**IN THE UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**AUSTIN DIVISION**

| | |
|---|---|
| **BIG WILL ENTERPRISES INC.,**<br><br>**Plaintiff,**<br><br>**v.**<br><br>**HUZHOU DINGCHEN TRADING CO., LTD. d/b/a WOLFBOX DIRECT,**<br><br>**and**<br><br>**HANGZHOU TANLINK TECHNOLOGY CO., LTD. d/b/a REDTIGER-DIRECT,**<br><br>**Defendant.** | **Civil Action File No.: 1:24-CV-01392**<br><br>**JURY TRIAL DEMANDED** |

# COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Big Will Enterprises Inc. ("BWE" or "Plaintiff") in British Columbia, by and through their undersigned attorneys, files this Complaint against Huzhou Dingchen Trading Co., Ltd. d/b/a WolfBox Direct ("WolfBox") and Hangzhou Tanlink Technology Co., Ltd. d/b/a RedTiger-Direct ("RedTiger") (collectively "Defendants") and alleges, based on its own knowledge with respect to itself and its own actions and based on information and belief as to all other matters, as follows:

## INTRODUCTION

**1.**

This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code to enjoin infringement and obtain damages from Defendants'

unauthorized manufacture, use, sale, offer to sell, and/or importation into the United States for the subsequent use or sale of products or methods that infringe one or more claims of United States Patents: 10,521,846 ("the '846 Patent"); 9,049,558 ("the '558 Patent"); 8,737,951 ("the '951 Patent"); 8,559,914 ("the '914 Patent"); and 8,452,273 ("the '273 Patent").

**2.**

BWE is an innovative company in sensor technology for determining human activities for health, safety and other uses. BWE's sensor-based technologies go beyond determining simple human locations and offer smartphone users (and other communication-based devices) a personal surveillance system based on their activities. The technologies monitor sensors such as the accelerometer, the gyroscope and others for uniquely identifying human activities; the motion activities can include, for example, but not limited to, standing/stationary, walking, running, driving, skiing, sleeping, snoring, hiking, skateboarding, sky diving, bicycling, unicycling, golfing, falling down, swimming, riding a ski lift, a motor vehicle, a motorcycle, an airplane, a train, or a water vessel, accelerating or decelerating in a motor vehicle, motorcycle, train, airplane, or water vessel, vibrating, propagating through a medium, rotating, riding in a wheelchair, and other human movements, where capturing data and/or providing feedback is desired. BWE has created proprietary technologies in this field of technology since at least 2007 for, among other benefits, the increased health, safety, and well-being of its users. BWE's patented technology was developed for use on a wide variety of devices, including smartphones, smartwatches, and other communication and sensor-based devices in use on many popular products in the market today. In addition to licensing, BWE has incorporated its patented technology in its own test platforms for determining human activities, motions within activities, accidents, and falls, among others.

**3.**

BWE's sensor monitoring, processing and communication technology is covered by the claims of the '846, '558, '951, '914, and the '273 patents asserted in this action, as well as other BWE patents.

## JURISDICTION AND VENUE

**4.**

BWE is a British Columbia company, incorporated in Canada having its principal place of business at 4573 West 1st Avenue, Vancouver, British Columbia V6R 1H7, Canada.

**5.**

Upon information and belief, Huzhou Dingchen Trading Co., Ltd. d/b/a WolfBox Direct is a Limited Company organized under the laws of the People's Republic of China, whose headquarters is located at Wuxing district, Huzhou City, Room 215, Building 9, No.188 Jinsuo Road, Zhejiang Province, China 313002. WolfBox may be served this Complaint by service in accordance with the Convention of 15 November 1965 on the Service Abroad of Judicial and Extrajudicial Documents in Civil or Commercial Matters ("The Hague Service Convention"). Fed. R. Civ. P. 4(h)(2).

**6.**

Upon information and belief, Hangzhou Tanglian Technology Co., Ltd d/b/a RedTiger-Direct is a Limited Company organized under the laws of the People's Republic of China, whose corporate headquarters is located at Cangqian Street, Yuhang District, Room 701,building 3, No.16 Longtan Road, Hangzhou, Zhejiang Province, China 311100. RedTiger may be served this Complaint by service in accordance with the Convention of 15 November 1965 on the Service Abroad of Judicial and Extrajudicial Documents in Civil or Commercial Matters ("The Hague Service Convention"). Fed. R. Civ. P. 4(h)(2).

**7.**

This is an action for infringement of a United States patent arising under 35 U.S.C. §§ 271, 281, and 284-285, among others. This Court has subject matter jurisdiction over all causes of action set forth herein pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq.*

**8.**

Venue is proper in this judicial district and division pursuant to 28 U.S.C. §1391(c)(3) in that Defendants are not resident in the United States. Defendants routinely do business within this district, Defendants have committed acts of infringement within this district, and Defendants continue to commit acts of infringement within this district.

**9.**

On various e-commerce platforms, including Amazon.com, eBay.com, Walmart.com, and others, WolfBox' s dashcam products, including i07, X5, G930, G850, and G840S models, are offered for sale and sold to customers residing in this State and District. Defendant WolfBox also provides an online presence under the domain Wolfbox.com, which is available to customers and prospective customers within this State and District. As a result of WolfBox' s business activities in this State and District, WolfBox has had continuous and systematic contacts with this State and District.

**10.**

On various e-commerce platforms, including Amazon.com, eBay.com, Walmart.com, and others, RedTiger' s dashcam products, including F77, F17, F7N and F9 models, are offered for sale and sold to customers residing in this State and District. Defendant RedTiger also provides an online presence under the domain RedTigerCam.com, which is available to customers and

prospective customers within this State and District. As a result of RedTiger's business activities in this State and District, RedTiger has had continuous and systematic contacts with this State and District.

**11.**

Upon information and belief, Defendants are subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to Defendants' substantial business in this State and judicial district, including: (i) at least a portion of the infringements alleged herein; and/or (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Texas and in this district.

**ALLEGATIONS COMMON TO ALL COUNTS**

**12.**

Plaintiff ("BWE") owns all right, title, interest in, and has standing to sue for infringement the following patents: United States Patent No. 10,521,846, entitled "Targeted advertisement selection for a wireless communication device (WCD)", issued on December 31, 2019; United States Patent No. 9,049,558, entitled "Systems and methods for determining mobile thing motion activity (MTMA) using sensor data of wireless communication device (WCD) and initiating activity-based actions," issued on June 02, 2015; United States Patent No. 8,737,951, entitled "Interactive personal surveillance and security (IPSS) systems and methods," issued on May 27, 2014; United States Patent No. 8,559,914, entitled "Interactive personal surveillance and security (IPSS) systems and methods," issued on October 15, 2013; and United States Patent No. 8,452,273, entitled "Systems and methods for determining mobile thing motion activity (MTMA) using accelerometer of wireless communication device," issued May 28, 2013. Copies of the '846

Patent, the ’558 Patent, the ’951 Patent, the ’914 Patent and the ’273 Patent are attached as Exhibits 1-5.

**13.**

BWE is a global leader and innovator in the field of sensor technology for determining human activities for health, safety and other uses. These proprietary technologies and innovations have been developed since 2007 for the increased health, safety and well-being of its users. BWE patented technology was developed for use on a wide variety of devices, including smartphones and wearables, and is in use on many popular products in the market today. In addition to licensing, BWE has incorporated its patented technology in its own test platforms for determining human activities, motions within activities, accidents, and falls, among others.

**14.**

BWE’s sensor-based technologies go beyond determining human locations by uniquely identifying human activities for automatically monitoring and tracking movements, such as (a) the user travel method (e.g., car, bus, motorcycle, bike, snow skiing, skateboarding, bicycling, water vessel, airplane, train, swimming, etc.) and/or (b) the user motions (standing/stationary, walking, running, driving, skiing, sleeping, snoring, hiking, accelerating or decelerating in a motor vehicle, vibrating, propagating through a medium, rotating, riding in a wheelchair, looking or not looking or looking at an angle at a WCD display, assuming a position relative to the WCD, et cetera) and other human movements where capturing data and/or providing feedback is desired.

**15.**

**B**WE’s sensor monitoring, processing and communication technologies are covered by the claims of the ’846 patent, the ’558 patent, the ’951 patent, the ’914 patent, and the ’273 patent which are asserted in this action, as well as other BWE patents.

**16.**

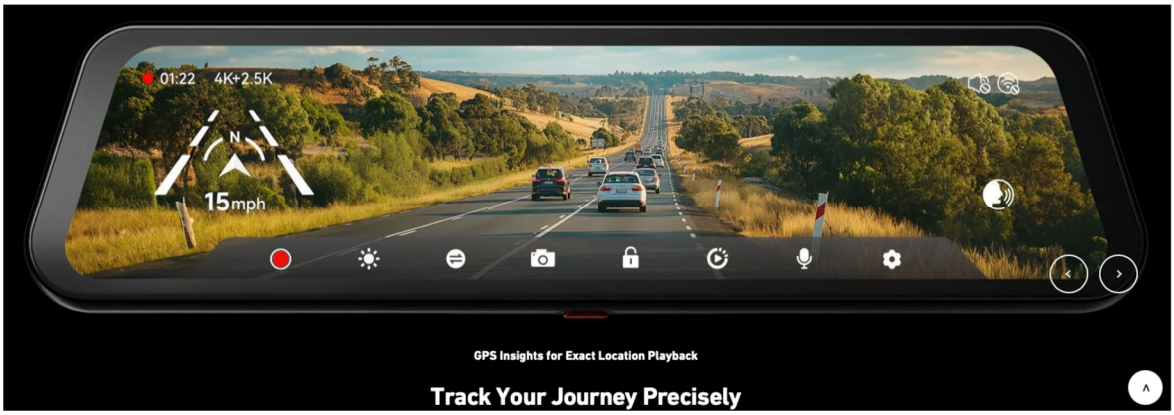
Defendants are Chinese technology companies in the business of designing, manufacturing, and supplying on a world-wide basis various industrial and consumer goods. In particular, Defendants sold, offered for sale and imported into the United States, and continue to sell, offer for sale, and import into the United States, various dash cam models that employ telematics solutions that infringe BWE patents.

**17.**

These dash cams are wireless communication devices (WCDs) that, in addition to capturing video images, enhance driver safety, reduce accidents, and decrease insurance claims. These devices, equipped with memory, processors, and co-processors, play a crucial role in evaluating and reporting multiple facets of driving behavior, including fast accelerations, hard braking and aggressive cornering (steering), accidents and distracted driving. By monitoring accelerometer and gyroscope data, user behaviors while driving can be analyzed, determined and reported.

