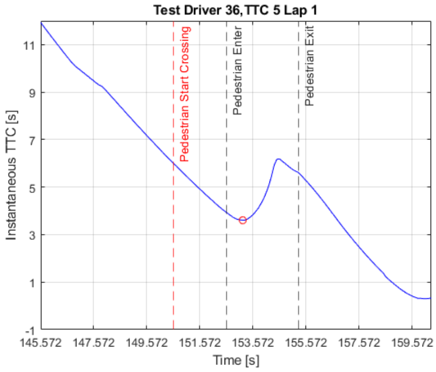

Test Driver 34, TTC 2 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

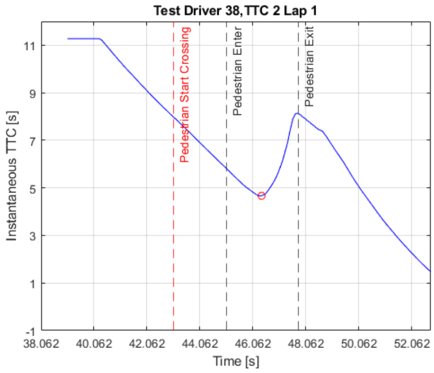

Test Driver 34, TTC 4 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

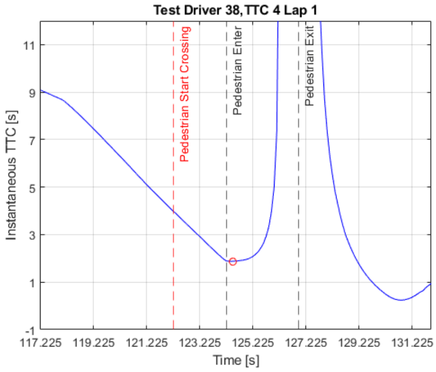

Test Driver 34, TTC 5 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

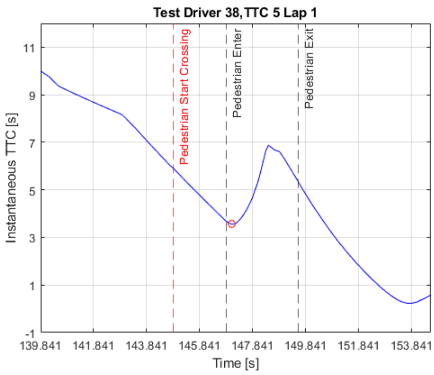

Test Driver 36,TTC 2 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
43.836 45.836 47.836 49.836 51.836 53.836 55.836 57.836
-1 1 3 5 7 9 11

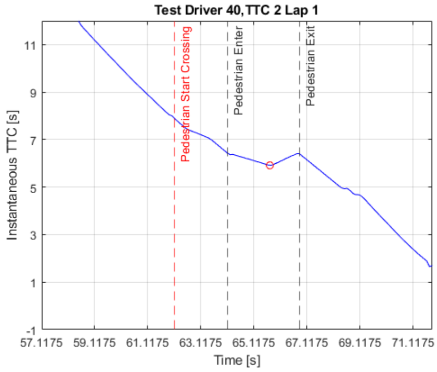

Test Driver 36,TTC 4 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
122.33 124.33 126.33 128.33 130.33 132.33 134.33 136.33
-1 1 3 5 7 9 11

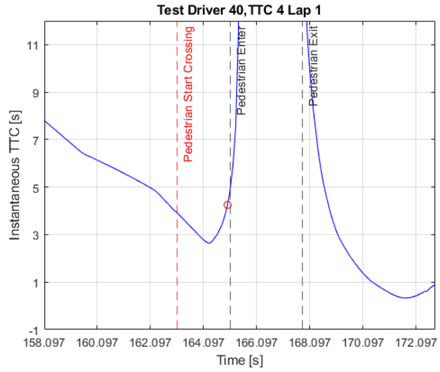

Test Driver 36,TTC 5 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
145.572 147.572 149.572 151.572 153.572 155.572 157.572 159.572
-1 1 3 5 7 9 11

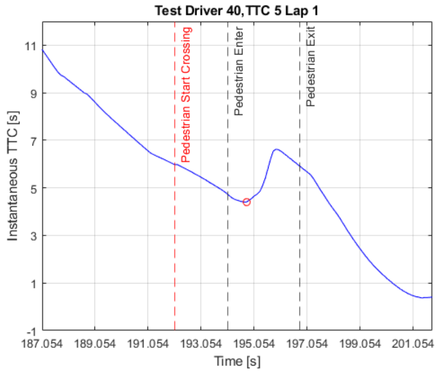

Test Driver 38,TTC 2 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
38.062 40.062 42.062 44.062 46.062 48.062 50.062 52.062
-1 1 3 5 7 9 11

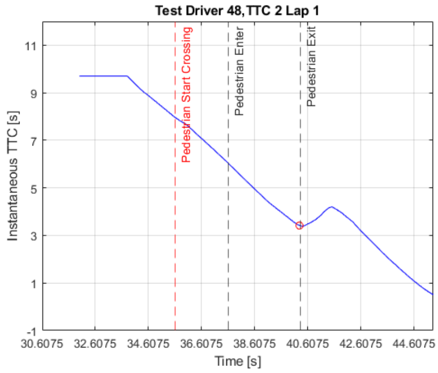

Test Driver 38,TTC 4 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
117.225 119.225 121.225 123.225 125.225 127.225 129.225 131.225
-1 1 3 5 7 9 11

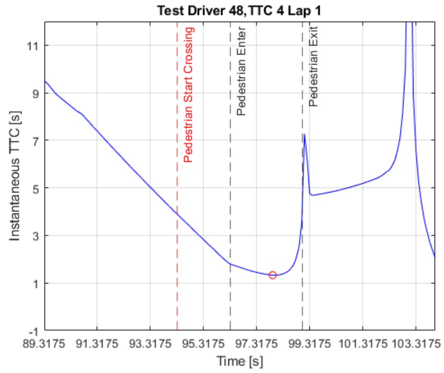

Test Driver 38,TTC 5 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
139.841 141.841 143.841 145.841 147.841 149.841 151.841 153.841
-1 1 3 5 7 9 11

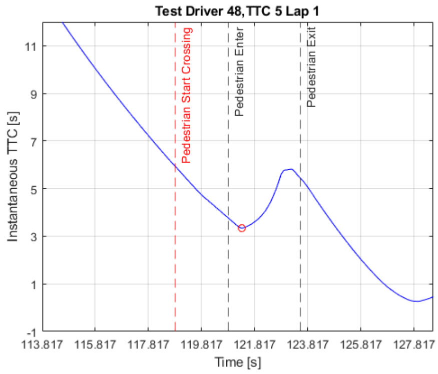

Test Driver 40, TTC 2 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

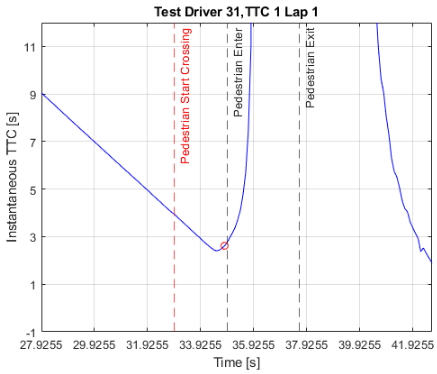

Test Driver 40, TTC 4 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

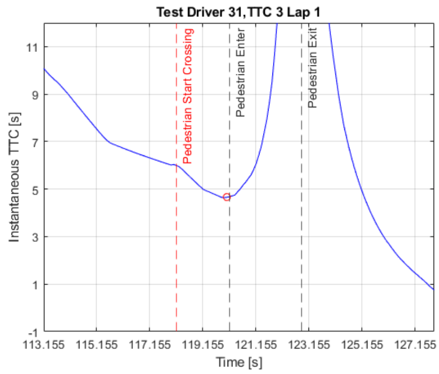

Test Driver 40, TTC 5 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

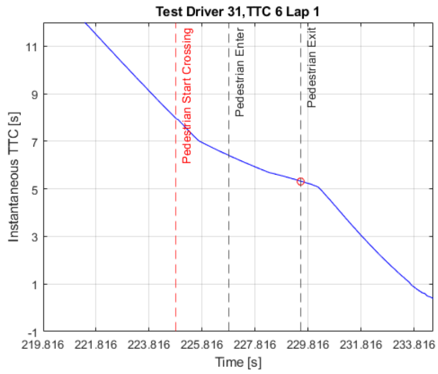

Test Driver 48, TTC 2 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

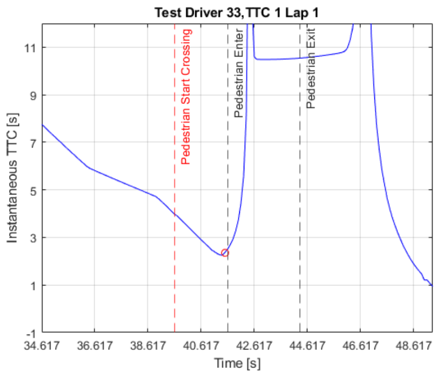

Test Driver 48, TTC 4 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

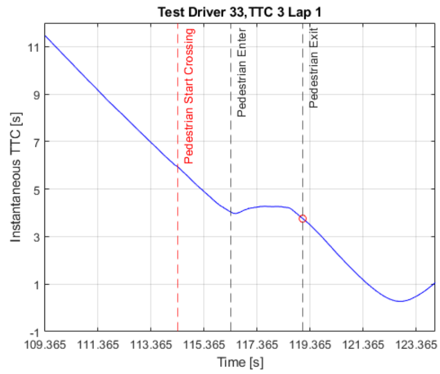

Test Driver 48, TTC 5 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]

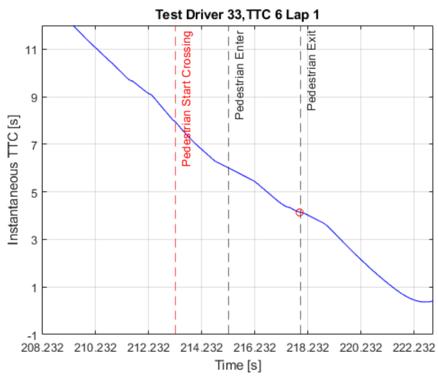

Test Driver 31, TTC 1 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

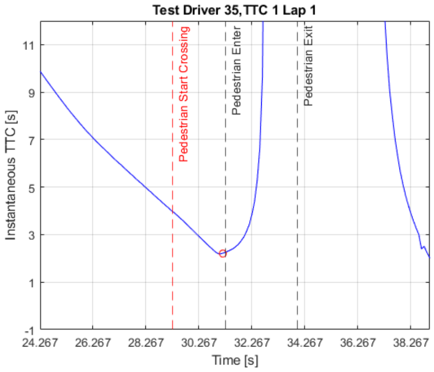

Test Driver 31, TTC 3 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

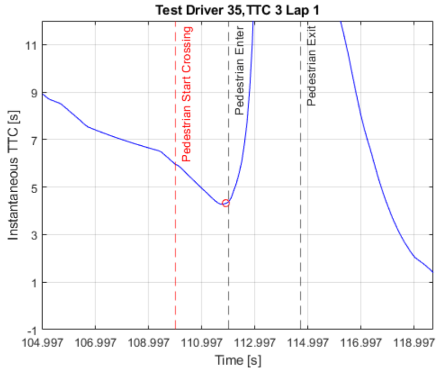

Test Driver 31, TTC 6 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

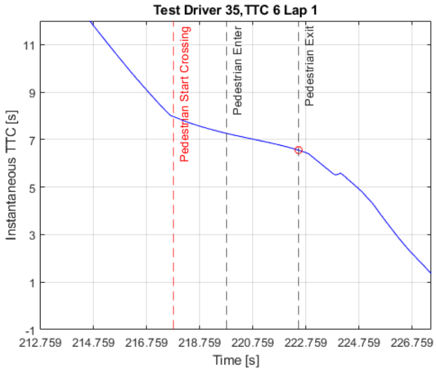

Test Driver 33, TTC 1 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

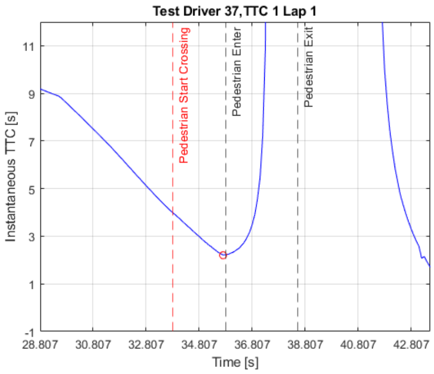

Test Driver 33, TTC 3 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

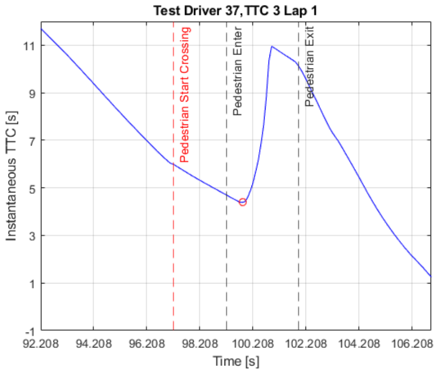

Test Driver 33, TTC 6 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit

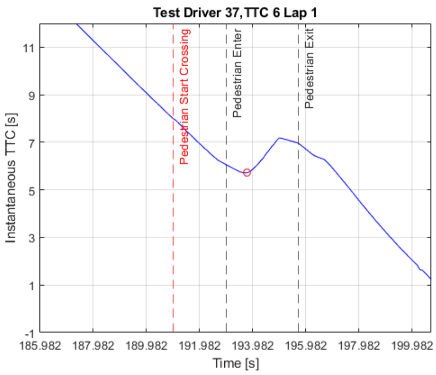

Test Driver 35,TTC 1 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
24.267
26.267
28.267
30.267
32.267
34.267
36.267
38.267

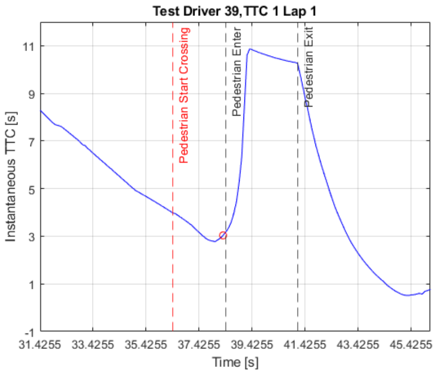

Test Driver 35,TTC 3 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
104.997
106.997
108.997
110.997
112.997
114.997
116.997
118.997

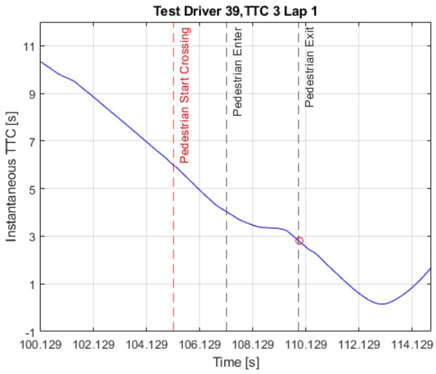

Test Driver 35,TTC 6 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
212.759
214.759
216.759
218.759
220.759
222.759
224.759
226.759

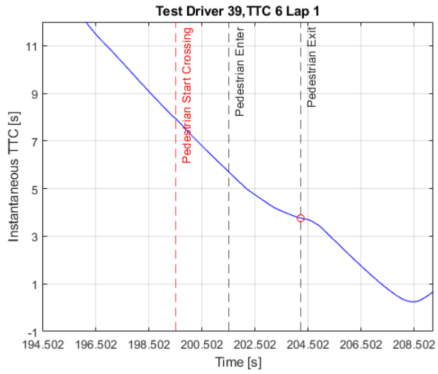

Test Driver 37,TTC 1 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
28.807
30.807
32.807
34.807
36.807
38.807
40.807
42.807

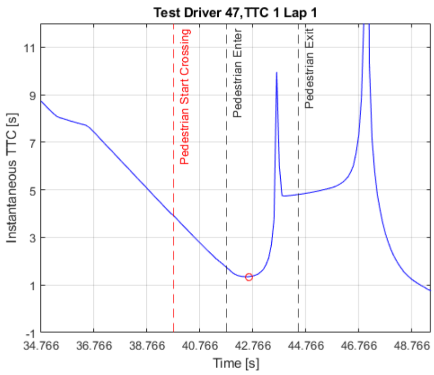

Test Driver 37,TTC 3 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
92.208
94.208
96.208
98.208
100.208
102.208
104.208
106.208

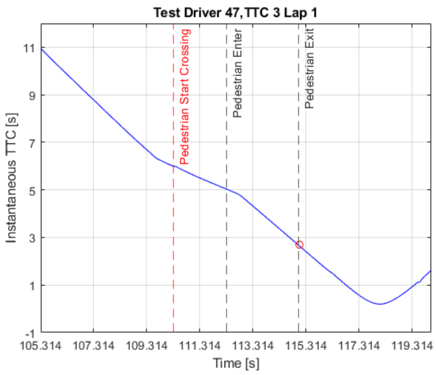

Test Driver 37,TTC 6 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
11
9
7
5
3
1
-1
185.982
187.982
189.982
191.982
193.982
195.982
197.982
199.982

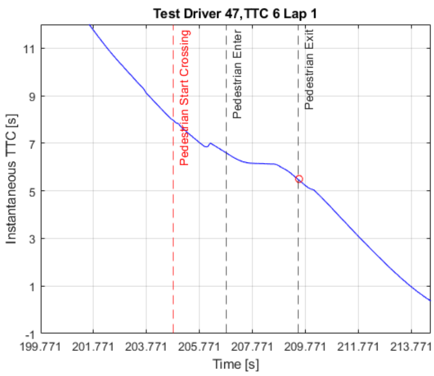

Test Driver 39, TTC 1 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
31.4255 33.4255 35.4255 37.4255 39.4255 41.4255 43.4255 45.4255
Time [s]

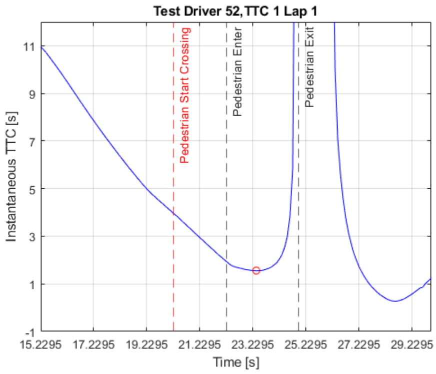

Test Driver 39, TTC 3 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
100.129 102.129 104.129 106.129 108.129 110.129 112.129 114.129
Time [s]

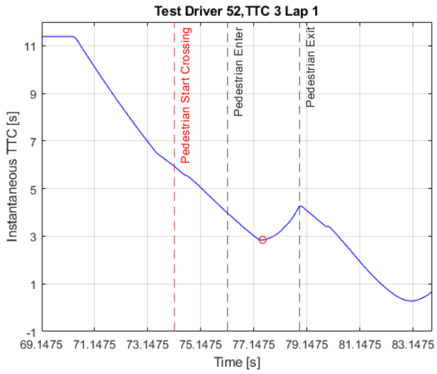

Test Driver 39, TTC 6 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
194.502 196.502 198.502 200.502 202.502 204.502 206.502 208.502
Time [s]

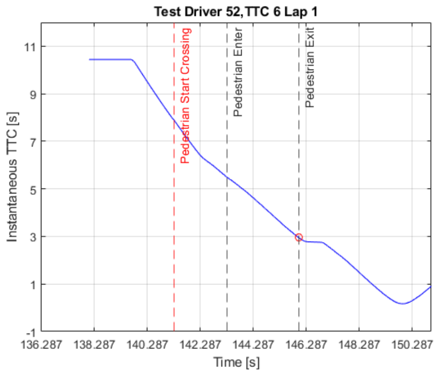

Test Driver 47, TTC 1 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
34.766 36.766 38.766 40.766 42.766 44.766 46.766 48.766
Time [s]

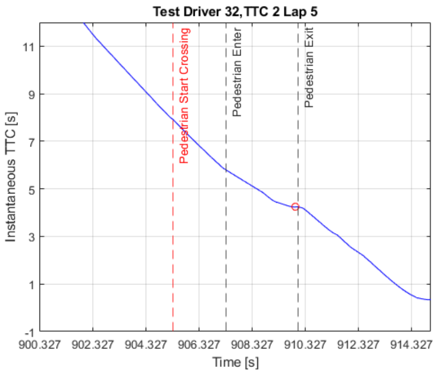

Test Driver 47, TTC 3 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
105.314 107.314 109.314 111.314 113.314 115.314 117.314 119.314
Time [s]

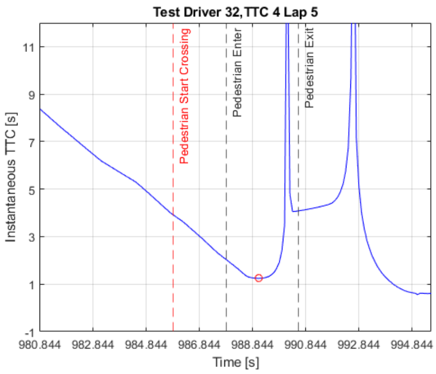

Test Driver 47, TTC 6 Lap 1
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
11
9
7
5
3
1
-1
199.771 201.771 203.771 205.771 207.771 209.771 211.771 213.771
Time [s]

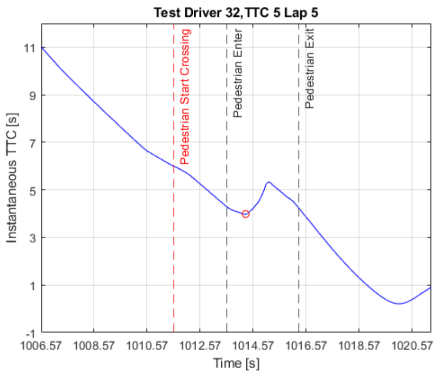

Test Driver 52, TTC 1 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
15.2295 17.2295 19.2295 21.2295 23.2295 25.2295 27.2295 29.2295
-1 1 3 5 7 9 11

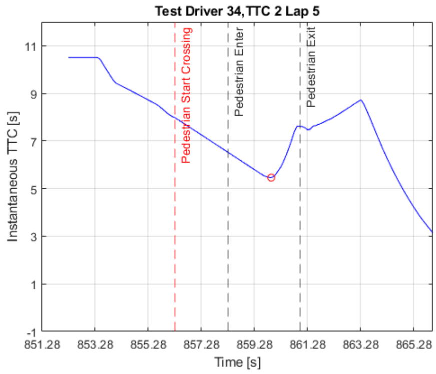

Test Driver 52, TTC 3 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
69.1475 71.1475 73.1475 75.1475 77.1475 79.1475 81.1475 83.1475
-1 1 3 5 7 9 11

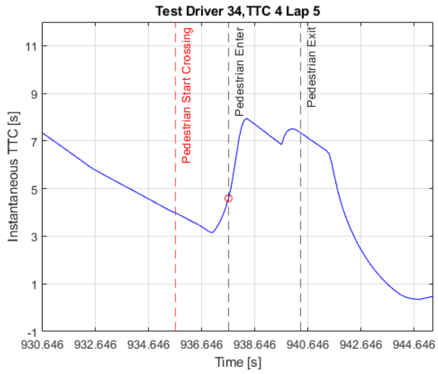

Test Driver 52, TTC 6 Lap 1
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
136.287 138.287 140.287 142.287 144.287 146.287 148.287 150.287
-1 1 3 5 7 9 11

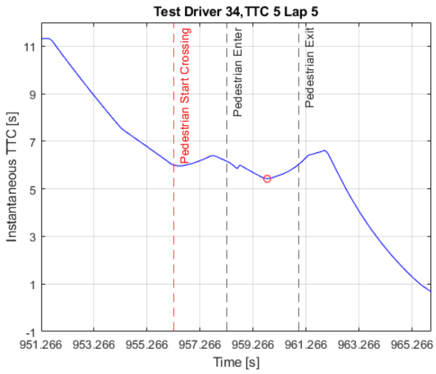

Test Driver 32, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
900.327 902.327 904.327 906.327 908.327 910.327 912.327 914.327
-1 1 3 5 7 9 11

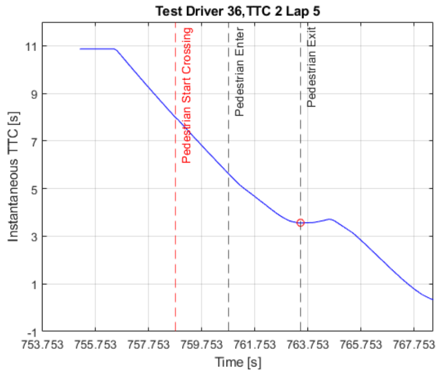

Test Driver 32, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
980.844 982.844 984.844 986.844 988.844 990.844 992.844 994.844
-1 1 3 5 7 9 11

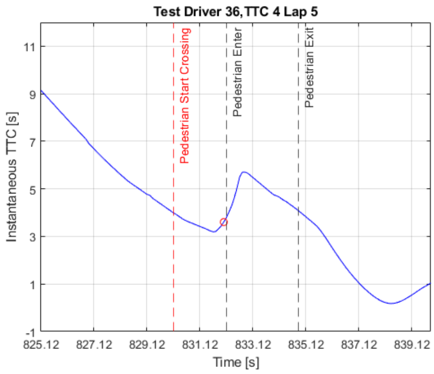

Test Driver 32, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
1006.57 1008.57 1010.57 1012.57 1014.57 1016.57 1018.57 1020.57
-1 1 3 5 7 9 11

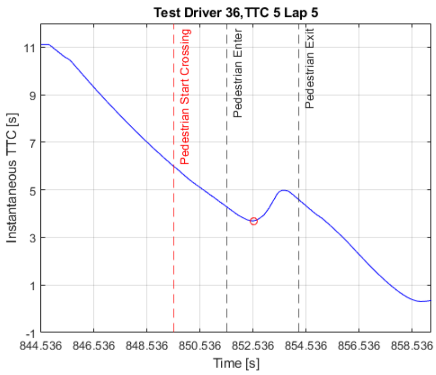

Test Driver 34, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
851.28
853.28
855.28
857.28
859.28
861.28
863.28
865.28

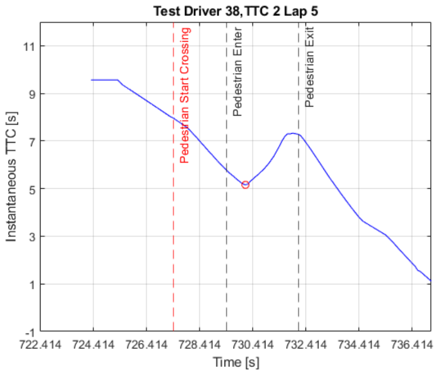

Test Driver 34, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
930.646
932.646
934.646
936.646
938.646
940.646
942.646
944.646

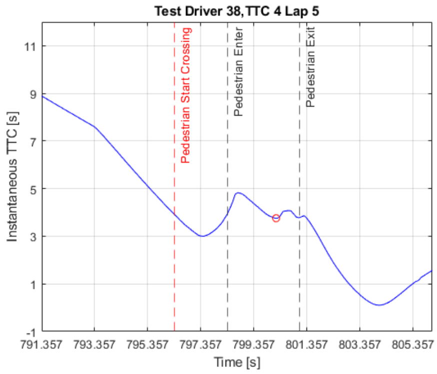

Test Driver 34, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
951.266
953.266
955.266
957.266
959.266
961.266
963.266
965.266

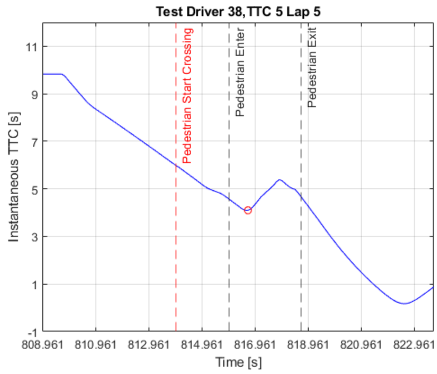

Test Driver 36, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
753.753
755.753
757.753
759.753
761.753
763.753
765.753
767.753

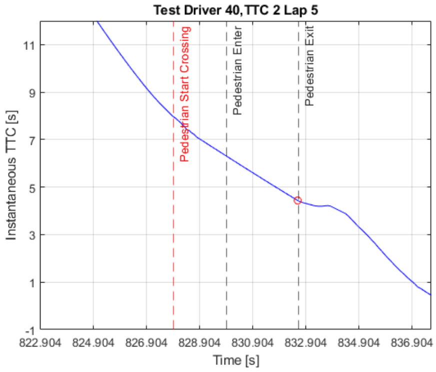

Test Driver 36, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
825.12
827.12
829.12
831.12
833.12
835.12
837.12
839.12

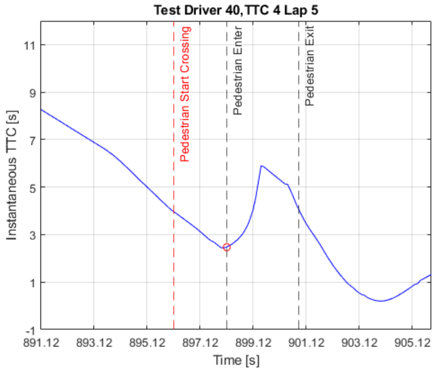

Test Driver 36, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
844.536
846.536
848.536
850.536
852.536
854.536
856.536
858.536

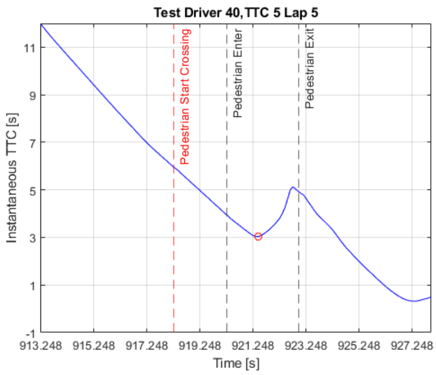

Test Driver 38, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
722.414
724.414
726.414
728.414
730.414
732.414
734.414
736.414

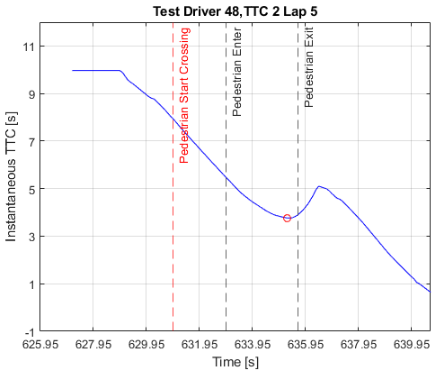

Test Driver 38, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
791.357
793.357
795.357
797.357
799.357
801.357
803.357
805.357

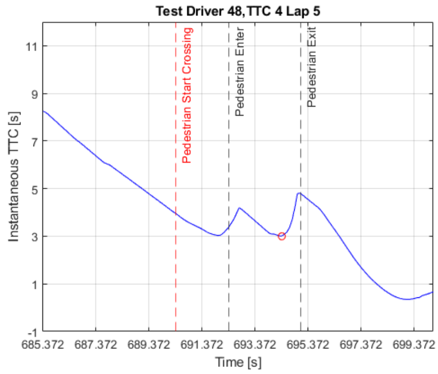

Test Driver 38, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
808.961
810.961
812.961
814.961
816.961
818.961
820.961
822.961

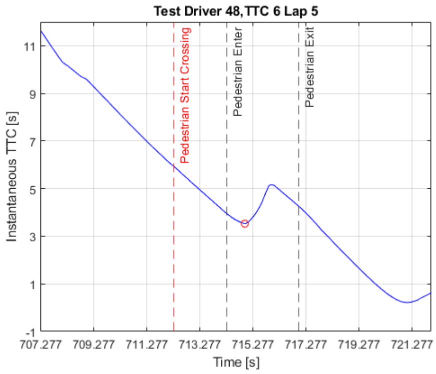

Test Driver 40, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
822.904
824.904
826.904
828.904
830.904
832.904
834.904
836.904

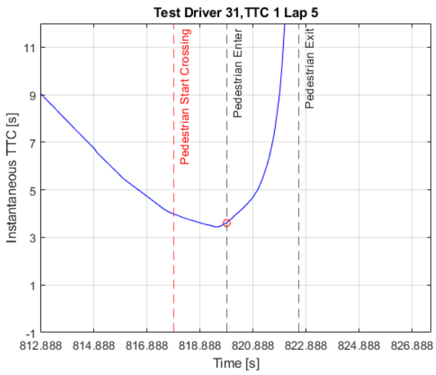

Test Driver 40, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
891.12
893.12
895.12
897.12
899.12
901.12
903.12
905.12

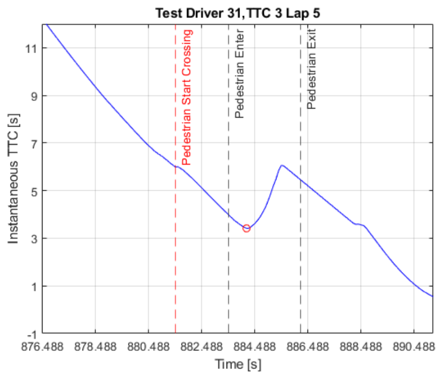

Test Driver 40, TTC 5 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
913.248
915.248
917.248
919.248
921.248
923.248
925.248
927.248

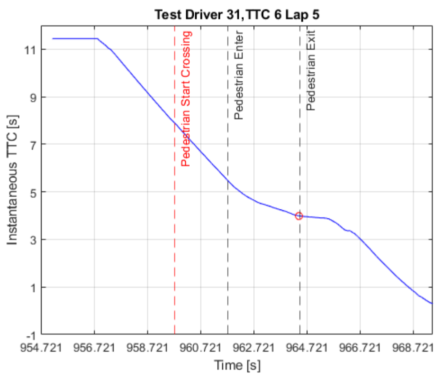

Test Driver 48, TTC 2 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
625.95
627.95
629.95
631.95
633.95
635.95
637.95
639.95

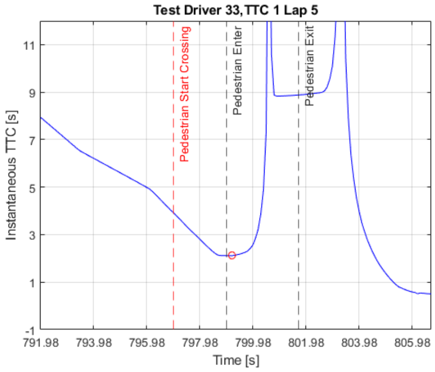

Test Driver 48, TTC 4 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
685.372
687.372
689.372
691.372
693.372
695.372
697.372
699.372

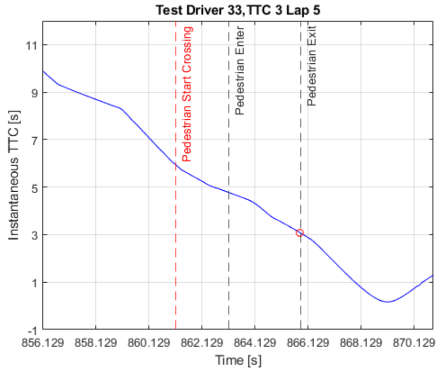

Test Driver 48, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
707.277
709.277
711.277
713.277
715.277
717.277
719.277
721.277

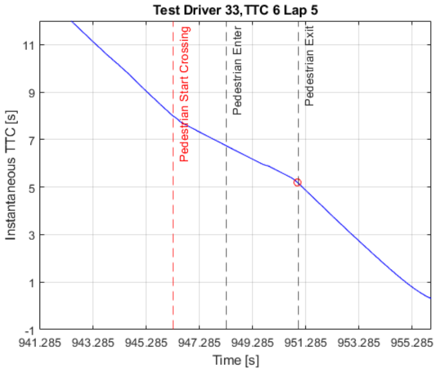

Test Driver 31, TTC 1 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
812.888
814.888
816.888
818.888
820.888
822.888
824.888
826.888

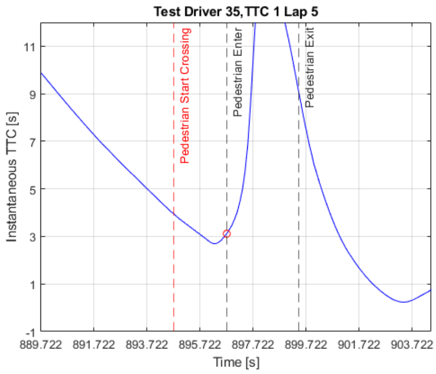

Test Driver 31, TTC 3 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
876.488
878.488
880.488
882.488
884.488
886.488
888.488
890.488

