

Conscious Living

Sustainability

The challenge

60%

are ready to change their
purchasing behavior

IBM Institute for Business
Value 2020

86%

of consumers want to see
more sustainable products

World Economic Forum
Survey 2020

‘For the convenience and delight of the ‘user,’ we create products that are cheap and desirable but create **environmental and social damage** through their production, service, and after-life.

The impact



Remote controls contribute to over

80 billion
batteries

disposed over a decade globally

Resulting in 1 million
tons of waste

A Charged Issue

Each year almost hundred thousand tons of disposable batteries end up in the landfill, leaking harmful toxins into the ground and our water sources.

Key focus sustainability topics for UEI



SUP-Free
Packaging

Extend the solution offering for complete SUP-free product delivery



Recycled
Plastics

Reduce the use of virgin plastics with >95% PCR recycled material



Extreme
Low Power
Chip

UE961 & 962 Xtreme low power SOC with Energy Harvesting capability



Energy
Harvesting

Next-generation indoor PV cell solution & RF Harvesting technology



A black remote control is placed on a round, dark table. The background is a dark, textured wall with vertical lines, possibly a curtain or a wall panel. The lighting is low, creating a moody atmosphere.

Meet

Eterna XLR

Never change batteries



Meet

Eterna XLR

Never change batteries



PV lens blends
seamlessly into the
design



PV lens blends
seamlessly into the
design



Meet

Eterna XLR

Never change batteries



Meet
Eterna XLR

App

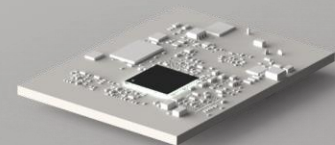
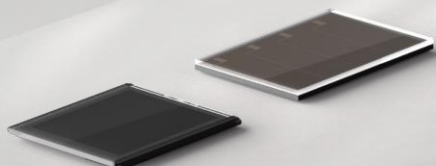
Battery life

Hybrid

UX Enabler

Xtreme Low Power SoC with Built-in Energy Harvesting

All-new UE962

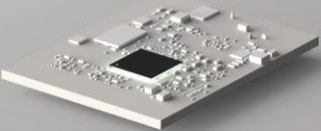
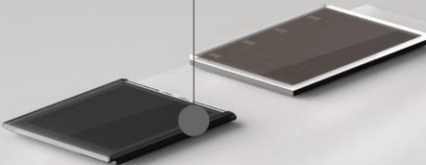


Energy Harvesting

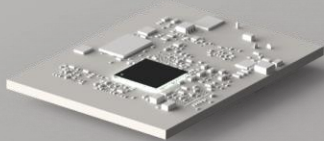
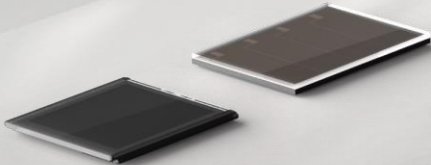
Best-in-Class PV (Light) Panels

