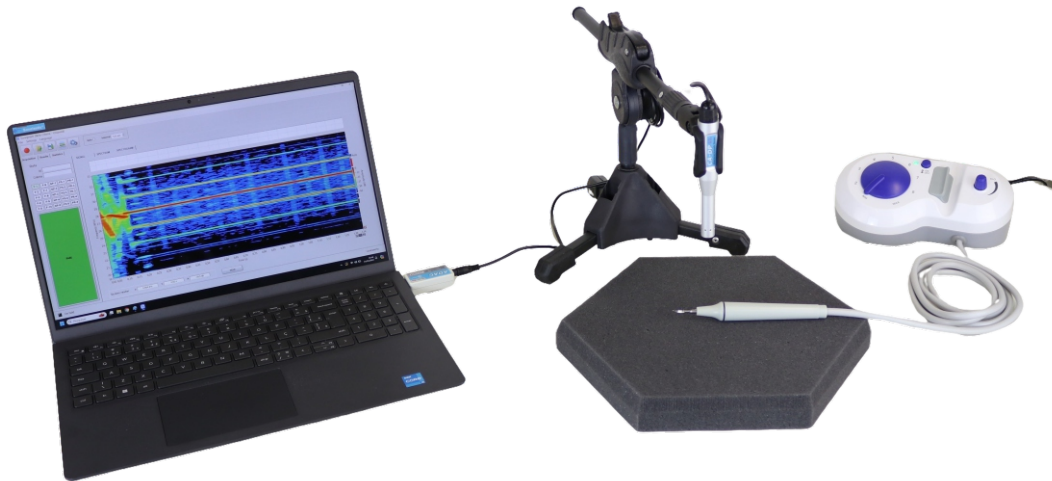


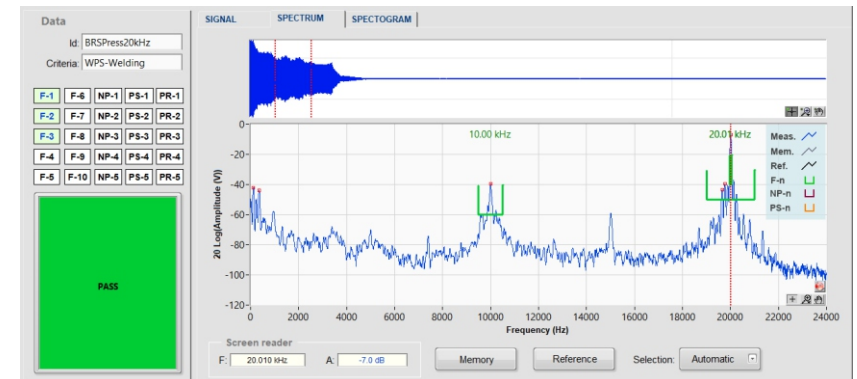
Soneteste®

Ultrasonic frequencies analyzer

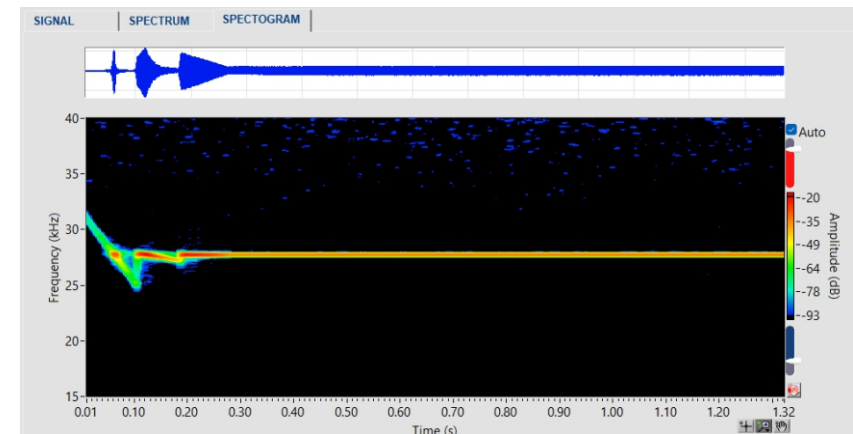
For frequency analysis of ultrasonic devices,
monitoring of ultrasonic welding machines and
resonant ultrasonic spectroscopy.



