

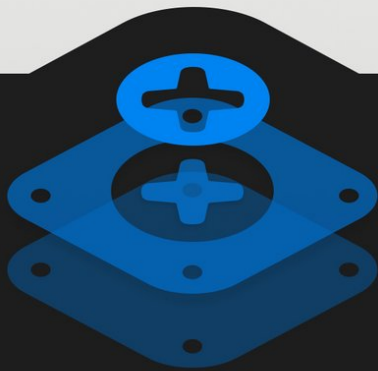


# LG Watch Urbane Teardown

LG Watch Urbane teardown on May 5, 2015.

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# LG URBANE



# TEARDOWN

## INTRODUCTION

It's already the 5th of May, and we've been tearing down watches like clockwork. Guess what we found when we cracked open our piñata: LG's latest smartwatch, the LG Watch Urbane. Will it compare to last year's [LG G Watch](#) or will we make some alarming discoveries?

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### TOOLS:

- [Curved Razor Blade](#) (1)
  - [iFixit Opening Picks set of 6](#) (1)
  - [Tweezers](#) (1)
  - [iOpener](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
  - [iFixit Opening Tools](#) (1)
  - [Spudger](#) (1)
  - [Bergeon 6111 Spring Bar Tool](#) (1)
  - [Bergeon 6767-F Spring Bar Tool](#) (1)
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## Step 1 — LG Watch Urbane Teardown



- [Urbane legend](#) has it that this is the first smartwatch to closely resemble a traditional watch, rather than a wearable smartphone. Let's see what else this timepiece has to offer:
  - 1.3-inch 320 x 320 (~245 ppi) P-OLED display
  - 410 mAh battery
  - Snapdragon 400 processor with 1.2 GHz Quad-Core Cortex A7
  - 512 MB RAM and 4 GB storage
  - 9-axis combination (Gyro + Accelerometer + Compass)
  - Bluetooth 4.1 Low Energy

## Step 2



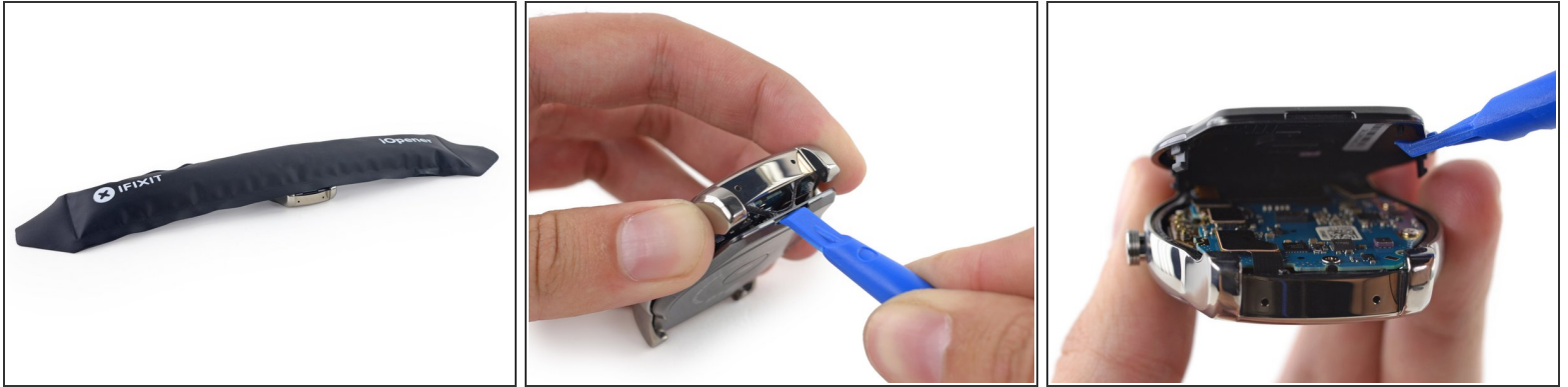
- Barring the dark watch face, this device could certainly be mistaken for a mechanical watch, until you flip it over...
- The rear of the watch features a heart rate sensor, charging dock contacts, and the model number (LG-W150).
- While the Urbane eliminated a handful of face options included in the LG G Watch, this timepiece introduces plenty of [faces](#) to choose from.
- ① The Urbane's 245 ppi display looks a lot better in person than under our camera—there seems to be a [moiré effect](#) that makes the pixels stand out.
- However, it's still not quite as sharp at super-close distances as the Apple Watch, with its 290 ppi (for the 38 mm, 302 for the 42 mm) screen.

