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Laboratory for Acoustics

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Determination of acoustical characteristics of flexible ducted silencers type SONOAFS-NW.PVC, manufacturer AFS

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Laboratory for Acoustics

Determination of acoustical characteristics of flexible ducted silencers type SONOAFS-NW.PVC, manufacturer AFS

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Table of contents

1 Introduction

At the request of AFS Boru Sanayi A.S. based in Ankara (Turkey) sound measurements have been carried out in order to determine the acoustical characteristics of;

flexible ducted silencers
type SONOAFS-NW.PVC
manufacturer AFS Boru Sanayi A.S.

The measurements have been carried out in the Laboratory for Acoustics of Peutz bv, at Mook, The Netherlands (see figure 1).

TESTEN
RvA L 334

For these type of measurements the Laboratory for Acoustics has been accredited by the Dutch Accreditation Council (RvA).

The RvA is member of the EA MLA (**EA MLA**: **E**uropean **A**ccreditation Organisation **M**ulti**L**ateral **A**greement: http://www.european-accreditation.org).

EA: "Certificates and reports issued by bodies accredited by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries."

2 Norms and guidelines

The measurements have been carried out according to the Quality Manual of the Laboratory for Acoustics aswell as:

ISO 7235:2003	"Acoustics - Laboratory measurement procedures for ducted silencers and air-terminal units - Insertion loss, flow noise and total pressure loss"
N.A.	*The norm ISO 7235 is within all countries of the European Union accepted as European Standard Norm EN ISO 7235:2003*

Other related norms:

ISO 3741:2010[1]	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for reverberation test rooms
ISO 5135:1997	Acoustics - Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room
N.A.	*The norm ISO 5135 is within all countries of the European Union accepted as European Standard Norm EN ISO 5135:1997*

1 According to this norm, the report should include all measured sound pressure levels. Because these figures are not relevant for judging the quality of the product being tested, but merely for judging the accuracy of the calculations, they have been omitted in this report. It is possible of course to reproduce those figures at any time if the principal requests this.

3 Tested construction

The data presented here have been received from the principal (as thickness foils) or obtained by own observations.

Measurements have been carried out on the following flexible ducted silencers:

SONOAFS-NW.PVC Composition from inside to outside – nonwoven fabric, thickness 600 µm, reinforced with metal wire – 25 mm glasswool – PVC jacket, thickness 250 µm, Diameter (inner duct) 127 / 160 / 203 / 254 mm Length 1,0 / 3,0 m	

The results as presented here relate only to the tested items and laboratory conditions as described in this report. The laboratory can make no judgement about the representativity of the tested samples. The test report ahead is valid as long as the tested constructions and/or materials are unchanged.

4 Measurements

4.1 Measurement setup

The measurements have been carried according to the reverberation room method as described in the norm ISO 7235.

4.2 Insertion Loss D_i

The specimens are mounted in an measuring duct as shown in figure 2.
Noise is introduced in the measuring duct using a loudspeaker system which is mounted at one and of this duct in ventilation room (6). The other end of the duct leads into the reverberation room (3). The sound pressure level in the reverberation room caused by the loudspeaker is measured in two situations:

- with the specimen to be tested installed in the measuring duct
- without the specimen. Instead of the specimen a substitution duct (dummy) with the same dimensions (length, diameter) is installed in the measuring duct

A microphone on a rotating boom is used in the reverberation room in order to measure the noise radiated from the measurement duct. The reverberation time of the room is also determined. From each set of measurements (sound pressure level and reverberation time) the sound power level L_W radiated into the reverberation room is calculated according to ISO 3741[1]. The insertion loss D_i is now calculated as

$$D_i = L_{wII} - L_{wI} \qquad (1)$$

in which:

L_{WI} is the level of the sound power in the frequencyband considered, radiating into the connected reverberation room when the test object is installed;

L_{WII} is the level of the sound power in the frequencyband considered, radiating into the connected reverberation room when the substitution duct replaces the test object.

The insertion loss is determined in third octave bands from 50 Hz to 10 kHz.

4.3 Transmission Loss D_t

The specimens are mounted in an measuring duct as shown in figure 3. Noise is introduced in the measuring duct using a loudspeaker system which is mounted at one and of this duct in ventilation room (6). The test duct is installed crossing the reverberation room, both ends of the pipe penetrating through the walls of the room. The penetrations have been sealed adequately. The opposite end of the pipe is terminated by means of a closed anechoic termination in room (2).

1 For this type of measurements the Laboratory for Acoustics has been accredited by the Dutch Council for Accreditation (RvA) as a test laboratory, registration number L334.

The sound pressure level in the reverberation room caused by the loudspeaker is measured in two situations:
- with the specimen to be tested installed in the measuring duct in the reverberation room;
- without the specimen and a open test duct.

A microphone on a rotating boom is used in the reverberation room in order to measure the noise radiated from the measurement duct. The reverberation time of the room is also determined. From each set of measurements (sound pressure level and reverberation time) the sound power level L_W radiated into the reverberation room is calculated according to ISO 3741. The wall insulation D_t is now calculated as

$$D_t = L_{wII} - L_{wI} + D_{td} \qquad (2)$$

in which:

L_{WI} is the level of the sound power in the frequencyband considered, radiating into the connected reverberation room when the test object is installed;

L_{WII} is the level of the sound power in the frequencyband considered, radiating into the connected reverberation room with the open end of the test duct

D_{td} reflection coefficient at the open end of the duct

The transmission loss at the open end of a straight and rigid duct is calculated from

$$D_{td} = 10\ lg\left[1 + \frac{\Omega}{\left(\frac{4\pi f\sqrt{S}}{c}\right)^2}\right] \text{ dB} \qquad (3)$$

in which:

Ω = the solid angle of radiation at the duct (here: $\Omega = 4\pi$)

c = speed of sound in air (340 m/s)

f = frequency [Hz]

S = cross-sectional area of the duct opening in the measuring room [m^2]

The wall insulation is determined in third octave bands from 50 Hz to 10 kHz.

4.4 Results measurements

4.4.1 Insertion Loss

The results of the measurements are summarized in the tables 4.1 up to and including 4.4 and presented in detail in the figures in Annex 1 of this report.

t4.1 Insertion loss ***SONOAFS-NW.PVC***

INSERTION LOSS [dB]								
AFS nr.	**1**		**2**		**9**		**10**	
diameter	**127 mm**		**127 mm**		**127 mm**		**127 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#332**		**#333**		**#805**		**#806**	
figure nr.	**1.1**		**1.2**		**1.3**		**1.4**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	17,1		17,6		24,1		24,8	
63	10,4	10,8	11,2	11,4	16,3	16,6	18,6	18,6
80	8,5		9,1		14,2		16,2	
100	15,4		14,8		30,9		29,0	
125	15,0	16,4	12,1	14,4	35,9	34,3	31,3	31,7
160	20,8		18,7		44,6		44,2	
200	19,3		18,5		45,6		44,6	
250	19,6	20,1	18,9	19,6	47,7	42,8	47,9	43,9
315	21,7		22,1		39,5		41,5	
400	21,8		22,3		39,5		41,8	
500	21,5	22,2	23,1	23,2	37,6	38,0	38,8	39,5
630	23,5		24,6		37,2		38,7	
800	25,8		26,8		40,7		41,5	
1000	28,7	28,3	29,6	29,1	43,9	43,5	45,4	44,5
1250	33,0		33,3		50,3		52,0	
1600	39,2		38,1		54,9		55,8	
2000	45,1	42,7	44,5	41,8	56,2	56,5	57,2	57,4
2500	49,7		50,5		59,7		60,2	
3150	54,0		57,3		>63,0		62,7	
4000	42,1	37,0	44,8	39,7	>63,0	>62,0	62,9	61,8
5000	32,7		35,4		60,4		60,4	
6300	29,7		30,0		55,3		55,5	
8000	25,5	23,6	24,4	23,3	55,2	54,8	55,0	54,9
10000	20,4		20,3		54,1		54,3	

t4.2 Insertion loss ***SONOAFS-NW.PVC***

INSERTION LOSS [dB]								
AFS nr.	**3**		**4**		**11**		**12**	
diameter	**160 mm**		**160 mm**		**160 mm**		**160 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#956**		**#957**		**#962**		**#963**	
figure nr.	**1.5**		**1.6**		**1.7**		**1.8**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	23,2		22,9		34,4		26,4	
63	15,8	15,6	16,0	15,8	34,3	35,1	27,7	27,5
80	12,9		13,2		37,4		28,9	
100	19,6		18,5		53,0		42,2	
125	15,8	18,5	14,5	17,3	41,5	43,9	41,4	42,5
160	22,7		21,9		43,3		44,4	
200	21,6		21,7		42,5		45,1	
250	20,0	19,8	20,6	20,4	41,1	37,4	42,8	40,5
315	18,4		19,2		33,8		37,4	
400	17,7		18,6		34,5		38,9	
500	18,3	18,2	18,6	18,6	37,1	36,5	43,0	40,7
630	18,8		18,6		38,9		41,3	
800	20,5		19,9		41,5		43,9	
1000	23,4	22,8	23,0	22,3	46,8	44,8	51,0	47,5
1250	26,5		26,4		50,8		53,6	
1600	32,5		32,6		51,5		54,9	
2000	36,9	35,8	38,0	36,1	55,3	54,2	57,1	56,9
2500	45,2		46,9		59,0		60,1	
3150	43,9		42,9		61,9		64,2	
4000	29,0	26,8	28,3	26,1	57,8	55,4	62,4	59,2
5000	23,1		22,3		52,0		55,8	
6300	18,5		18,7		47,6		49,5	
8000	18,6	17,2	18,7	17,4	41,7	41,2	44,8	44,5
10000	15,4		15,5		38,5		42,0	

t4.3 Insertion loss ***SONOAFS-NW.PVC***

INSERTION LOSS [dB]								
AFS nr.	**5**		**6**		**13**		**14**	
diameter	**203 mm**		**203 mm**		**203 mm**		**203 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#339**		**#340**		**#353**		**#354**	
figure nr.	**1.9**		**1.10**		**1.11**		**1.12**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	12,3		12,9		16,8		17,0	
63	17,3	15,0	17,4	15,5	23,9	20,4	22,7	20,4
80	17,8		18,3		26,8		26,4	
100	9,6		11,3		23,9		24,3	
125	16,7	12,2	18,1	14,2	35,6	28,3	37,1	28,8
160	13,0		16,1		40,9		42,9	
200	13,5		16,3		41,5		43,0	
250	13,1	13,9	15,0	15,7	38,2	37,6	38,3	38,1
315	15,6		15,9		35,2		35,7	
400	14,6		15,1		34,5		35,0	
500	13,0	13,9	13,1	14,0	35,5	35,1	35,2	35,3
630	14,3		13,9		35,5		35,9	
800	16,8		16,2		38,3		38,6	
1000	18,3	18,4	17,4	17,6	41,7	40,9	42,4	41,4
1250	21,4		19,9		45,5		46,3	
1600	26,6		25,2		52,7		52,9	
2000	28,6	28,6	27,9	27,4	56,7	55,4	56,9	55,2
2500	32,4		30,7		59,3		57,3	
3150	30,0		32,5		63,2		59,7	
4000	17,6	17,1	19,6	18,7	48,1	43,6	44,7	40,6
5000	13,9		15,4		39,4		36,5	
6300	15,0		16,0		34,1		32,9	
8000	12,6	13,1	13,1	13,7	26,5	25,3	25,7	24,9
10000	12,2		12,7		22,0		21,8	

t4.4 Insertion loss ***SONOAFS-NW.PVC***

INSERTION LOSS [dB]								
AFS nr.	**7**		**8**		**15**		**16**	
diameter	**254 mm**		**254 mm**		**254 mm**		**254 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#357**		**#358**		**#359**		**#360**	
figure nr.	**1.13**		**1.14**		**1.15**		**1.16**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	18,7		17,8		23,4		30,3	
63	9,0	9,8	8,3	9,6	21,3	22,4	28,0	28,8
80	7,6		7,9		22,9		28,3	
100	19,5		19,8		39,2		40,5	
125	14,9	15,9	16,3	17,6	40,5	39,4	40,2	39,3
160	14,7		17,4		38,7		37,7	
200	12,0		14,0		36,6		38,6	
250	13,6	13,1	14,0	14,0	32,1	31,9	32,8	33,0
315	13,9		13,9		29,6		30,7	
400	11,8		11,4		27,1		28,8	
500	12,0	12,0	11,7	11,8	28,5	28,2	30,3	29,9
630	12,2		12,3		29,2		30,9	
800	13,5		13,8		32,7		34,9	
1000	15,6	15,4	15,9	15,6	38,2	36,0	38,8	37,7
1250	18,2		18,4		42,4		42,8	
1600	23,1		23,4		51,2		50,8	
2000	24,8	24,7	24,8	25,1	54,5	53,7	54,1	53,2
2500	27,3		28,4		58,0		57,0	
3150	14,9		15,1		42,5		46,5	
4000	9,0	9,7	9,3	9,9	27,5	26,6	30,8	29,4
5000	7,8		8,0		23,2		25,9	
6300	8,7		9,1		22,1		23,8	
8000	9,5	9,5	9,7	9,7	21,2	21,1	21,2	20,6
10000	10,3		10,3		20,3		18,5	

4.4.2 Transmission Loss

The results of the measurements are summarized in the tables 4.5 up to and including 4.8 and presented in detail in the figures in Annex 2 of this report.

t4.5 Transmission loss ***SONOAFS-NW.PVC***

TRANSMISSION LOSS [dB]								
AFS nr.	**1**		**2**		**9**		**10**	
diameter	**127 mm**		**127 mm**		**127 mm**		**127 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#491**		**#492**		**#947**		**#946**	
figure nr.	**2.1**		**2.2**		**2.3**		**2.4**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	30,9		28,8		28,2		29,0	
63	24,4	25,0	24,2	24,5	33,8	31,0	34,0	31,7
80	23,0		22,6		33,5		34,5	
100	22,4		22,7		22,3		23,3	
125	18,8	20,5	18,5	20,7	24,7	21,1	24,5	21,2
160	21,1		22,2		18,5		18,3	
200	21,7		22,5		19,3		20,3	
250	21,7	19,0	21,9	19,2	18,8	19,0	20,3	20,0
315	16,2		16,2		19,0		19,5	
400	18,9		18,9		18,6		18,6	
500	16,5	17,6	16,6	17,9	17,9	18,1	17,7	18,2
630	17,8		18,5		17,9		18,3	
800	18,6		19,1		18,8		20,2	
1000	19,2	19,2	19,8	19,8	18,8	19,0	20,7	20,7
1250	19,8		20,6		19,5		21,2	
1600	21,0		22,0		21,4		21,9	
2000	21,9	21,9	23,4	23,3	22,4	22,4	22,7	22,8
2500	23,1		24,8		23,7		23,9	
3150	23,9		25,8		24,8		25,0	
4000	26,4	25,5	27,0	26,6	25,1	25,1	26,8	26,5
5000	26,8		27,1		25,4		28,4	
6300	26,3		26,6		26,9		29,4	
8000	28,5	28,1	28,8	28,3	28,9	28,4	31,5	30,9
10000	30,4		30,2		30,0		32,5	

t4.6 Transmission loss ***SONOAFS-NW.PVC***

TRANSMISSION LOSS [dB]								
AFS nr.	**3**		**4**		**11**		**12**	
diameter	**160 mm**		**160 mm**		**160 mm**		**160 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#1056**		**#1057**		**#1058**		**#1059**	
figure nr.	**2.5**		**2.6**		**2.7**		**2.8**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	27,8		28,3		25,3		25,4	
63	22,6	23,3	23,6	24,0	25,0	24,5	25,4	25,1
80	21,6		22,2		23,4		24,5	
100	17,4		19,6		18,6		18,6	
125	19,0	17,2	20,9	18,7	19,4	17,7	19,7	18,1
160	15,8		16,7		15,9		16,5	
200	16,8		17,2		17,2		18,6	
250	16,4	16,1	16,8	16,2	16,3	15,7	18,0	17,6
315	15,2		15,0		14,1		16,4	
400	14,9		13,9		14,3		15,3	
500	15,7	15,7	14,9	14,7	15,7	15,3	16,2	15,8
630	16,5		15,3		16,0		15,9	
800	17,3		15,7		16,4		15,5	
1000	18,6	18,2	17,3	16,8	18,2	17,6	16,4	16,2
1250	18,9		17,6		18,5		16,9	
1600	20,1		19,6		19,7		18,9	
2000	21,8	21,4	21,1	20,9	21,3	21,0	20,6	20,4
2500	22,7		22,6		22,4		22,6	
3150	23,9		24,0		22,6		24,3	
4000	25,4	25,1	25,2	24,9	25,0	24,1	25,2	25,1
5000	26,2		25,7		25,4		25,9	
6300	26,8		26,4		24,9		27,0	
8000	25,2	23,8	24,9	23,4	24,4	23,0	24,9	23,3
10000	21,3		20,9		20,8		20,5	

t4.7 Transmission loss ***SONOAFS-NW.PVC***

TRANSMISSION LOSS [dB]								
AFS nr.	**5**		**6**		**13**		**14**	
diameter	**203 mm**		**203 mm**		**203 mm**		**203 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#498**		**#499**		**#512**		**#513**	
figure nr.	**2.9**		**2.10**		**2.11**		**2.12**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	26,5		25,7		24,3		24,2	
63	21,6	22,5	22,2	22,6	21,3	22,9	20,6	22,3
80	21,1		21,2		23,6		22,8	
100	20,7		20,1		22,3		21,9	
125	15,1	17,5	14,0	16,6	16,3	18,2	17,3	19,0
160	18,4		17,8		18,0		18,9	
200	15,5		15,0		14,9		16,2	
250	14,8	14,3	14,5	14,3	14,7	13,8	16,1	15,6
315	12,9		13,6		12,4		14,7	
400	13,5		13,7		13,3		14,9	
500	13,1	13,6	13,2	13,6	13,4	13,8	15,0	15,2
630	14,2		14,0		14,9		15,8	
800	15,5		14,9		14,8		15,3	
1000	16,6	16,4	15,6	15,7	16,6	16,1	16,0	15,9
1250	17,3		16,9		17,1		16,4	
1600	19,3		19,6		18,9		18,4	
2000	19,5	19,8	19,9	20,1	19,6	19,7	19,3	19,4
2500	20,7		21,0		20,8		20,9	
3150	22,1		22,3		22,1		22,6	
4000	24,4	23,8	24,6	24,0	24,4	23,9	24,6	24,3
5000	25,9		26,0		26,2		26,7	
6300	26,6		26,8		27,3		27,6	
8000	28,6	28,5	28,9	28,8	29,8	29,5	29,9	29,6
10000	31,8		32,1		33,1		33,0	

t4.8 Transmission loss ***SONOAFS-NW.PVC***

TRANSMISSION LOSS [dB]								
AFS nr.	**7**		**8**		**15**		**16**	
diameter	**254 mm**		**254 mm**		**254 mm**		**254 mm**	
length	**1,0 m**		**1,0 m**		**3,0 m**		**3,0 m**	
record nr.	**#520**		**#521**		**#522**		**#523**	
figure nr.	**2.13**		**2.14**		**2.15**		**2.16**	
frequency [Hz]	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**	**1/3 oct.**	**1/1 oct.**
50	21,2		21,5		20,7		20,2	
63	19,6	19,5	22,0	20,9	19,5	20,5	18,8	19,3
80	18,2		19,6		21,5		19,0	
100	22,1		23,2		24,3		22,5	
125	13,8	15,1	14,1	15,7	15,5	16,9	14,8	15,9
160	13,5		14,4		15,4		14,1	
200	13,5		14,0		14,5		13,5	
250	11,1	11,7	11,4	12,2	11,9	12,6	10,5	11,3
315	10,9		11,6		12,0		10,5	
400	11,7		12,2		11,7		10,9	
500	11,6	12,1	12,0	12,4	11,8	12,2	11,2	11,5
630	13,1		13,1		13,2		12,6	
800	14,2		14,0		14,2		13,9	
1000	15,6	15,3	15,5	15,1	15,1	15,0	15,4	15,0
1250	16,2		16,0		15,8		16,1	
1600	17,8		17,9		17,4		17,5	
2000	18,7	18,8	18,7	18,9	18,2	18,3	18,3	18,5
2500	20,2		20,4		19,4		19,9	
3150	22,7		22,7		21,6		21,9	
4000	25,3	24,7	25,5	24,8	24,4	23,8	24,4	24,0
5000	27,2		27,5		27,4		27,4	
6300	26,0		26,6		28,3		28,2	
8000	29,6	28,6	30,0	29,1	31,8	30,9	31,4	30,6
10000	32,6		32,7		34,9		34,4	

The results as presented here relate only to the tested items and laboratory conditions as described in this report. The laboratory can make no judgement about the representativity of the tested samples. The test report ahead is valid as long as the tested constructions and/or materials are unchanged.

