

Compensation Curve

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Compensation Curve

The purpose to use of a compensation curve to compensate the frequency response is to test the frequency response against upper and lower limits out from the difference from a stored frequency measurement, a compensation curve. The differences are displayed at -30 db below the top of display. This gives a variation around a straight line and very easy to see the differences from user point of view.

Furthermore if activated the user can re-calibrate the compensation curve for small variations. Some speakers can change the frequency response due to temperature and humidity. It have been seen that the temperature at morning was low and at the middle of the day at a much higher level. If a speaker type is sensitive for those parameters the test reference parameters of the speaker changes. To handle those changes the user can correct the small changes by make a measurement with the reference speaker and correct the deviations.

How to make Compensations Curve

Step 1

Make a setup for the speaker you want to test. Use your reference unit.

Go to reference menu and make a measurement.

Make the upper and lower test limits for your test channels except" Channel A".

Reset the "Channel A" limits is present and includes measured data to upper and lower limits.

Now data upper and lower limits displayed at same level.

See figure 1.

Save the setup as reference.

Step 2

Load the setup just created.

Be sure the upper limit in "Channel A" is as the frequency curve.

When saving as compensation curve the upper limit in channel A will be stored as a compensation curve.

Save the setup as compensation curve.

Now the compensation curve is generated.

Step 3

Re-Load the setup just created.

Now in setup the text "Compensation Curve" is displayed in the status field. See figure 2.

If you not want to use this compensation curve the curve can be deleted under delete curve & exit.

Make a measurement with the reference speaker unit.

On the "Commands" use the "Compensate" function. This generates the difference between the measurement and the compensation curve. See figure 3.

Reset the upper and lower limits in "Channel A". Then include the data on "Channel A" as upper and lower limits. It should be two straight lines due to the measurement is done on same speaker.

Now make the upper and lower limits. See figure 4. Here the upper and lower limits are done as +/- 3 db. Save the setup as reference curve.

