

Position Paper

THE SPEED OFFSET AND CONTEXTUAL MAX SPEED FUNCTIONS OF TESLA'S FSD (SUPERVISED)

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European Transport Safety Council

Executive Summary

The EU variant of Tesla’s FSD (Supervised) contains two functions that allow the vehicle itself to raise the maximum speed at which it can drive above the speed limit it has detected, after the driver has enabled the functions.

The first, “speed offset”, lets the driver switch on a permanent margin of up to 50% above every detected speed limit. The second, “contextual max speed”, allows the vehicle to revise the speed limit it applies using what it observes around it, including the speed of other traffic. ETSC opposes both.

The speed offset is not merely highly undesirable: it is prohibited by the rules under which it was approved. UN Regulation No. 171 (known as the “DCAS” Regulation) expressly forbids a system from letting the driver set a default offset above the system-determined speed limit, and ETSC argues Tesla’s function does exactly that.

Contextual max speed is a promising feature with a serious flaw. When enabled, the system may adjust the max speed setting dynamically based on visual cues in the driving scene. Using visual information from the road situation itself to work out the speed limit more accurately is a welcome development with a view of improving the accuracy of speed limit detection. However, FSD may also use the speed of other traffic to determine what it considers the appropriate speed for the max speed. This raises serious road safety concerns, because most European roads carry a substantial number of drivers who are speeding. Therefore, a car that infers the limit from other traffic can copy law breaking from drivers who are already breaking the law. Tesla goes further still, arguing that a vehicle travelling at the posted speed limit could disrupt traffic where others are speeding. However, in ETSC’s view, an assisted driving system that knows the correct limit should not decide to consistently exceed it because others are doing so.

ETSC therefore recommends that the European Commission and EU Member States reject the approval of the capability to set a default speed offset, and reject the approval of any contextual maximum speed function that uses the speed of other traffic to adjust the max speed or determine the applicable speed limit. ETSC furthermore provides recommendations on requirements in the DCAS Regulation that should be reviewed or added in a future update.

1. Background

1.1 *The Dutch approval and what happens next*

On 10 April 2026, the Dutch type-approval authority RDW granted a provisional EU type approval to Tesla for its FSD (Supervised) assisted driving system.

The approval was granted under the “Article 39” exemption procedure. This route exists for vehicles and systems that incorporate new technologies incompatible with the rules currently in force. An exemption granted by a national authority is provisional. It becomes an EU-wide approval only if the European Commission authorises it, which requires a positive vote by Member State representatives sitting in a technical committee. That vote has not yet been taken.

Functions covered by the exemption are, by definition, permitted to depart from the rules, and the committee is being asked to agree to that departure. Functions *not* covered by the exemption must comply with the rules as they stand.

According to Tesla’s “[Article 39 – FSD \(Supervised\) Dashboard](#)”, the manufacturer requested an exemption for contextual max speed. In contrast, Tesla did not list speed offset among the functions covered by Article 39 exemptions - implying it was assessed as compliant with existing rules. ETSC argues that it is not compliant, and that it should not have been approved.

Note: ETSC has separately [recommended](#) that this decision on FSD (Supervised) should not go to a vote at all until a public discussion has concluded on whether the existing rules (see below) should be expanded to permit hands-off driving and system-initiated manoeuvres outside motorways and highway-like roads. Wider concerns about the provisional approval are set out [here](#), this briefing is solely concerned with the speed functions mentioned above.

1.2 *What the current rules allow*

Assisted driving systems sold in Europe must follow the UN rules on Driver Control Assistance Systems, or DCAS. These are set out in [UN Regulation No. 171](#) and apply on a [mandatory basis in the EU](#) for any vehicle fitted with a system that assists the driver in performing vehicle dynamic control.

Two terms from the Regulation are relevant to follow the rest of this briefing.