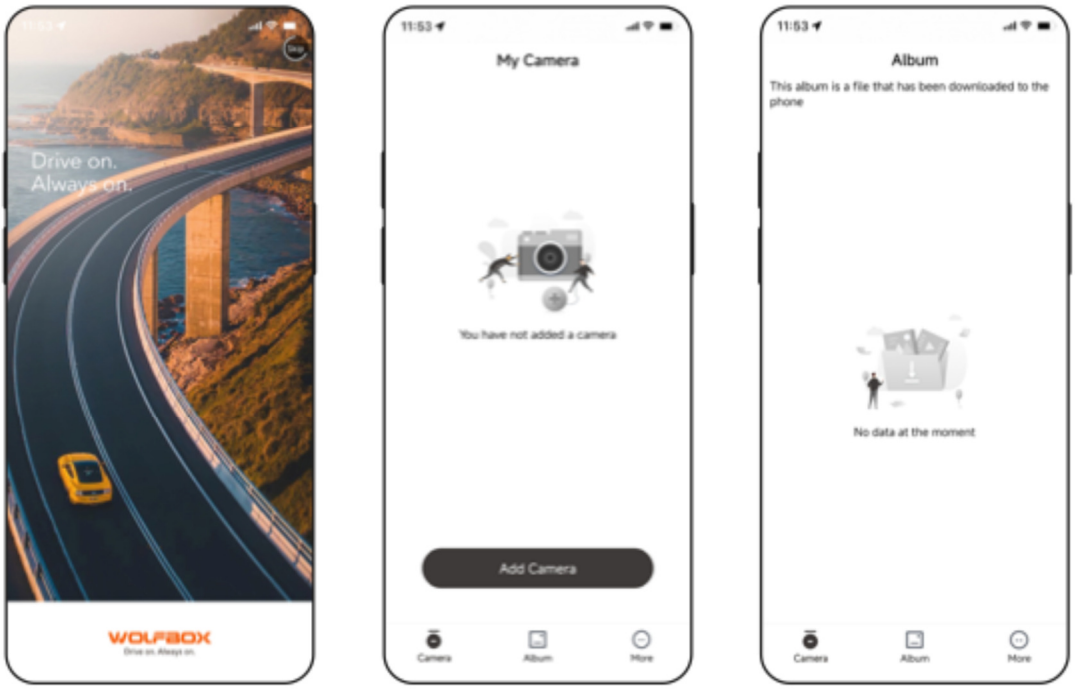
**18.**

The WolfBox X, G and i Model Dash Cam series (including the G900Pro, G900, G840H, X5, i03, etc.) of dash cams utilizes advanced computing technologies to process real-time data, including communication systems, GPS tracking, and integrated 3D accelerometers. These systems enable the real-time identification of unsafe events like harsh braking, rapid acceleration, and collisions.




| | | |
|---|---|---|
| G-Sensor | OFF/Low/Medium /High | Set the sensitivity of the G-sensor. |
| Parking Mode | ON /G-Trigger Recording /12H Time-lapse recording /24H Time-lapse recording /48H Time-lapse recording | Monitor the vehicle's status after the engine is turned off. |

- **Download, edit and share your video clip via Wolfbox App**




https://cdn.shopify.com/s/files/1/0722/1077/6353/files/Wolfbox-G900_Pro.pdf?v=1724377614.

https://wolfbox.com/products/wolfbox-x5-3-channel-touchscreen-wifi-mini-dash-camera?_pos=1&_psq=Wolfbox's+X5&_ss=e&_v=1.0.


WOLFBOX

**WOLFBOX X5 3 Channel Touchscreen WiFi Mini Dash Camera**

$299.99 USD

Save $50 for X5😍 Auto Discount at Checkout

**Advanced SONY STARVIS 2 Sensor** The X5 uses the SONY STARVIS 2 IMX678 sensor for superior image quality and color reproduction. Capture detailed footage in any lighting condition.

Show More

Select addons

Get $2.00 off on add-ons.

(Discount will apply at checkout)

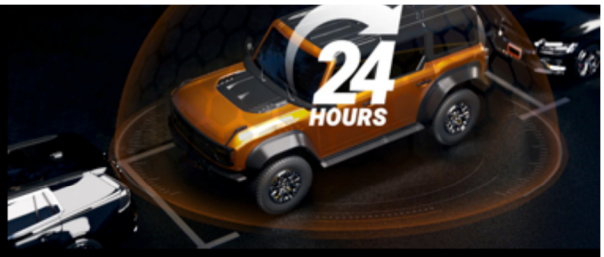
WOLFBOX Dashcam Multifunctional Hardwire Kit For...
$21.99 ~~$29.99~~
Gift 4 F
Add

WOLFBOX Dash Cam 256GB/128GB Micro SD Card, Class 10 U3 TF Card
$40.99 ~~$45.99~~
128GB
Add

Extended 1-year Warranty

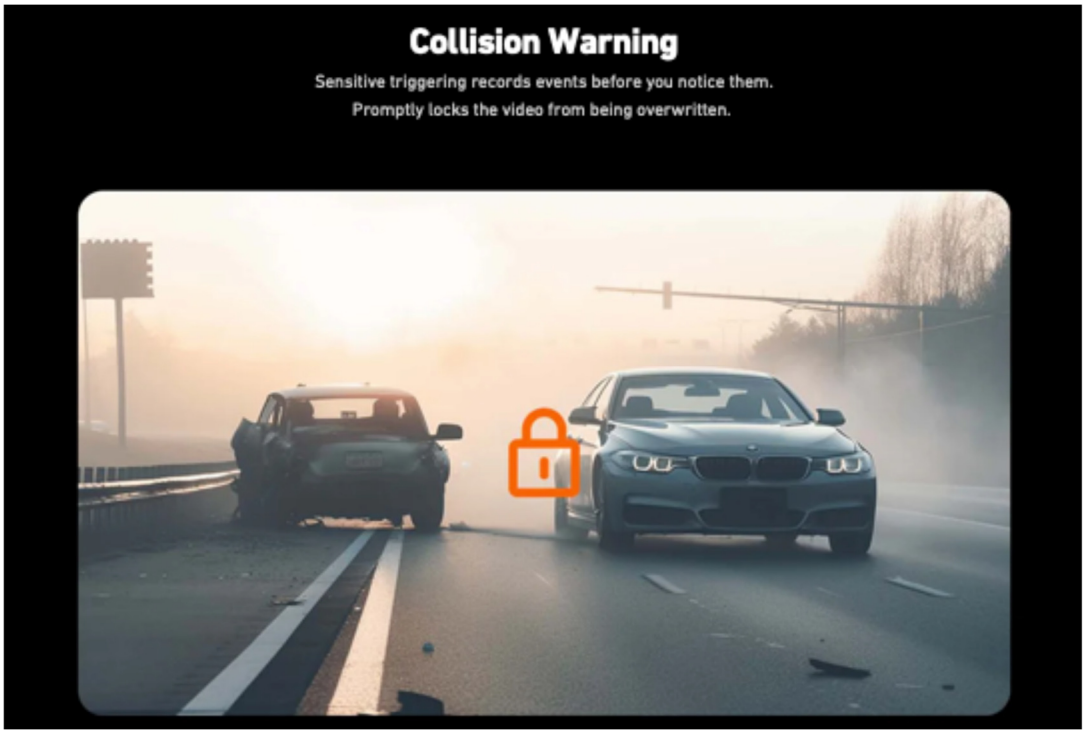
**Collision Detection**

Never miss a critical moment, ensuring protection anytime.

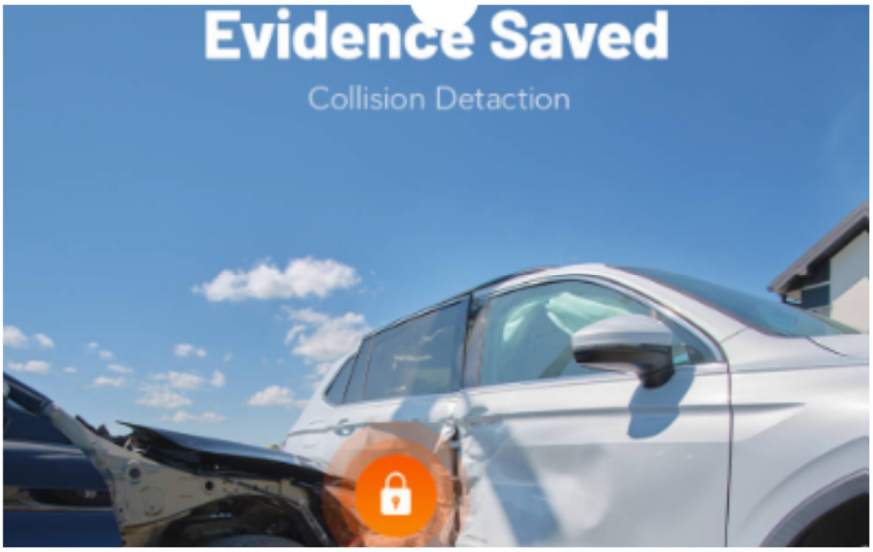



**Parking Monitoring**

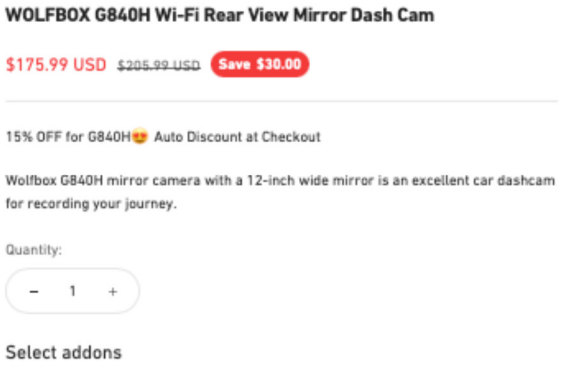
1FPS recording minimizes memory use, while ensuring continuous monitoring of your parked vehicle.




https://wolfbox.com/products/i07-3-channel-2-5k-1080p-1080p-mini-dashboard-camrefurbished?_pos=2&_sid=9d9135e75&_ss=r.

