MFM 2000 TCO software manual

for program Version 1.0.3056

Installation:

The MFM 2000 software is compatible with Microsoft Windows 2000, XP, and Vista.

Minimum recommended screen resolution 1024 x 768

Font size normal (96 dpi)

Install the program from the MFM 2000 installation CD delivered with the instrument.

The installation menu program starts automatically after inserting the CD.

Before running the MFM software for TCO testing the USB driver and Microsoft.NET Framework Version 2.0 must be installed.

Before connecting the MFM 2000 instrument the file “MFMDevice.lic” must be coped to C:/program C:\Program Files\MFMTCOTestSW. The file is on the licence CD or delivered by E-mail.

For some versions of Windows 2000 MDAC from Microsoft must be download to support the MFM 2000 software database.

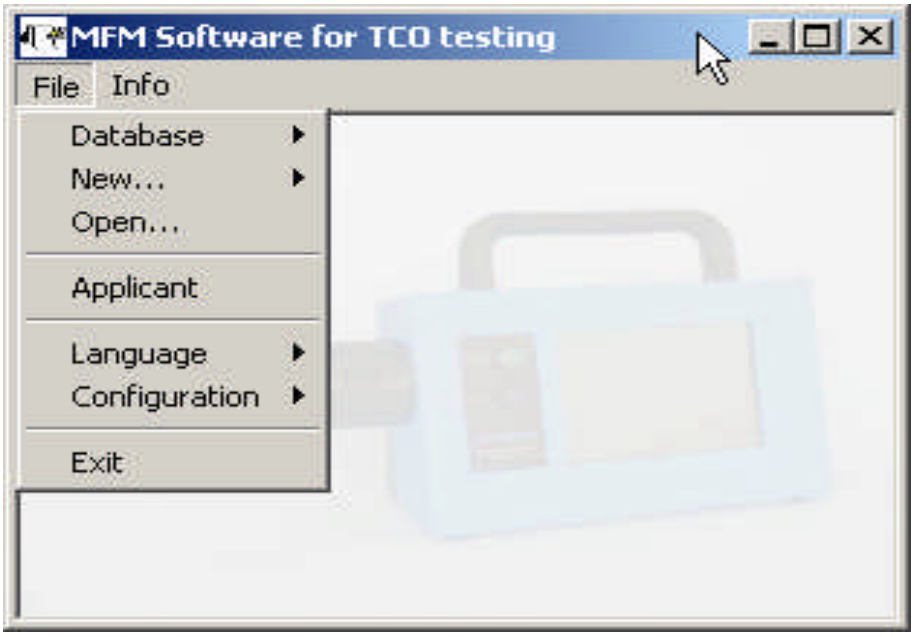
Troubleshooting

Please contact Combinova AB if you have problems with this software.
Describe the problem in a mail and include these two files:

C:/program/MFMTCOTestSW/MFMSoftwareError.txt and
C:/program/MFMTCOTestSW/Comm.txt.

The mail address is: support@combinova.se

Start menu



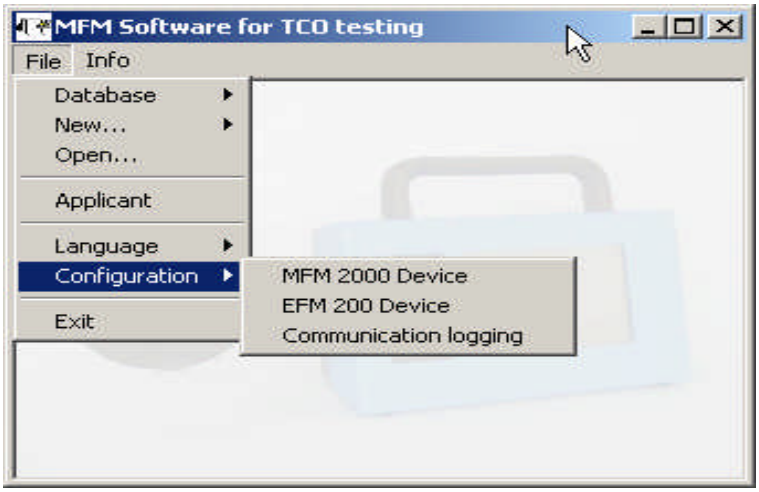
Under *File* are the following functions:

Database	To create and administrate databases.
New	To set up new measurements and choose standard to use.
Open	To open new or old measurements.
Applicant	To register applicants.
Language	To choose other language than English (not implemented)
Configuration	To register instruments.
Exit	To exit the program.
Info	Information about program version.

