

Facet Technology Corp. v. Mobileye Global, Inc., Case No. 2:24-cv-00058-RWS-RSP
Plaintiff's Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

Plaintiff Facet Technology Corp. ("Facet" or "Plaintiff") presently contends that Defendant Mobileye Global, Inc. ("Mobileye" or "Defendant") infringes Claims 1, 3-4, 9-13, 17-19 (the "Asserted Claims") of U.S. Patent No. 9,671,328 ("328 Patent") directly and indirectly. This chart sets forth Plaintiff's preliminary infringement contentions relating to the Asserted Claims and the Accused Instrumentalities. Exemplary Accused Instrumentalities are referenced here, and they are listed in Plaintiff's Disclosure of Preliminary Infringement Contentions with as much specificity as possible. In general terms, the Accused Instrumentalities are Mobileye's Lane Departure Warning ("LDW") Technologies such as Mobileye EyeQ3 and Mobileye EyeQ4 Systems-on-Chip (SOCs) implemented into various vehicle manufacturer's vehicles. To the extent that other of Mobileye's products and services include/integrate functionality described below, Plaintiff intends to include those products/applications within the scope of Accused Instrumentalities. The Accused Instrumentalities encompass any predecessor or successor product or service or unnamed related product or service that includes the functionality described below. Plaintiff intends to include within the scope of the Accused Instrumentalities all other of Mobileye's systems, services, software, and products that provide substantially identical functionality or services to those detailed in this infringement claim chart.

These contentions articulate the structures and acts that constitute direct infringement of the '328 Patent and identify specifically where each element of each asserted claim is found within each Accused Instrumentality. Exemplary references to publicly available descriptions of Mobileye's product and service information are provided where appropriate. Exemplary references to specific Accused Instrumentalities are not intended and should not be read to exclude Accused Instrumentalities not specifically identified. As discovery proceeds, these contentions and the specific components identified here as meeting certain claim elements or performing certain claim steps may change in view of claim construction and additional information made available to Plaintiff.

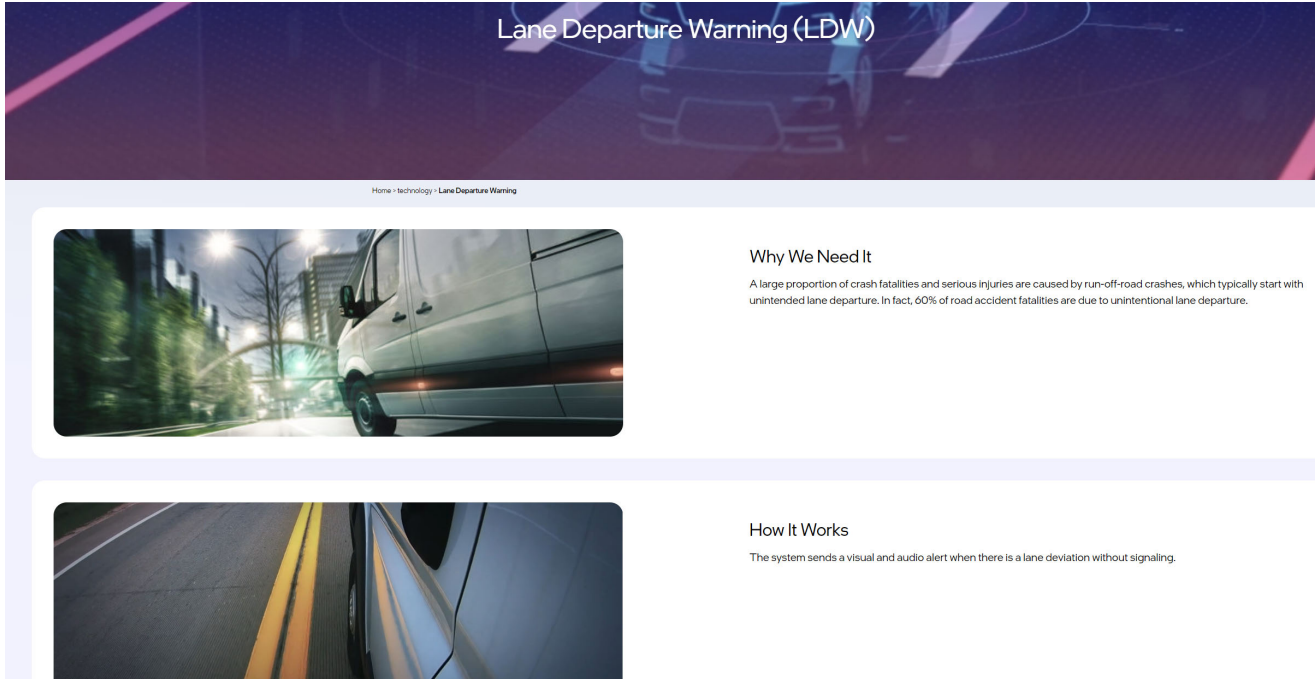
The Mobileye processing platforms for road marker detection are described in U.S. Patent No. 8,254,635 (the "'635 Patent") and U.S. Patent No. 7,566,851 (the "'851 Patent"), which are referenced below. The '635 Patent has an EFD on October 5, 2009, was published on July 8, 2010 and issued on August 28, 2012. The '851 Patent has an EFD on March 24, 2006, was published on September 27, 2007 and issued on July 28, 2009. These patents are referenced and relied upon to provide supportive descriptions for Mobileye functionality.

Additional information, in particular source code, executable software, software specifications, training materials, and functional design documents are expected to provide further details about the implementation of accused functionality and specific information upon which Plaintiff will rely in proving infringement. Plaintiff will supplement these preliminary infringement contentions after receiving access to that information and may supplement or amend in light of the Court's claim constructions.

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Claim 1. An automated system that detects and determines reflective surfaces of interest in a scene of non-retroreflective surfaces along a roadway that is being traversed by a vehicle, the automated system comprising:	Plaintiff contends that the preamble is not limiting. Plaintiff contends the preamble is not limiting because it describes a purpose or intended use of the claimed subject matter. In the event the preamble is found to impose a meaningful limitation on the scope of the claim, the Accused Instrumentalities perform the claimed method. The Accused Instrumentalities provide a method for assessing reflective surfaces disposed along a roadway and are implemented by more than 50 vehicle manufacturers. The image is a blue rectangular box containing white text. At the top is the 'EyeQ™' logo. Below it is the text 'The System-on-Chip for Automotive Applications'. At the bottom is a paragraph: 'Mobileye's proven leadership is based on our EyeQ™ System-on-Chip. More than 50 vehicle manufacturers have chosen EyeQ™ for its ability to support complex and computationally intense vision tasks, while meeting optimal, ambitious power-performance-cost targets.'

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	https://www.mobileye.com/technology/eyeq-chip/ Mobileye describes the system operation on its website and in videos.  Lane Departure Warning (LDW) Home - technology - Lane Departure Warning Why We Need It A large proportion of crash fatalities and serious injuries are caused by run-off-road crashes, which typically start with unintended lane departure. In fact, 60% of road accident fatalities are due to unintentional lane departure. How It Works The system sends a visual and audio alert when there is a lane deviation without signaling. https://ims.mobileye.com/fleets/us/technology/lane-departure-warning/

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LANE DEPARTURE WARNINGS (LDW)

The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated.

