Why Midwest EMI Associates is

Your Key to the CE Mark℠

Midwest EMI Associates

It takes more than just

knowledge of the standards.

CE Marking a product requires an in-depth understanding of the applicable standards, as well as familiarity with the CE Marking process and experience working with the notified bodies responsible for issuing the mark.

Midwest EMI Associates helps guide your product through the certification process, which requires that a series of difficult tests be completed successfully.

Earning the CE Mark is a testament to your company's principles of hard work, quality, dependability and pride in your products. The CE Mark signifies that your product meets demanding standards and helps establish the product in the global marketplace. Midwest EMI Associates aspires to be Your Key to the CE Mark.℠

Qualifying an electrical/electronic product for the CE Mark requires extensive and complex testing to ensure compliance with the applicable international IEC standards.

Identifying the standards applicable to a new product, and determining the required testing correlated to each standard, requires the skills of experienced compliance engineers.

After the testing requirements are defined, conducting the tests requires precision equipment operated by skilled test engineers.

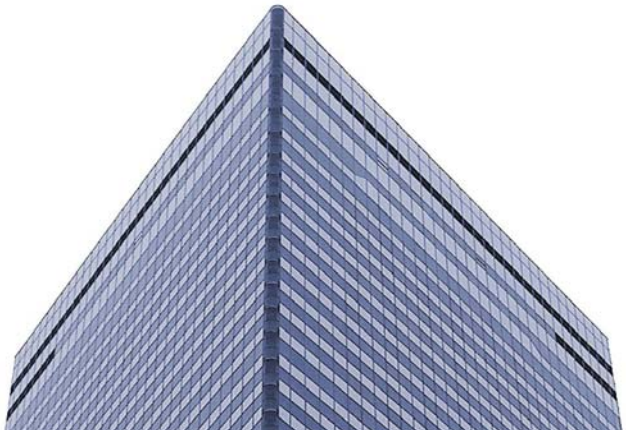
If any tests fail, analysis and resolution of performance issues identified during testing is an exacting process requiring a design engineer with extensive practical experience.

Midwest EMI Associates prepares a detailed test report for each client. Design change recommendations are also usually included. After product design issues have been resolved, the product is retested.

After the product passes the required tests, Midwest EMI writes the CE Mark technical report that demands rigorous processing requiring tenacity and exacting attention to detail.

Our relationship with notified body Nemko allows Midwest EMI Associates to provide an integrated, coherent approach to the entire CE Marking process.

Midwest EMI Associates offers a simple, elegant solution for companies looking to obtain the CE Mark for their product. Contact us today to learn more.



 www.midemi.com (847)-918-9886

How Midwest EMI Associates can help improve product design and performance through

EMI/ESD Testing

Midwest EMI Associates

Our testing expertise helps achieve

compliance with applicable standards.

Determining applicable standards and creating a test plan to efficiently conduct the required testing is our specialty.

