U.S. Patent No. 7,915,117 ("'117 Patent")

Accused Products

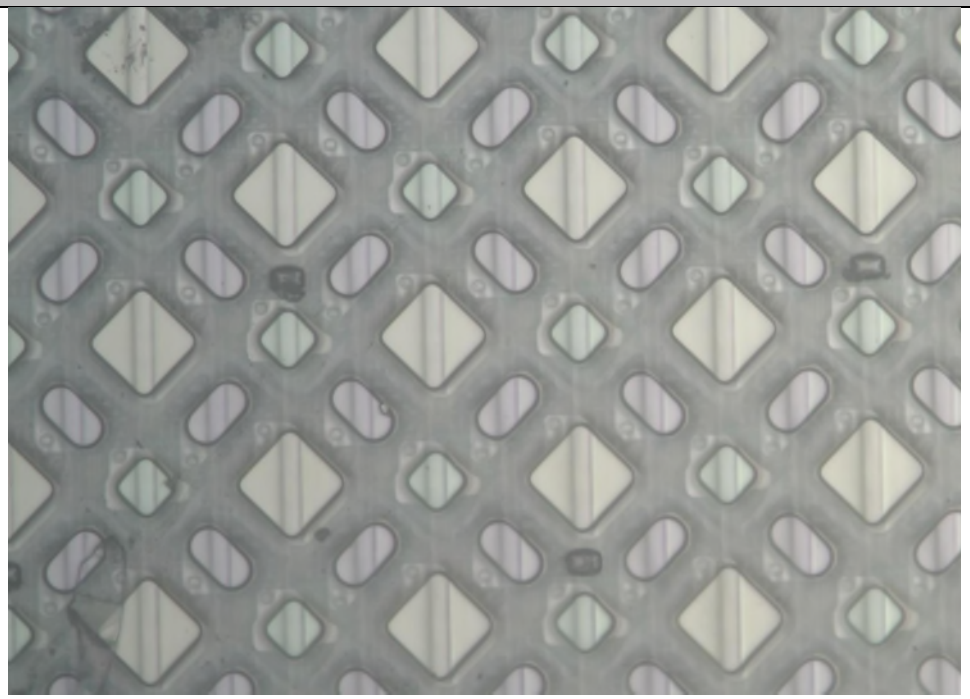
BOE products, including without limitation the BOE OLED panel supplied to Apple and included in the iPhone 13, the BOE OLED panel supplied to Apple and included in the iPhone 14, the BOE OLED panel supplied to Apple and included in the iPhone 14 Plus, the BOE OLED panel supplied to Apple and included in the iPhone 15, the BOE OLED panel supplied to Apple and included in the iPhone 15 Plus, the BOE OLED panel supplied to Motorola and included in the Moto Edge 2021, the BOE OLED panel supplied to Oneplus and included in the Oneplus 12, the BOE OLED panel supplied to Oneplus and included in the Oneplus 12R, the BOE OLED panel supplied to Valve and included in the Steam Deck Gaming Console, the BOE OLED panel supplied to Samsung and included in the Samsung Galaxy M52 5G, and all versions and variations thereof since the issuance of the asserted patent.

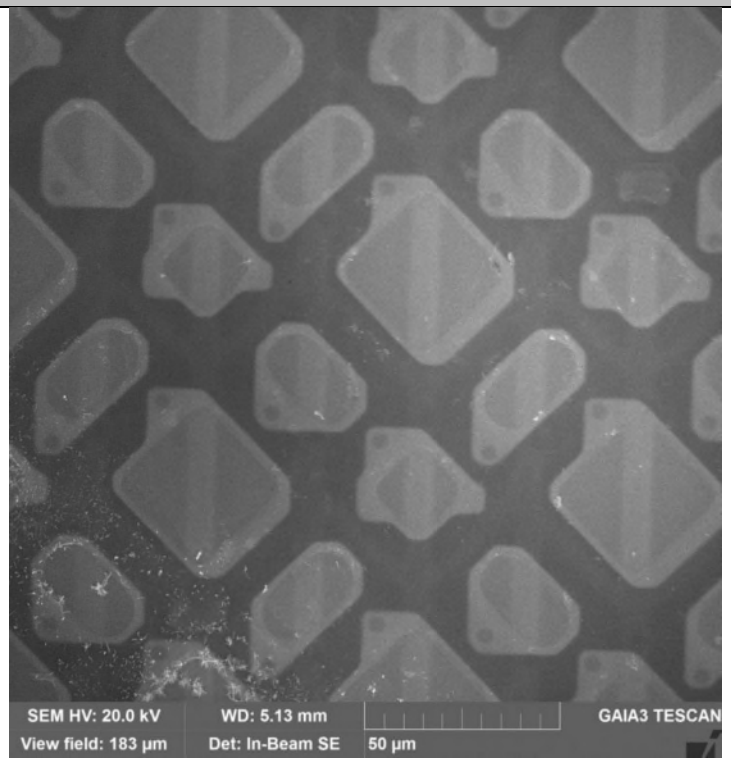
Each Accused Product infringes the claims in substantially the same way, and the evidence shown in this chart is similarly applicable to each Accused Product. Each claim limitation is literally infringed by each Accused Product. However, to the extent any claim limitation is not met literally, it is nonetheless met under the doctrine of equivalents because the differences between the claim limitation and each Accused Product would be insubstantial, and each Accused Product performs substantially the same function, in substantially the same way, to achieve the same result as the claimed invention. Notably, Defendant has not yet articulated which, if any, particular claim limitations it believes are not met by the Accused Products.

