

From: Dennis G. Moore  
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Formerly Sierra Products, Inc.  
Home of "Dry Launch®"



Tooled & Manufactured  
in the U.S.A.



## **LEGALITIES and PRACTICALITIES associated with TRAILER, RV and TRUCK LIGHTING**

In the following writings, I've tried to sum-up and explain what legal and common sense considerations **should be taken into account** by those buying, supplying and using **Trailer, RV and Truck "Presence" and "Signaling" Lighting**. All involved **should know what is precisely required of them** in order to **remain compliant to "Federal Motor Vehicle Safety Standard #108"**, while considering end user, cost, and satisfaction at the same time.

I find that using the thought process of **putting myself in the positions of other Drivers and Pedestrians** who could be surrounding me while I pulled and maneuvered a Trailer ... I am able to **better estimate what size, brightness and location** the Presence and Signal Lights need to be in order to **provide adequate "conspicuity"\*** to those I've put in danger.

Further! ... recalling my personal "close call" experiences from 40 years of pulling my Boat and Car Hauler\* Trailers ... I put great emphasis on **the need for my Lighting to keep working** ... and if failed, ... **the importance of being easily, quickly, and economically repaired or replaced** which current NHTSA regulations don't address, whatsoever!

\*Conspicuity is FMVSS #108's main objective \*I restore old cars as a hobby

If common sense and Legal basics are "not" followed when providing Vehicle Lighting for Public use ... the reputations of **Vehicle's with, inadequately, easily failed and/or hard to fix Lighting systems will be diminished**, while also **producing increased liability** that can end up costing much more than what's saved by ignoring Federal Motor Vehicle Safety Standard #108(FMVSS #108) and common sense requirements.

\*Conspicuity is FMVSS #108's main objective

Currently, **you'll not hear or read about the National Highway Traffic Safety Association (NHTSA) challenging any Vehicle Lighting for being Non-Compliant to Federal Motor Vehicle Safety Standard #108**. This has been the situation for several years.

This lack of attention by NHTSA is **causing serious Safety consequences** and ... in my view ... represents a **provable case of Malfeasance**. NHTSA will, likely, blame this lack of attention on "lack of funds" as they have in the past. However ... in contrast to common beliefs ... **even if "not" enforced by NHTSA ... violations of FMVSS #108 are still considered "Illegal" in all State and Federal Courts** ... enforced or not. Being Illegal opens the **opportunity for any sharp Plaintiff Lawyer to hire a Lighting Expert** to tell a Judge and/or Jury about the Non-Compliant, "Illegal" Status of the Lighting in question ... and then they'll go on to explain how Non-Compliances could have affected the beginning and/or final outcome of the Crash being tried. The average **Judge and Jury won't understand** Vehicle Lighting Technicalities ... but **they will understand** the word **"Illegal"**.

**My primary goal** for these writings is to **warn everyone associated** with buying selling and using Trailer, RV and Truck Lighting **of the current legal and, not so obvious pitfalls they can expect** without, myself, becoming a victim of the "Kill the Messenger" syndrome. I've also tried to outline **what Lights and Reflectors are most important ... and why ...** as well as point out **where Lighting should be practically placed** and **what longevity and ease of repair should be expected**, while at the same time ... explaining the details involved in complying to Federal Motor Vehicle Safety Standard #108.

**Of course, I have a parallel goal of trying to bolster our sales for ... both ... our new products, as well as for our "OI Reliabiles" ... by comparing our legal status and our unique features to the lack of features and Non-compliances of our Competitors.**

Patents Pending



Here's our new "SPLL" sporting our **"See Thru" "LIQUID LOOK"** supplemented with our popular **NO TOOLS, Snap Out/In Bulb Slide**

### **ONE OF A KIND Vehicle Lighting Products**

We've recently begun a concentrated effort to **promote our older ... still popular products while also introducing our newest innovations**. We're off to a good start! as our new **"SPLL Pair Kit"** will soon be displayed in the **"Coast®" Distribution** and **"Waterland®"** Websites ... and in their Catalogs as well.

Coast® and Waterland® represent two significant steps towards our attempts to put on first class Warehouse Distributors to carry the SPLLs plus ... we hope ... other unique Products we offer. Of course, **we are always seeking recognition from quality Trailer Manufacturers**, which we hope to attain using a sample program we're about to proceed with.

Our sample program **will include** our newest **"SPLL"** and our latest **Wing Tip®, "FIVE Function, Fender Mount"**. We were the **first** to introduce the **2 Color Combination Fender Mount** concept several years ago! Today! most Trailer Manufacturers are realizing the benefits and \$ savings of using Combination Red/Amber Fender Mounts. Our latest designs **comply** to Federal Motor Vehicle Safety Standard #108 requirements

**for both Front and Rear Pointing Clearance Lights**, while, also, plus performing **Side Marker duty**, and also providing Bonus ... nearer to Traffic Eye Level **"Location"** and **augment, Tail Light Functions** ... thereby **performing 5 Safety Functions in total**.

We have also begun to offer our popular\*, "Center High Mount Stop Lights" (CHMSLs\*) in **"Modularized"**

5 Function FENDER MOUNT



"TO BE" MOST POPULAR "MODULARIZED" CHMSLs & Non Submersible Brake/Turn/Tail Augment to FMVSS #108 Standards

<p><b>3 out of 4</b> of all new Auto, SUV &amp; Pick Up Brake Lights now use State of the Art "NO RUST" - LONG LIFE "INCANDESCENT" Wedge Base Bulbs .... <b>and NOT LEDs</b></p>		<p>New "INCANDESCENTS" Look Like LEDs but are 3 Times Brighter and produce much more mesmerizing effects</p>
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**versions**, and we've **added 10" and 16" Modularized (CHMSL) Designs** to be advertised as **"Replacements"** for the pathetic, **failed and faded 10" and 16" Imports** used on Caps, Canopies, etc., over the past 12 years. Further, we are **now offering 3-Wire Versions** so the addition of **Center High Mount "Turn Signals" (CHMSTS) are available** on an optional bases. These are not submersible, but do offer unique FMVSS #108 Compliant Brake/Turn and Tail Functions when tandemly wired.

\*Over a Million + of our 17 original Variations are still in use

Despite the weak economy, we know there are still **millions of drivers** that **will show sincere interest** in our **"one of a kind" quality, U.S.A. made Lighting**, all we have to do is show how our Unique Features **will modernize their older "Rigs"** and ... at the same time ... **supply grief reducing features** that will **make Driver duties less stressful, safer, and, less of a maintenance burden**.

We also know that **competing against LEDs** for "New Look" business is a challenge; however, **we'll be, continually, pointing out** to all potential customers that **3 out of 4 of all new Autos, SUVs and Pick Ups use "Incandescents"** for their **Brake/Turn and Lane Change Signal Lights** ... and ... "all" ... **4 out of 4 ... use Incandescents** for their **Turn Signals and Back Up Lights**. There are a **variety of reasons for choosing Incandescents over LEDs** ... **read on for "why" explanations**.

### **ABOUT US!**

Over the past **35 years**, we have ... here in the good ol' U.S.A. ... **Invented, Tooled and Manufactured** a wide selection of unique Vehicle **"Presence" and "Signal" Vehicle Safety Lighting** ... and we can proudly claim that **"our products have always been compliant to all Federal and State mandated requirements"**. Our products **can be seen in daily use** on over 3 million quality Trailers, "Caps", Motor Homes, etc., such as **ShoreLand'r®, E-Z Loader®, Leer®, Coachman®, and even Airstream®**.

Our unique products are being Engineered\*, Developed and Tooled at our facilities next to the Lawrence Livermore National Lab in Livermore, California\*\* and at our Sierra foothill facility ... near "Yosemite" ... outside of Sonora, California\*\*.

\*I'm a BSME Graduate of Bradley University, Peoria, IL and former employee at "Lawrence Livermore Lab"

\*\*Regardless of "California's Crazies" - California is still a good place to visit! particularly the Ocean and Mountain Areas

## **ABOUT US Continued:**

We can also brag ... **"We're the only bona fide U.S.A. Vehicle Lighting and Reflector Manufacturer in 20 Western States"** that still performs their own "in house" ... Designing\*, Tooling, Injection Molding, Photometric\*\* and long term weathering, plus real life Road Testing. We continually monitor the quality of our materials and manufacturing procedures - allowing us to **guarantee** our Lighting's **compliance to** all facets of **"Federal Motor Vehicle Safety Standard #108"** (FMVSS #108) which **we have provided** an easy to use **connection "Link"** from our Website.

