

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

ODL, INC.

SERIES/MODEL: Various

TYPE: Door Lites

GLAZING: 4 Glazing Options

Report No:	01-42253.01
Test Date:	07/31/02
Report Date:	08/22/02
Expiration Date:	07/31/06



Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

ODL, INC.
215 East Roosevelt
Zeeland, Michigan 49464

Report No: 01-42253.01
Test Date: 07/31/02
Report Date: 08/22/02
Expiration Date: 07/31/06

Test Sample Identification:

Series/Model: Various

Type: Door Lites

Overall Size: 23.88" x 65.88"

Glazing: 4 Glazing Options

Project Scope: Architectural Testing, Inc. (ATI) was contracted by ODL, Inc. to conduct a sound transmission loss test on a Series/Model Various, Door Lites. A summary of the results is listed in the Test Results section and the complete test data is included as Appendix C of this report.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-97, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-87 (Re-approved 1999), *Classification for Rating Sound Insulation.*

ASTM E 1332-90 (Re-approved 1998), *Standard Classification for Determination of Outdoor-Indoor Transmission Class.*

Test Equipment: The equipment, used to conduct these tests, meets the requirements of ASTM E 90-97. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

Test Procedure:

Sound transmission loss tests were initially performed on a filler wall that was designed to test 4' 0" by 6' 0" and 6' 0" by 4' 0" specimens. The filler wall achieved an STC rating of 63.

A 1-3/4" wood strip was placed inside the framework of the door lites to simulate installation into an actual door. The framework was sealed to the glass with a butyl tacky tape. The 4' 0" by 6' 0" plug was removed from the filler wall. A filler wall, reducing element was used to reduce the test opening size from 4' 0" by 6' 0" to 24.13" by 65.13". The reducing element consisted of a double row of 2" x 4" wood studs with two layers of 5/8" type "X" gypsum board on both sides. The stud cavities were insulated with fiberglass. A dense neoprene gasket and duct seal was used to seal the reducing element to the inside perimeter of the filler wall opening. The sample was then installed in the reducing element, test opening. Duct seal was used to seal the perimeter of the sample on both sides. The interior side of the sample, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks before the test.

One background noise sound pressure level, and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source and receive room measurements.

Sample Descriptions:

Door Lite A: 1" thick glass door lite with brass inlay design*

Door Lite B: 1" thick glass door lite with all glass pattern design*

Door Lite C: 1" thick clear glass IG (1/8" tempered, 3/4" air space, 1/8" tempered)

Door Lite D: 1/2" thick clear glass IG (1/8" tempered, 1/4" air space, 1/8" tempered)

* *Photos included in Appendix D*

Comments: The door lites were encased in a plastic frame with mitered corners and screwed together. The screws compressed the tacky tape caulk joint perimeter on both sides to ensure a seal. The screws were placed every 6", with the heads being accessible on the interior side of the specimen. The total weight of sample A was 56.5 lbs. The total weight of sample B was 66.0 lbs. The total weight of sample C was 41.5 lbs. The total weight of sample D was 39.5 lbs. The client did not supply drawings on the various, Door Lites. The test specimen was returned per the client's request.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413-87. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332-90. A summary of the sound transmission loss test results on the Door Lites is listed below.


ATI Job File No.	Sample Description	STC	OITC
01-42253.01A	1" Door lite A with a brass inlay design	31	26
01-42253.01B	1" Door lite B with all glass pattern design	38	30
01-42253.01C	Door lite C 1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)	31	25
01-42253.01D	Door lite D 1/2" IG (1/8" tempered, 1/4" air space, 1/8" tempered)	28	25

The complete test results are listed in Appendix C.

This report is prepared for the convenience of our customer and endeavors to provide accurate and timely project information. It contains a summary of observations made by a qualified representative of Architectural Testing, Inc. The results of this report apply only to the specimens that were tested. The statements made herein do not constitute approval, disapproval, certification or acceptance of performance or materials.

A copy of this report will be retained by ATI for a period of four years. This report is the exclusive property of the client so named herein. This report shall not be reproduced, except in full, without written approval by Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

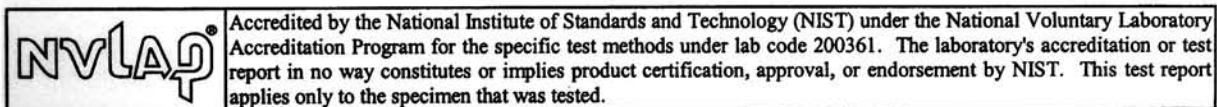


Brandon C. Ward
Technician



Todd D. Kister
Senior Technician - Acoustical Testing

BCW:bcw/baw
01-42253.01



DOCUMENT CONTROL ADDENDUM #01-42253.00

Current Issue Date: 08/22/02

Report No.: 01-42253.01

Requested by: Dave DeBlock, ODL, Inc.

Purpose: Sound transmission loss test report on 4 varied door lites.

