HAN Device Validation Program

March 31, 2015

Version 1.1 - May 15, 2015

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Introduction

Overview

This guide provides Home Area Network (HAN) device vendors and other stakeholders a comprehensive overview of Ameren Illinois HAN device validation program. This guide assumes the reader possesses a basic knowledge concerning HAN devices and the Smart Energy Profile (SEP) 1.1 requirements for HAN devices.

Please be aware that Ameren Illinois HAN device validation program is not a certifying body. Vendors may be subject to additional rules, regulations and requirements, including but not limited to those pertaining to consumer data and privacy and it is the vendors' responsibility to comply with those rules, regulations and requirements. The role of this program is to ensure that submitted HAN devices function within the requirements detailed in the SEP 1.1 specifications when operated on Ameren Illinois Advanced Metering Infrastructure (AMI) network.

Note: Due to the continuing evolution of the technology, this guide is subject to ongoing revision as Ameren Illinois modifies the validation program to accommodate and encompass new developments in both HAN devices and AMI technologies.

AmerenIL Advanced Meter Rollout

Ameren Illinois HAN validation program is part of Ameren Illinois Advanced Metering Infrastructure system. Ameren Illinois has deployed more than 44,000 advanced electric meters throughout its service territory at the end of 2014 and is on its way to deploying approximately 780,000 advanced electric meters by the end of 2019.

Ameren Illinois AMI network uses Landis+Gyr (L+G) Gridstream radio frequency (RF) advanced meters, routers, and collectors. These devices are ZigBee ® enabled, SEP 1.1 certified, and support HAN functionality.

Validation Assumptions

Ameren Illinois HAN validation operates under the following conditions:

- The validation process uses the most common L+G RF meters types with the most current and common production firmware
- The validation process is based on one HAN device at a time being connected to one AMI advanced meter (meter acts as the Energy Services Interface for the HAN device)
- Each HAN device submitted for validation should be supplied to Ameren Illinois at no cost. Two identical devices should be submitted.
- Vendors have tested inter-device interaction (HAN devices communicating only with each other via vendor protocols). Ameren Illinois does **not** normally validate vendor interaction between devices.

Accepted Device Types

Ameren Illinois validates the following HAN device types:

- In-home displays (IHDs)
- Programmable communicating thermostats (PCTs)
- Repeaters/range extenders
- Gateways (that do not act as ZigBee coordinators)
  Note: Gateways that act as a ZigBee coordinator cannot be validated because the device does not join to the AMI advanced meter when it is the coordinator
- Smart appliance devices
- Home Energy Managers (HEM)

These HAN devices are typically configured in one of two ways:

- Configuration 1: All HAN devices join to the AMI advanced meter and the gateway device may interact with a web portal or local computer software