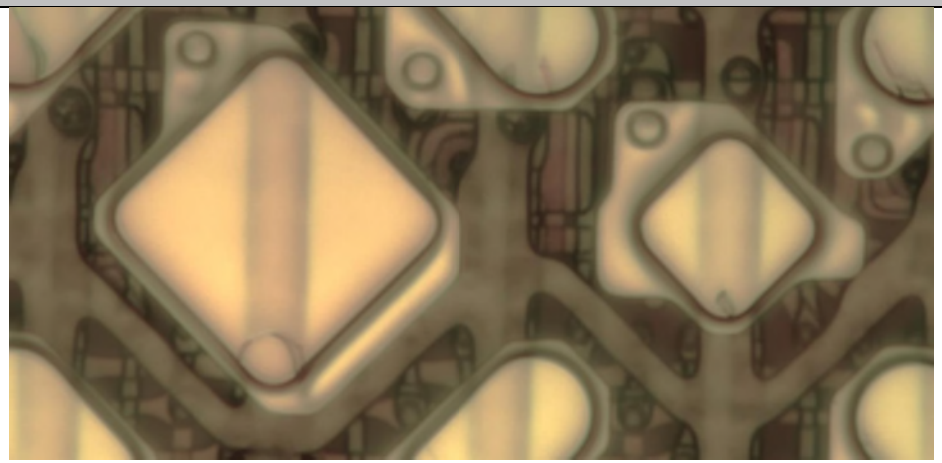
Claim 1

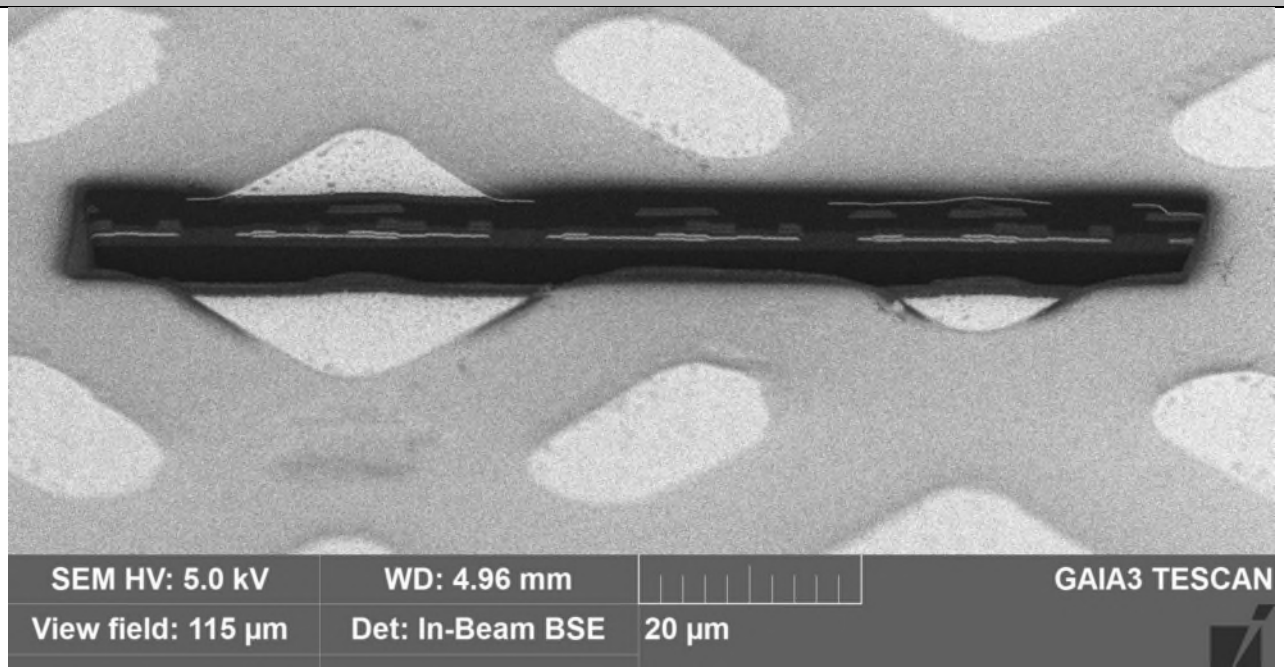
Claim 1	Accused Products
[1pre] 1. A method for forming a pixel of an electroluminescence device, comprising:	To the extent the preamble is limiting, each Accused Product is made by the claimed method for forming a pixel of an electroluminescence device. *See, e.g.*:

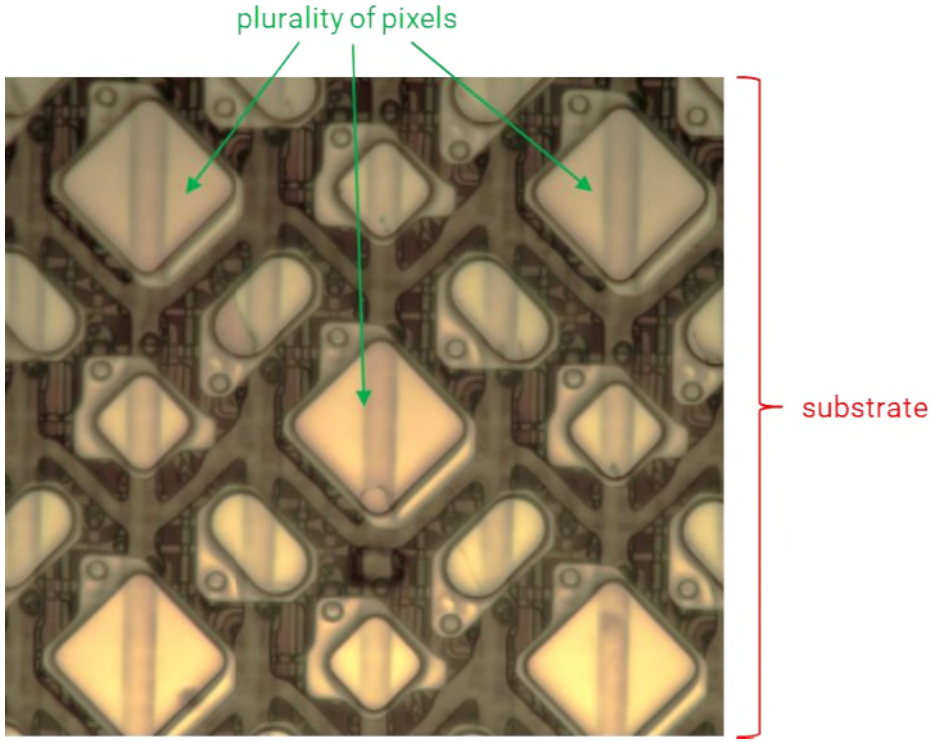
Claim 1	Accused Products
	 Publicity photo of iPhone 14 containing BOE OLED panel.