\*We **do not use** the **"Copy and Cheapen"** Designing Process ... used by our typical Chinese/Importing Competitors

\*\*Our Vehicle Lighting **Testing Facilities were approved to Federal Standards** by the California Highway Patrol, Engineering Division, in the 1980's and have been maintained and regularly used ever since

Further - we believe **we are the only** Trailer, RV and Truck Lighting Manufacturer in the U.S.A. that Injection Molds its' Lenses and Reflectors out of "authentic" **Fade Proof ... Hi/Low Temp\* Tolerant... Lens Grade LEXAN®** ... which is, **provably compliant to** all Federally Mandated **3 Year Outdoor, Weather, Sun, Heat/Cold\* and Vibration Test Mandated Requirements** ... and **"not" made from** untested ...foreign, **Non-Compliant (Illegal) materials** ... that notoriously **Fade, Warp and Crack!**

\*Lexan® beats Acrylics for all sorts of cold weather and high heat applications

Our Livermore facility houses our Sales and R&D operations plus a variety of **CNC and EDM Mold Making and Injection Molding equipment**. We maintain **twelve, 100 Ton to 500 Ton\* Plastic Injection Molding Machines** along with all required complementary equipment. Our facilities provide us with an entire spectrum of capabilities and equipment needed for all types of Manufacturing Services ... **including Custom Designs** ... **for any kind of Trailer, RV, or Truck Lighting/Reflector need** ... except Headlights.

\*"Clamping Force" capability



We perform our own Photometric Tests using Instruments calibrated to U.S. Bureau of Standards

## **TESTIMONIALS we have received speak for themselves!**

**From:** Rich Axxxx (Seattle, Washington) ... **Comments:** "I have had Dry Launch trailer lights on my trailer for 23 years ... through the years some were damaged and replaced with other manufacturers lights ... but not even those replacements lasted as long as those original remaining Dry Launch products. I am trying to replace all of my lights but **could not find the exact matches**. Can you help me out? Thanks, Rich

**From:** Kurt Kxxxx ... **Comments:** Excellent! Thank you. I need to learn how not to back my trailer into a wall! Love your products! Do you have any local dealers here in the Seattle area?

**From:** Richard Nxxx (Pensacola, Florida) ... **Comments:** "I bought a pair of the 701's from Boaters World while they were going out of business. Didn't need them right away but I knew I would sooner or later. I tried to put them on today and I have two right side lights. Is there any retail outlet selling your lights in Pensacola FL.

PS you guys do make the best lights. The ones I'm replacing are LED and are only 3 years old and some of the **LEDs stopped working after one year**. I've had yours on other trailers and had no issues".

**From:** Don xxxxx (Green Bay, Wisconsin) Subject: SPLL ... **Comments:** "Hi! I just wanted to say thanks for the **SPLL replacement lights, they are fantastic looking and super bright**, I could see the quality immediately. It took 30 minutes to replace both and I tested them rigorously the next three days on a very fast moving Fox River in Green Bay, WI, walleye fishing of course. The location of the bulb and the splash guard worked great. On a side note, I participate in many fishing tournaments during the year and I try to support American manufacturers in any way I can. If Dry Launch has any sort of large truck decals or stickers in any way I would be happy to **display them with pride on my boat and several vehicles**. Thanks for making a great American product".

**From:** Mandy Lxx ... **Comments:** I was just wondering where I can purchase your products locally. I live in Sudbury, Ontario, Canada and have heard very **good things about your product from friends in the United States**. I was wondering where I might be able to purchase your Dry Launch lights locally? Thanks

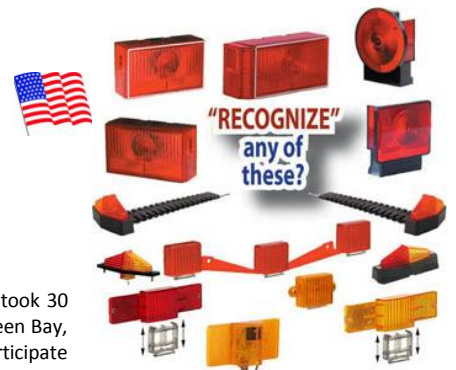
**From:** John Txxxx ... **Comments:** I have a used boat trailer with your 701's and they are the best lights I've ever had on a boat trailer. I really like the no-tools change option. Unfortunately, while the wires and sockets are in great shape, the tail light lenses/cases have taken a hit and are held on with duct tape. Can I just buy new lenses/tail light bodies without buying a whole trailer kit?

**From:** Bob Mxxxxxxx ... **Comments:** I popped on a pair of DRY LAUNCH (701 WBR & 701 WBL) tail lights on my boat trailer in 1982. I had to replace one light about 10 years ago because it was hit at the boat ramp. I am replacing another one now because someone hit it where I store the boat. My tailoring is 100% salt water and I never changed out a bulb!!!!!!

Your products are great. If you want to replace lights frequently and not have them work when you are tailoring, purchase a ??????? piece of crap.

These kinds of endorsements ... along with many others we have received over the past 35 years ... demonstrates that **End Users are impressed with our quality ... our unique Styling and ... our grief-reducing features**. Additionally ... consider the fact that ... **over 3 Million\* Drivers are currently using our products** which provide **significant name recognition** for Distributors, Dealer/Jobbers and OEMs using or selling our products **to take advantage of**.

Includes our 3<sup>rd</sup> Brake Lights (CHMSLs)



USA Tooled & MANUFACTURED!

## **"OUTSOURCED" for a SMALL SAVINGS ... "not" worth the devastation to our economy**

Today! ... **nearly all** Trailer, RV and Truck Lighting and/or major components **are imported** into the U.S.A., **because ... Americans have permitted** these categories of Vehicle Lighting **to be "outsourced"** to other Countries ... **many times ... for just a small percentage of \$ savings** over what the outsourced items would have cost if made here.

Our **SierraDesignMfg.COM** Website includes a recent Wall Street Journal article that asks! **"what is Outsourcing, actually, saving Americans"**. The article points out that in many cases **all associated Unemployment costs\* can easily add up to be more than what was saved from the Outsourcing**.

\*Consisting of Unemployment Checks, Food Stamps, Government paid Medical, etc.

We knew that a **complex ... Trail Blazing\* product** ... which our new "SPLL", definitely, represents ... **would require close scrutiny and "American know how"** for the Engineering, Designing, Prototyping, Tooling and "bugs" elimination stages. Therefore, **we concluded**, our new **"SPLL" should "not" be outsourced**, even though we knew our costs would be higher than if Tooled and Manufactured in China, South Korea, or Mexico.

\*We were **first** to Trail Blaze **"Air Trapping" Boat Trailer Lighting** and we were **first to introduce** the Red/Amber, **"5-Function, Fender Mounts"**

**Eliminating the risk** of receiving a Shipping Container full of **troublesome products** ... while also risking the possibilities of late customer deliveries, quality complaints, and, ultimately, un-happy Distributors, Dealers and end users ... we concluded ... **was worth the extra costs**. And ... as a Bonus ... **we were able to help keep** some needed Tooling, Manufacturing, and other related **work here in the U.S.**

## **COPIERS are essentially THIEVES**

It's no secret that **Chinese** and **American "Copying Importers"** ... that have continually haunted us over the years ... **have saved themselves countless \$\$\$s on R&D, Engineering, Prototyping, Tooling Development and Initial Marketing expenses** by simply **using their, well-established** ... and unchallenged ... **Copying Systems\***. However, we do what's necessary to **protect our Patents\*\* and Trademarks**.

\*XXXXXXXX Crystal City Statement

\*\*We've spent many weeks in Federal Courts on Patent Infringement and FMVSS #108 issues ... and we've won!



Tooled & Manufactured  
in the U.S.A.

We have learned from 35 years of Inventing Tooling and Manufacturing our own products ... in our own facilities ... **always results in more reliable, better quality, and always "legal"** Vehicle Lighting products, which ultimately benefits our Aftermarket Distributors ... and their Dealers/Jobbers ... as well as Vehicle Manufacturer we supply ... in that, **everyone involved** has to **deal with significantly less complaints and their returns**, while also, reaping the valuable benefit of **direct factory communication**.

## **LOOK AROUND! ... NOTE all the NEW AGE, See Thru "INCANDESCENT" Designs**

By visiting any large parking lot ... it becomes apparent that **3 OUT OF 4** of the **coolest, most attractive, and most mesmerizing, See Thru/Chrome\*** Tail Light Designs are **using ... Long Life\*\*** ... (find anywhere), **#3157 type, Wedge Base, Incandescents** ... and **"NOT LEDs"**. Each of these very creative "Incandescent" Tail Light Innovations has been **designed to "dazzle" prospective buyers** into the purchasing of that particular Vehicle ... and ... **know what? ... this philosophy is working!**

\*It's not really "Chrome" Plating ... Its "Aluminum Vapor Plating"!

\*\*Long Life Incandescents now use Krypton Gas surrounding the Filaments which significantly increases the lifespan of a #3157 type Bulb



Have you noticed how Auto **TV Ads now flaunt** all the new, Cool, **Tail Light Designs?** where ... in the past ... TV Ads seldom highlighted the Tail Light areas of new Autos, SUVs and Pick Ups. This highlighting is used because Auto Marketing Managers

are well aware of the fact that **fascinating\* "See Thru", "See the Bulb" Tail Lights** ... are now **very influential in contributing to a Vehicle sale**.

