SP100.11a Overview
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About ISA

• An international nonprofit member association of 30,000+ automation professionals engaged in the design, development, production, and application of devices and systems that sense, measure, and control industrial processes and manufacturing operations.

• Provides professional education and training, certification, conferences and exhibits, and book and journal publications.

• Accredited by the American National Standards Institute (ANSI) to develop industry standards in key areas including process safety, control system cyber security, enterprise-control system integration, engineering documentation, and wireless systems for automation (ISA-SP100).

ISA SP100 Positioning

- More than SP100.11a
- SP100.11a is the first of a family of standards for multiple industrial applications
- More than just process industries
  - Balance of Plant – real time monitoring
SP100.11a Relative to Wireless HART

- WiHART ONLY standardizes wireless transmission of HART messages
- SP100.11a supports multiple protocols via single wireless infrastructure:
  - HART, Profi, Mod, FF, etc.
- SP100.11a supports performance levels that enable some factory automation applications, not just process.
- SP100.11a is developed by an open user influenced standards body following ANSI accredited procedures.
SP100.11a Relative to ZigBee

- SP100 is industrial strength
  - Reliability (enhanced error detection, frequency hopping)
  - Predictability (TDMA, Quality of Service levels)
  - Security (designed with FIPs in mind)
- SP100.11a is optimized to allow sensor flow to higher network levels
- SP100.11a defines a complete industrial wireless sensing architecture
- SP100.11a supports multiple industrial protocols via single wireless infrastructure:
  - HART, Profi, Mod, FF, etc.
- SP100.11a supports performance levels that enable some factory automation applications, not just process
- SP100.11a is developed by an open user influenced standards body
- Like ZigBee SP100.11a is also optimized for long battery life applications and also supports battery powered routers.
SP100.11a Versus Proprietary Wireless

- Interoperability
- Open
- Developed in an ANSI-accredited open process by Industry leaders
- Maintained by ISA
- Multiple Silicon Suppliers, Multiple Software providers
- Technical growth path with ever reducing costs and increasing capabilities
SP100.11a Basic Network

Field Device
- Full-Function Device
- Reduced-Function Device

Backbone Device
- B Backbone Router
- G Gateway

Route 1
Route(s) 2...n

Low Latency Device (e.g., alarm)
- L

Handheld Device
- H

Control System

GNS
- Live
- Synchronization messages
- Backup

Plant Network

ISA SP100.11a Preliminary Information

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SP100.11a with Bridges
SP100.11a Stack

[Diagram showing the SP100.11a stack with nodes, routers, and gateways, with flows indicated by arrows from SP100.11a network to SP100.11a messaging to Plant network.]
Release 1 Schedule

<table>
<thead>
<tr>
<th>Task Name</th>
<th>1st draft Principles of Operation</th>
<th>Complete Principles of Operation</th>
<th>Preliminary Draft SP100.11a</th>
<th>Letter Ballot</th>
<th>Comment period</th>
<th>1st recirculation</th>
<th>2nd recirculation</th>
<th>SP100 Letterballot</th>
<th>Demonstration</th>
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SP100.11a Release 1 Will…..

• Be an open standard for anyone to implement and deploy
• Be simple to use and deploy for end users
• Be focused on:
  – serving process industry applications without excluding factory automation
  – in-plant/near-plant
  – global deployment
• Provide technology to address Class 1 (non-critical) to Class 5 applications such as monitoring
• Assure multi-vendor device interoperability
• Have a draft standard ready for work group balloting by October, 2007
• Include only 2.4 GHz 802.15.4-2006 radios
• Adhere to a comprehensive coexistence strategy
• Use channel hopping to support co-existence and increase reliability
• Use a single application layer providing both native and tunneling protocol capability for broad usability
• Provide simple, flexible, and scaleable security addressing major industrial threats leveraging 802.15.4-2006 security
• Offer field device meshing and star capability
SP100.11a system architecture will:

• Include provisions to accommodate alternate Phys in future releases
• Support factory automation applications
• Support low latency applications
• Not preclude low cost implementations over the life cycle of the intended deployments
We Value Your Input

• Questions on ISA-SP100?

• Ideas / Suggestions?

• To get involved, contact:
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