



**G4257.01-113-11-R0**  
**ACOUSTICAL PERFORMANCE TEST REPORT**  
**ASTM E 90 AND ASTM E 492**

**Rendered to**

**APC CORK, INC.**

**Series/Model: APC 8 mm Sheets Cork Underlayment**

**Specimen Type: Concrete Slab - 152 mm**

**Overall Size: 3023 mm by 3632 mm**

<b>STC</b>	<b>53</b>
<b>IIC</b>	<b>50</b>

**Test Specimen Identification:**

Floor Topping: 12.41 mm Quarry Tile

Floor Underlayment: 7.82 mm APC 8 mm Sheets Cork Underlayment

Floor Slab: 152 mm Concrete Slab

Reference should be made to Intertek-ATI Report G4257.01-113-11 for complete test specimen description. This page alone is not a complete report.



## Acoustical Performance Test Report

APC CORK, INC.  
2570 North Powerline Road, Suite 501  
Pompano Beach, Florida 33069

**Report** G4257.01-113-11  
**Test Date** 10/31/16  
**Report Date** 11/04/16

### Project Scope

Architectural Testing, Inc., an Intertek company (Intertek-ATI), was contracted to conduct airborne sound transmission loss and impact sound transmission tests. The complete test data is included as attachments to this report. The full test specimen was assembled on the day of testing by Intertek-ATI. All materials provided by the client were installed on an existing Intertek-ATI assembly (Concrete Slab - 152 mm) utilizing Intertek-ATI-supplied materials.

### Test Methods

The acoustical tests were conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E 90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E 413-10, Classification for Rating Sound Insulation

ASTM E 492-09(2016)e1, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E 989-06 (2012), Classification for Determination of Impact Insulation Class (IIC)

ASTM E 2235-04 (2012) Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

### Test Procedure

All testing was conducted in the VT test chambers at Intertek-ATI located in York, Pennsylvania. The microphones were calibrated before conducting the tests.

The airborne transmission loss test was conducted in accordance with the ASTM E 90 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. Four sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

**Test Procedure (Continued)**

The impact sound transmission test was conducted in accordance with the ASTM E 492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492, and five sound absorption measurements were conducted at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

**Test Conditions**

Source Room		Receive Room	
Average Temperature	19.6°C	Average Temperature	20.2°C
Average Relative Humidity	56%	Average Relative Humidity	49%

**Test Calculations**

The STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings were calculated in accordance with ASTM E 413 and ASTM E 989, respectively.

**Test Specimen Materials and Installation Details**

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Quarry Tile	3023 by 3632	12.4	N/A	10.98 m <sup>2</sup>	28.27 kg/m <sup>2</sup>
	<i>Note: Placed with light pressure onto a bed of TEC® mortar on the underlayment. The mortar was set using a 6.35 mm by 6.35 mm trowel. TEC® sanded grout was placed into the 6.35 mm joints between the tiles and wiped clean. Both the grout and mortar were allowed to cure to manufacturer's specifications.</i>				
Cork Underlayment	3023 by 3632	7.8	APC 8 mm Sheets	10.98 m <sup>2</sup>	1.79 kg/m <sup>2</sup>
	<i>Note: Adhered to concrete slab using DriTac 7300 premium urethane wood flooring adhesive, spread with a 3 mm by 3 mm by 1.5 mm flat V-notch trowel.</i>				
Concrete Slab	3023 by 3632	152.0	N/A	10.98 m <sup>2</sup>	366.18 kg/m <sup>2</sup>
	<i>Note: The concrete slab was installed in a test frame flush to the source room.</i>				

**Comments**

The total weight of the floor/ceiling assembly was 4350.8 kg. Intertek-ATI will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments. A drawing of the test specimen is included in the attachments.

Intertek-ATI 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 Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

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FOR INTERTEK-ATI:

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Robert M. Hall  
Technician II - Acoustical Testing

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Jordan Strybos  
Project Manager - Acoustical Testing

Attachments (7 pages): This report is complete only when all attachments listed are included.

