Minimum Essential Characteristics (MEC)
Card Processing Automation CPA200

General: To support the mission of the Armed Forces Medical Examiner System DNA Operations (AFMES-DNA OPS) and the Defense POW/MIA Accounting Agency (DPAA), AFMES-DNA OPS high-throughput robotic processing workflow currently relies on three BSD®600 Duet semi-automated biosample punchers. These instruments, which are integral to processing family reference samples through the laboratory's information management system (LIMS), are now unserviceable and require replacement.
This replacement is critical for meeting the mission demands of the DoD's past accounting programs, which require reprocessing approximately 15,000 Family Reference Blood Specimen Cards (FR-BSC) with new technologies. It is also essential for supporting the National Defense Authorization Act (NDAA) mandate for the past accounting community to achieve a significant number of annual identifications.

The Card Processing Automation CPA200™ is being procured to replace the unserviceable units. This decision is based on the CPA200's protocol flexibility, semi-automated function, custom programming capabilities, and operability with AFMES-DNA OPS existing LIMS. Its robust software and hardware (utilizing barcode readers) will increase processing efficiency and significantly reduce the potential for sample errors.

1. Card Processing Automation CPA200™

Purpose: The CPA200™ is a semi-automated Biosample Puncher specifically designed for high-throughput Family Reference Sample (FRS) preparation. Its operating software allows for the development of fast, integrated workflows that connect to the AFMES-AFDIL LIMS, streamlining the creation of sample load sheets and sample verification prior to punching. The system includes integrated static control and a camera-based plate verification system to confirm that a punch is correctly delivered to the well. These features allow for the rapid and accurate generation of FRS sample extraction plates.

Specifications:
System components and accessories (quantity 1):

- Must be a semi-automatic system for processing biosample cards for human identification.
- Must be able to punch dried filter paper cards, both framed and unframed.
- Must be able to process at least two 96-well MicroAmp® Optical Reaction Plates in a single run.
- Must feature a quick-release, interchangeable punching system. The following punch head sizes must be available: 1.2 mm, 2.0mm, 3.0 mm, and 4.0 mm.
- Must provide a camera-based system to verify that punches are correctly placed into wells and to detect if a well is empty or filled post-punching.
- Must provide an external and internal laser targeting system to precisely define the sample punch location on the card.
- Must provide integrated barcode readers for both sample cards and 96-well plates for positive identification and traceability.
- Physical dimensions must be approximately 610 mm (L) x 545 mm (W) x 675 mm (H) and weigh approximately 85 kg (187 lbs).
- Shall operate on 120 VAC with supplied voltage transformer.
- Must support footswitch, push button and assisted card detection for punch activation.
- Must have an integrated ionizer system to mitigate static effects during punching.
- Software must be Windows 11 compliant and able to integrate with the existing LIMS to accept .txt format worklists and export output files in .pdf, .txt (SEQ), and .txt (LIMS) formats.
- Must include an integrated touch-screen computer for instrument control and monitoring.
- Must have a dedicated, removable basket for collecting waste punches from cleaning cycles.
- Must include a dust and debris extraction system (vacuum pump).
- Maintenance and service must be performed exclusively by U.S. citizens.