

Date: 24-09-2025

Technical Support Request: Issues with BQ7697204 AFE via SPI

Host Microcontroller: STM32U535RET6

SPI Clock Frequency: 1.25MHz

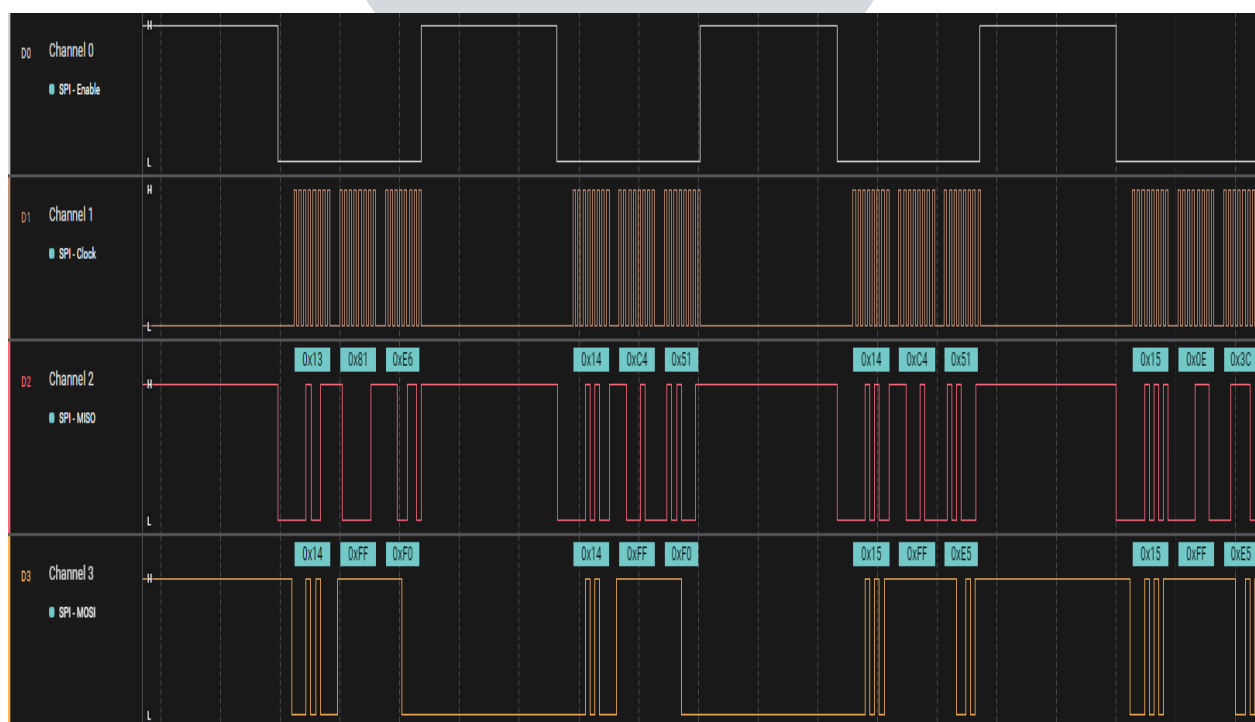
1. CRC Failed Frames During Cell Voltage Readings

Issue:

A large number of CRC failed frames are observed while reading cell voltages. To avoid abnormal readings, these frames are currently being ignored. However, this raises a concern regarding the root cause of frequent CRC failures.

SPI Transaction Example Implementation Details:

- Commands used: **0x14** and **0x15** to fetch the 16-bit cell voltage value.
- The transaction sequence followed:
 1. Send command **0x14**, followed by dummy byte **0x00**, and CRC of the first two bytes using the transmit–receive function.
 2. Apply a delay of 800 μ s.
 3. Repeat the same transaction to receive the first 8 bits of the reading from the MISO pin.
 4. Repeat with command **0x15** in the same sequence to obtain the full 16-bit value.
- After reception, the host controller verifies the received frame's CRC for data integrity.

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Observed Behaviour:

- High frequency of CRC failures.

Expected Behaviour:

- Reliable CRC-passed frames during all SPI transactions for cell voltage reads.

