

Infringement Claim Chart for Samsung OH-Series Outdoor Display Products

Claim Chart for U.S. Patent No. 10,506,740
Samsung OH75 / OH85

Samsung Products directly and/or indirectly infringe at least claims 1, 5, and 6 (“Asserted Claims”) of U.S. Patent No. 10,506,740 (“the ’740 Patent”). The Samsung Products that infringe the ’740 Patent include at least the Samsung 75- and 85-inch OH series displays (collectively, the “Samsung OH75/OH85 Products”).

The Samsung OH75/OH85 Products infringe the ’740 Patent because they practice at least one claim of the ’740 Patent. The Samsung OH85F product is representative of the Samsung OH75/OH85 Products at least because the other Samsung OH75/OH85 Products function in the same or substantially similar manner to the OH85F product. Samsung’s marketing, customer support, and other technical information describe the relevant aspects of the Samsung OH75/OH85 Products in the same or substantially similar manner for the Samsung OH75F/OH85F Products. *See* Samsung Outdoor Installation Guide, Ex. 87, p. 4 (depicting airflow direction for Samsung OH75A/OH75F/OH85F models); Samsung Smart Signage User Manual, Ex. 88, p. 5 (depicting air inlet and outlets for Samsung OH85N models). Thus, on information and belief, the Samsung OH75/OH85 Products implement cooling systems in the same or substantially similar way as the OH85F product.

Each of the following limitations is met literally, and, to the extent a limitation is not met literally, it is met under the doctrine of equivalents.

References:

- Samsung Outdoor Installation Guide for OH46F OH55A OH75A OH75F OH85F models (Ex. 87)
- Samsung Smart Signage User Manual for OH85N OH85N-DK OH85N-DJ models (Ex. 88)
- Product teardown photos for Samsung OH85F (Ex. 92)
- Samsung OH85F user manual (Ex. 100)
- Samsung OH85F product webpage <https://displaysolutions.samsung.com/digital-signage/detail/1085/OH85F> (Ex. 95)
- Samsung OH85N product webpage <https://www.samsung.com/us/business/displays/outdoor-and-window/oh-series/ohn-series-85-lh85ohnskgb-za/> (Ex. 97)
- Samsung OH75A product webpage <https://www.samsung.com/us/business/displays/outdoor-and-window/oh-series/oha-series-75-lh75ohaebgbxza/> (Ex. 98)
- Samsung SMART Signage Outdoor OHF Series Datasheet (Ex. 101)

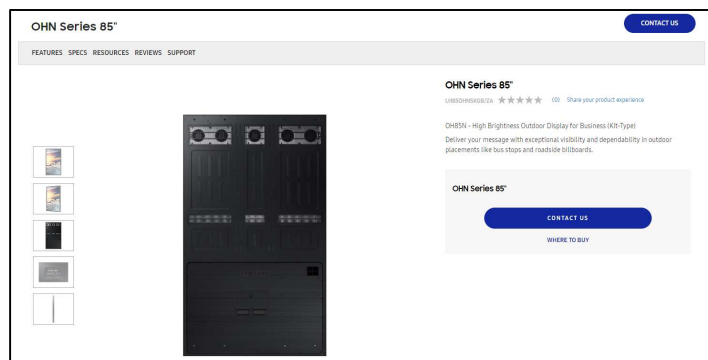
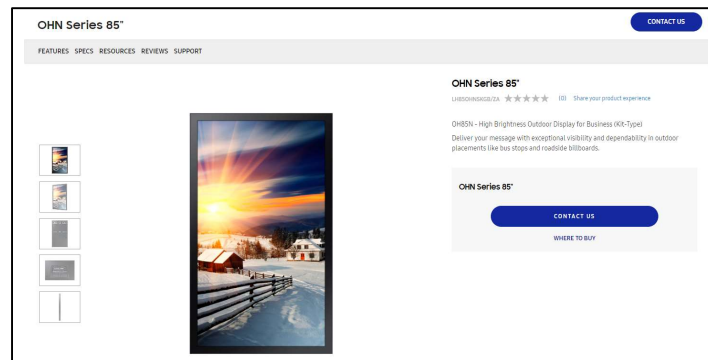
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The Samsung OH85F is shown in the following images:



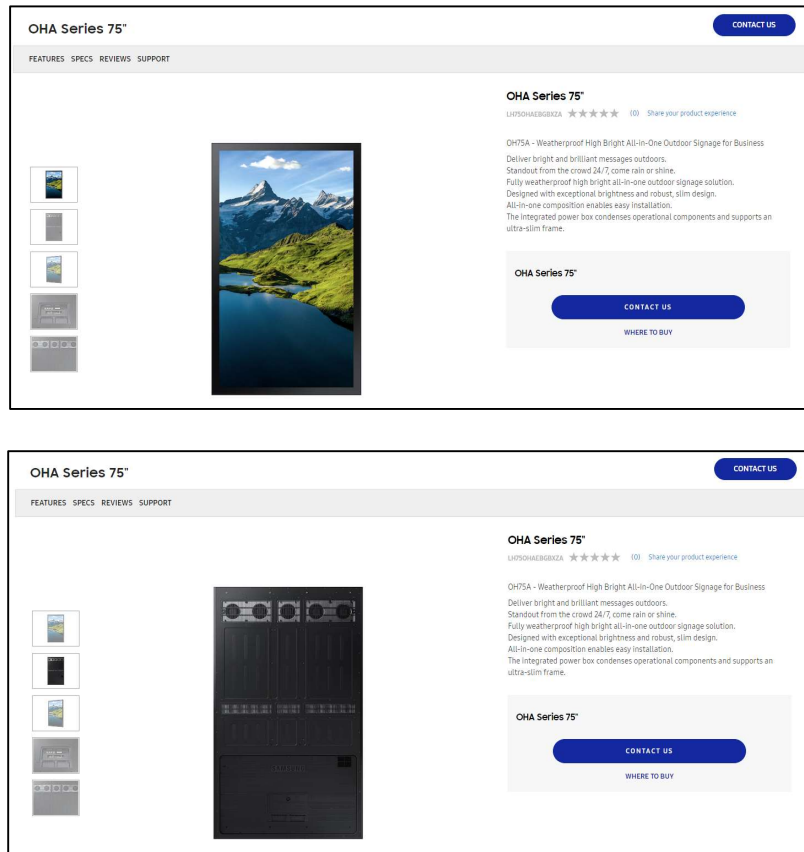
See Samsung OH85F product webpage, <https://displaysolutions.samsung.com/digital-signage/detail/1085/OH85F> (Ex. 95).

Samsung provides similar images on its website for other 75-inch and 85-inch OH series displays, including, for example, the Samsung OH85N and OH75A outdoor displays.



See Samsung OH85N product webpage, <https://www.samsung.com/us/business/displays/outdoor-and-window/oh-series/ohn-series-85-lh85ohnskgb-za/> (Ex. 97).

