MAKING MOBILITY HAPPEN.

today | tomorrow | together

HÜBNER EXPERT TALKS

QUIETER GANGWAYS: SOUND INSULATION FOR GREATER COMFORT

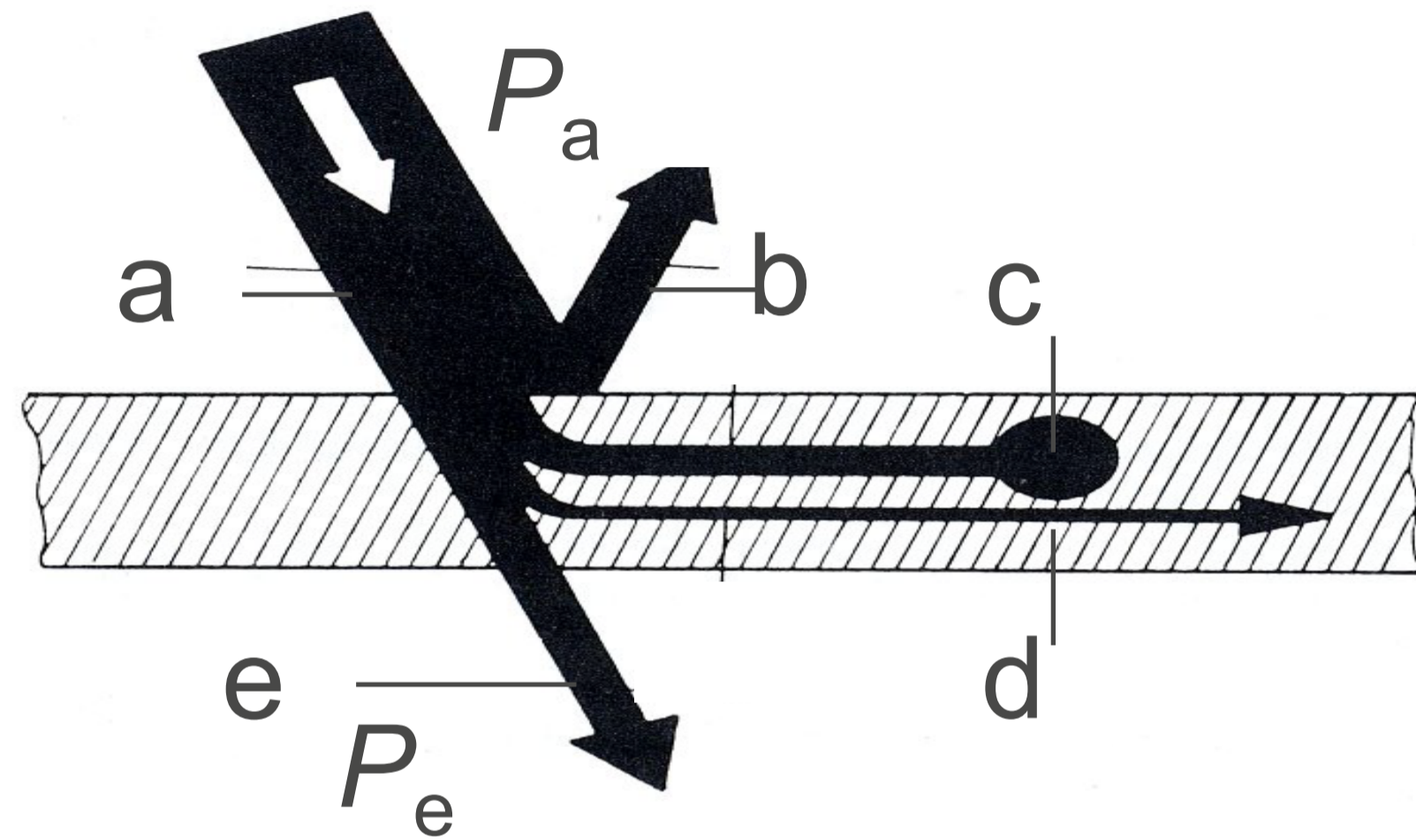DR. ALEXANDER UNGEFUG – HEAD OF R&D TEXTILES AND MECHANICS, HÜBNER GROUP

HÜBNER

QUIETER GANGWAYS:
SOUND INSULATION FOR GREATER COMFORT
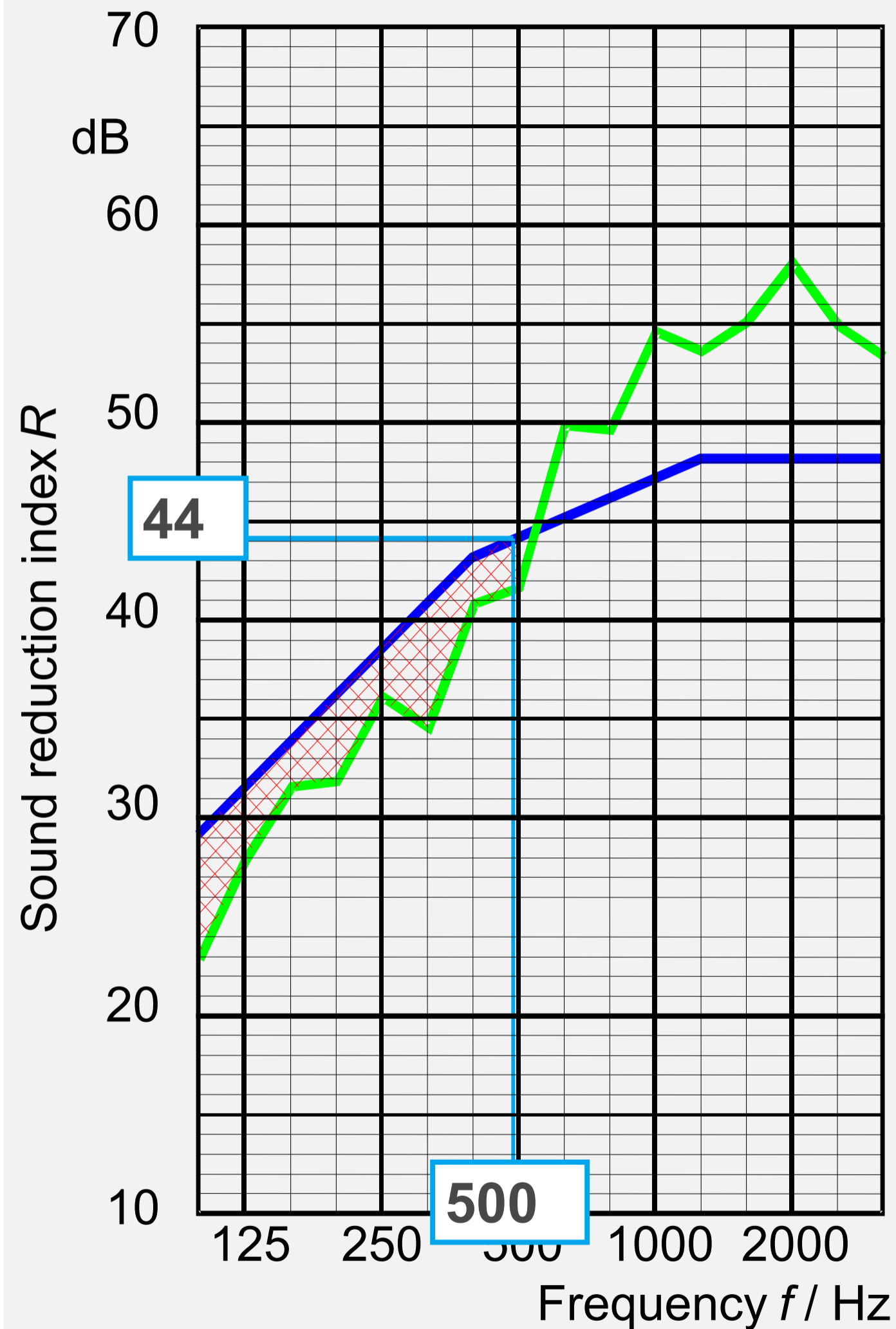
HÜBNER

SOUND INSULATION

P_a incoming sound power

P_e transmitted sound power

a incident sound

b reflected sound

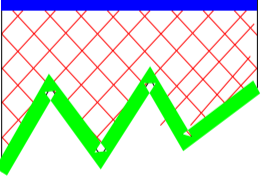c loss by dissipation

d loss by discharge

e radiated sound

Sound insulation index R

Transmittance τ

$$R = 10\lg\left(\frac{1}{\tau}\right) = 10\lg\left(\frac{P_a}{P_e}\right) dB$$

# DETERMINATION OF THE SINGLE-NUMBER VALUE RW

ACCORDING TO DIN EN ISO 717-1

- Measured values R (Frequency range 100 Hz..3150 Hz(16 third octave))

- shifted reference curve according to ISO 717-1

- Rule 1: Move the reference curve down until the sum of the negative deviations (per third octave) from the measured curve are less than or equal to 32 dB.

- Rule 2: Read the weighted sound reduction index Rw from the reference curve at 500 Hz: Rw = 44 dB

SOUND INSULATION

MEASUREMENT OF REAL BELLOWS

- State-of-the-art sound insulation laboratory

- Continues development of our Internal experts

- Test acc. EN 16286- 2, ISO 151861-1, (ISO 10140-2)

- We work together with the best-known companies and advisors to extend our knowledge

