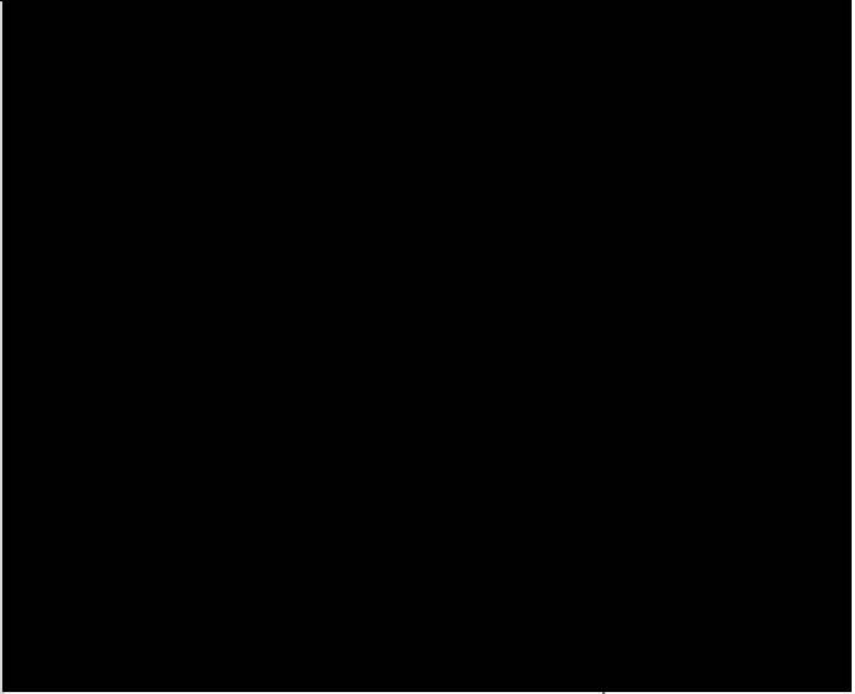
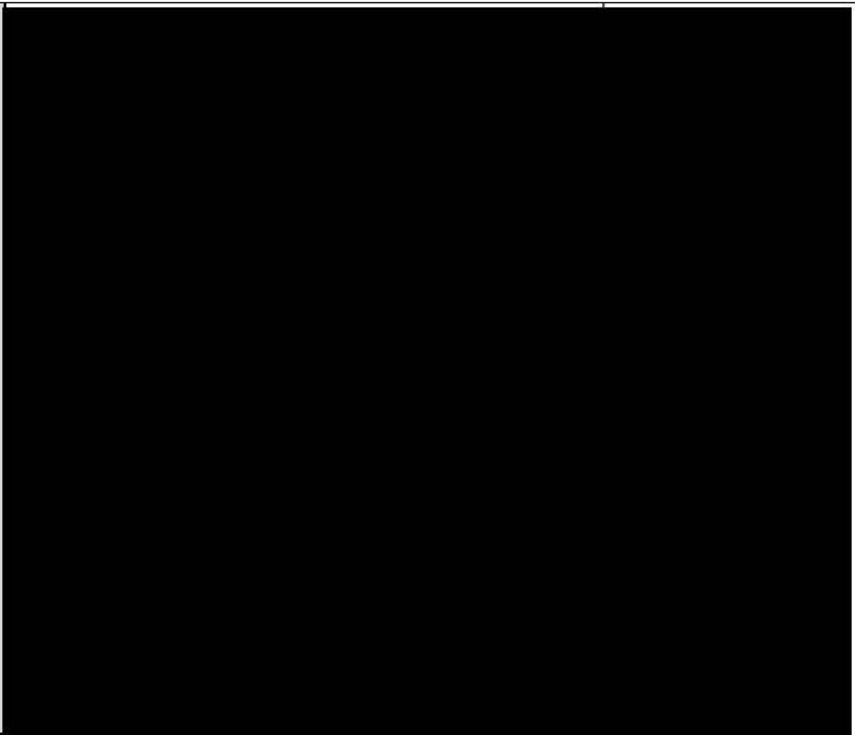
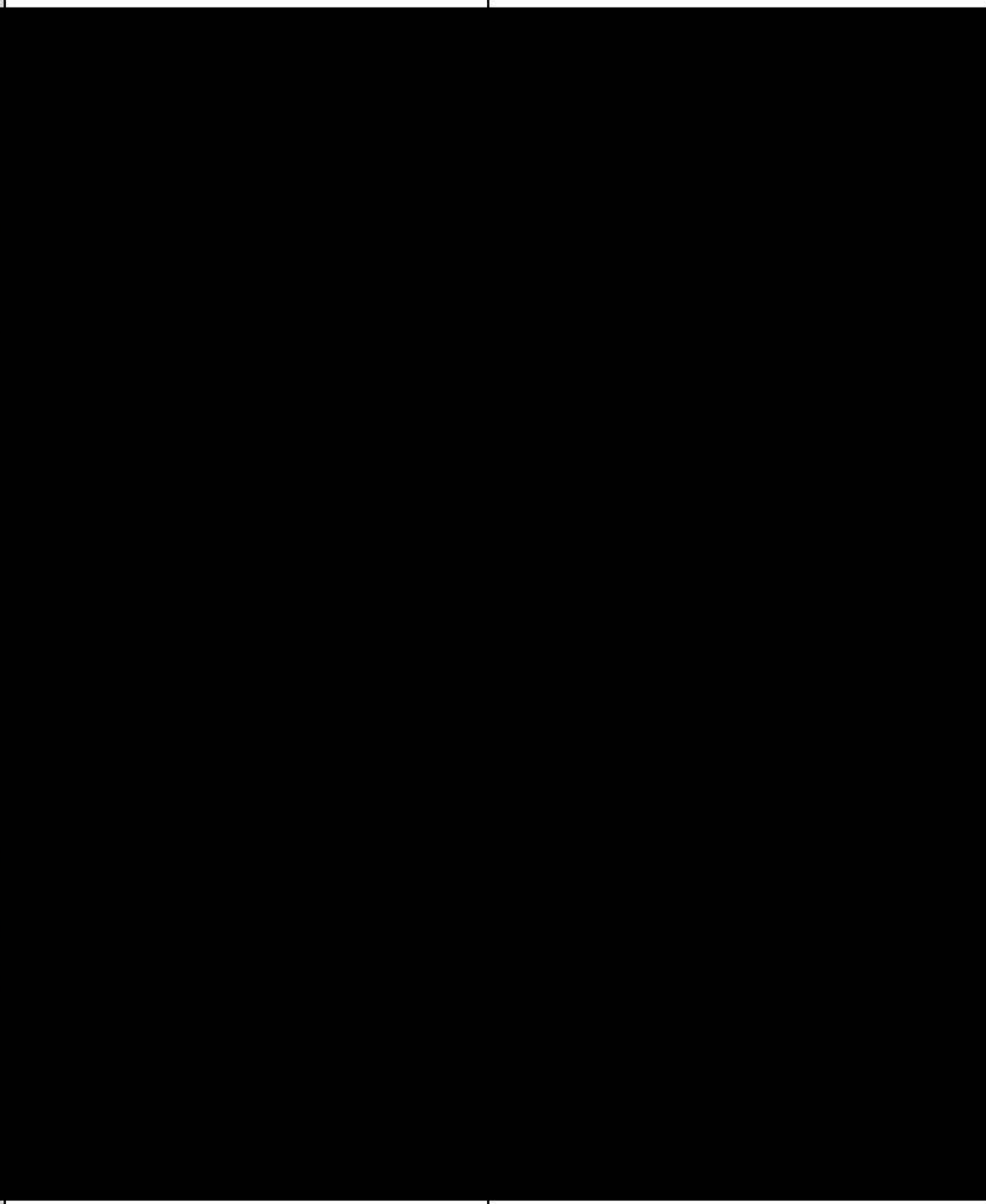
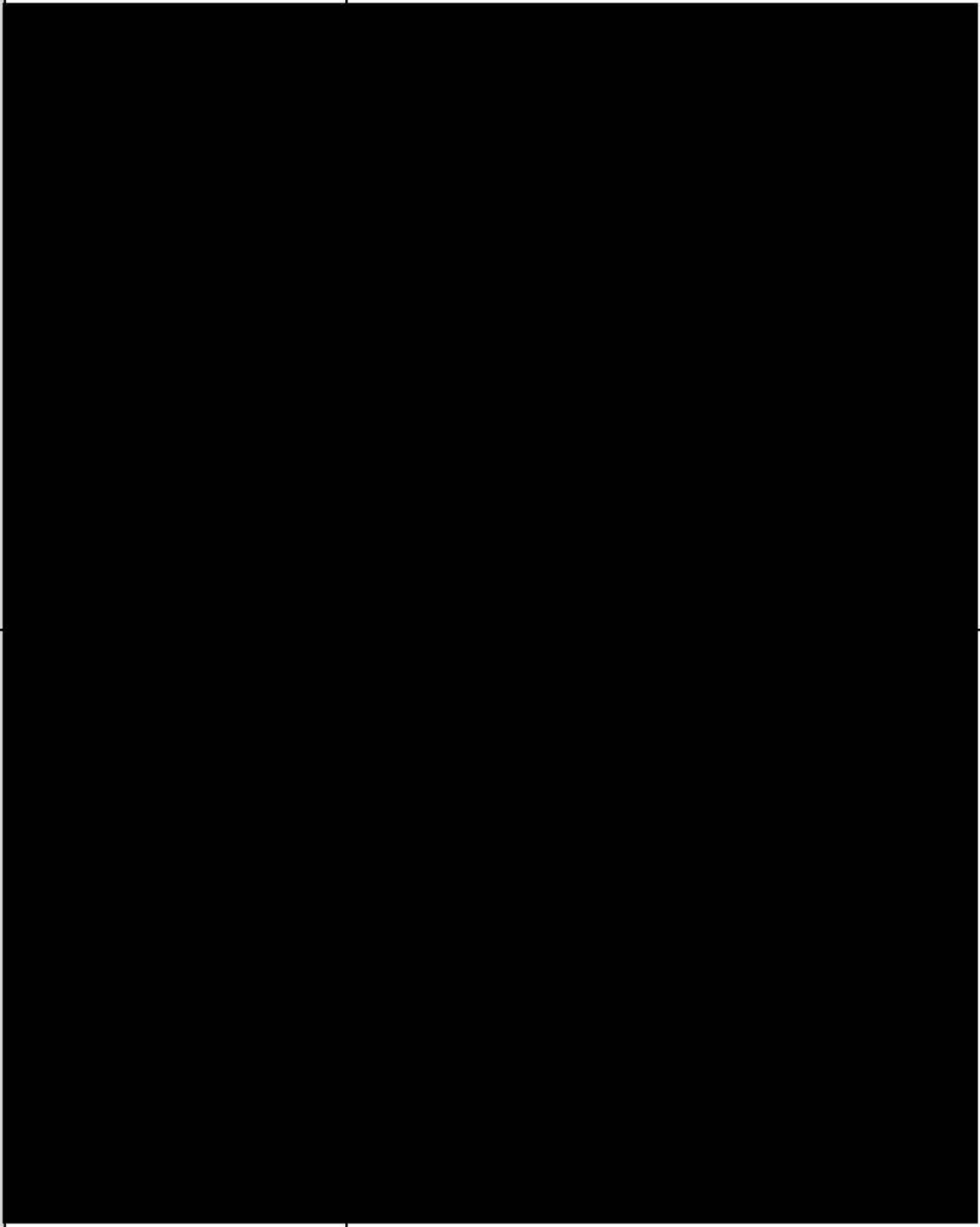


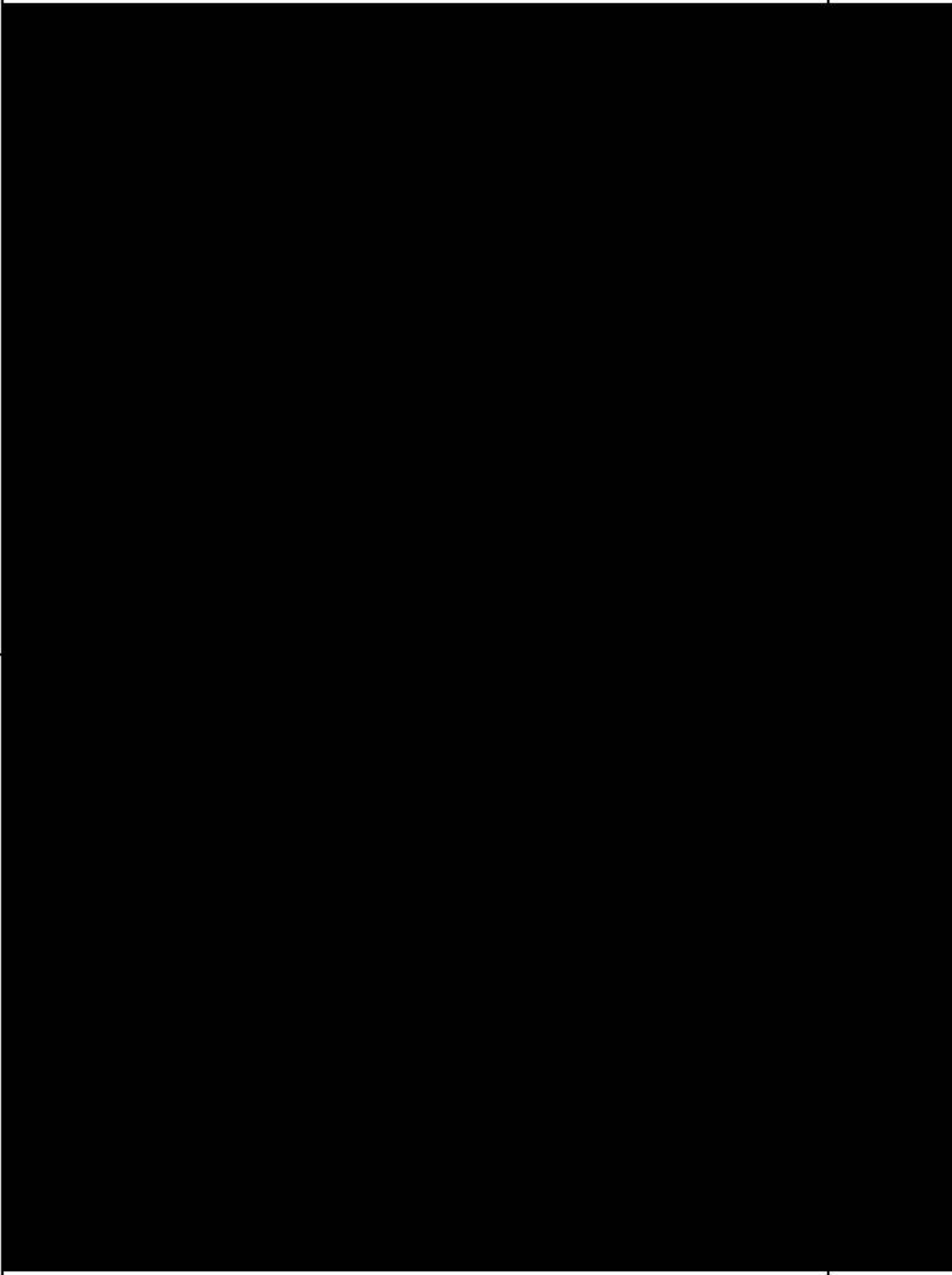
CELLECT, LLC v. SAMSUNG ELECTRONICS CO., LTD., 1:19-cv-00439-CMA-MEH

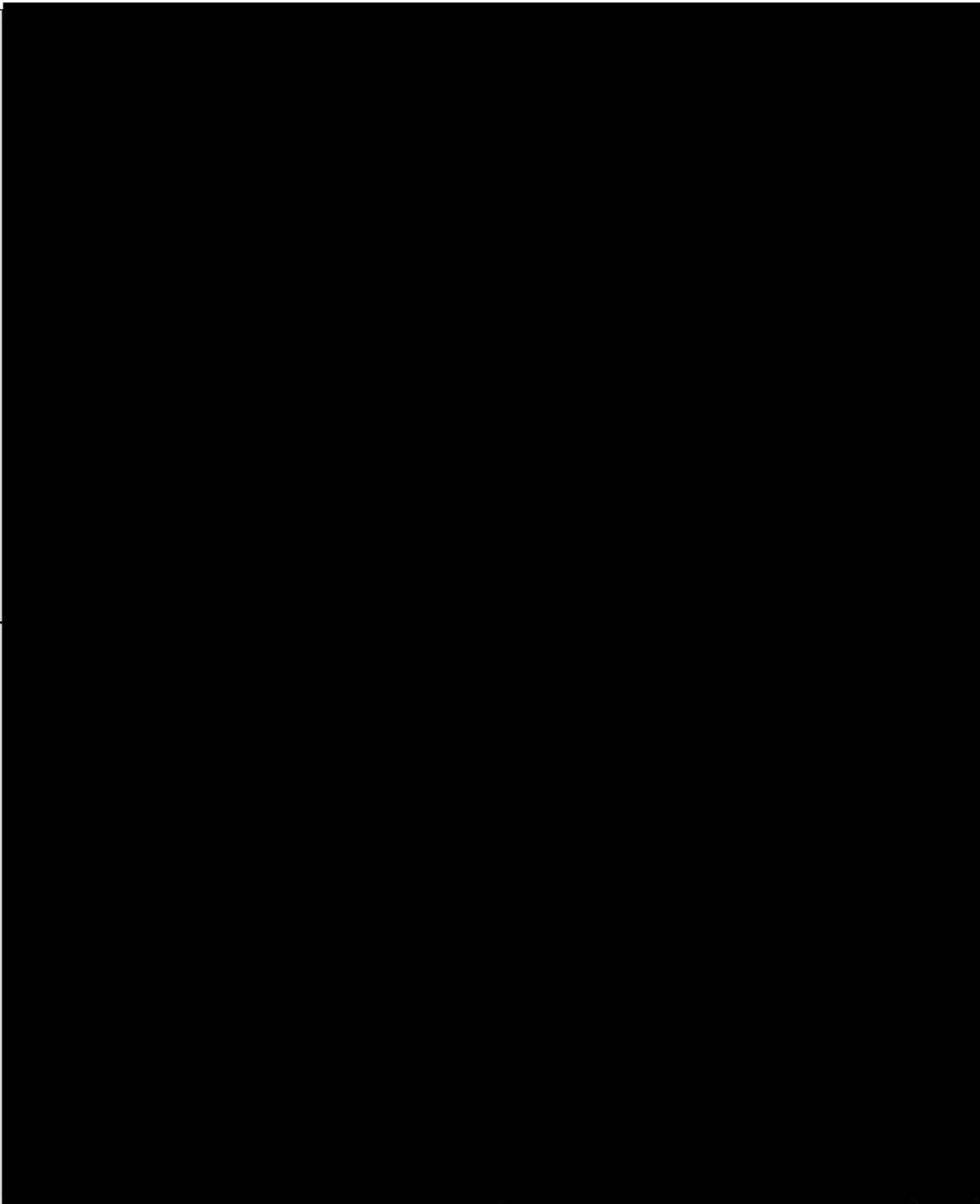
U.S. Pat. No. 6,982,742 Galaxy S5 – Collect’s Preliminary Infringement Contentions

'742 Patent Claim 58	Front Camera	Rear Camera
58a. In a PDA having capability to transmit and receive data in a communications network,		
b. the PDA including a video view screen for viewing the video images, the improvement comprising:		

'742 Patent Claim 58	Front Camera	Rear Camera
c. a camera module for taking video images,		

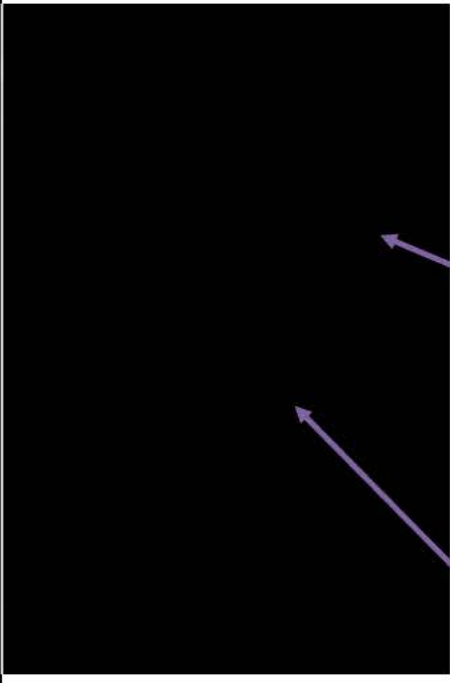
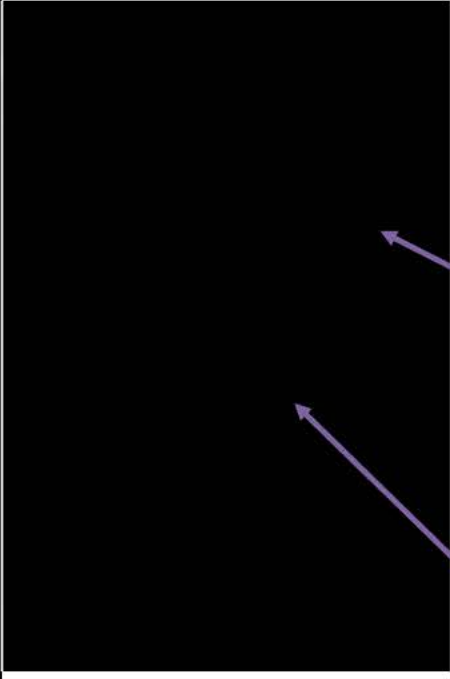
'742 Patent Claim 58	Front Camera	Rear Camera
d. said camera module communicating with circuitry within said PDA		

