KEEPING YOUR EYES ON THE ROAD:
WHAT THE CE INDUSTRY IS DOING TO HELP YOU DRIVE SAFELY

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(Formulated under the cognizance of the CEA **R6 Portable, Handheld and In-Vehicle Electronics Committee**.)

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Foreword

This document is a report about technologies and products that help drivers drive safely while keeping their eyes on the road and their hands on the wheel. This is an overview and not a comprehensive, all-inclusive report about every product or every technology on the market.

CEA has not verified the product claims made by companies submitting information for this report. CEA makes no warranties, express or implied, with respect to the products or product claims. Users assume all risks arising from the use of such products.

It is ultimately a driver's responsibility to drive safely. The technologies and products described in this report are intended to help drivers drive safely. But, in the end, safe driving is up to the driver.

Contents

Executive Summary

Distracted driving is a very serious problem. There are a wide variety of things that cause distraction while driving and the most common thing by a very wide margin is daydreaming, or being generally "lost in thought." There are thousands and thousands of products on the market that aim to help people drive safely. Of these products driver monitoring systems offer the greatest opportunity to address all of the various causes of distracted driving. These systems monitor a driver's behavior and initiate corrective action when the driver's behavior appears to match that of a distracted person.

Introduction

Distracted driving is a very serious issue. According to Distraction.gov, the official U.S. Government website for distracted driving, 3,328 people were killed in crashes involving a distracted driver in the United States in 2012, the latest year for which data is available.[1] It is estimated that another 421,000 were injured.[2] In addition to this human tragedy, all drivers suffer negative consequences because insurance payouts that result from distracted driving accidents cause everyone's insurance rates to go up.

The causes of distracted driving are varied. The most common distractions are:[3]

1. Generally distracted or "lost in thought" (daydreaming): 62%
2. Cell phone use (talking, listening, dialing, texting): 12%
3. Paying attention to an outside person, object or event: 7%
4. Interacting with other occupants: 5%
5. Using or reaching for a device in the vehicle, such as a portable GPS system or headphones: 2%
6. Eating or drinking: 2%
7. Adjusting audio or climate controls: 2%
8. Operating other in-vehicle device, such as adjusting the rear view mirrors, seats, or using OEM navigation system: 1%
9. Moving object in vehicle, such as an insect or unrestrained pet: 1%
10. Smoking-related (smoking, lighting up, putting ashes in ashtray): 1%

The National Highway Traffic Safety Administration (NHTSA) defines distracted driving as a driver taking his or her eyes off the road for more than two seconds.[4] If any particular

[1] See http://www.distraction.gov/content/get-the-facts/facts-and-statistics.html (September 3, 2014).
[2] *Ibid.*
[3] "Forget Phones Or Fast Food, More Drivers Cause Their Own Distractions In Crashes," http://www.forbes.com/sites/jimgorzelany/2013/04/03/forget-phones-or-fast-food-more-drivers-cause-their-own-distractions-in-crashes/ (April 3, 2013).

task that requires multiple glances away from the roadway cumulatively takes more than 12 seconds of eyes-off-the-road time, NHTSA also considers that distracting.[5] NHTSA has a very precise way of measuring eyes-off-the-road time that involves measurement of the angle of the driver's eyes with respect to straight ahead.[6]

There are only two things that all distracted drivers have in common. One is that they are driving. The other is that they are distracted. The best way to address the distracted driving problem is with solutions that target these common elements.

It is important that distracted driving solutions target drivers, and only drivers. A solution that also targets passengers be they in a car, bus, train, boat or some other vehicle, will meet with resistance in the marketplace because passengers will not likely accept the restrictions intended for drivers being applied to them.

Different solutions have been proposed for different distractions. While these can be very effective, narrowly targeted solutions that address specific distractions are not the optimal way to address the overall driver distraction problem. A solution that targets the food served through drive-thru windows might be appropriate for drivers who are distracted while eating but ineffective for drivers who are distracted by other passengers. A solution that targets people who text while driving might prevent a driver from texting but also prevent an abducted child from reaching out for help. Any specific narrowly targeted solution might be effective at addressing the problem it aims to address, but because it is narrowly targeted it likely leaves some of the distracted driving problem unresolved. Furthermore, some narrowly targeted solutions might create other hazards.

There are solutions aimed at addressing all forms of distracted driving. In this report these solutions are referred to as driver monitoring technology. Advanced driver monitoring systems that address distracted driving are beginning to reach the mass market.[7] The technology behind these systems is similar to the technology used in popular consumer electronics products like the Microsoft Kinect for Xbox 360, the Nintendo Wii, and the Sony Playstation Move. As anyone familiar with these gaming systems knows it is possible today for machines to monitor subtle human movements and take action based on these movements.

Driver monitoring systems that address distracted driving use cameras to watch a driver's eyes and head. By constantly monitoring the eyes of the driver the monitoring system can tell where the driver is looking, and even predict the driver's state of mind.

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[4] "Guidelines for Reducing Visual-Manual Driver Distraction during Interactions with Integrated, In-Vehicle, Electronic Devices," Section VI (Task Acceptance Testing) (April 23, 2013).
[5] *Ibid.*
[6] *Ibid.*
[7] For example, see "Attention Assist" feature offered by Mercedes-Benz, http://www.mbusa.com/mercedes/benz/safety (September 11, 2014).

These monitoring systems are unobtrusive and always on. The driver does not have to do anything to activate them.

Driver monitoring systems can tell if the driver's eyes are not looking at the road ahead. They can report this shift of focus to the circuitry inside the car, and if the driver's focus remains off the road ahead for more than an allowed amount of time the circuitry in the car can take action. Some actions that might be taken include sounding an alarm, shutting off a video display, muting audio, or other similar actions aimed at getting the driver to focus back on the road.

An automatic driver monitoring system is the most appropriate and most effective way to address driver distraction because it addresses all distractions – even the ones that do not have good targeted solutions like the most prevalent distraction, daydreaming. Rather than developing a plan to get people to eat safely while driving, and developing another plan to get people to smoke safely while driving, and developing another plan to get people to use their mobile phones safely while driving, a much more effective approach would be to develop one plan to help people drive safely no matter what else they are trying to do.

In this report you will find an explanation of how driver monitoring systems work. You will also find a listing of various technologies on the market that aim to help drivers avoid specific distractions. These latter technologies are tools that drivers can use to accomplish things they want to accomplish without driving distracted.

