

# THE ESSENCE OF WIRELESS SIMPLICITY

*An in-depth look into the future Chipless RFID sensors*

Chipless RFID is a field of development that is enabling the future of a smarter and connected everything. Chipless isn't just a part of the Internet of Things (IOT) revolution. It is enabling new materials, methods, and changing how communication occurs.

Chipless RFID allows embedment of sensing capabilities without the requirement of batteries or electronics at the sensor level. This not only makes the host material smarter, it enables smarter structures, which allows holistic monitoring of a system of structures that can be monitored from the cloud.

## THREE MILESTONES

1973

Mario W. Cardullo receives the first patent for RFID. First principles of RFID were demonstrated during WWII by both the German and British Air Force.

1996

Roland Stierlin patents "Process for carrying out a non-contact remote interrogation". The first of many "chipless RFID" patents.

2015

Full printing of Chipless RFID will make barcodes a thing of the past. This will set a new benchmark of sensor inputs for the Internet of Things.

## CHIPLESS RFID ADOPTION



### Green by design

Chipless includes no electronics or batteries to dispose of or recharge.



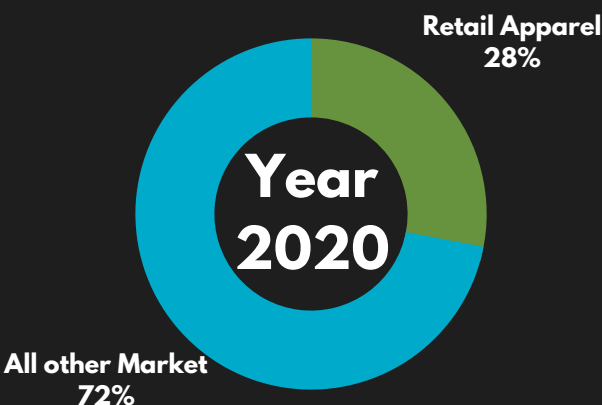
### New innovations occurring

Chipless is a rapidly expanding area buoyed by Universities and Industry.



### Wireless baked-in

The world will continue to adopt and expect devices to be "wire less" setting the stage for increased adoption.



By 2020 the Chipless RFID market could include more than 75 billion deployed devices.