Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Response to ETSI TC/ERM change request on IEEE 802.15.4e]

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Re: [15-13-0220-02-0000 response.]

Abstract: [Position of Ludwig Winkel to the ETSI TC/ERM change request on IEEE 802.15.4e]

Purpose: [Amendments to IEEE 802.15.4 MAC]

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Response to ETSI TC/ERM change request on IEEE 802.15.4e

Position of Ludwig Winkel

Making Ranges of Identifiers Available for Allocation to External SDOs?

- Identifiers for frame types and information elements are amongst the precious and scarce resources of a protocol specification and shall be assigned efficiently.

- Identifiers have to be assigned in the SDO specifying the „identifier field" in order to have an efficient usage of the identifier range

- Allocation of a range of identifiers to an external SDO
  - is rendering this range of identifiers lost to IEEE 802.15.4
  - might restrict the identifiers to a region or a specific market

- Proposal:
  - Do not reserve big blocks in advance for SDOs.
  - Allocation of identifiers for an external SDO and specification of the formats of these frames / information elements within the usual, open IEEE 802.15.4 amendment process initiated by the external SDO as early as possible.

Further Frame Types
and Information Elements?

- IEEE 802.15.4-2011 and IEEE 802.15.4e-2012 specify extensible schemes for more or less every desired type of frame and information
  - MAC Command frame can be extended with new management frame types
  - Information elements can provide almost any information
  - Multi-purpose frame
- Proposal
  - ask ETSI to accommodate their further frame types and information elements by the currently existing extension mechanisms of IEEE 802.15.4-2011 and IEEE 802.15.4e-2012, for instance, by allocating a new Command Frame Identifier and specifying the format of the corresponding MAC command frame within an IEEE 802.15.4 amendment.

Unmanaged Information Elements?

ETSI TC ERM request: „…, the Unmanaged address space for Information Elements does not provide the necessary guarantees for ETSI to use this range of identifiers for its data structures."

- Std. IEEE 802.15.4e-2012: Distinction of Information Elements in the unmanaged space is done by having multiple unmanaged element IDs (stochastical uniqueness)

- → this is not "unique enough" for a specification building on the unmanaged space

- Proposal:
  - require the OUI to be the first information field in the payload of an Unmanaged IE.
  - Each vendor or SDO can than specify its information elements in the scope of its OUI in a unique way as an unmanaged IE.
  - The risk of matching legacy defined company codes is the same as without this definition, but solves the problem for the future.