

# **Smart Grid Advanced Metering Annual Implementation Progress Report**

## **ATTACHMENT 3**

### **HAN Device Interoperability**



## HAN Device Interoperability [Updated January 30, 2014]

Smart meters outfitted with Silver Spring Communications Modules support connectivity to the customer's Home Area Network (HAN) through the ZigBee Smart Energy Profile specification. Silver Spring tests devices that it resells to confirm end-to-end interoperability with the Communications Modules and other components of the Silver Spring Smart Energy Platform. In addition, the Silver Spring HAN Test Kit enables utilities and third-party device manufacturers to qualify ZigBee-based HAN devices as compatible with the Silver Spring Communications Modules and UtilOS™ firmware.

To date the following devices have been confirmed to interoperate with the Silver Spring platform:

Manufacturer	Device	Type	Device Firmware	NIC FW	Date Tested	Tested By
Carrier	Carrier Comfort Choice Touch Zigbee	HAN PCT	5.2.15	FW 2.16	04/01/2013	SSN
Energate	Energate LCS	HAN LCS	1.5.18.0	FW 2.14	11/15/2011	SSN
Energate	Energate PCT Z100 P2	HAN PCT	2.2.0.7	FW 2.16	04/01/2013	SSN
Energy Aware	PowerTab	HAN IHD	2.2.6	FW 2.16	06/12/2012	SSN
AlertMe		Consult with manufacturer				Manufacturer
Ambient Devices		Consult with manufacturer				Manufacturer
Bidgley		Consult with manufacturer				Manufacturer
Ceiva Logic		Consult with manufacturer				Manufacturer
ClipperCreek		Consult with manufacturer				Manufacturer
Converge		Consult with manufacturer				Manufacturer
Cooper Power Systems		Consult with manufacturer				Manufacturer
Digi		Consult with manufacturer				Manufacturer
Ecobee		Consult with manufacturer				Manufacturer
Efergy		Consult with manufacturer				Manufacturer
Emerson		Consult with manufacturer				Manufacturer
Energate (other)		Consult with manufacturer				Manufacturer
Intercel		Consult with manufacturer				Manufacturer
Intwine		Consult with manufacturer				Manufacturer
Jetlun		Consult with manufacturer				Manufacturer
LG Electronics		Consult with manufacturer				Manufacturer
Millenium Electronics		Consult with manufacturer				Manufacturer
MJ Innovations		Consult with manufacturer				Manufacturer
MMB Research		Consult with manufacturer				Manufacturer
Phasefale		Consult with manufacturer				Manufacturer
Rainforest Automation		Consult with manufacturer				Manufacturer
Schneider Electric		Consult with manufacturer				Manufacturer
Secure Together		Consult with manufacturer				Manufacturer
Tendril		Consult with manufacturer				Manufacturer
ThinkEco		Consult with manufacturer				Manufacturer



Frequently Asked Questions:

**Q: What level of testing does Silver Spring perform for devices confirmed to interoperate with the Silver Spring Networks platform?**

**A:** Silver Spring performs extensive testing of these devices to confirm they are interoperable with the Silver Spring platform. This testing includes:

- ZigBee Smart Energy Profile (SEP) 1.x interface to the Silver Spring Communications Module. This testing confirms that the devices, as appropriate, interoperate with the following SEP functionality: provisioning, messaging, Demand Response/Load Control (DRLC), pricing, simple metering, and over-the-air (OTA) upgrades.
- Testing using the UtilityIQ HAN Communications Manager back office software to verify end-to-end functionality across the Silver Spring network.

Silver Spring also performs a number of other tests including:

- Testing the end-user experience (e.g., whether the device is user friendly and provides information that is useful to consumers, how the device behaves if it loses connectivity for a prolonged period of time)
- Verifying the accuracy of all energy and cost information (e.g., correct cost calculations for TOU rates)

**Q: What level of testing does the manufacturer perform for devices and how does this level differ from Silver Spring-tested devices?**

**A:** Device manufacturers use the Silver Spring HAN Test Kit to validate basic ZigBee SEP interoperability between HAN devices and the Silver Spring Communications Module (NIC). The HAN Test Kit test procedures focus solely on protocol-level testing and do not verify other aspects of the HAN devices, such as their accuracy or user experience—elements for which Silver Spring does test.

**Q: Does Silver Spring validate or “certify” the manufacturer’s test results before adding the device to this list?**

**A:** No, Silver Spring does not validate the results and makes no claims as to the level of interoperability of manufacturer-tested device. For these details, please contact the manufacturer directly.

**Q: What is the HAN Test Kit?**

**A:** The Silver Spring HAN Test Kit is a test tool available to third-party device manufacturers for validating their HAN devices against the Silver Spring Communications Module (NIC). Silver Spring also provides the HAN Test Kit to utilities for lab interoperability testing.

The HAN Test Kit provides the following features:

- A structured environment for running existing tests and writing new ones;



- Support for testing HAN devices equipped with ZigBee security test certificates, production certificates, or no certificates;
- Sets of tests for provisioning, messaging, Demand Response/Load Control (DRLC), pricing, simple metering, and over-the-air (OTA) upgrades;
- A console application that can be used for experimentation and test development;
- Some simple command-line instructions that allow the tester to create DRLC, message, and price commands or obtain a summary of the HAN status tied to a particular meter (for example, radio status, network and link keys, joined devices, and cert type); and
- HTML reporting of test results (for suites).

**Q: Does Silver Spring provide a warranty that the devices on this list will operate as intended without any issues?**

**A:** Devices tested by Silver Spring and sold directly by Silver Spring carry Silver Spring's standard hardware warranty. Devices tested by the manufacturer are not covered by a Silver Spring warranty. The primary goal of both forms of device testing is to ensure a baseline level of compatibility and to resolve common issues that might arise in the field. Device testing significantly reduces, but does not eliminate, the possible risk of interoperability or other device issues.

Silver Spring continues to expand its ecosystem of technology partners and encourages suppliers to submit their devices for compatibility certification.