Appendix 1 Normalization Formulas[21]

$AH_{insp\ at\ AHeR}$: AHeR + ($AH_{insp}M$ - AHe) * (AHa – AHeR) / (AHa – AHe)

AHeR : the reference environmental humidity chosen to be 5 mg/L

$AH_{insp\ at\ AHeR}$: AH_{insp} at AHeR

$AH_{insp}M$: the measured AH_{insp}

AHa: the saturation humidity at body temperature of the volunteer was used

AHe: the environmental humidity during the measurement.

$\Delta W_{\ at\ AHeR}$ = ΔWM * (AHa - AHeR / (AHa - AHe)

ΔWM : the measured ΔW (weight change)

ΔWM : ΔWM at AHeR

The formulas are a simplification and do only normalize for the actual measured AHe variation and does not take any other dependencies into account (such as the impact of dead space on AH_{insp}). Using the body temperature to calculate AHa is only justified when AHa is much larger than both AHeR and AHe. Normalization for body temperature of the volunteers could have been done in a similar way, but was not performed as body temperature of the volunteer was constant within 0.6 ^{o}C (the corresponding error in the weight change is less than 3%).