Setting up

Sept 23th, 2021

RF noise injection

# CC2

800 kV, VsetPoint in I

Kp=2000, Ki=100, a=14

## Phase noise

The noise spectrum is limited to 15 kHz.

See coupling between Phase and AM noise

10:40 New Firmware, version id 20210923

Measure effect of PM and AM noise plus coupling. See plots.

# CC1

800 kV

Problem with tuner-> we continue with CC2 only

# AM excitation only (all in I)

## Observe CC2 AM spectrum for varying AM noise level

The “level” is given in excitation pk-pk in bits (1 MV corresponds to 16384). Background trace corresponds to NO ADDED NOISE

A screenshot of a computer

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AM excitation level 10 PK (left) and 30 PK (Right)

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AM excitation level 100 PK

## Look at parasitic PM with AM excitation

Note: In theory we inject noise in the I set point -> we should see no Phase modulation. We see some….

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For ref: PM with NO excitation

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PM with AM excitation at level 30 pk (left) and 100 PK (right). Background trace corresponds to NO ADDED NOISE

## Summary AM excitation



# PM excitation only (all in Q)

## Observe CC2 AM spectrum for varying AM noise level

The “level” is given in excitation pk-pk in bits (1 MV corresponds to 16384). Background trace corresponds to NO NOISE.

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PM excitation level 30 PK (left) and 100 PK (Right)

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PM excitation level 300 (left) and 1000 (right)

## Look at parasitic AM with PM excitation

Note: In theory we inject noise in the Q set point -> we should see no AM modulation. We see some…. Background trace corresponds to NO ADDED NOISE

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AM with PM excitation at level 30 pk (left) and 100 PK (right)

A screenshot of a computer

Description automatically generated with medium confidence A screenshot of a computer

Description automatically generated with medium confidence

AM with PM excitation at level 300 pk (left) and 1000 PK (right)

## Summary PM excitation