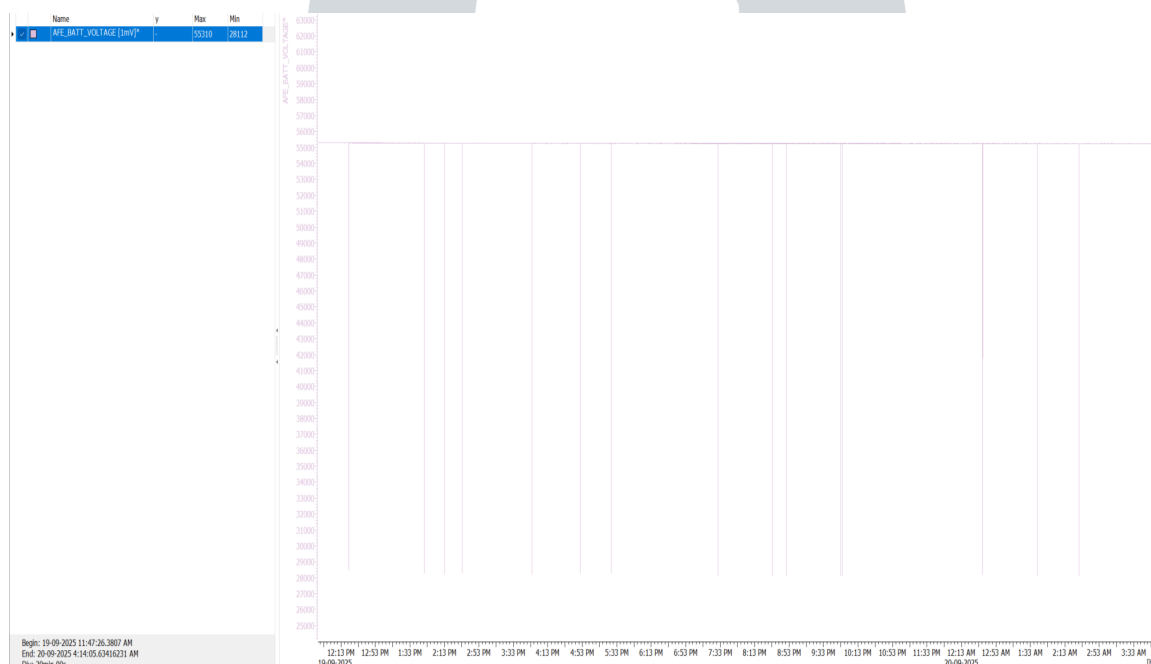
2. Abnormal Battery Voltage Readings

Issue:

Battery voltage readings obtained through commands **0x34** and **0x35** show abnormal/unrealistic values even in CRC-passed frames.

Observed Behaviour:

- Multiple samples report the battery voltage dropping to **28112 mV**, which is not realistic.
- This behaviour makes the data unreliable, despite CRC validation.



Expected Behaviour:

- Accurate and stable battery voltage values across all samples when using **0x34** and **0x35**.

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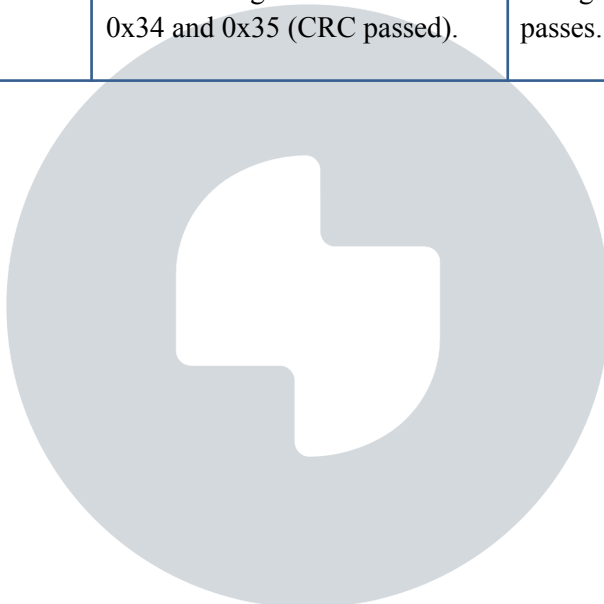
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Summary of Issues

Issue	Expected Behavior	Observed Behavior
CRC Failed Frames	Reliable CRC-passed frames during SPI transactions for cell voltage reads.	A large number of CRC failed frames, requiring frame drops to avoid abnormal readings.
Abnormal Battery Voltage Readings	Accurate battery voltage values when reading with commands 0x34 and 0x35 (CRC passed).	Abnormal/unrealistic battery voltage readings even when CRC passes.



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