- Instrumentation (1)
- Airborne Sound Transmission Loss Data (2)
- Impact Sound Transmission Data (2)
- Photographs (1)
- Drawings (1)

*\* Stated by Client/Manufacturer*

*N/A - Non Applicable*

**Revision Log**

<b><u>Revision</u></b>	<b><u>Date</u></b>	<b><u>Page(s)</u></b>	<b><u>Description</u></b>
R0	11/04/16	N/A	Original Report Issue

## Attachments

### Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	65124	06/16 *
Microphone Calibrator	Norsonic	1251	INT00127	01/16
Receive Room Microphone	PCB Piezotronics	378B20	63748	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63744	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63745	06/16
Receive Room Microphone	PCB Piezotronics	378C20	65617	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63747	06/16
Receive Room Environmental Indicator	Comet	T7510	63810	10/15
			63811	10/15
Source Room Microphone	PCB Piezotronics	378B20	63738	05/16
Source Room Microphone	PCB Piezotronics	378B20	63739	05/16
Source Room Microphone	PCB Piezotronics	378B20	63740	05/16
Source Room Microphone	PCB Piezotronics	378B20	63742	05/16
Source Room Microphone	Scantek	378B20	63741	05/16
Source Room Environmental Indicator	Comet	T7510	63812	11/15
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	02/16

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

### Test Chambers

VT Receive Room Volume	158.86 m <sup>3</sup>
VT Source Room Volume	190 m <sup>3</sup>



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**AIRBORNE SOUND TRANSMISSION LOSS**  
ASTM E 90



<b>Test Date</b>	10/31/16
<b>Data File No.</b>	G4257.01
<b>Client</b>	APC Cork, Inc.
<b>Description</b>	12.41 mm Quarry Tile, 7.82 mm APC 8 mm Sheets Cork Underlayment, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Robert M. Hall

Freq (Hz)	Background SPL (dB)	Absorption (m <sup>2</sup> )	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	51.0	16.0	119	78	41	4.70	-
100	32.6	16.6	109	69	39	2.00	-
125	34.4	10.4	105	68	38	1.70	0
160	32.1	11.0	106	68	38	1.70	2
200	30.4	12.0	105	68	36	1.70	7
250	30.6	11.6	103	61	43	0.80	3
315	30.2	10.7	107	61	46	0.80	3
400	28.4	9.8	104	59	46	0.70	6
500	29.2	8.7	104	55	50	0.60	3
630	32.5	8.3	103	52	52	0.50	2
800	34.1	8.3	103	50	55	0.70	0
1000	33.1	8.1	103	45	60	0.30	0
1250	33.1	8.1	101	41	62	0.50	0
1600	29.5	8.4	101	40	64	0.30	0
2000	25.4	9.4	101	37	65	0.40	0
2500	21.3	10.4	97	33	65	0.30	0
3150	20.8	11.4	99	30	70	0.50	0
4000	17.8	13.4	99	27	71	0.40	0
5000	16.9	15.5	96	20	75	0.60	-
6300	14.5	19.5	94	14	78	0.60	-
8000	12.9	26.6	94	13	79	0.80	-
10000	11.3	33.2	92	10	79	0.80	-