- We participate in the regulation process to give input and get the newest information
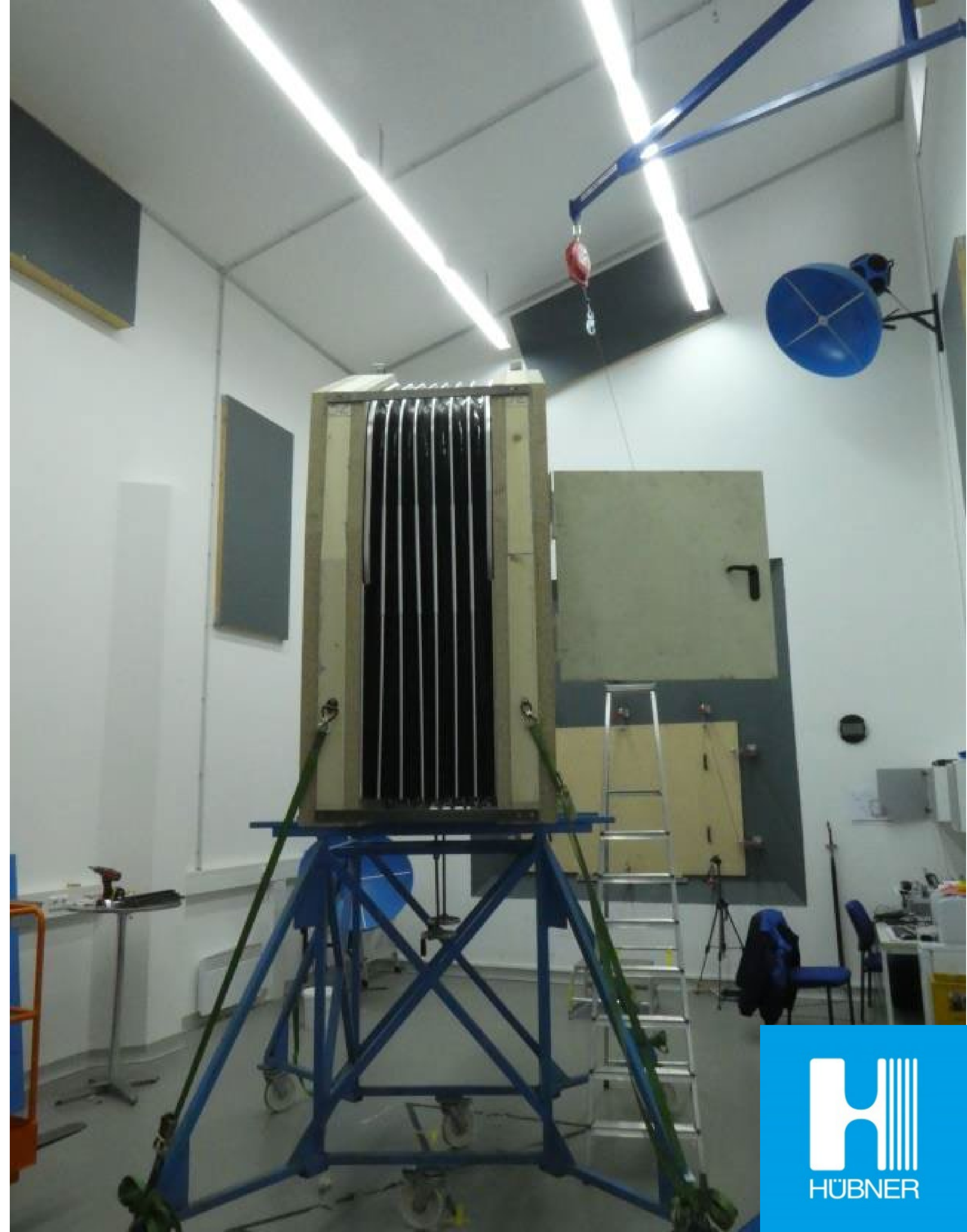