

COHAP Rack Validation

1. Configuring the environment

Copying the COHAP DLL files

- 1) Open the folder CoHaP Functions/config and copy the files to the following destination:
 - a) COHAPDLL.dll and COHAPDLL.pdb to the folder <TestStand>\Bin
 - b) GCPChannelCard.bin to the folder C:\temp

Copying the StationGlobals variables

- 1) In the folder CoHaP Functions\sequences, open the sequence StationGlobals.seq
- 2) Copy the variables Locals.ChannelCardInfo and Locals.RackComPort to your StationGlobals a
- 3) On TestStand, click in View -> StationGlobals and save the changes.

The ChannelCardInfo variable will contain all the information about each tested card, and the RackComPort variable should point to the Serial Com Port used to connect to the rack

2. Updating the Firmware

The firmware update will try to update the firmware of the channel cards in all 5 slots available, which means 10 channel cards firmware updates.

In order to update the firmware, the channel card need to have had their firmware previously flashed with the bootloader.

For more information, look for the instructions inside the Firmware Update folder.

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open the sequence COHAP Channel Card FW Update.seq
- 2) Run the sequence
- 3) All the firmware should be updated after 3 minutes. The empty slots will be marked as failed. The results containing the firmware version will be recorded in the Report.

3. Executing Self-Calibration

After updating the firmware, the cards need to be calibrated. This can be done using the self-calibration COHAP function, but some configurations need to be done in order to do it correctly. Only one card can be configured at a time, which means two channel at a time.

Configuring the hardware

Before running the sequence, follow these steps to configure the hardware.

- 1) Choose one position that will be used for the calibration
- 2) Connect the channel card using an extender card
- 3) With the help of leads, connect the following pins of the extender card to an external power supply:
 - a. 5V: C7 and C18
 - b. GND: C32

ATTENTION: only turn on the external power supply when the COHAP rack is also powered on.

Configuring the sequence

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open the sequence COHAP Channel Card Self-Calibration and Validation.seq
 - 2) Change the value of the variable FileGlobals.Channel to the first channel that is being used. The channel used can be verified through the red leds that blink in a binary code.
- Obs: The only possible channels are: 1, 5, 9, 13, 17

Executing the Self-Calibration

- 1) Turn on the COHAP rack
- 2) Turn on the external power supply
- 3) Run the sequence

The results containing the Calibration Parameters and the Test Validation will be saved in the report.

4. Verifying the Channel Card DAC Outputs and Calibration

Verifying a full rack

After all the cards have their firmware programmed and their calibration parameters saved, their DAC outputs need to be validated in all the positions of the rack.

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open de sequence COHAP Channel Card Validation.seq
- 2) Position the channel cards in all the five workable positions of the COHAP rack
- 3) Run the sequence

The results will be saved in the report and in the StationGlobals.ChannelCardInfo. Open a new sequence and copy this variable to its local variables, taking note of the card ID referring to each one of the positions. These values may be needed in future in the case of need for re-calibration.

Verifying a single card

If you want to verify only a single rack, a different sequence needs to be used.

- 1) Position your card in the rack, taking note of the channel being used.
- 2) In the folder CoHaP Functions\sequences\SequenceConfig, open de sequence COHAP Channel Card Validation - Single Card.seq
- 3) Change the value of the variable FileGlobals.Channel to the first channel that is being used. The channel used can be verified through the red leds that blink in a binary code.
Obs: The only possible channels are: 1, 5, 9, 13, 17

The results will be saved in the report.

5. DTC Read and Sampling Validation

After all the cards are validated, it is time to test their capability of communicating and sampling the parts.

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open de sequence DTC Read and Sampling Validation.seq
- 2) Connect a part to the DUT
- 3) When running the sequence, you will be required to enter the following steps:
 - a. DUT number been used (1 to 10)
 - b. ASIC type (ELMOS, MLX90342 and MLX90327)
 - c. Connector type (Big, Small, DoublePWM)

The test will mux the relay card, do a memory read from the part and perform a SENT/PWM sampling. For the ELMOS and MLX90342 parts, it will be performed a SENT sampling, while for the MLX90327 it will be performed a PWM sampling.

All the results will be recorded to the report.

6. DTC Write Initial Settings

With this sequence the parts can be programmed with its initial settings. Make sure the PN used is the one that relates to the part you have.

You will require a connection to the Sensata VPN in order to use this sequence.

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open de sequence DTC Write Initial Settings.seq
- 2) Connect a part to the DUT
- 3) When running the sequence, you will be required to enter the following steps:
 - a. DUT number been used (1 to 10)
 - b. PN of the part used
 - c. Connector type (Big, Small, DoublePWM)

The test will mux the relay card, program the part with the initial setting, do a memory read and perform a SENT sampling, once all the parts after initial setting programmed are configured for SENT.

All the results will be recorded to the report.

7. DTC Write Final Settings

With this sequence the parts can be programmed with its final settings. Make sure the PN used is the one that relates to the part you have.

You will require a connection to the Sensata VPN in order to use this sequence.

- 1) In the folder CoHaP Functions\sequences\SequenceConfig, open de sequence DTC Write Final Settings.seq
- 2) Connect a part to the DUT
- 3) When running the sequence, you will be required to enter the following steps:
 - a. DUT number been used (1 to 10)
 - b. PN of the part used
 - c. Connector type (Big, Small, DoublePWM)

The test will mux the relay card, program the part with the final setting, do a memory read and perform a SENT/PWM sampling, depending on the part being used.

All the results will be recorded to the report.