

Sound Transmission Class (STC) calculation according to ASTM E413
 Assessment of Laboratory Transmission Loss per ASTM E90

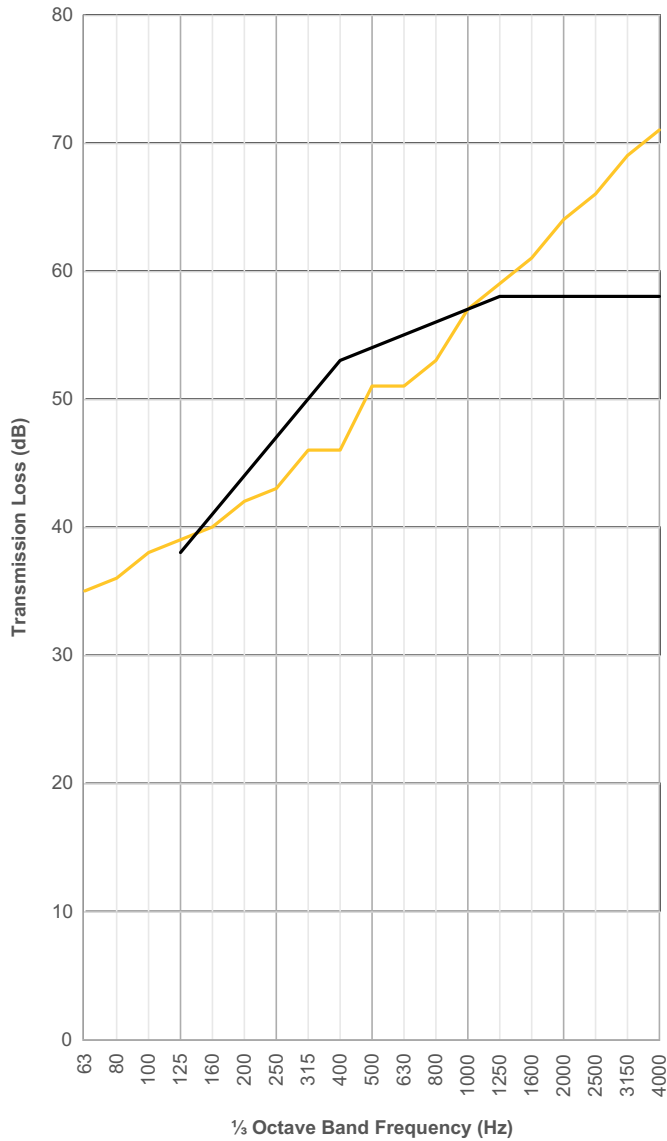
Date of Original Test
 25-Mar-20

Tested Assembly
 152 mm Concrete Slab

Test Report Number
 k8087.01-113-11-r0

Name of Testing Laboratory
 Intertek/ATI York

Freq (Hz)	TL (dB)	Def (dB)
50	37	
63	35	
80	36	
100	38	
125	39	0
160	40	1
200	42	2
250	43	4
315	46	4
400	46	7
500	51	3
630	51	4
800	53	3
1000	57	0
1250	59	0
1600	61	0
2000	64	0
2500	66	0
3150	69	0
4000	71	0
5000	73	
6300	75	
8000	77	
10000	78	



STC = 54
Sum of Def. (dB) = 28



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Classification for Determination of Impact Insulation Class (IIC) according to ASTM E989
Assessment of Laboratory Impact Sound Transmission per ASTM E492

