Spinoza Centre REC Monthly Quality Control

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Abstract

The monthly quality control is a more extensive quality check of our 3T MRI system but also the other computers in the operator room.

The monthly quality control consists of the following components:

- Virus scan on scan-computer
- Moving eyetracker-files from DOS to Windows desktop
- Calibration of scanner (Philips protocol)
- 32 channel SNR test

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Protocol

Virus scan

Step 1.

Virus scan (1 hour)

Start a full virus scan of the MRI computer as follows:

- Right click virus scan icon in the bottom right corner; click “VirusScan Console”
- Select “Full scan”, right click, and click “start”

You can do the calibration procedure during the virus scan.

ANNOTATIONS
Luuk Lamens 04 Apr 2018

Heb hem nu gedraaid zonder eerst application software op te starten, maakt dit uit?

Delete eyetracker-files

Step 2.

Delete eyetracker-files (min)

The DOS-partition on the eyetracker computer is quite small, so once a month all edf-files should be

deleted during the Monthly Quality control.

- Go to the ‘filesystem’ mode of the eyetracker-computer:
  - start up the computer as usual, and
  - click ‘exit eyelink’; you’ll boot into the ‘filesystem’ mode.
  - delete all contents in the /data folder (all files should end with .edf).

ANNOTATIONS

Luuk Lamens 04 Apr 2018

Misschien overbodig maar eerst klik je exit-setup en dan pas exit eyelink.

Daarnaast staan er ook .log files in de data folder, moet ik die ook verwijderen?

Calibration procedure, general

Step 3.

Calibration procedure (1.5 hours)

Some general notes:

- The procedure leads you through a series of tests, which instructions are summarized below. The procedure is also documented on the scan-computer itself.
- All tests (in the following steps) need to be passed; if one or more tests failed, let Lukas know by mail. Data/results from the tests do not need to be saved
- *All tests are performed without a headcoil; unplug and remove from bore.*
- For most of the tests, a bottle or phantom (orb filled with liquid) is used. Check before testing whether the bottle is filled completely (there should be no -- or just a small, not more than 2 cm in width -- bubble present); if not, let Lukas know (you can go ahead with the protocol).
- All bottles are outlined user the laser on their center.
- After starting the adjustment/scan, you might hear/see the table moving; this is to disengage the posterior coil, which is (often) necessary during the recalibration procedure.
- Sometimes, the scan-computer might indicate that the phantom/bottle position needs to be adjusted; mess around with its initial position (i.e., move to the right/left/front/back) on the table until it works (this might take a while and can be annoying…).

- First, navigate to:
  - Start Service Application[1] (start menu à Service Application).
  - You’ll get a pop-up prompting to fill in our username (use “Lukas Snoek”)
  - and the reason for service (use “Planned Maintenance”)

Clicking the folder will reveal several adjustments/scans. In the following recalibration procedure, we will execute only a subset of these adjustments.

- Now, go to the “Installation” tab. On the left side, you’ll see different types of “procedures”.

We'll only do some System Level procedures.

ANNOTATIONS
Luuk Lamens 04 Apr 2018

'user' moet 'using' zijn lijkt mij.

Calibration procedure, general
Step 4.

General instruction

For the calibration procedure, run the tests below in the indicated order. After each test, the result ("Passed" or "Not passed") will be displayed in the upper-left corner of the window. In case a test didn't pass, send an email to Lukas about which test failed.

[1] If you get the error: "Currently Field Service Login is not allowed. Ensure the system is activated.", just log off the scan computer and try again.

Calibration procedure
Step 5.

F0 determination

- Bottle and position: 3 liter bottle, horizontally placed, lid towards bore
- Click "next", "next", and once the frequency appears click "Stop". Check the results.

Calibration procedure
Step 6.

Multitransmit RF calibration

- Bottle and position: 1 liter bottle, horizontally placed on holder, lid towards bore
- Follow instructions on screen

Calibration procedure
Step 7.

RF power ref. cal. Body coil

- Bottle and position: 3 liter bottle, horizontally placed, lid towards bore
- Follow instructions on screen

Calibration procedure
Step 8.

Pickup coil tripl. cal. Body Coil

- Bottle and position: 3 liter bottle, horizontally placed, lid towards bore
- Follow instructions on screen

ANNOTATIONS

Luuk Lamens 04 Apr 2018

Ik kreeg hierbij in het rood soms de tekst dat RF power limit detected by QBC pick-up coil. Test was op alle resultaten 'passed'. Zijn deze rode warnings dan nog relevant om aan te geven?

Calibration procedure

Step 9.

MR Eddy Current & osc cal (std) (15 min.)

- Bottle and position:
  - Blue spherical ECC-phantom on own placeholder
  - Outline as usual
  - Most likely it will indicate the phantom-position is off; adjust along the instructions on screen (e.g. Z-direction: -2 = 2 cm further into bore)
  - Follow instructions on the screen.

ANNOTATIONS

Luuk Lamens 04 Apr 2018

Ik kwam er vrij laat achter dat het matje weg gehaald moest worden om de sphere goed uit te lijnen, misschien handig als dit in het protocol staat.

Calibration procedure

Step 10.

MR Eddy Current & osc cal (par) (15 min.)

- Like previous step.
- Blue spherical ECC-phantom on own placeholder
- Outline as usual;
- Follow instructions on the screen.

ANNOTATIONS

Luuk Lamens 04 Apr 2018

Ik kwam er vrij laat achter dat het matje weg gehaald moest worden om de sphere goed uit te lijnen, misschien handig als dit in het protocol staat.

Calibration procedure

Step 11.

Channel delay and FID shimming

- Bottle and position: 3 liter bottle placed on top of two foam pads (see below)