

SPEC-HARDENED SYSTEMS

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Essential Elements of a cost Effective Product Regulatory Compliance Testing Program

For the most part, a complex electronic and electrical product's EMI emissions and immunity characteristics must be determined by testing. This is due to the multitude of variables, complexities, and uncertainties that make an EMC analysis a very difficult task. Therefore, it is essential for a product manufacturer to put in place an effective EMC and Product Safety testing program. If this done the regulatory compliance costs and schedule delays for their products can be reduced.

The top-level document that is a key element in a product's compliance testing program is the Program Testing Plan. This plan should contain the following elements.

- (1) A description of each product that is to be tested.
- (2) The type of tests that are to be performed both EMC and Product Safety.
- (3) A testing schedule and a description of the unit's testing that is to be conducted (breadboard, developmental, pre compliance, compliance, and field modification).
- (4) Identification of the testing facility at which the testing is to be performed.
- (5) A listing of all product specific testing plans. These plans should include the pass/fail criterion that is to be applied.
- (6) The company's EMC/Product Safety regulatory compliance functional organizational structure chart. This element is essential for tracking the testing program's progress and to keep things moving smoothly.

Another key consideration in the execution of the testing program is the selection of a qualified contracted testing facility. This applies to small and medium size companies that do not have an in-house dedicated testing facility. It is recommended that a manufacturer solicit several bids from at least three testing organizations that are to be evaluated. In the bid selection process a manufacturer should consider such factors as logistics, cost, facility accreditation status, and the organization's technical reputation. Also, in the evaluation of a prospective test laboratory one should determine whether the facility has the ability to conduct all of the tests required for your product's regulatory compliance. It may be to the manufacturer's advantage to select a test facility that has the capability to conduct all of the required EMC and Product Safety tests needed for certification.

The testing laboratory's accreditation status is an important factor to be considered in your need to receive valid test data that is easily accepted by market compliance authorities. In the United States, both the American Association for Laboratory Accreditation (A2LA) and the National Voluntary Laboratory Accreditation Program (NVLAP) offer recognized accreditation programs in the area of electromagnetic (EMC) testing. Accreditation bodies around the world will assess EMC testing labs to the requirements of ISO/IEC 17025 – General Requirements for the Competence Testing and Calibration Laboratories. This standard has been adopted worldwide as the essential laboratory quality standard. It has superseded both ISO/IEC Guide 25 and European Norm 45001. The International Laboratory Accreditation Cooperation (ILAC) has set a two year transition period that ended May 12, 2007 for accredited laboratories to comply with the standard's requirements. All quality EMC testing labs will be accredited to the latest issue of ISO/IEC 17025.

An EMC and Product Safety lab that is accredited to perform the full scope of tests, has taken the time and effort to provide a suitable environment for performing quality testing that should be accepted nationally and internationally with a minimum of difficulty. You will be a step ahead of your competition by using the quality testing available at an accredited EMC and Product Safety testing lab. Since doing so should allow you to distribute your products smoothly around the world with no concern about its EMC and Product Safety compliance acceptability.

An EMC and Product Safety regulatory compliance testing effort should be an essential part of a product's design development effort, from the product's design concept stage through to the product's end of life. Frequent product development testing is recommended, performing pre-compliance and compliance testing should follow this testing. If this is done the product's costs can be greatly reduced and time-to-market schedules maintained. EMC and Product testing can become a critical path in launching your product.

NEWS BRIEFS:

(1) Current Status of Global Product Environmental Regulatory Requirements

The RoHS initiative is spreading rapidly around the world from the European Union (EU) and the State of California to Korea and the People's Republic of China (PRC). Currently in place are the RoHS regulations in Australia, the State of California (Prop 65), the PRC, the EU, Japan, and Korea. With RoHS regulation spreading like wild fire, manufacturers like you are facing "Regulation Overload". Avoiding the issue or simply saying my suppliers have this responsibility may not be the best course of action. The EU is taking the lead in implementing environmental regulatory protection compliance standards. The EU member states has adopted the following environmental protection compliance standards or they are being implementing them on a guidance basis.

- RoHS (Restriction of Certain Hazardous Substances) 2002/95/EC with Amendments, effective 1 July 2006
- WEEE (Waste Electrical and Electronic Equipment) 2002/96/EC effective January 1 2006
- EuP (Eco-Design on Energy-using products) Voluntary effective 1 August 2007
- ELV (End-of-Life Vehicle) Directive 2000/53/EC, adopted September 18, 2000
- REACH (Registration Evaluation and Authorization Registration of Chemicals) effective June 1, 2007

There is a strong trend worldwide in the development of environmental protection standards aimed at preserving the earth's population's health and welfare and its natural resources. This is aimed at countering the impact of the ever-increasing economic development that is occurring globally.

(2) European Union's Proposed Framework for Accreditation and Market Surveillance

It has been nearly fifty years since the formulation of the European Union (EU). The EU commission has released a sweeping proposal that it says will address differing practices in the accreditation of products and unequal treatment in cases of non-compliance products.

The proposal sets out the requirements for accreditation and market surveillance related to marketing products. This proposal was released in mid-February of 2007. It covers various policy options directed at strengthening protection of the movement of goods throughout the EU. The commission's proposal offers a "Common Framework" for the existing infrastructure's for accreditation for control of conformity assessment bodies and market surveillance for the control of products and economic operators. The commission's proposal states that it will aid in both the revision of the existing product-related EU-wide harmonization legislation and the development of future legislation.

Spec-Hardened Systems is available to assist your company in meeting its EMC and Product Safety, Design Reviews, Training, and Regulatory Compliance requirements. It specializes in EMC design reviews of High Speed Digital Circuits.

Spec-Hardened Systems is a leader in providing cost effective EMC and Product Safety consulting services. Quotes will be provided upon request. Turnkey certification management and pre-compliance evaluation services are available. Take advantage of Spec-Hardened System's **FREE CONSULTANTATION SERVICES**

TOPIC NEXT ISSUE:

“ Reducing the cost of Product Designs that must meet Global Product Regulatory Compliance Requirements”