

April 11, 2002

ITS Order No. 3017168-412

Mr. Rupert Langston
Air Flow Technology
4810 70th Ave.
Kenosha, WI, 53144

Dear Mr. Langston:

Please find enclosed three copies of ITS Report No. 3017168-009 covering ASHRAE Standard 52.2-1999 tests performed on the Series 65-01652424 flat panel air filter.

The testing was authorized by Purchase Order Number 010302-RL.

Thank you for turning to ITS for your testing requirements. If you have any questions or further needs, please do not hesitate to contact me.

Sincerely,

Donald M. James
Operations Supervisor

DJ/sem

Enclosure



Intertek Testing Services
3933 US Route 11
PO Box 2040
Cortland, NY 13045-0950

Order No. 3017168-412

Date: April 11, 2002

REPORT NO. 3017168-009

**TEST OF ONE
SERIES 65 -01652424
AIR FILTER**

RENDERED TO

**AIR FLOW TECHNOLOGY
4810 70TH AVE.
KENOSHA, WI 53144**

General

This report covers a test of one air filter, performed according to ASHRAE Standard 52.2-1999 entitled "Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size".

Testing was authorized by Purchase Order Number 010302-RL.

Identification of Test Specimen

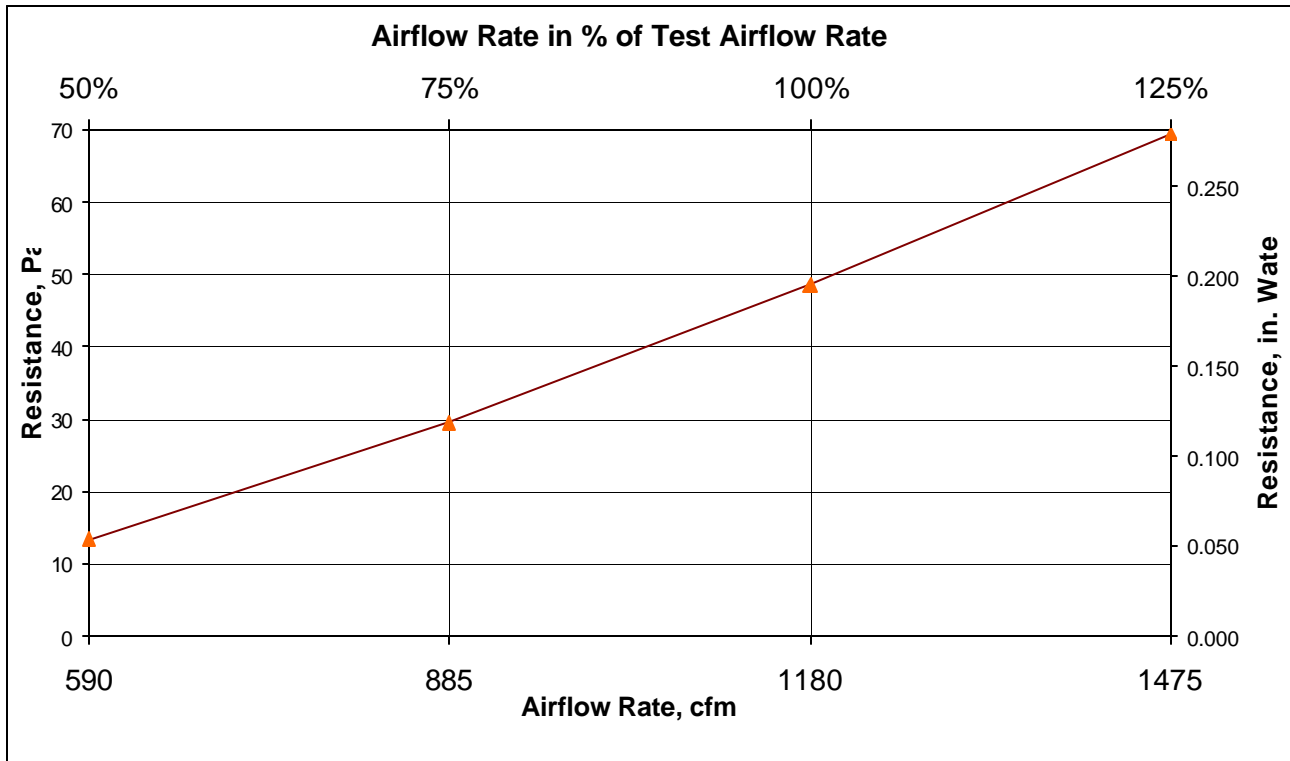
The filter tested was designated as one Series 65-01652424 air filter. A description is included in the data section on page four of this report.

Method of Test

Tests were conducted as specified in ASHRAE Standard 52.2-1999. The test program consisted of measurement of initial resistance versus airflow rate (Section 9), and the test program for determination of particle size efficiency (Section 10). The test apparatus used was that specified in the above referenced standard. ASHRAE Synthetic Test Dust, as specified in Section 6.2, was used for dust loading.