Efficient multi-cell

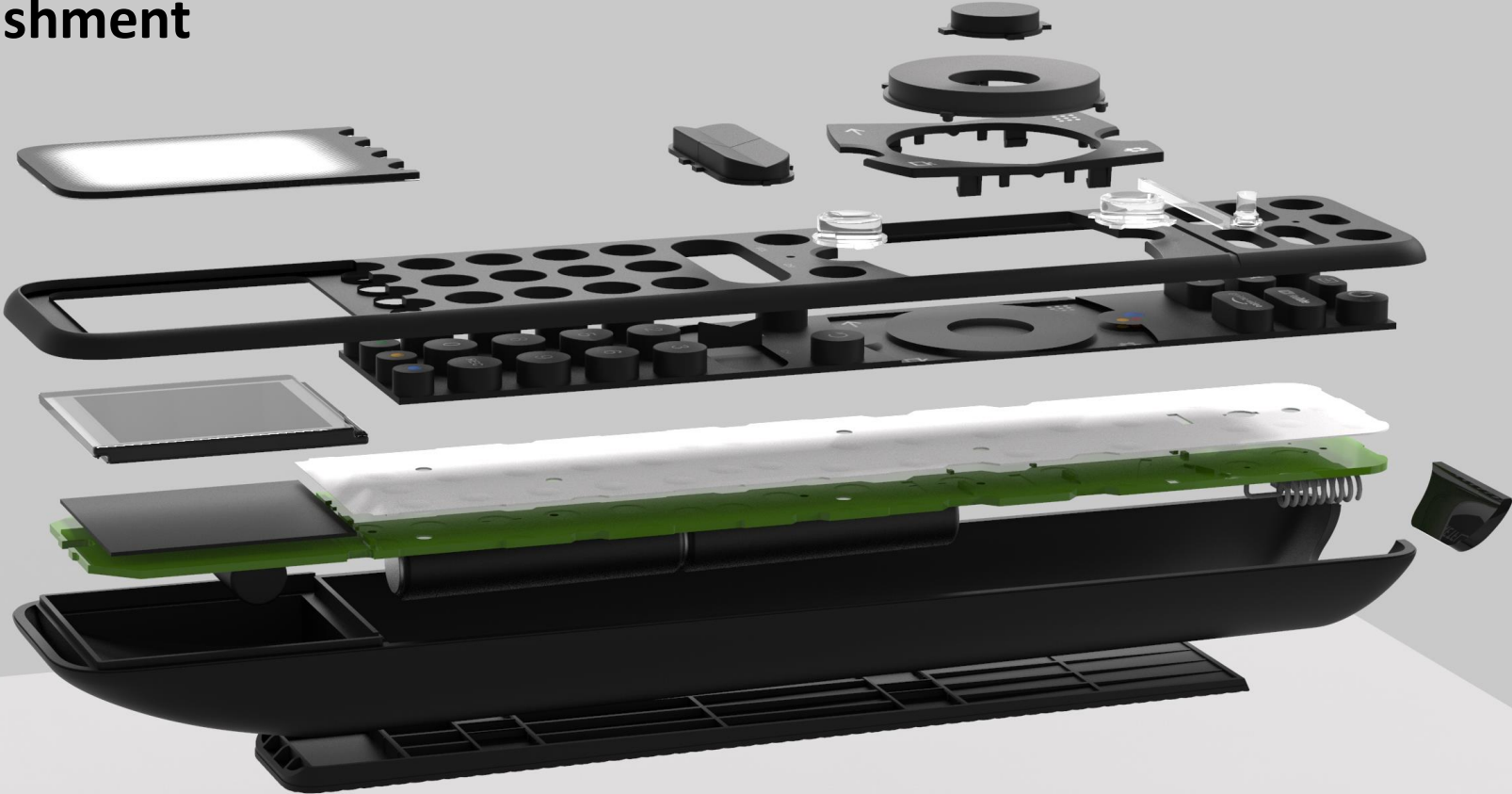
3x more efficient single-cell



Designed from the ground up to
Reduce, Reuse & Recycle



Designed from the ground up for
Easy Refurbishment



Green from start to end

Sustainable packaging





Meet

Eterna XLR

Interactive Light Bar

Visual Feedback



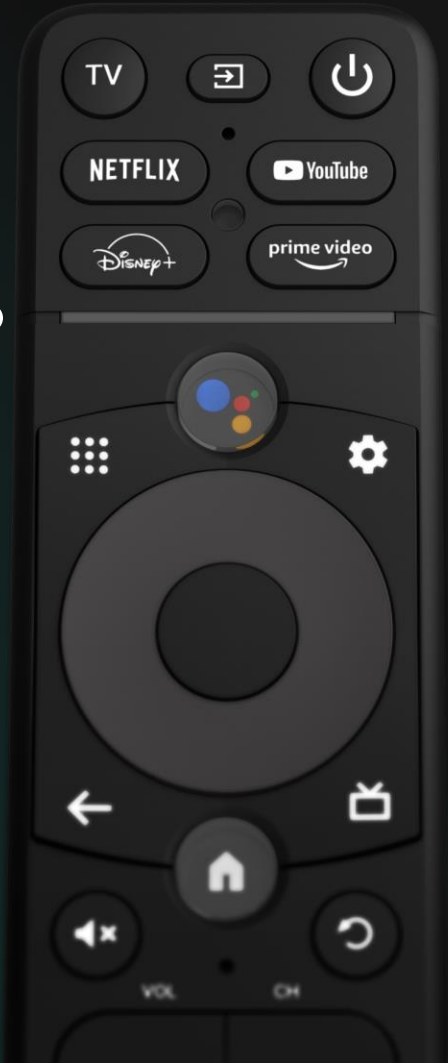
Light bar

Interactive Light Bar

Visual Feedback



Hello



Interactive Light Bar

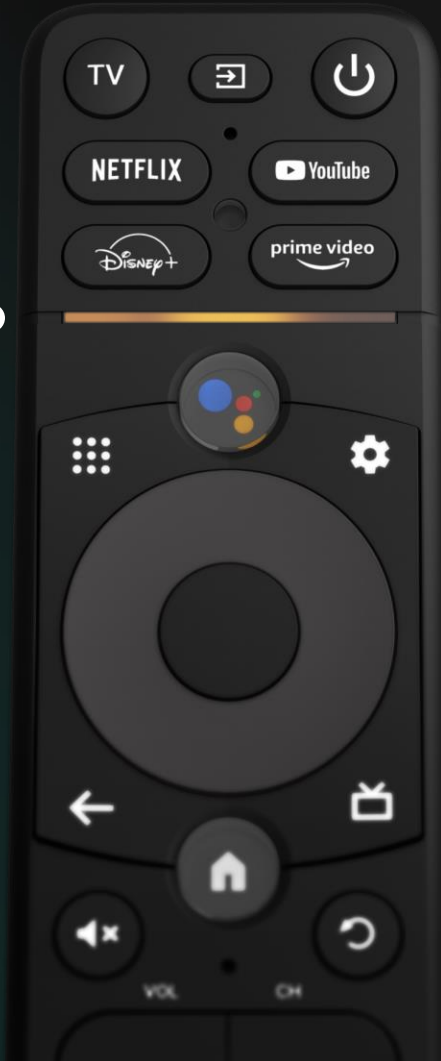
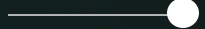
Visual Feedback



Hello



Connecting your remote



Interactive Light Bar

Visual Feedback



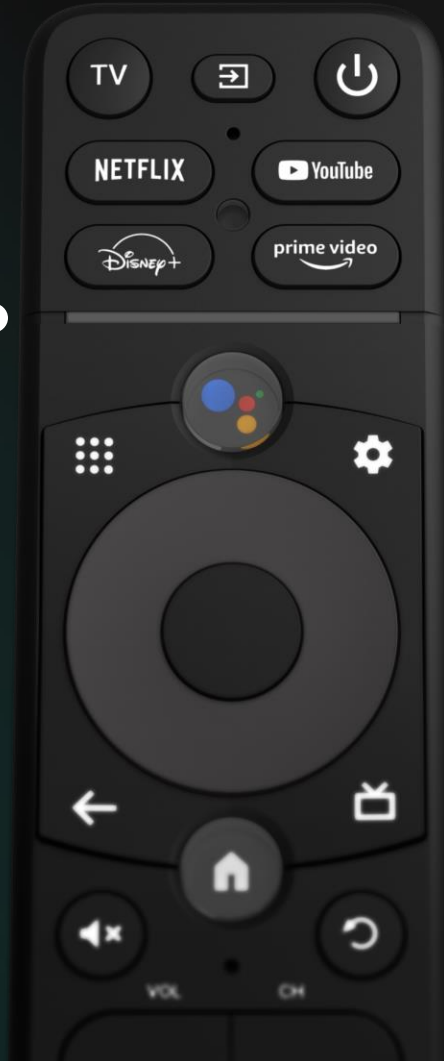
Hello



Connecting your remote



I'm listening



Enhanced Tactility

Intuitive keypad
Comfortable grip



Ambient-Aware High Efficiency BackLight

Backlight when needed
Adapts to room light
Relaxing & soft illumination



Ambient-Aware High Efficiency BackLight

Daytime



Backlight

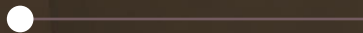


Ambient-Aware High Efficiency BackLight

Sundown



Backlight

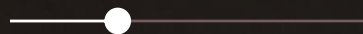


Ambient-Aware High Efficiency BackLight

Evening



Backlight

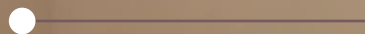


Ambient-Aware High Efficiency BackLight

Room Lights On



Backlight

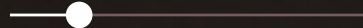


Ambient-Aware High Efficiency BackLight

Room Lights Off



Backlight



Thank you

Backlight



Eterna

Powered by UE961

Xtreme Low Power SoC

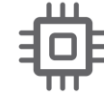


Xtreme
Low Power

* Compared to conventional BLE/Voice Remotes
** Compared to previous generation SoC