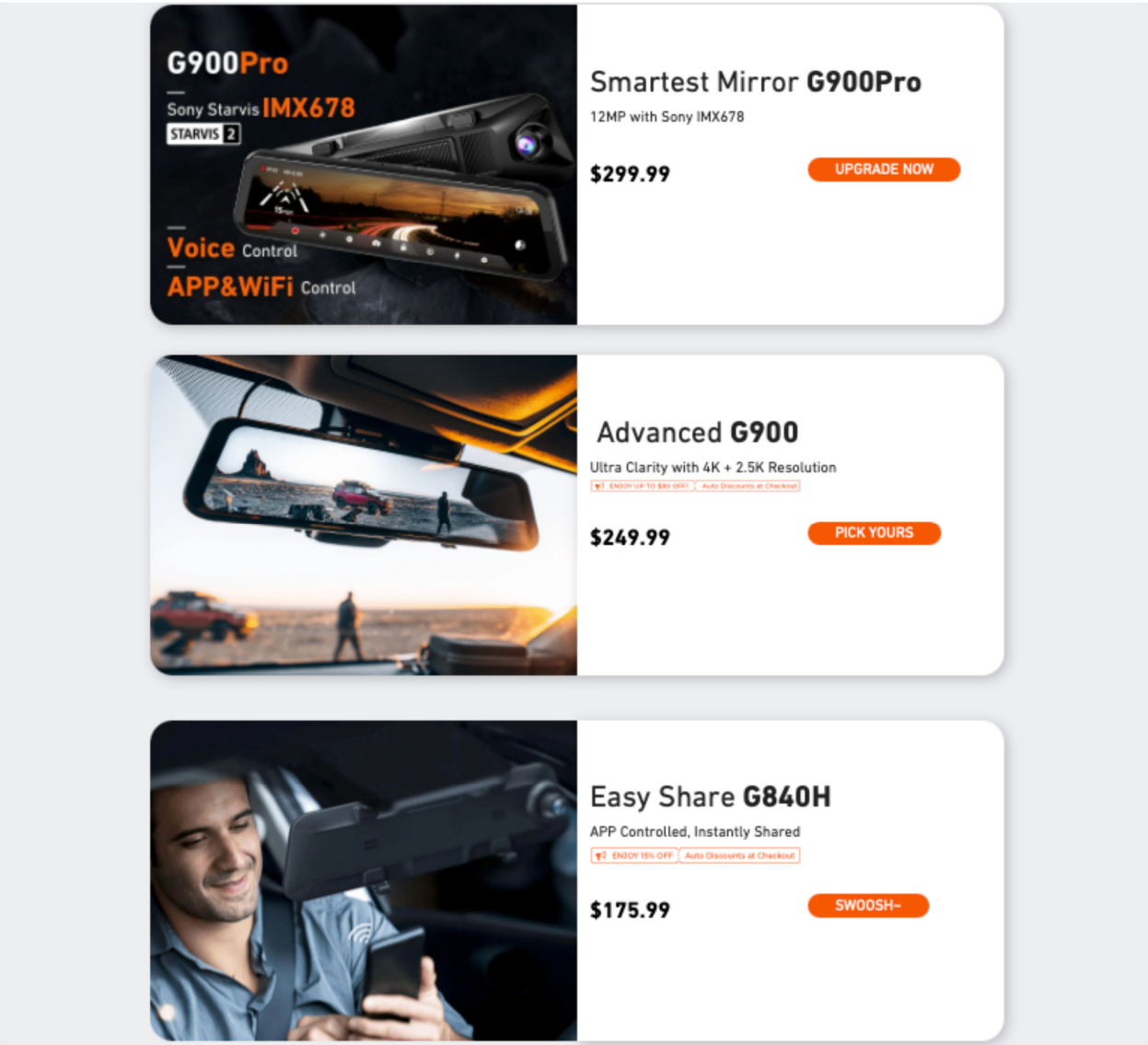


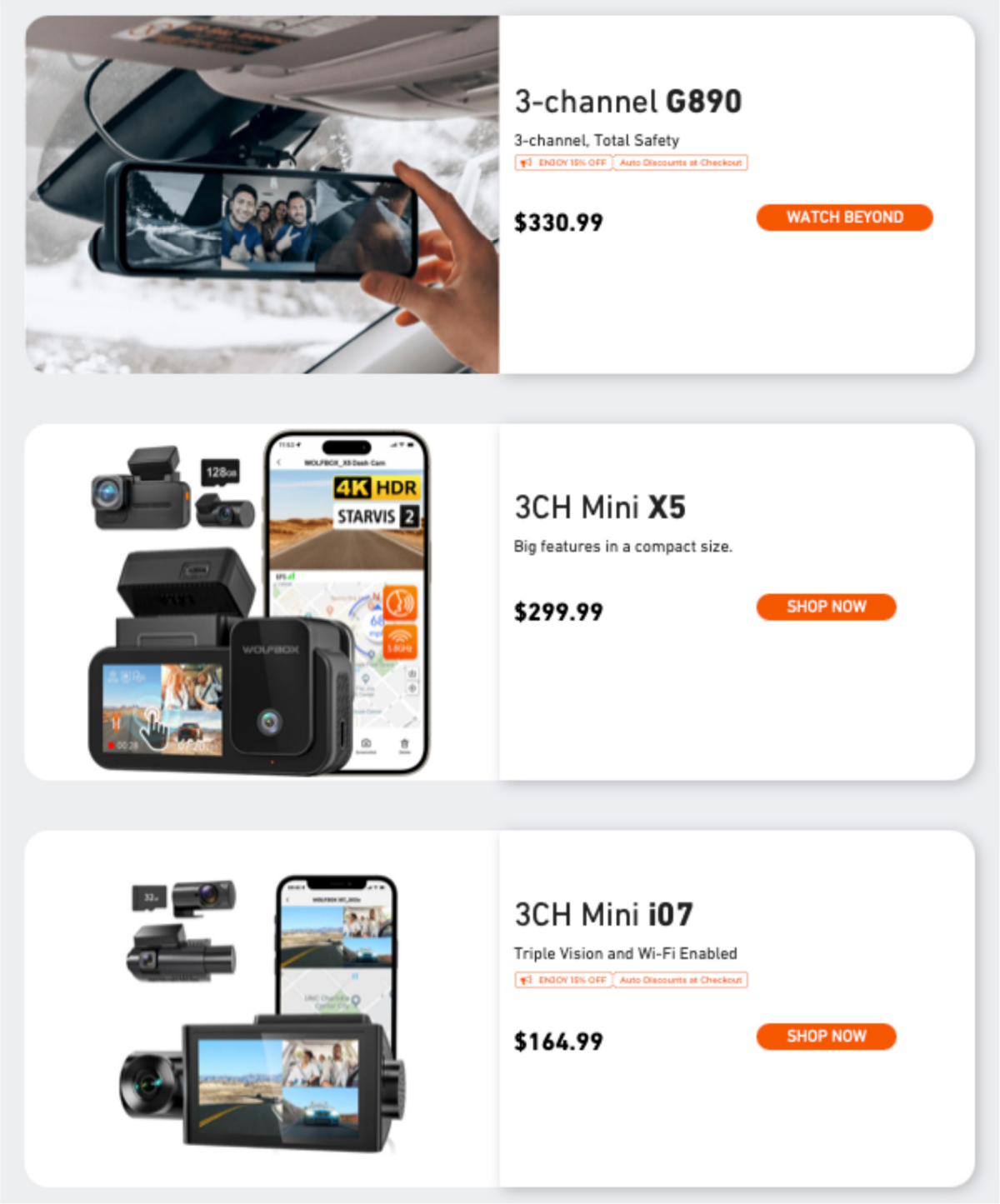

https://wolfbox.com/products/wolfboxg900-4k-2-5k-touch-screen-parking-monitoringdash-cam?_pos=1&_sid=2c30bd40d&_ss=r&variant=47597947748641.





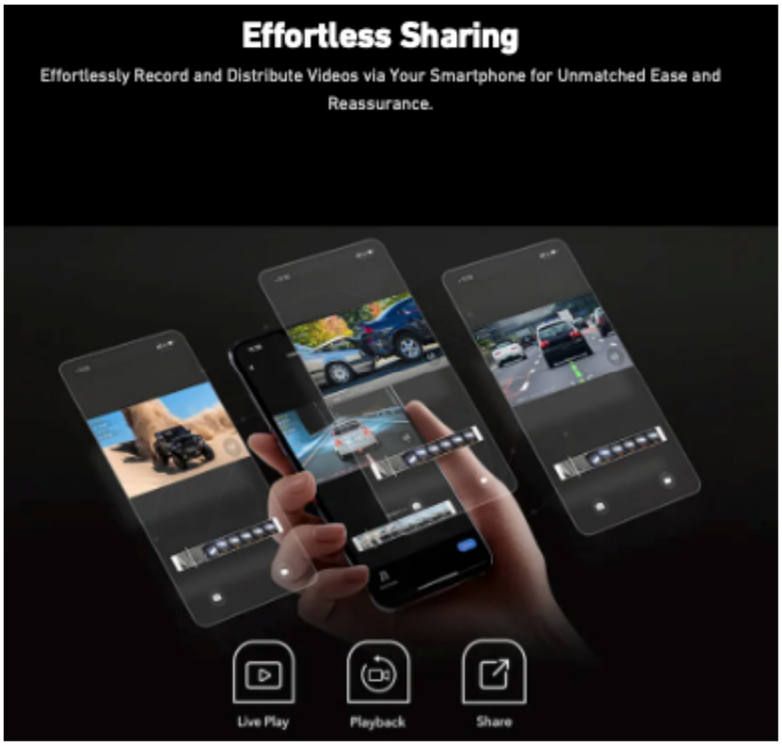
https://wolfbox.com/products/wolfbox-g840hdual-camera-rear-view-mirror-dash-cam.

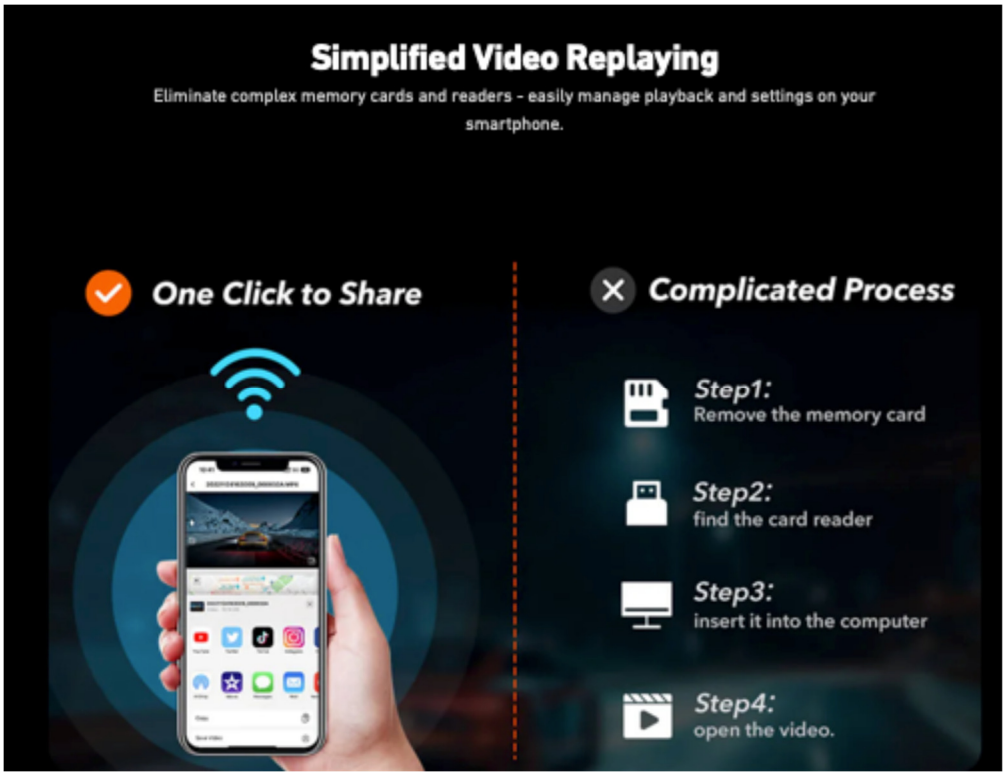

G900Pro
Sony Starvis IMX678
STARVIS 2
Voice Control
APP&WiFi Control
Smartest Mirror G900Pro
12MP with Sony IMX678
$299.99
UPGRADE NOW
Advanced G900
Ultra Clarity with 4K + 2.5K Resolution
$249.99
PICK YOURS
Easy Share G840H
APP Controlled, Instantly Shared
$175.99
SWOOSH~




https://wolfbox.com/collections/dash-cam.


BUILT-IN WIFI & GPS
Conveniently download the recordings for sharing and review on WOLFBOX App
WOLFBOX APP
Download on the Apple Store
Get it on Google Play
GPS with Route/Speed track

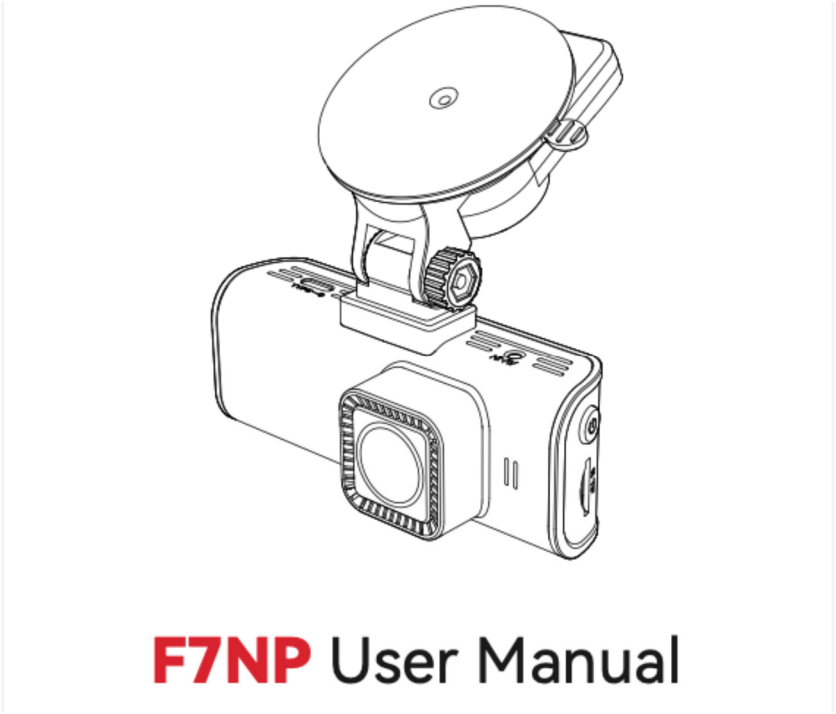

Effortless Sharing
Effortlessly Record and Distribute Videos via Your Smartphone for Unmatched Ease and Reassurance.
Live Play
Playback
Share




https://wolfbox.com/products/wolfbox-g840hdual-camera-rear-view-mirror-dash-cam.