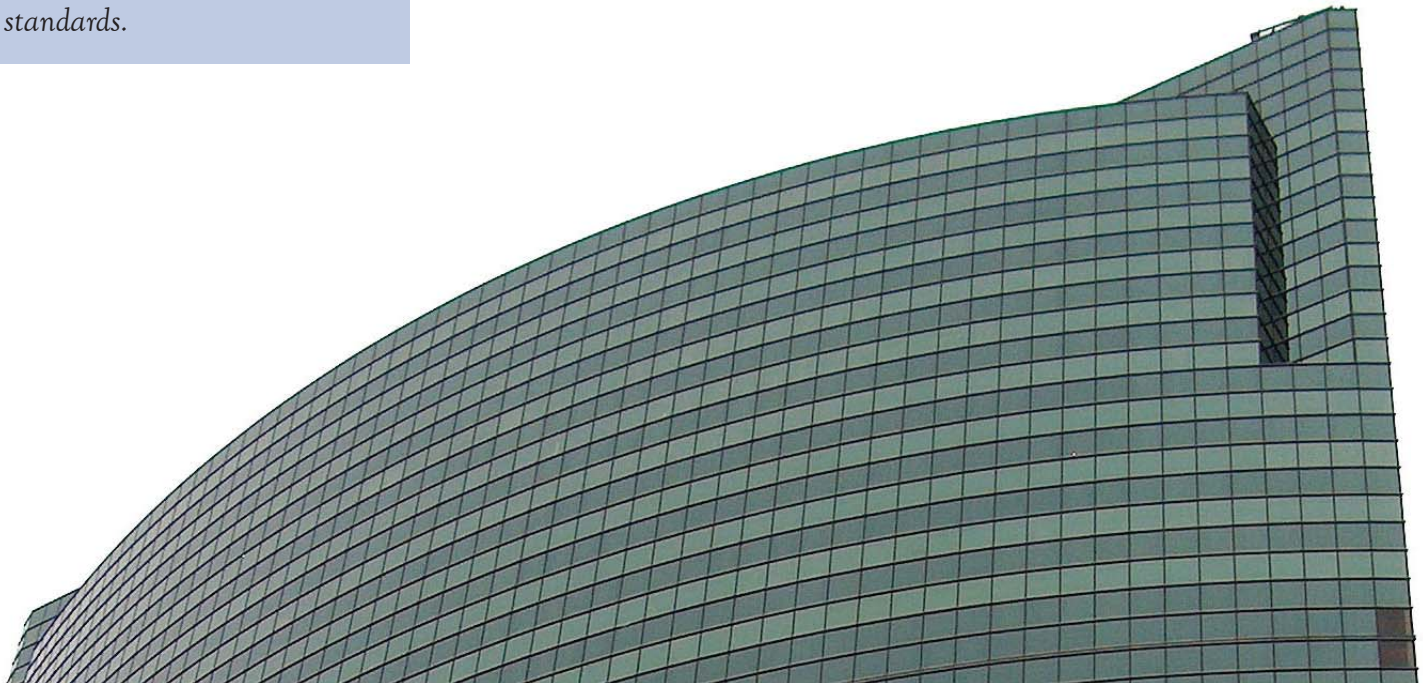
Our core business is EMI/ESD testing. We have state of the art equipment and test facilities, and the knowledge to efficiently test our clients' products for compliance with applicable standards.

Midwest EMI Associates offers design consultation services to help our clients:

We work with our clients to help them achieve compliance to IEC standards by efficiently modifying their product design where necessary. We also offer product safety design recommendations.

Circuit analysis and resolution of performance issues relating to standards compliance requires a design engineer with extensive practical experience. Our senior engineer has extensive experience with medical product design in addition to expertise in the areas of ESD, EMI, and IEC standards compliance.

Midwest EMI Associates' conveniently located testing facility is industry-standard. Contact us today to learn more.



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How Midwest EMI Associates can help improve product design and performance through

Consulting Services

Midwest EMI Associates

Circuit design analysis requires

specialized experience.

Analyzing product design to achieve conformity to recognized standards requires specialized expertise.

Midwest EMI Associates offers design engineering consulting. Our senior electrical engineer has over 30 years of experience in circuit design, with emphasis on reducing radiated electromagnetic interference (EMI) as well as product susceptibility to environmental EMI.

Midwest EMI Associates offers design consultation services to help our clients:

- ☑ protect their products from susceptibility to electromagnetic interference
- ☑ protect their products from susceptibility to electrostatic discharge damage
- ☑ prevent their products from radiating electromagnetic interference that may exceed acceptable levels.

We work with our clients to help them achieve compliance to IEC standards by efficiently modifying their product design where necessary. We also offer product safety design recommendations.

Circuit analysis and resolution of performance issues relating to standards compliance requires a design engineer with extensive practical experience. Our senior engineer has extensive medical product design experience in addition to expertise in the areas of ESD, EMI, and IEC standards compliance.

Midwest EMI Associates offers design consulting services intended to help companies meet or exceed global product standards. Contact us today to learn more.

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Midwest EMI Associates offers consulting services in

Safety Engineering

Midwest EMI Associates

We can help make products

as safe as possible.

Ensuring product safety before products reach the marketplace is of the utmost importance.

Midwest EMI Associates offers hazard analysis and safety engineering services to our customers, thus providing the full complement of compliance engineering services.

Midwest EMI Associates offers a full range of safety engineering consultation services. Our safety engineering staff is skilled in writing and performing hazard analyses, failure mode and effect analyses (FMEA), and medical device risk management activities.

We can help identify and correct potential product safety risks during product development, saving time and cost by analyzing and minimizing safety risks before a product goes into production.

Our consulting services offer an efficient way for our clients small or large to utilize the services of a safety engineer on an as-needed basis, allowing in-house staff to stay focused on their primary roles and responsibilities.