Soneteste® allows frequency analysis via spectrogram and signal spectrum for a selectable time interval. Apply programmable criteria, generate reports and export results to spreadsheet.



Result of judging the frequencies of an ultrasonic welding machine. In the spectrum, it is possible to identify the main frequency at 20 kHz and the subharmonic at 10 kHz.



Spectrogram of a medical transducer during start-up, in which successive frequency sweeps occur: in the first two, the best frequency is found and, in the last, the amplitude is adjusted.

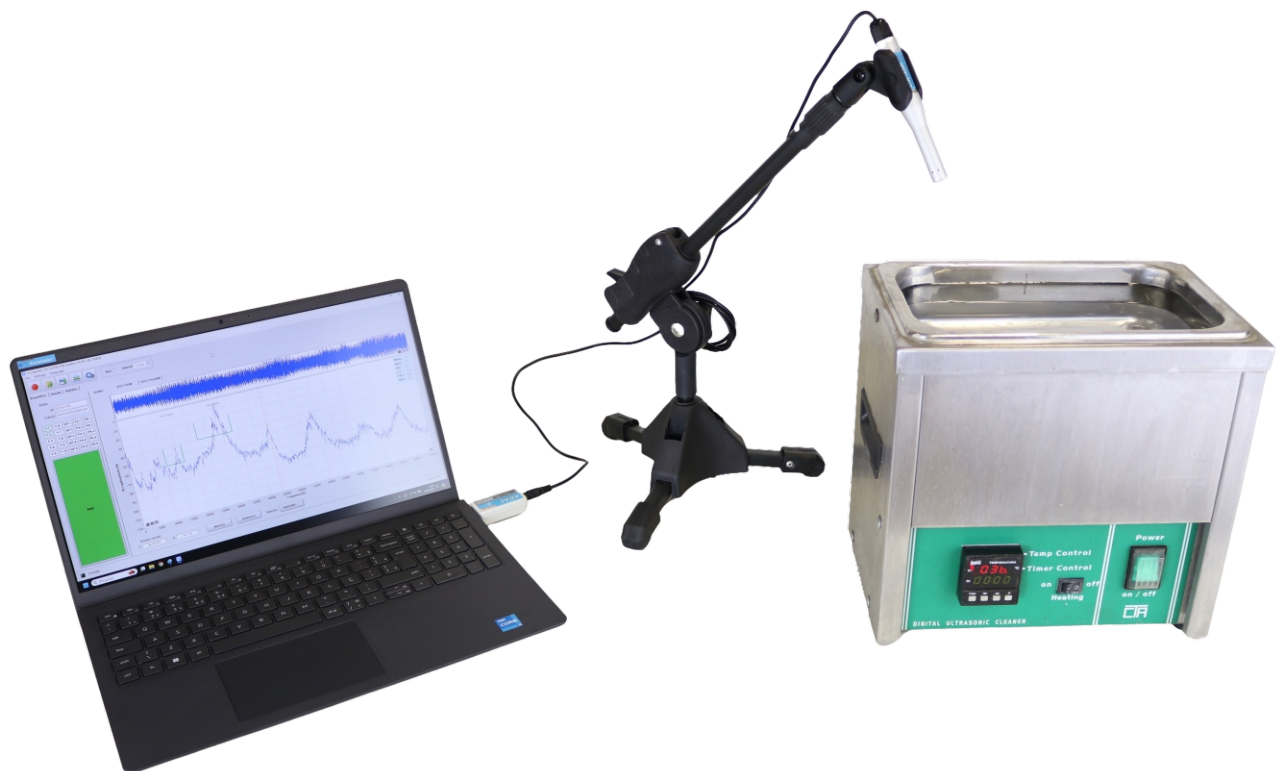
Advanced features of Soneteste®:

- 25 programmable evaluation criteria.
- Calibratable with SI traceability.