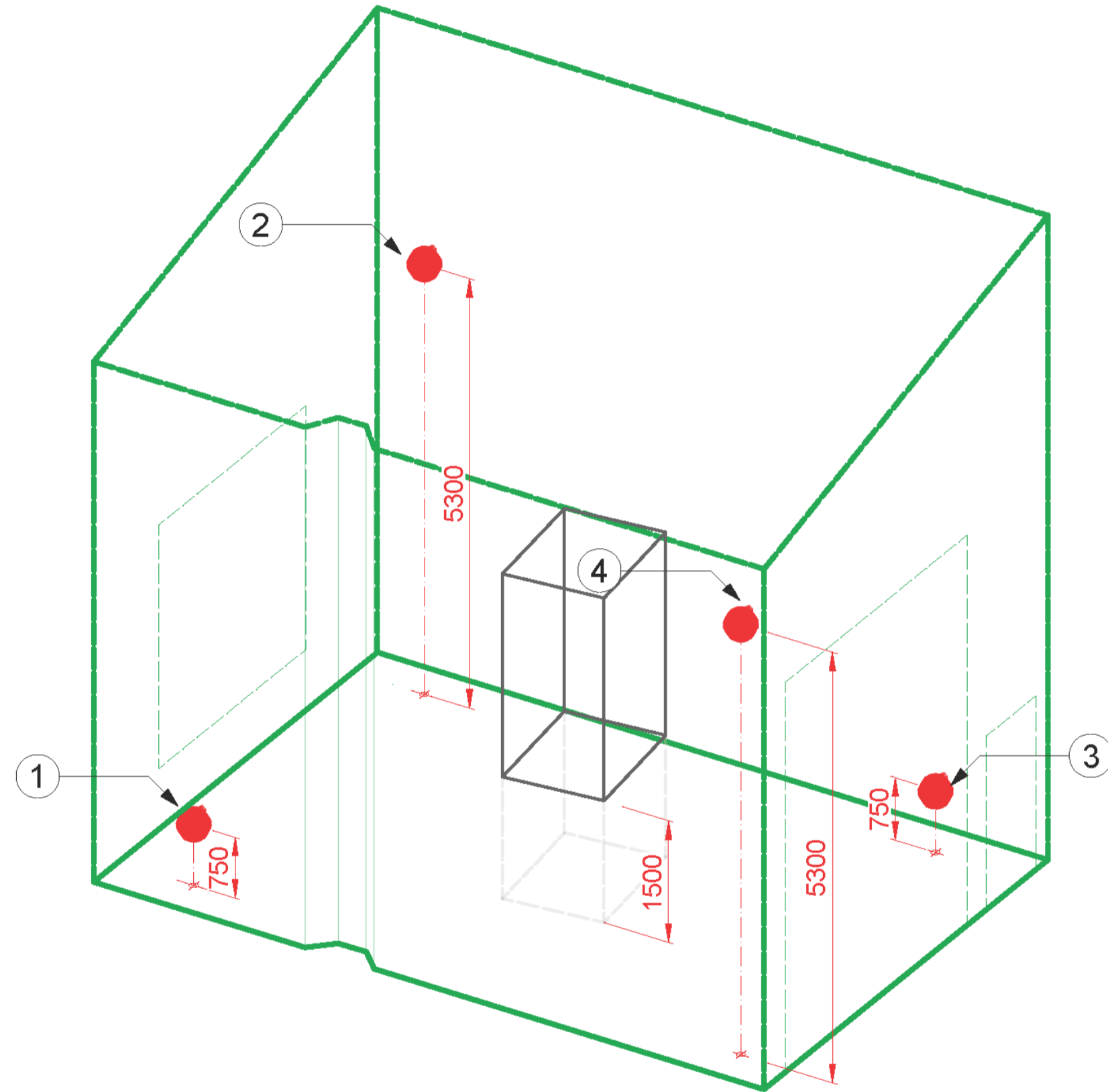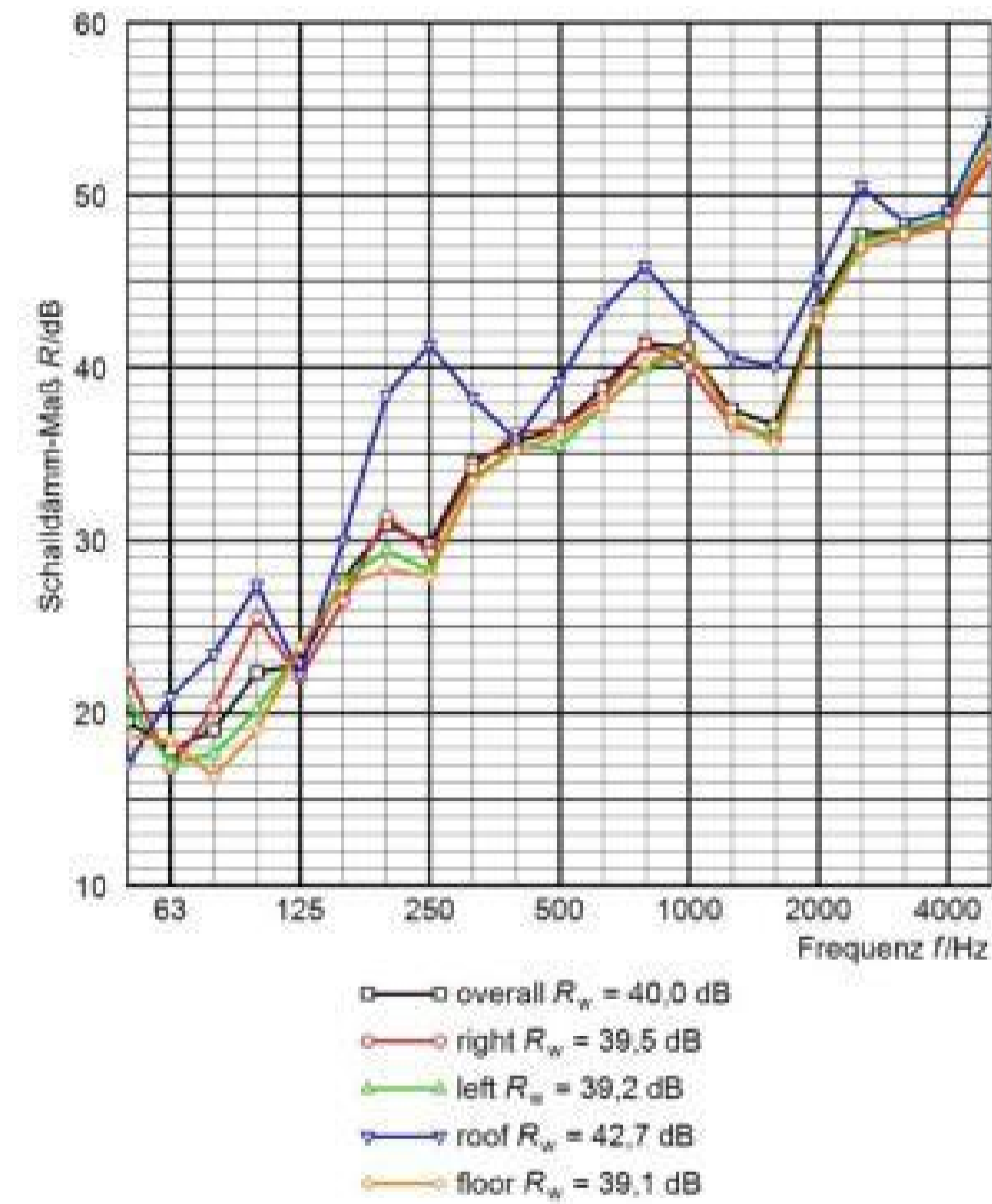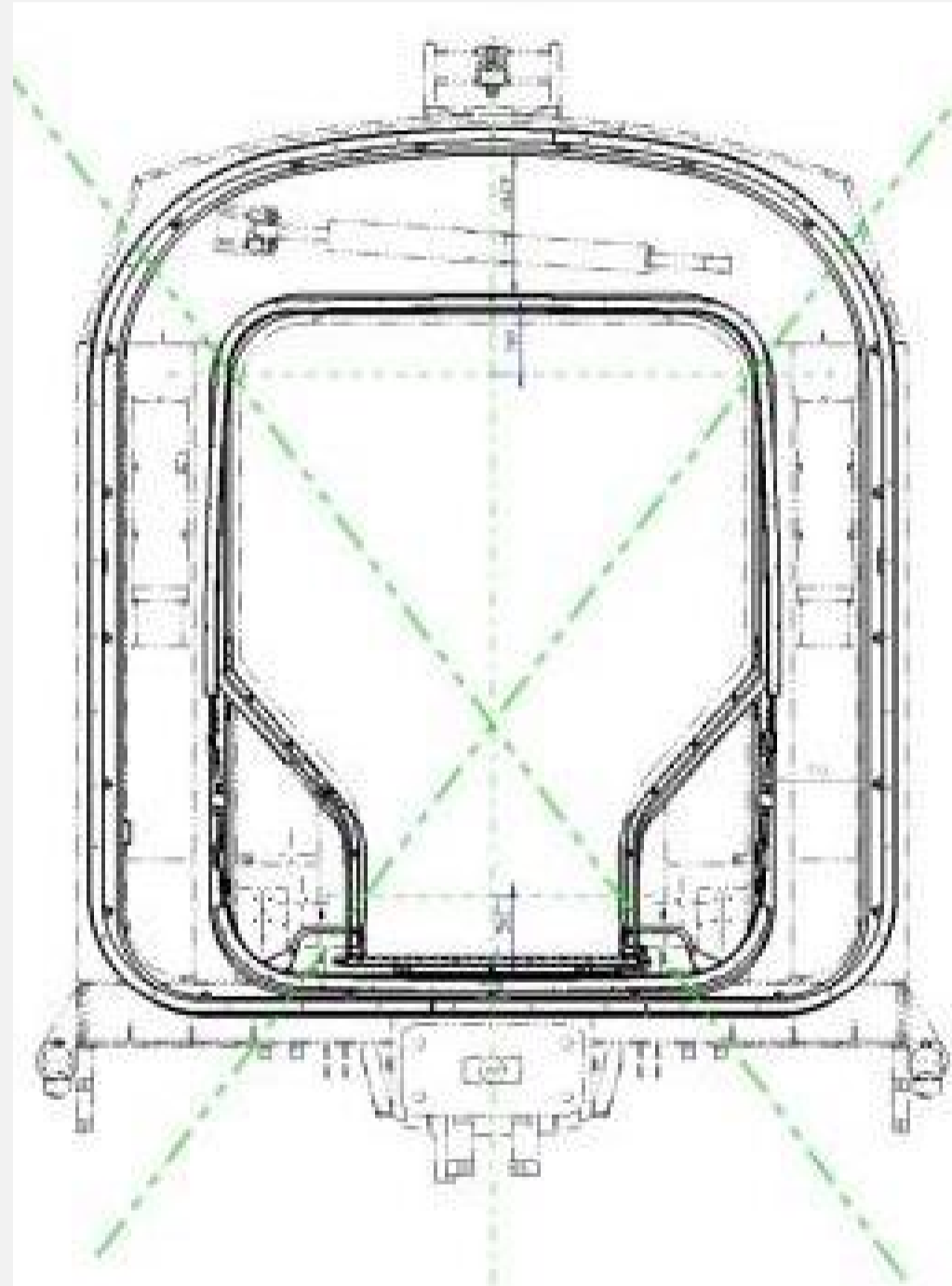
INSULATION LABORATORY

