Laser World
March 2010

Laser 4.7
Success Breeds Success

2012 Olympics
Increased number of places

Submit Your Vote Now!
2010 Rule Changes

Norway & Hungary Join Europa Cup
Change to 2010 Series

Sail Melbourne & Rolex Miami OCR
ISAF World Cup 2010

COPYRIGHT AND LIABILITY No part of this publication may be reproduced without prior permission of the publishers. The articles and opinions in LaserWorld may not represent the official views of ILCA. The publishers do not accept any liability for their accuracy.
Day one of racing at the 2009 Sail Melbourne regatta was complete with a strong breeze and big waves providing perfect racing conditions for the opening round of the 2009-2010 ISAF Sailing World Cup.

However, what a difference a day makes. After the strong breeze and heavy seas of day one, day two was a completely different picture with light winds and very little swell dictating play.

“It was great out there for me,” said Clayton Johnson (USA). “The left was certainly favoured but the committee kept skewering the beats so it was tricky to weigh up the risks and rewards and make a decision.”

Shifting winds dominated the afternoon racing on day three with the conditions keeping sailors on their toes and forcing them to work hard for every position gained.

“These shifty and puffy conditions are a bit of fun as long as you stay calm and don’t get frustrated by what the wind is doing. At one stage it was blowing about 20 knots in the first race and then died down to about five so transitioning well was really important,” said Johnson.

Pretty much wherever I went the wind didn’t!” said Paige Railey (USA). “In the first race I managed to start at the wrong end but fought back well to win, at one stage there were less boats behind me than in front. Then in the second I managed to bang the wrong corner each time and slipped back a bit.”

Day four of racing had a stop-start feel with the weather having a major influence on proceedings.

The morning fleets headed out in a 20 knot breeze making for some tricky sailing conditions. As the morning wore on a storm front moved across the bay, initially dropping the breeze before the boats were sent to shore and racing postponed. After an hour break, the afternoon fleets hit the course to try and get some racing in amongst the shifting breeze and driving rain.

The 49er and 29er fleets were the only ones to complete any racing, both getting a race in before the conditions worsened and all the fleets were sent back to shore. The Laser Standard & Laser Radial Women’s fleets were unable to complete a race on day four.

Clear blue skies greeted the sailors on day five of Sail Melbourne but unfortunately the heavy winds of Thursday afternoon were nowhere to be seen.

“There was a bit of chop, the wind started off somewhere around 12 knots but fell away pretty quickly once we were racing, it was all about banging the left” said Marit Bouwmeester (NED).

After the unpredictable weather during the previous few days, Melbourne turned it on for the Medal Races with a south-easterly wind between 12 and 15 knots for the majority of the day, providing the perfect stage for the conclusion of the first event in the 2009-2010 ISAF Sailing World Cup season.

“I couldn’t have asked for a better Medal Race,” said Michael Leigh (CAN). “I kind of figured that Clayton and I would have a little bit of a pre-start match race, we were playing cat and mouse out there. But once we got underway he went left and I went right and I just had him at the top mark.”

“It was a crazy race,” said Bouwmeester. “I got hit by a big wave off the start and the cockpit was full of water and I found myself a long way behind the rest of the fleet at the top mark. But on the downwind everybody else seemed to slow and I went left while they were on the right and managed to pick up a lot of positions.”

At the end of the regatta, the overall results were:

**Laser Standard:** 1st Michael Leigh (CAN), 2nd Clayton Johnson (USA), 3rd Matias Del Solar (CHI)

**Laser Radial Women:** 1st Paige Railey (USA), 2nd Marit Bouwmeester (NED), 3rd Franziska Goltz (GER)

**Laser Radial Men:** 1st Seng Leong Koh (SIN), 2nd Josh Porebski (NZL), 3rd Christopher Jones (NZL)

**Laser 4.7 Youth:** 1st Ella Evans (AUS), 2nd Josh Franklin (AUS), 3rd Stephen Collings (AUS)

Full daily reports, results and more images can be found at www.sailing.org.
Railey & Thompson Dominate Miami
Fierce Competition at Rolex Miami OCR, Second ISAF World Cup Event

If you can make it here, you can make it anywhere. That’s what 630 of the world’s best sailors were counting on as they prepared for the opening day of US SAILING’s 2010 Rolex Miami OCR. For six days, Miami’s Biscayne Bay was populated with the spectacle of 440 boats representing 45 nations and competing in the 13 classes selected for the 2012 Olympic/Paralympic Games in Great Britain.

The largest class at the event was Laser with 104 boats and the competition was predicted to be fierce even before the event started. All but two classes were told to stand by on land on the morning of day one. Although it seemed to be shaping up as a beautiful day, nasty thunderstorms activity was on its way and due to bombard the Bay.

Due to a shifty breeze and several course changes, the Radials were finally able to start their one race late afternoon in medium to light puffy air. Paige Railey (USA) held a strong lead throughout the race to finish first, followed by Alberte Holm Lindberg (DEN) and Alison Young (GBR).

The Laser Standards, which were split into two fleets, were also at the mercy of shifting breeze. The Race Committee scrambled to adjust the course and quickly started the race before sunset. During the first sequence, the first wave of the front appeared and the temperature dropped 10 degrees, while the wind shifted from the South to the West.

At the beginning of the race, the wind was blowing in the teens but dropped to 3-5 knots by the end. Luke Ramsay (CAN) and Chris Dold (CAN) finished first and second in the blue fleet, while Nick Thompson (GBR) and Jean-Baptiste Bernaz (FRA) led the yellow fleet.

As for those who didn’t sail, most adopted the attitude that Brad Funk (USA) had while he was waiting on shore. “It is what it is,” he said. “There’s plenty of good racing left to be had here.”

Day two counted as a perfect day, especially after the previous day’s weather interruptions. No one minded the attitude that Brad Funk (USA) had while he was waiting on shore. “It is what it is,” he said. “There’s plenty of good racing left to be had here.”

Day three was a picturesque light-air day, but many sailors worked the conditions to their advantage. Both the Laser Radial and Laser Standard fleets completed three races, with Railey leading the Laser Radial fleet and Thompson leading the Laser Standards at the end of the day.

Day three was a picture-like light-air day, but many sailors worked the conditions to their advantage. Both the Laser Radial and Laser Standard fleets managed to sail three races again. Railey maintained a clear lead and, with only 9 points, was top of the leaderboard again at the end of the day. Young was in second on 23 and Cecilia Carranza Saroli (ARG) a close third on 25.

Thompson was pushed into second by Fontes, who topped the leaderboard with 15, while Andreas Geritzer (AUT) ended the day in third place.

Day four was a critical day for sailors and, highlighted by both lead changes and consolidations, it raised the heat for the final stretch.

Railey finished the day with an 18-point lead overall in the Laser Radial, followed by Alicia Cebrian (SUI). While it seemed to be the steadiest day of the week, it ended up being another day of difficult racing for the 57-boat fleet. Railey said she fought through both races, from start to finish, and made quick changes due to continually shifting wind.

“We had crazy wind from all different sides,” said Railey. “I saw some big comebacks and huge shifting wind.”

In the first race, Railey played it conservatively but got stuck in the middle of two big shifts. She rounded deep, but then made a comeback on the first reach and grabbed the lead. She was easy to get disheartened, but I kept fighting the whole time. Patience was key.

In the Laser Standard fleet, Thompson soared past Fontes to take a 26-point lead. Such was Thompson’s fortune on the merit of posting two victories in as many races, while Fontes suffered a 20-44, settling him into the second place and tied on points with third-place finisher Bernaz.

“It was a tough day, real shifty, like yesterday,” said Thompson, “and you had to get in sync with those shifts. When you’re in sync and you know you’re sailing well, sometimes it’s easy to go off your own way and sometimes you’re able to pull well away to extend your lead. But once I got ahead I just decided to be conservative and consolidate, so my leads were not huge. There are three more races, so this certainly isn’t over.”

It was “one race, one chance” on the final day at Biscayne Bay, as only the top-ten finishers earned the right to sail in the day’s single medal race for each class.

Thanks to a substantial 35-point lead in the Laser Radial, Railey wrapped up the gold medal a day early. However, she still managed to add another bullet to her collection in the medal race. Following in second was Cebrian who sailed a consistently strong event, with Young taking bronze.

Railey’s strengths throughout the week were her boat speed, being able to see the pressures and realizing the phase of the shift a few seconds ahead of her competition. By the end of the regatta, she had found her groove and won several races comfortably. Coach Luther Carpenter said she managed risk very well in very difficult conditions.

