

REPORT



3933 US ROUTE 11

CORTLAND, NEW YORK 13045

Order No. 3093818

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REPORT NO. 3093818CRT-001

INDOOR AND OUTDOOR SOUND POWER LEVEL TESTS
AND SOUND TRANSMISSION LOSS TESTS ON AN APPLIED COMFORT
MODEL DMQB12K34S2U40 PACKAGE TERMINAL AIR CONDITIONER

RENDERED TO

APPLIED COMFORT PRODUCTS, INC. 1210 BALMORAL ROAD CAMBRIDGE, ONTARIO, CAN, N1T 1A5

INTRODUCTION

This report gives the results of Indoor and Outdoor Sound Power Level tests with Sound Ratings and Sound Transmission Loss tests conducted on an Applied Comfort Products Model DMQB12K34S2U40 Packaged Terminal Air Conditioner. The unit was selected and supplied by the client and was received at the laboratories on May 31, 2006. It appeared to be in new, unused condition.

AUTHORIZATION

Signed Intertek quotation number 19716599.

TEST METHOD

The laboratory method used in conducting these tests is in accordance with ARI 300-2000 "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. Indoor/outdoor tests were conducted in accordance with ARI Standard 350 and 270 respectively. During cooling tests temperature and humidity conditions in the outdoor and indoor rooms were in accordance with the standards and were held steady for one-half hour prior to and during the test.

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 (ARI), and use of these findings in any advertising or other literature shall state therein that the test is not part of the ARI Certification Program.

An independent organization testing for safety, performance, and certification.

TEST METHOD - Cont'd.

The Bruel & Kjaer Type 4204 reference sound source (RSS) was used to obtain the sound power level data. The sound pressure levels were obtained on a Bruel & Kjaer Digital Frequency Analyzer Model 2131 analyzed on a Compaq Prolinea 4/33 Computer and printed using an Epson LQ-850 Printer.

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 figure 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 is, 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 Products Model DMQB12K34S2U40 Packaged Terminal Air Conditioner. The unit was installed in a sleeve equipped with a grille provided by Applied Comfort Products, Inc. Operational tests were performed with the unit operating on 208 and 230 volt, 60 hertz power.

INSTRUMENTATION:

Reference Sound Source (RSS): Bruel & Kjaer Type 4204, S/N 2036621, Calibrated June 18, 2006 due June 18, 2009.

Data Acquisition System:

Bruel & Kjaer Digital Frequency Analyzer, Type 2131, S/N 945136, Calibrated March 21, 2006; due March 21, 2007.

Bruel & Kjaer Microphone, Type 4166, S/N 1792711, Calibrated April 7, 2006 due April 7, 2007.

Bruel & Kjaer Calibrator, Type 4231, S/N 2130586, Calibrated March 21, 2006 due March 21, 2007.

Additional System Components:

Bruel & Kjaer Rotating Microphone Boom, Type 3923

Bruel & Kjaer Pre-Amplifier, Type 2619

Bruel & Kjaer High Pass Filter, Type WB0153

Bruel & Kjaer Windscreen, Type UA0237

Intertek ETL SEMKO

RESULTS OF MEASUREMENTS

Model No. DMQB12K34S2U40

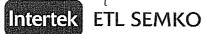
1/3 Octave Band	Sound Transmission Loss in dB
Center Frequency Hz	(Fresh Air Vent Closed)
80	10
100	13
125	8
160	8
200	16
250	17
315	21
400	23
500	24
630	25
800	27
1000	28
1250	31
1600	32
2000	32
2500	34
3150	36
4000	37
5000	34
Sound Transmission Class	27
Outdoor-Indoor Transmission Class	18

PRECISION

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

Range of	Transmiss	ion Loss
One-Third Octave	Uncertai	nty, dB
Bands- Hertz	Required	Actual
125 and 160	3.0	<1.5
200 and 250	2.0	<1.5
315 – 4000	1.0	<1.0

