

Minutes: First Stakeholder Meeting meeting for 419/PP/ENT/IMA/14/11931A Ecodesign Technical Assistance Study Product Group “DG ENTR Lot 9”

Location:

BREY 07/46, B-1049 Brussels/Belgium, 13/11/2015, at 10:00 to 14:00

Presenters:

Davide Polverini (European Commission, DG Internal Market, Industry, Entrepreneurship and SMEs)
Cat McAlister Intertek Testing and Certification Ltd
Hansfried Block, Standard Performance Evaluation Corporation (SPEC)
Anson Wu Intertek Testing and Certification Ltd

Attendees:

Pieter-Paul Laenen, Hewlett-Packard
Jan Guetter, AMD
Peter Gibson, Intel Corporation
Bram Soenen, Environmental Product Policy Belgium
Amit Singh, Ericsson AB
Hans-Paul Siderius, Netherlands Enterprise Agency
Carsten Wachholz, European Environmental Bureau (EEB)
Bernard Gindroz, CEN/CENELEC
Kaisa-Reeta Koskinen, Energy authority, Finland
Henry M Wong, ISO/IEC JTC1 SC39
Tom Moriarty, Dell.Inc
Jan Viegand, Viegand Maagøe
Paul Finch, ASHRAE TC9.9
Sylvie Feindt, DIGITALEUROPE
Kurt Van der Hertten, IBM

Points discussed:

- Welcome and tour de table
- Ecodesign Activities On Enterprise Servers And Data Storage Devices (D. Polverini, DG GROW)
- Project context and scope (C. McAlister, Intertek)
- Discussion of enterprise server and data storage standards gap analysis (C.McAlister, A. Wu, Intertek)
- Explanation of the SERT tool for servers (H. Block, SPEC/Fujitsu)
- Discussion of options for metric development for servers (A. Wu, Intertek)
- Next steps: Server testing etc. (C.McAlister, Intertek)

1. Ecodesign Activities on Enterprise Servers and Data Storage Devices: Davide Polverini (D.P.) presented the latest ecodesign insights on the DG Grow Lot 9 product group particularly in

relation to the preparatory study conclusions and challenges, and discussed the policy measures to be analysed in the Impact Assessment.

He explained that the Final Preparatory Study report would be available at the end of November, but that it was not likely to be very different to the previously published draft report.

Regarding timing, he stated that if (on the basis of the impact assessment study) the decision was made to proceed with ecodesign/energy labelling measures, these would be likely to be discussed at the Consultation Forum meeting scheduled for the second half of 2016 (around September / October).

D.P asked that the discussion of policy should be reserved for the impact assessment work, and that the discussions in this meeting be focussed upon the technical issues.

Kurt Van der Herten (K.V.H.) of IBM asked how the work of the JRC on material efficiency and wider issues¹ related to the technical assessment study. Cat McAlister (C.M.) explained that the team had already been working with the JRC team and that some of the parameters that would be discussed later in the presentations had been drawn from their recent report on material efficiency considerations relating to servers.

2. Project context and Scope: C.M. presented the aims, priorities methodology and scope of the technical assistance project. She outlined the key policy initiatives identified, and the Henry Wong (H.W.) highlighted that in relation to policy, different policies had different objectives – for example Top Runner vs ENERGY STAR. C.M. acknowledged these differences, and highlighted that the detail on these aspects could be taken into account in the impact assessment study.

H.W. also highlighted the work of CNIS (Chinese Government) and the Korea Government in the servers area. C.M. explained that the technical assistance contractors had met with the CNIS representatives, but whilst they were aware of the Korean work had not been able to identify the key contact in this area to follow up with.

Action: H.W. agreed to try to put the EU and Korean contacts in touch with one another.

H.W explained the need to appropriately address the issue of interoperability in relation to policy requirements. It was important to ensure that interoperability standards was not compromised by regulatory requirements, providing the example that power management requirements could interfere with the availability of devices on the wider system. Paul Finch (P.F) provided some insights on how ASHRAE dealt with the interoperability issue through coordination with their IT subcommittee.

Action: C.M. agreed to draft some text on interoperability considerations in coordination with H.W. to be included in the next project report.

Further C.M. provided details of the approach to definitions for this contract, and some context on standardisation in terms of why it's important, the main bodies involved, the standard EC mandate / SR procedure.

3. Gap Analysis: C.M. presented on the parameters input to the gap analysis, the relevant standardisation mandates to Lot 9 products, and provided an overview of the relevant standards identified to date.

P.F. explained that it was not only temperature should be referred to in relation to ASHRAE, but that humidity was also an important consideration. P.F. highlighted that the 4th edition of the ASHRAE standard should be available later in 2015.