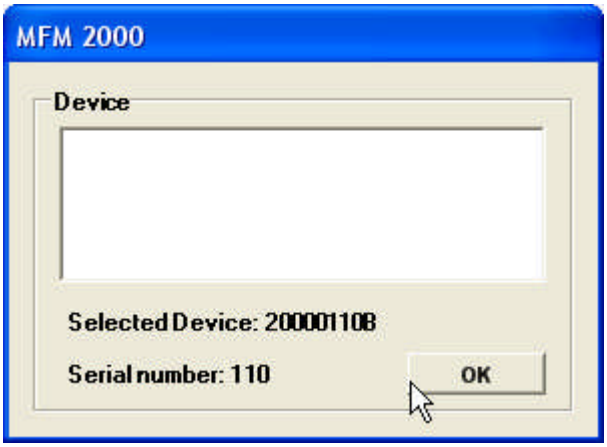
Registration of the instrument

MFM 2000 must be registered at start of program when used for the first time.

MFM 2000 must be connected to the USB port on your PC and in operating mode before registration.

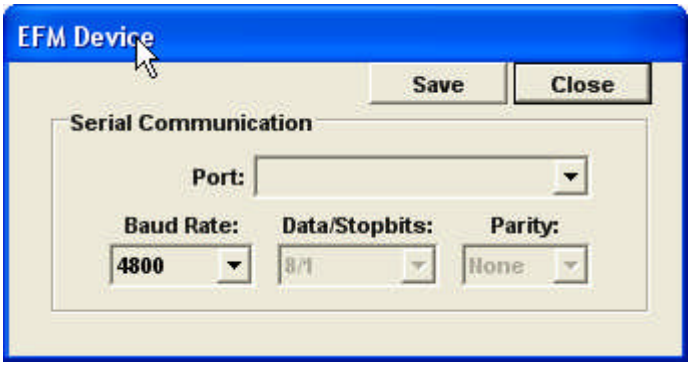


Choose *MFM 2000 Device*

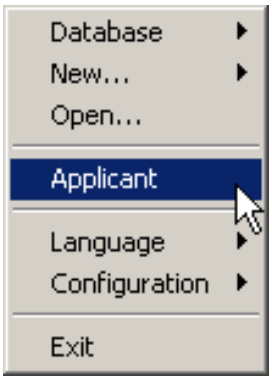


In the new window, mark the instrument, wait for identification, then click *OK*.

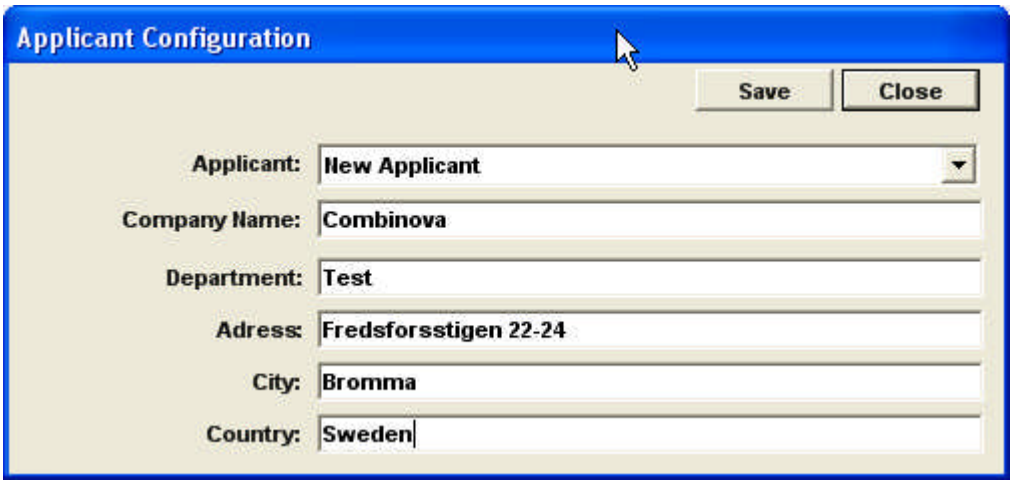
For the EFM 100 / 200 instrument a COM port has to be selected.



Register Applicants



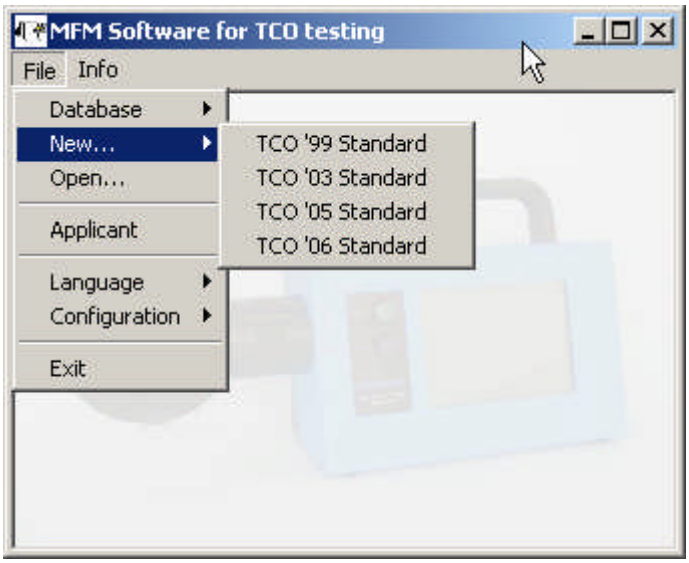
Choose *Applicant*



To register a new applicant or to edit already registered applicants use this form. When applicant data are completed, click *Save* and then *Close***.**

