**IMQ** CLIMA

CENTRO DI INNOVAZIONE TECNOLOGICA AGEMONT

## 1.    PURPOSE OF THE TESTS

The purpose of the tests is to define the thermal performances of the alternating ventilation heat recovery unit according to EN 13141-8:2014 – *Ventilation for building – Performance testing of components/products for residential ventilation – Part 8: Performance testing of un-ducted mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for a single room* – and to customer requirements.

## 2.    TEST FACILITIES

The capacity test is performed in a plant consisting in two rooms (dimensions 8.0 x 4.0 x 4.0 m and 4.0 x 4.0 x 4.0 m for the indoor and outdoor side compartment respectively) where can be simulated two different thermohygrometric climates.
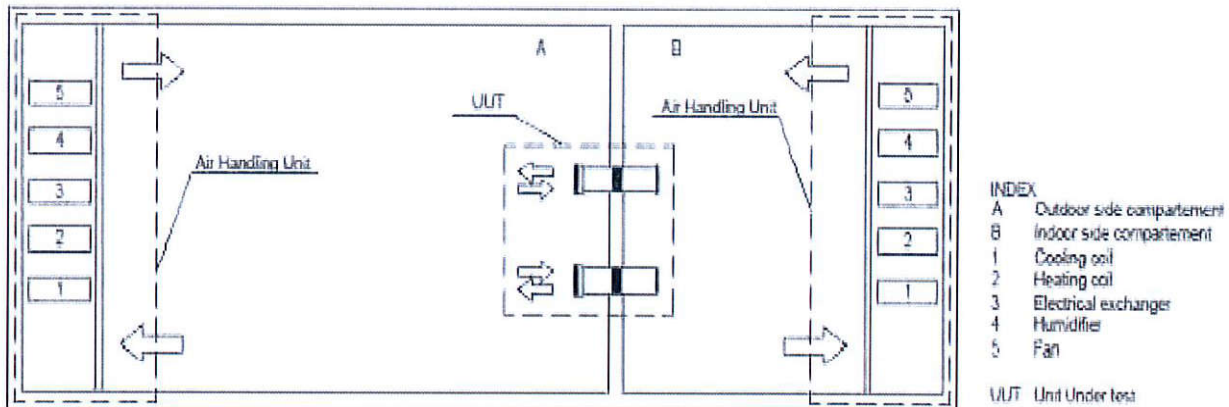


**Figure 1 -** Testing rooms scheme

Each air handling unit installed in the chambers is equipped with two main coils which allow the control of dry bulb (heat and cooling) temperature and the dehumidification of air, one electrical resistance for the heating of handled air, a humidifier for steam reintegration and fans to regulate the quantity of managed air.

The plant for the preparation of the glycolated fluid consists of some chiller units connected to some tanks and to the coils of air handling units. The ranges of temperature of the rooms are: 0° to 40°C for the indoor side and -30° to 40°C for the indoor side.

Two tunnels equipped for the aeraulic performance test are installed over the ceiling of the chambers: these allow the rate test of both the extraction and supply airflows according to *ISO 5801: 2007* and *EN 13141:8 2014*.

The water and air temperature are measured by platinum thermoresistances PT100 installed in some special sampling devices or in free air in compliance with the standards reported above. The measurement of humidity is carried out with dew-point temperature or relative humidity instruments; the conversion between different dimensions is done according to *ASHRAE Humid Air Properties*.

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