

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

MAXELL, LTD.,

Plaintiff,

v.

APPLE INC.,

Defendant.

Case No. 5:19-cv-00036-RWS

JURY TRIAL DEMANDED

**PLAINTIFF MAXELL, LTD.’S
PATENT RULE 3-1 AND 3-2 DISCLOSURE OF ASSERTED CLAIMS
AND INFRINGEMENT CONTENTIONS AGAINST DEFENDANT APPLE INC.**

Pursuant to Patent Rules (“P.R.”) 3-1 and 3-2, Plaintiff Maxell, Ltd. (“Maxell”) hereby serves its Disclosure of Asserted Claims and Infringement Contentions and accompanying disclosure against Defendant Apple Inc. (“Defendant” or “Apple”).

These contentions are based on information reasonably available to Maxell at this time. Maxell’s investigation of the facts relevant to this case is ongoing, discovery has not yet begun, and the Court has not yet construed the claims. Further, important information about many or all of Apple’s products is not publicly available, including information relevant to the patents-in-suit and these Infringement Contentions. Accordingly, Maxell reserves the right to modify and/or supplement these disclosures as information becomes available, based on the Court’s claim constructions, and/or based on positions taken by Apple.

A. P.R. 3-1(a): Identification of Asserted Claims

Pursuant to P.R. 3-1(a) and based on the information presently available, Maxell incorporates herein by reference the identification of asserted claims set forth in its Complaint (*see* Dkt. No. 1) and in the attached Appendices 1-10. Maxell further discloses the following claims of each patent-in-suit that it contends are infringed (directly and/or indirectly, literally and/or under the doctrine of equivalents) by Apple, through its manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Instrumentalities:

- U.S. Patent 6,748,317 (“the ’317 Patent”): claims 1-3, 5-15, 17, and 18;
- U.S. Patent 6,580,999 (“the ’999 Patent”): claims 1-6;
- U.S. Patent 8,339,493 (“the ’493 Patent”): claims 1, 3-6, 10, and 11;
- U.S. Patent 7,116,438 (“the ’438 Patent”): claims 1-7;
- U.S. Patent 6,408,193 (“the ’193 Patent”): claims 1, 6, and 7;
- U.S. Patent 10,084,991 (“the ’991 Patent”): claims 1-5 and 8-12;
- U.S. Patent 6,928,306 (“the ’306 Patent”): claims 2, 5, 6, and 12-15;
- U.S. Patent 6,329,794 (“the ’794 Patent”): claims 1-3 and 5-14;
- U.S. Patent 10,212,586 (“the ’586 Patent”): claims 1-2, 6-7, 9-10, 13-14, and 16-18; and
- U.S. Patent 6,430,498 (“the ’498 Patent”): claims 1, 3-5, 7-11, and 13.

Maxell expressly reserves the right to modify, amend and/or supplement the foregoing in light of new information made available to Maxell, based on the Court’s claim construction, or based on positions taken by Apple.

B. P.R. 3-1(b): Identification of Accused Instrumentalities

Pursuant to P.R. 3-1(b) and based on the information presently available, Maxell incorporates herein by reference the identification of Accused Instrumentalities set forth in the

Complaint (*see* Dkt. No. 1) and in the attached Appendices 1-10. Maxell further identifies the following Accused Instrumentalities¹ of which it is currently aware:

- As to claims 1-3, 5-15, 17, and 18 of the '317 Patent, the accused products include Apple iPhones (*e.g.*, iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532), iPhone 6 (A1549/A1586), iPhone 6 Plus (A1522/A1524), iPhone 6S (A1633/A1688), iPhone 6S Plus (A1634/A1687), iPhone SE (A1723/A1662), iPhone 7 (A1660/A1778), iPhone 7 Plus (A1661/A1784), iPhone 8 (A1863/A1905), iPhone 8 Plus (A1864/A1897), iPhone X (A1865/A1901), iPhone XS (A1920), iPhone XS Max (A1921), and iPhone XR (A1984)); Apple iPads (*e.g.*, iPad Air (A1475), iPad mini 2 (A1490), iPad Air 2 (A1567), iPad Air 3 (A2123/A2153), iPad mini 3 (A1600), iPad mini 4 (A1550), iPad mini 5 (A2124/A2126), iPad Pro (A1709), iPad Pro (A1652), iPad Pro (A1674/ A1675), iPad Pro (A2013), iPad 5th generation (A1823), iPad 6th generation (A1954), iPad Pro (2nd generation) (A1671), and iPad Pro (3rd generation) (A2014/A1859)); Apple Watch Series 4 (A1975/A1976/A1977/A1978), Series 3 (A1860/A1861/A1858/A1859), and Series 2 (A1757/A1758/A1816/A1817); and any yet to be released products or additional product that includes “Maps” application with the “Walk” option and “Find My Friends” application as identified in Appendix 1 (collectively, “the Accused Apple '317 Products”).
- As to claims 1-6 of the '999 Patent, the accused products include Apple iPhones (*e.g.*, iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532), iPhone 6 (A1549/A1586), iPhone 6 Plus (A1522/A1524), iPhone 6S (A1633/A1688), iPhone 6S Plus (A1634/A1687), iPhone SE (A1723/A1662), iPhone 7 (A1660/A1778), iPhone 7 Plus (A1661/A1784), iPhone 8 (A1863/A1905), iPhone 8 Plus (A1864/A1897), iPhone X (A1865/A1901), iPhone XS (A1920), iPhone XS Max (A1921), and iPhone XR (A1984)); Apple iPads (*e.g.*, iPad Air (A1475), iPad mini 2 (A1490), iPad Air 2 (A1567), iPad Air 3 (A2123/A2153), iPad mini 3 (A1600), iPad mini 4 (A1550), iPad mini 5 (A2124/A2126), iPad Pro (A1709), iPad Pro (A1652), iPad Pro (A1674/ A1675), iPad Pro (A2013), iPad 5th generation (A1823), iPad 6th generation (A1954), iPad Pro (2nd generation) (A1671), and iPad Pro (3rd generation) (A2014/A1859)); Apple Watch Series 4 (A1975/A1976/A1977/A1978), Series 3 (A1860/A1861/A1858/A1859), and Series 2 (A1757/A1758/A1816/A1817); and any yet to be released products or additional product that includes “Maps” application with the “Walk” option and “Find My Friends” application as identified in Appendix 2 (collectively, “the Accused Apple '999 Products”).

¹ Maxell has included the product name followed by (if known) the corresponding model number in parenthesis. The model numbers included in these disclosures are based on Maxell's information and belief, based on publicly available information, and are subject to change based on discovery in this case.

- As to claims 1, 3-6, 10, and 11 of the '493 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 6 Plus (A1522/A1524), iPhone 6 (A1549/A1586), iPhone SE (A1723/A1662), iPhone 5S (A1453/A1533), and iPhone 5C (A1456/A1532)); Apple iPads (*e.g.*, iPad Pro (A1673/A1674/A1675)); and any yet to be released product or additional product that includes similar camera modules and screen pixels as identified in Appendix 3 (collectively, "the Accused Apple '493 Products").
- As to claims 1 and 4-7 of the '438 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532)), and iPhone SE (A1723/A1662)); iPad Air (A1474/A1475); Apple iPads (*e.g.*, iPad Mini 2 (A1489/A1490), iPad Air 2 (A1566/A1567), iPad Air 3 (A2152/A2153/A2123), iPad Mini 3 (A1599/A1600), iPad Mini 4 (A1538/A1550), iPad Mini 5 (A2124/A2126/A2133), iPad Pro (A1701/A1709), iPad Pro (A1584/A1652), iPad Pro (A1673/A1674/A1675), iPad Pro (A1980/A2013), iPad 5th generation (A1822/A1823), iPad 6th generation (A1893/A1954), iPad Pro (2nd generation) (A1670/A1671), and iPad Pro (3rd generation) (A1876/A2014/A1859); iPod Touch 5th Generation (A1509/A1421) iPod Touch 6th Generation (A15740), and iPod Touch 7th Generation (A2178); MacBook Pros (10,1; 10,2; 11,1; 11,2; 11,3; 11,4; 11,5; 12,1; 13,1; 13,2; 13,3; 14,1; 14,2; 15,1; 15,2); MacBook Air (6,1; 6,2; 7,1; 7,2; 8,1); Mac Mini (6,1; 6,2; 7,1; 8,1); iMac (14,1; 14,2; 14,4; 15,1; 16,1; 16,2; 17,1; 18,1; 18,2; 18,3; 19,1; 19,2; iMac Pro (1,1); and any yet to be released product or additional product that includes similar AirDrop functionality as identified in Appendix 4A (collectively, "the Accused Apple '438 AirDrop Products").
- As to claims 4-7 of the '438 Patent, the accused products include Apple Watch Series 4 (A1975/A1976/A1977/A1978); Series 3 (A1860/A1861/A1858/A1859); Series 2 (A1757/A1758/A1816/A1817); Series 1 (A1802/A1803); 1st Generation (A1553/A1554); and any yet to be released product or additional product that includes similar functionality of pairing over Bluetooth and communicating over WiFi or cellular with one or more Apple iPhones after the pairing as identified in Appendix 4B (collectively, "the Accused Apple '438 Watch Products").
- As to claims 1-3 of the '438 Patent, the accused products include Apple iPhones (*e.g.*, Apple iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897),

iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532)), and iPhone SE (A1723/A1662)), and any yet to be released product or additional product that includes similar functionality of pairing over Bluetooth and communicating over WiFi or cellular with one or more Apple Watches after the pairing as identified in Appendix 4C (collectively, “the Accused Apple ’438 Pairable Products”).

- As to claims 1, 6, and 7 of the ’193 Patent, the accused products include Apple iPhones (*e.g.*, iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532), iPhone 6 (A1549/A1586), iPhone 6 Plus (A1522/A1524), iPhone 6S (A1633/A1688), iPhone 6S Plus (A1634/A1687), iPhone SE (A1723/A1662), iPhone 7 (A1660/A1778), iPhone 7 Plus (A1661/A1784), iPhone 8 (A1863/A1905), iPhone 8 Plus (A1864/A1897), iPhone X (A1865/A1901), iPhone XS (A1920), iPhone XS Max (A1921), and iPhone XR (A1984)); Apple iPads (*e.g.*, iPad Air (A1475), iPad mini 2 (A1490), iPad Air 2 (A1567), iPad Air 3 (A2123/A2153), iPad mini 3 (A1600), iPad mini 4 (A1550), iPad mini 5 (A2124/A2126), iPad Pro (A1709), iPad Pro (A1652), iPad Pro (A1674/A1675), iPad Pro (A2013), iPad 5th generation (A1823), iPad 6th generation (A1954), iPad Pro (2nd generation) (A1671), and iPad Pro (3rd generation) (A2014/A1859)); and any yet to be released product or additional product that includes similar components to control a gain and bias of one or more amplifiers as identified in Appendix 5 (collectively, “the Accused Apple ’193 Products”).
- As to claims 1-5 and 8-12 of the ’991 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone SE (A1723/A1662)); Apple iPads (*e.g.*, iPad mini 4 (A1538/A1550), iPad Pro (A1701/A1709), iPad Pro (A1980/A2013), iPad (5th generation) (A1822/A1823), iPad (6th generation) (A1893/A1954), iPad Pro (2nd generation) (A1670/A1671), iPad Pro (3rd generation) (A1876/A2014/A1895), iPad Air 3 (A2152/A2123/A2153), iPad mini 5 (A2133/A2124/A2126)); iPod Touch (*e.g.*, 6th generation (A1574) and 7th generation (A2178)); MacBook products with FaceTime functionality (*e.g.*, MacBook (10,1), MacBook Air (7,2; 8,1), and MacBook Pro (14,1; 14,2; 14,3; 15,1; 15,2)); and any yet to be released product or additional product that includes similar FaceTime and video reproduction functionality as identified in Appendix 6 (collectively, “the Accused Apple ’991 Products”).
- As to claims 2, 5, 6, and 12-15 of the ’306 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784),

- iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 6 Plus (A1522/A1524), iPhone 6 (A1549/A1586), iPhone SE (A1723/A1662), iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532)); Apple iPads (*e.g.*, iPad Air (1474/A1475), iPad mini 2 (A1489/A1490), iPad Air 2 (A1566/A1567), iPad mini 3 (A1599/A1600), iPad mini 4 (A1538/A1550), iPad Pro (A1701/A1709), iPad Pro (A1584/A1652), iPad Pro (A1673/A1674/A1675), iPad Pro (A1980/A2013), iPad (5th generation) (A1822/A1823), iPad (6th generation) (A1893/A1954), iPad Pro (2nd generation) (A1670/A1671), iPad Pro (3rd generation) (A1876/A2014/A1895), iPad Air 3 (A2152/A2123/A2153), iPad mini 5 (A2133/A2124/A2126)); iPod Touches (*e.g.*, 5th (A1509/A1421), 6th (A1574), and 7th generations (A2178)); and any yet to be released product or additional product that includes similar VoiceOver and Siri announcing caller functionality as identified in Appendix 7 (collectively, “the Accused Apple ’306 Products”).
- As to claims 1-3 and 5-14 of the ’794 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 6 Plus (A1522/A1524), iPhone 6 (A1549/A1586), iPhone SE (A1723/A1662), iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532)); Apple iPads (*e.g.*, iPad Air (1474/A1475), iPad mini 2 (A1489/A1490), iPad Air 2 (A1566/A1567), iPad mini 3 (A1599/A1600), iPad mini 4 (A1538/A1550), iPad Pro (A1701/A1709), iPad Pro (A1584/A1652), iPad Pro (A1673/A1674/A1675), iPad Pro (A1980/A2013), iPad (5th generation) (A1822/A1823), iPad (6th generation) (A1893/A1954), iPad Pro (2nd generation) (A1670/A1671), iPad Pro (3rd generation) (A1876/A2014/A1895), iPad Air 3 (A2152/A2123/A2153), iPad mini 5 (A2133/A2124/A2126)); iPod Touches (*e.g.*, 5th (A1509/A1421), 6th (A1574), and 7th generations (A2178)); Apple Watch Series 4 (A1975/A1976/A1977/A1978), Series 3 (A1860/A1861/A1858/A1859), Series 2 (A1757/A1758/A1816/A1817), Series 1 (A1802/A1803), and 1st Generation (A1553/A1554); and any yet to be released product or additional product that includes components for managing power and implemented a low power mode as identified in Appendix 8 (collectively, “the Accused Apple ’794 Products”).
 - As to claims 1-2, 6-7, 9-10, 13-14, and 16-18 of the ’586 Patent, the accused products include Apple iPhones (*e.g.*, iPhone XS (A1920), iPhone XS Max (A1921), iPhone XR (A1984), iPhone X (A1865/A1901), iPhone 8 Plus (A1864/A1897), iPhone 8 (A1863/A1905), iPhone 7 Plus (A1661/A1784), iPhone 7 (A1660/A1778), iPhone 6s Plus (A1634/A1687), iPhone 6s (A1633/A1688), iPhone 6 Plus (A1522/A1524), iPhone 6 (A1549/A1586), iPhone SE (A1723/A1662), iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532)); MacBook (10,1), MacBook (9,1), MacBook (8,1), MacBook Pro (15,1), MacBook Pro (15,2), MacBook Pro (14,3), MacBook

Pro (14,2), MacBook Pro (14,1), MacBook Pro (13,3), MacBook Pro (13,2), MacBook Pro (13,1), MacBook Pro (12,1), MacBook Pro (11,5), MacBook Pro (11,4), MacBook Pro (11,3), MacBook Pro (11,2), MacBook Pro (11,1), MacBook Pro (10,1), MacBook Pro (10,2), MacBook Air (8,1), MacBook Air (7,2), MacBook Air (7,1), MacBook Air (6,2), MacBook Air (6,1). Mac mini (6,1), Mac mini (6,2), Mac mini (7,1), Mac mini (8,1); Apple Watches (*e.g.*, Apple Watch Series 4 (A1975/A1976/A1977/A1978); Series 3 (A1860/A1861/A1858/A1859); Series 2 (A1757/A1758/A1816/A1817); Series 1 (A1802/A1803); and 1st Generation (A1553/A1554); and any yet to be released product or additional product that include the functionality of unlocking another Apple product when certain conditions are met as identified in Appendix 9 (collectively, “the Accused Apple ’586 Products”).