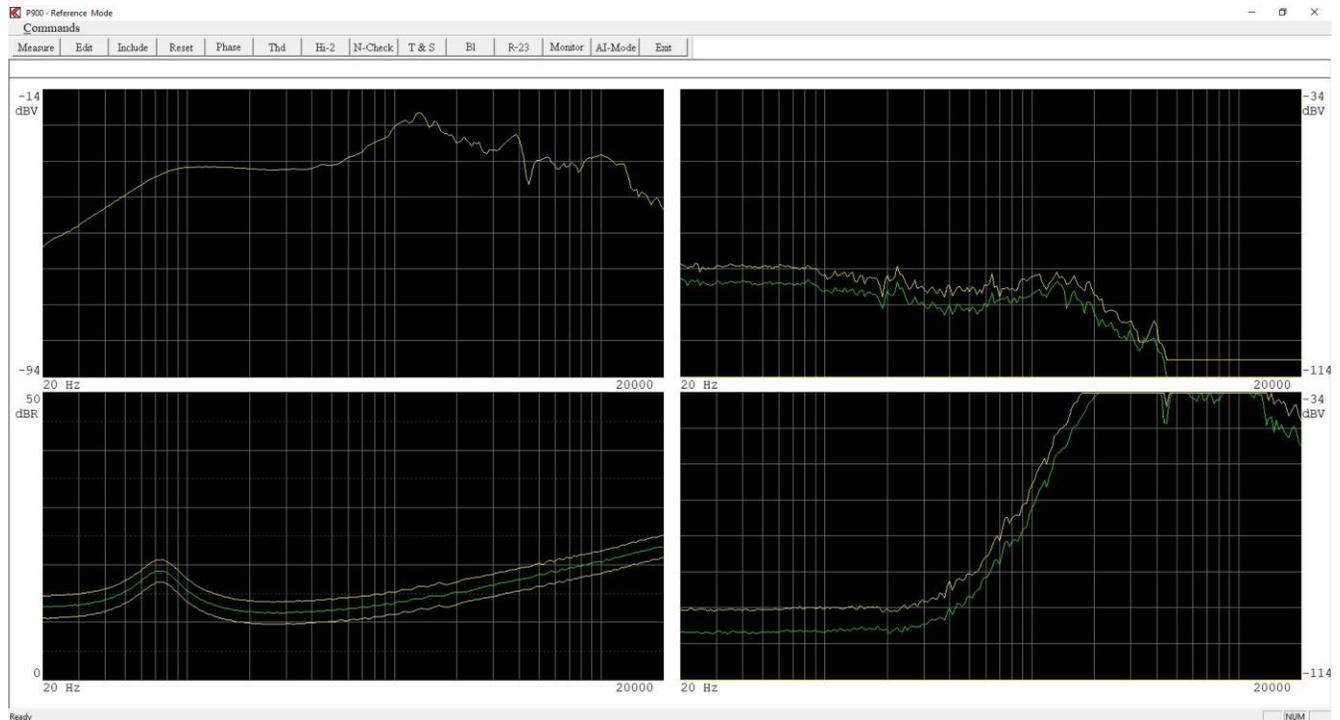


Figure 1: A setup of a speaker with a reference unit.

Channel B, C and D upper and lower limits done. Channel A upper, lower and data at same level.

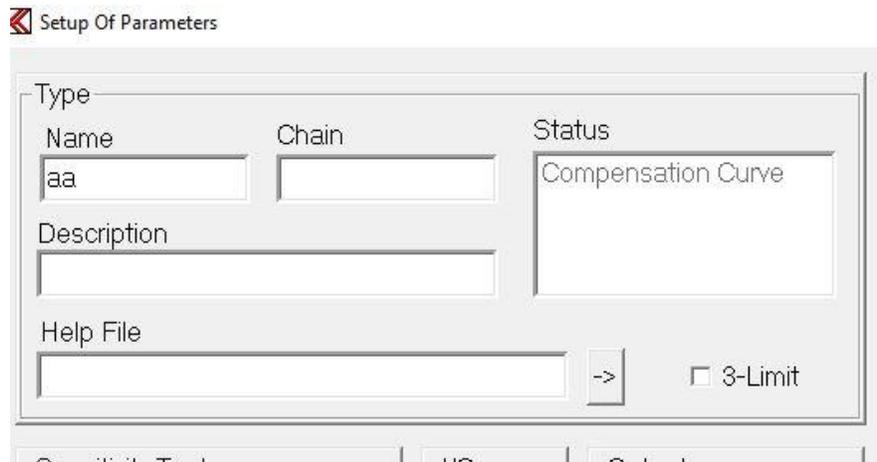


Figure 2: Status show a Compensation Curve is present.



Figure 3: Red curve show the difference after compensation done.