Our senior safety engineer has extensive experience with risk identification and mitigation. In many cases, the safety design analysis can be performed concurrently with the electrical design analysis, saving time and reducing the number of design iterations needed.

Midwest EMI Associates' hazard analysis and safety engineering consulting services are a cost-effective way to help minimize risk potential. Contact us today to learn more.

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About Midwest EMI Associates

Midwest EMI Associates was founded in 1990 to serve the compliance testing needs of small and medium-sized businesses in the Chicago area. Since then, we've expanded our facilities twice and have served hundreds of customers nationwide. Our suburban Chicago testing facility has state-of-the-art equipment and sufficient space to perform the most rigorous EMI/ESD testing, and employs three test engineers. Midwest EMI's customers find it convenient to have a test facility close by, with personalized service. The business recently expanded into the field of general safety testing, through its recognized status by NEMKO. The relationship with NEMKO also allows us to help our customers achieve CE-Mark certification and market their products in Europe. Midwest EMI also performs design consulting services, and our staff is often called upon for expert witness testimony in legal proceedings because of our expertise in medical device testing and failure analysis.

Services Offered

- **EMI and ESD testing** Our chief engineer is NARTE-certified and our laboratory has the most advanced test equipment commercially available. In a matter of a few hours, your device can be completely characterized. We provide a detailed test report on our findings

- **Engineering consulting services** to correct deficiencies discovered during testing. We can help you with electrical design engineering as well as safety engineering.

- **Medical Equipment Consulting** Medical devices are highly regulated and typically have lengthy product development cycles, so it is advantageous to harden medical electronic designs against EMI early in development to design in safety and compliance. Our staff are experts in hazards analysis, failure mode and effects analysis (FMEA), design reliability, shielding, and obtaining regulatory approval.

- **RF Design Consulting** The potential for RF interference increases with circuit complexity. Unwanted interference can be minimized through the use of EMI testing, resulting in optimum circuit performance. Our laboratory has four high performance, computer-controlled spectrum analyzers, a tracking generator, a wide band signal generator, and a variety of antennas and other equipment, all of which are calibrated to demanding NIST and ANSI standards. We can also write software to coordinate the test equipment for specific tests and have extensive experience in RF and microwave design methods.

- **Assistance in obtaining CE Mark Certification** We are accredited by notified body NEMKO, so we can assist you in determining applicable test requirements and in ensuring that your products meet the stringent testing requirements of the European marketplace.

- **Component and Audio Testing.** If you need to test components or want to optimize components used in EMI investigations, we have test instruments to measure them and to perform automated sweep analysis. We also have a precision sound meter to measure the audio content of mechanized assemblies and can assist in reducing objectionable noise. We also have equipment to perform real time Fourier analysis of complex waveforms that may be captured by transducers for display on an oscilloscope.

BBB MEMBER CHICAGO & NORTHERN ILLINOIS

ACIL American Council of Independent Laboratories

NEMKO Accredited

How to Find Us

Midwest EMI Associates is conveniently located in the northern Chicago suburbs, near the intersection of Gilmer and Midlothian Roads in Mundelein, Illinois.