AMI Advanced Meter

Web Portal /Software

ZigBee® Network

SEP Data and Commands

SEP Data and Commands

IP Communications

IHD

SEP Data and Commands

Gateway

Vendor Communication Network

Vendor Communication Network

PCT
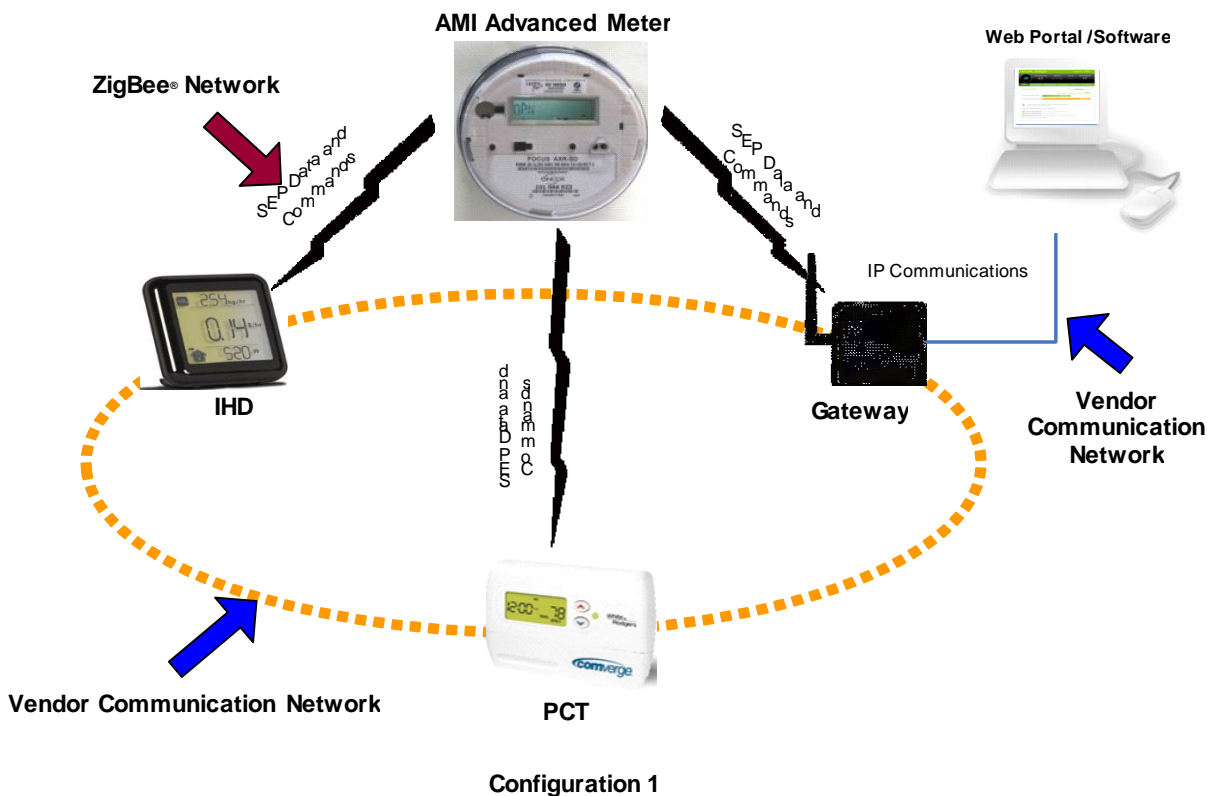
Configuration 1

Introduction, Continued

Accepted Device Types (continued)

- Configuration 2: A gateway device joins to the AMI advanced meter and other devices connect only to the gateway.   The gateway device may interact with a web portal or local computer software.
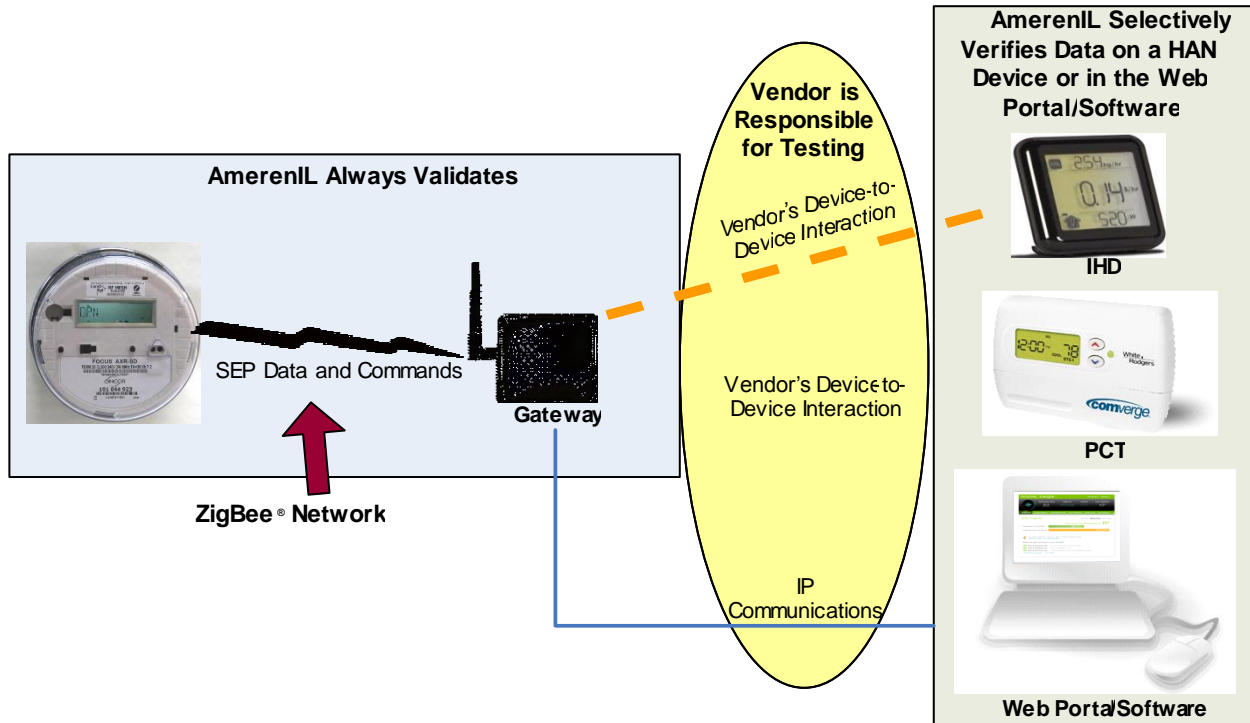
Configuration 2

Introduction, Continued

Validation Timeline	In general, the validation process typically takes approximately 18 business days per device from the **start of validation**.

The following factors can affect the validation timeline:

- How many devices are already in the validation queue when Ameren Illinois receives the vendor device
- How many times (if any) Ameren Illinois needs to contact the vendor for further information during validation
  Note: Vendors should provide documentation that includes provisioning/joining instructions, device reset instructions, software installation instructions (if applicable), portal URL (if applicable), portal/software User ID and password (if applicable), and portal setup steps (if applicable). Providing this documentation with the device prevents lost validation time from requesting the documentation from the vendor after validation begins.
- How many mandatory and optional clusters are being validated

***Note:*** Ameren Illinois validates devices individually to ensure that they join to the AMI advanced meter. |
| **HAN Device Resubmission** | If the HAN device fails any of the mandatory scripts, Ameren Illinois:

- Schedules a call to review the validation results with the vendor
- Provides script results and notes on what issues should be corrected (if known).

