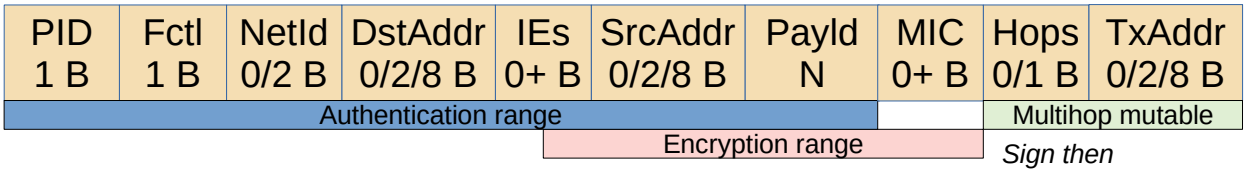
Heymac link layer frame format

draft 4.0 2020/11/26

Heymac Frame



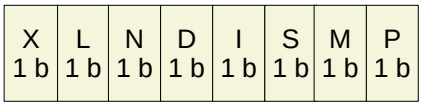
PID: Protocol ID (1B). See below for details
Fctl: Frame Control. See below for details.
NetId: Network **Id**entifier. Exists if Fctl's N bit is set.
DstAddr: **Des**tination **Addr**ess. 0, 2 or 8B address. Exists of Fctl's D bit is set.
IEs: Header and Body Information Elements. Exists if Fctl's I bit is set.
SrcAddr: **S**ou**rc**e **Addr**ess. 0, 2 or 8B address. Exists of Fctl's S bit is set.
Payld: Payload (0 .. 253 octets; entire frame must not exceed 255 octets).
MIC: Message Integrity Code (size depends on algorithm which is specified in IE).
Hops: wireless subnet hops remaining (0 or 1B). Exists if Fctl's M bit is set.
TxAddr: Re-transmitter's address. Exists if Fctl's M bit is set.

PID field:

PID: Protocol ID: an 8-bit pattern to identify the frame's protocol.
HeyMac claims the range 8b111XXXXX to distinguish from LoRaWAN and 802.15.4-2015 MAC header (MHR).

Bit pattern	Protocol
1110 00vv	HeyMac TDMA, major (vv)ersion
1110 01vv	HeyMac CSMA, major (vv)ersion
1110 1xxx	HeyMac (RFU)

Fctl field:



X: Extended:
- 0: Fctl bits and HeyMac fields as described here.
- 1: Remaining Fctl bits are Extended Frame ID (rest of frame is unique).

L: Long Addressing: all present address fields are:
- 0: 2 octets (16b).
- 1: 8 octets (64b).

N: Net ID present
D: Dst Addr present
I: IE(s) present
S: Src Addr present
M: Multihop: Hops and TxAddr fields are present.
P: Pending frame: 1: another frame immediately follows this one.