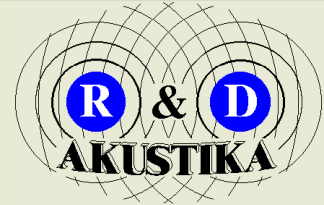


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Acoustics laboratory

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LABORATORY MEASUREMENTS OF LOUDSPEAKER AND ACOUSTIC SYSTEM ELECTROACOUSTICAL PARAMETERS  
STANDARDS: LVS EN 60268-5:2003 "Sound system equipment. Part 5: Loudspeakers"

IEC 60268-5 "High fidelity audio equipment and systems; Minimum performance requirements Part 5: Loudspeakers"

**Measured parameters** (abbreviations: SPKR –loudspeaker, AS – acoustic systems, c-curve-characteristics curve) :

$p_m$  – average characteristic sound pressure at  $U = \sqrt{R_{nom} \times 1W}$ , distance  $r = 1m$ ;

$SPL_{(1/3okt \Delta f)}$  – sound pressure level –  $1/3$  octave noise curve c-curves on work axis or angles –  $(\alpha, \beta)$ : ( $\alpha$ - direction angle in horizontal plane,  $\beta$ -direction angle in vertical plane);

$L(p_m)$  – average characteristic sound pressure level – (the same also for  $SPL_{1w1m}$ );

$p_{nf}$  –  $sin(f)$  sound pressure level c-curves for separate harmonics ( $p_{2f}, p_{3f} \dots p_{nf}$ ) of the signal;

$SPL_{(\alpha, \beta)}$  –  $SPL$  – c-curves of directional angle towards work axis (so-called polar directional charts);

$R_{DC}$  – SPKR coil directional current resistance – (the same also  $R_E$ );

$Z, |Z|(f)$  – frequency c-curves of input impedance complex values and module -  $sin(f)$ ;

$f_0, f_{r0}$  – SPKR resonance frequencies: 1) in enclosure AS, 2) free field – (identically:  $f_{ct}, f_s$ );

$Q_t$  ( $Q_{TS}$ ),  $Q_{ES}$  and  $Q_{MS}$  – SPKR quality factors: 1) total, 2) defined with  $R_E$  and 3) mechanical;

$U_n, U_{st}, U_{lt}$  un  $U_s$  – SPKR and AS 1) noise, 2) short-term, 3) long-term and 4)  $sin$  adjusted voltages.

**Calculable parameters and parameters determined in the course of testing or evaluations:**

$P_{ch}$  – characteristic power (by which  $p_m = 1 Pa$  or  $SPL_{P_{ch} w1m} = 94 dB$ );

$(F_1 - F_2)$  – effective frequency range in tolerance field (Hi-Fi minimal requirements: 50 – 12500 Hz);

$\Delta SPL_{(1/3okt \Delta f)}$  – difference between  $SPL$  on work axis and  $SPL_{|\alpha=20-30^\circ, \beta=0|}$  or  $SPL_{|\alpha=0^\circ, \beta=5-10^\circ|}$ ;

$\Delta SPL_{(okt \Delta f)}$  – difference between  $SPL$  in 1 octave noise bands between stereophonical pair AS;

$THD_{ch}$  – characteristic total harmonic distortion;

$|Z|_{min}$  – minimal value of input impedance module;

$V_{AS}, B \cdot \square \dots$  – equivalent volume, electromechanical link factor, i.e. Thiele-Small parameters;

$P_a$  ( $1/3okt \Delta f$ ) – acoustic power –  $1/3$  octave noise band c-curve;

$P_n, P_{st}, P_{lt}$  un  $P_s$  – SPKR and AS noise short term, long term and  $sin$  tested maximal power;

$Di$  ( $1/3okt \Delta f$ ) – directivity index –  $1/3$  octave noise band c-curves.



Measurements in anechoic chamber



Measurements in reverberation room



Maximal power testing room

## Measurement result examples (given in measurement report)

