

UPS Ring Scanner Usability Testing Findings

Post-session analysis and recommendations from moderated usability testing

Executive Summary

Usability testing of the UPS Ring Scanner revealed a device that delivers on its core promise — hands-free scanning — but introduces new friction in the areas of scan feedback, physical reliability, and workflow integration. Drivers who had used the Ring Scanner for extended periods developed workarounds that masked the underlying usability cost.

The most significant issues centered on scan confirmation feedback, barcode read accuracy in variable conditions, physical fit over a full shift, and the cognitive overhead introduced when the device underperforms and drivers must switch back to the DIAD mid-stop.

The testing also surfaced a trust problem: several drivers described checking their scans on the DIAD screen even after the Ring Scanner indicated success, which largely eliminates the time-saving benefit of the hands-free form factor.

Key Findings

- 1. Scan confirmation feedback is not reliable enough to eliminate double-checking behavior.
- 2. Barcode read accuracy drops significantly in low light and at non-ideal angles.
- 3. Physical discomfort accumulates over a shift, leading drivers to remove the device.
- 4. Pairing failures create disproportionate delays during high-pressure delivery windows.
- 5. Battery depletion is not communicated clearly enough to allow proactive response.
- 6. High-volume stops reveal the Ring Scanner's greatest efficiency gains and its worst failure modes.
- 7. When the Ring Scanner underperforms, switching back to the DIAD costs more time than it saves.

Findings

Finding 1	Scan Confirmation Feedback Is Insufficient	High
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Participants consistently looked at the DIAD screen after using the Ring Scanner to confirm that a scan had registered. This behavior was observed even when the Ring Scanner produced its standard vibration and audio feedback.

Several drivers described uncertainty as their primary reason for double-checking:

"Sometimes I feel the buzz but then I look anyway just to make sure."

This double-check behavior directly negates the time-saving intent of the hands-free design.

WHY IT MATTERS

The value proposition of the Ring Scanner is that drivers can scan without stopping to hold and view a separate device. If the confirmation feedback is not trusted, drivers revert to a two-device workflow that is slower than either device alone.

UX OPPORTUNITY

Strengthen confirmation feedback through a combination of distinct vibration patterns for success vs. failure, a clear audible tone that works in noisy environments, and a visual LED that is visible in peripheral vision without requiring the driver to look at the device.

Finding 2

Scan Accuracy Drops in Variable Conditions

High

Participants experienced meaningful scan failures when conditions were not ideal. The most common failure contexts were:

- Low-light environments, particularly inside the package car
- Barcodes placed at the side or bottom of a package
- Damaged or partially obscured barcodes
- Scanning while walking or bending

Drivers described developing specific techniques to improve accuracy:

"I learned to hold my hand a certain way. It took a while to figure out."

WHY IT MATTERS

Delivery drivers work in physically variable environments, often moving quickly. A device that requires precise positioning to function reliably creates a higher cognitive and physical burden than it removes.

UX OPPORTUNITY

Provide onboarding guidance that explicitly trains drivers on optimal scan positioning and conditions. Improve feedback when a scan fails to help drivers correct their approach rather than simply retrying at random.

Finding 3

Physical Discomfort Accumulates Over a Shift

Medium-High

Several participants reported that the Ring Scanner became uncomfortable after extended wear, particularly in warm weather or when hands were sweating. Some drivers described removing the device mid-route and switching back to the DIAD rather than continuing to wear it.

"By the afternoon I just take it off. It starts to bother me."

Drivers with larger or smaller hands than the default fit reported more frequent discomfort and adjustment behavior.

WHY IT MATTERS

A device worn for six to ten hours must be comfortable enough that drivers choose to keep wearing it. When physical discomfort causes drivers to abandon the device mid-shift, the workflow disruption is significant.

UX OPPORTUNITY

Ensure sizing options are available and accessible. Provide guidance on proper fit during onboarding. Evaluate whether the device material and closure mechanism can reduce heat and pressure buildup during extended wear.

Finding 4

Pairing Failures Create Disproportionate Delays

High

Bluetooth disconnections between the Ring Scanner and the DIAD occurred during testing, and participants' responses varied considerably. Drivers who knew the re-pairing procedure handled it quickly. Those less familiar spent significant time troubleshooting.

