

Are you missing faults  
in your windings with  
your existing tester?



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3 REASONS WHY TO CHOOSE  
EPOWER SYS CDG 7000



# CERN RECOMMENDS OUR TESTER

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IS YOUR EXISTING TESTER RECOMMENDED BY CERN?

**EPOWER SYS CDG7000 is approved and used by CERN** for testing all the magnets in their accelerators and experiment lines.

WHY CERN APPROVES AND RECOMMENDS OUR TESTER?

The CDG7000 was developed based on a requirement from **CERN** about robustness, voltage level and capacitance, which had to be of **2 $\mu$ F** to provide enough test energy and pulse length at a given test voltage.

The experience of CERN MAGNETS TECHNOLOGY GROUP on both resistive and superconducting magnets for accelerators is that certain defects need a sufficiently high energy to be triggered, and that the energy provided by a 2 microfarad capacitor charged at several kV (depending on the magnet) typically provides enough energy and pulse length to allow a correct diagnostics.

# CERN RECOMMENDS OUR TESTER

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“Our experience with magnets is that **with less than 1 microfarad and less than 2 kV is almost impossible to see many faults** which may be not evident during the execution of the test but which may appear after an already short period of operation”

“To trigger a fault which is not a fully zero resistance fault you need enough energy, which means **a bigger capacitor**”

“**A longer pulse frequency** means less attenuation of the waveform, which allows **a better diagnostics**”

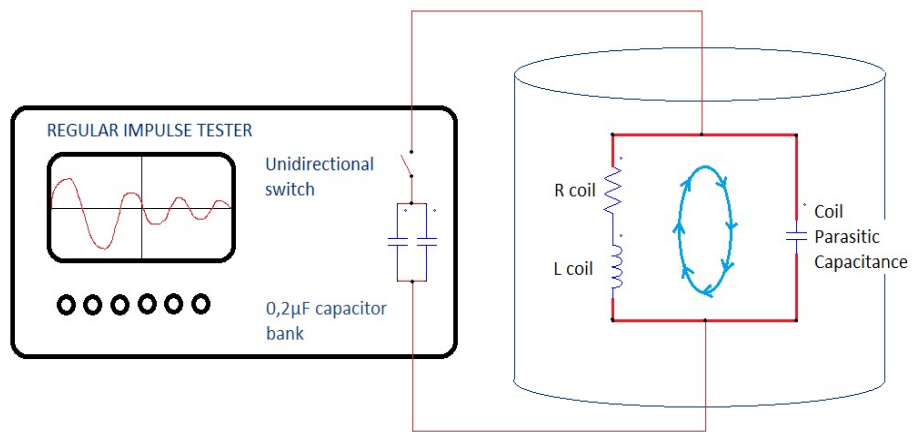
“We also tested a commercial instrument (a very nice one) with 200 nF capacitor, but **we could not see many of the defects we can see with 2 microFarad.**”

“In practice, we test all magnets, any kind, correctors, small, big, huge, resistive, superconducting magnets with such a capacitance value.”

