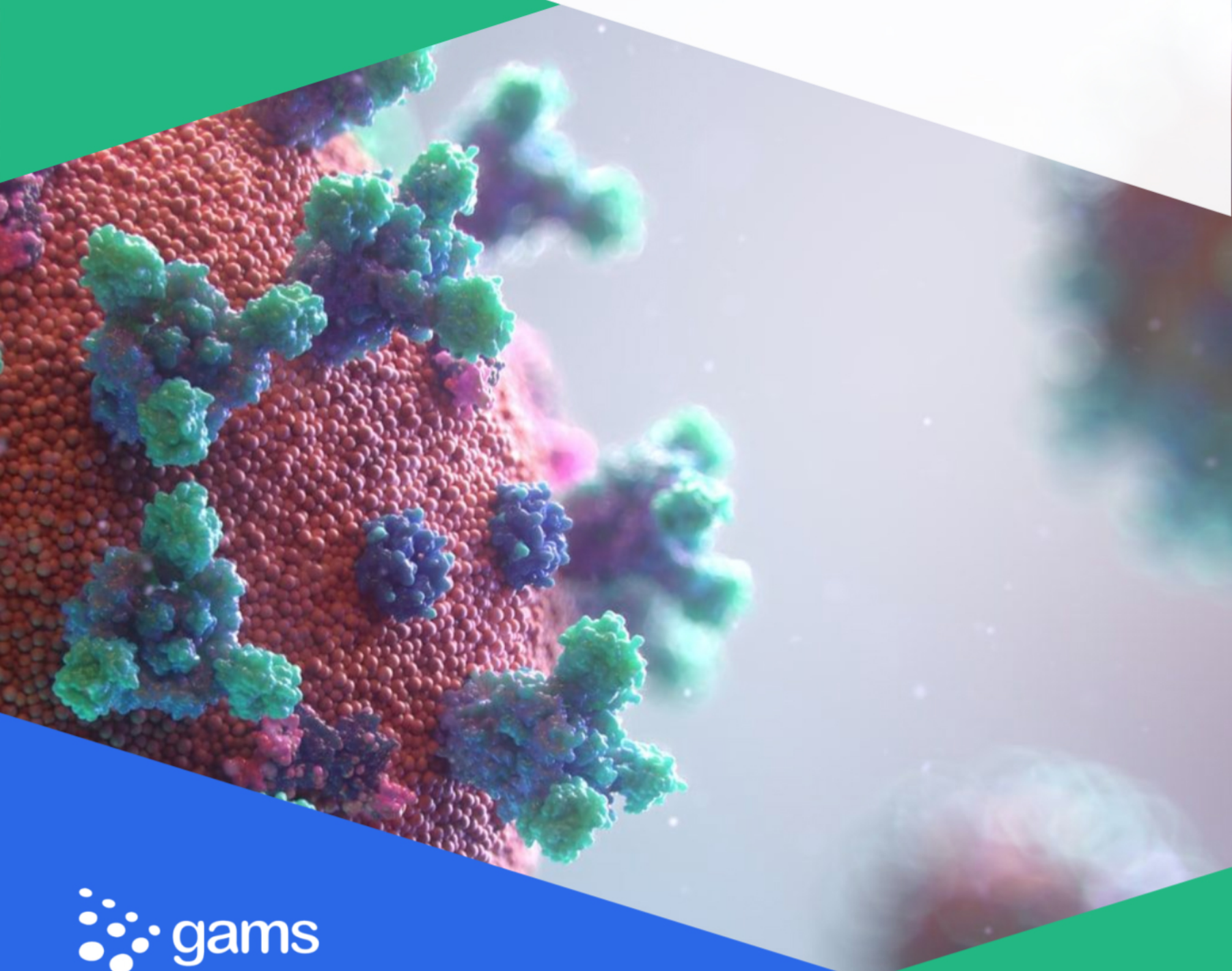


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Airborne Viral Index Whitepaper

All the data you need to minimize the airborne viral risk indoor

Table of contents

Good air quality is now
paramount 01

gams' Airborne Viral Index
(AVI) 02

The framework 03

AVI measurement 04

Stay one step ahead of virus
risk 05

Get fresh air and minimize
the viral risk in your space 06

Disclaimer 07

References 08



Good indoor air quality is now paramount

The correlation between air quality and the airborne virus transmission risk has been scientifically proven by various researches.