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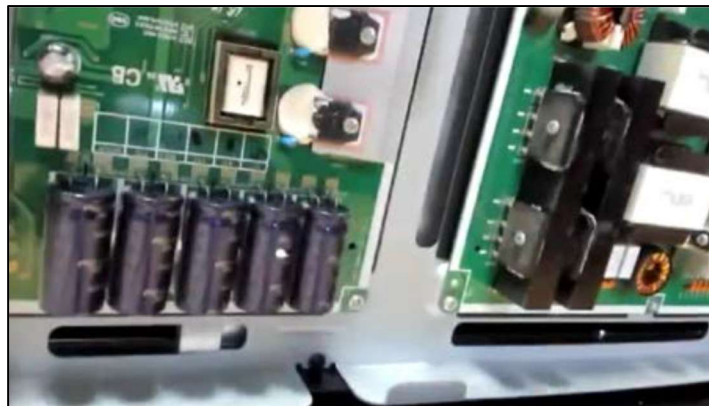
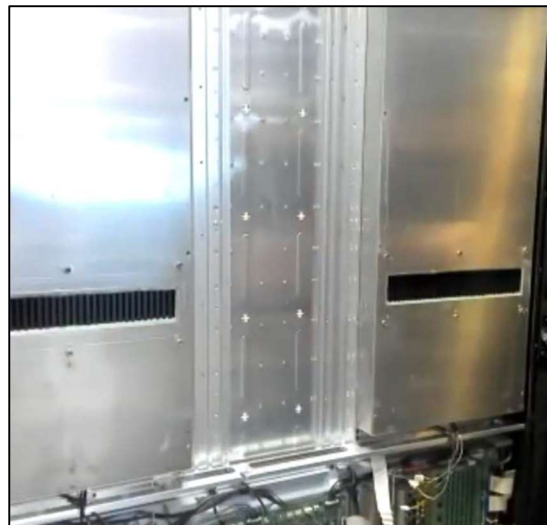
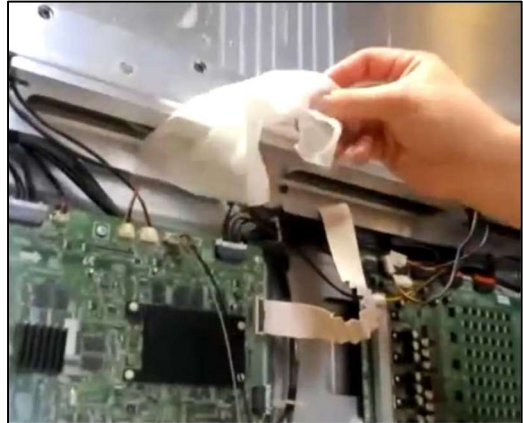
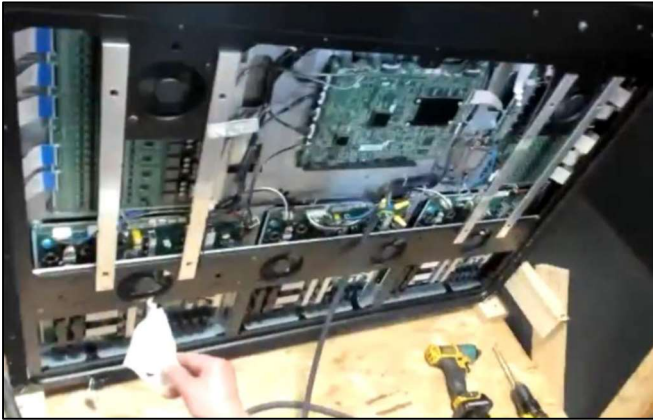
See Samsung OH75A product webpage,
<https://www.samsung.com/us/business/displays/outdoor-and-window/oh-series/oha-series-75-lh75ohaebgbxza/> (Ex. 98).

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A teardown of a Samsung OH85F product reveals further detail:



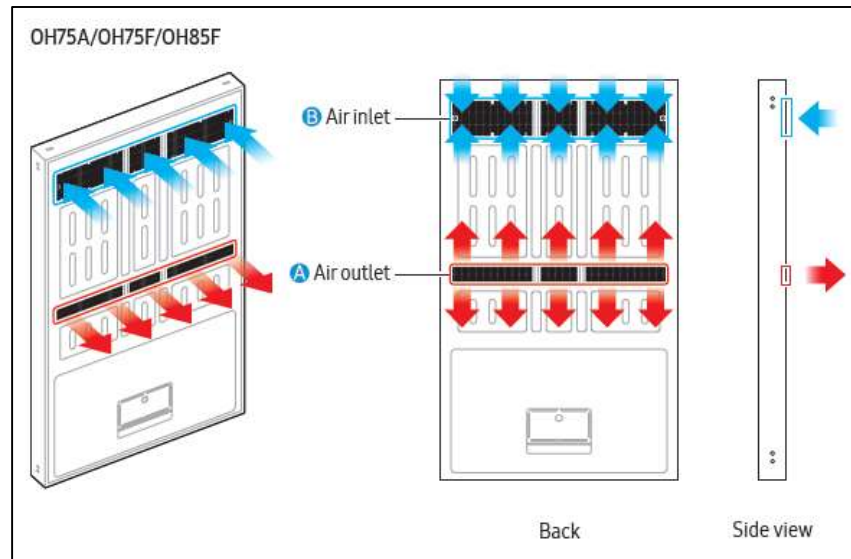
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See Ex. 92.