'742 Patent Claim 58	Front Camera	Rear Camera
		
e. enabling viewing of said video images on said PDA and		

'742 Patent Claim 58	Front Camera	Rear Camera
f. enabling video signals to be transmitted from said camera module to the personal computer,		
f. said camera module including an image		

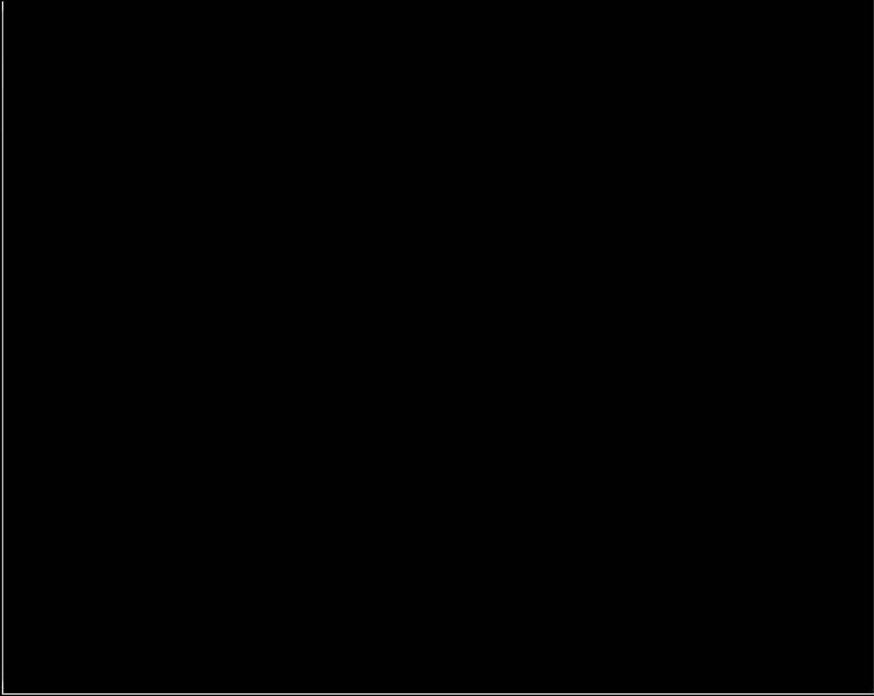
'742 Patent Claim 58	Front Camera	Rear Camera
sensor housed therein, said image sensor lying in a first plane and including an array of pixels for receiving images thereon,		
g. said image sensor further including	The Galaxy S5 front image sensor includes a complex integrated circuit. "The sensor is the part	The Galaxy S5 rear image sensor includes a complex integrated circuit. "The sensor is the part of the

‘742 Patent Claim 58 circuitry means electrically coupled to said array of said pixels for timing and control of said array of pixels,	Front Camera	Rear Camera
	of the camera that actually ‘captures’ the image. It includes a complex integrated circuit that typically includes photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.  <i>Galaxy S5 Front Camera</i>, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Front-Camera/IF236-009 (last accessed Oct. 24, 2019).	camera that actually ‘captures’ the image. It’s a complex integrated circuit that typically includes photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.  <i>Galaxy S5 Rear Camera</i>, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Rear-Camera/IF236-007 (last accessed Oct. 24, 2019).

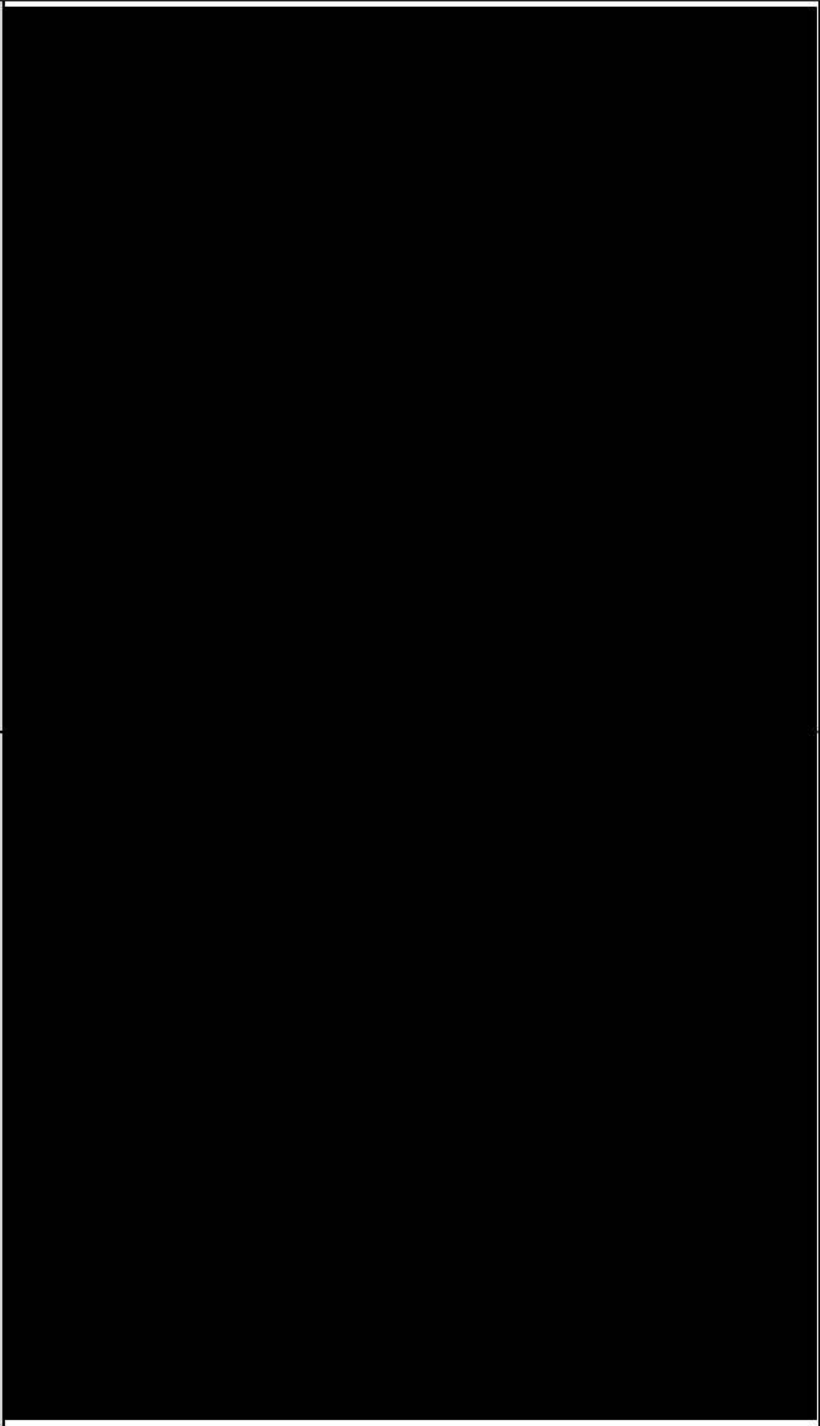
'742 Patent Claim 58	Front Camera	Rear Camera
	 CMOS Pixels Circuit Within the Image Sensor ISOCELL Samsung NewsRoom Screenshot.jpg	 CMOS Pixels Circuit Within the Image Sensor ISOCELL Samsung NewsRoom Screenshot.jpg

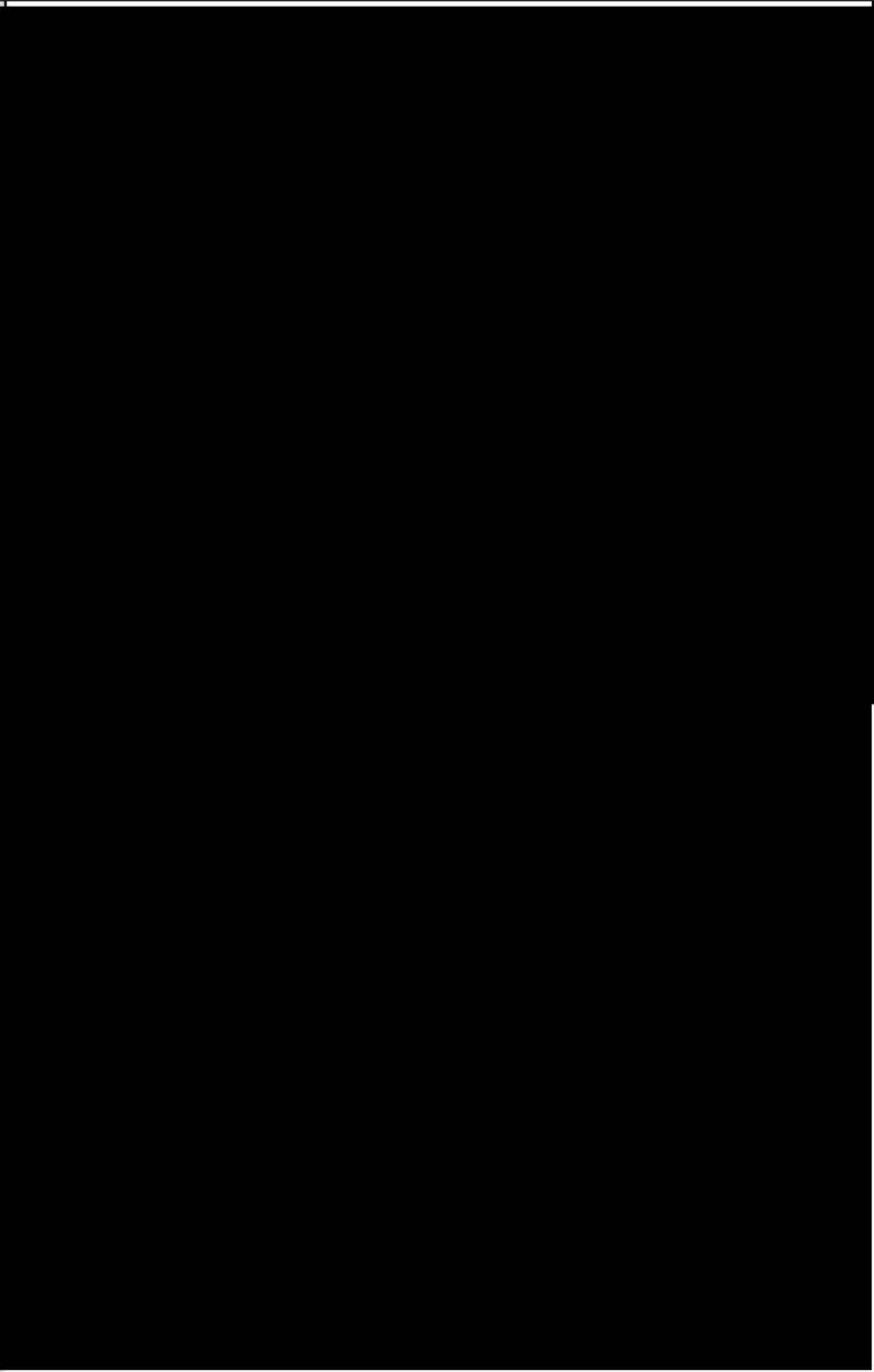
'742 Patent Claim 58	Front Camera	Rear Camera
	The integrated circuit within the image sensor is coupled to CMOS pixels for the purpose of timing and control. The Samsung Galaxy S5 includes latches, counters and decoders on the circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its electronic components control the release of image data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of	The integrated circuit within the image sensor is coupled to CMOS pixels for the purpose of timing and control. The Samsung Galaxy S5 includes latches, counters and decoders on the circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its electronic components control the release of image data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of

'742 Patent Claim 58	Front Camera	Rear Camera
	data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of latches, decoder and counter are used to control the release of the image signal from the pixel array. Galaxy S5 achieves the same result because electronic components in the device control the release of the image signal from the pixel array.	latches, decoder and counter are used to control the release of the image signal from the pixel array. Galaxy S5 achieves the same result because electronic components in the device control the release of the image signal from the pixel array.

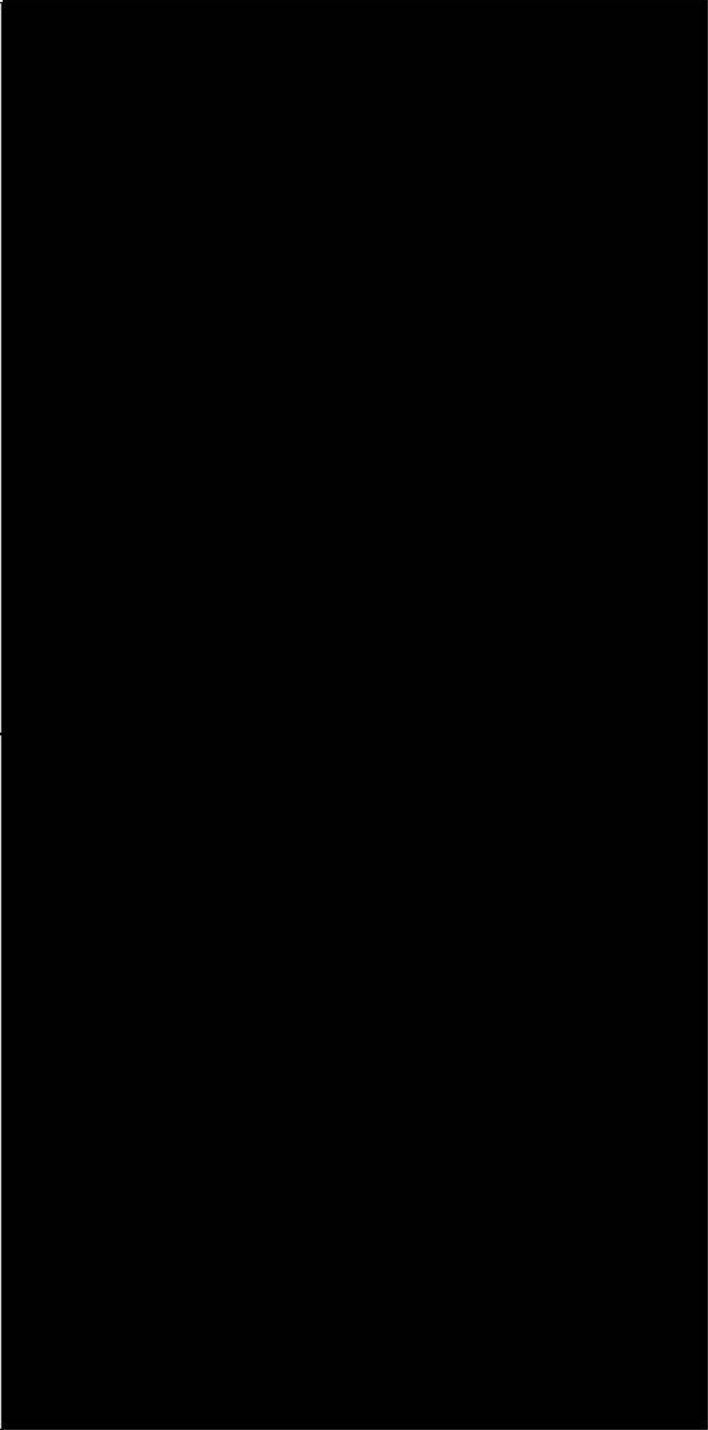
'742 Patent Claim 58	Front Camera	Rear Camera
h. said circuitry means for timing and control placed remote from said array of pixels on a second plane,		
i. said image sensor producing a pre-video signal,		

'742 Patent Claim 58	Front Camera	Rear Camera

'742 Patent Claim 58	Front Camera	Rear Camera
j. a first circuit board electrically connected to said image sensor and lying in a third plane,		

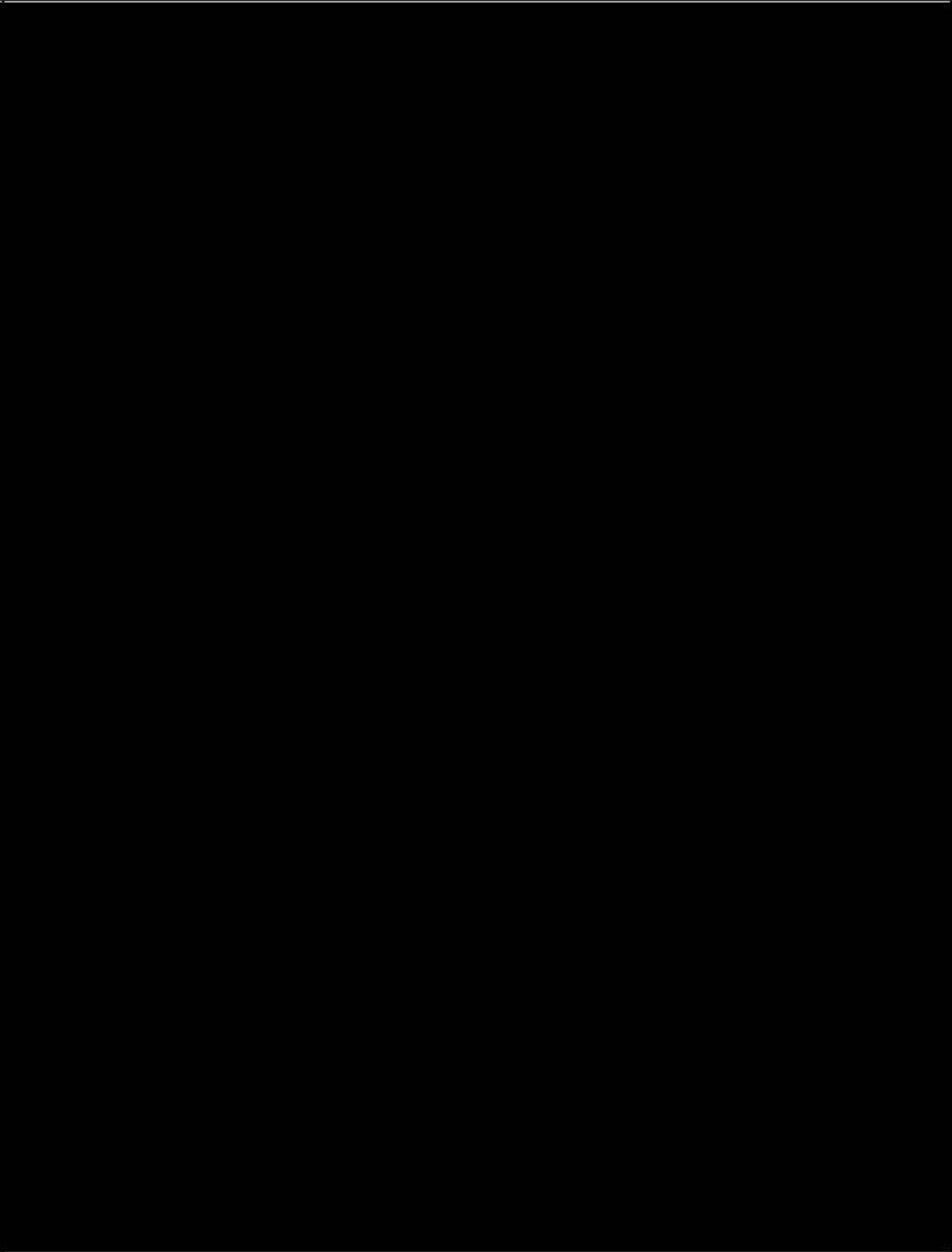
'742 Patent Claim 58	Front Camera	Rear Camera
		