Issued Date: 08/22/02

Comments:

Appendix A

Instrumentation:

1. Analyzer: Hewlett Packard Model 35670A, Dynamic Signal Analyzer.
2. Receive room microphone: Hewlett Packard (ACO), model ACOJ 7047 1/2" pressure type, condenser microphone.
3. Source room microphone: Hewlett Packard (ACO), model ACOJ 7047 1/2" pressure type, condenser microphone.
4. Microphone calibrator: Bruel & Kjaer, Type 4228 Pistonphone Calibrator, 124 dB at 250 hertz.
5. Noise source: Two, non-coherelated "Pink" noise signals generated by a Delta Electronics, Type SNG-1 Stereo Noise Generator.
6. Spectrum shaper: Rane Type RPE228 Programmable EQ.
7. Power amplifiers: Two Renkus-Heinz Model P2000 Amplifiers.
8. Receive room loudspeakers: Two Renkus-Heinz "Trap Jr/9" loudspeakers.
9. Source room loudspeakers: Two Renkus-Heinz "Trap Jr/9" loudspeakers.

Test Chamber Descriptions:

1. Receive Room: Volume = 8,291.3 ft³ (234 m³).
Rotating vane and stationary diffusers.
Temperature & humidity controlled.
Isolation pads under the floor.
2. Source Room: Volume = 7296.3 ft³ (206.6 m³).
Stationary diffusers only.
Temperature & humidity controlled.
3. TL Test Opening: Size = 14 ft wide by 10 ft high. Vibration break between source and receive rooms.

Appendix B
Description of Table Abbreviations

CODE	FRAME/PANEL MATERIAL	DEFINITION	
AI	Aluminum w/ vinyl inserts	Vinyl inserts employed in aluminum frame/sash	
AL	Aluminum	No thermally broken frame/sash components	
AP	Aluminum w/ thermal breaks - partial	Some frame/panel members thermally broken	
AT	Aluminum w/ thermal breaks – all members	All members contain thermal breaks	
AV	Aluminum/vinyl composite	Aluminum members combined with vinyl members	
AW	Aluminum clad wood	Aluminum cladding covering primary wood members	
FG	Fiberglass	Fiber reinforced frame/panel members	
OT	Other	Material not described in this lookup table	
PL	ABS Plastic	ABS plastic frame/sash members	
ST	Steel	Steel alloy members	
VA	Vinyl w/ reinforcing – all members	Some frame/panel members contain reinforcement	
VC	Vinyl clad aluminum	Vinyl cladding covering primary aluminum members	
VH	Vinyl w/ reinforcing – horizontal members only	Only horizontal panel members contain reinforcing	
VI	Vinyl w/ reinforcing – interlock only	Only panel interlock members contain reinforcing	
VP	Vinyl w/ reinforcing – partial	Only specific members contain reinforcing	
VV	Vinyl w/ reinforcing – vertical members only	Only vertical panel members contain reinforcing	
VW	Vinyl clad wood	Vinyl cladding covering primary wood members	
VY	Vinyl	Vinyl members with no reinforcing	
WA	Aluminum / wood composite	Aluminum members combined with wood members	
WD	Wood	All members are solid wood	
WV	Vinyl / wood composite	Vinyl members combined with wood members	
CODE	INTERSPACE GAS FILL	CODE	THERMAL BREAK MATERIAL
AIR	Air	F	Foam
AR2	Argon / Krypton mixture	O	Other
AR3	Argon / Krypton / Air mixture	U	Urethane
ARG	Argon	V	Vinyl
CO2	Carbon Dioxide		
KRY	Krypton		
OT	Other		
SF6	Sulfur Hexafluoride		
CODE	SPACER TYPE	DEFINITION	
A1	Aluminum	Aluminum spacer system	
A2	Aluminum – thermally broken	Aluminum spacer with urethane thermal break	
A3	Aluminum – reinforced polymer	Polymer spacer with aluminum substrate	
A4	Aluminum / wood	Aluminum / wood composite	
A5	Aluminum reinforced butyl	Butyl spacer with aluminum substrate	
A6	Aluminum /foam/aluminum	Two aluminum spacers separated by foam	
A7	Aluminum U shaped	U shaped aluminum spacer embedded in sealant	
FG	Fiberglass	Fiberglass spacer system	
GL	Glass	Glass spacer system	
PU	Polyurethane foam	Polyurethane foam	
S1	Steel	Stainless steel spacer system	
S2	Steel – thermally broken	Stainless steel spacer with urethane thermal break	
S3	Steel / foam / steel	Two steel spacers separated by foam	
S4	Steel U shaped	U shaped stainless steel spacer system	
S5	Steel reinforced butyl	Butyl spacer with steel substrate	
V1	Vinyl U shaped	U shaped spacer system embedded in sealant	
WD	Wood	Wood spacer system	
ZF	Silicone foam	Silicone foam spacer system	

Appendix C

Complete Sound Transmission Loss Test Results



SOUND TRANSMISSION LOSS ASTM E90


Architectural Testing

ATI No.	01-42253.01A	Date	07/31/02
Client	ODL Incorporated		
Specimen	Door Lite A with brass inlay		
Specimen Area	10.93 Sq Ft		
Filler Area	129.07 Sq Ft		
Operator	Brandon C. Ward		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	75.6	77.2	78.1	78.1	78.4	77.3
RH %	58.2	56.0	54.0	54.9	57.9	55.8