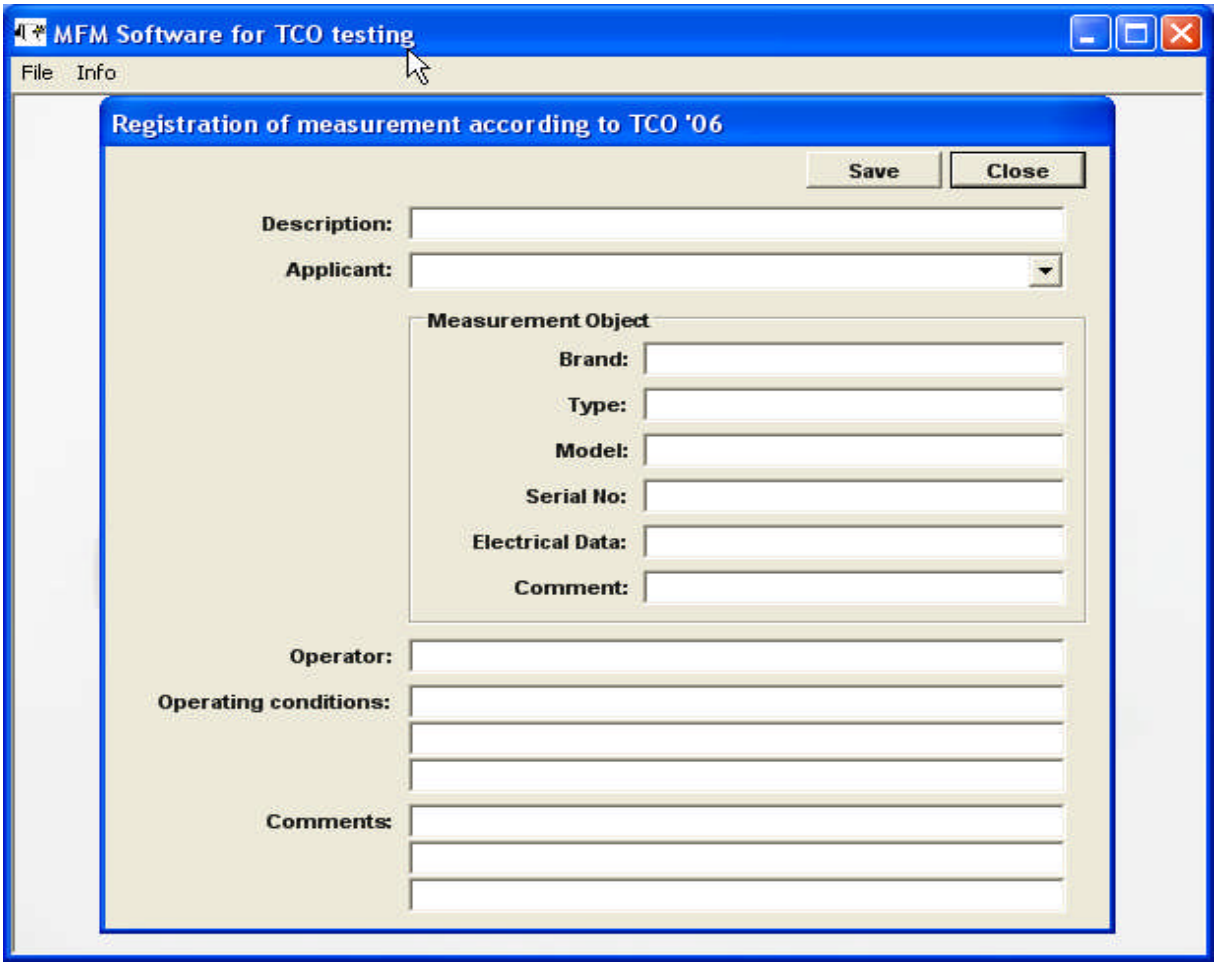
For a test lab the applicant information is entered to identify the client who ordered the test.

Register new measurement task



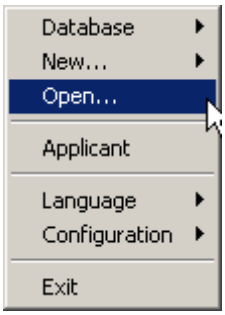
To set up a new measurement task, start by choosing the relevant TCO standard.

