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HEADLIGHT ADJUST OPERATING MANUAL

INTRODUCTION

Dear Customer,

We would like to thank you for choosing a TEXA product for your workshop.

We are certain that you will get the greatest satisfaction from it and receive a great deal of help in your work.

Please read through the instructions in this manual carefully and keep it for future reference.

Reading and understanding the following manual will help you to avoid damage or personal injury caused by improper use of the product to which it refers.

TEXA S.p.A reserves the right to make any changes deemed necessary to improve the manual for any technical or marketing requirement; the company may do so at any time without prior notice.

This product is intended for use by technicians specialized in the automotive field only. Reading and understanding the information in this manual cannot replace adequate specialized training in this field.

The sole purpose of the manual is to illustrate the operation of the product sold. It is not intended to offer technical training of any kind and technicians will therefore carry out any interventions under their own responsibility and will be accountable for any damage or personal injury caused by negligence, carelessness, or inexperience, regardless of the fact that a TEXA S.p.A. tool has been used based on the information within this manual.

Any additions to this manual, useful in describing the new versions of the program and new functions associated to it, may be sent to you through our TEXA technical bulletin service.

This manual should be considered an integral part of the product to which it refers. In the case it is resold the original buyer is therefore required to forward the manual to the new owner.

Reproduction, whole or in part, of this manual in any form whatsoever without written authorization from the producer is strictly forbidden.

The original manual was written in Italian, every other language is a translation of the original manual.

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1 HEADLIGHT ADJUST



Headlight Adjust is a software that allows the photometric analysis of the light beam projected by a vehicle headlight through use of a specific tool: the headlight tester.

Photometry is the set of techniques used to measure light-related quantities.

Photometric quantities such as the quantity of light, illuminance, luminance, etc. are used in optics to identify the characteristics of a light radiation beam and its effects on the human eye.

The tool allows you to ensure the proper distribution of the light beam and to adjust the headlights rigorously and in compliance with the regulations.

INFORMATION

In order for the software to start properly, it must be activated using the specific code.

The activation through the code is carried out automatically the first time the software is started, if the tool is connected to an active Wi-Fi network.

For more information contact your distributor.

1.1 Glossary

Operator: a qualified person responsible for using the testing tool.

Tool: any **eLight ONE** / **eLight ONE^D** headlight tester.

Headlamp: lighting device installed in a vehicle, composed of a light source (headlight) enclosed in a protective casing.

Headlight: single light source in the headlamp. It can be a low beam light, high beam light and fog light.

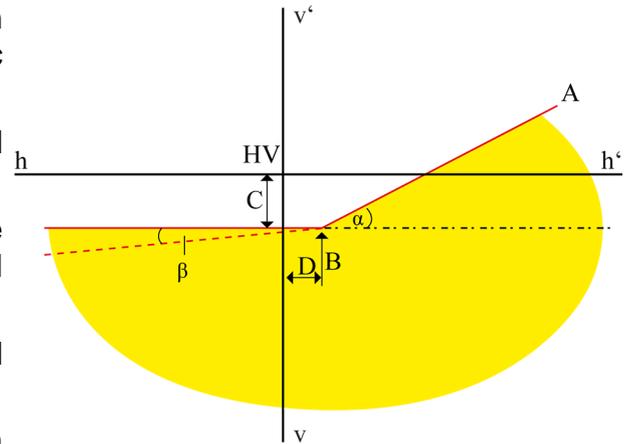
Yaw Angle: in the automotive industry, it is the angle α between the cut-off line rising from the inflection point and the horizontal line for asymmetric headlamps.

In aeronautics, it is the rotation of a vehicle around its vertical axis through the centre of gravity.

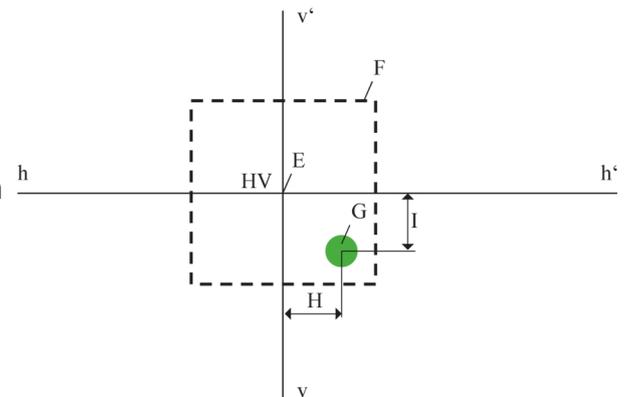
Rolling Angle: in the automotive industry, it is the angle β between the cut-off line and the horizontal line opposite the driving direction.

In aeronautics, it is the rotation of a vehicle around its longitudinal axis.

Cut-off line: limit between light area and dark area in low beams and fog lights.



Hotspot: centre of the light beam in high beam headlights.



1.2 First start-up of eLight ONE^D

The tool **eLight ONE^D** is designed to work stand-alone, i.e. it can carry out the photometric analysis autonomously without needing to be connected to a display unit.

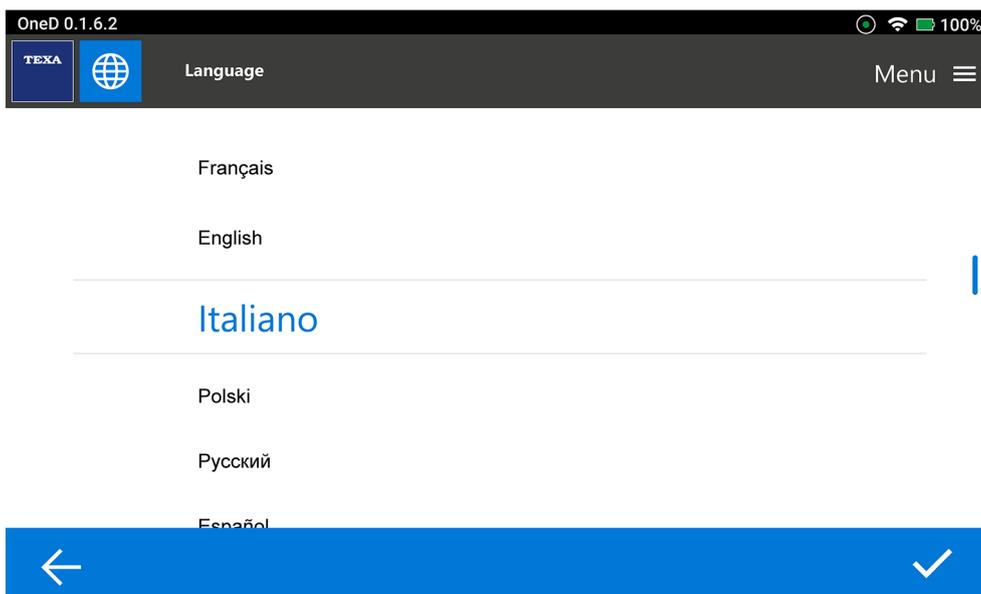
eLight ONE^D has a 7" touchscreen display with adjustable bracket, installed on the optical box.

The first time the tool is turned on, it must be activated and configured properly.

The configuration is carried out automatically the first time the software is started, if the tool is connected to an active Wi-Fi network.

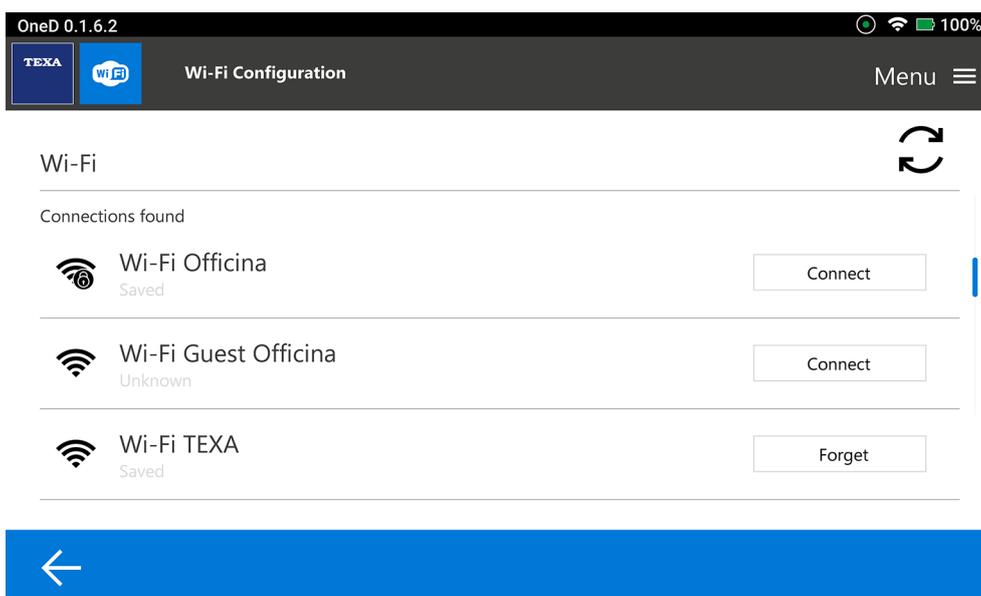
Proceed as follows:

1. Select the software user language.



2. Press .

3. Select the Wi-Fi network you wish to connect the tool to.



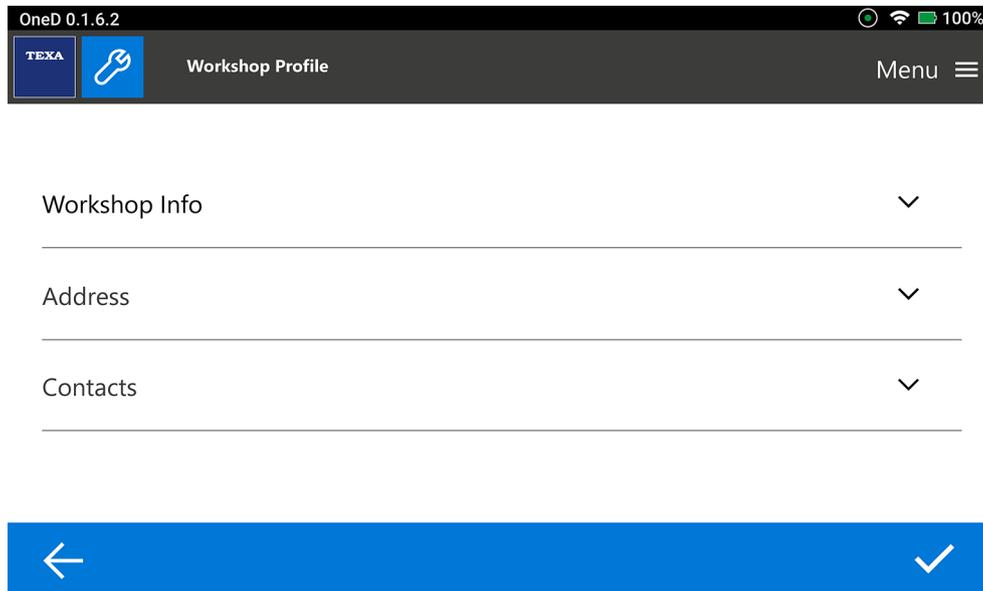
4. Press CONNECT.
5. Enter the password.
6. Press CONNECT.

For further information see the Wi-Fi chapter.

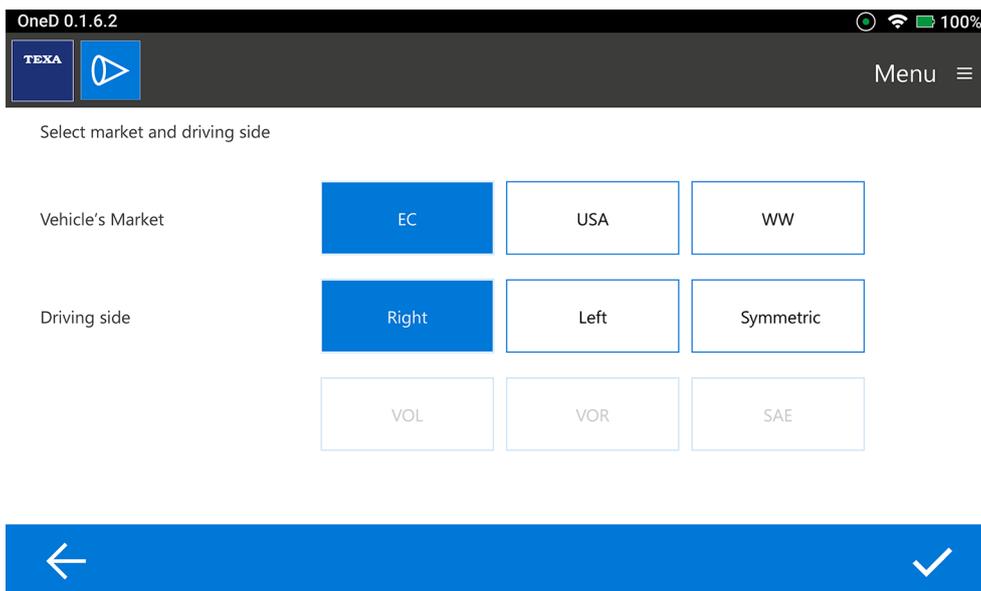
7. Activate the **LIGHT TEST** license.

For further information see the Software activation procedure chapter.

8. Enter the workshop information.



The **Light Geometry** screen is displayed.



1.3 First start-up of eLight ONE

The tool **eLight ONE** is designed for use in combination with the following display units:

- AXONE Nemo;
- AXONE Nemo 2;
- AXONE 5;
- PC equipped with the diagnostic software.

These display units allow using the software to carry out a complete and precise photometric analysis.

The connection between the tool and display unit is established via Wi-Fi.

INFORMATION

Make sure the display unit is equipped with a Wi-Fi card.

Make sure the display unit is properly connected to the company's Wi-Fi network.

After purchasing a tool, the **HEADLIGHT ADJUST** function is enabled in the software installed in the display unit.

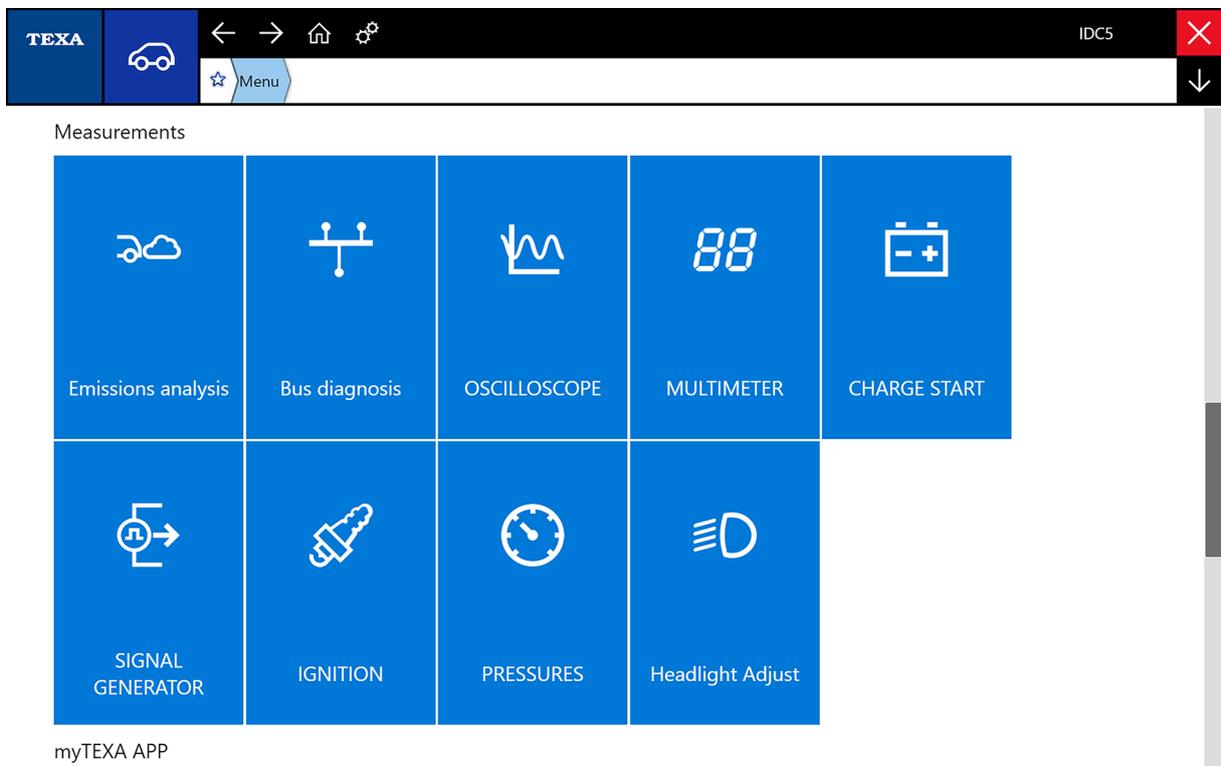
INFORMATION

Check the compatibility between the software and the tool with your distributor.

