Additional explanations concerning the measured substances resp. values on a Lufthansa-FlugVilnius-Frankfurt - video:

LH0887 on 20.November 2019 in an Airbus320neo: In the video, the aircraft is at cruising altitude. One can see how the air pollution climbs to the "harmful" mark of 036, the values of formaldehyde (HCHO) remain at 0.277 mg / m3, those of TVOC at 1,265 mg / m3 and PM2.5 001 ug / m3 for most of the flight. Humidity is 25% and cosmic rays 2.06 microsievert.

An explanation for the mentioned parameters:
Formaldehyde is a chemical substance, which results from the combustion of fuels, e.g. car exhaust, or household ovens/stoves and boilers. Formaldehyde is classified by the WHO as carcinogenic (Cat.: carc. 1B) and mutagenic (Cat.: muta.2).
Limit values source: https://www.allum.de/stoffe-und-ausloeser/formaldehyd/grenzwerte-und-richtwerte

Symptoms by Inhalation:

- Burning
- Coughing
- Headache
- nausea and/or wheezing.
- Severe irritation of the respiratory tract and may lead to pulmonary oedema (symptoms of pulmonary oedema often occur after several hours and are exacerbated by physical exertion).

TVOC Total Volatile Organic Compounds
TVOCs are chemical substances that contain carbon and are present in all living elements. Volatile organic compounds are easily converted into vapours or gases. They are released by the combustion of fuels such as petrol, wood, coal or natural gas. The following are some examples of volatile organic compounds (chemical): benzene, toluene, nitrobenzene, formaldehyde, chlorobenzene, solvents such as toluene, xylene, acetone and tetrachloroethylene (or perchloroethylene). They contribute to the formation of photochemical smog by reacting with other air pollutants. The health effects vary depending on the compound and the length of time of exposure. Volatile organic compounds are fat-soluble and accumulate in different parts of the human body due to their affinity for fats. In the short term, they can cause - irritation of the eyes and throat, nose, nausea, sore throat, headache, vomiting of blood, allergic reactions, swelling, dizziness, stomach and intestinal pain, fatigue, skin rashes.
And in the long run, they can damage life, children or the central nervous system (CNS). They can also be carcinogenic, such as benzene. VOCs can also damage the small intestine to such an extent that holes appear which can lead to death. The permissible TVOC values are between 0.3 and 0.5 mg / m3 concentration. From a TVOC level of 0.5 mg/m3, the concern is considered "considerable" or "high".

"It should be expressly pointed out at this point that it is not possible to use the basic scheme [2] developed for the derivation of indoor air guideline values for the TVOC analysis because of the special features to be taken into account due to the complex mixture of substances, since this scheme was designed for individual compounds only". (Source: https://www.umweltbundesamt.de/sites/default/files/medien/pdfs/TVOC.pdf)

PM2.5

PMs are "fine particles" (fine dust emissions), their aerodynamic diameter = 2.5 µm, and its composition is toxic as its main origin is anthropogenic. In particular emissions from diesel vehicles formed by secondary particles such as nitrates and sulphates (caused by oxidation of NOx and SOx), and secondary organic aerosols such as peroxyacetyl nitrate (PAN) and polycyclic aromatic hydrocarbons (HPA). **The health effects are severe as they have the ability to penetrate the respiratory tract. Particles of this size can even reach the pulmonary alveoli.**