Mook,

Th. Scheers
Laboratory Supervisor

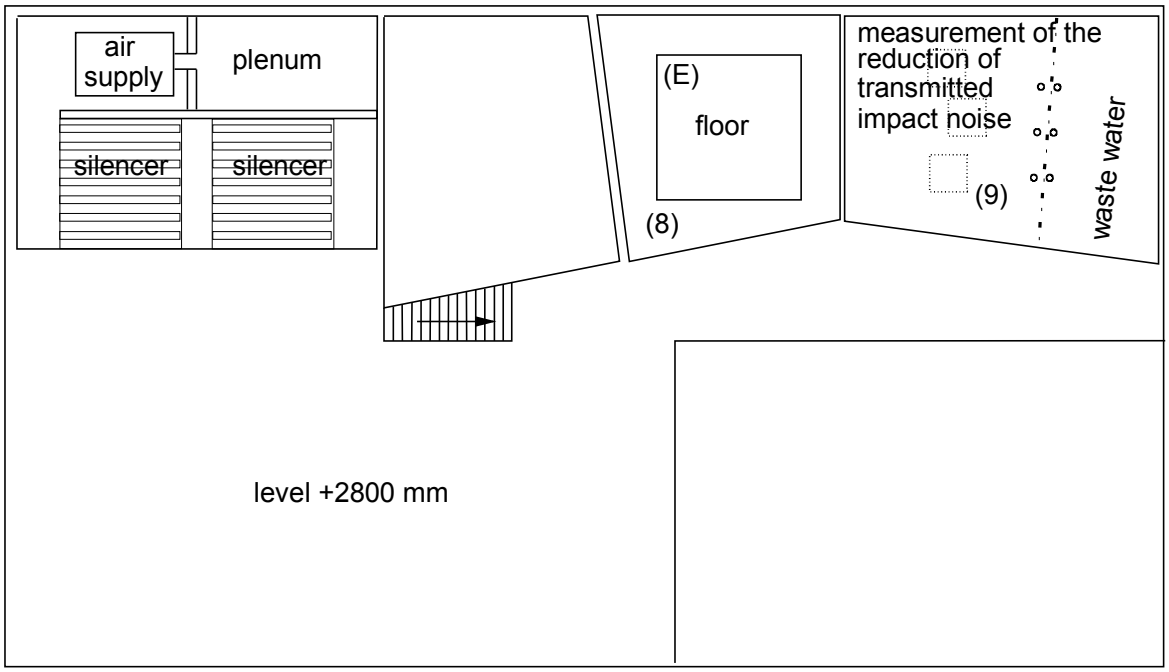
ir. G.M.A. Perquin
Manager

This report contains 17 pages, 3 figures and 2 annexes.

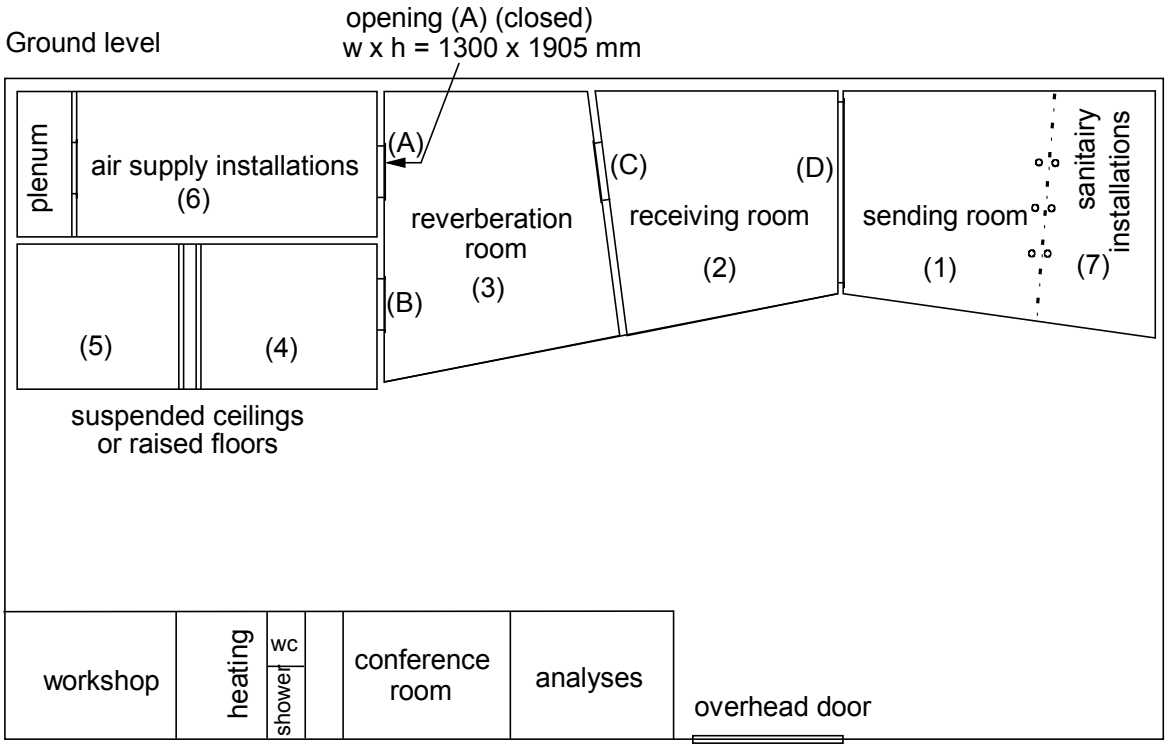
PEUTZ bv
Lindenlaan 41, NL-6584 AC MOLENHOEK (LB), THE NETHERLANDS

OVERVIEW

Story

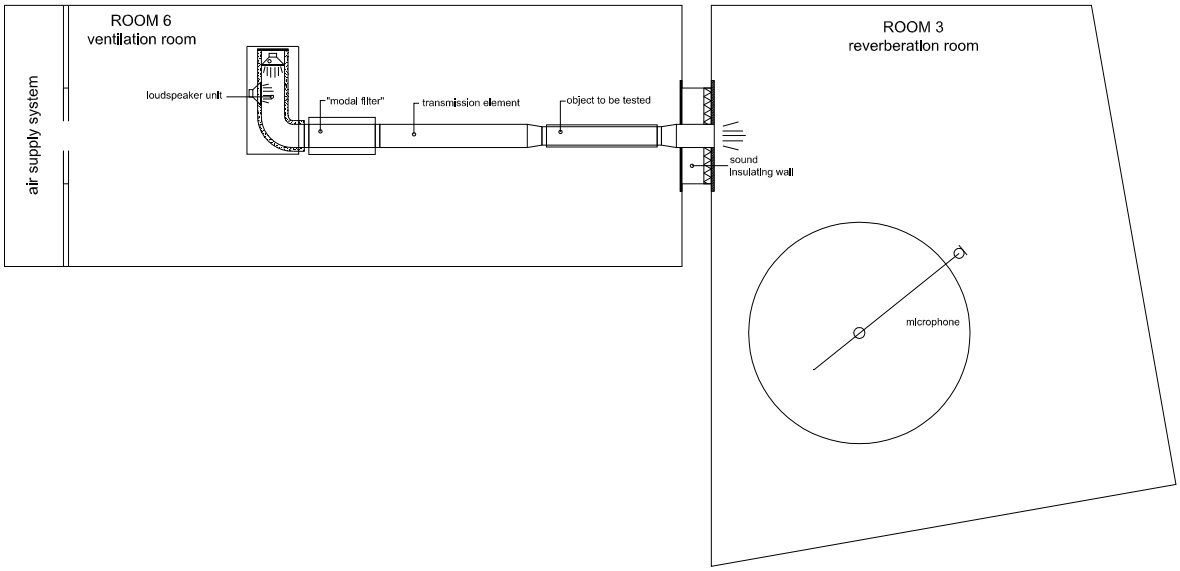


Ground level



TEST OPENINGS (w x h in mm)
(B) 1000 x 2200
(C) 1500 x 1250
(D) 4300 x 2800
(E) 4000 x 4000

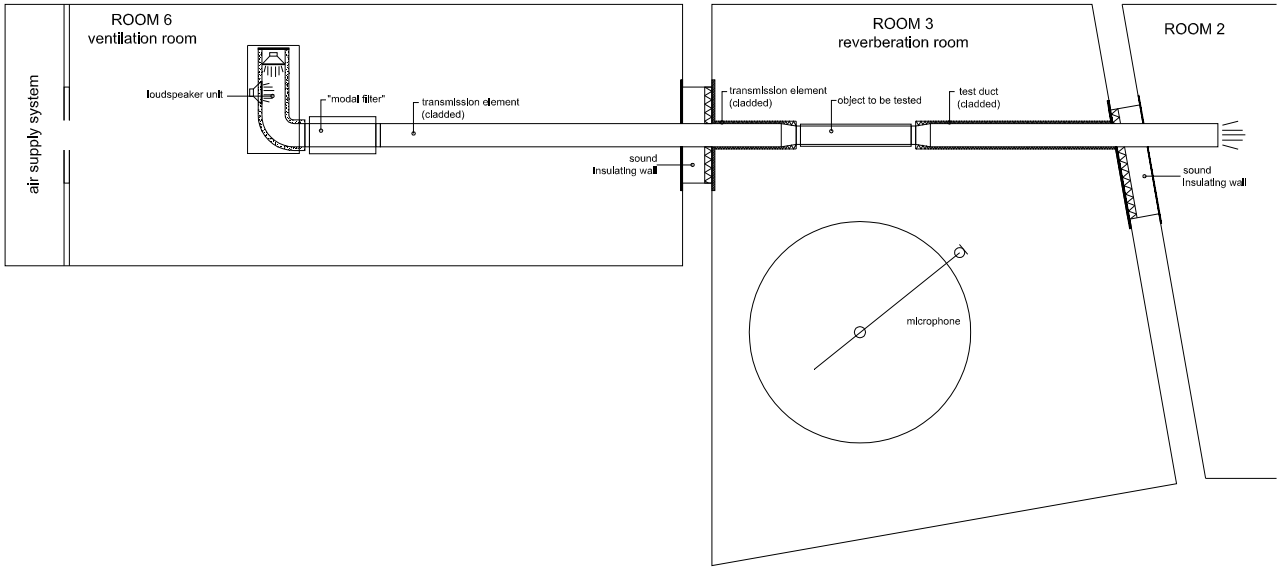
0 1 2 3 4 5 m
scale



Without silencer; L_{wII}

With silencer; L_{wI}

Measurement set-up insertion loss



Open end; L_{wII}

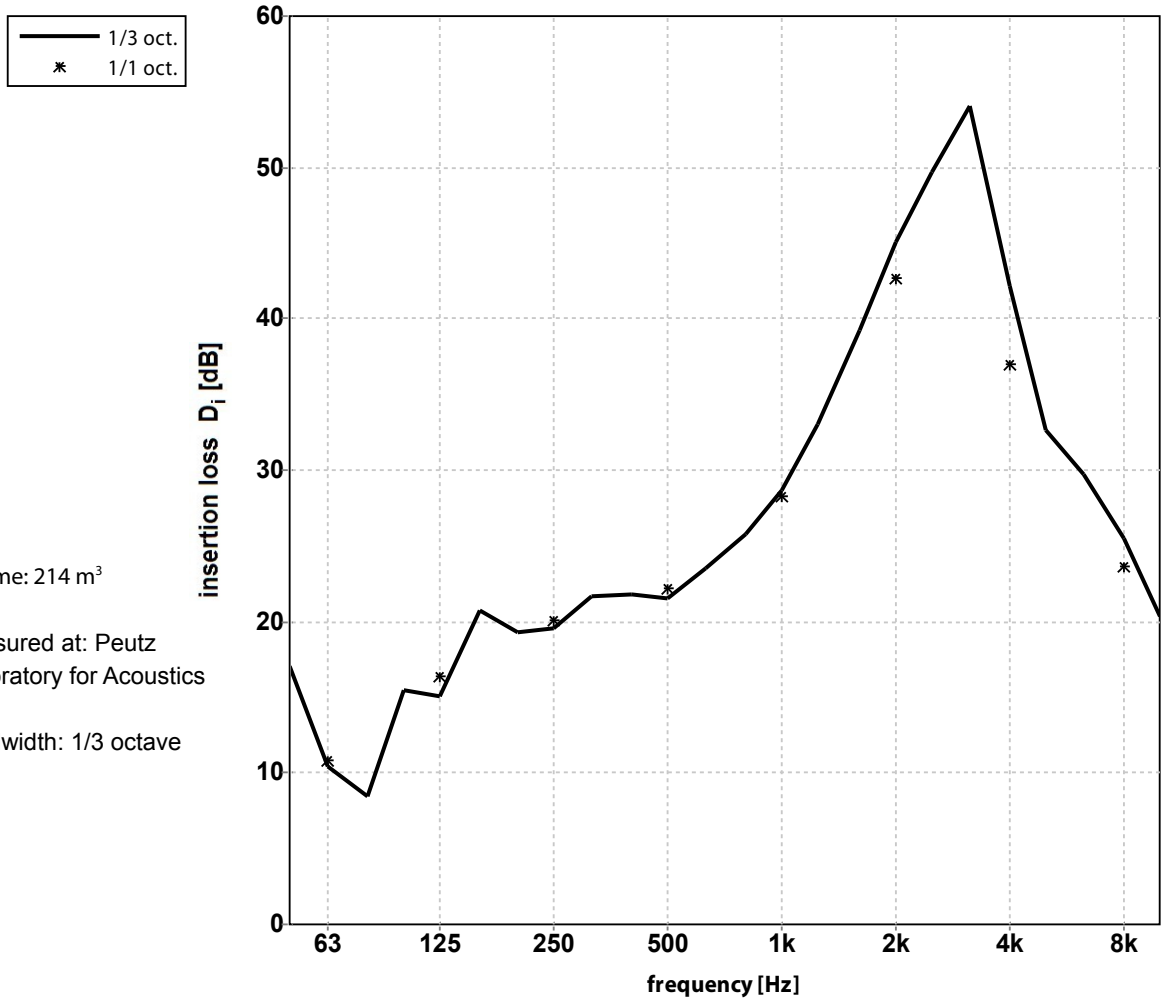
With silencer; L_{wII}

Measurement set-up transmission loss

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #1; SONOAFS-NW.PVC
diameter 127 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	17,1	15,4	19,3	21,8	25,8	39,2	54,0	29,7	
1/3 oct.	10,4	15,0	19,6	21,5	28,7	45,1	42,1	25,5	dB
	8,5	20,8	21,7	23,5	33,0	49,7	32,7	20,4	
1/1 oct.	**10,8**	**16,4**	**20,1**	**22,2**	**28,3**	**42,7**	**37,0**	**23,6**	**dB**

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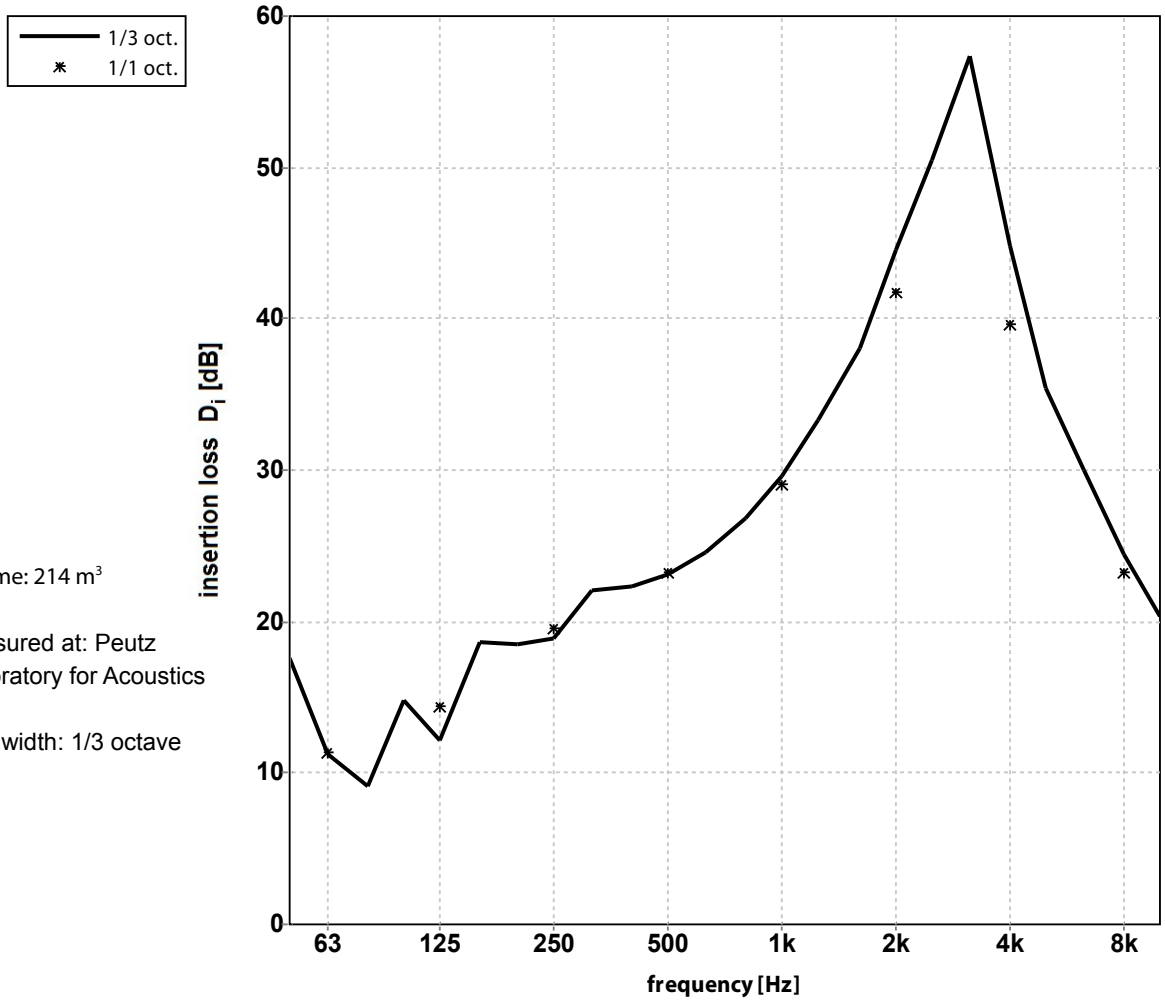
Mook, 24-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #2; SONOAFS-NW.PVC
diameter 127 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

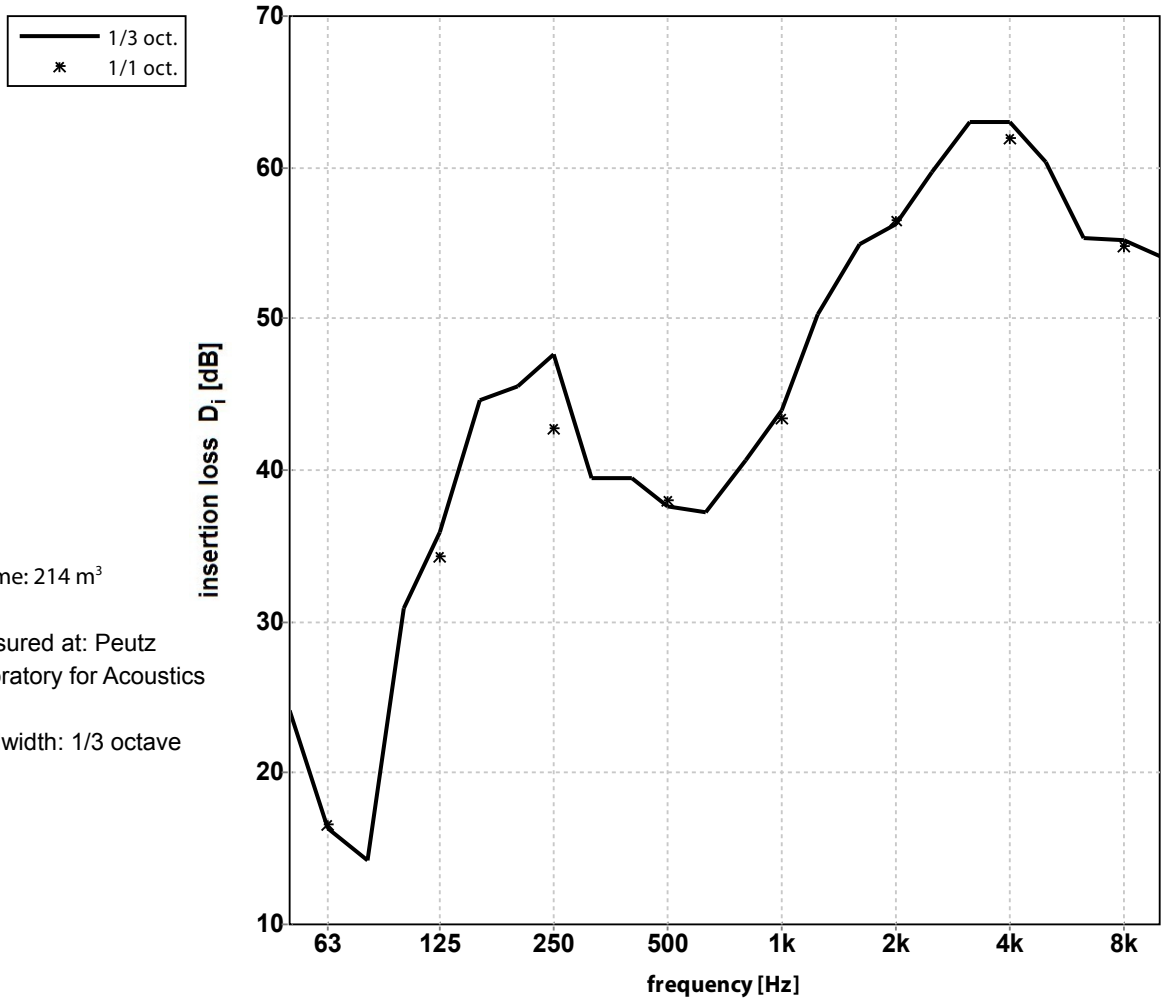
	17,6	14,8	18,5	22,3	26,8	38,1	57,3	30,0	
1/3 oct.	11,2	12,1	18,9	23,1	29,6	44,5	44,8	24,4	dB
	9,1	18,7	22,1	24,6	33,3	50,5	35,4	20,3	
1/1 oct.	**11,4**	**14,4**	**19,6**	**23,2**	**29,1**	**41,8**	**39,7**	**23,3**	**dB**