\*Take Note! A few LED "RED DOTS" are not nearly as fascinating as what the new Incandescents can generate using clever Optical Engineers

Marketing experts have learned that **for the little more \$ spent** over the cost of "Plain Jane" or "Same Ol" Tail Light Designs ... complex, creative ... **"See Thru - See the Bulbs" Tail Light Designs** can represent the **"tipping point" to clinching the sale of any new Auto, SUV or Pick Up**. Therefore, isn't it obvious that this **Marketing Technique would also help with the sale of Trailers, RVs and Trucks** ... and most likely ... **at higher prices?**



## **Our "SPLLs" can REPLACE a WIDE VARIETY of Competitors' "Same Ol" Designs**

Our new "SPLL" provides an **easy "Tit for Tat" Replacement Update opportunity for improving road Safety and Styling on ≈ 3 million\*** of, already in service, Trailers that have been straddled with Troublesome, "Plain Jane", or "Same Ol" **factory supplied 7/8 Function Light Assemblies** that typically use, **Industry Standard, 2" Bolt spacing**.

\*which includes a Million± ShoreLand'r, EZ Loader and many other quality Trailers using our older #701, #702 and SP Series Lights



Here's my personal "Car Carrier" Trailer with a smashed Standard "SP" - caused by me backing into a curb. Note: **"No Shattering"** ... still functional and temporarily usable

## **LEXAN® is not Indestructible, however, LEXAN® definitely BEATS ACRYLICS**

**Fully Exposed** Trailer, RV and Truck 7/8 Function Tail Light Assemblies **can** ... and do ... **get smashed** on a fairly regular basis whereas, **"All Lexan®"** construction significantly **limits breakage and shattering**. Further, know that, **Lexan® helps with "cold brittleness"** problems when used on Snowmobiles and other cold applications ... additionally, Lexan® **limits "melt-down risk"** in high heat applications.

## **The NO RUST, Driver Serviceable and KEEPS WORKING #3157 features will prove Popular**

The development of the #3157 "Wedge Base" type Bulb resulted from the **"Society of Automotive Engineers" (SAE) asking Sylvania® for a "rust-proof" ... "more precision" and "longer-life" #1157 Replacement** that would continue to **provide the same, all directions, Candela output** that the #1157 Bulb has provided Autos, Trailers, RVs and Trucks for the past 40+ years.

We believe we are the **first to replace, driver, serviceable #1157's** with the new\* **"Wedge Base", "Longer-Life", "Rustproof"** ... also, driver serviceable ... **#3157 for Trailer, RV, and Truck applications**. Our reasons for switching from the 1157's was ... not to save\* money ... but to be able to **supply our customers with a more precision, longer life Bulb, while also, eliminating the rust gathering STEEL "Cylindrical Bulb Base"** and the corresponding **all STEEL ... easily rusted ... "Grounding Receptacle Can"**.

\*#3157's cost 3 Times what a typical #1157 costs



## **Quickly Rusting CHINESE - Cheapened - COPIES of our "SPs"**

The **"Look-a-Like"** Chinese versions of our original, **"SP"**, will sooner, rather than later, **provide the end user a totally rusted Bulb and Bulb Holding Assembly**. Here ... the Importer/Chinese Manufacturer **copied our popular\* SP's outward appearance** ... while being able to **hide** the cheaply made and easily **Rusted, Internal Steel components**.

**CHEAPENED CHINESE "LOOK-A-LIKES"**  
Take note of the extensive corrosion and the **"Rust Jammed" #1157 Bulb**, which is common in the many Chinese "Look a Like's" of our original "SP" Products. This "Look-a-Like" requires a Phillips Screwdriver to remove the Bulb Support, where all our SP's **still provide** the popular, **NO TOOLS, Snap Out/In feature**

Fact is ... all Trailer Drivers ... particularly Salt Water area Drivers ... are well aware that the **Steel "Bulb Base"** and the **Steel "Grounding Receptacle Can"** combination **can produce a "rust generating nightmare"**, that can require the Bulb to be destroyed in order to be able to free the Bulb Base from the Grounding Receptacle Can. We **minimize this problem** in our older "SP" designs by keeping the Bulb and Bulb Receptacle as dry as possible **using Silicone Paste**.

By **adding** the "State of the Art" *Sylvania*® #3157 Bulb ... along with the **elimination of all Steel** in the new "SPLL" and "SPRP" ... we can claim that **rust griefs are virtually eliminated** because both have had **all internal Steel components replaced** with **Lexan®** and **Phosphorous Bronze**. And ... if the *Sylvania*® Longer Life Bulb does fail ... it **can be easily "driver fixed"** quickly and economically **using our popular "No Tools", "Snap Out" Bulb Slide System**.

Additionally, be aware that all of our "O" Reliable" #203, #205 and #327 "NO STEEL"\* products **also, eliminate rusting problems** and therefore, help to **limit costly returns and repair demands** commonly directed at Trailer Manufacturers ... Aftermarket Distributors ... and Dealers in the supply chain.

### **RUSTPROOF and PRECISION #1157 REPLACEMENT**

When the Society of Automobile Engineers (SAE) asked Sylvania to **develop a Rust-Proof replacement** for the 40+ year old, #1157 dual Filament Bulb ... SAE also asked for the **straightening**, and **precise positioning of the 32 and 3 Candela Filaments** ... in order to better the always crooked and randomly located #1157 Filaments, that have ... for the past 40+ years ... **been notorious for non-repeating "Test Pattern" Candela readings**, which **can "not" be tolerated in** today's precision "See Thru/Chrome", "See the Bulb" **Incandescent Designs**. Bottom Line! ... the **new #3157\* "Wedge Base"** type Incandescent Bulbs are **now able to guarantee** Light Designers and Engineers a **uniform, symmetrical, bright, and, reproducible "Test Pattern" output** where the #1157 type Bulbs could not.

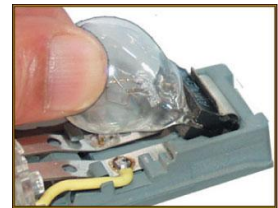
\*#3157s costs 3+ times the cost of a #1157s

Additionally, we'd like to point out that our new SPLL and SPRP Wedge Base **Phosphorous Bronze Support System** provides a **"road shock" absorbing feature** that helps to further extend the life of the, already, "Longer Life" *Sylvania*® #3157 Bulb.

Also ... a note of interest! We believe there is a **#3157 type "Incandescent"** being developed that would have a **very long 50,000 hour, actual, "road use" life**, which would equal or better the average **LED's "real life" ... "in use" ... longevity\* expectations**, and could be **Driver Serviceable** while only costing **a fraction of what a comparable ... Legal\*\* ... LED Array using Brake/Turn Signal would cost**.

\*"Claims" of LED Long life and "Actual" Long life ... for fully exposed Trailer, RV and Truck service ... represent **two entirely different subjects**

\*\*Legal ... EPLLA Compliant ... LED comparables" are hard to find!



### **LEDs are in the MINORITY**

When at a Traffic Light ... look around! **You'll see** that that most of the **"Coolest"** "See Thru" Tail Light and CHMSL Designs ... that **may appear to be LED Illuminated ... are actually Incandescent Illuminated**. Fact is, **3 out of 4** of all the latest U.S., Japanese, and European "See Thru" Tail Light Designs are **using ... State of the Art ... precision, Wedge Base, Long life, Rustproof #3157 type "Incandescents"**. This is because Vehicle Designers and Lighting Engineers have found that **only Incandescents will produce the Coolest, most detailed and intriguing effects** that they require ... which **LEDs** simply **can "Not"** produce.

Also note, that **"all"** ... that is, **4 out of 4** ... of the new, See Thru, Designs **use Incandescents** for their **Amber "Turn Signals"** as well as for their **White "Back Up" Lights**.

### **WHAT'S basically WRONG with LEDs?**

When any Brake or Turn Signal **quits working** ... the Driver ... and the local Police ... would like the situation **corrected quickly**, which **isn't going to happen** when a hard to access Bulb needs fixing ... and a **quick correction is "outright impossible" when a LED Signal fails**. Today! it's easy to find **"LED Brake Lights" that have! ... and/or are beginning to fail**, which is particularly noticeable on "Caps" and Big Rigs!

Even though these failures and Effective Projective Luminous Lens Area (EPLLA) Non-Compliances are abundant and obvious, you'll find very **few LED Brake Signal "Recalls" listed in NHTSAs Web Records**.

Particularly **prevalent are 3rd Brake failures\*** that are obvious **on 70% to 80%\* of Pick Ups that use a "Cap", "Topper", "Canopy"**, which were **required as FMVSS #108 Compliant Replacement CHMSLs** that made up for the original one covered-up when the "Cap" was installed.

