20200299-DO-P

Centre for Physical Measurements

Laboratory for Enviromental Measurments - LOM

Report No.: LOM 20200299

Date: **19. 06. 2020**

TEST REPORT

1. Costumer:	**IONEX d.o.o.** **Slomškova 25, 1000 LJUBLJANA**
2. Test site:	**IONEX AIR IONIZER,** **Laboratory at ZVD d.o.o.**
3. Type of measurements:	**Air measurements: ozone**
4. Order No.:	**According to e-mail from 21.04.2020**
5. Date of measurement:	**14. -17.04. 2020**
6. Purpose of measurements:	**Measuring the concentration of ozone in the air during the operation of the IONEX AIR IONIZER**
7. The report contains:	**4 pages**

Measurements performed by:	**Report prepared by:**	**Report approved by:**
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1. SCOPE AND OBJECTIVES

IONEX d.o.o., Slomškova 25, 1000 LJUBLJANA, orders control measurements of ozone concentrations during the operation of the IONEX air ionizer. Measurements of ozone concentration in the air were performed near the IONEX ionizer during operation, in a closed laboratory at the location of ZVD d.o.o., Chengdujska cesta 25, 1260 Ljubljana-Polje.

In order to exclude the possible presence of ozone in the measured space, we also performed ozone measurement when the IONEX air ionizer was not working.

In accordance with the procedure, ozone measurements were performed during the operation of the IONEX ionizer from 8:00 AM on April 15, 2020 to 8:00 AM on April 17, 2020. Before that, we checked the ozone concentration in the room without the operation of the ionizer. The measuring range of the ozone meter is between 0.005 and 0.5 ppm.

Ozone measurements were performed during the operation of the IONEX CLASSIC ionizer, which uses a carbon brush to form negative ions. All other IONEX models listed below also use the same carbon brush with the same carbon thread length and emit the same number of negative ions in their operation. Due to the above, the obtained results can also be taken into account in the following models of ionizers:

1. IONEX 220-240V
2. ionex savna 220-240V
3. ionex audio 220-240V
4. Sanozen 220-240V
5. Primus 220-240V
6. IONEXAir 220-240V
7. IONEXAir 12/24V
8. IONEX 12/24V
9. IONEX MAX

2. MEASURING PROCEDURES AND MEASURING DEVICES

2.1 Ozone concentrations were measured with an AEROQUAL 500 direct measurement instrument with an ozone sensor based on Gas Sensitive Semiconductor (GSS) technology and in accordance with the ZVD DP-LET-59 operating procedure.

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3. TEST RESULTS

Microclimatic conditions at the time of measurements:

T= 23 -25°C, relativ humidity= 28- 38%, pressure= 99,8 - 101,6 kPa

Ozone measurements:

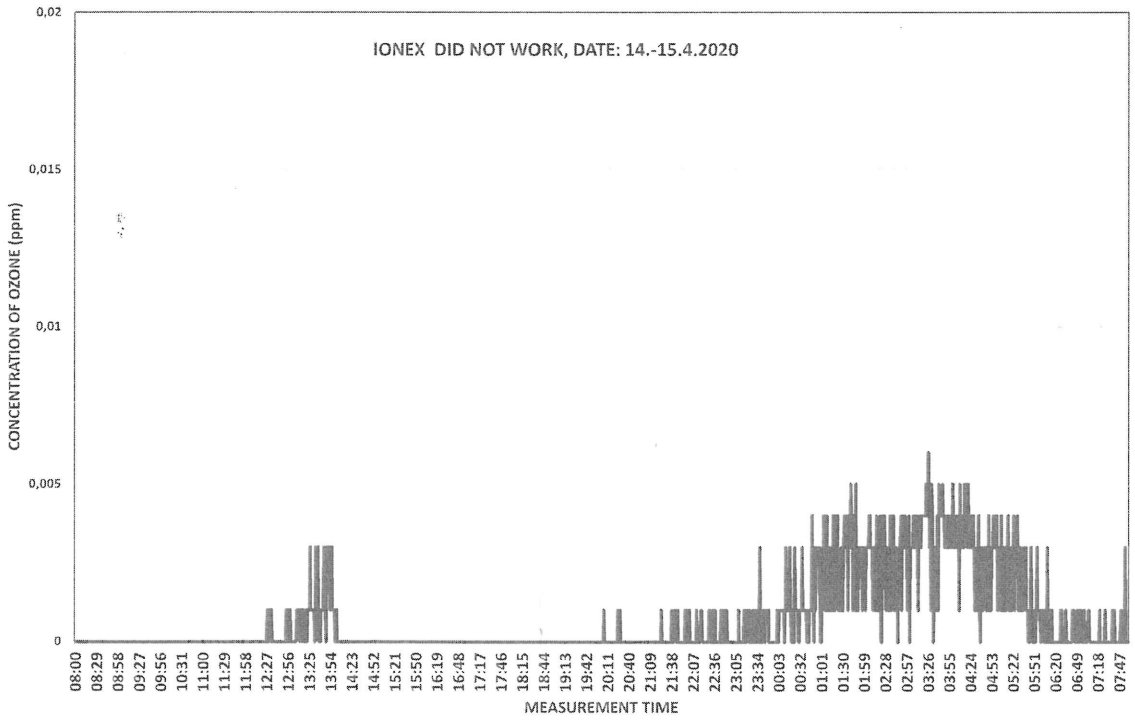
TABLE 1: Results of ozone concentration in the air near the IONEX ionizer.

