**Structure of a future Regulation
for automated & autonomous driving systems**

* *Black text informs about the structure of the Regulation*
* *Blue text are parts of the Regulations that are roughly drafted*
* *Green text is for explanation of the concept*

Note: The proposed concept in this document reflects the 3-pillar approached as discussed and agreed in the TF AutoVeh. It is a first attempt to structure the discussion within the TF AutoVeh and its two subgroups from the early beginning. The potential content as given in blue font reflects first rough ideas and aims at triggering further in-depth discussions. Also several elements as mentioned in the group’s draft Terms of Reference require further consideration in this structure, e.g. the pillar Audit/Assessment and the role of tools like e.g. computer simulation/virtual testing.

The headlines/elements in this document reflect a UN-Regulation under the 1958 agreement. As discussed in the TF AutoVeh, the concept could also be transferred to a Global Technical Regulation under the 1998 agreement.

**Regulation**

1. Scope
2. Definitions
	1. “Automated Driving Systems” (i.e. SAE Level 3)
		* form a part of a motor vehicle and execute continuously -within their limits of functional capability- the longitudinal (accelerating, braking) and lateral (steering) portion of the dynamic driving task after engagement in a dedicated use-case
		* require a human driver
		* can be overridden or switched-off by the driver at all times
		* detect their functional capabilities and the necessity for driver take-over
		* request the driver to take-over and provide sufficient lead time
	2. “Autonomous Driving Systems” (i.e. SAE Level 4 and 5)
		* form a part of a motor vehicle and have the capability to entirely perform the dynamic driving task after engagement (in their dedicated use-case)
		* do not require a human driver (in their dedicated use-case)
	3. “Dynamic Driving Task” (DDT) means all of the real-time functions required to operate a vehicle in on-road traffic, excluding the selection of destinations and stopping points, and including without limitation: object and event detection, recognition, and classification; object and event response; maneuver planning; steering, turning, lane keeping, and lane changing, including providing the appropriate signal for the lane change or turn maneuver; and acceleration and deceleration.
	4. “Use cases” for automated or autonomous driving functions in the sense of this Regulation are areas of application in relevant traffic environments. The following use cases are considered:
		1. “Highway traffic” means a traffic environment in which traffic flows on multilane highways often with high maximum allowed speeds. Characteristic is that the lanes with traffic flow in opposite direction are fully separated from each other. Also there are no intersections or traffic lights.
		2. “Urban traffic” means an environment (typically in a city) where maximum speed is limited to [50-60 kph].
		3. Interurban traffic [reserved]
		4. Parking [reserved]
	5. “Type of a sensor” means those sensors that have the following properties in common:
		1. the overall working principle (e.g. radar, infrared, ultrasonic, camera, LIDAR)
		2. main performance characteristics within the following tolerances
			1. [20%] for the range
			2. [20%] for the opening angle
			3. [20%] for the spatial resolution
	6. “Vehicle type” means a category of vehicles which do not differ in such essential respects as:
		1. The use case as defined in paragraph 2.4
		2. The level of automation of the automated or autonomous vehicle system
		3. The types of the sensors used as defined in paragraph 2.5 and their overall arrangement
		4. …
	7. …
3. Application for approval
4. Approval
5. Specifications
	1. The technical and functional requirements for automated and autonomous systems are laid down in Annexes 3 to 7. Annex 8 describes the special requirements to proof adherence with the relevant requirements that were derived from the national traffic codes of the Contracting Parties. Depending on the level of automation and the foreseen use-case the following requirements apply

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Annex | System for highway traffic | System for urban traffic | System for interurban traffic | System for parking scenarios |
| Annex 3 | X | X | X | X |
| Annex 4 | X |  |  |  |
| Annex 5 |  | X |  |  |
| Annex 6 |  |  | X |  |
| Annex 7 |  |  |  | X |
| Annex 8 | X | X | X | X |

Note: If the manufacturer can provide evidence that certain requirements are not relevant due to the foreseen use-case (e.g. the autonomous driving system can only be activated on a dedicated geo-fenced city-route where traffic lights are not existent), the respective requirements are not applicable (e.g. special requirements involving traffic lights do not apply).