Form for TCO 99 Standard

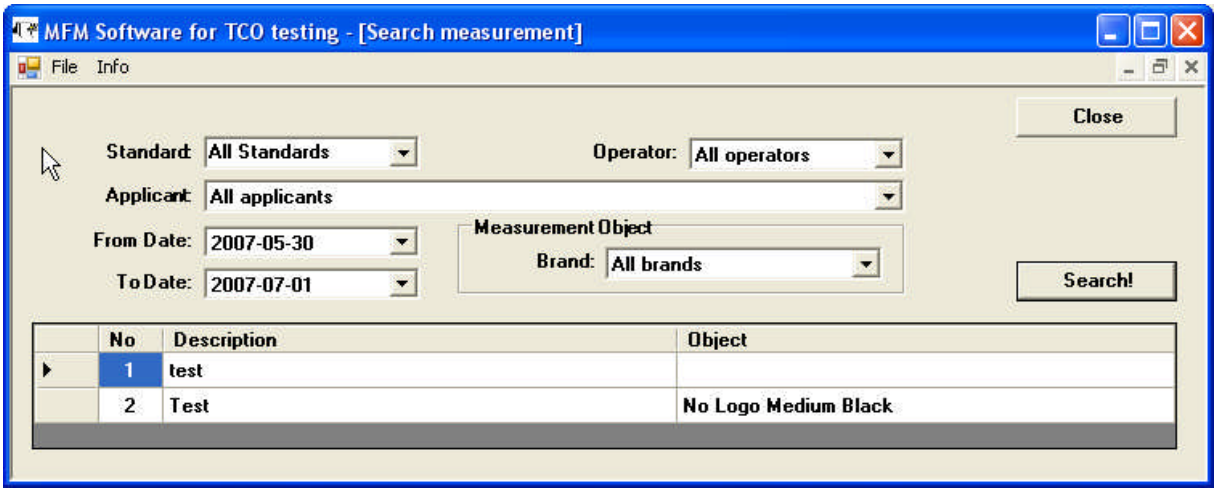


After choosing a standard: complete form with data about the test object and its operating conditions. When all data are entered, click on *Save* and then *Close*.

Start measurement

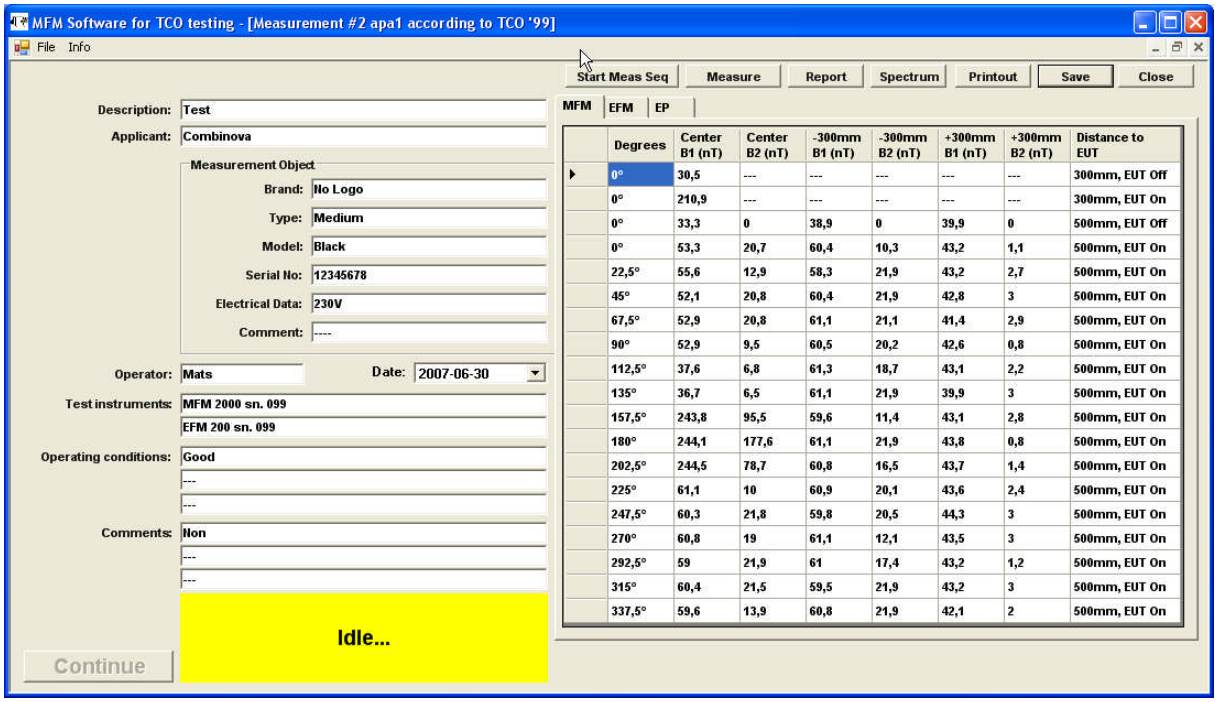


Choose *Open* to make measurements and reports.



