

Proposal # : P1451.5-Prop7.pdf

Propose to use PPP for 1451.5

**Presented by 3eTI
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Basic Concept

- Wireless sensor and interface should be simple, low power and low-cost driven.
- To avoid complexity of standard work, dot5 should specify type of sensor data and their associated levels of QoS. For example:
 - ✓ Asynchronous, synchronous, etc.,
 - ✓ Packet size
 - ✓ Best effort
 - ✓ Time (delay) sensitive delivery
 - ✓ Error rate sensitive delivery
- QoS parameters need to be negotiated and mapped at PHY/MAC level.
- Beside 802.11e, HPNA v3, IEEE 1394 and UWB, no QoS in HPNA 2.0, Bluetooth nor Zigbee wireless.

We recommend

- Reuse exist standardized communication protocols and not try to redefine established standards especially the TCP/IP based protocols.
- To work with industry standardization groups (IEEE, IETF, Bluetooth, etc.,) to address 1451 specific requirements.

- Use protocol encapsulation technique (PPP) to transport 1451 data over different wireless medium e.g., PPP over Bluetooth and PPP over 802.11/15.
- Use PPP to negotiate data payload and QoS parameters across wireless link. For example:
 - Payload type
 - Compression and security includes authentication and encryption methods
 - QoS (delay and link quality)
 - Network address (e.g., IP) assignment
- Work with Bluetooth SIG and IEEE 802.11e on QoS
- Study IEEE 1394 QoS mechanism

The Point-to-Point Protocol (PPP) provides a standard method for transporting multi-protocol datagrams over point-to-point links. PPP is comprised of three main components: 1. A method for encapsulating multi-protocol datagrams. 2. A Link Control Protocol (LCP) for establishing, configuring, and testing the data-link connection. 3. A family of Network Control Protocols (NCPs) for establishing and configuring different network-layer protocols.

“ The PPP encapsulation provides for multiplexing of different network-layer protocols simultaneously over the same link. “

Protocol | Information | Padding |

Protocol field values in the "0***" to "3***" range identify IEEE 1451 protocol of specific packets. Use Link Control and Network Control to negotiate link and network protocols.

The maximum length for the Information field, including Padding, but not including the Protocol field, is termed the Maximum Receive Unit (MRU), which defaults to 1500 octets.

It is the responsibility of each protocol to distinguish padding octets from real information

PPP over various communication medium

- PPP (1451) over serial link
- PPP (1451) over HPNA
- PPP (1451) over Bluetooth
- PPP (1451) over 802.15.4
- PPP (1451) over 802.11b/a/g

Keep PPP (1451) local