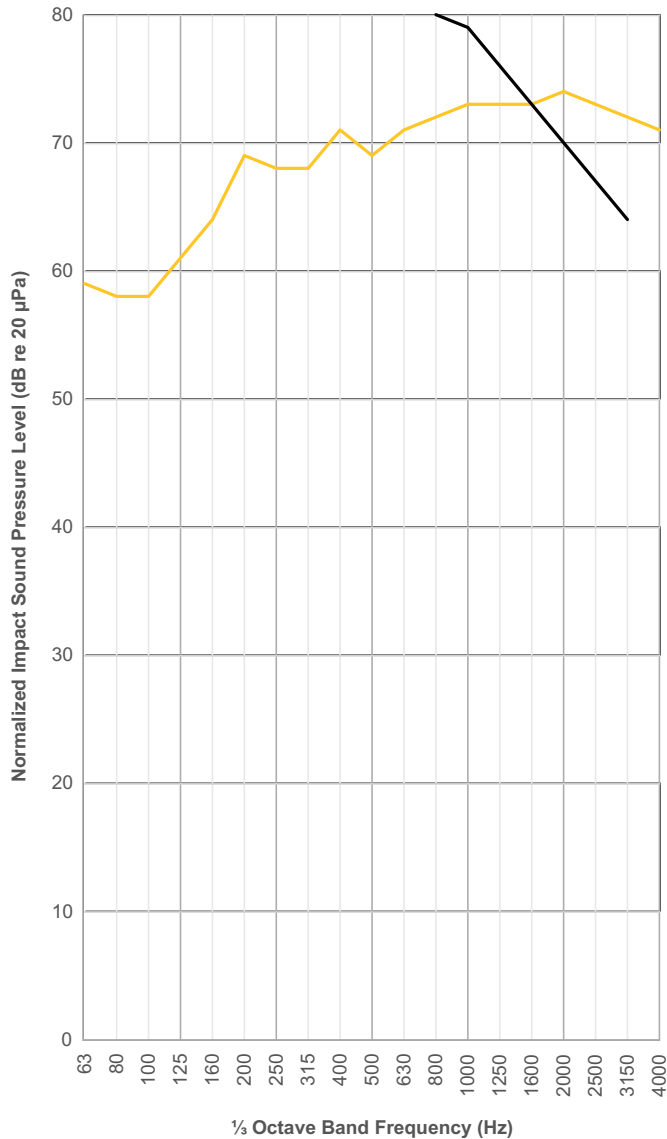
Date of Original Test
25-Mar-20

Tested Assembly
152 mm Concrete Slab

Test Report Number
k8087.01-113-11-r0

Name of Testing Laboratory
Intertek/ATI York

Freq (Hz)	NISPL (dB)	Def (dB)
50	63	
63	59	
80	58	
100	58	0
125	61	0
160	64	0
200	69	0
250	68	0
315	68	0
400	71	0
500	69	0
630	71	0
800	72	0
1000	73	0
1250	73	0
1600	73	0
2000	74	4
2500	73	6
3150	72	8
4000	71	
5000	69	
6300	65	
8000	59	
10000	49	



IIC = 28
Sum of Def. (dB) = 18

LIIC = 59
HIIC = 28

Note: HIIC and LIIC are draft ASTM standards provided for users reference. The final standard may change

PLITEQ INC. ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 AND ASTM E492 TESTING ON BARE CONCRETE SLAB

SPECIMEN TYPE

Concrete Slab - 152 mm (6")

REPORT NUMBER

K8087.01-113-11-R0

TEST DATE

03/25/20

ISSUE DATE

07/08/20

RECORD RETENTION END

03/25/24

PAGES

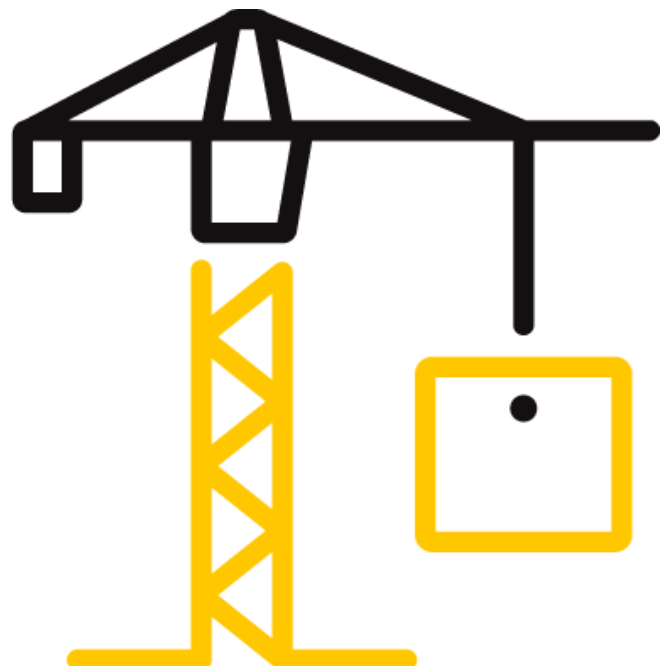
12

DOCUMENT CONTROL

ATI 00629 (03/21/18)

RTTDS-R-AMER-Test-2844

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TEST REPORT FOR PLITEQ INC.

Report No.: K8087.01-113-11-R0

Date: 07/08/20

REPORT ISSUED TO

PLITEQ INC.

