SCHC over Sigfox
draft-zuniga-lpwan-schc-over-sigfox-03
draft update and discussion about ACK-on-Error mode

Authors:
Juan Carlos Zuniga <juancarlos.zuniga@sigfox.com>
Carles Gomez Montenegro <carlesgo@entel.upc.edu>
Laurent Toutain <laurent.toutain@imt-atlantique.fr>
Network architecture
  - Equivalences

Added more details about
  - SCHC Rules parameters and usage
  - Fragmentation parameters (e.g. Values, Timers)

Clarifications and some operation details on different fragmentation modes still needed on baseline SCHC draft
  - (Next slides)
No-ACK

The baseline SCHC draft assumes FCN=1-bit (e.g. N=1) for the No-ACK mode.

**Proposal:** relax/clarify the specification so that N>1 is clearly allowed.

For the SCHC over Sigfox draft we see value in using N>1 for the No-ACK mode.
ACK-on-Error

Our studies show that there is a situation where either a single lost All-0 fragment, or a lost SCHC ACK, would create a complete loss of session.

This is due to the fact that the baseline SCHC draft mandates aborting the session when a W bit out-of-sync is received.

**Proposal:** Allow for the ACK-on-Error mode to keep the last two windows. This way the receiver can request any lost fragment from the previous window and the sender can retransmit it.

The probability of a real out-of-sync with the W bit can be minimized with a relatively larger window size, e.g. 15 (N=4).
ACK-on-Error – Current Behaviour

Sender

\[
\begin{align*}
W=0 & \quad \text{or} \quad W=1 \\
\end{align*}
\]

Receiver

- All-0 frag, W=0
- SCHC ACK, W=0
- Abort
ACK-on-Error
Proposed

Sender

W=0

All-0 frag, W=0

or

SCHC ACK, W=0

W=1

Resend SCHC ACK, W=0

with missing frag(s)

SCHC ACK, W=0 (e.g. complete)

Receiver

Retransmit missing frag(s), W=0

SCHC ACK, W=0 (e.g. complete)

(Resume ACK-on-Error)

ACK Req for W=1 (empty All-0)