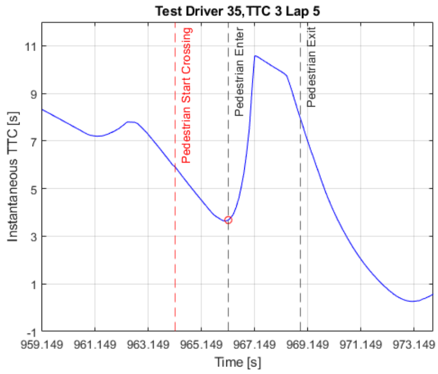

Test Driver 31, TTC 6 Lap 5
Instantaneous TTC [s]
Time [s]
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
-1
1
3
5
7
9
11
954.721
956.721
958.721
960.721
962.721
964.721
966.721
968.721

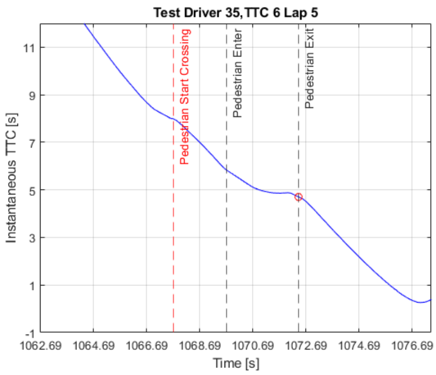

Test Driver 33, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
791.98 793.98 795.98 797.98 799.98 801.98 803.98 805.98

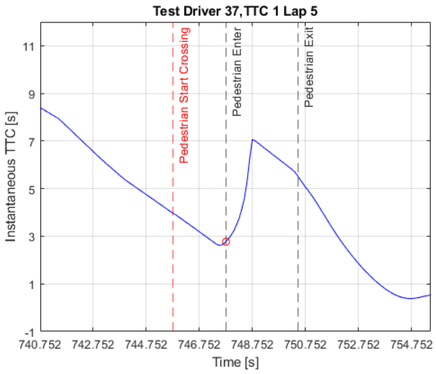

Test Driver 33, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
856.129 858.129 860.129 862.129 864.129 866.129 868.129 870.129

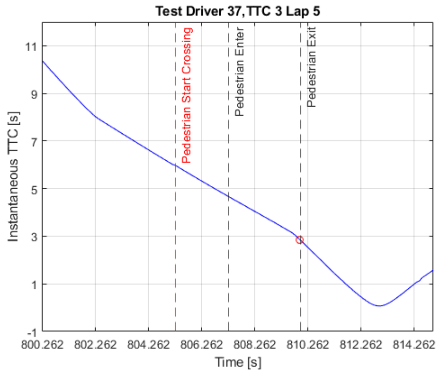

Test Driver 33, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
941.285 943.285 945.285 947.285 949.285 951.285 953.285 955.285

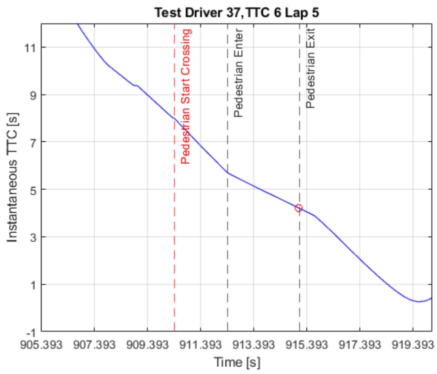

Test Driver 35, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
889.722 891.722 893.722 895.722 897.722 899.722 901.722 903.722

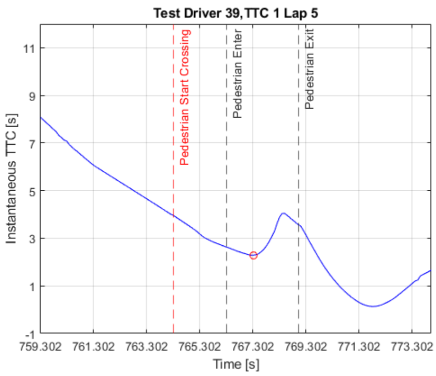

Test Driver 35, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
959.149 961.149 963.149 965.149 967.149 969.149 971.149 973.149

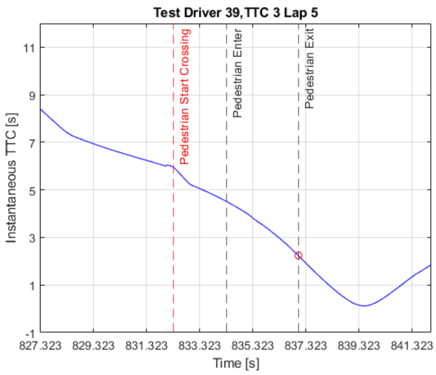

Test Driver 35, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
1062.69 1064.69 1066.69 1068.69 1070.69 1072.69 1074.69 1076.69

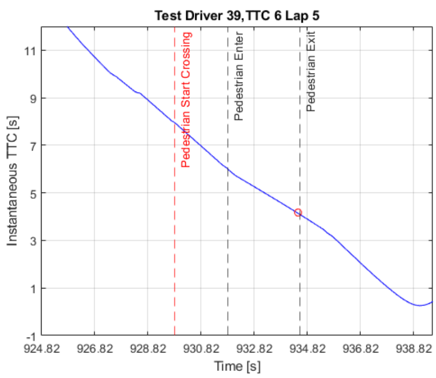

Test Driver 37, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
740.752 742.752 744.752 746.752 748.752 750.752 752.752 754.752
-1 1 3 5 7 9 11

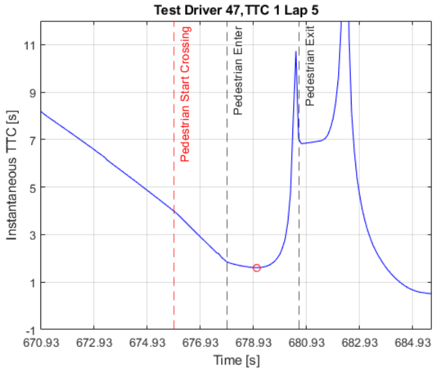

Test Driver 37, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
800.262 802.262 804.262 806.262 808.262 810.262 812.262 814.262
-1 1 3 5 7 9 11

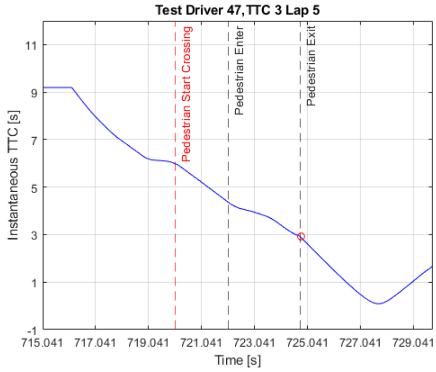

Test Driver 37, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
905.393 907.393 909.393 911.393 913.393 915.393 917.393 919.393
-1 1 3 5 7 9 11

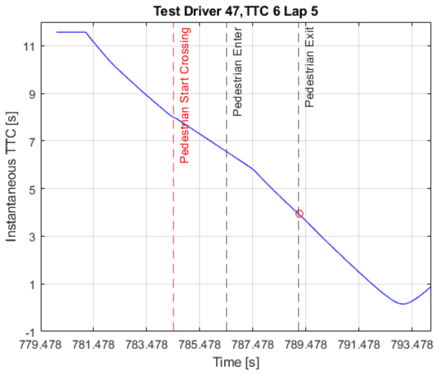

Test Driver 39, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
759.302 761.302 763.302 765.302 767.302 769.302 771.302 773.302
-1 1 3 5 7 9 11

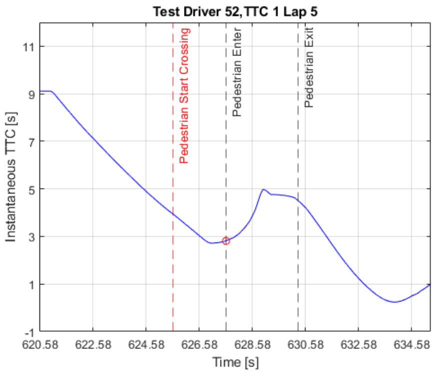

Test Driver 39, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
827.323 829.323 831.323 833.323 835.323 837.323 839.323 841.323
-1 1 3 5 7 9 11

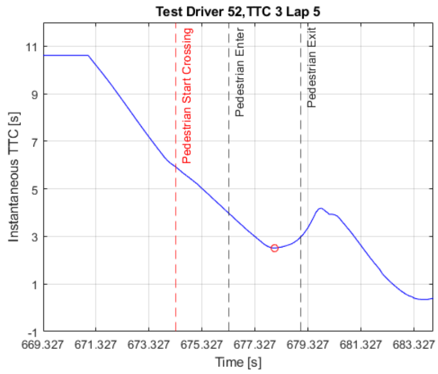

Test Driver 39, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
924.82 926.82 928.82 930.82 932.82 934.82 936.82 938.82
-1 1 3 5 7 9 11

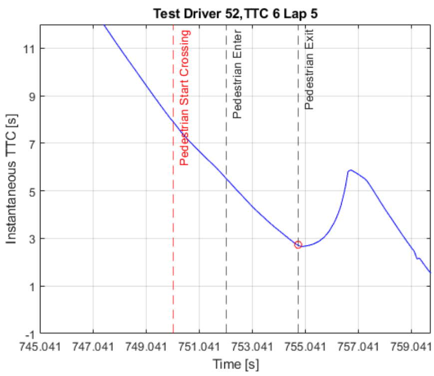

Test Driver 47, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
670.93 672.93 674.93 676.93 678.93 680.93 682.93 684.93


Test Driver 47, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
715.041 717.041 719.041 721.041 723.041 725.041 727.041 729.041


Test Driver 47, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
779.478 781.478 783.478 785.478 787.478 789.478 791.478 793.478


Test Driver 52, TTC 1 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
620.58 622.58 624.58 626.58 628.58 630.58 632.58 634.58


Test Driver 52, TTC 3 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
669.327 671.327 673.327 675.327 677.327 679.327 681.327 683.327


Test Driver 52, TTC 6 Lap 5
Pedestrian Start Crossing
Pedestrian Enter
Pedestrian Exit
Instantaneous TTC [s]
Time [s]
745.041 747.041 749.041 751.041 753.041 755.041 757.041 759.041

E. PET results.

This attachment includes tables containing PET results for each scenario. The green cells indicate that the "safe" traffic event, the red highlights crashes.

Scenario 1		LAP 5					
		Crossing_ID					
TD	At conflict point	***1***	***2***	***3***	***4***	***5***	***6***
1	*PedTime*	09:22.294	-	10:10.594	-	-	11:11.093
	VehTime	09:26.094	-	10:14.393	-	-	11:14.993
	PET	03.800	-	03.799	-	-	03.900
2	*PedTime*	-	09:27.093	-	10:25.992	10:45.842	-
	VehTime	-	09:31.143	-	10:25.992	10:50.642	-
	PET	-	04.050	-	00.000	04.800	-
3	*PedTime*	09:23.892	-	10:11.341	-	-	11:14.240
	VehTime	09:28.492	-	10:14.741	-	-	11:17.641
	PET	04.600	-	03.400	-	-	03.401
4	*PedTime*	-	12:49.794	-	14:01.094	14:21.694	-
	VehTime	-	12:54.294	-	14:04.844	14:24.794	-
	PET	-	04.500	-	03.750	03.100	-
5	*PedTime*	10:05.341	-	10:57.740	-	-	12:09.240
	VehTime	10:10.490	-	11:00.540	-	-	12:13.289
	PET	05.149	-	02.800	-	-	04.049
6	*PedTime*	-	07:52.004	-	08:39.994	09:00.893	-
	VehTime	-	07:56.544	-	08:39.994	09:07.393	-
	PET	-	04.540	-	00.000	06.500	-
7	*PedTime*	12:12.143	-	13:12.292	-	-	14:36.742
	VehTime	12:15.793	-	13:16.793	-	-	14:41.592
	PET	03.650	-	04.501	-	-	04.850
8	*PedTime*	-	12:59.094	-	14:17.244	14:43.893	-
	VehTime	-	13:07.194	-	14:21.643	14:51.294	-
	PET	-	08.100	-	04.399	07.401	-
9	*PedTime*	10:23.140	-	11:21.439	-	-	12:41.489
	VehTime	10:27.190	-	11:25.740	-	-	12:46.838
	PET	04.050	-	04.301	-	-	05.349
10	*PedTime*	-	09:05.489	-	09:57.338	10:15.138	-
	VehTime	-	09:09.989	-	09:57.338	10:18.388	-
	PET	-	04.500	-	00.000	03.250	-
41	*PedTime*	09:52.842	-	10:46.042	-	-	11:56.391
	VehTime	09:54.142	-	10:49.641	-	-	12:00.740
	PET	01.300	-	03.599	-	-	04.349
42	*PedTime*	-	09:51.544	-	10:55.095	11:17.543	-
	VehTime	-	09:58.294	-	10:58.794	11:22.543	-
	PET	-	06.750	-	03.699	05.000	-
49	*PedTime*	08:21.696	-	09:04.000	-	-	10:01.594
	VehTime	08:21.696	-	09:06.895	-	-	10:04.395
	PET	00.000	-	02.895	-	-	02.801

Scenario 2		LAP 1					
		Crossing_ID					
TD	At conflict Point	*1*	*2*	*3*	*4*	*5*	*6*
11	*PedTime*	00:31.350	-	01:21.349	-	-	02:40.148
	VehTime	00:31.350	-	01:25.398	-	-	02:44.548
	PET	00.000	-	04.049	-	-	04.400
12	*PedTime*	-	00:43.899	-	02:03.498	02:27.948	-
	VehTime	-	00:51.149	-	02:09.398	02:32.147	-
	PET	-	07.250	-	05.900	04.199	-
13	*PedTime*	00:28.149	-	01:26.549	-	-	02:46.147
	VehTime	00:35.249	-	01:30.149	-	-	02:53.098
	PET	07.100	-	03.600	-	-	06.951
14	*PedTime*	-	00:58.799	-	02:18.598	02:41.748	-
	VehTime	-	01:05.850	-	02:22.098	02:47.298	-
	PET	-	07.051	-	03.500	05.550	-
15	*PedTime*	00:33.099	-	01:38.448	-	-	03:04.146
	VehTime	00:37.349	-	01:42.547	-	-	03:09.296
	PET	04.250	-	04.099	-	-	05.150
16	*PedTime*	-	00:34.399	-	01:24.448	01:41.148	-
	VehTime	-	00:40.998	-	01:24.448	01:45.048	-
	PET	-	06.599	-	00.000	03.900	-
17	*PedTime*	00:39.199	-	01:44.698	-	-	03:15.247
	VehTime	00:44.349	-	01:49.648	-	-	03:20.547
	PET	05.150	-	04.950	-	-	05.300
18	*PedTime*	-	00:59.849	-	02:07.898	02:33.298	-
	VehTime	-	01:03.649	-	02:11.798	02:37.598	-
	PET	-	03.800	-	03.900	04.300	-
19	*PedTime*	00:37.848	-	01:48.997	-	-	02:57.196
	VehTime	00:44.448	-	01:53.597	-	-	03:03.746
	PET	06.600	-	04.600	-	-	06.550
20	*PedTime*	-	00:53.399	-	02:17.898	02:49.298	-
	VehTime	-	01:01.249	-	02:24.248	02:54.047	-
	PET	-	07.850	-	06.350	04.749	-
43	*PedTime*	00:23.449	-	01:04.099	-	-	01:58.348
	VehTime	00:26.950	-	01:07.999	-	-	02:04.197
	PET	03.501	-	03.900	-	-	05.849
44	*PedTime*	-	00:38.349	-	01:59.648	02:23.747	-
	VehTime	-	00:45.749	-	02:05.798	02:29.647	-
	PET	-	07.400	-	06.150	05.900	-
50	*PedTime*	00:27.500	-	01:22.990	-	-	02:35.348
	VehTime	00:27.500	-	01:28.249	-	-	02:39.148
	PET	00.000	-	05.259	-	-	03.800

Scenario 2		LAP 5					
		Crossing_ID					
TD	At conflict Point	***1***	***2***	***3***	***4***	***5***	***6***
11	*PedTime*	11:55.741	-	12:49.390	-	-	14:07.290
	VehTime	11:59.591	-	12:52.441	-	-	14:12.690
	PET	03.850	-	03.051	-	-	05.400
12	*PedTime*	-	11:48.490	-	12:50.588	13:18.788	-
	VehTime	-	11:52.739	-	12:58.938	13:22.738	-
	PET	-	04.249	-	08.350	03.950	-
13	*PedTime*	11:49.343	-	12:41.792	-	-	13:51.892
	VehTime	11:52.243	-	12:45.592	-	-	13:57.542
	PET	02.900	-	03.800	-	-	05.650
14	*PedTime*	-	11:53.491	-	12:55.791	13:17.641	-
	VehTime	-	11:58.441	-	12:59.541	13:21.740	-
	PET	-	04.950	-	03.750	04.099	-
15	*PedTime*	11:46.486	-	12:45.985	-	-	14:04.934
	VehTime	11:50.636	-	12:48.734	-	-	14:09.283
	PET	04.150	-	02.749	-	-	04.349
16	*PedTime*	-	08:56.440	-	09:56.889	10:14.639	-
	VehTime	-	09:02.440	-	10:00.238	10:19.638	-
	PET	-	06.000	-	03.349	04.999	-
17	*PedTime*	12:22.689	-	13:16.288	-	-	14:32.987
	VehTime	12:24.939	-	13:20.289	-	-	14:39.587
	PET	02.250	-	04.001	-	-	06.600
18	*PedTime*	-	11:31.444	-	12:38.744	12:57.794	-
	VehTime	-	11:38.295	-	12:41.944	13:01.994	-
	PET	-	06.851	-	03.200	04.200	-
19	*PedTime*	10:30.640	-	11:21.990	-	-	12:32.589
	VehTime	10:33.589	-	11:25.489	-	-	12:39.488
	PET	02.949	-	03.499	-	-	06.899
20	*PedTime*	-	13:08.238	-	14:17.087	14:42.587	-
	VehTime	-	13:13.788	-	14:20.687	14:46.387	-
	PET	-	05.550	-	03.600	03.800	-
43	*PedTime*	08:23.892	-	09:03.690	-	-	09:59.939
	VehTime	08:24.292	-	09:06.840	-	-	10:03.240
	PET	00.400	-	03.150	-	-	03.301
44	*PedTime*	-	13:19.686	-	14:35.484	14:59.084	-
	VehTime	-	13:26.036	-	14:39.534	15:02.734	-
	PET	-	06.350	-	04.050	03.650	-
50	*PedTime*	10:39.194	-	11:30.794	-	-	12:36.343
	VehTime	10:43.293	-	11:34.144	-	-	12:39.993
	PET	04.099	-	03.350	-	-	03.650

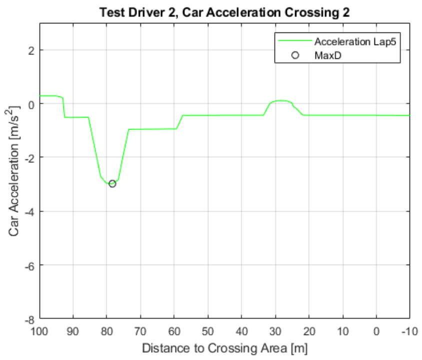
Scenario 3		LAP 5					
		Crossing ID					
TD	At conflict point	**1**	**2**	**3**	**4**	**5**	**6**
21	*PedTime*	10:33.142	-	11:15.791	-	-	12:35.091
	VehTime	10:33.142	-	11:19.141	-	-	12:40.940
	PET	00.000	-	03.350	-	-	05.849
22	*PedTime*	-	13:17.094	-	14:33.644	14:58.193	-
	VehTime	-	13:22.895	-	14:38.693	15:02.743	-
	PET	-	05.801	-	05.049	04.550	-
23	*PedTime*	09:57.744	-	10:56.044	-	-	12:12.343
	VehTime	10:04.294	-	11:00.243	-	-	12:18.143
	PET	06.550	-	04.199	-	-	05.800
24	*PedTime*	-	12:34.736	-	13:47.534	14:14.235	-
	VehTime	-	12:39.286	-	13:52.135	14:19.234	-
	PET	-	04.550	-	04.601	04.999	-
25	*PedTime*	08:17.047	-	09:04.996	-	-	10:08.095
	VehTime	08:20.396	-	09:08.096	-	-	10:12.345
	PET	03.349	-	03.100	-	-	04.250
26	*PedTime*	-	11:56.339	-	13:03.638	13:27.588	-
	VehTime	-	12:01.939	-	13:08.888	13:31.988	-
	PET	-	05.600	-	05.250	04.400	-
27	*PedTime*	13:58.840	-	15:14.638	-	-	16:54.138
	VehTime	14:04.989	-	15:18.438	-	-	16:58.537
	PET	06.149	-	03.800	-	-	04.399
28	*PedTime*	-	09:37.943	-	10:26.092	10:38.242	-
	VehTime	-	09:41.043	-	10:26.092	10:40.542	-
	PET	-	03.100	-	00.000	02.300	-
29	*PedTime*	11:25.590	-	12:28.138	-	-	13:51.187
	VehTime	11:31.339	-	12:32.889	-	-	13:54.937
	PET	05.749	-	04.751	-	-	03.750
30	*PedTime*	-	12:26.444	-	13:44.494	14:12.644	-
	VehTime	-	12:34.333	-	13:47.745	14:16.791	-
	PET	-	07.889	-	03.251	04.147	-
45	*PedTime*	10:59.990	-	11:58.089	-	-	13:21.938
	VehTime	11:05.140	-	12:03.789	-	-	13:27.839
	PET	05.150	-	05.700	-	-	05.901
46	*PedTime*	-	10:43.191	-	11:46.890	12:12.039	-
	VehTime	-	10:47.940	-	11:52.640	12:16.839	-
	PET	-	04.749	-	05.750	04.800	-
51	*PedTime*	10:41.143	-	11:38.393	-	-	12:58.642
	VehTime	10:45.594	-	11:43.243	-	-	13:04.092
	PET	04.451	-	04.850	-	-	05.450

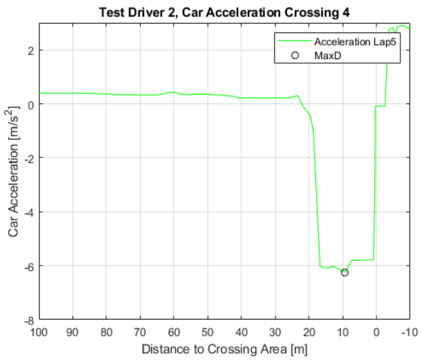
Scenario 4		LAP 1					
		Crossing_ID					
TD	At conflict Point	***1***	***2***	***3***	***4***	***5***	***6***
31	*PedTime*	00:37.746	-	02:02.848	-	-	03:49.598
	VehTime	00:44.049	-	02:08.199	-	-	03:54.309
	PET	06.303	-	05.351	-	-	04.711
32	*PedTime*	-	00:57.448	-	02:31.697	03:00.696	-
	VehTime	-	01:01.448	-	02:34.647	03:04.546	-
	PET	-	04.000	-	02.950	03.850	-
33	*PedTime*	00:44.499	-	01:59.049	-	-	03:38.048
	VehTime	00:49.999	-	02:02.499	-	-	03:42.248
	PET	05.500	-	03.450	-	-	04.200
34	*PedTime*	-	00:53.699	-	02:30.098	02:54.897	-
	VehTime	-	01:01.149	-	02:36.048	03:00.498	-
	PET	-	07.450	-	05.950	05.601	-
35	*PedTime*	00:34.049	-	01:54.647	-	-	03:42.545
	VehTime	00:40.448	-	02:00.897	-	-	03:48.595
	PET	06.399	-	06.250	-	-	06.050
36	*PedTime*	-	00:53.649	-	02:12.148	02:35.348	-
	VehTime	-	00:58.749	-	02:17.148	02:39.547	-
	PET	-	05.100	-	05.000	04.199	-
37	*PedTime*	00:38.599	-	01:42.049	-	-	03:15.798
	VehTime	00:44.699	-	01:47.899	-	-	03:21.648
	PET	06.100	-	05.850	-	-	05.850
38	*PedTime*	-	00:48.000	-	02:07.149	02:29.699	-
	VehTime	-	00:54.049	-	02:10.449	02:33.498	-
	PET	-	06.049	-	03.300	03.799	-
39	*PedTime*	00:41.299	-	01:49.648	-	-	03:23.946
	VehTime	00:44.998	-	01:52.597	-	-	03:28.098
	PET	03.699	-	02.949	-	-	04.152
40	*PedTime*	-	01:06.799	-	02:47.897	03:16.946	-
	VehTime	-	01:12.998	-	02:51.247	03:20.896	-
	PET	-	06.199	-	03.350	03.950	-
47	*PedTime*	00:44.050	-	01:54.499	-	-	03:29.198
	VehTime	00:48.750	-	01:57.649	-	-	03:34.498
	PET	04.700	-	03.150	-	-	05.300
48	*PedTime*	-	00:40.399	-	01:39.148	02:03.598	-
	VehTime	-	00:45.499	-	01:44.898	02:07.549	-
	PET	-	05.100	-	05.750	03.951	-
52	*PedTime*	00:24.499	-	01:18.089	-	-	02:25.399
	VehTime	00:28.099	-	01:22.648	-	-	02:29.648
	PET	03.600	-	04.559	-	-	04.249

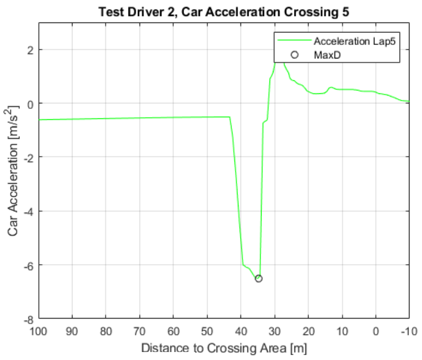
Scenario 4		LAP 5					
		Crossing_ID					
TD	At conflict Point	***1***	***2***	***3***	***4***	***5***	***6***
31	*PedTime*	13:42.644	-	14:46.243	-	-	16:04.193
	VehTime	13:47.894	-	14:51.143	-	-	16:09.193
	PET	05.250	-	04.900	-	-	05.000
32	*PedTime*	-	15:09.537	-	16:30.185	16:55.884	-
	VehTime	-	15:14.435	-	16:34.185	16:59.634	-
	PET	-	04.898	-	04.000	03.750	-
33	*PedTime*	13:21.594	-	14:25.643	-	-	15:50.743
	VehTime	13:25.744	-	14:28.643	-	-	15:55.743
	PET	04.150	-	03.000	-	-	05.000
34	*PedTime*	-	14:20.589	-	15:39.988	16:00.688	-
	VehTime	-	14:28.339	-	15:44.188	16:06.188	-
	PET	-	07.750	-	04.200	05.500	-
35	*PedTime*	14:59.331	-	16:08.830	-	-	17:52.378
	VehTime	15:02.881	-	16:12.580	-	-	17:56.628
	PET	03.550	-	03.750	-	-	04.250
36	*PedTime*	-	12:43.489	-	13:54.888	14:14.288	-
	VehTime	-	12:48.238	-	13:57.837	14:18.387	-
	PET	-	04.749	-	02.949	04.099	-
37	*PedTime*	12:30.544	-	13:29.993	-	-	15:15.143
	VehTime	12:34.095	-	13:32.544	-	-	15:19.243
	PET	03.551	-	02.551	-	-	04.100
38	*PedTime*	-	12:11.993	-	13:20.892	13:38.442	-
	VehTime	-	12:17.893	-	13:23.642	13:42.192	-
	PET	-	05.900	-	02.750	03.750	-
39	*PedTime*	12:48.588	-	13:56.587	-	-	15:33.885
	VehTime	12:51.088	-	13:58.938	-	-	15:38.635
	PET	02.500	-	02.351	-	-	04.750
40	*PedTime*	-	13:52.636	-	15:00.884	15:23.034	-
	VehTime	-	13:57.636	-	15:03.434	15:26.883	-
	PET	-	05.000	-	02.550	03.849	-
47	*PedTime*	11:20.293	-	12:04.393	-	-	13:08.992
	VehTime	11:24.694	-	12:07.344	-	-	13:12.843
	PET	04.401	-	02.951	-	-	03.851
48	*PedTime*	-	10:35.694	-	11:34.993	11:56.993	-
	VehTime	-	10:40.993	-	11:38.543	12:00.643	-
	PET	-	05.299	-	03.550	03.650	-
52	*PedTime*	10:29.844	-	11:18.643	-	-	12:34.043
	VehTime	10:33.494	-	11:23.143	-	-	12:40.792
	PET	03.650	-	04.500	-	-	06.749

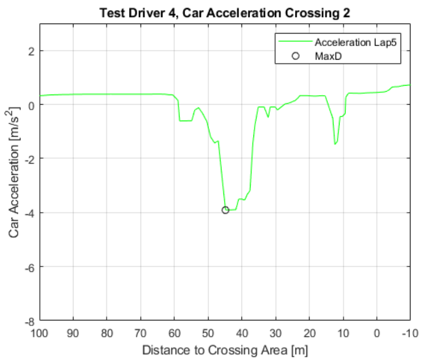
F. Max Deceleration graphs.

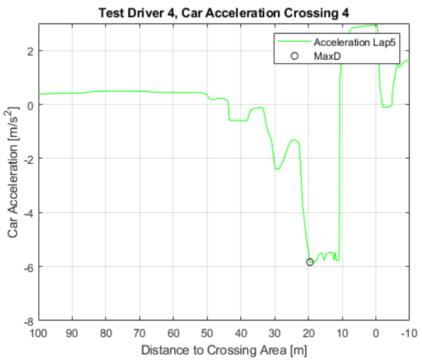
Scenario 1

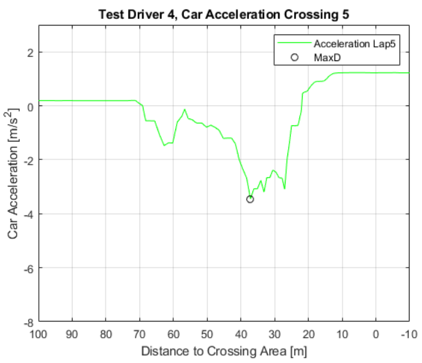


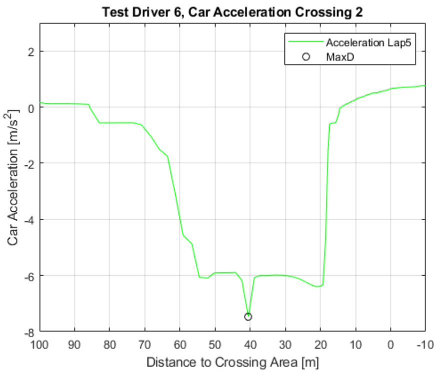


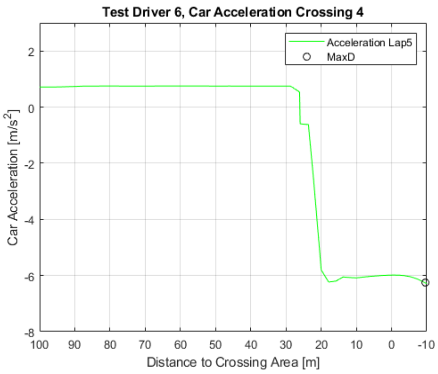


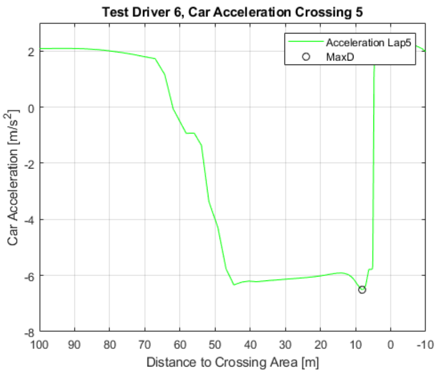


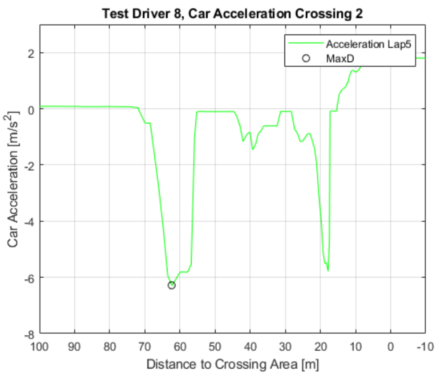


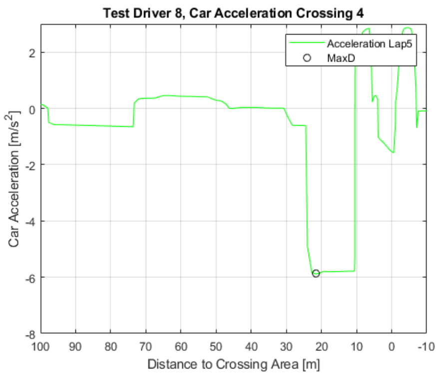


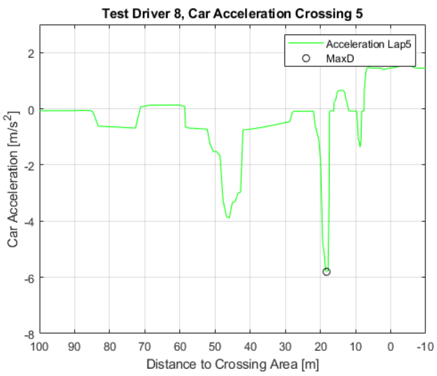

Test Driver 6, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

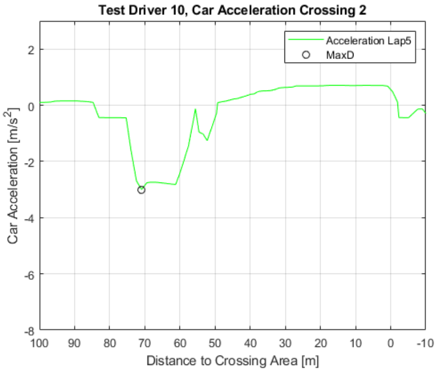

Test Driver 6, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

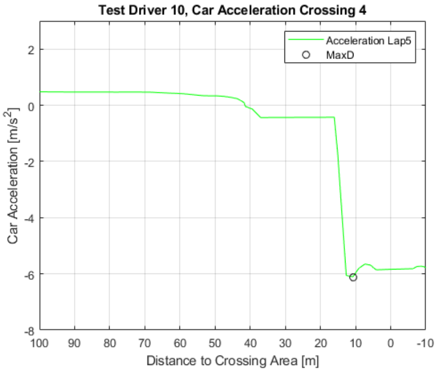

Test Driver 6, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

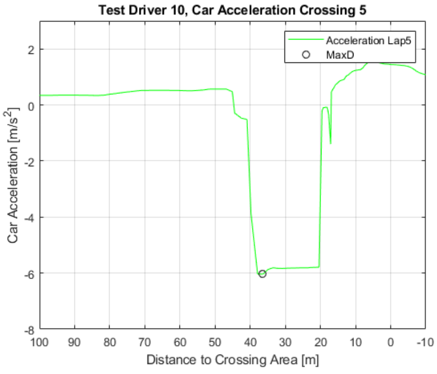

Test Driver 8, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

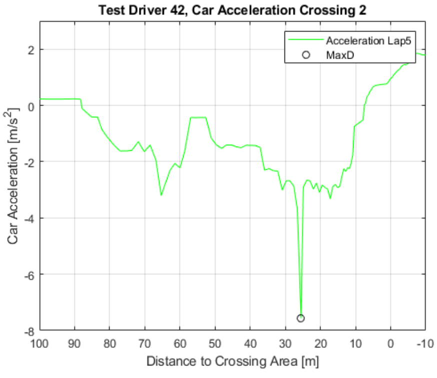

Test Driver 8, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

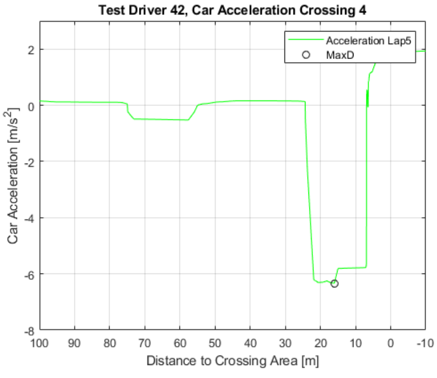

Test Driver 8, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

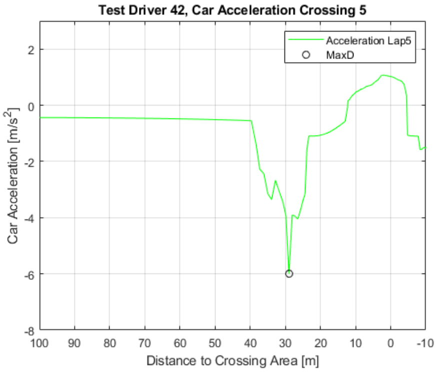

Test Driver 10, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

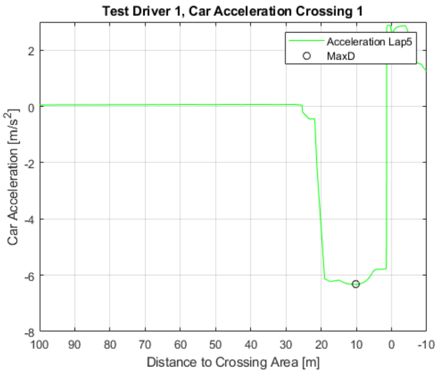

Test Driver 10, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

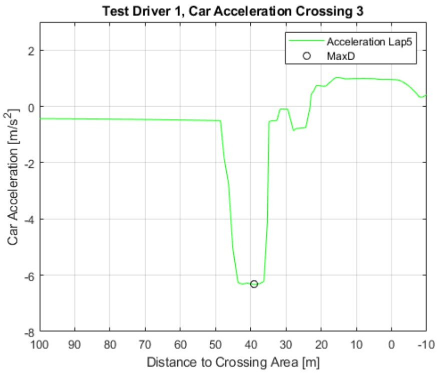

Test Driver 10, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

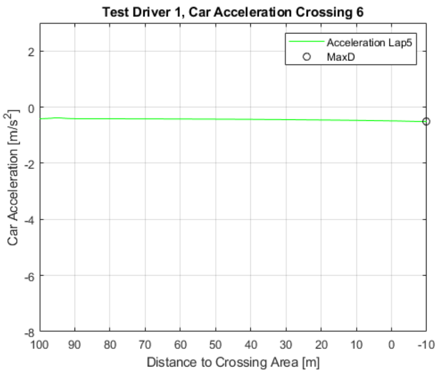

Test Driver 42, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

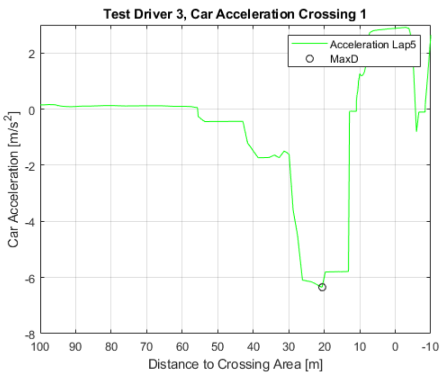

Test Driver 42, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

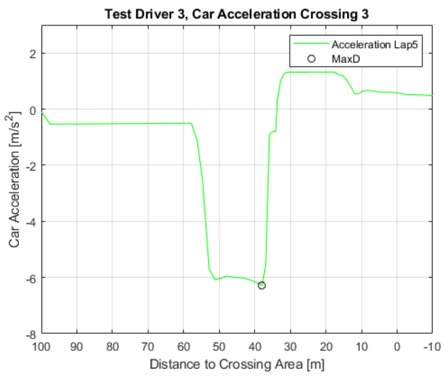

Test Driver 42, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s²]
Distance to Crossing Area [m]