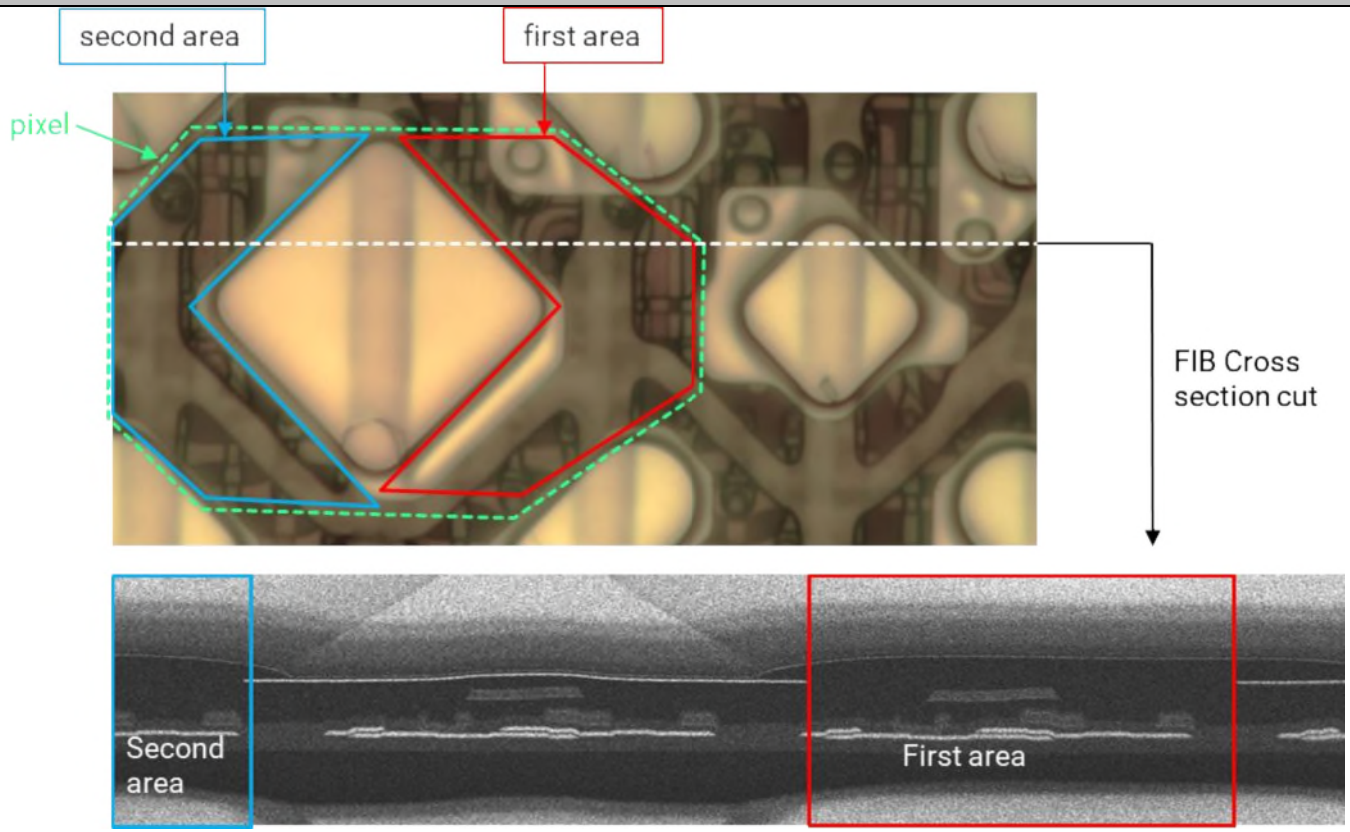
Claim 1	Accused Products
	 Photograph of BOE OLED panel in iPhone 14 (front view).

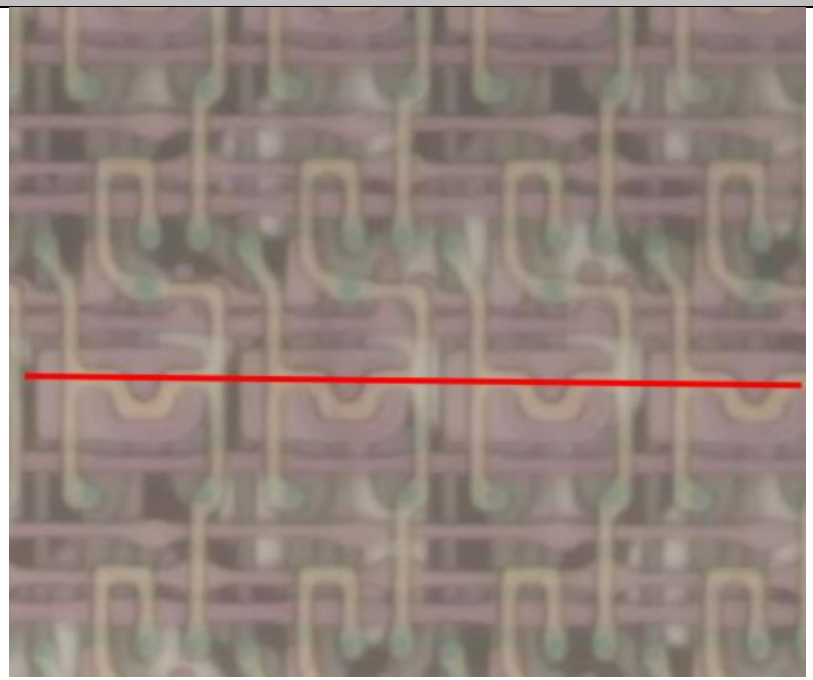
Claim 1	Accused Products
	 SEM image of BOE OLED panel in iPhone 14 (front view).

