

## Objective:

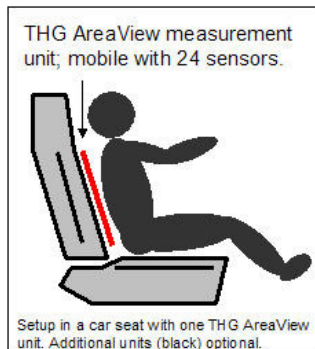
Live measurement and imaging of the climate development between driver and actively conditioned car seats. Comparison of two different seat systems with measurement devices physically independent of the measured items.

## Realization:

August 2008 based on client project

## Measurement tools and setup:

Mobile THG AreaView measurement unit with 24 sensors to record full 2D-areas of temperature (T), relative (RH) and absolute (AH) humidities in optically hidden layers.



In this setup just one THG unit (several are optional) with 24 sensors between driver and seat were installed.

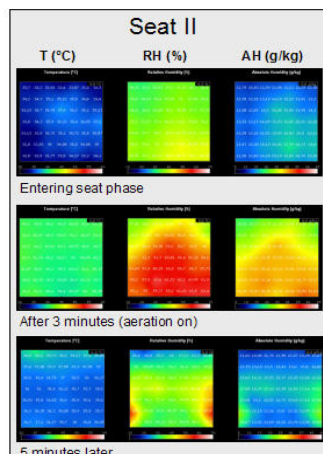
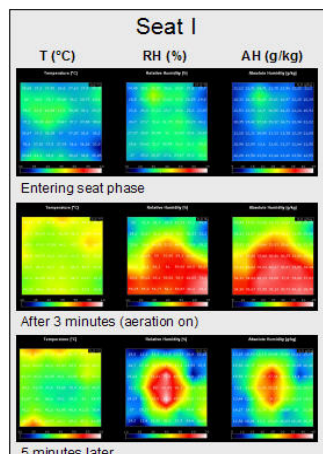
The result are thermo-hydrographic images at a sampling interval of min 2 sec per image.

The viewer receives a live almost movie like climate insight into the area between occupant and seat which would be always invisible to optical devices such as IR-cameras.

## Results:

The results show how different various climate conditioned seat systems operate and unfold their individual strong and weak thermographic and hydrographic attributes.

The image sequences below (T left, RH middle, AH right) show that Seat I does not eliminate the humidity in the spinal area (Seat I 3. line below) within the planned time of 5 minutes.



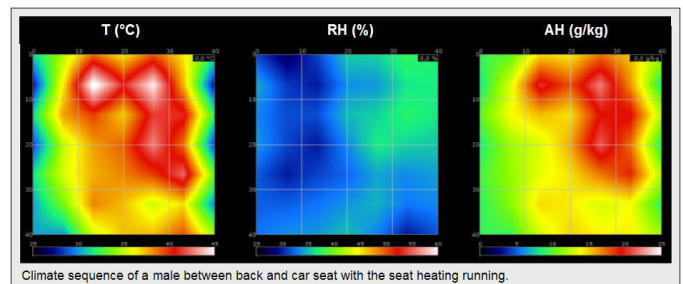
Seat II does but also shows fairly lower thermographic values in that area.

## New ways – Absolute Humidity (AH):

THG AreaView delivers insight into absolute humidity AH values (chart on the right). This practice becomes reasonable through multitude sensors and in consequence representative set of data. AH is independent of temperature and receives strong informative value once various differently tempered zones are part of an equation.

The AH in addition can be a key factor when it comes to predict humidity which may cause chill before hand. This is a benefit which Relative Humidity does not offer.

The following image sequence shows the back of a male while the seat heating is on. The T-values steadily rise. Clearly also transpiration increases which becomes visible through the T-independent AH values. This shows that humidity is present, although at this particular point in time the relative impact (RH around 30 %) is of minor interest.



Following heat or air conditioning doses may be optimized considering this.

## Advantages:

- Representative measures, many sensors
- Very short setup time
- Live imaging
- Remote usage, PC independent
- Robust layout at only 3 mm depths
- Physically independent of all measured objects (pure measures, zero regulation)

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We are looking forward to your request.