In the event that a firmware modification is required to resolve the issue, Ameren Illinois coordinates remote firmware delivery with the vendor. If remote delivery is not possible, or if the device hardware requires modification, Ameren Illinois returns the device to the vendor, along with the script results and notes on what issues should be corrected (if known)

Once the device corrections are complete and the vendor ensures that the device issue is resolved, the vendor resubmits the device using a new *Ameren Illinois HAN Device Submission Form*. When resubmitting, the vendor should check the "Yes" box for the "Are these devices being resubmitted to complete validation?" question. |

Introduction, Continued

HAN Device Revalidation

After completing initial Ameren Illinois validation, a HAN device should be revalidated when any of the following occurs:

- HAN device hardware changes
- HAN device firmware changes (minor or major)

If the vendor deploys an updated HAN device without sending it back through validation, Ameren Illinois is unable to support the device. Furthermore, Ameren Illinois considers the updated device to be invalidated.

To submit a HAN device for revalidation, complete another *Ameren Illinois HAN Device Submission Form*. Check "Yes" on the question that asks "Has the device been previously validated by Ameren Illinois?" and follow the submission process described in the *Device Submission* section on page 22.

Device Acquisition

Ameren Illinois provides an impartial device validation program and does not purchase devices or supporting equipment from vendors. Ameren Illinois does not charge for this service. Ameren Illinois provides this validation effort to ensure that HAN devices function in accordance with SEP 1.1 requirements on the Ameren Illinois AMI network. HAN device vendors should submit two identical devices for validation at no cost to Ameren Illinois. Ameren Illinois will retain these devices after initial validation to confirm Ameren Illinois' AMI system will continue to support these devices as AMI system upgrades or other changes are made.

List of Validated Devices

Ameren Illinois will provide a list of validated devices to customers through Ameren Illinois' website and residential customer portal after appropriate device registration processes and systems are in place.

Introduction, Continued

Process Flow   The following graphic illustrates Ameren Illinois validation program process flow:

Vendor Contacts AmerenIL (TAC) to Request HAN Device Validation

AmerenIL (TAC) ; Emails Validation Packet to Vendor

Vendor Reviews Materials and Ensures Devices Meet Submission Preferences and Requirements

Vendor Emails Completed Submission Form to AmerenIL (TAC)

Missing Data

AmerenIL (TAC) Validates Submission Form Content and Clears Device for Submission

Vendor Sends Devices to AmerenIL (TAC)

AmerenIL (TAC) Records Receipt of Devices and Places in Validation Queue

AmerenIL (TAC) Verifies Device Type and Determines which Mandatory and Optional Cluster Scripts to Run

AmerenIL (TAC) Runs Mandatory and Optional Cluster Scripts and Records Script Results

AmerenIL (TAC) Contacts Vendor for Input

Yes   Do Problems or Questions Arise?   No

Vendor Supplies Input

Does Device Pass All Scripts?

No

AmerenIL (TAC) Records Failure Details and Sends Results Back to Vendor

Yes

Remote Modification Possible?

Yes

AmerenIL (TAC) Sends Device Back to Vendor   No

Vendor Modifies Device Based on Failure Results and Verifies Device Will Pass Validation Scripts

AmerenIL (TAC) Records Scripts and Sends Results Back to Vendor

Vendor Returns the Device to AmerenIL (TAC) to Complete Validation

END

Device Technical Requirements

Overview   This section describes the technical and functional requirements necessary for HAN device submission to Ameren Illinois. These requirements include:

- MAC address and installation code (required)
- ZigBee SEP 1.1 certification (required)
- Production certificates (required)
- L+G interoperability testing (preferred)

MAC Address and Installation Codes   Each HAN device submitted to Ameren Illinois for validation must have a unique MAC address and installation code. These hexadecimal codes are used during key establishment and confirmation to set up the communication link between the HAN device and the AMI advanced meter.

Ameren Illinois prefers that the MAC address and installation codes are listed on the HAN device itself rather than the device packaging. This way, the MAC address and installation codes are always available to the customer.

ZigBee SEP 1.1 Certification   ZigBee Smart Energy is a leading standard for interoperable products that monitor, control, inform, and automate the delivery and use of energy. All ZigBee Smart Energy products are ZigBee certified to perform according to the SEP 1.1 specifications regardless of manufacturer. The ZigBee standard was custom-designed by industry experts to meet the specific market needs of businesses and consumers.

Before submitting the HAN device to Ameren Illinois for validation, be sure that it meets all SEP 1.1 requirements. If the HAN device will not provision because it does not have the ZigBee SEP 1.1 certification, Ameren Illinois returns the device to the HAN device vendor.

Note: If the device is not SEP 1.1 certified, contact ZigBee at http://www.zigbee.org or 1-925-275-6607.