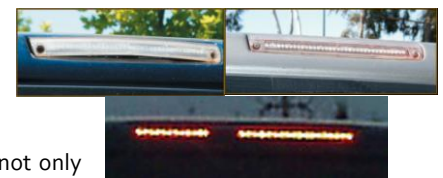
\*3 out of 4 don't work - and/or are fading, warped or violating "Effective Projected Luminous Lens Area Federally" mandated Law

... meaning that **most are outright "Illegal!"** in the eyes of Federal and States Law and therefore, **considered illegal in every State and Federal Court in the U.S.**

Therefore ... considering the significant Liabilities involved ... **those involved** with buying, selling and using of Trailer, RV, Truck and Cap **LED Brake Signal Lighting** ... **should be asking** themselves ... **"how are the LED using Brake Lights** that I'm buying, selling, or using **going to hold up in real-life and long term use?"** ... and, **are they Legal?** and **are they worth their cost?**

### **"LED" Recalls**

Daily, we can see **LED Non-Compliances** on our Highways that include not only **"Photometric"** and **"Effective Projected Luminous Lens Area" (EPLLA)** deficiencies, but also it's obvious many Importers are outright ignoring the Federally mandated **"3 Year Outdoor Weather - Sun Fading - and Warping Tests**.



Common "Cap" Warped, Faded, and Failed Cap CHMSLs **partially or totally**

NHTSA records show **"three"** Multi Function **"Optronics" failed LED designs** that **required official Federal Recalls** plus, we know about **7 out of 10 LED Brake Signal failures** that resulted from NHTSA's **Testing of Ten 4 inch (Round) Diameter LED (Big Rig type) Brake Signal Lights** that were **all made by ... directly or indirectly ... Chinese Manufacturers**. These LED **Recalls can be studied on NHTSA's website**, which can be accessed at: <http://www-odi.nhtsa.dot.gov/cars/problems/defect/defectsearch.cfm>

The **7 out of 10 Recalls** were based **only on Photometric Output Failure** while NHTSA **"conveniently ignored" the, obvious, "EPLLA" Compliance violations\***. All were performed more than 6 years ago, and to my knowledge, **no FMVSS #108 mandated Trailer, RV, Cap or Truck Brake Signals have been tested since**. \*See the "EPLLA" evaluation for Wal-Mart's Brake/Turn Signal on Page 10

**Take heed!** Those involved in supplying the Public Vehicle Lighting should be reminded that **several, very important "Legal Issues" are not being addressed ... nor policed ... by NHTSA** ... nor ... for that matter ... by any State Governments or, Watch Dog Groups, I'm aware of.

**BOTTOM LINE!** Considering the fact that ... **Federal and State Governments can "not" be held legally responsible** ... nor can they be held **liable ... for "non-enforcement" of Mandated Law** ... it's an **entirely different responsible and liability situation** for those Individuals or Companies **buying, selling or using "Illegal" Vehicle Lighting**.

**Our New "SEE THRU" Modularized 3rd BRAKES are EPLLA Compliant and offer unique, Turn Signal Option**

Recently we've **"Modularized"** most models of our older (very popular) #400 and #500 Series Standard **"Center High Mount Stop Lights" (CHMSLs)** that we've supplied a million+\* to various "Cap" and RV Manufacturers over the past 18 years, including **Leer®, ARE®, Snug Top®, Raider®, ... as well as Airstream®**.

\*plus another ~million of Cheapened, Chinese Look-a-Likes brought in by, copying, Importers  
\*\*"Cap"=Topper=Canopy



Our Module **totally "Lights Up"** when viewed within the 10° Left/Right, 10° Up/5° Down "Test Pattern", and therefore, has an **EPLLA of ~6 x 1.5" = .9 in² each**, where only Five meet the 4.5in², EPLLA requirement for FMVSS #108. **We use at least 6 in all our new Modularized Designs**

We have, also, Tooled and are now manufacturing, both, popular length ... **10" and 16" Incandescent "Modularized" Versions** that we've designed to **replace any of the Million+ "Failed", Faded and Warped, Chinese made 10" and 16" LED CHMSLS** that ... because of their **90%+ failure rate** ... and because of their extensive circulation ... have significantly **degraded our Rear Ender Road Safety**, not to mention **degrading the Vehicles' Looks and reputation** they are mounted on. Our **Replacement Sales Campaign** is aimed at trying to correct some of this **"Chinese Junk" situation**.



Sooner, rather than later, you'll find yourself in Traffic behind a "Cap" with a with a Non-Working CHMSL  
Who's fault is it? if you run into this Vehicle's rear end and you'll not be given a "High Center" Brake Warning!  
Look Around ... you'll find these "Cap" CHMSL failures are everywhere! and NHTSA could care less!

**FIVE "to be" BEST-SELLERS that are USING our New MODULES**

At best, this kind of **Imported "Chinese junk"** should have never been allowed to cross our Borders ... and, at the worst ... **all should have been "Recalled" by NHTSA long ago** ... not only **because of the 90% rate of Photometric and Physical failures** but also **because 98% don't come anywhere near complying to the 4.5in² "Effective Projected Luminous Lens Area" Federal Mandate, nor the 3 Year Weathering Mandates**. **Even the Newest Chrome Plated, Clear, See Thru 10" CHMSLS** were beginning to see on "Caps", shown below **are far from EPLLA Compliant**, as they have effective output areas of "only" Six Times a 3/16" Diameter LED projecting within the 10° Left/Right; 10° Up/Down Test Pattern, which means an EPLLA of only  $6 \times \pi \times (3/32)^2$  or .166in², **not anywhere near the 4.5in² Mandated by Federal Law**. This Design would require 27 times this area for Compliance.



NHTSA, plus State and City Governments have sanctioned studies over the years where it was found that **non-existent 3rd Brake Lights" increase Rear Ender vulnerability by at least 40%**. The percentage would be higher if the second driver relied on a "Non Working", "Chinese Junk" CHMSL. Consider how many **"avoidable crashes" would have "not happened"** if this **Imported "Junk"** had not been allowed into the U.S. and Canada.

**NHTSA says 20% of all crashes are "Rear Enders"**, which account for 1,600 Deaths and nearly 70,000 Injuries **each year**. Do the math on **what this situation is, costing the Public in Damages\*, Injuries and Lives** when considering **NHTSA is allowing a couple million 3rd Brakes that don't work to remain in circulation** ... also add in the cost of wasted time value unnecessarily spent by Driver's, Police and Insurance Agents. \*I've read that each **Rear-Ender averages over \$10,000** ... in "Settlement" Costs - **believe it or not!**

**MEETING Minimal FEDERAL MANDATES for PHOTOMETRIC and "EFFECTIVE AREA" OUTPUTS**

Current Federal Photometric Mandates require a **minimal Candela** output for **Brake/Turn and Lane Change Signals** ... of **80 Candela\* straight back** with "falling intensities"\* from 20° to the Left to 20° to the Right and from 10° Up to 10° Down using the **Federal Official "Test Pattern" Test Points\***. Then there is the **frequently ignored ... Federal Mandate that requires at least 11-5/8in²\*\* of "Effective Projected Luminous Lens Area" "EPLLA"\*\*\*** to be properly projecting **within the official NHTSA "Test Pattern"\*\*\*\*** of 20° Left to 20° Right; 10° Up to 10° Down.

\*See FMVSS #108 for Details ... Use our Website "Link" to save on time and confusion  
\*\*for over 80" wide vehicles ... 7-3/4 in² for Under 80" Wide Vehicles  
\*\*\*EPLLA is defined below per FMVSS #108 and discussed in detail on our Website  
\*\*\*\*NHTSA's mandated minimal Photometrics "Test Pattern" Candela requirements can also be authenticated using our convenient Website "Link" to **Federal Motor Vehicle Safety Standard #108 (FMVSS #108)**

**OFFICIAL DEFINITIONS:**

**§ 571.108 Standard No. 108; Lamps, reflective devices, and associated equipment.**

*Effective light-emitting surface* means that portion of a lamp that directs light to the photometric test pattern, and does not include transparent lenses, mounting hole bosses, reflex reflector area, beads or rims that may glow or produce small areas of increased intensity as a result of uncontrolled light from an area of 1/2° radius around a test point.

*Effective projected luminous lens area* means the area of the orthogonal projection of the effective light-emitting surface of a lamp on a plane perpendicular to a defined direction relative to the axis of reference. Unless otherwise specified, the direction is coincident with the axis of reference.

S6.3 The term "functional lighted lens area" in any SAE Standard or Recommended Practice incorporated by reference or by subreference in this standard, has the same meaning as the term "effective projected luminous lens area."

Words most often ignored in these definitions are "Effective Light Emitting Surface" ... "a result of uncontrolled light", "functional lighted lens area", and, "does not include transparent lenses" resulting in the fact that the "Effective Projected Luminous Lens Area" Mandates have been ... and are still being ... blatantly violated by most Importers and Foreign Manufacturers of Aftermarket ... LED using ... Brake/Turn/Lane Change Trailer, RV and Truck Vehicle Lighting products, which are still being brought into the USA by the "Millions" by ignorant ... or "don't give a damn" ... Importers ... including one currently being sold by Wal-Mart® ... shown here and discussed, in detail on page 10.



Wal-Mart®, Non-Compliant Brake/Turn/Lane Change Signal Light

The biggest advantage Incandescents have over LEDs is that the typical Brake/Turn #3157 type ... Incandescent "Filament" develops much more usable light than what a typical, 6 to 12 LED Brake/Turn Array can develop. Additionally, this, high intensity, output is projected in "all directions" making it easy for Engineers and Designers to gather and redirect much of this "all directions" light output within the official Federal "Test Pattern"\* confines ... while also generating enough, "functional lighted lens area" for complying to NHTSA's "Effective Projected Luminous Lens Area" requirements. And ... all this ... with "Output Leftovers" that can be used for projecting significant Warning Signaling Power to Side Lane Drivers and nearby Pedestrians, that LED Brake/Turn/Lane Change Signals are not able to supply.

\*Meaning within the confines of 20° Left to 20° Right; and 10° Up to 10° Down

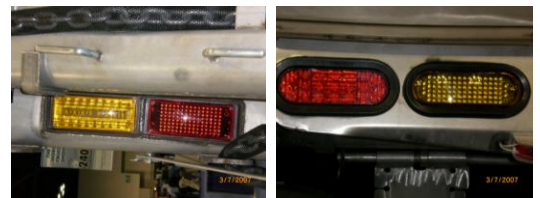
Everyone concerned should also, be aware that standard LEDs produce only very narrow Conal Projections emerging as Red Dots whereas, for a typical "shallow"\* LED Trailer Brake/Turn Signal Light ... it will take many LEDs to produce 11-5/8 in<sup>2</sup>\*\* of, tallyable, "Effective Projected Luminous Lens Area" (EPLLA) that project within the 20° Left/Right, 10° Up/Down "Test Pattern" ... while providing nothing extra for Side Lane, Warning Signaling.

\*\*"Shallow" - meaning a small (under an inch) distance between the LED and the Refraction Lens

\*\*Minimal Mandated "EPLLA" for Vehicles over 80" in Width

**"Effective Projected Luminous Lens Area" ... VIOLATIONS are EVERYWHERE**

Here are photos I took at the 2007 "Light Truck" Show in Indianapolis. These Brake and Turn Signal Multi LED Designs indicate that these two Truck Manufacturers have recognized the fact that many\* LEDs must be used to comply to mandated "Effective Projected Luminous Lens Area" (EPLLA) Mandate.



\*many more than the meager 6 to 12 some Big Rigs and Wal-Mart® have been using

Obviously, these kinds of Brake and Turn Signal Designs represent a much larger LED expense over what has been typically expended on Trailer, RV, and Truck Brake and Turn Signals over past years. Today! we can see many Large Vehicles switching over from the older 6 to 12 LED Brake/Turn Signals to the ... more likely to be ... EPLLA Compliant designs that use between 40 and 100 LEDs crowded into the same ≈11-5/8 in<sup>2</sup> area the 6 to 12 used to occupy.

Or, they may have switched to the use of the newest\* Wide Angle LEDs that will light "Fresnel" type faceting that tallies up enough Area to pass the 11-5/8 in<sup>2</sup> EPLLA requirement while, simultaneously, projecting compliant Photometric output within the "Test Pattern" restrictions.

\*more costly than "Standard"

To understand why these two Truck Manufacturers are using many Standard LEDs or Wide Angle Lensed, LEDs in their Brake/Turn, Signals ... consider the fact, that several years ago the "European Union" and the U.S.A. agreed\* to "Harmonize" the Brake/Turn "Effective Projected Luminous Lens Areas" (EPLLA) requirements. The resultant agreements required USA's original "EPLLA" requirements changed from 12 in<sup>2</sup> to the "EU's" 75 cm<sup>2</sup> or 11-5/8 in<sup>2</sup>\*\* and the USA's 8 in<sup>2</sup> changed to 50 cm<sup>2</sup> or 7-3/4 in<sup>2</sup>\*\*\*.

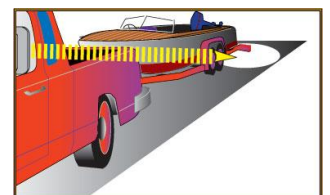
\*I attended two of these Harmonization meetings in Washington D.C.

\*\*for Over 80" Width Vehicle      \*\*\*for Under 80" Width Vehicles

Now, consider the fact, that the "EU has always "stringently enforced" the "common" harmonized EPLLA Mandates and, NHTSA "has not". Also know, that these Trucks are proposed to be sold ... not only in the U.S. ... but in E.U. Countries as well ... which provides the explanation for the un-American looking designs, while assuring European Union Inspectors that the 11-5/8 in<sup>2</sup> (75 cm<sup>2</sup>) EPLLA Mandate is being complied to.

**Our Helpful "PAVEMENT LIGHT UP" SAFETY CHECK! FEATURE**

Pulling a Trailer is always a nerve-racking experience ... particularly, for those who don't pull Trailers frequently. Trailer Drivers always feel more relaxed and confident when they are assured there are no problems that may be keeping their Brake/Turn/Lane Change Signals from working effectively. At night ... drivers can usually verify ... using their Rear View Mirrors ... that the frontal located "Running Lights" are working, but they can't readily determine if there's a problem with the Brake/Turn/Lane Change Signals, nor will the Tail Lights.



To be sure the Brake and Turn Signals are working properly ... a "helper" is generally used (if available\*) to stand at the rear of the Vehicle in order to verify that the Brake and Turn Signals are working properly. Our "Pavement Light Up" Feature ... at night ... eliminates the need for these efforts and permits the Driver to verify if the Signals are working without the Trips to the rear.

\*Otherwise, the Driver must perform the "walk back and forth" tasks

All our 7/8 Multi Function Designs that use **Powerful #1157 or #3157** Brake/Turn Filaments project lots of light in "all" directions ... including "downwards" through our Right and Left, Transparent "Splash Guard Windows". This powerful downwards directed light is then reflected off the Pavement ... providing the Driver ... during dusk and night hours ... reliable "verification" that the Brake/Turn and Lane Change Signals are working effectively by simply using the Rear View Mirrors!

I can say, from personal experience - "This is a very valuable ... worry-reducing ... feature!" that none of our competitors can offer.

### **Rusting/Failing INCANDESCENTS and "Un- Fixable" LEDs produce Negative Feelings**

As the years go by ... many Trailer, RV and Truck Owners/Drivers will come to realize they have been supplied with cheaply made Lights that are not only grief producers ... but, are likely Illegal\* in the eyes of State and Federal Law ... and, therefore, illegal in the eyes of all Court Systems as well. \*Illegal because of Non-Compliance to Federal Motor Vehicle Safety Standard #108

When they realize they were supplied troublesome and, perhaps, illegal products in order to save a couple bucks ... you can bet that negative feelings will be generated towards the Vehicle Manufacturer ... the Distributor ... the Dealer ... or all three ... that supplied these inferior products. "Over the years, I have heard many of my friends and acquaintances curse troublesome Trailer, RV and Truck Lighting and, consequently, those that furnished them. In fact, the continual rusting of the 7 Function Lights originally supplied on my personal Boat Trailer led me to the development of DryLaunch's®, first, original "Air Trapping" Design.

Pointing out competitor's Technical and Legal problems, doesn't mean that we are claiming our designs will cure all lighting problems ... however, we can claim that our quality and unique features will certainly help drivers avoid many unpleasant and unsafe situations.



### **DON'T "TILT" LIGHTS or REFLECTORS**

Daily, we can see examples of Trailer, RV and Truck Manufacturers "tilting" their lights and reflectors any which way they choose for styling purposes. They are tilting Lights and Reflectors without considering the fact that any angling of just a couple degrees from Parallel or Perpendicular to the applicable Vehicle's axis ... will disqualify practically any Brake/Turn/Lane Change Signal Lights ... and all Reflectors ... from FMVSS #108 Compliance status, thus making them "Illegal" in the eyes of all Federal and State Court Systems.

"All" Mandated Lights and Reflectors for Trailers, RV's and Trucks (with very rare exceptions) are "qualified tested" as if mounted "exactly perpendicular and/or parallel to two of the Vehicle's three Axes". Any "angling" (tilting) of Lights or Reflectors from these qualifying test positions requires a "separate set" of qualifying Photometric Testing Data that would be used to answer any State or Federal inquiry ... or a "Court" challenge ... that the mandated Light or Reflector in question ... when Vehicle mounted in the "Tilted" orientation ... still complies with FMVSS #108 Photometric and "Effective Projected Luminous Lens Area" EPLLA) mandated requirements.

In a "Rear Ender" major damage, injury, or death related Lawsuit ... if the Plaintiff Attorney can show "Illegality" due to the tilting of any involved Light or Reflector ... they can, likely, greatly increase the financial \$ outcome of the final settlement.

Whenever the word "Illegal" ... comes up in a Court Proceeding ... you can bet that will demand a lot of attention. Also, be aware, that a Court defense based upon the philosophy "Everyone is doing it!" won't fly" with a judge or jury.

### **"SIDE MARKER" Versus "CLEARANCE" LIGHTS - What's the difference?**

Not many people that buy, sell, or install "Side Markers"\* and "Clearance Lights" know the exact reasoning behind their existence ... whereas, "Side Markers" main job is to point "Presence" Warnings to the "side" ... so as to warn Intersection Vehicles ... and nearby Pedestrians ... that a large mass of Steel is ... or is about to ... cross in front of them - so, "WATCH OUT!"

\*All Vehicles since 1969 are Mandated to have Front and Rear "Side markers" ... they have since, greatly reduced night time Intersection crashes

On the other hand, "Clearance Lights" ... are Mandated by FMVSS #108 to show "Extreme Width"\* ... which means their main job is to "clearly define" the Steel Mass needed to be "cleared" in order to avoid a "Corner Clipping", or "Side Swipe" ... Locating Clearance Lights inside\* of the Extreme Width doesn't guarantee against Clipping or Side Swiping.

\*Some believe that mounting Clearance Lights significantly inside of the "Extreme Width" represents Compliance to FMVSS #108 ... NOT TRUE!

Check NHTSA's official "Legal Interpretation" replies to "Extreme Width" on our website

### **DUMBNESS Expounds at NHTSA**

Unfortunately, very few Trailer, RV or Truck manufacturers ... and, apparently, no one at NHTSA ... seem to understand the importance of indicating "Extreme Width" to passing\* and about to pass Drivers, nor the importance of having Clearance Lights located as close as possible to average "Traffic Eye Level".

Further, no one seems to realize the dangers involved with allowing Rear Clearance Lights to be mounted on the "Sides" of Big Rig Trailers where ... "About to pass"\* ... or "veering to avoid" Drivers ... can't possibly see them, which represents, yet, another dumb and incompetent allowance OK'd by NHTSA. \*Passing in either direction

Additionally, I ask every person and every Organization that is dedicated to help increase highway safety ... **to take the time to understand the dumbness of the "Side Mounted Clearance Lights" and the dumbness of mandating Clearance Lights, to be mounted much higher than average "Traffic Eye Level"**, which defeats their main purpose of being **absolutely conspicuous** under Rain, Snow and Dust Storm conditions. Yes! Believe it or not! ... **NHTSA actually "requires" Clearance Lights to be mounted "as high as possible"** ... a requirement that ... perhaps 40 years ago ... had a reason for being ... but not anymore.

NHTSA also requires their **"as high as practical" mandate to include 3 I.D. Lights** which would obviously **add more to anti Rear Ender Road Safety** if ... **instead** ... they were mandated to be **"mounted as close to average Auto Traffic Eye Level as practical"** rather than, as high as, 12 Feet off the pavement.

\*There are no such things as too much Eye Level "Presence Lighting" on a Trailer, Big RV, or Truck, particularly important during Rain, Snow, or Dust Storms

### **The LED "FAD" is waning**

Know that **LEDs** used for Trailer, RV, and Truck Brake/Turn/Lane Change Signal Lights **produce only a "fraction" of the "Lumens"\* of output that Incandescents can produce**. Also, know that the basic LED **project most of their "effective output" in a very narrow, conal shaped direction**.

\*"Lumens" represents the **total Light output in all directions** emanating from an Incandescent, LED, or Florescent Light Source



Fact is, **LEDs are unable** to produce the "all directions" powerful output that **Incandescents always produce**, whereas, this **conal output handicap** greatly **depletes the chances** for a Designer/Engineer to easily comply to the "Effective Projected Luminous Lens Area" Federal Mandates **without using many and/or expensive LEDs** for a typical Trailer, RV or Big Rig Brake/Turn Signal application.

### **LIGHTING LESSONS #101**

The following facts and opinions will help the average person make domestic or Vehicle Lighting choices ... and make better decisions for all concerned:

1. The new **36 Watt Compact Fluorescents** produce the **same amount of Lumens as the old 100 Watt Incandescent** ... but **draws only a third the electricity**.
2. Further, 95% had no chance of having "Effective Projected Luminous Lens Areas" compliance to MISS #108 and none claimed compliance to the Mandated 3 Year Weather, UV, Fading and Warping Testing requirements.
3. "Lumens" represents the **total Light** put out by an Incandescent, Florescent, or LED Source.
4. **LEDs are only slightly more Lumen efficient than Fluorescents**, but cost 10 to 20 times more. However, when required to choose between Fluorescents, LEDs and Incandescents, Initial cost, **Lifespan** ... and cost convenience for **replacement**.



For those that **dislike the "odd, soft, color"** the average "Low Temp" Compact Florescent puts out ... **as I do** ... consider buying only **5,000 to 6,000 Degree "Kelvin"** ... **Daylight ... Fluorescents**.

5. In California, power costs  $\approx 20\text{¢}$  per Kilowatt Hour - which means the **cost to run a 100 Watt Incandescent Bulb for 24 Hours ... is  $\approx 48\text{¢}$**  where a **Compact Florescent** equivalent **costs only 16¢** represent significant \$savings assuming the initial higher cost is offset by increased Life Span.
6. Since **"Incandescents" put out Signal and Presence "Rays" in all directions** ... accompanied by a clever Reflection/Refraction System ... can make the Vehicle's rear end look complicated and intriguing **at a Traffic Light ... in a Parking Lot ... or on a TV commercial ... Lit! or Unlit!** ... where **LED** systems represent a few, **uninteresting Red Dots pointing in one limited direction**.
7. Practically all of the **Imported "LED" Brake/Turn/Lane Change Signal Lights** that we or NHTSA have Tested fail **what's minimally required by FMVSS #108**, Photometric Test Pattern mandated requirements, which must produce **at least 80 Candela in the "straight back" direction**. Results were, also, discouraging at the other Test Points within the Official "Test Pattern" of 20° Left to 20° Right; 10° Up to 10° Down.
8. Everyone dealing with LED Brake Lights should be aware that a **LED Brake Light output will drop 20% to 40%\*** when **used on a Hot Day ... in "close-up slow-moving, traffic" ... when a bright as possible Brake Signal is needed the most**, particularly in the case of **"Low Mounted"** and **"Not CHMSL Complemented"** situations.  
\*Also ignored by NHTSA, but not by sharp Attorneys and the Courts
9. Considering the premise that **Brake Lights must be as bright as possible** ... the large Parabolic Reflector used in our new **"SPLL" had to be somewhat "spoiled"** because, initially, it was **producing over 300 Candela, straight back** ... where 300 Candela represents the "maximum" allowed in this direction by FMVSS #108. Try looking straight into a "SPLL" when the Brake/Turn Function is lit ... you'll be impressed with its' brightness.

10. Time will verify that **Lighting Designers and Engineers will continue to insist on** having access to the many **Hi-Intensity, all direction "Rays"**\* that **only Incandescents can produce**. Using today's amazing Computer Designing Programs, **Engineers are able to collect and re-direct** these all directioning **"Rays" into "Hi-Intensity", "bold", "magical", "intriguing", "dazzling" "many directions" light patterns**, while at the same time, making it easy to comply to FMVSS #108 Photometric and "EPLLA" with "leftover" "Rays" for producing Bonus Warning Signals to "Side/Rear" Traffic.  
\***"Rays"** - my term for comparing the quantity of light (Lumens) coming from a light source
11. **LEDs don't melt snow"?** which represents another unintended consequence and **a significant safety problem** for Roof\* Mounted 3rd Brake Lights and other unsheltered Signal and Presence Vehicle Lights. \*for 3+ Million "Cap", "Canopy" applications
12. We have also learned that **LED Traffic Lights** used in Northern States and Canada **can become covered with snow and ice** in serious storms ... **causing serious safety situations at intersections!**
13. Also, we're finding that some Trailer, RV, and Big Rig Brake and Turn **Signal Installations** require the **addition of a "Resistance Circuit"** because these kinds of LED Brake/Turn/Lane Change Signals **don't draw enough amperage** to properly heat the **"Bi-Metal Strip" used in the average "Sequencer Device"**.
14. We've also heard from Florida Trailer Manufacturers that the **"Oxide" that, naturally, forms on Copper Wire isn't being, readily, pierced** because of the **"small" amount of amperage** that just a few LEDs draw - **causing ... hard to find ... intermittent "Wire Nut" Connection failures!**
15. Disregard the myth that **Headlights will soon use LEDs – not true!** ... Truck Light® (or Peterson®?) is currently trying to market a pair of **LED off-road Headlights** that **cost \$700 a Pair!** ... Incandescent Headlights will prevail for a long time!

### **LEGAL "INCANDESCENT" ADVANTAGES versus ILLEGAL "LED" PROBLEMS**

For many years we have **tried to warn** Trailer, RV and "Cap" Manufacturers about the many "LED" Technical and Legal issues that must be addressed when considering the use of a typical **Chinese made LED product**, in order to be able to **assure themselves** that the typical **low cost\* "LED" Brake, Turn and Lane Change Signaling Lights** they are providing the Public **are, indeed, "Federal Motor Vehicle Safety Standard #108" Compliant** and, are, therefore, **"Legal" in the eyes of all State and Federal Court Systems**.

\***Low cost" when compared** to the much more costly, high quality, LEDs used in Auto, SUV and new Pick Up Lighting that always enjoys a first class Heat and Moisture protective surrounding ...while, **averaging 10 to 40 times more in cost**

**To avoid** costly returns and possible **Recall and Lawsuit vulnerability\*** ... which is inherently tied to cheapened, Imported, "LED" Multi Function Trailer, RV and Truck lights ... we have **chosen** to use the **Auto Industries' newest Sylvania® Long life #3157 Rustproof Wedge Base Incandescent Bulb** as the Illumination source for our new "SPLL" and "SPRP" 7/8 Function Designs. This powerful incandescent ... when used with our SPLL's unique "Refraction/Reflecting, Parabolic Wing Reflector" ... **yields** a lit and unlit **impression that most mistake for LEDs**.

\*For further **Legal and Liability advice** ... check our Website that includes a **wide variety of vehicle lighting safety and legal advice "writings"** issued by **"NATM"®** ... "National Association of Trailer Manufacturers" and by **"SEMA"®** ... "Specialty Equipment Manufacturer's Association" ... along with a **variety of Attorneys and Insurance Representatives** opinions who have extensive experience with **legalities and lawsuits** associated with Trailer, RV and Trucking Industries

### **Our BOLD STYLING and GRIEF-SAVING Features, Sell themselves**

We have always made it a point to **provide all** our products with **distinguishable Styling and grief-saving features** complimented with attractive ... "Sells Itself" ... Packaging for easy and profitable Aftermarket Sales. Our new "SPLL" has been designed to complement all the new Tow Vehicle's, See Thru, Tail Light Styling, so like the new Lighting Designs, it **"dazzles and impresses"**\* ... **when in use ... or on display ... Lit or Unlit**.

Our new **"SPLL" Pair Update Kit** should **pay for its' space** when properly displayed anywhere owners of Trailers, RVs or Trucks occasionally or frequently visit. To **encourage Aftermarket "Sales Trials"** we are **willing to Guarantee** our "SPLL" Pair Kits will make trouble-free profits as long as a thought out "presentation method is used".

**"Coast"** in the West and **"Waterland"** in the Southeast have already begun to Catalog the "SPLL" Pair Update Kit ... however, we still have a need for more quality Warehouse Distribution recognition.

### **Add-Up all our SPLL's UNIQUE FEATURES**

**Start with** the new SPLLs **"NO STEEL – NO RUST"** feature, and on our Intriguing, **"LIQUID LOOK®"**. Then, give us credit for our popular Snap Out/In **"NO TOOL'S", BULB SLIDE** plus recognition for **changing over from #1157 to the new Sylvania® "Long Life", "No Rust" #3157 WEDGE BASE BULB** complimented by a **Non-Rusting, Phosphorous Bronze, Contact System**. Oh Yeah! **Don't forget** the handy, safety enhancing, **Pavement Light-Up "SIGNAL CHECKING" Feature**.

Then top off all these Credits with our **"All Lexan®", Construction** and the **Stainless Steel Mounting Bolts/Nuts option** ... plus the "Grand Finale" ... our **10 YEAR "RUST FREE", "KEEPS WORKING" GUARANTEE!**



**Lit & Unlit - looks like LEDs! ... but much brighter and Driver Serviceable**  
\*Patents pending



**"Sells Itself" Display Package for our new SPLL Pair Update Kit should do well in "Aftermarket" Sales**

## **Powerful, ALL LEXAN® "SPLL" warns Behind...as well as...to the Side Drivers**

All experienced Trailer, RV and Truck Drivers are aware of the need for **bright, effective and always working Brake/Turn and Lane Change Signal Lighting**. All Drivers want to be assured that their Brake/Turn/Lane Change Signals are **always working** ... and will be **effective on following traffic ... including adjoining lane traffic**.

To be effective, Signal Lights **must be as Bright as allowed, while displaying adequate "Projecting Areas"** so they are easily comprehended by other Driver's and acted upon accordingly. Brake/Turn/Lane Change Signal Lights that **don't exhibit adequate Candela output** within the "Test Pattern" and **don't produce the Federally Mandated "Effective Projected Luminous Lens Area" (EPLLA) are not only illegal, but they are unsafe as well.**



We always use, adequately, Large Lenses and ... thought out! and Engineered Faceting to assure EPLLA compliancy, **plus** ... unlike Competitors ... **our SP Line** of 7/8 Function Products **are entirely Translucent** so that they produce a **Large, Bright Presence and Signal Light combination easily seen by following Drivers and to adjoining lane drivers as well.**

## **WAL-MART® has a Legal Problem**

The Mandated **7-3/4 in<sup>2</sup> ... and 11-5/8 in<sup>2</sup>** of "Effective Projected Luminous Lens Area"\* for Vehicle Brake Signals were derived based upon the "proof"\* that **Following Drivers must see a minimal\*\* amount of "contiguous" Red Signal Light to gather an adequate response from following Drivers ... a few Red Dots is inadequate.**

\*"Effective Projected Luminous Lens Area" ... Definition on Page 5 ... check out our Website for a better understanding of "EPLLA"  
\*\*Proven by NHTSA and SAE **Human Reaction** Testing plus a measure of Common Sense



**Wal-Mart**, Non-Compliant Brake/Turn/Lane Change Signal Light

This "**Blazer**" made ... "Wal-Mart" sold! ... Brake Signal Light ... represents only a fraction of the **"Effective Projected Luminous Lens Area"** that's mandated by Federal Law.

This 7 Function LED Light made by "**Blazer®**" is **actively being sold by the thousands at Wal-Mart® Stores**. Since it **can't possibly light up more than twelve 3/4" Diameter Fresnel Areas** when viewed within the Federally Mandated "Test Pattern" of 20° Left to 20° Right, 10° Up to 10° Down ... **Its' maximum\* "Effective Projected Luminous Lens Area" (EPLLA)\* is 12 x π (3/8)<sup>2</sup> or only 5.3in<sup>2</sup>**, which represents **less than half** the **Federal Minimal Mandated Requirement of 11-3/4in<sup>2</sup>** ... for Brake/Turn/Lane Change Signals used on Vehicles **over 80"** in Width ... and **significantly below the 7-3/4in<sup>2</sup> Mandate** for use on **below 80"**\*\* Width Vehicles.

\*Which represents **a very conservative allowance** when "Dead Areas" between the Refracting and Reflecting "Alive" Fresnel Rings areas are allowed in the Tally  
\*\*Most Trailers and RVs are more than 80" in width

In order **to be able to claim "in Compliance" to Section S6.4.1 of FMVSS #108**, the **"Effective Projected Luminous Lens Area" must be shown to be at least 11-3/4in<sup>2</sup> for all Over 80" usage** ... whereas, over 80" ... that includes most Trailers, Motor Homes, Big Rigs etc. ... which are routinely Fabricated to the **maximum allowable 102" Width**.

\*However! ... know that **Lights and Mirrors** can "legally" protrude **beyond 102"**

Consider that **most** ... 98%? ... of the U.S. **Manufactured Trailers, RVs and Trucks** in the past 50 years, **used Brake/Turn/Lane Change Incandescent, "FRESNEL LENSED" Signals** that were designed to have an "EPLLA" of **no more than 12 in<sup>2</sup>**. The 12 in<sup>2</sup> designs were universally used, whether the vehicle was over 80" or under 80" in width. Big Rigs used primarily the popular 4" diameter round type, while others used 3 Function, ≈6" Long Ovals or 7/8 Multi Functions ... **all having an EPLLA no more than 12 in<sup>2</sup>**.

**In contrast, 99% of all Autos, SUVs, and Pick Ups are under 80" in width**, therefore, **no more than 7-3/4in<sup>2</sup> is required** ... and I can confidently state that ... **"I know of no violation of the 7-3/4in<sup>2</sup> Mandate for under 80" Autos, SUVs, or Pick Ups"**.

Adequate **"Effective Projected Luminous Lens Areas"** (EPLLA) represents a very important FMVSS #108 Mandated Safety Requirement that, **unfortunately, NHTSA doesn't actively enforce**. Never the less ... **"EPLLA" Non-Compliance violations can generate huge Lawsuit Liability** for anyone ... or any Company ... ignoring these Mandates ... **ENFORCED by NHTSA or "NOT"**!

NHTSA Employees claim they don't have enough funding! ... where have we heard that excuse before? Several years ago, I went to the Department of Transportation ... funding allocation (Appropriations) Committee ... in Washington D.C. where I told them how they could "Cheaply", yet effectively see to FMVSS #108 Compliance. I was Ignored! I will be volunteering to go again soon!

This **Wal-Mart® Light has a ≈4" Diameter** Cover Lens (excluding the Reflector Area) - whereas, if "all" this area\* was actually "EPLLA" Compliant, following Traffic, would **perceive it as totally Lit Up** when viewed anywhere within the NHTSA Mandated "Test Pattern" angles ... but, **not very far "beyond" if LEDs were used EPLLA in this case, would be π R<sup>2</sup> = 3.14 x (2)<sup>2</sup> or 12.56in<sup>2</sup>\***. However, the Wal-Mart light can **only qualify 5.3in<sup>2</sup> of this area\*\* for EPLLA Compliance** when viewed within the "Test Pattern" confines - **making it "Illegal" in any Court Room confrontation.**

\*NHTSA used to require an "EPLLA" of exactly 12.0in<sup>2</sup> until it was lowered several years ago to 75 cm<sup>2</sup> or 11-3/4 in<sup>2</sup> ... **the same as the EU has always required** ... this "**Harmonization**" was necessary so vehicles (which includes Trailers) made here could be sold in EU Countries and vice versa

\*\*NHTSA Allows ≈20% for "Dead" Areas "between" Active Fresnel Rings ... but **nothing is allowed** beyond the last **Active Fresnel Ring**

## **"EPLLA" DECEPTION ATTEMPTS**

It's **common practice** for most LED Brake Signal Light Importers and Manufacturers ... **to try and cover up their "Illegal" EPLLA condition** ... by putting **Fresnel Rings or "Ripples" over a 11-5/8 in<sup>2</sup> Area so they can claim that all this area can be tallied to qualify for EPLLA Compliance status.** However, in most of these deceptive designs, much of this **"claimed" area doesn't light up at all** when viewed within the official NHTSA Test Pattern of 20° Left/Right; 10° Up/Down. Therefore, any Fresnel or Rippled areas that don't comply to the Federal EPLLA Definition (Page 6) **cannot be legally tallied for EPLLA Compliance.** Who's fooling who? ... a Sharp Attorney using a knowledgeable Expert Witness **can easily show "Illegal" status during any related Court Trial.**

## **LED "Actual LIFE SPAN" & "HEAT DEGRADATION" PROBLEM**

The **"real-life" survival rate of a totally exposed "LED Array" used for Brake/Turn and Lane Change Signaling is nowhere near to what's being advertised.** Compare any of the meager **LED "Limited Warranties"** presently being offered by LED Brake Signal Importers to the **"Lifetime" LED Guarantees** that were being flaunted 10 years ago. The simple truth is that all **"Long life" claims have been based on only Laboratory conditions** – and **"not" based on Real Life conditions.**

We ask the reader to take the necessary time to read our Website writings regarding **"LED" Legal, and Liability considerations,** where we also address other LED problems including the fact that an **LED can ... from accumulated heat** ... during regular use ... can **lose up to 50% of its output.** The 40% to 50% base can occur when a **fully-exposed LED Brake/Turn/Lane Changing Signal Light** ... that's mounted just 12" to 18" above a very hot pavement **significantly heats up from the ambient air and from the pavement radiation ... plus from constant Brake use ... while in uptight, slow moving traffic,** resulting in **losing** much of its' advertised **Candela output ... just when "full brightness" is needed the most!**

**Have you tried a LED Flashlight?** I find them **lacking in** providing **"Daylight like" Illumination,** which I prefer. Yes! LED Flashlights save on batteries; however ... **"who wants to settle for "grayish" Light** if batteries are readily available"?

As mentioned earlier and "Detailed" on our Website's **"TECHNICAL and LEGAL CLARIFICATIONS" section** ... **LEDs can project light in only a ... very limited ... "Conal Direction",** which results in **following Drivers seeing only Red Dots representing a Brake Signal,** which **most find quite boring when compared to** the Dazzling See Thru/Chrome - See the Bulb - **"Incandescent" Designs** that we are enjoying when viewing **3 out of 4** of **all** of the New Autos, SUVs and Pick Up Tail Light Designs.

## **U.S.A. ENGINEERED, TOOLED, and MANUFACTURED reduces Failures and Returns**

All our products ... including the newest "SPLL"... are **guaranteed to be compliant to all facets of FMVSS #108\*.** Further! all our products have been designed to address some lighting related grief producing problems that are commonly put onto customers shoulders that our competitor's don't bother to consider. Our Designs also **assure minimal Technical, Legal, Liability, and Return problems** ... all of which are much **more likely to be encountered** when dealing with **Cheapened Imported Look Alikes** that **use non compliant (Illegal) materials** and **nil to none engineering.**

\*Federal Motor Vehicle Safety Standard #108 – can be accessed through a provided "Link" on our Website

## **Let's RETURN Design, Tooling and Manufacturing JOBS to the U.S.A.**

**All Americans** should start making a concerted effort to **bring back manufacturing Jobs** associated with products that **we have** deliberately ... or inadvertently ... **let go** to other Countries **for a small \$ savings** that, in the long run, is costing us considerable more that would equal what it would cost all of us ... directly and indirectly ... if these were outsourced.

**Countless** American Products ... **have been allowed to be Outsourced ... for as little as 10% in overall Savings,** resulting in a huge loss of Manufacturing Jobs along with a **loss of indirectly related, Jobs as well,** we didn't consider these losses a problem at the time, but lately, **the consequences are being realized.**

Washington D.C. ... States ... Country and City **Governments must now provide** ongoing **"Unemployment Payments" ... "Food Stamps" ... "Free Medical" ...** and a number of other spendings of Taxpayer's Funds to the Unemployed ... that **we wouldn't be paying these kinds of jobs hadn't been outsourced for the small \$ savings recognized.**

Our Bureaucrats should start evaluating **what is actually being saved** when an American product is considered for offshore manufacturing when compared to a well, thought out U.S.A. Manufacturing plan with Government subsidies that would equal what it would cost all of us ... directly or indirectly if these jobs were outsourced considerations

We may find out we all may come out ahead if **Government could offer Employers enough financial incentive** to keep qualifying jobs from being outsourced. We'd even **end up collecting some State and Federal Income and Taxes ... and Social Security Contribution** as a Bonus.

Products that **show a relatively low ratio of Labor cost to Sale price** would be the first for "bring back" consideration, which would include most products that have **high ratios of "Machinery line" Cost or Material\* Costs to Sales Price because Machinery and Quality Material Cost are about the same in China and Korea as they are in the U.S.A.** A "competent" Congressional Committee **should do a Study on this way of thinking.** Congress currently pays for costly studies on less worthy subjects.

\*assuming quality materials

I'm the last person that wants to ask for Government subsidies, however, if the substitutes compared to the savings in Unemployment direct and indirect costs are at a "Break Even" status ... why not keep the jobs we can?

From now on, we must see to it ... that **whenever economically possible, we Tool and Manufacture new products in the U.S.** while ... at the same time ... trying to bring back those Products that **make "economic sense" to bring back.**

Additionally, we should, also be **increasing our efforts for Exporting gains.** I believe these kinds of efforts ... along with "break even" Government subsidies can help to **put many unemployed ... and "wanting to work" ... Americans back to work with "permanent" jobs** while also helping to better our disgraceful "Balance of Trade" situation.

Those who think the jobs we've lost will come back without generating these kinds of efforts ... **are "dreamers".**

Those who think we will whip Unemployment problems without expanding our Manufacturing Base are also "dreamers".

Further ... those that think there will soon be **enough Hi-Tech, Wind and Solar work** to fill our Job needs ... **are also "dreamers" ...**

**SO WHAT'S LEFT? ... more Government Workers? ... which only puts us further in the "overspending hole".**

Bottom Line ... If we don't bolster our Manufacturing Base and increase our Exports ... **where "exactly" are the needed Jobs to come from?**



Dennis G. Moore  
President

**NOTE:** Our 33 year old "**Sierra Products, Inc.**" Corporate name was recently changed to "**Sierra Design Manufacturing, Inc**"

We changed names to emphasize that **we are, indeed, a true U.S.A. Manufacturer** and "**not**" just another Warehouse Distributor of Foreign made products ... as our old name inferred. However, know that our **ownership and management has been unchanged for our 33 year history!**

Sierra Design Manufacturing, Inc ... *Home of Dry Launch® and Convoy® Vehicle Lighting Products, Livermore, CA*

**(925) 443-3140      SierraDesignMfg.Com**

Every chance we can, we devote to the updating and betterment of our Websites ... **SierraDesignMfg.com, DryLaunch.com and CopBox.com.** Therefore, we ask those interested in our Products ... from time to time ... **to check for our latest product**