

Repository of NMI Covid-19 Actions

Center for Measurement Standards (CMS)
Industrial Technology Research Institute (ITRI)

Clinical Thermometer Calibrator

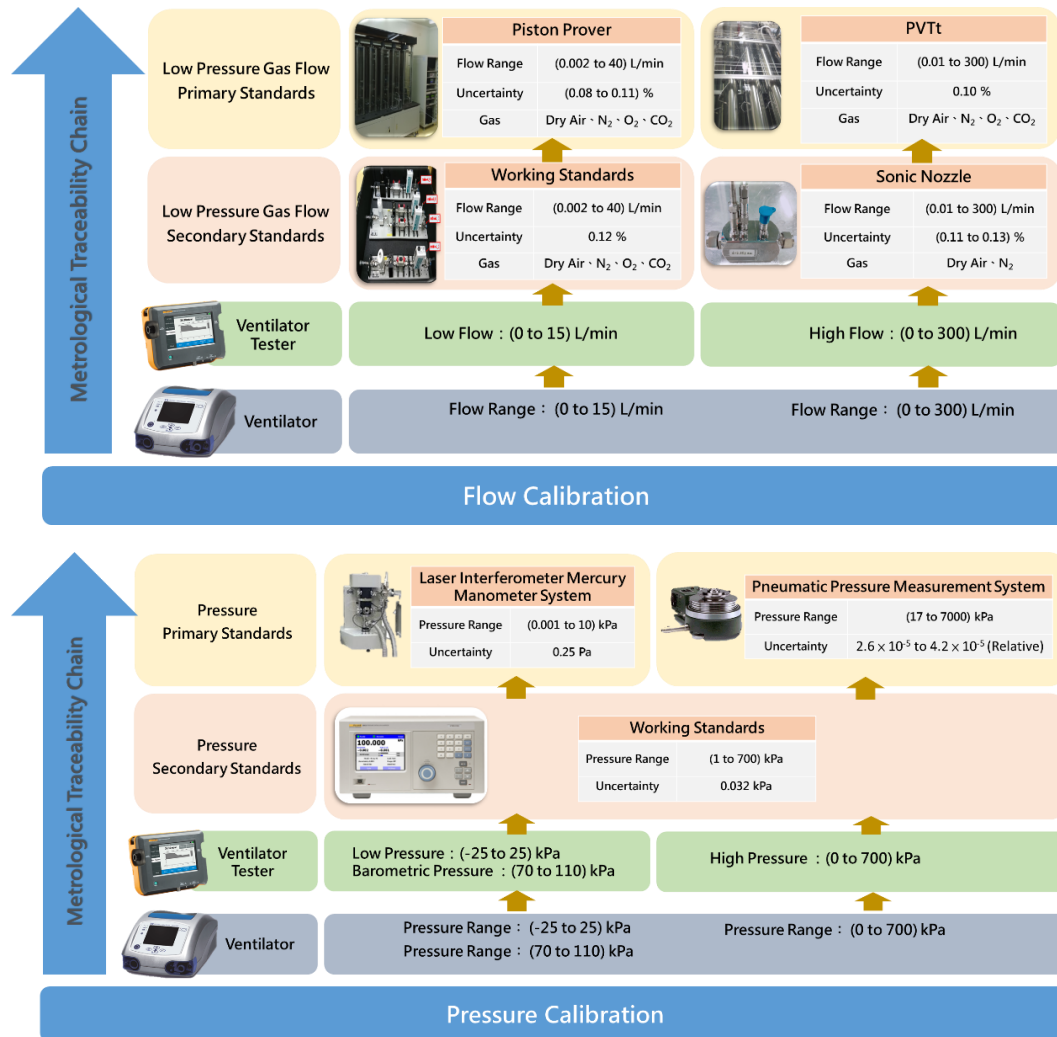
Since the severe acute respiratory syndrome (SARS) epidemic in 2003, CMS/ITRI has developed the clinical thermometer calibrator to provide the temperature standard for measurement devices, such as the ear thermometer. The calibrator is portable and can be widely deployed for the on-site calibration in hospitals, schools, supermarkets, offices, and any place requiring temperature inspection. Serial products of clinical thermometer calibration have been assisting the temperature control of preventive medicine through 2003 SARS, 2009 Influenza A virus subtype H1N1, 2012 Middle East Respiratory Syndrome Coronavirus (MERS-CoV), 2013 Influenza A virus subtype H7N9, and now the Coronavirus Disease 2019 (COVID-19). CMS/ITRI will continuously provide the calibrating applications for the front line of epidemic prevention.



