

Version: 1.0

1. LCA Tests

1.1 Overtaking on neighbouring lane.

1.1.1 Overtaking on neighbouring lane, ego 50km/h, target 120km/h, overtaking left.

LCA\_50\_L1\_120\_overtaking

Ego vehicle crica 50 km/h.

Target vehicle distance to the ego vehicle more than 100m.

The target vehicle drives with circa 70 km/h relative and overtakes the ego vehicle on the neighbouring lane.

Warning is given from a distance of 68m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.1.2 Overtaking on neighbouring lane, ego 100km/h, target 120km/h, overtaking left.

LCA\_100\_L1\_120\_overtaking

Ego vehicle crica 100 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 20 km/h relative and overtakes the ego vehicle on the neighbouring lane.

Warning is given from a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.1.3 Overtaking on neighbouring lane, ego 50km/h, target 120km/h, overtaking right.

LCA\_50\_R1\_120\_overtaking

Ego vehicle crica 50 km/h.

Target vehicle distance to the ego vehicle more than 100m.

The target vehicle drives with circa 70 km/h relative and overtakes the ego vehicle on the neighbouring lane.

Warning is given from a distance of 68m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.1.4 Overtaking on neighbouring lane, ego 100km/h, target 120km/h, overtaking right.

LCA 100 R1 120 overtaking

Ego vehicle crica 100 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 20 km/h relative and overtakes the ego vehicle on the neighbouring lane.

Warning is given from a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.2 Overtaking on the next lane but one.

1.2.1 Overtaking on the next lane but one, ego 50km/h, target 120km/h, overtaking left.

LCA\_50\_L2\_120\_overtaking

Ego vehicle circa 50 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 70 km/h relative and overtakes the ego vehicle in straight line on next lane but one.

No warning given.

1.2.2 Overtaking on the next lane but one, ego 100km/h, target 120km/h, overtaking left.

LCA\_100\_L2\_120\_overtaking Ego vehicle circa 100 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 20 km/h relative and overtakes the ego vehicle in straight line on next lane but one.

No warning given.

1.2.3 Overtaking on the next lane but one, ego 50km/h, target 120km/h, overtaking right.

LCA\_50\_R2\_120\_overtaking Ego vehicle circa 50 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 70 km/h relative and overtakes the ego vehicle in straight line on next lane but one.

No warning given.

1.2.4 Overtaking on the next lane but one, ego 100km/h, target 100km/h, overtaking right.

LCA\_100\_R2\_120\_overtaking



Version: 1.0

Ego vehicle circa 100 km/h.

Target vehicle distance to the ego vehicle more than 80m.

The target vehicle drives with circa 20 km/h relative and overtakes the ego vehicle in straight line on next lane but one.

No warning given.

1.3 Driving back and forth (alternating) in ego lane.

1.3.1 Driving back and forth (alternating) in ego lane slowly, ego 100km/h, target 10km/h relative.



LCA 100 ego 10Diff

Ego vehicle circa 100 km/h.

The target vehicle is driving back and forth (alternating) behind ego vehicle: slowly approaching and driving backwards (v Diff = 10 km/h).

The target must fall back up to a distance > 70m and approach to lowest possible distance.

No warning given.

1.4 Overtaking from trail-traffic.

1.4.1 Overtaking from trail-traffic, ego 80km/h, target 100km/h, overtaking left distance 20m.



LCA\_80\_100\_20m\_overtaking\_L1

Ego vehicle circa 80 km/h. Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives circa 20 km/h relative, approaches the LCA vehicle up to circa 20 m.

The target vehicle changes to neighbouring left lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.4.2 Overtaking from trail-traffic, ego 80km/h, target 120km/h, overtaking left distance 40m.



LCA\_80\_120\_40m\_overtaking\_L1

Ego vehicle circa 80 km/h.

Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives circa 40 km/h relative, approaches the ego vehicle up to circa 40m.

The target vehicle changes to neighbouring left lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 38m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.4.3 Overtaking from trail-traffic, ego 80km/h, target 100km/h, overtaking right distance 20m.