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

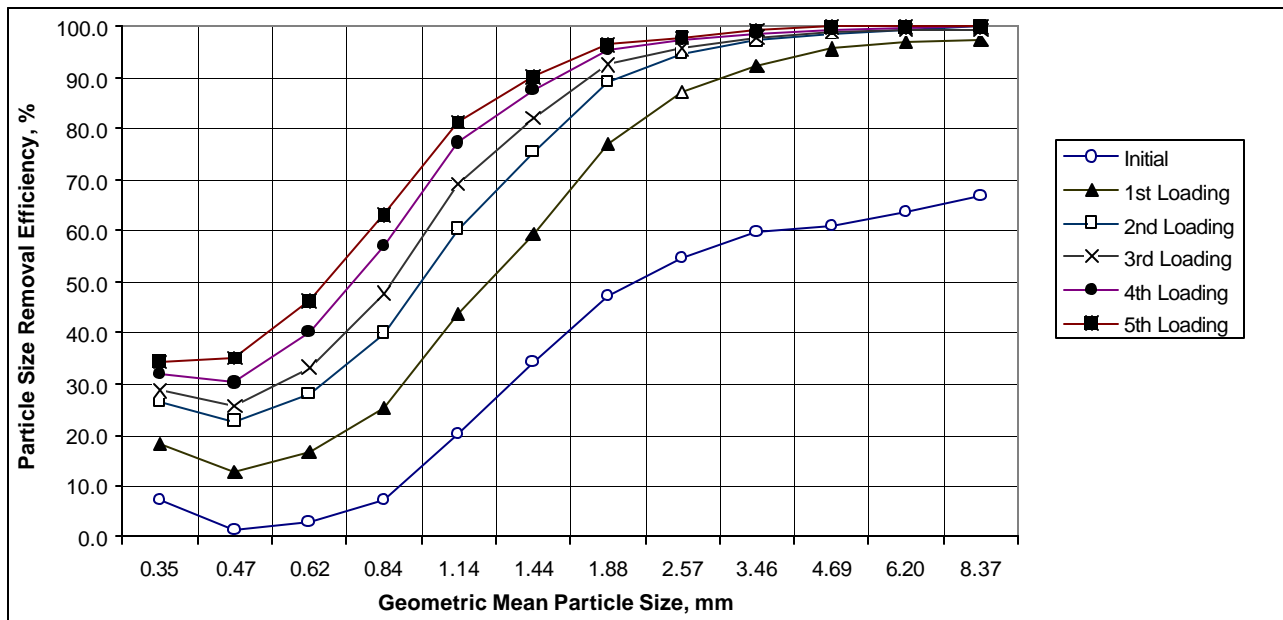
All services undertaken subject to the following general policy: Reports are submitted for exclusive use of the clients to whom they are addressed. Their significance is subject to the adequacy and representative character of the samples and to the comprehensiveness of the tests, examinations or surveys made. No quotations from reports or use of ITS's name is permitted except as expressly authorized by ITS in writing.



Graph 1: Resistance of Clean Device vs. Airflow

Airflow Rate in % of Test Airflow Rate	Air Velocity		Airflow Rate		Resistance	
	m/s	fpm	m ³ /s	cfm	Pa	in H ₂ O
50%	0.75	147.5	0.28	590	13	0.054
75%	1.12	221.3	0.42	885	29	0.118
100%	1.50	295.0	0.56	1180	49	0.195
125%	1.87	368.8	0.70	1475	69	0.279