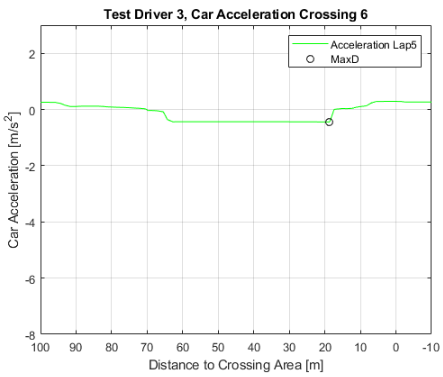

Test Driver 1, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

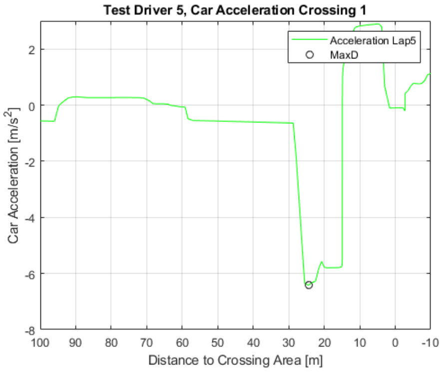

Test Driver 1, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

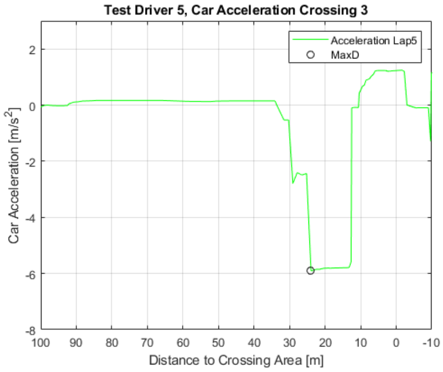

Test Driver 1, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

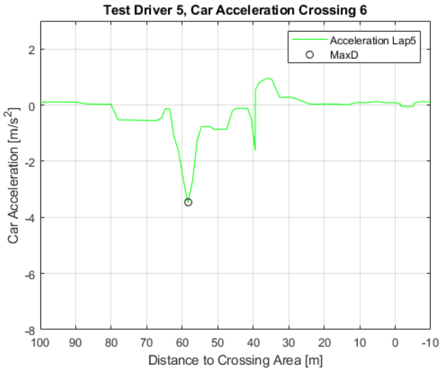

Test Driver 3, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

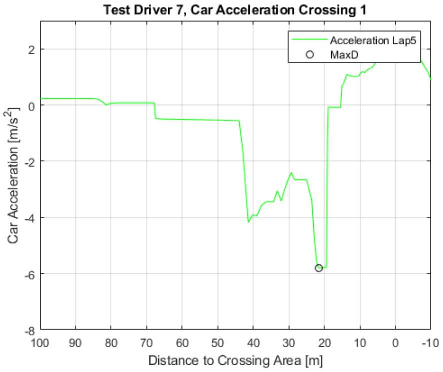

Test Driver 3, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

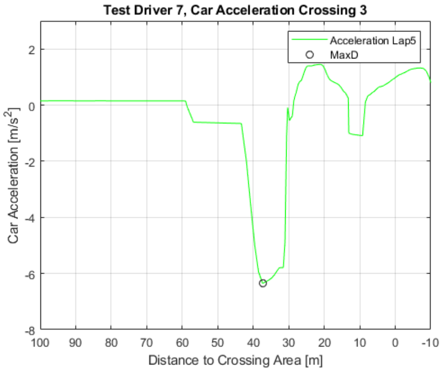

Test Driver 3, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

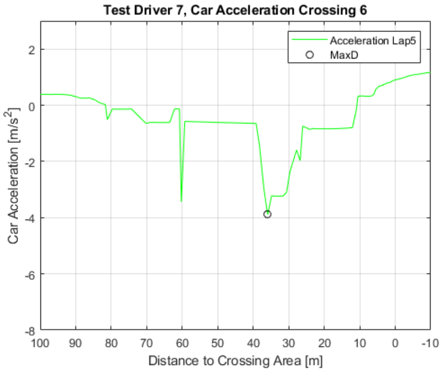

Test Driver 5, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

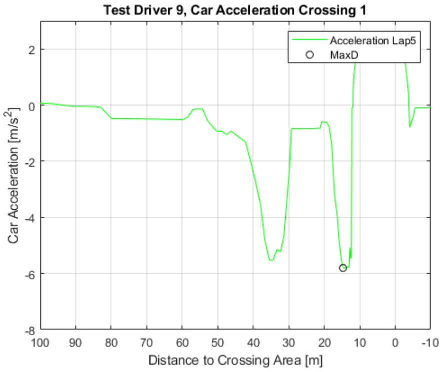

Test Driver 5, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

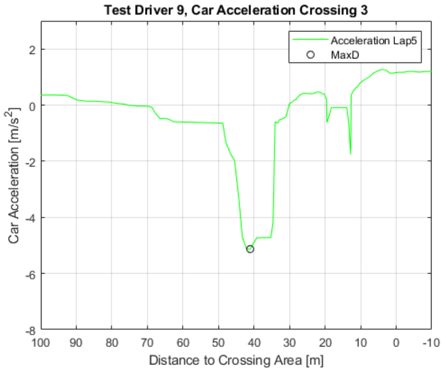

Test Driver 5, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

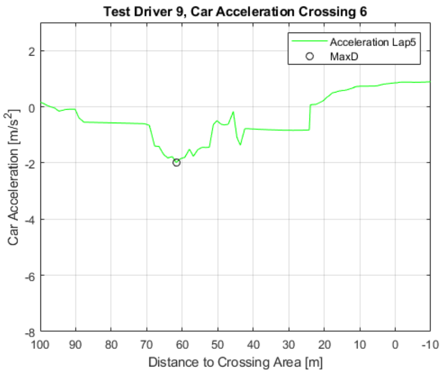

Test Driver 7, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

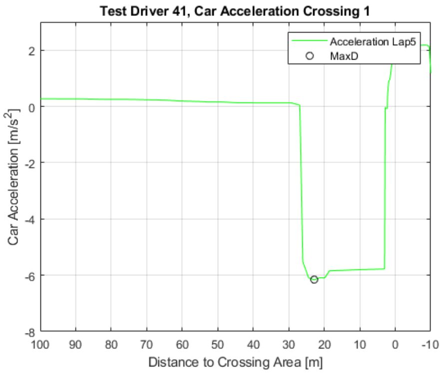

Test Driver 7, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

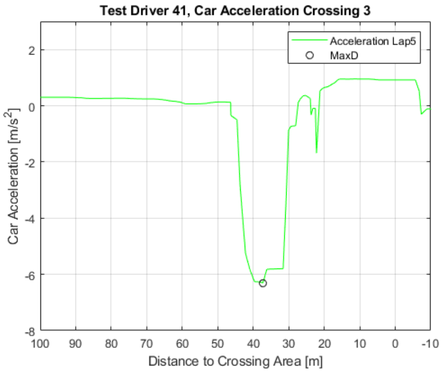

Test Driver 7, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

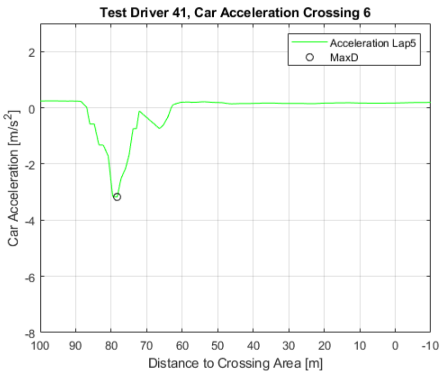

Test Driver 9, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

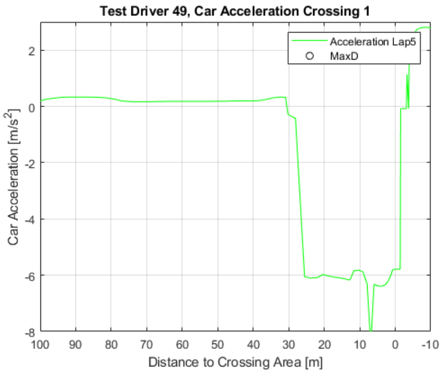

Test Driver 9, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

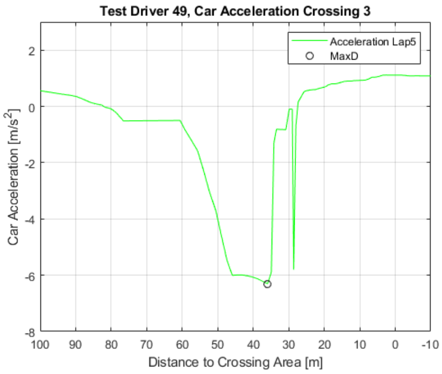

Test Driver 9, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

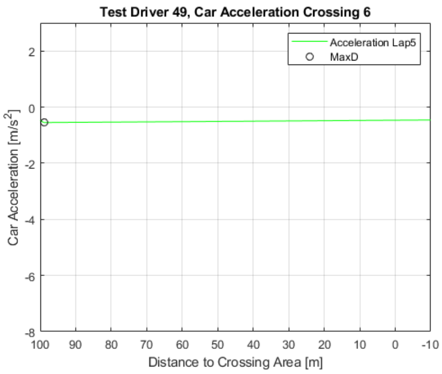

Test Driver 41, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]


Test Driver 41, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

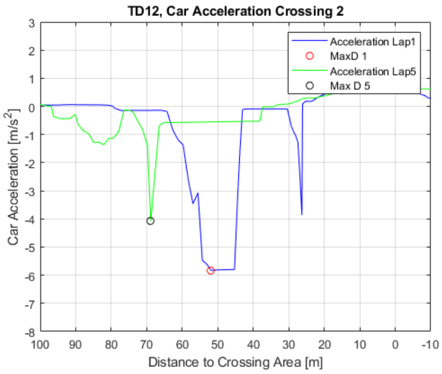

Test Driver 41, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

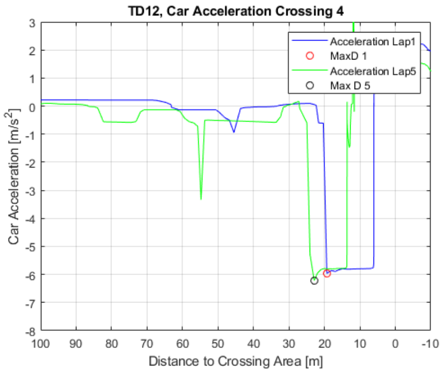

Test Driver 49, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

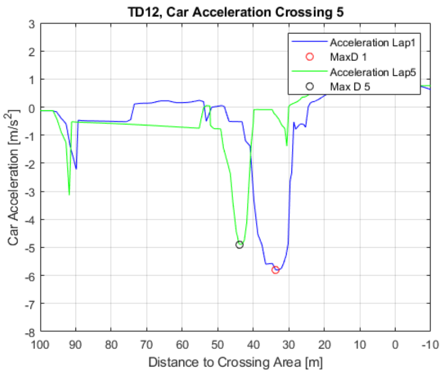

Test Driver 49, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

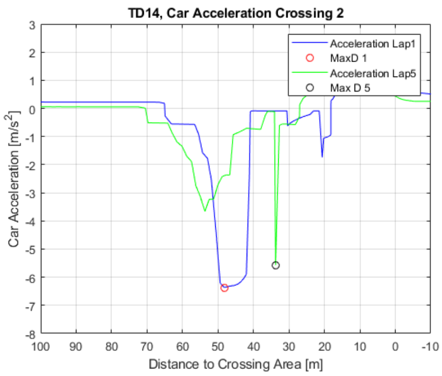

Test Driver 49, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

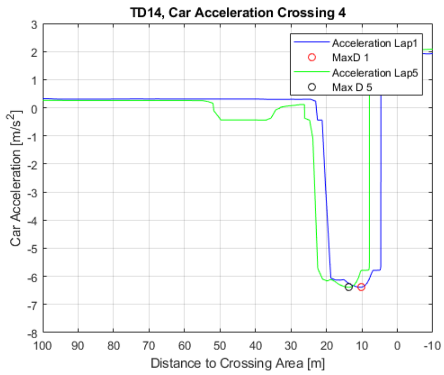
Scenario 2

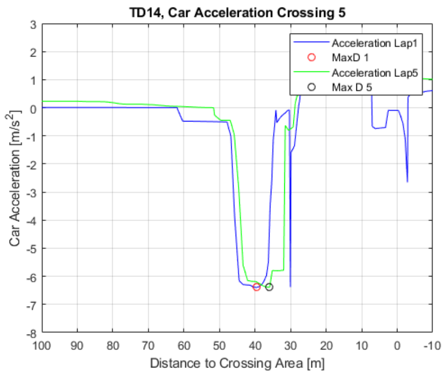

TD12, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

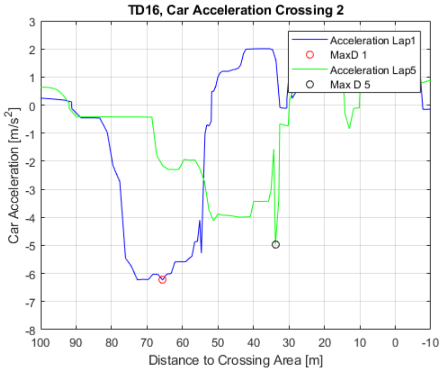

TD12, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

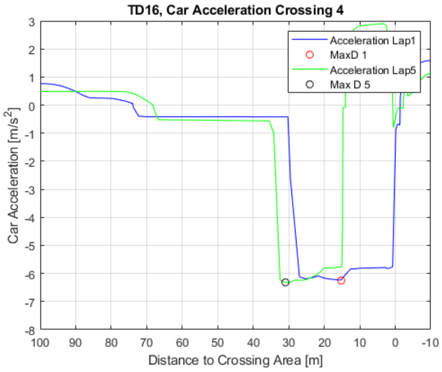

TD12, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

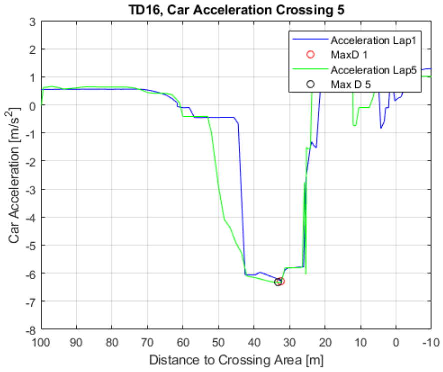

TD14, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

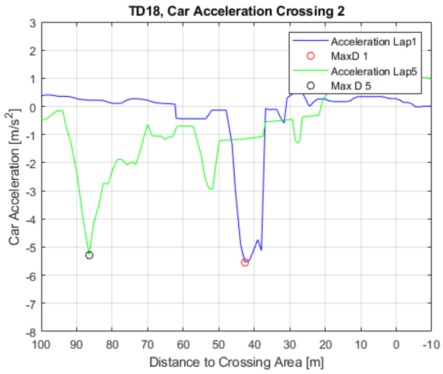

TD14, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

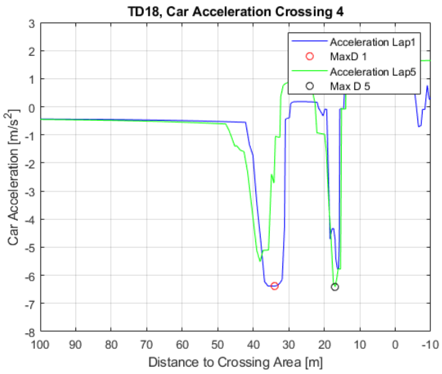

TD14, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

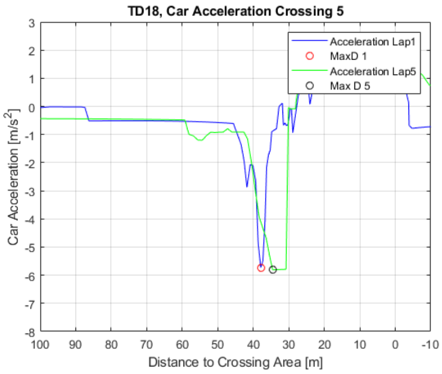

TD16, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

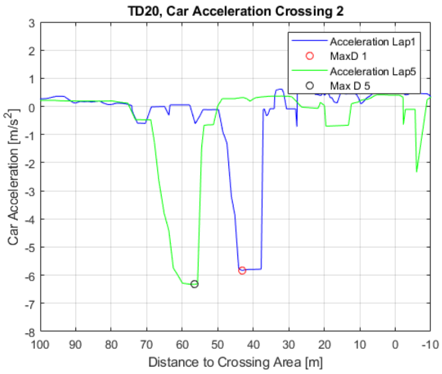

TD16, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

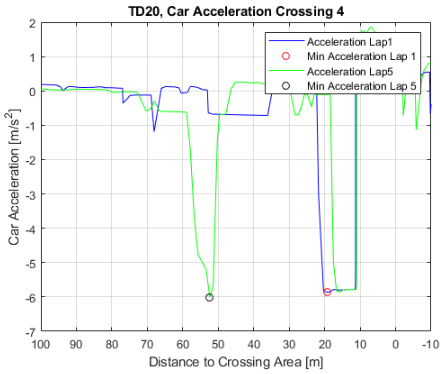

TD16, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

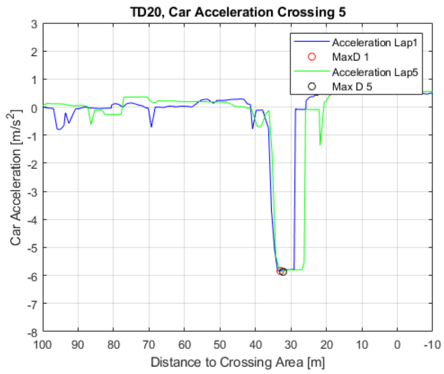

TD18, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

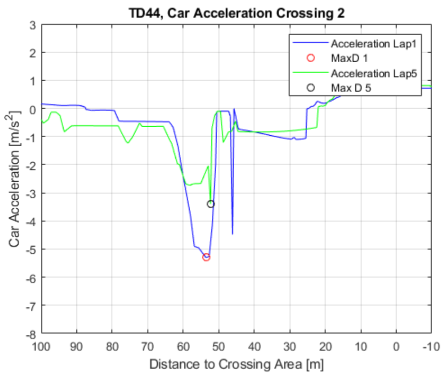

TD18, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

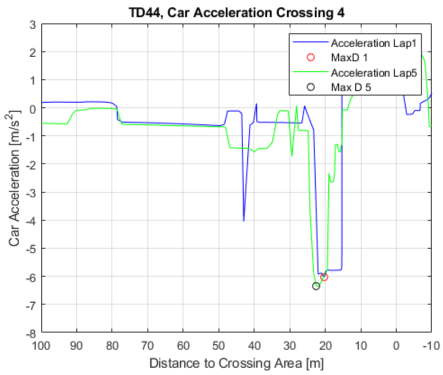

TD18, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

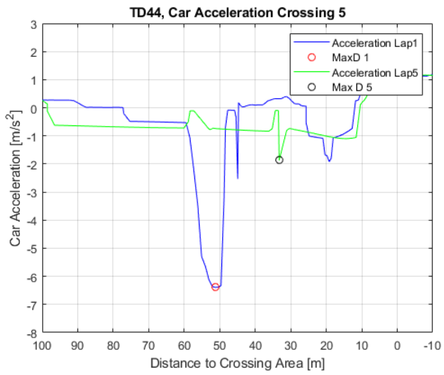

TD20, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

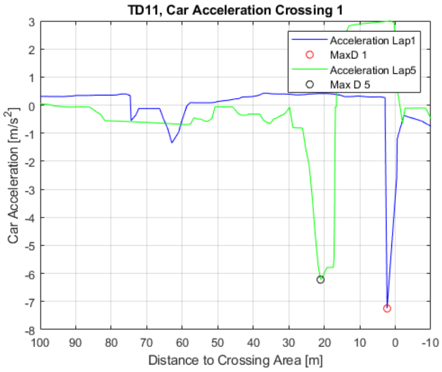

TD20, Car Acceleration Crossing 4
Acceleration Lap1
Min Acceleration Lap 1
Acceleration Lap5
Min Acceleration Lap 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

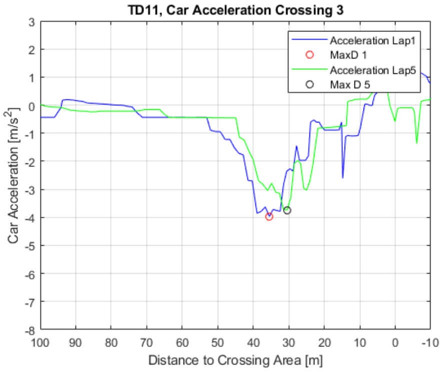

TD20, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

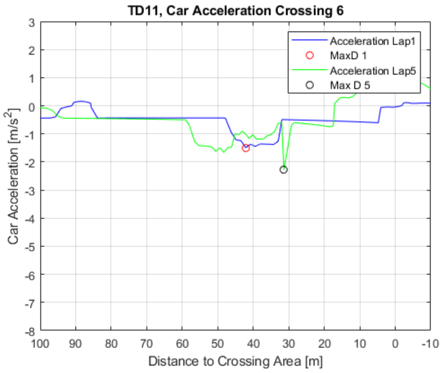

TD44, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

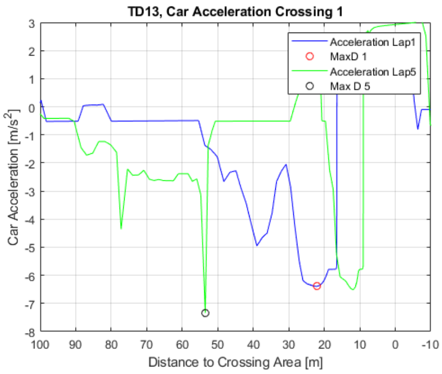

TD44, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

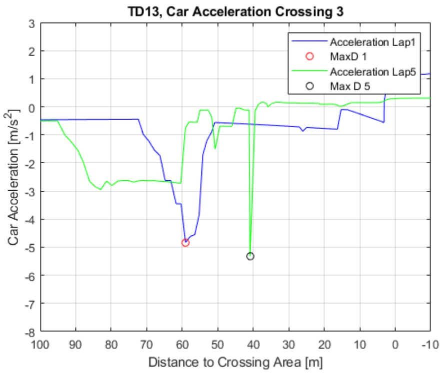

TD44, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

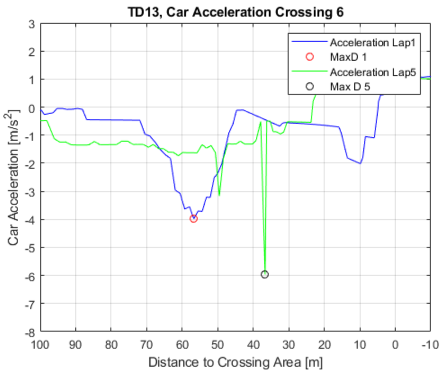

TD11, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

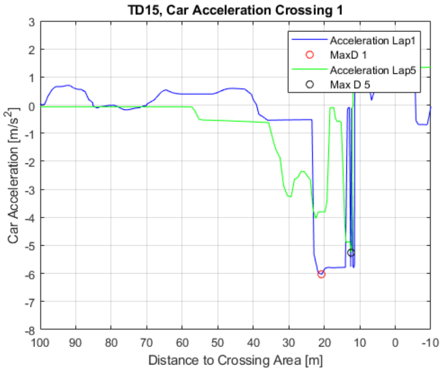

TD11, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

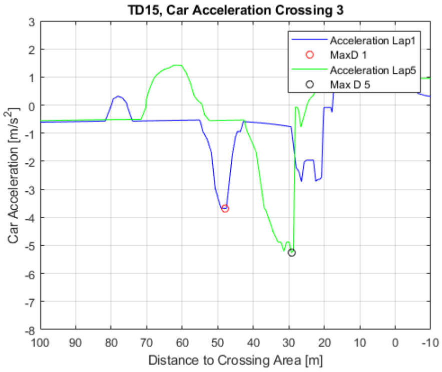

TD11, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

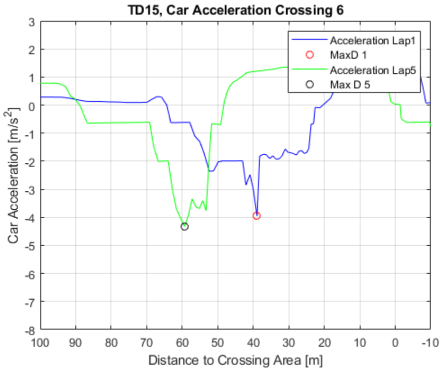

TD13, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

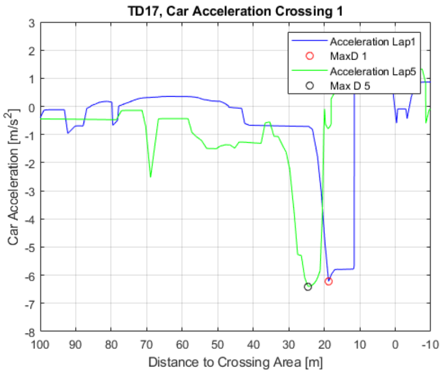

TD13, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

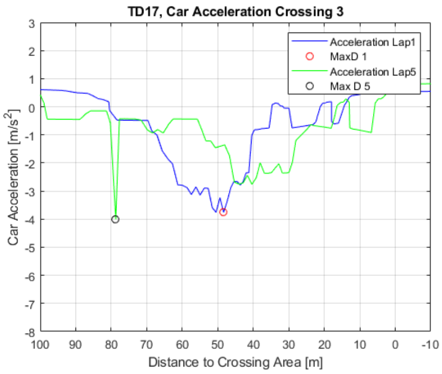

TD13, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

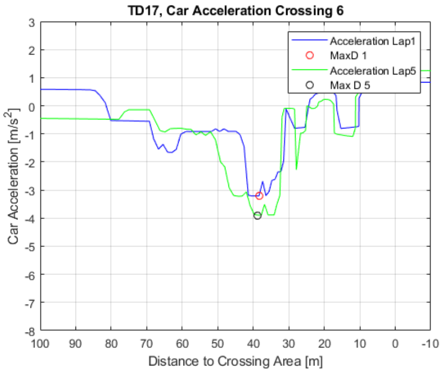

TD15, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

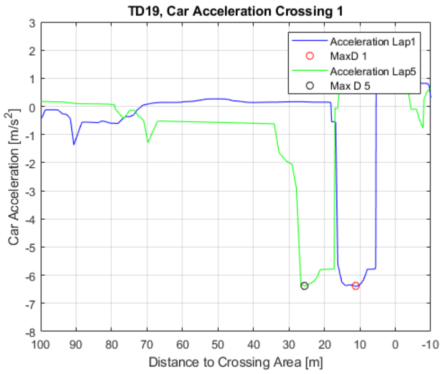

TD15, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

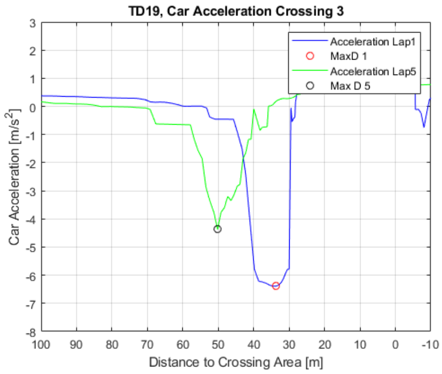

TD15, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

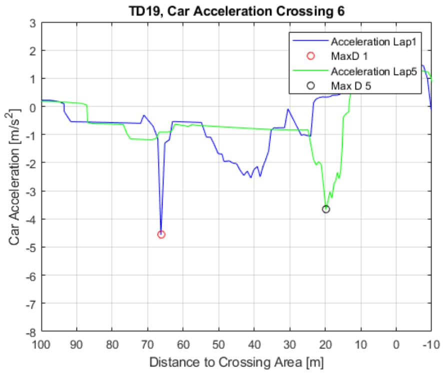

TD17, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

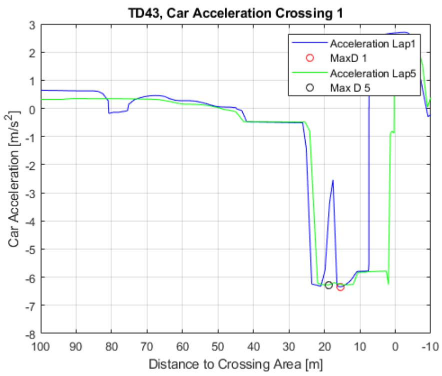

TD17, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

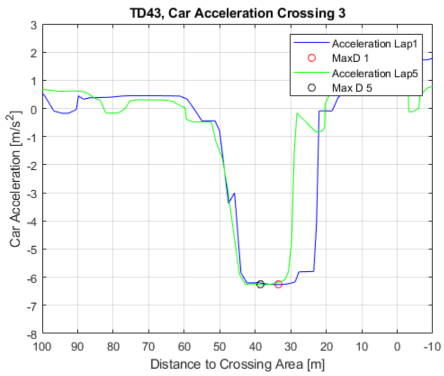

TD17, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

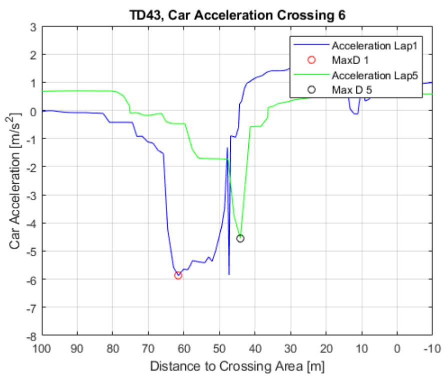

TD19, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

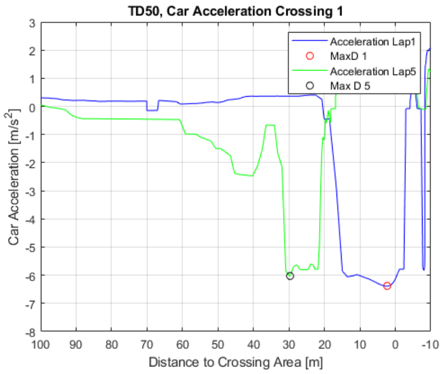

TD19, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

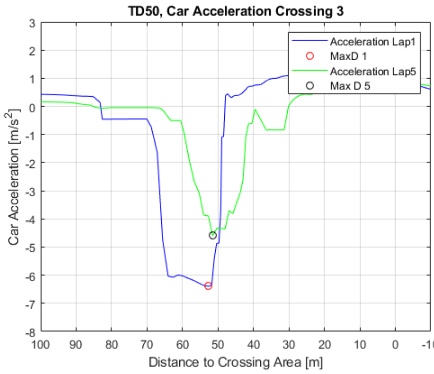

TD19, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

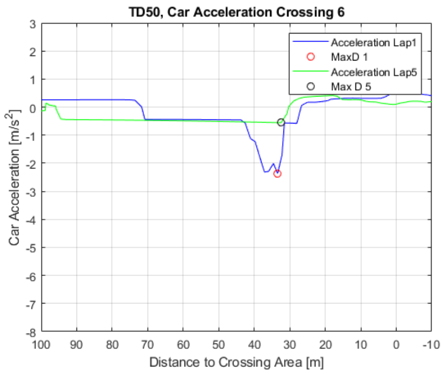

TD43, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]