- A special construction to create a state-of-the-art forge for sound insulation

- High-tech equipment to get the best development for our customers

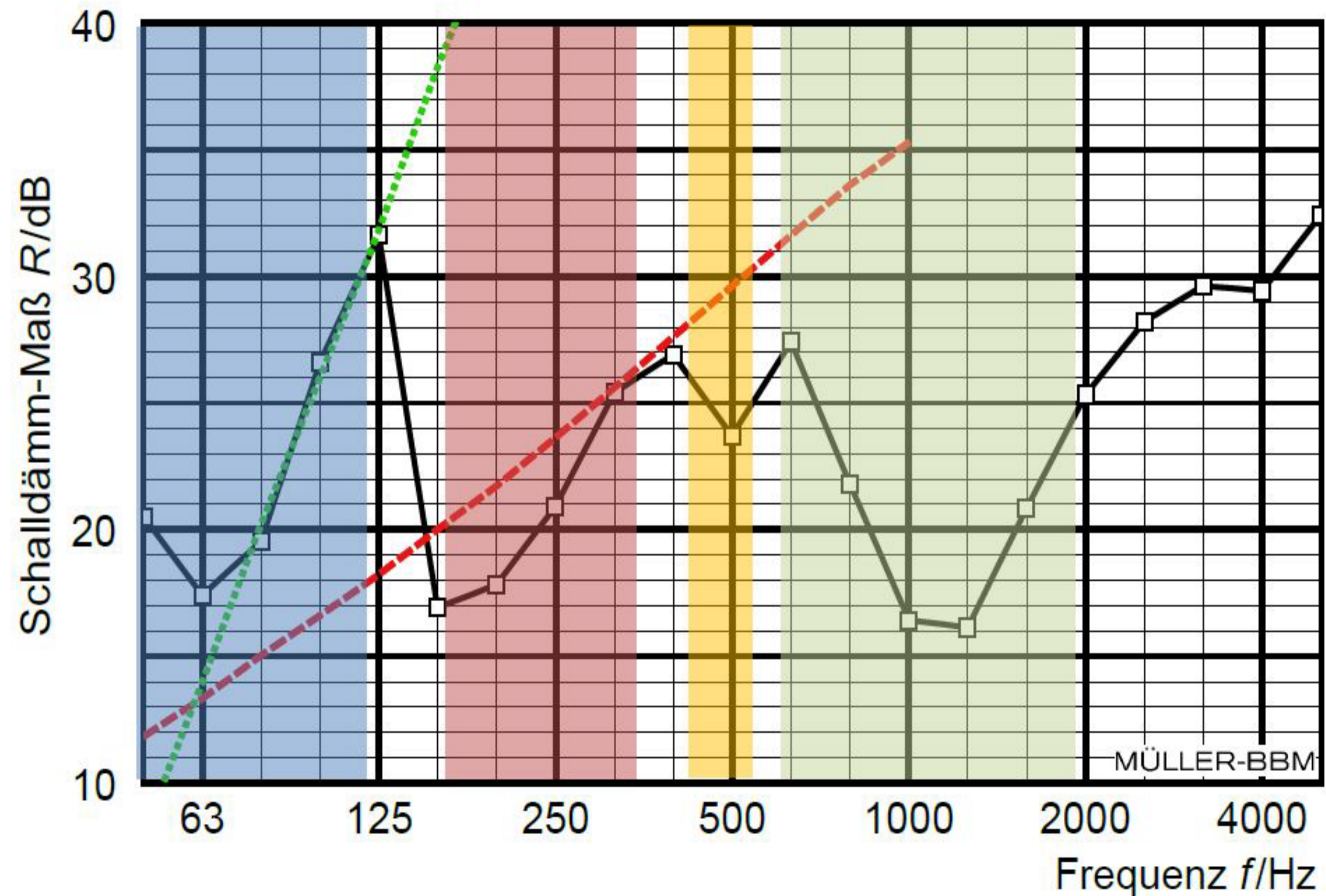- High skilled experts work on the gathering of new know how in this field