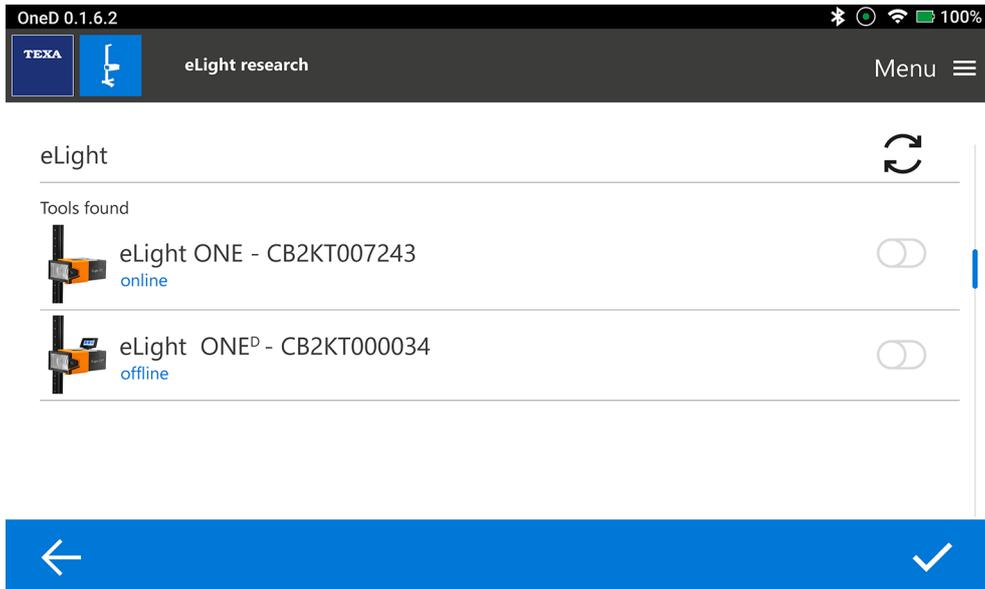
The first time the tool is turned on, it must be activated and configured properly.

Proceed as follows:

1. From the Measurements menu in **IDC5** or **IDC5A**, select **HEADLIGHT ADJUST**.

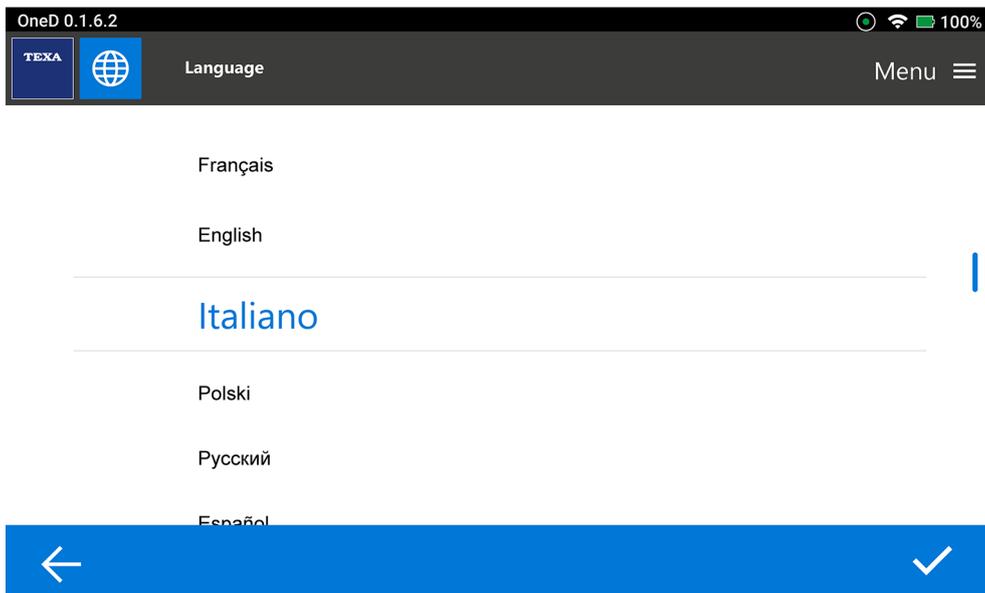


3. Follow the instructions that appear on screen.
4. Select and enable the tool that must be configured.



5. Press 

6. Select the software user language.



7. Press 

8. Select the Wi-Fi network you wish to connect the tool to.



Wi-Fi



Connections found



Wi-Fi Officina
Saved

Connect



Wi-Fi Guest Officina
Unknown

Connect



Wi-Fi TEXA
Saved

Forget



9. Press CONNECT.
10. Enter the password.
11. Press CONNECT.

For further information see the Wi-Fi chapter.

INFORMATION

If the Wi-Fi connection settings in the tool are changed, repeat the first start-up procedure.

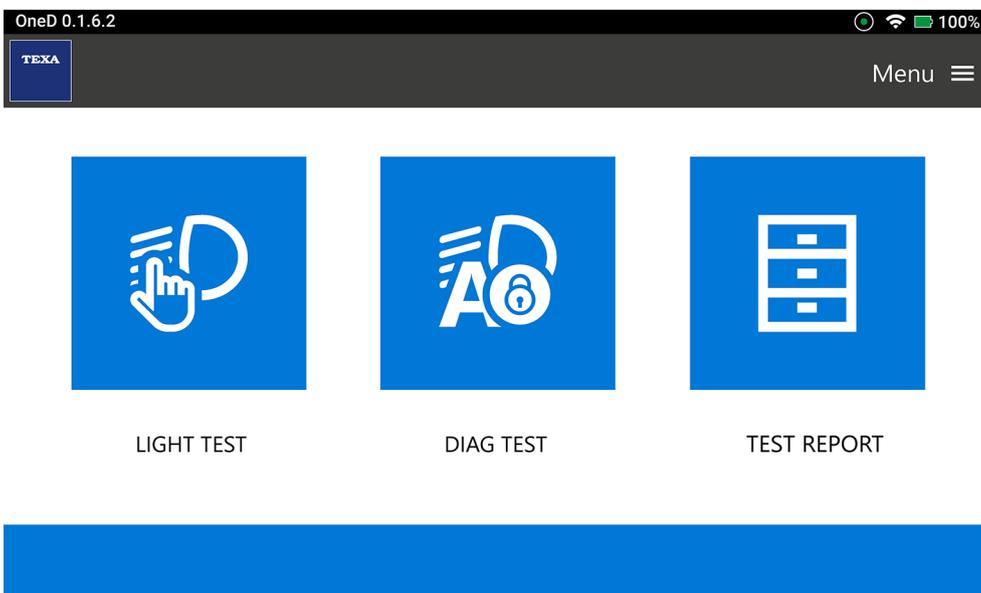
12. Activate the **LIGHT TEST** license.

For further information see the **Software activation procedure** chapter.

1.4 Software activation procedure

1.4.1 LIGHT TEST

At the first start-up, the **LIGHT TEST** and **DIAG TEST** software is locked.



To activate the **LIGHT TEST** software, proceed as follows:

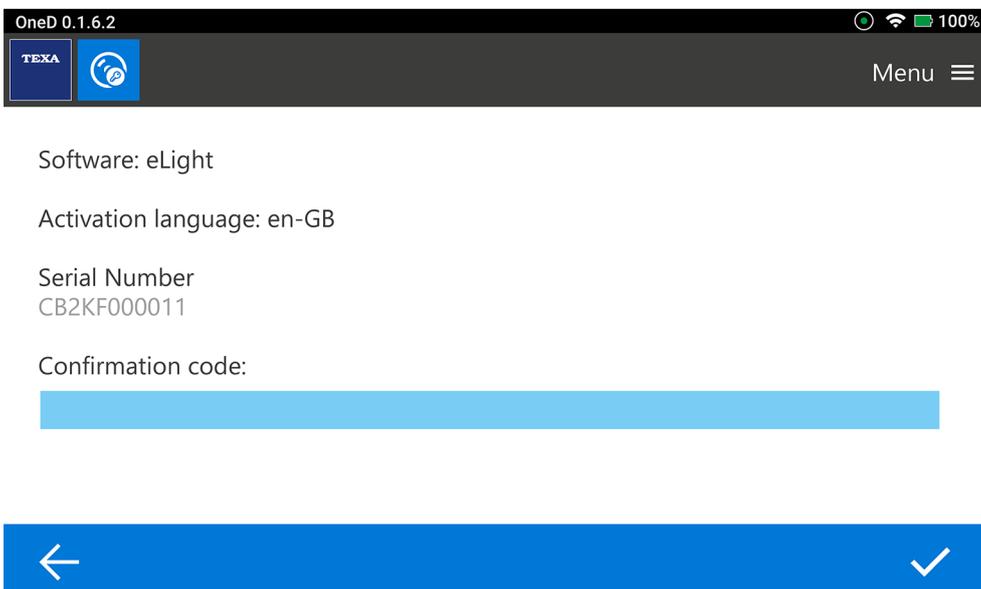
1. Press 

INFORMATION

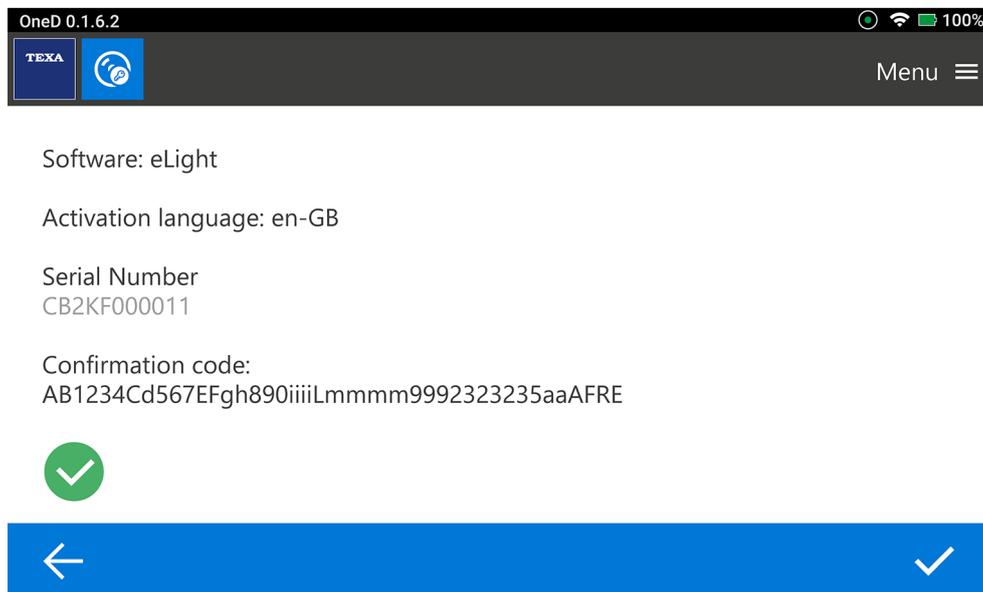
The activation through the entering of the activation code is carried out automatically the first time the tool is started, if the tool is connected to an active Wi-Fi network.

Otherwise, you will have to enter the code in the Confirmation Code section.

In order to know your activation code, contact your distributor.

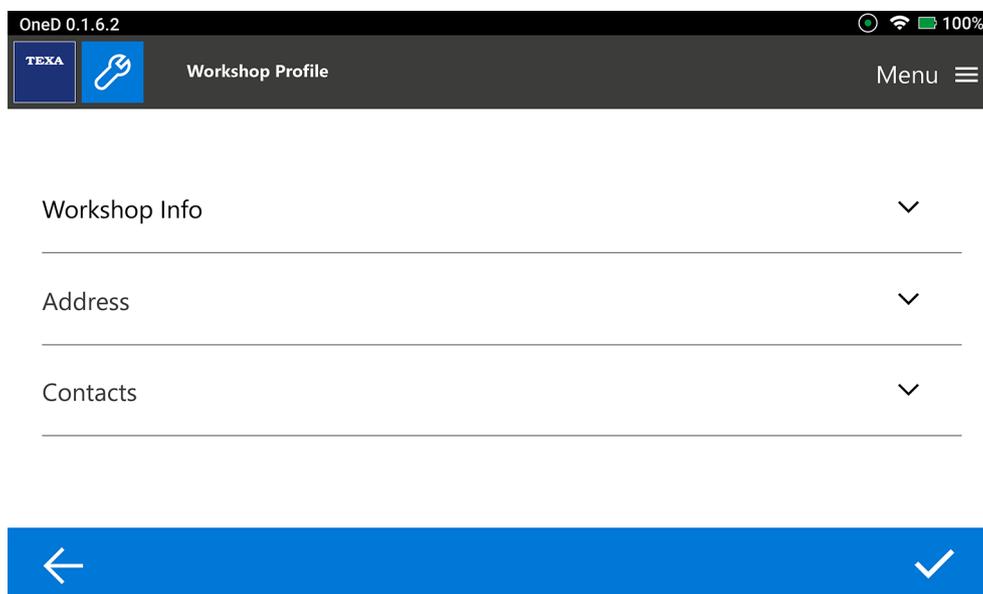


2. If the tool is connected to an active Wi-Fi, press .
3. If the tool is NOT connected to an active Wi-Fi, enter the activation code in the Confirmation Code section and press .



The **LIGHT TEST** software is activated.

4. To proceed, press .
5. Enter the workshop information.



The **Light Geometry** screen is displayed.



Select market and driving side

Vehicle's Market

EC	USA	WW
----	-----	----

Driving side

Right	Left	Symmetric
-------	------	-----------

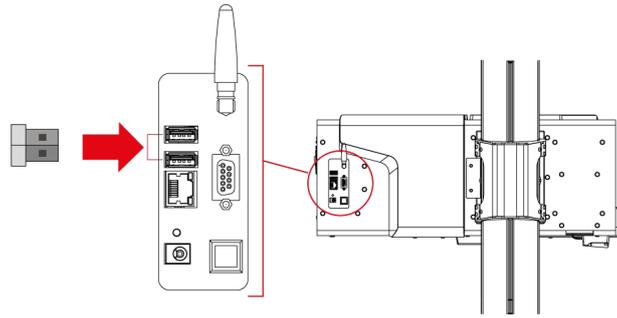
VOL	VOR	SAE
-----	-----	-----



1.4.2 DIAG TEST

To unlock the **DIAG TEST** software, proceed as follows:

1. Insert the Micro Hasp key provided with the software in one of the USB connectors on the tool.



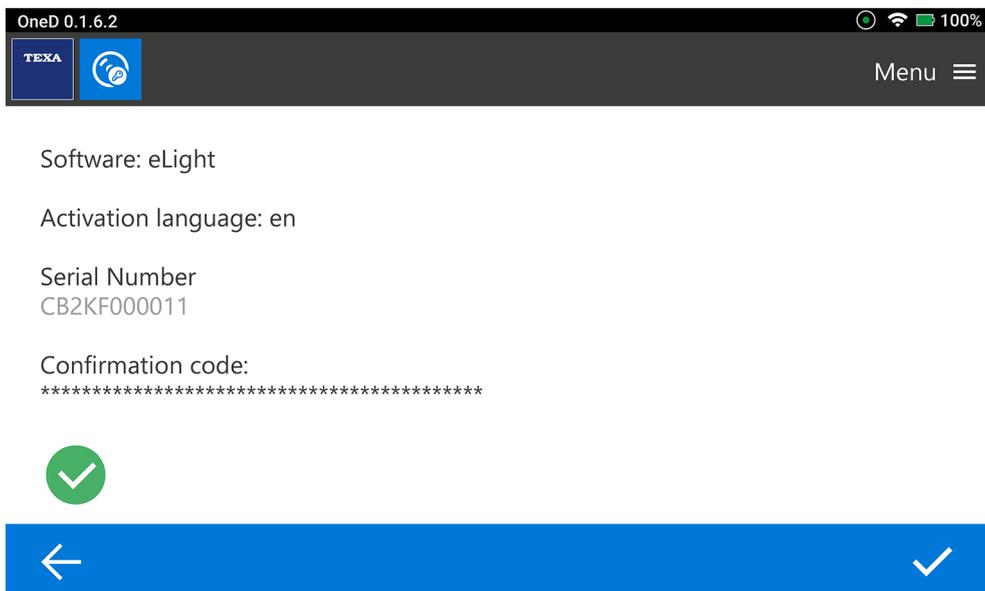
2. Press 

The software starts the tool code activation.

To activate the software you must accept the licenses and disclaimers.