Mook, 24-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #9; SONOAFS-NW.PVC
diameter 127 mm
length 3,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

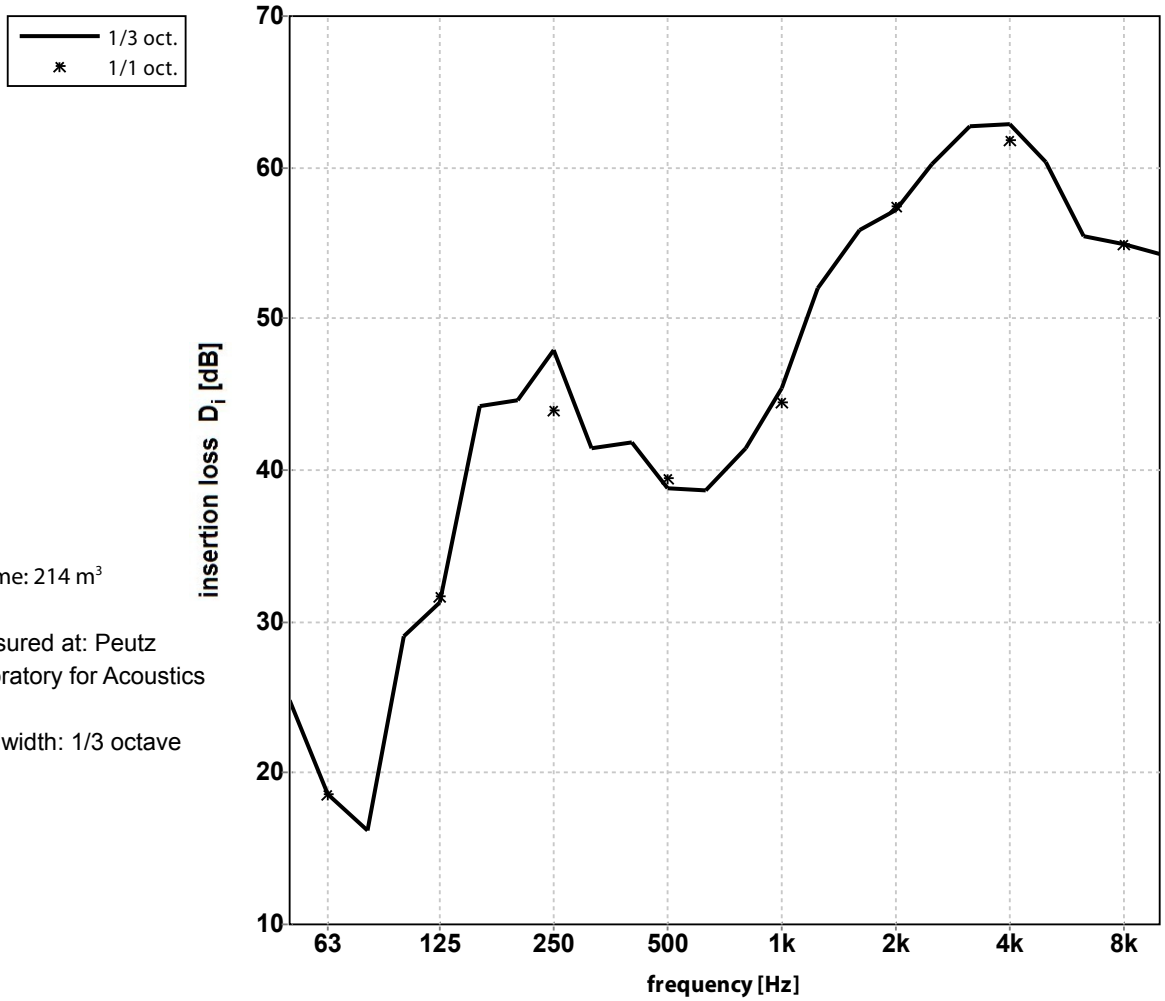
		24,1	30,9	45,6	39,5	40,7	54,9	>63,0	55,3	
	1/3 oct.	16,3	35,9	47,7	37,6	43,9	56,2	>63,0	55,2	dB
		14,2	44,6	39,5	37,2	50,3	59,7	60,4	54,1	
1/1 oct.		**16,6**	**34,3**	**42,8**	**38,0**	**43,5**	**56,5**	**>62,0**	**54,8**	**dB**

Mook, 24-07-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #10 SONOAFS-NW.PVC
diameter 127 mm
length 3,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

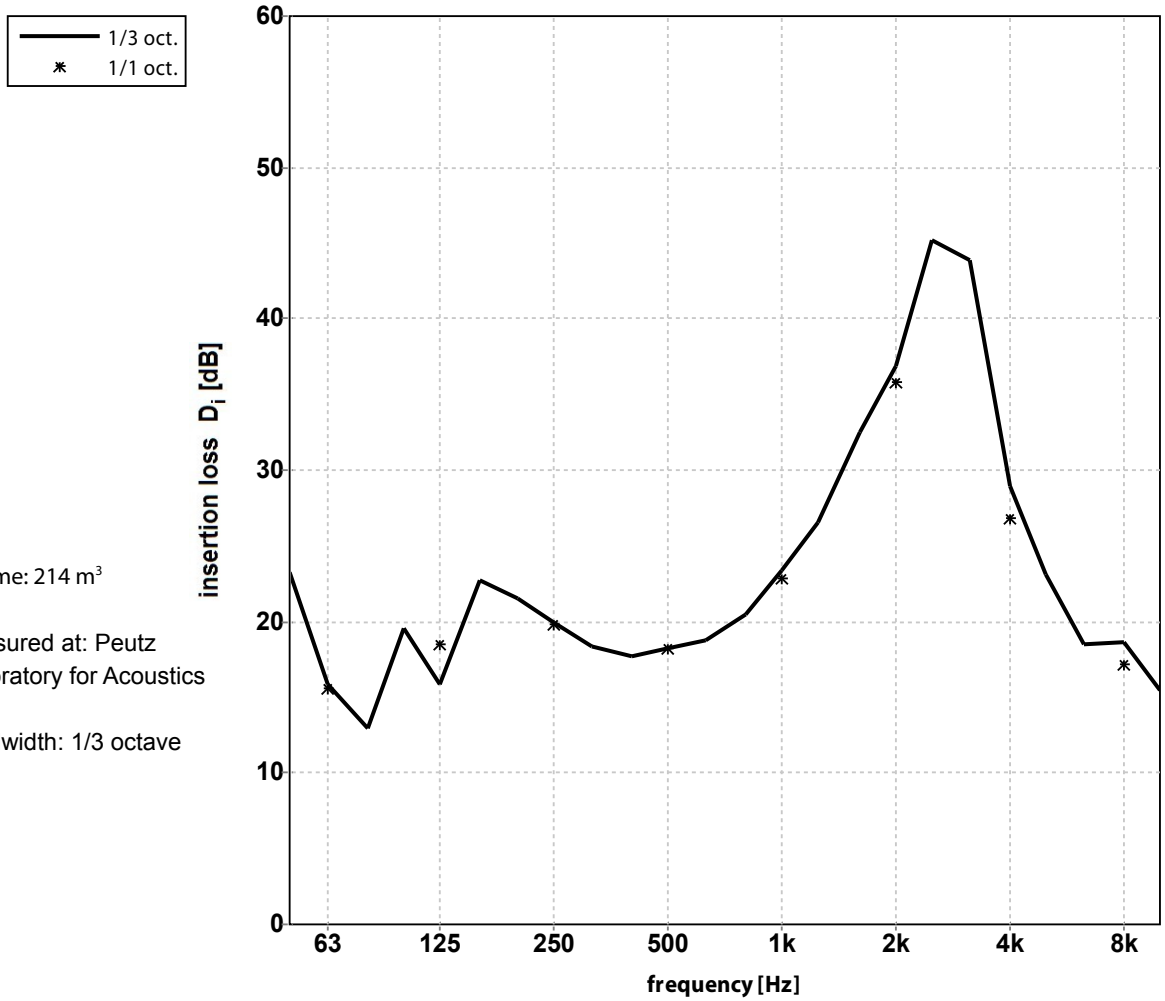
	24,8	29,0	44,6	41,8	41,5	55,8	62,7	55,5	
1/3 oct.	18,6	31,3	47,9	38,8	45,4	57,2	62,9	55,0	dB
	16,2	44,2	41,5	38,7	52,0	60,2	60,4	54,3	
1/1 oct.	**18,6**	**31,7**	**43,9**	**39,5**	**44,5**	**57,4**	**61,8**	**54,9**	**dB**

Mook, 24-07-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #3; SONOAFS-NW.PVC
diameter 160 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

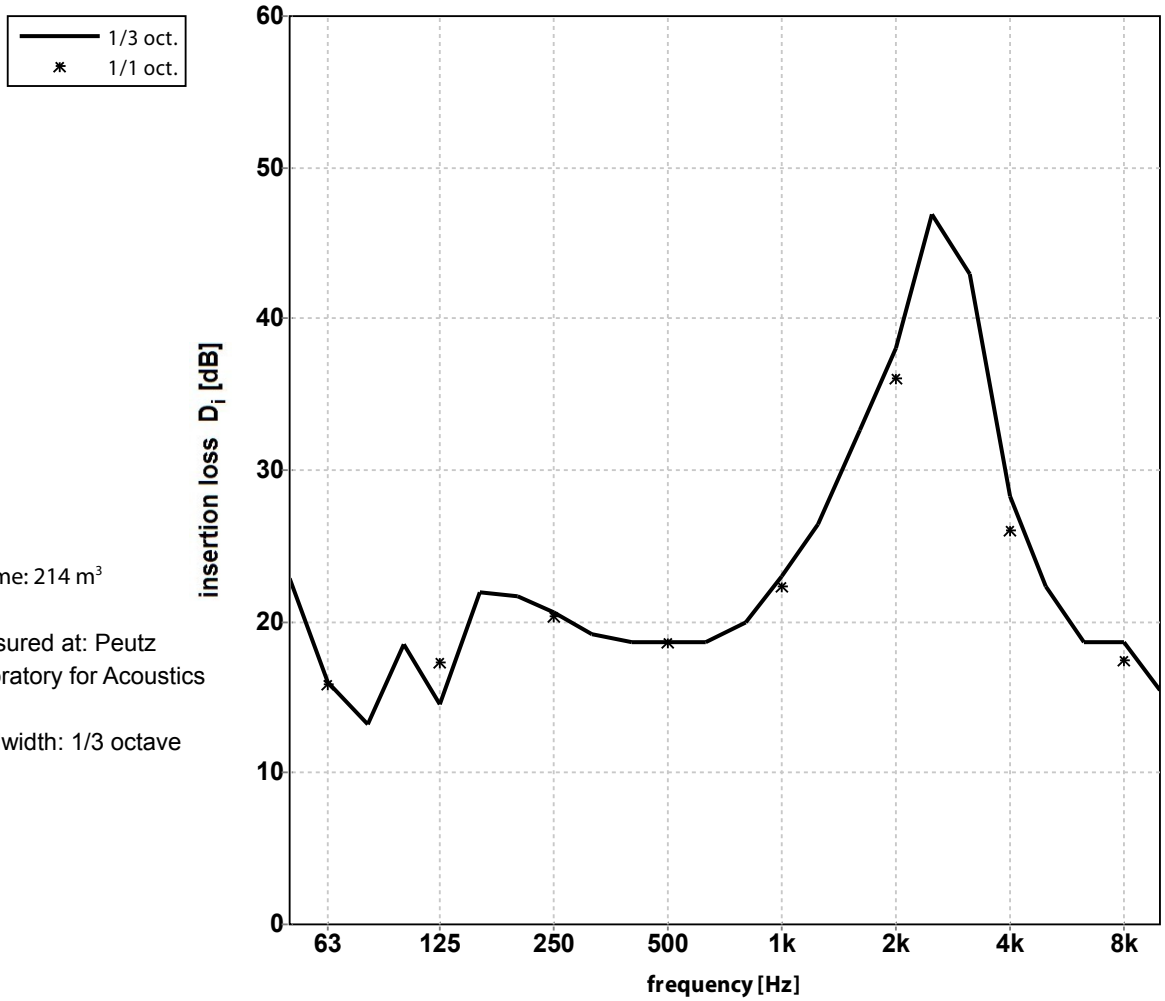
	23,2	19,6	21,6	17,7	20,5	32,5	43,9	18,5	
1/3 oct.	15,8	15,8	20,0	18,3	23,4	36,9	29,0	18,6	dB
	12,9	22,7	18,4	18,8	26,5	45,2	23,1	15,4	
1/1 oct.	**15,6**	**18,5**	**19,8**	**18,2**	**22,8**	**35,8**	**26,8**	**17,2**	**dB**

Mook, 27-08-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #4; SONOAFS-NW.PVC
diameter 160 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

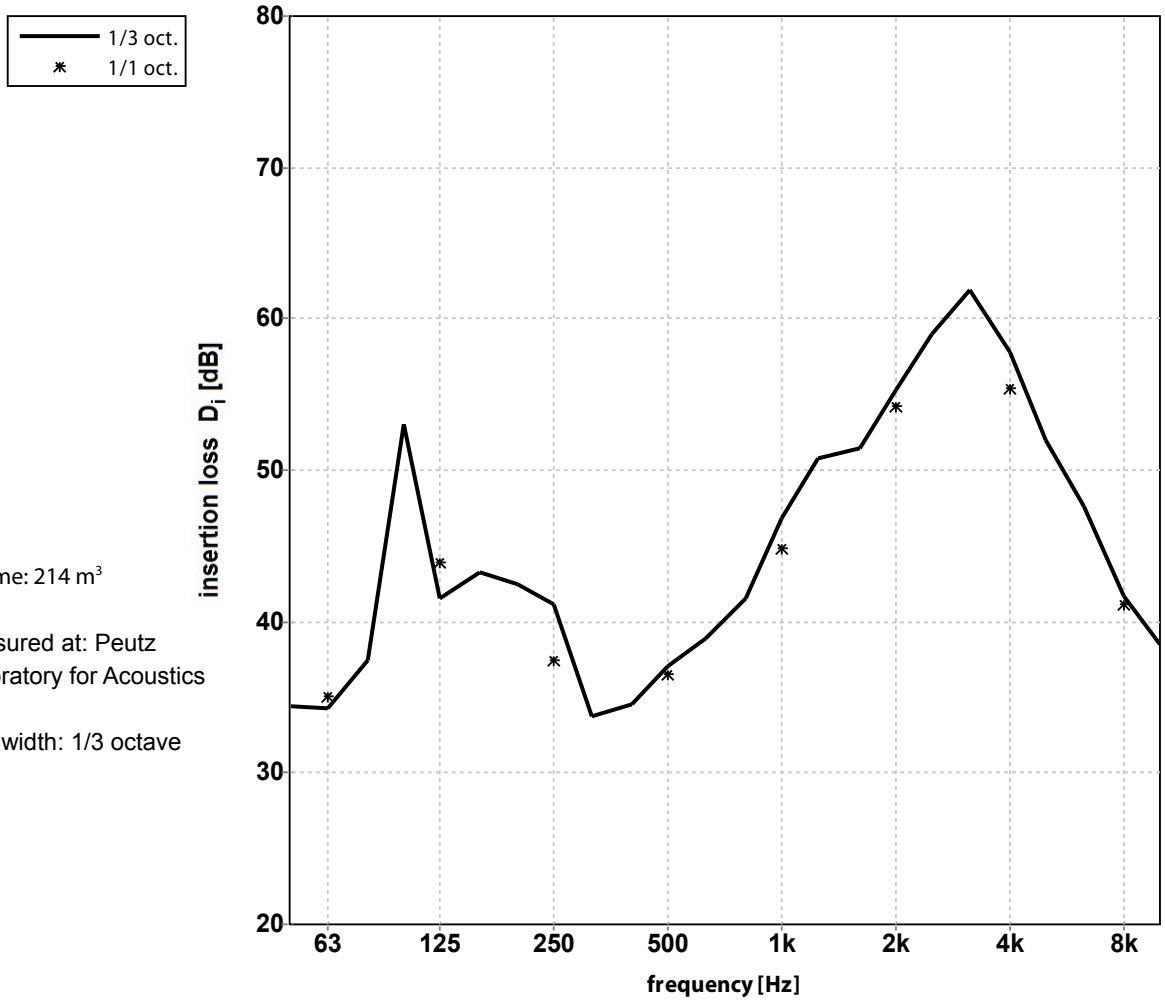
	22,9	18,5	21,7	18,6	19,9	32,6	42,9	18,7	
1/3 oct.	16,0	14,5	20,6	18,6	23,0	38,0	28,3	18,7	dB
	13,2	21,9	19,2	18,6	26,4	46,9	22,3	15,5	
1/1 oct.	**15,8**	**17,3**	**20,4**	**18,6**	**22,3**	**36,1**	**26,1**	**17,4**	**dB**

Mook, 27-08-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #11; SONOAFS-NW.PVC
diameter 160 mm
length 3,0 m



volume: 214 m³

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

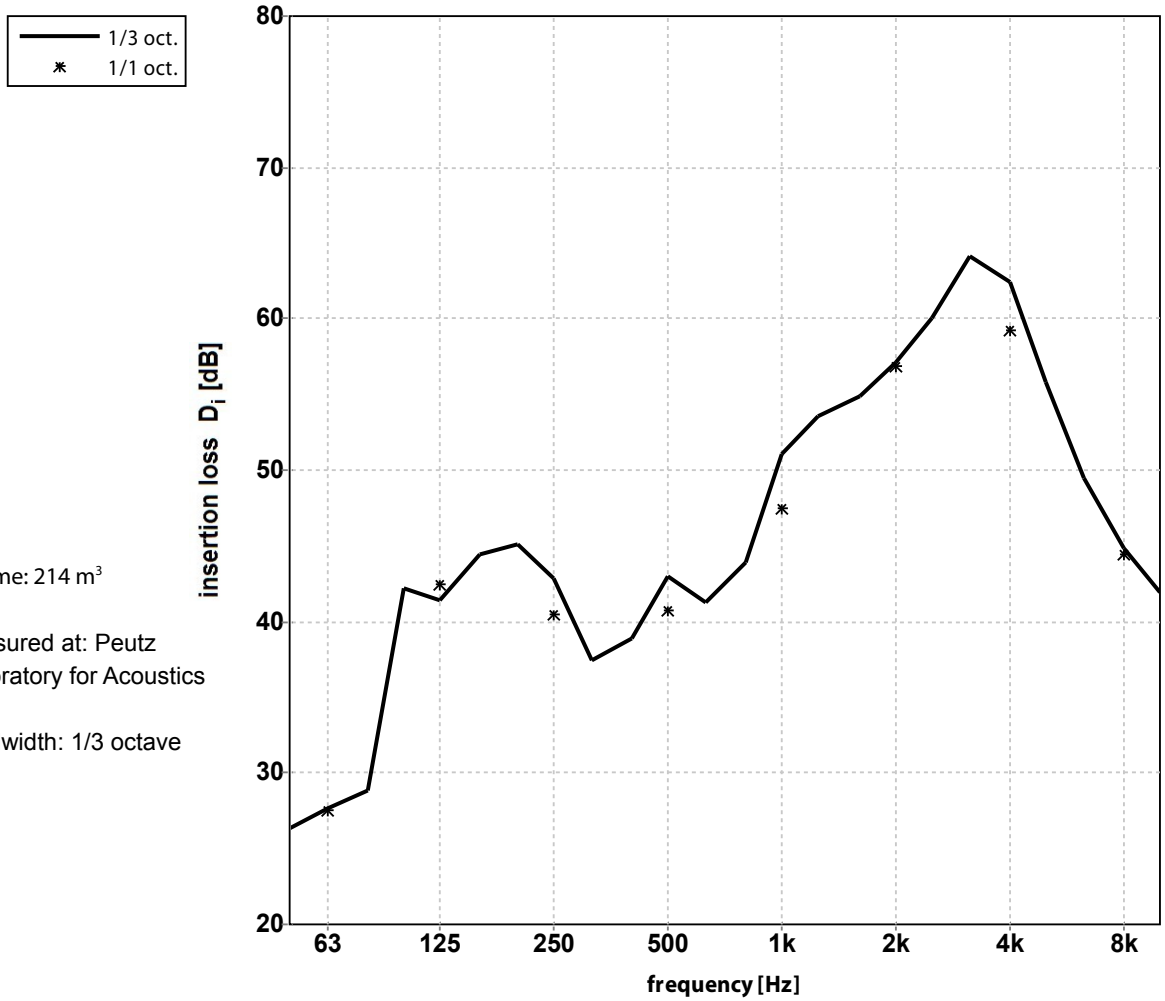
	34,4	53,0	42,5	34,5	41,5	51,5	61,9	47,6	
1/3 oct.	34,3	41,5	41,1	37,1	46,8	55,3	57,8	41,7	dB
	37,4	43,3	33,8	38,9	50,8	59,0	52,0	38,5	
1/1 oct.	**35,1**	**43,9**	**37,4**	**36,5**	**44,8**	**54,2**	**55,4**	**41,2**	**dB**