- Active when driving 35 mph or faster.
- Issues a series of short, sharp beeps
- Displays the corresponding lane that has been crossed.



The LDW will not issue alerts when:

- Lanes are unmarked or poorly marked.
- The speed of the vehicle is less than 35 mph.
- The appropriate turn signal is activated.

https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/Munich-Re-FAQ_0518.pdf/_jcr_content/renditions/original.media_file.download_attachment.file/Munich-Re-FAQ_0518.pdf

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	LDW FAQs: <i>When does the Mobileye LDW initiate?</i> The LDW is only active when driving 35 mph or faster. The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated. <i>Does Mobileye keep displaying the LDW until I fully travel into a new lane?</i> No, the EyeWatch Display holds the warning for a second or two, but it does not sustain the warning until you are completely in the new lane. However, this could appear to happen based on the speed of travel. The EyeWatch will turn off the warning if you activate the turn signal or after a few seconds. <i>Id.</i>

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1(a) an image capture system that captures images within a field of view along the roadway;	The Accused Instrumentalities include “an image capture system that captures images within a field of view along the roadway.” Mobileye’s ’635 Patent uses an image sensor to provide driver assistance: “According to an embodiment of the present invention there is provided a driver assistance system including an image sensor including multiple picture elements (pixels). An image processor connects to the image sensor. The image processor is adapted for receiving image frames from the image sensor. The image sensor and the image processor are adapted for mounting on a vehicle.” (’635 Patent, col. 6, ll. 38-44). Similarly, Mobileye’s ’851 Patent discusses an image sensor traversed along a roadway: “According to the present invention there is provided a method in a computerized system including an image sensor mounted in a moving vehicle. The image sensor captures image frames consecutively in real time. In one of the image frames, a spot is detected of measurable brightness; the spot is matched in subsequent image frames.” (’851 Patent, col. 3, ll. 36-41). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
1(b) an active light sensor including: a light source that illuminates an area along the road way; and	The Accused Instrumentalities include “an active light sensor including: a light source that illuminates an area along the road way.” The Mobileye system relies on headlights to function properly at night as described in the ’851 Patent: “In well lit road scenes, headlights are always set (step 23) to low beam. However, at night with a dark road scene, headlight control sets (step 23) to high beam or low beam depending on the presence oncoming and/or preceding vehicles or streetlights.” (’851 Patent, col 7, ll. 44-48). The ’851 Patent further discusses the dependence of the Mobileye system on headlights for dark scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6).

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	Mobileye's reliance on headlights is elaborated upon in the '635 Patent's disclosure of dusk and night modes of operation: "To accommodate recognition for the various electronic signs and the operating environments of the electronic signs, the exposure/gain control of camera 104 has different algorithms (executed by processor 100) and settings for day, dusk and night operation. For instance, in decision box 220 the decision of processor 100 between day, dusk and night modes of image frames 2 is optionally based on the exposure/gain parameters of another image frame, typically image frame 1 or time-to-lane crossing (TLC) frame used in LDW." ('635 Patent, col. 13, ll. 30-38). The '635 Patent includes a discussion of the night mode of operation implementing a headlight control algorithm: "In 'Night Mode' the automatic high beam control (AHC) algorithm is active and the gain and exposure settings for the automatic high beam control (AHC) image frame 3 are set by the automatic high beam control (AHC) algorithm." ('635 Patent, col. 13, ll. 17-20). The '635 Patent also includes a discussion of the dusk mode of operation: "The typical dusk scene has the following characteristics: Scene is sort of lit (day like). The AHC function is not active and the AHC frame slot image frame 3 may be controlled by the traffic sign recognition algorithm. Cars are switching on lights LED duty cycle changes. If we are in 'Dusk Mode', as determined by the LDW frame exposure (decision box 220 in FIG. 2 c) the TSR frame (image frame 2) settings are adjusted using the AGC day algorithm. This is a typical scenario where we will have to deal with low light from in front." ('635 Patent, col. 16, ll. 54-64). The '635 Patent discusses the use of headlights as a light source in low light conditions: "The expectation from the lane departure warning systems is greater than 99% availability when lane markings are visible. Expectation with 99% availability is particularly challenging to achieve in low light conditions when the lane markings are not freshly painted (have low contrast with the road) and the only light source is the car halogen headlights. In low light conditions, the lane markings are only visible using the higher sensitivity of the clear pixels (i.e. using a monochrome sensor or a red/clear sensor). With the more powerful xenon high intensity discharge (HID) headlights it is possible to use a standard red green blue (RGB) sensor in most low light conditions." ('635 Patent, col. 25, ll. 2-9).

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	FIG. 9 of the '851 Patent depicts a monitor output of a lane departure warning system and a vehicle control system at night while the vehicle's headlights are in a low beam state: <i>Fig. 9</i> The operation of Mobileye's lane detection system used in GM LKA/LDW systems when operated at night was shown during Mobileye's CES 2020 presentation. (Mobileye CES 2020 presentation slides, available at: https://d1io3yog0oux5.cloudfront.net/_c76321f1f4db2603fa6259cf9d8961f3/intel/db/861/7795/pdf/Mobileye-CES-2020-presentation.pdf) This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant's documents and to inspect the source code for the Accused Instrumentalities.

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1(c) a light sensor that measures light intensity values within at least a portion of the area illuminated by the light source; and	The Accused Instrumentalities include “a light sensor that measures a plurality of light intensity values within a field of view which includes at least a portion of the area illuminated by the light source.” The ’851 Patent discusses the dependence of the Mobileye system on headlights for illuminating scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6). The ’635 Patent includes disclosure of different camera configurations for day operation and night-mode operation: “The camera parameter of the second portion of the image frames is set substantially differently between day mode operation during the day and night-mode operation during the night. Optionally the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the day-mode operation and/or the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the night-mode operation.” (’635 Patent, col. 5, ll. 35-43). The ’635 Patent discusses determination of reflectivity based on the vehicle headlights: “In some cases the maximum allowable exposure combined with the maximum gain, give an image which is too bright and the traffic sign is saturated. In order to avoid this situation, the brightness of the sign is predicted based on the distance (derived from the image size of the circle), the angle based on the predicted location of sign in the image and the high/low beam status. The gain and exposure are then set accordingly. This can typically be done for OEM serial production where the type of headlights and windshield glass is known.” (’635 Patent, col. 16, ll. 1-9). The ’851 Patent describes differentiation of active light sources and reflective light sources by knowing the speed and headlight status of the vehicle: “Methods according to different embodiments of the present invention analyze using an image processor 24 in real time one or more of shape, position and motion of spots of measurable brightness in image frames 15. Typically inputs 22 are received from vehicle 18 such as speed, and current headlight status. A signal (step 23) is provided to the headlight control unit of vehicle 18 to switch between high beam and low beam. It is possible to determine which spots of measurable intensity if any, come from oncoming vehicles, preceding vehicles (i.e. taillights) or streetlights and which come from other objects such as traffic signs reflections, distant buildings, etc. In the presence of oncoming vehicles or preceding vehicles, the system may signal (step 23) for the headlights to be dimmed. The basic concept is to