1370 Don Mills Road, Unit 300
Toronto, Ontario M3B 3N7 CANADA

SECTION 1

SCOPE


Intertek Building & Construction (B&C) was contracted by Pliteq Inc. to perform testing in accordance with ASTM E90 AND ASTM E492 on Bare Concrete Slab. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted in the VT test chambers at Intertek B&C located in York, Pennsylvania.


This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

DATA FILE NO.	K8087.01
SERIES/MODEL:	Bare Concrete Slab
STC	54
IIC	28

COMPLETED BY: Cody R. Snyder
Technician Team Leader -
TITLE: Acoustical Testing
SIGNATURE: 
Digitally Signed by: Cody Snyder
DATE: 07/08/20

COMPLETED BY: Daniel B. Mohler
Project Lead - Acoustical
TITLE: Testing
SIGNATURE: 
Digitally Signed by: Daniel Mohler
DATE: 07/08/20

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TEST REPORT FOR PLITEQ INC.

Report No.: K8087.01-113-11-R0

Date: 07/08/20

SECTION 3

TEST METHODS

The specimen was evaluated in accordance with the following:

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*

ASTM E413-16, *Classification for Rating Sound Insulation*

ASTM E492-09(2016)e1, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

ASTM E989-18, *Classification for Determination of Impact Insulation Class (IIC)*

ASTM E2235-04 (2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

SECTION 4

MATERIAL SOURCE/INSTALLATION

The full test specimen was assembled on the day of testing by B&C. All materials provided by the client were installed on an existing B&C assembly (Concrete Slab - 152 mm (6")) utilizing B&C-supplied materials. The assembly was installed in a steel test frame which was installed into the opening between the source and receive rooms in the test chamber. The test frame was isolated from the structure with dense neoprene gasket.

The total weight of the floor/ceiling assembly was 4020.7 kg / 8864.1 lbs. B&C will store samples of the test specimen for four years. Photographs of the test specimen are included in the report. A drawing of the test specimen is included in the report.

B&C will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by B&C for the entire test record retention period.

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**SECTION 5
EQUIPMENT**

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	INT00977	08/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	65124	05/18 *
Data Acquisition Unit	National Instruments	PXI-4462	Data Acquisition Card	63763-1	06/18 *
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	06/19
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63741	04/19
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63739	04/19
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	67340	04/19
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	63745	06/19
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65617	06/19
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	63810	10/19
				63811	10/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65029	03/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63747	08/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64340	10/19
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	63746	10/19
Source Room Microphone	PCB Electronics	378C20	Microphone and Preamplifier	63742	03/19
Source Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00603	03/19
Tapping Machine	Look Line s.r.l.	EM50	Tapping Machine	65351	11/19

* The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

VT RECEIVE ROOM VOLUME	158.86 m ³ (5610.1 ft ³)
VT SOURCE ROOM VOLUME	190 m ³ (6709.79 ft ³)

**SECTION 6
LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Morgan S. J. Kennedy	Intertek B&C
Daniel B. Mohler	Intertek B&C

TEST REPORT FOR PLITEQ INC.

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Date: 07/08/20

**SECTION 7
TEST PROCEDURE**

The microphones were calibrated before conducting the tests. The air temperature and relative humidity conditions were monitored and recorded during all measurements. The average temperature and humidity of both the source and received rooms are listed in Sections 10 and 11. The maximum and minimum temperatures and humidities of the receive room from the duration of the test are listed in Sections 12 and 13.

The airborne transmission loss test was conducted in accordance with the ASTM E90 test method using the single direction method. Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

The impact sound transmission test was conducted in accordance with the ASTM E492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E492, and five sound absorption measurements were conducted at each of five microphone positions.

Detailed test procedures, data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

**SECTION 8
TEST CALCULATIONS**

The STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings were calculated in accordance with ASTM E413 and ASTM E989, respectively.

**SECTION 9
TEST SPECIMEN DESCRIPTION**

MATERIAL	Dimensions (mm/inch)	Thickness (mm/inch)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
Concrete Slab	3023 by 3632 119 by 143	152.4 / 6	5000 PSI	10.98 m ² 118.19 ft ²	366.18 kg/m ² 75 lb/ft ²
	Note: Installed in a test frame flush to the source room. Mats of #5 reinforcing bars were placed 25.4 mm from both the top and bottom of the slab, with bars spaced on 305 mm centers in both directions. No noticeable shrinkage or cracking was visible on the specimen.				

TEST REPORT FOR PLITEQ INC.