Mook, 27-08-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #12; SONOAFS-NW.PVC
diameter 160 mm
length 3,0 m



volume: 214 m³

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

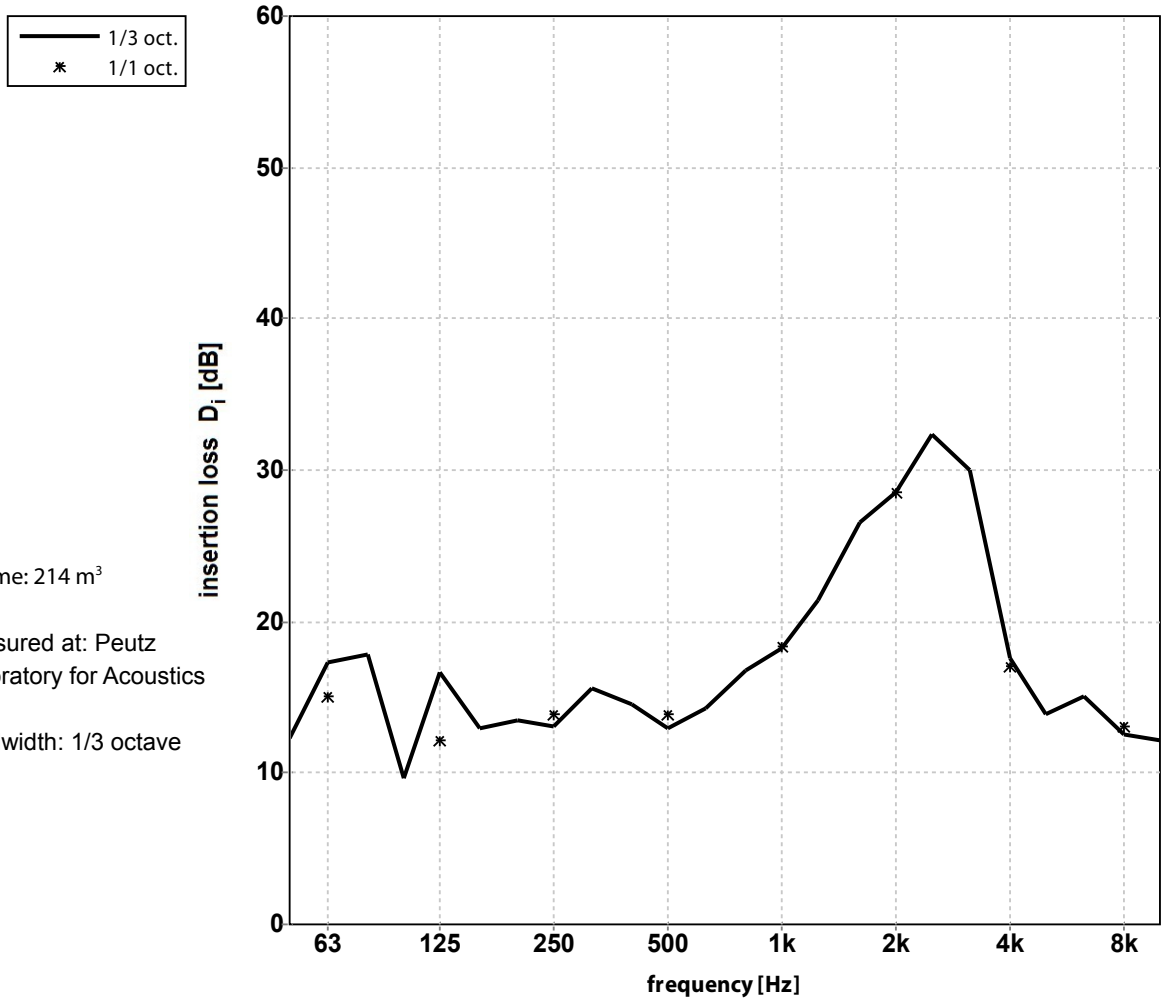
		26,4	42,2	45,1	38,9	43,9	54,9	64,2	49,5	
	1/3 oct.	27,7	41,4	42,8	43,0	51,0	57,1	62,4	44,8	dB
		28,9	44,4	37,4	41,3	53,6	60,1	55,8	42,0	
1/1 oct.		**27,5**	**42,5**	**40,5**	**40,7**	**47,5**	**56,9**	**59,2**	**44,5**	**dB**

Mook, 27-08-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #5; SONOAFS-NW.PVC
diameter 203 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	12,3	9,6	13,5	14,6	16,8	26,6	30,0	15,0	
1/3 oct.	17,3	16,7	13,1	13,0	18,3	28,6	17,6	12,6	dB
	17,8	13,0	15,6	14,3	21,4	32,4	13,9	12,2	
1/1 oct.	**15,0**	**12,2**	**13,9**	**13,9**	**18,4**	**28,6**	**17,1**	**13,1**	**dB**

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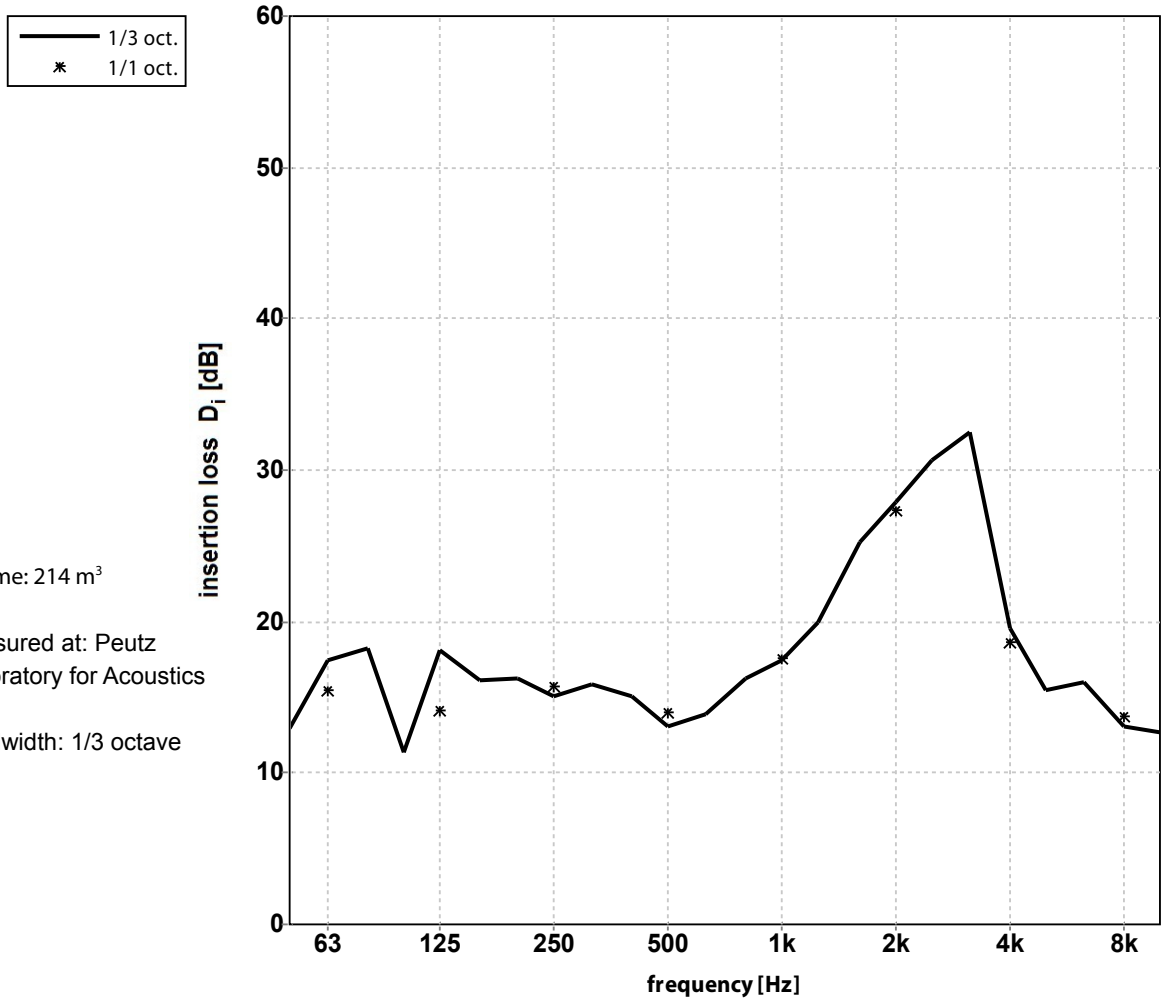
Mook, 25-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #6; SONOAFS-NW.PVC
diameter 203 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

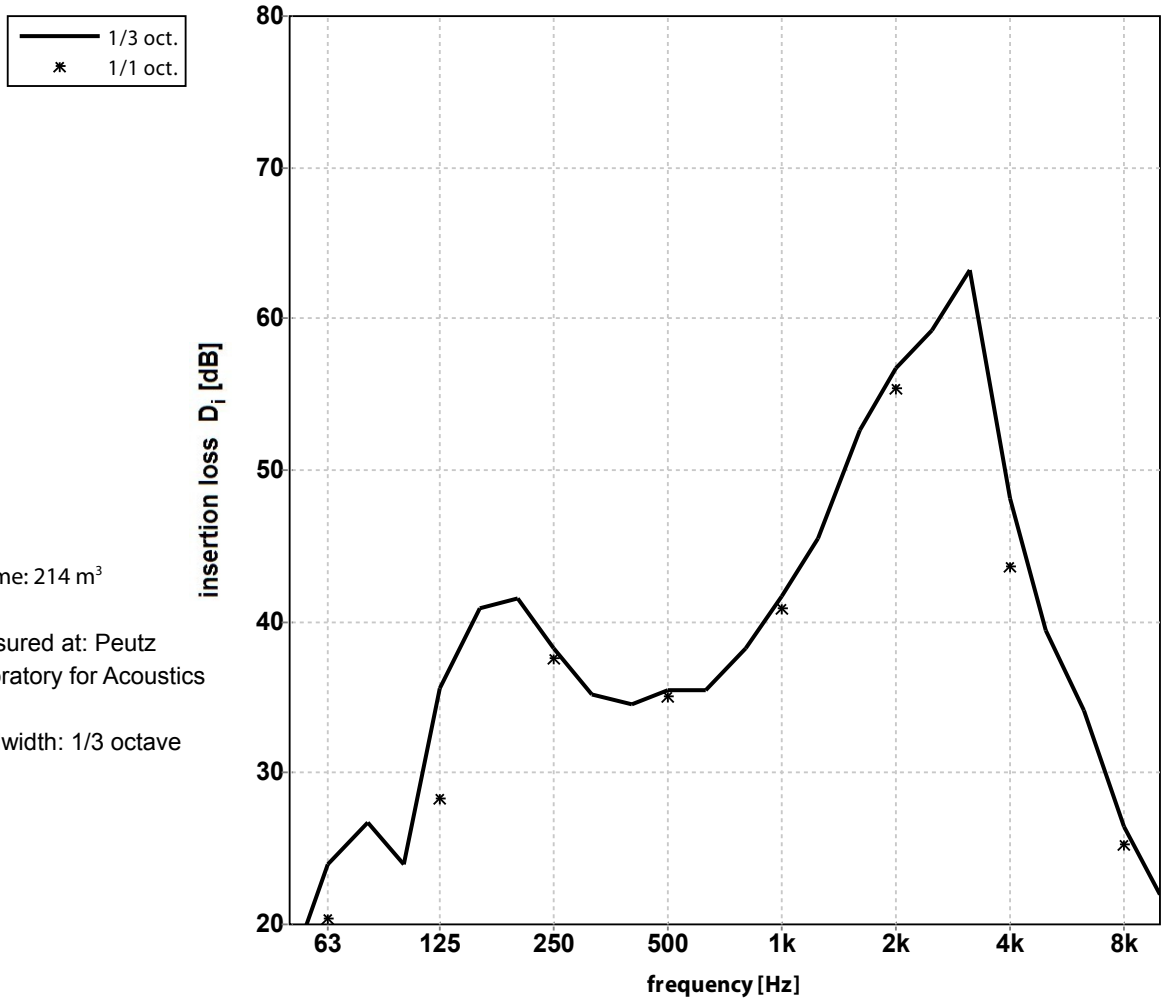
	12,9	11,3	16,3	15,1	16,2	25,2	32,5	16,0	
1/3 oct.	17,4	18,1	15,0	13,1	17,4	27,9	19,6	13,1	dB
	18,3	16,1	15,9	13,9	19,9	30,7	15,4	12,7	
1/1 oct.	**15,5**	**14,2**	**15,7**	**14,0**	**17,6**	**27,4**	**18,7**	**13,7**	**dB**

Mook, 25-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #13; SONOAFS-NW.PVC
diameter 203 mm
length 3,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	16,8	23,9	41,5	34,5	38,3	52,7	63,2	34,1	
1/3 oct.	23,9	35,6	38,2	35,5	41,7	56,7	48,1	26,5	dB
	26,8	40,9	35,2	35,5	45,5	59,3	39,4	22,0	
1/1 oct.	**20,4**	**28,3**	**37,6**	**35,1**	**40,9**	**55,4**	**43,6**	**25,3**	**dB**

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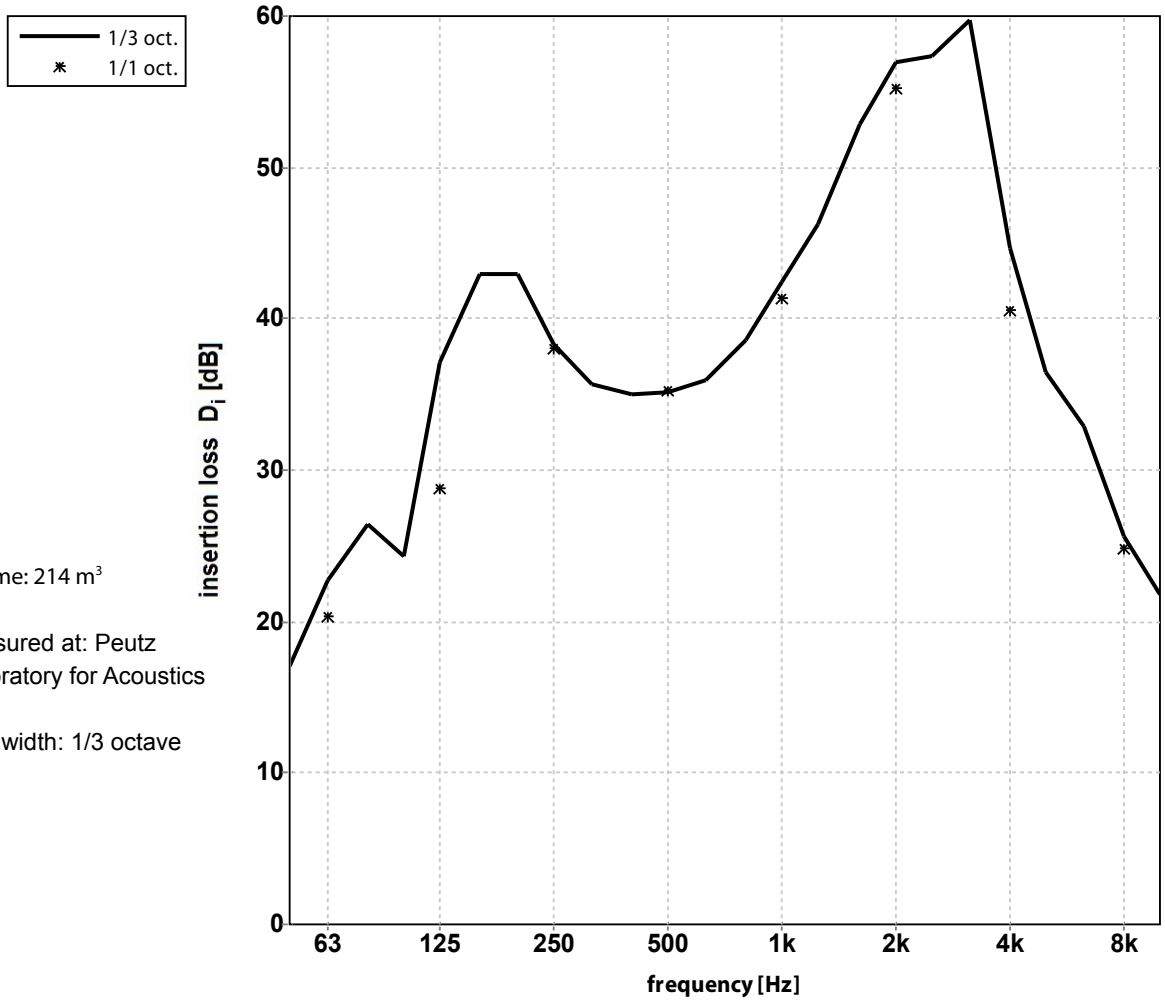
Mook, 25-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #14; SONOAFS-NW.PVC
diameter 203 mm
length 3,0 m



volume: 214 m³

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

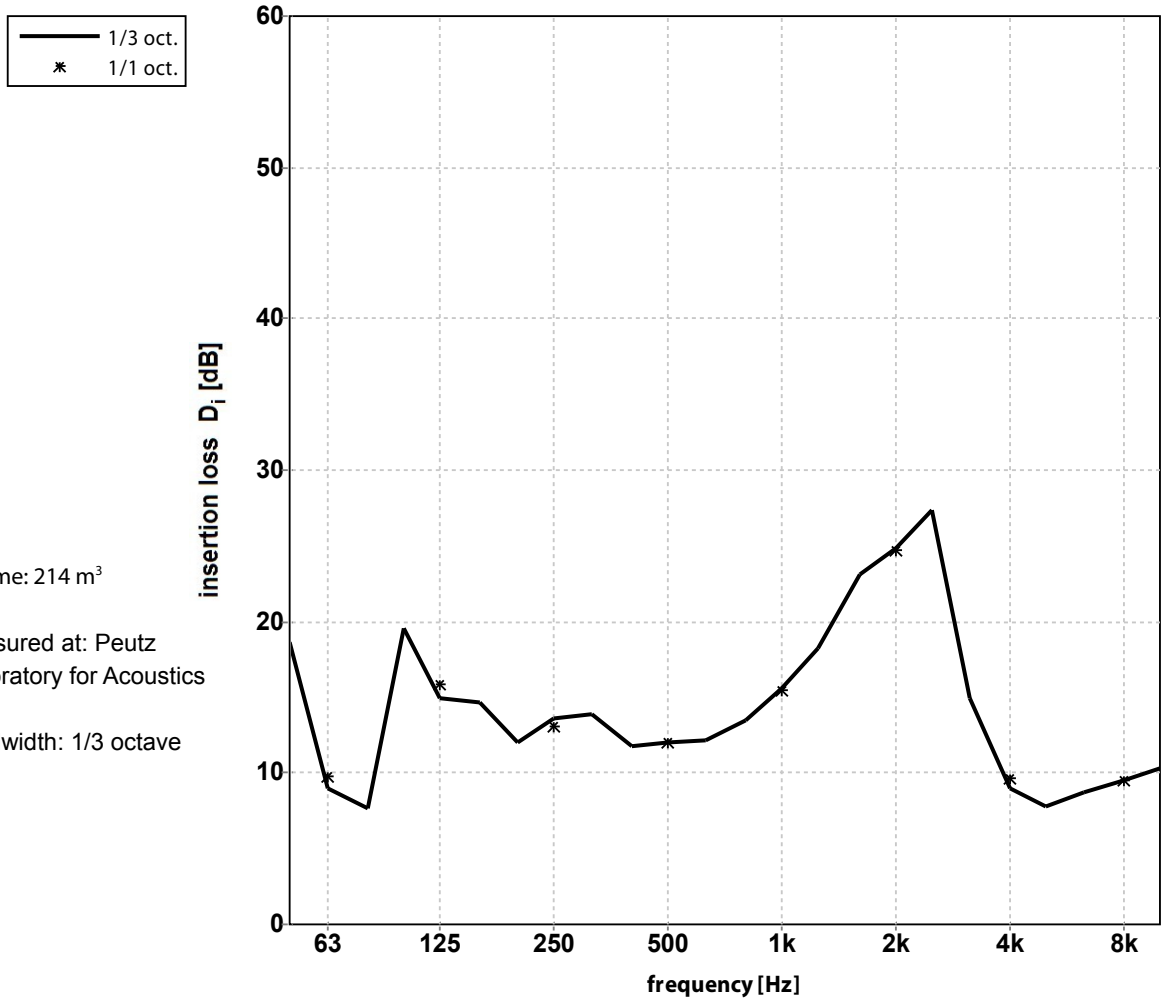
	17,0	24,3	43,0	35,0	38,6	52,9	59,7	32,9	
1/3 oct.	22,7	37,1	38,3	35,2	42,4	56,9	44,7	25,7	dB
	26,4	42,9	35,7	35,9	46,3	57,3	36,5	21,8	
1/1 oct.	**20,4**	**28,8**	**38,1**	**35,3**	**41,4**	**55,2**	**40,6**	**24,9**	**dB**