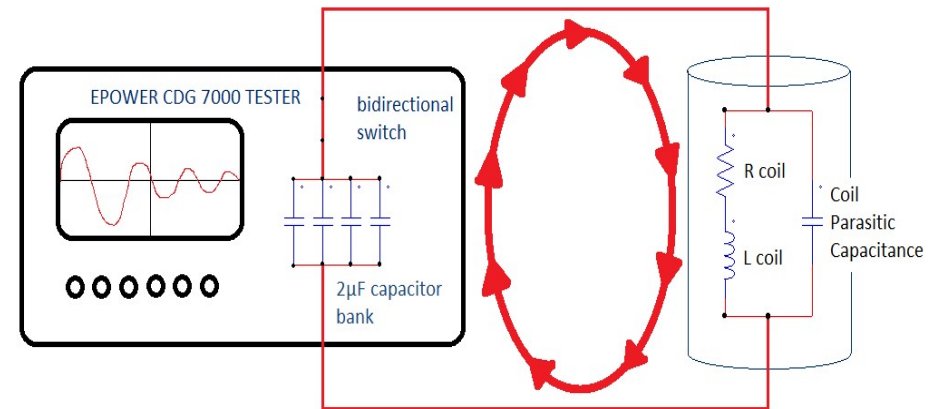
*Magnets Group, CERN*

# SOME PREVIOUS QUESTIONS

REGULAR IMPULSE TESTER

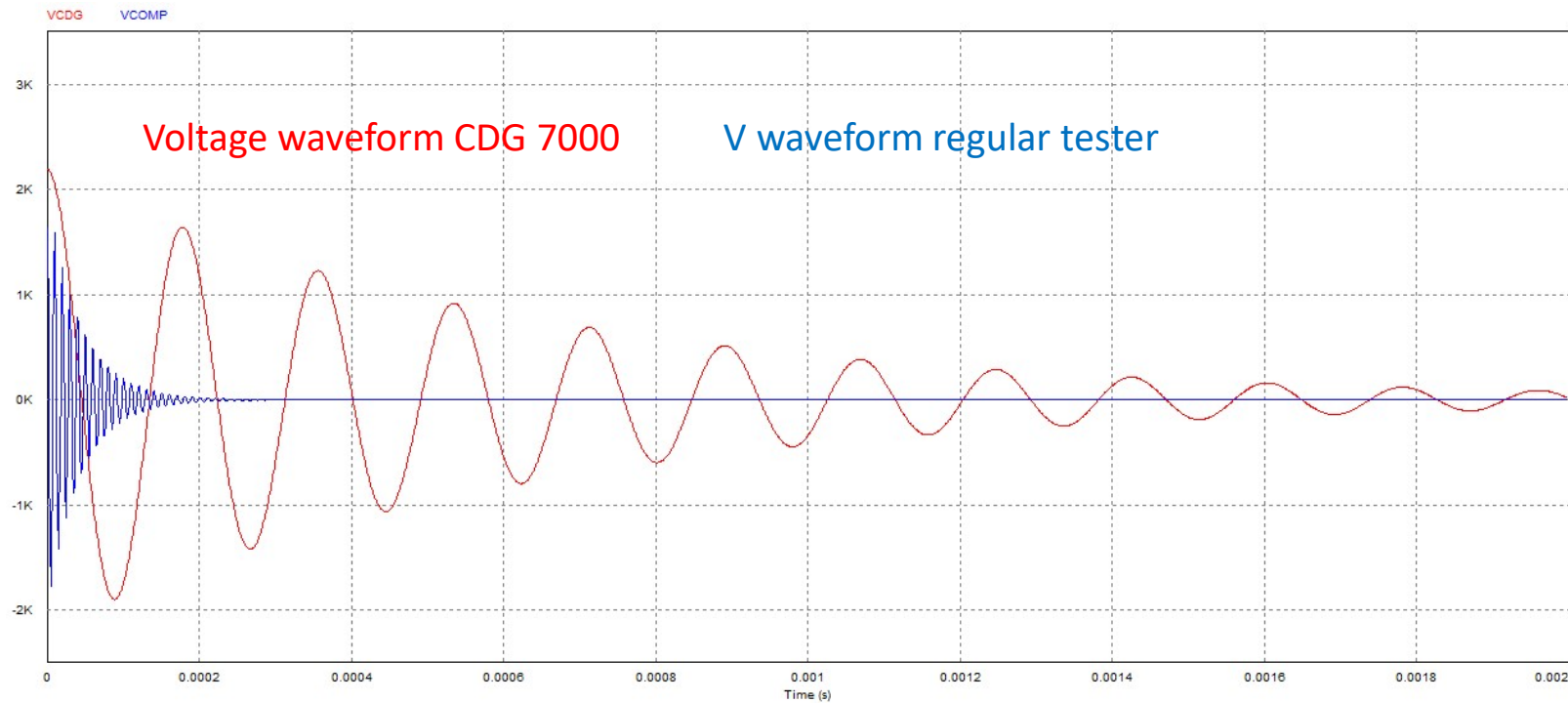


EPOWERSYS CDG7000



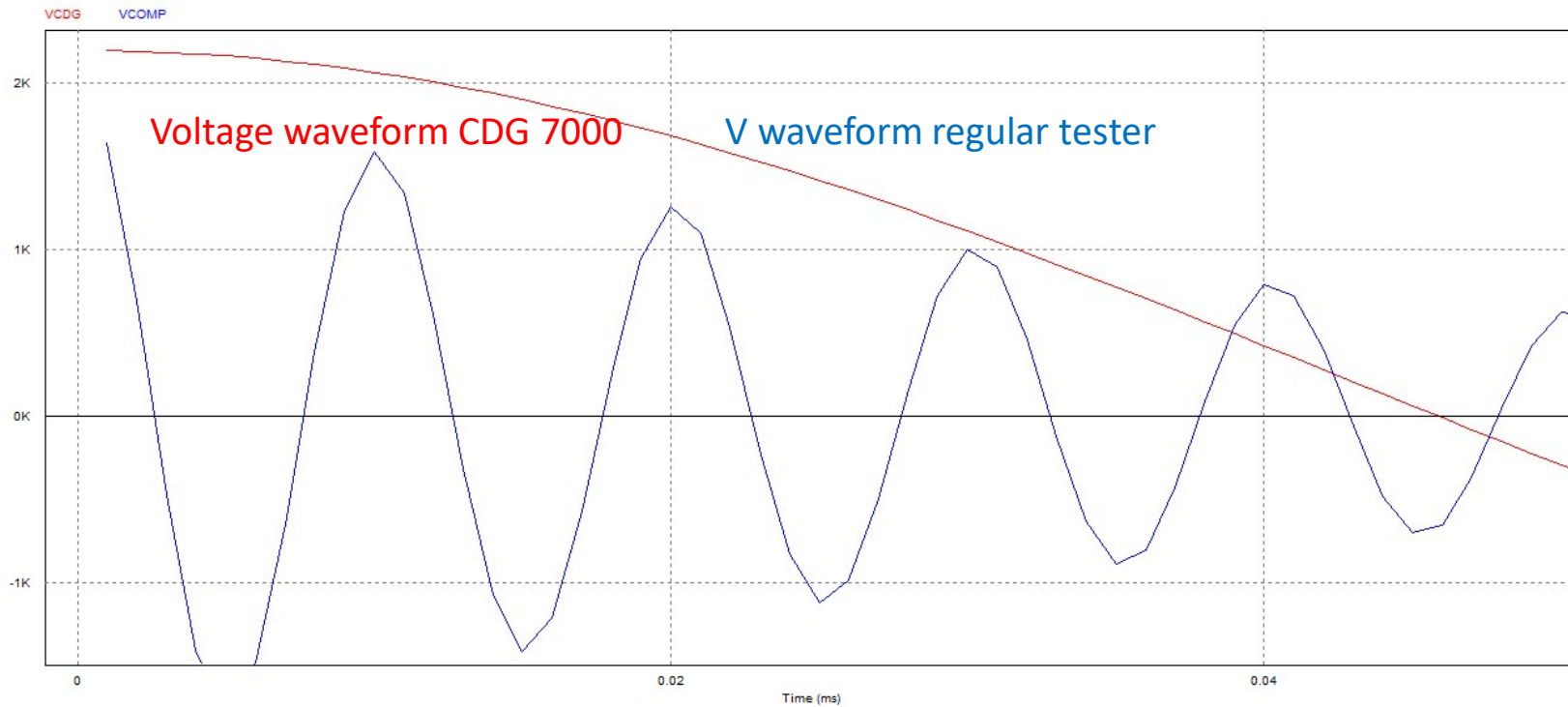
# SOME PREVIOUS QUESTIONS

WHAT IS THE DIFFERENCE BETWEEN AN IMPULSE TESTER AND CDG700 TESTER?



# SOME PREVIOUS QUESTIONS

WHAT IS THE DIFFERENCE BETWEEN AN IMPULSE TESTER AND CDG700 TESTER?



# CHECK YOUR TESTER

What does your testers waveform look like? Please, note the difference in the frequency

## EPOWERSYS CDG7000



Consistent frequency during the test. **Capacitance is constant during the test** 2 $\mu$ F

## REGULAR IMPULSE TESTER



First pulse is wider than the rest of the resonance. **Capacitance is reduced during the test.**