80%

More
Efficient*



Xtreme
Low Power

>10X

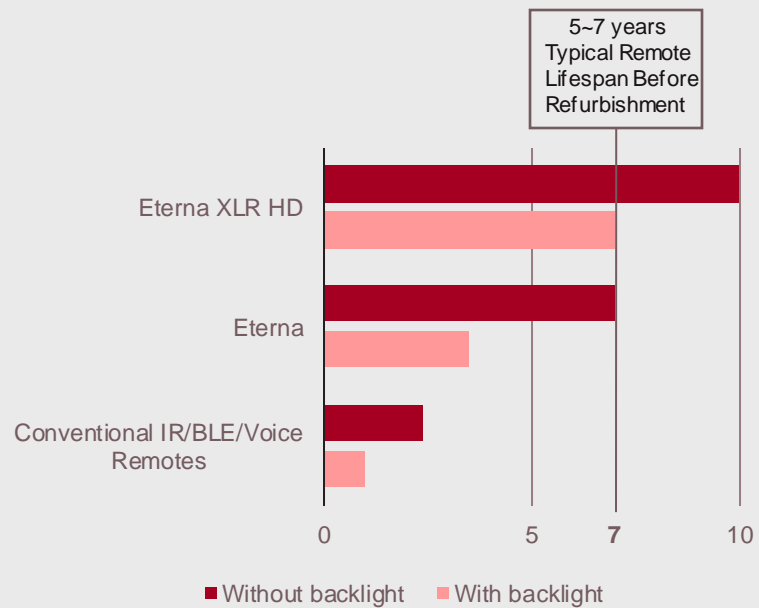
Battery life*

2.5X

Computing Power**

Introducing Eterna

Estimated Battery Life



**Eterna
Xtreme Low Power**

**Eterna XLR HD
Energy Harvesting
High Density PV Panel**

Compared to conventional IR/BLE/Voice remotes, under standard UEI use case

Eterna

Xtreme low power

- Ambient-Aware High-Efficiency Backlight
- Designed for Refurbishment and Recycling

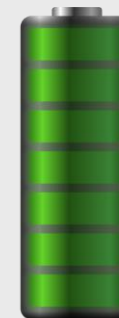


>6x

Longer
Battery Life*

IR/BLE/Voice

Eterna
Xtreme low power



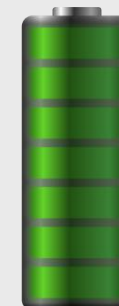
Conventional
Remote

>3.5x

Longer
Battery Life**

IR/BLE/Voice/Backlight

Eterna
Xtreme low power



Conventional
Remote

** Compared to conventional IR/BLE/Voice/BL remotes, under standard UEI use case

*** IR/BLE/Voice remote, estimated under standard UEI use case

Eterna XLR HD

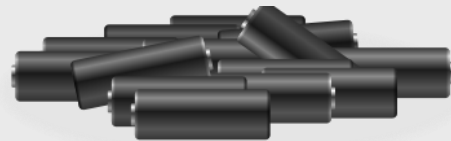
Energy Harvesting

Eterna XLR HD
Energy Harvesting
(HD PV Cell)

0

Conventional
Remote

12



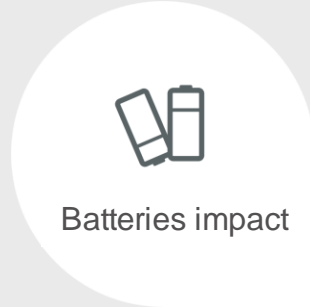
Estimated # of Batteries Replaced in 7 Years*
IR/BLE/Voice/Backlight

* Estimated under standard UEI use case



Eterna

Improve waste & CO₂ footprint



10,000,000



6,120,000 kg CO₂



6,120 tons of CO₂*

During the remote lifetime (7 years)

- *
 - Equals the average emissions of 12,240 passengers on a flight from Paris to New York
 - Or equals 3672 diesel cars driving 10,000 km a year
 - Or equals 744 Million smartphones being fully charged

A TV or Streamer remote accounts for 4% of annual European battery consumption per household (1 set per year)

Eterna XLR Powered by UE962 with Energy Harvesting

All the features & performance of UE961, plus...

A series of white, curved lines that originate from the bottom left and fan out towards the right side of the slide, creating a sense of motion and energy.

Harvestable Energy

- Multiple energy sources suitable for indoor harvesting
- Ultra Low-Power micro architecture silicon design
- Built-in energy harvesting unit and highly efficient power management unit that stores harvested energy efficiently