Mook, 25-04-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #7; SONOAFS-NW.PVC
diameter 254 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	18,7	19,5	12,0	11,8	13,5	23,1	14,9	8,7	
1/3 oct.	9,0	14,9	13,6	12,0	15,6	24,8	9,0	9,5	dB
	7,6	14,7	13,9	12,2	18,2	27,3	7,8	10,3	
1/1 oct.	**9,8**	**15,9**	**13,1**	**12,0**	**15,4**	**24,7**	**9,7**	**9,5**	**dB**

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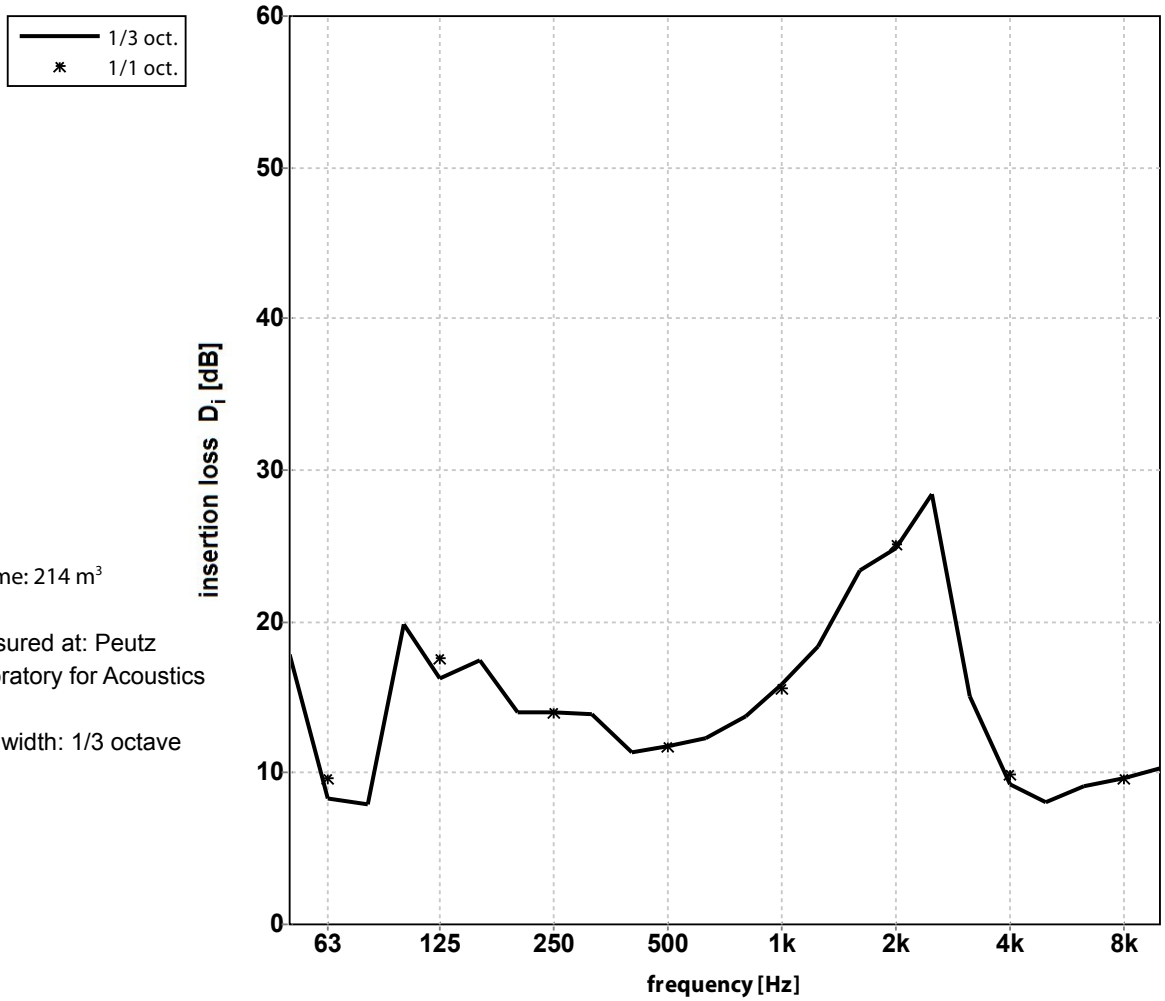
Mook, 02-05-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #8; SONOAFS-NW.PVC
diameter 254 mm
length 1,0 m



volume: 214 m³

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

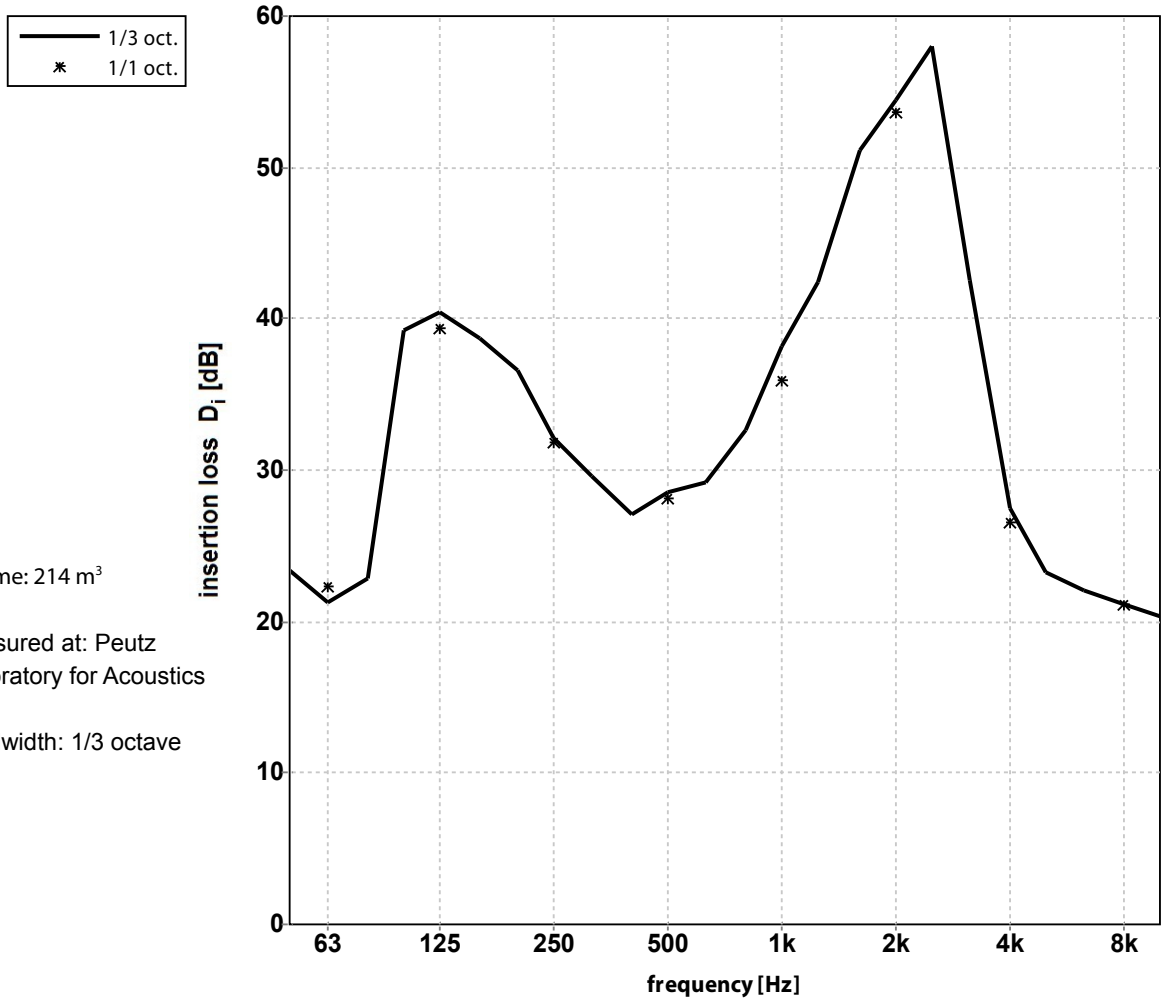
	17,8	19,8	14,0	11,4	13,8	23,4	15,1	9,1	
1/3 oct.	8,3	16,3	14,0	11,7	15,9	24,8	9,3	9,7	dB
	7,9	17,4	13,9	12,3	18,4	28,4	8,0	10,3	
1/1 oct.	**9,6**	**17,6**	**14,0**	**11,8**	**15,6**	**25,1**	**9,9**	**9,7**	**dB**

Mook, 02-05-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #15; SONOAFS-NW.PVC
diameter 254 mm
length 3,0 m



volume: 214 m³

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

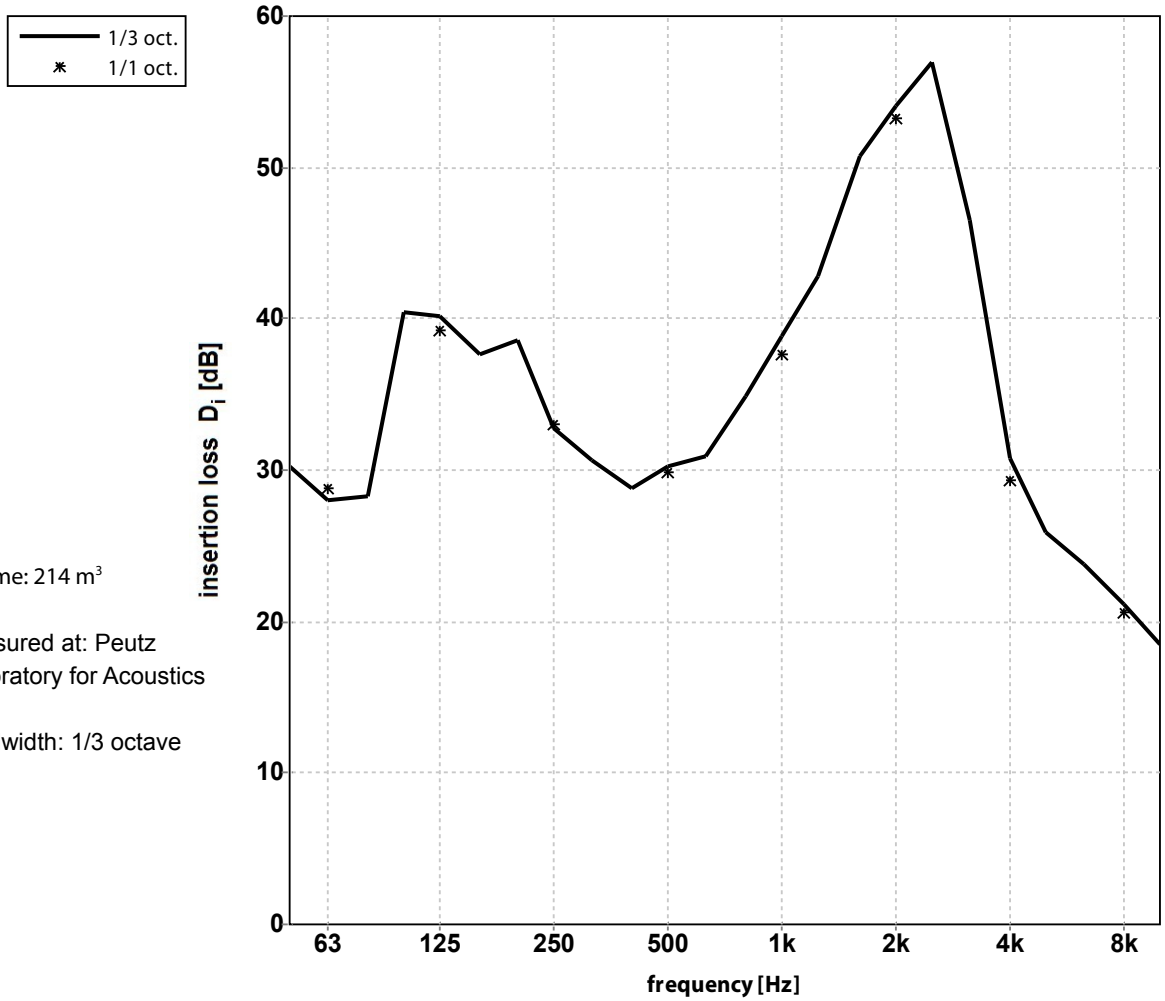
	23,4	39,2	36,6	27,1	32,7	51,2	42,5	22,1	
1/3 oct.	21,3	40,5	32,1	28,5	38,2	54,5	27,5	21,2	dB
	22,9	38,7	29,6	29,2	42,4	58,0	23,2	20,3	
1/1 oct.	**22,4**	**39,4**	**31,9**	**28,2**	**36,0**	**53,7**	**26,6**	**21,1**	**dB**

Mook, 02-05-2014

INSERTION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #16; SONOAFS-NW.PVC
diameter 254 mm
length 3,0 m



volume: 214 m³

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

		30,3	40,5	38,6	28,8	34,9	50,8	46,5	23,8	
	1/3 oct.	28,0	40,2	32,8	30,3	38,8	54,1	30,8	21,2	dB
		28,3	37,7	30,7	30,9	42,8	57,0	25,9	18,5	
1/1 oct.		**28,8**	**39,3**	**33,0**	**29,9**	**37,7**	**53,2**	**29,4**	**20,6**	**dB**

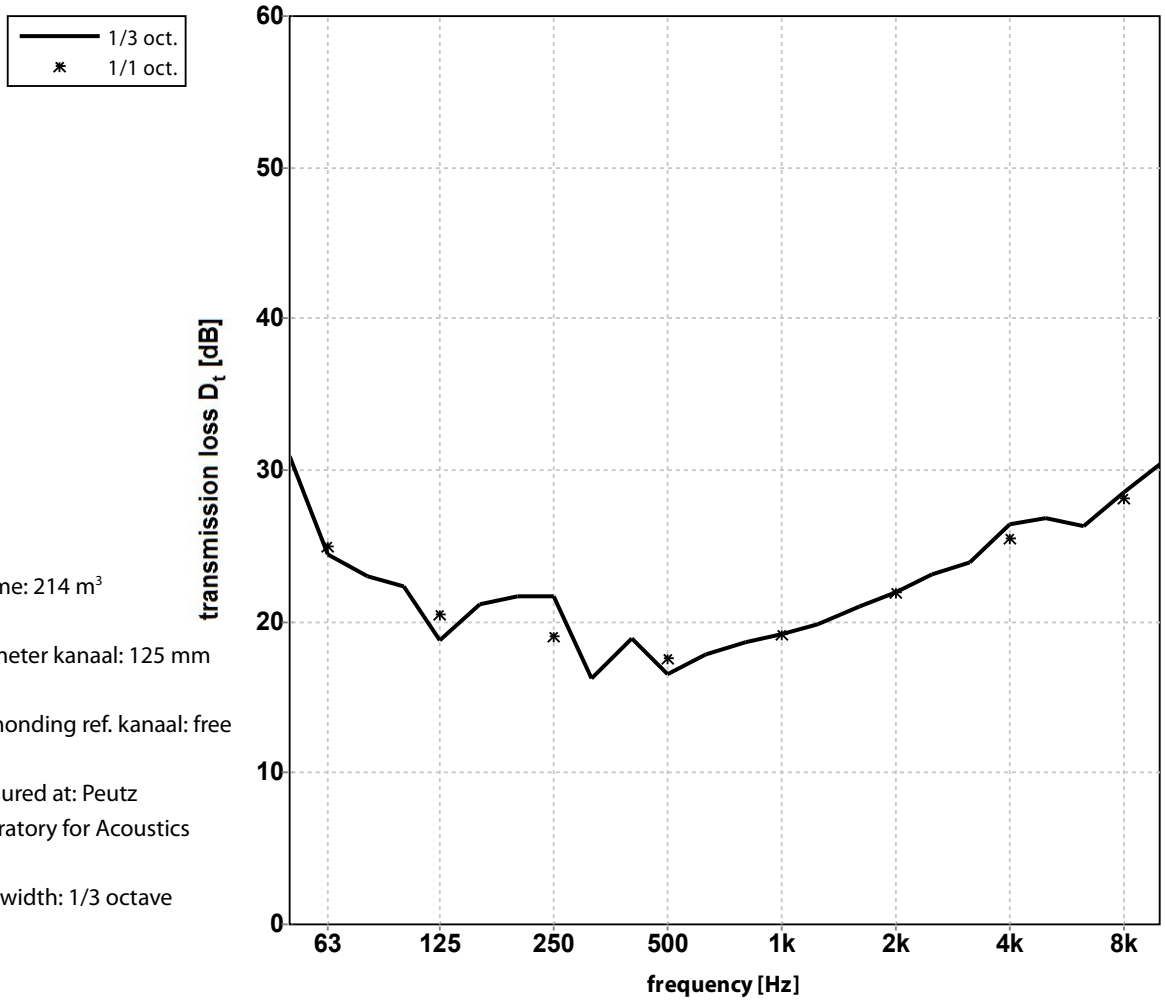
Mook, 02-05-2014

LABORATORY FOR ACOUSTICS

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #1; SONOAFS-NW.PVC
diameter 127 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 125 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

	30,9	22,4	21,7	18,9	18,6	21,0	23,9	26,3	
1/3 oct.	24,4	18,8	21,7	16,5	19,2	21,9	26,4	28,5	dB
	23,0	21,1	16,2	17,8	19,8	23,1	26,8	30,4	
1/1 oct.	**25,0**	**20,5**	**19,0**	**17,6**	**19,2**	**21,9**	**25,5**	**28,1**	**dB**