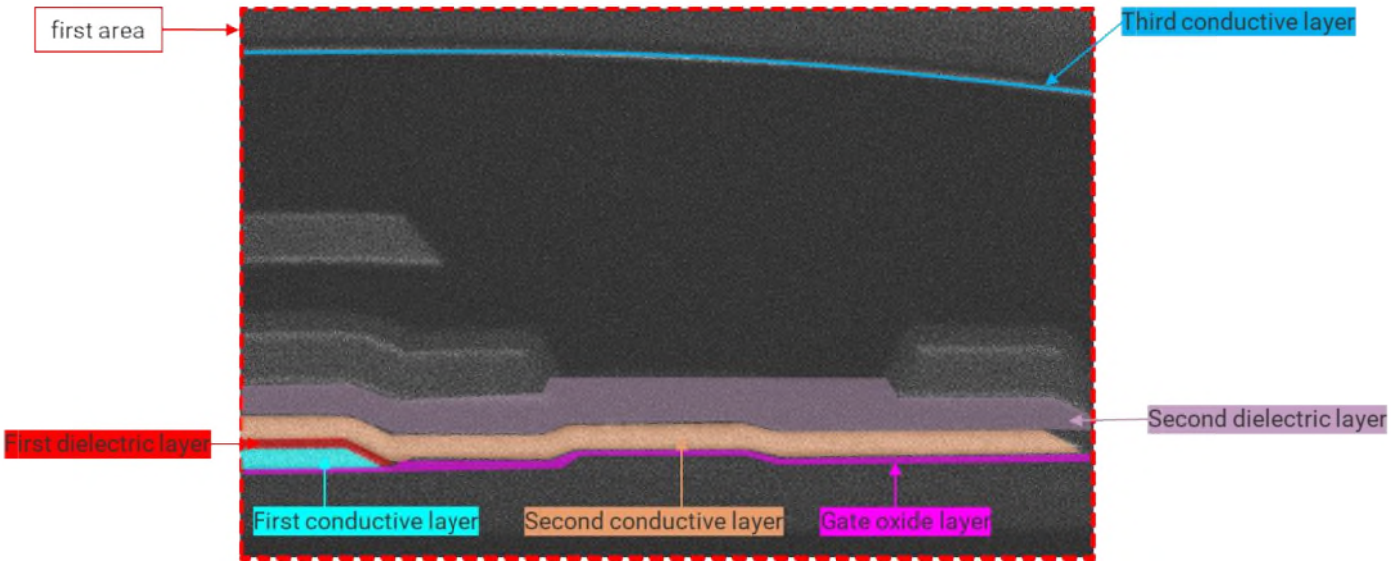
Claim 1	Accused Products
	 Photograph of BOE OLED panel in iPhone 14 (front view).  Optical image of OLED pixel structure, viewed from polysilicon side with poly-imide substrate removed, of BOE panel in iPhone 14.

Claim 1	Accused Products
	 SEM cross-section image of portion of BOE OLED panel in iPhone 14. *See also* individual limitations below.

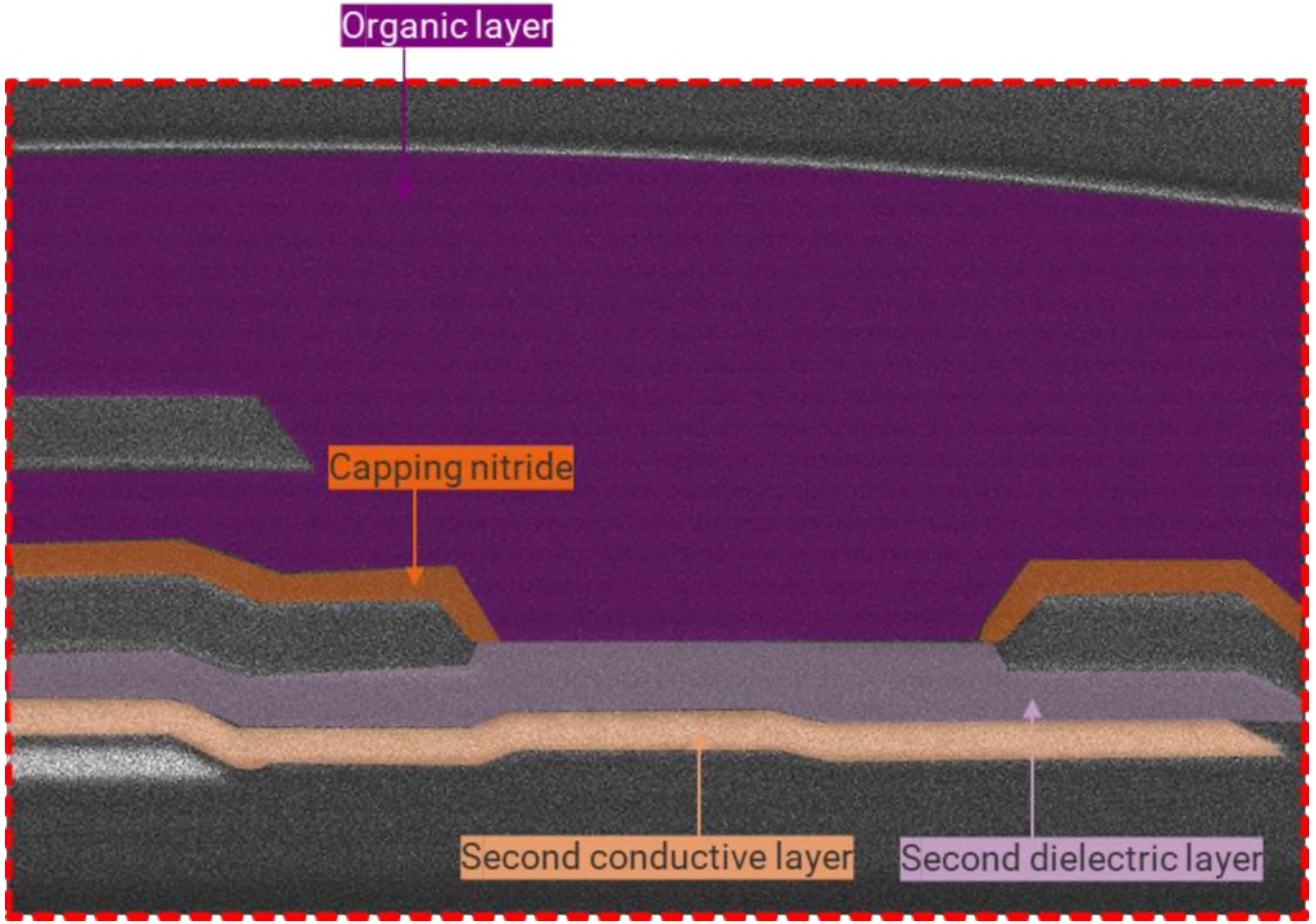
Claim 1	Accused Products
[1a] providing a substrate; [1b] defining at least a first area for capacitors and a second area for a transistor on the substrate;	Each Accused Product is made by a method comprising providing a substrate and defining at least a first area for capacitors and a second area for a transistor on the substrate. For example, the BOE OLED panel in the iPhone 14 contains a matrix of pixels on a substrate with two areas as claimed, as shown in the illustrations below. *See, e.g.*:  Annotated optical image of BOE OLED panel in iPhone 14, showing substrate and plurality of pixels.