Measuring point	*Measurement time*	*Type of substance*	*Maximum C (ppm)*	*Average C (ppm)*
near IONEX ionizer, **IONIZER DID NOT WORK**	**8:00h 14.4.2020; - 8:00h 15.4.2020**	Ozone	**< 0,005***	**< 0,005***
near IONEX ionizer, **IONIZER WORKED**	**8:00h 15.4.2020; - 8:00h 17.4.2020**	Ozone	**< 0,005***	**< 0,005***

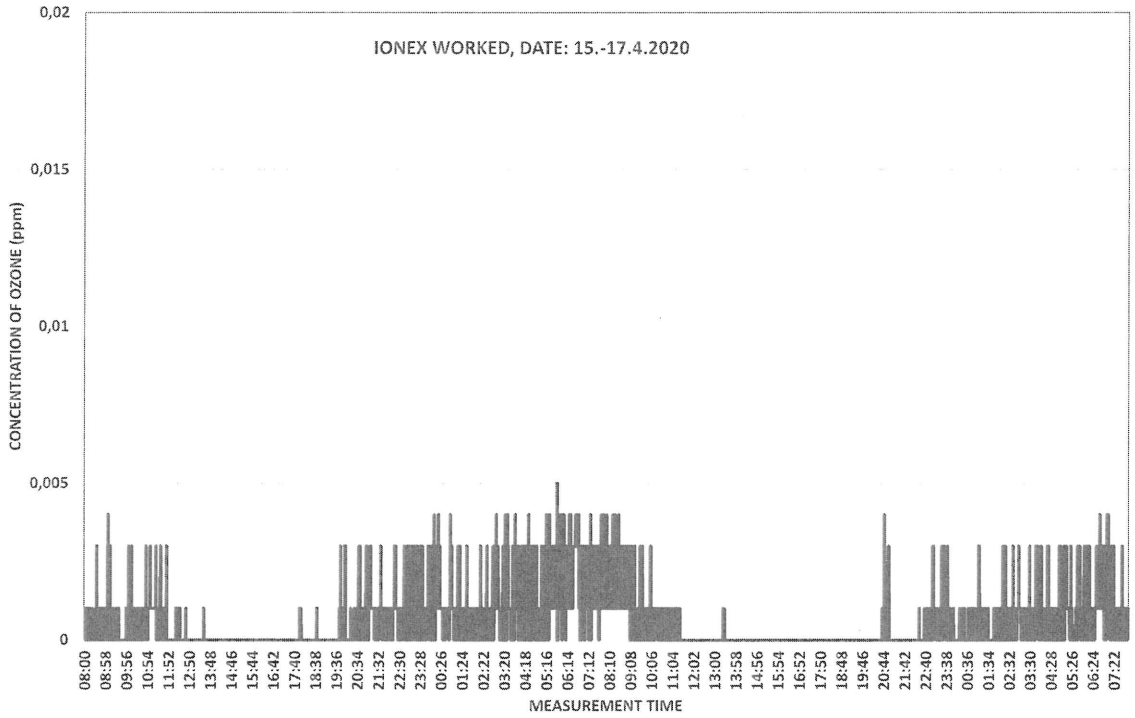
Legenda:

C measured value (concentration) of the substance at the time of measurement

< 0,005* the measured ozone concentration was less than the quantification limit (LOQ) of the measurement method



Graph 1. Ozone concentration at the IONEX ionizer during ionizer inactivity.



Graph 2. Ozone concentration at the IONEX ionizer during the ionizer operation.

4. CONCLUSION

On behalf of IONEX d.o.o., Slomškova 25, 1000 LJUBLJANA, we performed control measurements of ozone concentrations during the operation of the IONEX air ionizer. Measurements of ozone concentration in the air were performed during the IONEX ionizer operation in the laboratory at the location of ZVD d.o.o., Chengdujska cesta 25, 1260 Ljubljana-Polje. In accordance with the procedure, ozone measurements were performed during the operation of the IONEX ionizer from 8:00 AM on April 15, 2020 to 8:00 AM on April 17, 2020. Before that, we checked the ozone concentration in the room without the action of the ionizer.

Based on the obtained results, we can determine the following:

- **during the operation of the IONEX ionizer, the measured ozone concentration was lower than 0.005 ppm which is the limit of detection of the measuring method;**
- **all IONEX ionizers (see list of models under point 1) which use the same carbon brush with the same length of carbon thread and emit the same number of negative ions, do not produce ozone during their operation.**

All additional data and information on the performed measurements are available at the ZVD laboratory. The document is made in the original electronic copy signed with an electronic signature.