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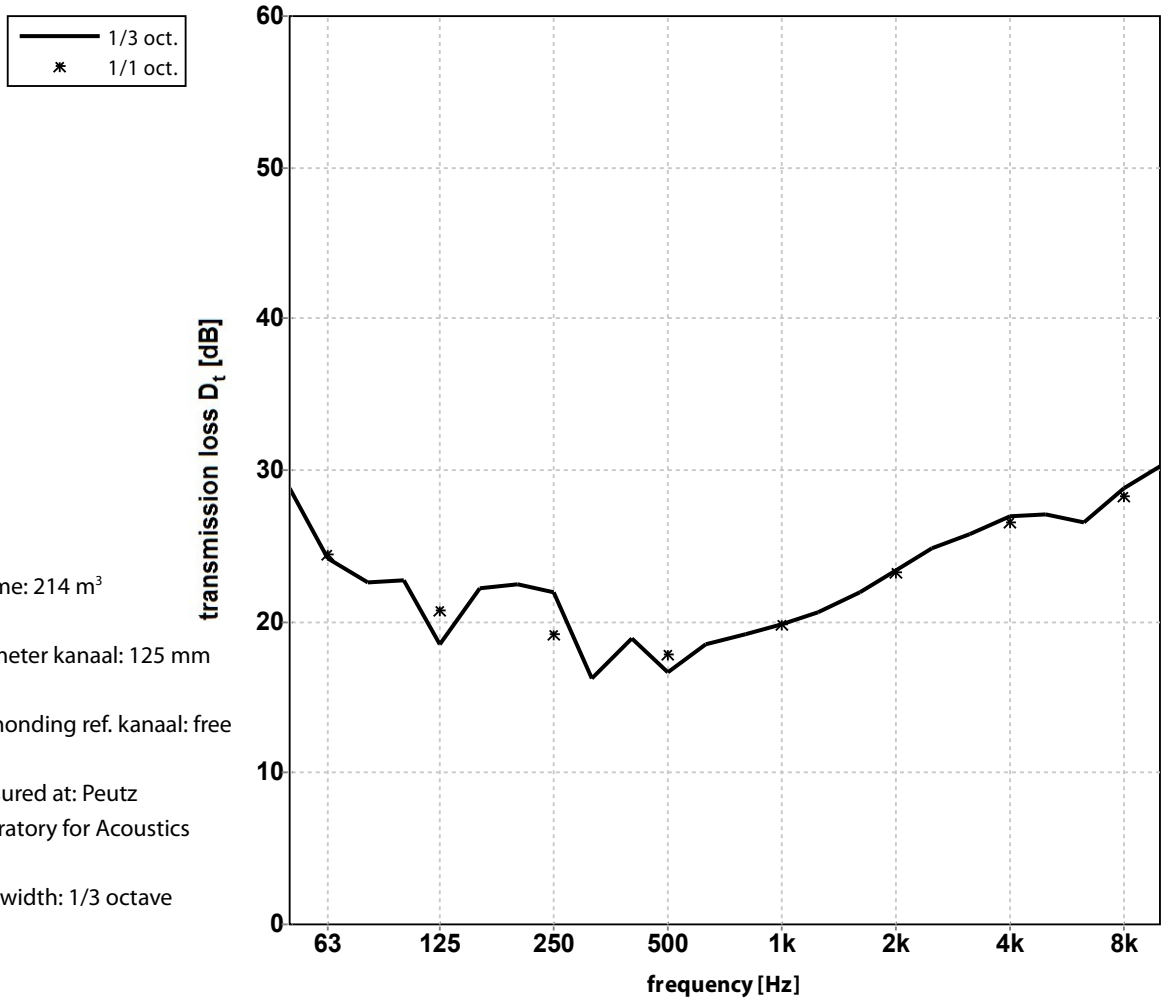
Mook, 22-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #2; SONOAFS-NW.PVC
diameter 127 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 125 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

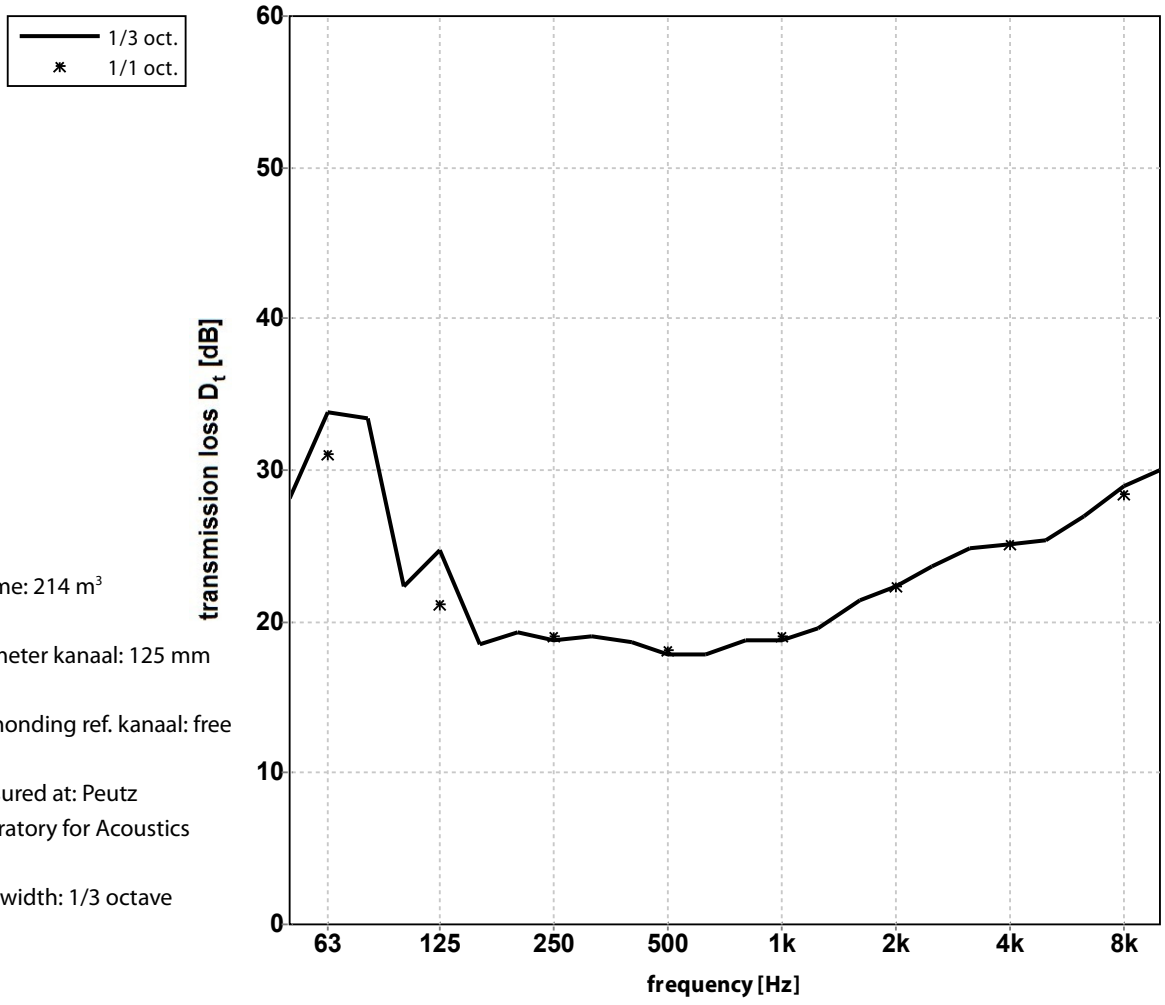
	28,8	22,7	22,5	18,9	19,1	22,0	25,8	26,6	
1/3 oct.	24,2	18,5	21,9	16,6	19,8	23,4	27,0	28,8	dB
	22,6	22,2	16,2	18,5	20,6	24,8	27,1	30,2	
1/1 oct.	**24,5**	**20,7**	**19,2**	**17,9**	**19,8**	**23,3**	**26,6**	**28,3**	**dB**

Mook, 22-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #9; SONOAFS-NW.PVC
diameter 127 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 125 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

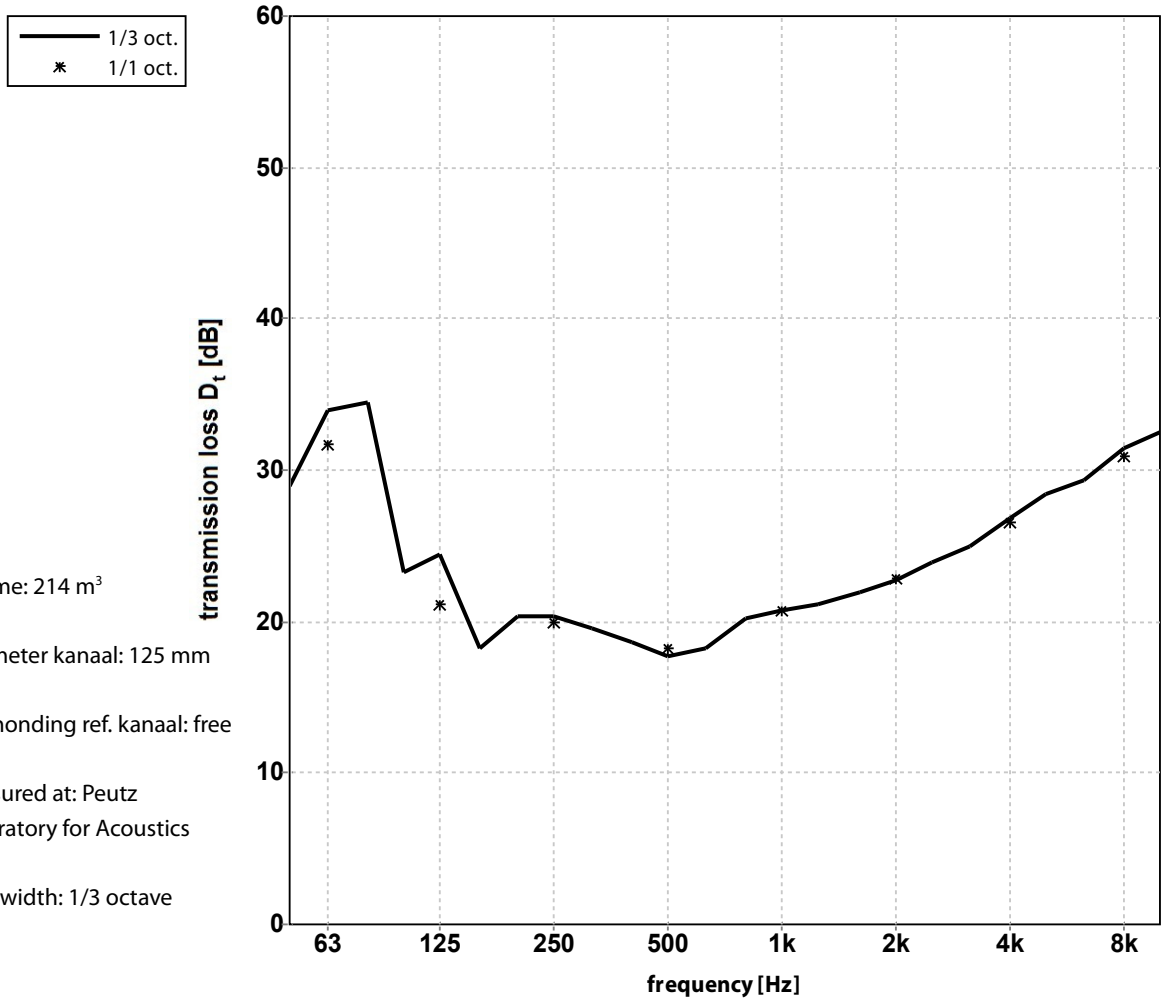
	28,2	22,3	19,3	18,6	18,8	21,4	24,8	26,9	
1/3 oct.	33,8	24,7	18,8	17,9	18,8	22,4	25,1	28,9	dB
	33,5	18,5	19,0	17,9	19,5	23,7	25,4	30,0	
1/1 oct.	**31,0**	**21,1**	**19,0**	**18,1**	**19,0**	**22,4**	**25,1**	**28,4**	**dB**

Mook, 15-08-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #10; SONOAFS-NW.PVC
diameter 127 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 125 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

	29,0	23,3	20,3	18,6	20,2	21,9	25,0	29,4	
1/3 oct.	34,0	24,5	20,3	17,7	20,7	22,7	26,8	31,5	dB
	34,5	18,3	19,5	18,3	21,2	23,9	28,4	32,5	
1/1 oct.	**31,7**	**21,2**	**20,0**	**18,2**	**20,7**	**22,8**	**26,5**	**30,9**	**dB**

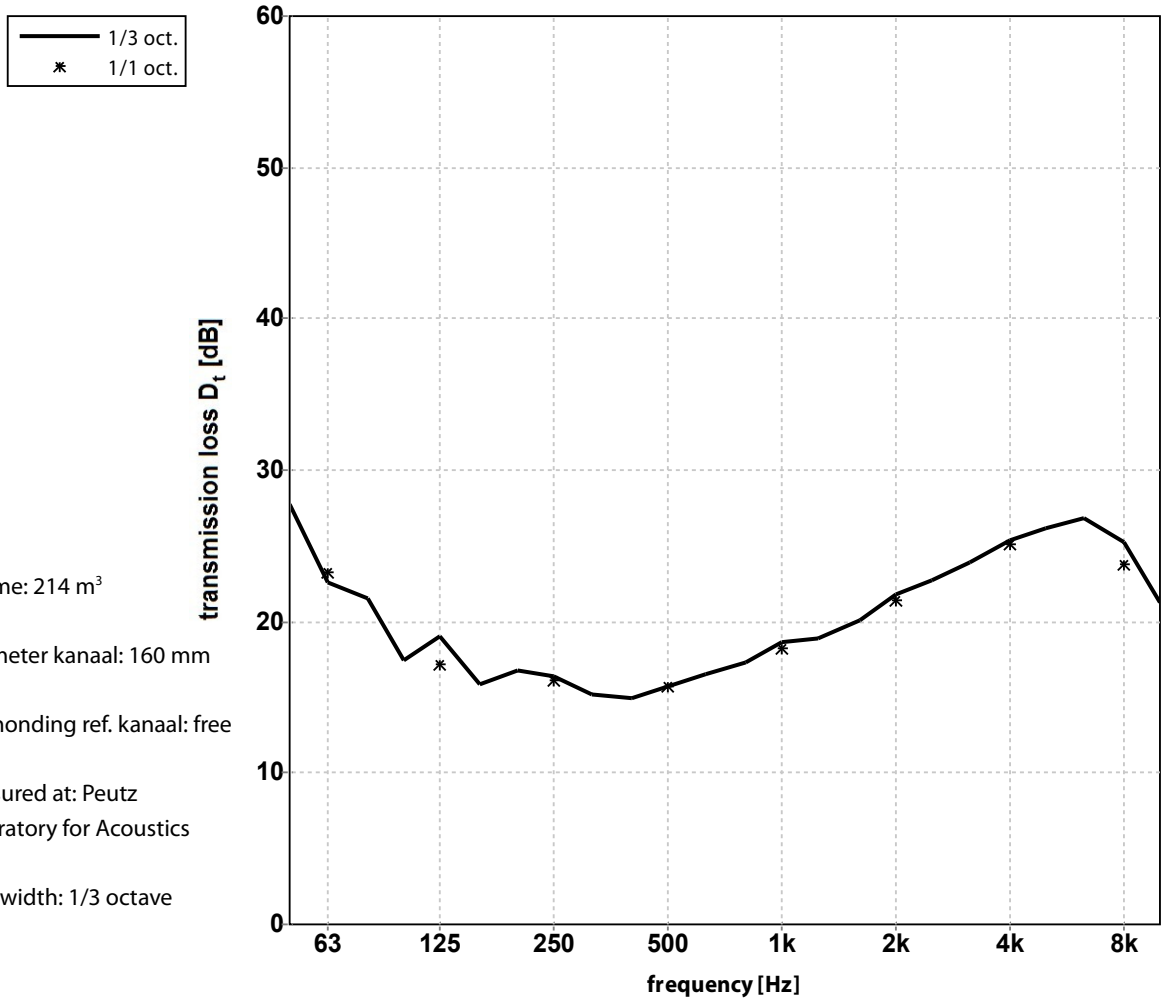
Mook, 15-08-2014

LABORATORY FOR ACOUSTICS

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #3; SONOAFS-NW.PVC
diameter 160 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 160 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

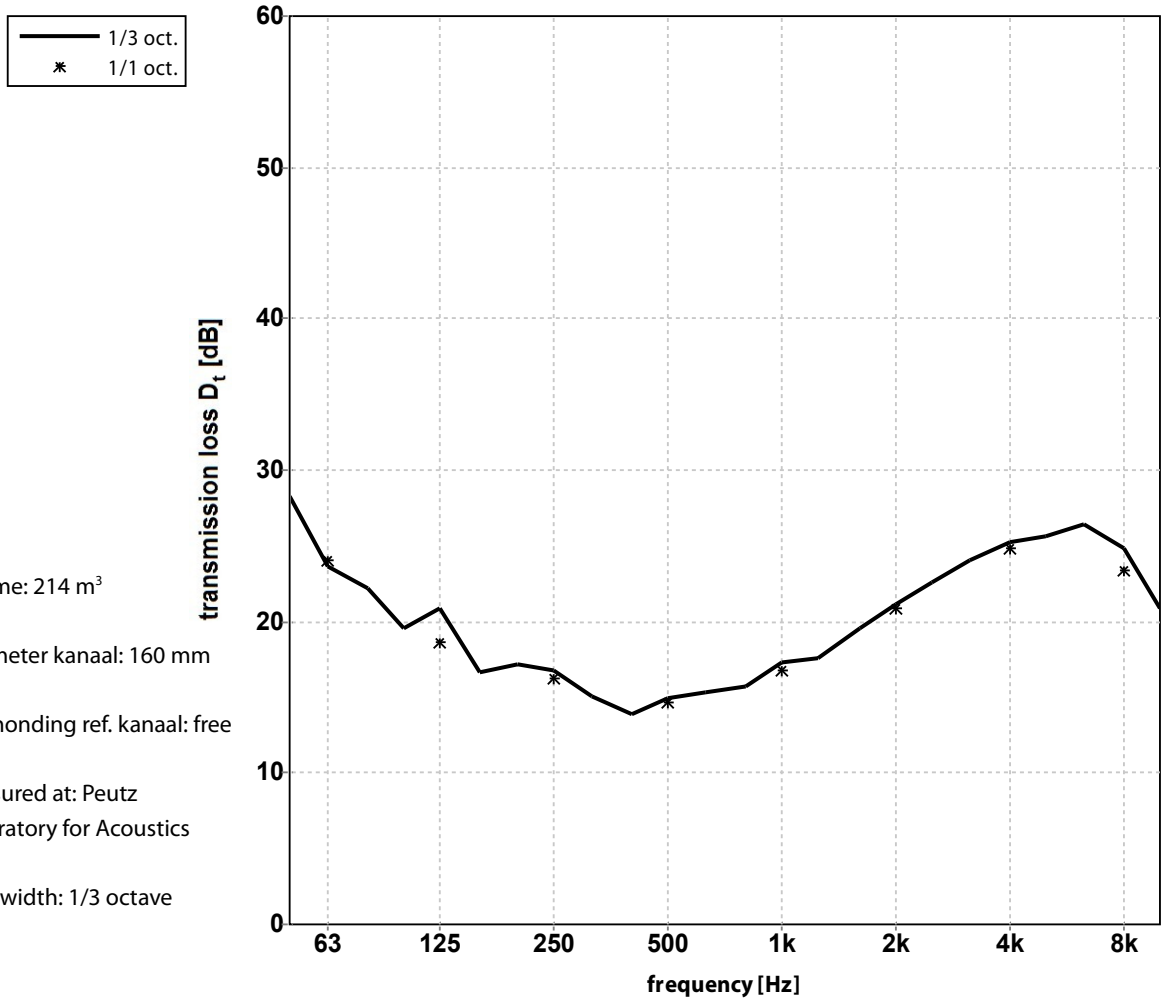
	27,8	17,4	16,8	14,9	17,3	20,1	23,9	26,8	
1/3 oct.	22,6	19,0	16,4	15,7	18,6	21,8	25,4	25,2	dB
	21,6	15,8	15,2	16,5	18,9	22,7	26,2	21,3	
1/1 oct.	**23,3**	**17,2**	**16,1**	**15,7**	**18,2**	**21,4**	**25,1**	**23,8**	**dB**

Mook, 11-09-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #4; SONOAFS-NW.PVC
diameter 160 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 160 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	28,3	19,6	17,2	13,9	15,7	19,6	24,0	26,4	
1/3 oct.	23,6	20,9	16,8	14,9	17,3	21,1	25,2	24,9	dB
	22,2	16,7	15,0	15,3	17,6	22,6	25,7	20,9	
1/1 oct.	**24,0**	**18,7**	**16,2**	**14,7**	**16,8**	**20,9**	**24,9**	**23,4**	**dB**