Driver-set maximum speed. The speed the driver chooses as the ceiling for the assistance. Paragraph 5.3.7.4.7. requires the system to give the driver a way to set this anywhere within the system’s designed speed range. The driver may therefore set it above the posted limit - 60 km/h on a 50 km/h road - except where the posted limit is the highest in the country of operation, in which case paragraph 5.3.7.4.4. caps the system at that limit.

Current maximum speed. Defined in the Regulation as the maximum speed up to which the system will control the vehicle. It is a ceiling, not a target: the vehicle does not necessarily drive at this speed, it simply will not assist above it. Under paragraph 5.3.7.4.5, the current maximum

speed comes from one of only two sources: the speed set by the driver, or the speed limit as determined by the system.

There is an important distinction between what the driver, and what the system, can do:

The driver may set a speed above the limit.

The system may not intentionally set one.

ETSC regrets the first of these. A system with driving assistance technology should not assist a driver at an illegal speed, and the usual justification - that the system might determine the limit wrongly - is unconvincing, since a driver who disagrees with the system can simply resume manual control. [Speed remains a major factor](#) in road safety performance: excessive and inappropriate speed accounts for around a third of fatal collisions and aggravates most others.

ETSC’s objection to that allowance is a policy objection, not a legal one: the current rules, regrettably, permit the driver to set the speed above the limit.

The two functions examined below are a different matter.

2. Issue 1: The speed offset is prohibited

2.1 What the speed offset does

Tesla’s [owner’s manual](#) describes the speed offset as setting the max speed to a fixed percentage above the currently detected speed limit. The driver switches it on in a settings menu and chooses a value in 5% steps, up to 50%, therefore providing ten settings in all.

Once switched on, it applies everywhere. On a 50 km/h road, a 50% offset produces a ceiling of 75 km/h. In a 30 km/h zone, it produces 45 km/h.

As Tesla also explains, “max speed” does not necessarily mean that the vehicle will travel at that speed. Instead, the system continues to adapt to conditions rather than seeing it as a target speed like cruise control would. However, this does not rule out the possibility that the car may exceed the speed limit. And it may even exceed the speed limit by a larger margin.

The road safety consequence is straightforward. The probability of a pedestrian being killed in a collision with a passenger car going at 50 km/h is more than five times higher than at 30 km/h.¹

30 km/h speed limits are set at 30 km/h to protect vulnerable road users because of how steeply the risks climb at higher speeds.

¹ Kröyer et al., 2014, Accident Analysis Prevention, Relative fatality risk curve to describe the effect of change in the impact speed on fatality risk of pedestrians struck by a motor vehicle.

2.2 Why it breaks the rules

Paragraph 5.3.7.4.9. of the DCAS Regulation states:

“The system shall not enable the driver to set a default offset by which the current maximum speed is supposed to exceed the system-determined road speed limit.”

This prohibition has four elements, all of which Tesla’s speed offset satisfies.

1. **The system enables the driver to set it.** Tesla’s offset is switched on and configured by the driver, [through a settings menu](#).
2. **It is a default offset.** Tesla offers ten fixed values (increments of 5% up to 50%). Once chosen, the value applies by default until changed. Whether the offset is expressed as a percentage or in km/h is irrelevant as both are offsets.
3. **It is an offset of the system-determined speed limit.** Tesla’s own manual says the offset is applied above the currently detected speed limit, which is what the Regulation calls the system-determined road speed limit.
4. **It alters the current maximum speed.** Tesla’s offset alters the max speed. And Tesla’s “max speed” is exactly what the Regulation defines as “current maximum speed”, as will be demonstrated below.

One might interpret that “*by which the current maximum speed is supposed to exceed the system-determined road speed limit*” means that what is prohibited is an offset resulting in a target speed, similar to how adaptive cruise control works.

However, this interpretation does not hold, primarily due to the definition of “current maximum speed” that is provided in the DCAS Regulation, which (in paragraph 2.23 of 171.00, and paragraph 2.20 of 171.01 and 171.02) reads:

“Current maximum speed” means the maximum speed up to which the system will control the vehicle.