Note: The proposed structure of this future regulation allows to add the output of research initiatives (e.g. PEGASUS, NHTSA/VTTI, etc.) even at a later stage when such results are available (e.g. additional scenario for certification test needs to be added, relevant extended repository case needs to be added).

* 1. Verification that the relevant requirements are met is done by the following actions:
		1. Dedicated certification tests for specific test scenarios defined in the respective paragraphs 2 of Annexes 4 to 7.
		2. A real world driving test lasting approximately [30-60] minutes in the environment of the respective use case. Besides duration, parameters like drive time (e.g. commuter traffic and off-peak, day and night) and locality shall be considered by the Technical Service for defining the particular test drive route. During this test relevant driving situations shall be documented using the checklists specified in paragraphs 3 of Annexes 4 to 7. For each use case there is a minimum number of situations which are mandatory as identified in the respective Annex. However, due to the intrinsic variation given by the real world environment additional relevant situations may occur. Any observations of unexpected behavior of the test vehicle shall be documented and need to be clarified by the Technical Service with the manufacturer before a positive test report needed for certification can be generated.

For each of the 4 use cases described in Annex 4 to 7 a separate test drive shall be conducted.

* + 1. In addition to the certification tests and the real world driving tests defined above compliance with the general requirements for autonomous vehicles according to Annex 3 and compliance with traffic codes of the Contracting Parties according to Annex 8 shall be verified by an audit/assessment which the Technical Service performs at the manufacturer´s engineering facility. During this audit/assessment the manufacturer shall also provide evidence (and to the degree outlined below declarations of conformity for specific aspects) to demonstrate compliance with all requirements as well as the overall safety of the vehicle. The audit/assessment and required declarations may include e.g. the coverage of the extended repository of borderline test cases via simulation tools or real testing data which were collected during the development process.
		2. Relevant environmental aspects (e.g. lighting and weather conditions) shall be part of the audit/assessment referred to in paragraph 5.2.3. It shall include a review of the manufacturer´s strategies and testing in that respect.
		Note: Since it is neither practical nor feasible to include testing in all relevant lighting and weather conditions within the framework of certification, this aspect shall be part of the audit/assessment.
1. Modification of the automated/autonomous driving system
2. Conformity of production
3. Penalties for non-conformity of production
4. Production definitively discontinued
5. Names and addresses of Technical Services responsible for conducting approval tests and of Type Approval Authorities
6. Introductory and transitional provisions

**List of Annexes**

1. Communication
2. Arrangement of the type approval marking
3. General requirements for automated and autonomous driving systems
4. Special requirements for automated and autonomous driving systems in highway traffic
5. Special requirements for autonomous driving systems in urban traffic
6. Special requirements for automated and autonomous driving systems in interurban traffic
7. Special requirements for autonomous driving systems in parking scenarios
8. Special requirements to show adherenece to national/regional traffic rules
9. Information Document

**Annex 1: Communication**

**Annex 2: Arrangement of the type approval marking**

**Annex 3: General requirements for automated and autonomous driving systems**

1. Internal vehicle HMI for Automated and Autonomous Driving Systems
	1. The following requirements apply only for vehicles which offer a manual driving mode that can be activated during a ride:
		1. The system status (manual driving mode or automated driving mode) shall be displayed permanently in the driver’s field of vision.
		2. System activation and deactivation
			1. The vehicle shall be equipped with a means for the driver to activate and deactivate the system. Activation shall be limited to the foreseen operational design domain (ODD).
			2. Activation requires a deliberate action of the driver.
			3. If the driver performs an activation sequence when the system is technically not available (e.g. vehicle is located out of the system’s operational design domain) the driver shall be notified that activation is not possible.
			The driver should not mistakenly assume that the automation system has taken over when it has not.
			4. Deactivation (i.e. driver take-over without system request to take-over) should be possible for the driver at any time.
			5. The driver can at all times override the automation system.
			6. Upon activation of a L3 system the driver shall be informed to remain ready and able to take over control of the vehicle when requested.
		3. System initiated take-over scenario
			1. System initiated take-over request shall be clearly noticeable for the driver. At least two modes (visible and audible or haptic) shall be used.

