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# DLS News & Views

To help keep you better informed

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## REGULATORY requirements update

### MACHINERY - Safety Requirements for marketing in Europe

In the past, some machinery manufacturers were seemingly unaware that they needed to meet specific safety requirements for CE compliance, which is becoming apparent when they try to sell their products in Europe. Since machinery generally involves moving parts, which can cause injury to an operator, manufacturers must make a risk assessment and implement procedures to reduce the risks. The Machinery Directive, through specific standards, is used for this process. The following information is intended to keep you up-to-date with the latest documentation changes and programs essential for good machinery safety.

#### New EN 60204-1:2006 Machinery Standard

This document is the most common and important machinery safety standard because it contains the general requirements for the electrical equipment portion of all machinery. A significant new edition of this standard was published in June 2006 and is scheduled to become mandatory on June 1, 2009. The most significant changes are the addition of requirements to address technologies increasingly found in newer "hi tech" machines.



Machinery Testing

The latest standard now specifically references and allows such items as programmable electronic

systems, software and communication networks in the safety systems of machinery. While the previous standard did not prohibit the above, many felt that the use of these technologies were discouraged within the text of the old document. These changes in the new standard are significant because this important machinery document finally contains requirements that "encourage" the use of state-of-the-art safety systems.

The new standard should be used for safety evaluations. There are no grandfather clauses and any new machinery or equipment that is placed on the market as of June 1, 2009 will have to meet the new requirements.

#### Other Common European Standards Used for Machinery Evaluations

- EN 349 Safety of Machinery - Minimum Gaps to avoid crushing of parts of the human body
- EN 953 Safety of Machinery - Guards - General requirements for the design and construction of fixed and movable guards
- EN 982 Safety of Machinery - Hydraulics - Safety requirements for fluid power systems and their components
- EN 983 Safety of Machinery - Pneumatics - Safety requirements for fluid power systems and their components
- EN 1050 (EN ISO 14121-1) Safety of Machinery Principles for Risk Assessment. By itself, this standard does not provide presumption of conformity. However, it lists the general principles of risk assessment, including the following:
  1. Identify Risk of Injury in all Modes of Operation and Maintenance
  2. Assume Lower Risk for Qualified Service Personnel
  3. Mitigate Risks According to Risk Level

It also provides symbols, such as the one shown here, which warn of danger from moving parts and show what could happen to your hands.

(continued on page 2)



## MIL STD 810

Most testing requirements for the military require not only EMC related MIL STD 461 tests, but mechanical and environmental testing as well. MIL STD 810 details a number of testing requirements for Army, Navy, Air Force, Coast Guard, and NASA requirements. Below is a handy reference guide. Call D.L.S. today to see how we can help with your needs.

Method 500 - Low Pressure Altitude  
Method 501 - High Temperature  
Method 502 - Low Temperature  
Method 503 - Temperature Shock  
Method 507 - Humidity  
Method 509 - Salt Fog  
Method 511 - Explosive Atmosphere  
Method 512 - Immersion Testing  
Method 513 - Acceleration  
Method 514 - Vibration  
Method 516 - Shock  
Method 520 - Temperature, Humidity, Vibration and Altitude

## AEA Show

Be sure to visit us in Washington D.C. April 23-25 at the Aircraft Electronics Association Show - Booth 235.

## DLS Expands Early Design Evaluation (EDE) Program

D.L.S. expands their Early Design Evaluation program to include pre-production circuit board layout and design review. This design review entails the earliest possible review at the circuit board level, for both EMC and Product Safety compliance requirements. Don't wait until a final board design and layout to get an analysis by experienced senior level engineers. Eliminate surprises, and reduce your time to market. Call Jack Black at 847-537-6400 today for more information.

## regulatory requirements **UPDATE** (cont'd)

### Information Technology Equipment New Standard UL 60950-22

Manufacturers of outdoor ITE products, intended for the U.S. market, need to have their products evaluated to UL 60950-22 which covers potential additional hazards associated with the outdoors. This new UL Standard, which was published and became mandatory on April 23, 2007, is in addition to the basic UL 60950-1 requirements.



One area of the new standard relates to the environmental and electrical conditions found outdoors. The standard includes a section covering elevated ambient temperatures, increased exposure to transient overvoltages and the possible rise of earth potential.

Another portion of this standard includes construction requirements for the enclosures used for this outdoor equipment. Some of the enclosure properties evaluated are resistance to UV radiation, corrosion and fire. There are also additional requirements to evaluate whether these enclosures protect the internal equipment from moisture, plants, vermin (animals) and excessive dust.

An example of a typical product covered by this new standard is an outdoor antenna module mounted on a telecommunication pole.

D.L.S. can assist you with the compliance process for this new standard. Please contact us to learn more about how we can help you meet all your ITE compliance needs.

### Machinery (continued)

#### New Machinery Directive

On June 9, 2006, the European Union published a new version of the Machinery Directive. While it does not contain any radical changes, it does attempt to clarify some areas and improve how it is applied to different types of machinery.

One area of change is the clarification of the overlap between the Machinery and the Low Voltage Directives. The new directive identifies general electrical machinery categories and indicates whether the conformity assessment options are covered under the Low Voltage Directive or the Machinery Directive.

In addition, a new Annex has been added to clarify the minimum safety components that should be subjected to the Machinery Directive. The above clarifications will improve how the directive is applied and will make it easier for manufacturers to have their machines evaluated efficiently.

The provisions of this document will become mandatory on December 29, 2009. The new Directive, numbered 2006/42/EC, replaces the previous version (98/37/EC).