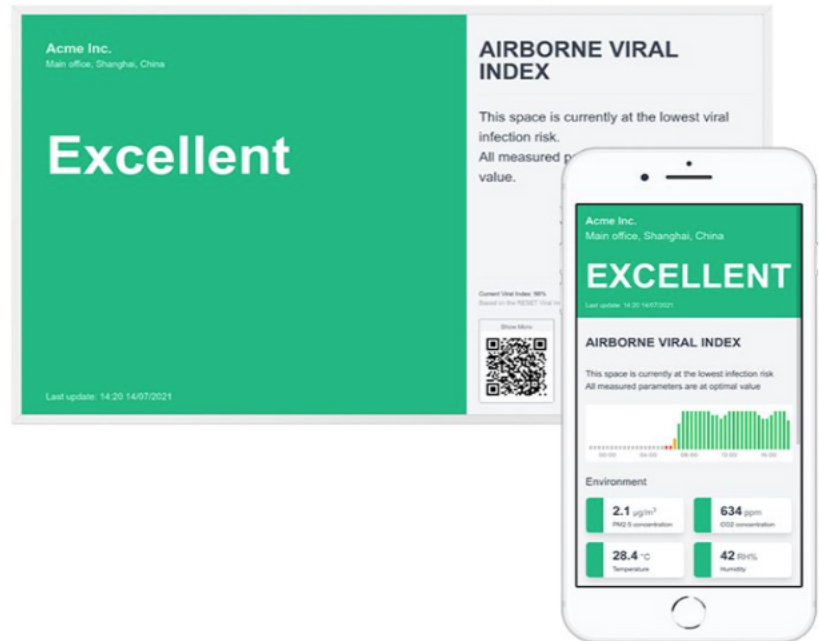
According to CIBSE (Chartered Institution of Building Services Engineers), evidence is mounting that the SARS-CoV-2 virus, which causes COVID-19, can be spread by very small particles – called aerosols – which are released by an infected person when cough, sneeze, talk and breathe, alongside larger droplets that are released simultaneously.

The fine aerosols (some of which contain viral particles) can remain airborne for several hours. Aerosols that are small enough to remain airborne become diluted in indoor air. Without suitable ventilation they can build up, increasing the risk of exposure for susceptible individuals.

Moreover, Environmental Protection Agency(EPA) researches show that exposure to air pollution is associated with cardiovascular and respiratory diseases - both health conditions known to increase susceptibility to COVID-19 and negatively influence prognosis.



Our Airborne Viral Index, based on RESET viral index, relates air quality with the potential infection rate of an airborne virus, **focusing on the air quality variables that a building can control and measure** via continuous monitoring/sensor, thus empowering building owners to evaluate and optimize indoor environments and minimize the risk of potential harmful pathogens.



gams' goal is to provide you with accurate real-time air quality data and airborne viral risk assessment in your indoor space.

Combined with our agile alerts and actionable insights, we empower you to make more informed decisions and create a safer and healthier indoor environment.

Focusing on air quality parameters (humidity, temperature, PM2.5, CO2) that can affect airborne viral transmission and be reliably detected continuously by sensor technology, the framework of our AVI consists of 4 main parts:



Virus Survivability

- How long viruses can survive airborne or in aerosolized particles
- Main affecting factors: relative humidity and temperature



Immune System Health

- How strong an average individual's immune system is in relation to relative humidity
- Main affecting factors: relative humidity and temperature