HÜBNER

SOUND INSULATION

REAL SYSTEMS, ANSWERING CUSTOMER REQUESTS
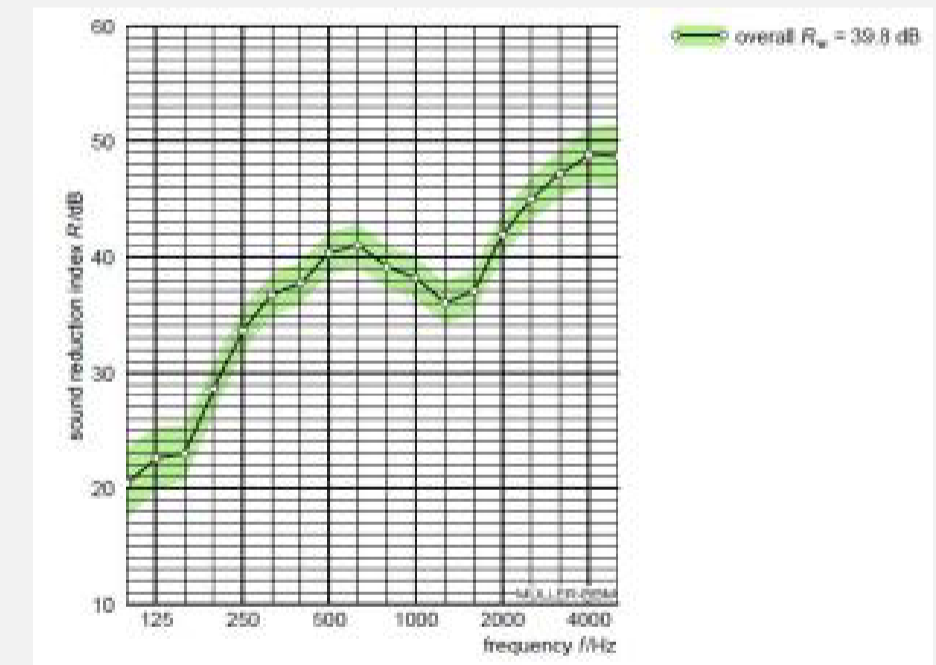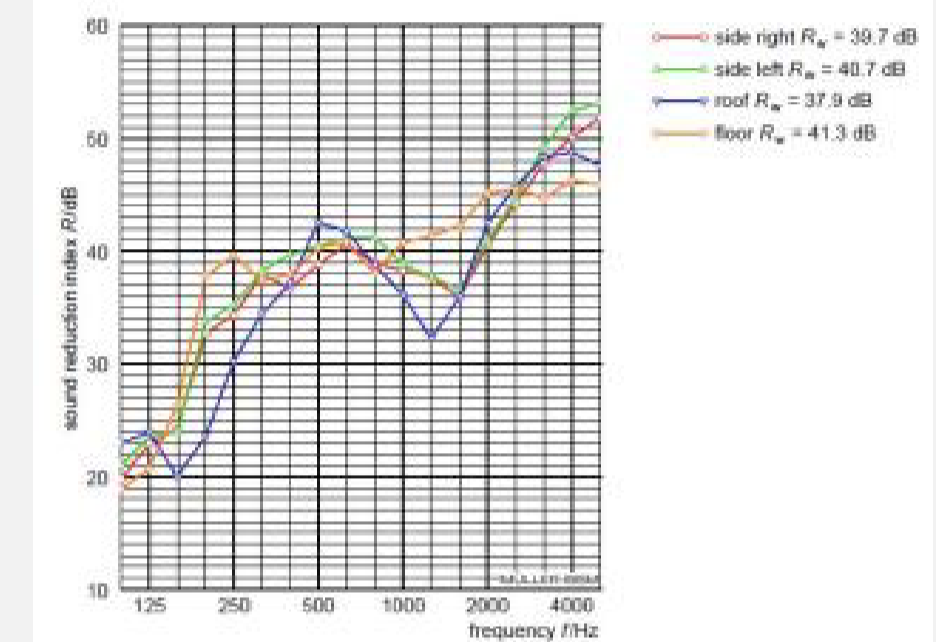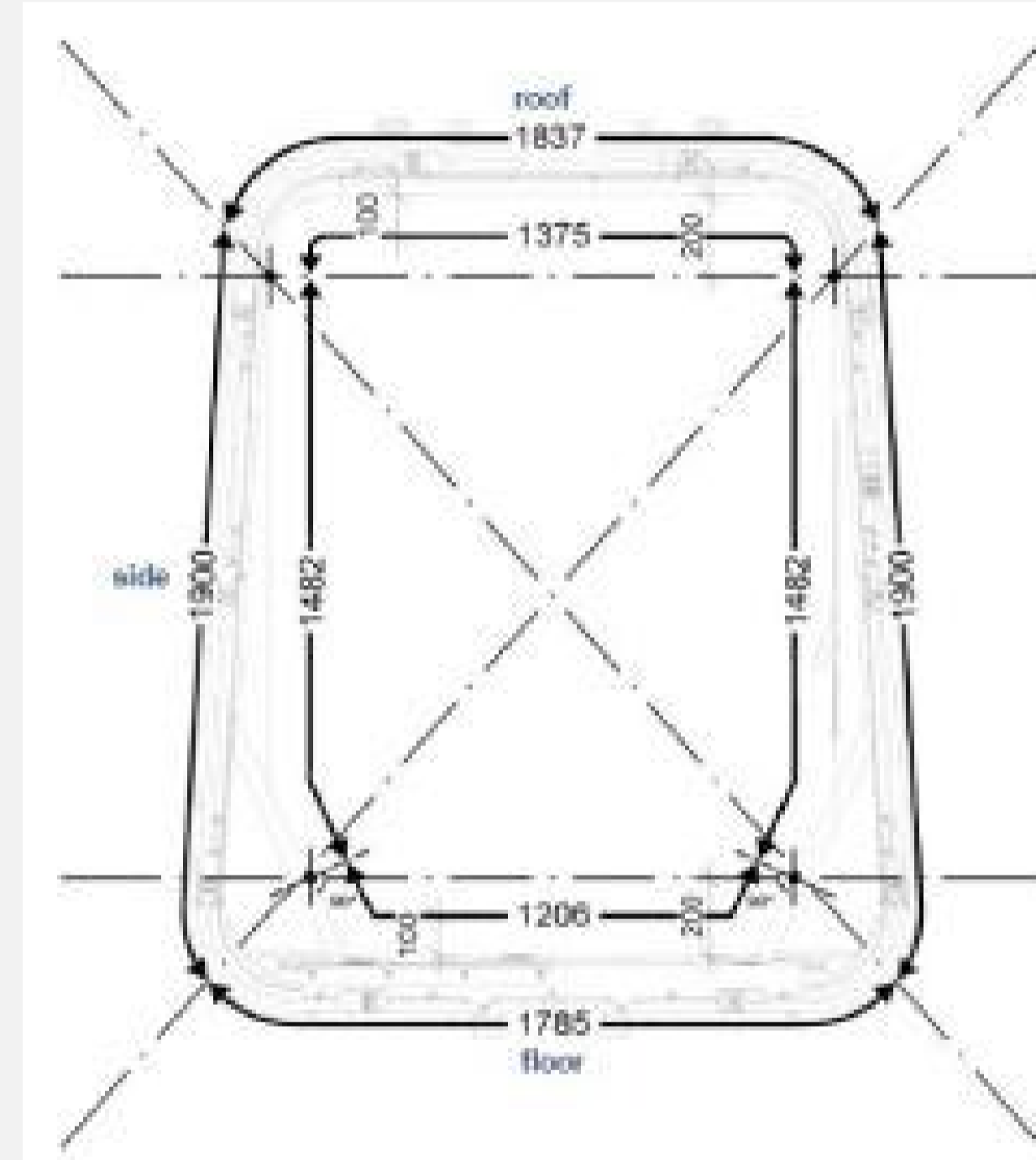
- Results of costumer-oriented designs with hitting the targets for sound insulation

- Separation of the measured curve into different physical phenomena (e.g. critical coincidence frequency)

