Moto Razr 2019 is official: A foldable smartphone with no display crease

reader comments

50 with 40 posters participating, including story author

Share this story

- The new Moto Razr.
- The box is pretty wild looking.
- When open, you get a 6.2-inch foldable display.
- When closed, you get a smaller 2.7-inch display for notifications and music control.
- The display inside is big.
- In this live image from Verizon, you can see a bit of a ripple in the display.
- The display in real life. Still a bit ripple-y.
- Let’s talk about the front display. Here it’s showing the time and notifications.
- Here is selfie mode, which actually uses the main camera, because it’s a flip phone.
- The front display in music mode.
- Google Assistant on the front display.
- The inside. You can see the navigation bar is huge, since it needs to be a rectangle and avoid the bottom curve in the display.
- The bottom has a USB-C port and a speaker grill.
- The folded mode is going to be thick, but compact.
- When open, the non-chin part of the phone is 6.9mm thick.
- All the in-box accessories.

It’s Moto Razr day today. The phone stopped by the FCC earlier in the day, and after sending out an event invite for November 13, Motorola just barely made it in time, with an official announcement at 11pm ET. The rumors were true: the Moto Razr is a reboot of one of the most iconic flip phones of all time, updated for 2019. Instead of a tiny screen and a physical keypad on the inside, you get a giant folding OLED display that puts the new Moto Razr in the same category as other futuristic foldables like the Samsung Galaxy Fold and Huawei Mate X. The price is also in the same stratosphere as those super-expensive devices: the new Razr is $1,500. It’s also a Verizon exclusive in the US.

The hinge design of the Moto Razr is probably the most interesting thing about it. The best Samsung can currently do in the foldables space is the Galaxy Fold, which, thanks to folding the display nearly completely flat, develops a permanent crease in the display after the first fold. Motorola’s display doesn’t fold completely flat though—there is a large void space around the display hinge, so when the phone folds in half, the display has room to move around. Since it’s not being sandwiched between two solid plates, the display collapses into a gentle curve instead of a hard crease. Imagine bending a piece of paper in half just by pinching the top and bottom together versus pressing the fold into a crease.

Motorola described how a hinge like this could work in a 2018 patent. Instead of having the hinge mechanism behind the display, like on the Galaxy Fold, Motorola has the hinge on the left and right side of the display, giving the display room to sink into the phone body and bend into a gentle curve. For support Motorola says the hinge “includes moveable support plates that rigidly support the display when the phone is open, but collapse out of the way when the phone is closed.” These two design elements allow the phone to have a “zero gap” hinge while also not smashing the display into a crease.

Since the display only ever forms a loop, rather than a crease, it never gains a distracting, light-distorting crease down the middle the way the Galaxy Fold does. This design should be easier on the display as well, since it causes less stress to the pixels around the bendy part. We've already seen (pre-release) Galaxy Fold displays die along the display crease, thanks to all the stress.

- A 2018 Motorola patent showing the display inside a folded phone. Notice how the display is a big loop, and not a hard crease.
- There's room for the display inside the phone because the hinge mechanism (502 and 506) lives on the left and right side of the display, rather than behind it.
- Motorola's official shot of the closed display. It's a loop!
- In motion, this hinge design is *actually* revolutionary. You get a fold-flat body without crushing the display.
- You can see how that translates to a real design here. The hinge mechanism is next to—not behind—the display, so it sticks out from the phone body a bit.
- The back of the phone also looks very simple, since it's an empty shell holding the display.

The display of the new Razr also looks pretty special. The top and bottom edges of the 6.2-inch, 2142×876 display curve into an arch, which is a perfect throwback to the interior of the old Razr design. The notch at the top houses not just the camera but the earpiece, too. The FCC basically posted a full teardown of the device, and seeing the display outside of the Razr body is really something.

Where did Motorola source a display like this for its foldable smartphone? Samsung is the leader in foldable displays, but after having spent six years and $130 million dollars to develop the technology, Samsung seems to want to keep the technology to itself. It seems Motorola is dual-sourcing the

displays. Some are from China's up-and-coming OLED display manufacturer BOE, which also supplies the displays for the Huawei Mate X. The second supplier is actually TCL, the same company that makes zombie phones branded as "Palm" and "Blackberry."

Just like the old-school Razr, there's also a secondary display on the front: a 2.7-inch 800×600 panel. Also just like the old Razr, it seems this is primarily for checking notifications. You can see your incoming messages, control music, take selfies, and even use the Google Assistant, all without opening the phone. The UI for this seems totally new. Instead of showing something like a tiny Android notification panel, you get a full screen UI for each action, and apparently you can swipe between them. It's unclear if this is a new Android feature, or a Motorola Razr feature.