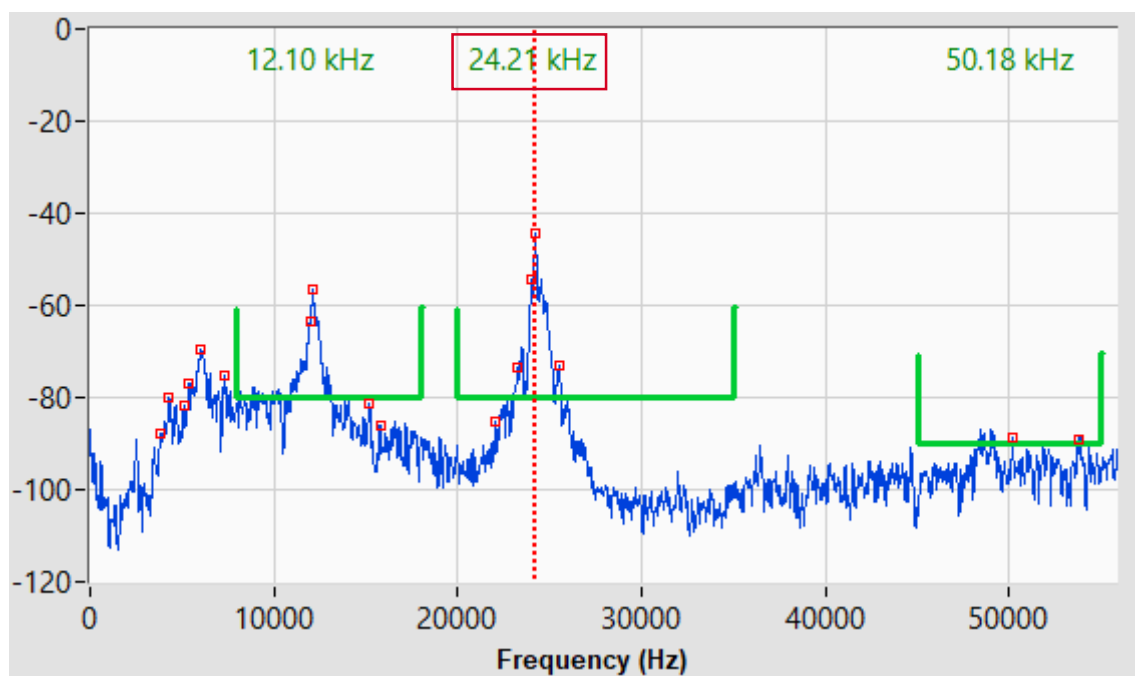


ATCP Physical Engineering
info@atcp-ndt.com / +55-16-99726-1601
www.atcp-ndt.com

Quality control of hospital and industrial ultrasonic cleaners

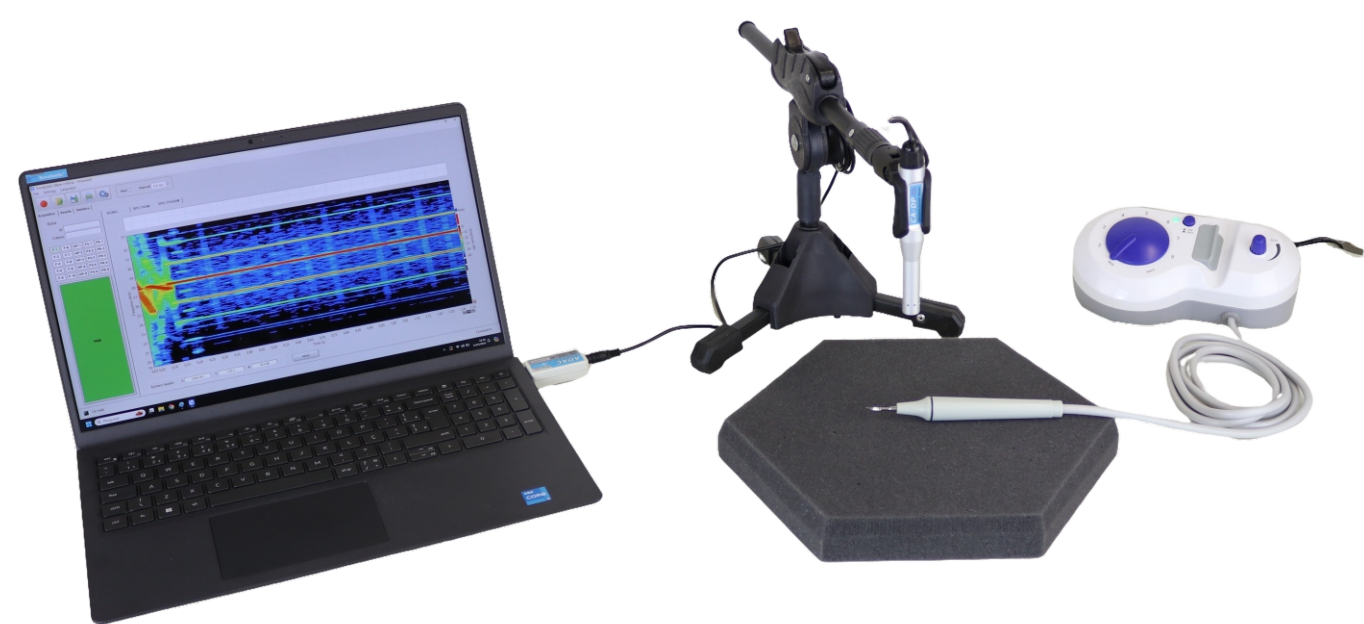


Allows the determination of the operating frequency, the identification of harmonic frequencies and the cavitation spectrum.