Checked by: 4K



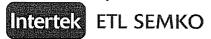
RESULTS OF MEASUREMENTS: Cont'd

Model No. DMQB12K34S2U40

INDOOR SOUND Generated Sound Power Level dB re 10⁻¹² Watt

1/3 Octave Band Center Frequency	230 V	230 V	230 V	230 V	230 V	230 V	208 V	208 V
(Hz)	High <u>Cool</u>	Med <u>Cool</u>	Low <u>Cool</u>	High Fan	Med	Low	Low	Low
100	67.0	62.0	61.0	60.0	<u>Fan</u> 59.5	<u>Fan</u>	<u>Cool</u>	<u>Fan</u>
125	74.5	69.5	69.5	65.0	63.0	56.5 60.0	58.5	54.0
160	64.0	63.0	62.0	61.5	60.0	58.0	70.0	57.5
200	61.5	60.0	59.0	59.0	58.0	56.0 56.0	60.5 56.0	55.5 53.5
250	58.5	57.0	55.5	57.5	56.5	54.5	53.0	
315	57.0	56.0	54.0	57.0	55.5	54.5 53.5	53.0 51.5	51.5 50.5
400	54.0	52.5	51.0	53.0	52.0	50.0	48.5	47.0
500	51.0	50.5	49.5	50.0	49.0	47.5	40.5 47.5	44.5
630	51.0	50.5	49.0	48.5	47.0	44.5	48.0	42.0
800	48.5	47.5	46.5	46.5	45.0	43.0	46.0	39.5
1000	47.5	46.5	45.5	46.0	44.5	43.0	44.0	39.5
1250	43.5	43.0	41.5	43.0	41.5	40.0	41.0	36.5
1600	41.5	40.5	39.5	41.0	39.5	38.5	38.5	35.0
2000	41.0	40.5	39.5	40.5	39.0	37.5	38.0	34.0
2500	39.5	39.5	39.0	39.0	37.5	36.0	38.0	32.0
3150	38.0	38.0	37.5	37.0	35.0	34.0	36.5	29.0
4000	36.5	36.5	36.0	35.0	33.0	32.0	35.0	27.0
5000	36.0	36.0	35.5	34.0	32.0	30.5	35.5	26.0
6300	33.5	34.0	34.0	30.5	28.5	26.5	33.5	23.5
8000	33.0	34.5	34.5	27.0	26.5	25.0	34.0	24.0
10000	35.0	35.0	35.0	27.0	25.0	25.0	36.0	26.0
Tone Adjusted								
A-Weighted Sound Power Level (dB)	62	60	59	59	57	55	57	52

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RESULTS OF MEASUREMENTS: Cont'd

Model No. DMQB12K34S2U40

OUTDOOR SOUND COOLING

Generated Sound Power Level dB re 10⁻¹² Watt

1/3 Octave Band Center Frequency	230 V	230 V	230 V	208 V
<u>(Hz)</u>	High <u>Cool</u>	Med <u>Cool</u>	Low <u>Cool</u>	Low <u>Cool</u>
100	65.5	67.5	68.5	58.0
125	71.0	70.0	69.5	67.0
160	71.5	70.0	68.0	70.0
200	75.0	72.0	69.5	65.5
250	70.0	67.0	66.5	63.5
315	70.0	66.0	65.0	62.0
400	68.5	65.0	64.5	61.5
500	68.5	65.0	64.5	61.0
630	67.5	64.0	63.5	60.0
800	65.0	61.5	61.0	58.0
1000	61.5	58.5	58.0	55.0
1250	59.0	56.5	56.0	54.0
1600	58.5	55.5	57.0	54.5
2000	57.5	55.5	57.0	55.5
2500	57.0	55.5	57.5	56.5
3150	57.5	55.5	57.5	56.0
4000	56.5	55.0	57.5	56.0
5000	55.0	54.0	56.5	55.0
6300	51.5	52.5	55.5	54.0
8000	50.0	52.5	56.0	54.5
10000	49.0	52.5	55.5	54.5
Tone Adjusted A-Weighted Sound Power Level (dB)	74	71	71	69

RESULTS OF MEASUREMENTS: Cont'd

Model No. DMQB12K34S2U40

INDOOR SOUND

Generated Sound Power Level dB re 10⁻¹² Watt

1/1 Octave Band Center Frequency	230V	230V	230V	230V	230V	230V	208V	208V
/U~\	High	Med	Low	High	Med	Low	Low	Low
<u>(Hz)</u>	Cool	Cool	Cool	Fan	Fan	Fan	Cool	Fan
125	75.5	71.0	70.5	67.5	66.0	63.0	70.5	60.5
250	64.0	63.0	61.5	62.5	61.5	59.5	58.5	57.0
500	57.0	56.0	54.5	55.5	54.5	52.5	53.0	49.5
1000	51.5	51.0	49.5	50.0	48.5	47.0	49.0	43.5
2000	45.5	45.0	44.0	45.0	43.5	42.0	43.0	38.5
4000	41.5	41.5	41.0	40.5	38.5	37.0	40.5	32.5
8000	38.8	39.5	39.5	33.5	31.5	30.5	39.5	29.5

OUTDOOR SOUND COOLING

Generated Sound Power Level dB re 10⁻¹² Watt

1/1 Octave Band Center Frequency	230V	230V	230V	208V
<u>(Hz)</u>	High Cool	Med Cool	Low Cool	Low Cool
125	75.0	74.0	73.5	72.0
250	77.0	74.0	72.0	68.5
500	73.0	69.5	69.0	65.5
1000	67.5	64.0	63.5	61.0
2000	62.5	60.5	62.0	60.5
4000	61.0	59.5	62.0	60.5
8000	55.0	57.5	60.5	59.0

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.

DATES OF TESTING

July 28 and 31, 2006

Report Approved by:

James H. Nickelsen Senior Project Engineer Acoustical Testing Report Reviewed By:

James R. Kline

Engineer/Quality Supervisor

Acoustical Testing

Attachments: None

Checked by:

