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Contenu archivé

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CPRC



CCRP

TM-II-96 LIGHTMAN™

By: Acting Sergeant Smewing

TECHNICAL MEMORANDUM

**Submitted by
Staff Sergeant Andrew Wilson
Operational Planning
Peel Regional Police**

June, 1996

**NOTE: Further information
about this report can be
obtained by calling the
CPRC information number
(613) 998-6343**

Executive Summary

We were alerted to a product called the Lightman™, a lightweight compact lighting system designed for use in part for highway safety purposes. This product is manufactured for an American company, and distributed out of Connecticut. The Lightman Highway Safety Strobe System was ordered at a cost of \$99.95 US funds, and offered to Peel Regional Police to field test.

The Canadian Police Research Centre wishes to acknowledge Peel Regional Police's contribution to the project, and thank them for taking the time to evaluate this product.

Sommire

On nous a présenté un produit du nom de Lightman™ il s'agit d'un dispositif d'éclairage compact et léger servant notamment à la sécurité routière. Ce produit est fabriqué pour une compagnie américaine et distribué à l'extérieur du Connecticut. On a commandé le dispositif d'éclairage stroboscopique Lightman au coût de 99,95 \$ US et demandé au service de police regional de Peel d'en faire l'essai.

Le Centre canadien de recherches policières desire souligner la contribution au projet des membres du service de police regional de Peel et les remercier d'avoir pris le temps d'évaluer le produit.



INTERNAL CORRESPONDENCE

To: S/Sgt. J. Byrne

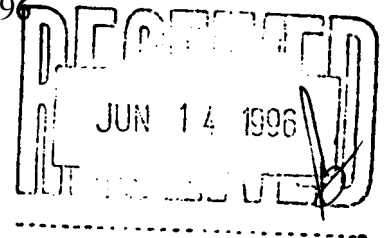
From: Sgt. J. Weaver

Dept: Traffic Services

Dept: Regional Breathalyzer Bureau

Date: June 13, 1996

File Class: A01



RE: "LIGHTMAN" Highway Safety Strobe System

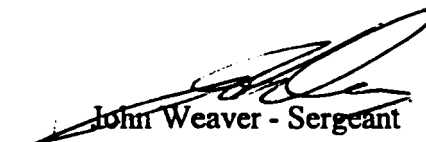
On 6th December, 1995 Traffic Services received from the Canadian Police Research Centre the Lightman Highway Safety Strobe System for field evaluations. As the C.P.R.C. requested that this product be tested specifically by traffic officers and that it be tested in conjunction with the Festive Season R.I.D.E. Program, this unit was sent to 21 Div. for use in their spot checks.

The unit was evaluated by Acting Sergeant Smewing who was in charge of the 21 Div. R.I.D.E. Unit. His report dated 8th January, 1996 is attached.

The estimated cost of testing this unit was \$4,300:00.

Once the Festive Season R.I.D.E. Program was completed the unit was designated for use with the 21 Div. Bicycle Patrol Unit. However, with the disbandment of this unit no further tests were conducted.

On reviewing A/Sgt. Smewing's report, it would appear that the unit had some advantages in that it did increase the visibility of officers directing traffic. However, as this particular unit was not specifically manufactured for Police use, it did not prove rugged enough for this application.

 474.
John Weaver - Sergeant
Regional Breathalyzer Bureau

cc: Sgt. Tumber - 21 Div.

Peel Regional
Police

INTERNAL CORRESPONDENCE

To: TO SGT TUMBER

From: P.C. SMEWING

Dept. 21 STE

Dept. 21 STE

=====
Date: 8-JAN-1996

File Class: **A** 01
=====

SIR:

DURING THE MONTH OF DECEMBER RIDE PROGRAM OFFICERS HAD THE OPPORTUNITY TO TEST THEN "LIGHTMAN HIGHWAY SAFETY STROBE SYSTEM" DURING THIS TESTING PERIOD THE STROBE LIGHTS WERE-MAINLY USED BY OFFICERS DIRECTING TRAFFIC INTO THE SPOT CHECK LOCATION.

