Cavli C42GM Custom AT Commands Proposal

This document outlines a proposal for three custom AT commands for the Cavli C42GM product, along with their expected responses. These commands aim to enhance specific functionalities and provide more granular control over the device.

Product Overview: Cavli C42GM

The Cavli C42GM is a smart cellular IoT module designed for global deployment, offering integrated GNSS and eSIM capabilities. It supports various IoT applications requiring reliable and efficient data communication.

Proposed Custom AT Commands

1. AT+CCAVLI_GPS_STATUS

Purpose: To retrieve the current status of the GNSS module, including fix status, number of satellites in view, and signal strength. This command provides a quick overview of the GNSS performance without parsing complex NMEA sentences.

Description: This command queries the embedded GNSS receiver for its operational status. It will return a summarized status indicating whether a fix is achieved, the number of satellites currently used for the fix, and the average signal-to-noise ratio (SNR) of the tracked satellites.

Mock Expected Response:+CCAVLI_GPS_STATUS: <fix_status>,<satellites_in_use>,<avg_snr>

OK

Parameters:

- <fix_status>:
    - 0: No Fix
    - 1: 2D Fix
    - 2: 3D Fix

- <satellites_in_use>: Integer, number of satellites contributing to the fix (e.g., 8)
- <avg_snr>: Integer, average SNR of tracked satellites in dB (e.g., 35)

Example Response:+CCAVLI_GPS_STATUS: 2,8,35

OK

(Indicates a 3D fix, 8 satellites in use, and an average SNR of 35dB.)

2. AT+CCAVLI_PWR_SAVE_MODE

Purpose: To set or query the power-saving mode of the module. This command allows for dynamic adjustment of power consumption based on application requirements.

Description: This command controls the power-saving features of the C42GM module. It can be used to enable or disable different power-saving profiles (e.g., PSM, eDRX) or to query the currently active power-saving mode.

Mock Expected Response (Query):+CCAVLI_PWR_SAVE_MODE: <mode>

OK

Mock Expected Response (Set):OK

Parameters:

- <mode>:
    - 0: Off (No power saving)
    - 1: PSM (Power Saving Mode)
    - 2: eDRX (Extended Discontinuous Reception)

Example Responses:

- Query Current Mode:AT+CCAVLI_PWR_SAVE_MODE?

+CCAVLI_PWR_SAVE_MODE: 1

OK

(Indicates PSM is currently active.)

- Set to eDRX:AT+CCAVLI_PWR_SAVE_MODE=2

OK

3. AT+CCAVLI_TEMP_SENSOR

Purpose: To read the internal temperature of the module. This provides valuable diagnostic information for monitoring the operating environment and preventing overheating.

Description: This command reads the temperature from an internal sensor within the Cavli C42GM module. The returned value will be in degrees Celsius.

Mock Expected Response:+CCAVLI_TEMP_SENSOR: <temperature>

OK

Parameters:

- <temperature>: Integer, temperature in degrees Celsius (e.g., 45)

Example Response:+CCAVLI_TEMP_SENSOR: 45

OK

(Indicates the module's internal temperature is 45 degrees Celsius.)