In relation to Mandate M462, H.W. highlighted the issue that as ETSI leading much of this work, it meant that there was a focus on telecommunications and network considerations more than server and storage energy efficiency, and that all necessary server / storage stakeholders (from an ecodesign viewpoint) were not involved in this process, so it did not necessarily take into account the wider (non telecom) considerations that were important to Lot 9.

¹ IRC project: "Best Environmental Practice in the telecommunication and ICT services sector"

D.P. explained that in relation to standardisation mandates, these can be issued not only when a regulation is published in the OJEC, but also in some cases prior to a regulation. He explained that whilst the scope of M462 was very broad, he was keen that the Lot 9 aspects were considered under this mandate in order to save time due to the time sensitivity of standardisation processes. He also recognised that some more specific aspects could be launched in a dedicated mandate at a later point if it was identified that this was required.

Bernard Gindroz recognised that CEN was not actively involved to date with the standardisation activities related to M462, but that there was an opportunity to promote more active participation of CEN through the plenary that was to be held in 10 days' time.

H.W. highlighted that the telecommunications environment was different to other data centre environments due to the focus on transportation of data in telecoms, compared against wider priorities in other DC environments such as management, manipulation, transport and secure storage of data.

D.P. explained that just because a standard was delivered under the M462 workplan did not mean that it would automatically be the standard referenced by any regulatory measures, should these be developed for Lot 9 products.

In reference to progress regarding ISO/IEC 30134-4, H.W. explained that the timeline for a standard to be delivered was by early 2017 (due to the IEC rules on timing in relation to when the request was issued, which specify a three year limitation for delivery).

In reference to EN 50600, P.F. asked how standards development was being coordinated between CENELEC and the ISO work. H.W. provided some insights : Coordination is maintained by having the same experts sat on both groups ie H.W. but there is no formal agreement.

C.M. summarised the results of the gap analysis in terms of total numbers of standards identified, and highlighted the key priorities for interaction on standards going forward.

Peter Gibson asked for clarification regarding the listing of TEC as a parameter, as he believed this was a calculation rather than a parameter that could be tested against. Anson Wu (A.W.) responded that TEC was included for completeness and that this parameter reflected whether the test method would enable a TEC calculation to be made. H.W. emphasised that as far as TEC was concerned variations in usage were difficult to account for fairly. C.M. suggested such discussions were reserved for the discussion around metrics.

4 Explanation of the SERT tool for servers: Hansfried Block (H.B.) provided an overview of the SERT tool, and discussed the outcomes of the SPEC / Green Grid work to date on metric development. Some points of interest include:

- Tuning parameters: CPU technology providers come up with these, and the configurations are published on the SPEC website so that all users have to use the same parameters – this reduces “gaming”.
- Very high power: SPEC would like to include a worklet for this (such as linpack) but do not have one currently.
- White paper October 2015: Highlighted that 100% utilisation is not the point of highest efficiency, therefore it is not necessarily a preferred strategy to max-out utilisation. The peak efficiency was found to usually occur in the 80 to 90% utilisation zone.
- Network controllers: Generally not power managed. Testing network performance with one server is not relevant – other devices are necessary to create a system test and this creates complexity for the test setup to ensure the other device not under test does not influence the test results
- Scalability: SERT can be used on servers up to 8 sockets, although it is currently only supported up to 4 sockets.

- Metric recommendations: There will be a meeting with the EPA and ENERGY STAR stakeholders on Thursday next week to discuss results of TGG analysis and refine the approach to metric development. Due to the different usage and configurations of the servers, thoughts on definition to date are based upon the following approach:

- **Compute-Intensive**

Geometric mean:

- [Combined efficiency scores of all CPU and Hybrid worklets] * high weight
- [Combined efficiency scores of all Memory worklets] * low weight
- [Combined efficiency scores of all Storage worklets] * very low weight

- **Memory-Intensive**

Geometric mean:

- [Combined efficiency scores of all CPU and Hybrid worklets] * medium weight
- [Combined efficiency scores of all Memory worklets] * medium weight
- [Combined efficiency scores of all Storage worklets] * very low weight

- **Storage Intensive**

Geometric mean:

- [Combined efficiency scores of all CPU and Hybrid worklets] * medium to low weight
- [Combined efficiency scores of all Memory worklets] * low weight
- [Combined efficiency scores of all Storage worklets] * medium weight

It is not clear how these different classes of configuration (compute, memory and storage intensive) would be defined and applied in a policy context. There is a further TGG report to be produced which will go into greater details

Bram Soenen asked if it would be possible to further aggregate the configuration classes into one single metric / result. It was not generally considered that this approach would be useful as it would require a weighting of already weighted figures.

H.B. highlighted that there was a SPEC meeting planned for March 2016 in Delft, Netherlands. He also highlighted that there was policy activity in China related to the SERT tool, and that there was some testing being carried out there, as well as some SPEC meetings.

