



# System Development

## Laboratory Sound Transmission Test Report

Sample type: 64mm thick, single leaf, palm strand board (PSB) door

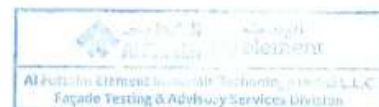
Test sponsor: Abanos Furniture & Decoration Industry LLC

Report number: DLR2414

Date: 18 May 2023 Revision: 0



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## 1. Introduction

This report describes the sound insulation tests performed at the Al Futtaim Element Materials Technology Dubai L.L.C (AFE) laboratory at Plot 597-451, Dubai Investments Park, Dubai, at the request of the test sponsor listed in Table 1.

**Table 1 Test sponsor details**

Test sponsor	Address
Abanos Furniture & Decoration Industry LLC	P. O. Box 114480 Dubai United Arab Emirates Tel: 04 885 1885

AFE is accredited to ISO/IEC 17025:2017 by the United Kingdom Accreditation Service (UKAS), which assesses the technical competence of the laboratory, as well as its quality management systems.

This test report is personal to the client, confidential, non-assignable and shall not be reproduced, except in full, without the prior, written approval of AFE.

### 1.1 Purpose of testing

The tests were conducted on 17 May 2023 to determine the acoustic performance of a door sample installed in the laboratory with respect to its ability to reduce the transmission of sound from one space or room to an adjacent room.

The test method was in accordance with the AFE method statement DMA4387 Rev.0 and the following standards.

- ASTM E90-09 (reapproved 2016)
- ASTM E2235-04 (reapproved 2020)
- ASTM E413-16

This test report relates only to the actual sample as tested and described herein.

The test was witnessed wholly or in part by the test witnesses listed in Table 2.

**Table 2 Test witnesses**

Test witness	Company
Anselmo Tabadero	Abanos Furniture & Decoration Industry LLC

The test was conducted by Shibu Varghese of AFE.

## 2. Summary of test results



The sample was tested in accordance with ASTM E90-09 (Reapproved 2016) and classified in accordance with ASTM E413-16 to give the Sound Transmission Class (STC).

The test measurements were also used to classify the sample in accordance with BS EN ISO 717-1:2013 to give the Sound Reduction Index ( $R_w$ ) & correction factors of the sample.

Two tests were conducted on the sample, one with the door in an operable condition and one in an inoperable condition (fully caulked).

The results are shown in the table below.

Sample no.	Sample description	Test result	
		STC, in dB	$R_w$ , in dB
DA4387C.1	Operable condition. 64 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, batwing seal and intumescent strips, fixed in a wooden door frame.	36	36

Sample no.	Sample description	Test result	
		STC, in dB	R <sub>w</sub> , in dB
DA4387C.2	Inoperable condition. 64 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, batwing seal and intumescent strips, fixed in a wooden door frame.	40	40

Graphical & tabular representations of the test results are given in Section 6.

The above results are valid only for the tested sample as received, detailed and constructed as per the drawings with any marked variations as attached in Appendix A of this report, and the conditions under which the tests were conducted. Details of the controlled dismantle of the sample are included in Section 7.

Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

### 3. Test apparatus

#### 3.1 Acoustic test chamber

The acoustic test facility comprises an adjacent pair of acoustically sealed semi-reverberant chambers. Access to both chambers is via acoustic access doors. Both chambers have been installed on separate, isolated acoustic floor systems to limit sound and vibrational energy transference (flanking) between the chambers and from the immediate surroundings.

The walls of the test facility are formed from sound absorbent acoustic panelling that has been specially designed to provide a high sound transmission loss capability whilst producing the desired reverberant levels for the semi-reverberant acoustic test chamber.

The sample was installed into the opening between the test chambers, provided by the separate, isolated sample holder.

The inside dimensions of the test chambers are as detailed in the table below.

Chamber	Length (mm)	Width (mm)	Height (mm)	Volume (m <sup>3</sup> )
Source Room	7,080	5,753	4,425	180
Receiving Room	7,360	5,980	4,600	202

#### 3.2 Instrumentation & equipment

Noise levels & reverberation times were measured using a Level 1 Sound Analyser compliant with BS EN 61672-1:2013 Type 1 and a sound calibrator compliant with BS EN 60942:2018.

The following instrumentation and test equipment was used during the testing.

Item	Description	Manufacturer	Model	Serial number	AFE Ref. no.	Calibration due date
Sound level meter	Dynamic signal analyser	Brüel & Kjær	Type 2250	2600451	CLD617	24/08/24
Preamplifier	½" preamplifier	Brüel & Kjær	Type 4189	7337	CLD617A	24/08/24
Microphone	½" pressure type, condenser microphone	Brüel & Kjær	Type 4189	3130870	CLD617B	24/08/24
Calibrator	Sound calibrator	Brüel & Kjær	Type 4231	2606005	CLD617C	18/08/23
Sound source	Loudspeaker	Brüel & Kjær	Type 4292	027015	CLD602	N/A
Rotating boom	Rotating boom	Brüel & Kjær	3923	2664263	CLD603	N/A
Pink noise source	Pink noise signal	Brüel & Kjær	Type 2250	2600451	CLD617	24/08/24





# System Development

## Laboratory Sound Transmission Test Report

Sample type: 55mm thick, single leaf, palm strand board (PSB) door

Test sponsor: Abanos Furniture & Decoration Industry LLC

Report number: DLR2341

Date: 9 February 2023 Revision: 0



## 1. Introduction

This report describes the sound insulation tests performed at the Al Futtaim Element Materials Technology Dubai L.L.C (AFE) laboratory at Plot 597-451, Dubai Investments Park, Dubai, at the request of the test sponsor listed in Table 1.