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	39.0	48.4	84.7	58.2	35.3	21	2.59	0	4.5
100	42.9	51.3	88.3	57.3	39.9	25	2.76	0	4.9
125	40.6	44.4	90.8	62.5	47.5	22	1.44	0	14.5
160	45.1	45.6	95.3	69.3	46.7	20	0.82	0	16.2
200	46.5	46.9	100.5	74.2	49.8	20	0.98	1	19.1
250	41.3	46.7	102.6	74.6	51.5	22	0.75	2	19.1
315	37.3	48.0	101.1	75.3	54.7	19	0.47	8	24.6
400	34.5	47.5	100.2	69.8	57.2	24	0.61	6	22.5
500	33.1	48.2	101.3	66.8	60.3	28	0.42	3	21.6
630	24.9	48.9	103.8	64.7	65.8	33	0.39	0	22.4
800	24.3	53.6	105.3	62.3	65.8	36	0.36	0	19.0
1000	23.5	56.0	105.3	58.9	72.2	39	0.28	0	22.2
1250	23.7	64.1	107.0	57.4	78.7	42	0.34	0	26.1
1600	19.6	70.3	111.5	59.6	82.2	44	0.20	0	27.6
2000	18.9	76.7	109.4	56.2	80.2	45	0.14	0	24.8
2500	17.9	86.9	107.7	53.0	78.0	46	0.21	0	21.6
3150	11.9	109.8	107.7	59.0	80.0	39	0.31	0	30.5
4000	14.8	136.8	106.9	63.3	83.2	33	0.36	2	39.9
5000	15.5	182.7	104.9	56.9	82.3	36	0.49	0	35.9

STC Rating 31 (*Sound Transmission Class*)
Deficiencies 22 (*Number of deficiencies versus contour curve*)
OITC Rating 26 (*Outdoor/Indoor Transmission Class*)

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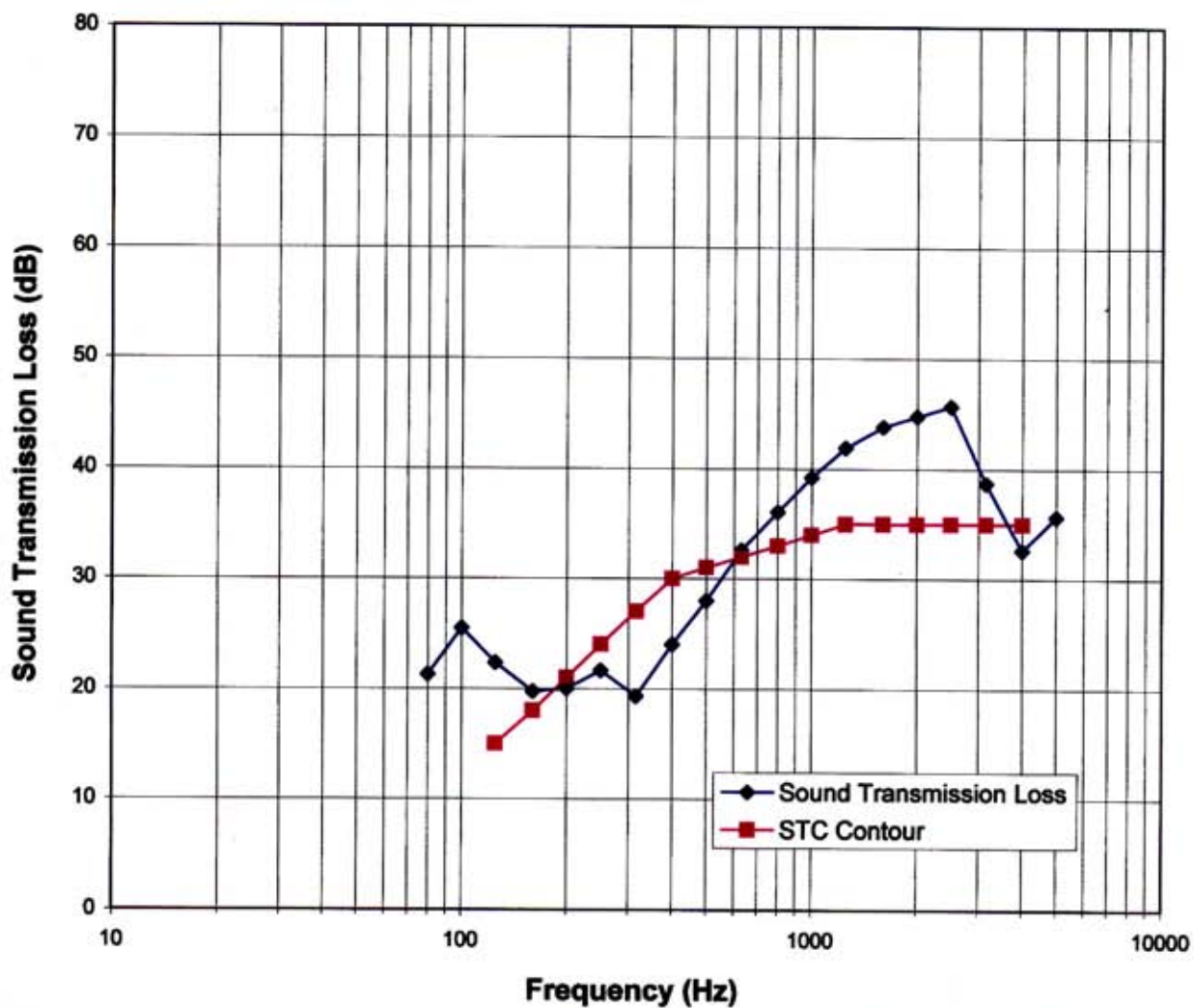
Architectural Testing