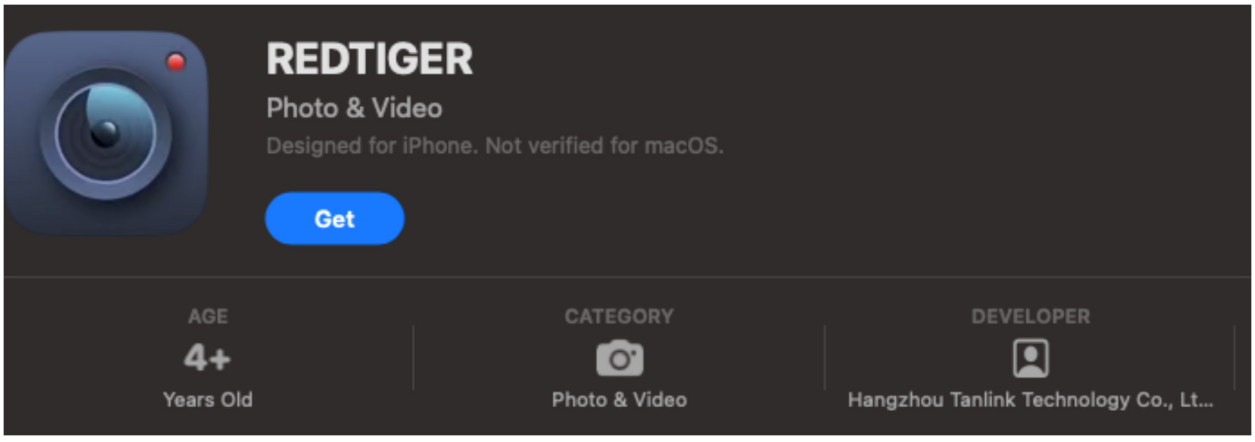
**19.**

RedTiger's dash cam lineup includes F-Model Dash Cams (e.g., F77 Starvis, F7NP, F7NT, F7N, F7NS, F17, F8, F9) and T-Model Dash Cams (e.g., T27, T700), which integrate advanced mobile computing technologies such as wireless communication, GPS, and tri-axial accelerometers to detect critical driving behaviors. These systems enable the real-time identification of unsafe events like harsh braking, rapid acceleration, and collisions.




> Motion detection on a dash cam utilizes a built-in sensor known as a G sensor or accelerometer. This sensor detects changes in acceleration, such as sudden braking, rapid acceleration, or impacts. When the G sensor detects significant changes, it triggers the dash cam to start recording, even if you're not actively recording at that moment.

https://www.redtigercam.com/enca/blogs/news/how-does-motion-detection-workon-dash-cam?srsltid=AfmBOopti879SPpBpM6GQSVDj7Cc-SDtIxurzwQAWfDc0yhH3-Pv2b-6.




REDTIGER 4K Dash Cam Front and Rear Camera, 3.18" Touch Screen, 64GB Card Included, Car Dash Camera Built-in WiFi GPS, UHD 2160P Night Vision, WDR, Parking Monitor (F7N Touch)

Visit the REDTIGER Store

4.3 ★★★★½ 1,163 ratings

**500+ bought** in past month

-9% $199.99

List Price: ~~$219.99~~

Or **$19.50** /mo (12 mo). Select from 1 plan

prime Overnight

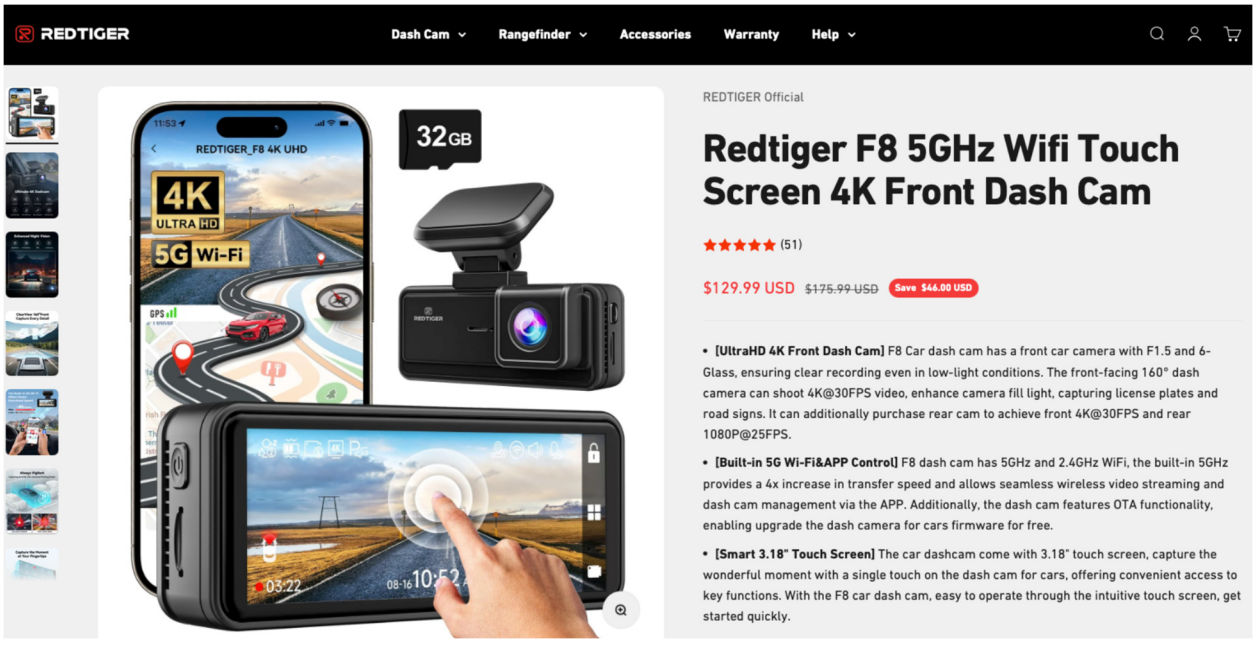
**Coupon:** Apply $30 coupon Shop items › | Terms

Pay **$19.50/month or less** for 12 months with Affirm. Learn more.

| | |
|---|---|
| **Brand** | REDTIGER |
| **Model name** | F7N Touch Screen dash cam |
| **Orientation** | Front and Rear |
| **Vehicle service type** | Minivan, Bus, RV, Car, Truck |
| **Connectivity technology** | Wi-Fi |

## G-Sensor, Automatically Record Emergency

When emergency happens, the dash cam will automatocally start to record and lock the video so it won't be overwritten.



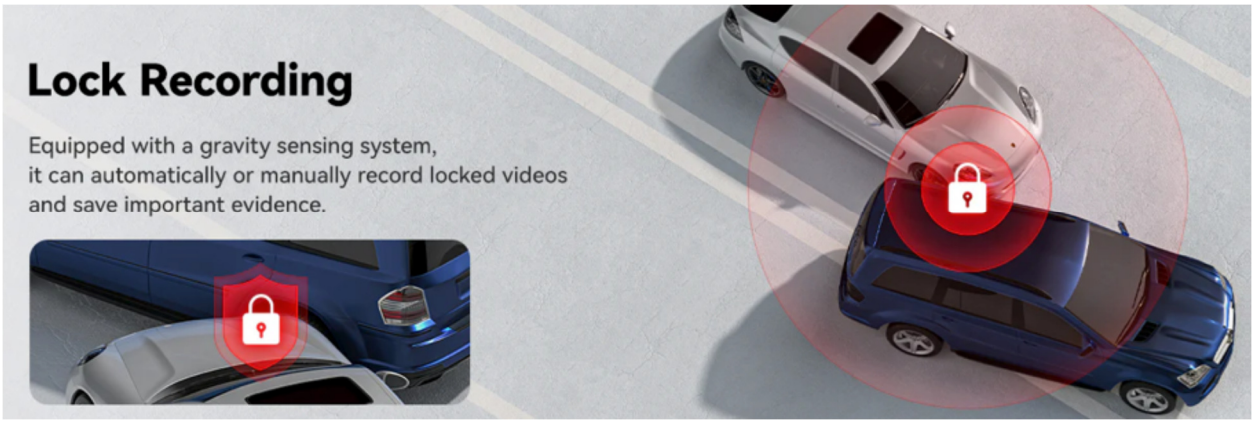

REDTIGER Official

## Redtiger F8 5GHz Wifi Touch Screen 4K Front Dash Cam

★★★★★ (51)

$129.99 USD ~~$175.99 USD~~ Save $46.00 USD

- **[UltraHD 4K Front Dash Cam]** F8 Car dash cam has a front car camera with F1.5 and 6-Glass, ensuring clear recording even in low-light conditions. The front-facing 160° dash camera can shoot 4K@30FPS video, enhance camera fill light, capturing license plates and road signs. It can additionally purchase rear cam to achieve front 4K@30FPS and rear 1080P@25FPS.
- **[Built-in 5G Wi-Fi&APP Control]** F8 dash cam has 5GHz and 2.4GHz WiFi, the built-in 5GHz provides a 4x increase in transfer speed and allows seamless wireless video streaming and dash cam management via the APP. Additionally, the dash cam features OTA functionality, enabling upgrade the dash camera for cars firmware for free.
- **[Smart 3.18" Touch Screen]** The car dashcam come with 3.18" touch screen, capture the wonderful moment with a single touch on the dash cam for cars, offering convenient access to key functions. With the F8 car dash cam, easy to operate through the intuitive touch screen, get started quickly.





https://www.youtube.com/watch?app=desktop&v=n9pCrIPFLMA.

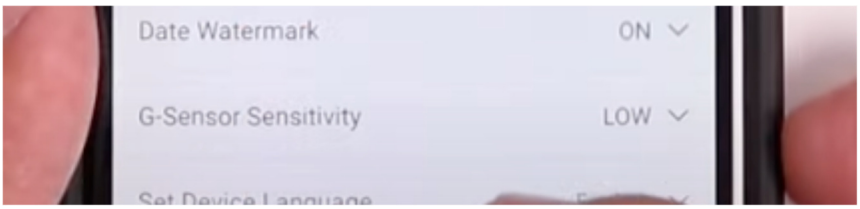

https://dashcamsafe.com/redtiger-dash-camreview.

**Intelligent Protection: G-Sensor Technology.**

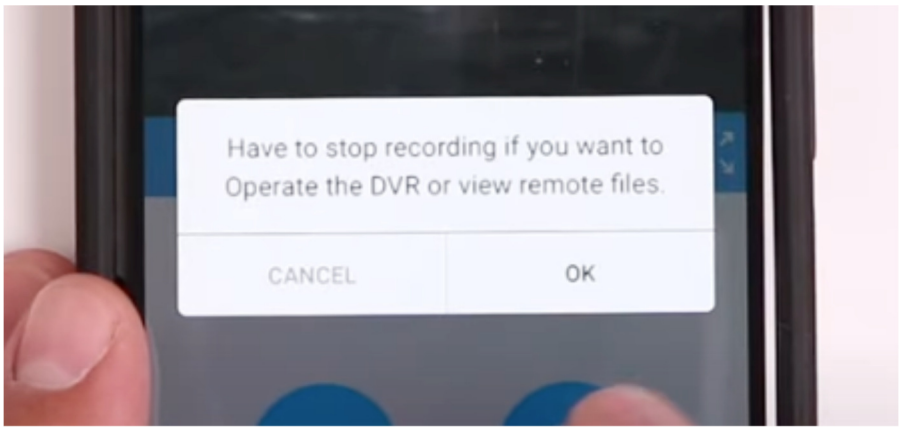
Integrated with advanced G-sensor technology, the REDTIGER Dash Cam acts as a safeguard during unforeseen incidents. It locks and preserves crucial footage in high-stress situations, providing a reliable account of events and enhancing safety measures.

**G-Sensor Technology.**

This intelligent technology safeguards crucial footage during sudden impacts, preserving evidence for unforeseen events. It enhances safety measures, providing peace of mind on the road.


These dash cams include notifications or alerts on the screen to inform the driver about detected incidents. This capability enhances the overall safety of the driving experience by allowing the driver to respond quickly in case of an accident.




https://www.youtube.com/watch?app=desktop&v=n9pCrIPFLMA.