**Table 1 Test sponsor details**

Test sponsor	Address
Abanos Furniture & Decoration Industry LLC	P. O. Box 114480 Dubai United Arab Emirates Tel: 04 885 1885

AFE is accredited to ISO/IEC 17025:2017 by the United Kingdom Accreditation Service (UKAS), which assesses the technical competence of the laboratory, as well as its quality management systems.

This test report is personal to the client, confidential, non-assignable and shall not be reproduced, except in full, without the prior, written approval of AFE.

### 1.1 Purpose of testing

The tests were conducted on 3 February 2023 to determine the acoustic performance of a door sample installed in the laboratory with respect to its ability to reduce the transmission of sound from one space or room to an adjacent room.

The test method was in accordance with the AFE method statement DMA4387 Rev.0 and the following standards.

- ASTM E90-09 (reapproved 2016)
- ASTM E2235-04 (reapproved 2020)
- ASTM E413-16

This test report relates only to the actual sample as tested and described herein.

The test was witnessed wholly or in part by the test witnesses listed in Table 2.

**Table 2 Test witnesses**

Test witness	Company
Anselmo Tabadero	Abanos Furniture & Decoration Industry LLC

The test was conducted by Shibu Varghese of AFE.

## 2. Summary of test results

The sample was tested in accordance with ASTM E90-09 (Reapproved 2016) and classified in accordance with ASTM E413-16 to give the Sound Transmission Class (STC).

The test measurements were also used to classify the sample in accordance with BS EN ISO 717-1:2013 to give the Sound Reduction Index ( $R_w$ ) & correction factors of the sample.

Two tests were conducted on the sample, one with the door in an operable condition and one in an inoperable condition (fully caulked).

The results are shown in the table below.

Sample no.	Sample description	Test result	
		STC, in dB	$R_w$ , in dB
DA4387B.1	Operable condition. 55 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, batwing seal and intumescent strips, fixed in a wooden door frame.	33	33



Sample no.	Sample description	Test result	
		STC, in dB	R <sub>w</sub> , in dB
DA4387B.2	Inoperable condition. 55 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, batwing seal and intumescent strips, fixed in a wooden door frame.	37	37

Graphical & tabular representations of the test results are given in Section 6.

The above results are valid only for the tested sample as received, detailed and constructed as per the drawings with any marked variations as attached in Appendix A of this report, and the conditions under which the tests were conducted. Details of the controlled dismantle of the sample are included in Section 7.

Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

### 3. Test apparatus

#### 3.1 Acoustic test chamber

The acoustic test facility comprises an adjacent pair of acoustically sealed semi-reverberant chambers. Access to both chambers is via acoustic access doors. Both chambers have been installed on separate, isolated acoustic floor systems to limit sound and vibrational energy transference (flanking) between the chambers and from the immediate surroundings.

The walls of the test facility are formed from sound absorbent acoustic panelling that has been specially designed to provide a high sound transmission loss capability whilst producing the desired reverberant levels for the semi-reverberant acoustic test chamber.

The sample was installed into the opening between the test chambers, provided by the separate, isolated sample holder.

The inside dimensions of the test chambers are as detailed in the table below.

Chamber	Length (mm)	Width (mm)	Height (mm)	Volume (m <sup>3</sup> )
Source Room	7,080	5,753	4,425	180
Receiving Room	7,360	5,980	4,600	202

#### 3.2 Instrumentation & equipment

Noise levels & reverberation times were measured using a Level 1 Sound Analyser compliant with BS EN 61672-1:2013 Type 1 and a sound calibrator compliant with BS EN 60942:2018.

The following instrumentation and test equipment was used during the testing.

Item	Description	Manufacturer	Model	Serial number	AFE Ref. no.	Calibration due date
Sound level meter	Dynamic signal analyser	Brüel & Kjær	Type 2250	2600451	CLD617	24/08/24
Preamplifier	½" preamplifier	Brüel & Kjær	Type 4189	7337	CLD617A	24/08/24
Microphone	½" pressure type, condenser microphone	Brüel & Kjær	Type 4189	3130870	CLD617B	24/08/24
Calibrator	Sound calibrator	Brüel & Kjær	Type 4231	2606005	CLD617C	18/08/23
Sound source	Loudspeaker	Brüel & Kjær	Type 4292	027015	CLD602	N/A
Rotating boom	Rotating boom	Brüel & Kjær	3923	2664263	CLD603	N/A
Pink noise source	Pink noise signal	Brüel & Kjær	Type 2250	2600451	CLD617	24/08/24





# System Development

## Laboratory Sound Transmission Test Report

Sample type: 45mm thick, single leaf, palm strand board (PSB) door

Test sponsor: Abanos Furniture & Decoration Industry LLC

Report number: DLR2340

Date: 8 February 2023 Revision: 0



## 1. Introduction

This report describes the sound insulation tests performed at the Al Futtaim Element Materials Technology Dubai L.L.C (AFE) laboratory at Plot 597-451, Dubai Investments Park, Dubai, at the request of the test sponsor listed in Table 1.