3. Read the texts completely, scrolling the page using the vertical scroll bar.
4. Tick all the ACCEPT boxes.

5. Press 



INFORMATION

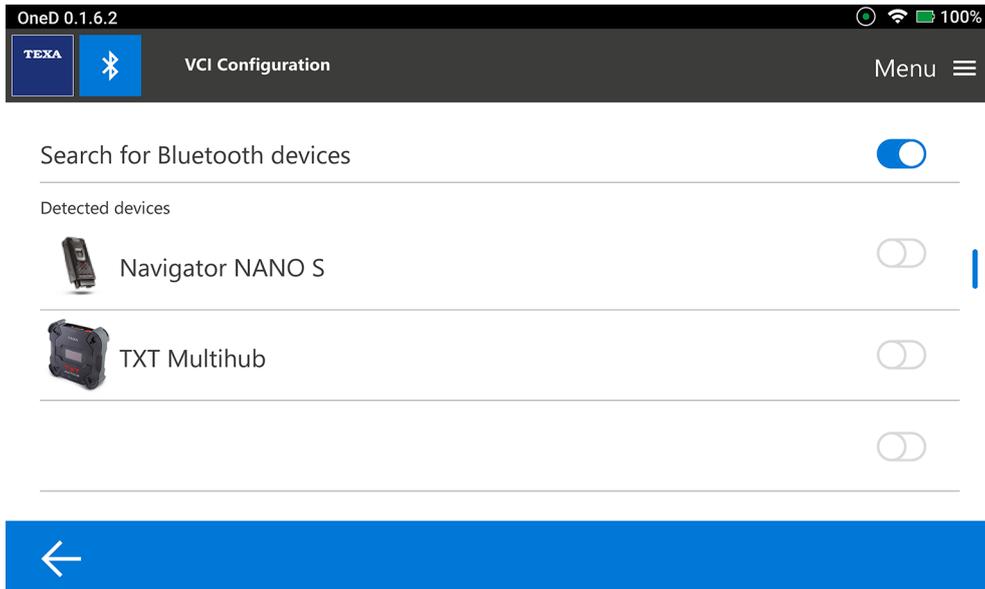
The activation through the Countercode is carried out automatically the first time the tool is started, if the tool is connected to an active Wi-Fi network.

In order to know your Countercode, contact your distributor.

6. To proceed, press 

The **DIAG TEST** software is activated.

7. Select and enable the diagnostic tool that must be configured, if not already configured.

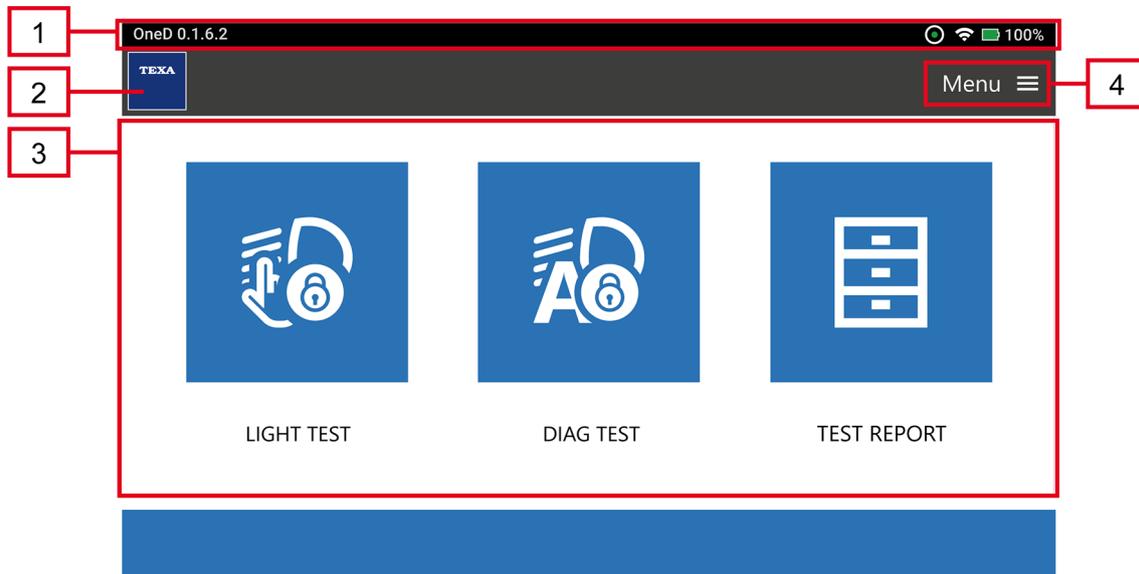


8. Follow the instructions that appear on screen.
Wait for the configuration to complete.

2 HOME

The **HOME** screen allows you to launch the functions available in the software.

The image below is the software **HOME** screen.



The screen is divided into:

1. *Status bar*
2. *HOME*
3. *Functions*
4. *Menu*

2.1 Preliminary checks

NOTICE

The characteristics and conditions of the work surface, for both the vehicle and the measuring tool, are essential for a correct headlight adjustment.

Make sure the vehicle is parked in compliance with the indications in the tool's technical manual.

Before starting to use the software:

1. Check the measuring tool's battery charge.

Charge the tool if necessary or connect it to the mains.



For further information on the charging times, see the tool's technical manual.

2. Make sure the headlights are dry and clean.
3. Make sure the vehicle wheels are straight.
4. Make sure the vehicle chassis is not twisted.
5. Remove any obstacles that may affect proper vehicle alignment.
6. Make sure the pressure in the tyres complies with the value specified by the manufacturer.
7. Make sure the headlight controller in the passenger compartment is set to "0" (zero).
8. On vehicles with air suspensions, let the engine run for 5 minutes.

2.2 Status bar

The **Status Bar** displays:

- *information on the tool status;*
- *information on the software version;*
- *the date of use;*
- *the time of use.*

In particular, the icons indicate the following:

Icon	Name	Description
	Digital inclinometer	The tool is within the limits in which the digital inclinometer can correct the levelling.
	Digital inclinometer	The tool is NOT within the limits in which the digital inclinometer can correct the levelling. For further information, see the tool's Technical Manual.
	Wi-Fi Connection	The tool is connected to the Wi-Fi network.
	Wi-Fi Connection	The tool is NOT connected to the Wi-Fi network. For more information see the Settings chapter.
	Bluetooth connection	The tool is connected via Bluetooth communication.
	Bluetooth connection	The tool is NOT connected via Bluetooth communication. For more information see the Settings chapter.
	Battery	The battery level is indicated in percentage. For further information, see the tool's Technical Manual.
	Charging battery	The tool is connected to the mains.

2.3 HOME

You can go back to the HOME screen by pressing the TEXA logo at any time.

2.4 Functions

The icons within this menu allow you to access the available functions.

Icon	Name	Description
	LIGHT TEST	It allows carrying out a photometric analysis on a vehicle's headlights based on parameters manually set by the operator. For further information, see the chapter LIGHT TEST.
	DIAG TEST	It allows carrying out a photometric analysis on a vehicle's headlights by automatically identifying the type of technology and lighting. For further information, see the chapter DIAG TEST.
	TEST REPORT	It allows you to display the tests performed. For further information, see the chapter TEST REPORT.

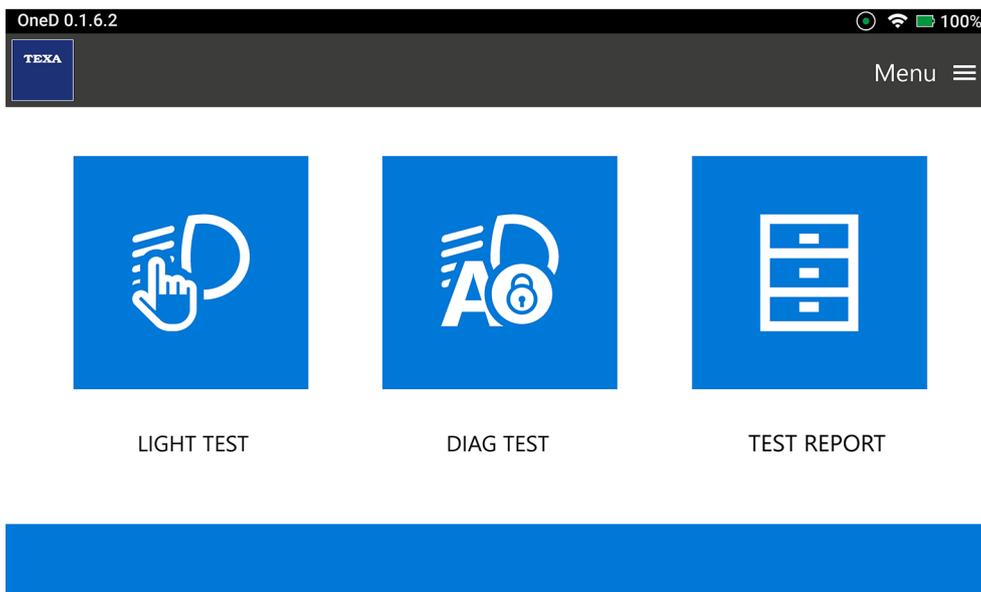
2.5 Menu

The icons within the **Menu** allow you to access the available functions and settings.

Icon	Name	Description
	Settings	It allows you to configure the operating parameters for the software, measuring tool and diagnostic tools.
	Updates	It allows you to check for updates and download them.
	LIGHT TEST	It allows carrying out a photometric analysis on a vehicle's headlights based on parameters manually set by the operator. For further information, see the chapter LIGHT TEST.
	DIAG TEST	It allows carrying out a photometric analysis on a vehicle's headlights by automatically identifying the type of technology and lighting. For further information, see the chapter DIAG TEST.
	TEST REPORT	It allows you to display the tests performed. For further information, see the chapter TEST REPORT.

3 LIGHT TEST

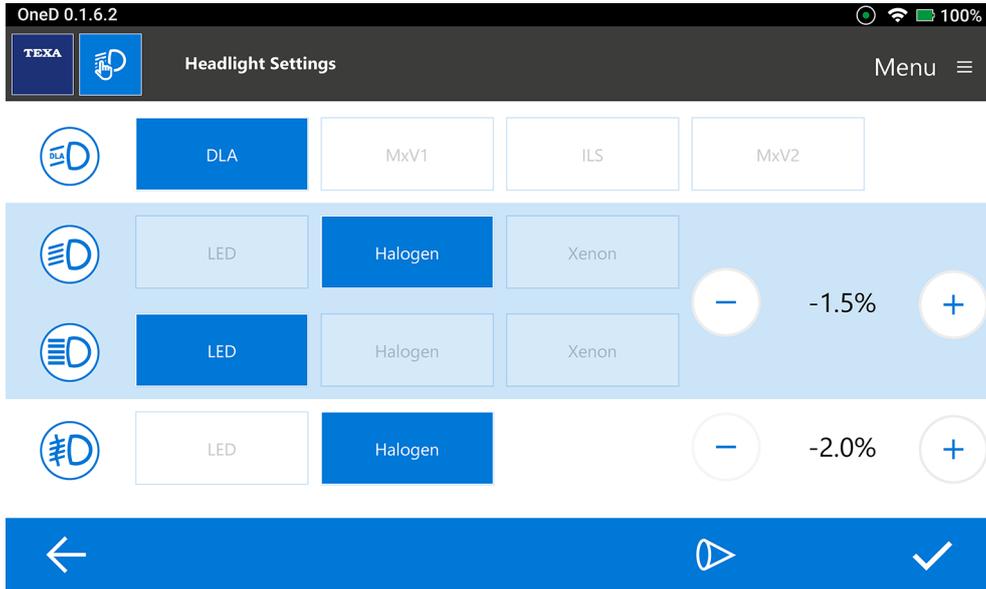
This function allows carrying out a photometric analysis on a vehicle's headlights based on parameters manually set by the operator.



Proceed as follows:

1. Press 

The **Headlight Settings** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Light Geometry	It allows you to temporarily change a vehicle's market and driving side. <i>For more information see the SETTINGS menu.</i>
	Confirm	It allows you to confirm the selections made.

2. Select the correct settings for the headlights of the vehicle to be tested, based on:

a) **type of technology**

The type of technology is based on the vehicle's equipment.



For further information, please refer to the technical documents provided by the vehicle manufacturer.

Icon	Description
	<p>Headlights with DLA (Dynamic Light Assist activation) system.</p> <p>The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.</p> <p>At speeds above 65 km/h, the system turns on the high beams permanently.</p> <p>As needed, the system automatically covers part of the headlights in order not to dazzle the preceding or oncoming vehicles.</p>
	<p>Headlights with system MATRIX (MxV1 / MxV2).</p> <p>The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.</p> <p>At speeds above 50 km/h, the system turns on the high beams permanently.</p> <p>As needed, the system turns on or off the light sources the headlight is made up of, in order not to dazzle the preceding or oncoming vehicles.</p> <p>The MATRIX system control unit can adjust the light beam intensity, adapting it to the various environmental conditions.</p>
	<p>Headlights with ILS (Intelligent Light System).</p> <p>It allows managing a vehicle's headlights, optimising their operation, varying the headlight intensity and tilt based on the type of road the vehicle is being driven on and the weather conditions.</p> <p>The system is also equipped with high beam assist, to avoid dazzling the preceding or oncoming vehicles, and dynamic cornering assist, which improves lighting and visibility.</p>

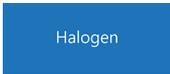
INFORMATION

Continuous technological evolutions may lead to the development of new settings and functions for the tool.

b) **type of headlight**

Icon	Description
	Low beam light
	High beam light
	Fog light

c) **type of lighting**

Icon	Description
	Headlight with LED light
	Headlight with halogen light
	Headlight with Xenon light

d) **nominal headlight tilt**

Icon	Description
	<p>It allows you to set the nominal tilt based on the value specified by the headlight manufacturer.</p> <p>For further information, please refer to the technical documents provided by the vehicle manufacturer.</p> <p>When the icon is pressed, the value decreases.</p> <p>The tilt is expressed as a percentage (%).</p>
	<p>It allows you to set the nominal tilt based on the value specified by the headlight manufacturer.</p> <p>For further information, please refer to the technical documents provided by the vehicle manufacturer.</p> <p>When the icon is pressed, the value increases.</p> <p>The tilt is expressed as a percentage (%).</p>

The nominal tilt value prescribed by the manufacturer is printed on the headlamp (example:



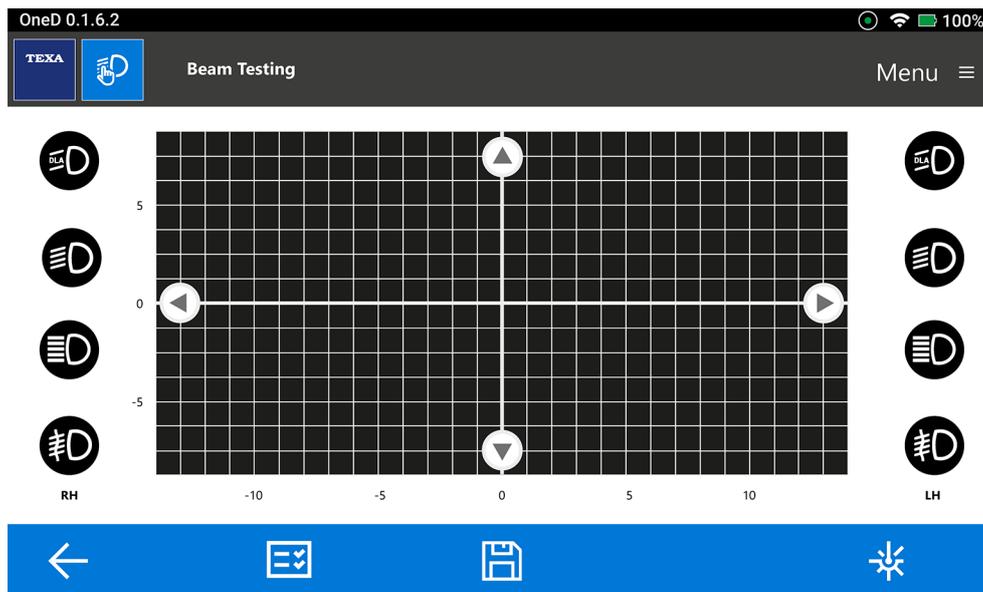
3. Confirm the selection



Follow the instructions that appear on screen.

The *Photometric Analysis* screen is displayed.

For further information see the *Photometric Analysis* chapter.

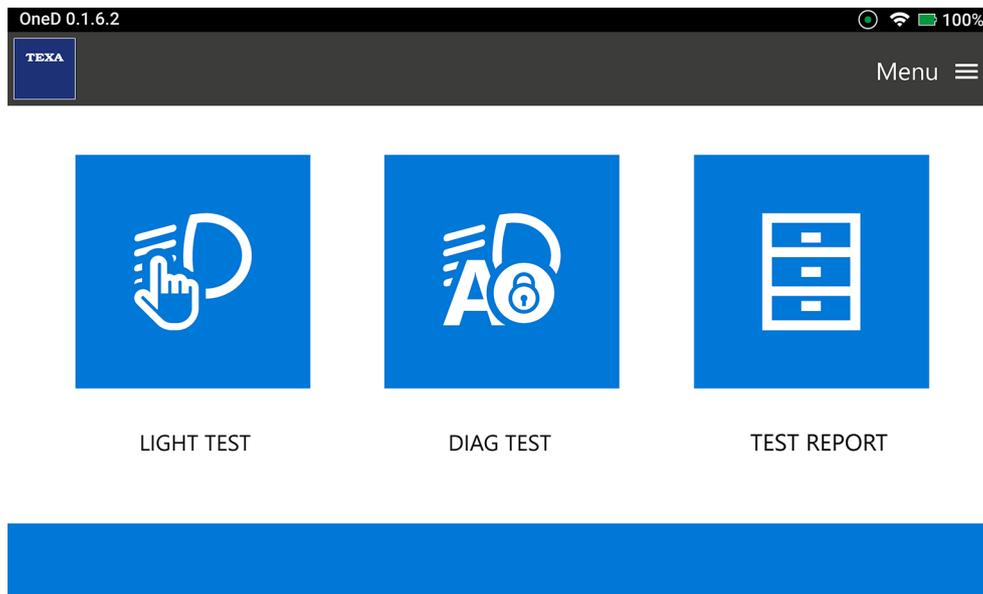


4 DIAG TEST

This function allows carrying out a photometric analysis on a vehicle's headlamps by automatically identifying the type of technology and lighting.