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	detect bright spots in the image and track the spots over time collecting information about the spots regarding their shape, brightness, motion, spatial alignment and possibly color. When the algorithm has accumulated enough evidence then the spot is tagged as being in one of the relevant categories and the headlights are controlled appropriately (step 23). An advantage of the method as disclosed herein is that requirements on camera control are minimal, thus allowing for the same camera 12 to be simultaneously used for other applications such as lane departure warning (LDW) or forward collision warning.” ('851 Patent, col. 6, l. 49 to col. 7, l. 6). FIG. 9 of the '851 Patent depicts a monitor output of a lane departure warning system and a vehicle control system at night while the vehicle's headlights are in a low beam state: <i>Fig. 9</i>

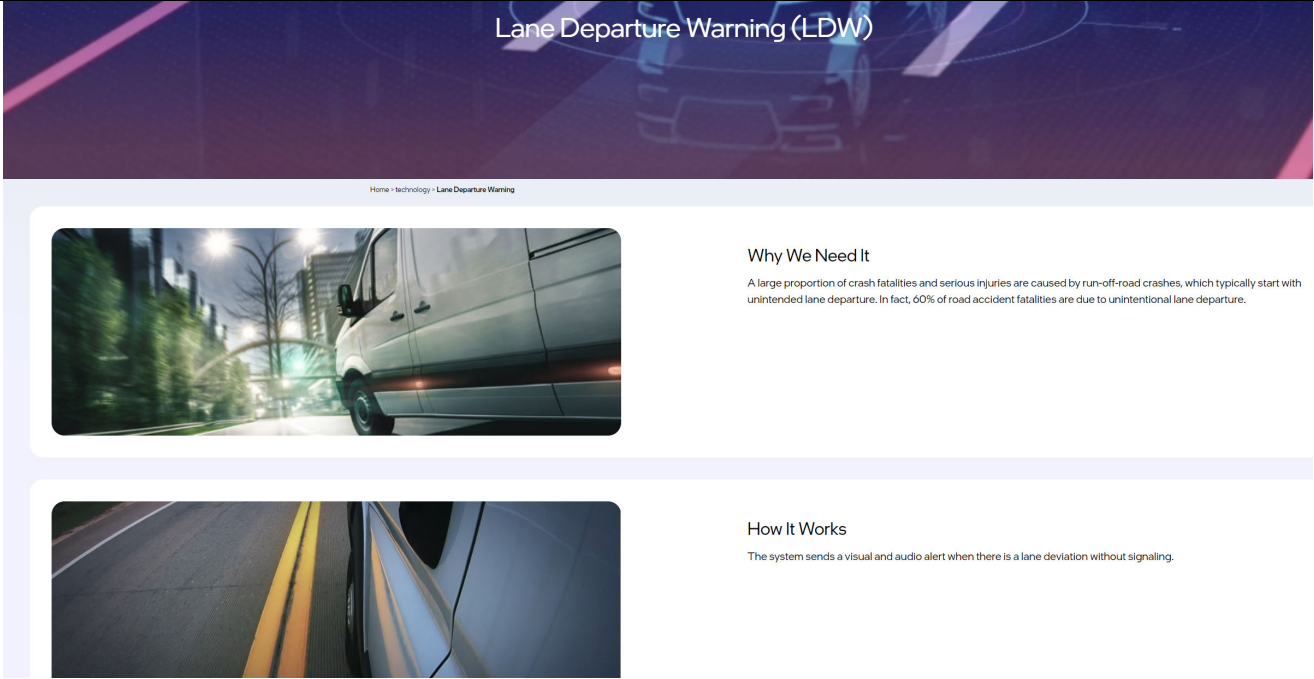
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	This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
1(d) a computer processing system operably connected to the image capture system, and the active light sensor and configured to detect objects of interest within the field of view and for each object of interest:	The Accused Instrumentalities include “a computer processing system operably connected to the image capture system and the active light sensor and configured to detect objects of interest within the field of view and for each object of interest.” The ’635 Patent describes Mobileye’s driver assistance system: “According to an embodiment of the present invention there is provided a driver assistance system including an image sensor including multiple picture elements (pixels). An image processor connects to the image sensor. The image processor is adapted for receiving image frames from the image sensor. The image sensor and the image processor are adapted for mounting on a vehicle.” (’635 Patent, col. 6, ll. 38-44). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
1(e) determine whether the object of interest	The Accused Instrumentalities “determine whether the object of interest a reflective surface based on the light intensity values.”

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includes a reflective surface based on the light intensity values;	The ’851 Patent describes Mobileye’s classification of light sources, such as road markers: “A spot imaged from a light source, for example a spot 43 as image of a streetlight appears different or has a different texture than a spot 45 as image of a reflection of a traffic sign. The spot from a light source typically has fuzzy edges and a bright center (almost Gaussian in cross section). Spot 45 image of a traffic sign at medium distance has typically sharper edges and uniform appearance inside. A classifier trained on examples of light sources and traffic signs can produce correct classification rates with confidence above 85%.” (’851 Patent, col. 9, ll. 14-22). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
1(f) determine whether the reflective surface is a road marker based on an assessment of the reflective surface; and	The Accused Instrumentalities “determine whether the reflective surface is a road marker based on an assessment of the reflective surface.” The ’851 Patent describes Mobileye’s classification of light sources, such as road markers: “A spot imaged from a light source, for example a spot 43 as image of a streetlight appears different or has a different texture than a spot 45 as image of a reflection of a traffic sign. The spot from a light source typically has fuzzy edges and a bright center (almost Gaussian in cross section). Spot 45 image of a traffic sign at medium distance has typically sharper edges and uniform appearance inside. A classifier trained on examples of light sources and traffic signs can produce correct classification rates with confidence above 85%.” (’851 Patent, col. 9, ll. 14-22). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
1(g) determine a location of	The Accused Instrumentalities “determine a discrete location of the road marker.” Mobileye describes the system operation on its website and in videos.

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the road marker.	 Lane Departure Warning (LDW) Home » technology » Lane Departure Warning  Why We Need It A large proportion of crash fatalities and serious injuries are caused by run-off-road crashes, which typically start with unintended lane departure. In fact, 60% of road accident fatalities are due to unintentional lane departure.  How It Works The system sends a visual and audio alert when there is a lane deviation without signaling. https://ims.mobileye.com/fleets/us/technology/lane-departure-warning/

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LANE DEPARTURE WARNINGS (LDW)

The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated.

- Active when driving 35 mph or faster.
- Issues a series of short, sharp beeps
- Displays the corresponding lane that has been crossed.