## Step 3



- The 22 mm standard leather watch band can be swapped out for [other bands](#) of various colors and materials.
- Our handy pointy [angled tweezers](#) are once again invaluable spring bar removers.
- Removing the band exposes a couple of ports, likely for the microphone— *or microphones?*

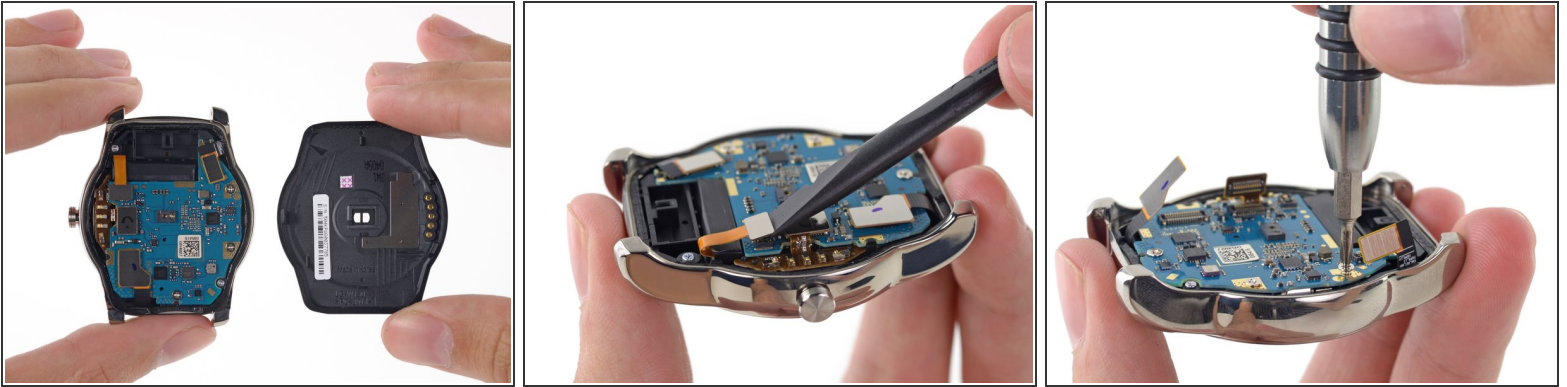
## Step 4



- The last time we tore down an [LG smartwatch](#), we were pleased to find screws securing an o-ring sealed rear door. Today we're heating our iOpener and feeling a little sad.
- However, thanks to a handy pry notch, things aren't *too* bad. But you will need to replace the adhesive before re-sealing the watch, to maintain that IP67 water resistant rating.
- ① [IP67](#) is a water and dust resistance rating that guarantees the device to be dust-tight, and able to survive submersion in 1 meter of water for 30 minutes.