Driver monitoring systems

Overview of technology that helps keep eyes on the road

Driver monitoring systems are able to watch a driver's eyes and determine where the driver is looking, and how hard the driver is thinking. They do this by transmitting light, which is typically in or near the infrared range, at the driver's eyes. This light is then reflected off of the eyes and this reflection is captured by a camera. The camera captures not only this reflected light but also other visible information, such as how often the driver is blinking, the size of the driver's pupils, the position of the driver's head, and so forth. When this data is combined and analyzed by embedded computer circuitry it can be used by the driver monitoring system to determine the direction in which the driver is looking, and more.

A significant amount of information can be gleaned by monitoring a driver's eyes. An eye pupil is surrounded by two sets of muscles, a circular set and a radial set. Together these muscles constrict and expand the pupil in the presence of increasing or decreasing light, respectively. But changing light is not the only reason that the size of a pupil will change.[8] Eye pupils will also dilate when a person is deep in thought.[9] People also blink less when they are deep in thought. It is easy to see how monitoring eye behavior is not only a way to determine if a driver is looking at the road, it is also a way to determine if the driver's mental state is not optimal. A driver who begins daydreaming, for example, may have dilated pupils and will blink less than normal. Daydreaming is very common,[10] and is by far the number one cause of distracted driving accidents, accounting for nearly twice as many crash-related fatalities as all other forms of distraction combined.[11]

[8] "Eye-Opener: Why Do Pupils Dilate in Response to Emotional States?" http://www.scientificamerican.com/article/eye-opener-why-do-pupils-dialate/ (December 7, 2012).
[9] "Ode to positive constructive daydreaming;" Rebecca L. McMillan, Scott Barry Kaufman, Jerome L. Singer; Front Psychol. 2013; 4: 626. Published online September 23 2013.
[10] "The Brain: Stop Paying Attention: Zoning Out Is a Crucial Mental State," http://discovermagazine.com/2009/jul-aug/15-brain-stop-paying-attention-zoning-out-crucial-mental-state (June 15, 2009).
[11] "Forget Phones Or Fast Food, More Drivers Cause Their Own Distractions In Crashes," http://www.forbes.com/sites/jimgorzelany/2013/04/03/forget-phones-or-fast-food-more-drivers-cause-their-own-distractions-in-crashes/ (April 3, 2013).

Eye tracking products

Delphi

www.delphi.com

Delphi's driver state sensor system uses two cameras, one located on the pillar that supports the windshield and the second camera located in the center panel of the vehicle, allowing for flexibility within the vehicle cabin for both one and two camera solutions.

The Delphi system monitors the surrounding environment and in conjunction with workload management helps determine how and when content can be delivered to the driver. In a "low demand" driving situation, such as with low traffic, in a rural or quiet traffic area, the driver has normal, full access to all of the vehicle functions. In a "high demand" driving situation, such as urban driving with high traffic and lots of distractions, the workload manager will determine that the surrounding environment requires the driver's full attention. In this case the system will provide a speech prompt for the driver to "please use voice command" for hands-free operation of the radio.

The cameras of the Delphi system can detect the direction in which the driver's head is oriented, and if the driver's head is facing somewhere other than forward for more than two seconds the system will flash an alert to draw the driver's attention back to driving with eyes focused on the road. If the driver continues to look away for more than 5 seconds the infotainment system will be disabled and another alert will flash along with and audible alert to bring the driver's attention back to the road.

Delphi driver state sensor system

Fovio

www.fovio.com

Fovio provides a platform for monitoring driver attention and vigilance that includes eye tracking technology.

Fovio technology automatically measures precisely where someone is looking. It works even when the driver is wearing glasses. Fovio's technology powers applications that increase safety and productivity in task-critical or safety-critical environments. Fovio will underpin a whole new generation of intelligent interfaces in a wide range of markets.

A diverse range of operating environments and potential users called for a universal design that suited cockpits, simulators, vehicles and consoles. Fovio's cylindrical form was inspired to generate market differentiation and flexibility of installation. Fovio will be used by Seeing Machines to develop, market and deliver contextual understanding of users. It will be used in industries that include automotive, aerospace, commercial transportation and consumer electronics.

Tobii

www.tobii.com

Tobii Eye Tracking monitors and detects the status of the driver, such as drowsiness, distraction and point of attention by following the movements of the driver's eyelids and the direction of the driver's gaze. These are the most reliable and accurate measures to warn drivers of an onset of uncontrolled sleep or critical lack of attention on the road.

Eye tracking can easily be integrated with existing safety systems, such as lane departure warning, automatic brake assist and more. Thus, the ability to prevent collisions can be enhanced to an even greater degree.

Overview of technology that helps keep hands on the wheel

By now just about everybody understands that electronic circuits can easily detect if a person is touching an object. Touchscreens are very common on smartphones and tablets, and everybody understands that the circuits in these devices can tell when a person is touching the screen.

Driver monitoring systems can function in much the same way. They are able to detect a driver's hands on the steering wheel, and conversely when a driver's hands are not on the steering wheel. One way they do this is by putting a tiny electric circuit in the

steering wheel, measuring the flow of current through the circuit, and detecting changes in the current. By gripping the steering wheel the driver's hands change the flow of current. By detecting changes in the current the electronic circuit can tell that the driver is gripping the wheel.

Steering wheel monitoring products

Mercedes-Benz

www5.mercedes-benz.com/en/

Mercedes-Benz offers a feature called Attention Assist. This technology monitors over 70 parameters in the first minutes of a drive and builds a profile of the driver's unique driving style. At the heart of the system is a highly sensitive sensor which allows extremely precise monitoring of the steering wheel movements and the steering speed.[12] After the driver's profile is built, as the driver continues driving, the system can detect certain steering corrections that suggest the onset of drowsiness. If these are detected the system will look at other factors, like crosswinds or road smoothness for example, to make sure the driver's behavior is not warranted by the driving conditions. If the system determines that the driving conditions are likely not the cause of the driver's behavior it will likely conclude that the driver is distracted or fatigued and sound an alert, encouraging the driver to pay attention or stop and rest.

[12] "Drowsiness-Detection System ATTENTION ASSIST Warns Drivers to Prevent Them Falling Asleep Momentarily," http://www.daimler.com/dccom/0-5-1210218-1-1210332-1-0-0-1210228-0-0-135-0-0-0-0-0-0-0.html (September 11, 2014).