LCA\_80\_100\_20m\_overtaking\_R1

Ego vehicle circa 80 km/h.

Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives circa 20 km/h relative, approaches the LCA vehicle up to circa 20 m.

The target vehicle changes to neighbouring right lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.4.4 Overtaking from trail-traffic, ego 80km/h, target 120km/h, overtaking right distance 40m.



LCA\_80\_120\_40m\_overtaking\_R1

Ego vehicle circa 80 km/h. Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives circa 40 km/h relative, approaches the LCA vehicle up to circa 40 m.

The target vehicle changes to neighbouring right lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 38m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.5 Move into the ego lane.



Version: 1.0

1.5.1 Move into the ego lane from the left neighbouring lane, ego 50km/h, target 90km/h, distance 40m.



LCA\_50\_L1\_90\_40m\_LvB Ego vehicle circa 50 km/h.

Target vehicle on the neighbouring lane, distance to the ego vehicle greater than 75m.

The target vehicle approaches the ego vehicle on the neighbouring lane with 40km/h relative and changes at 40m to the ego lane.

Warning is given from a distance of 39m (TTC 3.5s).

Warning has to be given till target vehicle has crossed the lane completely with all 4 tires.

1.5.2 Move into the ego lane from the right neighbouring lane, ego 50km/h, target 90km/h distance 40m.



LCA\_50\_R1\_90\_40m\_RvB Ego vehicle circa 50 km/h.

Target vehicle on the neighbouring lane, distance to the ego vehicle greater than 75m.

The target vehicle approaches the ego vehicle on the neighbouring lane with 40km/h relative and changes at ca. 40m to the ego lane.

Warning is given from a distance of 39m (TTC 3.5s).

Warning has to be given till target vehicle has crossed the lane completely with all 4 tires.

1.6 Move into the neighbouring lane.

1.6.1 Move in from the next lane but one to the neighbouring lane right, ego 100km/h, target 120km/h, move

LCA\_100\_R2\_120\_30m\_R2vR1 Ego vehicle circa 100 km/h.

Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives ca. 20km/h relative and approaches the ego vehicle up to circa 30m.

The target vehicle changes to the neighbouring lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.6.2 Move in from the next lane but one to the neighbouring lane left, ego 100km/h, target 120km/h, move



LCA\_100\_L2\_120\_30m\_L2vL1 Ego vehicle circa 100 km/h.

Target vehicle distance to the ego vehicle more than 75m.

Target vehicle drives ca. 20km/h relative and approaches the LCA vehicle up to circa 30 m.

The target vehicle changes to the neighbouring lane.

The target vehicle overtakes the ego vehicle.

Warning has to be given if the target vehicle has crossed the lane completely with all 4 tires but not earlier than in a distance of 19m (TTC 3.5s).

The warning has to be released, if the target vehicle has passed the ego vehicle.

1.7 Falling back target on neighbouring lane.

1.7.1 Falling back target on left neighbouring lane, ego 75km/h, target 70km/h.



LCA\_75\_L1\_70\_fallingback

Ego vehicle circa 75 km/h.

Target vehicle circa 70 km/h, drives in front of ego vehicle.

The target vehicle is overtaken by the ego vehicle with circa 5 km/h relative.

Warning has to be given while the target vehicle is present in the BSD area.

1.7.2 Falling back target on right neighbouring lane, ego 75km/h, target 70km/h.



LCA\_75\_R1\_70\_fallingback

Ego vehicle circa 75 km/h.

Target vehicle circa 70 km/h, drives in front of ego vehicle.

The target vehicle is overtaken by the LCA with circa 5 km/h relative.

Warning has to be given while the target vehicle is present in the BSD area.

1.8 Falling back target on the next lane but one.

1.8.1 Falling back target on the next lane but one, Left, ego 75km/h, target 70km/h.

LCA\_75\_L2\_70\_fallingback



Version: 1.0

Ego vehicle circa 75 km/h.