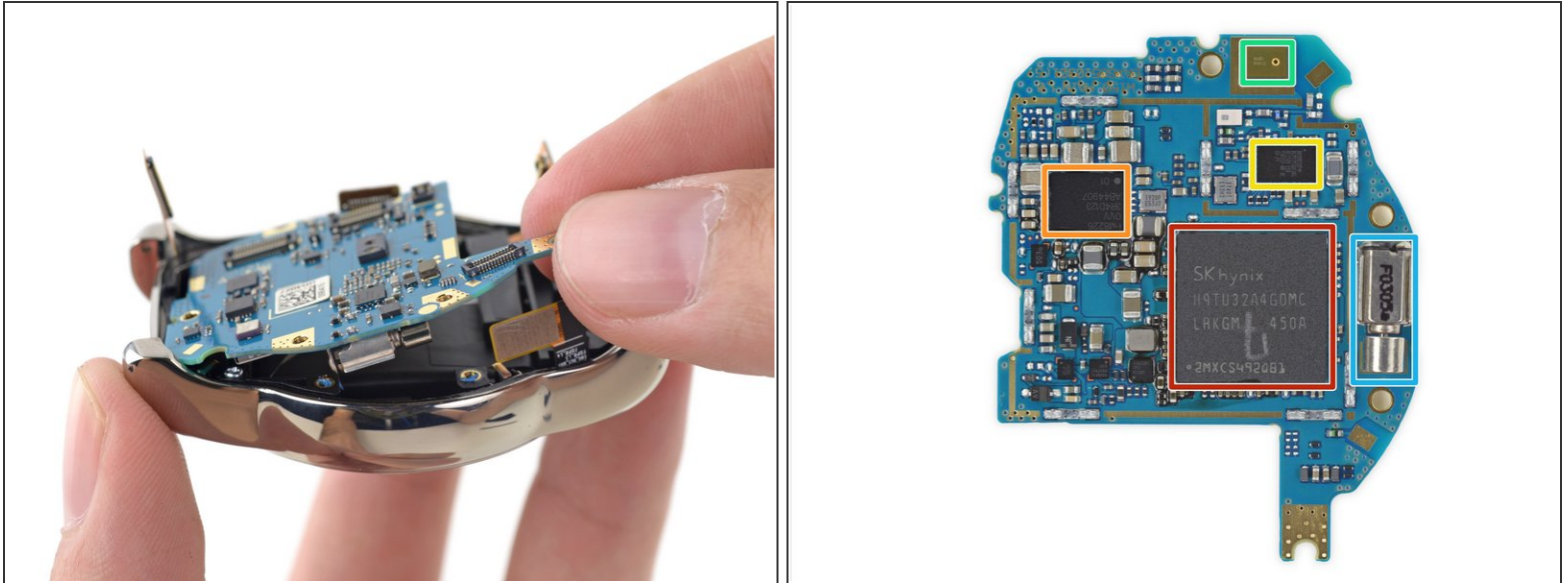


## Step 5



- Apart from the glue, the rear case comes away nice and clean—no cables, no booby traps. We like it.
- Power from the charger feeds through the rear case onto a tidy row of spring contacts beside the motherboard.
- Speaking of the motherboard, it's time to start digging out the Urbane's silicon. Starting with the battery, we flick away a few cable connectors and twist out the tiny watch-sized screws.
- ① Happily, these are totally ordinary (albeit tiny) Phillips screws—none of that [sketchy tri-wing business](#) you find in so many flashy smartwatches these days.

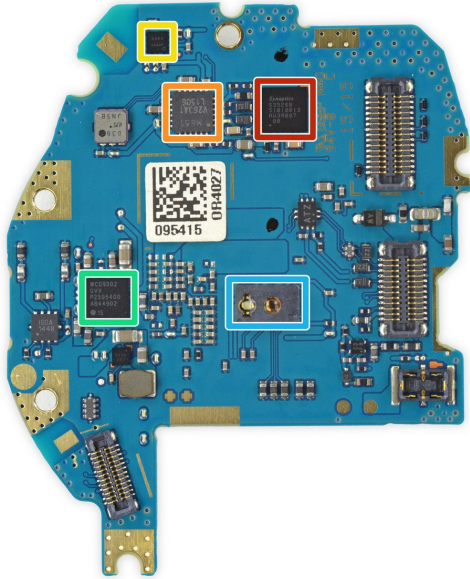
## Step 6



- We peel the motherboard out of the chassis to get a better look at this wearable's hardware:
  - SK Hynix [H9TU32A4GDMC](#) 512 MB mobile DDR2. The Qualcomm Snapdragon 400 SoC is hidden beneath this DRAM device.
  - Qualcomm PM8226 PMIC
  - Broadcom [BCM4343](#) integrated communications module
  - Single microphone—we're not sure why there were two ports; maybe just symmetry?
  - Vibrator motor—soldered in place on the motherboard