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Date: 07/08/20

SECTION 10

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS



TEST DATE	3/25/2020				
DATA FILE NO.	K8087.01				
CLIENT	Pliteq Inc.				
DESCRIPTION	152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	17.1°C (62.7°F)	Source Temp.	17.1°C (62.8°F)
TECHNICIAN	MSJK	Receive Humidity	57%	Source Humidity	57%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
50	38.3	27.4	102	62	37	1.4	-
63	33.2	27.4	101	63	35	2.9	-
80	32.1	15.2	102	65	36	2.8	-
100	28.1	10.7	101	64	38	2.0	-
125	25.9	9.1	98	61	39	2.0	0
160	25.3	9.7	97	59	40	1.3	1
200	21.3	11.3	101	60	42	1.2	2
250	16.5	10.3	101	59	43	0.8	4
315	21.0	9.6	99	54	46	0.8	4
400	15.9	9.6	101	56	46	1.0	7
500	16.1	9.2	100	51	51	0.6	3
630	20.8	9.1	100	50	51	0.6	4
800	18.5	9.8	100	47	53	0.4	3
1000	19.1	9.9	99	43	57	0.5	0
1250	18.0	9.7	99	42	59	0.6	0
1600	12.7	10.1	100	39	61	0.6	0
2000	13.7	10.7	100	36	64	0.8	0
2500	9.3	11.8	98	33	66	0.9	0
3150	6.3	12.7	99	30	69	1.1	0
4000	5.1	14.3	100	28	71	1.5	0
5000	5.4	16.8	100	26	73	1.8	-
6300	6.0	20.7	93	16	75	2.2	-
8000	6.5	27.2	93	13	77	2.1	-
10000	6.8	27.2	87	7	78	1.2	-
STC Rating	54	<i>(Sound Transmission Class)</i>			Sum of Deficiencies	28	

- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
 - 2) Specimen TL levels listed in red are potentially limited by the laboratory flanking limit.
 - 3) Specimen TL levels listed in blue indicate the lower limit of the transmission loss.
 - 4) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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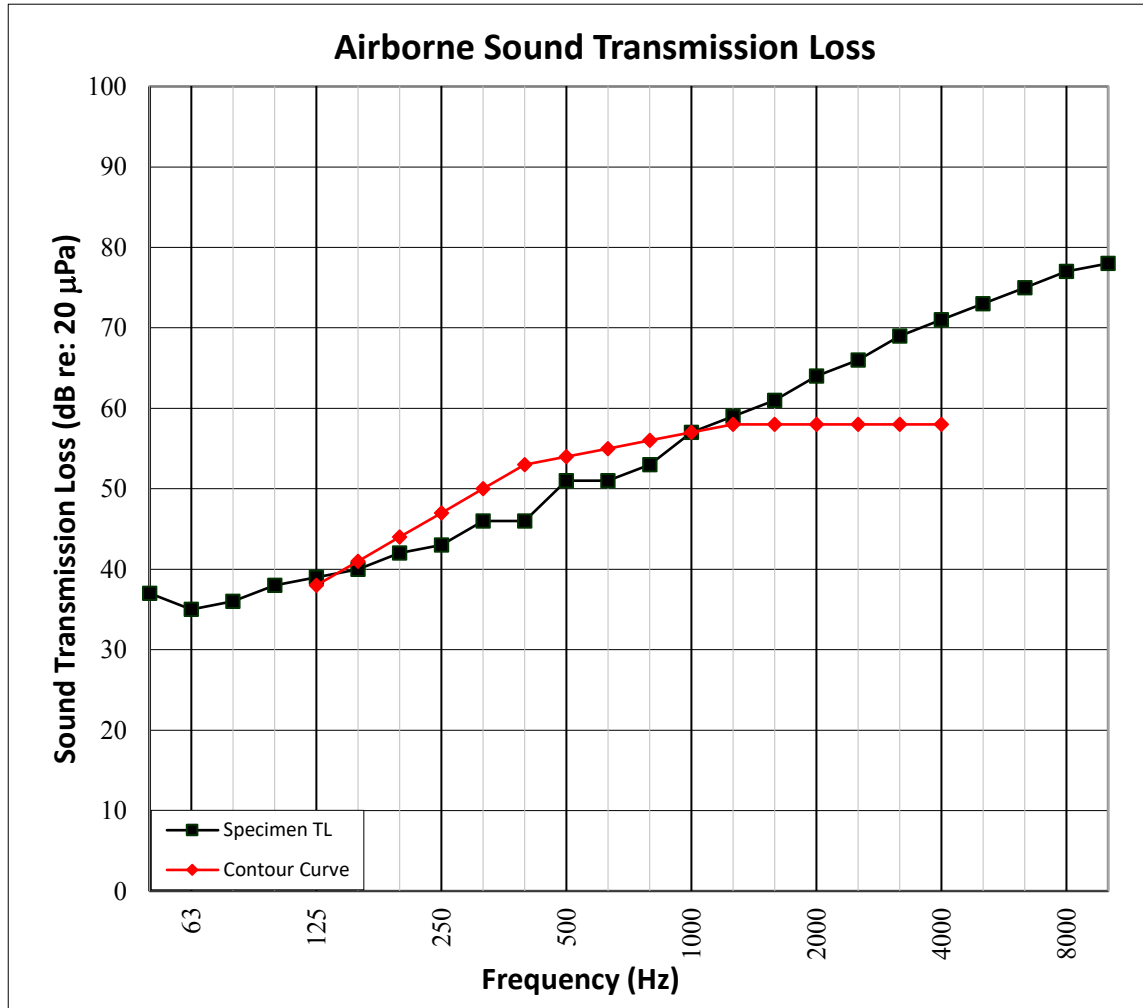
Date: 07/08/20

