

Dear experts

To improve the work of IWG VGL I kindly ask you to make some simple tests concerning vehicle headlights leveling changes under changes of load. The results will be an additional input for the work of IWG VGL.

Depending on your circumstances you may ask the factory, vehicle service, vehicle fleet owner, etc, to conduct this test. Some of you may probably do it yourself with your own car and help of some people.

To perform this test you will need a vehicle and headlight tester to measure cut-off inclination changes. You can also use vertical wall than compare vertical changes of cut-off position in (cm) to the distance between the vehicle and the wall in (m). In such situation it may be helpful to cover one headlamp. The results should be given in %. There is no need to aim headlamps before measurements because the result will be the difference between the maximum and minimum.

It is essential to use the vehicles without automatic leveling (as well as passenger cars, trucks or similar if possible).

1. Step one: loading from the front

To start with you need to measure cut-off line inclination (position) for an empty vehicle with the driver on his seat or 75 kg placed there instead.

First measure and note the height of the headlamp's optical axis. You can ignore height changes during loading but if you like you can also measure and note it. It would be better if the fuel tank was nearly empty at the beginning, but is not critical.

Then you should successively start adding weight to the vehicle distributing it from as far forward as possible and working your way towards the rear of the vehicle until the maximum permissible weight of the vehicle is attained.

You can, for example, get the car passengers to start taking their seats from the front ones then successively moving backwards adding load to the rear.

For example, in case of the 3 seat rows vehicles first should be occupied front seats, then the middle ones, then to the rear seats, then the trunk load. It should be done until permissible weight of the vehicle is obtained. During this procedure the cut-off inclination should be observed step by step. You have to note the minimum and maximum inclination value during this procedure.

2. Step two: loading from the rear

You have to then repeat this procedure, but the first step will still be the driver (or 75 kg) on the driver seat. Then put the load in the rear trunk space, up to the permissible value for it, positioning the weight as far back as possible. Then the passengers should start taking their seats (or loads put in their place) one by one, beginning with the rearmost seats and working their way towards the front until permissible weight of the vehicle is obtained. For example, for 3 seat rows vehicles first should be placed the trunk load then the rear seats, then middle seats, and finally front ones until maximum permissible load is obtained.

Similarly you need to note only minimum and maximum cut-off inclinations.

In both tests if you can fill the fuel tank to full and repeat measurements with load distribution which caused highest inclination it will be helpful but it is not obligatory.

This is the end of the test.

For N vehicles tests should be done in similar way to obtain minimum and maximum cut-off inclination values.

Then put the most extreme maximum and minimum inclination values measured from both cycles in the attached MS Excel file.

E.g. you measure:

- Step one: min.: -1.5 %, max.: -0.1%

- Step two: min -1.4%, max +0.2%

Put in the I_{\min} value = -1.5 and the I_{\max} value = +0.2 in the appropriate column. Put in also the headlamp optical axis height (e.g filament height). The rest of the results will appear automatically. If you measure more vehicles please put results in the row below.

Then please send this file to Tomasz Targosiński (tomasz.targosinski@its.waw.pl) and to Francoise Silvani (francoise.silvani@renault.com). You can attach details regarding tested vehicle if you like.

Forwarding the results till 15 of July 2016 will be most appreciated.

Kind regards

Tomasz Targosiński

IWG VGL Chairman