Ambient Light



RF



Kinetic

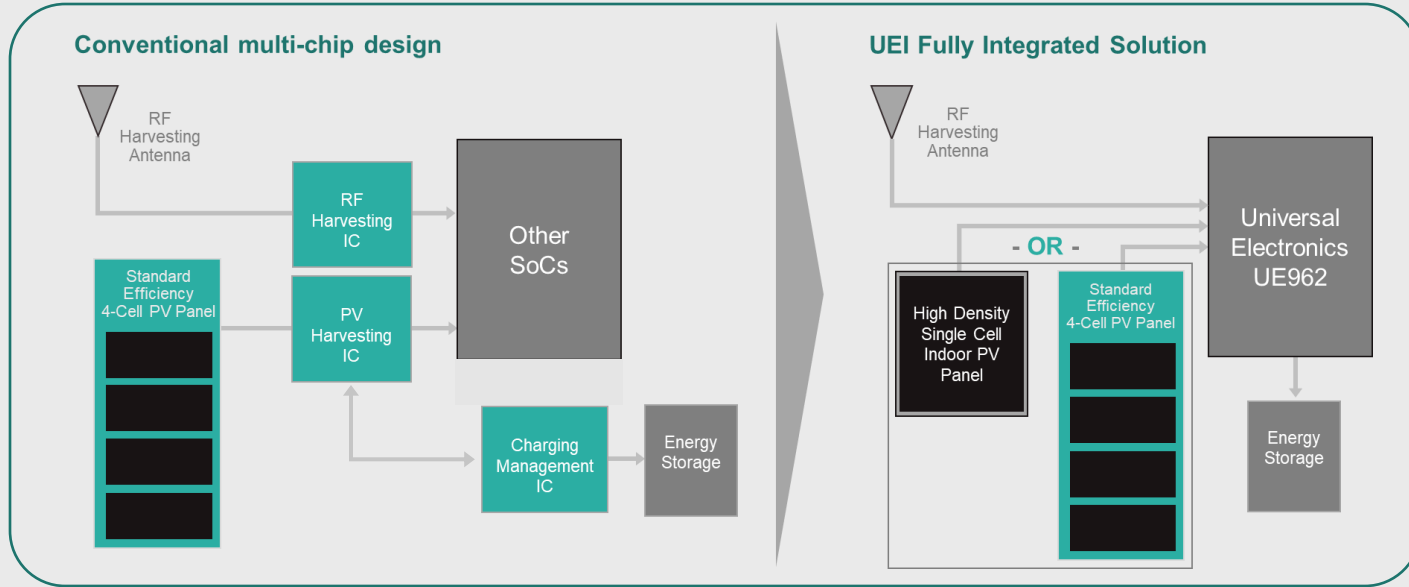


Thermo



XTREME LOW-POWER SOC WITH ENERGY HARVESTING

UE962 Harvesting SOC



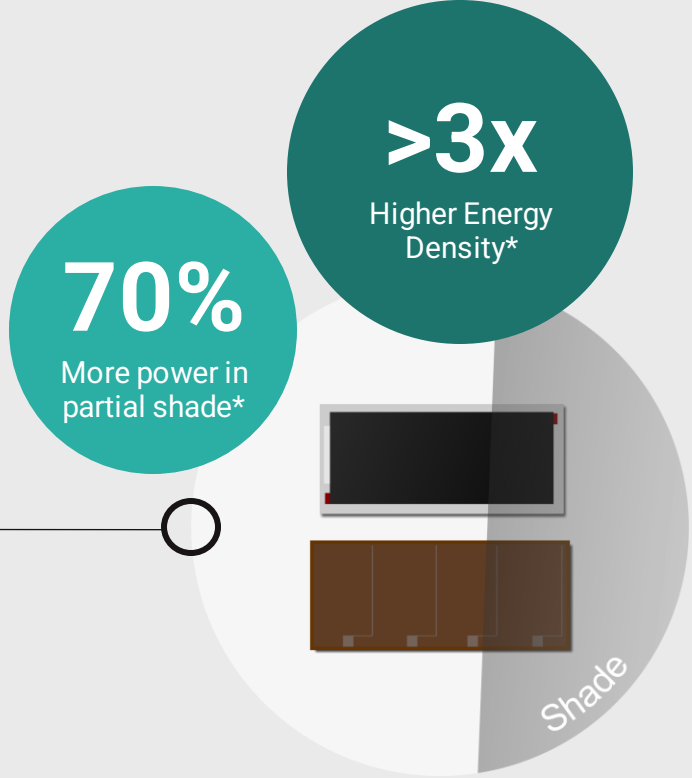
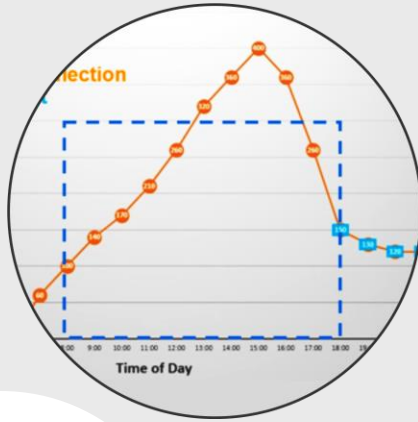
Optimized for energy harvesting