Search for the relevant measurement task and click on it to open.

MFM measurements



How to perform the measurement of magnetic fields.

Select the type of measurement you want to make by the key *"MFM"* for magnetic fields.

Click on *"Start Meas Seq".* The yellow window will guide you through the sequence by showing the position for the next measurement.

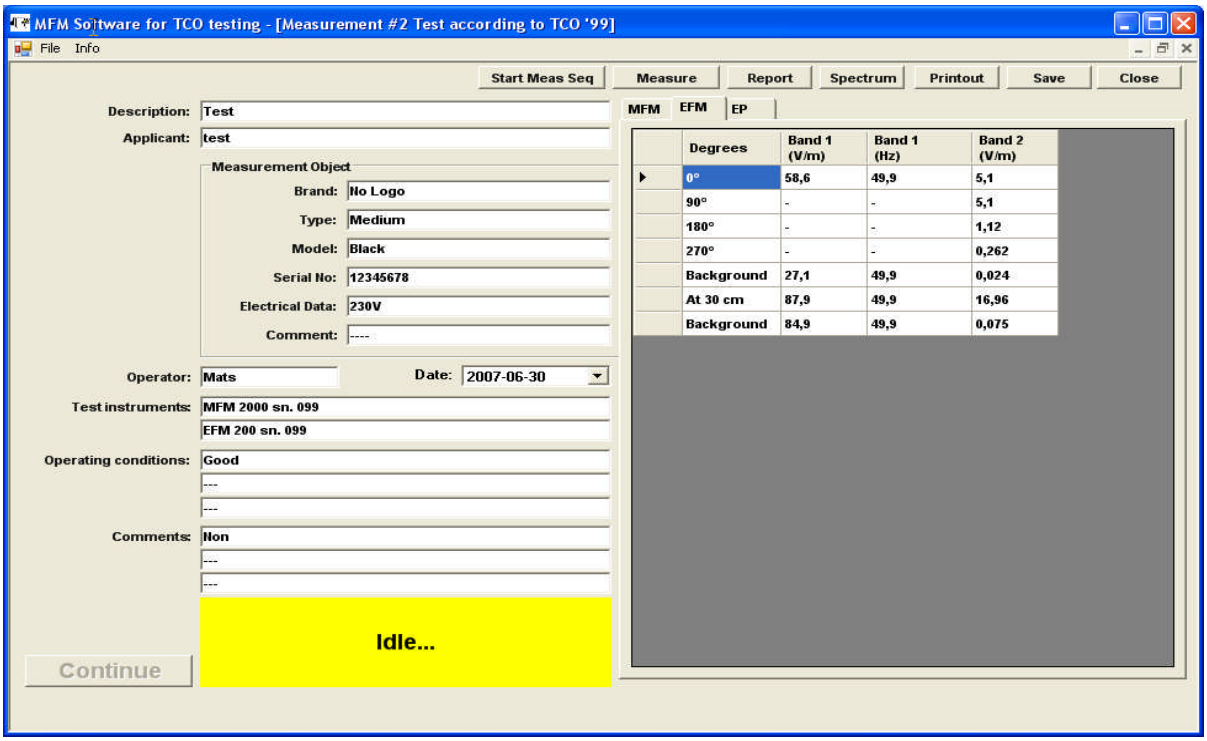
Use "*Continue"* to step through the sequence.

When a measurement sequence is completed all test results will show up in the table. Individual results can be checked in detail by clicking at the position in the table and then at *"Spectrum".* A new window will open with the spectrum and other data about the selected measurement. More info about the spectrum window on page 14 in this manual.

After checking the results it is possible to re-make any measurement by clicking at the relevant position in the table and after positioning the instrument and the test object use the key *"Continue"* to make the measurement. The new result will replace the previous data for this position.

When all measurements are completed use *"Save"* to save the data.

EFM measurements



How to perform the measurement of alternating electric fields.

Please, note that you have to mount the correct probe for alternating electric field measurements if you are using the EFM200 instrument.

Instrument parameter settings for EFM 200 and EFM 100 are described on page 16 in this manual.

Select ”ELF + VLF” in the measurement mode for the EFM 200 or EFM 100 instrument and press *ENTER*.

The instrument will respond with the message ”Waiting for start”

Select the type of measurement you want to make by the key *“EFM”* for alternating electric fields.