- Understanding the possibility to improve the material in each of the segments

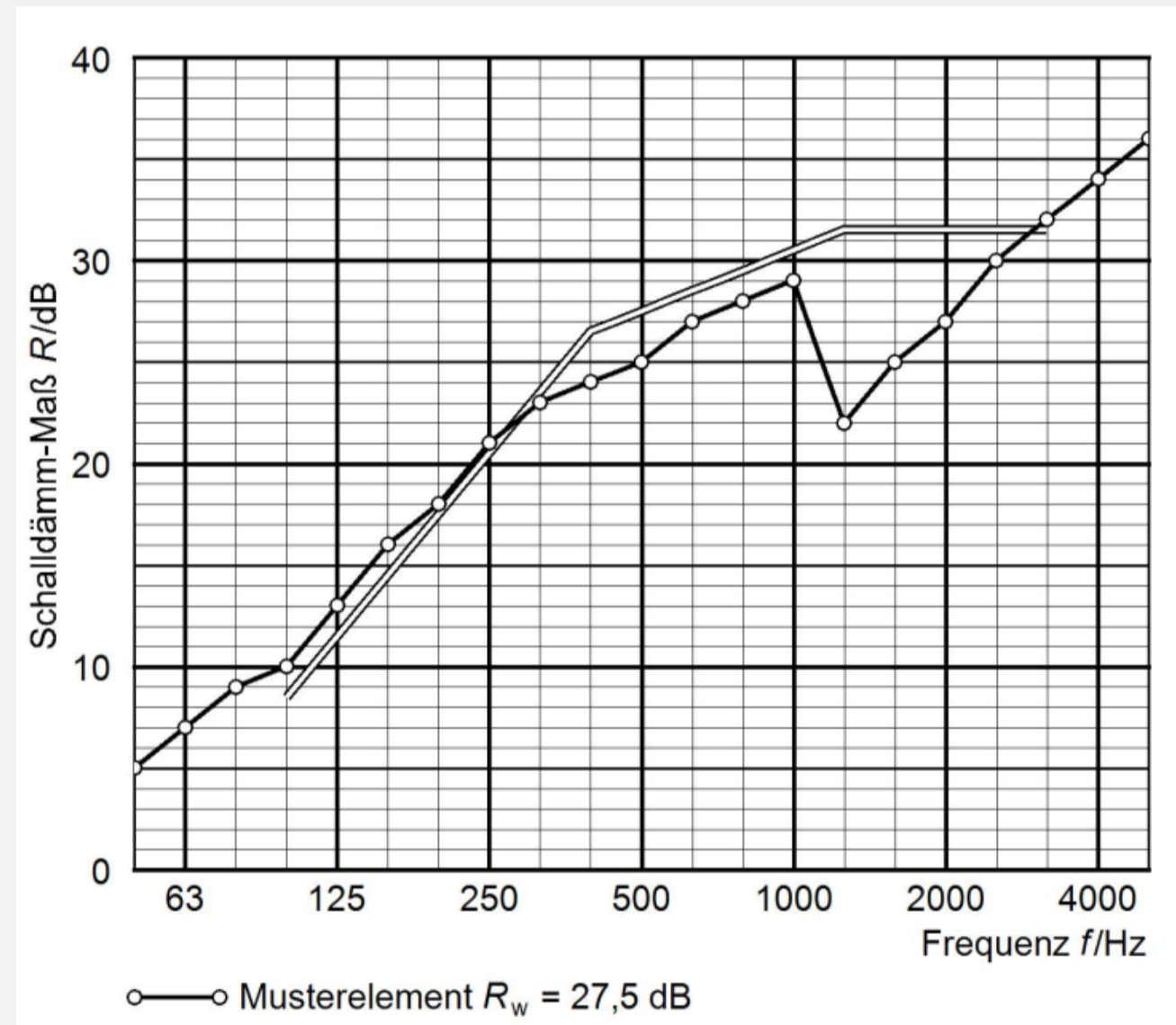- Transfer of the created know-how