

Functional Description of ANDE instrument

The ANDE instrument is a Rapid DNA Analysis instrument that is used to generate CODIS (Combined DNA Index System) compatible DNA profiles from samples that are inserted in to a BioChipSet Cassette (manufactured by NetBio)

The key subsystems in the instrument are

Pneumatics: This subsystem consists of valves and tubing that are used to move materials in the BioChipSet Cassette

Optics: This subsystem consists of optical components (laser, lenses, mirrors, Photo Multiplier Tubes) that are used to excite and collect data from the BioChipSet Cassette.

Thermal: This subsystem consists of Thermo electric cooler (TEC), heaters that are used to perform the PCR on the BioChipSet Cassette.

Electrical: Consists of all the electrical components in the instrument (including safety interlock, HVPS)

Enclosure: All the components in the instrument (other than the BioChipSet) are enclosed within the enclosure for the instrument.

Software: The GUI software runs on the single board computer and the control software runs on the Process control Motherboard.

The instrument has a GPS receiver for determining the location where the samples are collected.

The instrument has a wireless adapter to enable wireless network.

The instrument has an RFID reader board and 2 RFID antenna boards. The reader board can read up to 7 channels. These read the RFID tags that are installed on the BioChipSet Cassette and also on swabs that are used with the BioChipSet Cassette. The RFID is used for positive tracking of the samples within the instrument.

The user manual provides more detailed description of the operation of the instrument

Two tests were performed on the instrument at the NRTL laboratory

- Verification of normal operation of the instrument and emissions study. The instrument passed these tests.
- Verification of instrument operation with the RFID running continuously. The instrument passed these tests.

The Intertek test reports from these testing are provided for reference.