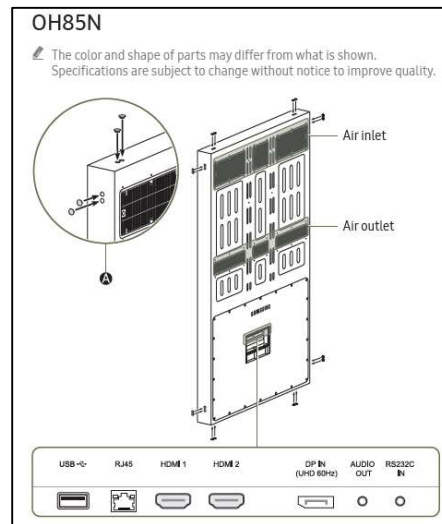
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The Samsung Outdoor Installation Guide (Ex. 87) shows air flow through the Samsung OH75A, OH75F, and OH85F products:



See Ex. 87, p. 4.

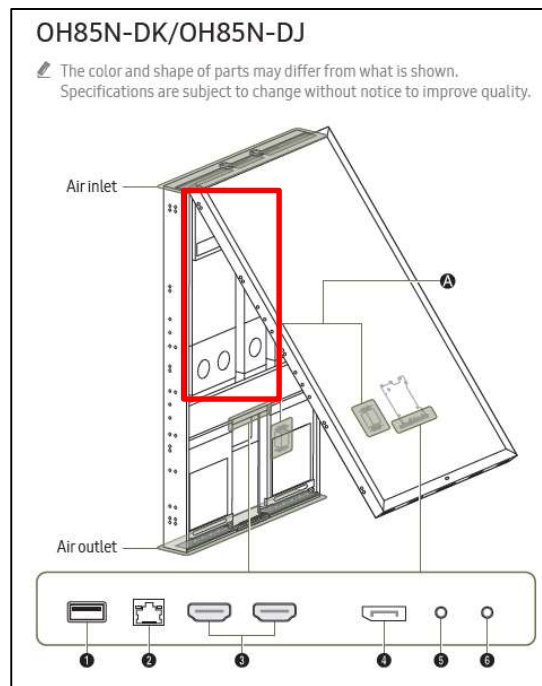
Similar air inlets and exhausts are shown for the Samsung OH85N displays:



See Samsung Smart Signage User Manual for OH85N OH85N-DK OH85N-DJ models (Ex. 88), p. 5.