The LDW will not issue alerts when:

- Lanes are unmarked or poorly marked.
- The speed of the vehicle is less than 35 mph.
- The appropriate turn signal is activated.

https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/Munich-Re-FAQ_0518.pdf/_jcr_content/renditions/original.media_file.download_attachment.file/Munich-Re-FAQ_0518.pdf

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	LDW FAQs: <i>When does the Mobileye LDW initiate?</i> The LDW is only active when driving 35 mph or faster. The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated. <i>Does Mobileye keep displaying the LDW until I fully travel into a new lane?</i> No, the EyeWatch Display holds the warning for a second or two, but it does not sustain the warning until you are completely in the new lane. However, this could appear to happen based on the speed of travel. The EyeWatch will turn off the warning if you activate the turn signal or after a few seconds. <i>Id.</i>

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Claim 3. The automated system of claim 1, wherein the computer processing system is configured to operate in a mode selected from post-processing or on-the-fly.	See Claim 1 above. The Accused Instrumentalities include functionality where “the computer processing system is configured to operate in a mode selected from post-processing or on-the-fly.” The ’635 Patent includes disclosure of different camera configurations for day operation and night-mode operation: “The camera parameter of the second portion of the image frames is set substantially differently between day mode operation during the day and night-mode operation during the night. Optionally the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the day-mode operation and/or the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the night-mode operation.” (’635 Patent, col. 5, ll. 35-43). Mobileye includes functionality for automatically (e.g., “on-the-fly”) switching modes of operation: “To accommodate recognition for the various electronic signs and the operating environments of the electronic signs, the exposure/gain control of camera 104 has different algorithms (executed by processor 100) and settings for day, dusk and night operation. For instance, in decision box 220 the decision of processor 100 between day, dusk and night modes of image frames 2 is optionally based on the exposure/gain parameters of another image frame, typically image frame 1 or time-to-lane crossing (TLC) frame used in LDW.” (’635 Patent, col. 13, ll. 30-38). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 4. The automated	See Claim 1 above.

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system of claim 1, wherein the light source is selected from the set consisting of a laser scanning device, a strobe light, or a vehicle headlight lamp.	The Accused Instrumentalities include functionality where “the light source is selected from the set consisting of a laser scanning device, a strobe light, or a vehicle headlight lamp.” The Mobileye system relies on headlights to function properly at night as described in the ’851 Patent: “In well lit road scenes, headlights are always set (step 23) to low beam. However, at night with a dark road scene, headlight control sets (step 23) to high beam or low beam depending on the presence oncoming and/or preceding vehicles or streetlights.” (’851 Patent, col 7, ll. 44-48). The ’851 Patent further discusses the dependence of the Mobileye system on headlights for dark scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6). Mobileye’s reliance on headlights is elaborated upon in the ’635 Patent’s disclosure of dusk and night modes of operation: “To accommodate recognition for the various electronic signs and the operating environments of the electronic signs, the exposure/gain control of camera 104 has different algorithms (executed by processor 100) and settings for day, dusk and night operation. For instance, in decision box 220 the decision of processor 100 between day, dusk and night modes of image frames 2 is optionally based on the exposure/gain parameters of another image frame, typically image frame 1 or time-to-lane crossing (TLC) frame used in LDW.” (’635 Patent, col. 13, ll. 30-38). The ’635 Patent includes a discussion of the night mode of operation implementing a headlight control algorithm: “In ‘Night Mode’ the automatic high beam control (AHC) algorithm is active and the gain and exposure settings for the automatic high beam control (AHC) image frame 3 are set by the automatic high beam control (AHC) algorithm.” (’635 Patent, col. 13, ll. 17-20). The ’635 Patent also includes a discussion of the dusk mode of operation: “The typical dusk scene has the following characteristics: Scene is sort of lit (day like). The AHC function is not active and the AHC frame slot image frame 3 may be controlled by the traffic sign recognition algorithm. Cars are switching on lights LED duty cycle changes. If we are in ‘Dusk Mode’, as determined by the LDW frame exposure (decision box 220 in FIG. 2 c) the TSR frame (image frame 2)

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	The operation of Mobileye’s lane detection system used in GM LKA/LDW systems when operated at night was shown during Mobileye’s CES 2020 presentation. (Mobileye CES 2020 presentation slides, available at: https://d1io3yog0oux5.cloudfront.net/_c76321f1f4db2603fa6259cf9d8961f3/intel/db/861/7795/pdf/Mobileye-CES-2020-presentation.pdf) This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 8. The automated system of claim 1, wherein the computer processing system is further configured to associate at least one color with the reflective characteristic of the road marker to confirm the	See Claim 1 above. The Accused Instrumentalities include functionality where “wherein the computer processing system is further configured to associate at least one color with the reflective characteristic of the road marker to confirm the assessment that what is positioned at the discrete location within the field of view is a road marker, wherein the at least one color is selected from a set of colors consisting of yellow, green, red and white.” The ’635 Patent discloses assessing road markers based on color information: “Color information could also be used for classifying lane marking types (white, yellow, orange and blue are some typical examples). In fact, without color information, some lane mark color and road surface configurations make the lane marks invisible or with very low contrast when imaged in monochrome.” (’635 Patent, col. 17, ll. 56-60). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.

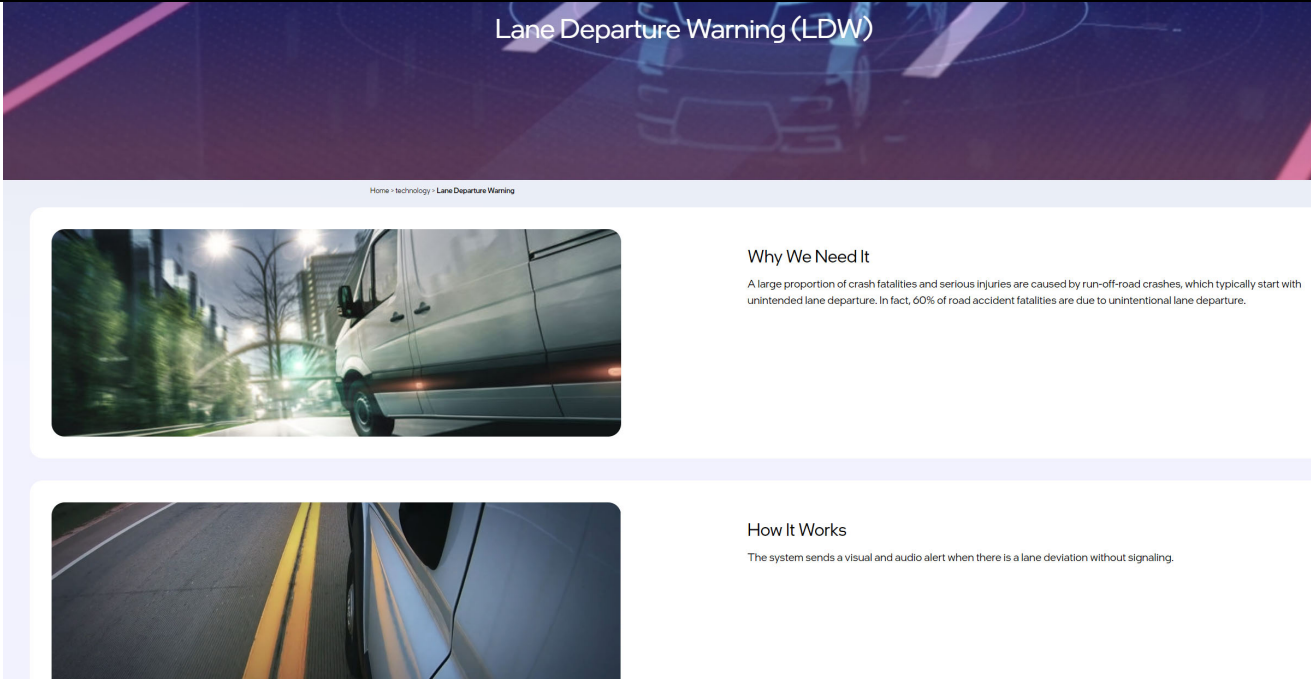
***Facet Technology Corp. v. Mobileye Global, Inc.*, Case No. 2:24-cv-00058-RWS-RSP**
Plaintiff's Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
assessment that what is positioned at the discrete location within the field of view is a road marker, wherein the at least one color is selected from a set of colors consisting of yellow, green, red and white.	
Claim 9. An automated system for assessing reflective surfaces disposed along a roadway comprising:	Plaintiff contends that the preamble is not limiting. Plaintiff contends the preamble is not limiting because it describes a purpose or intended use of the claimed subject matter. In the event the preamble is found to impose a meaningful limitation on the scope of the claim, the Accused Instrumentalities perform the claimed method. The Accused Instrumentalities provide a method for assessing reflective surfaces disposed along a roadway and are implemented by more than 50 vehicle manufacturers.

