



TEST REPORT

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Report Number: 1052-13013-002

Report Issued: August 14, 2013

Project No.: 21347

Client: Showerstart LLC
15354 N. 83rd Way, Suite 102
Scottsdale, AZ 85260

Contact: Mr. Robert Schorn

Source of Samples: The samples were sent by Showerstart LLC and received by IAPMO R&T Lab in good condition on April 15, 2013 and July 18, 2013.

Date of Testing: April 16, 2013 through August 8, 2013

Sample Description: Plastic handheld shower kit with thermal actuator flow shut-off device

<u>Model No.</u>	<u>Description</u>
SS-2307CP20-SB	2.0 gpm Handheld Shower Kit

Scope of Testing: The purpose of the testing was to determine if the samples tested of the plastic handheld shower kit with thermal actuator flow shut-off device met the applicable requirements of EPA WaterSense Specification for Showerheads (Version 1.0, March 4, 2010 Edition).

Conclusion: The samples tested of the plastic handheld shower kit with thermal actuator flow shut-off device, model SS-2307CP20-SB, from Showerstart LLC **COMPLIED** with the applicable requirements of EPA WaterSense Specification for Showerheads (Version 1.0, March 4, 2010 Edition).

Note: Section 2.1 (ASME A112.18.1/CSA B125.1 requirement) was tested under IAPMO R&T Lab report No. 1052-13012-002.

I understand that intentionally submitting false information to the U.S. government or its agent is a criminal violation of the False Statements Act, Title 18 U.S.C. section 1001.

By our signatures below we certify that all the testing and sample preparation for this report was performed under continuous, direct supervision of IAPMO R&T Lab, unless otherwise stated.

Tested by,

Wei Hsia (Sherman), Test Technician

Reviewed by,

Andy Ho, Manager, Fitting Testing

WH: ah

Primary Standard: EPA WaterSense Specification for Showerheads (Version 1.0, March 4, 2010 Edition), sections tested / evaluated:

- 2.0 General Requirements
- 3.0 Water-Efficiency Criteria
- 4.0 Spray Force Criteria
- 5.0 Spray Coverage Criteria
- 6.0 Marking

Test Results: All tests and evaluations were conducted per the written procedures specified in the specification.

EPA WaterSense Specification for Showerheads (Version 1.0, March 4, 2010 Edition)

2.0 General Requirements – COMPLIED

2.1 The handheld shower kit was tested and conformed to the applicable requirements in ASME A112.18.1-2012/CSA B125.1-12. *Refer to IAPMO R&T Lab report No. 1052-13012-002 for details.*

2.2 NOT APPLICABLE – The handheld shower of the kit had only one mode.

2.3 The handheld shower kit was not packaged, marked, or provided with instructions directing the user to an alternative water-use setting that would override the maximum flow rate, as established by the specification. The instruction related to the maintenance of the product, including changing or cleaning the showerhead components, directed the user on how to return the product to its intended maximum flow rate.

3.0 Water-Efficiency Criteria – COMPLIED

3.1 The flow rate of the handheld shower kit was tested in accordance with the procedures in ASME A112.18.1-2012/CSA B125.1-12 and met the following criteria:

3.1.1 The manufacturer specified a maximum flow rate value (rated flow) of the handheld shower kit and this specified value was equal to 2.0 gpm (7.6 L/min).

3.1.2 The maximum flow rate (highest value) obtained through testing at flowing pressures of 20, 45 and 80 ± 1 psi did not exceed the maximum flow rate value specified in Section 3.1.1, when evaluated in accordance with 10 CFR 430 Subpart F, Appendix B, Step 6(b). See following tables.

Finding: (Maximum Finding Flow Rate for Section 3.1.2)

Model SS-2307CP20-SB – Single Mode

Sample ID	Max. Measured Flow Rate (gpm)		
	20 psi	45 psi	80 psi
1	1.37	1.84	1.87
2	1.41	1.88	1.97
3	1.44	1.93	1.98
4	1.40	1.79	1.81

Model SS-2307CP20-SB – Single Mode (Continued):

Flowing Pressure	Max. Specified Flow Rate (EPS)	Upper Limit (UCL ₁)	Lower Limit (LCL ₁)	Mean (X ₁)
20 psi	2.0	2.1	1.9	1.4
45 psi	2.0	2.1	1.9	1.9
80 psi	2.0	2.1	1.9	1.9

3.1.3 The minimum flow rate, determined through testing at a flowing pressure of 20 ± 1 psi and when evaluated in accordance with 10 CFR 430 Subpart F, Appendix B, Step 6(a), was not less than 60% of the maximum flow rate value specified in Section 3.1.1. See following table.

3.1.4 The minimum flow rate (lowest value) obtained through testing at flowing pressures of 45 and 80 ± 1 psi was not less than 75% of the maximum flow rate value specified in Section 3.1.1, when evaluated in accordance with 10 CFR 430 Subpart F, Appendix B, Step 6(a). See following table.

Finding: (For Sections 3.1.3 and 3.1.4)

Model SS-2307CP20-SB – Single Mode

Flowing Pressure	Min. Allowable Flow Rate (EPS)	Upper Limit (UCL ₁)	Lower Limit (LCL ₁)	Mean (X ₁)	Actual % of Max. Specified Flow Rate
20 psi	1.2	1.3	1.1	1.4	70.0%
45 psi	1.5	1.6	1.4	1.9	95.0%
80 psi	1.5	1.6	1.4	1.9	95.0%

4.0 Spray Force Criteria – COMPLIED

4.1 The spray force of the handheld shower kit was tested in accordance with the procedures outlined in Appendix A and met the following criteria:

4.1.1 The minimum spray force was not less than 2.0 ounces at a pressure of 20 ± 1 psi at the inlet when water was flowing.

Finding:

Model	Test Mode	Spray Force	Status
SS-2307CP20-SB	Single	> 2.0 ounces	Passed

5.0 Spray Coverage Criteria – COMPLIED

5.1 The spray coverage of the handheld shower kit was tested in accordance with the procedures outlined in Appendix B and met the following criteria:

5.1.1 The total combined maximum volume of water collected in the 2- and 4- inch annular rings did not exceed 75% of the total volume of water collected, and;

5.1.2 The total combined minimum volume of water collected in the 2-, 4-, and 6-inch annular rings was not less than 25% of the total volume of water collected.

Finding: (For Sections 5.1.1 and 5.1.2)

Model SS-2307CP20-SB – Single Mode

Volume of Water in Each Ring (gallons)				Total Collected Volume (gallons)	Total Recorded Flow (gallons)	%
2"	4"	6"	8" - 20"			Difference
0.001	0.429	1.371	0.062	1.86	1.88	1.1%

Percent of Water in Each Annular Ring					
2"	4"	6"	8" - 20"	Total % in 2" and 4" Rings	Total % in 2", 4" and 6" Rings
0.1%	23.0%	73.6%	3.4%	23.1%	96.6%

6.0 Marking – COMPLIED (*Per provided marking drawing and packaging artwork*)

6.1 The product will be marked with the maximum flow rate value in gpm and L/min as specified by the manufacturer, verified through testing and in compliance with this specification.

Finding: 2.0 gpm (7.6 L/min) MAX.

6.2 The product packaging will be marked with the maximum flow rate value in gpm and L/min as specified by the manufacturer, verified through testing and in compliance with this specification.

Finding: 2.0 gpm (7.6 L/min) maximum.

6.3 The product packaging will be marked with the minimum flow rate value in gpm and L/min at 45 psi, calculated in Section 3.1.4 as 75 percent of the manufacturer’s specified maximum flow rate value, verified through testing and in compliance with this specification.

Finding: 1.5 gpm (5.7 L/min) minimum flow at 45 psi.

6.4 The flow rate marking will be in gpm and L/min in 2 digit resolutions.

Photograph of Sample Tested:



Model SS-2307CP20-SB