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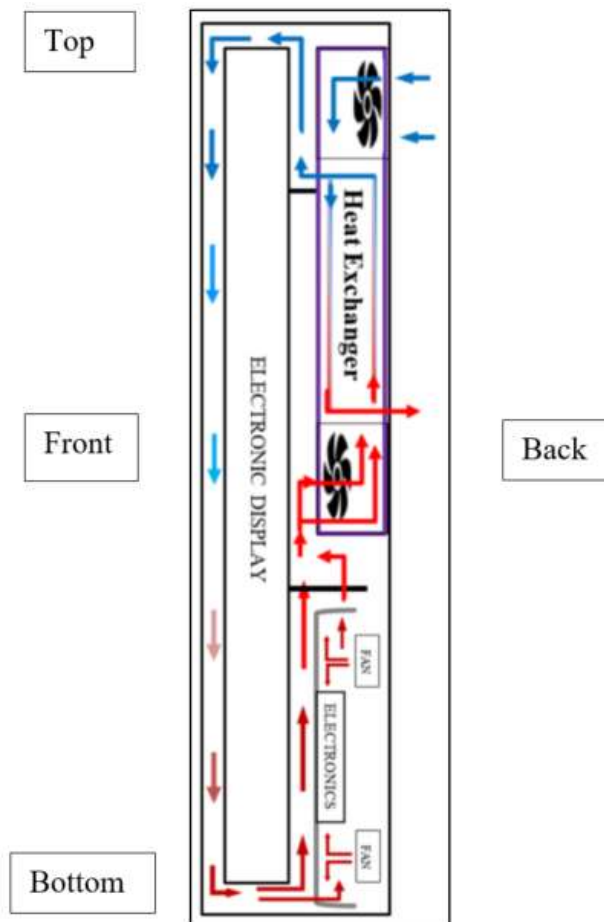
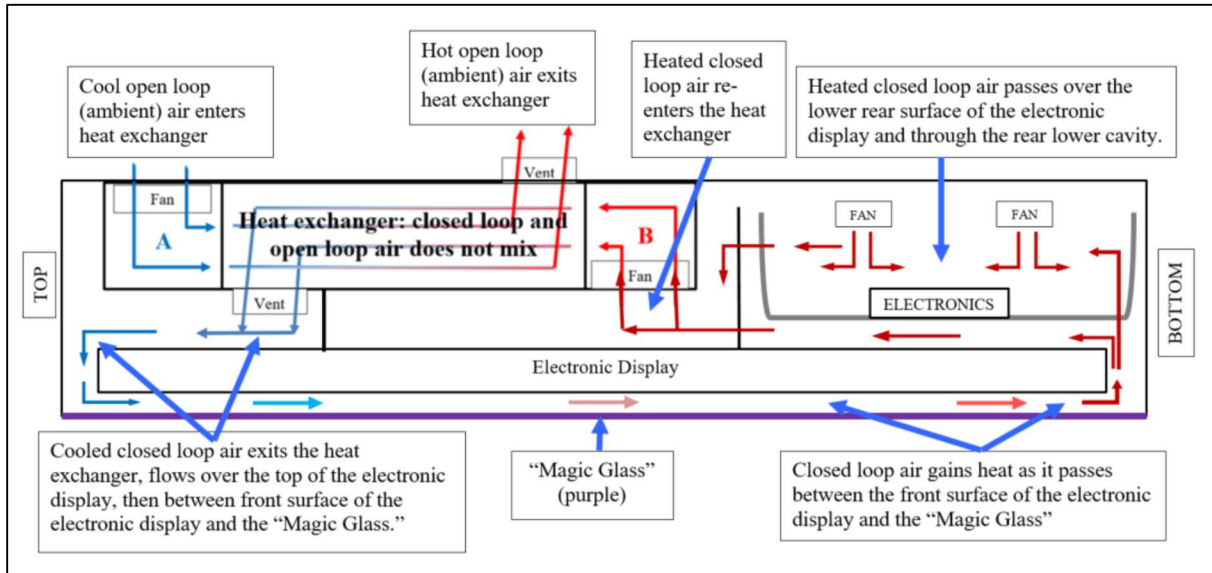
Heat exchangers that appear similar to those employed in the single-side Samsung OH75/OH85 Products also appear present in the dual-sided Samsung OH85N-DK and OH85N-DJ models:



See Samsung Smart Signage User Manual for OH85N OH85N-DK OH85N-DJ models (Ex. 88), p. 6.

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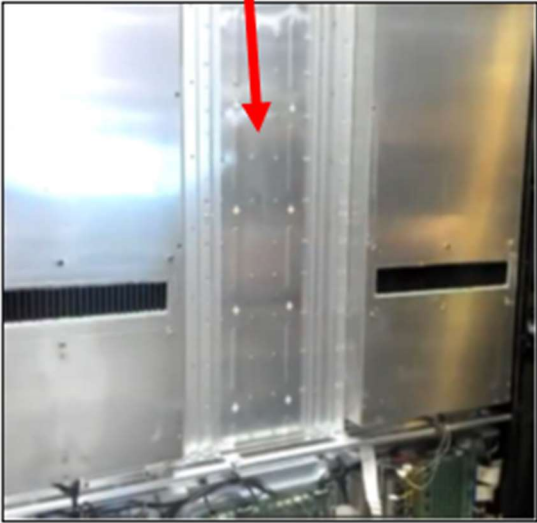
On information and belief, the following schematics illustrate aspects of the configuration and cooling operation of the Samsung OH75/OH85 Products based on a teardown of the OH85F product and Samsung materials cited above.