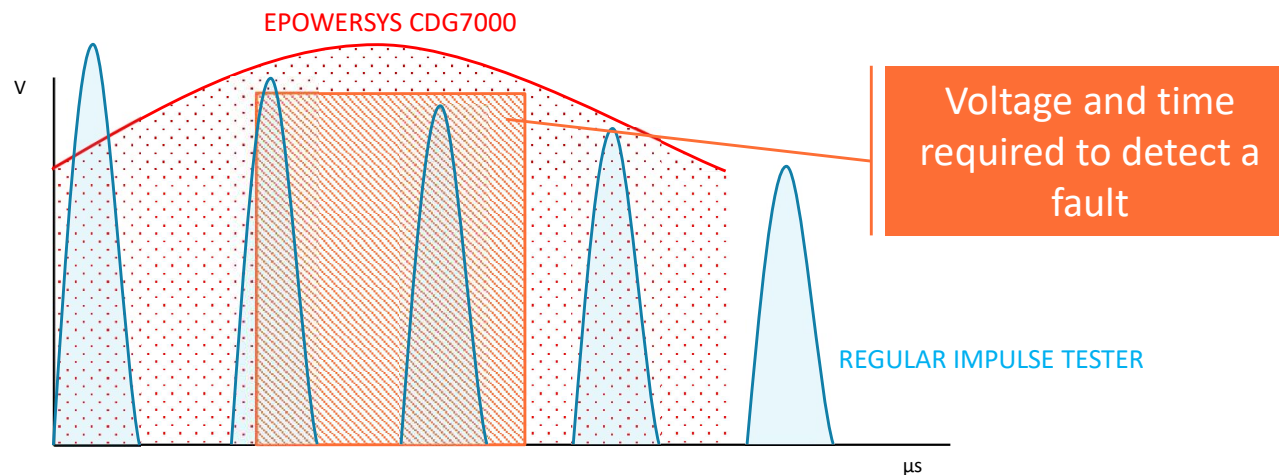
# Why to choose EPOWERSYS CDG 7000

## reason 1: Do not take any risk

You will be able to see faults which you might be missing with your existing tester.

You need at least 1 $\mu$ F and 2kV to detect some faults before a problem in operation.

EPOWERSYS CDG7000 WINDING TESTER is 2 $\mu$ F and 7kV





# Why to choose EPOWERSYS CDG 7000

## reason 2: Security

**Afraid to damage your coils during the discharge with wider pulses?**

Note that if your winding is good, the energy of the capacitor does not matter, if it is bad an interturn short circuit will not damage the coil allowing therefore the winding to be repaired.

**EPOWERSYS CDG7000 is equipped with:**

Short circuit protection

Open circuit protection

Emergency Stop switch

Charge led indicators

Lemo connector

Ground connector

High noise immunity

Galvanic isolation



# Why to choose EPOWERSYS CDG 7000 reason 3: User-friendliness

**You do not need high voltage skilled operators to use EPOWERSYS CDG7000**

- Portable device
- Easy connections
- 7" touch screen
- Zoom
- Filters
- 4 Gb memory (200.000 waveforms)
- USB 2.0, HDMI, ports
- Oscilloscope connectors
- LAN connector



EPOWER SYS CDG 7000

S70

Charge



Discharge



Emergency stop



Power



USB



Voltage



500 output  
1:1000 (V/A)