The clinical thermometer calibrator.

Calibration for Flow and Pressure of Ventilator

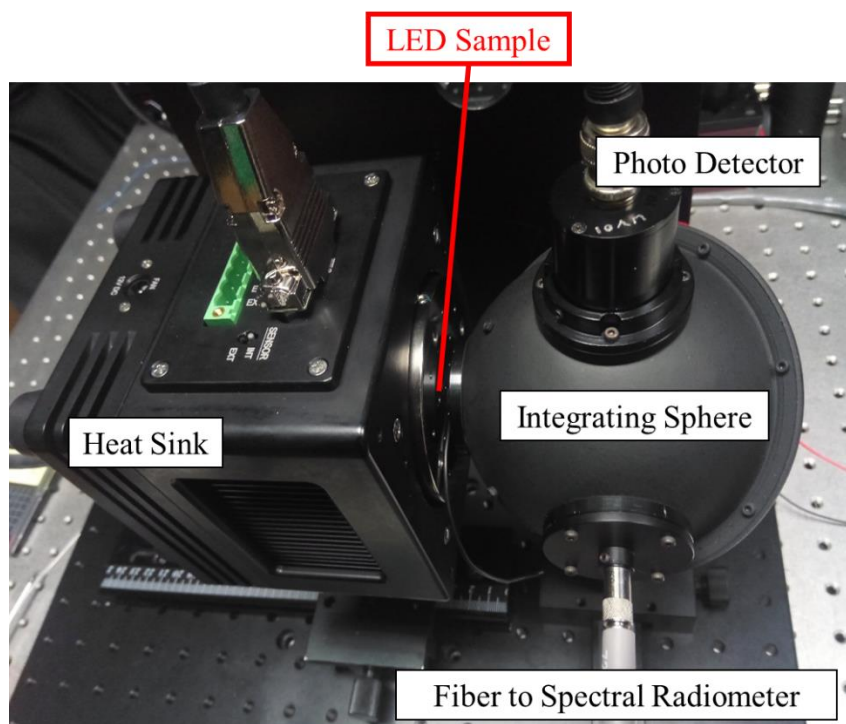
One of the key resources to fight COVID-19 is the medical ventilator. To achieve rapid mass production of ventilator with acceptable quality, the performance, such as the sensors of flow and pressure channels, requires professional validation and calibration to assure the accuracy. CMS/ITRI has developed the primary standards of flow and pressure, and is capable of providing measurement service to the supply chain of ventilators.



Flow and pressure calibration.

Measurement System for Key Parameters of Ultraviolet (UV) Light-Emitting Diode (LED)

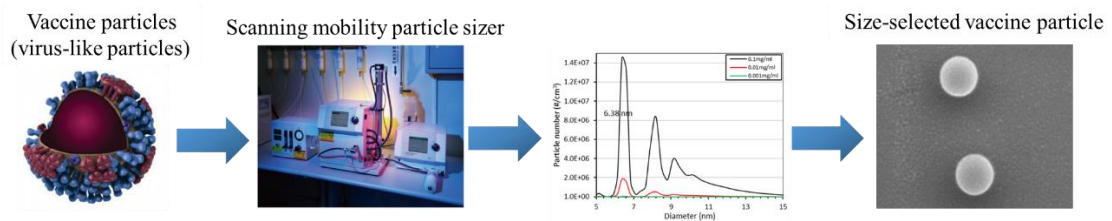
UV-C LED has been applied for sterilization and disinfection, and the related products have become even more popular during the pandemic of COVID-19. CMS/ITRI has established the measurement system for UV LED key parameters, such as radiant flux, irradiance, peak wavelength, spectrum, radiant intensity distribution, spectral irradiance, etc., to assist manufacturers in assuring the quality of products. With the traceability through the detector spectral responsivity standard to the cryogenic radiometer, the system can provide sufficient service to meet the industrial demands.



The measurement system for key parameters of UV LED.

Gas-phase Scanning Mobility Particle Sizer for Virus-like Particles

Due to the outbreak of COVID-19, the development of vaccines is an urgent task, and the demands of analyzing the physical characterization of viruses and their derivatives rapidly are increased. Conventional methods for size and concentration analysis of viruses and their derivatives, such as polymerase chain reaction (PCR) and electron microscopy, are costly and time-consuming. CMS/ITRI has developed the gas-phase scanning mobility particle sizer (SMPS), which can provide size distribution with the precision from nanometer to sub-nanometer. Through this technique, the analysis of virus-like particles (VLPs) can be completed in less than an hour.



The analysis of virus-like particles.