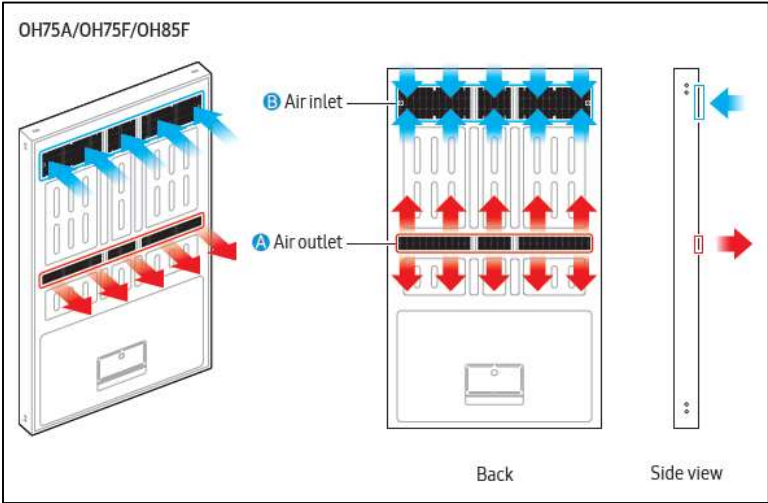
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'740 patent, claim:	Accused Product
1. An electronic display comprising:	The Samsung OH75/OH85 Products are electronic displays. The front side of an electronic display is depicted below. 

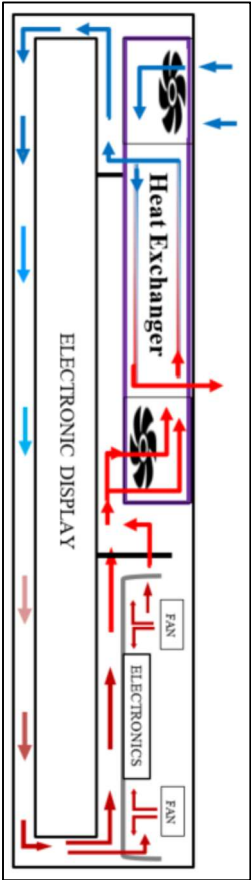
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'740 patent, claim:	Accused Product
[1a] an electronic image assembly having a front portion and a rear portion;	The Samsung OH75/OH85 Products comprise an electronic image assembly that has a front portion and a rear portion. The front portion of the electronic image assembly is visible from the front of the electronic display and is depicted below. The rear portion of the electronic image assembly is visible when the heat exchangers behind the electronic image assembly are removed. Front portion  Rear portion 

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'740 patent, claim:	Accused Product
[1b] an open loop ambient air flow path behind the rear portion of the electronic image assembly;	The Samsung OH75/OH85 Products comprise an open loop ambient airflow path behind the rear portion of the electronic image assembly. The ambient airflow path enters near the top of the unit, flows through the heat exchangers, and exits near the center of the unit. <i>See Samsung Outdoor Installation Guide (Ex. 87) at 4:</i> 

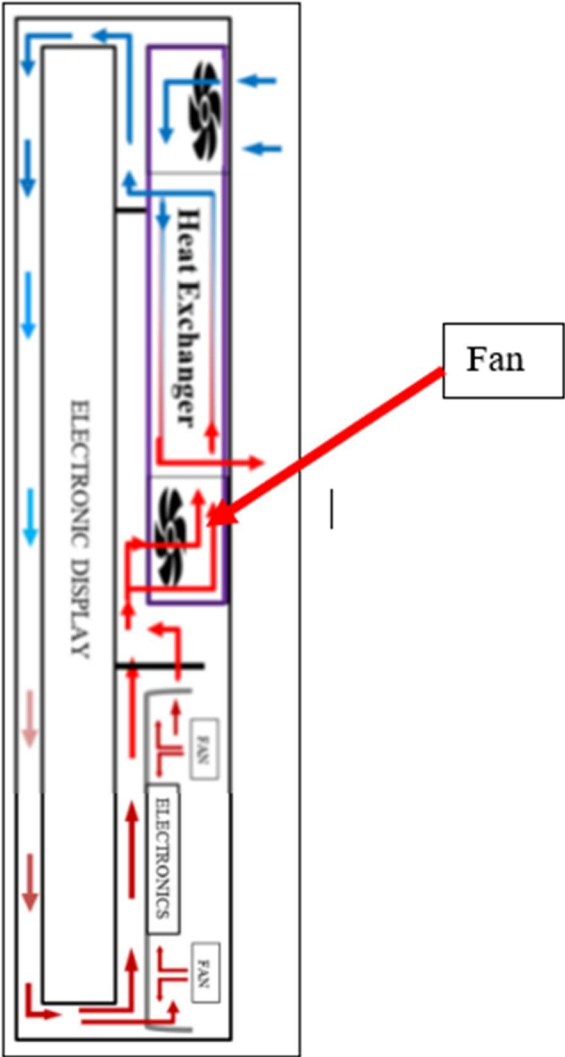
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'740 patent, claim:	Accused Product
[1c] a closed loop gas circulation path about the electronic image assembly;	The Samsung OH75/OH85 Products comprise a closed loop gas circulation path about the electronic image assembly.  The schematic of the Samsung OH75/OH85 Products illustrates the closed loop gas flow out of the heat exchangers towards the rear surface of the electronic image assembly, over the top of the electronic image assembly, down across the front surface of the electronic image assembly, under the bottom of the electronic image assembly, up the back side of the electronic image assembly, and back into the heat exchangers.

