ASSESSMENT OF THE ROUGHNESS OF ROAD PAVEMENTS

Khudaybergenov Sardor Kamaraddinovich

Tashkent State Transport University, Assistant

Isaev Jakhongir Azamat o'g'li

Tashkent State Transport University, Assistant

Tukhtaev Matchon Bekjonovich

Tashkent State Transport University, Assistant

ANNOTATION: This article examines the various factors that affect the roughness of the highway, develops measures to counteract them, and develops recommendations for increasing the service life of the highway.

Keywords:highway, roughness, paving,coating surface.

We know that one of the most important indicators of the transport and operational condition of roads is the roughness of the pavement. The roughness of the road surface has a significant impact not only on traffic comfort, traffic safety, speed, but also on transportation costs, ie fuel consumption, transportation costs and service life of roads and vehicles.

Typically, coating irregularities occur as a result of defects during construction, deformations and distortions during operation. The longitudinal roughness of the surface of urban roads differs from the profile of the surface of paved roads outside the city due to the following factors: requires them to be compatible with existing facilities (intersections, barriers). In addition, the inability to ensure uniformity of velocity during the measurement of roughness affected the assessment of coating roughness [1].

When measuring coating smoothness using modern devices and analyzing the measured data, it is important to understand that roughness is expressed through frequencies. In addition, the frequency of the coating surface profile is a major factor in the fatigue of car parts, modeling and analysis of suspension parts.

In the literature on car dynamics, the oscillation frequency of the suspension is taken as a unit (cycle / second) or (Gers). In the literature related to the study of the effect of the pavement surface profile on the vehicle reaction in the illumination of a wide range of frequencies of the pavement surface

profile, the unit of wave number (stikl / meter) has generally been adopted. [2]

Measurement of the roughness of the road surface is carried out in accordance with the requirements of GOST 30412-96 [1]. In this case, the factors influencing the assessment of fluency are not sufficiently taken into account. Factors that directly affect the roughness of city street and road pavement include pipe caps, railroad tracks, pedestrian crossings, traffic lights, speed limits, and more. At the same time, the sudden negative impact on the roughness of the pavement by elements that do not provide roughness in the pavement of a car moving on a smooth road is calculated and reflected in the graphic form in our research work. The requirements of Table 1 below were used to analyze the results obtained from the device Roughometer III [3] and to assess the roughness [4]. There are a number of methods for assessing the roughness of the coating and a set of measuring devices for use. We measured the roughnessof the city streets and roads on the highway "Kichik halqa yo'li 4R21" in Tashkent with the help of Rafometer III.

The control functions of the Rafometer III device are ESC - return to the main menu, YES - selection of numbers and menu data received during the count, Start / Stop - start and stop data collection, and Scroll A & B - queries performed through the menu. The Rafometer III consists of components such as an accelerometer, a GPS, a distance measuring device, and a power cable. [5]

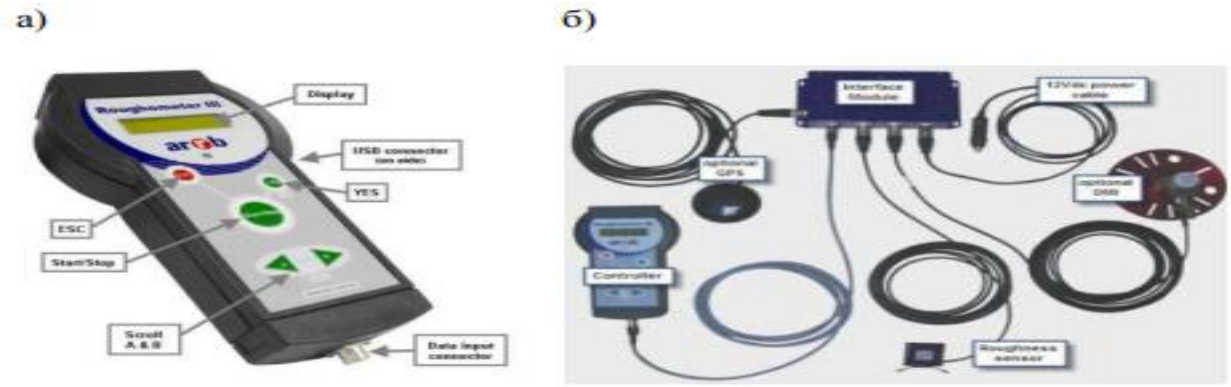

Figure 1. The control functions and control circuit of the device "Rafometer III" are given.