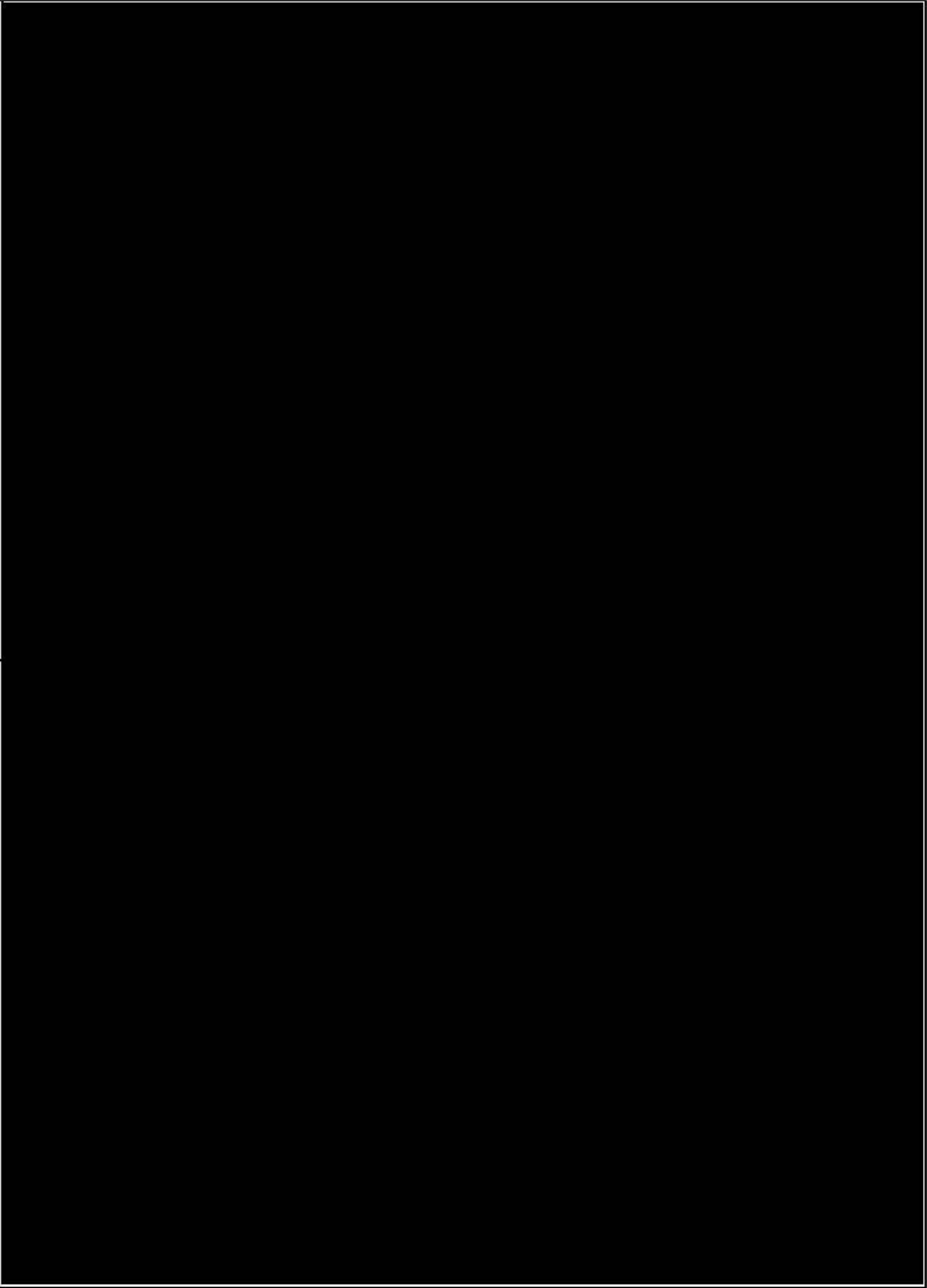
'742 Patent Claim 58	Front Camera	Rear Camera
k. said first circuit board including circuitry means for processing and converting said pre-video signal to a desired video format, and	The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen.	The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen.

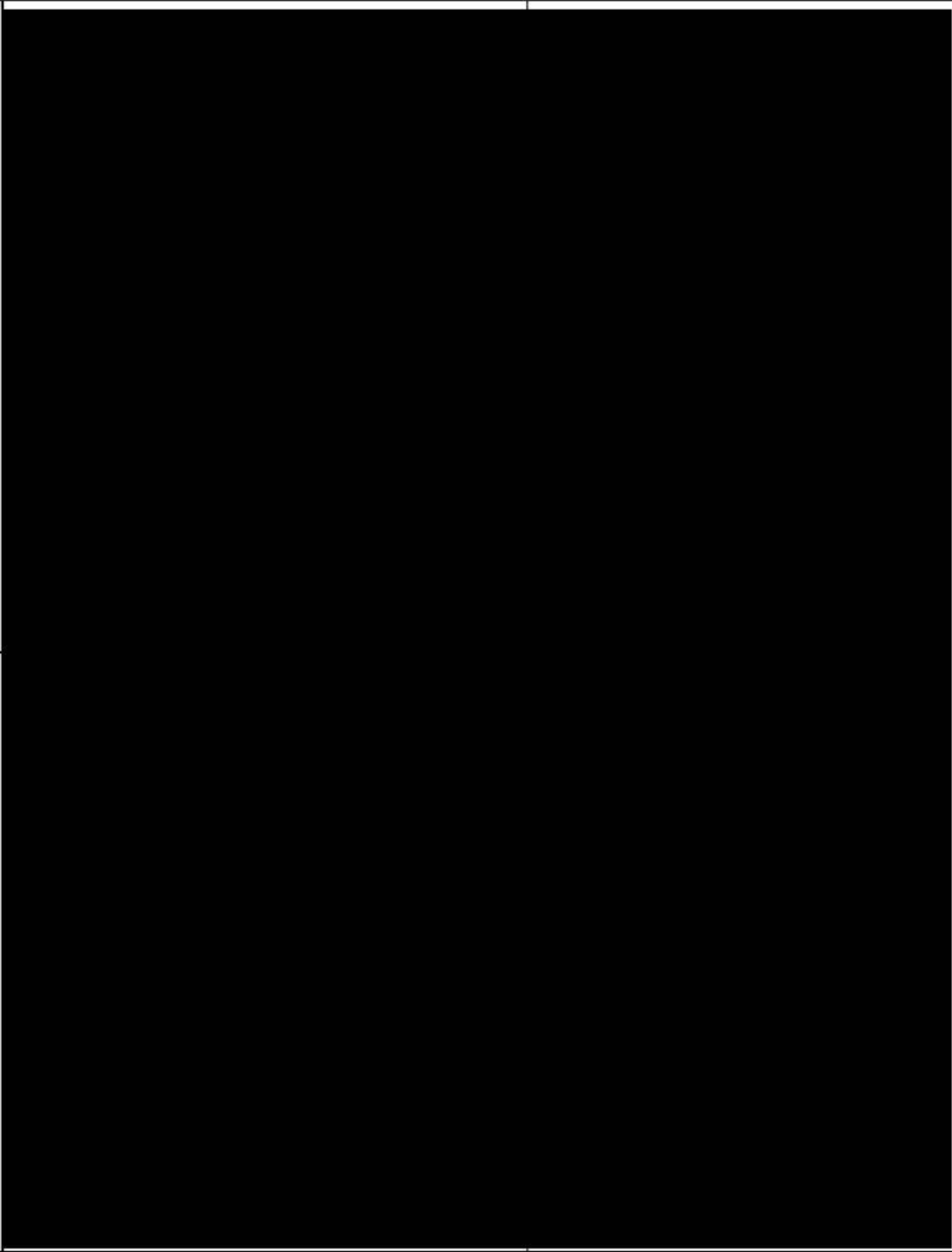
'742 Patent Claim 58	Front Camera	Rear Camera
		

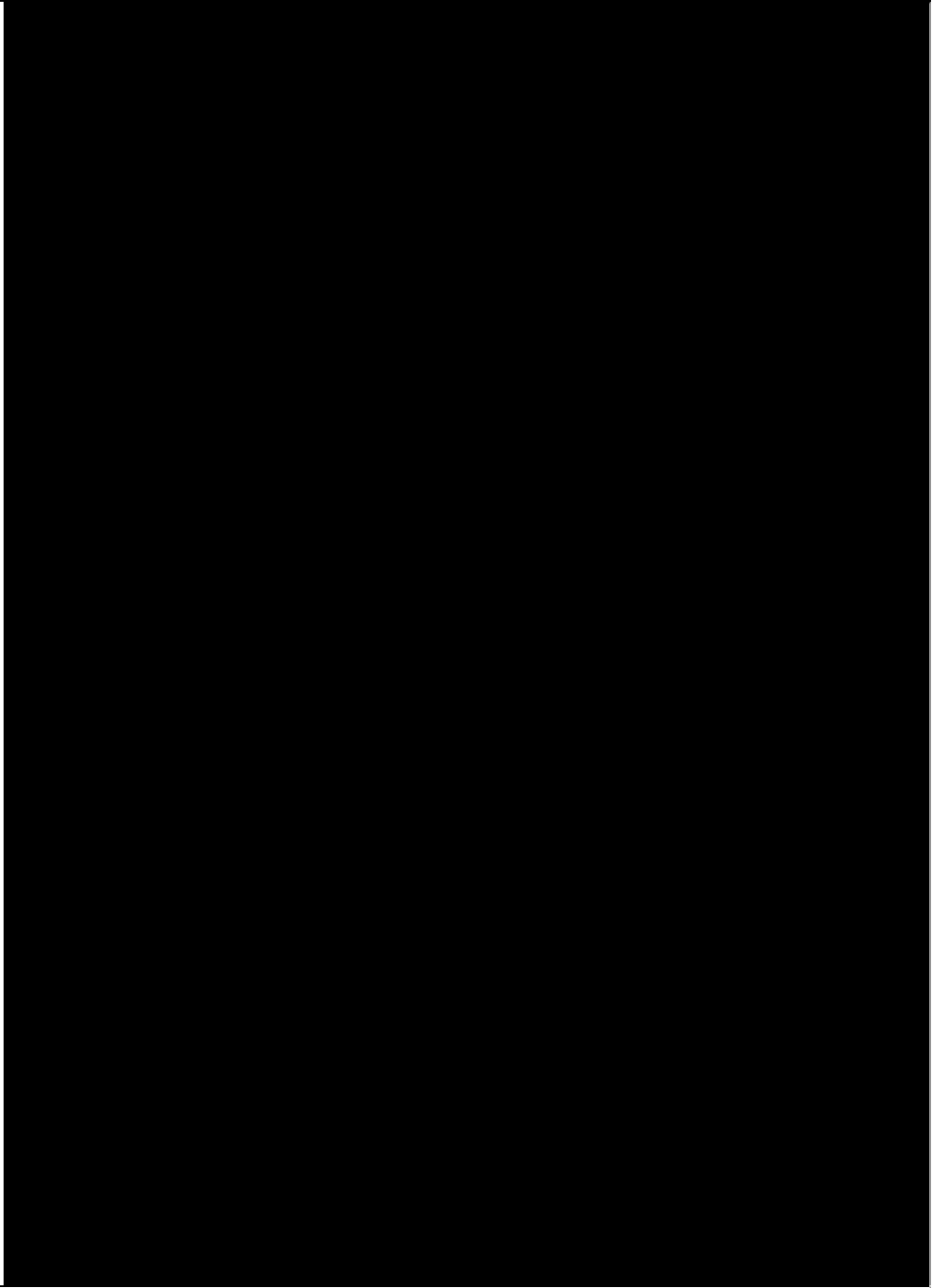
'742 Patent Claim 58	Front Camera	Rear Camera
	The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signed to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed	The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signed to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, detector, white balance circuit, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed

'742 Patent Claim 58	Front Camera	Rear Camera
	functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.	functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.
I. a radio transceiver element communicating with said first circuit board for wirelessly transmitting said converted pre-video signal.		

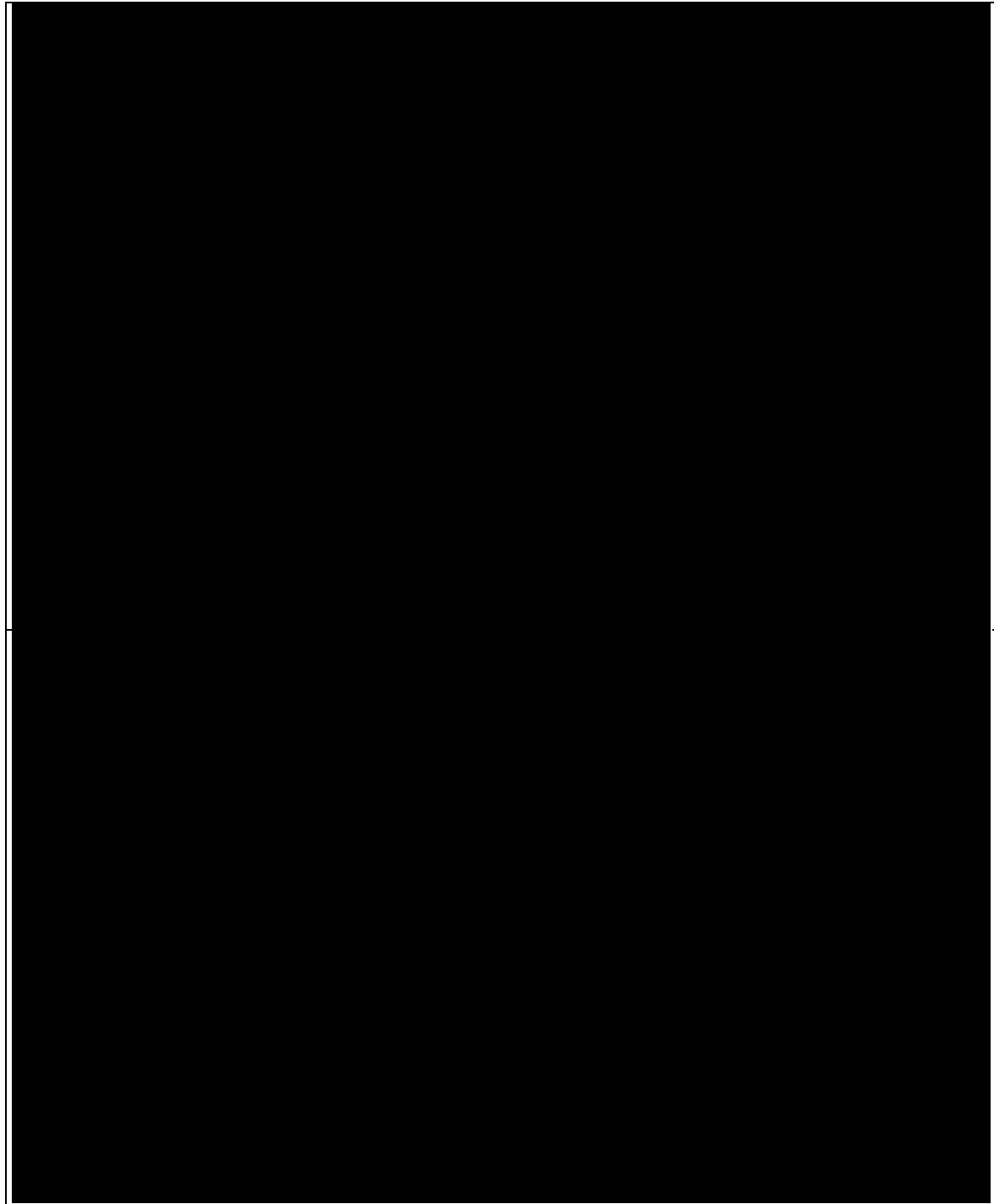
'742 Patent Claim 58	Front Camera	Rear Camera
		

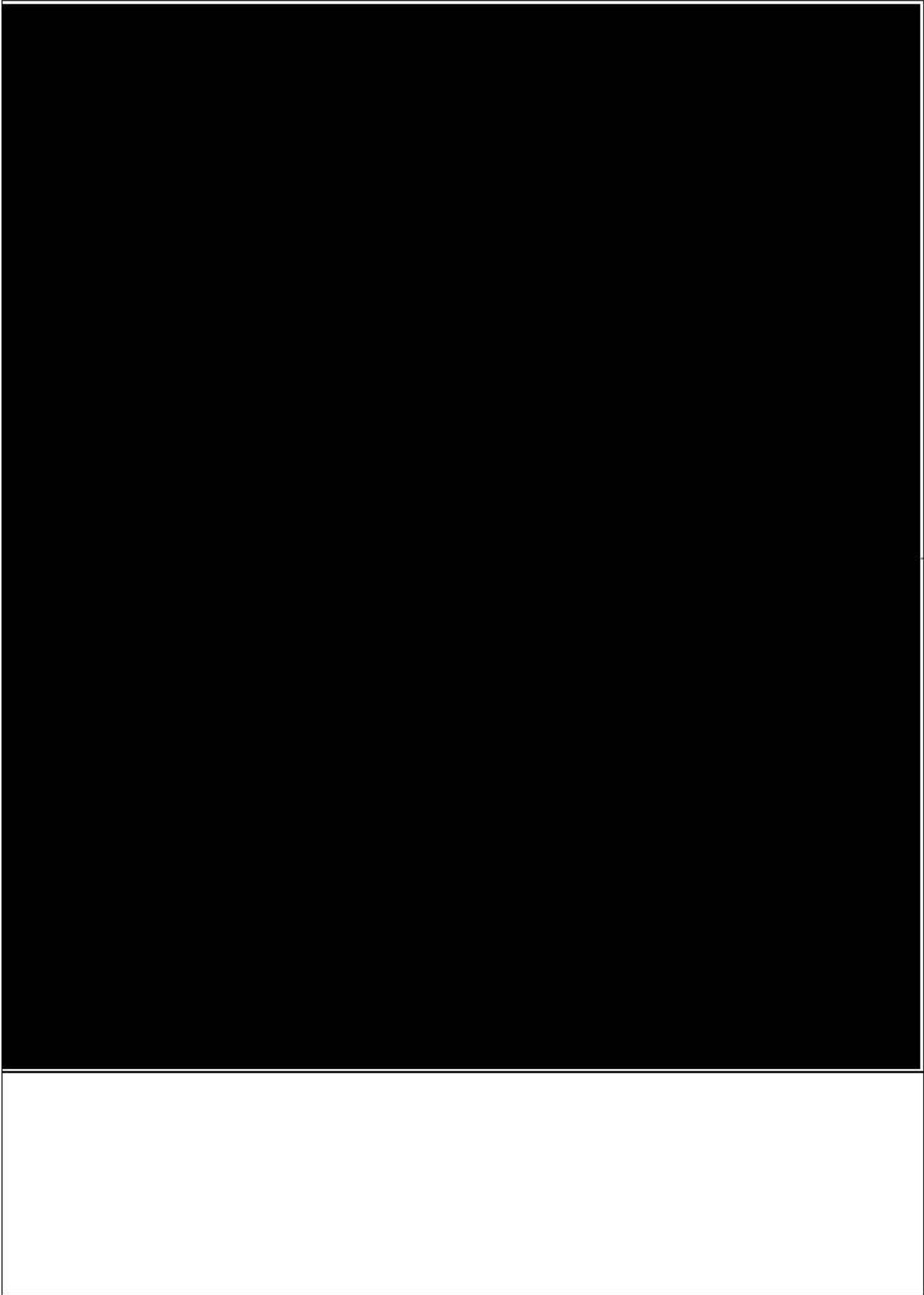
'742 Patent Claim 58	Front Camera	Rear Camera
		

'742 Patent Claim 22	Front Camera	Rear Camera
22a. In a PDA having capability to transmit and receive data in a communications network,		
b. the PDA having a housing, and		

	c. a video view screen for viewing the data which includes video signals, the improvement comprising:
	

d. a camera module for taking video images,	e. said camera module communicating with circuitry within said PDA
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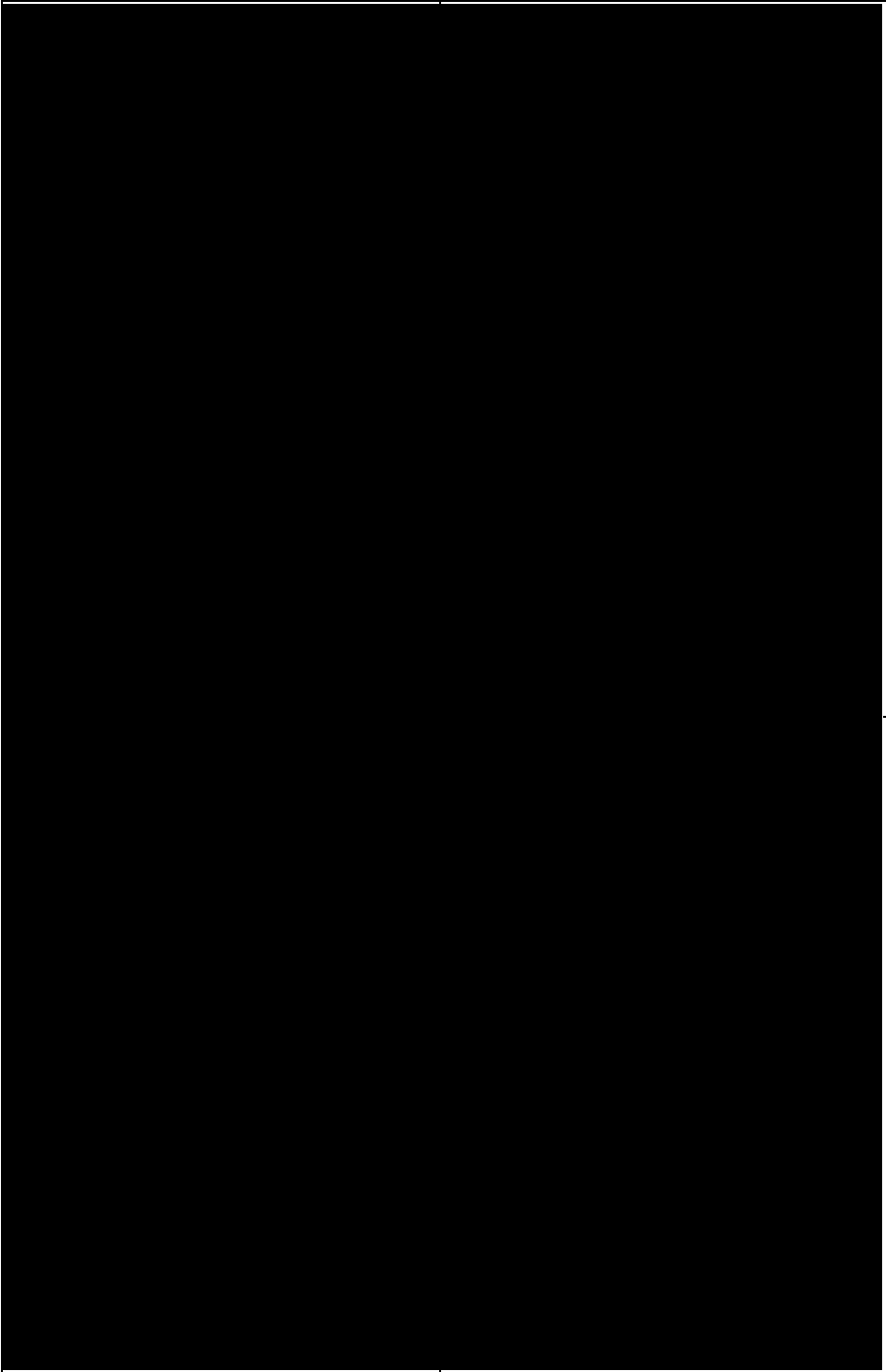


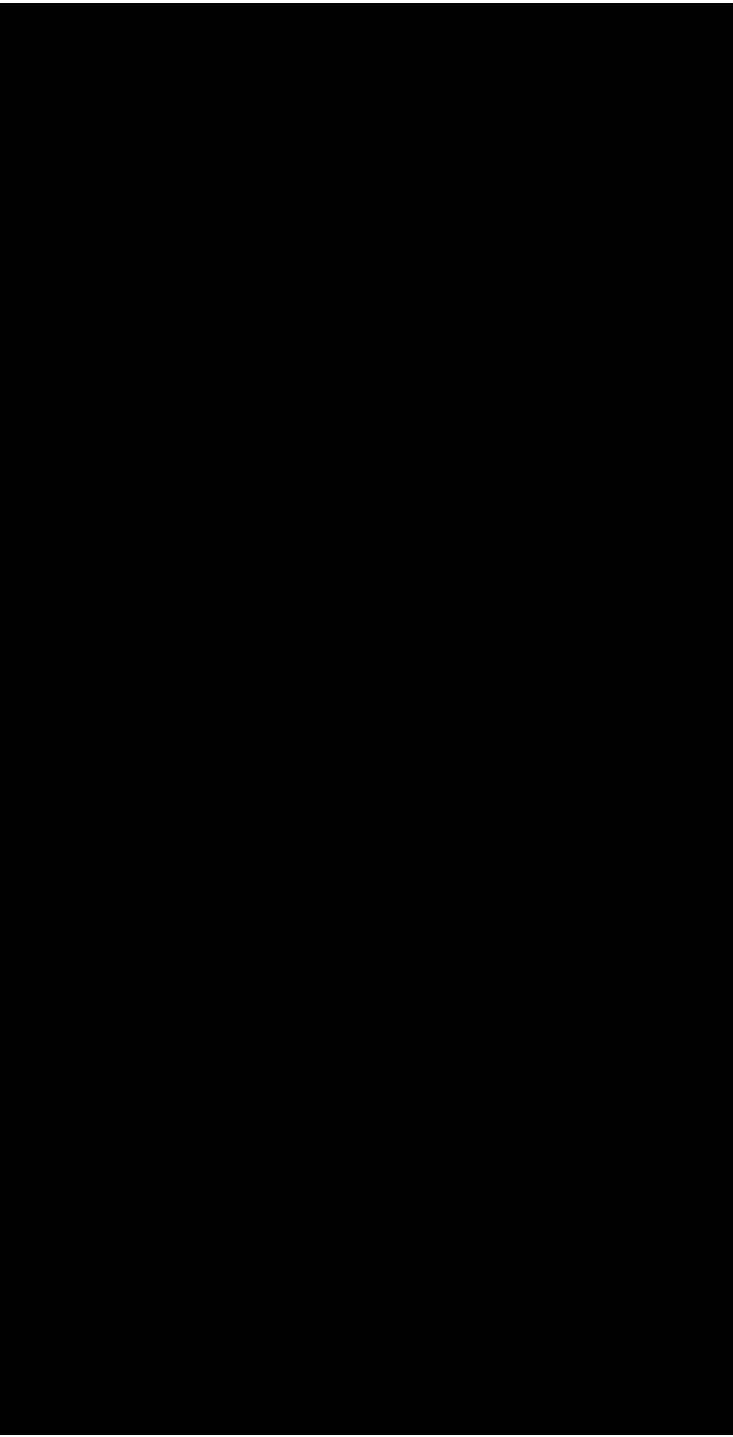


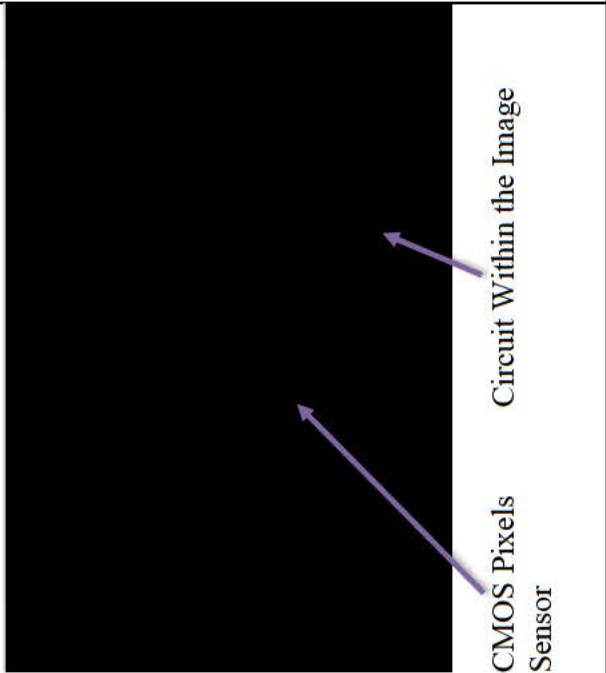
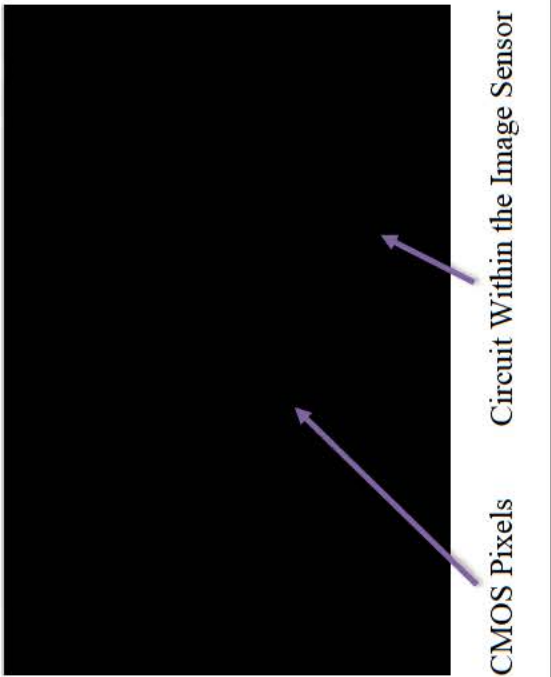
- 24 -

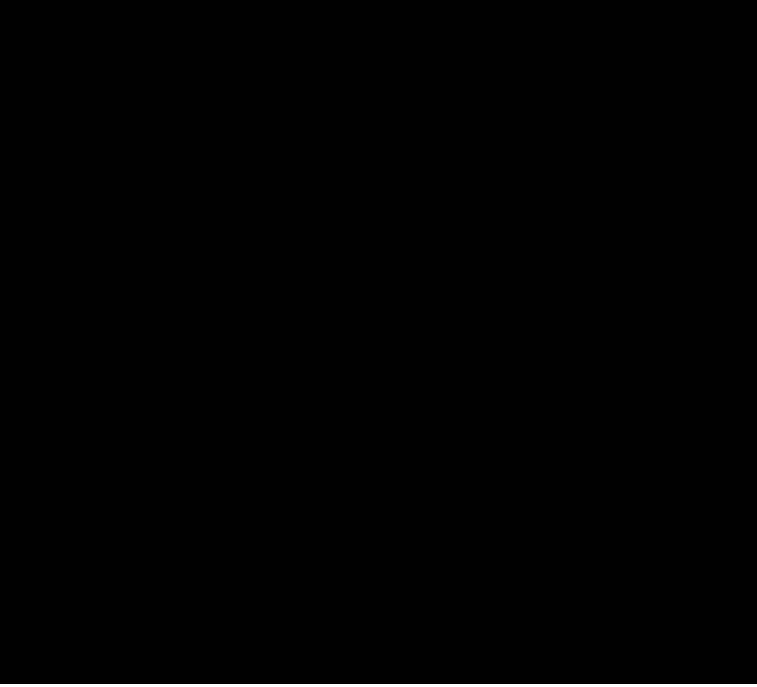
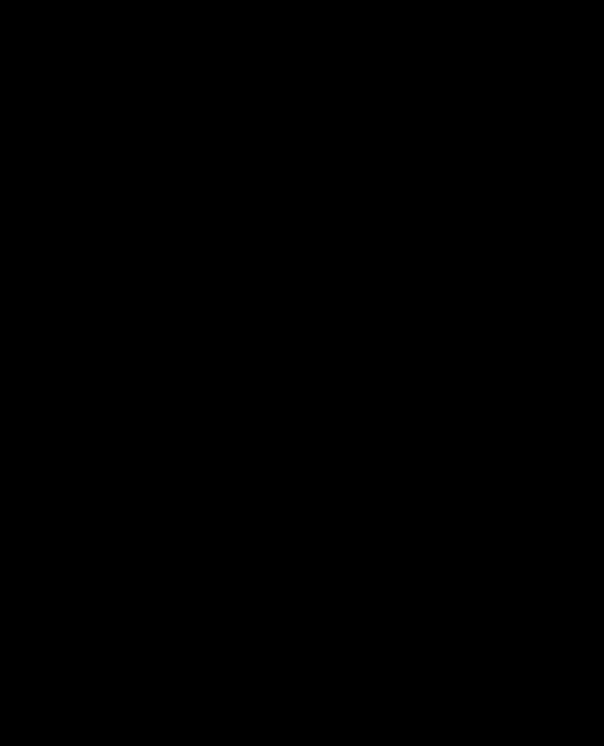
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	f. enabling viewing on said video view screen and	
		g. enabling video signals to be transmitted from said camera module to said computer,

	h. said camera module including an image sensor housed therein, said image sensor lying in a first plane and including an array of pixels for receiving images thereon,
	

i. said image sensor further including circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels,		
	The Galaxy S5 front image sensor includes a complex integrated circuit. “The sensor is the part of the camera that actually ‘captures’ the image. It includes a complex integrated circuit that typically includes photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.	The Galaxy S5 rear image sensor includes a complex integrated circuit. “The sensor is the part of the camera that actually ‘captures’ the image. It’s a complex integrated circuit that typically includes photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.

	Galaxy S5 Front Camera, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Front-Camera/IF236-009 (last accessed Oct. 24, 2019).	
	Galaxy S5 Rear Camera, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Rear-Camera/IF236-007 (last accessed Oct. 24, 2019).	

	ISOCELL_Samsung NewsRoom Screenshot. jpg 	ISOCELL_Samsung NewsRoom Screenshot. jpg  The integrated circuit within the image sensor is coupled to CMOS pixels for the purpose of timing and control. The Samsung Galaxy S5 includes latches, counters and decoders on the circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs
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The integrated circuit within the image sensor is coupled to CMOS pixels for the purpose of timing and control. The Samsung Galaxy S5 includes latches, counters and decoders on the circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above.

Doctrine of Equivalents:

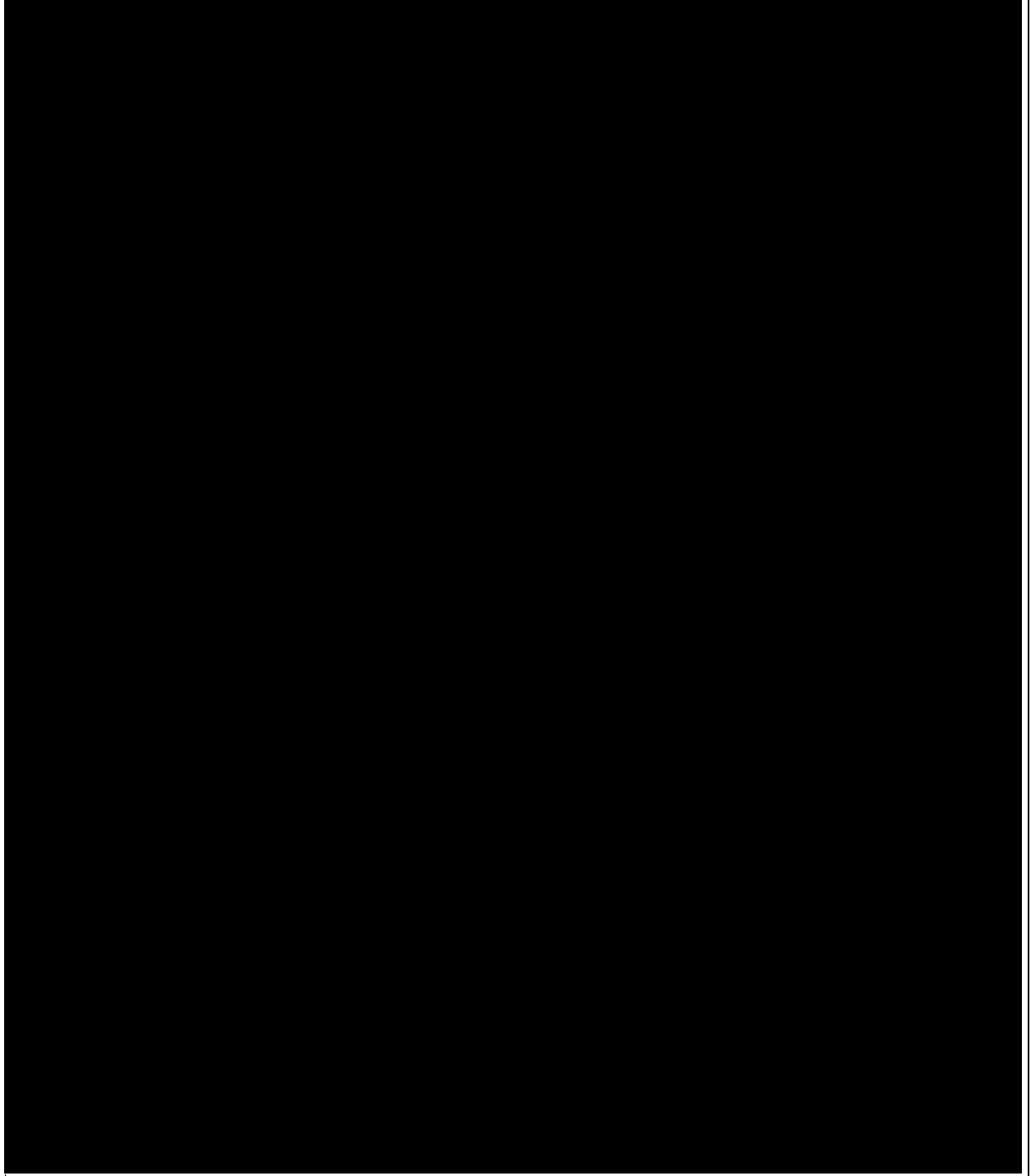
The integrated circuit within the image sensor is coupled to CMOS pixels for the purpose of timing and control. The Samsung Galaxy S5 includes latches, counters and decoders on the circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above.

Doctrine of Equivalents:

To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs

	To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its electronic components control the release of image data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of latches, decoder and counter are used to control the release of the image signal from the pixel array. Galaxy S5 achieves the same result because electronic components in the device control the release of the image signal from the pixel array.	substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its electronic components control the release of image data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of latches, decoder and counter are used to control the release of the image signal from the pixel array. Galaxy S5 achieves the same result because electronic components in the device control the release of the image signal from the pixel array.
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j. said image sensor
producing a pre-
video signal,



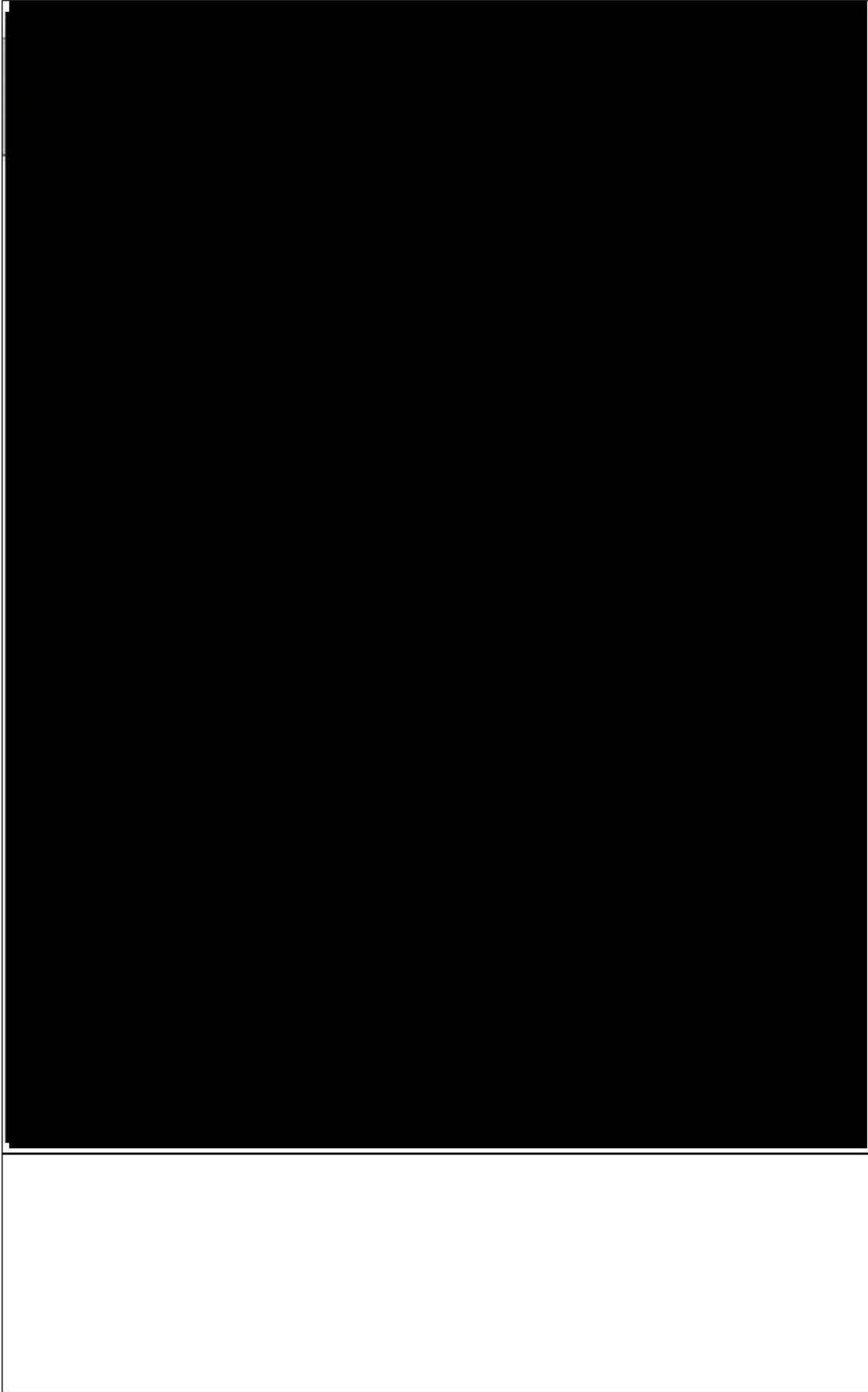
k. a first circuit
board electrically
connected to said
image sensor,

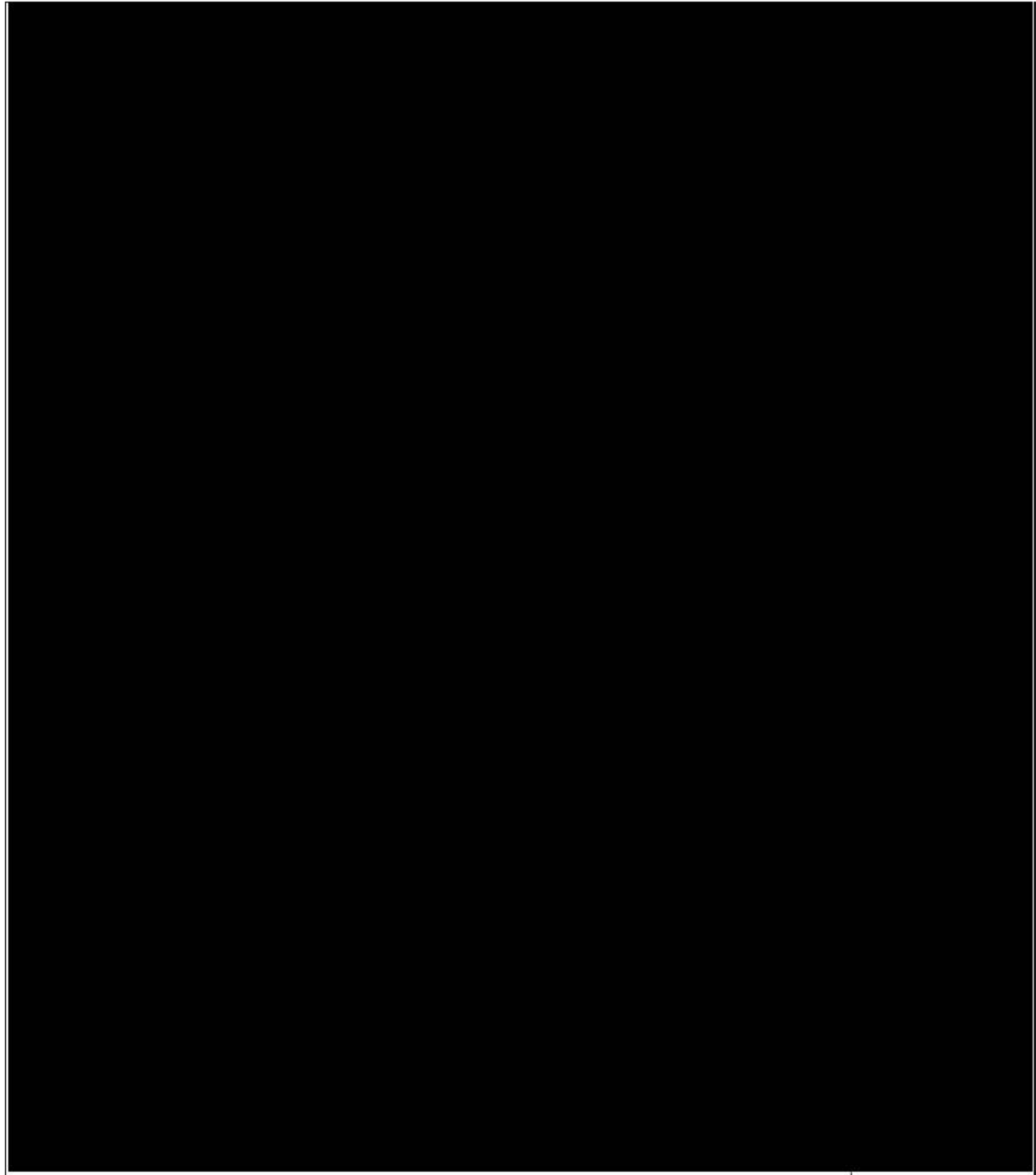


1. said first circuit board including circuitry means for converting said pre-video signal to a desired video format,	The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen.	The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen.

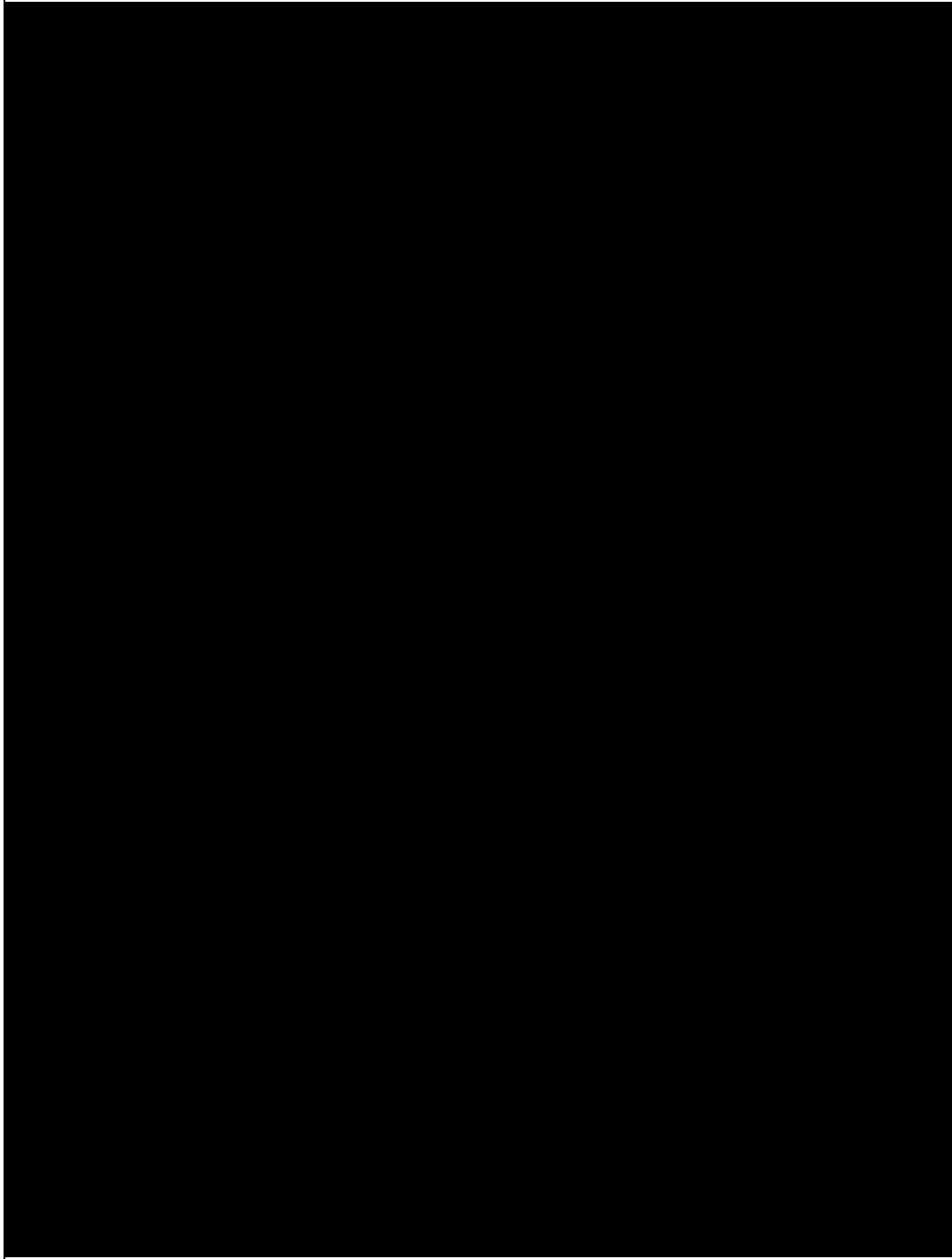
		The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signal to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, detector, white balance circuit, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in function in substantially the same way to achieve
	The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signal to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, detector, white balance circuit, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in	The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signal to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, detector, white balance circuit, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve substantially the

	substantially the same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.	same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.
m. a transceiver radio element housed within said camera module and electrically coupled to said first circuit board for transmitting said converted pre-video signal; and		

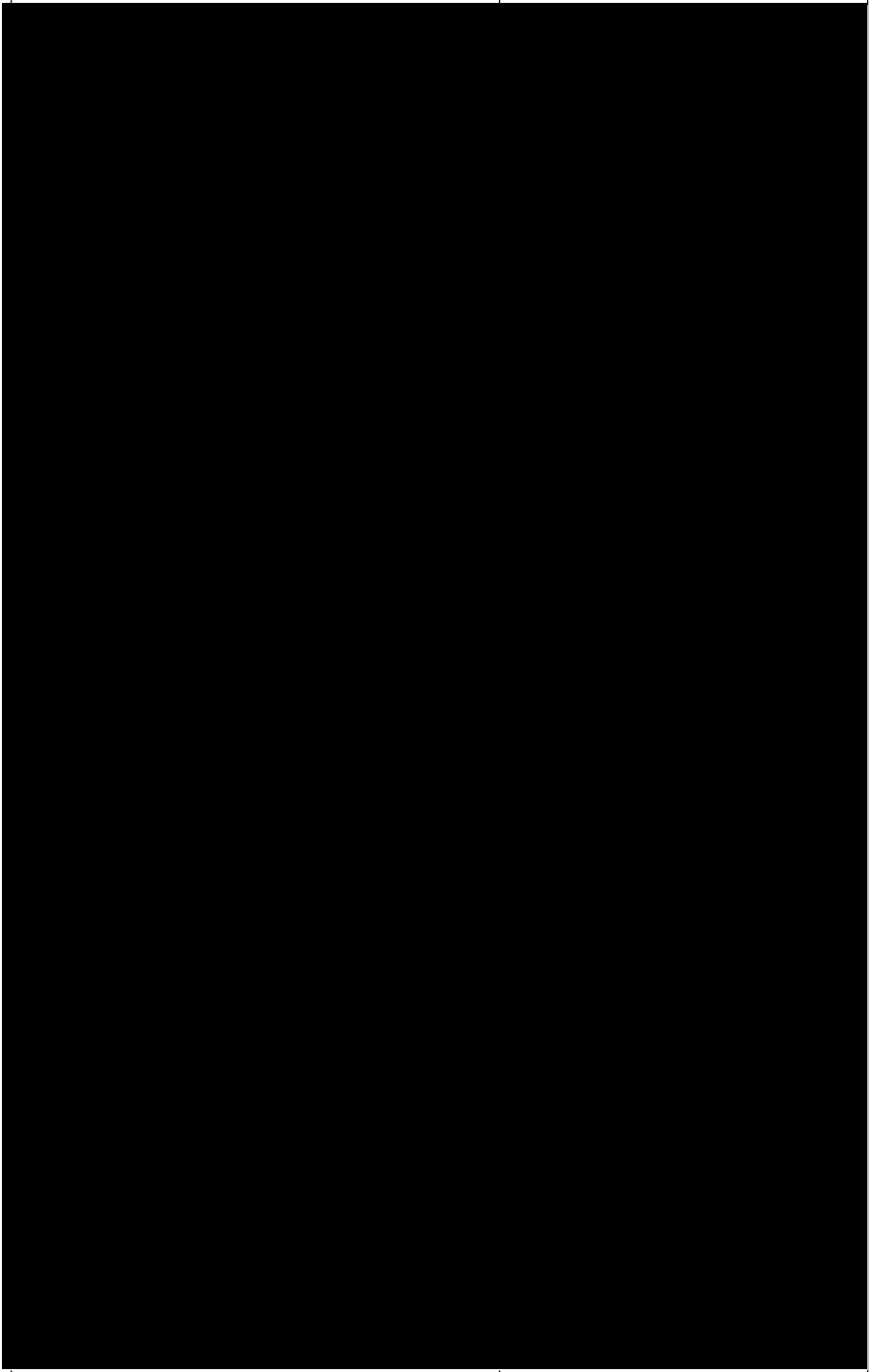


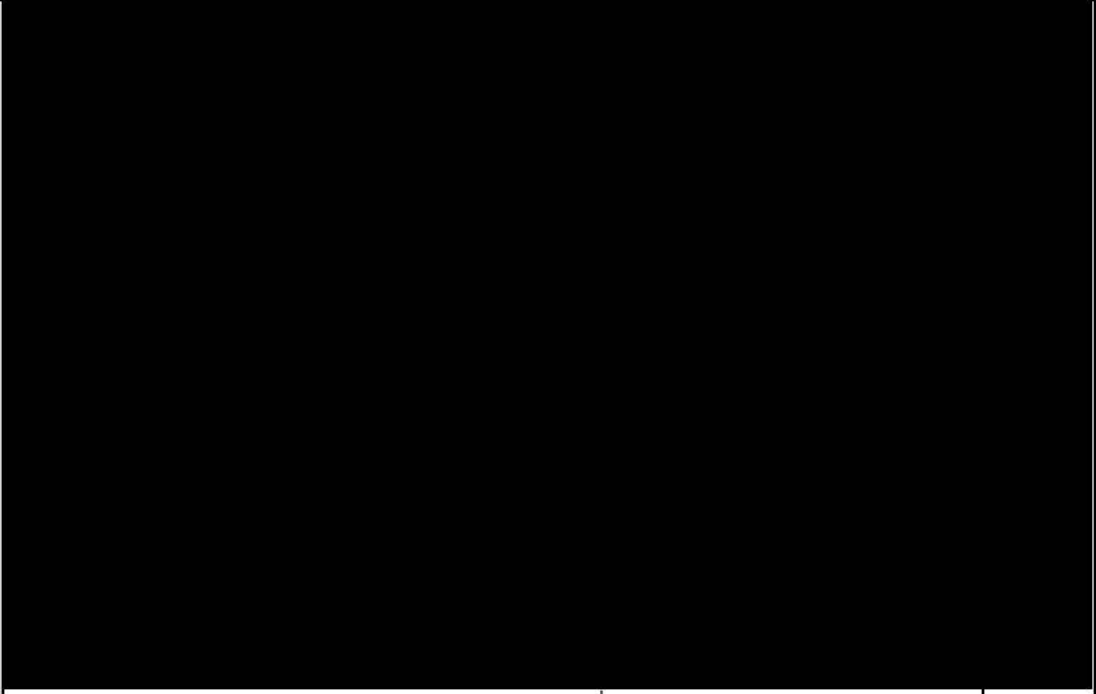
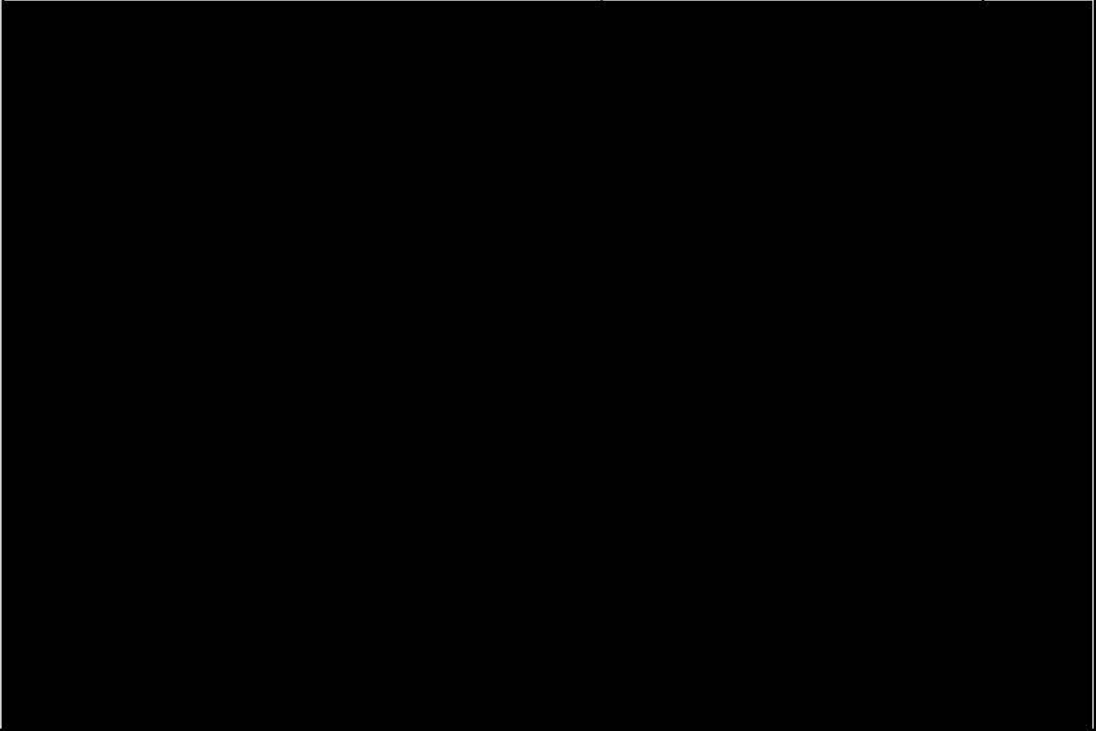
	n. a transceiver radio module housed in the PDA and wirelessly communicating with said transceiver
	

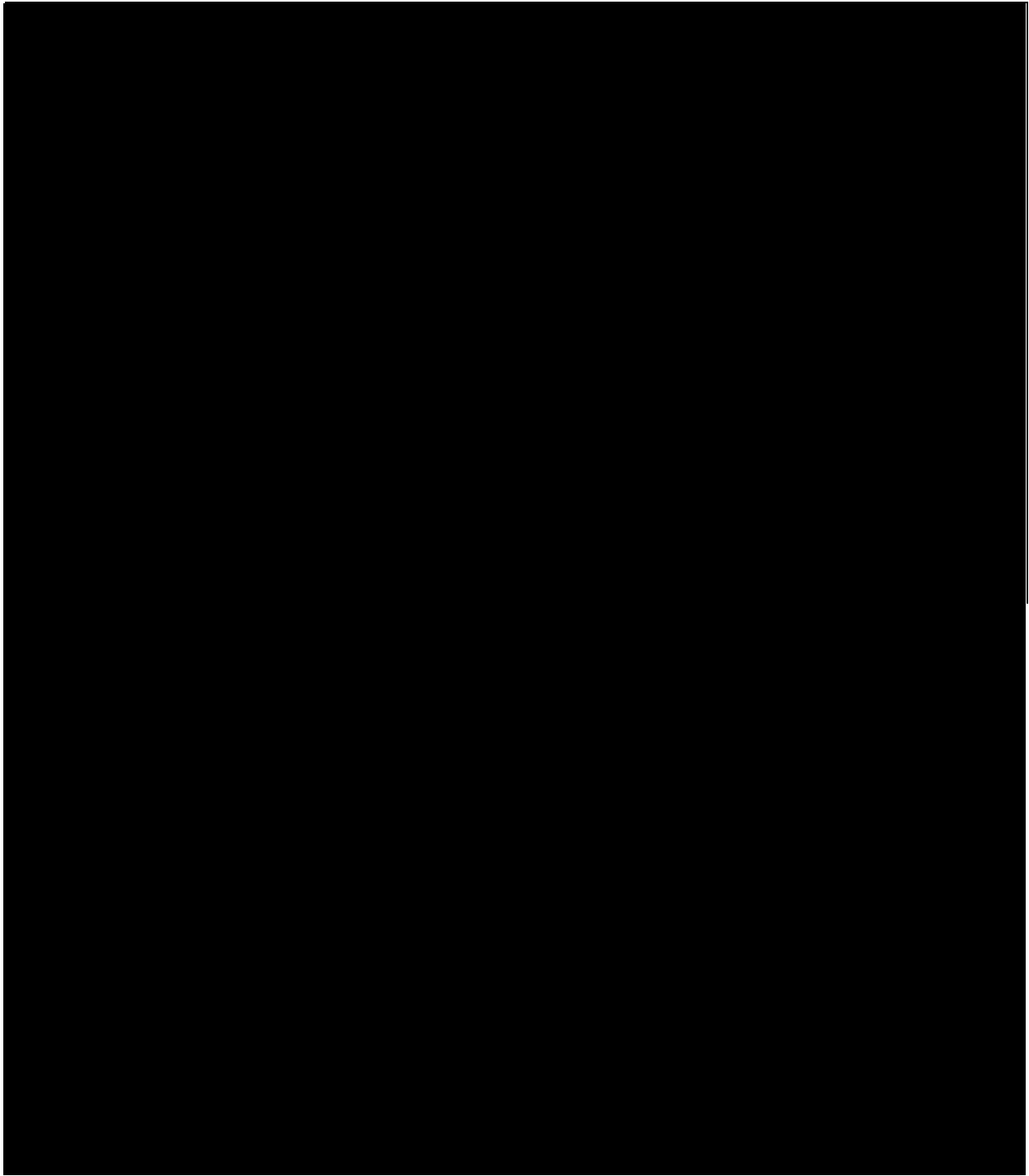
radio element for
receiving said
converted pre-video
signal, and