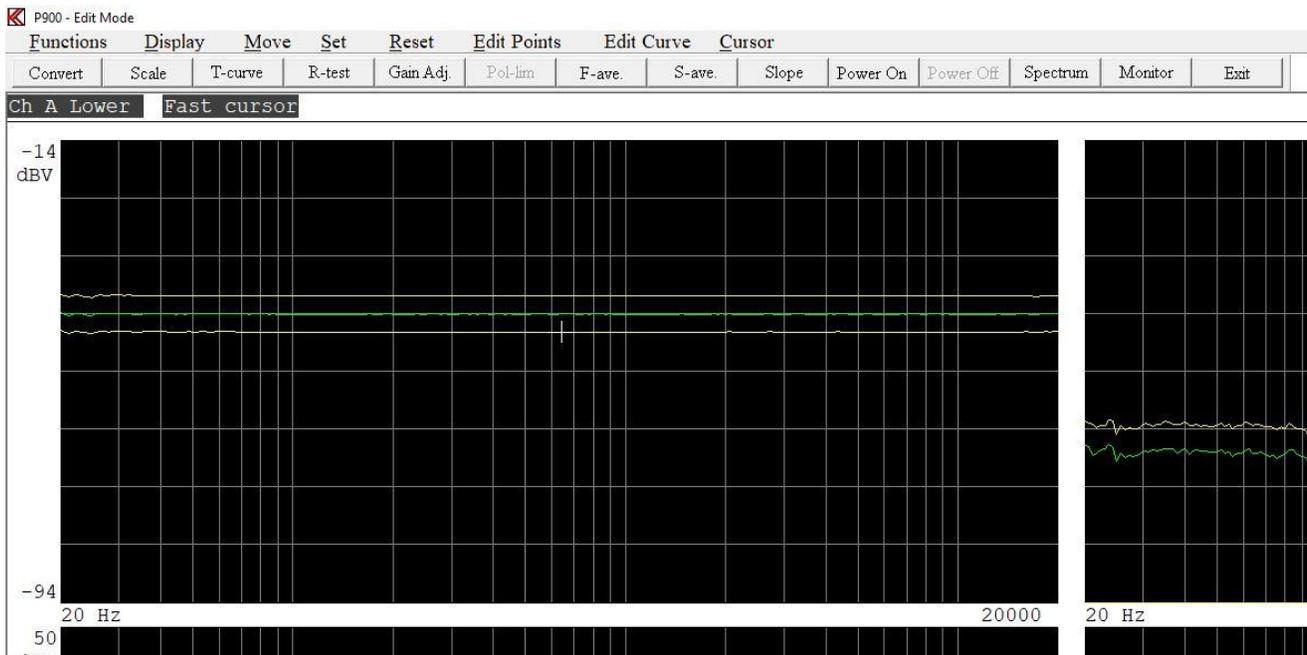


Figure 4: Show upper and lower limits +/- 3 db around measured and compensated data.

Use of Compensation Curve

Run -mode

In run- mode when a compensate cure is present the system automatic compensate the data before tested against upper and lower limits. Figure 5 show if a Compensations Cure is present in text mode and figure 6 show the display in graph display.

Description:

*** Compensation used ***

APPROVED

Figure 5: In text mode the information that "Compensation used"

