

Accredited method (see [www.latak.gov.lv](http://www.latak.gov.lv))

## EQUIPMENT NOISE SOUND POWER MEASUREMENTS

**STANDARDS: LVS EN ISO 3744:2011 (ISO 3744:2010)** Acoustics. Determination of sound power levels of noise sources using sound pressure. Engineering method in an essentially free field over a reflecting plane.

**LVS EN ISO 3746:2011 (ISO 3746:2010)** Acoustics. Determination of sound power levels of noise sources using sound pressure. Survey method using an enveloping measurement surface over a reflecting plane.

**LVS EN ISO 7779:2019 (ISO 7779:2018)** Acoustics. Measurement of airborne noise emitted by information technology and telecommunication equipment.

### Measured parameters :

- $L_{pf}$  – surface sound pressure level, which is used in calculation of  $L_{wA}$
- $L_{pA}$  – noise level in operators workplace

### Calculable parameters:

- $L_{wA}$  – sound power level

Noise power level for outdoor use equipment is regulated by LR Minister board rules Nr. 163 from 23.04.2002, which define allowed  $L_{wA}$  borderline values for equipment and machinery.  $L_{wA}$  for EU certified products must be given in markings and certificate. This data is used in noise forecast for construction territory or noise map development.

$L_{wA}$  values obtained by calculations or given in building engineering equipment certification are used in building acoustics calculations, when determining necessary sound insulation parameters for enclosing constructions.

$L_{wA}$  values of different equipment (including information technology, telecommunication equipment, personal computers and printers) are used also for creating optimal building acoustical finishing (surface absorption, construction element sound scattering, insulation or office room design, planning and furnishing)

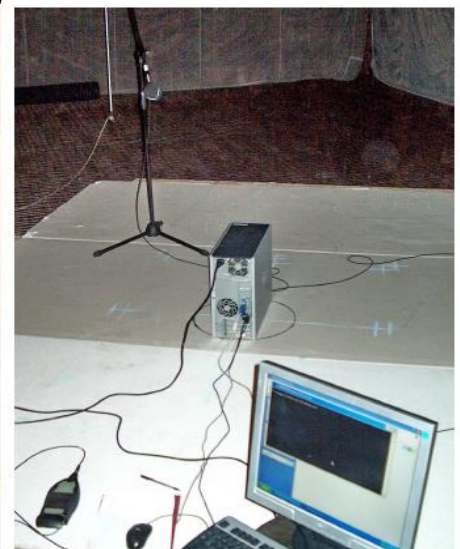
### Measurement situation examples



*In free field above the plane*



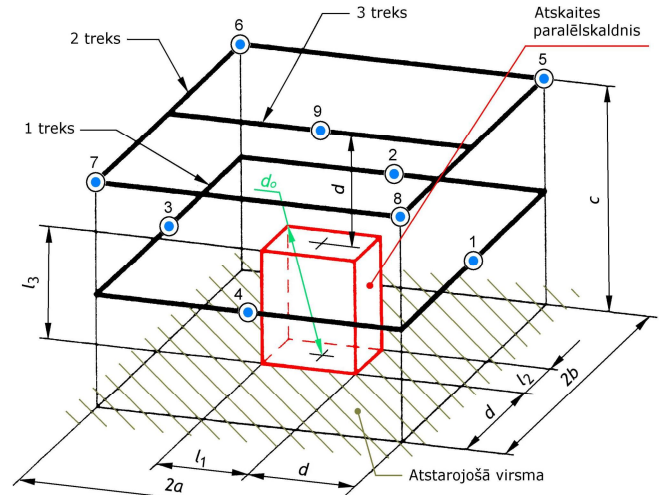
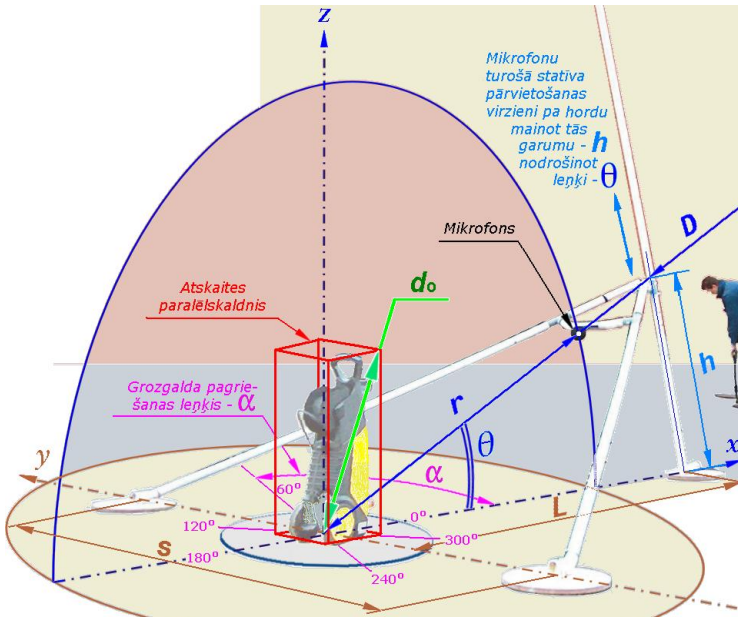
*In anechoic half-room*



