Study on
Particle Removal Efficacy of ClimaTemp

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Customer: ClimaTemp

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Date Completed: 2/17/2020

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February 17, 2020

Reference: Particle Removal Efficacy of ClimaTemp

Dear Matt Davidson,

We appreciate the opportunity to provide you with our professional, environmental microbiology services. EDLab is pleased to submit this report that describes the efficacy of the ClimaTemp on particle removal.

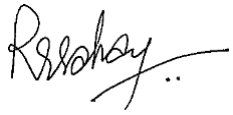
This report summarizes the findings and other relevant data as per your request.

Please call me at 1-800-422-7873, ext. 301 should you have any questions. We look forward in assisting you in future projects.

Respectfully Submitted,

Joiya Mendez

Senior Microbiologist



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2.0 Experiment Report

This report describes the efficacy of a ClimaTemp spot cooler (CT-12) with an installed HEPA filter vs. an Portable A/C unit without a HEPA filter, on the removal of particles within a closed structure. The assessment was completed on 02/17/2020 at the request of Matt Davidson.

The testing was performed within an experimental compartment located inside an environmental chamber. Data was obtained from five particle sizes: 0.3 µm, 0.5 µm, 1.0 µm, 2.0 µm, 5.0 µm and 10 µm, along with a baseline. The Portable A/C units were run at a constant temperature. Ventilation adequacy and pressure around the test site were closely monitored.

Particle counts were recorded during the experiment. A data logger was placed to record temperature and relative humidity on a selected spot within the containment set-up.

2.0 Abbreviations and acronyms

°F:	*Degrees Fahrenheit*
HEPA:	High Efficiency Particulate Arrestance
L:	Liter
lpm:	Liters per minute
m^3:	Cubic meters
Pa:	Pascal
µm:	Micrometers

3.0 DATA and IMAGES

Results of all the analyzed samples are recorded in the corresponding observation ***Tables 1 & 2***. The obtained data is compiled by using Microsoft Office's EXCEL 2013 program. Analytical results are also plotted as ***Graphs 1 & 2.*** In ***Figure 1*** are photographs of important stages from the experiment.

4.0 RESULTS

All data, statistical analysis and photographs are presented under the following *Table*s and *Figures*:

Table 1: Particle Counts in front of Portable A/C unit in the Test Chamber

Particle Counts in front of Portable A/C unit in the Test Chamber							
Data Point	Size	0.3 um	0.5 um	1.0 um	2.0 um	5.0 um	10.0 um
Baseline		13,145	1,115	243	116	17	4
1		4,124	401	58	24	0	0
2		3,801	389	79	24	1	1
3		4,092	353	68	19	0	0
4		3,075	312	72	28	0	0
5		4,356	570	152	58	4	0
6		3,212	404	108	43	1	1
7		3,039	314	57	19	1	0
8		2,774	342	88	36	2	0
9		2,647	302	79	28	2	0
10		2,653	280	62	29	0	0

Table 2: Particle Counts in front of ClimaTemp with HEPA Filtration in Test Chamber

Particle Counts in front of ClimaTemp with HEPA Filtration in Test Chamber							
Data Point	Size	0.3 um	0.5 um	1.0 um	2.0 um	5.0 um	10.0 um
Baseline		12,841	1,068	206	85	5	4
1		295	28	6	2	0	0
2		320	34	7	0	0	0
3		312	23	3	1	0	0
4		299	35	8	2	0	0
5		338	44	9	3	0	0
6		305	40	11	3	0	0
7		263	28	5	1	0	0
8		257	24	5	2	0	0
9		255	28	9	1	0	0
10		289	30	2	2	0	0