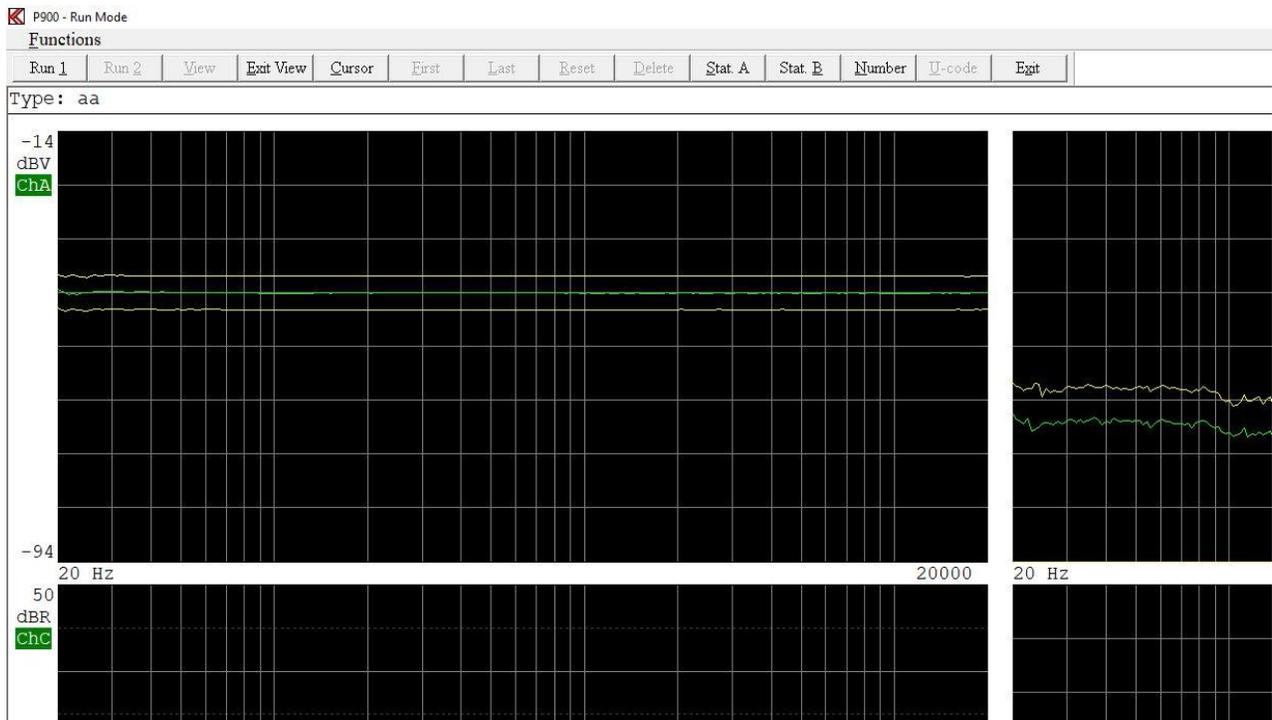


Figure 6: Display in graph mode of the compensated data.

The users do not have the possibility to make changes in the compensations curve unless allowed.

Enable user modifications

To activate the user to make small changes on the compensation curve permission must be given.

This is done in the Global Menu.

Under "User key's" 3 flags can be set.

The Password flag must be set to enable the user to modify the compensations curve. This allows the user to make small changes less than 3 db. If the flag "Lock" is set the user is asked to enter a password if changes are higher than 3 db and less 6 db. If the changes are higher than 6 db the changes must be made in the setup mode. To protect the system so the users do not make any disaster. See figure 7.

Figure show 8 a test where the compensated data give a reject due to small variations.

To make changes the user, if allowed, go to the run submenu cursor. Here the calibrate function can be called. See figure 9.

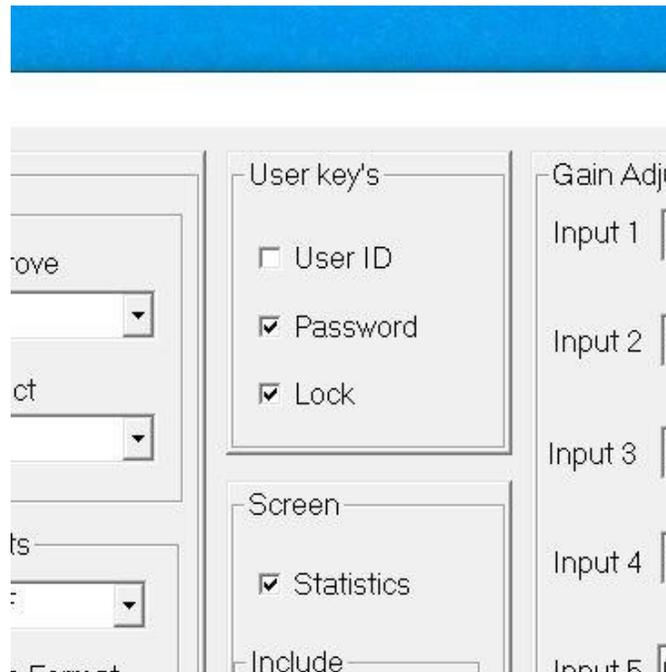


Figure 7: Permission for user to modify compensation curve.

