IEEE P3329 Working Group

Meeting Minutes Monday 6th October, 2025 – 09:00 to 10:30 AM CET

Recorded by Harshit Verma

1. Call to Order
    a. Roll Call and Declaration of Affiliations
    b. Establish Quorum
        i. Based on the participant list that captures the current number of voting members, 8 of 13 voting members are present. Quorum achieved/not achieved: ACHIEVED.

Motion #1: To approve the of Agenda for the current meeting

Mover: Marco Fellous Asiani
Seconder: Pierre-Emannuel Emeriau; Jeremy Stevens
Discussion: None
Result: Approved

Motion #2: To approve the previous Meeting Minutes: **September 5th, 2025 – 11h00 to 12h30 CET**

Mover: Marco Fellous Asiani
Seconder: Pierre-Emannuel Emeriau; Adrien Suau
Discussion: None
Result: Approved

2. IEEE SA Policies
    a. Patent Policy
        i. Call for Patents
            1. No potentially essential patents claimed
    b. Copyright Policy
        i. Copyright slides displayed
    c. Participation
        i. IEEE SA individual participation slides displayed

3. Discussion Items, Technical Presentations, or other Topics

Marco Fellous Asiani started the discussion as the chair, and as per the agenda of this meeting.

Jeremy was invited to recap the main points of his framework introduced in the previous meeting. There was a discussion on the main points making up the standard as per the aforesaid framework, including discussion of how companies should provide the details pertaining to the standard.

It was suggested that the following should be taken up for consensus/formal approval during the next meeting:

The following datapoints should be quoted as a part of the standard:

1. Definition of the task: A clear task should be identified, for instance calculating the ground state energy of a molecule. Should we give some additional constraints on the computational task to be performed to evaluate the energy/power?
2. Definition of the metric(s): A clear metric should be provided -- continuous or binary (success/failure) based on the task. Note that the same task may have a set of metrics rather than one. For instance, in

the task of ground state energy calculation, the accuracy with respect to the true ground state energy and/or satisfiability of chemical accuracy may be quoted, which are continuous and binary metrics respectively.

3. Energy or power consumption over task of each element in the PBS (Product Breakdown Structure) and FBS (Function Breakdown Structure): PBS and FBS breakdown relevant to the task should be mentioned, and for each element, the power/energy consumption should be quoted.
4. Total energy consumption over task: Sum of the resources calculated in 3. relevant for the task in 1. for the metrics in 2.
5. Peak & average power consumption: In addition to the figures quoted in 4, the peak and average power consumption during the complete task should be quoted to assess the feasibility under physical constraints such as peak power available and average power required.
6. Duration of the task: Duration should be mentioned as time also counts as a resource, and to check the consistency between 4 and 5.

Marco started his presentation on some other high-level platform agnostic details to be included by companies to mitigate the chances of cheating the standard. There were discussions on the following to be included in the standard as a set of high-level rules for the resource cost:

1. Neglect energy to build the quantum computer
2. All the energy consumption – classical and quantum – WHILE the task is being performed must be included.
3. Fixed costs e.g. compilation/calibration etc. that might occur before or after a computation must be taken into consideration. If such costs are negligible, they must be formally justified. Some of these energy costs may be shared across a series of computations rather than attributable to a single one. Therefore, scientifically sound and transparent method for allocating such a cost should be established.

It was proposed that an addendum consisting of concrete examples for specific technologies/ typical tech stack could also be included in the standard. The members were requested to share a google doc with examples.

There were discussions on having similar set of high-level rules for the tasks and metrics for those tasks. It was mentioned that value addition using quantum technology cannot be delineated from some metrics often quoted presently in absence of such rules.

The following technical questions regarding the standards came up during the meeting and were set aside for later discussions:

1. Simple metrics like Megaquops for given fidelity per watt.
2. High level rules for tasks: prescription of task should be precise in data points 1. and 2 of the standard, as considered for the energy/power consumption.
3. Estimation/measurement: should the estimation model be explicitly mentioned, since not all energy consumption is directly measured/measurable?
4. Connection with benchmark(s)/benchmarking: The standard should be compatible with current benchmarks by sharing the tasks. The current benchmarking methodology could be extended to incorporate the datapoints of the standard.
5. Should the FBS/PBS structure for energy and power consumption be unique?

It was agreed that in principle, the following items need to be done with regards to the Standard draft:

1. Definitions: PBS/ FBS with superconducting/photonics tech stack.
2. How to incorporate the software stack?

The following points were discussed as possible agenda items and points to ponder for/before the next meeting:

1. Minimal Working Example with PBS/FBS.
2. High level constraints for tasks: clarify the metric for instance: success probability and chemical accuracy.
3. Discussion on Efficiency as a figure of merit.
4. We must find a way to attract experts beyond Singapore and France.

Finally, the members were invited to present any other comments, and inclusion of points in the agenda. The discussions concluded.

4. New Business
    a. No new business to discuss.

5. Old Business
    a. No old business to discuss

6. Adjourn
    a. Meeting adjourned at **10:30 AM CET**