To enable the function, you must activate the **DIAG TEST** software license and connect the Micro HASP key provided along with the software license.

For further information on the **DIAG TEST** license activation procedure, see the **HEADLIGHT ADJUST** chapter.



Make sure the diagnostic tool has been configured correctly.

NOTICE

For further information see the Settings chapter.

Make sure the Wi-Fi network has been configured correctly.

For further information see the Settings chapter.

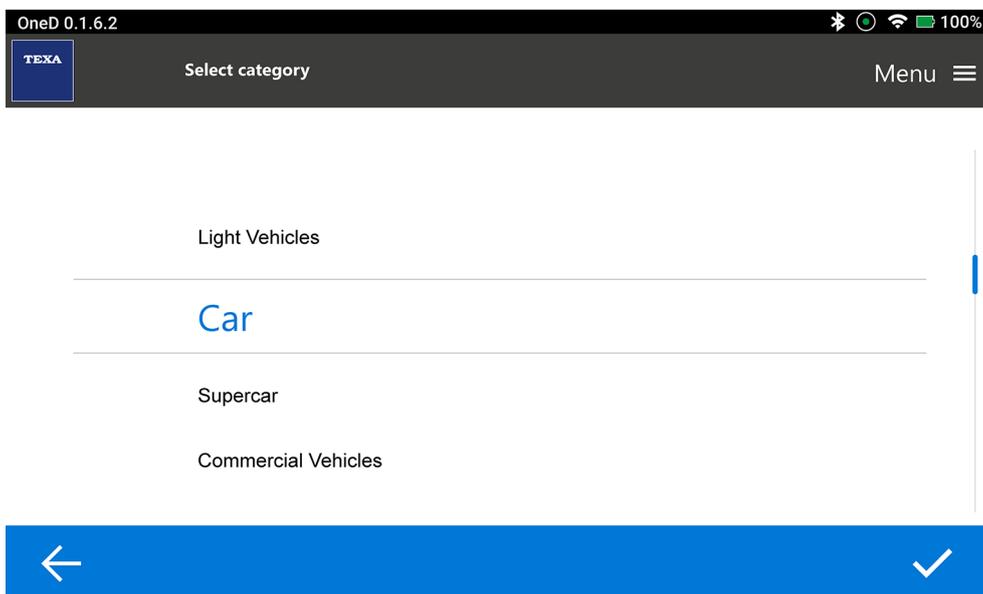
Proceed as follows:

1. Press 

2. Select the category for which you wish to access the diagnostic functions.

The selection is made by choosing among the options in the drop-down menus.

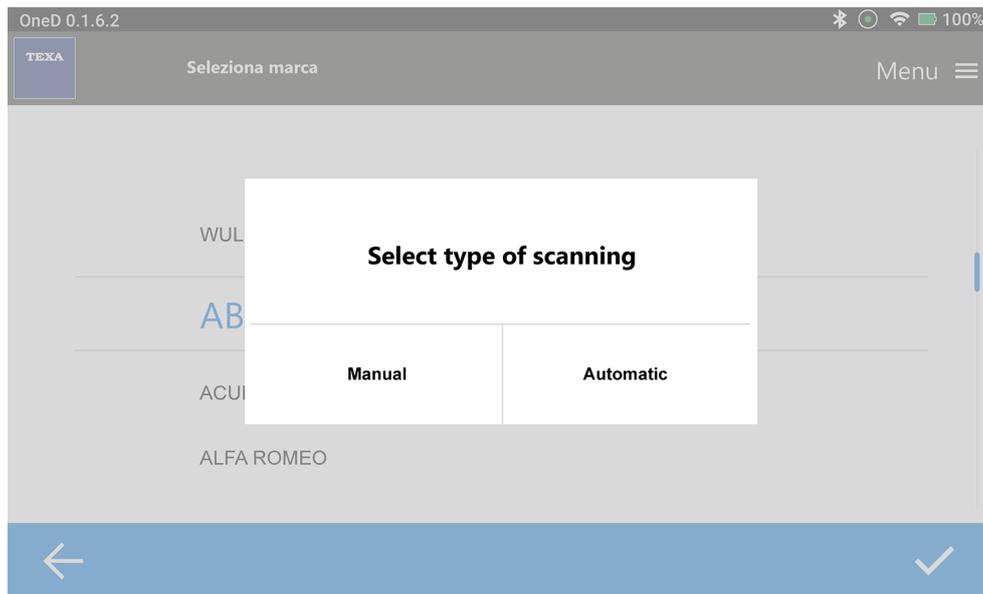
In order to go from one selection level to the next you must first complete the level you are currently in.



Icon	Name	Description
	Back	It allows you to return to the previous screen.

4. After identifying the vehicle **Make**, you can choose the type of selection:

- *Automatic*;
- *Manual*.



By pressing **Automatic**, the software automatically identifies the **Model** and **Model Variant**.

NOTICE

The diagnostic tool must be connected to the vehicle's diagnostic socket.

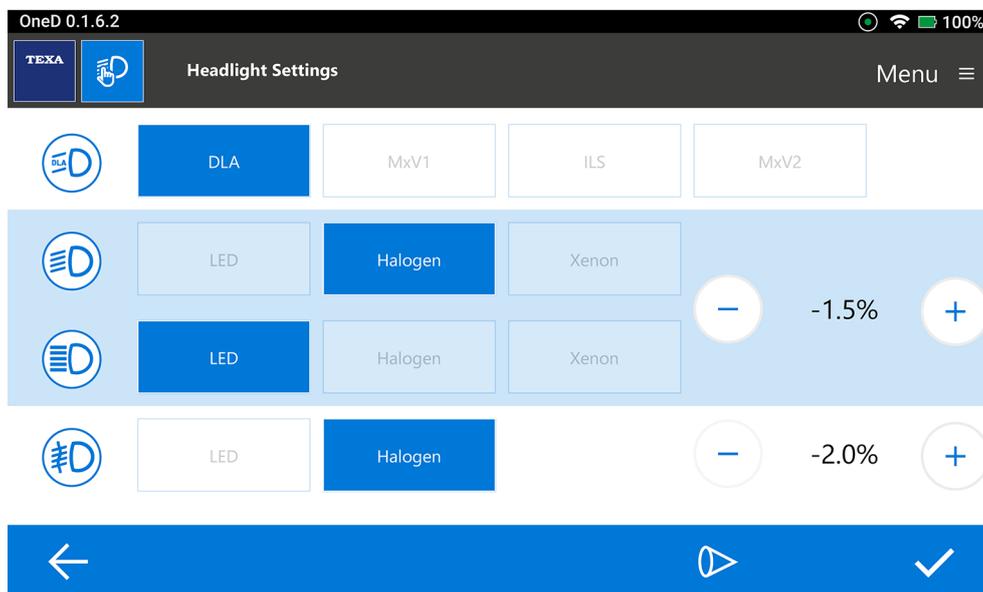
Follow the instructions that appear on screen.

By pressing **Manual**, you must set the fields required for the vehicle selection manually.

Follow the instructions that appear on screen.

Wait for the vehicle scan to complete.

7. If the scan is successful, the headlight type is set automatically.
 In case of a negative result, the headlight type is set on **Halogen** by default.
 The setting can be changed manually by pressing on the other options.
8. Set the nominal headlamp tilt.



Icon	Description
	It allows you to decrease the headlamp tilt. The tilt is expressed as a percentage (%). The tilt value prescribed by the manufacturer is indicated on the headlamp.
	It allows you to increase the headlamp tilt. The tilt is expressed as a percentage (%). The tilt value prescribed by the manufacturer is indicated on the headlamp.

The nominal tilt value prescribed by the manufacturer is printed on the headlamp (example: ).

The type of technology is based on the vehicle's equipment.

For further information, please refer to the technical documents provided by the vehicle manufacturer.

- **Headlight technology**

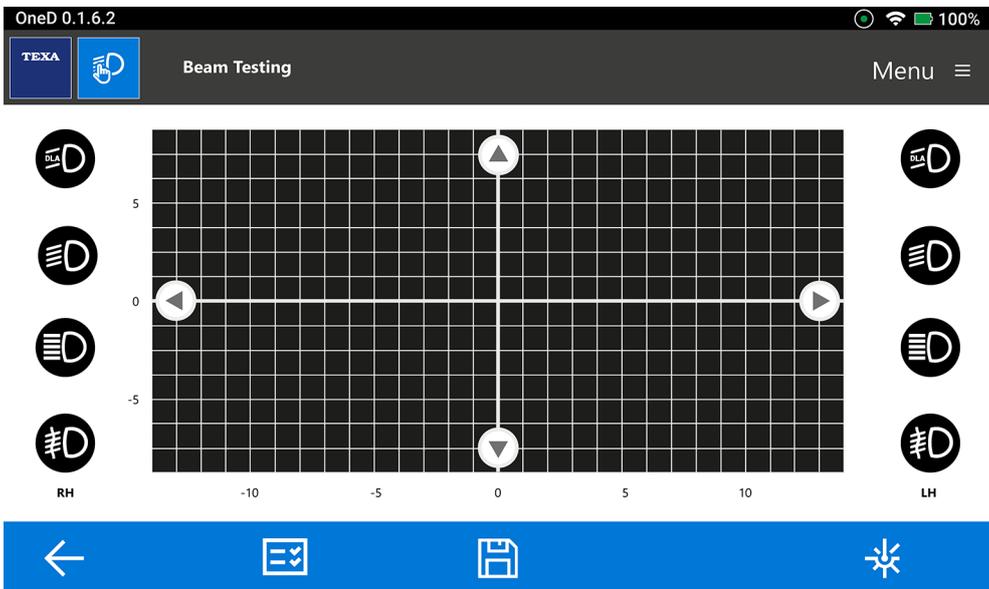
Icon	Description
	<p>Headlights with DLA (Dynamic Light Assist activation) system.</p> <p>The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.</p> <p>At speeds above 65 km/h, the system turns on the high beams permanently.</p> <p>As needed, the system automatically covers part of the headlights in order not to dazzle the preceding or oncoming vehicles.</p>
	<p>Headlights with system MATRIX (MxV1 / MxV2).</p> <p>The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.</p> <p>At speeds above 50 km/h, the system turns on the high beams permanently.</p> <p>As needed, the system turns on or off the light sources the headlamp is made up of, in order not to dazzle the preceding or oncoming vehicles.</p> <p>The MATRIX system control unit can adjust the light beam intensity, adapting it to the various environmental conditions.</p>
	<p>Headlights with ILS (Intelligent Light System).</p> <p>It allows managing a vehicle's headlights, optimising their operation, varying the headlight intensity and tilt based on the type of road the vehicle is being driven on and the weather conditions.</p> <p>The system is also equipped with high beam assist, to avoid dazzling the preceding or oncoming vehicles, and dynamic cornering assist, which improves lighting and visibility.</p>

- **Type of headlight lighting**

Icon	Description
	Headlight with LED light
	Headlight with halogen light
	Headlight with Xenon light

3. Confirm the selection 

Follow the instructions that appear on screen.
The **Photometric Analysis** screen is displayed.



5 PHOTOMETRIC ANALYSIS

The **Photometric Analysis** allows you to measure and assess the correct adjustment of the light beam of a vehicle's headlights.

Before proceeding with the analysis, make sure the tool has been positioned correctly.

INFORMATION

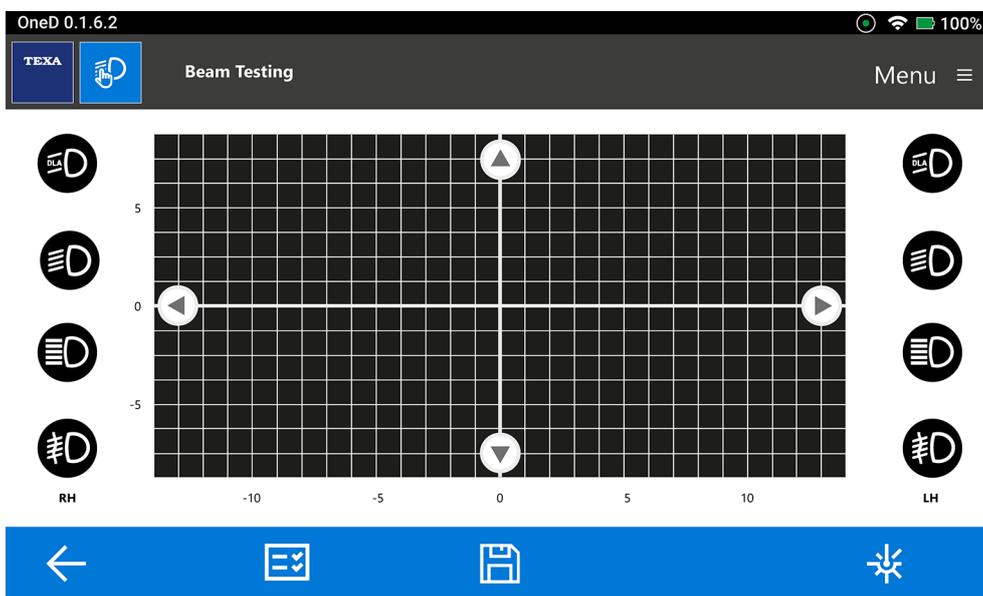
The characteristics and conditions of the work surface, for both the vehicle and the tool, are essential for a correct headlight adjustment.



For further information, see the tool's technical manual.

Proceed as follows:

1. Position the tool in front of the vehicle as indicated in the Technical Manual.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Summary	It allows you to display a summary of the test performed.
	Save	It allows you to save the data of the test performed.
	Laser off	It indicates that the laser positioned under the optical box is off.
	Laser on	It indicates that the laser positioned under the optical box is on.

2. Press 

The lasers will turn on.

3. Centre the optical box as indicated in the tool's Technical Manual.

INFORMATION

The Fresnel lens within the tool's optical box makes it easier to use, as it rectifies any possible inaccuracies.

4. Turn on the vehicle's headlights.

Follow the instructions that appear on screen.

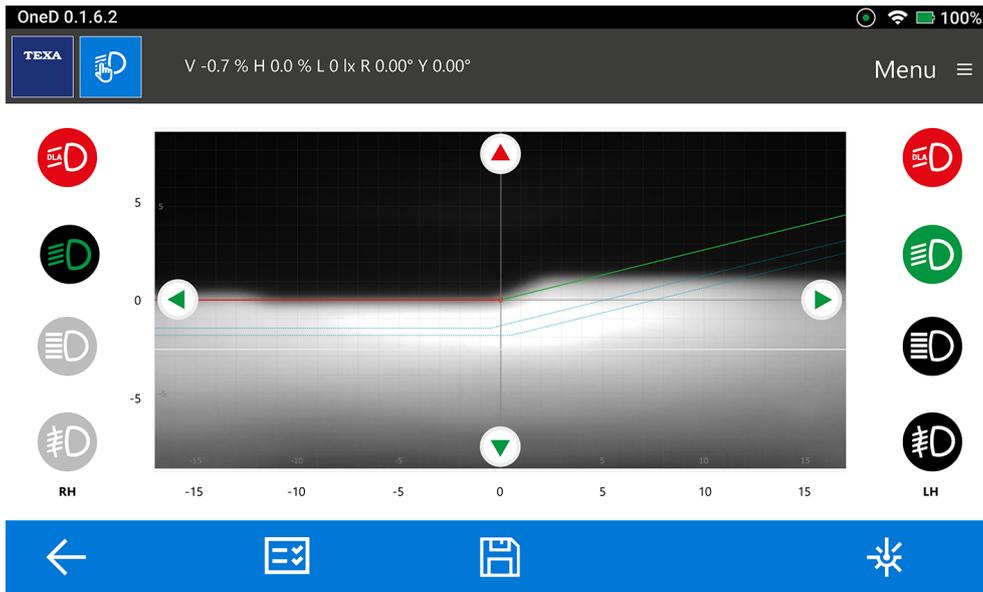
5. Press 

The lasers will turn off.

6. Press the icon of the headlight (low beam, high beam, fog light) to be tested.

Low beams	High beams	Fog lights	Headlights with DLA system	Headlights with MATRIX system	Headlights with ILS system	Description
						Selectable headlight
						Selected headlight. Test in progress.

The headlight test is started.



In the upper part of the screen, the test results are displayed in real time:

- Vertical beam tilt (%);
- Horizontal beam tilt (%);
- Luminous intensity (lx);
- Yaw angle (Y°);
- Roll angle (R°).

In the central part of the screen, the following is displayed:

	/	Dashed line	It indicates the upper and lower tolerance limits within which the headlight is considered to be adjusted properly.
		GREEN	It indicates that the measured value is within the set limits.
		RED	It indicates that the measured value is NOT within the set limits. It indicates in which direction the headlight must be adjusted in order to fall within the set limits.