REDTIGER
4K Ultra Clear
WIFI&APP Control
GPS Tracking
F7NP
4K
Ultra HD WiFi GPS


REDTIGER
F7NP
Quick Start Guide


Redtiger F7N 4K Dual Front and Rear Dash Cam

$139.99 USD

1 Add to Cart

View Details

Red Tiger dash cams, such as the F7N model, provide several on-screen alerts and notifications to promote safe driving. These notifications can include:

1. Collision Alerts: When the G-sensor detects an impact or sudden movement, the dash cam may notify the driver on-screen that an accident has occurred, ensuring they are aware of the incident in real-time.

2. Driver Fatigue Alerts: Some models may include features that alert drivers when it's time to take a break after extended periods of driving, promoting overall safety on long journeys.

3. Aggressive Driving Notifications: If the dash cam detects aggressive driving behaviors such as hard braking or rapid acceleration, it may display warnings to encourage safer driving habits.

https://familyweal.com/redtiger-dashcam-review/ https://au.redtigercam.com/blogs/news-1/how-redtiger-dashcams-help-nightdrivers-stay-safe.

**COUNT I**

**DIRECT INFRINGEMENT OF THE '846 PATENT**

**20.**

Plaintiff incorporates by reference the allegations of Paragraphs 1-19.

**21.**

Defendants have directly infringed and continues to directly infringe at least one or more claims of the '846 Patent, through, among other activities, making, using, and incorporating into Defendants' respective dash cams automatic programs for monitoring human activities while driving.

**22.**

Independent Claim 1 of the '846 Patent, shown in italics, recites:

> *1. A method for use in connection with a wireless communication device (WCD) transported by a mobile thing (MT), the WCD having a computer architecture that has access to a memory, comprising: determining a mobile thing motion activity (MTMA) associated with the MT that is transporting the WCD based at least in part upon sensor data, the sensor data derived from one or more sensors associated with the WCD,*

Defendants' dash cams are advanced telematics solutions packaged in wireless communication devices that monitor accelerometer and other sensor data for precise monitoring and determination of driver behaviors. By analyzing *x*, *y*, and *z* axis accelerations, these dash cams accurately capture movements and vibrations of vehicles. Unlike traditional systems, Defendants' dash cams excels in identifying a risky driving event, such as hard braking and accidents, among others.

> *the one or more sensors measuring physical movement of the WCD in three dimensional space and producing data sets comprising three movement values and a time value, each of the three movement values indicative of physical movement of the WCD relative to a respective axis in a three dimensional (3D) coordinate system at the time value in order to permit statistical analysis of the physical movement;*

The 3 axis accelerometer and/or gyroscope data is measured by using time values for statistical analysis for determining driver motion activities.

> *selecting an advertisement based at least in part upon the determined MTMA; causing the advertisement to be communicated to the WCD; and*

Defendants' dash cams use servers and software for communicating driver behaviors designed to help drivers improve their driving skills through feedback based on detected driving behaviors. The system analyzes events such as hard braking, fast accelerations, and collisions, providing drivers with account-based notifications via email, SMS, and proprietary mobile applications. These notifications of risky driving behaviors or accidents, prompt drivers to review the event, encouraging them to identify and avoid unsafe driving habits. By notifying drivers of the event the system helps improve safety, reduce accidents, and lower insurance costs, fostering better driving behavior and promoting safer roads.

> *wherein the determining the MTMA comprises: storing a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA;*

The process of comparing the reference data with live accelerometer and/or gyroscope data to reference motion activity creates signatures that include frequencies and/or timing for accurately identifying each activity.

> *determining a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system; using the normalizing mathematical relationship, determining normalized data sets; analyzing the normalized data sets in the frequency and time domains;*

The raw accelerometer data contains gravity accelerations that must be normalized (removing the extra data) for accurately measuring the accelerometer's $x$, $y$ and $z$ axes. Gravity may also be used for determining the 3D coordinate system's $z$ axis or vertical (and subsequently horizontal) positions for normalizing the live data into sets of orthogonal data so that the frequency and time

domains are measuring vertical and horizontal accelerations separately and accurately. Normalizing the live data into sets of data that may be measured in the frequency and time domains allows the live 3D (3 or more axis from the accelerometer and/or gyroscope) data to be compared to the reference data:

Claim 1 concludes:

> *determining likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and selecting a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

Based on a range of live data sets and how accurately these data sets match the motion activity referenced data, the motion activity is at least in part determined based on the predetermined thresholds and ranges in the frequency and time domains. This method ensures an efficient and reliable assessment of the motion activity.

**23.**

Claim 2 of the '846 Patent, for example, recites:

> *2. The method of claim 1, wherein the advertisement is communicated to the WCD via an email or text message.*

Defendants' dash cams monitor driver behaviors and use advertisement notifications and or reward messages so participants are automatically enrolled to receive in-app messages, text messages and or summary emails.

**24.**

Claim 3 of the '846 Patent, for example, recites:

> *3. The method of claim 1, further comprising determining an identification (ID) of the MT and wherein the selecting the advertisement is further based at least in part upon the determined ID in addition to the determined MTMA.*

Defendants' dash cams receive notifications and onscreen events (advertisements) for promoting better driving.

**25.**

Claim 4 of the '846 Patent, for example, recites:

> *4. The method of claim 1, further comprising determining a location of the WCD and wherein the selecting the advertisement is further based at least in part upon the location in addition to the determined MTMA.*

Defendants' dash cams monitor driver behavior and determine locations where violations occur (also when drivers finish and or start routes). Notifications and updated screens show route and location violations and driver events are updated and provided to the user, fleet managers, and servers.

**26.**

Claim 5 of the '846 Patent, for example, recites:

> *5. The method of claim 1, further comprising receiving a payment for or otherwise monetarily benefiting from causing the advertisement to be communicated.*

Defendants' dash cams monitor driver behavior and provide onscreen and in app messages that improve driver behaviors.

**27.**

Claim 6 of the '846 Patent, for example, recites:

> *6. The method of claim 1, wherein the causing comprises enabling an advertiser to communicate the advertisement to the WCD by advising a remote computer system associated with the advertiser of the MTMA.*

Defendants' dash cams send predefined notifications/advertisements from a remote computer system that may be re-configured from time to time.

**28.**

Claim 7 of the '846 Patent, for example, recites:

> *7. The method of claim 1, further comprising enabling a user of the WCD to enable and disable the causing of the advertisement.*

Defendants' dash cams allow users to choose if messages will be sent to email/phone or to opt out.

**29.**

Claim 8 of the '846 Patent, for example, recites:

> *8. The method of claim 1, wherein the sensor data is derived from an accelerometer, a gyroscope, or both.*

As demonstrated, *supra* with respect to Claim 1, Defendants' dash cams use sensor data from the accelerometer and/or the gyroscope.

**30.**

Claim 9 of the '846 Patent, for example, recites:

> *9. The method of claim 1, wherein the steps are performed in the WCD itself or in one or more communicatively coupled computer systems that are remote from the WCD and that receive the sensor data from the WCD.*

Defendants' dash cams monitor driver behavior from the internal WCD sensors and also use one or more remote servers to make certain decisions that enhance the accuracy of sensor data. For example, the driver score is calculated based on at least in part the sensor data that determines violations such as unsafe driving, hard braking, and unnecessary acceleration.

**31.**

Claim 10 of the '846 Patent, for example, recites:

> *10. The method of claim 1, wherein the WCD is communicatively coupled to a remote computer system and wherein the memory is associated with the remote computer system.*

Defendants' dash cams monitor driver behavior from the internal WCD sensors and also use one or more remote servers to make certain decisions that enhance the accuracy of sensor data.

**32.**

Claim 11 of the '846 Patent, for example, recites:

> *11. The method of claim 1, wherein the memory is local and situated within the WCD.*

Defendants' dash cams process and use memory for certain events and logging of data, that is separate from connecting to servers for all storage, computing and memory needs/requirements.

**33.**

Independent Claim 12 of the '846 Patent, shown in italics, recites:

> *12. A wireless communication device (WCD) transported by a mobile thing (MT), comprising: one or more transceivers designed to enable access to a remote computer system, the remote computer system designed to select a targeted advertisement and enable the advertisement to be communicated or accessed by the WCD;*

Defendants' dash cams uses wireless communication devices carried by a vehicle (mobile thing). The WCDs have accelerometers and/or gyroscopes and a computer architecture that accesses memory and code. Defendants' dash cams monitor accelerometer and other sensor data for determining driver behaviors, utilizing advanced technology for precise monitoring of driver behavior. By analyzing *x*, *y*, and *z*-axis accelerations, the system accurately capture the movements of vehicles. Defendants' dash cams excel in identifying risky driving behaviors such as harsh acceleration, braking, and turning. Defendants' dash cams use transceivers designed to send and receive from remotely located servers. On information and belief, advertisements from the servers are communicated to and/or accessed by the users' smartphone applications.

> *one or more memories designed to store computer program code; and one or more processors designed to execute the computer program code, the computer program code comprising: code designed to determine mobile thing motion activity (MTMA) of the MT that is transporting the WCD based at least in part upon the sensor data and the statistical analysis of the physical movement of the WCD;*

Defendants' dash cams use WCD memory to store the program code and the WCD processor(s) to execute the program code. The code determines the motion activity through the use of the sensor data and the statistical analysis of the movement of the vehicle.

> *code designed to communicate the sensor data or a mobile thing motion activity (MTMA) of the MT that is transporting the WCD and that is derived from the sensor data via the one or more transceivers to the remote computer system in order to enable selection of the targeted advertisement that is suited for the determined MTMA; code designed to receive and locally communicate the advertisement to a user interface of the WCD; and*

Defendants' dash cams code is designed to communicate sensor data or the identified motion activity (user driving, using phone for text messaging, aggressively cornering and others) to the server, and, on information and belief, the server has code designed to communicate advertisements to associated smartphone applications.

> *wherein the code designed to determine the MTMA comprises: code designed to store a plurality of reference MTMA signatures in the memory, each of the MTMA signatures including frequency and/or time information associated with sensor data pertaining to a specific MTMA; code designed to determine a normalizing mathematical relationship so that different data sets separated in time can be analyzed in the 3D coordinate system;*

Defendants' dash cams code normalizes the live data into sets of data that may be measured in the frequency and time domains and allows the live 3D (three or more axes from the accelerometer and/or gyroscope) data to be compared to the reference data. Code is used to determine time separations so the raw data so it may be analyzed in a 3D coordinate system.

> *code designed to, using the normalizing mathematical relationship, determine normalized data sets; code designed to analyze the normalized data sets in the frequency and time domains; code designed to determine likelihoods associated with the stored MTMA signatures based at least in part upon the analyzing; and code designed to select a most likely MTMA signature from the plurality of MTMA signatures based at least in part upon the likelihoods.*

Defendants' dash cams code is used to match timed data and analyze the normalized data sets in the frequency and time domains. The code determines the likelihoods of the stored reference data and selects the most likely motion activity from a plurality of reference data (signatures) based on such likelihoods.

**COUNT II**

**DIRECT INFRINGEMENT OF THE '558 PATENT**

**34.**

Plaintiff incorporates by reference the allegations of Paragraphs 1-19.

**35.**

Defendants have directly infringed and continues to directly infringe at least one or more claims of the '558 Patent, through, among other activities, making, using, and incorporating into Defendants' respective dash cams automatic programs for monitoring human activities while driving.

**36.**

Independent Claim 1 of the '558 Patent, shown in italics, recites:

> *1. A method, comprising: receiving a time value and at least three streams of data sample values from one or more sensors of a wireless communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of movement of the WCD at a corresponding time value;*

Defendants' dash cams use advanced computing technology, including cellular communication (WCD), GPS, and accelerometers, to detect 3D accelerations on the *x*, *y*, and *z* axes. This accelerometer data is essential for identifying driving behaviors such as hard braking, rapid accelerations, and aggressive cornering maneuvers. Additionally, the devices automatically record, lock and store footage for safety, legal, or insurance purposes.