ATI No. 01-42253.01A
Client ODL Incorporated
Specimen Door Lite A with brass inlay

Date 07/31/02

Specimen Area 10.93 Sq Ft
Filler Area 129.07 Sq Ft
Operator Brandon C. Ward

Sound Transmission Loss



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SOUND TRANSMISSION LOSS
ASTM E90


Architectural Testing

ATI No.	01-42253.01B	Date	07/31/02
Client	ODL Incorporated		
Specimen	Door Lite B with pattern glass		
Specimen Area	10.93 Sq Ft		
Filler Area	129.07 Sq Ft		
Operator	Brandon C. Ward		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	77.2	78.1	79.0	78.7	78.4	78.2
RH %	58.5	57.3	53.8	56.4	57.9	56.5

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	39.7	47.6	85.0	56.7	35.3	23	2.38	0	2.7
100	41.9	48.4	88.2	55.9	39.9	27	3.14	0	3.3
125	40.2	45.7	91.4	59.8	47.5	26	1.88	0	11.3
160	44.5	42.8	95.7	66.7	46.7	23	1.13	2	13.0
200	45.3	51.5	100.6	73.4	49.8	20	0.48	8	18.6
250	40.2	50.4	102.8	70.3	51.5	26	0.76	5	14.9
315	39.2	47.0	101.2	65.2	54.7	30	0.52	4	14.3
400	35.8	47.9	100.6	64.2	57.2	30	0.78	7	16.6
500	32.3	49.5	101.5	60.5	60.3	34	0.24	4	15.2
630	21.9	51.0	103.9	60.7	65.8	37	0.63	2	18.6
800	21.6	53.6	105.5	58.5	65.8	40	0.38	0	15.0
1000	20.2	57.3	105.5	56.1	72.2	42	0.40	0	19.2
1250	20.4	65.5	107.0	54.7	78.7	45	0.40	0	23.4
1600	15.6	72.4	111.4	58.2	82.2	45	0.16	0	26.5
2000	16.2	74.1	109.5	56.1	80.2	45	0.29	0	24.5
2500	15.8	87.3	107.9	54.4	78.0	44	0.23	0	22.8
3150	9.9	108.2	107.9	54.2	80.0	44	0.39	0	25.5
4000	15.9	133.7	106.9	49.6	83.2	46	0.34	0	26.1
5000	17.0	177.9	105.0	41.1	82.3	52	0.45	0	19.7

STC Rating 38 (*Sound Transmission Class*)
Deficiencies 32 (*Number of deficiencies versus contour curve*)
OITC Rating 30 (*Outdoor/Indoor Transmission Class*)

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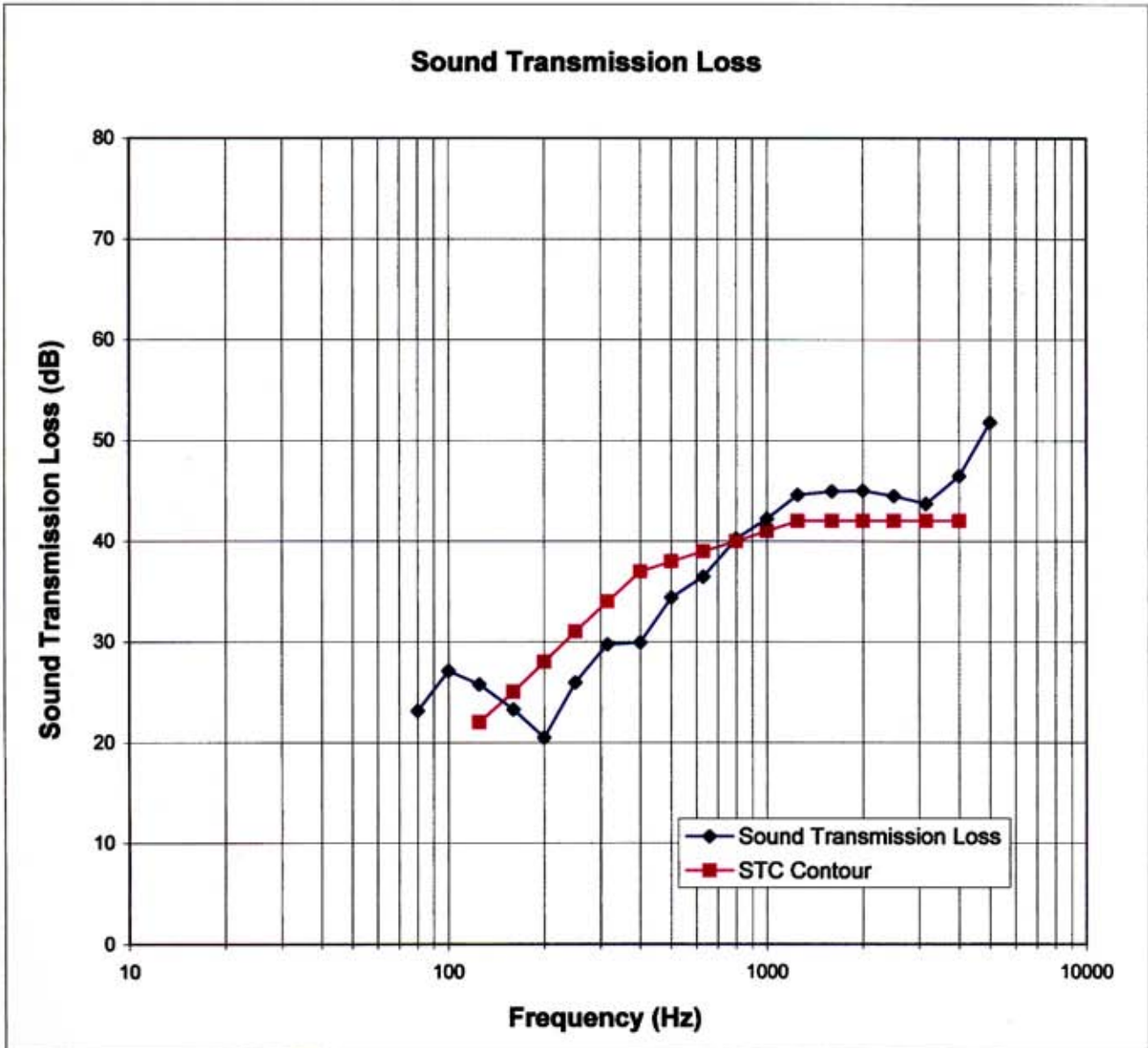


