Summary Pre-assessment Report to Testing Laboratory

Name of Laboratory	Energy Efficient Laboratory, Jordan Standards and Metrology Organization
Name of Expert(s)	Jing Wang; Hongzheng Xin Global Efficient Lighting Centre
Dates of Pre-assessment	13 August 2017

Component	Details of examination	Advice given/action taken in response
1.Relevant documents	● It reviewed the Quality manual, Procedures, Work instructions and Forms. ● The laboratory has established the quality management system and it works generally well in the laboratory. Quality management documents are clear and available to the laboratory staff.	1. As it did not see some of the external documents are controlled (for example, equipment specifications, calibration certificates), as well as the original data sheet of the integrating sphere, however all of these are indicated in the quality management system. These would be suggested to be considered under control. 2. For the aging work instruction, it would suggest clarifying the product scope in case in the future

		some other types of products come with different aging requirements.
2. Conditions of test equipments including calibration	● The test equipments are settled their positions in the laboratory. The specifications and related records are kept. ● The power supplies of the aging racks are not calibrated. The laboratory has asked the supplier for calibration but got the reply from the supplier that it doesn't need to calibrate those power supplies. ● All of the equipments are not been tagged by calibration status. It was explained that this is because the lab needs to figure out the problem of calibration suppliers. However it has been aware by the laboratory. ● There is no appropriate ballast for life time test, for example it is used the 150W ballast to light up a 70W HPS. ● There is no temperature detector in the sphere. The testing temperature recorded is actually the room temperature. ● The rigidly structure to fix the lamp holder might take vibrations to the samples when opening/closing the integrating sphere. ● Calibration factor for DC power supply is not	1. Preceding the process of calibrations and tag the calibration status identification on the equipments. 2. All of the equipment that may affect the testing results would need to be calibrated or at least verified. 3. It would suggest using the suitable ballast for life time test, for example, 70W HPS – 70 W ballast. It would need to verify the ballast for life time test before use it. 4. Install the thermal couple inside the sphere, and monitor and record the testing temperature in the sphere. 5. The suggestions to the rigidly structure problem: 1) use the soft structure instead of the rigidly one; 2) smoothly open/close the integrating sphere. 6. It would suggest using the calibration factors when necessary.

	applied.	
3. Accommodations and environment conditions	● The temperature and humidity are not monitored and recorded in the aging room. ● The status check during the aging or lifetime test is not documented and the interval of checking seems too long.	● It would be necessary to monitor and record the temperature and humidity in the aging room as required by the standard; ● It would recommend the laboratory to shorter the interval of checking, or monitored by CCTV.
4. Experience and competence of test staff	● The technicians can follow the work instructions very well to operate the testing. However since most of them are new to the lighting laboratory, they seem to be not very familiar with the standards and theory of lighting test.	1. The training provided would be a good start for them to lean the knowledge; 2. Long-term and continuously study would also be necessary for the technical staffs to understand more of the theory knowledge and standards.
5. Interviews to assess competence of quality staff	● The quality coordinator has a good knowledge and lots of experiences of the quality management. She has been obtained a certificate by taking the training of ISO/IEC 17025. ● The quality coordinator is also the technical coordinator in the lab, and has a good understanding of the standards and testing process.	1. It may be also taking consideration for the laboratory that to train other staffs on the quality management, as the quality management is not only relying on the quality coordinator.
6. Method of conducting test and recording results for formal witnessing of tests	● The work instructions are developed according to the IEC standards; ● The technicians follows well of the work instructions. ● When installing the lamps in the sphere, there is	1. For the integrating sphere work instruction, it would suggest clarifying the environment conditions as required by the standards, as well as how to determine the stability of the testing lamps. 2. The photometric centre of the light source should

	no measure to determine the centre of the lamp is at the centre of the sphere, and it has not evaluated the effects to the testing results if no such measure taken. ● The self-absorption of the software is not spectrally. ● The uncertainty evaluation is not completed. ● The electrical circuit is not adopted by the four-terminal method. ● The setting value provided by the supplier for double-capped fluorescent lamps are not the same as they are required by the Standard IEC 60081.	be mounted at the centre of the sphere. 3. It would recommend the laboratory to do the self-absorption correction spectrally as explained in the training. 4. The uncertainty budget from CIE S 025 would be a good example for the laboratory to consider the uncertainty components. And it would be necessary to develop the uncertainty procedure or uncertainty evaluation work instruction for lighting test. 5. It would recommend the laboratory to evaluate the effects of existing circuit method to the testing results. 6. When testing double-capped fluorescent lamps, it would be necessary to meet the requirements of the Standard, and calculated the setting voltage.
7. Any other advice given to the laboratory	● It would suggest marking the unique Identification of each sample on the lamp, so as to ensure it is retained throughout the life of the item in the laboratory. ● It would recommend the laboratory to develop intermediate checks procedures and schedules. And implement it when necessary. ● It would suggest conducting the data analysis based on the records of standard lamp operation/checking for the quality control purpose.	
8. Signature of manager receiving this report		

The Climate Technology Centre and Network (CTCN) fosters technology transfer and deployment at the request of developing countries through three core services: technical assistance, capacity building and scaling up international collaboration. The Centre is the operational arm of the UNFCCC Technology Mechanism, it is hosted and managed by the United Nations Environment and the United Nations Industrial Development Organization (UNIDO), and supported by more than 300 network partners around the world.

CTCN contact details:
Climate Technology Centre and Network
UN City, Marmorvej 51
DK-2100 Copenhagen, Denmark
+45 4533 5372
www.ctc-n.org
ctcn@unep.org