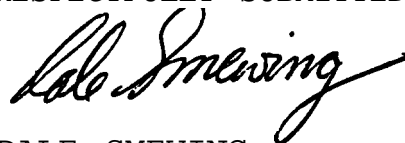
ON ONE OCCASION WE DID ATTEMPT TO USE THE MAGNET MOUNT PROVIDED, HOWEVER, WE FOUND THAT THE GLUE USED TO HOLD THE MAGNET TO THE HOLDER WOULD NOT KEEP THE LIGHT SECURE IN EXTREMELY COLD WEATHER (ONE LENSE BROKE DUE TO THIS). ANOTHER REASON THE MAGNET MOUNTS WERE NOT USED WAS IN THE EVENT THAT AN ONCOMING DRIVER ATTEMPTED TO AVOID THE SPOT CHECK, THE CRUISER PARKED ON THE ROADWAY WOULD BE USED TO PROCEED AFTER THIS VIOLATOR. IT WAS FELT THAT THE PROVIDED MAGNETS WERE NOT DURABLE ENOUGH TO WITHSTAND ANY GREAT SPEED. WE HAD THE SAME CONCLUSION ABOUT THE SUCTION CUP ATTACHED, AND IN FACT, IN THE COLD WEATHER THEY WOULD NOT WORK AT ALL.

ON ALL OTHER OCCASION THE STROBE LIGHTS WERE ATTACHED TO THE OFFICERS EPAULETTES ON THEIR SHOULDERS. THE LIGHTS SIGNIFICANTLY INCREASED THE VISIBILITY OF THE OFFICER DIRECTING TRAFFIC, HOWEVER, IT WAS AGREED THAT THE LIGHT WOULD DO A BETTER JOB IF THERE WAS A WAY OF ATTACHING THE LIGHT TO THE FRONT OF THE UNIFORM. A SUGGESTION MIGHT BE TO HAVE SOME TYPE OF ATTACHMENT MADE UP SIMILAR TO A BELT PAGER CLIP, OR A VELCRO STRAP FOR AROUND THE ARMS.

ON SEVERAL NIGHTS THE WIND CHILL TEMPERATURE WAS APPROXIMATELY -20 TO -27. ON THESE PARTICULAR NIGHTS THE BATTERIES DID NOT LAST VERY LONG, TWO TO THREE HOURS AT THE MOST. A POSSIBLE SUGGESTION HERE MIGHT BE TO HAVE A CHARGING SYSTEM DEVELOPED TO ALLOWED THE BATTERIES TO RECHARGE WHILE THE OFFICERS ARE NOT SET UP FOR STATIONARY SPOT CHECKS.

THE PLASTIC COLOURED LENSES IN THE KIT, PROVIDED A GOOD VARIETY OF 'COLOUR, AND ARE FAIRLY EASY TO CHANGE, HOWEVER, FOR POLICE WORK ONLY WHITE AND RED ARE REALLY REQUIRED. THE CARRYING CASE DOES A GOOD JOB AT PROTECTING THE LIGHTS THEMSELVES.

RESPECTFULLY SUBMITTED

A handwritten signature in black ink, reading "Dale Smewing". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

DALE SMEWING



TECHNOLOGY PARTNER EVALUATION

Project Title: LIGHTMAN

Objective: TO EVALUATE THIS PRODUCT UNDER OPERATIONAL POLICE CONDITIONS ie TRAFFIC ACCIDENTS / CONTROL

To: S/SGT. ANDREW WILSON

Agency: PEEL REGIONAL POLICE

Phone: (905) 453-3311 Fax: (905) 453-4428

Evaluator's Name: DALE SMEWING # 1234 - 21 DIV.

