

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

**OPTIMUM IMAGING TECHNOLOGIES
LLC,**

Plaintiff,

v.

SONY CORPORATION,

Defendant.

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JURY TRIAL DEMANDED

CIVIL ACTION NO. _____

PLAINTIFF'S ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Optimum Imaging Technologies LLC (“OIT” or “Plaintiff”) files this Complaint in the Eastern District of Texas (the “District”) against Defendant Sony Corporation (“Defendant” or “Sony”) for infringement of U.S. Patent Nos. 7,612,805 (the “’805 patent”), 8,451,339 (the “’339 patent”), 10,873,685 (the “’685 Patent”), and 10,877,266 (the “’266 patent”) which are collectively referred to as the “Asserted Patents.”

THE PARTIES

1. Plaintiff OIT is a Texas limited liability company founded in 2009 and with an address at 8701 Shoal Creek Blvd. #401, Austin, Texas 78757.

2. On information and belief, Defendant Sony is a corporation organized under the laws of Japan, with its principal place of business located at 1-7-1 Konan Minato-ku, Tokyo, 108-0075, Japan. Sony may be served with process via its registered agents and via its corporate officers.

JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

4. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. On information and belief, Defendant is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and this District, including: (A) at least part of its infringing activities alleged herein which purposefully avail the Defendant of the privilege of conducting those activities in this state and this District and, thus, submits itself to the jurisdiction of this court; and (B) regularly doing or soliciting business, engaging in other persistent conduct targeting residents of Texas and this District, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to and targeting Texas residents and residents of this District vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, partners, subsidiaries, clients, customers, affiliates, and/or consumers.

6. Furthermore, upon information and belief, Defendant has purposefully and voluntarily placed one or more infringing products into the stream of commerce with the expectation that they will be purchased and/or used by residents of this judicial District, including by directly and indirectly working with distributors, and other entities located in the State of Texas, to ensure the accused products reach the State of Texas and this judicial District, including in this Division. For example, Sony lists hundreds of official Sony Dealers on its website. *See Sony Authorized Dealer Directory*, SONY, <https://electronics.sony.com/retailers> (last visited Aug. 23,

2023). Sony's approved retailers include businesses within Texas and within this District, such as Best Buy and Bass Pro Shops.

7. Defendant also maintains commercial websites accessible to residents of the State of Texas and this judicial District, through which Defendant promotes and facilitates sales of the infringing products. For example, Sony's websites sony.com and electronics.sony.com are accessible to consumers in the United States, including those in the State of Texas and this judicial District. Sony not only supplies information about the Infringing Products at these sites, but also allows consumers to directly purchase the Infringing Products. Sony also sells the Infringing Products through online stores such as Amazon.com, as well as brick-and-mortar stores located in this judicial District, including but not limited to Best Buy and Bass Pro Shops.

8. Thus, Defendant has established minimum contacts with the State of Texas and the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

9. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391(b), (c) and 1400(b) because (i) Defendant has done and continues to do business in this district; (ii) Defendant has committed and continues to commit acts of patent infringement in this district, including making, using, offering to sell, and/or selling accused products in this district, and/or importing accused products into this district, including by internet sales and sales via retail and wholesale stores, and/or inducing others to commit acts of patent infringement in this district; and (iii) Defendant is foreign entity. 28 U.S.C. § 1391(c)(3) provides that "a defendant not resident in the United States may be sued in any judicial district." *See also Brunette Machine Works v. Kockum Industries, Inc.*, 406 U.S. 706 (1972), holding that venue is proper pursuant to 28 U.S.C. §§ 1391 and 1400(b) when Defendant is a foreign entity.

FACTUAL ALLEGATIONS

10. Neal Solomon is the sole inventor of the Asserted Patents: the '805 Patent, titled "Digital imaging system and methods for selective image filtration"; the '339 Patent, titled "Digital imaging system for correcting image aberrations"; the '685 Patent, titled "Digital imaging system for correcting video image aberrations"; and the '266 Patent, titled "Digital camera with wireless image transfer." The Asserted Patents share a specification and a priority date at least as early as July 11, 2006.

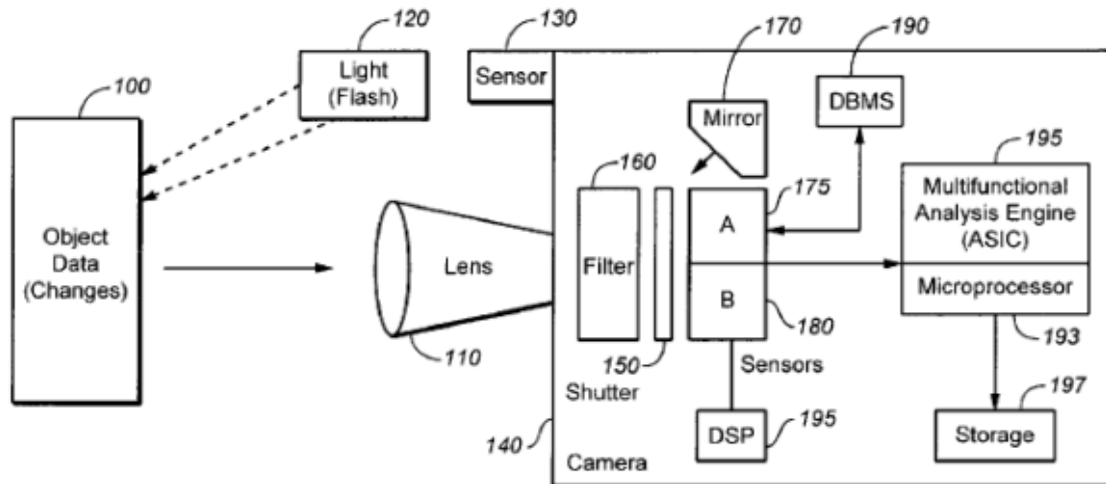
11. OIT, a Texas limited liability company formed by Mr. Solomon in 2009, owns the Asserted Patents.

12. The Asserted Patents are directed toward digital imaging systems and methods, namely in-camera systems for filtering and correcting image aberrations or distortions. The systems as claimed relate to a combination of hardware and software throughout the cameras. The Abstract for the '339 patent, for example, states as follows:

A system is disclosed for the automated correction of optical and digital aberrations in a digital imaging system. The system includes (a) digital filters, (b) hardware modifications and (c) digital system corrections. The system solves numerous problems in still and video photography that are presented in the digital imaging environment.

13. The Asserted Patents describe aberration correction systems and methods particular to various types of lenses, a database system for useful access to those systems and methods, and specially designed processors which operate those systems and methods to correct specifically enumerated aberrations. The Asserted Patents describe a claimed combination of dedicated elements and processes that were not, at the time of invention, well-understood, routine, or conventional.

14. An exemplary embodiment is shown in Figure 1 of each of the Asserted Patents:



15. Defendant imports, has imported, sells, has sold for sale and/or offers for sale in the United States cameras and lenses (and components of the same) that are not made or licensed by OIT and that infringe the Asserted Patents (“Infringing Products”).

16. Sony markets its Infringing Products specifically extolling the functionality of the Asserted Patents. As one example, Sony provides guides that explain to users and potential customers that the Sony α 9 Interchangeable Lens Digital Camera performs “Lens Compensation” which “automatically compensate[s] for distortion of the screen,” “automatically compensate[s] for darkness in the corners of the screen,” and “automatically reduce[s] color deviation at the corners of the screen.” *Help Guide, ILCE-9 α 9 – Lens Comp.*, Sony, <https://helpguide.sony.net/ilc/1830/v1/en/contents/TP0002389818.html> (last visited Aug. 21, 2023). The camera firmware that supports Shooting functions like Lens Compensation can be updated via download from Sony. *See ILCE-9 System Software (Firmware) Update*, SONY, <https://www.sony.com/electronics/support/downloads/00016361> (last visited Aug. 22, 2023).

17. On information and belief, all Sony digital cameras that include digital lens aberration correction imported, sold, offered for sale or used in the United States within the statutory period are Infringing Products, including but not limited to the following: Sony α 6400, α 6600, PLAINTIFF’S ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

α 6700, α 1, α 7C, α 7 III, α 7R III, α 7S III, α 7R IIIA, α 7 IV, α 7R IV, α 7R IVA, α 7R V, α 9, α 9 II, α ZV-E1, and α ZV-E10. The model numbers listed in this complaint are exemplary and not exhaustive. These cameras use both zoom and fixed focal lenses, and also have video capabilities.

COUNT I

(Infringement of the '805 Patent)

18. Plaintiff incorporates and re-alleges the allegations contained in paragraphs 1 through 17 herein by reference.

19. The '805 Patent entitled "Digital imaging system and methods for selective image filtration" was duly and legally issued by the U.S. Patent and Trademark Office on November 3, 2009, from Application No. 11/825/521, published at US2008/0174678 on Jul. 24, 2008, claiming priority to provisional application 60/807,065 filed on Jul. 11, 2006. A true and accurate copy of the '805 Patent is attached hereto as Exhibit A.

20. Each and every claim of the '805 Patent is valid and enforceable, and each enjoys a statutory presumption of validity under 35 U.S.C. § 282.

21. OIT exclusively owns all rights, title, and interest in and to the '805 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present and future infringement.

22. Representative Claims 1 and 9 are as follows:

23. Claim 1 of the '805 Patent recites:

A digital imaging system for image filtration comprising:
a digital camera mechanism, an optical lens mechanism, a digital sensor, a microprocessor, a digital signal processor, an application specific integrated circuit, system software, a database management system and a memory storage sub-system;

wherein the optical lens mechanism is a fixed focal length;

wherein the aberrations from the optical lens mechanism are corrected by applying digital filtration by using the application specific integrated circuit and the digital signal processor,

wherein the microprocessor is used to provide digital and optical data to the digital

signal processor,
wherein the system software is organized to identify specific optical aberrations
and to access the database to identify specific corrections to the aberrations;
wherein the system software forwards the data from the digital sensor to the digital
processor;
wherein the digital signal processor selects a specific procedure to optimize the
image and corrects the aberrations;
wherein the data are forwarded from the digital sensor to the digital signal processor
by an application specific integrated circuit;
wherein the digital signal processor applies a fast Fourier transform to a data file in
order to satisfy a user specified special effects function;
wherein the digital signal processor modifies the data file by applying the special
effects function; and
wherein the modified data file consisting of the digital data optimized from the
aberrations that are corrected from the original optical image is stored in
memory.

24. Claim 9 of the '805 Patent recites:

A digital imaging system for image filtration comprising:
a digital camera mechanism, an optical lens mechanism, a digital sensor, a
microprocessor, a digital signal processor, an application specific integrated
circuit, system software, a database management system and a memory
storage sub-system;
wherein the aberrations from the optical lens mechanism are corrected by
applying digital filtration by using the application specific integrated circuit
and the digital signal processor;
wherein the microprocessor is used to provide digital and optical data to the
digital signal processor;
wherein the system software is organized to identify specific optical aberrations
and to access the database to identify specific corrections to the aberrations;
wherein the system software forwards the data from the digital sensor to the
digital processor;
wherein the digital signal processor selects a specific procedure to optimize the
image and corrects the aberrations;
wherein the lens type is a zoom lens;
wherein the lens focal length alternates from specific fixed focal length lens
settings in a succession of steps;
wherein optical aberrations are corrected with digital filtration to modify multiple
images from different focal lengths in a succession of data files; and
wherein the modified data file consisting of the digital data optimized from the
aberrations that are corrected from the original optical image is stored in
memory.

25. Each Infringing Product is a digital camera that constitutes a digital imaging system for image filtration comprising a digital camera mechanism, an optical lens mechanism, a digital sensor, a microprocessor, a digital signal processor, an application specific integrated circuit, system software, a database management system, and a memory storage sub-system. The cameras require optical lens mechanisms to operate, as seen, for example, with the Sony α 9:



General	Camera Type	Interchangeable-lens digital camera
	Lens Mount	E-mount
Image sensor	Aspect Ratio	3:2
	Type	35mm full frame (35.6x23.8mm), Exmor RS CMOS sensor
	Number of Pixels	Approx. 24.2 megapixels (Effective), Approx. 28.3 megapixels (Total)
	Anti-Dust System	Charge protection coating on optical filter and image sensor shift mechanism
Recording (still images)	Recording Format	JPEG (DCF Ver. 2.0, Exif Ver. 2.31, MPF Baseline compliant), RAW (Sony ARW 2.3 format)
	Image Size (pixels) [3:2]	35mm full frame L: 6000 x 4000 (24M), M: 3936 x 2624 (10M), S: 3008 x 2000 (6.0M), APS-C L: 3936 x 2624 (10M), M: 3008 x 2000 (6.0M), S: 1968 x 1312 (2.6M)
	Image Size (pixels) [16:9]	35mm full frame L: 6000 x 3376 (20M), M: 3936 x 2216 (8.7M), S: 3008 x 1688 (5.1M), APS-C L: 3936 x 2216 (8.7M), M: 3008 x 1688 (5.1M), S: 1968 x 1112 (2.2M)
	Image Quality Modes	RAW, RAW & JPEG, JPEG Extra fine, JPEG Fine, JPEG Standard
	Picture Effect	8 types: Posterization (Color, B&W), Pop Color, Retro Photo, Partial Color (R/G/B/Y), High Contrast Monochrome, Toy Camera (Normal/Cool/Warm/Green/Magenta), Soft High-key, Rich-tone Monochrome
	Creative Style	Standard, Vivid, Neutral, Clear, Deep, Light, Portrait, Landscape, Sunset, Night Scene, Autumn leaves, Black & White, Sepia, Style Box (1-6), (Contrast (-3 to +3 steps), Saturation (-3 to +3 steps), Sharpness (-3 to +3 steps))
	Dynamic Range Functions	Off, Dynamic Range Optimizer (Auto/Level (1-5)), Auto High Dynamic Range (Auto Exposure Difference, Exposure Difference Level (1-6 EV, 1.0 EV step))
	Color Space	sRGB standard (with sYCC gamut) and Adobe RGB standard compatible with TRILUMINOS Color
	RAW Output	Yes
	Uncompressed RAW	Yes

Source: Sony α 9 Brochure at 35, available for download at <https://www.sony.com/electronics/support/res/manuals/W000/W0002199M.pdf>

26. On information and belief, each of the Infringing Products is further configured wherein the aberrations from the optical lens mechanism are corrected by applying digital filtration

by using the application specific integrated circuit and the digital signal processor; wherein the microprocessor is used to provide digital and optical data to the digital signal processor; wherein the system software is organized to identify specific optical aberrations and to access the database to identify specific corrections to the aberrations; wherein the system software forwards the data from the digital sensor to the digital processor; wherein the digital signal processor selects a specific procedure to optimize the image and corrects the aberrations; wherein the lens type is a zoom lens; wherein the lens focal length alternates from specific fixed focal length lens settings in a succession of steps; wherein optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files; and wherein the modified data file consisting of the digital data optimized from the aberrations that are corrected from the original optical image is stored in memory.

27. Each of the Infringing Products comprises an optical lens mechanism that can be a fixed focal length lens or a zoom lens. As one example, the $\alpha 9$ is used with a variety of compatible zoom or fixed focal length lenses. According to Sony, the $\alpha 9$ can be used with lenses of both types:

α Lens**E-mount G Master™****E-mount G Lens™****E-mount ZEISS®**

Source: Sony α9 Brochure at 30.

28. The Infringing Products also comprise a digital sensor. For example, the α9 has an Exmor “full-frame CMOS image sensor.” Sony α9 Brochure at 20.

29. On information and belief, the Infringing Products also store and use database data for lens aberration correction. For example, as discussed further in paragraph 32 below, the α9 contains photo shooting functionality that automatically corrects optical aberrations based on the lens being used, which necessarily requires the use of database data stored on the α9. Further, the camera system software that supports shooting functions like Lens Compensation can be updated via download from Sony. See *ILCE-9 System Software (Firmware) Update*, SONY, <https://www.sony.com/electronics/support/downloads/00016361> (last visited Aug. 22, 2023).


30. Sony Infringing Products use at least one application specific integrated circuit (ASIC) and a digital signal processor as well as a microprocessor. For example, the α9 contains

Sony’s BIONZ X image processing engine, which implements this functionality. The BIONZ X is an image processing engine that “works with the fast image sensor to achieve maximum speed and performance.” Sony α 9 Brochure at 15. Further, the BIONZ X includes a “processor and a front-end LSI,” *i.e.*, an application specific integrated circuit, to “deliver higher performance in a number of critical areas including autofocus speed and precision, and EVF display response.” *Id.*

31. On information and belief, the Infringing Products include onboard software that directs the digital signal processor to select a specific procedure to optimize the image and correct aberrations wherein the lens focal length alternates from specific fixed focal length lens settings in a succession of steps; wherein optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files. For example, the α 9 includes a “Lens Compensation” function that corrects multiple types of optical aberrations:

Lens Comp.

Compensates for shading in the corners of the screen or distortion of the screen, or reduces color deviation at the corners of the screen caused by certain lens characteristics.

1 MENU →  (Camera Settings1) → [Lens Comp.] → desired setting.

Menu item details

Shading Comp.:

Sets whether to automatically compensate for darkness in the corners of the screen. ([Auto]/[Off])

Chromatic Aberration Comp.:

Sets whether to automatically reduce color deviation at the corners of the screen. ([Auto]/[Off])

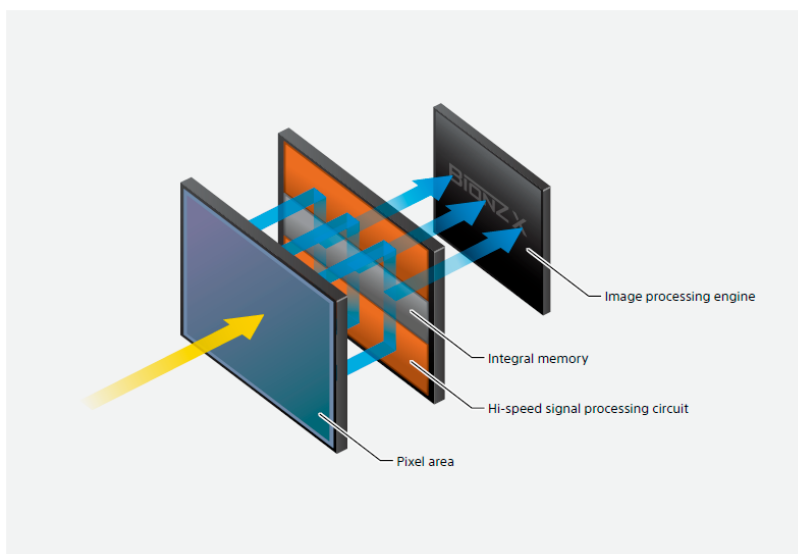
Distortion Comp.:

Sets whether to automatically compensate for distortion of the screen. ([Auto]/[Off])

Source: *Help Guide, ILCE-9 α 9 – Lens Comp.*, SONY, <https://helpguide.sony.net/ilc/1830/v1/en/contents/TP0002389818.html> (last visited Aug. 21, 2023).

Because the Lens Compensation functionality automatically corrects aberrations, it necessarily corrects and modifies aberrations at different focal lengths based on the focal length chosen when using the zoom lens.

32. On information and belief, the system software in the Infringing Products forwards data from the digital sensor to the digital processor. For example, in the $\alpha 9$, the digital file containing the image data is forwarded from the “pixel area” of the digital sensor to the signal processing circuit, and then on to the image processing engine:



Source: Sony $\alpha 9$ Brochure at 15.

33. On information and belief, the Infringing Products apply a fast Fourier transform to a data file in order to satisfy and apply user specified special effects functions.

34. On information and belief, the Infringing Products store in memory the modified data file consisting of the digital data optimized from the original optical image that has had its optical aberrations corrected. For example, the $\alpha 9$ automatically creates a storage folder in memory, to which the corrected images are recorded:

Folder Name

Still images are recorded in a folder that is automatically created inside the DCIM folder on the memory card. You can change the way folder names are assigned.

1 MENU →  (Setup) → [Folder Name] → desired setting.

Menu item details

Standard Form:

The folder name form is as follows: folder number + MSDCF.

Example: 100MSDCF

Date Form:

The folder name form is as follows: folder number + Y (the last digit)/MM/DD.

Example: 10090405(Folder number: 100, date: 04/05/2019)

Source: *Help Guide, ILCE-9 α9 – Folder Name.*, SONY, <https://helpguide.sony.net/ilc/1830/v1/en/contents/TP0002351905.html> (last visited Aug. 21, 2023).

35. Sony Infringing Products use the ASIC and digital signal processor following the '805 Patent claims above to apply digital correction to both still and motion images, *i.e.*, video recording. For example, the α9 can also apply Lens Compensation (as described above in paragraph 32) to video files:

- The following settings for still image shooting are applied to the movie shooting:
 - White Balance
 - Creative Style
 - Metering Mode
 - Face/Eye Priority in AF
 - Face Priority in Multi Metering
 - D-Range Optimizer
 - Lens Comp.

Source: *Help Guide, ILCE-9 α9 – Shooting movies*, SONY, <https://helpguide.sony.net/ilc/1830/v1/en/contents/TP0002389818.html> (last visited Aug. 21, 2023).

36. Defendant has been and is now directly infringing, literally and/or under the doctrine of equivalents because without authority it makes, uses, offers to sell, sells, and/or imports within the United States the patented invention of one or more claims, including at least claims 1 and 9 of the '805 Patent. Defendant is therefore liable to OIT for patent infringement under 35 U.S.C. § 271(a).

37. Further, Defendant's customers and end users who offer for sale, sell, and/or use the Infringing Products directly infringe at least claims 1 and 9 of the '805 Patent.

38. Furthermore, Defendant has been and is now liable under 35 U.S.C. § 271(b) for actively inducing infringement of one or more claims including at least claims 1 and 9 of the '805 patent. On information and belief, as set forth below, Sony has or should have had actual notice of the '805 Patent since at least 2010. Additionally, Sony has had actual notice of the '805 Patent since at least its receipt of OIT's complaint. Despite such knowledge, Sony has intended that its customers and end users infringe the '805 Patent by selling, offering for sale, importing, and/or using the Infringing Products in the United States, and has actively induced such infringement by instructing users in the United States to practice '805 patent claims in their user manuals, posted videos and/or other materials with knowledge of the '805 patent as set forth in this complaint and with knowledge of the '805 patent since at least the time Sony became aware of the '805 Patent.

39. Further, Defendant has been and is now liable under 35 U.S.C. § 271(c) because it offers to sell or sells within the United States or imports into the United States a component of a machine patented by one or more claims including at least claims 1 and 9 of the '805 patent that constitutes a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

40. OIT has suffered damage because of the infringing activities of Defendant, its officers, agents, servants, employees, associates, partners, and other persons who are in active concert or participation therewith, and OIT will continue to suffer irreparable harm for which there is no adequate remedy at law unless Defendant's infringing activities are preliminarily and permanently enjoined by this Court.

41. Defendant's infringement of the '805 Patent was, is, and continues to be deliberate and willful. The '805 Patent application was published on July 24, 2008, and the '805 Patent issued on November 3, 2009. On information and belief, Sony has had actual notice of the '805 Patent at least as early as July 23, 2010, when the '805 Patent was cited as prior art during the prosecution of one of Sony's own patent applications, U.S. Patent App. No. 11/907,201, which issued as U.S. Patent No. 7,834,915. The '805 Patent was also cited during the prosecution of at least two other Sony patents, U.S. Patent Nos. 8,792,774 and 8,310,423. Thus, Sony was informed of the disclosures of the '805 Patent, but continued to infringe, nonetheless. Moreover, Sony was and is on notice of the '805 Patent at least as early as the filing of the Complaint in this lawsuit, yet continued and continues to infringe the '805 Patent.

COUNT II

(Infringement of the '339 Patent)

42. Plaintiff incorporates and re-alleges the allegations contained in paragraphs 1 through 41 herein by reference.

43. The '339 Patent entitled "Digital imaging system for correcting image aberrations" was duly and legally issued by the U.S. Patent and Trademark Office on May 28, 2013, from Application No. 12/586,221, claiming priority to the '805 Patent application as well as the provisional application 60/807,065 filed on Jul. 11, 2006. A true and accurate copy of the '339 Patent is attached hereto as Exhibit B.

44. Each and every claim of the '339 Patent is valid and enforceable, and each enjoys a statutory presumption of validity under 35 U.S.C. § 282.

45. OIT exclusively owns all rights, title, and interest in and to the '339 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present and future infringement.

46. Representative claims 1 and 14 are as follows:

47. Claim 1 of the '339 Patent recites:

A digital imaging system for correcting image aberrations comprising:
a digital camera mechanism, an optical lens mechanism, a digital sensor, a
microprocessor, a digital signal processor, system software, a database
management system and a memory storage sub-system;
wherein the optical lens mechanism is a fixed focal length lens;
wherein a microprocessor uses system software to identify at least one optical
aberration by accessing the database;
wherein the microprocessor uses the database to identify at least one algorithm to
use to correct the at least one optical aberration;
wherein when the image file is captured by the digital sensor the digital file is
forwarded to the digital signal processor;
wherein the image file with at least one optical aberration is corrected by applying
digital filtration by using at least one algorithm in the digital signal
processor; and
wherein the modified digital file consisting of the digital data optimized from the
at least one optical aberration that are corrected from the original optical
image is stored in memory.

48. Claim 14 of the '339 Patent recites:

A digital imaging system for correcting image aberrations comprising:
a digital camera mechanism, an optical lens mechanism, a digital sensor, a
microprocessor, a digital signal processor, system software, a database
management system and a memory storage sub-system;
wherein the optical lens mechanism is a zoom lens;
wherein the zoom lens changes focal length positions;
wherein when the image file is captured by the digital sensor the file is forwarded
to the digital signal processor and to memory;
wherein the microprocessor uses system software to access the database to identify
at least one optical aberration in the image file at any focal length of a zoom
lens configuration;
wherein the microprocessor accesses the database to obtain at least one filtration
correction algorithm to the optical aberrations and forwards the at least one
filtration algorithms to the digital signal processor;
wherein the image file is forwarded to the digital signal processor which applies at
least one filtration algorithm to optimize the image and corrects the at least
one optical aberration at the specific focal length in the zoom lens
configuration; and
wherein the modified image file consisting of the digital data optimized from the at
least one optical aberration of a specific focal length of the zoom lens that
are corrected from the original optical image is stored in memory.

49. Each Infringing Product is a digital camera that constitutes a digital imaging system for correcting image aberrations comprising a digital camera mechanism, an optical lens mechanism (fixed focal length or zoom), a digital sensor, a microprocessor, a digital signal processor, an application specific integrated circuit, system software, a database management system and a memory storage sub-system. The cameras require optical lens mechanisms to operate, as seen, for example, with the Sony α 9:



General	Camera Type	Interchangeable-lens digital camera
	Lens Mount	E-mount
Image sensor	Aspect Ratio	3:2
	Type	35mm full frame (35.6x23.8mm), Exmor RS CMOS sensor
	Number of Pixels	Approx. 24.2 megapixels (Effective), Approx. 28.3 megapixels (Total)
	Anti-Dust System	Charge protection coating on optical filter and image sensor shift mechanism
Recording (still images)	Recording Format	JPEG (DCF Ver. 2.0, Exif Ver.2.31, MPF Baseline compliant), RAW (Sony ARW 2.3 format)
	Image Size (pixels)[3:2]	35mm full frame L: 6000 x 4000 (24M), M: 3936 x 2624 (10M), S: 3008 x 2000 (6.0M), APS-C L: 3936 x 2624 (10M), M: 3008 x 2000 (6.0M), S: 1968 x 1312 (2.6M)
	Image Size (pixels)[16:9]	35mm full frame L: 6000 x 3376 (20M), M: 3936 x 2216 (8.7M), S: 3008 x 1688 (5.1M), APS-C L: 3936 x 2216 (8.7M), M: 3008 x 1688 (5.1M), S: 1968 x 1112 (2.2M)
	Image Quality Modes	RAW, RAW & JPEG, JPEG Extra fine, JPEG Fine, JPEG Standard
	Picture Effect	8 types: Posterization (Color, B&W), Pop Color, Retro Photo, Partial Color (R/G/B/Y), High Contrast Monochrome, Toy Camera (Normal/Cool/Warm/Green/Magenta), Soft High-key, Rich-tone Monochrome
	Creative Style	Standard, Vivid, Neutral, Clear, Deep, Light, Portrait, Landscape, Sunset, Night Scene, Autumn leaves, Black & White, Sepia, Style Box (1-6), (Contrast (-3 to +3 steps), Saturation (-3 to +3 steps), Sharpness (-3 to +3 steps))
	Dynamic Range Functions	Off, Dynamic Range Optimizer (Auto/Level (1-5)), Auto High Dynamic Range (Auto Exposure Difference, Exposure Difference Level (1-6 EV, 1.0 EV step))
	Color Space	sRGB standard (with sYCC gamut) and Adobe RGB standard compatible with TRILUMINOS Color
	RAW Output	Yes
	Uncompressed RAW	Yes

Source: Sony α 9 Brochure at 35.

50. On information and belief, each of the Infringing Products further includes a database management system and memory storage sub-system; wherein the microprocessor uses system software to identify at least one optical aberration by accessing the database; wherein the microprocessor uses system software to identify at least one algorithm to use to correct the at least one optical aberration; wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor; wherein the image file with at least one optical aberration is corrected by applying digital filtration by using at least one algorithm in the digital signal processor; and wherein the modified digital file consisting of the digital data optimized from the at least one optical aberration that are corrected from the original optical image is stored in memory.

51. On information and belief, each of the Infringing Products also comprises a fixed focal length lens or a zoom lens. As one example, The $\alpha 9$ is used with a variety of compatible zoom or fixed focal length lenses. According to Sony, the $\alpha 9$ can be used with lenses of both types:

α Lens**E-mount G Master™****E-mount G Lens™****E-mount ZEISS®**

Source: Sony α9 Brochure at 30.

52. The Infringing Products also comprise a digital sensor. For example, the α9 has an Exmor “full-frame CMOS image sensor.” Sony α9 Brochure at 20.

53. Sony Infringing Products comprise an integrated circuit, a digital signal processor, and a microprocessor. For example, the α9 contains Sony’s BIONZ X image processing engine, which contains this functionality. The BIONZ X is an image processing engine that “works with the fast image sensor to achieve maximum speed and performance.” Sony α9 Brochure at 15. Further, the BIONZ X includes a “processor and a front-end LSI,” *i.e.*, an application specific integrated circuit, to “deliver higher performance in a number of critical areas including autofocus speed and precision, and EVF display response.” *Id.*

54. Sony Infringing Products comprise system software. For example, as discussed below, the α9 contains “Lens Compensation” software for correcting optical aberrations.

55. On information and belief, the Infringing Products also a database management system. For example, as discussed further below, the $\alpha 9$ contains photo shooting functionality that automatically corrects optical aberrations based on the lens being used, which necessarily requires the use of database data stored on the $\alpha 9$. Further, the camera system software that supports shooting functions like Lens Compensation can be updated via download from Sony. *See ILCE-9 System Software (Firmware) Update*, SONY.

56. Sony Infringing Products also comprise a memory storage subsystem. For example, the $\alpha 9$ contains “dual media slots” for “still and movie storage.” Sony $\alpha 9$ Brochure at 24. Further, the $\alpha 9$ automatically creates a storage folder within the camera and automatically records images to the storage folder when they are created. *See Help Guide, ILCE-9 $\alpha 9$ – Folder Name*, SONY.

57. On information and belief, the Infringing Products utilize a microprocessor that uses system software to identify at least one optical aberration by accessing the database and uses the database to identify at least one algorithm to use to correct the at least one optical aberration. Further, on information and belief, the Infringing Products correct image files with optical aberrations by applying digital filtration by using at least one algorithm in the digital signal processor. For example, the $\alpha 9$ includes a “Lens Compensation” function that corrects multiple types of optical aberrations:

Lens Comp.

Compensates for shading in the corners of the screen or distortion of the screen, or reduces color deviation at the corners of the screen caused by certain lens characteristics.

1 MENU →  1 (Camera Settings1) → [Lens Comp.] → desired setting.

Menu item details

Shading Comp.:

Sets whether to automatically compensate for darkness in the corners of the screen. ([Auto]/[Off])

Chromatic Aberration Comp.:

Sets whether to automatically reduce color deviation at the corners of the screen. ([Auto]/[Off])

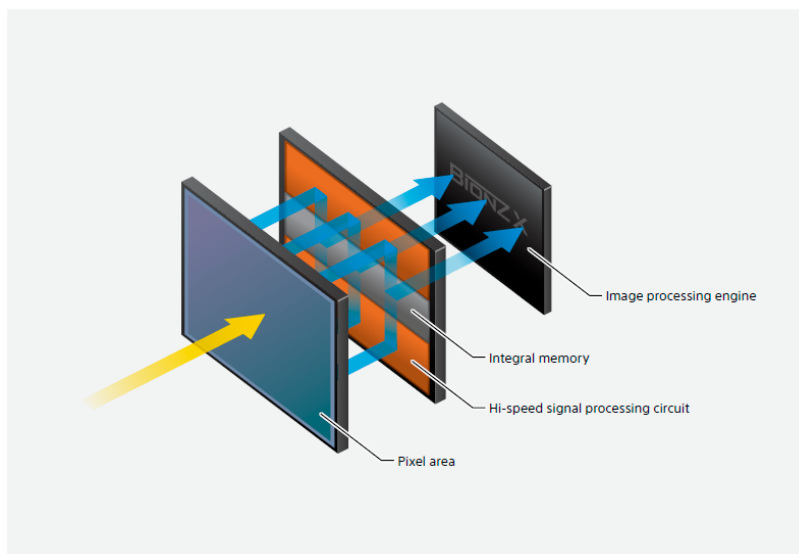
Distortion Comp.:

Sets whether to automatically compensate for distortion of the screen. ([Auto]/[Off])

Source: *Help Guide, ILCE-9 α9 – Lens Comp.*, SONY.

In order to automatically compensate for these optical aberrations, the α9 must necessarily use system software to access a database of lens data on the camera.

58. On information and belief, in the Infringing Products, when an image file is captured by the digital sensor the digital file is forwarded to the digital signal processor. For example, in the α9, the digital file containing the image data is forwarded from the “pixel area” to the signal processing circuit, and then on to the image processing engine:



Source: Sony α9 Brochure at 15.

59. On information and belief, the Infringing Products store in memory the modified digital file consisting of the digital data optimized from the original optical image that has had its optical aberrations corrected. For example, the $\alpha 9$ automatically creates a storage folder in memory, to which the corrected images are recorded:

Folder Name

Still images are recorded in a folder that is automatically created inside the DCIM folder on the memory card. You can change the way folder names are assigned.

1 MENU →  (Setup) → [Folder Name] → desired setting.

Menu item details

Standard Form:

The folder name form is as follows: folder number + MSDCF.
Example: 100MSDCF

Date Form:

The folder name form is as follows: folder number + Y (the last digit)/MM/DD.
Example: 10090405(Folder number: 100, date: 04/05/2019)

Source: *Help Guide, ILCE-9 $\alpha 9$ – Folder Name.*, SONY.

60. Sony Infringing Products use the microprocessor and digital signal processor following the '339 Patent claims above to apply digital correction to both still and motion images, *i.e.*, video recording. For example, the $\alpha 9$ can also apply Lens Compensation (as described above in paragraph 59) to video files:

- The following settings for still image shooting are applied to the movie shooting:
 - White Balance
 - Creative Style
 - Metering Mode
 - Face/Eye Priority in AF
 - Face Priority in Multi Metering
 - D-Range Optimizer
 - Lens Comp.

Source: *Help Guide, ILCE-9 $\alpha 9$ – Shooting movies*, SONY.

61. Defendant has been and is now directly infringing, literally and/or under the doctrine of equivalents because without authority it makes, uses, offers to sell, sells, and/or imports within

the United States the patented invention of one or more claims, including at least claims 1 and 14 of the '339 Patent. Defendant is therefore liable to OIT for patent infringement under 35 U.S.C. § 271(a).

62. Further, Defendant's customers and end users who offer for sale, sell, and/or use the Infringing Products directly infringe at least claims 1 and 14 of the '339 Patent.

63. Furthermore, Defendant has been and is now liable under 35 U.S.C. § 271(b) for actively inducing infringement of one or more claims including at least claims 1 and 14 of the '339 patent. On information and belief, as set forth below, Sony has or should have had actual notice of the disclosures in the '339 Patent since at least 2010. Additionally, Sony has had actual notice of the '339 Patent since at least its receipt of OIT's complaint. Despite such knowledge, Sony has intended that its customers and end users infringe the '339 Patent by selling, offering for sale, importing, and/or using the Infringing Products in the United States, and has actively induced such infringement by instructing users in the United States to practice '339 patent claims in their user manuals, posted videos and/or other materials with knowledge of the '339 patent as set forth in this complaint and with knowledge of the '339 patent since at least the time Sony became aware of the disclosures of '339 Patent.

64. Further, Defendant has been and is now liable under 35 U.S.C. § 271(c) because it offers to sell or sells within the United States or imports into the United States a component of a machine patented by one or more claims of the '339 Patent as set forth above that constitutes a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

65. As a result of Defendant's infringement of the '339 Patent, OIT has suffered and continues to suffer damages. Thus, OIT is entitled to recover from Defendant the damages OIT sustained as a result of Sony's wrongful and infringing acts in an amount no less than a reasonable royalty, together with interest and costs fixed by this Court under 35 U.S.C. § 284.

66. OIT has suffered damage because of the infringing activities of Defendant, its officers, agents, servants, employees, associates, partners, and other persons who are in active concert or participation therewith, and OIT will continue to suffer irreparable harm for which there is no adequate remedy at law unless this Court preliminarily and permanently enjoins Defendant's infringing activities.

67. Defendant's infringement of the '339 Patent was, is, and continues to be deliberate and willful. The '805 Patent application with the same specification as the '339 patent was published on July 24, 2008, and the related '805 Patent issued on November 3, 2009. On information and belief, Sony has had actual notice of the disclosures in the '339 Patent at least as early as July 23, 2010, when the '805 Patent was cited as prior art during the prosecution of one of Sony's own patent applications, U.S. Patent App. No. 11/907,201, which issued as U.S. Patent No. 7,834,915. Further, Sony had actual notice of the '339 Patent itself at least as early as July 18, 2012, when the published patent application for the '339 Patent was cited as prior art during the prosecution of one of Sony's own patent applications, U.S. Patent App. No. 12/548,705, which issued as U.S. Patent No. 8,310,523. Thus, Sony was informed of the disclosures of the '339 Patent, but continued to infringe, nonetheless. Moreover, Sony was and is on notice of the disclosures in the '339 Patent at least as early as the filing of the Complaint in this lawsuit, yet Defendant continued and continues to infringe the '339 Patent.

COUNT III

(Infringement of the '685 Patent)

68. Plaintiff incorporates and re-alleges the allegations contained in paragraphs 1 through 67 herein by reference.

69. The '685 Patent entitled "Digital imaging system for correcting video image aberrations" was duly and legally issued by the U.S. Patent and Trademark Office on December 22, 2020, from Application No. 13/691,805, claiming priority to the '805 Patent application as well as the provisional application 60/807,065 filed on Jul. 11, 2006. A true and accurate copy of the '685 Patent is attached hereto as Exhibit C.

70. Each and every claim of the '685 Patent is valid and enforceable, and each enjoys a statutory presumption of validity under 35 U.S.C. § 282.

71. OIT exclusively owns all rights, title, and interest in and to the '685 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, infringement. present and future infringement.

72. Representative claim 1 of the '685 Patent recites:

A digital imaging system for correcting optical image aberrations in a digital video, comprising:

a digital video camera including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit including; a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system;

wherein the optical lens mechanism is a zoom lens or a fixed focal length lens;

wherein the integrated circuit uses the in-camera software to identify at least one optical image aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database;

wherein the video is captured by the at least one digital sensor and is forwarded to the digital signal processor;

wherein the video image file with the at least one optical image aberration is corrected by applying digital filtration using the digital signal processor; and

wherein the corrected video consisting of the digital data optimized from the at

least one optical image aberration that are corrected from the original video image is stored in the memory storage sub-system.

73. Each Infringing Product is a digital camera that constitutes a digital imaging system for correcting image aberrations comprising a digital video camera including in-camera software, an optical lens mechanism, at least one digital sensor for capturing the digital video, an integrated circuit, a digital signal processor configured to access a database management system including a plurality of optical image aberration corrections, and a memory storage sub-system. The cameras require optical lens mechanisms to operate, as seen, for example, with the α 9:



General	Camera Type	Interchangeable-lens digital camera
	Lens Mount	E-mount
Image sensor	Aspect Ratio	3:2
	Type	35mm full frame (35.6×23.8mm), Exmor RS CMOS sensor
	Number of Pixels	Approx. 24.2 megapixels (Effective), Approx. 28.3 megapixels (Total)
	Anti-Dust System	Charge protection coating on optical filter and image sensor shift mechanism

Recording (movie)	Recording Format	XAVC S, AVCHD format Ver. 2.0 compliant, MP4
	Video Compression	XAVC S: MPEG-4 AVC/H.264, AVCHD: MPEG-4 AVC/H.264, MP4: MPEG-4 AVC/H.264
	Audio Recording Format	XAVC S: LPCM 2ch, AVCHD: Dolby Digital (AC-3) 2ch, Dolby Digital Stereo Creator, MP4: MPEG-4 AAC-LC 2ch
	Color Space	xvYCC standard (x.v.Color when connected via HDMI cable) compatible with TRILUMINOS Color
	Picture Effect	Posterization (Color, B&W), Pop Color, Retro Photo, Partial Color (R/G/B/Y), High Contrast Monochrome, Toy Camera (Normal/Cool/Warm/Green/Magenta), Soft High-key
	Creative Style	Standard, Vivid, Neutral, Clear, Deep, Light, Portrait, Landscape, Sunset, Night Scene, Autumn leaves, Black & White, Sepia, Style Box(1-6), (Contrast (-3 to +3 steps), Saturation (-3 to +3 steps), Sharpness (-3 to +3 steps))
	Image Size (Pixels), NTSC	XAVC S 4K: 3840 x 2160 (30p, 100M), 3840 x 2160 (24p, 100M), 3840 x 2160(30p, 60M), 3840 x 2160 (24p, 60M) XAVC S HD: 1920 x 1080 (120p, 100M), 1920 x 1080 (120p, 60M), 1920 x 1080 (60p, 50M), 1920 x 1080 (30p, 50M), 1920 x 1080 (24p, 50M) AVCHD: 1920 x 1080 (60p, 28M, PS), 1920 x 1080 (60i, 24M, FX), 1920 x 1080 (60i, 17M, FH), 1920 x 1080 (24p, 24M, FX), 1920 x 1080 (24p, 17M, FH) MP4: 1920 x 1080 (60p, 28M), 1920 x 1080 (30p, 16M), 1280 x 720 (30p, 6M)
	Image Size (pixels), PAL	XAVC S 4K: 3840 x 2160 (25p, 100M), 3840 x 2160 (25p, 60M) XAVC S HD: 1920 x 1080 (100p, 100M), 1920 x 1080 (100p, 60M), 1920 x 1080 (50p, 50M), 1920 x 1080 (25p, 50M) AVCHD: 1920 x 1080(50p, 28M, PS), 1920 x 1080(50i, 24M, FX), 1920 x 1080(50i, 17M, FH), 1920 x 1080 (25p, 24M, FX), 1920 x 1080 (25p, 17M, FH) MP4: 1920 x 1080 (50p, 28M), 1920 x 1080 (25p, 16M), 1280 x 720 (25p, 6M)

Source: Sony α 9 Brochure at 35.

74. On information and belief, each of the Infringing Products is further configured such that: the optical lens mechanism is a zoom lens or a fixed focal length lens; the integrated circuit uses the in-camera software to identify at least one optical image aberration and to correct the at least one optical image aberration in at least one frame of the digital video using at least one of the plurality of optical image aberration corrections in the database; the video is captured by the at least one digital sensor and is forwarded to the digital signal processor; the video image file with the at least one optical image aberration is corrected by applying digital filtration using the digital signal processor; and the corrected video consisting of the digital data optimized from the at least one optical image aberration that is corrected from the original video image is stored in the memory storage sub-system.

75. Each of the Infringing Products comprises an optical lens mechanism that is a zoom lens or a fixed focal length lens. As one example, the α 9 is used with a variety of compatible zoom or fixed focal length lenses. According to Sony, the α 9 can be used with lenses of both types:

α Lens

E-mount **G Master™**



E-mount **G Lens™**



E-mount **ZEISS®**



Source: Sony α9 Brochure at 30.

76. The Infringing Products also comprise in-camera software. For example, the α9 contains in-camera software menus for users to select:

Lens Comp.

Compensates for shading in the corners of the screen or distortion of the screen, or reduces color deviation at the corners of the screen caused by certain lens characteristics.

1 MENU → 1 (Camera Settings1) → [Lens Comp.] → desired setting.

Menu item details

Shading Comp.:

Sets whether to automatically compensate for darkness in the corners of the screen. ([Auto]/[Off])

Chromatic Aberration Comp.:

Sets whether to automatically reduce color deviation at the corners of the screen. ([Auto]/[Off])

Distortion Comp.:

Sets whether to automatically compensate for distortion of the screen. ([Auto]/[Off])

Source: *Help Guide, ILCE-9 α9 – Lens Comp.*, SONY.

77. The Infringing Products also include digital sensors. As another example, the α 9 has a digital sensor, specifically an Exmor “full-frame CMOS image sensor.” Sony α 9 Brochure at 20.

78. Sony Infringing Products use an integrated circuit (ASIC) and a digital signal processor. For example, the α 9 contains Sony’s BIONZ X image processing engine, which contains this functionality. The BIONZ X is an image processing engine that “works with the fast image sensor to achieve maximum speed and performance.” Sony α 9 Brochure at 15. Further, the BIONZ X includes a “processor and a front-end LSI,” *i.e.*, an application specific integrated circuit, to “deliver higher performance in a number of critical areas including autofocus speed and precision, and EVF display response.” *Id.*

79. The digital signal processor in each of the Infringing Products is also configured to access a database management system of optical image aberration corrections. For example, as discussed further in paragraph 81 above, the α 9 contains photo shooting functionality that automatically corrects optical aberrations based on the lens being used, which necessarily requires the use of database data stored on the α 9. Further, the camera system software that supports shooting functions like Lens Compensation can be updated via download from Sony. *See ILCE-9 System Software (Firmware) Update*, SONY.

80. The Infringing Products also use the in-camera software to identify and correct optical image aberrations in frames of digital videos. For example, as seen in paragraph 81 above, the α 9 has “lens compensation” functionality that automatically corrects certain optical image aberrations.

81. Additionally, the α 9 is capable of applying “lens compensation” to videos:

- The following settings for still image shooting are applied to the movie shooting:
 - White Balance
 - Creative Style
 - Metering Mode
 - Face/Eye Priority in AF
 - Face Priority in Multi Metering
 - D-Range Optimizer
 - Lens Comp.

Source: *Help Guide, ILCE-9 α9 – Shooting movies*, SONY.

82. Defendant has been and is now directly infringing, literally and/or under the doctrine of equivalents because without authority it makes, uses, offers to sell, sells, and/or imports within the United States the patented invention of one or more claims, including at least claim 1 of the '685 Patent. Defendant is therefore liable to OIT for patent infringement under 35 U.S.C. § 271(a).

83. Further, Defendant's customers and end users who offer for sale, sell, and/or use the Infringing Products directly infringe at least claim 1 of the '685 Patent.

84. Furthermore, Defendant has been and is now liable under 35 U.S.C. § 271(b) for actively inducing infringement of one or more claims including at least claim 1 of the '685 patent. On information and belief, as set forth below, Sony has or should have had actual notice of the disclosures in the '685 Patent since at least 2010. Additionally, Sony has had actual notice of the '685 Patent since at least its receipt of OIT's complaint. Despite such knowledge, Sony has intended that its customers and end users infringe the '685 Patent by selling, offering for sale, importing, and/or using the Infringing Products in the United States, and has actively induced such infringement by instructing users in the United States to practice '685 patent claims in their user manuals, posted videos and/or other materials with knowledge of the '685 patent as set forth in this complaint and with knowledge of the '685 patent since at least the time Sony became aware of the '685 Patent.

85. Further, Defendant has been and is now liable under 35 U.S.C. § 271(c) because it offers to sell or sells within the United States or imports into the United States a component of a machine patented by one or more claims of the '685 Patent as set forth above that constitutes a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

86. As a result of Defendant's infringement of the '685 Patent, OIT has suffered and continues to suffer damages. Thus, OIT is entitled to recover from Defendant the damages OIT sustained as a result of Sony's wrongful and infringing acts in an amount no less than a reasonable royalty, together with interest and costs fixed by this Court under 35 U.S.C. § 284.

87. OIT has suffered damage because of the infringing activities of Defendant, its officers, agents, servants, employees, associates, partners, and other persons who are in active concert or participation therewith, and OIT will continue to suffer irreparable harm for which there is no adequate remedy at law unless this Court preliminarily and permanently enjoins Defendant's infringing activities.

88. Defendant's infringement of the '685 Patent was, is, and continues to be deliberate and willful. The '805 Patent application with the same specification as the '685 patent was published on July 24, 2008, and the related '805 Patent issued on November 3, 2009. On information and belief, Sony has had actual notice of the disclosures in the '685 Patent at least as early as July 23, 2010, when the '805 Patent was cited as prior art during the prosecution of one of Sony's own patent applications, U.S. Patent App. No. 11/907,201, which issued as U.S. Patent No. 7,834,915. Thus, Sony was informed of the disclosures of the '685 Patent, but continued to infringe,

nonetheless. Moreover, Sony was and is on notice of the '685 Patent at least as early as the filing of the Complaint in this lawsuit, yet Defendant continued and continues to infringe the '685 Patent.

COUNT IV

(Infringement of the '266 Patent)

89. Plaintiff incorporates and re-alleges the allegations contained in paragraphs 1 through 88 herein by reference.

90. The '266 Patent entitled "Digital camera with wireless image transfer" was duly and legally issued by the U.S. Patent and Trademark Office on December 29, 2020, from Application No. 16/692,972, claiming priority to the '805 Patent application as well as the provisional application 60/807,065 filed on Jul. 11, 2006. A true and accurate copy of the '266 Patent is attached hereto as Exhibit D.

91. Each and every claim of the '266 Patent is valid and enforceable, and each enjoys a statutory presumption of validity under 35 U.S.C. § 282.

92. OIT exclusively owns all rights, title, and interest in and to the '266 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present and future infringement.

93. Representative claim 1 of the '266 Patent recites:

A method of processing one or more images with a digital camera, comprising:
digitally processing at least one captured image, the processing using in-camera hardware and software that is configured to:
perform a plurality of image correction algorithms,
process image correction data stored in a database system,
receive updated software and image correction data, and
upgrade the digital camera with the updated software and image correction data;
storing in memory one or more corrected images resulting from digitally processing the at least one captured image; and
wirelessly transmitting at least one of the one or more corrected images, wherein the in-camera software and database system are upgradable to provide improved algorithms and correction data for correction of images.

94. Each Infringing Product is a digital camera that is configured to process one or more images as seen, for example, with the $\alpha 9$:



General	Camera Type	Interchangeable-lens digital camera
	Lens Mount	E-mount
Image sensor	Aspect Ratio	3:2
	Type	35mm full frame (35.6×23.8mm), Exmor RS CMOS sensor
	Number of Pixels	Approx. 24.2 megapixels (Effective), Approx. 28.3 megapixels (Total)
	Anti-Dust System	Charge protection coating on optical filter and image sensor shift mechanism
Recording (still images)	Recording Format	JPEG (DCF Ver. 2.0, Exif Ver. 2.31, MPF Baseline compliant), RAW (Sony ARW 2.3 format)
	Image Size (pixels) [3:2]	35mm full frame L: 6000 x 4000 (24M), M: 3936 x 2624 (10M), S: 3008 x 2000 (6.0M), APS-C L: 3936 x 2624 (10M), M: 3008 x 2000 (6.0M), S: 1968 x 1312 (2.6M)
	Image Size (pixels) [16:9]	35mm full frame L: 6000 x 3376 (20M), M: 3936 x 2216 (8.7M), S: 3008 x 1688 (5.1M), APS-C L: 3936 x 2216 (8.7M), M: 3008 x 1688 (5.1M), S: 1968 x 1112 (2.2M)
	Image Quality Modes	RAW, RAW & JPEG, JPEG Extra fine, JPEG Fine, JPEG Standard
	Picture Effect	8 types: Posterization (Color, B&W), Pop Color, Retro Photo, Partial Color (R/G/B/Y), High Contrast Monochrome, Toy Camera (Normal/Cool/Warm/Green/Magenta), Soft High-key, Rich-tone Monochrome
	Creative Style	Standard, Vivid, Neutral, Clear, Deep, Light, Portrait, Landscape, Sunset, Night Scene, Autumn leaves, Black & White, Sepia, Style Box (1-6), (Contrast (-3 to +3 steps), Saturation (-3 to +3 steps), Sharpness (-3 to +3 steps))
	Dynamic Range Functions	Off, Dynamic Range Optimizer (Auto/Level (1-5)), Auto High Dynamic Range (Auto Exposure Difference, Exposure Difference Level (1-6 EV, 1.0 EV step))
	Color Space	sRGB standard (with sYCC gamut) and Adobe RGB standard compatible with TRILUMINOS Color
	RAW Output	Yes
	Uncompressed RAW	Yes

Source: Sony $\alpha 9$ Brochure at 35.

95. On information and belief, each of the Infringing Products is further configured to digitally process at least one captured image, the processing using in-camera hardware and software that is configured to perform a plurality of image correction algorithms, process image correction data stored in a database system, receive updated software and image correction data, and upgrade the digital camera with the updated software and image correction data.


96. On information and belief, each of the Infringing Products is further configured to store in memory one or more corrected images resulting from digitally processing the at least one captured image and wirelessly transmit at least one or more corrected images. On information and belief, each of the Infringing Products is also further configured such that the in-camera software and database system are upgradable to provide improved algorithms and correction data for correction of images.

97. The Infringing Products contain in-camera hardware and software for image processing. As one example, the $\alpha 9$ has a digital sensor for processing images, specifically an Exmor “full-frame CMOS image sensor.” Sony $\alpha 9$ Brochure at 20. The $\alpha 9$ also contains Sony’s BIONZ X image processing engine. The BIONZ X is an image processing engine that “works with the fast image sensor to achieve maximum speed and performance.” Sony $\alpha 9$ Brochure at 15. Further, the BIONZ X includes a “processor and a front-end LSI,” *i.e.*, an application specific integrated circuit, to “deliver higher performance in a number of critical areas including autofocus speed and precision, and EVF display response.” *Id.*

98. The hardware and software components of the Infringing Products also perform a plurality of image correction algorithms. For example, the $\alpha 9$ contains “lens compensation” functionality, which automatically applies in-camera corrections for a variety of optical aberrations:

Lens Comp.

Compensates for shading in the corners of the screen or distortion of the screen, or reduces color deviation at the corners of the screen caused by certain lens characteristics.

1 MENU →  1 (Camera Settings1) → [Lens Comp.] → desired setting.

Menu item details

Shading Comp.:

Sets whether to automatically compensate for darkness in the corners of the screen. ([Auto]/[Off])

Chromatic Aberration Comp.:

Sets whether to automatically reduce color deviation at the corners of the screen. ([Auto]/[Off])

Distortion Comp.:

Sets whether to automatically compensate for distortion of the screen. ([Auto]/[Off])

Source: *Help Guide, ILCE-9 α9 – Lens Comp.*, SONY.

99. Sony Infringing Products also store and use database data for lens aberration correction. For example, as discussed further in paragraph 106 above, the α9 contains photo shooting functionality that automatically corrects optical aberrations based on the lens being used, which necessarily requires the use of database data stored on the α9. Further, the camera system software that supports shooting functions like Lens Compensation can be updated via download from Sony. See *ILCE-9 System Software (Firmware) Update*, SONY.

100. The Infringing Products also store the corrected images in memory. For example, the α9 automatically creates a storage folder in memory, to which images are recorded:

Folder Name

Still images are recorded in a folder that is automatically created inside the DCIM folder on the memory card. You can change the way folder names are assigned.

1 MENU →  (Setup) → [Folder Name] → desired setting.

Menu item details

Standard Form:

The folder name form is as follows: folder number + MSDCF.

Example: 100MSDCF

Date Form:

The folder name form is as follows: folder number + Y (the last digit)/MM/DD.

Example: 10090405(Folder number: 100, date: 04/05/2019)

Source: *Help Guide, ILCE-9 α9 – Folder Name*, SONY.

101. The Infringing Products are also configured to wirelessly transmit the corrected images. For example, the α9 is configured to interact with Sony's PlayMemories camera apps to wirelessly transmit corrected images to phones or computers:

Wi-Fi, NFC™, and QR Code



With one-touch remote, a smartphone or tablet functions as a viewfinder/remote control. One-touch sharing transfers photos/videos to the device. Just install a PlayMemories Mobile™ app via Wi-Fi to an NFC-enabled Android device, then touch the device to the camera to connect them. The camera also introduces QR code compatibility for easy connection with non-NFC smartphones.

PlayMemories Home™

It's easy to install this image management software onto a Windows or Mac computer, then use it for easy viewing, editing and printing. You can also upload and share content via network services.

Note: Features are different on Mac and Windows versions.



PlayMemories Mobile™

The PlayMemories Mobile app can be installed on a compatible smartphone or tablet to provide remote camera control and easy image transfer from the camera to the mobile device. The new PlayMemories Mobile version provides updated remote camera control, with the same operability as available on the camera itself.



Source: Sony α9 Brochure at 27.

102. Defendant has been and is now directly infringing, literally and/or under the doctrine of equivalents because without authority it makes, uses, offers to sell, sells, and/or imports within the United States the patented invention of one or more claims, including at least claim 1 of the '266 Patent. Defendant is therefore liable to OIT for patent infringement under 35 U.S.C. § 271(a).

103. Further, Defendant's customers and end users who offer for sale, sell, and/or use the Infringing Products directly infringe at least claim 1 of the '266 Patent.

104. Furthermore, Defendant has been and is now liable under 35 U.S.C. § 271(b) for actively inducing infringement of one or more claims including at least claim 1 of the '266 patent.

On information and belief, as set forth below, Sony has or should have had actual notice of the
 PLAINTIFF'S ORIGINAL COMPLAINT
 FOR PATENT INFRINGEMENT

disclosures in the '266 Patent since at least 2010. Additionally, Sony has had actual notice of the '266 Patent since at least its receipt of OIT's complaint. Despite such knowledge, Sony has intended that its customers and end users infringe the '266 Patent by selling, offering for sale, importing, and/or using the Infringing Products in the United States, and has actively induced such infringement by instructing users in the United States to practice '266 patent claims in their user manuals, posted videos and/or other materials with knowledge of the '266 patent as set forth in this complaint and with knowledge of the '266 patent since at least the time Sony became aware of the '266 Patent.

105. Further, Defendant has been and is now liable under 35 U.S.C. § 271(c) because it offers to sell or sells within the United States or imports into the United States a component of a machine patented by one or more claims of the '266 Patent as set forth above that constitutes a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

106. As a result of Defendant's infringement of the '266 Patent, OIT has suffered and continues to suffer damages. Thus, OIT is entitled to recover from Defendant the damages OIT sustained as a result of Sony's wrongful and infringing acts in an amount no less than a reasonable royalty, together with interest and costs fixed by this Court under 35 U.S.C. § 284.

107. OIT has suffered damage because of the infringing activities of Defendant, its officers, agents, servants, employees, associates, partners, and other persons who are in active concert or participation therewith, and OIT will continue to suffer irreparable harm for which there is no adequate remedy at law unless this Court preliminarily and permanently enjoins Defendant's infringing activities.

108. Defendant's infringement of the '266 Patent was, is, and continues to be deliberate and willful. The '805 Patent application with the same specification as the '266 patent was published on July 24, 2008, and the related '805 Patent issued on November 3, 2009. On information and belief, Sony has had actual notice of the disclosures in the '266 Patent at least as early as July 23, 2010, when the '805 Patent was cited as prior art during the prosecution of one of Sony's own patent applications, U.S. Patent App. No. 11/907,201, which issued as U.S. Patent No. 7,834,915. Thus, Sony was informed of the disclosures of the '266 Patent, but continued to infringe, nonetheless. Moreover, Sony was and is on notice of the '266 Patent at least as early as the filing of the Complaint in this lawsuit, yet Defendant continued and continues to infringe the '266 Patent.

CONCLUSION

109. Defendant has directly, indirectly, and/or contributorily infringed on Plaintiff's rights as owner of the Asserted Patents. Plaintiff is entitled to recover from Defendant the damages sustained by Plaintiff as a result of Defendant's wrongful acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

110. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

JURY DEMAND

111. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

112. Plaintiff requests that the Court find in its favor and against Defendant, and that the Court grant Plaintiff the following relief:

1. A judgment that Defendant has infringed the Asserted Patents as alleged herein, directly, indirectly, and/or contributorily;
2. A judgment that Defendant's infringement of the Asserted Patents was deliberate and willful;
3. A judgment for an accounting of damages sustained by Plaintiff as a result of the acts of infringement by Defendant;
4. A judgment and order requiring Defendant to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
5. A judgment and order requiring Defendant to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
6. A judgment and order finding this to be an exceptional case and requiring Defendant to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
7. Such other and further relief as the Court deems just and equitable.

Dated: October 18, 2023

Respectfully submitted,

/s/ E. Leon Carter

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