Midwest EMI Associates
21234 Commercial Drive, Unit F
Mundelein, IL 60060

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Fax 847-918-9719

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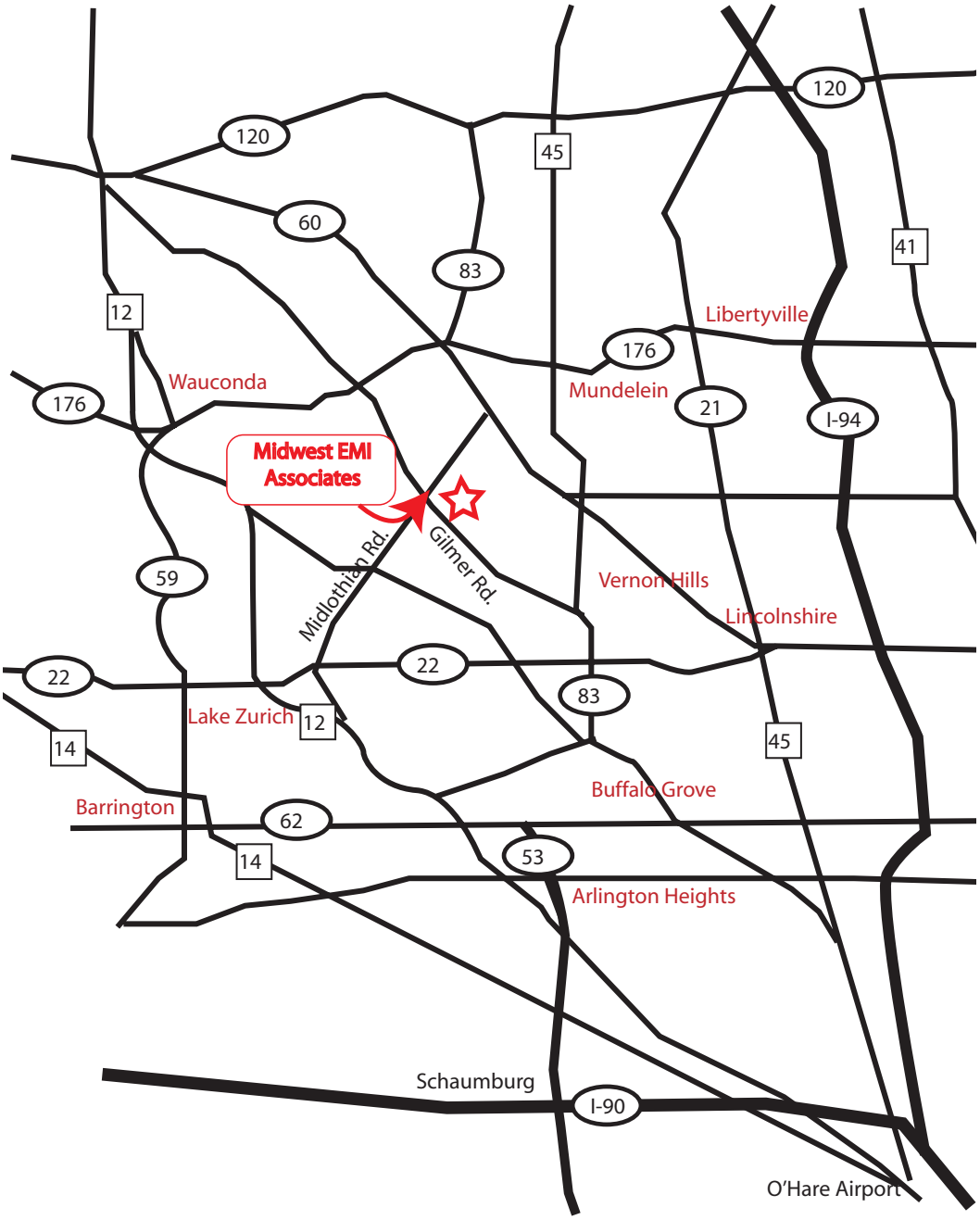

Important changes are taking place in the EMC Directive for manufacturers of medical and commercial equipment. Directive 89/336/EEC has been repealed and a new law has been put in place as of July 20, 2007: 2004/108/EEC. A transitional period will exist for manufacturers between the old and new law until July 20, 2009. This does not leave much time to incorporate the changes in the law into your documentation system.