Note: Vendors should indicate on the *Ameren Illinois HAN Device Submission Form* if their device has any SEP 1.1 functionality, and if so, which SEP 1.1 mandatory capability they have implemented.

Device Technical Requirements, Continued

Production Certificates

To submit a HAN device to Ameren Illinois validation program, vendors must have a Certicom Elliptic Curve Cryptography (ECC) certificate for each HAN device MAC address. The ZigBee Smart Energy Public Key Infrastructure (PKI) uses Elliptic Curve Qu Vanstone (ECQV) implicit certificates.

Each certificate binds a device MAC address and manufacturing identifier to an ECC key pair, allowing the device to authenticate itself to the network using its unique private key.

Note: If the device does not have production certificates, contact Certicom at http://www.certicom.com/index.php/regzigbee to register for "Production" certificates.

L+G Interoperability

Although **not** required, vendors are encouraged to have the HAN device tested with L+G to ensure interoperability with their equipment before submitting the device to Ameren Illinois. Since Ameren Illinois AMI program runs on L+G advanced meters and Gridstream RF network, confirming that the device is compatible with L+G technology increases the chance of success within Ameren Illinois HAN environment.

L+G provides interoperability testing that verifies that the HAN device works with L+G's network of advanced meters and collectors, including the Head End (Command Center). Contact John.Martin@landisgyr.com to obtain more information about L+G's interoperability testing.

Device Validation Process

Overview	This section describes how Ameren Illinois validates individual HAN devices and multiple devices in both configurations (refer to *Accepted Device Types* on page 4 for configuration details). Ameren Illinois validation methodology verifies that each HAN device is compliant with the technical specification for the ZigBee SEP 1.1 profile.

Ameren Illinois executes mandatory and optional cluster scripts to verify whether each device successfully passes the applicable scripts. Validation results are logged and maintained throughout the validation process.

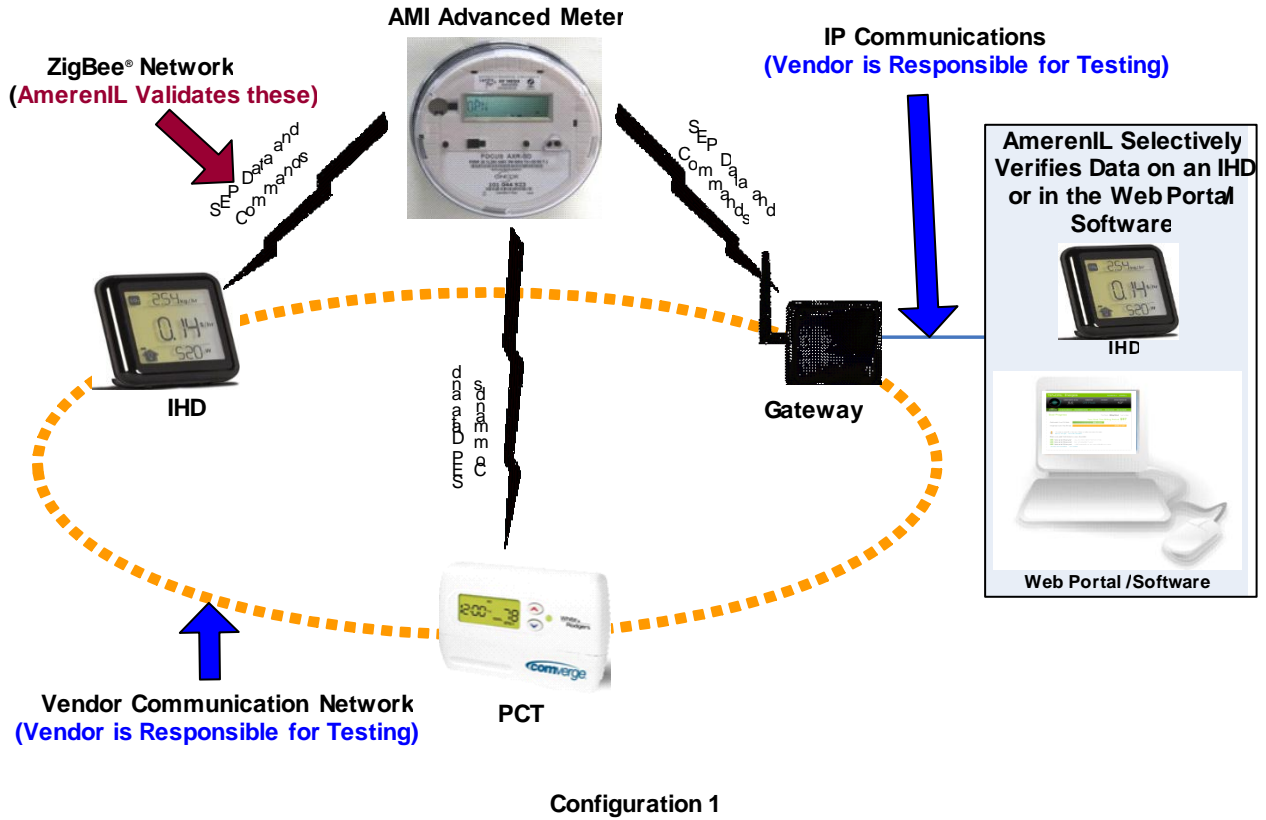|	
Device Validation	Ameren Illinois validates each HAN device by joining it to an AMI advanced meter running current and common production firmware and running the applicable mandatory and optional cluster scripts.