The Moto Razr was popular as a fashion phone, thanks to the ultra-thin profile and good looks. It's hard to tell just from looking at pictures, but is that same appeal still present in this device? The pictures and dimensions make it clear this is a super-sized version of the original Razr. The most popular model of the old Razr, the V3, measured 98mm x 53mm and 13.9mm thick. The new Razr is listed at 172mm × 72mm × 14mm. So the new Razr's namesake thinness is near-identical to the old Razr, but a lot wider and taller. These numbers reduce both devices to simplified rectangles based on their widest sections, but in terms of overall volume, the new Razr is 138% bigger—yes, over double the volume—of the old Razr.

Our expectations for "thin" have definitely changed since 2004, too. iPhone thinness peaked with the iPhone 6, at 6.9mm, and the thinnest Android phone ever is the Vivo X5 Max, which slimmed down to a ridiculous 4.75mm (and it still had a headphone jack!). That 14mm thickness on the new Razr is ever-present thanks to the chin at the bottom, and since the Razr unfolds, that puts each unfolded section of the phone at around 7mm. A standard smartphone is around 7.8mm thick

nowadays, so the Razr's thinness is nothing special. When open, it's about the thickness of a smartphone. When closed, it's about the thickness of two smartphones stacked on top of each other.

- The FCC's Moto Razr photos. Even on third-party images, this phone has no display crease. Be sure to zoom in!
- Another photo of the pristine display.
- A photo of the back.
- The FCC has a full teardown of this device already! Here our lovely government is just popping the shells off.
- Here's the display out in the open. It's a pretty crazy design, with arched top and bottom edges *plus* a notch at the top.
- The motherboard! Here you can make out the Qualcomm Snapdragon 710 SoC at the heart of the device.
- The other side of the motherboard is nearly blank.
- Here's one of the two batteries in the device, a scant 1245mAh.

As for the width and height, I don't think you can call the Razr a compact phone anymore, either. Width is what makes a smartphone feel small in your hands, but at 72mm wide, the Razr is firmly a "medium" size smartphone, sitting between the width of a Galaxy S10 (70mm) and S10+ (74mm). The width also works against the phone's positioning as an update to the old Razr: the proportions compared to the old phone are all wrong, and this "Razr" is a shorter, wider distortion of the original. At 172mm tall while open, the Razr is the tallest phone on the market, dwarfing even monster devices like the Galaxy Note 10+ and OnePlus 7T Pro (both ~162mm).