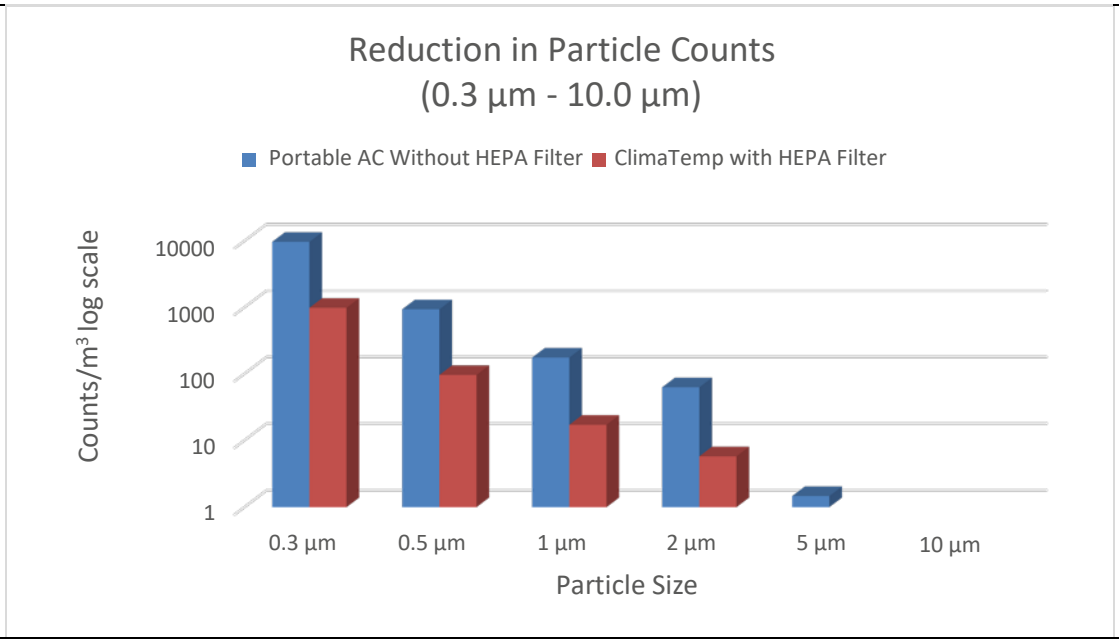
5.0 PHOTOGRAPHS and FIGURES

The following section contains photos and figures of some important observations as well as other experimental stages, including graphs based off the experimental findings.

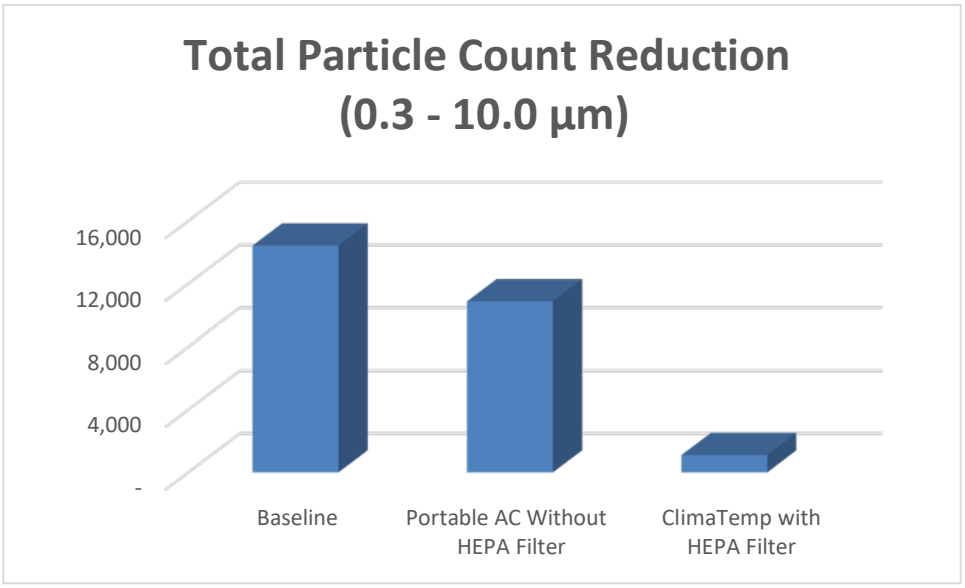
***Figure 1*: A/C Units**

A. A/C units front view, left unit equipped with HEPA filter and right unit without HEPA filter.

B. Particle reading using particle counter.



Graph 1: Reduction in Particle Counts of Each Size



Graph-2: Particle Count Reduction Comparison between Baseline, A/C unit w/o HEPA, and ClimaTemp w/ HEPA

6.0 CONCLUSION

The goal of this study was to examine the ClimaTemp (with an installed HEPA filter) spot cooler's performance in reducing particle counts vs. an A/C unit without an installed HEPA Filter. The results indicate that this device reduces particle counts overall (refer **Table 1 & 2**; **Graph 1 & 2**) however, a more comprehensive test is encouraged to determine the efficacy of this equipment in specific scenarios.

END OF REPORT