Target vehicle circa 70 km/h, drives in front of ego vehicle.

The target vehicle is overtaken by the ego vehicle with circa 5 km/h relative.

No warning given.

1.8.2 Falling back target on the next lane but one, Right, ego 75km/h, target 70km/h.



LCA\_75\_R2\_70\_fallingback

Ego vehicle circa 75 km/h.

Target vehicle circa 70 km/h, drives in front of ego vehicle.

The target vehicle is overtaken by the ego vehicle with circa 10 km/h relative.

No warning given.

2. BSD Tests.

2.1 Ego drive, target left.

2.1.1 Ego 80km/h, target left, at the level rear-bumper.



BSD\_80\_L1\_80\_rear\_bumper

Ego vehicle circa 80 km/h.

Target vehicle flows with the traffic at the level rear-bumper.

Duration: 3 minutes.

Warning has to be given while target vehicle is present in the BSD area.

2.1.2 Ego 80km/h, target left, at the level behind the ego vehicle.



BSD\_80\_L1\_80\_3m

Ego vehicle circa 80 km/h.

Target vehicle flows with the traffic at the level behind the vehicle.

Duration: 3 minutes.

Warning has to be given while target vehicle is present in the BSD area.

2.2 Ego drive, target right.

2.2.1 Ego 80km/h, target right, at the level rear-bumper.



BSD\_80\_R1\_80\_rear\_bumper

Ego vehicle circa 80 km/h.

Target vehicle flows with the traffic at the level rear-bumper.

Duration: 3 minutes.

Warning has to be given while target vehicle is present in the BSD area.

1.2.2 Ego 80km/h, target left, at the level behind the ego vehicle.



BSD\_80\_R1\_80\_3m

Ego vehicle circa 80 km/h.

Target vehicle flows with the traffic at the level behind the vehicle.

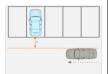
Duration: 3 minutes.

Warning has to be given while target vehicle is present in the BSD area.

3.RCTA Tests

3.1 Lateral, Angle 90°, free environmental conditions

3.1.1 Parking space pass by from right to left, angle 90°, distance 2.0m, target vehicle 20km/h



RTCA\_A90\_D2m\_20\_R2L

The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 2.0m (rear bumper of ego vehicle to right side of target - longitudinal), coming from the right, with 20 km/h.

Warning distance lateral 13 meters (2.5s TTC)

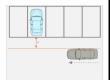
The warning has to be released, if the target vehicle has passed the ego vehicle.

3.1.2 Parking space pass by from right to left, angle 90°, distance 2.0m, target vehicle 35km/h

RTCA A90 D2m 35 R2L



ova	NOVA77GB-B Function Test Case	Version : 1.
ova	NOVA77GB-B Function Test Case	Version : 1



The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

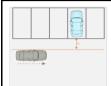
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 2.0m (rear bumper of ego vehicle to right side of target - longitudinal), coming from the right, with 35 km/h.

Warning distance lateral 24 meters (2.5s TTC)

The warning has to be released, if the target vehicle has passed the ego vehicle.

#### 3.1.3 Parking space pass by from left to right, angle 90°, distance 2.0m, target vehicle 20km/h



RTCA\_A90\_D2m\_20\_L2R

The ego vehicle is standing (0 km/h) in the parking space at 90° withthe vehicle rear end to the lane.

The target vehicle is outside the detection range.

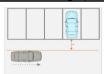
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 2.0m (rear bumper of ego vehicle to left side of target - longitudinal), coming from the left, with 20 km/h.

Warning distance lateral 13 meters (2.5s TTC).

The warning has to be released, if the target vehicle has passed the ego vehicle.

#### 3.1.4 Parking space pass by from left to right, angle 90°, distance 2.0m, target vehicle 35km/h



RTCA A90 D2m 35 L2R

The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane

The target vehicle is outside the detection range.

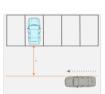
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 2.0m (rear bumper of ego vehicle to left side of target - longitudinal), coming from the left, with 35 km/h.