As explained earlier, the “current maximum speed” represents a limit on the speed up to which the system will assist the driver. And what is therefore prohibited is an automatic offset of this limit up to which the system will assist the driver.

In contrast, the definition for “current maximum speed” does not read “*the speed at which the system will control the vehicle*” and as such the current maximum speed does not represent a target speed at which it is supposed to assist the driver.²

Therefore, what Tesla in its manual refers to as “max speed” is referred to as “current maximum speed” in the DCAS regulation, and as such also this fourth element of the prohibition is satisfied.

² Moreover, if paragraph 5.3.7.4.9. was supposed to prohibit only offsets resulting in “target speeds”, then the wording would have been along the lines of “The system shall not enable the driver to set a default offset by which the **vehicle speed** is supposed to exceed the system-determined road speed limit”. Or “target speed” should have been defined and used in the prohibition instead.

As Tesla’s speed offset satisfies all four elements, it is prohibited by paragraph 5.3.7.4.9.. As the offset was reportedly not covered by the Article 39 exemption, ETSC considers that it should not have been approved.

ETSC therefore calls on the European Commission and the Member States to reject the approval of the speed offset. Tesla’s speed offset, through which the system automatically sets the current maximum speed at an offset above the system-detected speed limit, is both legally prohibited as well as highly undesirable from a road safety perspective. Allowing this offset during the Article 39 procedure would furthermore set an undesirable precedent that other manufacturers and approval authorities could follow.

3. Issue 2: Contextual max speed must not infer the speed limit from the speed of other traffic

3.1 *What contextual max speed does*

The owner’s manual describes contextual max speed as allowing the system to adjust the max speed setting dynamically based on visual cues in the driving scene. The [information on the in-vehicle display](#) adds that this could be done “to maintain a safe and natural traffic flow, or preventing the maximum speed from changing in cases where it would lead to an unsafe driving speed”.

The [Czech Ministry of Transport](#) has confirmed that the system can adapt its speed to the current traffic situation rather than relying on traffic signs alone, while the [Finnish Transport and Communications Agency \(Traficom\)](#) highlights that “the vehicle’s speed adapts to other traffic if the speed limit detected by the system is uncertain or inaccurate.”

Tesla’s ‘Article 39 – FSD (Dashboard)’ explains that “at the core of FSD (Supervised) is a neural network which learns patterns and behaviors that imitate high quality and safe driving from humans; natural emergent properties of this learning demonstrate good understanding and control for factors including but not limited to collision avoidance, anticipatory behavior, maintaining safe distances, traffic rules and signals, predictability, and smoothness. The driving trajectory is based on a continuous probabilistic optimization, (...).”³

Tesla also confirms there that in “certain cases, FSD (Supervised) will adjust the maximum speed to allow the system to drive the appropriate speed for the surrounding traffic conditions, even when this exceeds the detected speed limit.”⁴

³ In the “Incompatibility with R171.01” section of the overview section.

⁴ Exemption Request 5 in the Summary of Requested Exemptions in the Overview section.

3.2 The behaviour of other speeding human drivers should not be copied by an assisted driving system

Paragraph 5.3.7.4.1. of the DCAS regulation requires that the system “shall aim to determine the permitted road speed limit relevant to the current lane of travel”. It does not say *how*. On ETSC’s reading, using camera-based information from the road environment - markings, layout, infrastructure elements - is permitted for the determination of the speed limit, and is to be welcomed. Sign recognition and map data both fail in predictable ways, and when both do, better speed limit determination would benefit assisted driving as much as intelligent speed assistance (ISA) systems. What ultimately matters is that the limit is determined correctly.

Using the speed of other vehicles in that speed limit determination is a different matter entirely, as speeding is [widespread across Europe](#). Similarly, ETSC considers it highly undesirable that the speed of other vehicles is used to determine what the system considers the appropriate max speed.

