I noticed, now that LLC block parsing has been improved in wireshark [1], that osmo-pcu tends to send lots of RLCMAC blocks with 2 LLC fragments, specially in CS2 & upwards.

This 2nd LLC data fragment can be identified because it contains:

Frame 33759: 94 bytes on wire (752 bits), 94 bytes captured (752 bits)
Linux cooked capture v1
Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
User Datagram Protocol, Src Port: 59082, Dst Port: 4729
GSM TAP Header, ARFCN: 866 (Downlink), TS: 5, Channel: PDTCH (0)
GPRS DL DATA (CS2)
\[Length: 29\]

- **Data**: 43c0012b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b2b <--- Padding filling what's left of the remaining space

Apparently it sends it when the end of the current LLC PDU is finished in current rclmac DL data block and there's still some space left.

This kind of frame is actually documented, but AFAIU it's being used in a wrong way. It should not be used in this kind of scenarios, but in others explained by the spec.

In this kind of scenarios AFAIU we should be simply sending 1 data block, followed by filling padding until the end.

The use of LLC UI Dummy commands is documented in:

- **3GPP TS 44.060** version 16.0.0 "9.3.1a Delayed release of downlink Temporary Block Flow"
  https://www.etsi.org/deliver/etsi_ts/144000_144099/144060/16.00.00_60/ts_144060v160000p.pdf

- **3GPP TS 44.064** version 16.0.0 "6.4.2.2 Unconfirmed Information (UI) Dummy command"
  https://www.etsi.org/deliver/etsi_ts/144000_144099/144064/16.00.00_60/ts_144064v160000p.pdf

In my understanding, current behavior is not strongly bad, but it doesn't server any purpose sending those since they are simply...
The situation is even worse because counter CTR_RLC_DL_PAYLOAD_BYTES which is supposed to count RLC DL Payload bytes is counting all those forged LLC dummy frames, which means the counter values makes not much sense from someone expecting it to roughly match amount of data received at the Gb side of osmo-pcu.

#2 - 11/27/2020 04:56 PM - pespin
- Status changed from New to In Progress
- % Done changed from 0 to 70

LLC UI dummy frames are not sent anymore together with other llc frames in same rlcmac block thanks to this patch: https://gerrit.osmocom.org/c/osmo-pcu/+/21387

#3 - 11/30/2020 07:42 PM - pespin
- Status changed from In Progress to Feedback
- % Done changed from 70 to 90

I submitted TTCN3 test cases to make sure we are not sending them and that we add the padding LI=127 in EGPRS. https://gerrit.osmocom.org/c/osmo-ttcn3-hacks/+/21419

#4 - 12/09/2020 12:42 PM - pespin
- Status changed from Feedback to Resolved
- % Done changed from 90 to 100
Merged, closing ticket.