Warning distance lateral 24 meters (2.5s TTC)

The warning has to be released, if the target vehicle has passed the ego vehicle.

#### 3.1.5 Parking space pass by from right to left, angle 90°, distance 8.0m, target vehicle 20km/h



RTCA\_A90\_D8m\_20\_R2L

The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

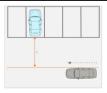
The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 8.0m (rear bumper of ego vehicle to right side of target - longitudinal), coming from the right, with 20 km/h.

No Warning

#### 3.1.6 Parking space pass by from right to left, angle 90°, distance 8.0m, target vehicle 35km/h



RTCA A90 D8m 35 R2L

The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 8.0m (rear bumper of ego vehicle to right side of target - longitudinal), coming from the right, with 35 km/h.

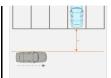
No Warning

3.1.7 Parking space pass by from left to right, angle 90°, distance 8.0m, target vehicle 20km/h (13mph)

RTCA\_A90\_D8m\_20\_L2R



Version: 1.0



The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

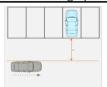
The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right(neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 8.0m (rear bumper of ego vehicle to left side of target - longitudinal), coming from the left, with 20 km/h (13 mph).

No Warning

#### 3.1.8 Parking space pass by from left to right, angle 90°, distance 8.0m, target vehicle 35km/h



RTCA A90 D8m 35 L2R

The ego vehicle is standing (0 km/h) in the parking space at 90° with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

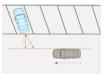
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 8.0m (rear bumper of ego vehicle to left side of target - longitudinal), coming from the left, with 35 km/h.

No Warning

#### 3.2 Lateral, Angle 60°, free environmental conditions

### 3.2.1 Parking space pass by from right to left, angle 60° from direction of travel, distance 2m, target vehicle



RTCA A60 D2m 20 R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the right, with 20 km/h (13 mph).

The distance is 2.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

Warning distance lateral 13 meters (2.5s TTC).

The warning has to be released, if the target vehicle has passed the ego vehicle.

3.2.2 Parking space pass by from right to left, angle 60° from direction of travel, distance 2m, target vehicle



RTCA\_A60\_D2m\_35\_R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the right, with 35 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

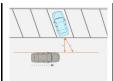
Warning distance lateral 24 meters (2.5s TTC)

The warning has to be released, if the target vehicle has passed the ego vehicle.

3.2.3 Parking space pass by from left to right, angle 60° against direction of travel, distance V2m, target vehicle RTCA\_A60\_D2m\_20\_L2R



Version: 1.0



The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

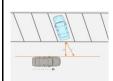
The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the left, with 20 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

Warning is observed

### 3.2.4 Parking space pass by from left to right, angle 60° against direction of travel, distance 2m, target vehicle





The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

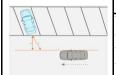
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the left, with 35 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

Warning is observed

### 3.2.5 Parking space pass by from right to left, angle 60° from direction of travel, distance 8m, target vehicle



RTCA\_A60\_D8m\_20\_R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the right, with 20 km/h.

The distance is 8.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

No warning

#### 3.2.6 Parking space pass by from right to left, angle 60° from direction of travel, distance 8m, target vehicle



RTCA A60 D8m 35 R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the right, with 35 km/h (19 mph).

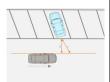
The distance is 8.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

No warning

3.2.7 Parking space pass by from left to right, angle 60° against direction of travel, distance V8m, target vehicle RTCA A60 D8m 20 L2R



Version: 1.0



The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the left, with 20 km/h.

The distance is 8.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

No warning

### 3.2.8 Parking space pass by from left to right, angle 60° against direction of travel, distance 8m, target vehicle



RTCA\_A60\_D8m\_35\_L2R

The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

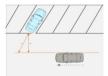
The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the left, with 35 km/h.

The distance is 8.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

No warning

#### 3.3 Lateral, Angle -60°, free environmental conditions

# 3.3.1 Parking space pass by from right to left, angle 60° against direction of travel, distance 2m, target vehicle



RTCA NA60 D2m 20 R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

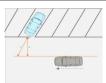
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the right, with 20 km/h (13 mph).

The distance is 2.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

Warning is observed

### 3.3.2 Parking space pass by from right to left, angle 60° against direction of travel, distance 2m, target vehicle



RTCA NA60 D2m 35 R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the right, with 35 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

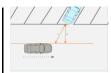
Warning is observed

3.3.3 Parking space pass by from left to right, angle 60° from direction of travel, distance 2m, target vehicle

//// RTCA\_NA60\_D2m\_20\_L2R



Version: 1.0



The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the left, with 20 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

Warning distance lateral 13 meters (2.5s TTC)

3.3.4 Parking space pass by from left to right, angle 60° from direction of travel, distance 2m, target vehicle



RTCA\_NA60\_D2m\_35\_L2R

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

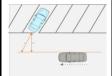
The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the left, with 35 km/h.

The distance is 2.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

Warning distance lateral 24 meters (2.5s TTC)

The warning has to be released, if the target vehicle has passed the ego vehicle

3.3.5 Parking space pass by from right to left, angle 60° against direction of travel, distance 8m, target vehicle



RTCA NA60 D8m 20 R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

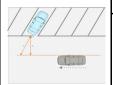
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the right, with 20 km/h (13 mph).

The distance is 8.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

No Warning

3.3.6 Parking space pass by from right to left, angle 60° against direction of travel, distance 8m, target vehicle



RTCA\_NA60\_D8m\_35\_R2L

The ego vehicle is standing (0 km/h) in the parking space at 60° against direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60° against direction of travel, coming from the right, with 35 km/h (19 mph).

The distance is 8.0m between the ego vehicle's rear bumper center and the right front corner of the target vehicle, when the right front corner of the target vehicle reaches the longitudinal axis.

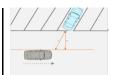
No Warning

3.3.7 Parking space pass by from left to right, angle 60° from direction of travel, distance 8m, target vehicle

RTCA\_NA60\_D8m\_20\_L2R



Version: 1.0



The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

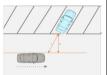
The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the left, with 20 km/h.

The distance is 8.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

No Warning

## 3.3.8 Parking space pass by from left to right, angle 60° from direction of travel, distance 8m, target vehicle



RTCA\_NA60\_D8m\_35\_L2R

The ego vehicle is standing (0 km/h) in the parking space at 60° from direction of travel with the vehicle rear end to the lane.

The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

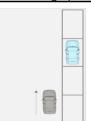
The target vehicle passes the ego vehicle in a straight line with an angle of 60°, coming from the left, with 35 km/h.

The distance is 8.0m between the ego vehicle's rear bumper center and the left front corner of the target vehicle, when the left front corner of the target vehicle reaches the longitudinal axis.

No Warning

#### 3.4 Long, Angle 90°, free environmental conditions.

# 3.4.1 Parking space pass by from rear to front on the left side, angle 0° parallel to direction of travel, distance



RTCA A0 D1.5m 20 L

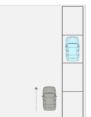
The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 1.5m lateral between vehicles, coming from rear to front on left side, with 20 km/h.

No warning

### 3.4.2 Parking space pass by from rear to front on the left side, angle 0° parallel to direction of travel, distance



RTCA\_A0\_D1.5m\_35\_L

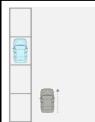
The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 1.5m lateral between vehicles, coming from rear to front on left side, with 35 km/h.

No warning

### 3.4.3 Parking space pass by from rear to front on the right side, angle 0° parallel to direction of travel, distance



RTCA\_A0\_D1.5m\_20\_R

The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range.

The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior.

The target vehicle passes the ego vehicle in a distance of 1.5m lateral between vehicles, coming from rear to front on the right side, with 20 km/h.



