



Remote Inspections



DLA
DEFENSE LOGISTICS AGENCY
Established 1961



The Nation's Combat Logistics Support Agency

Remote Inspection Augmented Reality

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WARFIGHTER ALWAYS



A New Idea: Remote Inspection

- **Purpose:** Benefit both the Government and US Textile Plants
- Increase communication, enhance oversight, green initiative, while being unobtrusive.
- Since 2018 for the Clothing and Textile Supply Chain most DCMA representatives are not in vendor plants to see the process.
- C&T changed their own process to allow vendors to pull samples for PDM's, FAT's, and PLT





A New Idea: Remote Inspection

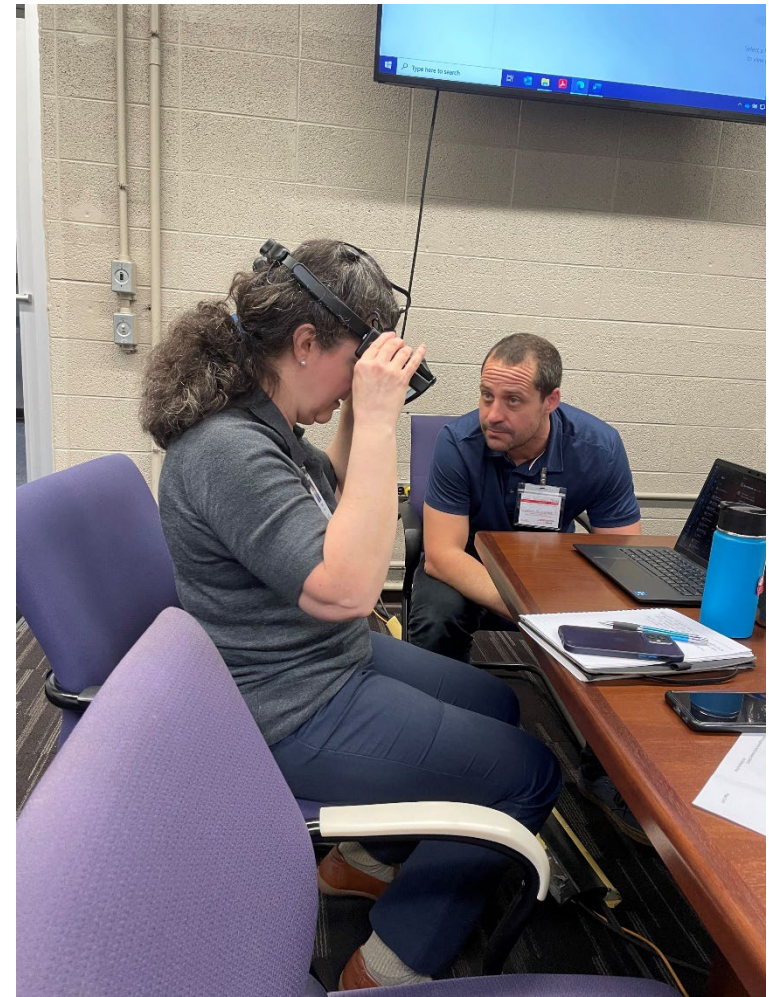


- Vendors now can pull samples and sign off on test reports in lieu of a government representative.
- This left DLA open to the possibility of non-conforming and counterfeit parts that affects the form, fit and function of both critical and non-critical safety items.
- For the plants it removed a necessary in place resource.
- New technology would give DLA the advantage of random remote inspection.
- The new technology gives the vendors real time communication on lot formation and testing.



Updating an Old Business

- In 2021, working with the DLA J68 R&D team on the Textile Greening Initiative, the PTC-A was offered the use of a set of augmented reality goggles.
- The PTC initially used the goggles for internal training and future data capture.
- Some brainstorming from the team established that goggles would be a good way to continue with random oversight of component laboratories to ensure quality processes are being followed, without overburdening any one supplier.
- “Random” being the key term, we needed to link the idea of a remote inspection to the notification process that all the C&T vendors are required to do as part of their contract.





Who Wants to be First?

- Phase 1:
 - DLA R&D purchased two Mira Prism headsets, and two tablets that can serve as remote expert or authoring tablets. They have contracted with Naval Information Warfare Center for technical and IT support.
 - Information on headsets, no hard hat. <https://www.mirareality.com/hardware/>
 - PTC will train our textile technologist and engineers on procedures using the headsets.
 - PTC will travel to five selected vendor laboratories to introduce the concept of remote inspection, demonstrate how the equipment works, and train vendor personnel in the concept.
 - Vendors being asked to participate are Burlington Raeford, Burlington Finishing Plant, Brittany Dyeing and Finishing, Milliken, and Brookwood Industries



Phase I

- The program has been running a year and will extend to end of calendar year 2025.
- The vehicle that supports this work is the DLA Troop Support Clothing & Textiles Additional Quality Assure Requirements.
- It is cited in every C&T contract and specifies all quality issues including testing.
- As the AQAR already has procedures for witnessing testing, those procedures will be used for remote inspection. This allows for oversight without undue burden on the plants willing to participate.
- The PTC-A engineers will write the specific testing workflows that will correspond to each vendor's specification or purchase description.
- New headsets work off a Wi-Fi signal, but currently must run off the DLA network. I cannot use my iPhone hot spot.