7. Act on the screws placed on the headlamp to adjust the beam.

INFORMATION

The headlight is adjusted properly when the lines and arrows are coloured green.

The lines and arrows must be coloured green.

8. To complete the headlight's photometric analysis, press on the related symbol.

	Test completed successfully. The headlight can be selected for a new test.
	Test completed with a negative result. The headlight can be selected for a new test.

9. You can select a new headlight to analyse.

Move the tool in front of the headlight you wish to analyse.

10. The tests performed can be saved at any time, to have a complete report on the adjustments. Each report includes the headlight's photometric images and measured values.

For further information, see the paragraph **Storage of the tests performed.**

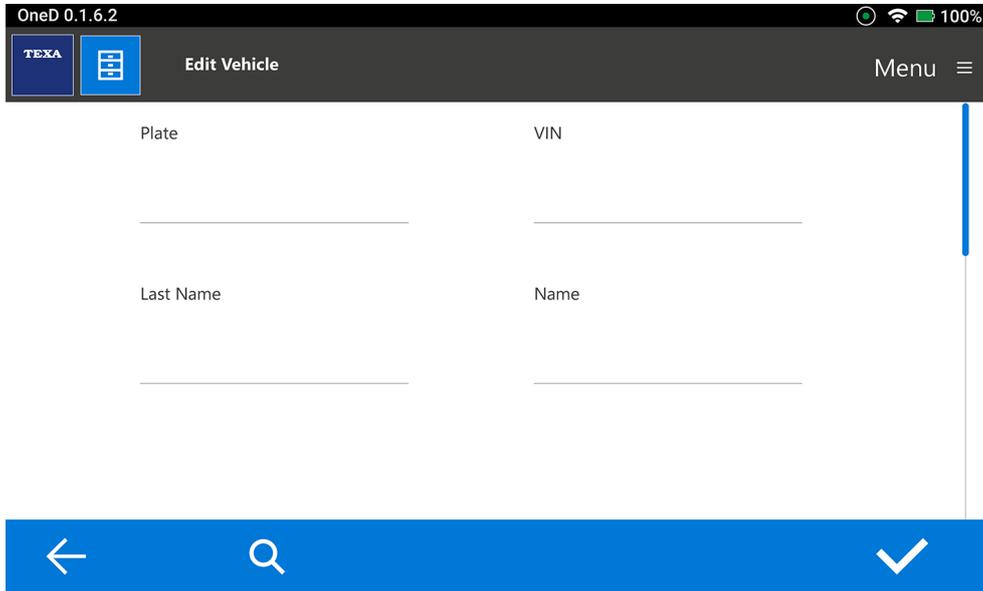
5.1 Storage of the tests performed

This function allows you to save and archive the tests performed.

Proceed as follows:

1. Press 

The **Edit Vehicle** screen is displayed.



The screenshot shows the 'Edit Vehicle' screen in the OneD application. The top bar displays 'OneD 0.1.6.2' on the left and signal, Wi-Fi, and 100% battery icons on the right. Below the top bar is a dark header with the 'TEXA' logo, a list icon, the title 'Edit Vehicle', and a 'Menu' button with a hamburger icon. The main area contains four input fields arranged in a 2x2 grid: 'Plate' and 'VIN' in the top row, and 'Last Name' and 'Name' in the bottom row. At the bottom of the screen is a blue navigation bar with a back arrow, a search icon, and a checkmark icon.

2. Enter the requested data, or at least the license plate number or the VIN.

3. Confirm 

Follow the instructions that appear on screen.

INFORMATION

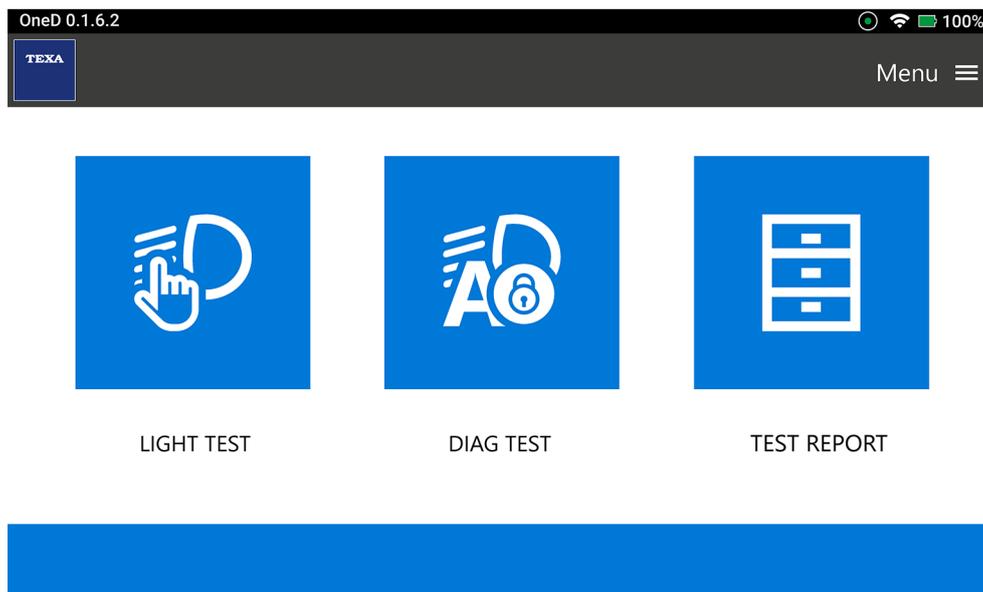
You cannot enter the data related to a customer without having entered the data of a vehicle first.

The stored tests can be displayed in the **TEST REPORT** or Summary menus.

For further information, see the chapter TEST REPORT.

6 TEST REPORT

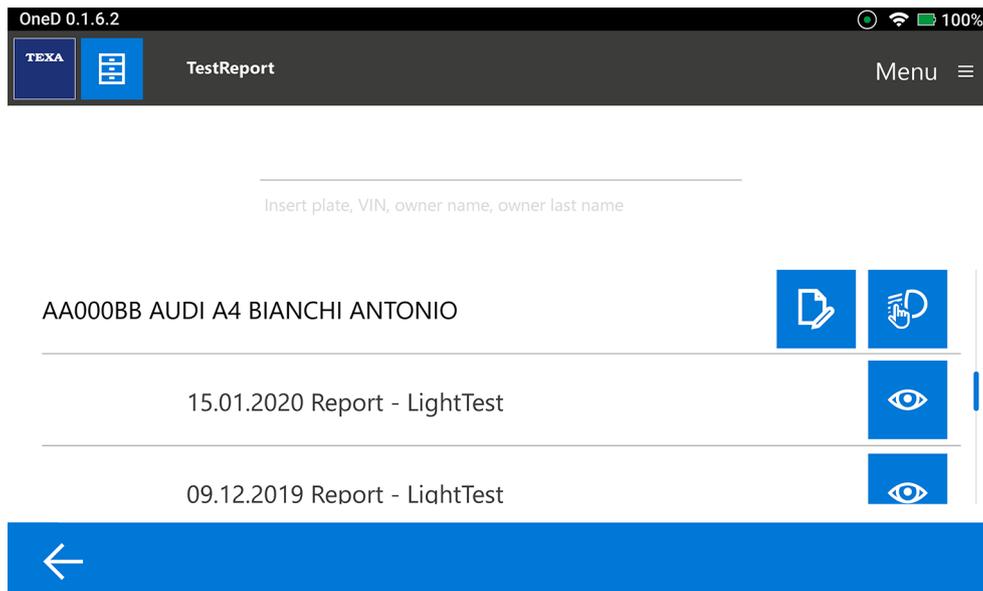
This function allows you to display the reports of the tests performed and information on the vehicles previously stored.



Proceed as follows:

1. Press 

The **TEST REPORT** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Edit	It allows you to edit the vehicle's and/or owner's data.
	LIGHT TEST	It allows you to start a new photometric analysis. For further information, see the chapter LIGHT TEST.
	View	It allows you to view the diagnostic report.

2. Enter at least one of the following data:

- *license plate number;*
- *VIN (Vehicle Identification Number);*
- *vehicle model;*
- *owner.*

As an alternative, scroll the list on the display or using the sidebar and select the required **TestReport**.

6.1 TestReport Reading

This page allows you to view the reports of the tests performed and the results obtained for the vehicle selected in the **TEST REPORT** menu.

Proceed as follows:

1. Press 

Below is an example of a test report:



DX	(lx)	(%)	(%)	(°)	(°)
	15	-9.8	-7.5	-68.53	0.00
	186	0.3	-0.9	0.00	0.00
	17	-1.8	-0.1	0.00	0.00

Icon	Name	Description
	Back	It allows you to return to the previous screen.
	LIGHT TEST	It allows you to start a new analysis. For further information, see the chapter LIGHT TEST.
	Print	It allows you to print the report. For further information, see the TestReport Print / Export chapter.

The **Report** provides the following indications:

Icon	Name	Description
	Luminous intensity	It indicates the headlight's luminous intensity, expressed in lux (lx).
	Tilt	It indicates the vertical headlight tilt as a percentage.
	Deviation	It indicates the horizontal headlight tilt as a percentage.
	Asymmetry	It indicates the deviation angle of the low-beam light beam projected in the driving direction. It is also known as yaw angle (see glossary).
	Rotation	It indicates the deviation angle of the low-beam light beam projected in the opposite driving direction. It is also known as roll angle (see glossary).

6.2 TestReport Print / Export

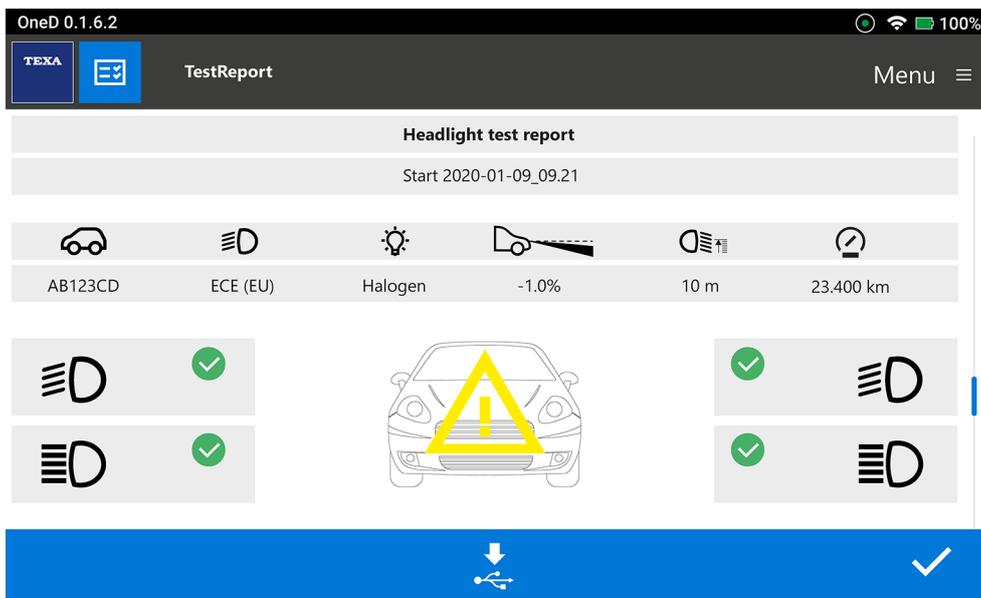
This function allows you to print the **TestReports** on a thermal printer or export them onto a **USB** drive.

Make sure the thermal printer is installed.

In order to print the report, proceed as follows:

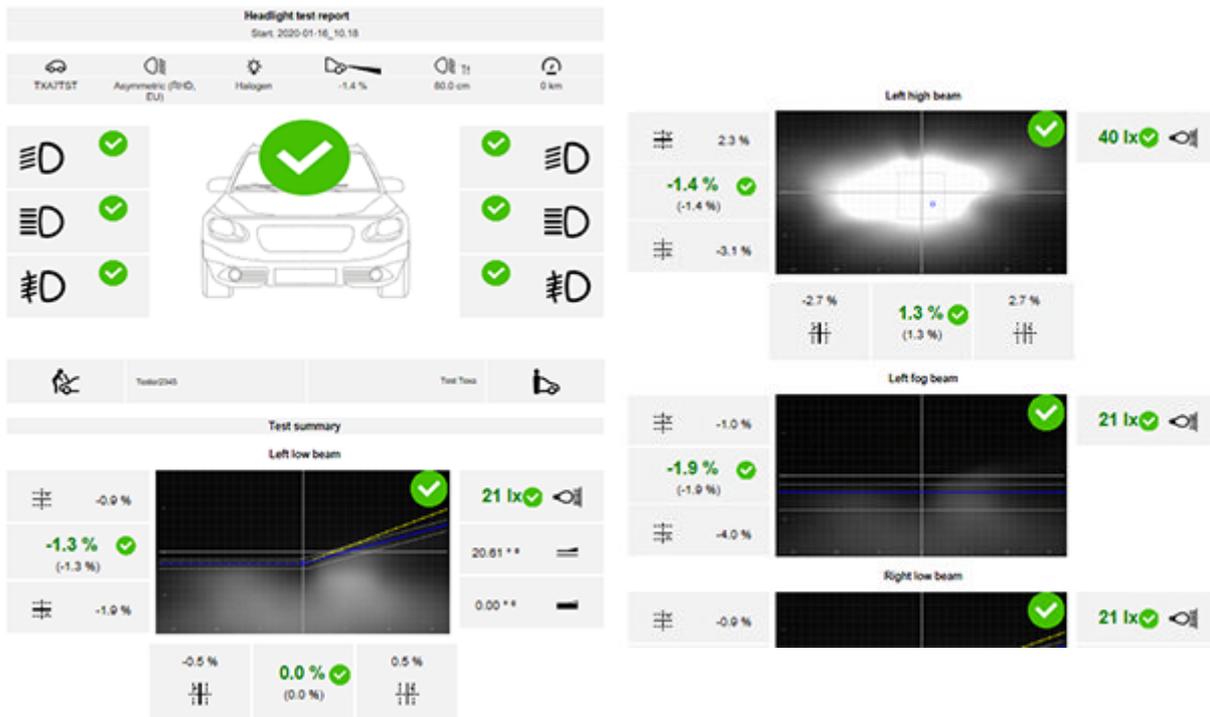
1. Press 

The Headlight test report is displayed for printing.



Icon	Name	Description
	USB export	It allows you to export the TestReport onto a USB drive. For the exact position of the USB ports available on the tool, see the Technical Manual.
	Print	It allows you to print the TestReport on the built-in thermal printer. The icon only appears if the thermal printer is installed.

Example of a complete Headlight test report.



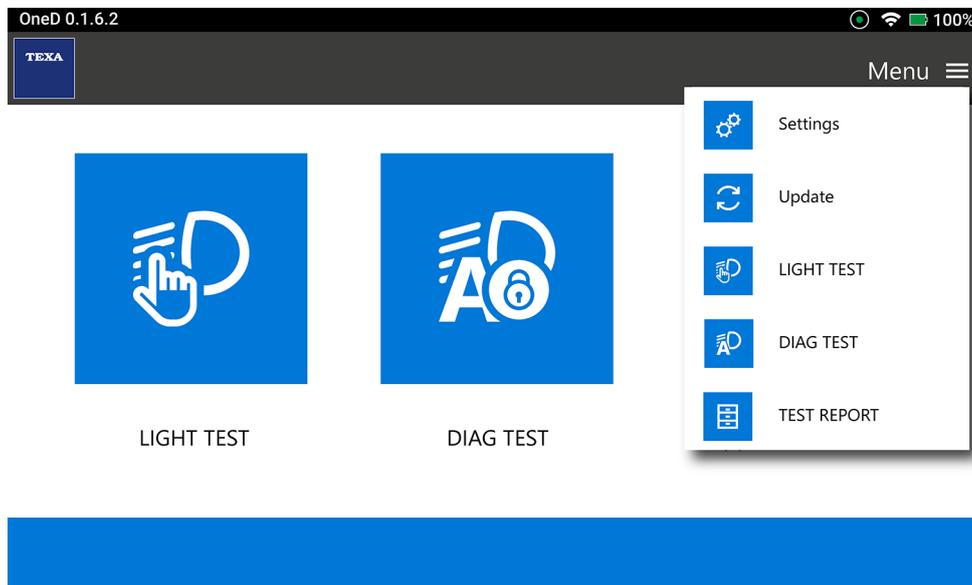
Icon	Name	Description
	License plate number	It indicates the vehicle's license plate number.
	Vehicle's Market	It indicates the vehicle's market (Europe, United States, or Worldwide).
	Lighting	It indicates the type of lighting (LED, Halogen or Xenon).
	Nominal tilt	It indicates the tilt value specified by the manufacturer.
	Beam height	It indicates the headlight's height detected by the tool.
	Low beam light	It indicates whether the status of the low beam headlight is correct or not.
	High beam light	It indicates whether the status of the high beam headlight is correct or not.
	Workshop operator	It indicates the workshop operator's name that was entered when saving the data.
	Owner	It indicates the vehicle owner's name that was entered when saving the data.
	Vertical tilt	It indicates the percentage of upper vertical tilt with respect to the headlight's centre.
	Vertical tilt	It indicates the percentage of lower vertical tilt with respect to the headlight's centre.