In this case: a) functions, b) control scheme.

Kichik halqa yo’li route. Straight direction

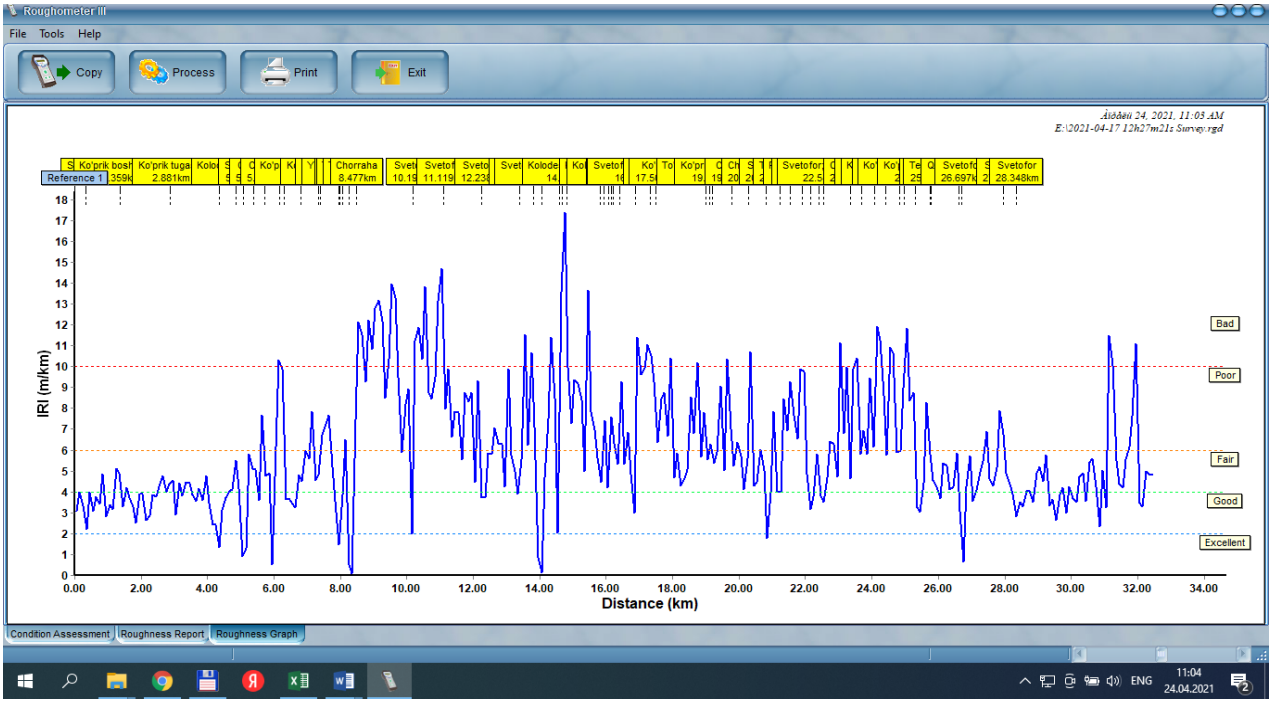

Figure 2. Numbers obtained on the highway "Kichik halqa yo’li 4R21" with the help of the device Rafometer III Graphical view of the roughness of the road surface.