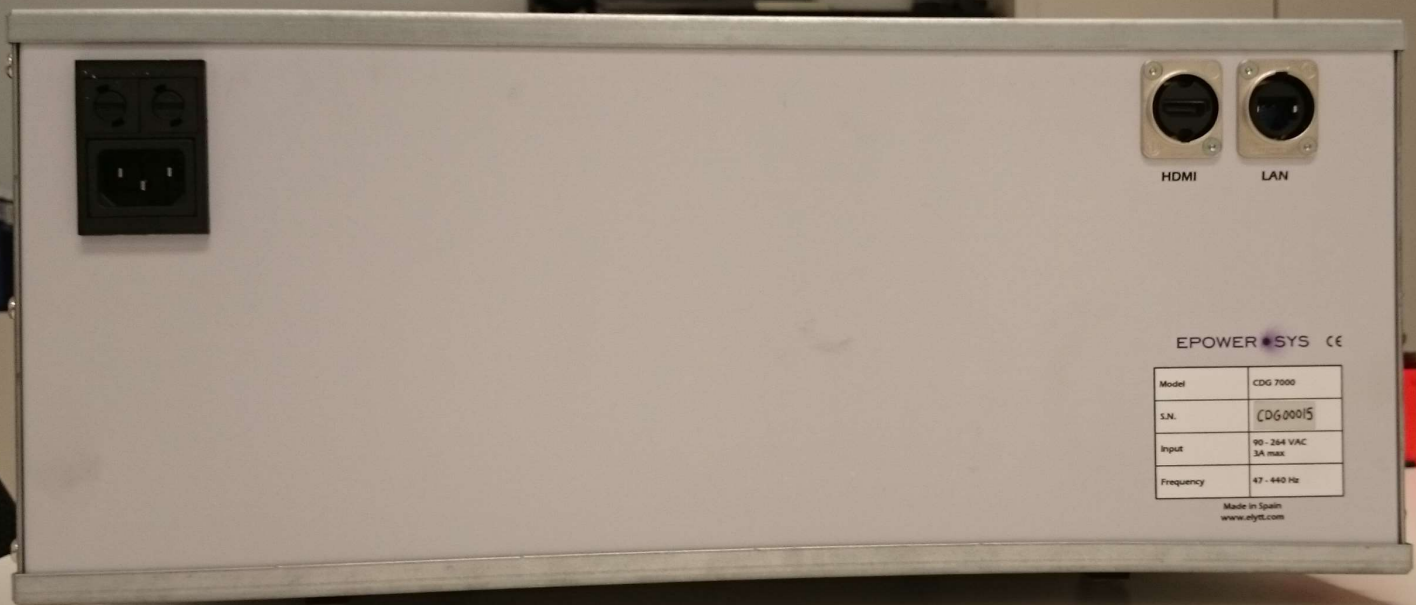
Current



500 output  
1:100 (V/A)