into customer solutions
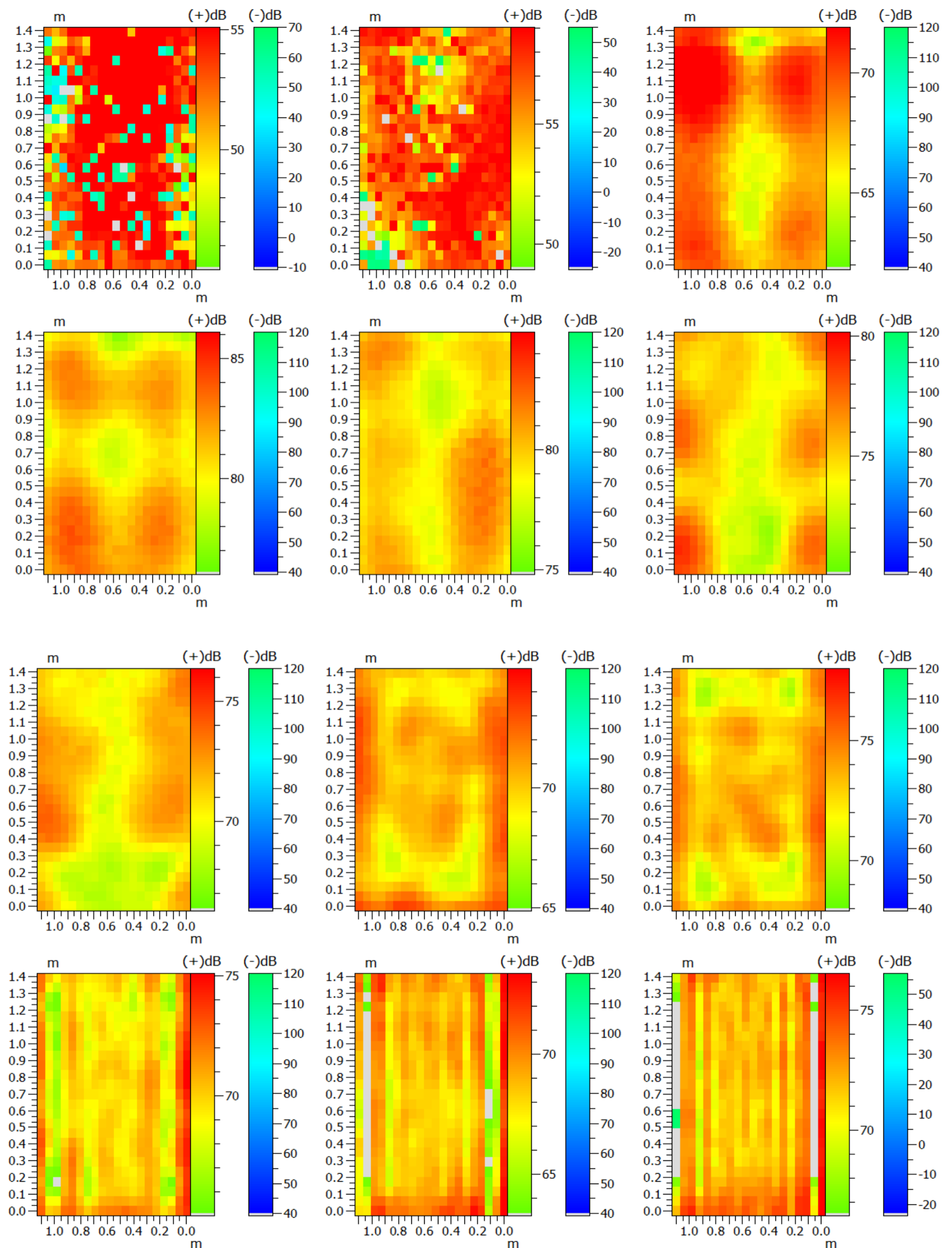
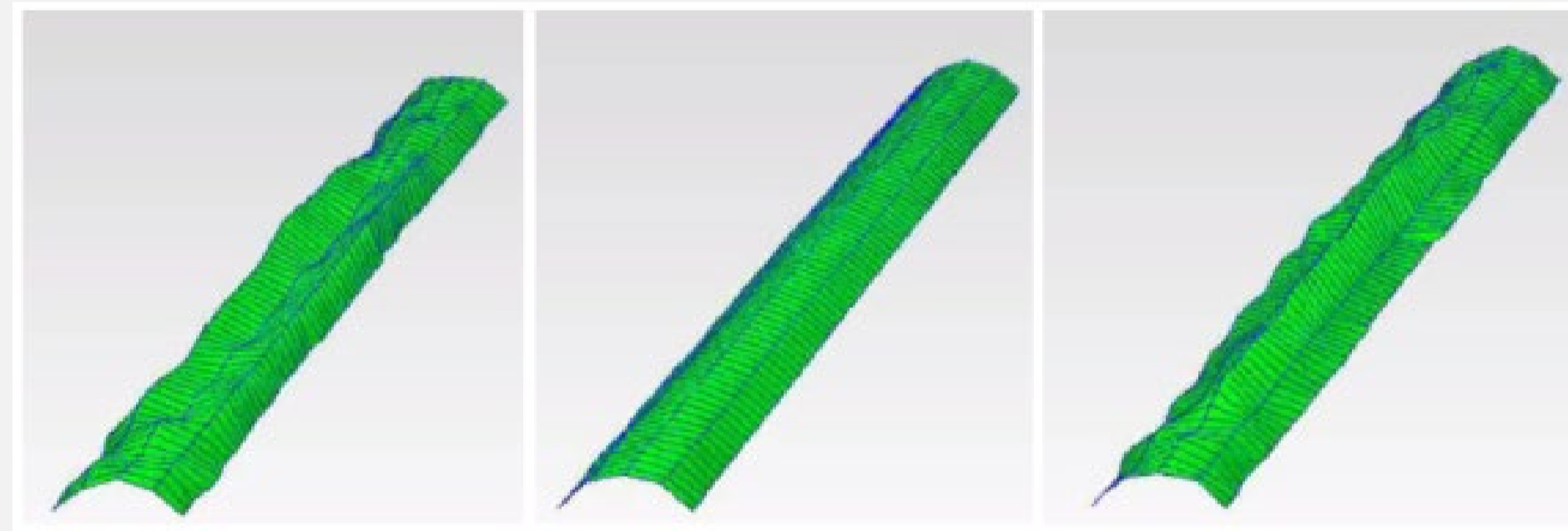# VIBRATION PATTERN FORMATION OF A SAMPLE ELEMENT