TD43, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

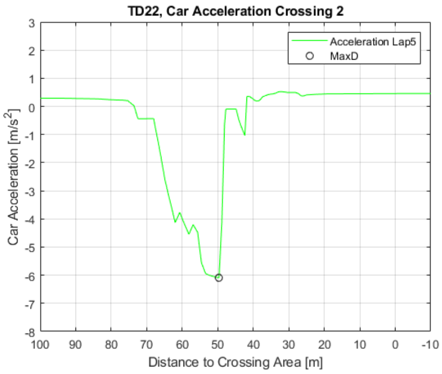

TD43, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

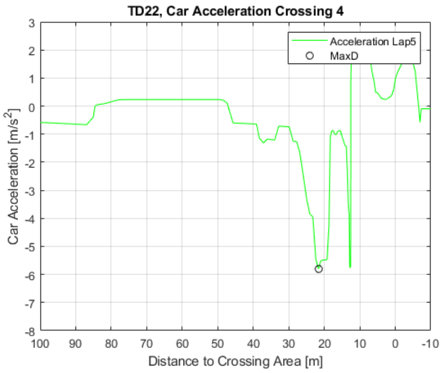

TD50, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

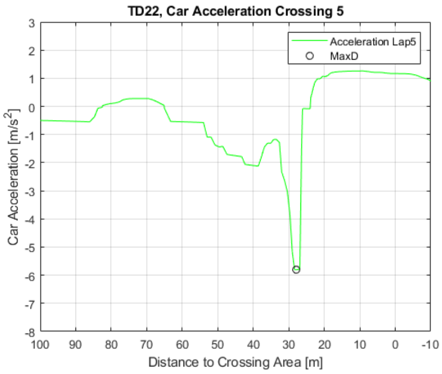

TD50, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

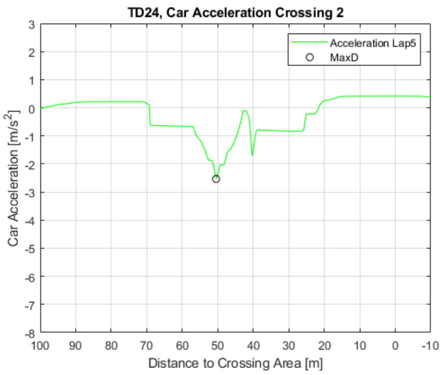

TD50, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

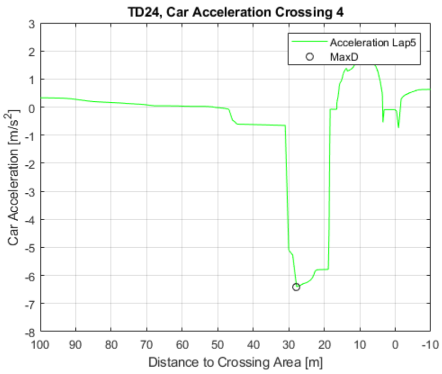
Scenario 3

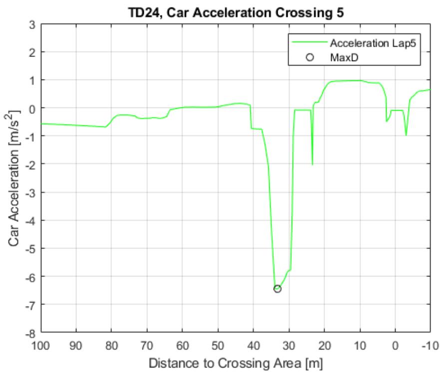

TD22, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

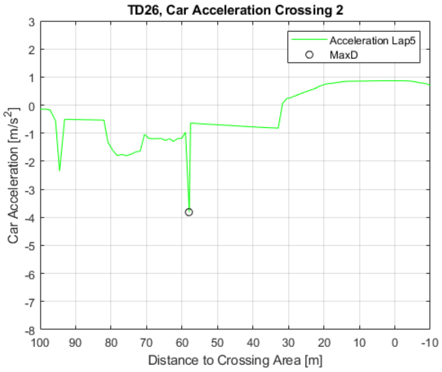

TD22, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

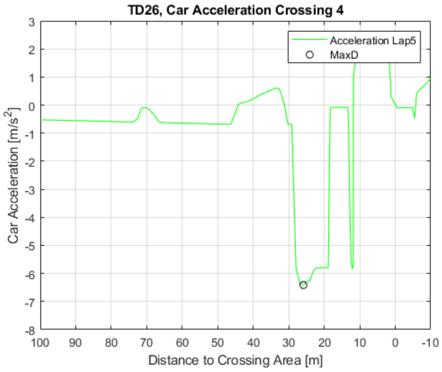

TD22, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

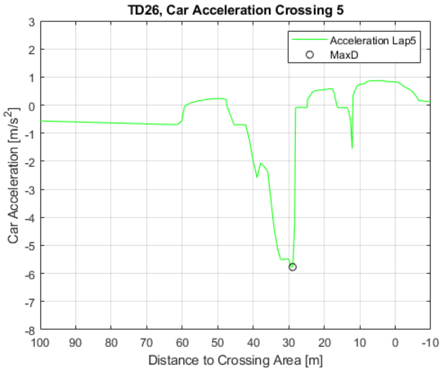

TD24, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

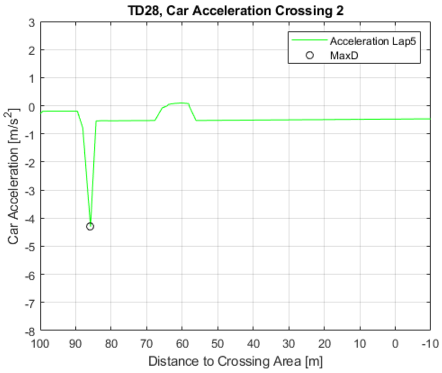

TD24, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

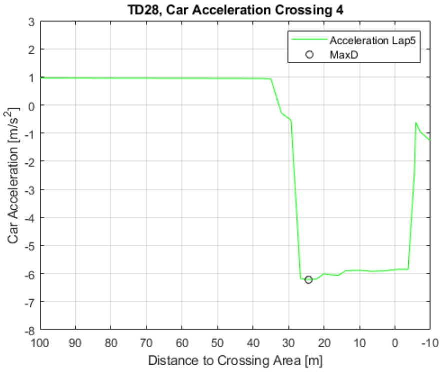

TD24, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

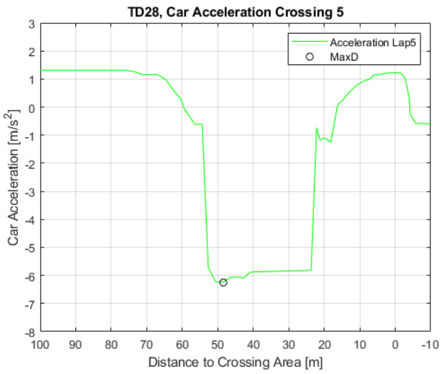

TD26, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

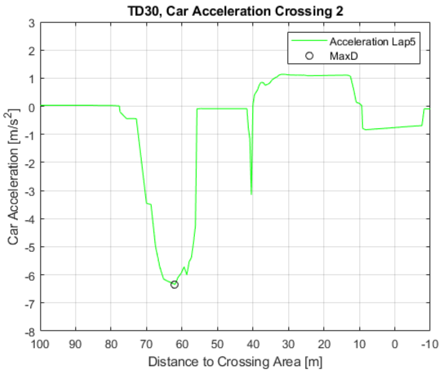

TD26, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

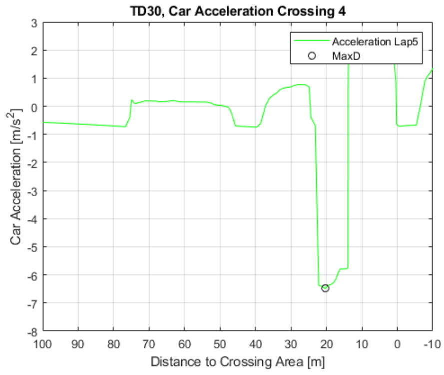

TD26, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

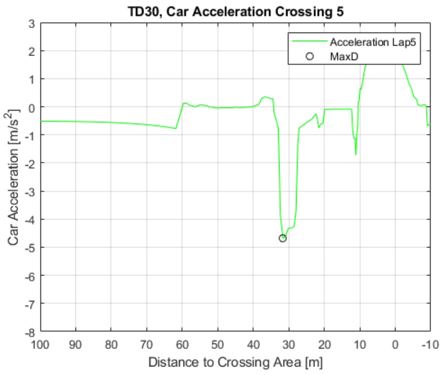

TD28, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

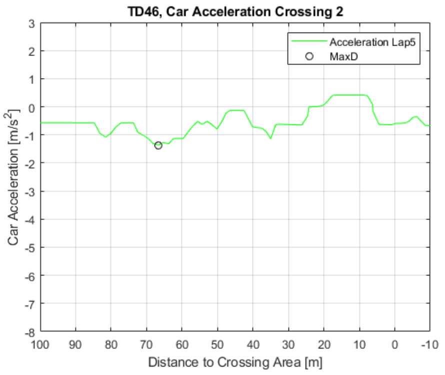

TD28, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

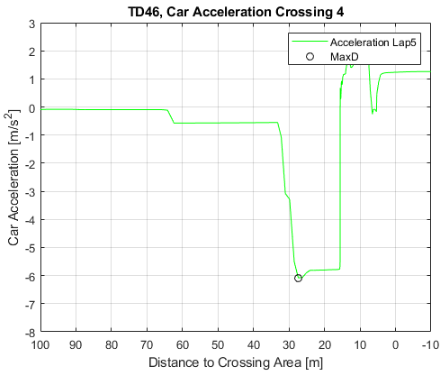

TD28, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]
3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8
100 90 80 70 60 50 40 30 20 10 0 -10

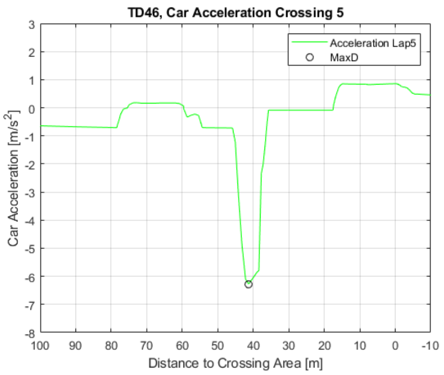

TD30, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

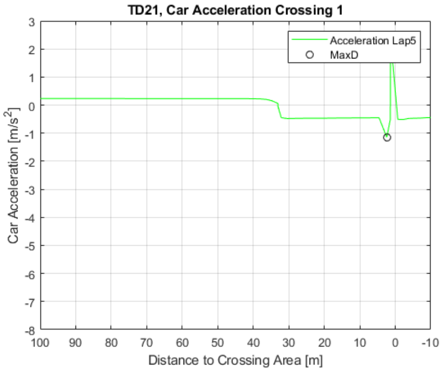

TD30, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

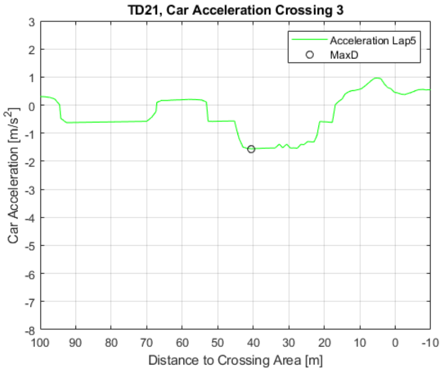

TD30, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

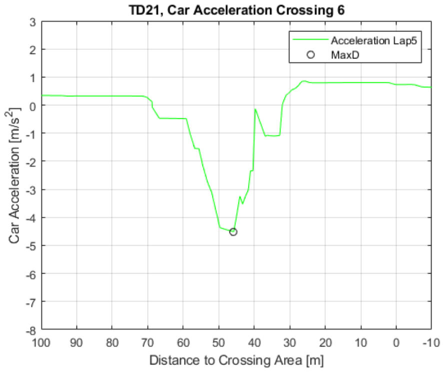

TD46, Car Acceleration Crossing 2
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

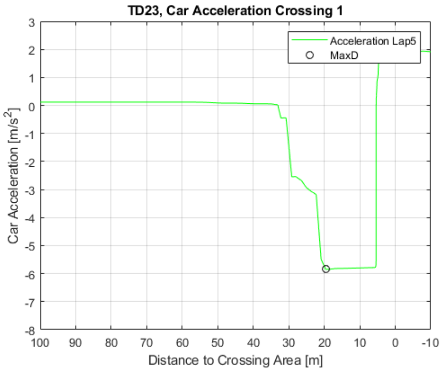

TD46, Car Acceleration Crossing 4
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

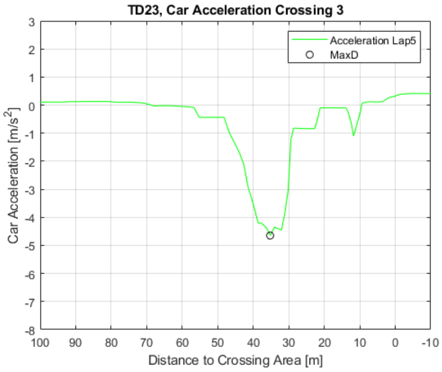

TD46, Car Acceleration Crossing 5
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

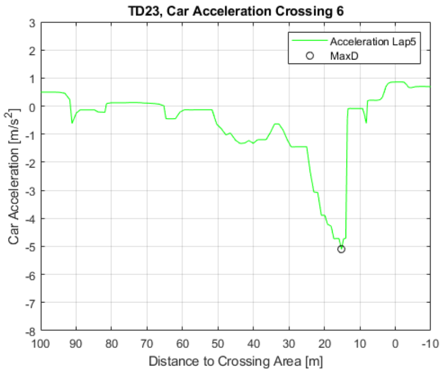

TD21, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

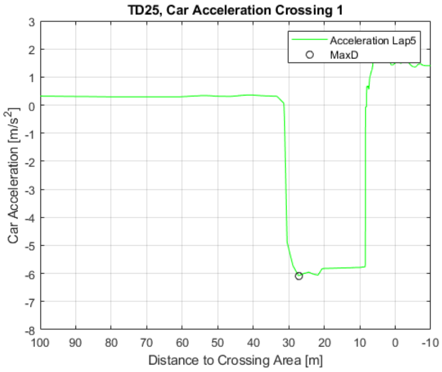

TD21, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

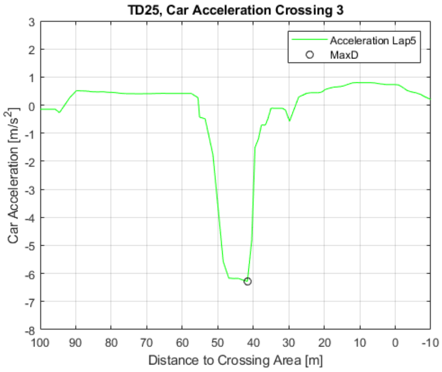

TD21, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

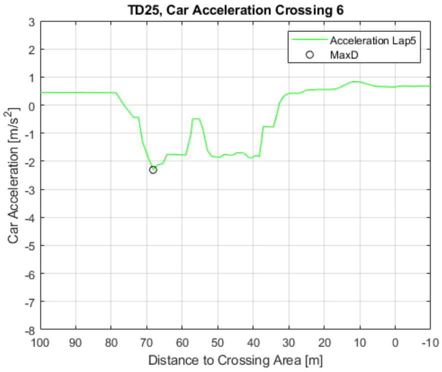

TD23, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

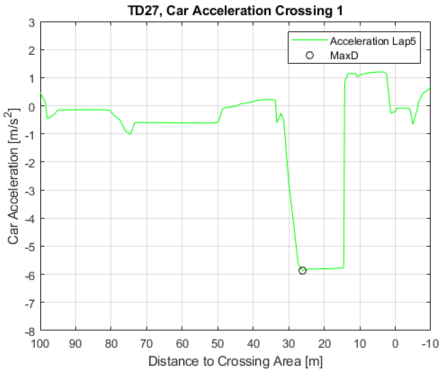

TD23, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

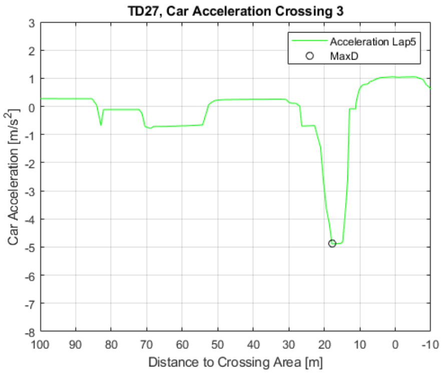

TD23, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

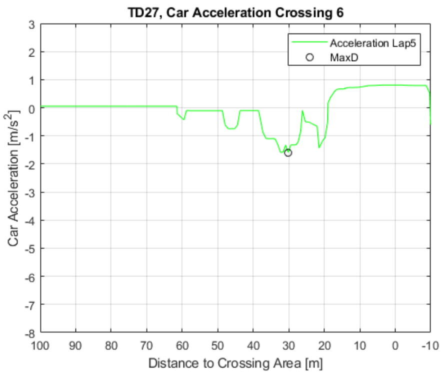

TD25, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

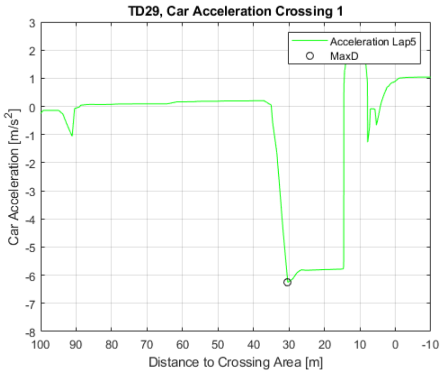

TD25, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

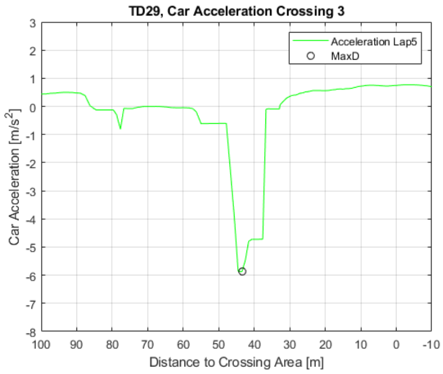

TD25, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

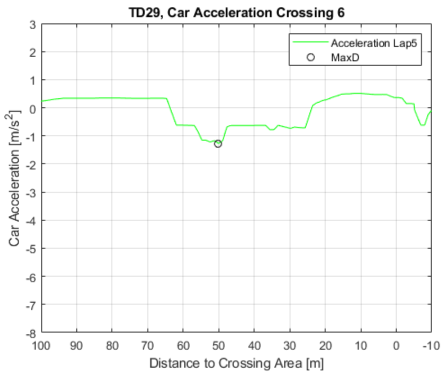

TD27, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

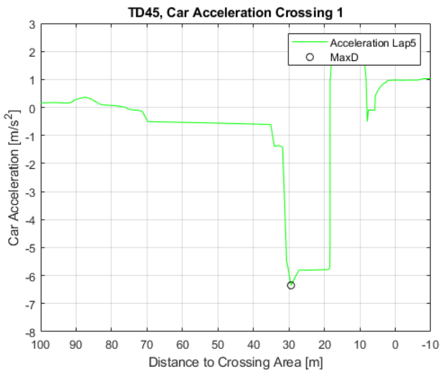

TD27, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

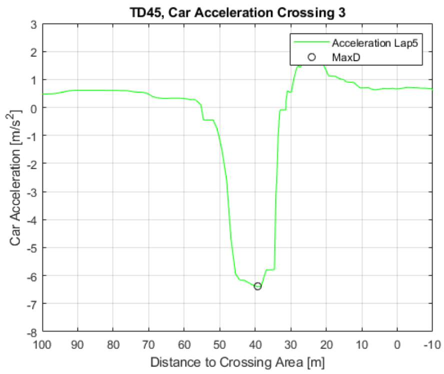

TD27, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

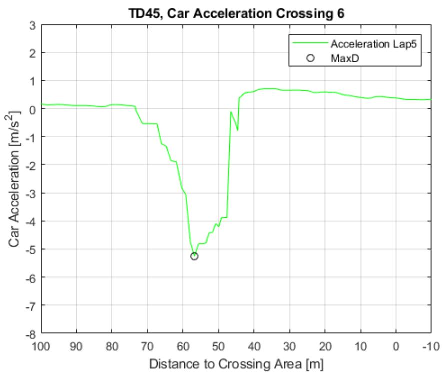

TD29, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

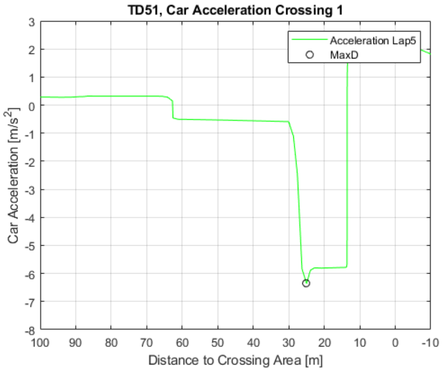

TD29, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

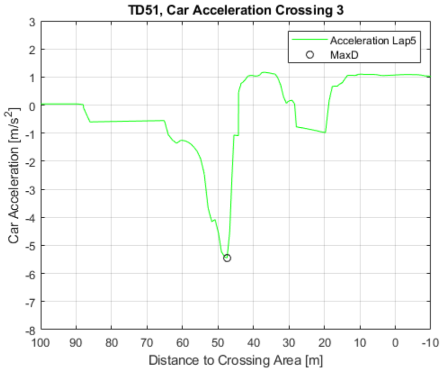

TD29, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

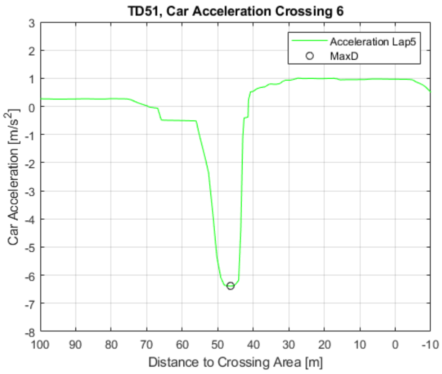

TD45, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]


TD45, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

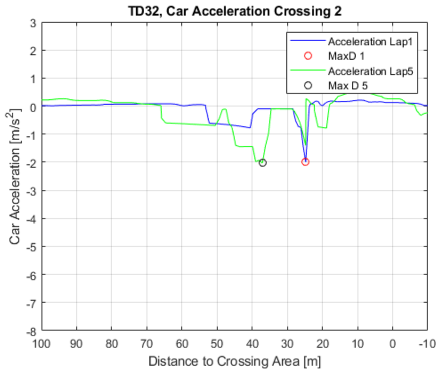

TD45, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

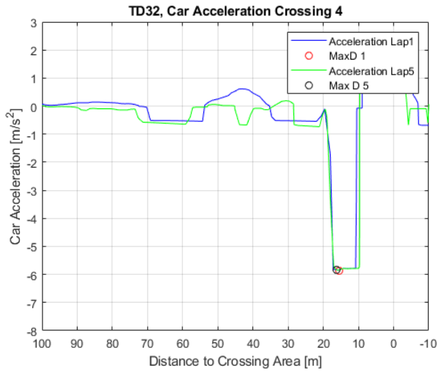

TD51, Car Acceleration Crossing 1
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

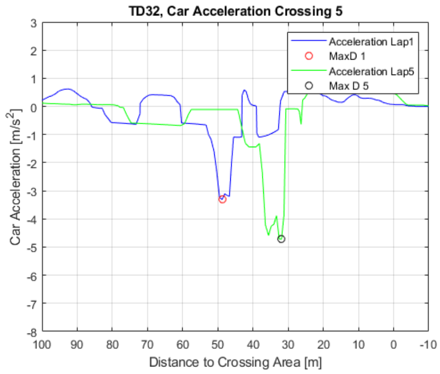

TD51, Car Acceleration Crossing 3
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

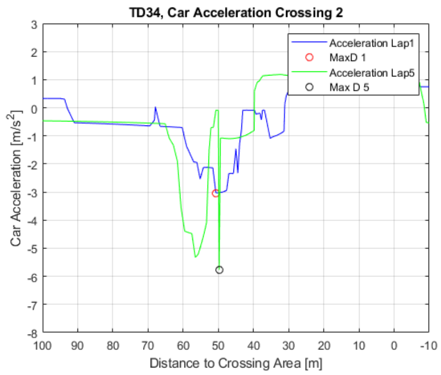

TD51, Car Acceleration Crossing 6
Acceleration Lap5
MaxD
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

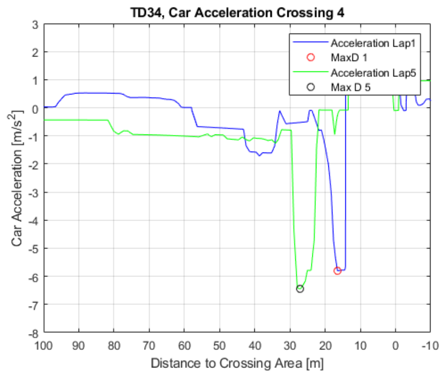
Scenario 4

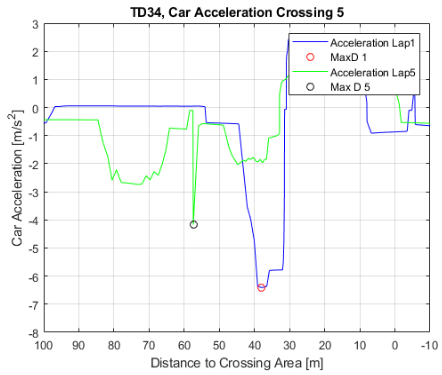

TD32, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

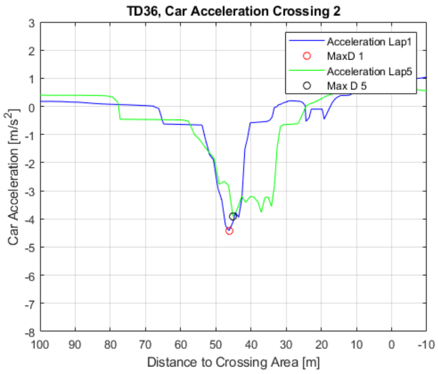

TD32, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

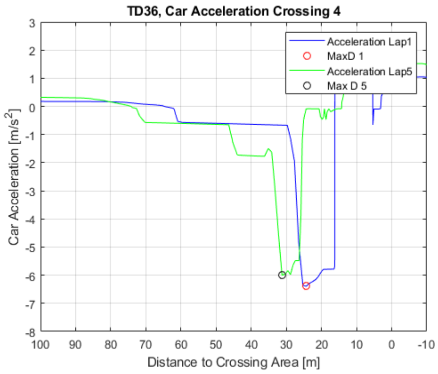

TD32, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

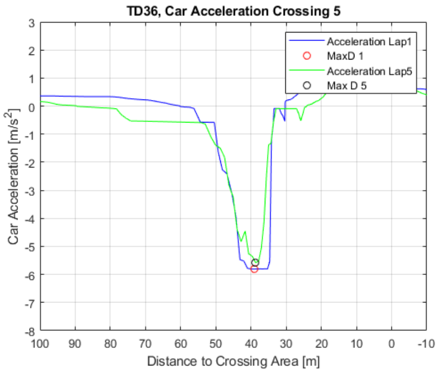

TD34, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

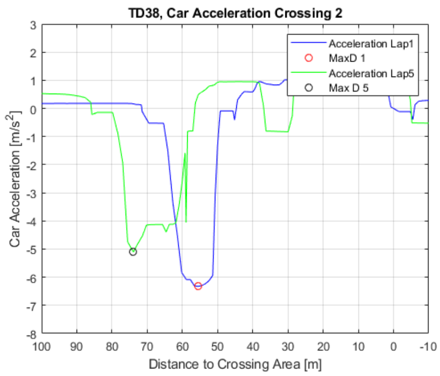

TD34, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

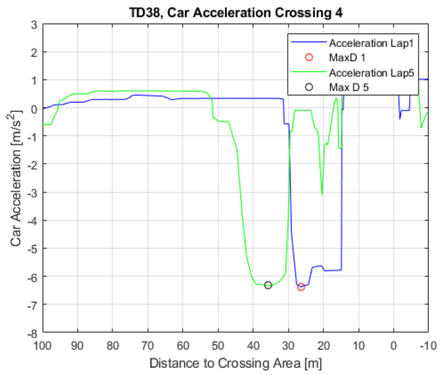

TD34, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

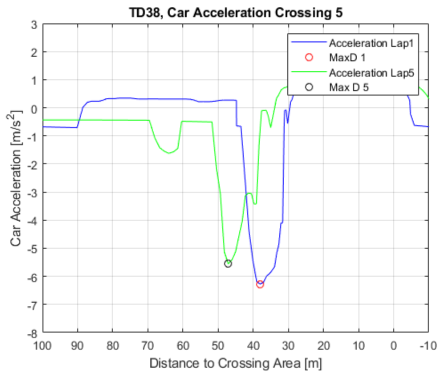

TD36, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

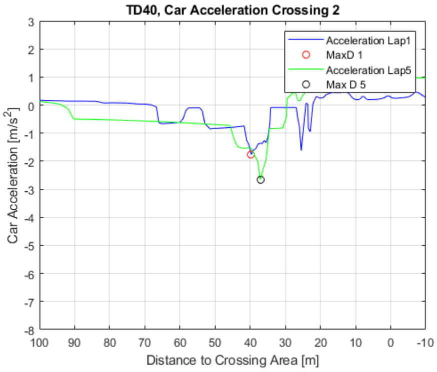

TD36, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

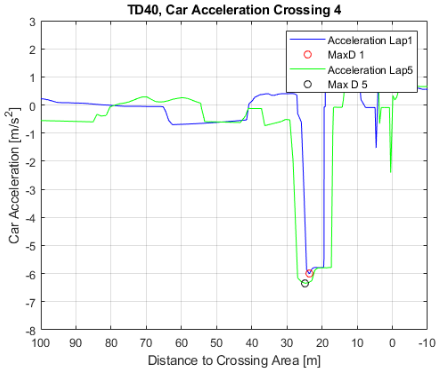

TD36, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

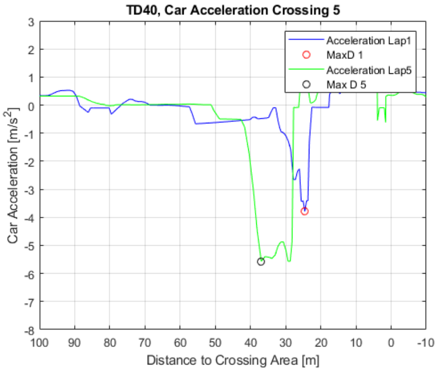

TD38, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

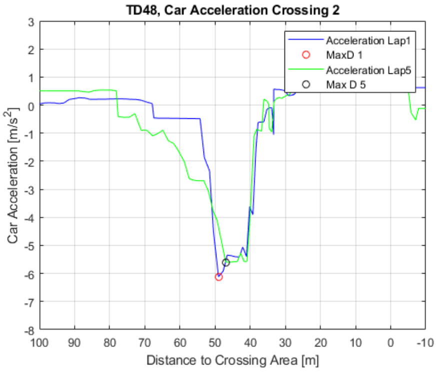

TD38, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

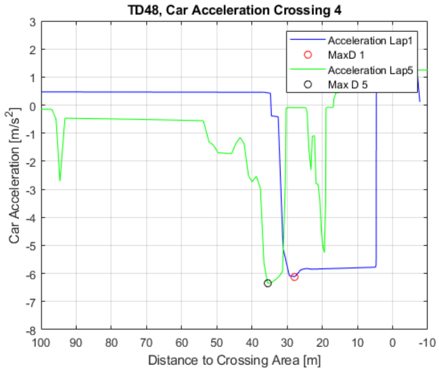

TD38, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

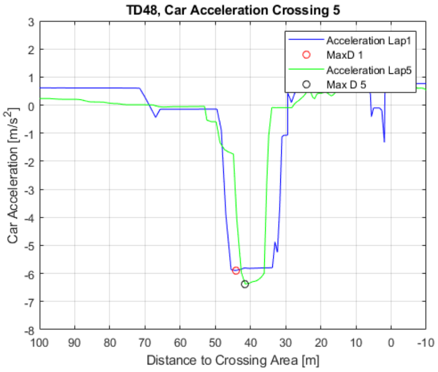

TD40, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

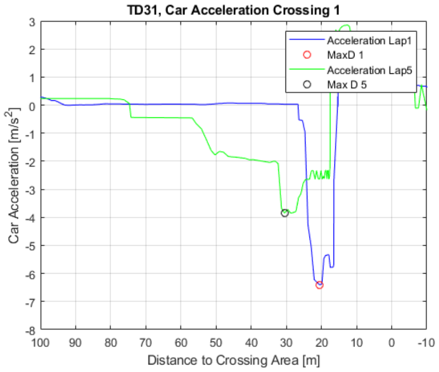

TD40, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

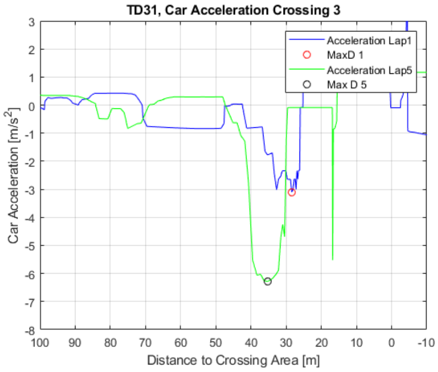

TD40, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

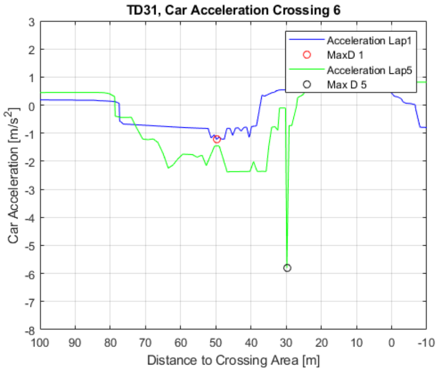

TD48, Car Acceleration Crossing 2
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

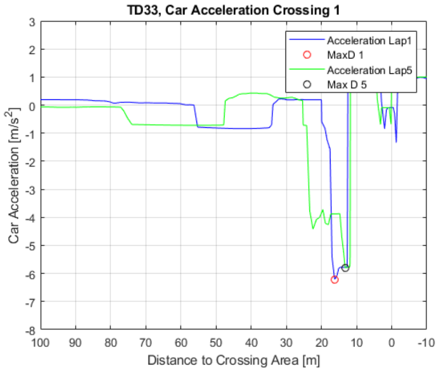

TD48, Car Acceleration Crossing 4
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

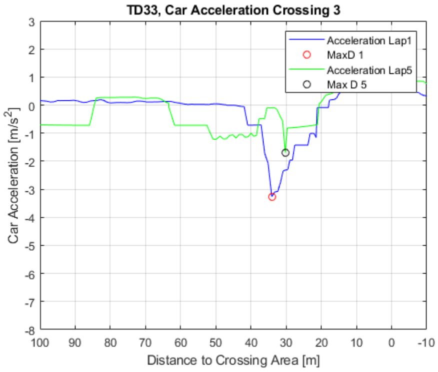

TD48, Car Acceleration Crossing 5
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

