

Garcia, Daniela

From: Bo White <bo@negawattconsult.com>
Sent: Wednesday, July 5, 2017 7:38 PM
To: Lopez, Jessica@Energy
Cc: Marc Esser; Garcia, Daniela
Subject: [EXTERNAL] Re: Tub Spout Diverters: Questions for test labs and manufacturers

Thanks, Jessica. After reviewing your comments, I'll move forward with sharing the questions with our confirmed interviewees.

On Mon, Jul 3, 2017 at 10:17 AM, Lopez, Jessica@Energy <Jessica.Lopez@energy.ca.gov> wrote:

Hello Bo,

The setup sounds great. I did have some comments and edits (see attachments). I mainly changed the order of the questions to fit our priorities, which are mainly sales/cost data, automatic reset diverters, and leakage rate.

I also noted that the introduction should clearly state to whom this study is on behalf of, since the CEC is not contracting NegaWatt. It may sound to the manufacturers/test labs that we are directly involved, when we are just providing guidance.

Thank you,

Jessica

From: Bo White [mailto:bo@negawattconsult.com]
Sent: Friday, June 30, 2017 5:57 PM

To: Lopez, Jessica@Energy
Cc: Marc Esser; Garcia, Daniela
Subject: Re: Tub Spout Diverters: Questions for test labs and manufacturers

Hi Jessica,

Thank you for your input, including the code citation about rounding. We reviewed your edits and accepted virtually everything with some small simplifying changes. Then, we split the one document into four (attached): a short and long version for each interview group. The preamble is slightly different between the

groups. The long versions include the sub-questions, and the short versions do not. We'll email PDFs of the short versions to the interviewees, and verbally try to get to every sub-question during the interviews.

How does all that sound? Do you have any additional comments for the documents?

Thanks,

Bo

On Thu, Jun 29, 2017 at 4:56 PM, Lopez, Jessica@Energy <Jessica.Lopez@energy.ca.gov> wrote:

Hello Bo,

If we need to consolidate the questions, we can select which ones should have priority or use some of the sub-questions as follow-up questions during or after the interview. As for the test procedure, I'll have to investigate into the test procedure a little more, since Title 20 testing requirements specifically state to follow Section 5.3.6 and 5.6.1.5. and not the entire test procedure.

Thanks,

Jessica

P.S. The rounding requirements are brought up in Section 1606:

(E) How Tested Data Must Be Reported.

1. For any numerical value required by Table X that is produced by a test specified in Section 1604, the reported value shall be no higher for the value for which the consumer would prefer a high number, and no lower for the value for which the consumer would prefer a low number, than the values obtained by testing; unless different specific instructions are specified in the test method specified in Section 1604.

2. For any numerical value required by Table X that is produced by calculation from measured numerical test results, the reported value shall be no higher for the values where the consumer would prefer a high number than the exact result of the calculation, and no lower than the exact result of the calculation where the consumer would prefer a low number, than the values obtained by

calculating, unless different specific instructions are specified in the test method specified in Section 1604.

3. Manufacturers may report:

a. numbers higher than tested values, where the consumer would, all other things being equal, prefer lower values (or is indifferent); and

b. numbers lower than tested values, where the consumer would, all other things being equal, prefer higher values (or is indifferent).

Example: An air conditioner is tested using the appropriate test method specified in Section 1604, and the test method does not include specific instructions about the precision of reporting.

- Cooling capacity is measured as: 36,014 Btu per hour.
- For cooling capacity, consumers prefer higher values.
- The manufacturer may not report any value over 36,014 Btu per hour.
- The manufacturer chooses to report 36,000 Btu per hour.
- Electrical energy use is measured at 3,487 watts.
- For electrical energy use, consumers prefer lower values.
- The manufacturer may not report any value under 3,487 watts.
- The manufacturer chooses to report 3,500 watts.
- Using the data the manufacturer chooses to report, $EER = 36,000/3,500 = 10.285714$.
- For EER, consumers prefer higher values.
- The manufacturer may not report any value of EER over 10.285714 (if EER is reported with only one decimal place, the maximum value would be 10.2).
- The manufacturer chooses to report $EER = 10.2$ Btu per watt hour.
- If the manufacturer had chosen to report the cooling capacity as 36,014 Btu per hour, and the electrical energy use as 3,487 watts, the calculated EER would have been $36,014/3,487 = 10.328076$. In this case the manufacturer could not report any value of EER over 10.328076 (if EER is reported with only one decimal place, the maximum value would be 10.3).

From: Bo White [mailto:bo@negawattconsult.com]

Sent: Thursday, June 29, 2017 2:39 PM

To: Lopez, Jessica@Energy

Cc: Marc Esser; Garcia, Daniela

Subject: Re: Tub Spout Diverters: Questions for test labs and manufacturers

Thank you for the input, Jessica. We actually first created a long list of questions, similar to your revised version, before archiving that and condensing the list. We didn't want to discourage the interviewees, and wanted to foster a more open verbal discussion.

Concerning your comments about reset in the test procedure, I too saw 5.6.1.5.2. However, that doesn't specify that the reset occur during the measurement period, only that it occurs as part of the overall life cycle test. The motivation would be to simply make sure the diverter is cycled to mimic wear.

5.3.6.1.1, 5.3.6.1.2, and 5.6.1.5.1 (the latter by reference) state that tub spout flow be measured while the shower head has flow.

In addition, 5.6.3.3.3 states: "...Diverters shall be reset to the tub position mechanically except for automatic diverters, which are intended to reset themselves to the tub position. The test apparatus for automatic diverters may relieve the shower head flowing pressure while simultaneously shutting off the supply valve to accelerate the life cycle test."

Since you are allowed to relieve water after the supply valve is closed, the measurement period must end before the supply valve is closed and before an automatic diverter resets itself.

Concerning the prohibition against rounding down to zero, may you please point me to a citation in Title 20? All I can find is this, from the plumbing fittings instructions, which seems to support conventional rounding: "Enter a numeric value for flow rate and the value should be reported to two (2) decimal places."

Concerning the 20,000 cycles, that is an arbitrary quantity suggested by NRDC during the WaterSense meeting and during a call with us. It's just a proxy for learning how long the life cycle test takes to perform and what the time and cost impact would be of increasing the number of cycles. It's not particularly important unless we had evidence that more cycles would be appropriate in the first place.

On Thu, Jun 29, 2017 at 1:30 PM, Lopez, Jessica@Energy <Jessica.Lopez@energy.ca.gov> wrote:

Hi Bo,

Attached is the list of questions you provided with our comments and suggestions. Again, if you have questions, please feel free to give me a call.

And I don't think we need a debrief, unless something new came up or if there are concerns.

Best,

Jessica Lopez

Energy Analyst

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Efficiency Division

California Energy Commission

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Sacramento, CA 95814

[916-654-5125](tel:916-654-5125)

Jessica.Lopez@energy.ca.gov



From: Bo White [mailto:bo@negawattconsult.com]

Sent: Wednesday, June 28, 2017 11:21 AM

To: Lopez, Jessica@Energy

Cc: Marc Esser; Garcia, Daniela

Subject: Tub Spout Diverters: Questions for test labs and manufacturers

Hi Jessica,

It was nice speaking with you today, and thank you for your valuable input and direction. We'd like to share our manufacturer and test lab interview questions with you. Please see attached and let me know if you have any suggestions. By Friday, I plan to email the respective questions to the parties who agreed to an interview.

Also, would you like to debrief next week for 30 minutes about today's meeting? We're available on Wednesday 7/5.

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Thank you,

Bo White, PE
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