

To: Tönnjes ISI Patent Holding GmbH (lcolton@srtslaw.com)
Subject: U.S. TRADEMARK APPLICATION NO. 79131389 - IDEPLATE - 60725.004US
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UNITED STATES PATENT AND TRADEMARK OFFICE (USPTO)
OFFICE ACTION (OFFICIAL LETTER) ABOUT APPLICANT'S TRADEMARK APPLICATION

U.S. APPLICATION SERIAL NO. 79131389

MARK: IDEPLATE

79131389

CORRESPONDENT ADDRESS:

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APPLICANT: Tönnjes ISI Patent Holding GmbH

CORRESPONDENT'S REFERENCE/DOCKET NO :

60725.004US

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OFFICE ACTION

ISSUE/MAILING DATE: 7/21/2016

THIS IS A FINAL ACTION.

INTERNATIONAL REGISTRATION NO. 1163525

INTRODUCTION TO SUBSEQUENT FINAL OFFICE ACTION

This Subsequent Final Refusal is issued in relation to the grant of a Motion to Remand for the introduction of new evidence, granted on June 30, 2016.

In her Final Office Action, the examining attorney raised the following refusal(s), requirement(s) and/or advisories: Final Section 2(d) Refusal and a Final Section 2(e)(1) Refusal. After further consideration, the Section 2(d) refusal is herein withdrawn. *See* TMEP §§713.02, 714.04. However, the Final Section 2(e)(1) Refusal is maintained and continued, with introduction of the evidence that was included in the Motion to Remand, as follows.

SUBSEQUENT FINAL: SECTION 2(e)(1) REFUSAL - MERELY DESCRIPTIVE

Registration is refused because the applied-for mark merely describes a feature and characteristic of applicant's goods. Trademark Act Section 2(e)(1), 15 U.S.C. §1052(e)(1); *see* TMEP §§1209.01(b), 1209.03 *et seq.*

Introduction to Section 2(e)(1) Refusal

A mark is merely descriptive if it describes or immediately conveys knowledge of an ingredient, quality, characteristic, function, feature, purpose, or use of an applicant's goods and/or services. TMEP §1209.01(b); *see, e.g., In re TriVita, Inc.*, 783 F.3d 872, 874, 114 USPQ2d 1574, 1575 (Fed. Cir. 2015) (quoting *In re Oppedahl & Larson LLP*, 373 F.3d 1171, 1173, 71 USPQ2d 1370, 1371 (Fed. Cir. 2004)); *In re Steelbuilding.com*, 415 F.3d 1293, 1297, 75 USPQ2d 1420, 1421 (Fed. Cir. 2005) (citing *Estate of P.D. Beckwith, Inc. v. Comm'r of Patents*, 252 U.S. 538, 543 (1920)). "A mark may be merely descriptive even if it does not describe the 'full scope and extent' of the applicant's goods or services." *In re Oppedahl & Larson LLP*, 373 F.3d 1171, 1173, 71 USPQ2d 1370, 1371 (Fed. Cir. 2004) (citing *In re Dial-A-Mattress Operating Corp.*, 240 F.3d 1341, 1346, 57 USPQ2d 1807, 1812 (Fed. Cir. 2001)); TMEP §1209.01(b). Rather, it is enough if a mark describes only one significant function, attribute, or property. *In re The Chamber of Commerce of the U.S.*, 675 F.3d 1297, 1300, 102 USPQ2d 1217, 1219 (Fed. Cir. 2012); TMEP §1209.01(b); *see In re Oppedahl & Larson LLP*, 373 F.3d at 1173, 71 USPQ2d at 1371.

Determining the descriptiveness of a mark is done in relation to an applicant's goods and/or services, the context in which the mark is being used, and the possible significance the mark would have to the average purchaser because of the manner of its use or intended use. *See In re The Chamber of Commerce of the U.S.*, 675 F.3d 1297, 1300, 102 USPQ2d 1217, 1219 (Fed. Cir. 2012) (citing *In re Bayer Aktiengesellschaft*, 488

F.3d 960, 963-64, 82 USPQ2d 1828, 1831 (Fed. Cir. 2007)); TMEP §1209.01(b). Descriptiveness of a mark is not considered in the abstract. *In re Bayer Aktiengesellschaft*, 488 F.3d at 963-64, 82 USPQ2d at 1831.

Applicant's Mark is Merely Descriptive in Relation to its Goods

Applicant's mark is, "IDEPLATE" for "Alloys of common metals; non-luminous and non-mechanical metal signs; metal license plates for vehicles; identity plates of common metal; identification tags of metal;" "Radio frequency identification (RFID) tags; radio frequency identification (RFID) readers; encoded tags of plastic or metal for use in the field of passive labeling, tracing and tracking of vehicles; vehicle tracking devices comprised of radio frequency identification (RFID) tags and hologram apparatus, all for use in connection with vehicle tracking and vehicle monitoring;" and "Plaques made of plastic; identity plates containing numbers, not of metal; numbered identity plates made of flexible plastic for motor vehicles."

Applicant's mark is comprised of multiple terms represented as a single word. Thus, the mark is considered a compound word mark. *See*, TMEP 1213.05(a). When the individual components of a compound mark retain their descriptive meaning in relation to the goods and/or services, the combination results in a composite mark that is itself descriptive and not registrable. *In re Phoseon Tech., Inc.*, 103 USPQ2d 1822, 1823 (TTAB 2012); TMEP §1209.03(d); *see, e.g., In re Cannon Safe, Inc.*, 116 USPQ2d 1348, 1351 (TTAB 2015) (holding SMART SERIES merely descriptive of metal gun safes, because "each component term retains its merely descriptive significance in relation to the goods, resulting in a mark that is also merely descriptive"); *In re King Koil Licensing Co.*, 79 USPQ2d 1048, 1052 (TTAB 2006) (holding THE BREATHABLE MATTRESS merely descriptive of beds, mattresses, box springs, and pillows where the evidence showed that the term "BREATHABLE" retained its ordinary dictionary meaning when combined with the term "MATTRESS" and the resulting combination was used in the relevant industry in a descriptive sense); *In re Associated Theatre Clubs Co.*, 9 USPQ2d 1660, 1663 (TTAB 1988) (holding GROUP SALES BOX OFFICE merely descriptive of theater ticket sales services, because such wording "is nothing more than a combination of the two common descriptive terms most applicable to applicant's services which in combination achieve no different status but remain a common descriptive compound expression"). Only where the combination of descriptive terms creates a unitary mark with a unique, incongruous, or otherwise nondescriptive meaning in relation to the goods and/or services is the combined mark registrable. *See In re Colonial Stores, Inc.*, 394 F.2d 549, 551, 157 USPQ 382, 384 (C.C.P.A. 1968); *In re Positec Grp. Ltd.*, 108 USPQ2d 1161, 1162-63 (TTAB 2013). Please note that the fact that an applicant may be the first or only user of a merely descriptive compound term does not render it incongruous or distinctive; as in this case, the evidence provided below demonstrates that the applied-for mark is merely descriptive. *See In re Phoseon Tech., Inc.*, 103 USPQ2d 1822, 1826 (TTAB 2012); *In re Sun Microsystems, Inc.*, 59 USPQ2d 1084, 1087 (TTAB 2001); TMEP §1209.03(c).

In this case, both the individual components and the composite result are descriptive of applicant's goods and do not create a unique, incongruous, or nondescriptive meaning in relation to them. The individual terms which comprise applicant's composite mark are defined in the following manner. The term "ID" is defined as "a form of identification." *See American Heritage Dictionary of the English Language*, <https://www.ahdictionary.com/word/search.html> and <http://www.abbreviations.com/ID>, <http://www.yourdictionary.com/id>, all attached in Final Office action. Applicant's identification of goods indicates that applicant's goods include license plates. The inherent function of a license plate is to identify the vehicle to which it is attached. Thus, by their very nature, applicant's goods are identification goods. Additionally, applicant's identification of goods indicates that the goods include "identity plates," "identification tags," "numbered identity plates" and a variety of radio frequency *identification* goods, including tags and readers. Given that the inherent function of license plates is identification, and that applicant's identification of goods states that applicant goods are identification goods, "ID" is highly descriptive of a feature, function and characteristic of applicant's goods.

The second element in applicant's mark, "EPLATE", is the term used to describe a license plate with electronic radio frequency identification technology: "What is an E-Plate? By now, most of us have come to understand that the 'E' in 'E-Plate' is synonymous with electronic. We see its use everyday terms like e-mail, e-waste, e-commerce and so on [t]he E-Plate is simply an 'electronic' license plate." *See*, page 4 "White Paper on the E-PLATE," Motion to Remand. As this evidence demonstrates, the term "e" is commonly used as an abbreviated prefix for the term "electronic," and it has become commonly recognized as a designation for goods that are electronic in nature or are sold or provided electronically. E-plates are considered electronic because the plates contain a radio frequency identification (RFID) element which passively reflects or sends data to an RFID reader. *See* "White Paper on the E-PLATE" page 4, Motion to Remand. As applicant's goods are plates that contain this passive RFID technology, they are electronic. *See*, "Electronic Vehicle Identification" Utsch Tönnjes, Motion to Remand. Additionally, the term "plate" is commonly used to refer to license plates: "the company announced ...that it will supply the winning city with the plates as part of its support..." "NXP's Plans to Make License Plates and Cities Smarter with RFID Technology, Automotive IT News, Motion to Remand; "The plates are the same shape and size as conventional plates, and are permanently fitted to the vehicle in the same way. But each e-plate contains an embedded tag with a unique, encrypted identification number that is transmitted by the tag for detection by RFID readers." *See*, Secure ID News, initial Office action. Additionally, applicant's identification states that it provides "plates." Please note that when a mark consists of the "e" prefix coupled with a descriptive word or term for electronic goods and/or services, then the entire mark is considered merely descriptive under Trademark Act Section 2(e)(1). *See In re SPX Corp.*, 63 USPQ2d 1592 (TTAB 2002) (holding E-AUTODIAGNOSTICS merely descriptive of an electronic engine analysis system comprised of a hand-held computer and related computer software); *In re Styleclick.com Inc.*, 57 USPQ2d 1445 (TTAB 2000) (holding E FASHION merely descriptive of software for consumer use in shopping via a global computer network and of electronic retailing services); TMEP §1209.03(d). As applicant's goods are electronic plates, the element "EPLATE" is highly descriptive of a feature and characteristic of applicant's goods.