Note: Ameren Illinois does not validate portal or software operation/functionality. Ameren Illinois may interact with parts of the portal/software **only** to validate the cluster scripts involving device setup, and text, price, and load control messages.

For devices arranged like configuration 1 (see the figure on the next page), Ameren Illinois joins each device to the AMI advanced meter and runs the applicable cluster scripts. In selected instances only, in order to validate the clusters involving device setup and messages, Ameren Illinois may interact with parts of the web portal/local software or other HAN device to ensure device setup or message receipt and correct display.

Device Validation Process, Continued

AMI Advanced Meter

ZigBee® Network
(AmerenIL Validates these)

SEP Data and Commands

IP Communications
(Vendor is Responsible for Testing)

AmerenIL Selectively Verifies Data on an IHD or in the Web Portal Software

SEP Data and Commands

IHD

IHD

SEP Data and Commands

Gateway

Web Portal /Software

Vendor Communication Network
(Vendor is Responsible for Testing)
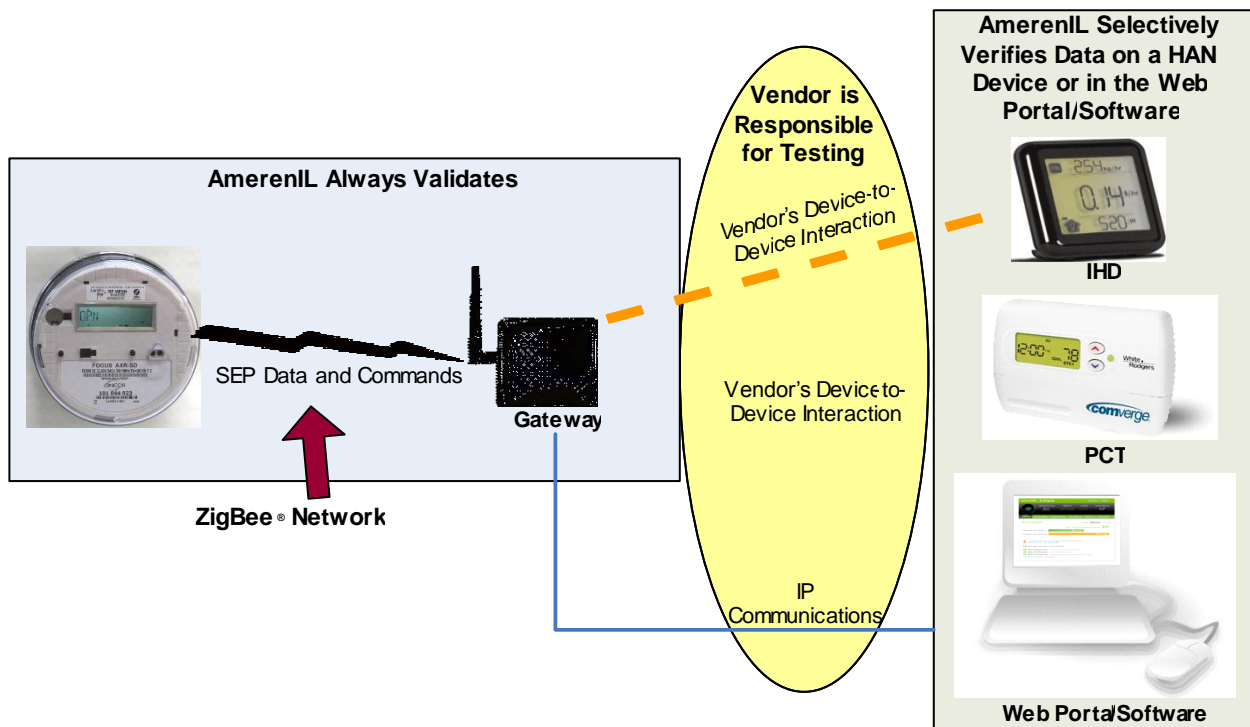
PCT

Configuration 1

Continued on next page

Device Validation Process, Continued

Device Validation (continued)

For devices arranged like configuration 2 (see the following figure), Ameren Illinois joins each device individually to the AMI advanced meter and runs all applicable clusters. In **selected instances only**, if the cluster scripts require that Ameren Illinois validate device setup in the portal/software, or message reception and presentation beyond the gateway, Ameren Illinois may interact with parts of the web portal/local software or other HAN device to ensure device setup, or message receipt and correct display.

Note: Vendors are expected to test device-to-device interaction. Ameren Illinois does **not** validate vendor interaction between devices.

