Deployed Forensic Cloud−Based Track and Trace Platform

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Applied DNA Sciences (ADNAS) will describe its cloud−based platform used to track hardware identity, test evidence and provenance of SigNature® DNA marked commodities as a service to participating supply chain members. On March 3, 2014, the core DNA Registry was launched to manage and record microcircuits that had been tagged with SigNature DNA under the US Defense Logistics Agency DNA Marking Program. The DNA Registry records a reference to the forensic DNA code identifier applied to a microcircuit, quantity marked, manufacturer part number NSN number, date code, lot code and country of origin. Individual line item fields also allow for the upload of manufacturer Certificates of Conformance, testing documentation, and high resolution images of components. To date over 163,000 microcircuits, including 2,135 unique part numbers, representing over 100 microcircuit manufacturers have been recorded.

An extension to this cloud-based platform was simulated under an OSD Rapid Innovation Fund contract to capture time stamps and precise geo−location when changes in custody and ownership of DNA-marked parts occur. This system uses bar codes or other automatic identification technology applied to parts or labels for scanned data capture, spectral analysis, and image capture for field screening and validation of parts with upload to the cloud-based DNA Registry. The platform is architected to customize data exchange with other related systems. The system is designed to support input from in-field DNA validation check points in the future.

ADNAS will also present a use case describing DNA marked microcircuits received at an Air Force base, with manufacturer traceability paperwork retrieved instantly through use of the DNA Registry. The value proposition and risk mitigation benefits of platforms that allow for supply chain visibility and connectivity among trusted participants is clear and greatly needed to aid in the management of both active and obsolete components.