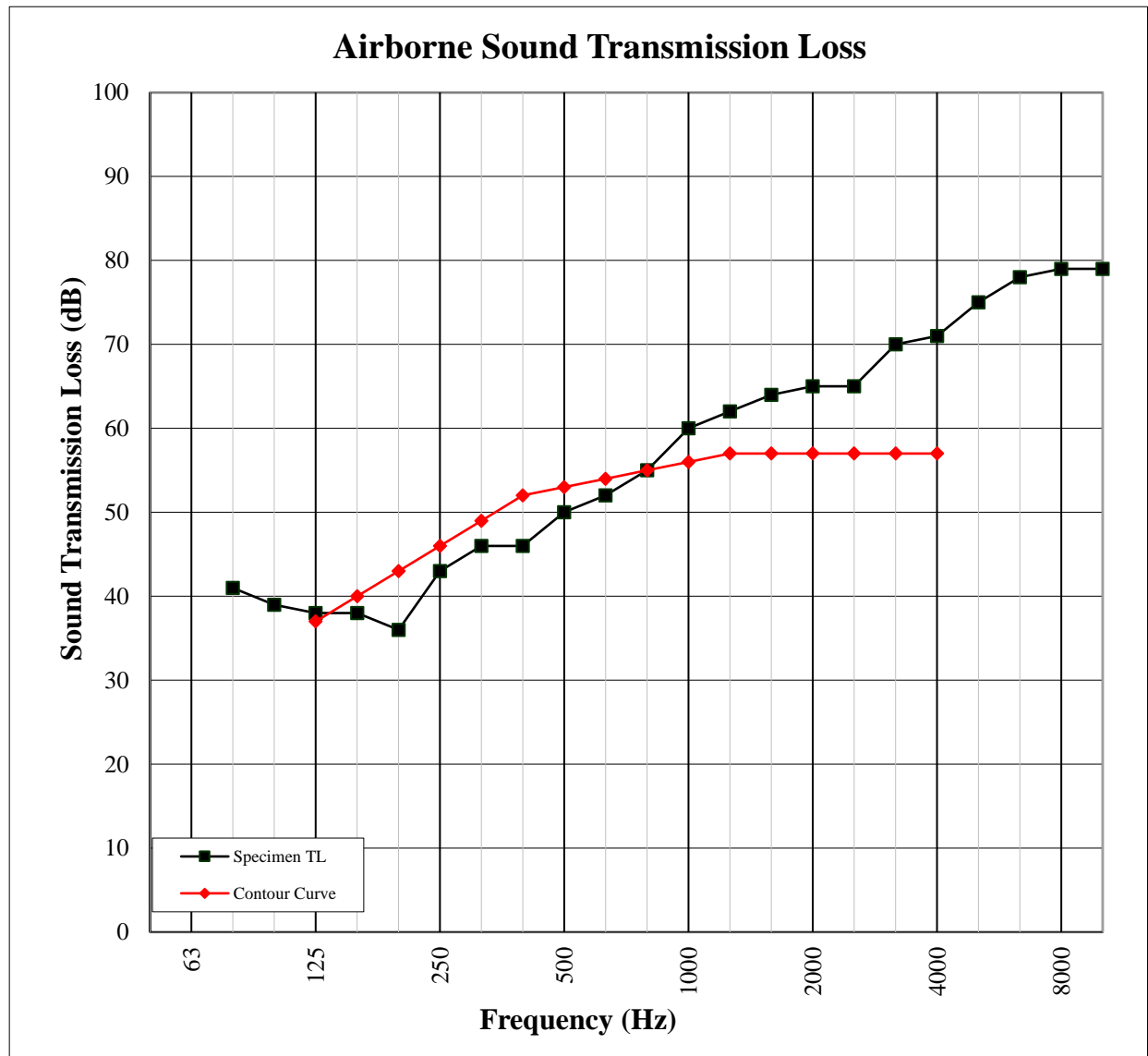
**STC Rating**      **53**      (*Sound Transmission Class*)

**Deficiencies**      **26**      (*Sum of Deficiencies*)

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

**AIRBORNE SOUND TRANSMISSION LOSS**  
ASTM E 90

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<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Robert M. Hall







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**IMPACT SOUND TRANSMISSION**  
ASTM E 492

<b>Test Date</b>	10/31/16
<b>Data File No.</b>	G4257.01
<b>Client</b>	APC Cork, Inc.
<b>Description</b>	12.41 mm Quarry Tile, 7.82 mm APC 8 mm Sheets Cork Underlayment, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Robert M. Hall

<b>Freq</b> (Hz)	<b>Background SPL</b> (dB)	<b>Absorption</b> (m <sup>2</sup> )	<b>Normalized Impact SPL</b> (dB)	<b>95% Confidence Limit</b>	<b>Number of Deficiencies</b>
80	50.9	15.5	52	2.6	-
100	35.2	15.6	55	3.4	0
125	34.9	10.0	56	2.2	0
160	33.2	9.9	62	2.0	0
200	29.3	10.9	67	1.9	5
250	29.9	11.5	64	1.2	2
315	29.4	10.9	64	0.6	2
400	27.6	9.9	66	0.3	5
500	28.9	8.7	66	0.2	6
630	31.5	8.3	65	1.4	6
800	33.5	8.4	61	1.9	3
1000	32.8	8.1	58	1.0	1
1250	32.9	8.2	55	0.9	1
1600	29.0	8.4	51	0.7	0
2000	24.3	9.4	47	1.0	0
2500	20.2	10.5	44	1.0	0
3150	18.5	11.4	43	1.7	1
4000	14.7	13.4	39	1.6	-
5000	13.6	15.6	34	2.1	-
6300	9.6	19.8	33	3.1	-
8000	8.8	26.8	32	2.9	-
10000	7.7	32.8	29	3.3	-