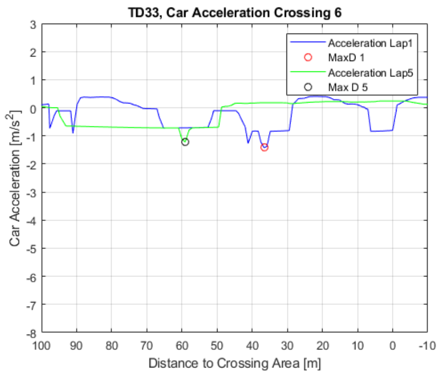

TD31, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

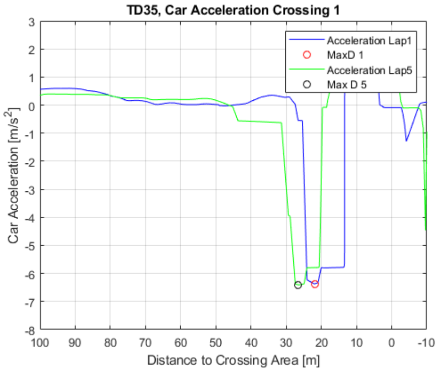

TD31, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

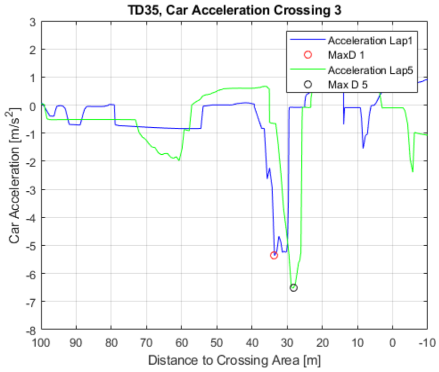

TD31, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

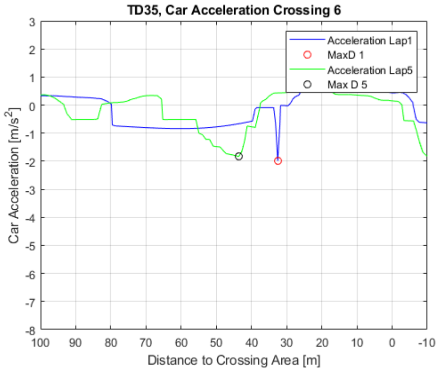

TD33, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

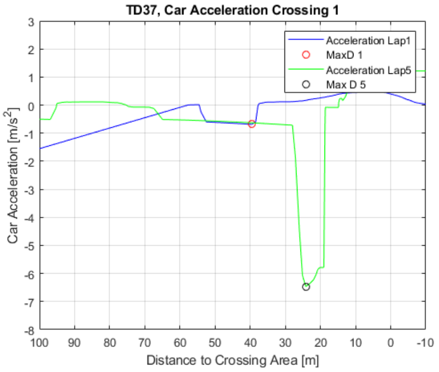

TD33, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

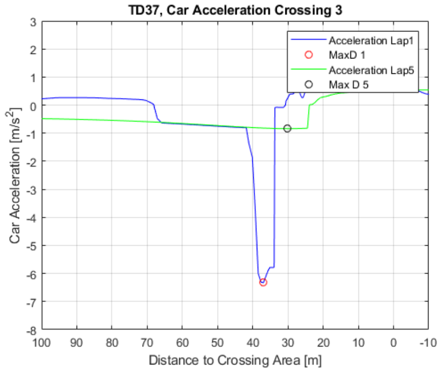

TD33, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

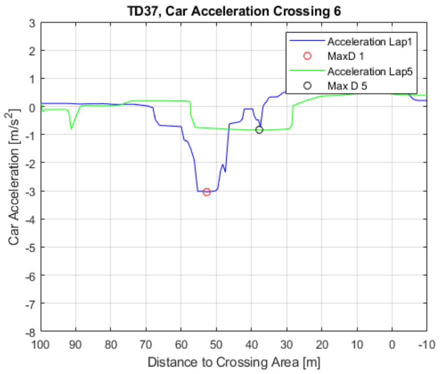

TD35, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

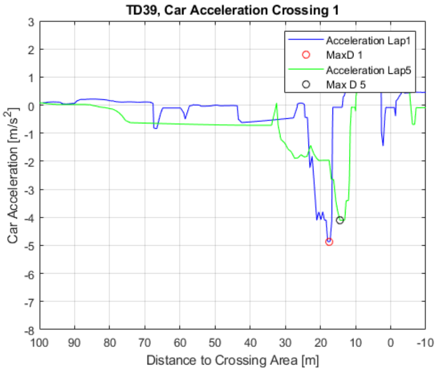

TD35, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

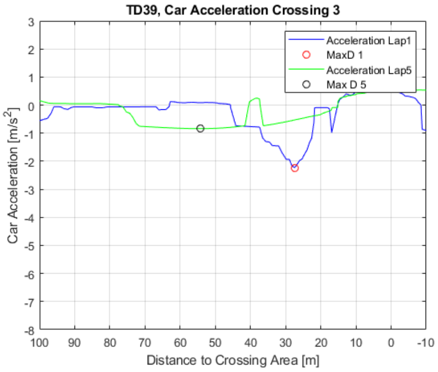

TD35, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

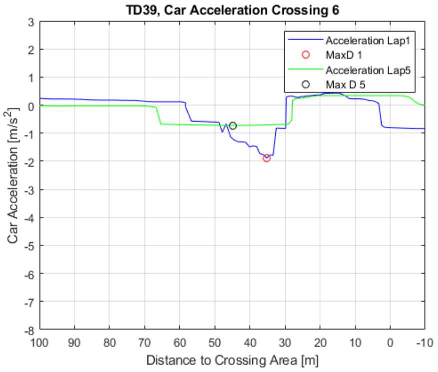

TD37, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

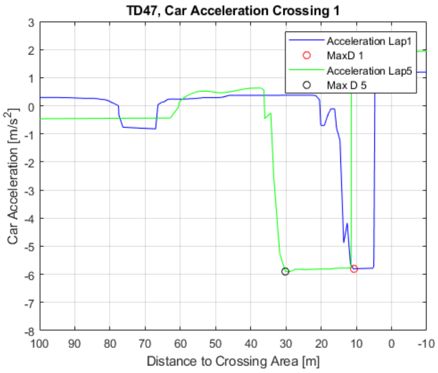

TD37, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

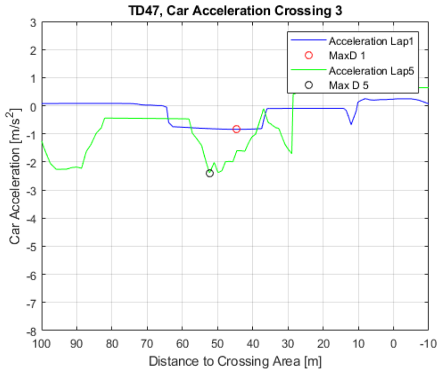

TD37, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

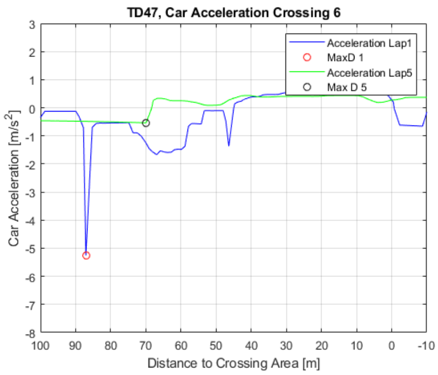

TD39, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

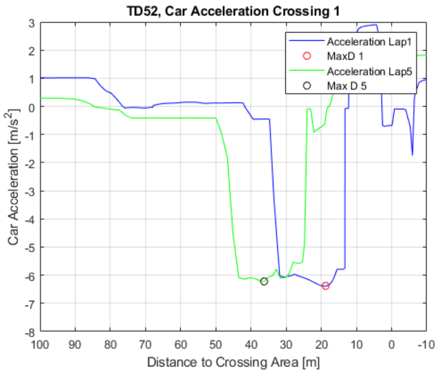

TD39, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

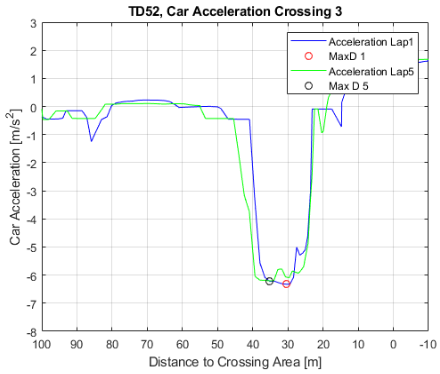

TD39, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

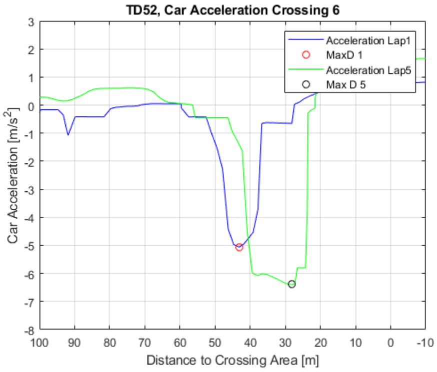

TD47, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]


TD47, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

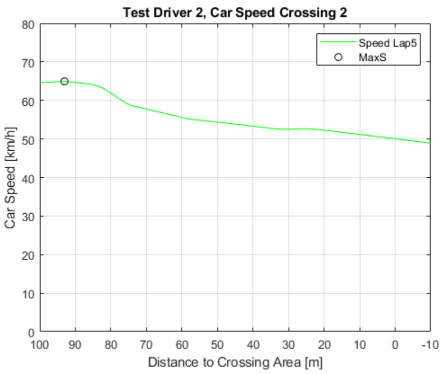

TD47, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

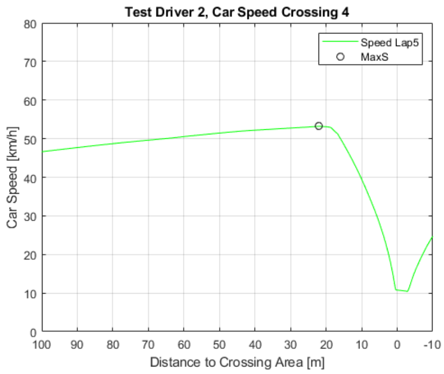

TD52, Car Acceleration Crossing 1
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

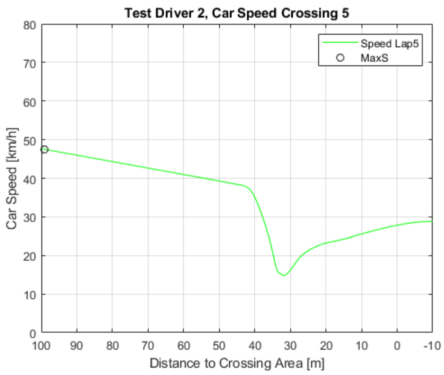

TD52, Car Acceleration Crossing 3
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

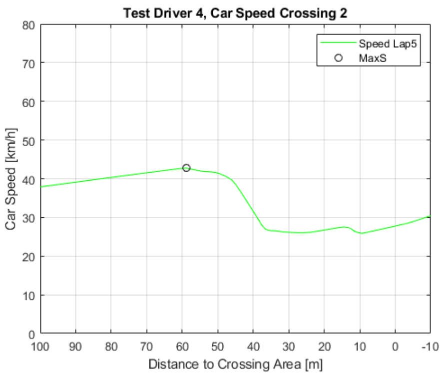

TD52, Car Acceleration Crossing 6
Acceleration Lap1
MaxD 1
Acceleration Lap5
Max D 5
Car Acceleration [m/s^2]
Distance to Crossing Area [m]

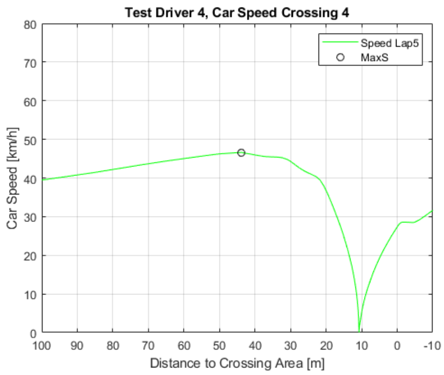
G.Max Speed graphs

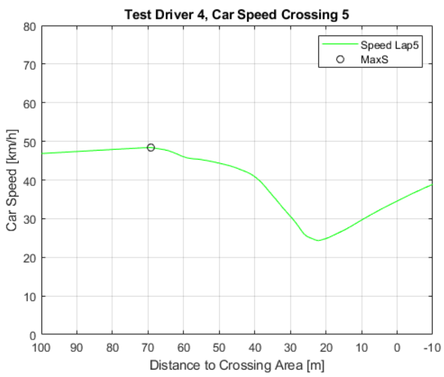


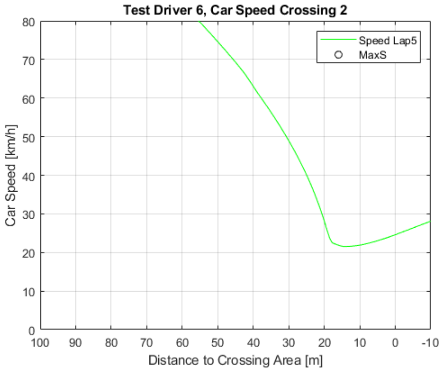


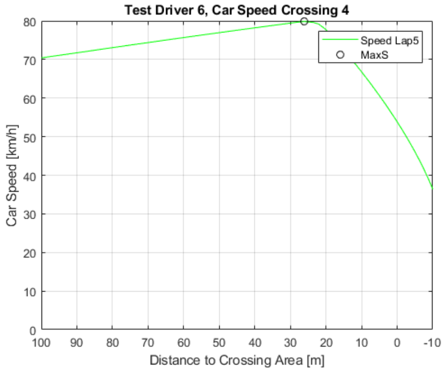


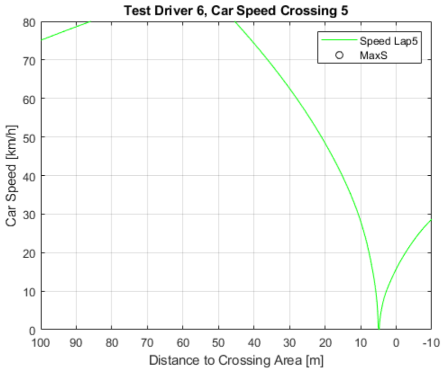


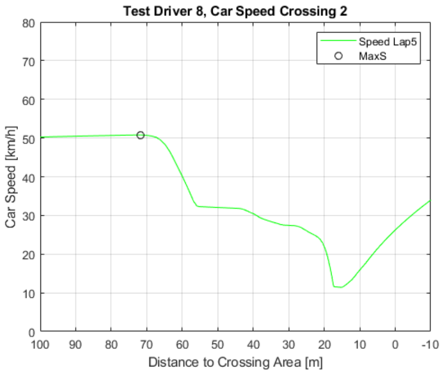


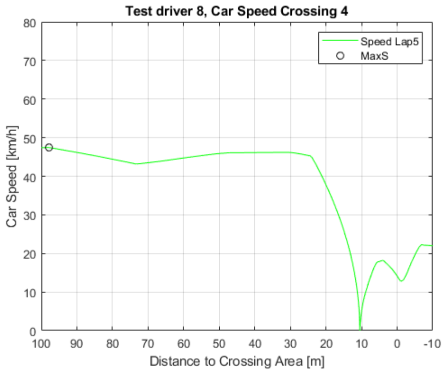


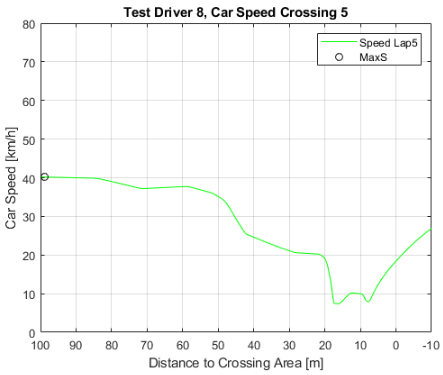

Test Driver 6, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

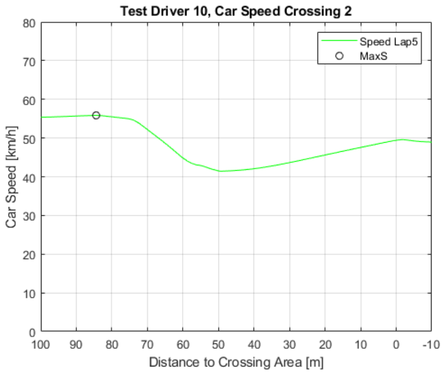

Test Driver 6, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

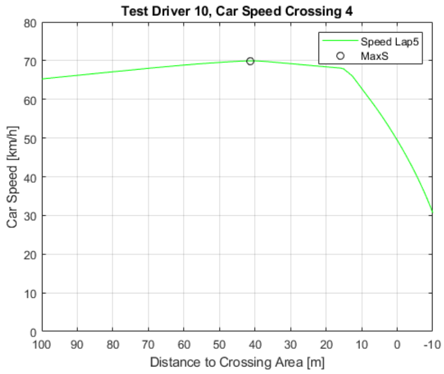

Test Driver 6, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

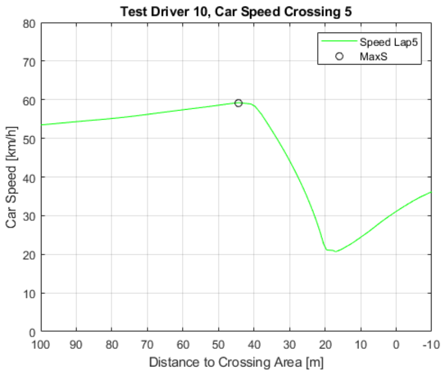

Test Driver 8, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

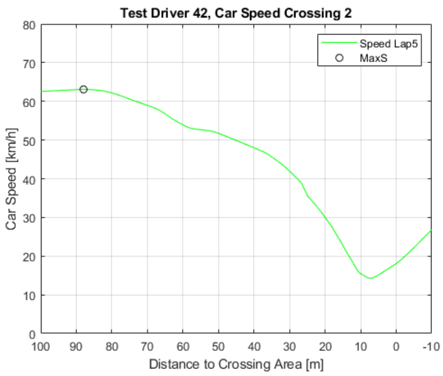

Test driver 8, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

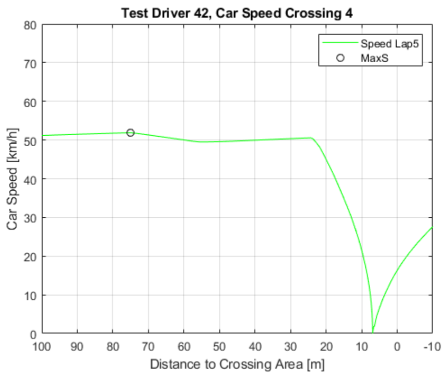

Test Driver 8, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

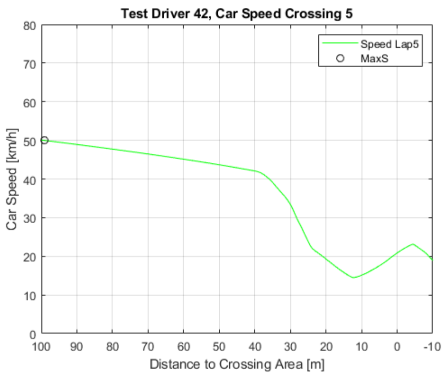

Test Driver 10, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

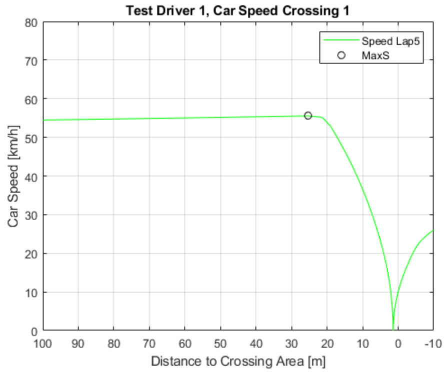

Test Driver 10, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

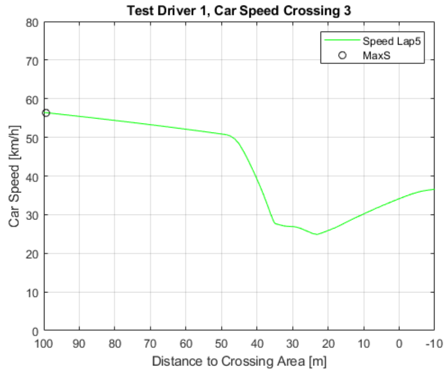

Test Driver 10, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

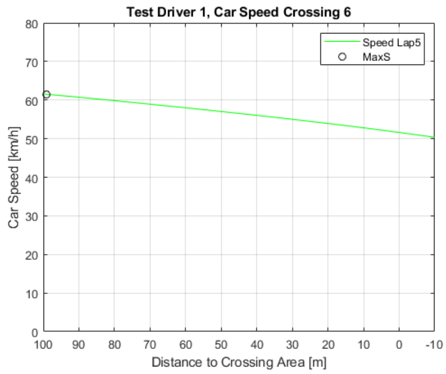

Test Driver 42, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

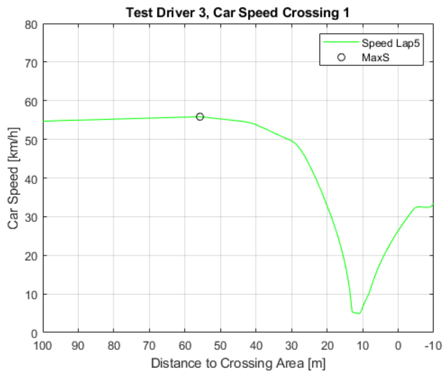

Test Driver 42, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

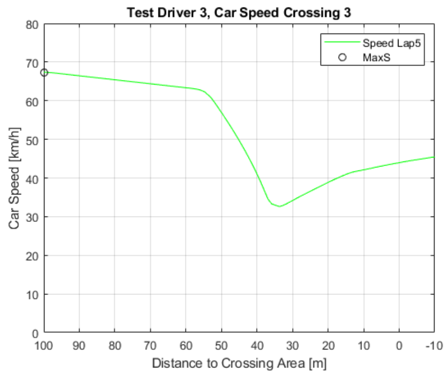

Test Driver 42, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

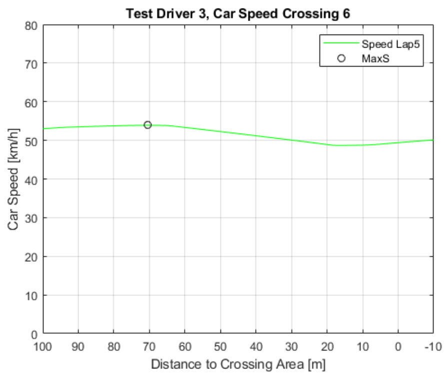

Test Driver 1, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

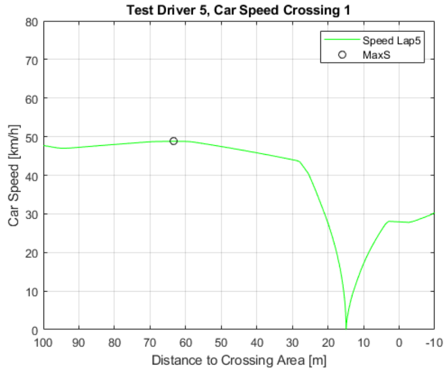

Test Driver 1, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 1, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

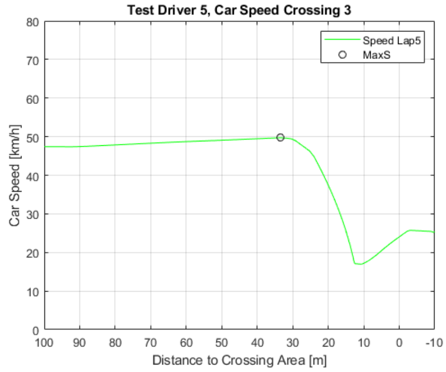

Test Driver 3, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 3, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

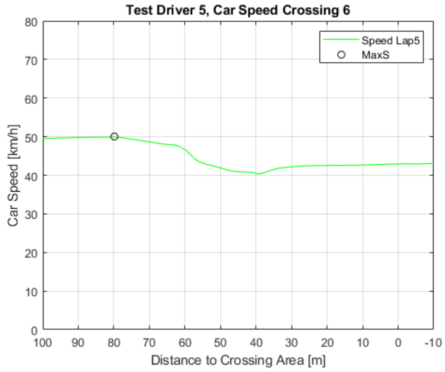

Test Driver 3, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]



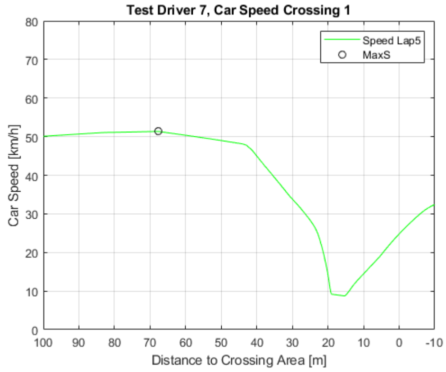
Test Driver 5, Car Speed Crossing 1



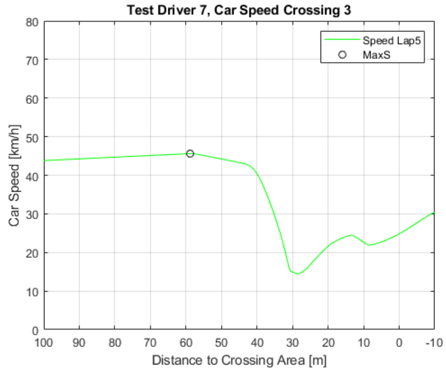
Test Driver 5, Car Speed Crossing 3



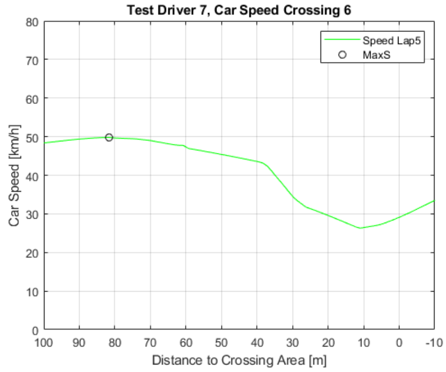
Test Driver 5, Car Speed Crossing 6



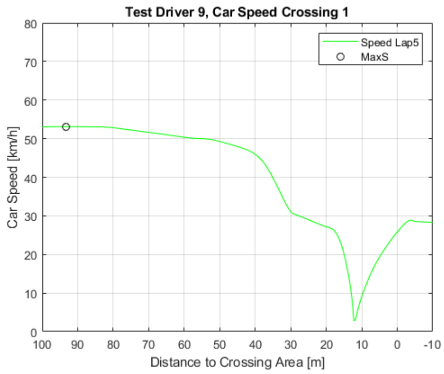
Test Driver 7, Car Speed Crossing 1

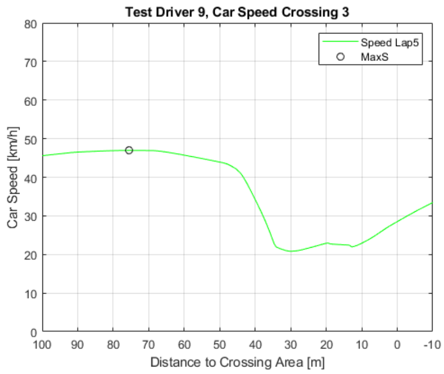


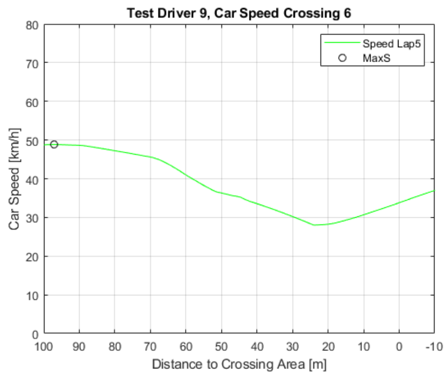
Test Driver 7, Car Speed Crossing 3

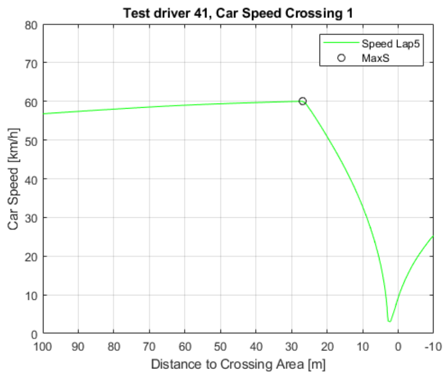


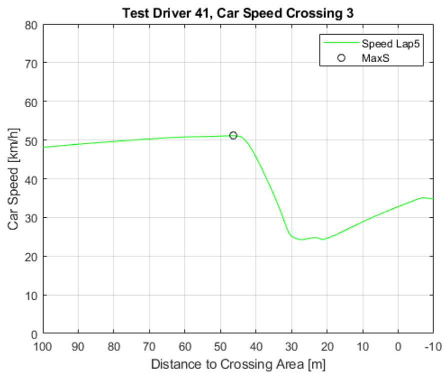
Test Driver 7, Car Speed Crossing 6

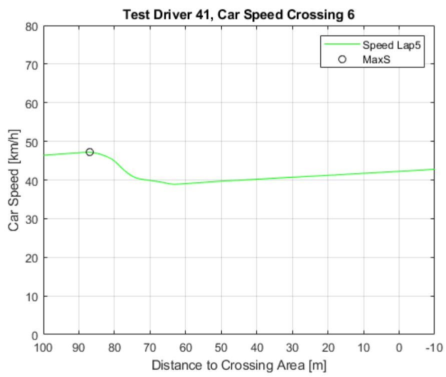

Test Driver 9, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

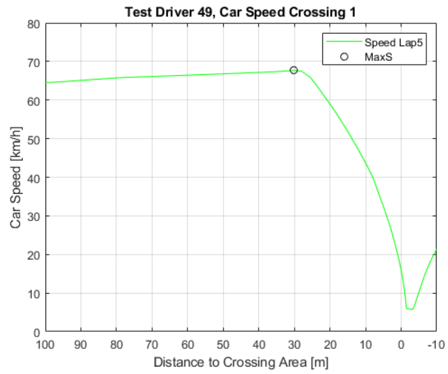

Test Driver 9, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 9, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

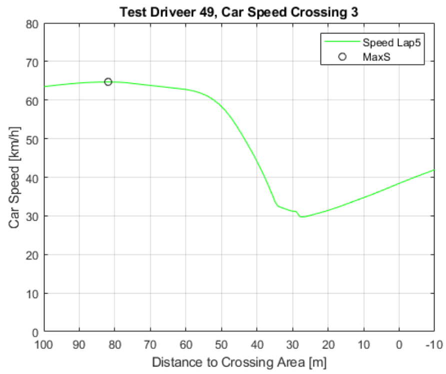

Test driver 41, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 41, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

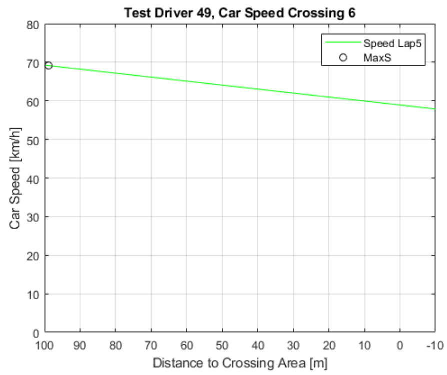

Test Driver 41, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]



Test Driver 49, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

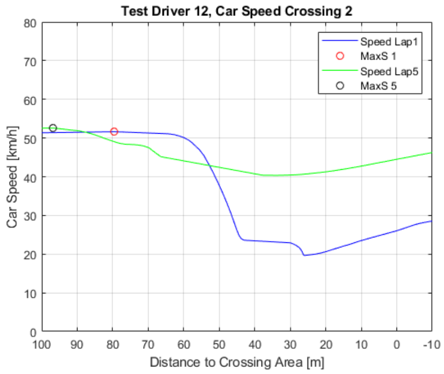


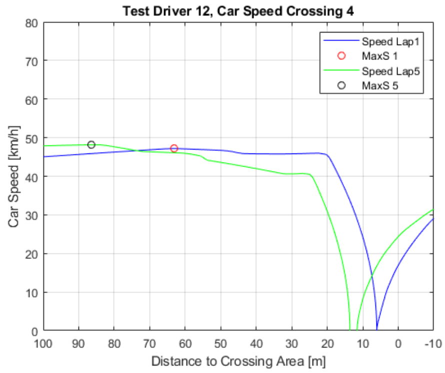
Test Driveer 49, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

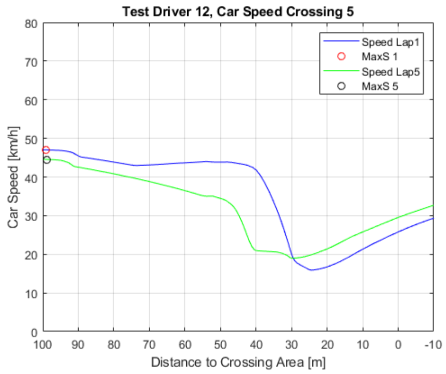


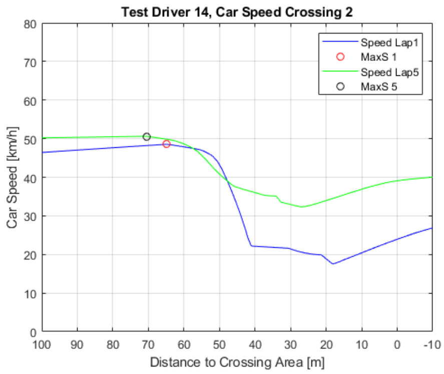
Test Driver 49, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

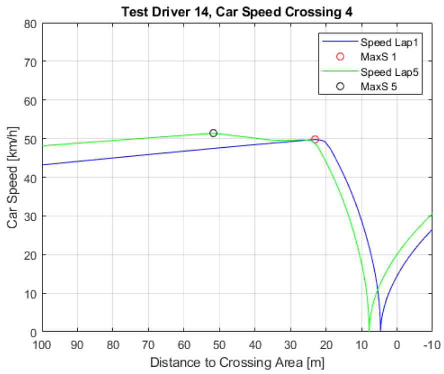
Scenario 2

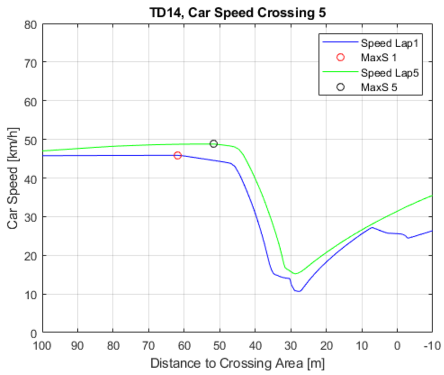

Test Driver 12, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

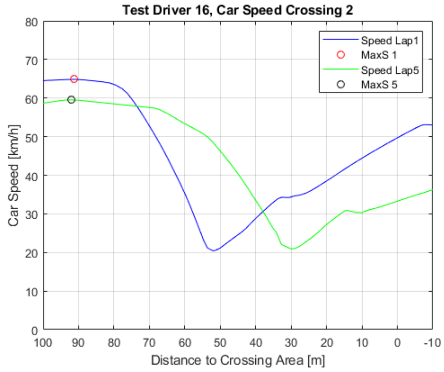

Test Driver 12, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

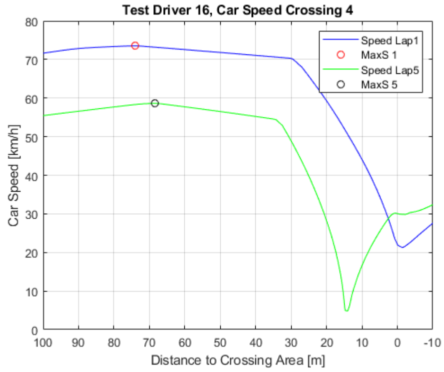

Test Driver 12, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

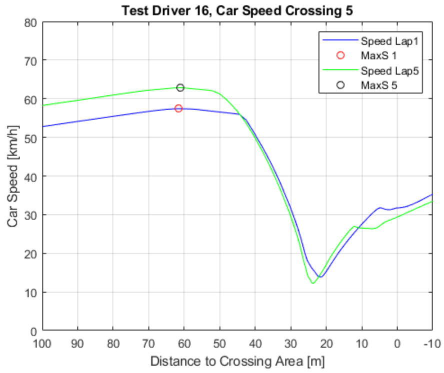

Test Driver 14, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

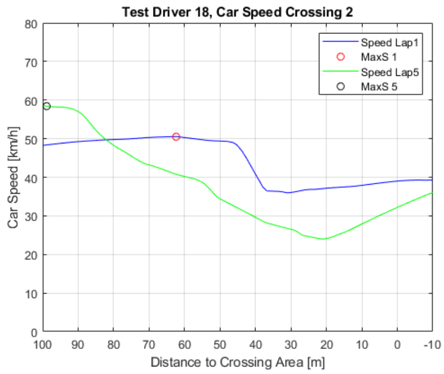

Test Driver 14, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

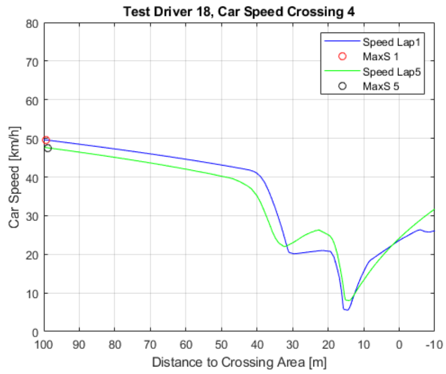

TD14, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

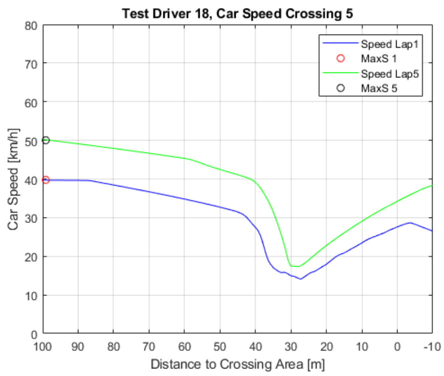

Test Driver 16, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

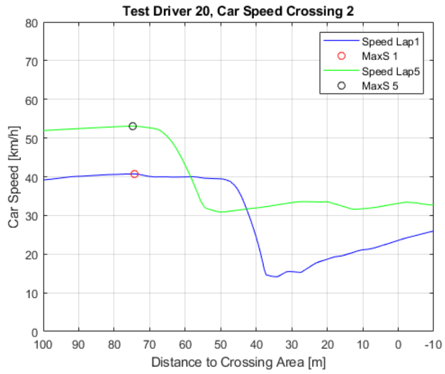

Test Driver 16, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

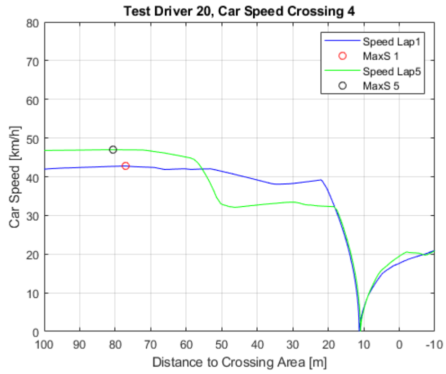

Test Driver 16, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

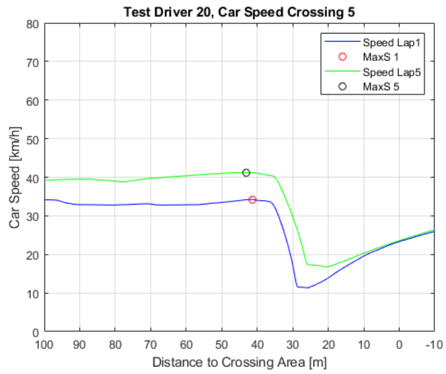

Test Driver 18, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

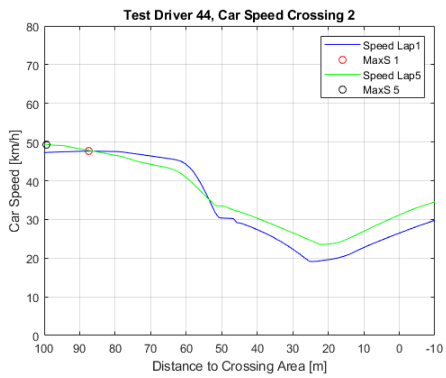

Test Driver 18, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

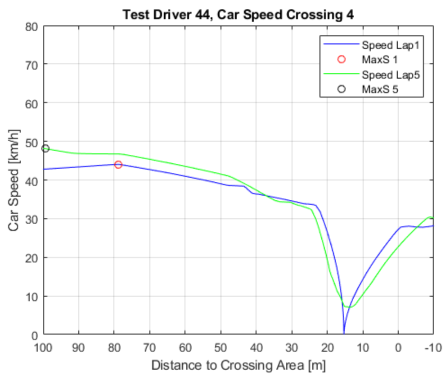

Test Driver 18, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

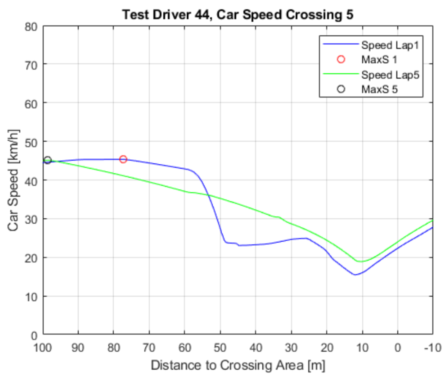

Test Driver 20, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

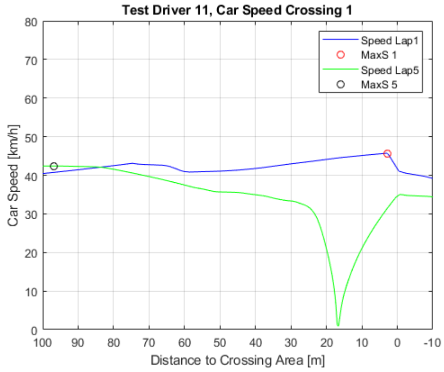

Test Driver 20, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

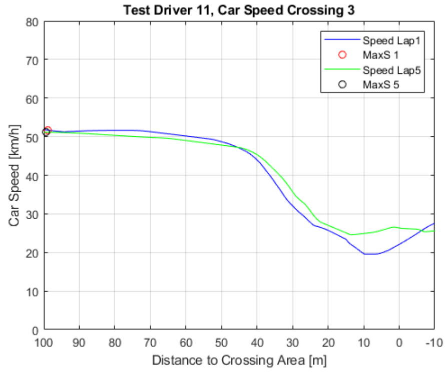

Test Driver 20, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

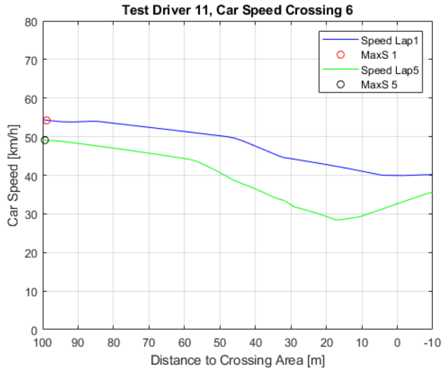

Test Driver 44, Car Speed Crossing 2
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