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality	
	 The image is a blue rectangular advertisement for Mobileye's EyeQ™ System-on-Chip. It features the 'EyeQ™' logo in white at the top left. Below the logo, the text 'The System-on-Chip for Automotive Applications' is written in white. At the bottom, a paragraph in white text states: 'Mobileye's proven leadership is based on our EyeQ™ System-on-Chip. More than 50 vehicle manufacturers have chosen EyeQ™ for its ability to support complex and computationally intense vision tasks, while meeting optimal, ambitious power-performance-cost targets.'	
	https://www.mobileye.com/technology/eyeq-chip/ Mobileye describes the system operation on its website and in videos.	

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	 Lane Departure Warning (LDW) Home - technology - Lane Departure Warning  Why We Need It A large proportion of crash fatalities and serious injuries are caused by run-off-road crashes, which typically start with unintended lane departure. In fact, 60% of road accident fatalities are due to unintentional lane departure.  How It Works The system sends a visual and audio alert when there is a lane deviation without signaling. https://ims.mobileye.com/fleets/us/technology/lane-departure-warning/

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Plaintiff's Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

LANE DEPARTURE WARNINGS (LDW)

The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated.

- Active when driving 35 mph or faster.
- Issues a series of short, sharp beeps
- Displays the corresponding lane that has been crossed.



The LDW will not issue alerts when:

- Lanes are unmarked or poorly marked.
- The speed of the vehicle is less than 35 mph.
- The appropriate turn signal is activated.

https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/Munich-Re-FAQ_0518.pdf/_jcr_content/renditions/original.media_file.download_attachment.file/Munich-Re-FAQ_0518.pdf

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Plaintiff's Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	 LDW FAQs: <i>When does the Mobileye LDW initiate?</i> The LDW is only active when driving 35 mph or faster. The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated. <i>Does Mobileye keep displaying the LDW until I fully travel into a new lane?</i> No, the EyeWatch Display holds the warning for a second or two, but it does not sustain the warning until you are completely in the new lane. However, this could appear to happen based on the speed of travel. The EyeWatch will turn off the warning if you activate the turn signal or after a few seconds. <i>Id.</i>

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Plaintiff’s Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

’328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
9(a). an active light sensor that is traversed along a roadway that includes at least one reflective surface on a road marker, the road marker having a reflective characteristic, the active light sensor including:	The Accused Instrumentalities include “an active light sensor that is traversed along a roadway that includes at least one reflective surface on a road marker, the road marker having a reflective characteristic.” The ’635 Patent uses an image sensor to provide driver assistance: “According to an embodiment of the present invention there is provided a driver assistance system including an image sensor including multiple picture elements (pixels). An image processor connects to the image sensor. The image processor is adapted for receiving image frames from the image sensor. The image sensor and the image processor are adapted for mounting on a vehicle.” (’635 Patent, col. 6, ll. 38-44). Similarly, the ’851 Patent discusses an image sensor traversed along a roadway: “According to the present invention there is provided a method in a computerized system including an image sensor mounted in a moving vehicle. The image sensor captures image frames consecutively in real time. In one of the image frames, a spot is detected of measurable brightness; the spot is matched in subsequent image frames.” (’851 Patent, col. 3, ll. 36-41). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
9(b). a light source to illuminate an area that includes the at least one reflective surface; and	The Accused Instrumentalities include “a light source to illuminate an area that includes the at least one reflective surface.” The Mobileye system relies on headlights to function properly at night as described in the ’851 Patent: “In well lit road scenes, headlights are always set (step 23) to low beam. However, at night with a dark road scene, headlight control sets (step 23) to high beam or low beam depending on the presence oncoming and/or preceding vehicles or streetlights.” (’851 Patent, col 7, ll. 44-48). The ’851 Patent further discusses the dependence of the Mobileye system on headlights for dark scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6).

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	Mobileye’s reliance on headlights is elaborated upon in the ’635 Patent’s disclosure of dusk and night modes of operation: “To accommodate recognition for the various electronic signs and the operating environments of the electronic signs, the exposure/gain control of camera 104 has different algorithms (executed by processor 100) and settings for day, dusk and night operation. For instance, in decision box 220 the decision of processor 100 between day, dusk and night modes of image frames 2 is optionally based on the exposure/gain parameters of another image frame, typically image frame 1 or time-to-lane crossing (TLC) frame used in LDW.” (’635 Patent, col. 13, ll. 30-38). The ’635 Patent includes a discussion of the night mode of operation implementing a headlight control algorithm: “In ‘Night Mode’ the automatic high beam control (AHC) algorithm is active and the gain and exposure settings for the automatic high beam control (AHC) image frame 3 are set by the automatic high beam control (AHC) algorithm.” (’635 Patent, col. 13, ll. 17-20). The ’635 Patent also includes a discussion of the dusk mode of operation: “The typical dusk scene has the following characteristics: Scene is sort of lit (day like). The AHC function is not active and the AHC frame slot image frame 3 may be controlled by the traffic sign recognition algorithm. Cars are switching on lights LED duty cycle changes. If we are in ‘Dusk Mode’, as determined by the LDW frame exposure (decision box 220 in FIG. 2 c) the TSR frame (image frame 2) settings are adjusted using the AGC day algorithm. This is a typical scenario where we will have to deal with low light from in front.” (’635 Patent, col. 16, ll. 54-64). The ’635 Patent discusses the use of headlights as a light source in low light conditions: “The expectation from the lane departure warning systems is greater than 99% availability when lane markings are visible. Expectation with 99% availability is particularly challenging to achieve in low light conditions when the lane markings are not freshly painted (have low contrast with the road) and the only light source is the car halogen headlights. In low light conditions, the lane markings are only visible using the higher sensitivity of the clear pixels (i.e. using a monochrome sensor or a red/clear sensor). With the more powerful xenon high intensity discharge (HID) headlights it is possible to use a standard red green blue (RGB) sensor in most low light conditions.” (’635 Patent, col. 25, ll. 2-9).