*In anechoic chamber above the plane*

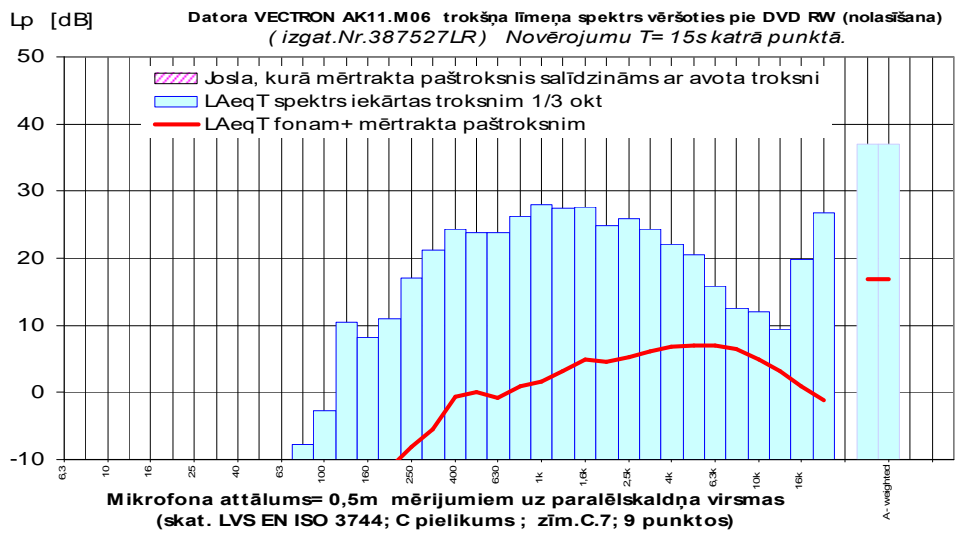
# EQUIPMENT NOISE SOUND POWER MEASUREMENTS

Measurement result example ( report with accreditation mark )



Acoustical power level measurement situation on parallelepiped surface above reflecting surface (by LVS EN ISO 3744) of noise object with equal radiation in all directions.

P.1.zīm. Mikrofona pozicionēšana mērpunktos ar trijkāji un grozgaldu (sk. LVS EN ISO 3745 Table D.1).



Measurement result summary for PC system unit in DVD RW operation mode (reading).

Mikrofona pozīcijas	1	2	3	4	5	6	7	8	9	Operātorā pozīcija
Parauga Nr.484-4 ( izgat.Nr.387527LR ) mērījumi										
$L_{Aeq,T}$	40,0	35,9	40,0	37,2	35,0	34,1	34,9	35,0	36,4	30,11
$L_{AFmax}$	33,0	27,2	34,3	27,9	28,8	28,6	27,4	24,5	28,9	
Virziendarbības indekss - $D I^*$	1,5	-0,8	3,3	0,5	-1,7	-2,6	-1,8	-1,8	-0,3	
Max un Min vērtību starpība = <b>5,9 Mērpunktu skaits pietiekošs</b> Indeksa - $D I^*$ Max vērtība = <b>3,3 <math>D I^*</math> nepārsniedz +5</b>										
Vides korekc. $K_2 =$	2,34									
Fona korekc. $K_1$	0,0									
1.par. Vid. $L_{pf}$	34,64	0,0		0,02						$L_{pf} = 34,645$ dB
Virsmas laukums=	6,55 m <sup>2</sup>	$L_{wAm} = L_{pf} + 10 \cdot \lg(S/1m^2) = 42,81$ dB								
$L_{wA} = 0,1 (L_{wAm}) =$	4,3 B									
$L_{pA} =$	30 dB									