“I’m so pleased about winning the gold,” said Railey. “I wasn’t thinking about the results. I was out there taking one race at a time and pushing myself to use new techniques I’ve incorporated into my sailing. I’ve been learning when to take risks and when to stay conservative.”

In addition to her gold medal, Railey was chosen to receive US SAILING’s Golden Torch Award, given to the American sailor deemed to have the best overall performance among all classes. Anna Tunnicliffe was the last athlete to win the award in 2006, so she presented Railey with the trophy. In the Laser Standard, Thompson took his well-deserved gold, with silver going to Bernaz and Kyle Rogachencko (USA) taking bronze.

Full daily reports, results and more images can be found at www.sailing.org.

www.laserinternational.org
The face of Laser sailing is changing. Over the last 30 years, the Laser has become an Olympic class and the development of the Radial and 4.7 rigs have encouraged more and more young people to become Laser sailors. Now, with up to 55 countries and hundreds of sailors competing all year every year, it can easily be seen why winning in the Laser 4.7 is so challenging.

So, what makes the Laser 4.7 so special? We spoke to two countries with very active youth sailing programmes to find out why Laser 4.7 sailing is so successful.

“People sailing Lasers are not just sailors, but athletes who love a challenge, and it’s the sense of competition that attracts so many Optimist and other young sailors, to become athletes in the Laser 4.7,” says Macrino Macri, Executive Secretary of the Italian Laser Association.

The Laser success in Italy has been amazing and the number of young people sailing the rig has increased by almost 50%, reaching 350 sailors in the last 5 years. What does Macrino credit the growth to?

“The Laser 4.7 has done a lot to bring in new sailors and our scoring system has also helped. When you are competing in the Italian Laser Class, you collect points from your first ranked race onwards. Once you have collected 600 points, you can enter in national races. It is only when you have collected 1000 points that you can compete in the national championships and international regattas.

“This means that you are not only competing with other sailors on the water during a race, but also with all other Laser sailors in the ranking ladder – against the sailors directly above and below you”, explains Macrino. “This sense of competition satisfies the sailors’ competitive needs.”

“We see exactly the same”, says Bernd Buchert, Chairman of the German Laser Class. “Our sailors qualify through an active ranking ladder system which is updated after every regatta. The ranking list is updated on our home page every Sunday evening, so each sailor can see where they are ranked on a week-by-week basis. The importance of the ranking list can be seen from the increasing traffic to our website – up to 9,000 visitors in one month...and counting!”

So, what else has been happening with the Laser 4.7 in Germany recently?

“Over the last few years we have had between 140 and 190 new members each year, of which approximately 120 were young sailors”, says Bernd. “It is clear that the Laser 4.7 is the best way to get into competitive sailing, with the added bonus of having a chance of Olympic success later. We seeing sailors as young as 13 move from the Optimist to the Laser 4.7, with increasing success.

“In early 2009,” he continues, “we started the Germany Cup for Laser 4.7 and Laser Radial. For 2010, we will only concentrate on Laser 4.7 because the number of Laser 4.7 sailors is continuously growing. In the first year of the Germany Cup we had 62 Laser 4.7 sailors in our ranking list. The biggest surprise, however, was how many girls we had – and this number continues to grow.”

Doing well at the Olympics is a clear goal for many young sailors.

“To become a potential champion takes at least 8 years work”, says Macrino. “It is not only racing that creates champions – sailors need to have clear objectives in their minds and the top of the Laser class doesn’t give room for sudden newcomers.”

“Our top ranking ladder is populated by boys and girls who have come from the Laser 4.7. Of course, we are working to encourage...”
young athletes to achieve the biggest sporting dream a person can get. All of these athletes are coming from the Laser 4.7 rig.

“Our idea is to think of a youth sailor as a blank canvas on which we embroider improvement each year”, summarises Macrino. “The difficulty is to try to understand where the future lies.”

The success of the Laser relies on not only continuing to attract young sailors to the Class, but also encouraging them to continue sailing Lasers. This is no easy task, but there are many ways of providing incentives to sail.

“We offer all kinds of additional services to our members every year”, says Macrino.

“There are thousands of high quality pictures and videos on our website and we have a presence on Sky TV. We also produce a calendar with the best action pictures for every keen Laser sailor’s bedroom wall. In the past, we have offered additional special gifts to our members. In 2009, thanks to a co-operation with the Royal Yachting Association, we gave all our members Paul Goodison’s ‘Laser Handbook’.”

“As well as competition, we consider Laser sailing a social service”, says Bernd. “Young sailors and Master sailors come closer together in the Laser class than in any other class. Physical fitness and health play an increasingly large role in our society – that is what Laser sailing can stand for.

“We are currently in a period of growth. In order to retain our membership and continue to increase the numbers, we offer sailors incentives. These incentives are not only related to sailing, but also to their life in general areas such as education, career and general well-being.

“We are planning to combine Laser sailing with a triathlon this year, which we think is an excellent change for our yachtsmen,” Bernd explains. “We have had a lot of interest in this programme, particularly from our experienced international sailors like Tobias Schadewaldt and Philipp Buhl. We have contacted the German Triathlon Union who will be sending triathlon athletes to our triathlon event, which will be followed by a Laser sailing race.”

So, the future is looking very bright for Laser sailing and the number of opportunities for young Laser sailors is growing.

“The best advice I could give to countries who would like to encourage more young sailors”, says Macrino, “is to realize that sailing is not a game for kids - they want to sail seriously from the beginning.

“Competitiveness and happiness have to be well connected by the clear, firm rules provided by ILCA. Following the ILCA age scheme for all rigs is a recipe for success.”
ILCA's Technical and Measurement Committee TMC regularly review the class rules following inspection at regattas and suggestions from class measurers and national class association officers. Following the latest review the TMC recommended to the World Council seven changes to the class rules. The Council supported the recommendations and these are now published so that the class members can vote on whether they want to include the proposed changes in the class rules. The Council consider that all the changes are minor and do not affect the one design nature of the Laser. The changes are listed below together with the reasons for the change. These are also published at www.laserinternational.org together with an online form for electronic voting. Postal votes may also be sent using the form below.

All votes are checked with national records to confirm class membership.

Our class rules require that the voting process has to remain open for 6 months. The changes also have to be approved by ISAF. During this process some minor rewording can occur without changing the principle.

Proposed changes are underlined.

### 1 Outhaul shockcord. Current Rule 3(f) vi.

A shock cord may be attached between the outhaul cleat and clew of the sail, the clew tie down, the optional block at the clew, or the quick release system for use as an inhaul.

**Proposed Change:**

A shock cord, for use as an inhaul, may be attached between the outhaul cleat and clew of the sail, the clew tie down, the optional block at the clew, or through the clew of the sail and to an optional block in the primary control line, for use as an inhaul.

**Reason for change:**

It increases tension on the shock cord as the foot of the sail is flattened making it easier to release the outhaul. It also stops the primary control line hanging below the line of the boom.

### 2 Electronic Equipment. Current Rule: No specific rule.

**Proposed Change:**

Add new rule 27 and renumber subsequent rules.

**The following electronic equipment is permitted worn or fixed to deck or spar:**

- A digital wrist watch or timing device
- A digital wrist watch including a compass
- All other electronic equipment worn or fixed to the boat or its equipment is prohibited unless specifically allowed in the sailing instructions. This includes electronic compasses, cameras, tracking devices, electronic wind indicators and laser beam based tracking "guns" and corresponding software.

**Reason for change:**

To clarify that timing devices are allowed and where they can be carried or fixed but that timing devices including other functions are not allowed. The exception to allow a compass in a wrist watch is because this is now a common feature that does not give a tactical advantage.

### 3 Clips and Storage Bags. Current Rule 21:

Clips, ties or bags to stow or secure safety or other equipment may be used on the deck, in the cockpit, or around the mast.

**Proposed Change:**

Clips, ties or bags to stow or secure safety or other equipment may be used on the deck, in the cockpit, around the mast or boom.

**Reason for change:**

The boom can be a more convenient place to stow or secure some equipment or bags.

### 4 Cunninghan Control Line. Current Rule 3 (e) ii.

The cunningham control line shall be securely attached to any of the mast, gooseneck, mast tang, swivel or shackle that may be used to attach the vang cleat block to the mast tang, or the cunningham attachment point on the “Builder Supplied” vang cleating fitting.

**Proposed Change:**

The cunningham control line shall be securely attached to any of the mast, gooseneck, mast tang, swivel or shackle that may be used to attach the vang cleat block to the mast tang, or the cunningham attachment point on the “Builder Supplied” vang cleating fitting or the becket of an optional becket block fixed on the cunningham attachment point on the “Builder-supplied” vang.

**Reason for change:**

Attaching a line to the becket on an attached block is a more regular way of making an attachment.

### 5 Clew Tie Down. Current Rule 3 (g) i.

The clew of the sail shall be attached to the boom by either a tie line or a webbing strap with or without a fastening device wrapped around the boom and through the sail cringle, a quick release system attached to a stainless steel soft strap wrapped around the boom, or a “Builder Supplied” stainless steel boom slide with a quick release system.

**Proposed Change:**

Add: an additional outhaul extension tie line may be added between between the clew of the sail and the outhaul or the quick release system.

**Reason for change:**

An outhaul system for the Standard or Radial Sail can be used for the shorter foot 4.7 sail with the simple addition of an extension line.

Proposed Change:
Add new rule 28 and re-number subsequent rules.

The sail may be reefed by rolling the sail around the mast 1 or 2 times.

Reason for change:
The principle of reefing exists in many small boat classes and has been used in the Laser class. For safety reasons the rules should be clear that the possibility of reefing is permitted.


The use of flexible adhesive tape or similar is permitted to secure shackle pins and clips, and to bind sheets, line and rigging, except that tape shall not be used to construct new fittings or modify the function of existing fittings.

Proposed Change:

Tape and Line
The use of flexible adhesive tape or similar or line is permitted to secure shackle pins and clips, and to bind sheets, control lines and rigging, except that tape or line shall not be used to construct new fittings or modify the function of existing fittings.

Reason for change:
Will help to prevent accidental loss of parts.

Captain’s Log
More Olympic Places for Laser & Laser Radial

ISAF have recently announced increases in the number of country places in several events for the 2012 Olympic Games. This is good news for the one person men and women events sailed in the Laser and Laser Radial as they both have more places than in 2008. The one person men event has been increased to 47 countries plus the host and the one person women to 38 countries plus the host.

This is great news for Laser and Laser Radial sailors but it will still be hard for countries to qualify because of the large number of countries that have good sailors wanting to go to the Olympics. If we look at the current ISAF Ranking List, 70 countries have men scoring in the list and 56 countries have women in the list. However, the ISAF Ranking List does not score all the sailors at each ranking event, so there are some countries that are active but just do not get to score points at the big events. At the ILCA office we have identified a further 16 countries that could qualify if they take part in the qualification events.

Sailors first have to qualify their countries at the 2011 ISAF World Championships to be held in December in Perth, Australia when 36 men and 29 women country places will be allocated in the Laser and Laser Radial Championships. The remaining 11 men’s and 9 women’s places will be allocated at the class world championships, which are being held before 1 June 2012 in Europe.

The number of places and the allocation process is available on the ISAF web site: www.sailing.org.

As noted on page 59 of the minutes of the last ISAF Council Meeting November 2009, the allocations and the qualification is still subject to the approval of the International Olympic Committee. That approval is expected in April.

More details on the Olympic Qualification will be available on the ILCA website from April 2010.

50 plus YouTube videos

If you want to see what the Olympic sailors do, we have selected over 50 different YouTube videos from all around the world, some of which show the top sailors close up on the water.

These are available under the Galleries tab on the ILCA website: www.laserinternational.org.

There are also other general interest videos for and some specific training videos that will be interesting and useful for all Laser, Laser Radial and Laser 4.7 sailors.

Blow your mind away with heavy wind, big wave sailing (viewed 136,000 times), top sailor Roope Sirola in San Francisco showing all aspects of Laser sailing (111,000 views) and, my favourite, Slalom Laser 70’s showing footage from slalom racing off San Francisco in 30 knot winds (viewed 63,000 times). Check out the wooden folks, 4 to 1 boom vangs and reefed sails rolled round the mast!

If you see any good videos that we have missed please email ILCA at: office@laserinternational.org. Alternatively, if you have some good video that you can put on YouTube please do so for others to enjoy.

Jeff Martin
Charter a Boat & Get a Ticket to Fly!

Laser Master sailor Ian Rawet shares his experiences in the art of travelling light

Great news – I have an entry and a charter boat at the Worlds, I have booked the flights and a hotel but, hang on, what do the boat charter rules say - “take your own bits and pieces”. What does that mean and how do I get everything into a bag?

When chartering a boat through ILCA, the Charter Terms & Conditions will tell you what the boat is supplied with and what you will need to take with you.

For all 2010 Laser World Championships, charter boats will be supplied with hull with self-trailer and spars, centreboard, rudder, mainsheet side cleats, control line deck block fitting with blocks and control line, leeboard cleat fitting with cleats. They will also come with XD padded toe straps, which are 870 mm long.

Competitors must provide:
- ropes
- boom vang
- mainsheet block
- traveller blocks
- sail
- battens
- tiller
- tiller extension

So, how do you get all of this into your luggage? Even today I still get my scales out and dig out the well-worn list of components that I need.

The baggage allowance could be a problem due to all the security and luggage changes that all the airlines are now applying. They appear to change every time we travel.

The baggage allowance can also change per flight as the limit varies according to aircraft and loading. If the baggage weight limit for an international flight is 32Kg and the connecting internal flight limit is 20Kg, aim to travel with baggage weighing the lower limit of 20Kg.

In some cases, it is possible for the allowance to be different to that shown on your ticket. Therefore make a mental note to check direct with the airlines a few days before departure for the latest information. Travel agents are not always accurate enough for this level of detail.

Be polite to the check in staff. If the aircraft is not full they may be flexible on weight (within reason) and excess baggage charges are not always applied. Ask about the overweight charge as it will vary dramatically between carriers.

Remember there is the same issue coming back. At big airports for the return flight there are often shoppers who will handle excess baggage at competitive rates if the prizes and presents push you over the weight limits.

On all of my previous trips I have travelled with my wife. We use just one main bag each and we each take the largest cabin bag allowed. We have always managed to get all of our clothes and my sailing gear and equipment in both of the bags and hit the 20Kg limit for each bag.

If your bag is overweight you can reduce day clothes and either buy T-shirts etc at the venue or have your clothes laundered. You can also cut down on toiletries. Shaving gear, sun screen and other similar products can be heavy to travel with. However, they are easy to find at the venue and can be discarded before your return journey to keep the weight down.

Check the weight of your empty luggage bags. I bought the largest lightweight bags that I could find with trolley wheels. Although light in weight they have to be robust enough to cope with rough handling. They should also be water resistant as they could be left on the tarmac in a rainstorm.

Antler produces bags with lockable compartments and the separate combination locks avoid the problems of lost keys. It is wise to get a bag with a Customs Access facility to allow the security teams to open and inspect the bags without damage (these are especially recommended for the USA).

Long gone are the days when we could take a tiller and tiller extension on aircraft as hand luggage. In recent years they have travelled as “long luggage” (there is normally a separate checking point but that will depend upon terminal and carrier) and sent separately in the hold.

If you are unsure about your insurance policy, please contact your insurance company to check that you are covered, before attending the event.

Insurance
You must be insured to race internationally, so please ensure you have the correct insurance cover before you arrive at the event.

Your insurance must meet the requirements stated in the Notice of Race. As a guide, it is normal for all competitors to be insured with valid third party liability insurance, with a minimum cover of £2,000,000 GBP per event or equivalent thereof in any other currency.

You are also recommended to have personal accident and health insurance that covers you while attending the regatta and whilst racing.

When chartering a boat, please note the following points.

The charter boat is released into your custody. You are responsible for all damage that ensues and any costs required for repairs.

You will be provided with a plan of the boat on paper. You should ensure that the charter boat team has identified every mark, scratch or any other flaw on the hull (check inside the centre plate casing), spars and foils.

Be thorough. Any failure to identify damage before you take on the responsibility of the boat may result in you having to pay for the damage when you return the boat. Damage from trolleys or from the beach is the highest risk. Check that all spars are straight and are unscratched or get the damaged marked on your charter form. Where possible, the charter boat provider will assist you to straighten bent spars. Check all screws and rivets for tightness.

Some charter groups charge for cleaning especially if very sticky tape has been used on the mast joints etc.

If you damage a boat during the regatta it is often better value to have the boat repaired on site immediately by the charter provider. It will be cheaper to pay for the repair onsite and it means your full damage deposit is protected.

www.laserinternational.org