

# **The functionality of the Magnetic Measurement Program for rotating coil measurements**

## **Introduction:**

In the 70's appeared the first rotating coils at CERN on LEP quadrupoles and superconducting magnets. The first programming languages were Fortran, then C, to finally switch to Labview in 1995. The actual Labview version profit of all the past experiences.

The actual version has been mainly developed for LHC superconducting magnets series tests. Program should be easy to use, of general purpose, adapted to user, and an important point is the measurements reliability.

The program functionality is coming from all this experience and requests.

## **A simple and complete structure:**

The new structure of MMP allows the user to configure the application with respect to his own test equipment. All drivers for all the equipment we use to use are accessible to identify each different motor or encoder for instance.

Configuration settings can be saved and loaded. There are five using modes for a clear organisation. Accesses are different depending on the user level. A log file is saved for memory.

All these functionality make the program of general purpose and are adapted to the user knowledge.

## **Results reliability:**

During measurement preparation, run, and display, everything is done to improve the results reliability.

A communication test and the devices diagnostics can be performed. The program informs the user if the selected configuration is not suitable. Secondary settings are as well possible for next calculation.

Some actions are done automatically when launching the measurement cycle, like settings the signal gains. An on-line display allow the operator to have a first view of the results, he can already deduce if measurement will be consistent or not.

After measuring first calculation are performed. Rotation speed, harmonics, or other secondary informations are then accessible to user for first conclusions.

## **Conclusions**

This new version of MMP is really as specified: of general purpose, simple for user and maintenance. The measurement reliability has been improved. Still some more functionality has to be added.

Any way the existing situation will help for time saving which is critical for LHC superconducting magnets series tests.