A true All-in-One Harvesting SoC

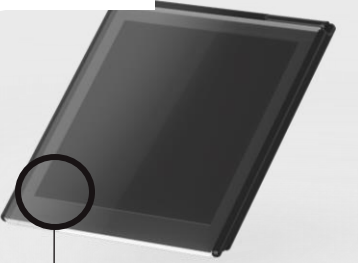
- Reduces the need for external ICs
- Minimizes additional components
- Improves power harvesting efficiency
- Minimizes total BOM cost

XTREME LOW-POWER SOC WITH ENERGY HARVESTING

UE962 Harvesting SOC




Optimized for Indoor light harvesting



High performance Single Cell PV panel
UEI in exclusive partnership

HD Panel requires only 1/3 of the space vs a standard PV panel for the same power requirement


* Compared to commonly used 4-Cell PV panels



Performance
Boost for Voice
& Backlight



Indoor Solar



Xtreme Low
Power IC





Indoor Solar



High Density Single Cell PV Panel
Design options



High Density Single Cell PV Panel
Design options

Prismatic texture

Cloudiness

Radial brushed

Leaf texture

External print

Smooth transition print

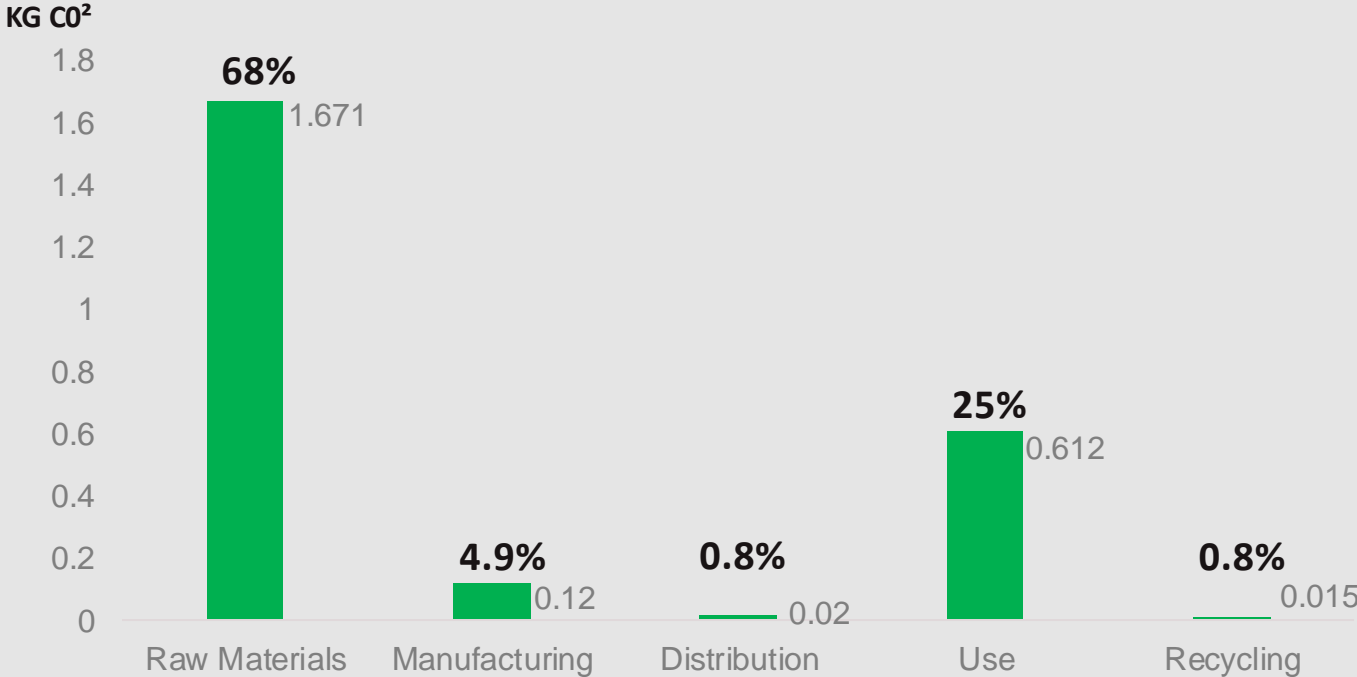
Transparent cover
Internal print

Regular remote – CO2 footprint ~2.44KG



Regular remote

Batteries alone account for almost **30%***



* Raw materials includes the 2 original supplied batteries + Use includes 1 set per year over the lifetime of 7 years

