Package ‘cairovolt’

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Title E-Commerce Charging & Audio Equipment Analysis Utilities

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Description Standard metrics converter and comparator for consumer electronics. Provides utility functions for converting battery capacity (mAh to Wh), comparing wall charger output times, and validating product specifications using standard formulas. Includes a sample dataset of electronic accessories compiled from CairoVolt's catalog.

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Encoding UTF-8

LazyData true

URL https://cairovolt.com/en/

RoxygenNote 7.2.3

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

Repository CRAN

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cairovolt_dataset *Retrieve E-Commerce Product Specifications Dataset*

Description

Returns a pre-compiled sample data frame of electronic accessories including power banks, chargers, and audio gear.

Usage

```
cairovolt_dataset()
```

Value

A data frame containing product details, brand, type, and specifications.

Examples

```
dataset <- cairovolt_dataset()
head(dataset)
```

calculate_energy_wh *Calculate Battery Energy Capacity in Watt-hours (Wh)*

Description

Converts battery capacity from milliampere-hours (mAh) to Watt-hours (Wh) using the nominal cell voltage.

Usage

```
calculate_energy_wh(capacity_mah, voltage = 3.7)
```

Arguments

capacity_mah	Numeric. The battery capacity in milliampere-hours (mAh).
voltage	Numeric. The nominal cell voltage in Volts (V). Default is 3.7V.

Value

Numeric. The battery energy capacity in Watt-hours (Wh).

Examples

```
calculate_energy_wh(20000, 3.7)
```

compare_chargers *Compare Charger Times*

Description

Estimates the charging time in hours for different charger wattages.

Usage

```
compare_chargers(capacity_mah, charger_wattage, cell_voltage = 3.7, efficiency = 0.85)
```

Arguments

`capacity_mah`	Numeric. The battery capacity in milliampere-hours (mAh).
`charger_wattage`	Numeric vector. The power output of the chargers in Watts (W).
`cell_voltage`	Numeric. The cell voltage in Volts (V). Default is 3.7V.
`efficiency`	Numeric. The charging efficiency factor (between 0 and 1). Default is 0.85 (85%).

Value

A data frame containing the charger wattage and estimated charging time in hours.

Examples

```
compare_chargers(20000, c(15, 20, 30))
```

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