To be noticeable for a driver who could be visually distracted.

* + - 1. In case of a take-over request, side activities using vehicle integrated system shall be automatically terminated and the take-over request shall be displayed instead.
			2. Relevant take-over information (e.g. speed limits) shall be displayed to the driver to allow to continue the trip safely and in compliance with the applicable traffic rules.
			3. If the need for take-over can be detected early (e.g. end of domain) the take-over scenario may be designed as a warning cascade that starts with a gentle take-over request followed by requests of increasing intensity.
			4. In other situations (e.g. system limits reached) the take-over request shall be such that it immediately alerts the driver.
			5. If the driver disregards a request for take-over, the warning continues with increased intensity until the driver has taken-over the vehicle control. In case of need the vehicle shall perform a minimum risk maneuver according to paragraph 5 of this Annex.
		1. Driver initiated take-over
			1. Relevant take-over information (e.g. speed limits) shall be displayed to the driver to allow to continue the trip safely and in compliance with the applicable traffic rules.

Verification of HMI aspects is part of audit/assessment or other tests (cf. Annexes 4-7) during certification

1. External HMI for Autonomous Driving Systems

Note: This section is a placeholder for potential requirements to inform/communicate with other road users (e.g. pedestrian in urban environment) that may be needed in future for Autonomous Driving Systems (if not covered by a separate regulation, e.g. UN-R 48). The requirements may also be foreseen as “if fitted” requirements.

* 1. tbd
1. Driver Monitoring
	1. The following requirements apply only in case of Automated Driving Systems (Level 3).
	2. When operated in automated mode the following aspects shall be monitored:
		1. Presence of a driver
		2. General alertness of the driver, as identified by any of the following criteria
			1. Has been operating functions of the in-vehicle infotainment system within the last [3]min
			2. Hand on the steering wheel within last [3]min
			3. Positive eye-tracking result
	3. If the condition 3.2.1 is not fulfilled the system shall start the minimum risk maneuver according to paragraph 5 of this Annex.
	4. If the conditions 3.2.2 is not fulfilled the system shall start the take-over scenario according to paragraph 1.1.3 of this Annex.

Verification of Driver Monitoring is part of the audit/assessment or other tests (cf. Annexes 4-7) during certification

1. Transition Scenario
	1. When operated in automated mode the system may request the driver to take over control of the driving task only if the lead time for the driver between the first request and the hand-over of the control is at least 4 seconds.
	2. If a take-over request is unavoidable because the system itself cannot retain control of the driving task and the necessary lead time specified in paragraph 4.1. cannot be met the system shall start the minimum risk maneuver according to paragraph 5 of this Annex.
	3. If within [4] seconds after the request for take-over the driver has not reacted on the request the system shall start the minimum risk maneuver according to paragraph 5 of this Annex. Reaction of the driver shall be established by any of the following actions:
		1. The driver operates the accelerator.
		2. The driver operates the brake.
		3. The driver provides a steering input.