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	FIG. 9 of the '851 Patent depicts a monitor output of a lane departure warning system and a vehicle control system at night while the vehicle's headlights are in a low beam state: <i>Fig. 9</i> The operation of Mobileye's lane detection system used in GM LKA/LDW systems when operated at night was shown during Mobileye's CES 2020 presentation. (Mobileye CES 2020 presentation slides, available at: https://d1io3yog0oux5.cloudfront.net/_c76321f1f4db2603fa6259cf9d8961f3/intel/db/861/7795/pdf/Mobileye-CES-2020-presentation.pdf) This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant's documents and to inspect the source code for the Accused Instrumentalities.

***Facet Technology Corp. v. Mobileye Global, Inc.*, Case No. 2:24-cv-00058-RWS-RSP**
Plaintiff’s Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

’328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
9(c). a light sensor that measures a plurality of light intensity values within a field of view which includes at least a portion of the area illuminated by the light source; and	The Accused Instrumentalities include “a light sensor that measures a plurality of light intensity values within a field of view which includes at least a portion of the area illuminated by the light source.” The ’851 Patent discusses the dependence of the Mobileye system on headlights for illuminating scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6). The ’635 Patent includes disclosure of different camera configurations for day operation and night-mode operation: “The camera parameter of the second portion of the image frames is set substantially differently between day mode operation during the day and night-mode operation during the night. Optionally the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the day-mode operation and/or the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the night-mode operation.” (’635 Patent, col. 5, ll. 35-43). The ’635 Patent discusses determination of reflectivity based on the vehicle headlights: “In some cases the maximum allowable exposure combined with the maximum gain, give an image which is too bright and the traffic sign is saturated. In order to avoid this situation, the brightness of the sign is predicted based on the distance (derived from the image size of the circle), the angle based on the predicted location of sign in the image and the high/low beam status. The gain and exposure are then set accordingly. This can typically be done for OEM serial production where the type of headlights and windshield glass is known.” (’635 Patent, col. 16, ll. 1-9). The ’851 Patent describes differentiation of active light sources and reflective light sources by knowing the speed and headlight status of the vehicle: “Methods according to different embodiments of the present invention analyze using an image processor 24 in real time one or more of shape, position and motion of spots of measurable brightness in image frames 15. Typically inputs 22 are received from vehicle 18 such as speed, and current headlight status. A signal (step 23) is provided to the headlight control unit of vehicle 18 to switch between high beam and low beam. It is possible to determine which spots of measurable intensity if any, come from oncoming vehicles, preceding vehicles (i.e. taillights) or streetlights and which come from other objects such as traffic signs reflections, distant buildings, etc. In the presence of oncoming vehicles or preceding vehicles, the system may signal (step 23) for the headlights to be dimmed. The basic concept is to detect bright spots in the image and track the spots over time collecting information about the spots regarding their shape,

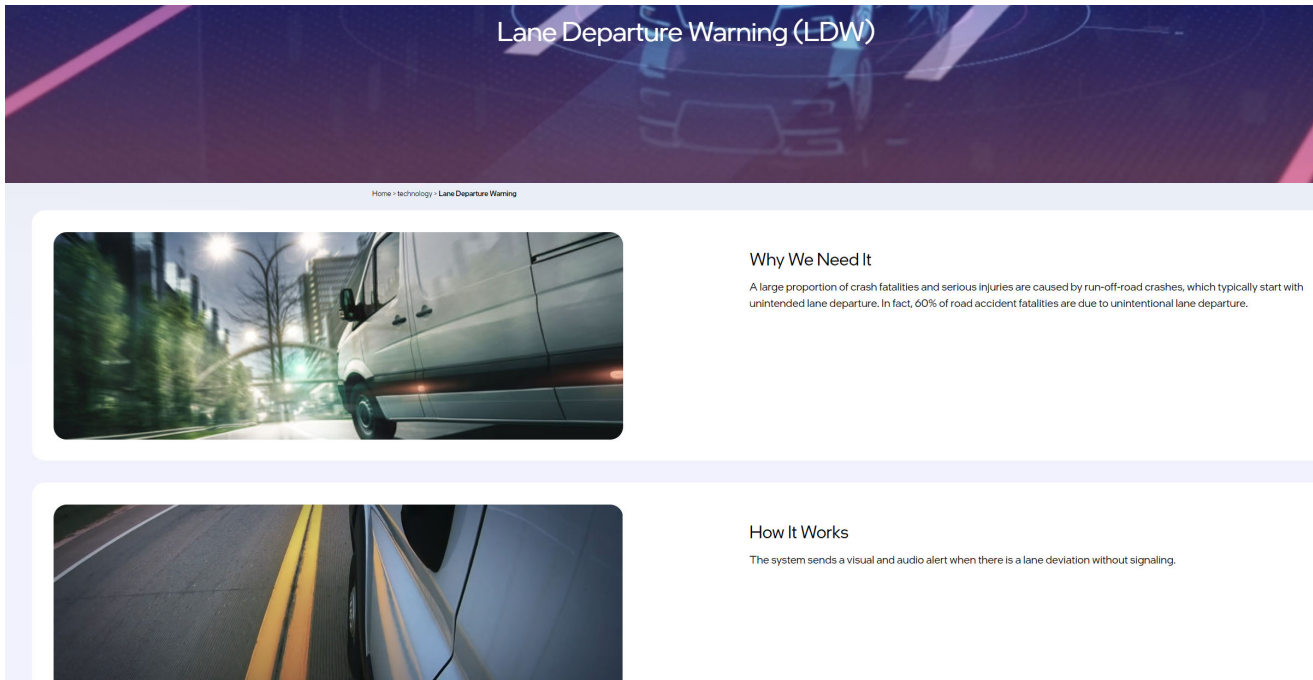
Facet Technology Corp. v. Mobileye Global, Inc., Case No. 2:24-cv-00058-RWS-RSP
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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	brightness, motion, spatial alignment and possibly color. When the algorithm has accumulated enough evidence then the spot is tagged as being in one of the relevant categories and the headlights are controlled appropriately (step 23). An advantage of the method as disclosed herein is that requirements on camera control are minimal, thus allowing for the same camera 12 to be simultaneously used for other applications such as lane departure warning (LDW) or forward collision warning.” ('851 Patent, col. 6, l. 49 to col. 7, l. 6). FIG. 9 of the '851 Patent depicts a monitor output of a lane departure warning system and a vehicle control system at night while the vehicle's headlights are in a low beam state: <i>Fig. 9</i> This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant's documents and to inspect the source code for the Accused Instrumentalities.