> *recognizing a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system;*

Defendants' dash cams collect a wide range of accelerometer data sample values. These data updates are delivered in a structured data-object format, which contains detailed information about the device's accelerations, including gravity ($g \approx 9.81\ m/s^2$). The gravity data is then processed to

determine a direction and or influences to axis data, and to make accurate movement calculations. The dash cam devices may be moved or adjusted, and they will auto-orient themselves to determine their exact position. Each time the applications run, the device self-calibrates, improving its orientation accuracy with harsh driving and accident detection.

> *computing reference data based upon the recognition of the particular set, the reference data defining a relationship between each set of subsequent non-reference data sample values and the particular reference set of data sample values in the coordinate system;*

Defendants' dash cams operate on data sample values collected from the accelerometers. The accelerometer sends updates to a listening code, which prompts the system to take action. These updates contain device acceleration information, including gravity or corrected accelerometer data. The reference data is determined by whether or not gravitational accelerations are included. Ensuring accurate and up-to-date accelerometer data is crucial for the dash cams to deliver optimal performance in identifying driver behaviors, for maintaining precise measurements and real-time calculations, and for enhancing the overall user experience.

> *calculating movement data in the coordinate system of one or more other non-reference data sample values based upon the reference data; and*

Defendants' dash cams continually monitor for driver behaviors, calculating real-time movement accelerations across the *x*, *y*, and *z* axes of accelerometer data. These computations are executed within concise time periods, forming dynamic data blocks that provide critical insights into driver performance.

> *determining a mobile thing motion activity (MTMA) associated with the MT based upon the movement data.*

Defendants' dash cams are equipped with advanced accelerometers that monitor movement across the *x*, *y*, and *z* axes, enabling the detection of an unsafe driving activity such as hard braking, rapid acceleration, and accidents. These dash cams are designed to automatically record, lock, and

store footage whenever significant motion activity is detected. This ensures that critical video evidence is preserved, offering valuable data for safety analysis, legal proceedings, or insurance claims, based on the real-time movement data processed by the devices.

**37.**

Claim 2 of the '558 Patent, for example, recites:

> *2. The method of claim 1, further comprising: prior to recognizing, mathematically combining the data sample values of the particular reference set; and recognizing the particular reference set as the reference when a combined value has a magnitude that is indicative of a relationship to Earth gravity.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Because vehicle movements are dynamic, *i.e.*, the orientation is not static and therefore an unknown variable, Defendants' dash cams monitors the direction of the Earth's gravity to establish the current orientation of the vehicle by totaling the three accelerometer axis (x, *y* and *z*) data over short time periods that is equal to the Earth's gravity (9.807 $m/s^2$).

**38.**

Claim 4 of the '558 Patent, for example, recites:

> *4. The method of claim 1, wherein: each set of data sample values includes a vector defined by three data sample values x, y, z; the reference data is a rotation matrix M; and the movement data comprises a vertical magnitude along the z axis and a horizontal magnitude along the x, y plane, both derived from a rotated vector, the rotated vector equal to the rotation matrix M multiplied by the vector associated with the other non-reference data sample values x, y, z.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. After the direction of the Earth's gravity (9.807 $m/s^2$) is determined, for example, Defendants' dash cams first determine the vertical direction, then a second horizontal direction is determined by rotating the vector for measuring acceleration on a horizontal plane.

**39.**

Claim 9 of the ’558 Patent, for example, recites:

> *9. The method of claim 1, wherein the reference data is in the form of a rotation matrix that normalizes the sets of non-reference data sample values with respect to Earth gravity.*

On information and belief, Defendants’ dash cams determine and measure horizontal motion through a rotation matrix to Earth’s gravity.

**40.**

Claim 10 of the ’558 Patent, for example, recites:

> *10. The method of claim 1, wherein the movement data is in the time domain (TD) and wherein the computing comprises: computing a magnitude of the movement data in each of the two dimensions of space; computing one or more TD statistical metrics from the magnitudes; and wherein the MTMA determining is based at least in part upon the TD statistical metrics.*

Defendants’ dash cams measure acceleration by magnitude and time to determine motion activities.

**41.**

Claim 13 of the ’558 Patent, for example, recites:

> *13. The method of claim 1, wherein one or more of the steps of the method is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

Defendants’ dash cans are driver behavior, and accident tracking systems equipped with accelerometers and other sensors that communicate with or connect to smartphone applications. These systems integrate various technologies, such as servers and cloud solutions, IOS and Android applications to optimize customer driver safety.

**42.**

Independent Claim 17 of the ’558 Patent, shown in italics, recites:

> *17. A method, comprising: receiving first and second data from one or more sensors associated with a wireless communication device (WCD) transported by a mobile thing (MT), the first and second data indicative of movement of the WCD;*

Defendants' dash cams integrate advanced computing and processing technologies, combining wireless communication, GPS, and sophisticated 3-axis accelerometers to monitor driving activities. These accelerometer sensors measure 3D movements, allowing for precise tracking of key driving behaviors. By analyzing the collected data, the system filters out gravitational forces and non-relevant movements, ensuring reliable detection of critical events. The dash cam monitors motion across the *x*, *y*, and *z* axes, enabling it to detect unsafe driving behaviors such as hard braking, rapid acceleration, and accidents. The system automatically records, locks, and stores the footage, making it readily available for safety, legal, or insurance purposes.

Claim 17 continues:

> *determining reference data that defines a reference framework from the first data;*

Defendants' dash cams collect a wide range of accelerometer data sample values. These updates are delivered in a structured data-object format, which contains detailed information about the device's accelerations, including gravity ($g \approx 9.81$ m/s²). This first data determines at least the gravity's influences, so one or more subsequent data comparisons are void of non-device movements.

> *normalizing the second data with the reference data so that the second data can be analyzed in the reference framework; and*

Defendants' dash cams ensure accurate comparisons by creating reference data that neutralized the influences of gravity. This crucial step enables precise data analysis and evaluation of device movement data only.

> *identifying a mobile thing motion activity (MTMA) associated with the MT based upon the normalized second data.*

Defendants' dash cams leverage advanced accelerometer technology to analyze real-time movement data by filtering out gravitational forces ($g \approx 9.81$ m/s²). By omitting the influence of gravity, the dash cams can more accurately detect an aggressive driving activity such as hard braking, rapid acceleration, and potential accidents. This precise measurement allows the devices to immediately identify a motion activity, ensuring that unsafe driving activities or collisions are captured and recorded. The systems then securely lock and store the footage for future reference, providing critical data for safety assessments, legal cases, or insurance claims.

**43.**

Claim 19 of the '558 Patent, for example, recites:

> *19. The method of claim 17, wherein the reference data is indicative of a relationship to Earth gravity.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Vehicle movements are dynamic; therefore Defendants' dash cams monitor the direction of the Earth's gravity to establish an orientation of the vehicle by totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity (9.807 $m/s^2$).

**44.**

Claim 20 of the '558 Patent, for example, recites:

> *20. The method of claim 17, wherein the reference data is determined in the form of vector information indicative of a relation to Earth gravity by comparing the first data to a predefined numerical range.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. Because vehicle movements are dynamic and the orientation is not a given variable, Defendants' dash cams monitor the direction of the Earth's gravity to establish an orientation of the vehicle by totaling the accelerometer axis data over short time periods that is equal to the Earth's gravity (9.807 $m/s^2$).

**45.**

Claim 21 of the '558 Patent, for example, recites:

> *21. The method of claim 20, wherein the one or more sensors produce first, second, and third sample data along each of 3 axes in a three dimensional (3D) coordinate system and wherein the first data pertains to a value that equals one within a predefined range, the value computed by combining the first, second, and third sample data.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to measure linear acceleration to sense data over multiple samples to accurately identify the motion activity.

**46.**

Claim 25 of the '558 Patent, for example, recites:

> *25. The method of claim 17, wherein one or more of the steps of the method is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

Defendants' dash cans are driver behavior, and accident tracking systems equipped with accelerometers and other sensors that communicate with or connect to smartphone applications. These systems integrate various technologies, such as servers and cloud solutions, IOS and Android applications to optimize customer driver safety.

**47.**

Independent Claim 27 of the '558 Patent, shown in italics, recites:

> *27. A method for implementation in a wireless communication device (WCD) that is designed to detect a plurality of mobile thing motion activities (MTMAs) associated with a mobile thing (MT), comprising:*

Defendants' dash cams are equipped with advanced computing technology that integrates communication systems, GPS tracking, and 3-axis accelerometers to deliver real-time, comprehensive monitoring of driving behaviors. The accelerometers track movement along the *x*, *y*, and *z* axes, providing precise detection of critical driving events and collisions. By analyzing this accelerometer data, the dash cams automatically activate recording and lock footage when

significant motion is detected, such as during unsafe driving or impact. This ensures vital video evidence is securely stored and easily accessible for safety assessments, legal actions, or insurance claims, offering users enhanced peace of mind through reliable data capture and real-time event analysis.

> *receiving a plurality of data sample values from one or more sensors of the WCD that is transported by the MT, the data sample values indicative of movement of the WCD;*

Defendants' dash cams leverages data from three-axis accelerometers to identify potentially unsafe driving activities and accidents. This advanced technology continuously monitors the devices' movements using the accelerometer and other sensors, ensuring real-time analysis of driving patterns.

> *computing reference data, the reference data defining a relationship between data sample values and a reference framework to enable comparison of data sample values; calculating movement data based upon the reference data and the data sample values; and*

Defendants' dash cams collect a wide range of accelerometer data sample values. These updates are delivered in a structured data-object format, which contains detailed information about the device's accelerations, including gravity ($g \approx 9.81\ m/s^2$).

> *determining an MTMA associated with the MT based upon the movement data.*

Defendants' dash cams monitor accelerometer and other sensor data for determining driver behaviors from the movement data.

**48.**

Claim 28 of the '558 Patent, for example, recites:

> *28. The method of claim 27, further comprising: recognizing a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system; determining a rotation matrix based upon the particular set of reference data sample values; and calculating the*

> *movement data based upon the rotation matrix and one or more sets of the data sample values that are not the particular reference set.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis data to determine and recognize the direction of Earth's gravity. After the direction of the Earth's gravity is determined, for example, Defendants' dash cams first determine the vertical direction, then a second horizontal direction is determined by rotating the vector for measuring acceleration on a horizontal plane.

**49.**

Claim 33 of the '558 Patent, for example, recites:

> *33. The method of claim 27, wherein the reference data is indicative of a relationship to Earth gravity.*

Defendants' dash cams use reference data to match sensor data that corresponds to Earth's gravity.

**50.**

Independent Claim 42 of the '558 Patent, shown in italics, recites:

> *42. A system, comprising: one or more memories designed to store computer program code; one or more processors designed to execute the computer program code; and wherein the computer program code comprises:*

Defendants' dash cams leverage cutting-edge computing technologies to process real-time data, communication, GPS, and built-in 3D accelerometers. These accelerometers track movement along the *x*, *y*, and *z* axes, enabling the dash cams to detect an unsafe driving activity. When an activity is determined, the devices automatically record, lock, and securely store the footage, ensuring it is preserved for safety, legal, or insurance purposes. This advanced technology provides comprehensive monitoring and reliable event documentation for drivers.

> *code to receive first and second data from one or more sensors associated with a wireless communication device (WCD) transported by a mobile thing (MT), the first and second data indicative of movement of the WCD;*

Defendants' dash cams includes code for accurately measuring advanced movement with sensor data by identifying gravity (non-movement data) for accurate comparisons. The code allows for the collection of data sample values from the *x*, *y*, and *z* axes of accelerometer and gyroscope sensors. With predefined timed lengths, the code is measured in at least first and second data samples. The first set of data includes gravity influences, but the system is able to distinguish non-movement influences (like gravity) and/or the positioning of the device in the second set of movement data.

> *code to determine reference data that defines a reference framework from the first data;*

Defendants' dash cams includes code to determine a frequency, time length, block, and or data group for the first data. Defendants' dash cams includes code that determines a vertical and/or horizontal framework so the reference data may used in determining driving motion activities.

> *code to normalize the second data with the reference data so that the second data can be analyzed in the reference framework; and*

Data sets from the movements (acceleration) is normalized by values, ranges, frequencies and/or time so as to be compared to reference data. Defendants' dash cams code removes the rotational changes to the three dimensional (3D) coordinate system by normalizing the data with the gravity based determination of the vertical axis.

> *code to identify a mobile thing motion activity (MTMA) associated with the MT based upon the normalized second data.*

Defendants' dash cams includes code to identify a motion activity based upon the normalized data, enabling the detection of aggressive and potentially unsafe driving activities including accidents. Additionally, they can determine when accidents occur by comparing normalized data during the second step of analysis.

**51.**

Claim 43 of the '558 Patent, for example, recites:

> *43. The system of claim 42, wherein the second data comprises a plurality of periodic samples.*

Defendants' dash cams continually compare a plurality of accelerometer and/or gyroscope data samples.

**52.**

Claim 44 of the '558 Patent, for example, recites:

> *44. The system of claim 42, wherein the reference data is indicative of a relationship to Earth gravity.*

Defendants' dash cams use the earth's gravity to determine how to measure raw data against reference data.

**53.**

Claim 45 of the '558 Patent, for example, recites:

> *45. The system of claim 42, wherein the reference data is determined in the form of vector information indicative of a relation to Earth gravity by comparing the first data to a predefined numerical range.*

On information and belief, Defendants' dash cams use the earth's gravity to determine a magnitude and direction numbers (vector) for comparing a predefined numerical range.

**54.**

Claim 46 of the '558 Patent, for example, recites:

> *46. The system of claim 45, wherein the one or more sensors produce first, second, and third sample data along each of 3 axes in a three dimensional (3D) coordinate system and wherein the first data pertains to a value that equals one within a predefined range, the value computed by combining the first, second, and third sample data.*

Accelerometers are sensors which measure acceleration in an $x$, $y$ and $z$ axis, the change in velocity over time (SI unit: $m/s^2$). On information and belief, Defendants' dash cams measure acceleration

of the vehicle in time-segments, using first, second, et cetera, to confirm multiple time-segment matches to confirm most driver activities.

**55.**

Claim 50 of the '558 Patent, for example, recites:

> *50. The system of claim 42, wherein the system is implemented in the WCD, in a computer system that is remote to the WCD, or in a combination of both.*

Defendants' dash cans are driver behavior, and accident tracking systems equipped with accelerometers and other sensors that communicate with or connect to smartphone applications. These systems integrate various technologies, such as servers and cloud solutions, IOS and Android applications to optimize customer driver safety.

**56.**

Independent Claim 52 of the '558 Patent, shown in italics, recites:

> *52. A system for implementation in a wireless communication device (WCD) that is designed to detect a plurality of mobile thing motion activities (MTMAs) associated with a mobile thing (MT), comprising: one or more memories designed to store computer program code; one or more processors designed to execute the computer program code; and wherein the computer program code comprises:*

Defendants' dash cams leverage cutting-edge computing technologies to process real-time data, communication, GPS, and built-in 3D accelerometers. These accelerometers track movement along the *x*, *y*, and *z* axes, enabling the dash cams to detect an unsafe driving activity. When an activity is determined, the devices automatically record, lock, and securely store the footage, ensuring it is preserved for safety, legal, or insurance purposes. This advanced technology provides comprehensive monitoring and reliable event documentation for drivers.

> *code to receive a plurality of data sample values from one or more sensors of the WCD that is transported by the MT, the data sample values indicative of movement of the WCD;*

Defendants' dash cams continuously monitor updated accelerometer data across the *x*, *y*, and *z* axes from their built-in sensors. This data reflects the device's movements, allowing the dash cams to accurately track and respond to changes in the vehicle's motion, such as acceleration, braking, or impacts, providing precise analysis for real-time event detection.

> *code to compute reference data, the reference data defining a relationship between data sample values and a reference framework to enable comparison of data sample values;*

Defendants' dash cams includes code that computes reference data, such as determining when a user is driving, and a sudden stop/impact is detected. The device provides accelerometer and/or gyroscope axis data to process against reference data in a time, frequency and or size framework.

> *code to calculate movement data based upon the reference data and the data sample values; and*

Defendants' dash cams includes code to monitor updated movement data over short time periods and compare it to reference data over periods of time.

> *code to determine an MTMA associated with the MT based upon the movement data.*

Defendants' dash cams detect potentially unsafe driving behaviors by analyzing accelerometer data across the *x*, *y*, and *z* axes, which reflects the movement of the device. This data allows the dash cams to identify when a critical activity occurs, enabling a timely recording and response to an unsafe driving activity.

**57.**

Claim 53 of the '558 Patent, for example, recites:

> *53. The system of claim 52, wherein the computer program code further comprises: code to recognize a particular set of data sample values as a reference for defining an orientation of the WCD in a coordinate system; code to determine a rotation matrix based upon the particular set of reference data sample values; and code to calculate the movement data based upon the rotation matrix and one or more sets of the data sample values that are not the particular reference set.*

Defendants' dash cams include computer program code to recognize gravity measurements within the *x*, *y*, and *z* axes that defines an orientation. Code determines and extracts gravitational acceleration so an actual acceleration (without gravity's acceleration) may be accurately measured within data samples.

**58.**

Claim 54 of the '558 Patent, for example, recites:

> *54. The system of claim 52, wherein the data sample values are received from a plurality of the sensors.*

Defendants' dash cams use data sample values from accelerometer's and/or gyroscope's the *x*, *y* and *z* axes.

**59.**

Claim 55 of the '558 Patent, for example, recites:

> *55. The system of claim 54, wherein the plurality of sensors include at least an accelerometer and a gyroscope.*

Defendants' dash cams use accelerometers sensors for monitoring linear acceleration over time periods for determining driving motion activities.

**60.**

Claim 58 of the '558 Patent, for example, recites:

> *58. The system of claim 52, wherein the reference data is indicative of a relationship to Earth gravity.*

Defendants' dash cams subtract earth's gravity influence from the raw accelerometer data so the reference data may accurately represent the motion activity.

**COUNT III**

**DIRECT INFRINGEMENT OF THE '951 PATENT**

**61.**

Plaintiff incorporates by reference the allegations of Paragraphs 1-19.

**62.**

Defendants have directly infringed and continues to directly infringe at least one or more claims of the '951 Patent, through, among other activities, making, using, and incorporating into Defendants' respective dash cams automatic programs for monitoring human activities while driving.

**63.**

Independent Claim 1 of the '951 Patent, shown in italics, recites:

> *1. A wireless communications device (WCD), comprising: one or more memories that store computer program code; and one or more processors that execute the computer program code, the computer program code comprising:*

Defendants' dash cams are advanced computing devices that include wireless capabilities, GPS, and a three-axis accelerometer for motion detection. These devices store program code in one or more memories and execute the code with one or more processors. The program code enables each device to understand its movement, activities, and sometimes surroundings using *x*, *y*, and *z* axis data within a 3D coordinate system.

> *instructions to enter a first mode of operation involving a first investigation process with one or more sensors, the first investigation process capturing first data with the one or more sensors;*

Defendants' dash cams utilize advanced logic algorithms to monitor vehicular movements and determine specific operational modes such as parked, aggressive driving, (*i.e.*, hard braking and fast acceleration) and accident detection. During driving mode, they continuously track real-time

data related to driver actions, other vehicles, road conditions, obstacles, from the acceleration intensities or frequencies.

> *instructions to determine whether or not the first data is indicative of an activity relating to a user need for assistance, an accident, or a crime; and*

Defendants' dash cams utilize advanced technologies to detect potential accidents. These systems are triggered when predefined thresholds are exceeded, indicating that the driver may be involved in an accident or may require assistance.

> *instructions to, when the first data may involve the activity, enter into a second mode of operation involving a second investigation process that is different than the first investigation process and that involves the one or more sensors and/or one or more other sensors in order to capture second data that is further indicative of the activity.*

Defendants' dash cams monitor data that identifies unsafe driving behavior or an accident and trigger a secondary process to capture and transmit pre- and post- accident information. Additionally, the systems use this data to lock videos, and activate alerts for the driver, such as buzzers, lights, and communication notifications.

**64.**

Claim 2 of the '951 Patent, for example, recites:

> *2. The system of claim 1, wherein the first data and/or the second data is an image, a video sample, and/or an audio sample.*

Defendants' dash cams use the first and or second data as an image, video, and or audio of the event.

**65.**

Claim 3 of the '951 Patent, for example, recites:

> *3. The system of claim 1, wherein the computer program code further comprises: instructions to determine a human body physical activity (HBPA) associated with a WCD user based at least in part upon the first data and/or the second data; and instructions to communicate HBPA*

> *identification information to a remote computer system to permit analysis in connection with whether or not the first data corresponds to the activity.*

Defendants' dash cams enhance the accuracy of detecting driver behaviors by utilizing accelerometer data, which is transmitted to remote servers for advanced analysis and processing.

**66.**

Claim 4 of the '951 Patent, for example, recites:

> *4. The system of claim 1, wherein the computer program code further comprises: instructions to communicate the first data to a remote computer system to permit analysis in connection with whether or not the first data involves the activity; and receiving information from the remote computer system, the information indicative of whether or not the first data corresponds to the activity.*

Defendants' dash cams accurately detect events such as hard braking, rapid accelerations, sharp turns, and accidents by continuously monitoring accelerations though the 3 axis accelerometers for real-time driving data. When an event is identified, the system immediately captures the relevant event, which is then sent for further review, ensuring critical incidents are documented and available for analysis.

**67.**

Claim 8 of the '951 Patent, for example, recites:

> *8. The system of claim 1, wherein the computer program code further comprises: instructions to compare the first data and/or the second data with reference data; and instructions to detect an event in an environment associated with the WCD based upon the comparison.*

Defendants' dash cams increase accuracy for detecting driver behaviors with accelerometers by monitoring multiple samples over short periods of time by comparing reference data that filters out gravity and other data for gaining pure samples of the accelerometer axis data that is used in the comparison step(s).

**68.**

Claim 9 of the ’951 Patent, for example, recites:

> *9. The system of claim 8, wherein the comparison is in the time domain, frequency domain, or both.*

Defendants’ dash cams increase accuracy for detecting driver behaviors with accelerometers by monitoring multiple samples over short periods of time by comparing reference data that filters out gravity and other data for gaining pure samples of the accelerometer axis data that is used in the comparison step(s).

**69.**

Independent Claim 10 of the ’951 Patent, shown in italics, recites:

> *10. A wireless communications device (WCD), comprising: one or more memories that store computer program code; and one or more processors that execute the computer program code, the computer program code comprising:*

Defendants’ dash cams incorporate advanced computing devices that include cellular capabilities, GPS, and a three-axis accelerometer for motion detection. These devices utilize program code stored in one or more memories and executed by one or more processors. This code enables the device to interpret its movement and activities using *x*, *y*, and *z* axis data within a 3D coordinate system.

> *instructions to produce data from one or more sensors associated with the WCD; instructions to determine a human body physical activity (HBPA) associated with a WCD user based upon the data;*

Defendants’ dash cams incorporate program code to detect instances of aggressive and potentially unsafe driving, such as hard braking and rapid acceleration, as well as to identify accidents based on accelerometer data. The devices execute instructions to analyze data from one or more sensors associated with the wireless dash cam device. Furthermore, the program code includes instructions to assess driving behaviors linked to the user based on this sensor data.

> *instructions to select a mode of operation from a set of modes, based upon the determined HBPA, the set including different modes of operation involving initiation of different investigation processes that capture different types of data; and*

Defendants' dash cams are equipped with intelligent operational modes to identify aggressive driving behavior such as hard braking and fast accelerations. These devices include instructions to select an operational mode from a set of options based on the detected driving activity. This set encompasses various modes of operation that initiate different investigation processes to capture pre/actual/post video, lock the video, and others.

> *instructions to communicate the data to a remote computer system.*

Defendants' dash cams communicates surveillance information such as unsafe driving behaviors and accident data to remote servers for logging events and engaging additional actions.

**COUNT IV**

**DIRECT INFRINGEMENT OF THE '914 PATENT**

**70.**

Plaintiff incorporates by reference the allegations of Paragraphs 1-19.

**71.**

Defendants have directly infringed and continues to directly infringe at least one or more claims of the '914 Patent, through, among other activities, making, using, and incorporating into Defendants' respective dash cams automatic programs for monitoring human activities while driving.

**72.**

Independent Claim 5 of the '914 Patent, shown in italics, recites:

> *5. A system comprising: at least one computing device; and at least one application executable in the at least one computing device, the application comprising:*

Defendants' dash cams use 3 axis accelerometer for motion detection. This technology allows the device to understand its movement with the *x*, *y* and *z* axis data of a 3D coordinate system. The accelerometer data is crucial in analyzing aggressive and potentially unsafe driving behaviors, such as hard braking and rapid acceleration and also accidents.

*logic that determines a user activity and/or user surroundings;*

Defendants' dash cams utilize logic for monitoring techniques to assess the range or likelihood of events in verifying user activities and surroundings through repeated patterns, frequencies and or spikes. This enables the identification and confirmation of vehicle movements.

*logic that determines a surveillance mode that corresponds to the user activity and/or the user surroundings;*

Defendants' dash cams incorporate intelligent systems that activate as soon as the vehicle starts. These systems continuously analyze sensor data to detect risky driving behaviors, such as hard braking and rapid acceleration, or when accidents occur. Additionally, the accident surveillance mode is triggered in the event of a crash. This mode monitors the accelerometer sensor data and captures the activity video of the accident. During this period, the system records additional video and information of the accident.

*logic that facilitates a user-defined response to the user activity and/or the user surroundings; and*

Defendants' dash cams are equipped with intelligent systems that automatically activate accident surveillance mode upon detecting a collision. When triggered, the device may emit a beep, flash, or display an on-screen notification to alert the driver that recording is in progress. This feature provides real-time visual confirmation that the event is being captured. However, to access the DVR and review recorded or remote files, the driver is prompted to stop recording, ensuring safety and preventing distractions while driving. This intuitive system enhances post-incident sharing of the review and data management.

> *logic that communicates surveillance information to at least one remotely located computer device.*

Defendants' dash cams use logic to determine when to transmit surveillance data to remote applications, servers, and DVR or video storage and playback systems. This seamless communication allows for real-time monitoring, video storage, and easy access to recorded footage for review and analysis.

**73.**

Independent Claim 15 of the '914 Patent, shown in italics, recites:

> *15. A method comprising the steps of: determining, by a computing device, a user activity and/or user surroundings;*

Defendants' dash cams utilize advanced computing devices that include, cellular, GPS and a built-in 3 axis accelerometer for motion detection. This technology allows the device to understand its movement, orientation and activities and sometime surroundings with the *x*, *y* and *z* axis data of a 3D coordinate system.

> *determining, by the computing device, a surveillance mode that corresponds to the user activity and/or the user surroundings;*

Defendants' dash cams incorporate intelligent systems that activate as soon as the vehicle starts. These systems continuously analyze sensor data to detect risky driving behaviors, such as hard braking, rapid acceleration and accidents. This mode monitors the accelerometer sensor data and captures the event (accelerations) pre, during and post of the accident. During this period, the system sends a specialized message of the accident to servers and to applications and software.

> *facilitating, by the computing device, a user-defined response to the user activity and/or the user surroundings; and*

Defendants' dash cams are equipped with intelligent systems that automatically activate accident surveillance mode upon detecting a collision. When triggered, the device may emit a beep, flash, or display an onscreen notification to alert the driver that recording is in progress. This feature

provides real-time visual confirmation that the event is being captured. However, to access the DVR and review recorded or remote files, the driver is prompted to stop recording, ensuring safety and preventing distractions while driving. This intuitive system enhances post-incident sharing of the review and data management.

> *communicating, by the computing device, surveillance information to at least one remotely located computer device.*

Defendants' dash cams transmit surveillance data to remote applications, servers, and DVR or video storage and playback systems. This seamless communication allows for real-time monitoring, video storage, and easy access to recorded footage for review and analysis.

**COUNT V**

**DIRECT INFRINGEMENT OF THE '273 PATENT**

**74.**

Plaintiff incorporates by reference the allegations of Paragraphs 1-19.

**75.**

Defendants have directly infringed and continues to directly infringe at least one or more claims of the '273 Patent, through, among other activities, making, using, and incorporating into Defendants' respective dash cams automatic programs for monitoring human activities while driving.

**76.**

Independent Claim 1 of the '273 Patent, shown in italics, recites:

> *1. A method, comprising: receiving a time value and three streams of data sample values from an accelerometer of a wireless communication device (WCD) that is transported by a mobile thing (MT), each data sample value indicative of an acceleration of the WCD along an axis of a three dimensional (3D) coordinate system at a corresponding time value;*

Defendants' dash cams utilize a 3-axis accelerometer for motion detection. These devices employ advanced computing processes, enabling the use of most wireless, GPS for location and speed tracking, and accelerometers for measuring 3D accelerations and movements. The accelerometer is also instrumental in determining the device's orientation and gravity accelerations across *x*, *y*, and *z* axes in a 3D coordinate system along with respective time values.

> *recognizing a particular set of data sample values as a reference in the 3D coordinate system for defining a relationship between an orientation of the WCD and a two dimensional (2D) coordinate system;*

Defendants' dash cams use reference data, such as data that represents accurate identification of driving movements by accelerometer *x*, *y*, and *z* axis sensor data. The reference data is created to remove and or identify non-movement activities such as gravity accelerations (that are not part of the device movements) and processed to classifications such as harsh braking, harsh accelerations, and others over time periods to confirm changes and validate the motion activity for use in the application. Defendants' dash cams calculates accelerometer *x*, *y* and *z* axis data that totals the constant gravity acceleration. The acceleration from gravity may be removed by reducing the amount from each axis or the total amount when combining all three axis. Determining the vertical direction of gravity provides an orientation of the vehicle in a two dimensional measurement system.

> *computing reference data based upon the recognition of the particular set, the reference data defining a relationship between each set of subsequent non-reference data sample values and the particular reference set of data sample values in the 2D coordinate system;*

Defendants' dash cams compute reference data including a numeric magnitude and frequency over a predetermined time period. Raw accelerometer data that represents the acceleration of the motion activity are compared by measuring the magnitude and frequency over the same predetermined time period as the reference data.

> *calculating movement data in the 2D coordinate system of one or more other non-reference data sample values based upon the reference data; and*

Defendants' dash cams calculate the movement data in a two dimensional magnitude and frequency measurement over time. The devices calculate movement data, objects and or raw accelerometer data (the live data) with the identifiers such as accidents, objects and/or thresholds including time, peaks, ranges, frequencies, and/or averages.

> *determining a moving thing motion activity (MTMA) associated with the MT based upon the movement data.*

Defendants' dash cams identify a motion activity by normalizing the live data with the reference data over time periods for confirming activity changes over random false positives that occur from inadequate sampling.

**77.**

Claim 2 of the '273 Patent, for example, recites:

> *2. The method of claim 1, further comprising: prior to recognizing, mathematically combining the data sample values of the particular reference set; and recognizing the particular reference set as the reference when a combined value has a magnitude that is indicative of a relationship to Earth gravity.*

Defendants' dash cams calculate the accelerometer *x*, *y* and *z* axis data by adding the accelerometer axis data to locate the acceleration provided by gravity; the reference set is a measurement so the magnitude of gravity may be removed so acceleration associated with vehicle movements may be accurately measured.

**78.**

Claim 3 of the '273 Patent, for example, recites:

> *3. The method of claim 2, further comprising updating the reference data each time the reference set of data samples is recognized.*

Defendants' dash cams update the gravity reference data so acceleration from the movement of the vehicle may be accurately measured.

**79.**

Claim 4 of the '273 Patent, for example, recites:

> *4. The method of claim 1, wherein: each set of data sample values includes a vector defined by three data sample values x,y,z; the reference data is a rotation matrix M; and the movement data comprises a vertical magnitude along the z axis and a horizontal magnitude along the x, y plane, both derived from a rotated vector, the rotated vector equal to the rotation matrix M multiplied by the vector associated with the other non-reference data sample values x,y,z.*

Defendants' dash cams use the accelerometer *x*, *y* and *z* axis to determine the direction of gravity. After determining the vertical direction of gravity (z axis) a horizontal magnitude for the *x* and *y* axis is established. Defendants' dash cams use the *x* and *y* axis for determining hard braking, fast acceleration and quick cornering from drivers. The rotation matrix is applied to the raw *x*, *y* and *z* axis data from the accelerometer.

**80.**

Claim 8 of the '273 Patent, for example, recites:

> *8. The method of claim 1, wherein the reference data is in the form of a rotation matrix that normalizes the sets of non-reference data sample values with respect to Earth gravity.*

Defendants' dash cams use reference data that includes or subtracts the earth's gravity acceleration of the *x*, *y* and *z* axis for a combined total.

**81.**

Claim 11 of the '273 Patent, for example, recites:

> *11. The method of claim 1, wherein one or more of the steps of the method is implemented in the WCD.*

Defendants' dash cams implement one or more steps of the method in the dash cam (wireless communication device) carried by the vehicle.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff prays for relief that the Court enter judgment in their favor and against Defendant, granting the following relief:

That the Court enter a judgment that one or more claims of the '846 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant WolfBox;

That the Court enter a judgment that one or more claims of the '846 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant RedTiger;

That the Court enter judgment that one or more claims of the '558 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant WolfBox;

That the Court enter judgment that one or more claims of the '558 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant RedTiger;

That the Court enter judgment that one or more claims of the'951 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant WolfBox;

That the Court enter judgment that one or more claims of the'951 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant RedTiger;

That the Court enter judgment that one or more claims of the '914 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant WolfBox;

That the Court enter judgment that one or more claims of the '914 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant RedTiger;

That the Court enter judgment that one or more claims of the '273 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant WolfBox;

That the Court enter judgment that one or more claims of the ’273 Patent have been infringed either literally and/or under the doctrine of equivalents, by Defendant RedTiger;

That Defendant WolfBox be ordered to pay damages adequate to compensate Plaintiff for its acts of infringement, pursuant to 35 U.S.C. § 284;

That Defendant RedTiger be ordered to pay damages adequate to compensate Plaintiff for its acts of infringement, pursuant to 35 U.S.C. § 284;

That Plaintiff be awarded increased damages under 35 U.S.C. § 284 due to WolfBox’s willful infringement of the ’846, ’558, ’951, ’914, and ’273 Patents; That the Court find that this case is exceptional and award Plaintiff reasonable attorneys’ fees pursuant to 35 U.S.C. § 285;

That Plaintiff be awarded increased damages under 35 U.S.C. § 284 due to RedTiger’s willful infringement of the ’846, ’558, ’951, ’914, and ’273 Patents; That the Court find that this case is exceptional and award Plaintiff reasonable attorneys’ fees pursuant to 35 U.S.C. § 285;

That Defendant WolfBox, its officers, agents, employees, and those acting in privity with it, be preliminarily enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant RedTiger, its officers, agents, employees, and those acting in privity with it, be preliminarily enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant WolfBox, its officers, agents, employees, and those acting in privity with it, be permanently enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant RedTiger, its officers, agents, employees, and those acting in privity with it, be permanently enjoined from further infringement, contributory infringement, and/or inducing infringement of the patent-in-suit, pursuant to 35 U.S.C. § 283;

That Defendant WolfBox be ordered to pay prejudgment and post-judgment interest;

That Defendant RedTiger be ordered to pay prejudgment and post-judgment interest;

That Defendant WolfBox be ordered to pay all costs associated with this action;

That Defendant RedTiger be ordered to pay all costs associated with this action; and

That Plaintiff be granted such other and additional relief as the Court deems just, equitable, and proper.

**DEMAND FOR JURY TRIAL**

Pursuant to Fed. R. Civ. P. 38(b), Plaintiffs demands a jury trial on all issues justiciable by a jury.

Respectfully Submitted,

Dated: November 14, 2024

/s/ Brett Thomas Cooke

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