RealAppleIQ™

Apple-Shaped Impact & Handling Sensor

Drop Limit Reference Document

Visual guide to rated drop limits and apple damage equivalents

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Product:	RealAppleIQ™ Horticultural Sensor
Cross-Reference:	RealAppleIQ™ Use & Limitations Policy RIL-RAQ-LIM-001 Section 5.1 — Drop & Impact Limits
Review Cycle:	Upon completion of controlled drop testing, then annual

This document provides a visual and technical reference for the three rated drop levels of the RealAppleIQ™ instrument. It is a companion to the Use & Limitations Policy and does not supersede it. All warranty terms, void events, and obligations are defined in the Use & Limitations Policy and the Sales Contract.

1. Purpose of This Document

The RealAppleIQ™ is designed to represent a real apple in commercial handling systems. Like the fruit it represents, it has clearly defined drop limits. This document provides a visual reference for those limits — expressed in the same terms used by everyone who works with apples daily: what happens to real fruit at each drop height, and what that means for the instrument.

Each drop level is illustrated with a photograph of a real apple dropped onto concrete from the rated height, alongside the corresponding instrument outcome. The three levels are consistent across all RealAppleIQ™ instruments and are defined in Section 5.1 of the Use & Limitations Policy (RIL-RAQ-LIM-001).

2. How to Read This Document

The main table in Section 3 presents the three drop levels side by side. Each row covers:

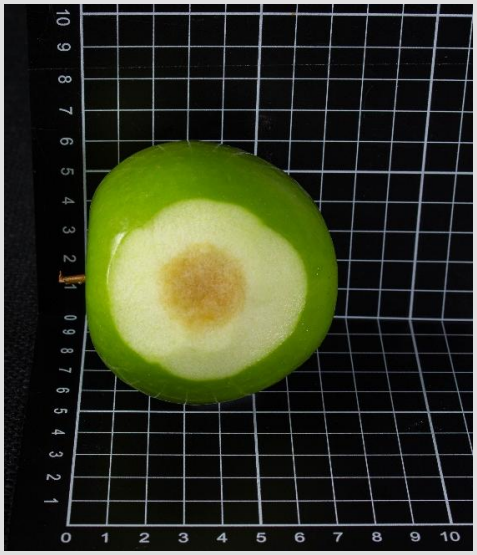
- The drop height and its status (OK / LIMIT / VOID).
- A photograph of a real apple dropped from that height onto concrete, showing the resulting bruise after 24 hours.
- What happens to the real apple — bruise diameter, severity, and commercial grade outcome.
- What happens to the RealAppleIQ™ instrument at that drop height.

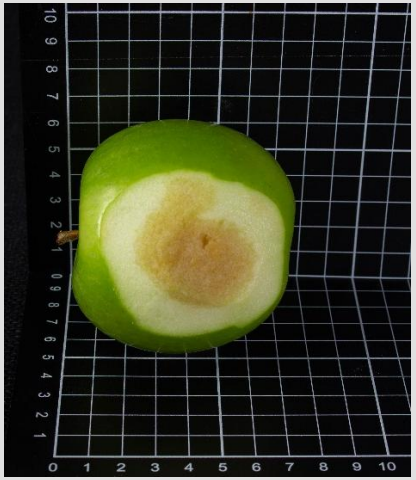
The surface standard throughout this document is a rigid surface — defined as concrete, steel plate, stone, or any surface with negligible give. Drops onto surfaces with significant give (conveyor belting, foam matting, soil) at the same height are less severe. However, Real Instruments Limited makes no warranty commitment for drops onto undefined or variable surfaces, regardless of height.

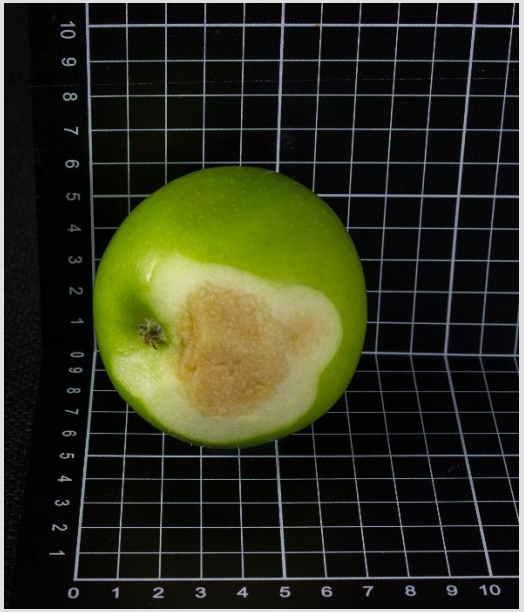
> If the instrument has been dropped at any height onto a rigid surface, run a health check in RealUserIQ™ before the next session. If the health check fails, do not use the instrument. Contact Real Instruments Limited.

3. Drop Level Reference Table

All three levels are measured as a free-fall onto a rigid surface (concrete, steel plate, or stone). Bruise diameters are measured after 24 hours of development at ambient temperature.