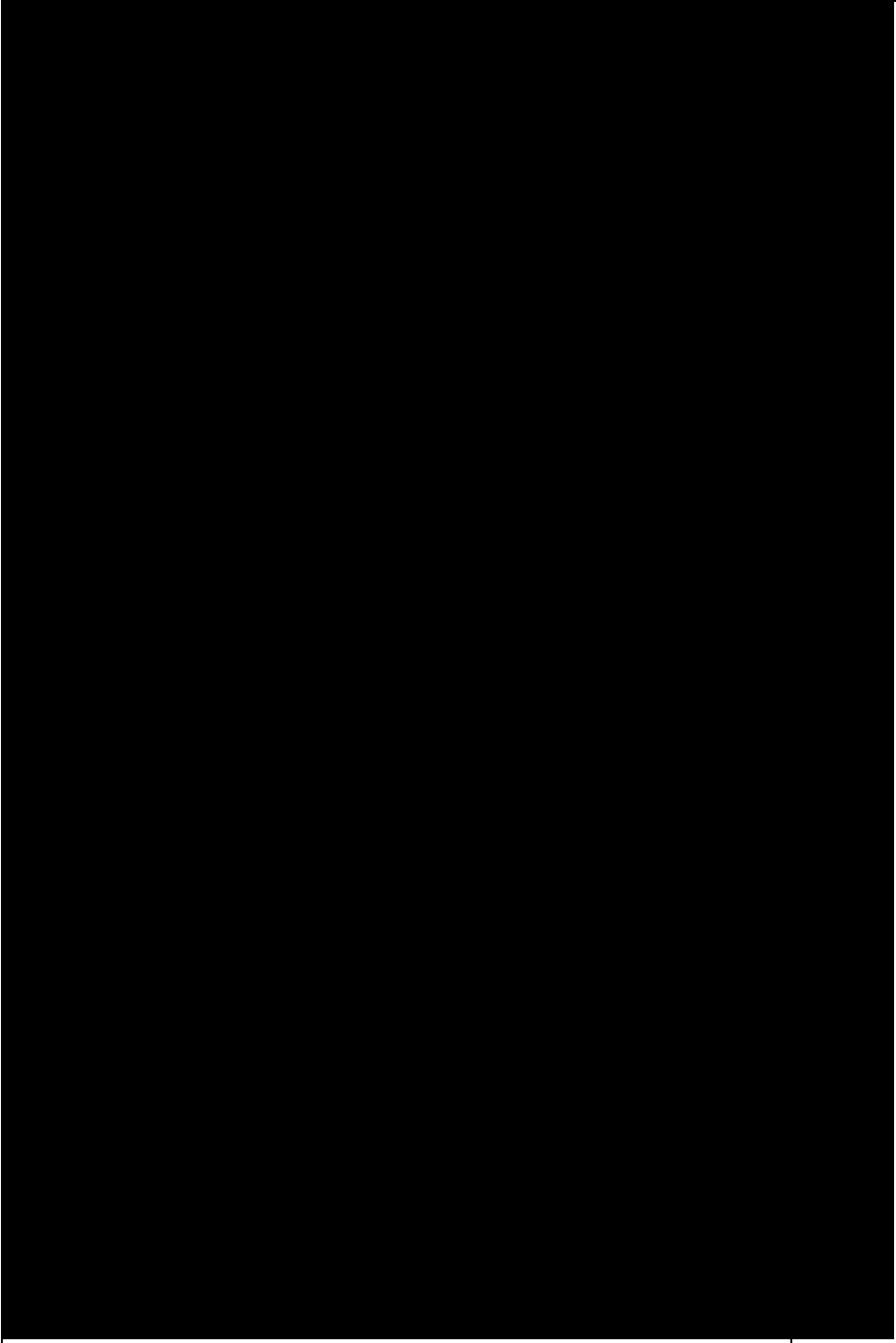


	o. said transceiver radio element being electrically coupled to the video view screen of the PDA

	p. enabling viewing of the converted pre- video signals.
	

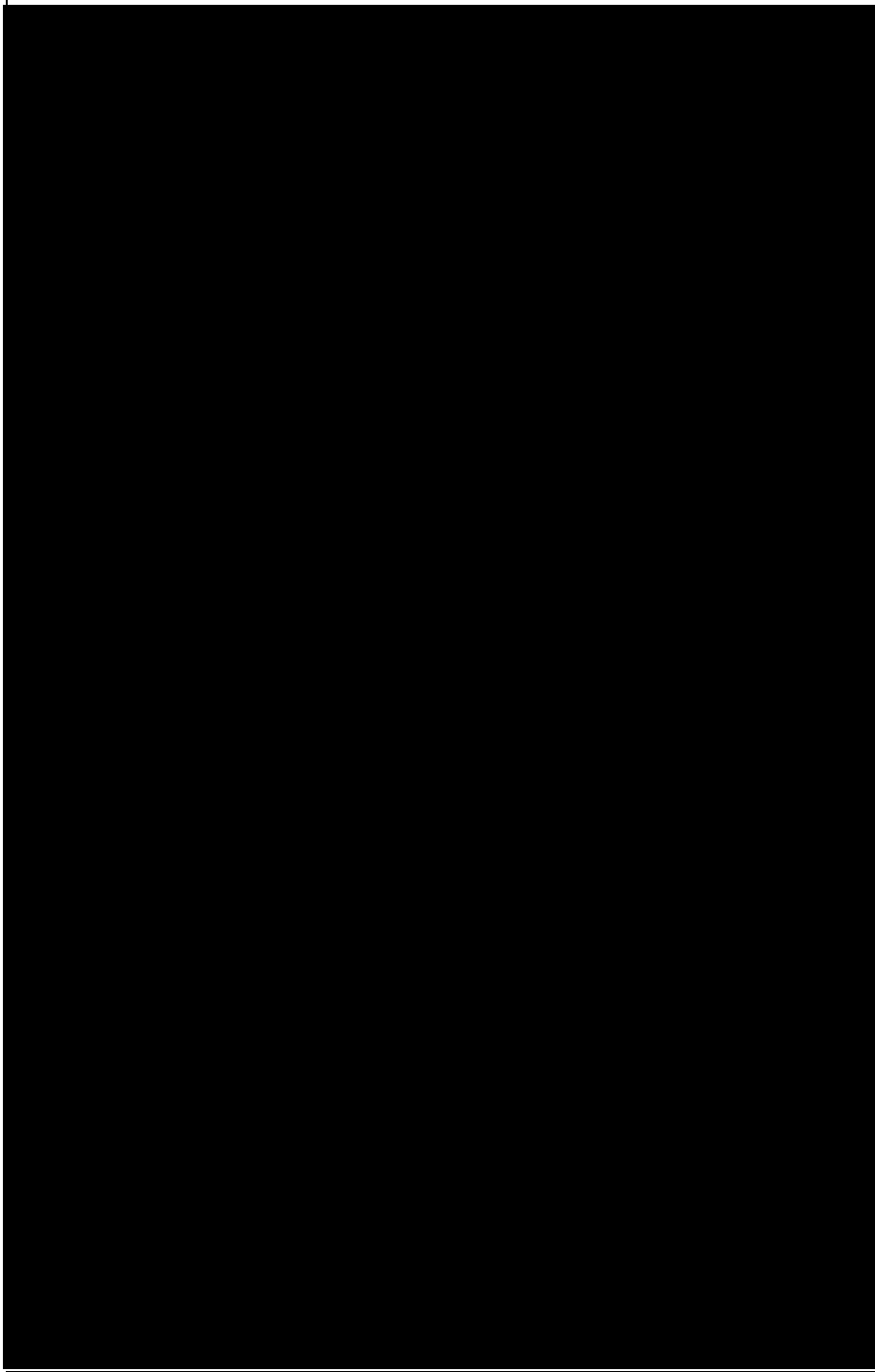
'742 Patent Claim 42	Front Camera	Rear Camera
42a. In a PDA having capability to transmit and receive data in a communications network, the improvement comprising: a video system integral with said PDA for receiving and transmitting video images, and		
for viewing said video images, said video system comprising;		
c. a camera module housing an image sensor therein,		

	d. said image sensor lying in a first plane and including an array of pixels for receiving images thereon,
	

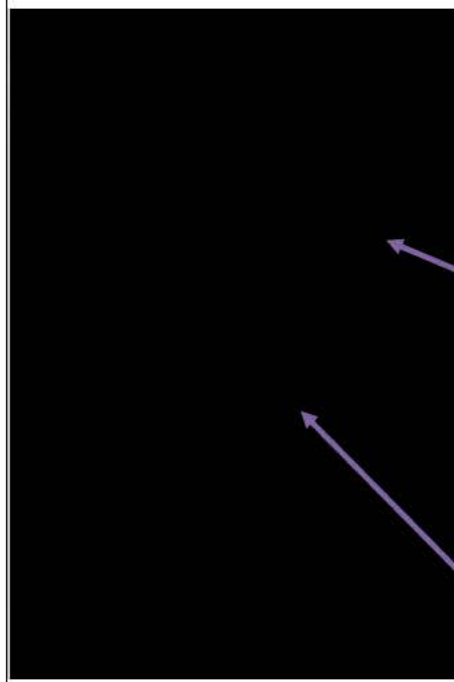
	e. said image sensor producing a pre-video signal,
	

		f. a first circuit board lying in a second plane and
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electrically coupled
to said image sensor,



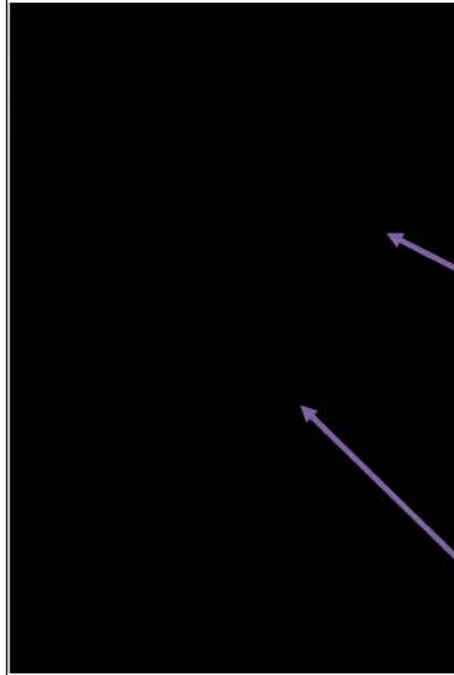
g. said first circuit board including circuitry means for timing and control of said array of pixels and



CMOS Pixels
Sensor

Circuit Within the Image

ISOCELL_Samsung NewsRoom Screenshot. jpg



CMOS pixels

Circuit Within the Image Sensor

ISOCELL_Samsung NewsRoom Screenshot. jpg

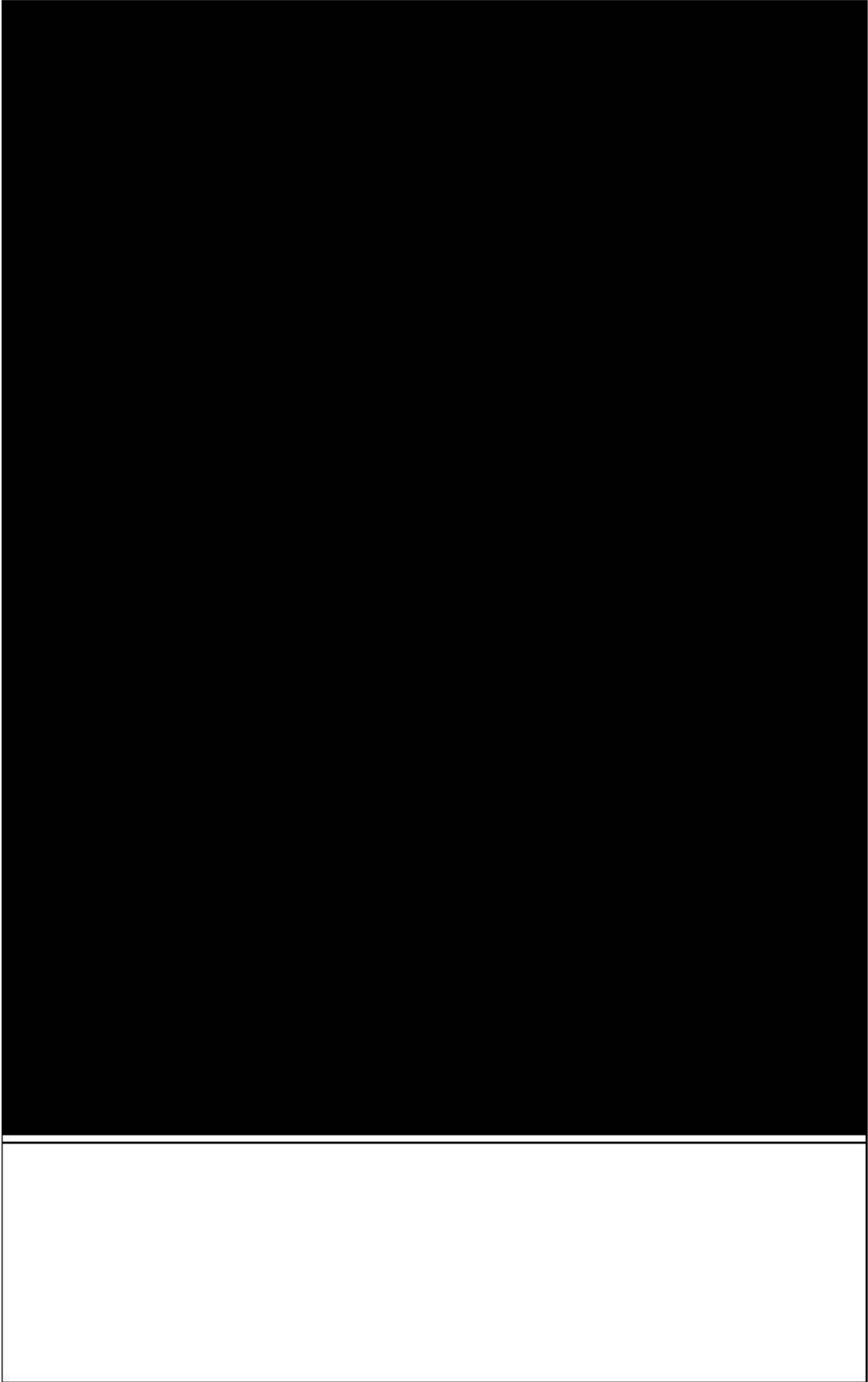
	The integrated circuit on the mother board which is electrically connected to integrated circuit within the image sensor is thus coupled to CMOS pixels as part of the timing and control circuitry. The Samsung Galaxy S5 includes latches, counters and decoders on the mother board circuit of the image sensor to control the release of the image signals from pixels of the image sensor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve substantially the same result. Galaxy S5 performs the same function because its electronic components control the release of image data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing,
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	data from the CMOS pixel array. For example, photodetectors corresponding to each of the pixels in the image sensor capture analog information about the incident photons (light packets) and this analog information is then released for further processing, such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of latches, decoder and counter are used to control the release of the image signal from the pixel array.	such as being amplified and converted into a digital signal. Galaxy S5 performs the function in the same way because components performing the function of latches, decoder and counter are used to control the release of the image signal from the pixel array. Galaxy S5 achieves the same result because electronic components in the device control the release of the image signal from the pixel array.
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h. circuitry means for processing and converting said pre-video signal to a desired video format,	The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen. The pre-video signal received from the image sensor is sent to a processor on the first circuit board, which converts the pre-video signal to a post-video signal that can be viewed on the Galaxy S5 LCD screen	
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		The circuitry means for converting a pre-video signal to a post-video signal on the Galaxy S5 are the electronic components which condition the pre-video signal to place it in a form that may be viewed on a standard video device and include video processing board including low pass filters, band pass filter, gain control and processor as illustrated above. <u>Doctrine of Equivalents:</u> To the extent that Galaxy S5 does not literally infringe this claim element, Defendant infringes under the doctrine of equivalents. The above described functionality of Galaxy S5 is at most insubstantially different from the claimed functionality and performs substantially the same function in substantially the same way to achieve
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	substantially the same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.	substantially the same result. Galaxy S5 performs the same function because its processor(s) convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). Galaxy S5 performs this function in the same way because algorithms embedded in a memory of the Galaxy S5, upon receiving an instruction such as an user input (for example, pressing a button, touching screen), will be executed and cause the processor to convert the pre-video signal into a signal that can be accepted by a standard video device (for example accepted by its display). The memory and processor are part of the motherboard and within the same circuit. Galaxy S5 achieves the same result because a signal that can be accepted by a standard video device (for example accepted by its display), is created and displayed to the user.
i. a transceiver radio element communicating with said first circuit board for transmitting said converted pre-video signal;		



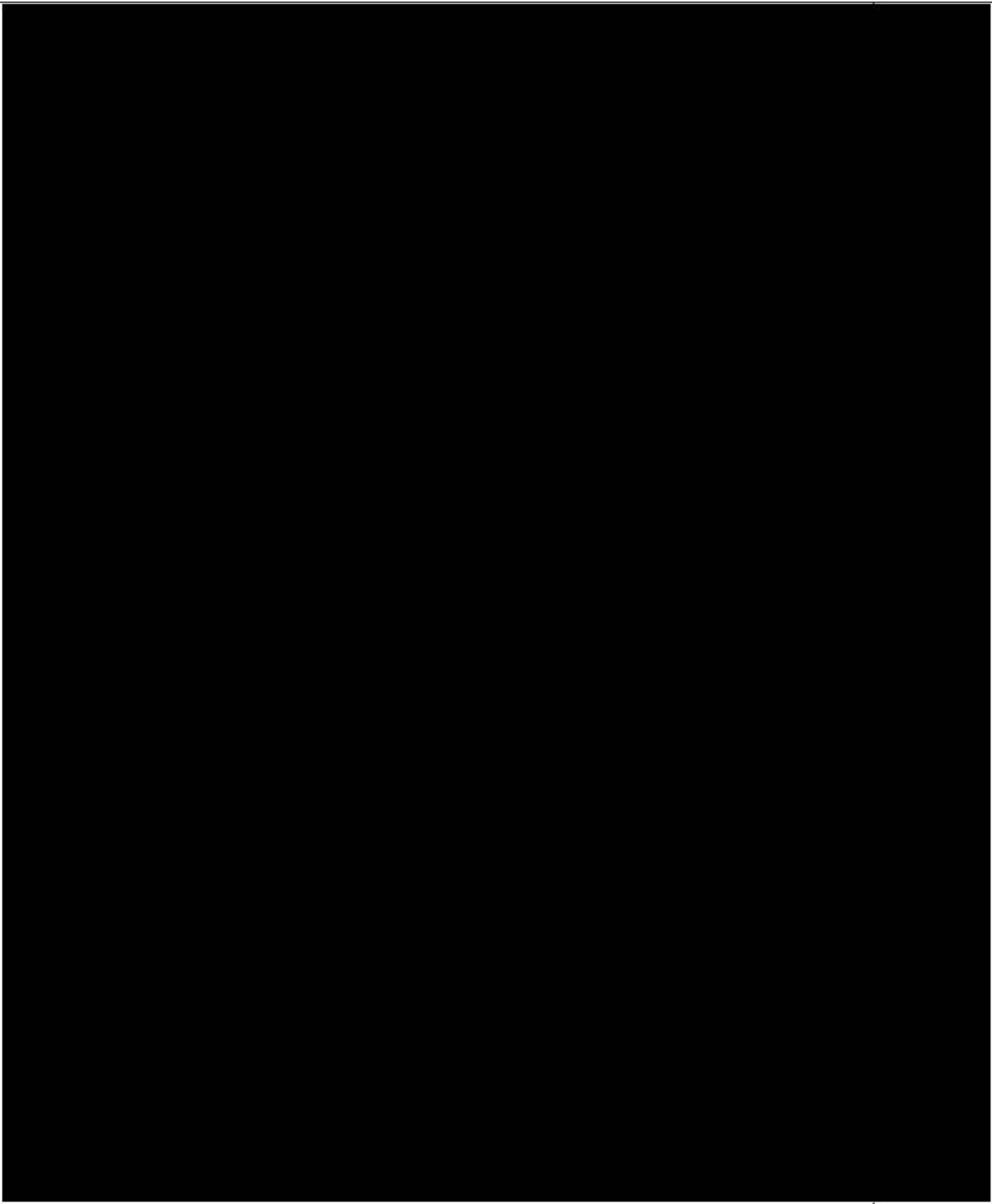
	j. a transceiver radio module mounted in said PDA for wirelessly receiving said converted pre-video signal; and

