

Reverberation time

Music room at the new middle school for music in Wiener Neustadt

Report 2017 0018

Your step to a silent future

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1. Introduction

The music room of the new middle school for music in Wiener Neustadt was equipped with DUKTA edge and wall absorbers. The reverberation time was measured before and after.

1. Standards

The measurement was carried out according to ÖNORM EN ISO 3382.2

2. Measuring devices

The following measuring devices were used

Type	Name	Serial number	HW Version	SW Version
B&K 2270	Sound level meter calibrated	3000862	3.0	4.1.6
B&K 4231	Calibrator calibrated	3001448		
B&K 4292-L	Omnipower sound source	24005		
B&K 2734	Amplifier with radio transmission	31008		

3. Measuring program, measuring points

The music room was exposed to sound at 1 transmission position and the reverberation time was measured at 6 measurement positions. The measurement was carried out by switching off noise in the frequency range 50 Hz - 5 kHz with 3 fade out processes per position. The following picture shows the room before the conversion.



The following pictures show the room with the edge and wall absorbers.





A total of 6.6 m² of corner absorbers and 16.9 m² of wall absorbers were installed.

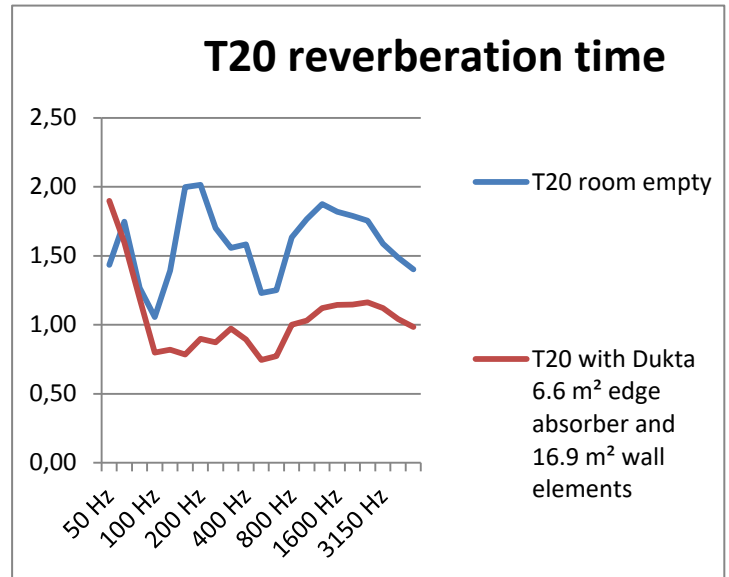
The dimensions of the room are:

Length l_x [m]	19.6
Width l_y [m]	5.8
Height l_z [m]	3.0
V [m ³]	345.7

2. Results

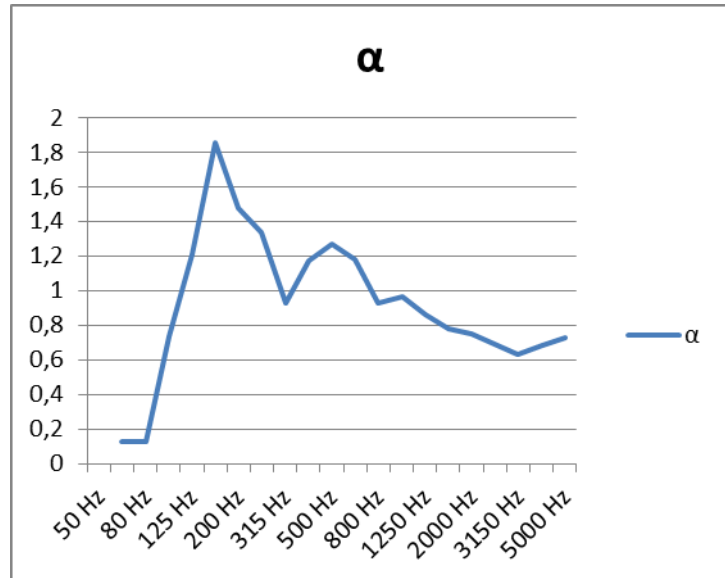
The table and chart below show the reverberation time before and after the conversion.

Frequency	T20 room empty	T20 with dukta 6.6 m ² edge absorber and 16.9 m ² wall elements
50 Hz	1.43	1.90
63 Hz	1.75	1.60
80 Hz	1.27	1.19
100 Hz	1.06	0.80
125 Hz	1.39	0.82
160 Hz	2.00	0.79
200 Hz	2.01	0.90
250 Hz	1.70	0.87
315 Hz	1.56	0.97
400 Hz	1.58	0.89
500 Hz	1.23	0.75
630 Hz	1.25	0.77
800 Hz	1.63	1.00
1000 Hz	1.77	1.03
1250 Hz	1.88	1.12
1600 Hz	1.82	1.14
2000 Hz	1.79	1.15
2500 Hz	1.75	1.16
3150 Hz	1.59	1.12
4000 Hz	1.49	1.04
5000 Hz	1.40	0.98



The following table and chart show the absorption α , based on the absorber area of 6.4 m² of edge absorbers and 16.9 m² of wall absorbers, totaling 23.5 m².

Frequency	α
50 Hz	
63 Hz	0.13
80 Hz	0.12
100 Hz	0.73
125 Hz	1.21
160 Hz	1.85
200 Hz	1.48
250 Hz	1.34
315 Hz	0.93
400 Hz	1.17
500 Hz	1.27
630 Hz	1.18
800 Hz	0.93
1000 Hz	0.97
1250 Hz	0.86
1600 Hz	0.78
2000 Hz	0.75
2500 Hz	0.69
3150 Hz	0.63
4000 Hz	0.69
5000 Hz	0.73



Pöttsching, 11.07.2017

Mit freundlichen Grüßen

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