Architectural Testing

ATI No. 01-42253.01B
Client ODL Incorporated
Specimen Door Lite B with pattern glass

Date 07/31/02

Specimen Area 10.93 Sq Ft
Filler Area 129.07 Sq Ft
Operator Brandon C. Ward





SOUND TRANSMISSION LOSS ASTM E90


Architectural Testing

ATI No.	01-42253.01C	Date	07/31/02
Client	ODL Incorporated		
Specimen	Door Lite C Clear glass (1/8" temp, 5/8" air, 1/8" temp)		
Specimen Area	10.93 Sq Ft		
Filler Area	129.07 Sq Ft		
Operator	Brandon C. Ward		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	76.7	78.2	79.5	79.0	78.4	78.3
RH %	58.4	56.4	54.1	55.3	57.9	56.1

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	41.5	48.6	84.7	58.4	35.3	21	1.68	0	4.7
100	40.4	47.2	88.1	57.9	39.9	25	2.56	0	5.3
125	41.4	46.7	91.5	63.2	47.5	22	1.77	0	14.8
160	44.9	46.5	95.5	73.4	46.7	16	2.10	2	20.2
200	45.1	49.7	100.5	76.6	49.8	17	0.77	4	21.8
250	40.9	48.4	102.6	72.8	51.5	23	0.89	1	17.4
315	39.5	47.1	101.1	74.7	54.7	20	0.76	7	23.9
400	36.1	49.6	100.5	70.4	57.2	24	0.87	6	22.9
500	31.6	47.7	101.3	67.6	60.3	27	0.29	4	22.4
630	22.3	49.7	103.7	66.1	65.8	31	0.55	1	24.0
800	22.4	52.2	105.5	64.1	65.8	35	0.39	0	20.5
1000	20.9	55.3	105.4	60.7	72.2	38	0.41	0	23.8
1250	20.9	64.8	106.9	58.6	78.7	41	0.45	0	27.5
1600	15.7	71.4	111.4	61.9	82.2	41	0.31	0	30.1
2000	13.2	75.6	109.5	58.2	80.2	43	0.33	0	26.7
2500	11.9	88.8	107.8	55.1	78.0	44	0.30	0	23.7
3150	7.8	109.5	107.8	61.7	80.0	36	0.27	0	33.1
4000	15.6	134.6	107.0	64.1	83.2	32	0.40	3	40.5
5000	16.8	176.4	105.0	53.9	82.3	39	0.51	0	32.5

STC Rating 31 (*Sound Transmission Class*)
Deficiencies 28 (*Number of deficiencies versus contour curve*)
OITC Rating 25 (*Outdoor/Indoor Transmission Class*)