Major Changes in 2004/108/EEC

- The CE report and engineering test reports are now required to be retained for 10 years following the last cessation of production. "Gold" units are recommended to be retained for 10 years following the last cessation of production.
- All EMC laws are to be harmonized in member states and no discrimination on levels of acceptance are to be tolerated. If one member state accepts EMI data, all states must also accept it with a "view to ensuring the functioning of the internal market, that is a market ... without borders in which free movement of goods, persons and capital is assured".
- Equipment not covered by this directive includes radio equipment and telecommunication terminal equipment, aircraft equipment or those to be fitted in aircraft, a new category of equipment called BENIGN, and safety of equipment.
  The new "Benign" category refers to equipment that inherently presents no emissions threat or it is not subject to immunity testing. For example, an electric fan controlled by a switch does not have a mechanism for failing immunity, therefore, immunity testing may be waived as "Benign." However, the fan may be subject to emissions tests because it may contain brushes to its commutator. A semiconductor-controlled variable speed fan cannot be categorized as Benign because the semiconductors may fail immunity testing.
  "This directive shall not apply to equipment... that is incapable of generating or contributing to EMI emissions which exceed a level allowing radio and telecom equipment to operate as intended... and... will operate in the presence of the EMI disturbance normally consequent on its intended use".
- The new directive refers only to equipment that is "commercially available for the first time". Replacement parts or "spares" are not covered. Existing product already on the market does not have to be retested.
- Manufacturers of equipment designed to be connected to networks should construct such equipment so that the network is not damaged or "degraded".
- A "conformity assessment obligation should require the manufacturer to perform an electromagnetic compatibility assessment of apparatus, to determine whether or not it meets the protection requirements under this Directive". This means that "I did not know" is no excuse.
- "Where apparatus is capable of taking different configurations, the EMI assessment should confirm whether the apparatus meets the protection requirements in the configurations foreseeable by the manufacturer as representative of normal use in the intended applications; in such cases it should be sufficient to perform an assessment on the basis of the configuration most likely to cause maximum disturbance and the configuration most susceptible to disturbance. Editor note: The two conditions are not likely to be the same configuration!
- Fixed installations need not be subject of the affixation of the CE Marking. The acceptance criteria for fixed installations may not be the same as those for portable equipment.
- Test report requirements have changed. Ask your Midwest EMI representative for detailed information.
- "The manufacturer shall provide information on any specific precautions that must be taken when the apparatus is assembled, installed, maintained or used, in order to ensure that, when put into service, the apparatus is in conformity with the protection requirements set out in Annex I, point 1." **This means installation/operating instructions must guarantee EMI protection is preserved.** For example, if a door on a piece of equipment must be grounded or "latched" in a certain way to meet EMI, that information must appear in the operator's manual.
- "Apparatus for which compliance with the protection requirement is not ensured in residential areas shall be accompanied by a clear indication of this restriction of use, where appropriate also on the packaging".
  Note: If the device is deemed to meet Class A emissions rather than Class B, the manufacturer must specifically state in the operator's manual, installation manual or on the packaging that the device is not meant for use in a residential environment. **This is a very significant and far-reaching change that encourages manufacturers to meet Class B!** Other marks of information are also required as shown in Article 9.

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About Electrostatic Discharge

Introduction

Electrostatic Discharge (ESD) interference is a specialized type of ambient interference that results from the extremely rapid equalization of charges between conductive surfaces. One common type of ESD is static generated by friction between two insulating materials. Humans experience ESD as a brief electric shock. Electronic parts straddling charged and uncharged plastic surfaces experience ESD as a current flow that can be large enough to cause damage or destruction.

ESD produces heat, light, sound, and electromagnetic radiation throughout the entire spectrum. A simple ESD spark can set fires, fog film, shock personnel and ignite explosives. The failure of only one semiconductor junction in an electronic device can render the device useless. Worse, ESD can cause latent failures, resulting in field failures during use. The effects of ESD are cumulative, and progressive degradation that is not readily apparent can occur over time.

As the operating current requirements of semiconductor devices decreases, their susceptibility to ESD damage increases. Conductive chairs, floors, garments, workstations, protective packaging, and ionizing systems all work to help ensure that conductors have the same charge level when they meet. This is the essence of ESD prevention.

The current waveform resulting from an ESD discharge is normally depicted as a rapidly rising 5 nS pulse with an exponentially falling tail whose half current point is 30 nS. The most recent and respected ESD testing standard is EN61000-4-2, in which the ESD probe resembles a human finger and is imparted a potential of up to 25,000 volts. The waveshape is very carefully controlled during testing to simulate this event.

Dielectric Breakdown Phenomena of ESD

Dielectric breakdown occurs in insulators when an induced electric field exceeds the electric field between nuclei and the electron which bond the nuclei together. In conductors not all of an atom's electrons are needed to create a chemical bond. The "leftover" electrons are free to move under the influence of an external electric field without damaging the bonds. In an insulator, however, all the electrons of each atom are necessary to form the bonds that hold the material together. Consequently, when an induced internal field "wins the tug of war" over the nuclei for the bonding electrons, some electrons break loose from their atoms. These initially freed electrons create an internal current, causing an avalanche effect as they move through the insulator. The material, in effect, "falls apart" in the region of the insulator where the breakdown occurs, often creating a channel through the insulator.