- As to claims 1, 3-5, 7-11, and 13 of the ’498 Patent, the accused products include Apple iPhones (*e.g.*, iPhone 5S (A1453/A1533), iPhone 5C (A1456/A1532), iPhone 6 (A1549/A1586), iPhone 6 Plus (A1522/A1524), iPhone 6S (A1633/A1688), iPhone 6S Plus (A1634/A1687), iPhone SE (A1723/A1662), iPhone 7 (A1660/A1778), iPhone 7 Plus (A1661/A1784), iPhone 8 (A1863/A1905), iPhone 8 Plus (A1864/A1897), iPhone X (A1865/A1901), iPhone XS (A1920), iPhone XS Max (A1921), and iPhone XR (A1984)); Apple iPads (*e.g.*, iPad Air (A1475), iPad mini 2 (A1490), iPad Air 2 (A1567), iPad Air 3 (A2123/A2153), iPad mini 3 (A1600), iPad mini 4 (A1550), iPad mini 5 (A2124/A2126), iPad Pro (A1709), iPad Pro (A1652), iPad Pro (A1674/ A1675), iPad Pro (A2013), iPad 5th generation (A1823), iPad 6th generation (A1954), iPad Pro (2nd generation) (A1671), and iPad Pro (3rd generation) (A2014/A1859)); Apple Watch Series 4 (A1975/A1976/A1977/A1978), Series 3 (A1860/A1861/A1858/A1859), and Series 2 (A1757/A1758/A1816/A1817); and any yet to be released products or additional product that includes “Maps” application with the “Walk” option and “Find My Friends” application as identified in Appendix 10 (collectively, “the Accused Apple ’498 Products”).

Maxell’s identification of the Accused Instrumentalities is based on information reasonably available to Maxell at this time. Maxell reserves the right to supplement these Infringement Contentions based on information developed in the course of this lawsuit through discovery or additional factual investigation, in view of the Court’s claim construction rulings, or as other circumstances may require. Specifically, should discovery reveal that Apple has committed acts of infringement related to any products other than those listed above, including newly released products or additional products with similar functionality identified in Appendices 1-10, Maxell reserves the right to supplement these contentions.

C. P.R. 3-1(c): Claim Charts

Pursuant to P.R. 3-1(c), and based on the information presently available, Maxell attaches hereto the following Appendices 1-10 identifying specifically where each element of each asserted claim is found within the Accused Instrumentalities: Appendix 1 (the '317 Patent), Appendix 2 (the '999 Patent), Appendix 3 (the '493 Patent), Appendices 4A-4C (the '438 Patent), Appendix 5 (the '193 Patent), Appendix 6 (the '991 Patent), Appendix 7 (the '306 Patent), Appendix 8 (the '794 Patent), Appendix 9 (the '586 Patent), and Appendix 10 (the '498 Patent).

Each of these appendices identifies a claim chart for the asserted claims of the patents-in-suit and the Accused Instrumentalities. As explained below, the Apple Accused Instrumentalities infringe based on the functionalities and infringement theories set forth in Appendices 1-10 for each of the corresponding patents-in-suit.

1. The '317 Patent and Appendix 1

With respect to the '317 Patent, Appendix 1 shows how each element of claims 1-3, 5-15, 17, and 18 is found in the Accused Apple '317 Products.

As shown in Appendix 1, the Accused Apple '317 Products each includes a screen for displaying information, and at least a GPS chipset, digital compass, Wi-Fi modem, cellular modem, and/or iBeacon microlocation component for providing location information. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Location”). Further, the Accused Apple '317 Products are sold and/or offered for sale with pre-installed software (*e.g.*, “Maps” and “Find My Friends”) that allows users to access location information, including the present location of the device and orientation of the device, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone->

[xs/specs/](#) (“Built-in Apps” including “Maps” and “Find My Friends”). The software, in combination with the electronic components of the Accused Apple ’317 Products, allows the user to input a destination and display the present place, the destination, and directions between the two locations denoted by lines (including starting and ending points) superimposed on a map which includes roads and points of interest, or by displaying the directional information in the form of a written list. Further, the display displays positions of the destination, present place, a relation of said direction, and a direction from the present place to the destination, and changes according to a change of the direction of the portable terminal orientation for walking navigation.

As also shown in Appendix 1, the Accused Apple ’317 Products are also provided with preinstalled software that allows users to access location information of other user devices, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Built-in Apps” including “Find My Friends”).

The following exemplary disclosures from webpages provided by Apple provide evidence of “Maps” and “Find My Friends” being present in each of the Accused Apple ’317 Products:

1. Turn-by-turn navigation is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, and iPad mini or later with cellular data capability. Cellular data charges may apply.
2. Transit is available on iPhone 5 or later, iPad Pro, iPad (5th generation or later), iPad Air or later, iPad mini 2 or later, and iPod touch (6th generation). Cellular data charges may apply.
3. Flyover is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later). To experience Flyover as you move your device through space, you need iPhone 6s or later, iPad Pro, or iPad (5th generation or later). Cellular data charges may apply.
4. Siri is available on iPhone 4s or later, iPad Pro, iPad (3rd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later) and requires Internet access. Siri may not be available in all languages or in all areas, and features may vary by area. Cellular data charges may apply.
5. iCloud requires an iCloud-enabled device. Some features require iOS 12 and macOS Mojave. Some features require a Wi-Fi connection. Some features are not available in all countries or regions. Access to some services is limited to 10 devices.

See <https://www.apple.com/ios/maps/>

Set up and use Find My Friends

Use Find My Friends to easily locate your friends and family from your iPhone, iPad, iPod touch, Apple Watch, or on iCloud.com.

Before you start


- Update your iPhone, iPad, or iPod touch to [iOS 8 or later](#).
 - Update your Apple Watch to [watchOS 3](#) or later.
 - If it's not already on your device, download the [Find My Friends](#) app.
 - Make sure that the [web browser on your Mac or PC](#) is up to date.
-

Set up Find My Friends

If your iPhone, iPad, or iPod touch is using iOS 9 or later, Find My Friends is automatically installed. If your device is using a version of iOS 8, install the free [Find My Friends](#) app. When you [sign in to iCloud on your device](#), you automatically sign in to Find My Friends with your Apple ID.

See <https://support.apple.com/en-us/HT201493>

Get directions on Apple Watch

 Ask Siri. Say something like:

- "Directions to the nearest gas station?"
 - "Get directions home"
 - "How far to the airport?"
-

See <https://support.apple.com/guide/watch/get-directions-apdea7480950/watchos>

Further, as shown in Appendix 1, technical specifications and/or teardowns show that each of the Accused Apple '317 Products include all necessary hardware, operating systems, and software required by each of claims 1-3, 5-15, 17, and 18. For example, each of the Accused Apple '317 Products include a device for getting location information, a device for getting direction information, an input device for inputting a destination, and a display that displays positions of a destination and a present location, provides orientation for walking navigation,

and/or identifies location information about other portable terminals. *See, e.g.*, Appendix 1 (identifying the technical specifications and/or teardown reports of the Accused Apple '317 Products confirming the same).

2. The '999 Patent and Appendix 2

With respect to the '999 Patent, Appendix 2 shows how each element of claims 1-6 is found in the Accused Apple '999 Products.

As shown in Appendix 2, the Accused Apple '999 Products each includes a screen for displaying information, and at least a GPS chipset, digital compass, Wi-Fi modem, cellular modem, and/or iBeacon microlocation component for providing location information. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Location”). Further, the Accused Apple '999 Products are sold and/or offered for sale with pre-installed software (*e.g.*, “Maps” and “Find My Friends”) that allows users to access location information, including the present location of the device and orientation of the device and the location of other devices, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Built-in Apps” including “Maps” and “Find My Friends”). The software, in combination with the electronic components of the Accused Apple '999 Products, allows the user to receive and display a location of the present place, a location of another portable terminal, and directions between the two locations denoted by lines (including starting and ending points) superimposed on a map which includes roads and points of interest, or by displaying the directional information in the form of a written list. Further, the display displays positions of the destination, present place, a relation of said direction, and a direction from the present place to the destination, and changes according to a change of the direction of the portable terminal orientation for walking navigation.