Output





HDMI

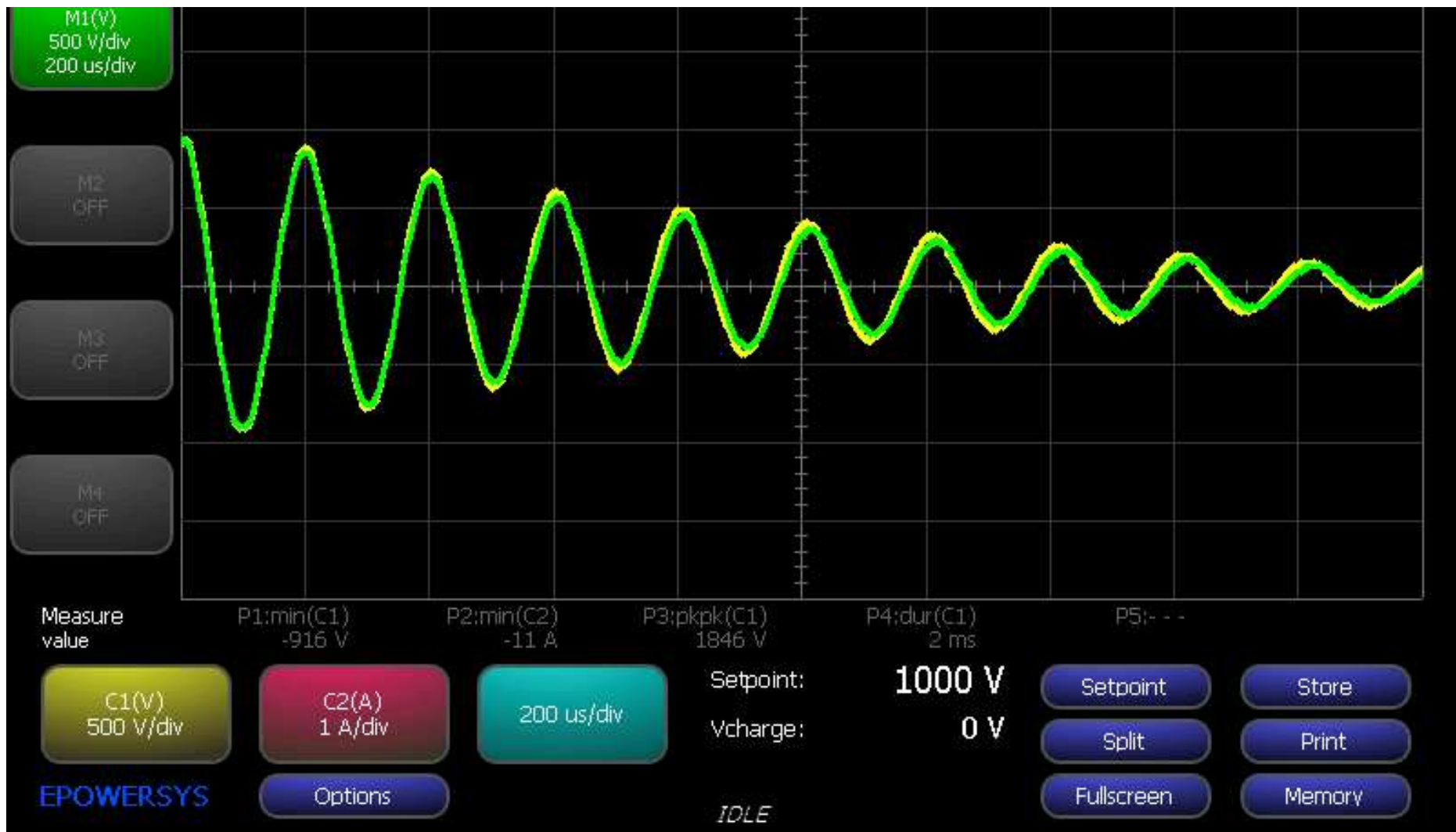
LAN

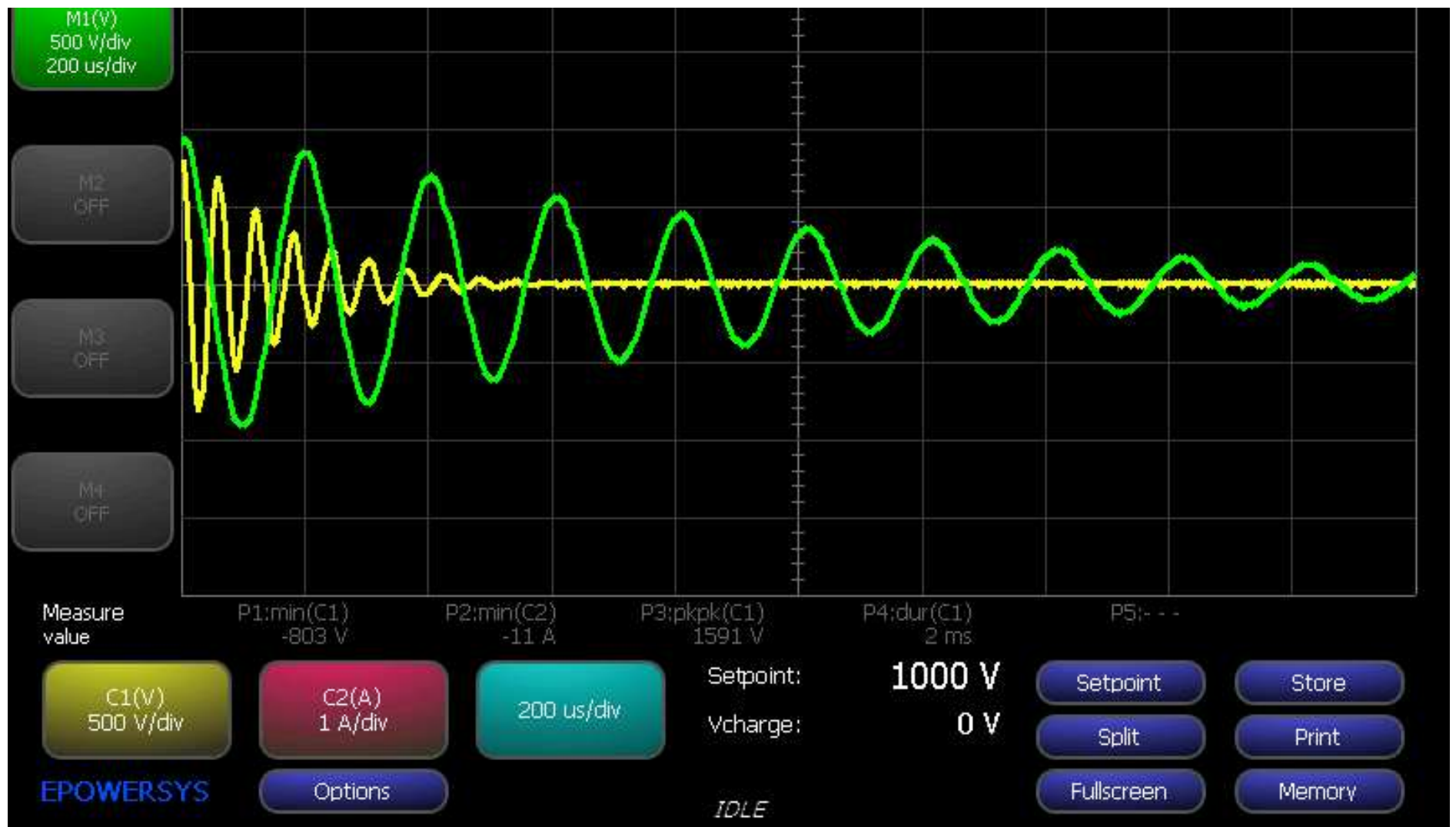
EPOWER SYS CE

Model	CDG 7000
S.N.	CDG00015
Input	90-264 VAC 3A max
Frequency	47-440 Hz

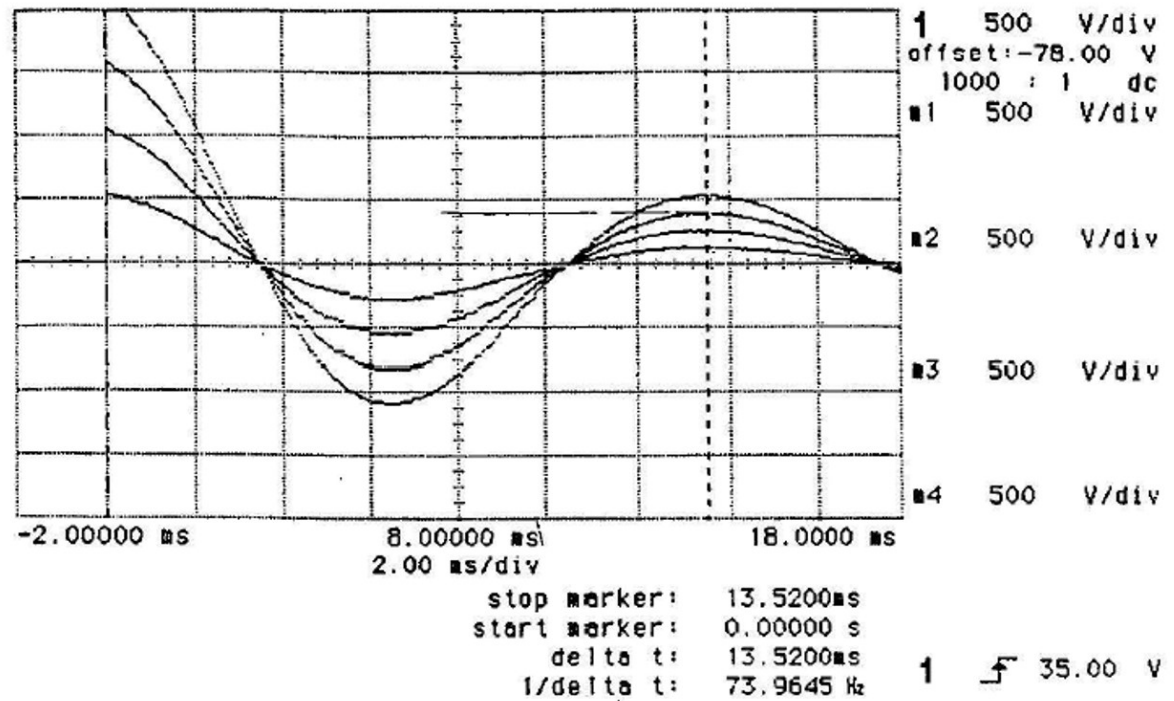
Made in Spain  
www.epst.com







# PROCEEDING TO GET PATTERN CURVE



# Exact Method    Qfactor