Phase II

- Headsets will be sent to vendor plants or have a headset placed there permanently to be used when the PTC is notified of a lot formation on specified items twice a quarter for all four laboratories
- The augmented reality headsets will be used in lieu of a laboratory specialist traveling to witness testing
- Only some testing will be viewed as specified by the lab specialist
- Lot formation and sample selection will also be viewed as a live stream.
- Data will be correlated by the PTC to see if remote inspection improves passing physical testing samples for the C&T supply chain
- We will add in end items inspection to follow the same procedures.



Textile Mills Lessons Learned



- Brittany Dyeing and Printing

- Difficulty connecting headset to phone
- Photos taken can be downloaded from Mira Website and enlarged for easier viewing.
- Workflows can be downloaded and saved
- Safety reminders/instructions will be added
- Using eyewear with older test equipment could prove challenging

- Brookwood Companies

- DD1222 can be uploaded instead of data input
- Did not get motion sickness while using AR headset
- Countdown while taking photos did not leave enough time for setup
- Photos: too much of surrounding area
- Difficulty while connecting live video streams from headsets with notebooks
- Stiffness test too difficult to perform



Textile Mills Lessons Learned



- Burlington Raeford

- No QAR at the plant for years
- Able to use the headsets and tablets to livestream how they cut the lots
- Burlington Finishing Plant will use the headsets to perform testing workflows
- Workflows will be written for each separate plant, so the PTC-A and the plant can view these workflows, and not worry that a competitor could also see it

- Milliken

- Verified you could talk through the headsets, and the person with the tablet can hear you
- Verified the livestream can be seen on any tablet or computer
- Prompts for remote inspection will be done through the source portal notification
- Evaluate shade baseline for monitors to see if a livestream shade courtesy could be done with remote inspection



Next Steps



- PTC-A will travel to each plant two more times in the next six months
- We will introduce individualized workflows against items that are under current contract to DLA C&T.
- We are continuing to collect feedback from the users in the plants to address safety, ease of use, streamlined function, and communication with the PTC-A.
- In the spring time frame, we will move to Phase II and have the vendors use the headsets on their own.
- If proof of concept is established, we will work to use this method going forward for all component plants.



DLA TS PTC-A Remote Inspection Journey

Burlington Raeford: viewing lot selection



PTC-A RI implemented

03/2025

Report

12/2024 – 02/2025

Eyewear / testing at component plants

End item textile mfg. discussions w/ C&T

11/2023 - 11/2024

2nd visits to industry partners

05/2023 – 05/2024

Cross Service War Fighter Equipment Board

05/2023 – 10/2023

Workflows developed / loaded

02/2023

Initial visits to industry partners

01/2023 – 04/2023

Industry partners confirmed

12/2022 – 03/2023

PTC/J68 discussions

11/2022

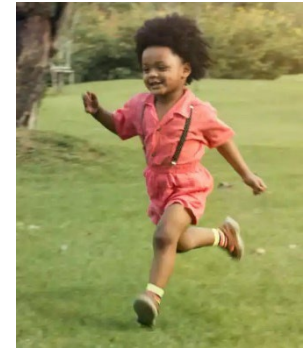
11/2021 – 07/2022



Brookwood Co.: viewing stiffness test



Remote Inspection & Product Verification



- “You See What I See”
 - iPhone / tablet
 - Eyewear
 - Real time inspections / verification using interactive video

- Incorporate supply chain data, for viewing, during sessions
- Government labs

- Augmented reality
- Government labs and vendors



J344 Remote Inspection



PURPOSE

Why?: DLA currently faces throughput testing challenges which result in excessive lead times and failures reducing material readiness and product availability

Result: Utilize Digital Reality (XR) to streamline acceptance processes and increase the speed with which critical parts enter the supply chain and reach the warfighter



CUSTOMERS

Warfighter: Must be provided with essential material at the point of need

Engineers: Provided with more options and time to work on other key tasks

DLA: To result in cost-savings across the organization



DESIRED END RESULT

Success: To validate and expand upon business cases for XR technology while clarifying the path to secure implementation of remote inspection technology

Goal: To provide a foundation for DLA to implement and scale the integration of remote inspection capabilities and XR technologies across the Enterprise



MEASURES OF SUCCESS

Cost Savings: According to DLA TQ's analysis, successful implementation of the proposed XR technology could save DLA as much as \$81M on testing processes and \$26M on Engineering Support Requests (339's)

Time Savings: Time savings on inspection, reduced travel and minimal coordination of logistics required

Decreased Testing Failures: Reduction by up to 40%



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