### Machinery Directive Compliance Program

Machinery safety can be an overwhelming and confusing process. Let D.L.S. ease your burden and help you through the CE process. We have knowledgeable and dependable staff that keep up to date with the latest directive and standard changes. They can also quickly and efficiently guide you to compliance with the EU Machinery Directive. Our program is designed as a cost-effective solution to quickly achieve compliance. Contact D.L.S. to learn more about this exciting opportunity.



Testing an Industrial Machine

# free EMC design **SOFTWARE**

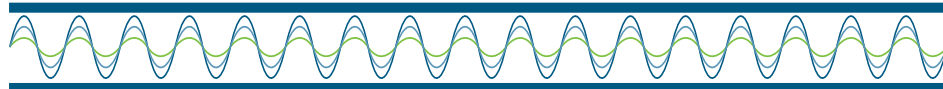
## Solve even the most complex EMC issues with free layout and design software

\*As part of the curriculum in Donald Sweeney and Roger Swanberg's EMC by Your Design Seminar/Workshop students will use, and then take home free-of-charge, a copy of



the proprietary EMC Layout and Design software program created by the instructors. This proven software package addresses design considerations from component level, through circuit boards, to enclosure level, including cabling and interconnects and enhances the theories presented both in the class and in the Mardiguian textbook. The four-day seminar/workshop is presented in a practical, hands-on style providing the step-by-step design process to avoid EMC problems. After the workshop attendees can put their acquired knowledge to immediate use in an optional, free, 45-minute design evaluation of their own product.

For more information click on  
[www.dlsemc.com/1001](http://www.dlsemc.com/1001)



## recently published **ARTICLES** you won't want to miss

To request any of the following articles,

go to [www.dlsemc.com/training/literature/literature.htm](http://www.dlsemc.com/training/literature/literature.htm) or call Carol at 847-537-6400

### ***Stricter on Safety - Tougher EMC requirements for Appliances***

by Mark Haynes and Steve Grimes, 2007

Amendment 1:2004 to the EN 60335-1 Safety Standard, which covers household and similar appliances, added EMC requirements. The severity of these new EMC requirements is much higher than previous levels.

### ***Update on China's CCC Compliance Program*** by Jack Black and Dr. Yaqing Lui, 2007

To sell goods in China, here is a compliance path that must be followed.

### ***Update on Lightning Effects*** by Jack Black, 2007

RTCA DO-160E and MIL STD 461 Revision E are reviewed and updated to address threats that arise from lightning strikes, surges, transients and unwanted electromagnetic phenomenon.

### ***Shielding Effectiveness of Gaskets, Composites and Shields***

by Jack Prawica and Jereme Irwin, 2007

Background of Shielding Effectiveness Standards and how they relate to the ever increasing demand for lighter, stronger, easy-to-manufacture and cost-effective shielding solutions.

### ***Estimating Emissions From Your PCB*** by Roger Swanberg, 2007

How to calculate the differential mode radiated emissions from a Printed Circuit Board (PCB) with sample calculations.

### ***Standards on Lightning Effects*** by Jack Black, 2007

A review of current and upcoming lightning effect requirements for aviation and military applications.

## EMC By Your Design

A new Approach to Learning  
EMC Design Techniques

An EMC Practical Applications  
Seminar/Workshop  
with take-home computer programs  
and 32 Professional Development Hours

April 3, 4, 7 and 8, 2008  
Hilton Hotel, Northbrook, IL



D.L.S. is offering a four-day seminar/workshop that applies EMC design fundamentals to real-life situations. It teaches how to design your product to pass compliance testing, thereby eliminating costly last-minute changes. Donald L. Sweeney and Roger Swanberg, with over 80 combined years of experience in the field of EMC, now bring these EMC design fundamentals to students through hands-on, practical application to real life products. Participants will receive a free copy of the proprietary computer program designed by the instructors to solve the most complex EMC issues. Participants may bring a product of their choice for a free 45-minute individual consultation (a \$500 value), during which they will have the opportunity to apply the concepts learned in the seminar.

To register call Carol at  
847-537-6400 or email at  
[cgorowski@dlsemc.com](mailto:cgorowski@dlsemc.com).  
For more information visit  
[www.dlsemc.com/1001](http://www.dlsemc.com/1001)

**\$300 discount**  
if you register  
by March 3rd

D.L.S. Electronic Systems, Inc  
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Wheeling, IL 60090  
847-537-6400 [www.dlsemc.com](http://www.dlsemc.com)

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**FREE  
EMC Design  
Software**

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For a PDF copy of this newsletter, go to [www.dlsemc.com/newsletter](http://www.dlsemc.com/newsletter)

## Fond farewell to our friend of 24 years

In the winter of 1985, Don and I founds based below zero temperatures as they erected our 500 x 1 fiberglass building in Genoa City, WI. And now, 24 years later, we bid it farewell as the wrecking ball makes room for the new building that will house our 3-meter semi-anechoic chamber.



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## EXPANDING EMC capabilities



Genoa City site expands to over 15,000 square feet.

D.L.S. has broken ground on its newest expansion at their Genoa City, WI testing site. The addition of a new semi-anechoic chamber will provide shorter turn around times and expand testing capabilities. This expansion addresses the increased needs in the international transmitter/receiver marketplace compliance testing area, and will be used for testing WI-FI, WI-MAX, Zigbee, BlueTooth, Cellular, ETSI, and other emerging wireless technologies, along with FCC, CE, EN, CISPR, IEC, CCC, VCCI, BSMI, ANZ, and other global requirements for both emissions and immunity testing. Check our progress at [www.dlsemc.com/1011](http://www.dlsemc.com/1011)