As also shown in Appendix 1, the Accused Apple '317 Products are also provided with preinstalled software that allows users to access location information of other user devices, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Built-in Apps” including “Find My Friends”)

The following exemplary disclosures from webpages provided by Apple provide evidence of “Maps” and “Find My Friends” being present in each of the Accused Apple '999 Products:

1. Turn-by-turn navigation is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, and iPad mini or later with cellular data capability. Cellular data charges may apply.
2. Transit is available on iPhone 5 or later, iPad Pro, iPad (5th generation or later), iPad Air or later, iPad mini 2 or later, and iPod touch (6th generation). Cellular data charges may apply.
3. Flyover is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later). To experience Flyover as you move your device through space, you need iPhone 6s or later, iPad Pro, or iPad (5th generation or later). Cellular data charges may apply.
4. Siri is available on iPhone 4s or later, iPad Pro, iPad (3rd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later) and requires Internet access. Siri may not be available in all languages or in all areas, and features may vary by area. Cellular data charges may apply.
5. iCloud requires an iCloud-enabled device. Some features require iOS 12 and macOS Mojave. Some features require a Wi-Fi connection. Some features are not available in all countries or regions. Access to some services is limited to 10 devices.

See <https://www.apple.com/ios/maps/>

Set up and use Find My Friends

Use Find My Friends to easily locate your friends and family from your iPhone, iPad, iPod touch, Apple Watch, or on iCloud.com.

Before you start


- Update your iPhone, iPad, or iPod touch to [iOS 8 or later](#).
 - Update your Apple Watch to [watchOS 3](#) or later.
 - If it's not already on your device, download the [Find My Friends](#) app.
 - Make sure that the [web browser on your Mac or PC](#) is up to date.
-

Set up Find My Friends

If your iPhone, iPad, or iPod touch is using iOS 9 or later, Find My Friends is automatically installed. If your device is using a version of iOS 8, install the free [Find My Friends](#) app. When you [sign in to iCloud on your device](#), you automatically sign in to Find My Friends with your Apple ID.

See <https://support.apple.com/en-us/HT201493>

Get directions on Apple Watch

 Ask Siri. Say something like:

- "Directions to the nearest gas station?"
 - "Get directions home"
 - "How far to the airport?"
-

See <https://support.apple.com/guide/watch/get-directions-apdea7480950/watchos>

Further, as shown in Appendix 2, technical specifications and/or teardowns show that each of the Accused Apple '999 Products include all necessary hardware, operating systems, and software required by each of claims 1-6. For example, each of the Accused Apple '999 Products include a device for getting location information, a device for getting direction information, device for getting location information of another portable terminal, and a display that displays positions of a destination and a present location, provides orientation for walking navigation,

and/or supplies route guidance information as walking navigation information. *See, e.g.*, Appendix 2 (identifying the technical specifications and/or teardown reports of the Accused Apple '999 Products confirming the same).

3. The '493 Patent and Appendix 3

With respect to the '493 Patent, Appendix 3 shows how each element of claims 1, 3-6, 10, and 11 is found in the Accused Apple '493 Products.

As shown in Appendix 3, the Accused Apple '493 Products include front- and rear-facing cameras, each of which incorporate a light-receiving sensor or imaging sensor with an array of pixels arranged vertically and horizontally in a grid pattern in an N number of vertically arranged pixel lines, wherein N is equal to or greater than three times a number of effective scanning lines M of a display screen. *See e.g.*, <https://www.apple.com/iphone-xs/specs/>. The Accused Apple '493 Products can record an image in a static mode, for example recording photographs and snapshots in photo camera modes, and in a moving video mode, for example recording a video clip in video camera mode. *See e.g.*, <https://www.apple.com/iphone-xs/cameras/>. As further shown in Appendix 3, the Accused Apple '493 Products further includes a processor that processes signals from the cameras and sensors to generate image signals for displaying on display screens of the Accused Apple '493 Products, where the generated image can be manipulated in accordance with a select pixel arrangement by mixing or culling pixel signals and/or image stabilization correction factor using a portion of the pixel lines available in the imaging sensors of the cameras. *See e.g.*, <https://www.apple.com/iphone-xs/a12-bionic/>; *see also* <https://www.apple.com/iphone-xs/cameras/> and <https://www.apple.com/iphone-xs/display/>.

Apple indicates to its customers that each of its Accused Apple '493 Products can be used to record an image in a static mode or in a moving video mode based in the same manner.

The following exemplary disclosures from webpages provided by Apple provide evidence that each of the Accused Apple '493 Products can be used to record an image in a static mode or in a moving video mode, and to process the pixels accordingly:

We believe that everyone can take great photos. Here are some tips and techniques to help you take even better ones — and enjoy them — with your iPhone.

See <https://www.apple.com/iphone/photography-how-to/>

Use camera modes on your iPhone, iPad, and iPod touch

Learn how to use the camera modes on your device — like Portrait, pano, and slo-mo.

Find the perfect mode for your moment

The camera modes built directly into your iPhone, iPad, and iPod touch help you take the ideal photo or video. Swipe left or right on the camera screen to use the different modes. You can choose from photo, square, pano, video, time-lapse, and slo-mo. And on your iPhone 7 Plus and later, photos look better than ever thanks to the depth-of-field effect in Portrait mode.

Before you start, make sure that you have the [latest version of iOS](#) so you can access the Camera app features.

Photo

Photo is the standard mode that you'll see when you open the Camera app. You use this to take still photos. On your iPhone 6s and later, you can take Live Photos, which come alive when you touch them.


Your camera automatically focuses the image and adjusts the exposure based on what you're pointing it towards. That way, you always start with a brightly lit photo.

You can change the camera focus and exposure to a specific area. Before you take the photo, tap the place on the screen that you want to adjust. If you want to keep the focus and exposure in the same spot, press and hold on the screen until you see AE/AF Lock.



Video

Shoot quality movies with the amazing camera that's built into every iPhone, iPad, and iPod touch. When you go to any video mode, the shutter button turns from white to red. Tap the shutter once to start recording and tap it again to stop.

Want to edit the length of your video? Tap Edit or  and move the slider to adjust the start and stop times. Tap Done to save your changes.

Want to speed up your video or slow it down? You might like slo-mo or time-lapse instead.

See <https://support.apple.com/en-us/HT207260>

Further, as shown in Appendix 3, technical specifications and/or teardowns show that each of the Accused Apple '493 Products include all necessary hardware, operating systems, and software required by each of claims 1, 3-6, 10, and 11. For example, each of the Accused Apple '493 Products include one or more cameras, image sensors, and/or a processor that processes signals from the cameras and sensors to generate image signals for displaying on a display, where the generated image can be manipulated in accordance with a select pixel arrangement by mixing or culling pixel signals and/or image stabilization correction factor using a portion of the pixel lines available in the imaging sensors of the cameras. *See, e.g.*, Appendix 3 (identifying the technical specifications and/or teardown reports of the Accused Apple '493 Products confirming the same).

4. The '438 Patent and Appendices 4A-4C

With respect to the '438 Patent, Appendix 4A shows how each element of claims 1 and 4-7 are found in the in the Accused Apple '438 AirDrop Products.

As shown in Appendix 4A, the Accused Apple '438 AirDrop Products have an input unit (such as the device's touch screen) for receiving input from a user in the form of hand gestures, screen touches, etc. The Accused Apple '438 AirDrop Products also include a first short-distance communication unit (such as hardware and/or software that implement Bluetooth protocols) for carrying out a short-distance communication with a display apparatus. The Accused Apple '438 AirDrop Products also include a second communication unit (such as hardware and/or software that implement WiFi connections) for carrying out communication with a display device over a network. As also shown in Appendix 4A, the Accused Apple '438 AirDrop Products further carry out an authentication process for determining whether to allow usage of the display apparatus and carries out data exchange with the display apparatus if the authentication process is confirmed (*e.g.*, AirDrop). If the authentication process is not confirmed, then the Accused

Apple '438 AirDrop Products do not exchange data with the display apparatus. *See* <https://support.apple.com/en-us/HT204144>.

