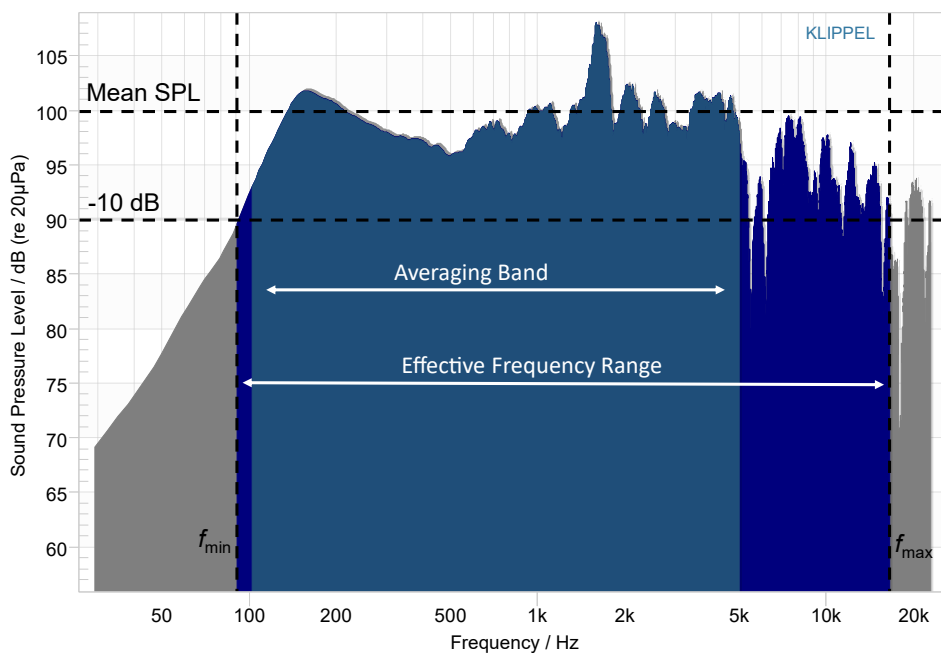


DESCRIPTION

The effective frequency range, defined by the IEC standard 60268-5 §21.2 or IEC 60268-21 §19.6, describes the range of linearity within the frequency response, where the sound pressure level is not more than 10 dB below an averaged maximum. This application note provides a step-by-step introduction for the calculation of the effective frequency range using the Klippel Analyzer system.



CONTENTS:

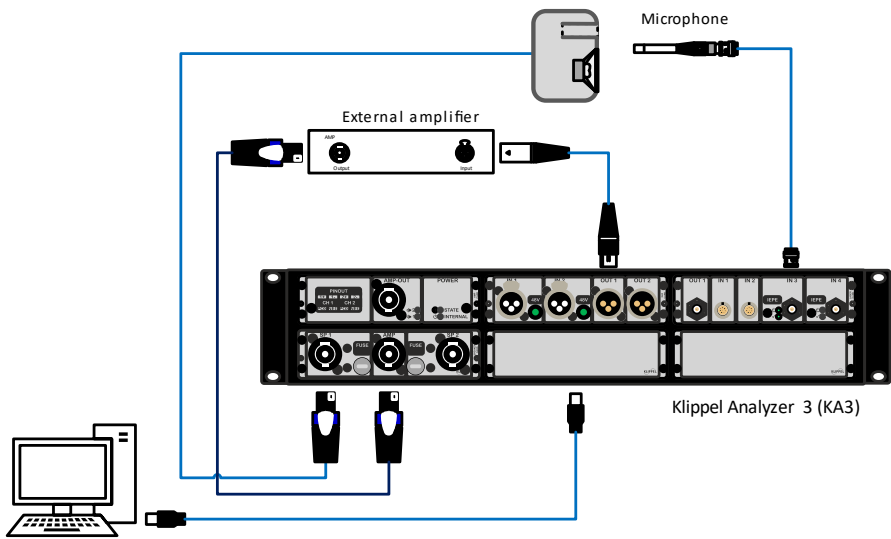
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Definition

1 Definition

Effective frequency range	The frequency range is bounded by the lower and upper frequency limits ($f_{\min}$ and $f_{\max}$) within which the measured on-axis frequency response of the loudspeaker does not deviate more than 10 dB below the average sound pressure level. The average level is calculated over a specified frequency interval, typically the rated frequency range. Notches narrower than 1/9 octave will not be regarded by definition of the IEC standard.
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2 Using the KLIPPEL R&D System

Requirements	• Klippel Analyzer (KA3 or DA2) + PC • Microphone • dB-Lab Software • TRF software module • PPP software module
Setup	• Connect external power amplifier or use internal AMP-Card of KA3 • Mount DUT to the driver stand and connect terminals with speaker output of Klippel Analyzer • Connect Microphone with microphone input of Klippel Analyzer and adjust the sensor to the stated measurement point 
Preparation	Create a new object based on the object template "Frequency Range – AN35; IEC 60268-5" provided in the dB-Lab object template.
Measurement	1. Open property page "Stimulus" of TRF operation and make sure that voltage is appropriate for DUT 2. Open property page "Stimulus" of TRF operation and set frequency limits to higher values than boundary frequencies of expected effective frequency range 3. Start TRF measurement 4. Open property page "Input" of PPP operation and specify defined frequency limits 5. Run PPP operation Note: After the TRF measurement, all necessary curves will be imported into the PPP operation automatically

3 More Information

Application Notes	IEC 60268-5: Mean sound-pressure level in a stated frequency band, Application Note AN34
Related Specification	Transfer Function Measurement (TRF), Specification TRF Programmable Post-Processing (PPP), Specification PPP Klippel Analyzer 3 (KA3), Specification H3 Microphone sensor, Specification A4
Manuals	User Manual Transfer Function Measurement User Manual Programmable Post-Processing
Standards	IEC 60268 Part 5 and Part 21

Find explanations for symbols at:

<http://www.klippel.de/know-how/literature.html>

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