As speeding is widespread, it can be reasonably expected to occur regularly while this system is in use. The speed of other traffic is therefore not evidence of what the limit is. A system that raises its max speed ceiling because other cars are speeding does not improve the accuracy of speed limit determination; it mistakes their speeding for the limit, and perpetuates the risks rather than addressing them.

ETSC’s position is that infrastructural cues are an acceptable and welcome input to speed limit determination, and that the speed of other vehicles is not. The system raising the max speed based on the speed of others is likewise unacceptable.

3.3 The problems contextual max speed is said to solve are already addressed

The justification reportedly offered is that a vehicle applying an incorrectly detected limit would pose a danger. ETSC considers this includes situations in which the vehicle might brake unexpectedly, or fall so far below surrounding traffic that a dangerous speed differential opens up. The Regulation already deals with both.

On braking: where the system determines a new, lower speed limit, paragraph 5.3.7.4.7.3.3. requires it to adapt the current maximum speed accordingly, with the resulting deceleration being constrained in two ways. Paragraph 5.3.7.4.8. requires any system-initiated speed change following a change in the determined limit to remain controllable for the driver. Paragraph 5.3.6.3.1. requires any acceleration or deceleration to remain manageable for the driver *and*

surrounding traffic, except where emergency braking is needed. A system built to these rules should not brake in a way that endangers anyone.⁵

On speed differential: the driver can resume manual control at any time, and may in any case set the assistance speed above the system-determined limit. (Note that ETSC regrets the latter, though it is legal under current rules.)

Where the system is genuinely uncertain about the limit, the right response is to indicate that to the driver. A vehicle that informs its driver that it cannot reliably determine the speed limit hands the decision to a human. A vehicle that guesses the speed limit based on the speed of other traffic makes the decision itself, and may make it wrongly.

3.4 *Tesla’s justification*

According to the [Finnish authorities](#), Tesla argues that contextual max speed is also needed because “a vehicle travelling strictly at the speed limit could disrupt traffic in situations where other traffic does not comply with speed limits.”

In other words: even where the vehicle has correctly determined the limit, it may exceed it because others are doing so.

This is not a system assisting a driver who has chosen to speed. It is a system that speeds. The driver’s only act was to enable a setting; the decision to break the law at that moment is the vehicle’s.

Whatever benefits driving automation may bring depend on the assumption that automated technologies do not break speed limits. As a Level 2 system, FSD (Supervised) should be assisting the driver in complying with the speed limit, not in departing from it.

⁵ As explained in section 3.2, ETSC considers that determining the speed limit based on visual cues beyond the speed limit signs themselves falls within what is allowed by paragraph 5.3.7.4.1 of the DCAS Regulation. In ETSC’s view, this also applies where the system detects a speed sign but considers it uncertain or inaccurate: in that case, it may be able to determine the speed limit based on other visual cues instead. The accuracy of this contextual speed limit determination should be validated and ensured through the implied performance requirements in that paragraph.

This legitimate basis for determining the speed limit should not be confused with adjusting the vehicle’s current maximum speed for other reasons. Potential conflicts between requirements such as the system automatically controlling vehicle speed to not exceed the current maximum speed (5.3.7.4.6) and ensuring that any deceleration does not endanger anyone (5.3.6.3.1) should be addressed through regulatory improvements that take the underlying principles into account - not by allowing the system to adjust the current maximum speed outside of speed limit determination, and in particular not by allowing that adjustment to be based on the speed of other traffic.

3.5 *The missing context of Tesla’s data*

Tesla’s dashboard on the evidence provided for the contextual max speed-related exemption shows that in 98% of the cases selected by Tesla where, amongst others, the current max speed was set above the system-determined speed limit by the system, FSD (Supervised) was travelling at or below the median speed of the surrounding traffic.