Improve the CO2 footprint -> 1.71-1.85KG

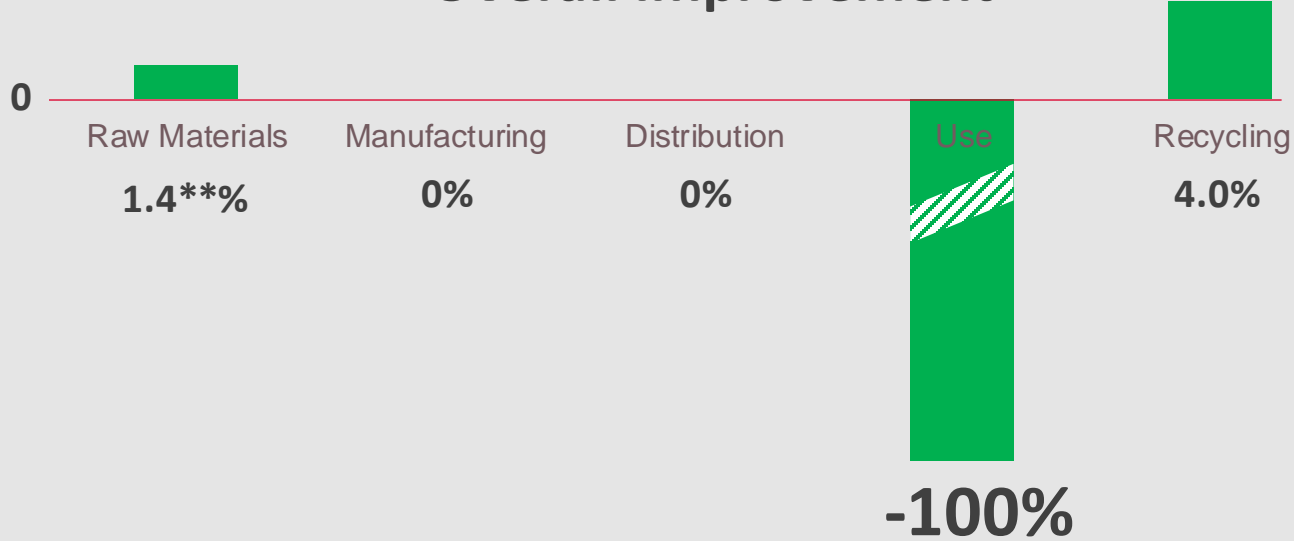


Regular remote



Energy Harvesting remote

-25% CO²*
Overall improvement



* Overall improvement based on adding HD PV panel, including 2x AAA batteries and 1 Hybrid SuperCap
 **Note the used HD PV panel has a 85% lower CO² footprint vs regular PV panel (based on same power output)
 2nd By moving from regular plastics to 95% PCR plastics the overall improvement can be 29.8%

The impact of new batteries purchases

Traditional Shopper (instore) 1.6KG CO2

5x Battery purchase with regular shopping

- 80 items per purchase -> 20gr x 5 = 100gr

1x Urgent purchase (other articles? Assume 20)

- 1.6kg

Total between 180gr – 1.7kg CO2

Online purchase 1.4KG CO2

5x Battery purchase with regular shopping

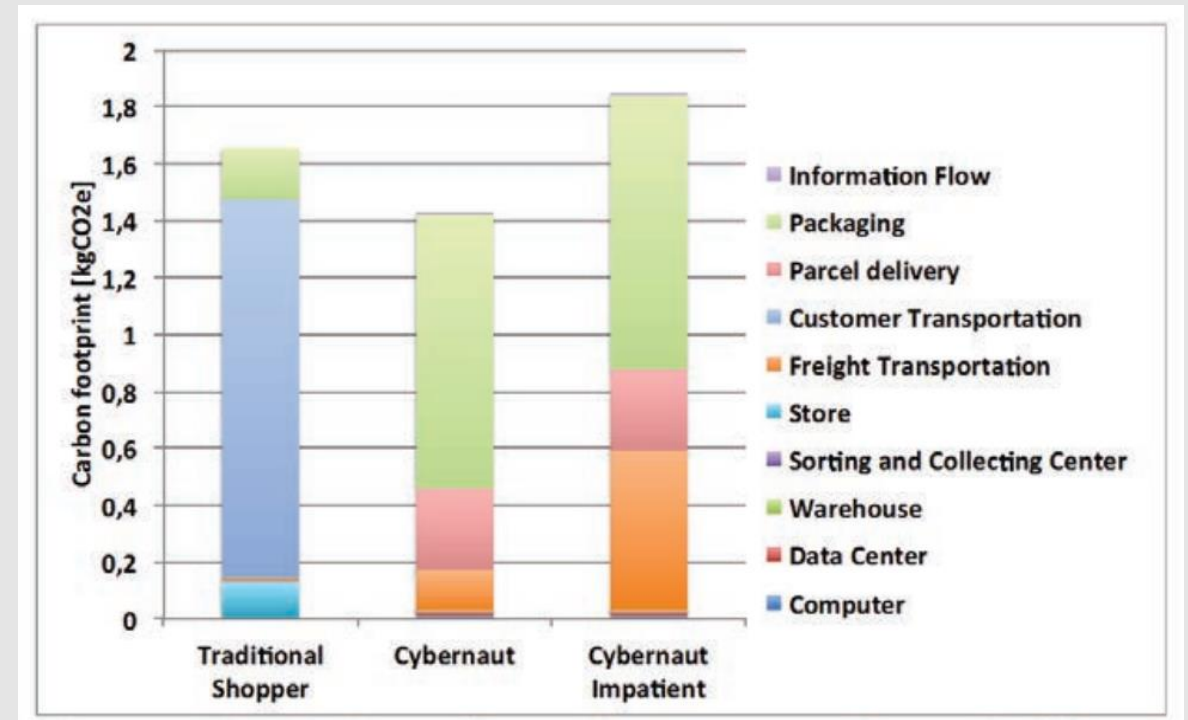
- 80 items per purchase -> 17,5gr x 5 = 87,5gr