Configuration 2

Device Validation Process, Continued

Pass/Fail Criteria

Ameren Illinois validation process provides a standardized method of verifying HAN device functionality to ensure that HAN devices meet SEP 1.1 and operate on Ameren Illinois AMI network.

Ameren Illinois HAN validation program runs all SEP 1.1 mandatory cluster scripts and optional cluster scripts, by device type, identified through HAN device service discovery. Ameren Illinois records all script results per scenario and provides specific feedback to the vendors as defined below.

Score	Description
Pass	The HAN device passes all mandatory cluster scripts (for that device type) and becomes an Ameren Illinois-validated HAN device.
Fail SEP	The HAN device fails one or more of the mandatory cluster scripts (for that device type). Ameren Illinois notifies the vendor and returns the device for modification. The vendor modifies the device, verifies that it can pass the mandatory cluster scripts, and returns it to Ameren Illinois to resume the validation process.

Mandatory and Optional Cluster Scripts

Overview This section describes the mandatory and optional cluster scripts that Ameren Illinois runs when validating a HAN device.

Ameren Illinois runs all mandatory cluster scripts required by the ZigBee SEP 1.1 protocol. Additionally, Ameren Illinois runs applicable optional cluster scripts for the specific submitted device.

Clusters The SEP 1.1 specification defines the following clusters for HAN devices, which are discussed in more detail later in this section.

Cluster	Description
Provisioning/Pairing	Joins the HAN device to the network. Includes the Key Establishment and Service Discovery validation.
Deprovisioning	Disconnects the HAN device from the network
Simple Metering	Verifies usage information received correctly from an AMI advanced meter
Time	Validates that the time on the device matches the time received from the AMI advanced meter
Price Signal Messages	Communicates pricing from the AMI advanced meter to the HAN device (NOTE – AIC does not plan on implementing the AMI system functionality to support the sending of pricing signals to the meter until after 2016, and only as an applicable external or internal pricing program requires such functionality.) However, AIC will confirm that the HAN device is capable of receiving pricing signals from the AMI meter to provide the foundation for future use.
Text Messages	Sends text messages from the AMI advanced meter to the HAN device(NOTE – AIC does not plan on implementing the AMI system functionality to support the sending of text messages to the meter until after 2016, and only as an applicable external or internal program requires such functionality.) However, AIC will confirm that the HAN device is capable of receiving text messages from the AMI meter to provide the foundation for future use.

Mandatory and Optional Cluster Scripts, Continued

Mandatory and Optional Clusters by Device Type

The SEP 1.1 protocol also determines which cluster scripts are mandatory for each HAN device type included in Ameren Illinois HAN validation program.

Ameren Illinois runs all mandatory scripts for a device type, along with the optional scripts that support any additional functionality that the device offers. For example, if the vendor submits an IHD that supports text messaging, Ameren Illinois runs the text-message cluster script, even though that cluster is optional for an IHD.

Cluster	HAN Device Type					
	IHD [1]	PCT	Smart Appliance Device	Repeater	Gateway	
Provisioning/Pairing	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	
Deprovisioning	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	
Simple Metering	Optional	Optional	Optional	Mandatory	Mandatory	
Time	Optional	Mandatory	Mandatory	Mandatory	Mandatory	
Price	Optional	Optional	Mandatory	Mandatory	Mandatory	
Text Messages	Optional	Optional	Optional	Mandatory	Mandatory	

Notes:

1. The device should have at least one of the optional client clusters (Price, Metering, or Messaging) must be implemented. At a minimum at least one of the following should be displayed: current energy usage, a history over selectable periods, pricing information, or text messages.

Additional Checking

In addition to mandatory and optional cluster scripts, Ameren Illinois checks the device for the following (may not impact the pass/fail status of the device):

- Does the device maintain a connection to the AMI advanced meter for 15 continuous days?

- Operating distance from the AMI advanced meter (not a pass/fail item)?

Mandatory and Optional Cluster Scripts, Continued

**Provisioning/
Pairing Cluster**

Provisioning is the process of joining the HAN device to the network. The HAN device must pass the Provisioning cluster, regardless of other device functionality.

During the Provisioning cluster script, the HAN device's 64-bit IEEE MAC address and installation code are sent to the AMI advanced meter. The HAN device and AMI advanced meter exchange ephemeral data that derives a trust link key between the HAN device and the network.

Cluster Scripts	Description
Key Establishment (Mandatory)	Validates key establishment, ephemeral data, and confirm key between the HAN device and the AMI advanced meter
Validate Service Discovery (Mandatory)	Service discovery determines which mandatory and optional clusters the HAN device supports. Using a simple descriptor request from the AMI advanced meter and a response from the device, service discovery validates the following, per device type:

Device	Mandatory Service Discovery Scripts
IHD	• Key establishment
PCT	• Key establishment • Time
Repeater	• Key establishment
Gateway	• Key establishment • Messaging • Pricing • Time
Smart Appliance Device	• Key establishment • Pricing
HEM	• Key establishment

Mandatory and Optional Cluster Scripts, Continued

Deprovisioning Cluster

Deprovisioning is the process of removing a HAN device from the network. All devices must pass this cluster.

Cluster Scripts	Description
HAN Device Deprovisioning (Mandatory)	Validates that the trust link key is removed from the HAN device. A leave management request packet is sent from the AMI advanced meter to the HAN device. The HAN device may or may not respond with a leave management response.

Simple Metering Cluster

All devices that support simple metering must pass simple metering scripts. This cluster involves retrieving usage information from an AMI advanced meter.

Cluster Scripts	Description
Current Summation Delivered (Mandatory)	Validates a read attributes request from the device and a response from the AMI advanced meter. This refers to acquiring the most recent summed up value of energy consumption.
Instantaneous Demand (Optional)	Validates that the HAN device shows instantaneous demand from the AMI advanced meter. This is the current energy consumed.
Information is Correct (Optional)	Validates that simple metering information is correct during and after 15 days
Outage less than 10 Minutes (Ameren Illinois Required)	Validates the HAN device behavior after an outage of less than 10 minutes.

Mandatory and Optional Cluster Scripts, Continued

Time Cluster

The Time cluster validates that the time on the device matches the time found on the captured report from the AMI advanced meter. Because time between the AMI advanced meter and the device needs to be synchronized, Ameren Illinois executes time as a mandatory cluster for devices that support time.

Cluster Scripts	Description
Time (Mandatory)	Validates that the device requests time and that the device time matches value in time read attributes response.

Price Signal Messages Cluster

The Pricing cluster provides the mechanism for communicating pricing to a HAN device. This cluster is only mandatory for devices that support pricing.

Cluster Scripts	Description
Price Event During One Tier (Mandatory)	Validates that the HAN device can receive a price change during one tier. *Expected results:* The price changes on the device and then reverts back to the original price after the message duration expires.
Get Current Price Command (Mandatory)	Validates that the HAN device has the ability to display the current electricity price. The device periodically sends a "get current price" command to the AMI advanced meter. *Expected results:* Meter firmware has hard coded values for this pricing field. A value of 0xFFFFFFFF indicates the field is not used.

Mandatory and Optional Cluster Scripts, Continued

Price Signal Messages Cluster (continued)

Cluster Scripts	Description
Alternate Cost Delivered (Optional)	Validates that the HAN device can display alternate costs. The optional "alternative cost delivered fields" are in the price event message.
	Expected results: The AMI advanced meter sends the price and the HAN device displays the alternate cost.
Generation Price Fields (Optional)	Validates that the HAN device can display generation price fields. The optional "generation price" fields are in the price event message.
	Expected results: The AMI advanced meter sends a publish price showing the generation price field and the HAN device sends a default response or APS acknowledgement.

Mandatory and Optional Cluster Scripts, Continued

Text Message Cluster

The Text Message cluster involves messages between the HAN device and the AMI advanced meter. All HAN devices shall handle 80 characters. HAN Devices that are not able to display all 80 characters either deliver the message in parts or only display part of the message. Nesting and overlapping messages are not allowed. Messaging rules vary by device type.

The first four validation clusters are mandatory to ensure the different priority levels function properly.

Cluster Scripts	Description
Character Text Messages (Mandatory)	Validates that the device can receive and display messages with various combinations of: • Special characters • Character length (25, 60, 75, 80) • Timeframe (Now, Future) • Priority (Low, Medium, High, Critical)
Future, Now, and In-Progress Messages (Mandatory for back-to-back messages, but not overlapping messages)	Validates that the device can handle back-to-back message scheduling of various timeframes: • A future text message followed by a text message that starts immediately • An in-progress message followed by one future text message
Message Confirmation – During and After Duration (Mandatory)	Validates that the message confirmation is processed correctly by the AMI advanced meter when it is set to true and acknowledged: • During message duration • After message duration
Get Last Message (Mandatory)	Validates that the device can retrieve and display the last message text sent by the AMI advanced meter
Get Last Message – In Progress, Future, and Not Active (Optional)	Validates that the device can get the last message command: • On a text message that is still in progress • On a text message that is scheduled for the future • When no text message is active or scheduled

Device Submission

Overview	This section describes how to submit HAN devices to Ameren Illinois for validation. Complete the applicable submission checklist in preparation to submitting an *Ameren Illinois HAN Device Submission Form*, which is provided separately. Then, follow the process for sending the HAN device.

Submission Checklist for HAN Devices	Use the following checklist to ensure that each device is ready to submit.

Yes	Description
☐	Does each HAN device have a MAC address and installation code?
☐	Is each HAN device SEP 1.1 certified?
☐	Does each HAN device have a production certificate?
☐	Is the requested cluster information for each HAN device provided in the *Ameren Illinois HAN Device Submission Form*?
☐	Are all applicable fields on the *Ameren Illinois HAN Device Submission Form* completely filled out? *Note:* Please fully complete an *Ameren Illinois HAN Device Submission Form* for each device being sent for validation. *Note:* Please verify that all firmware version numbers are correct. Also, if applicable, provide portal/software version numbers and ensure that the device firmware versions are compatible with the portal or software version. Ameren Illinois does **not** check for correct version numbers.
☐	Has the completed *Ameren Illinois HAN Device Submission Form* been e-mailed to TAC@ameren.com?
☐	Has Ameren Illinois cleared each HAN device for submission?
☐	When shipping the HAN device, did you include provisioning/joining instructions, device reset instructions, software installation instructions (if applicable), device/portal/software User ID and password (if needed), portal URL (if needed), and portal setup steps (if needed)?

Device Submission, Continued

Submission Process

Perform the following steps to submit a HAN device for Ameren Illinois validation:

Step	Action
1	Verify that the HAN device meets Ameren Illinois submission requirements as stated in the Submission Checklist for HAN Devices section on page 22.
2	Complete all applicable fields on the Ameren Illinois HAN Device Submission Form and return it by e-mail to TAC@ameren.com. *Note:* Please do not send the HAN device without first e-mailing a completed Ameren Illinois HAN Device Submission Form. Otherwise, Ameren Illinois cannot track the device. The device is not placed in the validation queue until a completed submission form is received.
3	Ameren Illinois receives the submission form and verifies that all required information is included. • If information is missing, Ameren Illinois contacts the vendor and requests the missing information. • The vendor sends the missing information by e-mail or best method.
4	Once Ameren Illinois confirms that they have received all needed information, Ameren Illinois clears the device for submission, contacts the vendor, and informs them that they can ship the HAN device. Two identical devices should be provided for each device being validation.
5	Vendor ships the HAN device to: Ameren Illinois Technology Applications Center (TAC) Attn: HAN Testing Coordinator 2001C Griffith Drive Champaign, IL 61820
6	Ameren Illinois receives the HAN device and places it in the Validation queue.
7	Ameren Illinois notifies the vendor when the HAN device enters the validation cycle.

Device Submission, Continued

Performance Feedback	Throughout the validation process, Ameren Illinois gathers and records feedback on the HAN device's functionality. If Ameren Illinois encounters an issue with the device, a representative contacts the vendor for input (refer to the *HAN Device Resubmission section* on page 6 for additional information about how to update a device and resubmit it to complete validation). Otherwise, at the end of the validation process, Ameren Illinois provides a copy of the detailed feedback and script-specific pass/fail results.
	If the submission includes a device that interacts with a web portal or local software, Ameren Illinois **only** checks the portal or software functions necessary to validate device setup and the applicable message cluster scripts (Price cluster, Text Messages cluster). If Ameren Illinois sees any issues with the web portal or local software messages, then Ameren Illinois provides feedback that describes the issues and provides suggested corrections.
Device Acceptance or Rejection	If the HAN device passes all mandatory cluster scripts, the device becomes part of Ameren Illinois list of validated HAN devices. Ameren Illinois will send the script results to vendor and retain the devices for continued validation as AMI system upgrades or other changes are made.

Appendix A: Sample Ameren Illinois HAN Device Submission Form

Note: This is a sample of the *Ameren Illinois HAN Device Submission Form* for submitting one or more devices for validation. Please complete a separate *Ameren Illinois HAN Device Submission Form* for each HAN device being submitted. Please do not use this sample form to submit HAN devices into the program.

Contact Information	
Vendor Name:	**Contact Name:**
Email:	**Phone:**

Submission Type							
What types of device are you submitting?							
IHD	☐	**PCT**	☐	**Gateway**	☐	**Smart Appliance**	☐
LCS	☐	**Repeater**	☐				

Device Certification				
Is the device SEP 1.1 certified?	☐	Yes	☐	No
Does the device have SEP 1.1 functionality **If yes, list the functionality:**	☐	Yes	☐	No
Does the device have production certificates? **(Each submitted device must have production certificates)**	☐	Yes	☐	No

Submission Information

1. Has this device passed L+G interoperability testing? (If yes, attach the results.)	☐ Yes	☐ No
2. Are there any known issues with this device? Explain:	☐ Yes	☐ No
3. Has this device been previously validated by Ameren Illinois? Explain:	☐ Yes	☐ No
4. Is the device being resubmitted to complete validation?	☐ Yes	☐ No
5. Is the documentation included with this device? If no, provide provisioning/joining instructions, device reset instructions, software installation instructions (if applicable), device/portal/software User ID and password (if needed), portal URL (if needed), and portal setup steps (if needed).	☐ Yes	☐ No

Device Information

Device Type:	Select one	Firmware Version:	
Model Name/Number:		Sleepy Device?	☐ Yes ☐ No
MAC Address:		Install Code:	
Submission Date:			

If the Device is a Gateway…

Web Portal?	☐ Yes ☐ No	Portal Version:	
User ID:		Password	
Software?	☐ Yes ☐ No	Software Version:	
User ID:		Password	

Compliance with Standards and Regulations Related to Consumer Privacy:

The vendor agrees to comply with all applicable federal, state and local laws and regulations pertaining to the receipt of customer-specific information and data in connection with any validated device.	☐ Yes ☐ No

Note: All device firmware revisions must be compatible with the portal or software versions listed above.