IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

APPLE INC., Plaintiff, v. MASIMO CORPORATION and SOUND UNITED, LLC, Defendants.	C.A. No. 22-1378-MN **JURY TRIAL DEMANDED**
MASIMO CORPORATION and CERCACOR LABORATORIES, INC., Counter-Claimants, v. APPLE INC., Counter-Defendant,	

COUNTER-DEFENDANT APPLE INC.'S FINAL INVALIDITY CONTENTIONS

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Pursuant to the Proposed Scheduling Order (D.I. 92) and the applicable Local Rules of the U.S. District Court for the District of Delaware, Counter-Defendant Apple Inc. ("Apple") hereby provides its Final Invalidity Contentions.

I. INVALIDITY OF ASSERTED PATENTS AND CLAIMS

Counter-Claimants Masimo Corporation and Cercacor Laboratories, Inc. (collectively, "Masimo") served their Final Infringement Contentions ("Infringement Contentions") on August 17, 2023, purporting to assert infringement of the following claims ("Asserted Claims") of U.S. Patent Nos. 10,687,743 ("the '743 patent"), 10,722,159 ("the '159 patent"), 8,190,223 ("the '223 patent"), 10,736,507 ("the '507 patent"), and 10,984,911 ("the '911 patent") (collectively, "Asserted Patents"):

Asserted Patents	Asserted Claims
'743 patent	1, 4-8, 11, 12, 14, 16, 18, 19, 21
'159 patent	1-5, 7-9, 13, 19-23, 25
'223 patent	15, 21, 22, 27, 28, 34, 36, 37, 42, 43
'507 patent	13, 14, 16, 17, 19, 20
'911 patent	1-5, 8, 10-14, 17, 19-25, 28

With respect to each of the Asserted Claims and based on its investigation to date, Apple hereby provides (1) amended charts setting forth where in the prior art references the elements of the Asserted Claims are disclosed or otherwise suggested under sections 102 and 103, (2) an amended identification of claims that are directed to ineligible subject matter under section 101, (3) an amended identification of any limitations that lack definiteness, written description, or lack enablement under section 112, and (4) an amended identification of claims that are invalid due to double-patenting. These Final Invalidity Contentions are subject to Apple's reservation of rights as set forth below.

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The Asserted Patents purport to have the following filing dates:

Asserted Patents	Filing Date
'743 patent	February 14, 2020
'159 patent	February 14, 2020
'223 patent	March 1, 2006
'507 patent	January 25, 2018
'911 patent	September 22, 2020

Masimo has the burden to identify and demonstrate entitlement to any priority date before the aforementioned filing dates. Masimo thus far has not identified, let alone demonstrated entitlement to, any pre-filing priority date for any Asserted Patent. Apple reserves the right to dispute any alleged pre-filing priority date for any Asserted Patent should Masimo identify and attempt to demonstrate entitlement to any such date.

II. RESERVATION OF RIGHTS

Consistent with the Scheduling Order, Apple reserves the right to amend, supplement, modify, or update these Final Invalidity Contentions.

Apple bases these Final Invalidity Contentions on its current knowledge and understanding of Masimo's Final Infringement Contentions served on August 17, 2023, the prior art, and other facts and information available as of the date of these contentions. Discovery is not yet complete, and Apple has not yet completed its investigation, collection of information, discovery, or analysis relating to this action. For example, Masimo has not completed its document production and no depositions, let alone any prior art depositions, have yet occurred. Additionally, Apple has served subpoenas for third-party discovery relating to prior art, but those third-parties have not yet completed their document productions or appeared for depositions. Apple reserves the right to amend, supplement, modify, or update these contentions based on discovery and Apple's ongoing investigation, and to introduce, use, and rely on such materials at trial. Apple further reserves the

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diagram, table, or drawing, the described figure, diagram, table, or drawing is incorporated by reference (even if that figure, diagram, table, or drawing is not explicitly cited).

While Apple has identified at least one citation per limitation present in a reference or combination, each and every disclosure of the same or similar limitation in the same reference or combination is not necessarily identified. In an effort to focus the issues, Apple cites only particularly pertinent portions of identified references, even where a reference or combination may contain additional support for a particular claim element. Thus, Apple may rely on uncited portions of the prior art references for additional support for a particular element. Apple may rely upon other prior art identified in future supplements, corroborating references, documentation, source code, products, and testimony, including materials obtained through further investigation and third-party discovery of the prior art identified herein, that demonstrates the invalidating functionality identified in these Final Invalidity Contentions, or that shows the state of the art in the relevant time period (irrespective of whether such references themselves qualify as prior art to the Asserted Patent), and expert testimony to provide context to or aid in understanding the cited portions of the identified prior art.

Additionally, persons of ordinary skill in the art generally read a prior art reference as a whole and in the context of other publications and literature. Numerous prior art references, including those identified herein, in the attached exhibits, and in Apple's August 17, 2023 Final Supplemental Identification of Invalidity References, reflect common knowledge and the state, scope, and content of the prior art before the priority date of the Asserted Claims of the Asserted Patents. Apple may rely on uncited portions of the prior art references and on other publications and expert testimony to provide context and as aids to understanding and interpreting the portions that are cited. The prior art references listed herein and in the accompanying invalidity claim

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charts may disclose the elements of the Asserted Claims explicitly and/or inherently. The prior art references herein, in the attached exhibits, and in Apple's August 17, 2023 Final Supplemental Identification of Invalidity References are also relevant for their showing of the state of the art, as well as reasons and motivations for making improvements, additions, and combinations.

Apple reserves the right to rely on inventor admissions concerning the scope of the prior art relevant to the Asserted Patents found in, inter alia, the prosecution history of the Asserted Patents, related patents, and/or patent applications, any testimony or declarations of the named inventor concerning the Asserted Patents, related patents, patent applications, and/or the claimed inventions, and any papers or evidence submitted by Masimo in connection with the Asserted Patents or this litigation, any other future litigation brought by Masimo involving the Asserted Patents or related patents, *inter partes* review, or reexamination proceedings involving the Asserted Patents or related patents.

The following references, as explained further in Apple's Exhibits and in this cover document, (1) anticipate or render obvious (alone, or in combination with other references as set forth in detail in each claim chart and below) the Asserted Claims; or (2) provide background and context for the Asserted Claims:

A. Patents and Patent Applications

The following prior art patent references, including those patent references identified in Exhibits A-1 – A-18; B-1 – B-18; C-1 – C-15; D-1 – D-17; and E-1 – E-13, anticipate and/or render obvious the Asserted Claims of the Asserted Patents. In addition, Apple incorporates by reference all prior art patents listed as prior art in the Asserted Patents.

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent Application Publication No. 2004/0039272 ("Abdul-Hafiz")	United States	July 31, 2003	February 26, 2004	APL_DEL00037474
International Publication No. WO 2011/051888 ("Ackermans")	WIPO	October 27, 2010	May 5, 2011	APL_DEL00029995
U.S. Patent No. 6,334,065 ("Al-Ali 065")	United States	May 27, 1999	December 25, 2001	APL_DEL00030991
U.S. Patent No. 8,228,181 ("Al-Ali 181")	United States	January 31, 2011	July 24, 2012	APL_DEL00032278
U.S. Patent No. 8,190,223 ("Al-Ali 223")	United States	March 1, 2006	May 29, 2012	MASAD00028514
U.S. Patent No. 6,584,336 ("Al-Ali 336")	United States	March 1, 2000	June 24, 2003	APL_DEL00031033
U.S. Patent No. 6,822,564 ("Al-Ali 564")	United States	January 24, 2003	November 23, 2004	APL_DEL00032294
U.S. Patent No. 7,620,212 ("Allen")	United States	August 12, 2003	November 17, 2009	APL_DEL00037499
U.S. Patent No. 5,720,284 ("Aoyagi")	United States	March 29, 1996	February 24, 1998	APL_DEL00037534
U.S. Patent No. 5,413,100 ("Barthelemy")	United States	January 21, 1994	May 9, 1995	APL_DEL00037549
U.S. Patent Application Publication No. 2002/0016536 ("Benni")	United States	September 14, 2001	February 7, 2002	APL_DEL01119797
U.S. Patent Application Publication No. 2013/0264592 ("Bergmann")	United States	March 13, 2013	October 10, 2013	APL_DEL00030015

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U,S. Patent Application Publication No. 2006/0064020 ("Burnes")	United States	September 30, 2004	March 23, 2006	APL_DEL01121364
U.S. Patent No. 6,343,223 ("Chin")	United States	January 14, 2000	January 29, 2002	APL_DEL00030114
International Publication No. WO 2013/066642 ("Clarysse")	WIPO	October 19, 2012[1]	May 10, 2013	APL_DEL00032406
U.S. Patent No. 5,782,757 ("Diab")	United States	October 16, 1995	July 21, 1998	APL_DEL00037556
U.S. Patent No. 5,373,102 ("Ehrlich")	United States	August 19, 1993	December 13, 1994	APL_DEL01121861
U.S Patent Application Publication No. 2014/0361147 ("Fei")	United States	August 26, 2014	December 11, 2014	APL_DEL00030126
U.S. Patent Application Publication No. 2003/0125612 ("Fox")	United States	December 27, 2001	July 3, 2003	APL_DEL00031061
U.S. Patent No. 4,086,916 ("Freeman")	United States	September 19, 1975	May 2, 1978	APL_DEL00031086
U.S. Patent No. 10,123,710 ("Gassoway")	United States	May 30, 2014[2]	November 13, 2018	APL_DEL01122064

[1] Clarysse is entitled to claim the benefit of the filing date of its provisional application on October 19, 2011. *See* 35 U.S.C. § 119(e)(1); *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

[2] Gassoway is entitled to claim the benefit of the filing date of its application on May 30, 2014. *See* 35 U.S.C. § 119(e)(1); *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent Application Publication No. 2014/0051943 ("Gillette")	United States	February 27, 2013[3]	February 20, 2014	APL_DEL00032464
U.S. Patent No. 6,816,241 ("Grubisic")	United States	September 17, 2001	November 9, 2004	APL_DEL00037621
U.S. Patent No. 5,893,364 ("Haar")	United States	November 19, 1996	April 13, 1999	APL_DEL00030313
U.S. Patent No. 7,190,986 ("Hannula")	United States	October 18, 2002	March 13, 2007	APL_DEL00037645
U.S. Patent No. 6,151,518 ("Hayashi")	United States	March 3, 1999	November 21, 2000	APL_DEL01122385
U.S. Patent No. 3,910,701 ("Henderson")	United States	July 30, 1973	October 7, 1975	APL_DEL01122418
U.S. Patent No. 6,707,476 ("Hochstedler")	United States	July 5, 2000	March 16, 2004	APL_DEL00031098
U.S. Patent No. 6,069,653 ("Hudson")	United States	September 15, 1998	May 30, 2000	APL_DEL00031119
U.S. Patent No. 5,490,523 ("Isaacson")	United States	June 29, 1994	February 13, 1996	APL_DEL00031132
U.S. Patent No. 8,670,819 ("Iwamiya")	United States	June 6, 2011	March 11, 2014	APL_DEL00030325
U.S. Patent No. 5,983,122 ("Jarman")	United States	December 12, 1997	November 9, 1999	APL_DEL00037670
U.S. Patent No. 5,842,979 ("Jarman 979")	United States	February 14, 1997	December 1, 1998	APL_DEL01123308

[3] Gillette is entitled to claim the benefit of the filing date of its provisional application on August 14, 2012. *See* 35 U.S.C. § 119(e)(1); *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

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Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent Application Publication No. 2002/0161291 ("Kiani 291")	United States	February 12, 2002	October 31, 2002	APL_DEL00031150
U.S Patent No. 5,638,816 ("Kiani 816")	United States	June 7, 1995	June 17, 1997	APL_DEL00037681
U.S. Patent No. 6,608,562 ("Kimura")	United States	August 30, 2000	August 19, 2003	APL_DEL00037708
U.S. Patent No. 7,978,062 ("LaLonde")	United States	May 9, 2008	July 12, 2011	APL_DEL00032495
Korean Patent Publication No. 10-2007-0102089 ("Lee")	Korea	April 13, 2006	October 18, 2007	APL_DEL00030376; APL_MAS_ITC_009 06743
U.S. Patent Application Publication No. 2003/0212316 ("Leiden")	United States	May 10, 2002	November 13, 2003	APL_DEL00031191
U.S. Patent No. 6,083,156 ("Lisiecki")	United States	November 16, 1998	July 4, 2000	APL_DEL00034332
U.S. Patent No. 7,620,212 ("Lumidigm")	United States	August 12, 2003	November 17, 2009	APL_DEL00030393
U.S. Patent Application Publication No. 2002/0015034 ("Malmborg")	United States	July 31, 2001	February 7, 2002	APL_DEL00031229
U.S. Patent No. 5,782,756 ("Mannheimer 756")	United States	September 19, 1996	July 21, 1998	APL_DEL00037740
U.S. Patent No. 5,099,842 ("Mannheimer 842")	United States	April 4, 1990	March 31, 1992	APL_DEL00030428

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent No. 7,096,052 ("Mason")	United States	October 6, 2003	August 22, 2006	APL_DEL00037772
U.S. Patent No. 4,216,462 ("McGrath")	United States	March 6, 1978	August 5, 1980	APL_DEL00031240
U.S. Patent No. 6,801,799 ("Mendelson 799")	United States	February 6, 2003	October 5, 2004	APL_DEL00030436
U.S. Patent Application Publication No. 2010/0324384 ("Moon")	United States	September 14, 2009	December 23, 2010	APL_DEL00034425
U.S. Patent No. 6,385,471 ("Mortz")	United States	August 10, 1999	May 7, 2002	APL_DEL01124336
U.S. Patent Application Publication No. 2002/0184055 ("Naghavi")	United States	May 29, 2002	December 5, 2002	APL_DEL00031923
European Patent Application No. 0505627 ("Neumann")	Europe	November 12, 1991	September 30, 1992	APL_DEL00031946
U.S. Patent No. 5,839,439 ("Nierlich")	United States	November 13, 1995	November 24, 1998	APL_DEL01124773
U.S. Patent No. 6,721,585 ("Parker")	United States	August 17, 2001	April 13, 2004	APL_DEL01124959
U.S. Patent No. 6,014,576 ("Raley")	United States	February 27, 1998	January 11, 2000	APL_DEL00037984
U.S. Patent No. 6,278,889 ("Robinson")	United States	September 30, 1999	August 21, 2001	APL_DEL00037999
U.S. Patent No. 7,399,277 ("Saidara")	United States	June 3, 2004	July 15, 2008	APL_DEL00036892
U.S. Patent No. 4,917,290 ("Saiki")	United States	July 26, 1989	April 17, 1990	APL_DEL01125581

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent No. 9,392,946 ("Sarantos")	United States	May 28, 2015	July 19, 2016	APL_DEL00030456
U.S. Patent No. 6,158,245 ("Savant")	United States	August 25, 1998	December 12, 2000	APL_DEL00030486
U.S. Patent No. 5,830,137 ("Scharf")	United States	November 18, 1996	November 3, 1998	APL_DEL00030503
U.S. Patent No. 6,580,086 ("Schulz")	United States	October 19, 1999	June 17, 2003	APL_DEL00030522
U.S. Patent No. 3,638,640 ("Shaw")	United States	November 1, 1967	February 1, 1972	APL_DEL00038049
U.S. Patent No. 6,483,976 ("Shie")	United States	May 9, 2001	November 19, 2002	APL_DEL00030542
U.S. Patent Application Publication No. 2007/0232880 ("Siddiqui")	United States	May 30, 2007	October 4, 2007	APL_DEL00036945
U.S. Patent Application Publication No. 2009/0018452 ("Sugiura")	United States	March 31, 2008	January 15, 2009	APL_DEL00030552
U.S. Patent No. 8,162,804 ("Tagliabue")	United States	February 14, 2008	April 24, 2012	APL_DEL00037315
U.S. Patent No. 5,203,329 ("Takatani")	United States	December 11, 1991	April 20, 1993	APL_DEL00038059
U.S. Patent Application Publication No. 2002/0019586 ("Teller")	United States	August 6, 2001	February 14, 2002	APL_DEL00030572
U.S. Patent Application Publication No. 2008/0004904 ("Tran")	United States	August 30, 2006	January 3, 2008	APL_DEL00037388

Patent or Publication No.	Country of Origin	Filing Date	Issuance or Publication Date	Production Number
U.S. Patent No. 8,998,815 ("Venkatraman")	United States	June 3, 2014	April 7, 2015	APL_DEL00030616
U.S. Patent No. 7,581,643 ("Wilskey")	United States	February 24, 2005	September 1, 2009	APL_DEL01126334
Japanese Patent Publication No. 2008-126017 ("Yamada 017")	Japan	November 27, 2006	June 5, 2008	APL_DEL00030952; APL_MAS_ITC_003 67940
Japanese Patent Publication No. 2004-337605 ("Yamada 605")	Japan	April 23, 2004	December 2, 2004	APL_DEL00030968; APL_MAS_ITC_003 53779

B. Non-Patent Literature

The following prior art publications, including those publications identified in Exhibits A-1 – A-18; B-1 – B-18; C-1 – C-15; D-1 – D-17; and E-1 – E-13, anticipate and/or render obvious the Asserted Claims of the Asserted Patents. In addition, Apple incorporates by reference all prior art publications listed as prior art in the Asserted Patents.

Title	Date of Publication[4]	Author or Publisher	Production Number
A flexible home gateway system for telecare of patients affected by chronic heart failure ("Bacchillone")	2011	Tony Bacchillone, Massimiliano Donati, Sergio Saponara, and Luca Fanucci	APL_DEL00032311
Development of a Remote Pulse Oximeter ("Bailey")	May 1, 2010	Brian Bailey, Brian Ebel, Scott Galvin, Jack Grantham, Scott Little, Erica Morey, Joseph Sanklman, and Christopher Stemple	APL_DEL00032315

[4] This literature was published at least as early as the date indicated in the chart.

Title	Date of Publication[4]	Author or Publisher	Production Number
Selection of pulse oximetry equipment for ambulatory monitoring ("Barratt")	February 2001	C. W. Barratt, H. Vyas, B. R. Hayes-Gill, and J. A. Crowe	APL_DEL00038358
Measurement Reproducibility and Sensor Placement Considerations in Designing a Wearable Pulse Oximeter for Military Applications ("Branche")	2004	Paul C. Branche, William S. Johnston, Chirag J. Pujary, and Yitzhak Mendelson	APL_DEL01119893
Microlens array diffuser for a light-emitting diode backlight system ("Chang")	October 15, 2006	Sun-Il Chang, Jun-Bo Yoon, Hongki Kim, Jin-Jong Kim, Baik-Kyu Lee, and Dong Ho Shin	APL_DEL00030110
A flexible home monitoring platform for patients affected by chronic heart failure directly integrated with the remote Hospital Information System ("Donati")	2011	Massimiliano Donati, Tony Bacchillone, Sergio Saponara, and Luca Fanucci	APL_DEL00032456
Wearable Forehead Pulse Oximetry: Minimization of Motion and Pressure Artifacts ("Dresher 2006")	May 3, 2006	Russell Dresher	APL_DEL01121690
Human fetal intrapartum oxygen saturation monitoring: Agreement between readings from two sensors on the same fetus ("East 1996")	May 1996	Chris E. East, Paul B. Colditz, Kimble R. Dunster, and Soo Keat Khoo	APL_DEL01121852

Title	Date of Publication[4]	Author or Publisher	Production Number
Update on intrapartum fetal pulse oximetry ("East 2002")	2002	Christine E. East, Paul B. Colditz, Lisa M. Begg, and Shaun P. Brennecke	APL_DEL01121855
Frequency-domain multichannel optical detector for noninvasive tissue spectroscopy and oximetry ("Fantini")	January 1995	Sergio Fantini, Maria Angela Franceschini-Fantini, John S. Maier, Scott A. Walker, Benjamino Barbieri, and Enrico Gratton	APL_DEL00037609
A portable reflectometer for the rapid quantification of cutaneous haemoglobin and melanin ("Feather")	February 1, 1988	J. W. Feather, D. J. Ellis, and G. Leslie	APL_DEL01121952
Wearable Pulse Oximetry in Construction Environments ("Forsyth")	March 29, 2010	Jason B. Forsyth	APL_DEL01121965
Usability testing of a prototype Phone Oximeter with healthcare providers in high- and low-medical resource environments ("Hudson")	2012	J. Hudson, S. M. Nguku, J. Sleiman, W. Karlen, G. A. Dumont, C. L. Petersen, C. B. Warriner, and J. M. Ansermino	APL_DEL01122594
Effects of Motion Artifacts on Helmet-Mounted Pulse Oximeter Sensors ("Johnston 2004")	2004	William S. Johnston, Paul C. Branche, Chirag J. Pujary, and Yitzhak Mendelson	APL_DEL01123334
Investigation of Signal Processing Algorithms for an Embedded Microcontroller-Based Wearable Pulse Oximeter ("Johnston 2006")	2006	W. S. Johnston and Y. Mendelson	APL_DEL01123336

Title	Date of Publication[4]	Author or Publisher	Production Number
Human-Centered Phone Oximeter Interface Design for the Operating Room ("Karlen")	2011	Walter Karlen and Guy Dumont	APL_DEL00032489
Wireless PDA-Based Physiological Monitoring System for Patient Transport ("Lin")	December 2004	Yuan-Hsiang Lin, I-Chien Jan, Patrick Chow-In Ko, Yen-Yu Chen, Jau-Min Wong, and Gwo-Jen Jan	APL_DEL00031220
A Wearable Reflectance Pulse Oximeter for Remote Physiological Monitoring ("Mendelson")	September 3, 2006	Y. Mendelson, R. J. Duckworth, and G. Comtois	APL_DEL00030452
Skin Reflectance Pulse Oximetry: In Vivo Measurements from the Forearm and Calf ("Mendelson 1991")	January 1991	Y. Mendelson, Ph.D. and M.J. McGinn, MSc	APL_DEL01124277
Pulse Oximetry ("Moyle")	2002	John TB Moyle	APL_DEL00031253
Effects of Motion Artifacts on Pulse Oximeter Readings from Different Facial Regions ("Nagre")	2005	Anmol Nagre and Yitzhak Mendelson	APL_DEL01124384
New hybrid reflectance optical pulse oximetry sensor for lower oxygen saturation measurement and for broader clinical application ("Nogawa")	1997	Nogawa, Masamichi, Ching, Chong Thong, Ida, Takeyuki, Itakura, Keiko, Takatani, and Setsuo	APL_DEL00037781

Title	Date of Publication[4]	Author or Publisher	Production Number
Using Discovery and Monitoring Services to Support Context-Aware Remote Assisted Living Applications ("Rodrigues")	2009	André Luiz B. Rodrigues, Izabela C. Gomes, Leila N. Bezerra, Alexandre Sztajnberg, Sérgio T. Carvalho, Alessandro Copetti, and Orlando Loques	APL_DEL00036886
PDA based ambulatory pulse oximeter	May 31, 2006	Arpita Shah	APL_DEL01125726
A Flexible Data Processing Technique for a Tele-assistance System of Elderly People ("Tablado")	June 2004	Alberto Tablado, Arantza Illarramendi, Miren I. Bagüés, Jesús Bermúdez, and Alfredo Goñi	APL_DEL00032254
Experimental and Clinical Evaluation of a Noninvasive Reflectance Pulse Oximeter Sensor ("Takatani 1992")	October 1992	Setsuo Takatani, Charles Davies, Naoki Sakakibara, Andrew Zurick, Erik Kraenzler, Leonard R. Golding, George P. Noon, Yukihiko Nose, and Michael E. DeBakey	APL_DEL01125978
A Portable Setup for Comparing Transmittance and Reflectance Pulse Oximeters for Field Testing Applications ("Traviglia")	2004	Daniel Traviglia and Yitzhak Mendelson	APL_DEL01126094
Design of Pulse Oximeters ("Webster")	1997	J G Webster	APL_DEL00030690

C. Non-Patent/Non-Publication References, Including Product, System, Knowledge, and Use Prior Art

Apple also contends that the Asserted Claims of the Asserted Patents are invalid in view of public knowledge and uses and/or offers for sale or sales of products, systems, and services that are prior art under pre-AIA 35 U.S.C. § 102(a) or (b) or AIA 35 U.S.C. § 102(a)(1), and/or prior

inventions made in the United States by other inventors who had not abandoned, suppressed, or concealed them under 35 U.S.C. § 102(g), and that anticipate or render obvious the Asserted Claims.

The following lists each item of prior art under pre-AIA 35 U.S.C. § 102(a), (b), and/or (g) or AIA 35 U.S.C. § 102(a)(1) by the name of the item and, to the extent now known, when the item became publicly known or was used, offered for sale, or sold, the identities of the persons or entities that made the item public, publicly used it, or made the offer for sale, and the identities of the person(s) or entities involved in, and the circumstances surrounding the making of, the invention. Apple contends that the following descriptions are stated on information and belief, and are supported by the information and documents that will be produced by Apple and/or third parties. As discovery is not complete, Apple's list of prior art below is not complete or exhaustive but is Apple's current understanding based on information available without the benefit of discovery. Thus, Apple continues to investigate these events and reserves the right to amend the following list as information becomes available to it.

Furthermore, to the extent that Apple cites to or relies on patents or publications to show the disclosure of non-patent/non-publication prior art references, such as products and/or services, the disclosure of the patent or publication references may not be co-extensive with the disclosure of the non-patent/non-publication references (and *vice versa*), and each such reference may be considered and/or relied upon independently. Moreover, the documents which describe each prior art product or system identified below may independently qualify as prior art references.

The following prior art references, including those publications identified in Exhibits A-1 – A-18; B-1 – B-18; C-1 – C-15; D-1 – D-17; and E-1 – E-13, anticipate and/or render obvious the

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Asserted Claims of the Asserted Patents. In addition, Apple incorporates by reference all prior art publications listed as prior art in the Asserted Patents.

Prior Art	Date[5]	Exemplary Documents Cited
Apple Watch Series 0 and/or prior versions and related systems ("Apple Watch Series 0")	2011	[redacted]
NatureSpirit CMS-50F and/or prior versions and related systems ("CMS-50F")	2011	• CMS 50-F Wrist Sleep Study Pulse Oximeter With Alarms & Memory (APL_DEL01121381) • NatureSpirit CMS50F Instructions to User (APL_DEL01119477)
Fitbit Surge Fitness Watch System and/or prior versions and related systems ("Fitbit Surge")	May 2015	• Fitbit's New Fitness Watch Can Display Your Calls And Track Your Location While You Run, Oct. 27, 2014 ("Fitbit's New Fitness Watch") (APL_DEL00030308) • Fitbit, Fitbit Surge Fitness Super Watch User Manual Version 1.0, May 2015 ("Surge Manual") (APL_DEL00030259) • Wayback Machine, Fitbit Surge Fitness Super Watch User Manual Version 1.0, May 2015 ("Wayback Machine: Fitbit Surge") (APL_DEL00030689) • DC Rainmaker, Fitbit Surge In-Depth Review, Jan. 20, 2015 ("Surge Review") (APL_DEL00030150)

[5] The prior art was known, in public use, publicly available, offered for sale, or sold at least as early as the date indicated in the chart.

Prior Art	Date[5]	Exemplary Documents Cited
Hamamatsu Lens for Side-on Type Photomultiplier Tubes and/or prior versions and related systems ("Hamamatsu")	March 1999	• Hamamatsu, "Lens for Side-on Type Photomultiplier Tubes" (March 1999) (APL_DEL00037641)
iBGStar and/or prior versions and related systems ("iBGStar")	2010	• Sanofi-aventis and AgaMatrix Unveil iBGStar Plug-In Glucose Meter for the iPhone, Medgadget (APL_DEL00038202, APL_DEL00038203, APL_DEL00038345) • Sanofi-aventis to launch blood glucose monitoring devices, PharmaBiz.com (APL_DEL00038349)
Physio-Control, Inc. LifePak 15 and/or prior versions and related systems ("LifePak 15")	2011	• LifePak 15 Monitor Defibrillator Operating Instructions (APL_DEL00032631) • LifePak 15 Monitor Defibrillator Power Module Upgrade (APL_DEL00032915) • LifePak 15 Monitor Defibrillator Service Manuals (APL_DEL00032967, APL_DEL00033798) • LifePak 15 Operating Instructions (APL_DEL00033474) • https://www.stryker.com/us/en/emergency-care/products/lifepak-15.html (APL_DEL00033792) • CODE-STAT 10 Basic Annotation Guide (APL_DEL00032565) • CODE-STAT data review software and service (APL_DEL00032627) • Lucas 3 Quick User Guide (APL_DEL00034325) • Physio-Control CODE-STAT 10.0 Data Review Software (APL_DEL00034330)
LifeWatch V and/or prior versions and related systems ("LifeWatch V")	2012	• LifeWatch V User Manual (APL_DEL00038208) • Android-based Healthcare Smartphone Packed with Medical Sensors (APL_DEL00038072) • LifeWatch V, A smartphone that connects to you (APL_DEL00038206, APL_DEL00038344) • LifeWatch V, Blood Oxygen Saturation Level Test Tutorial (APL_DEL00038207) • Ideal Life SpO_2 Manager (APL_DEL00038204)

Prior Art	Date[5]	Exemplary Documents Cited
HP M-Series Sensor and/or prior versions and related systems ("M-Series")	1997	• "A New Family of Sensors for Pulse Oximetry," Hewlett-Packard Journal, February 1997 (APL_DEL00037653)
Masimo Radical Signal Extraction Pulse Oximeter and/or prior versions and related systems ("Masimo Radical")	2001	• "Radical Signal Extraction Pulse Oximeter: Operator's Manual," Masimo, 2001 (APL_DEL00034347) [redacted]
Masimo Set Sensors and/or prior versions and related systems ("Masimo SET")	2003	• "Pulse Oximetry Sensors: LNOP & NR," Masimo SET, 2003 (APL_DEL00037755) • "Masimo Signal Extraction Technology: Technical Bulletin 1," Masimo Corp., 2001 (APL_DEL00037757) • "Masimo Signal Extraction Technology," Masimo Corp., 2001 (APL_DEL00037764)

Prior Art	Date[5]	Exemplary Documents Cited
Philips IntelliVue MX40 and/or prior versions and related systems ("MX40")	February 2012	• IntelliVue MX40 Instructions for Use (APL_DEL00036141, APL_DEL00036611) • IntelliVue MX40 Installation and Service (APL_DEL00035983) • IntelliVue MX40 with Masimo SET Reusable Adapter and Patient Cables Instructions for Use (APL_DEL00036387) • Philips IntelliVue Information Center iX Brochures (APL_DEL00036593, APL_DEL00036595, APL_DEL00036824, APL_DEL00036842, APL_DEL00036846, APL_DEL00036850, APL_DEL00036854) • IntelliVue MX40 Brochures (APL_DEL00036603, APL_DEL00036821, APL_DEL00036861, DEL00036878) • Philips IntelliVue Smart-Hopping Network Product Website (APL_DEL00036840) [redacted]
Nellcor Symphony N-3000 Pulse Oximeter and/or prior versions and related systems ("N-3000")	1996	• Nellcor N-3000 Pulse Oximeter Service Manual (APL_DEL00034470)

Prior Art	Date[5]	Exemplary Documents Cited
Nellcor FS14 Pulse Oximetry System and/or prior versions and related systems ("Nellcor FS14")	2002	• East, Chris E., et al., "Human fetal intrapartum oxygen saturation monitoring: Agreement between readings from two sensors on the same fetus," May 1996 (APL_DEL01121852) • East, Christine E., et al., "Update on intrapartum fetal pulse oximetry," 2002 (APL_DEL01121855) • N-400 Fetal Pulse Oximetry Monitor Technical Manual (APL_DEL01124664) • Nellcor N-400 Fetal Oxygen Saturation Monitor Service Manual (APL_DEL01124387)
Nellcor Oximax N-595 Pulse Oximeter and Nellcor Oxinet II or III Monitoring System and/or prior versions and related systems ("Nellcor N-595")	2003	• "OxiMax N-595 Pulse Oximeter Operator's Manual," Nellcor, 2002 (APL_DEL00031597, APL_DEL00037792) • "Oxinet II Monitoring System Operator's Manual," Nellcor, 2002 (APL_DEL00031789) • "Oxinet III Central Station and Paging System," Nellcor, 2003 (APL_DEL00031921) • "Oxinet III Service Manual," Nellcor, 2005 (APL_DEL00031535) • "A Technology Overview of the Nellcor OxiMax Pulse Oximetry System," Nellcor Technical Staff, 2003 (APL_DEL00031781, APL_DEL00037976) • OxiMax N-595 Pulse Oximeter Home Use Guide (APL_DEL00031445) • Oxinet III Brochure (APPLE-MASIMO_000001) • Oxinet III Operator's Manual (APPLE-MASIMO_000889)

Prior Art	Date[5]	Exemplary Documents Cited
Nellcor N-395 Pulse Oximeter and Nellcor Oxinet II or III Monitoring System and/or prior versions and related systems ("Nellcor N-395")	2001	• N-395 Operator's Manual (APL_DEL01124554) • N-395 Home Use Guide (APL_DEL01352235) • Apple-Masimo • Oxinet II Monitoring System Operator's Manual," Nellcor, 2002 (APL_DEL00031789) • "Oxinet III Central Station and Paging System," Nellcor, 2003 (APL_DEL00031921) • "Oxinet III Service Manual," Nellcor, 2005 (APL_DEL00031535) • "A Technology Overview of the Nellcor OxiMax Pulse Oximetry System," Nellcor Technical Staff, 2003 (APL_DEL00031781, APL_DEL00037976) • Oxinet III Brochure (APPLE-MASIMO_000001) • Oxinet III Operator's Manual (APPLE-MASIMO_000889)
Nellcor NPB-295 Pulse Oximeter and/or prior versions and related systems ("Nellcor NPB-295")	2002	• Nellcor NPB-295 Operator's Manual (APL_DEL01124467) • Nellcor NPB-295 Home Use Guide (APL_DEL01352145) • Oxinet II Monitoring System Operator's Manual," Nellcor, 2002 (APL_DEL00031789)
Novametrix Non-Invasive Cardiac Output Model 7300 and/or prior versions and related systems ("Novametrix 7300")	2001	• "Non-Invasive Cardiac Output Monitor Model 7300: User's Manual," Novametrix, 2001 (APL_DEL00031974)
Nellcor NPB-195 Pulse Oximeter and/or prior versions and related systems ("NPB-195")	1999	• "NPB-195 Pulse Oximeter: Operator's Manual," Mallinckrodt, 1999 (APL_DEL00032074) • "NPB-195 Pulse Oximeter: Home Use Guide," Nellcor, 1997 (APL_DEL00032149)

Prior Art	Date[5]	Exemplary Documents Cited
Nonin Onyx II Model 9560 and/or prior versions and related systems ("Onyx II 9560")	2008	• Nonin Onyx II 9560 User Manual (APL_DEL00035014) • Nonin Onyx II Model 9560 Finger Pulse Oximeter Instructions for Use – English (APL_DEL00034981) • Microsoft HealthVault Service Specification (APL_DEL00034580) • Microsoft HealthVault Drivers – Installation Quick Start Guide (APL_DEL00034971) • Nonin nVision User Guide (APL_DEL00035018) • Nonin Sample nVision Report (APL_DEL00035107) • Nonin nVision SpO_2 Data Management Software (APL_DEL00035111) • SpO2 Accuracy of PureSAT Signal Processing Technology – The ONYX II (APL_DEL00035185) • Santa Barbara Cottage Hospital, Nonin's Onyx II Fingertip Pulse Oximeter (APL_DEL00035181) • Nonin Comparative Accuracy Testing of Nonin PureSAT (APL_DEL00034975) • Nonin OEM Family Brochure (APL_DEL00035115) • Nonin nVision Operator's Manual (APL_DEL00035127) • Nonin Pulse Oximeter Avant 4100 Service Manual (APL_DEL00035929)
Nellcor OxiMax Sensor and/or prior versions and related systems ("OxiMax")	2003	• "OxiMax N-595 Pulse Oximeter Operator's Manual," Nellcor, 2002 (APL_DEL00031597, APL_DEL00037792) • "A Technology Overview of the Nellcor OxiMax Pulse Oximetry System," Nellcor Technical Staff, 2003 (APL_DEL00031781, APL_DEL00037976)
PAS (Personal Assistant System) and/or prior versions and related systems ("PAS")	2008	• PAS: A Wireless-Enabled, Cell-Phone-Incorporated Personal Assistance System for Independent and Assisted Living, 28th International Conference on Distributed Computing Systems (APL_DEL00035973)

Prior Art	Date[5]	Exemplary Documents Cited
A Decision Support Services Platform for Neurodegenerative Disease Patients ("PERFORM")	2010	• A Decision Support Service Platform for Neurodegenerative Disease Patients, Sixth International Conference on Networking and Services, 2010 (APL_DEL00034343)
Human-Centered Phone Oximeter Interface Design for the Operating Room ("Phone Oximeter")	2011	• Human-Centered Phone Oximeter Interface Design for the Operating Room, Proceedings of the International Conference on Health Informatics, SciTePress, 2011 (APL_DEL00032489)

Prior Art	Date[5]	Exemplary Documents Cited
Sotera Wireless, Inc. ViSi Mobile Patient Monitoring System and/or prior versions and related systems ("Sotera ViSi Mobile")	2011	• Sotera ViSi Mobile Monitoring System User Manual (APL_DEL00037135) • Sotera ViSi Mobile Monitoring System Technical Reference Manual (APL_DEL00036993) • How ViSi Mobile Can Help With Infectious Disease (APL_DEL00036979) • Sotera ViSi Mobile Brochures (APL_DEL00036979, APL_DEL00036984, APL_DEL00037305, APL_DEL00037129, APL_DEL00037313) • Sotera ViSi Mobile Technical Specifications (APL_DEL00036986) • ViSi Mobile System General Information (APL_DEL00037307) • ViSi Mobile Monitoring System 510(k) Summary (APL_DEL00036980) • "Sotera Wireless," Tuck School of Business at Dartmouth: Center for Digital Strategies Case Series (APL_DEL00037109) • ViSi Mobile Patient Monitoring System Promotional Video (APL_DEL00037306) [redacted]
WANDA and/or prior versions and related systems ("WANDA")	2012	• Dynamic Adaptive Remote Health Monitoring for Patients with Chronic Disease, University of California, Los Angeles (APL_DEL00038075) • WANDA B.: Weight and Activity with Blood Pressure Monitoring System for Heart Failure Patients (APL_DEL00038351)

Prior Art	Date[5]	Exemplary Documents Cited
Itamar Medical Watch-PAT200 and/or prior versions and related systems ("WatchPAT200")	2009	• WatchPAT 200 Operation Manual (APL_DEL01122763, APL_DEL01122920) • zzzPAT Software Operation Manual (APL_DEL01122977, APL_DEL01123132) • WatchPAT Truckers Flyer (APL_DEL01122918)
Nonin WristOx2 Model 3150 and/or prior versions and related systems ("WristOx 3150")	2011	• Nonin WristOx2 3150 Bluetooth Connection Tutorial (APL_DEL00034990) • WristOx2, Model 3150 Wrist-worn Pulse Oximeter (APL_DEL00035012, APL_DEL00035010) • Model 3150 WristOx2 Operator's Manual and 3150SC USB Cable Driver Software (APL_DEL00035230) • Microsoft HealthVault Service Specification (APL_DEL00034580) • Microsoft HealthVault Drivers – Installation Quick Start Guide (APL_DEL00034971) • Nonin nVision User Guide (APL_DEL00035018) • Nonin Sample nVision Report (APL_DEL00035107) • Nonin nVision SpO2 Data Management Software (APL_DEL00035111) • Nonin WristOx 3100 Operator's Manual (APL_DEL00035187) • Nonin Comparative Accuracy Testing of Nonin PureSAT (APL_DEL00034975) • Nonin OEM Family Brochure (APL_DEL00035115) • Nonin nVision Operator's Manual (APL_DEL00035127) • Nonin Pulse Oximeter Avant 4100 Service Manual (APL_DEL00035929)

Prior Art	Date[5]	Exemplary Documents Cited
Nonin Xpod and/or prior versions and related systems ("Xpod")	2004	• Nonin OEM Family Brochure (APL_DEL00035115) • J. Hudson, "Usability testing of a prototype Phone Oximeter with healthcare providers in high- and low-medical resource environments," 2012 ("Hudson") (APL_DEL01122594) • Traviglia, Daniel, et al., "A Portable Setup for Comparing Transmittance and Reflectance Pulse Oximeters for Field Testing Applications," 2004 (APL_DEL01126094) • Shah, Arpita, "PDA based ambulatory pulse oximeter," May 31, 2006 ("Shah") (APL_DEL01125726) • Dresher, Russell, "Wearable Forehead Pulse Oximetry: Minimization of Motion and Pressure Artifacts," Dresher, Worcester Polytechnic Institute, 2006 ("Dresher 2006") (APL_DEL01121690) • Branche, Paul C., et al., "Measurement Reproducibility and Sensor Placement Considerations in Designing a Wearable Pulse Oximeter for Military Applications," 2004 ("Branche") (APL_DEL01119893) • Johnston, William S., et al., "Effects of Motion Artifacts on Helmet-Mounted Pulse Oximeter Sensors," 2004 ("Johnston 2004") (APL_DEL01123334) • Nagre, Anmol, et al., "Effects of Motion Artifacts on Pulse Oximeter Readings from Different Facial Regions," 2005 ("Nagre") (APL_DEL01124384) • Johnston, W. S., "Investigation of Signal Processing Algorithms for an Embedded Microcontroller-Based Wearable Pulse Oximeter," 2006 ("Johnston 2006") (APL_DEL01123336) • Forsyth, Jason B., "Wearable Pulse Oximetry in Construction Environments," March 29, 2010 ("Forsyth") (APL_DEL01121965) • Karlen, Walter, et al., "Human-Centered Phone Oximeter Interface Design for the Operating Room," 2011 ("Karlen") (APL_DEL00032489)

D. Claim Charts

Individual claim charts that identify at least one example of where each element of each Asserted Claim can be found in each item of prior art are attached hereto. As previously stated, the disclosures, combinations, and citations in the claim charts are not exhaustive of all anticipation and obviousness arguments and combinations Apple may assert. A listing of these claim charts is provided below:

'743 patent

Exhibit Number	Prior Art
A-1	Iwamiya
A-2	Sarantos
A-3	Venkatraman
A-4	Ackermans
A-5	Apple Watch Series 0
A-6	Mendelson 799
A-7	Chin
A-8	Fei
A-9	Lumidigm
A-10	Mannheimer 842
A-11	Scharf
A-12	Schulz
A-13	Sugiura
A-14	Webster
A-15	Yamada 017
A-16	Yamada 605
A-17	Gassoway
A-18	Secondary References (Teller, Bergmann, Chang, Lee, Shie, Haar, Savant, Mendelson, Fitbit Surge, Mendelson 1991)

'159 patent

Exhibit Number	Prior Art
B-1	Iwamiya
B-2	Sarantos
B-3	Venkatraman
B-4	Ackermans
B-5	Apple Watch Series 0
B-6	Mendelson 799
B-7	Chin

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Exhibit Number	Prior Art
B-8	Fei
B-9	Lumidigm
B-10	Mannheimer 842
B-11	Scharf
B-12	Schulz
B-13	Sugiura
B-14	Webster
B-15	Yamada 017
B-16	Yamada 605
B-17	Gassoway
B-18	Secondary References (Teller, Bergmann, Chang, Lee, Shie, Haar, Savant, Mendelson, Fitbit Surge, Mendelson 1991)

'223 patent

Exhibit Number	Prior Art
C-1	Al-Ali 065
C-2	Leiden
C-3	Malmborg
C-4	Hochstedler
C-5	Lin
C-6	Al-Ali 336
C-7	Nellcor N-595
C-8	Nellcor NPB-195
C-9	Masimo Radical
C-10	Novametrix 7300
C-11	Naghavi
C-12	Nellcor N-395
C-13	Nellcor NPB-295
C-14	Jarman 979
C-15	Secondary References (Moyle, Tablado, Fox, McGrath, Isaacson, Neumann, Freeman, Hudson, Kiani 291, Mortz, Burnes, Hayashi)

'507 patent

Exhibit Number	Prior Art
D-1	Mendelson
D-2	Bailey
D-3	Moon
D-4	Lisiecki
D-5	Nonin Onyx II 9560
D-6	Nonin WristOx 3150

Exhibit Number	Prior Art
D-7	Philips MX40
D-8	Sotera ViSi Mobile
D-9	LifePak 15
D-10	Gillette
D-11	Clarysse
D-12	PAS
D-13	NatureSpirit CMS-50F
D-14	Nonin Xpod
D-15	Itamar WatchPAT200
D-16	Al-Ali 223
D-17	Secondary References (Al-Ali 181, Al-Ali 564, Saidara, LaLonde, Siddiqui, Tagliabue, Bacchilone, Donati, PERFORM, Rodrigues, Barratt, Webster, N-3000 Manual, Tran, Phone Oximeter, Masimo Radical, iBGStar, LifeWatch V, WANDA)

'911 patent

Exhibit Number	Prior Art
E-1	Grubisic
E-2	Mannheimer 756
E-3	Kiani 816
E-4	Takatani
E-5	Abdul-Hafiz
E-6	Mason
E-7	Nellcor Oximax Sensor
E-8	Masimo Set Sensors
E-9	HP M-Series Sensor
E-10	Benni
E-11	Nellcor FS14
E-12	Nierlich
E-13	Secondary References (Kimura, Moyle, Webster, Allen, Raley, Robinson, Diab, Hannula, Mannheimer 842, Shaw, Nogawa, Aoyagi, Jarman, Barthelemy, Fantini, Hamamatsu, Feather, Henderson, Saiki, Wilskey, Parker, Ehrlich, Takatani 1992, Scharf)

IV. DISCLOSURE OF INVALIDITY DUE TO ANTICIPATION UNDER 35 U.S.C. § 102

A pre-AIA patent claim is invalid where "the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." Pre-AIA 35 U.S.C. § 102(a). "The statutory

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