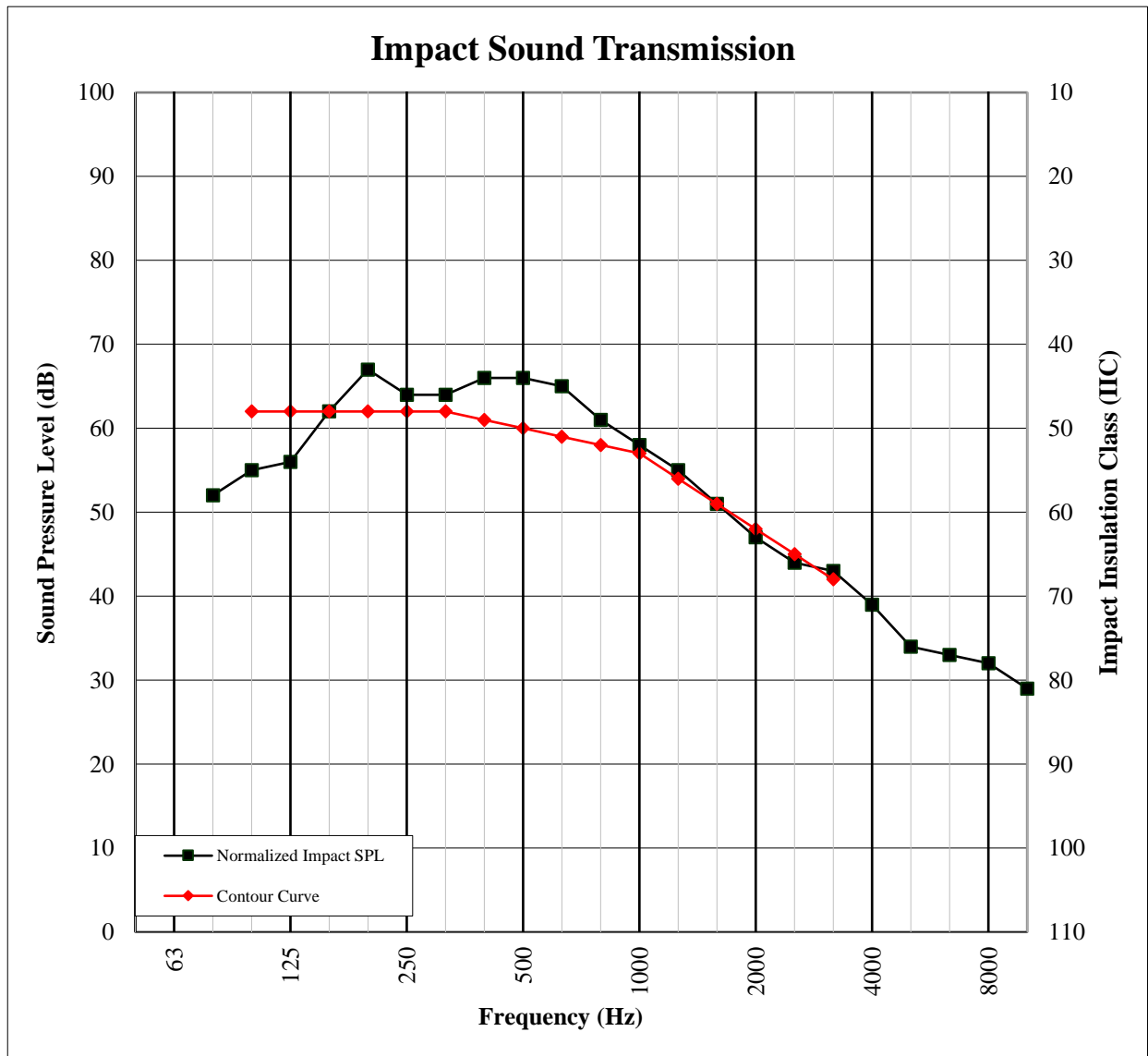
**IIC Rating**      **50**      *(Impact Insulation Class)*

**Deficiencies**      **32**      *(Sum of Deficiencies)*

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

**IMPACT SOUND TRANSMISSION**  
ASTM E 492

<b>Test Date</b>	10/31/16
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<b>Client</b>	APC Cork, Inc.
<b>Description</b>	12.41 mm Quarry Tile, 7.82 mm APC 8 mm Sheets Cork Underlayment, 152 mm Concrete Slab
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<b>Technician</b>	Robert M. Hall



**Photographs**

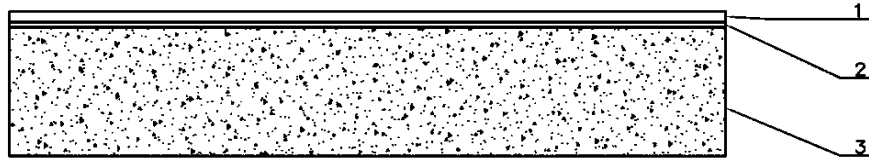


**Source Room View of Test Specimen Installation**



**Receive Room View of Test Specimen Installation**

**Drawing**



- 1-Floor Topping
- 2-Underlayment
- 3-Concrete Slab