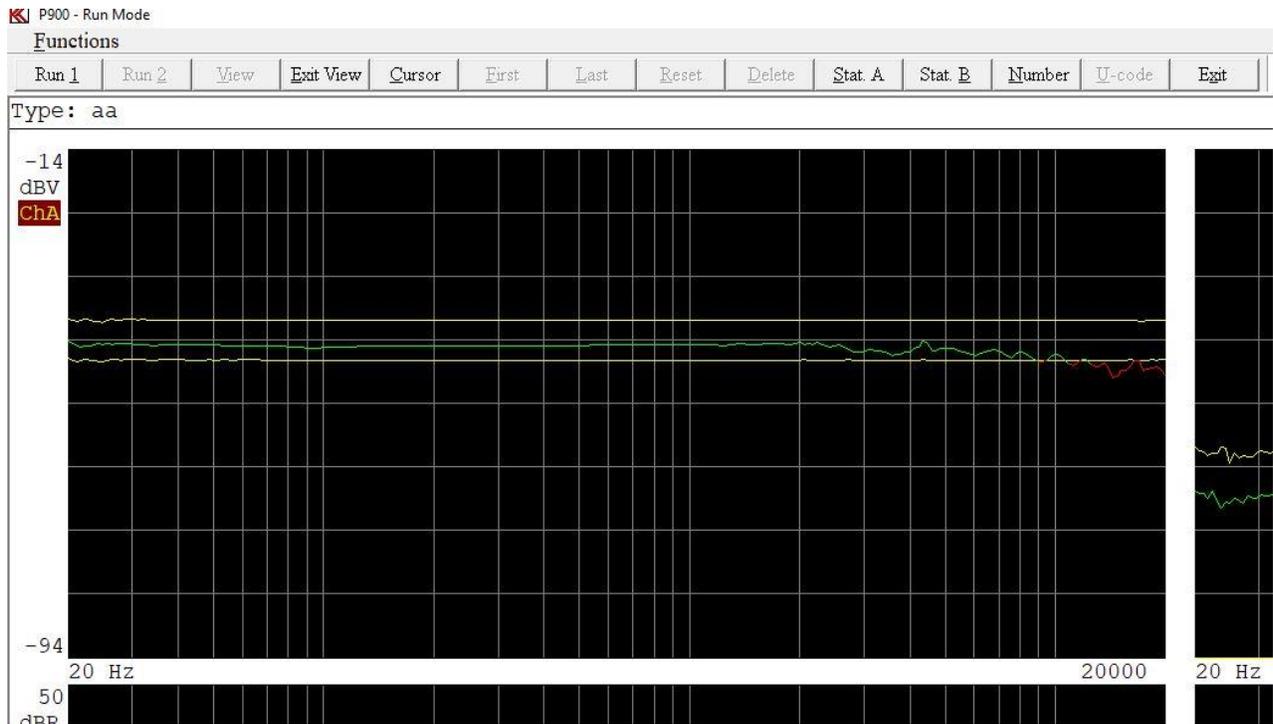


Figure 8: A test where the compensate data give a reject.