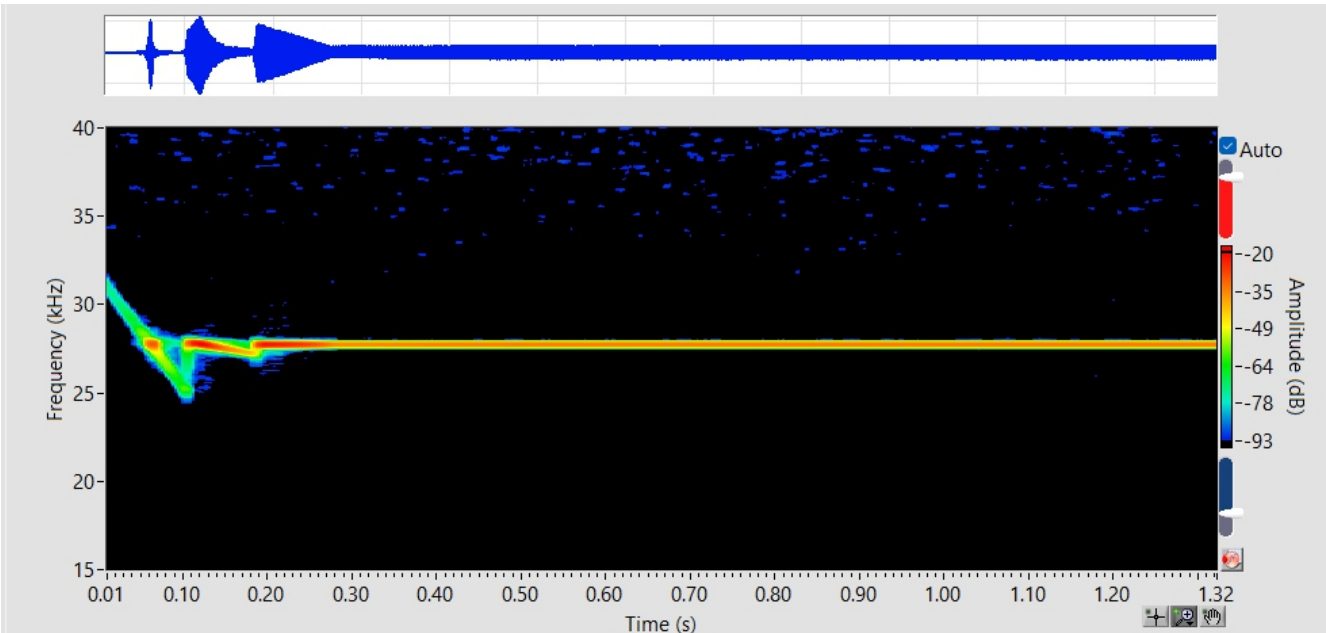


Spectrum of the ultrasonic cleaner shown in the figure above, obtained with Soneteste®. Note the main peak at 24.21 kHz (nominal frequency is 25 kHz). The peak at 12.17 kHz is from a subharmonic, and the multiple peaks between 5 and 10 kHz are from cavitation noise.