- Investigations of the vibration behavior as a function of the frequency were carried out

- The vibrations could be resolved locally to gain a deeper understanding of the influence of individual components.

- From this, further optimizations for our products could be derived

SOUND INSULATION

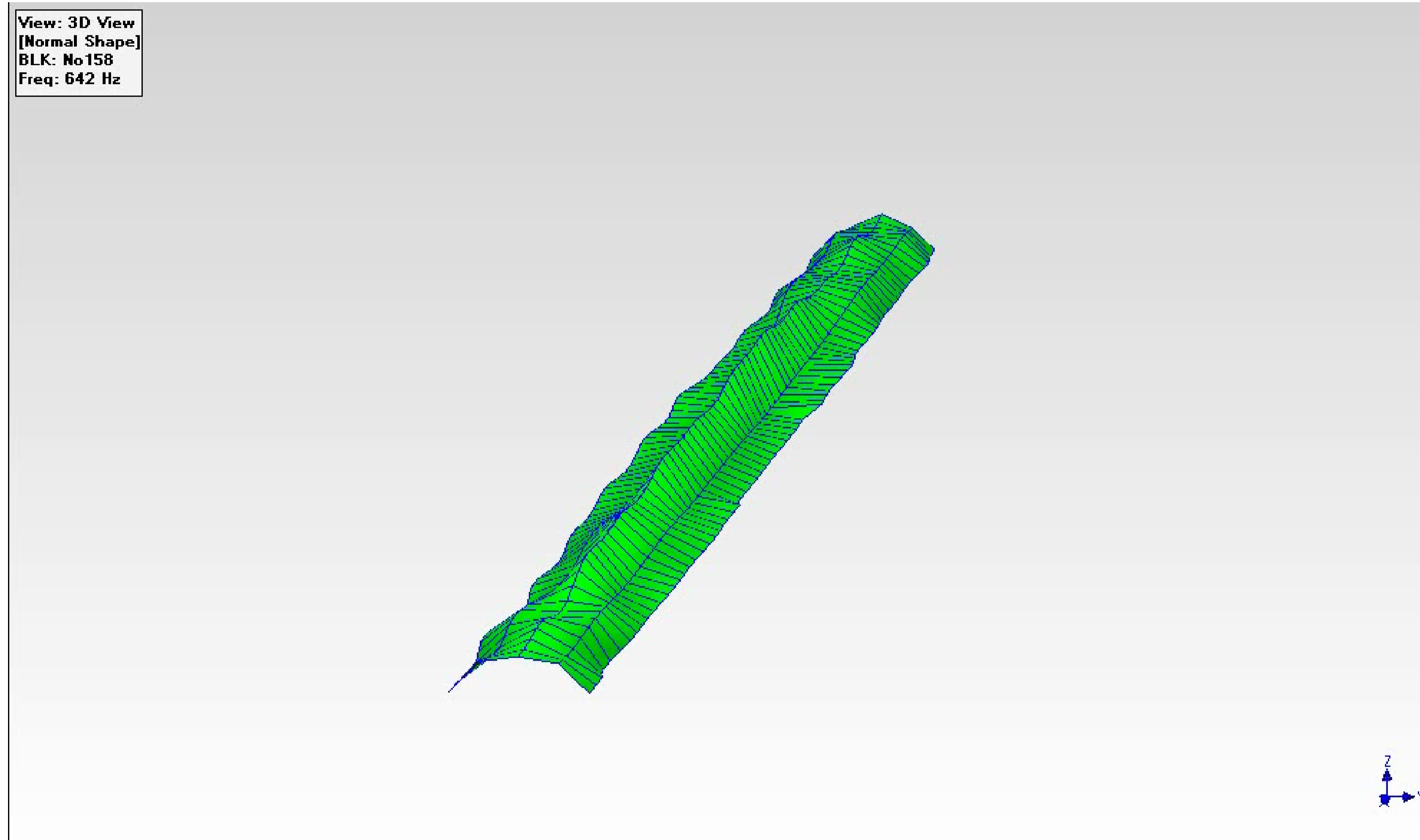FROM THE THEORY TO THE PRODUCT

THEORY

SIMULATION

VALIDATION

DEVELOPMENT OF NEW MATERIALS FOR GANGWAYS

VIBRATION FORMING OF A WAVE

UNTERNEHMENSPRÄSENTATION 2020

Thank you for your kind attention!

HÜBNER