If a charged conductor contacts a MOSFET device's lead, the conductor's charge will transfer to the conductive areas of the chip, creating very high localized electric fields because of the small capacitance (1 pF or less) of these internal areas. After breakdown is initiated the conductor's charge will add to the induced internal current, thereby causing substantial heating of the conducting path. Often there is sufficient heat to melt some of the metallization and spew it along the surface of the breakdown channel, causing what is referred to as a "gate short" of the semiconductor substrate in a MOSFET.

ESD Prevention

ESD problems are prevented by insulating devices or by providing extremely low impedance paths for conduction of the current back to the source. Current typically flows through the power mains because they are at earth potential.

Insulation is one very effective way of dealing with ESD. In this method, the device employs a high dielectric insulator such as mylar which makes it difficult for the ESD event to occur. Usually the ESD pulse will find a random way to travel across the insulator to some grounded surface. A disadvantage to using insulation is that the surface itself may become charged if its resistivity is too high. The ESD pulse will always seek an air path to return to the source if insulation is used and a key ingredient of protection is removing that path to avoid direct discharge.

Conduction is an equally effective way of dealing with ESD. Lowering the RF impedance of the case material generally improves ESD performance. Providing a Faraday shield structure (a continuous shield around the device) is another effective method for preventing ESD. Low impedance rubber or plastic impregnated with carbon filler may also prove effective because the pulse may be absorbed and turned into heat energy.

How Midwest EMI Associates can help

Our laboratory has all of the specialized test equipment needed to measure ESD susceptibility and assess the effectiveness of the product design in shielding the device from ESD events. When testing is complete, we identify the point of failure, if any, and then help our customers correct susceptibilities in the product design. We work with the customer until the ESD problems are resolved and all required testing passes.

MEDICAL DEVICE AND LABORATORY EQUIPMENT MANUFACTURERS:

As a medical device or laboratory equipment manufacturer, you have the need for Electromagnetic Interference (EMI) and Electrostatic Discharge (ESD) testing to achieve overall Electromagnetic Compatibility (EMC) and FDA compliance. It's not economical to staff and maintain a full-time testing lab, so how do you test your products for FDA compliance? We suggest you employ the services of Midwest EMI Associates, a testing laboratory whose primary focus is EMI/ESD/ISO testing for the medical and laboratory equipment industry.

For over 20 years, the experienced staff at Midwest EMI Associates has succeeded by helping our clients find the most cost-effective approach to meeting compliance requirements. All testing is performed and reviewed by degreed engineers qualified to interpret data, resolve problems, and recommend design improvements.

Some of the tests we can perform are:

- **FDA IEC 60601-1-2 Medical Device Directive (MDD) & IEC 61326 (Lab Instruments)**
- **CE MARK (All Portions) – Conducted and Radiated Emissions, Conducted and Radiated Immunity, Electrostatic Discharge, Surge, EFT, Harmonics, Flicker, Voltage Fluctuations, Magnetic and Electric Field tests, Transients Emissions**
- **FCC Part 15, Both Indoor and Open Field (OATS) testing**
- **Underwriter's Safety Tests – Leakage, Hipot, Grounding Impedance**
- **Military Standard 461E – Most portions**
- **Airborne DO-160E testing – Most portions**
- **Power Quality Testing using California Instruments 5001ix, California Instruments 4500IL, ISO 7637-2 Road Vehicles:2004(E)**

As testing costs continue to skyrocket, manufacturers are now facing a squeeze in the design phase to meet budget constraints. Midwest EMI fills a need as a *matured and successful* lab authorized under Nemko's ELA program which qualifies our laboratory to the same ISO 17025 requirements as our competitors, but without the baggage of bloated costs. We also are a member of the American Council of Independent Laboratories (ACIL), National Association of Radio and Telecommunications Engineers (NARTE) and the Better Business Bureau (BBB). We have a half-million dollar equipment base to service your needs quickly and responsibly. Our test reports are easy to interpret and can be supplied in various formats such as softbound, pdf or CD.

To obtain a firm quote for your EMI/ESD/EMC/ISO and product safety testing requirements contact George or Toni at the following address or telephone/fax:

Midwest EMI Associates
21234 W. Commercial Drive-Unit F
Mundelein, IL 60060

Phone: (847) 918-9886

Internet: www.midemi.com

Midwest EMI Associates is "Your Key to the CE Mark SM"

Nemko Laboratory Authorisation

Aut. No.: ELA 175

EMC Laboratory: **Midwest EMI Associates**
21234 W. Commercial Drive, Unit F
Mundelein, IL 60060 USA

Scope of Authorization: **All standards for EMC and radio transmission that are listed on the accompanying page.**

Nemko has assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA -10. During the visit by the Nemko representative it was found that the Laboratory is capable of performing tests within the Scope of the Authorisation.

