IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

CLEAR IMAGING RESEARCH, LLC,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC.,

Defendants.

Case No. 2:19-cv-00326-JRG

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

Before the Court is the opening claim construction brief of Clear Imaging Research, LLC ("Plaintiff") (Dkt. No. 82, filed on August 14, 2020),[1] the response of Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively "Defendants") (Dkt. No. 91, filed on August 31, 2020[2]), and Plaintiff's reply (Dkt. No. 95, filed on September 4, 2020). The Court held a hearing on the issues of claim construction and claim definiteness on October 14, 2020. Having considered the arguments and evidence presented by the parties at the hearing and in their briefing, the Court issues this Order.

[1] Citations to the parties' filings are to the filing's number in the docket (Dkt. No.) and pin cites are to the page numbers assigned through ECF.
[2] The brief was originally filed on August 28, 2020 as Dkt. No. 90.

Table of Contents

I. BACKGROUND

Plaintiff alleges infringement of six U.S. Patents No. 8,630,484 (the "'484 Patent"), No. 9,154,699 (the "'699 Patent"), No. 9,392,175 (the "'175 Patent"), No. 9,860,450 (the "'450 Patent"), No. 10,171,740 (the "'740 Patent"), and No. 10,389,944 (the "'944 Patent") (collectively, the "Asserted Patents"). The Asserted Patents are related through continuation applications. Each of the Asserted Patents claims priority to U.S. Application No. 11/089,081, which issued as U.S. Patent No. 8,331,723, and to U.S. Application No. 60/556,230. The earliest claimed priority date is March 25, 2004.

In general, the Asserted Patents are directed to technology for addressing image blur. The patents disclose various ways of addressing blur. For example, the patents describe modeling the detected image signal (including any blur) (r) as a convolution of the real image signal (s) with a transfer function (h):

$$r(n,m) = s(n,m) ** h(n,m)$$

'484 Patent col.4 ll.12–24. Here "n" and "m" represent the coordinates in a 2-dimensional space and "h(n,m) describes the way the image 'travels' on the recording medium while it is captured." *Id*. The blur is due to light from a point on the subject traveling across multiple points on the recording medium during image capture, thus spreading the image beyond the accurate extent of the subject. *Id*. at col.3 l.66 – col.4 l.3. The patents teach correcting for blur by using an inverse transfer function (h^{-1}) to extract the real image (s) from the recorded image (r). *Id*. at col.4 l.39 – col.5 l.6. In one embodiment, the transfer function (h) is determined using motion sensors to measure the motion of the imager relative to the image subject during the image capture. The inverse transfer function (h^{-1}) can be derived from the transfer function (h). *Id*. at col.5 l.29 – col.7

l.65. In another embodiment, an estimated (or "blind") transfer function is used. *Id*. at col.7 l.66 – col.8 l.14.

The patents also teach preventing blur at acquisition by acquiring multiple images using a "shutter speed [that] is sufficiently fast compared to the motion of the imager" relative to the subject and then combining the images into a single image to increase the signal-to-noise ratio (SNR). *Id*. at col.9 l.28 – col.10 l.13. In one embodiment, the multiple images are aligned to correct for the relative motion of the camera and subject using data acquired with motion sensors on the imager. *Id*. at col.10 ll.14–30. In another embodiment, the multiple images are aligned using subject pattern recognition, a subject tracking signal, or user input to determine the position of the subject in the images. *Id*. at col.10 ll.31–48.

The patents also teach repositioning the image sensor during capture according to the inverse transfer function in order to compensate for the relative motion of the imager and subject. *Id*. at col.10 l.49 – col.11 l.6. This approach "makes use of motion sensors, and detects the movement of the camera and/or the subject while the image is being captured." *Id*. at col.10 ll.57–60.

Finally, the patents teach that "where appropriate, the different embodiments of the invention can be combined. For example, the superposition embodiment can be used to avoid most blur, and the correcting filter using blind estimation embodiment can then be applied to correct the combined image for any remaining blur." *Id*. at col.11 ll.22–27.

The abstract of the '484 Patent provides:

> Signal processing techniques are applied to digital image data to remove the distortion caused by motion of the camera, or the movement of the subject being photographed, or defective optics, or optical distortion from other sources. When the image is captured, the effect of relative motion between the camera and the subject is that it transforms the true image into a blurred image according to a 2-dimensional transfer function. The 2-dimensional transfer function representing the motion is derived using blind estimation techniques or by using information from sensors that detect the motion. The transfer function is inverted and used to define

> a corrective filter. The filter is applied to the image and the blur due to the motion is removed, restoring the correct image. Another embodiment uses the transfer function to avoid blur by combining multiple consecutive images taken at a fast shutter speed.

The abstracts of the '699, '175, and '740 Patents provide:

> A method and apparatus for use in a digital imaging device for correcting image blur in digital images by combining plurality of images. The plurality of images that are combined include a main subject that can be selected by user input or automatically by the digital imaging device. Blur correction can be performed to make the main subject blur-free while the rest of the image is blurred. All of the image may be made blur-free or the main subject can be made blur-free at the expense of the rest of the image. Result is a blur corrected image that is recorded in a memory.

The abstract of the '450 Patent provides:

> The effect of camera shake in digital video is corrected using signal processing techniques. The digital video is a sequence of digital images. When the sequence of digital images are being captured, movement of the imaging device causes the images to shift on the image sensor of the imaging device and affects the quality of the eventual video. Movement of the imaging device is detected while the video is being captured, and a motion information representing the motion is recorded. A processor determines a correcting filter based on the motion information and user input. The processor modifies the sequence of images captured according to the correcting filter and obtains a final corrected video. Corrected video is displayed in a viewfinder.

The abstract of the '944 Patent provides:

> The effect of blur in digital images of an imaging device is corrected by displaying a preview image of a scene to be captured in a user interface of a device. A user input designates a first subject in the preview image and a plurality of images that include the first subject and a second subject are captured. The plurality of images are processed to obtain a combined image, taking into account at least one of a focal length of a lens of the imaging device and a zoom level of a lens of the imaging device, and the combined image includes the first subject and the second subject, the first subject in the combined image is substantially blur free, and the second subject in the combined image is blurred com- pared to the first image. The combined image is stored in a memory of the device.

Claim 1 of the '484 Patent and Claim 14 of the '450 Patent, exemplary method and device claims respectively, recite as follows (with terms in dispute emphasized):

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.