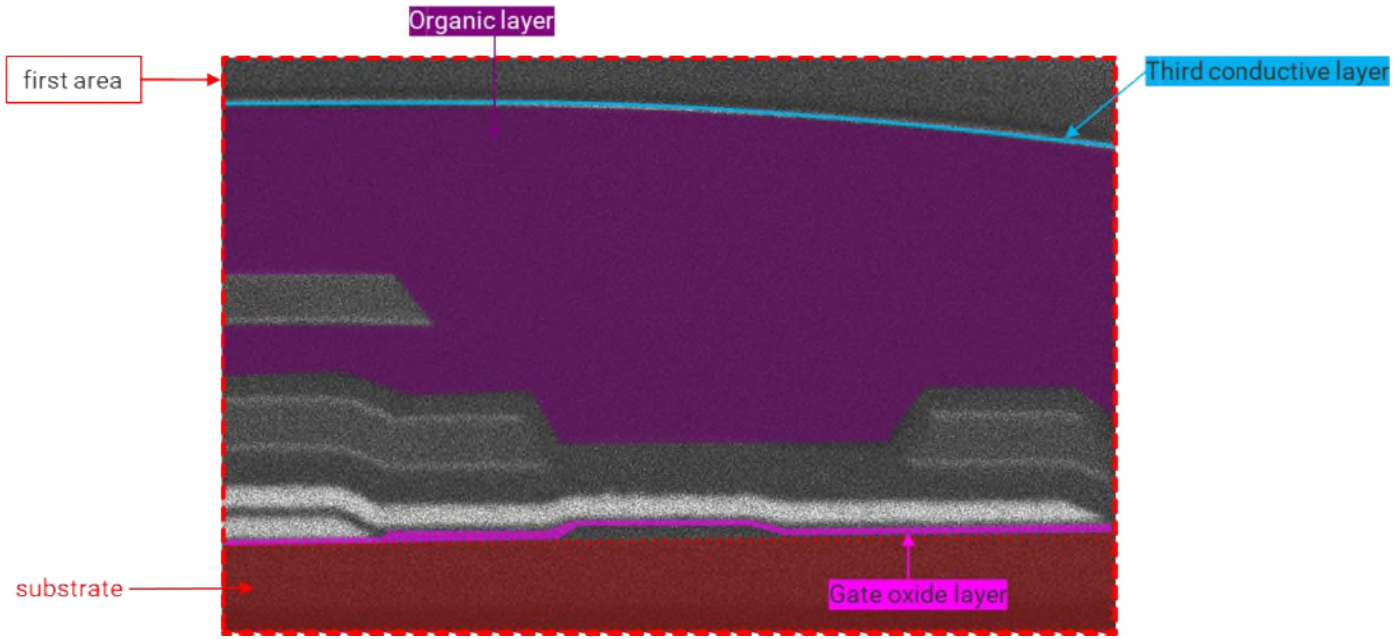
Claim 1	Accused Products
	 Annotated optical image of BOE OLED panel in iPhone 14 and accompanying SEM cross-section, showing first and second areas (in red and blue respectively) and illustrating location of exemplary cross-section imagery with respect to optical image.

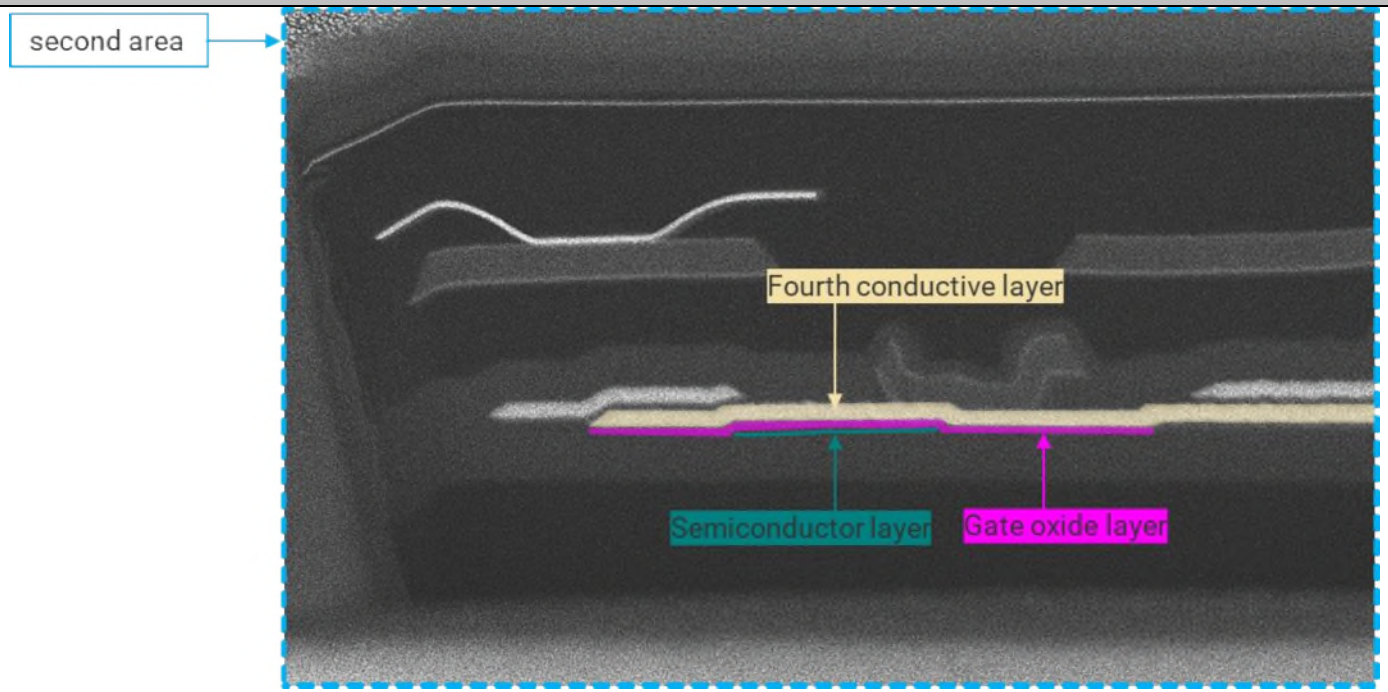
Claim 1	Accused Products
	 Annotated optical image of OLED pixel structure, viewed from polysilicon side with poly-imide substrate removed, of BOE panel in iPhone 14, showing approximate location of cross-section above.