Analysis of the auto-tuning behavior of ultrasonic generators

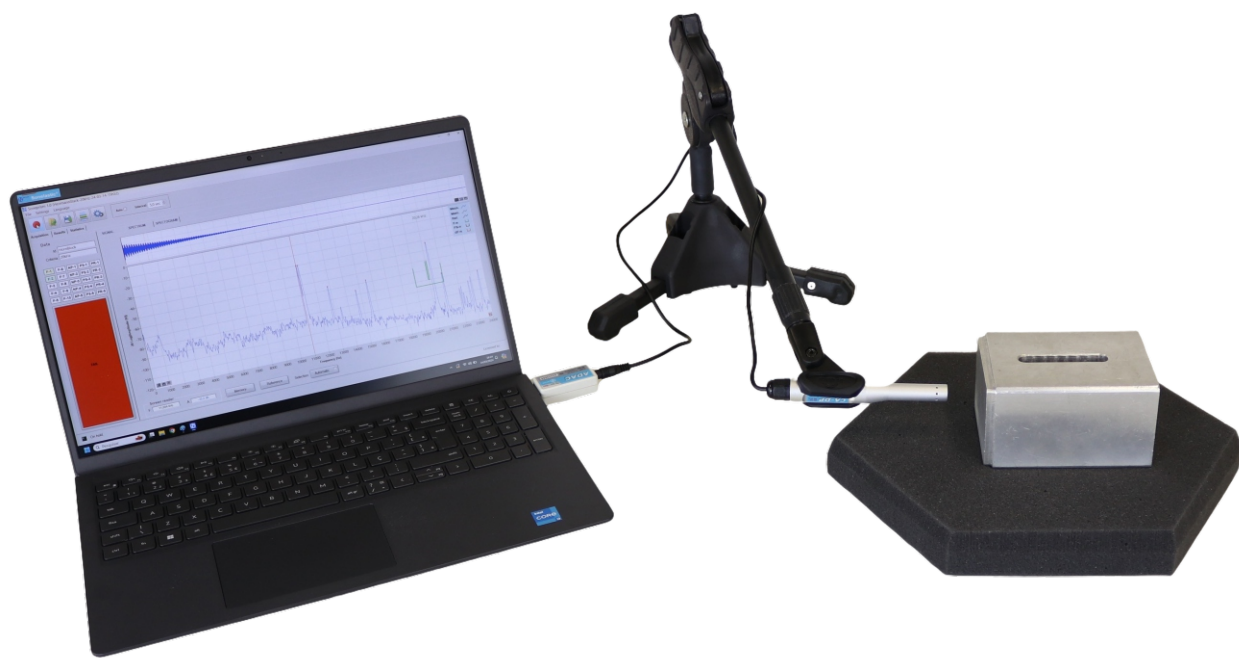


Allows visualization of the generator's frequency behavior, useful in the development, improvement, and maintenance of power ultrasonic equipment.