***Facet Technology Corp. v. Mobileye Global, Inc.*, Case No. 2:24-cv-00058-RWS-RSP**
Plaintiff’s Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

’328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
9(d). a computer processing system operably connected to the active light sensor and configured to detect objects of interest within the field of view and for each object of interest:	The Accused Instrumentalities include “a computer processing system operably connected to the active light sensor and configured to detect objects of interest within the field of view and for each object of interest.” The ’635 Patent describes Mobileye’s driver assistance system: “According to an embodiment of the present invention there is provided a driver assistance system including an image sensor including multiple picture elements (pixels). An image processor connects to the image sensor. The image processor is adapted for receiving image frames from the image sensor. The image sensor and the image processor are adapted for mounting on a vehicle.” (’635 Patent, col. 6, ll. 38-44). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
9(e). determine whether the object of interest includes at least one light intensity value associated with a	The Accused Instrumentalities “determine whether the object of interest includes at least one light intensity value associated with a reflective surface of a road marker in the field of view.” The ’851 Patent describes Mobileye’s use classification of light sources, such as road markers: “A spot imaged from a light source, for example a spot 43 as image of a streetlight appears different or has a different texture than a spot 45 as image of a reflection of a traffic sign. The spot from a light source typically has fuzzy edges and a bright center (almost Gaussian in cross section). Spot 45 image of a traffic sign at medium distance has typically sharper edges and uniform appearance inside. A classifier trained on examples of light sources and traffic signs can produce correct classification rates with confidence above 85%.” (’851 Patent, col. 9, ll. 14-22).

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Plaintiff’s Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328

'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
reflective surface of a road marker in the field of view; and	This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
9(f). analyze the at least one light intensity value to determine an assessment of a discrete location of the road marker within the field of view.	The Accused Instrumentalities “analyze the at least one light intensity value to determine an assessment of a discrete location of the road marker within the field of view.” Mobileye describes the system operation on its website and in videos. 

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	https://ims.mobileye.com/fleets/us/technology/lane-departure-warning/

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Plaintiff's Preliminary Infringement Contention Claim Chart for U.S. Patent No. 9,671,328**

LANE DEPARTURE WARNINGS (LDW)

The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated.

- Active when driving 35 mph or faster.
- Issues a series of short, sharp beeps
- Displays the corresponding lane that has been crossed.



The LDW will not issue alerts when:

- Lanes are unmarked or poorly marked.
- The speed of the vehicle is less than 35 mph.
- The appropriate turn signal is activated.

https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/Munich-Re-FAQ_0518.pdf/_jcr_content/renditions/original.media_file.download_attachment.file/Munich-Re-FAQ_0518.pdf

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	 LDW FAQs: <i>When does the Mobileye LDW initiate?</i> The LDW is only active when driving 35 mph or faster. The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated. <i>Does Mobileye keep displaying the LDW until I fully travel into a new lane?</i> No, the EyeWatch Display holds the warning for a second or two, but it does not sustain the warning until you are completely in the new lane. However, this could appear to happen based on the speed of travel. The EyeWatch will turn off the warning if you activate the turn signal or after a few seconds. <i>Id.</i>

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
	This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 10. The automated system of claim 9, wherein the road marker is selected from a set consisting of pavement markings and road signs.	See Claim 9 above. The Accused Instrumentalities include functionality where “the road marker is selected from a set consisting of pavement markings and road signs.” Mobileye describes the system operation on its website and in videos.

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	https://ims.mobileye.com/fleets/us/technology/lane-departure-warning/

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The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated.

- Active when driving 35 mph or faster.
- Issues a series of short, sharp beeps
- Displays the corresponding lane that has been crossed.



The LDW will not issue alerts when:

- Lanes are unmarked or poorly marked.
- The speed of the vehicle is less than 35 mph.
- The appropriate turn signal is activated.

https://www.munichre.com/content/dam/munichre/contentlounge/website-pieces/documents/Munich-Re-FAQ_0518.pdf/_jcr_content/renditions/original.media_file.download_attachment.file/Munich-Re-FAQ_0518.pdf

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	 LDW FAQs: <i>When does the Mobileye LDW initiate?</i> The LDW is only active when driving 35 mph or faster. The LDW provides an alert when the vehicle unintentionally departs from the driving lane. An unintentional departure is defined by departing from the driving lane without using the turn signals. If the turn signals are used when changing lanes, an alert is not generated. <i>Does Mobileye keep displaying the LDW until I fully travel into a new lane?</i> No, the EyeWatch Display holds the warning for a second or two, but it does not sustain the warning until you are completely in the new lane. However, this could appear to happen based on the speed of travel. The EyeWatch will turn off the warning if you activate the turn signal or after a few seconds. <i>Id.</i>

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	This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 11. The automated system of claim 9, wherein the computer processing system is configured to operate in a mode selected from post-processing or on-the-fly.	See Claim 9 above. The Accused Instrumentalities include functionality where “the computer processing system is configured to operate in a mode selected from post-processing or on-the-fly.” The ’635 Patent includes disclosure of different camera configurations for day operation and night-mode operation: “The camera parameter of the second portion of the image frames is set substantially differently between day mode operation during the day and night-mode operation during the night. Optionally the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the day-mode operation and/or the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the night-mode operation.” (’635 Patent, col. 5, ll. 35-43). Mobileye includes functionality for automatically (e.g., “on-the-fly”) switching modes of operation: “To accommodate recognition for the various electronic signs and the operating environments of the electronic signs, the exposure/gain control of camera 104 has different algorithms (executed by processor 100) and settings for day, dusk and night operation. For instance, in decision box 220 the decision of processor 100 between day, dusk and night modes of image frames 2 is optionally based on the exposure/gain parameters of another image frame, typically image frame 1 or time-to-lane crossing (TLC) frame used in LDW.” (’635 Patent, col. 13, ll. 30-38). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 12. The automated	See Claim 9 above.

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'328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
system of claim 9, wherein the light source is selected from the set consisting of a laser scanning device, a strobe light, or a vehicle headlight lamp.	The Accused Instrumentalities include functionality where “the light source is selected from the set consisting of a laser scanning device, a strobe light, or a vehicle headlight lamp.” FIG. 9 of the '851 Patent assigned to Mobileye depicts a monitor output of a lane departure warning system and a vehicle control system at night while the vehicle's headlights are in a low beam state: The Mobileye system relies on headlights to function properly at night as described in the '851 Patent: “In well lit road scenes, headlights are always set (step 23) to low beam. However, at night with a dark road scene, headlight control sets (step 23) to high beam or low beam depending on the presence oncoming and/or preceding vehicles or streetlights.” ('851 Patent, col 7, ll. 44-48).