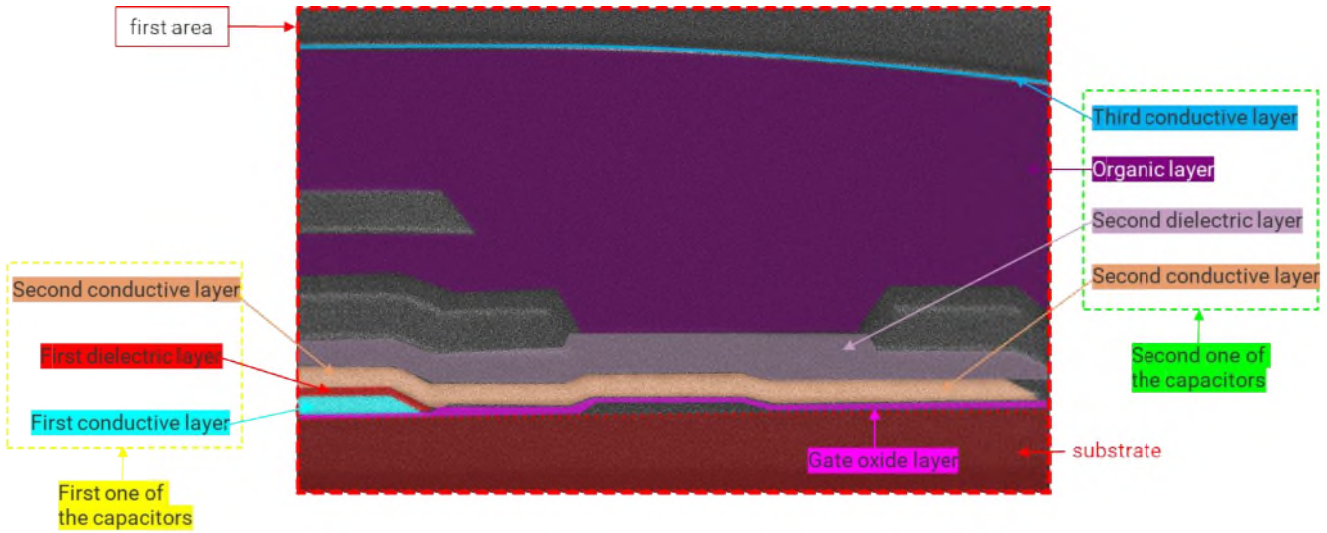
Claim 1	Accused Products
[1c] forming a gate oxide layer over the first area; [1d] forming a first conductive layer over the gate oxide layer over the first area; [1e] forming a first dielectric layer over the first conductive layer over the first area; [1f] forming a second conductive layer over the first dielectric layer over the first area; [1g] forming a second dielectric layer over the second conductive layer over the first area;	Each Accused Product is made by a method comprising forming a gate oxide layer over the first area, forming a first conductive layer over the gate oxide layer over the first area, forming a first dielectric layer over the first conductive layer over the first area, forming a second conductive layer over the first dielectric layer over the first area, and forming a second dielectric layer over the second conductive layer over the first area. *See, e.g.*:  Annotated SEM cross-section of BOE OLED panel in iPhone 14, showing a portion of the first area with first conductive layer, second conductive layer, gate oxide layer, first dielectric layer, second dielectric layer, and third conducive layer as claimed.

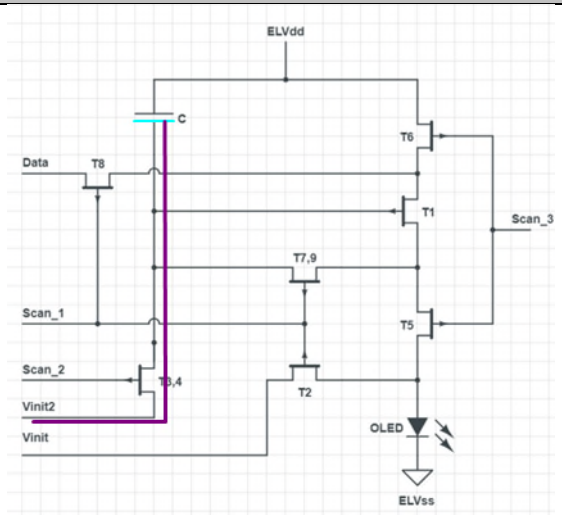
Claim 1	Accused Products
[1h] forming a capping nitride on the second dielectric layer, wherein the capping nitride has an opening to expose a portion of the second dielectric layer over the second conductive layer; [1i] forming an organic layer over the capping nitride to contact the second dielectric layer via the opening of the capping nitride;	Each Accused Product is made by a method comprising forming a capping nitride on the second dielectric layer, wherein the capping nitride has an opening to expose a portion of the second dielectric layer over the second conductive layer and forming an organic layer over the capping nitride to contact the second dielectric layer via the opening of the capping nitride. *See, e.g.*:

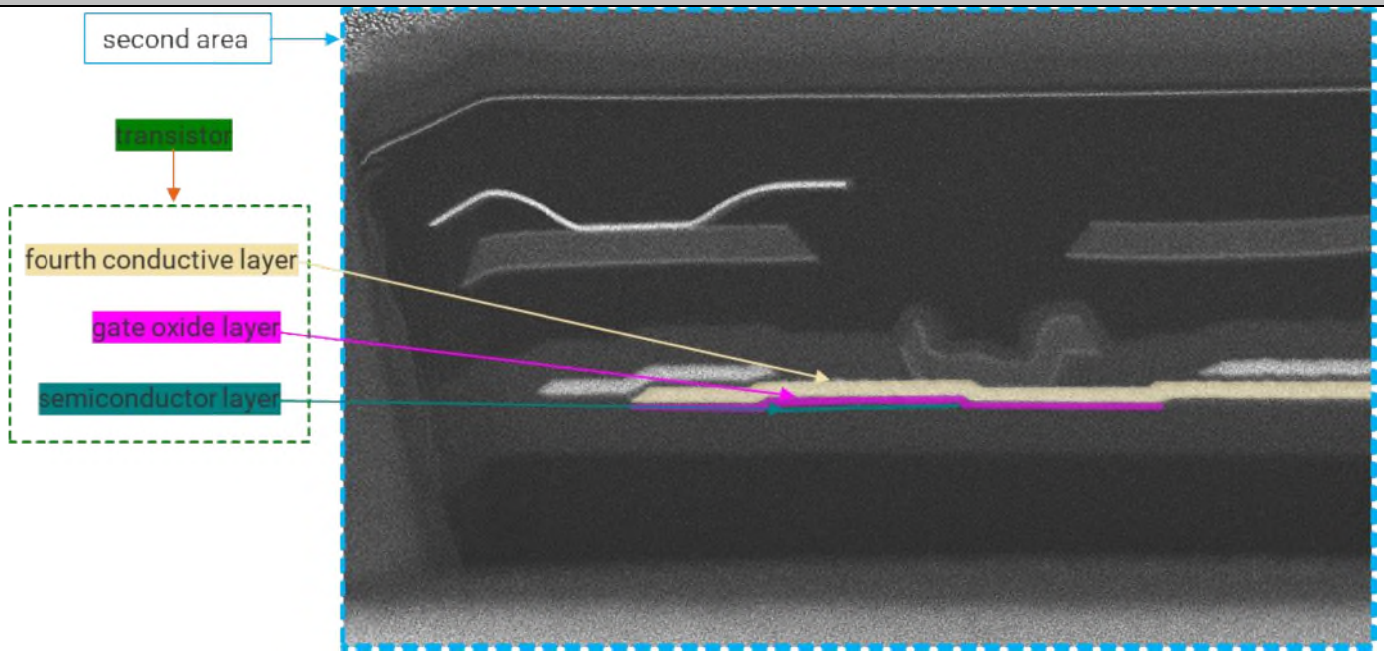
Claim 1	Accused Products
	 Annotated SEM cross-section of BOE OLED panel in iPhone 14, showing a portion of the first area with claimed capping nitride, second dielectric layer, and organic layer, with the organic layer contacting the second dielectric layer via an opening of the capping nitride.