Accordingly, Nemko will normally accept test results from the laboratory on a partial or complete basis, with rights of review as stated in NLA-10, for certification of the products.

In order to maintain the Authorisation, the information given in the pertinent NLA-10 must be carefully followed. Nemko is to be promptly notified about any changes in the situation at the Laboratory, which may affect the basis for this Authorisation. The Authorisation may be withdrawn at any time if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 30 Nov 2013.

Dallas, Texas 02 Nov 2011

For Nemko AS:

TB Ketterling

TB Ketterling, Nemko EMC Coordinator

SCOPE OF AUTHORIZATION

BASIC TESTS AND ASSOCIATED STANDARDS

Capability to perform a basic test implies also that any product (family) standard calling up this basic test is also within the scope if mentioned below or not.

Disturbance emissions		
Electromagnetic radiation disturbance, 9 kHz to 30 MHz, re.: EN 55011 (CISPR 11), EN 60945 (IEC 60945)	***Electromagnetic radiation disturbance, 30 to 1000 MHz, re.:*** EN 55011 (CISPR 11), EN 55013 (CISPR 13), EN 55022 (CISPR 22),	***Electromagnetic radiation disturbance, above 1 GHz, re.:*** EN 55011 (CISPR 11), EN 55022 (CISPR 22)
Electromagnetic radiation disturbance, 9 kHz to 30 MHz, "Van Veen loop", re: EN 55015 (CISPR 15)	***Electromagnetic radiation disturbance, 50 Hz to 50 kHz, re:*** EN 55103-1	***Conducted common-mode disturbance power, 30-1000 MHz, re.:*** EN 55013 (CISPR 13) EN 55014-1 (CISPR 14-1)
Mains terminal disturbance voltage, re.: EN 55011 (CISPR 11), EN 55013 (CISPR 13), EN 55014-1 (CISPR 14-1), EN 55015 (CISPR 15), EN 55022 (CISPR 22), EN 60945 (IEC 60945),	***Conducted terminal disturbance, Hi-Z probe, re:*** EN 55011 (CISPR 11) EN 55014-1 (CISPR 14-1)	***Conducted discontinuous disturbance on power port, re.:*** EN 55014-1 (CISPR 14-1), section 4.2
Conducted common-mode disturbance at telecom/network ports, re.: EN 55022 (CISPR 22)	***Conducted antenna terminal disturbance, re:*** EN 55013 (CISPR 13)	***Luminaire insertion loss, re:*** EN 55015 (CISPR 15)
Mains inrush current, re: EN 55103-1	***Harmonic current emissions, re.:*** EN 61000-3-2 (IEC 61000-3-2)	***Voltage fluctuations and flicker in low-voltage supply systems, re.:*** EN 61000-3-3 (IEC 61000-3-3), EN 61000-3-11 (IEC 61000-3-11)
Immunity		
Electrostatic discharge immunity test, Re.: EN 61000-4-2 (IEC 61000-4-2)	***Radiated, radio-frequency, electromagnetic field immunity test, re.:*** EN 61000-4-3 (IEC 61000-4-3) ENV 50140:1993, ENV 50204:1995	***Power frequency magnetic field Immunity test, re.:*** EN 61000-4-8 (IEC 61000-4-8)
Radiated audio-frequency H-field, re: EN 55103-2	***Radiated E-field, 150 kHz to 150 MHz, re:*** EN 55020 (CISPR 20)	***Electrical fast transient/burst immunity test, re.:*** EN 61000-4-4 (IEC 61000-4-4)
Surge immunity test, re.: EN 61000-4-5 (IEC 61000-4-5) ENV 50142:1994	***Immunity to conducted disturbances, induced by radio-frequency fields, re.:*** EN 61000-4-6 (IEC 61000-4-6) ENV 50141:1993	***Immunity to voltage dips, short interruptions and voltage variation, re.:*** EN 61000-4-11 (IEC 61000-4-11)
Conducted antenna terminal, re: EN 55020 (CISPR 20)	***Conducted audio/video ports, re:*** EN 55020 (CISPR 20)	BLANK

SCOPE OF AUTHORIZATION

PRODUCT-FAMILY STANDARDS

Unless specifically noted, only the sections of the standards below which are covered by the capability listing above are assumed covered by this authorisation. When the capability is expanded, more parts of the product standards will be covered.