Additionally, the term "e-plate" is commonly used to refer to RFID-enabled license plates: "Neology developed the E-PLATE: an RFID-enabled license plate designed to use the license plate as part of the resonator and configured to transmit signals generated by an embedded RFID-chip." *See*, Neology Application The E-Plate, Motion to Remand; "An e-plate is the same shape and size as a conventional license plate and is mounted to a vehicle in the same way. However, each e-plate contains an embedded tag..." Automotive Fleet Magazine, Final Office action; "The plates are the same shape and size as conventional plates, and are permanently fitted to the vehicle in the same way. But each e-Plate contains an embedded tag with a unique, encrypted identification number that is transmitted by the tag for detection by RFID readers." *See*, Secure ID News, initial Office action. Moreover, the identification function of e-plates is also recognized by other e-plate providers. *See* "E-

PLATE ‘THE PRODUCT SOLUTION’ “automatic identification is key” E-PLATE ELECTRONIC LICENSE PLATE, Motion to Remand.

Applicant’s goods include plastic and metal license plates with electronic radio frequency technology and related goods: “A passive UHF (Ultra High Frequency) RFID chip, which is incorporated into the license plate during manufacture, forms the basis of the IDEPLATE.”, and “With IDEPLATE, and RFID chip is incorporated into the aluminum license plate already during the production process.” See, Tönnjes E.A.S.T Kirpestein and Utsch Tönnjes “Electronic Vehicle Identification” both Motion to Remand; see also, “our comprehensive portfolio ranges from retro-reflective embossed license plates made from aluminum, to number plates manufactured using the French “semi-sheer” process to reflective number plates made from acrylic / PET material.”, Tönnjes Export, Motion to Remand. Thus, applicant’s goods are considered “electronic plates” or “e-plates.”

Applicant’s website contains documents indicating that applicant’s e-plates are used for identifying vehicles. Specifically, “Electronic Vehicle Identification” indicates that a feature and function of the goods is to provide “secure and unique identification of vehicles,” to function as part of an “identification system,” and “an outstanding and convenient and reliable vehicle identification solution is offered by IDEPLATE...” Motion to Remand; see also, applicant’s goods have an “RFID tag integrated in the license plate” and are used for “[v]ehicle track[ing] and traceability.” See, IDEPLATE & IDESTIX ...for trend-setting vehicle identification via radio communication” Motion to Remand.

As this evidence demonstrates, applicant’s mark immediately and directly conveys some information about the goods, namely that they are e-plates used for identification purposes. See *Stoncor Grp., Inc. v. Specialty Coatings, Inc.*, 759 F.3d 1327, 1332, 111 USPQ2d 1649, 1652 (Fed. Cir. 2014) (citing *DuoProSS Meditech Corp. v. Inviro Med. Devices, Ltd.*, 695 F.3d 1247, 1251-52, 103 USPQ2d 1753, 1755 (Fed. Cir. 2012)); TMEP §1209.01(a). Determining the descriptiveness of a mark is done in relation to an applicant’s goods, the context in which the mark is being used, and the possible significance the mark would have to the average purchaser because of the manner of its use or intended use. See *In re The Chamber of Commerce of the U.S.*, 675 F.3d 1297, 1300, 102 USPQ2d 1217, 1219 (Fed. Cir. 2012) (citing *In re Bayer Aktiengesellschaft*, 488 F.3d 960, 963-64, 82 USPQ2d 1828, 1831 (Fed. Cir. 2007)); TMEP §1209.01(b). “Whether consumers could guess what the product [or service] is from consideration of the mark alone is not the test.” *In re Am. Greetings Corp.*, 226 USPQ 365, 366 (TTAB 1985). The question is not whether someone presented only with the mark could guess what the goods and/or services are, but “whether someone who knows what the goods and/or services are will understand the mark to convey information about them.” *DuoProSS Meditech Corp. v. Inviro Med. Devices, Ltd.*, 695 F.3d 1247, 1254, 103 USPQ2d 1753, 1757 (Fed. Cir. 2012) (quoting *In re Tower Tech, Inc.*, 64 USPQ2d 1314, 1316-17 (TTAB 2002)); *In re Franklin Cnty. Historical Soc’y*, 104 USPQ2d 1085, 1087 (TTAB 2012).

In this case, consumers who know what applicant’s goods are will understand that the goods are e-plates used for identification, as e-plates are increasingly being used in the United States. For example, Neology states that its e-plate was tested by the Washington State Department of Transportation (WSDOT) “at the I-405 express lanes facility in the Seattle area. Testing was conducted in live traffic under a variety of situations, including both low and high speed driving and differing environmental conditions including nighttime operations.” See, “Neology E-Plate Successfully Tested in Live Tolling Lanes” Motion to Remand. E-Plates, provided by another entity, were showcased at the FTF Technology Forum in Austin, Texas. This company announced that its e-plates will be provided to the city which wins the U.S. Department of Transportation’s \$40 million Smart City Challenge (which was won by Columbus, Ohio.). See, “NXP’s Plans to Make License Plates and Cities Smarter with RFID technology” with “E-PLATE” graphic, Motion to Remand. Automotive Fleet Magazine states in article entitled “The Emergence of e-Plates to Track Fleet Assets” indicates that these are being contemplated in Oregon and Texas. NXP indicates that the future function of e-plates encompasses such law enforcement, department of transportation and e-commerce applications, wherein the one will “[s]imply mount...the ePlate onto your existing vehicle and you are ready to go.” See, NXP “Turn your care into an authentic credential....” Motion to Remand.

Therefore, in light of the foregoing, the individual components of this applied-for composite mark retain their individual descriptive meanings in relation to the goods, and the combination of the descriptive elements does not create a unitary mark with a unique, incongruous, or otherwise nondescriptive meaning in relation to the goods. Therefore, the mark in its entirety is merely descriptive of a feature, function and characteristic of the applied-for goods. Consequently, the registration is denied for the applied-for mark. This final refusal is maintained and continued.

Proceedings with respect to the appeal shall be resumed.

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The E-Plate

Neology's E-Plate is challenging the way we think of the traditional license plate. With passive RFID technology incorporated into the plate design, the E-Plate finally connects the physical license plate to the digital world. No longer restricted to vehicle registration and enforcement, this technology innovation has demonstrable benefits for government agencies, law enforcement, legislators, and consumers alike.



E-PLATE

"THE PRODUCT SOLUTION"

Neology developed the E-PLATE: an RFID-enabled license plate designed to use the license plate as part of the resonator and configured to transmit signals generated by an embedded RFID chip.

AUTOMATIC IDENTIFICATION IS KEY

The integration of passive RFID technology with the metal license plate allows for increased read distance and performance.

NO "LINE OF SIGHT" REQUIREMENT



The E-Plate

Electronic License Plate

Since its first introduction, the physical license plate has been used to visually identify the vehicle and verify registration status. Over time, advances have been made to more quickly read and identify the vehicle plate, including improvements in retroreflective sheeting and optical character recognition of camera images. While these advances proved to be useful in various applications, high error rates and concerns centered around misidentification remained.

Neology's E-Plate provides a solution to the long desired ability to automate license plate number recognition, with the benefit of high accuracy rates and integration into a wide array of applications. Incorporating passive RFID into the plate design allows the license plate to communicate wirelessly, eliminating the "line of sight" requirement for identification. The result is a technology advancement that enables transmitting the license plate identification at much greater read distances and with a higher degree of performance and reliability.

Security, Use Cases, and Benefits

The use of the E-Plate has a positive impact on security and provides higher levels of efficiency within vehicle applications using RFID. During the

The use of the E-Plate has a positive impact on security and provides higher levels of efficiency within vehicle applications using RFID. During the registration process, pertinent identification data related to the vehicle is capable of being stored in the RFID memory of the E-Plate, including the Vehicle Identification Number, make, model, and color of the vehicle. This information is accessible when interrogated by an RFID reader; however, access may be restricted by cryptographic authentication. The ability to read this information accurately and from a far distance is beneficial to law enforcement in the process of authenticating that the license plate matches the vehicle. With an embedded reader in police vehicles, this process is automated, allowing law enforcement to quickly validate the vehicle identification and owner information while keeping their eyes focused on vehicle occupants. Another layer of security made possible with the E-Plate is the ability to immobilize a vehicle in the event that the license plate is removed, for example, by a car thief. This can be accomplished when car manufacturers install a low cost reader in the vehicle that allows the E-Plate to communicate wirelessly with the vehicle's on-board computer to properly authenticate plate authenticity. The combination of an alarm, instant notification to the vehicle owner via SMS or email, instant notification to law enforcement, and vehicle immobilization will deter and/or eliminate license plate and vehicle theft.

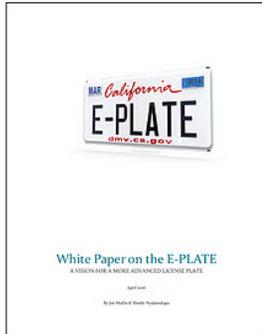
The E-Plate can be integrated into many other applications, including Electronic Toll Collection, Parking and Access Control, Road Use Charge environments, Smart City initiatives, and automatic payment scenarios. The scalability of use cases and applications available with the E-Plate provides benefits that are far-reaching, improving efficiency and increasing security and convenience for government agencies, law enforcement, legislators, and consumers alike.

Resources



Neology E-Plate: Electronic License Plate

Neology's E-Plate is challenging the way we think of the traditional license plate. With passive RFID technology incorporated into the plate design, the E-Plate finally connects the physical license plate to the digital world.