PM2.5 Health Impact

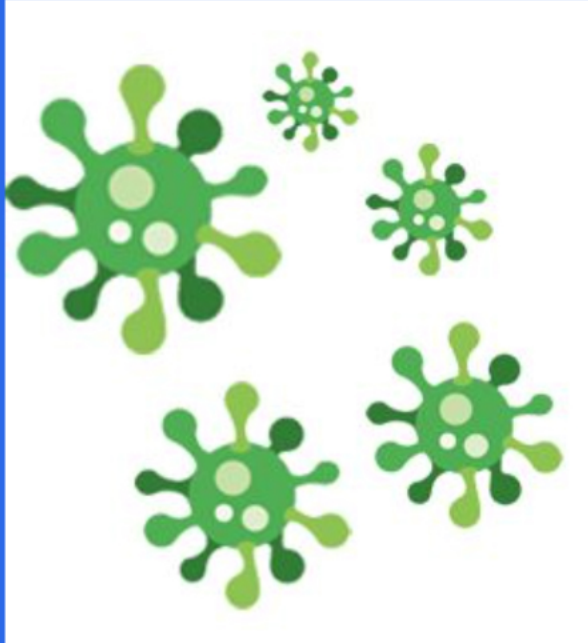
- The impact of PM2.5 on an individual's health and susceptibility to viral infections
- When concentration of PM2.5 increases, so does susceptibility of an individual to contract an influenza-like illness



Potential Viral Dosage

- The chance of becoming infected by measuring the potential amount of virus particles breathed in by an occupant
- Correlation between potential viruses amount, exposure strength, and exposure durations with CO2 levels in an indoor space

AVI Measurement



By continuously tracking air quality parameters that affect airborne viral transmission and using the formula based on scientific researches, our AVI defines 3 levels and 6 sub-levels of the likelihood of airborne virus transmission in an indoor space.

Normal Level

Excellent - Good - Fair

Action Level

Needs Improvement - Unsatisfactory

Warning Level

Poor

Excellent

- The airborne viral transmission risk is at the lowest, all measures are at optimal level

Good

- Virus survival is moderate, air quality poses no direct health risk

Fair

- Virus transmission risk is moderate, people sensitive to pollution may experience health effects, more attention to air quality should be given

Needs improvement

- Virus survival is prolonged and airborne virus spread is possible, actions should be taken following our suggested insights in the dashboard to lower risk back to normal levels

Unsatisfactory

- Airborne viral transmission risk is moderately high, actions should be taken straight away

Poor

- Airborne virus spread is likely, and air quality should be improved rapidly

Stay one step ahead of virus risk with our real-time Airborne Viral Index

05

Malls, schools, workplaces, residential, entertainment... We help you to gain greater trust from your space users



Real-time airborne viral risk diagnosis

- Understand which areas in the building have elevated airborne virus transmission risk
- Customizable display to promote transparency
- Different index level coloring options available in order to adapt to different usage scenario
- RESET Accredited expertise

Simple and automated tracking

- All in one dashboard
- Tailor-made and automated reporting
- Agile alerts when virus risk creeps up
- Continuous monitoring data to showcase the effectiveness of virus risk control practices

Informed decision making

- Identification of high-risk indoor spaces and representative control points
- Improvement actions based on Value-added Clever Insights and risk analysis reports
- Different approaches for different areas in the building



Get fresh air and minimize the viral risk in your space

Ventilation

Increase the air supply and exhaust ventilation is an important measure to dilute and remove airborne pathogens. CO₂ monitoring serves as a useful indicator to assess whether adequate ventilation is being provided to an occupied place, and to identify poorly ventilated spaces or areas. The ventilation rate and its method of delivery influence both far field airborne exposure and deposition rate. But it's unlikely to reduce the risk of near field airborne transmission significantly.

Air purification

Air purification, intended to improve air quality, could also be part of the solution in minimizing the airborne virus transmission risk, either through removing or inactivating contaminants in indoor air.

from gams with love

Airborne viral risk monitoring, masks, disinfectants, ventilation...

Neither of those measures can guarantee 0 viral transmission risk. However, by putting those efforts together, we make one step further to a safe and healthy environment.



- gams' Airborne Viral Index can be used for all airborne viruses, such as flu, and isn't only applicable for COVID-19.
- The Airborne Viral Index only takes into account the micro droplets that stay in the air a long time and can travel long distances indoors. It does not look at other factors such as surface contact and sneeze droplets
- The Airborne Viral Index doesn't stop or kill viruses in a building, but it gives an indication of how high the risk of airborne transmission is, thus enabling the building owner to make better and informed decisions to build a healthier indoor environment.

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