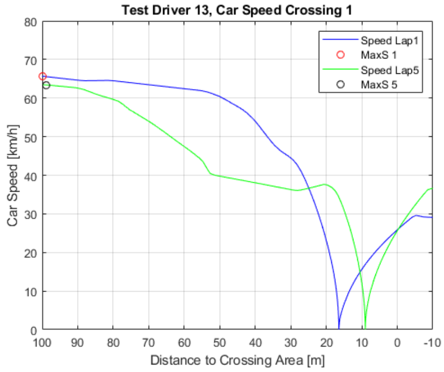

Test Driver 44, Car Speed Crossing 4
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

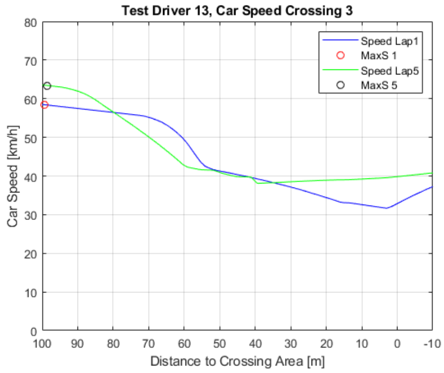

Test Driver 44, Car Speed Crossing 5
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

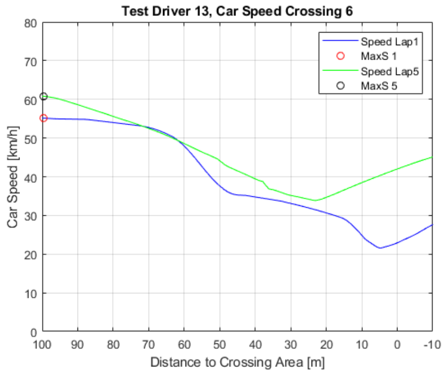

Test Driver 11, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

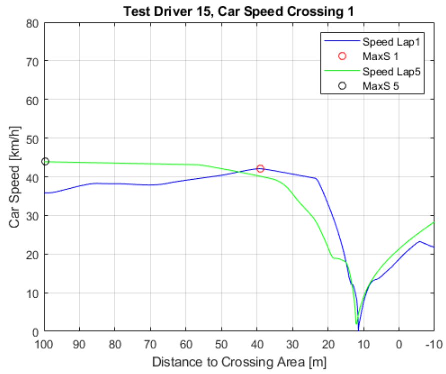

Test Driver 11, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

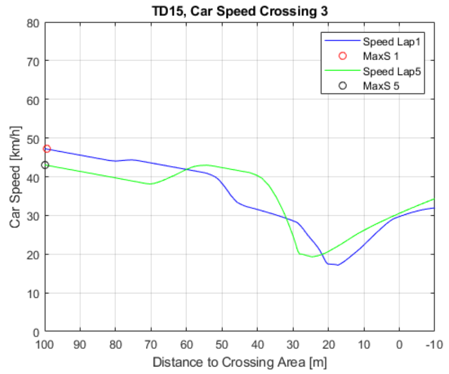

Test Driver 11, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

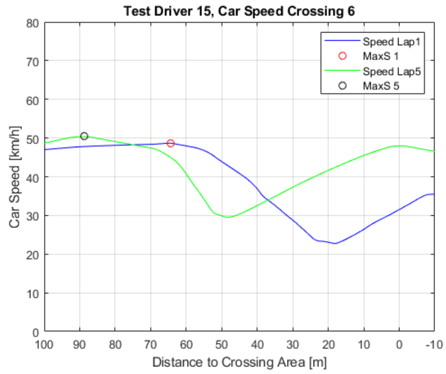

Test Driver 13, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

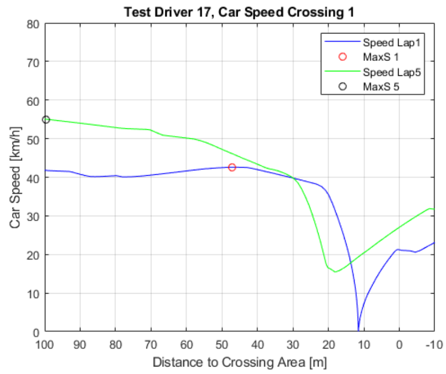

Test Driver 13, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

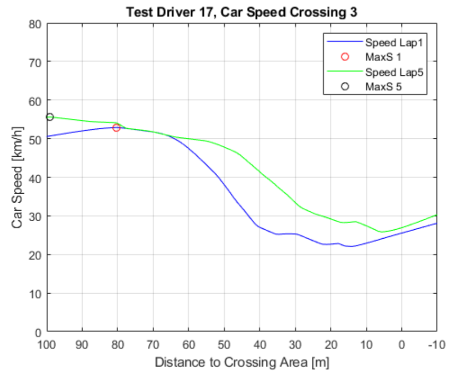

Test Driver 13, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

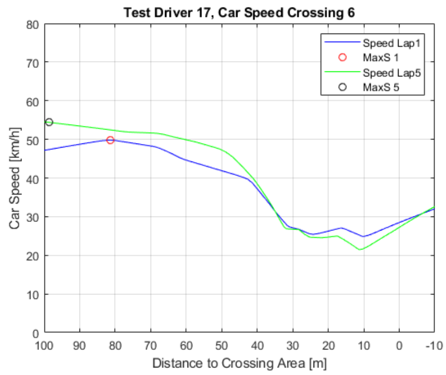

Test Driver 15, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

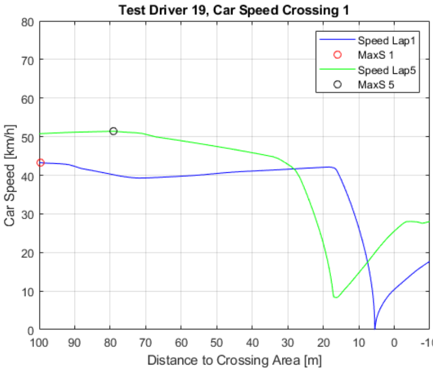

TD15, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

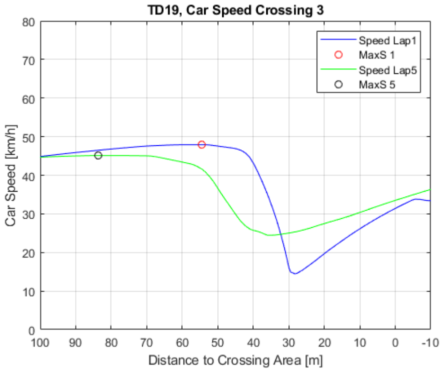

Test Driver 15, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

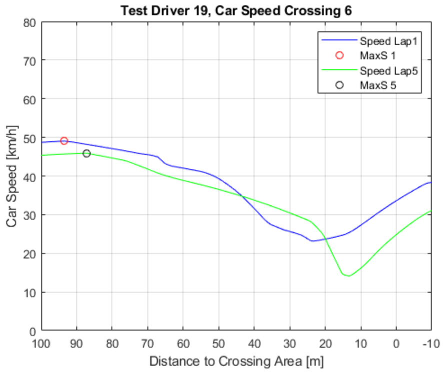

Test Driver 17, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

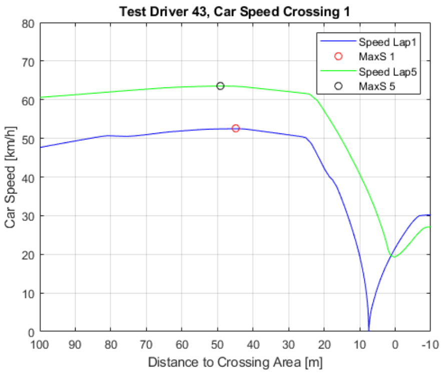

Test Driver 17, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

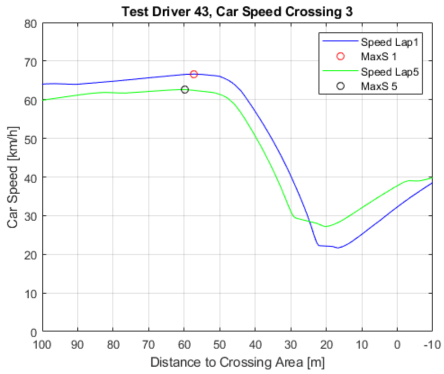

Test Driver 17, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

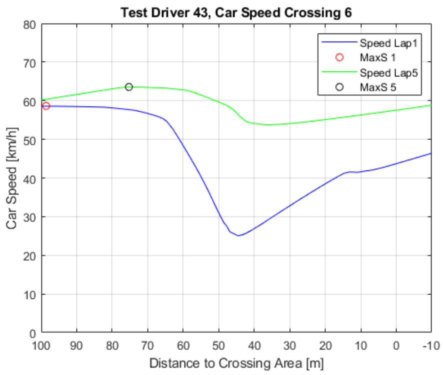

Test Driver 19, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

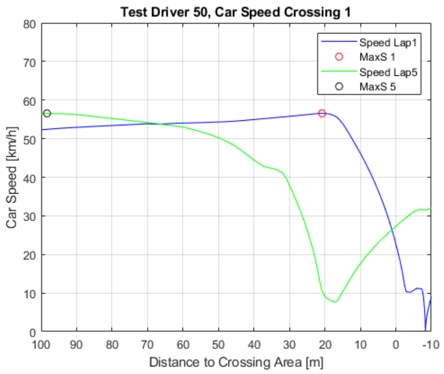

TD19, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 19, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

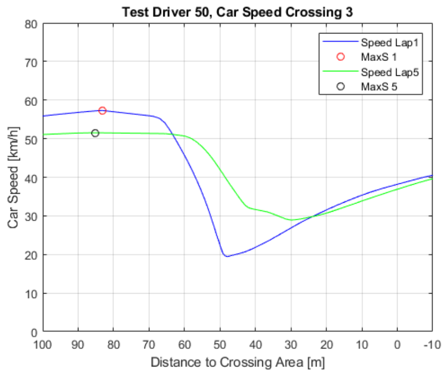

Test Driver 43, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 43, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

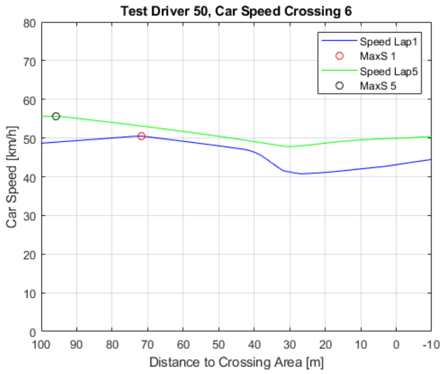

Test Driver 43, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]



Test Driver 50, Car Speed Crossing 1
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

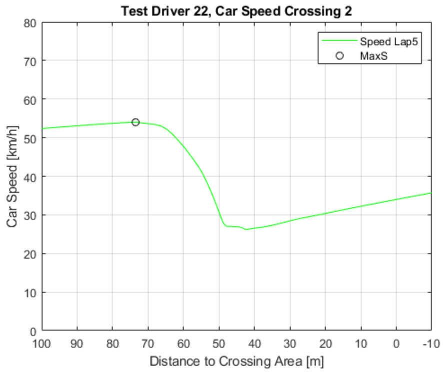


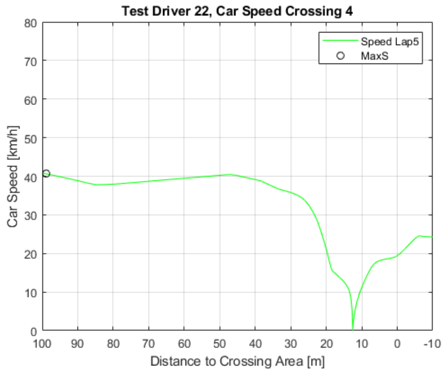
Test Driver 50, Car Speed Crossing 3
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

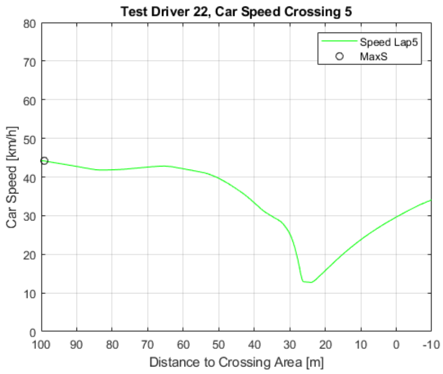


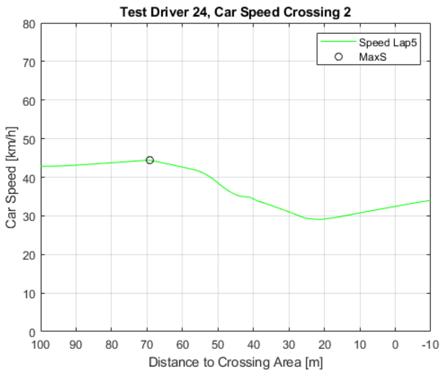
Test Driver 50, Car Speed Crossing 6
Speed Lap1
MaxS 1
Speed Lap5
MaxS 5
Car Speed [km/h]
Distance to Crossing Area [m]

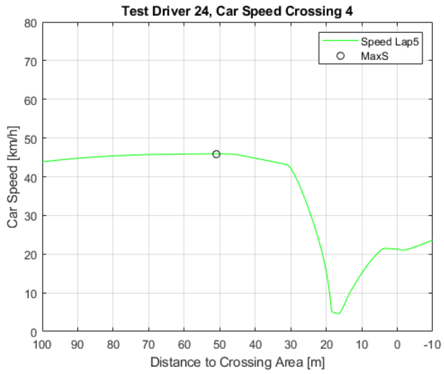
Scenario 3

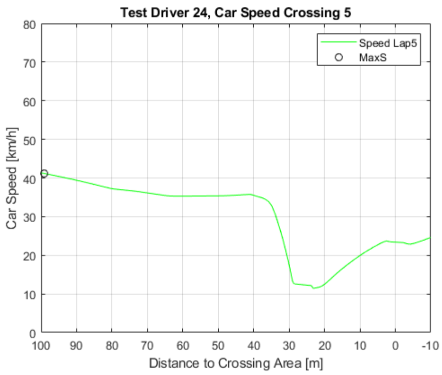

Test Driver 22, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

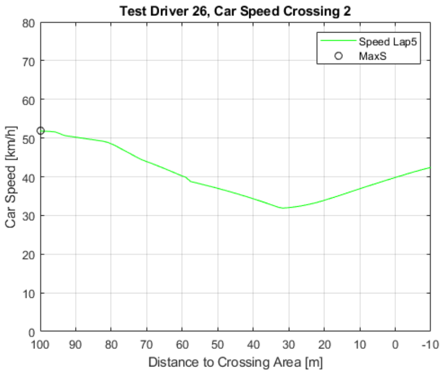

Test Driver 22, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

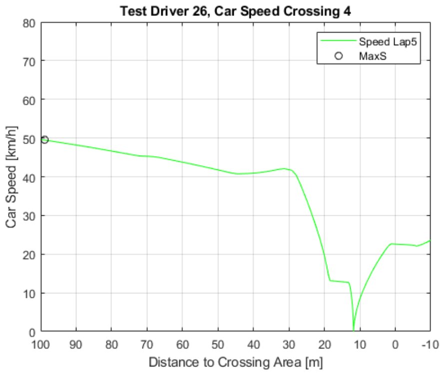

Test Driver 22, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

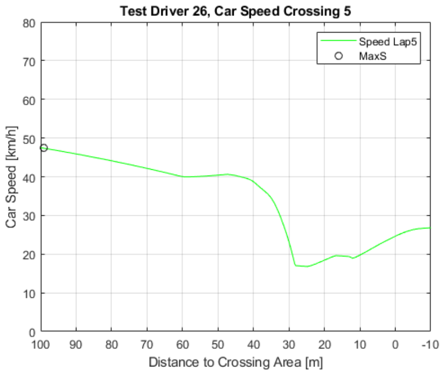

Test Driver 24, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

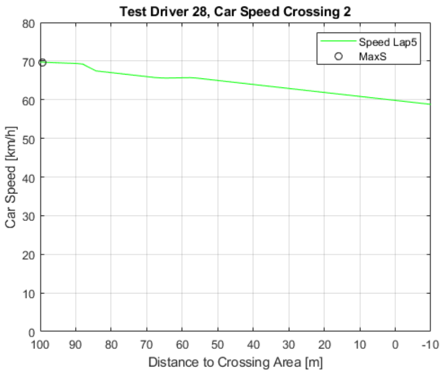

Test Driver 24, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

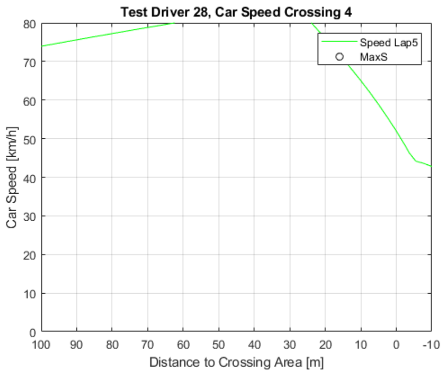

Test Driver 24, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

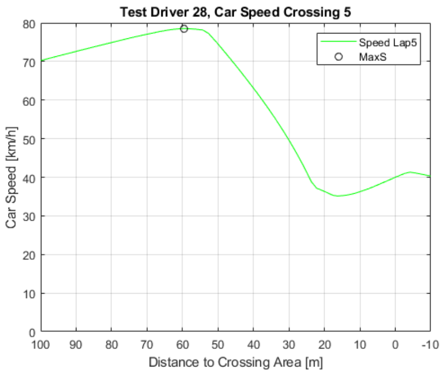

Test Driver 26, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

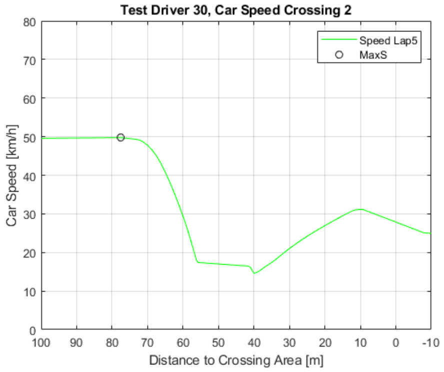

Test Driver 26, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

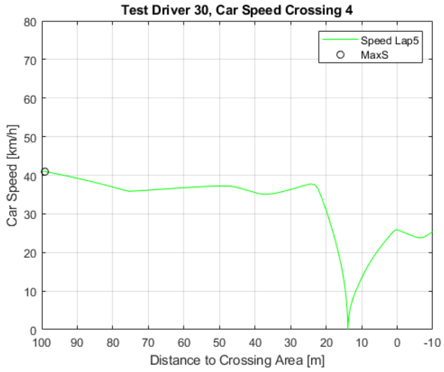

Test Driver 26, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

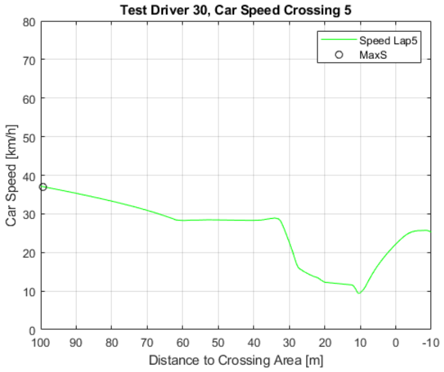

Test Driver 28, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

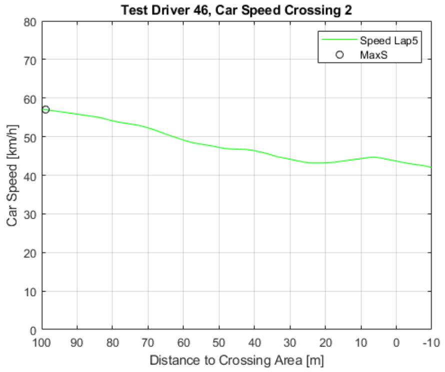

Test Driver 28, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

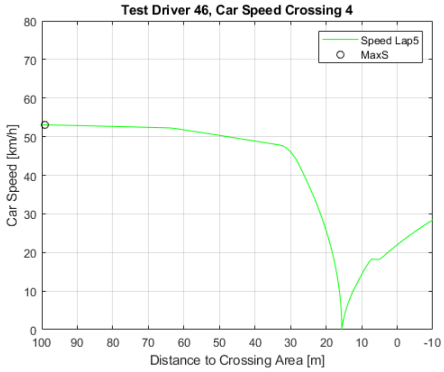

Test Driver 28, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

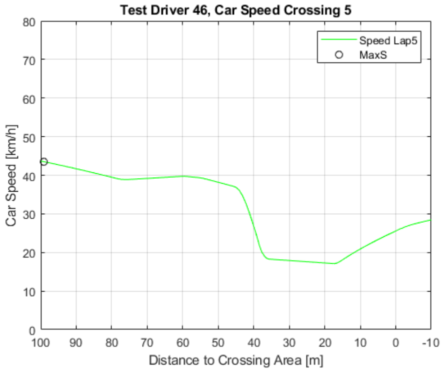

Test Driver 30, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

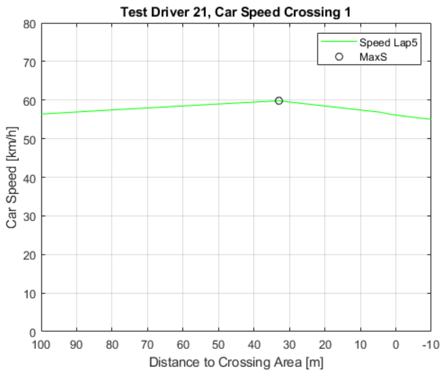

Test Driver 30, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

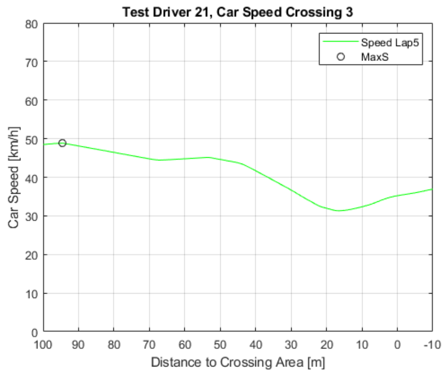

Test Driver 30, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

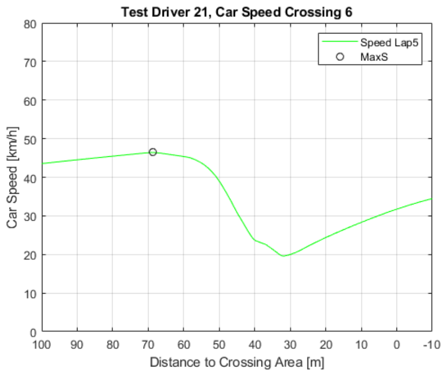

Test Driver 46, Car Speed Crossing 2
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

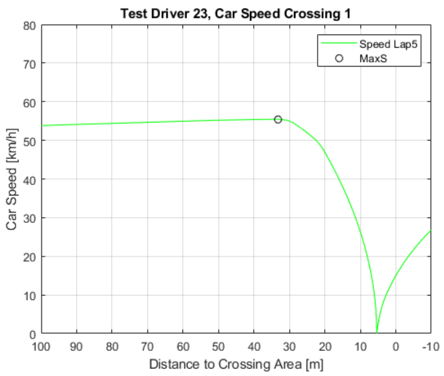

Test Driver 46, Car Speed Crossing 4
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

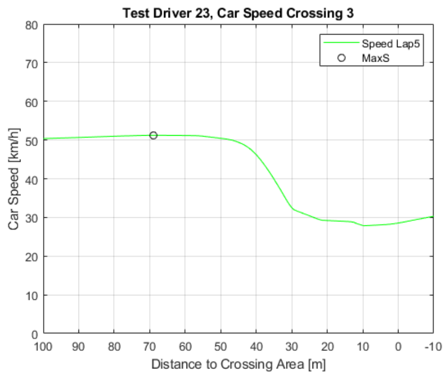

Test Driver 46, Car Speed Crossing 5
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

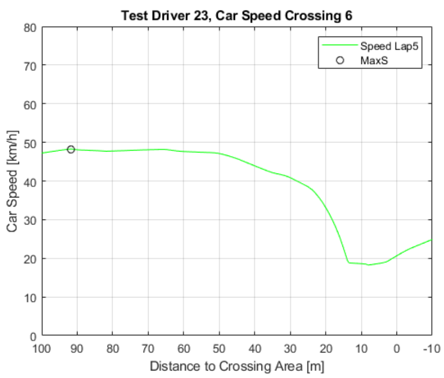

Test Driver 21, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

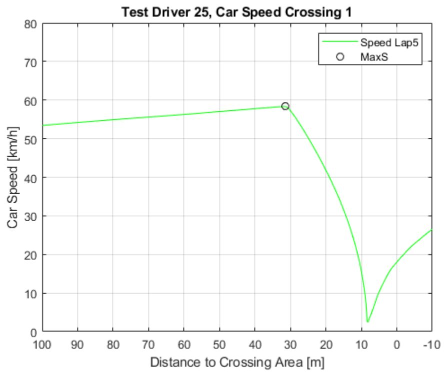

Test Driver 21, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

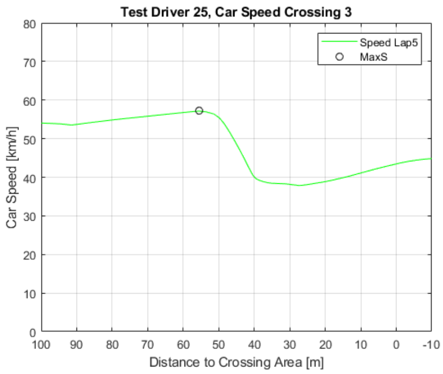

Test Driver 21, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

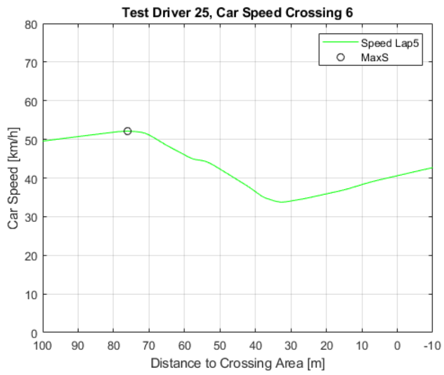

Test Driver 23, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

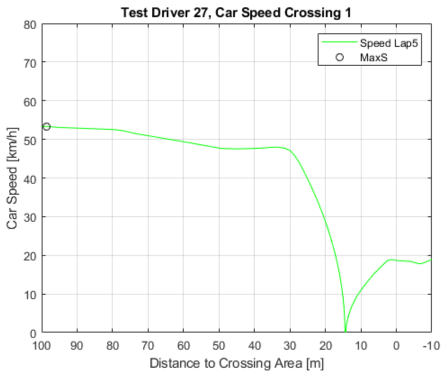

Test Driver 23, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

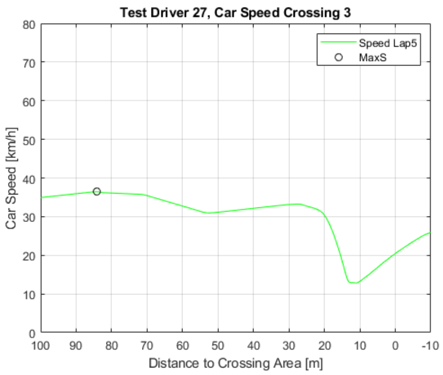

Test Driver 23, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

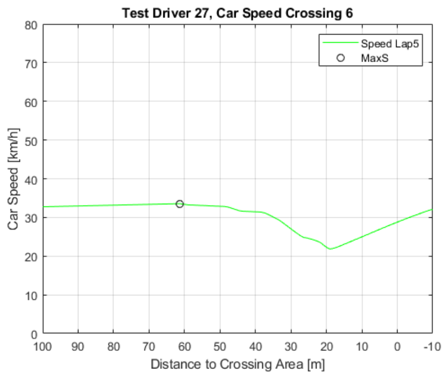

Test Driver 25, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

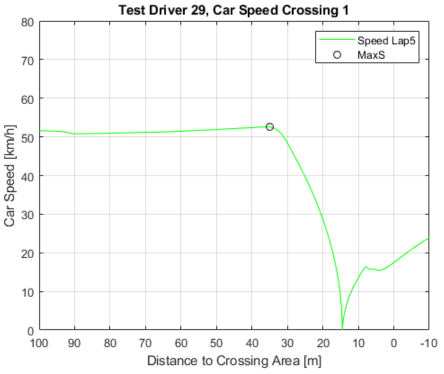

Test Driver 25, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

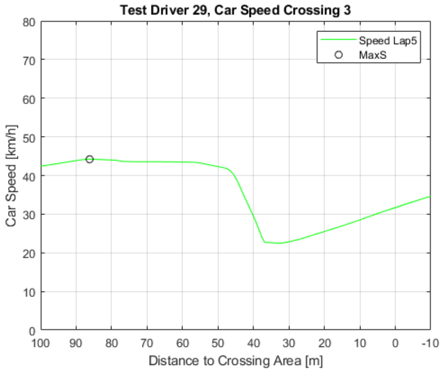

Test Driver 25, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

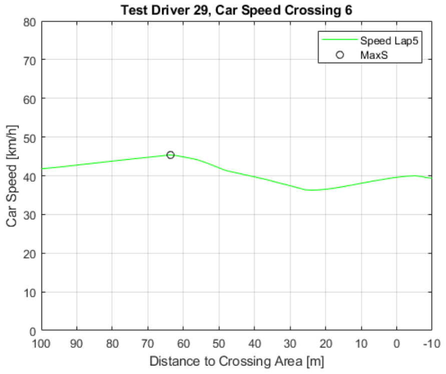

Test Driver 27, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

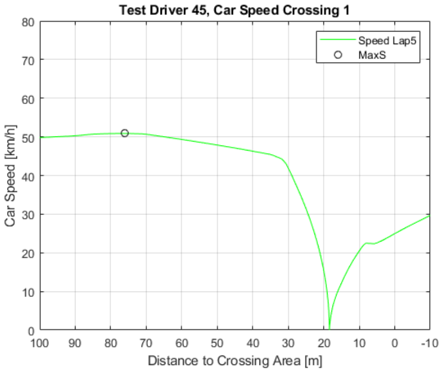

Test Driver 27, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

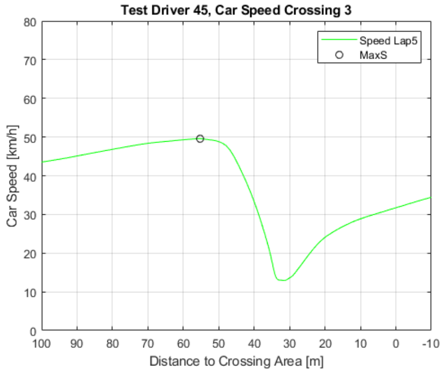

Test Driver 27, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

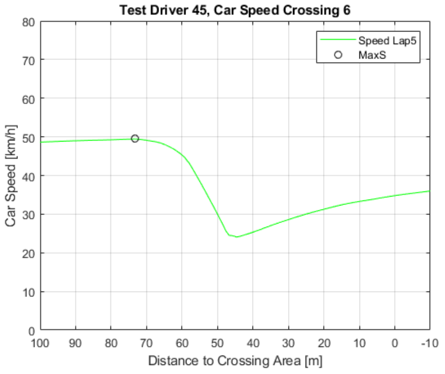

Test Driver 29, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

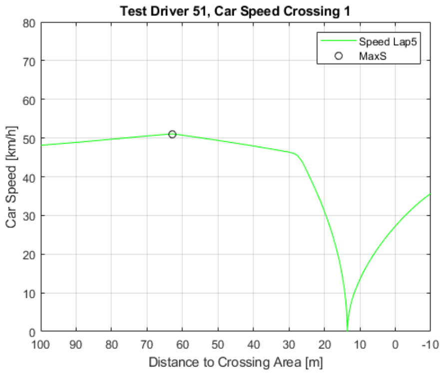

Test Driver 29, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

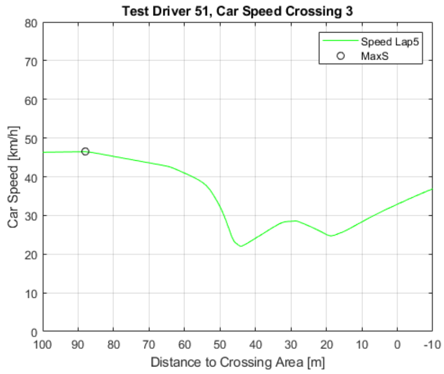

Test Driver 29, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

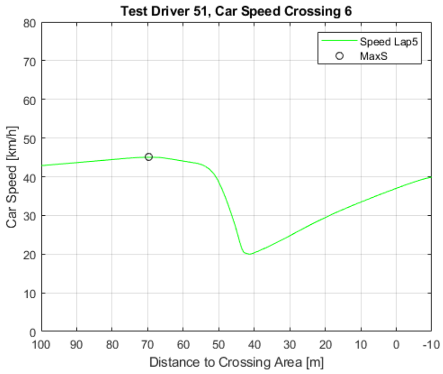

Test Driver 45, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 45, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

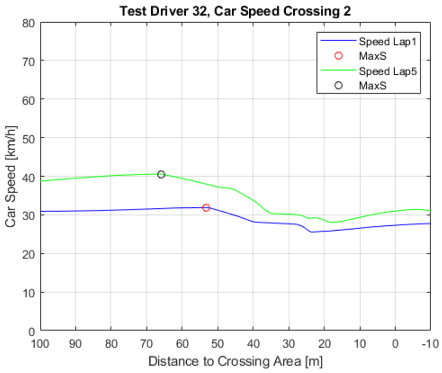

Test Driver 45, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

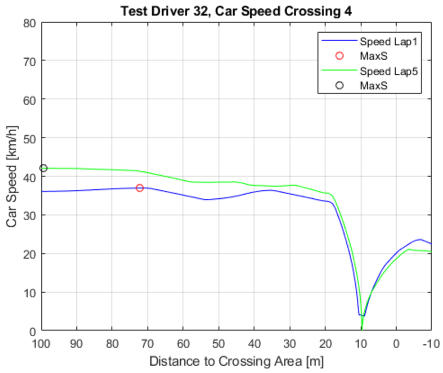

Test Driver 51, Car Speed Crossing 1
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