The following exemplary disclosures from webpages provided by Apple provide evidence of “AirDrop” being present in each of the Accused Apple '438 AirDrop Products:

Use AirDrop on your iPhone, iPad, or iPod touch

With AirDrop, you can instantly share your photos, videos, documents, and more with other Apple devices that are nearby.



Use AirDrop to share and receive content, like photos and documents, with other Apple devices that are nearby.

See <https://support.apple.com/en-us/HT204144>

Use AirDrop on your Mac

With AirDrop, you can wirelessly send documents, photos, videos, websites, map locations, and more to a nearby iPhone, iPad, iPod touch, or Mac.

See <https://support.apple.com/en-us/HT203106>

Further, as shown in Appendix 4A, technical specifications and/or teardowns show that each of the Accused Apple '438 AirDrop Products include all necessary hardware, operating systems, and software required by each of claims 1 and 4-7. For example, each of the Accused Apple '438 AirDrop Products include a touchscreen, a Bluetooth chipset, a WiFi chipset, and/or a processor to implement AirDrop. *See, e.g.,* Appendix 4A (identifying the technical specifications and/or teardown reports of the Accused Apple '438 AirDrop Products confirming the same).

With respect to the '438 Patent, Appendix 4B shows how each element of claims 4-7 are found in the in the Accused Apple '438 Watch Products.




As shown in Appendix 4B, the Accused Apple '438 Watch Products have an input unit (such as the device's touch screen) for receiving input from a user in the form of hand gestures, screen touches, *etc.* The Accused Apple '438 Watch Products also include a first short-distance communication unit (such as hardware and/or software that implement Bluetooth protocols) for carrying out a short-distance communication with a display apparatus. The Accused Apple '438 Watch Products also include a second communication unit (such as hardware and/or software that implement WiFi or cellular connections) for carrying out communication with a display device over a network. As also shown in Appendix 4B, the Accused Apple '438 Watch Products further carry out an authentication process for determining whether to allow usage of the display apparatus and carries out data exchange with the display apparatus if the authentication process is confirmed (*e.g.*, pairing the Apple Watch with an iPhone). If the authentication process is not confirmed, then the Accused Apple '438 Watch Products do not exchange data with the display apparatus. See <https://support.apple.com/en-us/HT204505>.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '438 Watch Products having the capability to pair with iPhones:

If your Apple Watch isn't connected or paired with your iPhone

If you see a red iPhone icon on your Apple Watch, or you're trying to pair and can't find the "i" icon, try to connect your devices again.

Check your Apple Watch connection

If you don't get notifications, messages, or calls on your Apple Watch, your Apple Watch and iPhone might not be connected. When your devices disconnect,  or  appears on your watch face. You can also [check your connection in Control Center](#). When your Apple Watch connects again,  appears.

If you need help, try the steps below. After each step, see if your devices can connect.



Try to connect your Apple Watch and iPhone again

1. Keep your Apple Watch and paired iPhone close together to make sure that they're in range.
2. On your iPhone, make sure that Airplane Mode is off and that Wi-Fi and Bluetooth are on. To check, swipe up to open Control Center.

See <https://support.apple.com/en-us/HT205025>

Further, as shown in Appendix 4B, technical specifications and/or teardowns show that each of the Accused Apple '438 Watch Products include all necessary hardware, operating systems, and software required by each of claims 4-7. For example, each of the Accused Apple '438 Watch Products include a touchscreen, a Bluetooth chipset, a WiFi chipset, a cellular chipset, and/or a processor to pair with an iPhone. *See, e.g.,* Appendix 4B (identifying the technical specifications and/or teardown reports of the Accused Apple '438 Watch Products confirming the same).

With respect to the '438 Patent, Appendix 4C shows how each element of claims 1-3 are found in the in the Accused Apple '438 Pairable iPhone Products.

As shown in Appendix 4C, the Accused Apple '438 Pairable iPhone Products have an input unit (such as the device's touch screen) for receiving input from a user in the form of hand gestures, screen touches, *etc.* The Accused Apple '438 Pairable iPhone Products also include a first short-distance communication unit (such as hardware and/or software that implement




Bluetooth protocols) for carrying out a short-distance communication with a display apparatus. The Accused Apple '438 Pairable iPhone Products also include a second communication unit (such as hardware and/or software that implement WiFi or cellular connections) for carrying out communication with a display device over a network. As also shown in Appendix 4C, the Accused Apple '438 Pairable iPhone Products further carry out an authentication process for determining whether to allow usage of the display apparatus and carries out data exchange with the display apparatus if the authentication process is confirmed (*e.g.*, pairing the iPhone with an Apple Watch). If the authentication process is not confirmed, then the Accused Apple '438 Pairable iPhone Products do not exchange data with the display apparatus. See <https://support.apple.com/en-us/HT204505>.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '438 Pairable iPhone Products having the capability to pair with Apple Watches:

If your Apple Watch isn't connected or paired with your iPhone

If you see a red iPhone icon on your Apple Watch, or you're trying to pair and can't find the "i" icon, try to connect your devices again.

Check your Apple Watch connection

If you don't get notifications, messages, or calls on your Apple Watch, your Apple Watch and iPhone might not be connected. When your devices disconnect,  or  appears on your watch face. You can also check your connection in Control Center. When your Apple Watch connects again,  appears.

If you need help, try the steps below. After each step, see if your devices can connect.



Try to connect your Apple Watch and iPhone again

1. Keep your Apple Watch and paired iPhone close together to make sure that they're in range.
2. On your iPhone, make sure that Airplane Mode is off and that Wi-Fi and Bluetooth are on. To check, swipe up to open Control Center.

See <https://support.apple.com/en-us/HT205025>

Further, as shown in Appendix 4C, technical specifications and/or teardowns show that each of the Accused Apple '438 Pairable iPhone Products include all necessary hardware, operating systems, and software required by each of claims 1-3. For example, each of the Accused Apple '438 Pairable iPhone Products include a touchscreen, a Bluetooth chipset, a WiFi chipset, a cellular chipset, and/or a processor to pair with an Apple Watch. *See, e.g.*, Appendix 4C (identifying the technical specifications and/or teardown reports of the Accused Apple '438 Pairable iPhone Products confirming the same).

5. The '193 Patent and Appendix 5

With respect to the '193 Patent, Appendix 5 shows how each element of claims 1, 6, and 7 is found in the in the Accused Apple '193 Products.

As shown in Appendix 5, the Accused Apple '193 Products are mobile devices capable of operation in numerous networks, including CDMA. *See e.g.*, <https://www.apple.com/iphone-xs/specs/>. The Accused Apple '193 Products includes at least one antenna for receiving first communication signals (*e.g.*, data signals transmitted on a downlink channel) and a transmitting power control signal (*e.g.*, TPC transmitted on a downlink channel). The Accused Apple '193 Products also transmit a second communication signal (*e.g.*, data on an uplink channel) to the cell-site station (*e.g.*, a base station) via the antenna.

Further as shown in Appendix 5, the Accused Apple '193 Products operates in FDD (Frequency Division Duplex), and incorporates a duplexer to allow full-duplex operation while sending and receiving at respective uplink and downlink frequencies on the same antenna or antennae and configured to convert communication signals to data, including voice signals. Further, the Accused Apple '193 Products include a receiver (*e.g.* a modem) connected to the antenna. *See e.g.*, <https://www.techinsights.com/about-techinsights/overview/blog/apple-iphone-xs-teardown/>. The receiver includes an encoder/decoder and microphone and earpiece, and is

configured to derive and output power control signals from transmitting power control (TPC) signals sent from the cell-site station. *Id.* In the Accused Apple '193 Products, a controller is connected to the receiver and transmitter, which controls the amplitude of the transmission by controlling the gain and bias of amplifiers. *Id.*

Further, as shown in Appendix 5, technical specifications and/or teardowns show that each of the Accused Apple '193 Products include all necessary hardware, operating systems, and software required by each of claims 1, 6, and 7. For example, each of the Accused Apple '193 Products include an antenna for receiving a first communication signal and transmitting a power control signal from a cell-site station, a duplexer, a receiver for converting said first communication signal into a voice signal code and for outputting a power control signal, an encoder/decoder apparatus, an acoustic transducer, a controller, and amplifiers. *See, e.g.,* Appendix 5 (identifying the technical specifications and/or teardown reports of the Accused Apple '193 Products confirming the same and showing that each of these products implement a RF Front End for controlling the amplitude of transmissions).