	Horizontal deviation	It indicates the percentage of horizontal tilt to the right with respect to the headlight's centre.
	Horizontal deviation	It indicates the percentage of horizontal tilt to the left with respect to the headlight's centre.
	Asymmetry	It indicates the deviation angle of the low-beam light beam projected in the driving direction.
	Rotation	It indicates the deviation angle of the low-beam light beam projected in the opposite driving direction.
	Luminous intensity	It indicates the headlight's luminous intensity, expressed in lux (lx).

7 MENU

The icons within the **Menu** allow you to access the available functions and settings. Proceed as follows:

1. Press 



Icon	Name	Description
	Settings	It allows you to configure the operating parameters for the software, measuring tool and diagnostic tools.
	Updates	It allows you to check for updates and download them.
	LIGHT TEST	It allows carrying out a photometric analysis on a vehicle's headlights based on parameters manually set by the operator.
	DIAG TEST	It allows carrying out a photometric analysis on a vehicle's headlamps by automatically identifying the type of technology and lighting.
	TEST REPORT	It allows you to display the tests performed.

7.1 Settings

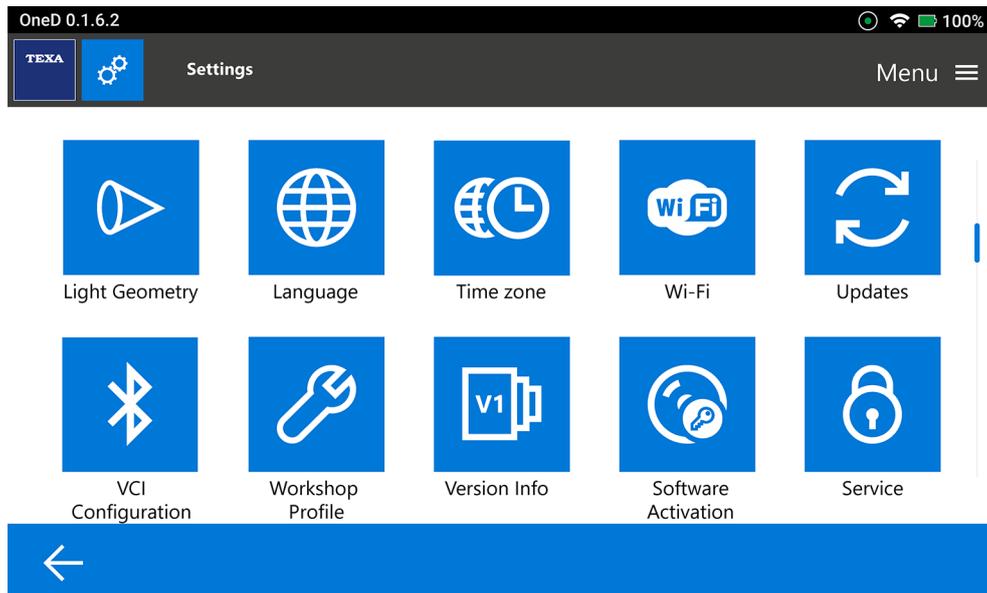
This menu allows you to access the software configurations, such as:

- *the user language selection;*
- *the software activation;*
- *the workshop profile;*
- *the configuration of the diagnostic VCI;*
- *etc.*

Proceed as follows:

1. Press 

The **Settings** menu is displayed.



Icon	Name	Description
	Light Geometry	It allows you to select the type of market and driving side of a vehicle for each photometric analysis.
	Language	It allows you to change the language in which the software is displayed.
	Time Zone	It allows you to set the date and time for the country or zone where the tool is used.
	Wi-Fi	It allows you to configure the Wi-Fi network.
	Updates	It allows you to check for updates and download them.
	VCI Configuration	It allows you to configure the diagnostic devices.
	Workshop Profile	It allows you to set the workshop information.
	Version Info	It provides information on the software version.
	Software Activation	It allows you to activate the software.
	Service	It allows you to access the customer service functions. These functions must be used only if indicated to do so by the Technical Assistance.

7.1.1 Light Geometry

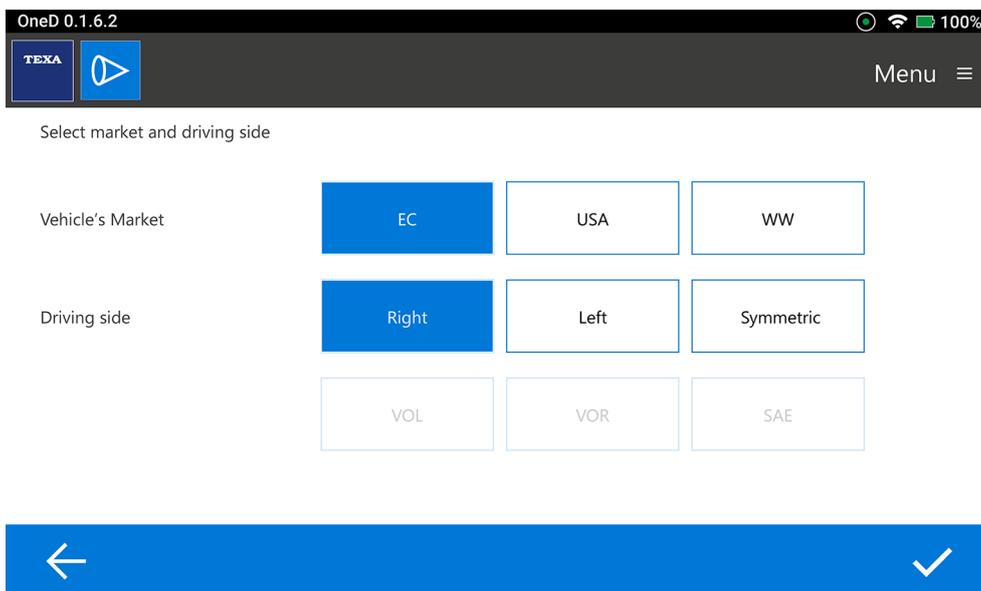
This menu allows you to select the type of market and driving side of a vehicle for each photometric analysis.

The selection can be temporarily changed before each photometric analysis.

Proceed as follows:

1. Press 

The **Light Geometry** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Confirm	It allows you to confirm the selections made.

2. Set the **Vehicle's Market and Driving Side**:

Vehicle's Market	Driving Side					
	Right	Left	Symmetric	VOL	VOR	SAE
EC: Europe	X	X	X			
USA: United States			X	X	X	X
WW: Worldwide	X	X	X	X	X	X

For further information see the **Photometry Overview** chapter.

4. Press 

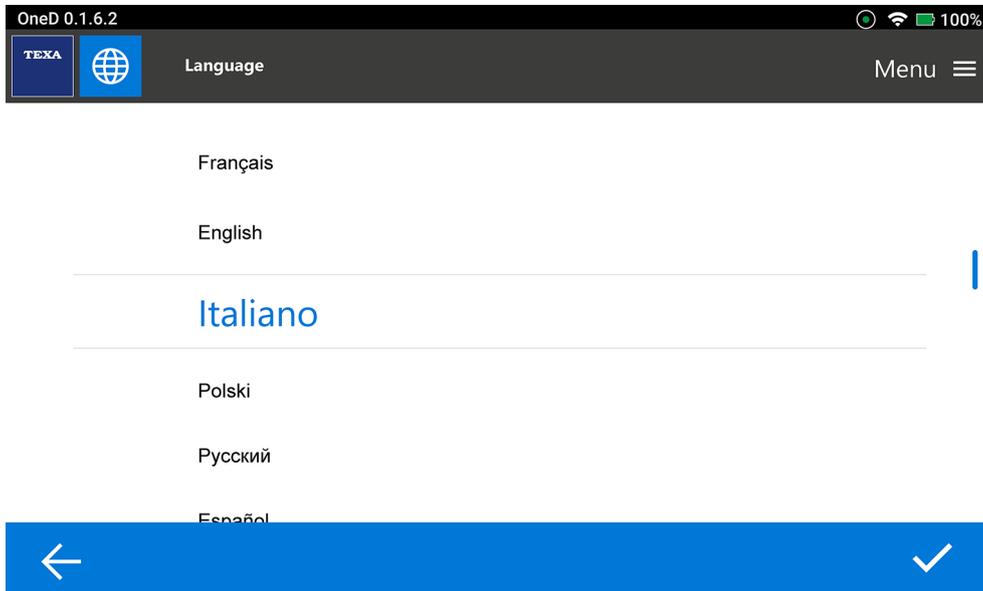
7.1.2 Language

This menu allows you to change the language in which the software is displayed.

Proceed as follows:

1. Press 

The **Language selection** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Confirm	It allows you to confirm the selections made.

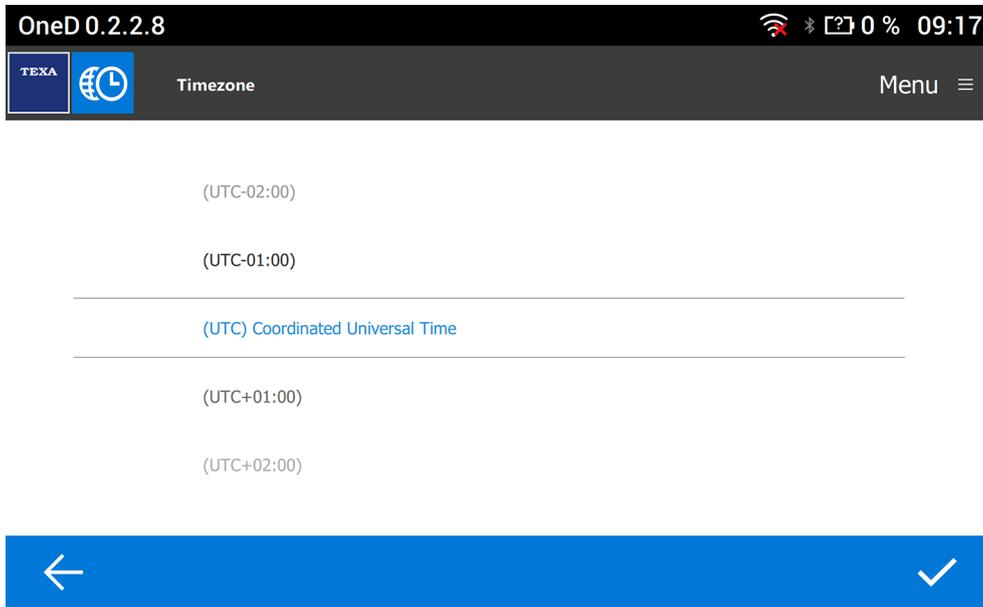
7.1.3 Time Zone

It allows you to set the date and time for the country or zone where the tool is used.

Proceed as follows:

1. Press 

The **Time Zone** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Confirm	It allows you to confirm the selections made.

7.1.4 Wi-Fi

This menu allows you to configure the connection between the tool and the display unit. The tool is compatible with the smartphone Tethering / Hotspot Wi-Fi networks.

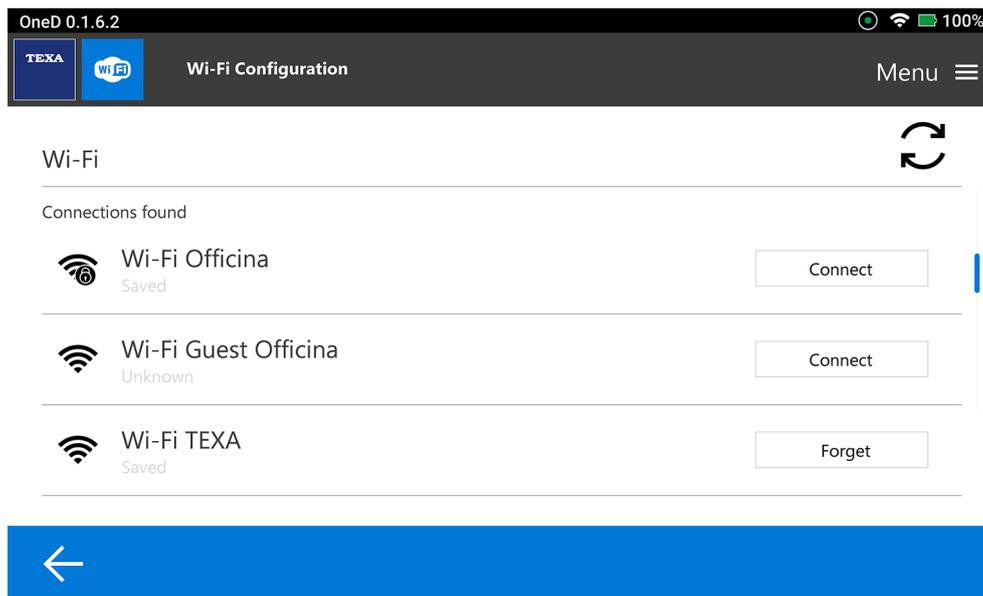


For more information see the smartphone user manual.

Proceed as follows:

1. Press 

The **Wi-Fi** screen is displayed.



2. Select the correct Wi-Fi network by pressing **Connect**.
3. Enter the password if the network is encrypted.
4. Press **Connect**.

5. If necessary, restart the Wi-Fi network scan by pressing 

INFORMATION

The tool will not be connected if the Wi-Fi data was not entered correctly.

7.1.5 Updates

This menu allows you to check for updates and download them. It also checks if updates are available in the connected HASP key.

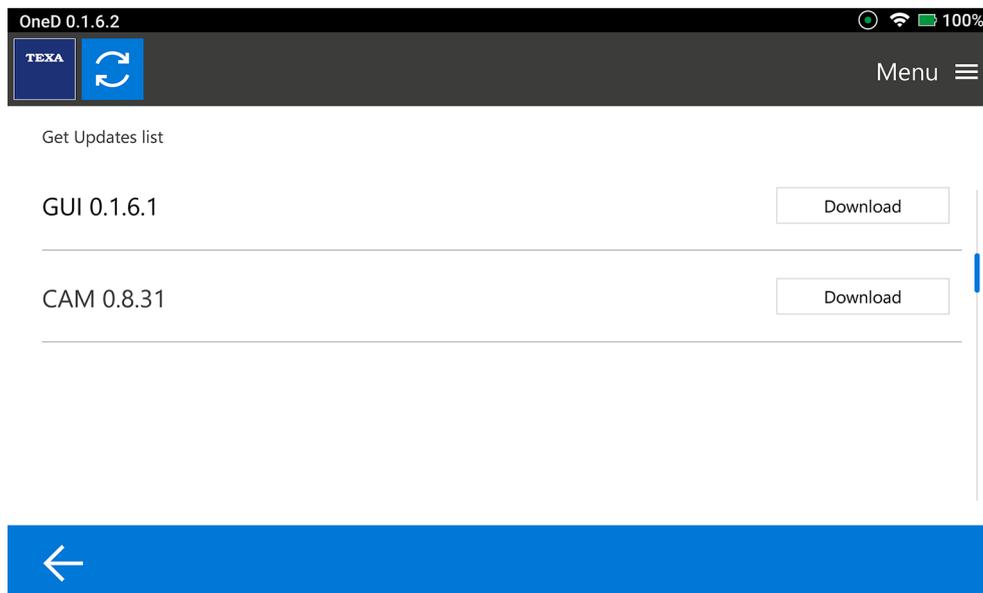
INFORMATION

You must have an active Internet connection.

The complete download of these updates may take several minutes. Proceed as follows:

1. Press 

The **Updates** screen is displayed.



2. Select the desired update.
3. Press **Download**.

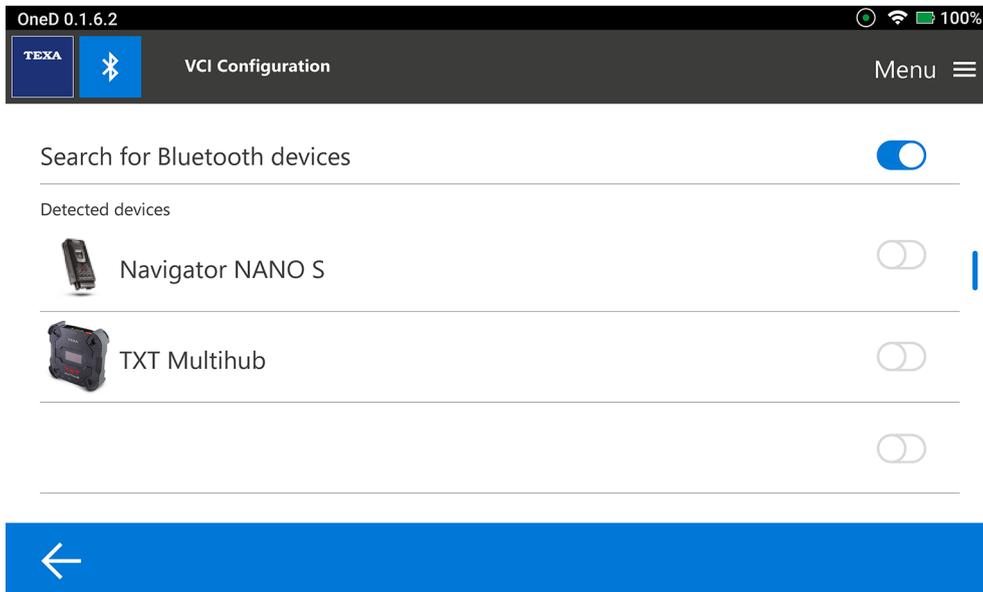
Wait for the update to complete.

7.1.6 VCI Configuration

This menu allows you to configure the diagnostic devices required to use the **DIAG TEST** software. Proceed as follows:

1. Press 

The **VCI configuration** screen is displayed.



2. Select and enable the diagnostic tool that must be configured.
 3. Follow the instructions that appear on screen.
- Wait for the configuration to complete.

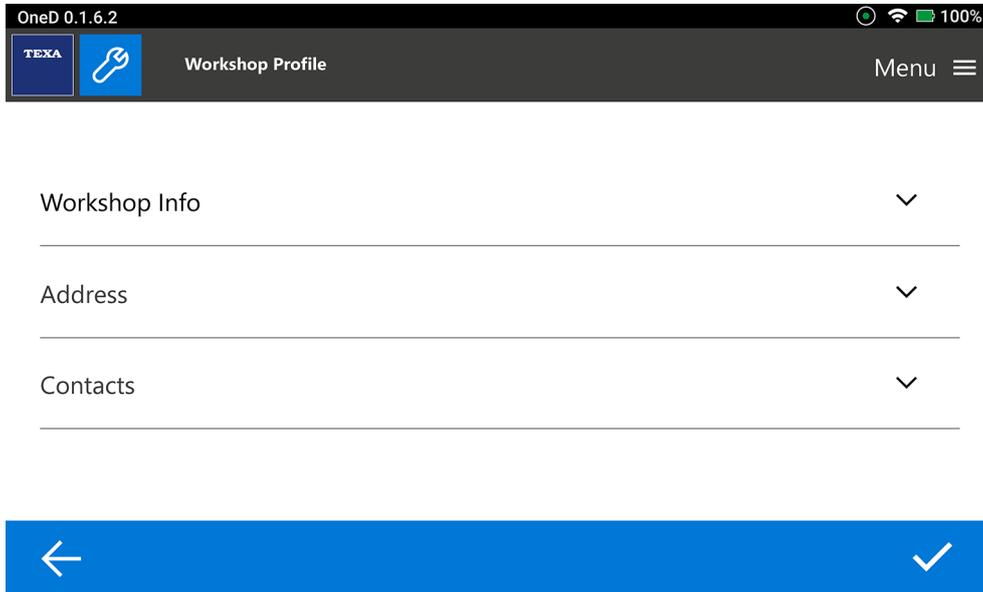
7.1.7 Workshop Profile

This menu allows you to set the information regarding the workshop that must be printed on the reports of the tests carried out.

Proceed as follows:

1. Press 

The **Workshop Profile** screen is displayed.

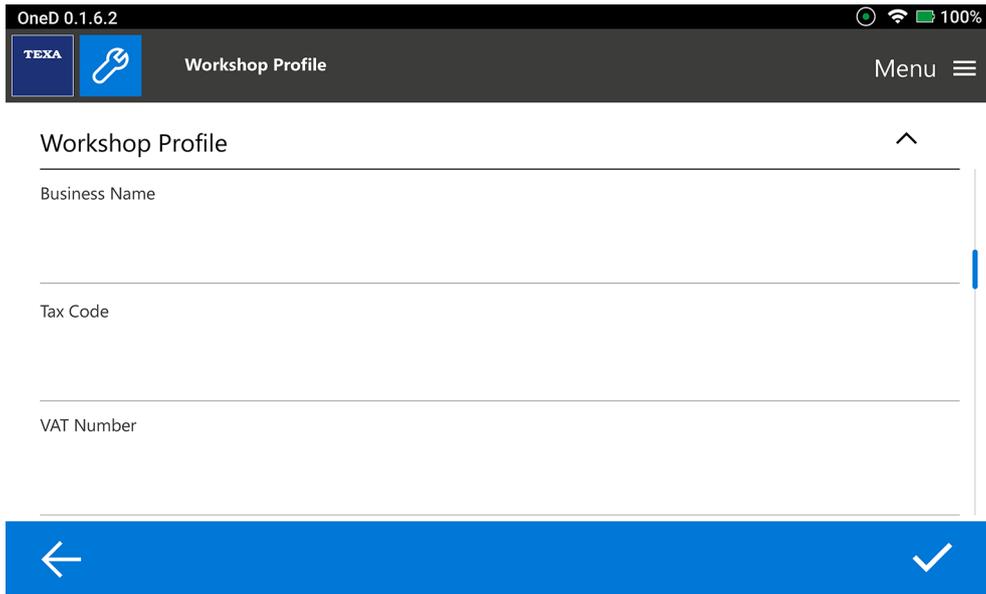


Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Confirm	It allows you to confirm the selections made.

Proceed as follows to insert the data relating to:

- *Workshop Info*;
- *Address*;
- *Contacts*.

1. Press 



OneD 0.1.6.2 📶 100%

  Workshop Profile Menu ☰

Workshop Profile ^

Business Name

Tax Code

VAT Number

Enter the required information in the specific fields.

2. Press 

7.1.8 Version Info

This menu provides information on the software version.

Proceed as follows:

1. Press 

The **Version Info** screen is displayed.



Serial Number: TESTS000001

LightTest: v 0.2.2.6

DiagTest: v 1.0.0

HASP ID: 1234567890

Copyright



Icon	Name	Description
	Back	It allows you to return to the previous screen.

7.1.9 Software Activation

This menu allows you to activate the software.

INFORMATION

In order for the software to start properly, it must be purchased and then activated using the specific code.

The activation through the code is carried out automatically the first time the software is started, if the tool is connected to an active Wi-Fi network.

Proceed with the activation only if it has NOT been already carried out during the first installation.

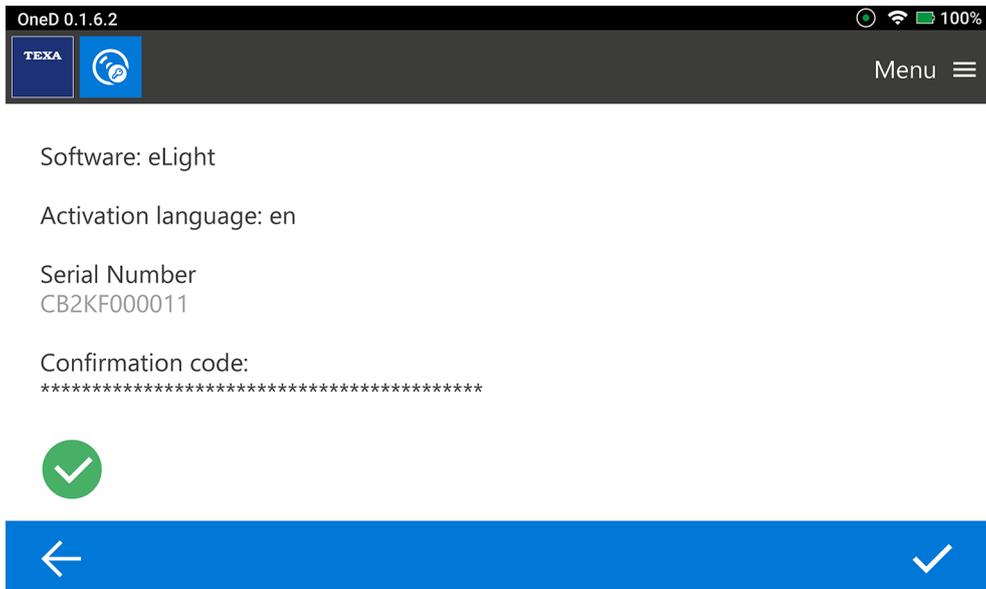
For more information contact your distributor.

Proceed as follows:

1. Press 

The **Software Activation** screen is displayed.

Example of LIGHT TEST Software Activation:



2. Enter the Confirmation code if the tool is not connected to an active Wi-Fi network.

INFORMATION

For more information contact your distributor.

7.1.10 Service

This menu allows you to access the customer service functions.

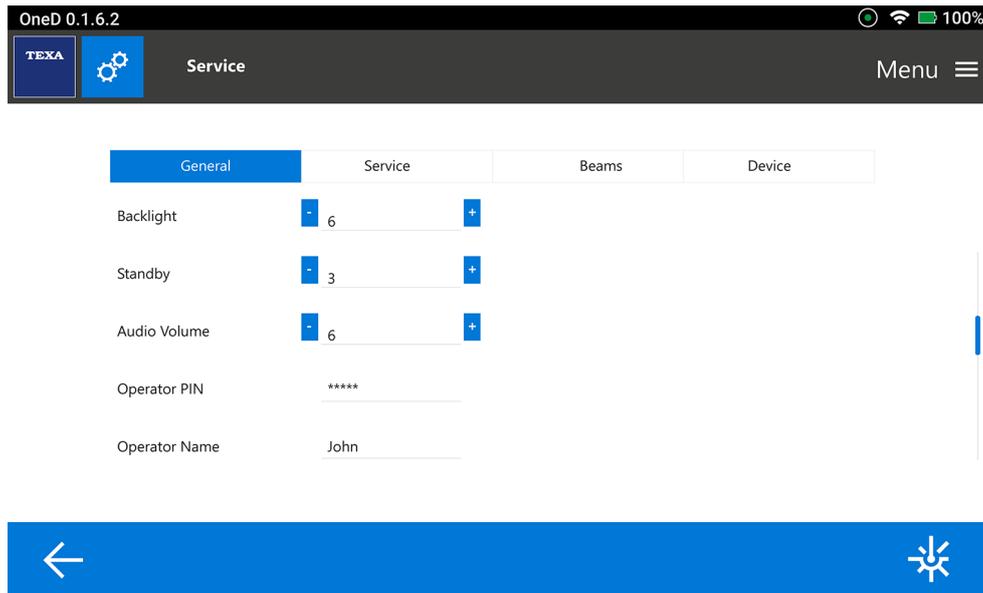
NOTICE

These functions must be used only if indicated to do so by the Technical Assistance.

Proceed as follows:

1. Press 

The **Service** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.
	Laser	It allows you to check the activation and operation of the lasers positioned under and on the side of the optical box.

Follow the indications and/or requests of the Technical Assistance.

7.2 Updates

This menu allows you to check for updates and download them. It also checks if updates are available in the connected HASP key.

INFORMATION

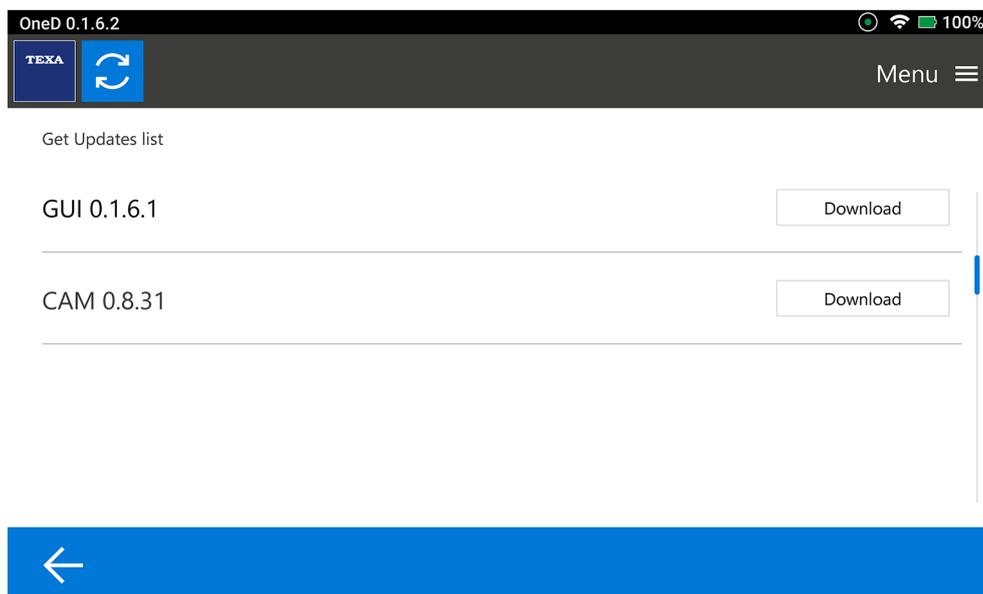
You must have an active Internet connection.

The complete download of these updates may take several minutes.

Proceed as follows:

1. Press 

The **Updates** screen is displayed.



Icon	Name	Description
	Back	It allows you to return to the previous screen.

2. Select the desired update.

3. Press **Download**.

Wait for the update to complete.

7.3 LIGHT TEST

This function allows carrying out a photometric analysis on a vehicle's headlights based on parameters manually set by the operator.

For further information, see the chapter LIGHT TEST.

7.4 DIAG TEST

This function allows carrying out a photometric analysis on a vehicle's headlights by automatically identifying the type of technology and lighting.

For further information, see the chapter DIAG TEST.

7.5 TEST REPORT

This function allows you to view the tests performed.

For further information, see the chapter TEST REPORT.

8 PHOTOMETRY OVERVIEW

Photometry is the set of techniques used to measure light-related quantities.

Photometric quantities such as the quantity of light, illuminance, luminance, etc. are used in optics to identify the characteristics of a light radiation beam and its effects on the human eye.

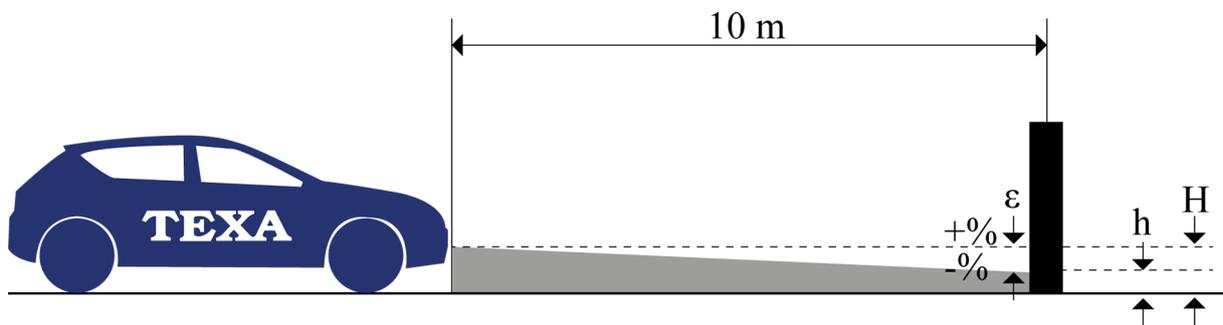
The main function of the headlight (low beam, high beam, fog light) is to collect the largest part of the luminous flux generated by the light bulb (halogen, LED, xenon, laser) and deviate it towards the road.

The headlight orientation procedure depends on the type of light beam they are equipped with.

Below are represented some measurement examples based on the reference regulation and type of headlight.

8.1 Tilt angle

The tilt angle is the light beam tilt percentage at a distance of 10 m.



- H = height of the headlight centre measured from the ground.
- h = height of the light beam projected by the headlight at a distance of 10 m measured from the ground.
- ε = light beam tilt percentage at a distance of 10 m.

Formula for calculating the tilt angle:

$$\varepsilon = [(H-h) / 1000] \times 100$$

8.2 ECE European Regulation

The European Regulation of the ECE (Economic Commission for Europe) sets forth the design, manufacturing and durability requirements for vehicles and defines the manufacturing, operating and safety characteristics for vehicle headlights.

The regulation is applied in all industrialised countries except the United States.

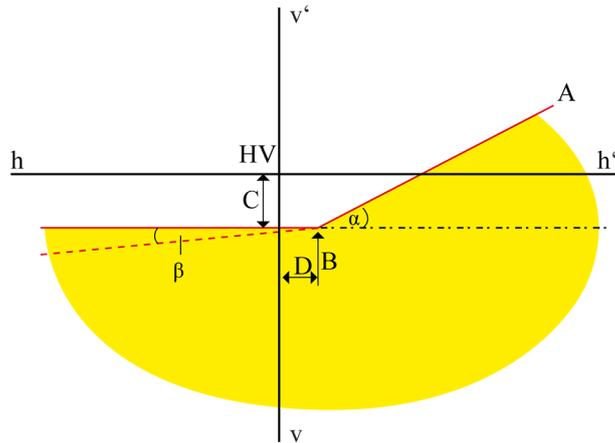
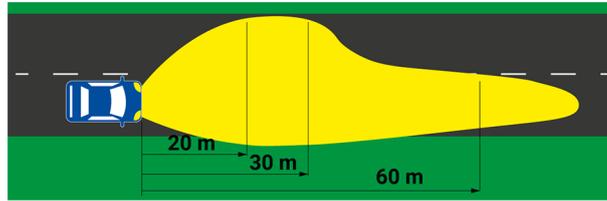
The headlight type-approval is valid for all light bulbs:

- *halogen;*
- *LED;*
- *xenon;*
- *laser.*

8.2.1 Low beam lights

The low beams are used while driving, including on the motorway, where it is mandatory to keep them on.