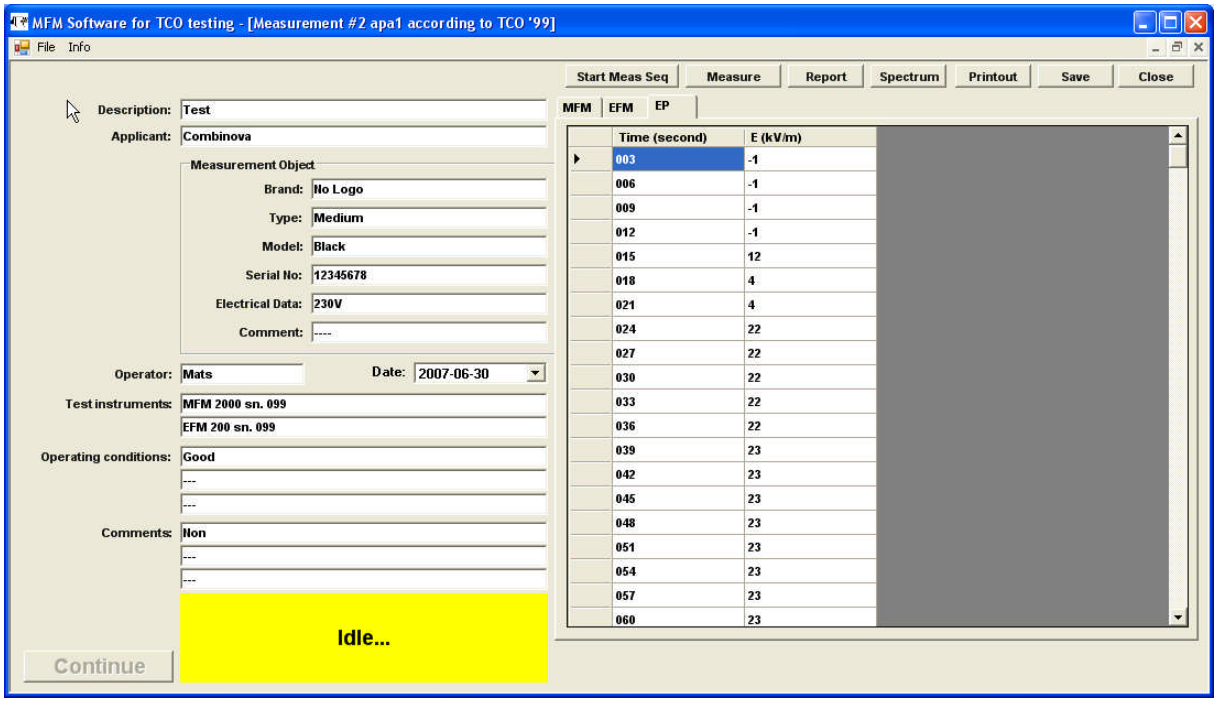
Click on *“Start Mesa Esq.”.* The yellow window will guide you through the sequence by showing the position for the next measurement.

Use “*Continue”* to step through the sequence.

When a measurement sequence is completed all test results will show up in the table. After checking the results it is possible to re-make any measurement by clicking at the relevant position in the table and after positioning the instrument and the test object use the key *“Continue”* to make the measurement. The new result will replace the previous data for this position.

When all measurements are completed use *“Save”* to save the data.

EP measurements



How to perform the measurement of electrostatic fields.

Please, note that you have to mount the correct probe for electrostatic field measurements using the EFM200 instrument.

Set Parameters in the EFM 200 instruments as described on page 16 in this manual.

Select ”Start EP-logging” in the measurement mode for the EFM200 instrument after selecting:

Put the EFM200 in operation by starting the measurement manually and wait until the measurement is completed.

Select electrostatic measurements using the *“EP” key.* Click “Start Meas Seq” in the MFM 2000 TCO software

Click on ”Continue” in the MFM 2000 TCO software. The program will respond: ”waiting for logged data”

Select ”EP-Logg” in the print mode for the EFM200 instrument, press enter, and the MFM 2000 TCO software will import the measurement data.

When all measurements data are transferred use *“Save”* to save the data.

The functions of the keys in the measurement window are:

Start Meas Seq Starts a measurement sequence. The yellow window will guide how too proceed. Use *Continue* to step through the sequence.

Measure Starts a single measurement and stores the result under the marked position in the table. (only MFM and EFM measurements)

The data stored is:

- Weighted result in nT or V/m
- Largest and 2nd largest signal with frequency (only MFM)
- Spectrum diagram (only MFM)
- Time and date (not implemented on the instrument)

Report Report generator supports ".doc" files from Microsoft Word and Open Office.

