IEC SC65C: INDUSTRIAL NETWORKS

Wireless for the Industry

Bernard DUMORTIER – IEC TC65 & SC65C Secretary
AGENDA

- IEC SC65C: SCOPE AND WGs ACTIVITY
- WIRELESS RESOLUTION – TOKYO MAY 2008
- OTTAWA MEETING – JULY 2008
- SWISS NC WIRELESS HART INITIATIVE
- OTHER WIRELESS INITIATIVES
- RESULTING ORGANIZATION TO ACHIEVE WIRELESS STANDARDIZATION
IEC SC65C: SCOPE and WGs ACTIVITY
SC65C SCOPE

- Prepare international standards on **wired**, **optical** and **wireless** industrial networks for industrial-process measurement, control and manufacturing automation, as well as for instrumentation systems used for research, development and testing purposes.

- Include cabling, interoperability, co-existence and performance evaluation.
### IEC 61158: FIELDBUS SPECIFICATION
- TR 61158-1: Overview and guidance
- 61158-2: Physical Layer service and protocol
- 61158-3-t: Data Link Layer service
- 61158-4-t: Data Link Layer protocol
- 61158-5-t: Application Layer service
- 61158-6-t: Application Layer protocol

### IEC 61784: FIELDBUS PROFILES
- 61784-1: Fieldbus Profiles
- 61784-2: Fieldbus Ethernet profiles for Real-Time

### MRD: DEC 2012
- Amendment: MCR to be published

### Last meeting: December 8-12, 2008 – Pusan
SC65C WORKING GROUP ACTIVITY (2)

- **IEC 61918:**
  INSTALLATION OF COMMUNICATION NETWORKS IN INDUSTRIAL PREMISES

- **IEC 61784-5 CPF:**
  INSTALLATION OF FIELDBUSES - PROFILES
  - 661784-5-2: CIP
  - 61784-5-6: INTERBUS
  - 61784-5-11: TCNET
  - 61784-5-3: PROFIBUS
  - 61784-5-10: VNET/IP
  - 61784-5-12: ETHERCAT
  - 61784-5-14: EPA
  - 61784-5-15: MODBUS

- Joint with JTC1 /SC25 / WG3
- MRD: DEC 2010
- MCR: 65C / 493 and 65C / 494
- New CPFs: 65C / 516A / CD
  - 661784-5-4: PNET
  - 61784-5-14: EPA
  - 61784-5-12: ETHERCAT
  - 61784-5-15: MODBUS
SC65C WORKING GROUP ACTIVITY (3)

- IEC 61784-3:
  FUNCTIONAL SAFETY FIELDBUSES - GENERAL RULES AND PROFILE DEFINITIONS

- IEC 61784-3-CPF:
  ADDITIONAL SPECIFICATIONS FOR CPF
  - 61784-5-1: FF
  - 61784-5-3: PROFIBUS
  - 61784-5-2: CIP
  - 61784-5-6: INTERBUS

- MRD: DEC 2010
- MCR: 65C / 492

- Potential New CPFs:
  - 61784-5-8: CCLINK
  - 61784-5-12: ETHERCAT
  - 61784-5-13: POWERLINK
  - 61784-5-14: EPA

- Next meeting: July or August 2009 – Europe
SC65C WORKING GROUP ACTIVITY (4)

- **IEC 61784-4:** Profiles for Secure Communications in Industrial Networks

- **WG is waiting for input from TC65 / WG10:**
  - **IEC/TS 62443-1:** Terminology, concepts and models, corresponding to ISA S99.00.01 - pub TS 2009/03
  - **IEC 62443-2:** Establishing an industrial automation and control system security program, identical to ISA S99.00.02 - pub IS 2009/12
  - **IEC 62443-3:** Operating an industrial automation and control system security program, identical to ISA S99.00.03 - pub IS 2011/03
  - **IEC/TS 62443-4:** Technical security requirements for industrial automation and control systems, identical to ISA S99.00.04 - pub TS 2010/11
  - **IEC/TR 62443-5:** Security technologies for industrial automation and control systems, corresponding to ISA TR99.00.01 - pub TR 2009/01
SC65C WORKING GROUP ACTIVITY (5)

- **IEC 61439:**
  - HIGH AVAILABILITY AUTOMATION NETWORKS
  - 62439-1: General concepts and calculation methods (Including RSTP)
  - 62439-2: Media Redundancy Protocol (MRP)
  - 62439-3: Parallel Redundancy Protocol (PRP) and High availability Seamless Ring (HSR)
  - 62439-4: Cross-network Redundancy Protocol (CRP)
  - 62439-5: Beacon Redundancy Protocol (BRP)
  - 62439-6: Distributed Redundancy Protocol (DRP)

- 65C / 519 / CDV
- Next meeting: March 31 - April 2 – Korea
I EC 62591: INDUSTRIAL NETWORKS: WIRELESSHART COMMUNICATION AND PROTOCOL

- Kick-Off meeting: February 17, 2009 – Lausanne

- Other specifications are expected
WIRELESS RESOLUTION
TOKYO MAY 2008
Resolution taken in Tokyo by SC65C and endorsed by TC65:

Resolution #5 (agenda item #13)

TC65 endorses the resolution of SC65C to appoint the chairman of SC65C to establish an adhoc group to examine and define a potential role for SC65C in the area of industrial wireless standardization.