6. The '991 Patent and Appendix 6

With respect to the '991 Patent, Appendix 6 shows how each element of claims 1-5 and 8-12 are found in the Accused Apple '991 Products.

As shown in Appendix 6, the Accused Apple '991 Products have a network interface (*e.g.*, cellular or WiFi chipsets) configured to receive first digital information (*e.g.*, video content) from a server (*e.g.*, iCloud or iTunes server) and to further receive second digital information (*e.g.*, FaceTime call) from another communication apparatus. As further shown in Appendix 6, each of the Accused Apple '991 Products include a camera, a display (*e.g.*, touchscreen), and a processor (*e.g.*, Axx series processors) configured to receive an inbound videophone call notice (FaceTime notification) during the streaming of first digital information,

and further configured to pause display of the streaming of first digital information when such call is received. Further, the camera in each of the Accused Apple '991 Products is used to capture third digital information and send the same to the another communication apparatus during the videophone call. See <https://support.apple.com/it-it/HT204380>.

Apple indicates to its customers that each of the Accused Apple '991 Products implement FaceTime and streaming of content via iTunes server in the same manner.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '991 Products having FaceTime and the ability to stream content from iTunes servers:

Use FaceTime with your iPhone, iPad, or iPod touch

Learn how to use FaceTime to make video and audio calls from your iPhone, iPad, or iPod touch.



You can use FaceTime over Wi-Fi¹ or over cellular on supported iOS devices². FaceTime isn't available or might not appear on devices purchased or used in Saudi Arabia, United Arab Emirates, and Pakistan. However, with iOS 11.3 and later, FaceTime is available on iPhone, iPad, and iPod touch in Saudi Arabia.

1. You can use FaceTime on any of these devices on Wi-Fi: iPhone 4 or later, iPad Pro (all models), iPad 2 or later, iPad mini (all models), and iPod touch 4th generation or later (only iPod touch 5th generation or later support FaceTime audio calling).
2. With a cellular data plan, you can also use FaceTime without Wi-Fi on any of these devices: iPhone 4s or later, iPad Pro (all models), and iPad (3rd generation or later).

See <https://support.apple.com/lt-lt/HT204380>

Use FaceTime on your Mac

Learn how to use FaceTime to make video and audio calls with one or more people.

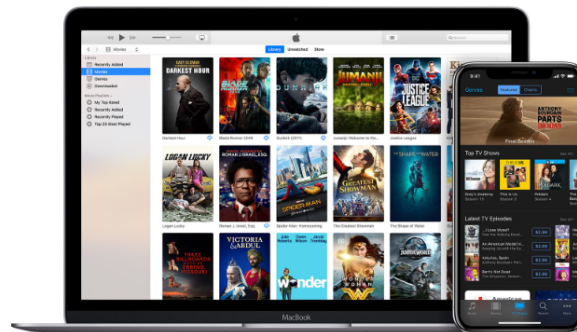


To use FaceTime for audio or video calls, you need an Internet connection and a built-in or connected microphone or camera. Then simply open the FaceTime app and [sign in with your Apple ID](#).

See <https://support.apple.com/en-us/HT208176>

Download or stream movies and TV shows from the iTunes Store

You can buy or rent videos from the iTunes Store, then watch them on your iPhone, iPad, iPod touch, Mac, PC, or Apple TV.



On your iOS device, look for the iTunes Store app. On your computer, find the iTunes Store in iTunes. On Apple TV, the iTunes Store is split into two apps: iTunes Movies and iTunes TV Shows.

See <https://support.apple.com/en-us/HT203375>

Further, as shown in Appendix 6, technical specifications and/or teardowns show that each of the Accused Apple '991 Products include all necessary hardware, operating systems, and software required by each of claims 1-5 and 8-12. For example, each of the Accused Apple '991 Products include at least cellular or WiFi chipsets, one or more cameras, touchscreen, a processor, FaceTime application, iTunes application, and/or a browser application. *See, e.g.*, Appendix 6 (identifying the technical specifications and/or teardown reports of the Accused Apple '991 Products confirming the same).

7. The '306 Patent and Appendix 7

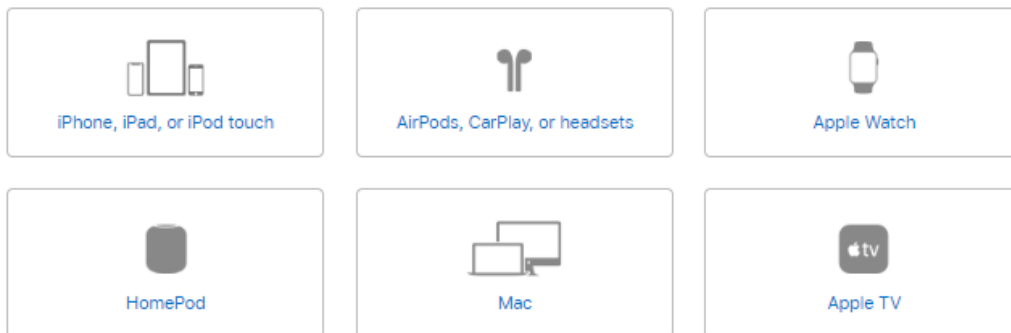
With respect to the '306 Patent, Appendix 7 shows how each element of claims 2, 5, 6, and 12-15 is found in the Accused Apple '306 Products.

As shown in Appendix 7, the Accused Apple '306 Products is a portable smartphone that is capable of alerting the user to an incoming phone call by a ringing sound. For example, the Accused Apple '306 Products includes a ringtone sound source, as well as Siri and VoiceOver sound sources that in combination with a speaker and/or additional components generate ring tones. *See e.g.*, <https://www.apple.com/accessibility/iphone/vision/>; *see also* <https://support.apple.com/en-us/HT204389>. For example, the Accused Apple '306 Products include a processor (*e.g.*, Axx processors) that controls the operations of the Accused Apple '306 Products. The Accused Apple '306 Products can be configured to generate a ringing sound for an incoming phone call using two sound sources. The Accused Apple '306 Products includes a controller that controls the ringing sound generator so as to generate the ringing sound when the signal comes within a time zone which is set up in advance or within a period based on a "Do Not Disturb" and/or calendar function which is set up in advance. *See e.g.*, <https://support.apple.com/en-us/HT204321>.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '306 Products implementing Siri, VoiceOver and/or Do Not Disturb:

Use Siri on all your Apple devices

Ask Siri to send a message on your iPhone, play your favorite TV show on your Apple TV, or start a workout on your Apple Watch. Whatever it is, Siri can do it for you — and on any of your Apple devices. All you have to do is ask.



See <https://support.apple.com/en-us/HT204389>

VoiceOver

VoiceOver is a gesture-based screen reader that lets you enjoy using iPhone even if you don't see the screen. With VoiceOver enabled, just triple-click the Home button to access it wherever you are in iOS. Hear a description of everything happening on your screen, from battery level to who's calling to which app your finger is on. You can also adjust the speaking rate and pitch to suit you.

[Learn about supported languages for VoiceOver >](#)

VoiceOver in Apps

Because VoiceOver is integrated in iOS, it works with all the built-in iPhone apps. You can create custom labels for buttons in any app — including third-party apps. And Apple works with the iOS developer community to make even more apps compatible with VoiceOver.

[Explore popular apps using VoiceOver >](#)

[Learn how third-party apps can support VoiceOver >](#)



See <https://www.apple.com/accessibility/iphone/vision/>

Use Do Not Disturb on your iPhone, iPad, and iPod touch

With Do Not Disturb, you can silence calls, alerts, and notifications that you get while your device is locked. You can also schedule Do Not Disturb and allow calls from certain people.