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	The ’851 Patent further discusses the dependence of the Mobileye system on headlights for dark scenes: “In method 30, when a dark scene is detected (step 301), e.g. at night without sufficient lighting method 30 is used to control headlights (step 23). Otherwise, the scene is ‘lit’ and the headlights are switched to a low beam state.” (’851 Patent, col. 8, ll. 3-6). The ’635 Patent assigned to Mobileye includes a discussion of the night mode of operation implementing a headlight control algorithm: “In ‘Night Mode’ the automatic high beam control (AHC) algorithm is active and the gain and exposure settings for the automatic high beam control (AHC) image frame 3 are set by the automatic high beam control (AHC) algorithm.” (’635 Patent, col. 13, ll. 17-20). The ’635 Patent includes disclosure of different camera configurations for day operation and night-mode operation: “The camera parameter of the second portion of the image frames is set substantially differently between day mode operation during the day and night-mode operation during the night. Optionally the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the day-mode operation and/or the camera parameter of the second portion is set substantially differently during dusk for dusk-mode operation than during the night-mode operation.” (’635 Patent, col. 5, ll. 35-43). The ’635 Patent also includes a discussion of the dusk mode of operation: “The typical dusk scene has the following characteristics: Scene is sort of lit (day like). The AHC function is not active and the AHC frame slot image frame 3 may be controlled by the traffic sign recognition algorithm. Cars are switching on lights LED duty cycle changes. If we are in ‘Dusk Mode’, as determined by the LDW frame exposure (decision box 220 in FIG. 2 c) the TSR frame (image frame 2) settings are adjusted using the AGC day algorithm. This is a typical scenario where we will have to deal with low light from in front.” (’635 Patent, col. 16, ll. 54-64). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 13.	See Claim 9 above.

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The automated system of claim 9, wherein the computer processing system is further configured to associate at least one color with the reflective characteristic of the road marker to confirm the assessment that what is positioned at the discrete location within the field of view is a road marker, wherein the at least one	The Accused Instrumentalities include functionality where “wherein the computer processing system is further configured to associate at least one color with the reflective characteristic of the road marker to confirm the assessment that what is positioned at the discrete location within the field of view is a road marker, wherein the at least one color is selected from a set of colors consisting of yellow, green, red and white.” The ’635 Patent discloses assessing road markers based on color information: “Color information could also be used for classifying lane marking types (white, yellow, orange and blue are typical some examples). In fact, without color information, some lane mark color and road surface configurations make the lane marks invisible or with very low contrast when imaged in monochrome.” (’635 Patent, col. 17, ll. 56-60). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.

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color is selected from a set of colors consisting of yellow, green, red and white.	
Claim 17. An automated method for assessing reflective surfaces disposed along a roadway comprising:	See Claim 9 preamble above.
17(a). activating a light source as the light source is traversed along a roadway to illuminate an area that includes at least one	See Claim 9(a)-(c) above. This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant's documents and to inspect the source code for the Accused Instrumentalities.

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reflective surface on a road marker, the road marker having a reflective characteristic;	
17(b). determining a plurality of light intensity values with at least one intensity sensor directed to cover a field of view which includes at least a portion of the area illuminated by the light source; and	The Accused Instrumentalities perform “determining a plurality of light intensity values with at least one intensity sensor directed to cover a field of view which includes at least a portion of the area illuminated by the light source.” The ’851 Patent assigned to Mobileye discusses an image sensor traversed along a roadway: “According to the present invention there is provided a method in a computerized system including an image sensor mounted in a moving vehicle. The image sensor captures image frames consecutively in real time. In one of the image frames, a spot is detected of measurable brightness; the spot is matched in subsequent image frames.” (’851 Patent, col. 3, ll. 36-41). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
17(c). using a computer	The Accused Instrumentalities perform “using a computer processing system.”

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’328 Patent Asserted Claims	Where each element is found within each Accused Instrumentality
processing system configured to:	The ’635 Patent describes Mobileye’s driver assistance system: “According to an embodiment of the present invention there is provided a driver assistance system including an image sensor including multiple picture elements (pixels). An image processor connects to the image sensor. The image processor is adapted for receiving image frames from the image sensor. The image sensor and the image processor are adapted for mounting on a vehicle.” (’635 Patent, col. 6, ll. 38-44). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
17(d). identify at least one light intensity value of the plurality of light intensity values associated with one of the at least one reflective surface of the road marker in the field of view; and	The Accused Instrumentalities “identify at least one light intensity value of the plurality of light intensity values associated with one of the at least one reflective surface of the road marker in the field of view.” The ’851 Patent describes Mobileye’s use classification of light sources, such as road markers: “A spot imaged from a light source, for example a spot 43 as image of a streetlight appears different or has a different texture than a spot 45 as image of a reflection of a traffic sign. The spot from a light source typically has fuzzy edges and a bright center (almost Gaussian in cross section). Spot 45 image of a traffic sign at medium distance has typically sharper edges and uniform appearance inside. A classifier trained on examples of light sources and traffic signs can produce correct classification rates with confidence above 85%.” (’851 Patent, col. 9, ll. 14-22). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities. This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
17(e). analyze the at least one light	The Accused Instrumentalities “analyze the at least one light intensity value of the plurality of light intensity values to determine an assessment of a discrete location of the road marker within the field of view.”

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intensity value of the plurality of light intensity values to determine an assessment of a discrete location of the road marker within the field of view.	The ’635 Patent discloses assessing road markers based on color information: “Color information could also be used for classifying lane marking types (white, yellow, orange and blue are typical some examples). In fact, without color information, some lane mark color and road surface configurations make the lane marks invisible or with very low contrast when imaged in monochrome.” (’635 Patent, col. 17, ll. 56-60). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.
Claim 18. The automated method of claim 17, wherein the computer processing system is further configured to associate at least one color with the reflective characteristic	See Claim 17 above. The Accused Instrumentalities “associate at least one color with the reflective characteristic of the road marker to confirm the road marker at the discrete location within the field of view, wherein the at least one color is selected from a set of colors consisting of yellow, green, red and white.” The ’635 Patent discloses assessing road markers based on color information: “Color information could also be used for classifying lane marking types (white, yellow, orange and blue are typical some examples). In fact, without color information, some lane mark color and road surface configurations make the lane marks invisible or with very low contrast when imaged in monochrome.” (’635 Patent, col. 17, ll. 56-60). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant’s documents and to inspect the source code for the Accused Instrumentalities.

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of the road marker to confirm the road marker at the discrete location within the field of view, wherein the at least one color is selected from a set of colors consisting of yellow, green, red and white.	
Claim 19. The automated method of claim 17, further wherein the computer processing system is further configured to	See Claim 17 above. The Accused Instrumentalities “determine a lateral distance between the light source and the illuminated portion of the reflective road marker.” The ’635 Patent recites “[o]ne algorithm for lane departure warning (LDW) used by the assignee (Mobileye Technologies Ltd., Nicosia, Cyprus, hereinafter “Mobileye”) of the present application is predictive in that it computes time to lane crossing (TLC) based on change in wheel-to-lane distance and warns when the time-to-lane crossing (TLC) is below a certain threshold... With a forward looking camera, wheel-to-lane marker distance is not observed directly but is extrapolated from the forward view of the camera. The closer road markings are observed, less extrapolation is required for determining wheel-to-lane

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determine a lateral distance between the light source and the illuminated portion of the reflective road marker.	marker distance and more accurate estimates of wheel-to-lane marker distance are achieved especially on curves of the road.” ('635 Patent, col. 1, ll. 35-57). This claim element is met in whole or in part by software and Defendant has not yet produced any of its documents or source code. Plaintiff reserves the right to amend or supplement this contention after claim construction and after it has had sufficient time to inspect Defendant's documents and to inspect the source code for the Accused Instrumentalities.