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'740 patent, claim:	Accused Product
[1d] a common heat exchanger located in the pathway of both the closed loop gas circulation path and the open loop ambient air flow path;	The Samsung OH75/OH85 Products comprise a common heat exchanger located in the pathway of both the closed loop gas circulation path and the open loop ambient air flow path. The diagram is a vertical cross-section of a device. On the left, a large vertical rectangle is labeled 'ELECTRONIC DISPLAY'. To its right is a narrower vertical section containing a 'Heat Exchanger' (a purple rectangle), a 'FAN' (a black circle with blades), and 'ELECTRONICS' (a rectangle). Below the electronics is another 'FAN'. Blue arrows indicate an 'open loop ambient air flow path' entering from the top right, passing through the heat exchanger, and exiting at the bottom. Red arrows indicate a 'closed loop gas circulation path' entering from the bottom right, passing through the heat exchanger, and exiting at the top. The heat exchanger is positioned in the center of the device, between the display and the internal components. The schematic of the Samsung OH75/OH85 Products illustrates that open loop ambient air enters a common heat exchanger from the outside of the rear side of the unit, near the top. Closed loop air enters the heat exchanger from the bottom of the heat exchanger on the side that faces the electronic image assembly.

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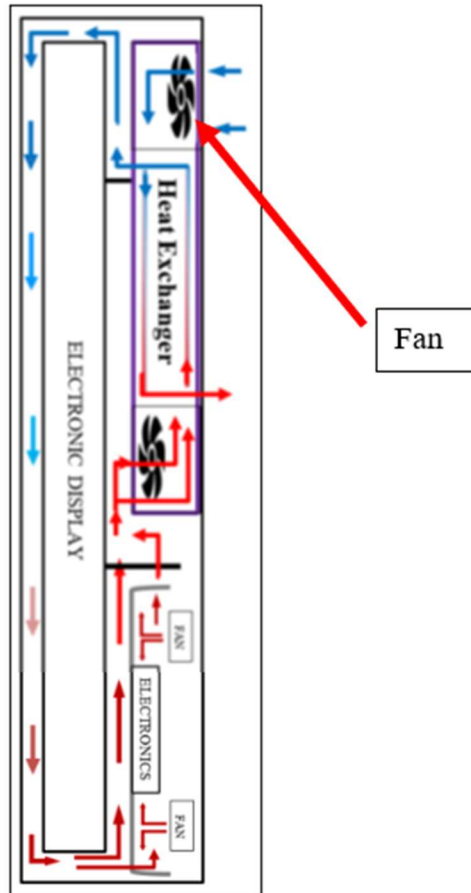
'740 patent, claim:	Accused Product
[1e] a gas circulation device positioned to force circulating gas through the common heat exchanger; and	The Samsung OH75/OH85 Products comprise a gas circulation device positioned to force circulating gas through the common heat exchanger. The schematic of the Samsung OH75/OH85 Products illustrates that fan at the bottom of the heat exchanger is a gas circulation device that forces circulating gas through the heat exchanger.  The diagram is a vertical cross-section of a device. On the left is a large vertical rectangle labeled 'ELECTRONIC DISPLAY'. To its right is a narrower vertical section containing a 'Heat Exchanger' (indicated by a purple outline and internal zig-zag lines). Below the heat exchanger is a section labeled 'ELECTRONICS'. At the very bottom is another section labeled 'FAN'. Red arrows indicate the flow of gas: entering from the bottom fan, moving up through the electronics, then through the heat exchanger, and finally exiting from the top. A separate box labeled 'Fan' with a red arrow points to the fan component within the electronics section. Blue arrows at the top indicate air intake or exhaust.

