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Comments from Signify on Low Power Mode Discussion Draft

Additional submitted attachment is included below.

September 14, 2018

Submitted electronically

Ms. Soheila Pasha, PhD
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Docket No.: 17-AAER-12

RE: Comments on Low Power Mode Test Procedure Discussion Document

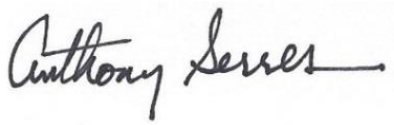
Dear Dr. Pascha:

Signify (formerly Philips Lighting) appreciates the opportunity to comment on this discussion document. Our detailed comments follow.

Signify is a global leader in lighting products, systems and services. Our understanding of how lighting positively affects people coupled with our deep technological know-how enable us to deliver digital lighting innovations that unlock new business value, deliver rich user experiences and help to improve lives. Serving professional and consumer markets, we sell more energy efficient LED lighting than any other company. We lead the industry in connected lighting systems and services, leveraging the Internet of Things to take light beyond illumination and transform homes, buildings and urban spaces.

Please contact me if you have any questions.

Sincerely,



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September 14, 2018

Signify welcomes the opportunity to comment on this discussion draft and we appreciate that it was issued as part of a roadmap instead of a rulemaking process.

Our general observations about this subject are below. Answers to the specific questions posed in the draft follow on the next page.

General Comments

- Please consider the following statement: *Systems are never in standby.*

  In other words, while you may be able to measure the standby power of components, defining or measuring the standby power for a system is not feasible, because there are always components in a system that are in non-standby mode which control the standby mode of other components.

- As part of this roadmap we encourage the commission to schedule an informal public working session that would permit a direct dialogue with industry.

- There is considerable standardization activity going in lighting in the context of standby power. We urge the CEC to align with this global activity. One example is IEC 63103[1] which is referenced extensively in our comments. This is a new standard under development by the International Electrotechnical Commission (IEC). We regret that we cannot share a copy with the Energy Commission at this time due to copyright issues but expect that a copy may be available for review later this year.

[1] IEC 63103: Lighting Equipment – Non-active mode power measurement.

Responses to the Questions in Attachment B

Our comments follow the numbering of Attachment B.

1. Provisioning the Product

1.1. Question

Should the product be allowed to run for a specific amount of time, for example 24 hours, to allow the product to update and provision software before taking the LPM measurements? If so, what is the appropriate amount of time?

Answer

Unfortunately, the amount of time may vary by product. Please follow guidance from the manufacturer on the time needed.

2. Testing State

2.1. Question

Is the approach outlined in section 2 of the test procedure an effective way to define the testing state for a broad range of products? If not, explain why.

Answer

This could be a solution, however, you need to be sure that the non-active mode under consideration is really active and stable.

2.2. Question

Explain other approaches that would be preferable/superior to the approach described in section 2 for testing state that is applicable to a broad range of products.

Answer

For Lighting products, the preferred approach would be to use IEC 63103 which is a standard under development. Once it is publicly available, we'll be happy to discuss it in detail with you. It will provide a complete method of measurement for (multi-function) lighting equipment. A number of US manufacturers are participating in its development.

2.3. Question

How long should X (the time between discontinuation of user interaction and the beginning of the measurement) be?

Answer

In our opinion, at least 30 minutes.

3. Network Connections

A. Traffic content and levels:

3.1. Question

To what extent does network and device data communication traffic need to be prescribed?

Answer

Network traffic should be limited to what is needed to resume the primary function from its non-active mode. All other network functions and interactions should be switched off.

3.2. Question

Is the Energy Commission's proposed approach in section 3A of the test procedure appropriate? What is an appropriate limit on the inbound traffic? Explain what modifications or additions need to be made.

Answer

We suggest following a standardized approached from bodies like ETSI[2], e.g. ETSI standard EN 300 328 V2.1.1 (2016-11).

3.3. Question

Alternatively, is it better to prescribe specific network conditions, such as which network services are present, similar to the ENERGY STAR's approach? If so, what modifications, if any, need to be made to the ENERGY STAR's network conditions?

Answer

Guidance assessing (multi-function) lighting equipment will be provided in IEC 63103.

B. Configuration requirements

i. Wired Connections

3.4. Question

Are the instructions described in section 3.B.i of the test procedure complete and appropriate? What other configurations or conditions need to be specified?

Answer

We recommend that lighting equipment follow the methods in IEC 63103.

[2] European Telecommunications Standards Institute. https://www.etsi.org

3.5. Question

Does Ethernet cable's length significantly impact power draw in LPM, and should it be specified for the testing? If so, what is an appropriate length for the Ethernet cable used for the testing?

Answer

Practically you should measure the power at the input to the device to exclude any power losses in the cable.

ii. Wireless Connections

3.6. Question

Do edge devices require different instructions from network devices? If so, specify which parts of the instructions should be different and how they should be.