1

#### NOVA77GB-B Function Test Case

Version: 1.0 No warning 3.4.4 Parking space pass by from rear to front on the right side, angle 0° parallel to direction of travel, distance RTCA A0 D1.5m 35 R The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The steering wheel of the ego vehicle is not turned to left or right (neutral/zero position). Otherwise the warning algorithm is adapted which can lead to different warning behavior. The target vehicle passes the ego vehicle in a distance of 1.5m lateral between vehicles. coming from rear to front on the right side with 35 km/h. No warning 4. DOW Tests 4.1 Ego standing, angle 0°, passby. 4.1.1 Ego standing, target 10km/h, distance 1m, overtaking left. DOW\_0\_10\_1m\_overtaking\_left The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The target vehicle passes the ego vehicle in a distance of 1m lateral between vehicles, coming from rear to front on left side, with 10 km/h. 18 Warning is given from a distance of 10 m (TTC 3.5s). 4.1.2 Ego standing, target 25km/h, distance 1m, overtaking left. DOW 0 25 1m overtaking left The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The target vehicle passes the ego vehicle in a distance of 1m lateral between vehicles, 18 coming from rear to front on left side, with 25 km/h. Warning is given from a distance of 24 m (TTC 3.5s). 4.1.3 Ego standing, target 10km/h, distance 3m, overtaking left DOW\_0\_10\_3m\_overtaking\_left The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The target vehicle passes the ego vehicle in a distance of 3m lateral between vehicles, 18 coming from rear to front on left side, with 10 km/h. Warning is given from a distance of 10 m (TTC 3.5s). The warning has to be released, if the target vehicle has passed the ego vehicle. 4.1.4 Ego standing, target 25km/h, distance 3m, overtaking left. DOW\_0\_25\_3m\_overtaking\_left The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The target vehicle passes the ego vehicle in a distance of 3m lateral between vehicles, coming from rear to front on left side, with 25km/h. 18 Warning is given from a distance of 24m (TTC 3.5s). The warning has to be released, if the target vehicle has passed the ego vehicle. 4.1.5 Ego standing, target 10km/h, distance 1m, overtaking right. DOW\_0\_10\_1m\_overtaking\_left The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel. The target vehicle is outside the detection range. The target vehicle passes the ego vehicle in a distance of 1m lateral between vehicles,

The warning has to be released, if the target vehicle has passed the ego vehicle.

coming from rear to front on right side, with 10 km/h. Warning is given from a distance of 10 m (TTC 3.5s).



Version: 1.0

4.1.6 Ego standing, target 25km/h, distance 1m, overtaking right.			
	DOW_0_25_1m_overtaking_left		
	The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of trav		
	The target vehicle is outside the detection range.		
	The target vehicle passes the ego vehicle in a distance of 1m lateral between vehicles,		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	coming from rear to front on right side, with 25 km/h.		
16° :	Warning is given from a distance of 24 m (TTC 3.5s).		
	The warning has to be released, if the target vehicle has passed the ego vehicle.		
4 1 7 Fao standin	g, target 10km/h, distance 3m, overtaking right.		
T.I.7 Lgo Starioni	DOW_0_10_3m_overtaking_left		
	The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel.		
	The target vehicle is outside the detection range.		
	The toward valida wasses the agree valida in a distance of One lateral historican validae		
	The target vehicle passes the ego vehicle in a distance of 3m lateral between vehicles,		
	coming from rear to front on right side, with 10 km/h.		
	Warning is given from a distance of 10 m (TTC 3.5s).		
1105	The warning has to be released, if the target vehicle has passed the ego vehicle.		
4.1.8 Ego standing, target 25km/h, distance 3m, overtaking right			
	DOW_0_25_3m_overtaking_left		
	The ego vehicle is standing (0 km/h) in the parking space parallel to the direction of travel.		
	The target vehicle is outside the detection range.		
	The target vehicle passes the ego vehicle in a distance of 3m lateral between vehicles,		
18 ↑	coming from rear to front on right side, with 25 km/h.		
	Warning is given from a distance of 24 m (TTC 3.5s).		
	The warning has to be released, if the target vehicle has passed the ego vehicle.		