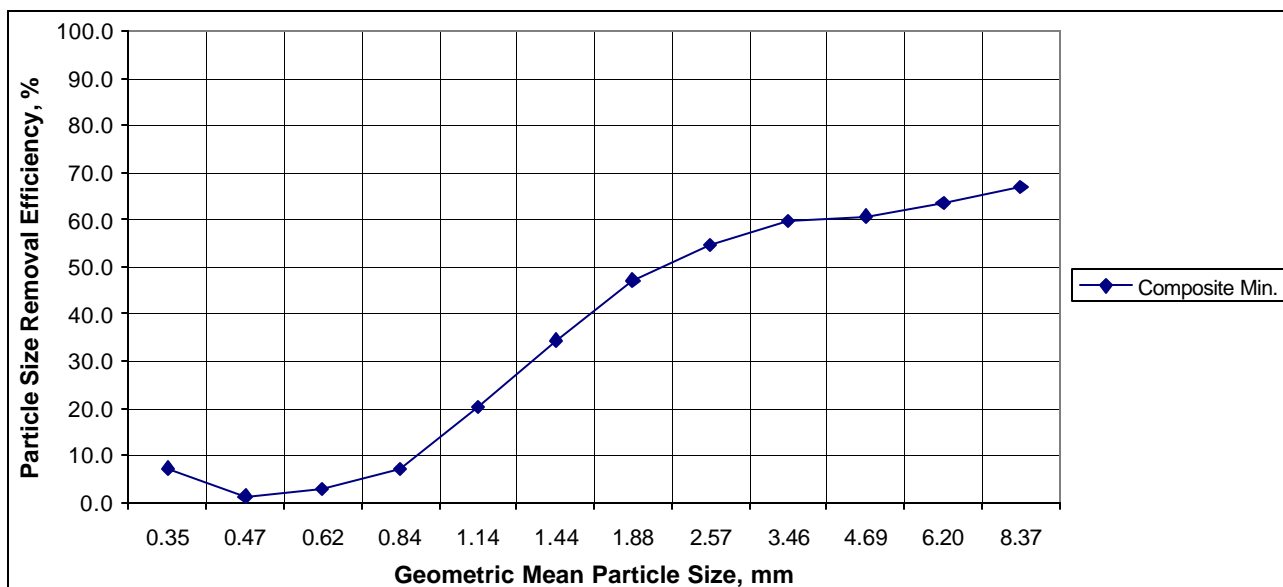
Table 1: Resistance of Clean Device vs. Airflow



Graph 2: PSE After Incremental Dust Loading

Range Number	1	2	3	4	5	6	7	8	9	10	11	12
Size Range, μ m	0.30-0.40	0.40-0.55	0.55-0.70	0.70-1.00	1.00-1.30	1.30-1.60	1.60-2.20	2.20-3.00	3.00-4.00	4.00-5.50	5.50-7.00	7.00-10.00
Geometric Mean Particle Size, μ m	0.35	0.47	0.62	0.84	1.14	1.44	1.88	2.57	3.46	4.69	6.20	8.37
Initial	7.3	1.3	3.0	7.1	20.2	34.4	47.3	54.7	59.8	60.8	63.6	66.8
1st Loading	18.2	12.7	16.6	25.2	43.7	59.4	77.1	87.3	92.4	95.8	97.0	97.4
2nd Loading	26.6	22.7	28.0	39.9	60.3	75.5	89.2	94.7	97.3	98.6	99.5	100.0
3rd Loading	28.6	25.6	33.2	47.8	69.3	82.2	92.6	95.8	98.0	99.0	99.5	99.4
4th Loading	32.0	30.2	40.1	57.1	77.3	87.7	95.3	97.6	98.7	99.5	99.9	100.0
5th Loading	34.3	35.1	46.3	63.2	81.3	90.3	96.5	97.9	99.4	100.0	100.0	100.0
Composite Minimum	7.3	1.3	3.0	7.1	20.2	34.4	47.3	54.7	59.8	60.8	63.6	66.8

Table 2: Particle Size Efficiency



Graph 3: Composite Minimum Efficiency Curve

**ASHRAE 52.2-1999 Air Cleaner Performance Report Summary**

Operator: *J Wheatley*
J. Ayers
S. Hammond
Supervisor: *D. James*

Date: *April 11, 2002*
Report Number: *3017168-009*
Order Number: *3017168-412*

Device Manufacturer's Data

Manufacturer: *Air Flow Technology*
Device Model Designation: *Series 65-01652424*
Test Requested By: *Air Flow Technology*
Sample Obtained From: *Open Market Purchase*

Catalog Ratings

Airflow Rate: *Not specified*
Initial Pressure Drop: *Not specified*

Specified Test Conditions

Airflow Rate: *295 fpm (1180 cfm)*
Final Pressure Drop: *249 PA (1.00 "w.g)*

Device Description

Height: *24 inches* Width: *24 inches* Depth: *1 inch*
Generic Name: *Flat Panel*
Media Type: *Polyester-multi stage* Approx. Media Area: *4 sq. ft*
Media Color: *White/Green* Adhesive Present?: *Yes*
Other Attributes:

Test Conditions

Airflow Velocity: *295 fpm (1180 cfm)*
Temperature Range: *64-68 degF* RH% Range: *26-39 %*
Test Aerosol Type : *KCl*
Final Pressure Drop: *257 Pa (1.03"w.g.)*
Remarks:

Resistance Test Results

Initial Resistance: *49 Pa (0.20 "w.g.)* Final Resistance: *257 Pa (1.03 "w.g.)*

Minimum Efficiency Reporting Data

Composite Average Efficiencies: *E1=4.7%, E2=39.2%, E3=62.8%*
MERV 1-4 Air Cleaner Average Arrestance per Std. 52.1: *Not tested*
Minimum Efficiency Reporting Value (MERV): *MERV 7@295 fpm*

Report Prepared By:

Report Reviewed By:

Report Approved By:

J. Wheatley
Technician

D. James
Operations Supervisor

J. Sabelli
Staff Engineer