Action : Technical team to aim to get involved in these discussions.

5. Metrics: A. Wu presented on the key issues identified from a review of the recently published SERT / Green Grid analysis. He outlined the methodological approach the project would take to investigating metric design, and detailed some of the main issues for consideration (idle power / scaling with load level, SME workloads, neutrality of metrics),

Regarding neutrality of a metric, H.W. explained not all of the features of a server are exposed by the metric itself e.g. the extra circuits contained in resilient servers. He also highlighted that for resilient servers, utilisation should be assumed at a lower level. In SERT development it has therefore been assumed that policy makers will define categories to account for this.

A.W. then opened up some questions for discussion, addressing the following:

Reported poor-correlation between idle and efficiency score (how to account for idle if not in efficiency score?)

- H.B. explained that efficiency relates to performance, and that it was therefore not appropriate to consider idle in this context. He noted that in high-end configurations the idle would normally appear high.
- H.W. explained that EPA recognised that the low-load end of the efficiency curve was important. The current emphasis on high utilisation including the ISO 30134-4 KPI was intended to inform procurers: from a provisioning viewpoint it was necessary to capture efficiency at the capacity level at which the equipment was being procured (100% loading point).
- P.F. highlighted that DC operators lease space by the kW, so provisioning to maximum power is important.

Emphasis on max utilisation values (Preference to weight metric toward performance at lower loading)

Unexpected variations in idle power between processor power management states

- H.W. explained that there were some data points in the Green Grid data where further information was required to understand nuances. He recommended that the technical assessment team highlight these issues with the data set to the EPA.

Comparison of generational improvements (potential for alternative based on similar maximum workload score or based on similar introductory price for apples-to-apples comparison)

- H.W. explained that it was being considered if an alternative approach might be to separate out the performance and power scores, but that it was important not just to look at idle as this would give a false impression of efficiency and prefer smaller, less powerful servers when more powerful servers may be a more efficient option

In the questions related to this discussion, the following additional points were raised:

D.P. asked how scalability was addressed under SERT, in terms of number of sockets etc. B.S. also expressed an interest in this being explored. H.B. responded that the worklets are able to scale with relevant capabilities – this is integral to the design of SERT. H. W. further elaborated that the SERT tool was capable of scaling against different server configurations in terms of increased memory, different CPU etc, but that when the tool is used it only represents the capability of one server in isolation, and cannot provide a systems perspective on how the server would perform if 5 were in use in tandem. It is also not possible to predict how scalability will function with new architecture – it can only be based on known parameters. Hans Paul Siderius stated that the functional definition taking into account wider data centre aspects was not a necessary focus – that the focus was (correctly) on the product of a server in isolation in this case. P.F. highlighted that the ASHRAE aspect already took into account aspects of the wider system.

Action: D.P. and B.W. asked for some clarity to be provided on scalability with the technical assessment reporting.

Tom Moriarty (T.M.) explained that the 2nd generation of servers were seeing a large improvement in efficiency compared to previous designs, so the industry was clearly improving.

Jan Viegand (J.V.) asked how the wide variations in use of servers was taken into account – for example, a virtualised server operating 24 hours a day compared against an enterprise server sitting in idle much of the time. H.B explained that it was necessary to understand the application and map this to the classes.

6. Conclusions and Next Steps: C. McAlister closed the meeting with conclusions, a summary of the key issues going forward, and details of the next steps including testing.

B.S. highlighted a potential risk that the project testing could have a UK manufacturer bias. C.M. explained that the purpose of the testing was not to obtain results that were representative of the wider market, but rather to analyse the test process itself and provide insights on procedural aspects that could be clarified. There was some discussion around the presence of “certified bodies” for carrying out SERT testing in Europe. C.M. explained that under ENERGY STAR, the use of a certified body for testing was not required in Europe (only EU). However, that some certified bodies do exist in Europe (of which Intertek was one, and the full list can be obtained at: http://www.energystar.gov/index.cfm?fuseaction=recognized_bodies_list.show_RCB_search_form) D.P. further clarified that, for ecodesign purposes, the manufacturers are in general free to choose the (testing and calculation) methods and practical arrangements, when assessing the compliance of their products.

C.M. explained that the next stakeholder meeting would be held in March/April and asked if there were any potential industry meetings that should be avoided as potential dates. Cebit was highlighted as one such event, and would be held on 14 to 18 March 2016 (note: prior to 23 March would be ideal to avoid Easter holidays, and due to team availability it appears that most likely date will now be between 1st and 4th March).

Kurt Van der Herten / Sylvie Feindt of DIGITALEUROPE asked when formal comments on the interim report would be required by. C.M. and D.P. agreed that 4 weeks from the date of the meeting would be appropriate (Friday 11th December).