Verification of Transition Scenario is part of the audit/assessment or other tests (cf. Annexes 4-7) during certification

1. Minimum risk maneuver (safe state)
	1. A minimum risk maneuver shall be performed only in cases where neither safe continuation of the automated driving task nor hand-over of the control to the driver are possible.
	2. If the vehicle has a manual mode it shall be possible for the driver at any time to override the minimal risk maneuver.
	3. The minimum risk maneuver shall be chosen such that the risk for vehicle occupants and other participants of the traffic situation is minimized. The strategy shall be verified during the audit/assessment referred to in Paragraph 5.2.3 of this Regulation.
	4. Not later than [4] s after the start of the minimal risk maneuver the hazard lights shall be activated automatically.
2. Functional Safety and Reliability of Automated and Autonomous Driving Systems

Note: As mentioned in 5.2.2. compliance with the general requirements for automated/autonomous driving systems according to Annex 3 shall be verified by an audit/assessment which the Technical Service performs at the manufacturer´s engineering facility. This would apply for Functional Safety and Reliability. For the structure of this chapter Annex 6 of Regulation No. 79 / Annex 8 of Regulation No. 13-H (Special Requirements to be applied to the safety aspects of complex electronic vehicle control systems) could serve as a basis.

* 1. General
	2. Requirements
	3. The technical service shall perform an audit/assessment that covers the following aspects:
		1. System layout and schematics
		2. Design process methodology and tools
		3. Validation plans
		4. Safety concept
	4. Verification and Test of the safety concept
		1. Non-fault condition
		2. Fault condition: Spot checks of selected hazards and faults

Note: To establish that argumentation supporting the safety concept is understandable and logical and validation plans are suitable and have been completed.

* 1. Documentation
		1. Formal documentation package to be submitted
		2. Additional confidential material and analysis data that is retained by the manufacturer, but made open for the inspection during the audit/assessment
1. Requirements concerning data storage system for automated driving (DSSA)

Note: Input to be delivered from *tbd*

1. Requirements concerning cyber security (if not covered by separate regulation!)

Note: Input to be delivered from TF Cyber Security/OTA

1. Requirements concerning over-the-air-updates (if not covered by separate regulation!)

Note: Input to be delivered from TF Cyber Security/OTA

1. Further general requirements

Note: Placeholder if needed

**Annex 4: Special requirements for automated and autonomous driving systems in highway traffic**

1. Overall capabilities:

Depending on the foreseen use-case, an autonomous driving system shall be capable of handling the following typical traffic scenarios representative of highway driving or in case of an automated driving system may request the driver to take-over with sufficient lead time (see Annex 3, requirements concerning transition demand)

* 1. Normal traffic flow: lane keeping, distance keeping, road speed compliance, lane changes (including motorbikes on adjacent lanes in the rear), merging, road signs
	2. Entering and exiting highway: exit, gas station, recreational parking site
	3. Passing slower vehicles
	4. Ending lanes
	5. Construction sites
	6. Scenarios involving emergency vehicles (police, ambulance)
	7. Objects/obstacles on the road (e.g. lost cargo)
	8. Policeman or roadman directing traffic
1. Tests required for certification

General idea: scenarios for which it can be guaranteed that they can be tested in the real world driving test (cf. paragraph 3 of this Annex) need not be replicated as certification tests on proving grounds.

Out of the generic driving scenarios listed in 1.1-1.8 the following specific tests shall be performed during certification

* 1. “entering highway”

Vehicle on acceleration lane starting at [50 kph], lane ends in [200m]; 5 vehicles on other lane at [90 kph] with spacing [30/80/50/100 m], 1st vehicle initially [30m] behind test vehicle

* 1. “merging into dense traffic with ending lane”

Vehicle starting at [120 kph], lane ends in [200m]; 4 vehicles and 1 one motorbike on other lane at [90 kph] with spacing [30/80/50/100 m], 1st vehicle initially [30m] in front of test vehicle.

* 1. “approaching a traffic jam/static vehicle in front”

Vehicle at [120 kph], standing vehicles on all lanes [300m] in front.

* 1. “driving through construction site”

Construction site with reduced lane width and additional temporary lane markings

* 1. “stationary object on road”

Stationary obstacle (e.g. tire carcass) on road (own lane). Test vehicle should solve the situation e.g. slow-down/evade the obstacle/change lane.

1. Checklist for test drive in highway traffic

The test drive shall be performed in a normal highway traffic environment, i.e. not during hours with very low traffic density.

