

PURPOSE OF THE DEVICE

Providing coating producers, specifiers and inspectors as well as coated metallic products and construction producers and owners with information on coating impedance as an indicator the paint system protective ability. The test can be applied in the coating formulation phase, the product or construction design phase, the coating application phase and throughout the coating lifetime, to prevent structural integrity concerns and expensive repair or maintenance operations leading to the loss of revenue.



DEVICE ARCHITECTURE

The device consists of a pair of flexible, conductive polymer sensor electrodes sticking to a coated surface with the aid of a specifically tailored highly conductive electrolyte paste. The measurement is done between a single electrode and a substrate or between the two identical electrodes. The electrodes are connected to the impedance spectroscopy instrument run from the PC, tablet or phone application (Window or Android platforms).



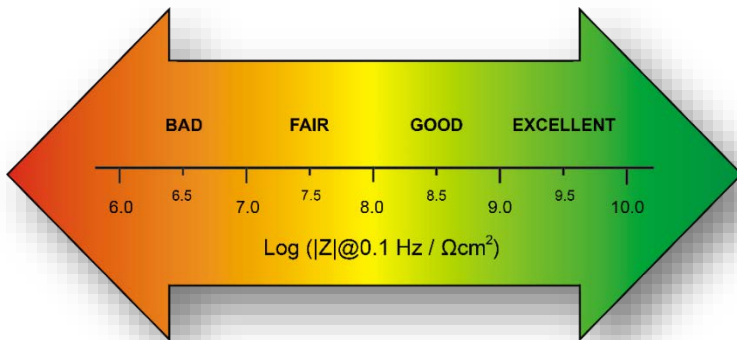
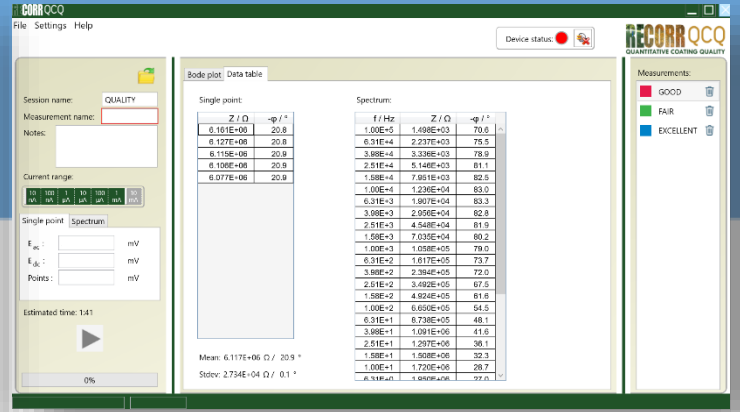
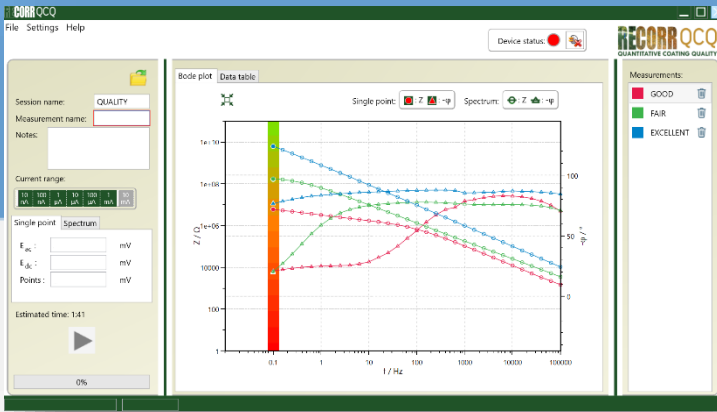
FIELD AND LABORATORY MEASUREMENTS

The device may be used for testing and inspection of coatings on coated samples, metallic products and constructions. It is intended for measurements in testing and R&D laboratories, for prequalification of coating systems and application processes, for quickly optimizing the coatings formulations and for the field testing and inspection of coatings in service.

DEVICE OUTPUT

- (i) Up to ten consecutive coating impedance measurements at a single frequency of 0.1 Hz, their mean and standard deviation on a logarithmic scale.
- (ii) Coating impedance spectrum in the chosen frequency range from max. 10^5 Hz to min. 10^{-2} Hz.





COATING ASSESSMENT

- (i) From impedance modulus @0.1 Hz, according to the established scale.
- (ii) From shapes of the impedance spectra, by visual comparison to representative spectra given in ISO 16773-4 or literature references. Intact coating, partially degraded coating and coating with corrosion present at the substrate can be distinguished.

COMPLIANCE WITH STANDARDS

The test fully complies with ISO 16773 Parts 1 to 4 with an alternative measurement cell as envisaged by ISO 16773-2. The measurement capability is verified according to ISO 13776-3, by dummy cell circuits with capacitance and resistance values of the order of magnitude expected for the actual coated specimen.



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