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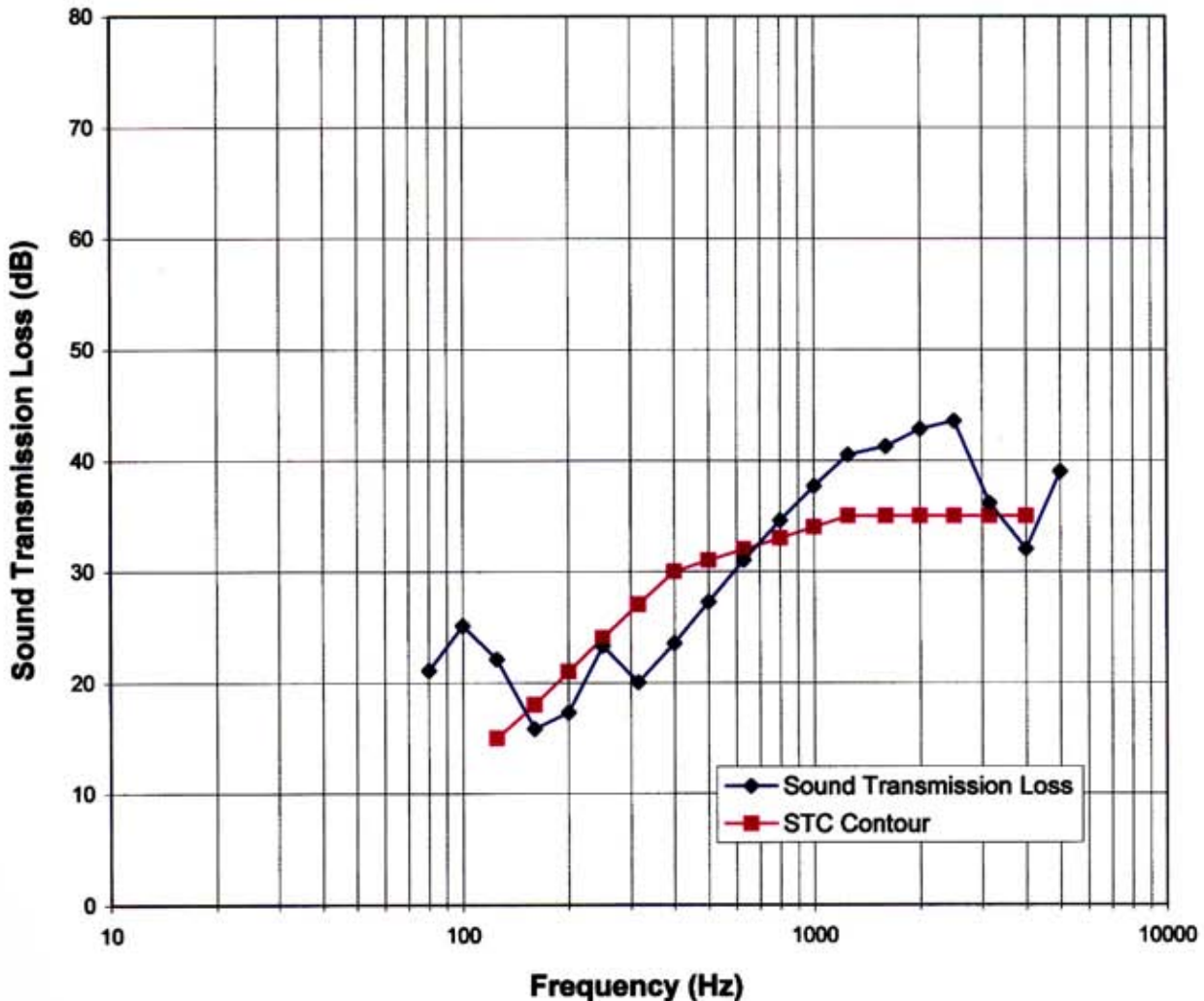


Architectural Testing

ATI No. 01-42253.01C Date 07/31/02
Client ODL Incorporated
Specimen Door Lite C Clear glass (1/8" temp, 5/8" air, 1/8" temp)

Specimen Area 10.93 Sq Ft
Filler Area 129.07 Sq Ft
Operator Brandon C. Ward

Sound Transmission Loss



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SOUND TRANSMISSION LOSS ASTM E90

Architectural Testing

ATI No.	01-42253.01D	Date	07/31/02
Client	ODL Incorporated		
Specimen	Door Lite D Clear glass (1/8" temp, 1/4" air, 1/8" temp)		
Specimen Area	10.93 Sq Ft		
Filler Area	129.07 Sq Ft		
Operator	Brandon C. Ward		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	76.7	77.9	79.4	78.7	78.4	78.2
RH %	56.9	55.3	53.1	54.1	57.9	54.8

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	40.4	47.6	84.7	58.4	35.3	21	1.46	0	4.6
100	38.4	53.3	88.0	57.7	39.9	25	2.51	0	5.8
125	41.4	43.6	91.5	61.8	47.5	24	1.64	0	13.1
160	42.6	44.4	95.6	66.7	46.7	23	1.07	0	13.3
200	45.3	49.3	100.6	72.8	49.8	21	0.63	0	17.8
250	41.6	45.6	102.7	74.1	51.5	22	0.89	0	18.4
315	39.4	46.7	101.2	73.7	54.7	21	0.59	3	22.8
400	33.7	47.4	100.6	75.7	57.2	19	0.81	8	28.0
500	31.3	48.5	101.3	71.9	60.3	23	0.33	5	26.7
630	23.2	50.4	103.8	68.7	65.8	29	0.58	0	26.5
800	22.9	52.3	105.6	67.8	65.8	31	0.42	0	24.1
1000	21.6	56.0	105.5	63.7	72.2	35	0.42	0	26.8
1250	22.1	63.9	106.9	60.6	78.7	39	0.37	0	29.3
1600	16.7	69.0	111.4	62.7	82.2	41	0.23	0	30.7
2000	14.9	74.7	109.4	59.1	80.2	42	0.31	0	27.5
2500	13.9	89.0	107.9	56.4	78.0	42	0.28	0	24.9
3150	9.1	110.6	107.8	58.9	80.0	39	0.38	0	30.4
4000	17.6	134.9	107.0	63.2	83.2	33	0.40	0	39.7
5000	18.8	179.9	105.0	58.2	82.3	35	0.41	0	36.8