Drop Height	Apple Photograph	Effect on a Real Apple	Effect on the RealAppleIQ™	Status
Up to 200 mm Normal	 *Apple dropped 200 mm onto concrete*	**Bruise outcome on a real apple:** *Diameter: 24 mm* Significant bruising expected in all apple varieties at normal commercial maturity. Bruise typically sub-surface; may not be visible immediately. *Grade outcome: Out-of-grade*	**Instrument outcome:** Within design parameters. The instrument is designed and tested to withstand drops up to 200 mm onto a rigid surface under normal operating conditions. No action required after a drop in this range, but a visual inspection is good practice.	**OK**

Drop Height	Apple Photograph	Effect on a Real Apple	Effect on the RealAppleIQ™	Status
200mm to 400 mm rated limit	 *Apple dropped 400 mm onto concrete*	**Bruise outcome on a real apple:** *Diameter: approx. 32mm* Significant bruise expected in most commercial varieties at normal maturity. Bruise visible by 24 hours. *Grade outcome: Out-of-grade*	**Instrument outcome:** At the rated limit. The instrument may have sustained internal stress at the limit of this range, cumulative damage is a risk in this range. Action required: Take steps to protect the instrument from repeated drops in this range. Inspect the instrument externally for cracks or deformation, then run a full health check in RealUserIQ™ before the next session. Do not use the instrument if the health check fails. Contact Real Instruments Limited.	**LIMIT**

Drop Height	Apple Photograph	Effect on a Real Apple	Effect on the RealAppleIQ™	Status
Greater than 400 mm warranty void	 *Apple dropped 800 mm onto concrete*	**Bruise outcome on a real apple:** *Diameter: 38 mm* Severe bruise guaranteed in all commercial varieties. Typically, with skin break. Structurally damaged. Fruit is commercially ungraded. Grade outcome: Out-of-grade. Not suitable for packing or export.	**Instrument outcome:** Warranty Void Event. Permanent internal sensor damage is highly probable at this drop height and above. Action required: Inspect the instrument externally for cracks or deformation, then run a full health check in RealUserIQ™. Do not use the instrument. Contact Real Instruments Limited. Do not open or attempt to inspect the instrument internally. Opening the instrument will void all remaining warranty and support obligations.	**VOID**

✕ CRITICAL

A drop of more than 400 mm onto a rigid surface is a Warranty Void Event under the RealAppleIQ™ Use & Limitations Policy (RIL-RAQ-LIM-001 Section 6). Do not use the instrument after a drop of this height. Return to Real Instruments Limited for assessment.

4. Surface Standard & Scope of This Reference

All drop limits and photographic references in this document are defined against a rigid surface: concrete, steel plate, stone tiles, or any surface with negligible give. This is the standard against which the RealAppleIQ™ is designed, tested, and warranted.

4.1 Why Rigid Surface Only

The outcome of a drop onto a compressible surface — conveyor belting, foam matting, soil, grass — depends on the stiffness and thickness of that surface, not just the drop height. A 400 mm drop onto dense rubber belting may produce a very different bruise to a 400 mm drop onto a 50 mm foam mat. Because the variable cannot be standardised, no warranty commitment is made for drops onto undefined surfaces.

The practical guidance is: a drop onto a softer surface at the same height is less severe than the same drop onto concrete. If the instrument drops 400 mm onto conveyor belting and the health check passes, it is likely undamaged. But if any doubt exists, return it to Real Instruments Limited for assessment.

4.2 Drops at Intermediate Heights

Drops at heights between the three defined levels should be assessed as follows:

- Below 200 mm onto a rigid surface: within design parameters. Inspect and run health check if in doubt.
- Between 200 mm and 400 mm onto a rigid surface: treat as approaching the rated limit. Run a health check before the next session.
- Above 400 mm onto any rigid surface: Warranty Void Event. Do not use the instrument. Return to Real Instruments Limited.

5. Post-Drop Procedure

If the RealAppleIQ™ has been dropped at any height onto a rigid surface, follow this procedure before the next session:

Step	Action	Detail
1	**Visual inspection**	Check the exterior of the instrument for cracks, deformation, or damage to the charging port or sensor surfaces. If any visible damage is found, do not use. Contact Real Instruments Limited.
2	**Health check**	Connect to RealUserIQ™ and run a full health check. If the health check fails on any parameter, do not use. Contact Real Instruments Limited.
3	**Function test**	Start a short test session and confirm data is recording normally before returning to commercial use.
4	**Document the event**	Record the drop height, surface type, and outcome of the health check.
5	**If in doubt**	Do not use. Contact Real Instruments Limited. The cost of assessment is substantially lower than the cost of lost session data or an invalidated warranty claim.

6. Connection to Warranty & Dispute Resolution

The drop levels in this document are the same levels referenced in the RealAppleIQ™ Use & Limitations Policy warranty void events table. In any warranty dispute arising from a drop event, this document — combined with session log data from RealUserIQ™ , RealAppleIQ™ and the photographs in Section 3 — provides the primary reference for assessment.

The apple damage photographs serve a specific purpose in dispute resolution: they provide an objective, observable benchmark that any person working in the apple industry can assess independently, without specialist equipment or technical expertise. If the bruise on a real apple dropped from the claimed height is clearly out of grade, the instrument was operating outside its design parameters at that height.

To make a warranty claim following a drop event, refer to Section 11 of the RealAppleIQ™ Use & Limitations Policy (RIL-RAQ-LIM-001). Do not open the instrument before submitting it for assessment.

Real Instruments Limited — www.realinstruments.com — For warranty and support enquiries contact your authorised distributor or Real Instruments Limited directly.

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