INVITATION

Workshop on KLIPPEL ANALYZER SYSTEM

with focus on QC-Application

Optimizing Performance/Cost Ratio of Audio Devices through Efficient End-of-line Testing

Date:	**12th + 13th November 2018**
Location:	Businesspark GmbH, Bertolt-Brecht-Allee 24, 01309 Dresden
Lecturer:	Prof. W. Klippel, R. Werner, M. Liebig, J. Sorribas, R. Schulze/ KLIPPEL GmbH
Language:	English
Registration Fee:	200 EUR + VAT p.P.

Both, performance and reliability are critical characteristics of audio devices which are not always balanced in an optimal way. Part variances and uncertainties in the assembling process influence both aspects. Defective units increase the manufacturing cost if detected during end-of-line testing while undetected failures increase the after-sales cost if occurring in the field.
This workshop addresses the role of end-of-line testing using the Klippel Analyzer System to reduce both kinds of failures and to optimize the cost / performance ratio.

Additional Questions initiated by the feedback from supplier and automotive industry:

- How to apply lean manufacturing (effective use of Manpower, Materials, Machines, Methods, and Money) to audio products?
- How to manage the risk for failures in target application (e.g.car)?
- How to apply the eight disciplines (8Ds) of problem solving to loudspeakers?
- How to perform a root cause analysis (fishbone diagram) on typical loudspeaker failures?
- How to cope with time-varying properties of the transducer during end-of-line testing (drying glue joints, break-in)?
- Who should be responsible for deriving meaningful PASS/FAIL limits in EoL-testing from the target specification?

Questions addressed in this workshop:

- How to achieve maximum performance/cost ratio of audio devices for the end-user?
- How to define the target performance and permissible tolerances as perceived and expected by the end-user?
- How to describe the target performance by physical characteristics measured under standard conditions?
- How to link standard measurements with End-of-Line testing?
- How to set PASS/FAIL limits minimizing the rejection rate in production as well as additional cost in after-sales support?
    - How to improve the reliability of the product in the field?
    - How can EoL-testing be used to check the reliability of the DUT and to avoid field rejects?
    - How to benefit from traceability by matching the field rejects with the data from EoL-testing?

- How to improve the reliability and robustness of the product by design and DSP?
- How to communicate between supplier, manufacturer and customer using reliable data (cost, physical and perceptual characteristics)?
- How to use tools from KLIPPEL Analyzer System to solve those challenges?
- How to set up End-of-Line test giving best ratio of speed and sensitivity?

Those questions are discussed on examples from automotive and telecommunication application. Practical solutions are presented using software modules and hardware components of the KLIPPEL ANALYZER SYSTEM. The workshop focusses on the End-of-Line testing but shows the relationship to product definition, design process, the product evaluation and feedback from the final application at customer site.