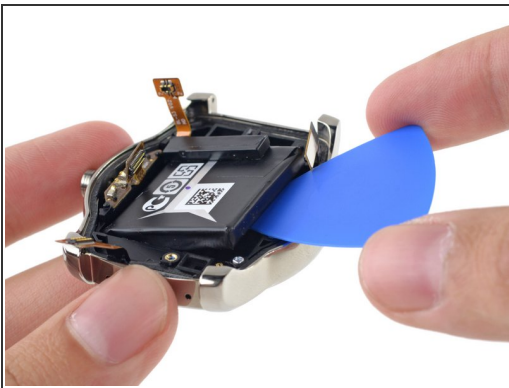


## Step 7



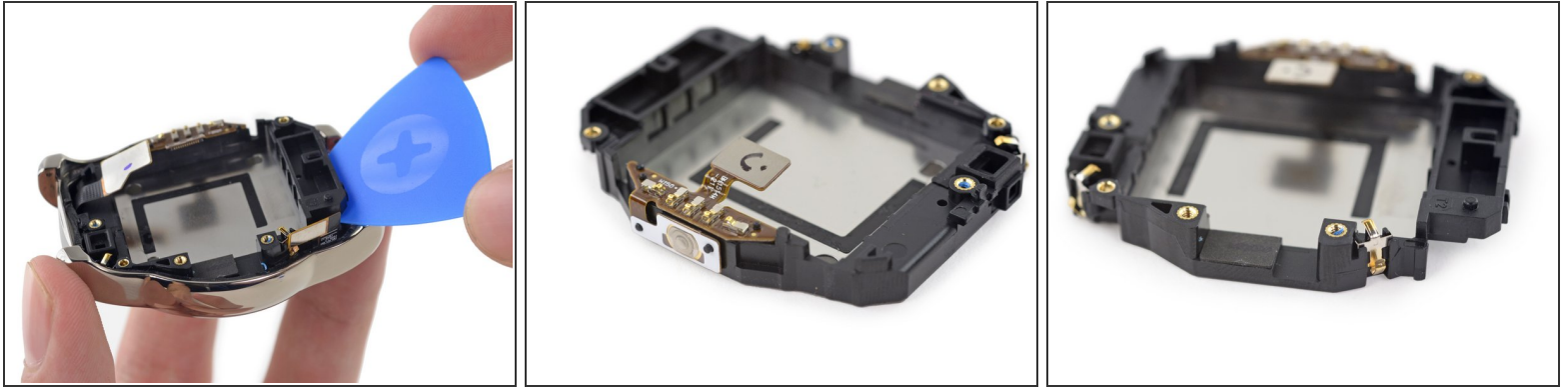
- And on the flipside:
  - Synaptics [S3526B](#) touch controller
  - Invensense [M651](#) 6-axis accelerometer and gyro
  - Asahi Kasei [AK8963](#) 3-axis compass IC
  - Qualcomm WCD9302 audio codec
  - PPG sensor

## Step 8



- With a quick twist of our opening pick, we remove the battery faster than a mariachi player running through his scales.
- The Urbane rocks a 410 mAh battery—just like its primo, the LG G Watch R.
- ⓘ The [Moto 360](#) and [Samsung Gear Live](#) pack 300 mAh batteries, while the [Apple Watch](#) gets by on a mere 205 mAh cell.