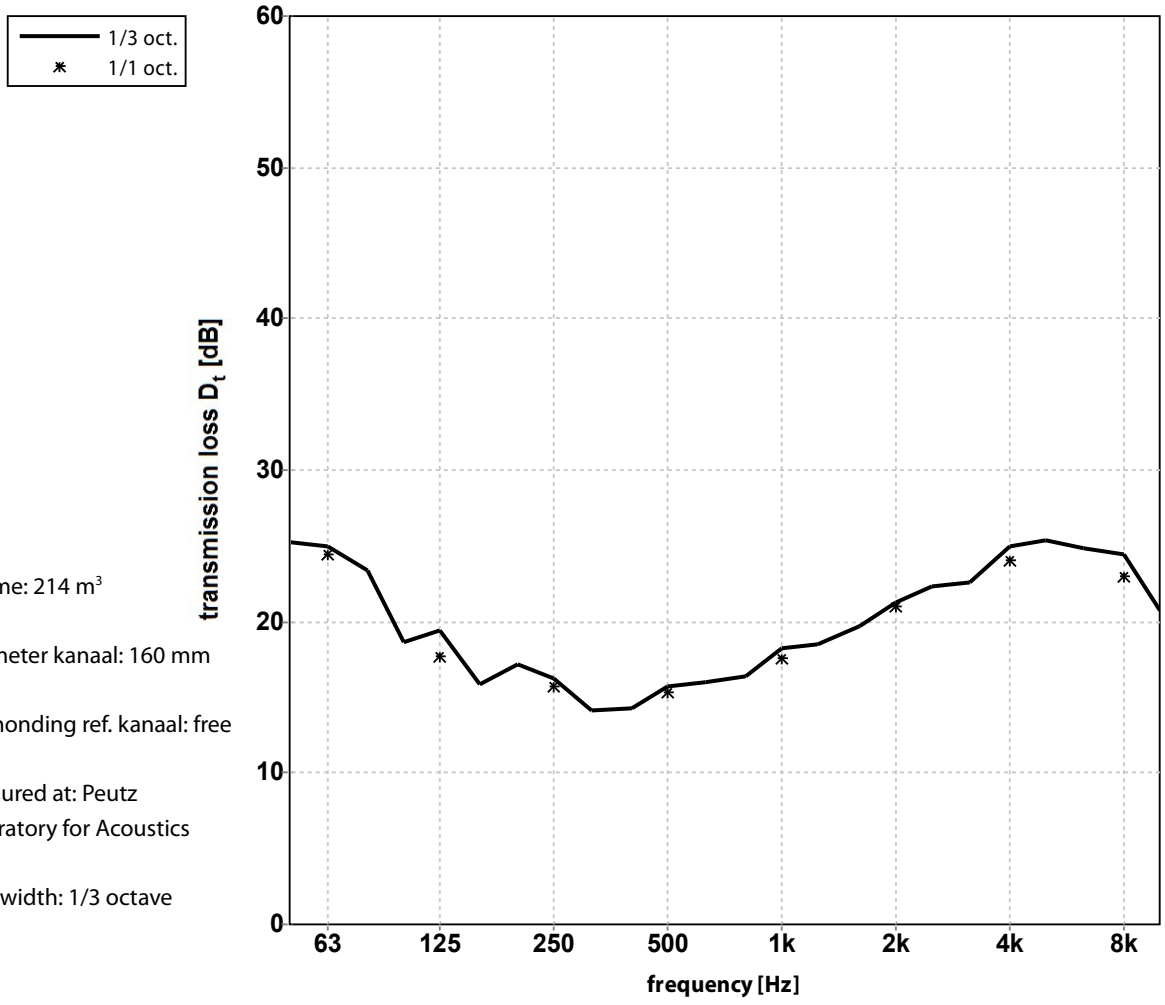
Mook, 11-09-2014

LABORATORY FOR ACOUSTICS

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #11; SONOAFS-NW.PVC
diameter 160 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 160 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

	25,3	18,6	17,2	14,3	16,4	19,7	22,6	24,9	
1/3 oct.	25,0	19,4	16,3	15,7	18,2	21,3	25,0	24,4	dB
	23,4	15,9	14,1	16,0	18,5	22,4	25,4	20,8	
1/1 oct.	**24,5**	**17,7**	**15,7**	**15,3**	**17,6**	**21,0**	**24,1**	**23,0**	**dB**

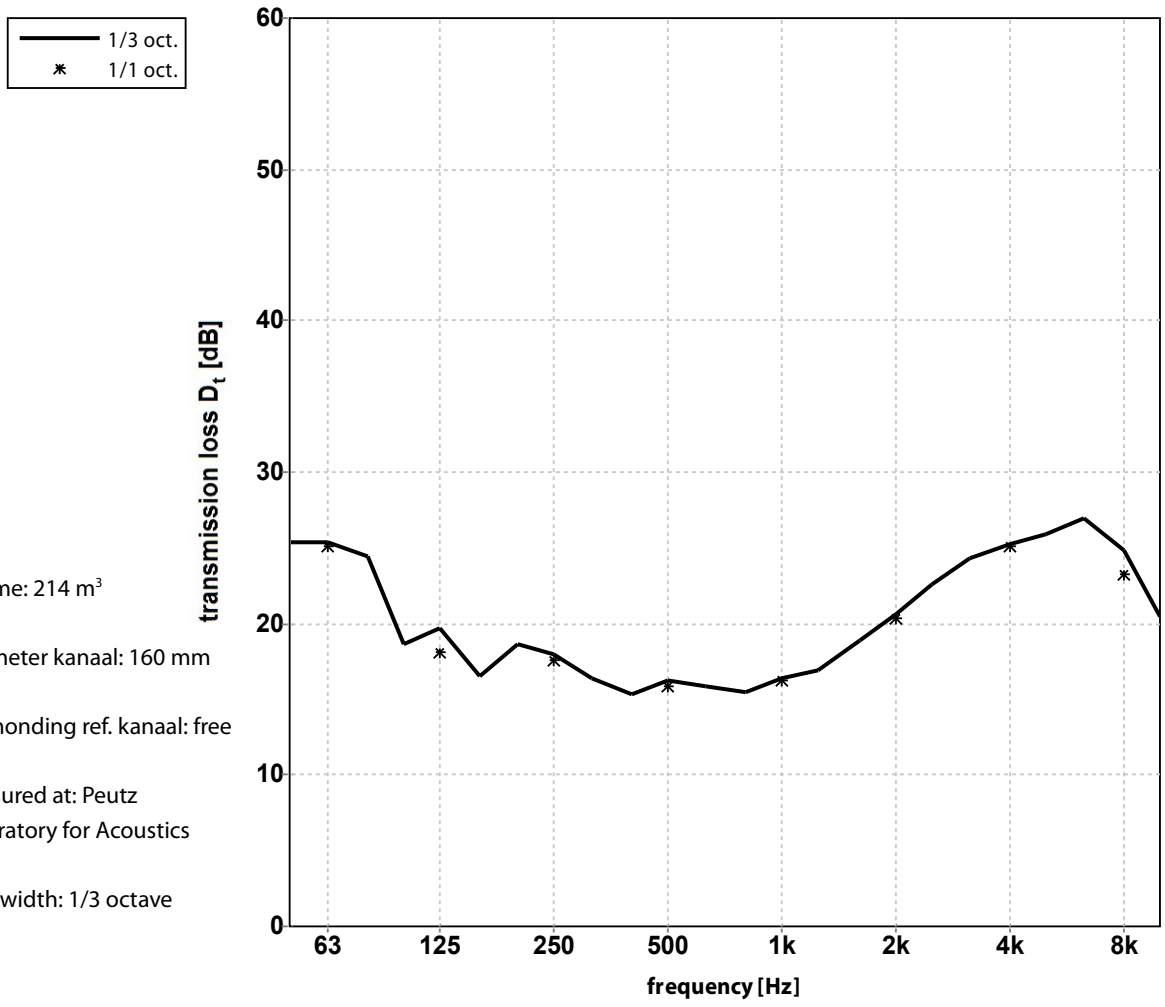
Mook, 11-09-2014

SoundPower 3.8.6b mode 10, PM: TS, file: a2692 Lwl #:992 Lwll #:986 D#:1058

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #12; SONOAFS-NW.PVC
diameter 160 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 160 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

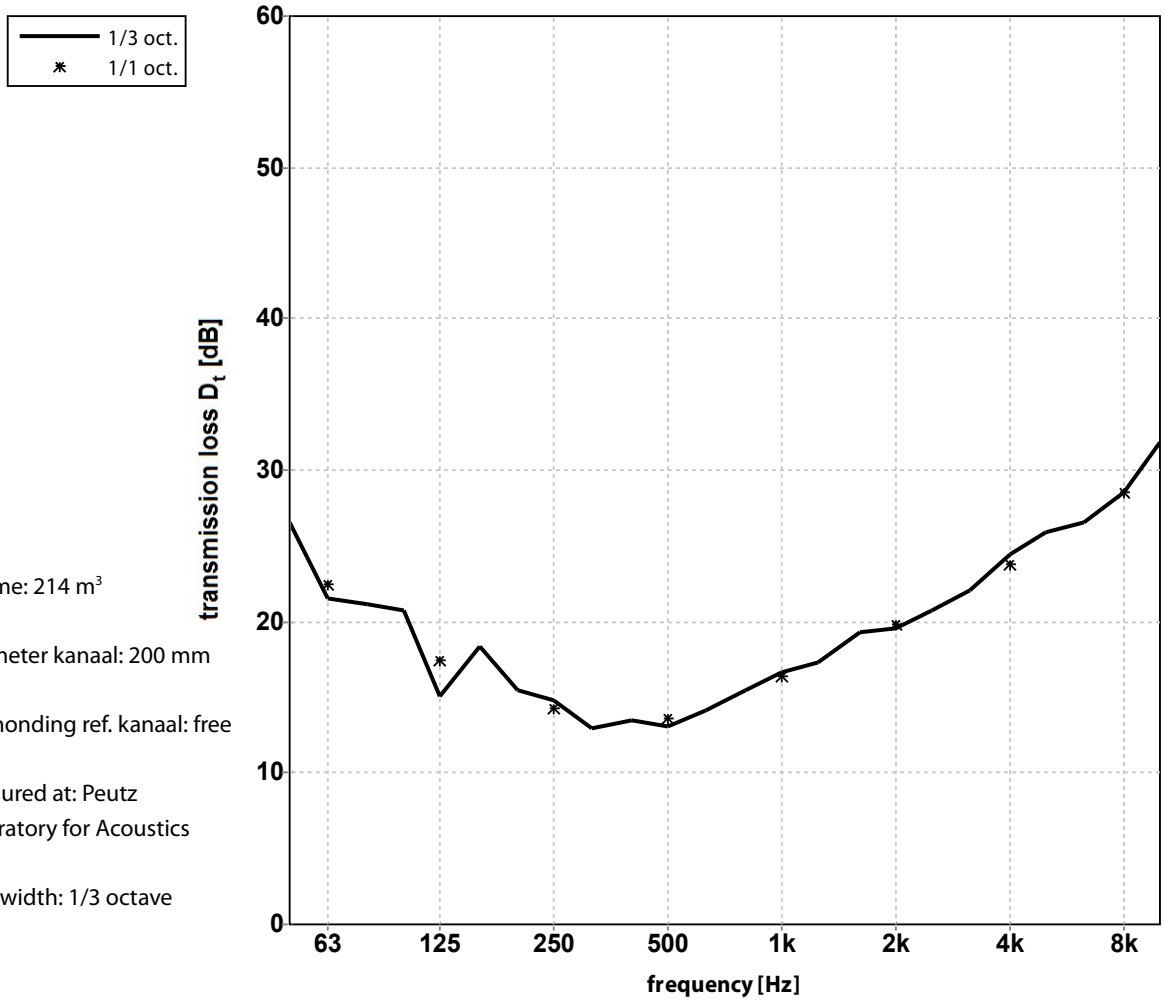
	25,4	18,6	18,6	15,3	15,5	18,9	24,3	27,0	
1/3 oct.	25,4	19,7	18,0	16,2	16,4	20,6	25,2	24,9	dB
	24,5	16,5	16,4	15,9	16,9	22,6	25,9	20,5	
1/1 oct.	**25,1**	**18,1**	**17,6**	**15,8**	**16,2**	**20,4**	**25,1**	**23,3**	**dB**

Mook, 11-09-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #5; SONOAFS-NW.PVC
diameter 203 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 200 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	26,5	20,7	15,5	13,5	15,5	19,3	22,1	26,6	
1/3 oct.	21,6	15,1	14,8	13,1	16,6	19,5	24,4	28,6	dB
	21,1	18,4	12,9	14,2	17,3	20,7	25,9	31,8	
1/1 oct.	**22,5**	**17,5**	**14,3**	**13,6**	**16,4**	**19,8**	**23,8**	**28,5**	**dB**

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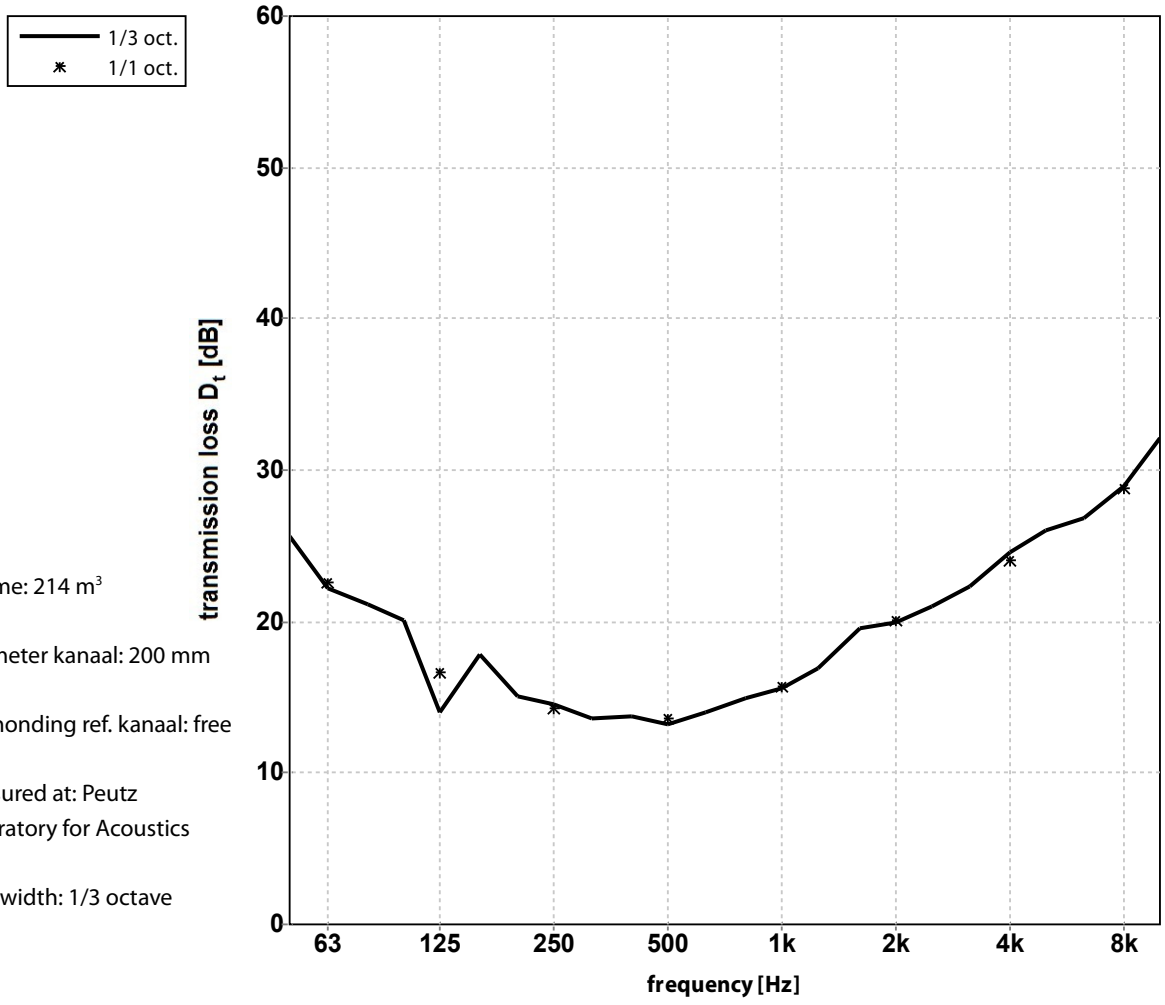
Mook, 22-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #6; SONOAFS-NW.PVC
diameter 203 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 200 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	25,7	20,1	15,0	13,7	14,9	19,6	22,3	26,8	
1/3 oct.	22,2	14,0	14,5	13,2	15,6	19,9	24,6	28,9	dB
	21,2	17,8	13,6	14,0	16,9	21,0	26,0	32,1	
1/1 oct.	**22,6**	**16,6**	**14,3**	**13,6**	**15,7**	**20,1**	**24,0**	**28,8**	**dB**

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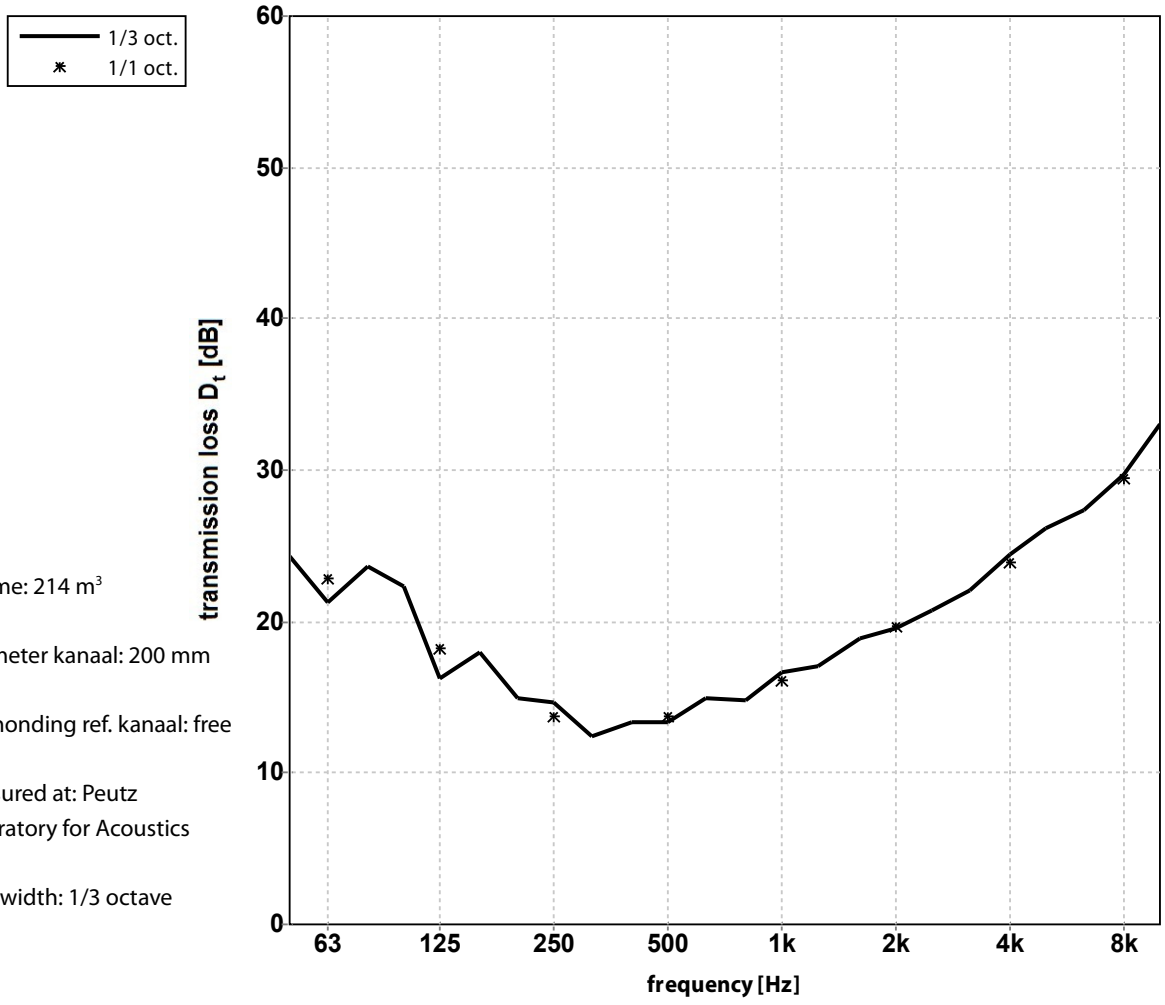
Mook, 22-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #13; SONOAFS-NW.PVC
diameter 203 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 200 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	24,3	22,3	14,9	13,3	14,8	18,9	22,1	27,3	
1/3 oct.	21,3	16,3	14,7	13,4	16,6	19,6	24,4	29,8	dB
	23,6	18,0	12,4	14,9	17,1	20,8	26,2	33,1	
1/1 oct.	**22,9**	**18,2**	**13,8**	**13,8**	**16,1**	**19,7**	**23,9**	**29,5**	**dB**