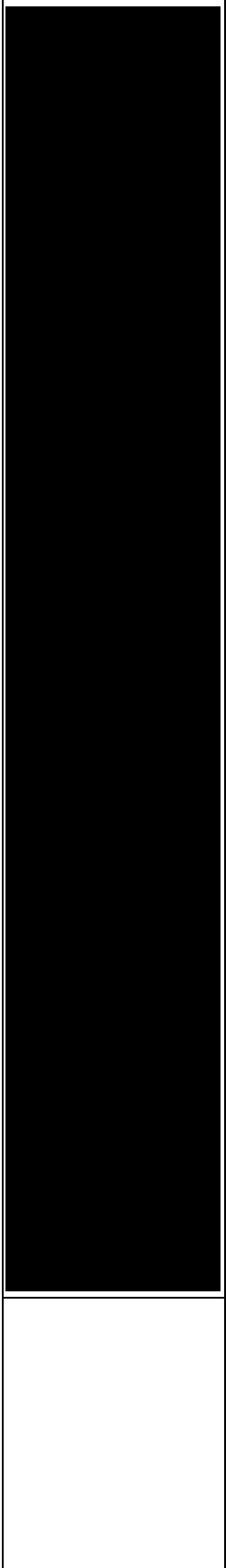


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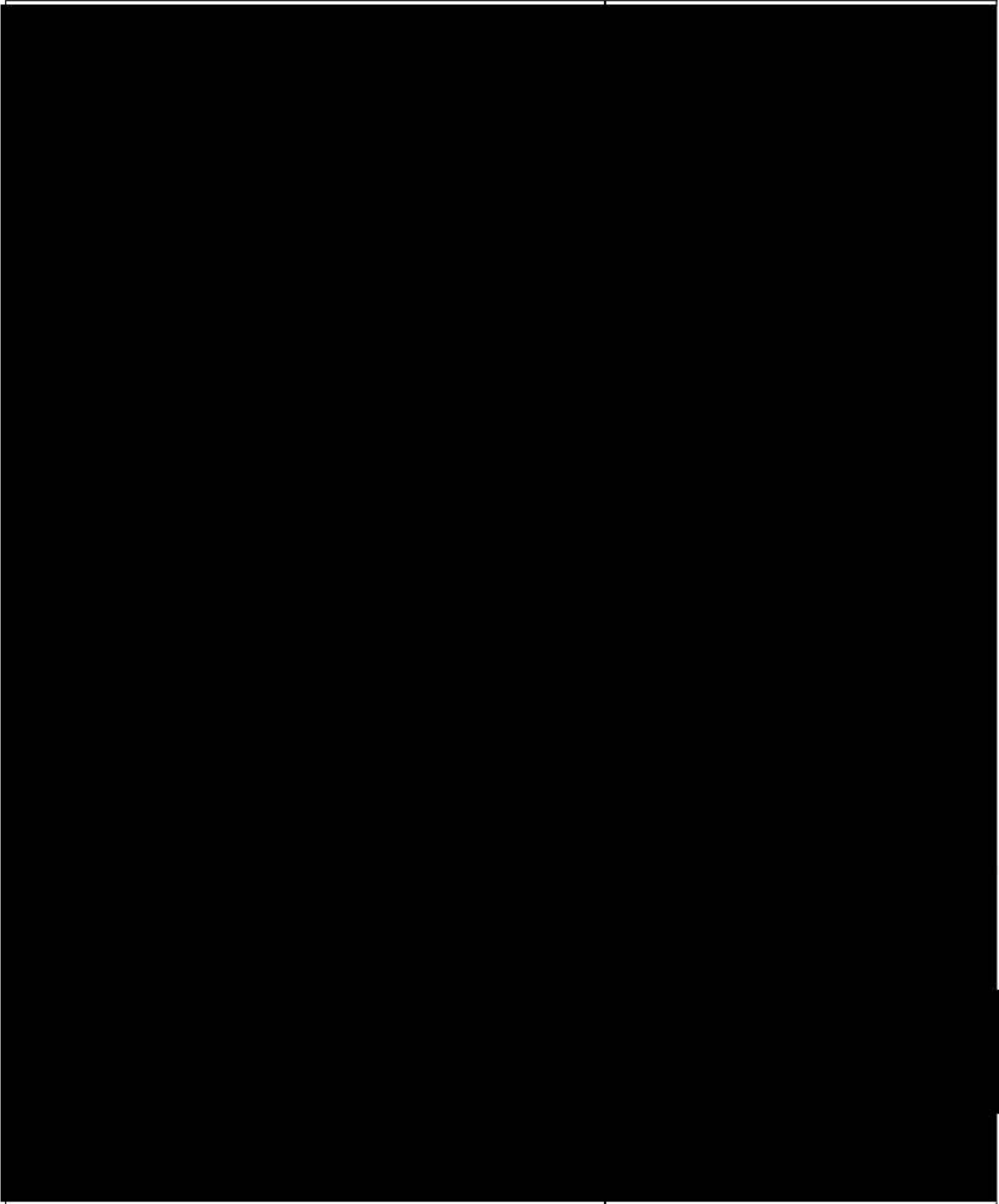
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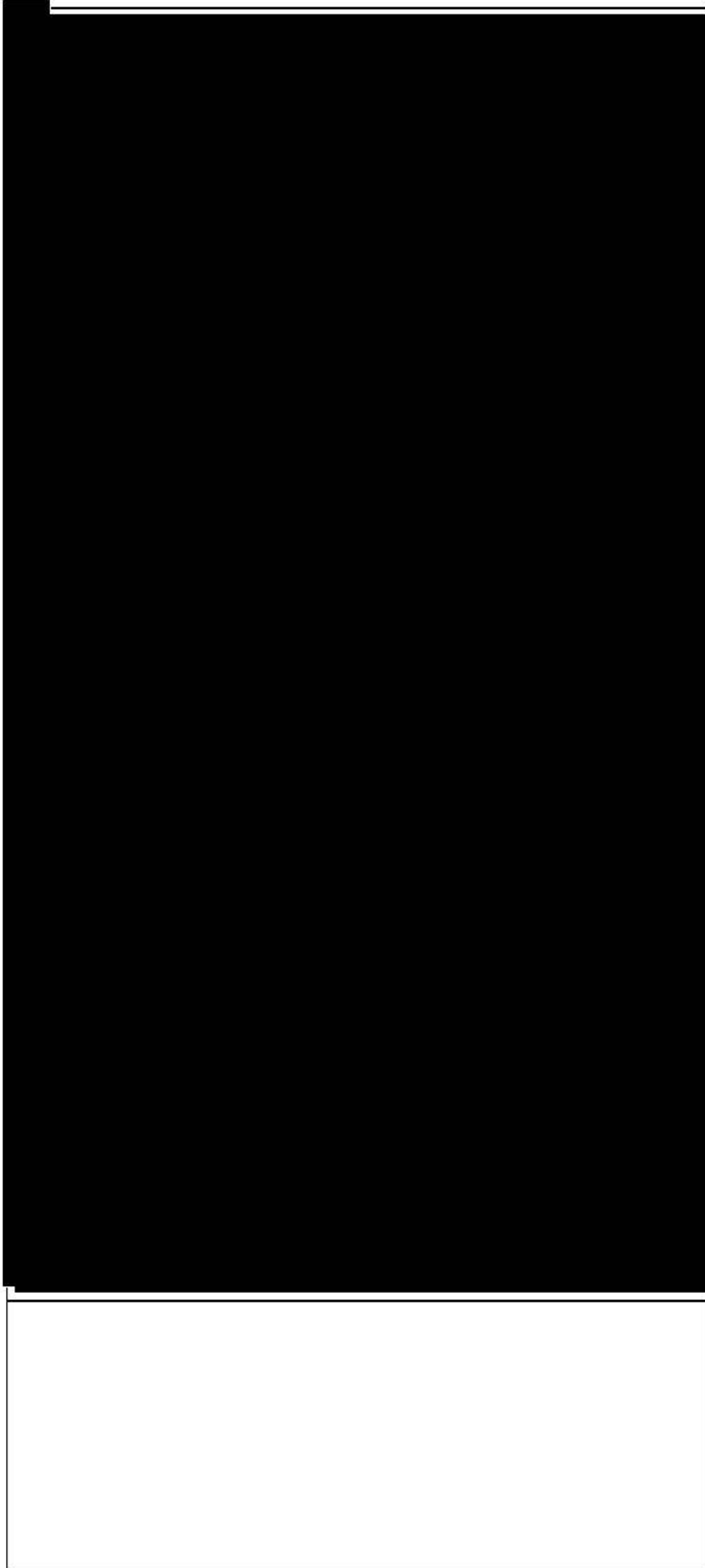
		k. a video view screen attached to said PDA for viewing said video images, said video view screen
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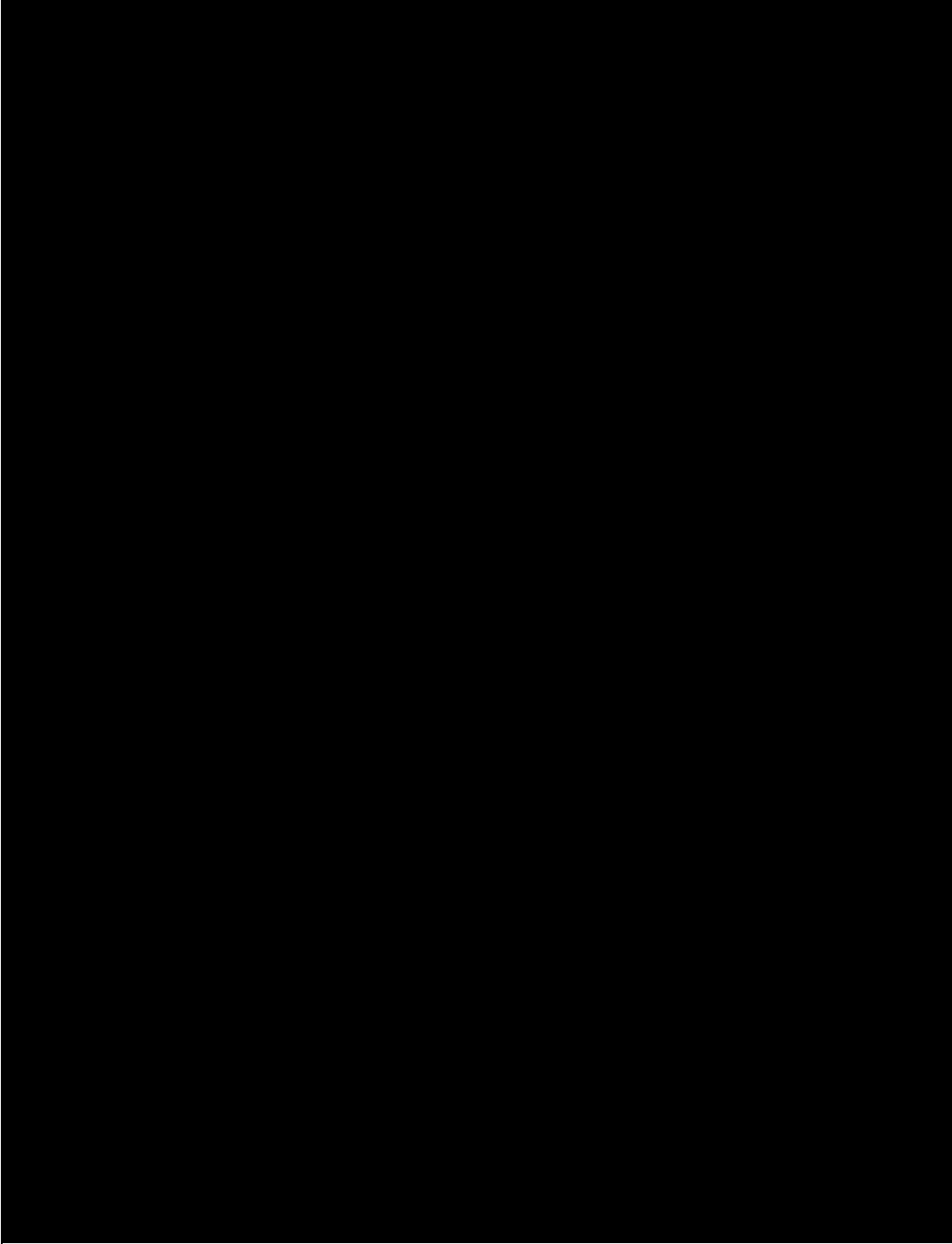
communicating with said transceiver radio module, and	
1. displaying video images processed by said first circuit board.	

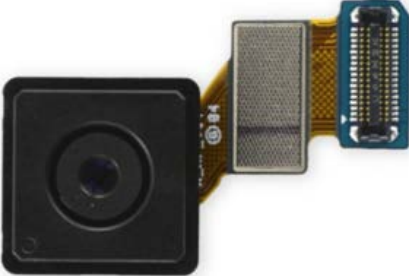


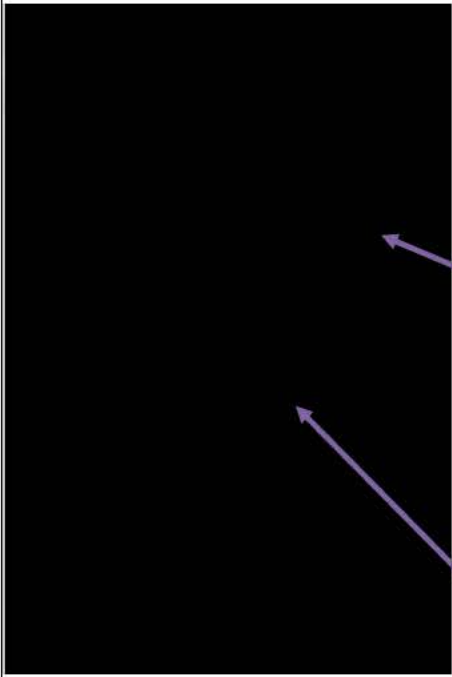
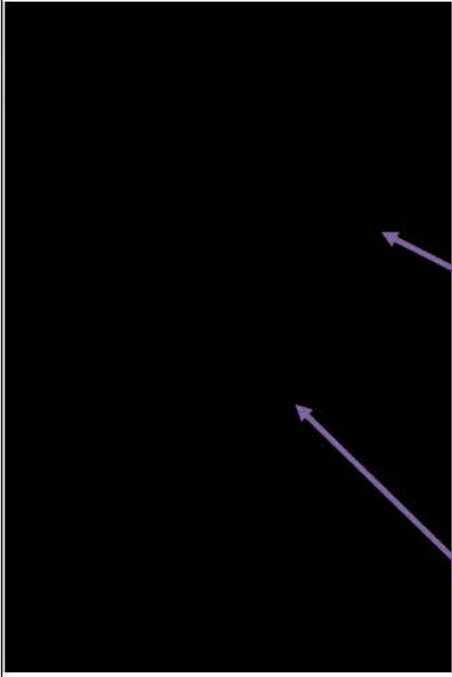
'742 Patent Claim 66	front camera	rear camera
66a. A PDA having capability to transmit and receive data in a communications network, said PDA comprising:		
b. an image sensor lying in a first plane including an array of pixels for receiving images thereon,		

	c. said image sensor producing a pre- video signal;
	



d. a first circuit board electrically communicating with said image sensor,		
e. said first circuit board including circuitry means for timing and control		
	The Galaxy S5 front image sensor includes a complex integrated circuit. "The sensor is the part of the camera that actually 'captures' the image. It includes a complex integrated circuit that typically	The Galaxy S5 rear image sensor includes a complex integrated circuit. "The sensor is the part of the camera that actually 'captures' the image. It's a complex integrated circuit that typically includes

of said array of pixels and	includes photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.  Galaxy S5 Front Camera, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Front-Camera/IF236-009 (last accessed Oct. 24, 2019).	photodetectors – the key component that captures light – plus amplifiers, transistors, and often some form of processing hardware and power management.” Tim Schiesser, <i>Know Your Smartphone: A Guide to Camera Hardware</i>, TECHSPOT (July 28, 2014), https://www.techspot.com/guides/850-smartphone-camera-hardware/.  Galaxy S5 Rear Camera, iFixit (emphasis added), https://www.ifixit.com/Store/Android/Galaxy-S5-Rear-Camera/IF236-007 (last accessed Oct. 24, 2019).
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	 CMOS Pixels Circuit Within the Image Sensor ISOCELL_Samsung NewsRoom Screenshot. jpg	 CMOS Pixels Circuit Within the Image Sensor ISOCELL_Samsung NewsRoom Screenshot. jpg