Although it is positive that FSD (Supervised) reportedly does not generally drive faster than the surrounding traffic, the data that Tesla presents are insufficient to support their conclusion that this “data demonstrates that vision max speed [contextual max speed] corrects for incorrect speed limit determination without introducing excessive speeding behaviour.”

In order to be able to judge whether or not FSD (Supervised) is indeed correcting for incorrect system-determined speed limits, one would also need to know the speed of the surrounding traffic as well as the applicable speed limit for the lane FSD is driving in.

For example, if the surrounding traffic is driving 70 km/h on a 50 km/h road, and the FSD vehicle increases the current maximum speed to match that of the surrounding traffic despite having detected a 50 km/h sign, then FSD (Supervised) driving at 68 km/h would still qualify according to Tesla’s sample criteria as a sample supporting their conclusion – despite being well above the posted speed limit.

Without data on the speed of the surrounding traffic and the posted speed limit, only the conclusion that the “vehicle speed remains consistent with the surrounding traffic flow” seems to be supported by the provided data on the relative speed between the FSD (Supervised) vehicle and the median as well as fastest surrounding vehicle speeds.

Moreover, unless those two data points are made available, the evidence presented by Tesla also supports our notion that a contextual max speed function that takes the speed of other vehicles into account may very well perpetuate the problem of speeding, as illustrated by the example above.

4. Two changes needed in the DCAS Regulation

1. Prohibit the use of other vehicles’ speed in determining the speed limit. ETSC proposes a new subparagraph under 5.3.7.4.1.:

5.3.7.4.1. The system shall aim to determine the permitted road speed limit relevant to the current lane of travel.

5.3.7.4.1.1. The system shall not use the speed of other vehicles when determining the permitted road speed limit.

This preserves contextual max speed-like systems that use infrastructural cues for speed limit determination, and removes only the input ETSC objects to (speed of other vehicles).

2. Close the driver-set offset loophole. The Regulation prohibits an offset applied to the *system-determined* speed limit. It does not expressly prohibit an offset applied to the *driver-set* maximum speed. It is arguable that a driver-set speed subsequently altered by the system is no longer a driver-set speed but a system-set one, and therefore not a permitted source for the current maximum speed under paragraph 5.3.7.4.5. This point should not be left to argument and therefore should be explicitly prohibited.

One further point deserves attention, although unrelated to Tesla’s FSD (Supervised) settings. The EU’s [ISA delegated act](#) requires speed limit determination to be correct for at least 90% of distance driven (paragraph 3.4.2.5.2). The DCAS Regulation sets no performance requirement beyond requiring that the system “shall aim to determine” the limit. Forthcoming changes at EU level would allow DCAS and automated driving systems to switch ISA off automatically where their speed limit determination performs equivalently. ETSC therefore considers it appropriate to review whether the text of the DCAS Regulation provides sufficient assurances that any DCAS system approved meets the upcoming provision for the automatic deactivation of ISA.

ETSC would furthermore welcome a review with a view of determining whether other provisions of the ISA delegated act should be incorporated into the DCAS Regulation’s speed limit compliance assistance section.

5. Recommendations

To the European Commission and the Member States:

1. **Reject the approval of the “speed offset” function.** It is prohibited by paragraph 5.3.7.4.9 of UN Regulation No. 171 and is reportedly not covered by the Article 39 exemption.
2. **Reject the approval of any “contextual max speed” function that uses the speed of other traffic** to set the current maximum speed or determine the applicable speed limit.
3. **Do not put the FSD approval to a vote** until a public discussion has concluded on whether the DCAS Regulation should be expanded to permit hands-off driving and system-initiated manoeuvres outside motorways.

On the DCAS Regulation:

1. **Add a provision prohibiting the use of other vehicles’ speed** when determining the speed limit for the current lane of travel.
2. **Add a provision prohibiting a default offset applied to the driver-set maximum speed.**
3. **Review the speed limit compliance assistance section** in light of the forthcoming speed limit determination performance requirement for the automatic deactivation of intelligent speed assistance systems.



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