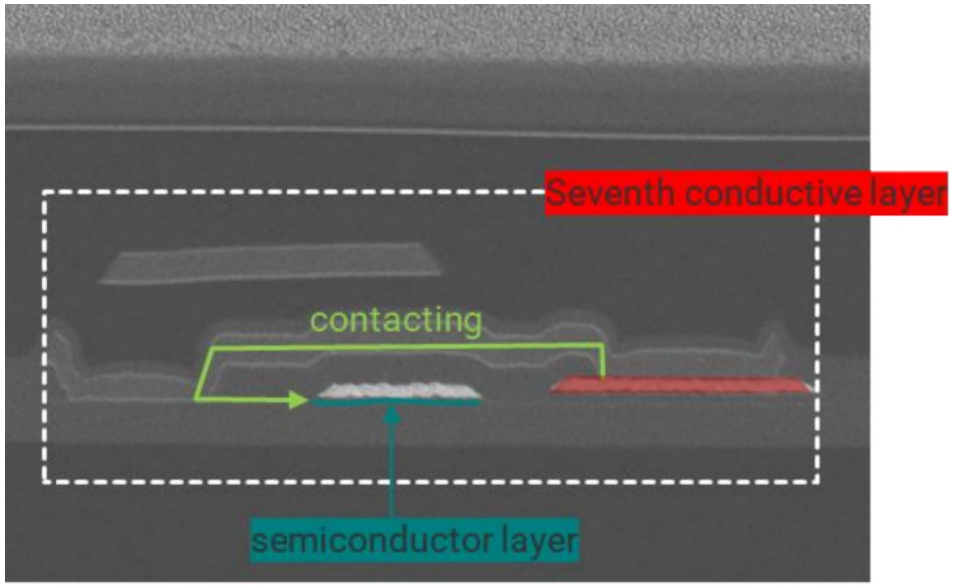
Claim 1	Accused Products
[1j] forming a third conductive layer over the organic layer over the first area, [1k] forming a semiconductor layer over the second area without over the first area; [1l] forming a gate oxide layer contacting with the substrate over the first area; [1m] forming a fourth conductive layer over the gate oxide layer over the second area;	Each Accused Product is made by a method comprising forming a third conductive layer over the organic layer over the first area, forming a semiconductor layer over the second area without over the first area, forming a gate oxide layer contacting with the substrate over the first area, and forming a fourth conductive layer over the gate oxide layer over the second area. *See, e.g.*:  Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing a portion of the first area with third conductive layer over organic layer and gate oxide layer contacting the substrate.

Claim 1	Accused Products
	 Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing a portion of the second area with claimed semiconductor layer and fourth conductive layer on gate oxide layer.

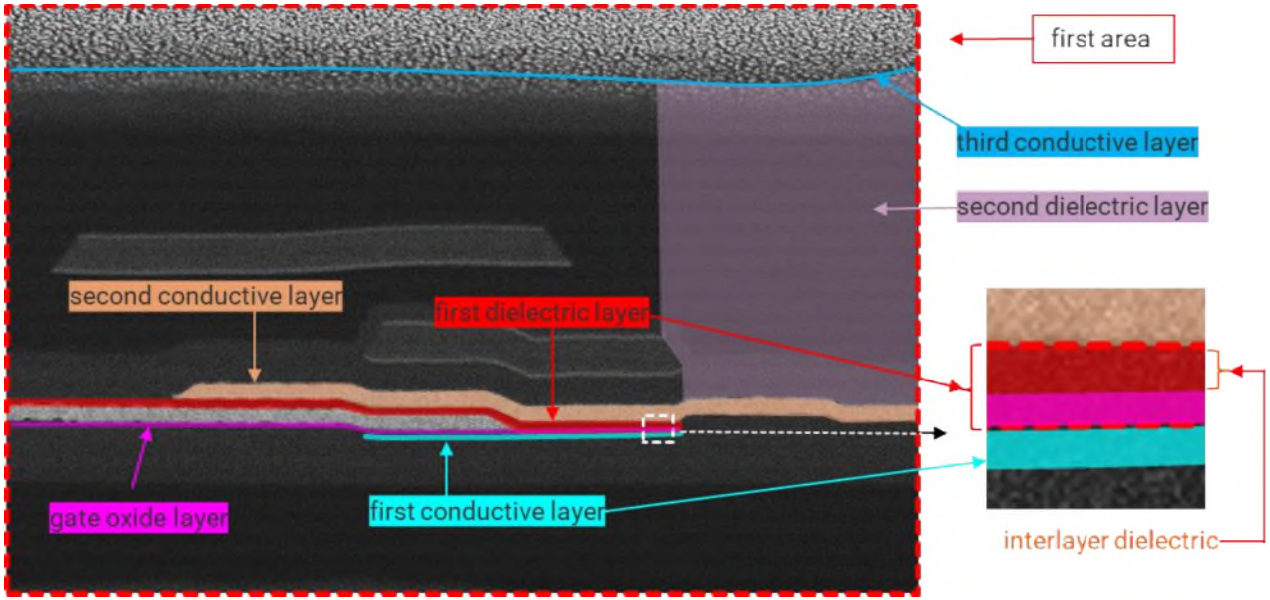
Claim 1	Accused Products
[1n] wherein the first conductive layer over the first area is connectable to a power supply voltage, and wherein the first conductive layer, the first dielectric layer, and the second conductive layer over the first area collectively form a first one of the capacitors over the first area, the second conductive layer, the second dielectric layer directly over the second conductive layer, the organic layer directly over the second dielectric layer, and the third conductive layer, which is directly over the organic layer, over the first area collectively form a second one of the capacitors	Each Accused Product is made by a method wherein the first conductive layer over the first area is connectable to a power supply voltage, and wherein the first conductive layer, the first dielectric layer, and the second conductive layer over the first area collectively form a first one of the capacitors over the first area, the second conductive layer, the second dielectric layer directly over the second conductive layer, the organic layer directly over the second dielectric layer, and the third conductive layer, which is directly over the organic layer, over the first area collectively form a second one of the capacitors over the first area, and the semiconductor layer, the gate oxide layer, and the fourth conductive layer over the second area collectively form a transistor, and wherein the gate oxide layer in the first area is formed directly on the substrate. *See, e.g.*:  Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing a portion of the first area with first and second capacitors as claimed.

