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## MEASUREMENTS OF ROOM SYSTEM-LEVEL ACOUSTIC CHARACTERISTICS

### STANDARDS:

LVS EN ISO 3382-1:2008 +AC:2009 "Acoustics. Measurement of room acoustic parameters", ISO 3382-1,

LVS EN ISO 3382-2: 2008 "Acoustics - Measurement of room acoustic parameters - Part 2: Reverberation time in ordinary rooms", ISO 3382-2

LVS EN ISO 3382-3: 2012: "Acoustics - Measurement of room acoustic parameters - Part 3: Open plan offices (ISO 3382-3:2012)".

### Measured parameters :

$E(t)$  – sound impulse time graph

### Calculable parameters (in 1/3 octave bands) :

$T_{30}$  – reverberation time by 30dB decay, [sec]

$ETD$  – early reverberation time, [sec]

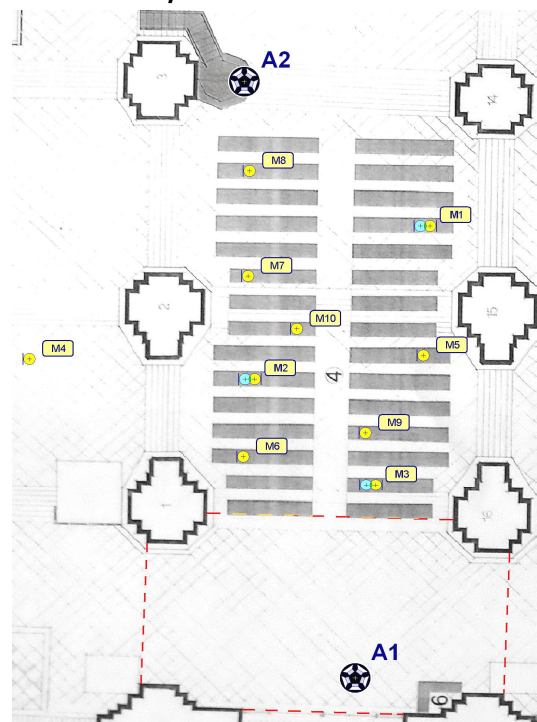
$C_{80}$  – Ratio between early (< 80 ms) and late sound energy, [dB]

$D_{50}$  – Ratio between early (< 50 ms) and late sound energy in observation point, [dB]

$LF, LFC$  – early (up to 80 ms) lateral sound energy coefficient, [%]

Construction standard LBN 016-15 „Building acoustics” limits multiple of measured parameters for facilities intended for various purposes. Thereby when comparing results of those measurements with borderline values, it is possible to judge accordance of room (or completed object) with intended goals (concerts, theatre shows, conferences etc). Parameters can also be prognosticated by calculations, by creating acoustics mathematical – geometrical model of the room and its finishing. It must be done in designing phase.

### Measurement situation example



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## MEASUREMENTS OF ROOM SYSTEM-LEVEL ACOUSTIC PARAMETERS

Measurement result example (given in report with LATAK logo)

Table 1. Parameter conformity summary.

Measurement Nr.	Sample Nr.	Microphone location Nr.	Frequency range [Hz]:	125-250	from 500 till 2000			4000	
			T (T <sub>30</sub> ) [sec]	T (T <sub>30</sub> ) [sec]	C <sub>80</sub> [dB]	LF [%]	RASTI [%]	T (T <sub>30</sub> ) [sec]	
			Border value	≤ 0,94	≤ 0,94	> 1	> 10	> 60	≤ 0,85
1.	XXX-1	M1		0,56	0,49	10,3	13	76	0,41
2.		M2		0,58	0,47	11,1	9	78	0,40
3.		M3		0,64	0,50	10,2	14	76	0,41
4.		M4		0,69	0,52	8,2	17	75	0,42
5.		M5		0,57	0,50	8,7	14	76	0,41
6.		M6		0,56	0,56	9,6	27	76	0,45