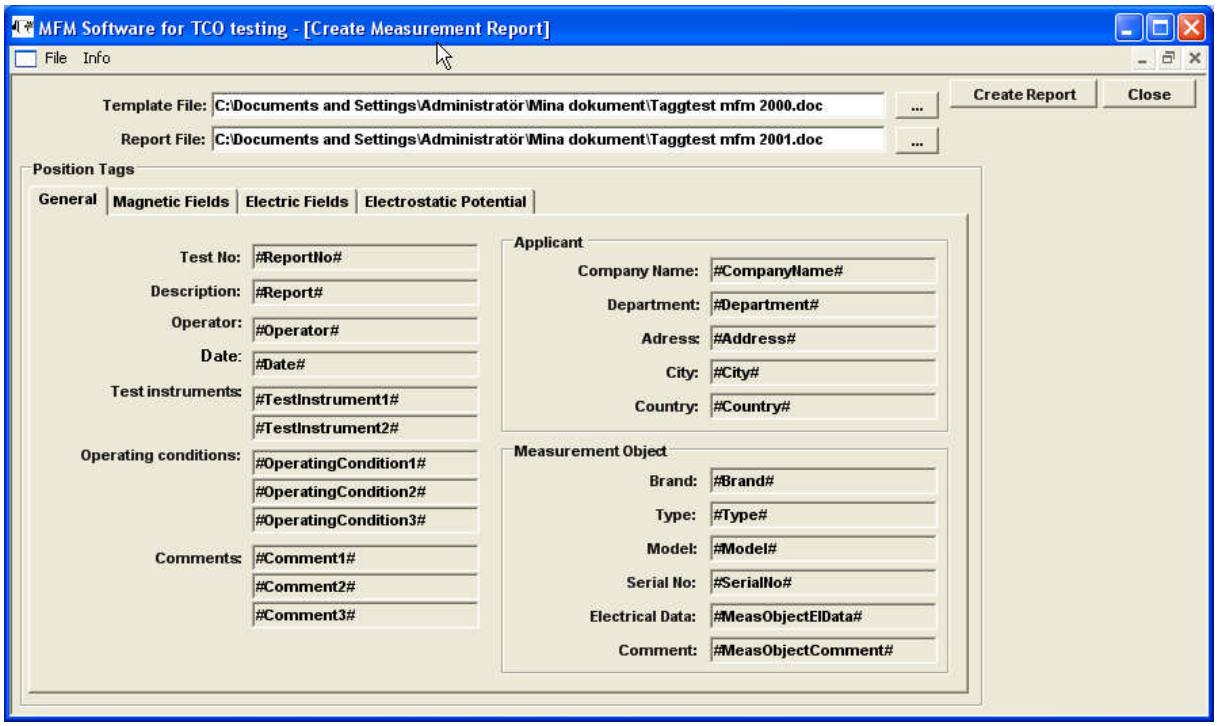
Spectrum Shows the spectrum graph and other data for the market position. (only MFM measurements)

Printout Prints the table with weighted results.

Save Saves the result and changes made in the measurement data protocol.

Close Closes the measuring protocol without saving.

Report generator



The report generator uses template files in Word format. Before using the report generator you should prepare at least two Word documents with the texts to be used for a test either meets the limits or does not meet the limits. If you prefer to have different fixed texts depending on the type of test objects you should also prepare additional template documents covering different test objects.

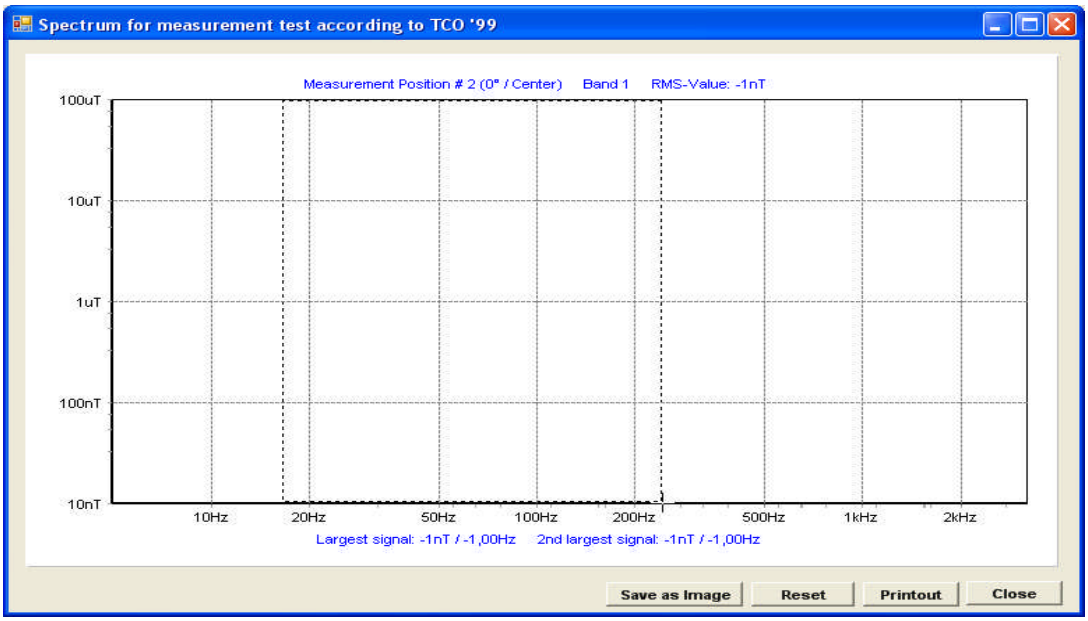
The template Word documents should include “tags” in the positions where you want the different test results to appear in the final test report. Available tags are described on page 14 and 15 in this manual. Just use copy and paste to get the tags into your template Word documents. Functions and files in the report generator are:

Template Files are pre-prepared word documents with tags in the positions where results will be placed when a test report is created.