**Table 1 Test sponsor details**

Test sponsor	Address
Abanos Furniture & Decoration Industry LLC	P. O. Box 114480 Dubai United Arab Emirates Tel: 04 885 1885

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### 1.1 Purpose of testing

The tests were conducted on 1 February 2023 to determine the acoustic performance of a door sample installed in the laboratory with respect to its ability to reduce the transmission of sound from one space or room to an adjacent room.

The test method was in accordance with the AFE method statement DMA4387 Rev.0 and the following standards.

- ASTM E90-09 (reapproved 2016)
- ASTM E2235-04 (reapproved 2020)
- ASTM E413-16

This test report relates only to the actual sample as tested and described herein.

The test was witnessed wholly or in part by the test witnesses listed in Table 2.

**Table 2 Test witnesses**

Test witness	Company
Anselmo Tabadero	Abanos Furniture & Decoration Industry LLC

The test was conducted by Shibu Varghese of AFE.

## 2. Summary of test results

The sample was tested in accordance with ASTM E90-09 (Reapproved 2016) and classified in accordance with ASTM E413-16 to give the Sound Transmission Class (STC).

The test measurements were also used to classify the sample in accordance with BS EN ISO 717-1:2013 to give the Sound Reduction Index ( $R_w$ ) & correction factors of the sample.

Two tests were conducted on the sample, one with the door in an operable condition and one in an inoperable condition (fully caulked).

The results are shown in the table below.

Sample no.	Sample description	Test result	
		STC, in dB	$R_w$ , in dB
DA4387A.1	Operable condition. 45 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, batwing seal and intumescent strips, fixed in a palm strand board (PSB) door frame.	29	29



Sample no.	Sample description	Test result	
		STC, in dB	R <sub>w</sub> , in dB
DA4387A.2	Inoperable condition. 45 mm thick, single leaf, side hinged, palm strand board (PSB) door, with an automatic bottom drop seal, balwing seal and intumescent strips, fixed in a palm strand board (PSB) door frame.	34	34

Graphical & tabular representations of the test results are given in Section 6.

The above results are valid only for the tested sample as received, detailed and constructed as per the drawings with any marked variations as attached in Appendix A of this report, and the conditions under which the tests were conducted. Details of the controlled dismantle of the sample are included in Section 7.

Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

### 3. Test apparatus

#### 3.1 Acoustic test chamber

The acoustic test facility comprises an adjacent pair of acoustically sealed semi-reverberant chambers. Access to both chambers is via acoustic access doors. Both chambers have been installed on separate, isolated acoustic floor systems to limit sound and vibrational energy transference (flanking) between the chambers and from the immediate surroundings.

The walls of the test facility are formed from sound absorbent acoustic panelling that has been specially designed to provide a high sound transmission loss capability whilst producing the desired reverberant levels for the semi-reverberant acoustic test chamber.

The sample was installed into the opening between the test chambers, provided by the separate, isolated sample holder.

The inside dimensions of the test chambers are as detailed in the table below.

Chamber	Length (mm)	Width (mm)	Height (mm)	Volume (m <sup>3</sup> )
Source Room	7,080	5,753	4,425	180
Receiving Room	7,360	5,980	4,600	202

#### 3.2 Instrumentation & equipment

Noise levels & reverberation times were measured using a Level 1 Sound Analyser compliant with BS EN 61672-1:2013 Type 1 and a sound calibrator compliant with BS EN 60942:2018.

The following instrumentation and test equipment was used during the testing.

Item	Description	Manufacturer	Model	Serial number	A/E Ref. no.	Calibration due date
Sound level meter	Dynamic signal analyser	Bruel & Kjaer	Type 2250	2600451	CLD617	24/08/24
Preamplifier	½" preamplifier	Bruel & Kjaer	Type 4189	7337	CLD617A	24/08/24
Microphone	½" pressure type, condenser microphone	Bruel & Kjaer	Type 4189	3130870	CLD617B	24/08/24
Calibrator	Sound calibrator	Bruel & Kjaer	Type 4231	2606005	CLD617C	18/08/23
Sound source	Loudspeaker	Bruel & Kjaer	Type 4292	027015	CLD602	N/A
Rotating boom	Rotating boom	Bruel & Kjaer	3923	2664263	CLD603	N/A
Pink noise source	Pink noise signal	Bruel & Kjaer	Type 2250	2600451	CLD617	24/08/24