SECTION 11

TEST RESULTS - AIRBORNE SOUND TRANSMISSION LOSS GRAPH



TEST DATE	3/25/2020				
DATA FILE NO.	K8087.01				
CLIENT	Pliteq Inc.				
DESCRIPTION	152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Receive Temp.	17.1°C (62.7°F)	Source Temp.	17.1°C (62.8°F)
TECHNICIAN	MSJK	Receive Humidity	57%	Source Humidity	57%



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SECTION 12

TEST RESULTS - IMPACT SOUND TRANSMISSION



TEST DATE	3/25/2020				
DATA FILE NO.	K8087.01				
CLIENT	Pliteq Inc.				
DESCRIPTION	152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	17.1°C (62.7°F)	Minimum Temp.	17.1°C (62.7°F)
TECHNICIAN	MSJK	Max. Humidity	57%	Min. Humidity	57%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION m ²	NORMALIZED IMPACT SPL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
50	38.8	28.1	63	1.7	-
63	32.4	26.3	59	2.7	-
80	31.9	14.5	58	2.2	-
100	28.1	11.1	58	1.2	0
125	27.2	9.8	61	1.2	0
160	26.7	9.8	64	0.7	0
200	22.6	11.3	69	1.0	0
250	17.9	10.6	68	0.4	0
315	22.1	9.9	68	1.0	0
400	17.3	9.8	71	0.6	0
500	19.1	9.1	69	0.4	0
630	25.0	9.2	71	0.4	0
800	21.5	9.8	72	0.3	0
1000	21.1	9.8	73	0.4	0
1250	18.0	9.5	73	0.5	0
1600	12.6	10.0	73	0.6	0
2000	12.5	10.8	74	0.9	4
2500	8.5	11.6	73	1.1	6
3150	6.1	12.7	72	1.3	8
4000	5.0	14.2	71	1.7	-
5000	5.4	16.6	69	2.2	-
6300	6.0	20.7	65	2.6	-
8000	6.5	27.0	59	3.0	-
10000	6.8	27.0	49	3.1	-
IIC Rating	28	<i>(Impact Insulation Class)</i>		Sum of Deficiencies	18

Notes: Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.

TEST REPORT FOR PLITEQ INC.

