INTERTEK, ETL SEMKO

REPORT NO. 3083343CRT-002

This document reports reduction of airborne particles using Bentax air purification Model 100C.

Aerisa is a successor company of Bentax and markets Model 1250, equivalent to that of the prior Bentax unit.

SINCE 1896

REPORT
INTERTEK, ETL SEMKO

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. 3083323 Date: November 1, 2005

REPORT NO.
3083323CRT-002

RENDERED TO:

Bentax USA
418 Meadow Street
Fairfield, CT 06824

Report Scope:	Performance testing of Duct Air Cleaners and a Portable Household Cord Connected Room Air Cleaner.
Limitation Statement:	The test data and results contained in this report are provided for client information and evaluation. No conclusions are drawn by Intertek.
Authorization:	The tests were authorized by signed Intertek Quote No. 18324499 dated September 2, 2005.
Standards Used:	Modified ANSI/AHAM AC-1-2002 entitled, "American National Standard Method for Measuring Performance of Portable Household Electric Cord-Connected Room Air Cleaners"
Sample Description:	Four units were supplied by the client and received on September 8 and 9, 2005 and appeared to be in good condition. One Bentax 100C air cleaner unit was brought by the client to the laboratory on December 13, 2004
Date of Tests:	September 8 and 9, 2005; December 13, 2004

Objective:

To evaluate the effectiveness of White- Rogers SST1000, Honeywell F300E, Lennox PCO-12C, Ionic Breeze 3.0 and Bentax USA's air purification equipment by comparing its reduction of airborne particles to a control's natural decay in a typical indoor environment. This environment has been designed to be similar to a typical consumer application such as homes, offices, etc. The key to our experiment is to eliminate any outside influences not consistent with a typical commercial or residential environment.

Testing Method:

Test facility

The tests were conducted in a closed room 10.5 x 12 x 8 ft equipped with an exhaust system to clean the room between tests. The room also had a ceiling fan used primarily for evenly spreading the contaminants injected into the room for the most accurate measurements.

In order to test this specific equipment, a duct system was utilized to supply air to the room in order to model, as close as possible, a real indoor environment. The supply air was taken from outside the test chamber. The air cleaning equipment was installed in this duct system which supplied a measured amount of air into the room.

Dissemination of dust particles into the closed room

Roughly One (1) gram of dust particles was introduced into the test room by utilizing an injection system. The contaminant was spread evenly in the closed room by the ceiling fan mounted in the middle of the room's ceiling. The fan was on as the contaminant was introduced into the room and was turned off after 60 seconds. The particle count was measured using a TSI Aerodynamic Particle Sizer Model 3321.

Temperature and humidity

The temperature was held at a level between 65°F and 75°F, and the humidity was held at a level between 35% and 45%. The temperature was measured by a Vaisala Temperature/Humidity Sensor Model HMW30YB.

Data logging

The particle data were recorded continuously by an automated computer data acquisition system directly connected to the TSI Particle Sizer. Data was logged every minute during the test period using a proprietary software program, the temperature and humidity was averaged over the period.

Testing

The steps of the actual testing procedure were as follows:

a) The room was cleaned by the heavy duty exhaust system that re-circulates the air until the contamination level of airborne particles in the room is below 0.03 part/cc.
b) The heavy duty exhaust system was turned off.
c) The air contaminants, dust particles were introduced by an injection system and then spread evenly in the room for 60 seconds using the ceiling mounted fan.
d) Measurements of the decay of the particles in the air were taken and recorded by the data-logger.

These measurements were conducted first on the controlled natural decay of the particles. After that was completed, steps (a) through (d) as described above were repeated with specific equipment turned on.

Test Equipment List:

Equipment Used	Model Number	Intertek Control #	Cal. Due Date
Laser Aerosol Spectrometer	HSLAS 0.065	N829	12/05
Aerodynamic Particle Sizer	3321	A-261	01/05
Fluidized Bed Aerosol Generator	340000	--	--
Sola Voltage regulator (120 Vac)	MCR	V245	06/05
Temperature/Humidity Sensor	HMW30YB	T680	11/05
Power Transducer	AGH-002B	E399	04/05

Results:

Results of Performance Tests:

Model/Configuration	Test Particulate	Natural Decay Rate	CADR	CADR STDEV.
White-Rogers SST1000- Comfort Plus Serial # S0516464671 64.8 CFM - 82.6 Average Duct Velocity	**Dust**	**0.01017**	**27.2**	**0.6**
Honeywell F300E 100 Enviro-Care Elite Serial # 208418J 63.7 CFM - 81.1 Average Duct Velocity	**Dust**	**0.01284**	**35.8**	**0.5**
Lennox PCO - 12C - Healthy Climate Serial # S2105H48156 64.2 CFM - 81.78 Average Duct Velocity	**Dust**	**0.01136**	**47.4**	**0.6**
Ionic Breeze 3.0 Serial # 3252147 68.99 CFM - 87.89 Average Duct Velocity Air flow loop running during natural	**Dust**	**0.01258**	**4.8**	**0.3**
Bentax 100C	**Dust**	**0.00424**	**125.0**	**2.5**

Summary

Testing of the above units was designed to simulate real world use. A test chamber duplicating typical household conditions was modified to introduce outside air processed by the units as might be seen in a standard installation.

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