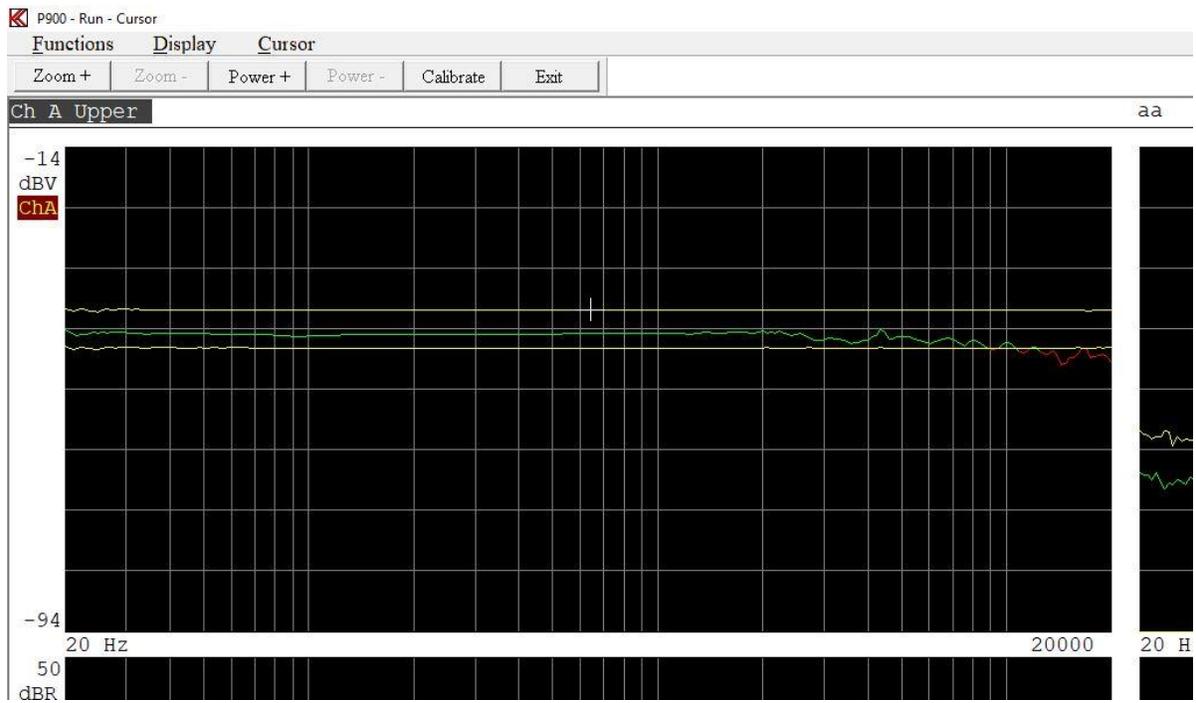


Figure 9: Run cursor submenu show Calibrate function.

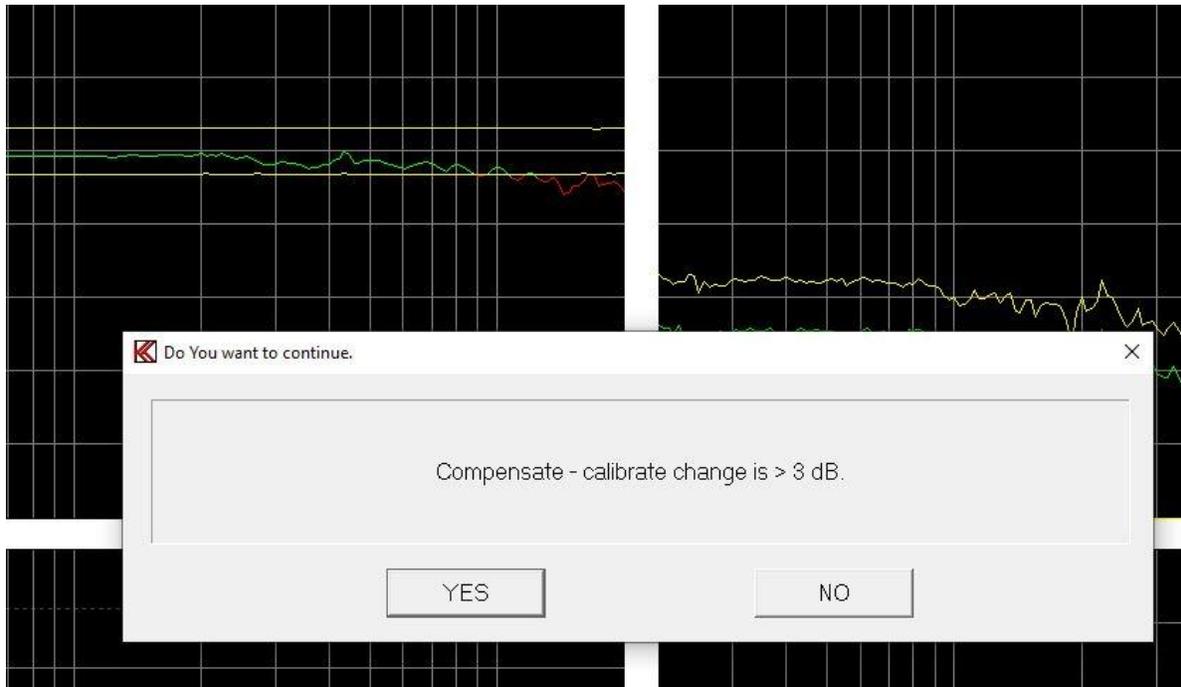


Figure 10: A warning if compensate changes is higher than 3 db.

If changes in the compensate curve data is higher than 3 db a warning pup up. See figure 10.

If the Lock flag is set a password is needed to continue. If the changes are less than 6 db the modifications are done and is saved automatic. See figure 11.

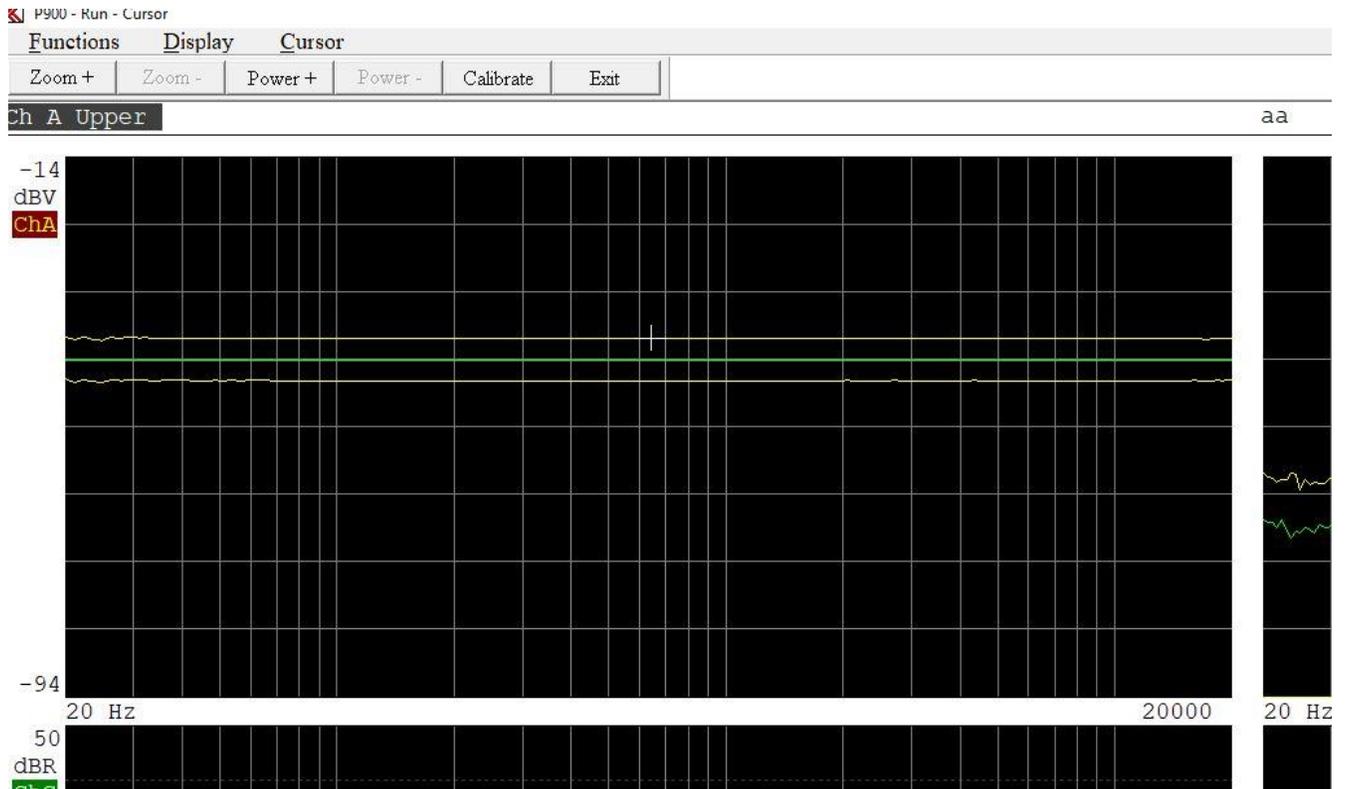


Figure 11: Changes are done by user via the Calibrate function.