



NOISE FIGHTING AND NOISE MAPING IN URBAN PLANNING

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ANNOTATION

This article describes the procedure for performing geodetic and cartographic mapping of urban noise maps. Modern geodetic (shumometric) devices used to measure noise frequencies, and the coordinates of the limit Samarkand city of noise impact on urban buildings and structures using GPS technology and processing of measured data using modern geodetic software (Panorama). In addition, using Panorama software, the map provides detailed information on the process of establishing the noise distribution limits horizontally, as well as the process of creating and drawing noise cards using cartographic symbols. The methods of combating city noise are given.

Keywords and expressions: Noise card, shumometer, noise, dB, GPS, Panorama, horizontal, The effects of noise on people, cerebral hemisphere, heart and vascular function, sleep disturbance, human health, regulation, megalopolis, monitoring.

INTRODUCTION

We know that in developed cities the noise level is very high. Noise is broadly defined as a sound that people do not like, that negatively affects their mood and prevents them from hearing and understanding. We know that in recent years, as a result of man-made and demographic progress in cities, the sources of noise are also growing rapidly. Views on the effects of noise levels on humans and some sources of noise are given in the book "Building Physics" by German scientist E. Schild. Basically, the source of noise can be divided into two: The first is the noise inside the building. Examples include plumbing and engineering equipment, various electrical appliances, loud music, and more. The second is the noise outside. Examples include noise from the manufacturing process in the transport industry and others. Residential areas, city streets and roads are the main sources of noise. Residents of the city, who have been living under the influence of noise for a long time, suffer from the following negative effects:

1. Noise increases blood pressure;
2. Causes gastrointestinal diseases.
3. Reduces the ability of people to work by 15-20%;
4. It has a negative effect on people's nerves and causes the development of various occupational diseases.

In large cities, street noise averages 1dB (decibels) per year. Even in large cities of Uzbekistan, this figure has been maintained for about 15-20 years. This means that by 2020-2040, street noise may increase by 10-15 dB. For this reason, the fight against noise in the design of urban and residential areas, as well as in the construction of the city remains one of the most pressing issues. In Samarkand, a significant increase in the number of cars in recent years, an increase in the volume of freight traffic within the city has led to an increase in traffic noise.

It is impossible to develop large metropolises without regular monitoring of noise and constant monitoring. The starting point for creating a system of regulation and monitoring is a noise map of the area.

The city of Samarkand is being studied from all angles by collecting various cartographic materials before creating the map, creating a special noise map of the city in a special electronic form and improving the new style. In the creation of the master plan of the city, including the airport, railway, road transport communications; resettlement of housing estates; landscaping and beautification; areas to be built in the future; industrial enterprises; relocation of administrative and domestic service buildings; the creation of community recreation parks and the design and construction of noise propagation and pressure in others should be taken into account :

Urban and residential areas are divided into areas according to their use and expediency in the design, for example: residential areas, industrial districts, public service areas and outdoor transport, highways with high traffic flow. For objective measurement of noise levels, special instruments are used noise meters (Digital meter UT 351/352). This device consists of a microphone that converts noise and sound vibrations into electrical vibrations. In a noise meter, vibrations are amplified, adjusted and measured with a microammeter, measured in decibels of average power. One of the most important factors in creating maps is a science-based methodological approach. These factors underlie the mapping process, the accurate analysis of geographical sources, and the accurate representation of content on a map.

We used it as an object for the analysis of the noise on Mirzo Ulugbek Street in Samarkand. Here we study the effect of noise on a building. With the help of a GPS receiver on the street, we can create 3 geodetic bases and determine their coordinates and heights. At the back of the building we can create similar geodetic bases. In order to carry out the observation, a noise meter was installed on the main points and measurements were made from 6:00 am to 20:00 pm. Observations are made every 1 hour and recorded in the log.

The results of the noise from the main points at the front of the building are given in Table 1.

Table 1

Number of observations	time	Points measured with a noise meter		
		1-point	2-point	3-point
1	6 ⁰⁰	40	40	40
2	7 ⁰⁰	60	61	62
3	8 ⁰⁰	65	66	65
4	9 ⁰⁰	70	72	70
5	10 ⁰⁰	69	68	65
6	11 ⁰⁰	67	69	66
7	12 ⁰⁰	75	76	72

8	13 ⁰⁰	68	69	67
9	14 ⁰⁰	73	70	70
10	15 ⁰⁰	69	68	71
11	16 ⁰⁰	68	67	70
12	17 ⁰⁰	72	73	72
13	18 ⁰⁰	69	67	67
14	19 ⁰⁰	65	66	64
15	20 ⁰⁰	62	63	62

The results of the noise from the main points at the back of the building are given in Table 2..