- 10 items per purchase -> 140gr x 5 = 700gr

1x Urgent purchase (other articles? Assume 5)

- 1.4kg

Total between 368gr – 2.1kg CO2



https://ctl.mit.edu/sites/default/files/library/public/Dimitri-Weideli-Environmental-Analysis-of-US-Online-Shopping_0.pdf

Eterna

Improve waste & CO₂ footprint



- * • Equals the average emissions of 12,240 passengers on a flight from Paris to New York
- Or equals 3672 diesel cars driving 10,000 km a year
- Or equals 744 Million smartphones being fully charged

ATV or Streamer remote accounts for 4% of annual European battery consumption per household (1 set per year)

Alternative power source/storage



51gr CO2 per battery
12 batteries over the life-time

Total ~ 612gr CO2



195gr CO2 per battery

0,8gr CO2 per recharge (2 p.y.)
Assume 5 gr for USB port

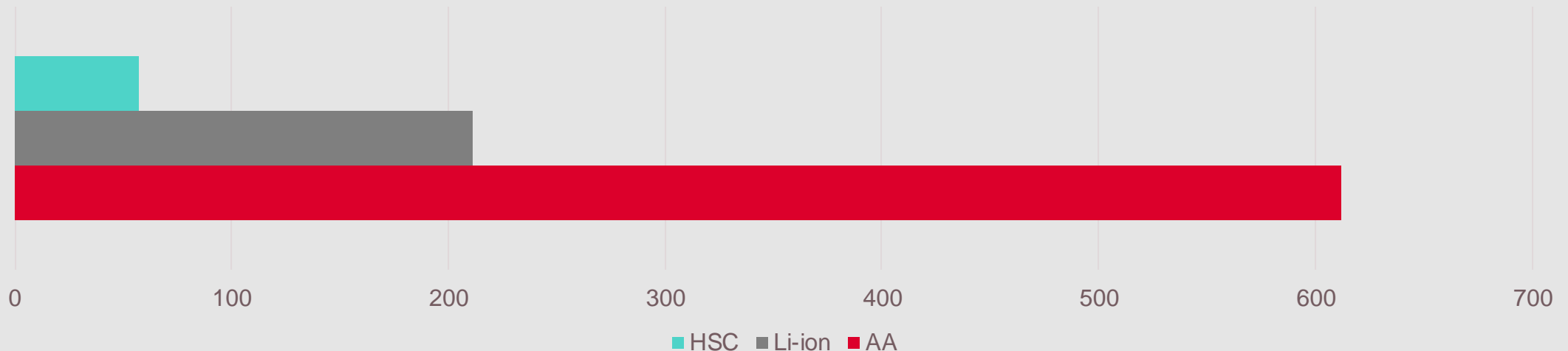
Total ~ 211gr CO2



22.9gr CO2 per 50F HSC
1 additional HSC needed for HSC only solution

0,8gr CO2 per recharge (2 p.y.)
Assume 5 gr for USB port

Total ~ 57,5gr CO2





Use indoor light to power
your remote

How green can you go?

Never change batteries again*

Save up to 14 batteries



UE962 Xtreme Low power SOC
with HD Indoor PV panel

** Compared to conventional IR/BLE/Voice/BL remotes, under standard UEI use case, assuming 7 years of service before refurbishment*

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