Products that help keep eyes on the road, hands on the wheel

CEA asked companies in the consumer electronics industry to provide information about products and services that help keep drivers' eyes on the road and hands on the wheel.[13] Information was sought about devices or software (including apps) that 1) help drivers keep their eyes on the road and their hands on the wheel; and 2) are available for purchase by the public either through an OEM automobile manufacturer or through retail channels on or before January 31, 2015.

In addition, using the website Amazon.com a search was conducted for all products available in the "electronics" category that included the phrases "eyes on the road" and "hands on the wheel" in their descriptions.[14] The resulting list was further filtered to include only those products with average customer ratings of three out of five stars or better. Finally, the list that resulted from this filtering was further filtered to remove duplicative products (*i.e.,* different model numbers of essentially the same product and multiple listings for the exact same product).

What follows is a list of products along with the product descriptions. The products that have accompanying pictures are the ones that were submitted in response to the CEA request for input.

4Sight Dash Cam 2

The Original Dash Cam 2 is a camera that mounts on a vehicle's dashboard and looks at the road ahead. It has two lenses (one wide angle and one telescopic) that rotate a full 180 degrees, giving the camera a true 360 degree feel. By connecting the optional GPS tracking accessory the system can log exact speed and GPS coordinates to be played back on a Google Maps overlay. The system includes integrated lane departure warning, forward collision warning, and an alert to let you know when a traffic light turns green.

[13] Appendix A includes the outreach.

[14] This search was conducted on September 11, 2014. The search terms "eyes on the road" and "hands on the wheel" produced a manageable number of results for this report. A search for the term "safe driving" resulted in a list of 1,030 products. A search for the term "hands-free" resulted in a list of 679,778 products. This report is not meant to be a comprehensive description of every product on the market that helps people drive safely. It is simply a sampling of the types of products on the market.

4Sight Dash Cam 2

AfterShokz Bluez 2

Bluez 2 are wireless bone conduction headphones that make it possible to remain situationally aware while listening to a cell phone call or music. They prioritize safety and comfort above all else, making them a valuable mobile communication tool for drivers who make and take calls while behind the wheel. Their open ear design enables ambient sound awareness, so a driver can tune in to a call or even music on a mobile device without tuning out traffic. With nothing ever in, on or covering the ears, these wireless headphones are designed to go completely unnoticed during long term wear, and won't require regular adjustments to keep them in place.

AfterShokz Bluez 2

Android Auto

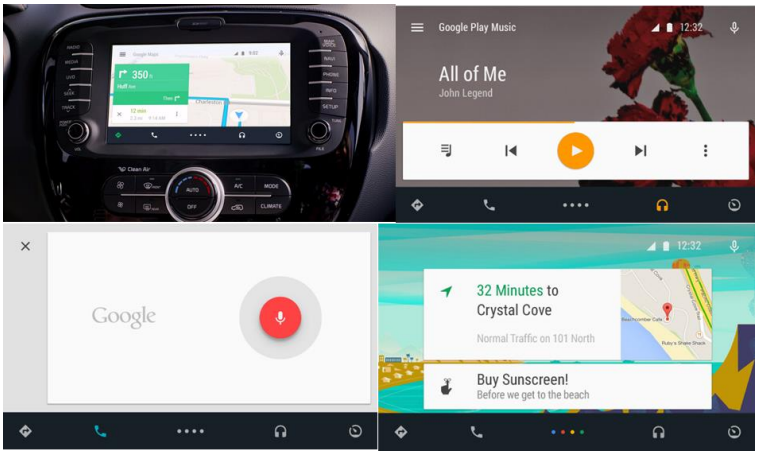
It's one thing to be able to simply check your phone for what you need when you're on the go. But what about when you're in your car? Many of us want to stay connected even while driving. Getting directions, traffic updates, finding just the right music playlist. But using our phones while at the wheel is distracting and it's a problem that Android Auto aims to address, by enabling drivers to keep their hands on the wheel and eyes on the road.

When drivers connect their Android phones to compatible vehicles, Android Auto shows a standard interface that lets them start enabled apps and services, such as as turn-by-

turn navigation from Google Maps, music through Play Music, simple-to-use voice search, and reminders from Google Now. Android Auto locks the handheld device when connected, so drivers interact with Auto by using the vehicle's input controls, touch display, and voice.

Android Auto defines the user interaction model for all apps and lets app developers hook into a standard user interfaces for several app categories with touch and voice controls. The interface is designed to reduce driver distraction and let drivers focus on the road, while still letting app developers customize and brand their content.

In the coming months, Google will be releasing the Android Auto SDK, which includes APIs and tools to make existing apps compatible with Android Auto. The first version of the SDK will provide APIs for music, podcast, live radio, and audio news apps, as well as limited voice actions. You'll start to see Android Auto in cars later this year. To find out more, please visit www.android.com/auto/



Android Auto

AT&T DriveMode®

AT&T DriveMode is an app for smartphones that silences incoming alerts, diminishes LED notifications and sends incoming calls to voicemail. The DriveMode main screen blocks access to the phone, preventing the composition of text messages and access to any other applications. When it is in Auto-Mode the DriveMode app will automatically activate when it recognizes that the vehicle it is in is moving 25 MPH or faster. When the app recognizes that the vehicle has traveled slower than 25 MPH for five minutes it will turn off. When activated DriveMode still allows 911 calls to be placed. It also allows calls to and from numbers on the phone owner's "allow list" to be made even when it is activated.

AT&T DriveMode icon

Automatic Smart Driving Assistant

The Automatic Link plugs into a car's data (OBD-II) port and allows the car and a smartphone to automatically connect, wirelessly. The Link talks to the car's onboard computer and provides a plethora of information about the driver's behavior, such as how abruptly the driver brakes, how rapidly the driver accelerates, and whether the driver speeds. When used with an Android phone the system can also help you stay focused on the road by silencing your phone when you drive, and automatically sending a text message to incoming phone callers notifying them that you are driving.

Automatic Smart Driving Assistant

BlackBerry VM-605 Bluetooth Visor Mount Speakerphone

The BlackBerry® Bluetooth Visor Mount Speakerphone VM-605 lets you enjoy your calls and your favorite music from your BlackBerry® smartphone with the convenience and sound quality of your car's FM stereo system. It's easy to use. Just clip it to your car's visor, turn it on, and you're ready to start making and taking hands-free calls on the go. And because it supports voice activated dialing, caller ID, and verbal notifications to let you know who's calling, you can stay in touch while keeping your hands on the wheel and eyes on the road.

BlueAnt CMT-USEN Commute Voice Control Speakerphone

With BlueAnt's Commute Voice Activated Hands-free Car Kit, you can drive your phone while you drive your car. Simply by speaking, you can make and receive calls, as well as listen to messages through Siri and Google integration. BlueAnt Commute eliminates any need to manually operate your speakerphone while driving, helping you and your passengers stay safe. To activate Commute, all you have to do is say the cue phrase "BlueAnt speak to me" and Commute will be ready for your voice commands. Voice dialing is just as simple, with easy-to-remember commands that let you keep your eyes on the road and your hands on the wheel. When your phone rings, Commute will read out the caller's name and number before asking if you'd like to take the call.

Boss Audio BV9965I DVD Player

Some newer vehicles now have the ability to control the radio from the steering wheel. The ability to continue to directly interface with those controls while using an upgraded multimedia unit from Boss Audio Systems makes the user experience even better than the original equipment (OE). This feature will have similar functionality as the OE unit from the steering wheel. One more way Boss Audio Systems helps drivers keep their hands on the wheel and their eyes on the road. When the vehicle is equipped with a rear-view camera, such as Boss' LPC35, CAM22 and CAM25, this source unit will automatically switch to the rear view camera input when the driver puts the transmission into reverse. The screen on the source unit will show you what your rear-view camera is directed at allowing the driver enhanced "vision" in difficult-to-see areas when parking or backing up.

Brandmotion FreedomCharge

FreedomCharge is a wireless phone charger for a vehicle's center console. It uses the Qi standard to charge phones wirelessly, while they sit on a special charging mat. This technology keeps drivers off their phones by requiring them to place the phone on a charging mat in order to charge it. In order to charge a phone using the traditional method a driver must first orient the charger in the right direction and then plug a short cable into the USB port or other charging port on the phone. Not only does this take a driver's hands off the wheel, it also takes the driver's eyes off the road. With FreedomCharge a phone's battery can be topped off simply placing the phone on the charging mat. Because the phone must be on the mat to charge, if it is picked up the charging stops. Thus this product inadvertently keeps a driver's hands off the device if the driver wants the battery to charge.

Brandmotion FreedomCharge

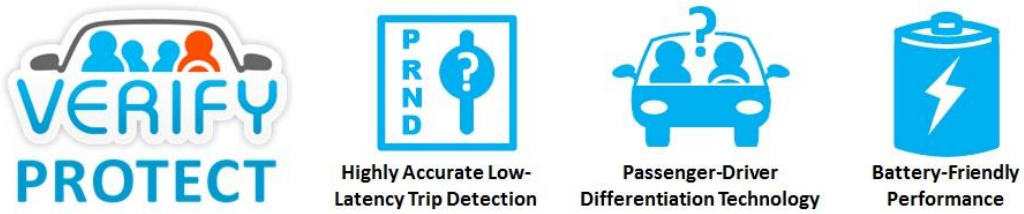
Cellcontrol DriveProtect™

The Cellcontrol DriveProtect™ platform eliminates the temptation to text, email, engage in social media or play games on a mobile phone or device while driving. Cellcontrol DriveProtect is compatible with thousands of devices and just about any vehicle. It works with Android, Blackberry, Brew, Microsoft Windows Mobile and Apple iPhone. It can target its phone usage restrictions at the driver, effectively creating a "safe zone" in the area of the driver's seat. This gives other passengers the freedom to use their devices even while the vehicle is in motion. Cellcontrol DriveProtect™ is "always on." There are no buttons to push or applications to start. It works when the vehicle goes in motion. There is no need for the driver to do anything. If a driver tries to interfere with the system in any way, the parent or administrator is alerted and can take action to ensure proper policy enforcement if necessary. In most cases, Cellcontrol can even overcome a driver's attempts to tamper with the system and there is no action necessary for the system to reengage.

Cellcontrol DriveProtect

Cellepathy VERIFY Protect

VERIFY Protect is an enterprise-grade distracted driving protection system that prevents dangerous behavior by automatically modifying a mobile device while it is in use by a driver. The software brings “driving-critical” applications to the foreground for easy one-touch access, optimizing the user interface of the device for safety and convenience. Driver access to unsafe features is restricted until the end of the trip while passenger verification technology allows passengers (and only passengers) to use their devices freely. Battery-efficient movement detection algorithms accurately detect the driving context soon after a trip has started, ensuring that distracted driving protection is applied to a device only when appropriate and without significantly impacting the device’s battery. VERIFY Protect is a “pure software” system that does not require any connection to the vehicle (wireless or otherwise) or any additional hardware beyond the mobile device itself.



Cellepathy VERIFY Protect

Cell Mounts Universal Car Phone Holder

Are you tired of trying to hold your smartphone while driving in order to get navigation instructions? Are you worried about taking your eyes off the road to look at your phone (and possibly get into an accident or get a ticket for using your phone while driving)? With the Cell Mounts universal car phone holder you can avoid all of these concerns and feel confident your phone is held securely in place on your windshield.

Crimestopper BSD-754 SafetyPlus Blind-Spot Detection System

The BSD-754 is a universal blind spot detection system designed for use on all passenger cars and trucks. It eliminates blind spots on the rear-side areas of the vehicle by using two ultrasonic blind spot detection sensors on the left-rear and right-rear of the vehicle, plus two auxiliary sensors. The system includes a hole saw for sensor installation. When a vehicle appears in the driver’s blind spot an LED warning indicator illuminates. If the vehicle’s turn signals are connected to the system an audible beep will sound whenever the driver turns on the turn signal while a vehicle is detected in the driver’s blind spot.

Crimestopper BSD-754

Dock-N-Lock®

Dock-n-Lock is a universally compatible distracted driving prevention system. It installs in-dash or mounts near the driver and is an easy to use hardware device that prevents the vehicle from starting until the driver's cell phone is secured safely inside the locker. By securing the phone and preventing mobile communications while the vehicle is on Dock-n-Lock® provides a solution that effectively eliminates the manual, visual and cognitive distractions caused by cell phone use while driving.

Dock-N-Lock

Dual XDMA6540 AM/FM CD Player

This full-featured XDMA6540 gives you robust connectivity to many of today's most popular mobile devices including the ability to directly control the iPod and iPhone devices when connected via USB. The built-in Bluetooth wireless technology supports hands-free calling, audio streaming and player control, so you can keep your hands on

the wheel and your eyes on the road. The included adjustable portable device mount attaches to the front of the receiver and securely holds your iPhone, iPod, smartphone or other MP3 player in place safely within the driver's reach.

Etymotic Research etyBLU2 Wireless Bluetooth Headset

The etyBLU2 Bluetooth® headset was developed for use in high levels of background noise, making it ideal for hands-free mobile phone conversations in a motor vehicle. The combination of an in-ear noise-isolating earphone that blocks out 98% of background noise and a directional microphone placed close to the mouth results in exceptional sound quality and clear communication at both ends of the conversation. Despite signal processing schemes, proximity of the microphone to the mouth and noise-isolation at the ear remain the two key elements to successful communication in noise. The etyBLU2 has both. It has proven effective even in a convertible at highway speeds when using the wind screen.

Etymotic Research etyBLU2 Wireless Bluetooth Headset

Garmin nüvi 850 GPS Navigator with Voice Command

nüvi 850 not only tells you where to turn but listens to your spoken commands. With nüvi's innovative speech recognition, you safely control nüvi's interface with your voice — allowing you to keep both hands on the wheel. Simply press the button on the remote (which attaches to the steering wheel) to activate speech recognition and begin speaking menu options. nüvi even recognizes shortcut phrases for popular functions. Tell nüvi "find address" and speak an address to start navigating.

Griffin Technology GC22076 SmartTalk Solar

SmartTalk Solar autoconnects with a paired iPhone or smartphone as soon as you get into your car. Answer and place calls using a single large button, or activate your

smartphone's voice command features. The window-mounted unit uses a built-in solar panel to keep the internal battery charged for extended talk time. SmartTalk Solar makes it easy to make or receive hands-free calls while keeping your hands on the wheel and eyes on the road.

Griffin Technology Hands-Free Mic + AUX Cable

Plug in and say hello to the easiest-to-use hands-free kit your iPhone has ever seen. Griffin's Auxiliary Audio Cable with Hands-Free Microphone combines a 35.4" (90 cm) stereo audio cable with a high-sensitivity microphone so you can listen to the music on your iPhone or smartphone through your car stereo and talk hands-free with a single cable. Zero-configuration, zero-setup; just plug the slender microphone into your car's AUX-in audio jack and the 1/8" (3.5 mm) stereo mini jack into your device and listen to your music through your car stereo. Then when a call comes in, click the cable's inline switch to answer and talk while you keep your eyes on the road and your hands on the wheel. The incoming call plays through your car's speakers while the microphone picks up your voice loud and clear. Click again to end the call.

HARMAN iOnRoad™

iOnRoad™ improves driving in real-time using the power of modern computer vision algorithms and smart-phone cameras. The iOnRoad Android and iOS apps provide a range of personal driving assistance functions including augmented driving, collision warning and “black-box” like video recording. Many of the modules have now become a software component available on a variety of platforms including Android, Windows and Linux. iOnRoad back-end telematics has logged millions of miles driven, providing users valuable feedback on their driving while facilitating the continual improvement process of each feature.

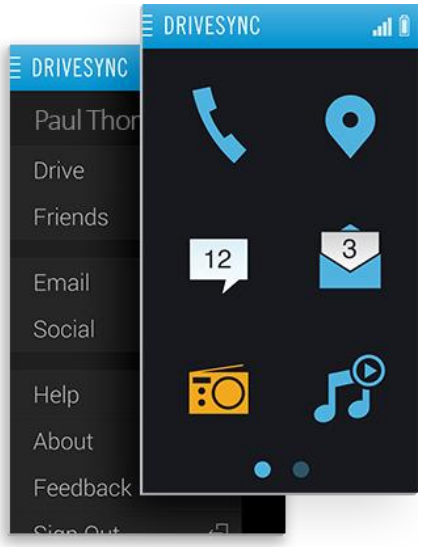
HARMAN iOnRoad

iGRIP - Universal Micro USB Charging Dock

The iGRIP Universal Micro-USB Charging Dock keeps your eyes on the road and hands on the wheel. It is easily installed on the windshield with the suction cup base, or the included adhesive disc can be used for dash mounting. The swivel holder design provides 360-degree adjustment. Great for use with navigation apps, or as a companion to your Bluetooth hands-free headset or car speakerphone. iGRIP Universal Mounts allow you to easily view and access your mobile devices when you are on the go. Secure your device in the mount and adjust its position for the perfect viewing angle.

IMS DriveSync

DriveSync is a mobile phone app that helps drivers drive safely. Its hands-free, driver-centric interface helps reduce distracted driving. Drivers can interact with their phones by talking to them using DriveSync's tap and talk technology. The simple and intuitive interface includes large icons on the phone that make it easy to tap on desired features with only a quick glance at the phone. Drivers can hear and compose texts using voice commands. They can also access Internet radio stations and their own personal playlists with voice commands.

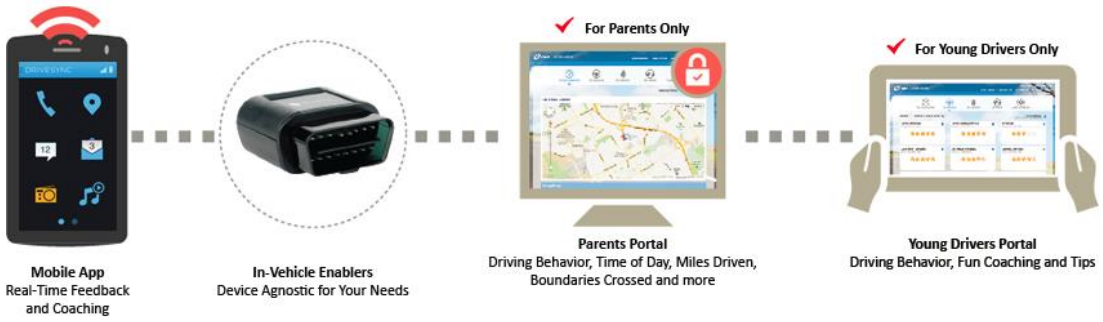


IMS DriveSync

IMS Young Drivers Intelligence

IMS Young Drivers Intelligence™ is powered by the DriveSync® connected car platform. It includes a DriveSync® device that can be self-installed in the vehicle's OBD-II port, software to collect data, a telco link, and access to an online portal and mobile app for parents and teens. The system provides feedback to both young drivers and their parents about the driving habits of the young drivers. Parents can set limits on the time

of day during which young drivers can drive, the length of time the young driver can drive, or the geographic area in which the young driver can drive. The system provides tips to coach the new drivers to improve their driving skills.



IMS Young Drivers Intelligence

iSimple Portable Wireless Remote Control for Bluetooth Devices

A universal Bluetooth remote for tablets and smartphones that is designed to mount quickly to virtually any vehicle's steering wheel or dashboard and provide easy access to a variety of features, including voice recognition (SIRI, S-Voice, etc.), audio play/pause and track/volume control. This means the driver does not have to take their eyes off the road, or hands from the wheel, to unlock their phone, change tracks or activate navigation via voice recognition.

Jabra DRIVE Bluetooth In-Car Speakerphone

Both easy-to-use and intuitive, the Jabra DRIVE in-car speakerphone connects with up to two mobile devices at a time and requires no setup, allowing drivers and passengers to have in-car phone conversations without compromising safety. You can talk freely on your mobile phone with your eyes on the road and your hands on the wheel. With the Jabra DRIVE, you do not have to reach for your phone when it rings. Just press the big friendly button on the in-car speakerphone to answer and enjoy crystal clear hands-free conversation. The Jabra DRIVE also features A2DP technology, which allows you to stream music from a smartphone or Bluetooth-enabled MP3 player, listen to directions from your GPS applications, and more.

Jensen Hands Free Telephone Headset

Keep your eyes on the road and your hands on the wheel with this convenient over-the-ear headset from Recoton. The JTH950 includes a boom microphone as well as a windscreen so your conversations will be loud and clear on both ends. Both the earpiece and the microphone are adjustable, allowing a custom fit for each user; it can even be easily adjusted to work on either ear. The 4-foot cord is finished with a 2.5 mm gold

plated plug which is compatible with any cellular or cordless phone that has a built-in headset jack. Both a belt clip and a lapel clip are included.

Martian Voice Command Watches

Martian Voice Command Watches reduce distracted driving in 3 important ways. They allows drivers to create voice-to-text messages, listen to emails and texts (using commands like “read text” and “reply”), and set calendar events and reminders – all using voice commands to the watch on their wrists with their eyes on the road and their hands on the wheel. Drivers can customize which notifications they want to receive on their watches, and they can customize the vibration patterns on the watch so texts can be easily distinguished from emails. Martian Voice Command Watches also include Bluetooth technology, enabling them to connect to Bluetooth enabled devices for hands-free communication.

Martian Voice Command Watches

Metra MDF-7313-1 Touchscreen Car Receiver with Bluetooth

The MDF series receivers by Metra offer the features of an aftermarket stereo combined with the sleek appeal of a factory receiver. Built-in Bluetooth technology adds convenience to your driver's seat by offering wireless music streaming and hands-free phone call capabilities that will keep your hands on the wheel and your eyes on the road. NavMate GPS navigation software provides excellent turn-by-turn information with voice guidance that will keep you on the right path. If safety is a concern of yours, the camera input on the back of the receiver allows the addition of a rear view backup camera. No stereo would be complete without full iPod and iPhone control. Browse through your favorite playlists with the tips of your fingers on this beautiful LCD screen.

Minisuit Mega Grip Car Vent Mount for Smartphones

Minisuit has the newest, most functional car mount for your handheld device. It will keep you hands-free (and ticket-free) while driving. This universal car mount is the most

convenient way to easily keep your electronic devices within reach. 360 degree rotating function can be adjusted easily and quickly. No tools required. The mount can be removed quickly, thus eliminating threat of theft. This is the perfect accessory for drivers who want to keep their hands on the wheel and eyes on the road while using a Bluetooth mobile phone, MP3 player or GPS navigation system.

MirrorLink

MirrorLink is an open interoperability standard that enables apps on any compliant smartphone to work with any compliant in-vehicle infotainment system or head unit, regardless of operating system or hardware manufacturer. It also ensures that apps used while driving conform to industry guidelines for minimizing driver distraction. MirrorLink has broad industry support. It is developed by the Car Connectivity Consortium, which has more than 100 industry members representing more than 80 percent of the world's auto market and more than 70 percent of the global smartphone market, as well as leading manufacturers of aftermarket in-vehicle infotainment systems. More than 500 MirrorLink-certified products are already available, including preinstalled and aftermarket systems, and handsets, including the HTC One (M8). MirrorLink-enabled cars are shipping globally today, and include models from Honda, Toyota, PSA Peugeot Citroen, and Volkswagen.

MirrorLink logo

Motolingo MotoCarma

MotoCarma is an app for smartphones that coaches drivers and grades them based on overall driving safety. The app detects speeding, aggressive accelerations and braking as well as basic phone distractions to calculate an overall grade. The more you drive without errors, the higher your score. It does not penalize drivers for miles driven but focuses on discouraging certain behaviors. The app is easily used as a dashboard while driving with simple gauges and colors that can provide feedback without distraction.

Motolingo MotoCarma

Motorola T305 Portable Bluetooth Speaker Car Kit

Motorola T305 Portable Bluetooth Hands-free Speaker lets you keep your hands on the wheel and your eyes on the road. Motorola T305 lets you to enjoy hands-free conversations in the car, at home, in the office or during meetings. No installation is necessary so you can take it wherever you go. No installation; simply pair and go. Optimized for the vehicle, the Motorola T305 lets you obey the law by providing easy, wireless conversations in the car, keeping your hands on the wheel and eyes on the road.

Motorola HF600 Retractable Self-Install Car Kit

Keep your eyes on the road and your hands on the wheel. This hands-free car kit plugs directly into your phone and your car's vehicle power adapter for quick, effortless installation. The retractable microphone cord offers neat storage and convenient transportation. The stylish, functional design not only looks good on display in your car, it also can accommodate various mounting locations. This new look features a textured base to prevent scratches and is designed to fit most vehicle cup holders. The integrated microphone and 2-watt speaker provide excellent sound quality.

Motorola Motonav TN765T Bluetooth Portable GPS Navigator

This voice-enabled GPS navigation system does a lot more than direct you from point A to point B. The TN765t integrates with compatible Bluetooth®-enabled phones, syncing with your phonebook so you can browse and call your contacts from the road. You can search your mobile phone contacts and make calls hands-free by using simple, voice-prompted commands. Have your text messages read aloud, send automated replies,

and let your friends know when you will arrive. No more fumbling around with your handset while driving. Just tap the screen then use the powerful speakerphone to talk hands-free while keeping your eyes on the road and hands on the wheel.

Motorola TX550 Bluetooth Car Kit

Motorola SonicRider is a simple solution for hands-free, responsible driving. It lets you keep your hands on the wheel and your eyes on the road. A road-trip worthy battery provides up to 45 hours of talk time and five months on standby. This device will hold all of your important conversations, even on the longest hauls. Exceptional noise reduction technology means more call clarity with less road noise. A powerful 2-watt speaker allows you to hear everything loud and clear. The device speaks to you so you can get status updates without taking your eyes off the road. Audible voice prompts tell you when you're connected, muted or low on battery. It works well with a variety of phones, MP3 players and other Bluetooth enabled devices.

Navigon 7200T Portable GPS Navigation with Bluetooth

This advanced GPS navigation system includes advanced text-to-speech technology that audibly guides you turn by turn using actual street names. Advanced phonetic technology ensures street names are pronounced clearly and correctly. The Navigon 7200T is equipped with Bluetooth technology that turns it into a hands-free speakerphone, so you can hold on to your conversations while keeping both hands on the wheel and your eyes on the road. Plus, the touch screen allows you to access your phone contacts and place a call with one simple touch. You can import your Microsoft Outlook contacts to your 7200T with Navigon Sync.

Naztech Friction Suction Weighted Mount for Smartphones

The hassle free Naztech universal car dash-mount is the most convenient way to easily fit your electronics within reach. Adaptable with most applications, this extremely portable product uses high tech anti-skid materials to create a solid mounting base that works with any surfaces, while keeping your device from sliding. Thanks to the clever swivel-head, users can change between portrait and landscape position, adjusting viewing angles in seconds with only one hand. As an added feature, the Suction Mount can also be attached to the windshield. The Naztech Dash-mount can be installed and removed in seconds, making it convenient to move from one car to another, while eliminating any threat of theft. This is a perfect accessory for anyone using a smartphone to help with navigation, listen to music, or carry on a hands-free conversation with Bluetooth connectivity. Drivers can keep their hands on the wheel and eyes on the road.

OrigoSafe®

ORIGOSafe is a fully integrated solution that requires drivers to dock their phone in order to start and drive the vehicle. ORIGOSafe® takes the phone out of the driver's hands completely, so that both hands remain on the wheel and both eyes on the road, where they belong. It requires that the phone remain in its ORIGOSafe® docking station while driving, but keeps the driver connected through Bluetooth, all while charging the phone. By using Bluetooth technology ORIGOSafe® allows drivers to use their phones' existing hands-free capabilities, giving drivers the ability to be safe, yet productive while on the road. ORIGOSafe® is simple to install and manage, and it gives employers and parents peace of mind knowing that their driver is safe and focused behind the wheel.

Functioning as an ignition interlock device, ORIGOSafe® acts as a second key to the vehicle. When the driver inserts an authorized phone into the docking station, the phone is recognized, and the vehicle can be started. If the phone is removed from the docking station while the vehicle is in motion, a loud alarm will sound, and will continue until the phone is returned to the docking station. The ORIGOSafe® will never shut the vehicle off. However, if the driver takes a huge risk and removes the phone while driving, the ORIGOSafe will record that as an 'event' and will require the driver to call the administrator the next time the driver attempts to drive the vehicle.

OrigoSafe

Parrot Minikit with Bluetooth Speakerphone

The Parrot Minikit+ is an easy-to-use hands-free Bluetooth kit that integrates advanced phone functions. You can make and receive calls while driving and still keep your eyes on the road and your hands on the wheel.

SuperTooth HD Bluetooth Speakerphone Car Kit

The SuperTooth HD Bluetooth Speakerphone Car Kit includes a 5-watt audio output and a 5.4-watt amplifier. It is equipped with state-of-the-art voice commands that provide drivers with a hands-free solution, allowing them to answer the phone, call pre-dialed phone numbers, check battery level, check voice mail, and much more. The SuperTooth Hands-free Assistant feature lets you compose and send SMS text messages, e-mails, Facebook messages and Twitter notes using your voice. The SuperTooth HD can also read incoming SMS text messages and e-mails (for Androids and BlackBerrys only - this service is powered by Dial2Do). Thanks to voice commands and SuperTooth Hands-free Assistant service, you can talk and text on your phone while keeping your eyes on the road and your hands on the wheel.

TomTom Hands-Free Car Kit for iPhone

A convenient adjustable top means the cradle will fit your iPhone with or without its cover. Once your phone is docked the kit will fast charge it, so you will always arrive at your destination with a full phone battery. When your phone is connected via Bluetooth, you can activate its voice control in a single touch and then navigate and dial safely, keeping your hands on the wheel and eyes on the road.

TomTom VIA 1535TM Bluetooth GPS Navigator

Let the VIA 1535 TM keep you focused on the road ahead. VIA combines Bluetooth hands-free calling and voice recognition technologies into one powerful GPS device for your car. With voice recognition, your TomTom device can understand your spoken commands even if you use different variations – like “drive to an address,” “navigate to an address” or “go to an address.” All you have to do is speak and drive. The VIA also supports Bluetooth hands-free calling. Connect your TomTom device via Bluetooth to a mobile phone and it will show incoming calls, make and answer calls, and let you talk hands-free. This device lets you keep your hands on the wheel and your eyes on the road.

VOXX International Audiovox Car Connection

The Audiovox Car Connection can be installed in most vehicles on the road today that were built after 1996. It simply plugs into an OBD port located under the steering wheel inside the vehicle. After buying and installing the device all the consumer needs to do is sign up for the subscription service. This service helps protect the both the driver and the owner of the vehicle, providing important information about the vehicle’s health and helping to keep the driver’s attention on the road. The Audiovox Car Connection can block texts and calls for Android/Apple and Blackberry phones while their owners

are driving, ensuring that drivers keep their eyes on the road. The service automatically responds to calls and texts letting their senders know that the phone's owner is driving. The service also allows monitoring of teen or elderly drivers, and allows automatic alerts to be sent when the vehicle leaves a location, or leaves a specific area. It also allows the car to be located on a map at any time.

VOXX International Audiovox Car Connection

Wansun Bluetooth Hands-Free Speakerphone

Keep your eyes on the road and your hands on the wheel with the Wansun Bluetooth Hands-Free Speakerphone. It is designed to provide a simple hands-free solution for answering and receiving phone calls while driving. This device includes full automatic pairing and does not require any installation. Just clip it on your sun visor. You can use up to two mobile phones simultaneously. With 20 hours of talk time and 40 days of stand-by time you can count on it for important calls. You will enjoy echo and noise-free conversations due to a powerful speaker and DSP technology. Voice recognition dialing is also available when using supported mobile phones.

WristOffice Universal Mobile Device Accessory

WristOffice is a universal mobile device accessory that allows you to wear your cell or mobile device on your wrist. With Wrist Office your mobile device becomes a hands-free device while driving, enabling you to keep your hands-on the wheel and your eye on the road.

Appendix A: CEA Solicitations for Industry Input

FOR IMMEDIATE RELEASE

CEA Cataloguing Driver Safety Products and Services

CE companies invited to submit information on products and services that help drivers avoid distraction

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Arlington, Va., July 29, 2014 – Today, the Consumer Electronics Association (CEA)® announced it is developing a technical report to document the products and services offered by the consumer electronics (CE) industry that help make the driving experience safer. The report, planned for release at the 2015 International CES®, January 6-9, 2015 in Las Vegas, will educate drivers about the wide array of CE technologies designed to improve safety and awareness behind the wheel.

"The rapidly-evolving consumer electronics industry is constantly introducing innovations that allow drivers to stay focused on their primary task, driving safely," said Dave Wilson, vice president, technology & standards, CEA. "There are a wide variety of technology solutions already on the market to minimize driver distraction, and our goal is to collect and categorize this information for our technical report. From apps that restrict cell phone use while driving to drowsiness detection devices that help avoid accidents, we want to share what the industry is doing to make the driving experience even safer."

Companies that offer products or services to increase driver safety and reduce distracted driving are encouraged to submit descriptions of their technology for inclusion in the report. Interested entities must submit a Word document containing the product or service description (maximum 750 words) to report@standards.ce.org. Graphic images (jpg format preferred) are also welcome.

The deadline for submitting content is Friday, August 15, 2014, at 5 PM PDT. All content will be edited and approved by CEA and its Portable, Handheld and In-Vehicle Electronics Committee.

About CEA:
The Consumer Electronics Association (CEA) is the technology trade association representing the $211 billion U.S. consumer electronics industry. More than 2,000 companies enjoy the benefits of CEA membership, including legislative advocacy, market research, technical training and education, industry promotion, standards development and the fostering of business and strategic relationships. CEA also owns and produces the International CES – The Global Stage for Innovation. All profits from CES are reinvested into CEA's industry services. Find CEA online at CE.org, DeclareInnovation.com and through social media: 

UPCOMING EVENTS

- **CEA Innovate!**
  Sept. 30–Oct. 2, 2014, Phoenix, AZ
- **CES Unveiled Paris**
  October 22, 2014, Paris, France
- **CE Hall of Fame Dinner**
  November 10, 2014, New York, NY
- **CES Unveiled New York**
  November 11, 2014, New York, NY
- **CES Unveiled Las Vegas**
  January 4, 2015, Las Vegas, NV
- **2015 International CES**
  January 6–9, 2015, Las Vegas, NV

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lhubbard@ce.org

From CEA SmartBrief August 4, 2014:

CEA invites companies to submit product descriptions for report on technology that makes driving safer

CEA is developing a technical report to document the products and services offered by the CE industry that help make the driving experience safer. The report, planned for release at the 2015 International CES®, Jan, 6 to 9, 2015, in Las Vegas, will educate drivers about the wide array of CE technologies designed to improve safety and awareness behind the wheel. Companies that offer products or services to increase driver safety and reduce distracted driving are encouraged to submit descriptions of their technology for inclusion in the report. Interested entities must submit a Word document containing the product or service description (maximum 750 words) to report@standards.ce.org. Graphic images (jpg format preferred) are also welcome. The deadline for submitting content is Friday, Aug. 15, 2014, at 5 p.m. Pacific time. All content will be edited and approved by CEA and its Portable, Handheld and In-Vehicle Electronics Committee.

From CEA SmartBrief August 11, 2014:

Call for submissions: CEA cataloging products, services that help drivers avoid distraction

CEA® is developing a technical report to document the products and services that help drivers avoid distraction. The report, planned for release at the 2015 International CES®, will educate drivers about the wide array of CE technologies designed to improve safety and awareness behind the wheel. Companies that offer products or services to reduce distracted driving are encouraged to submit descriptions of their technology for inclusion in the report. Interested entities must submit a Word document containing the product or service description (maximum 750 words) to report@standards.CE.org by this Friday, Aug. 15.

From CEA SmartBrief August 26, 2014:

CEA invites companies to submit product descriptions for report on technology that makes driving safer

CEA is developing a technical report to document the products and services offered by the CE industry that help make the driving experience safer. The report, planned for release at the 2015 International CES®, Jan. 6 to 9, 2015 in Las Vegas, will educate drivers about the wide array of CE technologies designed to improve safety and awareness behind the wheel. Companies that offer products or services to increase driver safety and reduce distracted driving are encouraged to submit descriptions of their technology for inclusion in the report. Interested entities must submit a Word document containing the product or service description (maximum 750 words) to report@standards.ce.org. Graphic images (jpg format preferred) are also welcome. The deadline for submitting content has been extended to Friday, Sept. 12, 2014, at 5 p.m. Pacific time. All content will be edited and approved by CEA and its Portable, Handheld and In-Vehicle Electronics Committee.

CEA Document Improvement Proposal

If in the review or use of this document a potential change is made evident for safety, health or technical reasons, please email your reason/rationale for the recommended change to standards@ce.org.

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CEA
Consumer Electronics Association