2-table

Number of observations	Time	Points measured with a noise meter		
		1-point	2-point	3-point
1	6 ⁰⁰	30	25	30
2	7 ⁰⁰	55	45	50
3	8 ⁰⁰	50	55	58
4	9 ⁰⁰	50	50	55
5	10 ⁰⁰	48	47	52
6	11 ⁰⁰	59	51	52
7	12 ⁰⁰	56	52	53
8	13 ⁰⁰	54	51	53
9	14 ⁰⁰	55	53	52
10	15 ⁰⁰	55	52	53
11	16 ⁰⁰	53	51	51
12	17 ⁰⁰	54	52	54
13	18 ⁰⁰	53	52	53
14	19 ⁰⁰	50	49	48
15	20 ⁰⁰	46	45	46

We can show the result of the noise measurement in the form of various diagrams. But when we show it horizontally, we can see how it penetrates the inside of the building, how the building and the noise propagate affect people. The noise level of 75 houses on Mirzo Ulugbek Street was measured in practice, and in the 1st DB the horizontal distance was 2 meters. The topographic plan of the noise distribution is shown in Figure 1.

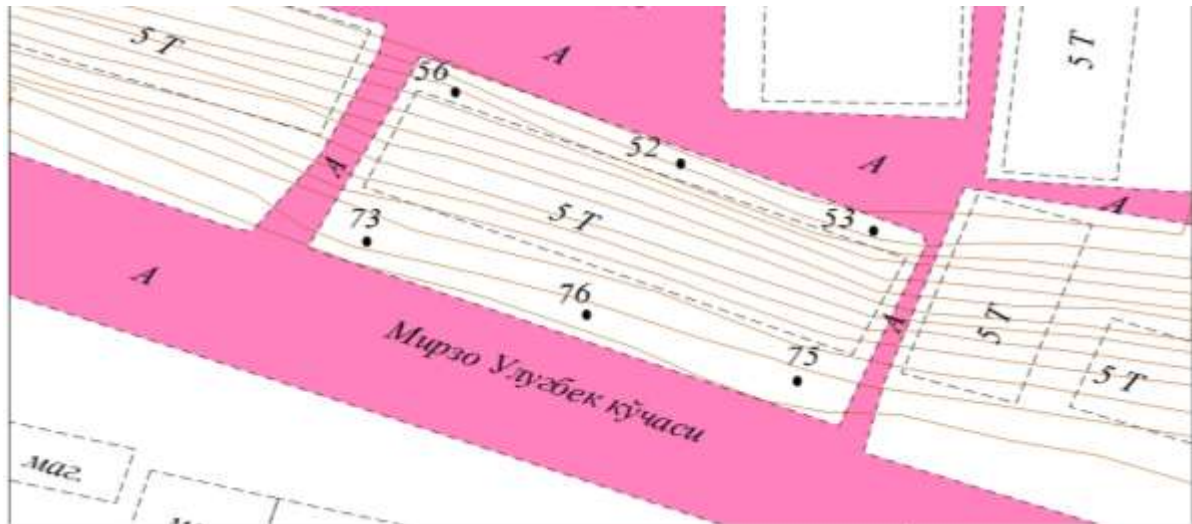


Figure 1. Topographic plan of noise distribution

Sources are being collected to create a schematic map of the streets and roads of Samarkand. In this work, I am working on improving the basics of creating a noise map (creating a model).

CONCLUSION AND AND THE EXPECTED RESULT

1. The degree of accuracy of noise maps with the use of modern geodetic (noise meter) instruments for determining the frequency of noise, as well as the coordinates of the boundary of the impact of noise on buildings and structures in the city using GRS technology;
2. In addition, using the measured data, it is very simple to create a noise map in the Panorama program by horizontally marking the noise propagation boundary and to create and formalize noise maps using cartographic symbols. In addition to this noise mapping technique, it can be used to create noise maps of cities;
3. As a result of theoretical and practical research, it is possible to develop engineering measures for the protection of residential and public buildings from noise at all stages of the construction project.

REFERENCES

1. Yu.V. Polishchuk, B. I. Gladky, L. A. Shapovalova "Creation and updating of special city plans" Moscow: Nedra, 1988, -239 p.
2. AT Ismailov, AT Khotamov, DU Isamukhamedova Textbook "Engineering improvement and transport infrastructure of the city." Tashkent. 2007. 84 –109 pages.
3. Shukurov G., Islamova DG Textbook "Physics of Construction" Tashkent. "Generation of the New Century". 2018.218.4. Engineering acoustics. Theory and practice of dealing with noise.- M .: ed. Logo. University Book 2008. - 424 p.
5. Avilov, G.M. Digital noise maps for geographic information systems, St. Petersburg, 2000.
6. Compilation and editing of special maps. Under. ed. A.I. Preobrazhensky. M, 1961.320 s.
7. Goryacheva S.A., Petrov A.V. Monitoring of noise pollution in an urban environment. Pol-Zunovsky Bulletin No. 4, 2005, S. 137-1
8. Abrakitov V.E. Field studies of noise in Kharkov. / V.E. Abrakitov. - X .: Parus, 2008. --- 68 p.