Report No.: K8087.01-113-11-R0

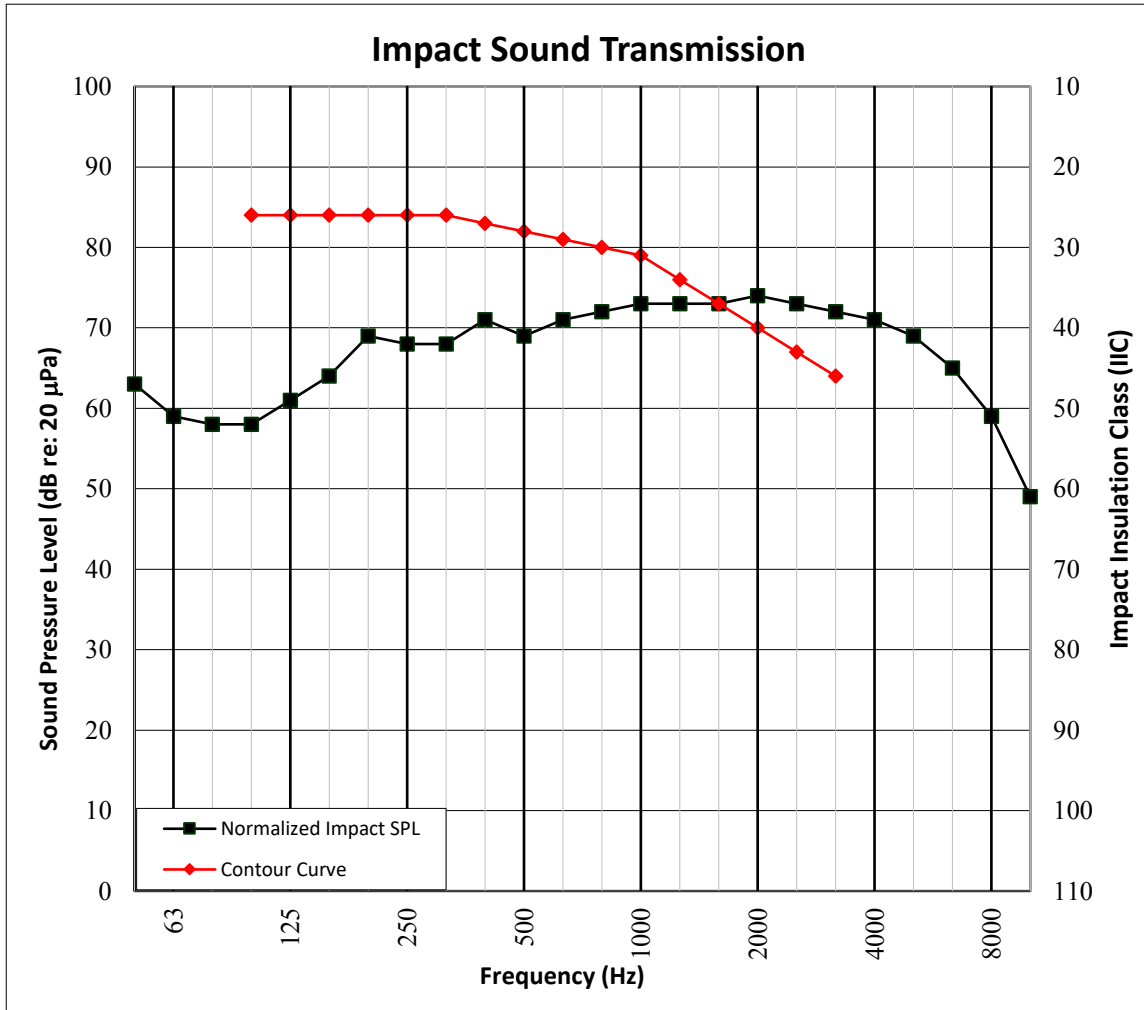
Date: 07/08/20

SECTION 13

TEST RESULTS - IMPACT SOUND TRANSMISSION GRAPH



TEST DATE	3/25/2020				
DATA FILE NO.	K8087.01				
CLIENT	Pliteq Inc.				
DESCRIPTION	152.4 mm (6") 5000 PSI Concrete Slab				
SPECIMEN AREA	10.98 m ²	Maximum Temp.	17.1°C (62.7°F)	Minimum Temp.	17.1°C (62.7°F)
TECHNICIAN	MSJK	Max. Humidity	57%	Min. Humidity	57%



TEST REPORT FOR PLITEQ INC.

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SECTION 14

PHOTOGRAPHS



Photo No. 1

Source Room View of Test Specimen Installation



Photo No. 2

Receive Room View of Test Specimen Installation

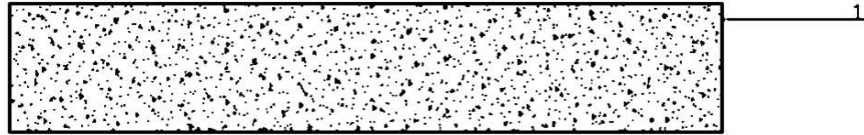
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SECTION 15

DRAWING



1-Concrete Slab



Total Quality. Assured.

130 Derry Court
York, PA 17406

Telephone: 717-764-7700
Facsimile: 717-764-4129
www.intertek.com/building

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Report No.: K8087.01-113-11-R0

Date: 07/08/20

SECTION 16

REVISION LOG

REVISION #	DATE	PAGES	DESCRIPTION
R0	07/08/20	N/A	Original Report Issue