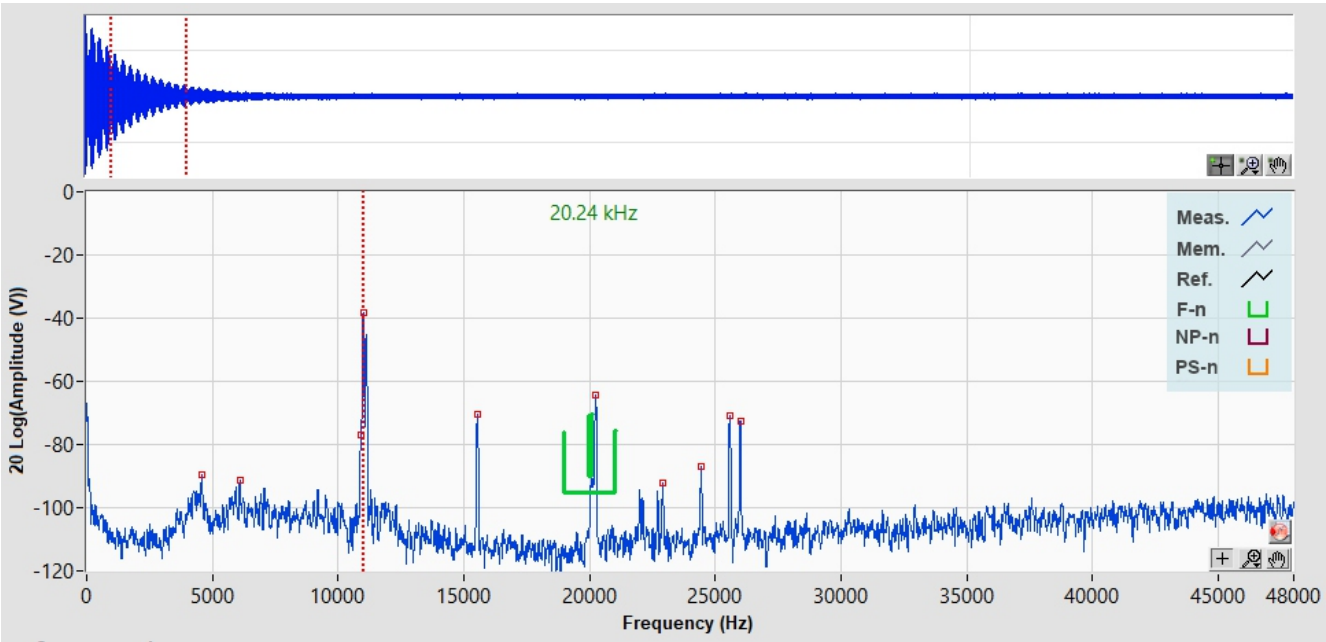


Spectrogram of the dental equipment shown in the figure above during startup, obtained with Soneteste®. It is possible to identify a sweep from 31 to 25 kHz between 0.00 and 0.10 s, and a refinement from 0.10 to 0.20 s. Subsequently, an linear amplitude adjustment by the generator is performed between 0.20 and 0.30 s while maintaining a fixed frequency.

Tuning of ultrasonic welding horns and boosters



Allows you to identify the main frequency and side modes,
without the need to couple it to a converter.
Allows basic modal analysis.

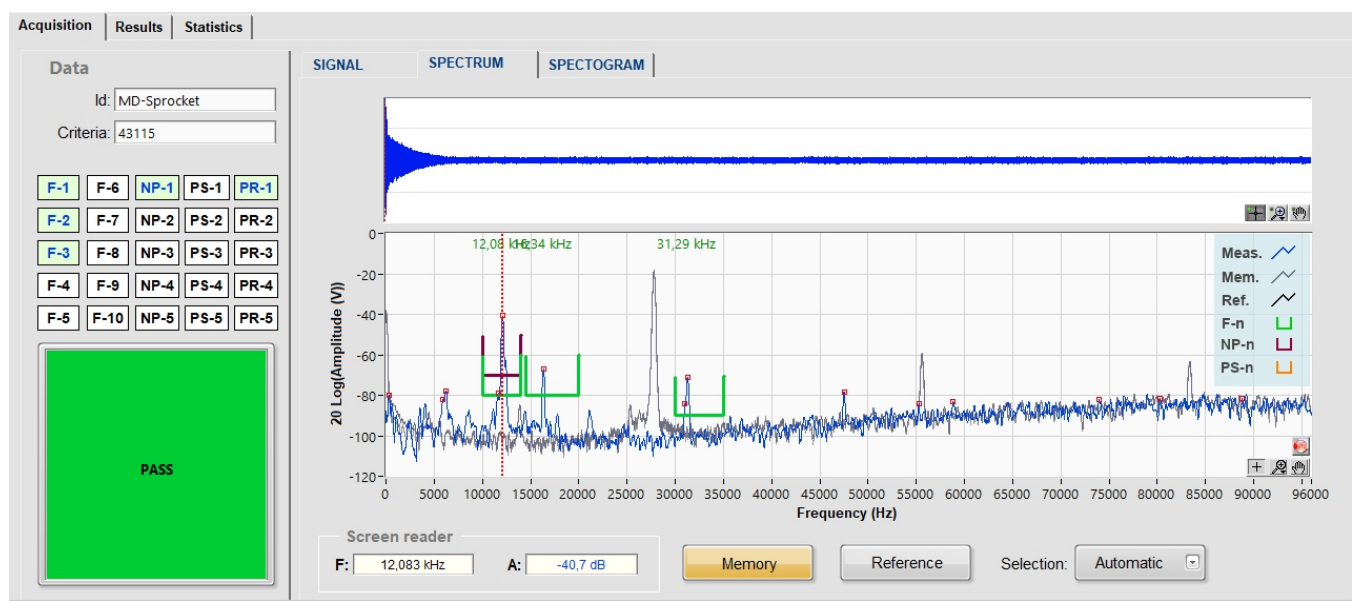


Acoustic response and spectrum of the ultrasonic horn shown in the figure above, obtained with Soneteste®. Excitation was applied to the front face. The measured frequency (20.24 kHz) is too high for a 20 kHz horn. The peaks around 11.0 kHz and 15.5 kHz are lateral modes.