Kichik halqa yo’li. Back direction

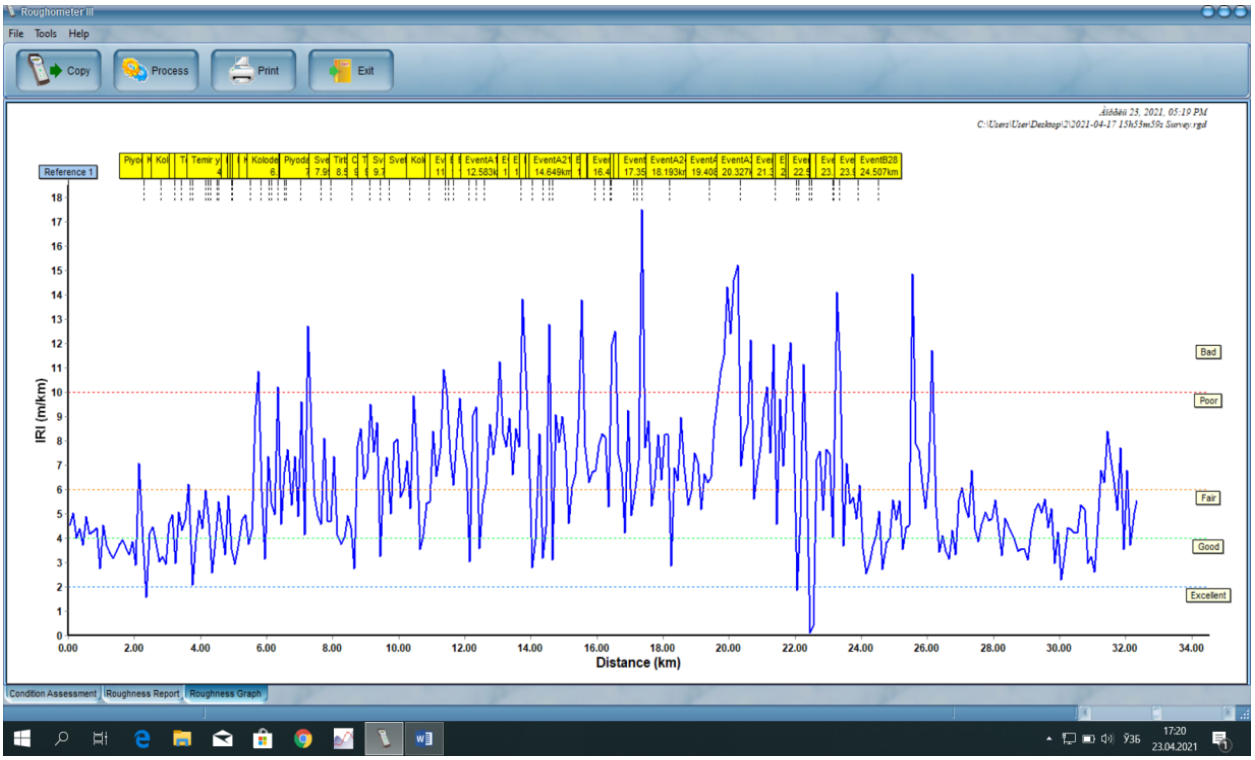

Figure 3. Numbers obtained on the highway "Kichik halqa yo’li 4R21" with the help of the device Rafometer III Graphical view of the level of pavement of the highway.

We can also see from the graph below that the roughness condition of the road surface lies in the 4 [m/km] to 6 [m/km] section of the chart. Even some plots are in the 6 [m/km] to 10 [m/km] section. This led to the conclusion that the roughness of the road surface was unsatisfactory. The average value of the results obtained was 6.1 [m/km]. However, in order to assess the condition of this highway as “good”, our schedule had to be between 2 [m/km] and 4 [m/km].

References:

1. ГОСТ 30412-96. Дороги Автомобилные и аэродромы. Методы измерений неровностей оснований и покрытий. – М.,1996. – 9 с.
2. А.Г. Юнусов, Б.А. Холиқов, Р.Р. Соаталиев йўл қопламаси транспорт–эксплуататсион кўрсаткичларини баҳолашнинг замонавий усуллари. «Транспорт» нашриёти, Тошкент, 2021й.
3. https://www.arrb.com.au/roughometer-3
4. ИҚН 05–2011. Автомобил йўлларининг холатини ташхис қилиш ва баҳолаш қоидалари. Ташкент, 2012. — 129
5. А. Г. Юнусов, М.М.Мусаев.Шаҳар йўллари қопламаси равонлигини баҳолашга таъсир этувчи омиллар. Молодой ученый. — 2021. — № 22 (364).