Yes: unanimous

Meeting in Ottawa on July 21-22 with the following objective:

1. To ensure that SC65C Officers are informed about areas of ongoing wireless standardization which should be considered when establishing an SC65C strategy.
2. To identify any potential gaps in standardization which will impair the adoption of appropriate wireless technology by industry.
3. To identify those parties with special interest in wireless standards, for example who may be contemplating the submission of new work proposals within the scope of SC65C.
4. To identify other organizations, including other standards organizations, with which liaison arrangements should be considered to support an SC65C wireless standards strategy.
5. To solicit suggestions on candidate SC65C strategies.
OTTAWA MEETING
JULY 2008
### Ottawa: Attendees

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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Mike MONTREUIL</td>
<td>CA</td>
<td>Research Council Canada</td>
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<tr>
<td>Tony CAPEL</td>
<td>CA</td>
<td>SC65C Chairman</td>
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<tr>
<td>John VISSER</td>
<td>CA</td>
<td>Nortel</td>
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<tr>
<td>Justine SIDER</td>
<td>CA</td>
<td>Industry Canada / Spectrum Mngt</td>
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<td>Josette GALLANT</td>
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<td>Hans-Joachim GELKE</td>
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<td>Kei MEI</td>
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<tr>
<td>Cristoph WEILER</td>
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<tr>
<td>Bernard DUMORTIER</td>
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<td>Valerie DEMASSIEUX</td>
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<td>Rudy BELLIARDI</td>
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<td>Martin ZIELINSKI</td>
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<td>Emerson</td>
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<td>Ron HELSON</td>
<td>US</td>
<td>Hart Foundation</td>
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Bernard Dumortier – IEC TC65 and SC65C Secretary
The “Process Automation” WG would address the existing and upcoming proposals for wireless technology for process automation.

The “Factory Automation” WG would address the need for a wireless standard for factory automation applications. Currently no technical specification suitable for this application area has been identified. This WG will outreach to the factory automation community to identify appropriate technology to address this need.

The “Wireless Coexistence” WG would address the fair sharing of the radio capacity and spectrum while maintaining the required performance levels. It was recognized that industrial applications will place higher demands on the use of currently shared ISM bands and better coordination of the radio equipment in the industrial environment.
## OTTAWA: 65C/509/Q RESULT

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11 countries having not participated at Ottawa meeting have cast a negative vote
SWISS NC WIRELESSHART INITIATIVE
### 65C / 506A / PAS

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> **IEC PAS 62591**  
*Editing stage: BPUB (Publication Being Printed)*

### 65C / 507A / NP

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> **APPROVED**  
*RVN published on December 15*
OTHER WIRELESS INITIATIVES
OTHER INITIATIVES: CN-NC, ISA SP100 ...

- **65C / 511 / PAS**

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→ IEC PAS 62601  Editing stage : BPUB (Publication Being Printed)

- Expected PAS from SP100-11a.

- Expected NP on “Wireless spectrum and Co-ordination”.

Bernard Dumortier – IEC TC65 and SC65C Secretary
RESULTING ORGANIZATION TO ACHIEVE WIRELESS STANDARDIZATION
Rationale to achieve with a consensus (1):

- Wireless domain is different from the classical wire industrial implementation, and experts, at least for layers 1 and 2, are not the same.

- Process Automation and Factory Automation have different requirements.

- Wireless technologies being quickly evolving require shorter maintenance cycles.

- Coexistence WG will take into account all the requirements including those external to SC65C scope.

- Specific liaisons with other organizations are expected.
Rationale to achieve with a consensus (2):

- Comments done by National Committees – CA, ES, FR, GB, JP, US – having not supported 65C / 507A / NP “are willing to support the project of WirelessHART if resubmitted in accordance with the approach described in 65C / 509 / Q”.

- There is a clear support from P_members for WirelessHART but not on the proposed approach for its final standardization – The PAS is approved.
How organization was led:

- based on:
  1. Respect the wish of WirelessHART proposers to do it quickly.
  2. Acknowledge that wired expert community is different of wireless expert community.
  3. Try to follow the spirit of Ottawa resulting from the key players participating at the meeting.

- with pragmatism:
  1. A new WG16 is established to expedite the standardization of WirelessHART in accordance with the approved NP.
  2. Project teams or alternate WGs are established dedicated to addressing factory automation and coexistence.
THANK YOU

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