Inspection of parts by resonant ultrasonic spectroscopy



Meets ASTM E2001-18 standard
for detecting defects via resonant ultrasonic spectroscopy of grinding wheels, metallic and non-metallic parts.

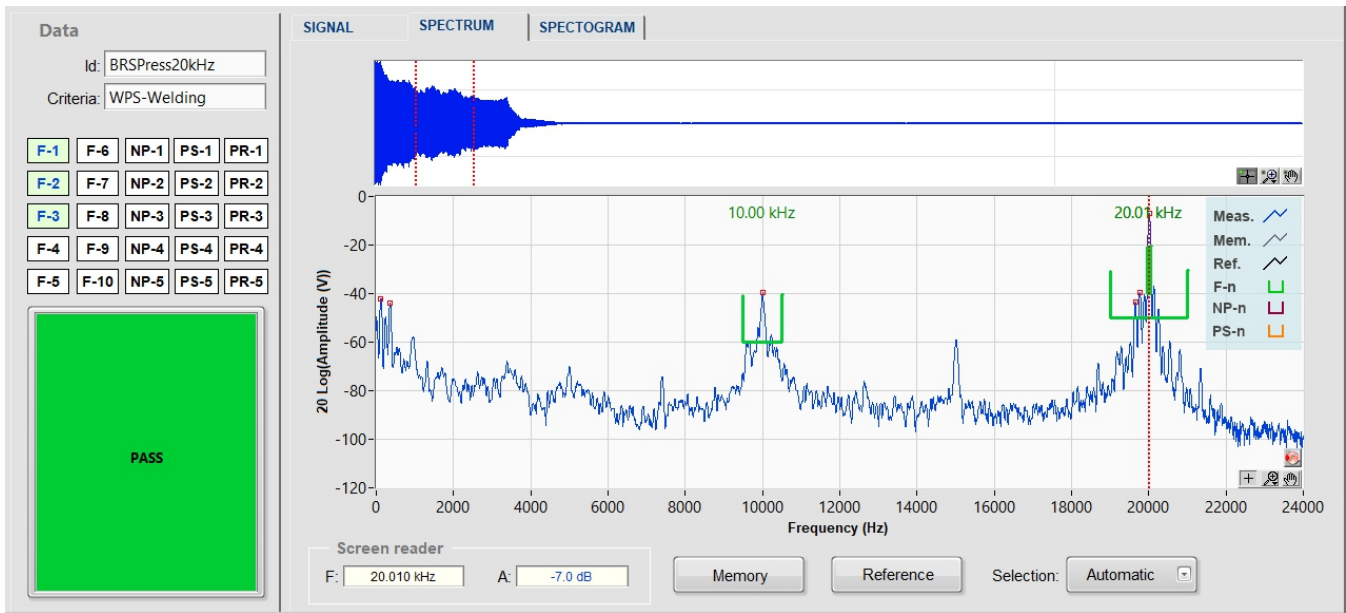


Spectrum of the grinding wheel shown in the figure above, obtained with Soneteste®. The overall judgment result (PASS) was based on the detected frequencies (F1 and F2) and the frequency ratio between these frequencies (PR-1). It is also possible to employ criteria based on the number of frequencies and the spacing between peaks.

Continuous monitoring of ultrasonic welding machines



- Reduces losses and machine downtime:**
- Detecting frequency deviations that indicate the need for preventive maintenance.
 - Identifying whether the activation was with or without load.
 - Estimating the duration of the weld.



One of the results of continuous monitoring with Soneteste® of the welding machine shown in the figure above. This spectrum is from the moment of welding. Note the subharmonic frequency at 10 kHz; when a no-load activation occurs, this peak does not appear.

Example of a report generated by Soneteste®

Id: USCleaner-D40XA-25kHz-CTA-24-06-25-15h20
Criteria: D40XA-25kHz-CTA
Model: D40XA-25kHz
Manufacturer: CTA
Operator: HA
Load: Water
Date: 25/06/2024 15:20
Notes: None

Parameters

Acquisition time (s): 1.365
Processing time (ad.): 5
Sample rate (Hz): 192000

Overall result:

PASS

