

# NoiseAssist

## Sound Measurement REPORT



**File name:** 2092/2/1724742568  
**Measurement date:** August 27, 2024  
**Measurement time:** 9:09:28 AM  
**Location:** Münsterstraße 81, Düsseldorf

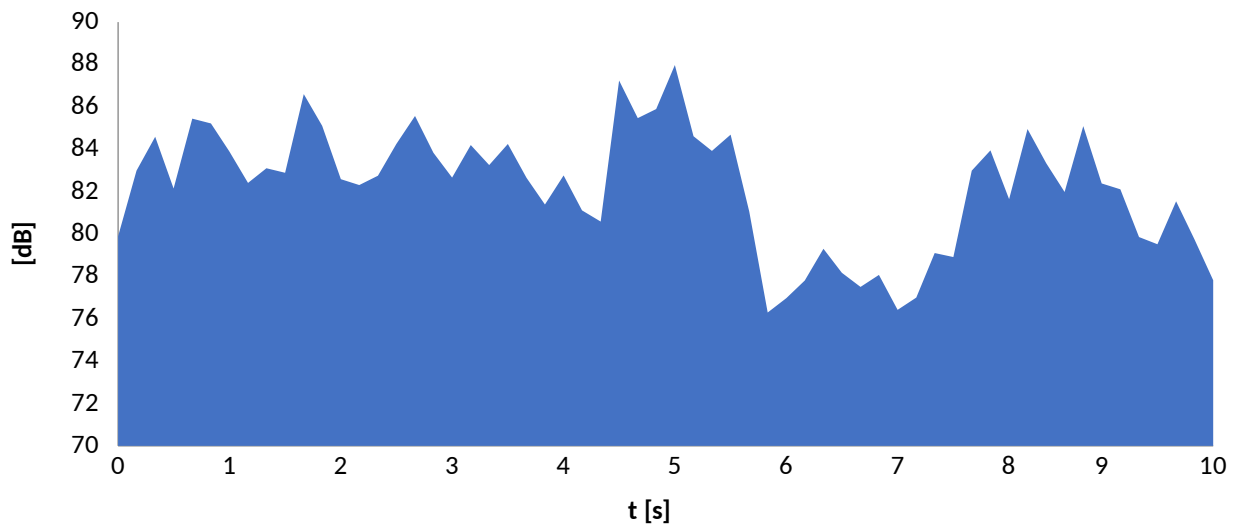
### Measured sound level:

**Average:** 81.27 dB  
**Minimum:** 73.02 dB  
**Maximum:** 87.79 dB

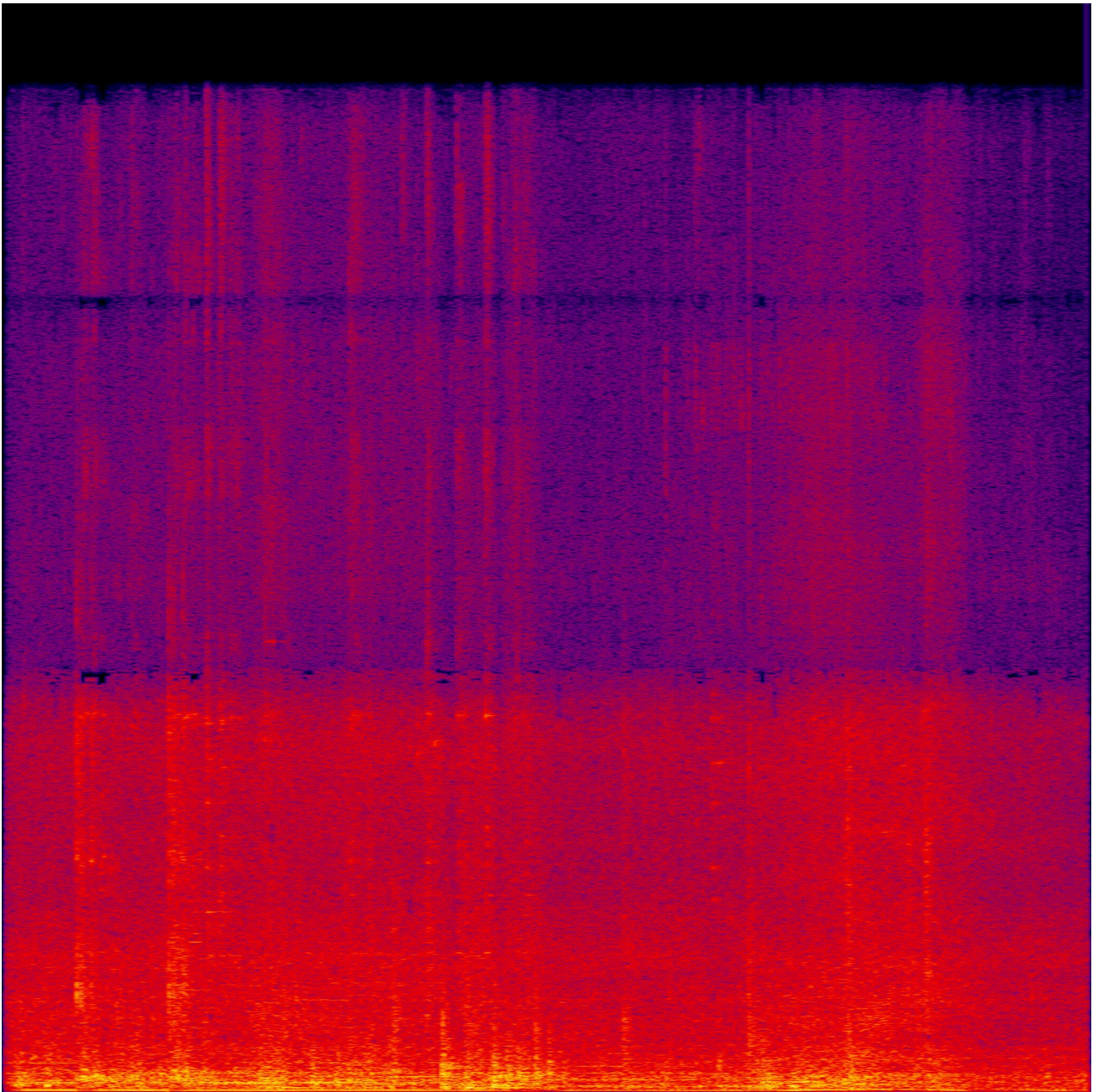
**Noise nuisance:** 4.5

**Closest class:** 9 - Bell

### Volume intensity chart:



### Spectrogram



## Explanations

### Noise nuisance:

Adopted scale for assessing sound nuisance:

- 1 - not burdensome,
- 2 - it is not very bothersome,
- 3 - is bothersome,
- 4 - it is definitely bothersome,
- 5 - is extremely bothersome.

Based on the study conducted on the nuisance ratings of the surveyed group of people, a system of rules was developed that assigns classified sounds and their parameters to users for whom given acoustic environments and sounds are the most bothersome.

Forecasting noise nuisance has its sources in the conducted research and measurements for individual users using neural networks (artificial intelligence) to recognize and classify the characteristics of the noise source.

## Spectrogram

A sound spectrogram is like a map on which we can see how different sounds are distributed over time. In this map, the horizontal axis represents time and the vertical axis represents frequency. Low sounds, like bass, tend to be at the bottom, while high sounds, like squeaks, tend to cluster at the top. The louder the sounds, the more intensely colored they are plotted on the map.

Using spectrogram, we can analyze the harmonic-time structure of sound, which is crucial in fields such as acoustic analysis or identification of sound types.

## Permissible Polish noise standards

Table 1. Name and type of terrain - assignment of max. sound level [dB] for road and rail transport

Zone	Type of terrain	Time of the day		NoiseAssist
		Daytime	Night time	Daytime
1A	Protection zone "A" - Spa	50.00	45.00	81.27
1B	Hospital areas outside the city	50.00	45.00	81.27
2A	Areas of single-family housing	61.00	56.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	61.00	56.00	81.27
2C	Areas of social welfare homes	61.00	56.00	81.27
2D	Hospital areas in cities	61.00	56.00	81.27
3A	Residential development areas multifamily and collective residence	65.00	56.00	81.27
3B	Farm development areas	65.00	56.00	81.27
3C	Recreational and relaxation areas	65.00	56.00	81.27
3D	Residential and service areas	65.00	56.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	68.00	60.00	81.27
1A	Protection zone "A" - Spa	50.00	45.00	81.27
1B	Hospital areas outside the city	50.00	45.00	81.27
2A	Areas of single-family housing	61.00	56.00	81.27

2B	Development areas related to permanent or temporary stay of children and adolescents	61.00	56.00	81.27
2C	Areas of social welfare homes	61.00	56.00	81.27
2D	Hospital areas in cities	61.00	56.00	81.27
3A	Residential development areas multifamily and collective residence	65.00	56.00	81.27
3B	Farm development areas	65.00	56.00	81.27
3C	Recreational and relaxation areas	65.00	56.00	81.27
3D	Residential and service areas	65.00	56.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	68.00	60.00	81.27