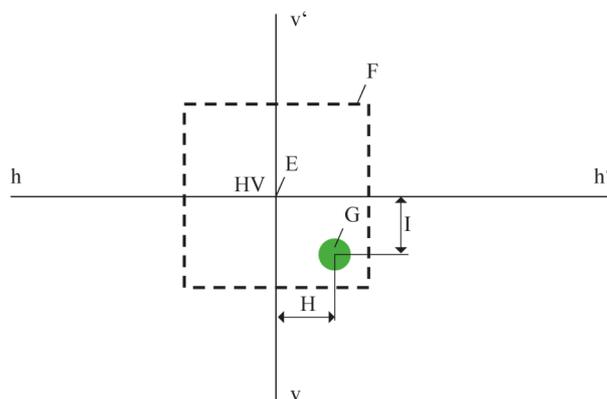
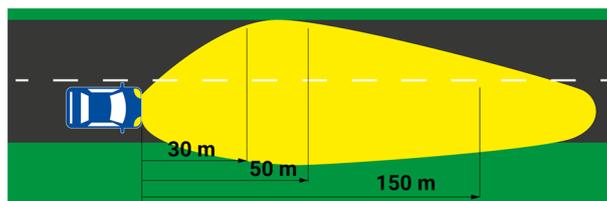
The beam is normally asymmetric, to ensure proper road lighting, without the beam invading the opposite lane, with the risk of dazzling the oncoming drivers.



A	Cut-off line. In the <i>Light Geometry</i> menu, set the nominal tilt indicated by the manufacturer.
B	Point of intersection with asymmetric light. Central point with symmetric light.
C	Distance from vertical tilt limit.
D	Distance from horizontal tilt limit.
α	Deviation angle of the light beam projected by asymmetric low beams in the driving direction (yaw angle).
β	Deviation angle of the light beam projected by asymmetric low beams in the opposite driving direction (roll angle). Generally equal to 0° .

8.2.2 High beam lights

The purpose of high beam lights is to ensure the best possible lighting with a larger geometric distribution.

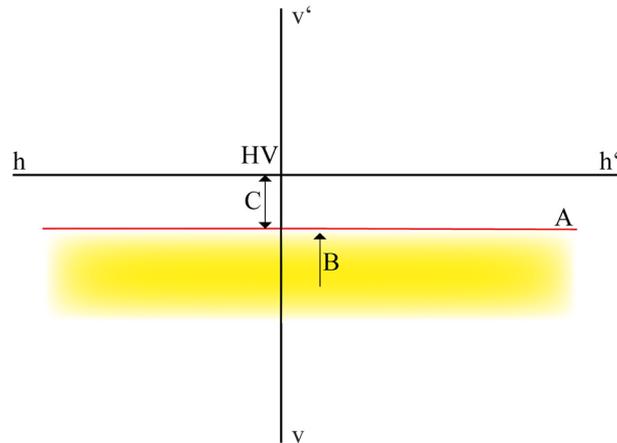


E	Centre of the headlight. This point is the basis of the measurement values.
F	Tolerance limit. In the <i>Light Geometry</i> menu, set the nominal tilt indicated by the manufacturer.
G	Centre of the high-beam light beam (HOTSPOT).
H	Horizontal distance of the HOTSPOT from the central point.
I	Vertical distance of the HOTSPOT from the central point.

8.2.3 Front fog lights

The fog lights are measured the same way as the low beams.

Unlike the low beams, the cut-off line creates a continuous horizontal (symmetric) line.



A	Cut-off line. In the <i>Light Geometry</i> menu, set the nominal tilt indicated by the manufacturer.
B	Central point.
C	Distance from vertical tilt limit.

8.2.4 Smart headlight system

With the introduction of the so-called 'smart' headlights, accuracy while adjusting plays an important role.

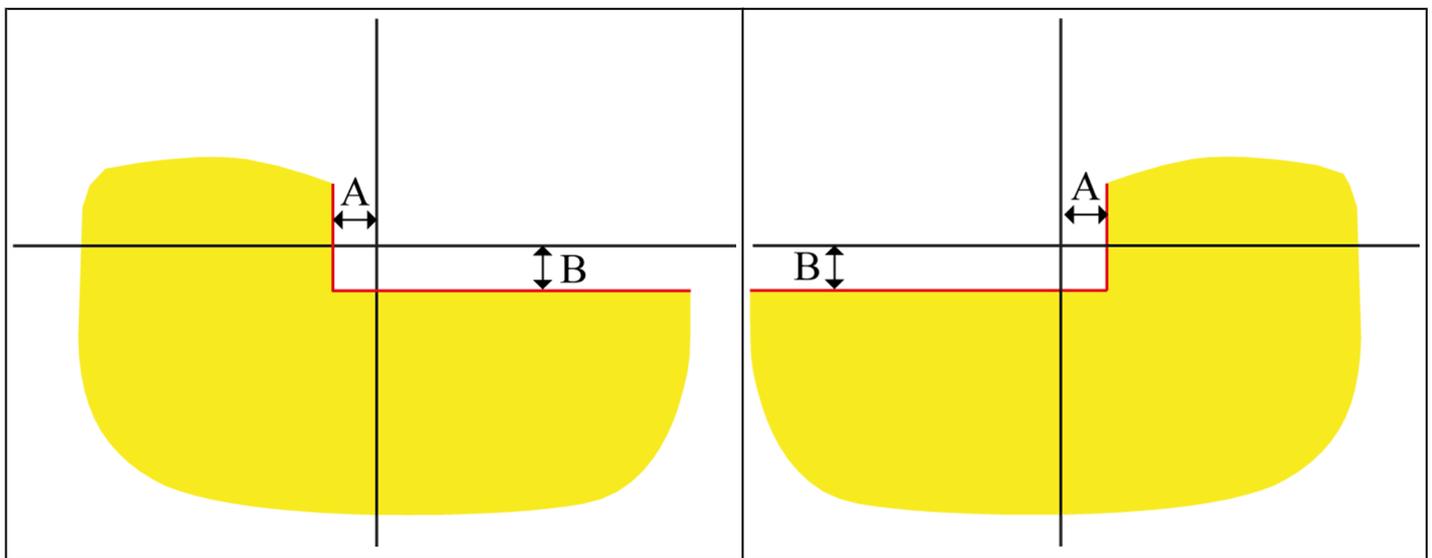
For this reason, the diagnostic tool is essential to analyse and adjust the headlights with the utmost accuracy.

HEADLIGHTS WITH DYNAMIC HIGH BEAM LIGHT ASSIST DLA (Dynamic Light Assist activation)

The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.

At speeds above 65 km/h, the system turns on the high beams permanently.

As needed, the system automatically covers part of the headlights in order not to dazzle the preceding or oncoming vehicles.



A	Horizontal distance of the cut-off line from the central line.
B	Vertical distance of the cut-off line from the central line.

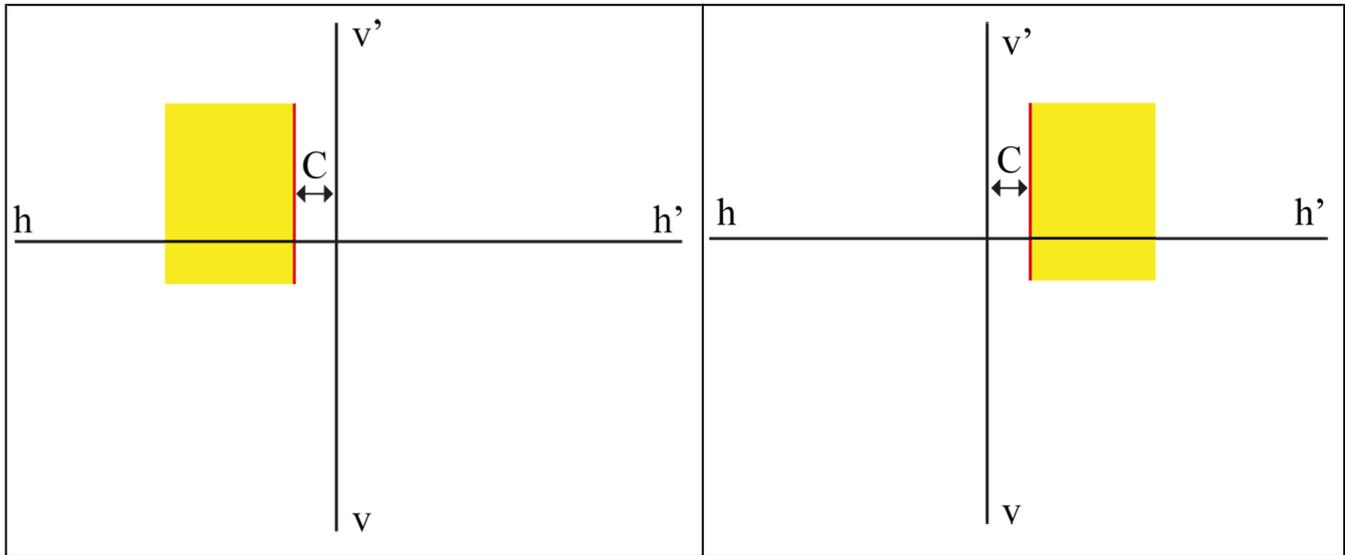
HEADLIGHTS WITH FUNCTION MATRIX (MxV1 / MxV2)

The vehicles equipped with this system have a camera installed on the windscreen which analyses the preceding or oncoming vehicles.

At speeds above 50 km/h, the system turns on the high beams permanently.

As needed, the system turns on or off the light sources the headlight is made up of, in order not to dazzle the preceding or oncoming vehicles.

The **MATRIX** system control unit can adjust the light beam intensity, adapting it to the various environmental conditions.

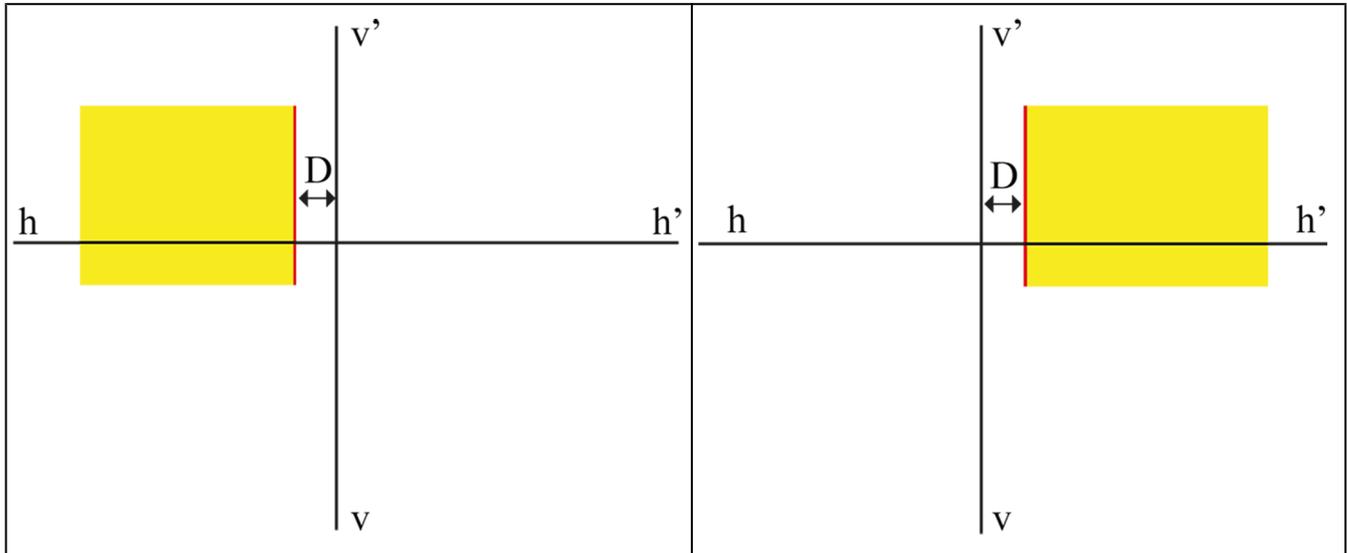


C Horizontal distance of the cut-off line from the central line.

LED HEADLIGHTS WITH ANTI-GLARE LIGHT ILS (Intelligent Light System)

This system allows managing a vehicle's headlights, optimising their operation, varying the headlight intensity and tilt based on the type of road the vehicle is being driven on and the weather conditions.

The system is also equipped with high beam assist, to avoid dazzling the preceding or oncoming vehicles, and dynamic cornering assist, which improves lighting and visibility during this manoeuvre.



D Horizontal distance of the cut-off line from the central line.

8.3 US Regulation

The Federal Motor Vehicle Safety Standard sets forth the design, manufacturing and durability requirements for vehicles and defines the manufacturing, operating and safety characteristics for vehicle headlights in the United States.

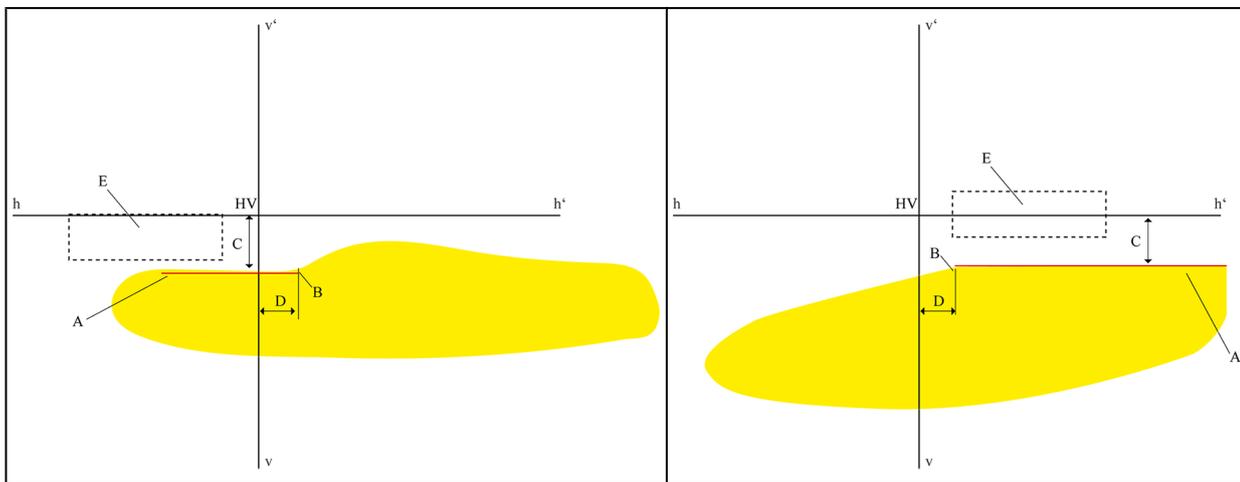
Vehicles can be equipped with the following types of headlights:

- **VOL**: visual optical left;
- **VOR**: visual optical right;
- **SAE**: compliant with the **SAE Regulation** (without cut-off line).

8.3.1 VOL / VOR low beam lights

The setting for the **VOL** and **VOR** low beam lights is similar to the European asymmetric low beam light.

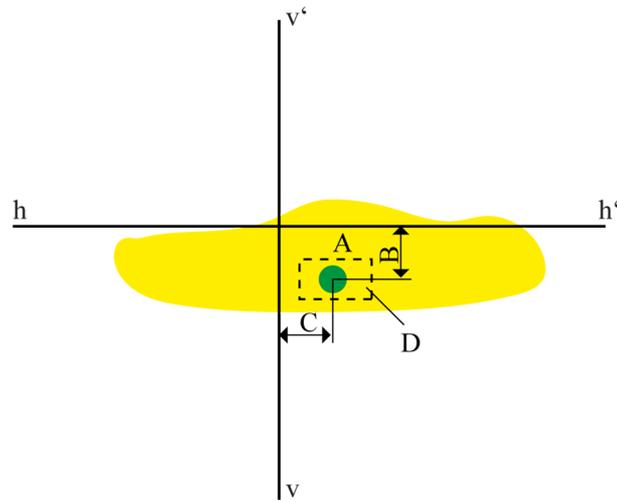
The setting for the high beam and fog lights is similar to the settings for the high beam and fog lights indicated in the ECE Regulation.



A	Cut-off line.
B	Inflection point
C	Vertical distance of the inflection point from the central line.
D	Horizontal distance of the inflection point from the central line.
E	Tolerance limit. In the <i>Light Geometry</i> menu, set the nominal tilt indicated by the manufacturer.

8.3.2 Low beam lights - SAE

The low beam lights do not have a cut-off line. They must be set based on the centre of the light beam (HOTSPOT).



A	Centre of the light beam (HOTSPOT).
B	Vertical distance of the HOTSPOT from the central line.
C	Horizontal distance of the HOTSPOT from the central line.
D	Tolerance limit. In the <i>Light Geometry</i> menu, set the nominal tilt indicated by the manufacturer.