## Step 9



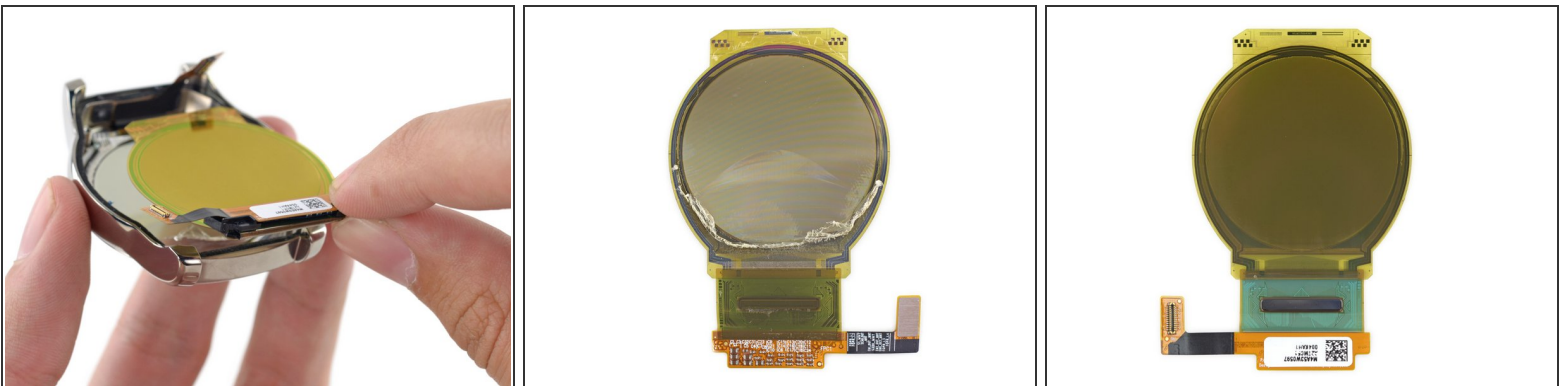
- Two screws and some mild adhesive are all that stand between us and picking out the plastic midframe.
- ❗ As devices shrink, manufacturers are turning to adhesive instead of screws or clips.
- On the whole, this has been bad news for repairs—but in this case, LG seems to have found the secret recipe that balances construction strength with pry-ability.
- Picking out the watch's midframe reveals a single cable responsible for the crown button and charging cradle ports, and a pair of spring contacts that connect the motherboard to the watch body, perhaps to use the body as an antenna.

## Step 10



- Our iOpener [tags in](#) to help dispatch the P-OLED display.
- ⓘ This incredibly thin display appears to be made up of several layers, that need to be peeled up off the back of the glass in order to remove the glass.
- As we peel up the display a strange, [stretchy](#) membrane sticks to the back of the digitizer.
- ⓘ This membrane is definitely serving as an adhesive between the display and the digitizer, but may also serve some higher purpose as a [thin film](#).

## Step 11



- Peeling up the display
- Now that it's free of the case, we can get a closer look at the Urbane's 245ppi P-OLED screen.
- ⓘ If you think this display looks familiar, we're right with you. LG says they built the Urbane around the display used in the LG G Watch R.

## Step 12



- The next layer off the screen sandwich is the digitizer. Also held in with sticky adhesive on both sides, it bears the LG Display co., Ltd marking.
- LG produces their own displays for their gadgets—something [not every manufacturer](#) is able to do.

## Step 13



- We put our curved blade to work, and pop out the display glass.
  - The glass floats away intact, in all its perfect circularness, and the last layer of the display—which looks like a polarizing film—peels off, leaving behind some gooey optically clear adhesive (OCA) residue.
  - Unfortunately, it seems like the procedure we just endured is the only way to replace a cracked screen—the display and digitizer are adhered to the back of the glass *after* it is installed in the watch body.
- ⓘ That means to replace a cracked glass you'll have to remove all of the pieces of the display, install a new glass front, and then adhere a new OLED display to the back of the glass with OCA.



This exploded view diagram illustrates the various components of the Apple Watch Series 1. The parts shown include the black leather band with a silver-tone buckle, the stainless steel case, the sapphire crystal display, the LCD screen, the Taptic Engine, the battery, the logic board, the rear camera module, the digital crown, and the back cover. The components are arranged in a way that shows their relative positions and how they fit together to form the complete device.



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