ISM equipment, emission EN 55011:1998 + A1 :99 (doc=exp) + A2:2002 (doc=1.10.05) *CISPR 11:97 + A1 :99 + A2 :02*	***ITE - emission*** EN 55022:1998 + A1:2000 (doc=1.8.03) + A2:2002 (doc=not harmonized yet) CISPR 22:1997 + A1:2000 + A2:2002 EN 55022:1994 + A1:1995 + A2:1997 (doc=exp) CISPR 22:1993 + A1:1995 + A2:1996	***ITE – immunity*** EN 55024:1998 (doc=exp) + A1 :2001 (doc=1.10.04) + A2 :2002 (doc=not harmonised yet) CISPR 24:1997 + A1 :2001 + A2 :2002
Professional AV – emission EN 55103-1:1996 (doc=exp)	***Professional AV - immunity*** EN 55103-2:1996 (doc=exp)	***General requirements for safety – Collateral standard: EMC*** EN 60601-1-2: 2004 IEC 60601-1-2: 2004
Harmonics EN 61000-3-2 :2000 (doc=1.1.04) IEC 61000-3-2 :2000 (mod) + A1 :2001 EN 61000-3-2:1995 + A1:1998 + A2:1998 (doc=exp) + A14 :2000 (doc=1.1.04) IEC 61000-3-2:1995 + A1:1997 + A2:1998	***Flicker*** EN 61000-3-3 :1995 (doc=exp) + A1 :2001 (doc=1.5.04) IEC 61000-3-3 :1994 + A1 :2001 EN 61000-3-11 :00 (doc=1.11.03) IEC 61000-3-11 :00	***Generic immunity - light*** EN 61000-6-1:2001 (doc=1.7.04) IEC 61000-6-1:1997 (mod) EN 50082-1 :1997 (doc=exp)
Generic immunity – Industrial EN 61000-6-2:2001 (doc=1.7.04) IEC 61000-6-2:1999 (mod) EN 61000-6-2:1999 (doc=exp) IEC 61000-6-2:1999	***Generic emission – light*** EN 61000-6-3 :2001 (doc=1.7.04) IEC 61000-6-3 :1996 (mod) EN 50081-1:1992 (doc=exp)	***Generic emission - industry*** EN 61000-6-4 :2001 (doc=1.7.04) IEC 61000-6-4:1997 (mod) EN 50081-2:1993 (doc=exp)
SRD 25 – 1000 MHz, Art. 3.2 EN 300 220-1:2000 EN 300 220-2:2000 EN 300 220-3 :2000 (doc=exp)	***Generic Art. 3.1.b*** EN 300 339 :1998 (doc=exp)	***Telecom network equipment*** *EN 300 386-2 V.1.1.3 (doc=exp)* *EN 300 386 V.1.2.1 (doc=31.12.04)* *EN 300 386 V.1.3.1 (doc=31.12.04)*
SRD 1 GHz – 40 GHz. Art 3.2 EN 300 440-02 V.1.1.1 (doc=exp) EN 300 440-01 V.1.1.1 EN 300 440-01 V.1.3.1 (2001)	***SRD 9 GHz – 40 GHz. Art 3.1.b*** EN 301 489-03 V.1.3.1 (2001) (doc=31.08.03) EN 301 489-03 V.1.2.1 (2000) (doc=31.10.03) EN 301 489-03 V.1.4.1 (2002) (not harmonised) EN 301 489-01:2000 V.1.2.1 (doc=exp) EN 301 489-01:2001 V.1.3.1 (doc=30.06.03) EN 301 489-01:2002 V.1.4.1 (doc=30.11.05) ETS 300 683 :1997(doc=exp)	***Wideband & Hiperlan. Art 3.1.b*** EN 301 489-17 V.1.1.1 (2000) (doc=exp) EN 301 489-17 V.1.2.1 (2002) (not harmonised) EN 301 489-01:2000 V.1.2.1 (doc=exp) EN 301 489-01:2001 V.1.3.1 (doc=30.06.03) EN 301 489-01:2002 V.1.4.1 (doc=30.11.05)