E-Plate White Paper

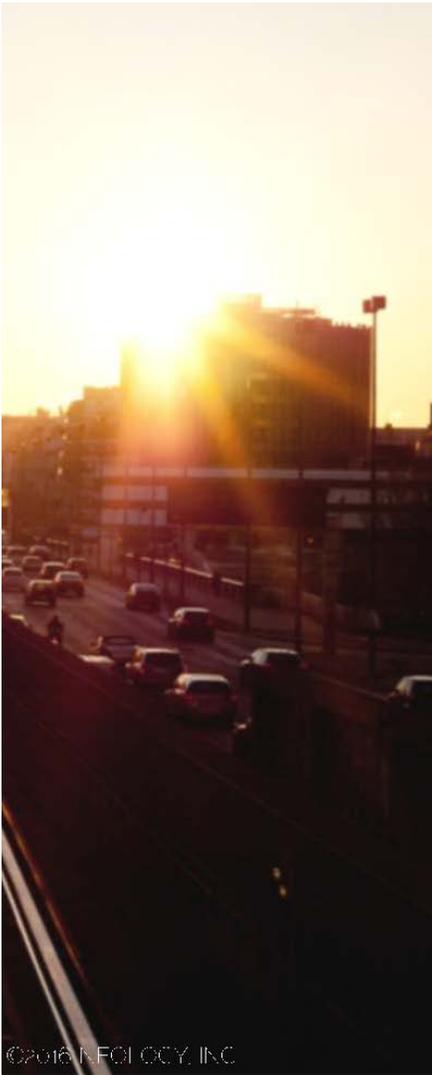
The E-Plate white paper, by Joe Mullis and Sheshi Nyalamadugu, explains the background behind the design of the E-Plate, including it's construction, and offers more information relating to it's use in various applications.



E-PLATE



ELECTRONIC LICENSE PLATE



E-PLATE

"THE PRODUCT SOLUTION"

Neology developed the E-PLATE: an RFID-enabled license plate designed to use the license plate as part of the resonator and configured to transmit signals generated by an embedded RFID chip.

AUTOMATIC IDENTIFICATION IS KEY

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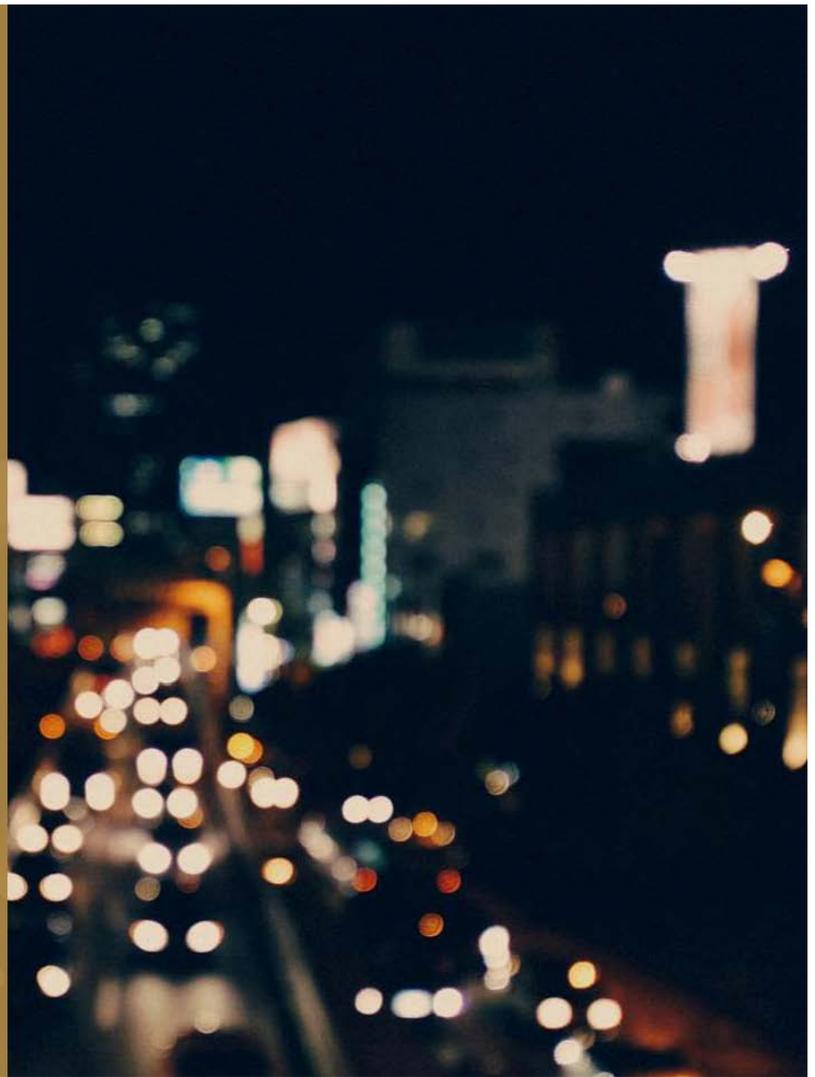
NO "LINE OF SIGHT" REQUIREMENT

E-PLATE

the use cases
are endless

- Vehicle Registration
 - Toll Collection
 - Enforcement
 - Parking
 - Road Use Charge
 - Plate Theft Prevention
 - Smart City
 - Access Control
-

Our product enables vehicle
communicator with an ever
expanding infrastructure.

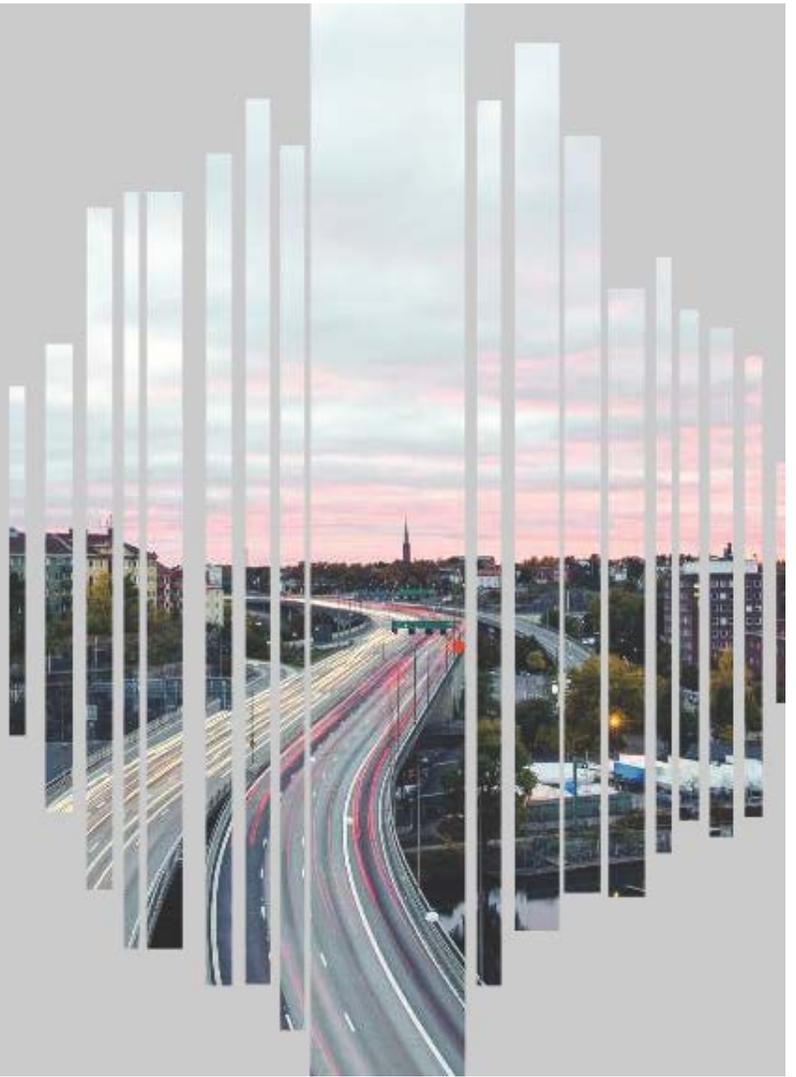


E-PLATE

INTEROPERABILITY ACROSS
VARIOUS AGENCIES

EXISTING INFRASTRUCTURE

GROWING WORLDWIDE
ECOSYSTEM OF 6C + NFC



E-PLATE

RFID + NFC

UHF: Long Range

NFC (Optional): Maintenance, Controlled Access, Smog Certification, Enforcement

BENEFITS:

- Integrated toll and other connected technology on the vehicle with an RFID-enabled license plate
- Increased security against potential license plate theft



E-PLATE

CATEGORY OVERVIEW

PEOPLE

VEHICLE REGISTRATION

PRODUCTS

E-PLATE, URBANPASS, SWITCH TAG,
TRANSPORTATION CARD

APPLICATIONS

TOLL ROAD, PARKING, ACCESS CONTROL,
SMART CITY

AGENCIES

DMV'S, LAW ENFORCEMENT,
TRANSPORTATION AGENCIES
AND OPERATORS



White Paper on the E-PLATE

A VISION FOR A MORE ADVANCED LICENSE PLATE

April 2016

By Joe Mullis & Sheshi Nyalamdugu

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Executive Summary

The license plate has been around for longer than there have been automobiles and the vast majority of countries utilize a metal plate for official identification. Since the late 1800's, license plates have been introduced to properly identify the vehicle as part of the vehicle registration process. The very first license plates introduced in Europe began with a sequential number starting with 1, but soon evolved to account for a growing population of vehicles and eventually included both numeric and alphanumeric characters.

Government agencies globally have historically held specific requirements for plate style, serial format, imaging, and design. However, the size and spacing of characters, as well as the character length, were almost universally thought to improve the ability for quick read and proper identification. Advances in retroreflective sheeting further enabled the character readability, especially at night when light is reflected from the plate surface.

The ability for automatic license plate number recognition had long been desirable by law enforcement and government agencies in particular. The introduction of optical character recognition of camera images in recent years offered, for the first time, a more automatic way in which the license plate could be read and quickly identified. This proved to be a useful tool to various police forces and as a method for cataloging vehicles, electronic-toll-

collection and pay-per use roads. The downside of this technology has been high error rates and concerns centered around misidentification.

The physical license plate has been used to visually identify the vehicle since its first introduction. And, as noted, many advances have been made over time to more quickly and accurately read and identify the vehicle plate. However, the world we live in today is not the world as it was even a few years ago. We live in a digital age where electronic pulses and beeps remind us of just how much things have changed; where the physical world is somehow always connected to the digital world. The E-Plate finally connects the physical license plate to the digital world.

Incorporating passive RFID into the plate design allows the license plate to communicate wirelessly and eliminates the "line-of-sight" requirement for identification. The result is a technology advancement that enables transmitting the license plate identification at much greater read distances with a higher degree of performance and reliability.

Like anything connected to the digital world, the E-Plate possibilities are endless!

Overview

Section 1 of this white paper explains the key technology innovations in the design and how it works. Section 2 discusses security as it relates to plate fraud, plate theft deterrence, and wireless data transmission. Section 3 focuses on the benefits that this new design enables.

Section 4, the Conclusion, summarizes our analysis.

1. E-Plate Introduction

What is an E-Plate? By now, most of us have come to understand that the “E” in E-Plate is synonymous with electronic. We see its use everyday terms like e-mail, e-waste, e-commerce, and so on. For lack of a better description, the E-Plate is simply an “electronic” license plate.

You might envision the E-Plate as an overly complex device full of wires, circuit boards, or even batteries to power it up. How else would it work, right?

1.1 Background of Invention

RFID technology has long been used for electronic vehicle tolling applications. In such applications, an RFID reader, or interrogator, is positioned over or near a roadway at a point where a toll is to be collected. An RFID tag is placed in each vehicle that includes an identifier by which the vehicle can be recognized, e.g., the vehicle’s license plate number. The interrogator uses RF signals to interrogate the vehicle’s tag and obtain the identifier so that the toll can be applied to the correct vehicle, or account.

Generally, the RFID tag to interrogator communication is achieved through a form of modulation known as backscatter modulation. In a backscatter modulation system, the tag does not generate its own RF carrier signal when transmitting information to the interrogator. Rather, the interrogator generates an RF carrier and modulates the carrier with data intended for the tag,

e.g., a request for the tag’s identifier information. The tag receives the modulated signal, decides the data and then performs actions in accordance therewith, e.g., accesses the memory and obtains the requested identifier information. The interrogator continues to transmit the RF carrier, now with no data on it. The tag receives this unmodulated carrier and reflects it back to the interrogator. In order to send data back to the interrogator, e.g., identifier, the tag modulates the reflected, or backscatter signal, with the data.

For example, the tag modulates the backscatter signal by reflecting or not reflecting the signal based on the data, i.e., “1’s” and “0’s,” to be sent. The interrogator receives the modulated backscatter signal and decodes the information received thereon.

Early on, such tags were active devices, meaning they possessed their own power source, such as a battery. An active tag was necessary, for example, in order to generate enough power in the reflected signal to transmit information over extended distances. But more recently, passive tag technology has become more viable. A passive tag does not include a battery or power source of its own. Rather, energy in the RF signals received from the interrogator is used to power up the tag. For example, the received RF signal can be rectified and used to charge up a capacitor that is then used to power the tag.

As antenna and RFID integrated circuit technology has evolved, larger and larger distances can be achieved with passive technology.

1.2 How is the E-Plate constructed?

The E-Plate is constructed by using the license plate or a retro-reflective layer, formed as part of the resonator, configured to transmit signals generated by an RFID passive chip integrated with the license plate. The RFID chip can be directly connected to or electrically coupled, either capacitively or inductively, with the metal component of the license plate and can be a single or multi-frequency resonant structure. In essence, the metal license plate does not interfere with the operation of the RFID, it actually assists in the performance.

As noted above, there are a number of methods for creating an antenna structure directly on (1) a metal license plate, (2) a metalized retro-reflective foil covering a non-metal license plate, or (3) a metalized retro-reflective foil covering the metal license plate. The technology is such that just about any license plate design or structure is capable of incorporating an RFID passive chip that does not significantly impair the aesthetics, design, or integrity of the plate itself. Once converted, the E-Plate is capable of being read at significant distance and speed. [1]

2. Security

Plate Fraud

Every new vehicle is outfitted with a license plate during the registration process. The Vehicle Identification Number (VIN #) and other pertinent identification data, i.e., color, make, model, etc., is capable of being stored in the RFID memory of the E-Plate. This information might be particularly important to authenticate that the license plate matches the vehicle. Law Enforcement, for example, might better and more efficiently read the E-Plate with an embedded reader in the police car to identify whether the E-Plate belongs to the vehicle in question. The vehicle registered owner data also appears automatically, allowing Law Enforcement to keep his or her eyes focused on the vehicle occupants. The ability to more quickly validate the vehicle identification and owner information is a considerable safety benefit to Law Enforcement.

Plate Theft Deterrence

Stolen license plates are statistically increasing in occurrence and common in the commission of a crime. Car thieves, for example, are known to replace the stolen vehicle plate with that of another vehicle to reduce the likelihood of detection. The ability to communicate wirelessly with the E-Plate allows the vehicle's on-board computer to properly identify the plate authenticity. Car manufacturers are therefore capable of implementing a low cost reader intended

to read the E-Plate and interfaces with the vehicles on-board computer. In the event the plate is removed by a thief, the alarm of the car is set off, the vehicle owner notified via SMS or email, and law enforcement is immediately notified. The vehicle is capable of being immobilized until the vehicle owner utilizes his or her key fob to override the alert. This prevents or limits the potential for the car owner to falsely claim that he or she was not aware the E-Plate had been removed.

Wireless Data Transmission

The ability to read the E-Plate at significant speeds and distances may raise concerns related to the unauthorized reading of the RFID memory. As noted above, this information is accessible when interrogated by an RFID reader; however, access may be restricted by cryptographic authentication, the kind of technology used in bank cards, credit cards, and ePassports. Only an authorized reader with access to secure cryptographic keys can derive the tag's unique identity. Given its secure, long-range, the E-Plate may employ cryptographic algorithms with high-speed reading performance, making it ideally suited for automotive payments as well.

3. Benefits

Tolling

The ability to read at significant speed and distance enables the E-Plate to be used in traditional RFID applications, like Electronic Tolling. The E-Plate can also be used in highly challenging environments, like High Occupancy Toll (HOT) lanes, where drivers in many cases use self-declaration transponders with up to three different settings to identify the number of passengers in the vehicle. To illustrate, consider the previous section whereby the vehicle is able to wirelessly communicate with the on-board computer. In this case, upon approaching a HOT lane, the driver would be signaled by the vehicle's dashboard screen with an option to select the number of passengers in the vehicle. Upon selecting the appropriate option, e.g. 1, 2, or 3+ persons, the on-board computer interfaces with the reader and writes a bit accordingly within the designated location of the RFID memory of the E-Plate. The option chosen would then signal the appropriate charge to be recognized upon passing through the toll road. Further, Law Enforcement is able to visually identify the number of persons and validate the driver's selection of number of occupants, provided the appropriate permissions are granted to access the E-Plate's memory.

Parking and Access Control

The E-Plate can be used in parking and access control applications, such as granting access to a home gate or garage, residential or commercial property, parking garage or parking meter, as well as an airport, Military Base, and just about any other scenario where restricted access is concerned. In these situations, it is most likely that the reader antenna is mounted overhead on a gantry or possibly on a pole; however, one of the benefits of the E-Plate over other traditional RFID passive transponders is the ability to be read from an underground reader antenna given its location and proximity to the ground. This may be preferable in situations where the cost of infrastructure would be too burdensome and or unsightly.

Road Use Charge (RUC)

Another application where this configuration might be useful is for Federal and State Governments that face reduced fuel use tax revenue as a result of the sharp rise in fuel efficiency. Embedding reader antennas underground on all highways and public roadways to read the E-Plate would help assess a Road Use Tax (RUC) according to actual miles driven.

Smart City

The E-Plate compliments many Smart City initiatives that consider various Information and Communication

Technology (ITC) solutions to tackle inefficiencies in the way city assets are managed. The objective is, of course, to improve the efficiency of services and quality of life of the city's residents. By strategically placing readers throughout the city, the E-Plate is able to be read and the collection of data might help identify driver behavior, ease flow of roadways, and enable city managers to react more quickly to improve congestion.

Payment

Consider the option to setup your E-Plate as a payment card whereby you can pay for parking, buy gas, and automatically pay in the drive-thru of your favorite coffee shop or fast food restaurant. You personally have the ability to sign-up at your choosing, just as you might any loyalty card program, knowing the transaction is secure and without the need for a card or phone. You might also consider automatically paying your car registration or insurance renewal, not to mention automotive repairs at your local mechanic shop with the E-Plate!

4. Conclusion

The E-Plate is challenging the way we think of a traditional license plate. No longer restricted to vehicle registration and enforcement; this technology innovation has demonstrable benefits for government agencies, law enforcement, legislators, and consumers alike, as well as countless use cases ranging from “Smart City” to Road Use Charge. The full potential of the E-Plate is highly dependent on technology acceptance by the various players; however, the unique aspect of the technology is the use case scalability following initial introduction through the plate issuance process. In other words, it’s not necessary to have the entire infrastructure in place on day one to realize the benefits of the E-Plate. This allows adoption over time with a growing network and infrastructure to leverage!

5. References

[1] Jeffrey Zhu, Chih-chuan Yen, Jun Liu, Joe Mullis. Systems And Methods For A RFID Enabled Metal License Plate. US Patent No.: US 8,344,890, Dec. 20, 2007



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NXP's Plans to Make License Plates and Cities Smarter with RFID Technology

By Automotive IT News

Jun 1 2016

By Doug Newcomb

License plates are required on all cars worldwide. But in an age when conventional vehicle parts from radios to rearview are becoming smarter and connected, the standard-issue metal license plate is still just a dumb, thin piece of metal.

But that could change with the easy and inexpensive application of RFID tagging technology to license plates that chipmaker NXP showed at its recent FTF Technology Forum in Austin, Texas. And the company announced at FTF that it will supply the winning city with the plates as part of its support of the U.S. Department of Transportation's \$40 million Smart City Challenge.

NXP has already pledged to provide vehicle-to-vehicle and vehicle-to-infrastructure (V2X) technology to the winner of the Smart City Challenge, which will be announced in June. The addition of the RFID license plate technology will allow for "automatic vehicle identification and more streamlined traffic and toll payments," NXP said in a statement accompanying the announcement.



parking districts with preferred parking for residents."

While camera technology is currently used in many cities and by private enterprises to track things tolling and such, "several states have told us that they have difficulty reading specialty license plate," Esser said. "The complex graphics often throw off the cameras. For tolling

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Doug Newcomb

purposes, that leads to lost revenue. If these plates were RFID-enabled, there's no more revenue lost and the program pays for itself."

Esser pointed out that RFID-enabled license plates can also be used by states to track cars as part of a [vehicle-miles-traveled \(VMT\) road tax program](#), which is now being piloted in [Oregon](#) and has undergone similar smaller-scale pilot programs in other states. He added that in addition the technology allows for the tracking of stolen cars.

While Esser declined to quote prices for the RFID plate technology, he noted that "the cost for these are very viable. One of the cities in the challenge is looking at deploying 50,000. And it doesn't require having to go to plate manufacturing lines and having to retool. It's easy and simple and you can code it anyway you see fit." "In border states like Texas, vehicle theft is rampant," Esser said. "And once a car makes it into Mexico, it's usually gone forever. An RFID license plate, he added, could be easily identified before it leaves the country at a border checkpoint. "You could even configure the RFID tag so that it's read by an engine control module that would disable the vehicle is someone tried to swap out the plates."

He added that technology is also available "in a UHF sticker format if a city decides it doesn't want to go through the expense" of creating a license plate version. "This is a low-cost but equally versatile solution," he said. "It's basically a window sticker. Same technology, same solutions."

Esser noted that the technology has other uses for cities, such as tagging bicycles. "Let's say a city has a bicycle anti-theft registration program," he said. "In exchange for registering your bike, you're offered one of these stickers. You can unscrew your seat and put it in the saddle tube."

Esser added that the RFID tag can also allow a bike to "become a passive beacon to vehicles" as part of a V2X system, and this can also be applied to pedestrians. "Stick this onto a backpack or in a purse and a car with the right equipment can read it," he explained. "So at a blind intersection or at night, drivers could be alerted to pedestrians ahead. It's one more way to provide benefits to citizens and municipalities."



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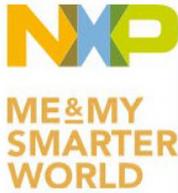
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Turn your car into an authentic credential for loyalty, access, and micro-payment

APRIL 28, 2016

Not too long ago, with the introduction of NFC-enabled mobile phones, people started using their cell phones as payment cards. Now think about doing something similar, but with your car.



By placing a special tag, equipped with secure, long-range UHF RFID, on your windshield or license plate, your car becomes an authentic credential which can serve the same purpose as your loyalty, access, or micro-payment card. You can buy gas, pay for parking, enter a toll road, or pick up a drive-through meal – all without reaching for your wallet (or your phone).

Charge it to my car

The tag can be read at high speeds and over a long distance, so you don't have to stop or even slow down to make a payment. Also, the transaction is made secure with cryptographic authentication, the kind of technology used in bank cards, credit cards, and ePassports. What's more, the tag works with any car, anywhere in the world, not just the newest, most technologically advanced models. Simply mount the sticker or an ePlate onto your existing vehicle, and you're ready to go.

Anywhere you take your car, the payment capability goes with you. Think parking facilities, car washes, repair shops, drive-through restaurants, or digital entertainment you enjoy while you're on the road.

MAHDI MEKIC

Mahdi Mekic has been in the RFID industry for almost 10 years and has had a broad range of roles involving product development, application support, solution management and marketing. Currently Marketing Director at NXP Semiconductors, Mahdi explores the use of innovative RFID products and services in new application markets with focus on Smart Mobility Solutions.

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UrbanPass in Mexico

In Mexico, millions of vehicle owners are using a system called [UrbanPass, by Neology](#). A single sticker allows cashless payments on toll roads, in parking lots, and more, and enables electronic management of individual accounts and payments. The UrbanPass setup is equipped with short-range RFID for mobile phone interactivity, plus long-range RFID for communication with a fixed infrastructure. There's only one transponder, and it's easy to manage transportation accounts with a smartphone application.

Refilling the tank

How about getting gas? At the recent Mobile World Congress, Honda and Visa showcased an [app that can guide you to the nearest station](#), estimate the cost of refilling the tank, and then use the car's RFID technology, in the dashboard, to pay for the fuel and anything else you might want from the station's convenience store.

Loyalty & personalization

The tag can become part of loyalty schemes and other marketing initiatives, the same way payment cards do. You can collect points and redeem them for free products and services, get faster service as a returning customer, or enjoy preferential treatment as a member or frequent buyer. The tag can also present your preferences, at the time of the transaction, so the attendant at a drive-through can, for example, call you by name and ask if you'd like to place your regular order, with no mustard but extra pickles.

Trusted operation

Secure, long-range UHF RFID tags combine cryptographic algorithms with high-speed reading performance, so they're ideally suited for use with automotive payments. The tags incorporate tamper-evident features, so they deter thieves and counterfeiters. In the case of a license plate, the long-range RFID transponder is securely embedded into the plate itself, yet can communicate with the vehicle so as to prevent the plate from being copied or stolen.

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The tags use chip-based technology as the foundation for security. Chip-based security is a proven and accepted technology throughout the world of payments, because the cryptographic algorithms and other security mechanisms of chip-based security keep private information safe from harm, protect against attacks, and deter forgers and counterfeiters.

Even though a vehicle-identification tag can be read from several meters away, the transaction remains secure. Tags can be configured to respond with a secure random response, so they can't be tracked or followed. Only an authorized reader, with access to secure cryptographic keys, can derive the tag's unique identity. End-user data remains private, because all the sensitive information linked to the tag – name, address, payment credential, and so on – can be stored in a secure backend system, and not on the tag itself.

Cost-effective & battery-free

Because the tags are small, lightweight, easy to deliver, and quick to affix to a windshield, they're relatively inexpensive to produce and simple to distribute. Another benefit of UHF RFID is that it's a passive technology, so it doesn't need a battery. It draws power from the reader's antenna, so drivers don't have to worry about replacing or recharging the battery. The tags can also withstand extremes in temperature, from the hottest summers to the coldest winters.

Expanding in-place EVR programs

In many regions, government agencies are already using secure, long-range UHF RFID as the basis for [electronic vehicle registration \(EVR\)](#), to reduce fraud while ensuring privacy and boosting revenue. Building on these in-place systems, government agencies can extend their systems to support payment applications, too, for collection of tolls, parking violations, speeding tickets, and so on.

NXP is the starting point

NXP is a leading provider of chip-based security for today's mobile-payment applications, and is uniquely positioned to bring secure

payments to vehicles. Our reputation for best-in-class security is strengthened by the fact that we're a global leader in automotive electronics, including the secure car networks that connect vehicles and their drivers to the outside world in a safe, intuitive, and convenient way.

Perhaps more importantly, beyond having the secure long-range RFID technology needed for automotive payments, we also have the ecosystem that enables seamless design, development, and deployment of onboard payment systems.

Our third-party partnership enable us to offer complete end-to-end solutions. Neology, for example, the provider of UrbanPass, is a leader in integrated solutions for the tolling, EVR and public-safety markets, with exciting new technologies for innovative mobility applications.

Join the conversation

How do you think automotive payments might change the driving experience? If you could pay for something with your car, what would you buy?

Related links

[NXP's RFID portfolio](#)

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[Recovering billions in tax revenue with UCODE DNA](#)

[Visa Wants Your Car to Become Your New Credit Card \(by Arjuhn Karpal, CNBC.com\)](#)

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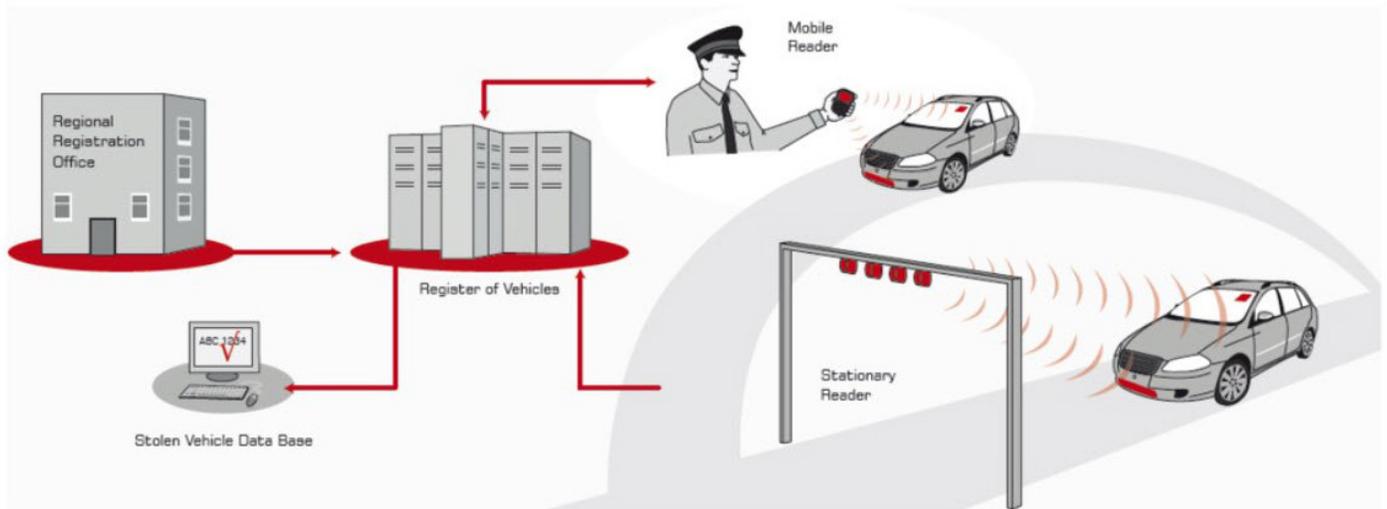
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The core of the system is a memory chip, which is integrated in the vehicle's aluminium licence plate during the production process. The data stored on this so-called passive RFID tag (UHF technology) can be retrieved anytime via fixed and mobile reading devices by radio communication – also in moving traffic.

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... with integrated fraud resistant and thief-proof data memory

The RFID tag integrated in the windshield label can be used in addition or as an alternative to Tönnjes IDePLATE®



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Holographic elements provide for protection against forgery and are therefore ideal for the application as an electronic vehicle registration certificate.

The combination of IDePLATE® and IDeSTIX® achieves the utmost in safety and security! The new system is already being used successfully by the licensing authorities in Peru as an integral component of the new maximum- security licence plates.

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PRESS RELEASE

Royal Dutch Army: Introduction of RFID based solutions for vehicle identification

General de Kruif supports vehicle identification with passive RFID technology

Oirschot/Delmenhorst, January 2016 – As part of a long-term project on the training and education grounds of the Dutch Ministry of Defense, Tönnjes and Kirpestein presented RFID based solutions for vehicle identification to Lieutenant General Mart de Kruif, commanding officer of the Royal Dutch Army. Military vehicles were equipped with IDePLATEs and IDeSTIXs, license plates and windshield labels with integrated passive RFID chips. Reading units, which are mounted on a gantry, read the information stored on license plates and windshield labels. De Kruif called this solution a real-life technical innovation which provides concrete applications for military purposes.

“In these days the technical requirements of systems for a reliable and tamper proof vehicle identification increase steadily”, explains Koert Kirpestein, managing director of Kirpestein B.V., during the presentation. To meet these requirements, both companies are constantly working on the development of their technical solutions.

General de Kruif visited the installation and was introduced to all details of the application.

The Project on the training and education grounds of the Dutch Ministry of Defense is initially planned for one year. For this purpose, 100 vehicles were equipped with license plates and windshield labels, using the latest kryptochip developed by NXP Semiconductors. The so called UCODE DNA, in compliance with the highest security standards, works with an encrypted authentication – even over long distances.

Certified tests confirm the functionality of the IDePLATE under all weather conditions and at high speed. With these features it fulfills individual requirements and enables a variety of applications – these include tamper proof vehicle registration and identification, traffic management, section control, parking and access control.

Countries like Peru and Latvia have already commenced using the IDePLATE.



Pictures



Koert Kirpestein (Kirpestein B.V) presents the benefits and applications of the IDePLATE to Lieutenant General Mart de Kruif (Source: Tönnjes)



Dennis Brandwein (R&D Tönnjes) explains technical details to Lieutenant General Mart de Kruif (Quelle: Tönnjes)



Tönnjes

As the leading supplier of security license plates and vehicle identification solutions, Tönnjes focuses on the customer specific development of international vehicle registration systems to protect vehicle registration and identification against manipulation, fraud and theft. With the latest technologies Tönnjes develops modular systems and individual complete solutions, which fulfill specific security, organizational and logistics requirements.

Further information on www.toennjes.com

Kirpestein

Kirpestein is the leading manufacturer of embossed license plates in the Netherlands. They deliver license plates for vehicle registration within 24 hours. In the field of electronic vehicle identification Kirpestein, Tönnjes and the Dutch authorities work closely together to fight fraud and manipulation.

Further information on www.kirpestein.nl

IDePLATE

A passive UHF (Ultra High Frequency) RFID chip, which is incorporated into the license plate during manufacture, forms the base of the IDePLATE.

The functionality is based on a transmitter and receiver system. Targeted vehicles can be remotely clearly identified – using stationary or mobile reading devices.

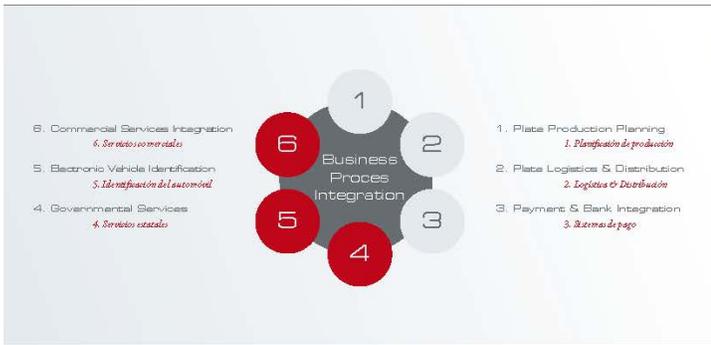
In contrast to active RFID chips, passive RFID transponders do not require a battery. The required energy is produced by the reading unit. By sending an electromagnetic field, the antenna activates the chip.

Every chip has a unique number which cannot be changed or manipulated – the so called TID (Tag Identification Number). With an AES-Encryption, only authorized reading units can read the TID number.

This number can be linked to the embossed alphanumeric of a license plate and enables the clear identification of the vehicle – without further cameras required.

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For more than 20 years we have developed and installed international vehicle registration systems. Our expertise in this field is unique around the world and we are represented on each continent with our technologies and security systems. In many countries we already have complex tailor-made solutions in place on behalf of local authorities in the field of vehicle registration. We manufacture license plates to meet the specific local requirements, develop and export security systems, production machines, tools and other relevant materials in more than 70 countries.

Desde hace más de 20 años desarrollamos e instalamos sistemas internacionales de matriculación e identificación de vehículos. Nuestra competencia en este ámbito es única en todo el mundo. Estamos presentes en los cinco continentes con nuestros sistemas y soluciones de seguridad. En muchos Estados ya tenemos a cabo con éxito numerosas tareas oficiales en el área de la matriculación y la identificación de vehículos. Producimos matrículas de vehículos conforme a los estándares del país en cuestión, desarrollamos y exportamos soluciones de seguridad, máquinas, herramientas y materiales a más de 70 países.

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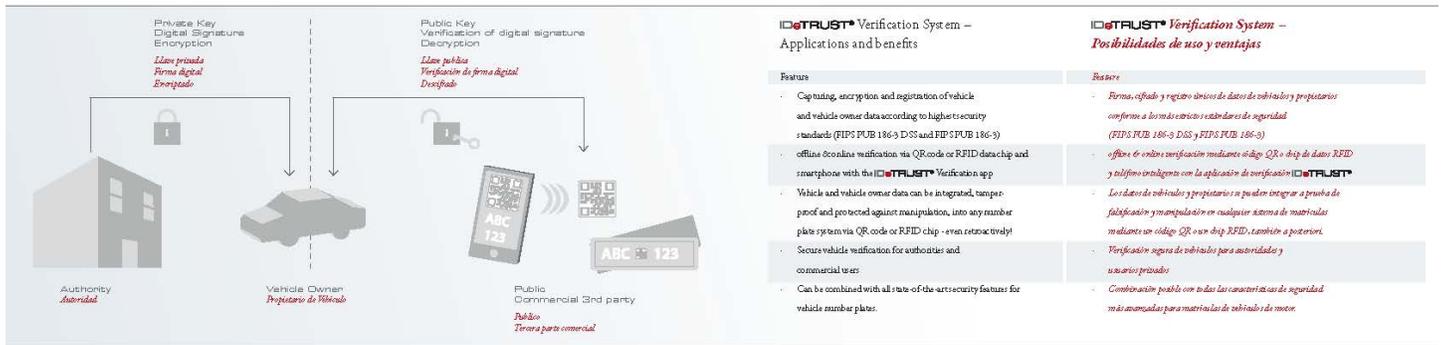
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 - Offline/online verification via QR code or RFID data chip and smartphone with the IDeTRUST® Verification app
 - Vehicle and vehicle owner data can be integrated, tamper-proof and protected against manipulation, into any number plate system via QR code or RFID chip – even retroactively!
 - Secure vehicle verification for authorities and commercial users
 - Can be combined with all state-of-the-art security features for vehicle number plates

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- Features**
- Firma, cifrado y registro seguro de datos de vehículos y propietarios conforme a los más estrictos estándares de seguridad (FIPS PUB 186-3 DSS y FIPS PUB 186-3)
 - ofrece el mismo nivel de verificación mediante código QR o chip de datos RFID y mismo nivel de seguridad con la aplicación de verificación IDeTRUST®
 - Los datos de vehículos y propietarios se pueden integrar a prueba de falsificación y manipulados en cualquier sistema de matrículas mediante un código QR o un chip RFID, también a posteriori.
 - Verificación segura de vehículos para autoridades y usuarios privados
 - Combinación posible con todos los conceptos de seguridad más avanzados para matrículas de vehículos de motor

Concebido para una seguridad máxima ...

Tomeje, the experts in the field of vehicle identification and registration systems, present a new ground-breaking security solution: the IDeTRUST® Verification System. It reliably registers and verifies vehicle and vehicle owner information according to highest standards. The option to identify vehicle via smartphone with the IDeTRUST® Verification app is just one of the many features offered. For this, the relevant data are integrated, tamper-proof into a QR code or chip on the vehicle's number plate (for example the IDePLATE®). In case of traffic or access control, the IDeTRUST® Verification app decrypts the data of the QR code or RFID chip and verifies the vehicle details or the vehicle owner data. An Internet connection is only required when installing the app for the first time – thereafter the entire IDeTRUST® Verification System works as an autonomous offline solution, requiring no Internet connection.



Tomeje, en cuanto a las claves en la identificación y matriculación de vehículos, presenta una solución de seguridad pionera: el sistema de verificación IDeTRUST® firma y verifica los datos de vehículos y propietarios de manera fiable conforme a los más estrictos estándares. Una de las muchas particularidades consiste en que la identificación del vehículo se puede efectuar con un teléfono inteligente a través de la aplicación de verificación IDeTRUST®. Para ello, se integran durante la matriculación los datos relevantes a prueba

de falsificaciones en un código QR o en un chip sobre la matrícula (p. ej. IDePLATE®). Durante los controles de tráfico o de acceso, la aplicación de verificación IDeTRUST® descifra los datos del código QR o del chip RFID y verifica los datos del vehículo y el propietario. Solo se requiere conexión a Internet durante la primera instalación; posteriormente, todo el sistema de verificación IDeTRUST® funciona como solución offline autónoma que no requiere conexión a Internet.

... con un sencillísimo manejo

The IDeTRUST® Verification System has two separate keys: the Public Key and the Private Key. The Public Key is part of the IDeTRUST® Verification app and is used exclusively for the verification of the individually registered vehicle and vehicle owner data. Changing the data or a new encryption of the data is only possible with the Private Key – only authorized offices issuing vehicle number plate or official vehicle number plate manufacturers are in possession of this key. The two-key technology guarantees a high level of security against fraud and manipulation.



The IDeTRUST® Verification app can be installed for free on any standard smartphone; therefore it can also be used by commercial users for vehicle verification – for example by parking garage operator, car pool or petrol stations.

El sistema de verificación IDeTRUST® dispone de dos claves separadas: la Pública Key y la Privada Key. La Pública Key forma parte de la aplicación de verificación IDeTRUST® y permite únicamente verificar de manera individual los datos de vehículos y propietarios. Sin embargo, para modificar y volver a cifrar los datos solo se puede emplear la Privada Key. Esta la poseen únicamente el organismo emisor autorizado de la matrícula y el fabricante oficial de la misma. La tecnología de doble clave garantiza la máxima seguridad contra la manipulación y la falsificación.

Dado que la aplicación de verificación IDeTRUST® se puede instalar gratuitamente en cualquier teléfono inteligente convencional, también puede ser empleada por usuarios privados para verificar vehículos, p. ej. operadores de aparcamientos, parques de vehículos o gasolineras.

Neology E-Plate Successfully Tested in Live Tolling Lanes

May 31, 2016

In April 2016, the Neology E-plate was tested in real traffic and in established, operational tolling lanes. Working in cooperation with Washington State Department of Transportation (WSDOT), the E-plate was tested at the I-405 express lanes facility in the Seattle area. Testing was conducted in live traffic under a variety of situations, including both low and high speed driving and differing environmental conditions including nighttime operations.

We are very pleased to report the E-plate passed testing with a 100% read performance and demonstrated capability as good or better than traditional windshield tags! For a copy of the report, please contact us at info@neology-rfid.com

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June 10, 2016

Neology E-Plate Successfully Tested in Live Tolling Lanes
May 31, 2016

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Electronic Vehicle Identification

As the number of vehicles on the roads increases, so do the requirements that have to be met by registration and identification systems. After all, only secure and unique identification of vehicles makes automated traffic surveillance possible and prevents criminal offences such as theft and tax evasion.

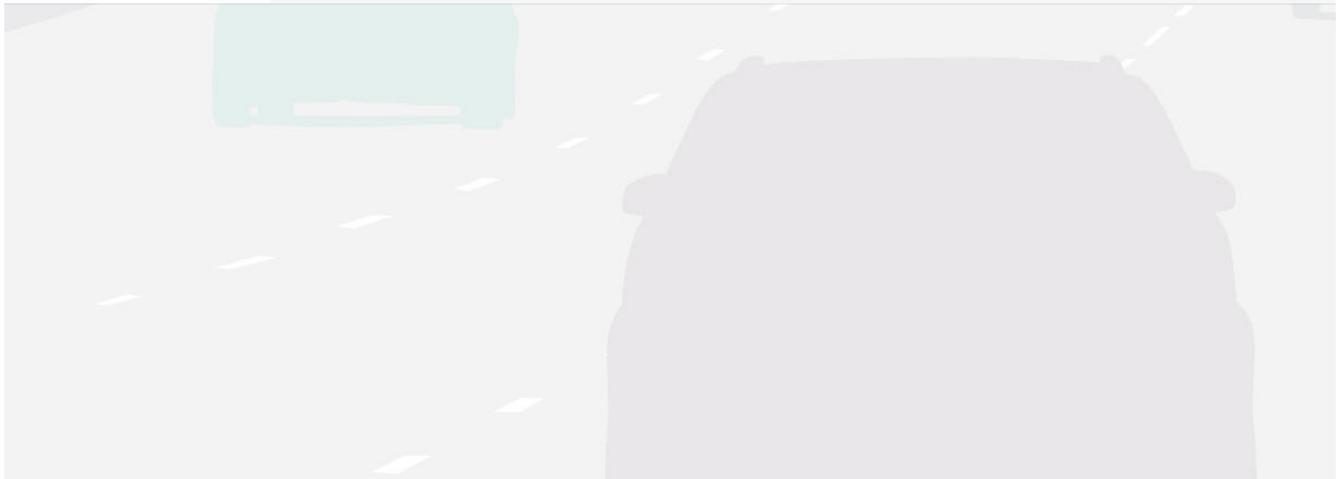


IDePLATE, IDeSTIX and ULabel

An outstandingly convenient and reliable vehicle identification solution is offered by IDePLATE®, a forgery-proof and theft-proof RFID vehicle registration system. With IDePLATE®, an RFID chip is incorporated into the aluminium licence plate already during the production process. The data stored on the RFID tag can be accessed at any time with the aid of either mobile or stationary scanners and in both standing and moving traffic.

The RFID tag can also be additionally or alternatively implemented in the windshield label (the so-called »Third Licence Plate«). To prevent misuse, the label and RFID tag self-destruct on removal. Use of the RFID tag as an electronic vehicle registration document is also possible. Combination of the RFID tag with our other security elements such as holograms and laser coding allows an extremely high level of security to be achieved against forgery.

Both in addition to and as an alternative to IDePLATE, electronic vehicle identification can also be implemented using our IDeSTIX and ULabel RFID windshield labels (also known as a »3rd licence plate«).



Home

As the leading supplier of security license plates and vehicle identification solutions, UTSCH TÖNNJES focuses on the customer specific development of international vehicle registration systems to protect vehicle registration and identification against manipulation, fraud and theft. With the latest technologies UTSCH TÖNNJES develops modular systems and individual complete solutions, which fulfill specific security, organizational and logistics requirements.

Thanks to the cooperation of UTSCH and TÖNNJES, our customers today are able to benefit from the combined innovative strengths and groundbreaking skills of two partners whose developments have set the standards in the past and will continue to do so in future.

We are present on all continents with our technologies and security solutions. We produce vehicle license plates locally in line with the respective national standards; we also develop security solutions, machines, tools and materials and export them to many countries around the globe. Indeed, in many states, we even perform official tasks in the field of vehicle registration and identification.





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»I can choose my personalised plates from over 500 different varieties and have them delivered to my home address.«

Emily Campbell | Melbourne | Australia



Aluminium number plates

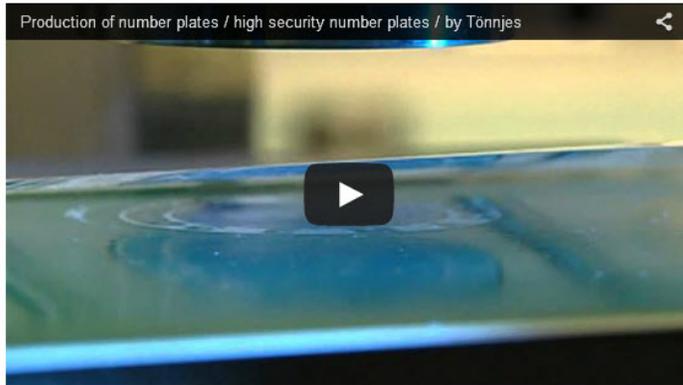
Vehicle licence plates are official documents made from metal. The modern security number plate, manufactured using reflective foil, should therefore also contain further security features like any other official document, in order to prevent counterfeiting, tampering attempts or duplication and to ensure controlled production, issuing and subsequent monitoring by the responsible authorities. In collaboration with our technology partners, we are continuously developing new security solutions. This guarantees our customers state-of-the-art solutions, which satisfy the continuously rising requirements for fraud prevention around the world.

Embossed aluminium license plates



As a global manufacturer, Tönnjes has the expertise and technical competence to manufacture license plates from diverse materials using a variety of production systems. Our comprehensive portfolio ranges from retro-

comprehensive portfolio ranges from retro-reflective embossed license plates made from aluminium, to number plates manufactured using the French "semi-shear" process to reflective number plates made from acrylic / PET material. In consultation with our customers, we devise customer and market-specific solutions for the local production, distribution and issuing of security license plates.



Semi-Shear-System

In the Semi shear method of manufacturing, which is sometimes referred to as the French system, the embossing and colouring processes are not carried out in two independent steps. Differently from standard aluminium embossed number plates, semi shear number plates comprise of a combination of coloured aluminium foil on top of a base of reflective foil which is the background on the finished plate.

With the use of specially designed tooling, the alpha numeric is simultaneously embossed and scored through the outer foil. After this step the scored reflex foil can be removed from the embossed numbers and letters. In removing the reflective foil the clean aluminium is revealed and the number plate is ready for application to the vehicle.

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IDePLATE® & IDeSTIX®

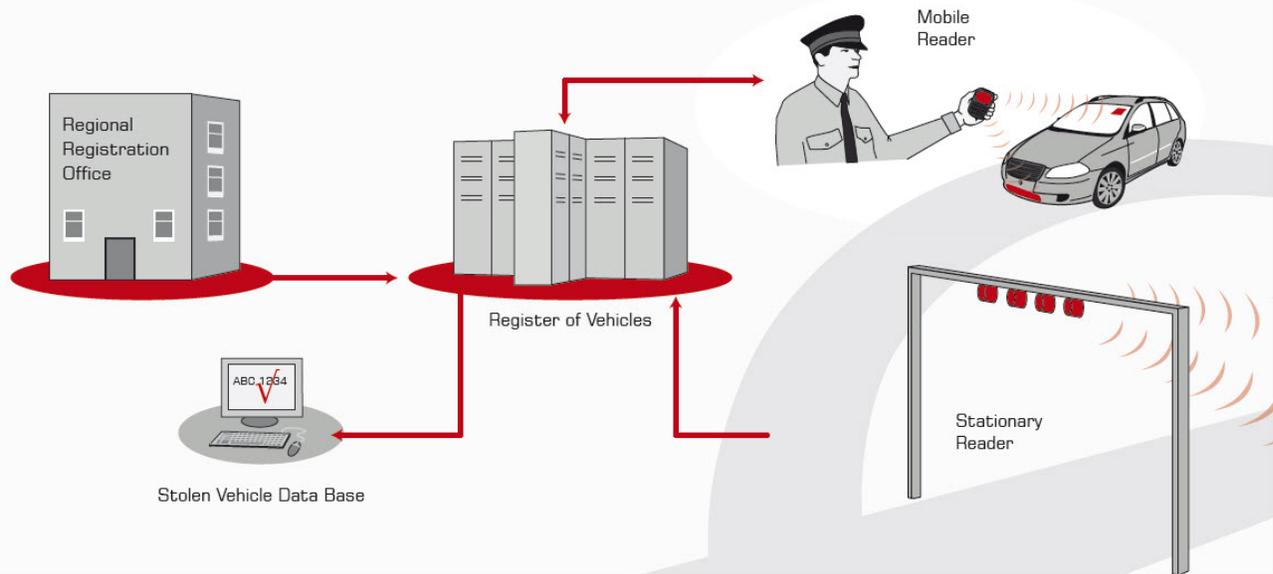
... für die zukunftsweisende
Fahrzeugidentifikation per Funk

*... for trend-setting vehicle
identification via radio communication*



IDePLATE® – das funkende Kfz-Kennzeichen ...

... mit integriertem, fälschungs- und diebstahlsicherem Datenspeicher



IDePLATE® – *the transmitting licence plate ...* *... with integrated fraud resistant and thief-proof data memory*

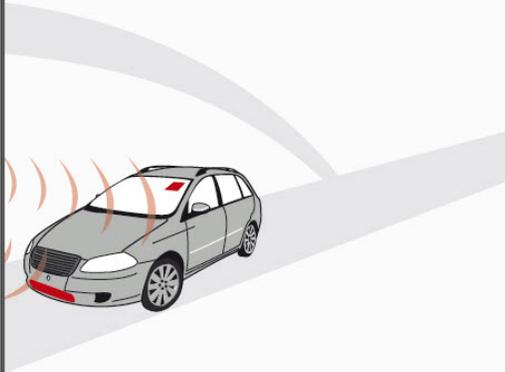
Innovation made by Tönnjes: Das von uns entwickelte Radio Frequency Identification Plate (IDePLATE®) setzt weltweite Maßstäbe in der Fahrzeugidentifikation. Das Herzstück des Systems bildet ein Speicherchip, der während des Produktionsprozesses in das Aluminium-Kennzeichenschild des Kraftfahrzeugs integriert wird. Die auf diesem sogenannten passiven RFID-Tag (UHF-Technik) gespeicherten Daten sind jederzeit auch im laufenden Verkehr über stationäre und mobile Lesegeräte per Funk abrufbar. Das Tönnjes IDePLATE® ist mit allen Sicherheitsfeatures wie Hologrammen oder Lasergravuren kombinierbar und als diebstahlsicheres Nummernschild verfügbar.



Innovation made by Tönnjes: the Radio Frequency Identification Plate (IDePLATE®) developed by us sets global benchmarks in the vehicle identification. The core of the system is a memory chip, which is integrated in the vehicle's aluminium licence plate during the production process. The

IDeSTIX® – das intelligente 3. Kennzeichen ...

... mit integriertem, fälschungs- und diebstahlsicherem Datenspeicher



Einsatzmöglichkeiten und Vorteile von IDePLATE® und IDeSTIX® im Überblick

Feature
· RFID-Tag im Kennzeichenschild integriert
· RFID-Tag im Windshieldlabel integriert
· Nachträglich implementierbar
· Zusätzliche visuelle Kontrolle
· Selbsterstörungseffekt beim Entfernen
· Tracking und Tracing von Fahrzeugen
· Sektorgenaues Aufspüren letzter Durchfahrtsorte von gestohlenen Fahrzeugen
· Zufahrts- und Zugriffskontrolle (zum Beispiel bei Schrankensystemen)
· Ideales Monitoring auch ohne Kamertechnik
· Automatisierte Verkehrsüberwachung
· Automatisierte Bonerstellung (Strafzettel)
· Verbesserte Möglichkeiten für Statistiken zum Verkehrsaufkommen
· Automatisierte Mautüberwachung
· Kombination mit weiteren Sicherheitsfeatures

IDePLATE® and IDeSTIX® – Overview of Applications and Benefits

Feature
· RFID tag integrated in the licence plate
· RFID tag integrated in the windshield label
· Can be fitted in existing system
· Additional visual control
· Self-destruction effect when removing
· Vehicle track and traceability
· Detection of stolen vehicles through checkpoints
· Approach and access control (e.g. for barrier systems)
· Ideal monitoring system without camera technology
· Automated traffic supervision
· Automated ticket generation (traffic infraction)
· Improved facilities for statistics on traffic volume
· Automated toll monitoring
· Combination with other safety features

IDeSTIX® – the intelligent third licence plate with integrated fraud resistant and thief-proof data memory

Zusätzlich oder alternativ zum Tönnes IDeSTIX® einsetzbar ist das in das Windschutzscheibenlabel integrierte RFID-Tag. Wie beim IDePLATE® können die gespeicherten Daten jederzeit abgerufen werden, wodurch auch die Einsatzmöglichkeiten und Vorteile identisch sind. Um Missbrauch auszuschließen, zerstören sich Label und Chip beim Entfernen von selbst, holografische Elemente sorgen für Fälschungssicherheit und sind daher auch ideal für den Einsatz als elektronischer Fahrzeugschein. Ein absolutes Höchstmaß an Sicherheit wird durch die Kombination von IDePLATE® und IDeSTIX® erreicht!

In Peru wird das neue System von der Zulassungsbehörde als fester Bestandteil der neuen Hochsicherheitskennzeichen bereits erfolgreich eingesetzt.



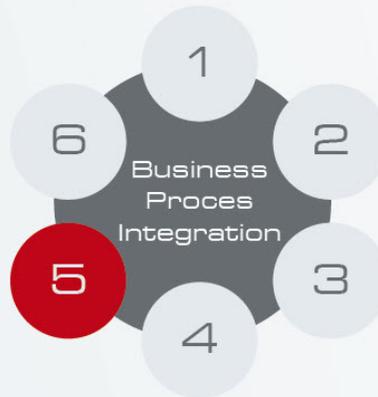
The RFID tag integrated in the windshield label can be used in addition or as an alternative to Tönnes IDeSTIX®. Just like IDePLATE®, saved data can be retrieved at any time, providing for identical applications and benefits. In order to prevent misuse, label and chip will automatically destroy themselves when removed. Holographic elements provide for protection against forgery and are therefore ideal for the application as an electronic vehicle registration certificate. The combination of IDePLATE® and IDeSTIX® achieves the utmost in safety and security!

The new system is already being used successfully by the licensing authorities in Peru as an integral component of the new maximum-security licence plates.



Einzigartige Kompetenz und internationales Renommee

6. Kommerzielle Dienstleistungen
6. Commercial Services Integration
5. Fahrzeugidentifikation
5. Electronic Vehicle Identification
4. Staatliche Dienstleistungen
4. Governmental Services



1. Produktionsplanung
1. Plate Production Planning
2. Logistik & Distribution
2. Plate Logistics & Distribution
3. Zahlungssysteme
3. Payment & Bank Integration

Unique expertise and internationally renowned

Seit über 20 Jahren entwickeln und installieren wir internationale Fahrzeug-Registrierungssysteme. Unsere Kompetenz auf diesem Gebiet ist weltweit einzigartig. Auf allen Kontinenten sind wir mit unseren Technologien und Sicherheitslösungen vertreten. In Südafrika, Peru und vielen weiteren Staaten erfüllen wir bereits erfolgreich zahlreiche hoheitliche Aufgaben im Bereich der Fahrzeugregistrierung. Wir produzieren Fahrzeugkennzeichen nach den jeweiligen Länderstandards, entwickeln und exportieren Sicherheitslösungen, Maschinen, Werkzeuge und Materialien in über 70 Staaten.

For more than 20 years we have developed and installed international vehicle registration systems. Our expertise in this field is unique around the world and we are represented on each continent with our technologies and security systems. In many countries we already have complex tailor-made solutions in place on behalf of local authorities in the field of vehicle registration. We manufacture license plates to meet the specific local requirements, develop and export security systems, production machines, tools and other relevant materials in more than 70 countries.

Weitere erhältliche Broschüren:

- Ein Firmenbesuch
- Ihr Systemdienstleister für die nationale Fahrzeugregistrierung
- Sicherheitselemente für optimalen Schutz

Ask for one of our service brochures:

- A company visit
- Your solution provider for national vehicle registration
- Security components for optimum protection
- IDeTRUST® Verification System
- IDeTRUST® Vehicle Registration Software

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To: Tönnjes ISI Patent Holding GmbH (lcolton@srtslaw.com)
Subject: U.S. TRADEMARK APPLICATION NO. 79131389 - IDEPLATE - 60725.004US
Sent: 7/21/2016 6:29:07 PM
Sent As: ECOM113@USPTO.GOV
Attachments:

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