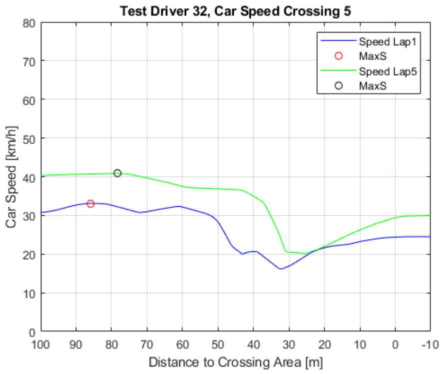

Test Driver 51, Car Speed Crossing 3
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

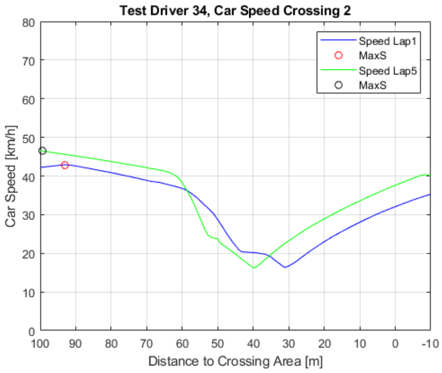

Test Driver 51, Car Speed Crossing 6
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

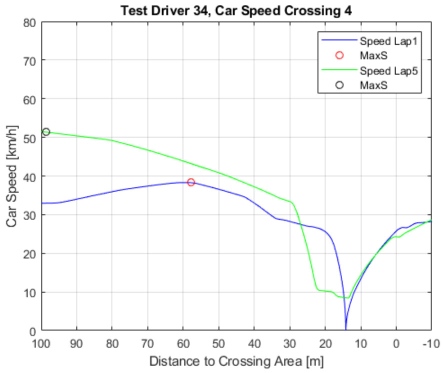
Scenario 4

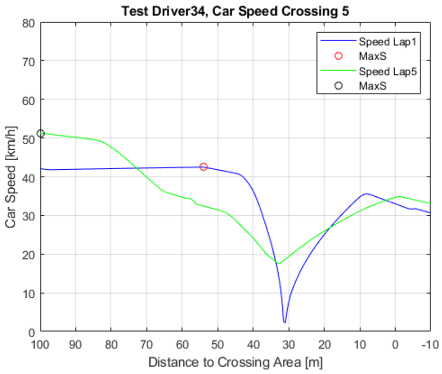

Test Driver 32, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

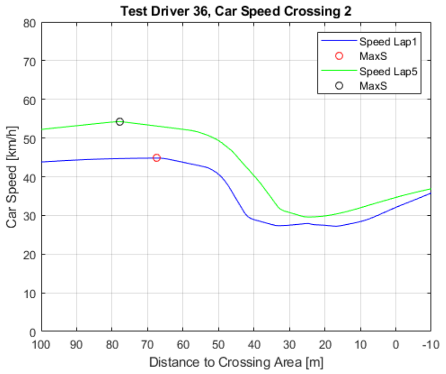

Test Driver 32, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

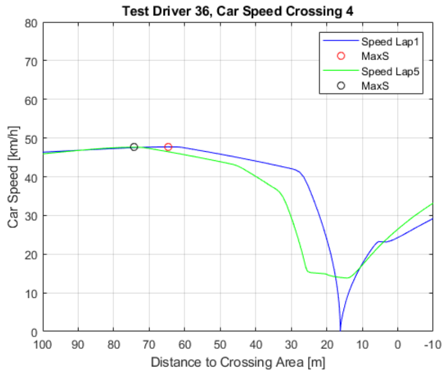

Test Driver 32, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

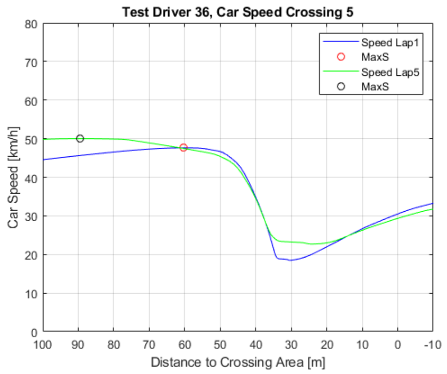

Test Driver 34, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

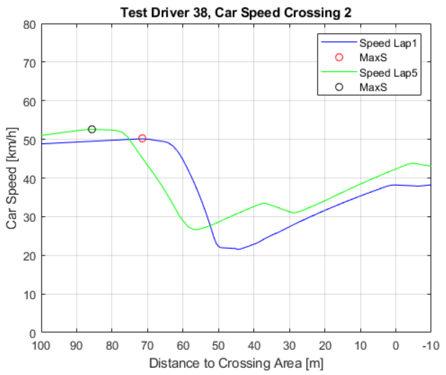

Test Driver 34, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

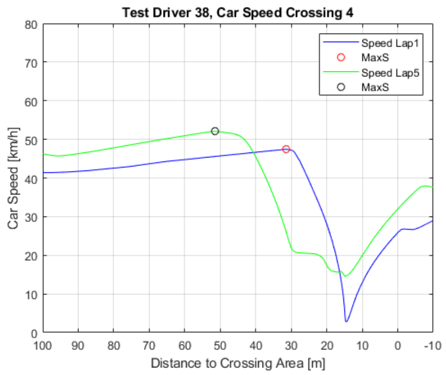

Test Driver34, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

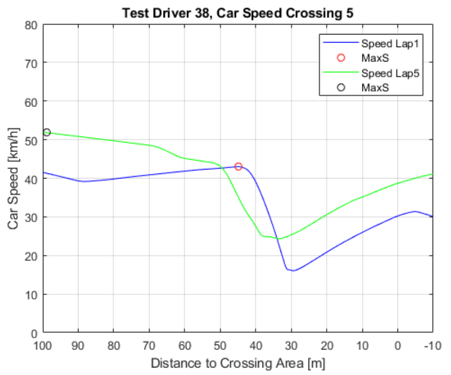

Test Driver 36, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

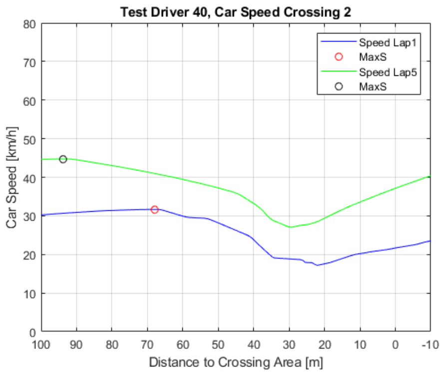

Test Driver 36, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

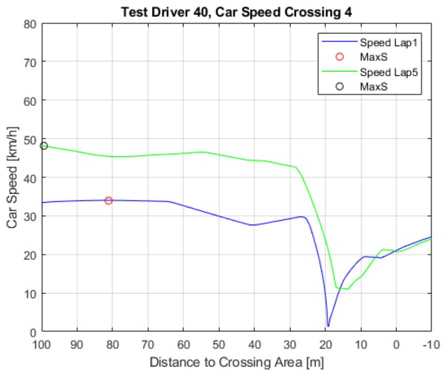

Test Driver 36, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

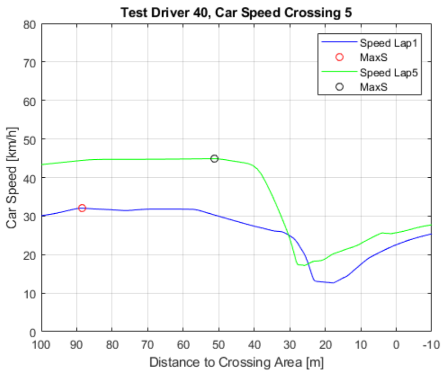

Test Driver 38, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

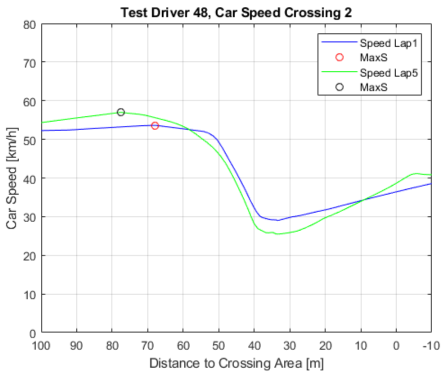

Test Driver 38, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

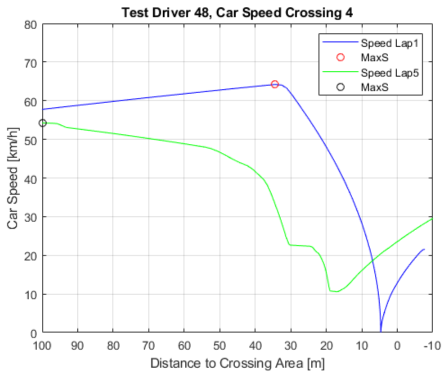

Test Driver 38, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

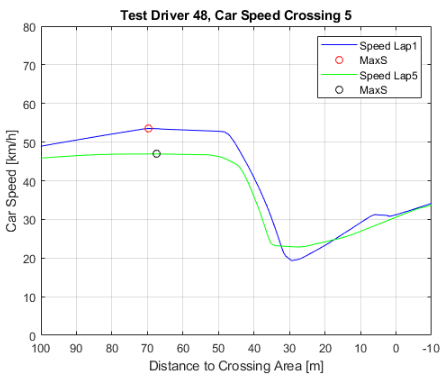

Test Driver 40, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

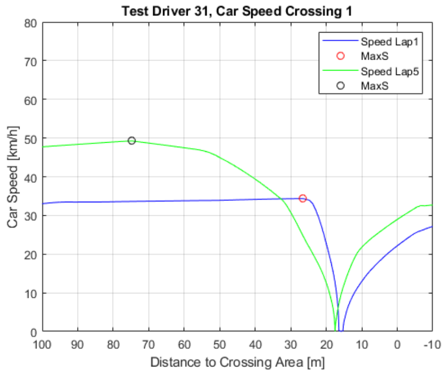

Test Driver 40, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

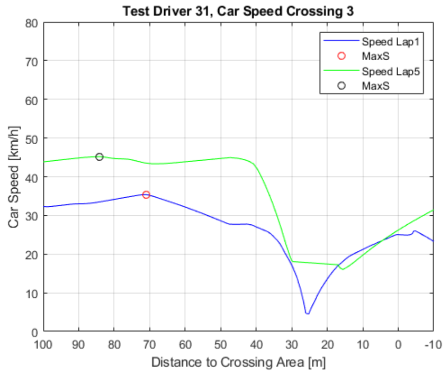

Test Driver 40, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

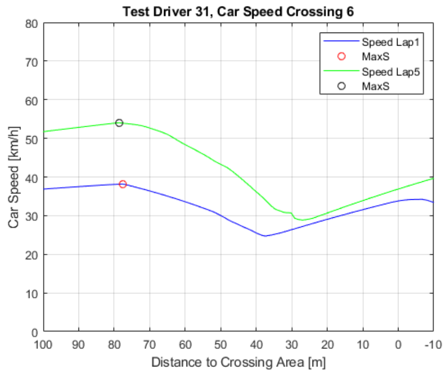

Test Driver 48, Car Speed Crossing 2
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

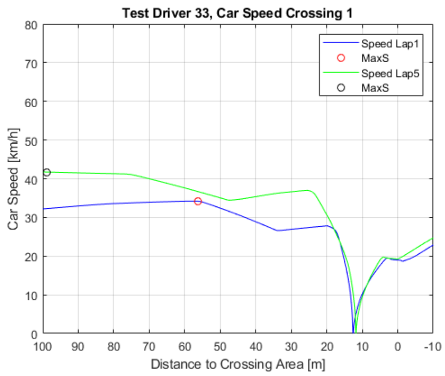

Test Driver 48, Car Speed Crossing 4
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

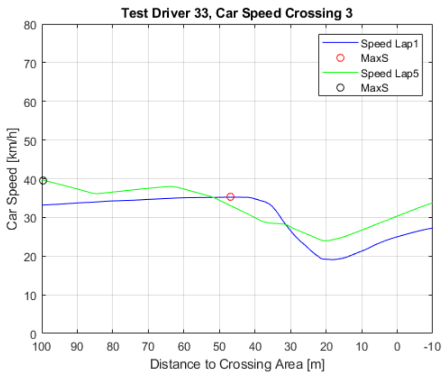

Test Driver 48, Car Speed Crossing 5
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

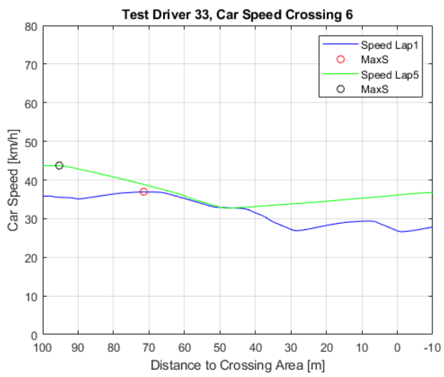

Test Driver 31, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

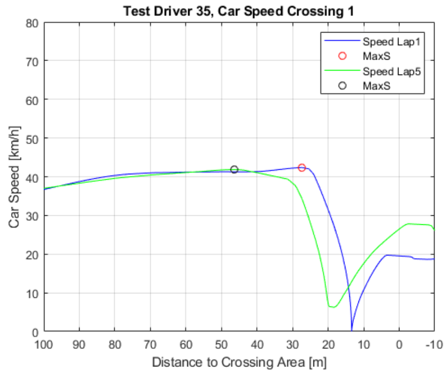

Test Driver 31, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

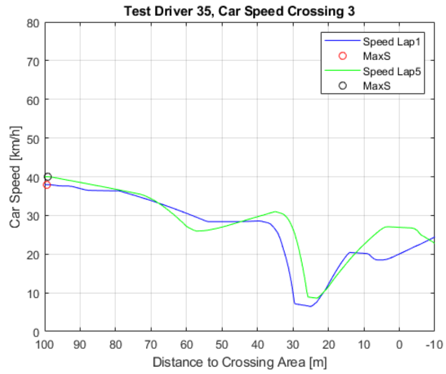

Test Driver 31, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

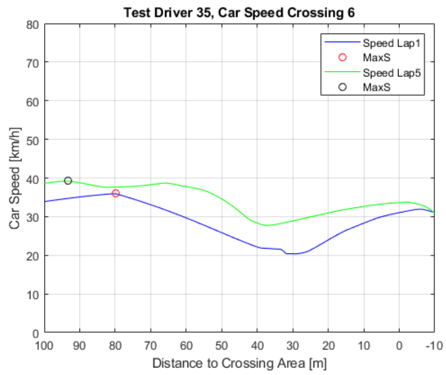

Test Driver 33, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

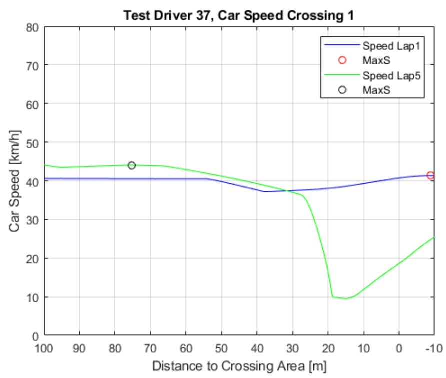

Test Driver 33, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

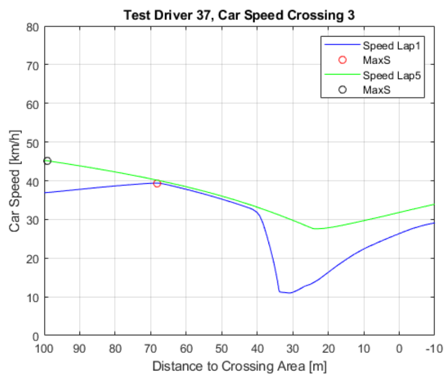

Test Driver 33, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

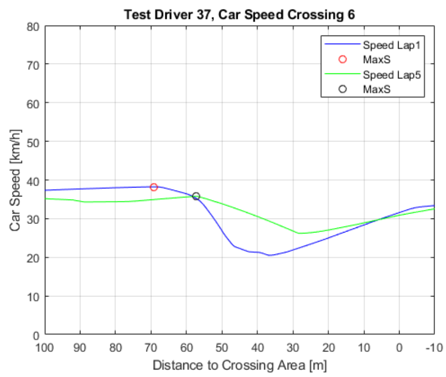

Test Driver 35, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

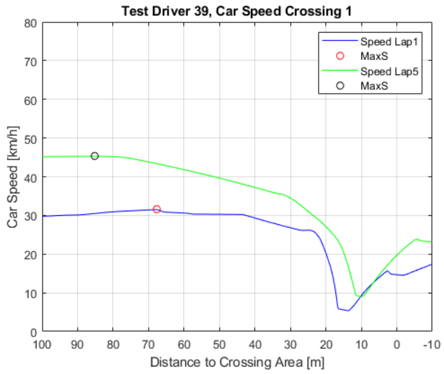

Test Driver 35, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

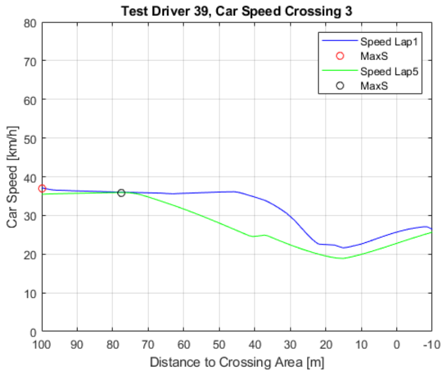

Test Driver 35, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

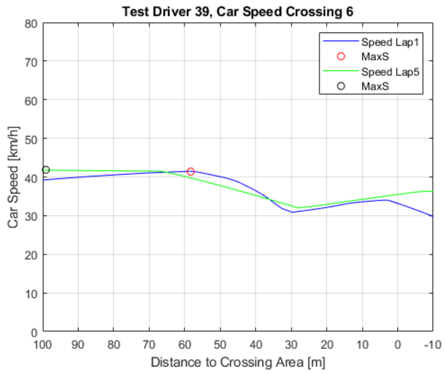

Test Driver 37, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

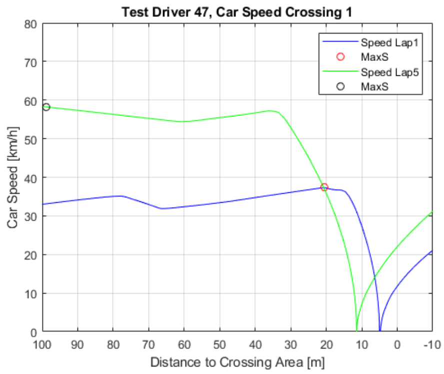

Test Driver 37, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

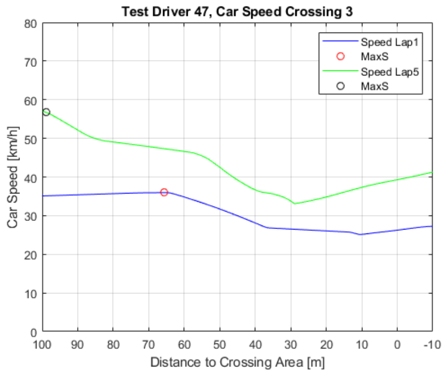

Test Driver 37, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

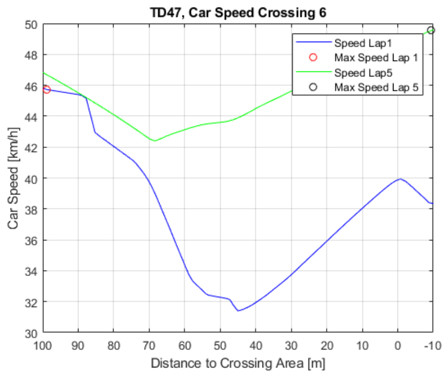

Test Driver 39, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

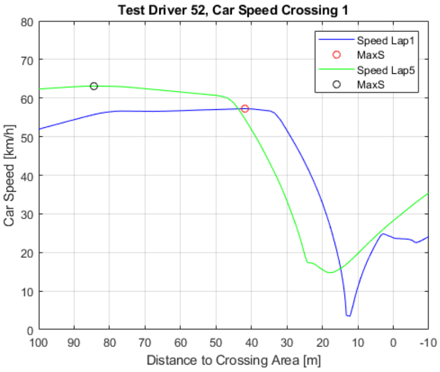

Test Driver 39, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

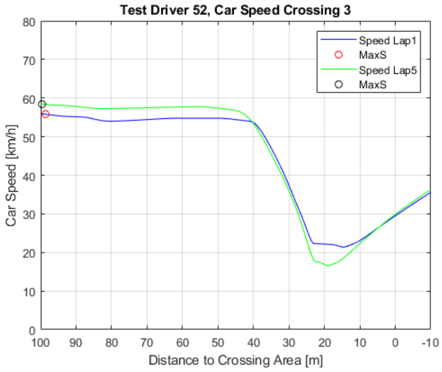

Test Driver 39, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

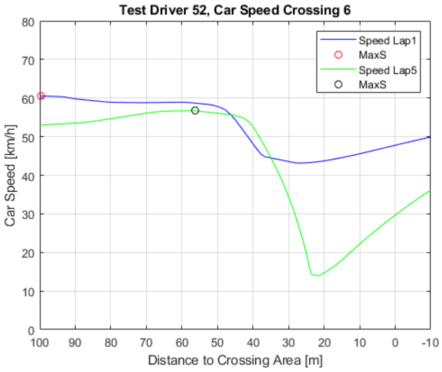

Test Driver 47, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 47, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


TD47, Car Speed Crossing 6
Speed Lap1
Max Speed Lap 1
Speed Lap5
Max Speed Lap 5
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 52, Car Speed Crossing 1
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 52, Car Speed Crossing 3
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]


Test Driver 52, Car Speed Crossing 6
Speed Lap1
MaxS
Speed Lap5
MaxS
Car Speed [km/h]
Distance to Crossing Area [m]

H. Post-hoc tests results

Table 23-Post-hoc test on familiarity factor (MTTC model)

Post Hoc Comparisons - Familiarity ID

Comparison							
Familiarity		**Familiarity**	**Difference**	**SE**	**t**	**df**	p_{holm}
Route	-	Unfamiliar	-0.381	0.163	-2.335	66.4	0.045
Route	-	Situational	-0.491	0.163	-3.015	66.4	0.011
Unfamiliar	-	Situational	-0.111	0.116	-0.951	180.0	0.343

Table 24-Post-hoc test on mid-block layout factor (MTTC model)

Post Hoc Comparisons - Mid-block layout

Comparison							
Mid-block layout		**Mid-block layout**	**Difference**	**SE**	**t**	**df**	p_{holm}
Baseline	-	Curb Extension	-0.425	0.151	-2.82	46.9	0.007

Table 25-Post-hoc test on pedestrian time gap acceptance factor (MTTC model)

Post Hoc Comparisons - Pedestrian Time Gap Acceptance

Comparison							
Pedestrian Time Gap Acceptance		**Pedestrian Time Gap Acceptance**	**Difference**	**SE**	**t**	**df**	p_{holm}
6 seconds	-	8 seconds	-0.821	0.116	-7.0	180	< .001
4 seconds	-	6 seconds	-1.585	0.116	-13.6	180	< .001
4 seconds	-	8 seconds	-2.406	0.116	-20.6	180	< .001

Table 26-Post-hoc test on familiarity factor (PET model)

Post Hoc Comparisons - Familiarity							
Comparison							
Familiarity		Familiarity	Difference	SE	t	df	p_{holm}
Route	-	Unfamiliar	-0.62963	0.278	-2.2647	67.8	0.053
Route	-	Situational	0.00350	0.278	0.0126	67.8	0.990
Unfamiliar	-	Situational	0.63313	0.198	3.1909	180.0	0.005

Table 27-Post-hoc test on pedestrian time gap acceptance factor (PET model)

Post Hoc Comparisons - Pedestrian Time Gap Acceptance							
Comparison							
Pedestrian Time Gap Acceptance		Pedestrian Time Gap Acceptance	Difference	SE	t	df	p_{holm}
6 seconds	-	8 seconds	-1.135	0.198	-5.7	180	< .001
4 seconds	-	6 seconds	-0.314	0.198	-1.5	180	0.115
4 seconds	-	8 seconds	-1.449	0.198	-7.3	180	< .001

Table 28-Post-hoc test on mid-block layout factor (MaxS model)

Post Hoc Comparisons - Mid-block layout							
Comparison							
Mid-block layout		Mid-block layout	Difference	SE	t	df	p_{holm}
Baseline	-	Curb Extension	6.53	2.41	2.71	46.6	0.009

Table 29-Post-hoc test on familiarity factor (MaxS model)

Post Hoc Comparisons - Familiarity							
Comparison							
Familiarity		Familiarity	Difference	SE	t	df	p_{holm}
Route	-	Unfamiliar	7.24	2.330	3.11	50.5	0.006
Route	-	Situational	3.35	2.330	1.44	50.5	0.157
Unfamiliar	-	Situational	-3.89	0.730	-5.33	178.0	< .001

Table 30-Post-hoc test on pedestrian time gap acceptance factor (MaxS model)

Post Hoc Comparisons - Pedestrian Time Gap Acceptance							
Comparison							
Pedestrian Time Gap Acceptance		Pedestrian Time Gap Acceptance	Difference	SE	t	df	p_{holm}
6 seconds	-	8 seconds	-1.826	0.730	-2.5	178	0.027
4 seconds	-	6 seconds	2.098	0.730	2.8	178	0.014
4 seconds	-	8 seconds	0.272	0.730	0.3	178	0.710

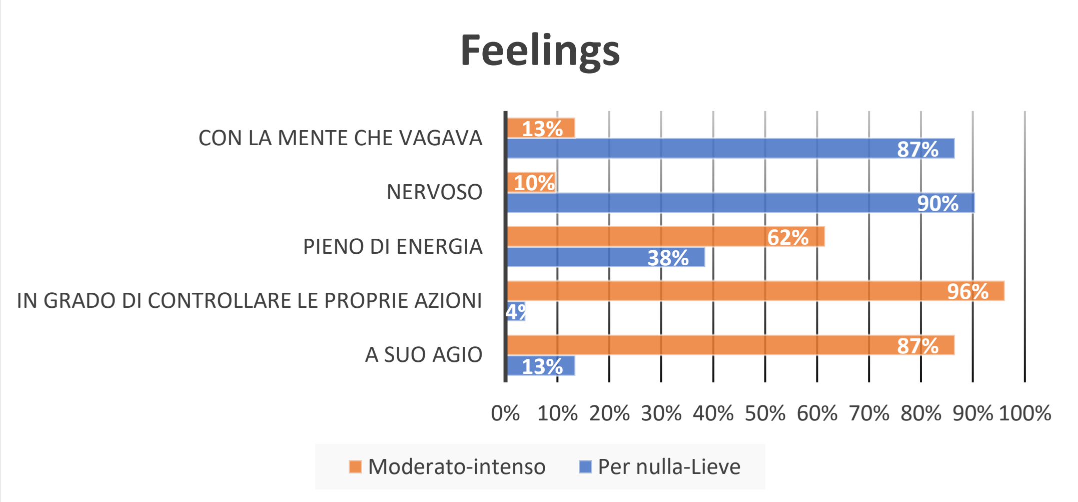
Table 31-Post-hoc test on mid-block layout factor (MaxD model)

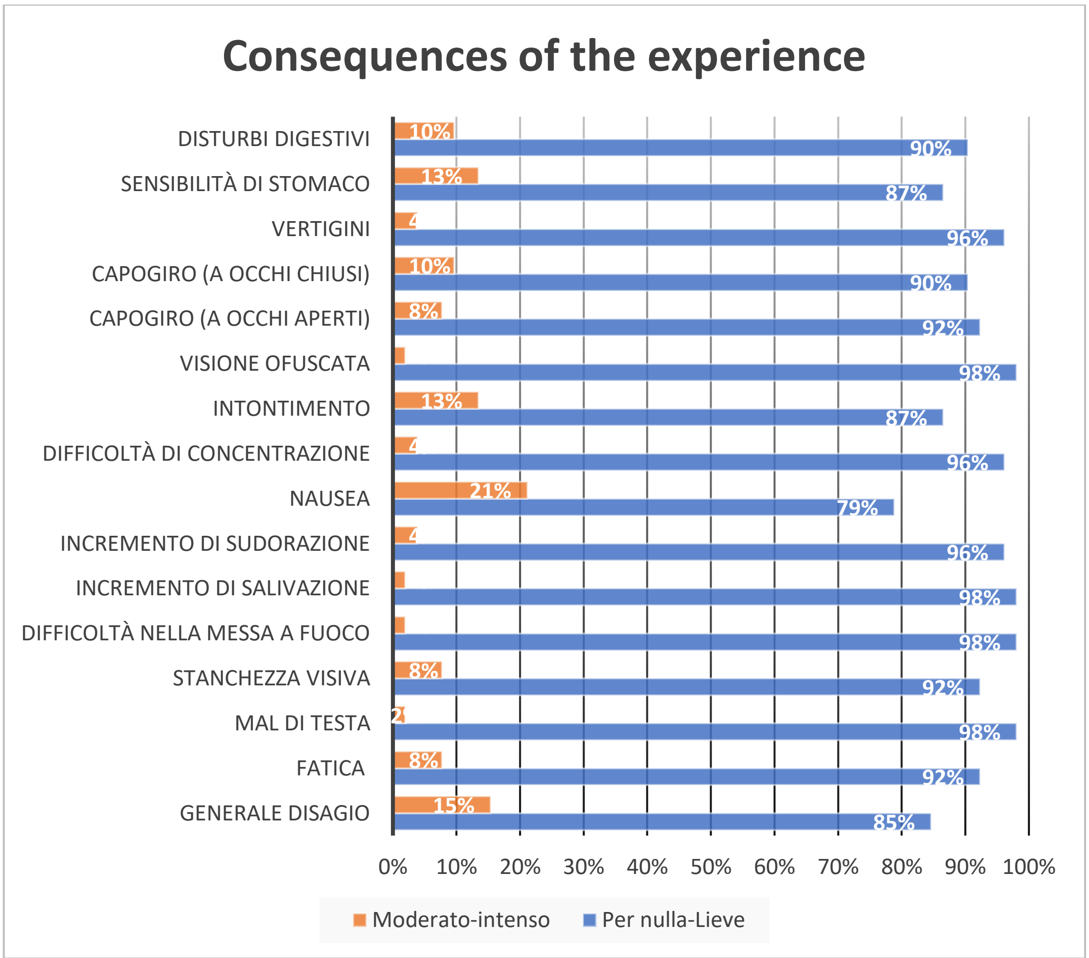
Post Hoc Comparisons - Mid-block layout							
Comparison							
Mid-block layout		Mid-block layout	Difference	SE	t	df	p_{holm}
Baseline	-	Curb Extension	-0.558	0.273	-2.05	47.9	0.046

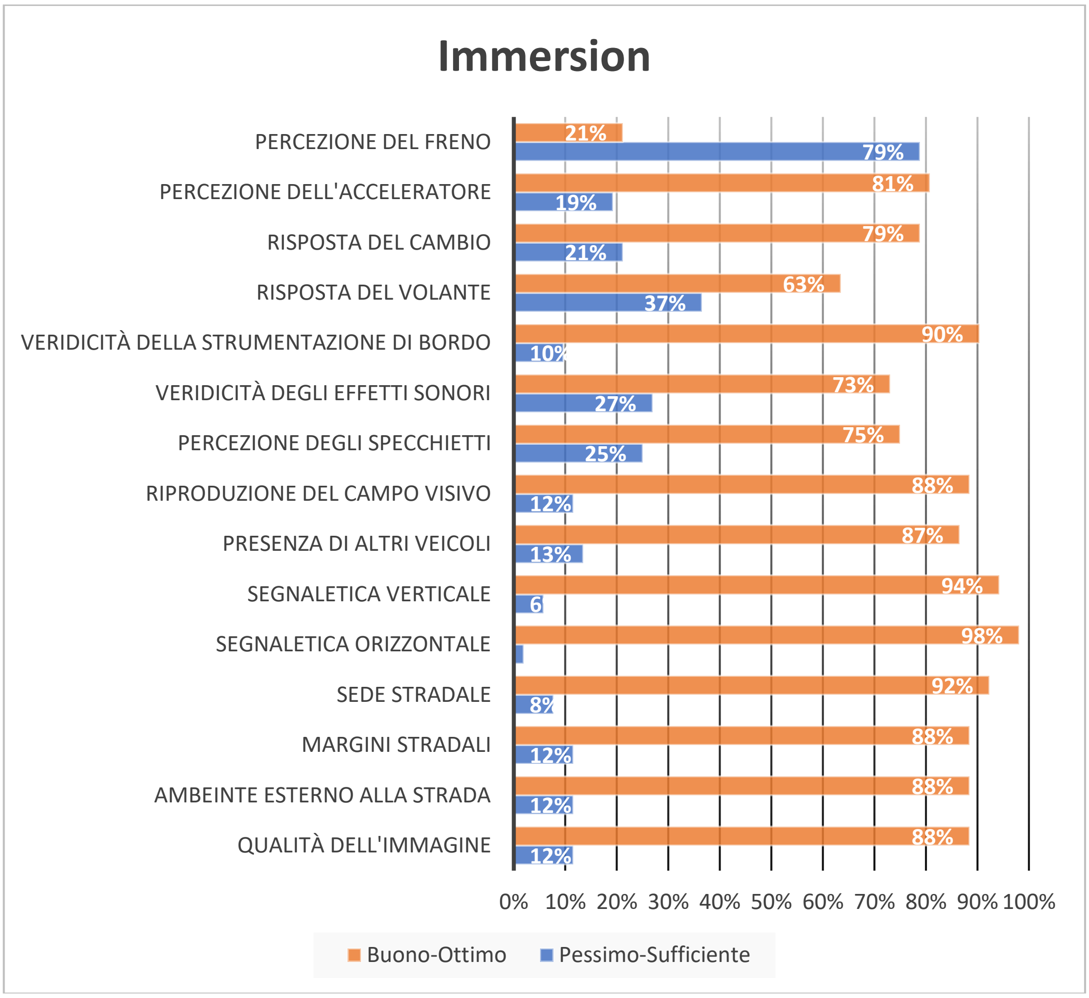
Table 32-Post-hoc test on pedestrian time gap acceptance factor (MaxD model)

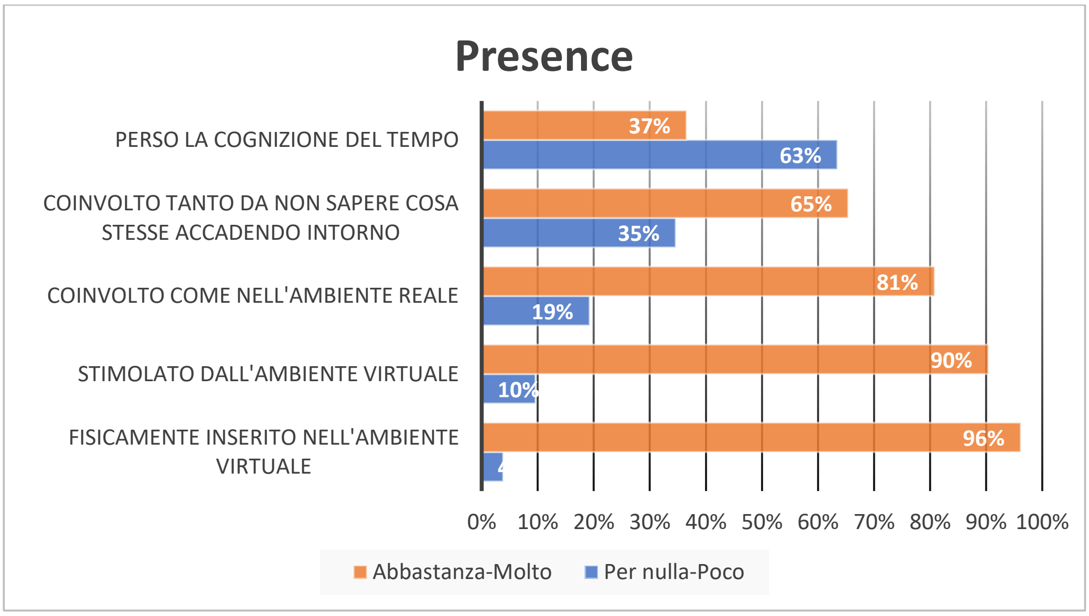
Post Hoc Comparisons - Pedestrian Time Gap Acceptance							
Comparison							
Pedestrian Time Gap Acceptance		Pedestrian Time Gap Acceptance	Difference	SE	t	df	p_{holm}
6 seconds	-	8 seconds	-1.307	0.213	-6.1	180	< .001
4 seconds	-	6 seconds	-0.907	0.213	-4.2	180	< .001
4 seconds	-	8 seconds	-2.214	0.213	-10.3	180	< .001

I. Post-drive questionnaire graphs






Immersion
PERCEZIONE DEL FRENO
PERCEZIONE DELL'ACCELERATORE
RISPOSTA DEL CAMBIO
RISPOSTA DEL VOLANTE
VERIDICITÀ DELLA STRUMENTAZIONE DI BORDO
VERIDICITÀ DEGLI EFFETTI SONORI
PERCEZIONE DEGLI SPECCHIETTI
RIPRODUZIONE DEL CAMPO VISIVO
PRESENZA DI ALTRI VEICOLI
SEGNALETICA VERTICALE
SEGNALETICA ORIZZONTALE
SEDE STRADALE
MARGINI STRADALI
AMBEINTE ESTERNO ALLA STRADA
QUALITÀ DELL'IMMAGINE
21%
79%
81%
19%
79%
21%
63%
37%
90%
73%
27%
75%
25%
88%
12%
87%
13%
94%
98%
92%
88%
12%
88%
12%
88%
12%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Buono-Ottimo
Pessimo-Sufficiente


Presence
PERSO LA COGNIZIONE DEL TEMPO
COINVOLTO TANTO DA NON SAPERE COSA STESSE ACCADENDO INTORNO
COINVOLTO COME NELL'AMBIENTE REALE
STIMOLATO DALL'AMBIENTE VIRTUALE
FISICAMENTE INSERITO NELL'AMBIENTE VIRTUALE
37%
63%
65%
35%
81%
19%
90%
96%
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Abbastanza-Molto
Per nulla-Poco

J. List of participants

TD ID	Gender	Age	Driving license achievement (year)	Average annual mileage	N° of crashes
1	M	29	2009	5000	0
2	F	34	2005	18000	1
3	M	23	2015	500	0
4	M	25	2013	1000	0
5	F	26	2013	500	0
6	F	30	2008	10000	1
7	M	46	1992	9000	5
8	M	41	1998	20000	1
9	F	54	1991	10000	0
10	M	57	1993	10000	0
41	M	28	2011	15000	3
42	M	39	1999	30000	0
49	M	27	2010	1000	0
11	M	30	2008	10000	0
12	F	25	2014	10000	1
13	M	24	2015	40000	1
14	M	30	2009	5000	0
15	F	43	1995	4000	0
16	F	33	2005	6000	1
17	M	46	1992	10000	0
18	F	52	1986	10000	0
19	M	52	1987	20000	2
20	M	38	2001	12000	3
43	M	29	2010	15000	0
44	M	45	1994	30000	1
50	M	27	2011	35000	0
21	F	25	2013	500	0
22	F	31	2007	10000	1
23	M	23	2016	10000	1
24	M	38	2000	10000	0
25	M	26	2012	10000	1
26	M	30	2009	10000	0
27	M	28	2011	10000	0
28	M	49	1990	20000	1
29	F	45	1993	20000	2
30	M	60	1979	12000	0
45	F	40	1998	5000	0
46	M	49	1989	25000	0
51	M	27	2011	10000	0
31	M	25	2013	1000	0
32	F	25	2013	500	0
33	F	36	2002	850	0
34	F	23	2016	2000	0
35	M	38	2001	3000	0
36	M	31	2008	5000	4
37	M	57	1982	30000	0
38	M	53	1986	25000	3
39	M	31	2008	10000	0
40	M	59	1980	20000	3
47	F	38	2000	5000	1
48	M	46	1992	20000	2
52	M	28	2010	10000	0

K. Invitation email

Carissimi,

vi scrivo per coinvolgervi in alcuni esperimenti di guida che stiamo per far partire in questo periodo.