Report File is a copy of the chosen *Template File* with a new name and with imported results in the tag positions when the *Create Report* button is clicked.

The *Result* and *Background* tags are checked against limits and only presented if they are above limits. If they are below limits the program replaces the test result with for example “< 200 nT” if the limit is 200 nT. If are no measurement data are stored the program writes “*” instead of a test result to indicate that no measurements are available.
On the installation CD there are example files written in Microsoft Word, both *Template File* and the resulting *Report File*.

Spectrum graph



Each magnetic field measurement is stored with a spectrum graph to enable a detailed study of the components of the magnetic field.

Use the left mouse button to zoom in the spectrum graph.

The other functions that are available in the spectrum window are:

Save as Image To save the Spectrum graph in JPG, BMP or GIF file format. The graph corresponding to the maximum value at a specific distance has its own tag for report generation. If you need graphs from other positions in your report you should save them using this function.

Reset To de-zoom the spectrum to its standard format.

Print To printout the spectrum graph window.

Close To exit the spectrum graph.

List of Tags

General:	**Tags:**
Test No:	#ReportNo#
Description:	#Report#
Operator :	#Operator#
Date :	#Date#
TestInstrument:	#TestInstrument1#
	#TestInstrument2#
OperatingCondition:	#OperatingCondition1#
	#OperatingCondition2#
	#OperatingCondition3#

Applicant:

Company Name:	#CompanyName#
Department:	#Department#
Address:	#Address#
City:	#City#
Country:	#Country#

Measurement Object:

Brand:	#Brand#
Type:	#Type#
Model:	#Model#
Serial No:	#SerialNo#
Electrical Data:	#MeasObjectElData#
Comment:	#MeasObjectComment#

Magnetic Fields:

300mm Band 1 Result:	#MFM300B1#	
300mm Band 1 Background:	#MFMBG300B1#	
500mm Band 1 Result:	#MFM500B1#	(maximum vakue of 48 positions)
500mm Band 2 Result:	#MFM500B2#	(maximum value of 48 positions)
500mm Band 1 Background:	#MFMBG500B1#	
500mm Band 2 Background:	#MFMBG500B2#	
Result Table:	#MFMTABLE#	(complete result table)
Spectrum Band 1:	#SPECTRUMMAXBAND1#	(spectrum for max value)
Spectrum Backgr. Band 1:	#SPECTRUMMAXBGBAND1#	(spectrum for max value)
Spectrum Band 2:	#SPECTRUMMAXBAND2#	(spectrum for max value)
Spectrum Backgr. Band 2:	#SPECTRUMMAXBGBAND2#	(spectrum for max value)

If Band 1 values are below 200 nT the report will replace the actual value with “< 200 nT”.
If Band 2 values are below 10 nT the report will replace the actual value with “< 10 nT”.

Electric Fields:

300mm Band 1 Result:	#EFM300B1#	
300mm Band 2 Result:	#EFM300B2#	
300mm Band 1 Background:	#EFMBG300B1#	
300mm Band 2 Background:	#EFMBG300B2#	
500mm Band 1 Result:	#EFM500B1#	
500mm Band 2 Result:	#EFM500B2#	(maximum value of the 4 positions)
500mm Band 1 Background:	#EFMBG500B1#	
500mm Band 2 Background:	#EFMBG500B2#	
Result Table:	#EFMTABLE#	(complete result table)

If Band 1 values are below 10 V/m the report will replace the actual value with “< 10 V/m”.
If Band 2 values are below 1.0 V/m the report will replace the actual value with “< 1 V/m”.

Electrostatic Potential:

End Voltage:	#EPVOLTAGE#	
Time Length:	#EPTIME#	
Result Table:	#EPTABLE#	
Result Graph:	#EPGRAPH#	(Not implemented)

EFM 100 / 200 set-up

EFM200

Alternating electrical field measurement

Measurement ELF+VLF
Parameters Paper size: Computer
Baudrate: 4800
Beeper: On/Off
Com port: Fiber 2 way
Com mode: Computer

EFM200

Electrostatic field measurement

Measurement Start EP-logging
Parameters Papersize: Computer
Baudrate: 4800
Beeper: On/Off
Com port: Fiber 2 way
Com mode: Computer
Type of EPLog: SS
EPLogparameters: Limit of U: 4kV/m
Time: 20 min

EFM100

Mode Remote control: On
Remote control: Computer
Measurement speed: Normal
Measurement: ELF+VLF
Charging: Normal