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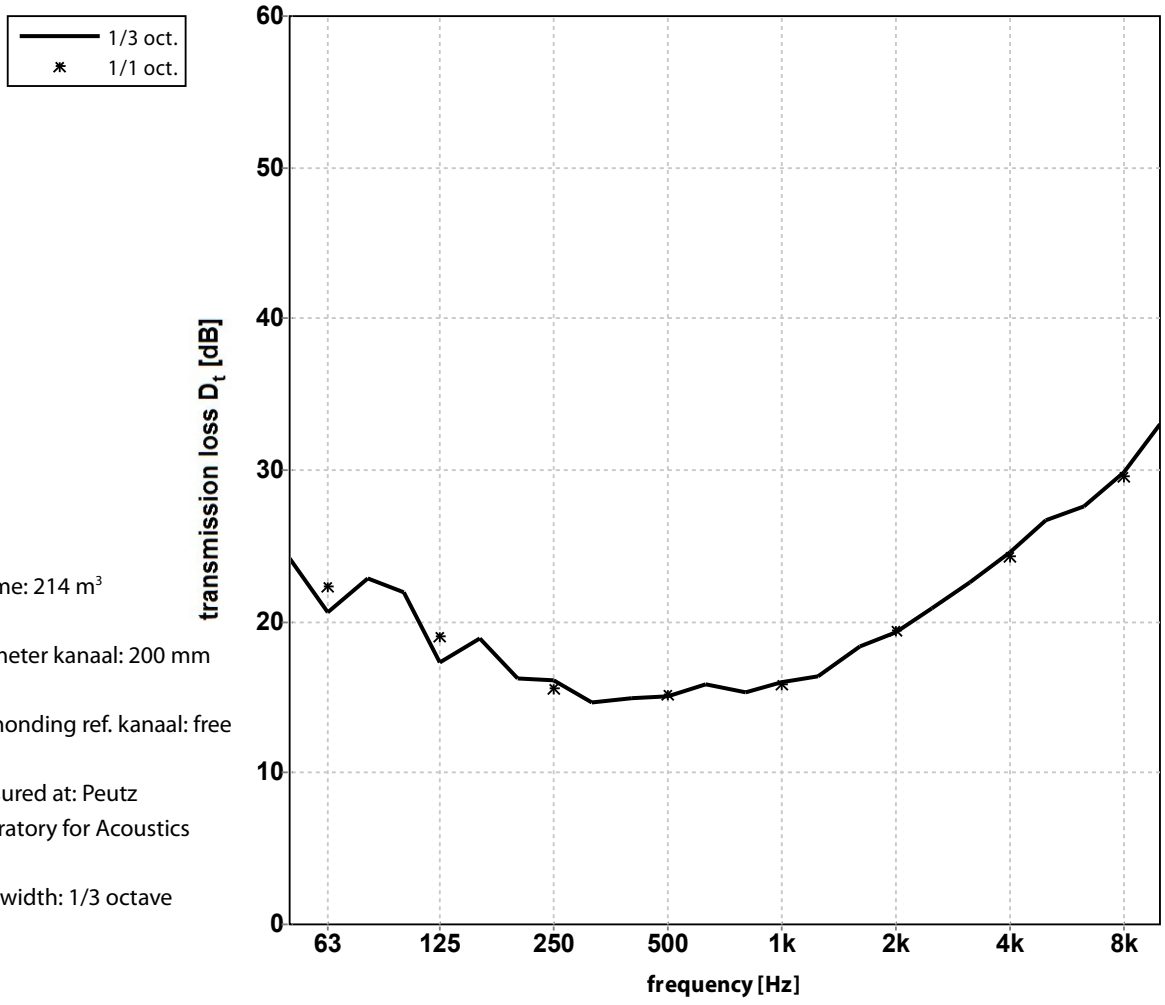
Mook, 23-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #14; SONOAFS-NW.PVC
diameter 203 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 200 mm

*uitmonding ref. kanaal: free

measured at: Peutz
Laboratory for Acoustics

bandwidth: 1/3 octave

	24,2	21,9	16,2	14,9	15,3	18,4	22,6	27,6	
1/3 oct.	20,6	17,3	16,1	15,0	16,0	19,3	24,6	29,9	dB
	22,8	18,9	14,7	15,8	16,4	20,9	26,7	33,0	
1/1 oct.	**22,3**	**19,0**	**15,6**	**15,2**	**15,9**	**19,4**	**24,3**	**29,6**	**dB**

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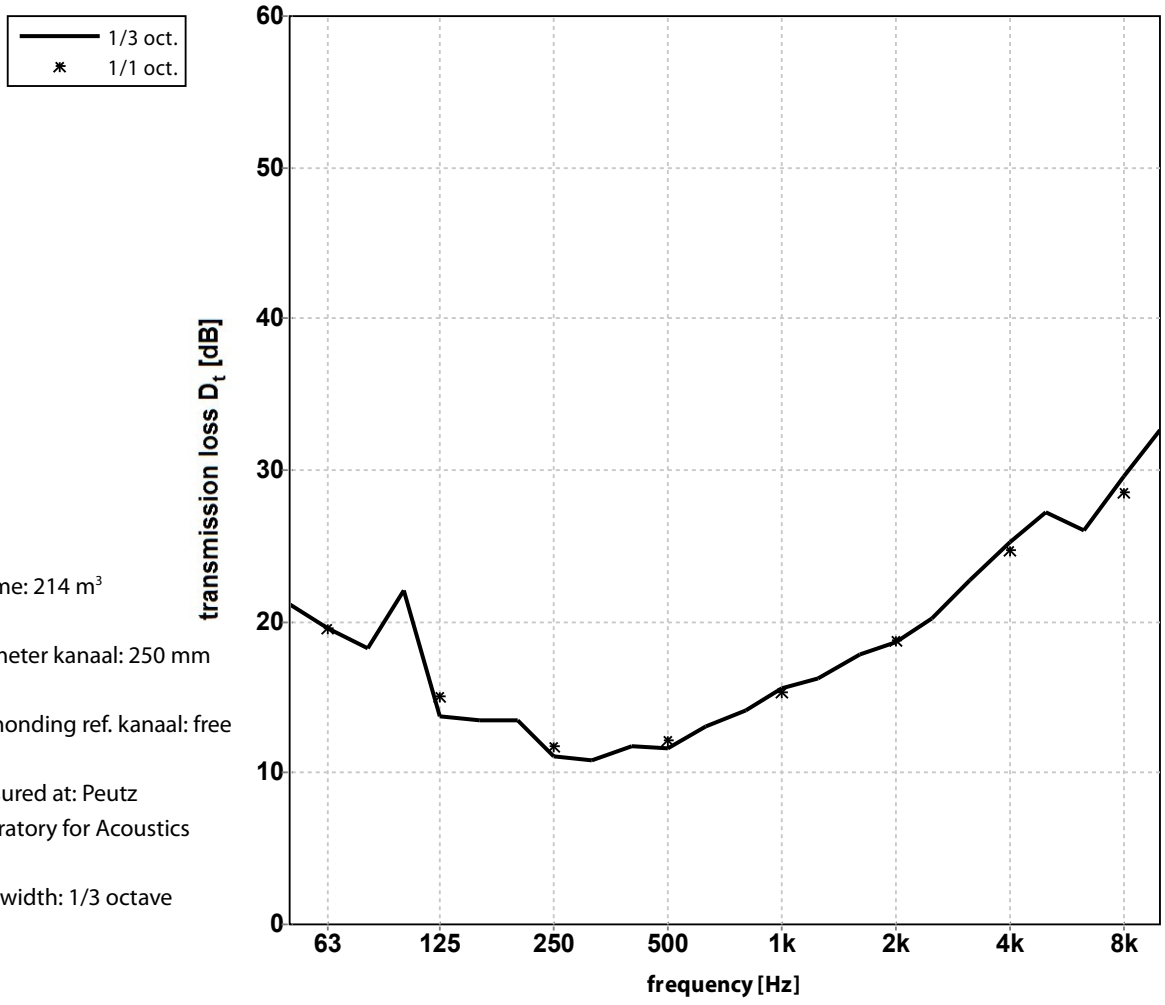
Mook, 23-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #7; SONOAFS-NW.PVC
diameter 254 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 250 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

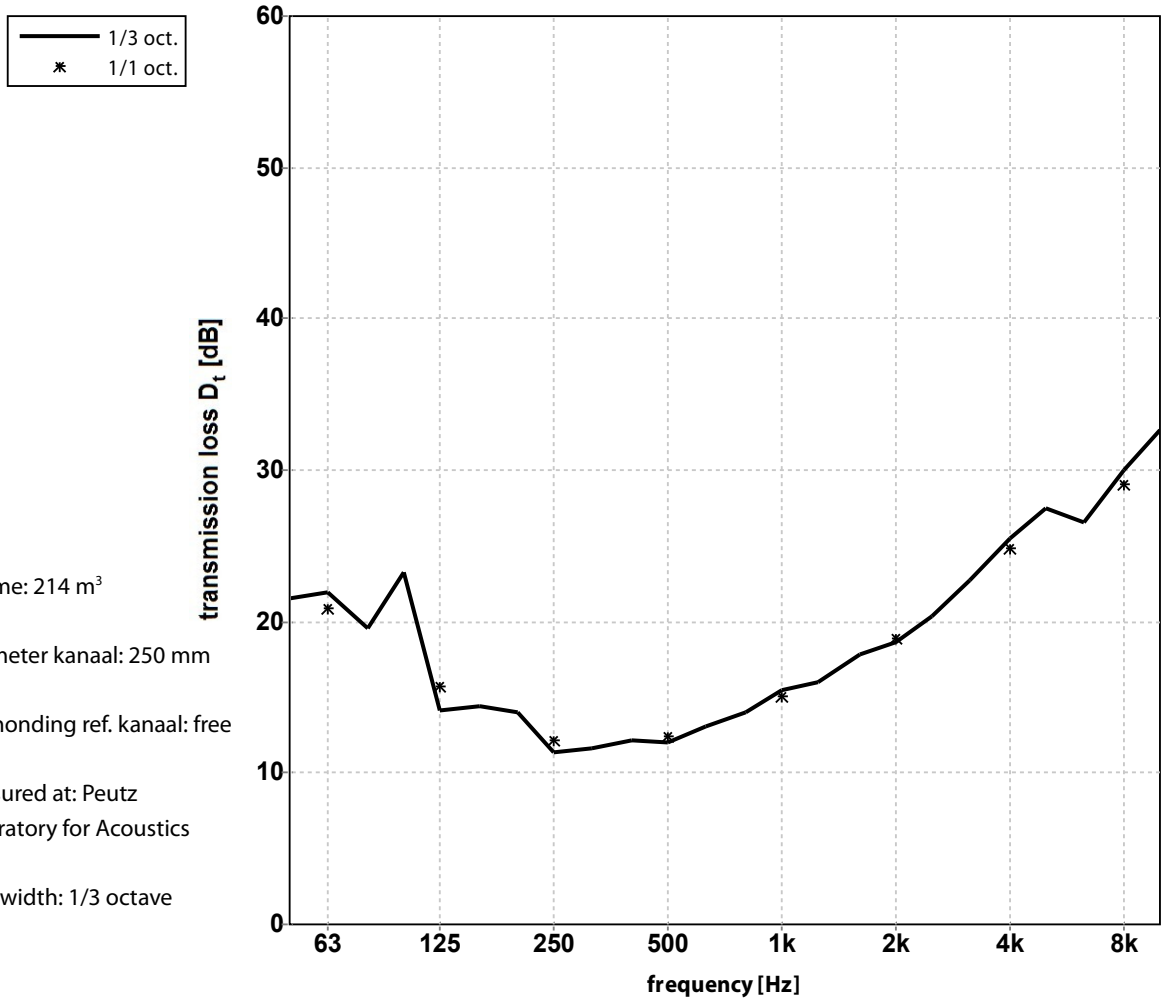
	21,2	22,1	13,5	11,7	14,2	17,8	22,7	26,0	
1/3 oct.	19,6	13,8	11,1	11,6	15,6	18,7	25,3	29,6	dB
	18,2	13,5	10,9	13,1	16,2	20,2	27,2	32,6	
1/1 oct.	**19,5**	**15,1**	**11,7**	**12,1**	**15,3**	**18,8**	**24,7**	**28,6**	**dB**

Mook, 23-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #8; SONOAFS-NW.PVC
diameter 254 mm
length 1,0 m



volume: 214 m³

*diameter kanaal: 250 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	21,5	23,2	14,0	12,2	14,0	17,9	22,7	26,6	
1/3 oct.	22,0	14,1	11,4	12,0	15,5	18,7	25,5	30,0	dB
	19,6	14,4	11,6	13,1	16,0	20,4	27,5	32,7	
1/1 oct.	**20,9**	**15,7**	**12,2**	**12,4**	**15,1**	**18,9**	**24,8**	**29,1**	**dB**

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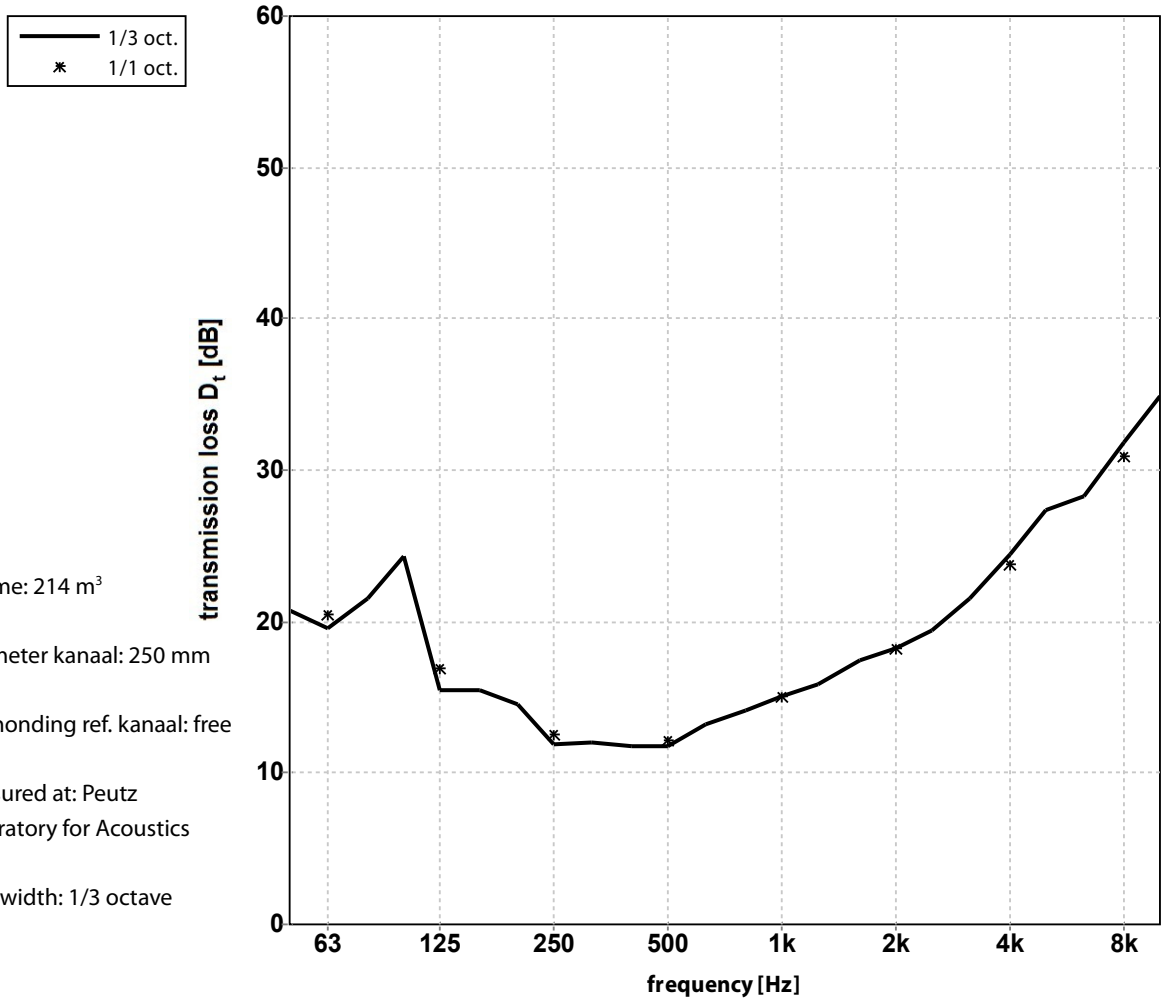
Mook, 23-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #15; SONOAFS-NW.PVC
diameter 254 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 250 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

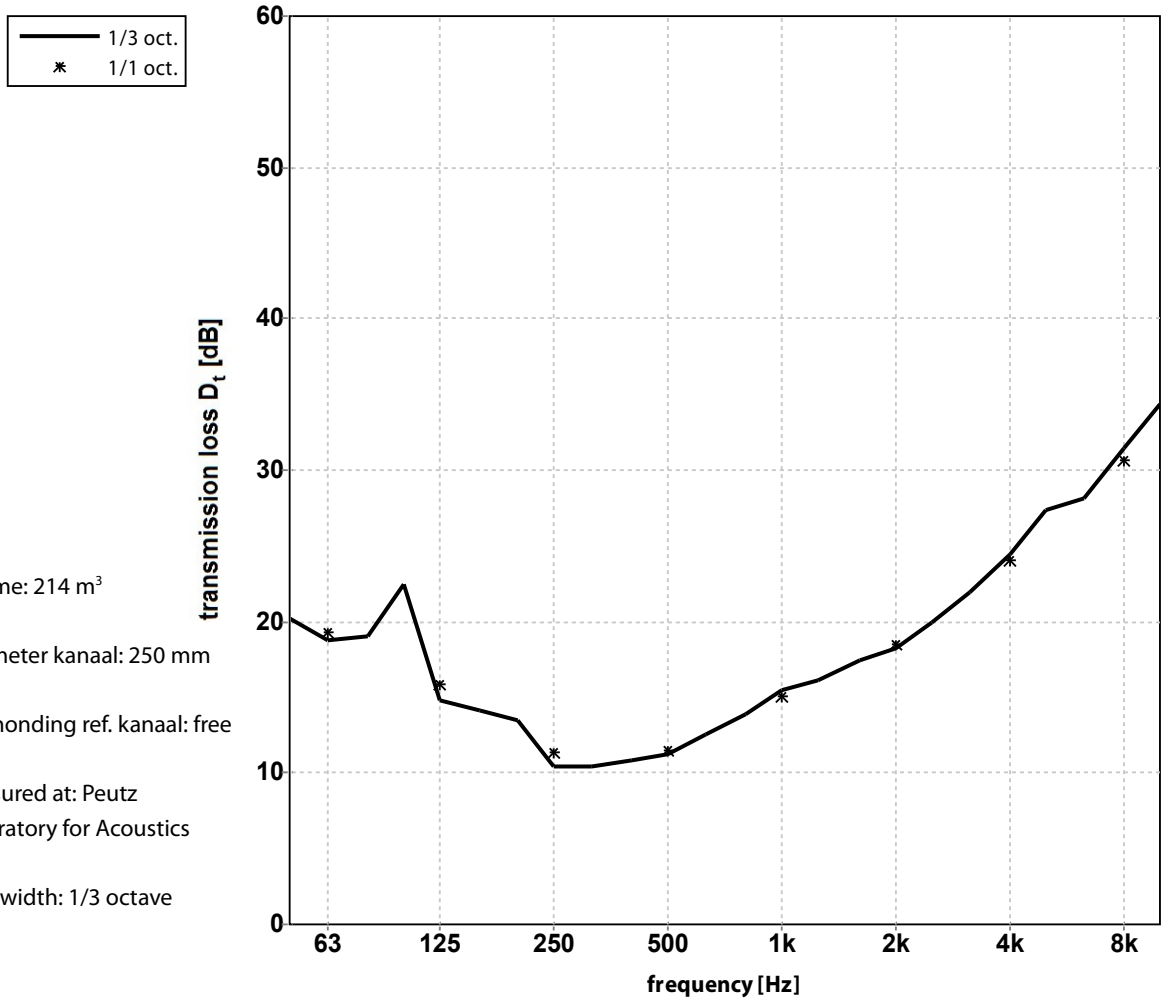
		20,7	24,3	14,5	11,7	14,2	17,4	21,6	28,3	
	1/3 oct.	19,5	15,5	11,9	11,8	15,1	18,2	24,4	31,8	dB
		21,5	15,4	12,0	13,2	15,8	19,4	27,4	34,9	
1/1 oct.		**20,5**	**16,9**	**12,6**	**12,2**	**15,0**	**18,3**	**23,8**	**30,9**	**dB**

Mook, 23-05-2014

TRANSMISSION LOSS ACCORDING TO ISO 7235:2003

principal: AFS Boru Sanayi A.S.

construction tested: #16; SONOAFS-NW.PVC
diameter 254 mm
length 3,0 m



volume: 214 m³

*diameter kanaal: 250 mm

*uitmonding ref. kanaal: free

measured at: Peutz Laboratory for Acoustics

bandwidth: 1/3 octave

	20,2	22,5	13,5	10,9	13,9	17,5	21,9	28,2	
1/3 oct.	18,8	14,8	10,5	11,2	15,4	18,3	24,4	31,4	dB
	19,0	14,1	10,5	12,6	16,1	19,9	27,4	34,4	
1/1 oct.	**19,3**	**15,9**	**11,3**	**11,5**	**15,0**	**18,5**	**24,0**	**30,6**	**dB**

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