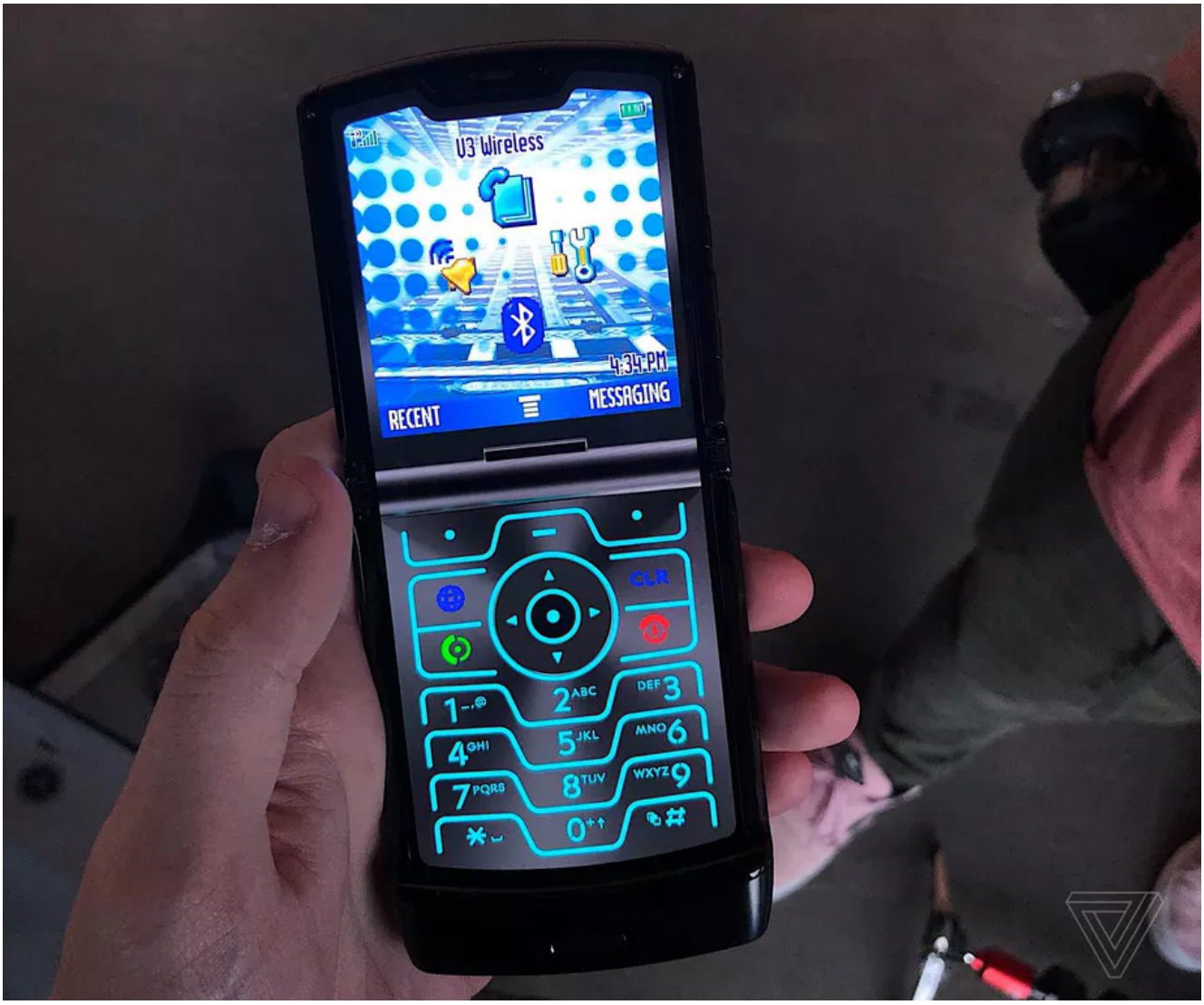
So what are you looking for from a foldable smartphone? The standard answer with devices like the Galaxy Fold and Huawei Mate X has been "a phone that opens up into a tablet," but that clearly isn't the goal of the Moto Razr. This also isn't a return to some kind of compact form factor, given that the

device is more than twice the size of the old Razr. The new Razr is more like “a smartphone that folds in half.” The standard smartphone design puts a tall, thin rectangle in your pocket; Motorola is arguing it’s better to pocket a thicker square shape instead.

As far as running Android on this device goes, the display’s arched top and bottom edges *and* a notch at the top means there is a lot of unusable space for apps. Android apps need to be presented with a rectangle by default, so those arches at the top and bottom need to be squared off by the system software. There also need to be room for the navigation buttons and status icons, which also need to be in a straight line. The result is a *lot* of space at the top and bottom of the phone that is dedicated to system-level Android UI. The new Razr only runs Android 9, by the way, not the newer Android 10.

As for the specs, the Razr has a mid-range—not flagship—SoC: the Snapdragon 710. This features eight Kryo 360 CPU cores, with two high-performance cores running at 2.2Ghz, and six lower-power cores running at 1.7GHz. This is a 10nm SoC that’s over a year old now, putting it a generation behind the 7nm flagship SoC, the Snapdragon 855. It seems like we’re now making budgetary compromises in a $1,500 smartphone. The Galaxy Fold has a Snapdragon 855, but that costs $2,000.

The base model has 6GB of RAM and 128GB of storage.The battery is split between the top and bottom sections, with the two parts combining for 2510mAh of power. Tech reviewers have spent the past few weeks dogging Google for the tiny 2,800mAh battery in the Pixel 4, and to see a new smartphone announced with an even bigger display and a smaller battery than the maligned Pixel 4 is a cause for concern.



Retro Razr mode.

Finally, if the retro hardware design isn't enough for you, how about a retro *software mode?* The Verge detailed a fun "Retro Razr" mode that emulates a T9 keypad at the bottom of the display and puts the old school Razr dumbphone UI up top. The old UI actually works. You navigate with the virtual D-Pad and it can be used as a home screen launcher of sorts, allowing you to do things like launch the modern Android messaging app when you tap "enter" on the old-school messaging icon.

Worldwide, the new Razr will be available in "markets across Europe, Latin America, Asia and Australia." In the US, the new Razr is exclusive to Verizon and launches January 9, 2020, with pre orders starting December 26. Yes the *day after* Christmas. Apologies to Santa Claus.

https://arstechnica.com/?p=1601411