Answer

Edge devices with network device functionality beyond changing the (non-)active mode should be considered multi-function lighting equipment. This will be further discussed in IEC 63103

3.7. Questions

What other test conditions besides those described in section 3.B.ii will impact LPM power draw? What additional test instructions are necessary to account for these impacts?

3.8. How far should the device under test be from the network router?

Answers for 3.7 and 3.8

We suggest that lighting equipment follow IEC 63103. Special attention should be paid to wireless conditions [ETSI standard EN 300 328 V2.1.1 (2016-11)].

iii. SNE-Specific Instructions

3.9. Question

Are these setup instructions adequate to ensure reproducible results for testing SNE?

Answer

As we understand the discussion document, lighting is not considered small network equipment. If lighting equipment includes a router function, for example, it can be characterized as multi-function lighting equipment and eventually assessed according to IEC 63103.

3.10. Question
If not, what instructions should be added or modified?

Answer
Please see our answer to 3.9.

3.11. Question
Should 3-phase input power requirements be added to the setup instructions?

Answer
While lighting in general can be powered from the 3-phase electrical system in a building, smart/connected lighting is either DC or single phase. Thus, in our mind 3-phase requirements are not needed.

CEC NOTE: Questions 4 through 9 apply to edge devices only. The test procedure will require setup instructions for some secondary functions, in addition to network functionality, that are present in the product under test, particularly those that significantly impact power draw.

4. Sensors

4.1. Question
Which sensors besides those listed in section 4 of the test procedure (occupancy/motion, gesture, sound, voice recognition, ambient light, temperature, humidity, touch) need to be addressed in the test procedure?

Answer
Presence detection. This type of sensor goes beyond motion detection and senses how many people are in a space.

4.2. Question
Which sensors (for example, gesture recognition) must process environmental conditions to identify particular patterns (for example, a wave gesture)? How sensitive is power draw to ambient inputs (such as, sound for a voice recognition sensor or movement for a gesture sensor)?

Answer
We have no specific comment at this time.

4.3. Question

What is the appropriate instruction to ensure that sensors do not cause the product to exit LPM during the test and also represent real life situations? No environmental input or no specific trigger?

Answer

There is no specific trigger.

4.4. Question

What other ambient environmental inputs should be specified? For example, what type and level of background ambient noise should be used?

Answer

There should be a "clean" wireless network environment. See IEC 63103 and ETSI standard EN 300 328 V2.1.1 (2016-11) for details.

5. Charging, wired

5.1. Question

Is the methodology described in section 5 of the test procedure a reasonable approach to evaluate the wired charging function to minimize its power impact when it is not being used?

Answer

The proposed approach could work, but our preference would be for you to follow IEC 63103 for (multi-function) lighting equipment.

6. Charging, wireless

6.1. Question

Is the methodology described in section 6 of the test procedure a reasonable approach to evaluate wireless charging function to minimize its power impact when it is not being used?

Answer

We are not aware of any lighting examples with wireless charging.

7. DC Powering

7.1. Question

What is the appropriate input voltage to supply during testing, particularly for products that specify a range of acceptable DC input voltages?

Answer

Use the manufacturer's rated input voltage. If there is only a rated voltage range, contact the manufacturer for further instruction.

7.2. Question

How should the measurement be made? Are the instructions in the ENERGY STAR display test procedure appropriate? Explain how the procedure should be modified, if the ENERGY STAR instructions are not adequate.

Answer

We suggest to use the approach in IEC 63103.

8. Systems

8.1. Question

Would the approach described in section 8 of the test procedure for systems that are powered separately from their system hub adequately represent system's power draw? If not, explain how to capture the actual power of products that need to connect to other products, wired or wirelessly, in order to transfer data.

Answer

The answer to this is not straightforward given our prior observation that systems are never in standby.

8.2. Question

Does the test procedure described in section 8 for systems that are powered from their system hub apply to all products? Explain if and how this approach should be modified to be applicable for new technologies.

Answer

We have no specific answer at this time.

8.3. Question

Are the test procedures described in section 8 reasonable approaches? Provide reasons and explain what needs to change.

Answer

We have no specific answer at this time.

9. Off Mode

9.1. Question
Is the definition in section 9 an appropriate definition for the off mode? If not, what is an appropriate definition?

Answer
We submit that 'off mode' is a state where all the features are off.

9.2. Question
Are any other instructions beside those in section 9 needed to collect the off mode power measurement?

Answer
We recommend that the collection of off mode power measurement follow the procedure in IEC 63103.

9.3. Question
How might products that do not have hard or soft switches be turned off?

Answer
We have no specific answer at this time.

9.4. Question
What proportion of products do not have an off mode?

Answer
We have no specific answer at this time.

10. General

10.1. Question
Provide inputs on other gaps or issues not identified in the proposed test procedure.

Answer
We have no specific answer at this time.

END COMMENTS