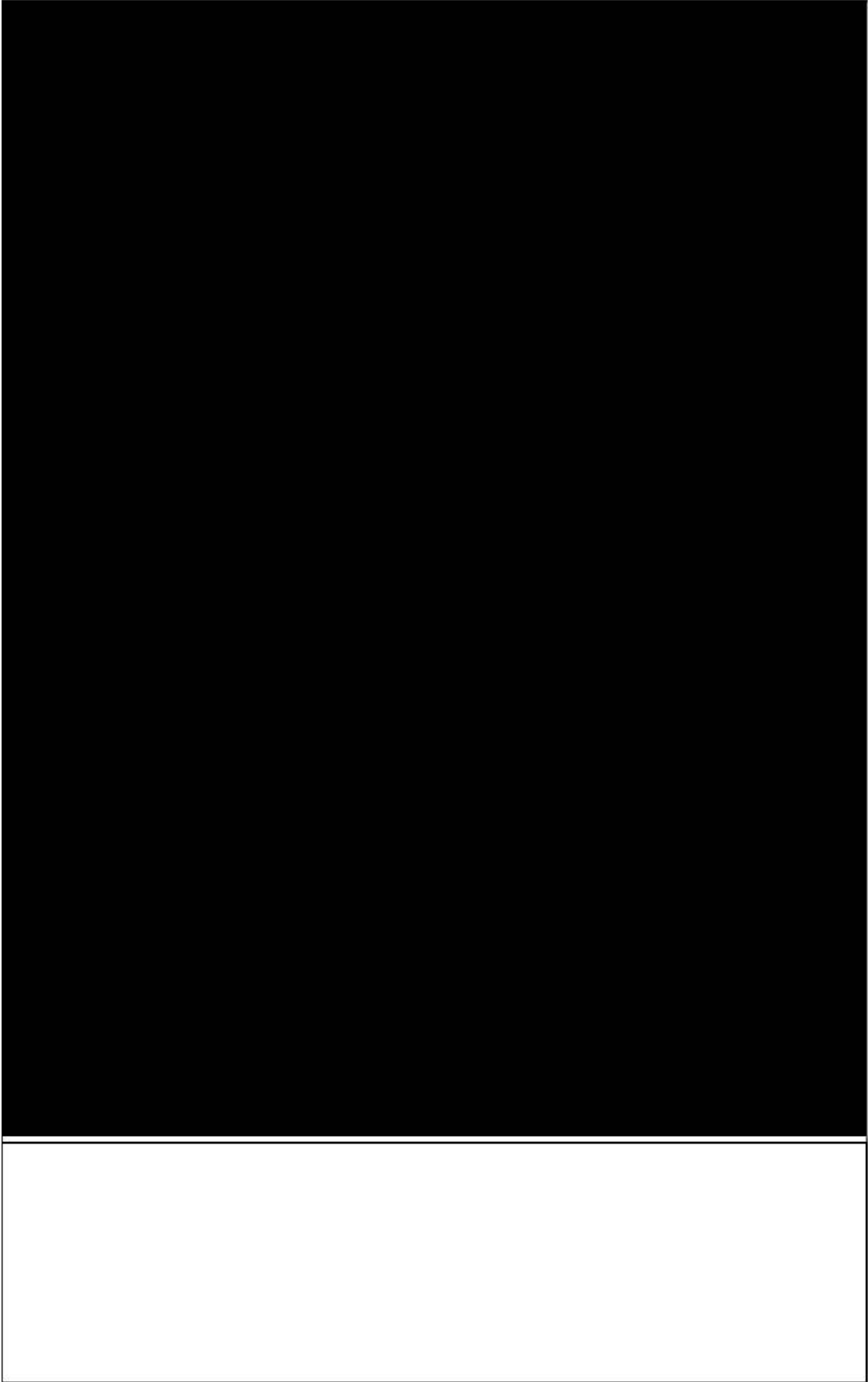
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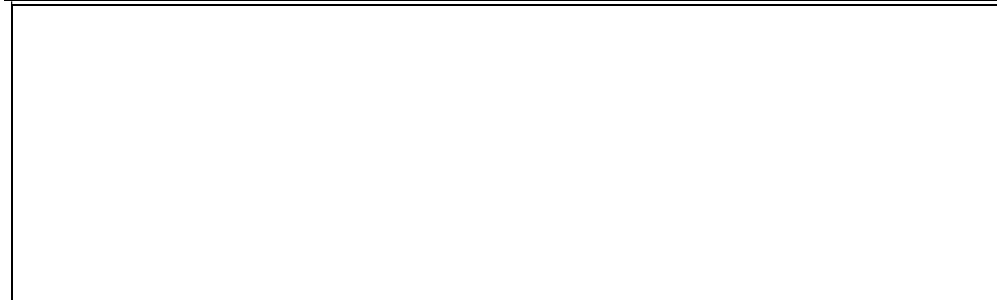
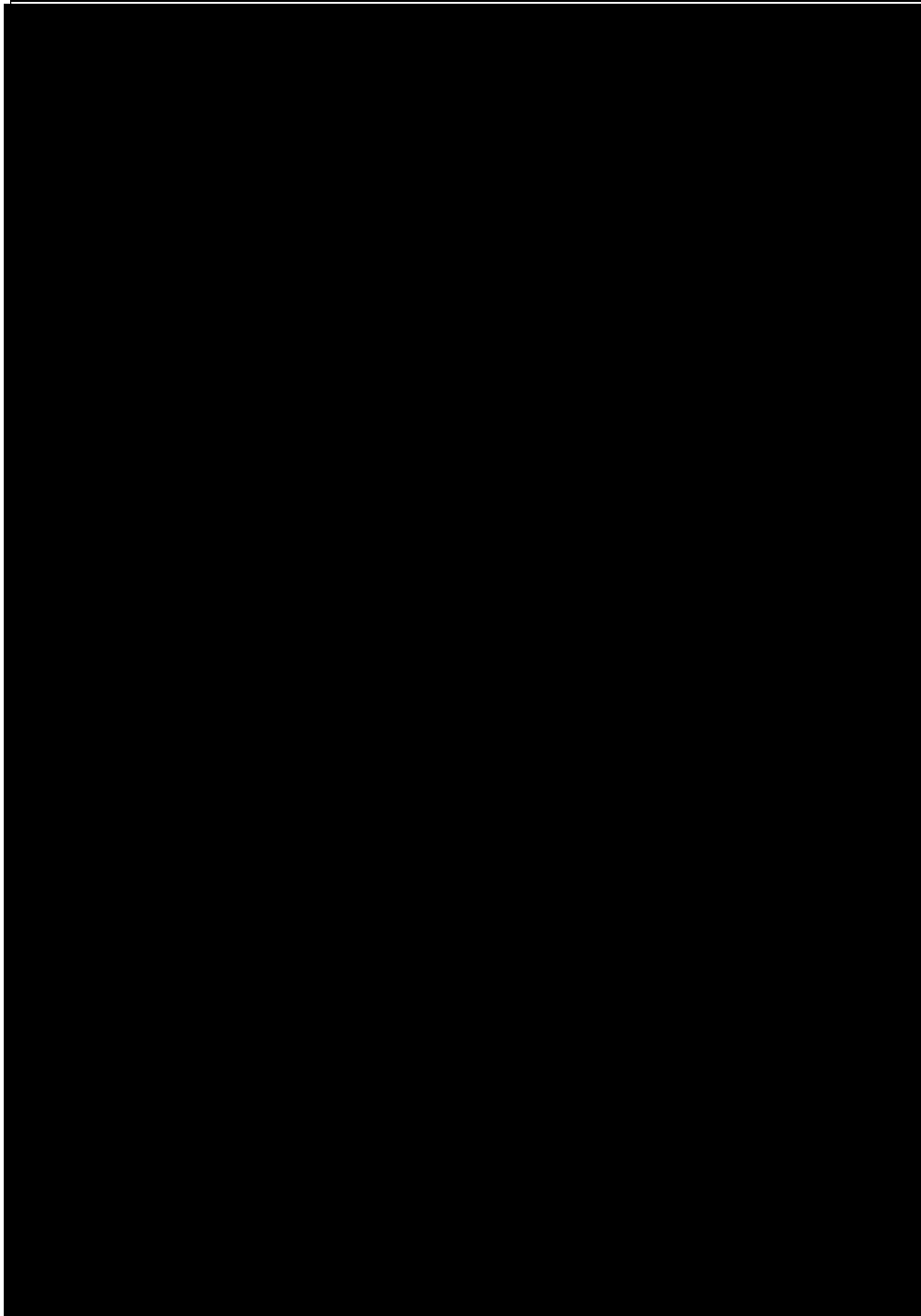
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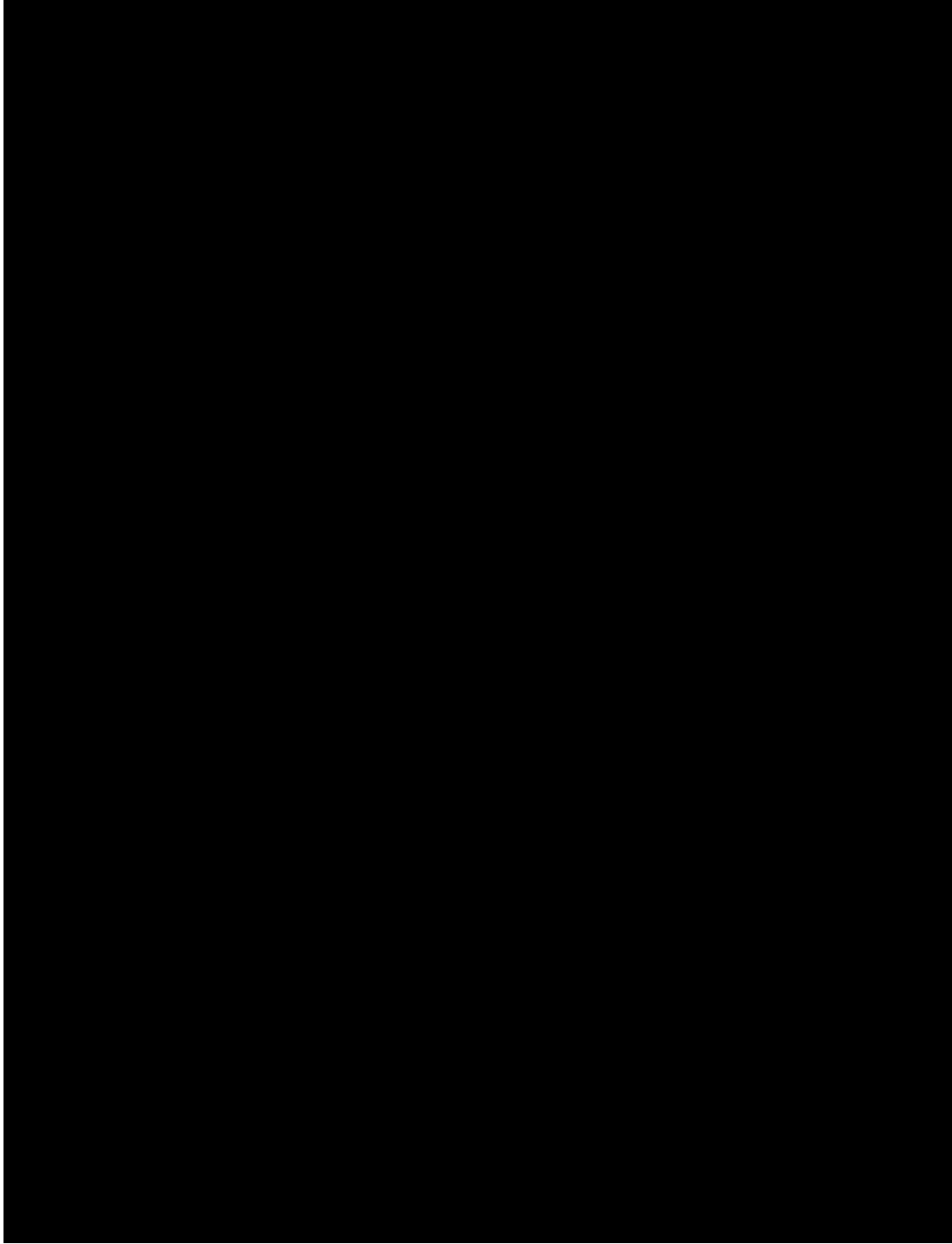
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g. a radio transceiver element communicating with said first circuit board for wirelessly transmitting said converted pre-video signal;			





h. a camera module housing said image sensor, said first circuit board, and said transceiver radio element therein;	
g. a radio transceiver module housed within the PDA for wirelessly communicating with said radio	

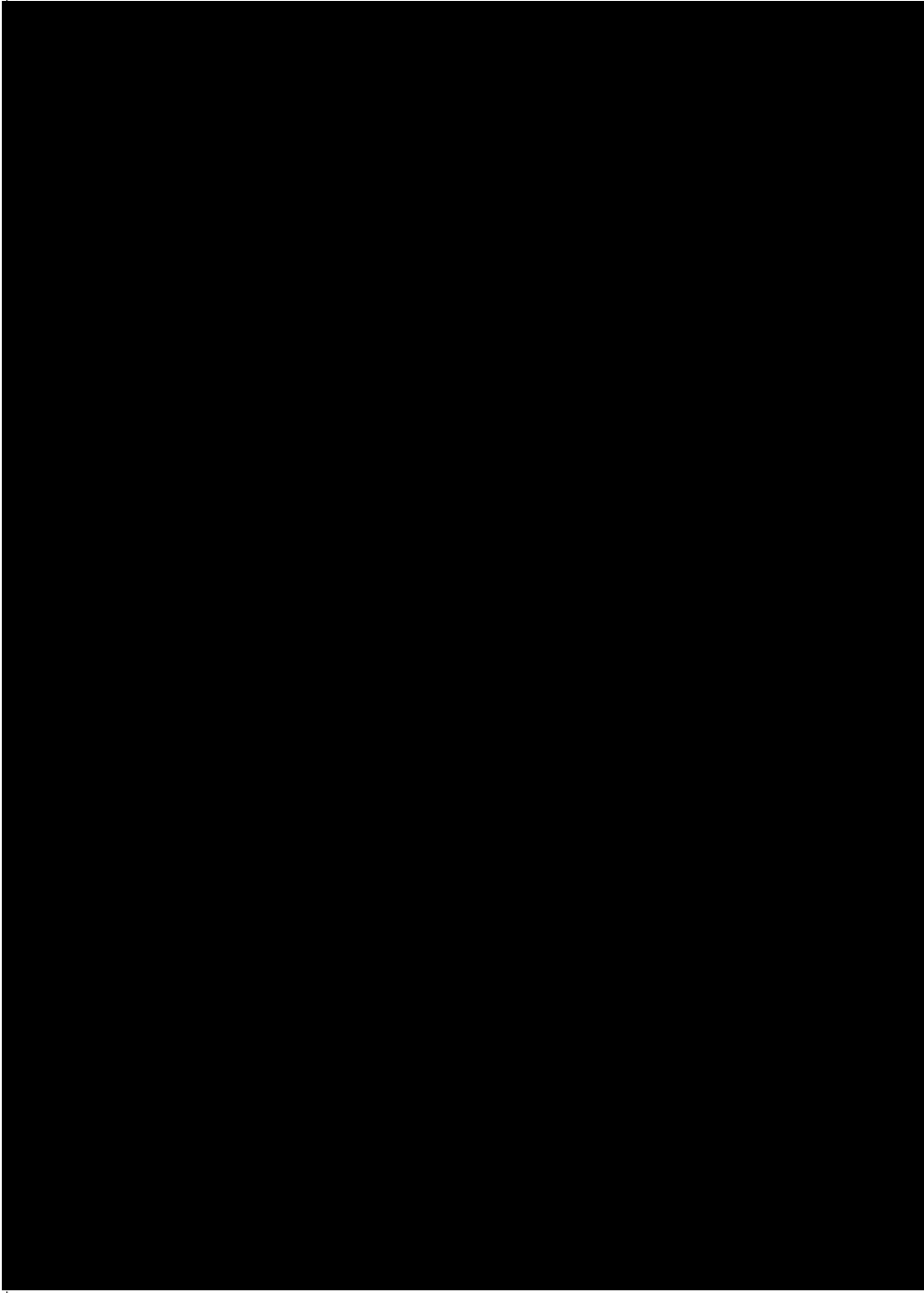
transceiver element
and receiving said
converted pre-video
signal;



i. a transceiver/ amplifier section electrically coupled to said transceiver radio module for amplifying and	

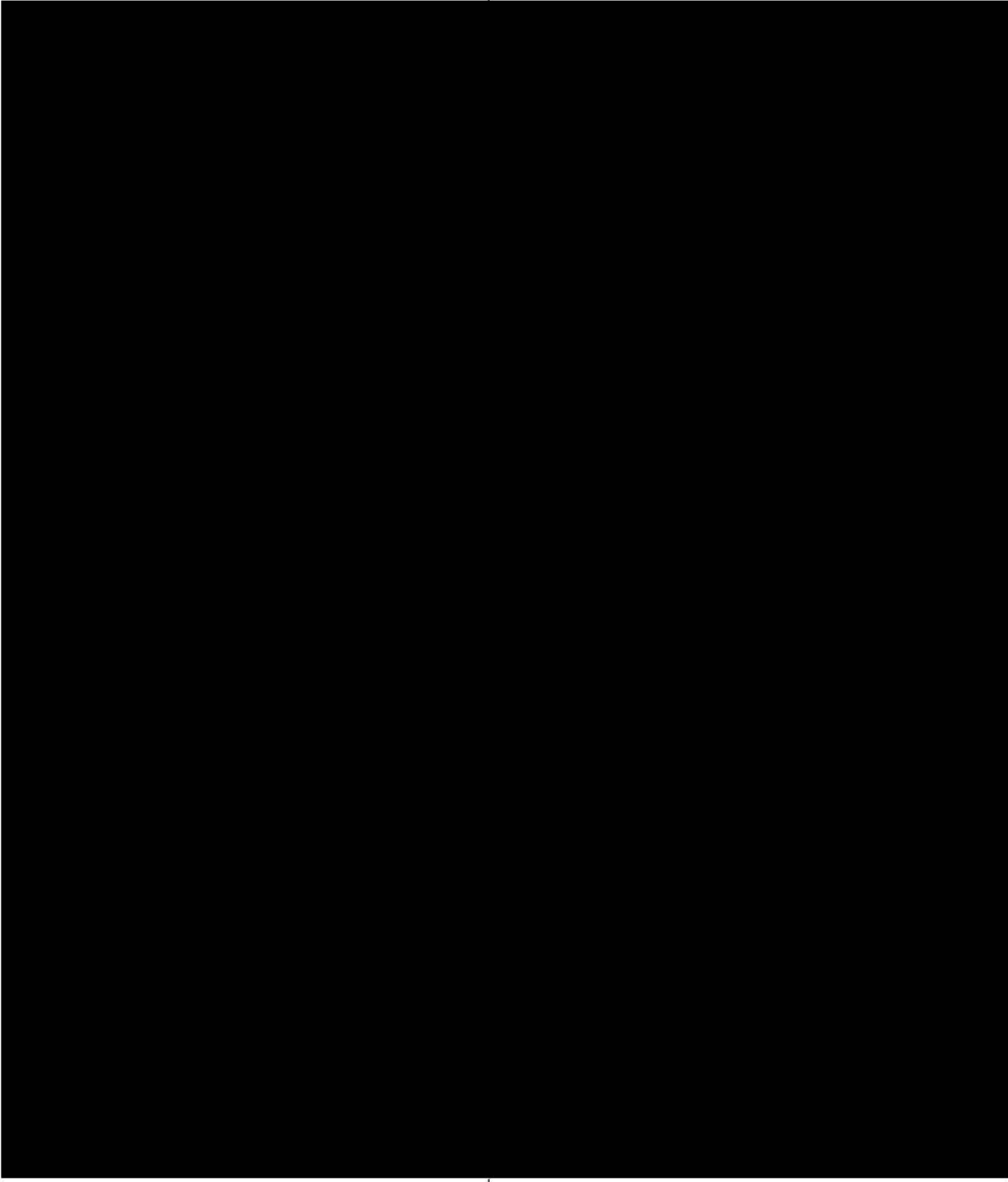
further transmitting the converted pre-video signal, and for receiving and amplifying video and audio signals transmitted by another party;	
j. a digital signal processor electrically coupled to said transceiver radio module and said	

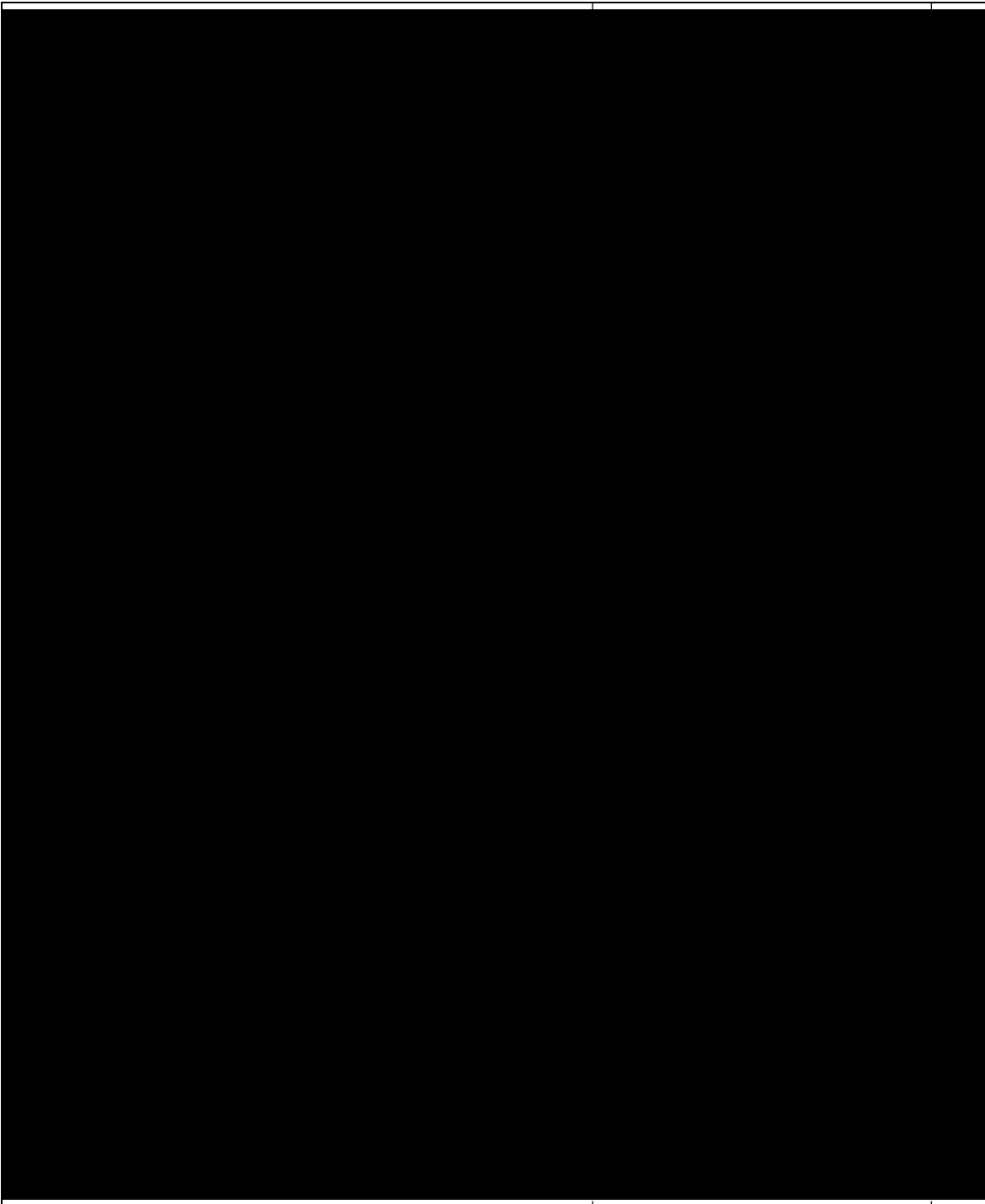
transceiver/amplifier
section,



		k. said digital signal processor further conditioning said converted pre-video signal which is first conditioned by said
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first circuit board, and also for conditioning video and audio signals received by said transceiver/ amplifier section from the other party	
k. a microphone electrically communicating with said digital signal processor for recording sound and converting the sound to audio signals;	

	1. a speaker electrically communicating with said digital signal processor for broadcasting audio signals;
	

m. a video view screen attached to said PDA, said video view screen for selectively displaying selectively displaying video images from said image device, and for selectively displaying video images received by said transceiver/amplifier section from the other party;		
n. a video switch communicating with said first circuit board and said digital signal processor for switching video images to be viewed on said video view screen; and		
o. a power supply mounted to said		

PDA for providing
power thereto.