"When it disconnects I never know if it's going to come back on its own or if I need to do something."

The uncertainty about whether to wait or intervene was a consistent source of frustration.

WHY IT MATTERS

Pairing failures are especially costly during high-pressure delivery windows. A driver who loses connectivity at a multi-package commercial stop faces a disruption that may affect their entire route timeline.

UX OPPORTUNITY

Make the connection status visible and unambiguous at all times. Provide a clear, fast re-pairing sequence that drivers can complete without consulting documentation. Consider automatic reconnection behavior that reduces the need for manual intervention.

Finding 5

Battery Depletion Is Not Communicated Clearly

Medium-High

Several participants were unaware of how to check the Ring Scanner's battery level and described discovering a dead device mid-route rather than receiving adequate warning.

"I didn't know it was low until it just stopped working."

Drivers who knew about the low-battery indicator described it as easy to miss during active delivery.

WHY IT MATTERS

A device that dies mid-route forces an unplanned switch to the DIAD and may result in missed scans if the driver is mid-task when the battery fails. This is entirely avoidable with sufficient, timely warning.

UX OPPORTUNITY

Surface battery status proactively on the DIAD screen rather than relying solely on the Ring Scanner's own indicator. Trigger a clear warning at a threshold that gives drivers enough time to plan around the limitation.

Finding 6	High-Volume Stops Are Both the Best and Worst Case	High
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The Ring Scanner delivered its most noticeable efficiency gains at stops with many packages, where hands-free scanning significantly reduced the physical effort of setting packages down to scan them.

However, these same stops also revealed the worst failure patterns. A scan miss or disconnect at a 20-package commercial stop was significantly more disruptive than the same failure at a single-package residential stop.

"At a big stop it's great until it's not. Then you're scrambling."

WHY IT MATTERS

High-volume stops are where the Ring Scanner creates the most value and the most risk. Failures here are not minor inconveniences — they can cascade into route delays and incomplete delivery records.

UX OPPORTUNITY

Prioritize scan reliability and connection stability for sustained multi-package sessions. Consider whether the device can signal when conditions are optimal vs. degraded so drivers can adjust their approach proactively.

Finding 7	Switching Back to DIAD Costs More Than Expected	Medium-High
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When drivers switched back to the DIAD to handle tasks the Ring Scanner could not complete, the transition was not seamless. Drivers had to locate the DIAD, orient to where they were in the workflow, and re-establish context before continuing.

Several drivers described this switching cost as a reason they sometimes chose not to use the Ring Scanner at all on certain stop types.

"Sometimes it's just easier to use the DIAD the whole time."

WHY IT MATTERS

If the fallback experience is disruptive enough, drivers will rationally avoid the Ring Scanner even when it would otherwise help. The device's value depends on the transition between tools being nearly invisible.

UX OPPORTUNITY

Design the DIAD workflow to maintain context when a driver switches mid-stop. Minimize the steps required to pick up where the Ring Scanner left off. Consider which tasks are most likely to require switching and ensure those handoffs are smooth.

Overall Assessment

The Ring Scanner is a meaningful addition to the delivery toolkit when it works as intended. At high-volume stops in good conditions, it measurably reduces physical effort and keeps the workflow moving. The problem is that conditions are rarely ideal throughout an entire route.

The device's usability is undermined by a trust deficit. Drivers do not fully trust the confirmation feedback, so they check anyway. They do not trust the connection, so they anticipate failures. They do not trust the battery, so they are surprised when it runs out. Resolving that trust deficit would deliver more usability improvement than any single interaction change.

Prioritization

Finding	Severity	Priority
Scan confirmation feedback	High	P1
Pairing failure handling	High	P1
High-volume stop reliability	High	P1
Scan accuracy in variable conditions	High	P1
Battery communication	Medium-High	P2
DIAD switching cost	Medium-High	P2
Physical comfort over shift	Medium-High	P2

Conclusion

The Ring Scanner's value is real but conditional. When the feedback is clear, the connection is stable, and conditions are favorable, it genuinely speeds up delivery. When any of those conditions break down, it creates more friction than it removes.

The largest single improvement opportunity is rebuilding driver trust in the device's feedback. A driver who trusts that the buzz means the scan worked — without needing to verify on the DIAD — captures the full

efficiency gain the hands-free form factor was designed to deliver.

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