



REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 101168871

Date: August 28, 2013

REPORT NO. 101168871CRT-001

**SOUND TRANSMISSION LOSS TESTS
ON A MODEL NYWC PACKAGED
TERMINAL AIR CONDITIONER**

RENDERED TO

**APPLIED COMFORT PRODUCTS, INC.
1210 BALMORAL ROAD
CAMBRIDGE, ON N1T 1A5**

INTRODUCTION

This report gives the results of Sound Transmission Loss tests conducted on a Packaged Terminal Air Conditioner. The unit was selected and supplied by the client and was received at the laboratories on April 29, 2013. It appeared to be in new, unused condition. The tests were conducted on August 26, 2013.

AUTHORIZATION

Signed Intertek quotation number 500437170

TEST METHOD

The laboratory method used in conducting these tests is in accordance with AHRI 300-2008 "Sound Rating and Sound Transmission Loss of Packaged Terminal Equipment". The air conditioner was mounted in the wall of our 16,640 cu. ft. reverberation room. The wall was constructed to minimize any wall vibration effects.

Note: The results contained herein are for technical evaluation only and are applicable only to the specific specimens referenced herein.

The tests herein reported have not been performed at the request of the Air Conditioning and Refrigeration Institute (AHRI), and use of these findings in any advertising or other literature shall state therein that the test is not part of the AHRI Certification Program.



TEST METHOD – Cont'd.

Sound tests for the determination of sound transmission loss were conducted in accordance with ASTM Standards E90 and E1332. The purpose of the E90 Sound Transmission Class (STC) is to provide a single number rating that can be used for comparing the sound-insulating properties of partition elements used for general building design purposes. The higher the STC rating, the greater the sound insulating properties of the partition.

The purpose of the Outdoor-Indoor Transmission Class (OITC) is to provide a single number rating that can be used for comparing building facade designs, including exterior walls, doors, windows, air conditioning units and combinations thereof. This rating is designed to correlate with subjective impressions of the ability of building elements to reduce the overall loudness of ground and air transportation noise. It is intended to be used as a rank ordering device.

DESCRIPTION OF TEST SPECIMEN

The test specimen consisted of an Applied Comfort Model NYWC Packaged Terminal Air Conditioner. The unit was installed in a wall sleeve equipped with a stamped aluminum outdoor grille. The unit had a steel front panel and cabinet on the indoor side equipped with a heating coil. The coil was not in operation at the time of testing. The unit was installed per the supplied manufacturer's instructions. The test sequence is listed below.

Test #1 – NYWC OITC Test Standard as built with open cell foam on flange seals

Test #2 – Same as test #2 with an insulated front panel

Test #3 – NYWC OITC Test Standard as built with closed cell foam on flange seals

Test #4 – Same as test #3 with closed cell foam on the fresh air door

Test #5 – Same as #4 with sound sleeve

Test #6 – Same as #5 with insulated front panel

Test #7 – Same as #6 with insulated cabinet

Test #8 – Same as #6 with open cell foam flange seals

INSTRUMENTATION:

Equipment	Calibration Date	Due Date	S/N	Model	Brand	Asset
Microphone/Pre - DF	4/30/2013	4/30/2014	2381159	4942	Brüel and Kjør	E449
Microphone/Pre - DF	9/14/2012	9/14/2013	2381160	4942	Brüel and Kjør	E450
Reference Sound Source	7/19/2012	7/19/2015	2036621	4204	Brüel and Kjør	A230
Microphone Calibrator	3/25/2013	3/25/2014	2130586	4231	Brüel and Kjør	A227
Pulse Analyzer	3/25/2013	3/25/2014	2519258	7539	Brüel and Kjør	E446

Additional System Components:

Bruel & Kjaer Rotating Microphone Boom, Type 3923

Bruel & Kjaer Windscreen, Type UA0237



RESULTS OF MEASUREMENTS

Model No. NYWC

<u>1/3 Octave Band Center Frequency Hz</u>	<u>Sound Transmission Loss in dB</u> (fresh air vent closed)			
	<u>Test #1</u>	<u>Test #2</u>	<u>Test #3</u>	<u>Test #4</u>
80	6	6	6	5
100	4	4	3	3
125	9	9	7	8
160	12	13	11	12
200	18	19	18	18
250	23	24	24	24
315	24	24	23	24
400	24	24	25	25
500	24	23	23	23
630	25	25	24	25
800	27	28	26	26
1000	31	32	29	30
1250	34	34	33	33
1600	35	35	33	34
2000	35	35	34	34
2500	34	34	35	35
3150	37	36	36	37
4000	41	41	40	41
5000	43	43	42	43
Sound Transmission Class	29	29	28	29
Outdoor-Indoor Transmission Class	17	17	17	17

PRECISION

For any pair of rooms and microphone system, the 95% confidence interval Δ TL, for transmission loss must be less than the following.

<u>Range of One-Third Octave Bands- Hertz</u>	Transmission Loss Uncertainty, dB	
	<u>Required</u>	<u>Actual</u>
125 and 160	3.0	<1.5
200 and 250	2.0	<1.5
315 – 4000	1.0	<1.0



RESULTS OF MEASUREMENTS

Model No. NYWC

<u>1/3 Octave Band Center Frequency Hz</u>	<u>Sound Transmission Loss in dB</u> (fresh air vent closed)			
	<u>Test #5</u>	<u>Test #6</u>	<u>Test #7</u>	<u>Test #8</u>
80	6	7	7	6
100	3	3	5	3
125	8	9	10	9
160	12	13	14	14
200	19	20	21	21
250	24	24	25	24
315	26	27	27	26
400	31	32	33	31
500	31	32	32	31
630	31	32	33	32
800	33	35	36	34
1000	38	39	40	38
1250	39	40	41	39
1600	40	42	42	40
2000	42	44	44	42
2500	45	47	47	45
3150	47	49	49	48
4000	48	49	50	48
5000	50	52	53	50
Sound Transmission Class	32	33	34	33
Outdoor-Indoor Transmission Class	17	18	19	18

PRECISION

For any pair of rooms and microphone system, the 95% confidence interval Δ TL, for transmission loss must be less than the following.

<u>Range of One-Third Octave Bands- Hertz</u>	<u>Transmission Loss Uncertainty, dB</u>	
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125 and 160	3.0	<1.5
200 and 250	2.0	<1.5
315 – 4000	1.0	<1.0



CONCLUSION

The test method employed for these tests has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

Report Approved by:

A handwritten signature in black ink that reads "Brian Cyr".

Brian Cyr
Engineer
Acoustical Testing

Report Reviewed By:

A handwritten signature in black ink that reads "James R. Kline".

James R. Kline
Engineer/Quality Supervisor
Acoustical Testing