STC Rating 28 (*Sound Transmission Class*)
Deficiencies 16 (*Number of deficiencies versus contour curve*)
OITC Rating 25 (*Outdoor/Indoor Transmission Class*)

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SOUND TRANSMISSION LOSS
ASTM E90

Architectural Testing

ATI No.	01-42253.01D	Date	07/31/02
Client	ODL Incorporated		
Specimen	Door Lite D Clear glass (1/8" temp, 1/4" air, 1/8" temp)		
Specimen Area	10.93 Sq Ft		
Filler Area	129.07 Sq Ft		
Operator	Brandon C. Ward		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	76.7	77.9	79.4	78.7	78.4	78.2
RH %	56.9	55.3	53.1	54.1	57.9	54.8

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	40.4	47.6	84.7	58.4	35.3	21	1.46	0	4.6
100	38.4	53.3	88.0	57.7	39.9	25	2.51	0	5.8
125	41.4	43.6	91.5	61.8	47.5	24	1.64	0	13.1
160	42.6	44.4	95.6	66.7	46.7	23	1.07	0	13.3
200	45.3	49.3	100.6	72.8	49.8	21	0.63	0	17.8
250	41.6	45.6	102.7	74.1	51.5	22	0.89	0	18.4
315	39.4	46.7	101.2	73.7	54.7	21	0.59	3	22.8
400	33.7	47.4	100.6	75.7	57.2	19	0.81	8	28.0
500	31.3	48.5	101.3	71.9	60.3	23	0.33	5	26.7
630	23.2	50.4	103.8	68.7	65.8	29	0.58	0	26.5
800	22.9	52.3	105.6	67.8	65.8	31	0.42	0	24.1
1000	21.6	56.0	105.5	63.7	72.2	35	0.42	0	26.8
1250	22.1	63.9	106.9	60.6	78.7	39	0.37	0	29.3
1600	16.7	69.0	111.4	62.7	82.2	41	0.23	0	30.7
2000	14.9	74.7	109.4	59.1	80.2	42	0.31	0	27.5
2500	13.9	89.0	107.9	56.4	78.0	42	0.28	0	24.9
3150	9.1	110.6	107.8	58.9	80.0	39	0.38	0	30.4
4000	17.6	134.9	107.0	63.2	83.2	33	0.40	0	39.7
5000	18.8	179.9	105.0	58.2	82.3	35	0.41	0	36.8

STC Rating 28 (Sound Transmission Class)
Deficiencies 16 (Number of deficiencies versus contour curve)
OITC Rating 25 (Outdoor/Indoor Transmission Class)

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Appendix B
Description of Table Abbreviations

CODE	FRAME/PANEL MATERIAL	DEFINITION	
AI	Aluminum w/ vinyl inserts	Vinyl inserts employed in aluminum frame/sash	
AL	Aluminum	No thermally broken frame/sash components	
AP	Aluminum w/ thermal breaks - partial	Some frame/panel members thermally broken	
AT	Aluminum w/ thermal breaks – all members	All members contain thermal breaks	
AV	Aluminum/vinyl composite	Aluminum members combined with vinyl members	
AW	Aluminum clad wood	Aluminum cladding covering primary wood members	
FG	Fiberglass	Fiber reinforced frame/panel members	
OT	Other	Material not described in this lookup table	
PL	ABS Plastic	ABS plastic frame/sash members	
ST	Steel	Steel alloy members	
VA	Vinyl w/ reinforcing – all members	Some frame/panel members contain reinforcement	
VC	Vinyl clad aluminum	Vinyl cladding covering primary aluminum members	
VH	Vinyl w/ reinforcing – horizontal members only	Only horizontal panel members contain reinforcing	
VI	Vinyl w/ reinforcing – interlock only	Only panel interlock members contain reinforcing	
VP	Vinyl w/ reinforcing – partial	Only specific members contain reinforcing	
VV	Vinyl w/ reinforcing – vertical members only	Only vertical panel members contain reinforcing	
VW	Vinyl clad wood	Vinyl cladding covering primary wood members	
VY	Vinyl	Vinyl members with no reinforcing	
WA	Aluminum / wood composite	Aluminum members combined with wood members	
WD	Wood	All members are solid wood	
WV	Vinyl / wood composite	Vinyl members combined with wood members	
CODE	INTERSPACE GAS FILL	CODE	THERMAL BREAK MATERIAL
AIR	Air	F	Foam
AR2	Argon / Krypton mixture	O	Other
AR3	Argon / Krypton / Air mixture	U	Urethane
ARG	Argon	V	Vinyl
CO2	Carbon Dioxide		
KRY	Krypton		
OT	Other		
SF6	Sulfur Hexafluoride		
CODE	SPACER TYPE	DEFINITION	
A1	Aluminum	Aluminum spacer system	
A2	Aluminum – thermally broken	Aluminum spacer with urethane thermal break	
A3	Aluminum – reinforced polymer	Polymer spacer with aluminum substrate	
A4	Aluminum / wood	Aluminum / wood composite	
A5	Aluminum reinforced butyl	Butyl spacer with aluminum substrate	
A6	Aluminum /foam/aluminum	Two aluminum spacers separated by foam	
A7	Aluminum U shaped	U shaped aluminum spacer embedded in sealant	
FG	Fiberglass	Fiberglass spacer system	
GL	Glass	Glass spacer system	
PU	Polyurethane foam	Polyurethane foam	
S1	Steel	Stainless steel spacer system	
S2	Steel – thermally broken	Stainless steel spacer with urethane thermal break	
S3	Steel / foam / steel	Two steel spacers separated by foam	
S4	Steel U shaped	U shaped stainless steel spacer system	
S5	Steel reinforced butyl	Butyl spacer with steel substrate	
V1	Vinyl U shaped	U shaped spacer system embedded in sealant	
WD	Wood	Wood spacer system	
ZF	Silicone foam	Silicone foam spacer system	