Ben conscio della situazione generale, vi chiedo se comunque siate disponibili per supportarci nelle ricerche che prevedono anche la redazione di due tesi di laurea.

Seguiremo rigorosamente i protocolli per l'accesso ai locali, e la postazione di guida sarà sanificata prima che voi entriate in laboratorio.

Per voi è sufficiente che indossiate una mascherina, il gel sanificante per le mani lo forniamo noi.

In allegato, oltre alla presentazione dell'esperimento, trovate le disposizioni del Politecnico (per visitatori e ospiti, per l'accesso ai laboratori).

Come specificato nel documento di presentazione dell'esperimento, qualora disponibili è sufficiente un "Rispondi" positivo a questa e-mail.

Sarete poi chiamati da Alberto Terrafino o Francesco Angioi (in CC) per definire giorno e ora a voi più comodi.

Vi ringrazio in anticipo per la disponibilità.

Cordiali saluti ---

Marco

Marco Bassani

Office +39 011 0905635

Lab +39 011 0905607

Mobile +39 335 1300230

marco.bassani@polito.it

L. Presentation of the experiment

POLITECNICO
DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
Laboratorio di Sicurezza Stradale e Simulazione
Corso Duca degli Abruzzi, 24 – 10129, Torino
tel. 011-5645635, 335-1300230, marco.bassani@polito.it

prof. Marco BASSANI

PRESENTAZIONE DELL'ATTIVITA' DI RICERCA

Torino, novembre 2020

Gentilissimo/a,

ti contatto in quanto componente del gruppo di *test driver* che supporta le attività del *Laboratorio di Sicurezza Stradale e Simulazione di Guida* del Politecnico di Torino (Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture - DIATI).

Nei prossimi mesi abbiamo in programma alcuni esperimenti che necessitano del tuo supporto. La sperimentazione in oggetto prevede che in giorni e orari a te più comodi tu possa venire in laboratorio per un tempo non superiore ai trenta minuti.

Se tu fossi interessato/a a partecipare, ti chiederei cortesemente di restituirmi via email i due moduli di pagina 2 e 3 compilati (i campi si possono riempire direttamente con Adobe Acrobat Reader – Compila e firma).

Nel caso li avessi già compilati recentemente non è necessario che li rinvii nuovamente, abbiamo bisogno solo di un tuo messaggio di conferma di partecipazione.

Qualora disponibile, ti chiederei di seguire alcune utili raccomandazioni che troverai nel questionario stesso, così da non alterare l'esito dell'esperimento. Al ricevimento della tua documentazione o messaggio di accettazione, sarai contattato telefonicamente da uno dei due studenti per definire i dettagli dell'appuntamento:

- **Francesco Angioi** (telefono: 349-1240428)
- **Alberto Terrafino** (telefono: 351-2034174)

I dati raccolti saranno diffusi in forma aggregata e del tutto anonima (v. "Informativa sulla privacy", pagina 4). I risultati saranno divulgati per soli scopi scientifici senza fini di lucro, e potranno essere presentati in convegni, pubblicati su tesi di Laurea, o in articoli di riviste scientifiche sempre in forma aggregata e rigorosamente anonima.

L'accesso al Politecnico e ai locali del Laboratorio ti sarà consentito solamente se accompagnato/a da personale autorizzato. Ti trasmetto copia del documento rilasciato dal Politecnico per l'accesso ai laboratori dal titolo: "PROCEDURA PER IL CONTRASTO E IL CONTENIMENTO DELLA DIFFUSIONE DEL COVID 19".

Preciso, infine, che la partecipazione a questa attività è del tutto volontaria, e non è soggetta ad alcun compenso.

Ti ringrazio in anticipo per l'attenzione che presterai a questa iniziativa, e della gentile disponibilità che ci vorrai riservare,

Marco Bassani

POLITECNICO DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
Corso Duca degli Abruzzi, 24 – 10129, Torino
Tel. 011-5645635, 335-1300230, marco.bassani@polito.it

QUESTIONARIO PER ATTIVITA' DI RICERCA CON L'USO DEL SIMULATORE DI GUIDA

Nome e Cognome ....

Sesso ☐ M ☐ F

Anno di nascita ....

Telefono (cellulare) .... e-mail ....

Livello di istruzione ☐ licenza media inferiore ☐ qualifica professionale triennale
☐ diploma scuole superiori ☐ laurea 1° livello o diploma universitario
☐ laurea 2° livello o vecchio ordinamento
☐ specializzazioni/master post laurea 2° livello/dottorato

Anno di conseguimento della patente di guida ....

km percorsi in un anno (media) ....

n° di incidenti in cui si è stati coinvolti ....

Familiarità con l'uso di software di guida (es. videogiochi) ☐ SI ☐ NO

Utilizzi dispositivi per la correzione visiva? ☐ SI ☐ NO

Se si, quali? ☐ Occhiali ☐ Lenti a contatto

Precedenti episodi di crisi epilettiche? ☐ SI ☐ NO
(o epilessie in trattamento farmacologico)

Raccomandazioni da seguire prima di effettuare le guide al simulatore:

- **se utilizzi lenti a contatto, per cortesia indossale il giorno dell'esperimento,**
- **consuma pasti (colazione e/o pranzo) leggeri prima della guida,**
- **non assumere bevande alcoliche e/o eccitanti (caffè, *energy drink*, o simili) almeno 4 ore prima.**

Il sottoscritto si rende disponibile a effettuare l'addestramento e il test con il simulatore di guida presso il *Laboratorio di Sicurezza Stradale e Simulazione di Guida* – DIATI (ingresso 2, piano terreno):

il giorno lunedì – martedì – mercoledì – giovedì – venerdì alle ore 9 - 12 12 - 15 15 - 18 oppure
il giorno lunedì – martedì – mercoledì – giovedì – venerdì alle ore 9 - 12 12 - 15 15 - 18 oppure
il giorno lunedì – martedì – mercoledì – giovedì – venerdì alle ore 9 - 12 12 - 15 15 - 18
(cerchiare o spuntare il giorno e l'orario preferiti)

Luogo e data .... Firma ....

POLITECNICO DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
Corso Duca degli Abruzzi, 24 – 10129, Torino
Tel. 011-5645635, 335-1300230, marco.bassani@polito.it

Informativa resa ai sensi degli articoli 13-14 del GDPR 2016/679 (*General Data Protection Regulation*)

Gentile Signore/a,

ai sensi dell'art. 13 del Regolamento UE 2016/679 ed in relazione alle informazioni di cui si entrerà in possesso, ai fini della tutela delle persone e altri soggetti in materia di trattamento di dati personali, si informa quanto segue:

1. FINALITÀ DEL TRATTAMENTO

I dati da Lei forniti saranno utilizzati per scopi di ricerca scientifica, consentendo ai soggetti autorizzati al trattamento di costruire un campione di guidatori con caratteristiche idonee all'attività in esame.

2. MODALITÀ DEL TRATTAMENTO

Il trattamento dei dati sarà effettuato sia manualmente, con supporti cartacei, sia con l'ausilio di mezzi informatizzati. I dati saranno conservati sia in archivi cartacei sia in archivi elettronici. In ogni caso il trattamento dei dati avverrà con logiche strettamente correlate alle finalità indicate e con modalità che garantiscano la sicurezza e la riservatezza dei dati medesimi, attraverso l'adozione di misure idonee ad impedire l'alterazione, la cancellazione, la distruzione, l'accesso non autorizzato o il trattamento non consentito o non conforme alle finalità della raccolta.

3. CONFERIMENTO DEI DATI

Il conferimento dei dati per le finalità di cui al punto 1 sono obbligatori e l'eventuale rifiuto dell'autorizzazione comporta l'esclusione dall'attività di ricerca.

4. COMUNICAZIONE E DIFFUSIONE DEI DATI

I dati forniti saranno comunicati ai soggetti autorizzati: ricercatori, responsabili e incaricati del trattamento. In ogni caso, i dati forniti non saranno soggetti a comunicazione né a diffusione. Come espresso all'art. 162 del Regolamento UE n. 2016/679, "*La finalità statistica implica che il risultato del trattamento per finalità statistiche non siano dati personali, ma dati aggregati, e che tale risultato o i dati personali non siano utilizzati a sostegno di misure o decisioni riguardanti persone fisiche specifiche*".

5. TITOLARE DEL TRATTAMENTO

Il titolare del trattamento dei dati personali è il prof. Marco Bassani, Politecnico di Torino, Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture, corso Duca degli Abruzzi, 24 – 10129 Torino.

6. DIRITTI DELL'INTERESSATO

In ogni momento, Lei potrà esercitare, ai sensi degli articoli dal 15 al 22 del Regolamento UE n. 2016/679, il diritto di:

a) chiedere la conferma dell'esistenza o meno di propri dati personali;
b) ottenere le indicazioni circa le finalità del trattamento, le categorie dei dati personali e, quando possibile, il periodo di conservazione;
c) ottenere la limitazione del trattamento;
d) ottenere la rettifica e la cancellazione dei dati.

Può esercitare i Suoi diritti con richiesta scritta inviata al titolare del trattamento, all'indirizzo mail marco.bassani@polito.it, oppure marco.bassani@pec.polito.it.

Io sottoscritto/a dichiaro di aver ricevuto l'informativa che precede.

Torino, li ………………………… Firma ……………………………………………………………………………

Io sottoscritto/a alla luce dell'informativa ricevuta

□ esprimo il consenso □ NON esprimo il consenso al trattamento dei miei dati personali e, espressamente, al trattamento di eventuali dati sensibili, per il conseguimento delle su esposte finalità.

□ esprimo il consenso □ NON esprimo il consenso al trattamento dei risultati delle esperienze di guida svolte e alla loro pubblicazione su tesi di Laurea Magistrale e/o pubblicazioni scientifiche in forma aggregata e rigorosamente anonima.

M. Anti-covid19 prevention rules

POLITECNICO DI TORINO

#OgnunoProteggeTutti

MISURE DI PREVENZIONE

SI INFORMA CHE:

- in presenza di febbre > 37.5°C e/o altri sintomi influenzali (es. tosse, rinorrea, difficoltà respiratorie) è obbligatorio per chiunque rimanere al proprio domicilio e chiamare il proprio medico di famiglia e l'autorità sanitaria;
- è vietato l'accesso a chiunque sia entrato in contatto negli ultimi 14 giorni con persone risultate positive al virus SARS CoV-2;
- all'ingresso della sede è necessario presentarsi muniti di mascherina e sottoporsi alla misurazione della temperatura corporea. Nel caso in cui questa risulti >37.5°C e/o siano presenti sintomi influenzali, l'accesso alla sede sarà negato;
- nel caso in cui la febbre e/o i sintomi influenzali si manifestino successivamente all'ingresso nella sede, è necessario porsi in isolamento e chiamare il **numero di emergenza interno** per l'attivazione delle corrette procedure di intervento;
- per aiutare a combattere l'epidemia di COVID-19, è stata creata l'**APP Immuni**, che invitiamo a scaricare e mantenere attiva durante tutta la permanenza all'interno delle sedi dell'Ateneo.

ALL'INTERNO DELLA SEDE È FATTO OBBLIGO DI:

- **Indossare sempre la mascherina** negli spazi comuni e in tutte le situazioni di compresenza all'interno dei locali;
- rispettare la **distanza di sicurezza di 2 metri**, laddove possibile in funzione dell'attività svolta e comunque nelle aree comuni di passaggio e in caso di accodamenti;
- rispettare, ove presente, la **segnaletica orizzontale** a pavimento indicante il distanziamento minimo;
- rispettare le indicazioni riportate nei **cartelli informativi** e i messaggi trasmessi dai monitor e tramite diffusione sonora;
- osservare **comportamenti corretti sul piano dell'igiene**, in particolare:
  - segnalare al numero di emergenza interno della Portineria eventuali situazioni anomale riscontrate (es. situazioni di affollamento, presenza di persone con sintomi influenzali, mancato rispetto delle norme di igiene, etc.).
  - lavare frequentemente le mani con acqua e sapone o con i prodotti a base alcolica presenti nei dispenser dislocati nelle aree comuni;
  - evitare di toccarsi occhi, naso e bocca con le mani;
  - tossire e/o stamutire coprendo bocca e naso con un fazzoletto o con la piega del gomito;
- segnalare al **numero di emergenza interno della Portineria** eventuali situazioni anomale riscontrate (es. situazioni di affollamento, presenza di persone con sintomi influenzali, mancato rispetto delle norme di igiene, etc.).

POLITECNICO DI TORINO

#OgnunoProteggeTutti

ATTO DI IMPEGNO E DICHIARAZIONE

Il sottoscritto ______________________________________

Nato a_____________________________il ____________

Residente a ______________________________________

Documento identità n.________________________________rilasciato da

_______________________ il ____________

DICHIARA

- di aver preso visione, di aver compreso e di accettare le misure di sicurezza e tutela della salute adottate dal Politecnico;

SI IMPEGNA

- ad adottare, durante la permanenza nelle sedi dell'Ateneo, tutte le misure di contenimento necessarie alla prevenzione e contenimento del contagio da COVID-19.

Il Sottoscritto, consapevole delle conseguenze penali previste in caso di dichiarazioni mendaci ai sensi degli artt. 47 e 76 del DPR 445/2000,

dichiara sotto la propria responsabilità:

- di non essere sottoposto alla misura della quarantena in quanto contatto stretto di caso confermato COVID-19 o per ingresso / rientro recente dall'estero;
- di non essere sottoposto ad isolamento domiciliare fiduciario in quanto risultato positivo alla ricerca del virus SARS-COV-2;
- di non presentare febbre > 37.5 °C o sintomatologia simil-influenzale (ad es. tosse, alterata percezione dei sapori e degli odori, disturbi intestinali, ecc.);

La presente Dichiarazione viene rilasciata quale misura di prevenzione correlata con l'emergenza pandemica del SARS CoV 2.
Allega copia fotostatica del documento di identità.

FIRMA

-------------------------------, il ---------------------------

Il Politecnico di Torino, in qualità di Titolare del trattamento, ti informa che tratterà i tuoi dati personali per la finalità istituzionale connessa all'evento nonché per la prevenzione dal contagio da COVID-19 in conformità i al Regolamento EU 2016/679 ("GDPR") e al D.Lgs. 196/2003 e s.m.i. ("Codice Privacy"). I dati rilasciati con il presente modulo verranno conservati per il tempo strettamente necessario alle attività di contact tracing.
L'informativa completa è disponibile alla pagina: www.polito.it/privacy

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SCOPO

Indicare gli accorgimenti necessari che devono essere adottati per il contrasto e il contenimento della diffusione del COVID-19 durante la ripresa graduale delle attività presso i laboratori del Politecnico di Torino.

CAMPO DI APPLICAZIONE

La presente procedura è valida per tutti i dipendenti del Politecnico di Torino che svolgono attività lavorativa presso i laboratori dell'università **dal 10 settembre 2020 e fino a successiva comunicazione**.

PRECAUZIONI IGIENICHE PERSONALI DURANTE LE ATTIVITÀ IN LABORATORIO

È obbligatorio che le persone che svolgono attività in laboratorio adottino tutte le precauzioni igieniche previste ai fini del contenimento del contagio, ed in particolare:

- ✓ mantenere, ove possibile dal punto di vista organizzativo, la distanza interpersonale minima di **due metri**;
- ✓ **lavare frequentemente le mani**, come da prescrizioni ministeriali, con acqua e sapone o igienizzarle con il liquido a base alcolica in dotazione;
- ✗ **non toccarsi** occhi, naso e bocca con le mani;
- ✓ **starnutire e/o tossire** coprendo naso e bocca con un fazzoletto evitando il contatto delle mani con le secrezioni respiratorie; se non si ha a disposizione un fazzoletto, starnutire nella piega interna del gomito;
- ✓ **indossare la mascherina chirurgica** fornita in dotazione in tutte le situazioni di compresenza di più persone all'interno di uno stesso laboratorio.
- ✗ La mascherina chirurgica non deve essere indossata se la lavorazione richiede l'uso di **DPI delle vie respiratorie specifici** per le operazioni effettuate.

AERAZIONE DEGLI AMBIENTI DI LAVORO

- ✓ Provvedere al **ricambio d'aria** all'interno dei locali almeno **ogni ora**, ad esempio aprendo le finestre o le porte, ove non presente idoneo impianto di ventilazione meccanizzata.

PULIZIA E SANIFICAZIONE DELLE ATTREZZATURE E DEGLI UTENSILI DI LAVORO

La pulizia e la sanificazione a inizio turno delle attrezzature e delle postazioni comuni di lavoro nei laboratori è a carico dell'operatore che utilizza la postazione.

- ✓ A inizio turno, **il lavoratore** deve effettuare **la pulizia e la sanificazione delle superfici toccate più di frequente**, ad esempio banconi da lavoro, maniglie dei cassetti, rubinetti e lavandini, pulsantiere e quadri di comando delle attrezzature, utensili manuali, eventuale tastiera e mouse se l'attività è svolta anche tramite videoterminale, braccioli delle sedie, ecc.
- ✓ **La pulizia** deve essere effettuata con i comuni detergenti già in utilizzo presso il laboratorio, **la sanificazione** potrà essere operata con la soluzione di alcool etilico al 70% v/v (fornita dal Politecnico) da passare con panno in microfibra/carta asciugamani. Le attrezzature elettroniche devono essere pulite secondo specifiche procedure riportate in **Allegato A**.

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- ✓ È consigliabile tenere un registro delle sanificazioni periodiche effettuate in laboratorio dai diversi operatori.
- × È vietato l'uso promiscuo dei DPI non strettamente personali e specifici per alcune attività di laboratorio (ad esempio guanti per alte temperature, caschetti e occhiali protettivi, scarpe antiinfortunistiche, ecc.).

VERIFICA E CONTROLLO

È necessario rendere disponibili e ben visibili in laboratorio:

- Le istruzioni operative di corretto uso delle apparecchiature di laboratorio,
- Le infografiche relative alle "*Misure di contenimento del contagio da Covid 19*".

I RADRL, i lavoratori, gli RLS, il servizio prevenzione e protezione ed il Medico Competente verificano e segnalano eventuali situazioni di non adeguatezza al datore di lavoro e al dirigente.

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ALLEGATO A

Pulizia e disinfezione di attrezzature elettroniche

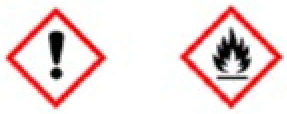
1. Spegnere l'attrezzatura e scollegarla dall'alimentazione. Non pulire l'attrezzatura mentre è accesa o comunque alimentata.
2. Inumidire il panno con la soluzione alcoolica. Il panno deve essere umido, ma non deve gocciolare.
   ATTENZIONE: Non spruzzare liquidi direttamente sull'attrezzatura.
3. Passare delicatamente il panno inumidito sulla superficie da pulire. Evitare che l'umidità penetri all'interno, per non causare danni.
4. Assicurarsi che le superfici siano completamente asciutte prima di accendere l'attrezzatura dopo la pulizia. Nessuna traccia di umidità deve essere visibile sulle superfici dell'attrezzatura prima dell'accensione.
5. Lavare le mani dopo aver terminato la disinfezione.
6. Arieggiare gli ambienti sia durante che dopo la disinfezione.

Istruzioni per la manipolazione sicura della soluzione alcoolica

È importante manipolare la soluzione alcoolica in modo sicuro.

- Evitare il contatto con pelle, occhi e indumenti.
- Tenere lontano dalle fonti di calore e ignizione.
- Utilizzare in presenza di una ventilazione adeguata.
- Conservare in un luogo fresco e ben ventilato. Conservare il contenitore ben chiuso.
- In caso di contatto con l'alcol, lavare accuratamente la pelle con acqua e sapone.

ATTENZIONE:



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	POLITECNICO DI TORINO	**O**	**PRO-COVID VIS**
	PROCEDURA PER IL CONTRASTO E IL CONTENIMENTO DELLA DIFFUSIONE DEL COVID 19 NEL POST LOCKDOWN **VISITATORI, OSPITI, COLLABORATORI ESTERNI**	vers. n° 3 del 24/09/2020	
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SCOPO

Indicare gli accorgimenti necessari che devono essere adottati per il contrasto e il contenimento della diffusione del COVID-19 durante la ripresa graduale delle attività del Politecnico di Torino e in particolare per quanto riguarda l'ingresso di visitatori, ospiti e collaboratori esterni, presso le sedi del Politecnico di Torino.

CAMPO DI APPLICAZIONE

La presente procedura è valida per tutti i visitatori, gli ospiti e i collaboratori esterni (nel seguito: *Visitatori*) che fanno ingresso all'interno dei locali del Politecnico di Torino dal mese di **settembre 2020 fino a successiva comunicazione.**

ATTIVITÀ PRELIMINARI

Accesso Visitatore

Il **contatto / referente interno del Politecnico** del *Visitatore*, preliminarmente alla data di accesso, è tenuto a:

- inviare al *Visitatore*, o al suo Datore di Lavoro, ove presente, la presente procedura e l'***"Informativa e dichiarazione per studenti e ospiti"***, scaricabile al link https://www.coronavirus.polito.it/content/download/908/5114/file/Informativa%20e%20dichiarazione_STUDENTI-OSPITI_REV03_ITA_ENG_NO%20streaming.pdf;
- comunicare la richiesta di accesso del *Visitatore* inviando una e-mail a servizio.logistica@polito.it **entro il venerdì antecedente**, indicando nome e cognome del *Visitatore* e periodo per il quale ne è richiesto l'accesso.
- acquisire e conservare, per 20 giorni dalla data dell'accesso, l'***"Informativa e dichiarazione per studenti e ospiti"*** compilata e sottoscritta dal *Visitatore* nel giorno di accesso;

MODALITÀ DI INGRESSO

Il *Visitatore* dovrà accedere alla sede di effettuazione dell'attività, indicata dal proprio contatto interno, attraverso uno dei varchi aperti e presidiati, il cui elenco è riportato a pag.3 del ***VADEMECUM "Misure organizzative logistiche per l'esercizio delle attività in presenza"***, consultabile al link https://www.coronavirus.polito.it/content/download/909/5121/file/VADEMECUM%20E%20PLANIMETRIE.pdf.

Gli operatori della Portineria a presidio degli ingressi provvederanno a:

- effettuare il **controllo della temperatura corporea** a mezzo di dispositivo termoscanner, senza registrazione del dato, ai sensi della disciplina sulla privacy. Se tale temperatura risulterà superiore ai 37,5 °C, non sarà consentito l'accesso all'interno dei locali del Politecnico.
- richiedere di **esibire la e-mail di conferma e autorizzazione** all'accesso inviata dal Servizio Logistica.

IMPORTANTE: Ciascun *Visitatore* è tenuto a presentarsi al controllo della temperatura dotato di mascherina propria.

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PRECAUZIONI IGIENICHE PERSONALI DURANTE LA PERMANENZA AL POLITECNICO

I Visitatori sono tenuti a rispettare le prescrizioni del Politecnico e del proprio Datore di Lavoro, ove presente, e ad adottare tutte le precauzioni igieniche previste ai fini del contenimento del contagio, in particolare:

- ✓ Nelle aree ad uso comune del Politecnico di Torino e in presenza di altre persone all'interno dello stesso locale **indossare SEMPRE la mascherina chirurgica** propria o fornita dal proprio Datore di Lavoro;
- ✓ mantenere, ove possibile dal punto di vista organizzativo, la distanza interpersonale minima di **2 metri**, in particolare nelle aree di transito e negli accodamenti;
- ✓ **lavare frequentemente le mani**, come da prescrizioni ministeriali, con acqua e sapone;
- ✓ utilizzare frequentemente **i mezzi detergenti per le mani** messi a disposizione dal Politecnico in appositi dispenser negli spazi comuni;
- ✗ **non toccarsi** occhi, naso e bocca con le mani;
- ✓ **starnutire e/o tossire** coprendo naso e bocca con un fazzoletto evitando il contatto delle mani con le secrezioni respiratorie; se non si ha a disposizione un fazzoletto, starnutire nella piega interna del gomito;
- ✗ **evitare assembramenti**.

Spostamenti interni

- ✓ I *Visitatori* ammessi ad entrare al Politecnico devono **limitare gli spostamenti ai tragitti più brevi** per raggiungere le proprie postazioni di lavoro, nel rispetto delle indicazioni di prevenzione e sicurezza fornite dal Politecnico.
- ✓ Le **aree di transito, atrii e corridoi** devono essere mantenuti il più possibile liberi. Va mantenuta in ogni caso la distanza interpersonale di **2 metri**.
- ✓ L'impiego degli **ascensori** deve essere il più possibile evitato e comunque **limitato ad 1 persona** per volta.
- ✓ È consentita la sosta **nei cortili interni** alle sedi nel rispetto della **distanza interpersonale di 2 metri** e senza obbligo di utilizzo di mascherina.

Servizi igienici

- ✓ I visitatori possono utilizzare i servizi igienici messi a disposizione dal Politecnico. Tali ambienti sono **puliti e sanificati con periodicità giornaliera** dal servizio di pulizie dell'Ateneo.

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Accesso aree ristoro/snack

L'accesso alle aree ristoro / snack è consentito a fronte:

- ✓ della limitazione del **tempo di sosta al minimo** indispensabile per prelevare la bevanda/snack;
- ✓ del mantenimento della **distanza interpersonale di 2 metri** tra le persone in eventuale accodamento, seguendo l'apposita **segnalazione indicata a pavimento**.
- ✗ **Non è consentita** la consumazione della bevanda/snack nelle vicinanze dei distributori.
- ✓ A seguito del prelievo della bevanda/snack è necessario **allontanarsi dall'area per evitare assembramenti**.
- ✓ Devono essere sempre rispettate le **distanze di sicurezza minime** indicate tramite segnaletica orizzontale a pavimento.

GESTIONE DI UNA PERSONA SINTOMATICA IN ATENEO E MONITORAGGIO DEI CASI

Il *Visitatore* che dovesse manifestare dei sintomi riconducibili al CoViD-19 durante la sua permanenza presso il Politecnico deve:

- **darne comunicazione al proprio Datore di lavoro** (ove presente), e alla **Portineria/contatto interno del Politecnico** comunicando la propria situazione e posizione
- porsi in isolamento
- indossare correttamente la mascherina
- **attendere l'intervento** dell'operatore per le successive azioni operative.

Il Politecnico attiverà le procedure di cui al Protocollo di Gestione di Casi Confermati e Sospetti di CoViD 19 nelle aule universitarie e negli spazi di Ateneo, consultabile al link https://www.coronavirus.polito.it/content/download/905/5099/file/Protocollo%20gestione%20casi%20COVID%20in%20FASE3_finale.pdf.

Il Politecnico e il *Visitatore* o il suo Datore di Lavoro (ove presente) dovranno collaborare con le Autorità sanitarie per la definizione degli eventuali "contatti stretti" della persona presente in Ateneo che sia stata riscontrata positiva al COVID-19. Ciò al fine di permettere alle autorità di applicare le necessarie e opportune misure di quarantena. Nel periodo dell'indagine, il Politecnico cautelativamente impedirà agli eventuali possibili "contatti stretti" di entrare in Ateneo, secondo le indicazioni dell'Autorità sanitaria.

VERIFICA E CONTROLLO

I referenti interni e il Servizio prevenzione e protezione del Politecnico verificano e segnalano eventuali situazioni di non adeguatezza al datore di lavoro.

AGGIORNAMENTO DELLA PRESENTE PROCEDURA

La presente procedura sarà aggiornata in caso di intervenute modifiche ai dettami normativi nazionali e/o locali e in funzione dell'evoluzione epidemiologica dell'emergenza.

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N. Pre-guide questionnaire

POLITECNICO
DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
Laboratorio di Sicurezza Stradale e Simulazione
Corso Duca degli Abruzzi, 24 – 10129, Torino
tel. 011-5645635, 335-1300230, marco.bassani@polito.it

QUESTIONARIO PER ATTIVITA' DI RICERCA CON L'USO DEL SIMULATORE DI GUIDA

QUESTIONARIO PRE-GUIDA

Nome e Cognome ....#TD..................

Giorno .... Ora..........................

È in buona salute? ☐ SI ☐NO
Se no, di cosa soffre? ....

Ha assunto medicinali nelle ultime 24h? ☐ SI ☐NO
Se si, quali? (è sufficiente la categoria)
....

È affetto da malattie croniche (asma, diabete, ansia, allergia...)? ☐ SI ☐NO
Se si, quali? (è sufficiente la categoria)
....

Quanto tempo fa ha consumato l'ultimo pasto? ....ore ....minuti

Come definirebbe il pasto consumato? ☐ Leggero ☐ Ordinario ☐ Abbondante

Ha assunto bevande alcoliche nelle due ore precedenti la guida? ☐ SI ☐NO

Ha assunto bevande eccitanti (caffè, energy drink) nelle 2 ore precedenti la guida?
☐SI ☐NO

Utilizza dispositivi per la correzione visiva? ☐ SI ☐NO

Attualmente li indossa? ☐ SI ☐NO

Se si, quali? ☐ Occhiali ☐Lenti a contatto

Luogo e data .... Firma ....

We work on roads to save lives

O.Post-guide questionnaire

POLITECNICO
DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
Laboratorio di Sicurezza Stradale e Simulazione
Corso Duca degli Abruzzi, 24 – 10129, Torino
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QUESTIONARIO PER ATTIVITA' DI RICERCA CON L'USO DEL SIMULATORE DI GUIDA

QUESTIONARIO DI POST-SIMULAZIONE

Nome e Cognome .... Numero identificativo del TD ....

Giorno .... Ora ....

SENSAZIONI. Durante la guida nell' ambiente virtuale si è sentito:

- A suo agio	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- In grado di controllare la situazione e le proprie azioni	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Pieno di energia	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Nervoso	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Con la mente che vagava	☐ per nulla	☐ lieve	☐ moderato	☐ intenso

Sarebbe disposto a continuare la guida ora?

☐ SI ☐ NO

Se SI, per quanto tempo?

☐ <15min ☐ < 30min ☐ < 45min ☐ >1h

CONSEGUENZE DELL' ESPERIMENTO. Indicare se attualmente percepisce uno o più dei seguenti sintomi:

- Generale disagio	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Fatica	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Mal di testa	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Stanchezza visiva	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Difficoltà nella messa a fuoco	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Incremento di salivazione	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Incremento di sudorazione	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Nausea	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Difficoltà di concentrazione	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Intontimento	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Visione offuscata	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Capogiro (a occhi aperti)	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Capogiro (a occhi chiusi)	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Vertigini	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Sensibilità di stomaco	☐ per nulla	☐ lieve	☐ moderato	☐ intenso
- Disturbi digestivi	☐ per nulla	☐ lieve	☐ moderato	☐ intenso

- Altro ....

POLITECNICO
DI TORINO
Dipartimento di Ingegneria dell'Ambiente, del Territorio e delle Infrastrutture
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IMMERSIONE. Esprima un giudizio sulla veridicità dello scenario stradale:

o Qualità dell'immagine	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Corrispondenza alla realtà				
o Ambiente esterno alla strada (edifici, panorama, vegetazione)	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Margini stradali	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Sede stradale	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Segnaletica orizzontale	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Segnaletica verticale	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Presenza di altri veicoli	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo

Esprima un giudizio sull'interazione con i dispositivi audio-visivi e meccanici:

o Riproduzione del campo visivo	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Percezione degli specchietti	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Veridicità degli effetti sonori	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Veridicità della strumentazione di bordo	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Risposta del volante	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Risposta del cambio	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Percezione dell'acceleratore	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo
o Percezione del freno	☐ pessimo	☐ sufficiente	☐ buono	☐ ottimo

PRESENZA. È lo stato di coscienza legato al "senso di trovarsi lì", è il senso psicologico di trovarsi nell' ambiente virtuale. Risponda ai seguenti quesiti:

- Si è sentito fisicamente inserito nell'ambiente virtuale?
  ☐ per nulla ☐ poco ☐ abbastanza ☐ molto
- Si è sentito stimolato dall'ambiente virtuale?
  ☐ per nulla ☐ poco ☐ abbastanza ☐ molto
- Durante la guida, si è sentito coinvolto come se fosse dentro l'ambiente virtuale e non stesse guardando uno schermo o utilizzando le componenti del simulatore?
  ☐ per nulla ☐ poco ☐ abbastanza ☐ molto
- Durante la guida, si è sentito coinvolto al punto tale da non sapere cosa stesse accadendo attorno a se?
  ☐ per nulla ☐ poco ☐ abbastanza ☐ molto
- Durante la guida, si è sentito coinvolto dall'ambiente virtuale al punto da perdere la cognizione del tempo?
  ☐ per nulla ☐ poco ☐ abbastanza ☐ molto
- Quanto pensa sia durata la guida? ....

Di quali elementi/strumenti si è servito per valutare la velocità di marcia?

☐ Contachilometri ☐ Oggetti/eventi a lato della strada
☐ Rumore del motore ☐ Non ho prestato attenzione alla velocità
☐ Altro: ....