See <https://support.apple.com/en-us/HT204321>

Further, as shown in Appendix 7, technical specifications and/or teardowns show that each of the Accused Apple '306 Products include all necessary hardware, operating systems, and software required by each of claims 2, 5, 6, and 12-15. For example, each of the Accused Apple '306 Products include at least a ringing sound generator (*e.g.*, speaker, processor), a controller (*e.g.*, Axx chip), Siri, VoiceOver, and/or “Do Not Disturb” applications. *See, e.g.*, Appendix 7 (identifying the technical specifications and/or teardown reports of the Accused Apple '306 Products confirming the same).

8. The '794 Patent and Appendix 8

With respect to the '794 Patent, Appendix 8 shows how each element of claims 1-3 and 5-14 is found in the Accused Apple '794 Products.

As shown in Appendix 8, the Accused Apple '794 Products are information processing devices that incorporate multiple function/component devices performing different functions, with each function/component device having a corresponding power supplied by a battery. For example, the Accused Apple '794 Products includes a display receiving power, a cellular modem receiving power, a WiFi modem receiving power, an NFC chipset, an Axx chipset receiving power, and/or a Bluetooth radio receiving power. Further, the Accused Apple '794 Products incorporate a power supply circuit, a battery, a processor or co-processor programmed with

software, in combination with the electronic components, to monitor the battery capacity of the battery as components of the device consume the power supplied from the battery.

As further shown in Appendix 8, under an operating condition when the battery is at a first reference level, a processor or co-processor of the Accused Apple '794 Products is programmed to optimize power consumption, including shutting off or reducing the power consumption of components or applications that have a lower usage priority as predefined by the software or selected by the user, where different components are shut down (or restarted when needed) based on defined battery capacity and usage priority. *See e.g.*, <https://support.apple.com/en-us/HT205234>; *see also* <https://support.apple.com/en-us/HT204608#powerreserve>.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '794 Products implementing one or more low power modes:

Use Low Power Mode to save battery life on your iPhone

Low Power Mode reduces the amount of power that your iPhone uses when the battery gets low.

See <https://support.apple.com/en-us/HT205234>



Use Power Reserve

Power Reserve lets you see the time on your Apple Watch while preserving your battery life. While your Apple Watch is in Power Reserve, press the side button to show the current time. In Power Reserve, your Apple Watch and iPhone won't communicate, and you can't access other watch features.

Turn on Power Reserve

When your battery drops to 10 percent, your Apple Watch alerts you and asks if you want to use Power Reserve. When the battery gets too low, your watch automatically enters Power Reserve, and ⚡ appears next to the time. Learn how to [maximize your battery life and lifespan](#).

To turn on Power Reserve:

1. Swipe up on the watch face to open Control Center.
2. Tap the battery percentage.
3. Drag the Power Reserve slider, then tap Proceed.

See <https://support.apple.com/en-us/HT204608#powerreserve>

Express Transit cards with power reserve

On iPhone XS, iPhone XS Max, and iPhone XR, you can use power reserve with your Express Transit cards. Power reserve enables you to quickly pay for rides and is available for up to five hours when your iPhone needs to be charged.

To see if Express Transit cards are available when your iPhone needs to be charged, press the side button. Doing this often may significantly reduce the power reserve for Express Transit cards. If you choose to power off your iPhone, this feature will not be available.

See <https://support.apple.com/en-us/HT209495>

As an additional example of infringement, at a first reference value, the Accused Apple '794 Products send a power reduction instruction to shut down the various components *e.g.*, cellular modem, WiFi modem, NFC modem, Bluetooth modem and perform an orderly shutdown of the Accused Apple '794 Products while still continuing to supply power to the application processors and the circuitry for the on button such that upon detection of user input, the Accused Apple '794 Products generates and displays an icon on the display of the Accused Apple '794 Products instructing the users to charge the phone. Further, at a second reference value, the Accused Apple '794 Products issue a power consumption reduction instruction to, for example, the application processor, the display screen, and the circuitry for the on button such that the Accused Apple '794 Products do not display any icon on the screen even when a user provides an input.

Further, as shown in Appendix 8, technical specifications and/or teardowns show that each of the Accused Apple '794 Products include all necessary hardware, operating systems, and software required by each of claims 1-3 and 5-14. For example, each of the Accused Apple '794 Products include multiple function/component devices performing different functions, with each function/component device having a corresponding power supplied by a battery and further include a power supply circuit, a battery, and a processor to incorporate one or more low power

modes. *See, e.g.,* Appendix 8 (identifying the technical specifications and/or teardown reports of the Accused Apple '794 Products confirming the same).

9. The '586 Patent and Appendix 9

With respect to the '586 Patent, Appendix 9 shows how each element of each of claims 1-2, 6-7, 9-10, 13-14, and 16-18 are found in the Accused Apple '586 Products.


As shown in Appendix 9, the Accused Apple '586 Products have a transceiver for performing short-range wireless communications (*e.g.*, Bluetooth), a memory which stores information about another mobile terminal, and a controller (*e.g.*, Axx chipset) that is configured to transmit information to another mobile terminal for switching the state of the other mobile terminal from locked to unlocked when certain conditions are met. For example, the Accused Apple '586 Products send such instructions to unlock an Apple Watch. *See* <https://support.apple.com/guide/watch/unlock-apple-watch-apd0e1e73b6f/watchos>. Further, Accused Apple '586 Products send an instruction to unlock a MacBook. *See* <https://support.apple.com/en-us/HT206995>.

The following exemplary disclosures from webpages provided by Apple provide evidence of the Accused Apple '586 Products implementing unlocking operations under certain conditions:

Unlock Apple Watch


Unlock Apple Watch with iPhone

You can unlock Apple Watch whenever you unlock your iPhone.

1. Open the Settings app  on your Apple Watch.
2. Tap Passcode, then turn on Unlock with iPhone.

You can also open the Apple Watch app on your iPhone, tap My Watch, tap Passcode, then turn on Unlock with iPhone.

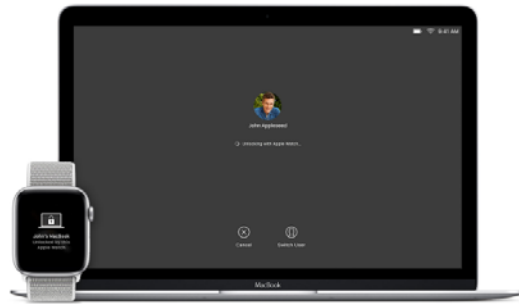
Your iPhone must be within normal Bluetooth range (about 33 feet or 10 meters) of your Apple Watch to unlock it.

 **Tip:** Your Apple Watch passcode can be different from your iPhone passcode—in fact, it's better to use different passcodes.

See <https://support.apple.com/guide/watch/unlock-apple-watch-apd0e1e73b6f/watchos>

How to unlock your Mac with your Apple Watch

While you're wearing Apple Watch, your Mac computers can sense when you're nearby and log you in automatically.



See <https://support.apple.com/en-us/HT206995>

Further, as shown in Appendix 9, technical specifications and/or teardowns show that each of the Accused Apple '586 Products include all necessary hardware, operating systems, and software required by each of claims 1-2, 6-7, 9-10, 13-14, and 16-18. For example, each of the Accused Apple '586 Products include at least a Bluetooth chipset, a memory, an Axx chipset, and application for sending instruction to unlock another Apple device. *See, e.g.*, Appendix 9 (identifying the technical specifications and/or teardown reports of the Accused Apple '586 Products confirming the same).

10. The '498 Patent and Appendix 10

With respect to the '498 Patent, Appendix 10 shows how each element of claims 1, 3-5, 7-11, and 13 is found in the Accused Apple '498 Products.

As shown in Appendix 10, the Accused Apple '498 Products each includes a screen for displaying information, and at least a GPS chipset, digital compass, Wi-Fi modem, cellular modem, and/or iBeacon microlocation component for providing location information. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> ("Location"). Further, the Accused Apple '498 Products are sold and/or offered for sale with pre-installed software (*e.g.*, "Maps" and "Find My Friends") that allows users to access location information, including the present location of the

device and orientation of the device, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Built-in Apps” including “Maps” and “Find My Friends”). The software, in combination with the electronic components of the Accused Apple ’498 Products, enable the Accused Apple ’498 Products to display a direction and a distance of a destination from a present place with a line and starting and ending points to provide walking navigation information.