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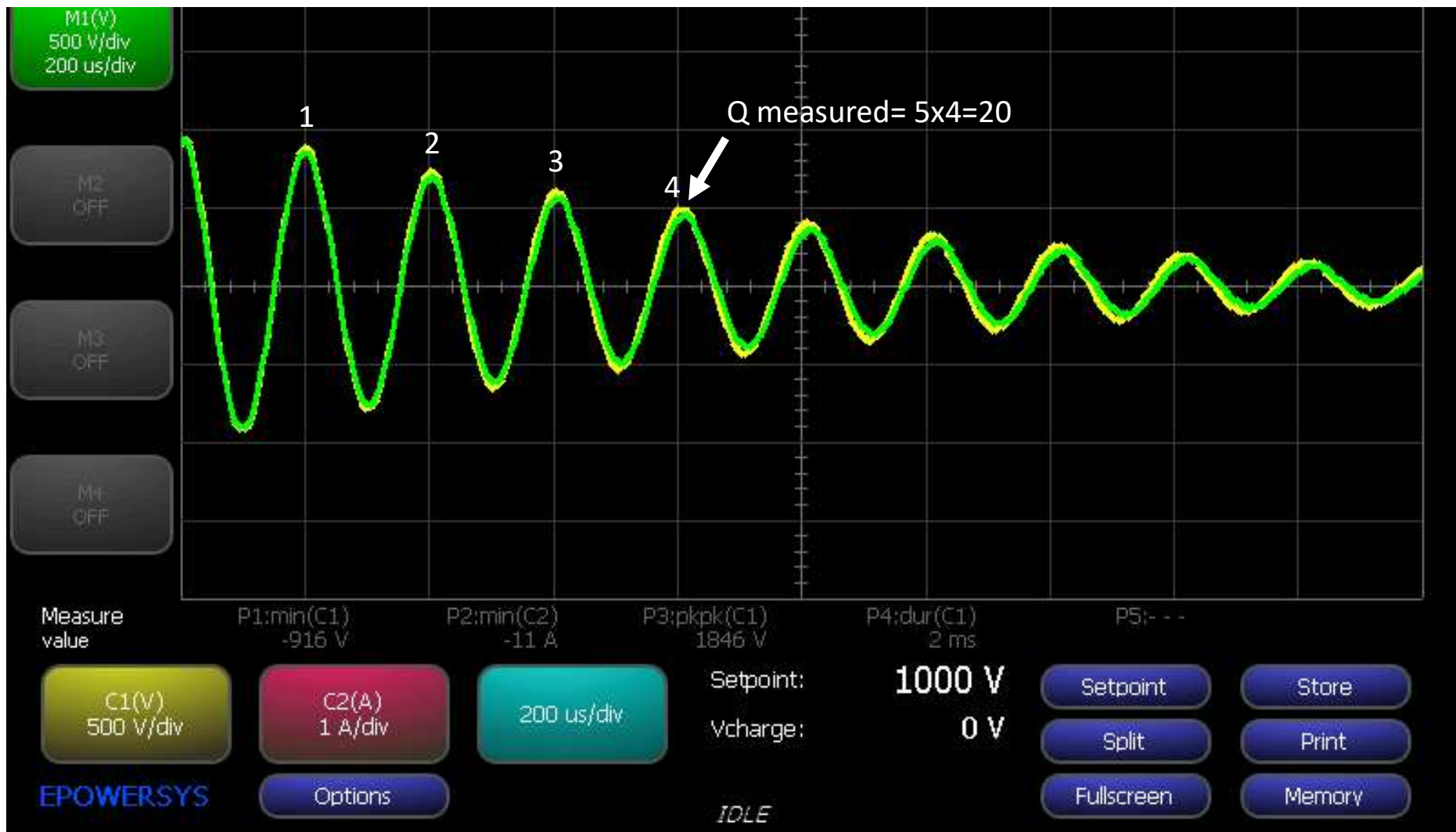
Calculation

$$\omega = \omega_0 \left( 1 - \frac{1}{4Q^2} \right)^{\frac{1}{2}} \quad \omega_0 = \frac{1}{\sqrt{LC}} \quad Q = \omega_0 \frac{L}{R}$$

Measuring

How many cycles it takes to halve the amplitude of the oscillations and multiplying this number by 5





# Make your decision

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**If you are using a regular impulse tester, and you think you might be missing some faults in your windings with your existing device, you can completely eliminate any risk by using EPOWERSYS CDG7000 tester.**

Please, contact our sales department to ask for your personalized quotation at the best price at: