

ACOUSTIC**SOUND TRANSMISSION CLASS
TEST REPORT**
Series/Model: Control Sound Barrier
PalmSHIELD Acoustic Panel STL4 Model

Prepared for:
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TESTING CERT #98.03

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AIRBORNE SOUND TRANSMISSION LOSS (STC) ASTM E90-09**INTRODUCTION:**

This report presents the sound transmission results of a:

PalmSHIELD Acoustic Panel Sound Barrier STL4 Model

The testing and data analysis were completed on: **Thursday, October 24, 2024**

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The results stated in this report represent only the specific construction and acoustic conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

Summary of Results

Control Sound Barrier	Test Results		
	STC	Def	OITC
STL4 Model	41	32	33

Project Number: ESP042832P-1

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Report Date: 11/14/2024

SPECIMEN DESCRIPTION:**Manufacturer:** Patriot Custom Metal**Specimen:** Sound Barrier**Model # / Series:** PalmSHIELD Acoustic Panel**Material:** Aluminum**Size:** 48.00" W x 96.00" H**Area:** 32.0 -ft²**Weight:** 195-lbs**Weight (psf):** 6.1 -lb/ft²**Sample Size:** 48" x 96"**Additional Details:** Specimen was identified as PalmSHIELD Acoustic Panel STL4 Model Aluminum Panel.

TEST METHOD:
Sound Transmission Test

The tests were conducted according to ASTM E90-09 (Reapproved 2016), "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission of Building Partitions and Elements." Detailed test procedures, data for flanking limit tests, repeatability measurements and reference specimen tests are available on request. The STC value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM: E413(22), "Determination of Sound Transmission Class." The actual transmission loss at each frequency was calculated by the following equations:

$$TL = NR + 10 \log S - 10 \log A_2$$

where: TL = Transmission Loss (dB)

NR = Noise Reduction (dB)

S = Surface area common to both sides (sq. ft.)

A₂ = Sound absorption of the receiving room with the sample in place (sabins)

OITC Procedure

ASTM:E1332-22, "Standard Classification for Rating Outdoor-Indoor Sound Attenuation", was followed in every respect. Basically, the OITC was calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). These transmission loss data are then used to determine the A-weighted sound level reduction of the specimen for the reference source spectrum specified in Table 1 of ASTM E1332(22). The appropriate calculations were made to determine the OITC value. TL measurements were obtained in a single direction, from Source Room to the Receiving room. The source room has a volume of 2948-ft³ (83-m³) and the receiving room has a volume of 5825-ft³ (165-m³).

Windows & Doors: Windows and Doors are operated at least 5-times prior to testing. The test unit is operational unless otherwise stated. The temperatures and relative humidity of the termination room met the requirements of the standard during and after the test. All frequencies met the requirements for 95% confidence established by the standard unless noted. Noise reduction measurements were performed in a single direction (source room to receiving room).

TEST EQUIPMENT:

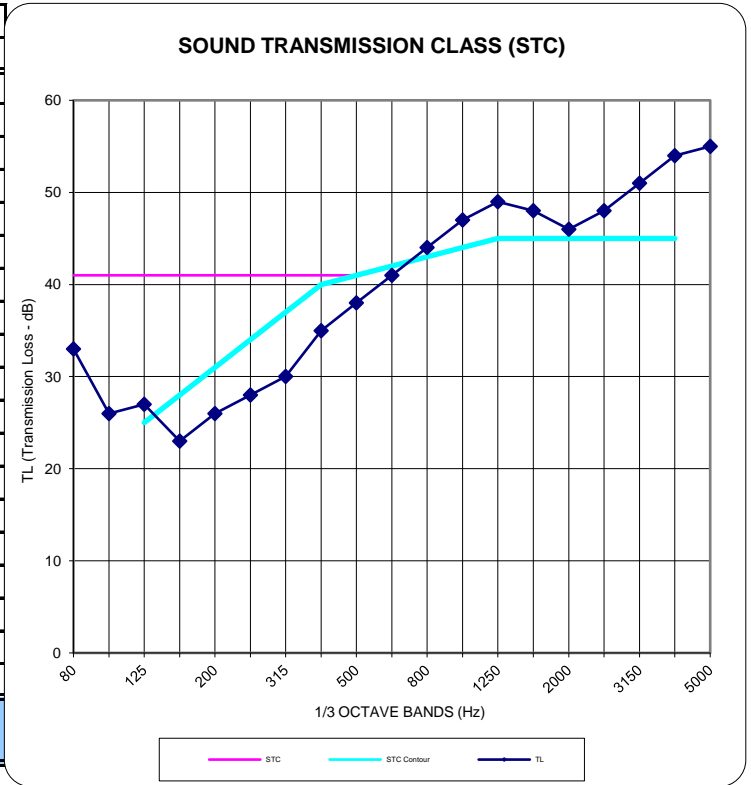
Item Description	ID#	Manufacturer/Model	Serial #	Cal. Due	Location
1/2" Pressure Condensor Mic	PT-162-075	GRAS/40AD	19220-1224	5/20/2025	Reverberation Chamber
1/2" Pressure Condensor Mic	PT-162-108	GRAS/46AD	167994	11/6/2024	Source Chamber
Microphone Calibrator	MM440-003	Bruel & Kjaer/4230	282266	7/1/2025	N/A
Data Acquisition Module	PT-162-107	National Instruments/NI9234	1735986-1893EB3	8/8/2025	Control Center
Temp/Humidity Sensor	PT-162-077	Dwyer/Series RH	M90714-e4SV-Y	6/7/2025	Reverberation Chamber
Temp/Humidity Sensor	PT-162-079	Dwyer/Series RH	m93237-E09w-A	6/7/2025	Source Chamber

REMARKS:

The test sample will be retained for a period of 10-days and then discarded if no written return-request received.

TEST RESULTS

1/3 Oct. Band, Hz	L ₁ (dB)	L ₂ (dB)	Bkgd (dB)	A ₂ (m ²) Sabins	TL (dB)	Def (dB)	95% Conf.	Notes	
								1	2
80	97.9	66.0	36.9	4.9	33	-	2.9		
100	101.6	73.4	38.5	5.1	26	-	2.3		
125	104.0	75.6	40.3	3.8	27	0	1.6		
160	96.9	73.0	34.5	3.6	23	5	1.5		
200	93.9	66.1	33.3	4.3	26	5	1.1		
250	99.4	69.7	34.0	4.2	28	6	1.2		
315	99.6	68.2	30.3	4.2	30	7	0.8		
400	100.2	63.6	33.2	4.3	35	5	0.8		
500	102.4	62.6	33.0	4.8	38	3	0.4		
630	101.7	58.4	34.0	5.1	41	1	0.4		
800	99.5	52.9	31.2	5.2	44	0	0.4		
1000	96.9	47.4	29.2	5.9	47	0	0.3		
1250	95.3	43.4	26.0	6.3	49	0	0.4		
1600	96.3	44.4	23.6	7.0	48	0	0.3		
2000	95.7	45.5	23.3	7.8	46	0	0.3		
2500	93.9	41.1	21.1	8.5	48	0	0.3		
3150	89.6	33.2	20.4	9.5	51	0	0.3		
4000	86.5	28.2	21.0	11.0	54	0	0.3	1	
5000	87.4	27.6	21.7	12.6	55	-	0.4	1	


STC Rating: 41
Deficiency: 32
OITC Rating: 33

 TL = Transmission Loss (dB)
 Def = Deficiencies (below STC contour)

Note #1: Noise Level was less than 10dB above ambient.

Note #2: Confidence Level Exceeded

Test Conditions:

 Laminated Glass Temp(°C):
 Exterior: N/A
 Interior: N/A

	Temp(°C):	% RH:	ATM (hPa)
Source Room:	22.2	43	983
Receive Room:	21.9	56	983

SPECIMEN IDENTIFICATION:

Type: Sound Barrier
Series: PalmSHIELD Acoustic Panel Sound Barrier STL4 Model
Size: 48.00" W x 96.00" H **Area:** 32.0 -ft²
Depth: 3.875"
Mass: 195 -lbs **Mass (psf):** 6.1 -lb/ft²

Test Date: 24-Oct-24
Time Stamp: 10:36 AM
Tested by: SJM



* As stated by Manufacturer.