As also shown in Appendix 10, the Accused Apple ’498 Products are also provided with preinstalled software that allows users to access location information of other user devices, using GPS information, cellular network information, Wi-Fi network information, iBeacon microlocation information, information from gyroscope or electronic compass, or some combination thereof. *See e.g.*, <https://www.apple.com/iphone-xs/specs/> (“Built-in Apps” including “Find My Friends”).

The following exemplary disclosures from webpages provided by Apple provide evidence of “Maps” and “Find My Friends” being present in each of the Accused Apple ’498 Products:

1. Turn-by-turn navigation is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, and iPad mini or later with cellular data capability. Cellular data charges may apply.
2. Transit is available on iPhone 5 or later, iPad Pro, iPad (5th generation or later), iPad Air or later, iPad mini 2 or later, and iPod touch (6th generation). Cellular data charges may apply.
3. Flyover is available on iPhone 4s or later, iPad Pro, iPad (2nd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later). To experience Flyover as you move your device through space, you need iPhone 6s or later, iPad Pro, or iPad (5th generation or later). Cellular data charges may apply.
4. Siri is available on iPhone 4s or later, iPad Pro, iPad (3rd generation or later), iPad Air or later, iPad mini or later, and iPod touch (5th generation or later) and requires Internet access. Siri may not be available in all languages or in all areas, and features may vary by area. Cellular data charges may apply.
5. iCloud requires an iCloud-enabled device. Some features require iOS 12 and macOS Mojave. Some features require a Wi-Fi connection. Some features are not available in all countries or regions. Access to some services is limited to 10 devices.

See <https://www.apple.com/ios/maps/>

Set up and use Find My Friends

Use Find My Friends to easily locate your friends and family from your iPhone, iPad, iPod touch, Apple Watch, or on iCloud.com.

Before you start


- Update your iPhone, iPad, or iPod touch to [iOS 8 or later](#).
- Update your Apple Watch to [watchOS 3](#) or later.
- If it's not already on your device, download the [Find My Friends](#) app.
- Make sure that the [web browser on your Mac or PC](#) is up to date.

Set up Find My Friends

If your iPhone, iPad, or iPod touch is using iOS 9 or later, Find My Friends is automatically installed. If your device is using a version of iOS 8, install the free [Find My Friends](#) app. When you [sign in to iCloud on your device](#), you automatically sign in to Find My Friends with your Apple ID.

See <https://support.apple.com/en-us/HT201493>

Get directions on Apple Watch

 **Ask Siri.** Say something like:

- "Directions to the nearest gas station?"
- "Get directions home"
- "How far to the airport?"

See <https://support.apple.com/guide/watch/get-directions-apdea7480950/watchos>

Further, as shown in Appendix 10, technical specifications and/or teardowns show that each of the Accused Apple '498 Products include all necessary hardware, operating systems, and software required by each of claims 1, 3-5, 7-11, and 13. For example, each of the Accused Apple '498 Products include a device for getting location information, a device for getting direction information, and a display that displays positions of a destination and a present location, provides orientation for walking navigation including a line and starting and ending points, and/or identifies location information about other portable terminals. *See, e.g.,* Appendix 10 (identifying the technical specifications and/or teardown reports of the Accused Apple '498 Products confirming the same).

D. P.R. 3-1(d): Literal Infringement and Infringement Under the Doctrine of Equivalents

Pursuant to P.R. 3-1(d), Maxell asserts that each element of each claim is literally present in each of the Accused Instrumentalities. To the extent any claim limitation is found not to be literally present, Maxell asserts that such limitation is present under the doctrine of equivalents in each of the Accused Instrumentalities. By asserting that a claim element may be present under the doctrine of equivalents, Maxell does not waive its right to assert literal infringement of that claim element. Additional, information about infringement under the doctrine of equivalents is set forth in the attached claim charts at Appendices 1-10.

E. P.R. 3-1(e): Priority Based on Earlier Applications

Pursuant to P.R. 3-1(e), Maxell asserts that the patents-in-suit are entitled to claim priority to at least the following applications:

Asserted Patent	Priority Applications
'317 Patent	Japanese Patent Application 11-197010, filed July 12, 1999; U.S. Patent Application No. 09/613,634, filed July 11, 2000; and U.S. Patent Application No. 10/173,423, filed June 18, 2002
'999 Patent	Japanese Patent Application 11-197010, filed July 12, 1999; and U.S. Patent Application No. 09/613,634, filed July 11, 2000
'493 Patent	Japanese Patent Application 2000-006064, filed January 11, 2000; U.S. Patent Application No. 09/520,836, filed March 8, 2000; U.S. Patent Application No. 10/660,710, filed September 12, 2003
'438 Patent	Japanese Patent Appln. No. 2003-144259, filed May 22, 2003
'193 Patent	Japanese Patent Application 10-318689, filed November 10, 1998;
'991 Patent	Japanese Patent Appln. No. 2008-246232, filed September 25, 2008; U.S. Appl. No. 13/723,312, filed on December 21, 2012; U.S. Appl. No. 14/811,048, filed on July 28, 2015; U.S. Appl. No. 15/215,839, filed on July 21, 2016; U.S. Appl. No. 15/631,298, filed on June 23, 2017
'306 Patent	Japanese Patent Appln. No. 2000-005858 (filed on Jan. 7, 2000) U.S. Appl. No. 09/755,878, filed on Jan. 4, 2001
'794 Patent	Japanese Patent Appln. No. 12-154358, filed May 22, 2000
'586 Patent	Japanese Patent Appln. No. 2012-117105, filed May 23, 2012
'498 Patent	Japanese Patent Application 11-197010, filed July 12, 1999;

Maxell further directs Apple to the patents themselves and the file histories, which contain information regarding the patents' priority dates.

F. P.R. 3-1(f): Identification of Any Maxell Instrumentalities that Practice Claimed Inventions

Pursuant to P.R. 3-1(f), Maxell states that it is not presently aware of any of its own apparatuses, products, devices, processes, methods, acts, or other instrumentalities that practice the claimed inventions of the patents-in-suit.

G. P.R. 3-1(g): Source Code

Pursuant to P.R. 3-1(g), Maxell asserts the following with respect to the patents-in-suit.

Claims 1-3, 5-15, 17, and 18 of the '317 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '317 Patent.

Claims 1-6 of the '999 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '999 Patent.

Claims 1, 3-6, 10, and 11 of the '493 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '493 Patent.

Claims 1-7 of the '438 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement

contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '438 Patent.

Claims 1, 6, and 7 of the '193 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '193 Patent.

Claims 1-5 and 8-12 of the '991 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '991 Patent.

Claims 2, 5, 6, and 12-15 of the '306 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '306 Patent.

Claims 1-3 and 5-14 of the '794 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '794 Patent.

Claims 1-2, 6-7, 9-10, 13-14, and 16-18 of the '586 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '586 Patent.

Claims 1, 3-5, 7-11, and 13 of the '498 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, Maxell intends to supplement its infringement contentions after Apple and/or third parties produce adequate source code for each of the products accused of infringing the '498 Patent.

H. Document Production Accompanying Disclosure

Pursuant to P.R. 3-2, Maxell hereby discloses the following documents accompanying its Disclosure of Asserted Claims and Infringement Contentions that correspond to the following categories:

P.R. 3-2(a): Based on its reasonable search and investigation, Maxell states that it does not have any documents that fall within this category.

P.R. 3-2(b): Based on its reasonable search and investigation, Maxell states that it does not have any documents that fall within this category.

P.R. 3-2(c): A copy of the file histories is being produced concurrently herewith at Bates Nos. MAXELL_APPLE0000001 through MAXELL_APPLE0002744.

Dated: June 12, 2019

By: /s/ Jamie B. Beaber

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Counsel for Plaintiff Maxell, Ltd.

CERTIFICATE OF SERVICE

I hereby certify that on June 12, 2019, I caused a copy of PLAINTIFF MAXELL LTD.'S
PATENT RULE 3-1 AND 3-2 DISCLOSURE OF ASSERTED CLAIMS AND
INFRINGEMENT CONTENTIONS THE AGAINST DEFENDANT APPLE INC. to be served
on counsel of record via e-mail and electronic repository Box.

Dated: June 12, 2019

/s/ Jamie B. Beaber

Jamie B. Beaber