



CSEP Consortium for SEP 2 Interoperability



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Smart Energy Profile 2.0

- A conversion of ZigBee Smart Energy 1.x to IP
- MAC/PHY (link layer) independent (internetworking) – intended to run over generic Internet Protocol stack
- Mainstream protocols profiled
- Focus on communications related to efficiency, usage, price communication, demand response and load control, and messaging
- Secure
- Optimized for embedded and battery-powered devices
- Range of backhaul (AMI, Internet, etc.) bandwidths and cost kept in mind during development

Standards Developed

- SEP2 originated in ZigBee Alliance, in conjunction with HomePlug Alliance in Smart Energy Working Group
- Upon completion, worked with IEEE and is now adopted as IEEE standard in 2013, now IEEE 2030.5™ - 2013
- Future development work will continue within the 2030.5 technical group, including a new work item soon after all testing is complete

Large Stakeholder Buy-In

- Named as “Standards Identified by NIST” – National Institute of Standards and Technology - for the smart grid in the US* -- a “low hanging fruit” standard



* NIST Special Publication 1108

(Some) Features / Function Sets

- Price Communication
- Demand Response and Load Control
- Energy Usage Information / Metering Data
- Text Messaging
- Prepayment Metering
- Plug-In Electric Vehicles
- Distributed Energy Resources
- Billing Communication
- File Download / Update



Example Applications

- Smartphone
- Tablet
- Television
- Computer
- Thermostat
- Smart Meter
- Pool Pump
- Water Heater
- Smart Appliance
- “ESI in the Sky”
- Plug-In Electric Vehicle
- Solar Inverter
- Energy Management System
- Building Management System

Completion of Application Standard led to Consortium for SEP 2 Interoperability

- A collaboration focused on developing ***consistent test and certification programs across multiple communications media to run the Smart Energy Profile 2.0.***
- Structure for multitude of industries to advance adoption and support best user experience.
- Industry technology associations may join the consortium as Sponsors, Promoters, or General members. The consortium offers Sponsors and Promoters the opportunity to develop materials that advance SEP2 interoperability. General members may have access to final material developed by the Sponsors and Promoters.
- The Consortium was incorporated as a mutual benefit non-profit corporation under California law.

How does the Consortium Work?

- Industry trade associations join as Sponsors and Promoters members. Then, their respective members join the various CSEP committees and collaborate on the work of the Consortium using a coordinated set of processes, schedules, etc.
- These members are typically commercial companies involved in various markets that range from consumer electronics, white goods, telecommunications, electric power equipment and distribution, etc. These organizations may participate through their membership in Sponsor or Promoter organizations. There are no fees for these organizations to participate.

Current Makeup

- Sponsor Members include:
 - Bluetooth SIG
 - HomePlug Alliance
 - Wi-Fi Alliance
 - ZigBee Alliance

Current Status

- IEEE 2030.5™-2013 complete
- Consortium for SEP 2 Interoperability (CSEP) established
 - Joint testing and certification organization between HomePlug, Wi-Fi, ZigBee, and Bluetooth
 - Several interoperability events (typically once per month)
 - Testing also occurring over the Internet (the beauty of IP!)
- Conducting final testing and certification
- Common test harness(es), security certificates, test specifications and PICS



Interop Testing & Certification

- Several interops hosted by CSEP
- Nearly complete; 3rd gating event this week
- Certification will be executed by any CSEP Sponsor with the authority to qualify test laboratories to perform certifications according to the Test Materials. Qualified test houses will be able to certify equipment and use Consortium certification mark(s) to denote SEP 2 interoperability.

How to participate

- If your industry group is interested in Sponsor membership in CSEP, please download and complete the questionnaire document: http://www.csep.org/media/uploads/documents/questionnaire_for_csep_sponsor_candidate_orgs.docx Also, please download and review the Sponsor Membership agreement and the rest of the CSEP governing documents:
- <http://www.csep.org/governing-documents/> Contact us via email at admin@csep.org to initiate the membership process or if you have any questions. *Note: the Consortium is not open to individuals or commercial corporations.*