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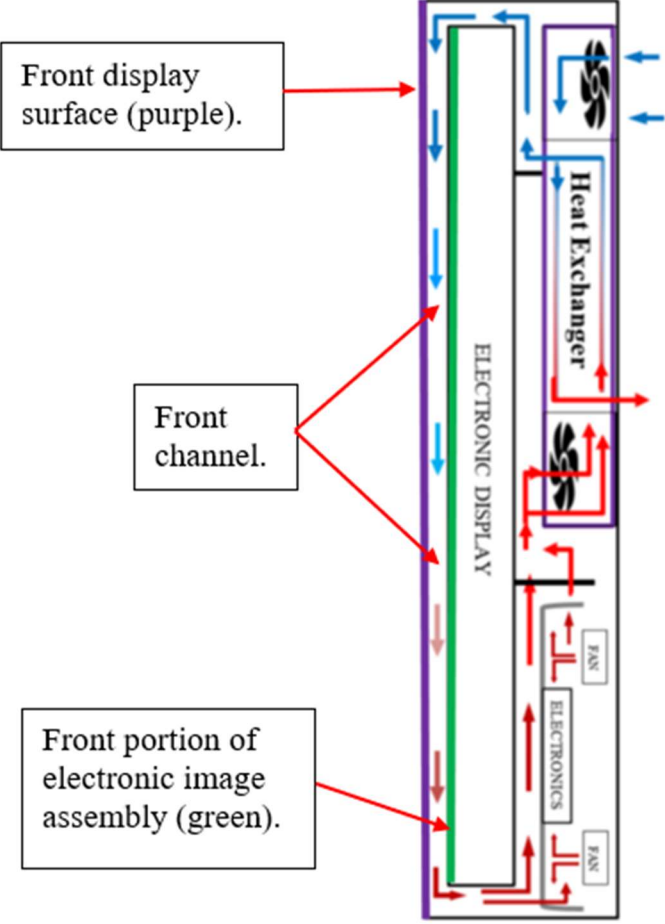
[1f] an air circulation device positioned to force ambient air through the common heat exchanger.

The Samsung OH75/OH85 Products comprise an air circulation device positioned to force ambient air through the common heat exchanger.

The schematic of the Samsung OH75/OH85 Products illustrates a fan at the top of the heat exchanger is an air circulation device that forces ambient air through the heat exchanger.



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'740 patent, claim:	Accused Product
5. The electronic display of claim 1, further comprising: a front display surface spaced apart from the front portion of the electronic image assembly; and a front channel defined by the space between the front display surface and the front portion of the electronic image assembly, the front channel forming part of the closed loop gas circulation path.	The Samsung OH75/OH85 Products comprise a front display surface spaced apart from the front portion of the electronic image assembly and a front channel defined by the space between the front display surface and the front portion of the electronic image assembly. The schematic of the Samsung OH75/OH85 Products illustrates how closed loop air flows through the front channel defined by the front surface of the electronic image assembly (green) and the front display surface (purple).  The diagram illustrates a closed loop air flow system. A front display surface (purple) is shown at the top, with a front channel defined by the space between it and the front portion of the electronic image assembly (green). Air flows through the front channel, passing through a heat exchanger and fans, and returning to the front channel. The front portion of the electronic image assembly (green) is shown at the bottom, with a front channel defined by the space between it and the front display surface (purple). The front channel forms part of the closed loop gas circulation path.

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'740 patent, claim:	Accused Product
6. The electronic display of claim 1, further comprising at least one electronic component located in the pathway of the closed loop gas circulation path, the at least one electronic component selected from the group consisting of transformers, circuit boards, resistors, capacitors, batteries, power modules, motors, inductors, illumination devices, wiring, wiring harnesses, lights, thermo-electric devices, and switches.	The Samsung OH75/OH85 Products comprise at least one electronic component located in the pathway of the closed loop gas circulation path. As shown in the image below as well as the schematic of the Samsung OH75/OH85 Products, the electronics for the electronic display are located within the closed loop path, and include one or more of the devices referenced in this claim (circuit boards, etc.).