Out of the generic driving scenarios listed in paragraphs 1.1-1.8 of this Annex at least the following situations shall be tested in a real world test drive

* 1. Entering the highway
	2. Following other vehicle in same lane
	3. Passing a slower vehicle: lane change/passing/merging back in previous lane
	4. Adapting to changing speed limits
	5. Merging from an ending lane
	6. Exiting the highway

The checklist laid down in Appendix 1 to this Annex shall be filled out by the technical service. If the corresponding situations have been managed without problems this shall be marked accordingly. Any observations that require further clarification shall be noted. This includes any deviations from adherence to the traffic rules of the country/region where the test drive took place.

Note on the checklist (see Appendix 1 below):

It shall include the mandatory situations plus a list of optional situations. In case of need a test drive must be extended until all mandatory situations have occurred. Out of the optional situations only some will occur during a test drive. Those that do occur shall be documented.

1. Extended repository of test cases
	1. The behavior of the vehicle in additional situations shall be verified during vehicle development. This can be performed by simulation or real testing. In any case evidence has to be provided to the technical service during the audit/assessment referred to in paragraph 5.2.3. of this Regulation.
	2. Reference to repository (appendix or external source)

**Appendix 1 to Annex 4: Checklist for the real world test drive in highway traffic**

| Brief description of test route/location |  |
| --- | --- |
| Date/time of test drive |  |
| Item # | Situation | Pass | Comments (must be filled out in case of “no/unclear”) |
| Yes | No/unclear |
| Part A: mandatory  | All lines in Part A have to be evaluated during the test drive |
| HA.1 | Entering the highway |  |  |  |
| HA.2 | Following other vehicle in same lane |  |  |  |
| HA.3 | Passing a slower vehicle: lane change/Passing/merging back in previous lane  |  |  |  |
| HA.4 | Adapting to changing speed limits |  |  |  |
| HA.5 | Merging from an ending lane |  |  |  |
| HA.6 | Exiting the highway |  |  |  |
| HA.7 |  |  |  |  |
| HA.8 |  |  |  |  |
| HA.9 |  |  |  |  |
| HA.10 |  |  |  |  |
| Part B: supplementary | If any of the following situations is encountered during the test drive this shall be noted in the respective line.Additional lines may be added for situations not listed which were observed. |
| HB.1 | Situation involving an emergency vehicle (police, ambulance, fire brigade) |  |  |  |
| HB.2 | Policeman or roadman directing traffic |  |  |  |
| HB.3 | Objects/obstacles on the road (e.g. lost cargo) |  |  |  |
| HB.4 | Driving through construction site (if possible with modified lane markings) |  |  |  |
| HB.5 | Driving through area with no/bad lane markings |  |  |  |
| HB.6 | Safely approaching end of traffic jam |  |  |  |
| HB.7 | Driving in traffic jam |  |  |  |
| HB.8 | Driving through area with bad road surface conditions |  |  |  |
| HB.9 |  |  |  |  |
| HB.10 |  |  |  |  |

**Annex 5: Special requirements for autonomous driving systems in urban traffic**

1. Overall capabilities:

Depending on the foreseen use-case, an autonomous driving system shall be capable of handling the following typical traffic scenarios representative of urban driving

* 1. Normal traffic flow: lane keeping, distance keeping, road speed compliance, lane changes (including 2-wheelers on adjacent lanes in the rear), merging, signs
	2. Intersection scenarios: traffic lights, signs, right of way rules, protected and unprotected turning
	3. Roundabout scenario
	4. Scenarios involving pedestrians and cyclists: walkway, turning left/right
	5. Scenarios involving emergency vehicles (police, ambulance, fire brigade)
	6. Objects/obstacles on the road (e.g. lost cargo)
	7. Policeman or roadman directing traffic
	8. Busstations (school bus)
	9. Tram way / Cable cars crossing vehicle road; parallel to vehicle road
1. Tests required for certification

General idea: scenarios for which it can be guaranteed that they can be tested in the real world driving test (cf. paragraph 3 of this Annex) need not be replicated as certification tests on proving grounds. The agreed test scenarios need to be worked out in detail (i.e. define numerical values/parameters like e.g. speed and distances, road infrastructure, definition of objects, pass/fail criteria, test equipment etc.)

Out of the generic driving scenarios listed in 1.1-1.7 the following specific tests shall be performed during certification

* 1. Unprotected “Left turn” (in case of right hand traffic, crossing without traffic lights)

2 oncoming vehicles close to each other at, a 3rd vehicle following with [120m] gap to 2nd, all vehicles at [40 kph]. Test vehicle should automatically activate the left direction indicator when decelerating, first stop and then use gap to make left turn.

* 1. “Pedestrian crossing” (without traffic lights, without pedestrian walkway)

The test vehicle approaches a gap after parked vehicles, where a child pedestrian that is obstructed by the parked vehicles has the intention to pass the street. Test vehicle should stop and wait for pedestrian to cross.

* 1. “Cyclist test” in combination with “right turn”

Test vehicle running at [50 kph] on a priority road approaches an intersection to perform a right turn. A cyclist is running at [15 kph] in the same direction using a separate bicycle lane adjacent to the priority road and wants to go across the intersection. A second bicycle is following with a [120m] gap to the first.

Test vehicle should automatically activate the right direction indicator when slowing down, first stop and let the first bicycle pass and then use the gap to make turn right.

* 1. “Obstacle test”

Stationary obstacle (e.g. dustbin) on road (own lane), oncoming vehicle. Test vehicle should continue to drive in its own lane if the object is traversable. If it is not traversable, the test vehicle should wait for oncoming vehicle to pass and then drive around the obstacle to continue driving in the own lane.

1. Checklist for test drive in urban traffic

The test drive shall be performed in a normal urban traffic environment, i.e. not during hours with very low traffic density.

Out of the generic driving scenarios listed in paragraphs 1.1-1.7 of this Annex at least the following situations shall be tested in a real world test drive

* 1. Wake/initial start of journey (with objects in close-proximity of the vehicle) and transfer into dynamic traffic
	2. Pass intersection regulated by traffic light
	3. Pass intersection regulated by signs
	4. Pass intersection without explicit regulation concerning right of way
	5. Merge lane (two flows of traffic become one)
	6. Make a left turn from a priority road
	7. Make a turn which requires previous lane change
	8. Lane change (e.g. overtake slower vehicle ahead)
	9. Make a turn which crosses a bicycle path / pedestrian walkway
	10. Pass a roundabout (one lane / multilane)
	11. Pass a pedestrian walkway (with pedestrian present)
	12. Park vehicle at destination

The checklist laid down in Appendix 1 to this Annex shall be filled out by the technical service. If the corresponding situations have been managed without problems this shall be marked accordingly. Any observations that require further clarification shall be noted. This includes any deviations from adherence to the traffic rules of the country/region where the test drive took place.

Note on the checklist (see Appendix 1 below):

It shall include the mandatory situations plus a list of optional situations. In case of need a test drive must be extended until all mandatory situations have occurred. Out of the optional situations only some will occur during a test drive. Those that do occur shall be documented.

1. Extended repository of test cases
	1. The behavior of the vehicle in additional situations shall be verified during vehicle development. This can be performed by simulation or real testing. In any case evidence has to be provided to the technical service during the audit/assessment referred to in paragraph 5.2.3. of this Regulation.
	2. Reference to repository (appendix or external source)

**Appendix 1 to Annex 5: Checklist for the real world test drive in urban traffic**

| Brief description of test route/location |  |
| --- | --- |
| Date/time of test drive |  |
| Item # | Situation | Pass | Comments (must be filled out in case of “no/unclear”) |
| Yes | No/unclear |
| Part A: mandatory  | All lines in Part A have to be evaluated during the test drive |
| UA.1 | Wake/initial start of journey (with objects in close-proximity of the vehicle) |  |  |  |
| UA.2 | Pass intersection regulated by traffic light |  |  |  |
| UA.3 | Pass intersection regulated by signs |  |  |  |
| UA.4 | Pass intersection without explicit regulation concerning right of way |  |  |  |
| UA.5 | Merge lane (two flows of traffic become one) |  |  |  |
| UA.6 | Make a left turn from a priority road (in case of right hand traffic) |  |  |  |
| UA.7 | Make a turn which requires previous lane change |  |  |  |
| UA.8 | Make a turn which crosses a bicycle path / pedestrian walkway |  |  |  |
| UA.9 | Pass a roundabout |  |  |  |
| UA.10 | Pass a pedestrian walkway (with pedestrian present) |  |  |  |
| UA.11 | Park vehicle at destination |  |  |  |
| UA.12 | Adherence to speed limits |  |  |  |
| UA.13 | Adherence to stop sign |  |  |  |
| UA.14 | Adherence to other road signs |  |  |  |
| Part B: supplementary | If any of the following situations is encountered during the test drive this shall be noted in the respective line.Additional lines may be added for situations not listed which were observed. |
| UB.1 | Situation involving an emergency vehicle (police, ambulance, fire brigade) |  |  |  |
| UB.2 | Policeman or roadman directing traffic |  |  |  |
| UB.3 | Objects/obstacles on the road (e.g. lost cargo) |  |  |  |
| UB.4 |  |  |  |  |
| UB.5 |  |  |  |  |
| UB.6 |  |  |  |  |
| UB.7 |  |  |  |  |
| UB.8 |  |  |  |  |
| UB.9 |  |  |  |  |
| UB.10 |  |  |  |  |

**Annex 6: Special requirements for automated and autonomous driving systems in interurban traffic**

Note: Placeholder

1. Overall capabilities in interurban traffic
2. Tests required for certification
3. Checklist for test drive in interurban traffic
4. Extended repository of test cases

**Annex 7: Special requirements for autonomous driving systems in parking scenarios**

Note: Placeholder - this Annex may be obsolete as parking is part of the urban use-case (Annex 5)

1. Overall capabilities in parking scenarios
2. Tests required for certification
3. Checklist for test drive in parking scenarios
4. Extended repository of test cases

**Annex 8: Special requirements to show adherence to national/regional traffic rules**

1. In the application for certification according to Annex 9 the manufacturer shall clearly specify the countries/regions in which automated or autonomous driving functions are available.
2. For countries/regions not specified in the application according to 8.1, it shall be technically ensured that activation of the respective automated/autonomous driving system is not offered.
3. Adherence to traffic rules shall be verified during certification by the following actions:
	1. During the real world test drive according to paragraph 5.2.2 of this Regulation adherence to the traffic rules in the particular country/region where the test drive is conducted shall be judged by the Technical Service. Any observations or deviations shall be noted in the test report and clarified after the test drive. If necessary, an additional test drive may be used for clarification.
	2. During the audit/assessment referred to in paragraph 5.2.3 of this Regulation the Technical Service shall inspect how the traffic rules are implemented in the vehicle system. It shall verify, that the list of rules that has been used is sufficient to cover the target countries specified according to paragraph 1 of this Annex. For such verification the compendium in paragraph 4 of this Annex shall be used as a reference.

Note: It may be necessary to update changes in the compendium of traffic rules in vehicles which are already registered. This can be efficiently addressed via over-the air-updates. Related requirements would need to be defined in paragraph 7 of Annex 3 if the topics is not already addressed in a separate regulation.

 For consideration: To confirm adherence to traffic rules, manufacturer’s self-declaration could be a reasonable tool within the audit/assessment.

1. Compendium of traffic rules
	1. Highway traffic
	2. Urban traffic
	3. Interurban traffic
	4. Parking scenarios

**Annex 9: Information Document**