Table 2. Name and type of area - assignment of max. sound level [dB] for other objects and activities that are the source of noise

Zone	Type of terrain	Time of the day		NoiseAssist
		Daytime	Night time	Daytime
1A	Protection zone "A" - Spa	45.00	40.00	81.27
1B	Hospital areas outside the city	45.00	40.00	81.27
2A	Areas of single-family housing	50.00	40.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	50.00	40.00	81.27
2C	Areas of social welfare homes	50.00	40.00	81.27
2D	Hospital areas in cities	50.00	40.00	81.27
3A	Residential development areas multifamily and collective residence	55.00	45.00	81.27
3B	Farm development areas	55.00	45.00	81.27
3C	Recreational and relaxation areas	55.00	45.00	81.27
3D	Residential and service areas	55.00	45.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	55.00	45.00	81.27
1A	Protection zone "A" - Spa	45.00	40.00	81.27
1B	Hospital areas outside the city	45.00	40.00	81.27
2A	Areas of single-family housing	50.00	40.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	50.00	40.00	81.27
2C	Areas of social welfare homes	50.00	40.00	81.27
2D	Hospital areas in cities	50.00	40.00	81.27
3A	Residential development areas multifamily and collective	55.00	45.00	81.27

	residence			
3B	Farm development areas	55.00	45.00	81.27
3C	Recreational and relaxation areas	55.00	45.00	81.27
3D	Residential and service areas	55.00	45.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	55.00	45.00	81.27

Table 3. Name and type of area - assignment of max. sound level [dB] caused by aircraft takeoffs, landings of the aircrafts

Zone	Type of terrain	Time of the day		NoiseAssist
		Daytime	Night time	Daytime
1A	Protection zone "A" - Spa	55.00	45.00	81.27
1B	Hospital areas outside the city	55.00	45.00	81.27
2A	Areas of single-family housing	64.00	59.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	64.00	59.00	81.27
2C	Areas of social welfare homes	64.00	59.00	81.27
2D	Hospital areas in cities	64.00	59.00	81.27
3A	Residential development areas multifamily and collective residence	68.00	59.00	81.27
3B	Farm development areas	68.00	59.00	81.27
3C	Recreational and relaxation areas	68.00	59.00	81.27
3D	Residential and service areas	68.00	59.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	70.00	65.00	81.27
1A	Protection zone "A" - Spa	55.00	45.00	81.27
1B	Hospital areas outside the city	55.00	45.00	81.27
2A	Areas of single-family housing	64.00	59.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	64.00	59.00	81.27
2C	Areas of social welfare homes	64.00	59.00	81.27
2D	Hospital areas in cities	64.00	59.00	81.27
3A	Residential development areas multifamily and collective residence	68.00	59.00	81.27
3B	Farm development areas	68.00	59.00	81.27
3C	Recreational and relaxation areas	68.00	59.00	81.27
3D	Residential and service areas	68.00	59.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	70.00	65.00	81.27

Table 4. Name and type of terrain - assignment of max. sound level [dB] caused by power lines - industrial noise

Zone	Type of terrain	Time of the day		NoiseAssist
		Daytime	Night time	Daytime
1A	Protection zone "A" - Spa	45.00	40.00	81.27
1B	Hospital areas outside the city	45.00	40.00	81.27
2A	Areas of single-family housing	50.00	40.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	50.00	40.00	81.27
2C	Areas of social welfare homes	50.00	40.00	81.27
2D	Hospital areas in cities	50.00	40.00	81.27
3A	Residential development areas multifamily and collective residence	55.00	45.00	81.27
3B	Farm development areas	55.00	45.00	81.27
3C	Recreational and relaxation areas	55.00	45.00	81.27
3D	Residential and service areas	55.00	45.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	55.00	45.00	81.27
1A	Protection zone "A" - Spa	45.00	40.00	81.27
1B	Hospital areas outside the city	45.00	40.00	81.27
2A	Areas of single-family housing	50.00	40.00	81.27
2B	Development areas related to permanent or temporary stay of children and adolescents	50.00	40.00	81.27
2C	Areas of social welfare homes	50.00	40.00	81.27
2D	Hospital areas in cities	50.00	40.00	81.27
3A	Residential development areas multifamily and collective residence	55.00	45.00	81.27
3B	Farm development areas	55.00	45.00	81.27
3C	Recreational and relaxation areas	55.00	45.00	81.27
3D	Residential and service areas	55.00	45.00	81.27
4	Areas in the inner-city zone of cities with over 100,000 inhabitants	55.00	45.00	81.27