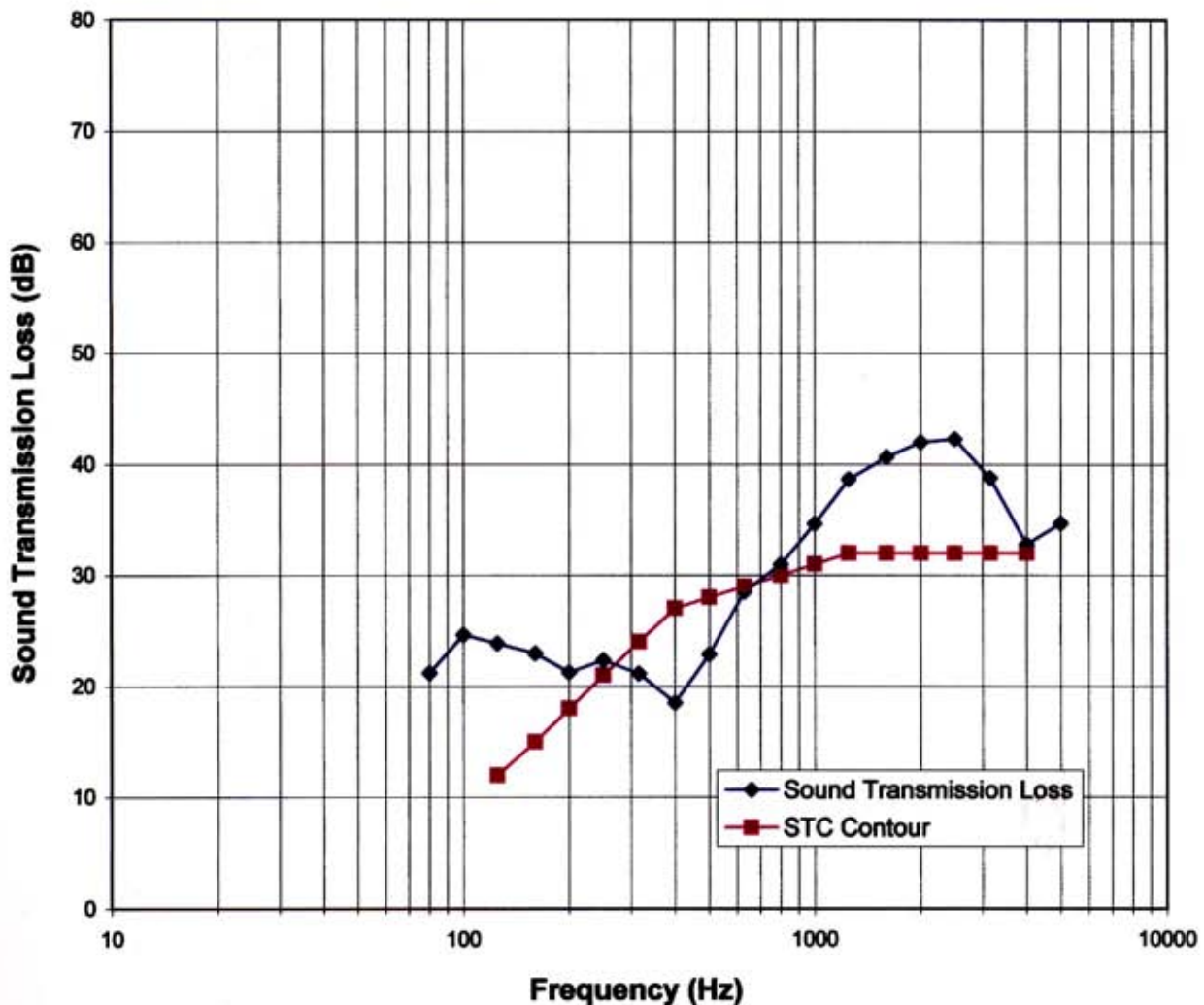


Architectural Testing

ATI No. 01-42253.01D Date 07/31/02
Client ODL Incorporated
Specimen Door Lite D Clear glass (1/8" temp, 1/4" air, 1/8" temp)

Specimen Area 10.93 Sq Ft
Filler Area 129.07 Sq Ft
Operator Brandon C. Ward

Sound Transmission Loss



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Appendix D
Sample Photos



Sample A



Sample B