See what you can hear.

AVL DiTEST ACAM
ACOUSTIC CAMERA
Tool for locating the sources of airborne sounds
The AVL DiTEST ACAM makes the sources of noise visible by combining many microphones with a digital camera. The sound levels appear in the live camera image in colours indicating the intensity, and are overlaid on the optical image. Thanks to the simple, user-friendly software and the image-based results, the source of the disturbance can quickly be pinpointed without the user needing any special expertise. The compact design provides a high level of flexibility and allows for use while the vehicle is in operation.
ACOUSTIC CAMERA – PRINCIPLE OF OPERATION

It is possible to locate the sources of noise by integrating many microphones and an optical camera in the vehicle. The sources of noise are located by analysing the differences in propagation time of the sound waves relative to the different microphones. At the same time, both the intensity and the position are shown on the display. By adjusting the measurement parameters, background noise interference can be blocked out.

1. Overlaying the optical and acoustic image
2. Progress of the frequency spectrum over time
3. Current frequency spectrum
4. System settings

PRACTICAL EXAMPLES:
- Locating noises in the interior (rattling, squeaking)
- Seal testing (door seals)
- Engine compartment: increased noise levels from bearings, drive belt and drive chain

PRODUCT BENEFITS:
- Lower troubleshooting times and simple documentation of unidentified disturbing noises
- "Right first time" – a greater chance of success and prevention of unnecessary parts replacement and repeated repairs
- Documentation of effectiveness of measures taken – recording before and after repair
- Dampening of background noises
- Refined operating concept allows for standalone use with a docked tablet, but also allows connection to a tablet or a standard PC using a USB cable
- Guaranteed long service life of the equipment due to robust, dust-proof and splash-proof casing
- High flexibility due to integrated rechargeable battery for mobile measurement operations

DESIGN DETAILS

- Tripod mount (1/4" and M6 thread)
- Dust-proof and splash-proof front
- Optional holder for tablets (e.g. Getac T800)
- Very robust casing design
- Low demands on display unit due to passively cooled computing unit in the equipment
- Ergonomic handles with control buttons
### HARDWARE

#### Physical Properties
- **Dimensions:** 34 x 34 x 9.5 cm (13.4 x 13.4 x 3.8 inch)
- **Weight:** 2.5 kg (without Tablet)
- **Waterproof:** IP54
- **Anti-theft system:** Kensington lock
- **Battery life:** min 2.5 h
- **Tripod socket:** 1/4 Zoll and M6
- **Buttons:** 4 + power on/off
- **Temperature range:** -5°C to 45°C

#### Interfaces
- **USB:** for data export or keyboard/mouse
- **Ethernet:** LAN (for running software on laptop/PC)
- **Audio:** via USB

#### Sensors
- **Microphones:** 64 digital MEMS
- **Frequency range:** 10 Hz - 24 kHz
- **Sound pressure:** max. 120 dB
- **Sample rate:** 48 kHz
- **Resolution:** 24 bit

#### Optical Camera
- **Type:** digital
- **Resolution:** 320x240 (50fps), 640x480 (16fps) or 1280x960 (5fps)
- **Lighting:** 4 LEDs
- **Aperture:** angle ± 38°
- **Shutter:** global shutter

#### Power
- **Supply:** power adapter
- **Battery:** Li-ion battery
- **Power Path Management:** work and charge simultaneously (charger + PPM is integrated; no external charger unit necessary)

### SOFTWARE FEATURES

#### OS
- Linux (Windows 10 software also available)

#### HMI
- Touchscreen or mouse and keyboard

#### Online Performance
- Up to 100 acoustic fps, up to 50 optical fps
- Acoustic pictures, optical pictures, sonogram and spectrum
- Listen to local sound
- Place marker while measuring
- Recording 20 to 120s, buffer or manual

#### Offline Features
- Offline mode for analysis
- View acoustic results picture by picture
- Save and reload
- Replay
- Listen to local sound

#### Export
- wav or flac (sound)

#### Intuitive Usability
- Distance settings
- Frequency filter
- Dynamic filter
- Different scaling modes (off, auto and smart)
- Preset measurements

### SYSTEM PROPERTIES & ACCESSORIES
- **Acoustics:** 64 microphones
- **Optics:** digital camera (grey scales) with integrated LED lighting
- **Display:** integrated tablet (ruggedised, 8.1” HD display)
- **Performance:** 50 fps (for pulsed noises)
- **Interfaces:** USB, LAN
- **Battery life:** >5 hours
- **Casing:** very robust (1 m drop height), dust-proof and splash-proof (IP54)
- **Accessories:** Tripod, external USB trigger (time stamp on measured data), 12 V charger, case, headphones (directional microphone mode)

### COMPONENTS:
1. Display unit (tablet or PC via USB)
2. Ergonomic handles incl. control buttons
3. Internal rechargeable battery with capacity indicator
4. Optical camera with lighting LEDs
5. Splash-proof acoustic microphones
6. Rubber protectors for safely storing the camera

---

**Publisher:**
Headquarters: AVL DiTEST GmbH
Alte Poststraße 156, 8020 Graz, AUSTRIA, Tel. +43 316 787-1193, Fax 1460, ditest@avl.com
German branch: AVL DiTEST GmbH
Schwadermühlstraße 4, 90556 Cadolzburg, GERMANY, Tel. +49 9103 7131-540, Fax -477
www.avlditest.com

PA7431E
04/2019 May be subject to change