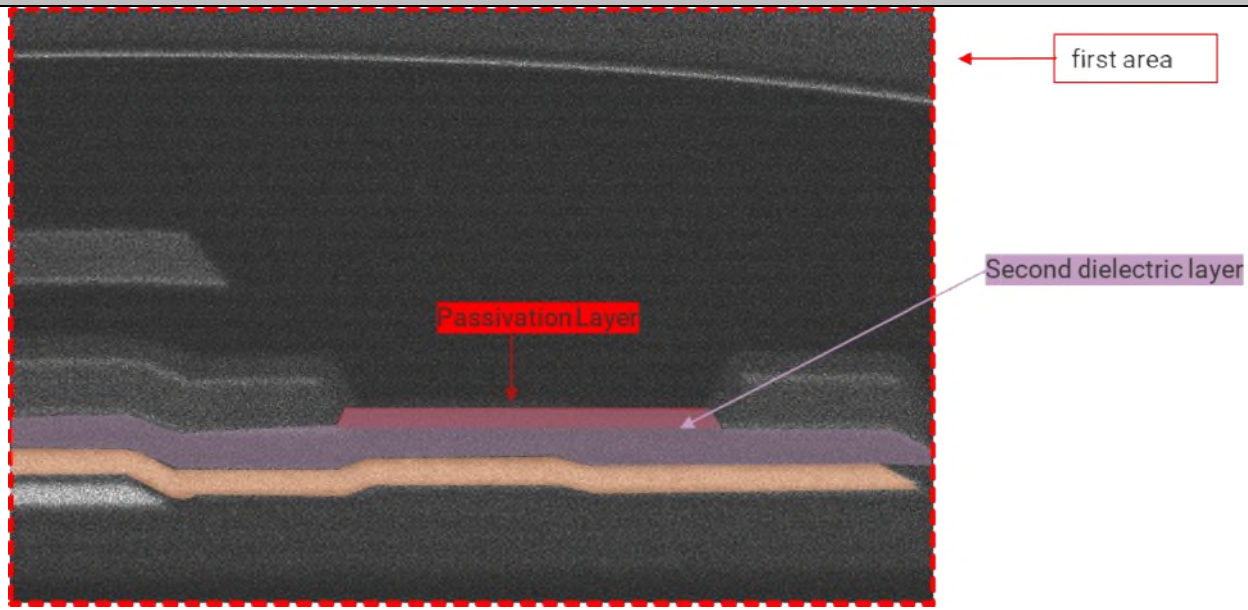
Claim 1	Accused Products
over the first area, and the semiconductor layer, the gate oxide layer, and the fourth conductive layer over the second area collectively form a transistor, and wherein the gate oxide layer in the first area is formed directly on the substrate; and	 Circuit diagram of OLED pixel circuit of BOE panel in iPhone 14, showing the first conductive layer connected to a power supply voltage through transistors T3 and T4.

Claim 1	Accused Products
	 Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing a portion of second area with claimed transistor formed of fourth conductive layer, gate oxide layer formed directly on substrate at right, and semiconductor layer. To the extent Defendant contends that the Accused Products do not literally satisfy the limitation "second one of the capacitors," this limitation is met under the Doctrine of Equivalents. There are no substantial differences between the accused structure and the claimed invention. For example, the structure in the Accused Products identified above as the second capacitor contains a pair of conductors separated by a dielectric, which performs substantially the same function (*e.g.*, storing a charge in conjunction with the claimed first capacitor) in substantially the same way (*e.g.*, by disposing a dielectric between two conductive layers) to achieve substantially the same result (*e.g.*, forming a certain storage capacitance within the circuit).

Claim 1	Accused Products
[1o] forming a seventh conductive layer contacting the semiconductor layer, wherein the seventh conductive layer is formed of the same conductive film as the second conductive layer.	Each Accused Product is made by a method comprising forming a seventh conductive layer contacting the semiconductor layer, wherein the seventh conductive layer is formed of the same conductive film as the second conductive layer. *See, e.g.*:  Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing seventh conductive layer and contact path through other conductors (including doped polysilicon) between seventh conductive layer and semiconductor layer. Based on surrounding structures, it appears that the seventh conductive layer is formed of the same conductive film as the second conductive layer.

Claim 2

Claim 2	Accused Products
2. The method of claim 1, wherein forming the first conductive layer and forming the fourth conductive layer comprise forming the first conductive layer and the fourth conductive layer using the same material, wherein forming the first dielectric layer comprises forming a layer of interlayer dielectric (ILD), and wherein forming the second dielectric layer comprises forming a layer of passivation silicon nitride.	Each Accused Product is made by the method of claim 1, wherein forming the first conductive layer and forming the fourth conductive layer comprise forming the first conductive layer and the fourth conductive layer using the same material, wherein forming the first dielectric layer comprises forming a layer of interlayer dielectric (ILD), and wherein forming the second dielectric layer comprises forming a layer of passivation silicon nitride. For example, on information and belief the first conductive layer and fourth conductive layer in the OLED pixel structure of the BOE panel in iPhone 14 are formed using the same material. *See, e.g.*:  Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing interlayer dielectric.

Claim 2	Accused Products
	 Annotated SEM cross-section image of OLED pixel structure of BOE panel in iPhone 14, showing a passivation layer within second dielectric layer.