Phone: 905-453-3311 x 2100 Fax: 905-792-0675

Date Sent: _____ Return To: _____ Return Date: _____
(Project Manager)

CONCLUSION: SUPPORT ? **yes** **no**

REASONS (See explanations following page)

1. Benefits: HIGH VISIBILITY FOR OFFICERS - COULD REPLACE FLARES?

2. New: w/k.

3. Aware: No

4. Purchase? YES NO

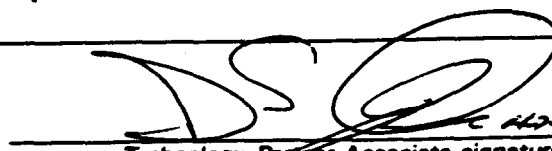
Cost? How much: _____ How many: _____

5. Canadian Company: No

6. Willing to Evaluate Product YES NO

7. Potential Market: CYCLING PUBLIC, RURAL PEDESTRIANS.

8. Comments: _____


Technology Partner Associate signature

GENERAL EVALUATION CRITERIA

EQUIPMENT ITEM	Excellent	Very good	Good	Fair	Poor	Not Applicable
1) Effectiveness of equipment (for intended purpose)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Ease of Use/ Manoeuvrability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Compatibility with other equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a	<input type="checkbox"/>	<input type="checkbox"/> WK
4) Appearance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Colour	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Weight / Size	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Comfort	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Durability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Accessories (list each piece)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Overall rated performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12) Test Conditions

EXTREME COLD & SNOW

13) Additional comments (including any precaution+ warnings/cautions)

*NEW ATTACHMENTS FOR LIGHTS REQUIRED - BELT CLIP TYPE
NEED*

SPECIFIC EVALUATION CRITERIA

SPECIFIC CRITERIA (may or may not apply depending on equipment item):

EQUIPMENT ITEM	Excellent	Very good	Good	Fair	Poor	Not Applicable
1) Rated protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Design structure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Energy absorption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4) Distribution of impact force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) Range of vkw (front/left/right)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Shock absorption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7) Range of movement (up/down, left/right) ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8) Effectiveness of seal: (i) with glasses (ii) with beard ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9) Breathing: (i) Normal (ii) Under stress ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10) Fogging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11) Sweating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12) Audibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13) Securing of item (strap/fastener/adjustment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) Vision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Fire retardancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16) Resistance to penetration (i) Sharp instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(ii) Blunt instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Resistance to shattering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SPECIFIC EVALUATION CRITERIA

SPECIFIC CRITERIA (may or may not apply depending on equipment item):

EQUIPMENT ITEM	Excellent	Very good	G ⁱ Good	Fair	Poor	Not Applicable
181 Tamper proof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	a	<input checked="" type="checkbox"/>
19) Quality/enhancement of acuity, illumination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	a	a	a	a

20) Other comments

SEE ATTACHED MEMO

Lightman™

xenon strobe

Highway Safety Strobe System

- Lightman's brilliant flash warns traffic up to 3 miles away.
- Easily mounts to reflective triangles for maximum protection.
- Wear it on your belt or clothing to help traffic know you're out there.



Contents: 3 Lightman Xenon Strobe8 with clear domes, 3 extra amber domes, 3 extra red domes, 3 sets of four mounting adapters (belt/visor clip, suction cup, magnet and eyelet), and custom-crafted storage case. For extra protection, also includes 3 palm of **Energizer** AA lithium batteries. These remarkable batteries have a ten-year storage life; operate at **extreme** temperatures (-40°F to +140°F) and have **longer flash** duration.

Energizer is a registered trademark of "Eveready Battery Company, Inc."

Lightman is proudly made by
Visibility Systems Company, Fairfield, CT 06490-0494

Member:
National Safety Council

For Any
Emergency



Highway visibility



Personal protection

"When you've GOT to be seen!"™

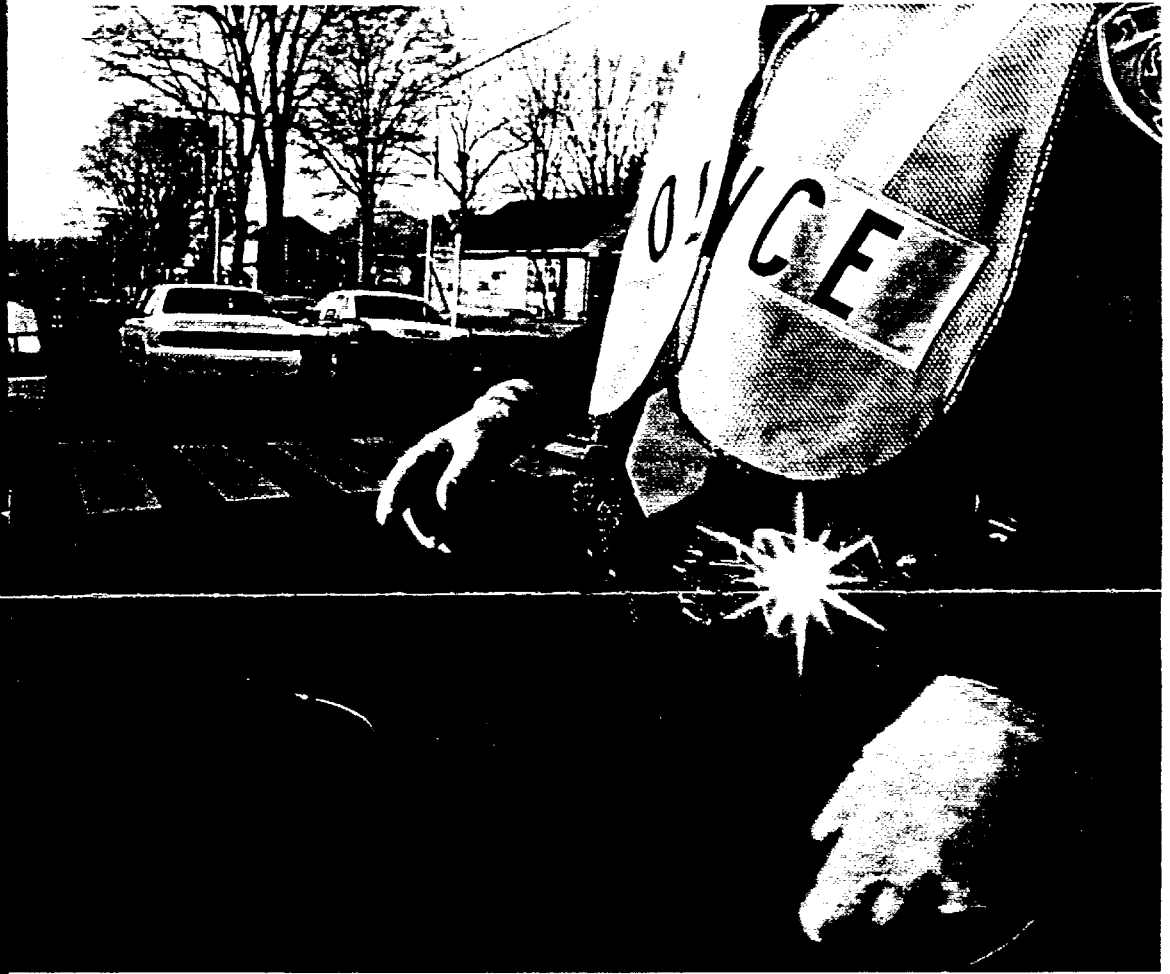
Patents issued
and pending.
All Rights Reserved.
©1995 Visibility Systems
Company.
Lightman™ and "When
you've GOT to be seen!"™
are trademarks of
Visibility Systems Company.
Designed in U.S.A.
Made in China.

Highway Safety Strobe System

xenon strobe



**"When
you've
GOT
to be
seen!"™**



*"I use **Lightman** when entering upon an accident scene. I just snap it on my belt. It's so bright, it really seems to get people's attention – **I even see** people moving clear out to the other lane."*

*Li. Colonel James Pearson
Nebraska State Highway Patrol*

- **INTENSELY BRIGHT**
Visible up to 3 miles.
- **EASY TO USE**
Push-button operation.
- **LIGHTWEIGHT**
*Just 3.5 oz.
w/batteries installed.*
- **SAFE**
Great alternative to flares
- **FIVE COLORS**
*Red, amber, blue,
green and clear*



Lightman

Lightman
xenon strobe

When you've got to be SEEN!™

Lightman Safety Strobe Kit



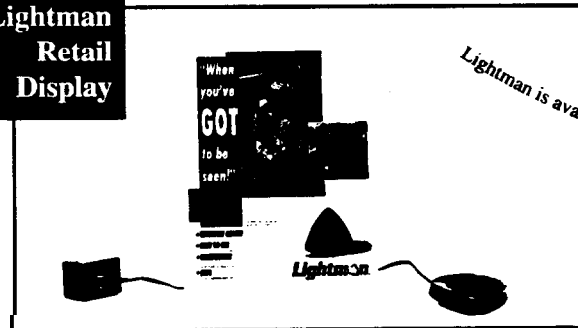
Includes: Lightman Xenon Strobe, 4 mounting adapters (belt/visor clip, suction cup, magnet and eyelet) and drawstring storage pouch.

Lightman Highway Safety Strobe System



Includes: 3 Lightman Xenon Strobes (clear), 3 extra amber domes, 3 extra red domes, 3 sets of four mounting adapters (belt/visor clip, suction cup, magnet and eyelet), 3 pairs of Energizer AA lithium batteries and custom-crafted storage case.

Lightman Retail Display



In store: Self-demo display available to authorized dealers and distributors. (Acrylic POP display with AC adapter power unit.)

Distributed by:

Patents: issued and pending.

Warranty: Visibility Systems warrants the product of the original purchaser free from defects of material and workmanship under normal use and service for two years from the original date of purchase.

© VSC 1995

Product Description

- True Xenon Flash Tube
- Portable/Battery-operated
- Compact & Lightweight
- Impact & Weather Resistant
- Safer Than Flares
- Multi-purpose

Brilliant strobe can be seen up to 3 miles away. Flashes 83x per minute. Rated at 800,000 candlepower.

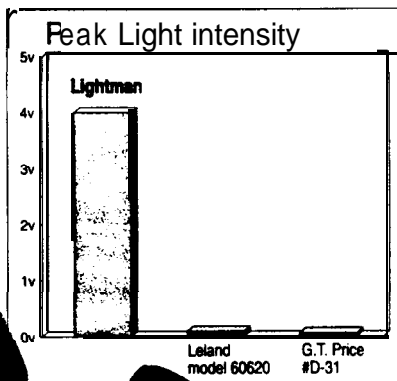
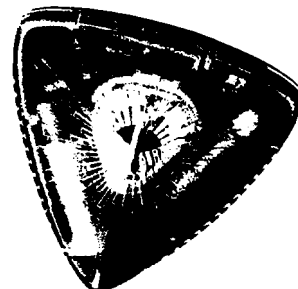
Operates for 3-7 hours on 2AA batteries — easy to replace.

3 1/2" each triangular side. Weighs just 3 1/2 oz. with batteries installed.

Rugged construction. Reliable in extreme weather conditions. Operates from -40°F to +140°F with lithium batteries.

No danger of fire or spark to bum clothing or ignite fuel.

Easily attaches to belts, clothing, vehicles, traffic cones, reflective triangles, bicycles, backpacks, guard-rails and more.



Lightman is 600% to over 1,000% brighter than all oth, portable strobes - even brighter than ones long used by the U.S. military.

"Lightman is unquestionably the most visible portable stroboscopic safety device available."

Independent Environmental Electronics Laboratory

Lightman is available in red, amber, blue, green and clear. Domes are interchangeable.

Lightman is the ideal safety device for many applications.

- Motorist Safety
- Police
- Fire and EMS
- Truck Drivers
- Towing
- Bicycling
- Walking
- Jogging
- Camping
- Boating
- Home Locator

In use by police officers and state troopers nationwide.

Lightman is proudly made by Visibility Systems Company
P. O. Box 494
Southport, CT 06490-0494
(203) 254-2222 Fax (203) 259-6646



Member:

National Safety Council

Designer: Ray Norodom / Photographer David McLain

LIGHTMAN™

High Intensity Electronic Strobe

GUIDE TO PRODUCT USE



With alkaline batteries, the operating range is approximately 0° to 120°F (-17° to +49°C).

"WHAT'S INNOVATIVE ABOUT LIGHTMAN?"

Brightness, size, weight, and design. Not too long ago, capacitors were refrigerator-sized! (Capacitors build up an electrical charge and release it all at once to create the flash.) With miniaturization and efficient circuit designs, Lightman achieves an intensely bright signal. The low profile provides stability against wind and gusts from passing cars. The broad dome maximizes visibility. Its shape even makes it easier to find in the dark.

LIGHTMAN USES

- For Motorists (instead of flares)
- Police and Fire personnel, EMS, Railroad and Highway Crews
- Identify your house to emergency personnel (or to visitors)
- For Joggers, Cyclists, Rollerskaters, Boaters etc.
- Signal to friends in crowded stadiums or parking lots
- Pinpoint lost hikers or skiers
- Search and Rescue Teams
- Truckers



(please write us about how you've used Lightman)

"WHEN YOU'VE GOT TO BE SEEN!"

Thank you for selecting Lightman. We take pride in our products, which are the result of a team effort. This Guide offers you an overview of the problems we saw, the solutions we created, and some important tips on using Lightman.

EMERGENCY VISIBILITY DEVICE

It happens like this. You're driving along at night when !#@*#!-- something goes wrong. A flat tire. Or an electrical failure. You pull over, your mind racing - Will I get hit?"

One out of four U.S. drivers suffers an on-the-road breakdown every year. Flat tires and accidents are the most common causes. Visibility can quickly become a life-and-death issue, especially when you're stranded with a disabled vehicle at night.

'Common flashlights help you see. But when you've got to be SEEN, you need Lightman.'

Lightman is a new high-intensity electronic strobe which can extend your margin of safety by warning others and alerting police and emergency personnel that you need help.

'It's getting dark You're in the blustery winter of ski country when !#@*#! -you suddenly need to alert others of your predicament. Will Lightman work in the freezing cold?"

If you use **lithium** AA batteries, your Lightman will operate in temperatures as low as -30°F (-34°C) and as high as F+130 (54°C)

A **WARNINGS AND IMPORTANT SAFETY INFORMATION**

You won't have Lightman protection if the batteries aren't working. Get your batteries now. Test your unit at least 4 times a year. Always replace batteries if the flash rate becomes erratic, declines, or when the flash dims. Carry an extra set of batteries.

Use your Lightman with care **in any** potentially dangerous **situation**. Remember that how far Lightman is visible depends on conditions. Be alert; use common sense. Do not allow unsupervised use by children.

Most highway **safely** experts recommend using at least three warning devices in emergencies. If you have only one Lightman, consider obtaining two more for greater protection.

Your Lightman is weather-resistant, but take care not to submerge it. If this unit is submerged, it could fail, leaving you with no flash protection in an emergency.

High voltage inside the light mechanism can lead to electric shock and potential injury. Do not try to dismantle it. There are no user-serviceable parts in the light mechanism.

Photosensitive Epileptics: this product, like any flashing light, can induce seizures. **Consult your physician concerning its use.**

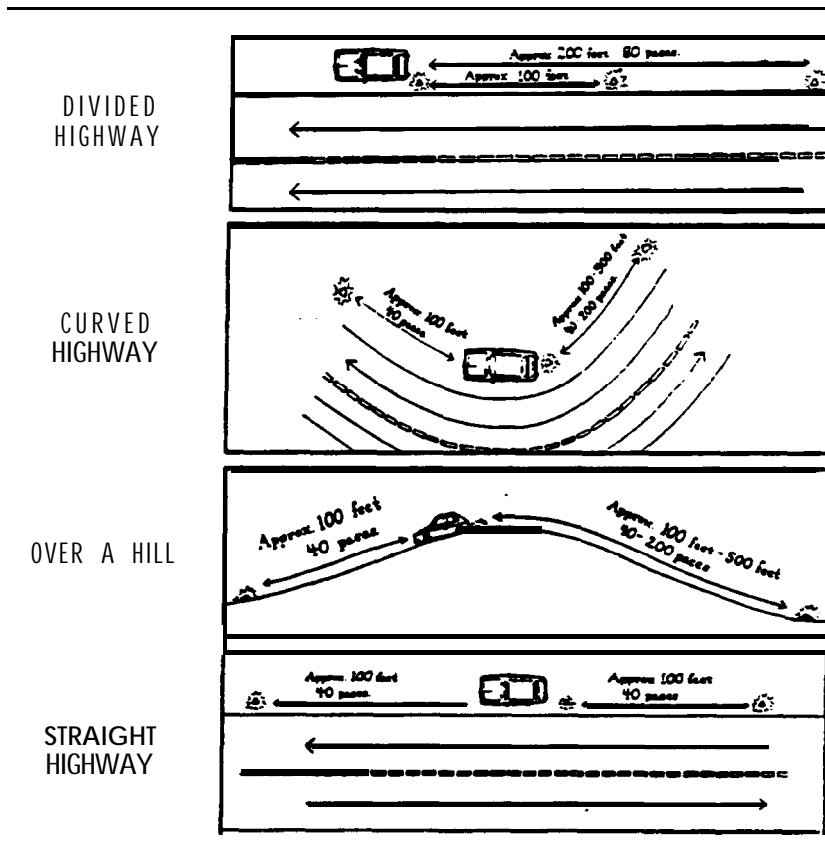
NOTE: Do not use your Lightman in a moving vehicle. State and federal laws generally prohibit the use of flashing lights in non-emergency vehicles.

INSTRUCTIONS FOR ROAD USE

1. Don't panic. Stay alert. Use common sense. Signal and pull over as far as possible away from traffic. No visibility device will provide as much protection as positioning your vehicle and yourself out of harm's way.
2. Set parking brake fully. If you have an automatic transmission, place it in Park. Shut off motor and turn on the vehicle's hazard lights. Raise the hood.
3. If you have to stop close to a traffic lane, on a curve, over a hill or in any risky location, get all occupants out of the vehicle and away from traffic.
4. We recommend placing Lightman units at the locations illustrated. Adapt our recommendations to the conditions around you.

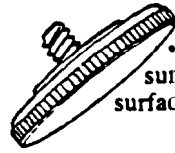
If you have only one Lightman, place it approximately 10-20 feet (4 to 8 paces) behind the car, or if circumstances warrant, attach it to the left side view mirror or rear window with the suction cup. If you have two, place one approximately 10-20 feet (4 to 8 paces) behind the car, use common sense and the illustrations to decide where to place the other- usually at least 200 feet from the vehicle.

Most highway safety experts recommend using at least three warning devices in emergencies. Lightman is more effective when a series of units are flashing to warn traffic. The key is giving others as much time to react as possible. You want to guide traffic away from you. If you also want to signal for help, you can place a Lightman on the left side view mirror or rear window using the suction cup. Raise the hood or tie a white handkerchief to the antenna or left door handle.



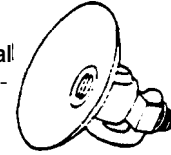
ATTACHMENTS

Lightman can simply be placed flat on the ground to warn oncoming traffic. We have included three attachments to expand its uses- a magnet, a suction cup, and a screw with an eyelet. All can be screwed into the 1/4" hole at the base.



• The **MAGNET** will secure Lightman to most metallic surfaces. Use the magnet carefully, especially on painted surfaces. to avoid scratching the finish.

• For non-metallic surfaces. use the **SUCTION CUP** which is **ideal** for affixing your Lightman to your side view mirror, house windows or any smooth surface. The suction cup's design permits you to angle Lightman towards traffic.



• Insert a Velcro arm strap, handkerchief, safety pin, or belt (or a string, if all else fails) through the **EYELET**. Tie it on a reflective safety vest, backpack, etc.

The threaded hole at the base of Lightman is a standard tripod mount. When time and conditions permit. Use a tripod to elevate Lightman and maximize its visibility (e.g. to warn others of a downed utility line).

You can also secure Lightman to bicycles for example-with any standard 1/4" screw. Be sure, however. not to screw in too far or you'll break through the base and destroy the electronics! Use Lightman in conjunction with bicycle reflectors. not as a substitute.

ADVICE ON BATTERIES

Lightman is designed to operate with any AA batteries. To maximize Lightman's capabilities, we recommend the new Energizer Lithium AA batteries. Visibility Systems is not affiliated with Eveready Battery Co., but we do like (and sell) their new Lithium battery. (See our order form.)

- Lithium batteries have double the shelf-life of Alkalines, up to ten years. That's great if your Lightman waits for years for that unexpected emergency
- With Lithiums, your Lightman will flash about 33% longer.
- Lithiums maintain their capacity in very hot and very cold temperatures, when other batteries (and cars) are more likely to fail.
- Lithium batteries are environmentally friendlier.

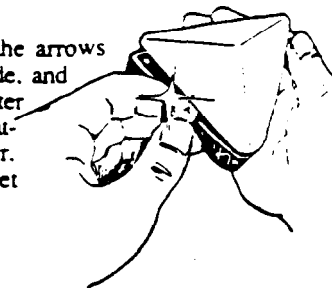
Some customers ask what determines Lightman's battery life; the answer is brightness and flash rate. We designed Lightman to maintain **sufficient time for most emergencies: fresh Alkaline batteries last about 3 hours in continuous use and Lithium batteries last about 4 hours. Please give us your thoughts.**

BATTERY TESTING

Dirt, humidity or oil from your hands can allow minute amounts of current to leak from any battery. We recommend you test your unit at least 4 times a year. Always replace batteries when the flash rate becomes erratic, declines or when the flash dims. It is best to remove batteries when storing. (Press firmly on the on/off button to test).

TO INSERT BATTERIES

Wedge a small coin, such as a dime, where the arrows point, in the indentations halfway along any side, and gently twist. The top and base will separate. After installing two AA batteries as indicated in the battery holders, simply snap the two parts together. (If a coin is not handy, use the tip of the eyelet attachment.)



PATENTS & TRADEMARKS

Lightman utility and design patents are pending in the U.S. and worldwide. Visibility Systems Company considers its patent rights to be valuable and proprietary and will vigorously pursue any and all infringements. The name, Lightman and our slogan "When you've GOT to be seen!" are exclusive trademarks of Visibility Systems Company.



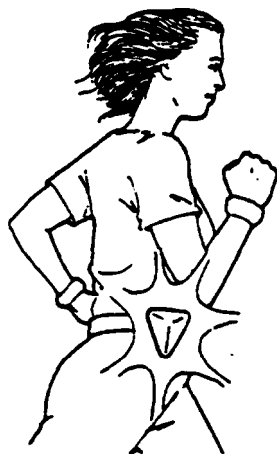
THE LIGHTMAN TEAM

The team that put together Lightman includes a diverse group of men and women with a broad spectrum of skills. What we have in common is our dedication to filling a real and unmet public need for increased nighttime safety. We emphasize listening to each other, to our suppliers and to you, our customers. Our interest is in situations where BEING SEEN is important. Our products are designed to be high-quality, durable, user-friendly, pleasing to have and to hold, and affordable.

Please communicate with us. We carefully read our mail and we take the time to talk with our customers. We value your criticisms and ideas. Please fill in the survey along with your Owner Registration form. If we publish an idea or anecdote about your use of Lightman, we will send you 3 Lightman units free.

If you have comments, or need an order form please call or write us.

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